CORNERSTONE EARTH GROUP

Date:	August 28, 2015
Project No.:	535-1-3
Prepared For:	Mr. Ed Abelite **CANYON CREEK PLAZA, LP** 5601 Silver Creek Valley Road San Jose, California 95136
Re:	Geotechnical and Geologic Hazards Report Update Canyon Creek Plaza 5601 – 5667 Silver Creek Valley Road San Jose, California

Dear Mr. Abelite:

This letter is to update our previous geologic and geotechnical reports. We have been provided with a set of plans titled "Planned Development Plan "Exhibit C", Canyon Creek Plaza, New Retail/Commercial Building to Existing Shopping Center, 5601-5667 Silver Creek Valley Road" prepared by LPMD Architects, and dated June 3, 2015.

As you know, we previously issued a report dated July 11, 2014 for the formerly proposed gas station and associated car wash facility. In addition, we have also provided the following letters for your use:

- "Geologic Hazards Evaluation, Canyon Creek Plaza, 5601 Silver Creek Valley Road, San Jose, California" dated June 10, 2013
- "Response to Geologic/Seismic Hazard Review, Canyon Creek Plaza, 5667 Silver Creek Valley Road, San Jose, California" dated September 15, 2014

As requested in Mr. Michael Shimamoto's (City of San Jose Geologist) August 24, 2015 email correspondence, the above referenced report and letters are included in Appendix A of this report update. This report update is for the new office/retail project as shown in the Site Plan, Figure 1.

PROJECT DESCRIPTIONS

The current project will include redeveloping the approximately ½-acre portion of the existing shopping center for a new retail and commercial development. The site will be located at the eastern end of the site. The approximately 8,400-square-foot triangular shaped one-story building will include 5 retail spaces and 7 office spaces. The retail spaces and offices will be located along the north and south sides of the building, respectively. A lobby and restroom areas will general separate the retail spaces from offices. New pavement areas, utilities, and other pertinent amenities will also be constructed as part of the overall redevelopment. The existing asphalt concrete pavement area will be reconfigured to accommodate the planned construction.

Structural loads are not known at this time, however loads are anticipated to be typical for these types of structures. Grading is anticipated to generally include minor cuts and fills on the order of 1 to 2 feet.

LITERATURE REVIEW

As part of our geologic hazards evaluations and this report update, we have reviewed previous consultants' reports and aerial photographs for the site and adjacent properties as referenced below.

PREVIOUS STUDIES

- "Seismic Trenching Investigation for Proposed Planned Community, Silver Creek Road," prepared by Terrasearch, Inc., dated March 25, 1988.
- "Geotechnical and Geologic Investigation, Silver Creek Valley Country Club," prepared by Kleinfelder, dated March 2, 1989. Volumes 1 and 2.
- "Supplemental Field Data, Silver Creek Valley Country Club," prepared by Kleinfelder, March 5, 1990.
- "Geologic and Preliminary Geotechnical Investigation, Proposed Canyon Creek Plaza, Silver Creek Valley Road," prepared by Kleinfelder, dated February 24, 1998.
- "Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated January 21, 1999.
- "Supplemental Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated November 1, 2000.
- Preliminary Geologic/Seismic Hazard Review Proposed Gas Station (PDC14-030) 5667 Silver Creek Valley Road, Project No. 14-024839-GC (3-12986), prepared by City of San Jose, Department of Public Works, Development Services Division, dated August 12, 2014.

REPORT UPDATE

CURRENT PROJECT

As mentioned above, the project now consists of a new retail and commercial building with at-grade improvements. The new project plans and building layout has incorporated our recommendations including the fault setback easement as denoted in Figure 1, Site Plan.

GEOTECHNICAL REPORT UPDATE

Based on our review, understanding, and engineering judgment, the recommendations provided in the original geotechnical report and letters as referenced above are still applicable and can be used for design of the currently planned retail/commercial project. We recommend that report and supplemental letters be referred to for additional recommendations. In addition, to

complete our role as the Geotechnical Engineer-of-Record, we should be retained to perform the following services:

- Review the project foundation plans
- Review the project grading plans
- Perform observation and geotechnical testing services during construction

CLOSURE

This letter has been prepared for the sole use of Canyon Creek PLaza, LP, specifically for the planned retail/commercial project located in San Jose, California. Our professional opinions and recommendations are prepared in accordance with generally accepted geotechnical engineering and geologic hazards principles and practices at this time and location.

No warranties are expressed or implied. If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

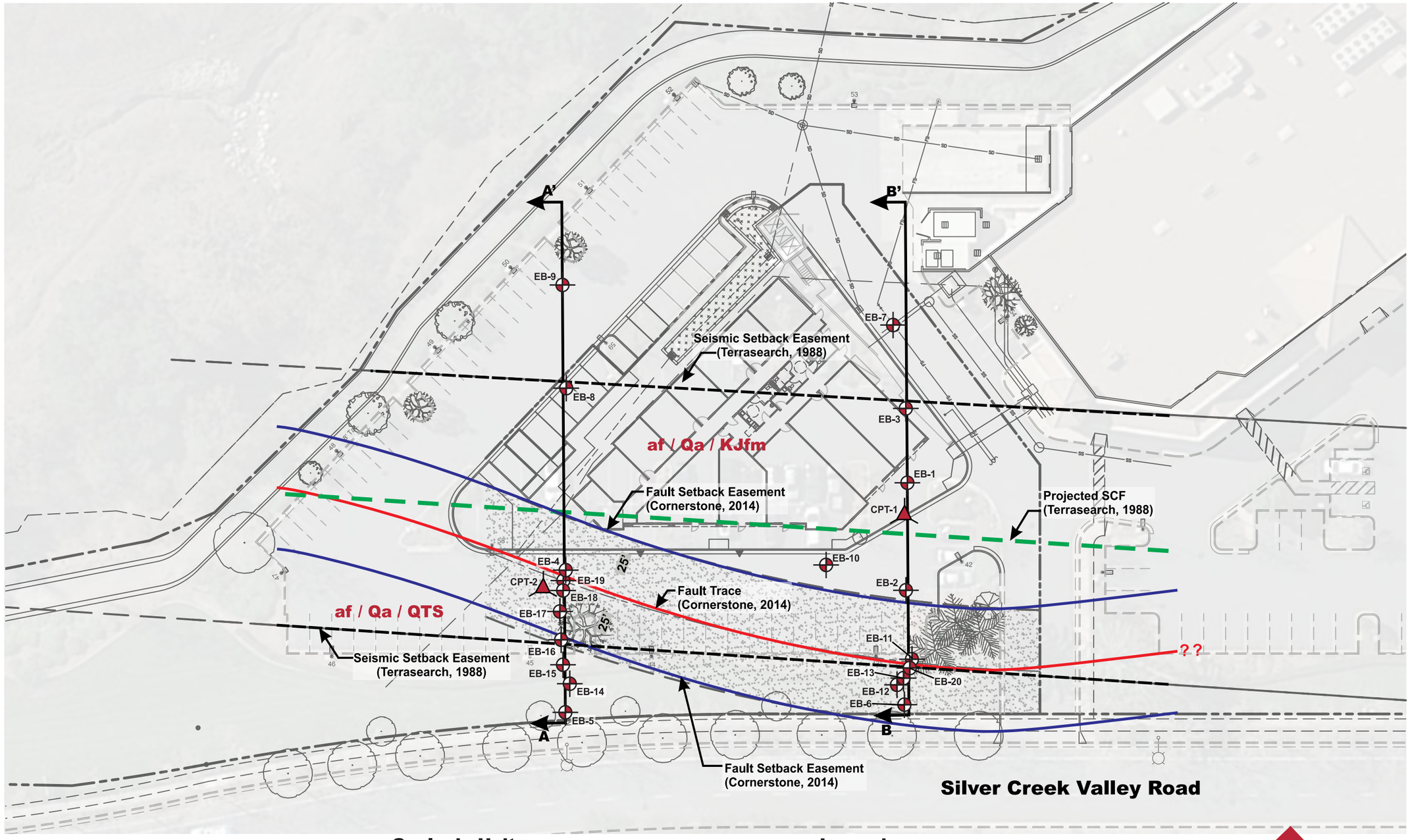
CORNERSTONE EARTH GROUP, INC.

Craig Harwood, C.E.G.
Senior Engineering Geologist

Danh T. Tran, P.E.
Senior Principal Engineer

Attachement: Figure 1, Site Plan
Appendix A, Previous Report and Letters, Cornerstone Earth Group

Copies: Addressee (by email)



Geologic Units

af	Artificial Fill
Qa	Alluvium (Quaternary)
QTS	Santa Clara Formation (Plio-Pleistocene)
KJfm	Franciscan mélange (Cretaceous and/or Jurasic)

Legend

- Approximate location of exploratory boring
- Approximate location of cone penetration test
- Approximate surface trace of Silver Creek Fault (This study)
- Approximate building exclusion zone (This study)
- Approximate seismic easement (Terrasearch, 1988)
- A A' Approximate location of geologic cross section

N

0 40 80

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 2/23/2014
Overlay by Charles W. Davidson Co., "Conceptual Site Plan - Sh. 4.1," dated 4/20/14

Project Number 535-1-3

Figure Number Figure 1

Date August 2015

Drawn By RRN

Site Plan

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP

APPENDIX A

CORNERSTONE EARTH GROUP, INC.

- "Geologic Hazards Evaluation, Canyon Creek Plaza, 5601 Silver Creek Valley Road, San Jose, California" dated June 10, 2013
- "Geologic and Geotechnical Investigation, Canyon Creek Plaza, 5601 to 5667 Silver Creek Valley Road, San Jose, California" dated July 11, 2014
- "Response to Geologic/Seismic Hazard Review, Canyon Creek Plaza, 5667 Silver Creek Valley Road, San Jose, California" dated September 15, 2014

CORNERSTONE EARTH GROUP

Date:	June 10, 2013
Project No.:	535-1-2
Prepared For:	Mr. Ed Abelite **CANYON CREEK PLAZA, LP** 5601 Silver Creek Valley Road San Jose, California 95136
Re:	Geologic Hazards Evaluation Canyon Creek Plaza 5601 to 5667 Silver Creek Valley Road San Jose, California

Dear Mr. Abelite:

This letter provides our geologic hazards evaluation and recommendations for the site referenced above. This letter summarizes our review of available materials pertaining to the site conditions, and our field investigations, and evaluation of the geologic hazards at the site, and design implications to date.

PROJECT UNDERSTANDING

The project consists of construction of a convenience store, gas station, and car wash to the southeast of the existing New Leaf Community Market (5667 Silver Creek Road).

For our use, we received the following plans: "Canyon Creek Gas Station, Convenience Store & Carwash, Silver Creek Valley Road, San Jose, California," prepared by M.I. Architects, dated April 24, 2013, Sheets 1, 3, 5A, 5B, 5C, and 5D.

LITERATURE REVIEW

As part of our geologic hazards evaluations, we reviewed previous consultants' reports and aerial photographs for the site and adjacent properties.

PREVIOUS STUDIES

We reviewed the following studies by other consultants. The findings of each are discussed in detail in the "Fault Rupture" Section of this letter.

- "Seismic Trenching Investigation for Proposed Planned Community, Silver Creek Road," prepared by Terrasearch, Inc., dated March 25, 1988.
- "Geotechnical and Geologic Investigation, Silver Creek Valley Country Club," prepared by Kleinfelder, dated March 2, 1989. Volumes 1 and 2.
- "Supplemental Field Data, Silver Creek Valley Country Club," prepared by Kleinfelder, March 5, 1990.

- "Geologic and Preliminary Geotechnical Investigation, Proposed Canyon Creek Plaza, Silver Creek Valley Road," prepared by Kleinfelder, dated February 24, 1998.
- "Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated January 21, 1999.
- "Supplemental Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated November 1, 2000.

AERIAL PHOTOGRAPHS

We reviewed six sets of black and white, stereo-paired aerial photographs and one pair of color infrared photographs taken between 1948 and 1974. In addition to the stereoscopic pairs of aerial photographs, we also reviewed selected individual (non-stereoscopic) aerial photographs and available images on-line (Google Earth, 1998 to 2012, Historicaerials.com, 1948 to 2005). A summary of our observations is provided below.

The site remained undeveloped until the late 1970's. The 1980 aerial photograph shows that a residence had been constructed on the site to the northeast of the New Leaf Market. No evidence of surface faulting such as tonal lineaments were observed between 1948 and 1998.

The site was developed with the current retail development between 1998 and 2000. The site has been paved since 2000.

Table 1. Stereo-Paired Aerial Photographs

Date	Scale	Photo ID	Type	Source
09/26/48	1:23,600	1HR000001091, 1HR000001091	B/W	USGS
08/15/53	1:23,600	1YF000040003 1YF000040021	B/W	USGS
04/05/66	1:21,670	M6609101R1005 M6609101R1000	B/W	McDonnell Douglas
10/01/68	1:21,670	M6845309L0275 M6845309L0276	B/W	McDonnell Douglas
04/29/70	1:32,500	M701580V80186 M701580V80187	B/W	McDonnell Douglas
07/22/74	1:21,665	5740018870151 5740018870158	Color IR	NASA-Ames

Note: USGS refers to U.S. Geological Survey, Menlo Park, California

GEOLOGIC SETTING

The subject property is located in southeastern Santa Clara County, along the margin between the Santa Clara Valley (to the west) and the Mount Hamilton Range (to the east). The area surrounding the site is known locally as the "Silver Creek Hills". The interface between these two physiographic regions is defined by a band of front-range faults, along which the mountains have risen and been thrust over the valley over the past 5 to 10 million years.

Within the region, the San Andreas Fault system, which distributes shearing across a complex assemblage of primarily right lateral, strike-slip, parallel and sub-parallel faults that includes the

Hayward and Calaveras faults. Western traces of a segment of the Calaveras Fault occur within the San Jose Foothills in the northeastern corner of the quadrangle. The Hayward Fault is farther west, near the base of the San Jose Foothills. The northwest-trending Silver Creek thrust fault bisects the Silver Creek Hills in the southeastern part of the quadrangle. Several smaller transpressive faults also are mapped within the quadrangle, primarily along the base of the San Jose Foothills. They include the Evergreen, Quimby, Piercy, and Clayton faults.

The northwest-trending Silver Creek Fault is a 40-km-long strike-slip fault in the eastern Santa Clara Valley, California, that has exhibited different behaviors within a changing San Andreas Fault system over the past 10-15 Ma (Wentworth, et al., 2010). The Silver Creek Fault played a significant, albeit changing role within the San Andreas Fault system for millions of years, and then at about 2 Ma it was abandoned in favor of slip on a northward extension of the Calaveras Fault, as is the case today. Evidence concerning continuation into the Holocene of this second Quaternary phase of deformation on the Silver Creek Fault is conflicting (Wentworth et al., 2010).

SITE CONDITIONS

GEOMORPHOLOGY

The property exists on a nearly flat lying terrace which has been incised by Silver Creek along its southwestern margin. The terrace slopes very gently toward the creek. The very gentle creekside terrace is the result of both fluvial processes (i.e., the creek) and alluvial fan deposition from the hillside east of the property. The southern edge of the terrace at the creek drops along an undulating moderately to steeply inclined slope to the active creek channel below. The overall relief at the creek bank varies slightly and is approximately 10 to 13 feet.

SUBSURFACE CONDITIONS

To evaluate the subsurface conditions at the site, we drilled twenty exploratory borings. The surficial geology at the site is mapped as late Pleistocene to Holocene alluvial fan deposits (CGS, 2002).

- Artificial Fill
- Quaternary Alluvium
- Plio-Pleistocene Santa Clara Formation (QTs)
- Cretaceous- to Jurassic-Age Franciscan Complex (KJfs, KJfg, KJfm)

Artificial Fill: The site is blanketed by up to 6 to 7 feet of artificial fill. The fill generally consists of stiff to very stiff clay with sand. Several Plasticity Index (PI) tests were performed on samples of the fill. The test results indicate that the fill is highly expansive.

Quaternary Alluvium: The site is covered with an accumulation of undifferentiated fluvial and alluvial deposits that has accumulated at the site due to fluvial processes and sheet wash from the surrounding hillsides. The alluvial deposits generally consisted of dense to very dense sands with varying fines content and very stiff to hard sandy lean clays.

Plio-Pleistocene Santa Clara Formation (QTs): The Santa Clara Formation is also called the Packwood Gravels in the southern portion of the San Jose East quadrangle (Crittenden, 1951). This unit generally consists of gravel and occasional or sparse beds of cobbles, silty and fine sandy conglomerate, fine silty sandstone, gravely to fine sandy siltstone, and minor olive-green

claystone beds. Numerous nonmarine red mudstone beds are noteworthy. It differs from other gravels in the map area in having clasts composed almost entirely of detritus from conglomerate and sandstone of the Cretaceous Great Valley sequence. The base is interbedded and coeval with the Silver Creek Gravels, but the top is younger, as it postdates and overlaps the Silver Creek thrust, which postdates the deposition of the Silver Creek Gravels.

Cretaceous- to Jurassic-Age Franciscan Complex (KJfm, KJfs, KJfg): The Franciscan Complex is a major structural rock complex in California, and consists of multiple tectonostratigraphic terranes characterized by different assemblages of rock types. In the 1500-acre Silver Creek Country Club development Kleinfelder (1989) characterized the Franciscan Complex as consisting of a highly sheared matrix of shale, graywacke or metagraywacke that contains an assortment of blocks and slabs of numerous rock types, including metagraywacke, argillite, chert, serpentinite, greenstone, amphibolite, tuff, eclogite, quartz schist, greenschist, basalt, marble, conglomerate, and blueschist and silicacarbonate. Individual blocks range in length from less than an inch to several hundred feet. Only some of the largest individual blocks in the Silver Creek area are shown on the local geologic map used for this study. Shale and serpentinite were exposed in the creekbank just southwest of the site. The shale is very dark gray and weak to strong and the serpentinite is greenish gray and weak in terms of rock strength. Typically, we encountered Franciscan mélange ("KJfm") in our borings which had a consistency like highly sheared claystone and included thin lenses of serpentinite. This is consistent with the Franciscan encountered elsewhere within the Canyon Creek development and at the Grisham property.

GROUND WATER

Perched ground water was encountered in those explorations that were located directly adjacent to the fault at depths ranging from approximately 16½ feet to 22½ feet below current grades. It is quite likely that the water moves freely through the granular Santa Clara Formation until it intersects the sheared clayey Franciscan mélange material at the fault. Specifically the local groundwater is impeded in its lateral migration by the substantially clayey material on the southwest side of the fault contact. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered. Unsaturated (dry) geologic material was encountered below the perched ground water levels in some of the borings.

Fluctuations in ground water levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

GEOLOGIC HAZARDS

FAULT RUPTURE

The Silver Creek Fault zone separates Franciscan Complex (Jurassic-Cretaceous) rocks on the southwest from Tertiary sedimentary rocks on the northeast. Serpentinite, mélange, greenstone and lesser amounts of chert and silica-carbonate rock are locally present along fault traces (McLaughlin, et al., 2004). The Silver Creek Fault does not exhibit clear evidence of topographic or Holocene stratigraphic offset and is no longer zoned by the State (Bryant, 1981; California Division of Mines and Geology, 1982). Fault traces along Yerba Buena Ridge had earlier been zoned by the State because they offset Plio-Pleistocene gravels (Bryant, 1981). The site is however located within a City of San Jose (1983) and Santa Clara County (2012) Fault Rupture Hazard Zone.

As already discussed, two traces of the Silver Creek Fault have previously been mapped as crossing the Silver Creek Valley in the general area of the site. The purpose of our investigation was to determine the location of the fault trace at the site and to establish a design setback. A detailed discussion of previous studies at the site and our fault investigation and findings are presented below.

Terrasearch (1988): Terrasearch performed a Seismic Trenching Study for the proposed 1,500-acre Silver Creek Country Club housing development. The project site is located at the far northern boundary of the Terrasearch study area. Terrasearch's initial study included twenty-five trenches and eighteen test pits focused on confirming two traces of the Silver Creek fault located originally in their reports (not available) from 1977, and 1978, and in 1980.

Terrasearch identified two traces of the Silver Creek fault zone which roughly parallel Silver Creek Valley road but diverge from one another in a southwesterly direction. Our review of the Terrasearch report indicates some of the trenches located further to the southwest present questionable evidence for the presence of faulting and the presence of Holocene movement.

They concluded the southeasterly strand "was found to be generally close to vertical at its northerly portion" (i.e. near the current project site). They discussed a creek bank exposure at the north end of their site (currently obscured by thick brush) that revealed horizontally bedded or stratified alluvium that was not disturbed over the exposed fault which cut bedrock. Of the alluvium they stated "it is entirely possible that they [the alluvial deposits] are not older than Holocene." Along the northeasterly strand they encountered evidence of topsoil disturbance located near fault exposures, but they acknowledged that possible alternate explanations exist for explaining these features (i.e., differential weathering and animal burrowing). Terrasearch concluded the fault was "at least potentially active."

They excavated two trenches (T-13 and T-22) and two test pits (TP-13A, and TP-13B) within Canyon Creek Plaza area. At these exposures they identified a near vertical fault zone defined by a juxtaposition of Franciscan bedrock (greywacke +/- serpentinite) on the southwest, against Santa Clara Formation on the northeast. They encountered localized groundwater adjacent to the northeast side of the fault exposure. They recorded shears within clay or claystone that were oriented dipping steeply (60° to 85°) to the north and which varied considerable in strike from N45°W to N85°W. Based on their study, a 100 foot wide "seismic setback easement" was recommended through the area along the projected surface trace of the southeasterly strand. The report and conclusions were later accepted by the City of San Jose. The "Seismic Setback Easement" is shown on Figure 1.

Kleinfelder (1989 & 1990): As part of their investigation for the Silver Creek Country Club, Kleinfelder drilled one boring (TB-29) in the southwestern portion of the site. The bedrock materials encountered in TB-29 are consistent with Franciscan Assemblage bedrock material.

The report discusses surface faulting of the Silver Creek Fault in relation to capital improvements, such as roads and public underground utilities. They conclude that special precautions related to capital improvements and faulting are not required.

Kleinfelder (1998): Kleinfelder performed a geotechnical investigation for the existing commercial and retail development. The bedrock materials encountered in the borings are consistent with Franciscan Assemblage material. Although the development was located within

a City of San Jose Fault Hazard Zone, since the structures were outside of the established setback, no further investigation was performed.

Current Investigation: To further characterize the Silver Creek Fault location within the proposed project area, we drilled twenty exploratory borings. In general, the borings encountered a stratigraphic sequence consisting of a near-surface layer of artificial fill, Quaternary alluvial deposits and older geologic formations. Our interpretation of subsurface geologic conditions is depicted on our Geologic Cross Sections A-A′ and B-B′ (Figures 2 and 3). The key findings of the drilling program with respect to interpretation of fault conditions are summarized below:

Two pre-Holocene geologic formations were encountered. The southwestern part of the transect (Borings EB-1, 2, 3, 4, 7, 8, 9, 10, and 11) encountered highly sheared claystone of the Franciscan Complex mélange. Plio-Pleistocene age Santa Clara Formation materials were encountered in the northeastern series of borings (EB-5, 6, 12, 13, 14, 15, 16, 17, 18, 19 and 20).

We noted that the borings within the Santa Clara Formation that were located nearest the fault contained ground water whereas the borings on the opposite side of the fault within the Franciscan claystone did not. The fault appears to impede natural groundwater flow from the higher elevation area located on the northeast side of the fault.

To summarize, our investigation confirms that the “southeasterly strand” of the Silver Creek Fault crosses through the eastern portion of the project site. The fault juxtaposes Santa Clara Formation on the northeast against Franciscan complex bedrock on the southwest. The fault appears to arc slightly more westerly as it crosses the development area.

Based on the State’s definition, faults are considered “active” if they display evidence of movement within Holocene time (the last 11,000 years), and “potentially active” if they display evidence of movement within Quaternary time (i.e., within the last 1.6 million years). Previous studies of the Silver Creek Fault at locations that include the site did not encounter evidence that Holocene age deposits have been offset. These same studies have revealed past fault offset within pre-Holocene age deposits; thus the fault is should not be considered active according to the State definition of activity. Based on these studies, and lack of geomorphic or geologic indications of Holocene activity, we judge the potential for surface fault rupture on the site to be low.

In accordance with more recent consultants’ investigations, we have established a 50-foot wide building exclusion zone along the mapped surface trace of the Silver Creek Fault, as is consistent with more recent zoning and regional zoning of potentially active faults in the region. The surface trace of the Silver Creek Fault, based on our explorations for this study, and our recommended building exclusion zone are shown on Figure 1. This recommended building exclusion zone should replace the previous “Seismic Setback Easement” of Terrasearch (1988).

GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. The design peak ground acceleration (PGA) of 0.40g was estimated using a value equal to S_{DS}/2.5 in accordance with the California Building Code.

LIQUEFACTION

The site is located within a California Seismic Hazard Zone for liquefaction (CGS, 2002) and a Santa Clara County Liquefaction Hazard Zone (Santa Clara County, 2012).

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (Youd et al., 2001). Liquefaction can result in ground rupture, foundation bearing failure, lateral spreading, or settlement of the ground surface.

As previously discussed, historic highest ground water in the area is mapped to be on the order of 20 feet or less below the ground surface. Ground water was encountered in our borings at depth of 16 to 28 feet.

The soils encountered in our borings were generally very stiff fine-grained soils and dense to very dense sands. We performed a liquefaction "triggering" analysis for each of the sand layers following the procedures described in Idriss and Boulanger (2008) and CGS Special Publication 117A guidelines (CGS, 2008) for quantitative analysis. All layers had factors of safety greater than or equal to 1.3, which is generally considered to be non-liquefiable. In our opinion, the potential for liquefaction to impact site developments should be considered low.

LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope.

The Silver Creek channel is approximately 11 to 13 feet deep. As discussed above, ground water is located at a depth of greater than 16 feet and the alluvial deposits are considered too dense to liquefy. Due to the absence of potentially-liquefiable soils, in our opinion, the potential for lateral spreading to affect the site is low.

LANDSLIDING

The site is not located within a California Seismic Hazard Zone for landsliding (CGS, 2002) or a Santa Clara County Landslide Hazard Zone (Santa Clara County, 2012). Due to the relatively flat topography, the potential for landsliding at the site may be considered low.

EXPANSIVE SOILS

The surficial fill and alluvial soils are moderately to highly expansive. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. Potential measures to reduce the potential for damage to the planned structures and slabs-on-grade, may include: employing grading and compaction methods to reduce potential volume change, providing sufficient reinforcement to resist expansive soil forces, and supporting foundations and/or slabs on a layer of non-expansive fill. Foundations should be designed to extend below the zone of seasonal moisture fluctuation or to resist uplift forces, or be designed to resist expansive soil forces. In addition, it

is important to limit moisture changes in the surficial soils by using positive drainage away from the building as well as limiting landscaping watering.

RECOMMENDATIONS

Development of the site for commercial use appears feasible from a geotechnical standpoint. The attached Figure 1 shows the trace of the Silver Creek fault and a 50-foot wide seismic setback for habitable structures. Based on recent conversations with the City of San Jose, we understand that non-habitable structures, such as a car wash, may be located within the setback zone.

We currently are in the process of preparing a geotechnical investigation report for the site, which will provide geotechnical design criteria for the proposed development.

CLOSURE

This report has been prepared for the sole use of Canyon Creek Plaza, LP, for the property located at 5601 Silver Creek Valley Road in San Jose, California. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices at this time and location. No warranties are expressed or implied.

If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

Cornerstone Earth Group, Inc.

Bernard R. Wair, P.E., G.E.
Senior Project Engineer

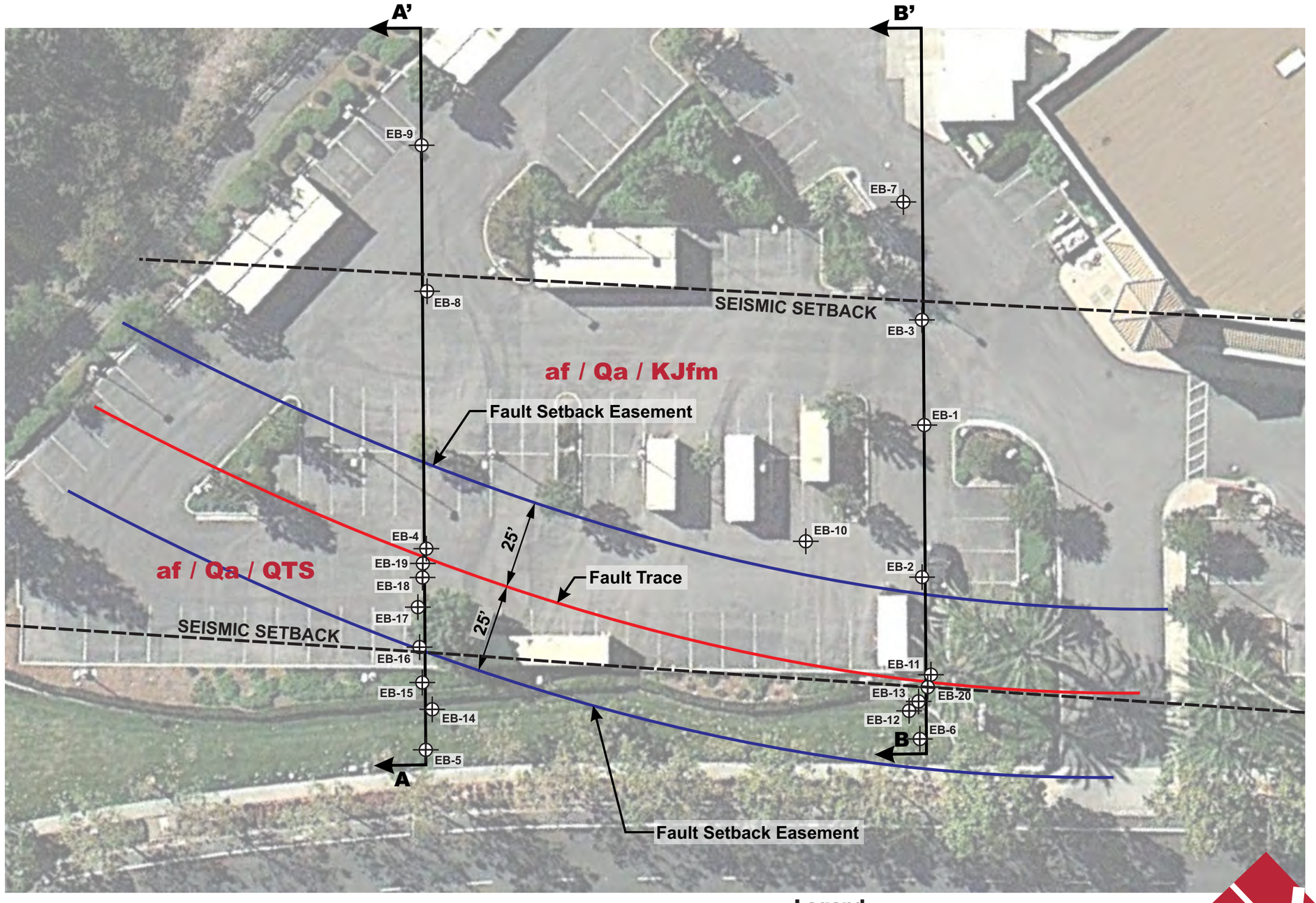
Craig Harwood, P.G., C.E.G.
Certified Engineering Geologist

Danh T. Tran, P.E.
Principal Engineer

DTT:BRW:CH

Attachments: Figure 1 – Site Plan
Figure 2 – Geologic Cross-Section A-A'
Figure 3 – Geologic Cross-Section B-B'
Borings EB-1 through EB-20

Copies: Addressee (by email)



Geologic Units

af	Artificial Fill
Qa	Alluvium (Quaternary)
QTS	Santa Clara Formation (Plio-Pleistocene)
KJfm	Franciscan mélange (Cretaceous and/or Jurasic)

Legend

- Approximate location of exploratory boring
- Approximate surface trace of Silver Creek Fault
- Approximate fault setback - 25 feet from surface trace
- Approximate seismic setback lines (Terrasearch, 1988)
- A A' Approximate location of geologic cross section

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APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/31/2011

Project Number 535-1-2

Figure Number Figure 1

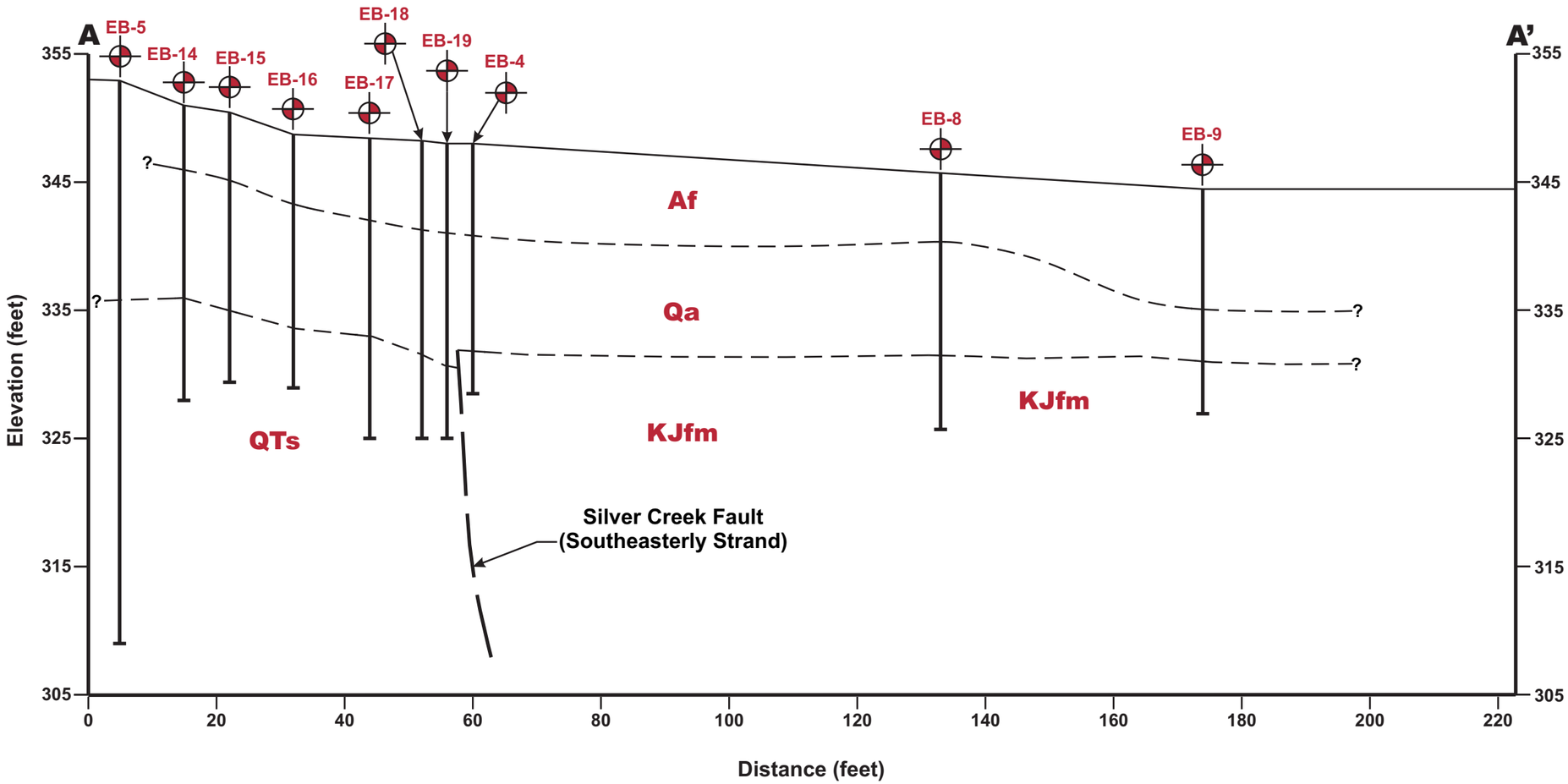
Date June 2013

Drawn By RRN

Site Plan

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



Section A-A'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Geologic Units

Af	Artificial fill
Qa	Quaternary alluvium
QTs	Plio-Pleistocene (Santa Clara Formation)
KJfm	Cretaceous to Jurassic-age (Franciscan Complex)

Symbols

- Approximate of bore hole location
- ?– – – Geologic contact; queried where approximate
- ——— Silver Creek Fault

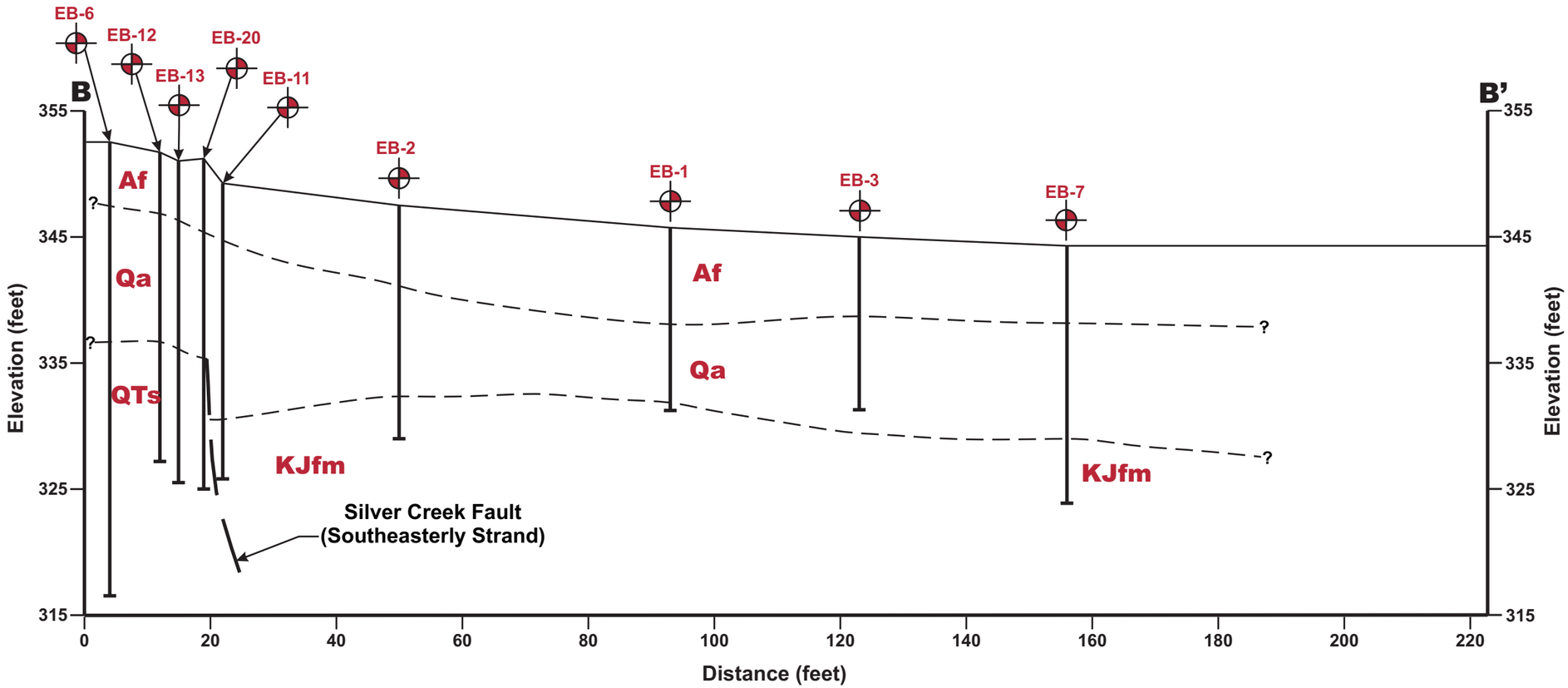
Notes:
1) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 2
Date June 2013
Drawn By RRN

Geologic Cross Section A-A'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



Section B-B'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Geologic Units

Af	Artificial fill
Qa	Quaternary alluvium
QTs	Plio-Pleistocene (Santa Clara Formation)
KJfm	Cretaceous to Jurassic-age (Franciscan Complex)

Symbols

- Approximate of bore hole location
- Geologic contact; queried where approximate
- Silver Creek Fault

Notes:
1) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 3
Drawn By RRN
Date June 2013

Geologic Cross Section B-B'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 14.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 14.25'
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		1¾ inches asphalt concrete over 3 inches aggregate base							
			Silty Clay (CL-ML) [Fill] moist, dark gray brown							
			Fat Clay (CH) [Fill] very stiff to hard, moist, very dark gray brown with gray mottles, trace fine subangular gravel, high plasticity	23	MC					○ 3.0
	5			39	MC					>4.5 ○
			Silty Sand with Gravel (SM) [Alluvium] dense to medium dense, moist, light gray brown, fine to coarse subangular to subrounded gravel	81	MC					
				50	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to medium dense, wet, gray brown, fine to coarse subangular gravel	72	MC					
				42	SPT					
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, olive brown, fine to coarse subangular gravel	71	MC					
	15		Bottom of Boring at 14.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 18.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay (CH) [Fill]** very stiff, moist, very dark gray brown, trace fine subangular gravel, high plasticity							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, greenish gray, fine subangular to subrounded gravel	27	MC					○
				43	MC					
			Silty Sand with Gravel (SM) [Alluvium] hard, moist, light olive brown, fine subangular to subrounded gravel	57	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, moist, yellowish brown to reddish brown	39	MC					
				63	MC					
				40	MC					
				46	MC					○
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	46	MC					
			dark gray, inclusions of reddish claystone and serpentinite	33	SPT					○
			Bottom of Boring at 18.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 13.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 8 inches aggregate base						
			Clayey Sand (SC) [Fill] medium dense, moist, gray brown, fine to coarse sand, trace fine subangular gravel	20	MC-1	95	15		
				2		93	34	48	
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity Liquid Limit = 67, Plastic Limit = 19	19	MC-4	91	29		
	5			40	MC				
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, gray with brown mottles, fine to coarse sand, trace fine subangular gravel						
				63	MC-8	122	14		40
	10								
			Poorly Graded Gravel with Clay and Sand (GP-GC) [Alluvium] very dense, moist, gray brown, fine to coarse subangular to subrounded gravel	50 1"	SPT				
			Bottom of Boring at 13.8 feet.						
	15								
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:09 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 19.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
AT TIME OF DRILLING Not Encountered
NOTES perched water at 15.5'
AT END OF DRILLING Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		3½ inches asphalt concrete over 4½ inches aggregate base							
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray brown to olive brown with white mottles, some fine to coarse subangular gravel	31	MC					>4.5
				49	MC					>4.5
	10		**Clayey Sand with Gravel (SC) [Alluvium]** dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50	MC					
				64	MC					
				43	MC					
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to very dense, moist to wet, olive brown, fine to coarse subangular gravel	62	MC					
				50 4"	MC					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, dark brown with white mottles, moist, trace fine subangular gravel	28	SPT					
				66	MC					
	20		Bottom of Boring at 19.5 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 44 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 28.5'
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay with Sand (CH) [Fill]** stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
			Drilled to 12' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, light olive brown with white mottles, some fine to coarse subangular gravel							
	10			53	MC					>4.5
				58	MC					
	15		becomes very stiff	42	MC					
				35	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular gravel	38	MC					
	20			55	MC					
				40	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense to dense, wet, olive brown, fine to coarse subangular gravel	47	MC					
	25			84	MC					
				50/5"	SPT					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
				50/5"	SPT					
				55	SPT					
	30		**Clayey Sand with Gravel (SC) [Franciscan Complex]** very dense, moist, olive brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	50/6"	SPT					
	35			50/5"	SPT					
	40			70	SPT					
				50/6"	SPT					
	45		Bottom of Boring at 44.0 feet.							
	50									
	55									

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/29/12 **DATE COMPLETED** 3/29/12
GROUND ELEVATION _____ **BORING DEPTH** 36 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 28.5 ft.
NOTES _____
▼ **AT END OF DRILLING** 28.5 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat / Lean Clay with Sand (CL/CH) [Fill]** moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 14' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Old Alluvium]** hard, moist, olive brown with white mottles, medium to coarse sand, fine gravel							
	10									
	15			58	MC					
			Silty Sand with Gravel (SM) [Santa Clara Formation] very dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
				50/6"	MC					>4.5
			Lean Clay with Sand (CL) [Santa Clara Formation] very stiff, moist, olive gray with dark gray mottles, medium to coarse sand	50/6"	MC					
	20		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded gravel	62	MC					
				58	MC					
			Clayey Sand (SC) [Santa Clara Formation] dense, moist, greenish brown	60	MC					
	25		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded	57	MC					
				47	MC					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			gravel							
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
	30		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, wet, gray brown, fine to coarse sand, fine to coarse subangular gravel	50	SPT					○ 4.0
				50/6"	MC					
			Sandy Lean Clay (CL) [Santa Clara Formation] hard, moist, yellowish brown, fine to coarse sand, some fine subangular gravel, moderate plasticity	50/6"	MC					
				50/5"	MC					
	35		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, yellowish brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/5"	MC					
			Bottom of Boring at 36.0 feet.							
	40									
	45									
	50									
	55									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-7

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL) 1.0 2.0 3.0 4.0
	0		3½ inches asphalt concrete over 7 inches aggregate base							
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 10' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, brown, fine to coarse sand,fine subangular to subrounded gravel							
	10			29	SPT-1		12		26	
				43	MC					
			Sandy Lean Clay (CL) [Alluvium] very stiff, moist, gray, fine sand, some fine to coarse subangular to subrounded gravel, moderate plasticity	33	MC-4	111	25			
	15			54	SPT					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	50 5"	MC					
				50 6"	SPT					
	20			50 6"	SPT					
			Bottom of Boring at 20.5 feet.							
	25									

BORING NUMBER EB-8

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity	49	MC-1	101	24		
			Clayey Sand with Gravel (SC) [Fill] medium dense, moist, yellowish brown and gray mottled, fine to coarse sand, trace fine subangular gravel	32	MC-3	105	21		
	5		**Fat Clay with Sand (CH) [Alluvium]** hard, moist, dark gray brown to olive brown with brown mottles, fine to medium sand, high plasticity	44	MC-6	111	19	41	
			Liquid Limit = 58, Plastic Limit = 17						
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	58	MC-8	119	16		46
	10								
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	40	NR				
	15			37	SPT				
				35	SPT				
	20		Bottom of Boring at 20.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-9

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3 inches asphalt concrete over 6 inches aggregate base						
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty						
			Drilled to 13' Soil Classification from auger cutting observations, depth of fill not determined						
	5								
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel						
	10		Liquid Limit = 38, Plastic Limt = 22	30	SPT-1		18	16	
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	38	SPT				
	15			36	SPT				
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-10

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity						
	5		Liquid Limit = 63, Plastic Limit = 18	27	MC-1	100	22	45	
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	19	SPT-3		14		35
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, wet, gray and brown, fine to coarse sand, fine to coarse subangular to subrounded gravel Liquid Limit = 24, Plastic Limt = 19	36	SPT-3		9	5	12
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	32	SPT-4		17		
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-11

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 13' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand (SC) [Alluvium]** dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	50 5"	MC				
			Lean Clay (CL) [Alluvium] very stiff, moist, olive brown, some fine sand, low to moderate plasticity	17	MC				
			Clayey Sand (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel	37	MC				
				27	MC				
	20		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, dark greenish olive to dark gray, trace fine subangular gravel, sheared fabric	47	MC				
				38	MC				
				34	MC				
			Bottom of Boring at 23.5 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 24.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 22 ft.
NOTES _____
▼ **AT END OF DRILLING** 22 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 15' Soil Classification above from auger cutting observations, depth of fill not determined							○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL 1.0 2.0 3.0 4.0
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	55	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive, fine to coarse subangular gravel	35	MC					
	20		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	51	MC					
▼			**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse subangular gravel	34	MC					
	25		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, moist, gray brown, fine to coarse sand,	35	MC					
				50/6"	MC					
				50/6"	MC					

Continued Next Page

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			fine to coarse subangular to subrounded gravel							
			Bottom of Boring at 24.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 25.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	50/6"	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, moist, yellow brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	28	MC					
	20		**Sandy Lean Clay with Gravel (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, fine subangular, low to moderate plasticity	43	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive with reddish brown mottles, fine to coarse subangular gravel	38	MC					
				55	MC					
	25		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense, wet, gray, fine to coarse	50/6"	MC					

Continued Next Page

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			subangular gravel							
			Silty Sand (SM) [Santa Clara Formation] dense, moist, olive							
			Bottom of Boring at 25.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-14

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, light gray, low to moderate plasticity							
			Clayey Sand (SC) [Santa Clara Formation] medium dense, moist, olive	42	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense, wet, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	38	MC					
	20		**Clayey Sand (SC) [Santa Clara Formation]** medium dense, wet, gray	21	MC					
			Poorly Graded Sand with Clay (SP-SC) [Santa Clara Formation] dense, wet, gray	50	MC					
			Bottom of Boring at 23.0 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-15

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, gray, fine to coarse angular gravel	50 5"	MC				
			Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50 3"	MC				
	20			58	MC				
			Well Graded Sand (SW) [Santa Clara Formation] medium dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	53	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-16

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 19.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation]** medium dense, moist, olive brown, fine to coarse sand, fine to coarse subangular	58	MC				
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, wet, brown, fine to coarse angular gravel	43	MC				
	20		**Well Graded Sand with Gravel (SW) [Santa Clara Formation]** dense, wet, brown, fine to coarse sand, fine to coarse subrounded gravel	50 4"	MC				
			Bottom of Boring at 19.8 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:08 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-17

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Clayey Sand (SC)** gray brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5								
			Lean Clay (CL) dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, yellow brown, fine to coarse sand, fine subrounded gravel	50	MC				
				58	MC				
	20		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense to dense, moist, fine to coarse subrounded gravel, light yellow brown	53	MC				
				79	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-18

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19.7 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense to dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	45 50 3" 50 2"	MC MC MC				
	20		Bottom of Boring at 19.7 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-19

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Poorly Graded Gravel with Clay and Sand (GP-GC)** very dense, moist, gray brown, fine to coarse subangular to subrounded gravel, fine to coarse sand						
	15			50 6"	MC				
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, wet, gray brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	91	MC				
	20		Bottom of Boring at 19.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-20

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 12/14/12 **DATE COMPLETED** 12/14/12
GROUND ELEVATION _____ **BORING DEPTH** 21.5 ft.
DRILLING CONTRACTOR Britton Exploration Services, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD CME 55 Track Rig, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay with Sand (CL)** moist, reddish brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	15		**Clayey Sand (SC)** medium dense, moist, yellow brown, fine to coarse sand, some fine subrounded gravel	50	MC				
			Poorly Graded Sand (SP) medium dense, moist, gray brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel, trace clay	41	MC				
				39	MC				
	20		**Clayey Sand (SC)** medium dense, moist, gray with light reddish brown mottles, fine to coarse sand, some fine subangular gravel	20	MC				
				28	MC				
			Bottom of Boring at 21.5 feet.						

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP

TYPE OF SERVICES	Geologic and Geotechnical Investigation
PROJECT NAME	Canyon Creek Plaza
LOCATION	5601 to 5667 Silver Creek Valley Road San Jose, California
CLIENT	Canyon Creek Plaza, LP
PROJECT NUMBER	535-1-2
DATE	July 11, 2014

GEOTECHNICAL

CORNERSTONE EARTH GROUP

Type of Services	**Geologic and Geotechnical Investigation**
Project Name	**Canyon Creek Plaza**
Location	**5601 to 5667 Silver Creek Valley Road San Jose, California**
Client	**Canyon Creek Plaza, LP**
Client Address	**5601 Silver Creek Valley Road San Jose, California 95136**
Project Number	**535-1-2**
Date	**July 11, 2014**

Prepared by

Craig Harwood, C.E.G.
Senior Engineer Geologist

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CORNERSTONE EARTH GROUP

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CORNERSTONE EARTH GROUP

Type of Services	**Geologic and Geotechnical Investigation**
Project Name	**Canyon Creek Plaza**
Location	**5601 to 5667 Silver Creek Valley Road** **San Jose, California**

SECTION 1: INTRODUCTION

This geologic and geotechnical investigation report was prepared for the sole use of Canyon Creek Plaza, LP for the proposed commercial project on Silver Creek Valley Road in San Jose, California. The project consists of construction of a convenience store, gas station, and car wash to the southeast of the existing New Leaf Community Market (5667 Silver Creek Road). The site location is shown on the Vicinity Map, Figure 1. For our use, we were provided with the following plans:

- Current Project Plans: "Canyon Creek Gas Station, Convenience Store, and Carwash, Silver Creek Valley Road, San Jose, California," prepared by M I Architects, Inc., dated April 24, 2013. Sheets SD1, 5A, and 5B.

- Previous Development Plans: "Site and Improvement Plan, Canyon Creek Plaza," prepared by MacKay & Somps Civil Engineers, Inc., dated July 1998. Sheets 1 through 6.

- Previous Grading Plans: "Roadway Grading and Drainage Plan, Canyon Creek Plaza," prepared by MacKay & Somps Civil Engineers, Inc., dated January 23, 1998. Sheets 1 through 3.

1.1 PROJECT DESCRIPTION

The project consists of construction of a convenience store, gas station, and car wash. The proposed development will be located within the existing parking lot to the southeast of the existing New Leaf Community Market (5667 Silver Creek Road). The project will consist of an approximately 2,000-square foot convenience store, carwash, two underground storage tanks, and a refueling canopy. The proposed improvements are shown on the Site Plan, Figure 2. The project will also include construction of underground utilities, concrete flatwork, pavements, and landscaping.

Structural loads were not provided to us; however, we assume that structural loads will be representative of this type of construction. We understand the only minor grading (cuts and fills of less than 3 feet) will be required.

1.2 SCOPE OF SERVICES

Our scope of services consisted of a review of previous published and unpublished geotechnical and geologic reports for the site and vicinity, field and laboratory testing programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis, development of design recommendations for site work and grading, building foundations, flatwork, and pavements, and preparation of this report. Brief descriptions of our exploration and laboratory programs are presented below.

1.3 LITERATEURE REVIEW

As part of our study, we reviewed previous studies of the Silver Creek Fault at the site and in the site vicinity. We reviewed the following reports. A detailed discussion of each report is included in the "Fault Rupture" Section of this report.

- "Seismic Trenching Investigation for Proposed Planned Community, Silver Creek Road," prepared by Terrasearch, Inc., dated March 25, 1988.
- "Geotechnical and Geologic Investigation, Silver Creek Valley Country Club," prepared by Kleinfelder, dated March 2, 1989. Volumes 1 and 2.
- "Supplemental Field Data, Silver Creek Valley Country Club," prepared by Kleinfelder, March 5, 1990.
- "Geologic and Preliminary Geotechnical Investigation, Proposed Canyon Creek Plaza, Silver Creek Valley Road," prepared by Kleinfelder, dated February 24, 1998.
- "Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated January 21, 1999.
- "Supplemental Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated November 1, 2000.

1.4 AERIAL PHOTOGRAPH REVIEW

We reviewed six sets of black and white, stereo-paired aerial photographs and one pair of color infrared photographs taken between 1948 and 1974. In addition to the stereoscopic pairs of aerial photographs, we reviewed selected individual (non-stereoscopic) aerial photographs on-line (Google Earth, 1998 to 2012, Historicaerials.com, 1948 to 2005). A summary of our observations is provided in Section 3.1.

Table 1. Stereo-Paired Aerial Photographs

Date	Scale	Photo ID	Type	Source
09/26/48	1:23,600	1HR000001091, 1HR000001091	B/W	USGS
08/15/53	1:23,600	1YF000040003 1YF000040021	B/W	USGS
04/05/66	1:21,670	M6609101R1005 M6609101R1000	B/W	McDonnell Douglas
10/01/68	1:21,670	M6845309L0275 M6845309L0276	B/W	McDonnell Douglas
04/29/70	1:32,500	M701580V80186 M701580V80187	B/W	McDonnell Douglas
07/22/74	1:21,665	5740018870151 5740018870158	Color IR	NASA-Ames

Note: USGS refers to U.S. Geological Survey, Menlo Park, California

1.5 EXPLORATION PROGRAM

Our field exploration consisted of drilling twenty exploratory borings and advancing two Cone Penetration Tests (CPTs). Borings EB-1 through EB-6 were drilled between March 1 and March 29, 2012. Borings EB-7 through EB-20 were drilled between October 31 and December 14, 2012. All borings were drilled using hollow-stem auger drilling equipment. Borings were advanced to depths of 14 to 44 feet.

Our CPTs were advanced on December 21, 2013, to depths of 20½ to 50 feet. CPT-1 encountered practical refusal conditions at the terminal depth of 20½ feet.

Our borings and CPTs were permitted and backfilled with cement grout in accordance with Santa Clara Valley Water District (SCVWD) requirements.

The approximate locations of our exploratory borings and CPTs are shown on the Site Plan and Geologic Map, Figure 2. Details of our field exploration program, including boring and CPT logs are included in Appendix A.

1.6 LABORATORY TESTING PROGRAM

Our laboratory program focused on characterizing the engineering properties of the subsurface soils. Testing included moisture contents, dry densities, washed sieve analyses, Plasticity Index tests, corrosion potential, and hydraulic conductivity. Details regarding our laboratory testing program and test results are included in Appendix B.

1.7 ENVIRONMENTAL SERVICES

Environmental services were not requested for this project. If environmental concerns are determined to be present during future evaluations, the project environmental consultant should review our geotechnical recommendations for compatibility with the environmental concerns.

SECTION 2: REGIONAL SETTING

2.1 GEOLOGICAL SETTING

The subject property is located in southeastern Santa Clara County, along the margin between the Santa Clara Valley (to the west) and the Mount Hamilton Range (to the east). The area surrounding the site is known locally as the "Silver Creek Hills". The interface between these two physiographic regions is defined by a band of front-range faults, along which the mountains have risen and been thrust over the valley over the past 5 to 10 million years.

Within the region, the San Andreas Fault system, which distributes shearing across a complex assemblage of primarily right lateral, strike-slip, parallel and sub-parallel faults that includes the Hayward and Calaveras faults. Western traces of a segment of the Calaveras Fault occur within the San Jose Foothills in the northeastern corner of the quadrangle. The Hayward Fault is farther west, near the base of the San Jose Foothills. The northwest-trending Silver Creek thrust fault bisects the Silver Creek Hills in the southeastern part of the quadrangle. Several smaller transpressive faults also are mapped within the quadrangle, primarily along the base of the San Jose Foothills. They include the Evergreen, Quimby, Piercy, and Clayton faults.

2.2 REGIONAL SEISMICITY

The San Francisco Bay area is one of the most seismically active areas in the country. While seismologists cannot predict earthquake events, the U.S. Geological Survey's Working Group on California Earthquake Probabilities 2007 estimates there is a 63 percent chance of at least one magnitude 6.7 or greater earthquake occurring in the Bay Area region between 2007 and 2036. As seen with damage in San Francisco and Oakland due to the 1989 Loma Prieta earthquake that was centered about 50 miles south of San Francisco, significant damage can occur at considerable distances. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances.

A regional fault map is presented as Figure 3, illustrating the relative distances of the site to significant fault zones. The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

Table 2: Approximate Fault Distances

Fault Name	Distance (miles)	Distance (kilometers)
Hayward (Southeast)	2.4	3.8
Calaveras (South)	5.0	8.1
Monte Vista-Shannon	6.2	10.0
Hayward	11.2	18.0
Sargent	12.9	20.7
San Andreas (Peninsula)	14.0	22.5

Note: Distances are from estimated surface projection of each fault.

SECTION 3: SITE CONDITIONS

3.1 SITE HISTORY

The following site history is based on our review of available aerial photographs and previous geotechnical reports and improvements plans. At the time of the 1948 photos the site contained a barn near what is the current northwest property line. The remainder of the property was as open land. The ground surface was barren except of wild grasses and weeds and the riparian vegetation along the creek was much more sparse than it is today, affording a good view of the ground surface. No tonal lineaments were noted. Two parallel drainages (gullies) traverse the slope just to the southeast of the site. One of these drainages appears to jog toward the northwest while the adjacent drainage does not. The Grisham property contained an existing residence. By 1966 a residence and storage structure or shop existed in the area where the employee parking lot exists (essentially – the subject site). The site was in agricultural mode (hay) and the vegetation along the creek was much more sparse than it is today, affording a good view of the ground surface.

The site remained undeveloped until the late 1970s. The 1980 aerial photograph shows that a residence had been constructed on the site to the northeast of the New Leaf Market. No evidence of surface faulting, such as tonal lineaments, was observed between 1948 and 1998.

The existing retail development was constructed between 1998 and 2000.

3.2 GEOMORPHOLOGY

The property exists on a nearly flat lying terrace, which has been incised by Silver Creek along its southern margin. The terrace slopes very gently toward the creek. The very gentle creekside terrace is the result of both fluvial processes (i.e., the creek) and alluvial fan deposition from the hillside east of the property. The southern edge of the terrace at the creek drops along an undulating moderately to steeply inclined slope to the active creek channel below. The overall relief at the creek bank is approximately 10 to 15 feet.

3.3 SURFACE DESCRIPTION

The site exists within a paved parking lot which is designated for employees of the adjacent "New Leaf" grocery store. Landscaping strips exist along the northeast edge and landscaped islands exist across the parking lot. On the north is Silver Creek Valley Road and beyond that is open space affiliated with Silver Creek Country Club. A paved pedestrian walking path exists just beyond the southwest edge of the parking lot adjacent to Silver Creek. Beyond the northwest of the parking lot are a number of smaller commercial businesses.

The 1998 grading plan indicates that site grades generally range from approximately Elevation 347 feet (datum not specified) in the northern portion of the project site to approximately Elevation 342 in the southwestern portions of the site along the pedestrian easement.

Pavement sections generally consisted of 3 to 3½ inches of asphalt concrete over 4½ to 8 inches of aggregate base. Based on visual observations, the existing pavements are in relatively good shape.

3.4 SUBSURFACE CONDITIONS

Our borings encountered four distinct materials at the site. Generally, artificial fill and alluvium overly the Santa Clara and Franciscan bedrock units. As discussed in previous sections, the Silver Creek Fault represents the contact between the Santa Clara and Franciscan bedrock units. The surface trace of the Silver Creek Fault is shown on the Site Plan, Figure 2. Two geologic cross-sections are drawn through the site, showing the subsurface geometry. Santa Clara formation bedrock was encountered to the northeast of the fault. Franciscan Complex bedrock was encountered to the southwest of the fault. The characteristics of each unit are discussed below:

Artificial Fill: The site is blanketed by up to 6 to 7 feet of artificial fill. The fill generally consists of stiff to very stiff clay with sand and medium dense to dense sands. Two Plasticity Index (PI) tests were performed on samples of the fill, resulting in PIs of 45 and 48. The test results indicate that the fill is highly expansive.

Quaternary Alluvium: The site is covered with an accumulation of undifferentiated fluvial and alluvial deposits that has accumulated at the site due to fluvial processes and sheet wash from the surrounding hillsides. The alluvial deposits generally consisted of dense to very dense sands with varying fines content and very stiff to hard sandy lean clays. The sandy alluvium was generally very dense to dense and contained various amounts of fine and gravel. Washed sieve analyses indicate that the fines content of the sands ranged from approximately 12 to 50 percent. Two Plasticity Index (PI) tests were performed on samples of the coarse alluvium. The tests indicate the soils have low to moderate plasticity fines.

The clayey alluvium was generally very stiff to hard based on SPT and CPT penetration resistance and pocket penetrometer results. One Plasticity Index (PI) test was performed on a sample of the clayey alluvium, which resulted in a PI of 41, indicating high plasticity and expansion potential.

Plio-Pleistocene Santa Clara Formation (QTs): The Santa Clara Formation is also called the Packwood Gravels in the southern portion of the San Jose East quadrangle (Crittenden, 1951). This unit generally consists of gravel and occasional or sparse beds of cobbles, silty and fine sandy conglomerate, fine silty sandstone, gravely to fine sandy siltstone, and minor olive-green claystone beds. Numerous nonmarine red mudstone beds are noteworthy. It differs from other gravels in the map area in having clasts composed almost entirely of detritus from conglomerate and sandstone of the Cretaceous Great Valley sequence. The base is interbedded and coeval with the Silver Creek Gravels, but the top is younger, as it postdates and overlaps the Silver Creek thrust, which postdates the deposition of the Silver Creek Gravels.

Cretaceous- to Jurassic-Age Franciscan Complex (KJfm, KJfs, KJfg): The Franciscan Complex is a major structural rock complex in California, and consists of multiple tectonostratigraphic terranes characterized by different assemblages of rock types. In the 1500-acre Silver Creek Country Club development Kleinfelder (1989) characterized the Franciscan Complex as consisting of a highly sheared matrix of shale, graywacke or metagraywacke that contains an assortment of blocks and slabs of numerous rock types, including metagraywacke, argillite, chert, serpentinite, greenstone, amphibolite, tuff, eclogite, quartz schist, greenschist, basalt, marble, conglomerate, and blueschist and silicacarbonate. Individual blocks range in length from less than an inch to several hundred feet. Only some of the largest individual blocks in the Silver Creek area are shown on the local geologic map used for this study. Shale and serpentinite were exposed in the creekbank just southwest of the site. The shale is very dark gray and weak to strong and the serpentinite is greenish gray and weak in terms of rock strength. Typically, we encountered Franciscan mélange ("KJfm") in our borings which had a consistency like highly sheared claystone and included thin lenses of serpentinite. This is consistent with the Franciscan encountered elsewhere within the Canyon Creek development and at the adjacent Grisham property.

3.3 GROUND WATER

Perched ground water was encountered in those explorations that were located directly adjacent to the fault at depths ranging from approximately 16½ feet to 22½ feet below current grades. Table 3 summarizes the depths which ground water was encountered at in our borings, where encountered. The water level at EB-6 was at 28½ feet but the ground surface is at least 4 feet higher than that at the adjacent boring locations. It is quite likely that the water moves freely through the granular Santa Clara Formation until it intersects the sheared clayey Franciscan mélange material at the fault. Specifically, the local groundwater is impeded in its lateral migration by the substantially clayey material on the southwest side of the fault contact. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered. Unsaturated (dry) geologic material was encountered below the perched ground water levels in some of the borings.

Fluctuations in ground water levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.

Table 3: Approximate Depth to Ground Water

Boring Number	Date Drilled	Approximate Ground Water Depth[1] (feet)
EB-4	3/01/12	16
EB-5	3/01/12	19.25
EB-6	3/29/12	28.5
EB-10	10/31/12	14.0
EB-12	11/20/12	22.0
EB-13	11/20/12	22.5
EB-14	11/20/12	19.0
EB-16	11/20/12	17.5
EB-18	11/30/12	18.0
EB-19	11/30/12	16.5

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT RUPTURE

Surface fault rupture involves shearing, differential movement, and ground breakage along the trace of the fault during moderate to strong earthquakes. The resulting movement can severely damage structures and utilities that are located across the fault trace. Thus, studies are undertaken to identify the location of fault traces, and to determine the activity of the fault. Evaluation of surface fault rupture is based on the premise that future fault rupture will take place along previous ruptures. Consequently, accurate determination of the location and character of previous fault ruptures is required for surface fault hazard assessment.

In terms of fault rupture hazard evaluations, faults are considered “active” if they display evidence of movement within Holocene time (the last 11,000 years), and “potentially active” if they display evidence of movement within Quaternary time (i.e., within the last 1.6 million years).

Two trace(s) of the Silver Creek Fault have previously been mapped as crossing the Silver Creek Valley in the general region of the site. The northwest-trending Silver Creek Fault is a 40-km-long strike-slip fault in the eastern Santa Clara Valley, California, that has exhibited different behaviors within a changing San Andreas Fault system over the past 10-15 Ma (Wentworth, et al., 2010). The Silver Creek Fault played a significant, albeit changing role within the San Andreas Fault system for millions of years, and then at about 2 Ma it was

abandoned in favor of slip on a northward extension of the Calaveras Fault, as is the case today. The fault zone generally separates Franciscan Complex (Jurassic-Cretaceous) rocks on the southwest from Tertiary sedimentary rocks on the northeast. Serpentinite, mélange, greenstone and lesser amounts of chert and silica-carbonate rock are locally present along fault traces (McLaughlin, et al., 2004).

Evidence concerning continuation into the Holocene of this second Quaternary phase of deformation on the Silver Creek Fault is conflicting (Wentworth et al., 2010). The Silver Creek Fault does not exhibit clear evidence of topographic or Holocene stratigraphic offset and is no longer zoned by the State (Bryant, 1981a, 1981b; California Division of Mines and Geology, 1982). Indeed, as Fenton and Hitchcock point out in the CDMG bulletin Engineering Geology Practice in Northern California; "The absence of clear Holocene offset and a lack of youthful geomorphic features along the Silver Creek fault indicate that it is either inactive or has a very low slip rate." (Fenton and Hitchcock, 2001). Some regional studies (including some of the most recent) also suggests there is lack of evidence or in some cases, inconclusive and conflicting evidence of the Silver Creek Fault being active in the Holocene, although most of these workers have expressed the need for further study (Bryant, 1981a, 1981b; Wiegers and Tryhorn, 1992; Fenton and Hitchcock, 2001; Hitchcock and Brankman, 2002; Wentworth et al., 2010). The southeasterly strand of the Silver Creek Fault may not be "active" from a regulatory standpoint, and may pose a low risk of damage from fault surface rupture during the design life of new structures. Few instrumentally recorded earthquakes are located near the fault, and those that are near its southern end represent cross-fault shortening, not strike slip. The fault might have been responsible, however, for two poorly located moderate earthquakes that occurred in the area in 1903 (Wentworth et al., 2010). Wentworth (2010) suggests that the Silver Creek Fault may have continued its strike-slip movement through the Holocene, but at a very slow rate. Such a slow rate would, at most, yield very infrequent damaging earthquakes. Wentworth opined that "If the 1903 earthquakes did, in fact, occur on the Silver Creek Fault, they would have greatly reduced the short-term future potential for large earthquakes on the fault."

The site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone (California Geologic Survey, San Jose East 7½-Minute Quadrangle). However, based on the work of Terrasearch (see below) within the Silver Creek Country Club (1988) the City of San Jose established a "Seismic Easement Setback" along the path or alignment of a mapped surface trace ("southeasterly strand") of the Silver Creek Fault.

This "Seismic Easement Setback" is 100 feet wide, extending 50 feet from either side of the mapped surface trace. To satisfy City of San Jose requirements, the current fault rupture hazard investigation was performed to further evaluate the potential for fault surface rupture at the site.

4.1.1 Previous Consultant's Studies in the Area

Several previous fault studies have been performed in the vicinity of the site, and these were compiled and reviewed in an effort to better constrain the locations of faults on or near the property. We understand an investigation was conducted by Earth Systems Consultants in

1999 on the site located to the northwest side of the Grisham Property but that report was not available for our review.

The results of the most relevant studies in regard to fault activity assessments are summarized below.

Terrasearch (1988): Terrasearch performed a Seismic Trenching Study for the proposed 1,500-acre Silver Creek Country Club housing development. The project site is located at the far northern boundary of the Terrasearch study area. Terrasearch's initial study included twenty-five trenches and eighteen test pits focused on confirming two traces of the Silver Creek fault located originally in their reports (not available) from 1977, and 1978, and in 1980.

Terrasearch identified two traces of the Silver Creek fault zone which roughly parallel Silver Creek Valley road but diverge from one another in a southwesterly direction. Our review of the Terrasearch report indicates some of the trenches located further to the southwest present questionable evidence for the presence of faulting and the presence of Holocene movement.

They concluded the southeasterly strand "was found to be generally close to vertical at its northerly portion" (i.e. near the current project site). They discussed a creek bank exposure at the north end of their site (currently obscured by thick brush) that revealed horizontally bedded or stratified alluvium that was not disturbed over the exposed fault which cut bedrock. Of the alluvium they stated "it is entirely possible that they [the alluvial deposits] are not older than Holocene." Along the northeasterly strand they encountered evidence of topsoil disturbance located near fault exposures, but they acknowledged that possible alternate explanations exist for explaining these features (i.e., differential weathering and animal burrowing). Terrasearch concluded the fault was "at least potentially active."

They excavated two trenches (T-13 and T-22) and two test pits (TP-13A, and TP-13B) within Canyon Creek Plaza area just northwest of the subject gas station site. At these exposures they identified a near vertical fault zone defined by a juxtaposition of Franciscan bedrock (greywacke +/- serpentinite) on the southwest, against Santa Clara Formation on the northeast. They encountered localized groundwater adjacent to the northeast side of the fault exposure. They recorded shears within clay or claystone that were oriented dipping steeply (60° to 85°) to the north and which varied considerable in strike from N45°W to N85°W. Based on their study, a 100 foot wide "seismic setback easement" was recommended through the area along the projected surface trace of the southeasterly strand. The report and conclusions were later accepted by the City of San Jose. The "Seismic Setback Easement" is shown on Figure 2. The report discusses surface faulting of the Silver Creek Fault in relation to capital improvements, such as roads and public underground utilities. They conclude that special precautions related to capital improvements and faulting are not required.

Geologic Investigation for Silver Creek Valley County Club (Kleinfelder, 1989, 1990): This large-scale investigation of the overall 1500 acre Silver Creek County Club development included the excavation of 194 exploratory test pits and trenches. Additionally, 16 exploratory borings were drilled and eight seismic refraction lines were conducted. Their field investigation resulted in a geologic map that covers the entire 1500-acre Silver Creek County Club property,

which provided a more comprehensive understanding of the geology of the area than previously available. One of their borings (B-29) was drilled just on the south side of the existing New Leaf grocery market, just south of the proposed fueling station. At this boring they identified Franciscan bedrock (intermixed serpentinite and greenstone) beneath the Holocene alluvial deposits. Groundwater was encountered at a depth of 29 feet at TB-29. We also noted intermixed serpentinite and Franciscan mélange at a creek bank exposure located just west of the TB-29 location.

Kleinfelder (1998): Kleinfelder performed a geotechnical investigation for the existing commercial and retail development. The bedrock materials encountered in the borings are consistent with Franciscan Assemblage material. Although the development was located within a City of San Jose Fault Hazard Zone, since the structures were outside of the established setback, no further investigation was performed.

Geologic/Geotechnical Investigations for the Grisham Property (Lowney Associates, 1999 and 2000): The Grisham property is located immediately adjacent to the northwest side of the Canyon Creek Plaza commercial center. A study of the Grisham property by Lowney Associates included two continuous trenches and four test pits as well as six exploratory borings. In 2000 Lowney conducted an additional three borings on the Grisham site. They encountered Franciscan mélange in many of their excavations which they characterized as claystone with small inclusions of serpentinite. They encountered Santa Clara Formation (Trench T-2) in the northeastern portion of the site which was observed to be dipping steeply (73° to 75°) toward the southwest. Within their Trench T-1 they encountered a south-southeast trending shear zone which juxtaposes older alluvium on the northeast against Franciscan mélange on the southwest. The angle of bedding within the older alluvium appeared to change over the fault. The trench could not be excavated deep enough to expose the Santa Clara Formation that underlies the older alluvium. The shear zone dips at a relatively shallow angle (~52°) and strikes in a southeast direction across the trench. The trench log shows the deformation style to be reverse and the shear dipping to the southwest. It also shows that fault offset dies out within the basal portion of the older alluvium and does not extend into the overlying residual soil. Lowney stated that they encountered a second shear at the bottom of the trench (deeper in the Pleistocene aged deposits) which appeared to have offset an animal burrow. This is a confusing conclusion as an animal burrow hole would be very recent (historic) and would not have been offset by a shear confined to Pleistocene aged deposits. This alluvium ("Qoa": Pleistocene) is older than the alluvium that exists at the subject site (Qal; Holocene). Subsequent exploratory borings by Lowney (2000) on the Grisham property refined the location of the fault as trending more easterly as it approaches the south property line (toward Silver Creek Valley Road). This geometry shows it trending toward the northeasterly strand fault (of Terrasearch) that parallels the north side of Silver Creek Valley Road rather than the southeasterly strand that crosses the subject fueling station/minimart site. Based on the work of Lowney Associates a narrower building exclusion zone equal to 50 feet wide (Lowney Associates, 1998, 2000); was established which is consistent with typical zoning for potentially active (non thrust geometry) faults in the region. The Lowney Associates conclusions and recommendations were later accepted by the City of San Jose.

Geologic Investigation for commercial building (currently Commerica Bank; 2012) located in Canyon Creek Plaza Commerical Center (Kleinfelder, 1998): This investigation was for a building site located within the same property (Canyon Creek Plaza) as the subject site and included the drilling of three borings. They identified clay (fill and Holocene alluvium) to depths of about 13 to 16 feet and highly weathered serpentinite located beneath the clay. Based on the lithology encountered, they placed the southeasterly fault trace just north of their building footprint close to (and parallel with) Silver Creek Valley Road.

Summary – Taken as a whole, the previous consultant's investigations performed within the area confirm that two strands of the Silver Creek Fault trend roughly parallel to Silver Creek Valley Road in the vicinity of the property: 1) a northeasterly strand is projected along the ridge located north of Silver Creek Valley Road, north of the subject site, and 2) a more southeasterly strand which trends through the property and crosses Silver Creek and continues southeast. The southeasterly strand, expressed as a substantially vertical trace extends through the area of the proposed fueling station/minimart. Although a few confusing statements have been offered in both the Terrasearch (1988) and the Lowney (1999) reports as to recency of faulting, none of the consultant investigations found conclusive evidence of Holocene-active faulting along either the northeasterly or the southeasterly strands of the Silver Creek fault. These findings are consistent with some of the more recent regional fault studies conducted by geologists along the Silver Creek fault (See Faulting).

4.1.2 Current Fault Investigation

The purpose of our investigation was to determine the location of the fault trace at the site and to establish a design setback for designated habitable structures. A detailed discussion of previous studies at the site and our fault investigation and findings are presented below.

Due to the anticipated poor trench stability of the coarse-grained alluvial soils, and expectation of encountering ground water, we were concerned that exploratory trenching would present a hazardous investigative situation and not be successful. Therefore, as an alternative to trenching, we developed a plan to determine the location of the fault by performing two parallel arrays of closely spaced exploratory borings across the mapped fault zone. The borings were planned to extend into pre-Holocene age geologic formations underlying the alluvial soils to evaluate changes in subsurface geometry and composition across the fault zone. Based on previous consultant's studies in the area, two geologic formations were anticipated across the fault zone; the Santa Clara Formation, and Franciscan Complex mélange.

Our borings totaled 20 and included geotechnical sampling as well as continuous sampling to identify subsurface earth materials. We laid out a boring transect oriented perpendicular across the possible zone of faulting. The boring locations are shown on the Site Plan, Figure 2.

Logs of Borings EB-1 through EB-20 are included in Appendix A, and our interpretation of subsurface geologic conditions is depicted on our Geologic Cross Sections A-A′ and B-B′ (Figures 4 and 5).

In general, the borings encountered a stratigraphic sequence consisting of a near-surface layer of artificial fill, Holocene-age alluvial deposits and older geologic formations. The key findings of the drilling program with respect to interpretation of fault conditions are summarized below:

- Two different pre-Holocene geologic formations were encountered. The southwestern part of the transect (Borings EB-1, 2, 3, 4, 7, 8, 9, and 11) encountered highly sheared claystone of the Franciscan Complex mélange. The geologic formation encountered in the northeastern series of borings (EB-5, 6, 12, 13, 14, 15, 16, 17, 18, 19, and 20) encountered sediments of the Plio-Pleistocene age Santa Clara Formation.

- We noted that the borings within the Santa Clara Formation that were located nearest the fault encountered ground water whereas the borings on the opposite side of the fault within the Franciscan claystone did not. The fault appears to impede natural groundwater flow from the higher elevation area located on the northeast side of the fault.

4.1.3 Conclusions

Our investigation confirms that the "southeasterly strand" of the Silver Creek Fault crosses the site just north of where Terrasearch (1988) had projected it (see Figure 2). The fault juxtaposes Santa Clara Formation on the northeast against Franciscan complex bedrock on the southwest. The fault appears to arc slightly more westerly than previously mapped as it crosses the development area and is at a very steep angle.

Based on the various studies cited in this report, and the results of our site-specific investigation, we judge the potential for primary tectonic fault rupture occurring at the site to be low. In accordance with more recent consultants investigations in the immediate area (i.e., Lowney Associates, 1999, 2000; Grisham Property), we have established a 50-foot wide building exclusion zone (extending 25 feet on wither side of the fault) along the mapped surface trace of the fault, as is consistent with local and regional zoning of high angle, potentially active faults in the region. This recommended building exclusion zone which is shown on our Figure 2 extends 25 feet on either side of the projected fault trace and should, in our opinion replace the previous "Seismic Setback Easement" of Terrasearch (1988).

4.2 ESTIMATED GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA_M) of 0.52g was estimated for our analyses based on the mapped 2013 California Building Code; see Section 7.1.

4.3 LIQUEFACTION POTENTIAL

The site is located within a California Seismic Hazard Zone for liquefaction (CDMG, 2000) and a Santa Clara County Liquefaction Hazard Zone (Santa Clara County, 2012).

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (Youd et al., 2001). Liquefaction can result in ground rupture, foundation bearing failure, lateral spreading, or settlement of the ground surface.

The soils encountered in our borings were generally very stiff fine-grained soils and dense to very dense sands. We performed a liquefaction "triggering" analysis for the CPT data for each of the sand layers following the procedures described in Idriss and Boulanger (2008) and CGS Special Publication 117A guidelines (CGS, 2008) for quantitative analysis. All layers had factors of safety greater than or equal to 1.3, which is generally considered to be non-liquefiable. Figures 6A and 6B present the results graphically. In our opinion, the potential for liquefaction to impact site developments should be considered low.

4.4 LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope.

The Silver Creek channel is approximately 10 to 15 feet deep. As discussed above, the alluvial deposits are considered too dense to liquefy. Due to the absence of potentially-liquefiable soils, in our opinion, the potential for lateral spreading to affect the site is low.

4.5 LANDSLIDING AND CREEK BANK STABILITY

As previously discussed, the site topography is slopes very gently toward Silver Creek southwest of the site. The slopes to the northeast side of Silver Creek Valley Road are moderately inclined and were created by the grading of the road. The Creek Bank along the northeast edge of Silver Creek is moderately to steeply inclined and approximately 10 to 15 feet high. While localized sloughing is apparent at a few locations along the creek bank, the slope is short and located over 200 feet southwest of the proposed project site. The site is not located within a landslide hazard zone as mapped by the CGS (2001). Based on our review of aerial photographs and our site reconnaissance of the site and vicinity, we did not observe the presence of recently active landslides that would impact the proposed development.

4.6 FLOODING

The Federal Emergency Management Agency *Flood Insurance Rate Map* indicates that the site is located within Zone "D" described as "areas where flood hazard are undetermined, but possible" (FEMA, 2012). The Silver Creek Channel is classified as Zone A: "Special Flood Hazard Areas subject to inundation by the 1% annual chance flood; no base flood elevation determined."

SECTION 5: CONCLUSIONS

5.1 SUMMARY

From a geotechnical and geologic viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. Descriptions of each geotechnical or geologic concern with brief outlines of our preliminary recommendations follow the listed concerns.

- Surface Fault Rupture
- Presence of expansive soils
- Presence of Undocumented Fill

5.1.1 Fault Rupture and Building Setbacks

Development of the site for commercial use appears feasible from a geotechnical standpoint. The attached Figure 1 shows the trace of the Silver Creek fault and a 50-foot wide seismic setback (25-foot setback from either side of the mapped surface trace) for habitable structures. Based on recent conversations with the City of San Jose, we understand that non-habitable structures, such as a car wash, may be located within the building exclusion zone.

5.1.2 Expansive Soils

The underlying near-surface fill and native alluvial clay exhibit moderate to high plasticity and expansion potential. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. To reduce the potential for damage to the planned structures, slabs-on-grade should have sufficient reinforcement and be supported on a layer of non-expansive fill; at-grade footings should extend below the zone of seasonal moisture fluctuation. If structures are underlain by expansive soils, such as under post-tensioned mat foundations, it is important that foundation systems be capable of tolerating or resisting any potentially damaging soil movements. In addition, it is important to limit moisture changes in the surficial soils by using positive drainage away from buildings as well as limiting landscaping watering. Detailed recommendations are presented in the “Earthwork” and “Foundations” sections of this report.

5.1.3 Undocumented Fill

Our borings encountered 6 to 7 feet of undocumented fill across the site. Following demolition of the surface pavements, we recommend that the upper 3 feet of the uncommented fill beneath the new structures be over-excavated and replaced as engineered fill. Existing underground improvements, where they exist, will need to be removed or demolished during construction. Preliminary recommendations are provided in the “Earthwork” section.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that we be retained to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction.

5.3 CONSTRUCTION OBSERVATION AND TESTING

As site conditions may vary significantly between the small-diameter borings performed during this investigation, we also recommend that a Cornerstone representative be present to provide geotechnical observation and testing during earthwork and foundation construction. This will allow us to form an opinion and prepare a letter at the end of construction regarding contractor compliance with project plans and specifications, and with the recommendations in our report. We will also be allowed to evaluate any conditions differing from those encountered during our investigation, and provide supplemental recommendations as necessary. For these reasons, the recommendations in this report are contingent of Cornerstone providing observation and testing during construction. Contractors should provide at least a 48-hour notice when scheduling our field personnel.

SECTION 6: EARTHWORK

6.1 Site Clearing and Demolition

The site should be stripped of all surface vegetation, and surface and subsurface improvements within the proposed development area. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight.

Trees and shrubs designated for removal should have the root balls and any roots greater than ½-inch diameter removed completely. Significant root zones are anticipated to extend to the diameter of the tree canopy. Grade depressions resulting from root ball removal should be cleaned of loose material and backfilled in accordance with the recommendations in the "Compaction" section of this report.

Existing slabs, foundations, and pavements should be completely removed from within planned building areas. Slabs, foundations, and pavements that extend into planned flatwork, pavement, or landscape areas may be left in place provided there is at least 3 feet of engineered fill overlying the remaining materials, they are shown not to conflict with new utilities, and that asphalt and concrete more than 10 feet square is broken up to provide subsurface drainage.

All utilities should be completely removed from within planned building areas. Provided that they do not conflict with proposed improvements, utilities extending beyond the building area may be abandoned in place by completely backfilling the line with grout or sand-cement slurry (sand slurry is not acceptable), and plugging the ends with concrete. Trench fills that do not pose significant risk to the planned surface improvements may be left in place.

6.2 REMOVAL OF EXISTING FILLS

Our borings encountered up to approximately 6 to 8 feet of undocumented fill. Variations in fill thickness, including localized areas of deeper fill, may be encountered during construction. We recommend that the upper three (3) feet of undocumented fill within the building pad and car wash be over-excavated and re-compacted to provide a uniform bearing layer. The over-excavation should extend at least 5 feet beyond the building pad. The over-excavated materials may be reused for engineered fill provided that it meets the "Material for Fill" requirements below. Backfill of excavations should be placed in lifts and compacted in accordance with the "Compaction" section below.

Fills extending into planned pavement and flatwork areas may be left in place provided that the soil to a depth of 18 inches below pavement subgrade is re-worked and compacted as discussed in the "Compaction" section below.

6.3 TEMPORARY CUT AND FILL SLOPES

The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. On a preliminary basis, the upper 5 feet at the site may be classified as OSHA Site C materials.

Excavations performed during site demolition and fill removal should be sloped at 3:1 (horizontal:vertical) within the upper 5 feet below building subgrade. Excavations extending more than 5 feet below building subgrade and excavations in pavement and flatwork areas should be slope at a 1:1 inclination unless the OSHA soil classification indicates that slope should not exceed 1.5:1.

6.4 SUBGRADE PREPARATION

After site clearing and demolition is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 6 inches, moisture conditioned, and compacted in accordance with the "Compaction" section below.

6.5 SUBGRADE STABILIZATION MEASURES

Soil subgrade and fill materials, especially soils with high fines contents such as clays and silty soils, can become unstable due to high moisture content or repetitive rubber-tire loading. As the moisture content increases over the laboratory optimum, it becomes more likely the materials will be subject to softening and yielding (pumping) from construction loading or become unworkable during placement and compaction.

There are several methods to address potential unstable soil conditions and facilitate fill placement and trench backfill. Some of the methods are briefly discussed below. Implementation of the appropriate stabilization measures should be evaluated on a case-by-case basis according to the project construction goals and the particular site conditions.

6.5.1 Scarification and Drying

The subgrade may be scarified to a depth of 12 to 18 inches and allowed to dry to near optimum conditions, if sufficient dry weather is anticipated to allow sufficient drying. More than one round of scarification may be needed to break up the soil clods.

6.5.2 Removal and Replacement

As an alternative to scarification, the contractor may choose to over-excavate the unstable soils and replace them with dry on-site or import materials. A Cornerstone representative should be present to provide recommendations regarding the appropriate depth of over-excavation, whether a geosynthethic (stabilization fabric or geogrid) is recommended, and what materials are recommended for backfill.

6.5.3 Chemical Treatment

Where the unstable area exceeds about 5,000 to 10,000 square feet and/or site winterization is desired, chemical treatment with quicklime (CaO), kiln-dust, or cement may be more cost-effective than removal and replacement. Recommended chemical treatment depths will typically range from 12 to 18 inches depending on the magnitude of the instability.

6.6 MATERIAL FOR FILL

6.6.1 Re-Use of On-site Soils

On-site soils with an organic content less than 3 percent by weight may be reused as general fill. General fill should not have lumps, clods or cobble pieces larger than 6 inches in diameter; 85 percent of the fill should be smaller than 2½ inches in diameter. Minor amounts of oversize material (smaller than 12 inches in diameter) may be allowed provided the oversized pieces are not allowed to nest together and the compaction method will allow for loosely placed lifts not exceeding 12 inches.

Soil stripping that contains greater than 3 percent organic content may be re-used in future landscaping areas, if desired.

6.6.2 Potential Import Sources

Imported and non-expansive fill material should be inorganic with a Plasticity Index (PI) of 15 or less, and should not contain recycled asphalt concrete where it will be used within the building areas. To prevent significant caving during trenching or foundation construction, imported material should have sufficient fines. Samples of potential import sources should be delivered

to our office at least 10 days prior to the desired import start date. Information regarding the import source should be provided, such as any site geotechnical reports. If the material will be derived from an excavation rather than a stockpile, potholes will likely be required to collect samples from throughout the depth of the planned cut that will be imported. At a minimum, laboratory testing will include PI tests. Material data sheets for select fill materials (Class 2 aggregate base, ¾-inch crushed rock, quarry fines, etc.) listing current laboratory testing data (not older than 6 months from the import date) may be provided for our review without providing a sample. If current data is not available, specification testing will need to be completed prior to approval.

Environmental characterization should also be considered by the project team prior to acceptance. Suitable environmental laboratory data to the planned import quantity should be provided to the project environmental consultant; additional laboratory testing may be required based on the project environmental consultant's review.

6.7 COMPACTION REQUIREMENTS

All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the table below. In general, clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open-graded materials such as crushed rock should be placed in lifts no thicker than 18 inches consolidated in place with vibratory equipment. Each lift of fill and all subgrade should be firm and unyielding under construction equipment loading in addition to meeting the compaction requirements to be approved. The contractor (with input from a Cornerstone representative) should evaluate the in-situ moisture conditions, as the use of vibratory equipment on soils with high moistures can cause unstable conditions. General recommendations for soil stabilization are provided in the "Subgrade Stabilization Measures" section of this report. Where the soil's PI is 20 or greater, the expansive soil criteria should be used.

Table 4: Compaction Requirements

Description	Material Description	Minimum Relative[1] Compaction (percent)	Moisture[2] Content (percent)
General Fill	On-Site Expansive Soils	87 – 92	>3
(within upper 5 feet)	Low Expansion Soils	90	>1
General Fill	On-Site Expansive Soils	95	>3
(below a depth of 5 feet)	Low Expansion Soils	95	>1
Trench Backfill	On-Site Expansive Soils	87 – 92	>3
Trench Backfill	Low Expansion Soils	90	>1

Table 4 Continues

Table 4 Continued

Description	Material Description	Minimum Relative[1] Compaction (percent)	Moisture[2] Content (percent)
Trench Backfill (upper 6 inches of subgrade)	On-Site Low Expansion Soils	95	>1
Crushed Rock Fill	¾-inch Clean Crushed Rock	Consolidate In-Place	NA
Non-Expansive Fill	Imported Non-Expansive Fill	90	Optimum
Flatwork Subgrade	On-Site Expansive Soils	87 - 92	>3
Flatwork Subgrade	Low Expansion Soils	90	>1
Flatwork Aggregate Base	Class 2 Aggregate Base[3]	90	Optimum
Pavement Subgrade	On-Site Expansive Soils	87 - 92	>3
Pavement Subgrade	Low Expansion Soils	95	>1
Pavement Aggregate Base	Class 2 Aggregate Base[3]	95	Optimum
Asphalt Concrete	Asphalt Concrete	95 (Marshall)	NA

1 – Relative compaction based on maximum density determined by ASTM D1557 (latest version)
2 – Moisture content based on optimum moisture content determined by ASTM D1557 (latest version)
3 – Class 2 aggregate base shall conform to Caltrans Standard Specifications, latest edition, except that the relative compaction should be determined by ASTM D1557 (latest version)
4 – Using light-weight compaction or walls should be braced

6.7.1 Construction Moisture Conditioning

Expansive soils can undergo significant volume change when dried then wetted. The contractor should keep all exposed expansive soil subgrade (and also trench excavation side walls) moist until protected by overlying improvements (or trenches are backfilled). If expansive soils are allowed to dry out significantly, re-moisture conditioning may require several days of re-wetting (flooding is not recommended), or deep scarification, moisture conditioning, and re-compaction.

6.8 TRENCH BACKFILL

Utility lines constructed within public right-of-way should be trenched, bedded and shaded, and backfilled in accordance with the local or governing jurisdictional requirements. Utility lines in private improvement areas should be constructed in accordance with the following requirements unless superseded by other governing requirements.

All utility lines should be bedded and shaded to at least 6 inches over the top of the lines with crushed rock (⅜-inch-diameter or greater) or well-graded sand and gravel materials conforming to the pipe manufacturer's requirements. Open-graded shading materials should be consolidated in place with vibratory equipment and well-graded materials should be compacted to at least 90 percent relative compaction with vibratory equipment prior to placing subsequent backfill materials.

General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the “Material for Fill” section, and are moisture conditioned and compacted in accordance with the requirements in the “Compaction” section.

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the “foundation plane of influence,” an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence or the utility trench will need to be backfilled with sand-cement slurry or lean concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

On expansive soils sites it is desirable to reduce the potential for water migration into building and pavement areas through the granular shading materials. We recommend that a plug of low-permeability clay soil, sand-cement slurry, or lean concrete be placed within trenches just outside where the trenches pass into building and pavement areas.

6.9 SITE DRAINAGE

Ponding should not be allowed adjacent to building foundations, slabs-on-grade, or pavements. Hardscape surfaces should slope at least 1 to 2 percent towards suitable discharge facilities; landscape areas should slope at least 2 to 3 percent. Roof runoff should be directed away from building areas.

6.10 LANDSCAPE CONSIDERATIONS

We recommend greatly reducing the amount of surface water infiltrating these soils near foundations and exterior slabs-on-grade. This can typically be achieved by:

- Using drip irrigation,
- Avoiding open planting within 3 feet of the building perimeter or near the top of existing slopes,
- Regulating the amount of water distributed to lawns or planter areas by using irrigation timers, and
- Selecting landscaping that requires little or no watering, especially near foundations.

SECTION 7: FOUNDATIONS

7.1 SEISMIC DESIGN CRITERIA

We understand that the project structural design will be based on the 2013 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The "Seismic Coefficients" used to design buildings are established based on a series of tables and figures addressing different site factors, including the soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system. Based on the soil and bedrock encountered in our borings and our review of local geology, the site may be considered Soil Type C: "Very Dense Soil and Soft Rock". The table below lists the various factors used to determine the seismic coefficients and other parameters.

Table 5: 2013 CBC Site Categorization and Site Coefficients

Classification/Coefficient	Design Value
Site Class	C
Site Latitude	37.2878°
Site Longitude	-121.7799°
Seismic Design Category	D
Short Period Mapped Spectral Acceleration – S_S	1.50g
1-second Period Mapped Spectral Acceleration – S_1	0.60g
Short-Period Site Coefficient – F_a	1.0
Long-Period Site Coefficient – F_v	1.3
Short Period MCE Spectral Response Acceleration Adjusted for Site Effects – S_{MS}	1.50g
1-second Period MCE Spectral Response Acceleration Adjusted for Site Effects – S_{M1}	0.78g
Short Period, Design Earthquake Spectral Response Acceleration – S_{DS}	1.000g
1-second Period, Design Earthquake Spectral Response Acceleration – S_{D1}	0.52g
Site Coefficient – F_{PGA}	1.0
Peak Ground Acceleration – PGA_M	0.52

7.2 SHALLOW FOUNDATIONS

The proposed building may be supported on conventional isolated and/or continuous spread footings. Foundations should bear entirely on undisturbed native soil or engineered fill. Footings should be at least 18 inches wide and extend at least 30 inches below the bottom of the interior slab-on-grade.

Spread footings may be designed for allowable bearing capacities of 3,000 psf (dead), 4,500 psf (dead + live), and 6,000 psf (seismic). These pressures are net values; the weight of the footing may be neglected.

Post-construction differential settlement is estimated to be approximately ¾ inch, or less, over a horizontal distance of 50 feet.

7.2.1 Lateral Loading

Lateral loads may be resisted by a combination of friction between the bottom of footings or mat foundation and the supporting subgrade and by passive pressure against the edge of footings or mat foundations. We recommend an ultimate frictional resistance of 0.45 applied to the structure dead load and an ultimate passive pressure based on an equivalent fluid pressure of 450 pcf may be used in design. The structural engineer should apply an appropriate factor of safety to the ultimate values above. The upper 12 inches of soil should be neglected in determining lateral load resistance unless the building perimeter is covered by asphalt or concrete flatwork or pavement.

7.2.2 Spread Footing Construction Considerations

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with CLSM or lean concrete. Where utility lines will parallel footings and will extend below the "foundation plane of influence," an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence or the utility trench will need to be backfilled with CLSM or concrete within the influence zone.

Footing excavations should be filled as soon as possible or be kept moist until concrete placement by regular sprinkling to prevent desiccation. A Cornerstone representative should observe all footing excavations prior to placing reinforcing steel and concrete. If there is a significant schedule delay between our initial observation and concrete placement, we may need to re-observe the excavations.

7.3 DRILLED PIER FOUNDATIONS

As an alternative to shallow foundations, structures may be supported on drilled piers provided recommendations provided herein are used for design.

7.3.1 Vertical Capacities

Drilled piers should have a minimum diameter of 12 inches and extend to a depth of at least 10 feet below the lowest adjacent grade, assumed to be lowest adjacent finished grade or bottom of grade beam, whichever is deeper. The upper 2 feet should be neglected in determining pier capacities. Vertical pier capacity may be designed using an ultimate skin friction of 800 pounds per square feet (psf). Allowable skin friction values for combined dead plus live loads may be calculated based on a factor of safety of 2 for downward loading and 3 for uplift. Allowable skin friction may be increased by one-third for wind and seismic loads.

Total static settlement of individual piers should not exceed ¼-inch, with post-construction differential settlement between adjacent piers of approximately ½-inch due to static and seismic loads.

7.3.2 Lateral Load Capacities

Lateral loads exerted on drilled piers may be resisted by a passive resistance based on an allowable equivalent fluid pressure of 300 pounds per cubic foot (pcf) acting over two pier diameters for single piers, up to a maximum uniform pressure of 3,000 psf at depth. The upper 2 feet should be neglected when determining the lateral capacity. The structural engineer should apply an appropriate factor of safety to the ultimate passive pressures.

7.3.3 Construction Considerations

The excavation of all drilled shafts should be observed by a Cornerstone representative to confirm the soil profile, verify that the piers extend the minimum depth into competent native soils, and the piers are constructed in accordance with our recommendations and project requirements. The drilled shafts should be straight, dry, and relatively free of loose material before reinforcing steel is installed and concrete is placed.

Ground water is anticipated to be encountered at a depth of approximately 9 to 13 feet below the ground surface. If ground water is encountered and cannot be removed from excavations prior to concrete placement, the concrete should be placed using a tremie pipe, keeping the tremie pipe below the surface of the concrete to avoid entrapment of water or drilling slurry in the concrete.

SECTION 8: CONCRETE SLABS AND PEDESTRIAN PAVEMENTS

8.1 INTERIOR SLABS-ON-GRADE

As the surficial soils are moderately expansive, the proposed slabs-on-grade should be supported on at least 18 inches of non-expansive fill (NEF) to reduce the potential for slab damage due to soil heave. NEF may consist of either approved imported material or lime-treated on-site soils having a Plasticity Index of 15 or less. The NEF layer should be constructed over subgrade prepared in accordance with the recommendations in the "Earthwork" section of this report. If significant time elapses between initial subgrade preparation and NEF or slab-on-grade construction, the subgrade should be proof-rolled to confirm subgrade stability, and if the soil has been allowed to dry out, the subgrade should be re-moisture conditioned to at least 2 percent over the optimum moisture content.

The structural engineer should determine the appropriate slab reinforcement for the loading requirements and considering the expansion potential of the underlying soils. Control joint spacing should be limited to a maximum of 2 feet in each direction for each inch of concrete thickness.

8.2 INTERIOR SLABS MOISTURE PROTECTION CONSIDERATIONS

The recommendations presented below are intended for concrete slab-on-grade construction where moisture-sensitive floor coverings are planned. These recommendations are based on information obtained from a variety of sources, including the American Concrete Institute (ACI) and are intended to reduce the potential for moisture-related problems causing floor covering failures, and may be supplemented as necessary based on project-specific requirements.

- Place a minimum 10-mil-thick vapor retarder conforming to ASTM E 1745, Class C requirements or better directly below the concrete slab. The vapor retarder should extend to the slab edges and be sealed at all seams and penetrations in accordance with manufacturer's recommendations and ASTM E 1643 requirements.

- A 4-inch-thick capillary break, consisting of ½- to ¾-inch crushed rock with less than 5 percent passing the No. 200 sieve, should be placed below the vapor retarder and consolidated in place with vibratory equipment. The capillary break rock may be considered as the upper 4 inches of the non-expansive fill previously recommended.

- The concrete water:cement ratio should be 0.45 or less. Mid-range plasticizers may be used to increase concrete workability and facilitate pumping and placement.

- Water should not be added after initial batching unless the slump is less than specified and/or the resulting water:cement ratio will not exceed 0.45.

- Polishing the concrete surface with metal trowels is not recommended.

- Where floor coverings are planned, all concrete surfaces should be properly cured.

- Water vapor emission levels and concrete pH should be determined in accordance with ASTM F1869 and F710 requirements and evaluated against the floor covering manufacturer's requirements prior to installation.

8.3 EXTERIOR FLATWORK

Exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported at least 12 inches of Class 2 aggregate base, or 6 inches of Class 2 aggregate base and 6 inches of NEF (12 inches total), overlying subgrade prepared in accordance with the "Earthwork" recommendations of this report. Flatwork that will be subject to heavier or frequent vehicular loading should be designed in accordance with the recommendations in the "Vehicular Pavements" section below. To reduce the potential for uncontrolled shrinkage cracking, adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness. Flatwork should be isolated from adjacent foundations or retaining walls except where limited sections of structural slabs are included to help span irregularities in transition areas between at-grade and on-structure flatwork.

SECTION 9: VEHICULAR PAVEMENTS

9.1 ASPHALT CONCRETE

The following asphalt concrete pavement recommendations tabulated below are based on the Caltrans Highway Design Manual (Caltrans, 2008), estimated traffic indices for various pavement-loading conditions, and on a design R-value of 5. The design R-value was chosen based on the clayey nature of the surficial soils and our engineering judgment considering the variable surface conditions.

Frequently, the full asphalt concrete section is not constructed prior to construction traffic loading. This can result in significant loss of asphalt concrete layer life, rutting, or other pavement failures. To improve the pavement life and reduce the potential for pavement distress through construction, we recommend the full design asphalt concrete section be constructed prior to construction traffic loading. Alternatively, a higher traffic index may be chosen for the areas where construction traffic will be use the pavements.

Table 6: Asphalt Concrete Pavement Recommendations

Design Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base* (inches)	Total Pavement Section Thickness (inches)
4.0	2.5	7.5	10.0
4.5	2.5	9.5	12.0
5.0	3.0	10.0	13.0
5.5	3.0	12.0	15.0
6.0	3.5	12.5	16.0
6.5	4.0	14.0	18.0

*Caltrans Class 2 aggregate base; minimum R-value of 78

9.2 PORTLAND CEMENT CONCRETE

The Portland Cement Concrete (PCC) pavement recommendations outlined below are based on methods presented in ACI 330R-01 – Guide for Design and Construction of Concrete Parking Lots (2001). Table 7 presents minimum PCC pavements thicknesses for various traffic loading categories and an anticipated Average Daily Truck Traffic (ADTT).

Table 7: PCC Pavement Recommandations

Traffic Category	Minimum PCC Thickness (inches)
Category A – Car Parking Areas and Access Lanes	4.0
Category A-1 – Truck Access Lanes (ADTT = 1)	5.0
Category A-1 – Truck Access Lanes (ADTT = 10)	6.0
Category B – Bus Parking Area and Interior Lanes (ADTT = 25)	6.5
Category C – Bus Entrance and Exterior Lanes (ADTT = 100)	7.0

The PCC thicknesses above are based on a concrete compressive strength of at least 3,500 psi, supporting the PCC on at least 6 inches of Class 2 aggregate base compacted as recommended in the "Earthwork" section, and laterally restraining the PCC with curbs or concrete shoulders. Adequate expansion and control joints should be included. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness.

9.3 PAVEMENT CUTOFF

Surface water penetration into the pavement section can significantly reduce the pavement life, due to the native expansive clays. While quantifying the life reduction is difficult, a normal 20-year pavement design could be reduce to less than 10 years; therefore, increased long-term maintenance may be required.

It would be beneficial to include a pavement cut-off, such as deepened curbs, redwood-headers, or "Deep-Root Moisture Barriers" that are keyed at least 4 inches into the pavement subgrade. This will help limit the additional long-term maintenance.

SECTION 10: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of Canyon Creek Plaza, LP specifically to support the design of the proposed development on Silver Creek Valley Road in San Jose, California. The opinions, conclusions, and recommendations presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Recommendations in this report are based upon the soil and ground water conditions encountered during our subsurface exploration. If variations or unsuitable conditions are encountered during construction, Cornerstone must be contacted to provide supplemental recommendations, as needed.

Canyon Creek Plaza, LP may have provided Cornerstone with plans, reports and other documents prepared by others. Canyon Creek Plaza, LP understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or his representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone's control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

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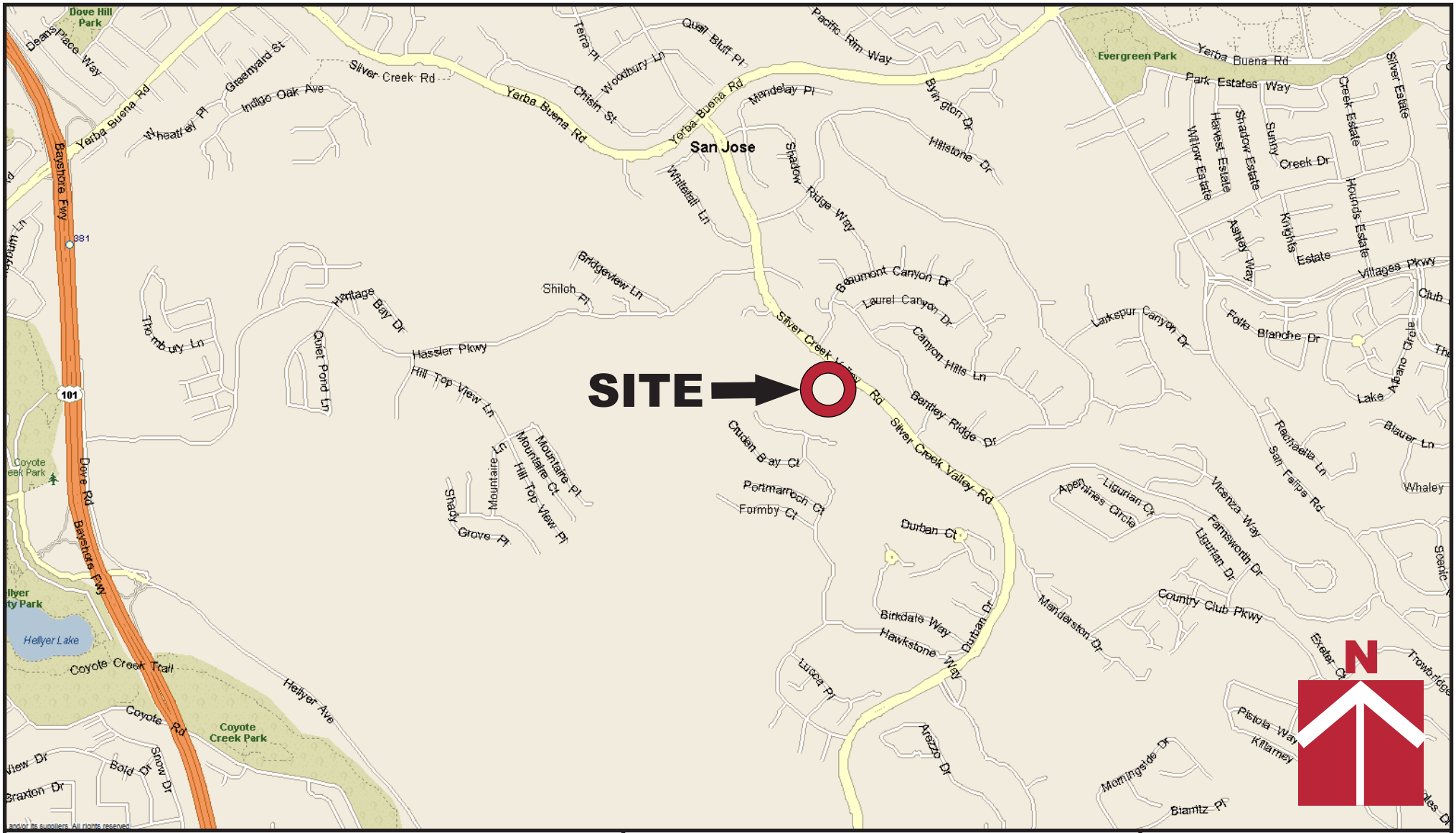
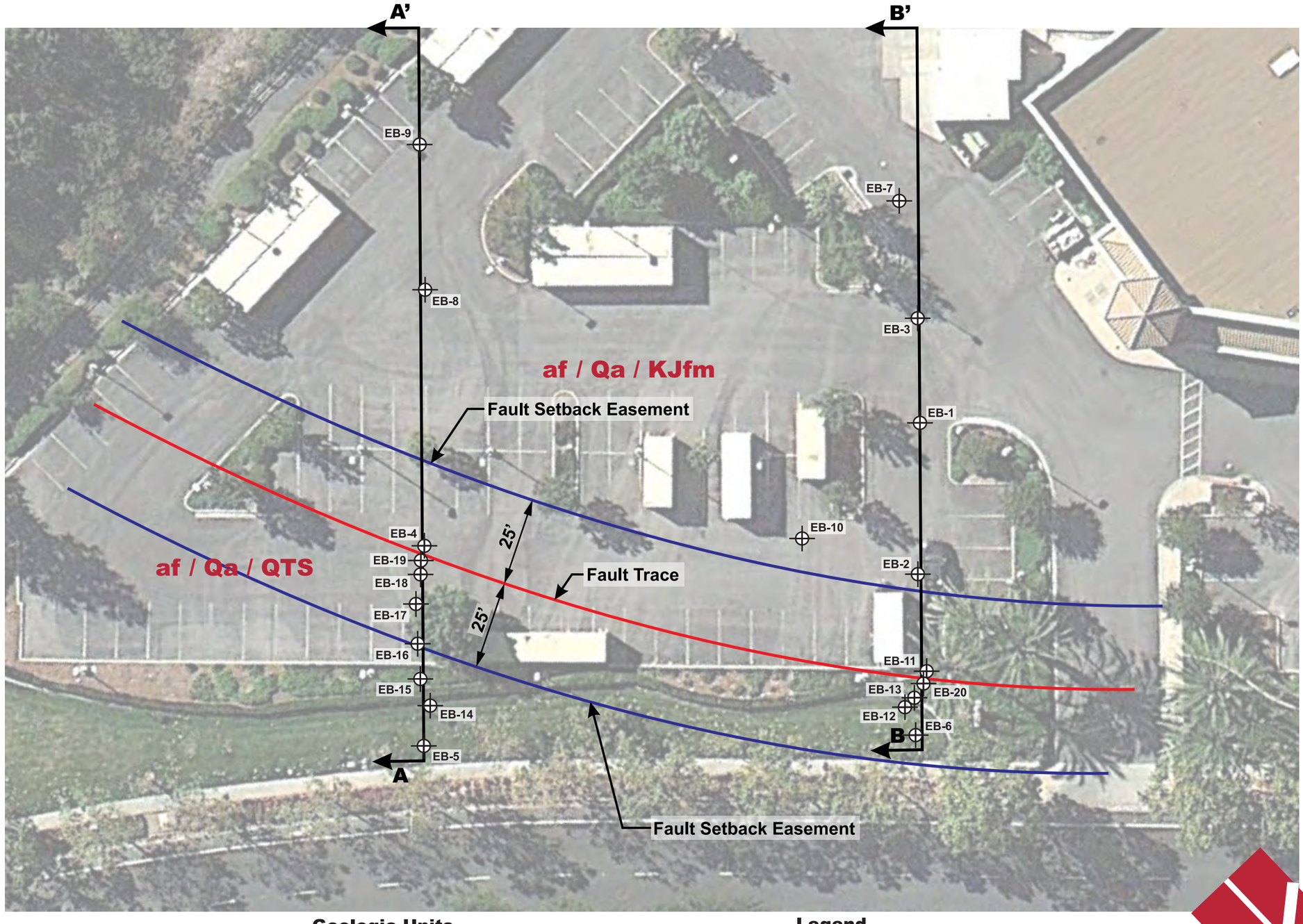


CORNERSTONE EARTH GROUP

Vicinity Map

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

Project Number	535-1-2
Figure Number	Figure 1
Date	July 2014
Drawn By	RRN



Geologic Units

af	Artificial Fill
Qa	Alluvium (Quaternary)
QTS	Santa Clara Formation (Plio-Pleistocene)
KJfm	Franciscan mélange (Cretaceous and/or Jurasic)

Legend

- Approximate location of exploratory boring
- Approximate surface trace of Silver Creek Fault
- Approximate fault setback - 25 feet from surface trace
- A A' Approximate location of geologic cross section

N

0 30 60

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/31/2011

Site Plan

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

Project Number	535-1-2
Figure Number	Figure 2
Date	July 2014
Drawn By	RRN

CORNERSTONE EARTH GROUP

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic	200			Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	11,700		? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
	Early Quaternary	Pleistocene	700,000		? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
			1,600,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			4.5 billion (Age of Earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.

SITE

0 5 10

APPROXIMATE SCALE (MILES)

Base by California Geological Survey - 2010 Fault Activity Map of California (Jennings and Bryant, 2010)

Project Number 535-1-2

Figure Number Figure 3

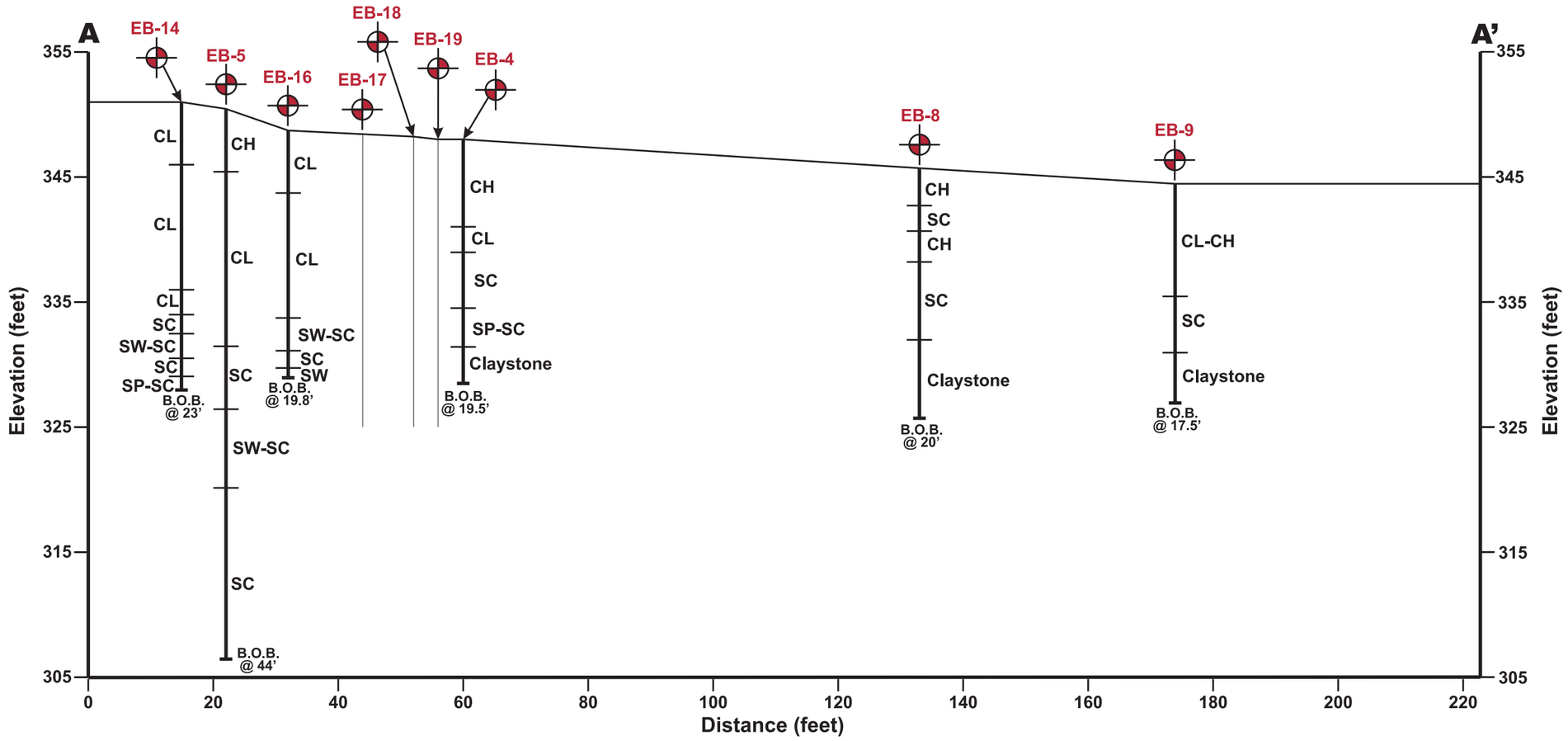
Date July 2014

Drawn By RRN

Regional Fault Map

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



Section A-A'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Symbols

CL	Lean Clay or sandy clay
CH	Fat Clay
CL-CH	Lean Clay with Fat Clay
SC	Clayey Sand
SW-SC	Well-Graded Sand with Clayey Sand
SP-SC	Poorly Graded Sand with Clayey Sand
Claystone	Franciscan Complex
⊕	Approximate location of bore hole

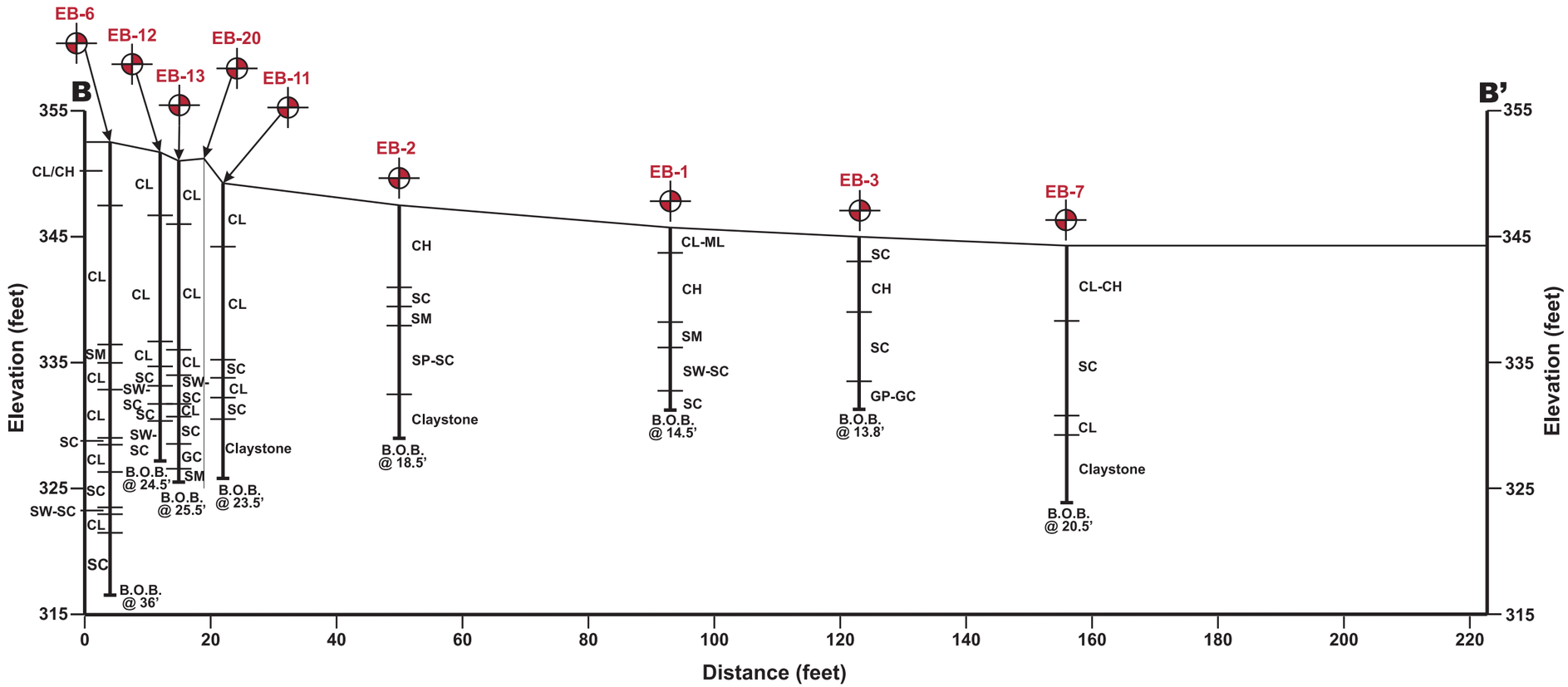
Notes:
1) Topographical information provided by _____, dated _____.
2) Surficial fills associated with existing pavements, landscaping or utilities are not shown.
3) The subsurface profile is conceptual and is based on limited subsurface data obtained from widely spaced borings. Actual subsurface conditions may vary significantly between borings.
4) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 4
Drawn By RRN
Date July 2014

Geologic Cross Section A-A'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



Section B-B'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Symbols

CL	Lean Clay or sandy clay
CH	Fat Clay
CL-CH	Lean Clay with Fat Clay
CL-ML	Lean Clay or Sandy Clay with Silt
SC	Clayey Sand
SM	Silty Sand
SW-SC	Well-Graded Sand with Clayey Sand
SP-SC	Poorly Graded Sand with Clayey Sand
GC	Clayey Gravel with Sand
GP-GC	Poorly Graded Gravel with Clay and Sand
Claystone	Franciscan Complex
⊕	Approximate location of bore hole

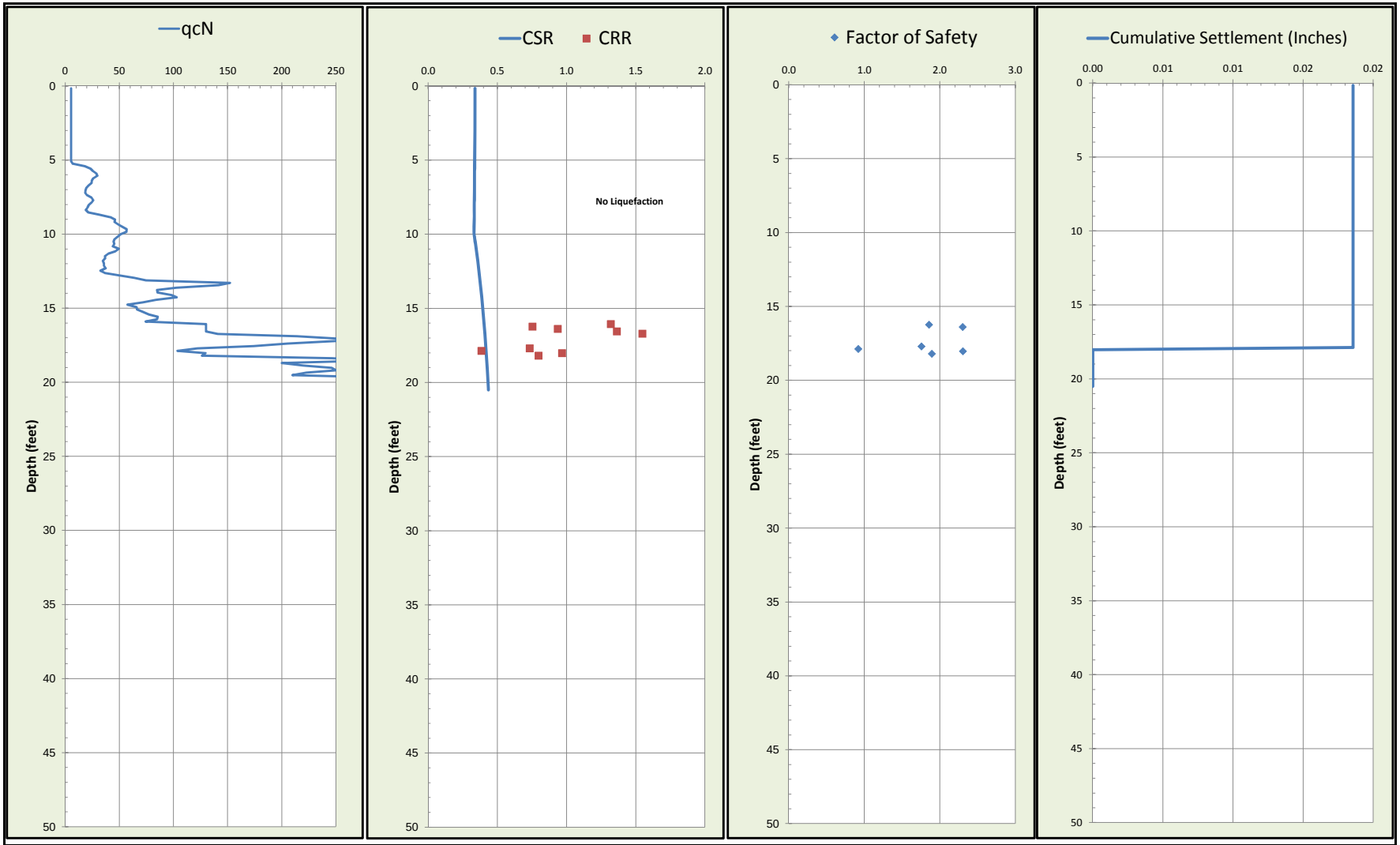
Notes:
1) Topographical information provided by _____, dated _____.
2) Surficial fills associated with existing pavements, landscaping or utilities are not shown.
3) The subsurface profile is conceptual and is based on limited subsurface data obtained from widely spaced borings. Actual subsurface conditions may vary significantly between borings.
4) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 5
Drawn By RRN
Date July 2014

Geologic Cross Section B-B'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

Canyon Creek Plaza

San Jose, California

Project Number

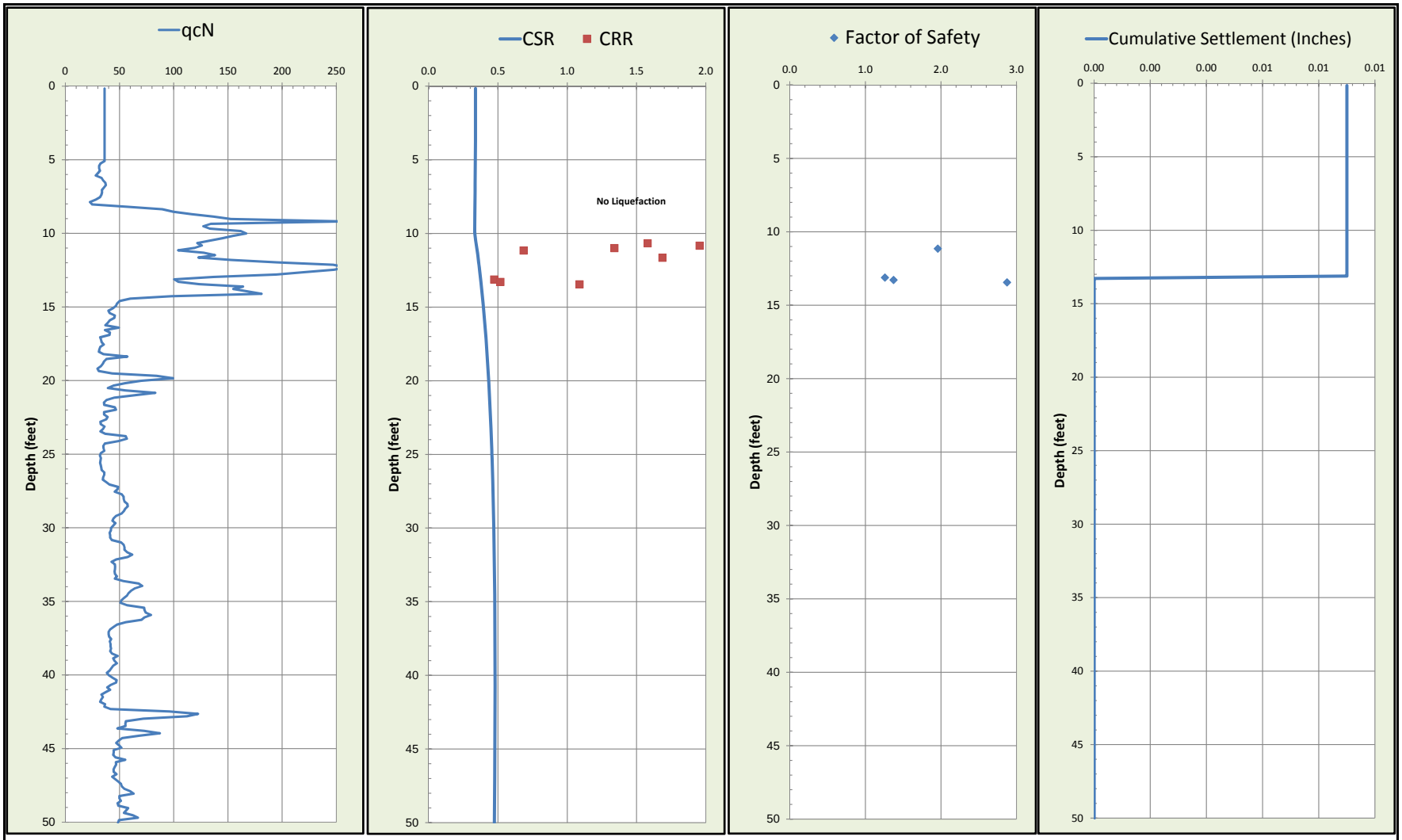
535-1-2

Figure Number

Figure 6A

7/10/2014

CPT No. 1



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

Canyon Creek Plaza

San Jose, California

Project Number: 535-1-2

Figure Number: Figure 6B

7/10/2014

CPT No. 2

APPENDIX A: FIELD INVESTIGATION

Our field investigation consisted of a surface reconnaissance and a subsurface exploration program using conventional drilling equipment and Cone Penetration Test (CPT) equipment. The approximate locations of our explorations are shown on the Site Plan, Figure 2. Exploration locations were determined by measurement from existing site features. Exploration locations should be considered accurate only to the degree implied by the measurement method used.

Twenty (20) 8-inch-diameter exploratory borings were drilled using truck-mounted, hollow-stem auger drilling equipment to depths of 14 to 44 feet. The soils encountered were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488). Boring logs and a soil classification key are included as part of this appendix.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. (1.375 I.D.) split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration (ASTM D1586). 3-inch O.D. (2.5-inch I.D.) samples were obtained using a Modified California Sampler driven into the soil as previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows required to drive the last 12 inches. The various samplers are denoted at the appropriate depth on the boring logs.

Field tests included an evaluation of the unconfined compressive strength of fine-grained samples using a pocket penetrometer. The results of these tests are presented on the individual boring logs at the appropriate sample depths.

Two CPT soundings were performed on December 21, 2013, in accordance with ASTM D 5778 to depths of 20½ and 50 feet. CPT-1 encountered refusal conditions at a depth of 20½ feet. Cone Penetration Tests involve advancing an instrumented cone-tipped probe into the ground while recording the resistance at the cone tip (q_c) and along the friction sleeve (f_s) at approximately 5-centimeter (2-inch) intervals. Based on the tip resistance and tip to sleeve ratio (R_f), the CPT classifies the soil behavior type and estimated engineering properties of the soil, such as equivalent Standard Penetration Test (SPT) blow count, internal friction angle within sand layers, and undrained shear strength in silts and clays.

Attached boring and CPT logs and related information depict subsurface conditions at the locations indicated and on the date designated on the logs. Subsurface conditions at other locations may differ from conditions encountered at these boring and CPT locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

UNIFIED SOIL CLASSIFICATION (ASTM D-2487-10)

MATERIAL TYPES	CRITERIA FOR ASSIGNING SOIL GROUP NAMES			GROUP SYMBOL	SOIL GROUP NAMES & LEGEND
COARSE-GRAINED SOILS >50% RETAINED ON NO. 200 SIEVE	GRAVELS >50% OF COARSE FRACTION RETAINED ON NO 4. SIEVE	CLEAN GRAVELS <5% FINES	Cu>4 AND 1<Cc<3	GW	WELL-GRADED GRAVEL
			Cu>4 AND 1>Cc>3	GP	POORLY-GRADED GRAVEL
		GRAVELS WITH FINES >12% FINES	FINES CLASSIFY AS ML OR CL	GM	SILTY GRAVEL
			FINES CLASSIFY AS CL OR CH	GC	CLAYEY GRAVEL
	SANDS >50% OF COARSE FRACTION PASSES ON NO 4. SIEVE	CLEAN SANDS <5% FINES	Cu>6 AND 1<Cc<3	SW	WELL-GRADED SAND
			Cu>6 AND 1>Cc>3	SP	POORLY-GRADED SAND
		SANDS AND FINES >12% FINES	FINES CLASSIFY AS ML OR CL	SM	SILTY SAND
			FINES CLASSIFY AS CL OR CH	SC	CLAYEY SAND
FINE-GRAINED SOILS >50% PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT<50	INORGANIC	PI>7 AND PLOTS>"A" LINE	CL	LEAN CLAY
			PI>4 AND PLOTS<"A" LINE	ML	SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OL	ORGANIC CLAY OR SILT
	SILTS AND CLAYS LIQUID LIMIT>50	INORGANIC	PI PLOTS >"A" LINE	CH	FAT CLAY
			PI PLOTS <"A" LINE	MH	ELASTIC SILT
		ORGANIC	LL (oven dried)/LL (not dried)<0.75	OH	ORGANIC CLAY OR SILT
HIGHLY ORGANIC SOILS		PRIMARILY ORGANIC MATTER, DARK IN COLOR, AND ORGANIC ODOR		PT	PEAT

OTHER MATERIAL SYMBOLS

- Poorly-Graded Sand with Clay
- Clayey Sand
- Sandy Silt
- Artificial/Undocumented Fill
- Poorly-Graded Gravelly Sand
- Topsoil
- Well-Graded Gravel with Clay
- Well-Graded Gravel with Silt
- Sand
- Silt
- Well Graded Gravelly Sand
- Gravelly Silt
- Asphalt
- Boulders and Cobble

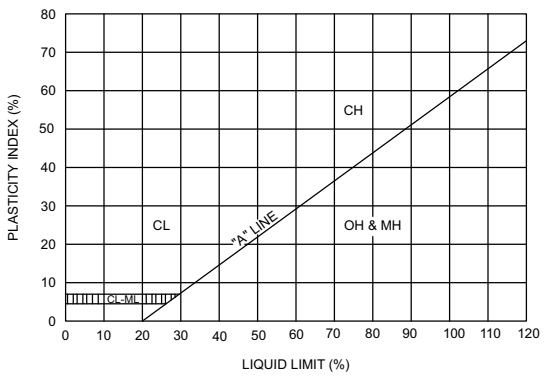
SAMPLER TYPES

- SPT
- Modified California (2.5" I.D.)
- Rock Core
- Shelby Tube
- No Recovery
- Grab Sample

ADDITIONAL TESTS

CA	-	CHEMICAL ANALYSIS (CORROSIVITY)	PI	-	PLASTICITY INDEX
CD	-	CONSOLIDATED DRAINED TRIAXIAL	SW	-	SWELL TEST
CN	-	CONSOLIDATION	TC	-	CYCLIC TRIAXIAL
CU	-	CONSOLIDATED UNDRAINED TRIAXIAL	TV	-	TORVANE SHEAR
DS	-	DIRECT SHEAR	UC	-	UNCONFINED COMPRESSION
PP	-	POCKET PENETROMETER (TSF)	(1.5)	-	(WITH SHEAR STRENGTH IN KSF)
(3.0)	-	(WITH SHEAR STRENGTH IN KSF)			
RV	-	R-VALUE	UU	-	UNCONSOLIDATED UNDRAINED TRIAXIAL
SA	-	SIEVE ANALYSIS: % PASSING #200 SIEVE			
▼	-	WATER LEVEL			

PLASTICITY CHART



PENETRATION RESISTANCE
(RECORDED AS BLOWS / FOOT)

SAND & GRAVEL		SILT & CLAY		
RELATIVE DENSITY	BLOWS/FOOT*	CONSISTENCY	BLOWS/FOOT*	STRENGTH** (KSF)
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 - 10	SOFT	2 - 4	0.25 - 0.5
MEDIUM DENSE	10 - 30	MEDIUM STIFF	4 - 8	0.5-1.0
DENSE	30 - 50	STIFF	8 - 15	1.0 - 2.0
VERY DENSE	OVER 50	VERY STIFF	15 - 30	2.0 - 4.0
		HARD	OVER 30	OVER 4.0

* NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE A 2 INCH O.D. (1-3/8 INCH I.D.) SPLIT-BARREL SAMPLER THE LAST 12 INCHES OF AN 18-INCH DRIVE (ASTM-1586 STANDARD PENETRATION TEST).

** UNDRAINED SHEAR STRENGTH IN KIPS/SQ. FT. AS DETERMINED BY LABORATORY TESTING OR APPROXIMATED BY THE STANDARD PENETRATION TEST, POCKET PENETROMETER, TORVANE, OR VISUAL OBSERVATION.

CORNERSTONE EARTH GROUP

LEGEND TO SOIL DESCRIPTIONS

Figure Number A-1

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 14.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 14.25'
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		1¾ inches asphalt concrete over 3 inches aggregate base							
			Silty Clay (CL-ML) [Fill] moist, dark gray brown							
			Fat Clay (CH) [Fill] very stiff to hard, moist, very dark gray brown with gray mottles, trace fine subangular gravel, high plasticity	23	MC					○ 3.0
	5			39	MC					>4.5 ○
			Silty Sand with Gravel (SM) [Alluvium] dense to medium dense, moist, light gray brown, fine to coarse subangular to subrounded gravel	81	MC					
				50	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to medium dense, wet, gray brown, fine to coarse subangular gravel	72	MC					
				42	SPT					
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, olive brown, fine to coarse subangular gravel	71	MC					
	15		Bottom of Boring at 14.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 18.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay (CH) [Fill]** very stiff, moist, very dark gray brown, trace fine subangular gravel, high plasticity							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, greenish gray, fine subangular to subrounded gravel	27	MC					○
				43	MC					
			Silty Sand with Gravel (SM) [Alluvium] hard, moist, light olive brown, fine subangular to subrounded gravel	57	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, moist, yellowish brown to reddish brown	39	MC					
				63	MC					
				40	MC					
				46	MC					○
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	46	MC					
			dark gray, inclusions of reddish claystone and serpentinite	33	SPT					○
			Bottom of Boring at 18.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 13.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 8 inches aggregate base						
			Clayey Sand (SC) [Fill] medium dense, moist, gray brown, fine to coarse sand, trace fine subangular gravel	20	MC-1	95	15		
				2		93	34	48	
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity Liquid Limit = 67, Plastic Limit = 19	19	MC-4	91	29		
	5			40	MC				
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, gray with brown mottles, fine to coarse sand, trace fine subangular gravel						
				63	MC-8	122	14		40
	10								
			Poorly Graded Gravel with Clay and Sand (GP-GC) [Alluvium] very dense, moist, gray brown, fine to coarse subangular to subrounded gravel	50 1"	SPT				
			Bottom of Boring at 13.8 feet.						
	15								
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:09 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 19.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
AT TIME OF DRILLING Not Encountered
NOTES perched water at 15.5'
AT END OF DRILLING Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		3½ inches asphalt concrete over 4½ inches aggregate base							
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray brown to olive brown with white mottles, some fine to coarse subangular gravel	31	MC					>4.5
				49	MC					>4.5
	10		**Clayey Sand with Gravel (SC) [Alluvium]** dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50	MC					
				64	MC					
				43	MC					
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to very dense, moist to wet, olive brown, fine to coarse subangular gravel	62	MC					
				50 4"	MC					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, dark brown with white mottles, moist, trace fine subangular gravel	28	SPT					
				66	MC					
	20		Bottom of Boring at 19.5 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 44 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 28.5'
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay with Sand (CH) [Fill]** stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
			Drilled to 12' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, light olive brown with white mottles, some fine to coarse subangular gravel							
	10			53	MC					>4.5
				58	MC					
	15		becomes very stiff	42	MC					
				35	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular gravel	38	MC					
	20			55	MC					
				40	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense to dense, wet, olive brown, fine to coarse subangular gravel	47	MC					
	25			84	MC					
				50/5"	SPT					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
				50/5"	SPT					
				55	SPT					
	30		**Clayey Sand with Gravel (SC) [Franciscan Complex]** very dense, moist, olive brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	50/6"	SPT					
	35			50/5"	SPT					
	40			70	SPT					
				50/6"	SPT					
	45		Bottom of Boring at 44.0 feet.							
	50									
	55									

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/29/12 **DATE COMPLETED** 3/29/12
GROUND ELEVATION _____ **BORING DEPTH** 36 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 28.5 ft.
NOTES _____
▼ **AT END OF DRILLING** 28.5 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat / Lean Clay with Sand (CL/CH) [Fill]** moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 14' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Old Alluvium]** hard, moist, olive brown with white mottles, medium to coarse sand, fine gravel							
	10									
	15			58	MC					
			Silty Sand with Gravel (SM) [Santa Clara Formation] very dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
				50/6"	MC					>4.5
			Lean Clay with Sand (CL) [Santa Clara Formation] very stiff, moist, olive gray with dark gray mottles, medium to coarse sand	50/6"	MC					
	20		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded gravel	62	MC					
				58	MC					
			Clayey Sand (SC) [Santa Clara Formation] dense, moist, greenish brown	60	MC					
	25		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded	57	MC					
				47	MC					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			gravel							
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
	30		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, wet, gray brown, fine to coarse sand, fine to coarse subangular gravel	50	SPT					○ 4.0
				50/6"	MC					
			Sandy Lean Clay (CL) [Santa Clara Formation] hard, moist, yellowish brown, fine to coarse sand, some fine subangular gravel, moderate plasticity	50/6"	MC					
				50/5"	MC					
	35		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, yellowish brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/5"	MC					
			Bottom of Boring at 36.0 feet.							
	40									
	45									
	50									
	55									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-7

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL) 1.0 2.0 3.0 4.0
	0		3½ inches asphalt concrete over 7 inches aggregate base							
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 10' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, brown, fine to coarse sand,fine subangular to subrounded gravel							
	10			29	SPT-1		12		26	
				43	MC					
			Sandy Lean Clay (CL) [Alluvium] very stiff, moist, gray, fine sand, some fine to coarse subangular to subrounded gravel, moderate plasticity	33	MC-4	111	25			
	15			54	SPT					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	50 5"	MC					
				50 6"	SPT					
	20			50 6"	SPT					
			Bottom of Boring at 20.5 feet.							
	25									

BORING NUMBER EB-8

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity	49	MC-1	101	24		
			Clayey Sand with Gravel (SC) [Fill] medium dense, moist, yellowish brown and gray mottled, fine to coarse sand, trace fine subangular gravel	32	MC-3	105	21		
	5		**Fat Clay with Sand (CH) [Alluvium]** hard, moist, dark gray brown to olive brown with brown mottles, fine to medium sand, high plasticity	44	MC-6	111	19	41	
			Liquid Limit = 58, Plastic Limit = 17						
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	58	MC-8	119	16		46
	10								
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	40	NR				
	15			37	SPT				
				35	SPT				
	20		Bottom of Boring at 20.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-9

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3 inches asphalt concrete over 6 inches aggregate base						
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty						
			Drilled to 13' Soil Classification from auger cutting observations, depth of fill not determined						
	5								
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel						
	10		Liquid Limit = 38, Plastic Limt = 22	30	SPT-1		18	16	
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	38	SPT				
	15			36	SPT				
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-10

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity						
	5		Liquid Limit = 63, Plastic Limit = 18	27	MC-1	100	22	45	
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	19	SPT-3		14		35
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, wet, gray and brown, fine to coarse sand, fine to coarse subangular to subrounded gravel Liquid Limit = 24, Plastic Limt = 19	36	SPT-3		9	5	12
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	32	SPT-4		17		
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-11

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 13' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand (SC) [Alluvium]** dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	50 5"	MC				
			Lean Clay (CL) [Alluvium] very stiff, moist, olive brown, some fine sand, low to moderate plasticity	17	MC				
			Clayey Sand (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel	37	MC				
				27	MC				
	20		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, dark greenish olive to dark gray, trace fine subangular gravel, sheared fabric	47	MC				
				38	MC				
				34	MC				
			Bottom of Boring at 23.5 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 24.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 22 ft.
NOTES _____
▼ **AT END OF DRILLING** 22 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 15' Soil Classification above from auger cutting observations, depth of fill not determined							○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL 1.0 2.0 3.0 4.0
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	55	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive, fine to coarse subangular gravel	35	MC					
	20		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	51	MC					
▼			**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse subangular gravel	34	MC					
	25		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, moist, gray brown, fine to coarse sand,	35	MC					
				50/6"	MC					
				50/6"	MC					

Continued Next Page

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			fine to coarse subangular to subrounded gravel							
			Bottom of Boring at 24.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 25.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	50/6"	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, moist, yellow brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	28	MC					
	20		**Sandy Lean Clay with Gravel (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, fine subangular, low to moderate plasticity	43	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive with reddish brown mottles, fine to coarse subangular gravel	38	MC					
				55	MC					
	25		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense, wet, gray, fine to coarse	50/6"	MC					

Continued Next Page

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			subangular gravel							
			Silty Sand (SM) [Santa Clara Formation] dense, moist, olive							
			Bottom of Boring at 25.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-14

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, light gray, low to moderate plasticity							
			Clayey Sand (SC) [Santa Clara Formation] medium dense, moist, olive	42	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense, wet, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	38	MC					
	20		**Clayey Sand (SC) [Santa Clara Formation]** medium dense, wet, gray	21	MC					
			Poorly Graded Sand with Clay (SP-SC) [Santa Clara Formation] dense, wet, gray	50	MC					
			Bottom of Boring at 23.0 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-15

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, gray, fine to coarse angular gravel	50 5"	MC				
			Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50 3"	MC				
	20			58	MC				
			Well Graded Sand (SW) [Santa Clara Formation] medium dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	53	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-16

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 19.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation]** medium dense, moist, olive brown, fine to coarse sand, fine to coarse subangular	58	MC				
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, wet, brown, fine to coarse angular gravel	43	MC				
	20		**Well Graded Sand with Gravel (SW) [Santa Clara Formation]** dense, wet, brown, fine to coarse sand, fine to coarse subrounded gravel	50 4"	MC				
			Bottom of Boring at 19.8 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:08 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-17

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Clayey Sand (SC)** gray brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5								
			Lean Clay (CL) dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, yellow brown, fine to coarse sand, fine subrounded gravel	50	MC				
				58	MC				
	20		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense to dense, moist, fine to coarse subrounded gravel, light yellow brown	53	MC				
				79	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-18

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19.7 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense to dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	45 50 3" 50 2"	MC MC MC				
	20		Bottom of Boring at 19.7 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-19

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Poorly Graded Gravel with Clay and Sand (GP-GC)** very dense, moist, gray brown, fine to coarse subangular to subrounded gravel, fine to coarse sand						
	15			50 6"	MC				
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, wet, gray brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	91	MC				
	20		Bottom of Boring at 19.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-20

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 12/14/12 **DATE COMPLETED** 12/14/12
GROUND ELEVATION _____ **BORING DEPTH** 21.5 ft.
DRILLING CONTRACTOR Britton Exploration Services, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD CME 55 Track Rig, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay with Sand (CL)** moist, reddish brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	15		**Clayey Sand (SC)** medium dense, moist, yellow brown, fine to coarse sand, some fine subrounded gravel	50	MC				
			Poorly Graded Sand (SP) medium dense, moist, gray brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel, trace clay	41	MC				
				39	MC				
	20		**Clayey Sand (SC)** medium dense, moist, gray with light reddish brown mottles, fine to coarse sand, some fine subangular gravel	20	MC				
				28	MC				
			Bottom of Boring at 21.5 feet.						

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

APPENDIX B: LABORATORY TEST PROGRAM

The laboratory testing program was performed to evaluate the physical and mechanical properties of the soils retrieved from the site to aid in verifying soil classification.

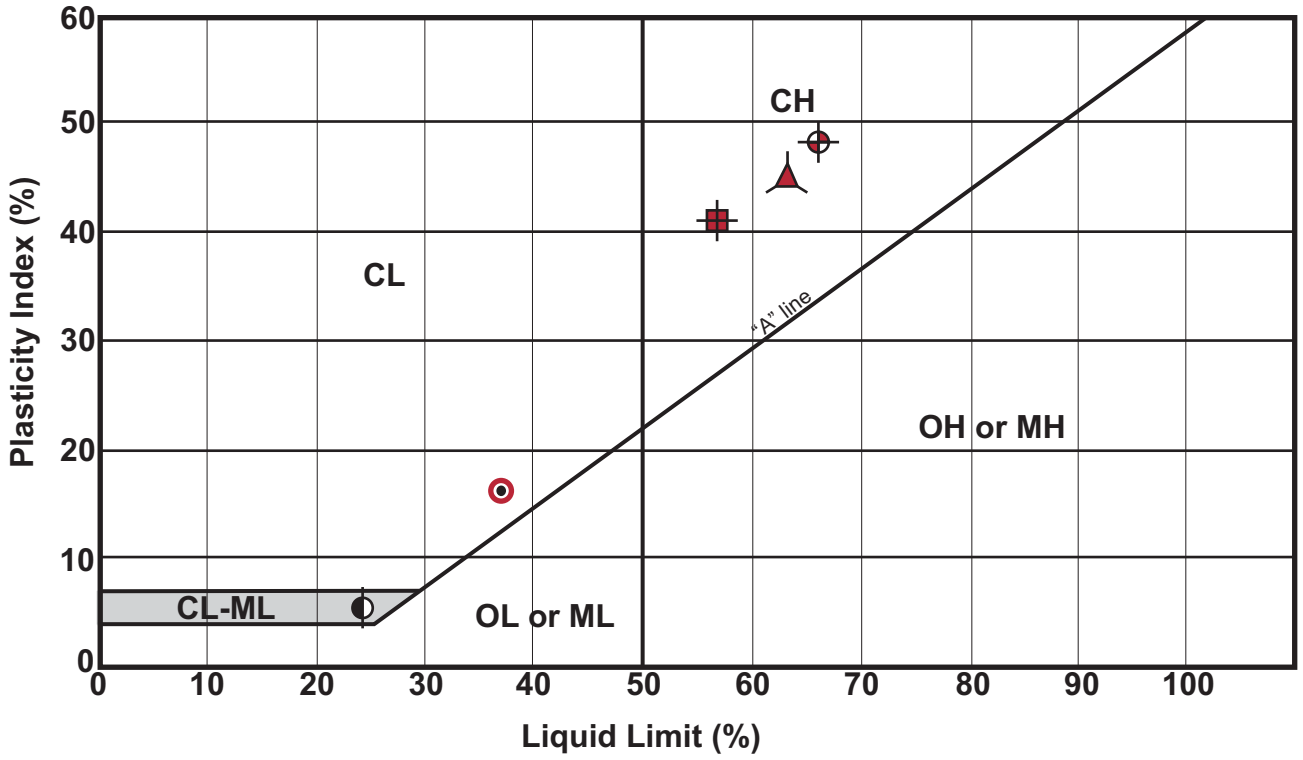
Moisture Content: The in-situ water content was determined (ASTM D2216) on 15 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry Densities: In place dry density determinations (ASTM D2937) were performed on ten samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was determined on five samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Plasticity Index: Five Plasticity Index tests (ASTM D4318) were performed on selected samples to measure the range of water contents over which this material exhibits plasticity. The Plasticity Index was used to classify the soil in accordance with the Unified Soil Classification System and to evaluate the soil expansion potential. Results of these tests are shown on the boring logs at the appropriate sample depths and on Figure B-1.

Plasticity Index (ASTM D4318) Testing Summary



Symbol	Boring No.	Depth (ft)	Natural Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Passing No. 200 (%)	Group Name (USCS - ASTM D2487)
⊕	EB-3	2.5	34	67	19	48	—	Fat Clay with Sand (CH) [Fill]
⊞	EB-8	5.0	19	58	17	41	—	Fat Clay with Sand (CH) [Alluvium]
◉	EB-9	12.0	18	38	22	16	—	Clayey Sand (CL) [Alluvium]
▲	EB-10	5.0	22	63	18	45	—	Fat Clay with Sand (CH) [Fill]
◐	EB-10	12.0	9	24	19	5	12	Sand with Clay(SP-SC) [Alluvium]

CORNERSTONE EARTH GROUP

Plasticity Index Testing Summary

Canyon Creek Plaza
San Jose, CA

Project Number: 535-1-1

Figure Number: Figure B1

Date: November 2012

Drawn By: FLL

CORNERSTONE EARTH GROUP

CPT No.	1

PGA (A_{max})	0.52

Total Settlement:	0.02	(Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
0.164	5.804	0.085	19.7	19.7	56.784	1.467	2.21		Unsaturated	21.9			5.49	1.70	9.33	37.78	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.328	5.804	0.085	39.4	39.4	40.084	1.469	2.33		Unsaturated	25.1			5.49	1.70	9.33	39.74	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.492	5.804	0.085	59.0	59.0	32.673	1.472	2.40		Unsaturated	27.2			5.49	1.70	9.33	40.60	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.656	5.804	0.085	78.7	78.7	28.247	1.475	2.45		Unsaturated	28.8			5.49	1.70	9.33	41.10	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	5.804	0.085	98.4	98.4	25.222	1.477	2.49		Unsaturated	30.1			5.49	1.70	9.33	41.43	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.984	5.804	0.085	118.1	118.1	22.985	1.480	2.53		Unsaturated	31.1			5.49	1.70	9.33	41.66	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.148	5.804	0.085	137.8	137.8	21.243	1.482	2.55		Unsaturated	32.1			5.49	1.70	9.33	41.84	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.312	5.804	0.085	157.5	157.5	19.837	1.485	2.58		Unsaturated	32.9			5.49	1.70	9.33	41.99	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.476	5.804	0.085	177.1	177.1	30.662	1.487	2.42		Unsaturated	28.0			5.49	1.70	9.33	40.85	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	5.804	0.085	196.8	196.8	28.433	1.490	2.45		Unsaturated	28.8			5.49	1.70	9.33	41.10	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.804	5.804	0.085	216.5	216.5	26.552	1.492	2.48		Unsaturated	29.6			5.49	1.70	9.33	41.30	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.968	5.804	0.085	236.2	236.2	24.940	1.495	2.50		Unsaturated	30.3			5.49	1.70	9.33	41.48	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.132	5.804	0.085	255.9	255.9	23.540	1.498	2.52		Unsaturated	31.0			5.49	1.70	9.33	41.63	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.296	5.804	0.085	275.6	275.6	22.311	1.500	2.54		Unsaturated	31.6			5.49	1.70	9.33	41.75	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	5.804	0.085	295.2	295.2	21.222	1.503	2.56		Unsaturated	32.2			5.49	1.70	9.33	41.87	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.624	5.804	0.085	314.9	314.9	20.250	1.505	2.58		Unsaturated	32.8			5.49	1.70	9.33	41.96	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.788	5.804	0.085	334.6	334.6	19.375	1.508	2.59		Unsaturated	33.3			5.49	1.70	9.33	42.05	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.952	5.804	0.085	354.3	354.3	18.582	1.511	2.61		Unsaturated	33.8			5.49	1.70	9.33	42.12	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.116	5.804	0.085	374.0	374.0	17.861	1.513	2.62		Unsaturated	34.4			5.49	1.70	9.33	42.19	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	5.804	0.085	393.6	393.6	17.201	1.516	2.64		Unsaturated	34.8			5.49	1.70	9.33	42.25	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.444	5.804	0.085	413.3	413.3	16.594	1.519	2.65		Unsaturated	35.3			5.49	1.70	9.33	42.31	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.608	5.804	0.085	433.0	433.0	16.034	1.521	2.66		Unsaturated	35.8			5.49	1.70	9.33	42.36	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.772	5.804	0.085	452.7	452.7	15.515	1.524	2.68		Unsaturated	36.2			5.49	1.70	9.33	42.40	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.936	5.804	0.085	472.4	472.4	15.033	1.527	2.69		Unsaturated	36.6			5.49	1.70	9.33	42.44	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.101	5.804	0.085	492.1	492.1	14.584	1.529	2.70		Unsaturated	37.0			5.49	1.70	9.33	42.48	1.00	0.337	1.097	n.a.	n.a.	n.a.	0.00	0.00
4.265	5.804	0.085	511.7	511.7	14.164	1.532	2.71		Unsaturated	37.5			5.49	1.70	9.33	42.51	1.00	0.337	1.094	n.a.	n.a.	n.a.	0.00	0.00
4.429	5.804	0.085	531.4	531.4	13.770	1.535	2.72		Unsaturated	37.8			5.49	1.70	9.33	42.55	1.00	0.337	1.092	n.a.	n.a.	n.a.	0.00	0.00
4.593	5.804	0.085	551.1	551.1	13.400	1.538	2.73		Unsaturated	38.2			5.49	1.70	9.33	42.57	1.00	0.337	1.089	n.a.	n.a.	n.a.	0.00	0.00
4.757	5.804	0.085	570.8	570.8	13.052	1.540	2.74		Unsaturated	38.6			5.49	1.70	9.33	42.60	1.00	0.337	1.087	n.a.	n.a.	n.a.	0.00	0.00
4.921	5.804	0.085	590.5	590.5	18.659	1.543	2.61		Unsaturated	34.0			5.49	1.70	9.33	42.14	1.00	0.336	1.085	n.a.	n.a.	n.a.	0.00	0.00
5.085	5.804	0.085	610.2	610.2	18.025	1.546	2.62		Unsaturated	34.4			5.49	1.70	9.33	42.20	0.99	0.336	1.082	n.a.	n.a.	n.a.	0.00	0.00
5.249	7.328	0.267	629.8	629.8	22.270	3.807	2.78		Unsaturated	40.1			6.93	1.70	11.77	45.99	0.99	0.336	1.083	n.a.	n.a.	n.a.	0.00	0.00
5.413	19.131	0.519	649.5	649.5	32.083	2.760	2.57		Unsaturated	32.6			18.08	1.70	30.74	70.65	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.577	24.639	0.692	669.2	669.2	40.849	2.847	2.50		Unsaturated	30.4			23.29	1.70	39.59	81.94	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.741	27.001	0.775	688.9	688.9	44.157	2.907	2.48		Unsaturated	29.8			25.52	1.70	43.39	86.82	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.905	30.492	0.883	708.6	708.6	49.226	2.930	2.45		Unsaturated	28.8			28.82	1.70	48.99	93.93	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.069	31.328	1.048	728.2	728.2	49.887	3.385	2.49		Unsaturated	30.0			29.61	1.70	50.34	96.18	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.233	27.591	1.133	747.9	747.9	43.270	4.163	2.60		Unsaturated	33.5			26.08	1.70	44.33	89.06	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.397	26.066	1.058	767.6	767.6	49.364	4.120	2.55		Unsaturated	32.1			24.64	1.70	41.88	85.46	0.99	0.335	1.096	n.a.	n.a.	n.a.	0.00	0.00
6.561	25.722	1.072	787.3	787.3	47.828	4.232	2.57		Unsaturated	32.6			24.31	1.70	41.23	84.71	0.99	0.335	1.093	n.a.	n.a.	n.a.	0.00	0.00
6.725	22.869	0.978	807.0	807.0	41.695	4.353	2.62		Unsaturated	34.3			21.62	1.70	36.69	78.95	0.99	0.335	1.087	n.a.	n.a.	n.a.	0.00	0.00
6.889	20.656	1.025	826.7	826.7	48.975	5.064	2.62		Unsaturated	34.3			19.52	1.70	33.11	74.13	0.99	0.335	1.082	n.a.	n.a.	n.a.	0.00	0.00
7.053	19.820	1.150	846.3	846.3	45.837	5.929	2.69		Unsaturated	36.7			18.73	1.68	31.50	72.30	0.99	0.335	1.078	n.a.	n.a.	n.a.	0.00	0.00
7.217	19.574	1.242	866.0	866.0	44.204	6.489	2.73		Unsaturated	38.2			18.50	1.66	30.77	71.46	0.99	0.334	1.076	n.a.	n.a.	n.a.	0.00	0.00
7.381	21.246	1.133	885.7	885.7	46.975	5.446	2.66		Unsaturated	35.5			20.08	1.63	32.78	73.87	0.99	0.334	1.075	n.a.	n.a.	n.a.	0.00	0.00
7.545	25.673	1.047	905.4	905.4	43.186	4.151	2.60		Unsaturated	33.5			24.27	1.59	38.48	81.20	0.99	0.334	1.078	n.a.	n.a.	n.a.	0.00	0.00
7.709	27.394	1.113	925.1	925.1	45.427	4.133	2.58		Unsaturated	32.9			25.89	1.56	40.37	83.63	0.99	0.334	1.077	n.a.	n.a.	n.a.	0.00	0.00
7.873	25.673	1.183	944.8	944.8	41.885	4.694	2.64		Unsaturated	35.1			24.27	1.55	37.66	80.38	0.99	0.334	1.074	n.a.	n.a.	n.a.	0.00	0.00
8.037	22.967	1.155	964.4	964.4	46.628	5.137	2.64		Unsaturated	35.0			21.71	1.55	33.69	75.02	0.99	0.334	1.069	n.a.	n.a.	n.a.	0.00	0.00
8.201	21.689	1.110	984.1	984.1	43.078	5.237	2.67		Unsaturated	36.0			20.50	1.54	31.64	72.40	0.99	0.333	1.066	n.a.	n.a.	n.a.	0.00	0.00
8.365	20.164	1.083	1003.8	1003.8	39.175	5.508	2.71		Unsaturated	37.6			19.06	1.54	29.27	69.39	0.99	0.333	1.062	n.a.	n.a.	n.a.	0.00	0.00
8.529	22.475	1.135	1023.5	1023.5	42.919	5.168	2.67		Unsaturated	35.9			21.24	1.51	32.03	72.91	0.99	0.333	1.062	n.a.	n.a.	n.a.	0.00	0.00
8.693	33.492	1.181	1043.2	1043.2	44.383	3.582	2.54		Unsaturated	31.7			31.66	1.44	45.73	90.52	0.99	0.333	1.070	n.a.	n.a.	n.a.	0.00	0.00
8.857	44.116	1.262	1062.8	1062.8	58.126	2.896	2.40		Unsaturated	27.1			41.70	1.40	58.28	105.49	0.98	0.333	1.076	n.a.	n.a.	n.a.	0.00	0.00
9.021	48.591	1.476	1082.5	1082.5	63.495	3.072	2.39		Unsaturated	26.9			45.93	1.37	63.07	111.70	0.98	0.333	1.078	n.a.	n.a.	n.a.	0.00	0.00
9.185	48.099	1.580	1102.2	1102.2	62.269	3.323	2.42		Unsaturated	27.8			45.46	1.36	61.98	110.74	0.98	0.333	1.075	n.a.	n.a.	n.a.	0.00	0.00
9.349	51.935	1.564	1121.9	1121.9	66.687	3.044	2.37		Unsaturated	26.4			49.09	1.34	65.98	115.24	0.98	0.332	1.076	n.a.	n.a.	n.a.	0.00	0.00
9.513	55.673	1.666	1141.6	1141.6	70.907	3.023	2.35		Unsaturated	25.8			52.62	1.33	69.77	119.85	0.98	0.332	1.077	n.a.	n.a.	n.a.	0.00	0.00
9.677	60.099	1.794	1161.3	1161.3	75.938	3.014	2.33		Unsaturated	25.2			56.80	1.31	74.26	125.32	0.98	0.332	1.078	n.a.	n.a.	n.a.	0.00	0.00
9.841	59.706	2.167	1180.9	1180.9	74.793	3.666	2.39		Unsaturated	27.1			56.43	1.30	73.23	125.29	0.98	0.332	1.076	n.a.	n.a.	n.a.	0.00	0.00
10.005	54.296	2.318	1200.6	1200.6	67.376	4.317	2.48	Plastic	Clay	29.6			51.32	1.16	n.a.	n.a.	0.98	0.332	n.a.	n.a.	n.a.	n.a.	0.00	0.00
10.169	51.394	2.273	1220.3	1220.3	63.207	4.476	2.51	Plastic	Clay	30.6			48.58	1.16	n.a.	n.a.	0.98	0.334	n.a.	n.a.	n.a.	n.a.	0.00	0.00
10.333	48.148	2.136	1240.0	1240.0	58.683	4.494	2.53	Plastic	Clay	31.3			45.51	1.15	n.a.	n.a.	0.98	0.337	n.a.	n.a.	n.a.	n.a.	0.00	0.00
10.497	47.116	2.189	1259.7	1259.7	56.946	4.709	2.55	Plastic	Clay	32.1			44.53	1.15	n.a.	n.a.	0.98	0.340	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No.	1

PGA (A_{max})	0.52

Total Settlement:	0.02	(Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
10.661	47.902	2.207	1279.4	1279.4	57.450	4.670	2.55	Plastic	Clay	31.9			45.28	1.14	n.a.	n.a.	0.98	0.342	n.a.	n.a.	n.a.	n.a.	0.00	0.00
10.825	46.378	2.439	1299.0	1299.0	60.817	5.334	2.58	Plastic	Clay	32.8			43.84	1.14	n.a.	n.a.	0.98	0.345	n.a.	n.a.	n.a.	n.a.	0.00	0.00
10.989	52.329	2.409	1318.7	1318.7	61.863	4.662	2.53	Plastic	Clay	31.2			49.46	1.13	n.a.	n.a.	0.98	0.347	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.153	48.837	2.396	1338.4	1338.4	57.245	4.974	2.57	Plastic	Clay	32.6			46.16	1.13	n.a.	n.a.	0.98	0.349	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.317	42.345	2.077	1358.1	1358.1	53.716	4.985	2.59	Plastic	Clay	33.2			40.02	1.12	n.a.	n.a.	0.98	0.352	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.481	38.853	1.795	1377.8	1377.8	48.709	4.703	2.60	Plastic	Clay	33.6			36.72	1.12	n.a.	n.a.	0.98	0.354	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.645	39.099	1.540	1397.5	1397.5	44.662	4.010	2.58	Plastic	Clay	32.8			36.96	1.12	n.a.	n.a.	0.98	0.356	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.809	36.787	1.492	1417.1	1417.1	45.148	4.135	2.58	Plastic	Clay	33.0			34.77	1.11	n.a.	n.a.	0.98	0.358	n.a.	n.a.	n.a.	n.a.	0.00	0.00
11.973	37.919	1.450	1436.8	1436.8	42.670	3.898	2.58	Plastic	Clay	33.0			35.84	1.11	n.a.	n.a.	0.98	0.361	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.137	37.869	1.447	1456.5	1456.5	42.312	3.896	2.58	Plastic	Clay	33.0			35.79	1.10	n.a.	n.a.	0.97	0.363	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.302	39.541	1.230	1476.2	1476.2	43.910	3.170	2.51	Plastic	Clay	30.7			37.37	1.10	n.a.	n.a.	0.97	0.365	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.466	34.427	1.152	1495.9	1495.9	37.861	3.421	2.58	Plastic	Clay	32.9			32.54	1.10	n.a.	n.a.	0.97	0.367	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.630	38.804	1.521	1515.5	1515.5	42.491	3.998	2.59	Plastic	Clay	33.3			36.68	1.09	n.a.	n.a.	0.97	0.369	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.794	53.902	2.096	1535.2	1535.2	58.961	3.945	2.49	Plastic	Clay	29.9			50.95	1.09	n.a.	n.a.	0.97	0.371	n.a.	n.a.	n.a.	n.a.	0.00	0.00
12.958	67.378	2.405	1554.9	1554.9	73.434	3.611	2.39	Plastic	Clay	27.1			63.68	1.08	n.a.	n.a.	0.97	0.373	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.122	79.034	2.799	1574.6	1574.6	85.734	3.577	2.35	Plastic	Clay	25.7			74.70	1.08	n.a.	n.a.	0.97	0.375	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.286	160.969	3.960	1594.3	1594.3	174.412	2.472	2.03	Plastic	Clay	17.6			152.14	1.08	n.a.	n.a.	0.97	0.377	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.450	149.904	4.688	1614.0	1614.0	161.360	3.144	2.13	Plastic	Clay	20.0			141.69	1.07	n.a.	n.a.	0.97	0.379	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.614	108.838	4.225	1633.6	1633.6	116.199	3.911	2.29	Plastic	Clay	24.2			102.87	1.07	n.a.	n.a.	0.97	0.380	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.778	89.706	3.913	1653.3	1653.3	95.037	4.403	2.39	Plastic	Clay	26.9			84.79	1.07	n.a.	n.a.	0.97	0.382	n.a.	n.a.	n.a.	n.a.	0.00	0.00
13.942	90.100	3.349	1673.0	1673.0	94.885	3.752	2.33	Plastic	Clay	25.4			85.16	1.06	n.a.	n.a.	0.97	0.384	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.106	103.674	3.759	1692.7	1692.7	108.666	3.656	2.29	Plastic	Clay	24.1			97.99	1.06	n.a.	n.a.	0.97	0.386	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.270	108.936	4.099	1712.4	1712.4	113.558	3.793	2.29	Plastic	Clay	24.1			102.96	1.06	n.a.	n.a.	0.97	0.387	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.434	88.673	4.251	1732.1	1732.1	91.732	4.841	2.43	Plastic	Clay	28.1			83.81	1.05	n.a.	n.a.	0.97	0.389	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.598	75.837	3.782	1751.7	1751.7	77.871	5.045	2.49	Plastic	Clay	29.9			71.68	1.05	n.a.	n.a.	0.97	0.391	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.762	60.738	2.809	1771.4	1771.4	61.829	4.693	2.53	Plastic	Clay	31.2			57.41	1.05	n.a.	n.a.	0.97	0.392	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.926	69.739	2.742	1791.1	1791.1	70.725	3.983	2.44	Plastic	Clay	28.4			65.92	1.04	n.a.	n.a.	0.97	0.394	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	70.083	3.060	1810.8	1805.2	70.791	4.423	2.47	Plastic	Clay	29.4			66.24	1.04	n.a.	n.a.	0.97	0.396	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.254	76.231	3.380	1830.5	1814.6	76.871	4.488	2.45	Plastic	Clay	28.8			72.05	1.04	n.a.	n.a.	0.96	0.397	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.418	81.739	3.750	1850.1	1824.1	82.269	4.640	2.44	Plastic	Clay	28.6			77.26	1.04	n.a.	n.a.	0.96	0.399	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.582	90.394	3.581	1869.8	1833.5	90.835	4.003	2.37	Plastic	Clay	26.3			85.44	1.04	n.a.	n.a.	0.96	0.400	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.746	89.608	3.615	1889.5	1843.0	89.796	4.077	2.38	Plastic	Clay	26.6			84.70	1.04	n.a.	n.a.	0.96	0.402	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	78.493	3.329	1909.2	1852.4	78.329	4.293	2.43	Plastic	Clay	28.2			74.19	1.04	n.a.	n.a.	0.96	0.403	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.074	85.034	2.047	1928.9	1861.9	84.711	2.435	2.23		Sand	22.4	130		130.00	1.04	135.54	202.43	0.96	0.405	1.035	1.276	1.321	3.26	0.00	0.00
16.238	125.018	2.158	1948.6	1871.3	124.674	1.740	2.01		Sand	17.1	130		130.00	1.04	135.61	189.38	0.96	0.406	1.029	0.734	0.755	1.86	0.00	0.00
16.402	127.084	2.894	1968.2	1880.8	126.421	2.295	2.09		Sand	19.0	130		130.00	1.04	135.26	194.93	0.96	0.407	1.029	0.912	0.939	2.30	0.00	0.00
16.566	99.935	3.150	1987.9	1890.2	98.945	3.184	2.27		Sand	23.5	130		130.00	1.04	134.86	203.18	0.96	0.409	1.031	1.324	1.365	3.34	0.00	0.00
16.730	149.215	3.425	2007.6	1899.7	147.848	2.311	2.05		Sand	18.1			141.03	1.04	146.02	205.70	0.96	0.410	1.030	1.503	1.549	3.78	0.00	0.00
16.894	226.576	3.239	2027.3	1909.1	224.453	1.436	1.77		Sand	12.4			214.16	1.03	220.05	263.45	0.96	0.412	1.031	2.000	2.062	5.01	0.00	0.00
17.058	268.676	4.955	2047.0	1918.5	265.679	1.851	1.82		Sand	13.3			253.95	1.03	260.60	317.22	0.96	0.413	1.029	2.000	2.059	4.99	0.00	0.00
17.222	264.594	3.915	2066.7	1928.0	260.976	1.485	1.75		Sand	11.9			250.09	1.02	256.30	299.89	0.96	0.414	1.028	2.000	2.056	4.97	0.00	0.00
17.386	217.282	4.463	2086.3	1937.4	213.595	2.064	1.91		Sand	15.1			205.37	1.02	210.20	271.29	0.96	0.415	1.026	2.000	2.053	4.94	0.00	0.00
17.550	184.330	4.021	2106.0	1946.9	180.597	2.194	1.98		Sand	16.5			174.22	1.02	178.34	239.76	0.96	0.417	1.025	2.000	2.050	4.92	0.00	0.00
17.714	129.149	4.293	2125.7	1956.3	125.908	3.352	2.22		Sand	22.2			122.07	1.03	125.41	188.91	0.96	0.418	1.018	0.721	0.734	1.76	0.00	0.00
17.878	109.624	4.045	2145.4	1965.8	106.448	3.726	2.30		Sand	24.4			103.61	1.03	106.53	167.09	0.96	0.419	1.014	0.380	0.385	0.92	0.01	0.02
18.042	137.117	4.120	2165.1	1975.2	133.080	3.029	2.17		Sand	21.0			129.60	1.02	132.62	195.99	0.96	0.420	1.017	0.953	0.970	2.31	0.00	0.00
18.206	133.674	3.864	2184.7	1984.7	129.393	2.914	2.16		Sand	20.8			126.35	1.02	129.14	191.23	0.95	0.421	1.015	0.786	0.799	1.90	0.00	0.00
18.370	260.905	3.997	2204.4	1994.1	252.953	1.538	1.77		Sand	12.3			246.60	1.02	250.49	296.78	0.95	0.423	1.018	2.000	2.036	4.82	0.00	0.00
18.534	300.938	3.903	2224.1	2003.6	291.232	1.302	1.67		Sand	10.6			284.44	1.01	288.57	322.42	0.95	0.424	1.016	2.000	2.033	4.80	0.00	0.00
18.698	211.626	4.189	2243.8	2013.0	203.990	1.990	1.91		Sand	15.1			200.02	1.01	202.67	262.14	0.95	0.425	1.015	2.000	2.030	4.78	0.00	0.00
18.862	232.675	3.205	2263.5	2022.5	223.853	1.384	1.76		Sand	12.2			219.92	1.01	222.56	264.53	0.95	0.426	1.014	2.000	2.027	4.76	0.00	0.00
19.026	260.020	2.764	2283.2	2031.9	249.698	1.068	1.65		Sand	10.2			245.77	1.01	248.41	274.64	0.95	0.427	1.012	2.000	2.025	4.74	0.00	0.00
19.190	264.495	2.058	2302.8	2041.4	253.416	0.781	1.54		Sand	8.6			250.00	1.01	252.37	264.54	0.95	0.428	1.011	2.000	2.022	4.72	0.00	0.00
19.354	235.577	2.460	2322.5	2050.8	225.059	1.049	1.67		Sand	10.6			222.66	1.01	224.52	252.44	0.95	0.429	1.009	2.000	2.019	4.71	0.00	0.00
19.518	222.199	2.123	2342.2	2060.3	211.718	0.961	1.66		Sand	10.5			210.02	1.01	211.61	236.92	0.95	0.430	1.008	2.000	2.016	4.69	0.00	0.00
19.682	317.512	1.849	2361.9	2069.7	302.315	0.585	1.40		Sand	6.7			300.11	1.01	301.86	304.02	0.95	0.431	1.007	2.000	2.014	4.67	0.00	0.00
19.846	416.514	3.146	2381.6	2079.2	396.018	0.757	1.40		Sand	6.8			393.68	1.00	395.51	398.48	0.95	0.432	1.005	2.000	2.011	4.65	0.00	0.00
20.010	583.925	3.479	2401.3	2088.6	554.380	0.597	1.23		Sand	4.8			551.91	1.00	553.81	553.85	0.95	0.433	1.004	2.000	2.008	4.64	0.00	0.00
20.174	718.042	2.076	2420.9	2098.0	680.427	0.290	0.93		Sand	2.3			678.68	1.00	680.21	680.21	0.95	0.434	1.003	2.000	2.005	4.62	0.00	0.00
20.338	540.696	2.077	2440.6	2107.5	510.929	0.385	1.11		Sand	3.7			511.05	1.00	511.60	511.60	0.95	0.435	1.001	2.000	2.003	4.60	0.00	0.00
20.503	791.794	2.078	2460.3	2116.9	747.058	0.263	0.87		Sand	2.0			748.39	1.00	748.30	748.30	0.95	0.436	1.000	2.000	2.000	4.59	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No.	2

PGA (A_{max})	0.52

Total Settlement:	0.01	(Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
0.164	38.312	1.210	19.7	19.7	375.367	3.159	1.94		Unsaturated	15.7			36.21	1.70	61.56	93.68	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.328	38.312	1.210	39.4	39.4	265.357	3.160	2.01		Unsaturated	17.3			36.21	1.70	61.56	97.78	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.492	38.312	1.210	59.0	59.0	216.607	3.161	2.06		Unsaturated	18.3			36.21	1.70	61.56	100.06	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.656	38.312	1.210	78.7	78.7	187.539	3.162	2.10		Unsaturated	19.2			36.21	1.70	61.56	101.59	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.820	38.312	1.210	98.4	98.4	167.697	3.162	2.12		Unsaturated	19.8			36.21	1.70	61.56	102.72	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
0.984	38.312	1.210	118.1	118.1	153.046	3.163	2.15		Unsaturated	20.4			36.21	1.70	61.56	103.60	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.148	38.312	1.210	137.8	137.8	141.657	3.164	2.17		Unsaturated	20.9			36.21	1.70	61.56	104.31	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.312	38.312	1.210	157.5	157.5	132.474	3.165	2.19		Unsaturated	21.4			36.21	1.70	61.56	104.90	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.476	38.312	1.210	177.1	177.1	124.865	3.166	2.20		Unsaturated	21.8			36.21	1.70	61.56	105.40	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.640	38.312	1.210	196.8	196.8	118.427	3.166	2.22		Unsaturated	22.2			36.21	1.70	61.56	105.84	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.804	38.312	1.210	216.5	216.5	112.887	3.167	2.23		Unsaturated	22.5			36.21	1.70	61.56	106.22	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
1.968	38.312	1.210	236.2	236.2	108.053	3.168	2.24		Unsaturated	22.8			36.21	1.70	61.56	106.56	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.132	38.312	1.210	255.9	255.9	103.787	3.169	2.25		Unsaturated	23.1			36.21	1.70	61.56	106.86	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.296	38.312	1.210	275.6	275.6	99.986	3.170	2.26		Unsaturated	23.4			36.21	1.70	61.56	107.13	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.460	38.312	1.210	295.2	295.2	96.571	3.170	2.27		Unsaturated	23.7			36.21	1.70	61.56	107.38	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.624	38.312	1.210	314.9	314.9	93.480	3.171	2.28		Unsaturated	23.9			36.21	1.70	61.56	107.60	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.788	38.312	1.210	334.6	334.6	90.666	3.172	2.29		Unsaturated	24.2			36.21	1.70	61.56	107.81	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
2.952	38.312	1.210	354.3	354.3	88.088	3.173	2.30		Unsaturated	24.4			36.21	1.70	61.56	108.00	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.116	38.312	1.210	374.0	374.0	85.717	3.174	2.31		Unsaturated	24.6			36.21	1.70	61.56	108.18	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.280	38.312	1.210	393.6	393.6	83.525	3.175	2.32		Unsaturated	24.8			36.21	1.70	61.56	108.35	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.444	38.312	1.210	413.3	413.3	81.491	3.175	2.32		Unsaturated	25.0			36.21	1.70	61.56	108.50	1.00	0.338	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.608	38.312	1.210	433.0	433.0	79.597	3.176	2.33		Unsaturated	25.2			36.21	1.70	61.56	108.64	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.772	38.312	1.210	452.7	452.7	77.827	3.177	2.34		Unsaturated	25.4			36.21	1.70	61.56	108.78	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
3.936	38.312	1.210	472.4	472.4	76.169	3.178	2.34		Unsaturated	25.6			36.21	1.70	61.56	108.90	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.101	38.312	1.210	492.1	492.1	74.611	3.179	2.35		Unsaturated	25.8			36.21	1.70	61.56	109.02	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.265	38.312	1.210	511.7	511.7	73.143	3.180	2.35		Unsaturated	26.0			36.21	1.70	61.56	109.14	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.429	38.312	1.210	531.4	531.4	71.757	3.180	2.36		Unsaturated	26.1			36.21	1.70	61.56	109.24	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.593	38.312	1.210	551.1	551.1	70.446	3.181	2.37		Unsaturated	26.3			36.21	1.70	61.56	109.35	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.757	38.312	1.210	570.8	570.8	69.202	3.182	2.37		Unsaturated	26.4			36.21	1.70	61.56	109.44	1.00	0.337	1.100	n.a.	n.a.	n.a.	0.00	0.00
4.921	38.312	1.210	590.5	590.5	68.022	3.183	2.38		Unsaturated	26.6			36.21	1.70	61.56	109.53	1.00	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.085	38.312	1.210	610.2	610.2	66.898	3.184	2.38		Unsaturated	26.7			36.21	1.70	61.56	109.62	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.249	34.328	1.271	629.8	629.8	58.926	3.737	2.47		Unsaturated	29.4			32.45	1.70	55.16	102.38	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.413	33.050	1.137	649.5	649.5	55.829	3.474	2.46		Unsaturated	29.2			31.24	1.70	53.10	99.57	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.577	33.050	1.025	669.2	669.2	54.985	3.133	2.44		Unsaturated	28.4			31.24	1.70	53.10	99.22	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.741	33.886	1.016	688.9	688.9	55.563	3.029	2.42		Unsaturated	28.0			32.03	1.70	54.45	100.82	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
5.905	31.820	1.137	708.6	708.6	51.395	3.613	2.50		Unsaturated	30.4			30.08	1.70	51.13	97.35	0.99	0.336	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.069	29.656	1.154	728.2	728.2	47.193	3.940	2.55		Unsaturated	32.1			28.03	1.70	47.65	93.18	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.233	35.312	1.170	747.9	747.9	55.544	3.349	2.45		Unsaturated	28.9			33.38	1.67	55.67	102.86	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.397	36.886	1.251	767.6	767.6	57.282	3.427	2.45		Unsaturated	28.8			34.86	1.64	57.16	104.83	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.561	39.000	1.302	787.3	787.3	59.822	3.373	2.43		Unsaturated	28.3			36.86	1.61	59.36	107.51	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.725	39.542	1.423	807.0	807.0	59.903	3.636	2.46		Unsaturated	29.0			37.37	1.59	59.43	107.91	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
6.889	37.673	1.477	826.7	826.7	56.344	3.964	2.50		Unsaturated	30.4			35.61	1.58	56.36	104.36	0.99	0.335	1.100	n.a.	n.a.	n.a.	0.00	0.00
7.053	35.656	1.531	846.3	846.3	52.656	4.345	2.55		Unsaturated	32.0			33.70	1.58	53.14	100.52	0.99	0.335	1.098	n.a.	n.a.	n.a.	0.00	0.00
7.217	35.853	1.541	866.0	866.0	52.331	4.351	2.55		Unsaturated	32.0			33.89	1.56	52.87	100.17	0.99	0.334	1.095	n.a.	n.a.	n.a.	0.00	0.00
7.381	35.263	1.322	885.7	885.7	50.869	3.797	2.52		Unsaturated	30.9			33.33	1.55	51.62	98.18	0.99	0.334	1.091	n.a.	n.a.	n.a.	0.00	0.00
7.545	33.836	1.066	905.4	905.4	48.237	3.193	2.48		Unsaturated	29.8			31.98	1.54	49.31	94.73	0.99	0.334	1.087	n.a.	n.a.	n.a.	0.00	0.00
7.709	29.804	0.860	925.1	925.1	41.944	2.931	2.50		Unsaturated	30.4			28.17	1.55	43.59	87.29	0.99	0.334	1.080	n.a.	n.a.	n.a.	0.00	0.00
7.873	24.050	1.108	944.8	944.8	39.188	4.699	2.67		Unsaturated	35.8			22.73	1.56	35.49	77.56	0.99	0.334	1.072	n.a.	n.a.	n.a.	0.00	0.00
8.037	26.214	1.026	964.4	964.4	42.155	3.987	2.59		Unsaturated	33.3			24.78	1.53	38.01	80.54	0.99	0.334	1.072	n.a.	n.a.	n.a.	0.00	0.00
8.201	61.181	1.612	984.1	984.1	84.112	2.656	2.26		Unsaturated	23.2			57.83	1.39	80.65	131.89	0.99	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
8.365	94.575	2.635	1003.8	1003.8	129.096	2.801	2.15		Unsaturated	20.5			89.39	1.31	117.27	175.32	0.99	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
8.529	105.493	3.045	1023.5	1023.5	142.673	2.901	2.14		Unsaturated	20.1			99.71	1.28	128.12	188.47	0.99	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
8.693	123.248	3.331	1043.2	1043.2	165.209	2.714	2.07		Unsaturated	18.7			116.49	1.25	146.04	207.51	0.99	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
8.857	144.592	3.905	1062.8	1062.8	192.124	2.711	2.03		Unsaturated	17.8			136.67	1.22	166.94	230.83	0.98	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.021	161.511	2.343	1082.5	1082.5	212.714	1.456	1.79		Unsaturated	12.8			152.66	1.22	186.02	227.22	0.98	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.185	272.315	2.341	1102.2	1102.2	355.902	0.861	1.48		Unsaturated	7.7			257.39	1.19	305.71	312.70	0.98	0.333	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.349	142.035	2.720	1121.9	1121.9	183.642	1.923	1.93		Unsaturated	15.4			134.25	1.22	163.26	216.33	0.98	0.332	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.513	134.756	2.612	1141.6	1141.6	172.673	1.947	1.95		Unsaturated	15.9			127.37	1.22	155.03	208.40	0.98	0.332	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.677	141.002	3.401	1161.3	1161.3	179.160	2.422	2.01		Unsaturated	17.3			133.27	1.20	159.89	220.24	0.98	0.332	1.100	n.a.	n.a.	n.a.	0.00	0.00
9.841	171.199	3.125	1180.9	1180.9	215.853	1.832	1.87		Unsaturated	14.2			161.81	1.18	190.25	241.86	0.98	0.332	1.100	n.a.	n.a.	n.a.	0.00	0.00
10.005	176.559	3.156	1200.6	1200.6	220.790	1.794	1.85		Sand	14.0			166.88	1.17	194.84	245.59	0.98	0.332	1.100	2.000	2.200	6.63	0.00	0.00
10.169	163.625	2.929	1220.3	1220.3	202.892	1.797	1.88		Sand	14.4			154.66	1.17	181.29	232.42	0.98	0.334	1.100	2.000	2.200	6.58	0.00	0.00
10.333	153.199	3.072	1240.0	1240.0	188.390	2.013	1.94		Sand	15.6			144.80	1.17	169.75	225.12	0.98	0.337	1.100	2.000	2.200	6.53	0.00	0.00
10.497	140.756	3.080	1259.7	1259.7	171.657	2.198	1.99		Sand	16.8			133.04	1.18	156.36	213.95	0.98	0.340	1.100	2.000	2.200	6.48	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.52

Total Settlement: 0.01 (Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
10.661	128.805	3.448	1279.4	1279.4	155.793	2.690	2.09		Sand	19.0			121.74	1.18	143.24	204.80	0.98	0.342	1.100	1.436	1.579	4.62	0.00	0.00
10.825	133.182	3.524	1299.0	1299.0	159.876	2.659	2.08		Sand	18.7			125.88	1.17	147.00	208.83	0.98	0.345	1.100	1.777	1.955	5.67	0.00	0.00
10.989	126.149	3.564	1318.7	1318.7	150.246	2.840	2.11		Sand	19.6			119.23	1.17	139.21	201.45	0.98	0.347	1.100	1.218	1.340	3.86	0.00	0.00
11.153	110.116	3.744	1338.4	1338.4	130.071	3.421	2.22		Sand	22.2			104.08	1.17	122.21	184.67	0.98	0.349	1.100	0.622	0.684	1.96	0.00	0.00
11.317	135.149	3.752	1358.1	1358.1	158.648	2.790	2.09		Sand	19.1			127.74	1.15	146.98	210.05	0.98	0.352	1.100	1.902	2.092	5.95	0.00	0.00
11.481	146.166	4.138	1377.8	1377.8	170.404	2.844	2.08		Sand	18.9			138.15	1.14	157.20	222.21	0.98	0.354	1.100	2.000	2.200	6.22	0.00	0.00
11.645	129.936	4.331	1397.5	1397.5	150.311	3.351	2.17		Sand	21.0			122.81	1.14	140.34	206.07	0.98	0.356	1.100	1.533	1.686	4.73	0.00	0.00
11.809	162.002	4.471	1417.1	1417.1	186.287	2.772	2.05		Sand	18.1			153.12	1.12	171.47	237.80	0.98	0.358	1.100	2.000	2.200	6.14	0.00	0.00
11.973	206.658	4.357	1436.8	1436.8	236.217	2.116	1.90		Sand	14.8			195.33	1.11	216.33	276.47	0.98	0.361	1.100	2.000	2.200	6.10	0.00	0.00
12.137	261.446	4.587	1456.5	1456.5	297.021	1.759	1.77		Sand	12.4			247.11	1.10	272.70	323.23	0.97	0.363	1.100	2.000	2.200	6.07	0.00	0.00
12.302	273.987	3.517	1476.2	1476.2	309.215	1.287	1.65		Sand	10.3			258.97	1.10	284.77	314.84	0.97	0.365	1.100	2.000	2.200	6.03	0.00	0.00
12.466	262.430	3.423	1495.9	1495.9	294.171	1.308	1.67		Sand	10.6			248.04	1.10	271.81	303.99	0.97	0.367	1.100	2.000	2.200	6.00	0.00	0.00
12.630	233.708	3.675	1515.5	1515.5	260.166	1.578	1.77		Sand	12.3			220.90	1.09	241.23	286.47	0.97	0.369	1.100	2.000	2.200	5.96	0.00	0.00
12.794	205.822	3.836	1535.2	1535.2	227.539	1.871	1.86		Sand	14.1			194.54	1.09	211.72	266.45	0.97	0.371	1.096	2.000	2.193	5.91	0.00	0.00
12.958	144.592	3.846	1554.9	1554.9	158.571	2.674	2.08		Sand	18.8			136.67	1.10	150.45	213.48	0.97	0.373	1.092	2.000	2.185	5.86	0.00	0.00
13.122	106.280	3.929	1574.6	1574.6	115.587	3.724	2.28		Sand	23.8			100.45	1.11	111.95	173.52	0.97	0.375	1.059	0.446	0.472	1.26	0.00	0.01
13.286	110.050	3.842	1594.3	1594.3	118.966	3.517	2.25		Sand	23.1			104.02	1.11	115.23	176.88	0.97	0.377	1.058	0.489	0.517	1.37	0.00	0.00
13.450	130.723	3.717	1614.0	1614.0	140.601	2.861	2.14		Sand	20.1			123.56	1.09	135.21	197.51	0.97	0.379	1.069	1.018	1.088	2.87	0.00	0.00
13.614	173.461	4.093	1633.6	1633.6	185.715	2.371	2.00		Sand	16.9			163.95	1.08	176.31	239.12	0.97	0.380	1.078	2.000	2.156	5.67	0.00	0.00
13.778	163.920	5.907	1653.3	1653.3	174.393	3.622	2.16		Sand	20.8			154.93	1.07	166.07	238.68	0.97	0.382	1.074	2.000	2.148	5.62	0.00	0.00
13.942	177.937	5.028	1673.0	1673.0	188.254	2.839	2.06		Sand	18.2			168.18	1.07	179.22	248.02	0.97	0.384	1.070	2.000	2.141	5.58	0.00	0.00
14.106	191.511	2.873	1692.7	1692.7	201.490	1.507	1.82		Sand	13.3			181.01	1.06	192.75	238.58	0.97	0.386	1.067	2.000	2.134	5.53	0.00	0.00
14.270	103.526	3.269	1712.4	1712.4	107.874	3.184	2.24	Plastic	Clay	22.9			97.85	1.06	n.a.	n.a.	0.97	0.387	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.434	63.493	3.077	1732.1	1732.1	65.426	4.913	2.53	Plastic	Clay	31.2			60.01	1.05	n.a.	n.a.	0.97	0.389	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.598	52.919	2.870	1751.7	1751.7	56.145	5.515	2.61	Plastic	Clay	33.9			50.02	1.05	n.a.	n.a.	0.97	0.391	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.762	50.509	2.381	1771.4	1771.4	51.262	4.798	2.59	Plastic	Clay	33.3			47.74	1.05	n.a.	n.a.	0.97	0.392	n.a.	n.a.	n.a.	n.a.	0.00	0.00
14.926	49.427	2.042	1791.1	1791.1	49.858	4.208	2.56	Plastic	Clay	32.2			46.72	1.04	n.a.	n.a.	0.97	0.394	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.090	46.476	1.739	1810.8	1805.2	46.633	3.816	2.55	Plastic	Clay	31.9			43.93	1.04	n.a.	n.a.	0.97	0.396	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.254	42.050	1.659	1830.5	1814.6	41.984	4.033	2.60	Plastic	Clay	33.5			39.74	1.04	n.a.	n.a.	0.96	0.397	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.418	43.279	1.510	1850.1	1824.1	43.117	3.565	2.55	Plastic	Clay	32.0			40.91	1.04	n.a.	n.a.	0.96	0.399	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.582	48.345	1.371	1869.8	1833.5	48.139	2.892	2.45	Plastic	Clay	28.9			45.69	1.04	n.a.	n.a.	0.96	0.400	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.746	47.804	1.345	1889.5	1843.0	47.458	2.870	2.46	Plastic	Clay	29.0			45.18	1.04	n.a.	n.a.	0.96	0.402	n.a.	n.a.	n.a.	n.a.	0.00	0.00
15.910	43.377	1.491	1909.2	1852.4	42.855	3.515	2.55	Plastic	Clay	31.9			41.00	1.04	n.a.	n.a.	0.96	0.403	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.074	41.509	1.421	1928.9	1861.9	40.854	3.505	2.56	Plastic	Clay	32.4			39.23	1.03	n.a.	n.a.	0.96	0.405	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.238	39.000	1.756	1948.6	1871.3	40.641	4.618	2.65		Clay	35.2			36.86	1.03	n.a.	n.a.	0.96	0.406	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.402	52.230	1.716	1968.2	1880.8	51.377	3.349	2.48	Plastic	Clay	29.6			49.37	1.03	n.a.	n.a.	0.96	0.407	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.566	38.656	1.859	1987.9	1890.2	39.850	4.936	2.68		Clay	36.2			36.54	1.03	n.a.	n.a.	0.96	0.409	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.730	43.575	2.004	2007.6	1899.7	44.820	4.707	2.62		Clay	34.4			41.19	1.03	n.a.	n.a.	0.96	0.410	n.a.	n.a.	n.a.	n.a.	0.00	0.00
16.894	43.083	2.045	2027.3	1909.1	44.072	4.861	2.64		Clay	34.9			40.72	1.03	n.a.	n.a.	0.96	0.412	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.058	34.034	2.138	2047.0	1918.5	34.412	6.477	2.80		Clay	40.9			32.17	1.03	n.a.	n.a.	0.96	0.413	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.222	34.870	2.067	2066.7	1928.0	35.100	6.109	2.78		Clay	40.0			32.96	1.02	n.a.	n.a.	0.96	0.414	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.386	35.411	2.264	2086.3	1937.4	35.478	6.588	2.80		Clay	40.7			33.47	1.02	n.a.	n.a.	0.96	0.415	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.550	37.624	2.295	2106.0	1946.9	37.569	6.275	2.77		Clay	39.5			35.56	1.02	n.a.	n.a.	0.96	0.417	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.714	34.083	2.230	2125.7	1956.3	33.757	6.753	2.82		Clay	41.6			32.21	1.02	n.a.	n.a.	0.96	0.418	n.a.	n.a.	n.a.	n.a.	0.00	0.00
17.878	33.198	2.131	2145.4	1965.8	32.684	6.633	2.83		Clay	41.8			31.38	1.02	n.a.	n.a.	0.96	0.419	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.042	32.706	2.378	2165.1	1975.2	32.020	7.520	2.87		Clay	43.5			30.91	1.02	n.a.	n.a.	0.96	0.420	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.206	37.181	2.507	2184.7	1984.7	36.367	6.947	2.81		Clay	41.1			35.14	1.02	n.a.	n.a.	0.95	0.421	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.370	60.591	2.580	2204.4	1994.1	57.920	4.337	2.52	Plastic	Clay	31.0			57.27	1.02	n.a.	n.a.	0.95	0.423	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.534	40.230	2.415	2224.1	2003.6	39.048	6.174	2.75		Clay	38.9			38.02	1.01	n.a.	n.a.	0.95	0.424	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.698	37.870	2.593	2243.8	2013.0	36.510	7.056	2.81		Clay	41.2			35.79	1.01	n.a.	n.a.	0.95	0.425	n.a.	n.a.	n.a.	n.a.	0.00	0.00
18.862	36.591	2.057	2263.5	2022.5	35.065	5.801	2.76		Clay	39.4			34.59	1.01	n.a.	n.a.	0.95	0.426	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.026	34.771	2.089	2283.2	2031.9	33.101	6.212	2.80		Clay	40.8			32.86	1.01	n.a.	n.a.	0.95	0.427	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.190	31.427	2.289	2302.8	2041.4	29.662	7.561	2.90		Clay	44.5			29.70	1.01	n.a.	n.a.	0.95	0.428	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.354	32.607	2.250	2322.5	2050.8	30.667	7.155	2.87		Clay	43.4			30.82	1.01	n.a.	n.a.	0.95	0.429	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.518	45.788	2.226	2342.2	2060.3	43.312	4.989	2.65		Clay	35.4			43.28	1.01	n.a.	n.a.	0.95	0.430	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.682	89.214	2.924	2361.9	2069.7	84.132	3.321	2.33	Plastic	Clay	25.2			84.32	1.01	n.a.	n.a.	0.95	0.431	n.a.	n.a.	n.a.	n.a.	0.00	0.00
19.846	105.149	3.668	2381.6	2079.2	99.126	3.528	2.30	Plastic	Clay	24.5			99.38	1.00	n.a.	n.a.	0.95	0.432	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.010	74.116	3.555	2401.3	2088.6	69.369	4.876	2.51	Plastic	Clay	30.6			70.05	1.00	n.a.	n.a.	0.95	0.433	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.174	58.311	3.278	2420.9	2098.0	54.432	5.741	2.63		Clay	34.6			55.11	1.00	n.a.	n.a.	0.95	0.434	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.338	47.017	2.608	2440.6	2107.5	43.461	5.695	2.69		Clay	36.8			44.44	1.00	n.a.	n.a.	0.95	0.435	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.503	41.558	2.261	2460.3	2116.9	38.100	5.607	2.73		Clay	38.1			39.28	1.00	n.a.	n.a.	0.95	0.436	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.667	58.476	2.553	2480.0	2126.4	53.966	4.460	2.55	Plastic	Clay	32.0			55.27	1.00	n.a.	n.a.	0.95	0.437	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.831	87.788	3.050	2499.7	2135.8	81.413	3.524	2.36	Plastic	Clay	26.0			82.98	1.00	n.a.	n.a.	0.94	0.438	n.a.	n.a.	n.a.	n.a.	0.00	0.00
20.995	67.673	3.227	2519.3	2145.3	62.343	4.859	2.54	Plastic	Clay	31.5			63.96	1.00	n.a.	n.a.	0.94	0.439	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.52

Total Settlement: 0.01 (Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	CRR$_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
21.159	48.001	3.305	2539.0	2154.7	43.376	7.072	2.76		Clay	39.4			45.37	1.00	n.a.	n.a.	0.94	0.439	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.323	40.132	3.055	2558.7	2164.2	35.905	7.863	2.85		Clay	42.8			37.93	0.99	n.a.	n.a.	0.94	0.440	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.487	37.673	2.885	2578.4	2173.6	33.477	7.929	2.88		Clay	43.7			35.61	0.99	n.a.	n.a.	0.94	0.441	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.651	37.919	2.783	2598.1	2183.1	33.549	7.600	2.86		Clay	43.1			35.84	0.99	n.a.	n.a.	0.94	0.442	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.815	48.345	2.976	2617.8	2192.5	42.906	6.327	2.73		Clay	38.2			45.69	0.99	n.a.	n.a.	0.94	0.443	n.a.	n.a.	n.a.	n.a.	0.00	0.00
21.979	49.427	2.906	2637.4	2202.0	43.696	6.041	2.71		Clay	37.5			46.72	0.99	n.a.	n.a.	0.94	0.444	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.143	37.820	2.553	2657.1	2211.4	33.003	6.996	2.84		Clay	42.3			35.75	0.99	n.a.	n.a.	0.94	0.444	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.307	37.870	2.427	2676.8	2220.9	32.898	6.644	2.83		Clay	41.7			35.79	0.99	n.a.	n.a.	0.94	0.445	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.471	41.312	2.606	2696.5	2230.3	35.837	6.521	2.79		Clay	40.5			39.05	0.99	n.a.	n.a.	0.94	0.446	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.635	39.984	2.575	2716.2	2239.8	34.491	6.667	2.81		Clay	41.2			37.79	0.99	n.a.	n.a.	0.94	0.447	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.799	34.230	2.582	2735.9	2249.2	29.221	7.857	2.91		Clay	45.2			32.35	0.98	n.a.	n.a.	0.94	0.447	n.a.	n.a.	n.a.	n.a.	0.00	0.00
22.963	34.623	2.517	2755.5	2258.7	29.438	7.571	2.90		Clay	44.6			32.72	0.98	n.a.	n.a.	0.94	0.448	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.127	38.312	2.774	2775.2	2268.1	32.560	7.513	2.87		Clay	43.3			36.21	0.98	n.a.	n.a.	0.94	0.449	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.291	36.836	2.657	2794.9	2277.6	31.120	7.497	2.88		Clay	43.8			34.82	0.98	n.a.	n.a.	0.94	0.450	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.455	34.181	2.607	2814.6	2287.0	28.661	7.955	2.92		Clay	45.6			32.31	0.98	n.a.	n.a.	0.93	0.450	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.619	38.902	2.710	2834.3	2296.4	32.646	7.230	2.85		Clay	42.8			36.77	0.98	n.a.	n.a.	0.93	0.451	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.783	58.968	2.627	2853.9	2305.9	52.099	4.565	2.57	Plastic	Clay	32.6			55.74	0.98	n.a.	n.a.	0.93	0.452	n.a.	n.a.	n.a.	n.a.	0.00	0.00
23.947	60.099	2.875	2873.6	2315.3	50.673	4.901	2.60		Clay	33.6			56.80	0.98	n.a.	n.a.	0.93	0.452	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.111	51.984	2.910	2893.3	2324.8	43.477	5.758	2.70		Clay	37.0			49.13	0.98	n.a.	n.a.	0.93	0.453	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.275	38.558	2.820	2913.0	2334.2	31.789	7.601	2.88		Clay	43.7			36.44	0.97	n.a.	n.a.	0.93	0.454	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.439	37.132	2.524	2932.7	2343.7	30.436	7.077	2.87		Clay	43.4			35.10	0.97	n.a.	n.a.	0.93	0.454	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.603	37.279	2.567	2952.4	2353.1	30.430	7.170	2.87		Clay	43.5			35.24	0.97	n.a.	n.a.	0.93	0.455	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.767	38.017	2.667	2972.0	2362.6	30.925	7.301	2.87		Clay	43.6			35.93	0.97	n.a.	n.a.	0.93	0.455	n.a.	n.a.	n.a.	n.a.	0.00	0.00
24.931	34.574	2.552	2991.7	2372.0	27.890	7.715	2.92		Clay	45.5			32.68	0.97	n.a.	n.a.	0.93	0.456	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.095	33.738	2.593	3011.4	2381.5	27.069	8.045	2.94		Clay	46.4			31.89	0.97	n.a.	n.a.	0.93	0.457	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.259	34.672	2.558	3031.1	2390.9	27.735	7.715	2.92		Clay	45.6			32.77	0.97	n.a.	n.a.	0.93	0.457	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.423	34.378	2.355	3050.8	2400.4	27.373	7.168	2.91		Clay	44.8			32.49	0.97	n.a.	n.a.	0.93	0.458	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.587	34.034	2.486	3070.5	2409.8	26.972	7.650	2.93		Clay	45.8			32.17	0.97	n.a.	n.a.	0.93	0.458	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.751	34.574	2.592	3090.1	2419.3	27.305	7.848	2.93		Clay	46.0			32.68	0.97	n.a.	n.a.	0.93	0.459	n.a.	n.a.	n.a.	n.a.	0.00	0.00
25.915	35.115	2.642	3109.8	2428.7	27.636	7.872	2.93		Clay	45.9			33.19	0.96	n.a.	n.a.	0.92	0.459	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.079	35.508	2.770	3129.5	2438.2	27.843	8.161	2.94		Clay	46.2			33.56	0.96	n.a.	n.a.	0.92	0.460	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.243	38.017	2.905	3149.2	2447.6	29.778	7.971	2.91		Clay	45.1			35.93	0.96	n.a.	n.a.	0.92	0.460	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.407	37.919	2.994	3168.9	2457.1	29.576	8.240	2.93		Clay	45.6			35.84	0.96	n.a.	n.a.	0.92	0.461	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.571	36.984	3.008	3188.5	2466.5	28.696	8.500	2.94		Clay	46.4			34.96	0.96	n.a.	n.a.	0.92	0.461	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.735	36.542	3.115	3208.2	2476.0	28.222	8.916	2.96		Clay	47.2			34.54	0.96	n.a.	n.a.	0.92	0.462	n.a.	n.a.	n.a.	n.a.	0.00	0.00
26.899	39.886	3.013	3227.9	2485.4	30.798	7.873	2.90		Clay	44.6			37.70	0.96	n.a.	n.a.	0.92	0.462	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.063	42.984	2.972	3247.6	2494.8	33.157	7.186	2.85		Clay	42.6			40.63	0.96	n.a.	n.a.	0.92	0.463	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.227	51.542	2.959	3267.3	2504.3	39.858	5.929	2.73		Clay	38.2			48.72	0.96	n.a.	n.a.	0.92	0.463	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.391	51.001	2.961	3287.0	2513.7	39.270	5.999	2.74		Clay	38.5			48.21	0.96	n.a.	n.a.	0.92	0.464	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.555	48.247	3.173	3306.6	2523.2	36.932	6.810	2.80		Clay	40.7			45.60	0.95	n.a.	n.a.	0.92	0.464	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.719	54.985	3.217	3326.3	2532.6	42.108	6.033	2.72		Clay	37.8			51.97	0.95	n.a.	n.a.	0.92	0.465	n.a.	n.a.	n.a.	n.a.	0.00	0.00
27.883	56.853	3.365	3346.0	2542.1	43.413	6.098	2.72		Clay	37.6			53.74	0.95	n.a.	n.a.	0.92	0.465	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.047	56.952	3.722	3365.7	2551.5	43.322	6.734	2.75		Clay	38.8			53.83	0.95	n.a.	n.a.	0.92	0.465	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.211	57.689	3.630	3385.4	2561.0	43.730	6.483	2.73		Clay	38.3			54.53	0.95	n.a.	n.a.	0.92	0.466	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.375	60.542	3.762	3405.1	2570.4	45.782	6.394	2.72		Clay	37.6			57.22	0.95	n.a.	n.a.	0.91	0.466	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.539	60.935	3.666	3424.7	2579.9	45.911	6.190	2.70		Clay	37.2			57.59	0.95	n.a.	n.a.	0.91	0.467	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.704	58.427	3.658	3444.4	2589.3	43.799	6.451	2.73		Clay	38.2			55.22	0.95	n.a.	n.a.	0.91	0.467	n.a.	n.a.	n.a.	n.a.	0.00	0.00
28.868	57.149	3.364	3464.1	2598.8	42.649	6.070	2.72		Clay	37.8			54.02	0.95	n.a.	n.a.	0.91	0.467	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.032	54.886	3.156	3483.8	2608.2	40.751	5.939	2.73		Clay	38.0			51.88	0.95	n.a.	n.a.	0.91	0.468	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.196	49.427	2.832	3503.5	2617.7	36.426	5.940	2.76		Clay	39.2			46.72	0.95	n.a.	n.a.	0.91	0.468	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.360	47.116	2.594	3523.1	2627.1	34.528	5.719	2.76		Clay	39.4			44.53	0.94	n.a.	n.a.	0.91	0.468	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.524	46.033	2.504	3542.8	2636.6	33.575	5.657	2.77		Clay	39.6			43.51	0.94	n.a.	n.a.	0.91	0.469	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.688	48.935	2.469	3562.5	2646.0	35.641	5.236	2.73		Clay	38.0			46.25	0.94	n.a.	n.a.	0.91	0.469	n.a.	n.a.	n.a.	n.a.	0.00	0.00
29.852	46.869	2.442	3582.2	2655.5	33.951	5.417	2.75		Clay	39.0			44.30	0.94	n.a.	n.a.	0.91	0.470	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.016	44.656	2.569	3601.9	2664.9	32.163	5.995	2.80		Clay	40.7			42.21	0.94	n.a.	n.a.	0.91	0.470	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.180	44.509	2.423	3621.6	2674.3	31.932	5.675	2.79		Clay	40.2			42.07	0.94	n.a.	n.a.	0.91	0.470	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.344	43.279	2.377	3641.2	2683.8	30.895	5.733	2.80		Clay	40.7			40.91	0.94	n.a.	n.a.	0.91	0.470	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.508	43.722	2.452	3660.9	2693.2	31.109	5.853	2.80		Clay	40.8			41.33	0.94	n.a.	n.a.	0.91	0.471	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.672	43.820	2.769	3680.6	2702.7	31.065	6.596	2.84		Clay	42.3			41.42	0.94	n.a.	n.a.	0.91	0.471	n.a.	n.a.	n.a.	n.a.	0.00	0.00
30.836	45.345	2.997	3700.3	2712.1	32.074	6.890	2.84		Clay	42.4			42.86	0.94	n.a.	n.a.	0.90	0.471	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.000	54.493	3.227	3720.0	2721.6	38.678	6.131	2.75		Clay	38.9			51.51	0.94	n.a.	n.a.	0.90	0.472	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.164	57.001	3.441	3739.7	2731.0	40.374	6.241	2.75		Clay	38.7			53.88	0.93	n.a.	n.a.	0.90	0.472	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.328	57.738	3.698	3759.3	2740.5	40.765	6.620	2.76		Clay	39.3			54.57	0.93	n.a.	n.a.	0.90	0.472	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.492	57.788	3.930	3779.0	2749.9	40.654	7.031	2.78		Clay	40.0			54.62	0.93	n.a.	n.a.	0.90	0.472	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.52

Total Settlement: 0.01 (Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
31.656	60.296	4.020	3798.7	2759.4	42.326	6.884	2.76		Clay	39.3			56.99	0.93	n.a.	n.a.	0.90	0.473	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.820	65.313	4.329	3818.4	2768.8	45.798	6.828	2.74		Clay	38.4			61.73	0.93	n.a.	n.a.	0.90	0.473	n.a.	n.a.	n.a.	n.a.	0.00	0.00
31.984	60.788	3.902	3838.1	2778.3	42.378	6.628	2.75		Clay	38.9			57.46	0.93	n.a.	n.a.	0.90	0.473	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.148	49.673	3.440	3857.8	2787.7	34.253	7.205	2.84		Clay	42.2			46.95	0.93	n.a.	n.a.	0.90	0.473	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.312	45.099	2.950	3877.4	2797.2	30.860	6.835	2.85		Clay	42.8			42.63	0.93	n.a.	n.a.	0.90	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.476	48.345	2.749	3897.1	2806.6	33.062	5.925	2.79		Clay	40.3			45.69	0.93	n.a.	n.a.	0.90	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.640	48.591	2.687	3916.8	2816.1	33.119	5.762	2.78		Clay	39.9			45.93	0.93	n.a.	n.a.	0.90	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.804	48.444	3.045	3936.5	2825.5	32.897	6.552	2.82		Clay	41.5			45.79	0.93	n.a.	n.a.	0.90	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
32.968	48.099	3.232	3956.2	2835.0	32.537	7.008	2.85		Clay	42.5			45.46	0.93	n.a.	n.a.	0.90	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.132	48.444	3.386	3975.8	2844.4	32.665	7.289	2.86		Clay	42.9			45.79	0.92	n.a.	n.a.	0.89	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.296	50.312	3.474	3995.5	2853.9	33.859	7.190	2.84		Clay	42.3			47.55	0.92	n.a.	n.a.	0.89	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.460	48.296	3.670	4015.2	2863.3	32.332	7.929	2.89		Clay	44.1			45.65	0.92	n.a.	n.a.	0.89	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.624	56.657	3.877	4034.9	2872.7	38.040	7.096	2.80		Clay	40.9			53.55	0.92	n.a.	n.a.	0.89	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.788	71.558	4.319	4054.6	2882.2	48.248	6.212	2.69		Clay	36.7			67.64	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
33.952	75.050	4.793	4074.3	2891.6	50.499	6.565	2.70		Clay	36.9			70.94	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.116	67.870	4.714	4093.9	2901.1	45.378	7.162	2.76		Clay	39.1			64.15	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.280	64.181	4.378	4113.6	2910.5	42.689	7.047	2.77		Clay	39.5			60.66	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.444	61.722	4.115	4133.3	2920.0	40.860	6.898	2.77		Clay	39.7			58.34	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.608	60.198	4.119	4153.0	2929.4	39.681	7.087	2.79		Clay	40.4			56.90	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.772	57.296	4.180	4172.7	2938.9	37.572	7.571	2.83		Clay	41.8			54.16	0.92	n.a.	n.a.	0.89	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
34.936	54.689	4.198	4192.4	2948.3	35.676	7.982	2.86		Clay	43.0			51.69	0.92	n.a.	n.a.	0.89	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.100	53.804	4.036	4212.0	2957.8	34.957	7.807	2.86		Clay	43.0			50.85	0.92	n.a.	n.a.	0.89	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.264	60.198	3.813	4231.7	2967.2	39.149	6.565	2.77		Clay	39.6			56.90	0.91	n.a.	n.a.	0.89	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.428	76.870	4.220	4251.4	2976.7	50.220	5.646	2.65		Clay	35.3			72.66	0.91	n.a.	n.a.	0.88	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.592	77.312	4.395	4271.1	2986.1	50.351	5.846	2.66		Clay	35.6			73.07	0.91	n.a.	n.a.	0.88	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.756	78.444	4.226	4290.8	2995.6	50.941	5.539	2.64		Clay	34.9			74.14	0.91	n.a.	n.a.	0.88	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
35.920	83.608	4.201	4310.4	3005.0	64.603	5.158	2.55	Plastic	Clay	31.8			79.02	0.91	n.a.	n.a.	0.88	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.084	77.312	4.125	4330.1	3014.5	49.858	5.489	2.64		Clay	35.0			73.07	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.248	74.411	4.349	4349.8	3023.9	47.777	6.021	2.68		Clay	36.5			70.33	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.412	59.017	3.642	4369.5	3033.4	37.472	6.408	2.78		Clay	39.8			55.78	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.576	50.460	3.159	4389.2	3042.8	31.724	6.545	2.83		Clay	41.9			47.69	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.740	47.017	2.667	4408.9	3052.3	29.364	5.951	2.83		Clay	41.7			44.44	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
36.905	43.820	2.443	4428.5	3061.7	27.178	5.872	2.85		Clay	42.5			41.42	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.069	42.247	2.345	4448.2	3071.1	26.064	5.859	2.86		Clay	43.0			39.93	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.233	42.247	2.271	4467.9	3080.6	25.977	5.676	2.85		Clay	42.6			39.93	0.91	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.397	42.739	2.434	4487.6	3090.0	26.210	6.011	2.86		Clay	43.2			40.40	0.90	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.561	44.705	2.420	4507.3	3099.5	27.392	5.701	2.83		Clay	42.0			42.25	0.90	n.a.	n.a.	0.88	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.725	43.377	2.478	4527.0	3108.9	26.449	6.027	2.86		Clay	43.1			41.00	0.90	n.a.	n.a.	0.87	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
37.889	44.165	2.611	4546.6	3118.4	26.868	6.233	2.87		Clay	43.3			41.74	0.90	n.a.	n.a.	0.87	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.053	44.116	2.759	4566.3	3127.8	26.749	6.595	2.89		Clay	44.1			41.70	0.90	n.a.	n.a.	0.87	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.217	44.607	2.915	4586.0	3137.3	26.975	6.889	2.90		Clay	44.5			42.16	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.381	43.722	2.908	4605.7	3146.7	26.325	7.021	2.91		Clay	45.0			41.33	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.545	45.443	3.000	4625.4	3156.2	27.331	6.956	2.90		Clay	44.5			42.95	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.709	51.050	3.111	4645.0	3165.6	30.785	6.384	2.83		Clay	42.0			48.25	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
38.873	46.771	3.082	4664.7	3175.1	27.992	6.935	2.89		Clay	44.1			44.21	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.037	47.952	3.027	4684.4	3184.5	28.645	6.637	2.87		Clay	43.3			45.32	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.201	50.263	3.096	4704.1	3194.0	30.001	6.462	2.84		Clay	42.4			47.51	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.365	46.771	3.182	4723.8	3203.4	27.726	7.165	2.90		Clay	44.6			44.21	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.529	45.050	3.148	4743.5	3212.9	26.567	7.376	2.92		Clay	45.5			42.58	0.90	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.693	43.279	2.853	4763.1	3222.3	25.384	6.976	2.92		Clay	45.4			40.91	0.89	n.a.	n.a.	0.87	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
39.857	40.525	2.497	4782.8	3231.8	23.599	6.548	2.92		Clay	45.5			38.30	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.021	42.591	2.465	4802.5	3241.2	24.799	6.133	2.89		Clay	44.1			40.26	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.185	46.132	2.427	4822.2	3250.7	26.900	5.551	2.83		Clay	41.9			43.60	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.349	50.066	2.679	4841.9	3260.1	29.229	5.623	2.81		Clay	41.1			47.32	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.513	49.624	2.487	4861.6	3269.5	28.868	5.270	2.79		Clay	40.5			46.90	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.677	44.263	2.611	4881.2	3279.0	25.509	6.243	2.88		Clay	44.0			41.84	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
40.841	40.919	2.366	4900.9	3288.4	23.396	6.150	2.91		Clay	44.9			38.68	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.005	43.722	2.255	4920.6	3297.9	25.023	5.465	2.85		Clay	42.6			41.33	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.169	39.345	1.896	4940.3	3307.3	22.299	5.142	2.87		Clay	43.4			37.19	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.333	35.263	1.742	4960.0	3316.8	19.768	5.314	2.92		Clay	45.3			33.33	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.497	36.689	1.619	4979.6	3326.2	20.563	4.734	2.87		Clay	43.5			34.68	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.661	35.115	1.285	4999.3	3335.7	19.555	3.940	2.84		Clay	42.1			33.19	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.825	34.034	1.495	5019.0	3345.1	18.848	4.742	2.90		Clay	44.6			32.17	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
41.989	38.853	1.918	5038.7	3354.6	21.662	5.279	2.89		Clay	44.0			36.72	0.89	n.a.	n.a.	0.86	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00

CORNERSTONE EARTH GROUP

CPT No. 2

PGA (A_{max}) 0.52

Total Settlement: 0.01 (Inches)

Depth (ft)	q_c (tsf)	f_s (tsf)	σ_{vc} (psf)	Insitu σ'_{vc} (psf)	Q	F (%)	I_c	Layer "Plastic" PI > 7	Flag Soil Type	Fines (%)	q_{cN} near interfaces (soft layer)	Thin Layer Factor (K_H)	Interpreted q_{cN}	C_N	q_{c1N}	q_{c1N-CS}	Stress Reduction Coeff, r_d	CSR	K_σ for Sand	$CRR_{M=7.5, \sigma'vc = 1 atm}$	CRR	Factor of Safety (CRR/CSR)	Vertical Strain ε_v	Settlement (Inches)
42.153	38.066	2.528	5058.4	3364.0	21.128	7.114	2.98		Clay	48.0			35.98	0.88	n.a.	n.a.	0.85	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.317	44.165	3.030	5078.1	3373.5	24.678	7.279	2.94		Clay	46.3			41.74	0.88	n.a.	n.a.	0.85	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.481	101.657	4.180	5097.7	3382.9	74.086	4.218	2.44	Plastic	Clay	28.5			96.08	0.88	n.a.	n.a.	0.85	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.645	129.493	5.304	5117.4	3392.4	94.755	4.179	2.37	Plastic	Clay	26.4			122.39	0.88	n.a.	n.a.	0.85	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.809	118.723	5.813	5137.1	3401.8	86.587	5.005	2.46	Plastic	Clay	29.0			112.21	0.88	n.a.	n.a.	0.85	0.479	n.a.	n.a.	n.a.	n.a.	0.00	0.00
42.973	76.034	5.437	5156.8	3411.3	43.067	7.402	2.78		Clay	40.0			71.87	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.137	59.116	3.934	5176.5	3420.7	33.050	6.959	2.84		Clay	42.2			55.88	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.301	58.624	3.703	5196.2	3430.2	32.667	6.609	2.83		Clay	41.7			55.41	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.465	58.771	3.491	5215.8	3439.6	32.657	6.216	2.81		Clay	41.0			55.55	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.629	50.755	3.595	5235.5	3449.0	27.913	7.468	2.91		Clay	45.1			47.97	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.793	77.067	3.913	5255.2	3458.5	43.047	5.257	2.67		Clay	36.0			72.84	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
43.957	92.313	4.318	5274.9	3467.9	66.208	4.815	2.52	Plastic	Clay	30.9			87.25	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.121	72.395	4.839	5294.6	3477.4	40.115	6.938	2.78		Clay	40.0			68.43	0.88	n.a.	n.a.	0.85	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.285	55.525	4.677	5314.2	3486.8	30.324	8.847	2.94		Clay	46.3			52.48	0.88	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.449	52.132	3.784	5333.9	3496.3	28.296	7.650	2.92		Clay	45.2			49.27	0.88	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.613	49.673	3.488	5353.6	3505.7	26.811	7.422	2.92		Clay	45.5			46.95	0.88	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.777	52.427	3.540	5373.3	3515.2	28.300	7.117	2.89		Clay	44.3			49.55	0.87	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
44.941	54.788	3.082	5393.0	3524.6	29.559	5.917	2.82		Clay	41.6			51.78	0.87	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.106	47.263	3.142	5412.7	3534.1	25.215	7.052	2.93		Clay	45.6			44.67	0.87	n.a.	n.a.	0.84	0.478	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.270	47.165	3.043	5432.3	3543.5	25.087	6.846	2.92		Clay	45.3			44.58	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.434	46.771	3.193	5452.0	3553.0	24.793	7.249	2.94		Clay	46.2			44.21	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.598	48.984	3.632	5471.7	3562.4	25.964	7.853	2.95		Clay	46.6			46.30	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.762	58.427	3.893	5491.4	3571.9	31.178	6.992	2.86		Clay	42.9			55.22	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
45.926	49.280	4.128	5511.1	3581.3	25.982	8.873	2.99		Clay	48.2			46.58	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.090	49.525	3.879	5530.8	3590.8	26.044	8.296	2.97		Clay	47.3			46.81	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.254	48.197	3.655	5550.4	3600.2	25.233	8.047	2.97		Clay	47.3			45.55	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.418	47.116	3.553	5570.1	3609.7	24.562	8.015	2.97		Clay	47.6			44.53	0.87	n.a.	n.a.	0.84	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.582	47.165	3.731	5589.8	3619.1	24.520	8.409	2.99		Clay	48.2			44.58	0.87	n.a.	n.a.	0.83	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.746	49.919	3.647	5609.5	3628.6	25.969	7.741	2.94		Clay	46.4			47.18	0.87	n.a.	n.a.	0.83	0.477	n.a.	n.a.	n.a.	n.a.	0.00	0.00
46.910	45.788	3.708	5629.2	3638.0	23.625	8.629	3.01		Clay	49.0			43.28	0.87	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.074	48.739	3.747	5648.8	3647.4	25.176	8.161	2.97		Clay	47.5			46.07	0.87	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.238	51.738	3.979	5668.5	3656.9	26.746	8.136	2.95		Clay	46.7			48.90	0.87	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.402	54.444	4.154	5688.2	3666.3	28.148	8.050	2.93		Clay	45.9			51.46	0.87	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.566	55.132	4.345	5707.9	3675.8	28.445	8.311	2.94		Clay	46.2			52.11	0.86	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.730	57.640	4.394	5727.6	3685.2	29.727	8.022	2.92		Clay	45.2			54.48	0.86	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
47.894	63.345	4.663	5747.3	3694.7	32.734	7.711	2.87		Clay	43.6			59.87	0.86	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.058	66.640	4.572	5766.9	3704.1	34.425	7.171	2.84		Clay	42.1			62.99	0.86	n.a.	n.a.	0.83	0.476	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.222	52.772	4.250	5786.6	3713.6	26.863	8.521	2.96		Clay	47.2			49.88	0.86	n.a.	n.a.	0.83	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.386	52.772	4.005	5806.3	3723.0	26.789	8.031	2.95		Clay	46.5			49.88	0.86	n.a.	n.a.	0.83	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.550	54.296	4.034	5826.0	3732.5	27.533	7.851	2.93		Clay	45.9			51.32	0.86	n.a.	n.a.	0.83	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.714	50.952	3.835	5845.7	3741.9	25.671	7.985	2.96		Clay	47.0			48.16	0.86	n.a.	n.a.	0.82	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
48.878	51.640	3.865	5865.4	3751.4	25.968	7.935	2.95		Clay	46.7			48.81	0.86	n.a.	n.a.	0.82	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.042	61.378	3.901	5885.0	3760.8	31.076	6.676	2.84		Clay	42.4			58.01	0.86	n.a.	n.a.	0.82	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.206	59.411	4.062	5904.7	3770.3	29.949	7.195	2.88		Clay	43.8			56.15	0.86	n.a.	n.a.	0.82	0.475	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.370	57.247	3.834	5924.4	3779.7	28.724	7.063	2.89		Clay	44.0			54.11	0.86	n.a.	n.a.	0.82	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.534	66.050	4.469	5944.1	3789.2	33.294	7.085	2.84		Clay	42.3			62.43	0.86	n.a.	n.a.	0.82	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.698	70.919	4.547	5963.8	3798.6	35.769	6.693	2.80		Clay	40.8			67.03	0.86	n.a.	n.a.	0.82	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
49.862	52.329	4.548	5983.4	3808.1	25.912	9.218	3.00		Clay	48.7			49.46	0.86	n.a.	n.a.	0.82	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
50.026	51.493	4.549	6003.1	3817.5	25.405	9.381	3.01		Clay	49.2			48.67	0.86	n.a.	n.a.	0.82	0.474	n.a.	n.a.	n.a.	n.a.	0.00	0.00
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CORNERSTONE EARTH GROUP

Date:	September 15, 2014
Project No.:	535-1-2
Prepared For:	Mr. Ed Abelite **CANYON CREEK PLAZA, LP** 5601 Silver Creek Valley Road San Jose, California 95136
Re:	Response to Geologic/Seismic Hazard Review Canyon Creek Plaza 5667 Silver Creek Valley Road San Jose, California

Dear Mr. Abelite:

This letter presents our response to the City of San Jose review comments for the project referenced above. We have been provided a copy of the City of San Jose review letter dated August 12, 2014.

LITERATURE REVIEW

As part of our geologic hazards evaluations and this response letter, we have reviewed previous consultants' reports and aerial photographs for the site and adjacent properties.

PREVIOUS STUDIES

- "Seismic Trenching Investigation for Proposed Planned Community, Silver Creek Road," prepared by Terrasearch, Inc., dated March 25, 1988.
- "Geotechnical and Geologic Investigation, Silver Creek Valley Country Club," prepared by Kleinfelder, dated March 2, 1989. Volumes 1 and 2.
- "Supplemental Field Data, Silver Creek Valley Country Club," prepared by Kleinfelder, March 5, 1990.
- "Geologic and Preliminary Geotechnical Investigation, Proposed Canyon Creek Plaza, Silver Creek Valley Road," prepared by Kleinfelder, dated February 24, 1998.
- "Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated January 21, 1999.
- "Supplemental Geotechnical and Geologic Hazard Investigation, Grisham Property Residential Development," prepared by Lowney Associates, dated November 1, 2000.
- Preliminary Geologic/Seismic Hazard Review Proposed Gas Station (PDC14-030) 5667 Silver Creek Valley Road, Project No. 14-024839-GC (3-12986), prepared by City of San Jose, Department of Public Works, Development Services Division, dated August 12, 2014.

RESPONSE TO REVIEW COMMENTS

The following is Cornerstone Earth Group (CEG) response to the City of San Jose, Department of Public Works (DPW) signed by the City Geologist, Mr. Mike Shimamoto. Our responses are offered point by point following each of the Department of Public Works comments.

DPW Comment #1: "The discussion should describe and indicate that the new CEG recommended fault setback is entirely within the existing SSE recommended by TI (1988) and KI (1989) and is consistent with the findings of the TI and KI investigations, however, a refinement of the SCF location at this specific site has enabled a smaller setback distance to be recommended. If the SCF trace of TI (1988) and KI (1989) is incorrect at the project site, reasons why the Ti and KI studies are incorrect should be presented. Conclusive evidence why the current CEG study is correct and should be accepted to supersede the previously approved TI and KI studies should be presented and discussed."

CEG Response to Comment #1:

The investigations of TI and Ki were regional in nature covering the approximately 1,500 acre Silver Creek Country Club property and as such included data points that were spaced relatively far apart. The SSE that extends through the Canyon Creek Shopping Center is what they identified as the more southwesterly of two identified fault branches of the Silver Creek Fault "i.e. "southwesterly strand"). The Lowney Associates ("Lowney") investigations of 1999 and 2000 for the adjacent Grisham property were based on findings that further refined the understanding of the fault (characteristics and surface projection) from the previous work of SI and KI and those findings and their associated building setbacks were approved by the City. Their recommended building setback zone extended 25 feet on either side of their mapped fault surface trace and this setback zone deviated from the recorded Seismic Setback Easement of TI (1988) and KI (1989). Our fault investigation is the first site-specific investigation conducted at the proposed site of the carwash/gas station.
Our recommended Building Exclusion Zone occurs or plots within the previous SSE (of TI and KI) except at the northwest edge of the site where our BEZ extends approximately 23 feet outside of the SSE. This is based on the surface projection of the fault and its associated setback lines (25 feet on either side of the fault) for what is usually established for a potentially active fault. Our findings are consistent with the earlier findings of TI (88) within the northwestern portion of the shopping center in the respect that we too encountered evidence of the Silver Creek Fault defined by a near vertical juxtaposition of Franciscan material (on the southwest), against Santa Clara Formation materials (on the northeast) and an associated difference in the local ground water table along the inferred fault. It is relevant to note that mass grading conducted at the site subsequent to the studies of SI and KI resulted in the placement of several feet of fill across the shopping center as well as improvements along the northeast edge of the adjacent creek. Because of the depth to the pre-cenozoic geologic formations, we determined it infeasible to conduct conventional trenching in the building envelope area and instead, use an array of closely spaced borings somewhat similar to the method of Lowney (2000) on the Grisham property. Our conclusions do not imply that the regional studies of TI and Ki are incorrect – our study (focused within a small portion of the larger study area) is site-specific to the gas station site and includes a more complete data set for that specific location, and resulted in a refining of the mapping of the fault as it crosses the building pad area. For the DPW statement: "Conclusive evidence why the current CEG study is correct and should be accepted to supersede the previously approved TI and KI studies should be presented and discussed." More detail on the relative findings to be covered in subsequent sections.

DPW Comment #2: "Discuss in greater detail what data the original existing SSE is based upon, i.e., the previous trenching and geophysical data should be discussed and a map showing their locations presented. A description of the SCF found by TI (1988) and KI (1989), juxtaposed lithologies, and the locations of the faults encountered in their exploration trenches and geophysical exploration lines should be delineated on an exploration map of the site.

CEG response to Comment #2: Terrasearch (1988) performed a Seismic Trenching Study for the proposed 1,500- acre Silver Creek Country Club housing development. The project site (gas station) is located at the far northern boundary of the Terrasearch study area. Terrasearch identified two traces of the Silver Creek fault zone which roughly parallel Silver Creek Valley road but diverge from one another in a southwesterly direction. In fact, the Seismic Setback Easement that trends through the Canyon Creek Plaza Shopping Center follows the Terrasearch mapping of the "southwesterly strand" of the SCF. That portion of the SSE that trends through the shopping center parking lot is based on three data points over a distance of over 1,400 feet with a trench at the northeast end, two trenched in the shopping center and a creek bank exposure located just beyond the southeast edge of the shopping center. Its' projected based on sparse data and not surprisingly, the fault's actual characteristics and surface trace can be expected to vary as more data points are determined, such as was done during the Lowney investigation of the Grisham property, and our own recent investigation of the gas station site.

They discussed a creek bank exposure located approximately 250 to 300 feet southeast of the present shopping center site (subsequently obscured by site development activities) that revealed horizontally bedded or stratified alluvium that was not disturbed over the exposed fault with cut bedrock. Of the alluvium they stated "it is entirely possible that they [the alluvial deposits] are not older than Holocene." Based on their field data, Terrasearch concluded the fault was "at least potentially active."

Their work within the Canyon Creek Plaza shopping center (prior to mass grading and construction) included two trenches (T-13 and T-22) and two test pits (TP-13A, and TP-13B), at an area in the current parking lot located about 235 feet northwest of the gas station building envelope. At these exposures they identified a near vertical fault zone defined by a juxtaposition of Franciscan bedrock (greywacke +/- serpentinite) on the southwest, against Santa Clara Formation on the northeast. They encountered localized groundwater adjacent to the northeast side of the fault exposure which indicated the fault was acting as a barrier to groundwater flow from the northeast (higher elevation) side. They recorded shears within clay that were oriented dipping steeply (60° to 85°) to the north and which varied in strike from N45°W to N85°W. They stated that the fault zone was 9.5 feet wide but in fact the fault depicted on their logs is a 4 feet wide set of shears in the base of their trench. They concluded the overlying alluvium (latest Holocene age alluvium) was flat lying and did not appear to be offset by the fault. They also had a boring on site (B-29). In the creek they defined the fault as a set of shears. Our investigation included a number of closely spaced borings with the more westerly array located approximately 235 feet to the east of their trenches.

The 1988 investigation by TI conducted a series of trenches and borings throughout the Silver Creek Country Club development. The closest trenches to the southeast of the subject site (Trenches T-1 and T-24) occur roughly ½ miles southeast. At T-1 they did not encounter bedrock but were limited to alluvium and offered the questionable interpretation that vertical cracks within the soils were evidence of faulting but offered no corroborative evidence of offset. In reality they did not encounter any materials older than Holocene. Trench T-24 did not encounter the fault but T-11 did. At that location (2,400 feet southeast of the subject site) they

encountered a juxtaposition of Franciscan mélange in thrust contact with Franciscan greywacke over a zone that was reported to be 40 feet wide. Note that this was on high ground above the alluvial valley and the fault "flower structures" had not been exposed to the erosional processes that eliminated them at the subject site. Groundwater was associated with the fault. The fault was oriented N40°W and with a dip of 25 to 50° southwest. Apparently, as the fault trends southeast through the Silver Creek valley it widens and is confined to the Francsican complex southeast of the subject site. Their Trench T-12 also encountered a fault zone (vertical, multiple, anastomosing shears with trends averaging N20 within Franciscan bedrock (weathered and mylonitized melange, serpentine, and chert and silica carbonate). On the northeasterly strand at Trench T-2 location (also about 2,100 feet away from the subject site), they characterized a fault exposure as "At Station 70 to 75, a fault contact with (Santa Clara against) Franciscan bedrock was exposed with an attitude of N65°W/75°N. Three additional fault traces were encountered within the Franciscan bedrock. The fault planes have orientations of N55°W to N60°W and dip 55° to 75° northeast (note this is a north dipping fault), one of these faults were a low angle thrust fault with a dip of 30° northeast and a strike of N65W. Significant groundwater inflow between these points was also noted (note!). So apparently both the northeasterly and the southeasterly fault strands vary in the lithologies that are juxtaposed along each of these faults and the geometry of faulting changes laterally from very steep (at the shopping center) to moderate and thrust. Sense of relative fault movement is reverse to thrust.

Our excavations indicate that as the surface projection (compared to the projected fault of TI and KI) fault projects eastward from the trenches of KI, it is located slightly more northerly (48 feet more northerly) and bends slightly to the southeast as it trends off the site.

DPW Comment #3): "Discuss and present on a map and in other data what new evidence was found on the Grisham property that suggested that the SCF trace location may have differed on the subject site. Discuss what was found in later studies on the adjacent properties and refer to a local geologic exploration map to describe it. In particular, the exploratory data from the Grisham property should be presented and its implications should be described in greater detail. This information was presented in our pre-investigation meeting at City Hall."

CEG Response to DPW Comment #3: The Lowney investigation produced data that revised the earlier work from Terratech (1988), through a new understanding of the fault character and location. Our more recent investigation revised the Terratech work as well. The initial Lowney investigation in 1999 included two trenches as well as several test pits and borings on the Grisham property. Their purpose was to intersect two projected faults by Earth Systems that resulted from an earlier investigation on the adjacent golf course property. The Lowney T-1 was in alignment with a more southerly projected fault and their T-2 was in alignment with a more northerly fault. Within trench T-1 they documented a fault shown as moderately southwest dipping shear (N50°W/52°SW) which appears to converge with a secondary shear just below the base of the trench (a flower structure). Flower structures typically converge with a main fault trace at depth. The main shear juxtaposes Franciscan claystone (on the southwest) against older alluvium (on the northeast) although the shear appears to die out within the lower portion of the older alluvium. They referred to this encountered fault as an "unnamed fault" but its trend and location make clear it would have to be the Silver Creek fault ("southwesterly strand"). Their trench T-2 encountered older alluvium overlying steeply dipping Santa Clara Formation within Trench T-2 but they did not encounter a second fault here as Earth Systems had projected. Test pits and borings conducted on the Grisham property by Lowney in 1999 and an additional array of borings in the following year (2000) confirmed a consistent depth of alluvium and a consistent underlying lithology (Franciscan claystone located southwest of the mapped trace which pushed that mapped fault projection slightly further to the northeast. They

acknowledged that the fault had apparently displaced older alluvium but were circumspect in assigning a Holocene age to the offset. They concluded the activity rate to be low because of it is of “limited extent.” As an aside, more recently Hitchcock and Brankman identified a fault zone in a cut on the golf course adjacent to the northwest property line (of the Grisham property) that where they observed a similar juxtaposition of Franciscan serpentinite and chert (on the southwest) against older alluvium (“likely Pleistocene”) on the northeast which they identified as the main as most probably the main strand of the Silver Creek Fault. They noted several shears extending into the adjacent Franciscan serpentinite and chert and these shears appeared to steepen with depth suggesting a “flower structure” that converges with the main fault trace with depth.

Note that the Grisham and adjacent golf course properties (and the fault exposures) are located at a higher elevation (on an erosional remnant of Qoa) as compared to the subject site [on a “Older Holocene Quaternary terrace deposit of Wentworth (2000)]. The relative difference in the highest exposure of the fault between the two sites indicates about 20 feet of the upper portion of the fault has been removed by erosion during deposition of the Qal terrace at the shopping center. It is possible that the fault flower structures were removed by this erosion leaving a steeper and more simple geometry at the subject site. Based on the follow-up investigation of 2000, Lowney established a building exclusion zone (“BEZ”) along the adjusted fault projection which did not correspond with the recorded SSE on that site. Their findings and their recommended BEZ (a refinement of the recorded SSE) was excepted by the City of San Jose. Attached please find a Site Exploration Map showing a compilation of exploratory excavations at and immediately adjacent to the subject site.

DPW Comment #4: “On p.10 in the discussion of the Terrasearch study, "the SSE" is stated to be shown on Figure 2, however, this figure only shows the new recommended CEG SSE, not the original existing TI (1988) SSE. This statement should be clarified.”

CEG Response to DPW #4: The SSE of TI (1988) is actually shown as a black dashed line and labeled “Seismic Setback” on Figure 1 in our report (refer to that “Site Plan”).

DPW Comment #5: “Present more detailed data regarding the regional juxtaposition of bedrock formations that the CEG fault investigation is based upon. Since trenching was not performed, the CEG study is based on confirmed identification of the bedrock formations that are juxtaposed along the SCF and conclusive identification and correlation of those materials encountered in the exploratory borings. More detailed regional data should be presented which defines the SCF at this location by the juxtaposition of the observed bedrock lithologies. What geologic units are juxtaposed along the SCF on the adjacent Grisham property and adjacent properties to the south? Provide more detailed data such as characteristic mineralogy, lithology, marker beds, or other unique material properties, which positively identify the materials encountered in the borings as those that are juxtaposed regionally across the SCF trace.

CEG Response to DPW Comment #5: The fault has two branches in the Silver Creek Country Club area, the northeasterly and the southwesterly. The SSE at the subject site is along the southwesterly strand of TI (1988). The definition of the SCF within the region varies considerably. However, relevant studies of the local area by SI (1988), KI (1989), Lowney (1999, 2000) and more recently by Hitchcock and Brankman (2002) indicate the southwesterly strand of the fault adjacent to and within the shopping center is defined as the justaposition of Santa Clara Formation (on the northeast) against fine grained Franciscan bedrock on the southwest (serpentinite, claystone or mélange depending on source). TI also based their surface projection of the fault to the southwest by confirming outcrops of Franciscan versus

outcrops of Santa Clara with the creek corridor (now obscured) located 225 feet and 500 feet southwest of the subject site. A groundwater barrier appears to have been commonly encountered at the fault (on the northeast side) and the fault apparently disrupts the lower portion of old alluvium which overlies it at the Grisham and golf course sites. The fault geometry appears to change somewhat as it trends more southeasterly from the Grisham property and through the shopping center and further afield to the southeast but the style of deformation is reverse (northeast side up) with a steep southwesterly dip of the fault plane within the shopping center and a more moderate to steep angle to the northwest and the southeast. At exposures located ½ miles to the southeast of the site TI (1988) indicates the fault broadens and cuts Franciscan rock with several shears that include high angle and thrust components. It is assumed that the fault movement is largely vertical (Hitchcock and Brankman, 2002).

DPW Comment #6: "The CEG fault juxtaposes claystone assigned to the Jurassic to Cretaceous Franciscan Complex against sand with clay and gravel assigned to the Plio-Pleistocene Santa Clara Formation. These units are identified in the CEG exploratory borings. Were these rock types encountered in the exploration of TI (1988) and KI (1989)? Claystone is not described as a Franciscan Complex rock type in the region (Wentworth, 1999, McLaughlin, 2001). Claystone, however, is a common component of the Santa Clara Formation (Nelson, 1985). The sand, clay and gravel assigned by CEG to the Santa Clara Formation are also a typical component of older alluvium and younger fluvial deposits in the vicinity (Hitchcock and Brankman, 2002). Therefore, the apparent juxtaposition of geologic units encountered in the CEG study alone does not conclusively demonstrate the presence of the SCF. As discussed in Comment #5 above, greater detail needs to be presented regarding the juxtaposed rock types encountered on the site in order to demonstrate that the SCF is present at the location interpreted by the CEG investigation.

CEG Response to Comment #6: Claystone does indeed occur within the Franciscan complex and it was encountered as a component of the Franciscan complex in the study by Terrasearch (1988) and by Lowney (1999, and 2000) and in fact the fault was defined in the Lowney trench (T-1) as a juxtaposition of claystone belonging to the Franciscan Complex against Santa Clara Formation. It is probable that the fine grained sheared Franciscan material identified by Hitchcock and Brankman (2002) as serpentinite, and by Lowney as claystone and/or mélange and by ourselves as claystone may be in fact different characterizations of the same fine grained material. It typically is sheared, dark gray to olive brown and contains fragments of serpentinite of varying sizes.

DPW Comment #7: "Explain why the juxtaposition of specific geologic materials encountered in the borings drilled on the subject site is interpreted to delineate the SCF rather than an unconformable depositional contact, buried stream channel, buried erosional surface, paleo-landslide, or other non-faulted contact. For example, the exploration may have encountered Santa Clara Formation claystone and younger fluvial deposits that are separated along an unconformable depositional contact. Or all of the materials encountered may be part of the Santa Clara formation. A fault sliver consisting of serpentinite or chert may exist between the widely spaced borings.

CEG Response to DPW Comment #7: Subsurface geologic relations within the shopping center property are already described and documented in the trenches of Terrasearch (T-13, T-22) which completely shadow and extend well beyond the recorded SSE as well as our boring arrays. At their Trench T-22 and T-13 conducted 225 feet northwest of the subject site, for example, they characterized a nearly flat lying sequence of alluvium (Holocene) which extended to depth of 12 to 13 feet. They also characterized the exposed fault as a juxtaposition of Franciscan sheared greywacke and serpentinite or clay on the southwest, against gravelly silty clay of the Santa Clara Formation on the northeast. They characterized the fault as "a greasy, highly calichified and sheared clay" which was exposed at the trench bottom. They documented a fault exposure about 3 to 4 feet wide and did not encounter any splay faults. This zone separated the Franciscan bedrock (they describe as mélange, greywacke, serpentinite and minor chert) from materials of the Santa Clara Formation in a near vertical sense (see Trench T-22). They show an abrupt drop in groundwater level across this zone (down dropped to the southwest). There appeared to be no offset of the Holocene alluvial horizons as documented in either of the their parallel trenches (T-13 or T-22). They correlated this encountered fault exposure with an exposure of the fault zone (later obscured by growth and development activities) in the creek bank some 250 to 300 feet southwest of the subject site. Allowing for a surficial layer 7 to 9 feet thick of fill placed after their 1988 investigation, we encountered approximately 9 to 11 feet of alluvial deposits beneath the fill and overlying the older geologic units. The projected fault trace is bracketed between B-11 and B-20 (horizontal distance = 28 inches) as well as between B-19 and B-4 (horizontal distance = 36 inches). It is also noteworthy that we encountered a ground water table within some of our borings on the northeast side of our mapped fault trace but no ground water table on the southwest side. This abrupt groundwater barrier in direct association with the change of geologic units is consistent with the findings of TI (1988) and Lowney (1999, 2000).

DWP Comment #8: How does the revised CEG SCF location structurally align regionally with the existing fault data on the subject parcel and on the adjacent parcels? Is the CEG fault location consistent with all existing data and exploration within and adjacent to the subject site? Show the SCF trace delineated by TI (1988) and KI (1989) and how the CEG SCF trace aligns with mapped traces to the north and south. How reliable is the fault location data presented and what is the certainty level that the CEG fault location is correct?

CEG Response to DWP Comment #8: We recognize that local site-specific consultants studies provide more definitive data than the regional scale publications of, for example Wentworth, Dibblee, etc. It could be said that the site specific studies of Lowney (1999, 2000) Hitchcock and Brankman (2002) and our own more recent work have all (understandable) revised the understanding of the fault characteristics and plot of the surface trace as compared with the earlier work of TI (1988) and KI (1989) which had to rely on projecting data from distal points. Our attached figure shows the previous mapping of TI and KI, and Lowney and shows that the fault varies slightly from data collected more distally from the subject site. Our fault location at the subject site varies from the previous mapping of TI although it is still within the original SSE. It is consistent with a steep to very steep fault orientation and the juxtaposition of units and groundwater effects are consistent with data collected by Terrasearch both within the shopping center and adjacent to southeast side. The variables quite understandably increase with increasing distance from the site and so that data is less applicable. We would have preferred to trench the site, however the anticipated depth to defining geologic units and the groundwater conditions prevented this. Our closely spaced borings (which are shadowed by the earlier trenching of Terratech) we believe are as reliable as the method implies.

DPW Comment #9: “Discuss what exploration and other data demonstrates that the SCF trace mapped by TI(1988) and KI (1989) does not exist at its mapped location. Could there be two parallel fault traces, one in the original location determined by TI (1988) and KI (1989) and a second parallel trace identified in the CEG (2014) exploration?”

CEG Response to DPW Comment #9: The entire width of the SSE within the shopping center (225 feet northwest of the subject site) was continuously trenched with two parallel trenches and although a 3 or 4 foot wide zone of shears was encountered no secondary traces were documented. The overlying alluvium was documented as horizontal bedded and undisturbed by faulting. We do not believe a secondary fault within the subject site is likely.

DPW Comment #10: “Discuss how the new recommended CEG fault setback zone differs from the existing SSE and describe its location and boundaries in relation to the existing SSE. This should be accompanied by a revised geologic map illustrating both setback zones.”

CEG Response to DWP Comment #10: The recorded SSE and our revised BEZ were depicted on our Figure 1 of our previous report and on the attached figure. At the northwest property line, our BEZ coincides with the northeast limit of the SSE, and as our BEZ trends through the site it curves with a broad arc in a more southerly direction so that by its intersection with Cross Section A-A’, it is located completely within the SSE. Curves or arcs in the surface trace are documented in the mapping of Terratech at locations further to the southeast. Refer to the attached revised site map.

DPW Comment #11: “The back ground information regarding the previous geologic/seismic hazard studies performed on and adjacent to the site, the existing SSE, and its basis is not sufficiently described or illustrated. A local geologic exploration map showing the distribution of geologic formations and soil units, the previously mapped trace of the SCF by TI (1988)/KI (1989) and Lowney Associates (1999), the locations of the TI (1988), KI (1989), Lowney Associates (1999), and any other exploration trenches on and adjacent to the site should be presented and fully described. A local detailed geologic exploration map should extend to the area north of Hassler Parkway and south to Bellaire Hills Drive or Farnsworth Drive.”

CEG Response to DWP Comment #11: The basis for the mapping and the previous findings have already been discussed in our original report and in the paragraphs above. Refer to our attached figure for a depiction of the previous mapping explorations and the revisions to that mapping.

DPW Comment #12: “An exposure of the SCF immediately north of the Grisham property was studied and logged by Hitchcock and Brankman (2002). Their study included paleoseisrnic analysis and radiocarbon age dating of the colluvium overlying the SCF. What geologic units are juxtaposed along the SCF at this location? The results of this study and its implications for the CEG, TI, KI, Grisham property, and other studies, should be discussed.”

CEG Response to DWP Comment #12: This publication [Hitchcock and Brankman (2002)] was brought to our attention by Mr. Shimamoto after we published our geologic report for the project. It provides additional information on the fault not previously available during the earlier studies by TI (1988) and KI (1989) or Lowney (1999, 2000). We have discussed their findings in our earlier responses in this letter. Amongst their conclusions:

1) “Minimum vertical fault displacement of about 0.5 m is required based on the faulted colluvial wedge. As observed above, this wedge does not contain internal stratification or other evidence

of multiple colluvial episodes but rather appears to be distinct unit, likely representing a fault displacement of similar size or larger.

2) “Preliminary radiocarbon analyses suggest that the faulted colluvial deposits may be Holocene although we do not believe that there are sufficient constraints on the ages of the faulted deposits. Additional detailed study is necessary to better constrain the timing of past earthquakes on the Silver Creek fault. Pending more detailed research, we believe that the geomorphic and preliminary paleoseismic evidence is sufficient to consider the Silver Creek fault potentially active.”

Based on the paleoseismic data collected by H&B (2002) we judge that a single seismic event with primary fault surface rupture could produce up to 1.6 feet (or 19 inches) of vertical displacement (up toward the northeast) but this displacement would be somewhat dissipated as it propagated through the overlying alluvium and fill.

DPW Comment #13: “The location of the SCF is not evident in Geologic Cross Sections A-A' or B-B', Figures 4 and 5. Supplemental cross sections showing the CEG SCF, the TI (1988)/KI(1989) SCF location, groundwater levels, soil stratigraphic lines, overlying alluvium/colluvium deposits, the buried bedrock surface, offsets in the bedrock surface and juxtaposition of differing bedrock formations should be presented.”

CEG Response to DPW Comment #13: Many of these features were depicted in our geologic cross sections attached to our letter of June 10, 2013. We have included a revised site map and the original cross sections A’A’ and B-B’ in the attached appendix.

DPW Comment #14: “The CEG exploration and study does not adequately characterize the area of the TI (1988)/KI (1989) SCF trace or preclude the presence of the SCF trace at the location determined by TI (1988)/KI (1989). The TI/KI SCF trace is not delineated on any map or cross sections presented in the report. Several investigators have mapped or discussed multiple parallel traces of the SCF in the vicinity (TI, 1981, 1988, 1990, Jo Crosby & Associates, 1991, KI, 1989, 1992, Graymer and DeVito, 1993, DeVito, 1995). The CEG study does not preclude the possibility that both the TI, KI and CEG fault traces may co-exist on the site.”

CEG Response to Comment #14: The maps of Graymer and DeVito (1993), DeVito (1995) are regional in nature and not necessarily applicable to the actual site conditions although Lowney apparently considered it in their investigation of the Grisham property. This is the first we have heard of the publication of Jo Crosby & Associates, (1991). We note that the 1991 Crosby reference was not mentioned in the most recent consultant investigations by Lowney (1999, 2000) nor was it mentioned by Hitchcock and Brankman (2002). We have already offered detailed information in our earlier responses concerning differences between our characterization and mapping versus that of the earlier investigations of TI and Ki. The trenching of TI located 225 feet northwest of the subject sire shadow the entire SSE (plus some) and also failed to encounter evidence suggesting a secondary trace trending through that area.

DPW Comment #15: The exploratory borings shown on Cross Section B-B' suggest that the TI (1988) SCF may exist at the location of borings EB-1 and EB-2 due to the absence of claystone marker units in this area. Additionally, large spatial gaps are present between some of the borings in the cross sections, ex. between EB-4 and EB-8 in Cross Section A-A'. Could the TI (1988) SCF exist as a sliver fault at these gap locations?

CEG Response to DPW Comment #15: As the fault In the immediate area of the shopping center is defined by a juxtaposition of Franciscan material on the southwest against Santa Clara Formation on the northeast and the Holocene alluvium exposed in the continuous trenches (i.e. T-13, T-22) located just 225 feet to the northeast of the subject site appears to overlie the fault zone for some distance without apparent disruption, we came to the conclusion that a new splay between the trenches and our boring arrays was unlikely.

DPW Comment #16: Although the location of a fault is delineated on Figure 2 of the CEG study, the subsurface conditions are not sufficiently characterized to allow an adequate surface fault rupture hazard evaluation to be made. Other data necessary to evaluate the fault rupture and surface deformation hazard potential include characterizing the nature and geometry of the soils overlying the fault, the amount of anticipated fault displacement/slip rate, type of fault movement, orientation of the fault plane, width of fault zone, and other factors (Treiman, 2009). The subsurface characterization of the fault, bedrock and overlying soils should be presented in greater detail and depicted on cross sections. The width and dip of the fault plane should be presented. Due to the presence of 15 to 20 feet of soil overlying the fault, the anticipated fault rupture propagation path to the surface through the overlying soils should be evaluated and the surface location of the fault rupture and the aerial extent of potential surface deformation determined (Bray et. al., 1994, Treiman, 2009). The recommended setback appears to be based on fault rupture propagation of a vertical fault plane less than one foot wide. Based on empirical and laboratory studies of fault rupture propagation through soil (Bray et. al., 1994), if the CEG fault is characterized by reverse movement and the fault plane is east dipping, the estimated fault rupture path may result in surface rupture beneath structure, and the recommended 25 foot setback may be inadequate. The 25 foot setback may also be inadequate if the faulting is present within a zone of shears rather than a discrete single shear plane. The recommended fault setback should be reevaluated based on the above data and discussion.

CEG Response to DPW Comment #16: Please refer to the geologic cross sections presented in the appendix. The fault exposed in the Trenches by TI located 225 feet northwest of the site, and the tightly spaced boring array of our study suggest a narrow zone of faulting 3 or 4 feet wide and very steeply dipping. Hitchcock and Brankman (2002) have documented a 1.6 feet (or 19 inches) of largely vertical (reverse) of vertical movement (up on the northeast) for a single episode on the southwestern play SCF. For comparison, estimates of vertical fault movement based on a 40 km long reverse fault and using the methods of Wells and Coppersmith (1994) produced an estimated offset of 16.4 inches occurring at the base of the alluvium.

DPW Comment #17: “Because there appears to be 15 to 20 feet of soil overlying the CEG fault, fault displacement in the bedrock will likely propagate upward through the soils to the ground surface. What will the anticipated ground surface rupture consist of? Will the surface rupture be a single scarp or mole track, or a zone of ground deformation, uplift, subsidence, or cracking? What is the anticipated width of the surface rupture? Where within the recommended setback zone will the surface rupture or ground deformation likely occur? How much offset, deformation or differential movement is expected at the ground surface? What sense of movement is likely, i.e., strike slip, reverse, transpressional, etc.? What are the limitations of the fault rupture hazard evaluation? How certain is the estimated location and character of the anticipated surface rupture? What uncertainties exist in the surface rupture evaluation?”

CEG Response to DPW Comment #17: A correction is offered here. The studies by Hitchcock and Brankman (2002) on the Golf Course indicate that the fault is southwest dipping not east dipping as stated above. The sense of offset based on the exposures observed by Hitchcock and Brankman at the golf course suggest a vertical movement on a steeply inclined, southwest

dipping fault. Trenches by Terrasearch (1988) within the shopping center and tightly spaced borings by us (2013) indicate the fault plane may steepen as it makes its traverse through the shopping center. TI within the shopping center encountered (T-13, T-22) the fault as a set of shears 3 or 4 feet wide and dipping steeply (80°) to the northeast. Bray et al., (1994) discuss propagation of reverse fault displacement through soil overlying a reverse fault and point out that the amount of surface deformation at the ground surface is somewhat less than the fault at the base of the soil (in this case approximately 15 to 17 feet of soil) and this deformation is likely to manifest itself on the upthrown side of the fault (see Bray et al., 1994; Fig 6a, p. 552). However as the fault appear to be nearly vertical this deformation would most probably manifest as uneven settlement fractures oriented parallel with the fault and likely occur within the BEZ.

DPW Comment #18: At our meeting we discussed a geologic study to further define the location of the SCF which might shift the location of the existing SSE enough to allow construction of the gas station. A decreased fault rupture setback distance from 50 feet to 25 feet to accommodate the gas station, however, was not discussed. Based on the current data and the depth of soil overlying the fault trace, the recommended 25 foot building setback does not appear to be sufficient. Justification of the reduced 25 foot fault setback as opposed to the previous 50 foot setback should be presented.

CEG Response to DWP Comment #19: The recorded SSE is largely a projection using a straight edge connecting distal data points and as such it is understandably conservative. Our building exclusion zone is based upon a much larger set of data define its location and surface projection. There is no compelling evidence that would suggest a nearly vertical oriented reverse fault would produce deformation significantly beyond the surface projection of the fault or beyond the BEZ.

DPW Comment #19: In some cases, a fault setback of less that 50 feet (standard State recommended setback) may be acceptable where a discrete fault trace exists at or near the ground surface and the subject fault is a minor fault incapable of large surface displacements. The bedrock comprising the fault blocks immediately adjacent to the fault trace is competent and largely free of subsidiary shears and fractures that could offset or deform along with the main fault trace during a seismic event. Therefore, there is a higher likelihood that displacement will be localized along the discrete fault shear. What is the evidence that the CEG determined fault trace fits this scenario? In light of the above, explain why the recommended 25 foot fault setback is appropriate.

CEG Response to DPW Comment #19: Given the nearly vertical fault orientation, the estimated offset (16 to 19 inches), and its' expected dissipation as it propagates through the thick overlying soils, the likely style of deformation, and the fault's more narrowly defined location, we conclude that the 25 foot setback is appropriate.

DPW Comment #20: The CEG report does not specify what types of structures are to be allowed within their recommended fault setback zone. Because we are unable to verify the gas station location outside the CEG fault setback zone (see Comment 22), we cannot determine that the proposed buildings, gas pumps, and underground tanks would all be located outside the revised SSE. CEG should clarify if their fault setback applies only to the proposed gas station and car wash building, or if the proposed gas pumps and underground gas tanks must also be located outside their recommended setback zone. If the proposed gas pumps and underground tanks are to be located within the recommended fault setback, reasons why placing these structures within the setback will pose an acceptable risk to the community and should be allowed within the setback zone, should be presented.

CEG Response to DPW Comment #20: The conventional approach in the professional geologic practice in the bay area where potentially active and active faults zones is concerned is to create a building exclusion zone that prohibits the siting of "habitable" structures or structures where people will be spending 40 man-hours per week within. The proposed minimart is outside the building exclusion zone and the remaining structures (the pumps, the carwash, and the pump canopy) would not be considered habitable structures. Even though not required, the pumps, the carwash and the pump canopy foundation systems are also all located outside the building exclusion zone. It should be noted that the convenience store/carwash building is about 63 feet away from the fault trace and the nearest point of the underground storage tanks is 53 feet from the fault trace. The relatively benign fuel dispensers are located 25 to 30 feet from the fault trace. (They are benign due to built in design safety features from regulatory requirements). As to the fuel island canopy, the nearest of the four pier support columns are located about 31 feet from the fault trace, again outside the BEZ. As an added measure of protection, they will be supported by deeper foundation (drilled piers), thereby reducing the likelihood of the canopy falling down.

DPW Comment #21: The CPT exploration logs are not included in the CEG report. The locations of the CPTs soundings are also not delineated on a site plans as required by State guidelines for liquefaction evaluation. If the CPTs are not located within the proposed building site, additional CPTs and/or analysis should be performed.

CEG Response to DPW Comment #20: As requested, the attached site plan show the CPT sounding locations. As shown, the CPTs are within the building site and in accordance with the current liquefaction evaluation guidelines. In addition, we have also included the liquefaction analysis for the CPTs.

DPW Comment #22: The conceptual grading and drainage plan of the proposed development, Reference 2, does not delineate the proposed SSE. We are unable to verify that the CEG recommended setback is being complied with or where the proposed structures are located relative to the setback, unless the setback is shown on the grading plan.

CEG Response to DPW Comment #22: Please refer to the attached exhibit for the requested information.

DPW Comment #23: The revised configuration of the SSE should be shown on both the project re-zoning and grading plans. The revised SSE should show the "cut out" portion of the existing SSE to be vacated and how the revised SSE boundary connects with the existing SSE to the north and south of the gas station site.

CEG Response to DPW Comment #23: Please refer to the attached exhibit for the requested information.

DPW Comment #24: The proposed SSE revision for the project should be conveyed via a plat map and legal description to be reviewed and approved by the Project Engineer in Development Services.

CEG Response to DPW Comment #24: Please refer to the attached exhibit for the requested information.

DPW Comment #25: In summary, the CEG report recommends that their fault setback or "building exclusion zone" replace the existing SSE recommended by TI (1988) and KI (1989). However, in order for the City to approve the CEG investigation, the following must be presented: 1) conclusive data which demonstrate that the TI (1988) SCF trace is absent from its mapped location, i.e., an explanation of where the TI (1988) SCF trace is located on the site, what its location is based on, why the fault does not exist at this location, and how the TI study is incorrect and/or inaccurate, 2) conclusive data demonstrating why the current CEG SCF trace location and surface rupture characterization is correct and, 3) reasons why decreasing the existing SSE width from 100 feet to the 50 feet (fault setback distance decreased from 50 feet to 25 feet) is appropriate and should be approved to supersede the existing SSE. If the CEG study is approved, the SSE must be re-configured on existing legal documents which currently prohibit development within the SSE.

CEG Response to DPW Comment #25: Our responses to the first 24 DWP comments provide the requested information to address the above comment #25.

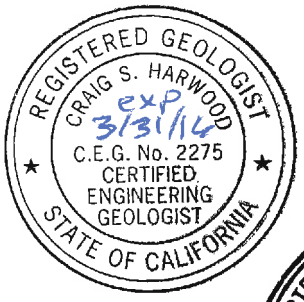
CLOSURE

This letter has been prepared for the sole use of Canyon Creek PLaza, LP, specifically for the planned gas station project in San Jose, California. Our professional opinions and recommendations are prepared in accordance with generally accepted geotechnical engineering and geologic hazards principles and practices at this time and location.

No warranties are expressed or implied. If you have any questions or need any additional information from us, please call and we will be glad to discuss them with you.

Sincerely,

CORNERSTONE EARTH GROUP, INC.



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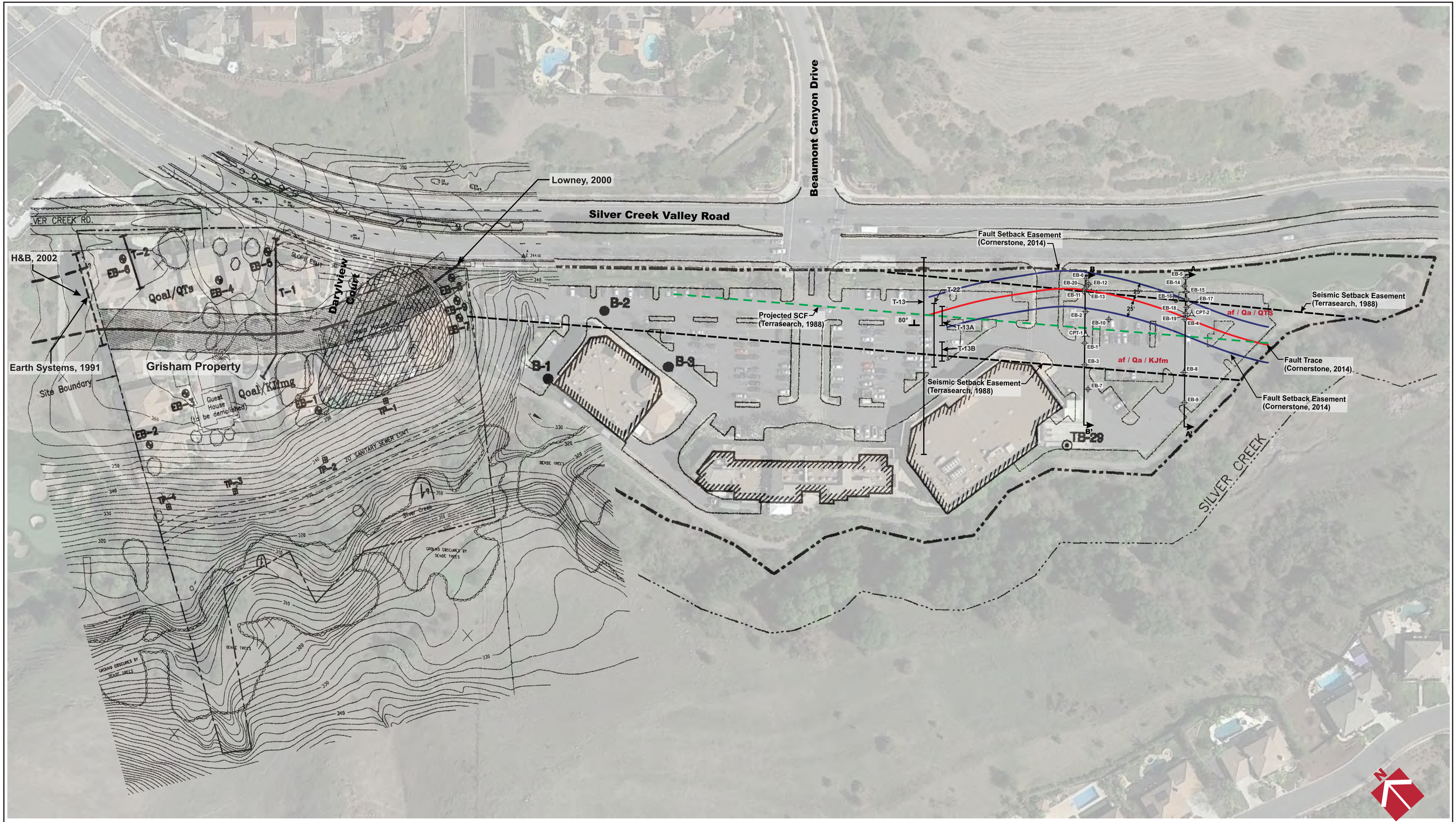


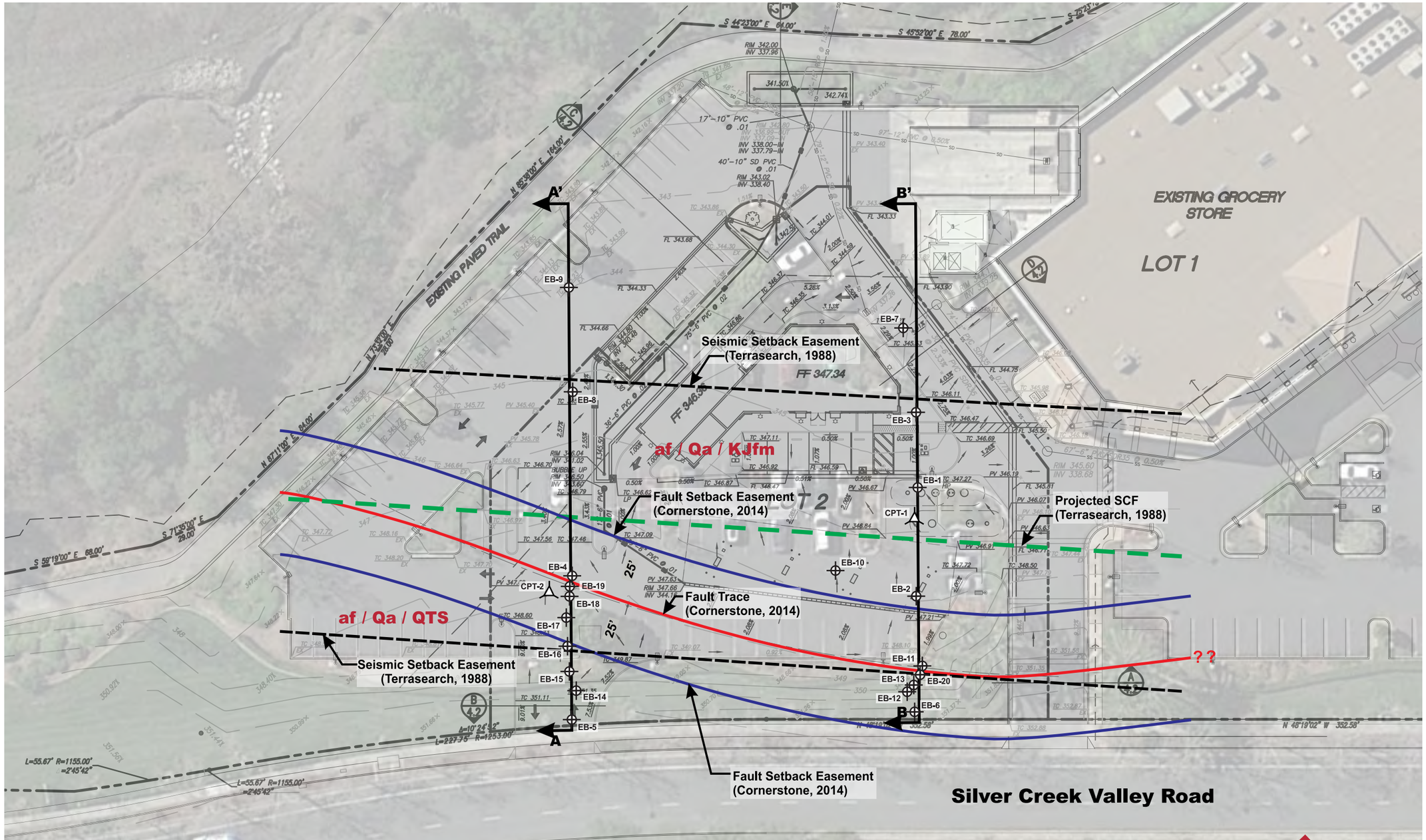
Base by Google Earth, dated 2/23/2014

CORNERSTONE EARTH GROUP

Geology Map

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

Project Number	535-1-2
Figure Number	Figure 2
Date	September 2014
Drawn By	RRN



Geologic Units

af	Artificial Fill
Qa	Alluvium (Quaternary)
QTS	Santa Clara Formation (Plio-Pleistocene)
KJfm	Franciscan mélange (Cretaceous and/or Jurasic)

Legend

- Approximate location of exploratory boring
- Approximate location of cone penetration test
- Approximate surface trace of Silver Creek Fault (This study)
- Approximate building exclusion zone (This study)
- Approximate seismic easement (Terrasearch, 1988)
- A A' Approximate location of geologic cross section

0 40 80
APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 2/23/2014
Overlay by Charles W. Davidson Co., "Conceptual Grading and Drainage Plan - Sh. 4.1," dated 6/2/2014

Project Number 535-1-2
Figure Number Figure 2
Drawn By RRN
Date September 2014

Site Plan

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP

PRIMARY DIVISIONS			SOIL TYPE		SECONDARY DIVISIONS
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE)	CLEAN GRAVELS (Less than 5% Fines)	GW		Well graded gravels, gravel–sand mixtures, little or no fines
			GP		Poorly graded gravels or gravel–sand mixtures, little or no fines
		GRAVEL WITH FINES	GM		Silty gravels, gravel–sand–silt mixtures, plastic fines
			GC		Clayey gravels, gravel–sand–clay mixtures, plastic fines
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE)	CLEAN SANDS (Less than 5% Fines)	SW		Well graded sands, gravelly sands, little or no fines
			SP		Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM		Silty sands, sand–silt–mixtures, non–plastic fines
			SC		Clayey sands, sand–clay mixtures, plastic fines
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT IS 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
	SILTS AND CLAYS (LIQUID LIMIT IS GREATER THAN 50 %)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH		Inorganic clays of high plasticity, fat clays
			OH		Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT		Peat and other highly organic soils

DEFINITION OF TERMS

U.S. STANDARD SIEVE SIZE: 200 | 40 | 10 | 4 | CLEAR SQUARE SIEVE OPENINGS: 3/4" | 3" | 12"

SILTS AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES

TERZAGHI SPLIT SPOON STANDARD PENETRATION | MODIFIED CALIFORNIA | D&M UNDERWATER SAMPLER | SHELBY TUBE | NO RECOVERY

SAMPLERS

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0–4
LOOSE	4–10
MEDIUM DENSE	10–30
DENSE	30–50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH+	BLOWS/FOOT*
VERY SOFT	0–1/4	0–2
SOFT	1/4–1/2	2–4
MEDIUM STIFF	1/2–1	4–8
STIFF	1–2	8–16
VERY STIFF	2–4	16–32
HARD	OVER 4	OVER 32

CONSISTENCY

*Number of blows of 140 pound hammer falling 30 inches to drive a 2–inch O.D. (1–3/8 inch I.D.) split spoon (ASTM D–1586).
+Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D–1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS

Unified Soil Classification System (ASTM D–2487)

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE A–1

WEATHERING

FRESH	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.	**MODERATELY SEVERE**	All rock except quartz, discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick. Rock goes "clunk" when struck.
VERY SLIGHT	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.	**SEVERE**	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
SLIGHT	Rock generally fresh, joints stained, sand discoloration extends into rock up to 1 inch. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.	**VERY SEVERE**	All rock except quartz discolored and stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
MODERATE	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some are clayey. Rock has dull sound under hammmer and shows significant loss of strength as compared with fresh rock.	**COMPLETE**	Rock reduced to "soil". Rock "fabric" not discernible or discernible only in small scattered locations. Quartz may be present as dikes or stringers.

HARDNESS

VERY HARD	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.	**MEDIUM**	Can be grooved or gouged 1/16 inch deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces abount 1 inch maximum size by hard blows of the point of a geologist's pick.
HARD	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.	**SOFT**	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
MODERATELY HARD	Can be scratched with knife or pick. Gouges or grooves to 1/4 inch deep can be excavated by hard blow or point of a geologist's pick. Hard specimen can be detached by moderate blow.	**VERY SOFT**	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1 inch or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

JOINT BEDDING AND FOLIATION SPACING IN ROCK*

Spacing	Joints	Bedding and Foliation
Less than 2 in.	Very close	Very thin
2 in. to 1 ft.	Close	Thin
1 ft. to 3 ft.	Moderately close	Medium
3 ft. to 10 ft.	Wide	Thick
More than 10 ft.	Very Wide	Very thick

ROCK QUALITY DESIGNATOR (RQD)**

RQD, as a percentage	Diagnostic description
Exceeding 90	Excellent
90–75	Good
75–50	Fair
50–25	Poor
Less than 25	Very poor

*Joint spacing refers to the distance normal to the plane of the joints of a single system or "set" of joints that are parallel to each other or nearly so. The spacing of each "set" should be described, if possible to establish.
**RQD should always be given as a percentage. Diagnostic description is intended primarily for evaluating problems with tunnels or excavation in rock. RQD = 100 (lengths of core in pieces 4 in. and longer/length of run)(1 in. = 25.4 mm; 1 ft. = 0.305 m)

KEY TO BEDROCK DESCRIPTIONS

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE A–2

EXPLORATORY BORING: EB-7

Sheet 1 of 1

DRILL RIG: MOBILE B-53
BORING TYPE: 8" HOLLOW STEM
LOGGED BY: GAR
START DATE: 8-24-00 FINISH DATE: 8-24-00

PROJECT NO: 1398-1B
PROJECT: GRISHAM PROPERTY
LOCATION: SAN JOSE, CA
COMPLETION DEPTH: 15.0 FT.

This log is a part of a report by Lowney Associates, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT PASSING NO. 200 SIEVE
347.0	0	SURFACE ELEVATION: 347.0 FT. (+/-)						
		CLAYEY GRAVEL (GC) dry to moist, olive brown, some sand, sub angular to well rounded fine to medium gravel, some sand	GC					
	5							
341.0		**CLAYSTONE <FRANCISCAN CLAYSTONE>** yellow brown, slightly weathered, weak, friable, minor very thin foliations, Fe/Mg staining along foliations, some 1 to 3 inch diameter blocky, indurated siltstone fragments, clay fabric	Br	50/4				
	10							
		subhorizontal foliations, thin coatings of gray clay along foliations		50/6				
332.0	15	Bottom of Boring at 15 feet						
	20							

Undrained Shear Strength (ksf)
○ Pocket Penetrometer
△ Torvane
● Unconfined Compression
▲ U-U Triaxial Compression
1.0 2.0 3.0 4.0

GROUND WATER OBSERVATIONS:

LA CORP.GDT 10/23/00 MV*

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

EXPLORATORY BORING: EB-8

Sheet 1 of 1

DRILL RIG: MOBILE B-53	PROJECT NO: 1398-1B
BORING TYPE: 8" HOLLOW STEM	PROJECT: GRISHAM PROPERTY
LOGGED BY: GAR	LOCATION: SAN JOSE, CA
START DATE: 8-24-00 FINISH DATE: 8-24-00	COMPLETION DEPTH: 16.5 FT.

This log is a part of a report by Lowney Associates, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)
347.0	0	SURFACE ELEVATION: 347.0 FT. (+/-)		
		SILTY CLAY (CL) stiff, dry to moist, brown, minor medium to coarse sand, up to 1/2 inch diameter well rounded gravel	CL	
345.0		**CLAYEY GRAVEL (GC)** medium dense, moist, olive brown, some medium sand, well-rounded gravels up to 1/2 inch in diameter	GC	
	5			40
341.0		**CLAYSTONE <FRANCISCAN CLAYSTONE>** slightly weathered, dark olive to green, stiff, weak, highly foliated, some subangular black shale fragments	Br	
	10	some serpentinite within clay matrix		48
	15	increase in serpentinite <FRANCISCAN MELANGE>		53
330.5		Bottom of Boring at 16.5 feet		
	20			

SAMPLER | MOISTURE CONTENT (%) | DRY DENSITY (PCF) | PERCENT PASSING NO. 200 SIEVE

Undrained Shear Strength (ksf)
○ Pocket Penetrometer
△ Torvane
● Unconfined Compression
▲ U-U Triaxial Compression
1.0 2.0 3.0 4.0

GROUND WATER OBSERVATIONS:

LA CORP.GDT 10/23/00 MV*

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

EXPLORATORY BORING: EB-9

DRILL RIG: MOBILE B-53
BORING TYPE: 8" HOLLOW STEM
LOGGED BY: GAR
START DATE: 8-24-00 FINISH DATE: 8-24-00

PROJECT NO: 1398-1B
PROJECT: GRISHAM PROPERTY
LOCATION: SAN JOSE, CA
COMPLETION DEPTH: 16.5 FT.

This log is a part of a report by Lowney Associates, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (FT)	DEPTH (FT)	MATERIAL DESCRIPTION AND REMARKS	SOIL TYPE	PENETRATION RESISTANCE (BLOWS/FT.)	SAMPLER
345.0	0	SURFACE ELEVATION: 345.0 FT. (+/-)			
		SILTY CLAY (CL) very stiff, dry, brown, some 2 inch diameter siltstone fragments, rootlets	CL	50	
		becomes green			
340.0	5	**CLAYSTONE <FRANCISCAN CLAYSTONE>** slightly weathered, dark olive to green, weak, stiff, some vertical 1/8 inch calcite veins, subhorizontal foliations, some serpentinite along foliations		31	
	10	patchy to extensive Fe/Mg staining along foliations, some black 2-5mm rounded pebbles within matrix	Br	40	
	15			52	
328.5		Bottom of Boring at 16.5 feet			
	20				

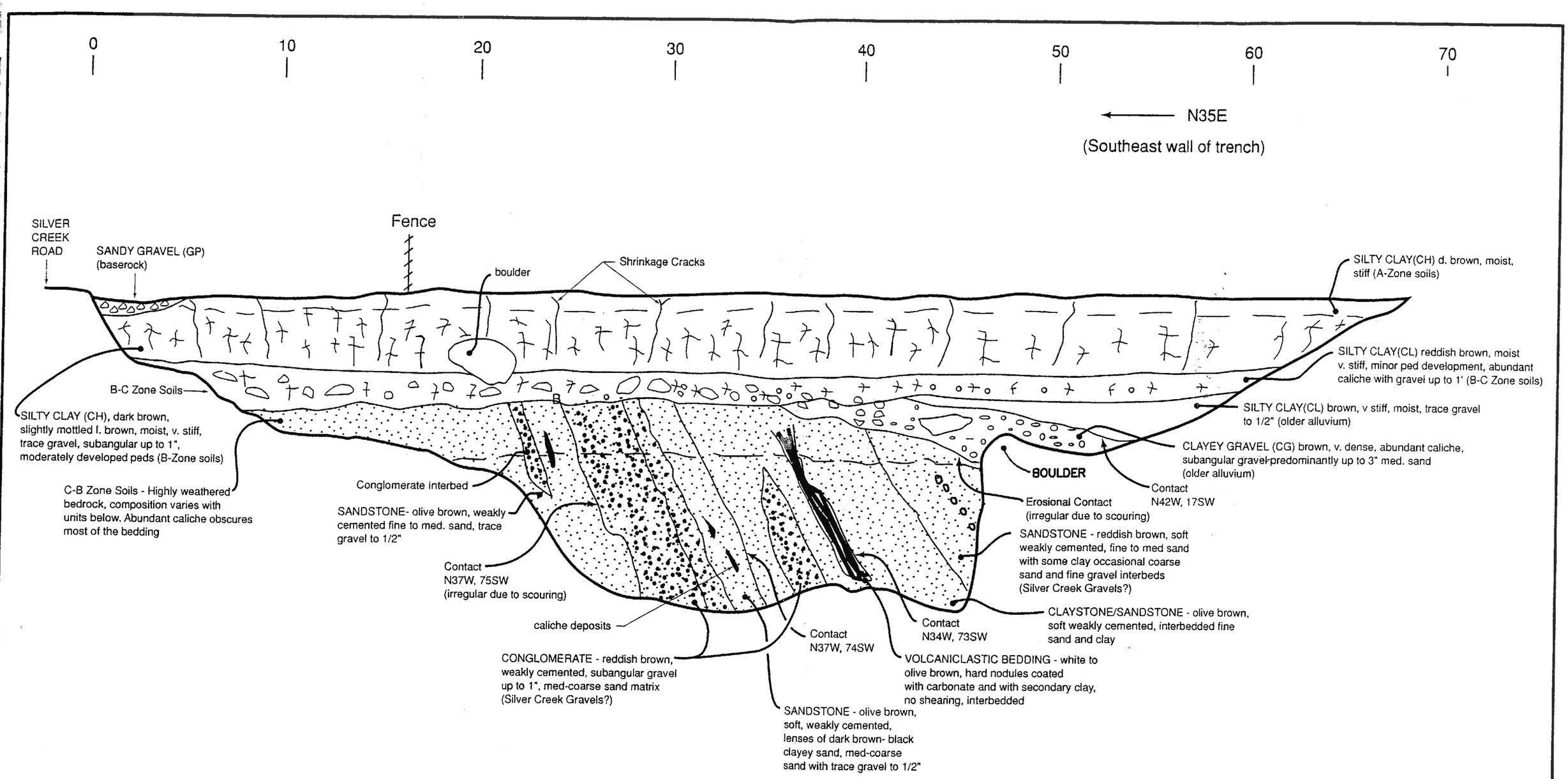
MOISTURE CONTENT (%) | DRY DENSITY (PCF) | PERCENT PASSING NO. 200 SIEVE

Undrained Shear Strength (ksf)
○ Pocket Penetrometer
△ Torvane
● Unconfined Compression
▲ U-U Triaxial Compression
1.0 2.0 3.0 4.0

GROUND WATER OBSERVATIONS:

LA CORP.GDT 10/23/00 MV*

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

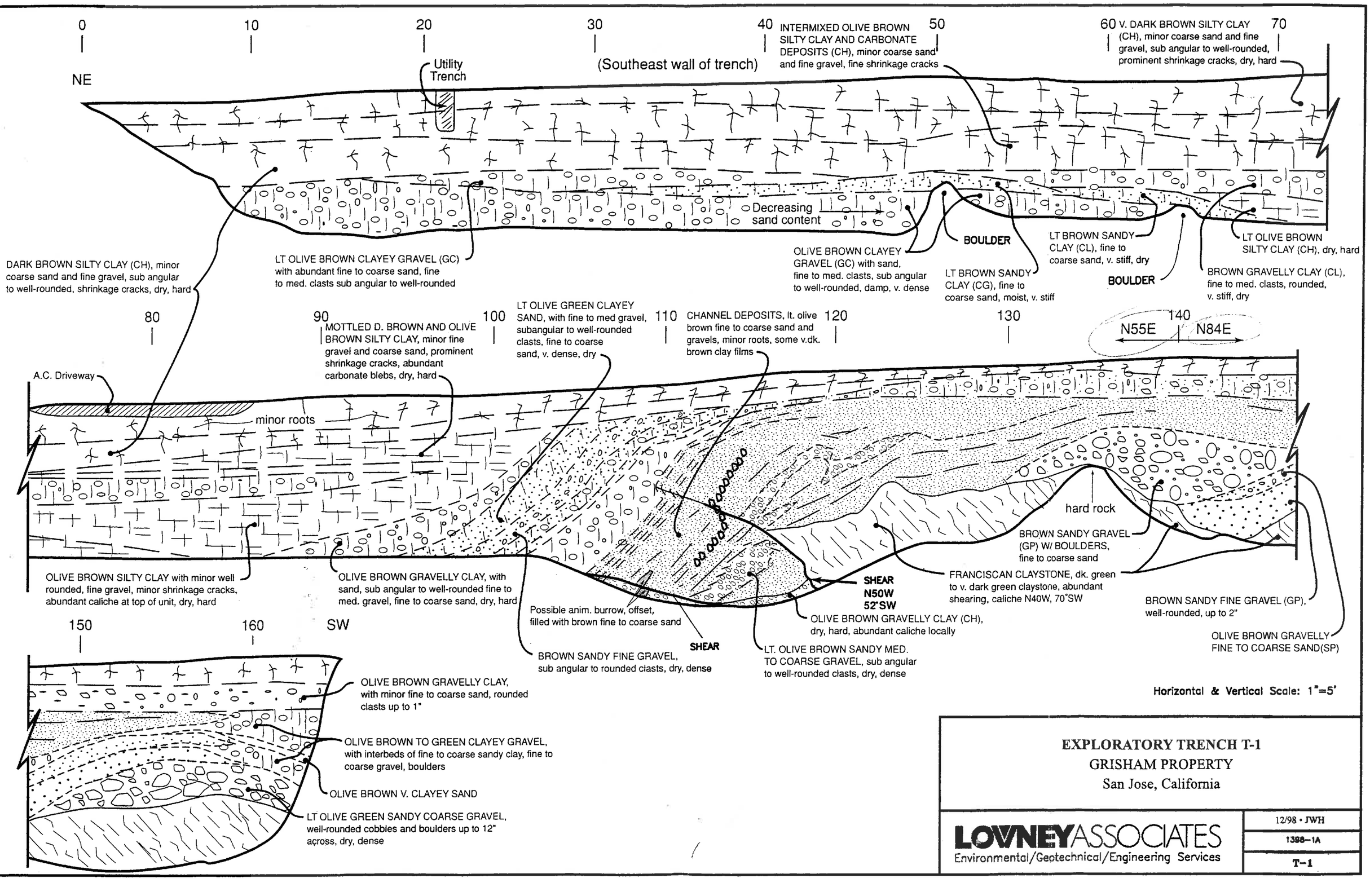


Horizontal & Vertical Scale: 1"=5'

EXPLORATORY TRENCH T-2
GRISHAM PROPERTY
San Jose, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

12/98 • JWH
1398-1A
T-2

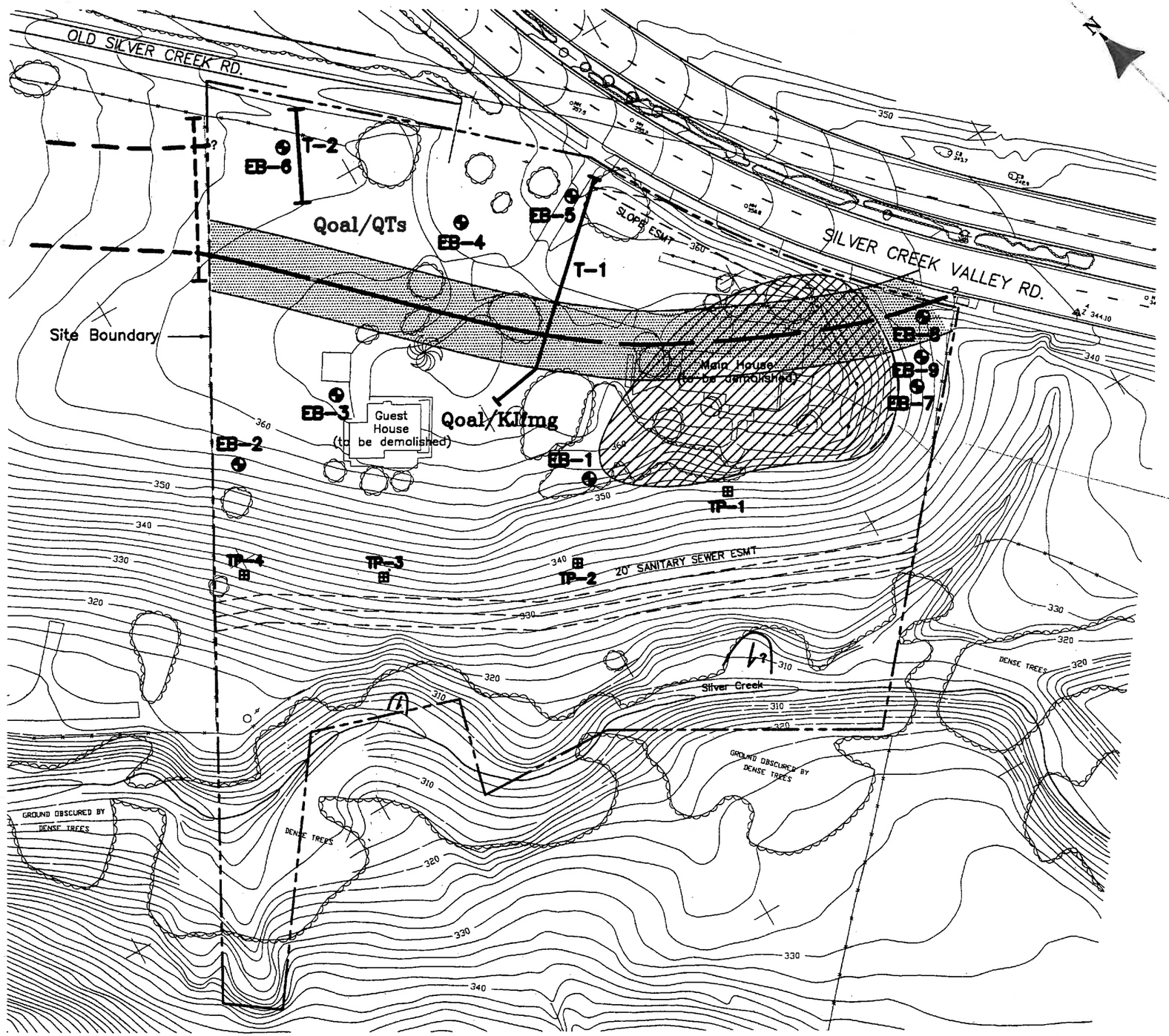


Horizontal & Vertical Scale: 1"=5'

EXPLORATORY TRENCH T-1
GRISHAM PROPERTY
San Jose, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

12/98 • JWH
1388-1A
T-1



LEGEND

- ⊕ — Approximate location of exploratory boring
- ⊞ — Approximate location of exploratory test pits
- ⊢⊣ — Approximate location of exploratory trench
- ⊢⊣ — Approximate location of previous exploratory trench (Investigation by Earth Systems Consultants, 1991)
- ▨ — Approximate limits of non-engineered fill

Qoal/QTs — Older Alluvium Overlying Silver Creek Gravels

Qoal/KJfmg — Older Alluvium Overlying Cretaceous-Jurassic Franciscan Melange

- ——— — Unnamed Fault Trace
- — — — Fault identified by Earth Systems Consultants, 1991
- ▨ — Building Exclusion Zone
- — Shallow landslide

Base by HMH dated 12/18/98.

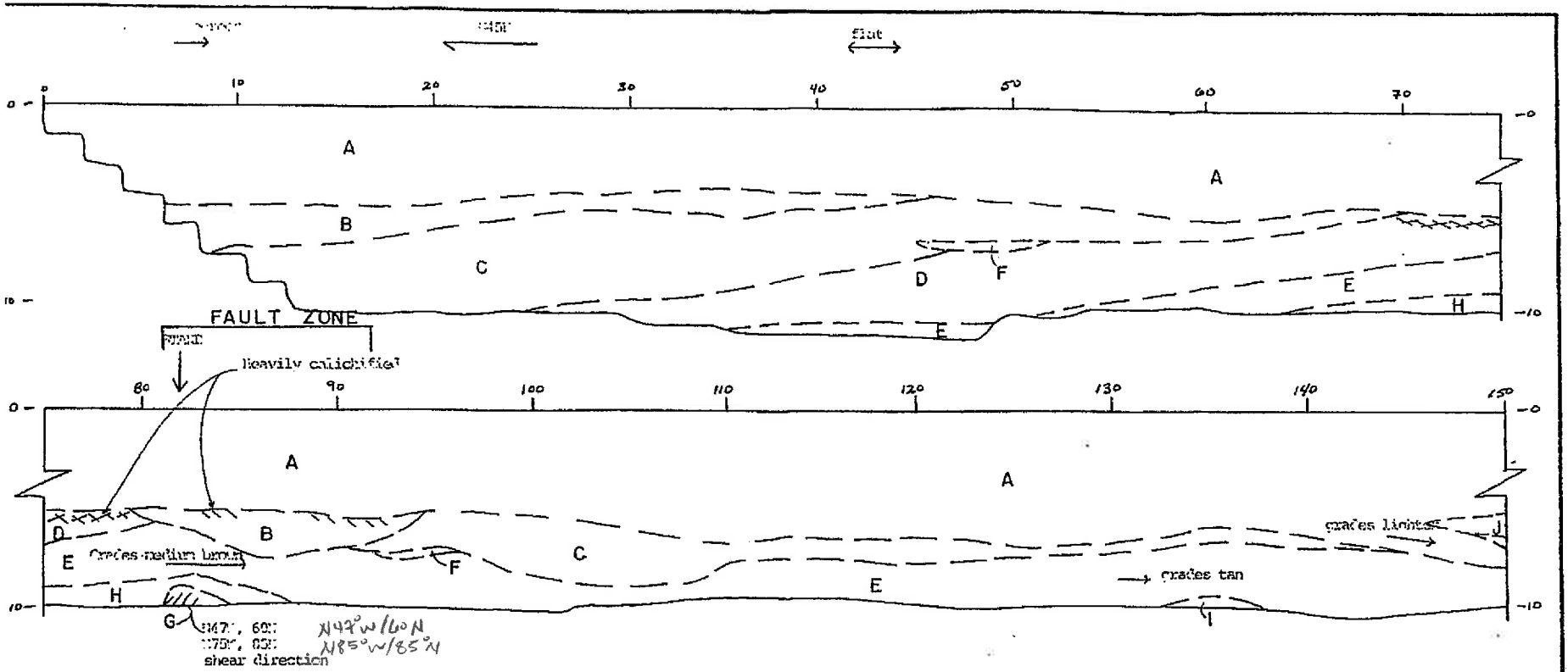
0 80
Scale feet

SITE PLAN AND GEOLOGIC MAP
GRISHAM PROPERTY RESIDENTIAL DEVELOPMENT
San Jose, California

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 2
1398-1B

10/00*EB



A) Dark brown Sandy Silty CLAY, grades to medium brown w/depth (B horizon)

B) Light brown to light orange-brown Sandy Silty CLAY, occasional partings subparallel to surface, occasional cobbles to 6"

C) Medium brown Sandy Silty CLAY

D) Light grey-brown Sandy Clayey "fill"

E) Light brown rounded Gravelly "fill"

F) Medium brown Clayey coarse sand to fine GRAVEL

G) Mottled light grey and orange-brown Silty CLAY w/numerous shear surfaces; greasy

H) Medium brown rounded Gravelly Clayey "fill" similar to E) but coarser (cobbles to 6")

I) Orange-brown Clayey well-rounded fine to medium GRAVEL

J) Medium to dark brown well-rounded Gravelly CLAY

H) Chert boulders in grey Clay matrix

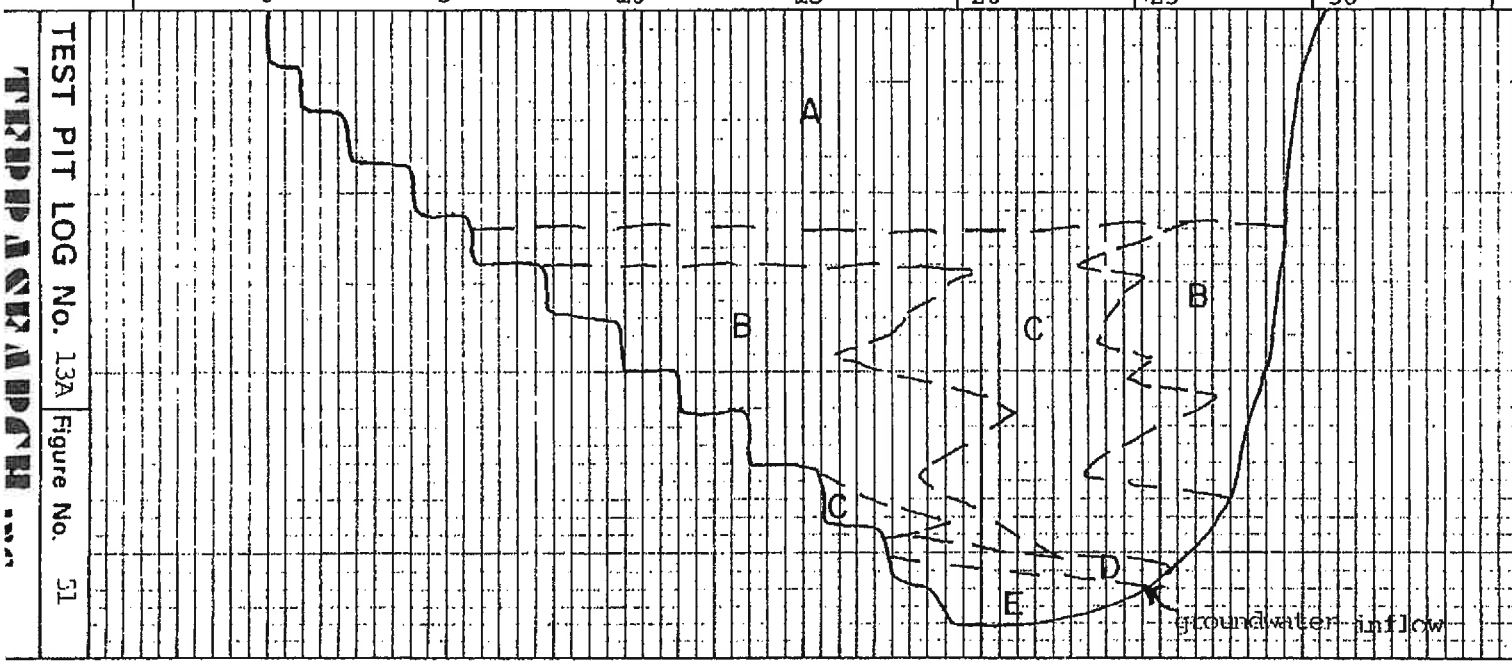
TRENCH NO. 13

TERRA SEARCH INC.

FIGURE NO. 27

.EV LOGGED BY MD DATE LOGGED 12/18/87

DEPTH	MATERIALS DESCRIPTION TYPE, COLOR, MOISTURE, CONSOLIDATION, ETC.	ATTITUDES BEDDING	JOINTS	FAULT or SHEAR	COMMENTS
.0-6.0' (A)	Black Silty CLAY	none	none	none	
.0-15.0' (B)	Light brown Silty CLAY	crudely horizontal	none	none	
.0-15.5' (C)	Light brown Clayey Silty Sandy GRAVEL (rounded)	none	none	none	
1.5-16.0' (D)	Medium brown Clayey boulder horizon (greywacke and Serpentine	none	none	none	
5.0-17.0' (E)	Dark blue-grey Silty CLAY w/ facoids (Greywacke and Serpentine)	none	none	none	



TEST PIT LOG No. 13A Figure No. 51

SCALE

HORIZ 1"= 5'

VERT. 1"= 5'

PIT ORIENTATION

N40E

NATURAL SLOPE

ANGLE Flat

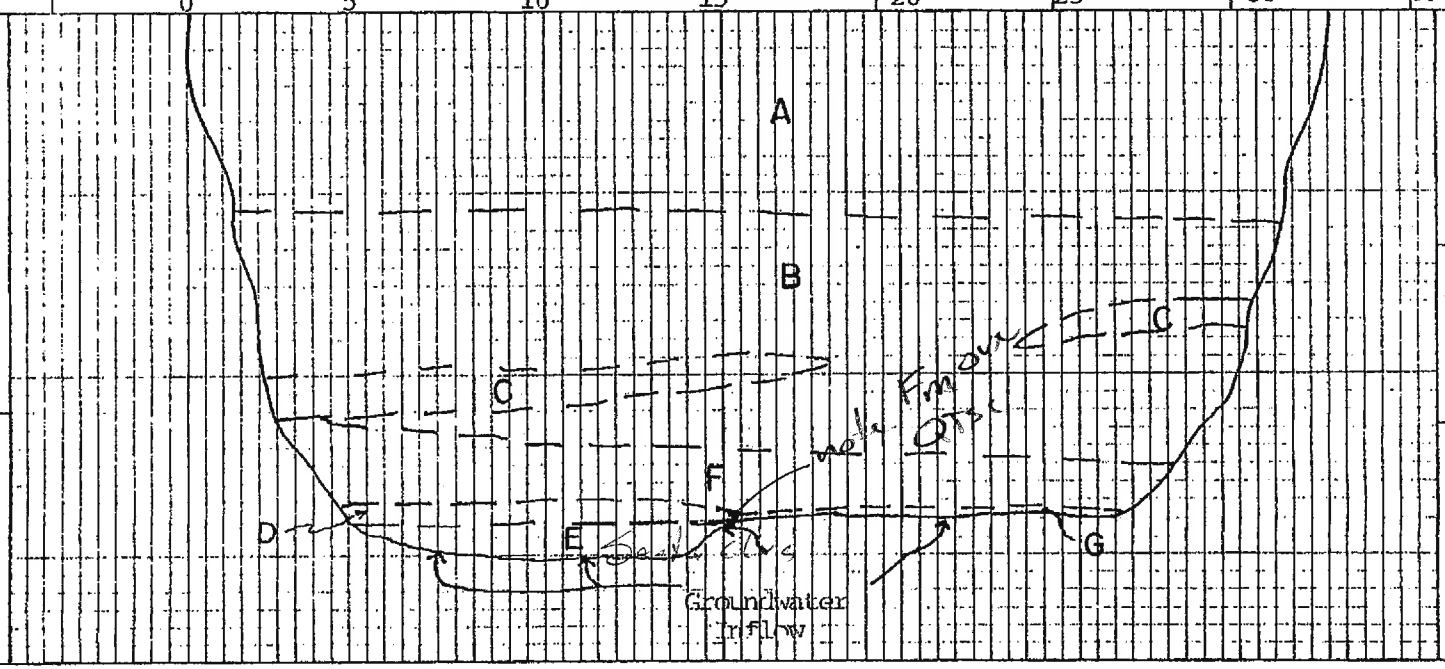
T.D. 17'

Project No. 4205-63 25 March 1989

TP-13A

ELEV LOGGED BY RR DATE LOGGED 12/10/88

DEPTH	MATERIALS DESCRIPTION TYPE, COLOR, MOISTURE, CONSOLIDATION, ETC.	ATTITUDES BEDDING	JOINTS	FAULT or SHEAR	COMMENTS
0.0-5.5' (A)	Black Silty CLAY	none	none	none	
5.5-12.5' (B)	Light brown Silty CLAY	approximately horizontal	none	none	
8.0-11.0' (C)	Light brown Clayey Silty Sandy GRAVEL (rounded)	none	none	none	
13.5-14.0' (D)	Medium brown Clayey boulder horizon (greywacke and serpentine)	none	none	none	
14.0-15.0' (E)	Dark blue-grey Silty CLAY-Franciscan melange	?	none	?	
11.0-14.0' (F)	Light brown Clayey Sandy GRAVEL and cobbles (Santa Clara Formation ?)	approximately horizontal			
14.0' (G)	Chert bedrock, refusal to backhoe	?	none	none	



TERRASEARCH INC.

TEST PIT LOG No. 13B Figure No. 52

SCALE
HORIZ 1"=5'
VERT. 1"=5'

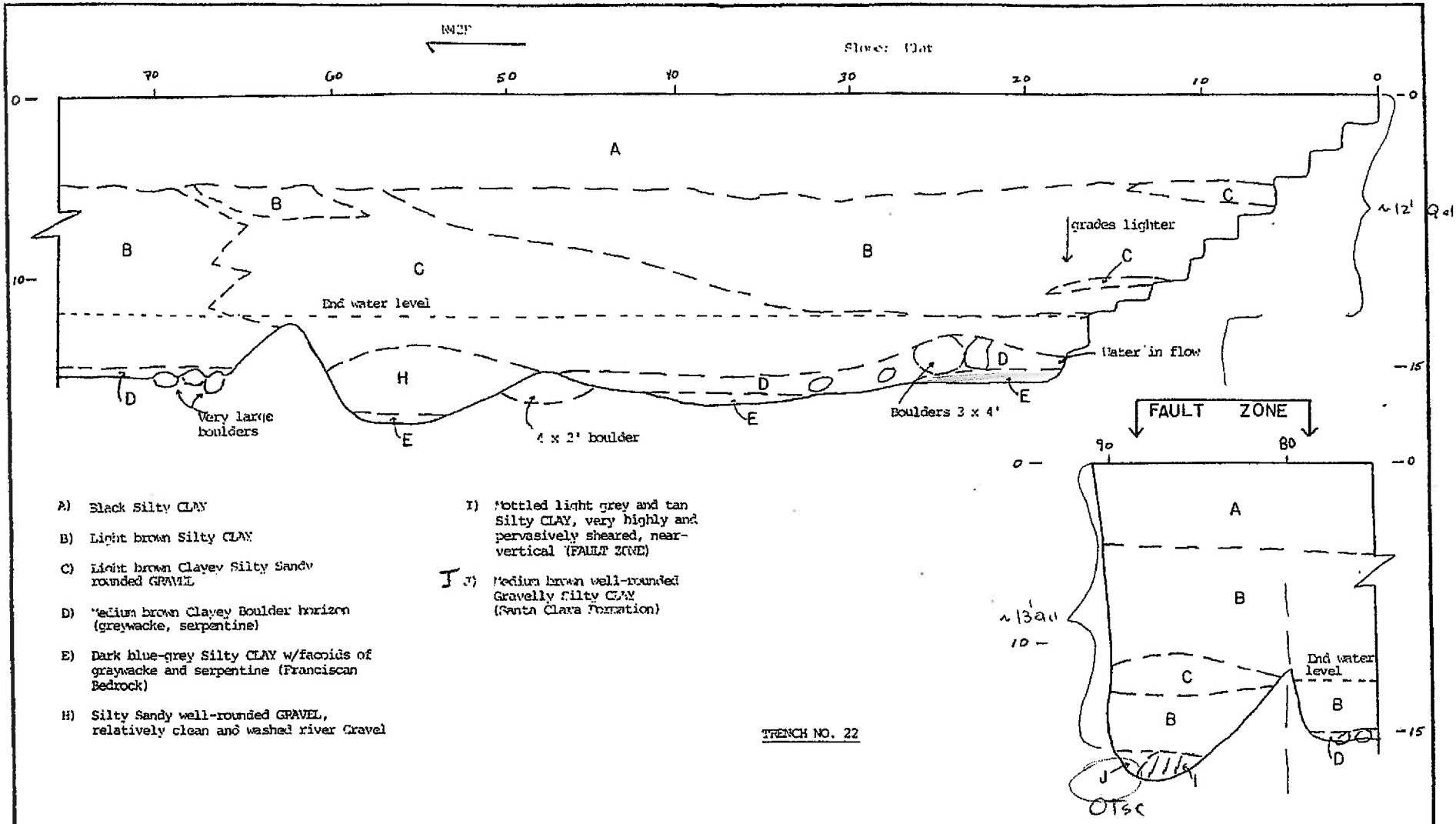
PIT ORIENTATION
N43E

NATURAL SLOPE
ANGLE Flat

T.D. 15'

Project No. 4205-63 25 March 1989

TP-13B



A) Black Silty CLAY

B) Light brown Silty CLAY

C) Light brown Clayey Silty Sandy rounded GRAVEL

D) Medium brown Clayey Boulder horizon (greywacke, serpentine)

E) Dark blue-grey Silty CLAY w/fragments of graywacke and serpentine (Franciscan Bedrock)

H) Silty Sandy well-rounded GRAVEL, relatively clean and washed river Gravel

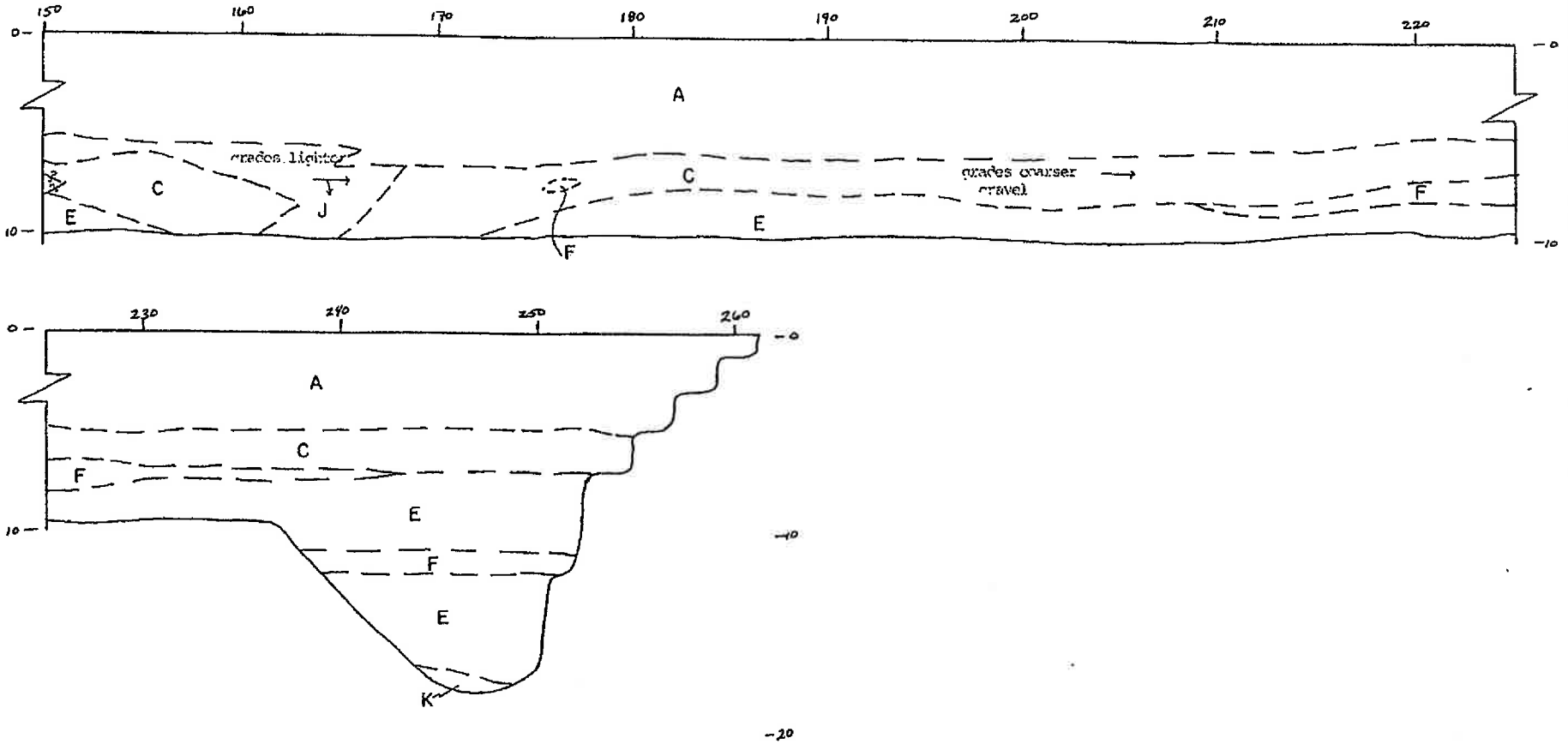
I) Mottled light grey and tan Silty CLAY, very highly and pervasively sheared, near-vertical (FAULT ZONE)

J) Medium brown well-rounded Gravelly Silty CLAY (Santa Clara Formation)

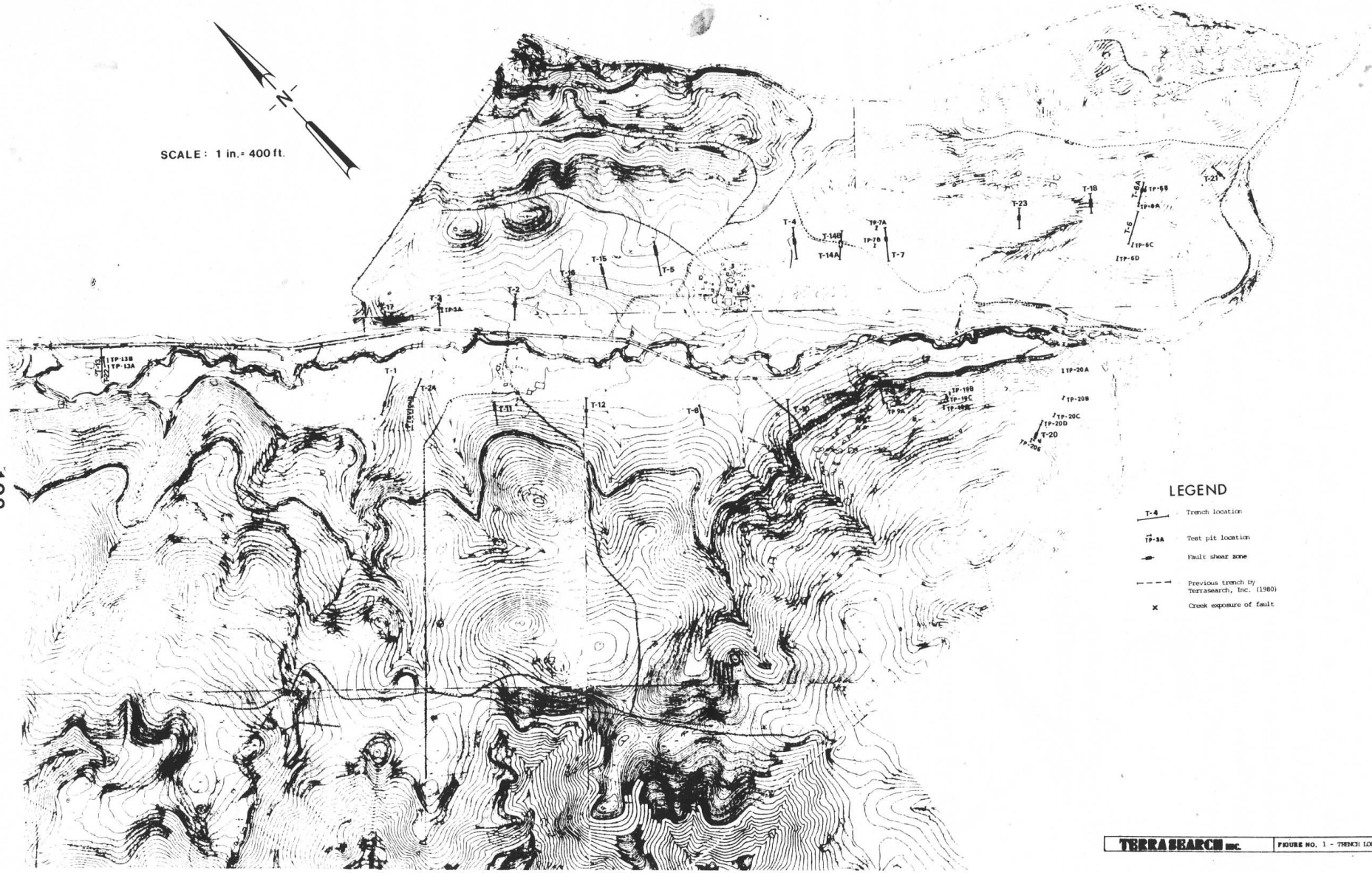
TRENCH NO. 22

TERRASEARCH INC.

FIGURE NO. 41



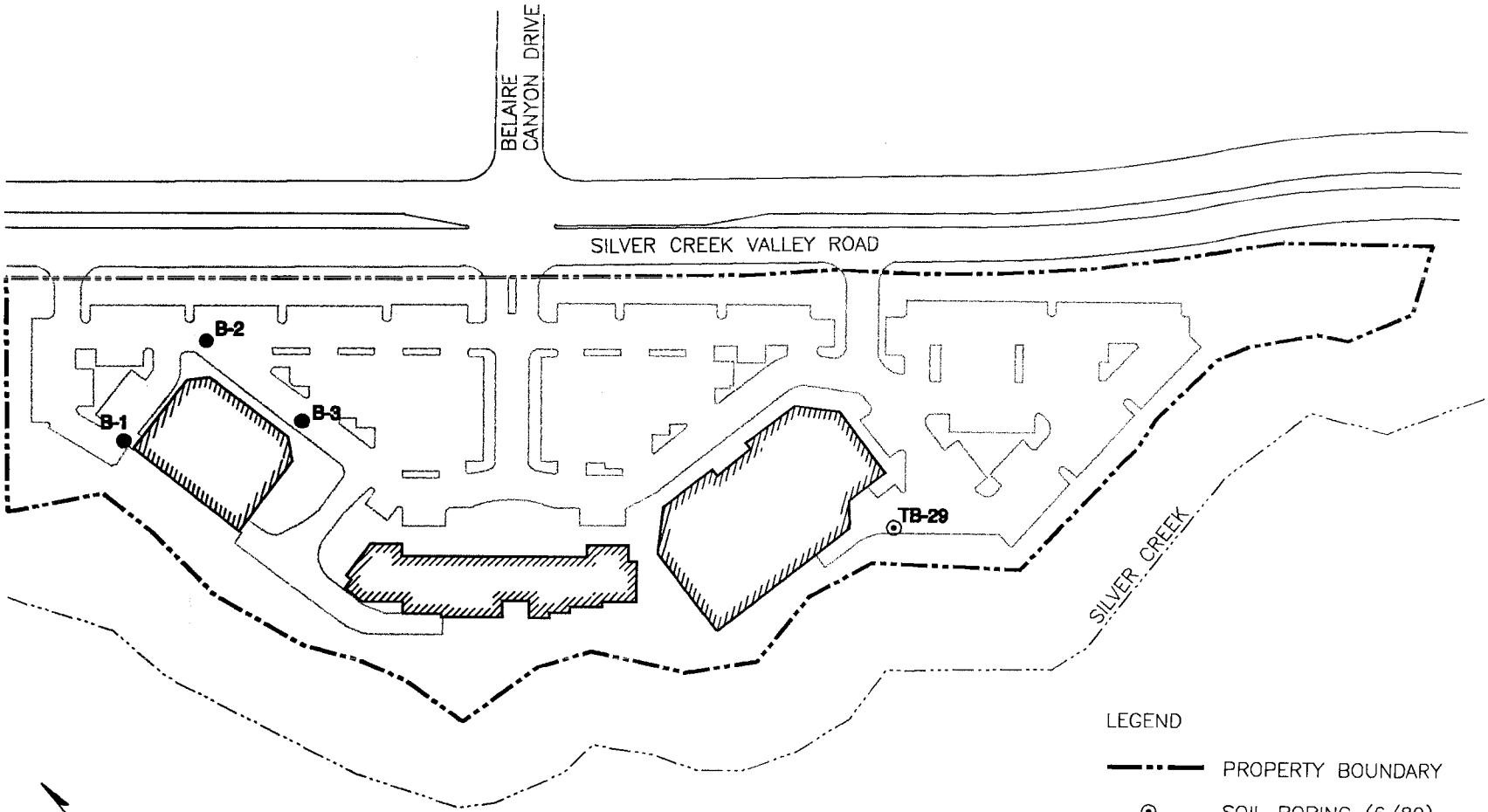
TRENCH NO. 13 (continued)



TERRASEARCH INC. | FIGURE NO. 1 - TRENCH LOCATIONS

SILVER CREEK VALLEY COUNTRY CLUB

Trench Locations



REFERENCE:
The Hagman Group, "Site Plan, Canyon Creek Plaza Commercial Center, San Jose, CAlifornia, " dated 12-15-97.

KLEINFELDER

DRAFTED BY: L. Sue DATE: 2-11-98

CHECKED BY: B. Yukinari DATE: 2-11-98

SITE PLAN

CANYON CREEK PLAZA COMMERCIAL CENTER
SILVER CREEK VALLEY ROAD
SAN JOSE, CALIFORNIA

PROJECT NO. 12-3039-30

PLATE

2

CAD FILE: C:_KA-PROJ\SJ\12303930\SITEPLAN.dwg

Date Completed: 1/29/98

Logged By: M. Garioto

Total Depth: 16.5 ft

Sampler: Modified California Sampler - 2.5 in. O.D. 2.0 in. I.D.

Hammer Wt: 140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION
								Surface Elevation: Estimated 330 feet (MSL)
5	■	15	101	23	2.95@ 8.0%		2.0	**FAT CLAY (CH)** - dark gray brown, mottled, stiff, trace gravel (<0.5), moist
10	■	21	94	18			>4.0	**SANDY CLAY (CL)** - olive brown, stiff, mottled, trace gravel, moist -thin (approx. 2 inches) clayey sand lense at 10 feet
15	■	80						-yellow brown, disturbed sample from 10 to 16.5 feet (rock)
20								End of Boring No free water encountered Hole backfilled with cuttings Note: The compressive strength indicated is the maximum achieved from an unconfined compression test with the associated strain noted.
25								
30								
35								

KLEINFELDER

LOG OF BORING NO. B-1

Canyon Creek Plaza
San Jose, California

PLATE

A-2

PROJECT NO. 12-3039-30

Date Completed: 1/29/98

Logged By: M. Garioto

Total Depth: 26.5 ft

Sampler: Modified California Sampler - 2.5 in. O.D. 2.0 in. I.D.

Hammer Wt: 140 lbs., 30" drop

Depth, ft	FIELD Sample	FIELD Blows/ft	LABORATORY Dry Density pcf	LABORATORY Moisture Content %	LABORATORY Compress. Strength tsf	LABORATORY Other Tests	Pen, tsf	DESCRIPTION
								Surface Elevation: Estimated 336 feet (MSL)
5		21					4.0	**SANDY CLAY (CH) - gray brown, stiff, moist**
10		26						**SANDY CLAY (CL)** - red brown, stiff, moist (Partial Recovery)
15		25	106	18			3.5	**SILTY CLAY (CL)** - olive gray, stiff, serpentine, weathered, moist
20		28						
25								-silica carbonate fragments
								End of Boring No free water encountered Hole backfilled with cuttings
30								
35								

KLEINFELDER

PROJECT NO. 12-3039-30

LOG OF BORING NO. B-2

Canyon Creek Plaza
San Jose, California

PLATE

A-3

Date Completed: 1/29/98

Logged By: M. Garioto

Total Depth: 26.5 ft

Sampler: Modified California Sampler - 2.5 in. O.D. 2.0 in. I.D.

Hammer Wt: 140 lbs., 30" drop

Depth, ft	FIELD: Sample	FIELD: Blows/ft	LABORATORY: Dry Density pcf	LABORATORY: Moisture Content %	LABORATORY: Compress. Strength tsf	LABORATORY: Other Tests	Pen, tsf	DESCRIPTION
								Surface Elevation: Estimated 334 feet (MSL)
5	■	20					2.0	**FAT CLAY (CH)** - dark gray brown, stiff, moist
							4.0	**SANDY CLAY (CL)** - red gray, stiff, moist
10	■	23					>4.0	
								CLAYEY SAND WITH GRAVEL (SC) - olive brown, dense, moist
15	■	53				-#200=18%	2.5	
								SILTY CLAY (CL) - olive gray, stiff, serpentine, weathered, moist
20	■	23	106	14			>4.0	
25	■	28					>4.0	
								End of Boring **No free water encountered** **Hole backfilled with cuttings**
30								
35								

KLEINFELDER

PROJECT NO. 12-3039-30

LOG OF BORING NO. B-3

Canyon Creek Plaza
San Jose, California

PLATE

A-4

Depth In Feet	Dry Density lb/ft³	Moisture Content %	Blow/ Ft.	Sample No.	USCS	DESCRIPTION
1–5					CH	SANDY CLAY, black, stiff, dry to two feet. Some caliche nodules. Some rounded pea gravel. occasional chert to 1½ inches in diameter.
6	109	16	63			PP=4.75 tsf
7–8						
9–10					CL	SANDY CLAY, silty, with some coarse sand and pea gravel, light brown, stiff. PP=2.5 tsf
11		17	23			PP=2.5 tsf
12–14					GC	CLAYEY GRAVEL, with sand, green-brown, dense, gravels to 1 inch in diameter, angular, serpentine and greenstone.
15	119	14				
16			38			PP=4.0 tsf
17–18						Hard drilling. coarse angular gravels.
19		▼ 8/1/89				
20						

Date Drilled: 6/21/89
Logged by: KAO

Surface Elevation (feet): 340±
Depth to Groundwater (feet): 19

KLEINFELDER

PROJECT NO. 12-1253-3

LOG OF BORING NO. TB29

SILVER CREEK VALLEY COUNTRY CLUB
SAN JOSE, CALIFORNIA

1/2

PLATE
A-5

Depth In Feet	Dry Density lb/ft³	Moisture Content %	Blow/ Ft.	Sample No.	USCS	DESCRIPTION
20					GC	CLAYEY GRAVELS, with sand (continued), dense, angular, gravels to 1 inch in diameter.
21		18	55		CH	SANDY CLAY, with some gravel, blue-gray, very stiff, gravel to 3/4-inch in diameter.
22						
23						
24						
25						
26					GC	CLAYEY GRAVEL, residual soil (heavily weathered rock), serpentine derived. Hard drilling
27						
28						
29		10	50/4"			
30						Boring terminated at 29-1/2 feet
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						

Date Drilled: 6/21/89
Logged by: KAO

Surface Elevation (feet): 340±
Depth to Groudwater (feet): 19

KLEINFELDER

PROJECT NO. 12-1253-3

LOG OF BORING NO. TB29

SILVER CREEK VALLEY COUNTRY CLUB
SAN JOSE, CALIFORNIA

2/2

PLATE

A-6

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 14.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 14.25'
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		1¾ inches asphalt concrete over 3 inches aggregate base							
			Silty Clay (CL-ML) [Fill] moist, dark gray brown							
			Fat Clay (CH) [Fill] very stiff to hard, moist, very dark gray brown with gray mottles, trace fine subangular gravel, high plasticity	23	MC					○ 3.0
	5			39	MC					>4.5 ○
			Silty Sand with Gravel (SM) [Alluvium] dense to medium dense, moist, light gray brown, fine to coarse subangular to subrounded gravel	81	MC					
				50	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to medium dense, wet, gray brown, fine to coarse subangular gravel	72	MC					
				42	SPT					
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, olive brown, fine to coarse subangular gravel	71	MC					
	15		Bottom of Boring at 14.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 18.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay (CH) [Fill]** very stiff, moist, very dark gray brown, trace fine subangular gravel, high plasticity							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, greenish gray, fine subangular to subrounded gravel	27	MC					○
				43	MC					
			Silty Sand with Gravel (SM) [Alluvium] hard, moist, light olive brown, fine subangular to subrounded gravel	57	MC					
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, moist, yellowish brown to reddish brown	39	MC					
				63	MC					
				40	MC					
				46	MC					○
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	46	MC					
			dark gray, inclusions of reddish claystone and serpentinite	33	SPT					○
			Bottom of Boring at 18.5 feet.							
	20									
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 13.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 8 inches aggregate base						
			Clayey Sand (SC) [Fill] medium dense, moist, gray brown, fine to coarse sand, trace fine subangular gravel	20	MC-1	95	15		
				2		93	34	48	
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity Liquid Limit = 67, Plastic Limit = 19	19	MC-4	91	29		
	5			40	MC				
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, gray with brown mottles, fine to coarse sand, trace fine subangular gravel						
				63	MC-8	122	14		40
	10								
			Poorly Graded Gravel with Clay and Sand (GP-GC) [Alluvium] very dense, moist, gray brown, fine to coarse subangular to subrounded gravel	50 1"	SPT				
			Bottom of Boring at 13.8 feet.						
	15								
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:09 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 19.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
AT TIME OF DRILLING Not Encountered
NOTES perched water at 15.5'
AT END OF DRILLING Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		3½ inches asphalt concrete over 4½ inches aggregate base							
			Fat Clay with Sand (CH) [Fill] stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray brown to olive brown with white mottles, some fine to coarse subangular gravel	31	MC					>4.5
				49	MC					>4.5
	10		**Clayey Sand with Gravel (SC) [Alluvium]** dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50	MC					
				64	MC					
				43	MC					
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense to very dense, moist to wet, olive brown, fine to coarse subangular gravel	62	MC					
				50 4"	MC					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, dark brown with white mottles, moist, trace fine subangular gravel	28	SPT					
				66	MC					
	20		Bottom of Boring at 19.5 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/1/12 **DATE COMPLETED** 3/1/12
GROUND ELEVATION _____ **BORING DEPTH** 44 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-56, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES perched water at 28.5'
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat Clay with Sand (CH) [Fill]** stiff, moist, dark gray with brown mottles, some fine sand, high plasticity							
			Drilled to 12' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, light olive brown with white mottles, some fine to coarse subangular gravel							
	10			53	MC					>4.5
				58	MC					
	15		becomes very stiff	42	MC					
				35	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular gravel	38	MC					
	20			55	MC					
				40	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense to dense, wet, olive brown, fine to coarse subangular gravel	47	MC					
	25			84	MC					
				50/5"	SPT					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
				50/5"	SPT					
				55	SPT					
	30		**Clayey Sand with Gravel (SC) [Franciscan Complex]** very dense, moist, olive brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	50/6"	SPT					
	35			50/5"	SPT					
	40			70	SPT					
				50/6"	SPT					
	45		Bottom of Boring at 44.0 feet.							
	50									
	55									

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 3/29/12 **DATE COMPLETED** 3/29/12
GROUND ELEVATION _____ **BORING DEPTH** 36 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 28.5 ft.
NOTES _____
▼ **AT END OF DRILLING** 28.5 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		**Fat / Lean Clay with Sand (CL/CH) [Fill]** moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 14' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Old Alluvium]** hard, moist, olive brown with white mottles, medium to coarse sand, fine gravel							
	10									
	15			58	MC					
			Silty Sand with Gravel (SM) [Santa Clara Formation] very dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
				50/6"	MC					>4.5
			Lean Clay with Sand (CL) [Santa Clara Formation] very stiff, moist, olive gray with dark gray mottles, medium to coarse sand	50/6"	MC					
	20		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded gravel	62	MC					
				58	MC					
			Clayey Sand (SC) [Santa Clara Formation] dense, moist, greenish brown	60	MC					
	25		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, olive gray with dark gray mottles, fine sand, trace fine subrounded	57	MC					
				47	MC					

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			gravel							
			Clayey Sand with Gravel (SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse subangular to subrounded gravel	50/5"	MC					
	30		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, wet, gray brown, fine to coarse sand, fine to coarse subangular gravel	50	SPT					○ 4.0
				50/6"	MC					
			Sandy Lean Clay (CL) [Santa Clara Formation] hard, moist, yellowish brown, fine to coarse sand, some fine subangular gravel, moderate plasticity	50/6"	MC					
				50/5"	MC					
	35		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, yellowish brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50/5"	MC					
			Bottom of Boring at 36.0 feet.							
	40									
	45									
	50									
	55									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-7

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL) 1.0 2.0 3.0 4.0
	0		3½ inches asphalt concrete over 7 inches aggregate base							
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty							
			Drilled to 10' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Clayey Sand with Gravel (SC) [Alluvium]** medium dense, moist, brown, fine to coarse sand,fine subangular to subrounded gravel							
	10			29	SPT-1		12		26	
				43	MC					
			Sandy Lean Clay (CL) [Alluvium] very stiff, moist, gray, fine sand, some fine to coarse subangular to subrounded gravel, moderate plasticity	33	MC-4	111	25			
	15			54	SPT					
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	50 5"	MC					
				50 6"	SPT					
	20			50 6"	SPT					
			Bottom of Boring at 20.5 feet.							
	25									

BORING NUMBER EB-8

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 20 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity	49	MC-1	101	24		
			Clayey Sand with Gravel (SC) [Fill] medium dense, moist, yellowish brown and gray mottled, fine to coarse sand, trace fine subangular gravel	32	MC-3	105	21		
	5		**Fat Clay with Sand (CH) [Alluvium]** hard, moist, dark gray brown to olive brown with brown mottles, fine to medium sand, high plasticity	44	MC-6	111	19	41	
			Liquid Limit = 58, Plastic Limit = 17						
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	58	MC-8	119	16		46
	10								
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	40	NR				
	15			37	SPT				
				35	SPT				
	20		Bottom of Boring at 20.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-9

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3 inches asphalt concrete over 6 inches aggregate base						
			Fat / Lean Clay with Sand (CL/CH) [Fill] moist, gray and brown mottled, fine to coarse sand, moderate to high plasticicty						
			Drilled to 13' Soil Classification from auger cutting observations, depth of fill not determined						
	5								
			Clayey Sand with Gravel (SC) [Alluvium] dense, moist, brown, fine to coarse sand, fine to coarse subangular to subrounded gravel						
	10		Liquid Limit = 38, Plastic Limt = 22	30	SPT-1		18	16	
			Claystone [Franciscan Complex] weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel	38	SPT				
	15			36	SPT				
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-10

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 10/31/12 **DATE COMPLETED** 10/31/12
GROUND ELEVATION _____ **BORING DEPTH** 17.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-53, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		3½ inches asphalt concrete over 7 inches aggregate base						
			Fat Clay with Sand (CH) [Fill] very stiff, moist, dark gray with gray mottles, fine sand, high plasticity						
	5		Liquid Limit = 63, Plastic Limit = 18	27	MC-1	100	22	45	
			Clayey Sand with Gravel (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, trace fine subangular gravel	19	SPT-3		14		35
	10		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Alluvium]** dense, wet, gray and brown, fine to coarse sand, fine to coarse subangular to subrounded gravel Liquid Limit = 24, Plastic Limt = 19	36	SPT-3		9	5	12
	15		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, olive brown, trace fine subangular gravel, sheared fabric	32	SPT-4		17		
			Bottom of Boring at 17.5 feet.						
	20								
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-11

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 13' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand (SC) [Alluvium]** dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	50 5"	MC				
			Lean Clay (CL) [Alluvium] very stiff, moist, olive brown, some fine sand, low to moderate plasticity	17	MC				
			Clayey Sand (SC) [Alluvium] medium dense, moist, brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel	37	MC				
				27	MC				
	20		**Claystone [Franciscan Complex]** weak, low hardness, deep weathering, moist, dark greenish olive to dark gray, trace fine subangular gravel, sheared fabric	47	MC				
				38	MC				
				34	MC				
			Bottom of Boring at 23.5 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 24.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** 22 ft.
NOTES _____
▼ **AT END OF DRILLING** 22 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 15' Soil Classification above from auger cutting observations, depth of fill not determined							○ HAND PENETROMETER △ TORVANE ● UNCONFINED COMPRESSION ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL 1.0 2.0 3.0 4.0
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, olive brown to dark olive brown, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	55	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive, fine to coarse subangular gravel	35	MC					
	20		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	51	MC					
▼			**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, olive, fine to coarse subangular gravel	34	MC					
	25		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** dense, moist, gray brown, fine to coarse sand,	35	MC					
				50/6"	MC					
				50/6"	MC					

Continued Next Page

BORING NUMBER EB-12

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			fine to coarse subangular to subrounded gravel							
			Bottom of Boring at 24.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 25.5 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, low to moderate plasticity	50/6"	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, moist, yellow brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	28	MC					
	20		**Sandy Lean Clay with Gravel (CL) [Santa Clara Formation]** very stiff, moist, reddish brown, fine subangular, low to moderate plasticity	43	MC					
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, moist, olive with reddish brown mottles, fine to coarse subangular gravel	38	MC					
				55	MC					
	25		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense, wet, gray, fine to coarse	50/6"	MC					

Continued Next Page

BORING NUMBER EB-13

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza

PROJECT NUMBER 535-1-1

PROJECT LOCATION San Jose, CA

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
			subangular gravel							
			Silty Sand (SM) [Santa Clara Formation] dense, moist, olive							
			Bottom of Boring at 25.5 feet.							
	30									
	35									
	40									
	45									
	50									
	55									

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UNDRAINED SHEAR STRENGTH, ksf
- ○ HAND PENETROMETER
- △ TORVANE
- ● UNCONFINED COMPRESSION
- ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL

1.0 2.0 3.0 4.0

BORING NUMBER EB-14

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 23 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined							
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity							
	10									
	15		**Sandy Lean Clay (CL) [Santa Clara Formation]** very stiff, moist, light gray, low to moderate plasticity							
			Clayey Sand (SC) [Santa Clara Formation] medium dense, moist, olive	42	MC					
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] medium dense, wet, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	38	MC					
	20		**Clayey Sand (SC) [Santa Clara Formation]** medium dense, wet, gray	21	MC					
			Poorly Graded Sand with Clay (SP-SC) [Santa Clara Formation] dense, wet, gray	50	MC					
			Bottom of Boring at 23.0 feet.							
	25									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-15

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** dense, moist, gray, fine to coarse angular gravel	50 5"	MC				
			Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation] dense, moist, olive brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	50 3"	MC				
	20			58	MC				
			Well Graded Sand (SW) [Santa Clara Formation] medium dense, moist, brown, fine to coarse sand, some fine to coarse subrounded gravel	53	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-16

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/20/12 **DATE COMPLETED** 11/20/12
GROUND ELEVATION _____ **BORING DEPTH** 19.8 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		Drilled to 17' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Sandy Lean Clay (CL) [Alluvium]** hard, moist, dark gray, medium to coarse sand, some fine gravel, low to moderate plasticity						
	10								
	15		**Well Graded Sand with Clay and Gravel (SW-SC) [Santa Clara Formation]** medium dense, moist, olive brown, fine to coarse sand, fine to coarse subangular	58	MC				
			Clayey Sand with Gravel (SC) [Santa Clara Formation] medium dense, wet, brown, fine to coarse angular gravel	43	MC				
	20		**Well Graded Sand with Gravel (SW) [Santa Clara Formation]** dense, wet, brown, fine to coarse sand, fine to coarse subrounded gravel	50 4"	MC				
			Bottom of Boring at 19.8 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE EARTH GROUP2 - CORNERSTONE 0812.GDT - 6/10/13 14:08 - P:\DRAFTING\GINT FILES\535-1-1 CANYON CREEK PLAZA.GPJ

BORING NUMBER EB-17

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 22 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Clayey Sand (SC)** gray brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5								
			Lean Clay (CL) dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Clayey Sand with Gravel (SC) [Santa Clara Formation]** medium dense, moist, yellow brown, fine to coarse sand, fine subrounded gravel	50	MC				
				58	MC				
	20		**Clayey Gravel with Sand (GC) [Santa Clara Formation]** medium dense to dense, moist, fine to coarse subrounded gravel, light yellow brown	53	MC				
				79	MC				
			Bottom of Boring at 22.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-18

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19.7 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Sandy Lean Clay (CL)** gray brown						
	15		**Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation]** medium dense to dense, moist, olive, fine to coarse sand, fine to coarse subangular to subrounded gravel	45 50 3" 50 2"	MC MC MC				
	20		Bottom of Boring at 19.7 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-19

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 11/30/12 **DATE COMPLETED** 11/30/12
GROUND ELEVATION _____ **BORING DEPTH** 19 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Mobile B-40, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay (CL)** brown gray Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	5		**Lean Clay (CL)** dark gray						
	10		**Poorly Graded Gravel with Clay and Sand (GP-GC)** very dense, moist, gray brown, fine to coarse subangular to subrounded gravel, fine to coarse sand						
	15			50 6"	MC				
			Poorly Graded Sand with Clay and Gravel (SP-SC) [Santa Clara Formation] dense, wet, gray brown, fine to coarse sand, fine to coarse subangular to subrounded gravel	91	MC				
	20		Bottom of Boring at 19.0 feet.						
	25								

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-20

CORNERSTONE EARTH GROUP

PROJECT NAME Canyon Creek Plaza
PROJECT NUMBER 535-1-1
PROJECT LOCATION San Jose, CA

DATE STARTED 12/14/12 **DATE COMPLETED** 12/14/12
GROUND ELEVATION _____ **BORING DEPTH** 21.5 ft.
DRILLING CONTRACTOR Britton Exploration Services, Inc.
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD CME 55 Track Rig, 8 inch Hollow-Stem Auger
GROUND WATER LEVELS:
LOGGED BY CSH
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

This log is a part of a report by Cornerstone Earth Group, and should not be used as a stand-alone document. This description applies only to the location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with time. The description presented is a simplification of actual conditions encountered. Transitions between soil types may be gradual.

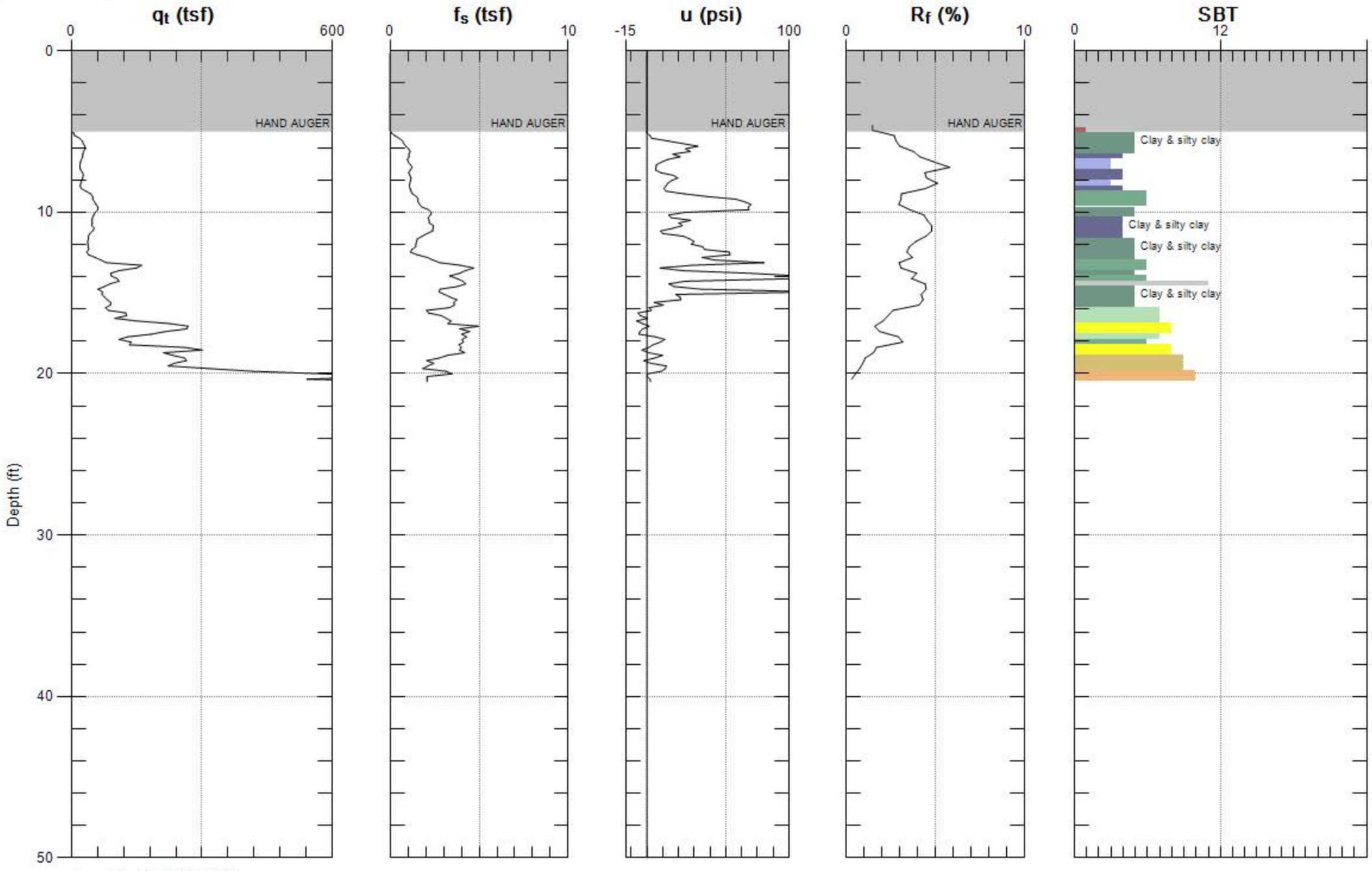
ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT, %	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
	0		**Lean Clay with Sand (CL)** moist, reddish brown Drilled to 16' Soil Classification above from auger cutting observations, depth of fill not determined						
	15		**Clayey Sand (SC)** medium dense, moist, yellow brown, fine to coarse sand, some fine subrounded gravel	50	MC				
			Poorly Graded Sand (SP) medium dense, moist, gray brown, fine to coarse sand, some fine to coarse subangular to subrounded gravel, trace clay	41	MC				
				39	MC				
	20		**Clayey Sand (SC)** medium dense, moist, gray with light reddish brown mottles, fine to coarse sand, some fine subangular gravel	20	MC				
				28	MC				
			Bottom of Boring at 21.5 feet.						

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

CORNERSTONE

Site: CANYON CREEK PLAZA Engineer: R.MORALES

Sounding: CPTC-01 Date: 12/21/2013 09:47



Max. Depth: 20.505 (ft)

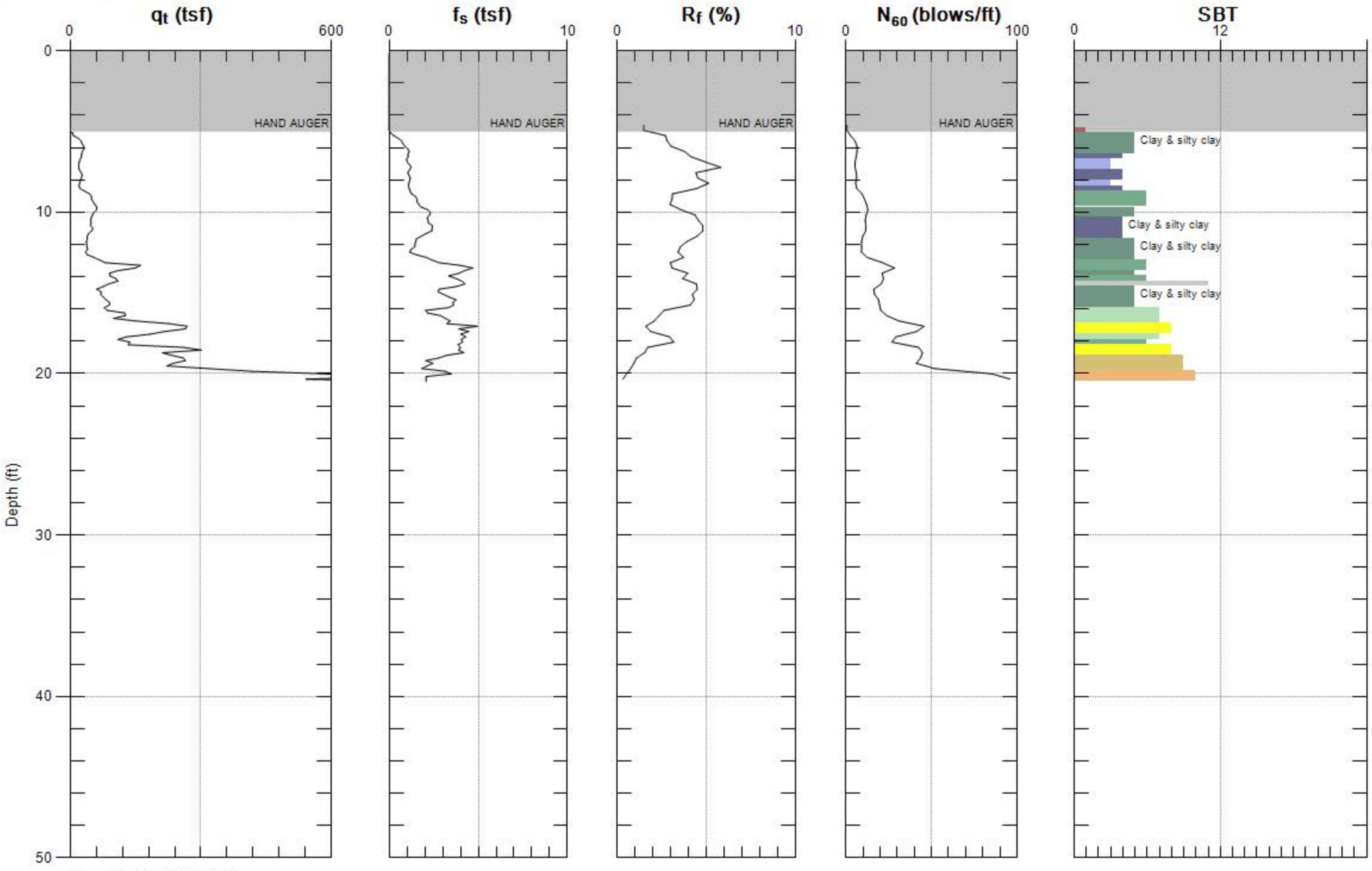
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CORNERSTONE

Site: CANYON CREEK PLAZA Engineer: R.MORALES

Sounding: CPTC-01 Date: 12/21/2013 09:47



Max. Depth: 20.505 (ft)

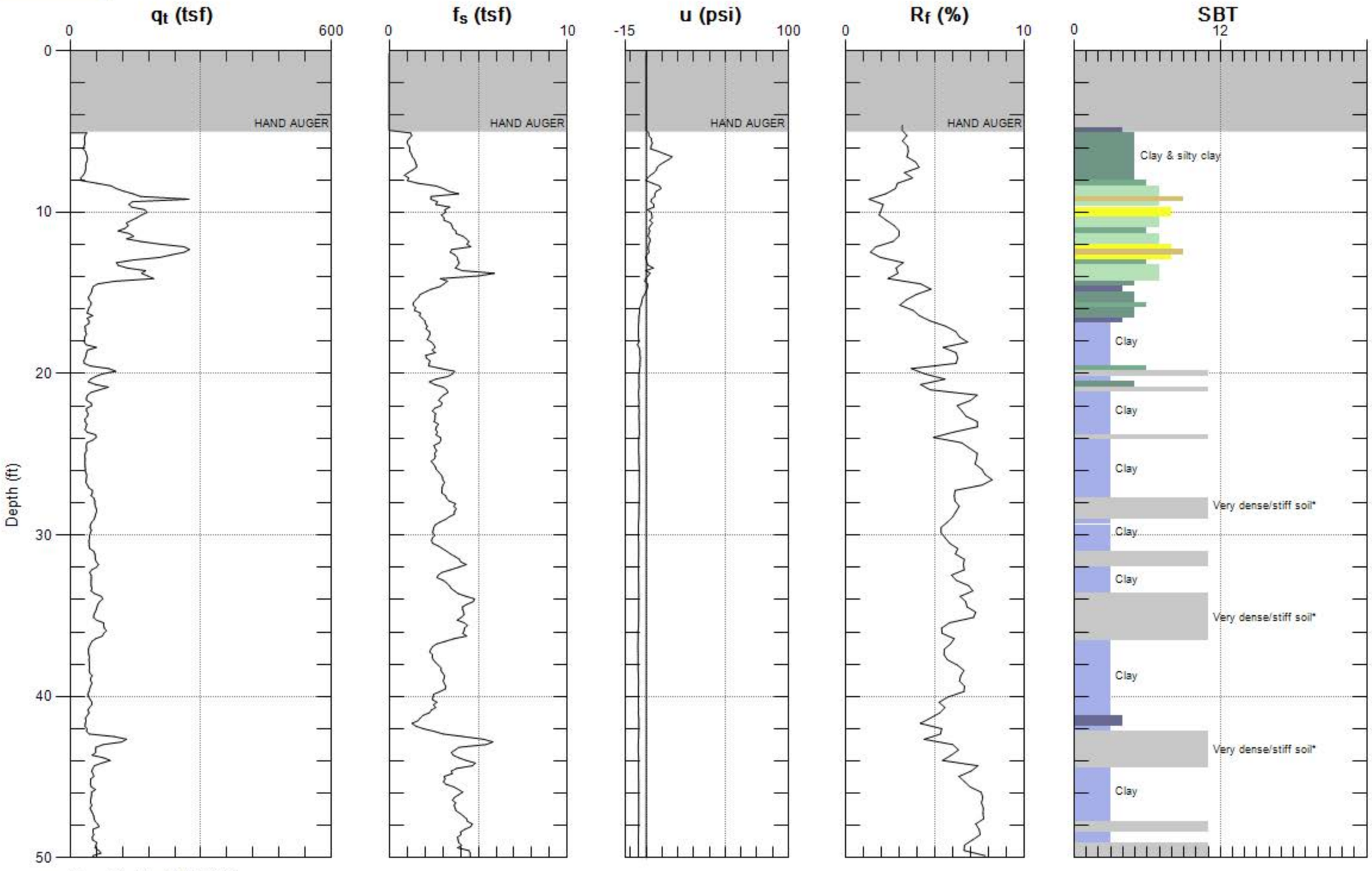
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CORNERSTONE

Site: CANYON CREEK PLAZA Engineer: R.MORALES

Sounding: CPTC-02 Date: 12/21/2013 08:36



Max. Depth: 50.033 (ft)

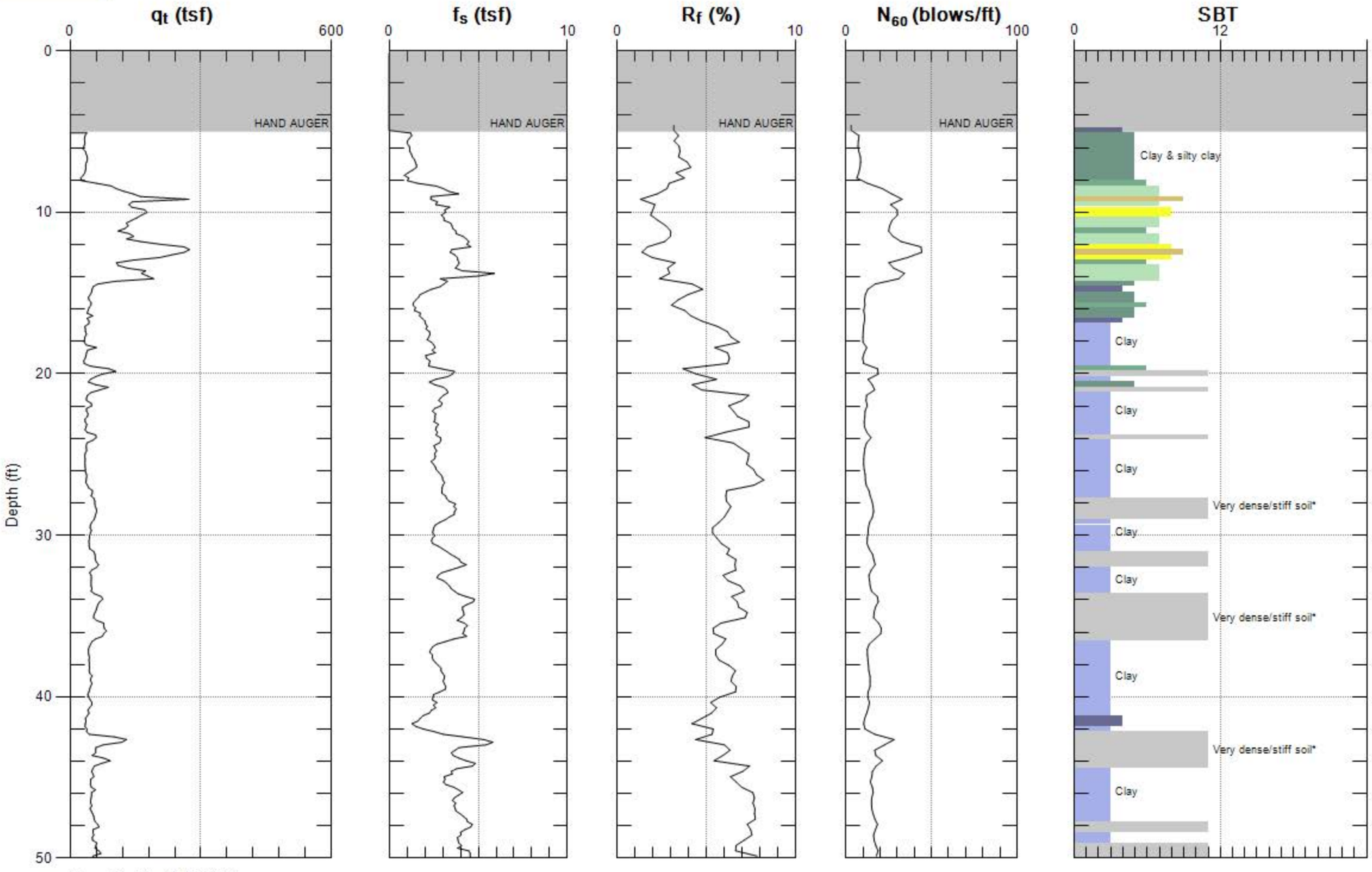
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

CORNERSTONE

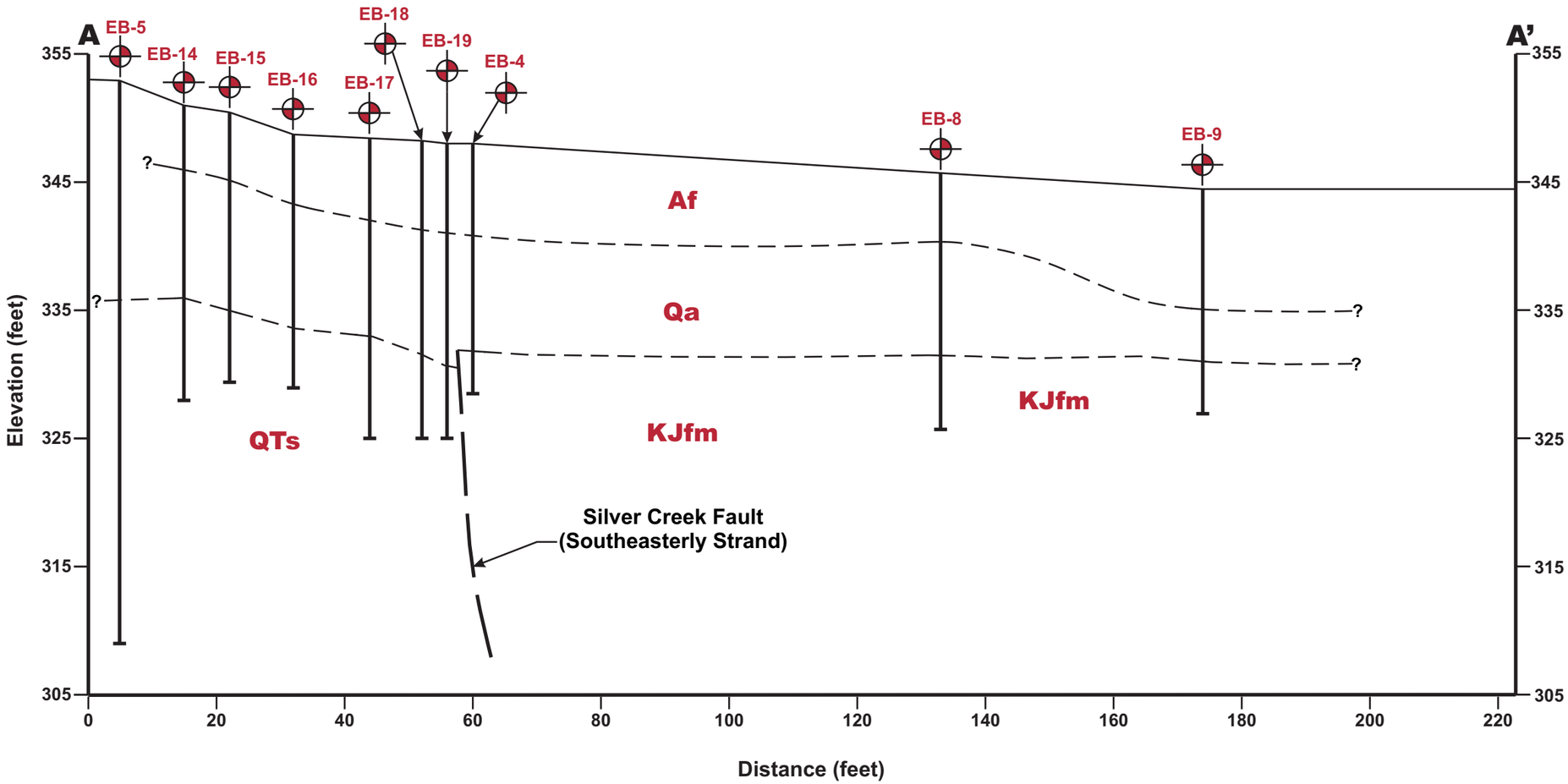
Site: CANYON CREEK PLAZA Engineer: R.MORALES

Sounding: CPTC-02 Date: 12/21/2013 08:36



Max. Depth: 50.033 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



Section A-A'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Geologic Units

Af	Artificial fill
Qa	Quaternary alluvium
QTs	Plio-Pleistocene (Santa Clara Formation)
KJfm	Cretaceous to Jurassic-age (Franciscan Complex)

Symbols

- Approximate of bore hole location
- ?– – – Geologic contact; queried where approximate
- ——— Silver Creek Fault

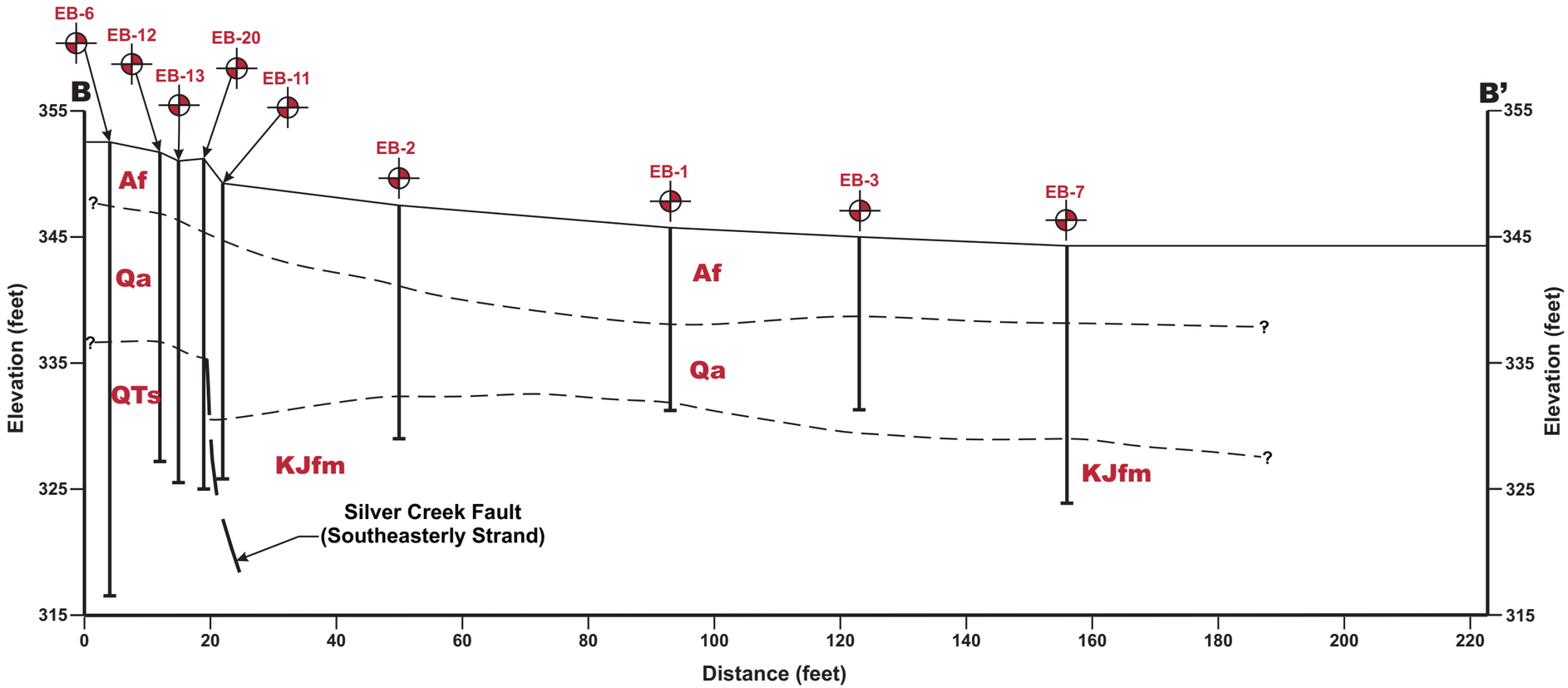
Notes:
1) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 2
Date June 2013
Drawn By RRN

Geologic Cross Section A-A'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



Section B-B'

(View Looking Southeast)
1"=20' Horizontal
1"=10' Vertical

Geologic Units

Af	Artificial fill
Qa	Quaternary alluvium
QTs	Plio-Pleistocene (Santa Clara Formation)
KJfm	Cretaceous to Jurassic-age (Franciscan Complex)

Symbols

- Approximate of bore hole location
- Geologic contact; queried where approximate
- Silver Creek Fault

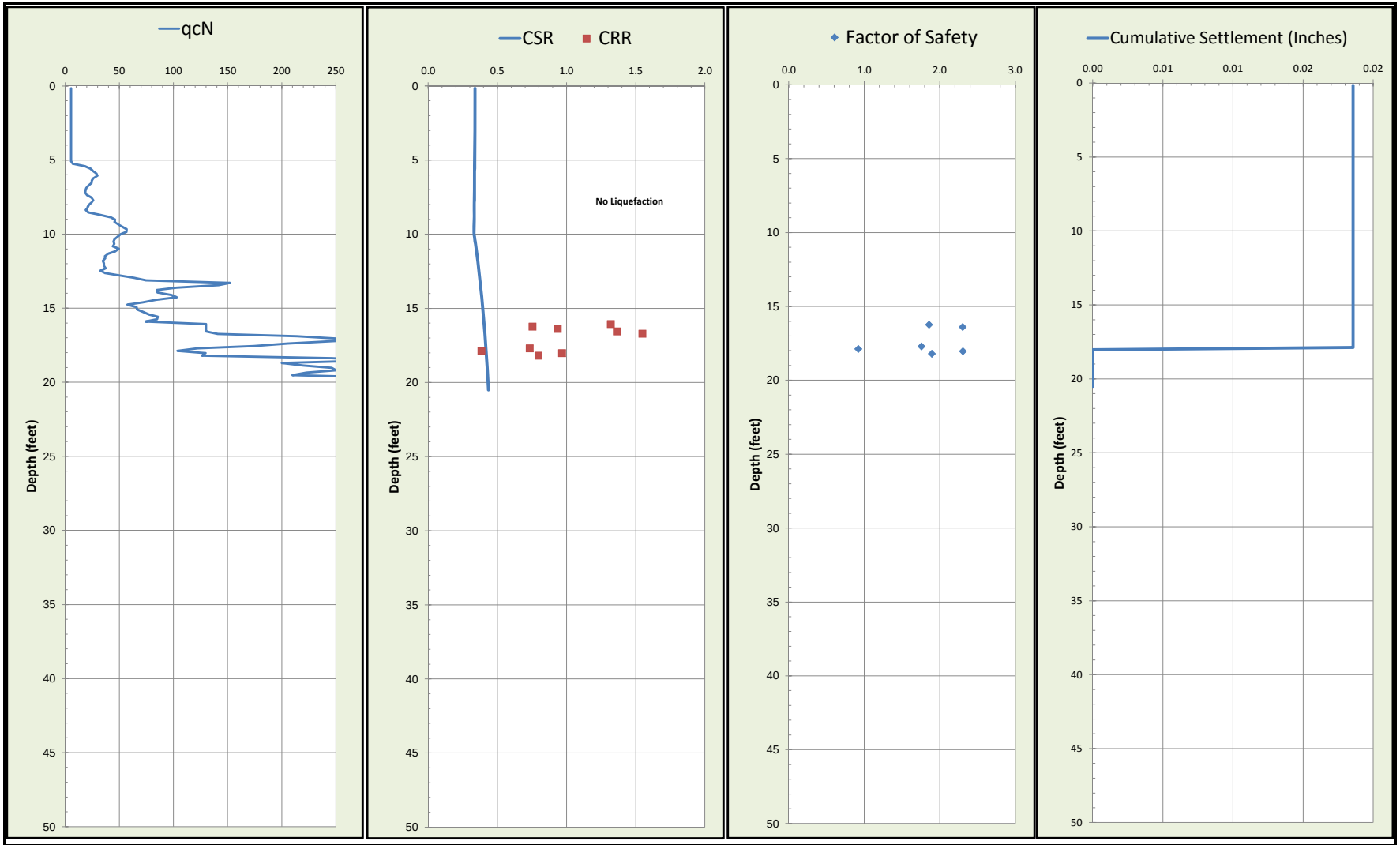
Notes:
1) See Figure 1 for location of cross section.

Project Number 535-1-2
Figure Number Figure 3
Drawn By RRN
Date June 2013

Geologic Cross Section B-B'

Canyon Creek Plaza
5601 Silver Creek Valley Road
San Jose, CA

CORNERSTONE EARTH GROUP



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

Canyon Creek Plaza

San Jose, California

Project Number

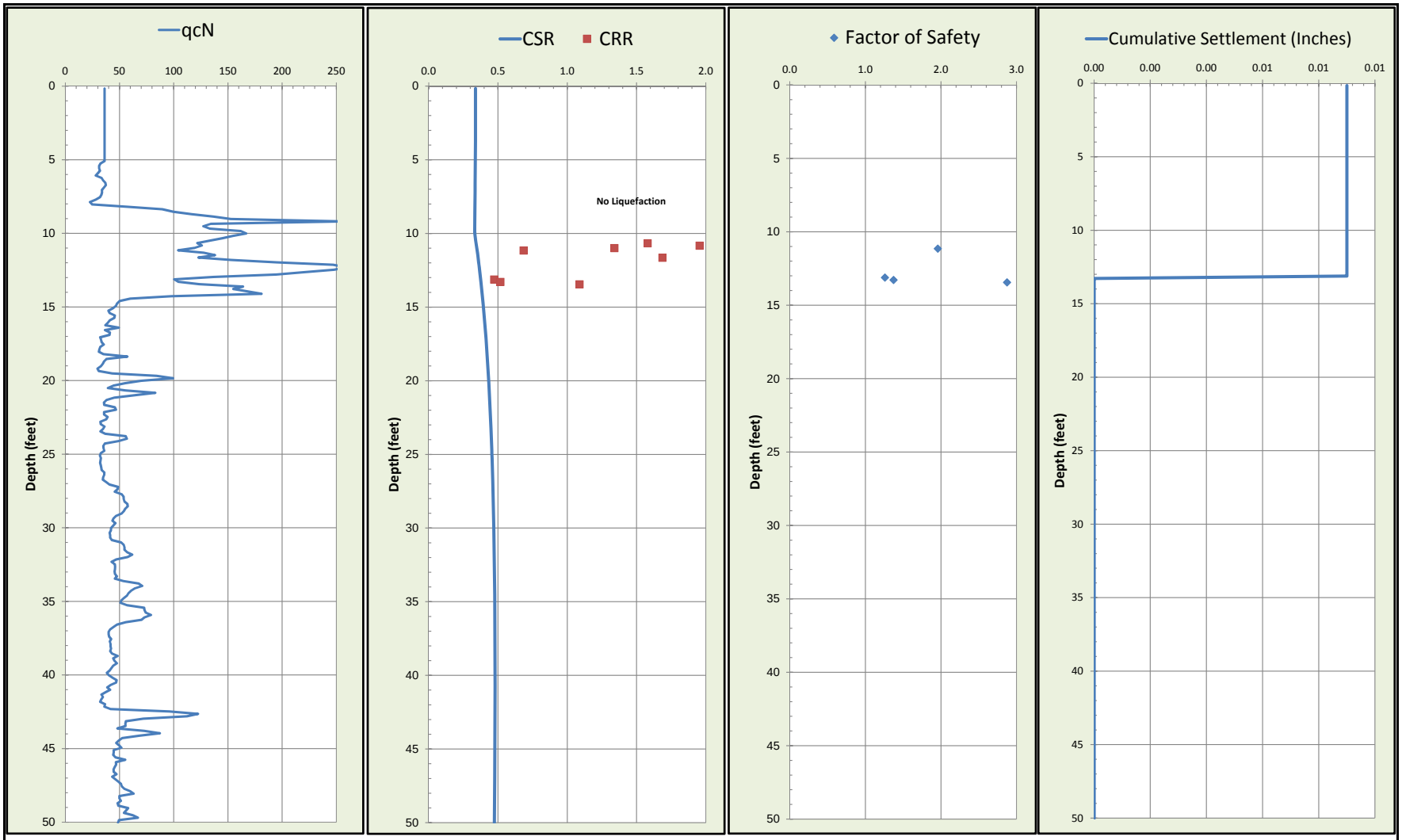
535-1-2

Figure Number

Figure 6A

7/10/2014

CPT No. 1



CORNERSTONE EARTH GROUP

Liquefaction Analysis Summary

Canyon Creek Plaza

San Jose, California

Project Number: 535-1-2

Figure Number: Figure 6B

7/10/2014

CPT No. 2

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		CENTERLINE
		WATERSHED AREA
100		CONTOUR
		CONCRETE CURB & GUTTER
		DEPRESSED CURB
		RETAINING WALL
		VERTICAL CURB
□		V-64 CHRISTY DRAIN
△		STANDARD HOODED INLET
		POSITIVE RELEASE
		FLOW ARROW
	FF 161.00	FINISHED FLOOR ELEVATION
	PAD 160.00	PAD ELEVATION
	TC 160.00	TOP OF CURB ELEVATION
	FL 160.00	FLOW LINE ELEVATION
X160.00	X160.00	GRADE
	S=.004>	SLOPE
	GB	GRADE BREAK
	TW	TOP OF WALL
	A 4.1	SECTION NAME

GRAPHIC SCALE
1" = 20'
0 10 20 30 40 50 100

EXISTING GROCERY STORE

EXISTING PAVED TRAIL

PROPOSED PARCEL BOUNDARY

BUILDING EXCLUSION ZONE (BEZ)

EXISTING SSE TO REMAIN

FF 347.34

FF 346.36

SILVER CREEK VALLEY ROAD

REGISTERED PROFESSIONAL ENGINEER
PETER B SMITH
No. 46225
Exp. 12-31-14
CIVIL
STATE OF CALIFORNIA
9/15/14

CANYON CREEK PLAZA

3750 B CHARTER PARK DRIVE
SAN JOSE, CA 95136
Telephone: (408) 221-6259
Fax: (408) 705-2028

CONCEPTUAL GRADING AND DRAINAGE PLAN
CANYON CREEK PLAZA
SILVER CREEK VALLEY ROAD
SAN JOSE, CALIFORNIA 95138

PDC 14-030

Charles W. Davidson Co.
A CALIFORNIA CORPORATION
CONSULTING CIVIL ENGINEERS
255 W. JULIAN ST. #200 SAN JOSE, CA 95110-2406
TEL. (408) 295-9162 FAX (408) 993-1511

Revisions:
9/9/14 SET

Date: 9-2-14 Job No.: 1706
Scale: 1" = 20' Drawn By: L.S.
Sheet No: 4.1
of Sheets