

June 16, 2026

Renew Development Holdco, LLC
100 California Street, Ste 400
San Francisco, CA 94111

Attn: Kevin Arterbridge-Whitten
E: kevin.awhitten@clearwayenergy.com

Re: Response to Comments by County of Riverside Planning Department
Savira Solar
Desert Center, Riverside County, California
Terracon Project No. CB255153

Dear Mr. Arterbridge-Whitten:

We have completed this response to County comments for the above referenced project. Terracon previously prepared a geotechnical reports for the subject site titled "Preliminary Geotechnical Engineering, Savira Solar, Desert Center, Riverside County, California", Terracon project No. CB255153, dated April 1, 2026. Terracon received Riverside County Planning Department comments in their "Review Comments for County Geologic Report No. 260018 for CUP240027/CEQ250007" dated May 18, 2026. The review letter includes 5 numbered items requesting additional information regarding geologic hazards, geologic site mapping, the California Environmental Quality Act and the County Safety Element. It also requests total and differential settlement values and expanded seismic design parameters. A summary of the County's numbered review comments and our responses is included at the end of this response.

The site will include the construction of a 531-acre PV solar generating facility, along with a 11.15-acre Battery Energy Storage System (BESS), and a 1.27-acre substation facility. The proposed approximately 1.8 mile long above-ground transmission line is outside Terracon's scope for this response. The site will also include an Operations and Maintenance (O&M) building (and access roads).

Geotechnical Characterization

Geologic Setting and Site Geology

The site is within the Colorado Desert Geomorphic Province in Southern California. The Colorado Desert Geologic province is characterized by relatively low elevations (low desert) with mountain ranges separated by desert playas and basins.

The site is located in the Chuckwalla Valley, situated between relatively uplifted mountain ranges consisting of granitic and metamorphic rocks. These ranges drain toward the valley forming young (Holocene-age) alluvial fans with erosional remnants of Pleistocene-age fans along the margins of the mountains. Windblown sands (dunes) are extensive. Minor areas locally are occupied by dry lakes (playas), including Palen Dry Lake. These lakes are normally dry but are subject to flooding during summer monsoon rains. A [Geologic Index Map](#) (Jennings, 1967, Salton Sea Sheet) depicting these units and others in the Chuckwalla Valley is attached.

Based on geologic mapping by Terracon and by Jennings (1967), the site is underlain by young alluvial deposits, mapped as Qal. The alluvium consists of sands and silty sands with gravel. See attached [Geologic Map](#). The [Geologic Map](#) includes site-specific geologic mapping of the site and locations of representative exploratory borings. Some explorations were removed for clarity of the map.

Very young wash deposits are mapped as Qw, marginal to the western portion of the site. The wash deposits are very recent to historic in age. The washes associated with Qw cross Interstate 40 via culverts.

Fill is present in minor quantities associated with a former basin (see [Geologic Map](#)). Significant amounts of fill were not observed on the site. Any fill found during grading should be removed if found to be in conflict with any of the proposed improvements.

Subsurface Soils

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project.

Subsurface soils encountered within our borings consisted of medium dense to very dense sands and silty sands with gravel. Cobbles ranging between 3 and 6 inches in diameter were encountered within all of our test pits excavated to a depth of 10 feet bgs. Very dense silty sand layers were encountered between depths of 5 and 15 feet within some boring locations. The above-average density of the soil layers is an indicator of the possible presence of caliche within the site. Caliche refers to the calcium

carbonate, generally white, light pink, or reddish brown, commonly found within the subsurface soil layers in the Mojave Desert region.

Groundwater

The borings were advanced using a hollow-stem-auger drilling technique that allows short-term groundwater observations to be made while drilling. Neither groundwater seepage nor static groundwater were encountered at the time of the field explorations to depths of 51.5 feet bgs.

The site is located in the Chuckwalla Valley. Groundwater in this portion of the valley appears to be underutilized, based on the very sparse well data available from SGMA database.

The closest data point (well) shown in the SGMA database, located approximately 6 1/4 miles northwest of the site (Well No. 4S/16E32M01), shows a depth to groundwater of 121-122 feet in 1984 and 1985. A level of 121 feet in this well corresponds to a water surface elevation of approximately 429 feet.

The site elevation ranges from approximately 735 feet near I-40 to 580 feet from south to north. A reasonable estimated groundwater depth of 120 feet yields a groundwater elevation of approximately 615 feet at the south end and approximately 460 feet at the north end. Based on the available data, the depth to groundwater is expected to be currently greater than 100 feet beneath the site and historically no less than 100 feet deep.

Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

Geologic Hazards

Regional Faulting

The tectonics of the Southern California area are dominated by the interaction of the North American and Pacific tectonic plates, which are sliding past each other in transform motion. Although some of the motion may be accommodated by rotation of crustal blocks such as the western Transverse Ranges (Dickinson, 1996), the San Andreas fault zone represents the major surface expression of the tectonic boundary and accommodates a significant portion of the slip between the Pacific and North American plates. Some of the slip is accommodated by other northwest-trending strike-slip faults that are related to the San Andreas system, such as the San Jacinto and Elsinore faults.

A **Regional Fault Map** is attached. The following table lists selected faults within the site region.

Fault	Magnitude ¹	Distance (km)	Direction
Blue Cut	7.16	29	NW
San Andreas	7.57	57	SW
Brawley	7.14	56	SW
Pinto Mountain	7.52	68	NW
San Jacinto	7.88	89	SW

¹ USGS NSHM U.S. 2023 Model

Blue Cut fault: The east-west-trending Blue Cut fault exhibits both left-lateral strike slip with minor reverse slip. It is part of a broader set of east-west faults that characterize the Transverse Ranges and its orientation may be a result of block rotation.

San Andreas Fault Zone: The San Andreas fault zone (SAFZ), a prominent geologic feature of California, traverses the northeast side of the Salton Sea and the Coachella Valley, as close as approximately 55 kilometers southwest of the site. This strand is the northeast side of a pull-apart basin forming the Salton Trough. The Brawley fault is considered a branch of the San Andreas fault zone and is characterized by earthquake swarms and ground surface ruptures during the 20th century.

The greater San Andreas fault system is composed of multiple named segments extending through California that are postulated to rupture singly or together with other segments. The SAFZ is capable of producing magnitude 7.5 to 8 earthquakes under multi-segment rupture scenarios. The ShakeOut Scenario (USGS, 2008) is a study aimed at identifying the physical, social and economic effects of a major earthquake in southern California and preparing Californians before such an event occurs.

The scenario earthquake selected for ShakeOut is a magnitude 7.8 event on the southern SAFZ, postulated to generate similar events on average every 150 years. Lateral slip for the scenario event is estimated as 9 to 30 feet. Fault rupture and strong ground shaking from the SAFZ present hazards to be mitigated for developments in the project area. Southwestward decrease in slip rates along the SAFZ northwest of its junction with the San Jacinto fault zone is suggested in studies by McGill and others (2021) and attests to the complexity of fault systems in southern California.

Pinto Mountain Fault Zone: The Pinto Mountain fault is a left-lateral strike-slip fault of the eastern Transverse Ranges. Documented Holocene rupture is not abundant, but

triggered slip was observed during the 1992 Landers earthquake near the Yucca Valley airport. At the airport we observed a very wide zone of cracking parallel to the fault where it intersects the Eureka Peak and Burnt Mountain fault zones.

San Jacinto Fault Zone: The Clark branch of the San Jacinto fault is a major, continuous strand in the Salton Trough. San Jacinto fault zone is a system of northwest-trending, right-lateral, strike-slip faults and is a major element of the San Andreas fault system in southern California (Treiman and others, 1999). This right-slip fault zone branches off from the San Andreas near Cajon pass and extends southeastward through the Peninsular Ranges for 75 miles into southwestern Imperial Valley. Recent surface ruptures along the San Jacinto fault zone occurred in 1968 along the Coyote Creek segment during a magnitude 6.5 earthquake and in 1987 during the Superstition Hills (magnitude 6.6) and Elmore Ranch (magnitude 6.2) earthquakes.

Fault Rupture Potential

The site does not lie within or immediately adjacent to an Alquist-Priolo Earthquake Fault Zone designated by the State of California to include traces of suspected active faulting. The closest APZ boundary, designated for the Hidden Spring fault zone, is located approximately 48 kilometers southwest of the site. This portion of the Colorado Desert is not characterized by active or potentially active faults and the potential for fault rupture within the site is considered low.

No active faults are shown on or in the immediate vicinity of the site on published geologic maps, including the Riverside County GIS system and Jennings (2010). A **Regional Fault Map** is attached.

No evidence for active faulting on or immediately adjacent to the site was observed during the geologic field reconnaissance or on the aerial photographs reviewed.

The site is located on a gently-sloping alluvial fan emanating from granitic bedrock terrain located southwest of the site, on the other side of I-40. Review of aerial imagery dating back to 1953 confirms a uniform geomorphic surface of Holocene age with local erosional remnants of Pleistocene age surfaces (Qc on attached **Geologic Index Map**).

Our investigation for this response did not reveal any evidence for disruption of this slope, such as changes in slope (inflections) or scarps. Lidar imagery available from the USGS (<https://apps.nationalmap.gov/3depdem/>) for the site also confirms a uniformly sloping surface with no evidence for faulting. See attached **Lidar Map**.

Historical Earthquakes

A search of the USGS earthquake catalog for earthquakes of magnitude 4.5 or greater within 150 kilometers of the site returned 112 results including 8 events of magnitude 6

or greater, 31 events of magnitude 5 to 5.9, and 70 events of magnitude 4 to 4.9. A **Regional Seismicity Map** based on these data is attached.

The larger events in the search area are located within the Salton Trough, associated with the 1940 Imperial Valley (M 6.9), the 1987 Superstition Hills (M 6.6), 1942 Fish Creek Mountains (M 6.6), 1968 Borrego Mountain (M6.6), 1906 Imperial Valley (M 6.3), and the 1987 Elmore Ranch (M 6.2) .

The following table summarizes selected earthquakes recorded in the site region.

Event ID	Date	Magnitude	Distance (km)	Direction
Imperial Valley	1940	6.9	94	S
Superstition Hills	1987	6.6	93	SW
Fish Creek Mountains	1942	6.6	92	SW
Borrego Mountain	1968	6.6	95	SW
Imperial Valley	1906	6.3	92	SW
Elmore Ranch	1987	6.2	84	SW

Mitigation of seismic shaking hazard includes design and construction of buildings and improvements according to applicable codes. The following section provides seismic design information specific to this project site.

Seismic Parameters

Our field exploration included standard penetration testing (SPT) within the substation to a maximum depth of 50 feet bgs. Soils from a depth of 50 to 100 feet were assumed to be the same conditions encountered at 50 feet bgs in order to generate a profile to determine the Seismic Site Class. Based on the SPT data from the substation, a correlated V_{S30} profile of 823 feet/s was calculated based on Wair et al. (2012) which corresponded to a Site Class D.

In accordance with Section 20.3 of ASCE 7-22, when correlated V_{S30} values are used, seismic design parameters shall be evaluated for site class conditions corresponding to the baseline V_{S30} , a 30 percent increase in V_{S30} , and a 30 percent decrease in V_{S30} . The governing seismic design parameters shall be based on the highest resulting ground motion and spectral acceleration values among these three scenarios. Previous versions of this report presented results considering this approach.

The 2025 CBC seismic design parameters have been generated using the ASCE Hazard Tool¹. This web-based software application calculates seismic design parameters in accordance with ASCE 7-22 and 2025 CBC, as derived from the USGS Seismic Design Geodatabase. Seismic design parameters are presented in the table below.

Description	Value
2025 CBC Site Class ¹	DE, D, CD
Site Latitude (near center of site)	33.7015°N
Site Longitude (near center of site)	115.2597°W
S _s , Mapped Spectral Acceleration for a Short Period	0.7
S ₁ , Mapped Spectral Acceleration for a 1-Second Period	0.25
S _{MS} – MCE Site-modified spectral acceleration parameter - Short Period	1.13
S _{M1} – MCE Site-modified spectral acceleration parameter - 1-Second Period	0.87
S _{DS} , Design Spectral Acceleration Parameter - Short Period	0.75
S _{D1} , Design Spectral Acceleration Parameter - 1-Second Period	0.58

1. Seismic site class in general accordance with the 2025 CBC, which refers to ASCE 7-22. The site class is required to determine the Seismic Design Category for a structure. The site class worksheet is attached.

Faulting and Estimated Ground Motions

The site is located in Southern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. As calculated using the USGS Unified Hazard Tool, the San Andreas (Coachella), which is considered to have the most

¹ <https://ascehazardtool.org/>

significant effect at the site from a design standpoint, has a maximum credible earthquake magnitude of 7.76 and is located approximately 57 kilometers from the site.

Based on the USGS Design Maps Summary Report, using the American Society of Civil Engineers (ASCE 7-22) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.37 g. Based on the USGS Unified Hazard Tool, the project site has a mean magnitude of 6.83. Printouts of the seismic parameters and the USGS Hazard Tool are attached.

Liquefaction and Seismic Settlement

According to the Riverside County GIS application (accessed June 2026), the site and surrounding area are included within a “moderate” liquefaction potential. Based on the site soil density and lack of historical high groundwater, the soils at the site are not susceptible to liquefaction or lateral spreading in a seismic event. Other hazards associated with liquefaction, such as lateral spreading are also considered low to negligible.

At the request of the Riverside County Planning Department, we performed a dry seismic settlement evaluation using data from our exploratory borings drilled to a depth of 51½ feet bgs with the software “LiquefyPro” by CivilTech Software. A Peak Ground Acceleration (PGA_M) of 0.37g and the de-aggregated modal magnitude of 8.1 were utilized as input into the analysis program.

The analysis results show that seismically induced settlement of dry/unsaturated sands at the site is estimated to be on the order of 0.12 inch. The maximum differential seismic settlement could be on the order of one-half of the total seismic settlement over a distance of 50 feet. This anticipated seismic settlement combined with static settlement of 1 inch for the recommended foundation bearing pressures included in the original geotechnical report, are within generally accepted tolerances for shallow spread footing foundations planned for the improvements and additional recommendations are not required at this time.

Slope Stability and Landslide Potential

The site is relatively planar, with a gentle descending slope toward the northeast. The project footprint is situated on a relatively flat and level topography, and significant natural or manmade slopes are not located within the project boundaries. The hazard of landsliding, including seismically-induced landsliding, at the site is considered to be very low.

Tsunamis, Inundation, and Seiche and Flooding Potential

The site is not located within an area mapped for flood hazard (FEMA NHFL, 2008). A flood hazard area is shown as close as approximately 2,000 feet southeast of the site by the County GIS application (accessed June 2026). No evidence of recent significant flooding of the site was observed during the field reconnaissance or on the aerial photographs reviewed. An evaluation of the storm-induced flood potential of the site falls under the purview of others.

The site is not located within a potential inundation zone for seismically induced dam/reservoir failure. The site is not located in a coastal area. Therefore, the potential for seismically-induced flooding due to seiche or tsunami to affect the site is considered low.

Subsidence Potential

According to the Riverside County GIS application (accessed June 2026), the site and surrounding area are included within an area designated as "susceptible" to subsidence. The County mapping includes all alluvial areas in the County as "susceptible" or "active" areas of subsidence. The "active" areas appear to include zones of documented subsidence, such as the San Jacinto Valley. The site is not within an area of documented subsidence. Subsidence can have negative effects on level-sensitive infrastructure such as gravity pipelines, roads and buildings and can be expressed as surface cracking.

The susceptibility of the site to subsidence is dependent upon the extent of historic and current groundwater extraction. There are no wells documented in the vicinity of the site. Groundwater extraction is expected to be minimal in the area and is expected to remain so for the lifetime of the project. The hazard of subsidence to the project is expected to be minimal.

Structures susceptible to regional subsidence include gravity sewers, surface drainage and storm drains. The proposed development is unlikely to be significantly affected should regional subsidence occur.

Erosion Potential

The site is underlain by relatively fine-grained granular soils. These materials may be subject to erosion by wind and water. Engineering design should be provided to minimize the erosion potential.

Additional Geohazards

The site is underlain by granular soils considered to be non-expansive. Expansive soils and associated effects are not anticipated within the site area.

Hazardous materials including methane gas, hydrogen-sulfide gas, or tar seeps are not present in the site area.

Rock formations with the potential for naturally-occurring asbestos (ultramafic rocks) do not occur in the vicinity of the project site. Therefore, the potential for naturally-occurring asbestos to affect the site is considered very low.

Oil or gas wells are not mapped near the site (CalGEM, 2026). We do not consider oil- and gas-related features to be potential hazards at the site.

Additional geohazards are not expected at the site.

California Environmental Quality Act Items

The CEQA checklist (Appendix G, Items VI a through e) and related items are addressed below as required by the County review. Where the item is specific to the checklist, that item is identified below. Previous discussions of specific hazards in the text are noted and not repeated.

USDA/NRCS Soil Mapping

The US Department of Agriculture and its National Resource Conservation Service (NRCS) provide web-based soil mapping (<https://websoilsurvey.nrcs.usda.gov>). A summary of the mapped on-site units, their areal percentages and selected soils properties is included below. The following table was excerpted from Section 3.8, (draft) Geology, Soils and Mineral Resources, provided to Terracon by Renew Development Holdco, LLC.

NRCS Mapped Soil Units					
Unit Name	Percentage of Site Area	Hydrologic Group	Wind Erodibility Group	Soil Erodibility factor K	Linear Extensibility percent
101 – Carsitas-Carsitas non-gravely complex, 2 to 4 percent slopes	100%	A	2	0.15	0

Notes:

- ^a A Hydrologic Group is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential depth to a seasonal high-water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Soils in Group A have the lowest runoff potential when wet and transmit water freely, while soils in Group D have the highest runoff potential when wet and water movement through the soil is restricted (NRCS, 2025).

- ^b A *wind erodibility group* (WEG) consists of soils that have similar properties affecting their susceptibility to wind erosion, which varies according to factors such as soil texture, organic matter content, carbonates, rock fragments, and mineralogy (NRCS Staff n.d.). Soil moisture and frozen soil layers also influence wind erosion. WEG values are assigned to soil map units by NRCS and range from a value of 1 to 8: high wind erosion susceptibility (WEG 1 or 2), moderate wind erosion susceptibility (WEG 3 or 4), low wind erosion susceptibility (WEG 5, 6, or 7), and no susceptibility to wind erosion (WEG 8) (NRCS, 2025).
- ^c The soil erodibility factor (known as the *K factor*) is used to indicate the susceptibility of soils to sheet and rill erosion by water and the rate of runoff. K factor values range from 0.02 (least erodible soils) to 0.69 (most erodible soils). Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water (NRCS, 2025).
- ^d The linear extensibility percent of a soil is used to identify shrink-swell classes as follows: low (<3), moderate (3-6), high (6-9), and very high (>9).

The risk of substantial erosion can be mitigated by proper engineering design (Item VIb).

Mineral Resources

The site is located within an area designated by the California Geological Survey (Kohler-Antablin, 1994) as MRZ-4, or Mineral Resource Zone 4. MRZ-4 areas are defined as “areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of mineral resources”. The site is underlain by sand and silty sand that is unlikely to include economic deposits of PCC aggregate.

Earthquake Fault Rupture (Item VIai)

The hazard of ground rupture due to active faulting was previously addressed and is considered very low. Review of field conditions, historic aerial imagery and lidar imagery shows a uniform site surface with no evidence of faulting on or in the vicinity of the site.

Strong Seismic Shaking (Item VIaii)

Moderate seismic shaking can be anticipated for many sites in the Colorado Desert Province, including this one. This hazard can be mitigated through engineering design.

Seismic Ground Failure, Including Liquefaction (Item VIaiii)

According to the Riverside County GIS application (accessed June 2026), the site and surrounding area are included within a “moderate” liquefaction potential. Based on the site soil density and lack of historical high groundwater, the soils at the site are not susceptible to liquefaction or lateral spreading in a seismic event. Other hazards associated with liquefaction, such as lateral spreading, are also considered low to negligible. It is our opinion that the risk of seismic ground failure at the site is low.

Landslides (Item VIaiv)

The site is relatively planar and level with a very low landslide hazard, as previously addressed.

Site Instability (Item VIc)

As previously addressed, there is no recognized site condition that could result in on or offsite landsliding, lateral spreading, subsidence, liquefaction or collapse.

Expansive Soils (Item VId)

The site soils are granular and are non-expansive.

Support for Septic Tanks(Item VIe)

Based on our experience, the sandy alluvium at the site could support installation and use of a septic system (Onsite Water Treatment). It is anticipated that the Operations and Maintenance Building (O&M) could incorporate a septic system or used pumped storage. As required for stormwater disposal, infiltration of runoff is proposed and appears feasible based on our test results.

Summary of Review Comments and Responses

County Comment 1: "A California Certified Engineering Geologist must provide a discussion/description of the regional and local geology and evaluate all potential geologic hazards that may impact the project based on CEQA and the Riverside County Safety Element, and sign/stamp the report.

Response 1: A site-specific geologic map has been included as an attachment to this letter. The requested information has been provided throughout this response.

County Comment 2: *"Please provide regional and local geology maps showing the site relative to geological units and nearest active faults."*

Response 2: . A **Geologic Index Map** depicting the local geologic units and others in the Chuckwalla Valley is attached. A **Regional Fault Map** is attached.

County Comment 3: *"Please address the potential of active faults at the site. Provide positive lines of evidence, based on site-specific geological observations, to support the opinion regarding active faulting on the subject site (perform geological mapping of the site, and evaluate presence or absence of lineaments, scarps, other features shown on referenced historic aerial photographs and maps, etc.). Not being in a published fault zone or not having a published fault trace, on or projecting toward the site, does not*

preclude the existence of active faults at the site (California Geological Survey, Special Publication 42, 2018) and the requirement for actual site geological mapping by a California Certified Engineering Geologist. Site-specific geological information must be provided to support the opinion."

Response 3: This response has been prepared and reviewed by an Engineering Geologist. Review of published geologic mapping, LiDAR imagery and historic aerials (dating back to 1953) show a uniform northeasterly-sloping ground surface in the site area, with no evidence for slope inflections, lineaments, scarps, springs or other potential manifestations of faulting.

City Comment 4: *"Please provide total and differential settlement values (not estimates) for static and dynamic conditions based on site-specific data and analysis"*

Response 4: The requested total and differential settlement values have been provided in this response and the settlement analysis has been included as an attachment to this letter. The total settlement value was calculated to be approximately 0.12 inch and differential settlement is considered to be half of the total settlement.

County Comment 5: *"Page 8 of the report states that the governing seismic design parameters are based in part on results from previous versions of this report. Please provide the previous analysis and results for determining the three site class scenarios in the current report. Please provide the ASCE Hazard Tool output results."*

Response 5: Page 8 of the report states "Previous versions of this report presented results considering this approach". The seismic parameters from the previous versions of the report are the same as the ones included in the final report. Our analysis for determining the three site class scenarios as well as the ASCE Hazard Tool and Unified Hazard Tool output results have been included as attachments to this letter.

Closure

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing.

Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damage due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns.

Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this addendum, or if we may be of further service, please contact us.

Response to County Comments

Savira Solar | Desert Center, Riverside County, California
June 16, 2026 | Terracon Project No. CB255153



Sincerely,

Terracon Consultants, Inc.

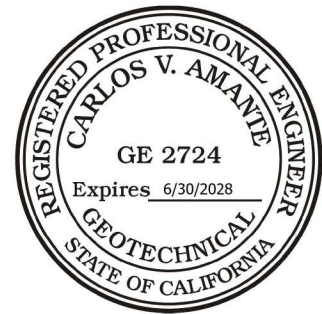
A handwritten signature in black ink, appearing to read 'Adib Attiyah'.

Adib Attiyah, PE.
Senior Staff Engineer



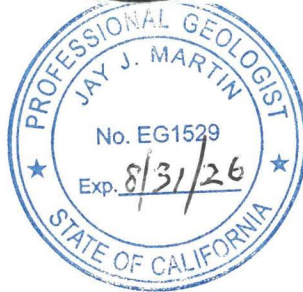
A handwritten signature in blue ink, appearing to read 'Carlos V. Amante'.

Carlos Amante, P.E., G.E.
Senior Project Manager



A handwritten signature in blue ink, appearing to read 'Jay J. Martin'.

Jay J. Martin, C.E.G.
Principal



References

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Response to County Comments

Savira Solar | Desert Center, Riverside County, California

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U.S. Geological Survey, 2026, web-based USGS Earthquake Hazards Toolbox,
<https://earthquake.usgs.gov/nshmp>.

U.S. Geological Survey, 2026, web-based USGS LiDAR 3DEP Viewer,
<https://apps.nationalmap.gov/3depdem/>

Response to County Comments

Savira Solar | Desert Center, Riverside County, California

June 16, 2026 | Terracon Project No. CB255153



Attachments

Addendum No. 1

Savira Solar | Desert Center, Riverside County, California
June 16, 2026 | Terracon Project No. CB255153



Site Maps

Contents:

Geologic Index Map

Geologic Map (oversize)

LiDAR Map

Regional Fault and Regional Seismicity Maps (2 pages)

Note: All attachments are one page unless noted above.

Addendum No. 1

Savira Solar | Desert Center, Riverside County, California

June 16, 2026 | Terracon Project No. CB255153

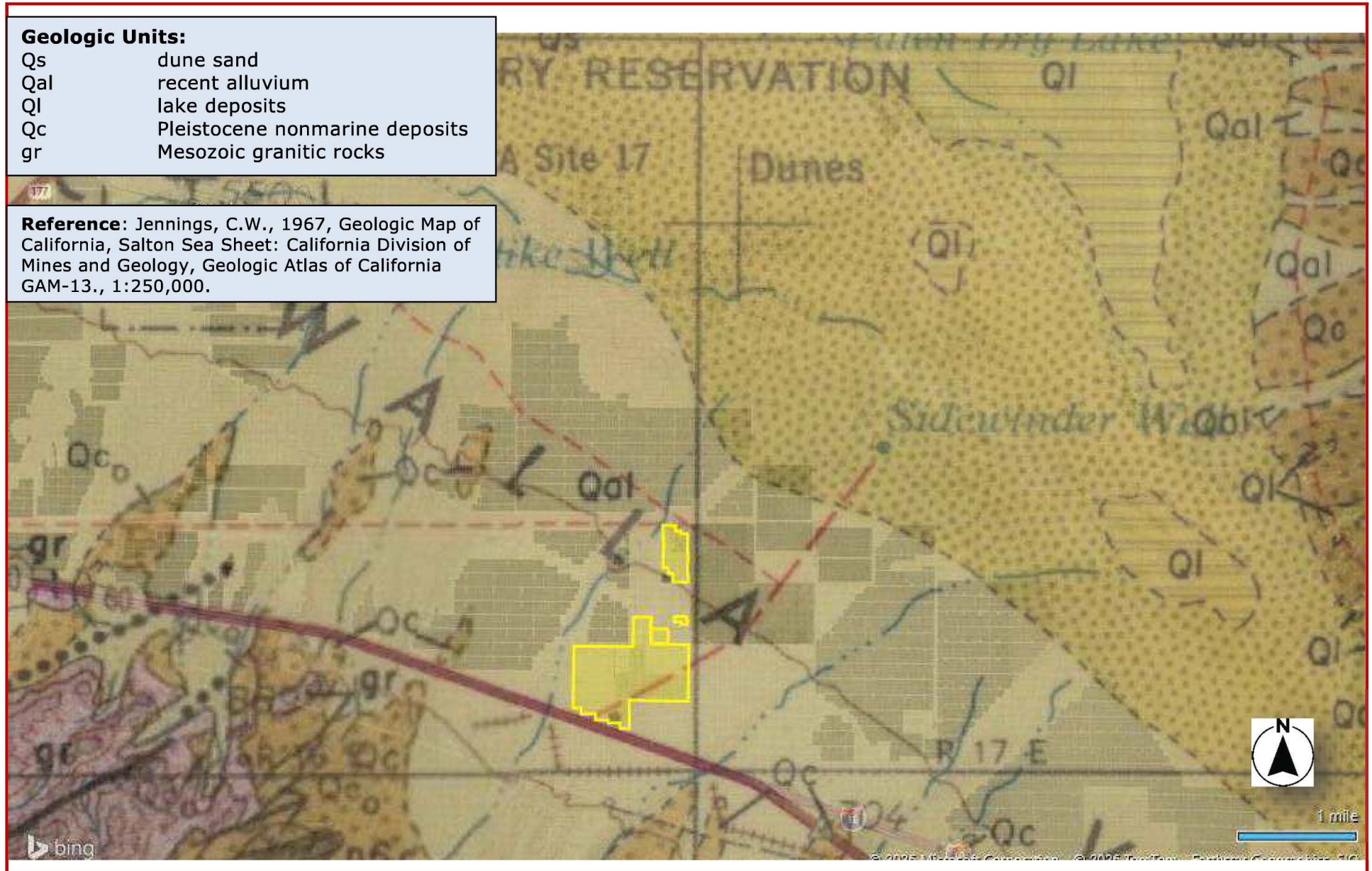


Geologic Index Map

Geologic Units:

Qs	dune sand
Qal	recent alluvium
Ql	lake deposits
Qc	Pleistocene nonmarine deposits
gr	Mesozoic granitic rocks

Reference: Jennings, C.W., 1967, Geologic Map of California, Salton Sea Sheet: California Division of Mines and Geology, Geologic Atlas of California GAM-13., 1:250,000.



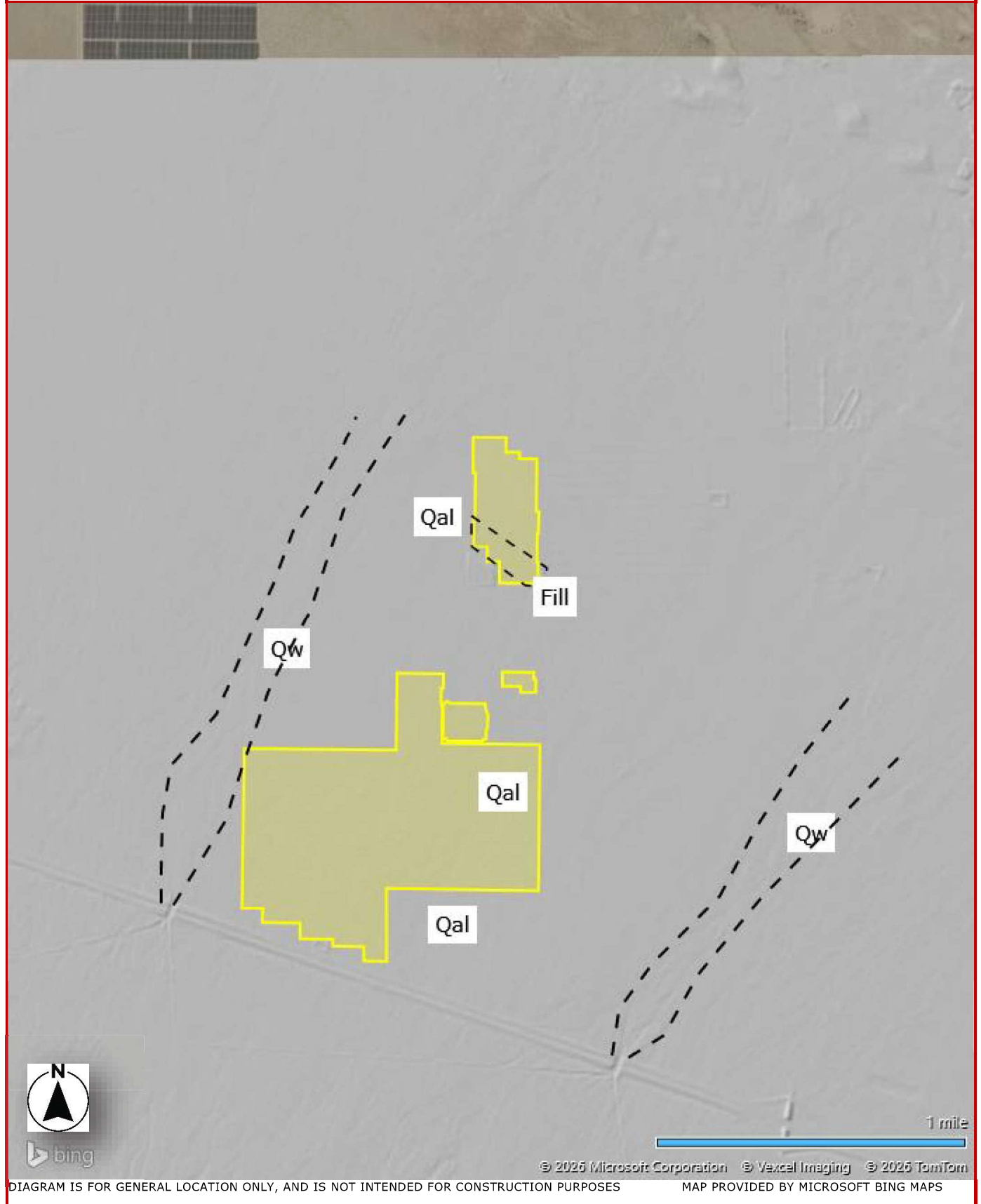
Addendum No. 1

Savira Solar | Desert Center, Riverside County, California

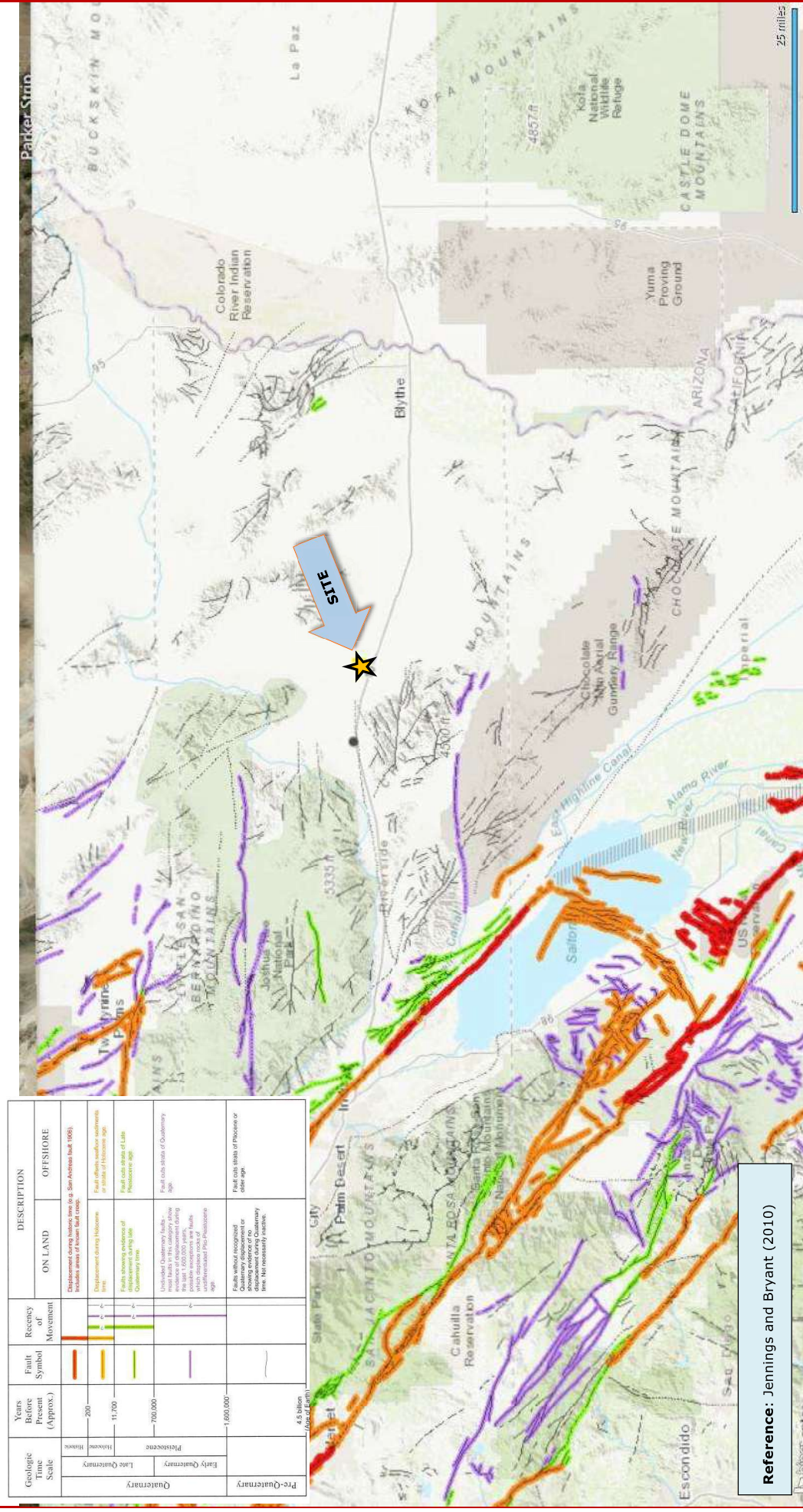
June 16, 2026 | Terracon Project No. CB255153



Lidar Map

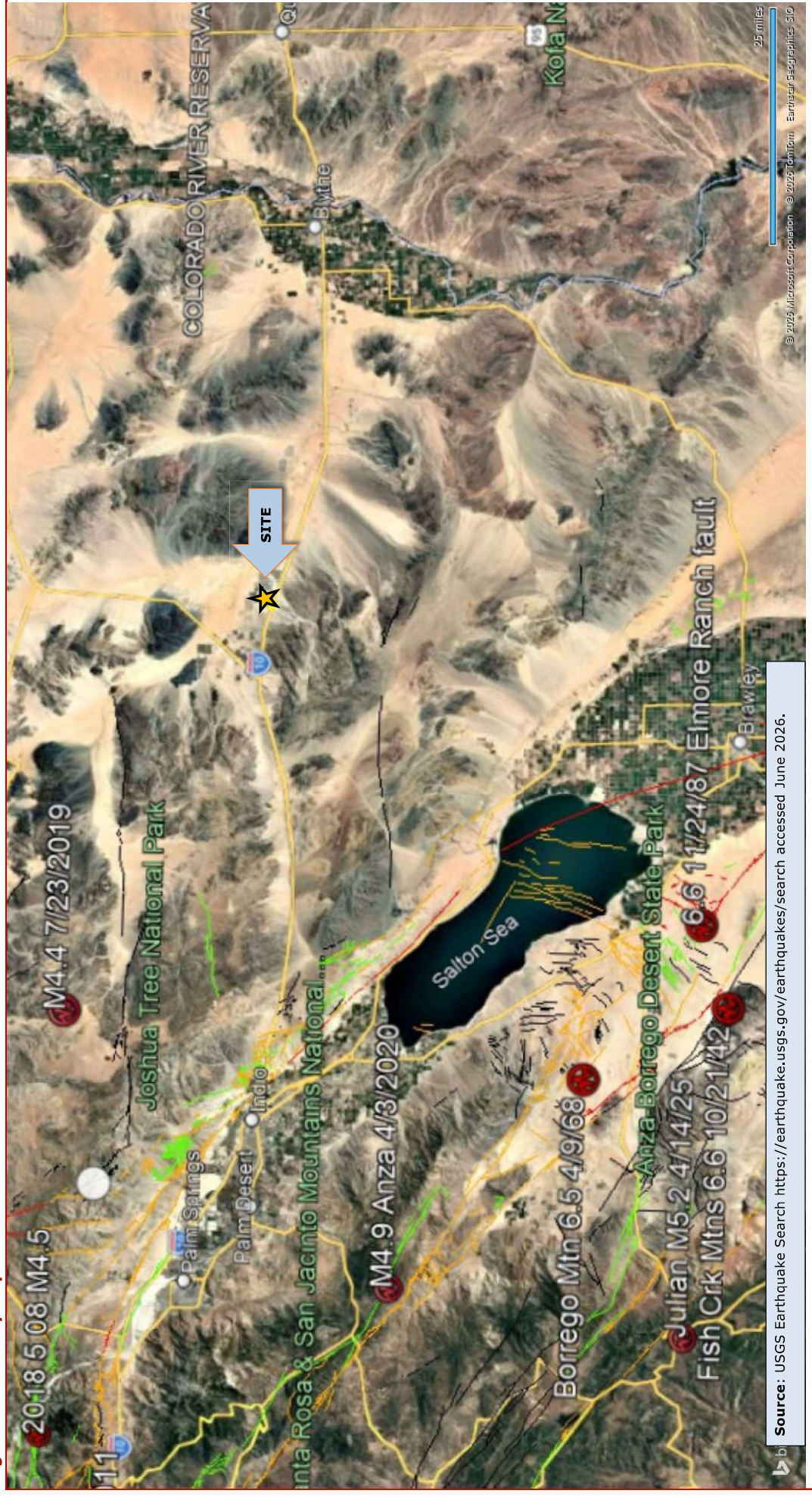


Regional Fault Map



Reference: Jennings and Bryant (2010)

Regional Seismicity Map



Supporting Information

Contents:

Site Class Worksheet (4 pages)
Seismic Parameters Output (12 pages)
USGS Hazard Tool Output (15 pages)
Liquefaction Analysis (2 pages)
General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

Guidelines for Estimation of Shear Wave Velocity Profiles, Pacific Earthquake Engineering Research Center, PEER Report 2012/08

		ASCE 7-22 Section 20.3							
	Sum of di (feet)	Sum of di / Vsi	Weighted Average of Shear Wave Velocity VS	Weighted Average of Shear Wave Velocity VS / 1.3	Weighted Average of Shear Wave Velocity VS * 1.3	ASCE 7-22 Site Class VS	ASCE 7-22 Site Class VS / 1.3	ASCE 7-22 Site Class VS * 1.3	ASCE 7-22 Site Class (most critical)
Soils ified	100.00	0.11	930.73	715.95	1209.95	D	D	CD	D
		0.121427	823.54	633.49	1070.60	D	DE	CD	DE

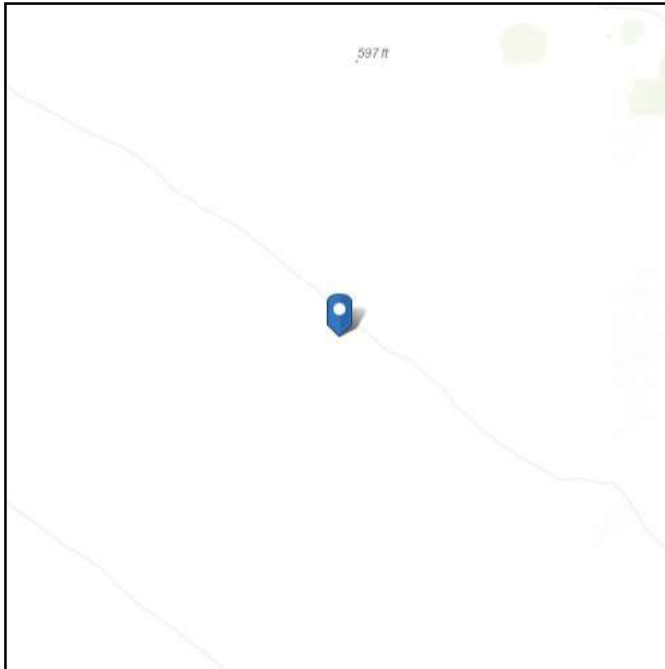
[illegible][illegible]

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-22
Risk Category: II
Soil Class: CD

Latitude: 33.7015
Longitude: -115.2597
Elevation: 643.6111375804638 ft
(NAVD 88)

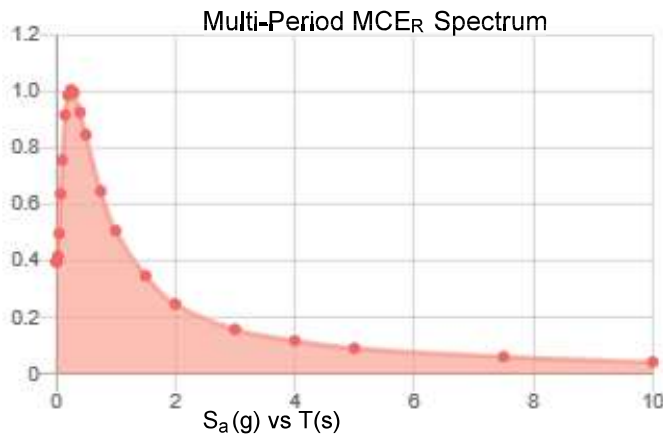
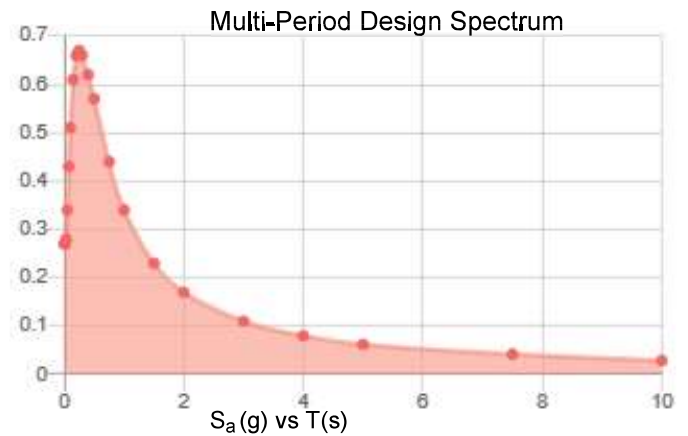
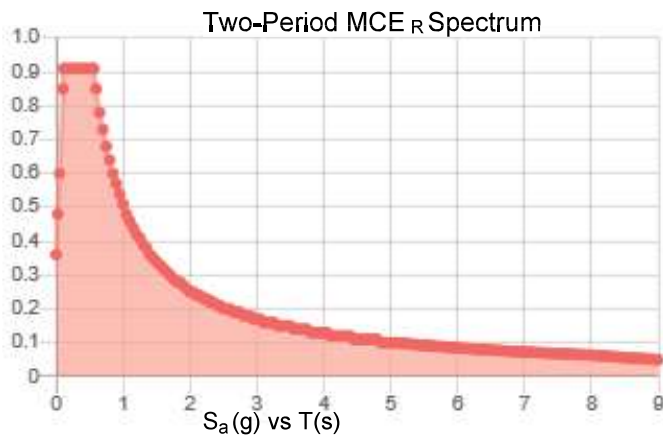
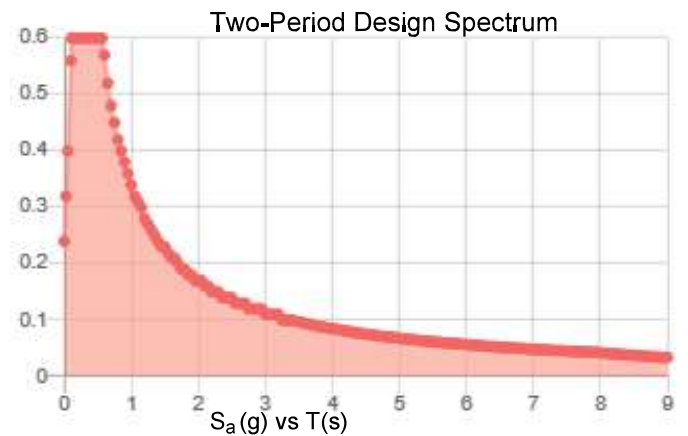


Site Soil Class: CD

Results:

PGA _M :	0.35	T _L :	8
S _{MS} :	0.91	S _S :	0.7
S _{M1} :	0.51	S ₁ :	0.25
S _{DS} :	0.6	V _{S30} :	365
S _{D1} :	0.34		

Seismic Design Category: D



MCE_R Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Data Accessed: Thu Jun 18 2026

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

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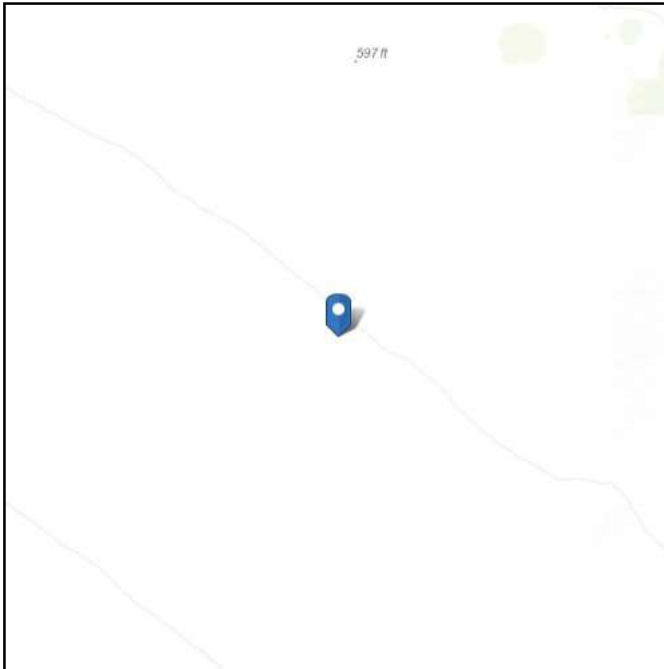
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ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-22
Risk Category: II
Soil Class: D - Stiff Soil

Latitude: 33.7015
Longitude: -115.2597
Elevation: 643.6111375804638 ft
(NAVD 88)

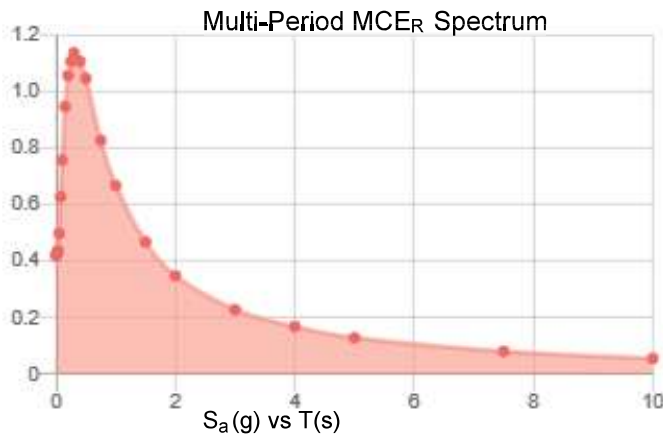
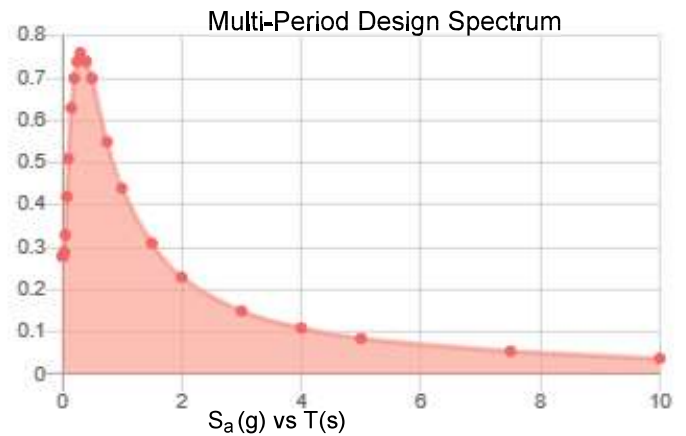
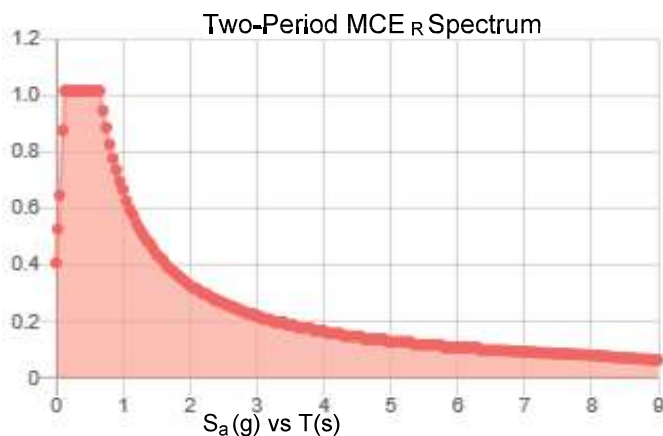
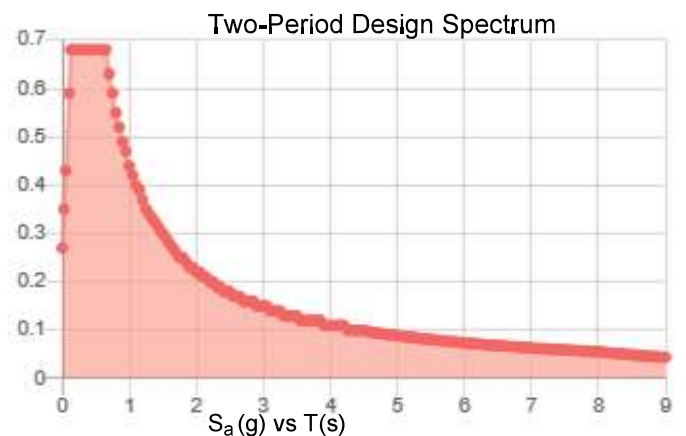


Site Soil Class: D - Stiff Soil

Results:

PGA _M :	0.37	T _L :	8
S _{MS} :	1.02	S _S :	0.7
S _{M1} :	0.67	S ₁ :	0.25
S _{DS} :	0.68	V _{S30} :	260
S _{D1} :	0.44		

Seismic Design Category: D



MCE_R Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Data Accessed: Thu Jun 18 2026

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

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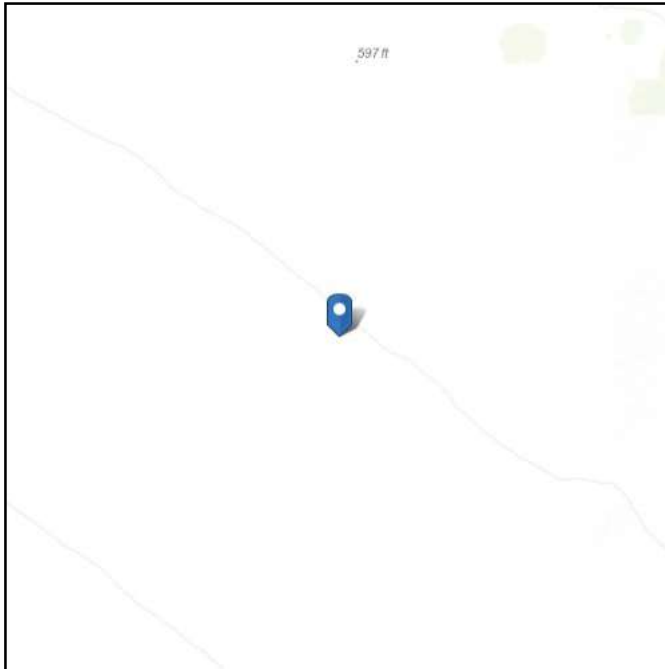
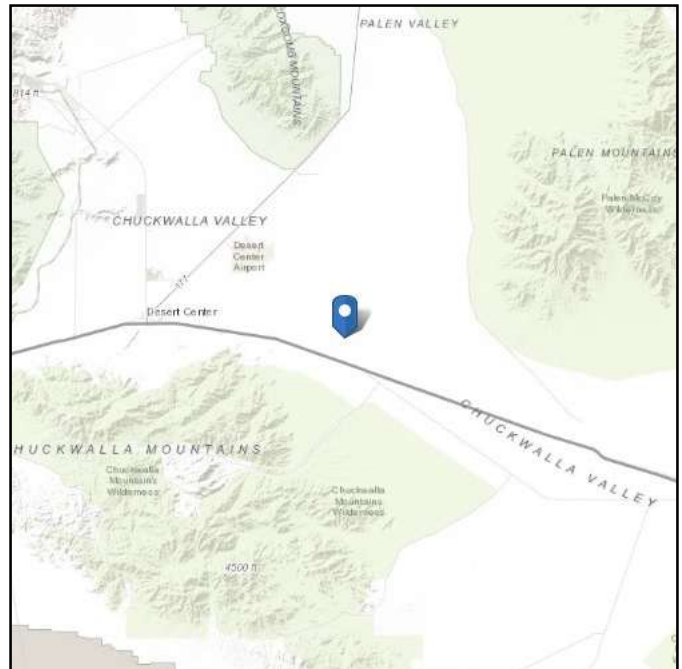
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ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-22
Risk Category: II
Soil Class: DE

Latitude: 33.7015
Longitude: -115.2597
Elevation: 643.6111375804638 ft
(NAVD 88)

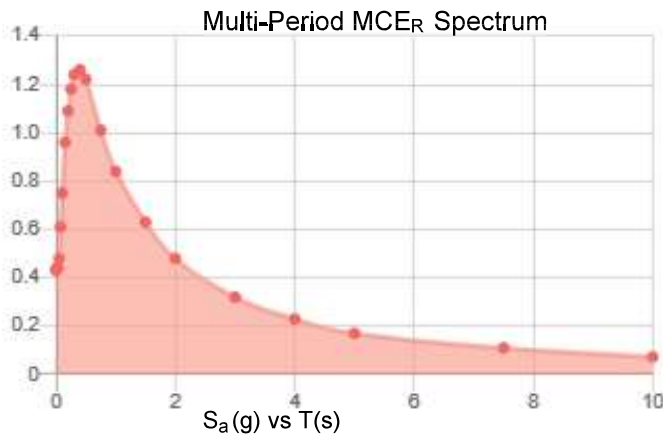
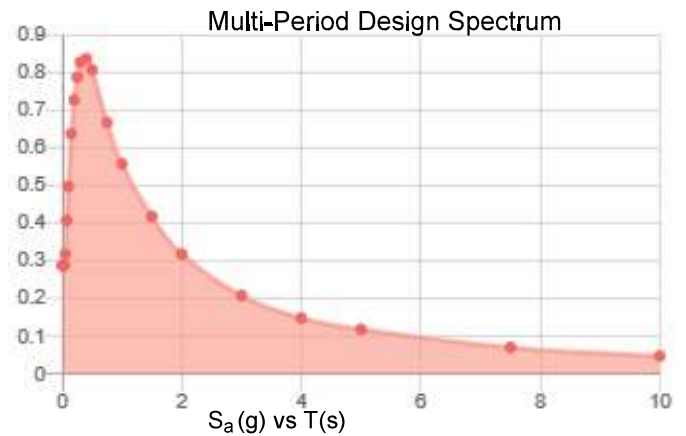
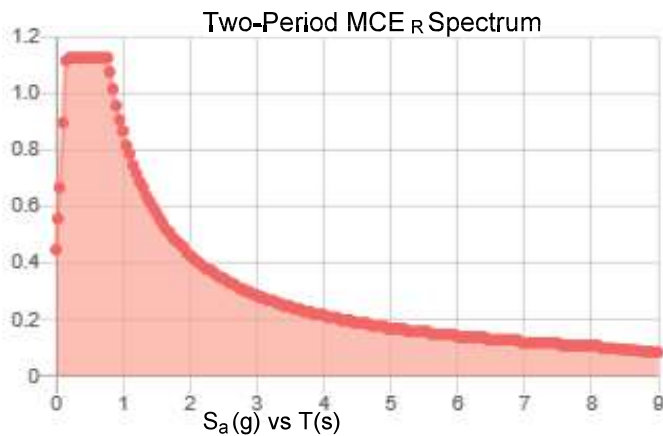
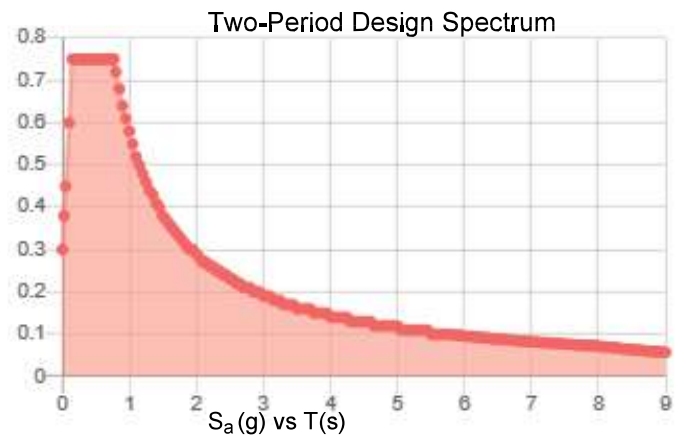


Site Soil Class: DE

Results:

PGA _M :	0.37	T _L :	8
S _{MS} :	1.13	S _S :	0.7
S _{M1} :	0.87	S ₁ :	0.25
S _{DS} :	0.75	V _{S30} :	185
S _{D1} :	0.58		

Seismic Design Category: D



MCE_R Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Design Vertical Response Spectrum
Vertical ground motion data has not yet been made available by USGS.

Data Accessed: Thu Jun 18 2026

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-22 and ASCE/SEI 7-22 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-22 Ch. 21 are available from USGS.

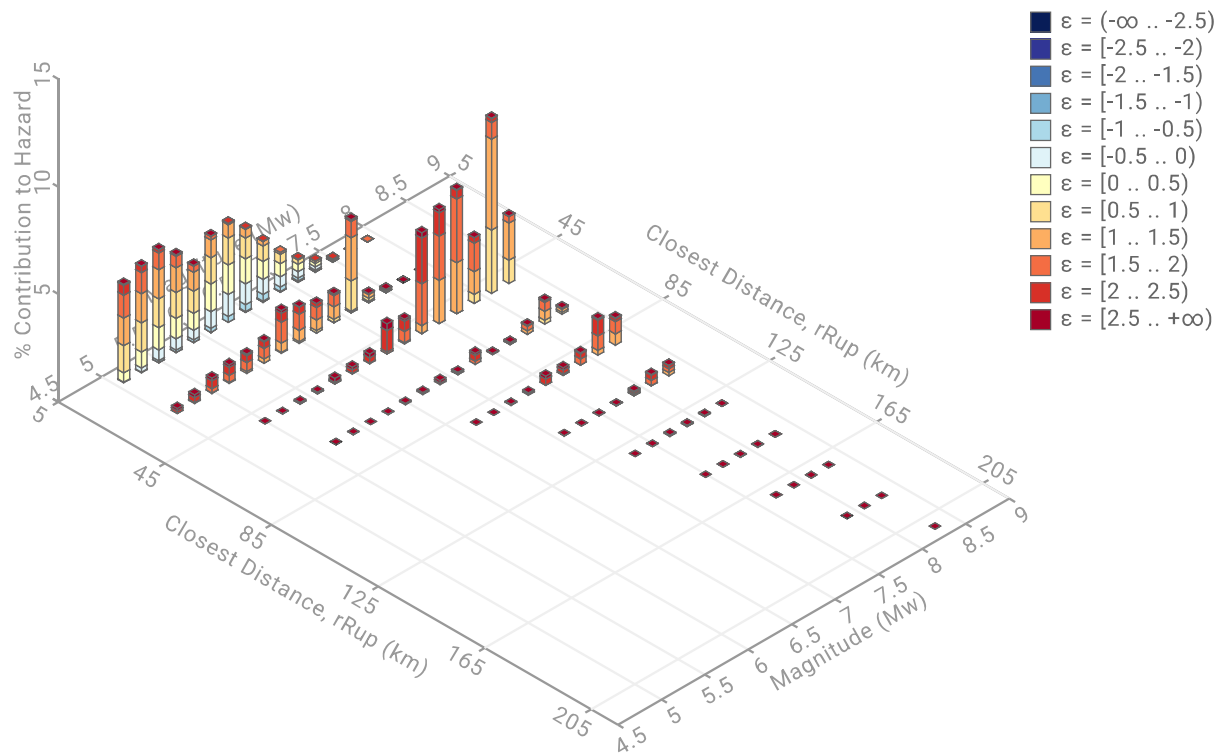
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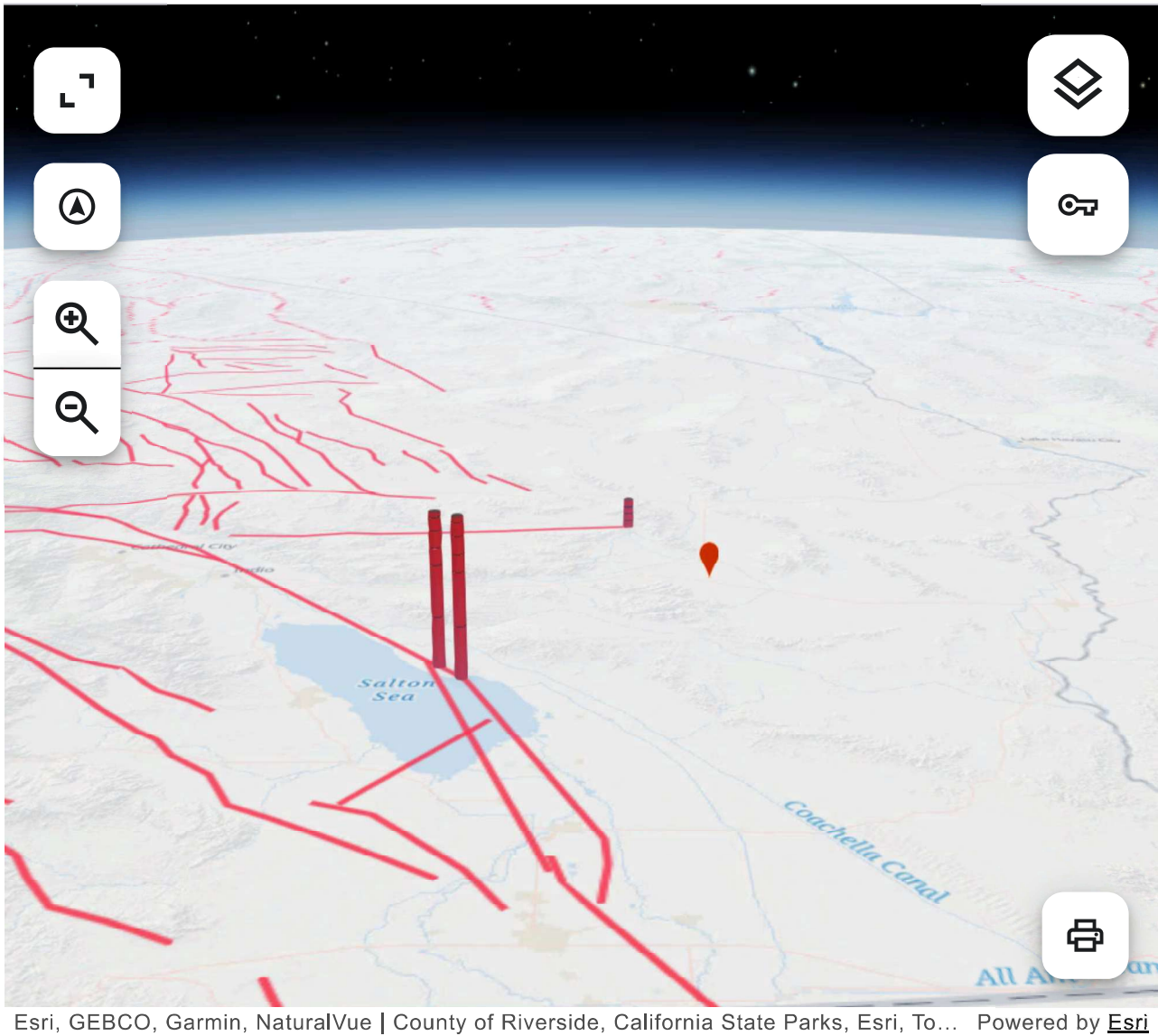
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Disaggregation Report

Disaggregation



Geographical Disaggregation



Parameter Summary

Model: NSHM Conterminous U.S. 2018
Latitude: 33.7015 °
Longitude: -115.2597 °
Site Class: CD (Vs30 365)

Intensity Measure Type: PGA
Return Period: 2475 (2% in 50)
Component: Total

Disaggregation Summary: Total

Disaggregation targets

Return period : 2475 yrs
Exceedance rate : 4.040e-4 yr⁻¹
PGA ground motion : 3.512e-1 g

Totals

Binned : 100 %
Residual : 0 %
Trace : 0.31 %

Mode (largest m-r bin)

m : 8.1
r : 57.56 km
ε₀ : 1.22 σ
Contribution : 8.13 %

Discretization

r : min = 0.0, max = 1000.0, Δ = 20.0 km
m : min = 4.4, max = 9.4, Δ = 0.2
ε : min = -3.0, max = 3.0, Δ = 0.5 σ

Recovered targets

Return period : 2422.9928 yrs
Exceedance rate : 4.127e-4 yr⁻¹

Mean (over all sources)

m : 6.79
r : 35.78 km
ε₀ : 1.21 σ

Mode (largest m-r-ε₀ bin)

m : 8.1
r : 57.56 km
ε₀ : 1.36 σ
Contribution : 4.23 %

Epsilon keys

ε0 : [-∞ .. -2.5)
ε1 : [-2.5 .. -2.0)
ε2 : [-2.0 .. -1.5)
ε3 : [-1.5 .. -1.0)
ε4 : [-1.0 .. -0.5)
ε5 : [-0.5 .. 0.0)
ε6 : [0.0 .. 0.5)
ε7 : [0.5 .. 1.0)
ε8 : [1.0 .. 1.5)
ε9 : [1.5 .. 2.0)
ε10 : [2.0 .. 2.5)
ε11 : [2.5 .. +∞]



Disaggregation Contributions: Total

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
UCERF3 Fault Model 3.1 (opt)		Grid							25.32
UCERF3 Fault Model 3.2 (opt)		Grid							25.16
UCERF3 Fault Model 3.1		FaultSystem							23.4
	San Andreas (Coachella) (11)		57.76	7.75	1.53	115.753°W	33.384°N	232.44	14.93
	Blue Cut (12)		30.03	6.93	1.40	115.409°W	33.941°N	332.58	2.34
UCERF3 Fault Model 3.2		FaultSystem							23.21
	San Andreas (Coachella) (12)		57.31	7.74	1.53	115.712°W	33.350°N	227.14	15.32
	Blue Cut (12)		30.03	6.90	1.43	115.409°W	33.941°N	332.58	2.47
Extensional (fixed) (opt)		Grid							1.68
Extensional (adaptive) (opt)		Grid							1.23



Application Metadata

Application: Disaggregation

URL: <https://earthquake.usgs.gov/nshmp/hazard/disagg>

Repository: nshmp-apps

Version: 21.4.1

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-apps>

Repository : nshmp-haz

Version: 2.8.2

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-haz>

Repository : nshmp-lib

Version: 1.7.15

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-lib>

Repository : nshm-conus

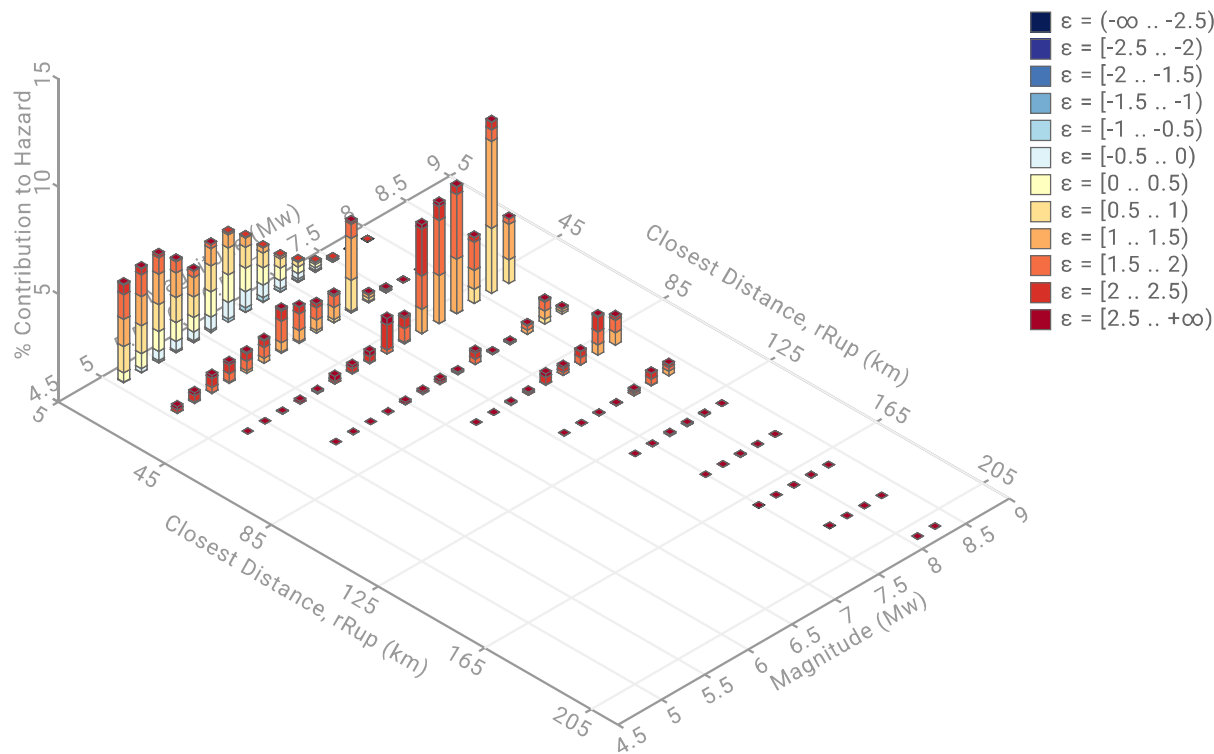
Version: 5.2.4

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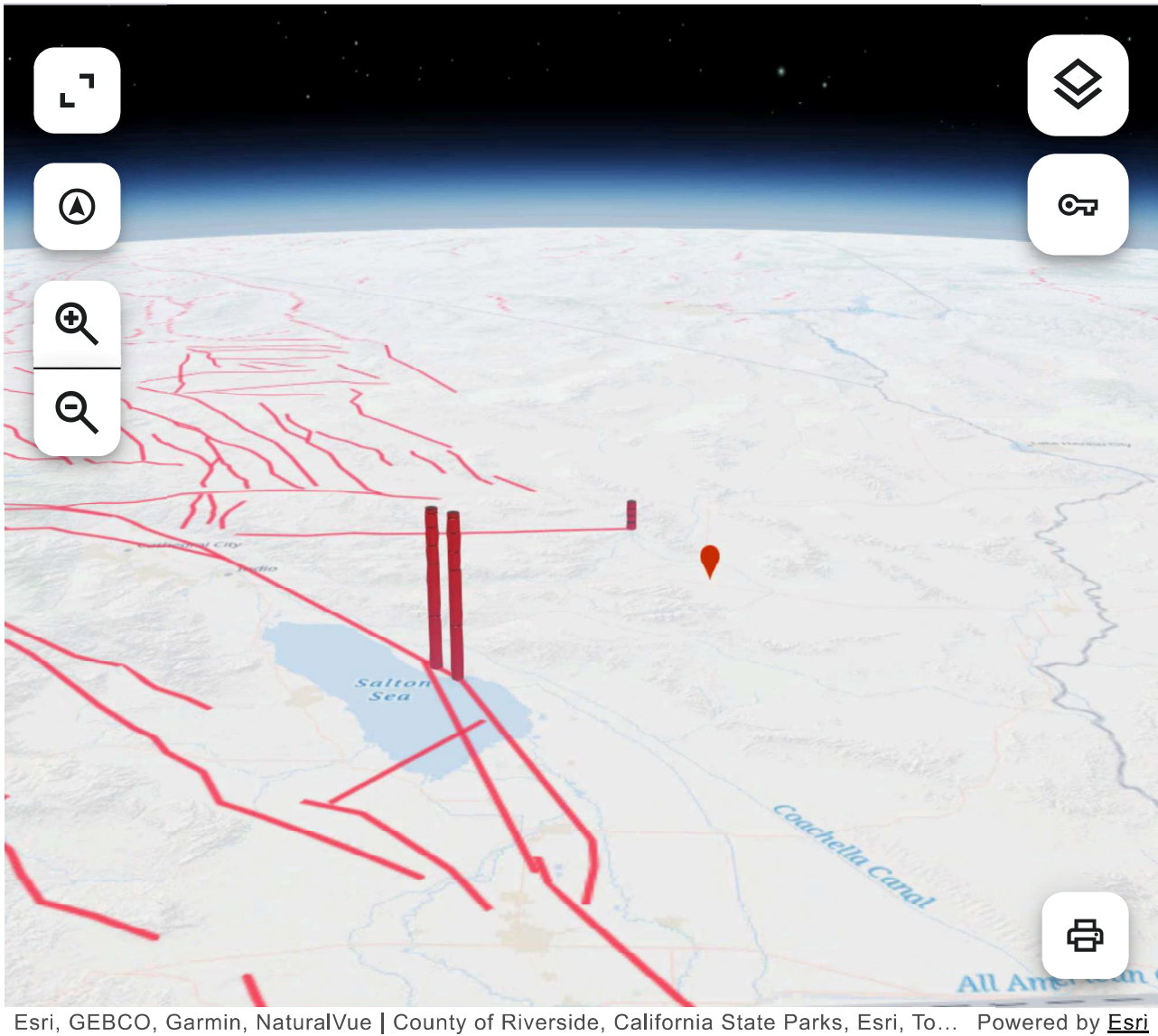
February 16, 2026, 09:45 PM

Disaggregation Report

Disaggregation



Geographical Disaggregation



Parameter Summary

Model: NSHM Conterminous U.S. 2018
Latitude: 33.7015 °
Longitude: -115.2597 °
Site Class: D (Vs30 260)

Intensity Measure Type: PGA
Return Period: 2475 (2% in 50)
Component: Total

Disaggregation Summary: Total

Disaggregation targets

Return period : 2475 yrs
Exceedance rate : 4.040e-4 yr⁻¹
PGA ground motion : 3.670e-1 g

Totals

Binned : 100 %
Residual : 0 %
Trace : 0.33 %

Mode (largest m-r bin)

m : 8.1
r : 57.56 km
ε₀ : 1.2 σ
Contribution : 7.97 %

Discretization

r : min = 0.0, max = 1000.0, Δ = 20.0 km
m : min = 4.4, max = 9.4, Δ = 0.2
ε : min = -3.0, max = 3.0, Δ = 0.5 σ

Recovered targets

Return period : 2405.4754 yrs
Exceedance rate : 4.157e-4 yr⁻¹

Mean (over all sources)

m : 6.81
r : 37.27 km
ε₀ : 1.26 σ

Mode (largest m-r-ε₀ bin)

m : 8.1
r : 57.56 km
ε₀ : 1.37 σ
Contribution : 4.05 %

Epsilon keys

ε0 : [-∞ .. -2.5)
ε1 : [-2.5 .. -2.0)
ε2 : [-2.0 .. -1.5)
ε3 : [-1.5 .. -1.0)
ε4 : [-1.0 .. -0.5)
ε5 : [-0.5 .. 0.0)
ε6 : [0.0 .. 0.5)
ε7 : [0.5 .. 1.0)
ε8 : [1.0 .. 1.5)
ε9 : [1.5 .. 2.0)
ε10 : [2.0 .. 2.5)
ε11 : [2.5 .. +∞]



Disaggregation Contributions: Total

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
UCERF3 Fault Model 3.1		FaultSystem							24.46
	San Andreas (Coachella) (11)		57.76	7.73	1.51	115.753°W	33.384°N	232.44	15.31
	Blue Cut (12)		30.03	6.92	1.39	115.409°W	33.941°N	332.58	2.32
UCERF3 Fault Model 3.1 (opt)		Grid							24.39
UCERF3 Fault Model 3.2 (opt)		Grid							24.22
UCERF3 Fault Model 3.2		FaultSystem							24.14
	San Andreas (Coachella) (12)		57.31	7.73	1.51	115.712°W	33.350°N	227.14	15.71
	Blue Cut (12)		30.03	6.89	1.42	115.409°W	33.941°N	332.58	2.46
Extensional (fixed) (opt)		Grid							1.61
Extensional (adaptive) (opt)		Grid							1.18



Application Metadata

Application: Disaggregation

URL: <https://earthquake.usgs.gov/nshmp/hazard/disagg>

Repository: nshmp-apps

Version: 21.4.1

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-apps>

Repository : nshmp-haz

Version: 2.8.2

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-haz>

Repository : nshmp-lib

Version: 1.7.15

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-lib>

Repository : nshm-conus

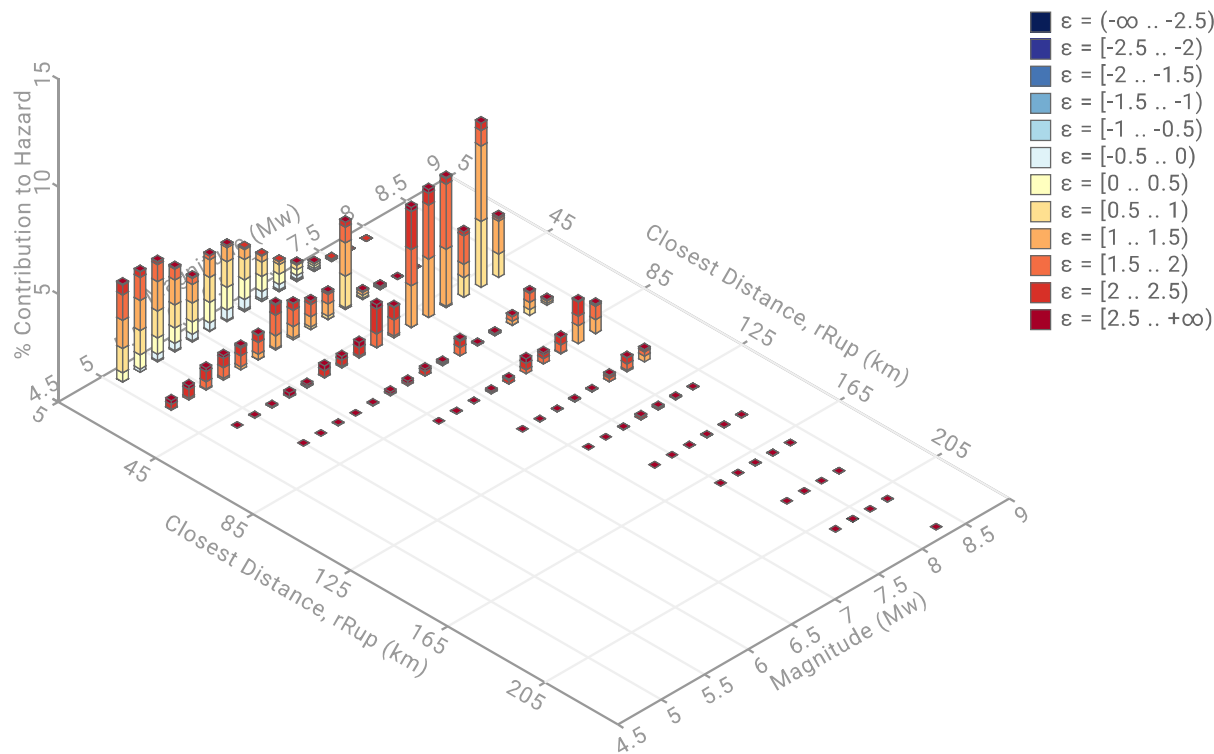
Version: 5.2.4

URL: <https://code.usgs.gov/ghsc/nshmp/nshms/nshm-conus.git>

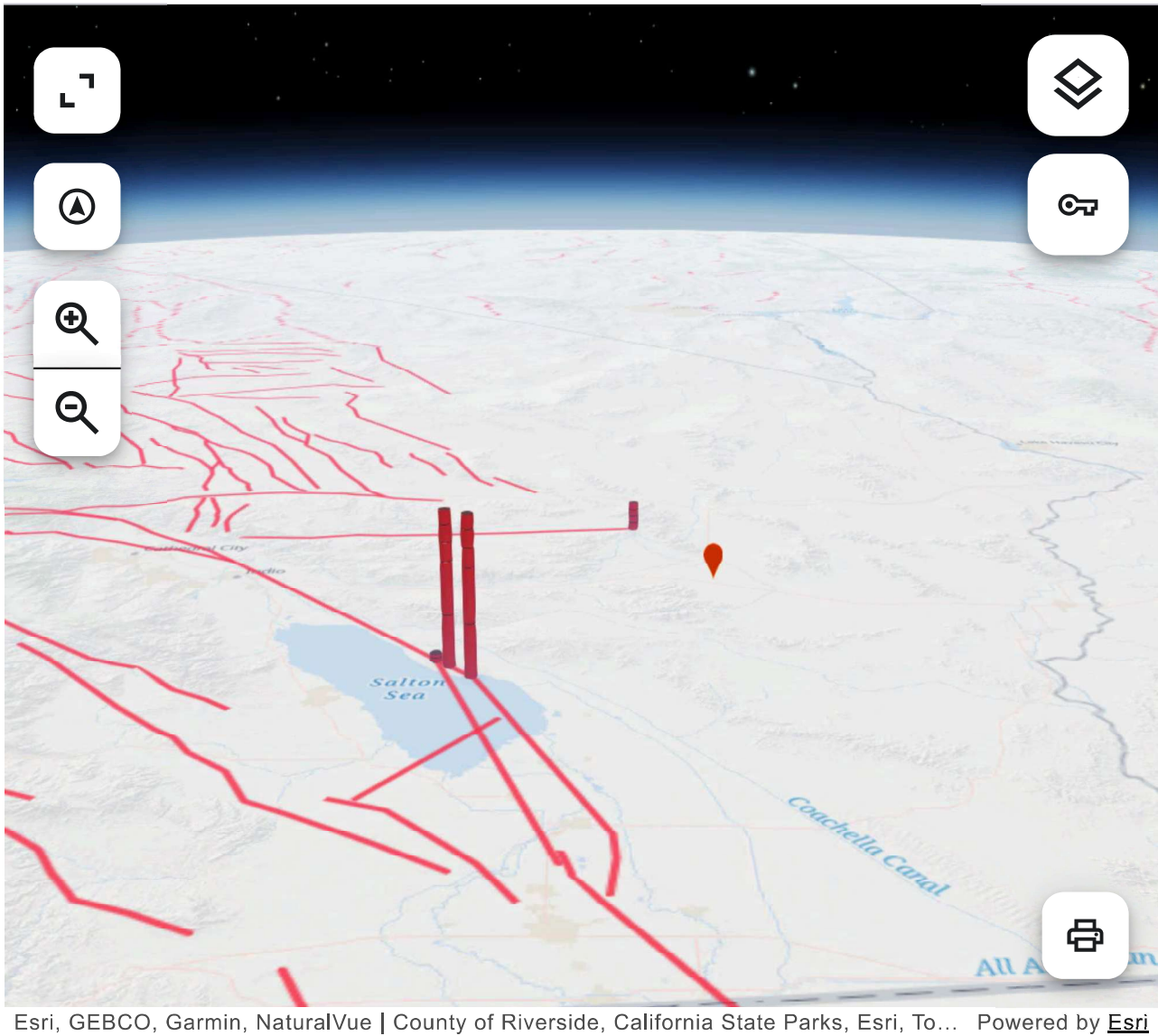
February 16, 2026, 09:45 PM

Disaggregation Report

Disaggregation



Geographical Disaggregation



Parameter Summary

Model: NSHM Conterminous U.S. 2018
Latitude: 33.7015 °
Longitude: -115.2597 °
Site Class: DE (Vs30 185)

Intensity Measure Type: PGA
Return Period: 2475 (2% in 50)
Component: Total

Disaggregation Summary: Total

Disaggregation targets

Return period : 2475 yrs
Exceedance rate : 4.040e-4 yr⁻¹
PGA ground motion : 3.696e-1 g

Totals

Binned : 100 %
Residual : 0 %
Trace : 0.3 %

Mode (largest m-r bin)

m : 8.09
r : 57.56 km
ε₀ : 1.2 σ
Contribution : 7.63 %

Discretization

r : min = 0.0, max = 1000.0, Δ = 20.0 km
m : min = 4.4, max = 9.4, Δ = 0.2
ε : min = -3.0, max = 3.0, Δ = 0.5 σ

Recovered targets

Return period : 2384.1642 yrs
Exceedance rate : 4.194e-4 yr⁻¹

Mean (over all sources)

m : 6.83
r : 39.48 km
ε₀ : 1.34 σ

Mode (largest m-r-ε₀ bin)

m : 8.1
r : 57.56 km
ε₀ : 1.39 σ
Contribution : 3.51 %

Epsilon keys

ε0 : [-∞ .. -2.5)
ε1 : [-2.5 .. -2.0)
ε2 : [-2.0 .. -1.5)
ε3 : [-1.5 .. -1.0)
ε4 : [-1.0 .. -0.5)
ε5 : [-0.5 .. 0.0)
ε6 : [0.0 .. 0.5)
ε7 : [0.5 .. 1.0)
ε8 : [1.0 .. 1.5)
ε9 : [1.5 .. 2.0)
ε10 : [2.0 .. 2.5)
ε11 : [2.5 .. +∞]



Disaggregation Contributions: Total

Source Set	Source	Type	r	m	ϵ_0	lon	lat	az	%
UCERF3 Fault Model 3.1		FaultSystem							25.96
	San Andreas (Coachella) (11)		57.76	7.71	1.50	115.753°W	33.384°N	232.44	15.71
	Blue Cut (12)		30.03	6.90	1.38	115.409°W	33.941°N	332.58	2.29
	Brawley [1] (0)		59.60	6.70	2.39	115.777°W	33.402°N	235.38	1.2
UCERF3 Fault Model 3.2		FaultSystem							25.44
	San Andreas (Coachella) (12)		57.31	7.70	1.50	115.712°W	33.350°N	227.14	16.13
	Blue Cut (12)		30.03	6.87	1.41	115.409°W	33.941°N	332.58	2.44
UCERF3 Fault Model 3.1 (opt)		Grid							23.08
UCERF3 Fault Model 3.2 (opt)		Grid							22.89
Extensional (fixed) (opt)		Grid							1.51
Extensional (adaptive) (opt)		Grid							1.11



Application Metadata

Application: Disaggregation

URL: <https://earthquake.usgs.gov/nshmp/hazard/disagg>

Repository: nshmp-apps

Version: 21.4.1

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-apps>

Repository : nshmp-haz

Version: 2.8.2

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-haz>

Repository : nshmp-lib

Version: 1.7.15

URL: <https://code.usgs.gov/ghsc/nshmp/nshmp-lib>

Repository : nshm-conus

Version: 5.2.4

URL: <https://code.usgs.gov/ghsc/nshmp/nshms/nshm-conus.git>

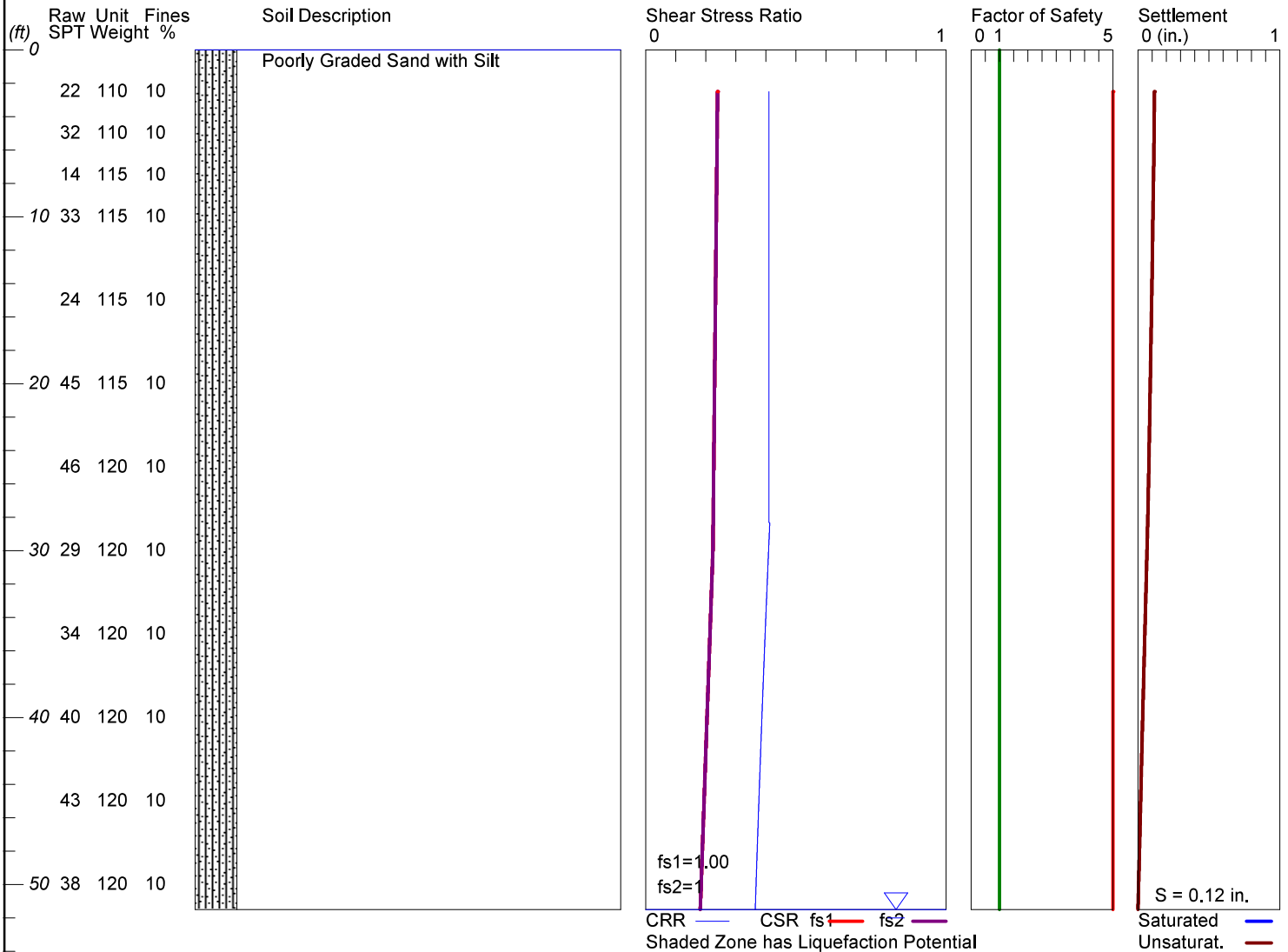
February 16, 2026, 09:27 PM

LIQUEFACTION ANALYSIS

Savira Solar

Hole No.=Average Water Depth=51.5 ft

Magnitude=8.1
Acceleration=0.37g



LIQUEFACTION ANALYSIS SUMMARY

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Input File Name: C:\Users\aatitiah\OneDrive - Terracon Consultants
Inc\PCB255153 Savira Solar - General\07 Working Files\02 Calculations\Seismic
Settlement\CB255153 Savira.liq

Title: Savira Solar
Subtitle:

Surface Elev.=
Hole No.=Average
Depth of Hole= 51.50 ft
Water Table during Earthquake= 51.50 ft
Water Table during In-Situ Testing= 51.50 ft
Max. Acceleration= 0.37 g
Earthquake Magnitude= 8.10

Input Data:

Surface Elev.=
Hole No.=Average
Depth of Hole=51.50 ft
Water Table during Earthquake= 51.50 ft
Water Table during In-Situ Testing= 51.50 ft
Max. Acceleration=0.37 g
Earthquake Magnitude=8.10
No-Liquefiable Soils: CL, OL are Non-Liq. Soil

1. SPT or BPT Calculation.
 2. Settlement Analysis Method: Ishihara / Yoshimine
 3. Fines Correction for Liquefaction: Modify Stark/Olson
 4. Fine Correction for Settlement: During Liquefaction*
 5. Settlement Calculation in: All zones*
 6. Hammer Energy Ratio, $C_e = 1.4$
 7. Borehole Diameter, $C_b = 1.15$
 8. Sampling Method, $C_s = 1.2$
 9. User request factor of safety (apply to CSR) , User= 1
Plot two CSR ($f_{s1} = \text{User}$, $f_{s2} = 1$)
 10. Use Curve Smoothing: Yes*
- * Recommended Options

General Notes

Sampling			Water Level	Field Tests
 Auger Cuttings	 Modified California Ring Sampler	 Rock Core	 Water Initially Encountered	N Standard Penetration Test Resistance (Blows/Ft.)
 Dynamic Cone Penetrometer	 Modified Dames & Moore Ring Sampler	 Dual Sampler SPT	 Water Level After a Specified Period of Time	(HP) Hand Penetrometer
 Grab Sample	 GeoProbe Macro Core or Large Bore	 No Recovery	 Water Level After a Specified Period of Time	(T) Torvane
 Ring Sampler	 Shelby Tube	 Standard Penetration Test	 Cave In Encountered	(DCP) Dynamic Cone Penetrometer
 Split Spoon	 Texas Cone Penetrometer	 Vane Shear	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	
				UC Unconfined Compressive Strength
				(PID) Photo-Ionization Detector
				(OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification	
				Group Symbol	Group Name ^B
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	Gravels: More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels: Less than 5% fines ^C	Cu≥4 and 1≤Cc≤3 ^E	GW	Well-graded gravel ^F
			Cu<4 and/or [Cc<1 or Cc>3.0] ^E	GP	Poorly graded gravel ^F
		Gravels with Fines: More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F, G, H}
			Fines classify as CL or CH	GC	Clayey gravel ^{F, G, H}
	Sands: 50% or more of coarse fraction passes No. 4 sieve	Clean Sands: Less than 5% fines ^D	Cu≥6 and 1≤Cc≤3 ^E	SW	Well-graded sand ^I
			Cu<6 and/or [Cc<1 or Cc>3.0] ^E	SP	Poorly graded sand ^I
		Sands with Fines: More than 12% fines ^D	Fines classify as ML or MH	SM	Silty sand ^{G, H, I}
			Fines classify as CL or CH	SC	Clayey sand ^{G, H, I}
Fine-Grained Soils: 50% or more passes the No. 200 sieve	Silts and Clays: Liquid limit less than 50	Inorganic:	PI > 7 and plots above “A” line ^J	CL	Lean clay ^{K, L, M}
			PI < 4 or plots below “A” line ^J	ML	Silt ^{K, L, M}
		Organic:	$\frac{LL\text{ oven dried}}{LL\text{ not dried}} < 0.75$	OL	Organic clay ^{K, L, M, N} Organic silt ^{K, L, M, O}
	Silts and Clays: Liquid limit 50 or more	Inorganic:	PI plots on or above “A” line	CH	Fat clay ^{K, L, M}
			PI plots below “A” line	MH	Elastic silt ^{K, L, M}
		Organic:	$\frac{LL\text{ oven dried}}{LL\text{ not dried}} < 0.75$	OH	Organic clay ^{K, L, M, P} Organic silt ^{K, L, M, Q}
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

^A Based on the material passing the 3-inch (75-mm) sieve.

^B If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

^C Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

^D Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

^E $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

^F If soil contains $\geq 15\%$ sand, add "with sand" to group name.

^G If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

^H If fines are organic, add "with organic fines" to group name.

^I If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.

^J If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

^K If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

^L If soil contains $\geq 30\%$ plus No. 200 predominantly sand, add "sandy" to group name.

^M If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name.

^N $PI \geq 4$ and plots on or above "A" line.

^O $PI < 4$ or plots below "A" line.

^P PI plots on or above "A" line.

^Q PI plots below "A" line.

