



Project No.
10269.000.000

June 11, 2013

Mr. Kevin Ebrahimi
SummerHill Homes
777 S. California Avenue
Palo Alto, CA 94304

Subject: Cannae Property – 5.9 Acres
5850 West Las Positas Boulevard
Pleasanton, California

GEOTECHNICAL FEASIBILITY EVALUATION

Dear Mr. Ebrahimi:

As authorized by you, this letter contains the results of our geotechnical feasibility evaluation at the Cannae Property located at 5850 West Las Positas Boulevard in Pleasanton, California. The purpose of our evaluation was to review site documents, available geologic maps, perform a site reconnaissance, and conduct limited subsurface exploration to render our opinion from a preliminary standpoint of the main geotechnical considerations with regards to redevelopment of the property as a planned apartment residential development.

We understand that the contemplated redevelopment at this site will include a 177-unit apartment residential community with associated streets, underground utilities, and landscaping. The existing site development will be demolished and removed. The site grading is anticipated to include maximum cuts and fills less than 2 to 3 feet. The apartment buildings are anticipated to have floor levels near existing site grades.

SITE DESCRIPTION

The property, located at 5850 W. Las Positas Boulevard, is currently occupied by an 83,500± ft² single-story office building and appurtenant parking areas. The site is generally a flat business park and is located across the street from Hart Middle School. The lot is bounded by Las Positas Boulevard to the north, office buildings on adjacent lots to the east and west, and the Arroyo Mocho Canal on the south boundary of the site.

The existing building at the site was constructed circa 1980's. Based on review of historic aerial photographs it is apparent that before development of the area, land use was agricultural. A canal formerly crossed the northwest corner of the project site. This canal is referred to as the Hewlett Canal on historic topographic maps. Historic aerial photographs indicate that this canal was filled sometime in the 1970's before the existing commercial development of the site.

GEOLOGY

The property is not located within a State of California Earthquake Fault Zone (1982) for known active faults. No faults are shown crossing the site on available published geologic maps. The nearest known active fault is the Calaveras, located approximately 2 miles southwest of the project site.

The State of California Seismic Hazard Zone Map indicates that the Arroyo Mocho Canal, directly adjacent to the property, is an area with potentially liquefiable soils. Other published liquefaction hazard maps show the potential for liquefaction at the site as moderate to high (Witter & Wentworth 2006, Knudsen & Wentworth 2000).

Soils at the site are mapped as Holocene alluvial terrace and basin deposits comprised of very fine silty clay (Graymer 1997). The creek and watershed map for the Dublin and Pleasanton area shows the project site within the 1874 boundary of a lagoon known as Tulare Lake that once occupied the central portion of the Amador Valley (Sowers 2003). Based on our experience in the region, sediments deposited in this lagoon are typically found to be moderately compressible, normally consolidated clays.

CITY OF PLEASANTON DOCUMENT REVIEW

The City of Pleasanton was contacted in an effort to obtain previous geotechnical reports in the vicinity of the site. No geotechnical reports for the 5850 West Las Positas Boulevard property were available from the City. Soils reports for lots on the north side of Las Positas Boulevard were available for review, however; boring exploration at these sites was apparently limited to depths of about 15 to 20 feet.

LIMITED FIELD EXPLORATION

ENGEO explored the project site on May 14, 2013, by advancing three CPT probes at the approximate locations shown on a figure in Appendix A. The CPT probes were advanced to depths of approximately 40 to 50 feet below existing grades (bgs). CPT-1 was terminated at 50 feet bgs, and CPT-2 and CPT-3 were extended to depths of 48 and 38½ feet, where these encountered refusal. The CPT locations were established by visual sighting from existing features and should be considered accurately located only to the degree implied by the method used. A report summarizing the CPT data was provided by California Push Technologies Incorporated and is attached in Appendix A. Classification of the soil is based on correlations to CPT results, as no soil samples were collected during exploration.

SUBSURFACE CONDITIONS

The site has been previously graded and developed with the existing single-story office building and appurtenant parking and landscape areas. It is underlain by existing man-made fills

associated with the previous grading and existing development. Below the near surface fills, natural deposits consist of stiff to hard, moderately to low compressibility clays and silty clays. The near surface clay deposits are considered moderate to highly expansive when subject to changes in moisture content. These deposits were encountered to approximate depths of 40 feet below existing grade in our three CPT holes. Below approximately 40 feet, the CPTs encountered sandy silts and silty sands; within this layer there are local, relatively thin interspersed lenses of sands between considered marginally susceptible to liquefaction.

GEOTECHNICAL CONSIDERATIONS

From a geologic and geotechnical standpoint, the study area appears to be suitable for the proposed development contingent on proper engineering design and construction measures to mitigate geotechnical hazards. A design-level geotechnical analysis should be performed as part of the design process. The main geotechnical concerns for the proposed site development include: (1) expansive soils, (2) seismic hazards, and (3) proper grading and foundation design. These items are discussed below and should be considered in the initial planning for the project site.

Expansive Soils -- A significant geotechnical concern is the expansive nature of the native soils in the proposed development area. Based geotechnical information in the area the clayey soils on the site may have high plasticity with Plasticity Indices (P.I.) above 30. Expansive soils shrink and swell as a result of seasonal fluctuation in moisture content. This can cause heaving and cracking of slabs-on-grade, pavements and structures founded on shallow foundations. Building damage due to volume changes associated with expansive soils can be reduced by underlaying structures with imported low expansive material or treating the existing material with lime.

The planned development should include considerations for moisture conditioning and compaction within selected range for the expansive soils. Additionally, to reduce adverse effects from expansive soils building floor slabs and exterior concrete flatwork should consider underlayment with adequate thickness of select "low to non" expansive import fill, or alternatively the use of lime treatment to reduce adverse effects of highly expansive soils. Appropriate foundation and site subdrainage and surface drainage should be considered in design.

Seismic Hazards -- No known active faults cross the subject property and the site is not located within the Alquist-Priolo Earthquake Fault Zone. In our opinion, the potential for ground rupture is low. The nearest active fault is the Calaveras fault, which is located 2 miles southwest of the project site. Other active faults in the San Francisco Bay Area capable of producing significant ground shaking at the site include the Hayward Fault, mapped approximately 9 miles west of the site, the Greenville Fault, mapped approximately 10 miles east of the site and the San Andreas Fault mapped approximately 27 miles west of the site. To mitigate the ground shaking effects, all structures should be designed using sound engineering judgment and the latest California Building Code (CBC) requirements as a minimum.

Although the site is mapped within an area that has moderate to high liquefaction potential, brief analyses of CPT results show no liquefaction hazard within the first 40ft of soil on the site. Some thin lenses between 40 and 50 show marginal liquefaction hazard, but we see these as a minor risk. In the event that these deep lenses liquefy, resulting settlements are expected to be less than 1 inch. Resulting differential settlements are within tolerable ranges and can be addressed with shallow foundations. Foundations should be designed to tolerate minor potential seismic settlement.

Existing “Man-Made” Fill - Fill placed prior to the development of the area may be encountered throughout the site. Potential fills may be up to 3 feet thick and could require overexcavation and recompaction, depending on whether these were placed as engineered fills or if these are undocumented. As identified in historic aerial photographs, a canal previously crossed the northwest corner of the site. As of the date this report was prepared, we have not been able to obtain documentation for placement of the fill in the canal. Additional geotechnical exploration should be performed in order to confirm existence of the fill within the project area, identify the extent of the fill, and evaluate the composition and properties of the material for geotechnical engineering recommendations.

Preliminary Foundation Considerations

Preliminary settlement analyses show that the 3 to 4 level, wood-framed buildings may be supported on conventional shallow foundation systems provided that overall foundation loads are determined to be light to moderate. Although not anticipated for the planned residential development, if heavy foundation loads are determined, these must be evaluated as part of the design level geotechnical study of settlement potential to determine foundation design criteria, and/or whether alternate foundation support such as deep foundations are necessary to reduce settlements.

It is our preliminary evaluation that suitable shallow foundations may include continuous and spread footings combined with a slab on grade, or alternatively post tensioned structural mats. Settlement analyses for nearby properties have resulted in maximum allowable bearing pressures around 3,000 psf for shallow footings at the Hacienda Business Park. Based on the presence of expansive soils foundation embedment may be on the order of 24 inches or greater.

Based on CPT results, there is a 20-foot-thick layer of compressible clay across the site starting around 18 feet below the ground surface. Consideration for using deep foundations such as drilled piers may be necessary due the compressible clay layer that could result in several inches of settlement under heavier loads. Structural details for the building and further geotechnical explorations are needed before specific geotechnical recommendations regarding foundation design can be made.

LIMITATIONS

This letter is issued with the understanding that it is the responsibility of the owner to transmit the information and recommendations of this letter to developers, owners, buyers, architects, engineers, and designers for the project so that the necessary steps can be taken by the contractors and subcontractors to carry out such recommendations in the field. The conclusions and recommendations contained in this letter are solely professional opinions.

The professional staff of ENGEO strives to perform services in a proper and professional manner with reasonable care and competence, but is not infallible. There are risks of earth movement and property damages inherent in land development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our service.

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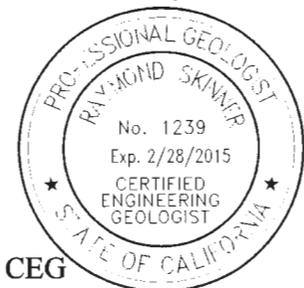
We look forward to working with you on this project. If you have any questions regarding the geotechnical aspects of the project, please call and we will be glad to discuss them with you.

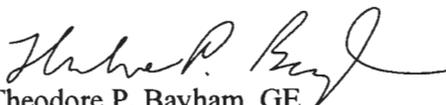
Sincerely,

ENGEO Incorporated


Cierra Atkinson, EIT


Raymond P. Skinner, CEG




Theodore P. Bayham, GE

Attachments: List of Selected References
Appendix A – Limited Field Exploration

SELECTED REFERENCES

State of California Earthquake Fault Zone. 1982. Dublin Quadrangle, California.

Helley and Graymer, 1997, Quaternary Geology of Alameda County and Surrounding Areas. Geologic Map of the Dublin Quadrangle, Solano County, California.

California Geological Survey. 2008. Seismic Hazard Zones Dublin Quadrangle.

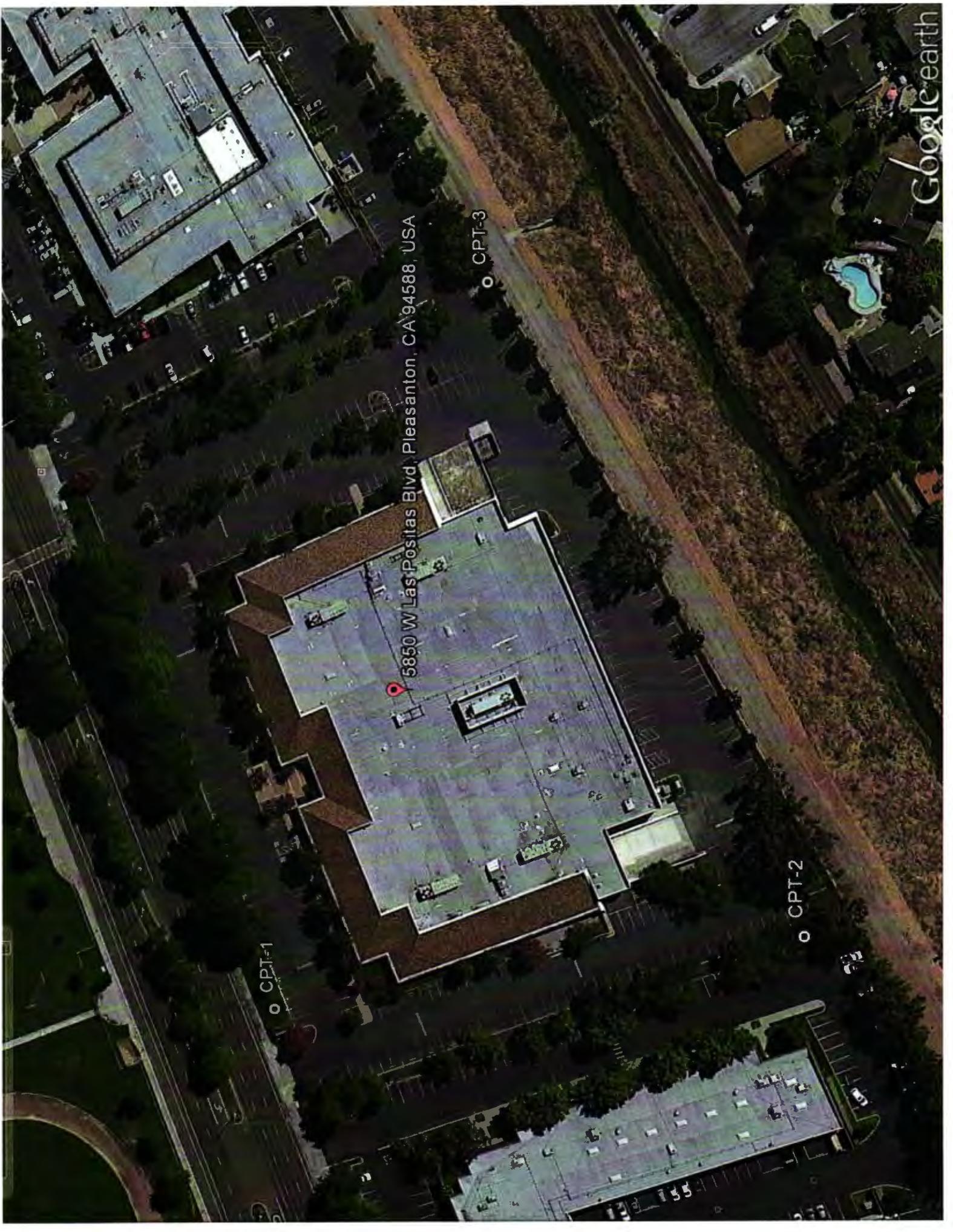
Sowers, Janet. 2003. Creek and Watershed of the Dublin and Pleasanton Area.

Witter and Wenterworth. 2006 Liquefaction Susceptibility in the Central San Francisco Bay Region, California. USGS.

Knudsen and Wentworth, 2000. Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California. USGS.

APPENDIX A

Limited Field Exploration

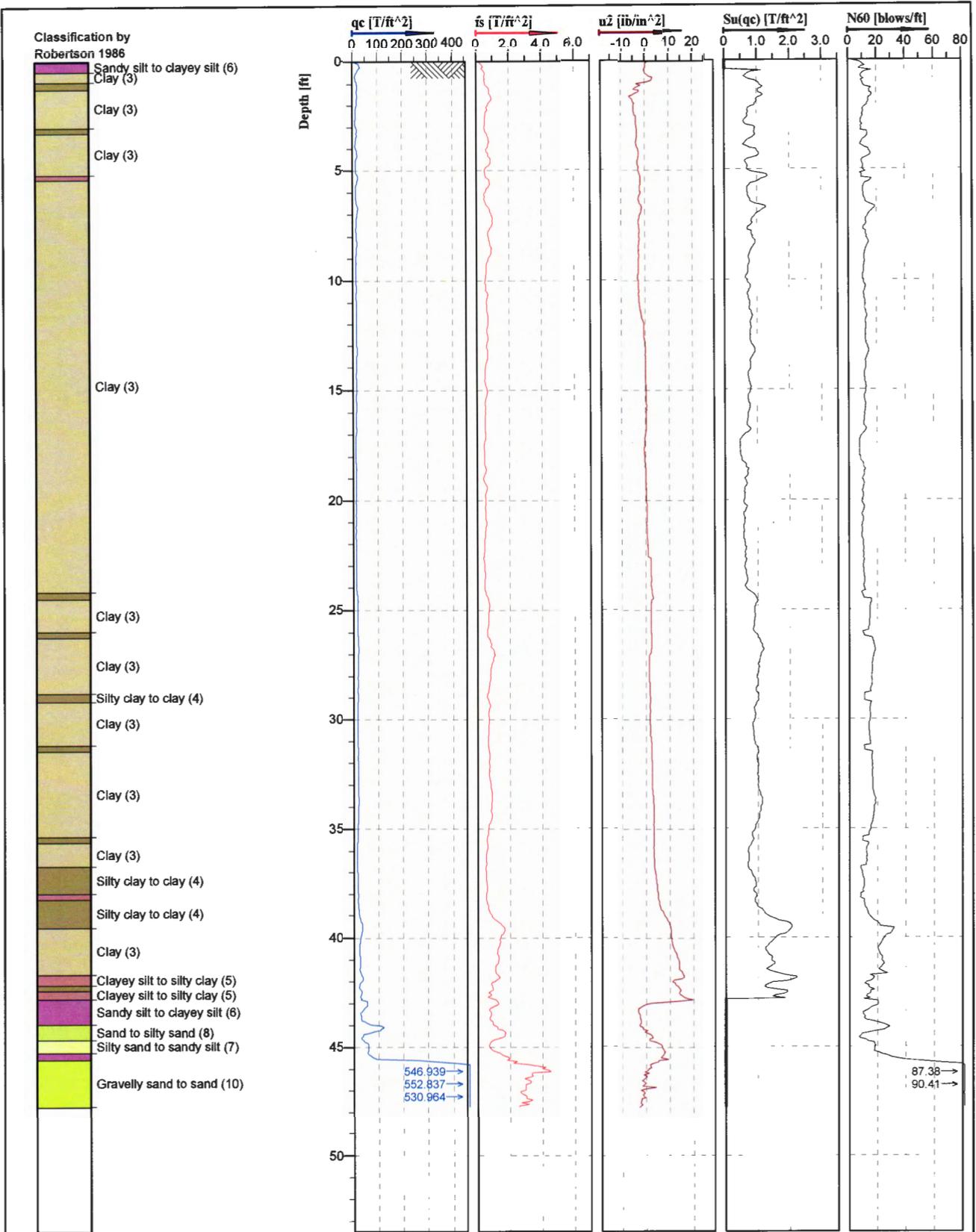


5850 W Las Positas Blvd, Pleasanton, CA 94588, USA

○ CPT-1

○ CPT-3

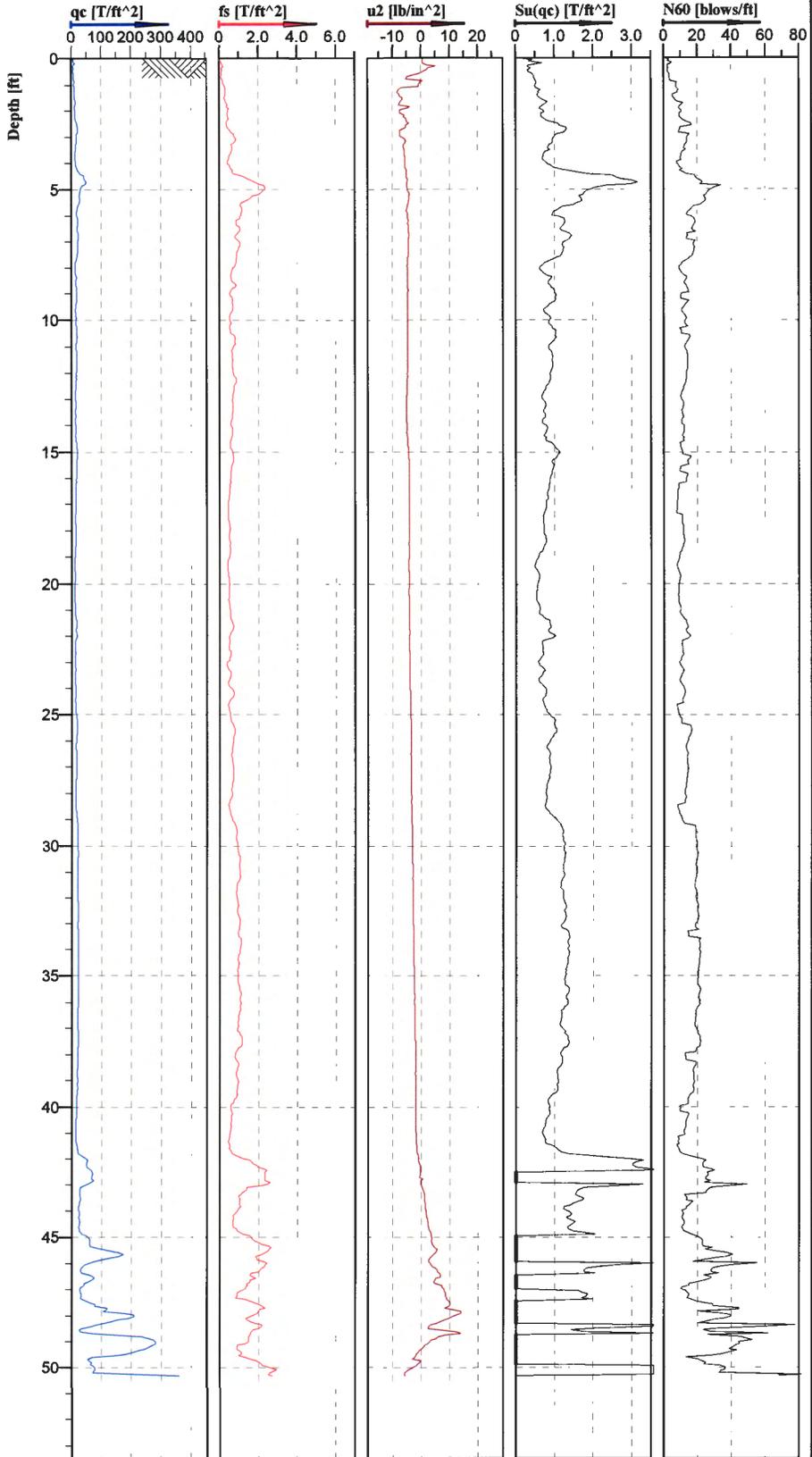
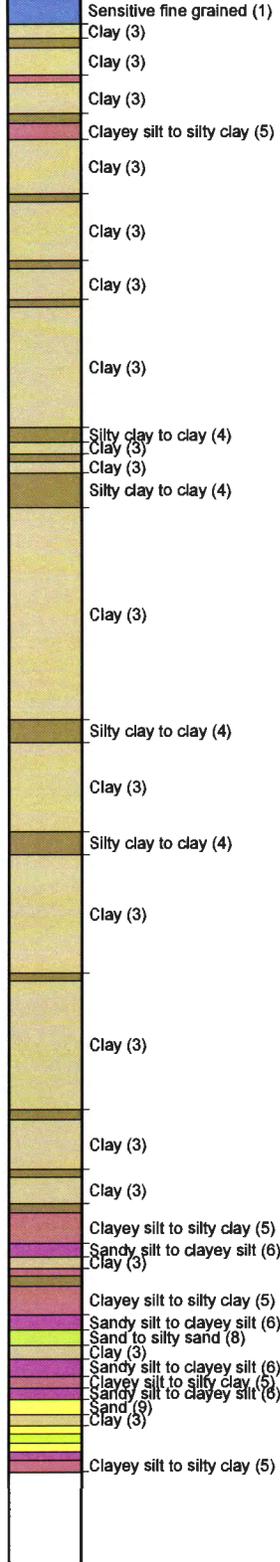
○ CPT-2




 Cone No: 4141
 Tip area [cm²]: 10
 Sleeve area [cm²]: 150

Location: Pleasanton, California	Position:	Ground level:	Test no: CPT-2
Project ID: P2013.000.506	Client: Engeo	Date: 5/14/2013	Scale: 1 : 75
Project: Cannae Property		Page: 1/1	Fig:
		File: CPT-2.cpd	

Classification by
Robertson 1986

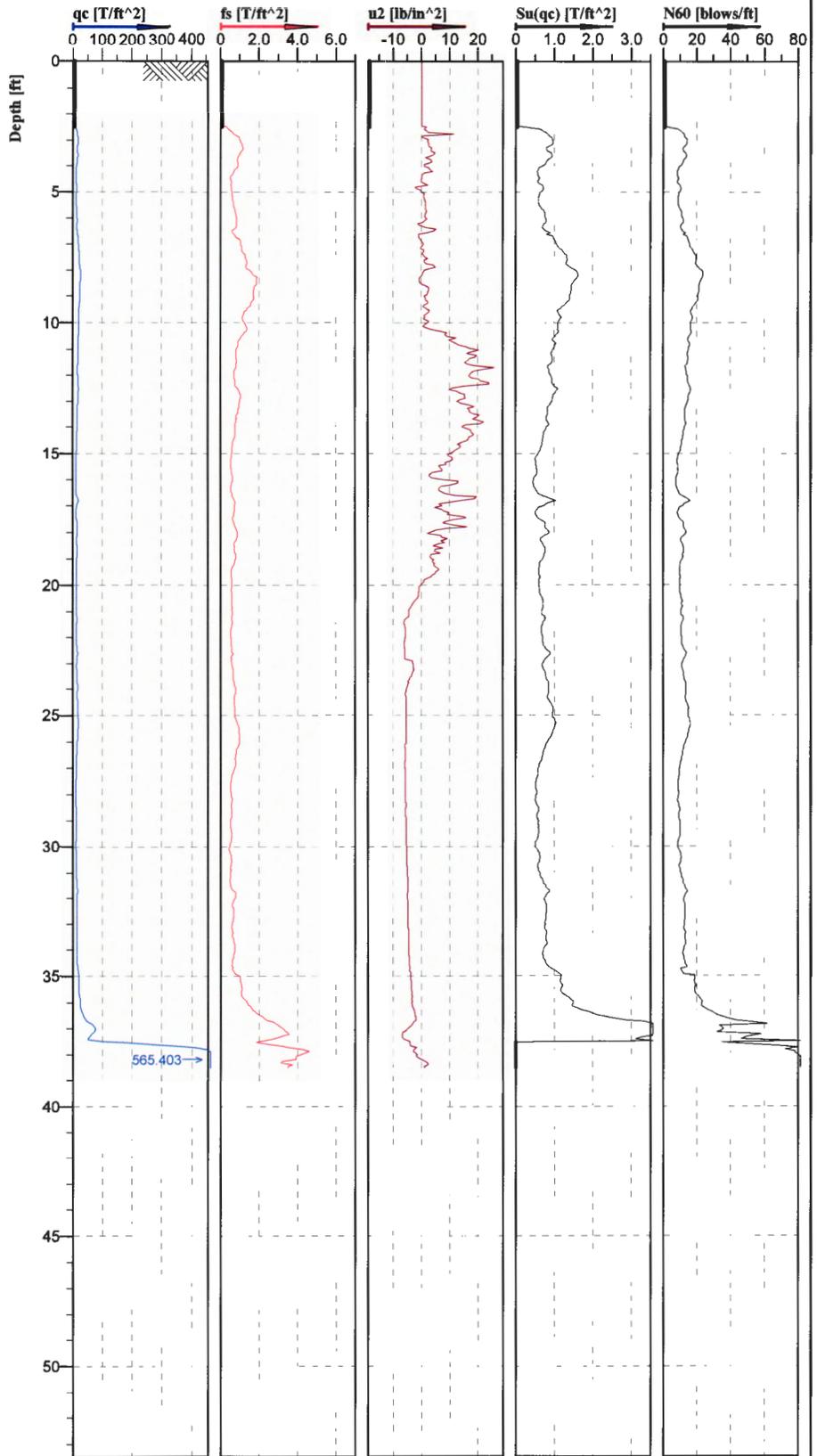


Cone No: 4141
Tip area [cm²]: 10
Sleeve area [cm²]: 150



Location: Pleasanton, California	Position:	Ground level:	Test no: CPT-1
Project ID: P2013.000.506	Client: Engeo	Date: 5/14/2013	Scale: 1 : 75
Project: Cannae Property		Page: 1/1	Fig:
		File: CPT-1.cpd	

Classification by
Robertson 1986



Cone No: 4141
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Pleasanton, California	Position:	Ground level:	Test no: CPT-3
Project ID: P2013.000.506	Client: Engeo	Date: 5/14/2013	Scale: 1 : 75
Project: Cannae Property		Page: 1/1	Fig:
		File: CPT-3.cpd	