2.6 Geology and Soils

This section evaluates the existing geology, soils, and seismic conditions in the PSR Analysis Areas and the former CGSP Area. This section also examines the potential impacts of the Proposed Project on geological formations, unique geologic features, seismic hazards, soil erosion, and expansive soils. Potential impacts of soil conditions on air and water quality resulting from construction-related activities are discussed in Section 2.3 Air Quality, Section 2.5 Cultural and Paleontological Resources, Section 2.8 Hydrology and Water Quality, and Section 2.17 Global Climate Change of this SEIR. This section is based on the County of San Diego Guidelines for Determining Significance Geologic Hazards (DPLU 2007f) and County of San Diego Guidelines for Determining Significance Unique Geology (DPLU 2007m).

A summary of the geology and soils impacts identified in Section 2.6.3 is provided below.

Geology and Soils Resources Summary of Impacts

Issue Topic	Project Direct Impact	Cumulative Impact	Impact After Mitigation
Exposure to seismic-related hazards	Less than significant	Less than significant	Less than significant
Soil erosion or topsoil loss	Less than significant	Less than significant	Less than significant
Soil stability	Less than significant	Less than significant	Less than significant
Expansive soils	Less than significant	Less than significant	Less than significant
Waste water disposal systems	Less than significant	Less than significant	Less than significant
Unique geologic features	Less than significant	Less than significant	Less than significant

2.6.1 Existing Conditions

Section 2.6.1 of the 2011 PEIR included a discussion of existing conditions related to geology and soils in the unincorporated County. The geology and soils existing conditions described in the 2011 PEIR are the same as the existing conditions evaluated in this SEIR except for an update to groundwater conditions in the Borrego Valley Groundwater Basin. This topic is discussed briefly below. No other changes to the existing conditions have been identified that would alter the conclusions in the 2011 PEIR. All references used in the 2011 PEIR were reviewed to ensure they are still valid today, and are hereby incorporated by reference.

Borrego Valley

The U.S. Geological Survey, in cooperation with the Borrego Water District, performed a groundwater study in 2015 to assess groundwater resources in the Borrego Valley Groundwater Basin. The report uncovered two issues within the groundwater basin that have geologic ramifications: (1) groundwater levels throughout much of the basin are more than 50 feet below the surface, and (2) the valley has experienced less than one inch of subsidence in the past 50 years. The risk of liquefaction and subsidence are both minimal in the Basin due to excessive groundwater withdrawal.

2.6.2 Regulatory Framework

Section 2.6.2 of the 2011 PEIR included a discussion of the regulatory framework related to geology and soils in the unincorporated County. The regulations described in the 2011 PEIR are

the same as the regulations evaluated in this SEIR except for an update to the California Building Code (CBC). No changes to this regulation have been identified that would alter the conclusions from the 2011 PEIR. All references used from the 2011 PEIR were reviewed to ensure they are still valid today, and are hereby incorporated by reference.

California Building Code

Adopted in 2016 and effective January 1, 2017, the CBC update is based largely on the 2011 International Building Code. The CBC includes the addition of more stringent seismic provisions for hospitals, schools, and essential facilities. The CBC contains specific provisions for structures located in seismic zones. Buildings within San Diego County must conform to Seismic Design Category D and E requirements. Also, California law requires all cities and counties in Seismic Zone 4 (as defined in pre-1997 versions of the code) to identify unreinforced masonry buildings in their jurisdiction, which are not designed to withstand an earthquake.

2.6.3 Analysis of Project Impacts and Determination of Significance

2.6.3.1 Issue 1: Exposure to Seismic-Related Hazards

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance Geologic Hazards (DPLU 2007f), the Proposed Project would have a significant impact if it exposes people or structures to potential substantial adverse impacts, 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; or based on other substantial evidence of a known fault, strong seismic ground shaking, seismic-related ground failure including liquefaction or landslides.

Specifically, the Proposed Project would result in a significant impact from fault rupture if:

a. The project proposes any building or structure to be used for human occupancy over or within 50 feet of the trace of an Alquist-Priolo Fault or County Special Study Zone Fault.

b. The project proposes the following uses within an Alquist-Priolo Zone which are prohibited by the County:

    i. Uses containing structures with a capacity of 300 people or more. Any use having the capacity to serve, house, entertain, or otherwise accommodate 300 or more persons at any one time.

    ii. Uses with the potential to severely damage the environment or cause major loss of life. Any use having the potential to severely damage the environment or cause major loss of life if destroyed, such as dams, reservoirs, petroleum storage facilities, and electrical power plants powered by nuclear reactors.

    iii. Specific civic uses, such as police and fire stations, schools, hospitals, rest homes, nursing homes, and emergency communication facilities.

The Proposed Project would result in a significant impact from ground shaking if the project site is located within Seismic Design Category E and F of the CBC, and/or the project does not conform to the CBC.

The Proposed Project would have the potential to expose people or structures to substantial adverse effects from liquefaction if:

a. the project site contains potentially liquefiable soils;

b. potentially liquefiable soils are saturated or have the potential to become saturated; or

c. in-situ soil densities are not sufficiently high to preclude liquefaction.

The Proposed Project would result in a significant impact from landslide risk if the project:

a. would expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving landslides;

b. is located on a geologic unit or soil that is unstable, or would become unstable because of the project, potentially resulting in an on-site or off-site landslide; or

c. lies directly below or on a known area subject to rockfall which would result in collapse of structures.

Impact Analysis

San Diego County is seismically active and is, therefore, prone to earthquakes and related geologic hazards. Consequently, buildings within San Diego County must conform to CBC Seismic Design Category E and F requirements, which are the requirements for the most active seismic zone. Potential impacts to the PSR Analysis Areas and former CGSP Area by geologic hazards from implementation of the Proposed Project are discussed below.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the number of allowed dwelling units. Therefore, implementation of Valley Center Community Plan Residential Policy 8 Revision would not result in an impact related to exposure to seismic-related hazards.

Fault Rupture

Figure 2.6-1 shows the location of known faults in the vicinity of the PSR Analysis Areas and the former CGSP Area. As shown in Figure 2.6-1, pre-quaternary faults (faults that are inactive and have not slipped in the past 1.6 million years or longer) are located near or within PSR Analysis Areas FB2+, CD14, DS8, DS24, and VC57+. The remaining PSR Analysis Areas and former CGSP Area are not in the immediate vicinity of a fault.

Portions of PSR Analysis Areas DS8 and DS24 in the Desert Subregion are in the immediate vicinity of a pre-quaternary fault, located within 50 feet of the northwest edge of DS24 and abutting the southeast edge of DS8. Designated land uses in DS8 and DS24 would remain as village and semi-rural residential with the potential of an additional 542 dwelling units; however, a small portion of those dwelling units will be within 50 feet of the inactive fault.

A pre-quaternary fault bisects PSR Analysis Area CD14, which would experience an increase of 7 potential dwelling units. Additionally, PSR Analysis Areas DS8, DS24, FB2+, ME26, ME30A, PP30, VC51, and VC57+ are near or within pre-quaternary faults. Designated land uses in these PSR Analysis Areas would remain primarily rural and semi-rural with the potential of an additional 748 dwelling units.

The closest active fault is the Elsinore Fault; which is located approximately 2.5 miles northeast of PSR Analysis Area PP30. PSR Analysis Area PP30 is also located within 3.5 miles southwest of the Wildomar Fault, an Alquist-Priolo fault. Compliance with the Alquist-Priolo Earthquake Fault Zoning Act requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to fault rupture.

Seismic Ground Shaking

Seismic hazard regulations are in place at the State and County levels that reduce risks associated with seismic-related hazards, such as seismic ground shaking, through avoidance or building standards. These adopted guidelines include the Alquist-Priolo Earthquake Fault Zoning Act and Special Publication 117a. The CBC contains specific provisions for structures located in seismic zones. To ensure that these safety measures are met, the CBC employs a permit system based on hazard classification. The CBC is based largely on the International Building Code, but includes the addition of more stringent seismic provisions for hospitals, schools, and essential facilities. Buildings within San Diego County must conform to CBC Seismic Design Categories E and F structural design requirements, which are the requirements for the most active seismic zone. This is assured through the County building permit process. All of San Diego County is located within Seismic Design Categories E and F, which have the highest seismic ground shaking potential. Therefore, exposure to seismic ground shaking in all PSR Analysis Areas and the former CGSP Area is present and could affect any buildings constructed; however, compliance with the requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in a less than significant impact related to seismic ground shaking.

Liquefaction

Figure 2.6-2 and Table 2.6-1 show the PSR Analysis Areas and former CGSP Area susceptible to liquefaction. The PSR Analysis Areas at risk for liquefaction include BO18+, DS8, DS24, FB2+, FB21+, ME26, ME30A, NC3A, NC38+, PP30, VC7+, VC57+, and VC67. These areas total 2,565 acres, with a total of 1,342 additional potential dwelling units potentially at risk of experiencing liquefaction. The remaining PSR Analysis Areas and former CGSP Area are not at a high risk to experience liquefaction. The Desert CPA shows liquefaction potential throughout the entirety of the Desert PSR Analysis Areas; however, liquefaction risk has diminished within Borrego Springs over the past 50 years due to groundwater extraction which has caused the depth to groundwater in most areas to be greater than 50 feet below the ground surface (see Section 2.8.3.2, Hydrology of this SEIR for further discussion of groundwater levels). Compliance with the requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to liquefaction.

Landslides

Figure 2.6-3 identifies the PSR Analysis Areas with the highest landslide potential. PSR Analysis Areas identified as having high landslide susceptibility include CD14, FB2+, FB17, FB19+, FB21+, NC3A, NC18A, NC22, NC37, NC38+, SD15, VC57+, VC67, and former CGSP Area. These areas total 2,945 acres, with a potential increase of 774 dwelling units in areas identified as susceptible to landslide. Similar to the 2011 PEIR, the Proposed Project primarily proposes low-density land use designations in areas with higher susceptibility to landslides. One exception is the San Dieguito CPA, where some areas with potentially high/moderate susceptibility to landslides are proposed for semi-rural residential use. Compliance with the requirements for geotechnical

investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to landslides.

2.6.3.2 Issue 2: Soil Erosion or Topsoil Loss

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact if it would result in substantial soil erosion or the loss of topsoil.

Impact Analysis

Implementation of the Proposed Project would allow increased development as compared to the designated land uses in the 2011 PEIR. Increased development would have the potential to expose topsoil to erosion from water or wind from construction or operational activities, specifically earthmoving and grading activities. Land uses proposed for the PSR Analysis Areas and former CGSP Area that would generally require intensive construction activities include general commercial, rural commercial, medium impact industrial, village residential, and semi-rural residential. Additionally, the development of land uses would result in a permanent increase in impermeable areas, which would potentially increase surface water runoff and associated erosion. Erosion from water runoff is discussed in greater detail in Section 2.8 of this SEIR.

Projects that result in channel modification and hydromodification, which is the alteration of the natural flow of water through a landscape, as well as grading and excavation during construction, would have the potential to result in an increase in erosion or topsoil loss from runoff. Additionally, removal of vegetation during or after construction that would expose topsoil to wind may result in topsoil being blown away. Some components of topsoil may also become airborne and contribute to air pollution in the form of particulate matter. Project related airborne pollutants, including particulate matter, are discussed in Section 2.3 of this SEIR.

All construction activities occurring under the Proposed Project would be required to comply with CBC and the County Grading Ordinance, both of which would ensure implementation of appropriate measures during grading and construction activities to reduce soil erosion. The County Grading Ordinance also requires all clearing and grading to be carried out with dust control measures including watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures that would reduce potential for erosion from wind. Construction occurring under the Proposed Project would be required to comply with the NPDES permit program, which requires stormwater pollution prevention plans to be prepared and BMPs to be identified for construction sites greater than one acre. Implementation of appropriate BMPs would protect water quality by controlling stormwater runoff and ensuring that the quality of stormwater flows meets the applicable requirements of the RWQCB. County building and grading inspectors ensure that BMPs are in place and effective per the County Grading Ordinance and the Watershed Protection Ordinance.

All development within PSR Analysis Areas and former CGSP Area have the potential to result in soil erosion or topsoil loss; however, compliance with the adopted General Plan policies, as well as all applicable regulations including the NPDES, CBC, and the County Grading Ordinance would reduce impacts to a less than significant level.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the

number of allowed dwelling units. Therefore, implementation of Valley Center Community Plan Residential Policy 8 Revision would not result in an impact related to soil erosion or topsoil loss.

2.6.3.3 Issue 3: Soil Stability

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance Geologic Hazards (DPLU 2007f), the Proposed Project would have a potentially significant impact if it would 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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Impact Analysis

The proposed changes to land use and zoning designations would potentially result in a significant impact if future development within the PSR Analysis Areas and former CGSP Area would be located in geologically hazardous areas, as described above under Guidelines for Determining Significance. The soil stability risks that can cause such geologic hazards are addressed individually below.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the number of allowed dwelling units. Therefore, implementation of Valley Center Community Plan Residential Policy 8 Revision would not result in an impact related to exposure to soil stability.

Landslide, Lateral Spreading, or Collapse

As previously discussed in Section 2.6.3.1, Figure 2.6-3 identifies the PSR Analysis Areas with the highest landslide potential and Table 2.6-2 displays the related acreage. PSR Analysis Areas identified as having high landslide susceptibility include CD14 (101 acres), FB2+ (198 acres), FB17 (11 acres), FB19+ (390 acres), FB21+ (7 acres), NC3A (1,017 acres), NC18A (93 acres), NC22 (155 acres), NC37 (158 acres), NC38+ (77 acres), SD15 (69 acres), VC57+ (535 acres), VC67 (14 acres), and former CGSP Area (121 acres). There is a potential for an increase of 774 dwelling units in areas identified as susceptible to landslides; however, compliance with the requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to landslide.

According to Section 2.6.3.3 of the 2011 PEIR, the County has had no known cases of lateral spreading or collapse resulting in damage to property or structures; therefore, no impacts are expected to occur.

On a project-by-project basis, the County of San Diego may require the preparation of a geotechnical reconnaissance report and/or investigation for project sites located on or within 500 feet of a landslide susceptibility area. Compliance with report recommendations would be required to minimize hazards associated with landslides. Additionally, the San Diego County Grading Ordinance includes requirements to ensure soil stability during grading and construction, and requirements for steepening of slopes.

Subsidence

Section 2.6.3.3 of the 2011 PEIR defines and lists common causes of subsidence. According to the Multi-jurisdictional Hazard Mitigation Plan (OES 2010), the underlying geologic formations in the County are mostly granitic, which have a very low potential of subsidence. The County relies on the Multi-jurisdictional Hazard Mitigation Plan to determine the potential for subsidence. Very minor subsidence (less than one inch in the past 50 years) has been recorded in areas of the Desert Subregion (specifically PSR Analysis Areas DS8 and DS24) but caused no damage. This subsidence was caused by groundwater depletion and is unlikely to be a serious problem in the future due to the rate of subsidence and the current restriction of groundwater pumping in the area (Faunt et. al 2015). Therefore, future development within the PSR Analysis Areas is not anticipated to result in a potentially significant impact resulting from locating structures in areas at risk for subsidence. The Proposed Project would have a less than significant impact.

Liquefaction

Figure 2.6-2 depicts areas with the potential for liquefaction in the County. Every CPA and Subregion contains some areas at risk for liquefaction. Table 2.6-1 provides the acreage of potentially liquefiable soils within the PSR Analysis Areas including BO18+ (2 acres), DS8 (169 acres), DS24 (171 acres), FB2+ (247 acres), FB21+ (21 acres), ME26 (61 acres), ME30A (199 acres), NC3A (40 acres), NC38+ (36 acres), PP30 (438 acres), VC7+ (<1 acre), VC57+ (1,167 acres), and VC67 (14 acres). For future development under the Proposed Project within a potential liquefaction area, feasible foundation designs exist that can mitigate the liquefaction hazard. Prior to issuance of building permits, the County requires projects in a potential liquefaction area to prepare a geotechnical study. The study provides specifications on a foundation design to preclude substantial damage to proposed structures due to liquefaction.

Compliance with the requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to liquefaction.

2.6.3.4 Issue 4: Expansive Soils

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance Geologic Hazards (DPLU 2007f), the Proposed Project would have a significant impact if it would be located on expansive soil, as defined in CBC Section 1802A.3.2, creating substantial risks to life or property.

Impact Analysis

As shown in Figure 2.6-4, areas of expansive soils are concentrated primarily within the coastal plain of San Diego County, which would include portions of the San Dieguito CPA. They can also be found in valleys and on slopes in the foothills and mountains of the Peninsular Range and, to a lesser extent, in the Desert Region. Table 2.6-3 provides the acreages of the PSR Analysis Areas and former CGSP Area that would be located on potentially expansive soils. The PSR Analysis Areas affected by expansive soils include BO18+ (107 acres), CD14 (<1 acre), FB2+ (198 acres), FB17 (<1 acre), FB19+ (45 acres), NC37 (86 acres), SD15 (40 acres), VC7+ (82 acres), VC57+ (131 acres), and VC67 (<1 acre).

Construction standards have been developed to ensure structures can withstand changes in the integrity of the soil. Structural engineering standards have been incorporated into the CBC. If the

area is located within a zone that has high shrink-swell soils, compliance with the structural and engineering standards set forth within the CBC are required as project design considerations through the County building permit process. Such standards require that all development adhere to strict guidelines for construction on soils that are within a high shrink/swell category as defined by the U.S. Department of Agriculture San Diego Soil Survey. The CBC also contains construction and engineering standards for projects located in areas that have high shrink-swell soils. The provisions of the CBC require that a geotechnical investigation be performed to provide data for the architect and/or engineer to responsibly design the project.

The Proposed Project would allow additional development of homes and other structures within the PSR Analysis Areas and former CGSP Area, which would have the potential to be adversely impacted by expansive soils. However, compliance with the requirements for geotechnical investigation, following any resulting construction recommendations, and compliance with building code requirements would result in less than significant impacts related to expansive soils.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the number of allowed dwelling units. Therefore, implementation of Valley Center Community Plan Residential Policy 8 Revision would not result in an impact related to exposure to expansive soils.

2.6.3.5 Issue 5: Waste Water Disposal Systems

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines, the Proposed Project would have a significant impact if it would have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Impact Analysis

The only PSR Analysis Areas that are within sewer service areas are DS8 (only southern portion), NC22 (only Study Area parcels), NC38+ (3 of the parcels in the western portion), SD15, CG2, CG3, CG4, and CG5. CG5 is the only area with a current sewer service connection. As described in Sections 2.16.1 and 2.16.2 (Utilities) of this SEIR, the rest of the PSR Analysis Areas and the former CGSP Area would be required to utilize individual septic systems to fulfill wastewater demands. Prior to siting an on-site wastewater treatment system (OWTS), a land owner must comply with RWQCB siting standards. Individual development projects will be required to adhere to RWQCB standards and conduct site evaluations specific to the proposed development. The regulatory process for siting an OWTS is discussed below.

Discharged wastewater must conform to the RWQCB applicable standards, including the Regional Basin Plan and the California Water Code. OWTS discharge pollutants to groundwater are regulated by the State Water Code. California Water Code Section 13282 allows RWQCBs to authorize a local public agency to issue permits for OWTS “to ensure that systems are adequately designed, located, sized, spaced, constructed and maintained.” The San Diego RWQCB and Colorado River Basin RWQCB have authorized the County Department of Environmental Health to issue certain OWTS permits throughout the County and within the incorporated cities.

Project specific analyses would be required for future developments that would rely on OWTS to determine if the site is capable of adequately supporting an OWTS. A permit must be obtained to

install any new OWTS. The County Department of Environmental Health has several policies in place for the permitting of septic systems. The Design Manual for OWTS describes how the systems are reviewed and permits are issued in San Diego County. The document also includes design criteria for these systems.

Soil permeability determines the degree to which soil can accept sewage discharge over a period of time. Permeability is measured by percolation rate which is measured in minutes per inch. The first step in obtaining a permit is a percolation test that determines if soil is capable of supporting OWTS. Additionally, several other factors are considered by the County Department of Environmental Health. The distance between the bottoms of the OWTS leach field and groundwater is a factor. All conventional OWTS in the County require at least five feet of unsaturated soil between the bottom of the sewage disposal system and the highest anticipated groundwater level for the site. Anticipated peak daily flow is also considered and is often a factor in the number of bedrooms proposed by residential projects. The area available on a parcel that meets all setback requirements to structures, easements, watercourses or other geologic limiting factors for the design of an OWTS determines whether a site is large enough to accommodate all design features required for an OWTS in the County. Future development that would require OWTS would also be required to comply with the County OWTS Groundwater Separation Policy and County Code Sections 68.301 and 68.601. It should be noted that a land use designation with a land use intensity of SR-1 or higher would potentially necessitate a need for sewer service. The only PSR Analysis Areas that are within sewer service areas are DS8 (only southern portion), NC22 (only Study Area parcels), NC38+ (3 of the parcels in the western portion), SD15, CG2, CG3, CG4, and CG5. CG5 is the only area with a current sewer service connection. The rest of the PSR Analysis Areas and Subareas of the former CGSP Area would be required to utilize individual septic systems to fulfill wastewater demands.

The PSR Analysis Areas that are not already within sewer service areas, but would potentially require future sewer service include DS8 (portion outside of the existing sewer service area), DS24, FB17, NC18A, NC22 (portion outside of the existing sewer service area), and NC38+ (portion outside of the existing sewer service area) due to proposed land uses with a density of SR-1 or higher. In addition, the areas of CG6 and CG8 that are proposed for Rural Commercial designations could require sewer service, depending on the intensity of the proposed uses and corresponding anticipated wastewater volumes. If a district were to propose sewer expansion in the future, it would be required to update its facilities master plan to incorporate General Plan densities in place at that time into the planning document. Any expansion of wastewater district infrastructure to service the PSR Analysis Areas or former CGSP Area in the future would be subject to environmental review and impacts related to adequate wastewater facilities would need to be addressed.

The Proposed Project would designate land uses that have the potential to allow development to occur in areas where soils are incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems. However, all future development projects would be required to comply with all applicable federal, State, and local regulations related to septic tanks and waste water disposal. Compliance with such regulations would reduce the potential for septic systems to be located in soils incapable of supporting such systems. Therefore, the impact associated with waste water disposal systems would be less than significant.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the number of allowed dwelling units. Therefore, the impact associated with waste water disposal systems would be less than significant.

2.6.3.6 Issue 6: Unique Geologic Features

Guidelines for Determination of Significance

Based on Appendix G of the CEQA Guidelines and the County of San Diego Guidelines for Determining Significance Unique Geology (DPLU 2007m), the Proposed Project would have a significant impact if it would directly or indirectly destroy a unique geologic feature. Specifically, the project would result in a significant impact if it would materially impair a unique geologic feature by destroying or altering those physical characteristics that convey the uniqueness of the resource. A geologic feature is unique if it meets one of the following criteria:

a. Is the best example of its kind locally or regionally;
b. Embodies the distinctive characteristics of a geologic principle that is exclusive locally or regionally;
c. Provides a key piece of geologic information important in geology or geologic history;
d. Is a "type locality" of a formation;
e. Is a geologic formation that is exclusive locally or regionally;
f. Contains a mineral that is not known to occur elsewhere in the County; or
g. Is used repeatedly as a teaching tool.

Impact Analysis

Table 2.6-1 of the 2011 PEIR provides a list of known unique geologic features in San Diego County based upon the County Guidelines for Determining Significance Unique Geology (DPLU 2007m). Two unique geologic features are located near PSR Analysis Areas DS8 and DS24: the Borrego Badlands and the Pinyon Mountains. Because PSR Analysis Areas DS24 and DS8 are eight miles west of Borrego Badlands and 12 miles north of the Pinyon Mountains, the Proposed Project would not directly impact these geologic features.

Additional unlisted or previously unknown unique geologic features that meet the criteria listed above may be present throughout the County, due to the fact that the list in the County Guidelines is not comprehensive (e.g. mima mounds, migmatites, and exposures of the Sweetwater and La Nacion Faults are not included) and much of the unincorporated County remains undeveloped. It is important for newly discovered unique features to be protected from destruction so that their importance and ability to meet the above criteria can be evaluated. Future development within the PSR Analysis Areas and former CGSP Area may result in direct or indirect impacts to unique geologic features and would need to be evaluated on a project-specific basis. Direct impacts may result if construction of new development would potentially destroy the resource. Indirect impacts would occur if land uses result in alteration of the physical characteristics of the resource that make it unique such as increased runoff that would erode the feature.

Development projects within the County are screened for potential occurrence of unique geologic features and the County Guidelines for Determining Significance Unique Geology are applied when any such occurrences are identified. In addition, the County may require that a geologic reconnaissance report be prepared by a California Professional Geologist to evaluate impacts to unique geologic features.

Implementation of the Proposed Project would allow for increased development densities in the PSR Analysis Areas and former CGSP Area that may have the potential to materially impair a unique geologic feature by destroying or altering the physical characteristics that convey the uniqueness of the resource. However, future development would be required to follow all

applicable regulatory processes, including compliance with the County Guidelines for Determining Significance Unique Geology, which would require the completion of a geological reconnaissance report to evaluate the significance of unique geologic features on a given project site. In addition, most of the known features (aside from the Pinyon Mountains and Borrego Badlands) in the unincorporated County are in locations that would not have the potential to be affected by future development within the PSR Analysis Areas or former CGSP Area, based upon the locality data listed in Table 2.6-1 of the 2011 PEIR (County 2011b). Given the existing conditions and regulatory/policy processes and the fact that unique geologic resources are such a rarity in San Diego County, potential impacts to unique geologic features from the Proposed Project would be less than significant.

Adoption of the Valley Center Community Plan Residential Policy 8 Revision would allow for additional minimum lot size flexibility for residential clustering only within SR-2 or SR-4 areas and only within the sewer service area; however, the adoption would not result in an increase in the number of allowed dwelling units. Therefore, implementation of Valley Center Community Plan Residential Policy 8 Revision would not result in an impact related to unique geologic features.

2.6.4 Cumulative Impacts

The geographic scope of the cumulative impact analysis for geology is limited to the immediate area of the geologic constraint, with the exception of some geologic impacts that are regional, such as earthquake risk. Section 1.11 (Cumulative Project Assessment Overview) of this SEIR provides an update of new projects since the adoption of the General Plan that are considered in this cumulative analysis.

2.6.4.1 Issue 1: Exposure to Seismic Related Hazards

Most of Southern California is located in an area of relatively high seismic activity, including cumulative projects in the San Diego region. Cumulative projects located within the County and adjacent jurisdictions would be subject to CBC standards, which contain requirements for development in areas subject to Seismic Design Categories E and F. Additionally, most cumulative projects would be subject to the Alquist-Priolo Earthquake Fault Zone Act, which restricts development on active fault traces. Other jurisdictions (special districts, sovereign tribal nations) in the region have policies and guidelines in place to reduce seismic-related risks, and cumulative projects in these jurisdictions would be subject to these and other applicable State and/or federal regulations. However, risk related to seismic hazards is site specific and is not compounded by adjacent development or increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.4.2 Issue 2: Soil Erosion or Topsoil Loss

Cumulative projects would have the potential to result in substantial soil erosion or the loss of topsoil through construction activities, such as grading and excavation, that may result in hydromodification or exposure of topsoil to wind that would result in topsoil being washed or blown away. Development of cumulative projects, such as those listed in Tables 1-10 through 1-14 of Chapter 1 (Project Description) of this SEIR, would result in a potentially significant cumulative impact associated with sedimentation of stream courses. Most cumulative projects are subject to State and local runoff and erosion prevention requirements, including the applicable provisions of

the CBC, State Water Resources Control Board (SWRCB) general construction permit, best management practices, Phases I and II of the NPDES permit program, and the County Grading Ordinance. These measures are required to be implemented as conditions of approval for future development projects and are subject to continuing enforcement. Some cumulative projects, such as those located on tribal lands, would not be subject to State and local regulations. However, risk related to soil erosion or topsoil loss is site specific and is not compounded by adjacent development or increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.4.3 Issue 3: Soil Stability

Cumulative projects would have the potential to be located on geologic units or soils that are unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. It is anticipated that some cumulative projects, such as those allowable under the County and adjacent jurisdictions' general plans, would be required to undergo analysis of geological and soil conditions applicable to the development site in question during CEQA environmental review and comply with all applicable regulations to reduce risks, such as the CBC. Cumulative project compliance with applicable regulations would ensure that a significant cumulative impact would not occur. Other cumulative projects, such as those located on tribal lands, would not be subject to State and local regulations but would be required to comply with federal regulations including National Environmental Policy Act (NEPA). However, risk related to soil stability is site specific and is not compounded by adjacent development or increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.4.4 Issue 4: Expansive Soils

Cumulative projects would have the potential to be located on expansive soil, as defined in CBC Section 1802A.3.2, creating substantial risks to life or property. Some cumulative projects, such as those allowable under the County and adjacent jurisdictions, would be subject to CBC standards ensuring that development can withstand changes in soil integrity. Other cumulative projects, such as those occurring on tribal lands would not be subject to such State or local regulations but would be required to comply with federal regulations including NEPA. However, risk related to expansive soil is limited to the development site and is not compounded by adjacent development or increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.4.5 Issue 5: Waste Water Disposal Systems

Many cumulative projects would be located in areas served by municipal sewer systems and would not require OWTS. However, some cumulative projects, such as development proposed on tribal lands or on federal and State-operated lands, would be located in areas where sewers are not available and would have the potential to contain soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems. While it is anticipated that most adjacent jurisdictions have permit requirements for OWTS in place for the purpose of public health and safety, it is possible that some do not, such as projects on tribal lands. However, risk

related to soils incapable of supporting waste water disposal systems is limited to the development site and is not compounded by adjacent development or increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.4.6 Issue 6: Unique Geologic Features

Construction and operation of cumulative projects would have the potential to materially impair a unique geologic feature by destroying or altering the physical characteristics that convey the uniqueness of the resource. While it is anticipated that most development in adjacent jurisdictions would be subject to protections for unique geologic features established through the jurisdiction's general plan or other regulations, it is possible that some do not, such as projects located on tribal lands. However, risk related to unique geologic features is limited to development within the vicinity of the feature and is not compounded by increased development within the region. Therefore, cumulative projects in the region would not result in a significant cumulative impact. The Proposed Project, in combination with other cumulative projects, would not contribute to a potentially significant cumulative impact.

2.6.5 Mitigation

2.6.5.1 Issue 1: Exposure to Seismic-Related Hazards

The Proposed Project would not result in significant direct and cumulative impacts related to exposure to seismic-related hazards; therefore, mitigation is not necessary. However, the following adopted General Plan policies would continue to apply.

Adopted General Plan Policies

Policy S-7.1: Development Location. Locate development in areas where the risk to people or resources is minimized. In accordance with the California Department of Conservation Special Publication 42, require development be located a minimum of 50 feet from active or potentially active faults, unless an alternative setback distance is approved based on geologic analysis and feasible engineering design measures adequate to demonstrate that the fault rupture hazard would be avoided.

Policy S-7.2: Engineering Measures to Reduce Risk. Require all development to include engineering measures to reduce risk in accordance with the California Building Code, Uniform Building Code, and other seismic and geologic hazard safety standards, including design and construction standards that regulate land use in areas known to have or potentially have significant seismic and/or other geologic hazards.

Policy S-7.3: Land Use Location. Prohibit high occupancy uses, essential public facilities, and uses that permit significant amounts of hazardous materials within Alquist-Priolo and County special studies zones.

Policy S-7.4: Unreinforced Masonry Structures. Require the retrofitting of unreinforced masonry structures to minimize damage in the event of seismic or geologic hazards.

Policy S-8.1: Landslide Risks. Direct development away from areas with high landslide, mudslide, or rock fall potential when engineering solutions have been determined by the County to be infeasible.

Policy S-8.2: Risk of Slope Instability. Prohibit development from causing or contributing to slope instability.

2.6.5.2 Issue 2: Soil Erosion or Topsoil Loss

The Proposed Project would not result in significant direct and cumulative impacts related to soil erosion or topsoil loss; therefore, mitigation is not necessary. However, the following adopted General Plan policy would continue to apply.

Adopted General Plan Policy

Policy LU-6.5: Sustainable Stormwater Management. Ensure that development minimizes the use of impervious surfaces and incorporates other Low Impact Development techniques as well as a combination of site design, source control, and stormwater best management practices, where applicable and consistent with the County's LID Handbook.

2.6.5.3 Issue 3: Soil Stability

The Proposed Project would not result in significant direct and cumulative impacts related to soil stability; therefore, mitigation is not necessary. However, General Plan policy S-8.1 listed in Section 2.6.5.1 for Issue 1 would continue to apply.

2.6.5.4 Issue 4: Expansive Soils

The Proposed Project would not result in significant direct and cumulative impacts related to expansive soils; therefore, mitigation is not necessary. However, General Plan policies S-7.2 listed in Section 2.6.5.1 for Issue 1 would continue to apply.

2.6.5.5 Issue 5: Waste Water Disposal Systems

The Proposed Project would not result in significant direct and cumulative impacts related to waste water disposal systems through the combination of federal, State, and local regulations; existing County regulatory processes; and specific implementation programs identified in the 2011 PEIR. Therefore, mitigation is not necessary.

2.6.5.6 Issue 6: Unique Geologic Features

The Proposed Project would not result in significant direct and cumulative impacts related to unique geologic features; therefore, mitigation is not necessary. However, the following adopted General Plan policy would continue to apply.

Adopted General Plan Policy

Policy COS-9.2: Impacts of Development. Require development to minimize impacts to unique geological features from human related destruction, damage, or loss.

2.6.6 Conclusion

The following discussion provides a synopsis of the conclusion reached in each of the above impact analyses.

2.6.6.1 Issue 1: Exposure to Seismic-Related Hazards

Implementation of the Proposed Project would designate land uses that would allow development to occur in areas with geological risks, such as seismically induced ground shaking, liquefaction, and landslides. However, future development would be required to comply with all relevant federal, State, and local regulations and building standards, including the CBC and the County required geotechnical reconnaissance reports and investigations. Therefore, direct impacts from seismically induced ground shaking, liquefaction, and landslides would be considered less than significant. In addition, the Proposed Project would not contribute to a significant cumulative impact associated with seismic-related hazards.

2.6.6.2 Issue 2: Soil Erosion or Topsoil Loss

The land uses proposed under the Proposed Project would allow for construction and operational activities that would have the potential to expose topsoil to erosion from water or wind. This is considered a potentially significant impact. However, compliance with existing applicable regulations including the NPDES, CBC, and the County Grading Ordinance would reduce potential impacts to a level below significant. Additionally, the Proposed Project would not contribute to a potentially significant cumulative impact to soil erosion or topsoil loss.

2.6.6.3 Issue 3: Soil Stability

The Proposed Project would have the potential to result in hazards associated with on-site or off-site landslide potential, lateral spreading, subsidence, liquefaction, or collapse. Future development associated with the land uses designated under the Proposed Project would be required to comply with all applicable federal, State and local building standards and regulations, including the CBC and County required geotechnical reconnaissance reports and investigations. Compliance with such regulations would reduce impacts associated with on-site or off-site landslide potential, lateral spreading, subsidence, liquefaction, or collapse to a level less than significant. Additionally, the Proposed Project would not contribute to a potentially significant cumulative impact associated with soil stability.

2.6.6.4 Issue 4: Expansive Soils

The Proposed Project would designate land uses that would allow for the development of structures on potentially expansive soils. Future projects located in areas with expansive soils would be required to comply with all applicable federal, State, and local regulations, including the CBC. Compliance with such regulations would reduce impacts to a level below significant. Therefore, the Proposed Project would not create substantial risks to life or property due to expansive soils. Additionally, the Proposed Project would not contribute to a potentially significant cumulative impact associated with expansive soils.

2.6.6.5 Issue 5: Waste Water Disposal Systems

Implementation of the Proposed Project would designate land uses that have the potential to allow development in areas where soils are incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems. However, future development projects would be required to comply with all applicable federal, State, and local regulations related to septic tanks and waste water disposal, including County Department of Environmental Health standards. Compliance with such regulations would reduce the potential for septic systems to be located in soils incapable of supporting such systems. Therefore, impacts would be less than significant. Additionally, the Proposed Project would not contribute to a potentially significant cumulative impact related to waste water disposal systems.

2.6.6.6 Issue 6: Unique Geologic Features

Implementation of the Proposed Project would designate land uses that would allow development in areas that may have the potential to materially impair a unique geologic feature by destroying or altering the physical characteristics that convey the uniqueness of the resource. However, any future development would be required to follow applicable federal, State, and local regulations, including completion of a County required geological reconnaissance report. Compliance with such regulations would reduce impacts to unique geologic features to a level less than significant. In addition, the Proposed Project would not contribute to a potentially significant cumulative impact associated with impacts to unique geologic features.

Table 2.6-1 Potential Liquefiable Soils in PSR Analysis Areas

PSR Analysis Area	Soil Category	Acres
BO18+	No Data[(1)]	2
DS8	No Data[(1)]	169
DS24	No Data[(1)]	171
FB2+	Riverwash/Tujunga sand, 0 to 5 percent slopes/Visalia sandy loam, 0 to 2 percent slopes	247
FB21+	Riverwash/Tujunga sand, 0 to 5 percent slopes/Visalia sandy loam, 0 to 2 percent slopes	21
ME26	No Data[(1)]	61
ME30A	Chino fine sandy loam, 0 to 2 percent slopes	199
NC3A	No Data[(1)]	40
NC38+	No Data[(1)]	36
PP30	Riverwash/Tujunga sand, 0 to 5 percent slopes	438
VC7+	Tujunga sand, 0 to 5 percent slopes	<1
VC57+	Visalia sandy loam, 0 to 2 percent slopes	1,167
VC67	Visalia sandy loam, 0 to 2 percent slopes	14
	Total:	**2,565**

(1) Based upon County GIS datasets displayed in Figure 2.6-2. Some potentially liquefiable soil data did not have corresponding soil category information associated.

Note: Data has been rounded to nearest whole number.
Source: County 2017

Table 2.6-2 Landslide Potential in PSR Analysis Areas/ Former CGSP Area

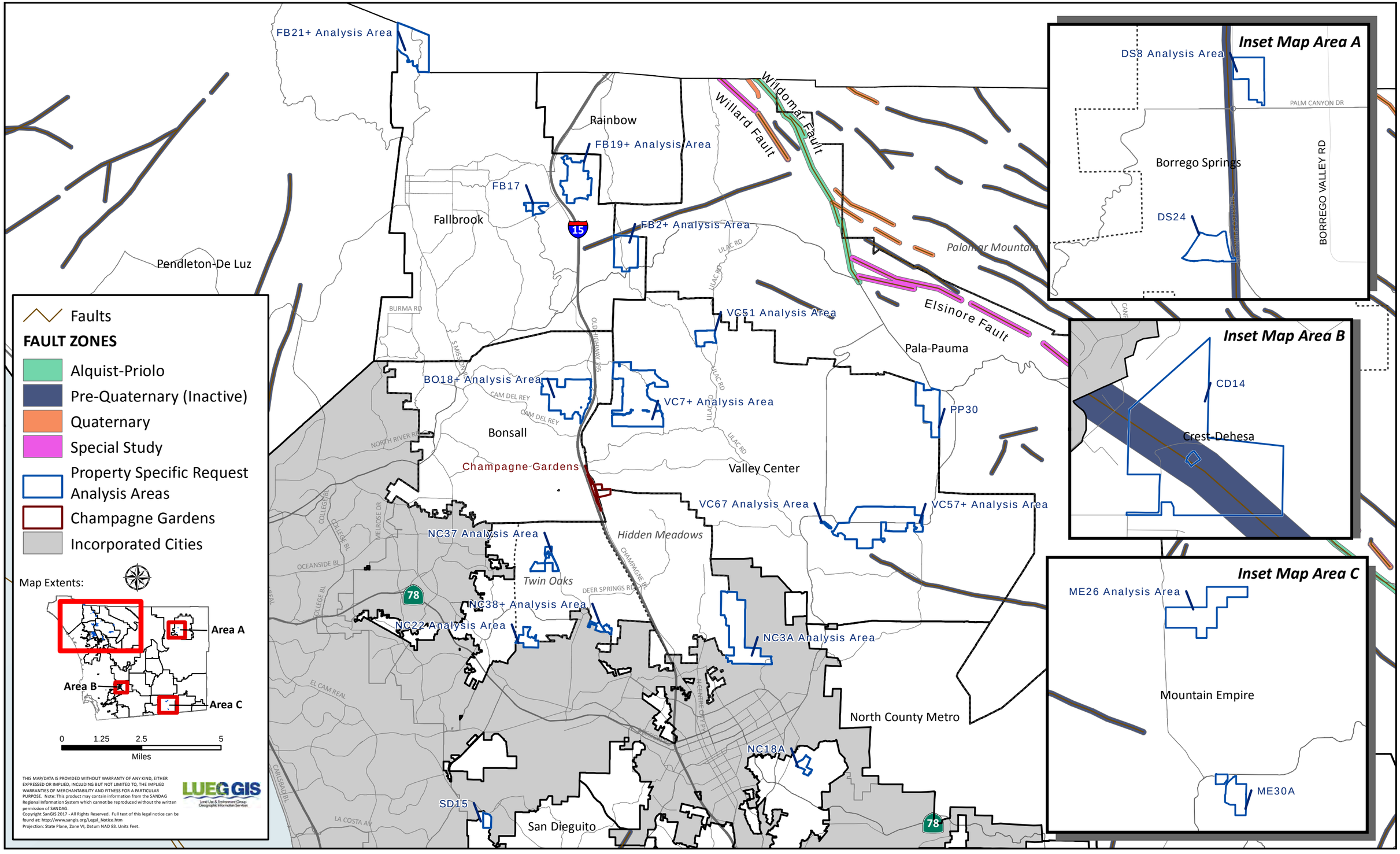
PSR Analysis Area/ Former CGSP Area	Acres
CD14	101
FB2+	198
FB17	11
FB19+	390
FB21+	7
NC3A	1,017
NC18A	93
NC22	155
NC37	158
NC38+	77
SD15	69
VC57+	535
VC67	14
CG1-8	121
Total:	**2,945**

Note: Data has been rounded to nearest whole number.
Source: County 2017

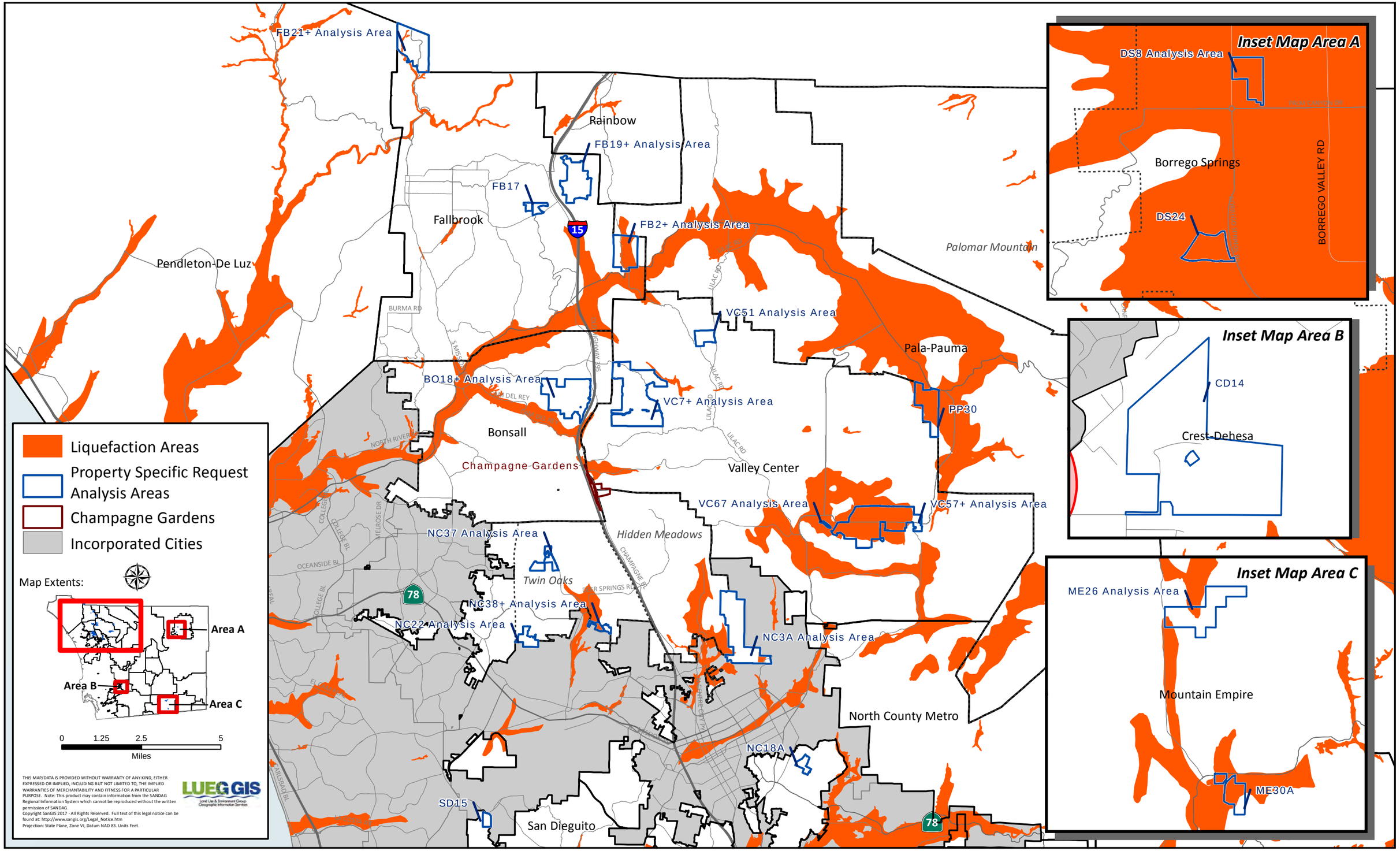
Table 2.6-3 Expansive Soils in PSR Analysis Areas

PSR Analysis Area	Soil Category	Acres
BO18+	Placentia sandy loam, 2 to 9 percent slopes	107
CD14	Placentia sandy loam, thick surface, 2 to 9 percent slopes	<1
FB2+	Las Posas stony fine sandy loam, 30 to 65 percent slopes/Placentia sandy loam, 2 to 9 percent slopes/Placentia sandy loam, 9 to 15 percent slopes, eroded	198
FB17	Placentia sandy loam, thick surface, 2 to 9 percent slopes/Placentia sandy loam, 5 to 9 percent slopes, eroded	<1
FB19+	Las Posas stony fine sandy loam, 30 to 65 percent slopes	45
NC37	Huerhuero loam, 2 to 9 percent slopes/Huerhuero loam 5 to 9 percent slopes, eroded/Las Posas stony fine sandy loam, 30 to 65 percent slopes/ Placentia sandy loam, 5 to 9 percent slopes, eroded	86
SD15	Huerhuero loam, 2 to 9 percent slopes/San Miguel rocky silt loam, 9 to 30 percent slopes	40
VC7+	Bonsall sandy loam, 9 to 15 percent slopes, eroded/ Placentia sandy loam, 2 to 9 percent slopes/ Placentia sandy loam, 9 to 15 percent slopes, eroded	82
VC57+	Placentia sandy loam, thick surface, 2 to 9 percent slopes/Placentia sandy loam, 5 to 9 percent slopes, eroded	131
VC67	Placentia sandy loam, 2 to 9 percent slopes	<1
	Total:	**690**

Note: Data has been rounded to nearest whole number.
Source: County 2017



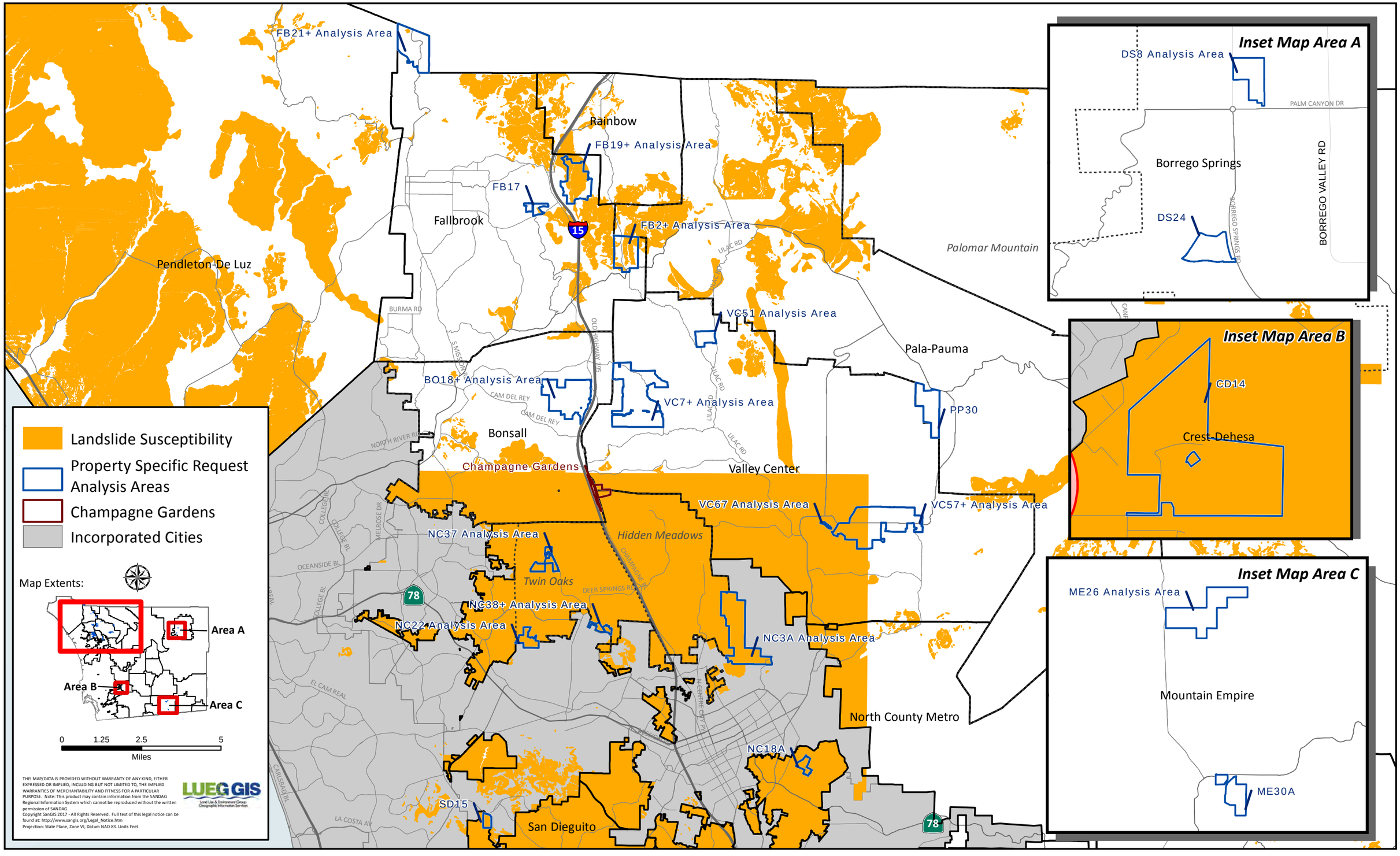
Source: SanGIS, County of San Diego, 2017



Source: SanGIS, County of San Diego, 2017

Liquefaction Areas

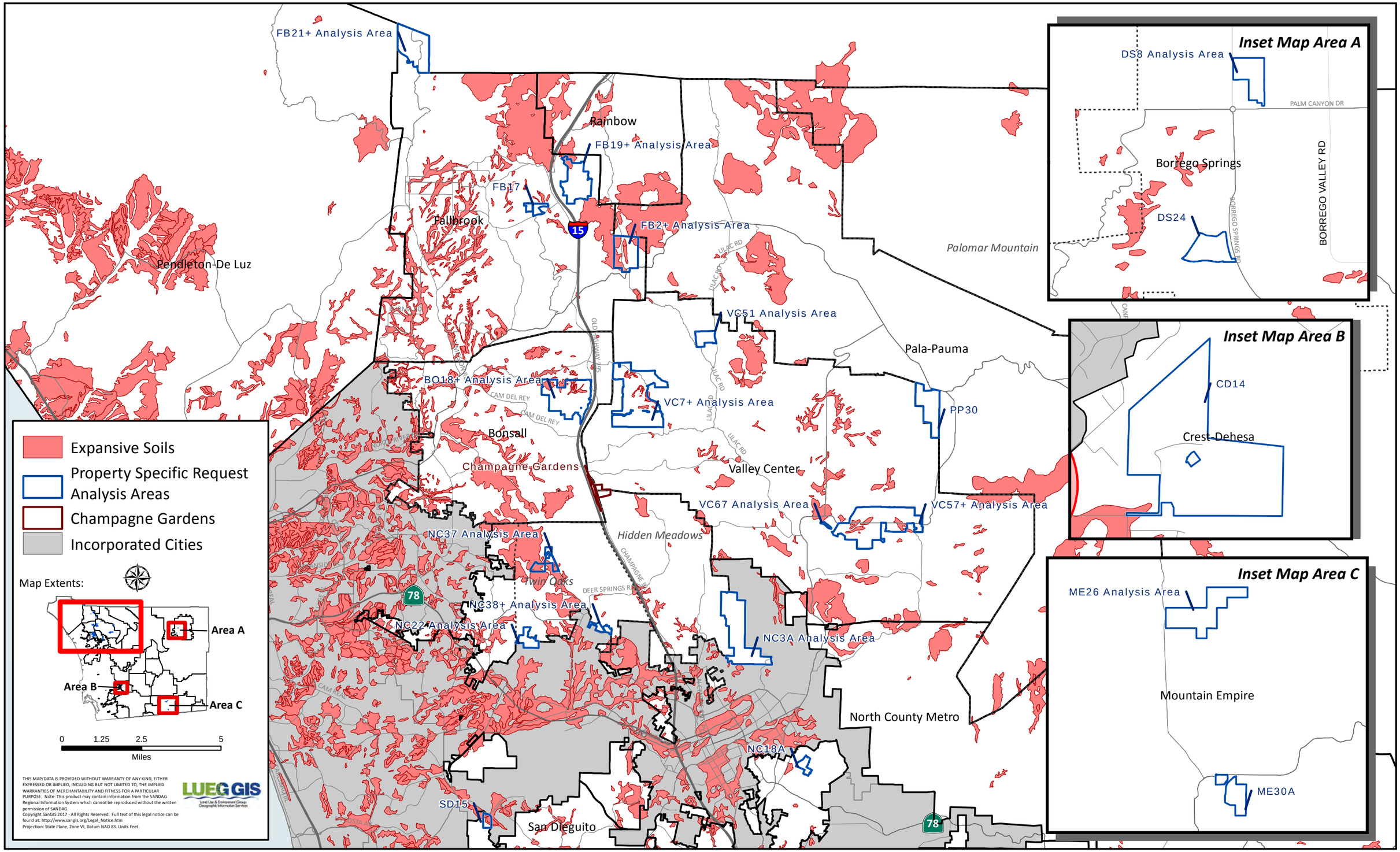
Figure 2.6-2



Source: SanGIS, County of San Diego, 2017

Landslide Susceptibility Areas

Figure 2.6-3



Source: SanGIS, County of San Diego, 2017