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4.6 GEOLOGY, SOILS AND MINERAL RESOURCES

Would the project:		Potentially Significant Impact	Potentially Significant Unless APMs Incorporated	Less than Significant Impact	No Impact
a.	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i.	Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☑
ii.	Strong seismic ground shaking?	☐	☐	☑	☐
iii.	Seismic-related ground failure, including liquefaction?	☐	☐	☑	☐
iv.	Landslides?	☐	☐	☑	☐
b.	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑	☐
c.	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☑	☐
d.	Be located on expansive soil, as defined by article 1803.5 of the California Building Code, creating substantial risks to life or property?	☐	☐	☑	☐
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☑
f.	Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state?	☐	☐	☐	☑
g.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☑

4.6.1 Introduction

This section of the PEA describes existing geologic, soil, and mineral resources within the Proposed Project area and potential impacts related to these resources that could result from construction, operation, and maintenance of the Proposed Project.

Proposed Project construction activities would comply with all relevant federal, state, and local regulatory requirements. With implementation of project design features, construction, operation, and maintenance of the Proposed Project are expected to have less than significant impacts related to geologic, soil, and mineral resources.

4.6.2 Methodology

Preparation of this section was primarily based on review of geologic literature and unpublished documents that cover the Proposed Project area. These included publications from the USGS, the California Department of Conservation, San Diego County, and a geotechnical study prepared for the Proposed Project. Maps and aerial photographs were also reviewed. The Proposed Project description was reviewed and potential for impacts related to geologic resources and hazards was evaluated based on the existing geologic and soil conditions as determined by the data review.

4.6.3 Existing Conditions

4.6.3.1 Regulatory Setting

The key regulatory requirements relevant to the assessment of Proposed Project impacts related to geologic, soil, and mineral resources include the following:

a) The Alquist-Priolo Special Studies Act of 1972 (Alquist-Priolo Act) which, in part, required the California Division of Mines and Geology (now the California Geological Survey) to compile maps of the surface traces of all known active faults in the State; and

b) CPUC G.O. 95, which designates rules and regulations for overhead electric line engineering.

4.6.3.2 Topographic Setting

The Proposed Project traverses variable terrain ranging from relatively flat-lying valley floors to steep rocky slopes. Elevations range from a low of approximately 1,500 feet amsl at the Creelman Substation on the west end to a high of approximately 3,300 feet amsl on a peak near the community of Santa Ysabel at the east end.

4.6.3.3 Geologic Setting

Regional Setting

The Proposed Project area is located within the southern Peninsular Ranges Physiographic Province, which is characterized by northwest-trending fault-bounded mountain ranges, broad intervening valleys, and low-lying coastal plains. The province has a long and active geologic history. In general, the Peninsular Ranges province is underlain by Jurassic metavolcanic and metasedimentary rocks and by Cretaceous igneous rocks of the Southern California batholith.

The Proposed Project occurs on a block of igneous basement rock bounded by the Elsinore Fault Zone to the northeast and by the Newport-Inglewood-Rose Canyon fault zone to the west. Most of the Proposed Project alignment is mapped as igneous rock types. A total of approximately 1.4

miles of the alignment is mapped to have sedimentary rock at shallow depth overlying the igneous basement.

Proposed Project Geologic Setting

Geologic units that occur along the Proposed Project alignment are summarized in Table 4.6-1, Geologic Units Along the Proposed Project Alignment.

Table 4.6-1: Geologic Units Along the Proposed Project Alignment

Symbol	Unit Name	Age	Description
Sedimentary Units			
Qya	Young Alluvial Deposits	Recent (Holocene)	Unconsolidated to slightly consolidated sand and gravel deposited in active washes.
Qoc	Old Colluvial Deposits	Quaternary	Unconsolidated to well consolidated deposits of sediment, rock fragments, and soil material deposited by creep and rainwash.
Tp	Poway Group/Ballena Gravels	Tertiary	Remnant channel deposits of the Ballena River system. Massively bedded conglomerates, conglomeritic sandstone, and minor beds and lenses of sandstone.
Crystalline (Basement) Units			
Klp	Tonalite of La Posta	Cretaceous	Homogeneous tonalite, leucotonalite, and leucogranodiorite.
Kc	Cuyamaca Gabbro	Cretaceous	Gabbro plutons and other intrusions.
Ks	San Marcos Gabbro	Cretaceous	Gabbro stocks and other intrusions.
Kjv/ Kjv-w	Japatul Valley Tonalite	Cretaceous	Tonalite to granodiorite intrusions.
Jcr	Cuyamaca Reservoir Granodiorite	Jurassic	Granodiorite and tonalite intrusions.
Jm	Undifferentiated Plutonic Rocks	Jurassic/Cretaceous	Granotoid plutons.
Source: VO Engineering, 2011.			

The majority of the Proposed Project alignment occurs in geology consisting of crystalline basement rocks at or near the surface. The pole locations occurring in sedimentary geologic units are shown in Table 4.6-2, Pole Locations in Sedimentary Geology.

Table 4.6-2: Pole Locations in Sedimentary Geology

Symbol	Unit Name	Age	Pole Numbers
Qya	Young Alluvial Deposits	Recent (Holocene)	P51, P75
Qoc	Old Colluvial Deposits	Quaternary	P59 – P64
Tp	Poway Group/Ballena Gravels	Tertiary	P22 – P32

4.6.3.4 Faulting and Seismicity

The Alquist-Priolo Act required the California Division of Mines and Geology (now the California Geological Survey) to compile maps of the surface traces of all known active faults in the State. By definition, an active fault is one that is "sufficiently active and well-defined," with evidence of surface displacement within Holocene time (about the last 11,000 years). Active fault zones are the locations in the State with the most potential for surface fault rupture. A potentially active fault is one that has evidence of displacement within the Quaternary Period (last 1.6 million years). Potentially active faults are considered to also represent possible surface rupture hazards, although to a lesser degree than active faults. In contrast to active or potentially active faults, faults considered inactive have not moved in the last 1.6 million years.

The Proposed Project occurs within the area of two USGS 7.5 minute quadrangle maps: (1) Ramona Quadrangle; and (2) Santa Ysabel Quadrangle. There are no known active or potentially active faults or Alquist-Priolo Act earthquake fault zones in these quadrangles. The closest known active faults are those associated with the Elsinore Fault Zone fault located approximately 2.6 miles to the northeast. The Elsinore Fault Zone is a major dextral strike-slip fault zone that is part of the overall San Andreas Fault System that accommodates up to 5 millimeters per year of Pacific-North American plate boundary slip. In the Proposed Project vicinity, the Elsinore Fault Zone cuts diagonally across various Peninsular Range batholiths to the east of the Proposed Project alignment.

The San Jacinto and San Andreas Fault zones occur further to the northeast, approximately 24 miles and 50 miles, respectively. These and the Elsinore Fault Zone are regional faults that have the potential to produce high-magnitude earthquakes in the Proposed Project region, Fault type and average slip rates for these faults are shown in Table 4.6-3, Key Faults within the Region. The Proposed Project area is located in Seismic Zone 4 under the Uniform Building Code. The USGS estimates that the maximum peak horizontal ground acceleration in the Proposed Project area with a probability of occurrence of 10 percent in 50 years (recurrence interval of approximately 500 years) is between 0.3g and 0.4g where "g" is equal to the acceleration of gravity.

Table 4.6-3: Key Faults within the Region

Fault Name	Type of Fault	Slip Rate (mm/yr)
Elsinore (Julian Section)	Dextral-Reverse	1-5
San Jacinto (Coyote Creek Section)	Right-Lateral	1-5
San Andreas (Coachella Section)	Right-Lateral	>5
Sources: USGS, 2012.		

Fault Rupture

There are no known active or potentially active faults or Alquist-Priolo Act earthquake fault zones within the Proposed Project footprint area. Therefore, there are no locations within the Proposed Project footprint area that are prone to surface fault rupture.

Strong Seismic Shaking

Strong ground motion or intensity of seismic shaking during an earthquake is dependent on the distance from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the area. All of southern California is considered to be a seismically active region. The San Diego County area is subject to strong seismic shaking from regional earthquakes that may occur on active faults that occur in the region. Active faults close enough to the Proposed Project route to cause strong seismic ground shaking are listed in Table 4.6-3.

4.6.3.5 Geologic Hazards

Subsidence

The primary causes of most subsidence are human activities, including groundwater or petroleum withdrawal from large alluvial basins with thick accumulations of unconsolidated sediments, and drainage of organic soils. Regional lowering of land elevation occurs gradually over time. Subsidence is not a significant risk for the Proposed Project because it does not occur over any large alluvial basins, and because the Proposed Project occurs primarily on crystalline or consolidated rock and does not involve the withdrawal of fluid from geologic materials.

Landslides

Landslide potential can be high in steeply sloped areas. Human factors such as over-steepening/overloading of slopes or introduction of excessive water in soil pores or joints and fractures in rock can also lead to landslides. The principal natural factors contributing to landslides are topography, geology and precipitation. The Proposed Project area is comprised primarily of igneous rock that is inherently strong and not particularly susceptible to landslides, and the Proposed Project area does not cross terrain identified to have landslide susceptibility.

Nevertheless, in areas of locally steep terrain, there is potential for rock falls and other mass wasting.

Liquefaction and Lateral Spreading

Liquefaction is a seismic phenomenon in which loose, saturated, cohesionless soils behave similar to a fluid when subjected to high-intensity ground shaking. An increase in pore pressure occurs as the soil attempts to compact in response to the shaking, resulting in less grain-to-grain soil contact and, therefore, loss of strength. Liquefaction occurs when three general conditions exist: shallow groundwater (40 feet below ground surface or less); low-density, fine-grained sandy soils; and high-intensity ground motion. Effects of liquefaction on level ground can include sand boils, settlement, and bearing capacity failures below structural foundations.

An evaluation for liquefaction potential along the Proposed Project alignment was conducted by VO Engineering, Inc. (2011) and determined that four pole locations could potentially be subject to liquefaction in the event of a large earthquake: Pole Nos. P103; R107; P114; and P129. It is estimated that total settlement ranging between 2 to 4 inches could occur in the vicinity of these sites in the event of a major earthquake.

Lateral spreads involve lateral displacement of large, intact soil blocks down gentle slopes or in the direction of a steep free face such as a stream bank. Lateral spreading can occur in fine-grained, sensitive soils such as quick clays, particularly if remolded or disturbed by construction and grading. Loose, granular soils present on gentle slopes and underlain by a shallow water table commonly produce lateral spreads through liquefaction. Conditions conducive to lateral spreading include gentle surface slope, a shallow water table, and liquefiable cohesionless soil. These conditions commonly are found along streams banks, canals, or cut slopes in recent alluvial or deltaic deposits. The potential for lateral spreading in the Proposed Project area is low due to the predominantly igneous character of geologic materials and absence of topographic features susceptible to lateral spreading.

Soil Collapse

Soil collapse occurs when added moisture causes bonds between soil particles to weaken, which allows the soil structure to collapse and the ground surface to subside. Collapsible soils are generally low-density, fine-grained combinations of clay and sand left by mudflows that have dried, resulting in the formation of small air pockets in the subsurface. The addition of moisture reduces the strength of the soil, resulting in collapse or subsidence. Geotechnical studies conducted for the Proposed Project did not identify conditions susceptible to soil collapse at any of the proposed pole locations.

4.6.3.6 Soils

The geotechnical study for the Proposed Project evaluated soils at the proposed pole locations and results of grain size analysis data indicates that the soils are predominantly sand with fines characterized as Uniform Soil Classification System (USCS) symbols of "SC" and "SM" (sand with plastic and non-plastic fines, respectively). Additionally, silty or clayey fine sands (USCS symbol "ML") and inorganic low-plasticity clays (USCS symbol "CL") occur at some pole locations.

4.6.3.7 Mineral Resources

There are no known significant mineral resources along the Proposed Project route. There are no Mineral Resource Zone (MRZ)-2 designated mineral resource areas. The MRZ-2 designation encompasses areas where the State has determined adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. The Proposed Project occurs in an existing ROW with no identified significant mineral resources. No mineral rights would be affected.

4.6.4 Potential Impacts

4.6.4.1 Significance Criteria

Thresholds of impact significance were derived from Appendix G of the *CEQA Guidelines*. Under these guidelines, the Proposed Project could have a potentially significant impact to geology and soils if it would:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
   ii. Strong seismic ground shaking;
   iii. Seismic-related ground failure, including liquefaction; or
   iv. Landslides;
b) Result in substantial soil erosion or the loss of topsoil;
c) Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse;
d) Be located on expansive soil, as defined by article 1803.5 of the CBC, creating substantial risk to life or property; or
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Mineral Resources

Impacts to mineral resources may be considered significant if they:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state; or
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

4.6.4.2 Question 6a(i) – Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Construction– No Impact

No portion of the Proposed Project is located in an Alquist-Priolo Act earthquake fault zone. There are no active or potentially active faults crossing the Proposed Project route. The closest known active fault is the Elsinore Fault Zone located approximately 2.6 miles to the northeast of the Santa Ysabel Substation. No recognized active faults underlie the Proposed Project area; therefore, no impacts from fault rupture are expected.

Operation & Maintenance – No Impact

As noted above, no portion of the Proposed Project is located in an Alquist-Priolo Act earthquake fault zone, there are no active or potentially active faults crossing the Proposed Project route, the closest known active fault is the Elsinore Fault Zone located approximately 2.6 miles to the northeast of the Santa Ysabel Substation, and no recognized active faults underlie the Proposed Project area.

In addition, SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. The Proposed Project is the reconstruction of existing electric facilities within the same general alignment and no portion of the existing lines and facilities are located in an Alquist-Priolo Act earthquake fault zone, nor are there any active or potentially active faults in proximity to the Proposed Project facilities or along the TL 637 route. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Therefore, the operations and maintenance of the Proposed Project would not result in any potential impacts relating to fault rupture.

4.6.4.3 Question 6a(ii) – Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Construction – Less than Significant Impact

As noted above, no portion of the Proposed Project is located in an Alquist-Priolo Act earthquake fault zone, there are no active or potentially active faults crossing the Proposed Project route, the closest known active fault is the Elsinore Fault Zone located approximately 2.6 miles to the northeast of the Santa Ysabel Substation, and no recognized active faults underlie

the Proposed Project area. Nonetheless, all of southern California is considered to be a seismically active region, and the San Diego County area is subject to strong seismic shaking from regional earthquakes that may occur on active faults that occur outside of the Proposed Project area. However, because of the short construction period and the low likelihood of a moderate to large earthquake to occur during this time, the potential for construction personnel to experience strong seismic ground shaking is low. Due to the short construction period, the risk of exposure of people or structures to strong seismic ground shaking during construction is less than significant.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Therefore, no impacts are anticipated.

4.6.4.4 Question 6a(iii) – Expose people or structures to potential substantial adverse effects, including seismic-related ground failure, including Liquefaction?

Construction – Less Than Significant Impact

Shaking from a moderate to large regional earthquake can potentially result in liquefaction where groundwater is shallow (i.e., within 40 feet of ground surface) and soils consist of uncompacted, granular materials.

An evaluation for liquefaction potential along the Proposed Project alignment was conducted by VO Engineering, Inc. (2011) and determined that four pole locations could potentially be subject to liquefaction in the event of a large earthquake: Pole Nos. P103; R107; P114; and P129. It is estimated that total settlement ranging between 2 to 4 inches could occur in the vicinity of these sites in the event of a major earthquake. Pursuant to project design features (refer to Section 3.8), pole foundations at these locations have been designed to account for the possibility of liquefaction to reduce the risk of damage to constructed facilities to less than significant levels. Because of the short construction period and the low likelihood of a large earthquake occurring during this time, the risk of construction personnel being exposed to earthquake-induced liquefaction is less than significant.

Operation & Maintenance – Less Than Significant Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which

the impacts of the Proposed Project are evaluated. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Pursuant to project design features, pole foundations at locations where liquefaction could occur have been designed to account for the possibility of liquefaction to reduce the risk of damage to constructed facilities to less than significant levels.

4.6.4.5 Question 6a(iv) – Expose people or structures to potential substantial adverse effects, including landslides?

Construction – Less than Significant Impact

The Proposed Project area is not highly susceptible to landslides due to the typical high strength of the crystalline basement rocks that make up the steeper slopes in the region. However, rock falls, rock slides or other mass wasting may occur at steeper slopes in the Proposed Project area. Five pole sites are located on or adjacent to sloping terrain: Pole Nos. P22; P23; P48; P49; and P110. One pole location is in an area potentially susceptible to rockfall (Pole No. P51). Pursuant to project design features (refer to Section 3.8), pole foundations at these locations have been designed to account for the possibility of erosion, slumps and slope failures and would reduce the risk of damage to constructed facilities from rockfalls or other mass wasting. Project design features will ensure that the risk of damage to Proposed Project structures will remain less than significant. Due to the short construction period, the risk of exposure of people or structures to mass movements during construction is less than significant.

The Proposed Project would result in minimal ground disturbance in steep slope areas. Access will be confined to existing routes, and areas without existing access will be reached by footpaths. Disturbances at pole sites will be stabilized when work is complete. Considering the low susceptibility of the area to landslides, the absence of substantial grading work, and stabilization of work areas upon completion of work, the potential for construction of the Proposed Project to adversely impact slope stability is less than significant.

Operation & Maintenance – Less Than Significant Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. As noted above, disturbances at poles sites will be stabilized when work is complete. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Pursuant to project design features, pole foundations located on or adjacent

to sloping terrain and the pole location potentially susceptible to rockfall have been designed to account for the possibility of erosion, slumps and slope failures. The risk of damage to constructed facilities from rockfalls or other mass wasting would therefore be less than significant level.

4.6.4.6 Question 6b – Result in substantial soil erosion or the loss of topsoil?

Construction – Less Than Significant Impact

Construction would occur along the existing ROW/power line corridor and would use existing access roads. Soil erosion or loss of topsoil could result from minor ground disturbing activities at pole sites, where needed, during construction.

Soil erosion and topsoil loss would be controlled by implementing SDG&E's *BMP Manual* during design and construction of the Proposed Project. In addition, the Proposed Project would comply with the General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (Construction General Permit) which would include the preparation of a SWPPP (see Section 4.8, Hydrology and Water Quality for additional information on the Construction General Permit). Surface disturbance would be minimized to the extent consistent with safe and efficient completion of the Proposed Project. Once temporary surface disturbances are complete, temporary construction impact areas would be stabilized. Therefore, impacts to soil erosion and loss of topsoil would be less than significant.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. Therefore the Proposed Project's operation and maintenance would have no impacts relating to soil erosion or loss of topsoil.

4.6.4.7 Question 6c – Be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landsliding, lateral spreading, subsidence, liquefaction, or collapse?

Construction – Less than Significant Impact

The potential for liquefaction and landslide related impacts are addressed in Sections 4.6.4.4 and 4.6.4.5, respectively.

As described in Section 4.6.3.5, Geologic Hazards, lateral spreading is not a material hazard for the Proposed Project. Therefore, the risk of lateral spreading during construction is less than significant.

Construction would have no subsidence impact because the Proposed Project does not involve the withdrawal of subsurface fluids that can cause subsidence, nor would it impact sedimentary materials that are particularly prone to subsidence.

As described in Section 3.6.3.5, collapsible soil deposits are not anticipated to be present in the Proposed Project construction areas.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required.

There is nothing about the Proposed Project operations and maintenance that differs from the existing conditions in terms of subsidence or collapsible soils, and thus there are no potential impacts as a result of subsidence or collapsible soils associated with the Proposed Project.

4.6.4.8 Question 6d – Be located on expansive soil, as defined by article 1803.5 of the California Building Code, creating substantial risk to life or property?

Construction – Less Than Significant Impact

Expansive soils are clayey soils that have a high plasticity index. Typical shallow reinforced concrete spread footing foundations, such as those for buildings and other foundations covering a considerable area of ground, can be affected by expansive soils if such soils are present close to the ground surface. The Proposed Project does not include any spread footing foundations that could be adversely affected by expansive soils. Expansive soils have been identified at two pole locations (Pole Nos. P39 and P147) and the footings at these locations will not be adversely affected. Considering that the Proposed Project does not include any foundations susceptible to damage from expansive soils, the limited expansive soils that are present do not create a substantial risk to life or property and impacts would be less than significant.

Operation & Maintenance – No Impact

SDG&E currently maintains and operates existing electric power, distribution and substation facilities throughout the Proposed Project site, and the Proposed Project is the reconstruction of existing electric facilities within existing SDG&E ROW and substation property. SDG&E's

existing facilities and operations and maintenance activities constitute the baseline against which the impacts of the Proposed Project are evaluated. Operations and maintenance activities for the Proposed Project would decrease slightly compared to baseline conditions due to the increased reliability of the new power line components included in a typical wood to steel replacement project, the installation of fewer poles along the alignment, and the relocation of poles outside of jurisdictional features. Any future potential maintenance-related construction projects would be evaluated under G.O. 131-D and CEQA for purposes of assessing whether further CPUC approval is required. As with the baseline condition, operation and maintenance of the Proposed Project would not include activities that have the potential to impact or be impacted by expansive soils. Therefore, no impact is expected.

4.6.4.9 Question 6e – Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Construction and Operation & Maintenance – No Impact

The Proposed Project would not involve the installation of a septic tank or alternative wastewater disposal system; therefore, no impact would occur.

4.6.4.10 Question 6f – Result in the loss of availability of a known mineral resource that would be of value to the region and residents of the state?

Construction and Operation & Maintenance – No Impact

No mineral resources are known to exist along the Proposed Project route, nor are any designated in the vicinity of the Proposed Project by the *San Diego County General Plan*. Therefore, the Proposed Project would not result in the loss of availability of a known mineral resource and no impact would occur.

4.6.4.11 Question 6g – Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Construction and Operation & Maintenance – No Impact

No mineral resources are known to exist along the Proposed Project route, nor are any designated in the vicinity of the Proposed Project by the *San Diego General Plan*. Therefore, the Proposed Project would not result in the loss of availability of a locally important mineral resource recovery site and no impact would occur.

4.6.5 Project Design Features and Ordinary Construction/Operating Restrictions

The Proposed Project has been designed and would be constructed consistent with SDG&E's policy to implement the SDG&E's *BMP Manual*. This manual includes design and construction BMPs to control soil erosion.

Proposed Project facilities would be designed and constructed to comply with the following standards and regulations:

- CPUC G.O. 95, which designates rules and regulations for overhead electric line engineering;
- Construction General Permit, which will require the preparation and implementation of a SWPPP including BMP measures to control soil erosion (refer to Section 4.8, Hydrology and Water Quality for additional information on the Construction General Permit).

The Proposed Project is designed to minimize ground and soil disturbance through use of existing access routes and other disturbed lands. Footpaths will be used to access pole locations that do not have existing access.

Implementation of the engineering and regulatory standards, practices and guidelines, previously described in this section, and the project design features and ordinary construction restrictions described in Section 3.8, would ensure that any potential impact from soil erosion, mass wasting, and liquefaction would remain less than significant.

4.6.6 Applicant Proposed Measures

The Proposed Project has no potentially significant impacts relating to geology, soils, and mineral resources; therefore, no APMs are proposed.

4.6.7 Detailed Discussion of Significant Impacts

Based upon the preceding analysis, no significant impacts relating to geology, soils, or mineral resources are anticipated from the Proposed Project.

4.6.8 References

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