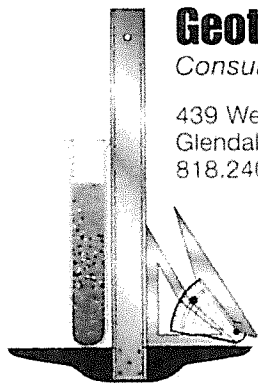


Appendix FEIR-19

Geotechnical Addendum III



Geotechnologies, Inc.

Consulting Geotechnical Engineers

439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

May 16, 2023
File No. 21699

Television City Studios, LLC
7800 Beverly Boulevard
Los Angeles, California 90036

Subject: Addendum III – Additional Explorations & Response to DEIR Review Comments
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;
Addendum II – Additional Geotechnical Comments, dated August 26, 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.

This addendum report has been prepared to provide the results of additional explorations, laboratory testing, and geotechnical responses to comments related to the TVC Draft EIR.

Liquefaction Evaluation

As a part of the response to the DEIR comments, two additional borings were drilled at the Project Site. The additional borings were excavated on November 3, 2022 and November 4, 2022. The additional borings were excavated to 80 feet below the existing site grade, and 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 two additional geotechnical borings, identified as B20 and B21, were drilled adjacent to the B12 and B14, respectively. The exploration locations are shown on the Plot Plan and the geologic materials encountered are logged on the enclosed Plates A-20 through A-21. The soil samples collected from the additional borings were transferred to the laboratory for additional testing, classification, and analyses.

Liquefaction analyses were performed for these two additional borings 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.

Using a Site Class “D” (Stiff Soil Profile), a modal magnitude (MW) 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. The modal earthquake magnitude and the PGA_M ground motion were utilized in the enclosed liquefaction analyses.

The percent passing a Number 200 sieve, Atterberg Limits, and the plasticity index (PI) of representative samples of the soils collected from these two additional borings are presented on the enclosed Plates F-7 through F-9.

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. 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 remains to be low and the geotechnical recommendations and conclusions provided in the referenced reports and DEIR remain applicable for the proposed Project.

Excavation Support

Temporary shoring will be required for the excavation of the proposed subterranean levels. Defining the specific means and method of shoring would appropriately occur during the regulatory building permit process. Shoring may consist of cantilever or restrained shoring system depending on the depth of the excavation, lateral loading, and surcharge loading. Restrained shoring may consist of tiebacks and/or internal restrained system (raker footings and struts). If tiebacks extending below neighboring properties are necessary, the use of such tiebacks will require approvals and agreements from the adjacent effected property owners, as is required by the Local jurisdiction.

Cut-off walls may also be utilized if evaluated to be necessary by the design team, in order to minimize impacts to the neighboring properties and to minimize mobilization of any potential groundwater and contaminants. Cut-off walls may consist of a secant pile wall system, comprising of overlapping (secant) piles to form structural or cutoff walls and achieve a water-tight



excavation. The secant pile walls will be designed to resist soil and hydrostatic pressure. The design can incorporate steel bar or beams for reinforcement and anchors or internal bracing can provide additional lateral support, if needed.

The design of the shoring system will be consistent with all regulatory requirements and best trade practices to preserve the integrity of all surrounding land and protection of workers. Inspections of shoring installations, surveying, and monitoring requirements will be incorporated and detailed in the shoring plans, as required by the Local jurisdiction as part of the regulatory building permit review and approval process. All plans for shoring will be submitted for review and approval by the Local jurisdiction prior to construction.

Expansive Soils

The soils underlying the Project Site consists of stratified layers of silty and clayey sands, sands, sandy silts, sandy clays and silty clays. The Expansion Index for the surficial soils in the upper 5 feet are in the range of 35 to 130, corresponding to low to very high expansion range. The recommended grading for the proposed at-grade building pads will blend the onsite fill soils. Additional testing will be performed during the grading process to determine the expansion potential of the fill pad below the at-grade structures. As a minimum, LADBS Information Bulletin P/BC 2017-116 (Foundation Design for Expansive Soils) will be implemented into the final building design to address potential expansive soils, if necessary. The proposed subterranean structures will be designed to address the effects of expansive soils and hydrostatic pressure. All structural plans will be submitted for review and approval by the Local jurisdiction prior to construction.

Expansive soil conditions will be considered and evaluated when determining the appropriate shoring and dewatering methods during the regulatory building permit process. Minimizing effects to the neighboring properties, in addition to other design factors, will be considered in the decision and design process. The final shoring plans will be submitted for Local jurisdiction for review and approval prior to construction. Appropriate regulatory compliance will be met in the plan check review process.

Stormwater Infiltration

According to Geosyntec, extensive water level data from the State of California GeoTracker database (data accessed on February 3, 2023) contains electronic groundwater-level data for the former Texaco station monitoring wells from 2002 through 2012 with 578 individual groundwater level gauging records from 17 on-site monitoring wells. In this dataset, the maximum and minimum depth to water are 13.43 feet below ground surface (bgs) and 6.55 feet bgs, respectively. While the mean (average) depth to groundwater in this dataset is 10.4 feet bgs, 97 percent of the groundwater level gauging measurements recorded groundwater level depths of 8 feet bgs or greater during this time period.

The 2023 ConeTec CPT/HPT investigation data also reported the groundwater surface to be encountered at 9.8, 10.0, 10.0 and 10.8 feet bgs for each of the respective investigative borings.



While these data are not from monitoring wells, they provide a reasonable estimate of recent groundwater depths.

As part of the dewatering study by Geosyntec, it is concluded 10 feet bgs was a representative average depth to water for the recent period from 2002 to 2023, and 8 feet bgs was a representative shallow range depth for the same time period. Additionally, according to the CGS Seismic Hazard Zone Report of the Hollywood Quadrangle indicates that the historically highest groundwater level is approximately 8 feet below the existing site grade.

The LADBS Information Bulletin P/BC 2017-118 states that stormwater infiltration must occur a minimum of 10 feet above the groundwater table. Therefore, due to the groundwater level encountered during explorations, stormwater infiltration is considered to be infeasible for the Project Site.

Environmental testing and dewatering are beyond the geotechnical scope and services provided by Geotechnologies, Inc. Comments related to environmental issues and dewatering will be addressed by other members of the DEIR team who specializes in those disciplines.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.



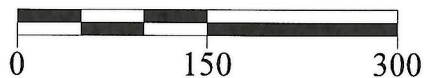
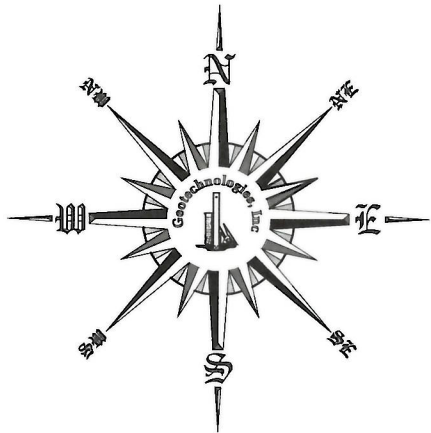
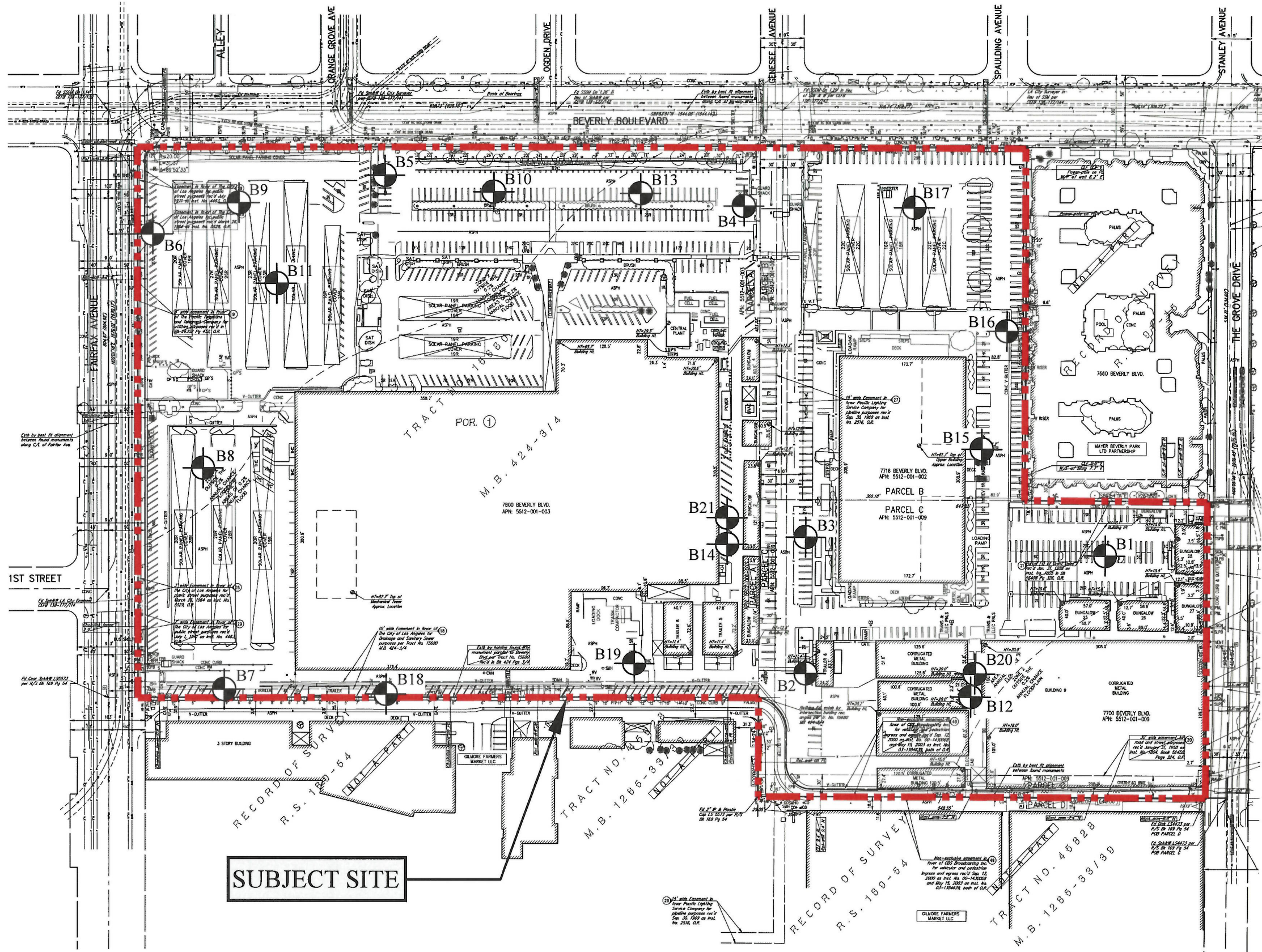
SST:km

Enclosures: Plot Plan
Plates A-20 through A-21
Plates F-7 through F-9
Liquefaction Analyses (B20 and B21)



Geotechnologies, Inc.

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www.geoteq.com



SCALE: 1" = 150'

LEGEND

B21  LOCATION & NUMBER OF BORING

PLOT PLAN

 **Geotechnologies, Inc.**

TELEVISION CITY STUDIOS, LLC
SEC N. FAIRFAX AVE. & BEVERLY BLVD., LOS ANGELES

Drawn by: YD File No.: 21699

Date: November 2022

BORING LOG NUMBER 20

Television City Studios, LLC

Date: 11/04/22

Elevation: 200.0'

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
				0 --		Surface Conditions: Asphalt for Driveway
				-		4½-inch Asphalt, No Base
				1 --		FILL: Sandy Clay, dark brown, moist, stiff, occasional brick fragments
				-		
				2 --		
				-		
				3 --		
				-		
				4 --		
				-		
5	12	19.4	SPT	5 --		
				-		Sandy Clay, dark brown to gray, moist, stiff, with occasional brick fragments
				6 --		
				-		
				7 --		
				-		
7.5	31	22.2	0.3.1	8 --	CL	Sandy Clay, dark to yellowish brown, moist, stiff, fine grained
				-		
				9 --		
				-		
10	20	21.9	SPT	10 --		
				-		Sandy Clay, dark brown, moist, stiff
				11 --		
				-		
				12 --		
12.5	49	17.6	106.7	-		
				13 --	SM	Silty Sand, dark brown, moist, dense, fine grained
				-		
				14 --		
				-		
15	25	5.6	SPT	15 --		
				-	SP	Sand, dark brown, slightly moist, medium dense to dense, fine to medium grained
				16 --		
				-		
				17 --		
17.5	43	18.0	108.5	-		
				18 --		Sand, dark to yellowish brown, wet, dense to very dense, fine to medium grained
				-		
				19 --		
				-		
20	53	22.4	SPT	20 --		
				-		Sand, dark and yellowish brown, wet, dense, fine to medium grained
				21 --		
				-		
				22 --		
22.5	60	23.7	104.1	-		
				23 --	SC	Clayey Sand, dark gray, very moist, dense, fine grained
				-		
				24 --		
				-		
25	30	22.2	SPT	25 --		
				-		

BORING LOG NUMBER 20

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	36	26.3	98.8	-		
				28 --		Clayey Sand, dark brown, very moist, dense, fine grained
				-		
				29 --		
				-		
30	32	34.3	SPT	30 --		
				-		
				31 --		
				-		
				32 --		
32.5	60	28.6	92.4	-		
				33 --		Clayey Sand, dark brown, very moist, dense, fine grained
				-		
				34 --		
				-		
35	18	35.7	SPT	35 --		
				-	CH	Silty Clay, dark grayish brown, very moist, stiff
				36 --		
				-		
				37 --		
37.5	72	26.9	97.9	-		
				38 --	SM	Silty Sand, dark grayish brown, very moist to wet, very dense, fine grained
				-		
				39 --		
				-		
40	38	23.2	SPT	40 --		
				-		Silty Sand, dark grayish brown, wet, dense, fine to medium grained
				41 --		
				-		
				42 --		
42.5	69	19.1	108.6	-		
				43 --		
				-		
				44 --		
				-		
45	38	19.9	SPT	45 --		
				-		Silty Sand, dark grayish brown, wet, dense, fine to medium grained
				46 --		
				-		
				47 --		
47.5	69	20.9	106.6	-		
				48 --		
				-		
				49 --		
				-		
50	29	26.7	SPT	50 --		
				-	SC	Clayey Sand, gray to dark gray, wet, dense, fine to medium grained

BORING LOG NUMBER 20

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 --		
				-		
52.5	72	22.9	105.0	52 --		
				-		
				53 --	SM	Silty Sand, gray, wet, very dense, fine to medium grained
				-		
				54 --		
				-		
55	68	20.3	SPT	55 --		
				-		
				56 --		
				-		
				57 --		
				-		
57.5	75	21.3	103.7	58 --	SP	Sand, gray, wet, very dense, fine to medium grained
				-		
				59 --		
				-		
60	47	20.1	SPT	60 --		
				-		
				61 --		
				-		
62.5	38 50/3"	20.1	111.2	62 --		
				-		
				63 --		Sand, gray, wet, very dense, fine grained
				-		
				64 --		
				-		
65	62	25.9	SPT	65 --		
				-		
				66 --	CL	Silty Clay, dark gray, moist, stiff, fine grained
				-		
				67 --		
				-		
67.5	92	18.5	114.9	68 --	SM	Silty Sand, dark gray, moist, very dense, fine grained
				-		
				69 --		
				-		
70	46	26.8	SPT	70 --		
				-		
				71 --	CH	Silty Clay, dark gray, very moist, stiff to very stiff
				-		
				72 --		
				-		
72.5	45 50/5"	35.2	88.6	73 --		
				-		
				74 --		
				-		
75	73	35.1	SPT	75 --		
				-		

BORING LOG NUMBER 20

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
77.5	46 50/5"	15.3	115.5	-	SM	Silty Sand, dark gray, wet, very dense, fine grained
				76 --		
				-		
				77 --		
80	80	15.2	SPT	-		Total Depth 80 feet Water at 17 feet Fill to 7½ 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
				78 --		
				-		
				79 --		
				-		
				80 --		
				-		
				81 --		
				-		
				82 --		
				-		
				83 --		
				-		
				84 --		
				-		
				85 --		
				-		
				86 --		
				-		
				87 --		
				-		
				88 --		
				-		
				89 --		
				-		
				90 --		
				-		
				91 --		
				-		
				92 --		
				-		
				93 --		
				-		
				94 --		
				-		
				95 --		
				-		
				96 --		
				-		
				97 --		
				-		
				98 --		
				-		
				99 --		
				-		
				100 --		
				-		

BORING LOG NUMBER 21

Television City Studios, LLC

Date: 11/03/22

Elevation: 195.0'

File No. 21699

Method: 8-inch diameter Hollow Stem Auger

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				0 --		Surface Conditions: Asphalt for Driveway
				-		7-inch Asphalt over 5-inch Base
				1 --		
				-		
				2 --		FILL: Sandy Silt to Silty Clay, dark brown, moist, stiff
				-		
2.5	19	35.1	82.3	3 --		
				-		
				4 --	CH	Silty Clay, dark gray, moist, stiff
				-		
5	14	27.4	SPT	5 --		-----
				-		Silty Clay, dark and yellowish brown, moist, stiff
				6 --		
				-		
7.5	41	25.5	100.5	7 --		
				-		
				8 --	SC	Clayey Sand, dark to yellowish brown, moist, dense, fine grained
				-		
				9 --		
				-		
10	26	22.3	SPT	10 --		
				-		
				11 --		
				-		
12.5	40	17.0	116.1	12 --		
				-		
				13 --	SP	Sand, dark to yellowish brown, wet, dense, fine to medium grained
				-		
				14 --		
				-		
15	25	17.0	SPT	15 --		-----
				-		Sand, yellowish brown, wet, dense, fine to medium grained
				16 --		
				-		
17.5	41	20.9	106.6	17 --		
				-		
				18 --	SM	Silty Sand, yellowish brown, wet, dense, fine grained
				-		
				19 --		
				-		
20	39	15.1	SPT	20 --		
				-		
				21 --	SP	Sand, yellowish brown, wet, dense, fine to medium grained occasional gravel and cobbles
				-		
				22 --		
				-		
22.5	46	23.7	99.0	23 --	SM	Silty Sand, gray to dark gray, very moist to wet, dense, fine grained
				-		
				24 --		
				-		
25	37	22.6	SPT	25 --		
				-		

BORING LOG NUMBER 21

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	66	27.1	99.4	28 --	CL	Sandy Clay, grayish brown, very moist, very stiff
				-		
				29 --		
				-		
30	30	26.2	SPT	30 --		
				-		
				31 --		
				-		
				32 --		
				-		
32.5	81	10.5	127.4	33 --	SP	Sand, gray to dark gray, wet, very dense, fine grained, with gravel
				-		
				34 --		
				-		
35	38	22.3	SPT	35 --		
				-		
				36 --	SM	Silty Sand, gray to dark gray, wet, dense, fine grained, with occasional cobbles
				-		
				37 --		
				-		
37.5	72	30.7	96.3	38 --	CL	Sandy Clay, gray to dark gray, very moist, very stiff, fine grained
				-		
				39 --		
				-		
40	36	31.5	SPT	40 --		
				-		
				41 --		
				-		
				42 --		
				-		
42.5	68	26.8	99.7	43 --	SM	Silty Sand, gray to dark gray, wet, dense, fine grained, with occasional gravel and cobbles
				-		
				44 --		
				-		
45	34	22.0	SPT	45 --		
				-		
				46 --		
				-		
				47 --		
				-		
47.5	81	28.7	95.8	48 --	CH	Silty Clay, dark gray, very moist, very stiff, fine grained
				-		
				49 --		
				-		
50	33	29.2	SPT	50 --		
				-		

BORING LOG NUMBER 21

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	74	23.9	99.5	53 --	SC	Clayey Sand, dark gray, very moist, very dense, fine grained
				-		
				54 --		
				-		
55	30	19.2	SPT	55 --		
				-		
				56 --		
				-		
				57 --		
57.5	45 50/4"	26.8	97.8	-		
				58 --		Clayey Sand, dark gray, very moist, very dense, fine grained
				-		
				59 --		
				-		
60	42	36.6	SPT	60 --	CH	Silty Clay, dark gray, very moist, very stiff
				-		
				61 --		
				-		
62.5	45 50/4"	35.4	85.6	62 --		
				-		
				63 --		
				-		
				64 --		
				-		
65	37	34.7	SPT	65 --		
				-		Silty Clay, dark gray, very moist, stiff to very stiff
				66 --		
				-		
				67 --		
67.5	38 50/5"	38.4	87.1	-		
				68 --		
				-		
				69 --		
				-		
70	45	19.7	SPT	70 --		
				-		
				71 --	SC	Clayey Sand, dark gray, moist, dense to very dense, fine grained
				-		
				72 --		
72.5	45 50/4"	17.8	114.1	-		
				73 --		
				-		
				74 --		
				-		
75	41	18.8	SPT	75 --		
				-	CL	Sandy Clay, dark gray, moist, stiff

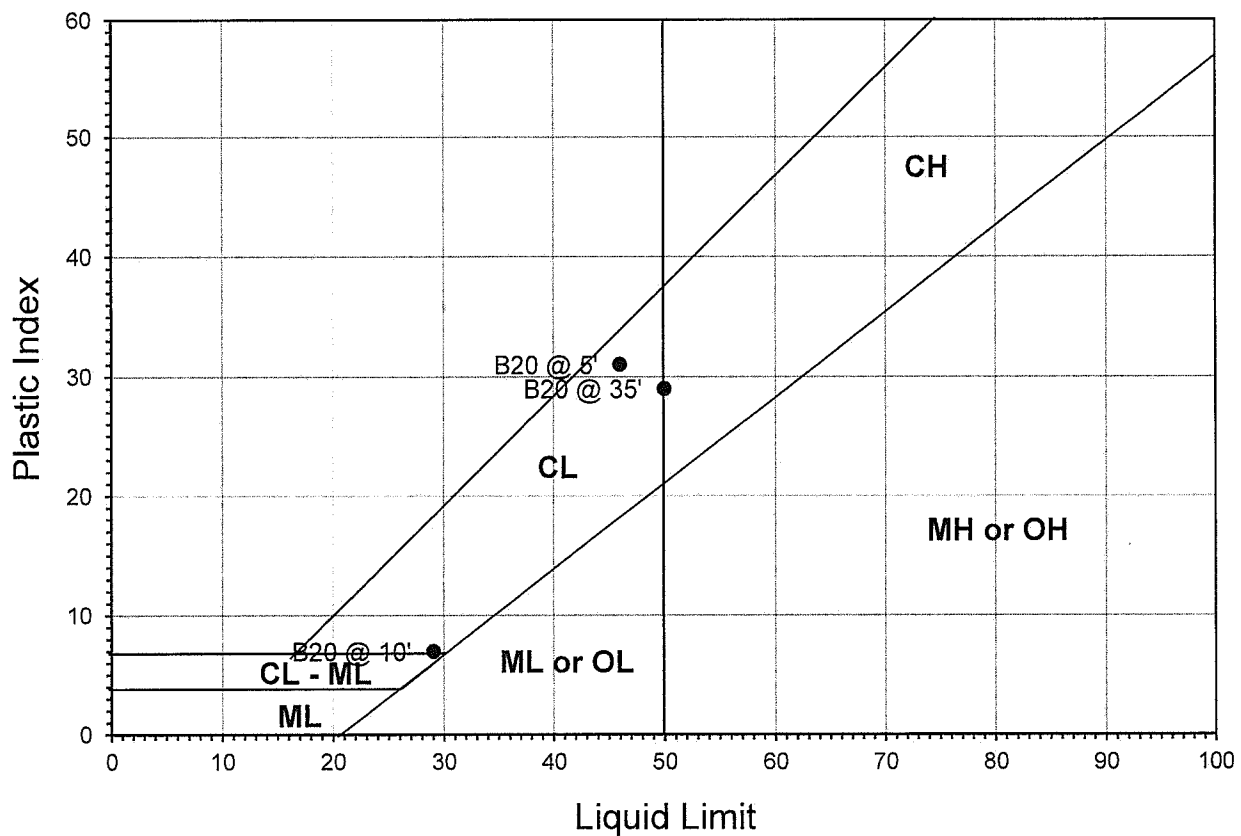
BORING LOG NUMBER 21

Television City Studios, LLC

File No. 21699

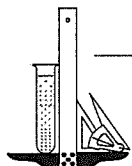
km

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
77.5	45 50/4"	21.1	102.3	-	SM	Silty Sand, dark gray, moist to very moist, very dense, fine grained
				76 --		
				-		
				77 --		
				-		
80	50	26.0	SPT	78 --		Total Depth 80 feet Water at 8 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
				-		
				79 --		
				-		
				80 --		
				-		
				81 --		
				-		
				82 --		
				-		
				83 --		
				-		
				84 --		
				-		
				85 --		
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				-		
				96 --		
				-		
				97 --		
				-		
				98 --		
				-		
				99 --		
				-		
				100 --		
				-		



Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B20 @ 5'	CL	52.8	46.0	15.0	31.0
B20 @ 10'	CL	60.1	29.0	22.0	7.0
B20 @ 15'	SP	7.8			
B20 @ 20'	SP	4.4			
B20 @ 25'	SC	31.2			
B20 @ 30'	SC	38.7			
B20 @ 35'	CH	80.0	50.0	21.0	29.0
B20 @ 40'	SM	17.2			
B20 @ 45'	SM	21.0			
B20 @ 50'	SC	33.6			
B20 @ 55'	SM	18.1			

ATTERBERG LIMITS



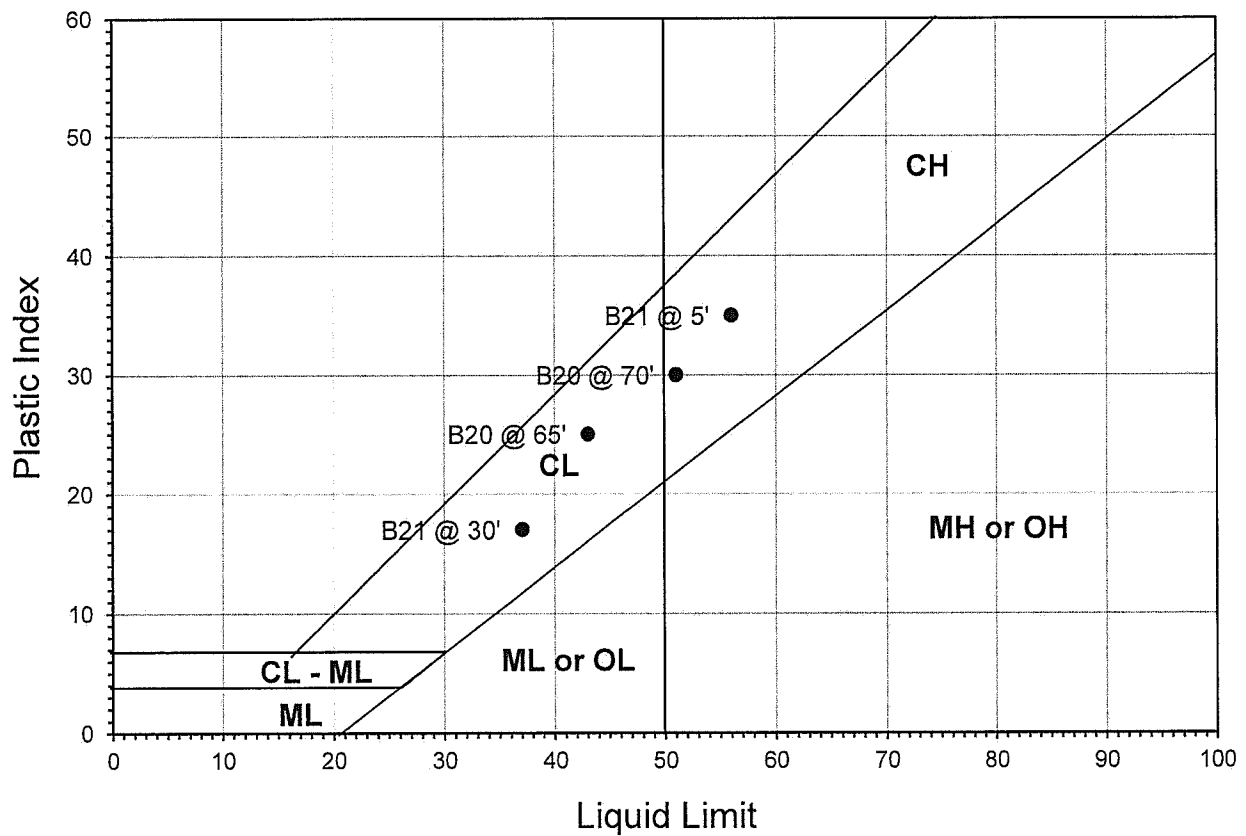
Geotechnologies, Inc.

CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

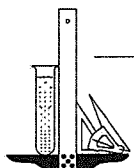
FILE NO.: 21699

PLATE: F-7



Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B20 @ 60'	SP	10.7			
B20 @ 65'	CL	53.4	43.0	18.0	25.0
B20 @ 70'	CH	64.3	51.0	21.0	30.0
B21 @ 5'	CH	68.1	56.0	21.0	35.0
B21 @ 10'	SC	38.3			
B21 @ 15'	SP	11.4			
B21 @ 20'	SP	10.6			
B21 @ 25'	SC	32.2			
B21 @ 30'	CL	52.2	37.0	20.0	17.0
B21 @ 35'	SM	27.6			

ATTERBERG LIMITS



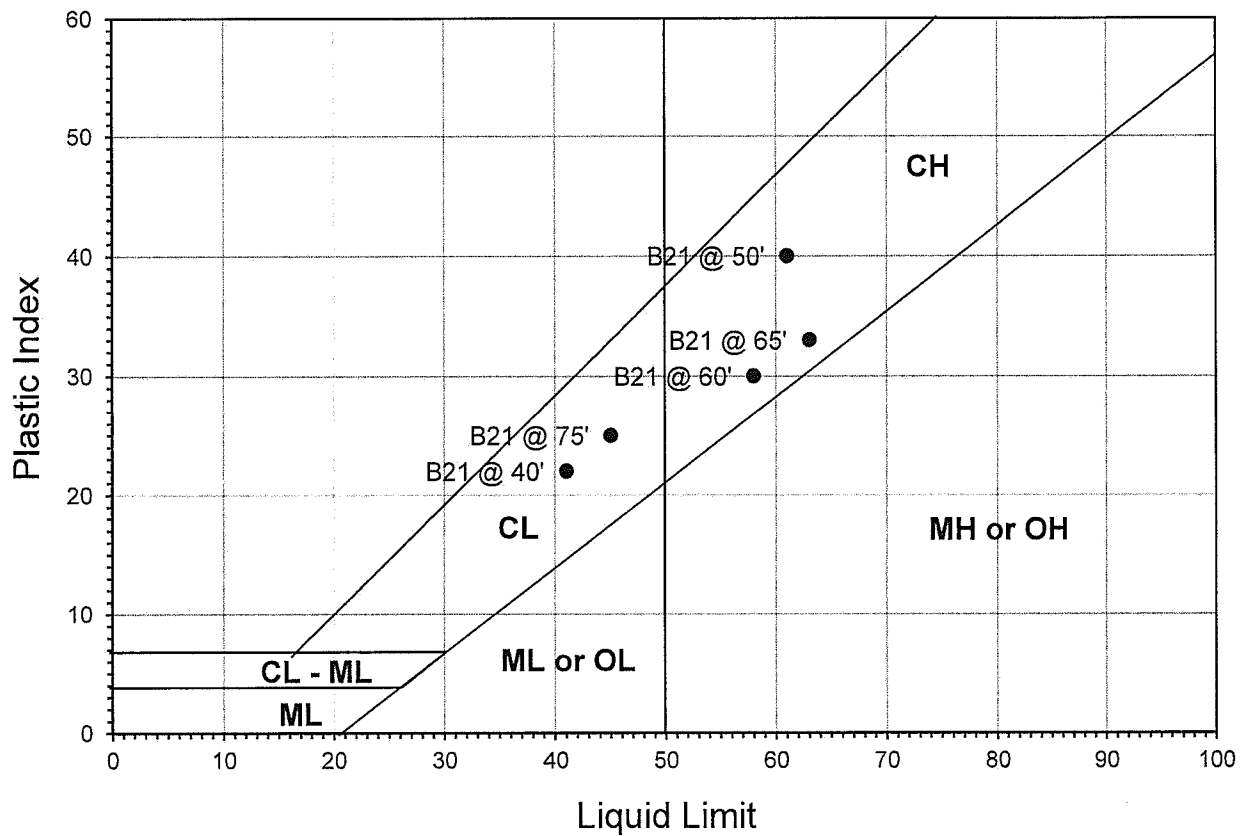
Geotechnologies, Inc.

CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

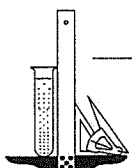
FILE NO.: 21699

PLATE: F-8



Sample ID	Descriptions	Passing #200	Liquid Limit	Plastic Limit	Plastic Index
B21 @ 40'	CL	61.3	41.0	19.0	22.0
B21 @ 50'	CH	72.0	61.0	21.0	40.0
B21 @ 55'	SC	37.6			
B21 @ 60'	CH	83.5	58.0	28.0	30.0
B21 @ 65'	CH	81.5	63.0	30.0	33.0
B21 @ 70'	SC	37.7			
B21 @ 75'	CL	53.6	45.0	20.0	25.0

ATTERBERG LIMITS



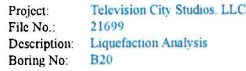
Geotechnologies, Inc.

CONSULTING GEOTECHNICAL ENGINEERS

PROJECT: TELEVISION CITY STUDIOS, LLC

FILE NO.: 21699

PLATE: F-9



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

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)	Vertical Stress σ_{v0} (psf)	Effective Vert. Stress σ'_{v0} (psf)	Corrected $(N)_{60}$	Stress Reduction Coeff. r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlement ΔS_v (inches)
1	126.0	Unsaturated	Unsaturated	12	5	52.8	31	126.0	126.0	32.4	1.00	0.640	0.891	Non-Liq.	0.00
2	126.0	Unsaturated	Unsaturated	12	5	52.8	31	252.0	252.0	32.4	1.00	0.638	0.891	Non-Liq.	0.00
3	126.0	Unsaturated	Unsaturated	12	5	52.8	31	378.0	378.0	32.4	1.00	0.636	0.891	Non-Liq.	0.00
4	126.0	Unsaturated	Unsaturated	12	5	52.8	31	504.0	504.0	32.4	0.99	0.634	0.891	Non-Liq.	0.00
5	126.0	Unsaturated	Unsaturated	12	5	52.8	31	630.0	630.0	32.7	0.99	0.631	0.932	Non-Liq.	0.00
6	126.0	Unsaturated	Unsaturated	12	5	52.8	31	756.0	756.0	31.2	0.99	0.629	0.734	Non-Liq.	0.00
7	126.0	Unsaturated	Unsaturated	12	5	52.8	31	882.0	882.0	29.6	0.98	0.627	0.593	Non-Liq.	0.00
8	126.0	Unsaturated	Unsaturated	20	10	60.1	7	1008.0	1008.0	43.3	0.98	0.624	2.000	Non-Liq.	0.00
9	126.0	Unsaturated	Saturated	20	10	60.1	7	1134.0	1071.6	44.1	0.98	0.658	2.000	3.0	0.00
10	126.0	Unsaturated	Saturated	20	10	60.1	7	1260.0	1135.2	43.0	0.97	0.687	2.000	2.9	0.00
11	126.0	Unsaturated	Saturated	20	10	60.1	7	1386.0	1198.8	41.8	0.97	0.713	2.000	2.8	0.00
12	126.0	Unsaturated	Saturated	20	10	60.1	7	1512.0	1262.4	40.6	0.96	0.735	2.000	2.7	0.00
13	125.4	Unsaturated	Saturated	25	15	7.8	0	1637.4	1325.4	43.0	0.96	0.755	2.000	2.6	0.00
14	125.4	Unsaturated	Saturated	25	15	7.8	0	1762.8	1388.4	42.1	0.95	0.772	2.000	2.6	0.00
15	125.4	Unsaturated	Saturated	25	15	7.8	0	1888.2	1451.4	46.0	0.95	0.787	2.000	2.5	0.00
16	125.4	Unsaturated	Saturated	25	15	7.8	0	2013.6	1514.4	45.3	0.95	0.801	2.000	2.5	0.00
17	125.4	Unsaturated	Saturated	25	15	7.8	0	2139.0	1577.4	44.5	0.94	0.813	2.000	2.5	0.00
18	128.0	Saturated	Saturated	25	15	7.8	0	2267.0	1643.0	44.2	0.94	0.823	2.000	2.4	0.00
19	128.0	Saturated	Saturated	25	15	7.8	0	2395.0	1708.6	43.8	0.93	0.831	2.000	2.4	0.00
20	128.0	Saturated	Saturated	25	15	7.8	0	2523.0	1774.2	43.4	0.93	0.839	2.000	2.4	0.00
21	128.0	Saturated	Saturated	53	20	4.4	0	2651.0	1839.6	90.9	0.92	0.845	2.000	2.4	0.00
22	128.0	Saturated	Saturated	53	20	4.4	0	2779.0	1905.4	90.3	0.92	0.851	2.000	2.4	0.00
23	128.7	Saturated	Saturated	30	25	31.2	0	2907.7	1971.7	56.2	0.91	0.855	2.000	2.3	0.00
24	128.7	Saturated	Saturated	30	25	31.2	0	3036.4	2038.0	55.8	0.90	0.859	2.000	2.3	0.00
25	128.7	Saturated	Saturated	30	25	31.2	0	3165.1	2104.3	55.5	0.90	0.862	2.000	2.3	0.00
26	128.7	Saturated	Saturated	30	25	31.2	0	3293.8	2170.6	55.2	0.89	0.864	2.000	2.3	0.00
27	128.7	Saturated	Saturated	30	25	31.2	0	3422.5	2236.9	54.8	0.89	0.866	2.000	2.3	0.00
28	124.7	Saturated	Saturated	30	25	31.2	0	3551.2	2299.2	57.2	0.88	0.868	2.000	2.3	0.00
29	124.7	Saturated	Saturated	30	25	31.2	0	3671.9	2361.5	56.9	0.88	0.869	2.000	2.3	0.00
30	124.7	Saturated	Saturated	30	25	31.2	0	3796.6	2423.8	56.6	0.87	0.870	2.000	2.3	0.00
31	124.7	Saturated	Saturated	32	30	38.7	0	3921.3	2486.1	59.8	0.87	0.870	2.000	2.3	0.00
32	124.7	Saturated	Saturated	32	30	38.7	0	4046.0	2548.4	59.6	0.86	0.870	2.000	2.3	0.00
33	118.8	Saturated	Saturated	32	30	38.7	0	4164.8	2604.8	59.3	0.85	0.871	2.000	2.3	0.00
34	118.8	Saturated	Saturated	32	30	38.7	0	4283.6	2661.2	59.1	0.85	0.871	2.000	2.3	0.00
35	118.8	Saturated	Saturated	32	30	38.7	0	4402.4	2717.6	58.8	0.84	0.870	2.000	2.3	0.00
36	118.8	Saturated	Saturated	18	35	80.0	29	4521.2	2774.0	31.7	0.84	0.870	0.640	Non-Liq.	0.00
37	118.8	Saturated	Saturated	18	35	80.0	29	4640.0	2830.4	31.5	0.83	0.869	0.625	Non-Liq.	0.00
38	124.3	Saturated	Saturated	38	40	17.2	0	4764.3	2892.3	66.3	0.83	0.867	2.000	2.3	0.00
39	124.3	Saturated	Saturated	38	40	17.2	0	4888.6	2954.2	66.0	0.82	0.865	1.990	2.3	0.00
40	124.3	Saturated	Saturated	38	40	17.2	0	5012.9	3016.1	65.7	0.81	0.862	1.978	2.3	0.00
41	124.3	Saturated	Saturated	38	40	17.2	0	5137.2	3078.0	65.4	0.81	0.860	1.966	2.3	0.00
42	124.3	Saturated	Saturated	38	40	17.2	0	5261.5	3139.9	65.1	0.80	0.857	1.954	2.3	0.00
43	129.4	Saturated	Saturated	38	40	17.2	0	5386.0	3206.9	64.9	0.80	0.854	1.942	2.3	0.00
44	129.4	Saturated	Saturated	38	40	17.2	0	5520.3	3273.9	64.6	0.79	0.850	1.929	2.3	0.00
45	129.4	Saturated	Saturated	38	40	17.2	0	5649.7	3340.9	64.3	0.79	0.846	1.917	2.3	0.00
46	129.4	Saturated	Saturated	38	45	21.0	0	5779.1	3407.9	64.8	0.78	0.842	1.906	2.3	0.00
47	129.4	Saturated	Saturated	38	45	21.0	0	5908.5	3474.9	64.5	0.77	0.838	1.894	2.3	0.00
48	128.8	Saturated	Saturated	38	45	21.0	0	6037.3	3541.3	64.2	0.77	0.835	1.883	2.3	0.00
49	128.8	Saturated	Saturated	38	45	21.0	0	6166.1	3607.7	64.0	0.76	0.830	1.872	2.3	0.00
50	128.8	Saturated	Saturated	38	45	21.0	0	6294.9	3674.1	63.7	0.76	0.826	1.861	2.3	0.00
51	128.8	Saturated	Saturated	29	50	33.6	0	6423.7	3740.5	50.2	0.75	0.822	1.850	2.3	0.00
52	128.8	Saturated	Saturated	29	50	33.6	0	6552.5	3806.9	49.9	0.75	0.818	1.840	2.2	0.00
53	129.0	Saturated	Saturated	68	55	18.1	0	6681.5	3873.5	108.6	0.74	0.814	1.829	2.2	0.00
54	129.0	Saturated	Saturated	68	55	18.1	0	6810.5	3940.1	108.2	0.73	0.809	1.819	2.2	0.00
55	129.0	Saturated	Saturated	68	55	18.1	0	6939.5	4006.7	107.8	0.73	0.805	1.809	2.2	0.00
56	129.0	Saturated	Saturated	68	55	18.1	0	7068.5	4073.3	107.4	0.72	0.800	1.799	2.2	0.00
57	129.0	Saturated	Saturated	68	55	18.1	0	7197.5	4139.9	107.0	0.72	0.796	1.789	2.2	0.00
58	125.8	Saturated	Saturated	47	60	10.7	0	7323.3	4203.3	72.4	0.71	0.792	1.779	2.2	0.00
59	125.8	Saturated	Saturated	47	60	10.7	0	7449.1	4266.7	72.1	0.71	0.788	1.770	2.2	0.00
60	125.8	Saturated	Saturated	47	60	10.7	0	7574.9	4330.1	71.9	0.70	0.784	1.761	2.2	0.00
61	125.8	Saturated	Saturated	47	60	10.7	0	7700.7	4393.5	71.6	0.70	0.779	1.752	2.2	0.00
62	125.8	Saturated	Saturated	47	60	10.7	0	7826.5	4456.9	71.4	0.69	0.775	1.744	2.2	0.00
63	133.5	Saturated	Saturated	47	60	10.7	0	7960.0	4528.0	71.1	0.69	0.770	1.734	2.3	0.00
64	133.5	Saturated	Saturated	47	60	10.7	0	8093.5	4599.1	70.9	0.68	0.766	1.724	2.3	0.00
65	133.5	Saturated	Saturated	47	60	10.7	0	8227.0	4670.2	70.6	0.68	0.761	1.715	2.3	0.00
66	133.5	Saturated	Saturated	62	65	53.4	25	8360.5	4741.3	96.5	0.67	0.756	1.706	Non-Liq.	0.00
67	133.5	Saturated	Saturated	62	65	53.4	25	8494.0	4812.4	96.2	0.67	0.752	1.696	Non-Liq.	0.00
68	136.1	Saturated	Saturated	62	65	53.4	25	8630.1	4886.1	95.9	0.66	0.747	1.687	Non-Liq.	0.00
69	136.1	Saturated	Saturated	62	65	53.4	25	8766.2	4959.8	95.6	0.66	0.742	1.678	Non-Liq.	0.00
70	136.1	Saturated	Saturated	62	65	53.4	25	8902.3	5033.5	95.2	0.65	0.738	1.668	Non-Liq.	0.00
71	136.1	Saturated	Saturated	46	70	64.3	30	9038.4	5107.2	71.9	0.65	0.733	1.659	Non-Liq.	0.00
72	136.1	Saturated	Saturated	46	70	64.3	30	9174.5	5180.9	71.6	0.65	0.729	1.650	Non-Liq.	0.00
73	119.7	Saturated	Saturated	46	70	64.3	30	9294.2	5238.2	71.5	0.64	0.725	1.644	Non-Liq.	0.00
74	119.7	Saturated	Saturated	46	70	64.3	30	9413.9	5295.5	71.3	0.64	0.722	1.637	Non-Liq.	0.00
75	119.7	Saturated	Saturated	46	70	64.3	30	9533.6	5352.8	71.1	0.63	0.718	1.630	Non-Liq.	0.00
76	119.7	Saturated	Saturated	73	75	0.0	0	9653.3	5410.1	103.7	0.63	0.715	1.623	2.3	0.00
77	119.7	Saturated	Saturated	73	75	0.0	0	9773.0	5467.4	103.5	0.63	0.712	1.617	2.3	0.00
78	133.1	Saturated	Saturated	73	75	0.0	0	9906.1	5538.1	103.2	0.62	0.708	1.609	2.3	0.00
79	133.1	Saturated	Saturated	73	75	0.0	0	10039.2	5608.8	102.9	0.62	0.704	1.601	2.3	0.00
80	133.1	Saturated	Saturated	73	75	0.0	0	10172.3	5679.5	102.5	0.61	0.700	1.593	2.3	0.00



Geotechnologies, Inc.

Project: Television City, LLC
File No.: 21699
Description: Liquefaction Analysis
Boring No: B21

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)	10.0
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)	N

LIQUEFACTION BOUNDARY:

Plastic Index Cut Off (PI)	18
Minimum Liquefaction FS	1

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)	Vertical Stress σ_{v0} (psf)	Effective Vertical Stress σ'_{v0} (psf)	Fines Corrected $(N)_{60,0.6}$	Stress Reduction Coeff. r_d	Cyclic Shear Ratio CSR	Cyclic Resistance Ratio (CRR)	Factor of Safety CRR/CSR (F.S.)	Liquefaction Settlement ΔS_i (inches)
1	111.1	Unaturated	Unaturated	14	5	68.1	35	111.1	111.1	37.8	1.00	0.640	2.000	Non-Liq	0.00
2	111.1	Unaturated	Unaturated	14	5	68.1	35	222.2	222.2	37.8	1.00	0.638	2.000	Non-Liq	0.00
3	111.1	Unaturated	Unaturated	14	5	68.1	35	333.3	333.3	37.8	1.00	0.636	2.000	Non-Liq	0.00
4	111.1	Unaturated	Unaturated	14	5	68.1	35	444.4	444.4	37.8	0.99	0.634	2.000	Non-Liq	0.00
5	111.1	Unaturated	Unaturated	14	5	68.1	35	555.5	555.5	38.1	0.99	0.631	2.000	Non-Liq	0.00
6	111.1	Unaturated	Unaturated	14	5	68.1	35	666.6	666.6	36.5	0.99	0.629	2.000	Non-Liq	0.00
7	111.1	Unaturated	Unaturated	14	5	68.1	35	777.7	777.7	35.0	0.98	0.627	1.416	Non-Liq	0.00
8	126.1	Unaturated	Unaturated	26	10	38.3	0	903.8	903.8	54.1	0.98	0.624	2.000	Non-Liq	0.00
9	126.1	Unaturated	Saturated	26	10	38.3	0	1029.9	967.5	55.4	0.98	0.662	2.000	3.0	0.00
10	126.1	Unaturated	Saturated	26	10	38.3	0	1156.0	1031.2	53.9	0.97	0.694	2.000	2.9	0.00
11	126.1	Saturated	Saturated	26	10	38.3	0	1282.1	1094.9	53.3	0.97	0.722	2.000	2.8	0.00
12	126.1	Saturated	Saturated	26	19	38.3	0	1408.2	1158.6	52.6	0.96	0.746	2.000	2.7	0.00
13	135.8	Saturated	Saturated	25	15	11.4	0	1544.0	1232.0	46.5	0.96	0.766	2.000	2.6	0.00
14	135.8	Saturated	Saturated	25	15	11.4	0	1679.8	1305.4	46.0	0.95	0.783	2.000	2.6	0.00
15	135.8	Saturated	Saturated	25	15	11.4	0	1815.6	1378.8	50.3	0.95	0.797	2.000	2.5	0.00
16	135.8	Saturated	Saturated	25	15	11.4	0	1951.4	1452.2	49.7	0.95	0.809	2.000	2.5	0.00
17	135.8	Saturated	Saturated	25	15	11.4	0	2087.2	1525.6	49.1	0.94	0.820	2.000	2.4	0.00
18	128.9	Saturated	Saturated	25	15	11.4	0	2216.1	1592.1	48.7	0.94	0.830	2.000	2.4	0.00
19	128.9	Saturated	Saturated	25	15	11.4	0	2345.0	1658.6	48.2	0.93	0.838	2.000	2.4	0.00
20	128.9	Saturated	Saturated	25	15	11.4	0	2473.9	1725.1	47.7	0.93	0.846	2.000	2.4	0.00
21	128.9	Saturated	Saturated	39	20	10.6	0	2602.8	1791.6	72.4	0.92	0.852	2.000	2.3	0.00
22	128.9	Saturated	Saturated	39	20	10.6	0	2731.7	1858.1	71.8	0.92	0.857	2.000	2.3	0.00
23	122.5	Saturated	Saturated	37	25	32.2	0	2854.2	1918.2	71.7	0.91	0.863	2.000	2.3	0.00
24	122.5	Saturated	Saturated	37	25	32.2	0	2976.7	1978.3	71.2	0.90	0.867	2.000	2.3	0.00
25	122.5	Saturated	Saturated	37	25	32.2	0	3099.2	2038.4	70.7	0.90	0.871	2.000	2.3	0.00
26	122.5	Saturated	Saturated	37	25	32.2	0	3221.7	2098.5	70.2	0.89	0.874	2.000	2.3	0.00
27	122.5	Saturated	Saturated	37	25	32.2	0	3344.2	2158.6	69.8	0.89	0.877	2.000	2.3	0.00
28	126.3	Saturated	Saturated	30	30	52.2	17	3470.5	2222.5	60.1	0.88	0.878	2.000	2.3	0.00
29	126.3	Saturated	Saturated	30	30	52.2	17	3596.8	2286.4	59.7	0.88	0.879	2.000	2.3	0.00
30	126.3	Saturated	Saturated	30	30	52.2	17	3723.1	2350.3	59.4	0.87	0.880	2.000	2.3	0.00
31	126.3	Saturated	Saturated	30	30	52.2	17	3849.4	2414.2	59.0	0.87	0.880	2.000	2.3	0.00
32	126.3	Saturated	Saturated	30	30	52.2	17	3975.7	2478.1	58.7	0.86	0.880	2.000	2.3	0.00
33	140.8	Saturated	Saturated	38	35	27.6	0	4116.5	2556.5	71.9	0.85	0.877	2.000	2.3	0.00
34	140.8	Saturated	Saturated	38	35	27.6	0	4257.3	2634.9	66.2	0.85	0.874	2.000	2.3	0.00
35	140.8	Saturated	Saturated	38	35	27.6	0	4398.1	2713.3	65.7	0.84	0.871	2.000	2.3	0.00
36	140.8	Saturated	Saturated	38	35	27.6	0	4538.9	2791.7	70.5	0.84	0.868	2.000	2.3	0.00
37	140.8	Saturated	Saturated	38	35	27.6	0	4679.7	2870.1	70.0	0.83	0.864	2.000	2.3	0.00
38	125.9	Saturated	Saturated	36	40	61.3	22	4805.6	2933.6	66.6	0.83	0.862	2.000	Non-Liq	0.00
39	125.9	Saturated	Saturated	36	40	61.3	22	4931.5	2997.1	66.3	0.82	0.860	2.000	Non-Liq	0.00
40	125.9	Saturated	Saturated	36	40	61.3	22	5057.4	3060.6	66.0	0.81	0.857	2.000	Non-Liq	0.00
41	125.9	Saturated	Saturated	36	40	61.3	22	5183.3	3124.1	65.6	0.81	0.855	2.000	Non-Liq	0.00
42	125.9	Saturated	Saturated	36	40	61.3	22	5309.2	3187.6	65.3	0.80	0.852	2.000	Non-Liq	0.00
43	126.4	Saturated	Saturated	34	45	0.0	0	5435.6	3251.6	56.1	0.80	0.849	2.000	2.4	0.00
44	126.4	Saturated	Saturated	34	45	0.0	0	5562.0	3315.6	55.9	0.79	0.846	2.000	2.4	0.00
45	126.4	Saturated	Saturated	34	45	0.0	0	5688.4	3379.6	55.6	0.79	0.842	1.992	2.4	0.00
46	126.4	Saturated	Saturated	34	45	0.0	0	5814.8	3443.6	55.3	0.78	0.839	1.979	2.4	0.00
47	126.4	Saturated	Saturated	34	45	0.0	0	5941.2	3507.6	55.1	0.77	0.835	1.967	2.4	0.00
48	123.3	Saturated	Saturated	33	50	72.0	40	6064.5	3568.5	58.8	0.77	0.832	1.956	Non-Liq	0.00
49	123.3	Saturated	Saturated	33	50	72.0	40	6187.8	3629.4	58.6	0.76	0.828	1.944	Non-Liq	0.00
50	123.3	Saturated	Saturated	33	50	72.0	40	6311.1	3690.3	58.3	0.76	0.825	1.933	Non-Liq	0.00
51	123.3	Saturated	Saturated	33	50	72.0	40	6434.4	3751.2	58.1	0.75	0.821	1.922	Non-Liq	0.00
52	123.3	Saturated	Saturated	33	50	72.0	40	6557.7	3812.1	57.9	0.75	0.817	1.911	Non-Liq	0.00
53	123.3	Saturated	Saturated	30	55	37.6	0	6681.0	3873.0	52.9	0.74	0.814	1.901	2.3	0.00
54	123.3	Saturated	Saturated	30	55	37.6	0	6804.3	3933.9	52.7	0.73	0.810	1.890	2.3	0.00
55	123.3	Saturated	Saturated	30	55	37.6	0	6927.6	3994.8	52.6	0.73	0.806	1.880	2.3	0.00
56	123.3	Saturated	Saturated	30	55	37.6	0	7050.9	4055.7	52.4	0.72	0.802	1.870	2.3	0.00
57	123.3	Saturated	Saturated	30	55	37.6	0	7174.2	4116.6	52.2	0.72	0.798	1.860	2.3	0.00
58	124.0	Saturated	Saturated	30	55	37.6	0	7298.2	4178.2	52.0	0.71	0.794	1.850	2.3	0.00
59	124.0	Saturated	Saturated	30	55	37.6	0	7422.2	4239.8	51.8	0.71	0.790	1.840	2.3	0.00
60	124.0	Saturated	Saturated	30	55	37.6	0	7546.2	4301.4	51.7	0.70	0.786	1.830	2.3	0.00
61	124.0	Saturated	Saturated	42	60	83.5	30	7670.2	4363.0	69.9	0.70	0.782	1.821	Non-Liq	0.00
62	124.0	Saturated	Saturated	42	60	83.5	30	7794.2	4424.6	69.7	0.69	0.778	1.811	Non-Liq	0.00
63	116.0	Saturated	Saturated	42	60	83.5	30	7910.2	4478.2	69.5	0.69	0.774	1.803	Non-Liq	0.00
64	116.0	Saturated	Saturated	42	60	83.5	30	8026.2	4531.8	69.3	0.68	0.771	1.795	Non-Liq	0.00
65	116.0	Saturated	Saturated	42	60	83.5	30	8142.2	4585.4	69.1	0.68	0.767	1.787	Non-Liq	0.00
66	116.0	Saturated	Saturated	37	65	81.5	33	8258.2	4639.0	61.3	0.67	0.763	1.780	Non-Liq	0.00
67	116.0	Saturated	Saturated	37	65	81.5	33	8374.2	4692.6	61.2	0.67	0.760	1.772	Non-Liq	0.00
68	120.6	Saturated	Saturated	37	65	81.5	33	8494.8	4750.8	61.0	0.66	0.756	1.764	Non-Liq	0.00
69	120.6	Saturated	Saturated	37	65	81.5	33	8615.4	4809.0	60.8	0.66	0.752	1.755	Non-Liq	0.00
70	120.6	Saturated	Saturated	37	65	81.5	33	8736.0	4867.2	60.7	0.65	0.749	1.747	Non-Liq	0.00
71	120.6	Saturated	Saturated	45	70	37.7	0	8856.6	4925.4	72.4	0.65	0.745	1.739	2.3	0.00
72	120.6	Saturated	Saturated	45	70	37.7	0	8977.2	4983.6	72.2	0.65	0.741	1.731	2.3	0.00
73	134.4	Saturated	Saturated	45	70	37.7	0	9111.6	5055.6	71.9	0.64	0.737	1.722	2.3	0.00
74	134.4	Saturated	Saturated	45	70	37.7	0	9246.0	5127.6	71.7	0.64	0.732	1.712	2.3	0.00
75	134.4	Saturated	Saturated	45	70	37.7	0	9380.4	5199.6	71.5	0.63	0.728	1.703	2.3	0.00
76	134.4	Saturated	Saturated	41	75	53.6	25	9514.8	5271.6	65.5	0.63	0.723	1.693	Non-Liq	0.00
77	134.4	Saturated	Saturated	41	75	53.6	25	9649.2	5343.6	65.2	0.63	0.719	1.684	Non-Liq	0.00
78	123.9	Saturated	Saturated	41	75	53.6	25	9773.1	5405.1	65.1	0.62	0.716	1.677	Non-Liq	0.00
79	123.9	Saturated	Saturated	41	75	53.6	25	9897.0	5466.6	64.9	0.62	0.712	1.669	Non-Liq	0.00
80	123.9	Saturated	Saturated	41	75	53.6	25	10020.9	5528.1	64.7</					