Appendix E

Geology and Soils

Appendix E.1

Preliminary Geotechnical Engineering Investigation

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Celebrating 50 YEARS OF SERVICE 1971-2021

March 29, 2021
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Television City Studios, LLC
c/o Hackman Capital Partners
7800 Beverly Boulevard
Los Angeles, California 90036

Attention: Zach Sokoloff

Subject: Preliminary Geotechnical Engineering Investigation
Television City 2050 Specific Plan
7800 West Beverly Boulevard, Los Angeles, California
(including 7716 – 7860 West Beverly Boulevard, Los Angeles, California)

Ladies and Gentlemen:

This letter transmits the Preliminary Geotechnical Engineering Investigation for the Project site prepared by Geotechnologies, Inc. This report provides preliminary geotechnical recommendations for the development of the Project site, including earthwork, seismic design, retaining walls, excavations, shoring and foundation design.

This report is considered to be preliminary in nature. Once the Project achieves more definition and structural loads are available, the proposed development plans and loading shall be provided to this office for review, so that a comprehensive report could be prepared for individual building permitting purposes.

The validity of the recommendations presented herein is dependent upon review of the geotechnical aspects of the Project during construction by this office. The subsurface conditions described herein have been projected from limited subsurface exploration and laboratory testing. The exploration and testing presented in this report should in no way be construed to reflect any variations which may occur between the exploration locations or which may result from changes in subsurface conditions.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

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PRELIMINARY GEOTECHNICAL ENGINEERING INVESTIGATION
TELEVISION CITY 2050 SPECIFIC PLAN
7800 WEST BEVERLY BOULEVARD
LOS ANGELES, CALIFORNIA

INTRODUCTION

This report presents the results of the preliminary geotechnical engineering investigation performed on the Project site. The purpose of this investigation was to identify the distribution and engineering properties of the earth materials underlying the Project site, and to provide geotechnical recommendations for the design of the proposed development.

This report is considered to be preliminary in nature. Once the Project achieves more definition and structural loads are available, the proposed development plans and loading shall be provided to this office for review, so that a comprehensive report could be prepared for individual building permitting purposes.

This investigation included excavation of 19 exploratory borings, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The exploratory excavation locations are shown on the enclosed Plot Plan. The results of the exploration and the laboratory testing are presented in the Enclosures section of this report.

PROPOSED DEVELOPMENT

Information concerning the proposed Project was furnished by the applicant and the design team. The Project site is proposed to be developed with new stages, production support, production office, general office, retail and parking uses. Based on the enclosed illustrative site plan, the following assumptions have been made:

- For reference purposes, an elevation of 185 feet above mean sea level (AMSL) will be utilized as the base site elevation.
- The proposed sound stages will be one-story high-bay structures, extending approximately 60 feet in height.
- The proposed production support buildings and office buildings will vary typically between 4 and 7 stories in height.
- The proposed parking structure will be approximately 9 stories in height. In addition, parking may also be provided in subterranean areas.
- Multi-story buildings for production and general office may be spread across the Project site.

Most of the sound stages, production support, and office buildings will be constructed at or near the base site elevation for the Project. The structures closest to Beverly Boulevard will be constructed over 2 subterranean levels. It is anticipated that the subterranean levels will extend approximately 20 to 40 feet below the existing Project site grade.

Preliminarily, the office buildings, production support buildings, and parking structure will have estimated column loads between 1,500 and 2,000 kips. The sound stages will have estimated typical column loads of 500 kips. Grading will consist of excavations for removal and recompaction of existing unsuitable soils, and excavations for the proposed subterranean levels and foundation elements.

Any changes in the design of the Project or location of any structure, as outlined in this report, should be reviewed by this office. The recommendations contained in this report should not be considered valid until reviewed and modified or reaffirmed, in writing, subsequent to such review.

SITE CONDITIONS

The Television City studio is an approximately 25-acre site located at 7800 West Beverly Boulevard in the City of Los Angeles, California (Project site). More specifically, the Project site is comprised of four contiguous parcels located at 7800 West Beverly Boulevard (APN 5512-001-003), 7716 and 7718 West Beverly Boulevard (APNs 5512-002-002 and 5512-002-001), and 7700 West Beverly Boulevard (APN 5512-002-009). The Project site is bounded by West Beverly Boulevard to the north, the Broadcast Center Apartments and The Grove Drive to the east, the Original Farmers Market and The Grove to the south, and Fairfax Avenue to the west. The Project site is currently developed with approximately 743,680 square feet of studio-related uses.

The Project site slopes downward very gently from the northeast to the southwest corner of the site, with approximately 16 feet of elevation change, from 185 to 201 feet AMSL. Drainage across the Project site is by sheet flow to local area drains and the City streets. The vegetation on the Project site consists of isolated trees, planters, and shrubs. The neighboring development consists primarily of multi-story commercial, retail, and residential developments.

GEOTECHNICAL EXPLORATION

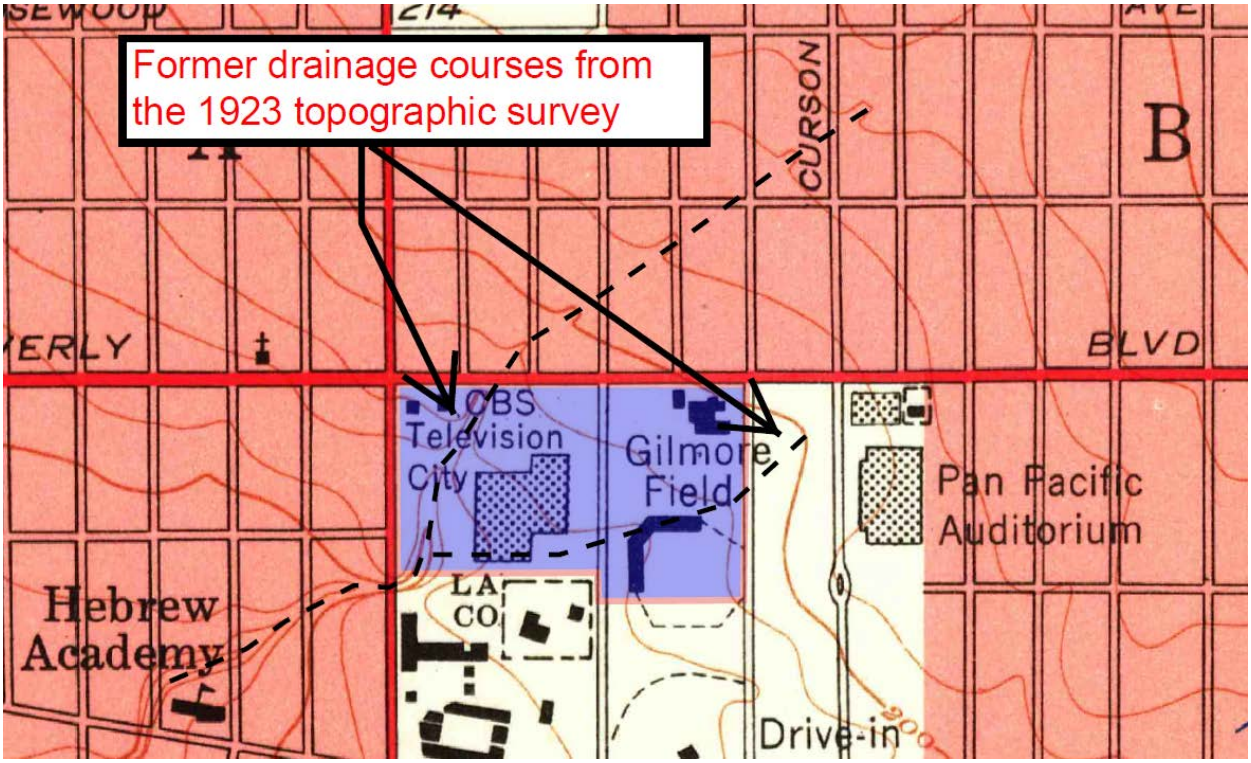
FIELD EXPLORATION

The Project site was explored between August 13, 2019, and December 27, 2019, by excavating 19 exploratory borings. The exploratory borings varied between 50 to 70 feet in depth below the existing site grade. The borings were excavated with the aid of a truck-mounted drilling machine, equipped with an automatic hammer, and using 8-inch diameter hollow-stem augers. The exploration locations are shown on the Plot Plan and the geologic materials encountered are logged on the enclosed Plates A-1 through A-19.

Geologic Materials

Between 3 to 20 feet of existing fill was encountered during exploration at the Project site. Fill thickness ranging from approximately 3 to 5 feet was encountered in the majority of the explorations. Fill materials underlying the Project site consists primarily of a mixture of silty clays, sandy silts, silty and clayey sands, and sands. The existing fill materials are dark brown to dark gray in color, moist to wet, medium dense to firm, with occasional gravel, brick and minor wood fragments.

Localized deeper fill materials up to 20 feet were encountered. Based on review of historical surveys from the 1920s, the deep fill (approximately 20 feet of fill was encountered in Boring B8) appears to be the result of past backfill placed in a former drainage course which traversed through the west side of the Project site. Another drainage course traversed through the southern portion of the Project site in an east-west direction. However, this second drainage course appears to be much shallower. Based on review of historical aerial photographs, the backfill in the drainage courses appears to have been placed prior to 1950. It should be noted that highly saturated and very soft soils (with moisture content near or above 30 percent) were encountered at various depths in the borings near the former drainage courses.



Native soils consist of older alluvial deposits, comprising of sandy to silty clays, sandy silts, silty to clayey sands and sands, which are gray to dark gray in color, moist to wet, firm to stiff, dense to very dense, fine to coarse grained, with occasional gravel and cobbles. The native soils consist predominantly of sediments deposited by river and stream action typical to this area of Los Angeles County. More detailed soil profiles may be obtained from individual boring logs.

Groundwater

Artesian groundwater condition was encountered at the Project site. Groundwater was generally first encountered between 20 and 30 feet below the existing site grade in all of the exploratory borings. Prior to backfilling the completed boreholes, the groundwater level in all of the boreholes was observed to have risen to depths between 8 to 15.5 feet below the existing site grade, indicating artesian groundwater condition where groundwater with a positive hydrostatic

pressure is trapped between relatively impermeable clay layers. The stabilized groundwater levels are reported in the enclosed boring logs.

The historically highest groundwater level was determined by reviewing the California Geological Survey Seismic Hazard Zone Report of the Los Angeles Quadrangle. Review of this report indicates that the historically highest groundwater level is approximately 8 feet below the existing site grade. For design purposes and to be conservative, it is recommended that the historically highest groundwater level of 8 feet below the existing site grade be conservatively assumed and utilized for the Project.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the Project site. High groundwater levels can result in changed conditions.

Caving

Caving could not be directly observed during exploration due to the drilling method and the cased nature of the hollow-stem auger equipment, and the high groundwater level. Based on the experience of this office, large diameter excavations, excavations that encounter granular, cohesionless soils and excavations below the groundwater table will most likely experience caving.

Research

It is the understanding of this office that the existing Primary Studio Complex is supported on a system of foundation piles. Additional piles were also installed in the parking lot area based on anticipated future additions to the Project site. However, the additions were not constructed.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The Project site is located in the northern portion of the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are characterized by northwest-trending blocks of mountain ridges and sediment-floored valleys. The dominant geologic structural features are northwest trending fault zones that either die out to the northwest or terminate at east-trending reverse faults that form the southern margin of the Transverse Ranges.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), faults may be categorized as active, potentially active, or inactive. Active faults are those which show evidence of surface displacement within the last 11,000 years (Holocene-age). Potentially-active faults are those that show evidence of most recent surface displacement within the last 1.6 million years (Quaternary-age). Faults showing no evidence of surface displacement within the last 1.6 million years are considered inactive for most purposes, with the exception of design of some critical structures.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buried thrust faults is inferred to be low (Leighton, 1990). However, the seismic risk of these buried structures in terms of recurrence and maximum potential magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

The primary geologic hazard at the Project site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. The potential for other earthquake-induced hazards was also evaluated including surface rupture, liquefaction, dynamic settlement, inundation and landsliding.

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. The Act defines "active" and "potentially active" faults utilizing the same aging criteria as that used by California Geological Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,000 years. It is this recency of fault movement that the CGS considers as a characteristic for faults that have a relatively high potential for ground rupture in the future.

CGS policy is to delineate a boundary from 200 to 500 feet wide on each side of the known fault trace based on the location precision, the complexity, or the regional significance of the fault. If a site lies within an Alquist-Priolo Earthquake Fault Zone, a geologic fault rupture investigation must be performed that demonstrates that the proposed building site is not threatened by surface displacement from the fault before development permits may be issued.

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature and results of Project site reconnaissance, no known active or potentially active faults underlie the Project site. In addition, the Project site is not located within an Alquist-Priolo Earthquake Fault Zone. Based

on these considerations, the potential for surface ground rupture at the Project site is considered low.

Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

The Seismic Hazards Maps of the State of California (CDMG, 1999), classifies the majority of the Project site as part of the potentially "liquefiable" area. This determination is based on groundwater depth records, soil type and distance to a fault capable of producing a substantial earthquake.

Project site-specific liquefaction analyses were performed following the Recommended Procedures for Implementation of the California Geologic Survey Special Publication 117A, Guidelines for Analyzing and Mitigating Seismic Hazards in California (CGS, 2008), and the EERI Monograph (MNO-12) by Idriss and Boulanger (2008). The enclosed liquefaction analyses were performed using a spreadsheet developed based on a correlation between measured values of Standard Penetration Test (SPT) resistance, field performance data, and laboratory test results.

As previously referenced, the historic-high groundwater level for the Project site is approximately 8 feet below the ground surface according to the CGS Seismic Hazard Zone Report of the Los Angeles 7½-Minute Quadrangle. The historic highest groundwater level was conservatively utilized for the enclosed liquefaction analysis.

The peak ground acceleration (PGA_M) and modal magnitude were obtained from the United States Geological Survey (USGS) websites, using the Probabilistic Seismic Hazard Deaggregation program (USGS, 2008) and the ASCE 7 Hazard Tool (https://asce7hazardtool.online/). Using a Site Class "D" (Stiff Soil Profile), a modal magnitude (M_W) of 6.9 is obtained using the USGS Probabilistic Seismic Hazard Deaggregation program (USGS, 2008). A peak ground acceleration of 0.976 times the gravity force (0.976g) was obtained using the ASCE 7 Hazard Tool. These parameters are used in the enclosed liquefaction analyses.

Liquefaction analyses were performed for Boring B2, B6, B7, B9, B10, B11, B12, B13, B14, B15, B17, and B19. SPT data were collected at 5-foot intervals in these borings. Samples of the collected materials were conveyed to the laboratory for testing and analysis. The percent passing a Number 200 sieve, Atterberg Limits, and the plasticity index (PI) of representative samples of the soils encountered in the exploratory boring are presented on the enclosed Plates F-1 through F-6. Based on CGS Special Publication 117A (SP117A, 2008), the vast majority of liquefaction hazards are associated with sandy soils and silty soils of low plasticity. Furthermore, cohesive soils with PI between 7 and 12 and moisture content greater than 85 percent of the liquid limit are susceptible to liquefaction.

The procedure presented in the SP117A guidelines was followed in analyzing the liquefaction potential of the Project site. The SP 117A guidelines were developed based on a paper titled, "Assessment of the Liquefaction Susceptibility of Fine-Grained Soils", by Bray and Sancio (2006). According to the SP117A, soils having a PI greater than 18 exhibit clay-like behavior, and the liquefaction potential of these soils are considered to be low. Therefore, where the results of Atterberg Limits testing showed a PI greater than 18, the soils would be considered non-liquefiable, and the analysis of these soil layers was turned off in the liquefaction susceptibility column.

Based on the adjusted blow count data, results of laboratory testing, and the calculated factor of safety against the occurrence of liquefaction, it is the opinion of this office that the potential for liquefaction at the Project site is considered to be low.

Lateral Spreading

Lateral spreading is the most pervasive type of liquefaction-induced ground failure. During lateral spread, blocks of mostly intact, surficial soil displace downslope or towards a free face along a shear zone that has formed within the liquefied sediment. According to the procedure provided by Bartlett, Hansen, and Youd, "Revised Multilinear Regression Equations for Prediction of Lateral Spread Displacement", ASCE, Journal of Geotechnical Engineering, Vol. 128, No. 12, December 2002, when the saturated cohesionless sediments with normalized and energy corrected blowcount data, $(N_1)_{60}$, is greater than 15, significant displacement is not likely for earthquakes with a magnitude of less than 8.0.

The liquefaction analyses included in the Enclosures section indicate that Project site soils would not be prone to liquefaction during 2,475-year return period ground motion. Therefore, the potential for lateral spreading occurring at the Project site is considered to be low.

Dynamic Dry Settlement

Seismically-induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures.

Some seismically-induced settlement of the proposed structures could result from strong ground-shaking associated with an earthquake. However, due to the uniform nature of the underlying geologic materials, excessive differential settlements are not expected to occur.

Tsunamis, Seiches and Flooding

Tsunamis are large ocean waves generated by sudden water displacement caused by a submarine earthquake, landslide, or volcanic eruption. Review of the County of Los Angeles Flood and Inundation Hazards Map, Leighton (1990), indicates the Project site does not lie within the mapped tsunami inundation boundaries.

Seiches are oscillations generated in enclosed bodies of water which can be caused by ground shaking associated with an earthquake. No major water-retaining structures are located immediately up gradient from the Project site. Therefore, the risk of flooding from a seismically-induced seiche is considered to be low.

Review of the County of Los Angeles Flood and Inundation Hazards Map, Leighton (1990), indicates the Project site lies within mapped inundation boundary of the Mulholland Dam. In addition, review of the Flood Insurance Rate Map indicates that a portion of the Project site is located within Zone X (0.2 percent Annual Chance Flood Hazard – Areas of 1 percent annual chance flood with average depth less than one foot or with drainage areas of less than one square mile). A determination of whether a higher site elevation would remove the Project site from the potential inundation zones is beyond the scope of this investigation.

Landsliding

The probability of seismically-induced landslides occurring on the Project site is considered to be low due to the minimal change in elevation throughout and adjacent to the Project site.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the preliminary finding of Geotechnologies, Inc. that construction of the proposed development is considered feasible from

a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

This report is considered to be preliminary in nature. Once the Project achieves more definition and structural loads are available, the proposed development plans and loading shall be provided to this office for review, so that a comprehensive report could be prepared for individual building permitting purposes.

Existing fill thickness ranging from approximately 3 to 5 feet was encountered in the majority of the explorations. Deeper fill associated with the former drainage course backfill, up to 20 feet, was encountered in the area of the proposed western sound stages. In addition, the Project site is locally underlain by soils with high moisture content (near or above 30 percent moisture), especially in the areas of the former drainage courses.

Preliminarily, it is anticipated that at-grade structures with column loads less than 500 kips may be supported on conventional foundations bearing in an engineered fill pad. All existing fill pads shall be properly removed and recompacted. The proposed fill pad shall extend to a minimum depth of 10 feet below the bottom of the proposed foundation system. The onsite soils may be reused for placement as compacted fill. Drying and aeration of the onsite soils is anticipated in order to achieve the optimum moisture for compaction. Alternatively, dry soils may be utilized for blending or replacement of the highly saturated soils, or lime or cement treatment may also be utilized for the creation of the compacted fill pad.

Due to the anticipated high column loads associated with the office buildings and parking structures (including the office towers, production office buildings, the subterranean parking garage, and the parking structure at the southeast portion of the Project site), the highly saturated and soft soils (with moisture content near or above 30 percent) encountered below these highly loaded structures, and the high groundwater level, it is recommended these structures be

supported on foundation piles. It is recommended that drilled, auger cast piles (ACP) be utilized. Preliminarily, the proposed piles shall be a minimum of 18 inches in diameter and shall be a minimum of 50 feet in depth.

Since the proposed subterranean levels will extend below the historically highest groundwater level, it is recommended that the subterranean walls be designed for hydrostatic pressure based on the existing ground surface, and the base of the subterranean structure be designed for hydrostatic uplift pressure based on the historically highest groundwater level. The proposed subterranean structure shall be properly waterproofed.

For the at-grade structures supported on piles, the existing fill materials and upper native soils may be properly removed and recompacted for support of conventional slab-on-grade. All existing fill materials shall be properly removed and recompacted for slab support. At a minimum, the proposed fill pad shall extend to a depth of 3 feet below the proposed slab-on-grade. As an alternative, the proposed slab-on-grade may be designed as a structural slab deriving support from the pile foundation system.

The onsite soils may be reused for placement as compacted fill. Drying and aeration of the onsite soils is anticipated in order to achieve the optimum moisture for compaction. Alternatively, dry soils may be utilized for blending or replacement of the highly saturated soils, or lime or cement treatment may also be utilized for the creation of the compacted fill pad.

Excavation for the recommended grading and the proposed subterranean levels will require temporary shoring and dewatering measures to provide a stable and dry excavation due to the depth of the excavation, the presence of shallow groundwater, and the proximity of adjacent structures.

The Primary Studio Complex is supported on driven piles. Excavation of the proposed subterranean structures adjacent to the Primary Studio Complex may undermine the existing foundation piles. Where affected, new piles will need to be installed to underpin the existing structure prior to excavation of the proposed subterranean levels.

It is anticipated that the pumping (yielding or vertical deflection) of the high-moisture content soils at the bottom of the excavation may occur during operation of heavy equipment. Where pumping is encountered, angular minimum 1-inch gravel should be placed and worked into the subgrade. The exact thickness of the gravel would be a trial-and-error procedure, and would be determined in the field. The gravel layer would likely be approximately 1 to 2 feet thick.

Any connections between the new and the existing buildings should be made with flexible construction joints. Connections should not be made until the construction of new buildings is near completion, in order to allow the majority of the anticipated settlement of the new buildings to occur prior to the connection with the existing building. The purpose of these joints is to limit potential damage to either structure from the expected normal settlement of the new building.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this office. The subsurface conditions described herein have been projected from borings on the Project site as indicated and should in no way be construed to reflect any variations which may occur between these borings or which may result from changes in subsurface conditions. Any changes in the design or location of any structure, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

2019 California Building Code Seismic Parameters

Based on information derived from the subsurface investigation, the Project site is classified as Site Class D, which corresponds to a "Stiff Soil" Profile, according to Table 20.3-1 of ASCE 7-16. This information and the Project site coordinates were input into the ASCE 7 Hazard Tool in order to calculate ground motion parameters for the Project site.

2019 California Building Code Seismic Parameters	
ASCE Design Standard	7-16
Risk Category	II
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	2.072 g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	2.072g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	1.381g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.740g
Site Coefficient (F_v)	1.7*
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	1.258*
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.839*

* *According to ASCE 7-16, a Long Period Site Coefficient (F_v) of 1.7 may be utilized provided that the value of the Seismic Response Coefficient (C_s) is determined by Equation 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Equation 12.8-3 for $T_L \geq T > 1.5T_s$ or equation 12.8-4 for $T > T_L$. Alternatively, a site-specific ground motion hazard analysis may be performed in accordance with ASCE 7-16 Section 21.1 and/or a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 to determine ground motions for any structure.*

FILL SOILS

The maximum depth of fill encountered in the exploratory borings was 20 feet. This material and any fill generated during demolition should be removed during the excavation of the subterranean levels and be exported from the Project site, or be properly removed and recompacted as controlled fill for foundation and/or slab support of lightly loaded structures.

EXPANSIVE SOILS

The onsite geologic materials are in the low to very high expansion range. The Expansion Index, discussed in the "Expansion Index Testing" section below, was found to be between 35 and 130 for bulk samples remolded to 90 percent of the laboratory maximum density. Recommended reinforcing is noted in the "Foundation Design" and "Slabs-on-Grade" sections of this report.

WATER-SOLUBLE SULFATES

The Portland cement portion of concrete is compromised when exposed to water-soluble sulfates. Usually, the two most common sources of exposure are from soil and marine environments. The source of natural sulfate minerals in soils include the sulfates of calcium, magnesium, sodium, and potassium. When these minerals interact and dissolve in subsurface water, a sulfate concentration is created, which will react with exposed concrete. Over time, sulfate exposure will destroy improperly proportioned concrete well before the end of its intended service life.

The water-soluble sulfate content of the onsite geologic materials was tested by California Test 417 standard (California Department of Transportation). The water-soluble sulfate content was determined to be less than 0.1 percent by weight for the soils tested. Based on American Concrete Institute (ACI) Standard 318-08, the sulfate exposure is considered to be negligible for geologic materials with less than 0.1 percent. Therefore, there is no restriction on the cement types which may be utilized for concrete foundations in contact with the Project site soils.

METHANE ZONES

Based on review of the Navigate LA (*http://navigatela.lacity.org/NavigateLA/*) website, maintained by the City of Los Angeles, the Project site is located within a Methane Zone as designated by the City. A qualified methane consultant should be retained to consider the requirements and implications of the City's Methane Zone designation. A copy of the portion of the map covering the Project site is included herein.

GRADING GUIDELINES

Site Preparation

- A thorough search should be made for possible underground utilities and/or structures. Any existing or abandoned utilities or structures located within the footprint of the proposed grading should be removed or relocated as appropriate.

- All vegetation, existing fill, and soft or disturbed geologic materials should be removed from the areas to receive controlled fill. All existing fill materials and any disturbed geologic materials resulting from grading operations shall be completely removed and properly recompacted prior to foundation excavation.

- Any vegetation or associated root system located within the footprint of the proposed structures should be removed during grading.

- Subsequent to the indicated removals, the exposed grade shall be scarified to a depth of six inches, moistened to optimum moisture content, and recompacted in excess of the minimum required comparative density.

- The excavated areas shall be observed by the geotechnical engineer prior to placing compacted fill.

Recommended Overexcavation

Preliminarily, it is anticipated that at-grade structures with column loads less than 500 kips may be supported on conventional foundations bearing in an engineered fill pad. All existing fill

materials shall be properly removed and recompacted for foundation and slab support of the east sound stage. The proposed building areas shall be excavated to a minimum depth of 10 feet below the existing site grade. The excavation shall extend at least 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below the foundations, whichever is greater. It is very important that the positions of the proposed structures are accurately located so that the limits of the graded area are accurate and the grading operation proceeds efficiently.

For the at-grade structures supported on piles, the existing fill materials and upper native soils may be properly removed and recompacted for support of conventional slab-on-grade. All existing fill materials shall be properly removed and recompacted for slab support. At a minimum, the proposed fill pad shall extend to a depth of 3 feet below the proposed slab-on-grade. As an alternative, the proposed slab-on-grade may be designed as a structural slab deriving support from the pile foundation system.

Drying and aeration of the onsite soils is anticipated in order to achieve the optimum moisture for compaction. Alternatively, dry soils may be utilized for blending or replacement of the highly saturated soils, or lime or cement treatment may also be utilized for the creation of the compacted fill pad.

Compaction

The City of Los Angeles Department of Building and Safety requires a minimum 90 percent of the maximum density, except for cohesionless soils having less than 15 percent finer than 0.005 millimeters, which shall be compacted to a minimum 95 percent of the maximum density in accordance with the most recent revision of the Los Angeles Building Code.

All fill should be moisture conditioned to approximately 3 percent over the optimum moisture prior to placement as fill. All fill shall be mechanically compacted in layers not more than 8

inches thick, and shall be compacted to at least 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) of the maximum laboratory density for the materials used. The maximum density shall be determined by the laboratory operated by Geotechnologies, Inc. using the test method described in the most recent revision of the American Society for Testing and Materials (ASTM) D Standard 1557.

Field observation and testing shall be performed by a representative of the geotechnical engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until a minimum of 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) compaction is obtained.

Acceptable Materials

The excavated onsite materials are considered satisfactory for reuse in the controlled fills as long as any debris and/or organic matter is removed. Any imported materials shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines (particles less than 0.075 millimeters in diameter) so as to be relatively impermeable and result in a stable subgrade when compacted. Any required import materials should consist of geologic materials with an expansion index of less than 50. The water-soluble sulfate content of the import materials should be less than 0.1 percent by weight.

Imported materials should be free from chemical or organic substances which could affect the proposed development. A competent professional should be retained in order to test imported materials and address environmental issues and organic substances which might affect the proposed development.

Utility Trench Backfill

Utility trenches should be backfilled with controlled fill. The utility should be bedded with clean sands at least 1 foot over the crown. The remainder of the backfill may be onsite soil compacted to 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) of the laboratory maximum density. Utility trench backfill should be tested by representatives of this office in accordance with the most recent revision of ASTM D – 1557.

Wet Soils

At the time of exploration, the soils which will be exposed at the bottom of the excavation were above optimum moisture content. It is anticipated that the excavated material to be placed as compacted fill and the materials exposed at the bottom of excavated plane will require drying and aeration in order to achieve slightly above the optimum moisture prior to recompaction. Alternatively, dry soils may be utilized for blending or replacement of the highly saturated soils, or lime or cement treatment may also be utilized for the creation of the compacted fill pad.

Pumping (yielding or vertical deflection) of the high-moisture content soils at the bottom of the excavation may occur during operation of heavy equipment. Where pumping is encountered, angular minimum 1 to 2-inch gravel should be placed and worked into the subgrade. The exact thickness of the gravel would be a trial and error procedure, and would be determined in the field. The gravel layer would likely be approximately 1 to 2 feet thick.

The gravel will help to densify the subgrade as well as function as a stabilization material upon which heavy equipment may operate. It is not recommended that rubber tire construction equipment attempt to operate directly on the pumping subgrade soils prior to placing the gravel. Direct operation of rubber tire equipment on the soft subgrade soils will likely result in excessive disturbance to the soils, which in turn will result in a delay to the construction schedule since

those disturbed soils would then have to be removed and properly recompacted. Extreme care should be utilized to place gravel as the subgrade becomes exposed.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 5 and 15 percent should be anticipated when excavating and recompacting the existing fill and underlying native geologic materials on the Project site to an average comparative compaction of 92 percent.

Weather-Related Grading Considerations

When rain is forecast, all fill that has been spread shall be properly compacted prior to stopping work for the day or prior to stopping due to inclement weather. These fills, once compacted, shall have the surface sloped to drain to an area where water can be removed.

Temporary drainage devices should be installed to collect and transfer excess water to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the Project site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope.

Work may start again, after a period of rainfall, once the Project site has been reviewed by a representative of this office. Any soils saturated by the rain shall be removed and aerated so that the moisture content will fall within three percent of the optimum moisture content.

Surface materials previously compacted before the rain shall be scarified, brought to the proper moisture content and recompacted prior to placing additional fill, if considered necessary by a representative of this office.

Geotechnical Observations and Testing During Grading

Geotechnical observations and testing during grading are considered to be a continuation of the geotechnical investigation. It is critical that the geotechnical aspects of the Project be reviewed by representatives of Geotechnologies, Inc. during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this office during the course of construction. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required Project site visit.

FOUNDATION DESIGN

Preliminarily, it is anticipated that at-grade structures with column loads less than 500 kips may be supported on conventional foundations bearing in the recommended engineered fill pads.

Due to the anticipated high column loads associated with the office buildings and parking structures (including the office towers, production office buildings, the subterranean parking garage, and the parking structure at the southeast portion of the Project site), it is recommended these structures be supported on foundation piles. It is recommended that ACP piles be utilized. Preliminarily, the proposed piles shall be a minimum of 18 inches in diameter and shall be a minimum of 50 feet in depth.

The Primary Studio Complex is supported on driven piles. Excavation of the proposed subterranean structures adjacent to the Primary Studio Complex may undermine the existing foundation piles. Where affected, new piles will need to be installed to underpin the existing structure prior to excavation of the proposed subterranean levels.

Conventional Foundations

Conventional foundations shall bear in the recommended engineered fill pad. Continuous foundations may be designed for an allowable bearing capacity of 2,000 pounds per square foot, and should be a minimum of 12 inches in width, 24 inches in depth below the lowest adjacent grade and 24 inches into the recommended bearing material.

Column foundations may be designed for an allowable bearing capacity of 2,500 pounds per square foot, and should be a minimum of 24 inches in width, 24 inches in depth below the lowest adjacent grade and 24 inches into the recommended bearing material.

The allowable bearing capacity increase for each additional foot of width is 100 pounds per square foot. The allowable bearing capacity increase for each additional foot of depth is 250 pounds per square foot. The maximum recommended allowable bearing capacity is 5,000 pounds per square foot.

A safety factor of 3 was applied to the ultimate bearing capacity to determine the allowable bearing capacity. The bearing values indicated above are for the total of dead and frequently applied live loads, and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces. Since the recommended bearing value is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

Due to the expansion potential for the onsite soils, all bearing walls must be supported on continuous footings. Perimeter footings must be continuous, enclosing the entire footprint of the proposed structure. All foundations should be reinforced with a minimum of four #4 steel bars. Two should be placed near the top of the foundation, and two should be placed near the bottom.

Miscellaneous Foundations

Foundations for small miscellaneous outlying structures, such as property line fence walls, planters, exterior canopies, and trash enclosures, which will not be connected to the proposed structures, may be supported on conventional foundations bearing in properly compacted fill and/or firm native soils. Wall footings may be designed for a bearing value of 1,500 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing value increases are recommended.

Since the recommended bearing capacity is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

Lateral Design for Conventional Footings

Resistance to lateral loading may be provided by soil friction, and by the passive resistance of the soils. A coefficient of friction of 0.3 may be used with the dead load forces between footings and the underlying supporting soils.

Passive earth pressure for the sides of footings poured against undisturbed soil may be computed as an equivalent fluid having a density of 200 pounds per cubic foot, with a maximum earth pressure of 3,000 pounds per square foot. When combining passive and friction for lateral resistance, the passive component should be reduced by one third. A one-third increase in the passive value may be used for wind or seismic loads. A safety factor of 2 has been applied to the ultimate passive capacity to determine the allowable passive pressure.

Conventional Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The maximum settlement is expected to be 1.5 inches and occur below the heaviest loaded columns. Differential settlement is not expected to exceed 0.75 inches.

Foundation Observations

It is critical that all foundation excavations are observed by a representative of this office to verify penetration into the recommended bearing materials. The observation should be performed prior to the placement of reinforcement. Foundations should be deepened to extend into satisfactory geologic materials, if necessary. Foundation excavations should be cleaned of all loose soils prior to placing steel and concrete. Any required foundation backfill should be mechanically compacted, and flooding is not permitted.

AUGER CAST PILE (ACP) FOUNDATION SYSTEM

Due to the anticipated high column loads associated with the office buildings and parking structures (including the office towers, production office buildings, the subterranean parking garage, and the parking structure at the southeast portion of the Project site), it is recommended these structures be supported on foundation piles. It is recommended that drilled ACP piles be utilized.

ACP piles are created by rotating a continuous flight auger into the ground to a specified depth. Subsequently, the augers are slowly withdrawn while cementitious grout is pumped under pressure to create the pile as the auger is being retracted. As the auger is retracted, the spoils on the auger are continuously removed by a small excavator or loader. Once the pile has been grouted and auger completely removed from the pile, reinforcing cages will then be wet set into the previously placed concrete.

The ACP piles will be installed by using a closed tip auger tool. The proposed piles shall be a minimum of 18 inches in diameter, and shall be drilled to derive support from the underlying dense native soils. The following tables present the allowable axial capacity (with a minimum safety factor of 2) for design using an 18-inch and a 24-inch diameter ACP piles with a minimum of 50-foot embedment into the underlying native soils.

18-inch diameter ACP Piles	
Depth of Embedment (feet)	**Allowable Axial Capacity (kips)***
50	130
60	160
70	200

* Uplift capacity may be designed using 50 percent of the downward capacity.

24-inch diameter ACP Piles	
Depth of Embedment (feet)	**Allowable Axial Capacity (kips)***
50	200
60	250
70	300

* Uplift capacity may be designed using 50 percent of the downward capacity.

Allowable uplift capacity may be designed using 50 percent of the allowable downward capacity indicated in the above table. A one-third increase may be used for transient loading such as wind or seismic forces. For ultimate compression and tension design, the pile capacities may be doubled.

Where pile groups are required, the piles should be spaced a minimum of 3 diameters on centers. If so spaced, there will be no reduction in the downward or upward capacity of the piles due to group action.

An indicator pile program, including compression load tests, shall be performed at the Project site to verify the pile design capacities. The allowable pile capacities presented herein are considered to be preliminary, and are subject to be confirmed or modified depending on the results of the indicator pile load test program. In addition to the indicator pile program, Low Strain Pile Integrity Tests (PIT) shall be performed on a minimum of 10 percent of the production piles to verify the structural integrity of the piles.

Lateral Design for Pile Foundation

Lateral loads may be resisted by the piles, and by the passive resistance of the soils against the pile caps and grade beams. The passive resistance of the native soils against pile caps and grade beams may be assumed as an equivalent fluid having a density of 200 pounds per cubic foot with a maximum earth pressure of 3,000 pounds per square foot. A one-third increase in this value may be used for wind or seismic loads. The passive resistance of the piles and the passive resistance of the soils against pile caps and grade beams may be combined without reduction in determining the total lateral resistance.

Maximum recommended allowable lateral capacities for 0.5-inch deflection for single, isolated, fixed-head and free-head piles are presented in the Enclosures section. Pile 1 represents an 18-inch diameter pile and Pile 2 represents a 24-inch diameter pile. No factors of safety have been applied to the lateral load values calculated to induce 0.5-inch lateral deflection.

Single isolated piles shall be classified as piles spaced at or greater than 8 diameters on center. For pile groups where piles will be spaced closer than 8 diameters on center in the direction of loading, the following reduction factor shall be utilized to determine the allowable lateral pile capacities for the trailing piles in the direction of loading to maintain a 0.5-inch pile deflection.

Pile Spacing*	Percentage of Lateral Passive Resistance
7D	70%
6D	55%
5D	45%
4D	38%
3D	33%

*Where D is the diameter of the proposed piles

Lateral capacities provided are for drilled, cast-in-place concrete piles, penetrating the materials encountered during the course of this investigation. Assumed as part of these lateral capacity calculations are a concrete modulus of elasticity of at least 3,000,000 pounds per square inch, and a minimum total pile depth of 50 feet.

The capacities presented are based on the strength of the soils. The compressive and tensile strength of the pile sections should be checked to verify the structural capacity of the piles.

Piling Equipment

The piling equipment used for the Project shall conform to the specifications below.

- *Piling Rig* – The contractor shall use equipment of adequate torque, crowd force, and power, to achieve the design tip elevation. At a minimum, the piling rig shall be capable of providing a minimum torque of 150,000 ft-lbs. and 25 tons of down crowd thrust.

- *Automated Monitoring Equipment* – The drilling rig shall be equipped with an automated monitoring equipment (AME) designed to monitor the pile installation process. During the drilling process, the AME shall record auger depth, drill torque, and elapsed time. During the grouting process, the AME shall record the auger depth, grout pressure, and elapsed time.

- *Augers* – The augers shall be capable of creating a minimum 18-inch diameter pile (or 24 inches in diameter where applicable).

- *Grouting Equipment* – A grout port shall be located near the tip of the displacement auger. A continuous system of grout mixing, pumping, and agitating equipment shall be utilized. Equipment shall be maintained in good working order to maintain a continuous flow of concrete during auger withdrawal. The grout pump shall be capable of developing displacement pressures of 250 pounds per square inch (psi).

Pile Installation Procedures

The following installation procedures shall be followed to install the ACP piles.

1. Contractor is responsible for using equipment of adequate torque, crowd, and power to achieve the design tip elevation. The piling rig and the flight augers used for the production pile installation shall be of identical design to that used for the indicator pile test program.

2. The flight auger is advanced until it reaches the design tip elevation. The grout port in the auger tool shall be closed with a plug that prevents soil and/or water from entering the hollow shaft while the auger is advanced into the ground.

3. The flight auger shall be capable of creating a smooth walled shaft with a minimum of 18 inches in diameter (or 24 inches in diameter where applicable). The proposed test piles shall correspond to each of the diameter/length configuration utilized in the production pile design.

4. A minimum delivery pressure of 250 psi plus the hydraulic pressure developed by the grout column in the drill stem shall be applied to create the pile. The operator shall maintain positive rotation of the displacement auger continuously throughout the grouting process until the displacement element is completely retracted from the ground.

5. The piling rig shall be equipped with AME to record the auger depth, drill torque, grout pressure, and elapsed time. All recorded data shall be provided for review.

6. Once the grouted pile shaft is filled with concrete, the steel reinforcing cage shall be inserted into the wet concrete pile. All reinforcing elements shall be fitted with centralizers or clip spacers.

Indicator Test Pile Program

An indicator pile test program must be performed and approved by the City of Los Angeles Department of Building and Safety (LADBS) Grading Division prior to installation of the production piles. The number of test piles shall be equivalent to a minimum of 2 test piles, or 1 percent of the production ACP piles for the proposed structure, whichever is greater. The proposed test piles shall correspond to each of the diameter/length configuration utilized in the production pile design.

All pile load tests shall be performed in accordance with ASTM D1143/1143M to verify the pile design capacities. The test piles and reaction piles shall be considered sacrificial and shall not be utilized for foundation support of the proposed buildings. Additional foundation piles shall be necessary if the actual load tests do not meet the recommended allowable loads.

- Load tests shall be performed on sacrificial test piles in accordance with ASTM D1143/1143M. The design load shall be held until the measured creep does not exceed 0.01 inch per hour. Piles with a settlement rate exceeding 0.01 inch/hour under the design load during a pile test will be rejected.

- Pile load tests shall be performed to a minimum load equivalent to the ultimate pile design capacity (corresponding to 2 times the allowable pile capacity).

- Test piles and reaction piles shall be sacrificial and shall not be incorporated as foundation piles. Sacrificial test piles and reaction piles shall be cut off 3 feet below the finished grade and abandoned in place following the completion of the testing program.

- Gamma-Gamma density logging (GDL) and Low Strain Pile Integrity Tests (PIT) shall be performed on all test piles and reaction piles. GDL shall be performed in accordance with Caltrans CT 233. PIT shall be performed in accordance with ASTM D5882.

- One test pile shall be exhumed from the ground to physically examine the pile integrity.

- Results of the pile load testing will be submitted as a summary letter to the LADBS Grading Division for review and approval.

Geotechnical Inspections

During pile installation, a City of Los Angeles Deputy Grading Inspector shall record and maintain data for each pile, including the following:

- Pile Number
- Installed pile length
- Auger torque vs. depth
- Head pressure inside the tremie pipe vs. depth
- Drilling rate vs. depth
- Concrete volume vs. depth
- Unanticipated site conditions if any

Non-Destructive Testing

Non-destructive testing methods shall be employed to evaluate the integrity of the piles installed to provide quality control and assurance of the pile construction method.

- GDL and PIT shall be performed on all test piles and reaction piles. GDL shall be performed in accordance with Caltrans CT 233 standard. PIT shall be performed in accordance with ASTM D 5882.

- PIT shall be performed on 10 percent of the production piles.

- If any PIT test indicates a discontinuity within a tested pile, that pile shall be evaluated by the geotechnical and structural engineers. Unsatisfactory piles may be abandoned in place and shall be replaced with replacement piles.

Pile Foundation Settlement

The maximum settlement of the pile foundation system bearing into the underlying native soils and bedrock is expected to be less than 1 inch, and will occur below the heaviest loaded columns. Differential settlement is not expected to exceed ½ inch.

RETAINING WALL DESIGN

Cantilever retaining walls supporting a level backslope shall be designed utilizing a triangular distribution of active earth pressure. Restrained retaining walls shall be designed utilizing a triangular distribution of at-rest earth pressure. Retaining walls shall be designed utilizing the following table:

Height of Retaining Wall (feet)	Cantilever Retaining Wall Triangular Distribution of Active Earth Pressure with Hydrostatic Pressure (pcf)	Restrained Retaining Wall Triangular Distribution of At-Rest Earth Pressure with Hydrostatic Pressure (pcf)
30 feet	75 pcf	100 pcf
40 feet	80 pcf	100 pcf

The lateral earth pressures recommended above for retaining walls assume that the proposed subterranean walls will be designed for full hydrostatic pressure based on the ground surface, and a permanent drainage system behind the retaining walls will be eliminated. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures. The upper ten feet of the retaining wall adjacent to streets, driveways or parking areas should be designed to resist a uniform lateral pressure of 100

pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal street traffic. If the traffic is kept back at least ten feet from the retaining walls, the traffic surcharge may be neglected.

Dynamic (Seismic) Earth Pressure

Retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. A triangular pressure distribution should be utilized for the additional seismic loads, with an equivalent fluid pressure of 24 pounds per cubic foot. The seismic earth pressure should be combined with the lateral active earth pressure for analyses of restrained basement walls under seismic loading condition.

Surcharge from Adjacent Structures

As indicated herein, additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures for retaining walls and shoring design. The following surcharge equation provided in the LADBS Information Bulletin Document No. P/BC 2008-83, may be utilized to determine the surcharge loads on basement walls and shoring system for existing structures located within the 1:1 horizontal to vertical (h:v) surcharge influence zone of the excavation and basement.

Resultant lateral force: $R = (0.3*P*h^2)/(x^2+h^2)$

Location of lateral resultant: $d = x*[(x^2/h^2+1)*\tan^{-1}(h/x)-(x/h)]$

where:

R	=	resultant lateral force measured in pounds per foot of wall width.
P	=	resultant surcharge loads of continuous or isolated footings measured in pounds per foot of length parallel to the wall.
x	=	distance of resultant load from back face of wall measured in feet.
h	=	depth below point of application of surcharge loading to top of wall footing measured in feet.
d	=	depth of lateral resultant below point of application of surcharge loading measure in feet.
$\tan^{-1}(h/x)$	=	the angle in radians whose tangent is equal to h/x.

The structural engineer and shoring engineer may use this equation to determine the surcharge loads based on the loading of the adjacent structures located within the surcharge influence zone.

Waterproofing

Moisture effecting retaining walls is one of the most common post construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water inside the building. Efflorescence is a process in which a powdery substance is produced on the surface of the concrete by the evaporation of water. The white powder usually consists of soluble salts such as gypsum, calcite, or common salt. Efflorescence is common to retaining walls and does not affect their strength or integrity.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection to below grade walls.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) of the maximum density obtainable by the most recent revision of ASTM D 1557. Flooding should not be permitted. Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported

therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

TEMPORARY EXCAVATIONS

It is anticipated that excavations between 15 and 45 feet in vertical height will be required for the recommended removal and recompaction of the engineered fill pad, and for construction of the proposed subterranean levels and foundation elements. The excavations are expected to expose fill and dense native soils, which are suitable for vertical excavations up to 5 feet where not surcharged by adjacent traffic or structures. Excavations which will be surcharged by adjacent traffic, public way, properties, or structures should be shored.

Where sufficient space is available, temporary unsurcharged embankments could be sloped back without shoring. Excavations over 5 feet in height may be excavated at a uniform 1:1 (h:v) slope gradient in its entirety to a maximum height of 8 feet. A uniform sloped excavation does not have a vertical component.

Where sloped embankments are utilized, the tops of the slopes should be barricaded to prevent vehicles and storage loads within seven feet of the tops of the slopes. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The soils exposed in the cut slopes should be inspected during excavation by personnel from this office so that modifications of the slopes can be made if variations in the soil conditions occur.

It is critical that the soils exposed in the cut slopes are observed by a representative of this office during excavation so that modifications of the slopes can be made if variations in the earth material conditions occur. All excavations should be stabilized within 30 days of initial excavation. Water should not be allowed to pond on top of the excavation nor to flow towards it.

Temporary Dewatering

Artesian groundwater condition was encountered at the Project site. Since the proposed subterranean level may extend below the current groundwater level, it is recommended that a qualified dewatering consultant should be retained during the design phase of the Project. The expected number and depths of well-points, expected flow rates, and expected pre-pumping time frames should be determined during a dewatering test program conducted by a qualified dewatering consultant.

It is anticipated that the well points will collect the majority of the water. However, even after pre-pumping, some free water may be encountered during excavation due to entrapment within cohesive lenses. Such water may be collected within the excavation through the use of french drains and sump pumps. The collected water should be pumped to an acceptable disposal area. The exposed subgrade is anticipated to be wet and pumping. Subgrade stabilization and wet soil treatment are provided in the "Wet Soils" section of this report.

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of Geotechnologies, Inc. during excavation so that modifications of the slopes can be made if variations in the geologic material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SHORING DESIGN

The following information on the design and installation of the shoring is as complete as possible at this time. It is suggested that a review of the final shoring plans and specifications be made by this office prior to bidding or negotiating with a shoring contractor be made.

One method of shoring would consist of steel soldier piles, placed in drilled holes and backfilled with concrete. The soldier piles may be designed as cantilevers or laterally braced utilizing drilled tie-back anchors or raker braces.

The Primary Studio Complex is supported on driven piles. Excavation of the proposed subterranean structures adjacent to the Primary Studio Complex may undermine the existing foundation piles. Where affected, new piles will need to be installed to underpin the existing structure prior to excavation of the proposed subterranean levels.

Soldier Piles

Drilled cast-in-place soldier piles should be placed no closer than 2 diameters on center. The minimum diameter of the piles is 18 inches. Structural concrete should be used for the soldier piles below the excavation; lean-mix concrete may be employed above that level. As an alternative, lean-mix concrete may be used throughout the pile where the reinforcing consists of a wideflange section. The slurry must be of sufficient strength to impart the lateral bearing pressure developed by the wideflange section to the earth materials. For design purposes, an allowable passive value for the earth materials below the bottom plane of excavation may be assumed to be 500 pounds per square foot per foot. To develop the full lateral value, provisions should be implemented to assure firm contact between the soldier piles and the undisturbed earth materials.

The frictional resistance between the soldier piles and retained earth material may be used to resist the vertical component of the anchor load. The coefficient of friction may be taken as 0.3 based on uniform contact between the steel beam and lean-mix concrete and retained earth. The portion of soldier piles below the plane of excavation may also be employed to resist the downward loads. The downward capacity may be determined using a frictional resistance of 450 pounds per square foot. The minimum depth of embedment for shoring piles is 5 feet below the

bottom of the footing excavation, or 7 feet below the bottom of excavated plane, whichever is deeper.

Casing may be required should caving be experienced in the saturated earth materials. If casing is used, extreme care should be employed so that the pile is not pulled apart as the casing is withdrawn. At no time should the distance between the surface of the concrete and the bottom of the casing be less than 5 feet.

Piles placed below the water level will require the use of a tremie to place the concrete into the bottom of the hole. A tremie shall consist of a water-tight tube having a diameter of not less than 10 inches with a hopper at the top. The tube shall be equipped with a device that will close the discharge end and prevent water from entering the tube while it is being charged with concrete. The tremie shall be supported so as to permit free movement of the discharge end over the entire top surface of the work and to permit rapid lowering when necessary, to retard or stop the flow of concrete. The discharge end shall be closed at the start of the work to prevent water entering the tube and shall be entirely sealed at all times, except when the concrete is being placed. The tremie tube shall be kept full of concrete. The flow shall be continuous until the work is completed and the resulting concrete seal shall be monolithic and homogeneous. The tip of the tremie tube shall always be kept about five feet below the surface of the concrete and definite steps and safeguards should be taken to ensure that the tip of the tremie tube is never raised above the surface of the concrete.

A special concrete mix should be used for concrete to be placed below water. The design shall provide for concrete with a strength of 1,000 psi over the initial job specification. An admixture that reduces the problem of segregation of paste/aggregates and dilution of paste shall be included. The slump shall be commensurate to any research report for the admixture, provided that it shall also be the minimum for a reasonable consistency for placing when water is present.

Lagging

Soldier piles and anchors should be designed for the full anticipated pressures. Lagging will be required throughout the entire depth of the excavation. Due to arching in the geologic materials, the pressure on the lagging will be lessened. It is recommended that the lagging should be designed for the full design pressure but be limited to a maximum of 400 pounds per square foot. It is recommended that a representative of this office observe the installation of lagging to insure uniform support of the excavated embankment.

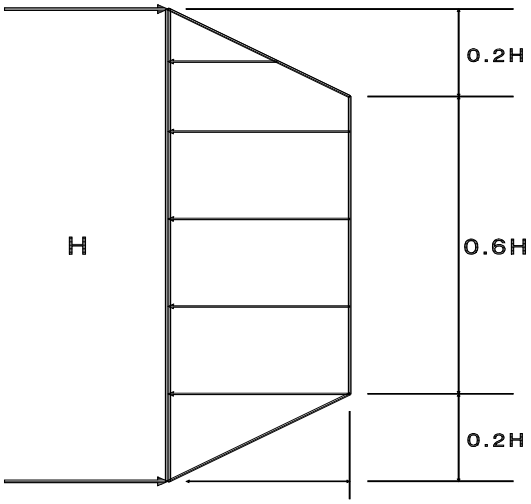
Lateral Pressures

A triangular distribution of lateral earth pressure should be utilized for the design of cantilevered shoring system. A trapezoidal distribution of lateral earth pressure would be appropriate where shoring is to be restrained at the top by bracing or tie backs. The design of trapezoidal distribution of pressure is shown in the diagram below. Equivalent fluid pressures for the design of cantilevered and restrained shoring are presented in the following table:

Height of Shoring (feet)	Cantilever Shoring System Equivalent Fluid Pressure (pcf) Triangular Distribution of Pressure	Restrained Shoring System Lateral Earth Pressure (psf)* Trapezoidal Distribution of Pressure
20 feet	40 pcf	25H psf
35 feet	55 pcf	35H psf
45 feet	58 pcf	37H psf

*Where H is the height of the shoring in feet.

TRAPEZOIDAL DISTRIBUTION OF PRESSURE



Where a combination of sloped embankment and shoring is utilized, the pressure will be greater and must be determined for each combination. Additional active pressures should be applied where the shoring will be surcharged by adjacent traffic or structures.

The upper ten feet of the retaining wall adjacent to streets, driveways or parking areas should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal street traffic. If street traffic is kept at least ten feet from the retaining walls, the traffic surcharge may be neglected. Foundations may be designed using the allowable bearing capacities, friction, and passive earth pressure found in the "Foundation Design" section above.

Tied-Back Anchors

Tied-back anchors may be used to resist lateral loads. Friction anchors are recommended. For design purposes, it may be assumed that the active wedge adjacent to the shoring is defined by a plane drawn 35 degrees with the vertical through the bottom plane of the excavation. Friction anchors should extend a minimum of 20 feet beyond the potentially active wedge.

Drilled friction anchors may be designed for a skin friction of 300 pounds per square foot. Pressure grouted anchor may be designed for a skin friction of 1,500 pounds per square foot. Where belled anchors are utilized, the capacity of belled anchors may be designed by assuming the diameter of the bonded zone is equivalent to the diameter of the bell. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads.

It is recommended that at least 3 of the initial anchors have their capacities tested to 200 percent of their design capacities for a 24-hour period to verify their design capacity. The total deflection during this test should not exceed 12 inches. The anchor deflection should not exceed 0.75 inches during the 24 hour period, measured after the 200 percent load has been applied.

All anchors should be tested to at least 150 percent of design load. The total deflection during this test should not exceed 12 inches. The rate of creep under the 150 percent test load should not exceed 0.1 inch over a 15 minute period in order for the anchor to be approved for the design loading.

After a satisfactory test, each anchor should be locked-off at the design load. This should be verified by rechecking the load in the anchor. The load should be within 10 percent of the design load. Where satisfactory tests are not attained, the anchor diameter and/or length should be increased or additional anchors installed until satisfactory test results are obtained. The installation and testing of the anchors should be observed by the geotechnical engineer. Minor caving during drilling of the anchors should be anticipated.

Anchor Installation

Tied-back anchors may be installed between 20 and 40 degrees below the horizontal. Caving of the anchor shafts, particularly within sand deposits, should be anticipated and the following provisions should be implemented in order to minimize such caving. The anchor shafts should

be filled with concrete by pumping from the tip out, and the concrete should extend from the tip of the anchor to the active wedge. In order to minimize the chances of caving, it is recommended that the portion of the anchor shaft within the active wedge be backfilled with sand before testing the anchor. This portion of the shaft should be filled tightly and flush with the face of the excavation. The sand backfill should be placed by pumping; the sand may contain a small amount of cement to facilitate pumping.

Deflection

It is difficult to accurately predict the amount of deflection of a shored embankment, but some deflection should be anticipated. It is estimated that deflection of approximately 1 inch could occur at the top of the shored embankment. If greater deflection occurs during construction, additional bracing may be necessary to minimize settlement of adjacent buildings and utilities in adjacent street and alleys. If desired to reduce the deflection, a greater active pressure could be used in the shoring design. Where internal bracing is used, the rakers should be tightly wedged to minimize deflection. The proper installation of the raker braces and the wedging will be critical to the performance of the shoring.

The City of Los Angeles Department of Building and Safety requires limiting shoring deflection to 0.5 inches at the top of the shored embankment where a structure is within a 1:1 (h:v) plane projected up from the base of the excavation. A maximum deflection of 1-inch has been allowed provided there are no structures within a 1:1 (h:v) plane drawn upward from the base of the excavation.

Monitoring

Because of the depth of the excavation, some mean of monitoring the performance of the shoring system is suggested. The monitoring should consist of periodic surveying of the lateral and vertical locations of the tops of all soldier piles and the lateral movement along the entire lengths

of selected soldier piles. Also, some means of periodically checking the load on selected anchors will be necessary, where applicable.

Some movement of the shored embankments should be anticipated as a result of the relatively deep excavation. It is recommended that photographs of the existing buildings on the adjacent properties be made during construction to record any movements for use in the event of a dispute.

Shoring Observations

It is critical that the installation of shoring is observed by a representative of Geotechnologies, Inc. Many building officials require that shoring installation should be performed during continuous observation of a representative of the geotechnical engineer. The observations ensure that the recommendations of the geotechnical report are implemented and that modifications of the recommendations can be made if variations in the geologic material or groundwater conditions warrant. The observations will allow for a report to be prepared on the installation of shoring for the use of the local building official, where necessary.

SLABS ON GRADE

Concrete Slabs-on Grade

Conventional concrete slab-on-grade may be utilized for at-grade structures provided that all existing fill are properly removed and recompacted. Conventional concrete slab-on-grade should be a minimum of 5 inches in thickness, and should be reinforced with a minimum of #4 steel bars on 16 inches on center each way. Slabs-on-grade should be cast over undisturbed natural geologic materials or properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the Project site or properly compacted to 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) of the maximum dry density.

Slab-on-grade for subterranean structures shall be designed as a mat or a structural slab spanning between the pile foundation system. Due to the groundwater level, the proposed mat or structural slab for the subterranean structure shall be designed to withstand the potential hydrostatic uplift pressure. The proposed mat foundation uplift pressure to be used in design would be 62.4(H) psf, where "H" is the depth to the bottom of footing from the historically highest groundwater level of 8 feet below the existing site grade.

The structural engineer shall evaluate the weight of the structure and the hydrostatic uplift potential. If the hydrostatic uplift pressure acting on the base of the foundation is greater than the weight of the structure, then ground anchors, such as piles or micropiles, will need to be installed to resist the uplift pressure.

Outdoor concrete flatwork should be a minimum of 4 inches in thickness, and should be reinforced with a minimum of #3 steel bars on 12 inches on center each way. Outdoor concrete flatwork should be cast over undisturbed natural geologic materials or properly controlled fill materials. Any geologic materials loosened or over-excavated should be wasted from the Project site or properly compacted to 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) of the maximum dry density.

Design of Slabs That Receive Moisture-Sensitive Floor Coverings

Geotechnologies, Inc. does not practice in the field of moisture vapor transmission evaluation and recommendations. Therefore it is recommended that a qualified consultant be engaged to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. The qualified consultant should provide recommendations to address potential moisture vapor transmission impacts on various components of the structure.

Where dampness would be objectionable, it is recommended that the floor slabs should be waterproofed. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection for concrete slabs-on-grade.

All concrete slabs-on-grade for the at-grade structures should be supported on vapor retarder. The design of the slab and the installation of the vapor retarder should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder should comply with ASTM E 1745 Class A requirements.

Where a vapor retarder is used, a low-slump concrete should be used to minimize possible curling of the slabs. The barrier can be covered with a layer of trimable, compactible, granular fill, where it is thought to be beneficial. See ACI 302.2R-32, Chapter 7 for information on the placement of vapor retarders and the use of a fill layer.

Due to the groundwater level encountered at the Project site, the proposed subterranean structures shall be waterproofed.

Concrete Crack Control

The recommendations presented in this report are intended to reduce the potential for cracking of concrete slabs-on-grade due to settlement. However even where these recommendations have been implemented, foundations, stucco walls and concrete slabs-on-grade may display some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete cracking may be reduced and/or controlled by limiting the slump of the concrete used, proper concrete placement and curing, and by placement of crack control joints at reasonable intervals, in particular, where re-entrant slab corners occur.

For standard control of concrete cracking, a maximum crack control joint spacing of 10 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practicable following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

Complete removal of the existing fill soils beneath outdoor flatwork such as walkways or patio areas, is not required. However, due to the rigid nature of concrete, some cracking, a shorter design life and increased maintenance costs should be anticipated. In order to provide uniform support beneath the flatwork it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork be scarified and recompacted to 90 percent (or 95 percent for cohesionless soils having less than 15 percent finer than 0.005 millimeters) relative compaction.

PAVEMENTS

Prior to placing paving, the existing grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 95 percent of the maximum density as determined by the most recent revision of ASTM D 1557. Although removal of all existing fill in the area of new paving is not required, pavement constructed in this manner will most likely have a shorter design life and increased maintenance costs. The following pavement sections are recommended:

Service	Asphalt Pavement Thickness (Inches)	Base Course (Inches)
Passenger Cars	3	6
Moderate Truck	4	9
Heavy Truck	6	12

Service	Concrete Pavement Thickness (Inches)	Base Course (Inches)
Passenger Cars and Moderate Trucks	6	6
Heavy Truck	8	9

A subgrade modulus of 100 pounds per cubic inch may be assumed for design of concrete paving. For standard crack control maximum expansion joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended.

Aggregate base should be compacted to a minimum of 95 percent of the most recent revision of ASTM D 1557 laboratory maximum dry density. Base materials should conform to Sections 200-2.2 or 200-2.4 of the "Standard Specifications for Public Works Construction", (Green Book), latest edition.

SITE DRAINAGE

Proper surface drainage is critical to the future performance of the Project. Saturation of soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Proper Project site drainage should be maintained at all times.

All Project site drainage should be collected and transferred to the street in non-erosive drainage devices. The proposed structure should be provided with roof drainage. Discharge from downspouts, roof drains and scuppers should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the Project site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance

equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Regulatory agencies have been requiring the disposal of a certain amount of stormwater generated on a site by infiltration into the site soils. Increasing the moisture content of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. This means that any overlying structure, including buildings, pavements and concrete flatwork, could sustain damage due to saturation of the subgrade soils. Structures serviced by subterranean levels could be adversely impacted by stormwater disposal by increasing the design fluid pressures on retaining walls and causing leaks in the walls. Proper site drainage is critical to the performance of any structure in the built environment.

Artesian groundwater was encountered at the Project site. Groundwater was generally encountered between 20 and 30 feet below the existing site grade. At the completion of the boreholes, the groundwater level was observed to have risen to depths between 8 to 15.5 feet below the existing site grade within the boreholes. Due to the groundwater level, the depth of the proposed subterranean level, and the relatively cohesive nature of the surficial native soils, stormwater infiltration will not be feasible for the Project.

DESIGN REVIEW

Engineering of the proposed Project should not begin until approval of the geotechnical report by the Building Official is obtained in writing. Changes in the geotechnical recommendations may result during the building department review process.

It is recommended that the geotechnical aspects of the Project be reviewed by this office during the design process to provide specific recommendations for particular cases and to evaluate whether the intent of the recommendations presented herein are satisfied.

CONSTRUCTION MONITORING

Geotechnical observations and testing during construction are considered to be a continuation of the geotechnical investigation. It is critical that this office review the geotechnical aspects of the Project during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this office during the course of construction. All foundations should be observed by a representative of this office prior to placing concrete or steel. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise Geotechnologies, Inc. at least twenty-four hours prior to any required Project site visit.

If conditions encountered during construction appear to differ from those disclosed herein, notify Geotechnologies, Inc. immediately so the need for modifications may be considered in a timely manner.

It is the responsibility of the contractor to ensure that all excavations and trenches are properly sloped or shored. All temporary excavations should be cut and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations.

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire Project site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and

many other conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly, bedrock can contain concretions. Concretions are typically lenticular and follow the bedding. Concretions are formed by mineral deposits and can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the Project site and the geologic materials in the vicinity.

GEOTECHNICAL TESTING

Classification and Sampling

The soil is continuously logged by a representative of this office and classified by visual examination in accordance with the Unified Soil Classification system. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification may include visual examination, Atterberg Limit Tests and grain size distribution. The final classification is shown on the excavation logs.

Samples of the geologic materials encountered in the exploratory excavations were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the excavation logs as an SPT sample, samples acquired while utilizing a hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound hammer. The soil is retained in brass rings of 2.50 inches outside diameter and 1.00 inch in height. The central portion of the samples are stored in close fitting, waterproof containers for transportation to the laboratory. Samples noted on the excavation logs as SPT samples are obtained in accordance with the most recent revision of ASTM D 1586. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples by the most recent revision of ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is determined in pounds per cubic foot and shown on the "Excavation Logs", A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed by the most recent revision of ASTM D 3080 with a strain controlled, direct shear machine manufactured by Soil Test, Inc. or a Direct Shear Apparatus manufactured by GeoMatic, Inc. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the sample location and future Project site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

The most recent revision of ASTM 3080 limits the particle size to 10 percent of the diameter of the direct shear test specimen. The sheared sample is inspected by the laboratory technician running the test. The inspection is performed by splitting the sample along the sheared plane and observing the soils exposed on both sides. Where oversize particles are observed in the shear plane, the results are discarded and the test run again with a fresh sample.

Consolidation Testing

Settlement predictions of the soil's behavior under load are made on the basis of the consolidation tests using the most recent revision of ASTM D 2435. The consolidation apparatus is designed to receive a single one-inch high ring. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen to permit addition and release of pore fluid. Samples are generally tested at increased moisture content to determine the effects of water on the bearing soil. The normal pressure at which the water is added is noted on the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hour or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs first. The expansion index, EI, is determined by dividing the difference between final and initial height of the ring sample by the initial height, and multiplied by 1,000.

Laboratory Compaction Characteristics

The maximum dry unit weight and optimum moisture content of a soil are determined by use of the most recent revision of ASTM D 1557. A soil at a selected moisture content is placed in five layers into a mold of given dimensions, with each layer compacted by 25 blows of a 10 pound

hammer dropped from a distance of 18 inches subjecting the soil to a total compactive effort of about 56,000 pounds per cubic foot. The resulting dry unit weight is determined. The procedure is repeated for a sufficient number of moisture contents to establish a relationship between the dry unit weight and the water content of the soil. The data when plotted represent a curvilinear relationship known as the compaction curve. The values of optimum moisture content and modified maximum dry unit weight are determined from the compaction curve.

Grain Size Distribution

These tests cover the quantitative determination of the distribution of particle sizes in soils. Sieve analysis is used to determine the grain size distribution of the soil larger than the Number 200 sieve. The most recent revision of ASTM D 422 is used to determine particle sizes smaller than the Number 200 sieve. A hydrometer is used to determine the distribution of particle sizes by a sedimentation process. The grain size distributions are plotted on the E-Plates presented in the Enclosures section of this report.

CLOSURE AND LIMITATIONS

The purpose of this report is to aid in the design and completion of the described project. Implementation of the advice presented in this report is intended to reduce certain risks associated with construction projects. The professional opinions and geotechnical advice contained in this report are sought because of special skill in engineering and geology and were prepared in accordance with generally accepted geotechnical engineering practice. Geotechnologies, Inc. has a duty to exercise the ordinary skill and competence of members of the engineering profession. Those who hire Geotechnologies, Inc. are not justified in expecting infallibility, but can expect reasonable professional care and competence.

The scope of the geotechnical services provided did not include any environmental site assessment for the presence or absence of organic substances, hazardous/toxic materials in the soil, surface water, groundwater, or atmosphere, or the presence of wetlands.

Proper compaction is necessary to reduce settlement of overlying improvements. Some settlement of compacted fill should be anticipated. Any utilities supported therein should be designed to accept differential settlement. Differential settlement should also be considered at the points of entry to the structure.

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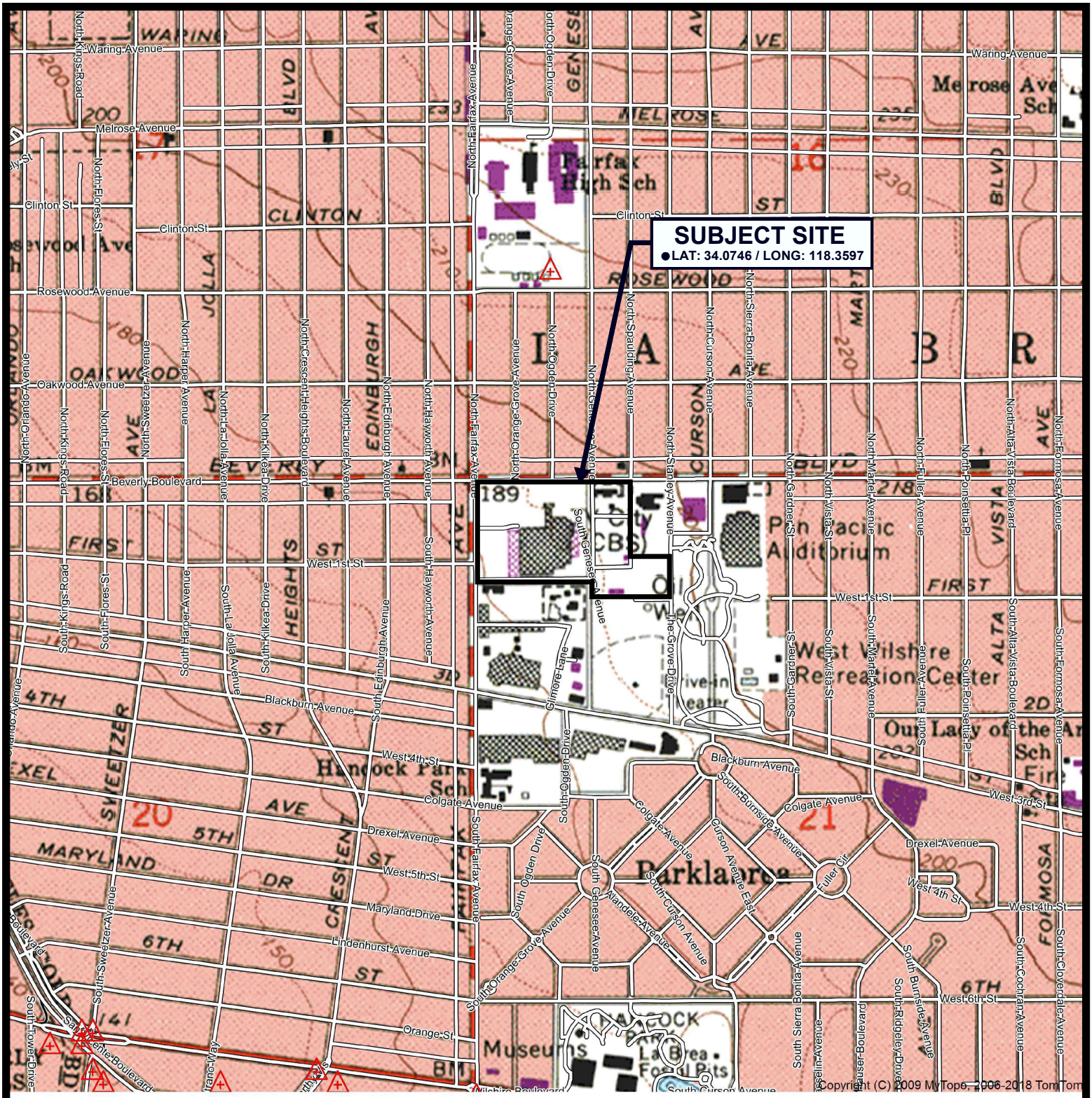

SCALE 1:12000

0.0 0.1 0.2 0.3 0.4 0.5 0.6
MILES
0 1000 2000 3000
FFET

REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, HOLLYWOOD, CA QUADRANGLE

VICINITY MAP

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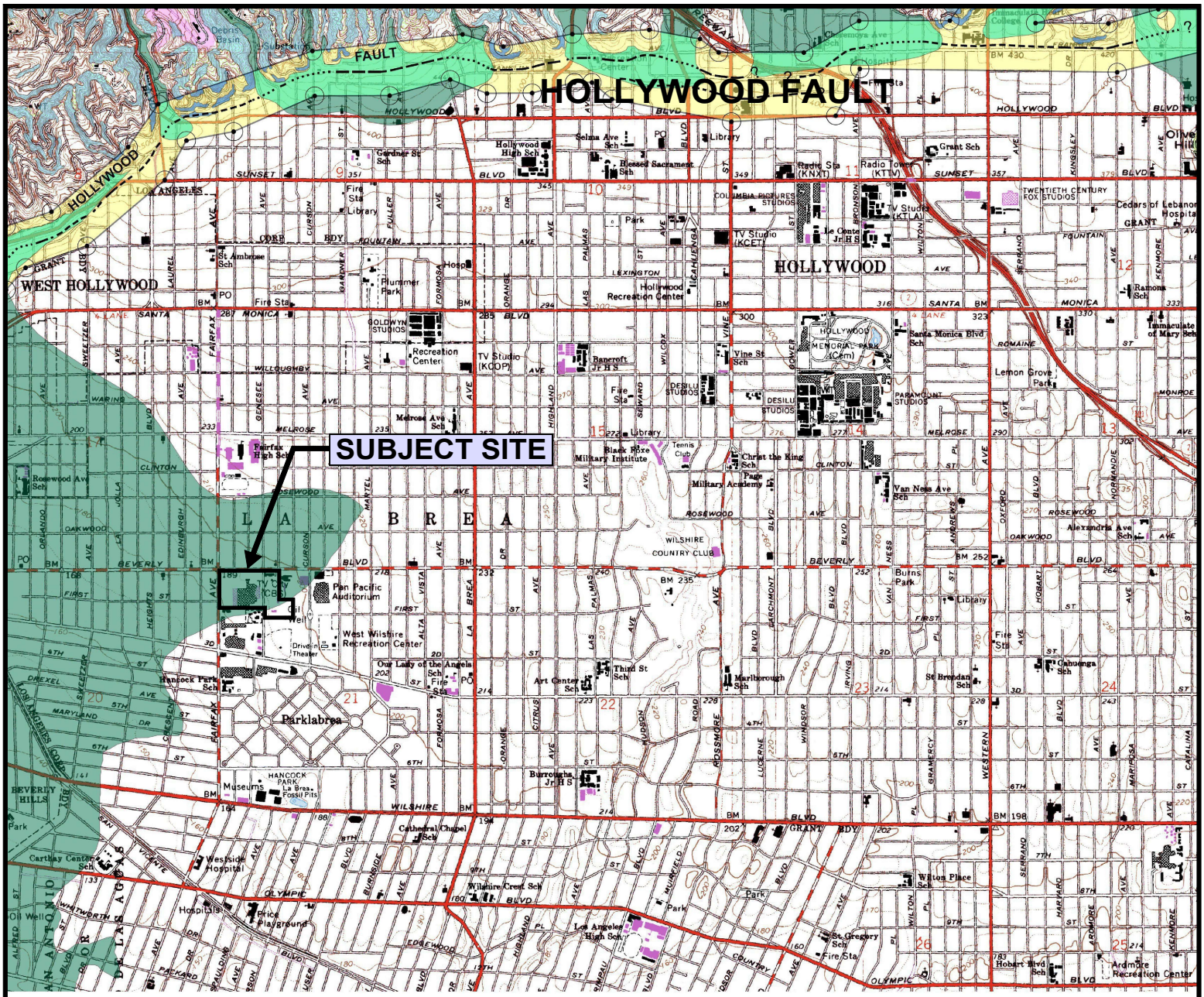
Consulting Geotechnical Engineers

TELEVISION CITY STUDIOS, LLC

FILE NO. 21699

FIGURE I



Earthquake Fault Zones
Alquist-Priolo Earthquake Fault Zone

REFERENCE: EARTHQUAKE FAULT ZONES, HOLLYWOOD QUADRANGLE, CALIFORNIA GEOLOGICAL SURVEY, NOVEMBER 2014

EARTHQUAKE FAULT ZONE

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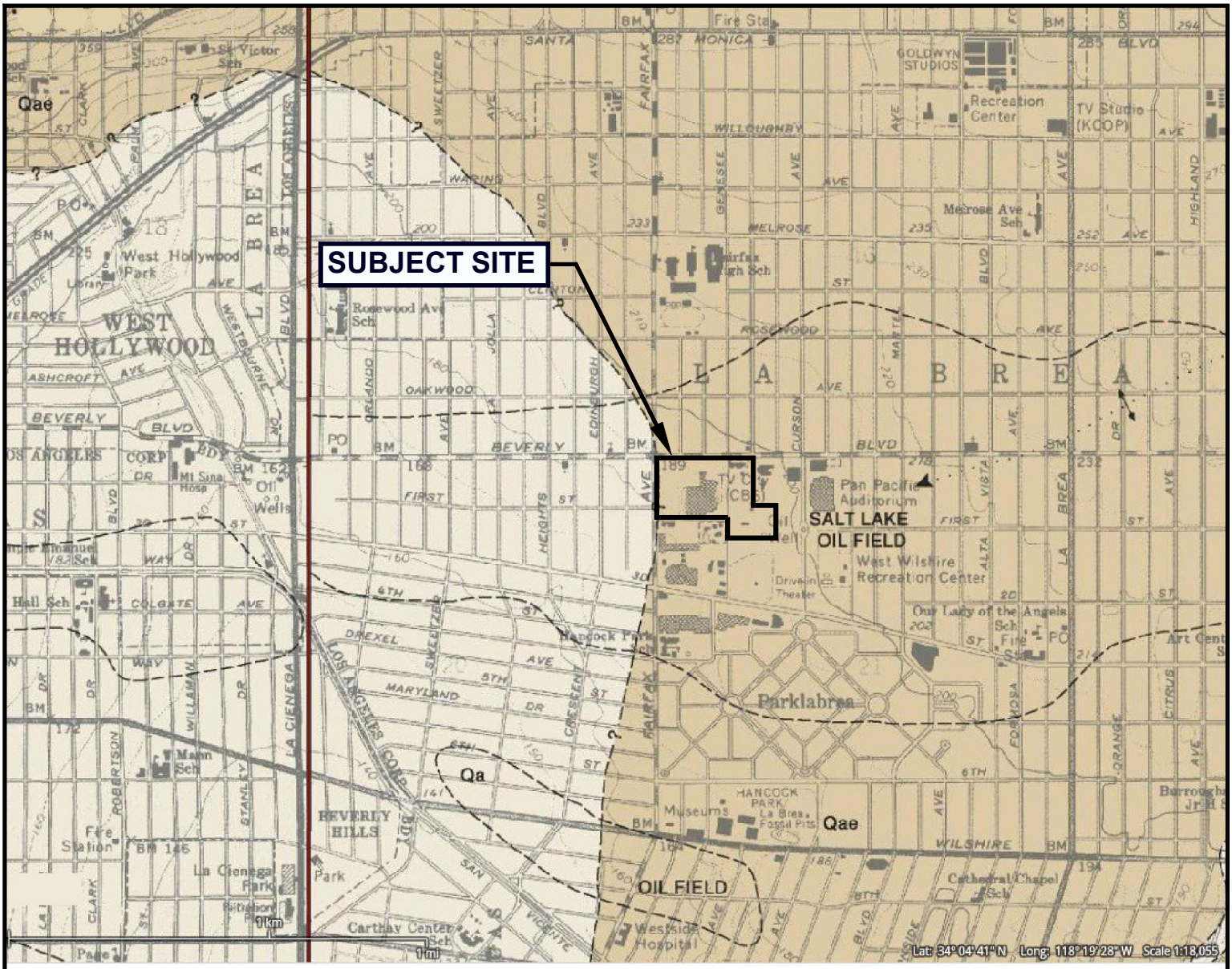
Consulting Geotechnical Engineers

TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 **FIGURE II**



LEGEND

Qa: Surficial Sediments - alluvium: gravel, sand and clay

Qae: Older Surficial Sediments - older alluvium, gray to light brown pebble-gravel, sand, silt and clay of detritus

Folds - arrow on axial trace of fold indicates direction of plunge

Fault - dashed where indefinite or inferred, dotted where concealed, queried where existence is doubtful

REFERENCE: DIBBLEE, T.W., (1991) GEOLOGIC MAP OF THE HOLLYWOOD AND BURBANK (SOUTH HALF) QUADRANGLES (#DF-30)

LOCAL GEOLOGIC MAP - DIBBLEE

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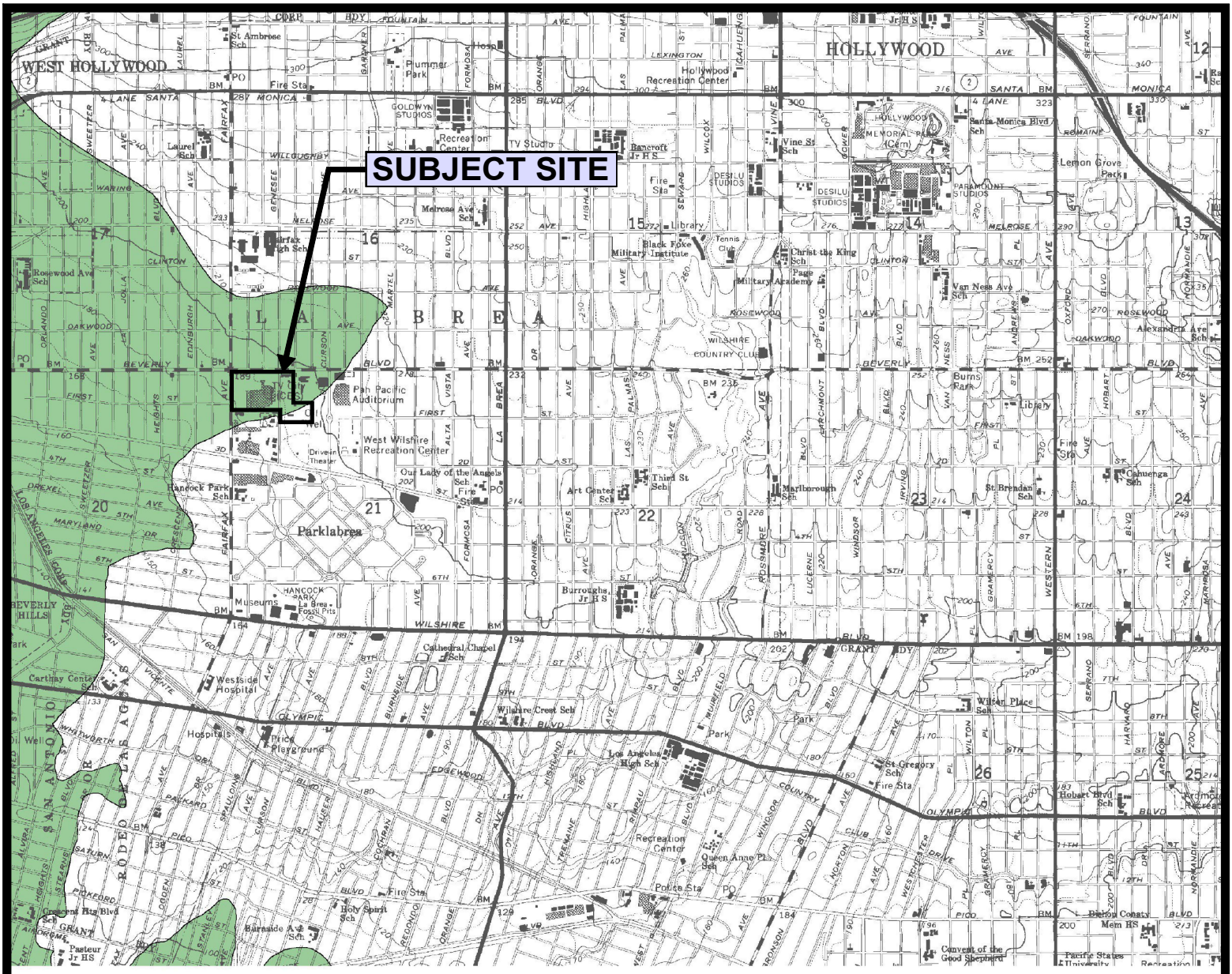
FILE NO. 21699 | **FIGURE III**



SCALE 1:24,000

1 .5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

LIQUEFACTION AREA

REFERENCE: SEISMIC HAZARD ZONES, HOLLYWOOD QUADRANGLE OFFICIAL MAP (CDMG, 1999)

SEISMIC HAZARD ZONE MAP

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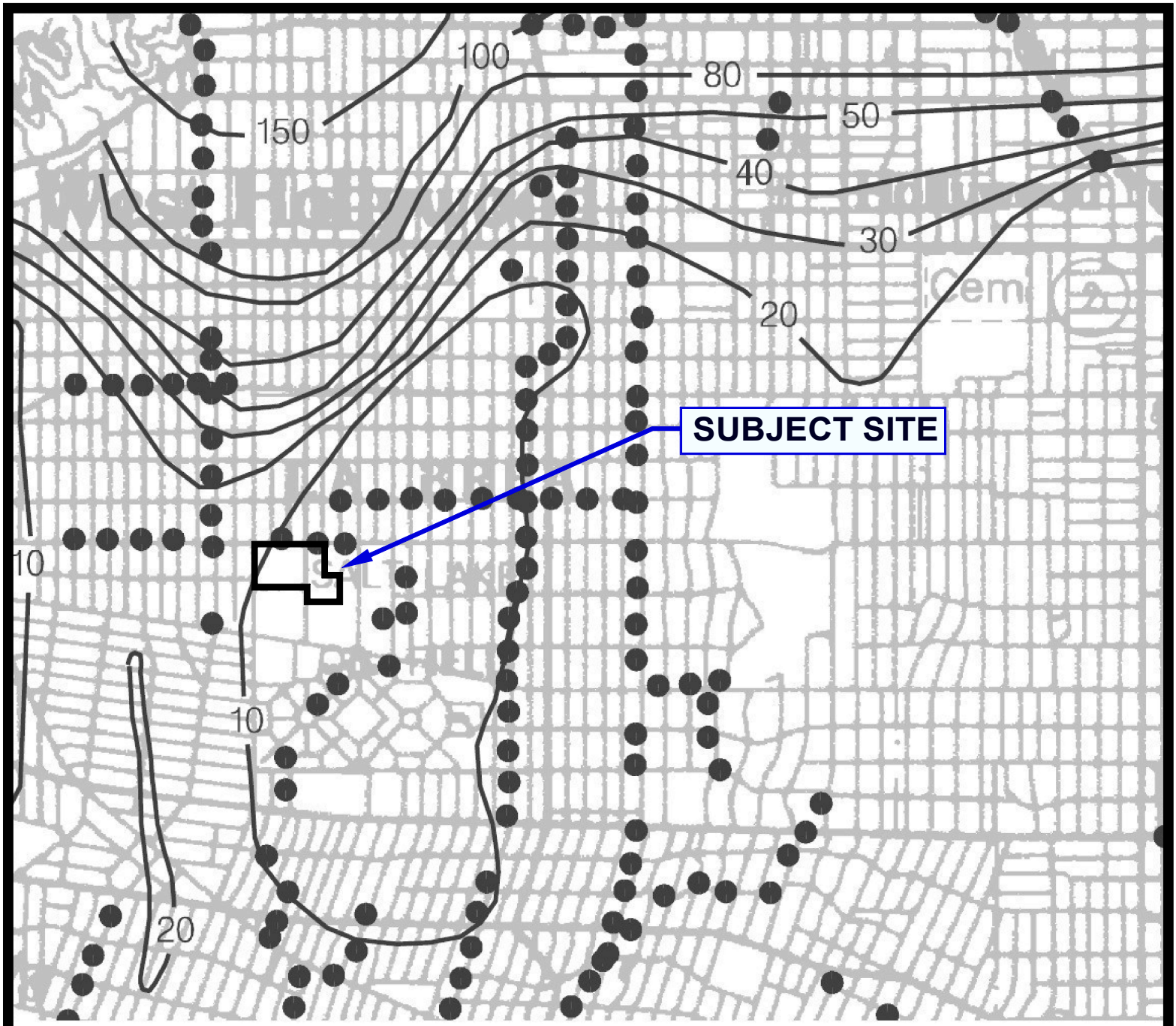
FILE NO. 21699

FIGURE IV



REFERENCE: CDMG, SEISMIC HAZARD ZONE REPORT, 026
HOLLYWOOD 7.5 - MINUTE QUADRANGLE, LOS ANGELES COUNTY, CALIFORNIA (1998, REVISED 2006)

HISTORICALLY HIGHEST GROUNDWATER LEVELS

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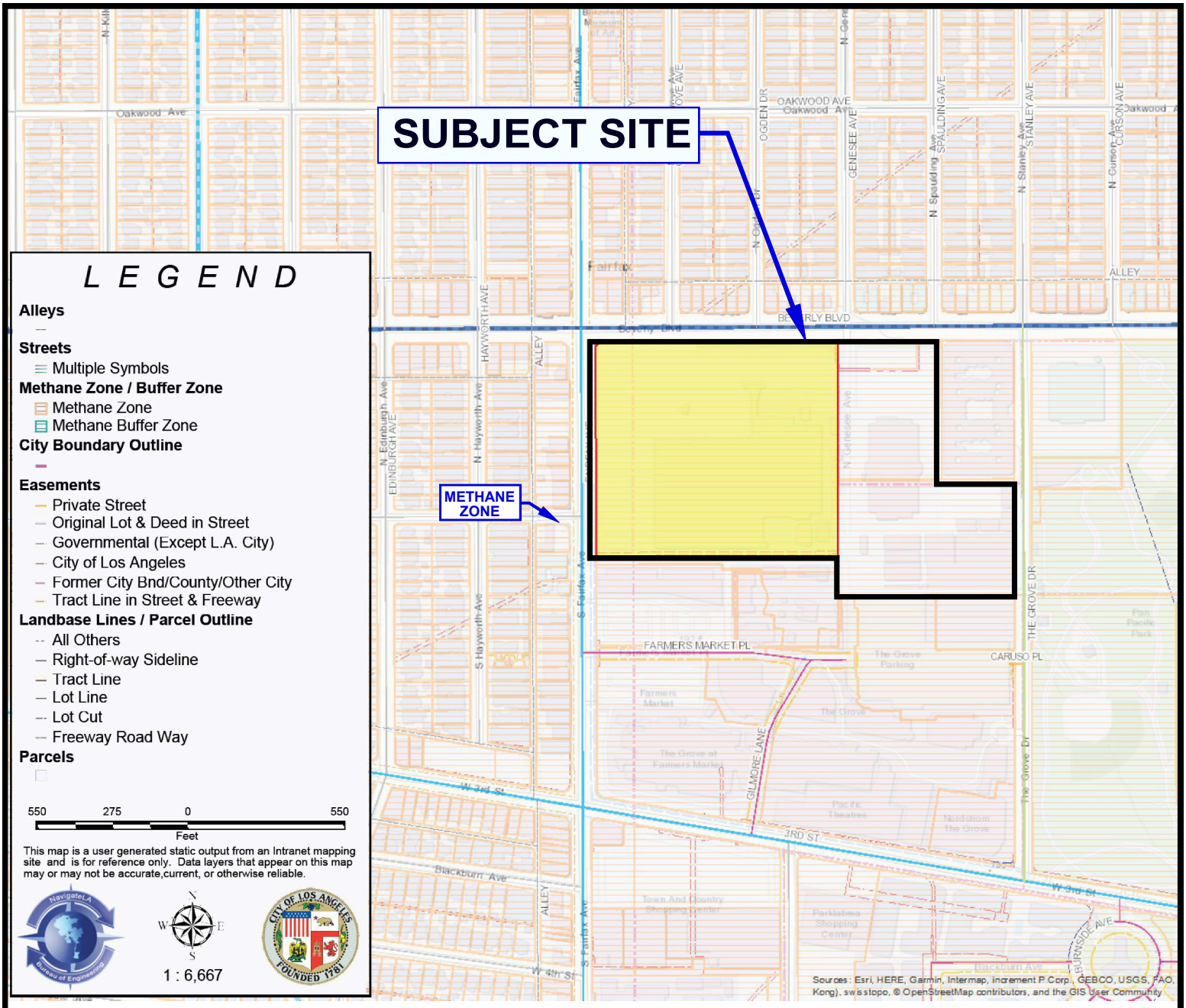
FIGURE V



REFERENCE: **http://navigatela.lacity.org/NavigateLA/**

METHANE ZONE RISK MAP

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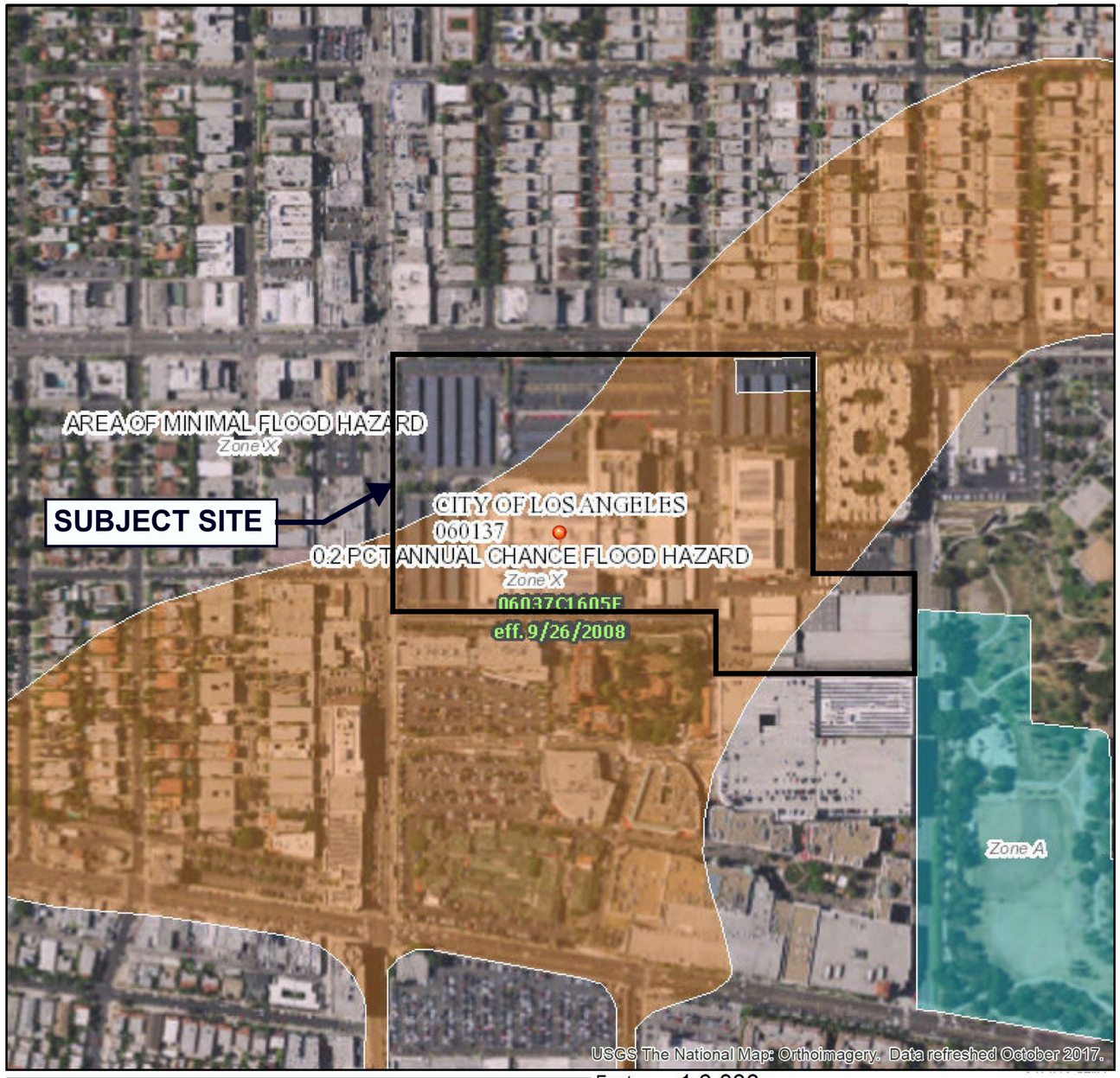
FILE NO. 21699

FIGURE VI

FEMA



Feet

0 250 500 1,000 1,500 2,000

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/11/2018 at 11:40:24 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

FLOOD INSURANCE RATE MAP

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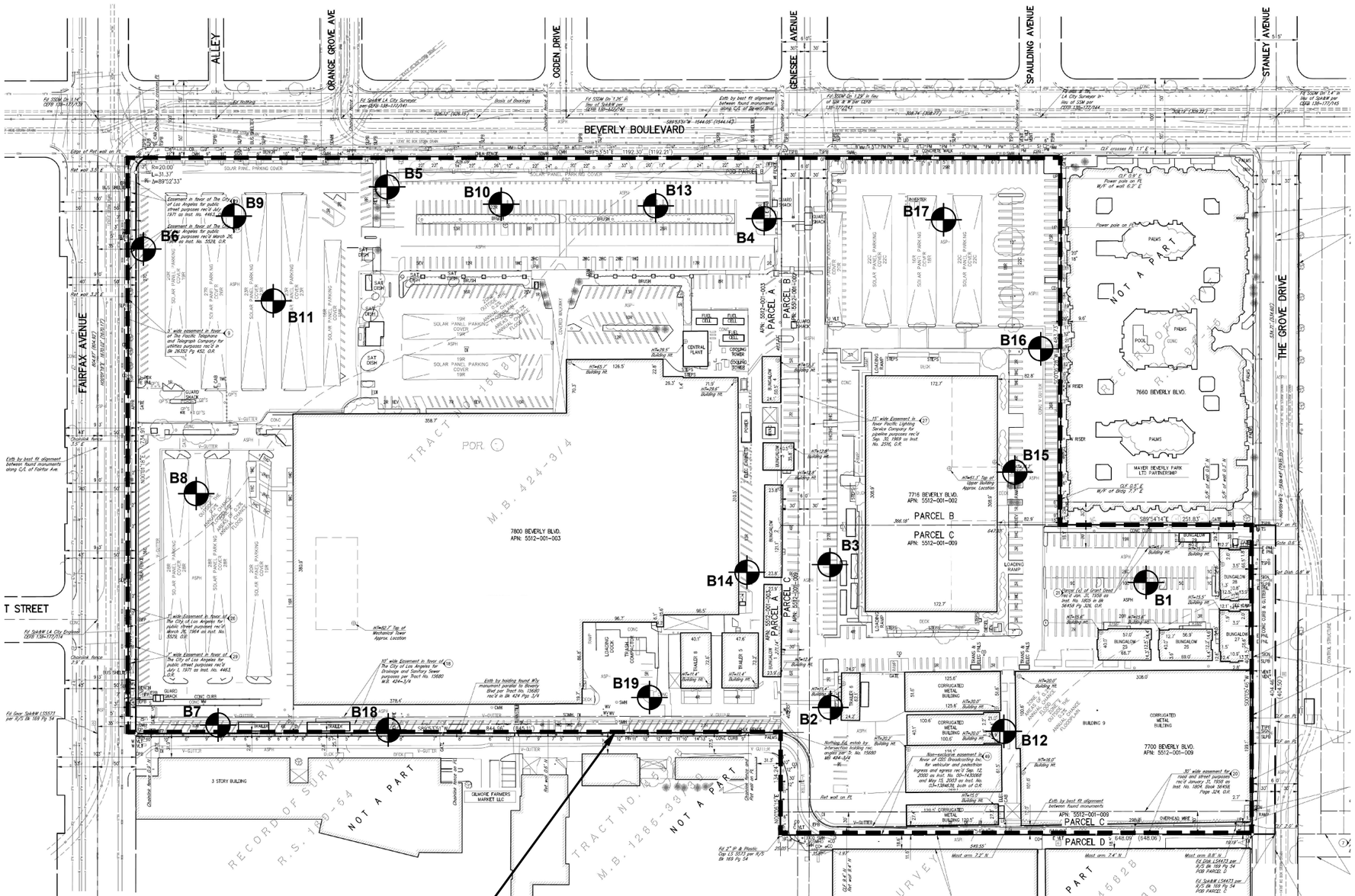
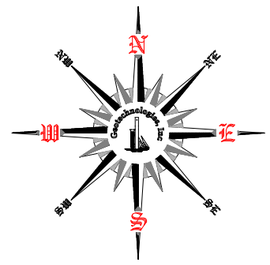
TELEVISION CITY STUDIOS, LLC

FILE No. 21699 | DRAWN BY: TC

DATE: February 2021 | FIGURE VII





SCALE IN FEET

0 150 300

LEGEND

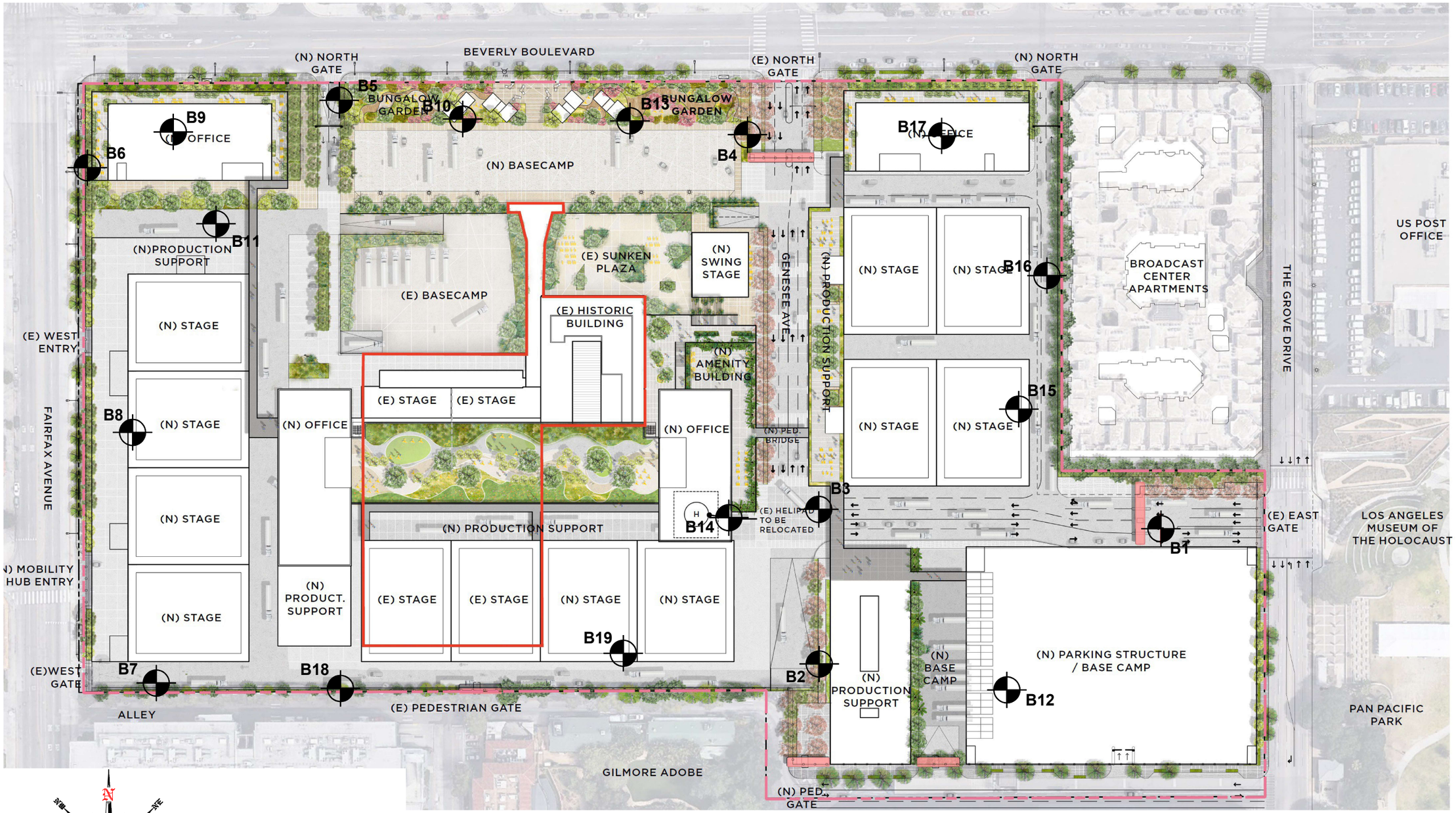
B18 — LOCATION & NUMBER OF BORING

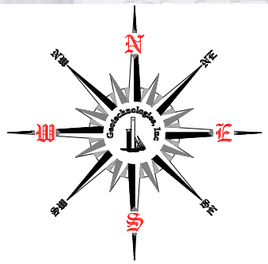
PLOT PLAN

Geotechnologies, Inc.
Consulting Geotechnical Engineers

TELEVISION CITY STUDIOS, LLC

FILE No. 21699	DRAWN BY: TC
DATE: February 2021	





SCALE IN FEET

0 120 240

LEGEND

B19 LOCATION & NUMBER OF BORING

REFERENCE: ILLUSTRATIVE SITE PLAN PROVIDED BY RIOS DATED MARCH 2021

ILLUSTRATIVE SITE PLAN

Geotechnologies, Inc.
Consulting Geotechnical Engineers

TELEVISION CITY STUDIOS, LLC

FILE No. 21699 | DRAWN BY: TC

DATE: April 2021

BORING LOG NUMBER 1

Television City Studios, LLC **Date: 08/17/19** **Elevation: 201.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		3½-inch Asphalt over 4-inch Base
				1		FILL: Clayey Sand to Silty Clay, medium to dark brown, moist, stiff to dense
2.5	22	18.9	104.0	2		
				3	CH	Silty Clay, dark gray to black, moist, stiff
5	27	30.2	90.2	4		
				5		
				6		
7.5	37	19.3	112.2	7		
				8	CL	Sandy Clay, light brown to olive brown, moist, stiff to very stiff stiff
				9		
10	44	18.9	109.6	10		Sandy Clay, grayish brown to reddish brown, moist, very stiff
				11		
				12		
				13		
				14		
15	77	9.3	125.6	15	SM/SP	Silty Sand to Sand, grayish brown, moist to wet, very dense fine to medium grained, with occasional gravel
				16		
				17		
				18		
				19		
20	74	10.9	125.0	20	SP	Sand, light brown, wet, very dense, fine to medium grained, with minor silt and gravel
				21		
				22		
				23		
				24		
25	44	4.2	113.1	25	SP/CL	Clayey Sand to Silty Clay, dark brown to reddish brown, wet, dense to stiff, fine to medium grained

BORING LOG NUMBER 1

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted**
30	**48**	**32.2**	**91.6**	**30** -- - **31** -- - **32** -- - **33** -- - **34** -- -	**SC**	**Clayey Sand, grayish brown, wet, dense, fine grained,**
35	**44**	**28.6**	**94.3**	**35** -- - **36** -- - **37** -- - **38** -- - **39** -- -		
40	**28**	**38.3**	**87.3**	**40** -- - **41** -- - **42** -- - **43** -- - **44** -- -	**ML**	**Sandy Silt, gray, very moist to wet, medium stiff to stiff, fine grained**
45	**68**	**16.8**	**113.7**	**45** -- - **46** -- - **47** -- - **48** -- - **49** -- -	**SP**	**Sand, gray to dark gray, wet, very dense, fine to medium grained**
					ML	**Sandy Silt, gray to dark gray, wet, stiff, fine grained**
50	**72**	**31.2**	**90.9**	**50** -- -		**Total Depth 50 feet** **Water at 17.5 feet** **Fill to 3 feet**

BORING LOG NUMBER 2

Television City Studios, LLC **Date: 08/16/19** **Elevation: 194.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		4-inch Asphalt over 6-inch Base
				1		FILL: Sandy Silt to Silty Sand, gray to dark brown, slightly moist, medium dense to dense, fine grained
2.5	48	9.2	118.8	2		
				3	ML	Sandy Silt, dark brown, moist, stiff
5	24	14.2	SPT	4		
				5	SC	Clayey Sand, dark brown to reddish brown, moist, dense
				6		
7.5	68	3.2	129.5	7		
				8	SP	Sand, light brown, slightly moist, very dense, fine to medium grained
				9		
10	35	4.0	SPT	10		
				11		
				12		
12.5	71	7.2	117.3			
				13		Sand, grayish to yellowish brown, slightly moist, very dense, fine to medium grained
				14		
15	29	13.0	SPT	15		
				16		Sand, dark gray, wet, dense, fine to medium grained, with occasional gravel
				17		
17.5	47	20.8	106.6	18	ML	Sandy Silt, gray, moist, stiff to very stiff, fine grained
				19		
20	31	19.2	SPT	20		
				21		
				22		
22.5	43	20.3	107.7	23	SM	Silty Sand, gray, very moist, dense, fine grained
				24		
25	29	25.2	SPT	25		
					SM/ML	Silty Sand to Sandy Silt, dark gray to gray, very moist, dense to stiff

BORING LOG NUMBER 2

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	59	18.9	106.8	28		Silty Sand to Sandy Silt, gray, moist, dense to stiff, fine grained
				29		
30	27	21.1	SPT	30		Silty Sand to Sandy Silt, dark gray to gray, moist, stiff, medium dense, fine grained
				31		
				32		
32.5	90	17.8	114.3	33	SM/SP	Silty Sand to Sand, gray, wet, very dense, fine to medium grained
				34		
35	45	17.6	SPT	35		
				36		
				37		
37.5	98	19.0	107.3	38		
				39		
40	44	15.3	SPT	40		
				41		
				42		
42.5	90	32.5	88.2	43	SM/ML	Silty Sand to Sandy Silt, gray, very moist, very stiff
				44		
45	34	30.6	SPT	45	ML	Sandy Silt, gray, moist, stiff
				46		
				47		
47.5	77	28.1	93.3	48		
				49		
50	37	31.7	SPT	50		

BORING LOG NUMBER 2

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	90	21.5	101.1	53 --		Sandy Silt, gray, moist, stiff to very stiff
				54 --		
55	36	29.5	SPT	55 --		
				56 --		
				57 --		
57.5	45 50/5"	23.3	102.9	58 --		Sandy Silt, gray, moist, very stiff
				59 --		
60	37	19.8	SPT	60 --		
				61 --		
				62 --		
62.5	40 50/5"	25.1	99.6	63 --		
				64 --		
65	56	24.7	SPT	65 --		Sandy Silt to Silty Clay, gray, very moist, very stiff
				66 --		
				67 --		
67.5	40 50/4"	19.9	109.6	68 --		
				69 --		
					CL	Silty Clay, dark gray, very moist, very stiff
70	43	30.1	SPT	70 --		
				71 --		Total Depth 70 feet Water at 15½ feet Fill to 3 feet
				72 --		
				73 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74 --		
				75 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 3

Television City Studios, LLC **Date: 08/20/19** **Elevation: 195.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		5-inch Asphalt over 7-inch Base
				-		
				1 --		FILL: Sandy Silt to Silty Clay, gray to dark gray, moist, stiff
				-		
				2 --		
				-		
3	37	37.5	79.7	3 --	CH	Silty Clay, dark gray to black, very moist, medium stiff to stiff
				-		
				4 --		
				-		
5	44	24.1	96.7	5 --	CL	Sandy Clay, grayish brown to olive brown, moist, stiff
				-		
				6 --		
				-		
				7 --		
7.5	33	30.1	91.7	-		
				8 --	CH	Silty Clay, dark brown to grayish brown, very moist, stiff
				-		
				9 --		
				-		
10	24	27.3	94.5	10 --	CL	Sandy Clay, dark brown to grayish brown, moist, very stiff
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	38	25.4	97.5	15 --	SM	Silty Sand, dark to reddish brown, moist to very moist, medium stiff to dense, fine grained
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	54	13.3	115.9	20 --	SP	Sand, dark brown, wet, dense, fine to medium grained, occasional gravel
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
25	57	20.9	105.8	25 --	SM/ML	Silty Sand to Sandy Silt, grayish brown, very moist to wet, dense to stiff, fine grained
				-		

BORING LOG NUMBER 3

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted**
30	**65 50/5"**	**23.0**	**104.2**	**30 --** - **31 --** - **32 --** - **33 --** - **34 --** -	**ML**	**Sandy Silt, gray, moist, very stiff**
35	**71**	**19.8**	**110.8**	**35 --** - **36 --** - **37 --** - **38 --** - **39 --** -	**SM**	**Silty Sand, gray, wet, very dense, fine grained**
40	**84**	**24.5**	**100.3**	**40 --** - **41 --** - **42 --** - **43 --** - **44 --** -		
45	**70**	**31.3**	**92.0**	**45 --** - **46 --** - **47 --** - **48 --** - **49 --** -	**ML**	**Sandy Silt, gray, moist, stiff to very stiff**
50	**75**	**29.3**	**94.0**	**50 --** -		**Total Depth 50 feet** **Water at 8½ feet** **Fill to 3 feet**

BORING LOG NUMBER 4

Television City Studios, LLC **Date: 08/14/19** **Elevation: 201.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		5-inch Asphalt over 7-inch Base
				1		FILL: Sandy Silt to Silty Clay, dark brown, moist, medium firm to stiff
2.5	72	10.6	128.7	2		
				3	ML	Sandy to Clayey Silt, dark to yellowish brown, moist, very stiff
5	81	13.9	121.5	4		
				5		
				6		
7.5	49	19.0	106.5	7		
				8		Sandy Silt, yellowish brown to olive brown, moist, stiff, fine grained
				9		
10	31	23.6	99.2	10		
				11		
				12		
				13		
				14		
15	28	17.2	115.0	15		
				16	CL	Sandy Clay, light brown to olive brown, moist, very stiff
				17		
				18		
				19		
20	40	27.7	99.4	20		
				21		
				22		
				23		
				24		
25	43	No Recovery		25		

BORING LOG NUMBER 4

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted**
30	**66**	**23.6**	**10105.0**	**30 --** - 31 -- - 32 -- - 33 -- - 34 -- -		**Sandy Clay, grayish brown, moist, stiff**
35	**48**	**26.0**	**101.8**	**35 --** - 36 -- - 37 -- - 38 -- - 39 -- -	**SM/ML**	**Silty Sand to Sandy Silt, yellowish to reddish brown, moist, dense to stiff, fine grained**
40	**48**	**26.5**	**95.9**	**40 --** - 41 -- - 42 -- - 43 -- - 44 -- -	**CL**	**Sandy Clay, grayish to reddish brown, moist, stiff**
45	**65**	**26.6**	**99.3**	**45 --** - 46 -- - 47 -- - 48 -- - 49 -- -		
50	**72**	**21.6**	**107.3**	**50 --** -	**SM/ML**	**Silty Sand to Sandy Silt, grayish to reddish brown, moist, very dense to very stiff, fine grained**
						Total Depth 50 feet **Water at 8½ feet** **Fill to 3 feet**

BORING LOG NUMBER 5

Television City Studios, LLC **Date: 08/14/19** **Elevation: 196.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		7-inch Asphalt over 7-inch Base
				-		
				1 --		
				-		FILL: Sandy Silt, dark brown, moist, stiff
				2 --		
2.5	43	20.9	103.3	-		
				3 --		
				-	ML/CL	Clayey Silt to Silty Clay, dark and light brown mottling, moist, stiff
				4 --		
				-		
5	45	17.3	108.1	5 --	ML/SC	Sandy Silt to Clayey Sand, yellowish brown, moist, dense to stiff, with occasional gravel
				-		
				6 --		
				-		
				7 --		
7.5	17	35.2	85.2	-		
				8 --	CH	Silty Clay, light brown, very moist, soft to medium firm
				-		
				9 --		
				-		
10	17	33.8	88.8	10 --		
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	25	35.7	85.4	15 --		
				-	ML	Sandy Silt, dark brown, very moist, soft to medium firm, fine grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	44	19.4	106.5	20 --		
				-	SM	Silty Sand, yellowish to reddish brown, moist, dense, fine grained
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
25	52	21.7	105.1	25 --		
				-		Silty Sand, yellowish to reddish brown, moist, dense, fine grained

BORING LOG NUMBER 5

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted**
30	**60**	**21.5**	**106.4**	**30 --** - **31 --** - **32 --** - **33 --** - **34 --** -	**SM/SP**	**Silty Sand to Sand, dark gray, very moist to wet, dense, fine grained, with occasional gravel**
35	**72**	**10.4**	**110.8**	**35 --** - **36 --** - **37 --** - **38 --** - **39 --** -	**SP**	**Sand, gray to dark gray, wet, very dense, fine grained**
40	**18 50/5"**	**13.9**	**113.4**	**40 --** - **41 --** - **42 --** - **43 --** - **44 --** -		
45	**80**	**18.4**	**114.5**	**45 --** - **46 --** - **47 --** - **48 --** - **49 --** -	**SM/SP**	**Sand, gray to dark gray, wet, very dense, fine grained**
50	**40 50/5"**	**26.7**	**96.9**	**50 --** -		**Total Depth 50 feet** **Water at 9½ feet** **Fill to 3 feet**

BORING LOG NUMBER 6

Television City Studios, LLC **Date: 08/13/19** **Elevation: 191.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		6-inch Asphalt over 8-inch Base
				1		FILL: Silty Clay, dark gray to black, moist, medium firm to stiff
2.5	49	20.3	106.9	2		
				3	CL	Sandy Clay, dark gray and yellowish brown, moist, stiff
				4		
5	14	20.1	SPT	5		
				6		Sandy Clay, dark and grayish brown, moist, stiff
				7		
7.5	49	22.3	108.3	8		
				9		Sandy Clay, light brown to olive brown, moist, stiff
10	45	26.6	SPT	10		
				11	SC	Clayey Sand, light brown to light gray, moist, dense, fine grained
				12		
12.5	52	28.2	92.5	13	CL	Sandy Clay, gray, moist, very stiff
				14		
15	16	24.8	SPT	15		
				16		
				17		
17.5	60	24.1	105.5	18		
				19		
20	46	20.1	SPT	20		
				21	SC	Clayey Sand, gray, moist, dense to very dense, fine grained, with occasional gravel
				22		
22.5	72	25.8	99.8	23	SM	Silty Sand, gray, moist, very dense, fine grained
				24		
25	35	27.8	SPT	25		

BORING LOG NUMBER 6

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		
27.5	44	36.3	87.8	28 --	CL	Sandy Clay, gray, moist, stiff, fine grained
				29 --		
30	19	31.5	SPT	30 --		
				31 --		
				32 --		
32.5	33	30.9	91.0	33 --	SP/SM	Sand to Silty Sand, dark gray to gray, wet, medium dense, fine grained
				34 --		
35	28	23.0	SPT	35 --	ML	Sandy Silt, gray, moist, stiff, fine grained
				36 --		
				37 --		
37.5	81	21.7	106.6	38 --		
				39 --		
40	44	35.4	SPT	40 --		Sandy Silt, gray, moist, stiff
				41 --		
				42 --		
42.5	69	19.8	112.3	43 --	SM	Silty Sand, gray, very moist, very dense
				44 --		
45	21	24.6	SPT	45 --	SC	Clayey Sand, dark gray, moist, dense, fine grained
				46 --		
				47 --		
47.5	83	20.2	109.2	48 --	ML	Sandy Silt, gray, moist, stiff, fine grained
				49 --		
50	38	28.7	SPT	50 --		

BORING LOG NUMBER 6

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	78	28.1	96.7	53 --		Sandy Silt, dark gray, very moist, very stiff, fine grained
				54 --		
55	44	29.0	SPT	55 --		
				56 --		
				57 --		
57.5	82	30.0	90.6	58 --	SP/ML	Sand to Sandy Silt, gray to dark gray, wet, very dense, fine grained
				59 --		
60	48	28.5	SPT	60 --		
				61 --		
				62 --		
62.5	81	23.7	105.3	63 --	SM	Silty Sand, gray, wet, very dense, fine grained
				64 --		
65	27	24.4	SPT	65 --		
				66 --		
				67 --		
67.5	40 50/5"	18.0	103.0	68 --		
				69 --		
					ML	Sandy Silt, gray, wet, stiff, fine grained
70	46	40.9	SPT	70 --		
				71 --		Total Depth 70 feet Water at 15½ feet Fill to 3 feet
				72 --		
				73 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74 --		
				75 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 7

Television City Studios, LLC **Date: 08/15/19** **Elevation: 186.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		5-inch Asphalt over 7-inch Base
				1		FILL: Silty Sand to Sandy Clay, brown to orangish brown, moist, medium dense to stiff
2.5	64	16.7	112.3	2		
				3	SM/ML	Silty Sand to Sandy Silt, brown, moist, dense to stiff, fine grained
				4		
5	21	15.0	SPT	5		
				6		
				7		
7.5	48	16.9	112.3	8	SM	Silty Sand, medium brown to reddish brown, moist, dense, fine grained
				9		
10	22	13.0	SPT	10	SP	Sand, reddish brown, moist, dense, fine grained grained
				11		
				12		
12.5	68	18.9	114.1	13	SM	Silty Sand, brown, very moist, dense, fine grained
				14		
15	14	30.4	SPT	15	MH	Clayey Silt, gray to dark gray, moist, stiff
				16		
				17		
17.5	63	25.0	102.7	18		
				19		
20	19	24.7	SPT	20		
				21		
				22		
22.5	65	21.4	106.6	23	SM	Silty Sand, gray, very moist, very dense, fine grained
				24		
25	21	23.5	SPT	25		Silty Sand to Silt with Clay, dark gray to gray, moist, stiff

BORING LOG NUMBER 7

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		
27.5	72	13.6	122.7	28 --	SM/SP	Silty Sand to Sand, gray, wet, very dense, fine to coarse grained, with gravel
				29 --		
30	27	22.4	SPT	30 --	ML	Sandy Silt, gray, moist, stiff, fine grained
				31 --		dense, fine grained, stiff
				32 --		
32.5	68 50/5"	25.6	96.3	33 --	SP/SM	Sand to Silty Sand, gray, wet, very dense, fine grained
				34 --		
35	34	20.8	SPT	35 --		
				36 --		
				37 --		
37.5	78	22.4	102.5	38 --	SM/ML	Silty Sand to Sandy Silt, gray, moist, very dense to stiff, fine grained
				39 --		
40	41	24.2	SPT	40 --		
				41 --		
				42 --		
42.5	83	17.7	107.5	43 --	ML	Sandy Silt, gray to dark gray, moist, stiff
				44 --		
45	44	24.4	SPT	45 --		Sandy Silt, gray, moist, stiff
				46 --		
				47 --		
47.5	36 50/5"	17.4	104.7	48 --	SM	Silty Sand, gray to dark gray, moist, very dense, fine grained
				49 --		
50	48	16.4	SPT	50 --	SM/SP	Sand to Silty Sand, gray to dark gray, moist, medium dense, fine grained

BORING LOG NUMBER 7

Television City Studios, LLC

File No. 21699

km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 -- 52 --		
52.5	40 50/5"	24.0	95.9	53 -- 54 --	SM/ML	Silty Sand to Sandy Silt, dark gray to gray, moist, very dense, fine grained, very stiff
55	54	18.5	SPT	55 -- 56 --	ML	Sandy to Clayey Silt, dark gray to gray, moist, stiff, odor
57.5	28 50/5"	24.9	98.3	57 -- 58 -- 59 --	ML/CL	Clayey Silt to Silty Clay, gray to dark gray, moist, very stiff
60	56	27.3	SPT	60 -- 61 --	ML	Sandy to Clayey Silt, dark gray to gray, minor tar
62.5	90	21.6	105.2	62 -- 63 -- 64 --		Sandy Silt, gray to dark gray, moist, stiff
65	36	21.6	SPT	65 -- 66 --	ML/CL	Clayey Silt to Silty Clay, gray to dark gray, moist, stiff, more tar
67.5	39 50/5"	21.0	99.2	67 -- 68 -- 69 --		Clayey Silt to Silty Clay, gray to dark gray, moist, stiff, abundant tar
70	57	20.5	SPT	70 -- 71 -- 72 -- 73 -- 74 -- 75 --		Total Depth 70 feet Water at 15 feet Fill to 3 feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test

BORING LOG NUMBER 8

Television City Studios, LLC **Date: 12/23/19** **Elevation: 186.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		FILL: Silty Clay, dark brown, moist, stiff
				-		
				1 --		
				-		
				2 --		
2.5	39	25.7	90.7	-		
				3 --		Silty Clay, dark gray, moist, stiff
				-		
				4 --		
				-		
5	25	29.2	88.3	5 --		
				-		Silty Clay, dark gray, moist to wet, stiff, occasional brick and rock fragments
				6 --		
				-		
				7 --		
7.5	19	19.3	78.1	-		
				8 --		Silty Clay, dark gray, wet, stiff, occasional brick fragments
				-		
				9 --		
				-		
10	21	24.5	85.0	10 --		
				-		Silty Sand to Silty Clay, gray to dark gray, wet, medium dense to firm, fine grained
				11 --		
				-		
				12 --		
12.5	14	19.8	91.5	-		
				13 --		Silty Sand to Silty Clay, gray to dark gray, wet, medium dense to stiff, fine grained, minor wood fragments
				-		
				14 --		
				-		
15	11	16.4	104.9	15 --		
				-		
				16 --		Sand , gray, wet, medium dense, fine to medium grained
				-		
				17 --		
17.5	12	20.8	98.3	-		
				18 --		Silty Sand to Sandy Silt, gray, wet, medium dense to firm, fine grained
				-		
				19 --		
				-		
20	43	14.1	116.1	20 --		
				-	SM/SP	Silty Sand to Sand, gray, wet, dense, fine to medium grained, occasional cobbles
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
25	72	31.0	90.2	25 --		
				-	CL	Sandy Clay, gray, moist to wet, stiff, fine to medium grained

BORING LOG NUMBER 8

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.** **Used 8-inch diameter Hollow-Stem Auger** **140-lb. Automatic Hammer, 30-inch drop** **Modified California Sampler used unless otherwise noted**
30	**64**	**18.7**	**110.9**	**30 --** - **31 --** - **32 --** - **33 --** - **34 --** -	**ML**	**Sandy Silt, gray, moist, stiff, fine grained**
35	**68**	**22.8**	**102.9**	**35 --** - **36 --** - **37 --** - **38 --** - **39 --** -		
40	**72**	**25.4**	**102.6**	**40 --** - **41 --** - **42 --** - **43 --** - **44 --** -	**SC**	**Clayey Sand, gray, moist, very dense, fine grained**
45	**83**	**28.6**	**95.0**	**45 --** - **46 --** - **47 --** - **48 --** - **49 --** -	**ML**	**Sandy Silt, gray, moist, stiff, fine grained**
50	**65**	**30.1**	**96.4**	**50 --** -		**Total Depth: 50 feet** **Water at 8 feet** **Fill to 20 feet**

BORING LOG NUMBER 9

Television City Studios, LLC **Date: 12/16/19** **Elevation: 193.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		5-inch Asphalt, No Base
				-		
				1 --		FILL: Sandy Silt to Silty Clay, dark gray to brown, moist, stiff
				-		
				2 --		
2.5	25	27.0	96.7	-		
				3 --		
				-	CL	Sandy Clay, dark gray, moist, stiff
				4 --		
				-		
5	11	22.7	SPT	5 --		
				-		
				6 --		
				-		
				7 --		
7.5	35	19.7	107.5	-		
				8 --	SC	Clayey Sand, dark gray to gray, moist to wet, medium dense, fine grained
				-		
				9 --		
				-		
10	24	23.1	SPT	10 --		
				-		
				11 --		
				-		
				12 --		
12.5	27	18.9	105.8	-		
				13 --		
				-		
				14 --		
				-		
15	28	22.5	SPT	15 --		
				-		Clayey Sand, gray to dark gray, wet, medium dense, fine grained
				16 --		
				-		
				17 --		
17.5	28	28.9	95.3	-		
				18 --	CL	Sandy Clay, gray, wet, firm, fine grained
				-		
				19 --		
				-		
20	11	26.0	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	44	24.4	99.2	-		
				23 --	SM	Silty Sand, gray, moist, medium dense, fine grained
				-		
				24 --		
				-		
25	28	25.6	SPT	25 --		
				-		

BORING LOG NUMBER 9

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		
27.5	28	28.6	94.4			
				28 --		Silty Sand, gray to dark gray, wet, dense, fine grained
				29 --		
30	44	30.8	SPT	30 --	CL	Sandy Clay, dark gray, very moist, stiff
				31 --		
				32 --		
32.5	62	23.6	105.3		ML	Sandy Silt, dark gray, moist, stiff
				33 --		
				34 --		
35	30	28.8	SPT	35 --		
				36 --		
				37 --		
37.5	72	19.1	106.9		SM	Silty Sand, dark gray, wet, very dense, fine grained
				38 --		
				39 --		
40	48	21.7	SPT	40 --	ML	Sandy Silt, dark gray, very moist, stiff, fine grained
				41 --		
42	75	30.7	94.8	42 --		
				43 --		
				44 --		
45	41	26.1	SPT	45 --		
				46 --		
				47 --		
47.5	78	28.9	94.9	48 --		
				49 --		
50	27	38.7	SPT	50 --		Sandy Silt, dark to yellowish brown, very moist, stiff, fine grained

BORING LOG NUMBER 9

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	85	34.5	89.7	53 --		Sandy Silty, gray, wet, very stiff, fine grained
				54 --		
55	30	21.7	SPT	55 --		
				56 --		
				57 --		
57.5	45 50/4"	27.2	98.4	58 --	SM/SP	Silty Sand to Sand, gray to dark gray, wet, very dense, fine grained
				59 --		
60	42	20.5	SPT	60 --		
				61 --		
				62 --		
62.5	45 50/5"	17.1	111.9	63 --	SP	Sand, gray to dark gray, wet, very dense, fine to medium grained
				64 --		
65	34	19.2	SPT	65 --		
				66 --		
				67 --		
67.5	94	27.5	93.3	68 --	SP/ML	Sandy to Clayey Silt, dark gray, moist, very dense to stiff
				69 --		
70	46	26.3	SPT	70 --		Total Depth 70 feet Water at 8½ feet Fill to 3 feet
				71 --		
				72 --		
				73 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74 --		
				75 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 10

Television City Studios, LLC **Date: 12/12/19** **Elevation: 198.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		3 ½-inch Asphalt over 5 ½-inch Base
				-		
				1 --		FILL: Sandy Silt to Silty Clay, dark brown, moist, stiff
				-		
				2 --		
2.5	47	25.0	97.3	-		
				3 --		Sandy Silt to Silty Clay, dark gray, moist, stiff, occasional cobbles
				-		
				4 --		
				-		
5	11	20.5	SPT	5 --		
				-		Silty Clay, gray to dark gray, moist, medium firm to stiff
				6 --		
				-		
				7 --		
7.5	57	33.8	82.9	-		
				8 --	CH	Silty Clay, dark gray to gray, moist, stiff
				-		
				9 --		
				-		
10	7	30.6	SPT	10 --		
				-		
				11 --		
				-		
				12 --		
12.5	35	31.8	90.6	-		
				13 --		
				-		
				14 --		
				-		
15	16	29.1	SPT	15 --		
				-		Silty Clay, gray to dark gray, moist, stiff
				16 --		
				-		
				17 --		
17.5	52	24.2	104.5	-		
				18 --		
				-		
				19 --		
				-		
20	21	21.6	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	57	20.4	105.8	-		
				23 --	SC	Clayey Sand, gray to dark gray, moist, dense, fine grained
				-		
				24 --		
				-		
25	18	20.1	SPT	25 --		
				-		

BORING LOG NUMBER 10

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
27.5	49	27.7	96.3	27		
				28	ML	Sandy Silt, dark gray to gray, moist, stiff
				29		
30	26	21.1	SPT	30	SM/ML	Silty Sand, dark gray to gray, very moist, dense, fine grained
				31		
32.5	50	22.6	106.3	32		
				33		
				34		
35	29	27.1	SPT	35	ML	Sandy Silt, gray to dark gray, very moist, stiff
				36		
37.5	74	31.5	---	37		
				38		
				39		
40	40	23.9	SPT	40	SM/ML	Silty Sand to Sandy Silt, dark gray to gray, very moist, dense to stiff, fine grained
				41		
42.5	96	21.3	102.9	42	SM	Silty Sand, gray to dark gray, moist, very dense, fine grained
				43		
				44		
45	36	22.3	SPT	45		
				46		
				47		
47.5	40 50/5"	16.6	114.8	48		Silty Sand, gray to dark gray, moist, very dense, fine grained
				49		
50	36	25.3	SPT	50	SM/SP	Silty Sand to Sand, gray to dark gray, wet, dense, fine grained

BORING LOG NUMBER 10

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51		
				52		
52.5	85	21.2	101.1	53	SM	Silty Sand, dark gray, very moist, very dense, fine grained
				54		
55	35	28.5	SPT	55	SM/ML	Silty Sand to Sandy Silt, gray, moist, dense to stiff
				56		
				57		
57.5	45 50/4"	14.3	111.2	58	SP	Sand, dark gray, wet, very dense, fine grained
				59		
60	42	26.2	SPT	60	SM/ML	Silty Sand to Sandy Silt, gray, moist, dense to stiff
				61		
				62		
62.5	45 50/5"	19.5	109.3	63		Silty Sand to Sandy Silt, gray to dark gray, moist, very dense to very stiff, fine grained
				64		
65	31	23.2	SPT	65		
				66		
				67		
67.5	45 50/5"	28.5	93.5	68	CL	Silty Clay, dark gray, moist, very stiff
				69		
70	38	29.7	SPT	70		
				71		Total Depth 70 feet Water at 11.5 feet Fill to 7.5 feet
				72		
				73		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74		
				75		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 11

Television City Studios, LLC **Date: 12/13/19** **Elevation: 191.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		5-inch Asphalt, No Base
				-		
				1 --		FILL: Clayey Silt to Silty Clay, dark gray, moist, stiff
				-		
				2 --		
2.5	44	21.1	92.6	-		
				3 --		Silty Clay, dark gray, very moist, soft to stiff
				-		
				4 --		
				-		
5	9	28.5	SPT	5 --		
				-		
				6 --		
				-		
				7 --		
7.5	39	22.8	106.1	-		
				8 --	CH	Silty Clay, gray, moist, stiff
				-		
				9 --		
				-		
10	19	25.4	SPT	10 --		
				-		
				11 --		
				-		
				12 --		
12.5	35	29.6	94.0	-		
				13 --		Silty Clay, gray, moist to wet, stiff
				-		
				14 --		
				-		
15	12	21.5	SPT	15 --		
				-		
				16 --		
				-		
				17 --		
17.5	52	20.9	107.4	-		
				18 --		
				-		
				19 --		
				-		
20	26	18.5	SPT	20 --		
				-	SC	Clayey Sand, gray to dark gray, moist, dense, fine grained
				21 --		
				-		
				22 --		
22.5	60	21.6	100.5	-		
				23 --		
				-		
				24 --		
				-		
25	29	21.1	SPT	25 --		
				-		

BORING LOG NUMBER 11

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	70	16.9	110.4	28	SM/SP	Silty Sand to Sand, gray to dark gray, wet, dense, fine grained
				29		
30	28	18.9	SPT	30	SM/ML	Silty Sand to Sandy Silt, dark gray, moist, dense to stiff, fine grained
				31		
				32		
32.5	67	19.0	112.9	33		
				34		
35	22	25.4	SPT	35	ML	Clayey Silt, gray to dark gray, very moist, stiff, fine grained
				36		
				37		
37.5	79	21.4	105.8	38	SM	Silty Sand, dark gray, wet, very dense, fine grained
				39		
40	39	21.0	SPT	40		
				41		
42.5	79	18.4	109.9	42		
				43		Silty Sand, dark gray, moist, very dense, fine grained
				44		
45	34	22.0	SPT	45		
				46		
				47		
47.5	45 50/4"	27.4	89.6	48	ML	Sandy Silt, gray, very moist, very stiff, fine grained
				49		
50	40	24.5	SPT	50		

BORING LOG NUMBER 11

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 51 -- - 52 --		
52.5	40 50/5"	30.1	90.2	- 53 -- - 54 --		
55	31	23.7	SPT	- 55 -- - 56 --	SM/ML	Silty Sand to Sandy Silt, dark gray, very moist, dense to stiff, fine grained
57.5	45 50/5"	18.9	106.9	- 57 -- - 58 --	SM	Silty Sand, dark gray, wet, very dense, fine grained
60	32	22.3	SPT	- 59 -- - 60 --	SM/ML	Silty Sand to Sand Silt, dark gray, very moist, dense to stiff, fine grained
62.5	45 50/4"	28.7	97.0	- 61 -- - 62 --	ML	Clayey Silt, dark gray, very moist, very stiff
65	43	27.8	SPT	- 63 -- - 64 --		
67.5	40 50/5"	31.9	90.8	- 65 -- - 66 --		
70	46	34.9	SPT	- 67 -- - 68 --		
				- 69 -- - 70 --		Total Depth 70 feet Water at 13½ feet Fill to 6 feet
				- 71 -- - 72 --		
				- 73 -- - 74 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				- 75 -- -		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test

BORING LOG NUMBER 12

Television City Studios, LLC **Date: 12/20/19** **Elevation: 199.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		6-inch Asphalt, No Base
				1 --		FILL: Silty Sand to Sandy Silt, dark brown, very moist, medium dense to stiff, fine grained, with brick and tile fragments
				2 --		
				3 --		
				4 --		
5	10	17.4	SPT	5 --		
				6 --		Clayey Silt to Silty Clay, dark brown and gray, moist, stiff, occasional brick and asphalt fragments
				7 --		
7.5	46	16.4	114.4	8 --	SC	Clayey Sand, dark to medium brown, moist, dense, fine grained
				9 --		
10	0	20.2	SPT	10 --		
				11 --		
12.5	59	10.6	125.4	12 --		
				13 --	SM/SP	Silty Sand to Sandy, dark brown, moist, dense, fine to medium grained
				14 --		
15	19	15.9	SPT	15 --		
				16 --		
17.5	49	18.6	109.0	17 --		
				18 --	SP	Sand, dark brown, wet, dense, fine to medium grained
				19 --		
20	51	10.7	SPT	20 --		
				21 --	SP/SW	Sand to Gravelly Sand, dark brown, wet, dense, fine to coarse grained
				22 --		
22.5	63	25.8	98.3	23 --	SM/ML	Silty Sand to Sandy Silt, dark brown and gray, wet, dense to stiff, fine to medium grained
				24 --		
25	29	19.3	SPT	25 --		

BORING LOG NUMBER 12

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	29	31.1	91.8	28		Sand to Sandy Silt, dark brown to gray, wet, dense to stiff, fine to medium grained
				29		
30	28	34.9	SPT	30	ML	Clayey Silt, gray, wet, stiff
				31		
32.5	55	29.3	91.9	32		
				33		
				34		
35	19	38.9	SPT	35	CH	Silty Clay, gray, wet, stiff
				36		
37.5	51	20.2	107.7	37		
				38	SP	Sand, dark brown, wet, dense, fine to medium grained
				39		
40	26	24.6	SPT	40		
				41		
42.5	90	15.9	117.3	42		
				43		
				44		
45	25	22.3	SPT	45	SM/SP	Silty Sand to Sand, gray to dark gray, wet, dense, fine grained
				46		
47.5	45 50/4"	18.6	111.9	47		
				48		
				49		
50	28	23.0	SPT	50		Silty Sand to Sand, gray to dark gray, wet, dense, fine to medium grained, occasional cobbles

BORING LOG NUMBER 12

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51		
				52		
52.5	75	22.5	102.6	53	SP	Sand, dark gray, wet, very dense, fine to medium grained
				54		
55	39	28.6	SPT	55	SP/ML	Sand to Clayey Silt, dark gray to gray, wet, dense to stiff, fine grained
				56		
				57		
57.5	88	19.9	105.8	58	SM/SP	Silty Sand to Sand, dark gray, wet, very dense, fine to medium grained
				59		
60	36	25.1	SPT	60		
				61		
				62		
62.5	45 50/5"	20.0	106.6	63	ML	Sandy Silt, gray to dark gray, moist, very stiff
				64		
65	46	24.1	SPT	65		
				66		
				67		
67.5	46 50/2"	12.9	119.5	68	SM	Silty Sand, dark gray to gray, wet, very dense, fine grained
				69		
70	46	19.7	SPT	70		
				71		Total Depth 70 feet Water at 15 feet Fill to 7.5 feet
				72		
				73		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74		
				75		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 13

Television City Studios, LLC **Date: 12/13/19** **Elevation: 201.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		5-inch Asphalt over 6-inch base
				-		
				1 --		FILL: Sandy Silt, dark brown, moist, stiff
				-		
				2 --		
2.5	46	20.7	102.2	-		
				3 --		
				-	CL	Sandy Clay, dark brown to black, moist, stiff
				4 --		
				-		
5	11	13.1	SPT	5 --		
				-		
				6 --		
				-		
				7 --		
7.5	29	24.3	99.2	-		
				8 --		Sandy Clay, dark to yellowish brown, moist, stiff, minor caliche
				-		
				9 --		
				-		
10	3	30.8	SPT	10 --		
				-		Sandy Clay, yellow to dark brown, moist, soft, minor caliche
				11 --		
				-		
				12 --		
12.5	19	31.1	90.0	-		
				13 --		
				-		
				14 --		
				-		
15	5	22.9	SPT	15 --		
				-		Sandy Clay, dark to yellowish brown, moist to very moist, soft to medium firm, minor caliche
				16 --		
				-		
				17 --		
17.5	31	24.4	101.2	-		
				18 --		Sandy Clay, yellowish brown, moist, stiff
				-		
				19 --		
				-		
20	14	26.0	SPT	20 --		
				-	CH	Silty Clay, yellowish brown, moist, stiff
				21 --		
				-		
				22 --		
22.5	36	22.4	94.8	-		
				23 --	CL	Sandy Clay, gray, moist, stiff
				-		
				24 --		
				-		
25	20	21.7	SPT	25 --		
				-		

BORING LOG NUMBER 13

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	68	24.8	101.6	28	ML	Sandy Silt, dark gray to gray, moist, very stiff
				29		
30	22	28.0	SPT	30		
				31		
				32		
32.5	49	20.4	104.8	33	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, wet, dense to stiff, fine grained, occasional cobbles
				34		
35	28	20.2	SPT	35		
				36		
				37		
37.5	54	22.4	103.7	38	SM	Silty Sand, dark gray, wet, dense, fine grained
				39		
40	29	25.4	SPT	40		
				41		
				42		
42.5	78	17.5	108.3	43	ML/SP	Sandy Silt to Sand, gray to dark gray, moist to wet, very stiff to very dense, fine grained
				44		
45	31	26.0	SPT	45		
				46		
				47		
47.5	90	29.8	96.9	48	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, wet, very dense to very stiff, fine grained
				49		
50	49	30.2	SPT	50		

BORING LOG NUMBER 13

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
52	45 50/5"	19.5	110.1	52 -- 53 -- 54 --	SM	Silty Sand, dark gray, wet, very dense, fine grained
55	54	26.3	SPT	55 -- 56 -- 57 --	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, wet, dense to stiff, fine grained
57.5	45 50/5"	20.8	105.4	58 -- 59 --	SM/SP	Silty Sand to Sand, gray to dark gray, wet, very dense, fine to medium grained
60	37	27.4	SPT	60 -- 61 -- 62 --	ML	Sandy Silt, gray to dark gray, very moist, stiff
62.5	88	31.8	92.6	63 -- 64 --	SM/ML	Silty Sand to Sandy Silt, dark gray, moist, very dense to very stiff, fine grained
65	37	31.0	SPT	65 -- 66 -- 67 --		
67.5	45 50/4"	31.5	83.6	68 -- 69 --	ML	Sandy Silt, gray to dark gray, very moist , very stiff
70	28	29.2	SPT	70 -- 71 -- 72 -- 73 -- 74 -- 75 --		Total Depth 70 feet Water at 17 feet Fill to 3 feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test

BORING LOG NUMBER 14

Television City Studios, LLC **Date: 12/23/19** **Elevation: 194.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		9-inch Asphalt over 4-inch Base
				1		FILL: Sandy to Clayey Silt, dark brown, moist, stiff
2.5	22	23.6	88.1	2		
				3	CH	Silty Clay, dark gray, moist, stiff
5	13	31.5	SPT	4		
				5		
				6		
7.5	38	23.0	101.9	7		
				8	SC	Clayey Sand, dark to yellowish brown, moist, dense, fine grained
				9		
10	16	21.8	SPT	10		Clayey Sand, dark brown, moist to wet, medium dense, fine grained
				11		
12.5	38	26.5	92.6	12		
				13	SM/ML	Silty Sand to Sandy Silt, dark brown, wet, dense to stiff, fine grained
				14		
15	23	25.3	SPT	15	SM/SP	Silty Sand to Sand, dark brown, wet, dense, fine grained
				16		
17.5	42	25.3	101.1	17		
				18		
				19		
20	20	20.0	SPT	20	SC	Clayey Sand, dark brown, wet, dense, fine to medium grained
				21		
22.5	48	14.2	123.3	22		
				23	SP	Sand, dark and yellowish brown, wet, dense, fine to medium grained
				24		
25	20	19.9	SPT	25	SM/SP	Silty Sand to Sand, dark grayish brown, wet, dense, fine to medium grained

BORING LOG NUMBER 14

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	80	21.7	104.9	28	ML	Sandy Silt, gray, moist, very stiff, fine grained
				29		
30	26	24.2	SPT	30		
				31		
				32		
32.5	72	14.7	106.4	33	SP	Sand, gray to dark gray, wet, very dense, fine grained
				34		
35	31	20.0	SPT	35	SM	Silty Sand, gray to dark gray, wet, dense, fine grained
				36		
				37		
37.5	78	22.3	100.7	38	ML	Sandy Silt, gray to dark gray, moist, stiff, fine grained
				39		
40	44	26.4	SPT	40		
				41		
				42		
42.5	83	19.0	110.0	43	SM	Silty Sand, dark gray, wet, dense, fine grained, occasional cobbles
				44		
45	30	19.0	SPT	45		
				46		
				47		
47.5	88	30.8	93.8	48	ML	Clayey Silt, gray, moist
				49		
50	29	35.3	SPT	50		

BORING LOG NUMBER 14

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	63	22.4	105.6	53 --	SM/CL	Silty Sand to Silty Clay, gray, wet, dense to stiff, fine grained
				54 --		
55	29	22.3	SPT	55 --		
				56 --		
				57 --		
57.5	85	31.4	88.9	58 --	CL	Silty Clay, gray, very moist, very stiff, fine grained
				59 --		
60	27	35.7	SPT	60 --		
				61 --		
				62 --		
62.5	40 50/5"	29.6	94.7	63 --		
				64 --		
65	38	22.0	SPT	65 --		
				66 --	SM/SP	Silty Sand to Sand, dark gray to gray, wet, dense, fine grained
				67 --		
67.5	45 50/5"	19.8	110.5	68 --		
				69 --		
70	47	23.1	SPT	70 --		
				71 --		Total Depth 70 feet Water at 15 feet Fill to 3 feet
				72 --		
				73 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				75 --		SPT=Standard Penetration Test

BORING LOG NUMBER 15

Television City Studios, LLC **Date: 12/27/19** **Elevation: 201.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		7.5-inch Asphalt over 3-inch Base
				1		FILL: Sandy Silt, dark brown, moist, stiff
2.5	41	13.8	107.7	2		
				3		Silty Sand, yellowish brown, moist, medium dense, fine grained
				4		
5	9	35.6	SPT	5	CH	Silty Clay, dark gray, moist, stiff
				6		
7.5	28	21.7	106.3	7		
				8		
				9		
10	10	21.5	SPT	10		
				11		
12.5	24	20.9	108.7	12		
				13	SM/ML	Silty Sand to Sandy Silt, dark brown, moist to wet, medium dense to stiff, fine grained
				14		
15	17	17.0	SPT	15		
				16	SM	Silty Sand, dark brown, wet, medium dense, fine to medium grained
17.5	28	13.9	116.5	17		
				18	SM/SP	Silty Sand to Sand, dark brown, wet, dense, fine to medium grained, with cobbles
				19		
20	19	21.8	SPT	20		
				21	CL	Sandy Clay, dark brown, very moist, stiff, fine grained
22.5	47	25.3	100.5	22		
				23		
				24		
25	20	24.9	SPT	25		

BORING LOG NUMBER 15

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	59	25.3	102.1	28		Sandy Clay, gray to dark gray, very moist, stiff, fine grained
				29		
30	21	28.9	SPT	30		
				31		
				32		
32.5	68	28.8	96.1	33	SM	Silty Sand, gray, very moist, very dense, fine grained
				34		
35	22	21.4	SPT	35		
				36		
				37		
37.5	68	28.1	96.9	38		Silty Sand, dark gray, moist, dense, fine grained, stiff
				39		
40	23	26.2	SPT	40		
				41		
				42		
42.5	68	29.1	97.7	43		Silty Sand, gray to dark gray, wet, dense, fine grained
				44		
45	27	29.8	SPT	45		
				46		
				47		
47.5	72	24.7	103.4	48	ML	Sandy Silt, gray, moist, stiff
				49		
50	34	30.7	SPT	50		

BORING LOG NUMBER 15

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	85	26.8	100.2	53 --	SM	Silty Sand, gray to dark gray, wet, very dense, fine grained
				54 --		
55	40	31.6	SPT	55 --	ML	Sandy to Clayey Silt, gray, moist, stiff
				56 --		
57.5	90	35.1	90.3	57 --		
				58 --		
				59 --		
60	44	33.0	SPT	60 --		
				61 --		
				62 --		
62.5	42 50/5"	21.7	107.3	63 --	SP	Sand, dark gray, wet, very dense, fine grained
				64 --		
65	48	20.6	SPT	65 --		
				66 --		
				67 --		
67.5	100/9"	23.3	101.9	68 --		Sand, dark gray, wet, very dense, fine grained
				69 --		
70	76	23.3	SPT	70 --		
				71 --		Total Depth: 70 feet Water at 12.5 feet Fill to 5 feet
				72 --		
				73 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				74 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop
				75 --		Modified California Sampler used unless otherwise noted
						SPT=Standard Penetration Test

BORING LOG NUMBER 16

Television City Studios, LLC **Date: 12/26/19** **Elevation: 200.0'**

File No. 21699 **Method: 8-inch Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0		3-inch Asphalt over 6-inch Base
				1		FILL: Silty Clay, dark brown, moist, stiff
2.5	57	25.7	99.6	2		
				3	CL	Sandy Clay, dark gray, moist, stiff
5	61	16.9	109.0	4		
				5		
				6		
				7		
				8		
				9		
10	49	19.7	109.3	10	SM/SP	Silty Sand to Sand, dark to yellowish brown, wet, dense, fine to medium grained
				11		
				12		
				13		
				14		
15	29	27.1	97.2	15	SM/ML	Silty Sand to Sandy Silt, dark brown, wet, dense, fine grained
				16		
				17		
				18		
				19		
20	72	11.1	125.1	20	SP	Sand, dark brown, wet, dense, fine to medium grained, occasional cobbles
				21		
				22		
				23		
				24		
25	65	19.3	111.4	25		Sand, dark brown, wet, dense, fine to medium grained

BORING LOG NUMBER 16

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 -- - 28 -- - 29 -- -		
30	40 50/5"	22.6	106.4	30 -- - 31 -- - 32 -- - 33 -- - 34 -- -	SM/ML	Silty Sand to Sandy Silt, dark grayish brown, very moist, very dense to very stiff, fine grained
35	85	22.8	104.6	35 -- - 36 -- - 37 -- - 38 -- - 39 -- -		
40	39 50/5"	27.0	104.5	40 -- - 41 -- - 42 -- - 43 -- - 44 -- -	SM/SP	Silty Sand to Sand, gray to dark gray, wet, very dense, fine grained
45	82	29.1	95.2	45 -- - 46 -- - 47 -- - 48 -- - 49 -- -	ML	Sandy Silt, gray, moist, very stiff
						NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
50	82	26.0	99.5	50 -- -		
						Total Depth: 50 feet Water at 10.5 feet Fill to 3 feet

BORING LOG NUMBER 17

Television City Studios, LLC **Date: 12/27/19** **Elevation: 201.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		3-inch Asphalt over 5-inch Base
				-		
				1 --		FILL: Silty Clay, dark brown, moist, stiff
				-		
				2 --		
2.5	38	26.1	98.6	-		
				3 --		
				-	CL	Sandy Clay, dark gray to medium brown, moist, stiff, minor caliche
				4 --		
				-		
5	14	16.2	SPT	5 --		
				-		Sandy Clay, dark to yellowish brown, moist, stiff
				6 --		
				-		
				7 --		
7.5	48	19.5	110.4	-		
				8 --		
				-		
				9 --		
				-		
10	12	19.1	SPT	10 --		
				-		Sandy Clay, gray, moist, stiff, fine grained
				11 --		
				-		
				12 --		
12.5	27	23.1	102.1	-		
				13 --		
				-		
				14 --		
				-		
15	7	29.7	SPT	15 --		
				-		
				16 --		
				-		
				17 --		
17.5	23	27.8	87.5	-		
				18 --	SC	Clayey Sand, gray to dark gray, wet, medium dense, fine grained
				-		
				19 --		
				-		
20	17	20.9	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	36	28.9	95.4	-		
				23 --	CL	Sandy Clay, dark brown to gray, moist, stiff
				-		
				24 --		
				-		
25	20	31.2	SPT	25 --		
				-		

BORING LOG NUMBER 17

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		
27.5	54	27.6	96.3	28 --		Sandy Clay, dark to grayish brown, moist, stiff
				29 --		
30	22	28.7	SPT	30 --		
				31 --		
				32 --		
32.5	48	16.3	118.3	33 --	SM/SP	Silty Sand to Sand, dark brown, wet, dense, fine to medium grained
				34 --		
35	26	20.3	SPT	36 --	SP/CL	Sand to Sandy Clay, dark brown, wet, dense to stiff, fine grained
				37 --		
37.5	55	24.7	102.3	38 --		
				39 --		
40	33	20.1	SPT	41 --		
				42 --		
42.5	82	16.5	120.8	43 --	SP	Sand, dark brown, wet, very dense, fine to medium grained
				44 --		
45	40	16.4	SPT	46 --		
				47 --		
47.5	40 50/5"	22.1	108.0	48 --		Sand, dark, wet, very dense, fine grained
				49 --		
50	35	23.5	SPT	50 --	ML	Sandy Silt, gray, moist, stiff

BORING LOG NUMBER 17

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				51 --		
				52 --		
52.5	83	16.8	114.1	53 --	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, moist, dense to stiff, fine grained
				54 --		
55	37	20.2	SPT	55 --		
				56 --		
				57 --		
57.5	70	17.7	107.4	58 --	ML	Sandy Silt, gray, moist, stiff
				59 --		
60	43	28.6	SPT	60 --	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, moist, dense to stiff, fine grained
				61 --		
				62 --		
62.5	98	35.3	85.4	63 --	CL	Sandy Clay, gray, moist, very stiff
				64 --		
65	35	29.4	SPT	65 --		
				66 --		
				67 --		
67.5	85	23.6	101.2	68 --	ML	Sandy Silt, gray, moist, stiff to very stiff
				69 --		
70	39	24.9	SPT	70 --		Total Depth: 70 feet Water at 11.5 feet Fill to 3 feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test
				71 --		
				72 --		
				73 --		
				74 --		
				75 --		

BORING LOG NUMBER 18

Television City Studios, LLC **Date: 12/19/19** **Elevation: 187.0'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		5-inch Asphalt over 6-inch Base
				-		
				1 --		FILL: Silty Sand, dark brown, moist, dense, fine grained
				-		
				2 --		
2.5	72	8.3	131.3	-		
				3 --		
				-	SM	Silty Sand, dark brown, slightly moist, dense, fine grained
				4 --		
				-		
5	45	8.5	128.5	5 --		
	50/4"			-		Silty Sand, dark brown, slightly moist, very dense, fine grained
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	90	19.2	108.6	10 --		
				-	SM/CL	Silty Sand to Sandy Clay, dark brown to gray, moist, very dense to very stiff, fine grained
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	50	24.7	100.5	15 --		
				-	ML	Sandy Silt, dark brown to gray, moist, stiff
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	53	18.6	111.6	20 --		
				-		Sandy Silt, gray to dark gray, moist, stiff
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
25	37	22.8	104.9	25 --		
				-		

BORING LOG NUMBER 18

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26 --		
				27 --		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.**
				28 --		**Used 8-inch diameter Hollow-Stem Auger**
				29 --		**140-lb. Automatic Hammer, 30-inch drop**
						Modified California Sampler used unless otherwise noted
30	48	19.4	110.8	30 --	SM	Silty Sand, gray to dark gray, wet, dense, fine grained
				31 --		
				32 --		
				33 --		
				34 --		
35	52	22.9	104.6	35 --	ML	Sandy Silt, gray, moist, stiff
				36 --		
				37 --		
				38 --		
				39 --		
40	73	24.4	102.2	40 --	SM	Silty Sand, gray, wet, very dense, fine grained
				41 --		
				42 --		
				43 --		
				44 --		
45	51	24.9	92.1	45 --	SM/ML	Silty Sand to Sandy Silt, gray, wet, dense to stiff, fine grained
				46 --		
				47 --		
				48 --		
				49 --		
50	81	19.3	101.3	50 --	SM/SP	Silty Sand to Sand, gray to dark gray, wet, dense, fine grained
						Total Depth 50 feet
						Water at 14 feet
						Fill to 3 feet

BORING LOG NUMBER 19

Television City Studios, LLC **Date: 12/19/19** **Elevation: 194.5'**

File No. 21699 **Method: 8-inch diameter Hollow Stem Auger**

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Asphalt
				0 --		8-inch Asphalt over 8-inch Base
				-		
				1 --		
				-		
				2 --		FILL: Sandy Silt, dark gray, moist, stiff
2.5	27	17.0	115.7	-		
				3 --		Sandy Silt, gray to dark gray, moist, stiff
				-		
				4 --		
				-		
5	13	18.6	SPT	5 --		
				-		Sandy Clay, dark gray to dark brown, moist, medium firm to stiff
				6 --		
				-		
				7 --		
7.5	63	14.0	108.8	-		
				8 --		
				-	SM/ML	Silty Sand to Sandy Silt, dark brown and yellowish brown, moist, dense, fine grained, stiff
				9 --		
				-		
10	10	19.8	SPT	10 --		
				-	CL	Sandy Clay, dark brown, moist, stiff, fine grained
				11 --		
				-		
				12 --		
12.5	20	27.9	94.2	-		
				13 --		
				-		
				14 --		
				-		
15	17	23.3	SPT	15 --		
				-	SC	Clayey Sand, light brown, wet, dense
				16 --		
				-		
				17 --		
17.5	30	27.2	97.2	-		
				18 --		Sandy Clay, yellowish brown to gray, moist, stiff
				-		
				19 --		
				-		
20	15	26.1	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	30	21.2	108.7	-		
				23 --	SM/SP	Silty Sand to Sand, gray to yellowish brown, wet, dense, fine grained
				-		
				24 --		
				-		
25	44	20.5	SPT	25 --		
				-		

BORING LOG NUMBER 19

Television City Studios, LLC

File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		
				27		
27.5	79	17.2	116.7	28		Silty Sand to Sand, gray, wet, very dense, fine grained
				29		
30	28	22.9	SPT	30	ML	Sandy Silt, gray, moist, stiff
				31		
32.5	72	26.5	96.5	32		
				33		
				34		
35	33	26.8	SPT	35		
				36		
37.5	83	21.0	109.5	37		
				38	SM/ML	Silty Sand to Sandy Silt, gray to dark gray, moist, dense to stiff, fine grained
				39		
40	35	21.3	SPT	40		
				41		
42.5	74	19.2	112.2	42		
				43		Silty Sand to Sandy Silt, dark gray, moist, dense to stiff, fine grained
				44		
45	31	25.5	SPT	45		
				46		
47.5	43 50/5"	17.0	111.4	47		
				48	SM	Silty Sand, dark gray, wet, very dense, fine grained
				49		
50	35	31.2	SPT	50		
					ML	Sandy Silt, gray, very moist, stiff

BORING LOG NUMBER 19

Television City Studios, LLC

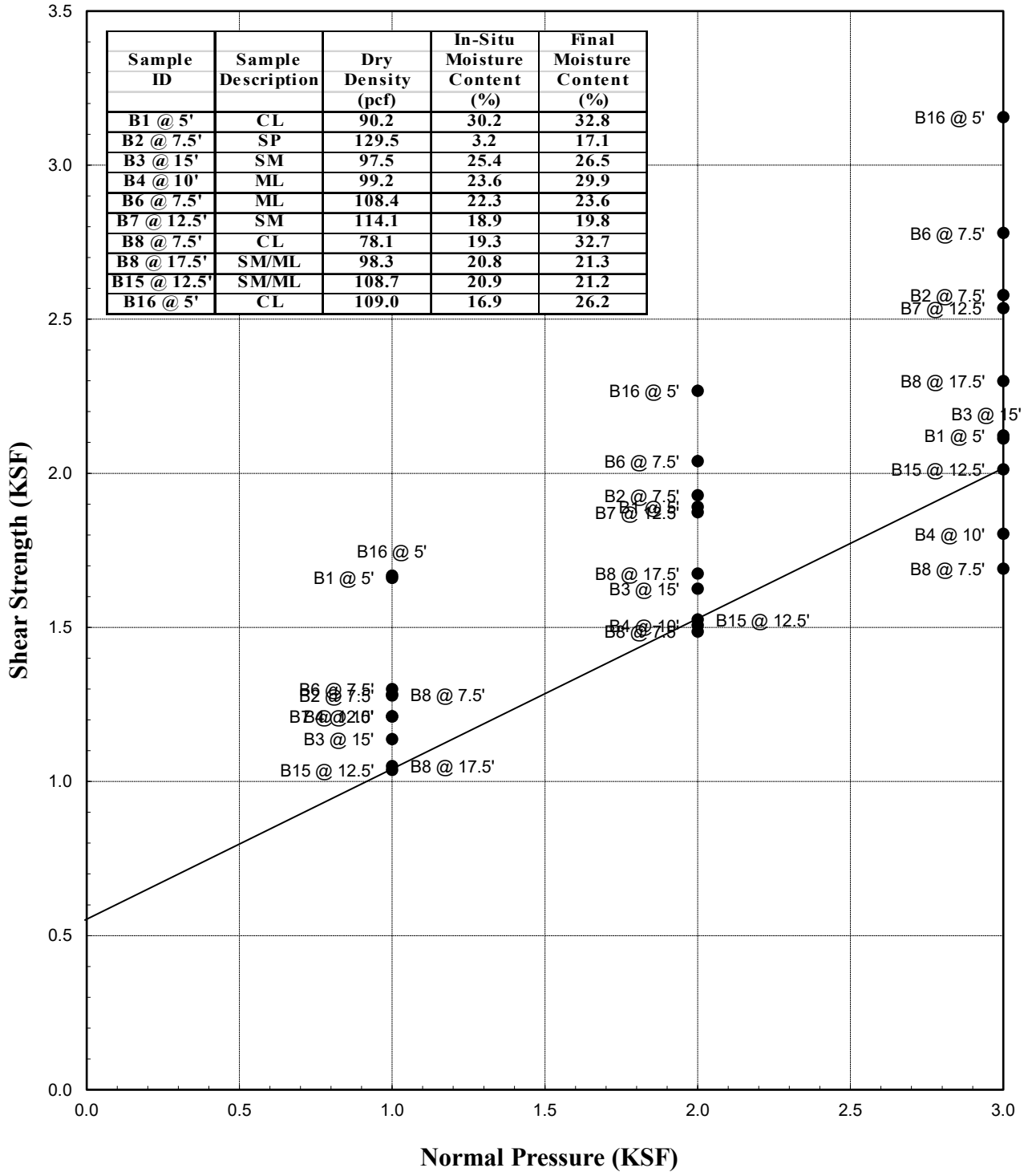
File No. 21699

dy/km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 51 -- - 52 -- -		
52.5	45 50/5"	18.8	109.9	53 -- - 54 -- -	SM	Silty Sand, dark gray, wet, very dense, fine grained
55	50	25.6	SPT	55 -- - 56 -- -	ML	Sandy Silt, dark gray, moist, stiff
57.5	45 50/4"	23.8	103.7	57 -- - 58 -- - 59 -- -	SM/ML	Silty Sand to Sandy Silt, dark gray, moist, very dense to very stiff, fine grained
60	44	33.9	SPT	60 -- - 61 -- -	ML	Sandy Silt, dark gray, moist, stiff
62.5	89	28.6	95.6	62 -- - 63 -- - 64 -- -		
65	52	32.8	SPT	65 -- - 66 -- -		
67.5	45 50/5"	20.7	107.2	67 -- - 68 -- - 69 -- -		
70	58	15.6	SPT	70 -- - 71 -- - 72 -- - 73 -- - 74 -- - 75 -- -		Total Depth 70 feet Water at 13.5 feet Fill to 8 feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted SPT=Standard Penetration Test

Saturated Shear

Sample ID	Sample Description	Dry Density (pcf)	In-Situ Moisture Content (%)	Final Moisture Content (%)
B1 @ 5'	CL	90.2	30.2	32.8
B2 @ 7.5'	SP	129.5	3.2	17.1
B3 @ 15'	SM	97.5	25.4	26.5
B4 @ 10'	ML	99.2	23.6	29.9
B6 @ 7.5'	ML	108.4	22.3	23.6
B7 @ 12.5'	SM	114.1	18.9	19.8
B8 @ 7.5'	CL	78.1	19.3	32.7
B8 @ 17.5'	SM/ML	98.3	20.8	21.3
B15 @ 12.5'	SM/ML	108.7	20.9	21.2
B16 @ 5'	CL	109.0	16.9	26.2



ϕ: 26.0 degrees
c: 550.0 psf

SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

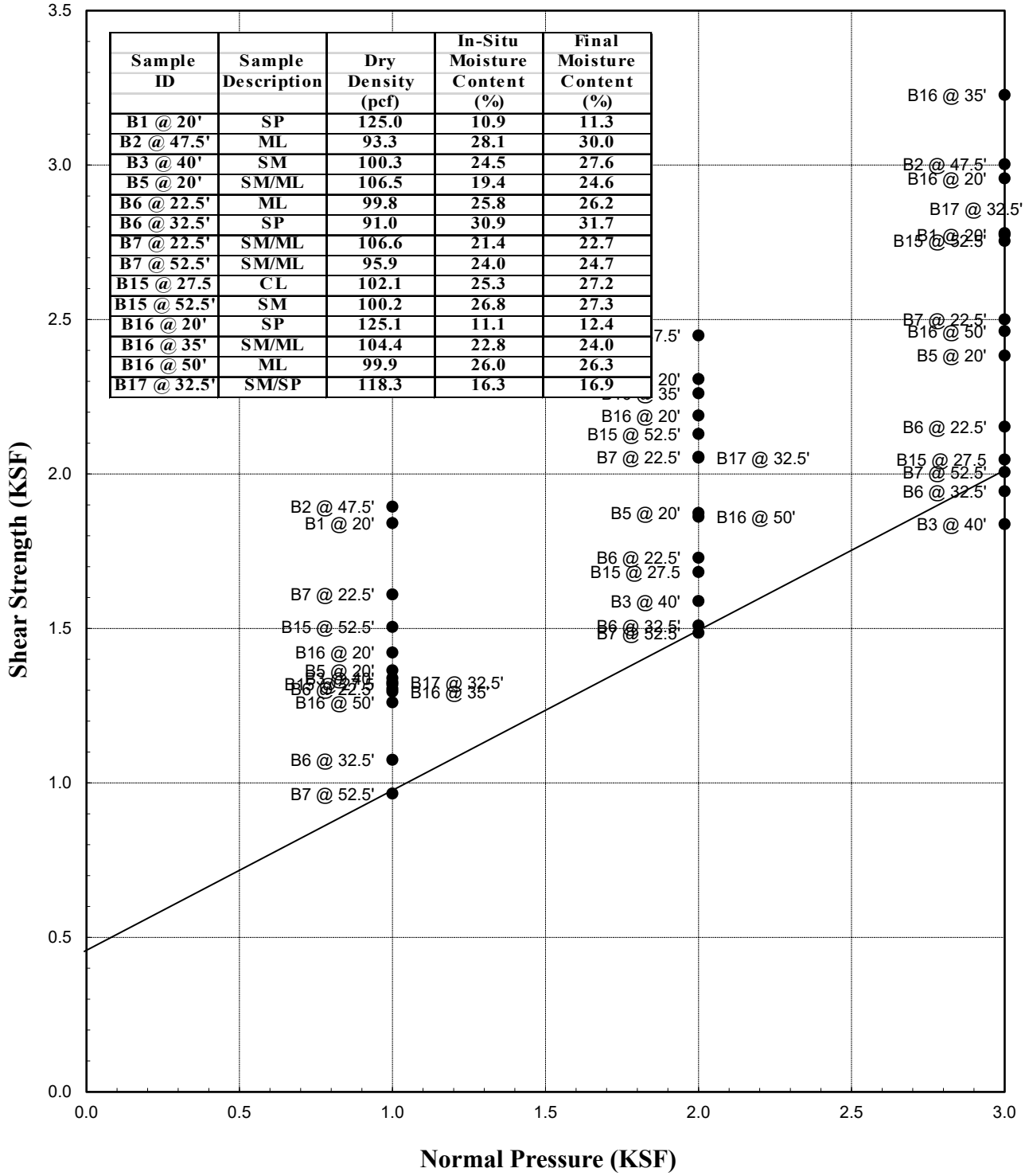
PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO.: 21699

PLATE: B-1

Saturated Shear

Sample ID	Sample Description	Dry Density (pcf)	In-Situ Moisture Content (%)	Final Moisture Content (%)
B1 @ 20'	SP	125.0	10.9	11.3
B2 @ 47.5'	ML	93.3	28.1	30.0
B3 @ 40'	SM	100.3	24.5	27.6
B5 @ 20'	SM/ML	106.5	19.4	24.6
B6 @ 22.5'	ML	99.8	25.8	26.2
B6 @ 32.5'	SP	91.0	30.9	31.7
B7 @ 22.5'	SM/ML	106.6	21.4	22.7
B7 @ 52.5'	SM/ML	95.9	24.0	24.7
B15 @ 27.5	CL	102.1	25.3	27.2
B15 @ 52.5'	SM	100.2	26.8	27.3
B16 @ 20'	SP	125.1	11.1	12.4
B16 @ 35'	SM/ML	104.4	22.8	24.0
B16 @ 50'	ML	99.9	26.0	26.3
B17 @ 32.5'	SM/SP	118.3	16.3	16.9



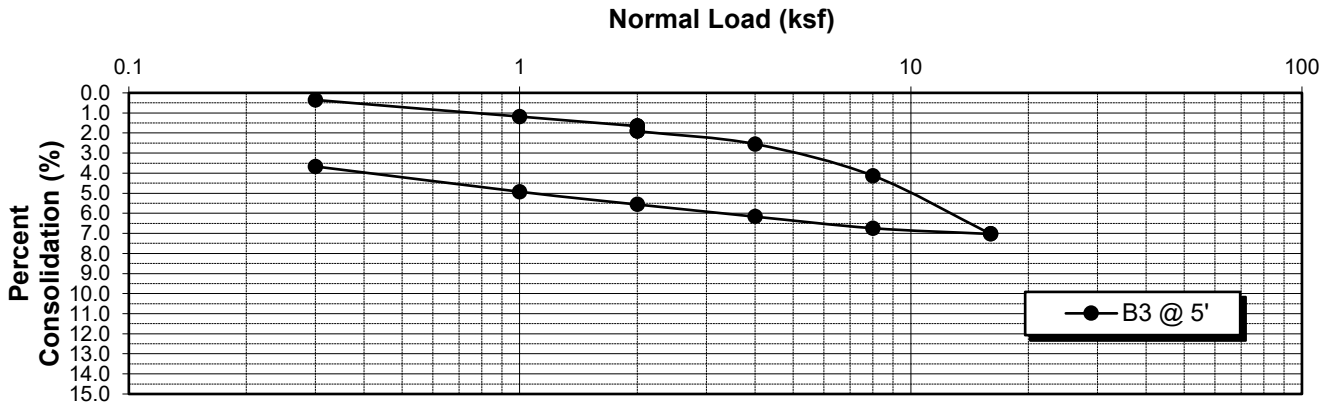
ϕ: 27.5 degrees
c: 445.0 psf

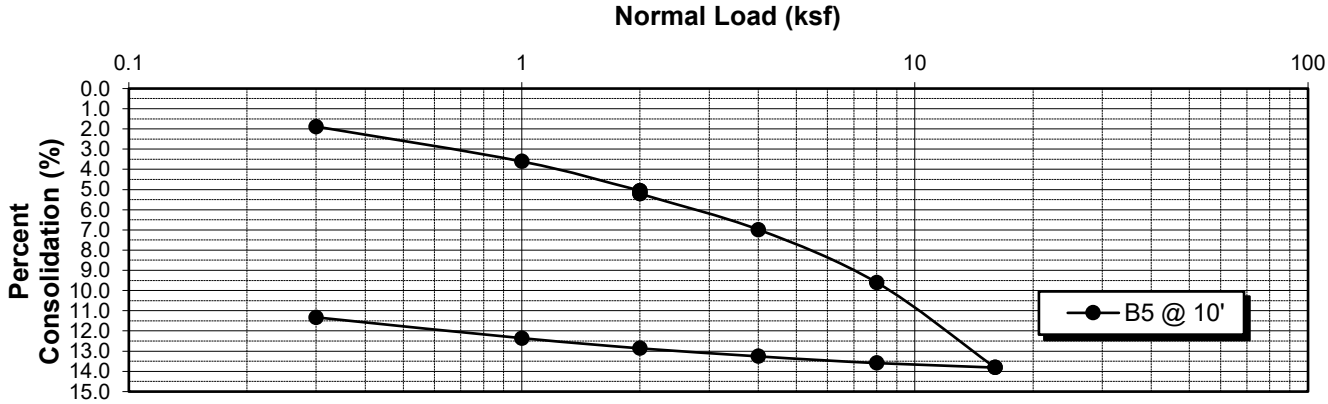
SHEAR TEST DIAGRAM

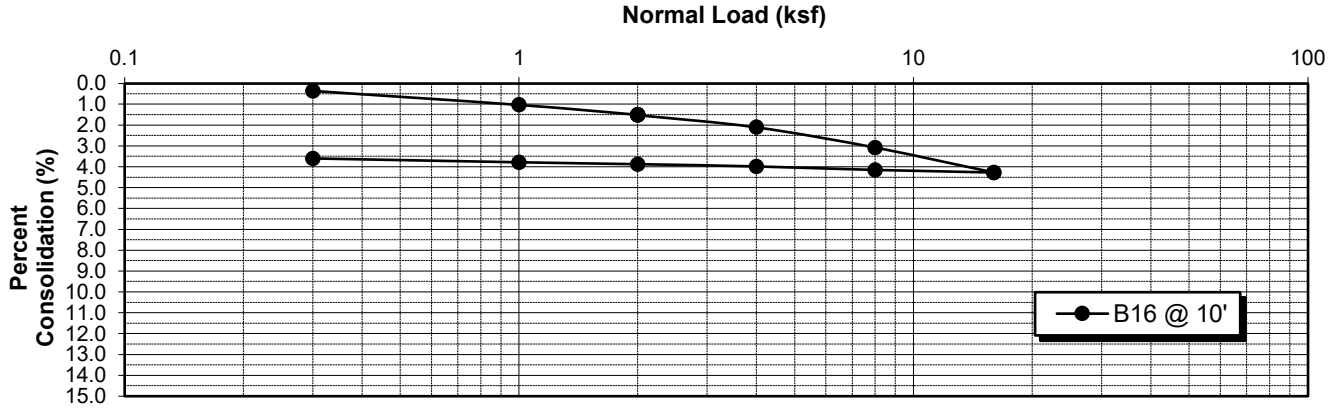
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO.: 21699 | PLATE: B-2







Water added at 2 KSF

CONSOLIDATION

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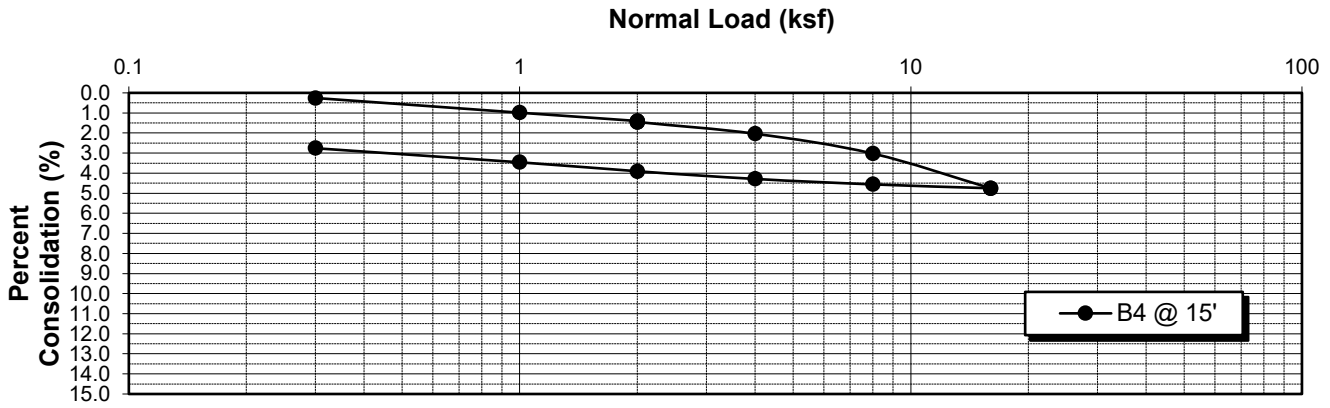
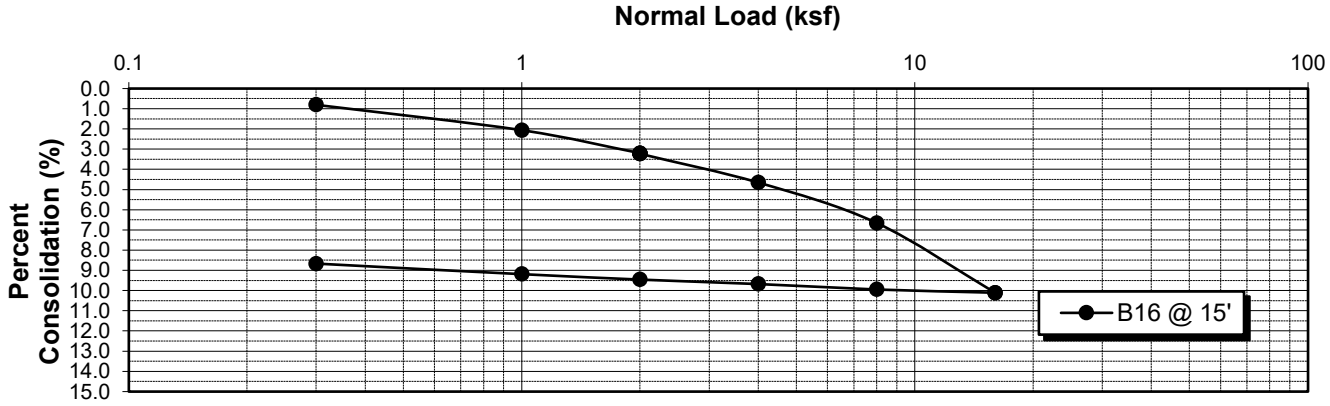
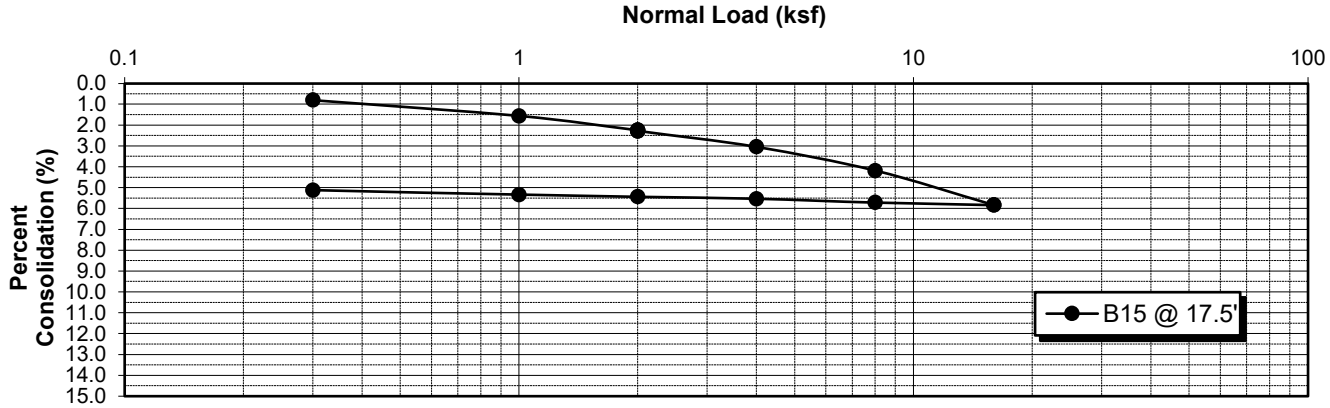
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-1







Water added at 2 KSF

CONSOLIDATION

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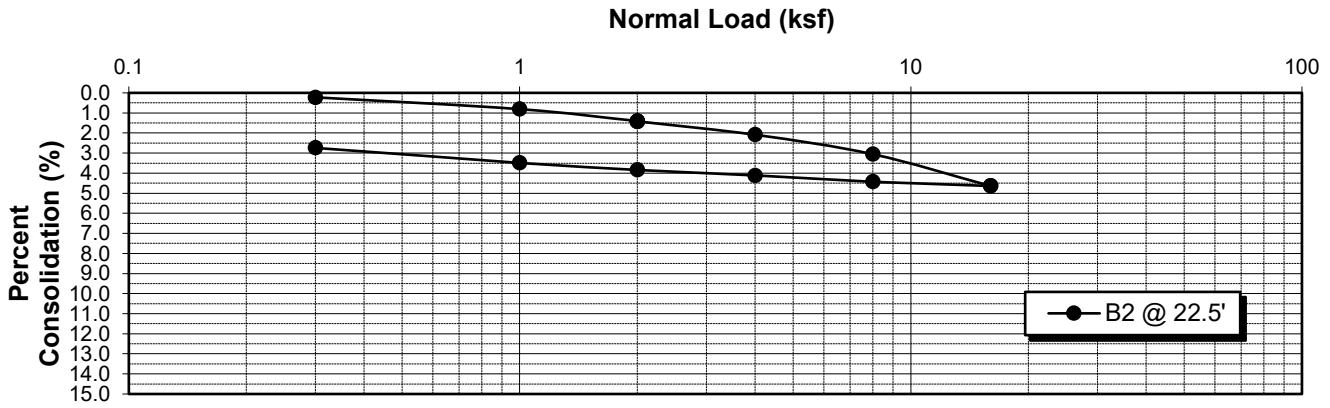
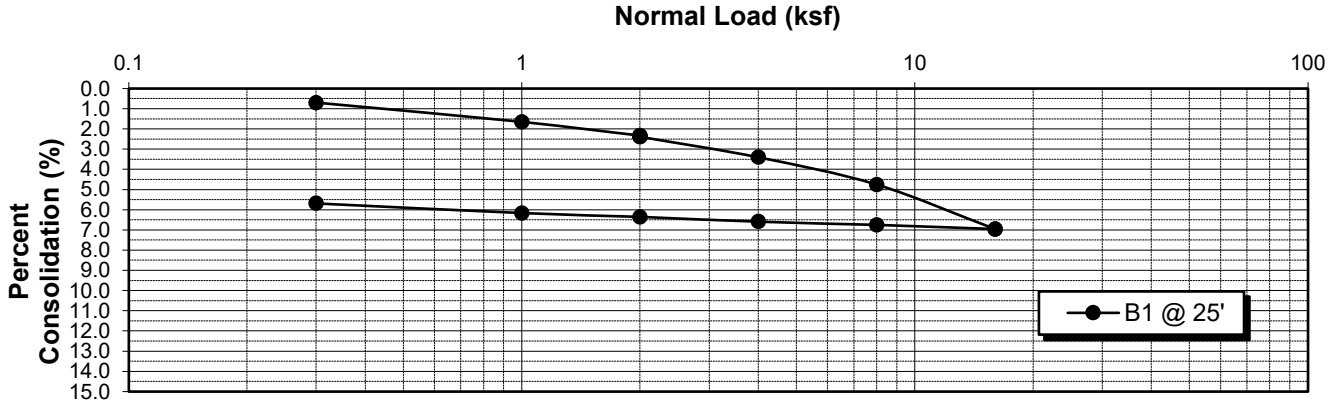
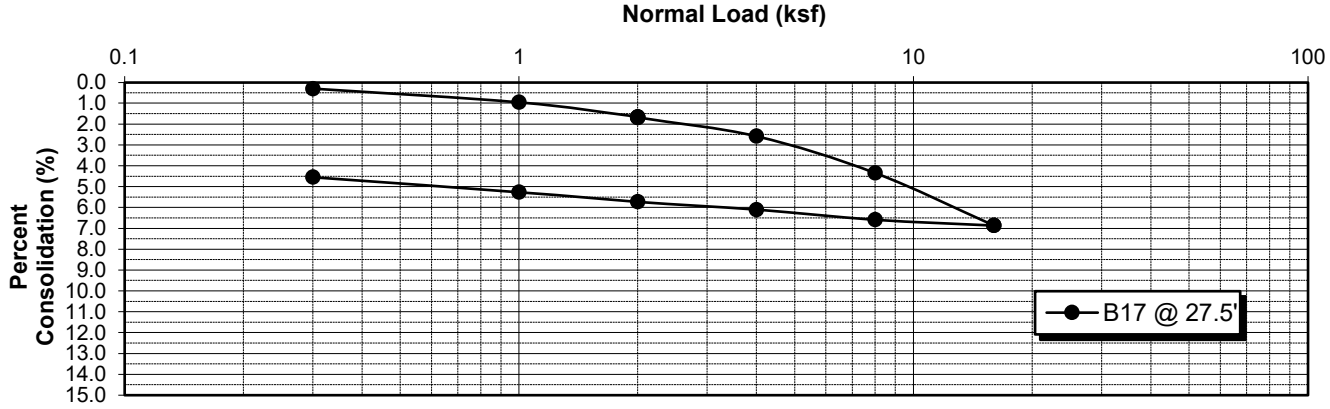
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-2







Water added at 2 KSF

CONSOLIDATION

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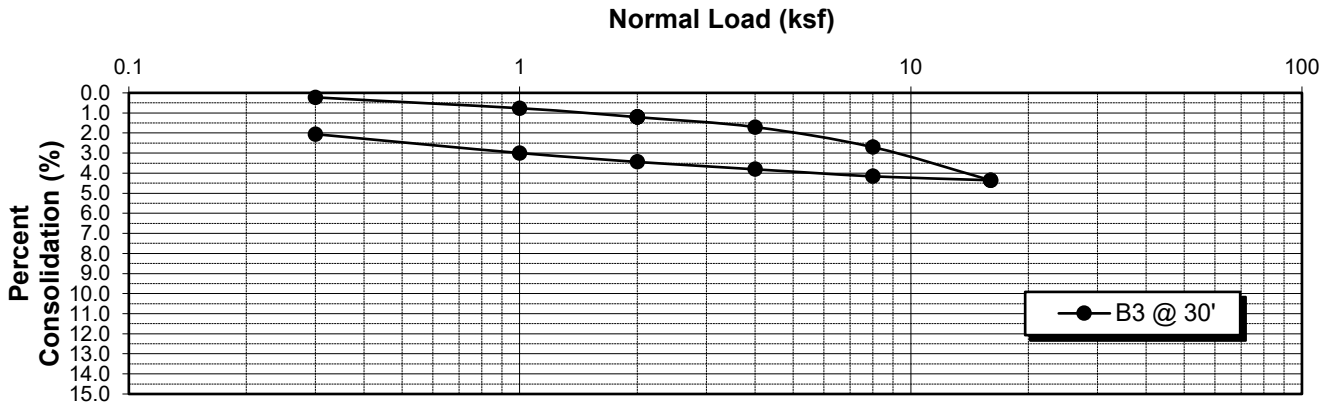
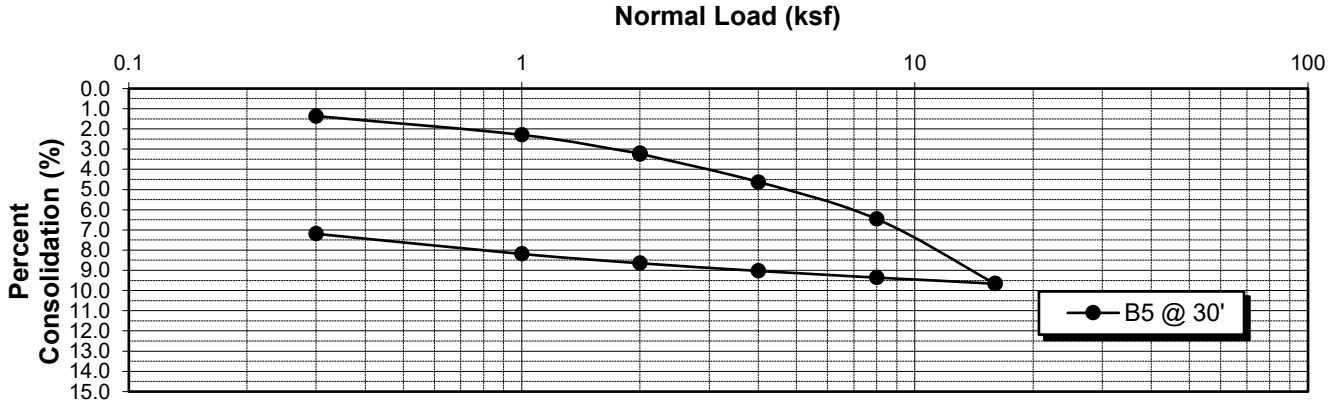
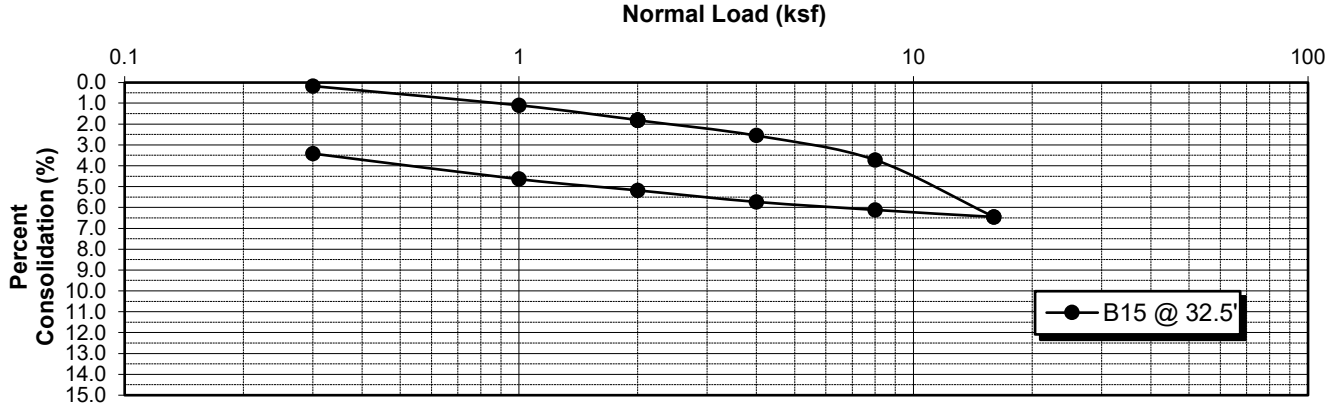
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-3







Water added at 2 KSF

CONSOLIDATION

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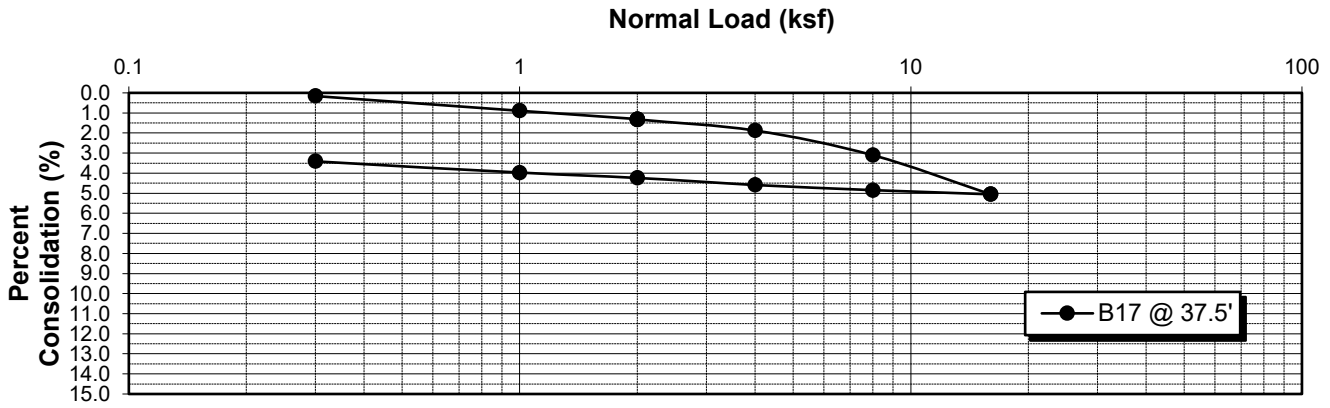
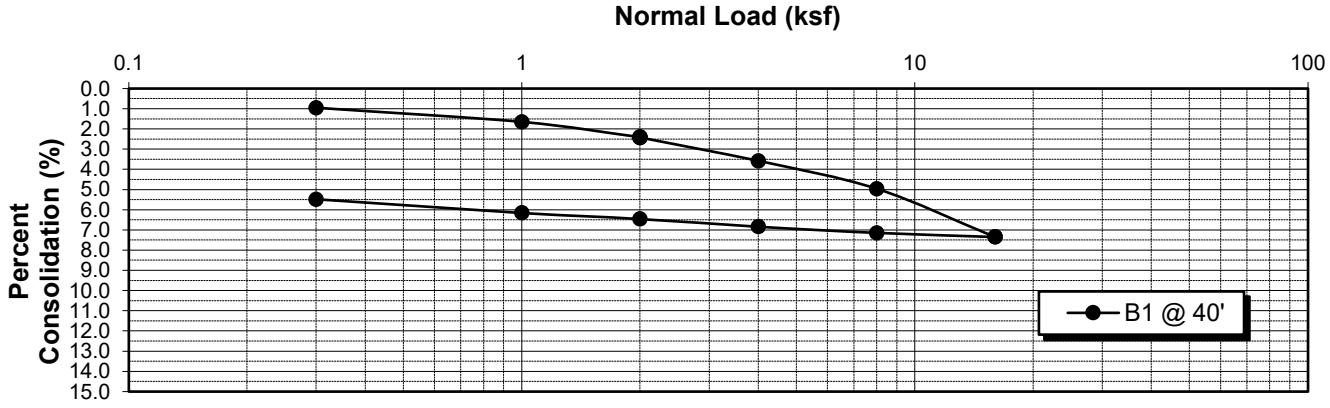
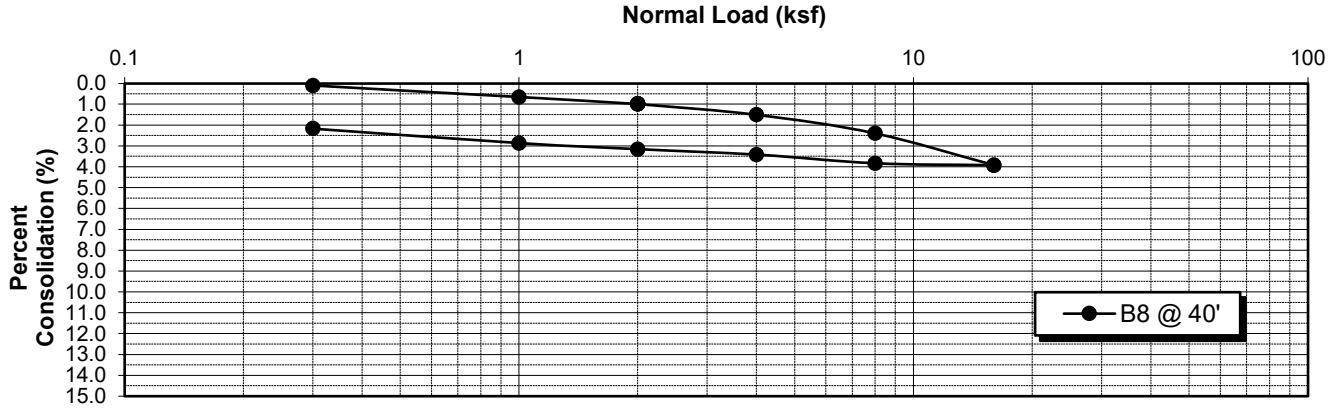
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-4







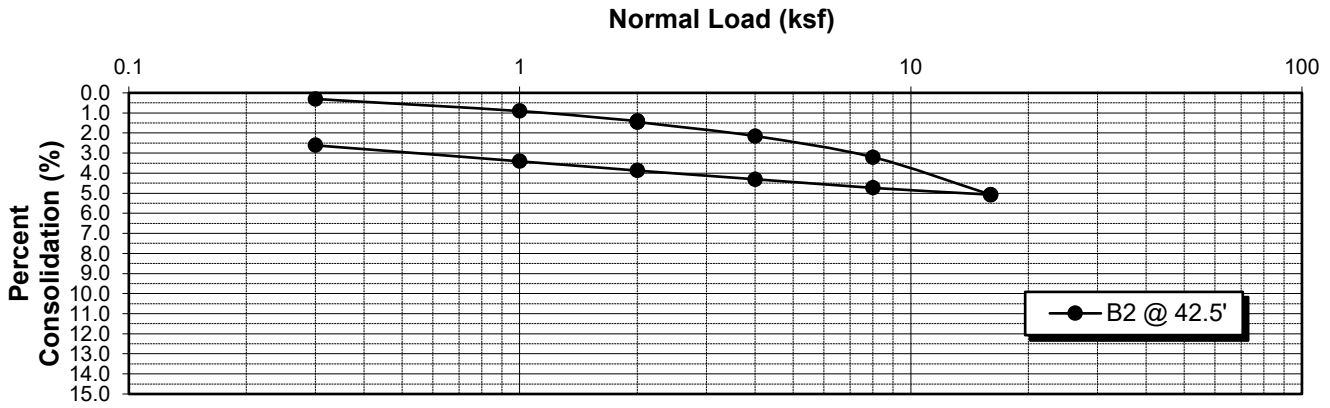
Water added at 2 KSF

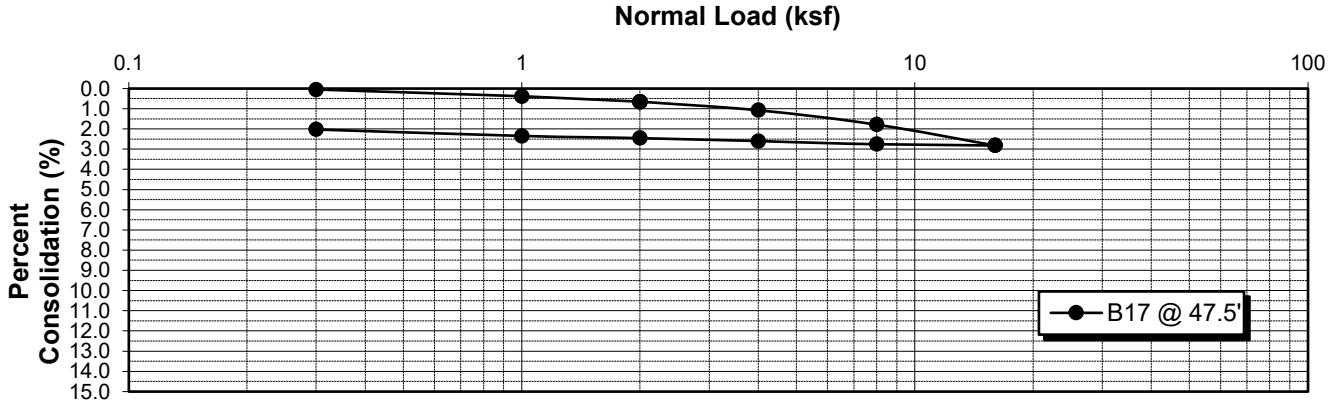
CONSOLIDATION

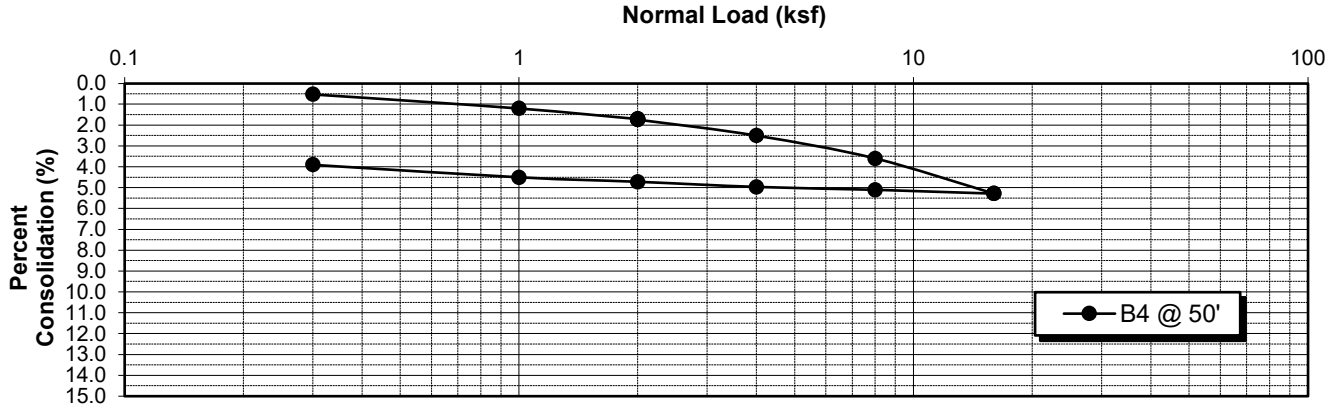
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-5







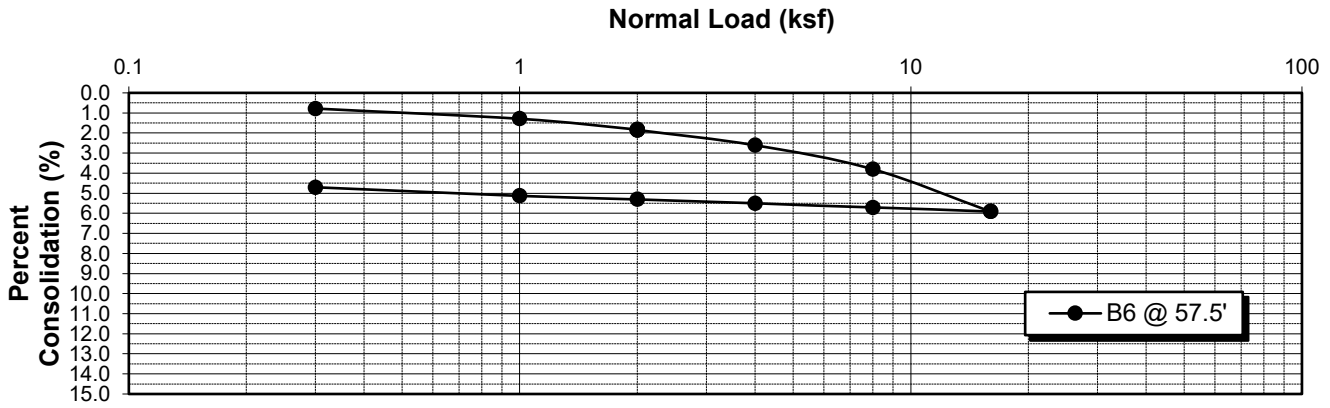
Water added at 2 KSF

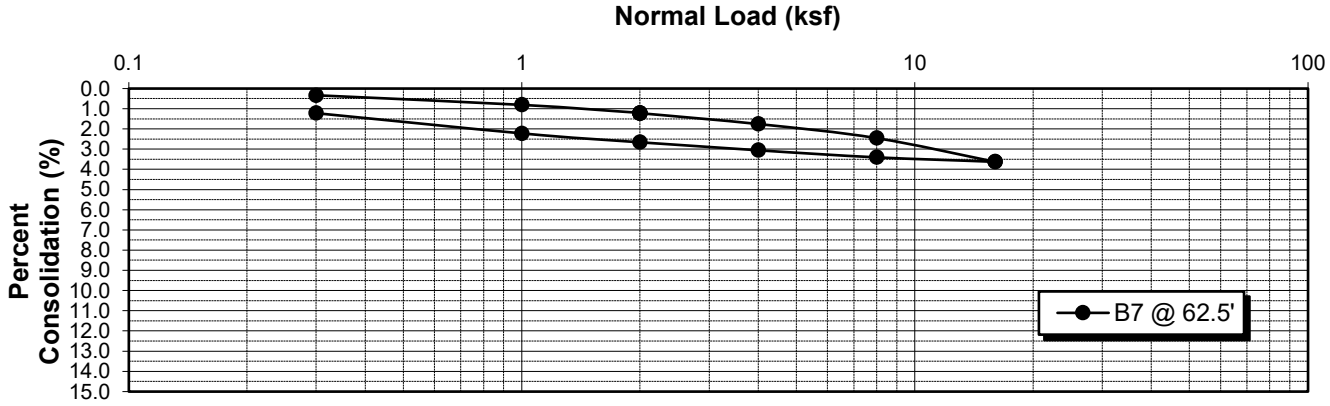
CONSOLIDATION

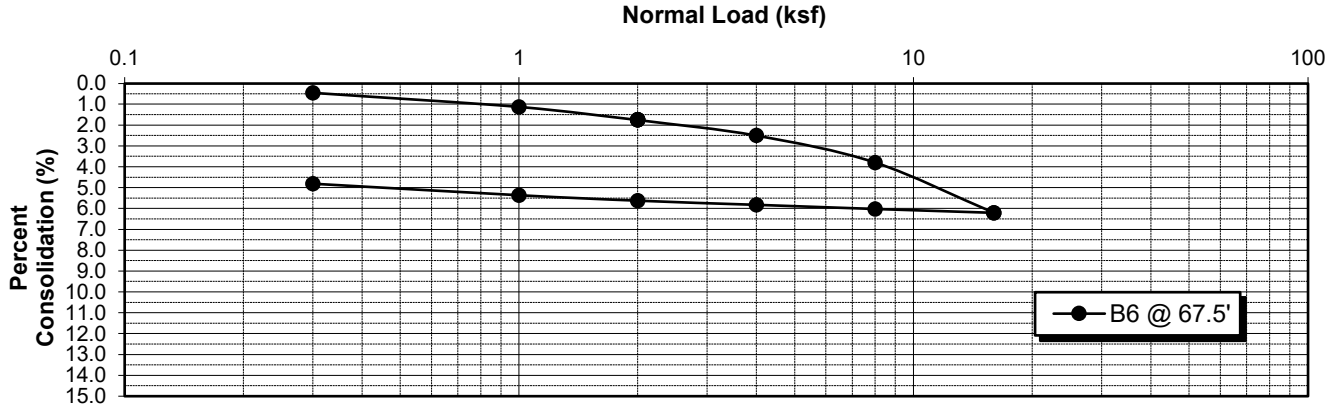
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-6







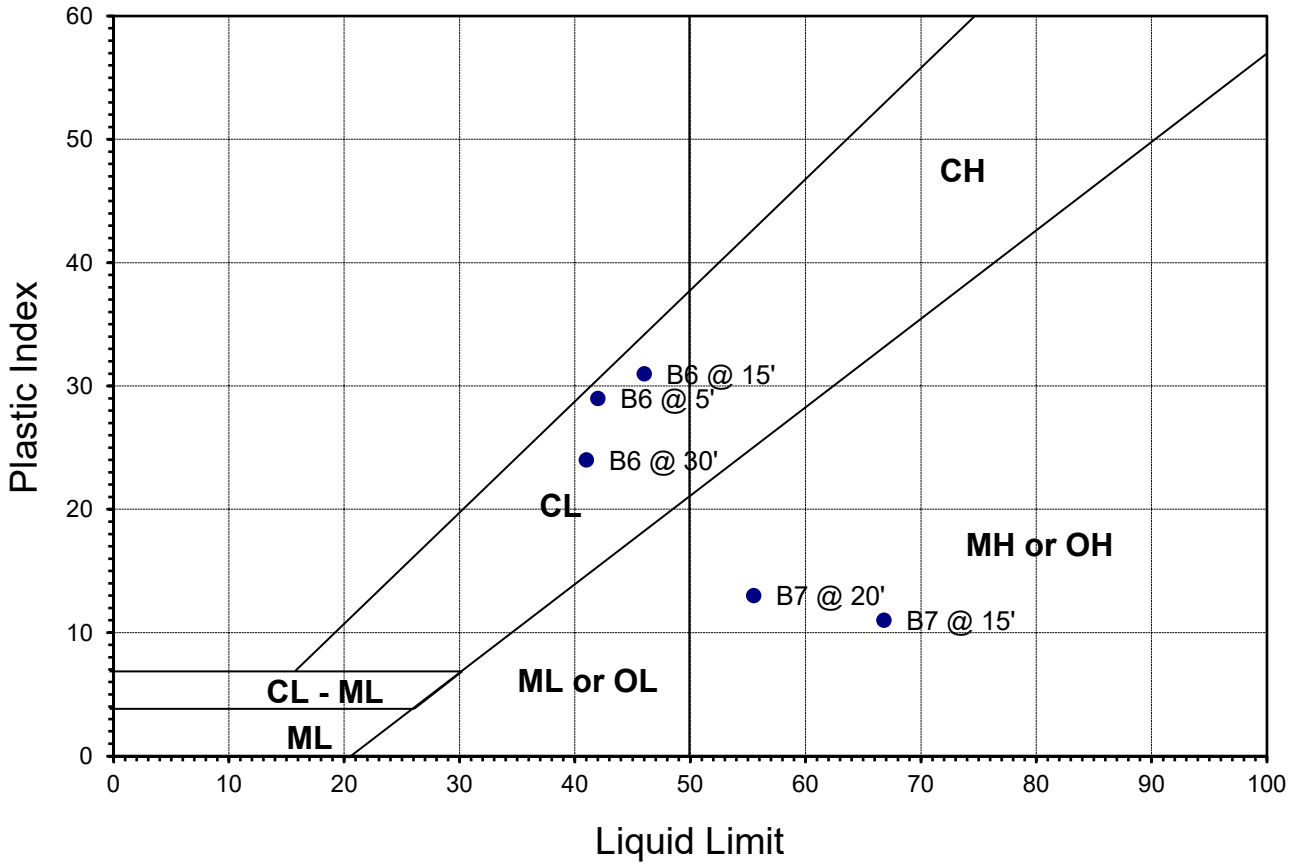
Water added at 2 KSF

CONSOLIDATION

Geotechnologies, Inc.
Consulting Geotechnical Engineers

PROJECT: TELEVISION CITY STUDIOS

FILE NO.: 21699 | PLATE: B-7



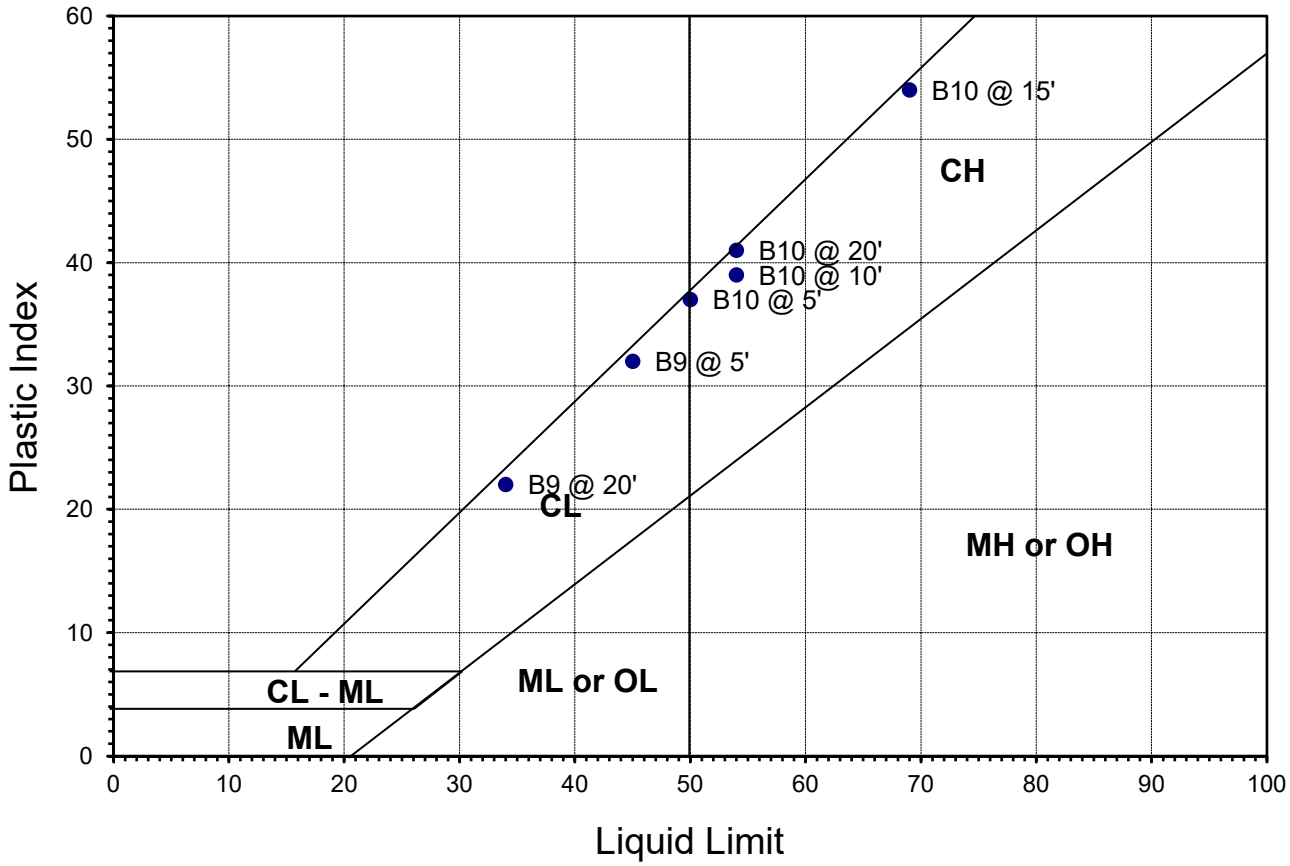
Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B2 @ 5'	SC	36.8			
B2 @ 10'	SP	6.7			
B2 @ 35'	SP	15.0			
B6 @ 5'	CL	55.0	42.0	13.0	29.0
B6 @ 10'	SC	41.1			
B6 @ 15'	CL	68.6	46.0	15.0	31.0
B6 @ 30'	CL	53.5	41.0	17.0	24.0
B6 @ 45'	SC	42.2			
B7 @ 15'	MH	66.8	49.0	11.0	38.0
B7 @ 20'	MH	55.5	41.0	13.0	28.0

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-1



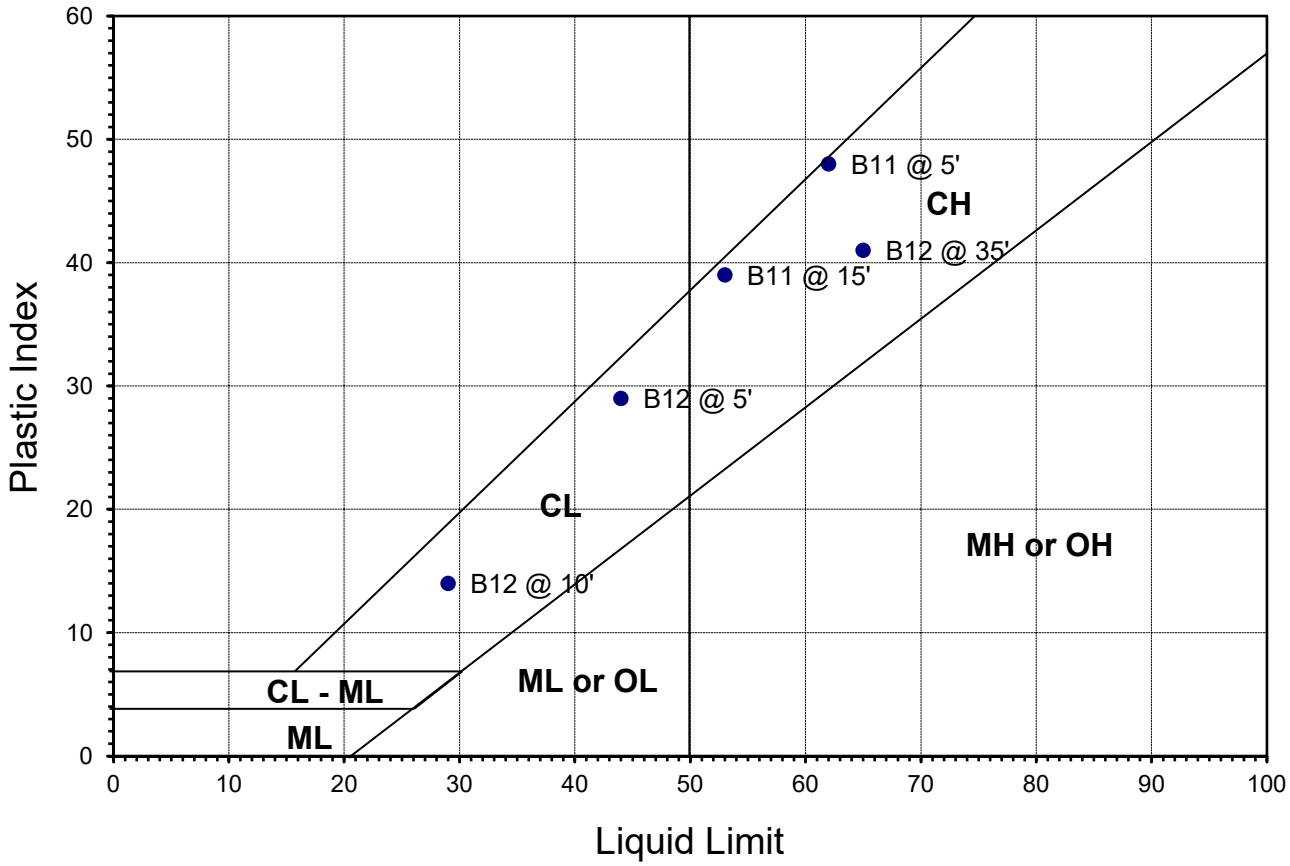
Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B9 @ 5'	CL	80.1	45.0	13.0	32.0
B9 @ 10'	SC	35.9			
B9 @ 15'	SC	32.5			
B9 @ 20'	CL	55.9	34.0	12.0	22.0
B10 @ 5'	CH	67.2	50.0	13.0	37.0
B10 @ 10'	CH	73.9	54.0	15.0	39.0
B10 @ 15'	CH	77.4	69.0	15.0	54.0
B10 @ 20'	CH	67.2	54.0	13.0	41.0
B10 @ 25'	SC	40.3			

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-2



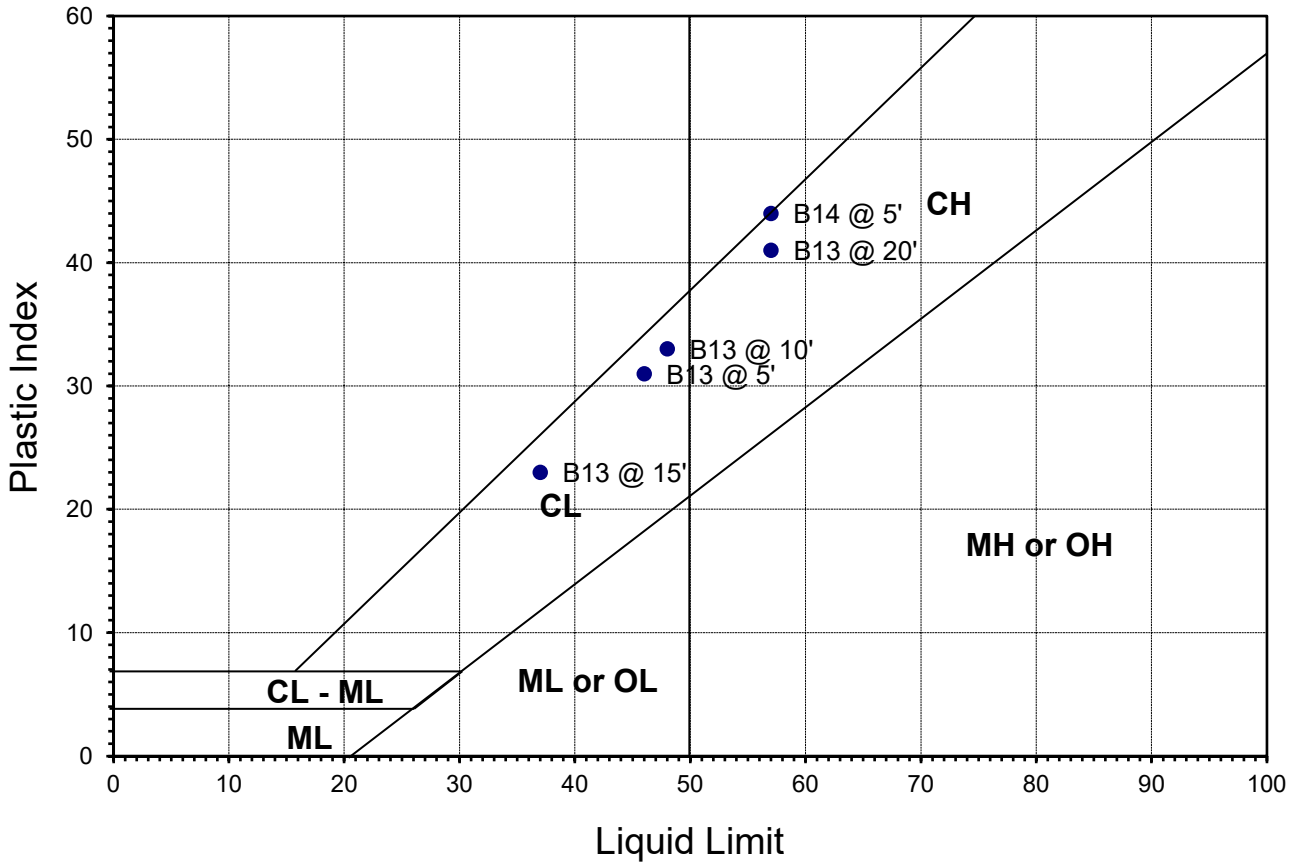
Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B11 @ 5'	CH	73.1	62.0	14.0	48.0
B11 @ 15'	CH	64.2	53.0	14.0	39.0
B11 @ 20'	SC	44.8			
B12 @ 5'	CL	54.7	44.0	15.0	29.0
B12 @ 10'	CL	53.9	29.0	15.0	14.0
B12 @ 15'	SM	28.2			
B12 @ 35'	CH	83.9	65.0	24.0	41.0

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-3



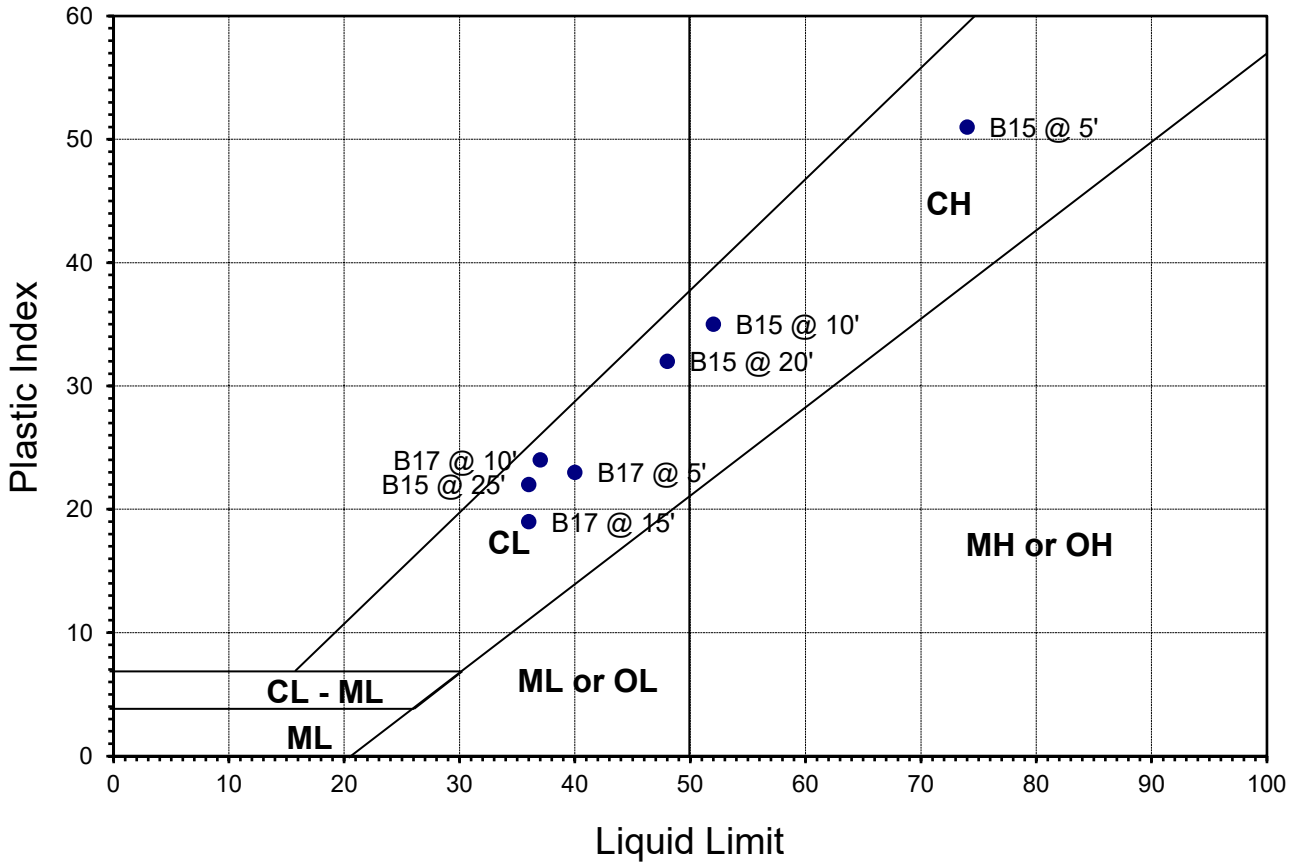
Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B13 @ 5'	CL	61.9	46.0	15.0	31.0
B13 @ 10'	CL	78.9	48.0	15.0	33.0
B13 @ 15'	CL	52.6	37.0	14.0	23.0
B13 @ 20'	CH	77.6	57.0	16.0	41.0
B14 @ 5'	CH	78.0	57.0	13.0	44.0
B14 @ 10'	SC	30.7			
B14 @ 20'	SC	22.2			

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-4



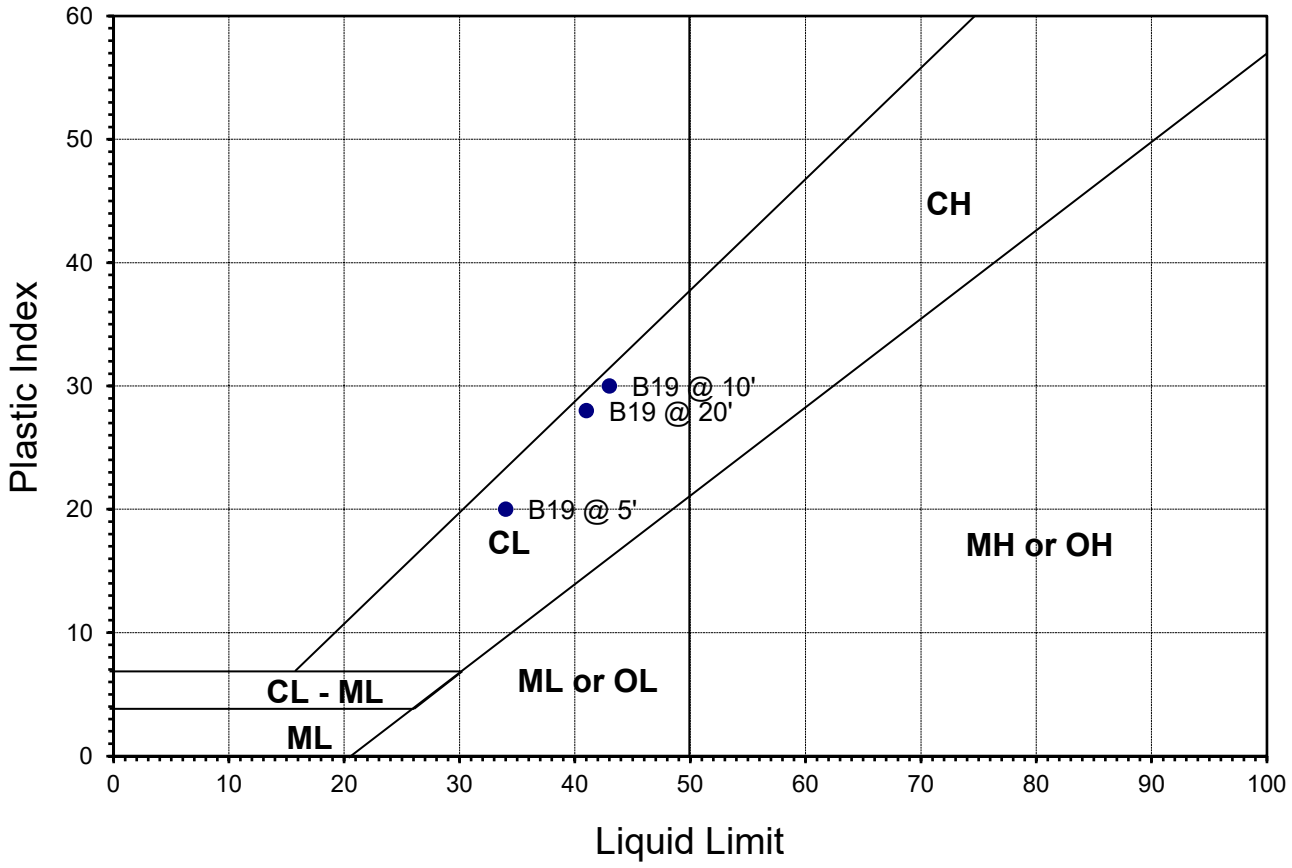
Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B15 @ 5'	CH	81.9	74.0	23.0	51.0
B15 @ 10'	CH	71.2	52.0	17.0	35.0
B15 @ 15'	SM	27.4			
B15 @ 20'	CL	64.1	48.0	16.0	32.0
B15 @ 25'	CL	52.4	36.0	14.0	22.0
B17 @ 5'	CL	53.5	40.0	17.0	23.0
B17 @ 10'	CL	57.0	37.0	13.0	24.0
B17 @ 15'	CL	56.0	36.0	17.0	19.0
B17 @ 20'	SC	41.5			

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-5



Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B19 @ 5'	CL	62.4	34.0	14.0	20.0
B19 @ 10'	CL	53.2	43.0	13.0	30.0
B19 @ 15'	SC	43.0			
B19 @ 20'	CL	63.4	41.0	13.0	28.0

ATTERBERG LIMITS

Geotechnologies, Inc.
CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO. 21699 | PLATE: F-6

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Number: 2

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	15.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	129.8	Unsaturated	Unsaturated	24	5	36.8	0	129.8	129.8	62.7	1.00	0.640	2.000	Non-Liq.	0.00
2	129.8	Unsaturated	Unsaturated	24	5	36.8	0	259.6	259.6	62.7	1.00	0.638	2.000	Non-Liq.	0.00
3	129.8	Unsaturated	Unsaturated	24	5	36.8	0	389.4	389.4	62.7	1.00	0.636	2.000	Non-Liq.	0.00
4	129.8	Unsaturated	Unsaturated	24	5	36.8	0	519.2	519.2	59.6	0.99	0.634	2.000	Non-Liq.	0.00
5	129.8	Unsaturated	Unsaturated	24	5	36.8	0	649.0	649.0	58.1	0.99	0.631	2.000	Non-Liq.	0.00
6	129.8	Unsaturated	Unsaturated	24	5	36.8	0	778.8	778.8	55.1	0.99	0.629	2.000	Non-Liq.	0.00
7	129.8	Unsaturated	Unsaturated	24	5	36.8	0	908.6	908.6	52.7	0.98	0.627	2.000	Non-Liq.	0.00
8	133.7	Unsaturated	Unsaturated	24	5	36.8	0	1042.3	1042.3	50.6	0.98	0.624	2.000	Non-Liq.	0.00
9	133.7	Unsaturated	Saturated	24	5	36.8	0	1176.0	1113.6	52.0	0.98	0.657	2.000	3.0	0.00
10	133.7	Unsaturated	Saturated	24	5	36.8	0	1309.7	1184.9	51.1	0.97	0.685	2.000	2.9	0.00
11	133.7	Unsaturated	Saturated	35	10	6.7	0	1443.4	1256.2	63.8	0.97	0.709	2.000	2.8	0.00
12	133.7	Unsaturated	Saturated	35	10	6.7	0	1577.1	1327.5	62.9	0.96	0.729	2.000	2.7	0.00
13	125.7	Unsaturated	Saturated	35	10	6.7	0	1702.8	1390.8	62.1	0.96	0.748	2.000	2.7	0.00
14	125.7	Unsaturated	Saturated	35	10	6.7	0	1828.5	1454.1	61.4	0.95	0.765	2.000	2.6	0.00
15	125.7	Unsaturated	Saturated	35	10	6.7	0	1954.2	1517.4	67.9	0.95	0.780	2.000	2.6	0.00
16	125.7	Saturated	Saturated	29	15	0.0	0	2079.9	1580.7	55.5	0.95	0.793	2.000	2.5	0.00
17	125.7	Saturated	Saturated	29	15	0.0	0	2205.6	1644.0	55.0	0.94	0.804	2.000	2.5	0.00
18	128.8	Saturated	Saturated	29	15	0.0	0	2334.4	1710.4	54.4	0.94	0.814	2.000	2.5	0.00
19	128.8	Saturated	Saturated	29	15	0.0	0	2463.2	1776.8	53.9	0.93	0.822	2.000	2.4	0.00
20	128.8	Saturated	Saturated	29	15	0.0	0	2592.0	1843.2	53.3	0.93	0.829	2.000	2.4	0.00
21	128.8	Saturated	Saturated	31	20	0.0	0	2720.8	1909.6	56.5	0.92	0.836	2.000	2.4	0.00
22	128.8	Saturated	Saturated	31	20	0.0	0	2849.6	1976.0	56.0	0.92	0.841	2.000	2.4	0.00
23	129.6	Saturated	Saturated	31	20	0.0	0	2979.2	2043.2	55.5	0.91	0.846	2.000	2.4	0.00
24	129.6	Saturated	Saturated	31	20	0.0	0	3108.8	2110.4	55.0	0.90	0.849	2.000	2.4	0.00
25	129.6	Saturated	Saturated	31	20	0.0	0	3238.4	2177.6	54.6	0.90	0.852	2.000	2.3	0.00
26	129.6	Saturated	Saturated	29	25	0.0	0	3368.0	2244.8	50.6	0.89	0.855	2.000	2.3	0.00
27	129.6	Saturated	Saturated	29	25	0.0	0	3497.6	2312.0	50.3	0.89	0.856	2.000	2.3	0.00
28	127.0	Saturated	Saturated	29	25	0.0	0	3624.6	2376.6	52.5	0.88	0.858	2.000	2.3	0.00
29	127.0	Saturated	Saturated	29	25	0.0	0	3751.6	2441.2	52.2	0.88	0.859	2.000	2.3	0.00
30	127.0	Saturated	Saturated	29	25	0.0	0	3878.6	2505.8	51.8	0.87	0.860	2.000	2.3	0.00
31	127.0	Saturated	Saturated	27	30	0.0	0	4005.6	2570.4	47.9	0.87	0.860	2.000	2.3	0.00
32	127.0	Saturated	Saturated	27	30	0.0	0	4132.6	2635.0	47.6	0.86	0.860	2.000	2.3	0.00
33	134.6	Saturated	Saturated	27	30	0.0	0	4267.2	2707.2	47.3	0.85	0.858	2.000	2.3	0.00
34	134.6	Saturated	Saturated	27	30	0.0	0	4401.8	2779.4	46.9	0.85	0.857	2.000	2.3	0.00
35	134.6	Saturated	Saturated	27	30	0.0	0	4536.4	2851.6	46.6	0.84	0.855	2.000	2.3	0.00
36	134.6	Saturated	Saturated	45	35	15.0	0	4671.0	2923.8	80.4	0.84	0.852	2.000	2.3	0.00
37	134.6	Saturated	Saturated	45	35	15.0	0	4805.6	2996.0	79.9	0.83	0.850	2.000	2.4	0.00
38	127.7	Saturated	Saturated	45	35	15.0	0	4933.3	3061.3	79.5	0.83	0.848	2.000	2.4	0.00
39	127.7	Saturated	Saturated	45	35	15.0	0	5061.0	3126.6	79.1	0.82	0.846	2.000	2.4	0.00
40	127.7	Saturated	Saturated	45	35	15.0	0	5188.7	3191.9	78.7	0.81	0.843	2.000	2.4	0.00
41	127.7	Saturated	Saturated	44	40	0.0	0	5316.4	3257.2	73.3	0.81	0.841	2.000	2.4	0.00
42	127.7	Saturated	Saturated	44	40	0.0	0	5444.1	3322.5	73.0	0.80	0.838	2.000	2.4	0.00
43	116.9	Saturated	Saturated	44	40	0.0	0	5561.0	3377.0	72.6	0.80	0.836	2.000	2.4	0.00
44	116.9	Saturated	Saturated	44	40	0.0	0	5677.9	3431.5	72.3	0.79	0.834	2.000	2.4	0.00
45	116.9	Saturated	Saturated	44	40	0.0	0	5794.8	3486.0	72.0	0.79	0.832	1.996	2.4	0.00
46	116.9	Saturated	Saturated	34	45	0.0	0	5911.7	3540.5	55.4	0.78	0.829	1.985	2.4	0.00
47	116.9	Saturated	Saturated	34	45	0.0	0	6028.6	3595.0	55.2	0.77	0.827	1.974	2.4	0.00
48	119.5	Saturated	Saturated	34	45	0.0	0	6148.1	3652.1	55.0	0.77	0.824	1.963	2.4	0.00
49	119.5	Saturated	Saturated	34	45	0.0	0	6267.6	3709.2	54.8	0.76	0.821	1.953	2.4	0.00
50	119.5	Saturated	Saturated	34	45	0.0	0	6387.1	3766.3	54.5	0.76	0.818	1.942	2.4	0.00
51	119.5	Saturated	Saturated	37	50	0.0	0	6506.6	3823.4	59.1	0.75	0.815	1.932	2.4	0.00
52	119.5	Saturated	Saturated	37	50	0.0	0	6626.1	3880.5	58.9	0.75	0.811	1.921	2.4	0.00
53	122.8	Saturated	Saturated	37	50	0.0	0	6748.9	3940.9	58.7	0.74	0.808	1.911	2.4	0.00
54	122.8	Saturated	Saturated	37	50	0.0	0	6871.7	4001.3	58.4	0.73	0.804	1.900	2.4	0.00
55	122.8	Saturated	Saturated	37	50	0.0	0	6994.5	4061.7	58.2	0.73	0.800	1.890	2.4	0.00
56	122.8	Saturated	Saturated	36	55	0.0	0	7117.3	4122.1	56.4	0.72	0.796	1.880	2.4	0.00
57	122.8	Saturated	Saturated	36	55	0.0	0	7240.1	4182.5	56.2	0.72	0.793	1.870	2.4	0.00
58	126.8	Saturated	Saturated	36	55	0.0	0	7366.9	4246.9	56.0	0.71	0.788	1.859	2.4	0.00
59	126.8	Saturated	Saturated	36	55	0.0	0	7493.7	4311.3	55.7	0.71	0.784	1.849	2.4	0.00
60	126.8	Saturated	Saturated	36	55	0.0	0	7620.5	4375.7	55.5	0.70	0.780	1.838	2.4	0.00
61	126.8	Saturated	Saturated	37	60	0.0	0	7747.3	4440.1	56.8	0.70	0.776	1.828	2.4	0.00
62	126.8	Saturated	Saturated	37	60	0.0	0	7874.1	4504.5	56.6	0.69	0.772	1.818	2.4	0.00
63	124.6	Saturated	Saturated	37	60	0.0	0	7998.7	4566.7	56.4	0.69	0.768	1.809	2.4	0.00
64	124.6	Saturated	Saturated	37	60	0.0	0	8123.3	4628.9	56.2	0.68	0.763	1.799	2.4	0.00
65	124.6	Saturated	Saturated	37	60	0.0	0	8247.9	4691.1	56.0	0.68	0.759	1.790	2.4	0.00
66	124.6	Saturated	Saturated	56	65	0.0	0	8372.5	4753.3	84.5	0.67	0.755	1.781	2.4	0.00
67	124.6	Saturated	Saturated	56	65	0.0	0	8497.1	4815.5	84.2	0.67	0.751	1.772	2.4	0.00
68	131.3	Saturated	Saturated	56	65	0.0	0	8628.4	4884.4	83.9	0.66	0.747	1.762	2.4	0.00
69	131.3	Saturated	Saturated	56	65	0.0	0	8759.7	4953.3	83.6	0.66	0.743	1.753	2.4	0.00
70	131.3	Saturated	Saturated	56	65	0.0	0	8891.0	5022.2	83.3	0.65	0.738	1.743	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Number: 6

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	15.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.$_l$)	Liquefaction Settlment ΔS_i (inches)
1	128.6	Unsaturated	Unsaturated	14	5	55.0	29	128.6	128.6	37.9	1.00	0.640	2.000	Non-Liq.	0.00
2	128.6	Unsaturated	Unsaturated	14	5	55.0	29	257.2	257.2	37.9	1.00	0.638	2.000	Non-Liq.	0.00
3	128.6	Unsaturated	Unsaturated	14	5	55.0	29	385.8	385.8	37.9	1.00	0.636	2.000	Non-Liq.	0.00
4	128.6	Unsaturated	Unsaturated	14	5	55.0	29	514.4	514.4	37.9	0.99	0.634	2.000	Non-Liq.	0.00
5	128.6	Unsaturated	Unsaturated	14	5	55.0	29	643.0	643.0	40.0	0.99	0.631	2.000	Non-Liq.	0.00
6	128.6	Unsaturated	Unsaturated	14	5	55.0	29	771.6	771.6	37.2	0.99	0.629	2.000	Non-Liq.	0.00
7	128.6	Unsaturated	Unsaturated	14	5	55.0	29	900.2	900.2	34.8	0.98	0.627	1.367	Non-Liq.	0.00
8	132.4	Unsaturated	Unsaturated	14	5	55.0	29	1032.6	1032.6	32.8	0.98	0.624	0.939	Non-Liq.	0.00
9	132.4	Unsaturated	Saturated	14	5	55.0	29	1165.0	1102.6	33.6	0.98	0.657	1.083	Non-Liq.	0.00
10	132.4	Unsaturated	Saturated	14	5	55.0	29	1297.4	1172.6	32.7	0.97	0.685	0.930	Non-Liq.	0.00
11	132.4	Unsaturated	Saturated	45	10	41.1	0	1429.8	1242.6	87.7	0.97	0.710	2.000	2.8	0.00
12	132.4	Unsaturated	Saturated	45	10	41.1	0	1562.2	1312.6	86.6	0.96	0.731	2.000	2.7	0.00
13	118.7	Unsaturated	Saturated	45	10	41.1	0	1680.9	1368.9	85.7	0.96	0.750	2.000	2.7	0.00
14	118.7	Unsaturated	Saturated	45	10	41.1	0	1799.6	1425.2	84.8	0.95	0.768	2.000	2.6	0.00
15	118.7	Unsaturated	Saturated	45	10	41.1	0	1918.3	1481.5	93.3	0.95	0.784	2.000	2.6	0.00
16	118.7	Saturated	Saturated	16	15	68.6	31	2037.0	1537.8	36.5	0.95	0.798	1.976	Non-Liq.	0.00
17	118.7	Saturated	Saturated	16	15	68.6	31	2155.7	1594.1	36.0	0.94	0.810	1.730	Non-Liq.	0.00
18	130.8	Saturated	Saturated	16	15	68.6	31	2286.5	1662.5	35.4	0.94	0.820	1.496	Non-Liq.	0.00
19	130.8	Saturated	Saturated	16	15	68.6	31	2417.3	1730.9	34.8	0.93	0.828	1.314	Non-Liq.	0.00
20	130.8	Saturated	Saturated	16	15	68.6	31	2548.1	1799.3	34.3	0.93	0.835	1.169	Non-Liq.	0.00
21	130.8	Saturated	Saturated	46	20	0.0	0	2678.9	1867.7	84.3	0.92	0.841	2.000	2.4	0.00
22	130.8	Saturated	Saturated	46	20	0.0	0	2809.7	1936.1	83.5	0.92	0.846	2.000	2.4	0.00
23	125.5	Saturated	Saturated	46	20	0.0	0	2935.2	1999.2	82.8	0.91	0.851	2.000	2.3	0.00
24	125.5	Saturated	Saturated	46	20	0.0	0	3060.7	2062.3	82.2	0.90	0.856	2.000	2.3	0.00
25	125.5	Saturated	Saturated	46	20	0.0	0	3186.2	2125.4	81.5	0.90	0.859	2.000	2.3	0.00
26	125.5	Saturated	Saturated	35	25	0.0	0	3311.7	2188.5	61.5	0.89	0.862	2.000	2.3	0.00
27	125.5	Saturated	Saturated	35	25	0.0	0	3437.2	2251.6	61.1	0.89	0.864	2.000	2.3	0.00
28	119.6	Saturated	Saturated	35	25	0.0	0	3556.8	2308.8	63.9	0.88	0.867	2.000	2.3	0.00
29	119.6	Saturated	Saturated	35	25	0.0	0	3676.4	2366.0	63.5	0.88	0.869	2.000	2.3	0.00
30	119.6	Saturated	Saturated	35	25	0.0	0	3796.0	2423.2	63.1	0.87	0.870	2.000	2.3	0.00
31	119.6	Saturated	Saturated	19	30	53.5	24	3915.6	2480.4	38.1	0.87	0.871	2.000	Non-Liq.	0.00
32	119.6	Saturated	Saturated	19	30	53.5	24	4035.2	2537.6	37.7	0.86	0.872	2.000	Non-Liq.	0.00
33	119.1	Saturated	Saturated	19	30	53.5	24	4154.3	2594.3	37.4	0.85	0.872	2.000	Non-Liq.	0.00
34	119.1	Saturated	Saturated	19	30	53.5	24	4273.4	2651.0	37.1	0.85	0.872	1.981	Non-Liq.	0.00
35	119.1	Saturated	Saturated	19	30	53.5	24	4392.5	2707.7	36.9	0.84	0.872	1.834	Non-Liq.	0.00
36	119.1	Saturated	Saturated	28	35	0.0	0	4511.6	2764.4	48.7	0.84	0.871	2.000	2.3	0.00
37	119.1	Saturated	Saturated	28	35	0.0	0	4630.7	2821.1	48.5	0.83	0.870	2.000	2.3	0.00
38	129.8	Saturated	Saturated	28	35	0.0	0	4760.5	2888.5	48.2	0.83	0.867	2.000	2.3	0.00
39	129.8	Saturated	Saturated	28	35	0.0	0	4890.3	2955.9	47.9	0.82	0.864	2.000	2.3	0.00
40	129.8	Saturated	Saturated	28	35	0.0	0	5020.1	3023.3	47.6	0.81	0.862	2.000	2.3	0.00
41	129.8	Saturated	Saturated	44	40	0.0	0	5149.9	3090.7	74.4	0.81	0.858	2.000	2.3	0.00
42	129.8	Saturated	Saturated	44	40	0.0	0	5279.7	3158.1	73.9	0.80	0.855	2.000	2.3	0.00
43	134.5	Saturated	Saturated	44	40	0.0	0	5414.2	3230.2	73.5	0.80	0.851	2.000	2.3	0.00
44	134.5	Saturated	Saturated	44	40	0.0	0	5548.7	3302.3	73.1	0.79	0.847	2.000	2.4	0.00
45	134.5	Saturated	Saturated	44	40	0.0	0	5683.2	3374.4	72.7	0.79	0.843	2.000	2.4	0.00
46	134.5	Saturated	Saturated	21	45	42.2	0	5817.7	3446.5	37.8	0.78	0.839	2.000	2.4	0.00
47	134.5	Saturated	Saturated	21	45	42.2	0	5952.2	3518.6	37.5	0.77	0.834	1.989	2.4	0.00
48	131.3	Saturated	Saturated	21	45	42.2	0	6083.5	3587.5	37.3	0.77	0.830	1.852	2.2	0.00
49	131.3	Saturated	Saturated	21	45	42.2	0	6214.8	3656.4	37.0	0.76	0.826	1.729	2.1	0.00
50	131.3	Saturated	Saturated	21	45	42.2	0	6346.1	3725.3	36.8	0.76	0.822	1.623	2.0	0.00
51	131.3	Saturated	Saturated	38	50	0.0	0	6477.4	3794.2	60.8	0.75	0.817	1.937	2.4	0.00
52	131.3	Saturated	Saturated	38	50	0.0	0	6608.7	3863.1	60.6	0.75	0.813	1.925	2.4	0.00
53	123.9	Saturated	Saturated	38	50	0.0	0	6732.6	3924.6	60.3	0.74	0.809	1.914	2.4	0.00
54	123.9	Saturated	Saturated	38	50	0.0	0	6856.5	3986.1	60.1	0.73	0.805	1.903	2.4	0.00
55	123.9	Saturated	Saturated	38	50	0.0	0	6980.4	4047.6	59.8	0.73	0.801	1.892	2.4	0.00
56	123.9	Saturated	Saturated	44	55	0.0	0	7104.3	4109.1	69.0	0.72	0.798	1.882	2.4	0.00
57	123.9	Saturated	Saturated	44	55	0.0	0	7228.2	4170.6	68.7	0.72	0.794	1.872	2.4	0.00
58	117.7	Saturated	Saturated	44	55	0.0	0	7345.9	4225.9	68.5	0.71	0.790	1.862	2.4	0.00
59	117.7	Saturated	Saturated	44	55	0.0	0	7463.6	4281.2	68.3	0.71	0.787	1.853	2.4	0.00
60	117.7	Saturated	Saturated	44	55	0.0	0	7581.3	4336.5	68.0	0.70	0.783	1.845	2.4	0.00
61	117.7	Saturated	Saturated	48	60	0.0	0	7699.0	4391.8	74.0	0.70	0.779	1.836	2.4	0.00
62	117.7	Saturated	Saturated	48	60	0.0	0	7816.7	4447.1	73.7	0.69	0.776	1.827	2.4	0.00
63	130.3	Saturated	Saturated	48	60	0.0	0	7947.0	4515.0	73.4	0.69	0.771	1.817	2.4	0.00
64	130.3	Saturated	Saturated	48	60	0.0	0	8077.3	4582.9	73.1	0.68	0.767	1.806	2.4	0.00
65	130.3	Saturated	Saturated	48	60	0.0	0	8207.6	4650.8	72.9	0.68	0.762	1.796	2.4	0.00
66	130.3	Saturated	Saturated	27	65	0.0	0	8337.9	4718.7	40.3	0.67	0.758	1.786	2.4	0.00
67	130.3	Saturated	Saturated	27	65	0.0	0	8468.2	4786.6	40.1	0.67	0.753	1.776	2.4	0.00
68	121.5	Saturated	Saturated	27	65	0.0	0	8589.7	4845.7	40.0	0.66	0.750	1.768	2.4	0.00
69	121.5	Saturated	Saturated	27	65	0.0	0	8711.2	4904.8	39.8	0.66	0.746	1.759	2.4	0.00
70	121.5	Saturated	Saturated	27	65	0.0	0	8832.7	4963.9	39.6	0.65	0.742	1.751	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 7

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	15.0
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	131.0	Unsaturated	Unsaturated	21	5	0.0	0	131.0	131.0	50.0	1.00	0.640	2.000	Non-Liq.	0.00
2	131.0	Unsaturated	Unsaturated	21	5	0.0	0	262.0	262.0	50.0	1.00	0.638	2.000	Non-Liq.	0.00
3	131.0	Unsaturated	Unsaturated	21	5	0.0	0	393.0	393.0	50.0	1.00	0.636	2.000	Non-Liq.	0.00
4	131.0	Unsaturated	Unsaturated	21	5	0.0	0	524.0	524.0	49.1	0.99	0.634	2.000	Non-Liq.	0.00
5	131.0	Unsaturated	Unsaturated	21	5	0.0	0	655.0	655.0	47.5	0.99	0.631	2.000	Non-Liq.	0.00
6	131.0	Unsaturated	Unsaturated	21	5	0.0	0	786.0	786.0	44.5	0.99	0.629	2.000	Non-Liq.	0.00
7	131.0	Unsaturated	Unsaturated	21	5	0.0	0	917.0	917.0	42.2	0.98	0.627	2.000	Non-Liq.	0.00
8	131.3	Unsaturated	Unsaturated	21	5	0.0	0	1048.3	1048.3	40.2	0.98	0.624	2.000	Non-Liq.	0.00
9	131.3	Unsaturated	Saturated	21	5	0.0	0	1179.6	1117.2	41.4	0.98	0.657	2.000	3.0	0.00
10	131.3	Unsaturated	Saturated	21	5	0.0	0	1310.9	1186.1	40.6	0.97	0.684	2.000	2.9	0.00
11	131.3	Unsaturated	Saturated	22	10	0.0	0	1442.2	1255.0	41.5	0.97	0.709	2.000	2.8	0.00
12	131.3	Unsaturated	Saturated	22	10	0.0	0	1573.5	1323.9	40.8	0.96	0.730	2.000	2.7	0.00
13	135.7	Unsaturated	Saturated	22	10	0.0	0	1709.2	1397.2	40.0	0.96	0.748	2.000	2.7	0.00
14	135.7	Unsaturated	Saturated	22	10	0.0	0	1844.9	1470.5	39.4	0.95	0.763	2.000	2.6	0.00
15	135.7	Unsaturated	Saturated	22	10	0.0	0	1980.6	1543.8	42.9	0.95	0.777	2.000	2.6	0.00
16	135.7	Saturated	Saturated	14	15	66.8	38	2116.3	1617.1	31.6	0.95	0.788	0.749	Non-Liq.	0.00
17	135.7	Saturated	Saturated	14	15	66.8	38	2252.0	1690.4	31.0	0.94	0.798	0.682	Non-Liq.	0.00
18	128.4	Saturated	Saturated	14	15	66.8	38	2380.4	1756.4	30.5	0.94	0.808	0.633	Non-Liq.	0.00
19	128.4	Saturated	Saturated	14	15	66.8	38	2508.8	1822.4	30.1	0.93	0.816	0.591	Non-Liq.	0.00
20	128.4	Saturated	Saturated	14	15	66.8	38	2637.2	1888.4	29.6	0.93	0.824	0.555	Non-Liq.	0.00
21	128.4	Saturated	Saturated	19	20	55.5	28	2765.6	1954.4	39.4	0.92	0.830	2.000	Non-Liq.	0.00
22	128.4	Saturated	Saturated	19	20	55.5	28	2894.0	2020.4	38.9	0.92	0.835	2.000	Non-Liq.	0.00
23	129.4	Saturated	Saturated	19	20	55.5	28	3023.4	2087.4	38.4	0.91	0.840	2.000	Non-Liq.	0.00
24	129.4	Saturated	Saturated	19	20	55.5	28	3152.8	2154.4	38.0	0.90	0.844	2.000	Non-Liq.	0.00
25	129.4	Saturated	Saturated	19	20	55.5	28	3282.2	2221.4	37.6	0.90	0.847	2.000	Non-Liq.	0.00
26	129.4	Saturated	Saturated	21	25	0.0	0	3411.6	2288.4	35.7	0.89	0.849	1.468	1.7	0.00
27	129.4	Saturated	Saturated	21	25	0.0	0	3541.0	2355.4	35.3	0.89	0.851	1.329	1.6	0.00
28	139.5	Saturated	Saturated	21	25	0.0	0	3680.5	2432.5	37.1	0.88	0.851	2.000	2.3	0.00
29	139.5	Saturated	Saturated	21	25	0.0	0	3820.0	2509.6	36.6	0.88	0.851	1.781	2.1	0.00
30	139.5	Saturated	Saturated	21	25	0.0	0	3959.5	2586.7	36.2	0.87	0.850	1.590	1.9	0.00
31	139.5	Saturated	Saturated	27	30	0.0	0	4099.0	2663.8	47.5	0.87	0.849	2.000	2.4	0.00
32	139.5	Saturated	Saturated	27	30	0.0	0	4238.5	2740.9	47.1	0.86	0.848	2.000	2.4	0.00
33	120.9	Saturated	Saturated	27	30	0.0	0	4359.4	2799.4	46.8	0.85	0.848	2.000	2.4	0.00
34	120.9	Saturated	Saturated	27	30	0.0	0	4480.3	2857.9	46.6	0.85	0.848	2.000	2.4	0.00
35	120.9	Saturated	Saturated	27	30	0.0	0	4601.2	2916.4	46.3	0.84	0.848	2.000	2.4	0.00
36	120.9	Saturated	Saturated	34	35	0.0	0	4722.1	2974.9	58.0	0.84	0.847	2.000	2.4	0.00
37	120.9	Saturated	Saturated	34	35	0.0	0	4843.0	3033.4	57.7	0.83	0.846	2.000	2.4	0.00
38	125.5	Saturated	Saturated	34	35	0.0	0	4968.5	3096.5	57.4	0.83	0.844	2.000	2.4	0.00
39	125.5	Saturated	Saturated	34	35	0.0	0	5094.0	3159.6	57.1	0.82	0.842	2.000	2.4	0.00
40	125.5	Saturated	Saturated	34	35	0.0	0	5219.5	3222.7	56.8	0.81	0.840	2.000	2.4	0.00
41	125.5	Saturated	Saturated	41	40	0.0	0	5345.0	3285.8	68.2	0.81	0.838	2.000	2.4	0.00
42	125.5	Saturated	Saturated	41	40	0.0	0	5470.5	3348.9	67.8	0.80	0.835	2.000	2.4	0.00
43	126.5	Saturated	Saturated	41	40	0.0	0	5597.0	3413.0	67.5	0.80	0.833	2.000	2.4	0.00
44	126.5	Saturated	Saturated	41	40	0.0	0	5723.5	3477.1	67.2	0.79	0.830	1.997	2.4	0.00
45	126.5	Saturated	Saturated	41	40	0.0	0	5850.0	3541.2	66.9	0.79	0.827	1.985	2.4	0.00
46	126.5	Saturated	Saturated	44	45	0.0	0	5976.5	3605.3	71.4	0.78	0.823	1.972	2.4	0.00
47	126.5	Saturated	Saturated	44	45	0.0	0	6103.0	3669.4	71.1	0.77	0.820	1.960	2.4	0.00
48	122.9	Saturated	Saturated	44	45	0.0	0	6225.9	3729.9	70.8	0.77	0.817	1.949	2.4	0.00
49	122.9	Saturated	Saturated	44	45	0.0	0	6348.8	3790.4	70.5	0.76	0.814	1.938	2.4	0.00
50	122.9	Saturated	Saturated	44	45	0.0	0	6471.7	3850.9	70.2	0.76	0.811	1.927	2.4	0.00
51	122.9	Saturated	Saturated	48	50	0.0	0	6594.6	3911.4	76.2	0.75	0.807	1.916	2.4	0.00
52	122.9	Saturated	Saturated	48	50	0.0	0	6717.5	3971.9	75.9	0.75	0.804	1.905	2.4	0.00
53	118.9	Saturated	Saturated	48	50	0.0	0	6836.4	4028.4	75.7	0.74	0.800	1.896	2.4	0.00
54	118.9	Saturated	Saturated	48	50	0.0	0	6955.3	4084.9	75.4	0.73	0.797	1.886	2.4	0.00
55	118.9	Saturated	Saturated	48	50	0.0	0	7074.2	4141.4	75.1	0.73	0.794	1.876	2.4	0.00
56	118.9	Saturated	Saturated	54	55	0.0	0	7193.1	4197.9	84.2	0.72	0.790	1.867	2.4	0.00
57	118.9	Saturated	Saturated	54	55	0.0	0	7312.0	4254.4	83.9	0.72	0.787	1.858	2.4	0.00
58	122.7	Saturated	Saturated	54	55	0.0	0	7434.7	4314.7	83.6	0.71	0.783	1.848	2.4	0.00
59	122.7	Saturated	Saturated	54	55	0.0	0	7557.4	4375.0	83.3	0.71	0.779	1.838	2.4	0.00
60	122.7	Saturated	Saturated	54	55	0.0	0	7680.1	4435.3	83.0	0.70	0.776	1.829	2.4	0.00
61	122.7	Saturated	Saturated	56	60	0.0	0	7802.8	4495.6	85.8	0.70	0.772	1.820	2.4	0.00
62	122.7	Saturated	Saturated	56	60	0.0	0	7925.5	4555.9	85.5	0.69	0.768	1.810	2.4	0.00
63	127.9	Saturated	Saturated	56	60	0.0	0	8053.4	4621.4	85.1	0.69	0.764	1.801	2.4	0.00
64	127.9	Saturated	Saturated	56	60	0.0	0	8181.3	4686.9	84.8	0.68	0.759	1.791	2.4	0.00
65	127.9	Saturated	Saturated	56	60	0.0	0	8309.2	4752.4	84.5	0.68	0.755	1.781	2.4	0.00
66	127.9	Saturated	Saturated	36	65	0.0	0	8437.1	4817.9	54.1	0.67	0.751	1.772	2.4	0.00
67	127.9	Saturated	Saturated	36	65	0.0	0	8565.0	4883.4	53.9	0.67	0.747	1.762	2.4	0.00
68	120.1	Saturated	Saturated	36	65	0.0	0	8685.1	4941.1	53.8	0.66	0.743	1.754	2.4	0.00
69	120.1	Saturated	Saturated	36	65	0.0	0	8805.2	4998.8	53.6	0.66	0.740	1.746	2.4	0.00
70	120.1	Saturated	Saturated	36	65	0.0	0	8925.3	5056.5	53.5	0.65	0.736	1.738	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Number: 9

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	8.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	1522.8	Unsaturated	Unsaturated	11	5	80.1	32	1522.8	1522.8	21.5	1.00	0.640	0.276	Non-Liq.	0.00
2	1522.8	Unsaturated	Unsaturated	11	5	80.1	32	3045.6	3045.6	16.4	1.00	0.638	0.188	Non-Liq.	0.00
3	122.8	Unsaturated	Unsaturated	11	5	80.1	32	3168.4	3168.4	16.2	1.00	0.636	0.186	Non-Liq.	0.00
4	122.8	Unsaturated	Unsaturated	11	5	80.1	32	3291.2	3291.2	16.0	0.99	0.634	0.183	Non-Liq.	0.00
5	122.8	Unsaturated	Unsaturated	11	5	80.1	32	3414.0	3414.0	16.5	0.99	0.631	0.187	Non-Liq.	0.00
6	122.8	Unsaturated	Unsaturated	11	5	80.1	32	3536.8	3536.8	16.3	0.99	0.629	0.184	Non-Liq.	0.00
7	122.8	Unsaturated	Unsaturated	11	5	80.1	32	3659.6	3659.6	16.1	0.98	0.627	0.182	Non-Liq.	0.00
8	128.7	Unsaturated	Unsaturated	11	5	80.1	32	3788.3	3788.3	15.9	0.98	0.624	0.179	Non-Liq.	0.00
9	128.7	Saturated	Saturated	11	5	80.1	32	3917.0	3854.6	16.6	0.98	0.632	0.185	Non-Liq.	0.00
10	128.7	Saturated	Saturated	11	5	80.1	32	4045.7	3920.9	16.5	0.97	0.639	0.184	Non-Liq.	0.00
11	128.7	Saturated	Saturated	24	10	35.9	0	4174.4	3987.2	34.8	0.97	0.646	1.038	1.6	0.00
12	128.7	Saturated	Saturated	24	10	35.9	0	4303.1	4053.5	34.6	0.96	0.652	0.995	1.5	0.00
13	125.7	Saturated	Saturated	24	10	35.9	0	4428.8	4116.8	34.4	0.96	0.657	0.956	1.5	0.00
14	125.7	Saturated	Saturated	24	10	35.9	0	4554.5	4180.1	34.2	0.95	0.663	0.921	1.4	0.00
15	125.7	Saturated	Saturated	24	10	35.9	0	4680.2	4243.4	38.8	0.95	0.668	1.860	2.8	0.00
16	125.7	Saturated	Saturated	28	15	32.5	0	4805.9	4306.7	46.4	0.95	0.672	1.849	2.8	0.00
17	125.7	Saturated	Saturated	28	15	32.5	0	4931.6	4370.0	46.2	0.94	0.676	1.839	2.7	0.00
18	122.9	Saturated	Saturated	28	15	32.5	0	5054.5	4430.5	46.0	0.94	0.680	1.830	2.7	0.00
19	122.9	Saturated	Saturated	28	15	32.5	0	5177.4	4491.0	45.8	0.93	0.684	1.820	2.7	0.00
20	122.9	Saturated	Saturated	28	15	32.5	0	5300.3	4551.5	45.6	0.93	0.687	1.811	2.6	0.00
21	122.9	Saturated	Saturated	11	20	55.9	22	5423.2	4612.0	17.0	0.92	0.690	0.185	Non-Liq.	0.00
22	122.9	Saturated	Saturated	11	20	55.9	22	5546.1	4672.5	17.0	0.92	0.692	0.184	Non-Liq.	0.00
23	123.4	Saturated	Saturated	11	20	55.9	22	5669.5	4733.5	16.9	0.91	0.695	0.183	Non-Liq.	0.00
24	123.4	Saturated	Saturated	11	20	55.9	22	5792.9	4794.5	16.8	0.90	0.697	0.182	Non-Liq.	0.00
25	123.4	Saturated	Saturated	11	20	55.9	22	5916.3	4855.5	16.8	0.90	0.698	0.181	Non-Liq.	0.00
26	123.4	Saturated	Saturated	28	25	0.0	0	6039.7	4916.5	39.1	0.89	0.700	1.758	2.5	0.00
27	123.4	Saturated	Saturated	28	25	0.0	0	6163.1	4977.5	38.9	0.89	0.701	1.749	2.5	0.00
28	121.4	Saturated	Saturated	28	25	0.0	0	6284.5	5036.5	41.3	0.88	0.702	1.741	2.5	0.00
29	121.4	Saturated	Saturated	28	25	0.0	0	6405.9	5095.5	41.1	0.88	0.703	1.733	2.5	0.00
30	121.4	Saturated	Saturated	28	25	0.0	0	6527.3	5154.5	41.0	0.87	0.703	1.725	2.5	0.00
31	121.4	Saturated	Saturated	44	30	0.0	0	6648.7	5213.5	64.8	0.87	0.704	1.717	2.4	0.00
32	121.4	Saturated	Saturated	44	30	0.0	0	6770.1	5272.5	64.6	0.86	0.704	1.709	2.4	0.00
33	130.1	Saturated	Saturated	44	30	0.0	0	6900.2	5340.2	64.4	0.85	0.704	1.701	2.4	0.00
34	130.1	Saturated	Saturated	44	30	0.0	0	7030.3	5407.9	64.2	0.85	0.703	1.692	2.4	0.00
35	130.1	Saturated	Saturated	44	30	0.0	0	7160.4	5475.6	64.0	0.84	0.703	1.683	2.4	0.00
36	130.1	Saturated	Saturated	30	35	0.0	0	7290.5	5543.3	43.5	0.84	0.702	1.675	2.4	0.00
37	130.1	Saturated	Saturated	30	35	0.0	0	7420.6	5611.0	43.3	0.83	0.701	1.666	2.4	0.00
38	127.3	Saturated	Saturated	30	35	0.0	0	7547.9	5675.9	43.2	0.83	0.700	1.659	2.4	0.00
39	127.3	Saturated	Saturated	30	35	0.0	0	7675.2	5740.8	43.1	0.82	0.699	1.651	2.4	0.00
40	127.3	Saturated	Saturated	30	35	0.0	0	7802.5	5805.7	42.9	0.81	0.697	1.643	2.4	0.00
41	127.3	Saturated	Saturated	48	40	0.0	0	7929.8	5870.6	68.5	0.81	0.696	1.635	2.4	0.00
42	127.3	Saturated	Saturated	48	40	0.0	0	8057.1	5935.5	68.3	0.80	0.694	1.628	2.3	0.00
43	123.9	Saturated	Saturated	48	40	0.0	0	8181.0	5997.0	68.1	0.80	0.693	1.620	2.3	0.00
44	123.9	Saturated	Saturated	48	40	0.0	0	8304.9	6058.5	68.0	0.79	0.691	1.613	2.3	0.00
45	123.9	Saturated	Saturated	48	40	0.0	0	8428.8	6120.0	67.8	0.79	0.689	1.606	2.3	0.00
46	123.9	Saturated	Saturated	41	45	0.0	0	8552.7	6181.5	57.7	0.78	0.687	1.600	2.3	0.00
47	123.9	Saturated	Saturated	41	45	0.0	0	8676.6	6243.0	57.6	0.77	0.685	1.593	2.3	0.00
48	122.3	Saturated	Saturated	41	45	0.0	0	8798.9	6302.9	57.4	0.77	0.683	1.586	2.3	0.00
49	122.3	Saturated	Saturated	41	45	0.0	0	8921.2	6362.8	57.3	0.76	0.681	1.580	2.3	0.00
50	122.3	Saturated	Saturated	41	45	0.0	0	9043.5	6422.7	57.2	0.76	0.679	1.573	2.3	0.00
51	122.3	Saturated	Saturated	27	50	0.0	0	9165.8	6482.6	36.2	0.75	0.677	1.148	1.7	0.00
52	122.3	Saturated	Saturated	27	50	0.0	0	9288.1	6542.5	36.0	0.75	0.675	1.118	1.7	0.00
53	120.6	Saturated	Saturated	27	50	0.0	0	9408.7	6600.7	35.9	0.74	0.672	1.090	1.6	0.00
54	120.6	Saturated	Saturated	27	50	0.0	0	9529.3	6658.9	35.8	0.73	0.670	1.063	1.6	0.00
55	120.6	Saturated	Saturated	27	50	0.0	0	9649.9	6717.1	35.7	0.73	0.668	1.038	1.6	0.00
56	120.6	Saturated	Saturated	30	55	0.0	0	9770.5	6775.3	40.7	0.72	0.665	1.536	2.3	0.00
57	120.6	Saturated	Saturated	30	55	0.0	0	9891.1	6833.5	40.6	0.72	0.663	1.530	2.3	0.00
58	125.2	Saturated	Saturated	30	55	0.0	0	10016.3	6896.3	40.4	0.71	0.660	1.524	2.3	0.00
59	125.2	Saturated	Saturated	30	55	0.0	0	10141.5	6959.1	40.3	0.71	0.658	1.518	2.3	0.00
60	125.2	Saturated	Saturated	30	55	0.0	0	10266.7	7021.9	40.2	0.70	0.655	1.511	2.3	0.00
61	125.2	Saturated	Saturated	42	60	0.0	0	10391.9	7084.7	57.1	0.70	0.652	1.505	2.3	0.00
62	125.2	Saturated	Saturated	42	60	0.0	0	10517.1	7147.5	56.9	0.69	0.649	1.499	2.3	0.00
63	131.1	Saturated	Saturated	42	60	0.0	0	10648.2	7216.2	56.8	0.69	0.647	1.493	2.3	0.00
64	131.1	Saturated	Saturated	42	60	0.0	0	10779.3	7284.9	56.6	0.68	0.644	1.486	2.3	0.00
65	131.1	Saturated	Saturated	42	60	0.0	0	10910.4	7353.6	56.5	0.68	0.641	1.480	2.3	0.00
66	131.1	Saturated	Saturated	34	65	0.0	0	11041.5	7422.3	45.6	0.67	0.638	1.473	2.3	0.00
67	131.1	Saturated	Saturated	34	65	0.0	0	11172.6	7491.0	45.5	0.67	0.635	1.467	2.3	0.00
68	118.9	Saturated	Saturated	34	65	0.0	0	11291.5	7547.5	45.4	0.66	0.633	1.462	2.3	0.00
69	118.9	Saturated	Saturated	34	65	0.0	0	11410.4	7604.0	45.3	0.66	0.630	1.456	2.3	0.00
70	118.9	Saturated	Saturated	34	65	0.0	0	11529.3	7660.5	45.3	0.65	0.628	1.451	2.3	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 10

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	11.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	121.6	Unsaturated	Unsaturated	11	5	67.2	37	121.6	121.6	29.8	1.00	0.640	0.610	Non-Liq.	0.00
2	121.6	Unsaturated	Unsaturated	11	5	67.2	37	243.2	243.2	29.8	1.00	0.638	0.610	Non-Liq.	0.00
3	121.6	Unsaturated	Unsaturated	11	5	67.2	37	364.8	364.8	29.8	1.00	0.636	0.610	Non-Liq.	0.00
4	121.6	Unsaturated	Unsaturated	11	5	67.2	37	486.4	486.4	29.8	0.99	0.634	0.610	Non-Liq.	0.00
5	121.6	Unsaturated	Unsaturated	11	5	67.2	37	608.0	608.0	31.7	0.99	0.631	0.794	Non-Liq.	0.00
6	121.6	Unsaturated	Unsaturated	11	5	67.2	37	729.6	729.6	31.2	0.99	0.629	0.741	Non-Liq.	0.00
7	121.6	Unsaturated	Unsaturated	11	5	67.2	37	851.2	851.2	29.2	0.98	0.627	0.568	Non-Liq.	0.00
8	110.9	Unsaturated	Unsaturated	11	5	67.2	37	962.1	962.1	27.7	0.98	0.624	0.477	Non-Liq.	0.00
9	110.9	Unsaturated	Saturated	11	5	67.2	37	1073.0	1010.6	28.4	0.98	0.660	0.519	Non-Liq.	0.00
10	110.9	Unsaturated	Saturated	11	5	67.2	37	1183.9	1059.1	27.9	0.97	0.692	0.487	Non-Liq.	0.00
11	110.9	Unsaturated	Saturated	7	10	73.9	39	1294.8	1107.6	19.2	0.97	0.721	0.250	Non-Liq.	0.00
12	110.9	Saturated	Saturated	7	10	73.9	39	1405.7	1156.1	18.9	0.96	0.746	0.243	Non-Liq.	0.00
13	119.3	Saturated	Saturated	7	10	73.9	39	1525.0	1213.0	18.5	0.96	0.768	0.237	Non-Liq.	0.00
14	119.3	Saturated	Saturated	7	10	73.9	39	1644.3	1269.9	18.1	0.95	0.788	0.231	Non-Liq.	0.00
15	119.3	Saturated	Saturated	7	10	73.9	39	1763.6	1326.8	19.3	0.95	0.805	0.246	Non-Liq.	0.00
16	119.3	Saturated	Saturated	16	15	77.4	54	1882.9	1383.7	38.0	0.95	0.820	2.000	Non-Liq.	0.00
17	119.3	Saturated	Saturated	16	15	77.4	54	2002.2	1440.6	37.4	0.94	0.833	2.000	Non-Liq.	0.00
18	129.8	Saturated	Saturated	16	15	77.4	54	2132.0	1508.0	36.8	0.94	0.843	2.000	Non-Liq.	0.00
19	129.8	Saturated	Saturated	16	15	77.4	54	2261.8	1575.4	36.1	0.93	0.851	1.794	Non-Liq.	0.00
20	129.8	Saturated	Saturated	16	15	77.4	54	2391.6	1642.8	35.5	0.93	0.859	1.548	Non-Liq.	0.00
21	129.8	Saturated	Saturated	21	20	67.2	41	2521.4	1710.2	45.4	0.92	0.865	2.000	Non-Liq.	0.00
22	129.8	Saturated	Saturated	21	20	67.2	41	2651.2	1777.6	44.9	0.92	0.870	2.000	Non-Liq.	0.00
23	127.4	Saturated	Saturated	21	20	67.2	41	2778.6	1842.6	44.5	0.91	0.874	2.000	Non-Liq.	0.00
24	127.4	Saturated	Saturated	21	20	67.2	41	2906.0	1907.6	44.1	0.90	0.878	2.000	Non-Liq.	0.00
25	127.4	Saturated	Saturated	21	20	67.2	41	3033.4	1972.6	43.5	0.90	0.881	2.000	Non-Liq.	0.00
26	127.4	Saturated	Saturated	18	25	40.3	0	3160.8	2037.6	36.7	0.89	0.884	1.914	2.2	0.00
27	127.4	Saturated	Saturated	18	25	40.3	0	3288.2	2102.6	36.2	0.89	0.885	1.710	1.9	0.00
28	123.1	Saturated	Saturated	18	25	40.3	0	3411.3	2163.3	37.8	0.88	0.887	2.000	2.3	0.00
29	123.1	Saturated	Saturated	18	25	40.3	0	3534.4	2224.0	37.4	0.88	0.888	2.000	2.3	0.00
30	123.1	Saturated	Saturated	18	25	40.3	0	3657.5	2284.7	37.0	0.87	0.889	2.000	2.2	0.00
31	123.1	Saturated	Saturated	26	30	0.0	0	3780.6	2345.4	47.3	0.87	0.890	2.000	2.2	0.00
32	123.1	Saturated	Saturated	26	30	0.0	0	3903.7	2406.1	46.9	0.86	0.889	2.000	2.2	0.00
33	130.4	Saturated	Saturated	26	30	0.0	0	4034.1	2474.1	46.6	0.85	0.888	2.000	2.3	0.00
34	130.4	Saturated	Saturated	26	30	0.0	0	4164.5	2542.1	46.3	0.85	0.886	2.000	2.3	0.00
35	130.4	Saturated	Saturated	26	30	0.0	0	4294.9	2610.1	45.9	0.84	0.884	2.000	2.3	0.00
36	130.4	Saturated	Saturated	29	35	0.0	0	4425.3	2678.1	50.9	0.84	0.882	2.000	2.3	0.00
37	130.4	Saturated	Saturated	29	35	0.0	0	4555.7	2746.1	50.6	0.83	0.879	2.000	2.3	0.00
38	130.4	Saturated	Saturated	29	35	0.0	0	4686.1	2814.1	50.2	0.83	0.876	2.000	2.3	0.00
39	130.4	Saturated	Saturated	29	35	0.0	0	4816.5	2882.1	49.9	0.82	0.873	2.000	2.3	0.00
40	130.4	Saturated	Saturated	29	35	0.0	0	4946.9	2950.1	49.6	0.81	0.870	2.000	2.3	0.00
41	130.4	Saturated	Saturated	40	40	0.0	0	5077.3	3018.1	68.0	0.81	0.867	2.000	2.3	0.00
42	130.4	Saturated	Saturated	40	40	0.0	0	5207.7	3086.1	67.6	0.80	0.863	2.000	2.3	0.00
43	124.8	Saturated	Saturated	40	40	0.0	0	5332.5	3148.5	67.3	0.80	0.860	2.000	2.3	0.00
44	124.8	Saturated	Saturated	40	40	0.0	0	5457.3	3210.9	66.9	0.79	0.857	2.000	2.3	0.00
45	124.8	Saturated	Saturated	40	40	0.0	0	5582.1	3273.3	66.6	0.79	0.853	2.000	2.3	0.00
46	124.8	Saturated	Saturated	36	45	0.0	0	5706.9	3335.7	59.6	0.78	0.850	2.000	2.4	0.00
47	124.8	Saturated	Saturated	36	45	0.0	0	5831.7	3398.1	59.3	0.77	0.846	2.000	2.4	0.00
48	133.8	Saturated	Saturated	36	45	0.0	0	5965.5	3469.5	59.0	0.77	0.842	1.999	2.4	0.00
49	133.8	Saturated	Saturated	36	45	0.0	0	6099.3	3540.9	58.7	0.76	0.837	1.985	2.4	0.00
50	133.8	Saturated	Saturated	36	45	0.0	0	6233.1	3612.3	58.4	0.76	0.832	1.971	2.4	0.00
51	133.8	Saturated	Saturated	36	50	0.0	0	6366.9	3683.7	58.1	0.75	0.827	1.957	2.4	0.00
52	133.8	Saturated	Saturated	36	50	0.0	0	6500.7	3755.1	57.8	0.75	0.823	1.944	2.4	0.00
53	122.5	Saturated	Saturated	36	50	0.0	0	6623.2	3815.2	57.6	0.74	0.819	1.933	2.4	0.00
54	122.5	Saturated	Saturated	36	50	0.0	0	6745.7	3875.3	57.3	0.73	0.815	1.922	2.4	0.00
55	122.5	Saturated	Saturated	36	50	0.0	0	6868.2	3935.4	57.1	0.73	0.811	1.912	2.4	0.00
56	122.5	Saturated	Saturated	35	55	0.0	0	6990.7	3995.5	55.3	0.72	0.807	1.901	2.4	0.00
57	122.5	Saturated	Saturated	35	55	0.0	0	7113.2	4055.6	55.1	0.72	0.803	1.891	2.4	0.00
58	127.2	Saturated	Saturated	35	55	0.0	0	7240.4	4120.4	54.8	0.71	0.799	1.880	2.4	0.00
59	127.2	Saturated	Saturated	35	55	0.0	0	7367.6	4185.2	54.6	0.71	0.794	1.869	2.4	0.00
60	127.2	Saturated	Saturated	35	55	0.0	0	7494.8	4250.0	54.4	0.70	0.790	1.859	2.4	0.00
61	127.2	Saturated	Saturated	42	60	0.0	0	7622.0	4314.8	65.0	0.70	0.785	1.848	2.4	0.00
62	127.2	Saturated	Saturated	42	60	0.0	0	7749.2	4379.6	64.8	0.69	0.781	1.838	2.4	0.00
63	130.6	Saturated	Saturated	42	60	0.0	0	7879.8	4447.8	64.5	0.69	0.776	1.827	2.4	0.00
64	130.6	Saturated	Saturated	42	60	0.0	0	8010.4	4516.0	64.2	0.68	0.772	1.817	2.4	0.00
65	130.6	Saturated	Saturated	42	60	0.0	0	8141.0	4584.2	64.0	0.68	0.767	1.806	2.4	0.00
66	130.6	Saturated	Saturated	31	65	0.0	0	8271.6	4652.4	47.0	0.67	0.763	1.796	2.4	0.00
67	130.6	Saturated	Saturated	31	65	0.0	0	8402.2	4720.6	46.9	0.67	0.758	1.786	2.4	0.00
68	120.1	Saturated	Saturated	31	65	0.0	0	8522.3	4778.3	46.7	0.66	0.754	1.778	2.4	0.00
69	120.1	Saturated	Saturated	31	65	0.0	0	8642.4	4836.0	46.6	0.66	0.750	1.769	2.4	0.00
70	120.1	Saturated	Saturated	31	65	0.0	0	8762.5	4893.7	46.4	0.65	0.747	1.761	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 11

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	13.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	112.1	Unsaturated	Unsaturated	9	5	73.1	48	112.1	112.1	24.8	1.00	0.640	0.367	Non-Liq.	0.00
2	112.1	Unsaturated	Unsaturated	9	5	73.1	48	224.2	224.2	24.8	1.00	0.638	0.367	Non-Liq.	0.00
3	112.1	Unsaturated	Unsaturated	9	5	73.1	48	336.3	336.3	24.8	1.00	0.636	0.367	Non-Liq.	0.00
4	112.1	Unsaturated	Unsaturated	9	5	73.1	48	448.4	448.4	24.8	0.99	0.634	0.367	Non-Liq.	0.00
5	112.1	Unsaturated	Unsaturated	9	5	73.1	48	560.5	560.5	26.3	0.99	0.631	0.416	Non-Liq.	0.00
6	112.1	Unsaturated	Unsaturated	9	5	73.1	48	672.6	672.6	26.3	0.99	0.629	0.416	Non-Liq.	0.00
7	112.1	Unsaturated	Unsaturated	9	5	73.1	48	784.7	784.7	25.8	0.98	0.627	0.401	Non-Liq.	0.00
8	130.3	Unsaturated	Unsaturated	9	5	73.1	48	915.0	915.0	24.1	0.98	0.624	0.349	Non-Liq.	0.00
9	130.3	Unsaturated	Saturated	9	5	73.1	48	1045.3	982.9	24.5	0.98	0.661	0.359	Non-Liq.	0.00
10	130.3	Unsaturated	Saturated	9	5	73.1	48	1175.6	1050.8	23.8	0.97	0.693	0.340	Non-Liq.	0.00
11	130.3	Unsaturated	Saturated	19	10	0.0	0	1305.9	1118.7	38.0	0.97	0.720	2.000	2.8	0.00
12	130.3	Unsaturated	Saturated	19	10	0.0	0	1436.2	1186.6	37.2	0.96	0.743	2.000	2.7	0.00
13	121.8	Unsaturated	Saturated	19	10	0.0	0	1558.0	1246.0	36.4	0.96	0.764	1.935	2.5	0.00
14	121.8	Saturated	Saturated	19	10	0.0	0	1679.8	1305.4	35.6	0.95	0.783	1.627	2.1	0.00
15	121.8	Saturated	Saturated	19	10	0.0	0	1801.6	1364.8	39.1	0.95	0.799	2.000	2.5	0.00
16	121.8	Saturated	Saturated	12	15	64.2	39	1923.4	1424.2	29.0	0.95	0.813	0.542	Non-Liq.	0.00
17	121.8	Saturated	Saturated	12	15	64.2	39	2045.2	1483.6	28.5	0.94	0.826	0.507	Non-Liq.	0.00
18	129.8	Saturated	Saturated	12	15	64.2	39	2175.0	1551.0	28.0	0.94	0.836	0.474	Non-Liq.	0.00
19	129.8	Saturated	Saturated	12	15	64.2	39	2304.8	1618.4	27.5	0.93	0.844	0.447	Non-Liq.	0.00
20	129.8	Saturated	Saturated	12	15	64.2	39	2434.6	1685.8	27.0	0.93	0.852	0.423	Non-Liq.	0.00
21	129.8	Saturated	Saturated	26	20	44.8	0	2564.4	1753.2	54.1	0.92	0.858	2.000	2.3	0.00
22	129.8	Saturated	Saturated	26	20	44.8	0	2694.2	1820.6	53.6	0.92	0.863	2.000	2.3	0.00
23	122.2	Saturated	Saturated	26	20	44.8	0	2816.4	1880.4	53.2	0.91	0.869	2.000	2.3	0.00
24	122.2	Saturated	Saturated	26	20	44.8	0	2938.6	1940.2	52.8	0.90	0.873	2.000	2.3	0.00
25	122.2	Saturated	Saturated	26	20	44.8	0	3060.8	2000.0	52.4	0.90	0.877	2.000	2.3	0.00
26	122.2	Saturated	Saturated	29	25	0.0	0	3183.0	2059.8	51.8	0.89	0.880	2.000	2.3	0.00
27	122.2	Saturated	Saturated	29	25	0.0	0	3305.2	2119.6	51.4	0.89	0.883	2.000	2.3	0.00
28	129.0	Saturated	Saturated	29	25	0.0	0	3434.2	2186.2	53.7	0.88	0.884	2.000	2.3	0.00
29	129.0	Saturated	Saturated	29	25	0.0	0	3563.2	2252.8	53.3	0.88	0.884	2.000	2.3	0.00
30	129.0	Saturated	Saturated	29	25	0.0	0	3692.2	2319.4	52.9	0.87	0.884	2.000	2.3	0.00
31	129.0	Saturated	Saturated	28	30	0.0	0	3821.2	2386.0	50.7	0.87	0.884	2.000	2.3	0.00
32	129.0	Saturated	Saturated	28	30	0.0	0	3950.2	2452.6	50.3	0.86	0.883	2.000	2.3	0.00
33	134.3	Saturated	Saturated	28	30	0.0	0	4084.5	2524.5	49.9	0.85	0.881	2.000	2.3	0.00
34	134.3	Saturated	Saturated	28	30	0.0	0	4218.8	2596.4	49.5	0.85	0.879	2.000	2.3	0.00
35	134.3	Saturated	Saturated	28	30	0.0	0	4353.1	2668.3	49.2	0.84	0.877	2.000	2.3	0.00
36	134.3	Saturated	Saturated	22	35	0.0	0	4487.4	2740.2	37.6	0.84	0.874	2.000	2.3	0.00
37	134.3	Saturated	Saturated	22	35	0.0	0	4621.7	2812.1	37.2	0.83	0.871	1.964	2.3	0.00
38	128.5	Saturated	Saturated	22	35	0.0	0	4750.2	2878.2	36.8	0.83	0.868	1.793	2.1	0.00
39	128.5	Saturated	Saturated	22	35	0.0	0	4878.7	2944.3	36.5	0.82	0.866	1.646	1.9	0.00
40	128.5	Saturated	Saturated	22	35	0.0	0	5007.2	3010.4	36.2	0.81	0.863	1.520	1.8	0.00
41	128.5	Saturated	Saturated	39	40	0.0	0	5135.7	3076.5	66.0	0.81	0.860	2.000	2.3	0.00
42	128.5	Saturated	Saturated	39	40	0.0	0	5264.2	3142.6	65.6	0.80	0.857	2.000	2.3	0.00
43	130.0	Saturated	Saturated	39	40	0.0	0	5394.2	3210.2	65.3	0.80	0.853	2.000	2.3	0.00
44	130.0	Saturated	Saturated	39	40	0.0	0	5524.2	3277.8	64.9	0.79	0.850	2.000	2.4	0.00
45	130.0	Saturated	Saturated	39	40	0.0	0	5654.2	3345.4	64.6	0.79	0.846	2.000	2.4	0.00
46	130.0	Saturated	Saturated	34	45	0.0	0	5784.2	3413.0	56.0	0.78	0.842	2.000	2.4	0.00
47	130.0	Saturated	Saturated	34	45	0.0	0	5914.2	3480.6	55.7	0.77	0.838	1.997	2.4	0.00
48	114.2	Saturated	Saturated	34	45	0.0	0	6028.4	3532.4	55.5	0.77	0.835	1.986	2.4	0.00
49	114.2	Saturated	Saturated	34	45	0.0	0	6142.6	3584.2	55.3	0.76	0.833	1.976	2.4	0.00
50	114.2	Saturated	Saturated	34	45	0.0	0	6256.8	3636.0	55.1	0.76	0.830	1.966	2.4	0.00
51	114.2	Saturated	Saturated	40	50	0.0	0	6371.0	3687.8	64.5	0.75	0.827	1.957	2.4	0.00
52	114.2	Saturated	Saturated	40	50	0.0	0	6485.2	3739.6	64.3	0.75	0.824	1.947	2.4	0.00
53	117.3	Saturated	Saturated	40	50	0.0	0	6602.5	3794.5	64.0	0.74	0.821	1.937	2.4	0.00
54	117.3	Saturated	Saturated	40	50	0.0	0	6719.8	3849.4	63.8	0.73	0.817	1.927	2.4	0.00
55	117.3	Saturated	Saturated	40	50	0.0	0	6837.1	3904.3	63.6	0.73	0.814	1.917	2.4	0.00
56	117.3	Saturated	Saturated	31	55	0.0	0	6954.4	3959.2	49.1	0.72	0.810	1.908	2.4	0.00
57	117.3	Saturated	Saturated	31	55	0.0	0	7071.7	4014.1	48.9	0.72	0.807	1.898	2.4	0.00
58	127.1	Saturated	Saturated	31	55	0.0	0	7198.8	4078.8	48.7	0.71	0.802	1.887	2.4	0.00
59	127.1	Saturated	Saturated	31	55	0.0	0	7325.9	4143.5	48.5	0.71	0.798	1.876	2.4	0.00
60	127.1	Saturated	Saturated	31	55	0.0	0	7453.0	4208.2	48.3	0.70	0.793	1.865	2.4	0.00
61	127.1	Saturated	Saturated	32	60	0.0	0	7580.1	4272.9	49.7	0.70	0.789	1.855	2.4	0.00
62	127.1	Saturated	Saturated	32	60	0.0	0	7707.2	4337.6	49.5	0.69	0.784	1.844	2.4	0.00
63	124.9	Saturated	Saturated	32	60	0.0	0	7832.1	4400.1	49.3	0.69	0.780	1.835	2.4	0.00
64	124.9	Saturated	Saturated	32	60	0.0	0	7957.0	4462.6	49.1	0.68	0.776	1.825	2.4	0.00
65	124.9	Saturated	Saturated	32	60	0.0	0	8081.9	4525.1	48.9	0.68	0.771	1.815	2.4	0.00
66	124.9	Saturated	Saturated	43	65	0.0	0	8206.8	4587.6	65.5	0.67	0.767	1.806	2.4	0.00
67	124.9	Saturated	Saturated	43	65	0.0	0	8331.7	4650.1	65.3	0.67	0.763	1.796	2.4	0.00
68	119.7	Saturated	Saturated	43	65	0.0	0	8451.4	4707.4	65.1	0.66	0.759	1.788	2.4	0.00
69	119.7	Saturated	Saturated	43	65	0.0	0	8571.1	4764.7	64.9	0.66	0.755	1.780	2.4	0.00
70	119.7	Saturated	Saturated	43	65	0.0	0	8690.8	4822.0	64.6	0.65	0.752	1.771	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 12

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	15.0
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	133.1	Unsaturated	Unsaturated	10	5	54.7	29	133.1	133.1	27.3	1.00	0.640	0.460	Non-Liq.	0.00
2	133.1	Unsaturated	Unsaturated	10	5	54.7	29	266.2	266.2	27.3	1.00	0.638	0.460	Non-Liq.	0.00
3	133.1	Unsaturated	Unsaturated	10	5	54.7	29	399.3	399.3	27.3	1.00	0.636	0.460	Non-Liq.	0.00
4	133.1	Unsaturated	Unsaturated	10	5	54.7	29	532.4	532.4	27.3	0.99	0.634	0.460	Non-Liq.	0.00
5	133.1	Unsaturated	Unsaturated	10	5	54.7	29	665.5	665.5	29.0	0.99	0.631	0.552	Non-Liq.	0.00
6	133.1	Unsaturated	Unsaturated	10	5	54.7	29	798.6	798.6	27.9	0.99	0.629	0.490	Non-Liq.	0.00
7	133.1	Unsaturated	Unsaturated	10	5	54.7	29	931.7	931.7	26.0	0.98	0.627	0.408	Non-Liq.	0.00
8	133.1	Unsaturated	Unsaturated	10	5	54.7	29	1064.8	1064.8	24.5	0.98	0.624	0.360	Non-Liq.	0.00
9	133.1	Unsaturated	Saturated	10	5	54.7	29	1197.9	1135.5	25.0	0.98	0.656	0.375	Non-Liq.	0.00
10	133.1	Unsaturated	Saturated	10	5	54.7	29	1331.0	1206.2	24.4	0.97	0.683	0.352	Non-Liq.	0.00
11	133.1	Unsaturated	Saturated	18	10	53.9	14	1464.1	1276.9	39.5	0.97	0.707	2.000	2.8	0.00
12	133.1	Unsaturated	Saturated	18	10	53.9	14	1597.2	1347.6	38.7	0.96	0.728	2.000	2.7	0.00
13	138.7	Unsaturated	Saturated	18	10	53.9	14	1735.9	1423.9	37.9	0.96	0.745	2.000	2.7	0.00
14	138.7	Unsaturated	Saturated	18	10	53.9	14	1874.6	1500.2	37.1	0.95	0.760	2.000	2.6	0.00
15	138.7	Unsaturated	Saturated	18	10	53.9	14	2013.3	1576.5	40.5	0.95	0.773	2.000	2.6	0.00
16	138.7	Saturated	Saturated	19	15	28.2	0	2152.0	1652.8	41.6	0.95	0.784	2.000	2.6	0.00
17	138.7	Saturated	Saturated	19	15	28.2	0	2290.7	1729.1	40.9	0.94	0.794	2.000	2.5	0.00
18	129.2	Saturated	Saturated	19	15	28.2	0	2419.9	1795.9	40.3	0.94	0.803	2.000	2.5	0.00
19	129.2	Saturated	Saturated	19	15	28.2	0	2549.1	1862.7	39.8	0.93	0.812	2.000	2.5	0.00
20	129.2	Saturated	Saturated	19	15	28.2	0	2678.3	1929.5	39.3	0.93	0.819	2.000	2.4	0.00
21	129.2	Saturated	Saturated	51	20	0.0	0	2807.5	1996.3	91.9	0.92	0.825	2.000	2.4	0.00
22	129.2	Saturated	Saturated	51	20	0.0	0	2936.7	2063.1	91.1	0.92	0.830	2.000	2.4	0.00
23	123.7	Saturated	Saturated	51	20	0.0	0	3060.4	2124.4	90.4	0.91	0.835	2.000	2.4	0.00
24	123.7	Saturated	Saturated	51	20	0.0	0	3184.1	2185.7	89.7	0.90	0.840	2.000	2.4	0.00
25	123.7	Saturated	Saturated	51	20	0.0	0	3307.8	2247.0	89.0	0.90	0.844	2.000	2.4	0.00
26	123.7	Saturated	Saturated	29	25	0.0	0	3431.5	2308.3	50.3	0.89	0.847	2.000	2.4	0.00
27	123.7	Saturated	Saturated	29	25	0.0	0	3555.2	2369.6	49.9	0.89	0.849	2.000	2.4	0.00
28	120.3	Saturated	Saturated	29	25	0.0	0	3675.5	2427.5	52.2	0.88	0.852	2.000	2.3	0.00
29	120.3	Saturated	Saturated	29	25	0.0	0	3795.8	2485.4	51.9	0.88	0.854	2.000	2.3	0.00
30	120.3	Saturated	Saturated	29	25	0.0	0	3916.1	2543.3	51.6	0.87	0.855	2.000	2.3	0.00
31	120.3	Saturated	Saturated	28	30	0.0	0	4036.4	2601.2	49.5	0.87	0.856	2.000	2.3	0.00
32	120.3	Saturated	Saturated	28	30	0.0	0	4156.7	2659.1	49.2	0.86	0.857	2.000	2.3	0.00
33	118.8	Saturated	Saturated	28	30	0.0	0	4275.5	2715.5	49.0	0.85	0.857	2.000	2.3	0.00
34	118.8	Saturated	Saturated	28	30	0.0	0	4394.3	2771.9	48.7	0.85	0.858	2.000	2.3	0.00
35	118.8	Saturated	Saturated	28	30	0.0	0	4513.1	2828.3	48.4	0.84	0.857	2.000	2.3	0.00
36	118.8	Saturated	Saturated	19	35	83.9	41	4631.9	2884.7	35.9	0.84	0.857	1.454	Non-Liq.	0.00
37	118.8	Saturated	Saturated	19	35	83.9	41	4750.7	2941.1	35.7	0.83	0.856	1.368	Non-Liq.	0.00
38	129.5	Saturated	Saturated	19	35	83.9	41	4880.2	3008.2	35.4	0.83	0.854	1.277	Non-Liq.	0.00
39	129.5	Saturated	Saturated	19	35	83.9	41	5009.7	3075.3	35.1	0.82	0.851	1.197	Non-Liq.	0.00
40	129.5	Saturated	Saturated	19	35	83.9	41	5139.2	3142.4	34.8	0.81	0.849	1.126	Non-Liq.	0.00
41	129.5	Saturated	Saturated	26	40	0.0	0	5268.7	3209.5	43.5	0.81	0.846	2.000	2.4	0.00
42	129.5	Saturated	Saturated	26	40	0.0	0	5398.2	3276.6	43.3	0.80	0.843	2.000	2.4	0.00
43	136.0	Saturated	Saturated	26	40	0.0	0	5534.2	3350.2	43.0	0.80	0.839	2.000	2.4	0.00
44	136.0	Saturated	Saturated	26	40	0.0	0	5670.2	3423.8	42.8	0.79	0.835	2.000	2.4	0.00
45	136.0	Saturated	Saturated	26	40	0.0	0	5806.2	3497.4	42.5	0.79	0.831	1.993	2.4	0.00
46	136.0	Saturated	Saturated	25	45	0.0	0	5942.2	3571.0	40.4	0.78	0.827	1.979	2.4	0.00
47	136.0	Saturated	Saturated	25	45	0.0	0	6078.2	3644.6	40.1	0.77	0.822	1.965	2.4	0.00
48	132.8	Saturated	Saturated	25	45	0.0	0	6211.0	3715.0	39.8	0.77	0.818	1.952	2.4	0.00
49	132.8	Saturated	Saturated	25	45	0.0	0	6343.8	3785.4	39.6	0.76	0.814	1.939	2.4	0.00
50	132.8	Saturated	Saturated	25	45	0.0	0	6476.6	3855.8	39.3	0.76	0.810	1.926	2.4	0.00
51	132.8	Saturated	Saturated	28	50	0.0	0	6609.4	3926.2	44.4	0.75	0.806	1.913	2.4	0.00
52	132.8	Saturated	Saturated	28	50	0.0	0	6742.2	3996.6	44.2	0.75	0.802	1.901	2.4	0.00
53	125.7	Saturated	Saturated	28	50	0.0	0	6867.9	4059.9	44.0	0.74	0.798	1.890	2.4	0.00
54	125.7	Saturated	Saturated	28	50	0.0	0	6993.6	4123.2	43.9	0.73	0.794	1.879	2.4	0.00
55	125.7	Saturated	Saturated	28	50	0.0	0	7119.3	4186.5	43.7	0.73	0.790	1.869	2.4	0.00
56	125.7	Saturated	Saturated	39	55	0.0	0	7245.0	4249.8	60.6	0.72	0.786	1.859	2.4	0.00
57	125.7	Saturated	Saturated	39	55	0.0	0	7370.7	4313.1	60.4	0.72	0.782	1.848	2.4	0.00
58	126.9	Saturated	Saturated	39	55	0.0	0	7497.6	4377.6	60.1	0.71	0.778	1.838	2.4	0.00
59	126.9	Saturated	Saturated	39	55	0.0	0	7624.5	4442.1	59.9	0.71	0.774	1.828	2.4	0.00
60	126.9	Saturated	Saturated	39	55	0.0	0	7751.4	4506.6	59.7	0.70	0.770	1.818	2.4	0.00
61	126.9	Saturated	Saturated	36	60	0.0	0	7878.3	4571.1	54.9	0.70	0.766	1.808	2.4	0.00
62	126.9	Saturated	Saturated	36	60	0.0	0	8005.2	4635.6	54.7	0.69	0.762	1.798	2.4	0.00
63	128.0	Saturated	Saturated	36	60	0.0	0	8133.2	4701.2	54.5	0.69	0.758	1.789	2.4	0.00
64	128.0	Saturated	Saturated	36	60	0.0	0	8261.2	4766.8	54.3	0.68	0.754	1.779	2.4	0.00
65	128.0	Saturated	Saturated	36	60	0.0	0	8389.2	4832.4	54.1	0.68	0.750	1.770	2.4	0.00
66	128.0	Saturated	Saturated	46	65	0.0	0	8517.2	4898.0	68.9	0.67	0.746	1.760	2.4	0.00
67	128.0	Saturated	Saturated	46	65	0.0	0	8645.2	4963.6	68.6	0.67	0.742	1.751	2.4	0.00
68	135.0	Saturated	Saturated	46	65	0.0	0	8780.2	5036.2	68.4	0.66	0.737	1.741	2.4	0.00
69	135.0	Saturated	Saturated	46	65	0.0	0	8915.2	5108.8	68.1	0.66	0.733	1.731	2.4	0.00
70	135.0	Saturated	Saturated	46	65	0.0	0	9050.2	5181.4	67.9	0.65	0.728	1.722	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 13

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	17.0
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	123.4	Unsaturated	Unsaturated	11	5	61.9	31	123.4	123.4	29.8	1.00	0.640	0.611	Non-Liq.	0.00
2	123.4	Unsaturated	Unsaturated	11	5	61.9	31	246.8	246.8	29.8	1.00	0.638	0.611	Non-Liq.	0.00
3	123.4	Unsaturated	Unsaturated	11	5	61.9	31	370.2	370.2	29.8	1.00	0.636	0.611	Non-Liq.	0.00
4	123.4	Unsaturated	Unsaturated	11	5	61.9	31	493.6	493.6	29.8	0.99	0.634	0.611	Non-Liq.	0.00
5	123.4	Unsaturated	Unsaturated	11	5	61.9	31	617.0	617.0	31.7	0.99	0.631	0.796	Non-Liq.	0.00
6	123.4	Unsaturated	Unsaturated	11	5	61.9	31	740.4	740.4	31.1	0.99	0.629	0.724	Non-Liq.	0.00
7	123.4	Unsaturated	Unsaturated	11	5	61.9	31	863.8	863.8	29.0	0.98	0.627	0.556	Non-Liq.	0.00
8	123.3	Unsaturated	Unsaturated	11	5	61.9	31	987.1	987.1	27.4	0.98	0.624	0.462	Non-Liq.	0.00
9	123.3	Unsaturated	Saturated	11	5	61.9	31	1110.4	1048.0	28.0	0.98	0.659	0.494	Non-Liq.	0.00
10	123.3	Unsaturated	Saturated	11	5	61.9	31	1233.7	1108.9	27.3	0.97	0.689	0.460	Non-Liq.	0.00
11	123.3	Unsaturated	Saturated	3	10	78.9	33	1357.0	1169.8	11.4	0.97	0.715	0.159	Non-Liq.	0.00
12	123.3	Unsaturated	Saturated	3	10	78.9	33	1480.3	1230.7	11.2	0.96	0.738	0.156	Non-Liq.	0.00
13	118.0	Unsaturated	Saturated	3	10	78.9	33	1598.3	1286.3	11.1	0.96	0.759	0.154	Non-Liq.	0.00
14	118.0	Unsaturated	Saturated	3	10	78.9	33	1716.3	1341.9	10.9	0.95	0.778	0.152	Non-Liq.	0.00
15	118.0	Unsaturated	Saturated	3	10	78.9	33	1834.3	1397.5	11.4	0.95	0.794	0.156	Non-Liq.	0.00
16	118.0	Unsaturated	Saturated	5	15	52.6	23	1952.3	1453.1	14.9	0.95	0.809	0.190	Non-Liq.	0.00
17	118.0	Unsaturated	Saturated	5	15	52.6	23	2070.3	1508.7	14.7	0.94	0.822	0.187	Non-Liq.	0.00
18	125.9	Saturated	Saturated	5	15	52.6	23	2196.2	1572.2	14.5	0.94	0.833	0.184	Non-Liq.	0.00
19	125.9	Saturated	Saturated	5	15	52.6	23	2322.1	1635.7	14.3	0.93	0.842	0.181	Non-Liq.	0.00
20	125.9	Saturated	Saturated	5	15	52.6	23	2448.0	1699.2	14.1	0.93	0.850	0.178	Non-Liq.	0.00
21	125.9	Saturated	Saturated	14	20	77.6	41	2573.9	1762.7	30.5	0.92	0.856	0.625	Non-Liq.	0.00
22	125.9	Saturated	Saturated	14	20	77.6	41	2699.8	1826.2	30.0	0.92	0.862	0.586	Non-Liq.	0.00
23	116.0	Saturated	Saturated	14	20	77.6	41	2815.8	1879.8	29.7	0.91	0.869	0.557	Non-Liq.	0.00
24	116.0	Saturated	Saturated	14	20	77.6	41	2931.8	1933.4	29.3	0.90	0.874	0.532	Non-Liq.	0.00
25	116.0	Saturated	Saturated	14	20	77.6	41	3047.8	1987.0	29.0	0.90	0.879	0.509	Non-Liq.	0.00
26	116.0	Saturated	Saturated	20	25	0.0	0	3163.8	2040.6	35.3	0.89	0.883	1.385	1.6	0.00
27	116.0	Saturated	Saturated	20	25	0.0	0	3279.8	2094.2	34.9	0.89	0.887	1.269	1.4	0.00
28	126.9	Saturated	Saturated	20	25	0.0	0	3406.7	2158.7	36.7	0.88	0.888	1.874	2.1	0.00
29	126.9	Saturated	Saturated	20	25	0.0	0	3533.6	2223.2	36.2	0.88	0.889	1.672	1.9	0.00
30	126.9	Saturated	Saturated	20	25	0.0	0	3660.5	2287.7	35.8	0.87	0.889	1.505	1.7	0.00
31	126.9	Saturated	Saturated	22	30	0.0	0	3787.4	2352.2	39.8	0.87	0.889	2.000	2.3	0.00
32	126.9	Saturated	Saturated	22	30	0.0	0	3914.3	2416.7	39.5	0.86	0.888	2.000	2.3	0.00
33	126.1	Saturated	Saturated	22	30	0.0	0	4040.4	2480.4	39.1	0.85	0.887	2.000	2.3	0.00
34	126.1	Saturated	Saturated	22	30	0.0	0	4166.5	2544.1	38.7	0.85	0.886	2.000	2.3	0.00
35	126.1	Saturated	Saturated	22	30	0.0	0	4292.6	2607.8	38.3	0.84	0.884	2.000	2.3	0.00
36	126.1	Saturated	Saturated	28	35	0.0	0	4418.7	2671.5	49.2	0.84	0.883	2.000	2.3	0.00
37	126.1	Saturated	Saturated	28	35	0.0	0	4544.8	2735.2	48.9	0.83	0.880	2.000	2.3	0.00
38	127.0	Saturated	Saturated	28	35	0.0	0	4671.8	2799.8	48.6	0.83	0.878	2.000	2.3	0.00
39	127.0	Saturated	Saturated	28	35	0.0	0	4798.8	2864.4	48.3	0.82	0.875	2.000	2.3	0.00
40	127.0	Saturated	Saturated	28	35	0.0	0	4925.8	2929.0	48.0	0.81	0.873	2.000	2.3	0.00
41	127.0	Saturated	Saturated	29	40	0.0	0	5052.8	2993.6	49.4	0.81	0.869	2.000	2.3	0.00
42	127.0	Saturated	Saturated	29	40	0.0	0	5179.8	3058.2	49.1	0.80	0.866	2.000	2.3	0.00
43	127.2	Saturated	Saturated	29	40	0.0	0	5307.0	3123.0	48.9	0.80	0.863	2.000	2.3	0.00
44	127.2	Saturated	Saturated	29	40	0.0	0	5434.2	3187.8	48.6	0.79	0.859	2.000	2.3	0.00
45	127.2	Saturated	Saturated	29	40	0.0	0	5561.4	3252.6	48.4	0.79	0.856	2.000	2.3	0.00
46	127.2	Saturated	Saturated	31	45	0.0	0	5688.6	3317.4	51.4	0.78	0.852	2.000	2.3	0.00
47	127.2	Saturated	Saturated	31	45	0.0	0	5815.8	3382.2	51.2	0.77	0.848	2.000	2.4	0.00
48	125.8	Saturated	Saturated	31	45	0.0	0	5941.6	3445.6	50.9	0.77	0.844	2.000	2.4	0.00
49	125.8	Saturated	Saturated	31	45	0.0	0	6067.4	3509.0	50.7	0.76	0.840	1.991	2.4	0.00
50	125.8	Saturated	Saturated	31	45	0.0	0	6193.2	3572.4	50.4	0.76	0.836	1.979	2.4	0.00
51	125.8	Saturated	Saturated	49	50	0.0	0	6319.0	3635.8	79.3	0.75	0.832	1.966	2.4	0.00
52	125.8	Saturated	Saturated	49	50	0.0	0	6444.8	3699.2	79.0	0.75	0.828	1.954	2.4	0.00
53	131.5	Saturated	Saturated	49	50	0.0	0	6576.3	3768.3	78.6	0.74	0.823	1.942	2.4	0.00
54	131.5	Saturated	Saturated	49	50	0.0	0	6707.8	3837.4	78.2	0.73	0.818	1.929	2.4	0.00
55	131.5	Saturated	Saturated	49	50	0.0	0	6839.3	3906.5	77.9	0.73	0.814	1.917	2.4	0.00
56	131.5	Saturated	Saturated	54	55	0.0	0	6970.8	3975.6	85.4	0.72	0.809	1.905	2.4	0.00
57	131.5	Saturated	Saturated	54	55	0.0	0	7102.3	4044.7	85.0	0.72	0.804	1.893	2.4	0.00
58	127.3	Saturated	Saturated	54	55	0.0	0	7229.6	4109.6	84.7	0.71	0.800	1.882	2.4	0.00
59	127.3	Saturated	Saturated	54	55	0.0	0	7356.9	4174.5	84.3	0.71	0.795	1.871	2.4	0.00
60	127.3	Saturated	Saturated	54	55	0.0	0	7484.2	4239.4	84.0	0.70	0.791	1.860	2.4	0.00
61	127.3	Saturated	Saturated	37	60	0.0	0	7611.5	4304.3	57.3	0.70	0.786	1.850	2.4	0.00
62	127.3	Saturated	Saturated	37	60	0.0	0	7738.8	4369.2	57.1	0.69	0.782	1.839	2.4	0.00
63	122.1	Saturated	Saturated	37	60	0.0	0	7860.9	4428.9	56.9	0.69	0.778	1.830	2.4	0.00
64	122.1	Saturated	Saturated	37	60	0.0	0	7983.0	4488.6	56.7	0.68	0.774	1.821	2.4	0.00
65	122.1	Saturated	Saturated	37	60	0.0	0	8105.1	4548.3	56.5	0.68	0.770	1.812	2.4	0.00
66	122.1	Saturated	Saturated	37	65	0.0	0	8227.2	4608.0	56.3	0.67	0.766	1.803	2.4	0.00
67	122.1	Saturated	Saturated	37	65	0.0	0	8349.3	4667.7	56.1	0.67	0.762	1.794	2.4	0.00
68	112.6	Saturated	Saturated	37	65	0.0	0	8461.9	4717.9	55.9	0.66	0.758	1.786	2.4	0.00
69	112.6	Saturated	Saturated	37	65	0.0	0	8574.5	4768.1	55.8	0.66	0.755	1.779	2.4	0.00
70	112.6	Saturated	Saturated	37	65	0.0	0	8687.1	4818.3	55.6	0.65	0.752	1.772	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 14

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	15.0
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	108.9	Unsaturated	Unsaturated	13	5	78.0	44	108.9	108.9	35.1	1.00	0.640	1.444	Non-Liq.	0.00
2	108.9	Unsaturated	Unsaturated	13	5	78.0	44	217.8	217.8	35.1	1.00	0.638	1.444	Non-Liq.	0.00
3	108.9	Unsaturated	Unsaturated	13	5	78.0	44	326.7	326.7	35.1	1.00	0.636	1.444	Non-Liq.	0.00
4	108.9	Unsaturated	Unsaturated	13	5	78.0	44	435.6	435.6	35.1	0.99	0.634	1.444	Non-Liq.	0.00
5	108.9	Unsaturated	Unsaturated	13	5	78.0	44	544.5	544.5	37.4	0.99	0.631	2.000	Non-Liq.	0.00
6	108.9	Unsaturated	Unsaturated	13	5	78.0	44	653.4	653.4	37.4	0.99	0.629	2.000	Non-Liq.	0.00
7	108.9	Unsaturated	Unsaturated	13	5	78.0	44	762.3	762.3	35.2	0.98	0.627	1.478	Non-Liq.	0.00
8	125.4	Unsaturated	Unsaturated	13	5	78.0	44	887.7	887.7	32.8	0.98	0.624	0.952	Non-Liq.	0.00
9	125.4	Unsaturated	Saturated	13	5	78.0	44	1013.1	950.7	33.6	0.98	0.663	1.078	Non-Liq.	0.00
10	125.4	Unsaturated	Saturated	13	5	78.0	44	1138.5	1013.7	32.6	0.97	0.696	0.917	Non-Liq.	0.00
11	125.4	Unsaturated	Saturated	16	10	30.7	0	1263.9	1076.7	37.9	0.97	0.724	2.000	2.8	0.00
12	125.4	Unsaturated	Saturated	16	10	30.7	0	1389.3	1139.7	37.0	0.96	0.748	2.000	2.7	0.00
13	117.2	Unsaturated	Saturated	16	10	30.7	0	1506.5	1194.5	36.3	0.96	0.771	1.897	2.5	0.00
14	117.2	Unsaturated	Saturated	16	10	30.7	0	1623.7	1249.3	35.6	0.95	0.791	1.628	2.1	0.00
15	117.2	Unsaturated	Saturated	16	10	30.7	0	1740.9	1304.1	38.8	0.95	0.808	2.000	2.5	0.00
16	117.2	Saturated	Saturated	23	15	0.0	0	1858.1	1358.9	46.5	0.95	0.824	2.000	2.4	0.00
17	117.2	Saturated	Saturated	23	15	0.0	0	1975.3	1413.7	45.9	0.94	0.837	2.000	2.4	0.00
18	126.7	Saturated	Saturated	23	15	0.0	0	2102.0	1478.0	45.3	0.94	0.848	2.000	2.4	0.00
19	126.7	Saturated	Saturated	23	15	0.0	0	2228.7	1542.3	44.8	0.93	0.857	2.000	2.3	0.00
20	126.7	Saturated	Saturated	23	15	0.0	0	2355.4	1606.6	44.2	0.93	0.865	2.000	2.3	0.00
21	126.7	Saturated	Saturated	20	20	22.2	0	2482.1	1670.9	43.1	0.92	0.871	2.000	2.3	0.00
22	126.7	Saturated	Saturated	20	20	22.2	0	2608.8	1735.2	42.6	0.92	0.877	2.000	2.3	0.00
23	140.8	Saturated	Saturated	20	20	22.2	0	2749.6	1813.6	41.9	0.91	0.879	2.000	2.3	0.00
24	140.8	Saturated	Saturated	20	20	22.2	0	2890.4	1892.0	41.2	0.90	0.881	2.000	2.3	0.00
25	140.8	Saturated	Saturated	20	20	22.2	0	3031.2	1970.4	40.6	0.90	0.882	2.000	2.3	0.00
26	140.8	Saturated	Saturated	20	25	0.0	0	3172.0	2048.8	35.2	0.89	0.882	1.366	1.5	0.00
27	140.8	Saturated	Saturated	20	25	0.0	0	3312.8	2127.2	34.6	0.89	0.882	1.206	1.4	0.00
28	127.7	Saturated	Saturated	20	25	0.0	0	3440.5	2192.5	36.4	0.88	0.883	1.763	2.0	0.00
29	127.7	Saturated	Saturated	20	25	0.0	0	3568.2	2257.8	36.0	0.88	0.883	1.578	1.8	0.00
30	127.7	Saturated	Saturated	20	25	0.0	0	3695.9	2323.1	35.6	0.87	0.884	1.425	1.6	0.00
31	127.7	Saturated	Saturated	26	30	0.0	0	3823.6	2388.4	47.0	0.87	0.883	2.000	2.3	0.00
32	127.7	Saturated	Saturated	26	30	0.0	0	3951.3	2453.7	46.7	0.86	0.883	2.000	2.3	0.00
33	122.1	Saturated	Saturated	26	30	0.0	0	4073.4	2513.4	46.4	0.85	0.883	2.000	2.3	0.00
34	122.1	Saturated	Saturated	26	30	0.0	0	4195.5	2573.1	46.1	0.85	0.882	2.000	2.3	0.00
35	122.1	Saturated	Saturated	26	30	0.0	0	4317.6	2632.8	45.8	0.84	0.881	2.000	2.3	0.00
36	122.1	Saturated	Saturated	31	35	0.0	0	4439.7	2692.5	54.3	0.84	0.880	2.000	2.3	0.00
37	122.1	Saturated	Saturated	31	35	0.0	0	4561.8	2752.2	54.0	0.83	0.878	2.000	2.3	0.00
38	123.2	Saturated	Saturated	31	35	0.0	0	4685.0	2813.0	53.7	0.83	0.876	2.000	2.3	0.00
39	123.2	Saturated	Saturated	31	35	0.0	0	4808.2	2873.8	53.4	0.82	0.874	2.000	2.3	0.00
40	123.2	Saturated	Saturated	31	35	0.0	0	4931.4	2934.6	53.1	0.81	0.872	2.000	2.3	0.00
41	123.2	Saturated	Saturated	44	40	0.0	0	5054.6	2995.4	75.0	0.81	0.869	2.000	2.3	0.00
42	123.2	Saturated	Saturated	44	40	0.0	0	5177.8	3056.2	74.6	0.80	0.866	2.000	2.3	0.00
43	131.1	Saturated	Saturated	44	40	0.0	0	5308.9	3124.9	74.1	0.80	0.863	2.000	2.3	0.00
44	131.1	Saturated	Saturated	44	40	0.0	0	5440.0	3193.6	73.7	0.79	0.859	2.000	2.3	0.00
45	131.1	Saturated	Saturated	44	40	0.0	0	5571.1	3262.3	73.3	0.79	0.855	2.000	2.3	0.00
46	131.1	Saturated	Saturated	30	45	0.0	0	5702.2	3331.0	49.7	0.78	0.850	2.000	2.4	0.00
47	131.1	Saturated	Saturated	30	45	0.0	0	5833.3	3399.7	49.4	0.77	0.846	2.000	2.4	0.00
48	122.7	Saturated	Saturated	30	45	0.0	0	5956.0	3460.0	49.2	0.77	0.843	2.000	2.4	0.00
49	122.7	Saturated	Saturated	30	45	0.0	0	6078.7	3520.3	49.0	0.76	0.839	1.989	2.4	0.00
50	122.7	Saturated	Saturated	30	45	0.0	0	6201.4	3580.6	48.8	0.76	0.835	1.977	2.4	0.00
51	122.7	Saturated	Saturated	29	50	0.0	0	6324.1	3640.9	46.9	0.75	0.832	1.965	2.4	0.00
52	122.7	Saturated	Saturated	29	50	0.0	0	6446.8	3701.2	46.7	0.75	0.828	1.954	2.4	0.00
53	129.3	Saturated	Saturated	29	50	0.0	0	6576.1	3768.1	46.5	0.74	0.823	1.942	2.4	0.00
54	129.3	Saturated	Saturated	29	50	0.0	0	6705.4	3835.0	46.3	0.73	0.819	1.930	2.4	0.00
55	129.3	Saturated	Saturated	29	50	0.0	0	6834.7	3901.9	46.1	0.73	0.814	1.918	2.4	0.00
56	129.3	Saturated	Saturated	29	55	0.0	0	6964.0	3968.8	45.9	0.72	0.809	1.906	2.4	0.00
57	129.3	Saturated	Saturated	29	55	0.0	0	7093.3	4035.7	45.7	0.72	0.805	1.894	2.4	0.00
58	116.9	Saturated	Saturated	29	55	0.0	0	7210.2	4090.2	45.5	0.71	0.801	1.885	2.4	0.00
59	116.9	Saturated	Saturated	29	55	0.0	0	7327.1	4144.7	45.4	0.71	0.798	1.876	2.4	0.00
60	116.9	Saturated	Saturated	29	55	0.0	0	7444.0	4199.2	45.2	0.70	0.794	1.867	2.4	0.00
61	116.9	Saturated	Saturated	27	60	0.0	0	7560.9	4253.7	41.8	0.70	0.790	1.858	2.4	0.00
62	116.9	Saturated	Saturated	27	60	0.0	0	7677.8	4308.2	41.6	0.69	0.787	1.849	2.4	0.00
63	122.8	Saturated	Saturated	27	60	0.0	0	7800.6	4368.6	41.4	0.69	0.782	1.840	2.4	0.00
64	122.8	Saturated	Saturated	27	60	0.0	0	7923.4	4429.0	41.2	0.68	0.778	1.830	2.4	0.00
65	122.8	Saturated	Saturated	27	60	0.0	0	8046.2	4489.4	41.1	0.68	0.774	1.821	2.4	0.00
66	122.8	Saturated	Saturated	38	65	0.0	0	8169.0	4549.8	58.0	0.67	0.770	1.811	2.4	0.00
67	122.8	Saturated	Saturated	38	65	0.0	0	8291.8	4610.2	57.8	0.67	0.766	1.802	2.4	0.00
68	132.4	Saturated	Saturated	38	65	0.0	0	8424.2	4680.2	57.6	0.66	0.761	1.792	2.4	0.00
69	132.4	Saturated	Saturated	38	65	0.0	0	8556.6	4750.2	57.4	0.66	0.756	1.782	2.4	0.00
70	132.4	Saturated	Saturated	38	65	0.0	0	8689.0	4820.2	57.1	0.65	0.752	1.771	2.4	0.00
											Total Liquefaction Settlement, S =				**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Numbe: 15

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	12.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.$_l$)	Liquefaction Settlment ΔS_i (inches)
1	122.5	Unsaturated	Unsaturated	9	5	81.9	51	122.5	122.5	24.8	1.00	0.640	0.366	Non-Liq.	0.00
2	122.5	Unsaturated	Unsaturated	9	5	81.9	51	245.0	245.0	24.8	1.00	0.638	0.366	Non-Liq.	0.00
3	122.5	Unsaturated	Unsaturated	9	5	81.9	51	367.5	367.5	24.8	1.00	0.636	0.366	Non-Liq.	0.00
4	122.5	Unsaturated	Unsaturated	9	5	81.9	51	490.0	490.0	24.8	0.99	0.634	0.366	Non-Liq.	0.00
5	122.5	Unsaturated	Unsaturated	9	5	81.9	51	612.5	612.5	26.2	0.99	0.631	0.415	Non-Liq.	0.00
6	122.5	Unsaturated	Unsaturated	9	5	81.9	51	735.0	735.0	26.2	0.99	0.629	0.415	Non-Liq.	0.00
7	122.5	Unsaturated	Unsaturated	9	5	81.9	51	857.5	857.5	24.8	0.98	0.627	0.368	Non-Liq.	0.00
8	129.3	Unsaturated	Unsaturated	9	5	81.9	51	986.8	986.8	23.3	0.98	0.624	0.328	Non-Liq.	0.00
9	129.3	Unsaturated	Saturated	9	5	81.9	51	1116.1	1053.7	23.7	0.98	0.659	0.339	Non-Liq.	0.00
10	129.3	Unsaturated	Saturated	9	5	81.9	51	1245.4	1120.6	23.1	0.97	0.688	0.322	Non-Liq.	0.00
11	129.3	Unsaturated	Saturated	10	10	71.2	35	1374.7	1187.5	24.5	0.97	0.714	0.356	Non-Liq.	0.00
12	129.3	Unsaturated	Saturated	10	10	71.2	35	1504.0	1254.4	23.9	0.96	0.736	0.338	Non-Liq.	0.00
13	131.1	Saturated	Saturated	10	10	71.2	35	1635.1	1323.1	23.4	0.96	0.755	0.322	Non-Liq.	0.00
14	131.1	Saturated	Saturated	10	10	71.2	35	1766.2	1391.8	22.9	0.95	0.772	0.308	Non-Liq.	0.00
15	131.1	Saturated	Saturated	10	10	71.2	35	1897.3	1460.5	24.6	0.95	0.786	0.347	Non-Liq.	0.00
16	131.1	Saturated	Saturated	17	15	27.4	0	2028.4	1529.2	38.4	0.95	0.799	2.000	2.5	0.00
17	131.1	Saturated	Saturated	17	15	27.4	0	2159.5	1597.9	37.7	0.94	0.810	2.000	2.5	0.00
18	132.7	Saturated	Saturated	17	15	27.4	0	2292.2	1668.2	37.1	0.94	0.819	2.000	2.4	0.00
19	132.7	Saturated	Saturated	17	15	27.4	0	2424.9	1738.5	36.5	0.93	0.827	1.919	2.3	0.00
20	132.7	Saturated	Saturated	17	15	27.4	0	2557.6	1808.8	35.9	0.93	0.834	1.661	2.0	0.00
21	132.7	Saturated	Saturated	19	20	64.1	32	2690.3	1879.1	40.0	0.92	0.840	2.000	Non-Liq.	0.00
22	132.7	Saturated	Saturated	19	20	64.1	32	2823.0	1949.4	39.4	0.92	0.845	2.000	Non-Liq.	0.00
23	125.9	Saturated	Saturated	19	20	64.1	32	2948.9	2012.9	38.9	0.91	0.850	2.000	Non-Liq.	0.00
24	125.9	Saturated	Saturated	19	20	64.1	32	3074.8	2076.4	38.5	0.90	0.854	2.000	Non-Liq.	0.00
25	125.9	Saturated	Saturated	19	20	64.1	32	3200.7	2139.9	38.1	0.90	0.857	2.000	Non-Liq.	0.00
26	125.9	Saturated	Saturated	20	25	52.4	22	3326.6	2203.4	39.7	0.89	0.860	2.000	Non-Liq.	0.00
27	125.9	Saturated	Saturated	20	25	52.4	22	3452.5	2266.9	39.3	0.89	0.862	2.000	Non-Liq.	0.00
28	128.0	Saturated	Saturated	20	25	52.4	22	3580.5	2332.5	41.1	0.88	0.864	2.000	Non-Liq.	0.00
29	128.0	Saturated	Saturated	20	25	52.4	22	3708.5	2398.1	40.7	0.88	0.864	2.000	Non-Liq.	0.00
30	128.0	Saturated	Saturated	20	25	52.4	22	3836.5	2463.7	40.3	0.87	0.865	2.000	Non-Liq.	0.00
31	128.0	Saturated	Saturated	21	30	0.0	0	3964.5	2529.3	36.5	0.87	0.865	1.728	2.0	0.00
32	128.0	Saturated	Saturated	21	30	0.0	0	4092.5	2594.9	36.1	0.86	0.865	1.572	1.8	0.00
33	123.7	Saturated	Saturated	21	30	0.0	0	4216.2	2656.2	35.8	0.85	0.864	1.446	1.7	0.00
34	123.7	Saturated	Saturated	21	30	0.0	0	4339.9	2717.5	35.5	0.85	0.864	1.338	1.5	0.00
35	123.7	Saturated	Saturated	21	30	0.0	0	4463.6	2778.8	35.2	0.84	0.863	1.243	1.4	0.00
36	123.7	Saturated	Saturated	22	35	0.0	0	4587.3	2840.1	37.0	0.84	0.862	1.888	2.2	0.00
37	123.7	Saturated	Saturated	22	35	0.0	0	4711.0	2901.4	36.7	0.83	0.860	1.739	2.0	0.00
38	124.0	Saturated	Saturated	22	35	0.0	0	4835.0	2963.0	36.4	0.83	0.859	1.609	1.9	0.00
39	124.0	Saturated	Saturated	22	35	0.0	0	4959.0	3024.6	36.1	0.82	0.857	1.495	1.7	0.00
40	124.0	Saturated	Saturated	22	35	0.0	0	5083.0	3086.2	35.8	0.81	0.855	1.394	1.6	0.00
41	124.0	Saturated	Saturated	23	40	0.0	0	5207.0	3147.8	37.8	0.81	0.852	2.000	2.3	0.00
42	124.0	Saturated	Saturated	23	40	0.0	0	5331.0	3209.4	37.5	0.80	0.850	2.000	2.4	0.00
43	126.2	Saturated	Saturated	23	40	0.0	0	5457.2	3273.2	37.2	0.80	0.847	1.877	2.2	0.00
44	126.2	Saturated	Saturated	23	40	0.0	0	5583.4	3337.0	36.9	0.79	0.843	1.741	2.1	0.00
45	126.2	Saturated	Saturated	23	40	0.0	0	5709.6	3400.8	36.7	0.79	0.840	1.624	1.9	0.00
46	126.2	Saturated	Saturated	27	45	0.0	0	5835.8	3464.6	44.3	0.78	0.837	2.000	2.4	0.00
47	126.2	Saturated	Saturated	27	45	0.0	0	5962.0	3528.4	44.1	0.77	0.833	1.987	2.4	0.00
48	128.8	Saturated	Saturated	27	45	0.0	0	6090.8	3594.8	43.9	0.77	0.829	1.974	2.4	0.00
49	128.8	Saturated	Saturated	27	45	0.0	0	6219.6	3661.2	43.6	0.76	0.825	1.962	2.4	0.00
50	128.8	Saturated	Saturated	27	45	0.0	0	6348.4	3727.6	43.4	0.76	0.821	1.949	2.4	0.00
51	128.8	Saturated	Saturated	34	50	0.0	0	6477.2	3794.0	54.4	0.75	0.817	1.937	2.4	0.00
52	128.8	Saturated	Saturated	34	50	0.0	0	6606.0	3860.4	54.2	0.75	0.813	1.925	2.4	0.00
53	127.1	Saturated	Saturated	34	50	0.0	0	6733.1	3925.1	54.0	0.74	0.809	1.914	2.4	0.00
54	127.1	Saturated	Saturated	34	50	0.0	0	6860.2	3989.8	53.7	0.73	0.805	1.902	2.4	0.00
55	127.1	Saturated	Saturated	34	50	0.0	0	6987.3	4054.5	53.5	0.73	0.801	1.891	2.4	0.00
56	127.1	Saturated	Saturated	40	55	0.0	0	7114.4	4119.2	62.7	0.72	0.797	1.880	2.4	0.00
57	127.1	Saturated	Saturated	40	55	0.0	0	7241.5	4183.9	62.4	0.72	0.793	1.869	2.4	0.00
58	122.0	Saturated	Saturated	40	55	0.0	0	7363.5	4243.5	62.2	0.71	0.789	1.860	2.4	0.00
59	122.0	Saturated	Saturated	40	55	0.0	0	7485.5	4303.1	62.0	0.71	0.785	1.850	2.4	0.00
60	122.0	Saturated	Saturated	40	55	0.0	0	7607.5	4362.7	61.7	0.70	0.781	1.840	2.4	0.00
61	122.0	Saturated	Saturated	44	60	0.0	0	7729.5	4422.3	67.7	0.70	0.777	1.831	2.4	0.00
62	122.0	Saturated	Saturated	44	60	0.0	0	7851.5	4481.9	67.4	0.69	0.773	1.822	2.4	0.00
63	130.5	Saturated	Saturated	44	60	0.0	0	7982.0	4550.0	67.2	0.69	0.769	1.811	2.4	0.00
64	130.5	Saturated	Saturated	44	60	0.0	0	8112.5	4618.1	66.9	0.68	0.764	1.801	2.4	0.00
65	130.5	Saturated	Saturated	44	60	0.0	0	8243.0	4686.2	66.6	0.68	0.760	1.791	2.4	0.00
66	130.5	Saturated	Saturated	48	65	0.0	0	8373.5	4754.3	72.4	0.67	0.755	1.781	2.4	0.00
67	130.5	Saturated	Saturated	48	65	0.0	0	8504.0	4822.4	72.2	0.67	0.751	1.771	2.4	0.00
68	125.7	Saturated	Saturated	48	65	0.0	0	8629.7	4885.7	71.9	0.66	0.747	1.762	2.4	0.00
69	125.7	Saturated	Saturated	48	65	0.0	0	8755.4	4949.0	71.7	0.66	0.743	1.753	2.4	0.00
70	125.7	Saturated	Saturated	48	65	0.0	0	8881.1	5012.3	71.4	0.65	0.739	1.744	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Number: 17

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	11.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	124.4	Unsaturated	Unsaturated	14	5	53.5	23	124.4	124.4	37.9	1.00	0.640	2.000	Non-Liq.	0.00
2	124.4	Unsaturated	Unsaturated	14	5	53.5	23	248.8	248.8	37.9	1.00	0.638	2.000	Non-Liq.	0.00
3	124.4	Unsaturated	Unsaturated	14	5	53.5	23	373.2	373.2	37.9	1.00	0.636	2.000	Non-Liq.	0.00
4	124.4	Unsaturated	Unsaturated	14	5	53.5	23	497.6	497.6	37.9	0.99	0.634	2.000	Non-Liq.	0.00
5	124.4	Unsaturated	Unsaturated	14	5	53.5	23	622.0	622.0	40.5	0.99	0.631	2.000	Non-Liq.	0.00
6	124.4	Unsaturated	Unsaturated	14	5	53.5	23	746.4	746.4	37.8	0.99	0.629	2.000	Non-Liq.	0.00
7	124.4	Unsaturated	Unsaturated	14	5	53.5	23	870.8	870.8	35.3	0.98	0.627	1.521	Non-Liq.	0.00
8	131.9	Unsaturated	Unsaturated	14	5	53.5	23	1002.7	1002.7	33.2	0.98	0.624	1.010	Non-Liq.	0.00
9	131.9	Unsaturated	Saturated	14	5	53.5	23	1134.6	1072.2	34.0	0.98	0.658	1.167	Non-Liq.	0.00
10	131.9	Unsaturated	Saturated	14	5	53.5	23	1266.5	1141.7	33.1	0.97	0.687	0.992	Non-Liq.	0.00
11	131.9	Unsaturated	Saturated	12	10	57.0	24	1398.4	1211.2	28.3	0.97	0.712	0.509	Non-Liq.	0.00
12	131.9	Saturated	Saturated	12	10	57.0	24	1530.3	1280.7	27.6	0.96	0.734	0.470	Non-Liq.	0.00
13	125.8	Saturated	Saturated	12	10	57.0	24	1656.1	1344.1	27.0	0.96	0.753	0.439	Non-Liq.	0.00
14	125.8	Saturated	Saturated	12	10	57.0	24	1781.9	1407.5	26.5	0.95	0.770	0.414	Non-Liq.	0.00
15	125.8	Saturated	Saturated	12	10	57.0	24	1907.7	1470.9	28.6	0.95	0.785	0.515	Non-Liq.	0.00
16	125.8	Saturated	Saturated	7	15	56.0	19	2033.5	1534.3	18.2	0.95	0.798	0.227	Non-Liq.	0.00
17	125.8	Saturated	Saturated	7	15	56.0	19	2159.3	1597.7	17.9	0.94	0.810	0.222	Non-Liq.	0.00
18	111.9	Saturated	Saturated	7	15	56.0	19	2271.2	1647.2	17.7	0.94	0.822	0.218	Non-Liq.	0.00
19	111.9	Saturated	Saturated	7	15	56.0	19	2383.1	1696.7	17.5	0.93	0.833	0.215	Non-Liq.	0.00
20	111.9	Saturated	Saturated	7	15	56.0	19	2495.0	1746.2	17.3	0.93	0.843	0.212	Non-Liq.	0.00
21	111.9	Saturated	Saturated	17	20	41.5	0	2606.9	1795.7	36.4	0.92	0.851	1.851	2.2	0.00
22	111.9	Saturated	Saturated	17	20	41.5	0	2718.8	1845.2	36.0	0.92	0.859	1.680	2.0	0.00
23	122.9	Saturated	Saturated	17	20	41.5	0	2841.7	1905.7	35.6	0.91	0.865	1.505	1.7	0.00
24	122.9	Saturated	Saturated	17	20	41.5	0	2964.6	1966.2	35.1	0.90	0.869	1.361	1.6	0.00
25	122.9	Saturated	Saturated	17	20	41.5	0	3087.5	2026.7	34.7	0.90	0.873	1.240	1.4	0.00
26	122.9	Saturated	Saturated	20	25	0.0	0	3210.4	2087.2	34.9	0.89	0.876	1.283	1.5	0.00
27	122.9	Saturated	Saturated	20	25	0.0	0	3333.3	2147.7	34.5	0.89	0.879	1.169	1.3	0.00
28	122.9	Saturated	Saturated	20	25	0.0	0	3456.2	2208.2	36.3	0.88	0.881	1.715	1.9	0.00
29	122.9	Saturated	Saturated	20	25	0.0	0	3579.1	2268.7	35.9	0.88	0.882	1.551	1.8	0.00
30	122.9	Saturated	Saturated	20	25	0.0	0	3702.0	2329.2	35.5	0.87	0.883	1.412	1.6	0.00
31	122.9	Saturated	Saturated	22	30	0.0	0	3824.9	2389.7	39.6	0.87	0.883	2.000	2.3	0.00
32	122.9	Saturated	Saturated	22	30	0.0	0	3947.8	2450.2	39.3	0.86	0.883	2.000	2.3	0.00
33	137.5	Saturated	Saturated	22	30	0.0	0	4085.3	2525.3	38.8	0.85	0.881	2.000	2.3	0.00
34	137.5	Saturated	Saturated	22	30	0.0	0	4222.8	2600.4	38.3	0.85	0.878	2.000	2.3	0.00
35	137.5	Saturated	Saturated	22	30	0.0	0	4360.3	2675.5	37.9	0.84	0.876	2.000	2.3	0.00
36	137.5	Saturated	Saturated	26	35	0.0	0	4497.8	2750.6	45.3	0.84	0.873	2.000	2.3	0.00
37	137.5	Saturated	Saturated	26	35	0.0	0	4635.3	2825.7	45.0	0.83	0.869	2.000	2.3	0.00
38	127.6	Saturated	Saturated	26	35	0.0	0	4762.9	2890.9	44.7	0.83	0.867	2.000	2.3	0.00
39	127.6	Saturated	Saturated	26	35	0.0	0	4890.5	2956.1	44.5	0.82	0.864	2.000	2.3	0.00
40	127.6	Saturated	Saturated	26	35	0.0	0	5018.1	3021.3	44.2	0.81	0.862	2.000	2.3	0.00
41	127.6	Saturated	Saturated	33	40	0.0	0	5145.7	3086.5	55.8	0.81	0.859	2.000	2.3	0.00
42	127.6	Saturated	Saturated	33	40	0.0	0	5273.3	3151.7	55.5	0.80	0.856	2.000	2.3	0.00
43	140.7	Saturated	Saturated	33	40	0.0	0	5414.0	3230.0	55.1	0.80	0.851	2.000	2.3	0.00
44	140.7	Saturated	Saturated	33	40	0.0	0	5554.7	3308.3	54.8	0.79	0.846	2.000	2.4	0.00
45	140.7	Saturated	Saturated	33	40	0.0	0	5695.4	3386.6	54.4	0.79	0.842	2.000	2.4	0.00
46	140.7	Saturated	Saturated	40	45	0.0	0	5836.1	3464.9	65.6	0.78	0.837	2.000	2.4	0.00
47	140.7	Saturated	Saturated	40	45	0.0	0	5976.8	3543.2	65.2	0.77	0.832	1.984	2.4	0.00
48	131.8	Saturated	Saturated	40	45	0.0	0	6108.6	3612.6	64.9	0.77	0.828	1.971	2.4	0.00
49	131.8	Saturated	Saturated	40	45	0.0	0	6240.4	3682.0	64.6	0.76	0.824	1.958	2.4	0.00
50	131.8	Saturated	Saturated	40	45	0.0	0	6372.2	3751.4	64.2	0.76	0.819	1.945	2.4	0.00
51	131.8	Saturated	Saturated	35	50	0.0	0	6504.0	3820.8	55.9	0.75	0.815	1.932	2.4	0.00
52	131.8	Saturated	Saturated	35	50	0.0	0	6635.8	3890.2	55.7	0.75	0.811	1.920	2.4	0.00
53	133.3	Saturated	Saturated	35	50	0.0	0	6769.1	3961.1	55.4	0.74	0.806	1.907	2.4	0.00
54	133.3	Saturated	Saturated	35	50	0.0	0	6902.4	4032.0	55.2	0.73	0.802	1.895	2.4	0.00
55	133.3	Saturated	Saturated	35	50	0.0	0	7035.7	4102.9	54.9	0.73	0.797	1.883	2.4	0.00
56	133.3	Saturated	Saturated	37	55	0.0	0	7169.0	4173.8	57.8	0.72	0.792	1.871	2.4	0.00
57	133.3	Saturated	Saturated	37	55	0.0	0	7302.3	4244.7	57.5	0.72	0.788	1.859	2.4	0.00
58	126.4	Saturated	Saturated	37	55	0.0	0	7428.7	4308.7	57.3	0.71	0.784	1.849	2.4	0.00
59	126.4	Saturated	Saturated	37	55	0.0	0	7555.1	4372.7	57.1	0.71	0.780	1.839	2.4	0.00
60	126.4	Saturated	Saturated	37	55	0.0	0	7681.5	4436.7	56.9	0.70	0.775	1.829	2.4	0.00
61	126.4	Saturated	Saturated	43	60	0.0	0	7807.9	4500.7	65.8	0.70	0.771	1.819	2.4	0.00
62	126.4	Saturated	Saturated	43	60	0.0	0	7934.3	4564.7	65.6	0.69	0.767	1.809	2.4	0.00
63	115.5	Saturated	Saturated	43	60	0.0	0	8049.8	4617.8	65.4	0.69	0.764	1.801	2.4	0.00
64	115.5	Saturated	Saturated	43	60	0.0	0	8165.3	4670.9	65.2	0.68	0.761	1.793	2.4	0.00
65	115.5	Saturated	Saturated	43	60	0.0	0	8280.8	4724.0	65.0	0.68	0.757	1.785	2.4	0.00
66	115.5	Saturated	Saturated	35	65	0.0	0	8396.3	4777.1	52.7	0.67	0.754	1.778	2.4	0.00
67	115.5	Saturated	Saturated	35	65	0.0	0	8511.8	4830.2	52.6	0.67	0.750	1.770	2.4	0.00
68	125.1	Saturated	Saturated	35	65	0.0	0	8636.9	4892.9	52.4	0.66	0.746	1.761	2.4	0.00
69	125.1	Saturated	Saturated	35	65	0.0	0	8762.0	4955.6	52.2	0.66	0.743	1.752	2.4	0.00
70	125.1	Saturated	Saturated	35	65	0.0	0	8887.1	5018.3	52.1	0.65	0.739	1.744	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**

Geotechnologies, Inc.

Project: Television City Studios, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring Number: 19

LIQUEFACTION EVALUATION (Idriss & Boulanger, EERI NO 12)

EARTHQUAKE INFORMATION:

Earthquake Magnitude (M):	6.9
Peak Ground Horizontal Acceleration, PGA (g):	0.98
Calculated Mag.Wtg.Factor:	1.171

GROUNDWATER INFORMATION:

Current Groundwater Level (ft):	13.5
Historically Highest Groundwater Level* (ft):	8.0
Unit Weight of Water (pcf):	62.4

* Based on California Geological Survey Seismic Hazard Evaluation Report

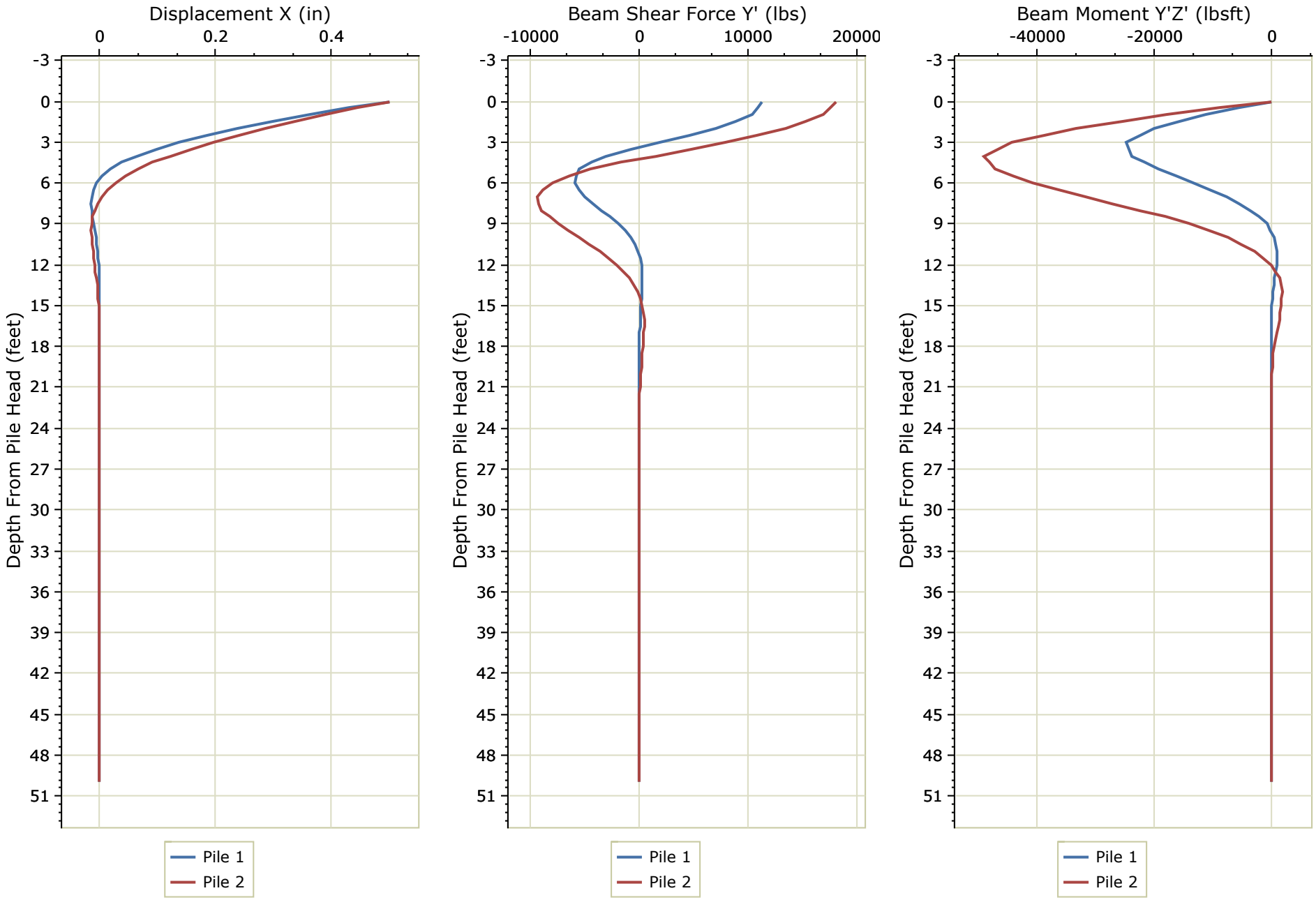
BOREHOLE AND SAMPLER INFORMATION:

Borehole Diameter (inches):	8
SPT Sampler with room for Liner (Y/N):	Y

LIQUEFACTION BOUNDARY:

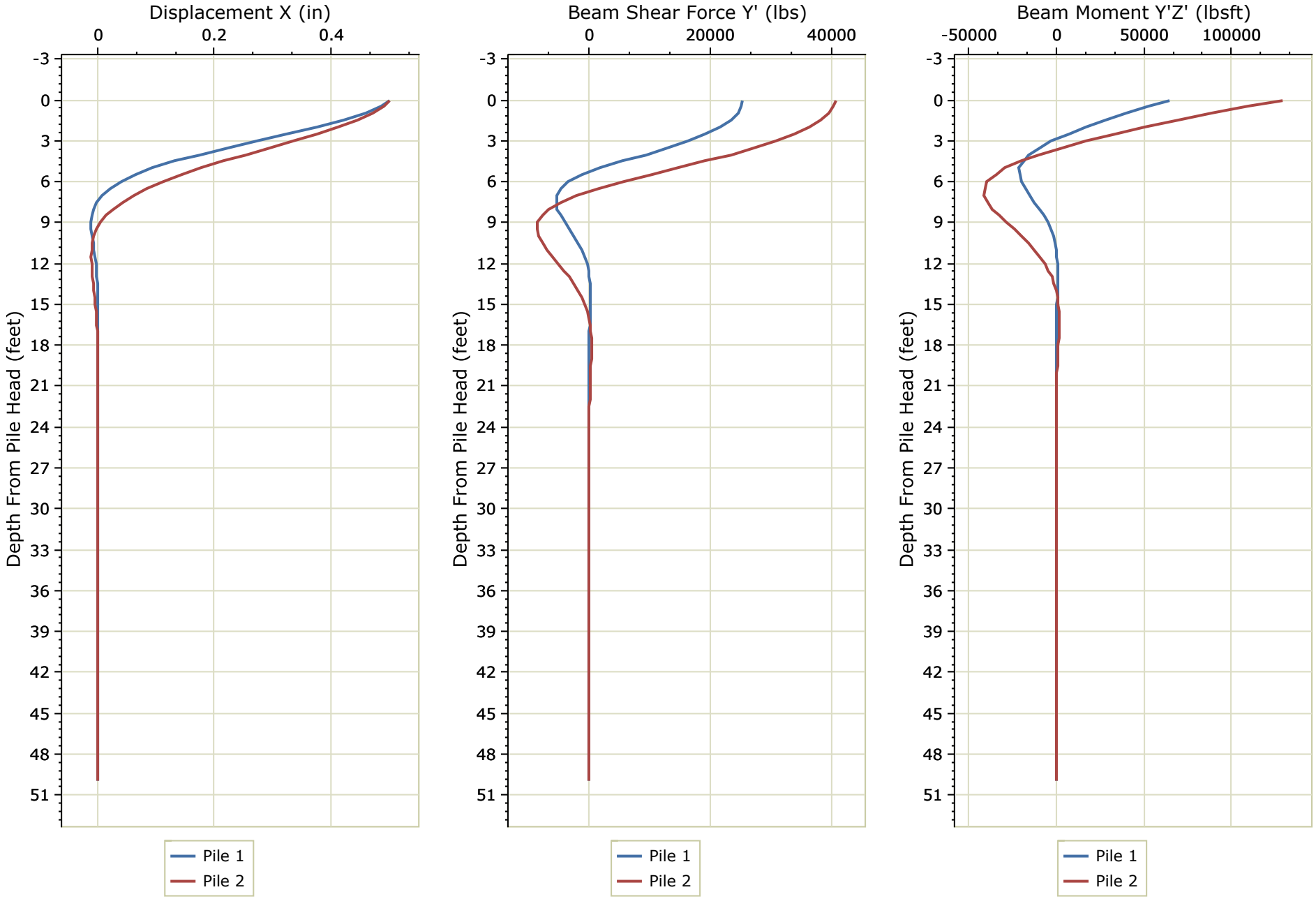
Plastic Index Cut Off (PI):	18
Minimum Liquefaction FS:	1.3

Depth to Base Layer (feet)	Total Unit Weight (pcf)	Current Water Level (feet)	Historical Water Level (feet)	Field SPT Blowcount N	Depth of SPT Blowcount (feet)	Fines Content #200 Sieve (%)	Plastic Index (PI)	Vetical Stress σ_{vc} (psf)	Effective Vert. Stress σ_{vc}', (psf)	Fines Corrected $(N_1)_{60\text{-}cs}$	Stress Reduction Coeff, r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlment ΔS_i (inches)
1	135.4	Unsaturated	Unsaturated	13	5	62.4	20	135.4	135.4	35.1	1.00	0.640	1.458	Non-Liq.	0.00
2	135.4	Unsaturated	Unsaturated	13	5	62.4	20	270.8	270.8	35.1	1.00	0.638	1.458	Non-Liq.	0.00
3	135.4	Unsaturated	Unsaturated	13	5	62.4	20	406.2	406.2	35.1	1.00	0.636	1.458	Non-Liq.	0.00
4	135.4	Unsaturated	Unsaturated	13	5	62.4	20	541.6	541.6	35.1	0.99	0.634	1.458	Non-Liq.	0.00
5	135.4	Unsaturated	Unsaturated	13	5	62.4	20	677.0	677.0	36.9	0.99	0.631	2.000	Non-Liq.	0.00
6	135.4	Unsaturated	Unsaturated	13	5	62.4	20	812.4	812.4	34.2	0.99	0.629	1.221	Non-Liq.	0.00
7	135.4	Unsaturated	Unsaturated	13	5	62.4	20	947.8	947.8	31.9	0.98	0.627	0.823	Non-Liq.	0.00
8	124.0	Unsaturated	Unsaturated	13	5	62.4	20	1071.8	1071.8	30.3	0.98	0.624	0.647	Non-Liq.	0.00
9	124.0	Unsaturated	Saturated	13	5	62.4	20	1195.8	1133.4	31.1	0.98	0.656	0.727	Non-Liq.	0.00
10	124.0	Unsaturated	Saturated	13	5	62.4	20	1319.8	1195.0	30.4	0.97	0.684	0.660	Non-Liq.	0.00
11	124.0	Unsaturated	Saturated	10	10	53.2	30	1443.8	1256.6	24.0	0.97	0.708	0.338	Non-Liq.	0.00
12	124.0	Unsaturated	Saturated	10	10	53.2	30	1567.8	1318.2	23.5	0.96	0.730	0.324	Non-Liq.	0.00
13	120.5	Unsaturated	Saturated	10	10	53.2	30	1688.3	1376.3	23.0	0.96	0.750	0.312	Non-Liq.	0.00
14	120.5	Saturated	Saturated	10	10	53.2	30	1808.8	1434.4	22.6	0.95	0.767	0.301	Non-Liq.	0.00
15	120.5	Saturated	Saturated	10	10	53.2	30	1929.3	1492.5	24.4	0.95	0.782	0.341	Non-Liq.	0.00
16	120.5	Saturated	Saturated	17	15	43.0	0	2049.8	1550.6	38.6	0.95	0.796	2.000	2.5	0.00
17	120.5	Saturated	Saturated	17	15	43.0	0	2170.3	1608.7	38.0	0.94	0.808	2.000	2.5	0.00
18	123.6	Saturated	Saturated	17	15	43.0	0	2293.9	1669.9	37.5	0.94	0.819	2.000	2.4	0.00
19	123.6	Saturated	Saturated	17	15	43.0	0	2417.5	1731.1	36.9	0.93	0.828	2.000	2.4	0.00
20	123.6	Saturated	Saturated	17	15	43.0	0	2541.1	1792.3	36.4	0.93	0.836	1.868	2.2	0.00
21	123.6	Saturated	Saturated	15	20	62.4	28	2664.7	1853.5	31.9	0.92	0.843	0.761	Non-Liq.	0.00
22	123.6	Saturated	Saturated	15	20	62.4	28	2788.3	1914.7	31.5	0.92	0.849	0.710	Non-Liq.	0.00
23	131.8	Saturated	Saturated	15	20	62.4	28	2920.1	1984.1	31.0	0.91	0.853	0.661	Non-Liq.	0.00
24	131.8	Saturated	Saturated	15	20	62.4	28	3051.9	2053.5	30.6	0.90	0.857	0.619	Non-Liq.	0.00
25	131.8	Saturated	Saturated	15	20	62.4	28	3183.7	2122.9	30.2	0.90	0.859	0.582	Non-Liq.	0.00
26	131.8	Saturated	Saturated	44	25	0.0	0	3315.5	2192.3	77.3	0.89	0.861	2.000	2.3	0.00
27	131.8	Saturated	Saturated	44	25	0.0	0	3447.3	2261.7	76.7	0.89	0.863	2.000	2.3	0.00
28	136.7	Saturated	Saturated	44	25	0.0	0	3584.0	2336.0	80.0	0.88	0.863	2.000	2.3	0.00
29	136.7	Saturated	Saturated	44	25	0.0	0	3720.7	2410.3	79.4	0.88	0.863	2.000	2.3	0.00
30	136.7	Saturated	Saturated	44	25	0.0	0	3857.4	2484.6	78.8	0.87	0.862	2.000	2.3	0.00
31	136.7	Saturated	Saturated	28	30	0.0	0	3994.1	2558.9	49.7	0.87	0.861	2.000	2.3	0.00
32	136.7	Saturated	Saturated	28	30	0.0	0	4130.8	2633.2	49.4	0.86	0.860	2.000	2.3	0.00
33	122.0	Saturated	Saturated	28	30	0.0	0	4252.8	2692.8	49.1	0.85	0.860	2.000	2.3	0.00
34	122.0	Saturated	Saturated	28	30	0.0	0	4374.8	2752.4	48.8	0.85	0.860	2.000	2.3	0.00
35	122.0	Saturated	Saturated	28	30	0.0	0	4496.8	2812.0	48.5	0.84	0.859	2.000	2.3	0.00
36	122.0	Saturated	Saturated	33	35	0.0	0	4618.8	2871.6	56.9	0.84	0.858	2.000	2.3	0.00
37	122.0	Saturated	Saturated	33	35	0.0	0	4740.8	2931.2	56.6	0.83	0.857	2.000	2.3	0.00
38	132.5	Saturated	Saturated	33	35	0.0	0	4873.3	3001.3	56.2	0.83	0.854	2.000	2.3	0.00
39	132.5	Saturated	Saturated	33	35	0.0	0	5005.8	3071.4	55.9	0.82	0.852	2.000	2.3	0.00
40	132.5	Saturated	Saturated	33	35	0.0	0	5138.3	3141.5	55.5	0.81	0.849	2.000	2.4	0.00
41	132.5	Saturated	Saturated	35	40	0.0	0	5270.8	3211.6	58.6	0.81	0.845	2.000	2.4	0.00
42	132.5	Saturated	Saturated	35	40	0.0	0	5403.3	3281.7	58.2	0.80	0.842	2.000	2.4	0.00
43	133.7	Saturated	Saturated	35	40	0.0	0	5537.0	3353.0	57.9	0.80	0.839	2.000	2.4	0.00
44	133.7	Saturated	Saturated	35	40	0.0	0	5670.7	3424.3	57.6	0.79	0.835	2.000	2.4	0.00
45	133.7	Saturated	Saturated	35	40	0.0	0	5804.4	3495.6	57.3	0.79	0.831	1.994	2.4	0.00
46	133.7	Saturated	Saturated	31	45	0.0	0	5938.1	3566.9	50.5	0.78	0.827	1.980	2.4	0.00
47	133.7	Saturated	Saturated	31	45	0.0	0	6071.8	3638.2	50.2	0.77	0.823	1.966	2.4	0.00
48	130.4	Saturated	Saturated	31	45	0.0	0	6202.2	3706.2	49.9	0.77	0.819	1.953	2.4	0.00
49	130.4	Saturated	Saturated	31	45	0.0	0	6332.6	3774.2	49.7	0.76	0.815	1.941	2.4	0.00
50	130.4	Saturated	Saturated	31	45	0.0	0	6463.0	3842.2	49.5	0.76	0.811	1.928	2.4	0.00
51	130.4	Saturated	Saturated	35	50	0.0	0	6593.4	3910.2	55.6	0.75	0.807	1.916	2.4	0.00
52	130.4	Saturated	Saturated	35	50	0.0	0	6723.8	3978.2	55.4	0.75	0.803	1.904	2.4	0.00
53	130.6	Saturated	Saturated	35	50	0.0	0	6854.4	4046.4	55.1	0.74	0.799	1.892	2.4	0.00
54	130.6	Saturated	Saturated	35	50	0.0	0	6985.0	4114.6	54.9	0.73	0.795	1.881	2.4	0.00
55	130.6	Saturated	Saturated	35	50	0.0	0	7115.6	4182.8	54.6	0.73	0.791	1.870	2.4	0.00
56	130.6	Saturated	Saturated	50	55	0.0	0	7246.2	4251.0	77.7	0.72	0.786	1.858	2.4	0.00
57	130.6	Saturated	Saturated	50	55	0.0	0	7376.8	4319.2	77.4	0.72	0.782	1.847	2.4	0.00
58	128.4	Saturated	Saturated	50	55	0.0	0	7505.2	4385.2	77.1	0.71	0.778	1.837	2.4	0.00
59	128.4	Saturated	Saturated	50	55	0.0	0	7633.6	4451.2	76.8	0.71	0.774	1.827	2.4	0.00
60	128.4	Saturated	Saturated	50	55	0.0	0	7762.0	4517.2	76.5	0.70	0.770	1.816	2.4	0.00
61	128.4	Saturated	Saturated	44	60	0.0	0	7890.4	4583.2	67.0	0.70	0.765	1.806	2.4	0.00
62	128.4	Saturated	Saturated	44	60	0.0	0	8018.8	4649.2	66.8	0.69	0.761	1.796	2.4	0.00
63	123.0	Saturated	Saturated	44	60	0.0	0	8141.8	4709.8	66.6	0.69	0.758	1.788	2.4	0.00
64	123.0	Saturated	Saturated	44	60	0.0	0	8264.8	4770.4	66.3	0.68	0.754	1.779	2.4	0.00
65	123.0	Saturated	Saturated	44	60	0.0	0	8387.8	4831.0	66.1	0.68	0.750	1.770	2.4	0.00
66	123.0	Saturated	Saturated	52	65	0.0	0	8510.8	4891.6	77.9	0.67	0.746	1.761	2.4	0.00
67	123.0	Saturated	Saturated	52	65	0.0	0	8633.8	4952.2	77.6	0.67	0.742	1.753	2.4	0.00
68	129.4	Saturated	Saturated	52	65	0.0	0	8763.2	5019.2	77.4	0.66	0.738	1.744	2.4	0.00
69	129.4	Saturated	Saturated	52	65	0.0	0	8892.6	5086.2	77.1	0.66	0.734	1.734	2.4	0.00
70	129.4	Saturated	Saturated	52	65	0.0	0	9022.0	5153.2	76.8	0.65	0.730	1.725	2.4	0.00
												Total Liquefaction Settlement, S =			**0.00 inches**



rocscience	Project	Television City Studios	
	Analysis Description	Lateral Pile Capacity (Free Head Condition)	
	Drawn By	SST	Company: Geotechnnologies, Inc.
	Date	3/29/2021, 8:08:44 AM	File Name: 21699 Lateral Pile Capacity Analyses (Free Head Condition).rspile2

RSPILE 3.005



rocscience	*Project*	Television City Studios	
	Analysis Description	Lateral Pile Capacity (Fixed Head Condition)	
	Drawn By	SST	*Company* Geotechnnologies, Inc.
	Date	3/29/2021, 8:08:44 AM	*File Name* 21699 Lateral Pile Capacity Analyses (Fixed Head Condition).rspile2

RSPILE 3.005

Appendix E.2

Soils Report Review Letter

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

May 21, 2021

LOG # 117112
SOILS/GEOLOGY FILE - 2
LIQ

Television City Studios, LLC.
7800 Beverly Boulevard
Los Angeles, CA 90036

TRACT: TR 15680 // RANCHO LA BREA (PAT 1-289/290)
LOT(S): FR LT 1 // arb 15, arb 29
LOCATION: 7800 W BEVERLY BLVD // 7716-7860 W BEVERLY BLVD

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	21699	04/22/2021	Geotechnologies, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed Television City 2050 Specific Plan. Details of the proposed development are described on pages 1 and 2 of the referenced report.

The earth materials at the subsurface exploration locations consist of up to 20 feet of uncertified fill underlain by sandy to silty clays, sandy silts, silty to clayey sands and sands. Groundwater was encountered between 8 to 15.5 feet below the existing site grade.

The consultants recommend to support the proposed structures on conventional and Auger Cast Pile (ACP) foundations deriving support from compacted fill and competent native soils.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

1. It appears that temporary dewatering will be needed for excavation of the subterranean levels. Evaluate the potential impacts on adjacent properties from lowering of groundwater levels in terms of ground settlement and / or horizontal deformation.

The soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer may be contacted. Two copies of the response report, including one unbound wet-signed

original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

YING LIU
Geotechnical Engineer II

YL/yl
Log No. 117112
213-482-0480

cc: Geotechnologies, Inc., Project Consultant
LA District Office

Tract Map Stamps

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District	117112 Log No.

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 221 N. Figueroa St., 12th Fl., Los Angeles, CA 90012 Telephone No. (213)482-0480.
B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.
C. Check should be made to the City of Los Angeles. VTT-83387 3-LOT SUBDIV. , LID

1. LEGAL DESCRIPTION
Tract: TR 15680
Block: N/A Lots: FR1
3. OWNER: Television City Studios, LLC
Address: 7700, 7800, 7716, 7718 Beverly Blvd
City: LA Zip: 90036
Phone (Daytime): 310-802-4261

2. PROJECT ADDRESS: 7700, 7800, 7716, 7718 Beverly Blvd
4. APPLICANT: Burns & Bouchard, Inc.
Address: 9619 National Blvd
City: Los Angeles Zip: 90034
Phone (Daytime): 310-883-8275
E-mail address: dzohn@burnsbouchard.com

5. Report(s) Prepared by: N/A
6. Report Date(s): N/A

7. Status of project: ☑ Proposed ☐ Under Construction ☐ Storm Damage
8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)
N/A
9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates: N/A
10. Applicant Signature: X Position: APP

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED		FEES
☒ Soils Engineering	363.00	No. of Lots		
☐ Geology		No. of Acres	24.59	589.75
☐ Combined Soils Engr. & Geol.		☒ Division of Land		453.00
☐ Supplemental		Other		
☐ Combined Supplemental		☐ Expedite		
☐ Import-Export Route		☐ Response to Correction		
Cubic Yards:		☐ Expedite ONLY		
		Sub-total		1,405.75
		Surcharge		39.27
ACTION BY:		TOTAL FEE		1,725.02

THE REPORT IS: ☐ NOT APPROVED
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology — Date
For Soils — Date

Fee Due: $ 1,725.02
Fee Verified By: CLJ Date: 4/28/21
(Cashier Use Only)

Los Angeles Department of Building and Safety
Metro Lobby 04/28/2021 10:53:41 AM
User ID: rkhachatryan
Receipt Ref Nbr: 2021118004-4
Transaction ID: 2021118004-4-1
GRADING REPORT $1,042.75
SYSTEMS DEV SURCH $84.35
GEN PLAN MAINT SURCH $98.40
DEV SERV CENTER SURCH $42.17
CITY PLAN SURCH $84.35
PLAN APPROVAL FEE $363.00
MISC OTHER $10.00
Amount Paid: $1,725.02
PCIS Number: NA
Job Address: 7700, 7800, 7716, 7718 BEVERLY BLVD
Owners Name: TELEVISION CITY STUDIOS, LLC

Appendix E.3

Addendum I—Response to Soils Report Review Letter

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

Celebrating 50 YEARS OF SERVICE 1971-2021

June 3, 2021
File No. 21699

Television City Studios, LLC
c/o Hackman Capital Partners
7800 Beverly Boulevard
Los Angeles, California 90036

Attention: Zach Sokoloff

Subject: Addendum I – Response to Soils Report Review Letter
Television City 2050 Specific Plan
7800 West Beverly Boulevard, Los Angeles, California
(Including 7716 – 7860 West Beverly Boulevard, Los Angeles, California)

References: *Reports by Geotechnologies, Inc.:*
Preliminary Geotechnical Engineering Investigation, revised April 22, 2021.

City of Los Angeles, Department of Building and Safety:
Soils Report Review Letter (Log # 117112), dated May 21, 2021.

Dear Mr. Sokoloff:

This letter has been prepared to provide a response to the referenced Soils Report Review Letter by the City of Los Angeles. A copy of the review letter is enclosed at the end of this report for reference.

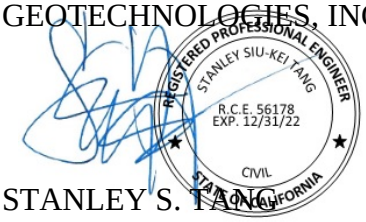
Item 1: It appears that temporary dewatering will be needed for excavation of the subterranean levels. Evaluate the potential impacts on adjacent properties from lowering of groundwater levels in terms of ground settlement and/or horizontal deformation.

Response: The project is currently in the entitlement phase. Preliminarily, it is recommended that a temporary cut-off wall system be installed for shoring and excavation of the proposed subterranean levels. Since the cut-off wall system will be utilized to support the underlying soil and groundwater, a triangular distribution of earth and hydrostatic pressure of 86 pcf may be utilized for design of a cantilever temporary cut-off wall shoring system. For a restrained condition, a trapezoidal distribution of earth pressure of 25(H) plus a triangular distribution of hydrostatic pressure of 62.4 pcf may be utilized for the design of a restrained cut-off wall shoring system, where H is the height of cut-off wall system in feet.

Subsequent to the installation of the cut-off wall system, the temporary dewatering will be limited to within the cut-off wall system to draw the groundwater to approximately 2 feet below the bottom of excavation. Therefore, dewatering within the cut-off wall system will have negligible settlement and/or deformation effects on the adjacent properties.

Once the design of the proposed structures and the depth of the proposed subterranean levels achieve more definition, and a dewatering consultant is engaged by the client, the feasibility of a traditional temporary dewatering system with well points to draw down the water level may be re-evaluated. Additional dewatering and settlement analyses will be provided and submitted to the City of Los Angeles Grading Division for review and approval if the shoring and dewatering system changes from a cut-off wall system.

Should you have any questions please contact this office.
Respectfully submitted,
GEOTECHNOLOGIES, INC.



STANLEY S. TANG
R.C.E. 56178

SST:dy

Enclosure: Soils Report Review Letter (Log # 117112)

Distribution: (4) Addressee

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

May 21, 2021

LOG # 117112
SOILS/GEOLOGY FILE - 2
LIQ

Television City Studios, LLC.
7800 Beverly Boulevard
Los Angeles, CA 90036

TRACT: TR 15680 // RANCHO LA BREA (PAT 1-289/290)
LOT(S): FR LT 1 // arb 15, arb 29
LOCATION: 7800 W BEVERLY BLVD // 7716-7860 W BEVERLY BLVD

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	21699	04/22/2021	Geotechnologies, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed Television City 2050 Specific Plan. Details of the proposed development are described on pages 1 and 2 of the referenced report.

The earth materials at the subsurface exploration locations consist of up to 20 feet of uncertified fill underlain by sandy to silty clays, sandy silts, silty to clayey sands and sands. Groundwater was encountered between 8 to 15.5 feet below the existing site grade.

The consultants recommend to support the proposed structures on conventional and Auger Cast Pile (ACP) foundations deriving support from compacted fill and competent native soils.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California.

The review of the subject report cannot be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

1. It appears that temporary dewatering will be needed for excavation of the subterranean levels. Evaluate the potential impacts on adjacent properties from lowering of groundwater levels in terms of ground settlement and / or horizontal deformation.

The soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer may be contacted. Two copies of the response report, including one unbound wet-signed

original for archiving purposes, a pdf-copy of the complete report in a CD or flash drive, and the appropriate fees will be required for submittal.

YING LIU
Geotechnical Engineer II

YL/yl
Log No. 117112
213-482-0480

cc: Geotechnologies, Inc., Project Consultant
LA District Office

Tract Map Stamps

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District	117112 Log No.

APPLICATION FOR REVIEW OF TECHNICAL REPORTS

INSTRUCTIONS

A. Address all communications to the Grading Division, LADBS, 221 N. Figueroa St., 12th Fl., Los Angeles, CA 90012 Telephone No. (213)482-0480.
B. Submit two copies (three for subdivisions) of reports, one "pdf" copy of the report on a CD-Rom or flash drive, and one copy of application with items "1" through "10" completed.
C. Check should be made to the City of Los Angeles.

VTT-83387 3-LOT SUBDIV. LID

1. LEGAL DESCRIPTION
Tract: TR 15680
Block: N/A Lots: FR1
3. OWNER: Television City Studios, LLC
Address: 7700, 7800, 7716, 7718 Beverly Blvd
City: LA Zip: 90036
Phone (Daytime): 310-802-4261

2. PROJECT ADDRESS:
7700, 7800, 7716, 7718 Beverly Blvd
4. APPLICANT Burns & Bouchard, Inc.
Address: 9619 National Blvd
City: Los Angeles Zip: 90034
Phone (Daytime): 310-883-8275
E-mail address: dzohn@burnsbouchard.com

5. Report(s) Prepared by: N/A
6. Report Date(s): N/A

7. Status of project: ☑ Proposed ☐ Under Construction ☐ Storm Damage
8. Previous site reports? ☐ YES if yes, give date(s) of report(s) and name of company who prepared report(s)
N/A
9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates: N/A
10. Applicant Signature: X Position: APP

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED		FEES
☒ Soils Engineering	363.00	No. of Lots		
☐ Geology		No. of Acres	24.59	589.75
☐ Combined Soils Engr. & Geol.		☒ Division of Land		453.00
☐ Supplemental		Other		
☐ Combined Supplemental		☐ Expedite		
☐ Import-Export Route		☐ Response to Correction		
Cubic Yards:		☐ Expedite ONLY		
		Sub-total		1,405.75
		Surcharge		39.27
ACTION BY:		TOTAL FEE		1,725.02

THE REPORT IS: ☐ NOT APPROVED
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology — Date
For Soils — Date

Fee Due: $ 1,725.02
Fee Verified By: CLJ Date: 4/28/21
(Cashier Use Only)

Los Angeles Department of Building and Safety
Metro Lobby 04/28/2021 10:53:41 AM
User ID: rkhachatryan
Receipt Ref Nbr: 2021118004-4
Transaction ID: 2021118004-4-1
GRADING REPORT $1,042.75
SYSTEMS DEV SURCH $84.35
GEN PLAN MAINT SURCH $98.40
DEV SERV CENTER SURCH $42.17
CITY PLAN SURCH $84.35
PLAN APPROVAL FEE $363.00
MISC OTHER $10.00
Amount Paid: $1,725.02
PCIS Number: NA
Job Address: 7700, 7800, 7716, 7718 BEVERLY BLVD
Owners Name: TELEVISION CITY STUDIOS, LLC

Appendix E.4

Soils Report Approval Letter

CITY OF LOS ANGELES
CALIFORNIA

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

OSAMA YOUNAN, P.E.
GENERAL MANAGER
SUPERINTENDENT OF BUILDING

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT APPROVAL LETTER

August 4, 2021

LOG # 117112-01
SOILS/GEOLOGY FILE - 2
LIQ

Television City Studios, LLC.
7800 Beverly Boulevard
Los Angeles, CA 90036

TRACT: TR 15680 // RANCHO LA BREA (PAT 1-289/290)
LOT(S): FR LT 1 // arb 15, arb 29
LOCATION: 7800 W BEVERLY BLVD // 7716-7860 W BEVERLY BLVD

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Addendum Report	21699	06/03/2021	Geotechnologies, Inc.

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	117112	05/21/2021	LADBS
Soils Report	21699	04/22/2021	Geotechnologies, Inc.

The Grading Division of the Department of Building and Safety has reviewed the referenced reports that provides recommendations for the proposed Television City 2050 Specific Plan. Details of the proposed development are described on pages 1 and 2 of the referenced report. The referenced reports were prepared for the purpose of project entitlement (page 1 of the 06/03/2021 report), a comprehensive report will be prepared for individual buildings (page 13 of the 04/22/2021 report).

The earth materials at the subsurface exploration locations consist of up to 20 feet of uncertified fill underlain by sandy to silty clays, sandy silts, silty to clayey sands and sands. Groundwater was encountered between 8 to 15.5 feet below the existing site grade.

The consultants recommend to support the proposed structures on conventional and Auger Cast Pile (ACP) foundations deriving support from compacted fill and competent native soils.

The site is located in a designated liquefaction hazard zone as shown on the Seismic Hazard Zones map issued by the State of California. The Liquefaction study included as a part of the reports demonstrates that the site does not possess a liquefaction potential. This satisfies the requirement of the 2020 Los Angeles City Building Code Section 1803.5.12.

The referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. Prior to issuance of any building and / or grading permits, a comprehensive geotechnical report shall be submitted to the Grading Division of the Department of Building and Safety for review and approval.

YING LIU
Geotechnical Engineer II

YL/yl
Log No. 117112-01
213-482-0480

cc: Geotechnologies, Inc., Project Consultant
LA District Office

Appendix E.5

Addendum II—Additional Geotechnical Comments

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

Celebrating 50 YEARS OF SERVICE 1971-2021

August 26, 2021
File No. 21699

Television City Studios, LLC
c/o Hackman Capital Partners
7800 Beverly Boulevard
Los Angeles, California 90036

Attention: Zach Sokoloff

Subject: Addendum II – Additional Geotechnical Comments
Television City 2050 Specific Plan
7800 West Beverly Boulevard, Los Angeles, California
(Including 7716 – 7860 West Beverly Boulevard, Los Angeles, California)

References: *Reports by Geotechnologies, Inc.:*
Preliminary Geotechnical Engineering Investigation, revised April 22, 2021;
Addendum I – Response to Soils Report Review Letter, dated June 3, 2021.

City of Los Angeles, Department of Building and Safety:
Soils Report Review Letter (Log # 117112), dated May 21, 2021;
Soils Report Approval Letter (Log # 117112-01), dated August 4, 2021.

Dear Mr. Sokoloff:

This letter has been prepared to provide additional geotechnical comments related to the Project.

Regional Subsidence

The site is not located within a zone of known subsidence due to extraction or withdrawal of oil or other fluid. According to the Geologic Map of the Hollywood and Burbank (South ½) Quadrangles, Los Angeles, California (Dibblee, Map DF-30), the site is underlain by Older Surficial Sediments. Due to the age of the sediments, subsidence is not anticipated for the site soils.

Collapsible Soils

Hydroconsolidation is a phenomenon in which the underlying soils collapse, or lose volume, when saturated. Hydroconsolidation could potentially result in significant foundation settlement or movements, over a long period of wetting.

As part of the geotechnical investigation for the Project, consolidation tests performed on the collected soil samples did not show hydro-collapse upon saturation of the samples. Based on the result of the geotechnical investigation and laboratory testing, the soils underlying the Project would not be considered prone to sudden collapse or hydroconsolidation.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

STANLEY S. TANG
R.C.E. 56178

SST:dy

Distribution: (4) Addressee