Updated Geotechnical Engineering Investigation

Proposed Industrial Warehouse Development
10941 W. Los Angeles Avenue
Moorpark, California

Amir Development Company
8730 Wilshire Boulevard, Suite 300
Beverly Hills, California 90211

Attn: Mr. Steven Juhnke

Project Number 21889-20
April 8, 2022

NorCal Engineering

NorCal Engineering

Soils and Geotechnical Consultants
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April 8, 2022 Project Number 21889-20

Amir Development Company
8730 Wilshire Boulevard, Suite 300
Beverly Hills, California 90211

Attn: Mr. Steven Juhnke

RE: **Updated Geotechnical Engineering Investigation** - Proposed Industrial Warehouse Development - Located at 10941 W. Los Angeles Avenue, in the City of Moorpark, California

Dear Mr. Juhnke:

Pursuant to your request, this firm has performed a Geotechnical Engineering Investigation for the above referenced project in accordance with your approval of our proposals dated February 16, 2022 and March 8, 2022. The purpose of this investigation is to evaluate the geotechnical conditions of the subject site and to provide updated recommendations for the proposed industrial warehouse development.

The scope of work included the following: 1) site reconnaissance; 2) subsurface geotechnical exploration and sampling; 3) laboratory testing; 4) soil infiltration testing; 5) engineering analysis of field and laboratory data; 5) preparation of a geotechnical engineering report. It is the opinion of this firm that the proposed development is feasible from a geotechnical standpoint provided that the recommendations presented in this report are followed in the design and construction of the project.

1.0 Project Description

It is proposed to construct an industrial warehouse development consisting of 90,566 square feet building as shown on the attached Site Plan by HPA Architecture. The proposed structure will be supported by a conventional slab-on-grade foundation system with perimeter-spread footings and isolated interior footings. Other improvements will include asphalt and concrete pavement areas, retaining walls, hardscape and landscaping. It is assumed that the proposed grading for the development will consist of minor cut and fill procedures on the order of a few feet to achieve finished grade elevations. Final building plans shall be reviewed by this firm prior to submittal for city/county approval to determine the need for any additional study and revised recommendations pertinent to the proposed development, if necessary.

2.0 Site Description

The 5.65-acre subject property is located within the 10500 block and north side of Los Angeles Avenue, in the City of Moorpark. The generally rectangular-shaped parcel is elongated in a north to south direction with topography of the relatively level property descending slightly from back to front direction on the order of a few feet. The site is currently occupied an undeveloped parcel of land covered with a low vegetation growth of natural grasses and weeds.

3.0 Site Exploration

The investigation was initially performed on June 25, 2020 with additional exploratory work completed later on March 24 and 25, 2022. The field investigation consisted of the placement of two (2) recent electronic cone penetrometers (CPT) both to depths of 50 feet, six (6) subsurface exploratory borings by a truck mounted drill rig with eight-inch outside diameter hollow-stem, continuous flight augers and a hand operated auger to depths ranging between 5 and 50 feet and five (5) exploratory trenches by a backhoe to depths ranging between 10 and 20 feet below current ground elevations.

The CPT consists of advancing a cone-tipped cylindrical probe into the ground while simultaneously measuring the resulting resistance to penetration. An on-field computer generated CPT log measures the penetration resistance values and inferred soil description. The boring and trench explorations were visually classified and logged by a field engineer with locations of the subsurface explorations shown on the attached Site Plan.

The field explorations revealed the existing earth materials to consist of fill and natural soil. Detailed descriptions of the subsurface conditions are listed on the boring logs in Appendix A. It should be noted that the transition from one soil type to another as shown on the boring logs is approximate and may in fact be a gradual transition. The soils encountered are described as follows:

Fill: A fill soil classifying as a brown, fine to medium grained, silty SAND was encountered to a depth of one foot below ground surface. These soils were noted to be loose and dry.

Natural: A natural undisturbed soil classifying as a brown, fine to coarse grained, silty SAND was encountered beneath the fill soils to a depth of 12 to 14 feet. The native soils were observed to be medium dense and moist. Deeper soils consisted of sandy to clayey silts to sands which were noted to depths of 43 to 50 feet that are medium dense to dense and moist to wet.

The overall engineering characteristics of the earth material were relatively uniform with each excavation. Groundwater was encountered at a depth of 23 feet below ground surface in Borings B-3 and B-6 and some caving of the cohesionless soils occurred to the depth of our borings. The subsurface conditions are shown graphically on Section A-A, Figure 2.

4.0 Laboratory Tests

Relatively undisturbed samples of the subsurface soils were obtained to perform laboratory testing and analysis for direct shear, consolidation tests, and to determine in-place moisture/densities. These relatively undisturbed ring samples were obtained by driving a thin-walled steel sampler lined with one-inch long brass rings with an inside diameter of 2.42 inches into the undisturbed soils.

Standard penetration tests were obtained by driving a steel sampler unlined with an inside diameter of 1.5 inches into the soils. This standard penetrometer sampler was driven a total of eighteen inches with blow counts tallied every six inches. Blow count data is given on the Boring Logs in Appendix A. Bulk bag samples were obtained in the upper soils for expansion index tests and maximum density tests. All test results are included in Appendix B, unless otherwise noted.

4.1 **Field Moisture Content** (ASTM: D 2216) and the dry density of the ring samples were determined in the laboratory. This data is listed on the logs of explorations.

4.2 **Sieve analyses** (ASTM: D 422-63) and the percent by weight of soil finer than the No. 200 sieve (ASTM: 1140) were performed on selected soil samples. These results are shown later within the body of this report.

4.3 **Maximum Density tests** (ASTM: D 1557) were performed on typical samples of the upper soils. Results of these tests are shown on Table I.

4.4 **Expansion Index tests** (ASTM: D 4829) were performed on remolded samples of the upper soils to determine expansive characteristics. Results of these tests are provided on Table II.

4.5 **Atterberg Limits** (ASTM: D 4318) consisting of liquid limit, plastic limit and plasticity index were performed on representative soil samples. Results are shown on Table III.

4.6 **Corrosion tests** consisting of sulfate, pH, resistivity and chloride analysis to determine potential corrosive effects of soils on concrete and underground utilities. Test results are provided on Table IV.

4.7 **R-Value test** per California Test Method 301 was performed on a representative sample, which may be anticipated to be near subgrade to determine pavement design. Results are provided within the pavement design section of the report.

4.8 **Direct Shear tests** (ASTM: D 3080) were performed on undisturbed and/or remolded samples of the subsurface soils. The test is performed under saturated conditions at loads of 1,000 lbs./sq.ft., 2,000 lbs./sq.ft., and 3,000 lbs./sq.ft. with results shown on Plate A.

4.9 **Consolidation tests** (ASTM: D 2435) were performed on undisturbed samples to determine the differential and total settlement which may be anticipated based upon the proposed loads. Water was added to the samples at a surcharge of one KSF and the settlement curves are plotted on Plates B and C.

5.0 Seismicity Evaluation

The proposed development lies outside of any Alquist Priolo Special Studies Zone and the potential for damage due to direct fault rupture is considered unlikely. The nearest fault is located less than 2 kilometers from the site and is capable of producing a Magnitude 6.7 earthquake. Ground shaking originating from earthquakes along other active faults in the region is expected to induce lower horizontal accelerations due to smaller anticipated earthquakes and/or greater distances to other faults. The following seismic design acceleration parameters for the project site are provided below based on the American Society of Civil Engineers (ASCE) website, https://asce7hazardtool.online/. The ASCE/SEI 7-22 report is attached is Appendix C.

Seismic Design Acceleration Parameters

Latitude	34.280
Longitude	-118.912
Site Class	D
Risk Category	II
Peak Ground Acceleration	PGA_M = 0.83
Adjusted Maximum Acceleration	S_{MS} = 2.15 S_{M1} = 1.69
Design Spectral Response Acceleration Parameters	S_{DS} = 1.44 S_{D1} = 1.13
Mapped Spectral Response Acceleration	S_S = 2.10 S_1 = 0.77

Use of these values is dependent on the latest requirements of the ASCE, 11-4.8, Exception 2 that requires the value of the seismic response coefficient C_s be determined by Equation 12.8.2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either 12.8-3 for $T_L \geq T \geq 1.5T_s$ or Equation 12.8-4 for $T > T_L$. Computations and verification of these conditions is referred to the structural engineer.

6.0 Liquefaction Evaluation

The site is expected to experience ground shaking and earthquake activity that is typical of Southern California area. It is during severe ground shaking that loose, granular soils below the groundwater table can liquefy. A review of the exploratory boring log and the laboratory test results on selected soil samples obtained indicate the following soil classifications, field blowcounts and amounts of fines passing through the No. 200 sieve.

Field Blowcount and Gradation Data

Boring No.	Classification	Blowcounts (blows/ft)	Relative Density	% Passing No. 200 Sieve
B-3 @ 5'	SM	7	Medium Dense	15
B-3 @ 10'	SM	9	Medium Dense	31
B-3 @ 15'	ML/CL	4	Firm	61
B-3 @ 20'	CL	10	Medium Stiff	66
B-3 @ 25'	SM/SW	16	Medium Dense	8
B-3 @ 30'	CL	12	Firm	66
B-3 @ 35'	SW	21	Dense	4
B-3 @ 40'	SW	21	Dense	4
B-3 @ 45'	SW	32	Dense	7
B-3 @ 50'	SW	30	Dense	8

Based upon information in the California Division of Mines and Geology "Seismic Hazard Zone Map – Moorpark Quadrangle", dated November 17, 2000, the subject site is situated in an area of historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions to indicate a potential for permanent ground displacement.

Based on the California Division of Mines and Geology Seismic Hazard Zone Report for the Moorpark 7.5 Minute Quadrangle, the site is mapped with a historic groundwater depth of 20 feet deep. Our liquefaction evaluation utilized the nearest mode of predominate Magnitude 6.7 Mw earthquake in our earthquake in our calculations. The analysis indicates the potential for liquefaction at this site to be moderate based upon a historic groundwater depth of 20 feet deep and a Peak Ground Acceleration (PGA_M) of 0.83g.

The associated seismic-induced settlements would be on the order of 3½ inches and would occur rather uniformly across the site, as shown on Section A-A. Differential settlements would be on the order of 1¾ inch over a 50-foot (horizontal) distance in the building pad area.

It is recommended that a stiffened foundation system be utilized for the proposed structure to mitigate for the seismic-induced settlements. The stiffened system shall consist of a mat foundation at least 12 inches thick to support the new structure. Our seismic settlement calculations are included in Appendix C.

7.0 Infiltration Characteristics

Infiltration tests within the site were performed to provide preliminary infiltration rates for the purpose of planning and design of an on-site water disposal system field testing per Ventura County Technical Guidance Manual for Stormwater Quality Control Measures - Update 2011. A truck mounted Simco 2800 Drill Rig equipped with a hollow stem auger was used to excavate the exploratory borings to depths ranging between 5 and 11.5 below existing ground surface. The borings consisted of six-inch diameter test holes. A three-inch diameter perforated PVC casing with solid end cap was installed in the borings and then surrounded with gravel materials to prevent caving.

The infiltration holes were carefully filled with clean water and refilled after two initial readings. Based upon the initial rates of infiltration at each location, test measurements were measured at selected maximum intervals thereafter. Measurements were obtained by using an electronic tape measure with 1/16-inch divisions and timed with a stopwatch.

The field infiltration rate was computed using a reduction factor – R_f based on the field measurements with our calculations given in Appendix D. Based upon the results of our testing, the soils encountered in the planned on-site drainage disposal system area exhibit the following infiltration rates.

Boring/Test No.	Depth (feet)	Soil Classification	Field Infiltration Rate
B-1/TH-1	5.0'	Silty SAND	24.0 in/hr
B-2/TH-2	10.0	Silty SAND	16.4 in/hr
B-4/TH-3	11.0	Silty SAND	4.4 in/hr
B-5/TH-4	11.5	Silty SAND	9.4 in/hr

Groundwater was encountered at a depth of 23 feet below existing ground surface in Borings B-3 and B-6 across the subject site.

Based on the results of our field testing, the subsurface soils encountered in the proposed on-site drainage disposal system shall utilize the design infiltration rates based on the safety factor required by the county standard. All systems must meet the latest city and/or county specifications and the California Regional Water Quality Control Board (CRWQCB) requirements. .

8.0 Conclusions and Recommendations

Based upon our evaluations, the proposed development is acceptable from a geotechnical engineering standpoint. By following the recommendations and guidelines set forth in our report, the structures will be safe from excessive settlements under the anticipated design loadings and conditions. The proposed development shall meet all requirements of the City Building Ordinance and will not impose any adverse effect on existing adjacent structures.

The following recommendations are based upon soil conditions encountered in our field investigation; these near-surface soil conditions could vary across the site. Variations in the soil conditions may not become evident until the commencement of grading operations for the proposed development and revised recommendations from the soils engineer may be necessary based upon the conditions encountered.

It is recommended that site inspections be performed by a representative of this firm during all grading and construction of the development to verify the findings and recommendations documented in this report. Any unusual conditions which may be encountered in the course of the project development may require the need for additional study and revised recommendations.

8.1 Site Grading Recommendations

Any vegetation and/or demolition debris shall be removed and hauled from proposed grading areas prior to the start of grading operations. Existing vegetation shall not be mixed or disced into the soils. Any removed soils may be reutilized as compacted fill once any deleterious material or oversized materials (in excess of eight inches) is removed. Grading operations shall be performed in accordance with the attached *Specifications for Placement of Compacted Fill.*

8.1.1 **Removal and Recompaction Recommendations**

All disturbed soils and/or fill (about one foot below ground surface) shall be removed to competent native material, the exposed surface scarified to a depth of 12 inches, brought to within 2% of optimum moisture content and compacted to a minimum of 90% of the laboratory standard (ASTM: D-1557) prior to placement of any additional compacted fill soils, foundations, slabs-on-grade and pavement. Grading shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

It is possible that isolated areas of undiscovered fill not described in this report are present on site; if found, these areas should be treated as discussed earlier. A diligent search shall also be conducted during grading operations in an effort to uncover any underground structures, irrigation or utility lines. If encountered, these structures and lines shall be either removed or properly abandoned prior to the proposed construction.

Any imported fill material should be preferably soil similar to the upper soils encountered at the subject site. All soils shall be approved by this firm prior to importing at the site and will be subjected to additional laboratory testing to assure concurrence with the recommendations stated in this report.

If placement of slabs-on-grade and pavement is not completed immediately upon completion of grading operations, additional testing and grading of the areas may be necessary prior to continuation of construction operations. Likewise, if adverse weather conditions occur which may damage the subgrade soils, additional assessment by the soils engineer as to the suitability of the supporting soils may be needed.

Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase. Adequate drainage away from the structures, pavement and slopes should be provided at all times.

8.1.2 **Fill Blanket Recommendations**

Due to the potential for differential settlement of foundations placed on compacted fill and native materials, it is recommended that all foundations including floor slab areas be underlain by a uniform compacted fill blanket at least two feet in thickness. This fill blanket shall extend a minimum of five horizontal feet outside the edges of foundations or equidistant to the depth of fill placed, whichever is greater.

8.2 **Shrinkage and Subsidence**

Results of our in-place density tests reveal that the soil shrinkage will be on the order of 10 to 20% due to excavation and recompaction, based upon the assumption that the fill is compacted to 92% of the maximum dry density per ASTM standards. Subsidence should be 0.2 feet die to earthwork operations. The volume change does not include any allowance for vegetation or organic stripping, removal of subsurface improvements, or topographic approximations. Although these values are only approximate, they represent our best estimate of lost yardage, which will likely occur during grading. If more accurate shrinkage and subsidence factors are needed, it is recommended that field testing the actual equipment and grading techniques should be conducted.

8.3 **Temporary Excavations**

Temporary unsurcharged excavations in the existing site materials may be made at vertical inclinations up to 4 feet in height unless cohesionless soils are encountered. In areas where soils with little or no binder are encountered, where adverse geological conditions are exposed, or where excavations are adjacent to existing structures, shoring or flatter excavations may be required.

The temporary cut slope gradients given above do not preclude local raveling and sloughing. All excavations shall be made in accordance with the requirements of the soils engineer, CAL-OSHA and other public agencies having jurisdiction. Care should be taken to provide or maintain adequate lateral support for all adjacent improvements and structures at all times during the grading operations and construction phase.

8.4 **Foundation Design**

It is recommended that a stiffened foundation system be utilized for the proposed structure to mitigate for the seismic-induced settlements. The stiffened system shall consist of a mat foundation throughout the new structure. The mat foundation should be at least 12 inches thick and may be designed utilizing an allowable bearing capacity of 2,000 psf placed on a two feet compacted fill blanket. A one-third increase may be used when considering short-term loading and seismic forces.

Foundations for smaller structures (site walls, trash enclosure, etc. may use an allowable bearing value of 2,000 psf for an embedded depth of 24 inches on a two feet thick blanket of compacted fill soils. Any foundations located along property line where lateral overexcavation is not possible may utilize an allowable bearing capacity of 1,500 psf embedded into competent native soils. A representative of this firm shall inspect all foundation excavations prior to pouring concrete.

8.5 **Settlement Analysis**

Resultant pressure curves for the consolidation tests are shown on Plates B and C. Computations utilizing these curves and the recommended allowable soil bearing capacity reveal that the mat foundations will experience settlements on the order of 1 inch and differential settlements of ½ inch over a 30 feet (horizontal) distance in the building pad area.

8.6 **Lateral Resistance**

The following values may be utilized in resisting lateral loads imposed on the structure. Requirements of the California Building Code should be adhered to when the coefficient of friction and passive pressures are combined.

Coefficient of Friction - 0.40
Equivalent Passive Fluid Pressure = 250 lbs./cu.ft.
Maximum Passive Pressure = 2,500 lbs./cu.ft.

The passive pressure recommendations are valid only for approved compacted fill soils or competent native materials.

8.7 **Retaining Wall Design Parameters**

Active earth pressures against retaining walls will be equal to the pressures developed by the following fluid densities. These values are for **granular backfill material** placed behind the walls at various ground slopes above the walls.

Surface Slope of Retained Materials (Horizontal to Vertical	Equivalent Fluid Density (lb./cu.ft.)
Level	30
5 to 1	35
4 to 1	38
3 to 1	40
2 to 1	45

Any applicable short-term construction surcharges and seismic forces should be added to the above lateral pressure values. An equivalent fluid pressure of 45 pcf may be utilized for the restrained wall condition with a level grade behind the wall.

The seismic-induced lateral soil pressure for walls greater than 6 feet may be computed using a triangular pressure distribution with the maximum value at the top of the wall. The maximum lateral pressure of (20 pcf) H where H is the height of the retained soils above the wall footing should be used in final design of retaining walls. Sliding resistance values and passive fluid pressure values may be increased by 1/3 during short-term wind and seismic loading conditions.

All walls shall be waterproofed as needed and protected from hydrostatic pressure by a reliable permanent subdrain system. The subsurface drainage system shall consist of a four-inch diameter perforated PVC pipe encased with gravel and wrapped with filter fabric. The granular backfill to be utilized immediately adjacent to retaining walls shall consist of an approved select granular soil with a sand equivalency greater than 30. This backfill zone of free draining material shall consist of a wedge beginning a minimum of one horizontal foot from the base of the wall extending upward at an inclination of no less than ¾ to 1 (horizontal to vertical).

8.8 Slab Design

All concrete slabs shall be a minimum of six inches in thickness in the proposed service areas and four inches in office and hardscape and placed on approved subgrade soils. Additional reinforcement requirements and an increase in thickness of the slabs-on-grade may be necessary based upon proposed loading conditions in the structures and should be evaluated further by the project engineers and/or architect.

A vapor retarder (10-mil minimum thickness) should be utilized in areas which would be sensitive to the infiltration of moisture. This retarder shall meet requirements of ASTM E 96, *Water Vapor Transmission of Materials* and ASTM E 1745, *Standard Specification for Water Vapor Retarders used in Contact with Soil or Granular Fill Under Concrete Slabs.* The vapor retarder shall be installed in accordance with procedures stated in ASTM E 1643, *Standard practice for Installation of Water Vapor Retarders used in Contact with Earth or Granular Fill Under Concrete Slabs.*

The moisture retarder may be placed directly upon compacted subgrade soils conditioned to near optimum moisture levels, although one to two inches of sand beneath the membrane is desirable. The subgrade upon which the retarder is placed shall be smooth and free of rocks, gravel or other protrusions which may damage the retarder. Use of sand above the retarder is under the purview of the structural engineer; if sand is used over the retarder, it should be placed in a dry condition.

8.9 Pavement Section Design

The table below provides a preliminary pavement design based upon an R-Value of 53 for the subgrade soils for the proposed pavement areas. Final pavement design may need to be based on R-Value testing of the subgrade soils near the conclusion of site grading to assure that these soils are consistent with those assumed in this preliminary design.

Type of Traffic	Traffic Index	Asphalt (in.)	Base Material (in.)
Automobile Parking Stalls	4.0	3.0	3.0
Light Vehicle Circulation Areas	6.0	3.5	5.5
Heavy Truck Access	7.0	4.0	8.0

Any concrete slab-on-grade in pavement areas shall be a minimum of six inches in thickness and placed on approved subgrade soils. All pavement areas shall have positive drainage toward an approved outlet from the site. Drain lines behind curbs and/or adjacent to landscape areas should be considered by client and the appropriate design engineers to prevent water from infiltrating beneath pavement. If such infiltration occurs, damage to pavement, curbs and flow lines, especially on sites with expansive soils, may occur during the life of the project.

Any approved base material shall consist of a Class II aggregate or equivalent and should be compacted to a minimum of 95% relative compaction. All pavement materials shall conform to the requirements set forth by the City of Moorpark. The base material; and asphaltic concrete should be tested prior to delivery to the site and during placement to determine conformance with the project specifications. A pavement engineer shall designate the specific asphalt mix design to meet the required project specifications.

8.10 Utility Trench and Excavation Backfill

Trenches from installation of utility lines and other excavations may be backfilled with on-site soils or approved imported soils compacted to a minimum of 90% relative compaction. All utility lines shall be properly bedded with clean sand having a sand equivalency rating of 30 or more. This bedding material shall be thoroughly water jetted around the pipe structure prior to placement of compacted backfill soils.

8.11 Corrosion Design Criteria

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations and underground utilities were tested for corrosion potential. The minimum resistivity value obtained for the samples tested is representative of an environment that may be severely corrosive to metals. The soil pH value was considered mildly acidic and may not have a significant effect on soil corrosivity. Consideration should be given to corrosion protection systems for buried metal such as protective coatings, wrappings or the use of PVC where permitted by local building codes.

According to Table 4.3.1 of ACI 318 Building Code and Commentary, these contents revealed negligible sulfate concentrations. Therefore, a Type II cement according to latest CBC specifications may be utilized for building foundations at this time. It is recommended that additional sulfate tests be performed at the completion of site grading to assure that the as graded conditions are consistent with the recommendations stated in this design. Corrosion test results may be found on the attached Table IV.

8.12 Expansive Soil

Granular soils were noted in the upper 12 feet with a very low expansion potential. Expansive clay soils were encountered from 12 to 26 feet deep. If any expansive soils are encountered, special attention should be given to the project design and maintenance.

9.0 Closure

The recommendations and conclusions contained in this report are based upon the soil conditions uncovered in our test excavations. No warranty of the soil condition between our excavations is implied. NorCal Engineering should be notified for possible further recommendations if unexpected to unfavorable conditions are encountered during construction phase. It is the responsibility of the owner to ensure that all information within this report is submitted to the Architect and appropriate Engineers for the project.

A preconstruction conference should be held between the developer, general contractor, grading contractor, city inspector, architect, and geotechnical engineer to clarify any questions relating to the grading operations and subsequent construction. Our representative should be present during the grading operations and construction phase to certify that such recommendations are complied within the field.

This geotechnical investigation has been conducted in a manner consistent with the level of care and skill exercised by members of our profession currently practicing under similar conditions in the Southern California area. No other warranty, expressed or implied is made.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker
Project Engineer
R.G.E. 841

REGISTERED PROFESSIONAL ENGINEER
KEITH D. TUCKER
No. 841
Exp. 12/31/2022
GEOTECHNICAL
STATE OF CALIFORNIA

Scott D. Spensiero
Project Manager

References

1. American Society of Civil Engineers (ASCE) website, https://asce7hazardtool.online/

2. California Building Code, 2019.

3. California Department of Water Resources, Internet Website, http://www.water.ca.gov/waterdatalibrary/index.cfm.

4. California Division of Mines and Geology, 2000, Seismic Hazard Zone for the Moorpark 7.5-Minute Quadrangle, Ventura County, California - Seismic Hazard Zone Report 041.

5. California Division of Mines and Geology, 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California: Special Publication 117A.

6. Earthquake Zones of Required Investigation, Seismic Hazard Zones, Moorpark Quadrangle, published by the California Geological Survey.

7. NorCal Engineering Inc. - Geotechnical Engineering Investigation – Proposed Industrial Warehouse - Located at 10951 Los Angeles Avenue, in the City of Moorpark ..... dated July 14, 2020.

8. Thomas W. Dibblee, Jr. - Geologic Map of the Moorpark Quadrangle, Ventura County, California 1992.

9. Ventura County Technical Guidance Manual for Stormwater Quality Control Measures - Update 2011.

SPECIFICATIONS FOR PLACEMENT OF COMPACTED FILL

Excavation

Any existing low-density soils and/or saturated soils shall be removed to competent natural soil under the inspection of the Geotechnical Engineering Firm. After the exposed surface has been cleansed of debris and/or vegetation, it shall be scarified until it is uniform in consistency, brought to the proper moisture content and compacted to a minimum of 90% relative compaction (in accordance with ASTM: D 1557).

In any area where a transition between fill and native soil or between bedrock and soil are encountered, additional excavation beneath foundations and slabs will be necessary in order to provide uniform support and avoid differential settlement of the structure.

Material for Fill

The on-site soils or approved import soils may be utilized for the compacted fill provided they are free of any deleterious materials and shall not contain any rocks, brick, asphaltic concrete, concrete or other hard materials greater than eight inches in maximum dimensions. Any import soil must be approved by the Geotechnical Engineering firm a minimum of 72 hours prior to importation of site.

Placement of Compacted Fill Soils

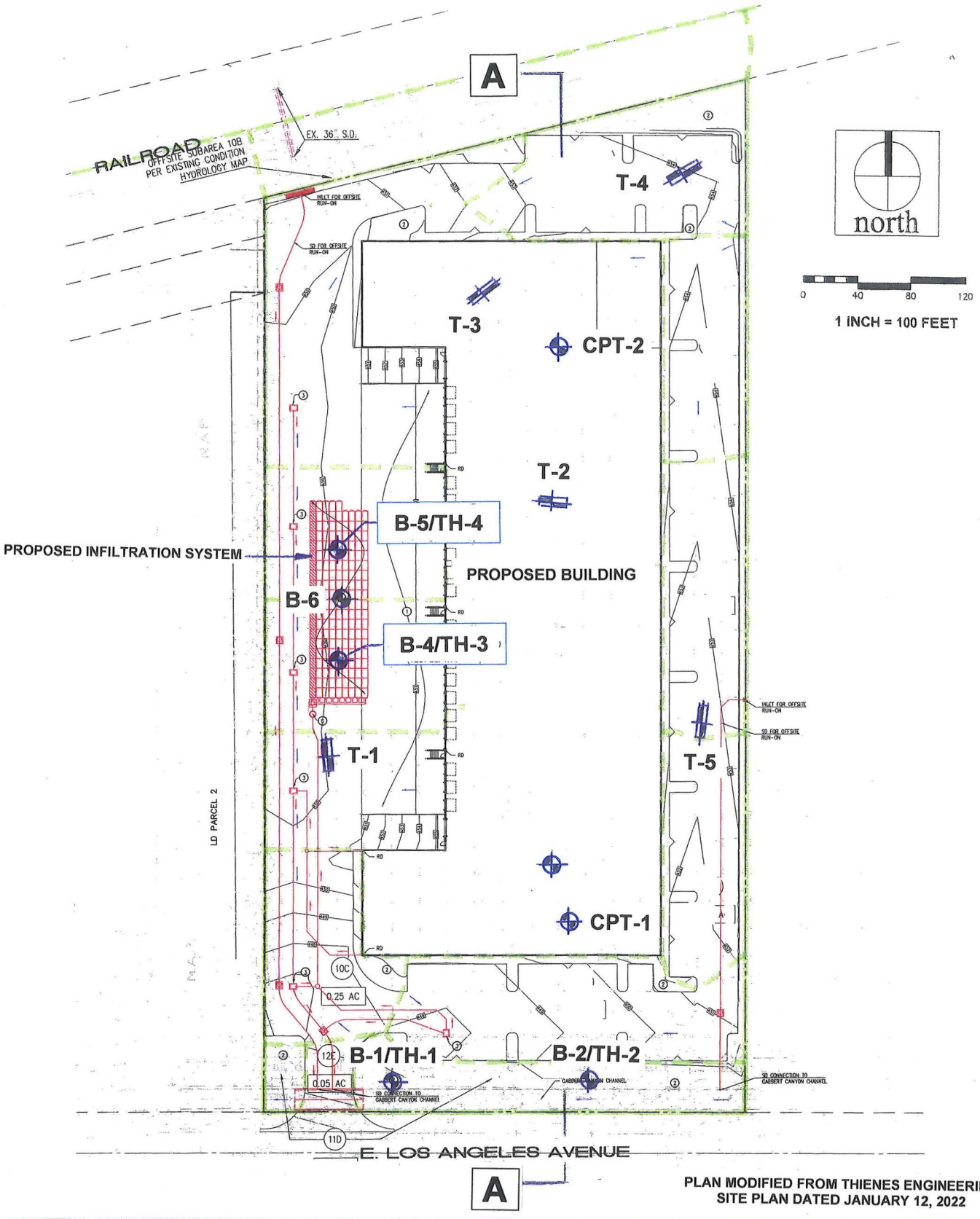
The approved fill soils shall be placed in layers not excess of six inches in thickness. Each lift shall be uniform in thickness and thoroughly blended. The fill soils shall be brought to within 2% of the optimum moisture content, unless otherwise specified by the Soils Engineering firm. Each lift shall be compacted to a minimum of 90% relative compaction (in accordance with ASTM: D 1557) and approved prior to the placement of the next layer of soil. Compaction tests shall be obtained at the discretion of the Geotechnical Engineering firm but to a minimum of one test for every 500 cubic yards placed and/or for every 2 feet of compacted fill placed.

The minimum relative compaction shall be obtained in accordance with accepted methods in the construction industry. The final grade of the structural areas shall be in a dense and smooth condition prior to placement of slabs-on-grade or pavement areas. No fill soils shall be placed, spread or compacted during unfavorable weather conditions. When the grading is interrupted by heavy rains, compaction operations shall not be resumed until approved by the Geotechnical Engineering firm.

Grading Observations

The controlling governmental agencies should be notified prior to commencement of any grading operations. This firm recommends that the grading operations be conducted under the observation of a Geotechnical Engineering firm as deemed necessary. A 24-hour notice must be provided to this firm prior to the time of our initial inspection.

Observation shall include the clearing and grubbing operations to assure that all unsuitable materials have been properly removed; approve the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished grade and designate areas of overexcavation; and perform field compaction tests to determine relative compaction achieved during fill placement. In addition, all foundation excavations shall be observed by the Geotechnical Engineering firm to confirm that appropriate bearing materials are present at the design grades and recommend any modifications to construct footings.



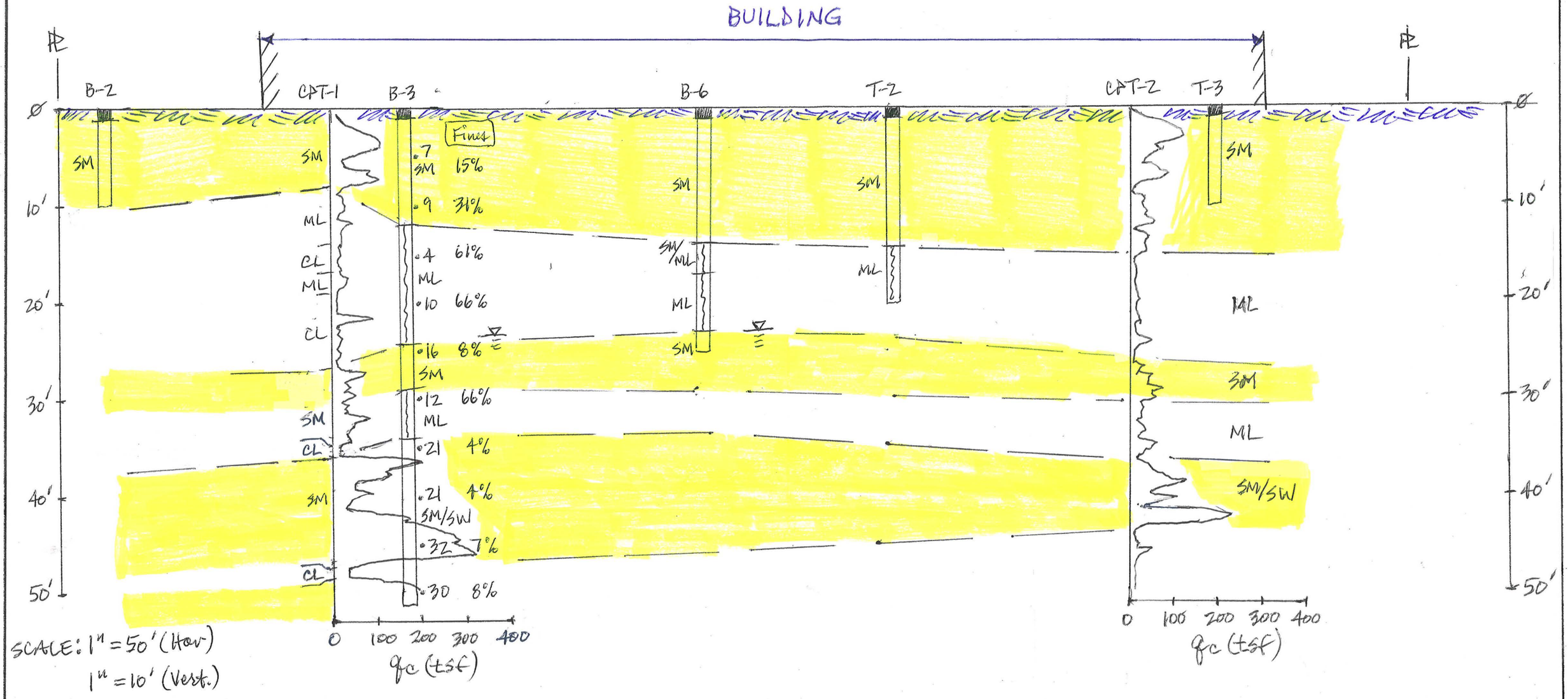
PLAN MODIFIED FROM THIENES ENGINEERING
SITE PLAN DATED JANUARY 12, 2022

NorCal Engineering

SOILS AND GEOTECHNICAL CONSULTANTS

SITE PLAN

PROJECT: 21889-20	DATE: APRIL 2022



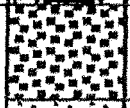
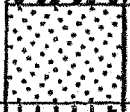
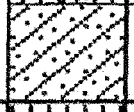
SCALE: 1" = 50' (Hor.)
1" = 10' (Vert.)

NorCal Engineering SOILS AND GEOTECHNICAL CONSULTANTS	
PROJECT 21889-20	DATE APRIL 2022

SECTION A-A

List of Appendices
(in order of appearance)

Appendix A
Log of Excavations

MAJOR DIVISION			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINE (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

UNIFIED SOIL CLASSIFICATION SYSTEM

KEY:

 Indicates 2.5-inch Inside Diameter. Ring Sample.

 Indicates 2-inch OD Split Spoon Sample (SPT).

 Indicates Shelby Tube Sample.

 Indicates No Recovery.

 Indicates SPT with 140# Hammer 30 in. Drop.

 Indicates Bulk Sample.

 Indicates Small Bag Sample.

 Indicates Non-Standard

 Indicates Core Run.

COMPONENT PROPORTIONS

DESCRIPTIVE TERMS	RANGE OF PROPORTION
Trace	1 - 5%
Few	5 - 10%
Little	10 - 20%
Some	20 - 35%
And	35 - 50%

COMPONENT DEFINITIONS

COMPONENT	SIZE RANGE
Boulders	Larger than 12 in
Cobbles	3 in to 12 in
Gravel	3 in to No 4 (4.5mm)
Coarse gravel	3 in to 3/4 in
Fine gravel	3/4 in to No 4 (4.5mm)
Sand	No. 4 (4.5mm) to No. 200 (0.074mm)
Coarse sand	No. 4 (4.5 mm) to No. 10 (2.0 mm)
Medium sand	No. 10 (2.0 mm) to No. 40 (0.42 mm)
Fine sand	No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt and Clay	Smaller than No. 200 (0.074 mm)

MOISTURE CONTENT

DRY	Absence of moisture, dusty, dry to the touch.
DAMP	Some perceptible moisture; below optimum
MOIST	No visible water; near optimum moisture content
WET	Visible free water, usually soil is below water table.

RELATIVE DENSITY OR CONSISTENCY VERSUS SPT N -VALUE

COHESIONLESS SOILS		COHESIVE SOILS		
Density	N (blows/ft)	Consistency	N (blows/ft)	Approximate Undrained Shear Strength (psf)
Very Loose	0 to 4	Very Soft	0 to 2	< 250
Loose	4 to 10	Soft	2 to 4	250 - 500
Medium Dense	10 to 30	Medium Stiff	4 to 8	500 - 1000
Dense	30 to 50	Stiff	8 to 15	1000 - 2000
Very Dense	over 50	Very Stiff	15 to 30	2000 - 4000
		Hard	over 30	> 4000

Amir Development Company
21889-20

Log of Boring B-1

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5		Boring completed at depth of 5'					
10							
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Boring B-2

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5		GWT not encountered					
10		Boring completed at depth of 10'					
15							
20							
25							
30							
35							

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Amir Development Company
21889-20

Log of Boring B-3

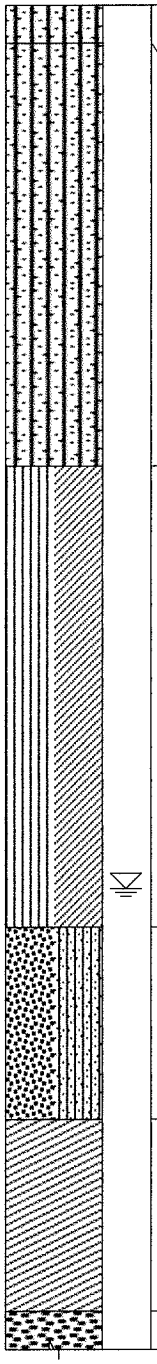
Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** 23'

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0	FILL Silty (fine to medium grained) SAND Brown, loose, dry					
	NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5		X	3/3/4	8.2		15
10		X	3/4/5	10.3		31
	Sandy to Clayey SILT Brown, firm, moist to wet					
15		X	2/2/2	16.6		61
20		X	2/5/5	27.1		66
	Silty (fine to medium grained) SAND Light brown, medium dense, wet; slightly silty to silty					
25		X	4/7/9	18.5		8
	Clayey SILT Brown, firm, wet					
30		X	3/5/7	26.9		66
	SAND (fine to medium grained) Light brown, medium dense, wet					
35						

NorCal Engineering

Amir Development Company
21889-20

Log of Boring B-3

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** 23'

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
35		SAND (fine to medium grained) Light brown, medium dense, wet		8/9/12	19.5		4
40				8/9/12	19.5		4
45				9/13/19	17.8.		7
50				10/12/18	16.4		8
		Boring completed at depth of 51.5'					
55							
60							
65							
70							

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NorCal Engineering

Amir Development Company
21889-20

Log of Trench T-1

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Backhoe

Hammer Weight: | **Drop:**

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel			5.2	102.8	
5					4.2	104.7	
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Trench T-2

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | Groundwater Depth: None Encountered

Drilling Method: Backhoe

Hammer Weight: | Drop:

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry	■		7.5	100.9	
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5			■		7.8	106.9	
10			■		8.5	107.2	
15		Sandy to Clayey SILT Brown, firm, moist	■		11.7	110.1	
20		Trench completed at depth of 20'	■		18.8	105.6	
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Trench T-3

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Backhoe

Hammer Weight: | **Drop:**

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry					
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, moist; with occasional gravel	■		11.4	105.2	
5			■		5.9	103.2	
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

SuperLog CivilTech Software, USA www.civiltech.com File: C:\Superlog4\PROJECT\21889-20.log Date: 4/11/2022

Amir Development Company
21889-20

Log of Trench T-4

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Backhoe

Hammer Weight: | **Drop:**

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry	■		3.9	107.7	
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, moist; with occasional gravel					
5			■		6.0	105.1	
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Trench T-5

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 6/25/2020 | **Groundwater Depth:** None Encountered

Drilling Method: Backhoe

Hammer Weight: | **Drop:**

Surface Elevation: Not Measured

Depth (feet)	Lithology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, dry					
		NATURAL Silty (fine to coarse grained) SAND Brown, medium dense, moist; with occasional gravel and cobble	■		4.3	108.1	
5			■		5.2	106.0	
10		Trench completed at depth of 10'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Boring B-4

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 3/24/2022 | Groundwater Depth: None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | Drop: 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5			X	3/3/4	8.2		15
10			X	3/4/5	10.3		31
		Boring completed at depth of 11'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Boring B-5

Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 3/24/2022 | **Groundwater Depth:** None Encountered

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | **Drop:** 30"

Surface Elevation: Not Measured

Depth (feet)	Lith-ology	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0		FILL Silty (fine to medium grained) SAND Brown, loose, moist					
		NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5			⊠	3/3/4	8.2		15
10			⊠	3/4/5	10.3		31
		Boring completed at depth of 11.5'					
15							
20							
25							
30							
35							

GWT not encountered

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NorCal Engineering

Amir Development Company
21889-20

Log of Boring B-6

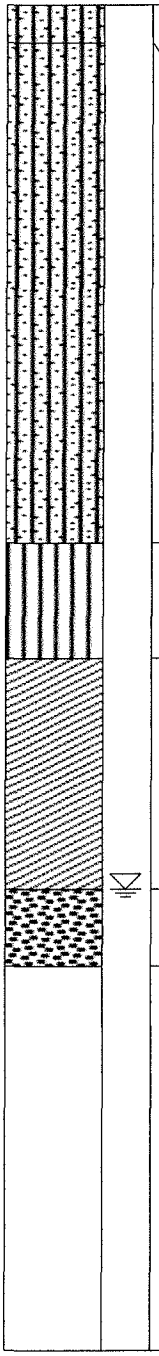
Boring Location: 10941 W Los Angeles Ave, Moorpark

Date of Drilling: 3/24/2022 | Groundwater Depth: 23'

Drilling Method: Simco 2800HS

Hammer Weight: 140 lbs | Drop: 30"

Surface Elevation: Not Measured



Depth (feet)	Material Description	Samples: Type	Samples: Blow Counts	Laboratory: Moisture	Laboratory: Dry Density	Laboratory: Fines Content %
0	FILL Silty (fine to medium grained) SAND Brown, loose, moist					
	NATURAL Silty (fine to medium grained) SAND Brown, medium dense, moist; with occasional gravel					
5		X	3/3/4	8.2		15
10		X	3/4/5	10.3		31
15	Sandy SILT Brown, firm, moist	X	2/2/2	16.6		61
	Clayey SILT Brown, firm, moist to wet Groundwater @ 23' bgs					
20		X	2/5/5	27.1		66
	Silty (fine to coarse grained) SAND Light brown, medium dense, wet; slightly silty					
25	Boring completed at depth of 25'	X	4/7/9	18.5		8
30						
35						

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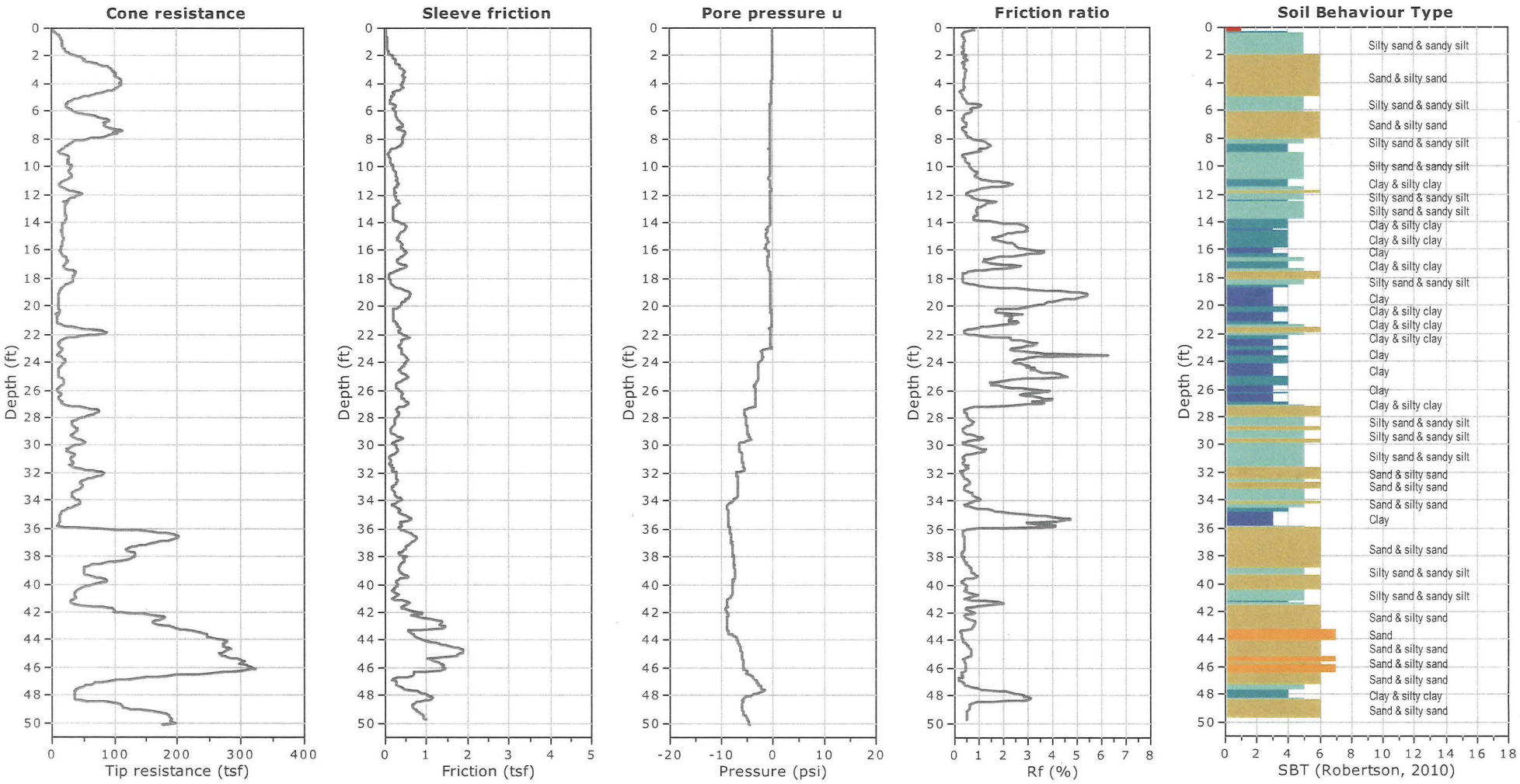
NorCal Engineering

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Amir Development Company**
Location: **10941 W. Los Angeles Avenue, Moorpark CA**

CPT-1
Total depth: 50.13 ft, Date: 3/25/2022



Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
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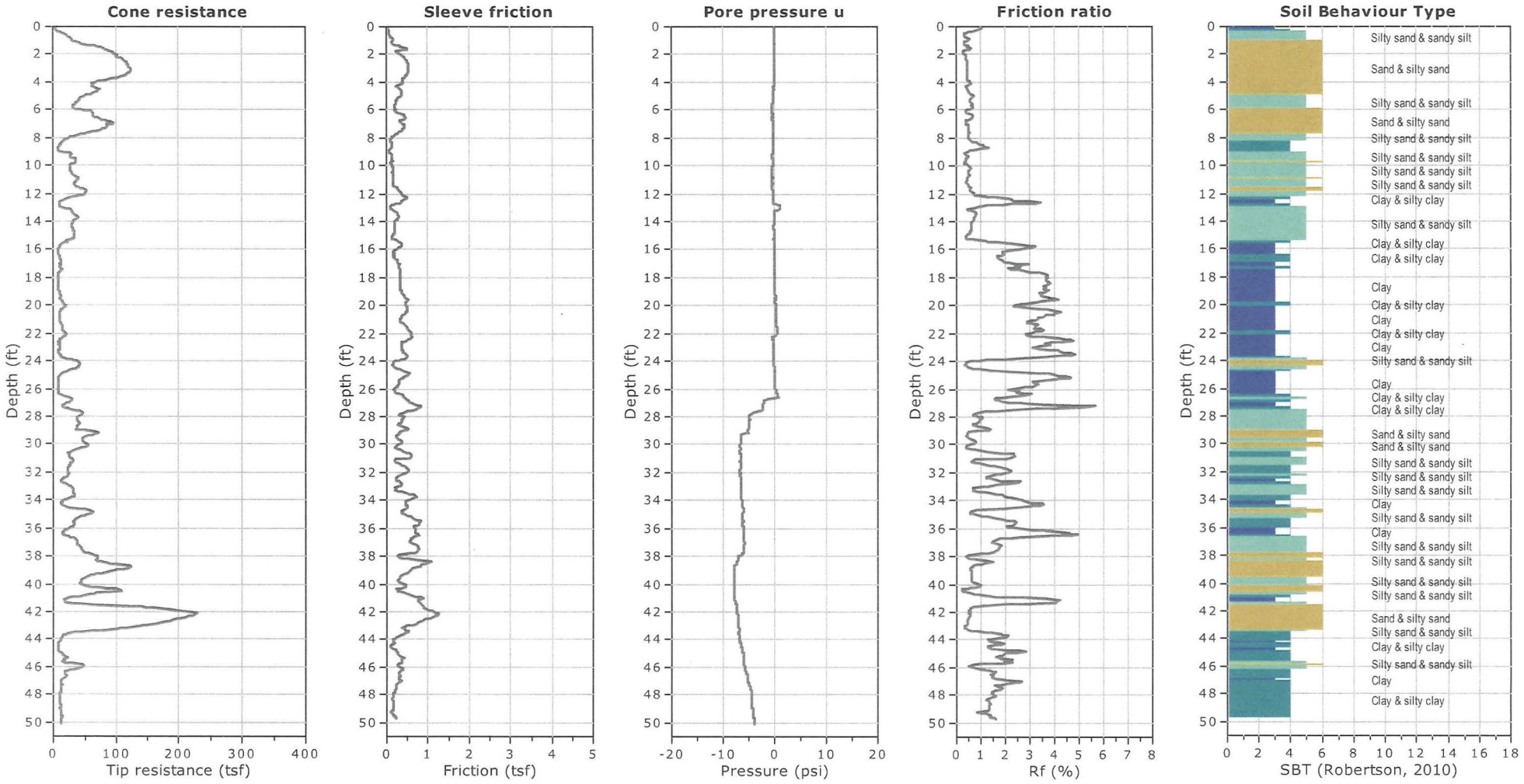
Project: **Amir Development Company**
Location: **10941 W. Los Angeles Avenue, Moorpark CA**

CPT-2
Total depth: 50.13 ft, Date: 3/25/2022



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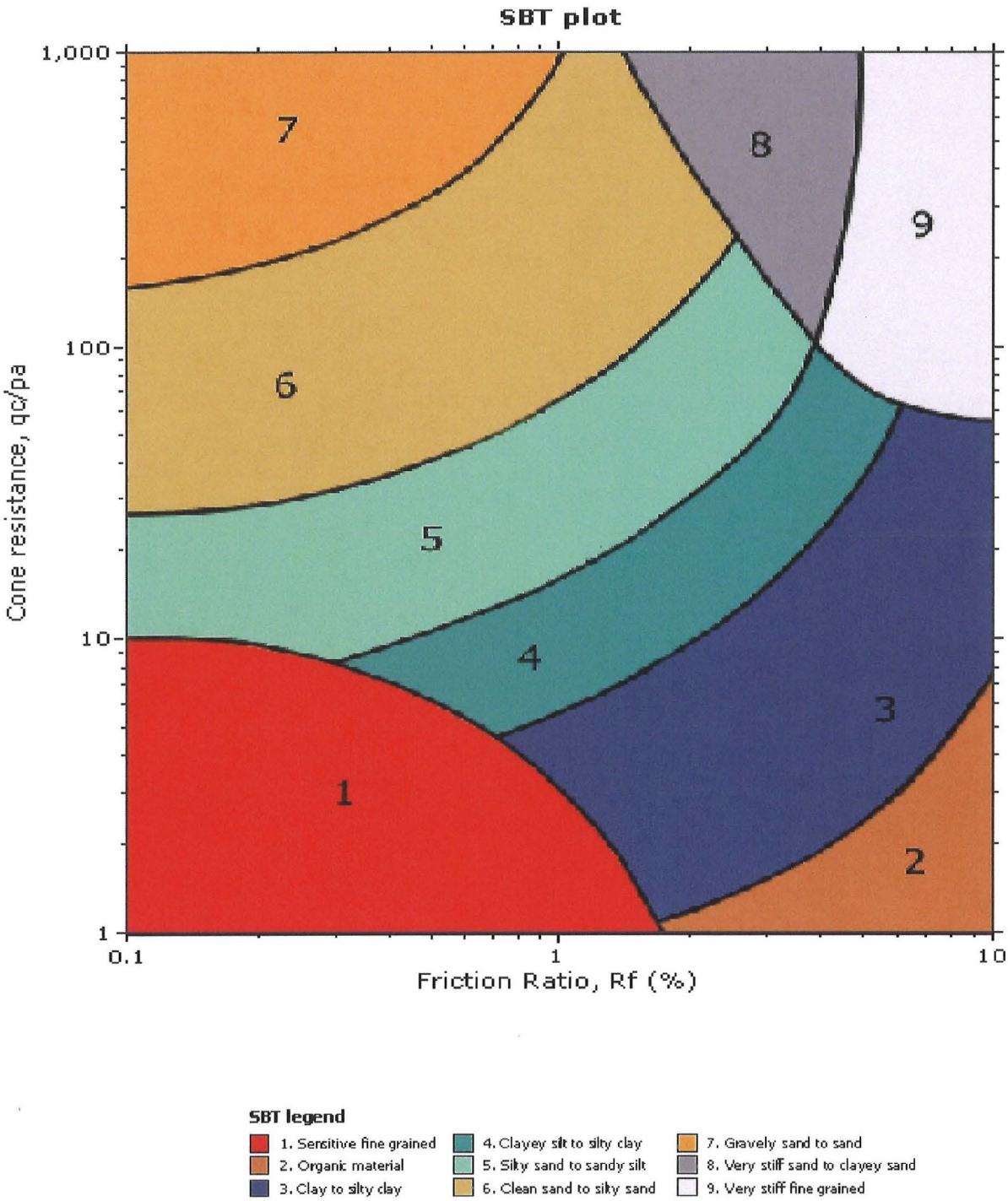


Depth (ft)	Tip Stress (tsf)	Sleeve Stre (tsf)	Pore Pressu (psi)	Ratio (%)
0	0.37	0.0168	-0.094	4.581
0.081	2.29	0.0183	-0.094	0.799
0.155	2.84	0.024	-0.094	0.845
0.2	3.39	0.024	0	0.708
0.276	4.58	0.024	0	0.524
0.329	5.68	0.0258	-0.016	0.454
0.411	8.33	0.0328	0	0.394
0.468	10.34	0.0363	-0.016	0.351
0.526	11.9	0.0415	0	0.349
0.597	13.55	0.0481	0	0.355
0.665	14.37	0.0549	0	0.382
0.742	15.01	0.0601	0	0.4
0.796	15.56	0.0642	0	0.413
0.862	16.11	0.0726	0	0.451
0.929	16.38	0.0725	0	0.442
0.989	16.29	0.0688	0	0.422
1.051	16.48	0.066	0	0.4
1.136	16.93	0.066	0	0.39
1.197	17.12	0.066	0	0.385
1.258	17.94	0.066	0	0.368
1.324	18.67	0.0676	0	0.362
1.386	19.59	0.0704	0	0.359
1.45	19.95	0.0728	0	0.365
1.512	20.6	0.0747	0	0.363
1.577	21.6	0.0793	0	0.367
1.644	22.7	0.088	0	0.387
1.729	25.36	0.0934	0	0.369
1.778	27.09	0.0977	0	0.36
1.838	30.85	0.1088	0	0.353
1.913	35.61	0.1524	0	0.428
1.978	39.27	0.1932	0	0.492
2.042	42.38	0.2076	0	0.49
2.101	46.22	0.19	0	0.411
2.173	48.33	0.1921	0	0.398
2.245	52.45	0.2623	0	0.5
2.304	50.8	0.2795	0	0.55
2.369	53.91	0.2699	0	0.501
2.43	58.76	0.2699	0	0.459
2.496	62.34	0.2525	0	0.405
2.564	71.85	0.2542	0	0.354
2.63	76.8	0.347	0	0.452
2.699	83.94	0.3479	0	0.414
2.757	90.53	0.3479	0	0.384
2.827	92.45	0.3684	0	0.399

2.893	96.84	0.3967	-0.038	0.41
2.984	97.3	0.4366	0	0.449
3.025	96.57	0.4562	-0.062	0.472
3.087	100.14	0.4811	0	0.48
3.16	99.04	0.4793	-0.066	0.484
3.217	101.97	0.4469	-0.068	0.438
3.285	102.43	0.4455	-0.069	0.435
3.348	101.42	0.4525	-0.096	0.446
3.424	101.33	0.4421	-0.101	0.436
3.484	104.35	0.4633	-0.101	0.444
3.547	105.81	0.4812	-0.101	0.455
3.611	108.56	0.4758	-0.113	0.438
3.699	110.57	0.4598	-0.115	0.416
3.745	110.76	0.4541	-0.117	0.41
3.807	110.48	0.4465	-0.136	0.404
3.879	110.85	0.4416	-0.136	0.398
3.951	109.84	0.4348	-0.136	0.396
4.007	110.94	0.4232	-0.094	0.382
4.075	111.31	0.408	-0.165	0.367
4.139	110.02	0.4041	-0.159	0.367
4.209	107.64	0.4397	-0.159	0.409
4.274	105.63	0.447	-0.174	0.423
4.335	101.97	0.4117	-0.174	0.404
4.4	99.68	0.3959	-0.178	0.397
4.497	95.56	0.357	-0.178	0.374
4.533	90.62	0.2909	-0.198	0.321
4.597	82.47	0.1991	-0.198	0.241
4.666	77.9	0.2047	-0.198	0.263
4.727	73.5	0.2209	-0.255	0.301
4.791	67.92	0.2281	-0.282	0.336
4.861	60.96	0.1921	-0.309	0.315
4.925	53.18	0.1787	-0.328	0.336
4.987	47.69	0.1694	-0.328	0.355
5.054	43.2	0.1648	-0.348	0.381
5.13	36.06	0.1502	-0.348	0.417
5.19	33.5	0.1474	-0.348	0.44
5.259	30.11	0.1459	-0.374	0.485
5.332	27.92	0.1395	-0.374	0.5
5.404	26.09	0.1297	-0.374	0.497
5.454	24.81	0.1323	-0.374	0.533
5.524	23.71	0.2111	-0.468	0.89
5.599	23.71	0.2697	-0.468	1.138
5.648	23.71	0.2525	-0.468	1.065
5.729	25.45	0.2296	-0.468	0.902
5.779	27.64	0.2079	-0.468	0.752
5.845	30.85	0.2106	-0.468	0.683
5.914	31.12	0.223	-0.484	0.716

5.98	34.42	0.2411	-0.484	0.701
6.041	36.89	0.2574	-0.489	0.698
6.127	42.38	0.2596	-0.489	0.613
6.182	47.41	0.2534	-0.489	0.534
6.257	55.01	0.257	-0.478	0.467
6.307	60.14	0.2583	-0.468	0.429
6.404	70.21	0.2738	-0.468	0.39
6.447	75.24	0.2895	-0.468	0.385
6.521	83.66	0.3066	-0.468	0.367
6.579	87.32	0.3099	-0.468	0.355
6.649	91.35	0.3219	-0.468	0.352
6.717	90.98	0.347	-0.468	0.381
6.759	89.34	0.364	-0.468	0.407
6.851	84.49	0.3938	-0.468	0.466
6.89	83.57	0.4101	-0.468	0.491
6.975	84.67	0.4296	-0.468	0.507
7.024	82.84	0.4259	-0.468	0.514
7.117	84.85	0.4306	-0.468	0.507
7.166	87.69	0.3763	-0.468	0.429
7.233	94.37	0.3105	-0.468	0.329
7.3	103.89	0.344	-0.468	0.331
7.378	109.38	0.3945	-0.468	0.361
7.449	113.04	0.4371	-0.468	0.387
7.488	113.23	0.4571	-0.468	0.404
7.56	97.48	0.4811	-0.468	0.494
7.616	104.72	0.4917	-0.468	0.47
7.679	99.41	0.4852	-0.468	0.488
7.749	92.63	0.4693	-0.468	0.507
7.824	84.67	0.461	-0.468	0.544
7.885	76.98	0.4428	-0.468	0.575
7.97	63.52	0.4192	-0.562	0.66
8.011	57.21	0.4222	-0.468	0.738
8.084	46.41	0.429	-0.562	0.924
8.155	39.45	0.4229	-0.468	1.072
8.242	34.87	0.4393	-0.468	1.26
8.282	32.95	0.434	-0.468	1.317
8.334	31.3	0.423	-0.468	1.351
8.425	27.55	0.4015	-0.468	1.457
8.48	25.72	0.3892	-0.468	1.513
8.537	23.8	0.3626	-0.562	1.524
8.605	21.69	0.3066	-0.562	1.413
8.668	18.86	0.2424	-0.749	1.286
8.732	16.57	0.1705	-0.655	1.029
8.804	14.46	0.1447	-0.655	1.001
8.866	12.63	0.1371	-0.655	1.085
8.936	11.62	0.1208	-0.655	1.039
9.002	12.45	0.0981	-0.655	0.788

9.083	15.84	0.0789	-0.468	0.498
9.13	18.58	0.0794	-0.468	0.427
9.198	24.9	0.0885	-0.468	0.355
9.259	27.92	0.0976	-0.468	0.35
9.343	28.83	0.1095	-0.468	0.38
9.403	28.1	0.1198	-0.468	0.426
9.456	26.82	0.1218	-0.468	0.454
9.537	26.18	0.1153	-0.468	0.44
9.583	26.09	0.1179	-0.562	0.452
9.649	26.45	0.1252	-0.562	0.473
9.712	27.74	0.1349	-0.562	0.486
9.792	25.54	0.1629	-0.562	0.638
9.844	30.21	0.1786	-0.562	0.591
9.915	31.67	0.1866	-0.562	0.589
9.982	31.76	0.1944	-0.562	0.612
10.072	31.03	0.2019	-0.562	0.651
10.116	30.3	0.2024	-0.562	0.668
10.175	29.38	0.2125	-0.562	0.723
10.245	28.74	0.2309	-0.562	0.804
10.333	28.1	0.2517	-0.562	0.896
10.383	28.28	0.2693	-0.562	0.952
10.465	29.02	0.277	-0.562	0.955
10.511	29.66	0.2775	-0.562	0.936
10.572	31.76	0.2739	-0.655	0.862
10.643	32.59	0.2771	-0.655	0.85
10.731	31.85	0.2865	-0.749	0.899
10.765	30.66	0.2857	-0.749	0.932
10.858	26.82	0.2857	-0.749	1.065
10.923	24.07	0.2779	-0.655	1.154
10.961	22.43	0.2804	-0.655	1.25
11.05	18.49	0.3001	-0.655	1.623
11.095	17.12	0.3105	-0.655	1.814
11.183	14.55	0.3217	-0.655	2.21
11.222	13.64	0.3218	-0.655	2.359
11.287	12.91	0.308	-0.562	2.386
11.359	13.27	0.2971	-0.562	2.239
11.426	15.29	0.2889	-0.562	1.89
11.485	17.67	0.2691	-0.468	1.523
11.566	21.69	0.2414	-0.281	1.113
11.63	24.81	0.2359	-0.187	0.951
11.7	30.48	0.2359	-0.281	0.774
11.764	35.15	0.2384	-0.468	0.678
11.855	43.75	0.2496	-0.562	0.57
11.893	45.58	0.2446	-0.562	0.537
11.943	48.15	0.2399	-0.562	0.498
12.022	47.69	0.2399	-0.562	0.503
12.083	42.84	0.2399	-0.562	0.56

12.167	37.99	0.2675	-0.562	0.704
12.206	35.61	0.2603	-0.562	0.731
12.283	31.12	0.2503	-0.562	0.804
12.347	28.65	0.2619	-0.562	0.914
12.42	27.46	0.2849	-0.655	1.038
12.477	26.91	0.3323	-0.655	1.235
12.534	19.77	0.3439	-0.624	1.739
12.6	24.81	0.3487	-0.624	1.406
12.667	24.53	0.3334	-0.624	1.359
12.746	23.34	0.3043	-0.562	1.304
12.833	21.6	0.2549	-0.655	1.18
12.88	21.42	0.224	-0.655	1.046
12.927	21.24	0.2042	-0.655	0.962
13.011	21.33	0.1985	-0.655	0.931
13.071	21.33	0.1936	-0.655	0.908
13.144	21.51	0.1883	-0.655	0.876
13.192	21.51	0.1939	-0.655	0.901
13.263	21.51	0.1965	-0.655	0.913
13.324	21.51	0.2046	-0.655	0.951
13.413	21.51	0.2033	-0.655	0.945
13.46	21.05	0.197	-0.655	0.936
13.546	22.52	0.1868	-0.655	0.83
13.594	23.25	0.1885	-0.655	0.811
13.655	24.35	0.1916	-0.655	0.787
13.727	24.44	0.1852	-0.655	0.758
13.787	23.89	0.1905	-0.655	0.798
13.865	22.15	0.2525	-0.655	1.14
13.927	21.51	0.3101	-0.655	1.442
13.993	21.05	0.3567	-0.655	1.694
14.059	19.59	0.4025	-0.655	2.055
14.129	17.85	0.453	-0.655	2.538
14.173	17.39	0.49	-0.655	2.817
14.246	17.21	0.5111	-0.749	2.97
14.351	16.84	0.5022	-0.936	2.982
14.397	16.84	0.4993	-0.936	2.964
14.443	16.84	0.493	-0.936	2.927
14.519	16.57	0.4841	-1.216	2.922
14.578	16.02	0.4762	-1.17	2.973
14.66	15.84	0.4354	-1.17	2.75
14.721	16.2	0.4097	-1.17	2.529
14.788	16.38	0.3742	-1.31	2.284
14.83	16.57	0.3572	-1.216	2.156
14.935	17.48	0.3325	-1.216	1.902
14.977	17.94	0.3244	-1.216	1.808
15.033	18.49	0.313	-1.216	1.693
15.11	18.86	0.2978	-1.123	1.579
15.161	18.95	0.2965	-1.123	1.565

15.23	18.76	0.306	-1.03	1.631
15.291	18.4	0.3214	-0.936	1.747
15.378	17.76	0.359	-0.842	2.021
15.427	17.39	0.3842	-0.936	2.209
15.498	16.93	0.4066	-1.123	2.401
15.552	16.75	0.4113	-1.216	2.455
15.646	16.2	0.4071	-1.216	2.512
15.688	16.2	0.4058	-1.216	2.505
15.752	15.74	0.4058	-1.31	2.578
15.822	15.38	0.4058	-1.591	2.639
15.885	14.92	0.4147	-1.591	2.78
15.962	14.28	0.4449	-1.123	3.116
16.017	13.82	0.4728	-0.936	3.421
16.094	13.73	0.5035	-0.842	3.667
16.162	14	0.5125	-0.842	3.659
16.212	14.55	0.4983	-0.842	3.424
16.296	15.74	0.4774	-0.842	3.032
16.35	16.75	0.4581	-0.842	2.735
16.409	18.22	0.4312	-0.842	2.367
16.492	20.87	0.3879	-0.936	1.859
16.543	22.52	0.3601	-1.123	1.599
16.624	23.8	0.3204	-1.123	1.346
16.672	24.53	0.2984	-1.123	1.217
16.736	24.81	0.2971	-1.123	1.198
16.8	24.62	0.2909	-1.03	1.181
16.882	23.89	0.3115	-1.03	1.304
16.936	23.07	0.3365	-0.936	1.459
17.027	21.6	0.4289	-0.936	1.986
17.072	21.14	0.4854	-0.936	2.296
17.164	19.95	0.5416	-0.936	2.714
17.208	19.86	0.4778	-0.842	2.405
17.28	20.78	0.3826	-0.749	1.841
17.329	22.24	0.3593	-0.749	1.615
17.398	27.92	0.3318	-0.749	1.188
17.456	33.23	0.2885	-0.749	0.868
17.532	39.18	0.2233	-0.655	0.57
17.587	36.61	0.1712	-0.655	0.468
17.656	37.44	0.1311	-0.655	0.35
17.73	36.8	0.1137	-0.562	0.309
17.799	35.33	0.108	-0.562	0.306
17.857	34.69	0.108	-0.562	0.311
17.927	34.69	0.108	-0.562	0.311
17.995	34.69	0.1093	-0.562	0.315
18.048	34.97	0.1118	-0.562	0.32
18.133	35.24	0.1159	-0.562	0.329
18.181	34.87	0.1165	-0.562	0.334
18.259	32.49	0.1237	-0.562	0.381

18.32	29.66	0.1383	-0.562	0.466
18.405	26.54	0.1672	-0.562	0.63
18.448	24.16	0.1784	-0.562	0.738
18.519	20.87	0.2016	-0.562	0.966
18.581	18.86	0.2427	-0.562	1.287
18.658	16.38	0.3145	-0.562	1.92
18.716	14.92	0.3748	-0.562	2.512
18.769	13.91	0.4271	-0.562	3.07
18.847	13	0.496	-0.562	3.816
18.9	12.63	0.5354	-0.562	4.239
18.986	12.27	0.5877	-0.562	4.791
19.029	11.9	0.6053	-0.562	5.087
19.119	11.35	0.6118	-0.562	5.39
19.188	11.17	0.6074	-0.562	5.439
19.238	11.17	0.6019	-0.468	5.39
19.294	11.17	0.5944	-0.468	5.323
19.374	11.17	0.5709	-0.468	5.113
19.433	11.17	0.5479	-0.468	4.906
19.515	11.26	0.5075	-0.468	4.508
19.561	11.26	0.483	-0.468	4.29
19.642	11.08	0.4443	-0.468	4.011
19.699	10.98	0.4181	-0.468	3.806
19.761	10.98	0.4078	-0.468	3.713
19.832	10.98	0.3996	-0.468	3.638
19.888	11.26	0.3856	-0.468	3.425
19.962	11.62	0.3647	-0.468	3.138
20.054	11.72	0.3395	-0.468	2.898
20.1	11.62	0.3415	-0.468	2.938
20.149	11.62	0.2973	-0.468	2.557
20.212	11.53	0.2023	-0.468	1.754
20.277	12.08	0.2001	-0.374	1.656
20.368	12.36	0.2089	-0.468	1.691
20.414	12.36	0.2107	-0.468	1.705
20.48	11.35	0.2109	-0.374	1.858
20.549	7.32	0.205	-0.374	2.8
20.612	9.89	0.2011	-0.374	2.035
20.679	9.43	0.2058	-0.374	2.183
20.736	8.7	0.2017	-0.281	2.32
20.811	8.6	0.1991	-0.281	2.314
20.879	8.42	0.193	-0.281	2.292
20.947	8.51	0.1904	-0.281	2.237
21.007	8.79	0.1961	-0.281	2.231
21.081	9.24	0.2341	-0.281	2.533
21.16	9.61	0.2505	-0.187	2.607
21.196	10.16	0.2544	-0.187	2.503
21.275	12.63	0.284	-0.187	2.248
21.343	17.21	0.3056	-0.187	1.776

21.394	22.98	0.3078	-0.187	1.34
21.457	31.03	0.3425	-0.374	1.104
21.531	40.18	0.3719	-0.749	0.926
21.593	52.72	0.3532	-0.655	0.67
21.659	63.8	0.3542	-0.577	0.555
21.749	81.92	0.3229	-0.577	0.394
21.795	85.58	0.3273	-0.577	0.382
21.853	87.14	0.3445	-0.562	0.395
21.924	84.94	0.3943	-0.562	0.464
21.991	70.21	0.4229	-0.562	0.602
22.06	57.85	0.4759	-0.562	0.823
22.133	44.94	0.5311	-0.562	1.182
22.188	36.8	0.5672	-0.562	1.542
22.249	25.72	0.5902	-0.562	2.294
22.329	20.32	0.4651	-0.562	2.289
22.393	16.75	0.3927	-0.562	2.345
22.461	15.01	0.4108	-0.562	2.736
22.508	13.82	0.4102	-0.562	2.968
22.588	12.36	0.4004	-0.562	3.24
22.642	11.62	0.3946	-0.499	3.394
22.71	10.98	0.3643	-0.499	3.317
22.785	10.89	0.3417	-0.499	3.137
22.849	11.26	0.333	-0.468	2.958
22.91	12.36	0.3437	-0.374	2.781
23.003	15.38	0.3789	-0.374	2.464
23.037	16.75	0.3895	-0.842	2.325
23.116	17.48	0.3939	-1.965	2.253
23.191	15.74	0.3904	-2.246	2.48
23.233	14.83	0.3915	-2.246	2.64
23.32	11.81	0.3964	-2.152	3.357
23.369	10.8	0.4048	-2.059	3.748
23.427	10.44	0.4332	-2.09	4.151
23.493	7.6	0.4737	-2.09	6.235
23.557	13.55	0.4917	-2.09	3.63
23.63	15.29	0.5068	-1.965	3.315
23.699	17.67	0.5276	-2.059	2.987
23.76	19.59	0.5451	-2.059	2.783
23.821	21.33	0.5466	-2.059	2.563
23.901	21.42	0.5211	-2.433	2.433
23.981	20.69	0.4916	-2.714	2.377
24.034	19.31	0.4804	-2.901	2.487
24.092	17.67	0.4692	-2.995	2.656
24.15	16.48	0.4661	-2.995	2.829
24.245	15.01	0.4574	-2.995	3.047
24.285	14.28	0.4317	-2.995	3.023
24.348	13.55	0.3974	-2.995	2.934
24.423	11.99	0.393	-2.995	3.278

24.482	11.08	0.3639	-2.995	3.286
24.565	10.8	0.3331	-2.995	3.084
24.615	10.71	0.3559	-2.995	3.324
24.686	10.89	0.3755	-2.995	3.447
24.738	10.71	0.3875	-2.995	3.618
24.803	10.07	0.4096	-2.964	4.067
24.891	11.17	0.4845	-2.964	4.339
24.936	11.72	0.5164	-2.964	4.407
25.021	11.72	0.5405	-2.901	4.613
25.071	12.08	0.5434	-2.901	4.497
25.146	14.74	0.5136	-2.901	3.485
25.202	16.57	0.4776	-2.995	2.883
25.266	19.22	0.4351	-2.995	2.263
25.336	20.14	0.3799	-3.088	1.886
25.423	20.14	0.3104	-3.182	1.541
25.472	19.68	0.2812	-3.182	1.429
25.532	18.4	0.2722	-3.463	1.479
25.599	17.39	0.263	-3.557	1.512
25.692	14.65	0.2612	-3.463	1.784
25.745	12.91	0.2594	-3.557	2.01
25.807	11.17	0.2701	-3.463	2.419
25.865	10.44	0.2908	-3.463	2.786
25.923	9.52	0.313	-3.463	3.288
26.005	9.24	0.3423	-3.463	3.703
26.054	9.24	0.3562	-3.369	3.853
26.125	10.16	0.3852	-3.369	3.791
26.183	11.35	0.4064	-3.369	3.58
26.265	14.37	0.4139	-3.369	2.88
26.319	15.38	0.4049	-3.369	2.633
26.402	13.55	0.3952	-3.463	2.917
26.453	12.27	0.3948	-3.463	3.219
26.517	11.26	0.3944	-3.463	3.503
26.586	11.26	0.4109	-3.463	3.649
26.654	11.26	0.4458	-3.369	3.96
26.709	11.99	0.47	-3.401	3.919
26.782	15.93	0.5045	-3.432	3.168
26.839	16.2	0.5374	-3.432	3.317
26.91	15.74	0.574	-3.401	3.646
26.98	16.11	0.5719	-3.463	3.55
27.058	18.58	0.541	-3.369	2.911
27.101	22.61	0.5078	-3.369	2.246
27.175	34.23	0.426	-3.463	1.244
27.239	43.94	0.3449	-3.65	0.785
27.305	56.02	0.2974	-4.68	0.531
27.374	64.62	0.2715	-5.147	0.42
27.433	72.4	0.2703	-5.429	0.373
27.505	75.06	0.2854	-5.429	0.38

27.573	74.6	0.304	-5.429	0.407
27.628	73.04	0.3214	-5.429	0.44
27.699	69.2	0.3339	-5.429	0.482
27.763	66	0.3306	-5.429	0.501
27.828	61.05	0.3204	-5.429	0.525
27.909	56.66	0.2891	-5.335	0.51
27.969	51.08	0.2698	-5.335	0.528
28.027	47.14	0.2561	-5.335	0.543
28.09	42.75	0.2419	-5.335	0.566
28.173	37.9	0.2423	-5.335	0.639
28.219	35.33	0.2439	-5.335	0.69
28.297	32.4	0.243	-5.241	0.75
28.355	32.36	0.2411	-5.241	0.745
28.444	32.36	0.2307	-5.241	0.713
28.487	32.31	0.2236	-5.147	0.692
28.552	33.68	0.2094	-5.054	0.622
28.618	34.97	0.1833	-5.054	0.524
28.695	37.07	0.1556	-4.961	0.42
28.759	38.54	0.136	-5.054	0.353
28.813	39.73	0.1369	-5.054	0.345
28.891	40.28	0.1353	-5.054	0.336
28.955	39.63	0.1222	-5.054	0.308
29.021	38.54	0.1223	-5.054	0.317
29.072	36.71	0.142	-5.054	0.387
29.134	35.06	0.1738	-5.054	0.496
29.2	33.5	0.2044	-4.711	0.61
29.281	29.75	0.2538	-4.711	0.853
29.339	31.03	0.2872	-4.711	0.926
29.399	31.67	0.3599	-4.399	1.136
29.479	35.88	0.4197	-4.399	1.17
29.553	41.01	0.4043	-4.305	0.986
29.599	45.4	0.3792	-4.212	0.835
29.687	49.79	0.2639	-5.241	0.53
29.727	51.35	0.2289	-5.615	0.446
29.805	52.63	0.182	-6.364	0.346
29.863	50.62	0.1732	-6.551	0.342
29.948	43.94	0.2139	-6.458	0.487
29.999	39.36	0.249	-6.458	0.633
30.053	34.23	0.2779	-6.551	0.812
30.131	29.02	0.2796	-6.458	0.964
30.202	25.36	0.2878	-6.551	1.135
30.266	24.26	0.305	-6.458	1.257
30.315	25.4	0.3089	-6.458	1.216
30.399	24.16	0.3009	-6.458	1.245
30.449	25.45	0.2952	-6.271	1.16
30.533	30.66	0.2492	-6.177	0.813
30.594	36.43	0.215	-5.99	0.59

30.645	37.07	0.186	-6.083	0.502
30.711	36.06	0.139	-6.083	0.385
30.796	34.23	0.1104	-6.083	0.323
30.842	32.86	0.1109	-6.083	0.338
30.911	30.57	0.1063	-6.083	0.348
30.976	30.3	0.1146	-6.083	0.378
31.063	30.21	0.1253	-6.083	0.415
31.105	31.85	0.1244	-6.083	0.39
31.197	33.04	0.1159	-5.99	0.351
31.247	33.32	0.1159	-5.896	0.348
31.309	33.32	0.1132	-5.896	0.34
31.386	32.77	0.1396	-5.771	0.426
31.44	28.56	0.1613	-5.771	0.565
31.504	32.04	0.1461	-5.771	0.456
31.576	34.69	0.1751	-5.615	0.505
31.632	36.98	0.1986	-5.615	0.537
31.699	46.04	0.2135	-5.615	0.464
31.78	53.73	0.1658	-5.522	0.309
31.84	65.26	0.1596	-5.803	0.245
31.897	73.04	0.1941	-6.458	0.266
31.957	79.54	0.2473	-7.113	0.311
32.043	82.56	0.2519	-7.113	0.305
32.09	81.28	0.2519	-7.113	0.31
32.161	78.17	0.2519	-7.113	0.322
32.228	74.69	0.252	-6.926	0.337
32.295	69.29	0.2543	-6.926	0.367
32.363	63.52	0.2506	-6.926	0.394
32.444	57.21	0.2768	-6.926	0.484
32.491	52.91	0.2873	-6.926	0.543
32.581	47.6	0.2855	-6.926	0.6
32.625	46.22	0.2839	-6.832	0.614
32.713	44.49	0.2784	-6.832	0.626
32.757	45.13	0.2723	-6.739	0.603
32.817	46.59	0.2559	-6.739	0.549
32.895	48.42	0.2116	-6.739	0.437
32.95	49.43	0.1884	-6.739	0.381
33.011	48.79	0.1793	-6.832	0.367
33.072	47.69	0.178	-6.926	0.373
33.154	44.21	0.1691	-6.926	0.382
33.243	39.91	0.196	-6.926	0.491
33.29	37.44	0.2108	-6.926	0.563
33.336	35.97	0.2235	-6.926	0.621
33.427	33.5	0.2341	-6.926	0.699
33.474	32.68	0.2382	-6.832	0.729
33.54	32.49	0.241	-6.832	0.742
33.603	32.77	0.2346	-6.832	0.716
33.679	32.77	0.2646	-6.832	0.807

33.743	32.77	0.3124	-7.019	0.953
33.811	34.6	0.3545	-7.019	1.025
33.87	36.71	0.3863	-7.643	1.052
33.944	38.44	0.381	-7.643	0.991
33.993	42.29	0.3632	-7.643	0.859
34.082	45.95	0.2939	-7.768	0.64
34.125	45.86	0.2532	-8.423	0.552
34.219	44.39	0.1898	-8.798	0.427
34.261	43.3	0.1728	-8.798	0.399
34.327	40.55	0.1696	-8.891	0.418
34.39	38.26	0.2023	-8.891	0.529
34.472	33.23	0.2479	-8.891	0.746
34.528	30.11	0.29	-8.891	0.963
34.59	26.18	0.3409	-8.891	1.302
34.659	22.79	0.3548	-8.798	1.557
34.721	19.13	0.317	-8.798	1.657
34.796	16.75	0.3144	-8.798	1.877
34.845	15.65	0.3412	-8.798	2.18
34.931	14.1	0.4065	-8.798	2.884
34.998	13.73	0.4562	-8.798	3.323
35.048	13.55	0.5025	-8.798	3.709
35.108	13.64	0.5456	-8.798	4
35.198	13.36	0.5931	-8.704	4.438
35.241	13	0.6097	-8.704	4.691
35.326	13.09	0.6158	-8.704	4.705
35.378	13.27	0.6031	-8.704	4.544
35.434	13	0.5463	-8.704	4.203
35.508	12.17	0.3568	-8.704	2.931
35.589	10.98	0.3788	-8.704	3.449
35.643	10.34	0.3674	-8.704	3.552
35.726	9.98	0.406	-8.61	4.07
35.78	10.07	0.4094	-8.579	4.066
35.835	8.97	0.3589	-8.548	4.001
35.91	18.58	0.3406	-8.548	1.833
35.97	39.08	0.3684	-8.548	0.942
36.044	74.6	0.3596	-8.423	0.482
36.095	109.75	0.4059	-8.423	0.37
36.162	136.2	0.4626	-8.382	0.34
36.23	157.62	0.5177	-8.338	0.328
36.306	169.43	0.5762	-8.338	0.34
36.356	181.79	0.6188	-8.263	0.34
36.432	193.69	0.6653	-8.263	0.343
36.488	198.63	0.6918	-8.2	0.348
36.557	200.64	0.7316	-8.2	0.365
36.622	200.73	0.7579	-8.135	0.378
36.708	199.27	0.7657	-8.135	0.384
36.753	197.16	0.756	-8.087	0.383

36.824	191.12	0.7283	-8.087	0.381
36.886	184.44	0.6941	-8.087	0.376
36.947	172.91	0.6574	-7.955	0.38
37.011	164.76	0.6236	-8.049	0.378
37.077	153.96	0.6001	-7.955	0.39
37.157	147.64	0.5633	-7.862	0.382
37.212	139.59	0.5383	-7.862	0.386
37.279	133.37	0.5053	-7.862	0.379
37.34	128.42	0.4956	-7.862	0.386
37.424	122.56	0.4919	-7.862	0.401
37.471	119.91	0.4795	-7.768	0.4
37.539	116.8	0.4561	-7.768	0.39
37.602	118.9	0.4249	-7.862	0.357
37.666	125.58	0.3868	-7.768	0.308
37.733	129.98	0.3381	-7.862	0.26
37.808	132.82	0.34	-7.768	0.256
37.871	133.09	0.3648	-7.675	0.274
37.938	132.08	0.4608	-7.768	0.349
38	131.26	0.5144	-7.675	0.392
38.06	130.16	0.4194	-7.675	0.322
38.124	129.06	0.4262	-7.675	0.33
38.191	124.85	0.4536	-7.675	0.363
38.271	117.99	0.4627	-7.675	0.392
38.326	95.93	0.4534	-7.612	0.473
38.393	92.63	0.4306	-7.612	0.465
38.473	83.2	0.3793	-7.55	0.456
38.521	74.78	0.36	-7.55	0.481
38.596	65.17	0.3539	-7.487	0.543
38.651	59.31	0.3538	-7.581	0.596
38.723	53.73	0.3276	-7.581	0.61
38.799	50.89	0.3293	-7.581	0.647
38.846	50.44	0.3239	-7.394	0.642
38.92	50.89	0.3413	-7.394	0.671
39.005	50.53	0.3364	-7.394	0.666
39.051	50.89	0.3459	-7.3	0.68
39.113	50.71	0.3702	-7.394	0.73
39.18	50.44	0.3976	-7.394	0.788
39.249	51.53	0.4238	-7.394	0.822
39.307	53.46	0.4777	-7.394	0.894
39.376	56.84	0.5307	-7.394	0.934
39.45	64.9	0.5725	-7.44	0.882
39.514	73.68	0.5169	-7.487	0.702
39.587	79.82	0.3599	-7.487	0.451
39.64	85.4	0.3128	-7.768	0.366
39.718	88.15	0.2475	-7.675	0.281
39.792	86.41	0.2548	-7.862	0.295
39.848	81.1	0.2659	-7.862	0.328

39.941	71.12	0.2858	-7.862	0.402
39.965	71.12	0.2927	-7.862	0.411
40.027	63.52	0.3017	-7.862	0.475
40.113	58.67	0.2907	-7.893	0.495
40.167	54.19	0.2682	-7.924	0.495
40.23	48.51	0.2279	-7.924	0.47
40.307	45.77	0.2015	-7.924	0.44
40.364	44.03	0.2182	-7.862	0.496
40.441	41.28	0.1701	-7.955	0.412
40.49	39.45	0.2076	-7.955	0.526
40.581	37.35	0.2676	-7.955	0.717
40.634	36.61	0.2738	-7.955	0.748
40.714	37.35	0.3256	-7.955	0.872
40.761	35.7	0.342	-7.862	0.958
40.857	37.35	0.2719	-8.143	0.728
40.903	38.44	0.2176	-8.236	0.566
40.988	37.44	0.1503	-8.61	0.401
41.011	36.8	0.1662	-8.798	0.452
41.08	34.6	0.2394	-8.891	0.692
41.157	32.31	0.3959	-8.891	1.225
41.227	30.66	0.5423	-8.891	1.769
41.299	29.93	0.5983	-8.891	1.999
41.343	30.39	0.5976	-8.891	1.967
41.411	35.24	0.5394	-8.985	1.531
41.484	45.77	0.4478	-8.891	0.978
41.554	67.74	0.401	-8.798	0.592
41.609	80.46	0.3968	-8.891	0.493
41.684	91.81	0.3927	-9.172	0.428
41.747	96.94	0.4455	-9.172	0.46
41.803	98.67	0.5254	-9.172	0.532
41.876	99.77	0.6579	-8.954	0.659
41.955	99.04	0.8288	-8.954	0.837
41.997	108.56	0.8908	-8.954	0.821
42.065	127.23	0.8835	-8.704	0.694
42.134	145.36	0.7629	-8.704	0.525
42.194	158.81	0.6345	-8.704	0.4
42.263	173.18	0.7924	-8.798	0.458
42.326	178.31	0.7568	-8.985	0.424
42.389	178.86	0.8873	-9.078	0.496
42.464	175.84	1.1022	-9.078	0.627
42.551	168.79	1.2711	-9.078	0.753
42.596	165.49	1.336	-9.078	0.807
42.661	161.1	1.3708	-9.078	0.851
42.728	161.15	1.3764	-9.078	0.854
42.788	161.19	1.3351	-8.985	0.828
42.857	167.87	1.3141	-8.985	0.783
42.941	179.59	1.3931	-8.985	0.776

42.998	185.45	1.4507	-8.985	0.782
43.06	192.59	1.4382	-8.985	0.747
43.12	196.98	1.3858	-8.985	0.704
43.176	198.08	1.3247	-8.985	0.669
43.264	204.85	0.7962	-8.891	0.389
43.312	210.53	0.5433	-8.798	0.258
43.376	226.46	0.5595	-8.798	0.247
43.445	235.33	0.6183	-8.798	0.263
43.514	243.57	0.6738	-8.704	0.277
43.574	246.04	0.6932	-7.846	0.282
43.638	246.46	0.692	-7.846	0.281
43.704	246.46	0.693	-7.846	0.281
43.782	246.87	0.732	-7.019	0.297
43.838	253.55	0.783	-7.155	0.309
43.92	264.35	0.8876	-7.008	0.336
43.974	270.48	0.9046	-6.868	0.334
44.034	279.09	0.9809	-6.868	0.351
44.112	277.35	1.1455	-6.868	0.413
44.162	276.98	1.2217	-6.743	0.441
44.24	272.13	1.3168	-6.619	0.484
44.302	273.6	1.3528	-6.619	0.494
44.371	271.99	1.4594	-6.619	0.537
44.431	271.86	1.5767	-6.413	0.58
44.497	277.26	1.6773	-6.413	0.605
44.557	279.36	1.772	-6.314	0.634
44.624	283.48	1.837	-6.314	0.648
44.686	282.11	1.8816	-6.231	0.667
44.775	278.54	1.8832	-6.231	0.676
44.823	273.05	1.8845	-6.157	0.69
44.887	269.02	1.8625	-6.157	0.692
44.956	265.82	1.8066	-6.083	0.68
45.024	268.2	1.7549	-6.083	0.654
45.085	270.3	1.7346	-6.083	0.642
45.159	274.6	1.7233	-5.99	0.628
45.222	277.17	1.3472	-5.99	0.486
45.296	285.13	1.0103	-5.99	0.354
45.356	292.18	1.0766	-5.99	0.368
45.418	299.59	1.1103	-5.896	0.371
45.491	304.35	1.1687	-5.896	0.384
45.538	304.99	1.2256	-5.818	0.402
45.615	300.83	1.3073	-5.79	0.435
45.683	296.66	1.3385	-5.79	0.451
45.742	302.43	1.3744	-5.739	0.454
45.803	309.48	1.4285	-5.739	0.462
45.875	312.77	1.3854	-5.739	0.443
45.932	315.24	1.3961	-5.708	0.443
46.008	319.64	1.455	-5.708	0.455

46.063	322.29	1.4382	-5.68	0.446
46.151	314.6	1.4306	-5.651	0.455
46.206	302.8	1.3252	-5.128	0.438
46.276	285.95	0.8942	-5.128	0.313
46.335	271.67	0.6902	-5.128	0.254
46.402	256.66	0.6752	-5.335	0.263
46.465	230.21	0.6972	-4.424	0.303
46.531	196.98	0.6746	-4.424	0.342
46.599	187	0.6665	-4.048	0.356
46.655	169.34	0.5195	-4.048	0.307
46.736	150.67	0.2857	-4.048	0.19
46.802	132.91	0.1941	-3.557	0.146
46.858	120.64	0.1684	-3.369	0.14
46.921	102.52	0.1952	-3.182	0.19
47.002	89.7	0.2773	-3.182	0.309
47.052	78.17	0.2765	-3.088	0.354
47.128	68.65	0.2661	-2.995	0.388
47.182	66.82	0.2532	-2.995	0.379
47.261	60.23	0.2777	-2.808	0.461
47.313	52.91	0.2996	-2.34	0.566
47.382	52.07	0.3628	-2.34	0.697
47.448	43.11	0.4258	-2.34	0.988
47.53	40.09	0.4481	-1.778	1.118
47.582	38.99	0.5071	-1.684	1.3
47.667	37.62	0.7153	-1.778	1.901
47.712	36.98	0.7786	-1.872	2.105
47.775	36.43	0.8319	-2.527	2.283
47.842	35.79	0.9021	-3.088	2.521
47.914	36.43	0.9428	-3.65	2.588
47.98	35.33	1.0055	-3.931	2.846
48.04	36.43	1.0401	-4.586	2.855
48.101	36.71	1.1013	-5.147	3
48.172	36.98	1.1484	-5.615	3.105
48.253	36.61	1.1088	-5.896	3.028
48.319	38.35	1.05	-6.083	2.738
48.372	44.85	0.953	-5.896	2.125
48.425	56.93	0.8374	-5.803	1.471
48.497	86.5	0.7547	-5.896	0.873
48.56	99.5	0.7113	-5.99	0.715
48.629	108.38	0.6683	-5.99	0.617
48.692	109.2	0.6629	-5.99	0.607
48.773	111.21	0.6732	-6.083	0.605
48.823	112.31	0.6717	-6.083	0.598
48.902	113.96	0.683	-6.083	0.599
48.96	117.71	0.7071	-6.083	0.601
49.017	127.23	0.7324	-5.99	0.576
49.083	140.78	0.7437	-5.99	0.528

49.168	158.26	0.7569	-5.896	0.478
49.231	171.26	0.8142	-5.896	0.475
49.298	178.95	0.8502	-5.803	0.475
49.361	182.43	0.8881	-5.803	0.487
49.411	185.45	0.9076	-5.444	0.489
49.479	185.4	0.9076	-5.322	0.49
49.556	185.36	0.9068	-5.322	0.489
49.619	188.56	0.9196	-5.115	0.488
49.702	191.12	0.9391	-5.115	0.491
49.754	190.85	0.9997	-5.115	0.524
49.807	188.19	0	-4.867	0
49.888	188.38	0	-4.867	0
49.943	190.12	0	-4.867	0
50.012	193.78	0	-4.68	0
50.069	196.89	0	-4.68	0
50.133	174.92	0	-4.493	0

Depth (ft)	Tip Stress (tsf)	Sleeve Stre (tsf)	Pore Pressu (psi)	Ratio (%)
0	0	0.0201	0	0
0.077	2.84	0.0305	0	1.072
0.133	3.67	0.0382	0	1.043
0.207	5.32	0.0491	0.094	0.923
0.267	6.97	0.0552	0	0.792
0.353	9.81	0.0598	0	0.61
0.406	12.28	0.0647	0	0.527
0.463	15.21	0.0616	0	0.405
0.526	17.6	0.0588	0	0.334
0.594	21.9	0.0722	0	0.33
0.657	23.64	0.0837	0	0.354
0.743	27.4	0.1036	0	0.378
0.791	28.04	0.1211	0	0.432
0.86	29.14	0.1529	0	0.525
0.92	29.42	0.1635	0.094	0.556
0.989	30.79	0.1604	0.094	0.521
1.067	33.27	0.1342	0.094	0.404
1.121	36.47	0.1153	0.094	0.316
1.191	41.88	0.1287	0.094	0.307
1.25	48.02	0.155	0.094	0.323
1.324	57.37	0.2371	0.094	0.413
1.385	65.25	0.3232	0.094	0.495
1.45	73.13	0.3388	0.094	0.463
1.511	76.61	0.374	0.065	0.488
1.576	80.46	0.509	0.094	0.633
1.653	83.85	0.4849	0.051	0.578
1.71	86.24	0.3792	0.094	0.44
1.791	90.82	0.2387	0.094	0.263
1.843	96.04	0.2587	0.094	0.269
1.911	96.59	0.2847	0.094	0.295
1.975	97.6	0.3168	0.094	0.325
2.055	102	0.3721	0.094	0.365
2.106	101.63	0.3988	0.094	0.392
2.176	101.27	0.4155	0.094	0.41
2.235	104.57	0.4176	0.094	0.399
2.299	108.78	0.4298	0.094	0.395
2.366	111.99	0.4599	0.094	0.411
2.433	113.36	0.4909	0.094	0.433
2.504	114.74	0.4984	0.094	0.434
2.568	116.76	0.5022	0.094	0.43
2.643	117.95	0.5144	0.094	0.436
2.701	118.04	0.5227	0.094	0.443
2.756	119.23	0.5271	0.094	0.442
2.824	119.41	0.5368	0.094	0.45

2.893	120.24	0.5324	0.094	0.443
2.955	121.8	0.5286	0.094	0.434
3.021	123.35	0.5204	0	0.422
3.107	124.73	0.5217	0	0.418
3.158	124.45	0.5224	0	0.42
3.227	123.26	0.5224	0	0.424
3.285	122.35	0.5224	0	0.427
3.36	119.96	0.5171	0	0.431
3.419	118.13	0.5051	0	0.428
3.481	116.02	0.4898	0	0.422
3.548	112.72	0.4764	0	0.423
3.612	106.67	0.4536	0	0.425
3.681	101.45	0.4232	0	0.417
3.754	93.84	0.4037	-0.047	0.43
3.819	87.8	0.4023	-0.055	0.458
3.88	79.18	0.4056	-0.055	0.512
3.939	73.77	0.3979	-0.088	0.539
4.018	67.54	0.3934	-0.088	0.582
4.084	64.52	0.3979	-0.088	0.617
4.134	63.05	0.3925	-0.107	0.623
4.212	64.75	0.3084	-0.107	0.476
4.272	62.5	0.2418	-0.125	0.387
4.336	64.98	0.2672	-0.144	0.411
4.4	68.46	0.2983	-0.144	0.436
4.463	72.31	0.3235	-0.119	0.447
4.529	74.87	0.3293	-0.094	0.44
4.601	71.57	0.3454	-0.164	0.483
4.678	71.02	0.3511	-0.209	0.494
4.732	68.64	0.3534	-0.21	0.515
4.793	63.78	0.3596	-0.21	0.564
4.859	60.21	0.3643	-0.234	0.605
4.926	54.44	0.365	-0.246	0.67
5.001	50.31	0.3517	-0.257	0.699
5.075	46.56	0.315	-0.257	0.677
5.13	45.27	0.2942	-0.283	0.65
5.204	43.16	0.2687	-0.283	0.622
5.257	42.52	0.2469	-0.325	0.581
5.322	41.7	0.227	-0.325	0.544
5.39	40.23	0.2259	-0.325	0.562
5.452	39.04	0.2316	-0.375	0.593
5.515	37.21	0.2274	-0.375	0.611
5.584	35.74	0.2292	-0.398	0.641
5.645	33.91	0.2107	-0.398	0.621
5.715	31.89	0.2085	-0.398	0.654
5.784	31.25	0.2013	-0.408	0.644
5.854	32.44	0.2121	-0.408	0.654
5.93	37.39	0.2155	-0.418	0.576

5.984	43.16	0.2021	-0.423	0.468
6.042	48.94	0.2021	-0.428	0.413
6.115	58.93	0.2182	-0.402	0.37
6.172	62.23	0.2387	-0.402	0.384
6.255	63.69	0.2894	-0.375	0.454
6.305	64.24	0.3322	-0.468	0.517
6.368	64.61	0.4205	-0.375	0.651
6.44	64.88	0.4378	-0.468	0.675
6.525	66.17	0.4492	-0.375	0.679
6.576	70.11	0.4484	-0.468	0.64
6.64	74.6	0.4484	-0.468	0.601
6.712	77.71	0.3769	-0.468	0.485
6.785	84.04	0.3338	-0.281	0.397
6.83	86.97	0.3357	-0.281	0.386
6.893	91.92	0.3343	-0.281	0.364
6.978	97.05	0.3687	-0.281	0.38
7.026	96.04	0.3911	-0.265	0.407
7.093	86.05	0.4202	-0.265	0.488
7.159	87.89	0.4303	-0.265	0.49
7.25	85.87	0.4247	-0.226	0.495
7.309	83.58	0.4136	-0.226	0.495
7.379	79.91	0.3971	-0.187	0.497
7.418	76.34	0.3857	-0.187	0.505
7.495	69.01	0.3571	-0.187	0.517
7.565	63.14	0.3216	-0.187	0.509
7.619	56.64	0.3004	-0.281	0.53
7.689	50.5	0.2624	-0.281	0.52
7.743	44.81	0.2299	-0.281	0.513
7.83	37.57	0.1872	-0.281	0.498
7.89	32.35	0.1608	-0.281	0.497
7.961	27.95	0.1376	-0.281	0.492
8.006	25.29	0.1242	-0.281	0.491
8.1	20.34	0.1084	-0.281	0.533
8.146	18.79	0.1095	-0.281	0.583
8.227	16.77	0.107	-0.281	0.638
8.278	15.95	0.1082	-0.281	0.678
8.349	14.3	0.1163	-0.281	0.813
8.417	13.2	0.1201	-0.281	0.91
8.468	12.1	0.1209	-0.281	0.999
8.543	11.27	0.1222	-0.281	1.085
8.596	10.81	0.1206	-0.281	1.116
8.682	9.62	0.1243	-0.281	1.292
8.74	9.07	0.1201	-0.281	1.324
8.811	9.07	0.0858	-0.281	0.946
8.865	9.07	0.0599	-0.281	0.66
8.932	9.07	0.0496	-0.187	0.547
8.995	10.91	0.0546	-0.187	0.501

9.07	20.25	0.0672	-0.187	0.332
9.134	27.13	0.083	-0.281	0.306
9.188	28.96	0.1164	-0.468	0.402
9.265	28.32	0.1249	-0.468	0.441
9.346	26.76	0.1372	-0.468	0.513
9.392	27.58	0.1401	-0.468	0.508
9.477	32.44	0.1401	-0.468	0.432
9.538	35.65	0.1401	-0.375	0.393
9.581	36.38	0.1402	-0.375	0.385
9.659	36.84	0.1527	-0.375	0.415
9.716	36.84	0.1423	-0.375	0.386
9.803	35.47	0.1109	-0.375	0.313
9.852	33.63	0.1171	-0.375	0.348
9.931	29.33	0.1292	-0.375	0.44
9.985	27.58	0.1367	-0.375	0.496
10.044	27.45	0.1453	-0.422	0.529
10.112	27.45	0.1539	-0.422	0.561
10.187	27.31	0.1601	-0.422	0.586
10.249	27.95	0.161	-0.468	0.576
10.32	28.41	0.1584	-0.468	0.558
10.389	28.78	0.1487	-0.468	0.517
10.433	29.23	0.1461	-0.468	0.5
10.52	30.24	0.1487	-0.468	0.492
10.566	30.79	0.1522	-0.468	0.494
10.654	31.89	0.1709	-0.468	0.536
10.697	32.72	0.178	-0.468	0.544
10.764	35.74	0.1727	-0.468	0.483
10.837	38.49	0.1772	-0.468	0.46
10.894	40.05	0.1806	-0.375	0.451
10.969	39.87	0.1709	-0.468	0.429
11.032	38.67	0.1707	-0.468	0.441
11.102	37.48	0.1577	-0.468	0.421
11.16	36.29	0.1483	-0.468	0.409
11.241	35.1	0.1489	-0.468	0.424
11.287	35.01	0.1543	-0.375	0.441
11.379	35.01	0.1751	-0.468	0.5
11.42	35.65	0.1778	-0.468	0.499
11.508	38.12	0.239	-0.468	0.627
11.554	41.7	0.2662	-0.468	0.638
11.624	45.64	0.2533	-0.468	0.555
11.688	48.75	0.2665	-0.468	0.547
11.779	53.06	0.2938	-0.375	0.554
11.823	53.98	0.3343	-0.375	0.619
11.915	52.33	0.3704	-0.375	0.708
11.954	51.96	0.3698	-0.375	0.712
12.025	52.05	0.3716	-0.375	0.714
12.093	48.02	0.3859	-0.375	0.804

12.142	43.81	0.409	-0.375	0.934
12.231	35.01	0.4698	-0.375	1.342
12.274	31.43	0.5024	-0.281	1.598
12.362	23.55	0.491	-0.281	2.085
12.409	18.6	0.4187	-0.281	2.251
12.481	14.94	0.3507	-0.281	2.348
12.544	12.46	0.3758	-0.281	3.015
12.627	10.63	0.3651	-0.281	3.434
12.677	10.26	0.3223	-0.281	3.14
12.732	10.68	0.2369	0.359	2.219
12.802	9.99	0.1772	0.844	1.774
12.871	10.72	0.1385	0.937	1.292
12.935	11.27	0.1094	0.937	0.971
13.016	14.39	0.1081	1.031	0.751
13.073	20.8	0.1068	1.125	0.514
13.141	27.31	0.1233	1.031	0.451
13.205	29.51	0.1504	0.562	0.51
13.26	30.15	0.1769	0.094	0.587
13.344	30.61	0.236	0.094	0.771
13.386	31.07	0.2499	0	0.804
13.452	32.35	0.2617	-0.094	0.809
13.521	34.92	0.2693	-0.094	0.771
13.609	38.12	0.2862	-0.094	0.751
13.657	39.96	0.2922	-0.094	0.731
13.721	40.51	0.2896	-0.094	0.715
13.792	38.22	0.2719	-0.094	0.711
13.883	34.92	0.2506	-0.094	0.718
13.923	33.54	0.2352	-0.094	0.701
13.986	32.08	0.2101	-0.094	0.655
14.061	31.43	0.1958	-0.094	0.623
14.115	31.16	0.1915	-0.094	0.615
14.186	30.52	0.1902	-0.094	0.623
14.24	30.56	0.1902	-0.094	0.622
14.333	30.43	0.1921	-0.187	0.631
14.372	30.61	0.1939	-0.187	0.633
14.45	31.16	0.1922	-0.187	0.617
14.511	31.43	0.1934	-0.187	0.615
14.598	32.44	0.1962	-0.094	0.605
14.643	32.81	0.1979	-0.094	0.603
14.732	33.45	0.1942	-0.094	0.58
14.775	33.54	0.1882	-0.094	0.561
14.843	33.72	0.1845	-0.094	0.547
14.914	33.91	0.1711	-0.094	0.504
14.961	33.82	0.1545	-0.094	0.457
15.042	33.72	0.1301	-0.094	0.386
15.129	33.36	0.1301	-0.094	0.39
15.185	32.63	0.1301	-0.094	0.399

15.228	31.98	0.1418	-0.187	0.443
15.298	30.33	0.2053	-0.078	0.677
15.358	21.08	0.2545	0	1.207
15.43	23.09	0.2995	0	1.297
15.492	19.25	0.3225	0	1.676
15.57	15.95	0.3551	0	2.227
15.621	13.56	0.3678	0	2.712
15.716	11.46	0.3574	0	3.12
15.764	10.72	0.3454	0	3.221
15.83	10.26	0.312	0	3.039
15.881	9.99	0.2919	0	2.922
15.954	9.62	0.2576	0	2.677
16.032	9.44	0.2076	0	2.199
16.116	9.44	0.1805	0	1.912
16.152	9.44	0.1805	0	1.912
16.21	9.44	0.1811	0	1.919
16.293	9.35	0.179	0	1.915
16.344	9.35	0.1803	0	1.928
16.43	9.9	0.1819	0	1.838
16.479	10.63	0.1801	0	1.695
16.565	10.81	0.1801	0.094	1.666
16.612	11	0.1905	0.094	1.732
16.697	12.74	0.234	0.094	1.837
16.745	13.11	0.2491	0.094	1.901
16.814	13.65	0.2542	0.094	1.862
16.907	13.01	0.2604	-0.094	2.001
16.937	12.83	0.2682	-0.094	2.09
17.002	12.28	0.3001	-0.094	2.444
17.07	10.91	0.3238	-0.094	2.969
17.151	12.28	0.2932	0	2.387
17.194	10.63	0.2802	0	2.636
17.28	12.28	0.2813	0	2.291
17.333	13.75	0.2879	0	2.094
17.418	14.3	0.3158	0	2.209
17.47	13.29	0.3288	0	2.475
17.544	12.01	0.3363	0	2.801
17.597	11	0.3371	0	3.066
17.662	9.9	0.3362	0	3.397
17.73	9.07	0.3274	0	3.608
17.787	8.61	0.3202	0	3.717
17.866	8.61	0.3183	0	3.694
17.914	8.71	0.3183	0	3.655
18	8.71	0.3231	0	3.711
18.046	8.71	0.3223	0	3.701
18.138	8.8	0.3208	0	3.646
18.21	8.8	0.3229	0	3.67
18.269	8.71	0.3292	0	3.781

18.319	8.98	0.3323	0	3.7
18.38	8.61	0.3323	0.094	3.857
18.456	8.98	0.3323	0.094	3.7
18.505	8.89	0.3323	0.094	3.738
18.595	8.98	0.3229	0.094	3.595
18.64	8.98	0.3217	0.094	3.582
18.704	8.98	0.3301	0.094	3.675
18.77	9.16	0.3279	0.094	3.578
18.865	9.26	0.3429	0.094	3.704
18.907	9.35	0.3533	0.094	3.78
18.976	9.9	0.3607	0.094	3.644
19.043	10.36	0.3615	0.094	3.491
19.103	11	0.3708	0.094	3.372
19.179	11.64	0.4035	0.094	3.467
19.255	12.56	0.4371	0.187	3.481
19.307	12.65	0.4388	0.187	3.47
19.365	11.82	0.4347	0.187	3.677
19.444	11.55	0.4496	0.187	3.894
19.49	11.64	0.4678	0.094	4.019
19.579	12.37	0.5148	0.281	4.161
19.623	12.74	0.5227	0.281	4.103
19.709	14.2	0.4959	0	3.491
19.76	14.85	0.4768	0.094	3.212
19.839	16.68	0.4602	0.187	2.759
19.886	17.5	0.4658	0.187	2.661
19.962	19.8	0.4766	0.281	2.408
20.027	20.62	0.482	0.187	2.338
20.081	19.34	0.4864	0.187	2.515
20.166	16.22	0.485	0.187	2.99
20.225	14.2	0.4877	0.187	3.433
20.278	13.2	0.489	0.187	3.705
20.346	12.1	0.4845	0.187	4.005
20.422	11.27	0.4812	0.187	4.269
20.478	11	0.4726	0.187	4.297
20.54	11.09	0.4448	0.281	4.011
20.61	10.45	0.4191	0.281	4.011
20.701	10.45	0.386	0.281	3.695
20.744	10.45	0.3752	0.281	3.591
20.823	10.36	0.3632	0.281	3.507
20.889	10.45	0.3509	0.281	3.359
20.942	10.36	0.3451	0.281	3.333
21.013	10.45	0.3363	0.281	3.219
21.088	11	0.3363	0.281	3.058
21.156	11.55	0.3363	0.375	2.912
21.221	12.19	0.352	0.375	2.888
21.282	12.65	0.3862	0.375	3.053
21.332	12.37	0.4123	0.375	3.333

21.426	14.02	0.4494	0.375	3.205
21.466	14.2	0.4602	0.375	3.239
21.55	15.03	0.4821	0.468	3.208
21.598	15.76	0.4958	0.468	3.146
21.659	14.85	0.5082	0.468	3.423
21.733	14.94	0.5332	0.468	3.57
21.811	16.13	0.5543	0.468	3.436
21.869	17.5	0.5676	0.468	3.243
21.934	18.7	0.5783	0.468	3.093
22.009	20.16	0.5848	0.468	2.9
22.049	20.89	0.5884	0.468	2.816
22.117	20.99	0.608	0.281	2.897
22.186	19.8	0.6225	-0.375	3.145
22.247	17.23	0.6216	-0.468	3.608
22.316	14.2	0.5901	-0.375	4.154
22.396	12.28	0.5435	-0.468	4.426
22.458	11.09	0.5163	-0.375	4.656
22.51	10.26	0.4884	-0.375	4.758
22.585	9.71	0.416	-0.375	4.282
22.66	9.35	0.3628	-0.375	3.881
22.723	9.71	0.3492	-0.375	3.594
22.774	9.16	0.3495	-0.375	3.814
22.854	9.71	0.3628	-0.375	3.735
22.924	10.81	0.3655	-0.375	3.38
22.99	11.27	0.3598	-0.375	3.192
23.036	11.36	0.3521	-0.281	3.098
23.114	10.72	0.3596	-0.375	3.353
23.171	9.71	0.3761	-0.281	3.872
23.229	9.35	0.3873	-0.375	4.143
23.309	9.35	0.3972	-0.281	4.249
23.385	9.35	0.4111	-0.281	4.398
23.443	9.35	0.4363	-0.281	4.667
23.503	9.9	0.4766	-0.281	4.815
23.572	10.91	0.5077	-0.281	4.655
23.624	11.82	0.5024	-0.281	4.25
23.691	13.56	0.4891	-0.281	3.606
23.78	18.05	0.4661	-0.281	2.582
23.843	22.82	0.4257	-0.281	1.865
23.927	30.79	0.376	-0.281	1.221
23.968	34.92	0.3058	-0.281	0.876
24.024	39.04	0.2104	-0.281	0.539
24.114	41.61	0.1698	-0.281	0.408
24.156	42.25	0.1538	-0.281	0.364
24.228	43.26	0.1445	-0.281	0.334
24.292	43.62	0.1603	-0.141	0.368
24.364	41.51	0.1791	-0.094	0.431
24.431	40.51	0.1932	0	0.477

24.475	38.49	0.2039	0	0.53
24.543	36.47	0.2475	0	0.679
24.61	31.34	0.3067	0	0.979
24.676	25.84	0.3741	0	1.448
24.747	20.34	0.4645	0	2.283
24.83	15.85	0.5403	0	3.408
24.877	14.48	0.5492	0	3.793
24.948	13.11	0.5259	0	4.013
25.013	11.73	0.4912	0	4.187
25.071	10.17	0.4502	0	4.426
25.147	8.8	0.4098	0	4.658
25.208	8.25	0.3796	0.094	4.603
25.268	8.25	0.3476	0.094	4.215
25.346	8.34	0.3053	0.094	3.661
25.414	8.98	0.2854	0.094	3.177
25.463	9.16	0.2826	0.094	3.083
25.527	8.98	0.2843	0.094	3.165
25.599	8.89	0.2942	0.094	3.31
25.685	8.71	0.2833	0.094	3.254
25.737	8.52	0.2727	0.094	3.2
25.803	8.61	0.2608	0.094	3.027
25.88	8.61	0.2376	0.094	2.758
25.949	8.34	0.2058	0.094	2.468
25.997	8.25	0.1744	0.187	2.115
26.066	8.16	0.1711	0.281	2.098
26.136	8.16	0.2089	0.375	2.561
26.189	8.16	0.2105	0.375	2.581
26.262	8.16	0.1983	0.375	2.431
26.313	8.25	0.2339	0.468	2.835
26.38	9.26	0.2846	0.468	3.075
26.469	13.47	0.3843	0.656	2.852
26.511	17.5	0.4044	0.656	2.311
26.598	22.91	0.4123	0.75	1.8
26.644	25.84	0.4169	0.562	1.613
26.722	29.14	0.4511	-1.312	1.548
26.783	29.88	0.4889	-1.968	1.636
26.841	29.51	0.5119	-2.155	1.735
26.911	28.41	0.5304	-2.155	1.867
26.975	24.65	0.5539	-2.155	2.247
27.046	22.27	0.5931	-2.155	2.663
27.104	18.79	0.6567	-2.343	3.496
27.181	15.49	0.7605	-2.343	4.91
27.253	14.66	0.8259	-2.343	5.633
27.319	16.04	0.8218	-2.343	5.124
27.406	20.16	0.77	-2.343	3.819
27.432	23.37	0.7514	-2.343	3.215
27.496	28.78	0.705	-2.436	2.45

27.582	37.94	0.5843	-2.811	1.54
27.634	43.81	0.4992	-3.092	1.139
27.691	46.19	0.4164	-4.123	0.901
27.765	46.28	0.3368	-4.591	0.728
27.856	45.27	0.3051	-4.873	0.674
27.889	44.36	0.3126	-4.873	0.705
27.971	41.7	0.383	-4.873	0.919
28.035	39.87	0.4112	-4.873	1.032
28.117	39.41	0.4068	-4.873	1.032
28.151	39.41	0.3984	-4.779	1.011
28.234	38.58	0.3718	-4.873	0.964
28.301	38.86	0.3574	-4.873	0.92
28.347	40.23	0.3564	-4.967	0.886
28.44	41.42	0.3215	-4.967	0.776
28.485	41.88	0.2861	-4.967	0.683
28.577	41.06	0.2738	-4.967	0.667
28.617	40.05	0.2608	-4.967	0.651
28.705	38.03	0.3579	-4.967	0.941
28.755	38.03	0.4557	-4.967	1.198
28.844	38.03	0.5198	-4.967	1.367
28.886	38.95	0.5234	-4.967	1.344
28.943	36.84	0.4988	-5.326	1.354
29.006	49.12	0.4237	-5.326	0.863
29.093	67.36	0.3412	-5.326	0.506
29.137	73.22	0.3218	-4.873	0.439
29.204	72.86	0.3083	-5.622	0.423
29.276	66.08	0.2869	-6.559	0.434
29.341	61.77	0.2447	-6.559	0.396
29.408	57.28	0.2457	-6.559	0.429
29.463	51.69	0.2374	-6.559	0.459
29.538	47.75	0.2554	-6.465	0.535
29.632	46.1	0.2945	-6.465	0.639
29.682	46.28	0.3309	-6.465	0.715
29.754	47.38	0.3675	-6.465	0.776
29.813	48.75	0.371	-6.465	0.761
29.86	50.04	0.374	-6.465	0.747
29.945	51.87	0.3665	-6.465	0.707
29.991	54.53	0.3384	-6.653	0.621
30.085	55.99	0.2554	-6.747	0.456
30.124	54.62	0.2238	-6.747	0.41
30.219	49.85	0.1962	-6.559	0.393
30.262	47.56	0.1962	-6.559	0.412
30.355	41.15	0.2727	-6.559	0.663
30.384	39.77	0.2961	-6.653	0.744
30.449	34.18	0.3467	-6.747	1.014
30.518	30.33	0.3987	-6.747	1.314
30.599	26.3	0.484	-6.747	1.84

30.663	24.47	0.5721	-6.559	2.338
30.71	25.89	0.5976	-6.653	2.308
30.799	25.48	0.6045	-6.653	2.373
30.846	25.57	0.6038	-6.653	2.361
30.933	26.21	0.5813	-6.606	2.218
30.985	28.32	0.5607	-6.653	1.98
31.04	30.88	0.2335	-6.559	0.756
31.114	32.53	0.213	-6.559	0.655
31.191	32.35	0.193	-6.747	0.596
31.239	31.53	0.1957	-6.653	0.621
31.34	29.88	0.2434	-6.622	0.815
31.373	27.58	0.2664	-6.622	0.966
31.443	27.68	0.3165	-6.622	1.144
31.518	26.85	0.3741	-6.559	1.393
31.563	26.21	0.4096	-6.559	1.563
31.629	25.11	0.4561	-6.559	1.816
31.712	24.29	0.5031	-6.559	2.072
31.775	23.83	0.5194	-6.747	2.18
31.832	23.46	0.5224	-6.747	2.227
31.918	23	0.5133	-6.747	2.232
31.998	23.64	0.4949	-6.747	2.093
32.041	24.01	0.477	-6.653	1.987
32.105	24.56	0.4372	-6.653	1.78
32.154	24.74	0.4034	-6.653	1.63
32.228	24.19	0.3335	-6.747	1.378
32.285	22.82	0.2774	-6.559	1.216
32.37	19.7	0.2417	-6.559	1.227
32.421	17.14	0.2412	-6.559	1.407
32.499	14.85	0.2408	-6.559	1.622
32.548	13.47	0.2402	-6.559	1.783
32.614	11.82	0.3035	-6.559	2.568
32.682	12.83	0.3259	-6.559	2.54
32.774	16.77	0.3484	-6.465	2.078
32.82	18.97	0.3623	-6.559	1.91
32.906	23.55	0.361	-6.653	1.533
32.955	26.21	0.3271	-6.559	1.248
33.007	28.41	0.2804	-6.559	0.987
33.089	29.88	0.1967	-6.559	0.658
33.173	31.16	0.2277	-6.559	0.731
33.206	31.43	0.2335	-6.559	0.743
33.271	31.53	0.2106	-6.559	0.668
33.355	31.53	0.2896	-6.653	0.919
33.403	31.53	0.3605	-6.59	1.143
33.472	31.98	0.4578	-6.59	1.431
33.542	33.36	0.5542	-6.59	1.661
33.61	34.46	0.6454	-6.559	1.873
33.683	35.01	0.6823	-6.528	1.949

33.745	34	0.7109	-6.544	2.091
33.81	30.79	0.6828	-6.465	2.217
33.9	25.11	0.6319	-6.559	2.516
33.96	20.62	0.5604	-6.372	2.718
33.996	19.7	0.5198	-6.372	2.638
34.083	16.04	0.4582	-6.372	2.857
34.122	14.85	0.4492	-6.372	3.025
34.19	13.29	0.4649	-6.278	3.499
34.262	13.11	0.4626	-6.278	3.53
34.32	13.93	0.4734	-6.278	3.399
34.398	15.58	0.4853	-6.278	3.115
34.473	18.6	0.4991	-6.278	2.683
34.531	25.02	0.4783	-6.184	1.912
34.622	42.52	0.4351	-6.184	1.023
34.664	50.95	0.4142	-6.184	0.813
34.736	60.76	0.3717	-6.184	0.612
34.807	64.06	0.3852	-6.184	0.601
34.843	64.7	0.3751	-6.184	0.58
34.921	62.68	0.3554	-6.278	0.567
34.982	60.21	0.3961	-6.278	0.658
35.069	54.16	0.4692	-6.278	0.866
35.117	50.04	0.515	-6.372	1.029
35.171	45.82	0.5783	-6.278	1.262
35.25	41.24	0.6346	-6.372	1.539
35.339	36.02	0.6662	-6.278	1.85
35.387	34.55	0.7263	-6.184	2.102
35.467	34.37	0.8115	-6.184	2.361
35.499	34.64	0.8251	-6.184	2.382
35.582	32.72	0.79	-6.2	2.415
35.664	33.45	0.7888	-6.2	2.358
35.708	33.27	0.7771	-6.2	2.336
35.783	32.9	0.7239	-6.278	2.2
35.846	32.53	0.6637	-6.145	2.04
35.895	31.34	0.6517	-6.184	2.079
35.964	28.78	0.6679	-6.091	2.321
36.028	25.39	0.6922	-6.091	2.727
36.116	21.72	0.6936	-6.091	3.193
36.163	19.15	0.6938	-6.091	3.623
36.23	17.05	0.698	-6.091	4.095
36.299	15.49	0.7071	-6.091	4.565
36.383	17.05	0.7386	-6.091	4.333
36.418	15.4	0.7553	-6.091	4.906
36.499	17.05	0.7818	-6.091	4.587
36.559	19.89	0.7586	-6.091	3.815
36.646	25.48	0.6665	-5.997	2.616
36.699	28.68	0.6199	-5.997	2.161
36.753	34	0.5954	-5.997	1.751

36.811	36.38	0.5817	-5.997	1.599
36.879	38.49	0.5747	-6.091	1.493
36.968	38.4	0.5458	-5.903	1.421
37.026	37.67	0.5552	-5.903	1.474
37.092	38.03	0.6393	-5.903	1.681
37.149	39.13	0.7082	-6.091	1.81
37.208	41.61	0.7329	-6.091	1.762
37.283	42.25	0.7566	-5.997	1.791
37.344	43.07	0.7571	-5.997	1.758
37.414	43.9	0.7605	-5.997	1.732
37.484	44.81	0.7791	-5.997	1.739
37.534	45.18	0.7837	-5.997	1.735
37.614	46.74	0.7639	-6.091	1.634
37.678	49.49	0.7339	-6.091	1.483
37.761	53.52	0.6954	-6.184	1.299
37.8	57.55	0.565	-6.372	0.982
37.864	63.42	0.3064	-6.372	0.483
37.946	69.01	0.2788	-6.841	0.404
38.001	70.66	0.2664	-7.215	0.377
38.076	70.57	0.3112	-7.215	0.441
38.135	70.75	0.3904	-7.208	0.552
38.192	71.16	0.5111	-7.208	0.718
38.264	68.73	0.7885	-7.2	1.147
38.338	71.57	1.0823	-7.309	1.512
38.401	75.61	1.092	-7.309	1.444
38.492	85.41	0.972	-7.309	1.138
38.534	91.83	0.9122	-7.309	0.993
38.585	102.64	0.8443	-7.403	0.823
38.68	121.7	0.8084	-7.871	0.664
38.721	124.45	0.8072	-7.965	0.649
38.791	123.54	0.7497	-7.965	0.607
38.85	119.23	0.6402	-7.965	0.537
38.936	109.97	0.6057	-7.965	0.551
38.987	101.91	0.5971	-7.965	0.586
39.053	92.93	0.5684	-7.965	0.612
39.118	85.78	0.5298	-7.965	0.618
39.205	75.15	0.4639	-7.965	0.617
39.252	69.47	0.4287	-7.965	0.617
39.313	64.06	0.3904	-7.965	0.609
39.377	59.84	0.3646	-7.965	0.609
39.457	54.99	0.339	-7.965	0.617
39.522	51.69	0.3133	-7.965	0.606
39.597	47.75	0.2807	-7.965	0.588
39.657	46.74	0.281	-7.965	0.601
39.7	45.55	0.2794	-7.965	0.613
39.768	44.72	0.2664	-7.871	0.596
39.837	45.5	0.3027	-7.871	0.665

39.918	43.71	0.3765	-7.871	0.861
39.991	45.46	0.4238	-7.871	0.932
40.029	46.1	0.4473	-7.871	0.97
40.097	50.68	0.4639	-7.871	0.915
40.184	61.31	0.4546	-7.871	0.741
40.24	72.58	0.4161	-7.871	0.573
40.297	85.05	0.333	-7.871	0.392
40.379	100.9	0.2461	-7.871	0.244
40.425	106.77	0.2537	-7.871	0.238
40.5	109.97	0.2768	-7.871	0.252
40.554	102.28	0.3387	-7.871	0.331
40.623	69.19	0.4336	-7.84	0.627
40.695	67.18	0.4795	-7.84	0.714
40.749	59.57	0.5134	-7.84	0.862
40.833	48.39	0.6074	-7.777	1.255
40.881	43.71	0.7006	-7.777	1.603
40.965	30.88	0.8388	-7.777	2.716
41.018	24.19	0.8792	-7.777	3.634
41.104	19.06	0.7931	-7.777	4.161
41.152	18.05	0.7564	-7.777	4.19
41.232	18.42	0.7498	-7.684	4.071
41.285	19.34	0.7779	-7.59	4.023
41.376	29.69	0.8161	-7.59	2.748
41.419	41.7	0.8278	-7.403	1.985
41.47	70.66	0.8413	-7.403	1.191
41.554	117.12	0.8773	-7.403	0.749
41.616	138.48	0.8951	-7.403	0.646
41.681	148.19	0.8829	-7.403	0.596
41.733	159.28	0.8849	-7.403	0.556
41.804	179.26	0.9542	-7.309	0.532
41.873	195.29	1.0276	-7.309	0.526
41.93	192.09	1.0844	-7.293	0.565
41.996	219.21	1.1576	-7.291	0.528
42.07	227.83	1.1951	-7.291	0.525
42.136	228.2	1.2377	-7.253	0.542
42.198	225.08	1.2357	-7.231	0.549
42.259	222.42	1.2221	-7.209	0.549
42.334	216.1	1.1745	-7.209	0.544
42.399	211.24	1.114	-7.209	0.527
42.47	201.8	1.0393	-7.122	0.515
42.523	196.85	0.9679	-7.122	0.492
42.595	190.07	0.8757	-7.122	0.461
42.671	186.59	0.8523	-7.122	0.457
42.717	183.29	0.8241	-7.122	0.45
42.786	172.02	0.7447	-7.122	0.433
42.861	162.58	0.7194	-7.075	0.442
42.931	148.46	0.6126	-7.075	0.413

42.983	143.7	0.4849	-7.075	0.337
43.049	132.06	0.4152	-7.122	0.314
43.121	118.5	0.3682	-6.934	0.311
43.188	107.22	0.4254	-6.934	0.397
43.242	97.33	0.4172	-6.934	0.429
43.317	76.06	0.4717	-6.934	0.62
43.378	62.41	0.5221	-6.934	0.837
43.467	42.98	0.5297	-6.981	1.232
43.51	35.28	0.5022	-6.934	1.423
43.58	24.47	0.4429	-7.122	1.81
43.642	21.08	0.3916	-6.934	1.858
43.701	16.77	0.3558	-6.934	2.122
43.781	14.85	0.3033	-6.841	2.043
43.834	13.93	0.2383	-6.841	1.711
43.907	13.29	0.188	-6.841	1.414
43.971	12.65	0.1585	-6.841	1.253
44.045	12.19	0.1589	-6.841	1.304
44.137	10.72	0.1581	-6.653	1.475
44.166	10.17	0.169	-6.841	1.662
44.227	9.53	0.1848	-6.559	1.939
44.317	8.89	0.1563	-6.559	1.758
44.362	8.52	0.1315	-6.653	1.543
44.423	8.52	0.1101	-6.465	1.292
44.495	8.52	0.1101	-6.465	1.292
44.559	8.98	0.1115	-6.278	1.242
44.626	8.8	0.1262	-6.278	1.435
44.709	8.75	0.1858	-6.278	2.123
44.764	8.75	0.2217	-6.278	2.533
44.839	8.71	0.2462	-6.278	2.828
44.889	10.63	0.2508	-6.278	2.359
44.953	12.74	0.2531	-6.184	1.987
45.024	14.39	0.2791	-6.184	1.94
45.083	15.49	0.295	-6.184	1.905
45.159	17.6	0.3074	-6.184	1.747
45.215	20.07	0.3266	-6.184	1.627
45.305	22.64	0.4295	-6.184	1.897
45.35	22.91	0.4114	-6.184	1.795
45.414	16.13	0.3634	-6.161	2.253
45.483	18.33	0.3563	-6.138	1.944
45.551	16.59	0.3563	-6.138	2.148
45.619	15.85	0.3563	-6.091	2.247
45.672	19.8	0.3501	-6.091	1.769
45.747	31.89	0.3006	-5.997	0.943
45.816	46.1	0.277	-5.997	0.601
45.889	49.76	0.2858	-5.903	0.574
45.933	49.95	0.2543	-5.81	0.509
46.015	46.83	0.3439	-5.716	0.734

46.069	41.33	0.3898	-5.716	0.943
46.157	31.8	0.3811	-5.716	1.199
46.201	27.58	0.361	-5.716	1.309
46.286	22.09	0.3291	-5.622	1.49
46.333	20.07	0.3195	-5.529	1.592
46.414	20.07	0.3062	-5.529	1.526
46.471	20.07	0.3056	-5.435	1.523
46.535	20.07	0.2812	-5.341	1.401
46.605	22.09	0.3255	-5.341	1.474
46.693	22.09	0.3249	-5.341	1.471
46.722	21.35	0.3066	-5.341	1.436
46.789	18.79	0.2921	-5.248	1.555
46.885	15.4	0.3041	-5.248	1.975
46.96	13.56	0.3579	-5.154	2.639
47.005	13.01	0.3487	-5.154	2.679
47.058	12.56	0.3295	-5.154	2.624
47.128	12.56	0.2974	-5.06	2.368
47.191	13.2	0.2612	-4.919	1.98
47.244	13.2	0.2335	-4.919	1.77
47.319	14.57	0.2254	-4.919	1.547
47.389	13.2	0.2279	-4.685	1.727
47.452	12.19	0.2271	-4.685	1.864
47.543	13.24	0.2338	-4.685	1.765
47.592	12.37	0.2258	-4.685	1.825
47.684	13.29	0.2068	-4.591	1.556
47.724	13.75	0.201	-4.591	1.462
47.774	13.56	0.1942	-4.591	1.432
47.861	12.56	0.1823	-4.591	1.452
47.906	11.64	0.1716	-4.591	1.475
47.973	11.36	0.1701	-4.591	1.497
48.04	11.09	0.1774	-4.591	1.6
48.126	11.09	0.1673	-4.498	1.508
48.165	11.09	0.1587	-4.498	1.431
48.251	11.09	0.1408	-4.498	1.27
48.316	11.27	0.1401	-4.498	1.243
48.368	11.36	0.1436	-4.404	1.264
48.44	11.55	0.1534	-4.404	1.328
48.53	11.55	0.1561	-4.404	1.352
48.577	11.73	0.1582	-4.404	1.349
48.627	11.73	0.1601	-4.404	1.365
48.713	11.82	0.1601	-4.404	1.354
48.759	11.82	0.1601	-4.404	1.354
48.824	11.82	0.1587	-4.404	1.342
48.896	11.82	0.1546	-4.404	1.308
48.962	11.73	0.1529	-4.31	1.304
49.026	11.73	0.1533	-4.31	1.307
49.109	11.91	0.1521	-4.31	1.277

49.153	12.01	0.1394	-4.31	1.161
49.222	12.01	0.0965	-4.31	0.804
49.293	12.01	0.1243	-4.217	1.036
49.35	12.01	0.1437	-4.217	1.197
49.426	12.19	0.1669	-4.217	1.37
49.494	12.74	0.1786	-4.123	1.402
49.56	14.66	0.1985	-4.123	1.354
49.608	15.4	0.2127	-4.123	1.381
49.676	14.57	0.2226	-4.029	1.528
49.752	13.56	0.2164	-4.029	1.595
49.812	13.2	0	-3.936	0
49.88	12.74	0	-3.936	0
49.947	12.28	0	-3.936	0
50.019	12.37	0	-3.936	0
50.069	12.37	0	-3.936	0
50.135	12.56	0	-3.936	0

Appendix B
Laboratory Tests

TABLE I
MAXIMUM DENSITY TESTS

Sample	Classification	Optimum Moisture (%)	Maximum Dry Density (lbs/cu.ft)
B-3 @ 2'	Silty SAND	9.0	124.0

TABLE II
EXPANSION TESTS

Sample	Classification	Expansion Index
B-3 @ 2'	Silty SAND	3

TABLE III
ATTERBERG LIMITS

Sample	Liquid Limit	Plastic Limit	Plasticity Index
B-3 @ 15'	25	17	8
B-3 @ 20'	33	18	15

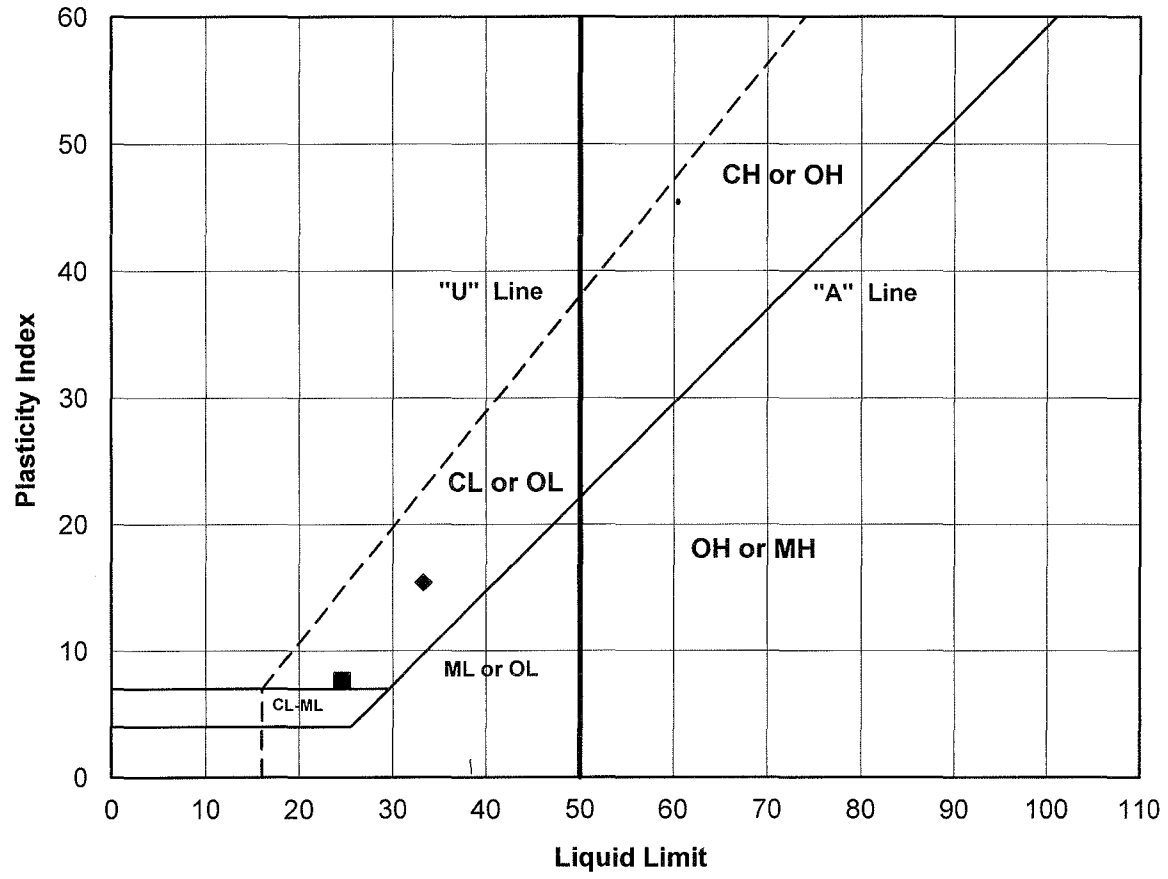
TABLE IV
CORROSION TESTS

Sample	pH	Electrical Resistivity	Sulfate (%)	Chloride (ppm)
B-3 @ 2'	7.2	26,722	0.004	303

% by weight
ppm – mg/kg

PLASTICITY INDEX

ASTM D4318



Symbol	Sample	Depth	LL	PL	PI	USCS	Soil Description
■	B3	15'	25	17	8	CL	Lean Clay
◆	B3	20'	33	18	15	CL	Lean Clay
▲							
□							
◇							
△							

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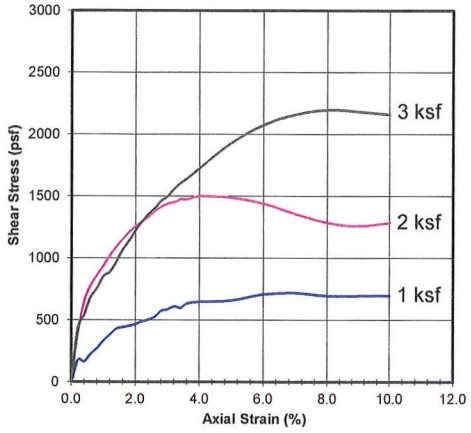
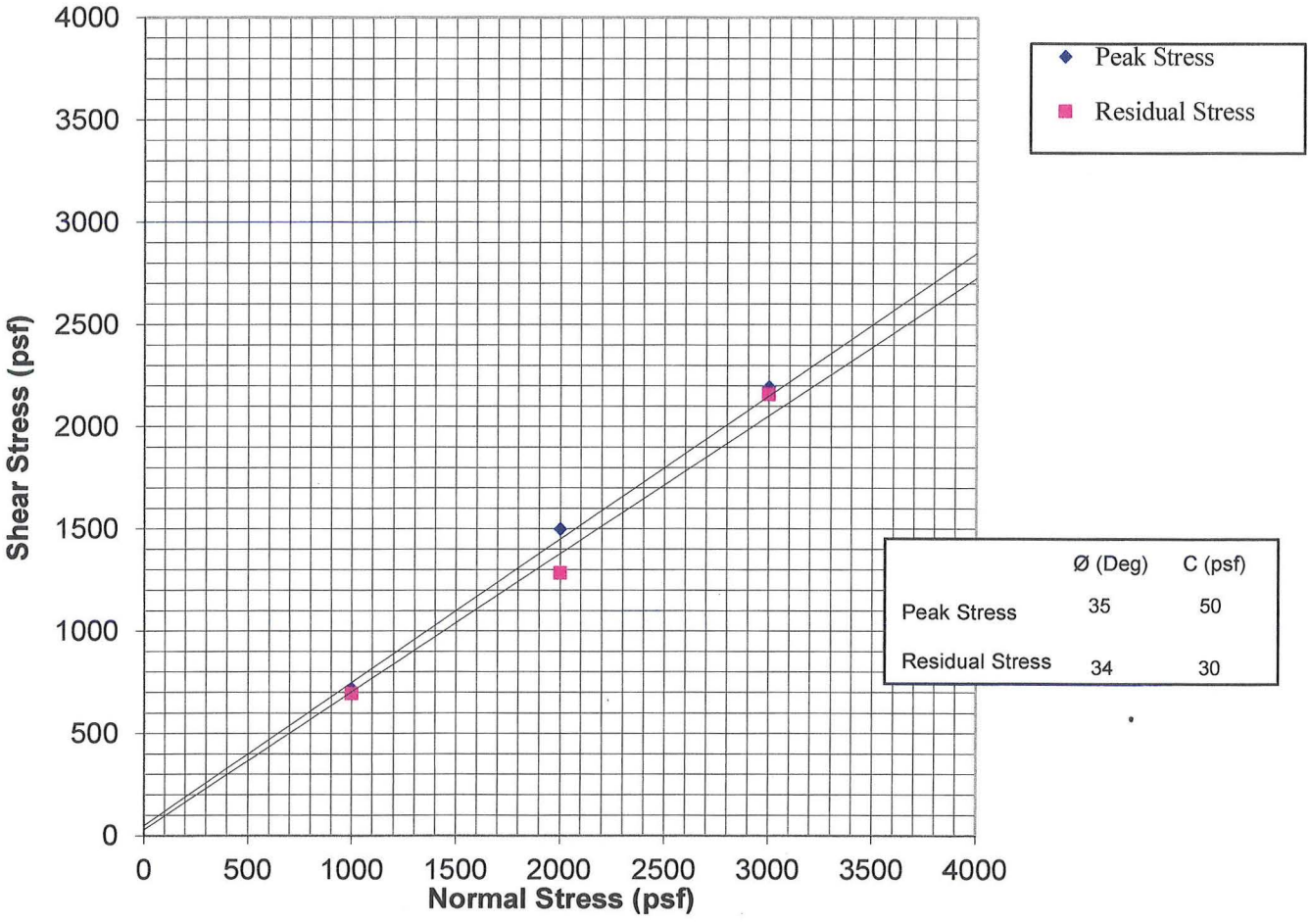
PLASTICITY INDEX

ASTM D4318

Sample No.		T2@2'		
Sample Type:		Undisturbed-Saturated		
Soil Description:		Silty Fine-Medium Grained Sand w/ Some Small Gravel		
		1	2	3
Normal Stress	(psf)	1000	2000	3000
Peak Stress	(psf)	720	1500	2196
Displacement	(in.)	0.175	0.100	0.200
Residual Stress	(psf)	696	1284	2160
Displacement	(in.)	0.250	0.250	0.250
Initial Dry Density	(pcf)	100.9	100.9	100.9
Initial Water Content	(%)	7.5	7.5	7.5
Strain Rate	(in./min.)	0.020	0.020	0.020





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DIRECT SHEAR TEST

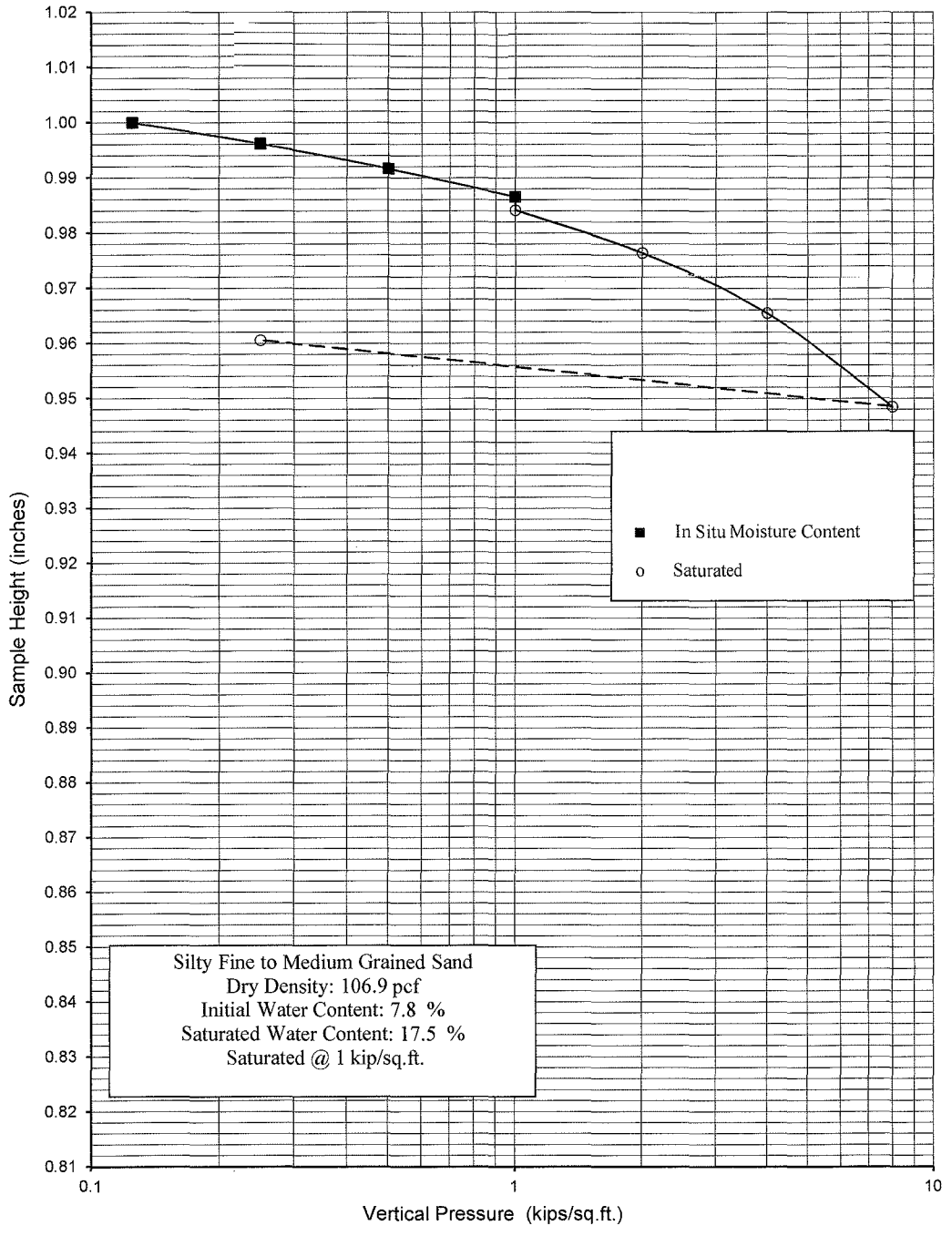
ASTM D3080

Plate A

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	Sample No. T2	Depth 5'	Date 7/14/2020
0.125	1.0000	0.0			
0.25	0.9962	0.4			
0.5	0.9917	0.8			
1	0.9866	1.3			
1	0.9842	1.6			
2	0.9764	2.4			
4	0.9655	3.5			
8	0.9485	5.2			
0.25	0.9606	3.9			

Saturated

Date Tested: 7/10/2020
Sample: T2
Depth: 5'



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PROJECT NUMBER: 21889-20 DATE: 7/14/2020

CONSOLIDATION TEST

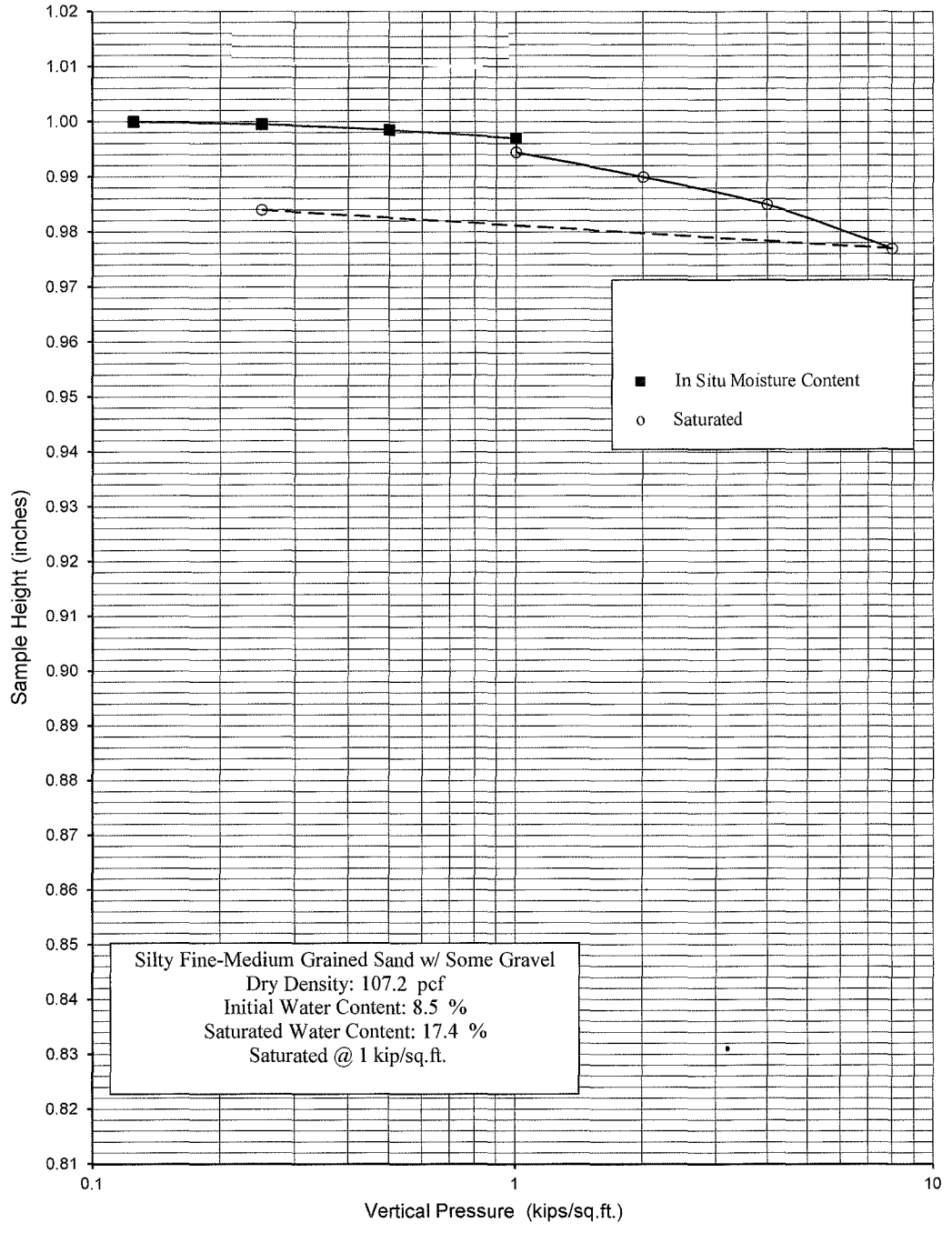
ASTM D2435

Plate B

Vertical Pressure (kips/sq.ft.)	Sample Height (inches)	Consolidation (percent)	Sample No. T2	Depth 10'	Date 7/14/2020
0.125	1.0000	0.0			
0.25	0.9995	0.0			
0.5	0.9985	0.2			
1	0.9970	0.3			
1	0.9945	0.6			
2	0.9900	1.0			
4	0.9850	1.5			
8	0.9770	2.3			
0.25	0.9840	1.6			

Saturated

Date Tested: 7/10/2020
Sample: T2
Depth: 10'



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CONSOLIDATION TEST

ASTM D2435

Plate C

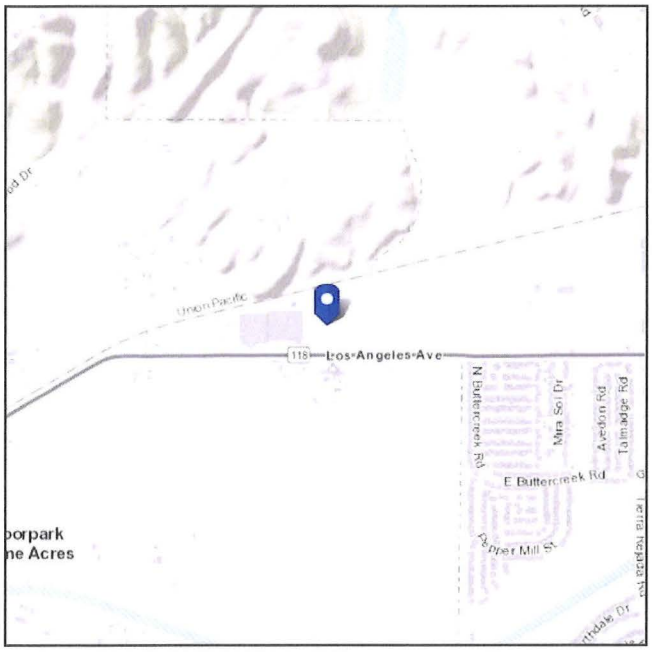
Appendix C
Liquefaction Analysis

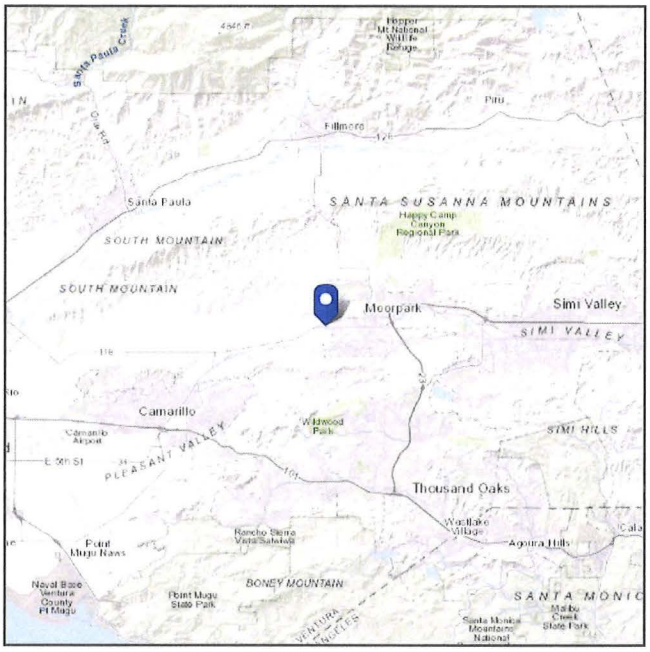
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 451.22 ft (NAVD 88)
Latitude: 34.279805
Longitude: -118.912343





ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

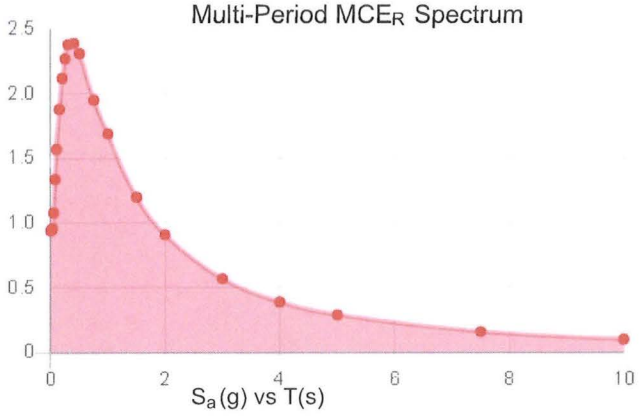
Seismic

Site Soil Class:

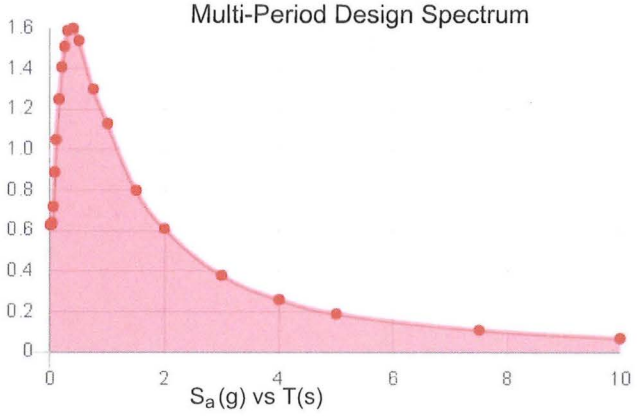
Results:

PGA_M :	0.83	T_L :	8
S_{MS} :	2.15	S_S :	2.1
S_{M1} :	1.69	S_1 :	0.77
S_{DS} :	1.44	S_{DC} :	
S_{D1} :	1.13	V_{S30} :	260

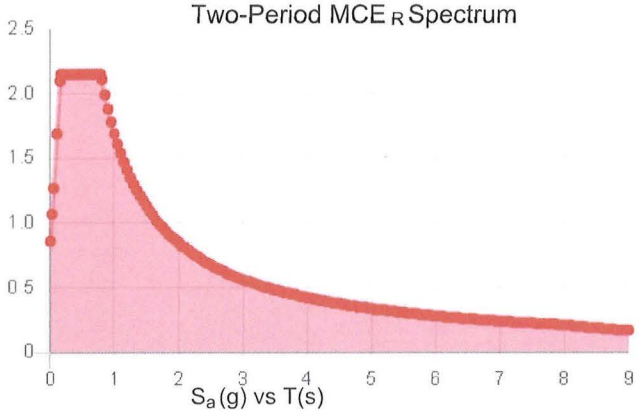
Multi-Period MCE_R Spectrum



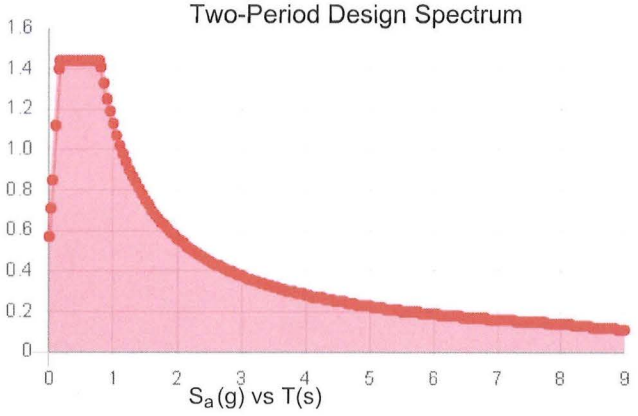
Multi-Period Design Spectrum



Two-Period MCE_R Spectrum



Two-Period Design Spectrum



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.

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Data Accessed: Tue Mar 29 2022

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.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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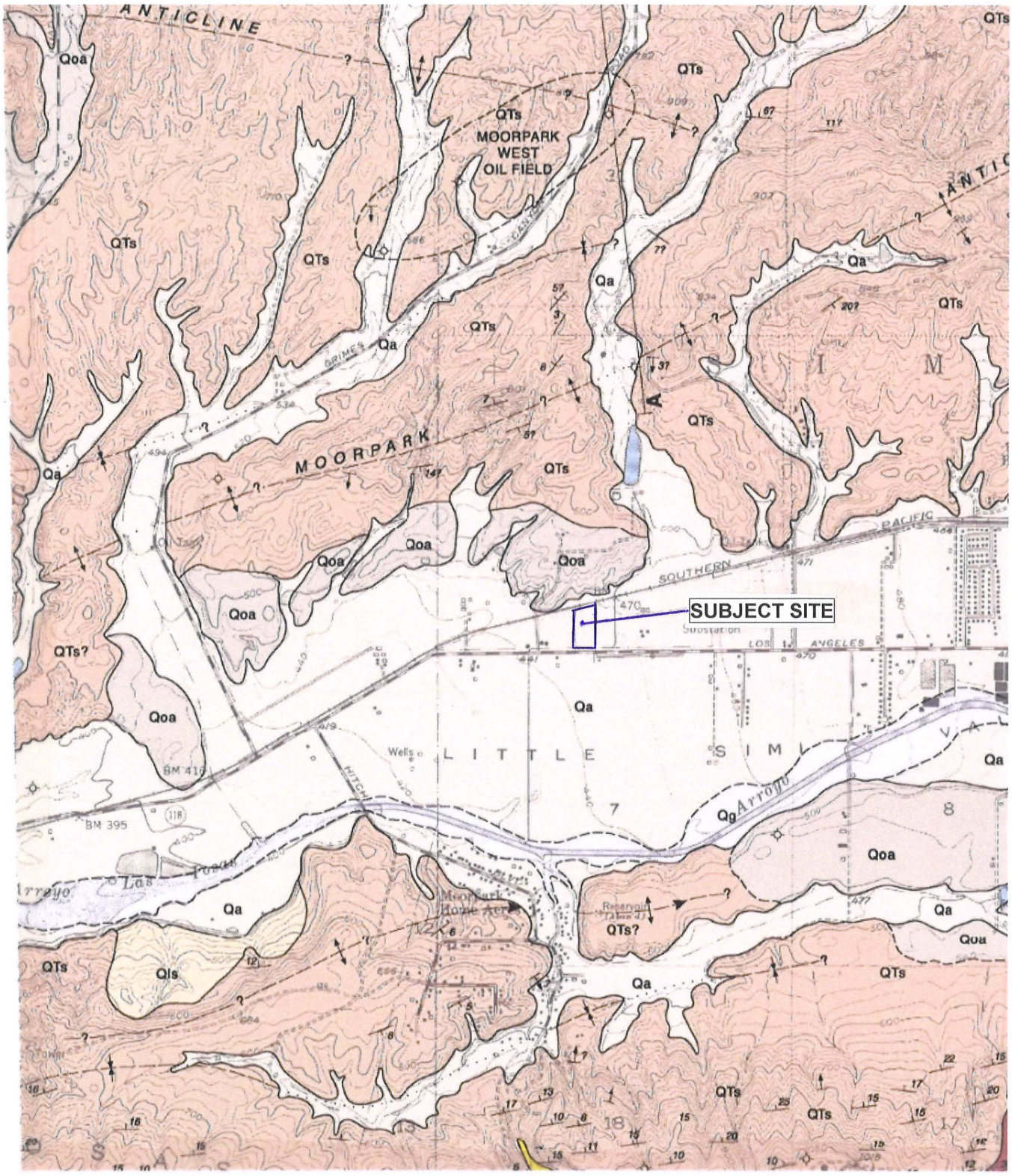
In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.



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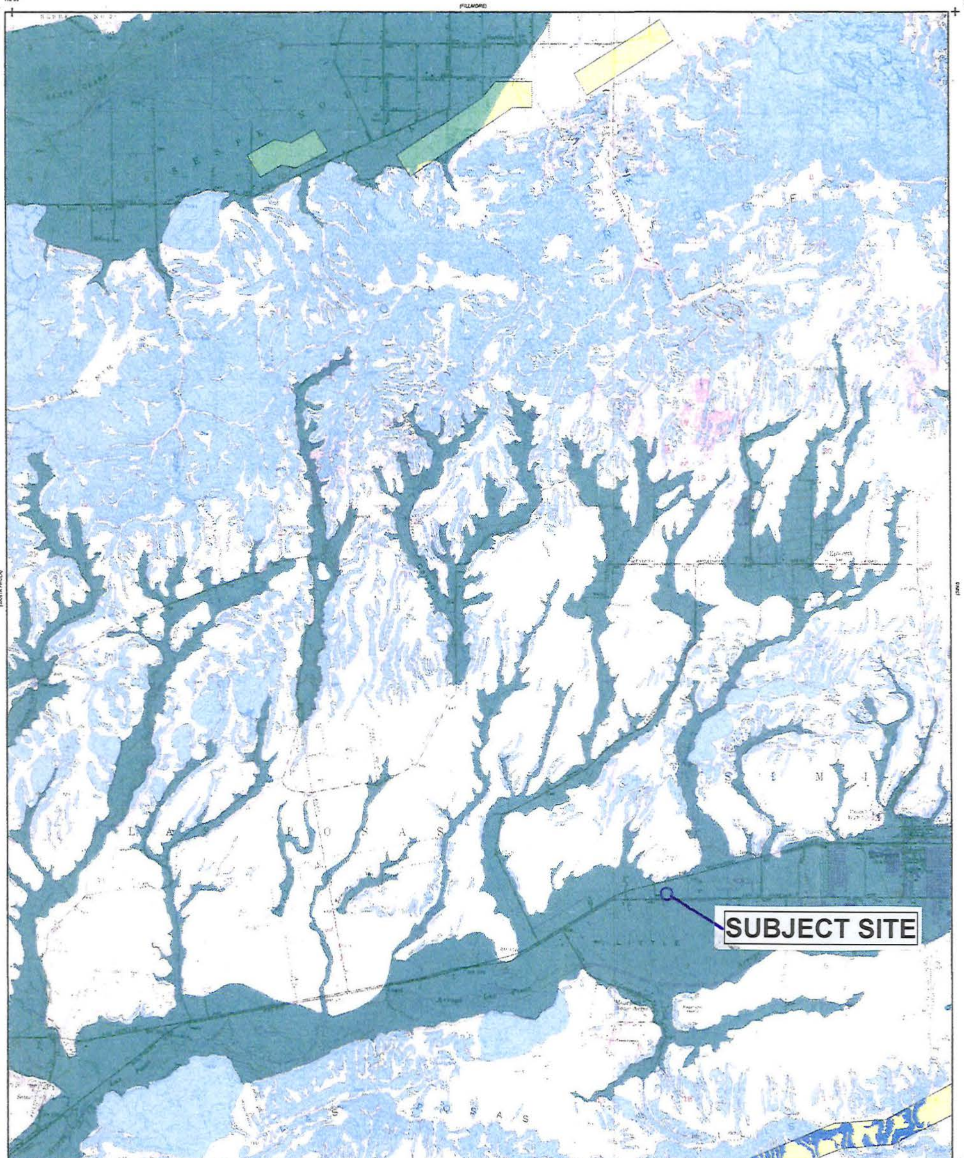
PROJECT: 21889-20	DATE: MARCH 2022

GEOLOGIC MAP OF THE MOORPARK QUADRANGLE

THOMAS W. DIBBLEE JR. 1992



Earthquake Zones of Required Investigation Moorpark Quadrangle

California Geological Survey

This Map Shows Both Alquist-Priolo Earthquake Fault Zones And Seismic Hazard Zones Issued For The Moorpark Quadrangle

This map shows the location of Alquist-Priolo (AP) Earthquake Fault Zones and Seismic Hazard Zones, collectively referred to here as Earthquake Zones of Required Investigation. The Geographic Information System (GIS) digital files of these regulatory zones released by the California Geological Survey (CGS) are the "Official Maps." GIS files are available at the CGS website http://maps.conservation.ca.gov/cgs/informationwarehouse/. These zones will assist cities and counties in fulfilling their responsibilities for protecting the public from the effects of surface fault rupture and earthquake-triggered ground failure as required by the AP Earthquake Fault Zoning Act (Public Resources Code Sections 2621-2630) and the Seismic Hazards Mapping Act (Public Resources Code Sections 2690-2699.6). For information regarding the general approach and recommended methods for preparing these zones, see CGS Special Publication 42, *Earthquake Fault Zones, a Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California*, Appendix C, and CGS Special Publication 118, *Recommended Criteria for Delineating Seismic Hazard Zones in California*.

For information regarding the scope and recommended methods to be used in conducting required site investigations refer to CGS Special Publication 42, and CGS Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. For a general description of the AP and Seismic Hazards Mapping acts, the zonation programs, and related information, please refer to the website at www.conservation.ca.gov/cgs/.

MAP EXPLANATION

EARTHQUAKE FAULT ZONES

Earthquake Fault Zones
Zone boundaries are delineated by straight-line segments; the boundaries define the zone encompassing active faults that constitute a potential hazard to structures from surface faulting or fault creep such that avoidance as described in Public Resources Code Section 2621.5(a) would be required.

Active Fault Traces
Faults considered to have been active during Holocene time and to have potential for surface rupture: Solid Line in Black or Red where Accurately Located; Long Dash in Black or Solid Line in Purple where Approximately Located; Short Dash in Black or Solid Line in Orange where Inferred; Dotted Line in Black or Solid Line in Rose where Concealed; Query (?) indicates additional uncertainty. Evidence of historic offset indicated by year of earthquake-associated event or C for displacement caused by fault creep.

SEISMIC HAZARD ZONES

Liquefaction Zones
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslide Zones
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

OVERLAPPING EARTHQUAKE FAULT AND SEISMIC HAZARD ZONES

Overlap of Earthquake Fault Zone and Liquefaction Zone
Areas that are covered by both Earthquake Fault Zone and Liquefaction Zone.

Overlap of Earthquake Fault Zone and Earthquake-Induced Landslide Zone
Areas that are covered by both Earthquake Fault Zone and Earthquake-Induced Landslide Zone.

Note: Mitigation methods differ for each zone – AP Act only allows avoidance; Seismic Hazard Mapping Act allows mitigation by engineering/geotechnical design as well as avoidance.

ADDITIONAL INFORMATION

For additional information on the zones of required investigation presented on this map, the data and methodology used to prepare them, and additional references consulted, please refer to the following:

The Simi-Santa Rosa Fault Zone, in the Moorpark, Newbury Park, Simi Valley East, Simi Valley West, and Thousand Oaks Quadrangles, Ventura County, California, California Geological Survey, Fault Evaluation Report FER-244.
http://gmw.conservation.ca.gov/SHP/EZRIM/Reports/FER/244/

The Oak Ridge and Related Faults Vicinity of Fillmore and Santa Paula, in the Moorpark Quadrangle, Ventura County, California, California Geological Survey, Fault Evaluation Report FER-219.
http://gmw.conservation.ca.gov/SHP/EZRIM/Reports/FER/219/

For more information on the Alquist-Priolo Earthquake Fault Zoning Act please refer to
http://www.conservation.ca.gov/cgs/rghm/ap/Pages/main.aspx

Seismic Hazard Zone Report for the Moorpark 7.5-minute Quadrangle, Ventura County, California, California Geological Survey, Seismic Hazard Zone Report 041.
http://gmw.conservation.ca.gov/SHP/EZRIM/Reports/SHZR/SHZR_041_Moorpark.pdf

For more information on the Seismic Hazards Mapping Act please refer to
http://www.conservation.ca.gov/cgs/shzp/Pages/SHMPpgminfo.aspx

Click the link below to learn how to take greater advantage of the GeoPDF format of this map after downloading.
http://gmw.conservation.ca.gov/SHP/EZRIM/Docs/TerragoUserGuide.pdf

MOORPARK QUADRANGLE

EARTHQUAKE FAULT ZONES	SEISMIC HAZARD ZONES
Delineated in compliance with Chapter 7.5 Division 2 of the California Public Resources Code *(Alquist-Priolo Earthquake Fault Zoning Act)*	Delineated in compliance with Chapter 7.8 Division 2 of the California Public Resources Code *(Seismic Hazards Mapping Act)*
REVISED OFFICIAL MAP	OFFICIAL MAP
Released: May 1, 1999	Released: November 17, 2000
STATE GEOLOGIST	STATE GEOLOGIST

IMPORTANT

PLEASE NOTE THE FOLLOWING FOR ZONES SHOWN ON THIS MAP

1) This map may not show all faults that have the potential for surface fault rupture, either within the Earthquake Fault Zones or outside their boundaries. Additionally, this map may not show all areas that have the potential for liquefaction, landsliding, strong earthquake ground shaking or other earthquake and geologic hazards. Also, a single earthquake capable of causing liquefaction or triggering landslide failure will not uniformly affect the entire area zoned.

2) Boundaries of Earthquake Fault Zones, if included on this map, are based on interpreted Holocene-active fault traces.

3) The identification and location of these faults are based on the best available data. However, the quality of data used is varied. Traces have been depicted as accurately as possible at a map scale of 1:24,000.

4) Liquefaction zones may also contain areas susceptible to the effects of earthquake-induced landslides. This situation typically exists at or near the toes of existing landslides, downslope from rockfall or debris flow source areas, or adjacent to steep stream banks.

5) Landslide zones on this map were determined, in part, by adapting methods first developed by the U.S. Geological Survey (USGS). Landslide hazard maps prepared by the USGS typically use experimental approaches to assess earthquake-induced and other types of landslide hazards. Although aspects of these new methodologies may be incorporated in future CGS seismic hazard zone maps, USGS maps should not be used as substitutes for these Official SEISMIC HAZARD ZONES maps.

6) USGS base map standards provide that 90 percent of cultural features be located within 40 feet (horizontal accuracy) at the scale of this map. The identification and location of liquefaction and earthquake-induced landslide zones are based on available data. However, the quality of data used is varied. The zone boundaries depicted have been drawn as accurately as possible at this scale.

7) Information on this map is not sufficient to serve as a substitute for the geologic and geotechnical site investigations required under Chapters 7.5 and 7.8 of Division 2 of the California Public Resources Code.

8) Seismic Hazard Zones identified on this map may include developed land where delineated hazards have already been mitigated to city or county standards. Check with your local building/planning department for information regarding the location of such mitigated areas.

9) DISCLAIMER: The State of California and the Department of Conservation make no representations or warranties regarding the accuracy of the data from which these maps were derived. Neither the State nor the Department shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

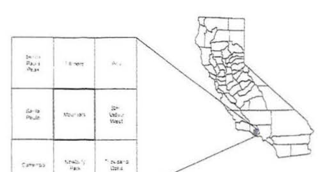
Study area defined by USGS quadrangle boundaries using NAD 27 represented by the visible map extent. Data are maintained and distributed in California Albers (meters), NAD 83, [EPSG:3310] as shown by tics and coordinates.
Shaded topographic relief derived from USGS 10 meter NED, 2013.
Topographic base map from USGS 1969, photorevised, 1974.
Street data from US Census Bureau TIGER/Line, 2016.

Scale 1:24000

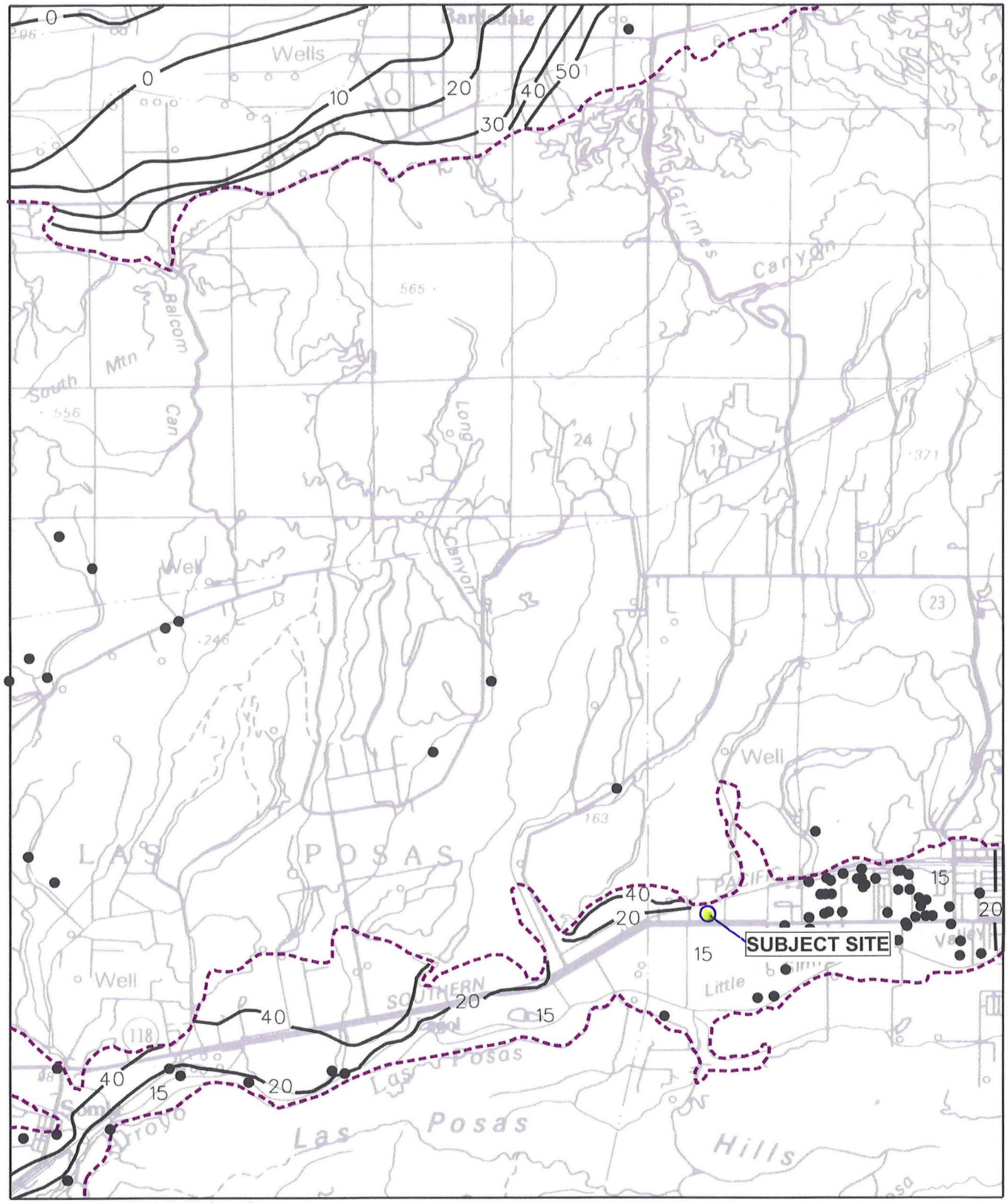
Contour Interval 20 Feet

12½°
TRUE NORTH
MAGNETIC NORTH
Approximate Declination, 2018

N



California Geological Survey
Geologic Information and Publications
801 K Street, MS 14-34
Sacramento, CA 95814-3532
www.conservation.ca.gov/cgs



Base map enlarged from U.S.G.S. 30 x 60–minute series

Plate 1.2 Historically shallow ground–water depths and borehole data points in alluviated valley areas of the Moorpark Quadrangle.

Alluviated Valley

20 Historically shallow ground–water depth contours (in feet)

Borehole Site

15 Historically shallow ground–water depth where same value occurs over a broad area (in feet)

ONE MILE

Scale

SITE LOCATION: _____

GEOTECHNICAL REPORT: _____

GEOLOGY REPORT: _____

DEPTH TO WATER TABLE = 25'

EARTHQUAKE MAGNITUDE = 6.7

PEAK GROUND ACCELERATION = 0.87g

DEPTH BELOW FINAL GRADE (FEET)	MOIST DENSITY (PCF)	σ_o TOTAL STRESS (PSF)	$\bar{\sigma}_o$ EFFECTIVE STRESS (PSF)	$\sigma_o/\bar{\sigma}_o$ (-)	r_d (-)	① $\tau_{h1}/\bar{\sigma}_o$ (-)	N VALUE (BLOWS/FT)	RELATIVE DENSITY (%)	C_N (-)	C_E (-)	C_B (-)	C_R (-)	C_S (-)	$(N_1)_{60}$ (BLOWS/FT)	FINES (%)	CRR M=7.5	MSF (-)	CRR M=7.0	LIQ. F.S.
5	110	550	Same	1.00	0.99	0.57	7	60	>1.6	1.00	1.05	0.70	1.20	>10	15	>0.16	1.5	>0.24	>0.5
10	115	1125			0.96	0.55	9	60	1.3			0.75		11	31	0.20		0.30	0.5
15	120	1725			0.92	0.53	4	40	1.1			0.85		5	61	>0.13		>0.20	>0.4
20	125	2350			0.87	0.50	10	55	0.92			0.90		10.5	66	>0.19		>0.30	>0.6
25		2975	2663	1.12	0.80	0.51	16	65	0.88			0.95		17	8	0.20		0.30	0.6
30		3600	2976	1.21	0.74	0.51	12	55	0.85			1.00		13	66	>0.22		>0.33	>0.6
35		4225	3289	1.28	0.68	0.50	21	65	0.81					21.5	4	0.24		0.36	0.7
40		4850	3602	1.35	0.64	0.49	21	65	0.78					20.5	4	0.22		0.33	0.7
45		5475	3915	1.40	0.61	0.49	32	75	0.76					30.5	7	>0.50		>0.75	>1.5
50		6100	4228	1.44	0.58	0.48	30	70	0.73					28	8	0.45		0.68	1.4

① INDUCED CYCLIC STRESS RATIO = $\tau_{ave}/\bar{\sigma}_o = 0.65 \cdot \frac{a_{max}}{g} \cdot \frac{\sigma_o}{\bar{\sigma}_o} \cdot r_d$

- C_E = Corr. - Energy Ratio = Energy Ratio / 60%
- C_B = Corr. - Borehole Dia. = 1.15 for 8" dia. borehole
- C_R = Corr. - Rod Length
- C_S = Corr. - Sampling Method

Actual Energy Ratio = 0.67-1.17 (Safety Hammer)
= 0.50-1.00 (Donut Hammer)

Sampling Method = 1.0 Standard sampler
= ~~1.2 Sampler w/o liners~~

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PROJECT 21889-20 | DATE JULY, 2020

EVALUATION OF LIQUEFACTION POTENTIAL

SEISMIC SETTLEMENT EVALUATION ⇒ GWT @ 20'

EQ Magnitude = 6.7, Hor. Ground Acceleration = 0.87 g

Depth (ft)	$N_{1,60}$ (Blows/ft)	Fines (%)	EQ CSR	M_{design} / $M_{7.5}$	Design CSR	Vert. Strain	Seismic Settle	Liquefaction F.S.
				1.5				
20-25'	17	8	0.51		0.34	1.7%	1.0"	0.6
25-30'	13 (20)	66 (5)	0.51		0.34	1.5%	0.9"	>0.6
30-35'	21.5	4	0.50		0.33	1.4%	0.8"	0.7
35-40	20.5	4	0.49		0.32	1.5%	0.9"	0.7

$\Sigma S = 3.6"$

Say $\Delta_{EQ} = 3\frac{1}{2}"$ ←

Appendix D
Soil Infiltration Testing

NORCAL ENGINEERING

SOILS AND GEOTECHNICAL CONSULTANTS

PERCOLATION TEST DATA

Client: Amir Development Company	**Date:** 3/25/2022
Project No.: 21889-20	**Tested By:** J.S.
Test Hole: 1	**USCS Soil Classification:**
Depth of Test Hole: 11'	**Sides (if rectangular):**
Diameter of Test Hole: 6"	**Length:**
Sandy Soil Criteria Test*:	**Width:**

TRIAL NO.	START TIME	STOP TIME	TIME INTERVAL (MIN)	INITIAL DEPTH TO WATER (IN)	FINAL DEPTH TO WATER (IN)	CHANGE IN WATER LEVEL (IN)	GREATER THAN OR EQUAL TO 6"
1	10:00	10:23	23	114.0	132.0	18.0	
2	10:23	10:47	24	115.0	132.0	17.0	

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30-minute intervals) with a precision of at least 0.25".

TRIAL NO	START TIME	STOP TIME	ΔT TIME INTERVAL (MIN)	Do INITIAL DEPTH TO WATER (IN)	Df FINAL DEPTH TO WATER (IN)	ΔD CHANGE IN WATER LEVEL (IN)	PERCOLATION RATE (MIN/IN)
1	10:47	10:57	10	117.0	117.5	4.5	
2	10:57	11:07	10	117.0	122.0	5.0	
3	11:07	11:17	10	112.0	117.0	5.0	
4	11:17	11:27	10	115.0	120.0	5.0	
5	11:27	11:37	10	117.0	122.5	4.5	
6	11:37	11:47	10	115.0	120.0	5.0	
7							
8							
9							
10							
11							
12							
13							
14							
15							

COMMENTS:

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SOILS AND GEOTECHNICAL CONSULTANTS

PERCOLATION TEST DATA

Client: Amir Development Company	**Date:** 3/25/2022
Project No.: 21889-20	**Tested By:** J.S.
Test Hole: 2	**USCS Soil Classification:**
Depth of Test Hole: 11.5'	**Sides (if rectangular):**
Diameter of Test Hole: 6"	**Length:**
Sandy Soil Criteria Test*:	**Width:**

TRIAL NO.	START TIME	STOP TIME	TIME INTERVAL (MIN)	INITIAL DEPTH TO WATER (IN)	FINAL DEPTH TO WATER (IN)	CHANGE IN WATER LEVEL (IN)	GREATER THAN OR EQUAL TO 6"
1	10:03	10:16	13	122.0	138.0	16.0	
2	10:16	10:37	21	120.0	138.0	18.0	

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30-minute intervals) with a precision of at least 0.25".

TRIAL NO	START TIME	STOP TIME	ΔT TIME INTERVAL (MIN)	Do INITIAL DEPTH TO WATER (IN)	Df FINAL DEPTH TO WATER (IN)	ΔD CHANGE IN WATER LEVEL (IN)	PERCOLATION RATE (MIN/IN)
1	10:37	10:47	10	123.0	133.0	10.0	
2	10:47	10:57	10	121.0	131.0	10.0	
3	10:57	11:07	10	115.0	124.5	9.5	
4	11:07	11:17	10	115.0	125.0	10.0	
5	11:17	11:27	10	118.0	117.5	9.5	
6	11:27	11:37	10	123.0	132.0	9.0	
7							
8							
9							
10							
11							
12							
13							
14							
15							
COMMENTS:							

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SOILS AND GEOTECHNICAL CONSULTANTS

PERCOLATION TEST DATA

Client: Amir Development Company	**Tested By:** J.S. Jr.
Project No.: 21889-20	**Date Tested:** 6/25/2020
Test Hole: 1	**Caving:**
Depth of Test Hole: 5'	**Notes:**
Diameter of Test Hole: 6"	
Date Excavated: 6/25/2020	

PRE-SOAK

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
7:48	1	2	2	38.0	50.0	12.0
7:50						
7:50	2	3	5	38.0	50.0	12.0
7:53						

PERCOLATION TEST

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
7:53	1	5	5	38.0	50.0	12.0
7:58						
7:58	2	5	10	38.0	50.0	12.0
8:03						
8:03	3	6	16	38.0	50.0	12.0
8:09						
8:09	4	6	22	38.0	50.0	12.0
8:15						
8:15	5	7	29	38.0	50.0	12.0
8:22						
8:22	6	8	37	38.0	50.0	12.0
8:30						
8:30	7	7	44	38.0	50.0	12.0
8:37						
8:37	8	7	51	38.0	50.0	12.0
8:44						

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PERCOLATION TEST DATA

Client: Amir Development Company	**Tested By:** J.S. Jr.
Project No.: 21889-20	**Date Tested:** 6/25/2020
Test Hole: 1	**Caving:**
Depth of Test Hole: 5'	**Notes:**
Diameter of Test Hole: 6"	
Date Excavated: 6/25/2020	

PRE-SOAK

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL

PERCOLATION TEST

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
8:44	9	8	59	48.0	60.0	12.0
8:52						
8:52	10	7	66	48.0	60.0	12.0
8:59						
8:59	11	8	74	48.0	60.0	12.0
9:07						
9:07	12	9	83	48.0	60.0	12.0
9:16						
9:16	13	8	91	48.0	60.0	12.0
9:24						
9:24	14	9	100	48.0	60.0	12.0
9:33						
9:33	15	10	110	48.0	60.0	12.0
9:43						
9:43	16	10	120	48.0	60.0	12.0
9:53						

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Client: Amir Development Company	**Tested By:** J.S. Jr.
Project No.: 21889-20	**Date Tested:** 6/25/2020
Test Hole: 2	**Caving:**
Depth of Test Hole: 10'	**Notes:**
Diameter of Test Hole: 6"	
Date Excavated: 6/25/2020	

PRE-SOAK

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
8:10	1	5	5	108.0	120.0	12.0
8:15						
8:15	2	7	12	107.0	120.0	13.0
8:22						

PERCOLATION TEST

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
8:22	1	8	8	107.0	120.0	13.0
8:30						
8:30	2	9	17	107.0	120.0	13.0
8:39						
8:39	3	9	26	107.0	120.0	13.0
8:48						
8:48	4	8	34	108.0	120.0	12.0
8:56						
8:56	5	8	42	108.0	120.0	12.0
9:04						
9:04	6	10	52	107.0	120.0	12.0
9:14						
9:14	7	10	62	107.0	118.0	11.0
9:24						
9:24	8	10	72	108.0	119.0	11.0
9:34						

PERCOLATION TEST DATA

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Client: Amir Development Company	**Tested By:** J.S. Jr.
Project No.: 21889-20	**Date Tested:** 6/25/2020
Test Hole: 2	**Caving:**
Depth of Test Hole: 10'	**Notes:**
Diameter of Test Hole: 6"	
Date Excavated: 6/25/2020	

PRE-SOAK

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL

PERCOLATION TEST

TIME	PRE-SOAK NO.	TIME INTERVAL	TOTAL ELAPSED TIME	INITIAL WATER LEVEL	FINAL WATER LEVEL	CHANGE IN WATER LEVEL
9:34	9	10	82	108.0	119.0	11.0
9:44						
9:44	10	10	92	108.0	118.0	10.0
9:54						
9:54	11	10	102	107.0	118.0	11.0
10:04						
10:04	12	10	112	108.0	119.0	11.0
10:14						
10:14	13	10	122	107.0	117.0	10.0
10:24						

SOIL INFILTRATION RATE CALCS ⇒ Auger Boring

Location:	TH-1	TH-2
• Depth =	5.0'	10.0'
• Hole Dia. =	6"	6"
• Drop = Δd	12"	10"
• Time = Δt Interval	10 min	10 min
• Preadjusted Perc. Rate	72 in/hr	60 in/hr
• Initial Water Depth = d_1	12"	13"
• Reduction Factor = R_f	3.0	3.7
• INFILTRATION RATE	24 in/hr	16.4 in/hr

$$\text{Infiltration Rate} = \frac{\text{Pre adjusted Perc. Rate}}{\text{Reduction Factor}}$$

$$\text{Reduction Factor} = R_f = \left[\frac{2 \cdot d_1 - \Delta d}{\text{Dia.}}\right] + 1$$

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Job No. 21889-20 | DATE JULY, 2020

SOIL INFILTRATION RATE CALCS ⇒ Auger Boring

Location:	B-3	B-4
• Depth =	11.0'	11.5"
• Hole Dia. =	6"	6"
• Drop = Δd	5"	9.5"
• Time = Δt Interval	10 min	10 min
• Preadjusted Perc. Rate	30 in/hr	57 in/hr
• Initial Water Depth = d_1	20"	20"
• Reduction Factor = R_f	6.83	6.08
• INFILTRATION RATE	4.4 in/hr	9.4 in/hr

$$\text{Infiltration Rate} = \frac{\text{Preadjusted Perc. Rate}}{\text{Reduction Factor}}$$

$$\text{Reduction Factor} = R_f = \left[\frac{2 \cdot d_1 - \Delta d}{\text{Dia.}}\right] + 1$$

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SOIL INFILTRATION RATE CALCULATIONS

DATE