Appendix IS-2

Geotechnical Investigation

BOARD OF
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SOILS REPORT APPROVAL LETTER

March 1, 2024

LOG # 125167-03
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT: FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S): D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION: 130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	02/07/2024	LANGAN
Oversized Doc(s)	``	``	``

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	125167-02	10/24/2023	LADBS
Soils Report	721036101	09/26/2023	LANGAN
Dept. Review Letter	125167-01	09/06/2023	LADBS
Soils Report	721036101	08/07/2023	LANGAN
Dept. Review Letter	125167	03/30/2023	LADBS
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

Engineering analyses provided by LANGAN are based on laboratory testing performed by AP Engineering and Testing, Inc. In accordance to Code section 91.7008.5 of LABC, LANGAN concurs with the results and accepts responsibility for use of the data.

The consultants recommend to support the proposed structure on mat-type foundations bearing on native undisturbed 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 referenced reports are acceptable, provided the following conditions are complied with during site development:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. Provide a notarized letter from all adjoining property owners allowing tie-back anchors on their property (7006.6).

2. The soils engineer shall review and approve the detailed plans prior to issuance of any permit. This approval shall be by signature on the plans that clearly indicates the soils engineer has reviewed the plans prepared by the design engineer; and, that the plans included the recommendations contained in their reports (7006.1).

3. All recommendations of the reports that are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans (7006.1). Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

5. A grading permit shall be obtained for all structural fill and retaining wall backfill (106.1.2).

6. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density. Placement of gravel in lieu of compacted fill is only allowed if complying with LAMC Section 91.7011.3.

7. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill (1809.2, 7011.3).

8. Drainage in conformance with the provisions of the Code shall be maintained during and subsequent to construction (7013.12).

9. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the General Safety Orders of the California Department of Industrial Relations (3301.1).

10. Temporary excavations that remove lateral support to the public way, adjacent property, or adjacent structures shall be supported by shoring. Note: Lateral support shall be considered to be removed when the excavation extends below a plane projected downward at an angle of 45 degrees from the bottom of a footing of an existing structure, from the edge of the public way or an adjacent property. (3307.3.1)

11. Where any excavation, not addressed in the approved reports, would remove lateral support (as defined in 3307.3.1) from a public way, adjacent property or structures, a supplemental report shall be submitted to the Grading Division of the Department containing recommendations for shoring, underpinning, and sequence of construction.

12. Prior to the issuance of any permit that authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation (3307.1).

13. The soils engineer shall review and approve the shoring and/or underpinning plans prior to issuance of the permit (3307.3.2).

14. Prior to the issuance of the permits, the soils engineer and/or the structural designer shall evaluate the surcharge loads used in the report calculations for the design of the retaining walls and shoring. If the surcharge loads used in the calculations do not conform to the actual surcharge loads, the soil engineer shall submit a supplementary report with revised recommendations to the Department for approval.

15. Unsurcharged temporary excavations shall be trimmed back at a gradient not exceeding 2H:1V, as recommended.

16. Cantilever shoring shall be designed for a minimum EFP of 25 PCF; Shoring with tiebacks/restrained shall be designed for a trapezoidal distributed lateral earth pressure of 25H PSF, as specified in the Appendix E of the 02/07/2024 report; all surcharge loads shall be included into the design. Total lateral load on shoring piles shall be determined by multiplying the recommended EFP by the pile spacing.

17. Shoring shall be designed for a maximum lateral deflection of ½ inch where a structure is within a 1:1 plane projected up from the base of the excavation, and for a maximum lateral deflection of 1 inch provided there are no structures within a 1:1 plane projected up from the base of the excavation, as recommended.

18. A shoring monitoring program shall be implemented to the satisfaction of the soils engineer.

19. All foundations shall derive entire support from native undisturbed soils, as recommended (and approved by the geologist and soils engineer by inspection).

20. The building design shall incorporate provisions for total settlements of up to 4 inches, which include 3.5 and 0.5 inches for seismic-induced and static loads, respectively. (1808.2)

21. Special provisions such as flexible or swing joints shall be made for buried utilities and drain lines to allow for differential vertical displacement.

22. The seismic design shall be based on a Site Class D, as recommended. All other seismic design parameters shall be reviewed by LADBS building plan check. According to ASCE 7-16 Section 11.4.8, for structures on Site Class D sites with S1 greater than or equal to 0.2, the parameter SM1 determined by EQ. (11.4-2) shall be increased by 50%. Alternatively, a supplemental report containing a site-specific ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 shall be submitted for review and approval.

23. Basement walls and other walls in which horizontal movement is restricted at the top shall be designed for at-rest pressure of 63 PCF, as specified in the response to comment report (1610.1). All surcharge loads shall be included into the design.

24. Retaining walls higher than 6 feet shall be designed for lateral earth pressure due to earthquake motions of 26 PCF, as specified on page 9 of the 02/17/2023 report (1803.5.12).

25. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted in a non-erosive device to the street in an acceptable manner (7013.11).

26. With the exception of retaining walls designed for hydrostatic pressure, all retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soils report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record (1805.4).

27. Installation of the subdrain system shall be inspected and approved by the soils engineer of record and the City grading/building inspector (108.9).

28. Basement walls and floors shall be waterproofed/damp-proofed with an LA City approved "Below-grade" waterproofing/damp-proofing material with a research report number (104.2.6).

29. The use of acceptable prefabricated drainage composites (also known as geosynthetic subdrain systems), as an alternative to traditionally accepted methods of draining retained earth, shall be determined during structural plan check.

30. Where the ground water table is lowered and maintained at an elevation not less than 6 inches below the bottom of the lowest floor, or where hydrostatic pressures will not occur, the floor and basement walls shall be damp-proofed. Where a hydrostatic pressure condition exists, and the design does not include a ground-water control system, basement walls and floors shall be waterproofed. (1803.5.4, 1805.1.3, 1805.2, 1805.3)

31. The structure shall be connected to the public sewer system per P/BC 2020-027.

32. All roof, pad and deck drainage shall be conducted to the street in an acceptable manner in non-erosive devices or other approved location in a manner that is acceptable to the LADBS and the Department of Public Works (7013.10).

33. An on-site storm water infiltration system at the subject site shall not be implemented, as recommended.

34. All concentrated drainage shall be conducted in an approved device and disposed of in a manner approved by the LADBS (7013.10).

35. The soils engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading (7008, 1705.6 & 1705.8).

36. Prior to pouring concrete, a representative of the consulting soils engineer shall inspect and approve the footing excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the work inspected meets the conditions of the report. No concrete shall be poured until the LADBS Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Grading Division of the Department upon completion of the work. (108.9 & 7008.2)

37. Prior to excavation an initial inspection shall be called with the LADBS Inspector. During the initial inspection, the sequence of construction; shoring; protection fences; and, dust and traffic control will be scheduled (108.9.1).

38. Installation of shoring, shall be performed under the inspection and approval of the soils engineer and deputy grading inspector (1705.6, 1705.8).

39. The installation and testing of tie-back anchors shall comply with the recommendations included in the report or the standard sheets titled "Requirement for Tie-back Earth Anchors", whichever is more restrictive. [Research Report #23835]

40. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. The representative shall post a notice on the job site for the LADBS Inspector and the Contractor stating that the soil inspected meets the conditions of the report. No fill shall be placed until the LADBS Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the Grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. In addition, an Engineer's Certificate of Compliance with the legal description as indicated in the grading permit and the permit number shall be included (7011.3).

41. A supplemental report shall be provided in the event any deviation to the currently proposed project configuration, as presented and as shown in the plans and cross sections included in the approved reports, is made. This shall include but not limited to: relocation, change in any dimension, change in the number of stories above or below grade of any of the proposed structures; addition of any structure(s), such as retaining walls, decks, swimming pools, driveways, access roads, living quarters, etc.; or, additional permanent grading or temporary grading for construction purposes that are not described and not shown in the plans and cross sections included in the approved reports.

42. In the event dewatering is proposed, a supplemental report shall be submitted to Grading Division for review. The report shall evaluate the effect of temporary dewatering on adjacent structures, including but not limited to settlement potential and flow rates.

Dan

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167-03
213-482-0480

cc: LANGAN, Project Consultant
LA District Office

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LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

7 February 2024

Mr. Steven J. Riboli
S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

Re: Response to Soils Report Review Letter
Log # 125167-02
Tract M R 72-75/76
130, 114, 110 W College Street
Langan Project No. 721036101

Dear Mr. Riboli:

We are providing this response to the Soils Report Review Letter dated 24 October 2023, Log #125167-02 issued by the City of Los Angeles (City) Grading Division received via email on 30 October 2023. Our responses to geotechnical related items are below. A copy of the City's review letter is provided in Attachment A.

As further noted below, the project's excavation would extend up to a depth of approximately 17-feet below ground surface, and the analysis presented in our comment responses reflect the 17-feet excavation depth. The liquefaction analysis, shoring recommendations and retaining wall pressures have been updated to reflect the 17-feet excavation depth; however, the remaining geotechnical analysis and recommendations in our geotechnical report remain applicable and unchanged.

Comment 1: *Revise liquefaction analyses to address the following review items:*

a) *Laboratory testing shall be provided for each layer considered non-liquefiable; engineering judgement to consider layers of the same earth material having similar properties is acceptable. However, the clay layer from LB-1 at 45'-50', which was described as silty sand in the original report, has similar N-value, similar description, similar fine content with the silt layer located at 35-45'. Therefore, unless laboratory testing shows otherwise, the layer from 45-50'shall be considered liquefiable.*
b) *The liquefaction evaluation spreadsheet for LB-3 shows two clay layers at 15 and 30 feet below the bottom of the footing (bbf), while the settlement calculation table shows a clay layer at 10 and 25 feet bbf. Revise liquefaction calculations to consider the clay layer at 33 to 38 and 48 to 51.5 feet below ground surface, as shown in the boring log.*
c) *Clarify what $C_{N\ adjusted}$, and m represent in the liquefaction spreadsheet. Provide a hand calculation of the liquefaction evaluation and liquefaction settlement at one depth.*
d) *The liquefaction analyses are based on an assumed 20-foot excavation. However, the report dated 02/17/2023 provided shoring recommendations for a maximum heigh of 13 feet. Revise liquefaction analyses using a 13-foot excavation or provide shoring recommendations for a maximum height of 20 feet.*

Response:

a) Please find in Attachment B the revised liquefaction analysis which includes the clay layer in boring LB-1 at 45- to 50-feet as being considered liquefiable.

b) Please find in Attachment B the revised liquefaction analysis which includes the clay layers from 33- to 38-feet and from 48- to 51.5-feet below ground surface. Please note that the clay layer between 48- to 51.5-feet has a Plasticity Index of > 18 and is therefore not considered liquefiable. Laboratory results are also included in Attachment B.

c) Cn, adjusted takes into account the adjustment that the m coefficient applies to the standard Cn overburden correction. The, m, coefficient takes into consideration the adjusted $(N1)_{60,cs}$ value which takes into account fines content. Please find in Attachment C a hand calculation from LB-1 at approximately 25-feet below ground surface.

d) The previous liquefaction analysis showed a 20-foot excavation depth; however, the updated analysis reflects the current design of the subterranean parking level which would extend up to a depth of approximately 17-feet below ground surface, and includes shoring recommendations for 17-foot excavation. The 17-foot excavation depth is based on the architectural plans dated 18 January 2024, prepared by Grimshaw, provided in Attachment D. The liquefaction evaluation assuming the 17 feet deep excavation is included in Attachment B, supplemental temporary shoring recommendations that are applicable for a braced excavation with a maximum excavation depth of 17-feet are provided in Attachment E.

Comment 2: *In the response to comment 2 regarding the lateral earth pressure on basement wall, the consultants provided active pressure calculations for a 20-foot cantilever retaining wall. As previously requested, provide at-rest lateral earth pressure recommendations for basement wall retaining clays. Justify the unit weight used in the calculations. Note: based on laboratory testing, the dry unit weight of clay layers varies from 90.8 PCF to 100.6 PCF.*

Response: At-Rest Lateral Earth Pressures for the basement walls retaining clay is provided below and included in Attachment F. The total unit weight of 116-pounds-per-cubic-foot (pcf) comes from the direct shear laboratory test result, of sample LB-3 / S-9 at 35-feet depth, indicating dry unit weight of 89.2-pcf and a moisture content of 30 percent.

Total Unit Weight = 116-pcf
Friction Angle = 27-degrees
Coefficient of At-Rest Pressure = 0.55
At-Rest Earth Pressure = 63 psf / ft

Please contact us if you have any questions regarding this letter.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Diane M. Fiorelli

Enrique Riutort, PE
Senior Project Engineer
GE# 2863

REGISTERED PROFESSIONAL ENGINEER
ENRIQUE A. RIUTORT
GE2683
exp 12/31/24
GEOTECHNICAL
STATE OF CALIFORNIA

Diane M. Fiorelli, PE, GE
Principal/Vice President
GE# 3042

REGISTERED PROFESSIONAL ENGINEER
DIANE M FIORELLI
No. GE 3042
exp 6/30/25
GEOTECHNICAL
STATE OF CALIFORNIA

Enclosure(s): Attachment A – Copy of Soils Report Review Letter, Log # 125167-02
Attachment B – Liquefaction Results
Attachment C – Hand Calculation Cn, adjusted and m coefficient.
Attachment D – Architectural Sheet A-301
Attachment E - Temporary Shoring Recommendation
Attachment F – Earth Pressure Analysis

ATTACHMENT A

CITY OF LOS ANGELES
CALIFORNIA

BOARD OF
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JAVIER NUNEZ
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JOHN WEIGHT
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SOILS REPORT REVIEW LETTER

October 24, 2023

LOG # 125167-02
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT:	FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
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LOCATION:	130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
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The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure on mat-type foundations bearing on native undisturbed 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. Revise liquefaction analyses to address the following review items:
   a. Laboratory testing shall be provided for each layer considered non-liquefiable; engineering judgment to consider layers of the same earth material having similar properties is acceptable. However, the clay layer from LB-1 at 45'-50', which was described as silty sand in the original report, has similar N-value, similar description, similar fine content with the silt layer located at 35-45'. Therefore, unless laboratory testing shows otherwise, the layer from 45-50' shall be considered liquefiable.
   b. The liquefaction evaluation spreadsheet for LB-3 shows two clay layers at 15 and 30 feet below the bottom of the footing (bbf), while the settlement calculation table shows a clay layer at 10 and 25 feet bbf. Revise liquefaction calculations to consider the clay layer at 33 to 38 and 48 to 51.5 feet below ground surface, as shown in the boring log.
   c. Clarify what $C_{N\ \text{adjusted}}$, and m represent in the liquefaction spreadsheet. Provide a hand calculation of the liquefaction evaluation and liquefaction settlement at one depth.
   d. The liquefaction analyses are based on an assumed 20-foot excavation. However, the report dated 02/17/2023 provided shoring recommendations for a maximum height of 13 feet. Revise liquefaction analyses using a 13-foot excavation or provide shoring recommendations for a maximum height of 20 feet.
2. In the response to comment 2 regarding the lateral earth pressure on basement wall, the consultants provided active pressure calculations for a 20-foot cantilever retaining wall. As previously requested, provide at-rest lateral earth pressure recommendations for basement wall retaining clays. Justify the unit weight used in the calculations. Note: based on laboratory testing, the dry unit weight of clay layers varies from 90.8 PCF to 100.6 PCF.

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 flash drive, and the appropriate fees will be required for submittal.

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167-02
213-482-0480

cc: LANGAN, Project Consultant
LA District Office

ATTACHMENT B

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

Project Title: 130 W College Case 1: Two-Thirds PGA
Project Location: Los Angeles, California
Project Number: 721036101

Date: 1/18/2024

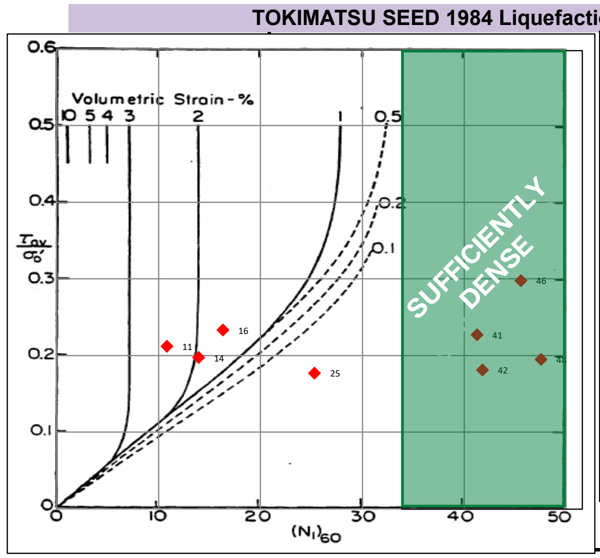
BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	291.8
Boring Depth (ft):	66.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.33
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	274.8
Foundation Surcharge(psf):	3000
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

Notes:
1. Assumes 17-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

Foundation Surcharge: per our 17 February 2023 GIR

Proposed Removal Depth: Proposed Bottom of Basement 17-ft bgs

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60-cs}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	27	#VALUE!	**0.0**	5.00	**dry**
EX	7.5	20	#VALUE!	**0.0**	2.50	**dry**
EX	10	64	#VALUE!	**0.0**	5.00	**dry**
EX	15	66	#VALUE!	**0.0**	5.00	**dry**
1	20	77	0.23	**0.0**	5.00	**0.0**
1	25	41	0.31	**0.0**	5.00	**0.0**
1	30	46	0.30	**0.0**	5.00	**0.0**
1	35	16	0.23	**1.7**	5.00	**1.0**
1	40	11	0.21	**2.3**	5.00	**1.4**
1	45	14	0.20	**1.9**	5.00	**1.1**
1	50	41	0.23	**0.0**	5.00	**0.0**
1	55	25	0.18	**0.1**	5.00	**0.0**
1	60	48	0.19	**0.0**	5.00	**0.0**
1	65	42	0.18	**0.0**	5.00	**0.0**
					SAT. SETTLEMENT (IN) =	**3.5**

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

	At Time of Drilling												
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)
5	286.8	CR	18	5	SM	120	35	600	0	600	---	---
7.5	284.3	CR	14	2.5	SM	120	35	900	0	900	---	---
10	281.8	CR	70	5	SM	120	35	1200	0	1200	---	---
15	276.8	SPT	50	5	SM	120	35	1800	0	1800	---	---
20	271.8	CR	78	5	SM	120	35	2400	0	2400	2083	4483
25	266.8	SPT	32	5	SM	120	35	3000	312	2688	1920	4608
30	261.8	CR	50	5	SM	120	35	3600	624	2976	1775	4751
35	256.8	SPT	10	5	ML	120	35	4200	936	3264	1646	4910
40	251.8	CR	7	5	ML	120	51	4800	1248	3552	1531	5083
45	246.8	SPT	8	5	SM	120	51	5400	1560	3840	1427	5267
50	241.8	CR	45	5	ML	120	74.1	6000	1872	4128	1333	5461
55	236.8	SPT	19	5	ML	120	51	6600	2184	4416	1249	5665
60	231.8	CR	54	5	ML	120	51	7200	2496	4704	1172	5876
65	226.8	SPT	34	1.5	ML	120	51	7800	2808	4992	1102	6094

At Time of Drilling

2010/2014 Idriss-Boulanger

	Corrected SPT N-Value											CSR Evaluation			
Depth BGS (ft)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,}$ adjusted	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$
5	0.75	1.7	1.3	1.05	0.7	22	6	28	0.38	1.6	27	-0.052	0.006	0.96	#VALUE!
7.5	0.75	1.5	1.3	1.05	0.7	16	6	21	0.43	1.4	20	-0.093	0.011	0.92	#VALUE!
10	0.8	1.3	1.3	1.05	0.7	73	6	78	0.10	1.1	64	-0.137	0.016	0.89	#VALUE!
15	0.85	1.1	1.3	1.05	1	65	6	70	0.14	1.0	66	-0.236	0.027	0.82	#VALUE!
20	0.95	0.9	1.3	1.05	0.7	68	6	74	0.12	1.0	77	-0.348	0.039	0.74	0.304
25	0.85	0.9	1.3	1.05	1	34	6	39	**0.30**	0.93	41	-0.472	0.053	0.67	0.292
30	0.9	0.8	1.3	1.05	0.7	37	6	43	0.28	0.91	46	-0.604	0.068	0.59	0.275
35	0.95	0.8	1.3	1.05	1	11	6	16	0.47	0.81	16	-0.744	0.083	0.53	0.257
40	1	0.8	1.3	1.05	0.7	5	6	11	0.53	0.76	11	-0.888	0.099	0.46	0.237
45	1	0.7	1.3	1.05	1	8	6	14	0.50	0.74	14	-1.034	0.115	0.41	0.218
50	1	0.7	1.3	1.05	0.7	32	6	37	0.32	0.81	41	-1.180	0.131	0.36	0.199
55	1	0.7	1.3	1.05	1	18	6	24	0.41	0.74	25	-1.322	0.146	0.32	0.181
60	1	0.7	1.3	1.05	0.7	35	6	41	0.29	0.79	48	-1.460	0.161	0.28	0.165
65	1	0.7	1.3	1.05	1	31	6	37	0.32	0.76	42	-1.590	0.174	0.25	0.151

	CRR Evaluation						
Depth BGS (ft)	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	0.2	#VALUE!	0.3	#VALUE!	---	No	#VALUE!
7.5	0.1	#VALUE!	0.2	#VALUE!	---	No	#VALUE!
10	-0.7	#VALUE!	3257357301.0	#VALUE!	---	No	#VALUE!
15	-0.5	#VALUE!	351036153751.1	#VALUE!	---	No	#VALUE!
20	-0.3	1.1	7995026348570490000000.0	10743102697360300000000.0	5.0	No	1362
25	0.3	0.8	5.7	5.3	5.0	No	1343
30	0.3	0.8	41.2	38.1	5.0	No	1309
35	0.1	0.9	0.2	0.2	0.7	No	1261
40	0.1	0.9	0.1	0.1	0.6	No	1206
45	0.1	0.9	0.1	0.2	0.7	No	1146
50	0.3	0.7	6.4	5.6	5.0	No	1085
55	0.2	0.8	0.3	0.3	1.7	No	1025
60	0.3	0.7	122.8	104.0	5.0	No	970
65	0.3	0.7	7.8	6.5	5.0	No	921

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

Project Title: 130 W College Case 2: FULL PGA
Project Location: Los Angeles, California

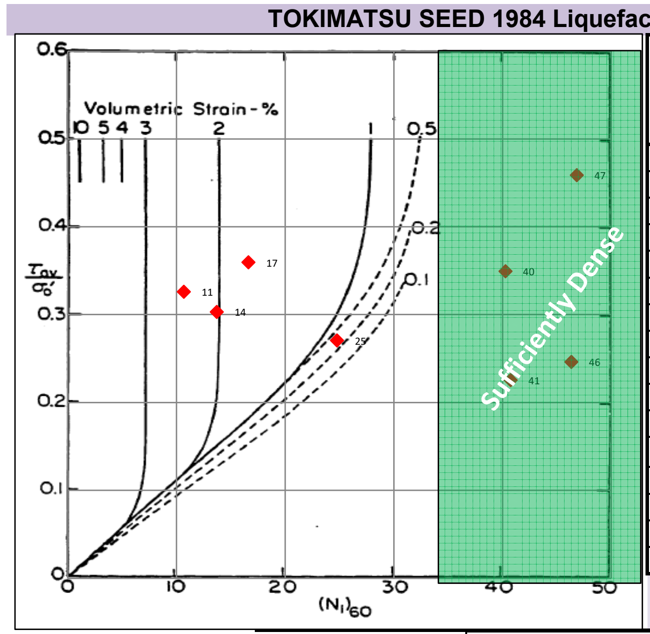
Project Number: 721036101
Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	291.8
Boring Depth (ft):	66.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	274.8
Foundation Surcharge(psf):	3000
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

per our 17 February 2023 GIR

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60-cs}$	$CSR_{M=7.5,\sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	26	#VALUE!	**0.0**	2.50	**dry**
EX	7.5	20	#VALUE!	**0.0**	2.50	**dry**
EX	10	63	#VALUE!	**0.0**	5.00	**dry**
EX	15	65	#VALUE!	**0.0**	5.00	**dry**
1	20	75	0.35	**0.0**	5.00	**0.0**
1	25	44	0.48	**0.0**	5.00	**0.0**
1	30	47	0.46	**0.0**	5.00	**0.0**
1	35	17	0.36	**1.8**	5.00	**1.1**
1	40	11	0.33	**2.5**	5.00	**1.5**
1	45	14	0.30	**2.0**	5.00	**1.2**
1	50	40	0.35	**0.0**	5.00	**0.0**
1	55	25	0.27	**0.3**	5.00	**0.2**
1	60	46	0.25	**0.0**	5.00	**0.0**
1	65	41	0.23	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**3.8**

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \leq 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

	At Time of Drilling											
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)
5	286.8	CR	18	2.5	SM	120	35	600	0	600	---	---
7.5	284.3	CR	14	2.5	SM	120	35	900	0	900	---	---
10	281.8	CR	70	5	SM	120	35	1200	0	1200	---	---
15	276.8	SPT	50	5	SM	120	35	1800	0	1800	---	---
20	271.8	CR	78	5	SM	120	35	2400	0	2400	2083	4483
25	266.8	SPT	32	5	SM	120	35	3000	312	2688	1920	4608
30	261.8	CR	50	5	SM	120	35	3600	624	2976	1775	4751
35	256.8	SPT	10	5	SM	120	35	4200	936	3264	1646	4910
40	251.8	CR	7	5	ML	120	51	4800	1248	3552	1531	5083
45	246.8	SPT	8	5	SM	120	51	5400	1560	3840	1427	5267
50	241.8	CR	45	5	ML	120	74.1	6000	1872	4128	1333	5461
55	236.8	SPT	19	5	ML	120	51	6600	2184	4416	1249	5665
60	231.8	CR	54	5	ML	120	51	7200	2496	4704	1172	5876
65	226.8	SPT	34	1.5	ML	120	51	7800	2808	4992	1102	6094

	At Time of Drilling																					
	2010/2014 Idriss-Boulanger																					
	Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth BGS (ft)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,adjusted}$	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	0.75	1.7	1.3	1.05	0.7	22	6	27	0.38	1.6	26	-0.052	0.006	0.96	#VALUE!	0.2	#VALUE!	0.327	#VALUE!	---	No	#VALUE!
7.5	0.75	1.5	1.3	1.05	0.7	15	6	21	0.43	1.4	20	-0.093	0.011	0.92	#VALUE!	0.1	#VALUE!	0.206	#VALUE!	---	No	#VALUE!
10	0.8	1.3	1.3	1.05	0.7	71	6	77	0.11	1.1	63	-0.137	0.016	0.89	#VALUE!	-0.8	#VALUE!	485997936.726	#VALUE!	---	No	#VALUE!
15	0.85	1.1	1.3	1.05	1	63	6	68	0.15	1.0	65	-0.236	0.027	0.82	#VALUE!	-0.6	#VALUE!	25216431959.815	#VALUE!	---	No	#VALUE!
20	0.95	0.9	1.3	1.05	0.7	66	6	72	0.13	1.0	75	-0.348	0.039	0.74	0.455	-0.3	1.1	###############	###########	5.0	No	2041
25	0.95	0.9	1.3	1.05	1	37	6	42	0.28	0.9	44	-0.472	0.053	0.66	0.437	0.3	0.8	22.017	20.030	5.0	No	2012
30	0.95	0.8	1.3	1.05	0.7	38	6	44	0.28	0.9	47	-0.604	0.068	0.59	0.412	0.3	0.8	80.955	72.767	5.0	No	1959
35	1	0.8	1.3	1.05	1	11	6	16	0.47	0.8	17	-0.744	0.083	0.52	0.384	0.1	0.9	0.170	0.182	0.5	No	1888
40	1	0.8	1.3	1.05	0.7	5	6	11	0.53	0.8	11	-0.888	0.099	0.46	0.355	0.1	0.9	0.123	0.134	0.4	No	1804
45	1	0.7	1.3	1.05	1	8	6	14	0.50	0.7	14	-1.034	0.115	0.41	0.325	0.1	0.9	0.146	0.156	0.5	No	1713
50	1	0.7	1.3	1.05	0.7	31	6	36	0.32	0.8	40	-1.180	0.131	0.36	0.297	0.3	0.7	5	4	5.0	No	1620
55	1	0.7	1.3	1.05	1	18	6	24	0.41	0.7	25	-1.322	0.146	0.32	0.270	0.2	0.8	0.285	0.284	1.1	No	1531
60	1	0.7	1.3	1.05	0.7	35	6	40	0.30	0.8	46	-1.460	0.161	0.28	0.246	0.3	0.7	61.353	50.507	5.0	No	1448
65	1	0.7	1.3	1.05	1	30	6	36	0.32	0.8	41	-1.590	0.174	0.25	0.225	0.3	0.7	5.318	4.309	5.0	No	1374

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

Project Title: 130 W College Case 1: Two-Thirds PGA
Project Location: Los Angeles, California

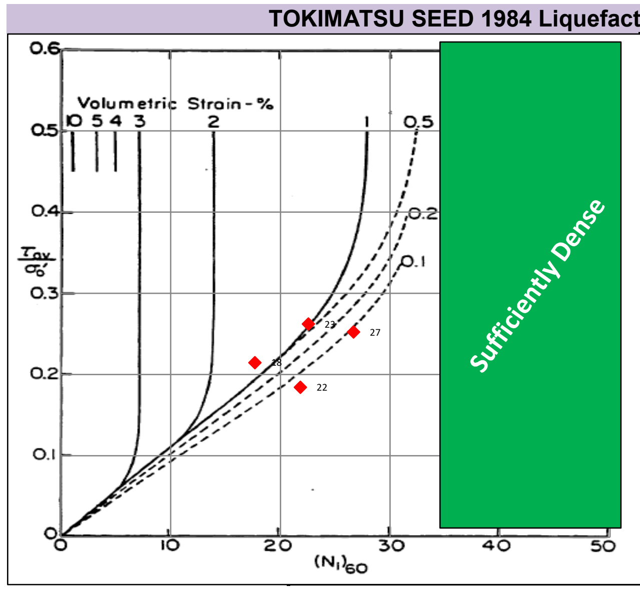
Project Number: 721036101
Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	294
Boring Depth (ft):	51.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	277
Foundation Surcharge(psf):	3000
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

per our 17 February 2023 GIR

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60-cs}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	11	#VALUE!	**0.0**	5.00	**dry**
EX	7.5	17	#VALUE!	**0.0**	2.50	**dry**
EX	10	37	#VALUE!	**0.0**	5.00	**dry**
EX	15	61	#VALUE!	**0.0**	5.00	**dry**
1	20	65	0.23	**0.0**	5.00	**0.0**
1	25	13	0.26	**0.0**	5.00	**0.0**
1	30	23	0.26	**1.2**	5.00	**0.7**
1	35	27	0.25	**0.1**	5.00	**0.1**
1	40	18	0.22	**1.0**	5.00	**0.6**
1	45	47	0.27	**0.0**	5.00	**0.0**
1	50	22	0.18	**0.1**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.4**

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

	At Time of Drilling												At Time of Drilling / 2010/2014 Idriss-Boulanger / Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth BGS (ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60cs}$, adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
5	289	SPT	3	5	ML	120	51	600	0	600	---	---	0.75	1.7	1.3	1.05	1	5	6	11	0.53	1.7	11	-0.052	0.006	0.96	#VALUE!	0.1	#VALUE!	0.124	#VALUE!	---	No	#VALUE!
7.5	286.5	CR	11	2.5	ML	120	51	900	0	900	---	---	0.75	1.5	1.3	1.05	0.7	12	6	18	0.46	1.5	17	-0.093	0.011	0.92	#VALUE!	0.1	#VALUE!	0.177	#VALUE!	---	No	#VALUE!
10	284	SPT	24	5	SM	120	35	1200	0	1200	---	---	0.8	1.3	1.3	1.05	1	35	6	40	0.30	1.2	37	-0.137	0.016	0.89	#VALUE!	0.3	#VALUE!	1.553	#VALUE!	---	No	#VALUE!
15	279	CR	67	5	SM	120	35	1800	0	1800	---	---	0.85	1.1	1.3	1.05	0.7	59	6	65	0.17	1.0	61	-0.236	0.027	0.82	#VALUE!	-0.9	#VALUE!	92948872.439	#VALUE!	---	No	#VALUE!
20	274	SPT	47	5	SM	120	35	2400	0	2400	2083	4483	0.95	0.9	1.3	1.05	1	57	6	63	0.18	1.0	65	-0.348	0.039	0.74	0.304	-0.6	1.1	35064768258.611	47117343963.319	5.0	No	1362
25	269	CR	9	5	ML	120	51	3000	312	2688	1920	4608	0.95	0.9	1.3	1.05	0.7	7	6	13	0.51	0.9	13	-0.472	0.053	0.67	0.292	0.1	0.9	0.139	0.156	0.5	No	1343
30	264	SPT	19	5	SM	120	35	5640	624	5016	1775	6791	0.95	0.6	1.3	1.05	1	16	6	22	0.43	0.7	23	-0.604	0.068	0.59	0.266	0.1	0.8	0.242	0.244	0.9	No	1805
35	259	CR	32	5	SM	120	35	6240	936	5304	1646	6950	1	0.6	1.3	1.05	0.7	19	6	25	0.40	0.7	27	-0.744	0.083	0.53	0.245	0.2	0.8	0.335	0.325	1.3	No	1702
40	254	SPT	14	5	SM	120	35	6840	1248	5592	1531	7123	1	0.6	1.3	1.05	1	12	6	17	0.46	0.6	18	-0.888	0.099	0.46	0.224	0.1	0.9	0.180	0.188	0.8	No	1594
45	249	CR	59	5	SM	120	35	7440	1560	5880	1427	7307	1	0.6	1.3	1.05	0.7	34	6	39	0.30	0.7	47	-1.034	0.115	0.41	0.204	0.3	0.6	84.503	64.848	5.0	No	1488
50	244	SPT	19	5	SM	120	35	8040	1872	6168	1333	7501	1	0.6	1.3	1.05	1	15	6	21	0.43	0.6	22	-1.180	0.131	0.36	0.185	0.1	0.8	0.230	0.230	1.2	No	1386

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

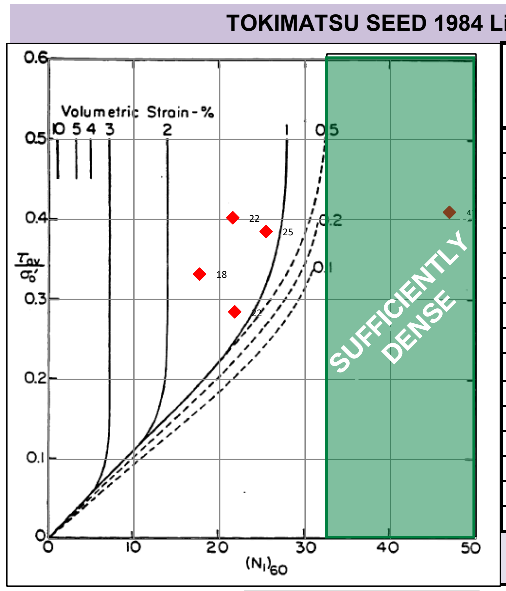
Project Title: 130 W College Case 2: FULL PGA
Project Location: Los Angeles, California
Project Number: 721036101

Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	294
Boring Depth (ft):	51.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	277
Foundation Surcharge(psf):	3000 per our 17 February 2023 GIR
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. $\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60\text{-cs}}$	$CSR_{M=7.5,\ \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	11	#VALUE!	**0.0**	5.00	**dry**
EX	7.5	17	#VALUE!	**0.0**	2.50	**dry**
EX	10	37	#VALUE!	**0.0**	5.00	**dry**
EX	15	61	#VALUE!	**0.0**	5.00	**dry**
1	20	65	0.35	**0.0**	5.00	**0.0**
1	25	13	0.40	**0.0**	5.00	**0.0**
1	30	22	0.40	**1.3**	5.00	**0.8**
1	35	25	0.38	**1.1**	5.00	**0.7**
1	40	18	0.33	**1.8**	5.00	**1.1**
1	45	47	0.41	**0.0**	5.00	**0.0**
1	50	22	0.28	**1.2**	1.50	**0.2**
SAT. SETTLEMENT (IN) =						**2.7**

√

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \leq 1.7$$

	At Time of Drilling												
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)
5	289	SPT	3	5	ML	120	51	600	0	600	---	---
7.5	286.5	CR	11	2.5	ML	120	51	900	0	900	---	---
10	284	SPT	24	5	SM	120	35	1200	0	1200	---	---
15	279	CR	67	5	SM	120	35	1800	0	1800	---	---
20	274	SPT	47	5	SM	120	35	2400	0	2400	2083	4483
25	269	CR	9	5	ML	120	51	3000	312	2688	1920	4608
30	264	SPT	19	5	SM	120	35	5640	624	5016	1775	6791
35	259	CR	32	5	SM	120	35	6240	936	5304	1646	6950
40	254	SPT	14	5	SM	120	35	6840	1248	5592	1531	7123
45	249	CR	59	5	SM	120	35	7440	1560	5880	1427	7307
50	244	SPT	19	5	SM	120	35	8040	1872	6168	1333	7501

	At Time of Drilling																					
	2010/2014 Idriss-Boulanger																					
	Corrected SPT N-Value										CSR Evaluation				CRR Evaluation							
Depth BGS (ft)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,\ adjusted}$	$(N_1)_{60cs,\ adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	0.75	1.7	1.3	1.05	1	5	6	11	0.53	1.7	11	-0.052	0.006	0.96	#VALUE!	0.1	#VALUE!	0.124	#VALUE!	---	No	#VALUE!
7.5	0.75	1.5	1.3	1.05	0.7	12	6	18	0.46	1.5	17	-0.093	0.011	0.92	#VALUE!	0.1	#VALUE!	0.177	#VALUE!	---	No	#VALUE!
10	0.8	1.3	1.3	1.05	1	35	6	40	0.30	1.2	37	-0.137	0.016	0.89	#VALUE!	0.3	#VALUE!	1.553	#VALUE!	---	No	#VALUE!
15	0.85	1.1	1.3	1.05	0.7	59	6	65	0.17	1.0	61	-0.236	0.027	0.82	#VALUE!	-0.9	#VALUE!	92948872.439	#VALUE!	---	No	#VALUE!
20	0.95	0.9	1.3	1.05	1	57	6	63	0.18	1.0	65	-0.348	0.039	0.74	0.455	-0.6	1.1	35064768258.611	45778588129.577	5.0	No	2041
25	0.95	0.9	1.3	1.05	0.7	7	6	13	0.51	0.9	13	-0.472	0.053	0.66	0.437	0.1	0.9	0.139	0.152	0.3	No	2012
30	0.9	0.6	1.3	1.05	1	15	6	21	0.43	0.7	22	-0.604	0.068	0.59	0.398	0.1	0.8	0.226	0.224	0.6	No	2703
35	0.95	0.6	1.3	1.05	0.7	18	6	24	0.41	0.7	25	-0.744	0.083	0.52	0.366	0.2	0.8	0.301	0.287	0.8	No	2546
40	1	0.6	1.3	1.05	1	12	6	17	0.46	0.6	18	-0.888	0.099	0.46	0.335	0.1	0.9	0.180	0.182	0.5	No	2385
45	1	0.6	1.3	1.05	0.7	34	6	39	0.30	0.7	47	-1.034	0.115	0.41	0.304	0.3	0.6	84.503	63.005	5.0	No	2224
50	1	0.6	1.3	1.05	1	15	6	21	0.43	0.6	22	-1.180	0.131	0.36	0.276	0.1	0.8	0.230	0.224	0.8	No	2071

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

Project Title: 130 W College Case 1: Two-Thirds PGA
Project Location: Los Angeles, California

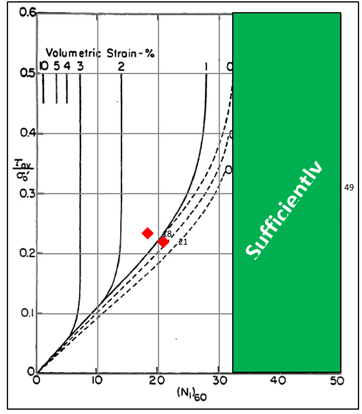
Project Number: 721036101
Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-3
Ground Surface Elevation:	290.6
Boring Depth (ft):	51.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	274.8
Foundation Surcharge(psf):	3000
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

per our 17 February 2023 GIR

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60\text{-}cs}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	13	#VALUE!	**0.0**	5.00	**dry**
EX	7.5	13	#VALUE!	**0.0**	2.50	**dry**
EX	10	9	#VALUE!	**0.0**	5.00	**dry**
EX	12.5	38	#VALUE!	**1.0**	5.00	**dry**
EX	15	13	#VALUE!	**0.0**	5.00	**dry**
1	20	42	0.32	**0.0**	5.00	**0.0**
1	25	49	0.31	**0.0**	5.00	**0.0**
1	30	33	0.28	**0.0**	5.00	**0.0**
1	35	18	0.23	**1.5**	5.00	**0.9**
1	40	21	0.22	**1.0**	5.00	**0.6**
1	45	44	0.25	**0.0**	5.00	**0.0**
1	50	35	0.22	**0.0**	5.00	**Clay**

SAT. SETTLEMENT (IN) = 1.5

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \leq 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

	At Time of Drilling												At Time of Drilling																					
													2010/2014 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,}$ adjusted	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	285.6	SPT	4	5	CL	120	51	600	0	600	---	---	0.75	1.7	1.3	1.05	1	7	6	13	0.51	1.7	13	-0.052	0.006	0.96	######	0.1	#VALUE!	0.137	#VALUE!	---	No	#VALUE!
7.5	283.1	CR	7	2.5	CL	120	51	900	0	900	---	---	0.75	1.5	1.3	1.05	0.7	8	6	13	0.50	1.5	13	-0.093	0.011	0.92	######	0.1	#VALUE!	0.143	#VALUE!	---	NO	#VALUE!
10	280.6	SPT	2	5	CL	120	51	1200	0	1200	---	---	0.8	1.3	1.3	1.05	1	3	6	9	0.56	1.4	9	-0.137	0.016	0.89	######	0.1	#VALUE!	0.109	#VALUE!	---	NO	#VALUE!
12.5	278.1	CR	39	5	SM	120	35	1500	0	1500	---	---	0.8	1.2	1.3	1.05	0.7	35	6	41	0.29	1.1	38	-0.185	0.021	0.85	######	0.3	#VALUE!	2.597	#VALUE!	---	NO	#VALUE!
15	275.6	CR	9	5	SM	120	35	1800	0	1800	---	---	0.85	1.1	1.3	1.05	0.7	8	6	13	0.50	1.1	13	-0.236	0.027	0.82	######	0.1	#VALUE!	0.143	#VALUE!	---	NO	#VALUE!
20	270.6	SPT	29	5	SM	120	35	2400	0	2400	2083	4483	0.95	0.9	1.3	1.05	1	35	6	41	0.29	1.0	42	-0.348	0.039	0.74	0.304	0.3	0.8	7.639	7.229	5.0	No	1362
25	265.6	CR	51	5	SM	120	35	3000	312	2688	1920	4608	0.95	0.9	1.3	1.05	0.7	41	6	47	0.26	0.9	49	-0.472	0.053	0.67	0.292	0.3	0.8	308.735	289.085	5.0	No	1343
30	260.6	SPT	24	5	SM	120	35	3600	624	2976	1775	4751	0.95	0.8	1.3	1.05	1	26	6	32	0.35	0.9	33	-0.604	0.068	0.59	0.275	0.2	0.8	0.774	0.765	2.8	No	1309
35	255.6	CR	16	5	CL	120	51	4200	936	3264	1646	4910	1	0.8	1.3	1.05	0.7	12	6	18	0.46	0.8	18	-0.744	0.083	0.53	0.257	0.1	0.9	0.185	0.203	0.8	No	1261
40	250.6	SPT	14	5	SC	120	35	4800	1248	3552	1531	5083	1	0.8	1.3	1.05	1	15	6	20	0.44	0.8	21	-0.888	0.099	0.46	0.237	0.1	0.9	0	0	1.0	No	1206
45	245.6	CR	48	5	SC	120	35	5400	1560	3840	1427	5267	1	0.7	1.3	1.05	0.7	34	6	40	0.30	0.8	44	-1.034	0.115	0.41	0.218	0.3	0.7	18.071	16.036	5.0	No	1146
50	240.6	SPT	27	5	CL	120	51	6000	1872	4128	1333	5461	1	0.7	1.3	1.05	1	26	6	32	0.35	0.8	35	-1.180	0.131	0.36	0.199	0.3	0.8	1.062	0.979	4.9	Yes	1085

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

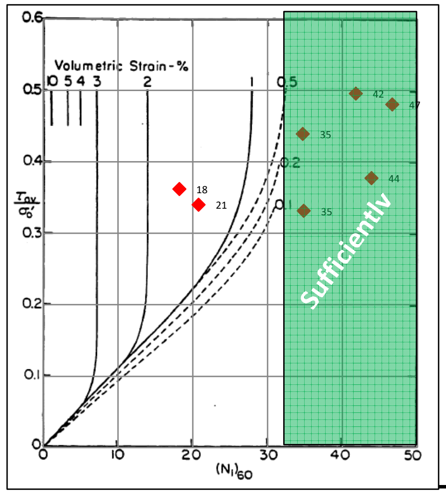
Project Title: 130 W College		Case 2: FULL PGA
Project Location: Los Angeles, California
Project Number: 721036101
Date: 1/18/2024

BORING AND GWT INPUT		
Boring:	LB-3	
Ground Surface Elevation:	290.6	
Boring Depth (ft):	51.5	
GWT Depth (ft):	20	
SAMPLING INPUT		
Rod Used to Sample? (Yes/No)	Yes	
Hammer Energy Ratio:	1.3	
Hammer Weight (lbs):	140	
Hammer Drop (in):	30	
Boring Diameter (in):	6	
EARTHQUAKE INPUT		
Moment Magnitude:	6.85	
Acceleration (g):	0.947	
MSF:	1.19	
STRUCTURAL/GRADING INPUT		
Lowest Proposed Elevation:	273.6	
Foundation Surcharge(psf):	3000	per our 17 February 2023 GIR
Foundation Width (ft):	100	
Foundation Length (ft):	100	
Overburden Removal:	2040	
Removal Unit Weight (pcf)	120	
Proposed Removal Depth	17	

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C

5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60-cs}$	$CSR_{M=7.5,\sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	13	#######	**0.0**	5.00	**dry**
EX	7.5	13	#######	**0.0**	2.50	**dry**
EX	10	9	#######	**0.0**	5.00	**dry**
EX	12.5	38	#######	**0.0**	5.00	**dry**
0	15	13	#######	**0.0**	5.00	**dry**
1	20	42	0.50	**0.0**	5.00	**0.0**
1	25	47	0.48	**0.0**	5.00	**0.0**
1	30	35	0.44	**0.0**	5.00	**0.0**
1	35	18	0.36	**1.8**	5.00	**1.1**
1	40	21	0.34	**1.6**	5.00	**1.0**
1	45	44	0.38	**0.0**	5.00	**0.0**
1	50	35	0.33	**0.0**	5.00	**Clay**

SAT. SETTLEMENT (IN) = 2.0

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

	At Time of Drilling												At Time of Drilling																					
													2010/2014 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60}$ cs	m	$C_{N,}$ adjusted	$(N_1)_{60}$ cs , adj.	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	285.6	SPT	4	5	CL	120	51	600	0	600	---	---	0.75	1.7	1.3	1.05	1	7	6	13	0.51	1.7	13	-0.052	0.006	0.96	#VALUE!	0.1	#######	0.137	#VALUE!	---	No	#VALUE!
7.5	283.1	CR	7	2.5	CL	120	51	900	0	900	---	---	0.75	1.5	1.3	1.05	0.7	8	6	13	0.50	1.5	13	-0.093	0.011	0.92	#VALUE!	0.1	#######	0.143	#VALUE!	---	No	#VALUE!
10	280.6	SPT	2	5	CL	120	51	1200	0	1200	---	---	0.8	1.3	1.3	1.05	1	3	6	9	0.56	1.4	9	-0.137	0.016	0.89	#VALUE!	0.1	#######	0.109	#VALUE!	---	No	#VALUE!
12.5	278.1	CR	39	5	SM	120	35	1500	0	1500	---	---	0.8	1.2	1.3	1.05	0.7	35	6	41	0.29	1.1	38	-0.185	0.021	0.85	#VALUE!	0.3	#######	2.597	#VALUE!	---	No	#VALUE!
15	275.6	CR	9	5	SM	120	35	1800	0	1800	---	---	0.85	1.1	1.3	1.05	0.7	8	6	13	0.50	1.1	13	-0.236	0.027	0.82	#VALUE!	0.1	#######	0.143	#VALUE!	---	No	#VALUE!
20	270.6	SPT	29	5	SM	120	35	2400	0	2400	2083	4483	0.95	0.9	1.3	1.05	1	35	6	41	0.29	1.0	42	-0.348	0.039	0.74	0.455	0.3	0.8	7.639	7.024	5.0	No	2041
25	265.6	CR	51	5	SM	120	35	3000	312	2688	1920	4608	0.9	0.9	1.3	1.05	0.7	39	6	44	0.27	0.9	47	-0.472	0.053	0.66	0.437	0.3	0.8	71.666	65.199	5.0	No	2012
30	260.6	SPT	24	5	SM	120	35	3600	624	2976	1775	4751	1	0.8	1.3	1.05	1	28	6	33	0.34	0.9	35	-0.604	0.068	0.59	0.412	0.3	0.8	1.034	0.972	2.4	No	1959
35	255.6	CR	16	5	CL	120	51	4200	936	3264	1646	4910	1	0.8	1.3	1.05	0.7	12	6	18	0.46	0.8	18	-0.744	0.083	0.52	0.384	0.1	0.9	0.185	0.197	0.5	No	1888
40	250.6	SPT	14	5	SC	120	35	4800	1248	3552	1531	5083	1	0.8	1.3	1.05	1	15	6	20	0.44	0.8	21	-0.888	0.099	0.46	0.355	0.1	0.9	0.215	0.225	0.6	No	1804
45	245.6	CR	48	5	SC	120	35	5400	1560	3840	1427	5267	1	0.7	1.3	1.05	0.7	34	6	40	0.30	0.8	44	-1.034	0.115	0.41	0.325	0.3	0.7	18.071	15.580	5.0	No	1713
50	240.6	SPT	27	5	CL	120	51	6000	1872	4128	1333	5461	1	0.7	1.3	1.05	1	26	6	32	0.35	0.8	35	-1.180	0.131	0.36	0.297	0.3	0.8	1	1	3.2	Yes	1620

Notes:
1. BGS = Below Ground Surface
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02
Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

Project Title: 130 W College   Case 1: Two-Thirds PGA

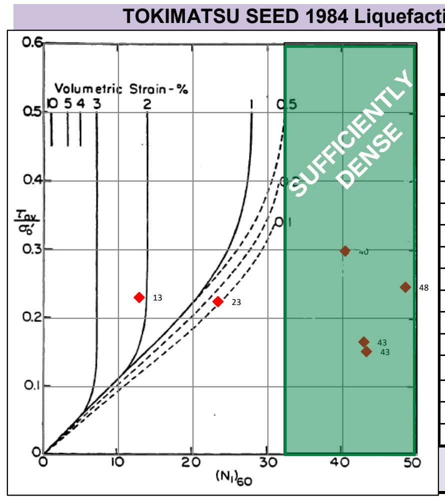
Project Location: Los Angeles, California
Project Number: 721036101
Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	292.8
Boring Depth (ft):	66.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	275.8
Foundation Surcharge(psf):	3000
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

per our 17 February 2023 GIR

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. $\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60-cs}$	CSRM =7.5,σ'v =1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	14	#####	**0.0**	5.00	**dry**
EX	7.5	9	#####	**0.0**	2.50	**dry**
EX	10	36	#####	**0.0**	5.00	**dry**
EX	15	37	#####	**0.0**	5.00	**dry**
1	20	35	0.31	**0.0**	5.00	**0.0**
1	25	11	0.26	**0.0**	5.00	**0.0**
1	30	40	0.30	**0.0**	5.00	**0.0**
1	35	13	0.23	**2.2**	5.00	**1.3**
1	40	23	0.22	**0.2**	5.00	**0.1**
1	45	48	0.25	**0.0**	5.00	**0.0**
1	50	70	0.15	**0.0**	5.00	**0.0**
1	55	75	0.13	**0.0**	5.00	**0.0**
1	60	43	0.17	**0.0**	5.00	**0.0**
1	65	43	0.15	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.4**

√

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \leq 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

													At Time of Drilling																					
													2010/2014 Idriss-Boulanger																					
	At Time of Drilling												**Corrected SPT N-Value**											**CSR Evaluation**				**CRR Evaluation**						
Depth BGS (ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,adjusted}$**	**$(N_1)_{60cs,adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
5	287.8	CR	7	5	SM	120	35	600	0	600	---	---	0.75	1.7	1.3	1.05	0.7	9	6	14	0.50	1.7	14	-0.052	0.006	0.96	######	0.1	#VALUE!	0.148	#VALUE!	---	No	#VALUE!
7.5	285.3	CR	3	2.5	SM	120	35	900	0	900	---	---	0.75	1.5	1.3	1.05	0.7	3	6	9	0.56	1.6	9	-0.093	0.011	0.92	######	0.1	#VALUE!	0.111	#VALUE!	---	No	#VALUE!
10	282.8	CR	34	5	SM	120	35	1200	0	1200	---	---	0.8	1.3	1.3	1.05	0.7	35	6	40	0.30	1.2	36	-0.137	0.016	0.89	######	0.3	#VALUE!	1.472	#VALUE!	---	No	#VALUE!
15	277.8	SPT	26	5	SM	120	35	1800	0	1800	---	---	0.85	1.1	1.3	1.05	1	33	6	38	0.31	1.1	37	-0.236	0.027	0.82	######	0.3	#VALUE!	1.850	#VALUE!	---	No	#VALUE!
20	272.8	CR	34	5	SM	120	35	2400	0	2400	2083	4483	0.95	0.9	1.3	1.05	0.7	29	6	34	0.33	1.0	35	-0.348	0.039	0.74	0.304	0.3	0.8	1.132	1.109	3.7	No	1362
25	267.8	SPT	5	5	SM	120	35	3000	312	2688	1920	4608	0.95	0.9	1.3	1.05	1	6	6	11	0.53	0.9	11	-0.472	0.053	0.67	0.292	0.1	0.9	0.127	0.143	0.5	No	1343
30	262.8	CR	45	5	SM	120	35	3600	624	2976	1775	4751	0.9	0.8	1.3	1.05	0.7	33	6	38	0.31	0.9	40	-0.604	0.068	0.59	0.275	0.3	0.8	4.602	4.258	5.0	No	1309
35	257.8	SPT	7	5	SM	120	35	4200	936	3264	1646	4910	0.95	0.8	1.3	1.05	1	7	6	13	0.51	0.8	13	-0.744	0.083	0.53	0.257	0.1	0.9	0.138	0.155	0.6	No	1261
40	252.8	CR	23	5	ML	120	51	4800	1248	3552	1531	5083	1	0.8	1.3	1.05	0.7	17	6	23	0.42	0.8	23	-0.888	0.099	0.46	0.237	0.2	0.9	0.255	0.270	1.1	No	1206
45	247.8	SPT	37	5	SM	120	51	5400	1560	3840	1427	5267	1	0.7	1.3	1.05	1	37	6	43	0.28	0.8	48	-1.034	0.115	0.41	0.218	0.3	0.7	203.480	180.564	5.0	No	1146
50	242.8	CR	77	5	ML	120	74.1	6000	1872	4128	1333	5461	1	0.7	1.3	1.05	0.7	53	6	58	0.20	0.9	70	-1.180	0.131	0.36	0.199	-0.4	1.1	651479628533895	875408316300193	5.0	No	1085
55	237.8	SPT	58	5	ML	120	51	6600	2184	4416	1249	5665	1	0.7	1.3	1.05	1	55	6	60	0.19	0.9	75	-1.322	0.146	0.32	0.181	-0.3	1.1	6921091310355300000.000	9300031229821950000.000	5.0	No	1025
60	232.8	CR	50	5	ML	120	51	7200	2496	4704	1172	5876	1	0.7	1.3	1.05	0.7	32	6	38	0.31	0.8	43	-1.460	0.161	0.28	0.165	0.3	0.7	11.703	9.916	5.0	No	970
65	227.8	SPT	36	1.5	ML	120	51	7800	2808	4992	1102	6094	1	0.7	1.3	1.05	1	32	6	38	0.31	0.8	43	-1.590	0.174	0.25	0.151	0.3	0.7	13.541	11.293	5.0	No	921

Notes:
1. BGS = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Reference: Idriss, I.M. and Boulanger, R.W. (2014). "CPT and SPT Based Liquefaction Triggering Procedures." Center for Geotechnical Modeling. Report No. UCD/CGM-14/01

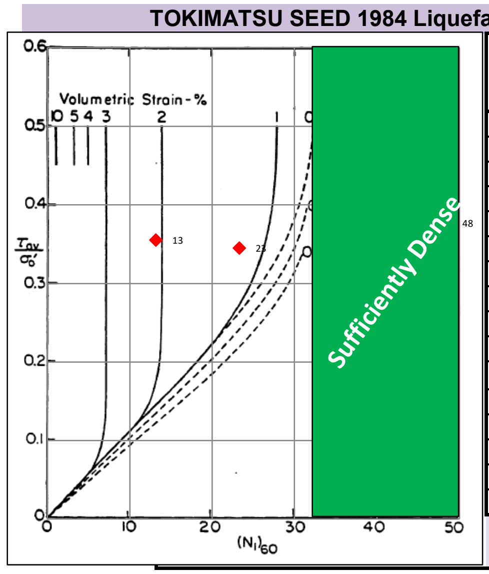
Project Title: 130 W College Case 2: FULL PGA
Project Location: Los Angeles, California
Project Number: 721036101

Date: 1/18/2024

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	292.8
Boring Depth (ft):	66.5
GWT Depth (ft):	20
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	275.8
Foundation Surcharge(psf):	3000 per our 17 February 2023 GIR
Foundation Width (ft):	100
Foundation Length (ft):	100
Overburden Removal:	2040
Removal Unit Weight (pcf)	120
Proposed Removal Depth	17

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 3-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)
7. Corrected Cn,adjusted value
8. Foundation Surcharge based recommended allowable bearing capacity
9. Corrected Initial Overburden for at time of drilling
10. **$\sigma'_{v,proposed}$ (psf) = σ'v (psf) + ΔσSurcharge (psf) - Overburden Removal**
11. EX = Building Excavation; Layer 1 = Liquefiable Layers

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth BGS (feet)	Adjusted $(N_1)_{60}$	CSR M=7.5, σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
EX	5	14	#VALUE!	**0.0**	5.00	**dry**
EX	7.5	9	#VALUE!	**0.0**	2.50	**dry**
EX	10	36	#VALUE!	**0.0**	5.00	**dry**
EX	15	37	#VALUE!	**0.0**	5.00	**dry**
1	20	35	0.48	**0.0**	5.00	**0**
1	25	11	0.40	**0.0**	5.00	**0.0**
1	30	42	0.46	**0.0**	5.00	**0.0**
1	35	13	0.35	**2.1**	5.00	**1.3**
1	40	23	0.34	**1.3**	5.00	**0.8**
1	45	48	0.38	**0.0**	5.00	**0.0**
1	50	70	0.23	**0.0**	5.00	**0.0**
1	55	75	0.21	**0.0**	5.00	**0.0**
1	60	43	0.25	**0.0**	5.00	**0.0**
1	65	43	0.23	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**2.0**

√

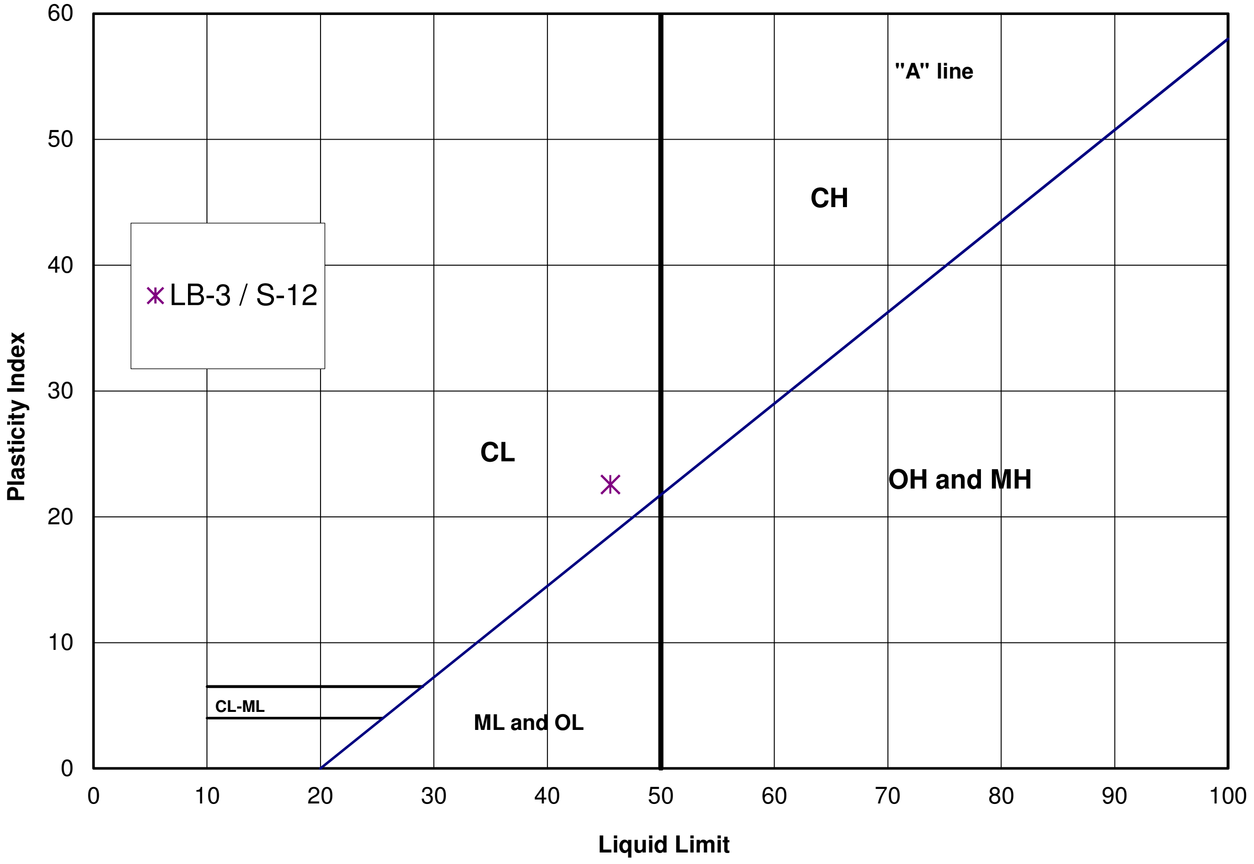
$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

													At Time of Drilling																					
													2010/2014 Idriss-Boulanger																					
	At Time of Drilling												Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth BGS (ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,adjusted}$	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
5	287.8	CR	7	5	SM	120	35	600	0	600	---	---	0.75	1.7	1.3	1.05	0.7	9	6	14	0.50	1.7	14	-0.052	0.006	0.96	######	0.1	#VALUE!	0.148	#VALUE!	---	No	#VALUE!
7.5	285.3	CR	3	2.5	SM	120	35	900	0	900	---	---	0.75	1.5	1.3	1.05	0.7	3	6	9	0.56	1.6	9	-0.093	0.011	0.92	######	0.1	#VALUE!	0.111	#VALUE!	---	No	#VALUE!
10	282.8	CR	34	5	SM	120	35	1200	0	1200	---	---	0.8	1.3	1.3	1.05	0.7	35	6	40	0.30	1.2	36	-0.137	0.016	0.89	######	0.3	#VALUE!	1.472	#VALUE!	---	No	#VALUE!
15	277.8	SPT	26	5	SM	120	35	1800	0	1800	---	---	0.85	1.1	1.3	1.05	1	33	6	38	0.31	1.1	37	-0.236	0.027	0.82	######	0.3	#VALUE!	1.850	#VALUE!	---	No	#VALUE!
20	272.8	CR	34	5	SM	120	35	2400	0	2400	2083	4483	0.95	0.9	1.3	1.05	0.7	29	6	34	0.33	1.0	35	-0.348	0.039	0.74	0.455	0.3	0.8	1.132	1.078	2.4	No	2041
25	267.8	SPT	5	5	SM	120	35	3000	312	2688	1920	4608	0.95	0.9	1.3	1.05	1	6	6	11	0.53	0.9	11	-0.472	0.053	0.66	0.437	0.1	0.9	0.127	0.139	0.3	No	2012
30	262.8	CR	45	5	SM	120	35	3600	624	2976	1775	4751	0.95	0.8	1.3	1.05	0.7	34	6	40	0.30	0.9	42	-0.604	0.068	0.59	0.412	0.3	0.8	9.834	8.839	5.0	No	1959
35	257.8	SPT	7	5	SM	120	35	4200	936	3264	1646	4910	1	0.8	1.3	1.05	1	8	6	13	0.50	0.8	13	-0.744	0.083	0.52	0.384	0.1	0.9	0.141	0.153	0.4	No	1888
40	252.8	CR	23	5	ML	120	51	4800	1248	3552	1531	5083	1	0.8	1.3	1.05	0.7	17	6	23	0.42	0.8	23	-0.888	0.099	0.46	0.355	0.2	0.9	0.255	0.262	0.7	No	1804
45	247.8	SPT	37	5	SM	120	51	5400	1560	3840	1427	5267	1	0.7	1.3	1.05	1	37	6	43	0.28	0.8	48	-1.034	0.115	0.41	0.325	0.3	0.7	203.480	175.434	5.0	NO	1713
50	242.8	CR	77	5	ML	120	74.1	6000	1872	4128	1333	5461	1	0.7	1.3	1.05	0.7	53	6	58	0.20	0.9	70	-1.180	0.131	0.36	0.297	-0.4	1.1	651479628533895	850535140272578	5.0	No	1620
55	237.8	SPT	58	5	ML	120	51	6600	2184	4416	1249	5665	1	0.7	1.3	1.05	1	55	6	60	0.19	0.9	75	-1.322	0.146	0.32	0.270	-0.3	1.1	692109131035530000000.000	903578732268234000000.000	5.0	No	1531
60	232.8	CR	50	5	ML	120	51	7200	2496	4704	1172	5876	1	0.7	1.3	1.05	0.7	32	6	38	0.31	0.8	43	-1.460	0.161	0.28	0.246	0.3	0.7	11.703	9.634	5.0	No	1448
65	227.8	SPT	36	1.5	ML	120	51	7800	2808	4992	1102	6094	1	0.7	1.3	1.05	1	32	6	38	0.31	0.8	43	-1.590	0.174	0.25	0.225	0.3	0.7	13.541	10.972	5.0	No	1374

Notes:
1. BGS = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

PLASTICITY INDEX _ ASTM D4318



Sample	Depth	LL	PL	PI	USCS	Material Description
LB-3 / S-12	50'	46	23	23	CL	

Job Name: Langan # 721036103 Date: 9/16/23

Job No.: 2012-0057

ATTACHMENT C

This Hand Calculation is in response to Item 1.C - to provide hand calculation for Cn and m varaibles.
This hand calculation refers to LB-1 Case 1 at approximately 25-feet bgs at time of drilling.

$$C_{n,\text{adjusted}} = \left(\frac{2116}{2688}\right)^{0.29} \leq 1.7$$

$$C_N = \left(\frac{P_a}{\sigma'_v}\right)^m \leq 1.7$$

$$\mathbf{C_{n,adjusted} = 0.93 \leq 1.7}$$

$$\text{Coefficient m} = 0.784 - 0.0768 \times \sqrt{(N1)_{60\,cs}}$$

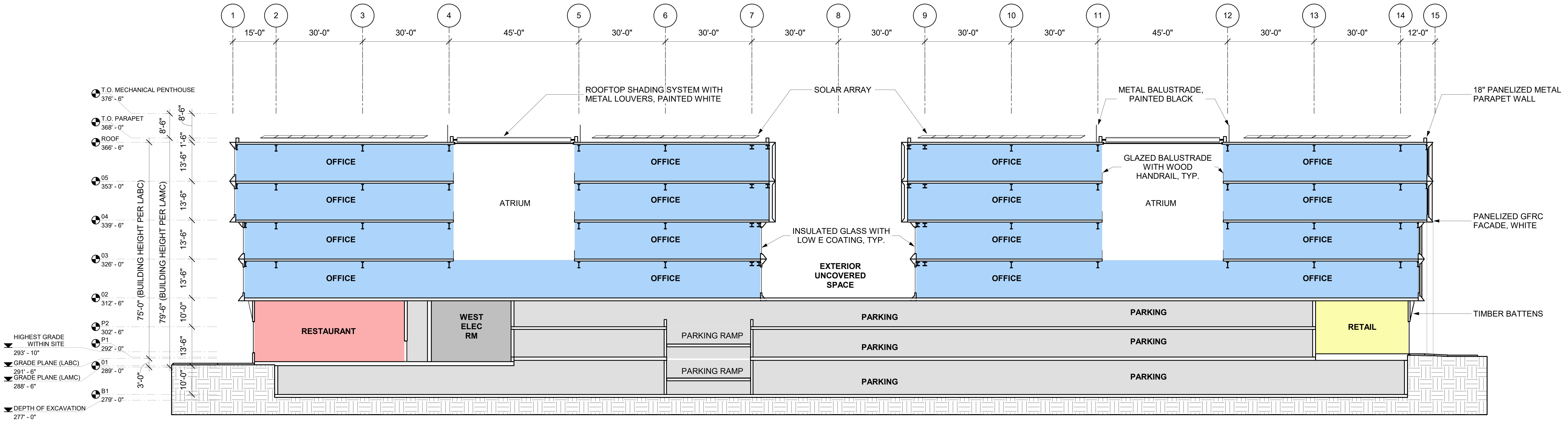
$$\text{Coefficient m} = 0.784 - 0.0768 \times \sqrt{39}$$

$$\textbf{Coefficient m} = \mathbf{0.30}$$

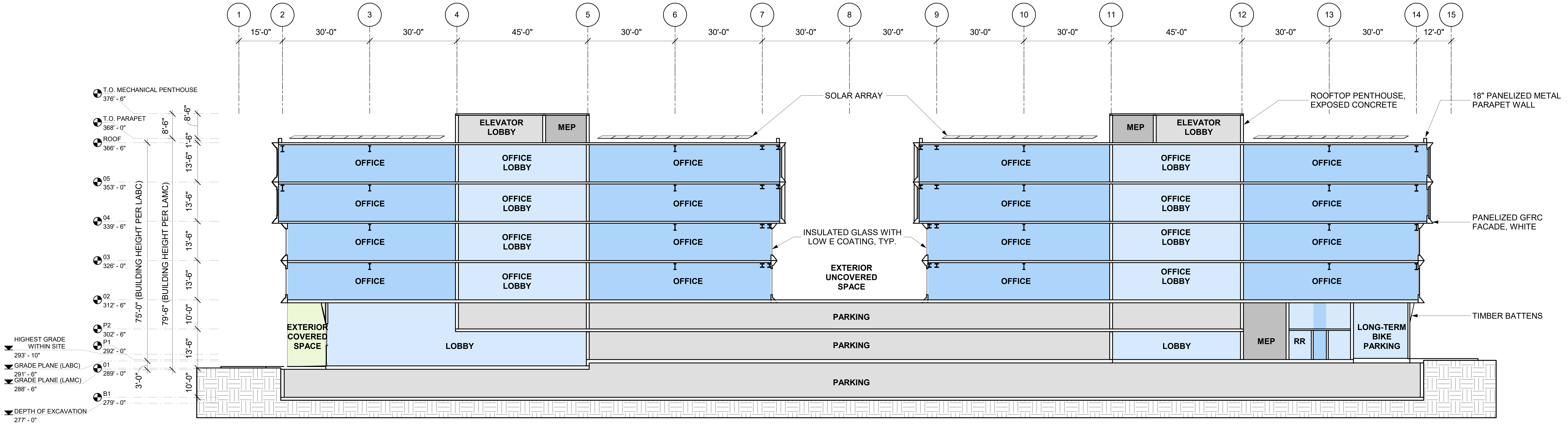
$$m = 0.784 - 0.0768\sqrt{(N_1)_{60cs}}$$

Results in **BOLD**

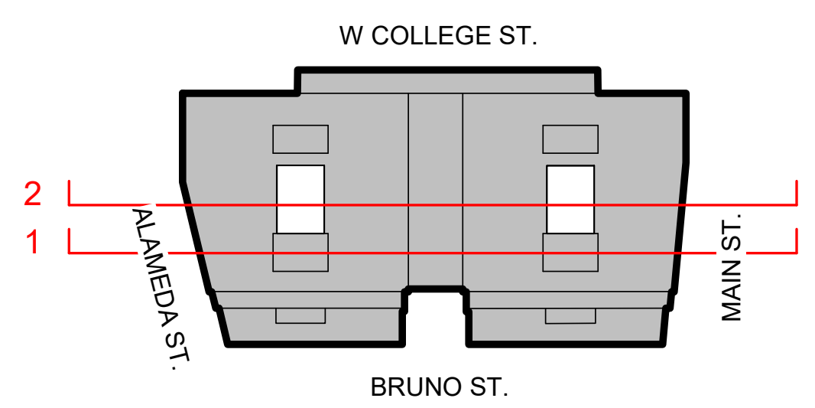
ATTACHMENT D



2 SECTION 2
1/16" = 1'-0" | EAST-WEST SECTION LOOKING NORTH



1 SECTION 1
1/16" = 1'-0" | EAST-WEST SECTION LOOKING NORTH



ARCHITECT

GRIMSHAW

GRIMSHAW ARCHITECTS LLP
T +1 323 471 6700
www.grimshaw.global
432 Colyton Street, Los Angeles, CA 90013, USA

INTELLECTUAL PROPERTY

DRAWING NOTICES

Do not scale - all dimensions to be checked on site. Grimshaw drawings to be read in conjunction with Grimshaw and specialist specifications. Drawings to be read in conjunction with consultant information.

CLIENT
S&R Partners, LLC

CONSULTANTS

PROJECT NAME
130 West College Street

PROJECT NO.
20046

ADDRESS
130 West College St.
Los Angeles, CA
90012
USA

REV	BY	DATE	DESCRIPTION
1	GA	10.06.2023	100% Entitlement Review 01
2	GA	01.18.2024	100% Entitlement Review 02

0 6'-0" 12'-0" 24'-0"
SCALE: 1/16" = 1'-0"

KEY PLAN

NORTH

DRAWING TITLE
LONGITUDINAL SECTIONS

SCALE
As indicated @ARCH E1

STATUS
For Information

DRW	CH	APPR	DRW DATE	REV
JS	HN	AB	01.18.2024	2

DRAWING NO.
A-301

ATTACHMENT E

Temporary Excavation Support and Construction Dewatering

Temporary excavations are anticipated for the proposed development. The fill and alluvial soils can be classified as Cal/OSHA Type C soils (California Code of Regulations, Title 8 Subchapter 4). Temporary excavations will be required to facilitate below-grade excavation for the proposed development and will need to be constructed in accordance with Cal/OSHA requirements. Based on our evaluation of subsurface data and proposed temporary excavations at the Site are anticipated to extend up to 17 feet.

We anticipate soldier beams and lagging with tiebacks could be used. Written permission allowing use of tiebacks will be required from adjacent property owners and the City if within the public right-of-way. Prior to installation of tiebacks, the location of subsurface utilities as well as the subterranean structure that might be located north of the Project Site.

The soil pressure distribution for temporary excavation support is a function of the type of excavation support system and any bracing used. For design, the shoring system with tiebacks should be designed using a trapezoidal pressure distribution having a maximum pressure of 25H within the middle 0.6H and reducing to zero towards the top and bottom of the wall, where H is the height of the wall in feet. Cantilever shoring conditions should be designed using a triangular distribution having a maximum pressure of 25H, where H is the height of the wall in feet.

Surcharge loading along the walls should consider adjacent structures, streets, sidewalks, and proposed pedestrian passageway. The below-grade wall along the east and north side of the site should be designed to withstand surcharge loading from adjacent foundations. Surcharge loading should be considered where the neighboring building foundations are supported on material above a 1:1 (horizontal:vertical) theoretical influence line extending upward from the base of the below-grade wall. Surcharge loading from neighboring building foundations need not be considered if these foundations are supported outside the aforementioned influence line.

Surcharge loading due to adjacent structures, temporary traffic and construction loading within a distance of 10 feet from the wall top should be designed based on published documentation, such as Federal Highway Administration (FHWA) or Naval Facilities Engineering Command (NAVFAC) Design Manuals and as set forth in LADBS Information Bulletin 2017-141 "Guidelines for Determining Live Loads Surcharge From Sidewalk Pedestrian Traffic And Street Traffic", whichever is stricter. Development of surcharge distributions other than specified in LADBS Information Bulletin 2017-141 should be developed by the project shoring engineer and subsequently reviewed by LANGAN for confirmation with our GER.

The design earth pressure on the lagging can be 0.6 times the earth pressure or a maximum of 400 psf in accordance with California Department of Transportation (2011), "Trenching and Shoring Manual," Revision 1, August 2011. Excavation lifts for lagging installation should not exceed 5 feet or as stated in Los Angeles Bureau of Engineering Special Order document "Requirements for Deep Excavation Construction and Installation of Tiebacks On Site in or Adjacent to Public Ways", whichever is stricter.

Soldier piles placed in suitably pre/drilled and cleaned/out holes that are subsequently backfilled with grout or structural concrete may support vertical loads from the tiebacks or rakers by a combination of side shear in the embedded portion of the socket and end bearing from the tip of the pile. Soldier piles should not be drilled adjacently if within three diameters center-to-center and be backfilled same day. It is anticipated that groundwater will be encountered during drilling/installation of soldier piles and therefore groundwater should be pumped out prior to backfill of the annular space. Backfill of the annular space should be performed tremie style. The soldier piles can be designed using the following parameters:

Stratum	**Side Shear**	**End Bearing**
Bottom of Excavation to Pile Toe	400 psf	2500 psf

Passive resistance against soldier beams below the excavated level should be based on a equivalent fluid weight of 150 psf/foot beginning 3 feet below the lowest subgrade level in front of the soldier beams. This passive resistance includes a factor of safety of 1.5. Should passive resistance be taken at the lowest excavation level a reduced equivalent fluid pressure of 50 psf/ft should be used. A maximum of 3 times the width of the soldier beam can be considered as contributing to passive resistance. Care must be taken during construction so as not to excavate any soil providing lateral restraint to the shoring system's toe. To minimize vibration and avoid adversely impacting neighboring structures, we recommend placing soldier piles in predrilled and cleaned-out holes that are subsequently backfilled with grout or concrete.

Tieback anchors should have a minimum free-stressing length of 10 feet, a minimum bond length of 15 feet, and should develop a minimum allowable bond stress of 1500 psf in the bond zone; post-grouting is expected to be necessary to attain this minimum allowable bond stress. Higher bond stress may be feasible and should be confirmed by performance and proof load tests as documented below. Should lower bond stresses be determined during load testing, tiebacks should be lengthened as necessary per the project shoring engineer.

At least two (2) initial tiebacks along each excavation face should be performance tested to 200% of the design load to confirm the design bond stress. All tiebacks should be proof tested to 150% of their design capacity prior to locking off the tieback, with each anchor "lift-off" tested to verify proper lock-off load transfer.

Deflection at the top of the excavation support system will be a function of the design and sequence of installation of the tiebacks. For temporary excavation walls adjacent to the public right/of/way or a public structure, the allowable maximum deflection of shoring system should be 1 inch in accordance with City of Los Angeles Bureau of Engineering (2000), "Requirements for Deep Excavation Construction and Installation of Tiebacks on Sites in or Adjacent to Public Ways", special Order no. 003/0201, dated 16 February 2000. For temporary excavation walls adjacent to neighboring buildings the allowable maximum deflection of shoring system should be ½ inch, but in no case should deformations be such that cause damage or loss of support to areas, structures, and utilities beyond the excavation.

The excavation is anticipated to extend at or below the design groundwater level where groundwater was encountered in our borings. Do to existing groundwater conditions, subsurface seepage is anticipated to be encountered during excavation, dewatering measures, such as placing pumps in sump pits in the bottom of the excavation, should be employed. Keeping the bottom dry will be important for ensuring the integrity of the mat foundation.

Where rakers are used instead of or in addition to tiebacks to support the excavation, the excavation, raker installation should be sequenced in such a manner as to avoid excessive deflection of the shoring system. In addition, the following are recommended:

- The initial excavation, prior to raker installation, can be a cantilever excavation that should be designed such that shoring deflection does not exceed the criteria provided herein. The maximum cantilever height will be a function of the stiffness of the soldier piles and lagging system.
- A soil berm should be maintained from the bottom of the cantilever section of the shoring to the bottom excavation until the rakers are installed and the concrete for the continuous concrete dead man has reached the required strength. The soil berm should have a slope of 1 horizontal to 1 vertical or shallower.
- The berm can be slot cut if required to facilitate installation of the rakers, however the maximum slot width cut should not exceed 2 feet. Depending on final spacing of rakers, rakers installation may need to be sequenced such that one raker and concrete deadman are installed prior to slot cutting of the berm and installation of an adjacent raker.
- The soil berm in front of the excavation should remain in place until the rakers and continuous concrete deadman are installed and the concrete has reached the minimum strength required by the shoring design engineer.
- The rakers should remain in place until the below grade walls and floor slabs up to the top of the raker have been installed and the concrete has reached sufficient strength to support the soil and surcharge pressures.

If a continuous concrete deadman is used at the base of the excavation to support rakers, the concrete deadman can be designed using an allowable passive resistance based on an equivalent fluid weight of 150 psf/foot beginning 3 feet below the lowest subgrade level in front of the raker. Should passive resistance be taken at the lowest excavation level a reduced equivalent fluid pressure of 50 psf/ft should be used. The concrete deadman should be located so as not to disturb the soils beneath the proposed shallow foundations.

- Allowable bearing capacity for a temporary concrete deadmen bearing on alluvium a minimum of 5 feet below grade, is 2,500 psf.
- Concrete deadmen can be designed with an ultimate friction coefficient of 0.25.

  We suggest tieback anchors be placed at least 20 feet below sidewalk and street level since based our past experience that the City of Los Angeles requires tieback removal prior to project completion if tiebacks are installed shallower. In no case should tiebacks be placed at a level lower than that required to provide sufficient wall bracing without causing damage or loss of support to areas behind the wall.

ATTACHMENT F

LATERAL AND SEISMIC EARTH PRESSURE CALCULATION SHEET

Project: 130 W College
Project No.: 721036101
Date: 31-Oct-22
Condition: Level Backfill

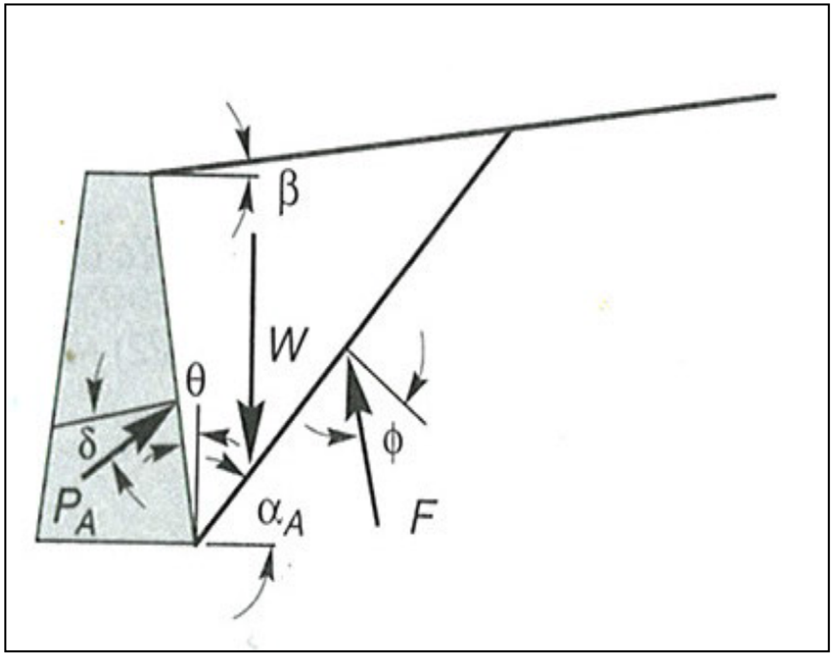
Material Properties	
Unit Weight (pcf)	116
ϕ (deg)	27
Seismic Parameters	
PGA	0.947
k_h	0.474
k_v	0.276

Retaining Wall-Soil Geometry Parameters		
Parameter	**Angle**	**Description**
Slope Run (H)	1	Horizontal Distance
Slope Rise (V)	0	Vertical Height
β	0.0	Backfill Slope Angle
δ	16	Soil-wall friction angle
θ	0.0	Wall angle
Ψ	33.2	Seismic force-wall angle

Earth Pressure Coefficients			
Method	**Coefficient**	**Value**	**Definition**
General	K_0	0.55	At-rest
Rankine	K_A	0.38	Active
	K_P	2.66	Passive
Coloumb	K_A	0.34	Active
	K_P	4.38	Passive

Total Earth Pressures and Distributions				
Method	**Pressure**	**Total (psf/ft)**	**EFP (psf/ft)**	**Definition**
General	P_0	32	63	At-rest
Rankine	P_A	22	44	Active
	P_P	154	309	Passive
Coloumb	P_A	20	39	Active
	P_P	254	508	Passive

SCHEMATIC OF TYPICAL CANTILEVER WALL



LANGAN

Formulas:

Seismic Parameters

$k_h = PGA/2$

$k_v = [(k_h/2) + (2k_h/3)]/2$

$\Psi = \tan^{-1}(k_h/(1 - k_v))$

Earth Pressure Coefficients

$K_0 = (1 - \sin\varphi)(1 + \sin\beta)$

K_A (Rankine) $= \cos\beta(\cos\beta - [\cos^2\beta - \cos^2\varphi]^{1/2})/(\cos\beta + [\cos^2\beta - \cos^2\varphi]^{1/2})$

K_P (Rankine) $= \cos\beta(\cos\beta + [\cos^2\beta - \cos^2\varphi]^{1/2})/(\cos\beta - [\cos^2\beta - \cos^2\varphi]^{1/2})$

K_A (Coloumb) $= \cos^2(\varphi - \theta)/\{\cos^2\theta\cos(\delta + \theta)[1 - [\sin(\delta + \varphi)\sin(\varphi - \beta)/(\cos(\delta + \theta)\cos(\beta - \theta))]^{1/2}]\}$

K_P (Coloumb) $= \cos^2(\varphi + \theta)/\{\cos^2\theta\cos(\delta - \theta)[1 + [\sin(\delta + \varphi)\sin(\varphi + \beta)/(\cos(\delta - \theta)\cos(\beta - \theta))]^{1/2}]\}$

$K_{AE} = \cos^2(\varphi - \theta - \Psi)/\{\cos\Psi\cos^2\theta\cos(\delta + \theta + \Psi)[1 - [\sin(\delta + \varphi)\sin(\varphi - \beta - \Psi)/(\cos(\delta + \theta + \Psi)\cos(\beta - \theta))]^{1/2}]\}$

$\Delta K_{AE} = K_{AE} - K_A$

Total Lateral Earth Pressures

$P_0 = (1/2)\gamma K_0 H^2$

$P_A = (1/2)\gamma K_A H^2$

$P_P = (1/2)\gamma K_P H^2$

$P_{AE} = (1/2)\gamma K_{AE} H^2(1 - k_v)$

$\Delta P_{AE} = P_{AE} - P_A$

Equivalent Fluid Pressure (EFP)

$P_0 = \gamma K_0$

$P_A = \gamma K_A$

$P_P = \gamma K_P$

$P_{AE} = \gamma K_{AE}(1 - k_v)$

$\Delta P_{AE} = P_{AE} - P_A$

Additional Notes:

$\varphi - \beta \geq \Psi$

for $\beta = 0$, $K_A \equiv \tan^2(45 - \varphi/2)$; $K_P \equiv \tan^2(45 + \varphi/2)$

$\delta \approx 2\varphi/3$

Coulomb Theory tends to overestimate passive pressure

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CITY OF LOS ANGELES
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LOS ANGELES, CA 90012

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JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

October 24, 2023

LOG # 125167-02
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT:	FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S):	D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION:	130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	09/26/2023	LANGAN

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	125167-01	09/06/2023	LADBS
Soils Report	721036101	08/07/2023	LANGAN
Dept. Review Letter	125167	03/30/2023	LADBS
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure on mat-type foundations bearing on native undisturbed 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. Revise liquefaction analyses to address the following review items:
   a. Laboratory testing shall be provided for each layer considered non-liquefiable; engineering judgment to consider layers of the same earth material having similar properties is acceptable. However, the clay layer from LB-1 at 45'-50', which was described as silty sand in the original report, has similar N-value, similar description, similar fine content with the silt layer located at 35-45'. Therefore, unless laboratory testing shows otherwise, the layer from 45-50' shall be considered liquefiable.
   b. The liquefaction evaluation spreadsheet for LB-3 shows two clay layers at 15 and 30 feet below the bottom of the footing (bbf), while the settlement calculation table shows a clay layer at 10 and 25 feet bbf. Revise liquefaction calculations to consider the clay layer at 33 to 38 and 48 to 51.5 feet below ground surface, as shown in the boring log.
   c. Clarify what $C_{N\ \text{adjusted}}$, and m represent in the liquefaction spreadsheet. Provide a hand calculation of the liquefaction evaluation and liquefaction settlement at one depth.
   d. The liquefaction analyses are based on an assumed 20-foot excavation. However, the report dated 02/17/2023 provided shoring recommendations for a maximum height of 13 feet. Revise liquefaction analyses using a 13-foot excavation or provide shoring recommendations for a maximum height of 20 feet.
2. In the response to comment 2 regarding the lateral earth pressure on basement wall, the consultants provided active pressure calculations for a 20-foot cantilever retaining wall. As previously requested, provide at-rest lateral earth pressure recommendations for basement wall retaining clays. Justify the unit weight used in the calculations. Note: based on laboratory testing, the dry unit weight of clay layers varies from 90.8 PCF to 100.6 PCF.

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 flash drive, and the appropriate fees will be required for submittal.

Dan

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167-02
213-482-0480

cc: LANGAN, Project Consultant
LA District Office

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LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

26 September 2023

Mr. Steven J. Riboli
S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

Re: Response to Soils Report Review Letter
Log # 125167-01
Tract M R 72-75/76
130, 114, 110 W College Street
Langan Project No. 721036101

Dear Mr. Riboli:

We are providing this response to the Soils Report Review Letter dated 6 September 2023, Log #125167-01 issued by the City of Los Angeles (City) Grading Division received via email on 07 September 2023. Our responses to geotechnical related items are below. A copy of the City's review letter is provided in Attachment A.

The presented liquefaction analysis has been updated to take into account a 20-foot excavation for the proposed development based on the latest information provided by Granite Properties on the document titled, "130 College Standalone PD No Graphics" dated May 2023. Previous our analysis showed a 13-foot excavation as proposed however the updated analysis reflects the current design of the subterranean parking level would extend to a depth of approximately 20 feet below ground surface.

Comment 1: *Revise liquefaction analyses to address the following items*

a) *Provide justification and appropriate laboratory testing for all layers, including clay layers, considered non-potentially liquefiable (based on the screening criteria followed by the consultant) to substantiate such argument.*

   Note: The department requires the criteria for the soils "not susceptible" to liquefaction to be demonstrated. The soils considered "not susceptible" to liquefaction are soils with a PI>=18 that are not sensitive or soils having a saturated moisture content <=80% of the liquid limit.
b) *The consultant used a factor of 0.8 to convert the Cal Mod N-values to SPT N-values. However, this value is not supported by CGS Special Publication 117 (i.e. SP 117A), Guidelines for Evaluating and Mitigating Seismic Hazards in California (Section 5.4.5), Revise conversion factor accordingly.*
c) *Calculate the overburden correction factor, CN, based on the conditions encountered at the time the SPT testing was conducted (i.e., depth below ground surface and ground water elevation at the time of the drilling).*
d) *Calculate the seismic demand on the soil layer or cyclic stress ratio, CSR based on the historically highest groundwater level.*

Response:

a) Based on the laboratory test result in attachment B on sample LB-3/S-12 the test results indicate encountered clay layers have a Plasticity Index greater than 18. (PI=23).

b) The analyses have been updated using a reduction factor of 0.7 based on CGS Special Publication 117 (Section 5.4.5). Refer to Attachment C for the updated analysis.

c) The analysis has been updated to with the CN factor based on depth below ground surface and ground water at the time of drilling. Refer to Attachment C for the liquefaction analysis.

d) The Analysis has been updated to calculate the seismic demand based on the historical groundwater (20-feet below ground surface) based on the seismic hazard zone report 029 – Los Angeles Quadrangle. Refer to Attachment C for the liquefaction analysis.

Based on our analysis, liquefaction-induced settlements are anticipated to range from approximately 0.8- to 2.0-inches. The results of these analysis are attached in Attachment C. Based on the updated analysis there is no change to the recommendations presented in our Geotechnical Investigation Report dated 17 February 2023.

Comment 2: *The consultant used a friction angle of 39 degrees for basement wall lateral earth pressure calculation. However, the upper soils consists of sands (sand,silt/sand) and clays. The direct shear test for a clay sample shows a peak friction angle of 29 degrees. Provide lateral earth pressure recommendations for basement wall retaining clays.*

Response: We evaluated earth pressures using the clay data and the resulting wall pressures are less than those calculated using the sand soil parameters. For preliminary design purposes we recommend using the higher wall pressures as previously presented. Calculations are included in Attachment D.

Please contact us if you have any questions regarding this letter.

Sincerely,
Langan Engineering and Environmental Services, Inc.

ENRIQUE A. RIUTORT
GE2683
exp 12/31/24
9/26/2023

Diane M. Fiorelli

DIANE M FIORELLI
No. GE 3042
exp 6/30/25
9/26/2023

Enrique Riutort, PE
Senior Project Engineer
GE# 2863

Diane M. Fiorelli, PE, GE
Principal/Vice President
GE# 3042

Enclosure(s): Attachment A – Copy of Soils Report Review Letter, Log # 125167-01
Attachment B – Laboratory Results
Attachment C – Liquefaction Results
Attachment D – Earth Pressure Analysis

ATTACHMENT A

CITY OF LOS ANGELES

CALIFORNIA

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EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

September 6, 2023

LOG # 125167-01
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT:	FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S):	D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION:	130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	08/07/2023	LANGAN

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	125167	03/30/2023	LADBS
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure on mat-type foundations bearing on native undisturbed 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:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. Revise liquefaction analyses to address the following items:
   a. Provide justification and appropriate laboratory testing for all layers, including clay layers, considered non-potentially liquefiable (based on the screening criteria followed by the consultant) to substantiate such argument.

      Note: The Department requires that the criteria for soils "not susceptible" to liquefaction be demonstrated. The soils considered "not susceptible" to liquefaction are soils with a PI >= 18 that are not sensitive or soils having a saturated moisture content <= 80% of the liquid limit.
   b. The consultants used a factor of 0.8 to convert the Cal Mod N-values to SPT N-values. However, this value is not supported by CGS Special Publication 117 (i.e. SP 117A), Guidelines for Evaluating and Mitigating Seismic Hazards in California (Section 5.4.5). Revise conversion factor accordingly.
   c. Calculate the overburden correction factor, CN, based on the conditions encountered at the time the SPT testing was conducted (i.e., depth below ground surface and ground water elevation at the time of drilling).
   d. Calculate the seismic demand on the soil layer or cyclic stress ratio, CSR based on the historically highest ground water level.
2. The consultants used a friction angle of 39 degrees for basement wall lateral earth pressure calculation. However, the upper soils consist of sands (sand, silt/sand) and clays. The direct shear test for a clay sample shows a peak friction angle of 29 degrees. Provide lateral earth pressure recommendations for basement wall retaining clays.

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 flash drive, and the appropriate fees will be required for submittal.

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167-01
213-482-0480

cc: Charles Tan & Associates, Applicant
LANGAN, Project Consultant
LA District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District LA | Log No. 125167-1

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.

1. LEGAL DESCRIPTION
Tract: FREIGHT DEPOT TRACT
Block: ______ Lots: FR D

2. PROJECT ADDRESS: 130 West College, Los Angeles, California

3. OWNER: S&R Partners, LLC
Address: 737 Lamar Street
City: Los Angeles Zip: 90031
Phone (Daytime): ______

4. APPLICANT Langan
Address: 18575 Jamboree Road, Suite 150
City: Irvine Zip: 92612
Phone (Daytime): 949-561-9200
E-mail address: eriutort@langan.com; awei@langan.com

5. Report(s) Prepared by: Langan

6. Report Date(s): 17 February 2023

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)

9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates: ______

10. Applicant Signature: D. N. Freeller Position: Principal/Vice President

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED		FEES
☒ Soils Engineering		No. of Lots		
☐ Geology		No. of Acres		
☐ Combined Soils Engr. & Geol.		☐ Division of Land		
☐ Supplemental		Other		
☐ Combined Supplemental		☒ Expedite		90.75
☐ Import-Export Route		☒ Response to Correction		181.50
Cubic Yards:		☐ Expedite ONLY		
			Sub-total	272.25
			Surcharge	69.91
			TOTAL FEE	342.16

Fee Due: 342.14
Fee Verified By: An Date: 8/14/23
(Cashier Use Only)

Receipt # 165122

Paid on 8/16/23

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED

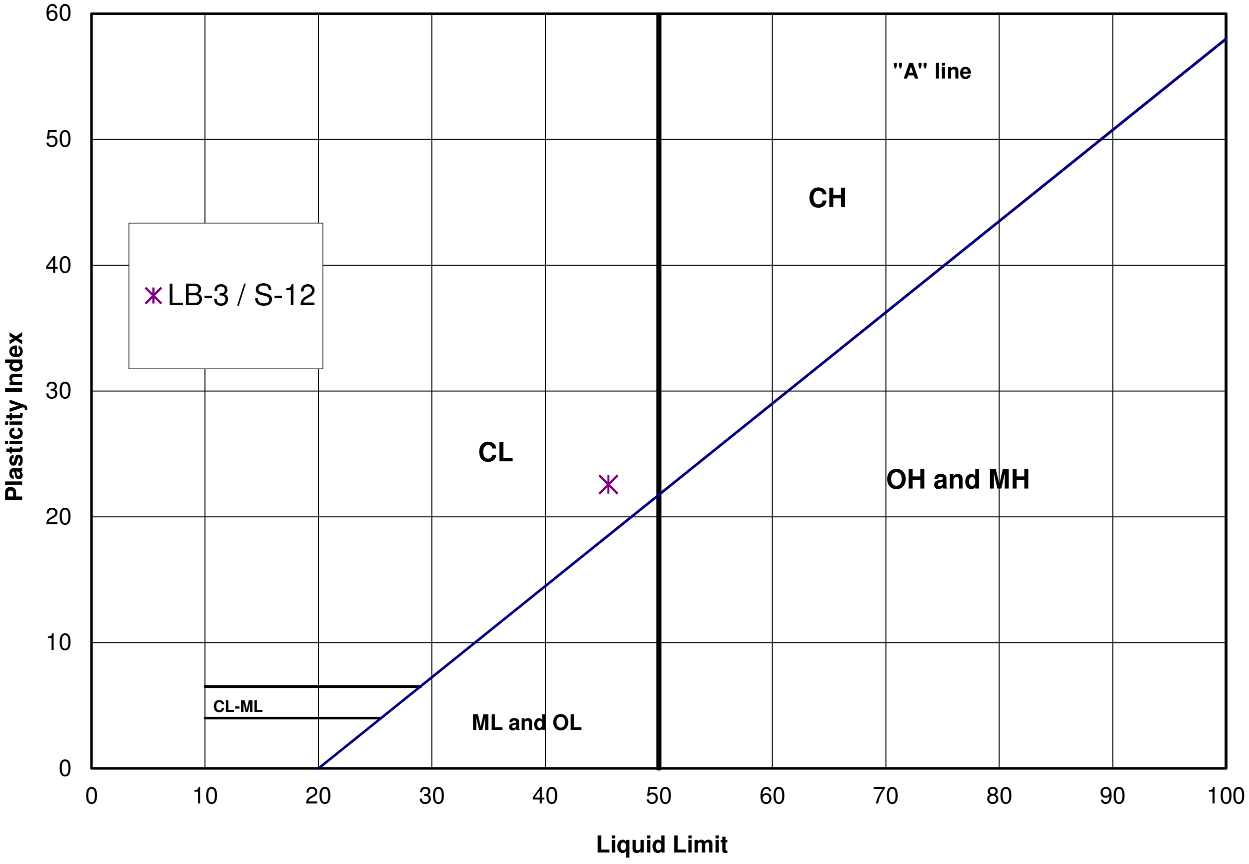
☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

______ For Geology ______ Date

______ For Soils ______ Date

ATTACHMENT B

PLASTICITY INDEX _ ASTM D4318



Sample	Depth	LL	PL	PI	USCS	Material Description
LB-3 / S-12	50'	46	23	23	CL	

Job Name: Langan # 721036103 Date: 9/16/23

Job No.: 2012-0057

ATTACHMENT C

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College
Project Location: Los Angeles
Project Number: 721036101

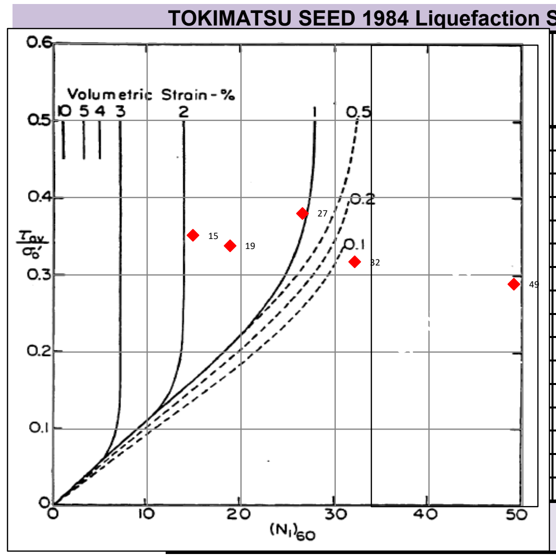
Case 1: Two-Thirds PGA

Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	291.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR$_{M=7.5}$,σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
5	72	0.32	**0.0**	8.00	**0.0**
10	71	0.31	**0.0**	5.00	**0.0**
15	27	0.38	**1.3**	3.00	**0.5**
20	15	0.35	**2.00**	5.00	**1.2**
25	19	0.34	**1.8**	5.00	**Clay**
30	52	0.36	**0.0**	5.00	**0.0**
35	32	0.32	**0.1**	5.00	**0.1**
40	56	0.22	**0.0**	5.00	**0.0**
45	49	0.29	**0.0**	1.50	**0.0**
				SAT. SETTLEMENT (IN) =	**1.7**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs , adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	286.8	SPT	32	8	SM	120	25	600	312	288	3628	3916	0.9	0.8	1.3	1.05	1	33	5	38	0.31	1.7	72	-0.052	0.006	0.96	0.423	-0.4	1.1	55768452345937400.000	####################	5.0	No	1658
10	281.8	CR	50	5	SM	120	25	1200	624	576	3306	3882	0.95	0.8	1.3	1.05	0.7	37	5	42	0.29	1.5	71	-0.137	0.016	0.89	0.423	-0.4	1.1	7981784643884760	10725309511056100	5.0	No	1643
15	276.8	SPT	10	3	ML	120	51	1800	936	864	3025	3889	1	0.8	1.3	1.05	1	11	6	16	0.48	1.5	27	-0.236	0.027	0.82	0.415	0.2	0.9	0.331	0.361	0.9	No	1615
20	271.8	CR	7	5	ML	120	51	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	0.7	5	6	11	0.53	1.4	15	-0.348	0.039	0.74	0.400	0.1	0.9	0.155	0.176	0.4	No	1573
25	266.8	SPT	8	5	CL	120	76.9	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	1	8	6	13	0.50	1.2	19	-0.472	0.053	0.67	0.379	0.1	0.9	0.192	0.216	0.6	Yes	1518
30	261.8	CR	45	5	ML	120	51	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	0.7	30	6	35	0.33	1.1	52	-0.604	0.068	0.59	0.355	0.3	0.8	1943	1904	5.0	No	1453
35	256.8	SPT	19	5	ML	120	51	4200	2184	2016	2195	4211	1	0.7	1.3	1.05	1	17	6	23	0.42	1.0	32	-0.744	0.083	0.53	0.328	0.2	0.8	0.652	0.674	2.1	No	1380
40	251.8	CR	54	5	ML	120	51	4800	2496	2304	2041	4345	1	0.7	1.3	1.05	0.7	34	6	39	0.30	1.0	56	-0.888	0.099	0.46	0.300	-6.1	1.1	101740	136710	5.0	No	1303
45	246.8	SPT	34	1.5	ML	120	51	5400	2808	2592	1902	4494	1	0.6	1.3	1.05	1	29	6	35	0.33	0.9	49	-1.034	0.115	0.41	0.273	0.3	0.8	312	295	5.0	No	1226

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

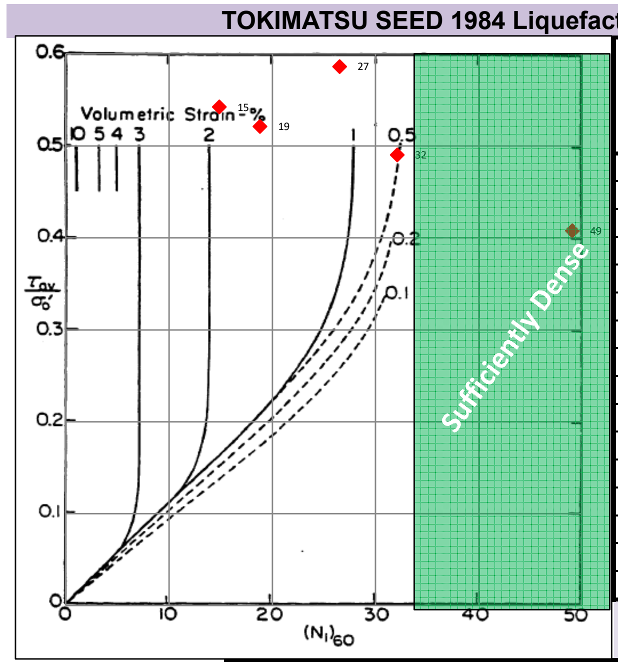
Project Title: 130 W College   Case 2: FULL PGA
Project Location: Los Angeles

Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60-cs}$	CSRM=7.5,σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	5	70	0.49	**0.0**	8.00	**0.0**
	10	70	0.49	**0.0**	5.00	**0.0**
	15	27	0.59	**1.1**	3.00	**0.4**
	20	15	0.54	**2.0**	5.00	**1.2**
	25	19	0.52	**1.8**	5.00	**Clay**
	30	52	0.56	**0.0**	5.00	**0.0**
	35	32	0.49	**0.6**	5.00	**0.3**
	40	56	0.45	**0.0**	5.00	**0.0**
	45	49	0.41	**0.0**	1.50	**0.0**

SAT. SETTLEMENT (IN) = **1.9**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,adjusted}$**	**$(N_1)_{60cs,adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	266.8	SPT	32	8	SM	120	15	600	312	288	3628	3916	0.9	0.8	1.3	1.05	1	33	3	36	0.32	1.7	70	-0.052	0.006	0.96	0.635	-0.4	1.1	##############	##############	5.0	No	2488
10	261.8	CR	50	5	SM	120	15	1200	624	576	3306	3882	0.95	0.8	1.3	1.05	0.7	37	3	40	0.30	1.5	70	-0.137	0.016	0.89	0.635	-0.4	1.1	##############	##############	5.0	No	2464
15	256.8	SPT	10	3	ML	120	51	1800	936	864	3025	3889	1	0.8	1.3	1.05	1	11	6	16	0.48	1.5	27	-0.236	0.027	0.82	0.623	0.2	0.9	0.331	0.351	0.6	No	2421
20	251.8	CR	7	5	ML	120	51	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	0.7	5	6	11	0.53	1.4	15	-0.348	0.039	0.74	0.600	0.1	0.9	0.155	0.171	0.3	No	2357
25	246.8	SPT	8	5	CL	120	74.1	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	1	8	6	13	0.50	1.2	19	-0.472	0.053	0.66	0.568	0.1	0.9	0	0	0.4	Yes	2274
30	241.8	CR	45	5	ML	120	51	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	0.7	30	6	35	0.33	1.1	52	-0.604	0.068	0.59	0.531	0.3	0.8	1943.401	1849.703	5.0	No	2175
35	236.8	SPT	19	5	ML	120	51	4200	2184	2016	2195	4211	1	0.7	1.3	1.05	1	17	6	23	0.42	1.0	32	-0.744	0.083	0.52	0.490	0.2	0.8	0.652	0.654	1.3	No	2065
40	231.8	CR	54	5	ML	120	51	4800	2496	2304	2041	4345	1	0.7	1.3	1.05	0.7	34	6	39	0.30	1.0	56	-0.888	0.099	0.46	0.449	-6.1	1.1	101739.769	132825.717	5.0	No	1949
45	226.8	SPT	34	1.5	ML	120	51	5400	2808	2592	1902	4494	1	0.6	1.3	1.05	1	29	6	35	0.33	0.9	49	-1.034	0.115	0.41	0.408	0.3	0.8	311.608	286.252	5.0	No	1832

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College
Project Location: Los Angeles

Case 1: Two-Thirds PGA

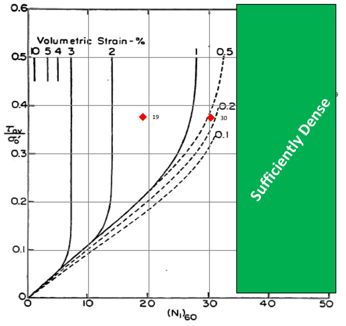
Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:

1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR M=7.5, σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	1.5	43	0.42	**0.0**	5.00	**0.0**
	5	19	0.38	**1.8**	5.00	**1.1**
	10	49	0.42	**0.0**	5.00	**0.0**
	15	48	0.42	**0.0**	5.00	**0.0**
	20	30	0.38	**0.5**	5.00	**0.3**
	25	68	0.28	**0.0**	5.00	**0.0**
	30	33	0.34	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.4**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,adjusted}$**	**$(N_1)_{60cs,adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	18	3	SM	120	25	180	94	86	3883	3969	0.9	0.8	1.3	1.05	1	19	5	24	0.41	1.7	43	-0.003	0.001	1.00	0.419	0.3	0.8	10.940	10.842	5.0	No	1663
5	266.8	CR	9	5	ML	120	25	600	312	288	3628	3916	0.95	0.8	1.3	1.05	0.7	7	5	12	0.52	1.7	19	-0.052	0.006	0.96	0.423	0.1	0.9	0.194	0.218	0.5	No	1658
10	261.8	SPT	19	5	SM	120	25	1200	624	576	3306	3882	1	0.8	1.3	1.05	1	20	5	25	0.40	1.7	49	-0.137	0.016	0.89	0.423	0.3	0.8	245.811	245.616	5.0	No	1643
15	256.8	CR	32	5	SM	120	25	1800	936	864	3025	3889	1	0.7	1.3	1.05	0.7	23	5	28	0.38	1.4	48	-0.236	0.027	0.82	0.415	0.3	0.8	162.984	162.749	5.0	No	1615
20	251.8	SPT	14	5	SM	120	25	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	1	14	5	19	0.45	1.3	30	-0.348	0.039	0.74	0.400	0.2	0.9	0.499	0.532	1.3	No	1573
25	246.8	CR	59	5	SM	120	25	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	0.7	39	5	44	0.27	1.1	68	-0.472	0.053	0.67	0.379	-0.5	1.1	4658100647229	6259198087168	5.0	No	1518
30	241.8	SPT	19	1.5	SM	120	25	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	1	17	5	22	0.42	1.1	33	-0.604	0.068	0.59	0.355	0.2	0.8	0.801	0.824	2.3	No	1453

Notes:

1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

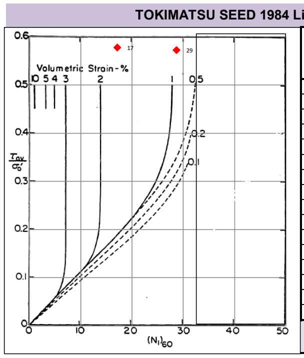
Project Title: 130 W College Case 2: FULL PGA
Project Location: Los Angeles
Project Number: 721036101

Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR$_{M=7.5,}$ σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	1.5	41	0.65	**0.0**	3.00	**0.0**
	5	17	0.58	**1.9**	5.00	**1.1**
	10	47	0.65	**0.0**	5.00	**0.0**
	15	47	0.64	**0.0**	5.00	**0.0**
	20	29	0.57	**1.0**	5.00	**0.6**
	25	66	0.44	**0.0**	5.00	**0.0**
	30	32	0.52	**0.0**	5.00	**0.0**
					SAT. SETTLEMENT (IN) =	**1.7**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60cs,adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	18	3	SM	120	15	180	94	86	3883	3969	0.9	0.8	1.3	1.05	1	19	3	22	0.42	1.7	41	-0.003	0.001	1.00	0.629	0.3	0.8	5.515	5.311	5.0	No	2496
5	266.8	CR	9	5	ML	120	15	600	312	288	3628	3916	0.95	0.8	1.3	1.05	0.7	7	3	10	0.54	1.7	17	-0.052	0.006	0.96	0.635	0.1	0.9	0.175	0.193	0.3	No	2488
10	261.8	SPT	19	5	SM	120	15	1200	624	576	3306	3882	1	0.8	1.3	1.05	1	20	3	23	0.41	1.7	47	-0.137	0.016	0.89	0.635	0.3	0.8	109.953	106.744	5.0	No	2464
15	256.8	CR	32	5	SM	120	15	1800	936	864	3025	3889	1	0.7	1.3	1.05	0.7	23	3	26	0.39	1.4	47	-0.236	0.027	0.82	0.623	0.3	0.8	76.440	74.162	5.0	No	2421
20	251.8	SPT	14	5	SM	120	15	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	1	14	3	17	0.47	1.3	29	-0.348	0.039	0.74	0.600	0.2	0.9	0.412	0.432	0.7	No	2357
25	246.8	CR	59	5	SM	120	15	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	0.7	39	3	42	0.28	1.1	66	-0.472	0.053	0.66	0.568	-0.5	1.1	228409508083	298198599754	5.0	No	2274
30	241.8	SPT	19	1.5	SM	120	15	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	1	17	3	21	0.43	1.1	32	-0.604	0.068	0.59	0.531	0.2	0.9	0.604	0.614	1.2	No	2175

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

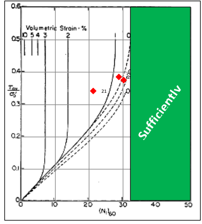
Project Title: 130 W College Case 1: Two-Thirds PGA
Project Location: Los Angeles

Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-3
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	1.5	66	0.31	**0.0**	3.00	**0.0**
	5	88	0.32	**0.0**	5.00	**0.0**
	10	57	0.31	**0.0**	5.00	**Clay**
	15	29	0.38	**0.9**	5.00	**0.5**
	20	30	0.38	**0.5**	5.00	**0.3**
	25	21	0.34	**1.4**	5.00	**Clay**
	30	74	0.26	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**0.8**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value												CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60\,cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs, adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	29	3	SM	120	25	180	94	86	3883	3969	0.9	0.8	1.3	1.05	1	30	5	35	0.33	1.7	66	-0.003	0.001	1.00	0.419	-0.6	1.1	88458660324.293	118863957528.384	5.0	No	1663
5	266.8	CR	51	5	SM	120	25	600	312	288	3628	3916	1	0.8	1.3	1.05	0.7	39	5	44	0.27	1.7	88	-0.052	0.006	0.96	0.423	-0.2	1.1	##	##	5.0	No	1658
10	261.8	SPT	24	5	SM	120	25	1200	624	576	3306	3882	1	0.8	1.3	1.05	1	25	5	30	0.36	1.6	57	-0.137	0.016	0.89	0.423	-2.3	1.1	549807	738788	5.0	No	1643
15	256.8	CR	16	5	CL	120	75	1800	936	864	3025	3889	1	0.7	1.3	1.05	0.7	11	6	17	0.47	1.5	29	-0.236	0.027	0.82	0.415	0.2	0.9	0.419	0.453	1.1	Yes	1615
20	251.8	SPT	14	5	SC	120	25	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	1	14	5	19	0.45	1.3	30	-0.348	0.039	0.74	0.400	0.2	0.9	0.499	0.532	1.3	No	1573
25	246.8	CR	14	5	SC	120	25	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	0.7	9	5	14	0.49	1.2	21	-0.472	0.053	0.67	0.379	0.1	0.9	0	0	0.7	No	1518
30	241.8	SPT	48	1.5	CL	120	75	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	1	44	6	50	0.24	1.1	74	-0.604	0.068	0.59	0.355	-0.3	1.1	37763177230890000000	50743258806471300000	5.0	Yes	1453

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

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SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College
Project Location: Los Angeles
Project Number: 721036101
Date: 7/19/2023

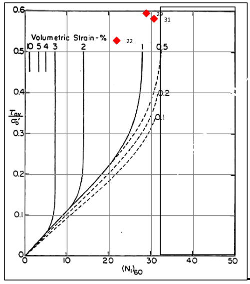
Case 2: FULL PGA

BORING AND GWT INPUT	
Boring:	LB-3
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C

5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-}cs}$	CSR$_{M=7.5,\sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	1.5	61	0.48	**0.0**	5.00	**0.0**
	5	86	0.49	**0.0**	5.00	**0.0**
	10	57	0.49	**0.0**	5.00	**Clay**
	15	29	0.59	**1.0**	5.00	**0.6**
	20	31	0.58	**0.9**	5.00	**0.5**
	25	22	0.53	**1.5**	5.00	**Clay**
	30	74	0.41	**0.0**	5.00	**0.0**
					SAT. SETTLEMENT (IN) =	**1.1**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF (ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60\,cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs , adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	29	3	SM	120	5.9	180	94	86	3883	3969	0.9	0.8	1.3	1.05	1	30	0	30	0.36	1.7	61	-0.003	0.001	1.00	0.629	-1.1	1.1	28979785.617	37834377.232	5.0	No	2496
5	266.8	CR	51	5	SM	120	15	600	312	288	3628	3916	1	0.8	1.3	1.05	0.7	39	3	43	0.28	1.7	86	-0.052	0.006	0.96	0.635	-0.2	1.1	#####################	######################	5.0	No	2488
10	261.8	SPT	24	5	SM	120	15	1200	624	576	3306	3882	1	0.8	1.3	1.05	1	25	3	29	0.37	1.6	57	-0.137	0.016	0.89	0.635	-3.7	1.1	194766.935	254276.750	5.0	Yes	2464
15	256.8	CR	16	5	CL	120	51	1800	936	864	3025	3889	1	0.7	1.3	1.05	0.7	11	6	17	0.47	1.5	29	-0.236	0.027	0.82	0.623	0.2	0.9	0.422	0.442	0.7	No	2421
20	251.8	SPT	14	5	SC	120	49	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	1	14	6	19	0.45	1.3	31	-0.348	0.039	0.74	0.600	0.2	0.9	0.531	0.549	0.9	No	2357
25	246.8	CR	14	5	SC	120	49	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	0.7	9	6	15	0.49	1.2	22	-0.472	0.053	0.66	0.568	0.1	0.9	0	0	0.4	No	2274
30	241.8	SPT	48	1.5	CL	120	75	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	1	44	6	50	0.24	1.1	74	-0.604	0.068	0.59	0.531	-0.3	1.1	#####################	######################	5.0	Yes	2175

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

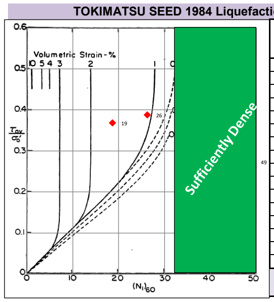
Project Title: 130 W College   Case 1: Two-Thirds PGA

Project Location: Los Angeles
Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR$_M$ =7.5,σ'v =1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	-
	0	---	-	**0.0**	-	-
	0	---	-	**0.0**	-	-
	0	---	-	**0.0**	-	-
	0	---	-	**0.0**	-	-
	0	---	-	**0.0**	-	-
	5	26	0.39	**1.1**	5.00	**0.7**
	10	67	0.31	**0.0**	5.00	**0.0**
	15	19	0.37	**1.9**	5.00	**1.1**
	20	34	0.39	**0.0**	5.00	**Clay**
	25	60	0.28	**0.0**	5.00	**0.0**
	30	80	0.26	**0.0**	5.00	**0.0**
	35	83	0.33	**0.0**	5.00	**0.0**
	40	59	0.30	**0.0**	5.00	**0.0**
	45	49	0.27	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.8**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60}$ $_{cs}$**	**m**	**$C_{N,}$ $_{adjusted}$**	**$(N_1)_{60}$ $_{cs,\ adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	266.8	SPT	11	5	SM	120	15	600	312	288	3628	3916	0.9	0.8	1.3	1.05	1	11	3	15	0.49	1.7	26	-0.052	0.006	0.96	0.423	0.2	0.9	0.322	0.352	0.8	No	1658
10	261.8	CR	45	5	ML	120	51	1200	624	576	3306	3882	0.95	0.8	1.3	1.05	0.7	33	6	39	0.31	1.5	67	-0.137	0.016	0.89	0.423	-0.5	1.1	456399905422.770	613275158986.690	5.0	No	1643
15	256.8	SPT	7	5	SM	120	15	1800	936	864	3025	3889	1	0.8	1.3	1.05	1	7	3	11	0.53	1.6	19	-0.236	0.027	0.82	0.415	0.1	0.9	0.191	0.215	0.5	No	1615
20	251.8	CR	23	5	CL	120	75	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	0.7	16	6	22	0.42	1.3	34	-0.348	0.039	0.74	0.400	0.2	0.8	0.910	0.941	2.4	Yes	1573
25	246.8	SPT	37	5	SM	120	15	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	1	36	3	39	0.30	1.1	60	-0.472	0.053	0.67	0.379	-1.2	1.1	12715374	17085944	5.0	No	1518
30	241.8	CR	77	5	SM	120	15	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	0.7	51	3	54	0.22	1.0	80	-0.604	0.068	0.59	0.355	-0.3	1.1	309990071661374000000000000.000	416540863009871000000000000.000	5.0	No	1453
35	236.8	SPT	58	5	SM	120	15	4200	2184	2016	2195	4211	1	0.7	1.3	1.05	1	53	3	56	0.21	1.0	83	-0.744	0.083	0.53	0.328	-0.2	1.1	358664878783217000000000000000.000	481946332471228000000000000000.000	5.0	No	1380
40	231.8	CR	60	5	SM	120	15	4800	2496	2304	2041	4345	1	0.7	1.3	1.05	0.7	37	3	41	0.29	1.0	59	-0.888	0.099	0.46	0.300	-1.4	1.1	4452110.537	5982404.389	5.0	No	1303
45	226.8	SPT	36	1.5	SM	120	15	5400	2808	2592	1902	4494	1	0.6	1.3	1.05	1	31	3	34	0.33	0.9	49	-1.034	0.115	0.41	0.273	0.3	0.8	347.080	328.162	5.0	No	1226

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

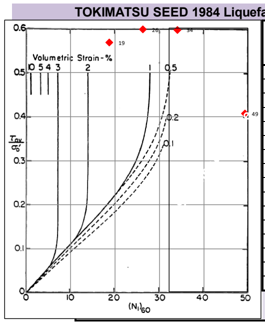
Project Title: 130 W College   Case 2: FULL PGA
Project Location: Los Angeles
Project Number: 721036101

Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	0
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
3. Historic Groundwater Approximately at 20-ft (therefore 0-ft below BOF)
4. Cn Calculated at the time of drilling as per Comment 1.C
5. BOF = Bottom of Footing
6. Sampler Correction revised per comment 1.B (SP117 5.4.5-Sampler Type)

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-}}$	CSR$_{M=7.5,\sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	0	---	-	**0.0**	-	**-**
	5	26	0.60	**1.2**	5.00	**0.7**
	10	67	0.49	**0.0**	5.00	**0.0**
	15	19	0.57	**1.9**	5.00	**1.1**
	20	34	0.60	**0.5**	5.00	**Clay**
	25	60	0.44	**0.0**	5.00	**0.0**
	30	80	0.41	**0.0**	5.00	**0.0**
	35	83	0.49	**0.0**	5.00	**0.0**
	40	59	0.45	**0.0**	5.00	**0.0**
	45	49	0.41	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.9**

√

													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,adjusted}$**	**$(N_1)_{60cs,adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	266.8	SPT	11	5	SM	120	15	600	312	288	3628	3916	0.9	0.8	1.3	1.05	1	11	3	15	0.49	1.7	26	-0.052	0.006	0.96	0.635	0.2	0.9	0.322	0.342	0.5	No	2488
10	261.8	CR	45	5	ML	120	51	1200	624	576	3306	3882	0.95	0.8	1.3	1.05	0.7	33	6	39	0.31	1.5	67	-0.137	0.016	0.89	0.635	-0.5	1.1	456399905422.770	595850032107.260	5.0	No	2464
15	256.8	SPT	7	5	SM	120	15	1800	936	864	3025	3889	1	0.8	1.3	1.05	1	7	3	11	0.53	1.6	19	-0.236	0.027	0.82	0.623	0.1	0.9	0.191	0.209	0.3	No	2421
20	251.8	CR	23	5	CL	120	75	2400	1248	1152	2778	3930	1	0.7	1.3	1.05	0.7	16	6	22	0.42	1.3	34	-0.348	0.039	0.74	0.600	0.2	0.8	0.910	0.915	1.5	Yes	2357
25	246.8	SPT	37	5	SM	120	15	3000	1560	1440	2560	4000	1	0.7	1.3	1.05	1	36	3	39	0.30	1.1	60	-0.472	0.053	0.66	0.568	-1.2	1.1	12715374	16600477	5.0	No	2274
30	241.8	CR	77	5	SM	120	15	3600	1872	1728	2367	4095	1	0.7	1.3	1.05	0.7	51	3	54	0.22	1.0	80	-0.604	0.068	0.59	0.531	-0.3	1.1	3099900716613740000000000000.000	########################	5.0	No	2175
35	236.8	SPT	58	5	SM	120	15	4200	2184	2016	2195	4211	1	0.7	1.3	1.05	1	53	3	56	0.21	1.0	83	-0.744	0.083	0.52	0.490	-0.2	1.1	##################################	########################	5.0	No	2065
40	231.8	CR	60	5	SM	120	15	4800	2496	2304	2041	4345	1	0.7	1.3	1.05	0.7	37	3	41	0.29	1.0	59	-0.888	0.099	0.46	0.449	-1.4	1.1	4452110.537	5812424.970	5.0	No	1949
45	226.8	SPT	36	1.5	SM	120	15	5400	2808	2592	1902	4494	1	0.6	1.3	1.05	1	31	3	34	0.33	0.9	49	-1.034	0.115	0.41	0.408	0.3	0.8	347.080	318.838	5.0	No	1832

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

ATTACHMENT D

ACTIVE EARTH PRESSURES - LIMIT EQUILIBRIUM ANALYSIS (DM 7.1)

CASE 1 - Sample LB-1 / S-5

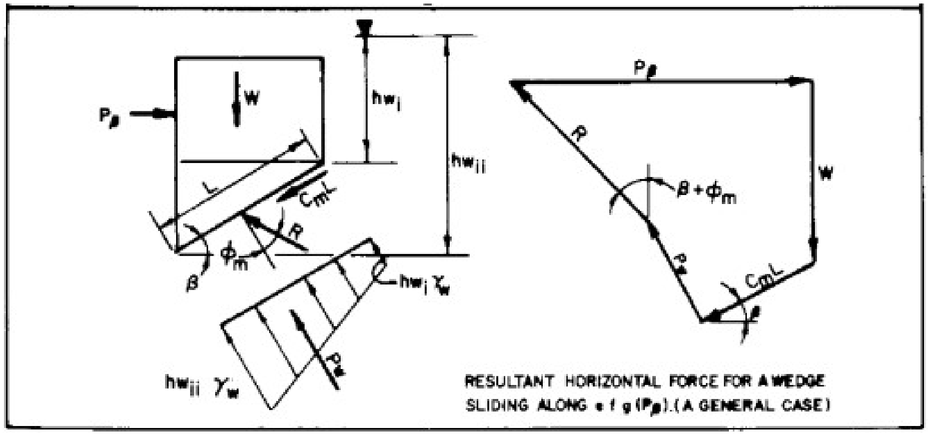


FIGURE 6
Stability Analysis of Translational Failure

GIVEN:

Soil Parameters

Unit weight $\gamma := 111.7 \ \frac{lb}{ft^3}$

Cohesion $c := 100 \ \frac{lb}{ft^2}$

Friction angle $\phi := 39 \ deg$

Backfill Slope Angle $\beta := 0 \ deg$

Retaining Wall Parameters

Wall height $H := 20 \ ft$

Factor of safety $FS := 1.5$

CALCULATIONS:

Mobilized parameters $c_m := \frac{c}{FS} = 66.7 \ \frac{lb}{ft^2}$ $\phi_m := \operatorname{atan}\left(\frac{\tan(\phi)}{FS}\right) = 28.4 \ deg$

Failure surface parameters $\alpha := 45 \ deg + \frac{\phi_m}{2} = 59.2 \ deg$

$L := \frac{H \cdot \sin(90 \ deg + \beta)}{\sin(\alpha - \beta)} = 23.3 \ ft$ $W := \frac{H}{2} \left(\frac{H \cdot \sin(90 \ deg - \alpha) \cdot \cos(\beta)}{\sin(\alpha - \beta)}\right) \cdot \gamma = 13327 \ \frac{lb}{ft}$

$$R_y := W = 13327.2\ \frac{lb}{ft}$$

$$R_x := R_y \cdot \tan\left(\alpha - \phi_m\right) = 7950.5\ \frac{lb}{ft}$$

Resultant horizontal force for an active wedge along potential sliding surface

$$P_A := R_x - c_m \cdot L \cdot \cos\left(\alpha\right) = 7155.1\ \frac{lb}{ft}$$

Equivalent fluid pressure

$$EFP := \frac{P_A}{\frac{H^2}{2}} = 36\ \frac{lb}{ft^3}$$

ACTIVE EARTH PRESSURES - LIMIT EQUILIBRIUM ANALYSIS (DM 7.1)

CASE 1 - Sample LB-3 / S-9

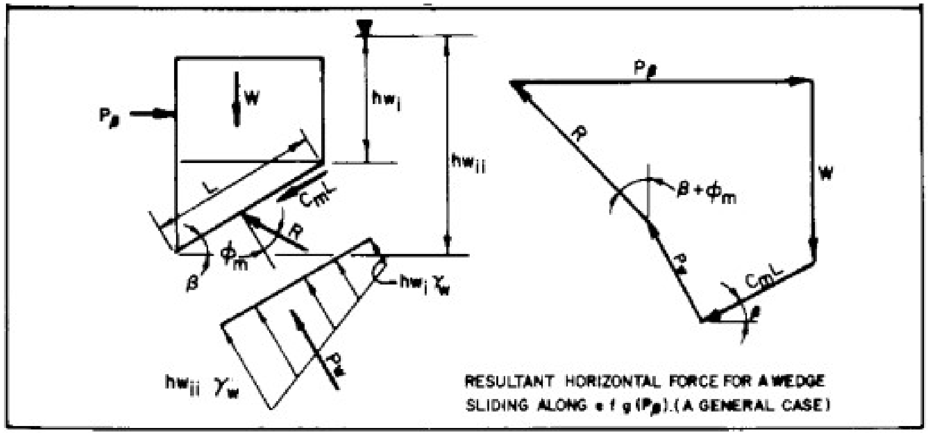


FIGURE 6
Stability Analysis of Translational Failure

GIVEN:

Soil Parameters

Unit weight $\gamma := 89.2 \frac{lb}{ft^3}$

Cohesion $c := 350 \frac{lb}{ft^2}$

Friction angle $\phi := 27\ deg$

Backfill Slope Angle $\beta := 0\ deg$

Retaining Wall Parameters

Wall height $H := 20\ ft$

Factor of safety $FS := 1.5$

CALCULATIONS:

Mobilized parameters $c_m := \frac{c}{FS} = 233.3 \frac{lb}{ft^2}$ $\phi_m := \operatorname{atan}\left(\frac{\tan(\phi)}{FS}\right) = 18.8\ deg$

Failure surface parameters $\alpha := 45\ deg + \frac{\phi_m}{2} = 54.4\ deg$

$$L := \frac{H \cdot \sin(90\ deg + \beta)}{\sin(\alpha - \beta)} = 24.6\ ft \qquad W := \frac{H}{2}\left(\frac{H \cdot \sin(90\ deg - \alpha) \cdot \cos(\beta)}{\sin(\alpha - \beta)}\right) \cdot \gamma = 12781 \frac{lb}{ft}$$

$$R_y := W = 12781.2\ \frac{lb}{ft}$$

$$R_x := R_y \cdot \tan\left(\alpha - \phi_m\right) = 9156.9\ \frac{lb}{ft}$$

Resultant horizontal force for an active wedge along potential sliding surface

$$P_A := R_x - c_m \cdot L \cdot \cos\left(\alpha\right) = 5813.5\ \frac{lb}{ft}$$

Equivalent fluid pressure

$$EFP := \frac{P_A}{\frac{H^2}{2}} = 29\ \frac{lb}{ft^3}$$

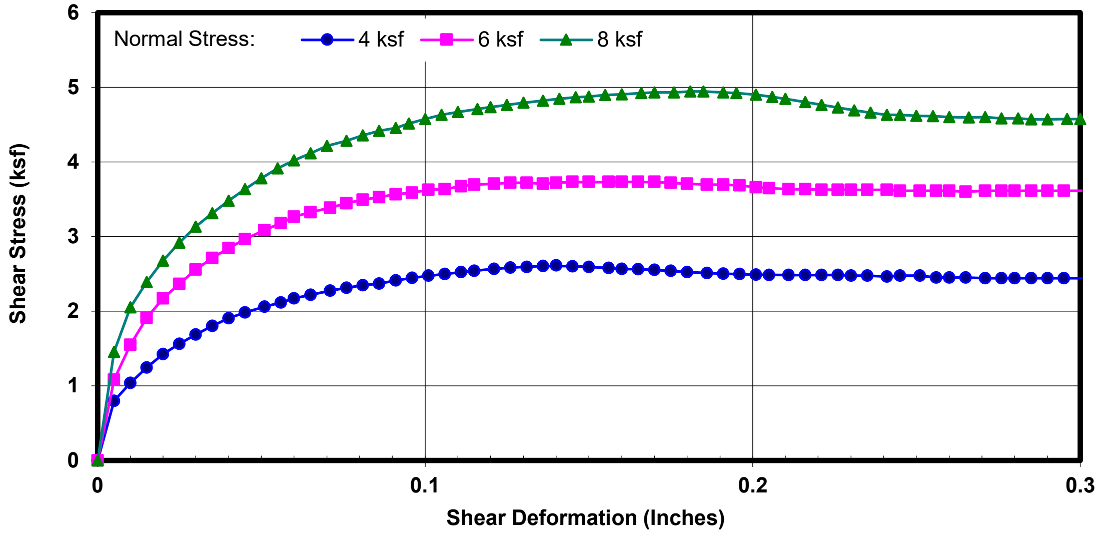
AP Engineering and Testing, Inc.
DBE|MBE|SBE
2607 Pomona Boulevard | Pomona, CA 91768
t. 909.869.6316 | f. 909.869.6318 | www.aplaboratory.com

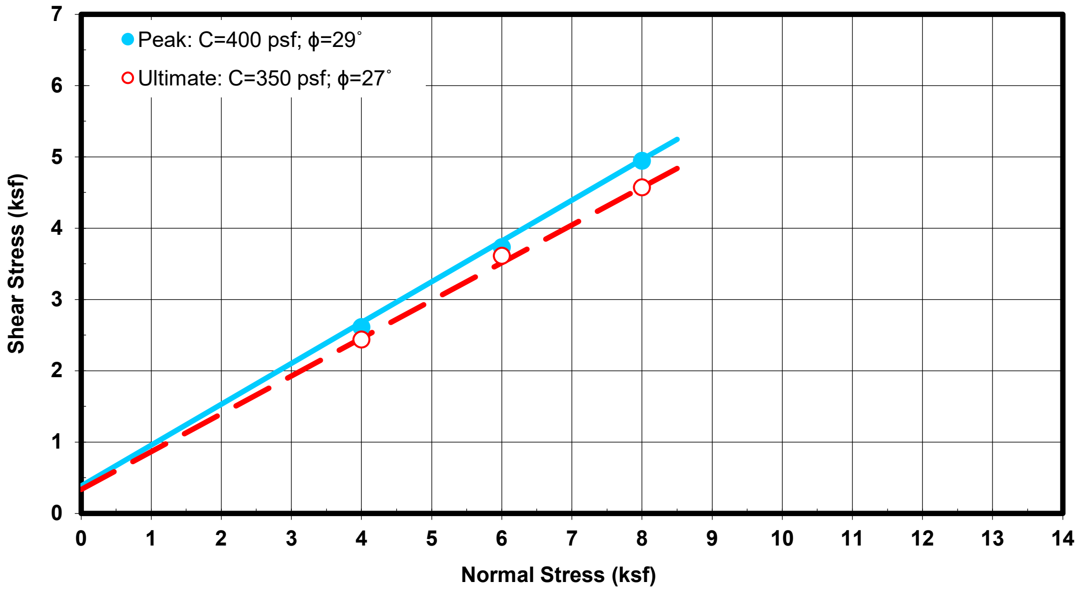
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-3
Sample No.: S-9 **Depth (ft):** 35
Sample Type: Mod. Cal.
Soil Description: Clay w/sand
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/24/22
Computed By: NR **Date:** 10/25/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.0	89.2	30.0	33.0	91	100	4	2.611	2.440
						6	3.732	3.612
						8	4.944	4.572





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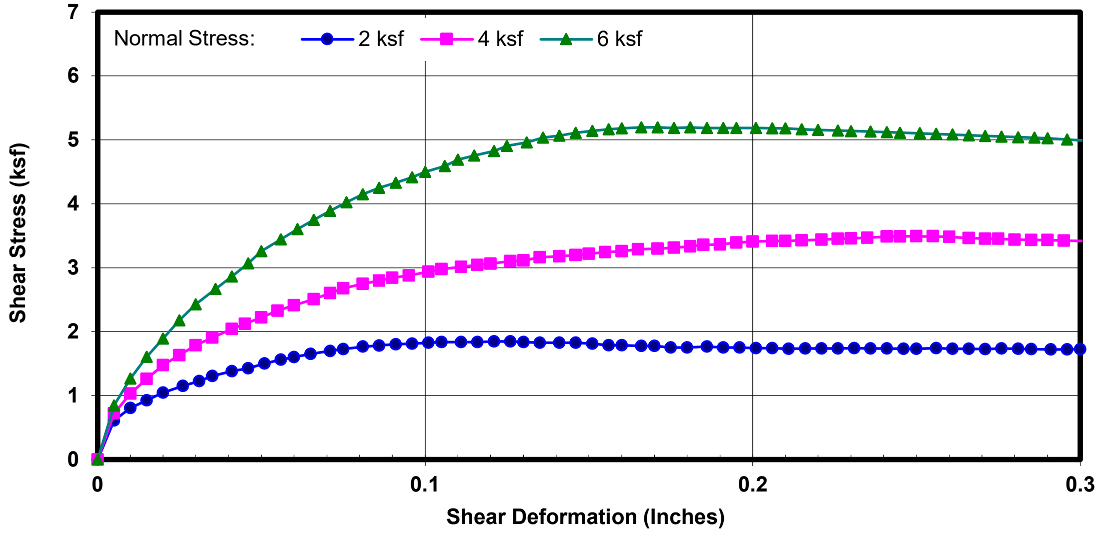
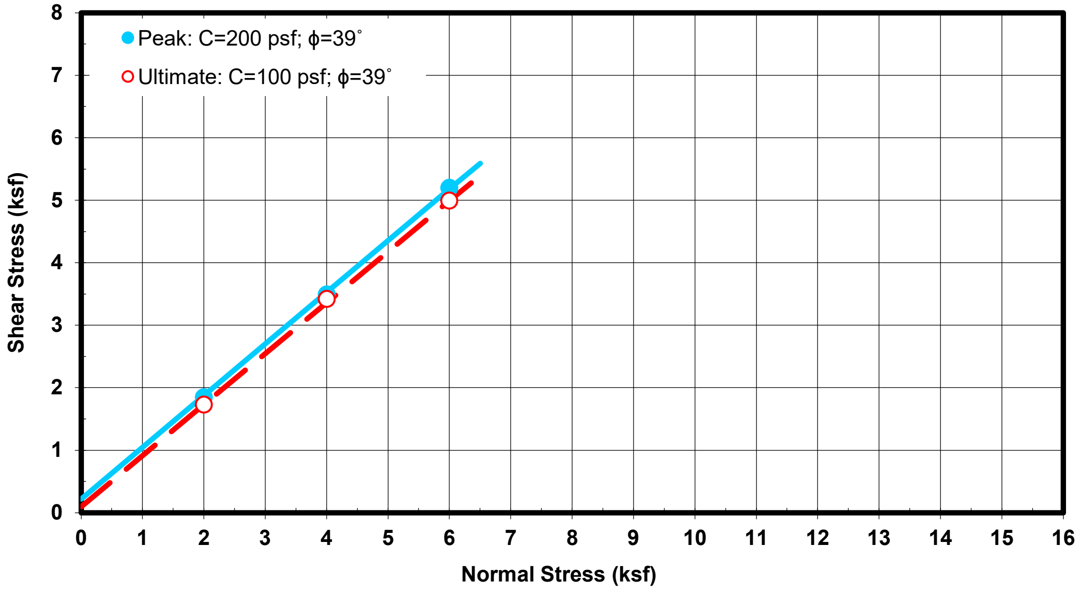
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-1
Sample No.: S-5 **Depth (ft):** 20
Sample Type: Mod. Cal.
Soil Description: Silty Sand w/gravel
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/21/22
Computed By: NR **Date:** 10/24/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.5	111.7	4.3	16.8	23	89	2	1.848	1.728
						4	3.492	3.420
						6	5.198	4.993





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

JOHN WEIGHT
EXECUTIVE OFFICER

SOILS REPORT REVIEW LETTER

September 6, 2023

LOG # 125167-01
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT:	FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S):	D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION:	130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	08/07/2023	LANGAN

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Dept. Review Letter	125167	03/30/2023	LADBS
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure on mat-type foundations bearing on native undisturbed 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:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. Revise liquefaction analyses to address the following items:
    a. Provide justification and appropriate laboratory testing for all layers, including clay layers, considered non-potentially liquefiable (based on the screening criteria followed by the consultant) to substantiate such argument.

        Note: The Department requires that the criteria for soils "not susceptible" to liquefaction be demonstrated. The soils considered "not susceptible" to liquefaction are soils with a PI >= 18 that are not sensitive or soils having a saturated moisture content <= 80% of the liquid limit.
    b. The consultants used a factor of 0.8 to convert the Cal Mod N-values to SPT N-values. However, this value is not supported by CGS Special Publication 117 (i.e. SP 117A), Guidelines for Evaluating and Mitigating Seismic Hazards in California (Section 5.4.5). Revise conversion factor accordingly.
    c. Calculate the overburden correction factor, CN, based on the conditions encountered at the time the SPT testing was conducted (i.e., depth below ground surface and ground water elevation at the time of drilling).
    d. Calculate the seismic demand on the soil layer or cyclic stress ratio, CSR based on the historically highest ground water level.
2. The consultants used a friction angle of 39 degrees for basement wall lateral earth pressure calculation. However, the upper soils consist of sands (sand, silt/sand) and clays. The direct shear test for a clay sample shows a peak friction angle of 29 degrees. Provide lateral earth pressure recommendations for basement wall retaining clays.

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 flash drive, and the appropriate fees will be required for submittal.

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167-01
213-482-0480

cc: Charles Tan & Associates, Applicant
LANGAN, Project Consultant
LA District Office

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LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

07 August 2023

Mr. Steven J. Riboli
S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

Re: Response to Soils Report Review Letter
Log # 125167
Tract M R 72-75/76
130, 114, 110 W College Street
Langan Project No. 721036101

Dear Mr. Riboli:

We are providing this response to the Soils Report Review Letter dated 17 February 2023, Log #125167 issued by the City of Los Angeles (City) Grading Division received via email on 04 April 2023. Our responses to geotechnical related items are below. A copy of the City's review letter is provided in Attachment A.

The presented liquefaction analysis has been updated to take into account a 20-foot excavation for the proposed development based on the latest information provided by Granite Properties on the document titled, "130 College Standalone PD No Graphics" dated May 2023. Previous our analysis showed a 13-foot excavation as proposed however the updated analysis reflects the current design of the subterranean parking level would extend to a depth of approximately 20 feet below ground surface.

Comment 1: *Revise liquefaction analysis to address the following items*

a) *Provide justification and appropriate laboratory testing for all layers considered non-potential liquefiable*
b) *The consultant used blow counts from California Modified samplers with no reduction. Provide conversion factors to correlate the California Mod N-values to SPT N-values. Revise liquefaction analysis accordingly*
c) *Provide liquefaction analysis for all borings where N-Values are available. The most critical seismic settlement should be used in the foundation design*
d) *Provide detailed printouts of the liquefaction analyses showing the* C_N, r_d, *overburden pressure for the corrected N Values, MSF,* K_σ *and settlement calculation.*

Response:

a) In our liquefaction analysis the only layers that are considered as non-potential liquefiable are the clay layers. Silt layers were found to have a PI of < 18, so were considered potentially liquefiable for this analysis. Laboratory test results and updated boring logs are included in attachment B.
b) The analyses have been updated to account for the reduction. Refer to attachment C for the conversion factors used to correlate the California Mod N-values to SPT N-values.

c) Refer to Attachment C for the liquefaction analysis for all borings where N-Values are available and their respective print out calculations (LB 1 through LB-4). Analyses were performed to meet the information bulletin PB/C 2020-151 "Liquefaction Analysis Guidelines". The full PGA_M analysis most critical was LB-1, a settlement of about 2.0 inches is expected for a full PGA_M of 0.947g, and a Mw 6.85 for a 2475-Year Return Period. The two-thirds of the PGA_M analysis most critical were LB-1 and LB-4, both with a settlement of about 1.7 inches for a two-thirds PGA_M of 0.631g, and a Mw 6.74 for a 475-Year Return Period. The detailed printouts of the liquefaction analyses for the most critical case are shown in Attachment C.

Additionally, since Cone Penetration tests were performed at the Site during our field investigation. Langan utilized the CPTs to verify liquefaction hazard. To evaluate the liquefaction potential at the Site, we utilized the Boulanger and Idriss (2014) method in the computer program *CLiq*. The reference boring for the CLiq analysis used was LB-4. For the analysis we show a factor of safety (FS) of 1.1 and 1.0 and Design Peak Ground Acceleration (Two-Thirds-PGA_M) of 0.690g and (Full PGA_M) of 0.947g as the criteria for determining zones that are potentially liquefiable, and a Mw 6.74 and Mw 6.85 for a 475- and 2475-Year Return period. The most critical settlement analysis indicates a settlement of up to 1.7 inches is expected for a full PGAm of 0.947g, and a Mw 6.85 for a 2475 Year Return Period.

d) The results for this analysis, including detailed printouts of the liquefaction analyses showing the C_N, r_d, overburden pressure for the corrected N Values, MSF, K_s and settlement calculation are shown in attachment C.

Comment 2: *Storm water infiltration is not allowed on any site where the water may saturate soils that are subject to liquefaction, and the total and differential settlement (static and seismic) is greater than 1.5 inches and 0.75 inches, respectively. If onsite infiltration is proposed, liquefaction analysis shall be provided assuming the design groundwater table at the proposed level of infiltration. Clearly indicate if the onsite infiltration is recommended.*

Response: As we understand, on-site storm water infiltration is not proposed at this project.

Comment 3: *In the event on-site infiltration is proposed, provide an evaluation according to Information Bulletin P/BC 2020-118.*

Response: As we understand, on-site storm water infiltration is not proposed at this project.

Comment 4: *Revise the retaining wall calculations and recommendations to address the following items:*

a) Indicate why a friction angle of 39 degrees was used.
b) Revise the unit weight used in the equivalent fluid pressure calculation. Alternatively, provide justification for using a value of 110 PCF.

Response:

a) A friction angle of 39 degrees was used as indicated by the direct shear test result from Sample LB-1/S-5.

b) Based on the laboratory result of Sample LB-1/S-5 a unit weight of 110-pounds-per-cubic-foot was used in the equivalent fluid pressure calculation. The laboratory results are shown in Attachment B.

Please contact us if you have any questions regarding this letter.

Sincerely,
Langan Engineering and Environmental Services, Inc.

Diane M. Fiorelli

DIANE M FIORELLI
No. GE 3042
exp 6/30/25

Enrique Riutort, PE
Senior Project Engineer

Diane M. Fiorelli, PE, GE
Principal/Vice President
GE# 3042

Enclosure(s): Attachment A – Copy of Soils Report Review Letter, Log # 125167
Attachment B – Boring Logs and Laboratory Results
Attachment C – Liquefaction Results

ATTACHMENT A

CITY OF LOS ANGELES
CALIFORNIA

BOARD OF
BUILDING AND SAFETY
COMMISSIONERS

JAVIER NUNEZ
PRESIDENT

ELVIN W. MOON
VICE PRESIDENT

JOSELYN GEAGA-ROSENTHAL
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KAREN BASS
MAYOR

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

March 30, 2023

LOG # 125167
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT: FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S): D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION: 130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure(s) on mat-type foundations bearing on native undisturbed 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:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. Revise liquefaction analyses to address the following items:
    a. Provide justification and appropriate laboratory testing for all layers considered non-potentially liquefiable (based on the screening criteria followed by the consultant) to substantiate such argument.

       Note: The Department requires that the criteria for soils "not susceptible" to liquefaction be demonstrated. The soils considered "not susceptible" to liquefaction are soils with a PI >= 18 that are not sensitive or soils having a saturated moisture content <= 80% of the liquid limit.
    b. The consultants used blow counts from California Modified samplers with no reduction. Provide conversion factor to correlate the Cal Mod N-values to SPT N-values. Revise liquefaction analyses accordingly.
    c. Provide liquefaction analyses for all borings where N-values are available. The most critical seismic settlement shall be used for the foundation design.
    d. Provide detailed printouts of the liquefaction analyses showing the C_N (overburden correction factor), r_d (stress reduction coefficient), overburden pressure, the corrected N values, MSF (magnitude scaling factor), $K\sigma$ (confining stress correction factor) and settlement calculation.

2. Storm water infiltration is not allowed on any site where the water may saturate soils that are subject to liquefaction, and the total and differential settlement (static and seismic) is greater than 1.5 inches and 0.75 inches, respectively. If onsite infiltration is proposed, liquefaction analyses shall be provided assuming the design ground water table (i.e., the ground water during an earthquake) at the proposed level of infiltration. Clearly indicate if the onsite infiltration is recommended.

3. In the event on-site infiltration is proposed, provide an evaluation on the following items (please refer to Information Bulletin P/BC 2020-118, which can be downloaded from our web site www.ladbs.org):
    a. Potential on creating perched ground water conditions.
    b. Presence of potential expansive soils and/or susceptibility for hydroconsolidation.
    c. Influence of the proposed infiltration system on adjacent proposed/existing foundations and retaining walls.
    d. The "Time Interval" shown on Percolation Test Data sheets is 10 minutes for each trial. However, based on the "Time of Measurement", each trial appears to last 5 minutes. Revise the calculations accordingly.

4. Revise the retaining wall calculations and recommendations to address the following items:
    a. Indicate why a friction angle of 39 degrees was used? The upper soils consist of sand (LB-1), silt/sand (LB-2), clay (LB-3) and silt/sand (LB-4).
    b. Revise the unit weight used in the equivalent fluid pressure calculation. Alternatively, provide justification for using a value of 110 PCF.

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 flash drive, and the appropriate fees will be required for submittal.

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167
213-482-0480

cc: LANGAN, Project Consultant
LA District Office

CITY OF LOS ANGELES
DEPARTMENT OF BUILDING AND SAFETY
Grading Division

District LA | Log No. 125167

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.

1. LEGAL DESCRIPTION
Tract: FREIGHT DEPOT TRACT
Block: Lots: FR D

2. PROJECT ADDRESS:
130 West College, Los Angeles, California

3. OWNER: S&R Partners, LLC
Address: 737 Lamar Street
City: Los Angeles Zip: 90031
Phone (Daytime):

4. APPLICANT Langan
Address: 18575 Jamboree Road, Suite 150
City: Irvine Zip: 92612
Phone (Daytime): 949-561-9200
E-mail address: eriutort@langan.com; awei@langan.com

5. Report(s) Prepared by: Langan

6. Report Date(s): 17 February 2023

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)

9. Previous Department actions? ☐ YES if yes, provide dates and attach a copy to expedite processing.
Dates:

10. Applicant Signature: Position: Principal/Vice President

(DEPARTMENT USE ONLY)

REVIEW REQUESTED	FEES	REVIEW REQUESTED		FEES
☒ Soils Engineering	363.00	No. of Lots		
☐ Geology		No. of Acres		
☐ Combined Soils Engr. & Geol.		☐ Division of Land		
☐ Supplemental		Other		
☐ Combined Supplemental		☒ Expedite		181.50
☐ Import-Export Route		☐ Response to Correction		
Cubic Yards:		☐ Expedite ONLY		
		Sub-total		544.50
		Surcharge		129.80
		TOTAL FEE		674.30

Fee Due: 674.30
Fee Verified By: AM Date: 2/27/23
(Cashier Use Only)

Receipt # 1530989

Paid on 3/7/23

ACTION BY:

THE REPORT IS: ☐ NOT APPROVED

☐ APPROVED WITH CONDITIONS ☐ BELOW ☐ ATTACHED

For Geology Date

For Soils Date

ATTACHMENT B

LANGAN Log of Boring **LB-1** Sheet 1 of 2

Project	Creative Workplace Development	Project No.	721036103
Location	130 West College Street	Elevation and Datum	291.8
Drilling Company	Martini Drilling	Date Started	10/15/2022
		Date Finished	10/15/2022
Drilling Equipment	CME 75	Completion Depth	66.5 ft
		Rock Depth	---
Size and Type of Bit	6in O.D. Hollow Stem Auger	Number of Samples	Disturbed 14 Undisturbed --- Core ---
Casing Diameter (in)	---	Water Level (ft.)	First ▽ 24.4 Completion ▼ --- 24 HR. ▼ ---
Casing Depth (ft)	---	Drilling Foreman	Jeff Frazer
Casing Hammer	---	Field Engineer	Khoa Tran
Weight (lbs)	---		
Drop (in)	---		
Sampler	2-inch O.D. split spoon; 3-inch O.D Cal Mod; Bulk		
Sampler Hammer	Automatic		
Weight (lbs)	140		
Drop (in)	30		

Elev. (ft)	Sample Description	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+291.8	Asphalt 4 inches and Aggregate Base 6 inches.						
+291.0	Dark brown, clayey SAND, trace fine gravel, (SC), moist.						
+287.8	Medium dense, brown, fine to medium coarse silty SAND, trace fine gravel, (SM), moist.	S-1	CR	10	8 9 9	18	
	Medium dense, yellow-brown, fine to coarse SAND, trace silt, fine to corase gravel, (SM), moist.	S-2	CR	10	11 9 5	14	
	Very dense, white-brown, fine to coarse SAND, some silt, fine to coarse gravel, (SM), moist.	S-3	CR	10	11 31 39	70	
	Very dense, yellow-brown, fine to coarse SAND, some silt, trace fine gravel, (SM), moist.	S-4	SPT	9	22 50/3	50/3	
	Top: very dense, yellow-brown, fine to coarse SAND, some silt, trace fine gravel, (SM), moist. Bottom: very dense, dark bluish-gray, fine to coarse SAND, some silt, fine to coarse gravel, (SM), moist.	S-5	CR	18	18 37 41	78	
	▽						
	Dense, gray, fine to coarse SAND, some silt, (SM), wet.	S-6	SPT	18	7 15 17	32	
	Dense, gray, fine to coarse SAND, some silt, (SM), wet.	S-7	CR	10	42 50/4	50/4	
+258.8							

Depth Scale: 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 35

N-Value (Blows/ft): 10 20 30 40

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Log of Boring **LB-1** Sheet 2 of 2

Project	Project No.
Creative Workplace Development	721036103
Location	**Elevation and Datum**
130 West College Street	291.8

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	256.8	Stiff, dark gray, SILT, some fine to medium sand, trace clay, (ML), wet.	35 36 38	S-8	SPT	18	3 4 6	10	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, strong odor, (ML), wet.	40 42 44	S-9	CR	10	2 3 4	7	
	246.8	Stiff, dark gray, fine to medium sandy CLAY, trace silt, (CL), wet.	46 48	S-10	SPT	17	1 3 5	8	
	241.8	Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	50 52 54	S-11	CR	18	9 18 27	45	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	56 58	S-12	SPT	18	3 7 12	19	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	60 62 64	S-13	CR	18	7 17 37	54	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	66	S-14	SPT	18	6 14 20	34	
	225.3	End boring at 66.5 feet. Groundwater encountered at 24.5 feet. Boring backfilled with grout.	68 70 72 74 76 78						

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Log of Boring **LB-2** Sheet 1 of 2

Project Creative Workplace Development	Project No. 721036103
Location 130 West College Street	Elevation and Datum 294
Drilling Company Martini Drilling	Date Started 10/04/2022 Date Finished 10/05/2021
Drilling Equipment CME 75	Completion Depth 51.5 ft Rock Depth ---
Size and Type of Bit 6in O.D. Hollow Stem Auger	Number of Samples: Disturbed 11; Undisturbed ---; Core ---
Casing Diameter (in) --- Casing Depth (ft) ---	Water Level (ft.): First ▽ 27; Completion ▼ ---; 24 HR. ▼ ---
Casing Hammer --- Weight (lbs) --- Drop (in) ---	Drilling Foreman Jeff Frazer
Sampler 2-inch O.D. split spoon; 3-inch O.D Cal Mod	
Sampler Hammer Automatic Weight (lbs) 140 Drop (in) 30	Field Engineer Khoa Tran

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+294.0	Asphalt 4 inches and Aggregate Base 6 inches.						
	+293.2	Dark brown, silty fine to medium SAND, some gravel, (SM), brikes and asphalt debris, moist. [FILL]						
	+288.9	Soft, brown, fine to medium sandy SILT, (ML), moist.	S-1	SPT	18	1 1 2	3	
		Stiff, brown, fine to medium sandy SILT, (ML), moist.	S-2	CR	10	5 5 6	11	
	+284.5	Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	S-3	SPT	10	8 9 15	24	
		Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	S-4	CR	10	16 31 36	67	
		Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	S-5	SPT	12	24 29 18	47	
	+271.0	Stiff, gray, SILT, some fine sand, low plasticity, (ML), wet. ▽	S-6	CR	16	4 4 5	9	
	+266.0							

Depth Scale: 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

N-Value scale: 10 20 30 40

\\LANGAN.COM\DATA\LAX\DATA1\721036101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\721036101_LB1-4.GPJ ... 8/3/2023 12:30:56 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **LB-2** Sheet 2 of 2

Project Creative Workplace Development	Project No. 721036103
Location 130 West College Street	Elevation and Datum 294

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
264.0	Dense, Bluish-gray, silty fine to medium SAND, trace fine gravel, (SM), wet.	30	S-7	SPT	18	11 11 8	19	
	Dense, Bluish-gray, silty fine to medium SAND, trace fine gravel, (SM), wet.	35	S-8	CR	10	10 19 13	32	
	Stiff, bluish-gray, silty SAND, trace fine silt, low plasticity, (SM), wet.	40	S-9	SPT	18	2 6 8	14	
	Very dense, bluish-gray, fine to coarse sand, trace silt, (SM), strong odor, wet.	45	S-10	CR	18	5 19 40	59	
	Very dense, bluish-gray, fine to coarse sand, trace silt, (SM), strong odor, wet.	50	S-11	SPT	15	4 7 12	19	
242.5	End boring at 51.5 feet. Groundwater encountered at 27 feet. Boring backfilled with grout.	51.5						

Depth Scale: 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 67.5

N-Value scale: 10 20 30 40

\\LANGAN.COM\DATA\LAX\DATA1\721036101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\721036101_LB1-4.GPJ ... 8/3/2023 12:30:56 PM ... Report: Log - LANGAN

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Log of Boring **LB-3** Sheet 1 of 2

Project Creative Workplace Development		Project No. 721036103	
Location 130 West College Street		Elevation and Datum 290.6	
Drilling Company Martini Drilling		Date Started 10/07/2022	Date Finished 10/07/2022
Drilling Equipment CME 75		Completion Depth 51.5 ft	Rock Depth ---
Size and Type of Bit 6in O.D. Hollow Stem Auger		Number of Samples: Disturbed 12; Undisturbed ---; Core ---	
Casing Diameter (in) ---	Casing Depth (ft) ---	Water Level (ft.): First ∇ 25.5; Completion ▼ ---; 24 HR. ▼ ---	
Casing Hammer ---; Weight (lbs) ---; Drop (in) ---		Drilling Foreman Jeff Frazer	
Sampler 2-inch O.D. split spoon; 3-inch O.D Cal Mod			
Sampler Hammer Automatic; Weight (lbs) 140; Drop (in) 30		Field Engineer Khoa Tran	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+290.6	Asphalt 5 inches and Aggregate Base 5 inches.	0						
+289.8	Dark brown, fine to coarse clayey SAND, (SC), moist. [FILL]	2						
+286.6		4						
	Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	6	S-1	SPT	18	1 2 2	4	
	Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	8	S-2	CR	10	2 3 4	7	
	Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	10	S-3	SPT	17	1 1	2	
+278.6		12						
	Dense, grayish-brown, fine to coarse SAND, some silt, trace fine to coarse gravel, (SP), moist.	14	S-4	CR	10	12 18 21	39	
	Stiff, gray, sandy SILT, (SM), low plasticity, moist.	16	S-5	CR	10	3 3 6	9	
		18						
	Medium dense, gray-brown, fine to coarse silty SAND, trace fine to coarse gravel, (SM), moist.	20	S-6	SPT	18	12 15 14	29	
		22						
		24						
	Very dense, bluish-gray, silty fine SAND, (SM), wet. ∇	26	S-7	CR	16	11 22 29	51	
		28						
		30						

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Log of Boring **LB-3** Sheet 2 of 2

Project	Project No.
Creative Workplace Development	721036103
Location	**Elevation and Datum**
130 West College Street	290.6

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	260.6	Very dense, bluish-gray, silty fine SAND, (SM), wet.	30	S-8	SPT	18	3 7 17	24	
			32						
	257.6								
			34						
		Very stiff, bluish gray, CLAY, trace fine sand, (CL), wet.	36	S-9	CR	18	3 7 9	16	
	252.6		38						
		Medium dense, bluish-gray, clayey SAND, trace fine gravel, high plasticity clay, (SC), wet.	40	S-10	SPT	18	1 3 11	14	
			42						
			44						
		Dense, bluish-gray, clayey fine to coarse SAND, some fine to coarse gravel, high plasticity clay, (SC), wet.	46	S-11	CR	18	9 22 26	48	
	242.6		48						
		Very stiff, bluish-gray, fine sandy CLAY, low plasticity, trace fine gracel, (CL), wet.	50	S-12	SPT	18	4 12 15	27	
	239.1	End boring at 51.5 feet. Groundwater encountered at Boring backfilled with grout.	52						
			54						
			56						
			58						
			60						
			62						
			64						
			66						
			67.5						

Project	Creative Workplace Development	Project No.	721036103
Location	130 West College Street	Elevation and Datum	292.8
Drilling Company	Martini Drilling	Date Started	10/07/2022
		Date Finished	10/07/2022
Drilling Equipment	CME 75	Completion Depth	66.5 ft
		Rock Depth	---
Size and Type of Bit	6in O.D. Hollow Stem Auger	Number of Samples	Disturbed 14; Undisturbed ---; Core ---
Casing Diameter (in)	---	Casing Depth (ft)	---
Water Level (ft.)	First ▽ 27.2; Completion ▼ ---; 24 HR. ▼ ---	Drilling Foreman	Jeff Frazer
Casing Hammer	---	Weight (lbs) ---	Drop (in) ---
Sampler	2-inch O.D. split spoon; 3-inch O.D Cal Mod; Bulk	Field Engineer	Khoa Tran
Sampler Hammer	Automatic	Weight (lbs) 140	Drop (in) 30

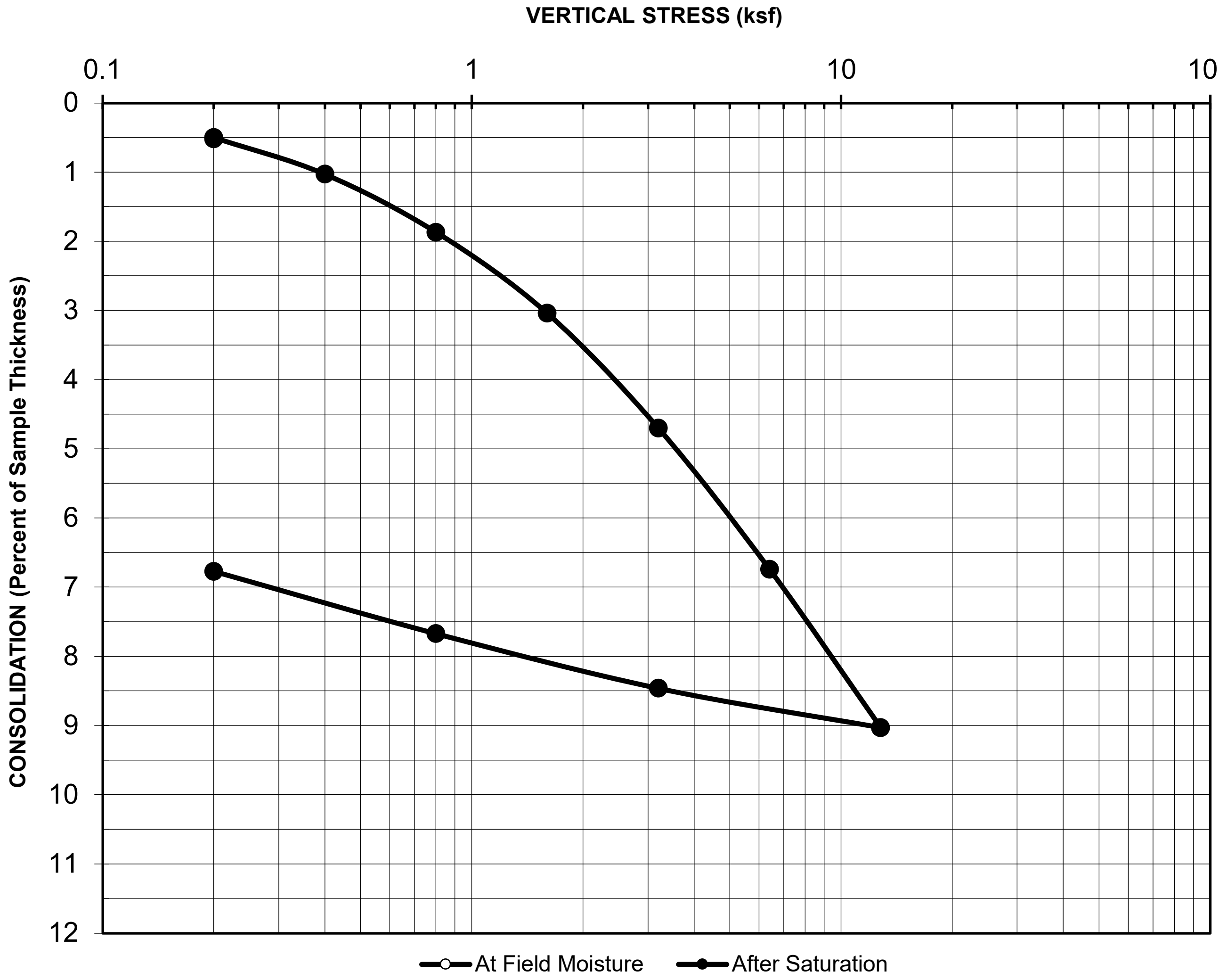
Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+292.8								
+292.0	Asphalt 5 inches and Aggregate Base 5 inches.	0						
	Redish-brown, fine to medium sandy SILT, (ML), moist.	2						Bulk sample from 0 - 5 feet.
		4						
	Medium stiff, brown, fine to medium sandy SILT, (ML), moist.	6	S-1	CR	10	3 3 4	7	
	Soft, brown, fine to medium sandy SILT, (ML), moist.	8	S-2	SPT	18	1 1 2	3	
+283.8								
	Dense, whitish-brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, trace fine to coarse gravel, (SM), moist.	10	S-3	CR	18	3 12 22	34	
		12						
		14						
	Medium dense, light brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, (SM), wet.	16	S-4	SPT	16	3 12 14	26	
		18						
	Dense, light brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, (SM), wet.	20	S-5	CR	18	7 13 21	34	
		22						
		24						
	Medium stiff, greyish-brown, silty SAND, fine silt, (SM), moist.	26	S-6	SPT	18	1 2 3	5	
	▽							
+264.8		28						
	Medium stiff, greyish-brown, sandy SILT, fine sand, (ML), wet.	30	S-7	CR	16	3 5 40	45	
		32						
+259.8								
		34						
		35						

LANGAN

Log of Boring **LB-4** Sheet 2 of 2

Project Creative Workplace Development	Project No. 721036103
Location 130 West College Street	Elevation and Datum 292.8

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Sample Data: Type	Sample Data: Recov. (in)	Sample Data: Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
⁙	+257.8	Medium stiff, bluish-gray, silty SAND, trace fine silt, (SM), wet.	35 36	S-8	SPT	17	2 3 4	7	
▨	+254.8	Very stiff, bluish-gray, CLAY, trace fine sand, high plasticity, (CL), strong odor, wet.	38 40 42	S-9	CR	16	6 10 13	23	
⁙	+248.8	Dense, bluish-gray, fine to coarse SAND, some silt, trace fine gravel, (SM), strong odor, wet.	44 46 48	S-10	SPT	10	5 16 21	37	
⁙		Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	50 52 54	S-11	CR	10	19 34 43	77	
⁙		Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	56 58	S-12	SPT	16	13 30 28	58	
⁙		Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	60 62 64	S-13	CR	11	4 50/5	50/5	
⁙		Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	66	S-14	SPT	18	23 18 18	36	
	+226.3	End boring at 66.5 feet. Groundwater encountered at 27 feet. Boring backfilled with grout.	68 70 72 74 76 78						

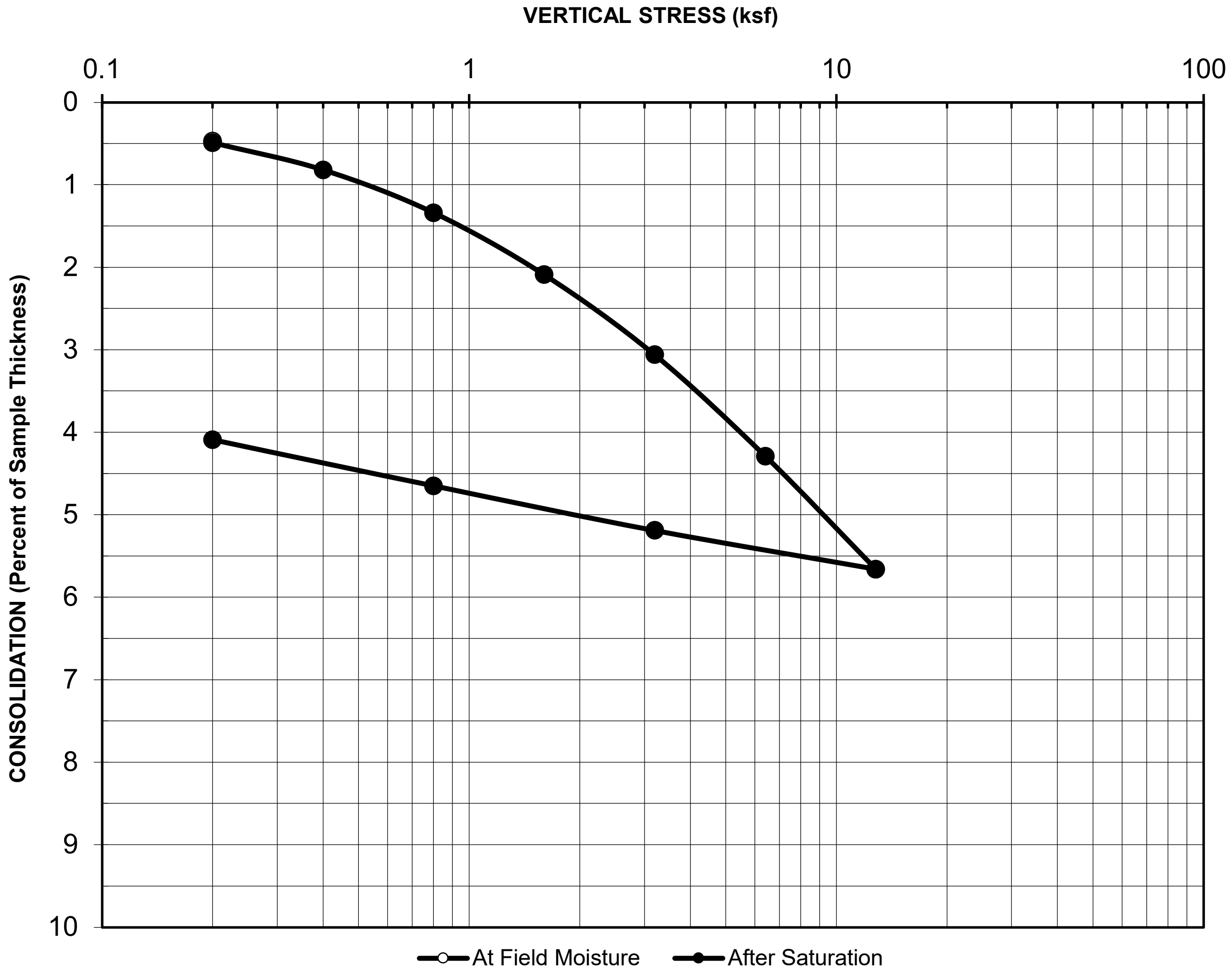


Boring No. : LB-1
Sample No.: S-9
Depth (feet): 40
Sample Type: Mod Cal
Soil Description: Sandy Clay
Remarks: Swell= 0.02% upon inundation

Initial Dry Unit Weight (pcf): 94.6
Initial Moisture Content (%): 26.1
Final Moisture Content (%): 27.5
Assumed Specific Gravity: 2.7
Initial Void Ratio: 0.78

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street
Project No.: 721036101
Date: 10/20/2022
AP No: 22-1039 **Sheet No:** 1

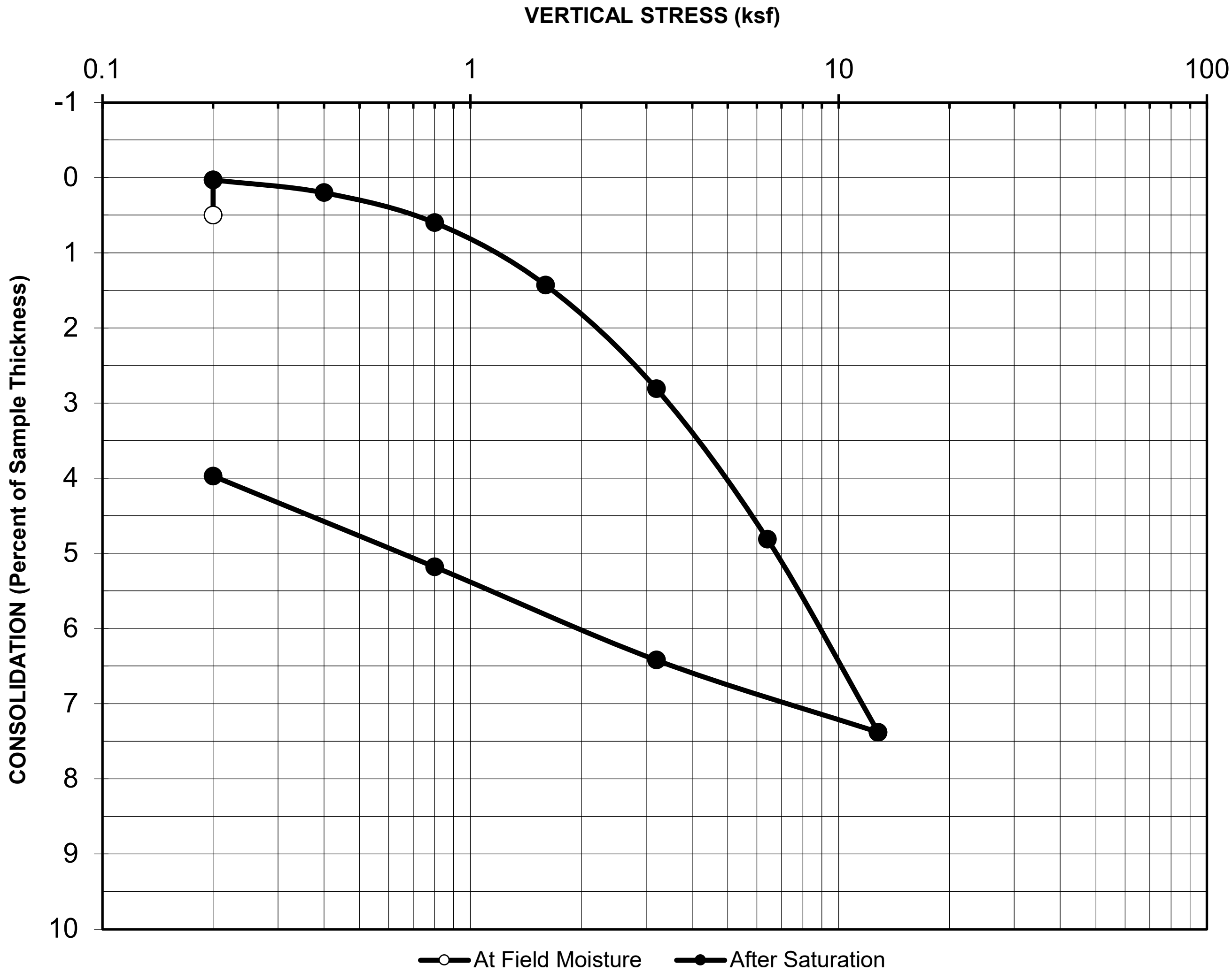


Boring No. : LB-2
Sample No.: S-6
Depth (feet): 25
Sample Type: Mod Cal
Soil Description: Silty Sand
Remarks: Collapse= 0.02% upon inundation

Initial Dry Unit Weight (pcf): 100.6
Initial Moisture Content (%): 24.6
Final Moisture Content (%): 24.7
Assumed Specific Gravity: 2.7
Initial Void Ratio: 0.67

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street
Project No.: 721036101
Date: 10/20/2022
AP No: 22-1039 **Sheet No:** 1



Boring No. : LB-3

Sample No.: S-9

Depth (feet): 35

Sample Type: Mod Cal

Soil Description: Clay w/sand

Remarks: Swell= 0.47% upon inundation

Initial Dry Unit Weight (pcf): 90.8

Initial Moisture Content (%): 30.0

Final Moisture Content (%): 31.8

Assumed Specific Gravity: 2.7

Initial Void Ratio: 0.86

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street

Project No.: 721036101

Date: 10/20/2022

AP No: 22-1039 **Sheet No:** 1

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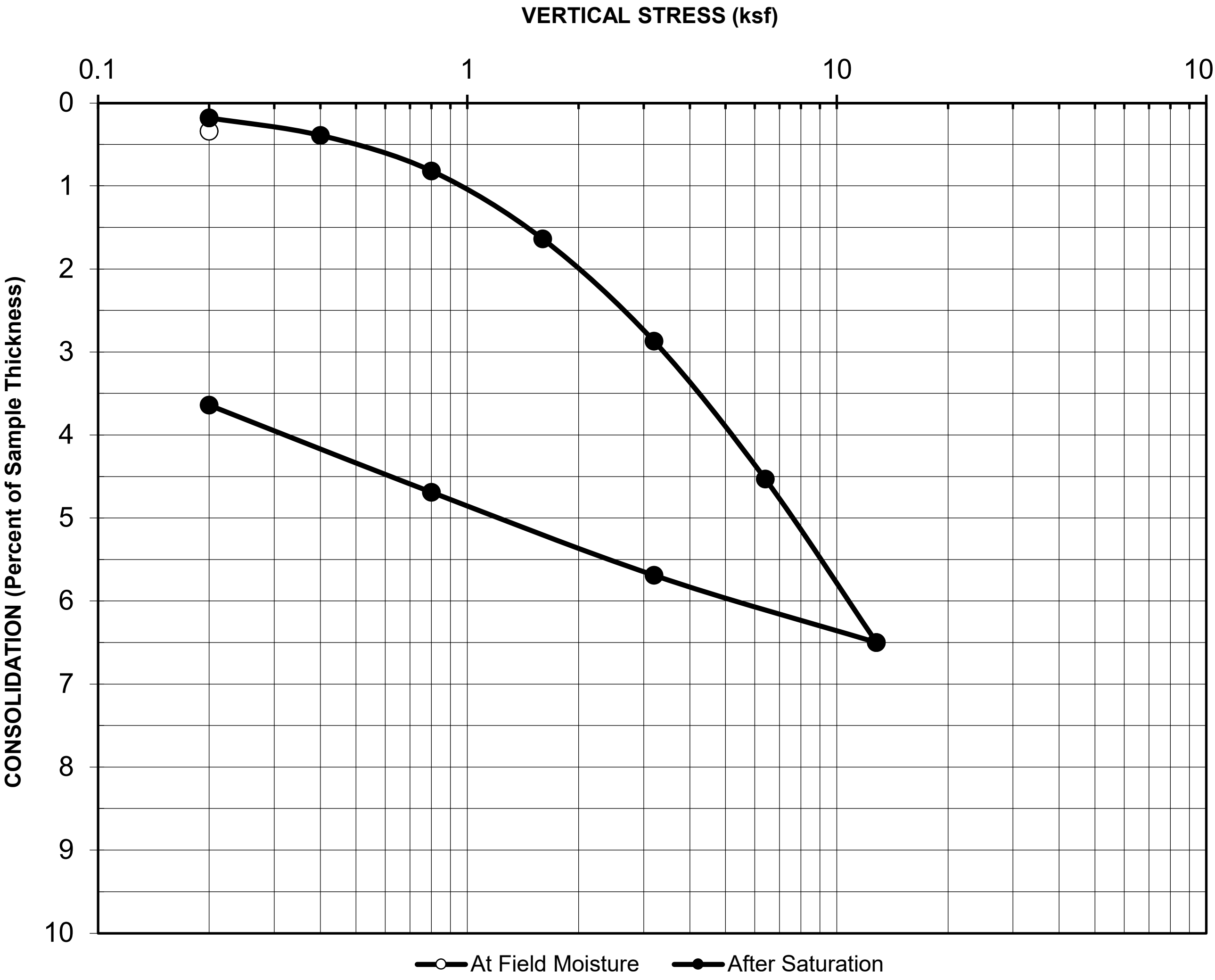

Boring No. : LB-4

Sample No.: S-9

Depth (feet): 40

Sample Type: Mod Cal

Soil Description: Sandy Clay

Remarks: Swell= 0.16% upon inundation

Initial Dry Unit Weight (pcf): 94.5

Initial Moisture Content (%): 29.7

Final Moisture Content (%): 29.6

Assumed Specific Gravity: 2.7

Initial Void Ratio: 0.78

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street
Project No.: 721036101
Date: 10/20/2022
AP No: 22-1039 **Sheet No:** 1

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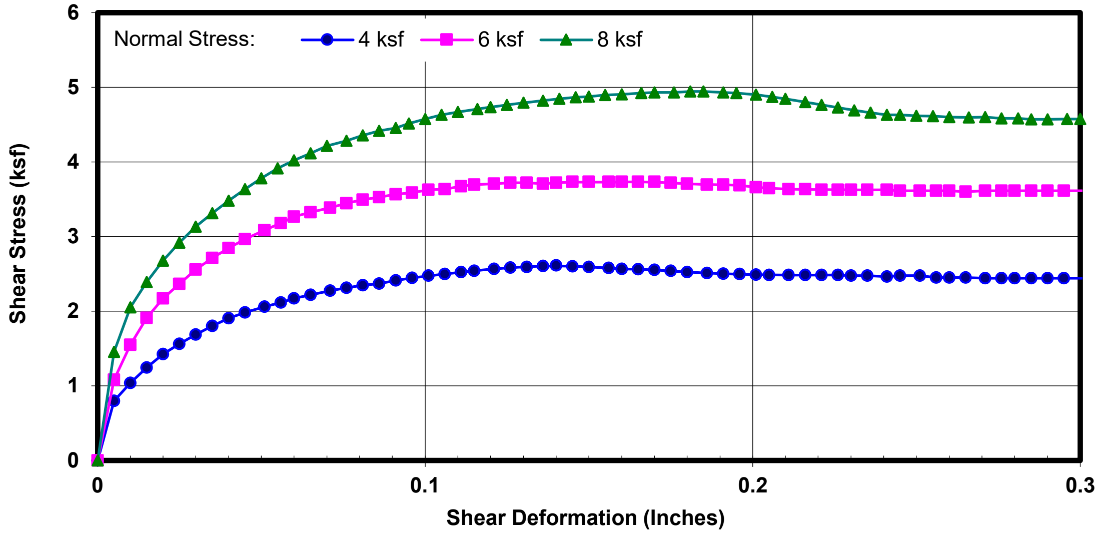
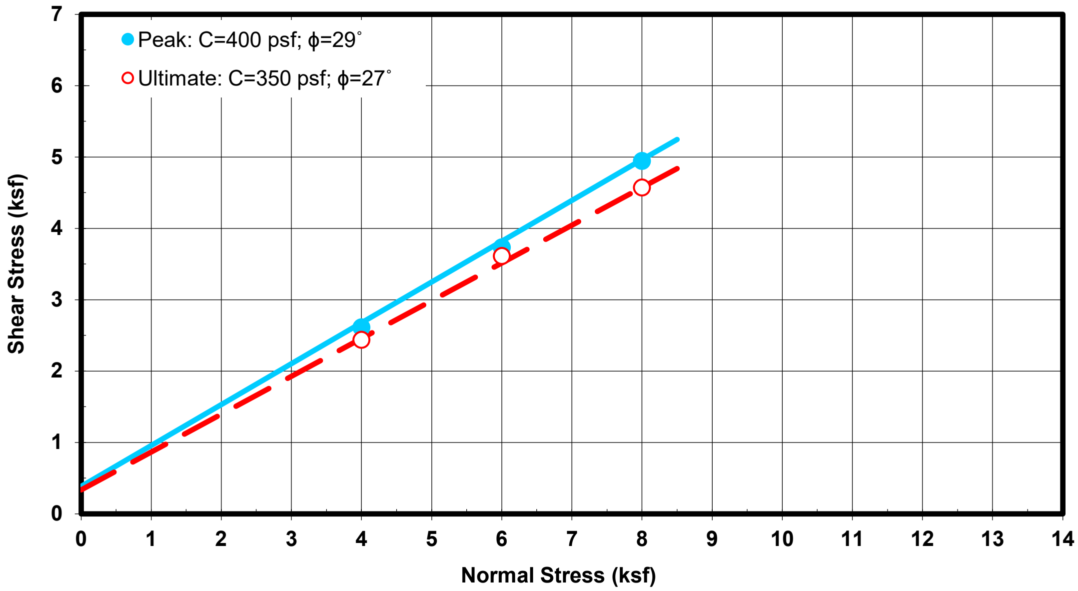
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-3
Sample No.: S-9 **Depth (ft):** 35
Sample Type: Mod. Cal.
Soil Description: Clay w/sand
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/24/22
Computed By: NR **Date:** 10/25/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.0	89.2	30.0	33.0	91	100	4	2.611	2.440
						6	3.732	3.612
						8	4.944	4.572



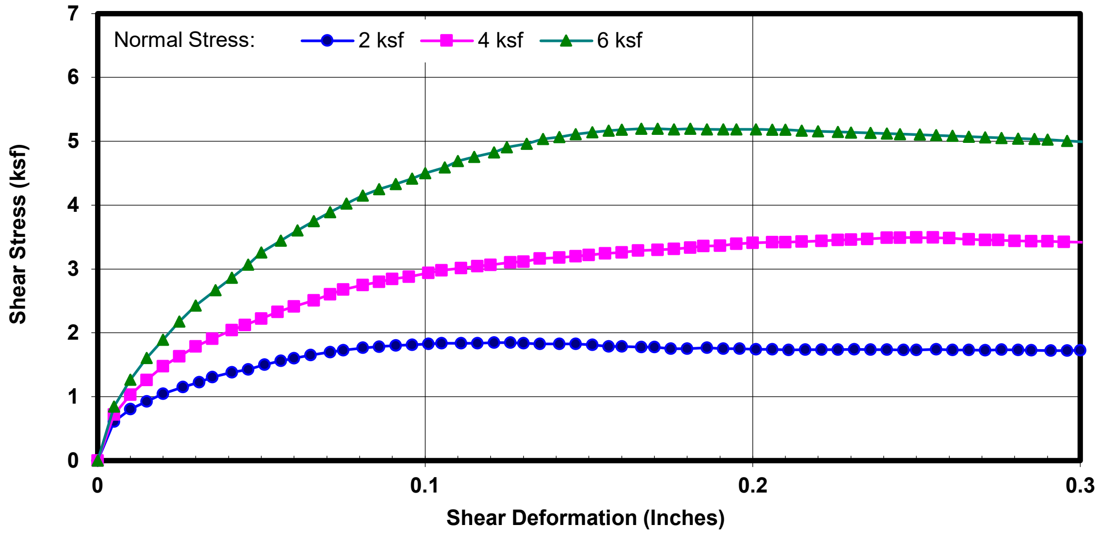


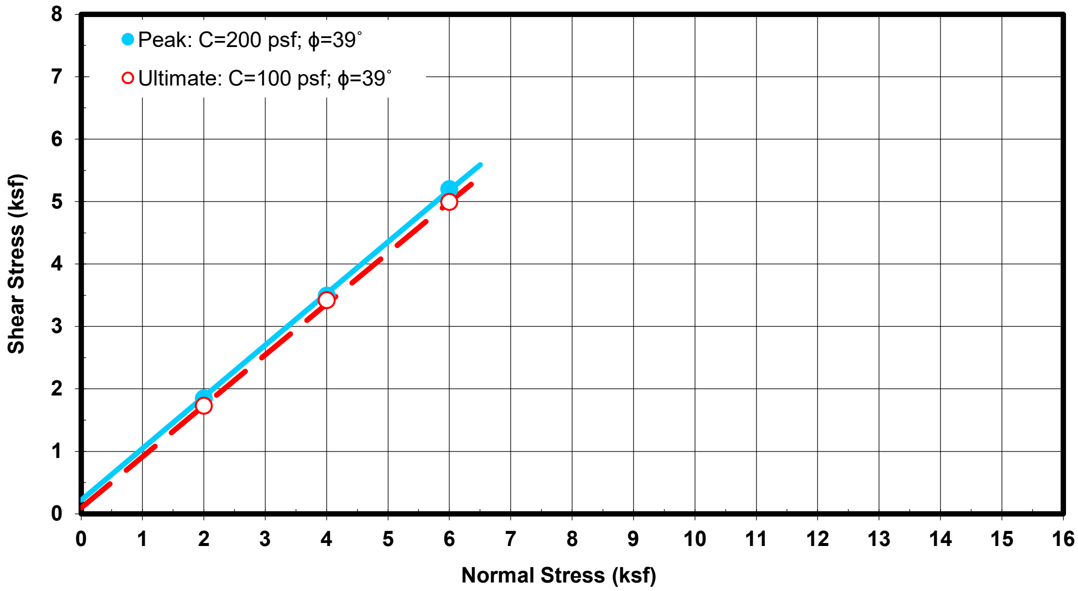
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-1
Sample No.: S-5 **Depth (ft):** 20
Sample Type: Mod. Cal.
Soil Description: Silty Sand w/gravel
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/21/22
Computed By: NR **Date:** 10/24/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.5	111.7	4.3	16.8	23	89	2	1.848	1.728
						4	3.492	3.420
						6	5.198	4.993





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CORROSION TEST RESULTS

Client Name: Langan Engineering
Project Name: 130 W College Street
Project No.: 721036101

AP Job No.: 22-1039
Date: 10/25/22

Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
LB-1	B-1	0-5	Clayey Sand	1,169	7.8	687	287

NOTES:

Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

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EXPANSION INDEX TEST RESULTS

ASTM D 4829

Client Name: Langan Engineering
Project Name: 130 W College Street
Project No.: 721036101

AP Job No.: 22-1039
Date: 10/24/22

Boring No.	Sample No.	Depth (ft)	Soil Description	Molded Dry Density (pcf)	Molded Moisture Content (%)	Init. Degree Saturation (%)	Measured Expansion Index	Corrected Expansion Index
LB-1	B-1	0-5	Clayey Sand	116.1	8.0	48.0	16	15

ASTM EXPANSION CLASSIFICATION

Expansion Index	Classification
0-20	V. Low
21-50	Low
51-90	Medium
91-130	High
>130	V. High

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PERCENT PASSING NO. 200 SIEVE

ASTM D1140

Client:	Langan Engineering	AP Lab No.:	22-1039
Project Name:	130 W College Street	Test Date:	10/21/22
Project Number:	721036101		

Boring No.	Sample No.	Depth (ft)	Percent Fines (%)
LB-1	S-8	35	75.0
LB-1	S-10	45	76.9
LB-2	S-9	40	74.1
LB-3	S-5	15	50.8
LB-3	S-6	20	5.9
LB-4	S-6	25	47.7
LB-4	S-8	35	97.5

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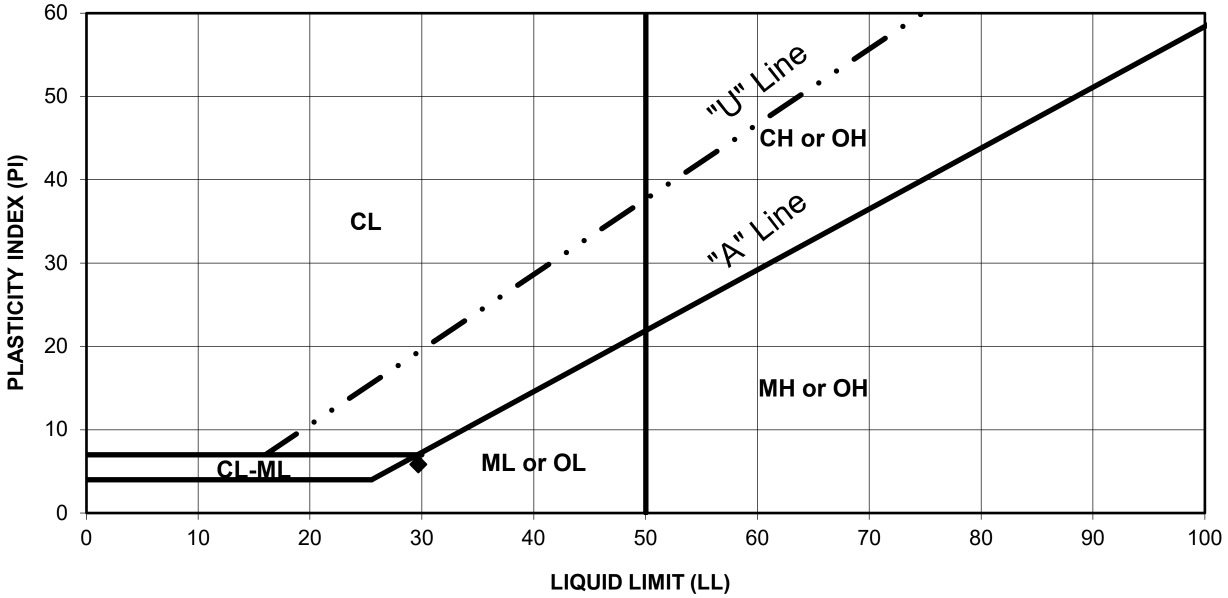
ATTERBERG LIMITS
ASTM D 4318

Client Name: Langan Engineering Tested By: DK Date: 10/24/22
Project Name: 130 W College Street Computed By: NR Date: 10/25/22
Project No.: 721036101 Checked By: AP Date: 10/26/22



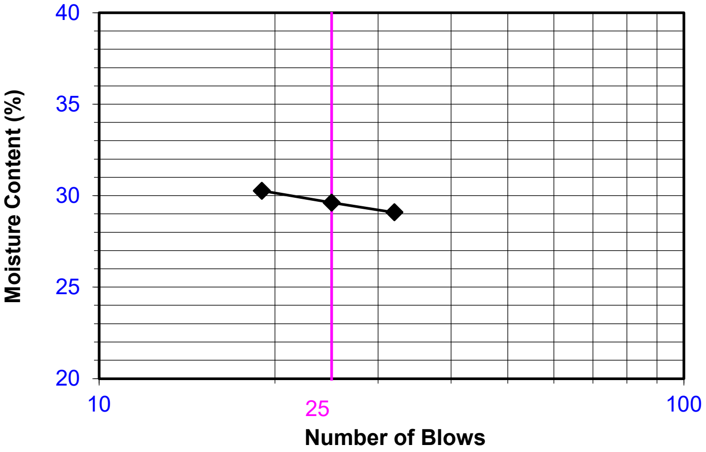
PROCEDURE USED

☐ Wet Preparation

☒ Dry Preparation

☒ Procedure A
Multipoint Test

☐ Procedure B
One-point Test



Symbol	Boring Number	Sample Number	Depth (feet)	LL	PL	PI	Plasticity Chart Symbol
♦	LB-1	S-8	35	30	24	6	ML

ATTACHMENT C

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College
Project Location: Los Angeles
Project Number: 721036101

Case 1: Two-Thirds PGA

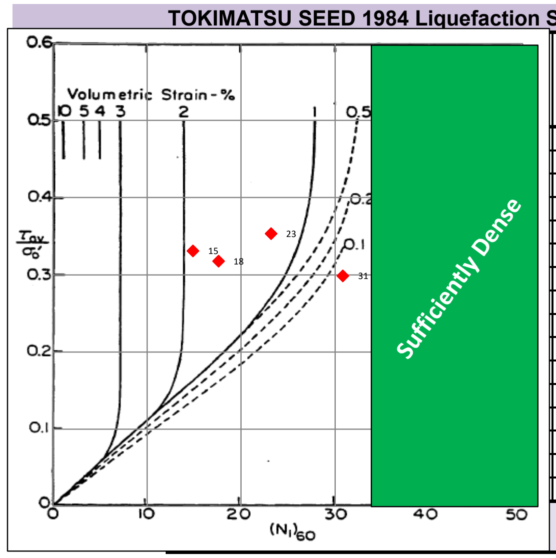
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	291.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:

1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
   Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Depth (feet)	Adjusted $(N_1)_{60-cs}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
0	---	-	**0.0**	-	**-**
5	52	0.41	**0.0**	8.00	**0.0**
10	60	0.29	**0.0**	5.00	**0.0**
15	23	0.35	**1.3**	3.00	**0.5**
20	15	0.33	**1.9**	5.00	**1.1**
25	18	0.32	**1.8**	5.00	**Clay**
30	55	0.25	**0.0**	5.00	**0.0**
35	31	0.30	**0.1**	5.00	**0.1**
40	62	0.21	**0.0**	5.00	**0.0**
45	48	0.28	**0.0**	1.50	**0.0**
				SAT. SETTLEMENT (IN) =	**1.7**

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													2010 Idriss-Boulanger																						
													Corrected SPT N-Value												**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60\,cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs , adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	286.8	SPT	32	8	SM	120	25	600	37	563	3628	4191	0.9	1.7	1.3	1.05	1	67	5	72	0.13	1.2	52	-0.052	0.006	0.96	0.396	0.3	0.8	2649.441	2572.991	5.0	No	1658
10	281.8	CR	50	5	SM	120	25	1200	349	851	3306	4156	0.95	1.6	1.3	1.05	0.8	82	5	87	0.07	1.1	60	-0.137	0.016	0.89	0.395	-1.1	1.1	18653089	25064589	5.0	No	1643
15	276.8	SPT	10	3	ML	120	51	1800	661	1139	3025	4163	1	1.4	1.3	1.05	1	19	6	24	0.41	1.3	23	-0.236	0.027	0.82	0.388	0.2	0.9	0.252	0.277	0.7	No	1615
20	271.8	CR	7	5	ML	120	51	2400	973	1427	2778	4204	1	1.2	1.3	1.05	0.8	9	6	15	0.49	1.2	15	-0.348	0.039	0.74	0.374	0.1	0.9	0.155	0.175	0.5	No	1573
25	266.8	SPT	8	5	CL	120	76.9	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	1	12	6	18	0.46	1.1	18	-0.472	0.053	0.67	0.355	0.1	0.9	0.180	0.201	0.6	Yes	1518
30	261.8	CR	45	5	ML	120	51	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	0.8	51	6	56	0.21	1.0	55	-0.604	0.068	0.59	0.332	-15.0	1.1	56388	75770	5.0	No	1453
35	256.8	SPT	19	5	ML	120	51	4200	1909	2291	2195	4485	1	1.0	1.3	1.05	1	25	6	31	0.36	1.0	31	-0.744	0.083	0.53	0.308	0.2	0.8	0.541	0.557	1.8	No	1380
40	251.8	CR	54	5	ML	120	51	4800	2221	2579	2041	4619	1	0.9	1.3	1.05	0.8	53	6	59	0.19	1.0	62	-0.888	0.099	0.46	0.282	-0.8	1.1	380778820	511661349	5.0	No	1303
45	246.8	SPT	34	1.5	ML	120	51	5400	2533	2867	1902	4769	1	0.9	1.3	1.05	1	40	6	45	0.27	0.9	48	-1.034	0.115	0.41	0.257	0.3	0.8	211	195	5.0	No	1226

Notes:

1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

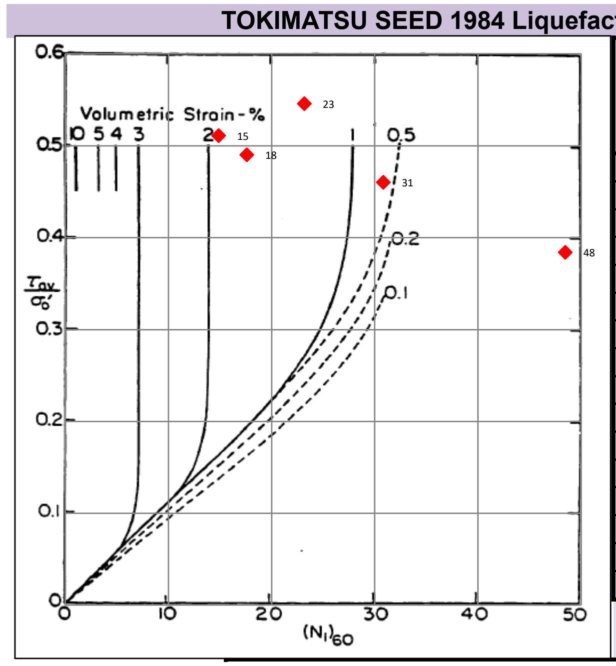
Project Title: 130 W College Case 2: FULL PGA
Project Location: Los Angeles

Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-1
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSRM=7.5,σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	5	51	0.63	**0.0**	8.00	**0.0**
0	10	59	0.45	**0.0**	5.00	**0.0**
0	15	23	0.55	**1.4**	3.00	**0.5**
0	20	15	0.51	**1.9**	5.00	**1.1**
0	25	18	0.49	**1.8**	5.00	**Clay**
0	30	55	0.38	**0.0**	5.00	**0.0**
0	35	31	0.46	**0.6**	5.00	**0.3**
0	40	62	0.42	**0.0**	5.00	**0.0**
0	45	48	0.38	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**2.0**

√

													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,adjusted}$	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	266.8	SPT	32	8	SM	120	15	600	37	563	3628	4191	0.9	1.7	1.3	1.05	1	67	3	70	0.14	1.2	51	-0.052	0.006	0.96	0.594	0.3	0.8	971.864	917.004	5.0	No	2488
10	261.8	CR	50	5	SM	120	15	1200	349	851	3306	4156	0.95	1.6	1.3	1.05	0.8	82	3	85	0.08	1.1	59	-0.137	0.016	0.89	0.593	-1.5	1.1	2903940.792	3791221.675	5.0	No	2464
15	256.8	SPT	10	3	ML	120	51	1800	661	1139	3025	4163	1	1.4	1.3	1.05	1	19	6	24	0.41	1.3	23	-0.236	0.027	0.82	0.582	0.2	0.9	0.252	0.269	0.5	No	2421
20	251.8	CR	7	5	ML	120	51	2400	973	1427	2778	4204	1	1.2	1.3	1.05	0.8	9	6	15	0.49	1.2	15	-0.348	0.039	0.74	0.561	0.1	0.9	0.155	0.170	0.3	No	2357
25	246.8	SPT	8	5	CL	120	74.1	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	1	12	6	18	0.46	1.1	18	-0.472	0.053	0.66	0.532	0.1	0.9	0	0	0.4	Yes	2274
30	241.8	CR	45	5	ML	120	51	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	0.8	51	6	56	0.21	1.0	55	-0.604	0.068	0.59	0.498	-15.0	1.1	56387.963	73616.951	5.0	No	2175
35	236.8	SPT	19	5	ML	120	51	4200	1909	2291	2195	4485	1	1.0	1.3	1.05	1	25	6	31	0.36	1.0	31	-0.744	0.083	0.52	0.460	0.2	0.8	0.541	0.541	1.2	No	2065
40	231.8	CR	54	5	ML	120	51	4800	2221	2579	2041	4619	1	0.9	1.3	1.05	0.8	53	6	59	0.19	1.0	62	-0.888	0.099	0.46	0.422	-0.8	1.1	380778819.960	497123398.588	5.0	No	1949
45	226.8	SPT	34	1.5	ML	120	51	5400	2533	2867	1902	4769	1	0.9	1.3	1.05	1	40	6	45	0.27	0.9	48	-1.034	0.115	0.41	0.384	0.3	0.8	211.383	189.720	5.0	No	1832

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

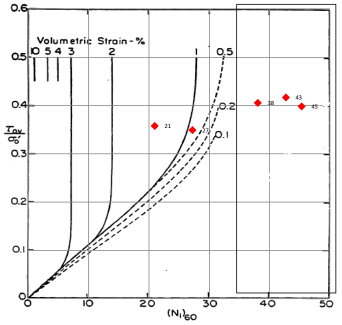
Project Title: 130 W College
Case 1: Two-Thirds PGA
Project Location: Los Angeles

Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	$CSR_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thicknes s (ft)	Δ H (in)
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	1.5	43	0.42	**0.0**	3.00	**dry**
0	5	21	0.36	**1.4**	5.00	**0.8**
0	10	38	0.41	**0.0**	5.00	**0.0**
0	15	45	0.40	**0.0**	5.00	**0.0**
0	20	27	0.35	**0.9**	5.00	**0.5**
0	25	71	0.26	**0.0**	5.00	**0.0**
0	30	32	0.32	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.4**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60cs}$, adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	18	3	SM	120	25	180	0	180	3883	4063	0.9	1.7	1.3	1.05	1	38	5	43	0.28	1.7	43	-0.003	0.001	1.00	0.409	0.3	0.8	10.940	10.749	---	No	1663
5	266.8	CR	9	5	ML	120	25	600	37	563	3628	4191	0.95	1.7	1.3	1.05	0.8	16	5	21	0.43	1.7	21	-0.052	0.006	0.96	0.396	0.1	0.9	0.218	0.241	0.6	No	1658
10	261.8	SPT	19	5	SM	120	25	1200	349	851	3306	4156	1	1.6	1.3	1.05	1	41	5	46	0.26	1.3	38	-0.137	0.016	0.89	0.395	0.3	0.8	2.297	2.238	5.0	No	1643
15	256.8	CR	32	5	SM	120	25	1800	661	1139	3025	4163	1	1.4	1.3	1.05	0.8	48	5	53	0.23	1.2	45	-0.236	0.027	0.82	0.388	0.3	0.8	35.770	34.825	5.0	No	1615
20	251.8	SPT	14	5	SM	120	25	2400	973	1427	2778	4204	1	1.2	1.3	1.05	1	23	5	28	0.38	1.2	27	-0.348	0.039	0.74	0.374	0.2	0.9	0.354	0.380	1.0	No	1573
25	246.8	CR	59	5	SM	120	25	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	0.8	72	5	77	0.11	1.0	71	-0.472	0.053	0.67	0.355	-0.4	1.1	6755818883243970	9077950828821590	5.0	No	1518
30	241.8	SPT	19	1.5	SM	120	25	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	1	27	5	32	0.35	1.0	32	-0.604	0.068	0.59	0.332	0.2	0.8	0.598	0.615	1.9	No	1453

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College
Project Location: Los Angeles
Project Number: 721036101

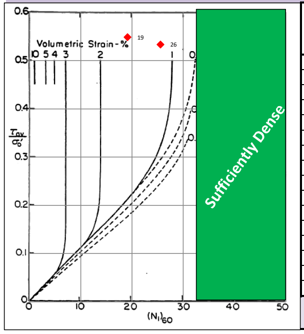
Date: 7/19/2023

Case 2: FULL PGA

BORING AND GWT INPUT	
Boring:	LB-2
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR$_{M=7.5, \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	1.5	41	0.64	**0.0**	3.00	**dry**
0	5	19	0.55	**1.7**	5.00	**1.0**
0	10	37	0.62	**0.0**	5.00	**0.0**
0	15	44	0.61	**0.0**	5.00	**0.0**
0	20	26	0.53	**1.3**	5.00	**0.8**
0	25	69	0.41	**0.0**	5.00	**0.0**
0	30	30	0.49	**0.0**	5.00	**dry**
					SAT. SETTLEMENT (IN) =	**1.8**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											**CSR Evaluation**				**CRR Evaluation**						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60cs, adj.}$**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	18	3	SM	120	15	180	0	180	3883	4063	0.9	1.7	1.3	1.05	1	38	3	41	0.29	1.7	41	-0.003	0.001	1.00	0.614	0.3	0.8	5.515	5.265	---	No	2496
5	266.8	CR	9	5	ML	120	15	600	37	563	3628	4191	0.95	1.7	1.3	1.05	0.8	16	3	19	0.45	1.7	19	-0.052	0.006	0.96	0.594	0.1	0.9	0.196	0.212	0.4	No	2488
10	261.8	SPT	19	5	SM	120	15	1200	349	851	3306	4156	1	1.6	1.3	1.05	1	41	3	44	0.27	1.3	37	-0.137	0.016	0.89	0.593	0.3	0.8	1.564	1.496	2.5	No	2464
15	256.8	CR	32	5	SM	120	15	1800	661	1139	3025	4163	1	1.4	1.3	1.05	0.8	48	3	51	0.24	1.2	44	-0.236	0.027	0.82	0.582	0.3	0.8	17.069	16.145	5.0	No	2421
20	251.8	SPT	14	5	SM	120	15	2400	973	1427	2778	4204	1	1.2	1.3	1.05	1	23	3	27	0.39	1.2	26	-0.348	0.039	0.74	0.561	0.2	0.9	0.303	0.319	0.6	No	2357
25	246.8	CR	59	5	SM	120	15	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	0.8	72	3	75	0.12	1.0	69	-0.472	0.053	0.66	0.532	-0.4	1.1	140636494431601	183607092654628	5.0	No	2274
30	241.8	SPT	19	1.5	SM	120	15	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	1	27	3	30	0.36	1.0	30	-0.604	0.068	0.59	0.498	0.2	0.9	0.468	0.475	1.0	No	2175

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

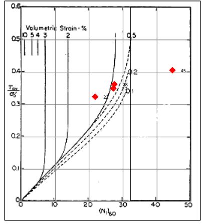
Project Title: 130 W College   Case 1: Two-Thirds PGA
Project Location: Los Angeles

Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-3
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
   Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	$CSR_{M=7.5,\ \sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	1.5	58	0.30	**0.0**	3.00	**dry**
0	5	62	0.29	**0.0**	5.00	**0.0**
0	10	45	0.41	**0.0**	5.00	**Clay**
0	15	28	0.36	**0.8**	5.00	**0.5**
0	20	27	0.35	**0.9**	5.00	**0.5**
0	25	22	0.32	**1.4**	5.00	**Clay**
0	30	72	0.25	**0.0**	1.50	**dry**
					SAT. SETTLEMENT (IN) =	**1.0**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs, adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	29	3	SM	120	25	180	0	180	3883	4063	0.9	1.7	1.3	1.05	1	61	5	66	0.16	1.5	58	-0.003	0.001	1.00	0.409	-1.8	1.1	1264751.407	1699475.856	---	No	1663
5	266.8	CR	51	5	SM	120	25	600	37	563	3628	4191	1	1.7	1.3	1.05	0.8	95	5	100	0.02	1.0	62	-0.052	0.006	0.96	0.396	-0.8	1.1	229826840.390	308823666.273	5.0	No	1658
10	261.8	SPT	24	5	SM	120	25	1200	349	851	3306	4156	1	1.6	1.3	1.05	1	52	5	57	0.21	1.2	45	-0.137	0.016	0.89	0.395	0.3	0.8	25	25	5.0	No	1643
15	256.8	CR	16	5	CL	120	75	1800	661	1139	3025	4163	1	1.4	1.3	1.05	0.8	24	6	29	0.37	1.3	28	-0.236	0.027	0.82	0.388	0.2	0.9	0.364	0.391	1.0	Yes	1615
20	251.8	SPT	14	5	SC	120	25	2400	973	1427	2778	4204	1	1.2	1.3	1.05	1	23	5	28	0.38	1.2	27	-0.348	0.039	0.74	0.374	0.2	0.9	0.354	0.380	1.0	No	1573
25	246.8	CR	14	5	SC	120	25	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	0.8	17	5	22	0.42	1.1	22	-0.472	0.053	0.67	0.355	0.1	0.9	0	0	0.7	No	1518
30	241.8	SPT	48	1.5	CL	120	75	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	1	67	6	73	0.13	1.0	72	-0.604	0.068	0.59	0.332	-0.4	1.1	23154556011708800	31113314991143900	5.0	Yes	1453

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

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SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

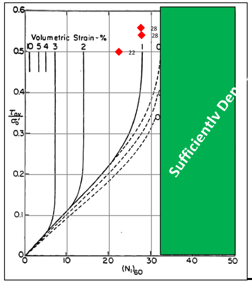
Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

Project Title: 130 W College   Case 2: FULL PGA
Project Location: Los Angeles
Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-3
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
   Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR$_{M=7.5,\sigma'v=1}$	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	1.5	56	0.47	**0.0**	3.00	**dry**
0	5	61	0.45	**0.0**	5.00	**0.0**
0	10	43	0.63	**0.0**	5.00	**Clay**
0	15	28	0.56	**1.0**	5.00	**0.6**
0	20	28	0.54	**1.0**	5.00	**0.6**
0	25	22	0.50	**1.4**	5.00	**Clay**
	30	72	0.38	**0.0**	5.00	**dry**
					SAT. SETTLEMENT (IN) =	**1.2**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF (ft)	**Elevation (ft)**	**Sample Type**	**N_{Raw} (blows/ft)**	**Thicknes (Feet)**	**USCS**	**Unit Wt (pcf)**	**FC (%)**	**σ_v (psf)**	**u (psf)**	**σ'_v (psf)**	**$\Delta\sigma_{Surcharge}$ (psf)**	**$\sigma'_{v,proposed}$ (psf)**	**C_R**	**C_N**	**C_E**	**C_B**	**C_S**	**$(N_1)_{60}$**	**$\Delta(N_1)_{60}$**	**$(N_1)_{60cs}$**	**m**	**$C_{N,}$ adjusted**	**$(N_1)_{60}$ cs, adj.**	**α**	**β**	**r_d**	**$CSR_{M,\sigma'v}$**	**C_σ**	**K_σ**	**$CRR_{M7.5,1atm}$**	**$CRR_{M,\sigma'v}$**	**FoS**	**Clay?**	**CSRxσ'**
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Yes	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
1.5	270.3	SPT	29	3	SM	120	5.9	180	0	180	3883	4063	0.9	1.7	1.3	1.05	1	61	0	61	0.19	1.6	56	-0.003	0.001	1.00	0.614	-4.0	1.1	171851.026	224359.028	---	No	2496
5	266.8	CR	51	5	SM	120	15	600	37	563	3628	4191	1	1.7	1.3	1.05	0.8	95	3	98	0.02	1.0	61	-0.052	0.006	0.96	0.594	-1.0	1.1	36258488.949	47337042.685	5.0	No	2488
10	261.8	SPT	24	5	SM	120	15	1200	349	851	3306	4156	1	1.6	1.3	1.05	1	52	3	55	0.21	1.2	43	-0.137	0.016	0.89	0.593	0.3	0.8	13.133	12.430	5.0	Yes	2464
15	256.8	CR	16	5	CL	120	51	1800	661	1139	3025	4163	1	1.4	1.3	1.05	0.8	24	6	29	0.37	1.3	28	-0.236	0.027	0.82	0.582	0.2	0.9	0.366	0.381	0.7	No	2421
20	251.8	SPT	14	5	SC	120	49	2400	973	1427	2778	4204	1	1.2	1.3	1.05	1	23	6	29	0.37	1.2	28	-0.348	0.039	0.74	0.561	0.2	0.9	0.373	0.387	0.7	No	2357
25	246.8	CR	14	5	SC	120	49	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	0.8	17	6	23	0.42	1.1	22	-0.472	0.053	0.66	0.532	0.1	0.9	0	0	0.5	No	2274
30	241.8	SPT	48	1.5	CL	120	75	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	1	67	6	73	0.13	1.0	72	-0.604	0.068	0.59	0.498	-0.4	1.1	23154556011708800.000	30229285280473500.000	5.0	Yes	2175

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

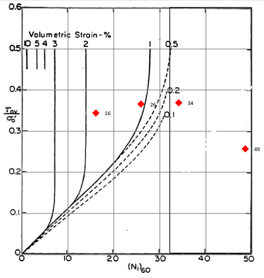
Project Title: 130 W College Case 1: Two-Thirds PGA

Project Location: Los Angeles
Project Number: 721036101
Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.74
Acceleration (g):	0.631
MSF:	1.22
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60\text{-cs}}$	CSR_M =7.5,σ'v =1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	0	---	-	**0.0**	-	**-**
0	5	26	0.37	**1.1**	5.00	**0.7**
0	10	57	0.29	**0.0**	5.00	**0.0**
0	15	16	0.34	**1.8**	5.00	**1.1**
0	20	34	0.37	**0.0**	5.00	**Clay**
0	25	56	0.26	**0.0**	5.00	**0.0**
0	30	88	0.25	**0.0**	5.00	**0.0**
0	35	82	0.31	**0.0**	5.00	**0.0**
0	40	67	0.28	**0.0**	5.00	**0.0**
0	45	49	0.26	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.7**

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													2010 Idriss-Boulanger																					
													Corrected SPT N-Value												CSR Evaluation				CRR Evaluation							
Depth Below BOF(ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,adjusted}$	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
								---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
					BOF			---	---	---	---	---	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	266.8	SPT	11	5	SM	120	15	600	37	563	3628	4191	0.9	1.7	1.3	1.05	1	23	3	26	0.39	1.7	26	-0.052	0.006	0.96	0.396	0.2	0.9	0.314	0.339	0.9	No	1658
10	261.8	CR	45	5	ML	120	51	1200	349	851	3306	4156	0.95	1.6	1.3	1.05	0.8	74	6	79	0.10	1.1	57	-0.137	0.016	0.89	0.395	-3.2	1.1	258103.303	346819.406	5.0	No	1643
15	256.8	SPT	7	5	SM	120	15	1800	661	1139	3025	4163	1	1.4	1.3	1.05	1	13	3	16	0.47	1.3	16	-0.236	0.027	0.82	0.388	0.1	0.9	0.165	0.186	0.5	No	1615
20	251.8	CR	23	5	CL	120	75	2400	973	1427	2778	4204	1	1.2	1.3	1.05	0.8	31	6	36	0.32	1.1	34	-0.348	0.039	0.74	0.374	0.2	0.8	0.923	0.934	2.5	Yes	1573
25	246.8	SPT	37	5	SM	120	15	3000	1285	1715	2560	4275	1	1.1	1.3	1.05	1	56	3	59	0.19	1.0	56	-0.472	0.053	0.67	0.355	-6.4	1.1	96782	130048	5.0	No	1518
30	241.8	CR	77	5	SM	120	15	3600	1597	2003	2367	4369	1	1.0	1.3	1.05	0.8	86	3	90	0.06	1.0	88	-0.604	0.068	0.59	0.332	-0.2	1.1	87282782895618600000000000000000000000000.000	117283903701792000000000000000000000000000.000	5.0	No	1453
35	236.8	SPT	58	5	SM	120	15	4200	1909	2291	2195	4485	1	1.0	1.3	1.05	1	76	3	79	0.10	1.0	82	-0.744	0.083	0.53	0.308	-0.2	1.1	1348181623981940000000000000000.000	1811582977924980000000000000000.000	5.0	No	1380
40	231.8	CR	60	5	SM	120	15	4800	2221	2579	2041	4619	1	0.9	1.3	1.05	0.8	59	3	63	0.18	1.0	67	-0.888	0.099	0.46	0.282	-0.5	1.1	470272612018.077	631916237220.332	5.0	No	1303
45	226.8	SPT	36	1.5	SM	120	15	5400	2533	2867	1902	4769	1	0.9	1.3	1.05	1	42	3	45	0.27	0.9	49	-1.034	0.115	0.41	0.257	0.3	0.8	234.673	216.783	5.0	No	1226

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

SPT-BASED LIQUEFACTION TRIGGERING EVALUATION

Reference: Idriss, I.M. and Boulanger, R.W. (2010). "SPT-Based Liquefaction Triggering Procedures."
Center for Geotechnical Modeling. Report No. UCD/CGM-10/02

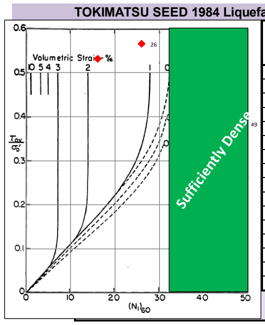
Project Title: 130 W College   Case 2: FULL PGA
Project Location: Los Angeles
Project Number: 721036101

Date: 7/19/2023

BORING AND GWT INPUT	
Boring:	LB-4
Ground Surface Elevation:	271.8
Boring Depth (ft):	66.5
GWT Depth (ft):	4.4
SAMPLING INPUT	
Rod Used to Sample? (Yes/No)	Yes
Hammer Energy Ratio:	1.3
Hammer Weight (lbs):	140
Hammer Drop (in):	30
Boring Diameter (in):	6
EARTHQUAKE INPUT	
Moment Magnitude:	6.85
Acceleration (g):	0.947
MSF:	1.19
STRUCTURAL/GRADING INPUT	
Lowest Proposed Elevation:	271.8
Foundation Surcharge(psf):	4000
Foundation Width (ft):	100
Foundation Length (ft):	100

Notes:
1. Assumes 20-foot excavation (assumed bottom of foundation,BOF)
2. Groundwater Elevation 24.4-feet below ground surface at time of boring.
Therefore Groundwater 4.4-feet Below BOF.

TOKIMATSU SEED 1984 Liquefaction Settlements (Volumetric Strain)



Sub-Layer	Depth (feet)	Adjusted $(N_1)_{60}$-	CSRM=7.5,σ'v=1	ε_v (%) (Fig. 10)	Thickness (ft)	Δ H (in)
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	0	---	-	**0.0**	-	-
0	5	26	0.57	**1.2**	5.00	**0.7**
0	10	57	0.45	**0.0**	5.00	**0.0**
0	15	16	0.53	**1.9**	5.00	**1.1**
0	20	34	0.57	**0.4**	5.00	**Clay**
0	25	56	0.41	**0.0**	5.00	**0.0**
0	30	88	0.38	**0.0**	5.00	**0.0**
0	35	82	0.46	**0.0**	5.00	**0.0**
0	40	67	0.42	**0.0**	5.00	**0.0**
0	45	49	0.38	**0.0**	1.50	**0.0**
					SAT. SETTLEMENT (IN) =	**1.9**

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Depth Below BOF(ft)	Elevation (ft)	Sample Type	N_{Raw} (blows/ft)	Thicknes (Feet)	USCS	Unit Wt (pcf)	FC (%)	σ_v (psf)	u (psf)	σ'_v (psf)	$\Delta\sigma_{Surcharge}$ (psf)	$\sigma'_{v,proposed}$ (psf)
								---	---	---	---	---
								---	---	---	---	---
								---	---	---	---	---
								---	---	---	---	---
								---	---	---	---	---
					BOF			---	---	---	---	---
5	266.8	SPT	11	5	SM	120	15	600	37	563	3628	4191
10	261.8	CR	45	5	ML	120	51	1200	349	851	3306	4156
15	256.8	SPT	7	5	SM	120	15	1800	661	1139	3025	4163
20	251.8	CR	23	5	CL	120	75	2400	973	1427	2778	4204
25	246.8	SPT	37	5	SM	120	15	3000	1285	1715	2560	4275
30	241.8	CR	77	5	SM	120	15	3600	1597	2003	2367	4369
35	236.8	SPT	58	5	SM	120	15	4200	1909	2291	2195	4485
40	231.8	CR	60	5	SM	120	15	4800	2221	2579	2041	4619
45	226.8	SPT	36	1.5	SM	120	15	5400	2533	2867	1902	4769

	2010 Idriss-Boulanger																					
	Corrected SPT N-Value											CSR Evaluation				CRR Evaluation						
Depth Below BOF(ft)	C_R	C_N	C_E	C_B	C_S	$(N_1)_{60}$	$\Delta(N_1)_{60}$	$(N_1)_{60cs}$	m	$C_{N,adjusted}$	$(N_1)_{60cs,adj.}$	α	β	r_d	$CSR_{M,\sigma'v}$	C_σ	K_σ	$CRR_{M7.5,1atm}$	$CRR_{M,\sigma'v}$	FoS	Clay?	CSRxσ'
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
	---	---	---	---	0.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	No	---
5	0.9	1.7	1.3	1.05	1	23	3	26	0.39	1.7	26	-0.052	0.006	0.96	0.594	0.2	0.9	0.314	0.330	0.6	No	2488
10	0.95	1.6	1.3	1.05	0.8	74	6	79	0.10	1.1	57	-0.137	0.016	0.89	0.593	-3.2	1.1	258103.303	336965.147	5.0	No	2464
15	1	1.4	1.3	1.05	1	13	3	16	0.47	1.3	16	-0.236	0.027	0.82	0.582	0.1	0.9	0.165	0.181	0.3	No	2421
20	1	1.2	1.3	1.05	0.8	31	6	36	0.32	1.1	34	-0.348	0.039	0.74	0.561	0.2	0.8	0.923	0.908	1.6	Yes	2357
25	1	1.1	1.3	1.05	1	56	3	59	0.19	1.0	56	-0.472	0.053	0.66	0.532	-6.4	1.1	96782	126353	5.0	No	2274
30	1	1.0	1.3	1.05	0.8	86	3	90	0.06	1.0	88	-0.604	0.068	0.59	0.498	-0.2	1.1	##################################	#########################	5.0	No	2175
35	1	1.0	1.3	1.05	1	76	3	79	0.10	1.0	82	-0.744	0.083	0.52	0.460	-0.2	1.1	##################################	#########################	5.0	No	2065
40	1	0.9	1.3	1.05	0.8	59	3	63	0.18	1.0	67	-0.888	0.099	0.46	0.422	-0.5	1.1	470272612018.077	613961457136.087	5.0	No	1949
45	1	0.9	1.3	1.05	1	42	3	45	0.27	0.9	49	-1.034	0.115	0.41	0.384	0.3	0.8	234.673	210.624	5.0	No	1832

Notes:
1. BOF = Assumed Bottom of Foundation
2. FC = Fines Content (assumed or Laboratory Result)

TABLE OF CONTENTS

CPT-2 CASE II Excav results

GeoLogismiki
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http://www.geologismiki.gr

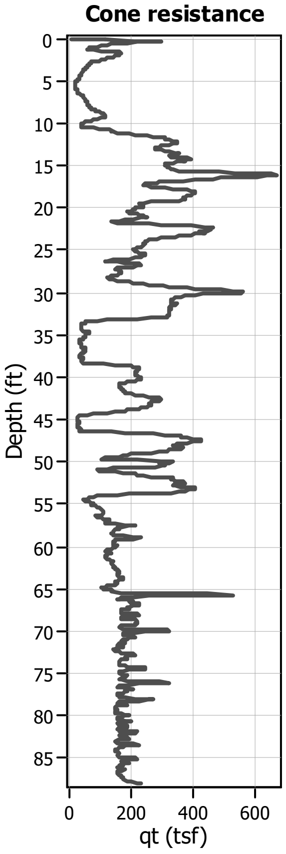
LIQUEFACTION ANALYSIS REPORT

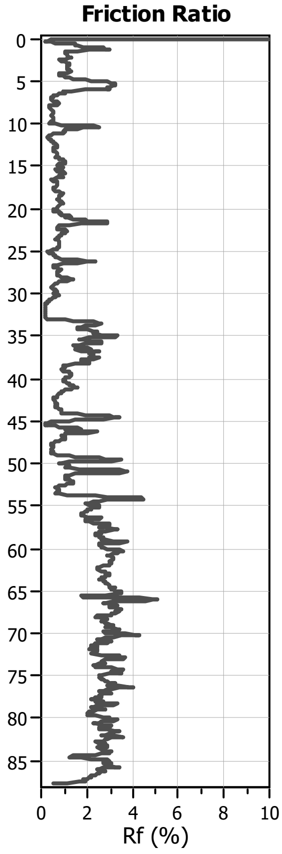
Project title : Creative Workplace Development **Location : 130 W College Street**

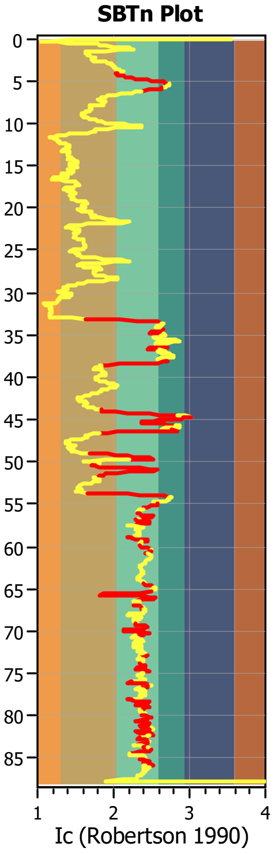
CPT file : CPT-2 CASE II Excav

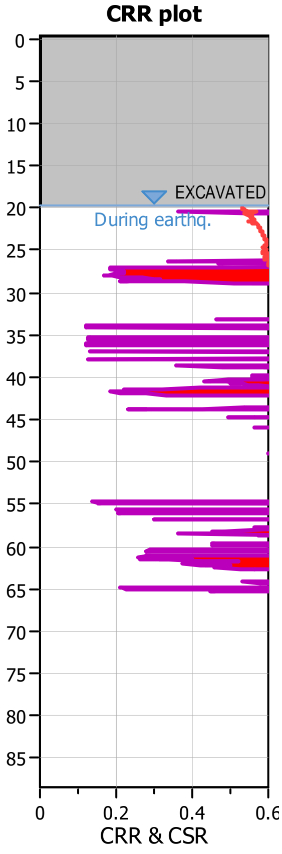
Input parameters and analysis data

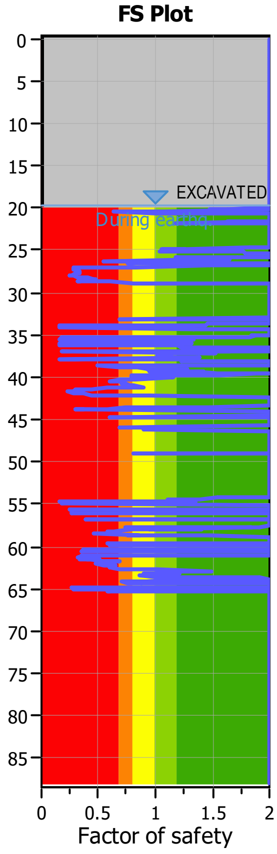
Analysis method:	B&I (2014)	G.W.T. (in-situ):	19.69 ft	Excavation:	Yes	Clay like behavior applied:	Sand & Clay
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	19.69 ft	Excavation depth:	20.00 ft	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Footing load:	1.50 tsf	Limit depth:	65.62 ft
Earthquake magnitude M_w:	6.85	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method
Peak ground acceleration:	0.95	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

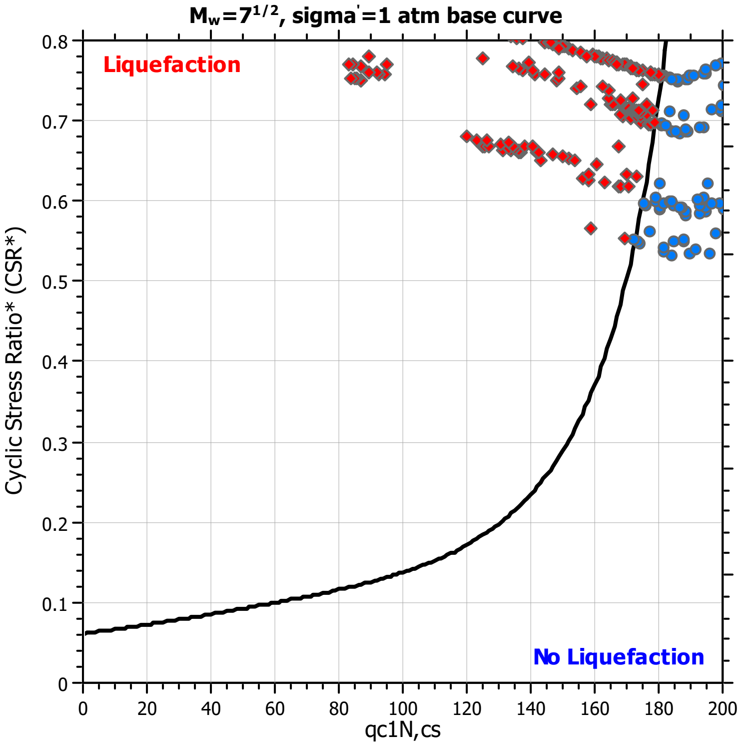

Cone resistance

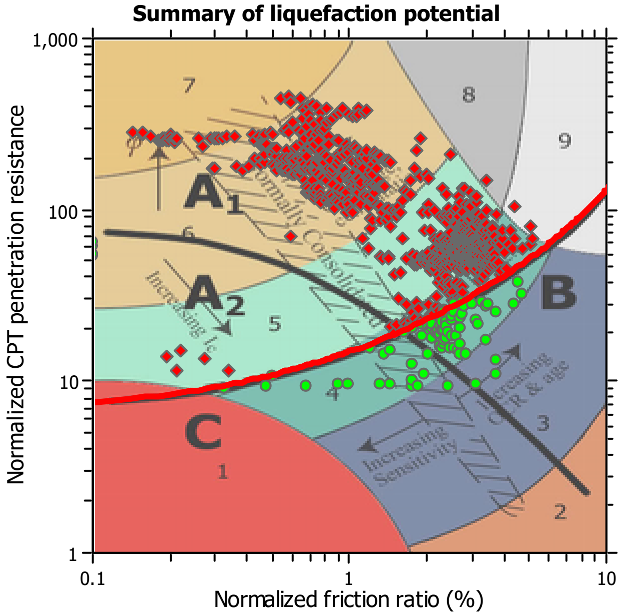

Friction Ratio


SBTn Plot


CRR plot

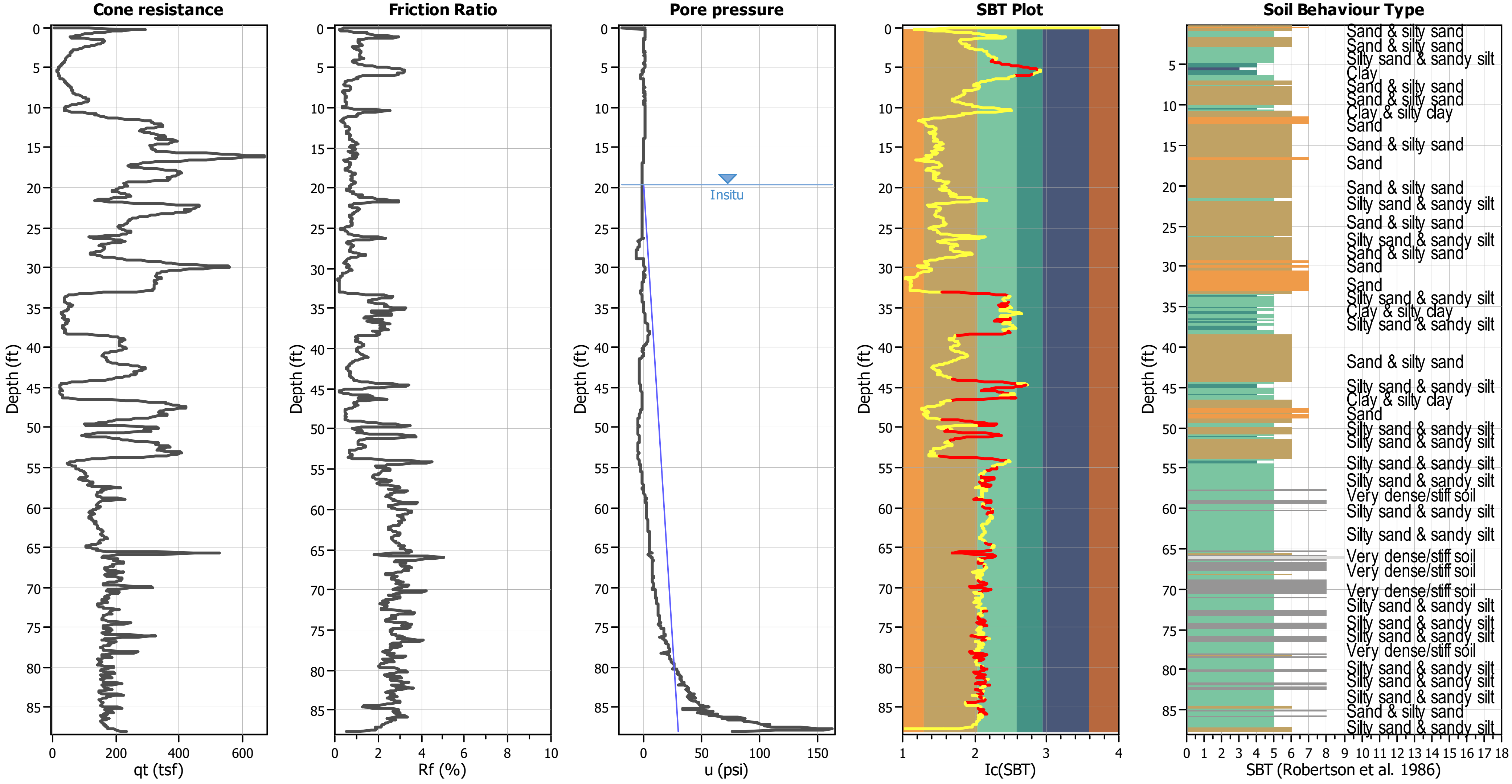

FS Plot


M_w=7$^{1/2}$, sigma'=1 atm base curve


Summary of liquefaction potential

Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



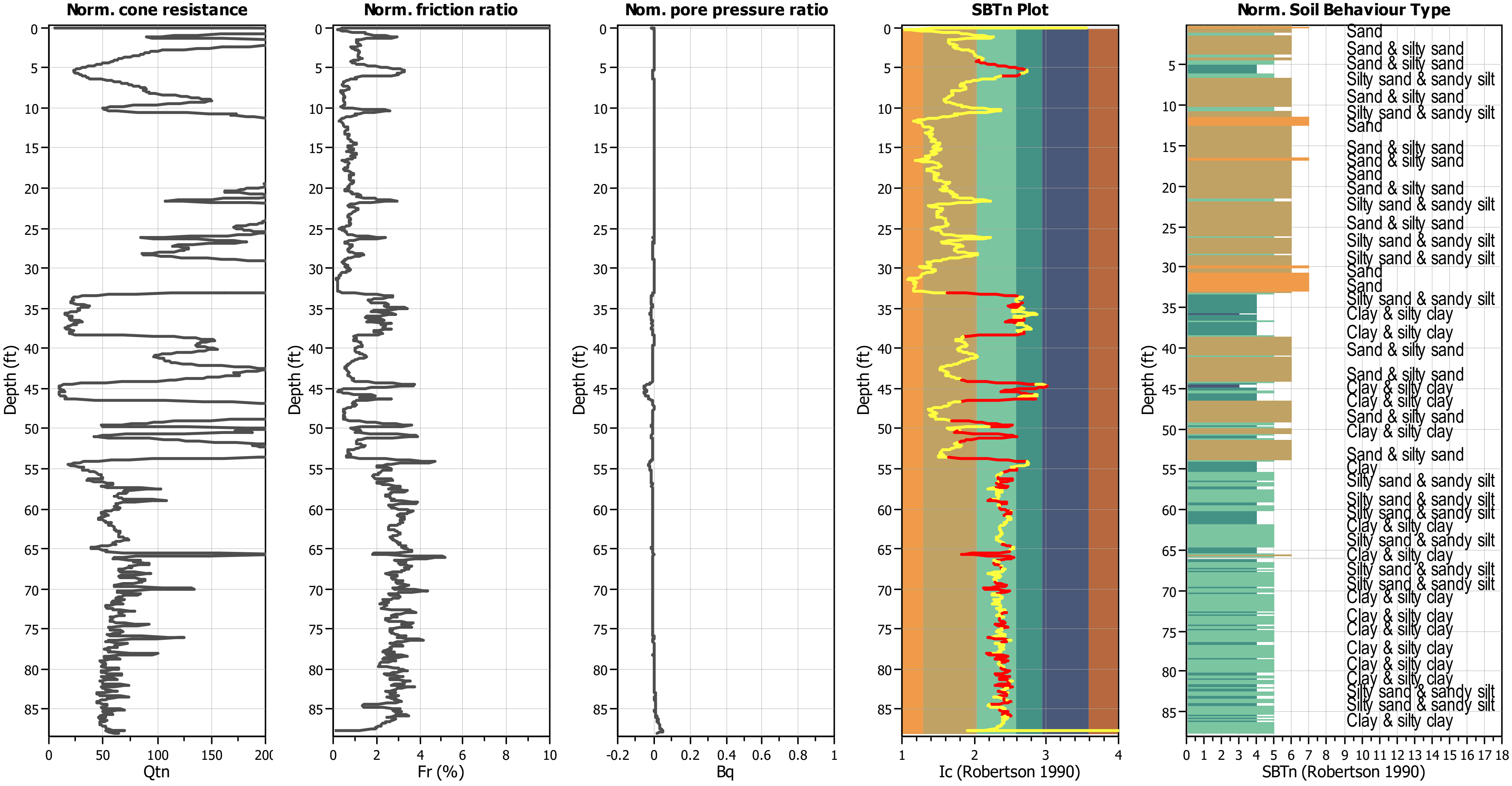
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

SBT legend

🟥 1. Sensitive fine grained	🟩 4. Clayey silt to silty	🟧 7. Gravely sand to sand
🟫 2. Organic material	🟩 5. Silty sand to sandy silt	⬛ 8. Very stiff sand to
🟦 3. Clay to silty clay	🟨 6. Clean sand to silty sand	⬜ 9. Very stiff fine grained

CPT basic interpretation plots (normalized)



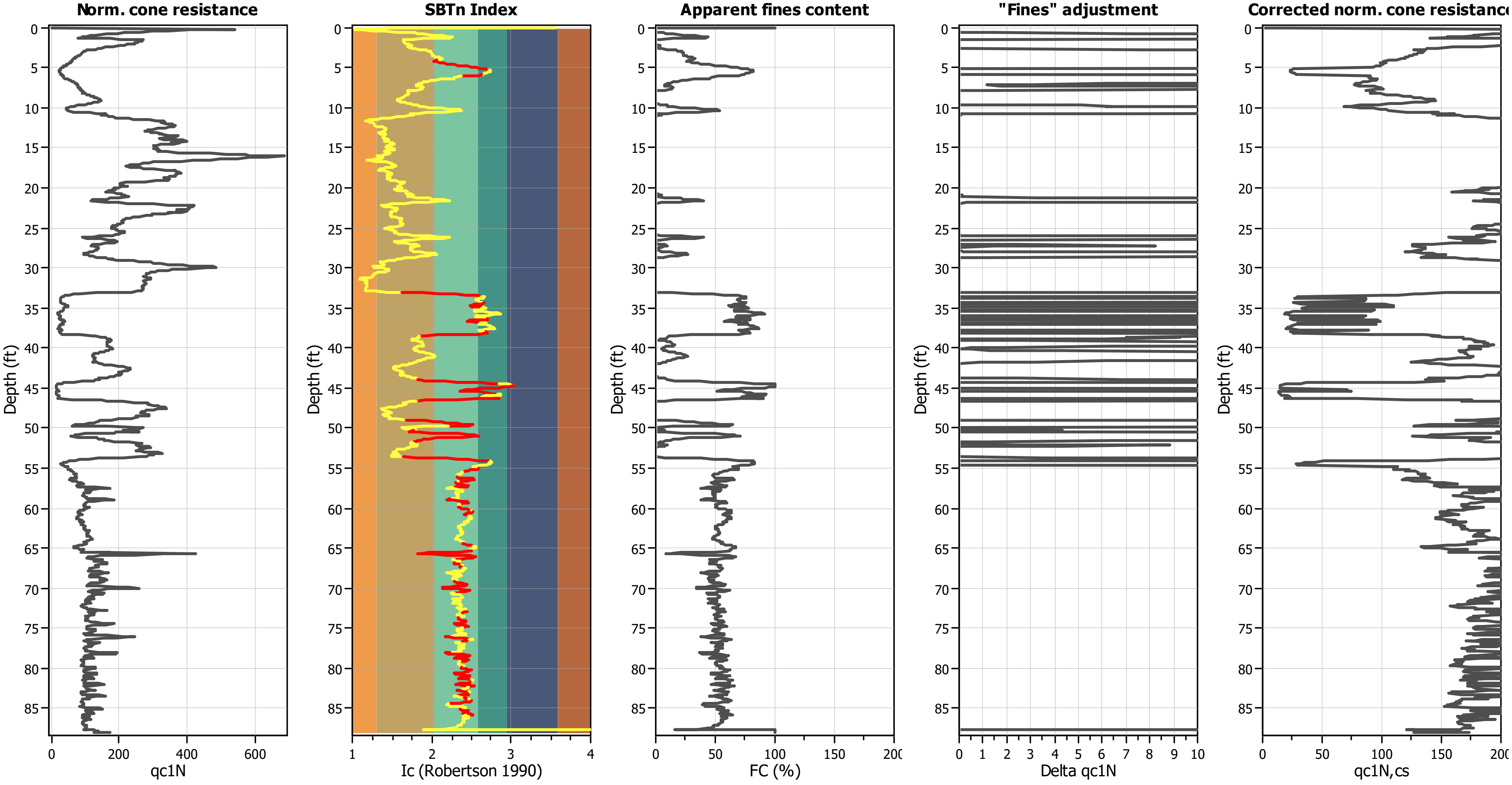
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

SBTn legend

🟥 1. Sensitive fine grained	🟩 4. Clayey silt to silty	🟧 7. Gravely sand to sand
🟫 2. Organic material	🟩 5. Silty sand to sandy silt	⬛ 8. Very stiff sand to
🟦 3. Clay to silty clay	🟫 6. Clean sand to silty sand	⬜ 9. Very stiff fine grained

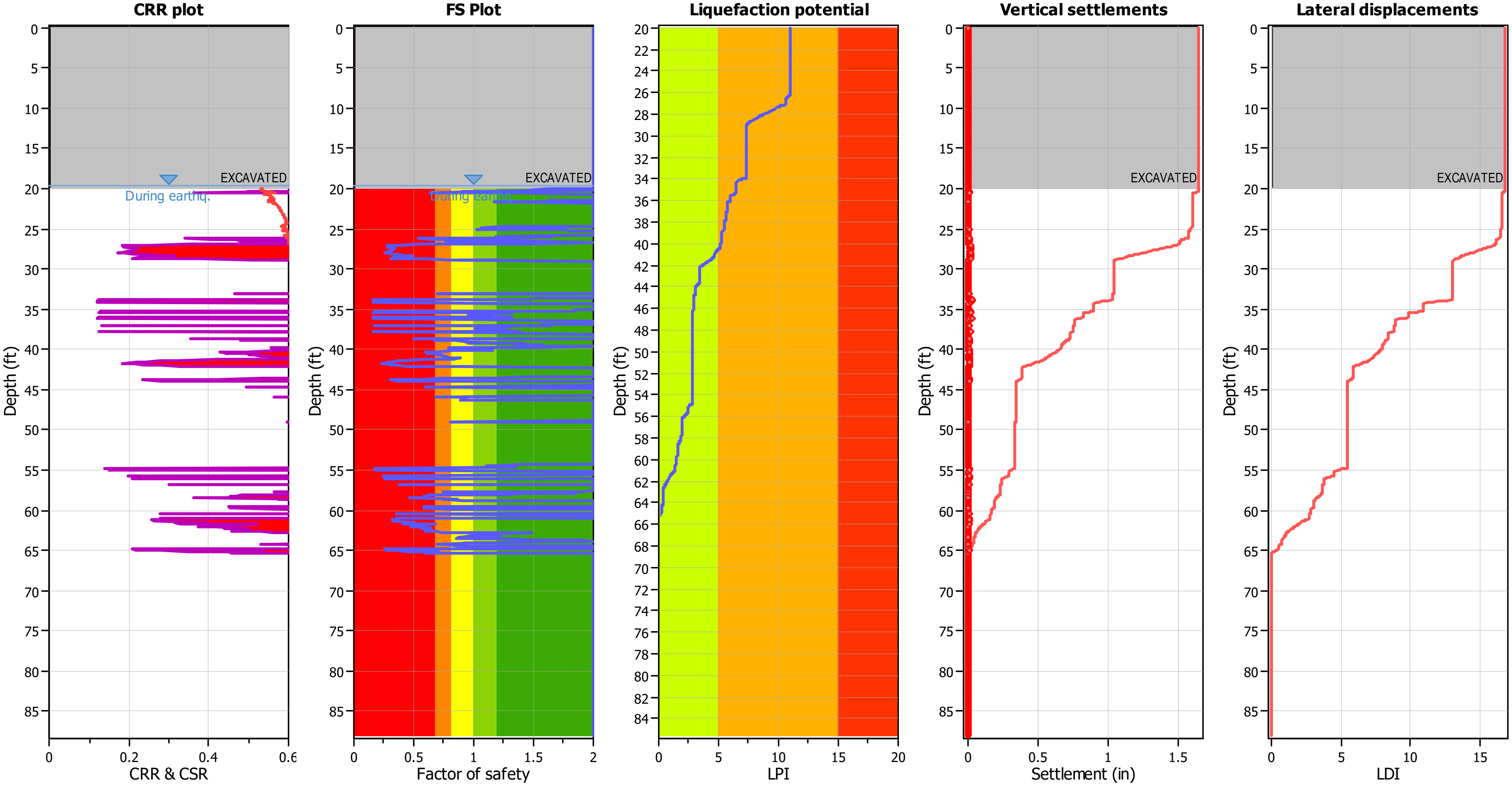
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

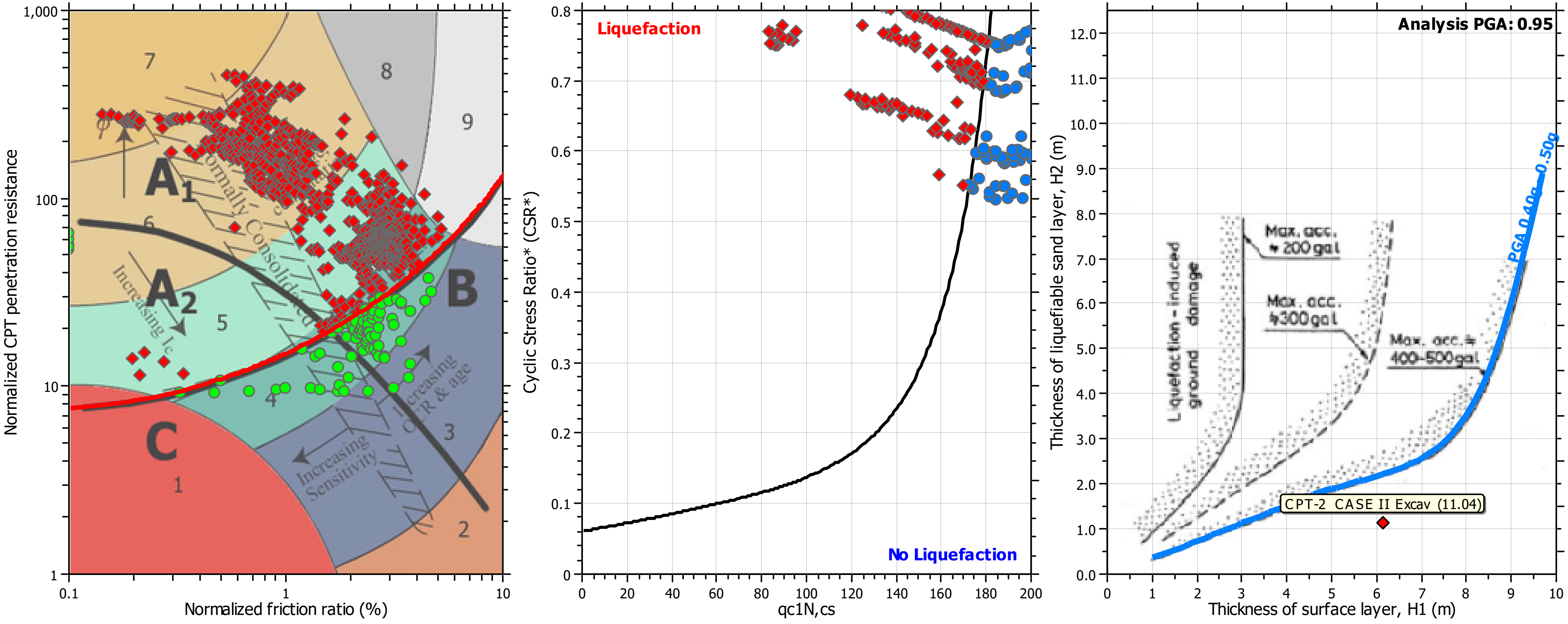
F.S. color scheme

- 🟥 Almost certain it will liquefy
- 🟧 Very likely to liquefy
- 🟨 Liquefaction and no liq. are equally likely
- 🟩 Unlike to liquefy
- 🟩 Almost certain it will not liquefy

LPI color scheme

- 🟥 Very high risk
- 🟧 High risk
- 🟨 Low risk

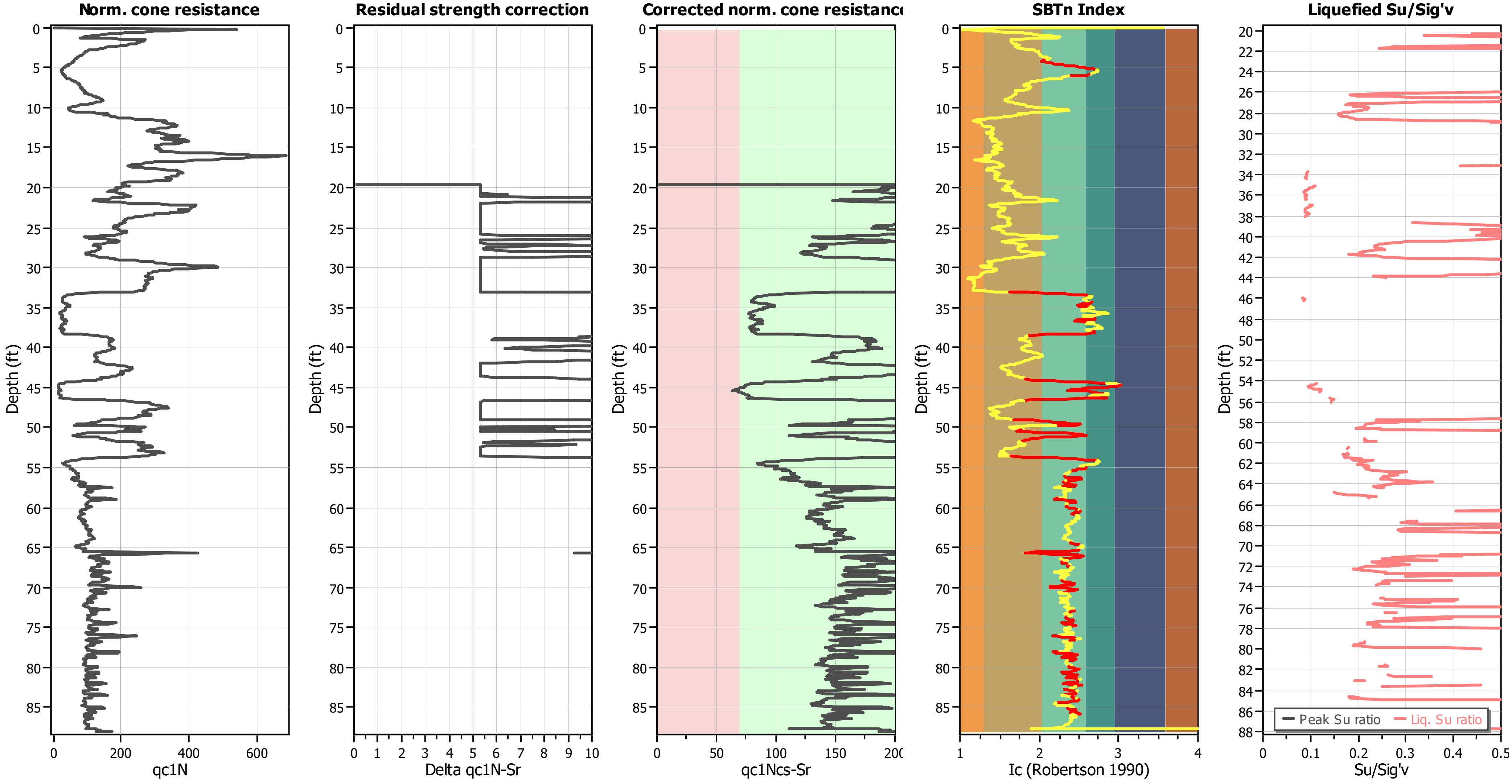
Liquefaction analysis summary plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

Check for strength loss plots (Idriss & Boulanger (2008))



Input parameters and analysis data

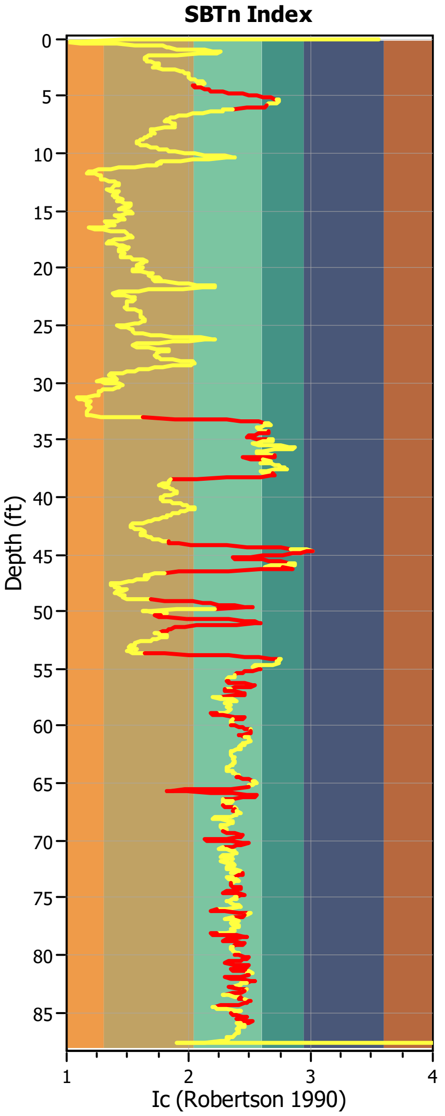
Analysis method:	B&I (2014)	Depth to GWT (erthq.):	19.69 ft	Footing load:	1.50 tsf
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.85	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sand & Clay
Peak ground acceleration:	0.95	Excavation:	Yes	Limit depth applied:	Yes
Depth to water table (insitu):	19.69 ft	Excavation depth:	20.00 ft	Limit depth:	65.62 ft

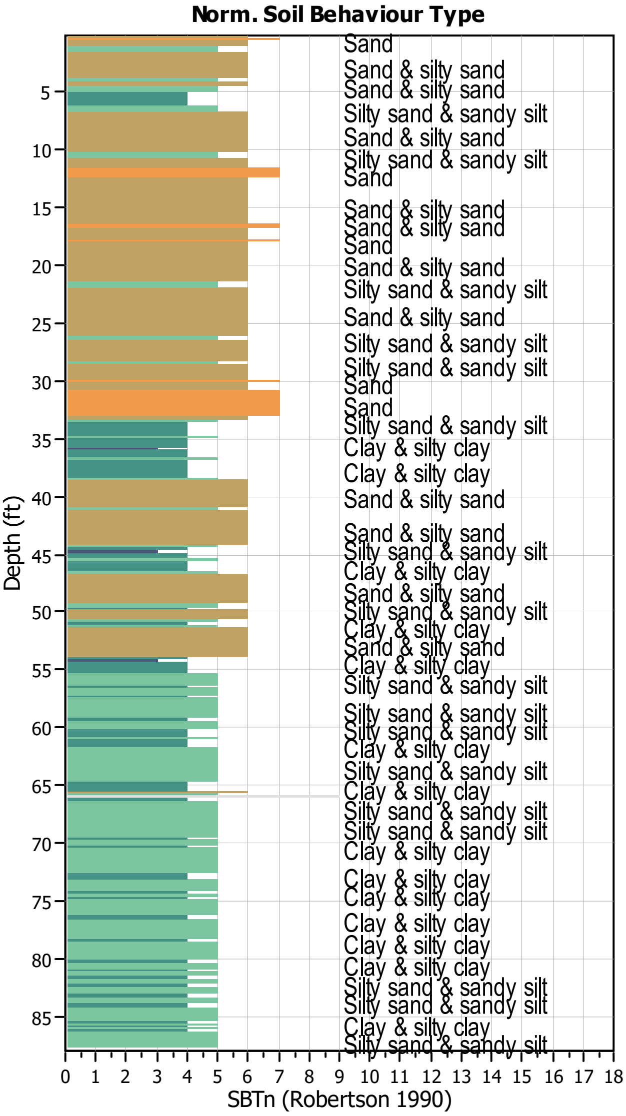
TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.





Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0100
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1341
Total points excluded:	394
Exclusion percentage:	29.38%
Number of layers detected:	64

Transition layer No	**Number of points**	**Depth**	**SBT_n number**	**SBT_n description**
Transition layer 1	20	Start depth: 4.15 (ft)	6	Sand & silty sand
		End depth: 5.38 (ft)	4	Clay & silty clay
Transition layer 2	5	Start depth: 5.91 (ft)	4	Clay & silty clay
		End depth: 6.18 (ft)	5	Silty sand & sandy silt
Transition layer 3	8	Start depth: 33.15 (ft)	6	Sand & silty sand
		End depth: 33.60 (ft)	4	Clay & silty clay
Transition layer 4	6	Start depth: 34.41 (ft)	4	Clay & silty clay
		End depth: 34.72 (ft)	5	Silty sand & sandy silt
Transition layer 5	5	Start depth: 34.72 (ft)	5	Silty sand & sandy silt
		End depth: 35.00 (ft)	4	Clay & silty clay
Transition layer 6	4	Start depth: 36.45 (ft)	4	Clay & silty clay
		End depth: 36.62 (ft)	5	Silty sand & sandy silt
Transition layer 7	4	Start depth: 36.62 (ft)	5	Silty sand & sandy silt
		End depth: 36.83 (ft)	4	Clay & silty clay
Transition layer 8	9	Start depth: 38.06 (ft)	4	Clay & silty clay
		End depth: 38.62 (ft)	6	Sand & silty sand
Transition layer 9	10	Start depth: 44.00 (ft)	6	Sand & silty sand
		End depth: 44.57 (ft)	3	Clay
Transition layer 10	9	Start depth: 44.79 (ft)	3	Clay
		End depth: 45.31 (ft)	5	Silty sand & sandy silt
Transition layer 11	9	Start depth: 45.31 (ft)	5	Silty sand & sandy silt
		End depth: 45.80 (ft)	4	Clay & silty clay
Transition layer 12	7	Start depth: 46.30 (ft)	4	Clay & silty clay
		End depth: 46.67 (ft)	6	Sand & silty sand
Transition layer 13	10	Start depth: 49.03 (ft)	6	Sand & silty sand
		End depth: 49.62 (ft)	4	Clay & silty clay
Transition layer 14	4	Start depth: 49.62 (ft)	4	Clay & silty clay
		End depth: 49.82 (ft)	6	Sand & silty sand
Transition layer 15	10	Start depth: 50.39 (ft)	6	Sand & silty sand
		End depth: 50.99 (ft)	4	Clay & silty clay
Transition layer 16	14	Start depth: 50.99 (ft)	4	Clay & silty clay
		End depth: 51.87 (ft)	6	Sand & silty sand
Transition layer 17	9	Start depth: 53.68 (ft)	6	Sand & silty sand
		End depth: 54.23 (ft)	3	Clay
Transition layer 18	9	Start depth: 55.10 (ft)	4	Clay & silty clay
		End depth: 55.58 (ft)	5	Silty sand & sandy silt
Transition layer 19	6	Start depth: 56.11 (ft)	5	Silty sand & sandy silt
		End depth: 56.43 (ft)	4	Clay & silty clay
Transition layer 20	6	Start depth: 56.43 (ft)	4	Clay & silty clay
		End depth: 56.77 (ft)	5	Silty sand & sandy silt
Transition layer 21	5	Start depth: 56.89 (ft)	5	Silty sand & sandy silt
		End depth: 57.15 (ft)	4	Clay & silty clay
Transition layer 22	5	Start depth: 57.22 (ft)	4	Clay & silty clay
		End depth: 57.49 (ft)	5	Silty sand & sandy silt
Transition layer 23	6	Start depth: 58.93 (ft)	5	Silty sand & sandy silt
		End depth: 59.27 (ft)	4	Clay & silty clay

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 24	5	Start depth: 59.27 (ft)	4	Clay & silty clay
		End depth: 59.53 (ft)	5	Silty sand & sandy silt
Transition layer 25	8	Start depth: 59.92 (ft)	5	Silty sand & sandy silt
		End depth: 60.37 (ft)	4	Clay & silty clay
Transition layer 26	4	Start depth: 60.56 (ft)	4	Clay & silty clay
		End depth: 60.78 (ft)	5	Silty sand & sandy silt
Transition layer 27	4	Start depth: 60.78 (ft)	5	Silty sand & sandy silt
		End depth: 60.97 (ft)	4	Clay & silty clay
Transition layer 28	6	Start depth: 64.46 (ft)	5	Silty sand & sandy silt
		End depth: 64.81 (ft)	4	Clay & silty clay
Transition layer 29	6	Start depth: 65.36 (ft)	4	Clay & silty clay
		End depth: 65.69 (ft)	6	Sand & silty sand
Transition layer 30	7	Start depth: 65.69 (ft)	6	Sand & silty sand
		End depth: 66.08 (ft)	4	Clay & silty clay
Transition layer 31	7	Start depth: 66.08 (ft)	4	Clay & silty clay
		End depth: 66.47 (ft)	5	Silty sand & sandy silt
Transition layer 32	5	Start depth: 66.93 (ft)	5	Silty sand & sandy silt
		End depth: 67.20 (ft)	4	Clay & silty clay
Transition layer 33	4	Start depth: 67.35 (ft)	5	Silty sand & sandy silt
		End depth: 67.53 (ft)	4	Clay & silty clay
Transition layer 34	5	Start depth: 69.24 (ft)	5	Silty sand & sandy silt
		End depth: 69.51 (ft)	4	Clay & silty clay
Transition layer 35	6	Start depth: 69.57 (ft)	4	Clay & silty clay
		End depth: 69.88 (ft)	5	Silty sand & sandy silt
Transition layer 36	5	Start depth: 69.97 (ft)	5	Silty sand & sandy silt
		End depth: 70.21 (ft)	4	Clay & silty clay
Transition layer 37	7	Start depth: 70.28 (ft)	4	Clay & silty clay
		End depth: 70.68 (ft)	5	Silty sand & sandy silt
Transition layer 38	5	Start depth: 72.97 (ft)	4	Clay & silty clay
		End depth: 73.24 (ft)	5	Silty sand & sandy silt
Transition layer 39	6	Start depth: 73.84 (ft)	5	Silty sand & sandy silt
		End depth: 74.16 (ft)	4	Clay & silty clay
Transition layer 40	5	Start depth: 74.25 (ft)	4	Clay & silty clay
		End depth: 74.49 (ft)	5	Silty sand & sandy silt
Transition layer 41	4	Start depth: 74.49 (ft)	5	Silty sand & sandy silt
		End depth: 74.70 (ft)	4	Clay & silty clay
Transition layer 42	4	Start depth: 74.76 (ft)	4	Clay & silty clay
		End depth: 74.97 (ft)	5	Silty sand & sandy silt
Transition layer 43	6	Start depth: 76.08 (ft)	5	Silty sand & sandy silt
		End depth: 76.38 (ft)	4	Clay & silty clay
Transition layer 44	4	Start depth: 76.59 (ft)	4	Clay & silty clay
		End depth: 76.79 (ft)	5	Silty sand & sandy silt
Transition layer 45	6	Start depth: 78.10 (ft)	5	Silty sand & sandy silt
		End depth: 78.42 (ft)	4	Clay & silty clay
Transition layer 46	5	Start depth: 78.42 (ft)	4	Clay & silty clay
		End depth: 78.68 (ft)	5	Silty sand & sandy silt

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 47	5	Start depth: 78.68 (ft) End depth: 78.96 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 48	6	Start depth: 78.96 (ft) End depth: 79.29 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 49	4	Start depth: 80.02 (ft) End depth: 80.19 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 50	8	Start depth: 80.19 (ft) End depth: 80.66 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 51	5	Start depth: 80.66 (ft) End depth: 80.93 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 52	5	Start depth: 81.01 (ft) End depth: 81.24 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 53	5	Start depth: 81.24 (ft) End depth: 81.50 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 54	4	Start depth: 81.77 (ft) End depth: 81.97 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 55	5	Start depth: 81.97 (ft) End depth: 82.22 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 56	4	Start depth: 82.22 (ft) End depth: 82.42 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 57	5	Start depth: 82.75 (ft) End depth: 83.01 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 58	5	Start depth: 83.20 (ft) End depth: 83.47 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 59	4	Start depth: 83.74 (ft) End depth: 83.93 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 60	8	Start depth: 84.05 (ft) End depth: 84.51 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 61	5	Start depth: 85.11 (ft) End depth: 85.37 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 62	4	Start depth: 85.37 (ft) End depth: 85.57 (ft)	4 5	Clay & silty clay Silty sand & sandy silt
Transition layer 63	4	Start depth: 85.57 (ft) End depth: 85.77 (ft)	5 4	Silty sand & sandy silt Clay & silty clay
Transition layer 64	4	Start depth: 85.77 (ft) End depth: 85.96 (ft)	4 5	Clay & silty clay Silty sand & sandy silt

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
305	20.02	217.80	1.86	-1.91	4.75	126.80
306	20.10	204.82	1.32	-1.91	4.34	125.75
307	20.15	202.50	0.97	-1.91	3.55	124.26
308	20.23	211.26	1.10	-2.00	3.31	123.49
309	20.29	194.45	1.00	-2.00	3.83	123.98
310	20.36	189.52	1.21	-2.00	4.57	124.62
311	20.43	193.90	1.44	-2.03	5.58	125.59
312	20.47	178.35	1.56	-2.03	6.17	126.49
313	20.54	193.34	1.75	-2.03	6.17	126.76
314	20.62	202.91	1.59	-2.02	5.63	127.12
315	20.68	214.18	1.70	-2.10	5.75	128.20
316	20.75	226.46	2.45	-2.00	6.18	129.40
317	20.81	228.57	2.53	-2.00	6.74	130.52
318	20.88	232.70	2.73	-2.00	7.33	131.47
319	20.94	238.94	3.47	-2.02	7.50	131.91
320	21.00	240.35	3.02	-2.02	7.22	132.03
321	21.07	251.32	2.80	-2.02	6.12	131.14
322	21.14	255.95	2.34	-2.00	6.56	131.26
323	21.21	222.73	3.22	-2.00	8.29	132.04
324	21.27	204.62	3.95	-2.00	10.86	132.85
325	21.34	191.13	3.82	-2.00	12.23	132.91
326	21.41	181.67	3.57	-2.00	12.99	132.48
327	21.47	168.48	3.54	-2.00	15.01	132.23
328	21.53	133.96	3.85	-2.00	17.44	132.22
329	21.59	132.50	3.95	-2.00	19.55	132.21
330	21.65	132.50	3.85	-2.00	19.64	132.14
331	21.72	131.04	3.76	-1.81	16.20	131.85
332	21.80	185.39	3.05	-1.81	11.64	131.24
333	21.86	222.63	2.42	-1.91	7.64	130.75
334	21.92	252.93	2.59	-2.00	5.48	130.71
335	21.98	292.38	2.62	-2.00	4.15	131.25
336	22.05	336.46	2.63	-2.00	2.86	131.63
337	22.12	384.67	2.64	-2.00	1.80	132.22
338	22.20	448.89	2.88	-1.91	1.23	132.92
339	22.26	468.72	3.14	-1.91	1.16	133.77
340	22.33	467.71	3.50	-1.92	1.46	134.30
341	22.39	448.99	3.59	-1.92	1.86	134.86
342	22.44	457.74	4.00	-1.92	2.58	135.85
343	22.51	455.23	5.13	-1.91	3.29	136.89
344	22.58	453.12	5.53	-1.91	3.71	137.37
345	22.65	452.41	5.04	-1.88	3.74	137.04
346	22.71	420.81	4.54	-1.85	3.54	136.32
347	22.77	413.96	4.24	-1.85	3.56	135.86
348	22.84	411.95	4.34	-1.85	3.45	135.74
349	22.90	424.33	4.31	-1.85	3.08	135.67
350	22.97	450.80	3.99	-1.81	2.71	135.31
351	23.04	427.85	3.69	-1.81	2.61	134.72
352	23.10	387.59	3.48	-1.81	2.62	134.11

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
353	23.17	401.68	3.24	-1.81	2.74	133.62
354	23.23	377.53	3.16	-1.81	2.65	133.05
355	23.31	356.39	2.82	-1.81	2.82	132.30
356	23.37	333.75	2.51	-1.81	2.71	131.46
357	23.43	334.85	2.34	-1.81	2.58	130.51
358	23.50	312.61	1.99	-1.81	2.55	129.69
359	23.57	290.97	1.87	-1.81	2.72	129.04
360	23.62	285.13	1.92	-1.81	3.19	128.96
361	23.70	271.24	2.02	-1.81	3.62	129.07
362	23.76	264.20	2.03	-1.81	4.09	129.16
363	23.82	256.45	2.06	-1.91	4.42	129.18
364	23.88	250.81	2.09	-1.91	4.59	128.98
365	23.96	245.18	1.91	-1.91	4.59	128.64
366	24.02	242.46	1.82	-1.91	4.48	128.25
367	24.10	241.35	1.82	-1.91	4.49	128.09
368	24.16	238.23	1.81	-1.91	4.51	128.07
369	24.24	240.95	1.81	-1.91	4.55	128.06
370	24.29	238.74	1.81	-1.91	4.57	128.13
371	24.35	240.55	1.86	-1.91	4.68	128.19
372	24.42	236.97	1.86	-1.94	4.78	128.24
373	24.48	235.21	1.86	-1.94	4.94	128.22
374	24.56	230.89	1.87	-1.94	5.08	128.10
375	24.62	225.45	1.80	-1.92	5.10	127.81
376	24.67	222.93	1.68	-1.92	4.87	127.16
377	24.74	218.81	1.45	-1.91	4.61	126.35
378	24.81	209.75	1.32	-2.00	4.33	125.41
379	24.88	205.42	1.18	-1.91	3.62	123.95
380	24.95	210.10	0.75	-2.00	2.52	121.65
381	25.01	204.92	0.45	-1.91	1.64	119.68
382	25.08	210.45	0.61	-1.91	1.62	119.95
383	25.15	218.71	0.81	-1.91	2.10	121.60
384	25.21	218.96	0.90	-1.91	2.43	122.61
385	25.26	219.21	0.94	-1.91	2.74	123.46
386	25.34	226.15	1.13	-1.91	3.07	124.46
387	25.39	231.39	1.32	-1.81	3.38	125.58
388	25.48	239.94	1.47	-1.81	3.46	126.28
389	25.54	247.79	1.48	-1.81	3.40	126.60
390	25.60	248.20	1.47	-1.81	3.38	126.55
391	25.66	239.54	1.44	-1.81	3.61	126.45
392	25.74	229.07	1.45	-1.91	4.13	126.65
393	25.79	224.85	1.65	-1.91	4.88	127.22
394	25.86	219.41	1.85	-1.91	5.89	128.08
395	25.93	210.45	2.12	-2.00	7.36	129.09
396	25.99	196.97	2.57	-2.00	9.49	129.81
397	26.05	166.17	2.75	-2.10	12.25	130.18
398	26.12	141.81	2.84	-2.10	15.85	129.95
399	26.19	112.62	2.82	-2.19	18.78	129.56
400	26.26	109.40	2.71	-1.72	19.64	129.17

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
401	26.32	121.78	2.56	-1.24	16.77	129.05
402	26.39	152.68	2.41	-0.95	13.12	128.94
403	26.45	176.03	2.19	-1.24	9.75	128.60
404	26.51	199.58	1.88	-3.15	7.26	127.91
405	26.57	216.49	1.60	-4.87	5.25	126.83
406	26.65	227.56	1.28	-5.72	3.99	125.76
407	26.72	228.47	1.17	-4.82	3.37	124.98
408	26.78	225.95	1.18	-5.15	3.45	124.83
409	26.85	217.80	1.23	-4.77	3.92	124.87
410	26.92	202.60	1.24	-4.58	4.60	124.83
411	26.97	188.92	1.23	-4.58	5.57	124.79
412	27.03	172.41	1.30	-4.48	6.87	124.67
413	27.13	149.46	1.31	-4.29	8.25	124.61
414	27.19	143.32	1.31	-4.20	8.95	124.52
415	27.23	151.12	1.32	-4.82	8.80	124.49
416	27.31	152.78	1.28	-4.82	8.07	124.41
417	27.37	162.34	1.22	-4.82	7.45	124.25
418	27.43	166.37	1.20	-4.87	6.99	124.14
419	27.50	165.46	1.19	-5.44	6.86	124.11
420	27.56	165.97	1.19	-5.63	6.82	124.03
421	27.63	165.77	1.16	-5.72	6.73	123.86
422	27.70	164.26	1.11	-6.11	6.67	123.62
423	27.76	162.24	1.09	-6.11	6.73	123.44
424	27.82	159.63	1.09	-6.20	7.05	123.34
425	27.90	151.17	1.10	-6.39	7.58	123.24
426	27.96	143.83	1.09	-6.49	8.36	123.17
427	28.02	136.08	1.12	-6.58	9.64	123.52
428	28.10	126.61	1.33	-6.49	11.19	124.02
429	28.15	120.27	1.41	-6.58	12.91	124.61
430	28.23	114.94	1.53	-6.49	13.98	125.05
431	28.29	116.95	1.63	-6.49	14.40	125.56
432	28.36	123.29	1.73	-6.49	14.08	126.04
433	28.43	130.04	1.78	-6.49	13.17	126.28
434	28.48	138.79	1.71	-6.49	11.56	125.98
435	28.56	149.76	1.41	-6.49	9.63	125.40
436	28.65	162.55	1.30	-6.49	8.00	124.88
437	28.69	172.21	1.31	-6.49	6.60	124.80
438	28.78	194.85	1.25	-6.49	5.56	124.85
439	28.82	205.32	1.23	-6.39	4.57	124.80
440	28.91	216.90	1.19	-3.75	4.26	124.72
441	28.95	208.34	1.18	-1.14	3.80	124.80
442	29.01	233.40	1.21	-1.05	3.34	125.26
443	29.07	261.38	1.34	-1.05	2.74	126.05
444	29.14	280.50	1.47	-1.05	2.18	126.59
445	29.20	301.34	1.40	-1.05	1.58	126.67
446	29.28	322.27	1.29	-0.95	1.05	126.71
447	29.33	338.98	1.41	-0.86	0.93	127.40
448	29.40	352.06	1.73	-0.67	1.14	128.82

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
449	29.48	377.83	2.15	-0.67	1.40	130.38
450	29.54	403.50	2.53	-0.67	1.39	131.39
451	29.61	422.32	2.53	-0.48	1.50	132.58
452	29.68	452.21	3.25	-0.38	1.55	133.61
453	29.73	479.08	3.60	-0.29	1.05	133.98
454	29.80	534.64	2.76	-0.19	0.43	133.88
455	29.88	559.80	2.91	-0.10	0.00	133.68
456	29.93	568.05	3.18	0.10	0.16	134.39
457	30.00	554.77	3.61	0.19	0.58	135.04
458	30.06	539.27	3.86	0.19	1.24	135.28
459	30.12	466.10	3.78	0.57	1.83	134.84
460	30.20	418.09	3.29	0.57	2.26	133.91
461	30.26	401.28	2.89	0.57	2.21	132.89
462	30.32	393.53	2.65	0.48	2.07	131.94
463	30.39	367.36	2.33	0.29	1.94	131.06
464	30.45	357.20	2.09	0.00	1.71	129.95
465	30.52	349.45	1.74	-0.10	1.27	128.65
466	30.58	342.10	1.36	-0.10	0.76	127.19
467	30.64	337.87	1.17	-0.29	0.39	125.91
468	30.71	330.43	1.08	-0.29	0.21	125.16
469	30.78	329.62	1.02	-0.29	0.14	124.79
470	30.84	329.42	1.02	0.00	0.09	124.63
471	30.92	329.22	1.01	0.19	0.04	124.46
472	30.98	329.42	0.95	0.29	0.00	124.34
473	31.04	329.02	0.97	0.38	0.03	124.16
474	31.12	317.95	0.95	0.00	0.00	124.03
475	31.18	331.94	0.90	0.10	0.00	123.29
476	31.25	336.97	0.70	0.10	0.00	121.65
477	31.33	346.13	0.42	-0.29	0.00	120.01
478	31.37	344.32	0.49	-0.29	0.00	119.30
479	31.46	338.88	0.55	-0.57	0.00	119.91
480	31.50	339.38	0.55	-0.57	0.00	120.23
481	31.58	318.95	0.57	-0.92	0.00	120.73
482	31.64	318.15	0.68	-0.92	0.00	121.34
483	31.71	322.68	0.72	-0.92	0.00	121.65
484	31.79	325.80	0.65	-1.34	0.00	121.54
485	31.83	324.99	0.64	-1.34	0.00	121.25
486	31.91	330.93	0.64	-1.34	0.00	121.23
487	31.96	329.12	0.65	-1.34	0.00	121.24
488	32.04	324.89	0.64	-1.34	0.00	121.32
489	32.09	324.79	0.66	-1.53	0.00	121.47
490	32.16	318.35	0.69	-1.53	0.00	121.42
491	32.24	318.85	0.63	-1.72	0.00	121.27
492	32.29	317.95	0.63	-1.72	0.00	121.03
493	32.37	318.75	0.63	-1.72	0.00	120.96
494	32.43	321.97	0.61	-1.72	0.00	120.85
495	32.50	320.66	0.60	-1.81	0.00	120.77
496	32.57	323.18	0.60	-1.81	0.00	120.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
497	32.61	321.47	0.60	-1.91	0.00	120.59
498	32.70	317.24	0.57	-2.19	0.00	120.44
499	32.75	317.04	0.57	-2.29	0.00	120.27
500	32.83	317.14	0.57	-2.38	0.00	120.26
501	32.87	315.93	0.57	-2.38	0.00	121.16
502	32.96	302.85	0.80	-2.58	0.15	122.64
503	33.01	283.93	1.03	-2.67	2.04	124.79
504	33.10	208.84	1.53	-2.53	4.80	125.99
505	33.15	167.88	1.65	-2.48	9.95	126.34
506	33.23	103.47	1.74	-2.48	15.48	125.86
507	33.29	84.85	1.70	-2.48	22.77	124.98
508	33.35	67.03	1.60	-2.38	27.33	124.13
509	33.41	58.07	1.49	-2.29	31.28	123.22
510	33.46	52.74	1.38	-2.19	34.32	122.19
511	33.55	44.08	1.20	-2.00	36.71	121.10
512	33.60	40.76	1.07	-1.91	38.53	119.89
513	33.67	38.75	0.93	-1.81	38.60	118.70
514	33.75	36.84	0.77	-1.81	38.03	117.62
515	33.79	36.43	0.72	-1.72	36.59	116.65
516	33.88	37.74	0.64	-1.72	35.26	116.09
517	33.96	37.84	0.61	-1.72	34.00	115.63
518	33.99	37.94	0.59	-1.62	33.59	115.23
519	34.06	36.94	0.55	-1.62	34.23	115.19
520	34.13	35.73	0.61	-1.53	34.63	114.79
521	34.20	34.82	0.51	-1.53	35.20	114.67
522	34.28	34.82	0.53	-1.34	35.82	114.83
523	34.33	34.82	0.65	-1.34	38.42	116.26
524	34.41	34.82	0.88	-1.06	38.40	118.15
525	34.48	44.89	1.06	-0.67	37.09	119.75
526	34.51	48.51	1.17	-0.67	34.32	121.15
527	34.60	54.55	1.35	-0.67	32.47	122.09
528	34.68	60.49	1.42	-0.67	30.61	122.73
529	34.72	63.31	1.40	-0.76	29.51	122.92
530	34.80	62.30	1.41	-0.67	30.80	123.02
531	34.88	54.75	1.52	-0.76	33.55	123.07
532	34.92	50.42	1.53	-0.67	38.00	123.13
533	35.00	44.49	1.62	-0.57	39.51	123.18
534	35.05	49.72	1.61	-0.51	39.51	122.99
535	35.13	49.02	1.43	-0.51	37.19	122.33
536	35.20	48.01	1.18	-0.29	35.43	120.93
537	35.27	45.90	0.90	-0.29	33.70	119.42
538	35.30	44.99	0.80	-0.29	32.16	117.98
539	35.37	44.18	0.69	-0.29	32.16	117.20
540	35.44	41.06	0.69	-0.19	33.86	116.63
541	35.50	35.73	0.69	-0.29	37.87	116.34
542	35.57	30.70	0.69	-0.10	42.97	115.94
543	35.64	26.97	0.67	-0.10	47.42	115.67
544	35.71	25.77	0.69	0.19	49.70	115.69

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
545	35.78	26.67	0.73	0.19	49.42	115.79
546	35.84	27.88	0.69	0.29	46.00	115.79
547	35.92	32.31	0.63	0.38	40.59	115.57
548	36.00	37.14	0.59	0.48	35.70	115.27
549	36.04	39.15	0.55	0.48	33.38	114.69
550	36.12	36.33	0.48	0.48	33.19	114.11
551	36.16	34.92	0.48	0.48	34.88	113.68
552	36.24	32.21	0.50	0.57	36.31	114.24
553	36.33	35.08	0.60	0.57	38.98	115.01
554	36.37	31.70	0.67	0.67	40.28	116.33
555	36.45	35.23	0.83	0.86	40.32	117.28
556	36.49	39.76	0.86	0.95	35.28	118.04
557	36.58	50.63	0.79	1.05	30.05	117.84
558	36.62	53.64	0.65	0.95	27.91	117.98
559	36.70	50.42	0.85	0.95	30.73	118.65
560	36.79	42.88	1.05	0.95	35.68	119.50
561	36.83	40.56	1.06	0.95	39.30	119.81
562	36.90	40.66	1.05	1.05	37.52	119.79
563	36.97	48.41	1.00	2.86	35.38	119.69
564	37.01	47.30	0.97	2.77	34.52	119.36
565	37.10	41.57	0.91	2.77	36.53	118.86
566	37.14	38.25	0.87	2.96	39.32	118.12
567	37.23	34.62	0.79	3.15	41.01	117.50
568	37.27	33.82	0.76	3.15	42.42	116.64
569	37.36	30.70	0.66	3.15	43.56	115.91
570	37.40	28.89	0.62	3.15	43.73	115.25
571	37.49	30.70	0.60	3.34	44.78	115.13
572	37.53	28.18	0.64	3.43	45.47	115.89
573	37.62	30.70	0.82	3.43	45.92	116.87
574	37.67	34.02	0.87	3.53	41.04	117.59
575	37.75	42.77	0.76	3.62	37.00	117.52
576	37.83	41.57	0.72	3.62	34.65	117.09
577	37.89	39.05	0.70	3.62	35.89	116.73
578	37.93	36.84	0.69	3.62	38.58	116.57
579	38.02	33.01	0.72	3.82	39.69	116.68
580	38.06	36.79	0.75	3.91	40.50	116.89
581	38.15	35.83	0.76	4.01	39.63	117.16
582	38.19	36.74	0.78	4.10	38.67	117.69
583	38.28	42.27	0.88	4.20	34.55	118.66
584	38.32	54.85	0.97	4.39	23.24	120.78
585	38.41	111.92	1.18	4.48	14.96	123.10
586	38.49	158.32	1.44	3.72	10.68	125.03
587	38.53	172.61	1.59	3.72	9.14	126.50
588	38.62	190.93	1.85	3.62	8.78	127.42
589	38.66	196.97	1.97	3.62	8.75	128.41
590	38.74	205.62	2.26	3.62	8.93	129.15
591	38.79	209.55	2.42	3.53	8.64	129.49
592	38.87	220.02	2.20	3.53	7.84	129.14

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
593	38.92	224.44	1.88	3.53	7.15	128.85
594	39.01	227.97	2.11	3.53	7.05	128.92
595	39.05	227.06	2.24	3.53	7.66	129.59
596	39.14	224.14	2.48	3.43	8.22	130.06
597	39.18	223.14	2.58	3.43	8.95	130.37
598	39.27	210.25	2.62	3.24	9.31	130.47
599	39.32	214.48	2.62	3.15	9.66	130.50
600	39.40	211.86	2.65	2.48	9.74	130.56
601	39.44	209.85	2.69	2.10	10.07	130.67
602	39.53	207.43	2.78	1.43	10.28	130.80
603	39.57	209.85	2.80	1.05	10.46	130.92
604	39.66	208.44	2.83	0.76	10.47	130.99
605	39.70	209.85	2.85	0.48	10.11	130.75
606	39.79	213.37	2.51	0.10	9.42	130.28
607	39.83	215.79	2.29	-0.10	8.66	129.84
608	39.92	221.93	2.36	-0.57	8.11	129.69
609	40.00	229.98	2.31	-1.05	7.75	129.75
610	40.05	233.30	2.29	-1.34	7.42	129.71
611	40.09	234.91	2.27	-1.07	7.42	129.61
612	40.18	226.05	2.24	-1.10	7.51	129.50
613	40.23	225.55	2.21	-1.10	7.73	129.33
614	40.30	219.11	2.17	-1.14	7.99	129.19
615	40.38	210.35	2.16	-1.24	8.46	129.05
616	40.43	202.60	2.16	-1.24	9.13	128.94
617	40.51	191.23	2.17	-1.24	9.82	128.84
618	40.56	184.49	2.17	-1.24	10.51	128.75
619	40.62	178.55	2.17	-1.14	11.14	128.65
620	40.70	170.40	2.17	-1.14	11.76	128.56
621	40.76	165.57	2.17	-1.14	12.36	128.49
622	40.82	161.94	2.18	-1.19	12.94	128.54
623	40.89	158.12	2.27	-1.14	13.63	128.73
624	40.98	155.40	2.39	-1.14	14.25	128.98
625	41.02	155.30	2.44	-1.24	14.37	129.14
626	41.11	159.93	2.42	-1.43	14.00	129.16
627	41.15	164.26	2.36	-1.62	13.05	128.91
628	41.24	169.89	2.13	-2.10	12.27	128.55
629	41.28	169.09	2.05	-2.29	11.42	127.85
630	41.37	166.07	1.75	-3.62	10.80	127.21
631	41.41	168.79	1.64	-4.20	10.12	126.50
632	41.50	168.48	1.55	-4.29	9.66	126.18
633	41.55	170.50	1.53	-4.29	9.22	125.95
634	41.63	175.13	1.47	-4.29	8.83	125.81
635	41.68	176.84	1.44	-4.41	8.71	125.55
636	41.74	167.18	1.38	-4.53	8.38	125.41
637	41.80	181.67	1.37	-4.53	7.91	125.33
638	41.87	190.22	1.36	-4.67	7.20	125.43
639	41.94	194.95	1.37	-4.77	6.76	125.46
640	42.02	199.58	1.35	-4.87	6.42	125.58

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
641	42.09	207.74	1.38	-4.77	6.00	125.87
642	42.16	222.23	1.47	-4.87	5.58	126.29
643	42.20	233.10	1.53	-4.77	4.84	126.61
644	42.29	257.46	1.47	-4.87	4.10	126.67
645	42.33	268.13	1.42	-4.87	3.38	126.75
646	42.42	284.03	1.47	-4.87	3.11	127.04
647	42.46	289.87	1.59	-4.87	3.07	127.52
648	42.55	292.58	1.68	-4.77	3.18	127.88
649	42.60	292.98	1.70	-4.77	3.28	128.12
650	42.66	293.39	1.74	-4.77	3.38	128.31
651	42.74	294.09	1.81	-4.67	3.65	128.52
652	42.82	283.52	1.87	-4.67	4.01	128.69
653	42.87	275.67	1.91	-4.67	4.55	128.76
654	42.96	261.88	1.94	-4.67	4.98	128.77
655	43.00	257.56	1.94	-4.67	5.15	128.68
656	43.09	261.94	1.88	-4.58	5.13	128.50
657	43.13	255.54	1.81	-4.58	4.83	128.18
658	43.21	261.99	1.69	-4.58	4.56	127.89
659	43.26	266.01	1.66	-4.58	4.37	127.80
660	43.34	263.90	1.73	-4.58	4.45	127.83
661	43.38	258.76	1.72	-4.58	4.99	128.13
662	43.47	246.28	1.91	-4.58	5.47	128.22
663	43.52	241.35	1.86	-4.58	5.98	128.23
664	43.60	232.90	1.79	-4.58	6.21	128.06
665	43.65	228.27	1.83	-4.48	6.64	128.03
666	43.74	220.42	1.89	-4.48	7.10	128.12
667	43.78	216.69	1.90	-4.48	7.93	127.94
668	43.83	188.31	1.81	-4.40	8.25	127.47
669	43.91	192.94	1.62	-4.40	8.75	126.74
670	44.00	177.34	1.51	-4.40	8.91	126.20
671	44.04	167.88	1.52	-4.29	10.71	126.19
672	44.13	142.01	1.77	-4.29	13.46	126.53
673	44.17	123.49	1.94	-4.29	18.05	126.51
674	44.26	90.68	1.85	-4.29	22.95	125.97
675	44.30	75.38	1.74	-4.29	29.73	124.64
676	44.39	52.54	1.48	-4.29	35.48	123.34
677	44.44	47.00	1.35	-4.29	43.13	121.64
678	44.53	34.22	1.13	-4.01	48.49	120.31
679	44.57	29.59	1.03	-3.82	55.79	118.40
680	44.66	22.85	0.78	-3.62	59.59	116.63
681	44.70	21.74	0.63	-3.53	60.01	114.16
682	44.79	21.34	0.40	-3.43	56.38	111.95
683	44.83	21.34	0.32	-3.34	52.75	110.06
684	44.92	21.54	0.32	-3.34	51.78	109.65
685	44.96	21.64	0.34	-3.24	49.10	108.39
686	45.05	21.94	0.16	-3.24	44.15	105.82
687	45.09	22.85	0.07	-3.15	35.84	101.39
688	45.18	25.36	0.08	-3.15	31.41	99.14

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
689	45.22	26.37	0.07	-3.05	27.49	98.83
690	45.31	32.11	0.06	-3.05	5.00	98.12
691	45.35	32.31	0.05	-2.61	25.66	96.52
692	45.42	20.43	0.04	-2.61	29.35	95.54
693	45.48	20.33	0.04	-2.61	35.98	96.81
694	45.56	20.93	0.09	-2.10	38.30	99.73
695	45.62	21.54	0.12	-2.10	40.92	102.69
696	45.68	22.04	0.17	-2.10	43.47	105.10
697	45.74	22.44	0.23	-2.10	47.30	107.88
698	45.80	22.34	0.36	-2.00	50.20	110.51
699	45.88	24.66	0.48	-1.91	49.71	112.08
700	45.95	27.88	0.45	-1.91	45.41	112.49
701	46.00	31.50	0.39	-1.91	39.37	111.85
702	46.07	34.72	0.33	-1.91	36.31	111.56
703	46.13	34.12	0.39	-1.91	39.26	112.57
704	46.21	28.48	0.56	-1.91	44.22	114.90
705	46.30	33.52	0.81	-1.72	48.66	116.89
706	46.34	32.91	0.94	-1.53	34.88	119.89
707	46.43	84.85	1.23	-1.34	23.32	122.47
708	46.47	123.49	1.46	-1.34	14.24	125.63
709	46.55	194.65	2.03	-1.81	10.72	127.95
710	46.59	223.03	2.39	-1.72	8.23	129.86
711	46.67	273.46	2.62	-1.72	6.64	130.87
712	46.76	312.11	2.66	-1.72	5.49	131.65
713	46.80	329.42	2.89	-1.81	5.01	132.44
714	46.88	351.56	3.32	-1.81	5.01	133.20
715	46.92	357.40	3.48	-1.81	5.15	133.86
716	47.00	361.22	3.71	-1.84	5.36	134.21
717	47.05	357.65	3.80	-1.84	5.54	134.42
718	47.12	357.90	3.80	-1.83	5.34	134.45
719	47.18	379.04	3.69	-1.91	4.78	134.37
720	47.25	399.07	3.55	-1.81	4.07	134.18
721	47.32	408.63	3.36	-1.81	3.48	133.85
722	47.38	413.16	3.12	-1.72	2.88	133.32
723	47.44	424.93	2.79	-1.91	2.15	132.45
724	47.52	429.77	2.28	-2.19	1.50	131.34
725	47.58	416.18	1.96	-2.29	1.12	130.18
726	47.65	394.94	1.81	-2.38	1.10	129.38
727	47.71	380.45	1.73	-2.38	1.24	128.88
728	47.78	366.76	1.67	-2.48	1.43	128.60
729	47.84	355.29	1.67	-2.67	1.51	128.19
730	47.91	347.44	1.50	-2.67	1.78	128.22
731	47.97	338.48	1.73	-2.67	2.13	128.48
732	48.04	333.34	1.88	-2.77	2.67	129.14
733	48.12	332.44	2.02	-2.77	2.66	129.23
734	48.17	344.11	1.79	-3.05	2.22	128.82
735	48.25	353.88	1.54	-3.72	1.67	128.31
736	48.33	362.13	1.61	-3.91	1.41	128.16

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
737	48.37	365.55	1.66	-4.10	1.48	128.48
738	48.46	363.94	1.73	-4.67	1.63	128.66
739	48.50	356.39	1.74	-4.55	2.04	128.64
740	48.56	319.96	1.72	-4.55	2.31	128.40
741	48.63	324.29	1.63	-4.55	2.42	127.88
742	48.69	318.65	1.45	-4.77	2.21	127.22
743	48.76	307.18	1.33	-4.87	2.25	126.44
744	48.84	283.93	1.25	-4.96	2.73	126.17
745	48.90	266.41	1.38	-5.34	3.97	126.64
746	48.98	238.43	1.71	-5.34	5.78	127.62
747	49.03	220.12	2.01	-5.34	8.25	128.66
748	49.09	196.06	2.36	-5.34	10.97	129.80
749	49.18	184.39	2.94	-5.34	13.62	130.75
750	49.21	177.34	3.23	-5.34	16.18	131.80
751	49.30	169.19	3.85	-5.34	18.50	132.56
752	49.38	159.73	4.21	-5.34	20.72	133.07
753	49.42	151.78	4.26	-5.34	22.95	133.06
754	49.50	133.46	4.15	-5.34	25.77	132.58
755	49.58	110.01	3.89	-5.34	28.98	131.83
756	49.62	100.45	3.59	-5.34	31.71	130.72
757	49.69	88.47	3.00	-5.06	29.33	130.04
758	49.76	118.66	2.86	-4.77	19.43	130.21
759	49.82	221.12	2.80	-4.67	10.36	130.79
760	49.89	318.25	2.45	-4.77	5.78	131.15
761	49.95	345.42	2.48	-4.96	4.65	131.70
762	50.03	327.31	3.09	-5.15	5.29	132.70
763	50.07	329.62	3.59	-5.13	6.83	133.63
764	50.15	297.51	3.89	-5.13	7.65	133.92
765	50.20	295.55	3.65	-5.10	8.37	133.71
766	50.27	280.20	3.48	-5.10	8.00	133.27
767	50.33	293.59	3.26	-5.06	7.47	132.90
768	50.39	304.96	3.10	-5.06	6.46	132.78
769	50.47	332.24	3.14	-5.06	7.08	132.76
770	50.54	256.35	3.36	-4.96	8.57	132.96
771	50.59	238.23	3.62	-5.06	12.70	133.04
772	50.66	176.03	4.00	-5.25	17.19	133.05
773	50.73	138.79	4.11	-5.06	23.87	132.73
774	50.80	112.22	4.12	-5.15	29.07	132.21
775	50.86	102.56	3.91	-5.06	32.17	131.55
776	50.93	97.53	3.53	-4.77	33.88	130.87
777	50.99	87.16	3.40	-4.48	34.85	130.24
778	51.06	85.65	3.21	-4.29	32.32	130.01
779	51.13	112.52	3.04	-4.01	26.26	130.01
780	51.18	141.51	2.85	-3.91	18.95	129.98
781	51.26	180.26	2.46	-4.20	14.61	129.79
782	51.33	190.12	2.39	-4.39	11.98	129.59
783	51.38	201.19	2.38	-4.39	10.95	129.63
784	51.45	212.06	2.38	-4.48	10.17	129.71

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
785	51.52	218.00	2.36	-4.48	9.46	129.80
786	51.61	229.68	2.36	-4.58	8.96	129.92
787	51.65	235.31	2.41	-4.57	8.66	130.52
788	51.73	253.43	2.83	-4.66	7.96	131.44
789	51.80	300.23	3.11	-4.66	7.21	132.62
790	51.87	330.73	3.50	-4.48	6.65	133.61
791	51.93	340.89	3.87	-4.87	6.83	134.38
792	51.99	335.36	4.15	-5.06	7.51	134.99
793	52.06	324.99	4.52	-5.15	8.11	135.48
794	52.11	335.26	4.76	-5.15	8.71	135.81
795	52.17	320.86	4.82	-5.15	8.66	135.93
796	52.24	335.16	4.71	-5.15	8.34	135.93
797	52.30	354.48	4.67	-5.15	7.49	135.90
798	52.37	371.59	4.54	-5.15	6.82	135.80
799	52.44	375.31	4.36	-5.06	6.34	135.50
800	52.50	368.77	4.06	-5.06	6.00	134.74
801	52.56	346.13	3.36	-5.15	5.36	133.42
802	52.63	337.47	2.53	-5.15	4.51	131.74
803	52.70	332.64	2.11	-5.15	3.77	130.52
804	52.76	335.96	2.16	-5.15	3.63	130.10
805	52.83	325.80	2.17	-5.06	3.62	130.06
806	52.89	331.13	2.08	-5.15	3.61	130.41
807	52.95	356.49	2.43	-5.15	3.43	131.08
808	53.02	381.25	2.68	-4.96	3.28	132.01
809	53.10	404.10	2.88	-4.96	3.06	132.62
810	53.16	420.30	2.95	-4.87	3.34	133.24
811	53.25	396.55	3.39	-4.87	3.79	133.70
812	53.29	392.12	3.52	-4.96	3.98	133.49
813	53.37	387.69	2.76	-4.96	3.43	132.38
814	53.45	373.40	2.08	-4.96	2.81	130.97
815	53.50	362.23	2.12	-4.96	2.87	130.39
816	53.59	346.73	2.32	-4.96	3.54	130.87
817	53.63	340.49	2.60	-4.96	5.15	131.69
818	53.68	283.83	3.15	-5.01	8.30	132.95
819	53.76	227.87	4.26	-5.01	13.07	133.75
820	53.82	187.00	4.52	-5.01	18.54	134.07
821	53.88	152.68	4.58	-5.25	23.62	133.55
822	53.96	120.98	4.23	-5.06	28.95	132.77
823	54.02	100.75	4.04	-4.77	34.31	131.87
824	54.08	85.55	3.86	-4.48	38.88	131.11
825	54.14	76.69	3.61	-4.39	42.11	129.93
826	54.23	66.53	2.80	-4.10	43.22	128.33
827	54.28	60.99	2.16	-4.01	42.64	125.98
828	54.34	55.36	1.49	-3.91	41.72	123.66
829	54.41	49.62	1.20	-3.91	41.71	121.58
830	54.49	44.89	1.09	-3.82	42.82	120.44
831	54.53	43.78	1.04	-3.82	42.72	119.98
832	54.61	47.00	1.02	-3.72	39.91	120.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
833	54.70	54.25	1.03	-3.62	35.61	120.28
834	54.75	61.70	1.03	-3.62	32.40	122.00
835	54.83	76.29	1.62	-3.53	31.55	123.65
836	54.88	75.59	1.80	-3.53	32.46	124.95
837	54.92	70.86	1.82	-3.53	33.93	125.22
838	55.01	71.01	1.87	-3.43	34.64	125.16
839	55.10	71.16	1.80	-3.24	34.46	125.14
840	55.13	71.76	1.80	-2.96	31.83	125.18
841	55.20	86.76	1.77	-2.96	30.14	125.32
842	55.29	83.84	1.80	-2.96	28.69	125.57
843	55.33	85.35	1.88	-2.58	28.36	125.94
844	55.42	94.31	2.00	-2.48	27.38	126.34
845	55.46	97.33	2.02	-2.48	26.17	126.49
846	55.55	97.93	1.92	-2.38	25.68	126.43
847	55.58	97.93	1.93	-2.26	25.53	126.41
848	55.66	98.53	2.00	-2.26	25.21	126.58
849	55.72	103.57	2.01	-2.26	24.40	126.63
850	55.78	106.69	1.91	-2.10	23.56	126.46
851	55.84	104.27	1.83	-2.10	23.04	126.16
852	55.91	104.07	1.78	-2.00	23.02	125.98
853	55.98	104.07	1.79	-2.00	23.18	126.05
854	56.05	103.87	1.88	-1.81	23.30	126.33
855	56.11	107.59	1.97	-1.72	23.25	126.66
856	56.19	110.31	2.02	-1.81	23.71	126.82
857	56.25	101.86	2.02	-2.00	25.63	126.83
858	56.32	88.97	2.10	-2.00	28.67	126.78
859	56.36	83.84	2.17	-1.91	31.82	126.84
860	56.43	79.71	2.25	-1.91	32.40	126.89
861	56.52	85.95	2.17	-1.72	31.03	126.90
862	56.57	93.50	2.10	-1.62	28.16	126.95
863	56.64	102.26	2.11	-1.62	25.76	127.07
864	56.69	108.80	2.11	-1.62	23.91	127.29
865	56.77	115.74	2.14	-1.53	22.84	127.85
866	56.85	124.30	2.47	-1.53	22.59	128.50
867	56.89	124.35	2.62	-1.32	22.49	129.38
868	56.97	135.17	2.93	-1.32	23.39	129.92
869	57.03	124.40	3.08	-1.32	25.27	130.39
870	57.12	111.92	3.31	-1.05	27.85	130.54
871	57.15	110.41	3.34	-1.05	29.22	130.54
872	57.22	111.11	3.20	-1.05	29.08	130.66
873	57.29	115.64	3.43	-0.86	28.13	131.48
874	57.35	136.28	4.25	-0.86	25.37	132.95
875	57.42	177.04	4.90	-0.67	21.23	134.49
876	57.49	224.65	5.25	-0.95	18.81	135.45
877	57.56	219.92	5.49	-1.24	18.63	135.80
878	57.62	194.75	5.51	-1.24	21.16	135.64
879	57.68	163.55	5.45	-1.24	24.73	135.19
880	57.74	141.91	5.26	-0.95	26.04	134.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
881	57.83	161.89	4.86	-0.76	25.88	134.16
882	57.89	150.87	4.44	-0.29	23.58	133.60
883	57.96	160.23	4.00	-0.19	22.84	133.05
884	58.02	158.52	3.93	-0.10	22.54	132.71
885	58.07	146.64	3.92	-0.10	23.31	132.38
886	58.16	140.00	3.64	0.00	24.02	132.00
887	58.22	139.40	3.51	0.00	23.71	131.52
888	58.28	139.45	3.28	0.00	23.20	131.20
889	58.34	139.45	3.20	0.00	23.00	131.08
890	58.42	139.50	3.35	0.10	23.24	131.12
891	58.48	137.38	3.35	0.19	24.18	131.29
892	58.53	130.94	3.49	0.38	24.02	131.59
893	58.60	148.76	3.70	0.95	23.93	131.89
894	58.67	146.04	3.73	1.05	23.33	132.33
895	58.73	150.37	3.99	1.14	23.68	133.06
896	58.80	162.85	4.76	1.24	22.22	134.36
897	58.86	206.73	5.54	1.43	20.03	135.86
898	58.93	244.17	6.30	1.43	18.49	136.88
899	59.00	240.35	6.51	1.53	19.10	137.25
900	59.07	207.13	6.50	0.76	21.76	137.01
901	59.14	172.71	6.35	0.76	25.43	136.49
902	59.21	153.69	6.11	0.76	28.19	135.80
903	59.27	145.23	5.53	1.05	28.81	135.06
904	59.33	144.43	4.95	1.14	27.84	134.18
905	59.39	143.62	4.35	1.34	26.07	133.19
906	59.47	143.12	3.68	1.43	24.74	132.31
907	59.53	140.40	3.51	1.53	23.95	131.66
908	59.58	138.89	3.42	1.53	24.07	131.55
909	59.67	138.84	3.55	1.62	24.25	131.57
910	59.73	138.84	3.56	1.62	24.67	131.79
911	59.81	138.79	3.74	1.72	24.53	132.05
912	59.84	147.15	3.87	1.81	24.02	132.52
913	59.92	157.41	4.12	1.72	24.23	132.92
914	60.00	146.34	4.34	1.72	25.38	133.19
915	60.04	138.29	4.42	1.72	26.84	133.35
916	60.12	142.32	4.55	1.72	28.04	133.53
917	60.20	136.18	4.78	1.72	28.85	133.68
918	60.24	132.35	4.77	1.72	30.18	133.50
919	60.32	123.19	4.43	1.72	30.75	133.09
920	60.37	121.38	4.20	1.72	31.07	132.55
921	60.44	117.76	3.97	1.72	31.05	132.16
922	60.52	115.64	3.86	1.72	31.11	131.90
923	60.56	115.74	3.83	1.72	31.01	131.80
924	60.64	116.95	3.83	1.72	30.06	131.83
925	60.71	125.61	3.80	1.91	28.34	131.86
926	60.78	134.26	3.68	1.91	27.12	131.85
927	60.83	130.44	3.68	1.91	27.54	131.73
928	60.93	118.46	3.69	1.91	28.88	131.65

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
929	60.97	118.26	3.72	1.91	30.18	131.62
930	61.05	116.85	3.78	2.19	30.12	131.56
931	61.10	118.06	3.60	2.29	30.33	131.38
932	61.18	112.73	3.51	2.29	30.50	131.22
933	61.23	112.42	3.59	2.29	31.04	131.23
934	61.30	113.43	3.67	2.29	30.99	131.33
935	61.36	115.24	3.63	2.10	30.74	131.35
936	61.42	115.24	3.59	2.10	29.10	131.47
937	61.49	131.85	3.65	2.58	28.69	131.64
938	61.55	123.19	3.81	2.58	28.46	131.98
939	61.63	125.10	4.02	2.58	28.80	132.28
940	61.69	134.87	4.09	2.77	27.74	132.58
941	61.75	141.81	4.10	2.67	27.11	132.65
942	61.82	134.46	4.06	2.58	27.23	132.58
943	61.88	131.85	4.01	2.86	27.73	132.43
944	61.95	132.75	3.94	3.05	27.61	132.25
945	62.01	131.85	3.79	3.05	27.07	131.97
946	62.09	132.05	3.57	3.15	26.20	131.72
947	62.15	137.38	3.51	3.15	24.99	131.56
948	62.22	143.62	3.46	3.15	24.37	131.56
949	62.30	140.10	3.49	3.15	24.02	131.61
950	62.34	143.47	3.53	3.15	24.28	131.65
951	62.42	141.31	3.55	3.34	24.19	131.73
952	62.50	143.32	3.58	3.34	24.30	131.69
953	62.54	141.41	3.50	3.43	24.22	131.80
954	62.62	145.03	3.67	3.43	24.69	132.11
955	62.70	144.73	4.04	3.43	25.15	132.55
956	62.74	146.24	4.14	3.43	25.42	133.07
957	62.82	154.59	4.44	3.53	24.92	133.48
958	62.86	162.75	4.60	3.53	24.90	133.77
959	62.94	154.49	4.59	3.53	25.00	133.88
960	63.01	156.10	4.63	3.53	25.70	133.92
961	63.07	154.19	4.77	3.82	25.64	134.01
962	63.15	157.82	4.73	3.82	25.70	133.94
963	63.21	153.49	4.51	3.82	25.43	133.70
964	63.26	151.88	4.35	3.91	25.12	133.41
965	63.32	154.59	4.23	4.01	24.81	133.18
966	63.41	151.93	4.11	4.01	24.53	133.02
967	63.47	151.98	4.07	4.01	24.20	132.91
968	63.54	156.71	4.04	4.01	23.63	132.96
969	63.61	161.74	4.11	4.01	23.20	133.21
970	63.67	165.87	4.38	4.10	23.09	133.64
971	63.74	170.80	4.67	4.20	22.93	134.02
972	63.82	175.53	4.68	4.20	22.80	134.19
973	63.86	173.52	4.64	4.20	22.95	134.12
974	63.94	166.27	4.57	4.10	23.69	133.97
975	63.99	159.02	4.54	4.10	24.56	133.72
976	64.07	153.19	4.36	4.29	25.01	133.49

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
977	64.11	153.69	4.28	4.39	25.51	133.26
978	64.20	146.14	4.25	4.29	25.96	133.16
979	64.24	144.43	4.26	4.20	26.66	133.25
980	64.33	146.84	4.51	4.29	26.74	133.45
981	64.38	150.57	4.58	4.29	26.54	133.62
982	64.46	151.37	4.49	4.10	26.15	133.58
983	64.51	151.47	4.40	4.10	26.78	133.27
984	64.59	134.46	4.18	4.10	28.13	132.88
985	64.64	125.61	4.06	4.10	30.63	132.21
986	64.72	109.40	3.70	4.20	31.76	131.11
987	64.81	102.26	2.83	4.20	32.88	130.32
988	64.85	102.16	3.22	4.20	32.85	130.00
989	64.93	104.27	3.33	4.29	33.36	130.49
990	64.97	106.69	3.43	4.29	32.56	131.02
991	65.06	118.36	3.79	4.39	31.79	131.92
992	65.11	128.43	4.44	4.39	30.64	133.09
993	65.17	142.52	5.01	4.39	30.42	133.81
994	65.23	137.38	4.93	4.39	30.14	134.07
995	65.29	137.99	4.84	4.77	30.28	133.82
996	65.36	135.27	4.61	4.86	30.17	133.59
997	65.43	133.36	4.53	4.86	24.00	134.11
998	65.49	233.50	4.84	4.67	21.74	135.07
999	65.56	205.12	5.89	4.58	12.06	137.37
1000	65.62	554.37	7.86	6.58	9.42	137.37
1001	65.69	575.10	10.15	7.54	8.69	137.37
1002	65.76	448.38	11.41	4.20	12.37	137.37
1003	65.81	327.51	11.71	3.62	18.44	137.37
1004	65.88	239.44	11.21	3.24	24.74	137.37
1005	65.95	203.31	10.23	3.72	29.85	137.37
1006	66.02	173.42	9.08	4.48	32.11	137.37
1007	66.08	164.16	8.07	5.44	32.97	137.37
1008	66.15	157.82	7.20	6.01	32.45	137.19
1009	66.21	152.58	6.44	6.30	31.30	136.37
1010	66.28	155.80	5.89	6.49	28.39	135.94
1011	66.34	184.29	5.74	6.77	24.70	135.79
1012	66.41	204.82	5.48	6.87	21.89	135.84
1013	66.47	209.55	5.48	7.15	21.46	135.91
1014	66.54	195.76	5.80	6.96	23.24	136.22
1015	66.61	181.06	6.45	6.96	24.62	136.73
1016	66.69	201.80	6.82	7.63	24.21	137.15
1017	66.75	218.51	6.67	7.54	22.49	137.35
1018	66.80	223.64	6.56	7.44	21.66	137.37
1019	66.87	222.63	6.79	6.39	21.53	137.37
1020	66.93	223.44	6.72	6.49	21.77	137.37
1021	66.99	222.13	6.83	6.58	22.28	137.37
1022	67.06	205.72	6.56	6.77	23.81	137.23
1023	67.15	185.59	6.64	6.87	25.35	136.96
1024	67.20	184.29	6.53	6.77	26.21	136.88

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1025	67.27	188.31	6.55	7.25	25.50	136.76
1026	67.35	193.85	6.23	7.35	24.84	136.57
1027	67.40	189.52	5.97	7.15	25.17	136.15
1028	67.48	168.89	5.72	7.20	26.08	135.81
1029	67.53	168.28	5.69	6.87	27.27	135.53
1030	67.59	163.35	5.60	7.25	26.82	135.26
1031	67.66	167.68	5.11	7.25	26.47	134.97
1032	67.73	165.06	5.09	7.35	26.08	134.75
1033	67.80	162.85	5.12	7.35	25.76	134.74
1034	67.85	172.41	5.06	7.44	24.12	135.02
1035	67.93	199.89	5.33	7.44	21.82	135.36
1036	67.98	215.79	5.34	7.44	19.56	135.69
1037	68.06	233.10	5.26	7.06	18.68	135.70
1038	68.12	221.32	5.18	6.68	19.06	135.55
1039	68.18	201.29	5.14	6.58	21.10	135.28
1040	68.26	178.05	5.13	7.15	23.33	134.99
1041	68.32	169.69	5.04	7.35	24.70	134.59
1042	68.37	166.07	4.66	7.44	25.05	134.29
1043	68.46	163.85	4.66	7.44	24.66	133.93
1044	68.52	165.57	4.39	7.54	24.09	133.90
1045	68.59	174.42	4.53	7.54	22.95	134.43
1046	68.66	198.98	5.36	7.63	21.74	135.20
1047	68.70	213.17	5.52	7.63	21.21	136.07
1048	68.79	216.69	6.08	7.44	21.24	136.52
1049	68.83	215.79	6.29	7.06	21.36	136.90
1050	68.91	225.45	6.34	7.44	21.76	137.07
1051	68.98	214.88	6.54	6.96	22.64	137.19
1052	69.04	201.80	6.75	7.44	23.19	137.24
1053	69.10	216.29	6.57	7.54	23.10	137.09
1054	69.17	211.16	6.17	7.54	21.90	136.84
1055	69.24	217.70	5.94	7.54	21.93	136.44
1056	69.29	200.39	5.71	7.54	23.05	135.93
1057	69.38	170.60	5.35	7.44	25.45	135.45
1058	69.44	160.03	5.41	7.73	27.58	135.17
1059	69.51	160.23	5.51	7.82	28.27	135.22
1060	69.57	162.85	5.56	7.73	28.14	135.17
1061	69.64	160.53	5.29	7.73	27.35	134.67
1062	69.70	157.41	4.46	7.73	26.12	135.10
1063	69.77	193.14	6.17	7.73	22.95	136.68
1064	69.84	268.43	7.89	8.11	19.87	137.37
1065	69.88	312.01	8.40	8.20	16.93	137.37
1066	69.97	355.39	8.89	7.63	17.15	137.37
1067	70.06	285.74	9.20	6.49	19.31	137.37
1068	70.11	234.21	8.88	6.49	23.98	137.37
1069	70.16	200.59	8.47	6.87	27.86	137.37
1070	70.21	177.84	7.97	8.59	29.75	137.37
1071	70.28	176.84	7.21	8.97	30.03	137.20
1072	70.35	164.26	5.90	9.06	27.79	136.10

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1073	70.41	176.94	5.05	9.25	26.45	135.11
1074	70.47	167.28	5.02	9.35	25.15	134.86
1075	70.56	177.04	5.25	9.63	24.15	135.08
1076	70.62	200.19	5.27	9.73	21.88	135.41
1077	70.68	220.22	5.24	9.73	20.42	135.55
1078	70.74	213.07	5.25	9.63	20.92	135.50
1079	70.81	187.61	5.26	9.73	22.70	135.39
1080	70.87	180.86	5.34	9.35	24.30	135.40
1081	70.94	184.59	5.54	9.73	25.31	135.42
1082	71.02	171.70	5.47	9.83	25.60	135.01
1083	71.10	163.85	4.61	10.02	25.90	134.40
1084	71.15	162.45	4.51	10.02	24.99	133.68
1085	71.23	164.76	4.15	10.11	24.60	133.35
1086	71.26	161.04	4.07	10.02	22.79	133.14
1087	71.33	184.89	3.96	10.68	21.71	133.09
1088	71.40	181.97	3.94	10.49	21.38	133.02
1089	71.46	165.06	3.92	10.40	22.81	132.81
1090	71.53	154.49	3.85	10.78	24.34	132.57
1091	71.60	152.08	3.80	10.88	24.63	132.44
1092	71.66	157.82	3.79	11.07	23.47	132.40
1093	71.74	170.50	3.65	11.16	21.95	132.44
1094	71.80	177.74	3.67	11.16	20.93	132.45
1095	71.85	175.73	3.67	11.07	21.34	132.47
1096	71.92	164.16	3.73	11.07	23.04	132.38
1097	72.01	147.35	3.75	11.07	24.80	132.13
1098	72.07	143.42	3.55	11.26	25.56	131.72
1099	72.13	144.03	3.29	11.35	25.32	131.30
1100	72.19	140.71	3.21	11.35	25.27	131.01
1101	72.26	137.48	3.20	11.54	25.02	130.96
1102	72.34	146.24	3.20	11.64	24.34	131.10
1103	72.38	152.98	3.30	11.64	23.22	131.41
1104	72.47	161.04	3.45	11.54	22.90	131.75
1105	72.51	160.03	3.58	11.54	25.27	133.21
1106	72.60	156.61	5.54	11.73	27.35	134.76
1107	72.64	174.82	6.28	11.73	27.39	136.45
1108	72.73	210.15	6.94	11.73	24.92	137.29
1109	72.77	227.77	6.97	11.54	24.36	137.37
1110	72.86	195.96	6.82	11.50	26.45	137.37
1111	72.90	164.96	6.90	11.50	28.25	137.16
1112	72.97	191.03	6.82	11.45	28.07	136.82
1113	73.04	187.91	5.98	11.73	26.48	136.22
1114	73.10	171.00	5.29	12.12	25.19	135.45
1115	73.17	187.66	5.06	12.31	24.56	134.89
1116	73.24	180.86	4.84	12.40	23.19	134.66
1117	73.31	187.41	4.67	12.40	23.30	134.41
1118	73.36	177.94	4.65	12.50	24.23	134.19
1119	73.43	158.72	4.62	12.50	25.82	133.96
1120	73.50	156.31	4.51	12.50	26.62	133.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1121	73.56	160.94	4.42	12.78	25.77	133.45
1122	73.63	162.85	4.04	12.88	24.72	133.02
1123	73.71	159.93	3.74	12.78	24.03	132.50
1124	73.77	157.41	3.61	12.97	24.04	132.19
1125	73.84	154.70	3.63	13.07	24.13	132.16
1126	73.91	157.92	3.71	13.16	24.49	132.27
1127	73.99	155.30	3.79	13.26	24.94	132.56
1128	74.03	155.90	4.07	13.36	26.45	133.66
1129	74.12	166.17	5.52	13.36	27.20	134.71
1130	74.16	174.12	5.64	13.36	27.45	135.85
1131	74.25	186.10	6.29	13.45	27.37	136.52
1132	74.29	188.61	6.92	13.45	26.92	137.37
1133	74.38	216.79	7.98	13.64	25.14	137.37
1134	74.41	250.21	8.03	14.12	22.78	137.37
1135	74.49	259.57	7.62	12.78	21.95	137.37
1136	74.56	225.35	7.06	11.64	23.40	137.37
1137	74.63	186.10	6.49	12.31	26.67	136.88
1138	74.70	162.14	5.97	13.26	29.07	135.90
1139	74.76	157.61	5.35	14.21	29.13	134.94
1140	74.82	158.32	4.60	14.50	27.56	134.02
1141	74.89	158.32	4.13	14.60	25.99	133.24
1142	74.97	158.32	3.92	14.69	25.25	132.84
1143	75.01	158.32	3.93	14.88	25.40	132.96
1144	75.10	159.43	4.32	14.79	25.85	133.33
1145	75.14	161.94	4.51	14.98	24.66	133.82
1146	75.20	189.82	4.52	16.69	23.50	134.19
1147	75.27	189.72	4.76	16.98	23.00	134.50
1148	75.34	180.66	4.94	17.17	23.70	134.60
1149	75.41	180.76	4.79	17.12	24.07	134.51
1150	75.48	180.86	4.66	17.08	24.30	134.29
1151	75.54	170.40	4.61	17.08	25.22	134.04
1152	75.61	158.62	4.49	17.08	26.63	133.74
1153	75.67	152.28	4.37	17.08	27.05	133.47
1154	75.74	157.61	4.25	17.17	27.60	133.67
1155	75.82	156.61	4.87	17.36	27.42	134.40
1156	75.86	174.82	5.55	17.55	26.51	136.31
1157	75.94	229.28	7.78	17.65	23.22	137.37
1158	76.01	298.92	9.19	18.03	20.01	137.37
1159	76.08	342.50	9.60	17.46	18.29	137.37
1160	76.12	328.51	9.54	16.41	19.07	137.37
1161	76.19	267.12	9.19	13.16	22.09	137.37
1162	76.25	219.21	8.63	16.55	26.78	137.37
1163	76.32	174.22	7.57	15.07	30.09	137.37
1164	76.38	166.67	6.59	16.69	31.13	136.61
1165	76.45	162.24	5.49	17.08	29.68	135.35
1166	76.52	157.51	4.65	17.36	28.63	134.38
1167	76.59	154.09	4.64	17.84	28.44	133.89
1168	76.66	151.98	4.64	18.03	27.07	134.14

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1169	76.73	182.98	4.88	18.51	24.60	134.63
1170	76.79	206.13	5.12	18.98	22.28	135.14
1171	76.84	210.45	5.17	19.08	22.59	135.38
1172	76.92	185.39	5.36	18.98	24.95	135.40
1173	76.99	164.36	5.55	18.70	26.70	135.46
1174	77.04	184.19	5.56	20.32	27.06	135.39
1175	77.11	177.94	5.28	20.61	25.36	135.13
1176	77.17	182.98	4.79	20.89	24.58	134.58
1177	77.24	180.06	4.46	20.70	24.14	134.05
1178	77.30	169.19	4.35	20.51	24.90	133.59
1179	77.38	157.61	4.17	20.61	26.14	133.19
1180	77.44	151.17	4.02	20.99	26.87	132.80
1181	77.51	149.26	3.85	21.18	26.84	132.49
1182	77.56	150.47	3.73	21.27	25.91	132.33
1183	77.64	159.32	3.71	21.56	24.87	132.28
1184	77.70	162.75	3.67	21.56	24.04	132.15
1185	77.77	159.32	3.47	21.46	23.91	131.97
1186	77.83	156.71	3.46	21.46	24.97	132.65
1187	77.90	165.26	4.67	21.85	25.29	134.47
1188	77.97	206.33	6.30	22.42	22.85	136.36
1189	78.06	264.20	6.60	22.32	20.06	137.37
1190	78.10	273.56	6.43	21.27	18.16	137.37
1191	78.16	265.00	6.16	14.31	18.94	137.21
1192	78.23	225.15	5.96	20.80	21.81	136.67
1193	78.28	180.46	5.88	16.60	26.02	136.00
1194	78.36	160.53	5.55	20.32	29.22	135.28
1195	78.42	155.00	5.03	21.08	29.57	134.40
1196	78.49	151.68	4.31	21.46	27.98	133.48
1197	78.56	157.21	3.83	21.94	25.16	133.04
1198	78.63	182.17	4.02	22.42	22.84	133.12
1199	78.68	190.63	4.13	22.51	21.79	133.41
1200	78.76	184.59	4.12	22.04	22.64	133.40
1201	78.81	167.07	4.12	21.75	25.22	133.18
1202	78.90	143.12	4.13	21.66	27.71	132.90
1203	78.96	143.12	3.99	22.13	29.03	132.57
1204	79.02	143.12	3.81	22.70	28.35	132.30
1205	79.07	145.03	3.69	22.80	27.26	131.92
1206	79.15	147.35	3.37	22.99	25.76	131.55
1207	79.21	153.49	3.20	23.18	24.58	131.20
1208	79.29	152.48	3.15	23.28	23.92	131.06
1209	79.34	153.34	3.15	23.37	23.93	131.05
1210	79.41	153.19	3.18	24.80	24.14	131.05
1211	79.48	149.56	3.17	25.09	24.49	130.96
1212	79.54	146.44	3.08	25.19	24.78	130.67
1213	79.60	142.62	2.89	25.19	24.79	130.35
1214	79.69	142.11	2.83	25.38	24.93	130.37
1215	79.73	145.23	3.11	25.47	26.42	131.74
1216	79.81	156.10	4.60	25.76	26.97	133.68

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1217	79.89	184.59	5.61	26.14	26.64	135.22
1218	79.93	194.95	5.71	26.14	25.52	135.86
1219	80.02	194.75	5.67	25.09	25.60	135.87
1220	80.06	183.68	5.63	25.09	27.14	135.65
1221	80.12	163.25	5.53	24.52	29.08	135.31
1222	80.19	156.41	5.31	27.38	30.48	134.80
1223	80.26	151.07	4.85	27.95	29.89	134.11
1224	80.32	152.68	4.23	28.33	28.89	133.44
1225	80.39	151.78	4.08	28.52	28.10	133.07
1226	80.46	151.78	4.20	28.71	27.35	133.00
1227	80.53	160.73	4.04	29.00	25.96	133.23
1228	80.58	177.04	4.26	29.48	23.37	133.55
1229	80.66	201.40	4.34	29.57	22.06	134.05
1230	80.72	200.09	4.62	29.19	22.48	134.50
1231	80.78	184.08	5.04	28.33	25.32	134.67
1232	80.87	157.82	5.05	29.10	28.41	134.54
1233	80.93	150.67	4.83	30.05	29.96	134.04
1234	81.01	150.77	4.39	30.24	29.65	133.64
1235	81.04	151.37	4.35	30.34	28.07	133.54
1236	81.11	168.18	4.47	32.15	26.38	133.88
1237	81.18	183.78	4.71	32.53	24.60	134.30
1238	81.24	191.13	4.78	32.15	24.08	134.50
1239	81.31	183.58	4.74	30.91	24.81	134.49
1240	81.37	171.40	4.79	30.15	27.58	134.42
1241	81.45	147.05	5.05	30.05	30.40	134.47
1242	81.50	147.75	5.20	31.10	31.81	134.62
1243	81.56	158.22	5.24	31.96	30.74	134.65
1244	81.64	160.83	4.96	32.44	29.73	134.49
1245	81.69	156.41	4.78	31.77	29.66	134.31
1246	81.77	154.49	4.91	32.63	29.98	134.55
1247	81.83	163.45	5.43	33.29	27.46	135.10
1248	81.91	206.73	5.42	34.44	24.46	135.72
1249	81.97	223.74	5.61	34.25	22.27	136.15
1250	82.02	221.93	5.89	32.15	23.90	136.27
1251	82.12	178.35	5.95	29.10	27.40	136.15
1252	82.18	159.12	5.98	31.39	31.20	135.83
1253	82.22	157.71	5.83	33.10	32.34	135.47
1254	82.28	154.19	5.38	34.15	30.80	134.94
1255	82.36	163.95	4.74	36.73	29.35	134.38
1256	82.42	161.04	4.60	37.01	27.98	134.07
1257	82.49	164.26	4.68	37.78	27.64	133.92
1258	82.55	164.66	4.44	37.78	27.49	134.12
1259	82.62	168.79	4.91	38.06	26.54	134.38
1260	82.69	185.80	4.99	38.54	24.62	134.49
1261	82.75	198.38	4.37	37.97	23.31	134.06
1262	82.83	178.05	4.02	35.49	23.78	133.49
1263	82.88	160.43	4.18	37.97	26.84	133.10
1264	82.96	141.51	4.16	37.21	29.28	132.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1265	83.01	141.71	4.01	37.97	29.67	132.57
1266	83.07	147.85	3.74	38.35	28.91	132.14
1267	83.14	140.50	3.49	39.21	28.17	132.13
1268	83.20	150.47	3.92	40.54	28.69	133.20
1269	83.27	167.98	5.31	41.50	27.31	134.93
1270	83.34	207.13	6.16	42.74	24.97	136.29
1271	83.40	233.40	6.19	42.17	22.58	136.53
1272	83.47	224.14	5.37	38.45	21.55	135.78
1273	83.53	200.99	4.49	42.12	23.27	134.82
1274	83.61	164.86	4.73	36.44	25.63	134.25
1275	83.67	166.07	4.75	42.07	27.20	134.22
1276	83.74	176.74	4.64	43.02	26.50	134.18
1277	83.80	174.02	4.57	44.55	27.19	134.01
1278	83.86	151.58	4.57	38.64	28.81	133.83
1279	83.93	149.96	4.56	39.21	30.66	133.68
1280	84.00	147.25	4.55	39.30	30.70	133.60
1281	84.05	149.36	4.45	39.59	30.56	133.34
1282	84.13	145.23	4.13	42.45	29.72	132.99
1283	84.19	148.76	3.92	43.79	28.75	132.51
1284	84.25	149.26	3.65	44.74	27.07	132.02
1285	84.33	154.59	3.30	46.27	24.50	131.07
1286	84.39	159.63	2.52	46.94	21.26	129.52
1287	84.46	158.82	1.79	47.03	19.42	128.34
1288	84.51	155.50	2.16	47.22	18.91	127.70
1289	84.58	152.78	2.01	47.41	19.30	127.81
1290	84.65	155.15	1.90	48.37	19.80	128.12
1291	84.72	154.80	2.42	49.61	22.93	129.56
1292	84.79	139.80	3.46	50.37	25.96	131.53
1293	84.85	161.34	4.25	53.61	27.71	133.52
1294	84.91	182.57	5.33	56.09	26.64	135.49
1295	84.98	213.47	6.70	54.28	25.43	136.70
1296	85.05	223.64	6.52	48.56	24.37	137.12
1297	85.11	218.71	6.06	33.20	24.27	136.58
1298	85.18	195.46	5.49	33.20	24.61	135.53
1299	85.24	180.66	4.49	33.20	26.31	134.63
1300	85.31	161.44	4.67	39.78	27.88	134.16
1301	85.37	158.72	4.92	47.13	29.38	134.53
1302	85.44	170.19	5.31	56.76	28.30	135.02
1303	85.51	190.32	5.40	59.24	26.72	135.41
1304	85.57	194.65	5.41	55.62	25.98	135.54
1305	85.63	186.80	5.44	47.60	27.23	135.47
1306	85.70	168.28	5.47	45.41	29.83	135.31
1307	85.77	152.08	5.49	52.85	31.49	135.21
1308	85.84	162.24	5.48	61.15	30.53	135.05
1309	85.89	176.13	5.03	63.06	27.31	134.33
1310	85.96	176.13	3.77	62.58	26.31	133.43
1311	86.04	151.37	3.91	56.00	26.56	132.70
1312	86.09	153.19	4.01	59.24	28.99	132.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1313	86.16	150.67	4.39	68.21	28.89	133.42
1314	86.23	164.56	4.61	80.52	28.68	133.85
1315	86.29	166.87	4.65	87.39	26.93	134.13
1316	86.36	182.98	4.63	84.14	26.31	134.18
1317	86.43	175.73	4.60	67.07	26.20	134.00
1318	86.48	163.55	4.34	84.14	26.54	133.43
1319	86.55	161.84	3.78	72.41	26.83	132.79
1320	86.62	154.29	3.70	84.14	26.66	132.20
1321	86.68	150.87	3.53	85.48	26.79	131.90
1322	86.75	152.38	3.40	85.29	26.53	131.64
1323	86.82	151.58	3.36	87.58	26.05	131.51
1324	86.88	153.89	3.32	98.17	25.63	131.47
1325	86.95	156.81	3.32	97.21	25.31	131.59
1326	87.01	158.92	3.47	100.84	25.21	131.88
1327	87.08	162.85	3.66	106.66	24.73	132.00
1328	87.14	166.87	3.42	107.80	23.61	131.58
1329	87.21	164.76	2.84	107.32	22.83	131.18
1330	87.28	164.26	3.12	108.47	22.91	131.13
1331	87.35	164.71	3.38	102.55	23.43	131.43
1332	87.40	164.66	3.23	109.14	22.62	131.25
1333	87.47	172.01	2.82	116.58	21.91	130.82
1334	87.53	164.56	2.85	134.32	21.21	130.78
1335	87.61	174.62	3.12	149.30	16.82	127.96
1336	87.67	176.33	0.00	154.17	10.48	123.35
1337	87.73	192.84	0.00	161.89	100.00	87.42
1338	87.80	195.05	0.00	153.97	100.00	87.42
1339	87.87	204.11	0.00	113.33	100.00	87.42
1340	87.93	193.14	0.00	85.10	100.00	87.42
1341	88.00	250.21	0.00	75.56	100.00	87.42

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
305	0.02	1.51	0.01	1.50	1.00	0.622	1.19	0.524	0.91	1.00	0.533	No
306	0.10	1.52	0.01	1.51	1.00	0.623	1.19	0.525	0.92	1.00	0.531	No
307	0.15	1.52	0.01	1.51	1.00	0.623	1.19	0.525	0.92	1.00	0.535	No
308	0.23	1.53	0.02	1.51	1.00	0.624	1.19	0.526	0.92	1.00	0.532	No
309	0.29	1.53	0.02	1.51	1.00	0.625	1.19	0.527	0.93	1.00	0.546	No
310	0.36	1.54	0.02	1.51	1.00	0.626	1.19	0.527	0.93	1.00	0.552	No
311	0.43	1.54	0.02	1.52	1.00	0.627	1.19	0.528	0.93	1.00	0.549	No
312	0.47	1.54	0.02	1.52	1.00	0.627	1.19	0.529	0.94	1.00	0.566	No
313	0.54	1.55	0.03	1.52	1.00	0.628	1.19	0.529	0.93	1.00	0.551	No
314	0.62	1.55	0.03	1.52	1.00	0.629	1.19	0.530	0.92	1.00	0.541	No
315	0.68	1.56	0.03	1.52	1.00	0.630	1.19	0.531	0.91	1.00	0.539	No
316	0.75	1.56	0.03	1.53	1.00	0.631	1.19	0.532	0.90	1.00	0.548	No
317	0.81	1.56	0.04	1.53	1.00	0.632	1.19	0.532	0.90	1.00	0.550	No
318	0.88	1.57	0.04	1.53	1.00	0.632	1.19	0.533	0.89	1.00	0.554	No
319	0.94	1.57	0.04	1.53	1.00	0.633	1.19	0.534	0.89	1.00	0.556	No
320	1.00	1.58	0.04	1.54	1.00	0.634	1.19	0.534	0.89	1.00	0.557	No
321	1.07	1.58	0.04	1.54	1.00	0.635	1.19	0.535	0.89	1.00	0.558	No
322	1.14	1.58	0.05	1.54	1.00	0.636	1.19	0.536	0.89	1.00	0.559	No
323	1.21	1.59	0.05	1.54	1.00	0.636	1.19	0.536	0.90	1.00	0.553	No
324	1.27	1.59	0.05	1.54	1.00	0.637	1.19	0.537	0.89	1.00	0.561	No
325	1.34	1.60	0.05	1.55	1.00	0.638	1.19	0.538	0.89	1.00	0.562	No
326	1.41	1.60	0.05	1.55	1.00	0.639	1.19	0.538	0.89	1.00	0.563	No
327	1.47	1.61	0.06	1.55	1.00	0.640	1.19	0.539	0.89	1.00	0.564	No
328	1.53	1.61	0.06	1.55	1.00	0.640	1.19	0.540	0.91	1.00	0.549	No
329	1.59	1.61	0.06	1.55	1.00	0.641	1.19	0.540	0.91	1.00	0.549	No
330	1.65	1.62	0.06	1.56	1.00	0.642	1.19	0.541	0.91	1.00	0.550	No
331	1.72	1.62	0.06	1.56	1.00	0.643	1.19	0.541	0.92	1.00	0.561	No
332	1.80	1.63	0.07	1.56	1.00	0.644	1.19	0.542	0.89	1.00	0.566	No
333	1.86	1.63	0.07	1.56	1.00	0.644	1.19	0.543	0.90	1.00	0.559	No
334	1.92	1.63	0.07	1.56	1.00	0.645	1.19	0.543	0.88	1.00	0.570	No
335	1.98	1.64	0.07	1.56	1.00	0.646	1.19	0.544	0.88	1.00	0.571	No
336	2.05	1.64	0.07	1.57	1.00	0.647	1.19	0.545	0.88	1.00	0.572	No
337	2.12	1.64	0.08	1.57	1.00	0.647	1.19	0.545	0.88	1.00	0.573	No
338	2.20	1.65	0.08	1.57	1.00	0.648	1.19	0.546	0.88	1.00	0.574	No
339	2.26	1.65	0.08	1.57	1.00	0.649	1.19	0.547	0.88	1.00	0.575	No
340	2.33	1.66	0.08	1.57	1.00	0.650	1.19	0.548	0.88	1.00	0.576	No
341	2.39	1.66	0.08	1.58	1.00	0.650	1.19	0.548	0.88	1.00	0.577	No
342	2.44	1.66	0.09	1.58	1.00	0.651	1.19	0.548	0.88	1.00	0.577	No
343	2.51	1.67	0.09	1.58	1.00	0.652	1.19	0.549	0.88	1.00	0.578	No
344	2.58	1.67	0.09	1.58	1.00	0.652	1.19	0.550	0.88	1.00	0.579	No
345	2.65	1.67	0.09	1.58	1.00	0.653	1.19	0.550	0.88	1.00	0.580	No
346	2.71	1.68	0.09	1.58	1.00	0.654	1.19	0.551	0.88	1.00	0.581	No
347	2.77	1.68	0.10	1.58	1.00	0.654	1.19	0.551	0.88	1.00	0.581	No
348	2.84	1.68	0.10	1.59	1.00	0.655	1.19	0.552	0.88	1.00	0.582	No
349	2.90	1.69	0.10	1.59	1.00	0.655	1.19	0.552	0.88	1.00	0.583	No
350	2.97	1.69	0.10	1.59	1.00	0.656	1.19	0.553	0.88	1.00	0.583	No
351	3.04	1.70	0.10	1.59	1.00	0.657	1.19	0.553	0.88	1.00	0.584	No
352	3.10	1.70	0.11	1.59	1.00	0.657	1.19	0.554	0.88	1.00	0.585	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
353	3.17	1.70	0.11	1.59	1.00	0.658	1.19	0.554	0.88	1.00	0.586	No
354	3.23	1.70	0.11	1.59	1.00	0.658	1.19	0.555	0.88	1.00	0.586	No
355	3.31	1.71	0.11	1.60	1.00	0.659	1.19	0.555	0.88	1.00	0.587	No
356	3.37	1.71	0.11	1.60	1.00	0.660	1.19	0.556	0.88	1.00	0.588	No
357	3.43	1.71	0.12	1.60	1.00	0.660	1.19	0.556	0.88	1.00	0.588	No
358	3.50	1.72	0.12	1.60	1.00	0.661	1.19	0.557	0.88	1.00	0.589	No
359	3.57	1.72	0.12	1.60	1.00	0.662	1.19	0.557	0.88	1.00	0.590	No
360	3.62	1.72	0.12	1.60	1.00	0.662	1.19	0.558	0.88	1.00	0.590	No
361	3.70	1.73	0.13	1.60	1.00	0.663	1.19	0.558	0.88	1.00	0.591	No
362	3.76	1.73	0.13	1.60	1.00	0.663	1.19	0.559	0.88	1.00	0.592	No
363	3.82	1.73	0.13	1.60	1.00	0.664	1.19	0.559	0.88	1.00	0.592	No
364	3.88	1.73	0.13	1.60	0.99	0.665	1.19	0.560	0.88	1.00	0.593	No
365	3.96	1.74	0.13	1.60	0.99	0.665	1.19	0.561	0.88	1.00	0.594	No
366	4.02	1.74	0.14	1.60	0.99	0.666	1.19	0.561	0.88	1.00	0.594	No
367	4.10	1.74	0.14	1.61	0.99	0.667	1.19	0.562	0.87	1.00	0.595	No
368	4.16	1.75	0.14	1.61	0.99	0.667	1.19	0.562	0.88	1.00	0.592	No
369	4.24	1.75	0.14	1.61	0.99	0.668	1.19	0.563	0.88	1.00	0.596	No
370	4.29	1.75	0.14	1.61	0.99	0.668	1.19	0.563	0.88	1.00	0.594	No
371	4.35	1.75	0.15	1.61	0.99	0.669	1.19	0.564	0.88	1.00	0.596	No
372	4.42	1.76	0.15	1.61	0.99	0.669	1.19	0.564	0.88	1.00	0.593	No
373	4.48	1.76	0.15	1.61	0.99	0.670	1.19	0.565	0.88	1.00	0.592	No
374	4.56	1.76	0.15	1.61	0.99	0.671	1.19	0.565	0.89	1.00	0.589	No
375	4.62	1.76	0.15	1.61	0.99	0.671	1.19	0.566	0.90	1.00	0.585	No
376	4.67	1.77	0.16	1.61	0.99	0.672	1.19	0.566	0.90	1.00	0.584	No
377	4.74	1.77	0.16	1.61	0.99	0.672	1.19	0.567	0.90	1.00	0.582	No
378	4.81	1.77	0.16	1.61	0.99	0.673	1.19	0.567	0.91	1.00	0.588	No
379	4.88	1.77	0.16	1.61	0.99	0.674	1.19	0.568	0.91	1.00	0.594	No
380	4.95	1.77	0.16	1.61	0.99	0.674	1.19	0.568	0.91	1.00	0.589	No
381	5.01	1.78	0.17	1.61	0.99	0.675	1.19	0.569	0.91	1.00	0.596	No
382	5.08	1.78	0.17	1.61	0.99	0.676	1.19	0.569	0.91	1.00	0.590	No
383	5.15	1.78	0.17	1.61	0.99	0.676	1.19	0.570	0.90	1.00	0.585	No
384	5.21	1.78	0.17	1.61	0.99	0.677	1.19	0.570	0.90	1.00	0.585	No
385	5.26	1.78	0.17	1.61	0.99	0.677	1.19	0.571	0.90	1.00	0.586	No
386	5.34	1.79	0.18	1.61	0.99	0.678	1.19	0.571	0.90	1.00	0.591	No
387	5.39	1.79	0.18	1.61	0.99	0.679	1.19	0.572	0.89	1.00	0.595	No
388	5.48	1.79	0.18	1.61	0.99	0.679	1.19	0.572	0.88	1.00	0.603	No
389	5.54	1.79	0.18	1.61	0.99	0.680	1.19	0.573	0.87	1.00	0.608	No
390	5.60	1.80	0.18	1.61	0.99	0.681	1.19	0.573	0.87	1.00	0.608	No
391	5.66	1.80	0.19	1.61	0.99	0.681	1.19	0.574	0.88	1.00	0.604	No
392	5.74	1.80	0.19	1.61	0.99	0.682	1.19	0.574	0.89	1.00	0.596	No
393	5.79	1.80	0.19	1.61	0.99	0.682	1.19	0.575	0.90	1.00	0.593	No
394	5.86	1.80	0.19	1.61	0.99	0.683	1.19	0.575	0.90	1.00	0.590	No
395	5.93	1.81	0.19	1.61	0.99	0.684	1.19	0.576	0.91	1.00	0.599	No
396	5.99	1.81	0.20	1.61	0.99	0.684	1.19	0.576	0.91	1.00	0.592	No
397	6.05	1.81	0.20	1.61	0.99	0.685	1.19	0.577	0.90	1.00	0.591	No
398	6.12	1.81	0.20	1.61	0.99	0.685	1.19	0.577	0.91	1.00	0.597	No
399	6.19	1.81	0.20	1.61	0.99	0.686	1.19	0.578	0.93	1.00	0.627	No
400	6.26	1.82	0.20	1.61	0.99	0.687	1.19	0.579	0.93	1.00	0.629	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
401	6.32	1.82	0.21	1.61	0.99	0.687	1.19	0.579	0.92	1.00	0.622	No
402	6.39	1.82	0.21	1.61	0.99	0.688	1.19	0.580	0.91	1.00	0.603	No
403	6.45	1.82	0.21	1.61	0.99	0.688	1.19	0.580	0.92	1.00	0.618	No
404	6.51	1.82	0.21	1.61	0.99	0.689	1.19	0.581	0.92	1.00	0.617	No
405	6.57	1.82	0.21	1.61	0.99	0.690	1.19	0.581	0.91	1.00	0.598	No
406	6.65	1.83	0.22	1.61	0.98	0.690	1.19	0.582	0.90	1.00	0.601	No
407	6.72	1.83	0.22	1.61	0.98	0.691	1.19	0.582	0.90	1.00	0.602	No
408	6.78	1.83	0.22	1.61	0.98	0.691	1.19	0.583	0.90	1.00	0.601	No
409	6.85	1.83	0.22	1.61	0.98	0.692	1.19	0.583	0.91	1.00	0.599	No
410	6.92	1.83	0.23	1.61	0.98	0.693	1.19	0.584	0.92	1.00	0.618	No
411	6.97	1.84	0.23	1.61	0.98	0.693	1.19	0.584	0.93	1.00	0.633	No
412	7.03	1.84	0.23	1.61	0.98	0.694	1.19	0.585	0.94	1.00	0.651	No
413	7.13	1.84	0.23	1.61	0.98	0.695	1.19	0.585	0.95	1.00	0.668	No
414	7.19	1.84	0.23	1.61	0.98	0.695	1.19	0.586	0.95	1.00	0.668	No
415	7.23	1.84	0.24	1.61	0.98	0.696	1.19	0.586	0.94	1.00	0.664	No
416	7.31	1.84	0.24	1.61	0.98	0.696	1.19	0.587	0.95	1.00	0.668	No
417	7.37	1.85	0.24	1.61	0.98	0.697	1.19	0.587	0.94	1.00	0.663	No
418	7.43	1.85	0.24	1.60	0.98	0.698	1.19	0.588	0.94	1.00	0.660	No
419	7.50	1.85	0.24	1.60	0.98	0.698	1.19	0.588	0.94	1.00	0.661	No
420	7.56	1.85	0.25	1.60	0.98	0.699	1.19	0.589	0.94	1.00	0.662	No
421	7.63	1.85	0.25	1.60	0.98	0.699	1.19	0.589	0.94	1.00	0.662	No
422	7.70	1.85	0.25	1.60	0.98	0.700	1.19	0.590	0.94	1.00	0.664	No
423	7.76	1.85	0.25	1.60	0.98	0.701	1.19	0.590	0.94	1.00	0.667	No
424	7.82	1.86	0.25	1.60	0.98	0.701	1.19	0.591	0.94	1.00	0.669	No
425	7.90	1.86	0.26	1.60	0.98	0.702	1.19	0.591	0.95	1.00	0.676	No
426	7.96	1.86	0.26	1.60	0.98	0.703	1.19	0.592	0.95	1.00	0.680	No
427	8.02	1.86	0.26	1.60	0.98	0.703	1.19	0.592	0.95	1.00	0.675	No
428	8.10	1.86	0.26	1.60	0.98	0.704	1.19	0.593	0.94	1.00	0.668	No
429	8.15	1.86	0.26	1.60	0.98	0.704	1.19	0.593	0.94	1.00	0.661	No
430	8.23	1.87	0.27	1.60	0.98	0.705	1.19	0.594	0.94	1.00	0.661	No
431	8.29	1.87	0.27	1.60	0.98	0.706	1.19	0.595	0.94	1.00	0.657	No
432	8.36	1.87	0.27	1.60	0.98	0.706	1.19	0.595	0.93	1.00	0.652	No
433	8.43	1.87	0.27	1.60	0.98	0.707	1.19	0.596	0.93	1.00	0.651	No
434	8.48	1.87	0.27	1.60	0.98	0.707	1.19	0.596	0.93	1.00	0.655	No
435	8.56	1.87	0.28	1.60	0.98	0.708	1.19	0.597	0.94	1.00	0.668	No
436	8.65	1.88	0.28	1.60	0.98	0.709	1.19	0.597	0.94	1.00	0.674	No
437	8.69	1.88	0.28	1.60	0.98	0.709	1.19	0.598	0.94	1.00	0.667	No
438	8.78	1.88	0.28	1.60	0.98	0.710	1.19	0.598	0.93	1.00	0.645	No
439	8.82	1.88	0.29	1.60	0.98	0.711	1.19	0.599	0.92	1.00	0.633	No
440	8.91	1.88	0.29	1.59	0.98	0.711	1.19	0.599	0.91	1.00	0.620	No
441	8.95	1.88	0.29	1.59	0.98	0.712	1.19	0.600	0.92	1.00	0.631	No
442	9.01	1.88	0.29	1.59	0.98	0.712	1.19	0.600	0.90	1.00	0.620	No
443	9.07	1.89	0.29	1.59	0.98	0.713	1.19	0.601	0.88	1.00	0.635	No
444	9.14	1.89	0.29	1.59	0.98	0.714	1.19	0.601	0.88	1.00	0.635	No
445	9.20	1.89	0.30	1.59	0.97	0.714	1.19	0.602	0.88	1.00	0.636	No
446	9.28	1.89	0.30	1.59	0.97	0.715	1.19	0.602	0.88	1.00	0.636	No
447	9.33	1.89	0.30	1.59	0.97	0.715	1.19	0.603	0.88	1.00	0.637	No
448	9.40	1.89	0.30	1.59	0.97	0.716	1.19	0.603	0.88	1.00	0.637	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
449	9.48	1.90	0.31	1.59	0.97	0.717	1.19	0.604	0.88	1.00	0.638	No
450	9.54	1.90	0.31	1.59	0.97	0.717	1.19	0.604	0.88	1.00	0.638	No
451	9.61	1.90	0.31	1.59	0.97	0.718	1.19	0.605	0.88	1.00	0.639	No
452	9.68	1.90	0.31	1.59	0.97	0.718	1.19	0.605	0.88	1.00	0.639	No
453	9.73	1.90	0.31	1.59	0.97	0.719	1.19	0.606	0.88	1.00	0.640	No
454	9.80	1.91	0.32	1.59	0.97	0.720	1.19	0.606	0.88	1.00	0.640	No
455	9.88	1.91	0.32	1.59	0.97	0.720	1.19	0.607	0.88	1.00	0.641	No
456	9.93	1.91	0.32	1.59	0.97	0.721	1.19	0.607	0.88	1.00	0.641	No
457	10.00	1.91	0.32	1.59	0.97	0.721	1.19	0.608	0.88	1.00	0.642	No
458	10.06	1.91	0.32	1.59	0.97	0.722	1.19	0.608	0.88	1.00	0.642	No
459	10.12	1.92	0.33	1.59	0.97	0.722	1.19	0.609	0.88	1.00	0.643	No
460	10.20	1.92	0.33	1.59	0.97	0.723	1.19	0.609	0.88	1.00	0.643	No
461	10.26	1.92	0.33	1.59	0.97	0.724	1.19	0.610	0.88	1.00	0.644	No
462	10.32	1.92	0.33	1.59	0.97	0.724	1.19	0.610	0.88	1.00	0.644	No
463	10.39	1.92	0.33	1.59	0.97	0.725	1.19	0.611	0.88	1.00	0.645	No
464	10.45	1.92	0.34	1.59	0.97	0.725	1.19	0.611	0.88	1.00	0.645	No
465	10.52	1.93	0.34	1.59	0.97	0.726	1.19	0.612	0.88	1.00	0.646	No
466	10.58	1.93	0.34	1.59	0.97	0.726	1.19	0.612	0.88	1.00	0.646	No
467	10.64	1.93	0.34	1.59	0.97	0.727	1.19	0.613	0.88	1.00	0.646	No
468	10.71	1.93	0.34	1.59	0.97	0.728	1.19	0.613	0.88	1.00	0.647	No
469	10.78	1.93	0.35	1.59	0.97	0.728	1.19	0.614	0.88	1.00	0.647	No
470	10.84	1.93	0.35	1.59	0.97	0.729	1.19	0.614	0.88	1.00	0.648	No
471	10.92	1.94	0.35	1.59	0.97	0.729	1.19	0.615	0.88	1.00	0.648	No
472	10.98	1.94	0.35	1.59	0.97	0.730	1.19	0.615	0.88	1.00	0.649	No
473	11.04	1.94	0.35	1.59	0.97	0.731	1.19	0.616	0.88	1.00	0.649	No
474	11.12	1.94	0.36	1.58	0.97	0.731	1.19	0.616	0.88	1.00	0.650	No
475	11.18	1.94	0.36	1.58	0.97	0.732	1.19	0.617	0.88	1.00	0.650	No
476	11.25	1.94	0.36	1.58	0.97	0.732	1.19	0.617	0.88	1.00	0.651	No
477	11.33	1.95	0.36	1.58	0.97	0.733	1.19	0.618	0.88	1.00	0.651	No
478	11.37	1.95	0.36	1.58	0.97	0.734	1.19	0.618	0.88	1.00	0.652	No
479	11.46	1.95	0.37	1.58	0.97	0.734	1.19	0.619	0.88	1.00	0.652	No
480	11.50	1.95	0.37	1.58	0.96	0.735	1.19	0.619	0.88	1.00	0.653	No
481	11.58	1.95	0.37	1.58	0.96	0.735	1.19	0.620	0.88	1.00	0.653	No
482	11.64	1.95	0.37	1.58	0.96	0.736	1.19	0.620	0.88	1.00	0.654	No
483	11.71	1.96	0.38	1.58	0.96	0.737	1.19	0.621	0.88	1.00	0.654	No
484	11.79	1.96	0.38	1.58	0.96	0.737	1.19	0.621	0.88	1.00	0.655	No
485	11.83	1.96	0.38	1.58	0.96	0.738	1.19	0.622	0.88	1.00	0.655	No
486	11.91	1.96	0.38	1.58	0.96	0.739	1.19	0.622	0.88	1.00	0.655	No
487	11.96	1.96	0.38	1.58	0.96	0.739	1.19	0.623	0.88	1.00	0.656	No
488	12.04	1.96	0.39	1.58	0.96	0.740	1.19	0.623	0.88	1.00	0.656	No
489	12.09	1.96	0.39	1.58	0.96	0.740	1.19	0.624	0.88	1.00	0.657	No
490	12.16	1.97	0.39	1.58	0.96	0.741	1.19	0.624	0.88	1.00	0.657	No
491	12.24	1.97	0.39	1.58	0.96	0.741	1.19	0.625	0.88	1.00	0.658	No
492	12.29	1.97	0.39	1.58	0.96	0.742	1.19	0.625	0.88	1.00	0.658	No
493	12.37	1.97	0.40	1.58	0.96	0.743	1.19	0.626	0.88	1.00	0.659	No
494	12.43	1.97	0.40	1.58	0.96	0.743	1.19	0.626	0.88	1.00	0.659	No
495	12.50	1.98	0.40	1.58	0.96	0.744	1.19	0.627	0.88	1.00	0.660	No
496	12.57	1.98	0.40	1.57	0.96	0.744	1.19	0.627	0.88	1.00	0.660	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
497	12.61	1.98	0.40	1.57	0.96	0.745	1.19	0.627	0.88	1.00	0.660	No
498	12.70	1.98	0.41	1.57	0.96	0.745	1.19	0.628	0.88	1.00	0.661	No
499	12.75	1.98	0.41	1.57	0.96	0.746	1.19	0.628	0.88	1.00	0.661	No
500	12.83	1.98	0.41	1.57	0.96	0.747	1.19	0.629	0.88	1.00	0.662	No
501	12.87	1.98	0.41	1.57	0.96	0.747	1.19	0.629	0.88	1.00	0.662	No
502	12.96	1.99	0.41	1.57	0.96	0.748	1.19	0.630	0.88	1.00	0.663	No
503	13.01	1.99	0.42	1.57	0.96	0.748	1.19	0.630	0.88	1.00	0.663	No
504	13.10	1.99	0.42	1.57	0.96	0.749	1.19	0.631	0.93	1.00	0.669	No
505	13.15	1.99	0.42	1.57	0.96	0.749	1.19	0.631	0.93	1.00	2.000	Yes
506	13.23	1.99	0.42	1.57	0.96	0.750	1.19	0.632	0.95	1.00	2.000	Yes
507	13.29	2.00	0.42	1.57	0.96	0.751	1.19	0.632	0.95	1.00	2.000	Yes
508	13.35	2.00	0.43	1.57	0.96	0.751	1.19	0.633	0.95	1.00	2.000	Yes
509	13.41	2.00	0.43	1.57	0.96	0.752	1.19	0.633	0.96	1.00	2.000	Yes
510	13.46	2.00	0.43	1.57	0.96	0.752	1.19	0.634	0.96	1.00	2.000	Yes
511	13.55	2.00	0.43	1.57	0.96	0.753	1.19	0.634	0.96	1.00	2.000	Yes
512	13.60	2.00	0.43	1.57	0.96	0.753	1.19	0.635	0.96	1.00	2.000	Yes
513	13.67	2.01	0.44	1.57	0.96	0.754	1.19	0.635	0.96	1.00	0.747	No
514	13.75	2.01	0.44	1.57	0.95	0.754	1.19	0.636	0.96	1.00	0.749	No
515	13.79	2.01	0.44	1.57	0.95	0.755	1.19	0.636	0.96	1.00	0.749	No
516	13.88	2.01	0.44	1.57	0.95	0.756	1.19	0.637	0.96	1.00	0.750	No
517	13.96	2.01	0.45	1.57	0.95	0.756	1.19	0.637	0.96	1.00	0.751	No
518	13.99	2.01	0.45	1.57	0.95	0.757	1.19	0.637	0.96	1.00	0.751	No
519	14.06	2.02	0.45	1.57	0.95	0.757	1.19	0.638	0.96	1.00	0.752	No
520	14.13	2.02	0.45	1.57	0.95	0.758	1.19	0.639	0.96	1.00	0.753	No
521	14.20	2.02	0.45	1.57	0.95	0.758	1.19	0.639	0.96	1.00	0.754	No
522	14.28	2.02	0.46	1.57	0.95	0.759	1.19	0.640	0.96	1.00	0.754	No
523	14.33	2.02	0.46	1.57	0.95	0.760	1.19	0.640	0.96	1.00	0.754	No
524	14.41	2.03	0.46	1.57	0.95	0.760	1.19	0.641	0.96	1.00	2.000	Yes
525	14.48	2.03	0.46	1.57	0.95	0.761	1.19	0.641	0.96	1.00	2.000	Yes
526	14.51	2.03	0.46	1.57	0.95	0.761	1.19	0.641	0.96	1.00	2.000	Yes
527	14.60	2.03	0.47	1.57	0.95	0.762	1.19	0.642	0.96	1.00	2.000	Yes
528	14.68	2.03	0.47	1.56	0.95	0.762	1.19	0.642	0.96	1.00	2.000	Yes
529	14.72	2.03	0.47	1.56	0.95	0.763	1.19	0.643	0.95	1.00	2.000	Yes
530	14.80	2.04	0.47	1.56	0.95	0.763	1.19	0.643	0.96	1.00	2.000	Yes
531	14.88	2.04	0.47	1.56	0.95	0.764	1.19	0.644	0.96	1.00	2.000	Yes
532	14.92	2.04	0.48	1.56	0.95	0.764	1.19	0.644	0.96	1.00	2.000	Yes
533	15.00	2.04	0.48	1.56	0.95	0.765	1.19	0.645	0.96	1.00	2.000	Yes
534	15.05	2.04	0.48	1.56	0.95	0.765	1.19	0.645	0.96	1.00	0.753	No
535	15.13	2.05	0.48	1.56	0.95	0.766	1.19	0.645	0.96	1.00	0.754	No
536	15.20	2.05	0.48	1.56	0.95	0.767	1.19	0.646	0.96	1.00	0.756	No
537	15.27	2.05	0.49	1.56	0.95	0.767	1.19	0.646	0.96	1.00	0.758	No
538	15.30	2.05	0.49	1.56	0.95	0.767	1.19	0.647	0.96	1.00	0.759	No
539	15.37	2.05	0.49	1.56	0.95	0.768	1.19	0.647	0.96	1.00	0.760	No
540	15.44	2.06	0.49	1.56	0.95	0.769	1.19	0.648	0.96	1.00	0.761	No
541	15.50	2.06	0.49	1.56	0.95	0.769	1.19	0.648	0.96	1.00	0.764	No
542	15.57	2.06	0.50	1.56	0.95	0.770	1.19	0.648	0.96	1.00	0.766	No
543	15.64	2.06	0.50	1.56	0.95	0.770	1.19	0.649	0.96	1.00	0.767	No
544	15.71	2.06	0.50	1.56	0.95	0.771	1.19	0.649	0.97	1.00	0.768	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
545	15.78	2.06	0.50	1.56	0.95	0.771	1.19	0.650	0.97	1.00	0.768	No
546	15.84	2.07	0.50	1.56	0.94	0.772	1.19	0.650	0.96	1.00	0.769	No
547	15.92	2.07	0.51	1.56	0.94	0.772	1.19	0.651	0.96	1.00	0.768	No
548	16.00	2.07	0.51	1.56	0.94	0.773	1.19	0.651	0.96	1.00	0.767	No
549	16.04	2.07	0.51	1.56	0.94	0.773	1.19	0.652	0.96	1.00	0.767	No
550	16.12	2.07	0.51	1.56	0.94	0.774	1.19	0.652	0.96	1.00	0.769	No
551	16.16	2.08	0.51	1.56	0.94	0.774	1.19	0.653	0.96	1.00	0.770	No
552	16.24	2.08	0.52	1.56	0.94	0.775	1.19	0.653	0.96	1.00	0.771	No
553	16.33	2.08	0.52	1.56	0.94	0.776	1.19	0.654	0.96	1.00	0.770	No
554	16.37	2.08	0.52	1.56	0.94	0.776	1.19	0.654	0.96	1.00	0.772	No
555	16.45	2.08	0.52	1.56	0.94	0.777	1.19	0.654	0.96	1.00	2.000	Yes
556	16.49	2.08	0.52	1.56	0.94	0.777	1.19	0.655	0.96	1.00	2.000	Yes
557	16.58	2.09	0.53	1.56	0.94	0.778	1.19	0.655	0.96	1.00	2.000	Yes
558	16.62	2.09	0.53	1.56	0.94	0.778	1.19	0.656	0.96	1.00	2.000	Yes
559	16.70	2.09	0.53	1.56	0.94	0.779	1.19	0.656	0.96	1.00	2.000	Yes
560	16.79	2.09	0.53	1.56	0.94	0.779	1.19	0.657	0.96	1.00	2.000	Yes
561	16.83	2.09	0.54	1.56	0.94	0.780	1.19	0.657	0.96	1.00	2.000	Yes
562	16.90	2.10	0.54	1.56	0.94	0.780	1.19	0.657	0.96	1.00	0.773	No
563	16.97	2.10	0.54	1.56	0.94	0.781	1.19	0.658	0.96	1.00	0.769	No
564	17.01	2.10	0.54	1.56	0.94	0.781	1.19	0.658	0.96	1.00	0.770	No
565	17.10	2.10	0.54	1.56	0.94	0.782	1.19	0.659	0.96	1.00	0.774	No
566	17.14	2.10	0.54	1.56	0.94	0.782	1.19	0.659	0.96	1.00	0.775	No
567	17.23	2.11	0.55	1.56	0.94	0.783	1.19	0.659	0.96	1.00	0.777	No
568	17.27	2.11	0.55	1.56	0.94	0.783	1.19	0.660	0.96	1.00	0.778	No
569	17.36	2.11	0.55	1.56	0.94	0.784	1.19	0.660	0.96	1.00	0.779	No
570	17.40	2.11	0.55	1.56	0.94	0.784	1.19	0.661	0.96	1.00	0.780	No
571	17.49	2.12	0.56	1.56	0.94	0.785	1.19	0.661	0.96	1.00	0.780	No
572	17.53	2.12	0.56	1.56	0.94	0.785	1.19	0.661	0.97	1.00	0.782	No
573	17.62	2.12	0.56	1.56	0.94	0.786	1.19	0.662	0.96	1.00	0.781	No
574	17.67	2.12	0.56	1.56	0.94	0.786	1.19	0.662	0.96	1.00	0.781	No
575	17.75	2.12	0.56	1.56	0.94	0.787	1.19	0.663	0.96	1.00	0.778	No
576	17.83	2.13	0.57	1.56	0.94	0.787	1.19	0.663	0.96	1.00	0.780	No
577	17.89	2.13	0.57	1.56	0.93	0.788	1.19	0.664	0.96	1.00	0.781	No
578	17.93	2.13	0.57	1.56	0.93	0.788	1.19	0.664	0.96	1.00	0.782	No
579	18.02	2.13	0.57	1.56	0.93	0.789	1.19	0.664	0.96	1.00	0.784	No
580	18.06	2.13	0.57	1.56	0.93	0.789	1.19	0.665	0.96	1.00	2.000	Yes
581	18.15	2.14	0.58	1.56	0.93	0.789	1.19	0.665	0.96	1.00	2.000	Yes
582	18.19	2.14	0.58	1.56	0.93	0.790	1.19	0.665	0.96	1.00	2.000	Yes
583	18.28	2.14	0.58	1.56	0.93	0.790	1.19	0.666	0.96	1.00	2.000	Yes
584	18.32	2.14	0.58	1.56	0.93	0.791	1.19	0.666	0.96	1.00	2.000	Yes
585	18.41	2.14	0.58	1.56	0.93	0.791	1.19	0.667	0.95	1.00	2.000	Yes
586	18.49	2.15	0.59	1.56	0.93	0.792	1.19	0.667	0.94	1.00	2.000	Yes
587	18.53	2.15	0.59	1.56	0.93	0.792	1.19	0.667	0.94	1.00	2.000	Yes
588	18.62	2.15	0.59	1.56	0.93	0.793	1.19	0.668	0.94	1.00	2.000	Yes
589	18.66	2.15	0.59	1.56	0.93	0.793	1.19	0.668	0.93	1.00	0.720	No
590	18.74	2.16	0.59	1.56	0.93	0.793	1.19	0.668	0.93	1.00	0.706	No
591	18.79	2.16	0.60	1.56	0.93	0.794	1.19	0.669	0.93	1.00	0.707	No
592	18.87	2.16	0.60	1.56	0.93	0.794	1.19	0.669	0.92	1.00	0.703	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
593	18.92	2.16	0.60	1.56	0.93	0.794	1.19	0.669	0.92	1.00	0.698	No
594	19.01	2.17	0.60	1.56	0.93	0.795	1.19	0.670	0.92	1.00	0.694	No
595	19.05	2.17	0.60	1.56	0.93	0.795	1.19	0.670	0.92	1.00	0.695	No
596	19.14	2.17	0.61	1.57	0.93	0.796	1.19	0.670	0.92	1.00	0.696	No
597	19.18	2.17	0.61	1.57	0.93	0.796	1.19	0.671	0.91	1.00	0.685	No
598	19.27	2.18	0.61	1.57	0.93	0.797	1.19	0.671	0.92	1.00	0.696	No
599	19.32	2.18	0.61	1.57	0.93	0.797	1.19	0.671	0.91	1.00	0.683	No
600	19.40	2.18	0.62	1.57	0.93	0.797	1.19	0.672	0.91	1.00	0.684	No
601	19.44	2.18	0.62	1.57	0.93	0.797	1.19	0.672	0.91	1.00	0.685	No
602	19.53	2.19	0.62	1.57	0.93	0.798	1.19	0.672	0.91	1.00	0.686	No
603	19.57	2.19	0.62	1.57	0.93	0.798	1.19	0.673	0.90	1.00	0.690	No
604	19.66	2.19	0.62	1.57	0.93	0.799	1.19	0.673	0.90	1.00	0.690	No
605	19.70	2.20	0.62	1.57	0.93	0.799	1.19	0.673	0.91	1.00	0.687	No
606	19.79	2.20	0.63	1.57	0.93	0.799	1.19	0.674	0.92	1.00	0.693	No
607	19.83	2.20	0.63	1.57	0.92	0.800	1.19	0.674	0.92	1.00	0.706	No
608	19.92	2.20	0.63	1.57	0.92	0.800	1.19	0.674	0.92	1.00	0.706	No
609	20.00	2.21	0.63	1.57	0.92	0.801	1.19	0.675	0.92	1.00	0.699	No
610	20.05	2.21	0.64	1.57	0.92	0.801	1.19	0.675	0.92	1.00	0.695	No
611	20.09	2.21	0.64	1.57	0.92	0.801	1.19	0.675	0.91	1.00	0.693	No
612	20.18	2.21	0.64	1.58	0.92	0.802	1.19	0.675	0.92	1.00	0.706	No
613	20.23	2.22	0.64	1.58	0.92	0.802	1.19	0.676	0.92	1.00	0.706	No
614	20.30	2.22	0.64	1.58	0.92	0.802	1.19	0.676	0.92	1.00	0.714	No
615	20.38	2.22	0.65	1.58	0.92	0.803	1.19	0.676	0.93	1.00	0.721	No
616	20.43	2.23	0.65	1.58	0.92	0.803	1.19	0.676	0.93	1.00	0.719	No
617	20.51	2.23	0.65	1.58	0.92	0.803	1.19	0.677	0.93	1.00	0.720	No
618	20.56	2.23	0.65	1.58	0.92	0.804	1.19	0.677	0.92	1.00	0.716	No
619	20.62	2.23	0.65	1.58	0.92	0.804	1.19	0.677	0.92	1.00	0.713	No
620	20.70	2.24	0.66	1.58	0.92	0.804	1.19	0.678	0.92	1.00	0.716	No
621	20.76	2.24	0.66	1.58	0.92	0.805	1.19	0.678	0.92	1.00	0.715	No
622	20.82	2.24	0.66	1.58	0.92	0.805	1.19	0.678	0.92	1.00	0.714	No
623	20.89	2.24	0.66	1.58	0.92	0.805	1.19	0.678	0.92	1.00	0.713	No
624	20.98	2.25	0.66	1.58	0.92	0.806	1.19	0.679	0.92	1.00	0.712	No
625	21.02	2.25	0.67	1.58	0.92	0.806	1.19	0.679	0.92	1.00	0.711	No
626	21.11	2.25	0.67	1.58	0.92	0.806	1.19	0.679	0.92	1.00	0.708	No
627	21.15	2.25	0.67	1.58	0.92	0.807	1.19	0.680	0.92	1.00	0.711	No
628	21.24	2.26	0.67	1.59	0.92	0.807	1.19	0.680	0.92	1.00	0.713	No
629	21.28	2.26	0.67	1.59	0.92	0.807	1.19	0.680	0.93	1.00	0.727	No
630	21.37	2.26	0.68	1.59	0.92	0.808	1.19	0.681	0.93	1.00	0.741	No
631	21.41	2.27	0.68	1.59	0.92	0.808	1.19	0.681	0.94	1.00	0.749	No
632	21.50	2.27	0.68	1.59	0.92	0.808	1.19	0.681	0.94	1.00	0.758	No
633	21.55	2.27	0.68	1.59	0.92	0.809	1.19	0.681	0.94	1.00	0.763	No
634	21.63	2.27	0.69	1.59	0.92	0.809	1.19	0.682	0.94	1.00	0.765	No
635	21.68	2.28	0.69	1.59	0.92	0.809	1.19	0.682	0.94	1.00	0.765	No
636	21.74	2.28	0.69	1.59	0.91	0.809	1.19	0.682	0.95	1.00	0.778	No
637	21.80	2.28	0.69	1.59	0.91	0.810	1.19	0.682	0.94	1.00	0.768	No
638	21.87	2.28	0.69	1.59	0.91	0.810	1.19	0.683	0.94	1.00	0.761	No
639	21.94	2.29	0.69	1.59	0.91	0.810	1.19	0.683	0.94	1.00	0.757	No
640	22.02	2.29	0.70	1.59	0.91	0.811	1.19	0.683	0.94	1.00	0.752	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
641	22.09	2.29	0.70	1.59	0.91	0.811	1.19	0.683	0.93	1.00	0.743	No
642	22.16	2.30	0.70	1.59	0.91	0.812	1.19	0.684	0.92	1.00	0.726	No
643	22.20	2.30	0.70	1.59	0.91	0.812	1.19	0.684	0.91	1.00	0.712	No
644	22.29	2.30	0.71	1.60	0.91	0.812	1.19	0.684	0.89	1.00	0.711	No
645	22.33	2.30	0.71	1.60	0.91	0.812	1.19	0.684	0.88	1.00	0.722	No
646	22.42	2.31	0.71	1.60	0.91	0.813	1.19	0.685	0.88	1.00	0.724	No
647	22.46	2.31	0.71	1.60	0.91	0.813	1.19	0.685	0.88	1.00	0.724	No
648	22.55	2.31	0.71	1.60	0.91	0.813	1.19	0.685	0.88	1.00	0.725	No
649	22.60	2.31	0.72	1.60	0.91	0.813	1.19	0.685	0.88	1.00	0.725	No
650	22.66	2.32	0.72	1.60	0.91	0.814	1.19	0.686	0.88	1.00	0.726	No
651	22.74	2.32	0.72	1.60	0.91	0.814	1.19	0.686	0.88	1.00	0.726	No
652	22.82	2.32	0.72	1.60	0.91	0.814	1.19	0.686	0.88	1.00	0.726	No
653	22.87	2.33	0.72	1.60	0.91	0.815	1.19	0.686	0.88	1.00	0.727	No
654	22.96	2.33	0.73	1.60	0.91	0.815	1.19	0.687	0.89	1.00	0.718	No
655	23.00	2.33	0.73	1.60	0.91	0.815	1.19	0.687	0.89	1.00	0.714	No
656	23.09	2.34	0.73	1.61	0.91	0.816	1.19	0.687	0.89	1.00	0.718	No
657	23.13	2.34	0.73	1.61	0.91	0.816	1.19	0.687	0.89	1.00	0.713	No
658	23.21	2.34	0.73	1.61	0.91	0.816	1.19	0.688	0.89	1.00	0.719	No
659	23.26	2.34	0.74	1.61	0.91	0.816	1.19	0.688	0.88	1.00	0.723	No
660	23.34	2.35	0.74	1.61	0.91	0.817	1.19	0.688	0.88	1.00	0.721	No
661	23.38	2.35	0.74	1.61	0.91	0.817	1.19	0.688	0.89	1.00	0.717	No
662	23.47	2.35	0.74	1.61	0.91	0.817	1.19	0.688	0.90	1.00	0.706	No
663	23.52	2.35	0.74	1.61	0.91	0.817	1.19	0.689	0.91	1.00	0.709	No
664	23.60	2.36	0.75	1.61	0.90	0.818	1.19	0.689	0.91	1.00	0.721	No
665	23.65	2.36	0.75	1.61	0.90	0.818	1.19	0.689	0.92	1.00	0.728	No
666	23.74	2.36	0.75	1.61	0.90	0.818	1.19	0.689	0.92	1.00	0.739	No
667	23.78	2.37	0.75	1.61	0.90	0.818	1.19	0.689	0.92	1.00	0.742	No
668	23.83	2.37	0.75	1.61	0.90	0.818	1.19	0.690	0.94	1.00	0.772	No
669	23.91	2.37	0.76	1.62	0.90	0.819	1.19	0.690	0.93	1.00	0.761	No
670	24.00	2.38	0.76	1.62	0.90	0.819	1.19	0.690	0.94	1.00	2.000	Yes
671	24.04	2.38	0.76	1.62	0.90	0.819	1.19	0.690	0.93	1.00	2.000	Yes
672	24.13	2.38	0.76	1.62	0.90	0.820	1.19	0.691	0.93	1.00	2.000	Yes
673	24.17	2.38	0.76	1.62	0.90	0.820	1.19	0.691	0.93	1.00	2.000	Yes
674	24.26	2.39	0.77	1.62	0.90	0.820	1.19	0.691	0.94	1.00	2.000	Yes
675	24.30	2.39	0.77	1.62	0.90	0.820	1.19	0.691	0.95	1.00	2.000	Yes
676	24.39	2.39	0.77	1.62	0.90	0.821	1.19	0.691	0.96	1.00	2.000	Yes
677	24.44	2.39	0.77	1.62	0.90	0.821	1.19	0.692	0.96	1.00	2.000	Yes
678	24.53	2.40	0.78	1.62	0.90	0.821	1.19	0.692	0.96	1.00	2.000	Yes
679	24.57	2.40	0.78	1.62	0.90	0.821	1.19	0.692	0.96	1.00	2.000	Yes
680	24.66	2.40	0.78	1.62	0.90	0.822	1.19	0.692	0.96	1.00	0.823	No
681	24.70	2.40	0.78	1.62	0.90	0.822	1.19	0.693	0.96	1.00	0.823	No
682	24.79	2.41	0.78	1.62	0.90	0.822	1.19	0.693	0.96	1.00	2.000	Yes
683	24.83	2.41	0.78	1.62	0.90	0.823	1.19	0.693	0.96	1.00	2.000	Yes
684	24.92	2.41	0.79	1.63	0.90	0.823	1.19	0.693	0.96	1.00	2.000	Yes
685	24.96	2.41	0.79	1.63	0.90	0.823	1.19	0.694	0.96	1.00	2.000	Yes
686	25.05	2.42	0.79	1.63	0.90	0.824	1.19	0.694	0.96	1.00	2.000	Yes
687	25.09	2.42	0.79	1.63	0.90	0.824	1.19	0.694	0.96	1.00	2.000	Yes
688	25.18	2.42	0.80	1.63	0.90	0.824	1.19	0.695	0.96	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
689	25.22	2.42	0.80	1.63	0.90	0.825	1.19	0.695	0.96	1.00	2.000	Yes
690	25.31	2.43	0.80	1.63	0.90	0.825	1.19	0.695	0.96	1.00	2.000	Yes
691	25.35	2.43	0.80	1.63	0.90	0.825	1.19	0.695	0.96	1.00	2.000	Yes
692	25.42	2.43	0.80	1.63	0.89	0.826	1.19	0.696	0.97	1.00	2.000	Yes
693	25.48	2.43	0.81	1.63	0.89	0.826	1.19	0.696	0.96	1.00	2.000	Yes
694	25.56	2.43	0.81	1.63	0.89	0.827	1.19	0.696	0.96	1.00	2.000	Yes
695	25.62	2.43	0.81	1.63	0.89	0.827	1.19	0.697	0.96	1.00	2.000	Yes
696	25.68	2.44	0.81	1.63	0.89	0.827	1.19	0.697	0.96	1.00	2.000	Yes
697	25.74	2.44	0.81	1.63	0.89	0.827	1.19	0.697	0.96	1.00	2.000	Yes
698	25.80	2.44	0.82	1.63	0.89	0.828	1.19	0.697	0.96	1.00	2.000	Yes
699	25.88	2.44	0.82	1.63	0.89	0.828	1.19	0.698	0.96	1.00	0.829	No
700	25.95	2.45	0.82	1.63	0.89	0.828	1.19	0.698	0.96	1.00	0.829	No
701	26.00	2.45	0.82	1.63	0.89	0.829	1.19	0.698	0.96	1.00	0.828	No
702	26.07	2.45	0.82	1.63	0.89	0.829	1.19	0.698	0.96	1.00	0.828	No
703	26.13	2.45	0.83	1.63	0.89	0.829	1.19	0.699	0.96	1.00	0.828	No
704	26.21	2.46	0.83	1.63	0.89	0.829	1.19	0.699	0.96	1.00	0.830	No
705	26.30	2.46	0.83	1.63	0.89	0.830	1.19	0.699	0.96	1.00	2.000	Yes
706	26.34	2.46	0.83	1.63	0.89	0.830	1.19	0.699	0.96	1.00	2.000	Yes
707	26.43	2.47	0.83	1.63	0.89	0.830	1.19	0.699	0.95	1.00	2.000	Yes
708	26.47	2.47	0.84	1.63	0.89	0.830	1.19	0.700	0.94	1.00	2.000	Yes
709	26.55	2.47	0.84	1.63	0.89	0.830	1.19	0.700	0.91	1.00	2.000	Yes
710	26.59	2.47	0.84	1.63	0.89	0.831	1.19	0.700	0.92	1.00	2.000	Yes
711	26.67	2.48	0.84	1.64	0.89	0.831	1.19	0.700	0.87	1.00	2.000	Yes
712	26.76	2.48	0.85	1.64	0.89	0.831	1.19	0.700	0.87	1.00	0.747	No
713	26.80	2.48	0.85	1.64	0.89	0.831	1.19	0.700	0.87	1.00	0.747	No
714	26.88	2.49	0.85	1.64	0.89	0.831	1.19	0.700	0.87	1.00	0.747	No
715	26.92	2.49	0.85	1.64	0.89	0.831	1.19	0.700	0.87	1.00	0.747	No
716	27.00	2.49	0.85	1.64	0.89	0.831	1.19	0.701	0.87	1.00	0.748	No
717	27.05	2.50	0.85	1.64	0.89	0.832	1.19	0.701	0.87	1.00	0.748	No
718	27.12	2.50	0.86	1.64	0.89	0.832	1.19	0.701	0.87	1.00	0.748	No
719	27.18	2.50	0.86	1.64	0.89	0.832	1.19	0.701	0.87	1.00	0.749	No
720	27.25	2.51	0.86	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.749	No
721	27.32	2.51	0.86	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.749	No
722	27.38	2.51	0.86	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.749	No
723	27.44	2.52	0.87	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.750	No
724	27.52	2.52	0.87	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.750	No
725	27.58	2.52	0.87	1.65	0.88	0.832	1.19	0.701	0.87	1.00	0.750	No
726	27.65	2.53	0.87	1.65	0.88	0.833	1.19	0.702	0.87	1.00	0.751	No
727	27.71	2.53	0.87	1.65	0.88	0.833	1.19	0.702	0.87	1.00	0.751	No
728	27.78	2.53	0.88	1.66	0.88	0.833	1.19	0.702	0.87	1.00	0.751	No
729	27.84	2.54	0.88	1.66	0.88	0.833	1.19	0.702	0.87	1.00	0.752	No
730	27.91	2.54	0.88	1.66	0.88	0.833	1.19	0.702	0.87	1.00	0.752	No
731	27.97	2.54	0.88	1.66	0.88	0.833	1.19	0.702	0.87	1.00	0.752	No
732	28.04	2.54	0.89	1.66	0.88	0.833	1.19	0.702	0.86	1.00	0.752	No
733	28.12	2.55	0.89	1.66	0.88	0.834	1.19	0.702	0.86	1.00	0.753	No
734	28.17	2.55	0.89	1.66	0.88	0.834	1.19	0.702	0.86	1.00	0.753	No
735	28.25	2.55	0.89	1.66	0.88	0.834	1.19	0.703	0.86	1.00	0.753	No
736	28.33	2.56	0.89	1.66	0.88	0.834	1.19	0.703	0.86	1.00	0.754	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
737	28.37	2.56	0.90	1.67	0.88	0.834	1.19	0.703	0.86	1.00	0.754	No
738	28.46	2.56	0.90	1.67	0.88	0.834	1.19	0.703	0.86	1.00	0.754	No
739	28.50	2.57	0.90	1.67	0.88	0.834	1.19	0.703	0.86	1.00	0.754	No
740	28.56	2.57	0.90	1.67	0.88	0.834	1.19	0.703	0.86	1.00	0.755	No
741	28.63	2.57	0.90	1.67	0.88	0.834	1.19	0.703	0.86	1.00	0.755	No
742	28.69	2.58	0.91	1.67	0.88	0.835	1.19	0.703	0.86	1.00	0.755	No
743	28.76	2.58	0.91	1.67	0.88	0.835	1.19	0.703	0.86	1.00	0.756	No
744	28.84	2.58	0.91	1.67	0.88	0.835	1.19	0.703	0.86	1.00	0.756	No
745	28.90	2.59	0.91	1.67	0.88	0.835	1.19	0.704	0.88	1.00	0.742	No
746	28.98	2.59	0.91	1.68	0.87	0.835	1.19	0.704	0.91	1.00	0.745	No
747	29.03	2.59	0.92	1.68	0.87	0.835	1.19	0.704	0.92	1.00	2.000	Yes
748	29.09	2.59	0.92	1.68	0.87	0.835	1.19	0.704	0.91	1.00	2.000	Yes
749	29.18	2.60	0.92	1.68	0.87	0.835	1.19	0.704	0.89	1.00	2.000	Yes
750	29.21	2.60	0.92	1.68	0.87	0.835	1.19	0.704	0.88	1.00	2.000	Yes
751	29.30	2.61	0.92	1.68	0.87	0.836	1.19	0.704	0.88	1.00	2.000	Yes
752	29.38	2.61	0.93	1.68	0.87	0.836	1.19	0.704	0.89	1.00	2.000	Yes
753	29.42	2.61	0.93	1.68	0.87	0.836	1.19	0.704	0.89	1.00	2.000	Yes
754	29.50	2.62	0.93	1.69	0.87	0.836	1.19	0.704	0.91	1.00	2.000	Yes
755	29.58	2.62	0.93	1.69	0.87	0.836	1.19	0.704	0.93	1.00	2.000	Yes
756	29.62	2.62	0.93	1.69	0.87	0.836	1.19	0.704	0.93	1.00	2.000	Yes
757	29.69	2.63	0.94	1.69	0.87	0.836	1.19	0.704	0.94	1.00	2.000	Yes
758	29.76	2.63	0.94	1.69	0.87	0.836	1.19	0.704	0.93	1.00	2.000	Yes
759	29.82	2.63	0.94	1.69	0.87	0.836	1.19	0.704	0.89	1.00	2.000	Yes
760	29.89	2.64	0.94	1.69	0.87	0.836	1.19	0.705	0.86	1.00	0.760	No
761	29.95	2.64	0.94	1.69	0.87	0.836	1.19	0.705	0.86	1.00	0.760	No
762	30.03	2.64	0.95	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.761	No
763	30.07	2.64	0.95	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.761	No
764	30.15	2.65	0.95	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.761	No
765	30.20	2.65	0.95	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.761	No
766	30.27	2.65	0.95	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.762	No
767	30.33	2.66	0.96	1.70	0.87	0.836	1.19	0.705	0.86	1.00	0.762	No
768	30.39	2.66	0.96	1.70	0.87	0.837	1.19	0.705	0.86	1.00	2.000	Yes
769	30.47	2.67	0.96	1.70	0.87	0.837	1.19	0.705	0.86	1.00	2.000	Yes
770	30.54	2.67	0.96	1.71	0.87	0.837	1.19	0.705	0.88	1.00	2.000	Yes
771	30.59	2.67	0.96	1.71	0.87	0.837	1.19	0.705	0.86	1.00	2.000	Yes
772	30.66	2.68	0.97	1.71	0.87	0.837	1.19	0.705	0.88	1.00	2.000	Yes
773	30.73	2.68	0.97	1.71	0.86	0.837	1.19	0.705	0.91	1.00	2.000	Yes
774	30.80	2.68	0.97	1.71	0.86	0.837	1.19	0.705	0.92	1.00	2.000	Yes
775	30.86	2.69	0.97	1.71	0.86	0.837	1.19	0.705	0.93	1.00	2.000	Yes
776	30.93	2.69	0.98	1.71	0.86	0.837	1.19	0.705	0.93	1.00	2.000	Yes
777	30.99	2.69	0.98	1.71	0.86	0.837	1.19	0.705	0.94	1.00	2.000	Yes
778	31.06	2.70	0.98	1.72	0.86	0.837	1.19	0.705	0.94	1.00	2.000	Yes
779	31.13	2.70	0.98	1.72	0.86	0.837	1.19	0.705	0.92	1.00	2.000	Yes
780	31.18	2.70	0.98	1.72	0.86	0.837	1.19	0.705	0.91	1.00	2.000	Yes
781	31.26	2.71	0.99	1.72	0.86	0.837	1.19	0.705	0.88	1.00	2.000	Yes
782	31.33	2.71	0.99	1.72	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes
783	31.38	2.71	0.99	1.72	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes
784	31.45	2.72	0.99	1.72	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
785	31.52	2.72	0.99	1.73	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes
786	31.61	2.72	1.00	1.73	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes
787	31.65	2.73	1.00	1.73	0.86	0.837	1.19	0.705	0.90	1.00	2.000	Yes
788	31.73	2.73	1.00	1.73	0.86	0.837	1.19	0.705	0.89	1.00	2.000	Yes
789	31.80	2.73	1.00	1.73	0.86	0.837	1.19	0.705	0.85	1.00	2.000	Yes
790	31.87	2.74	1.00	1.73	0.86	0.837	1.19	0.705	0.85	1.00	2.000	Yes
791	31.93	2.74	1.01	1.73	0.86	0.837	1.19	0.705	0.85	1.00	0.768	No
792	31.99	2.74	1.01	1.73	0.86	0.837	1.19	0.705	0.85	1.00	0.768	No
793	32.06	2.75	1.01	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.768	No
794	32.11	2.75	1.01	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.768	No
795	32.17	2.75	1.01	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.768	No
796	32.24	2.76	1.02	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.769	No
797	32.30	2.76	1.02	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.769	No
798	32.37	2.76	1.02	1.74	0.86	0.837	1.19	0.705	0.85	1.00	0.769	No
799	32.44	2.77	1.02	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.769	No
800	32.50	2.77	1.02	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.769	No
801	32.56	2.77	1.03	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.770	No
802	32.63	2.78	1.03	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.770	No
803	32.70	2.78	1.03	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.770	No
804	32.76	2.78	1.03	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.770	No
805	32.83	2.79	1.03	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.771	No
806	32.89	2.79	1.04	1.75	0.85	0.837	1.19	0.705	0.85	1.00	0.771	No
807	32.95	2.79	1.04	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.771	No
808	33.02	2.80	1.04	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.771	No
809	33.10	2.80	1.04	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.771	No
810	33.16	2.81	1.04	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.772	No
811	33.25	2.81	1.05	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.772	No
812	33.29	2.81	1.05	1.76	0.85	0.837	1.19	0.705	0.85	1.00	0.772	No
813	33.37	2.82	1.05	1.77	0.85	0.837	1.19	0.705	0.85	1.00	0.772	No
814	33.45	2.82	1.05	1.77	0.85	0.837	1.19	0.705	0.85	1.00	0.772	No
815	33.50	2.82	1.06	1.77	0.85	0.837	1.19	0.705	0.85	1.00	0.773	No
816	33.59	2.83	1.06	1.77	0.85	0.837	1.19	0.705	0.85	1.00	0.773	No
817	33.63	2.83	1.06	1.77	0.85	0.837	1.19	0.705	0.85	1.00	0.773	No
818	33.68	2.83	1.06	1.77	0.85	0.837	1.19	0.705	0.85	1.00	2.000	Yes
819	33.76	2.84	1.06	1.77	0.85	0.837	1.19	0.705	0.85	1.00	2.000	Yes
820	33.82	2.84	1.07	1.77	0.85	0.837	1.19	0.705	0.84	1.00	2.000	Yes
821	33.88	2.84	1.07	1.78	0.85	0.837	1.19	0.705	0.88	1.00	2.000	Yes
822	33.96	2.85	1.07	1.78	0.85	0.837	1.19	0.705	0.91	1.00	2.000	Yes
823	34.02	2.85	1.07	1.78	0.85	0.837	1.19	0.705	0.92	1.00	2.000	Yes
824	34.08	2.85	1.07	1.78	0.85	0.837	1.19	0.705	0.93	1.00	2.000	Yes
825	34.14	2.86	1.08	1.78	0.84	0.837	1.19	0.705	0.94	1.00	2.000	Yes
826	34.23	2.86	1.08	1.78	0.84	0.837	1.19	0.705	0.94	1.00	2.000	Yes
827	34.28	2.86	1.08	1.78	0.84	0.837	1.19	0.705	0.94	1.00	0.833	No
828	34.34	2.87	1.08	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.836	No
829	34.41	2.87	1.08	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.839	No
830	34.49	2.87	1.09	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.840	No
831	34.53	2.88	1.09	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.841	No
832	34.61	2.88	1.09	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.840	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
833	34.70	2.88	1.09	1.79	0.84	0.837	1.19	0.705	0.95	1.00	0.838	No
834	34.75	2.89	1.09	1.79	0.84	0.837	1.19	0.705	0.94	1.00	0.835	No
835	34.83	2.89	1.10	1.79	0.84	0.837	1.19	0.705	0.94	1.00	0.826	No
836	34.88	2.89	1.10	1.79	0.84	0.837	1.19	0.705	0.94	1.00	0.827	No
837	34.92	2.90	1.10	1.80	0.84	0.837	1.19	0.705	0.94	1.00	0.830	No
838	35.01	2.90	1.10	1.80	0.84	0.837	1.19	0.705	0.94	1.00	0.829	No
839	35.10	2.90	1.11	1.80	0.84	0.837	1.19	0.705	0.94	1.00	2.000	Yes
840	35.13	2.91	1.11	1.80	0.84	0.837	1.19	0.705	0.94	1.00	2.000	Yes
841	35.20	2.91	1.11	1.80	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
842	35.29	2.91	1.11	1.80	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
843	35.33	2.92	1.11	1.80	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
844	35.42	2.92	1.12	1.81	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
845	35.46	2.92	1.12	1.81	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
846	35.55	2.93	1.12	1.81	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
847	35.58	2.93	1.12	1.81	0.84	0.837	1.19	0.705	0.93	1.00	2.000	Yes
848	35.66	2.93	1.12	1.81	0.84	0.837	1.19	0.705	0.93	1.00	0.813	No
849	35.72	2.94	1.12	1.81	0.84	0.837	1.19	0.705	0.92	1.00	0.809	No
850	35.78	2.94	1.13	1.81	0.84	0.837	1.19	0.705	0.92	1.00	0.807	No
851	35.84	2.94	1.13	1.81	0.83	0.837	1.19	0.705	0.93	1.00	0.810	No
852	35.91	2.95	1.13	1.81	0.83	0.836	1.19	0.705	0.93	1.00	0.810	No
853	35.98	2.95	1.13	1.82	0.83	0.836	1.19	0.705	0.93	1.00	0.810	No
854	36.05	2.95	1.14	1.82	0.83	0.836	1.19	0.705	0.93	1.00	0.810	No
855	36.11	2.96	1.14	1.82	0.83	0.836	1.19	0.705	0.92	1.00	2.000	Yes
856	36.19	2.96	1.14	1.82	0.83	0.836	1.19	0.705	0.92	1.00	2.000	Yes
857	36.25	2.96	1.14	1.82	0.83	0.836	1.19	0.705	0.92	1.00	2.000	Yes
858	36.32	2.97	1.14	1.82	0.83	0.836	1.19	0.705	0.93	1.00	2.000	Yes
859	36.36	2.97	1.14	1.82	0.83	0.836	1.19	0.705	0.93	1.00	2.000	Yes
860	36.43	2.97	1.15	1.83	0.83	0.836	1.19	0.704	0.93	1.00	2.000	Yes
861	36.52	2.98	1.15	1.83	0.83	0.836	1.19	0.704	0.93	1.00	2.000	Yes
862	36.57	2.98	1.15	1.83	0.83	0.836	1.19	0.704	0.93	1.00	2.000	Yes
863	36.64	2.98	1.15	1.83	0.83	0.836	1.19	0.704	0.92	1.00	2.000	Yes
864	36.69	2.99	1.16	1.83	0.83	0.836	1.19	0.704	0.92	1.00	2.000	Yes
865	36.77	2.99	1.16	1.83	0.83	0.836	1.19	0.704	0.92	1.00	2.000	Yes
866	36.85	2.99	1.16	1.83	0.83	0.836	1.19	0.704	0.91	1.00	0.790	No
867	36.89	3.00	1.16	1.83	0.83	0.836	1.19	0.704	0.91	1.00	2.000	Yes
868	36.97	3.00	1.16	1.84	0.83	0.836	1.19	0.704	0.90	1.00	2.000	Yes
869	37.03	3.00	1.17	1.84	0.83	0.836	1.19	0.704	0.91	1.00	2.000	Yes
870	37.12	3.01	1.17	1.84	0.83	0.835	1.19	0.704	0.92	1.00	2.000	Yes
871	37.15	3.01	1.17	1.84	0.83	0.835	1.19	0.704	0.92	1.00	2.000	Yes
872	37.22	3.01	1.17	1.84	0.83	0.835	1.19	0.704	0.92	1.00	2.000	Yes
873	37.29	3.02	1.17	1.84	0.83	0.835	1.19	0.704	0.91	1.00	2.000	Yes
874	37.35	3.02	1.18	1.85	0.83	0.835	1.19	0.704	0.90	1.00	2.000	Yes
875	37.42	3.02	1.18	1.85	0.83	0.835	1.19	0.704	0.85	1.00	2.000	Yes
876	37.49	3.03	1.18	1.85	0.83	0.835	1.19	0.703	0.83	1.00	2.000	Yes
877	37.56	3.03	1.18	1.85	0.82	0.835	1.19	0.703	0.83	1.00	0.783	No
878	37.62	3.04	1.18	1.85	0.82	0.835	1.19	0.703	0.83	1.00	0.783	No
879	37.68	3.04	1.19	1.85	0.82	0.835	1.19	0.703	0.86	1.00	0.757	No
880	37.74	3.04	1.19	1.86	0.82	0.834	1.19	0.703	0.89	1.00	0.764	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
881	37.83	3.05	1.19	1.86	0.82	0.834	1.19	0.703	0.86	1.00	0.756	No
882	37.89	3.05	1.19	1.86	0.82	0.834	1.19	0.703	0.88	1.00	0.755	No
883	37.96	3.06	1.19	1.86	0.82	0.834	1.19	0.703	0.87	1.00	0.749	No
884	38.02	3.06	1.20	1.86	0.82	0.834	1.19	0.703	0.87	1.00	0.747	No
885	38.07	3.06	1.20	1.86	0.82	0.834	1.19	0.703	0.89	1.00	0.762	No
886	38.16	3.07	1.20	1.87	0.82	0.834	1.19	0.702	0.89	1.00	0.770	No
887	38.22	3.07	1.20	1.87	0.82	0.834	1.19	0.702	0.89	1.00	0.771	No
888	38.28	3.07	1.20	1.87	0.82	0.834	1.19	0.702	0.89	1.00	0.772	No
889	38.34	3.08	1.21	1.87	0.82	0.833	1.19	0.702	0.89	1.00	0.772	No
890	38.42	3.08	1.21	1.87	0.82	0.833	1.19	0.702	0.89	1.00	0.772	No
891	38.48	3.08	1.21	1.87	0.82	0.833	1.19	0.702	0.89	1.00	0.773	No
892	38.53	3.09	1.21	1.87	0.82	0.833	1.19	0.702	0.90	1.00	0.782	No
893	38.60	3.09	1.21	1.88	0.82	0.833	1.19	0.702	0.88	1.00	0.759	No
894	38.67	3.09	1.22	1.88	0.82	0.833	1.19	0.702	0.89	1.00	0.764	No
895	38.73	3.10	1.22	1.88	0.82	0.833	1.19	0.702	0.88	1.00	0.757	No
896	38.80	3.10	1.22	1.88	0.82	0.833	1.19	0.702	0.87	1.00	0.751	No
897	38.86	3.10	1.22	1.88	0.82	0.833	1.19	0.701	0.83	1.00	0.786	No
898	38.93	3.11	1.23	1.88	0.82	0.832	1.19	0.701	0.83	1.00	2.000	Yes
899	39.00	3.11	1.23	1.89	0.82	0.832	1.19	0.701	0.83	1.00	2.000	Yes
900	39.07	3.12	1.23	1.89	0.82	0.832	1.19	0.701	0.83	1.00	2.000	Yes
901	39.14	3.12	1.23	1.89	0.82	0.832	1.19	0.701	0.84	1.00	2.000	Yes
902	39.21	3.12	1.23	1.89	0.82	0.832	1.19	0.701	0.87	1.00	2.000	Yes
903	39.27	3.13	1.24	1.89	0.81	0.832	1.19	0.701	0.88	1.00	2.000	Yes
904	39.33	3.13	1.24	1.89	0.81	0.832	1.19	0.701	0.88	1.00	2.000	Yes
905	39.39	3.13	1.24	1.90	0.81	0.831	1.19	0.701	0.88	1.00	2.000	Yes
906	39.47	3.14	1.24	1.90	0.81	0.831	1.19	0.700	0.89	1.00	2.000	Yes
907	39.53	3.14	1.24	1.90	0.81	0.831	1.19	0.700	0.89	1.00	2.000	Yes
908	39.58	3.15	1.25	1.90	0.81	0.831	1.19	0.700	0.89	1.00	0.773	No
909	39.67	3.15	1.25	1.90	0.81	0.831	1.19	0.700	0.89	1.00	0.773	No
910	39.73	3.15	1.25	1.90	0.81	0.831	1.19	0.700	0.89	1.00	0.772	No
911	39.81	3.16	1.25	1.91	0.81	0.831	1.19	0.700	0.89	1.00	0.773	No
912	39.84	3.16	1.25	1.91	0.81	0.831	1.19	0.700	0.88	1.00	0.763	No
913	39.92	3.16	1.26	1.91	0.81	0.830	1.19	0.700	0.87	1.00	2.000	Yes
914	40.00	3.17	1.26	1.91	0.81	0.830	1.19	0.699	0.88	1.00	2.000	Yes
915	40.04	3.17	1.26	1.91	0.81	0.830	1.19	0.699	0.89	1.00	2.000	Yes
916	40.12	3.18	1.26	1.91	0.81	0.830	1.19	0.699	0.88	1.00	2.000	Yes
917	40.20	3.18	1.26	1.92	0.81	0.830	1.19	0.699	0.89	1.00	2.000	Yes
918	40.24	3.18	1.27	1.92	0.81	0.830	1.19	0.699	0.89	1.00	2.000	Yes
919	40.32	3.19	1.27	1.92	0.81	0.829	1.19	0.699	0.90	1.00	2.000	Yes
920	40.37	3.19	1.27	1.92	0.81	0.829	1.19	0.699	0.90	1.00	2.000	Yes
921	40.44	3.19	1.27	1.92	0.81	0.829	1.19	0.699	0.90	1.00	0.792	No
922	40.52	3.20	1.27	1.92	0.81	0.829	1.19	0.699	0.91	1.00	0.795	No
923	40.56	3.20	1.28	1.92	0.81	0.829	1.19	0.698	0.91	1.00	2.000	Yes
924	40.64	3.20	1.28	1.93	0.81	0.829	1.19	0.698	0.91	1.00	2.000	Yes
925	40.71	3.21	1.28	1.93	0.81	0.829	1.19	0.698	0.90	1.00	2.000	Yes
926	40.78	3.21	1.28	1.93	0.81	0.828	1.19	0.698	0.89	1.00	2.000	Yes
927	40.83	3.21	1.28	1.93	0.81	0.828	1.19	0.698	0.89	1.00	2.000	Yes
928	40.93	3.22	1.29	1.93	0.81	0.828	1.19	0.698	0.90	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
929	40.97	3.22	1.29	1.93	0.80	0.828	1.19	0.698	0.90	1.00	2.000	Yes
930	41.05	3.23	1.29	1.94	0.80	0.828	1.19	0.698	0.90	1.00	0.794	No
931	41.10	3.23	1.29	1.94	0.80	0.828	1.19	0.697	0.90	1.00	0.793	No
932	41.18	3.23	1.30	1.94	0.80	0.828	1.19	0.697	0.91	1.00	0.798	No
933	41.23	3.24	1.30	1.94	0.80	0.828	1.19	0.697	0.91	1.00	0.798	No
934	41.30	3.24	1.30	1.94	0.80	0.827	1.19	0.697	0.91	1.00	0.797	No
935	41.36	3.24	1.30	1.94	0.80	0.827	1.19	0.697	0.91	1.00	0.796	No
936	41.42	3.25	1.30	1.94	0.80	0.827	1.19	0.697	0.91	1.00	0.797	No
937	41.49	3.25	1.30	1.95	0.80	0.827	1.19	0.697	0.89	1.00	0.778	No
938	41.55	3.25	1.31	1.95	0.80	0.827	1.19	0.697	0.90	1.00	0.788	No
939	41.63	3.26	1.31	1.95	0.80	0.827	1.19	0.696	0.90	1.00	0.786	No
940	41.69	3.26	1.31	1.95	0.80	0.826	1.19	0.696	0.89	1.00	0.775	No
941	41.75	3.27	1.31	1.95	0.80	0.826	1.19	0.696	0.88	1.00	0.767	No
942	41.82	3.27	1.32	1.95	0.80	0.826	1.19	0.696	0.89	1.00	0.776	No
943	41.88	3.27	1.32	1.96	0.80	0.826	1.19	0.696	0.89	1.00	0.779	No
944	41.95	3.28	1.32	1.96	0.80	0.826	1.19	0.696	0.89	1.00	0.778	No
945	42.01	3.28	1.32	1.96	0.80	0.826	1.19	0.696	0.89	1.00	0.780	No
946	42.09	3.29	1.32	1.96	0.80	0.825	1.19	0.696	0.89	1.00	0.781	No
947	42.15	3.29	1.33	1.96	0.80	0.825	1.19	0.695	0.89	1.00	0.776	No
948	42.22	3.29	1.33	1.96	0.80	0.825	1.19	0.695	0.88	1.00	0.769	No
949	42.30	3.30	1.33	1.97	0.80	0.825	1.19	0.695	0.89	1.00	0.774	No
950	42.34	3.30	1.33	1.97	0.80	0.825	1.19	0.695	0.88	1.00	0.769	No
951	42.42	3.30	1.33	1.97	0.80	0.825	1.19	0.695	0.88	1.00	0.772	No
952	42.50	3.31	1.34	1.97	0.80	0.824	1.19	0.695	0.88	1.00	0.770	No
953	42.54	3.31	1.34	1.97	0.80	0.824	1.19	0.695	0.88	1.00	0.772	No
954	42.62	3.32	1.34	1.97	0.80	0.824	1.19	0.694	0.88	1.00	0.767	No
955	42.70	3.32	1.34	1.98	0.79	0.824	1.19	0.694	0.88	1.00	0.767	No
956	42.74	3.32	1.34	1.98	0.79	0.824	1.19	0.694	0.88	1.00	0.765	No
957	42.82	3.33	1.35	1.98	0.79	0.824	1.19	0.694	0.87	1.00	0.755	No
958	42.86	3.33	1.35	1.98	0.79	0.824	1.19	0.694	0.85	1.00	0.754	No
959	42.94	3.33	1.35	1.98	0.79	0.823	1.19	0.694	0.87	1.00	0.755	No
960	43.01	3.34	1.35	1.98	0.79	0.823	1.19	0.694	0.86	1.00	0.752	No
961	43.07	3.34	1.35	1.99	0.79	0.823	1.19	0.693	0.86	1.00	0.755	No
962	43.15	3.35	1.36	1.99	0.79	0.823	1.19	0.693	0.86	1.00	0.750	No
963	43.21	3.35	1.36	1.99	0.79	0.823	1.19	0.693	0.87	1.00	0.756	No
964	43.26	3.35	1.36	1.99	0.79	0.822	1.19	0.693	0.87	1.00	0.759	No
965	43.32	3.36	1.36	1.99	0.79	0.822	1.19	0.693	0.86	1.00	0.756	No
966	43.41	3.36	1.36	2.00	0.79	0.822	1.19	0.693	0.87	1.00	0.759	No
967	43.47	3.36	1.37	2.00	0.79	0.822	1.19	0.692	0.87	1.00	0.760	No
968	43.54	3.37	1.37	2.00	0.79	0.822	1.19	0.692	0.86	1.00	0.755	No
969	43.61	3.37	1.37	2.00	0.79	0.821	1.19	0.692	0.86	1.00	0.750	No
970	43.67	3.38	1.37	2.00	0.79	0.821	1.19	0.692	0.85	1.00	0.755	No
971	43.74	3.38	1.38	2.00	0.79	0.821	1.19	0.692	0.84	1.00	0.762	No
972	43.82	3.38	1.38	2.01	0.79	0.821	1.19	0.692	0.83	1.00	0.770	No
973	43.86	3.39	1.38	2.01	0.79	0.821	1.19	0.692	0.84	1.00	0.767	No
974	43.94	3.39	1.38	2.01	0.79	0.820	1.19	0.691	0.85	1.00	0.756	No
975	43.99	3.39	1.38	2.01	0.79	0.820	1.19	0.691	0.86	1.00	0.751	No
976	44.07	3.40	1.39	2.01	0.79	0.820	1.19	0.691	0.87	1.00	0.758	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
977	44.11	3.40	1.39	2.01	0.79	0.820	1.19	0.691	0.86	1.00	0.756	No
978	44.20	3.41	1.39	2.02	0.79	0.820	1.19	0.691	0.87	1.00	0.765	No
979	44.24	3.41	1.39	2.02	0.79	0.820	1.19	0.691	0.87	1.00	0.766	No
980	44.33	3.41	1.39	2.02	0.79	0.819	1.19	0.690	0.87	1.00	0.763	No
981	44.38	3.42	1.40	2.02	0.78	0.819	1.19	0.690	0.87	1.00	0.759	No
982	44.46	3.42	1.40	2.02	0.78	0.819	1.19	0.690	0.87	1.00	2.000	Yes
983	44.51	3.42	1.40	2.02	0.78	0.819	1.19	0.690	0.86	1.00	2.000	Yes
984	44.59	3.43	1.40	2.03	0.78	0.819	1.19	0.690	0.88	1.00	2.000	Yes
985	44.64	3.43	1.40	2.03	0.78	0.818	1.19	0.690	0.89	1.00	2.000	Yes
986	44.72	3.44	1.41	2.03	0.78	0.818	1.19	0.689	0.90	1.00	2.000	Yes
987	44.81	3.44	1.41	2.03	0.78	0.818	1.19	0.689	0.91	1.00	2.000	Yes
988	44.85	3.44	1.41	2.03	0.78	0.818	1.19	0.689	0.91	1.00	0.806	No
989	44.93	3.45	1.41	2.03	0.78	0.818	1.19	0.689	0.91	1.00	0.804	No
990	44.97	3.45	1.41	2.04	0.78	0.818	1.19	0.689	0.91	1.00	0.802	No
991	45.06	3.45	1.42	2.04	0.78	0.817	1.19	0.689	0.90	1.00	0.791	No
992	45.11	3.46	1.42	2.04	0.78	0.817	1.19	0.688	0.89	1.00	0.781	No
993	45.17	3.46	1.42	2.04	0.78	0.817	1.19	0.688	0.87	1.00	0.765	No
994	45.23	3.46	1.42	2.04	0.78	0.817	1.19	0.688	0.88	1.00	0.771	No
995	45.29	3.47	1.42	2.04	0.78	0.817	1.19	0.688	0.88	1.00	0.771	No
996	45.36	3.47	1.43	2.05	0.78	0.816	1.19	0.688	0.88	1.00	2.000	Yes
997	45.43	3.48	1.43	2.05	0.78	0.816	1.19	0.688	0.89	1.00	2.000	Yes
998	45.49	3.48	1.43	2.05	0.78	0.816	1.19	0.687	0.80	1.00	2.000	Yes
999	45.56	3.48	1.43	2.05	0.78	0.816	1.19	0.687	0.86	1.00	2.000	Yes
1000	45.62	3.49	1.43	2.05	0.78	0.815	1.19	0.687	0.80	1.00	2.000	Yes
1001	45.69	3.49	1.44	2.05	0.78	0.815	1.19	0.687	0.80	1.00	2.000	Yes
1002	45.76	3.49	1.44	2.06	0.78	0.815	1.19	0.687	0.80	1.00	2.000	Yes
1003	45.81	3.50	1.44	2.06	0.78	0.815	1.19	0.687	0.80	1.00	2.000	Yes
1004	45.88	3.50	1.44	2.06	0.78	0.815	1.19	0.686	0.80	1.00	2.000	Yes
1005	45.95	3.51	1.44	2.06	0.78	0.814	1.19	0.686	0.80	1.00	2.000	Yes
1006	46.02	3.51	1.45	2.06	0.78	0.814	1.19	0.686	0.81	1.00	2.000	Yes
1007	46.08	3.51	1.45	2.07	0.77	0.814	1.19	0.686	0.83	1.00	2.000	Yes
1008	46.15	3.52	1.45	2.07	0.77	0.814	1.19	0.686	0.84	1.00	2.000	Yes
1009	46.21	3.52	1.45	2.07	0.77	0.813	1.19	0.685	0.85	1.00	2.000	Yes
1010	46.28	3.53	1.45	2.07	0.77	0.813	1.19	0.685	0.85	1.00	2.000	Yes
1011	46.34	3.53	1.46	2.07	0.77	0.813	1.19	0.685	0.80	1.00	2.000	Yes
1012	46.41	3.53	1.46	2.08	0.77	0.813	1.19	0.685	0.80	1.00	2.000	Yes
1013	46.47	3.54	1.46	2.08	0.77	0.813	1.19	0.685	0.80	1.00	2.000	Yes
1014	46.54	3.54	1.46	2.08	0.77	0.812	1.19	0.684	0.80	1.00	2.000	No
1015	46.61	3.55	1.46	2.08	0.77	0.812	1.19	0.684	0.81	1.00	2.000	No
1016	46.69	3.55	1.47	2.08	0.77	0.812	1.19	0.684	0.80	1.00	2.000	No
1017	46.75	3.55	1.47	2.08	0.77	0.812	1.19	0.684	0.80	1.00	2.000	No
1018	46.80	3.56	1.47	2.09	0.77	0.811	1.19	0.684	0.80	1.00	2.000	No
1019	46.87	3.56	1.47	2.09	0.77	0.811	1.19	0.683	0.80	1.00	2.000	No
1020	46.93	3.56	1.47	2.09	0.77	0.811	1.19	0.683	0.80	1.00	2.000	Yes
1021	46.99	3.57	1.48	2.09	0.77	0.811	1.19	0.683	0.80	1.00	2.000	Yes
1022	47.06	3.57	1.48	2.09	0.77	0.810	1.19	0.683	0.80	1.00	2.000	Yes
1023	47.15	3.58	1.48	2.10	0.77	0.810	1.19	0.683	0.79	1.00	2.000	Yes
1024	47.20	3.58	1.48	2.10	0.77	0.810	1.19	0.682	0.79	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1025	47.27	3.59	1.49	2.10	0.77	0.810	1.19	0.682	0.79	1.00	2.000	No
1026	47.35	3.59	1.49	2.10	0.77	0.809	1.19	0.682	0.79	1.00	2.000	Yes
1027	47.40	3.59	1.49	2.10	0.77	0.809	1.19	0.682	0.79	1.00	2.000	Yes
1028	47.48	3.60	1.49	2.11	0.77	0.809	1.19	0.682	0.83	1.00	2.000	Yes
1029	47.53	3.60	1.49	2.11	0.77	0.809	1.19	0.681	0.83	1.00	2.000	Yes
1030	47.59	3.60	1.50	2.11	0.77	0.809	1.19	0.681	0.84	1.00	2.000	No
1031	47.66	3.61	1.50	2.11	0.77	0.808	1.19	0.681	0.83	1.00	2.000	No
1032	47.73	3.61	1.50	2.11	0.77	0.808	1.19	0.681	0.84	1.00	2.000	No
1033	47.80	3.62	1.50	2.11	0.76	0.808	1.19	0.681	0.84	1.00	2.000	No
1034	47.85	3.62	1.50	2.12	0.76	0.808	1.19	0.680	0.83	1.00	2.000	No
1035	47.93	3.62	1.51	2.12	0.76	0.807	1.19	0.680	0.79	1.00	2.000	No
1036	47.98	3.63	1.51	2.12	0.76	0.807	1.19	0.680	0.79	1.00	2.000	No
1037	48.06	3.63	1.51	2.12	0.76	0.807	1.19	0.680	0.79	1.00	2.000	No
1038	48.12	3.64	1.51	2.12	0.76	0.807	1.19	0.680	0.79	1.00	2.000	No
1039	48.18	3.64	1.51	2.13	0.76	0.806	1.19	0.679	0.79	1.00	2.000	No
1040	48.26	3.64	1.52	2.13	0.76	0.806	1.19	0.679	0.82	1.00	2.000	No
1041	48.32	3.65	1.52	2.13	0.76	0.806	1.19	0.679	0.83	1.00	2.000	No
1042	48.37	3.65	1.52	2.13	0.76	0.806	1.19	0.679	0.84	1.00	2.000	No
1043	48.46	3.66	1.52	2.13	0.76	0.805	1.19	0.679	0.84	1.00	2.000	No
1044	48.52	3.66	1.52	2.13	0.76	0.805	1.19	0.678	0.84	1.00	2.000	No
1045	48.59	3.66	1.53	2.14	0.76	0.805	1.19	0.678	0.83	1.00	2.000	No
1046	48.66	3.67	1.53	2.14	0.76	0.805	1.19	0.678	0.79	1.00	2.000	No
1047	48.70	3.67	1.53	2.14	0.76	0.805	1.19	0.678	0.79	1.00	2.000	No
1048	48.79	3.67	1.53	2.14	0.76	0.804	1.19	0.678	0.79	1.00	2.000	No
1049	48.83	3.68	1.53	2.14	0.76	0.804	1.19	0.677	0.79	1.00	2.000	No
1050	48.91	3.68	1.54	2.15	0.76	0.804	1.19	0.677	0.79	1.00	2.000	No
1051	48.98	3.69	1.54	2.15	0.76	0.804	1.19	0.677	0.79	1.00	2.000	No
1052	49.04	3.69	1.54	2.15	0.76	0.803	1.19	0.677	0.79	1.00	2.000	No
1053	49.10	3.69	1.54	2.15	0.76	0.803	1.19	0.677	0.79	1.00	2.000	No
1054	49.17	3.70	1.54	2.15	0.76	0.803	1.19	0.676	0.79	1.00	2.000	No
1055	49.24	3.70	1.55	2.16	0.76	0.803	1.19	0.676	0.79	1.00	2.000	Yes
1056	49.29	3.71	1.55	2.16	0.76	0.802	1.19	0.676	0.79	1.00	2.000	Yes
1057	49.38	3.71	1.55	2.16	0.76	0.802	1.19	0.676	0.83	1.00	2.000	Yes
1058	49.44	3.71	1.55	2.16	0.76	0.802	1.19	0.676	0.84	1.00	2.000	Yes
1059	49.51	3.72	1.56	2.16	0.76	0.802	1.19	0.675	0.84	1.00	2.000	Yes
1060	49.57	3.72	1.56	2.16	0.75	0.801	1.19	0.675	0.84	1.00	2.000	Yes
1061	49.64	3.73	1.56	2.17	0.75	0.801	1.19	0.675	0.84	1.00	2.000	Yes
1062	49.70	3.73	1.56	2.17	0.75	0.801	1.19	0.675	0.85	1.00	2.000	Yes
1063	49.77	3.73	1.56	2.17	0.75	0.801	1.19	0.675	0.78	1.00	2.000	Yes
1064	49.84	3.74	1.57	2.17	0.75	0.800	1.19	0.674	0.78	1.00	2.000	Yes
1065	49.88	3.74	1.57	2.17	0.75	0.800	1.19	0.674	0.78	1.00	2.000	Yes
1066	49.97	3.75	1.57	2.18	0.75	0.800	1.19	0.674	0.78	1.00	2.000	Yes
1067	50.06	3.75	1.57	2.18	0.75	0.799	1.19	0.674	0.78	1.00	2.000	Yes
1068	50.11	3.75	1.57	2.18	0.75	0.799	1.19	0.673	0.78	1.00	2.000	Yes
1069	50.16	3.76	1.58	2.18	0.75	0.799	1.19	0.673	0.78	1.00	2.000	Yes
1070	50.21	3.76	1.58	2.18	0.75	0.799	1.19	0.673	0.80	1.00	2.000	Yes
1071	50.28	3.76	1.58	2.19	0.75	0.799	1.19	0.673	0.80	1.00	2.000	Yes
1072	50.35	3.77	1.58	2.19	0.75	0.798	1.19	0.673	0.83	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1073	50.41	3.77	1.58	2.19	0.75	0.798	1.19	0.672	0.81	1.00	2.000	Yes
1074	50.47	3.78	1.59	2.19	0.75	0.798	1.19	0.672	0.83	1.00	2.000	Yes
1075	50.56	3.78	1.59	2.19	0.75	0.798	1.19	0.672	0.81	1.00	2.000	Yes
1076	50.62	3.78	1.59	2.19	0.75	0.797	1.19	0.672	0.78	1.00	2.000	Yes
1077	50.68	3.79	1.59	2.20	0.75	0.797	1.19	0.672	0.78	1.00	2.000	Yes
1078	50.74	3.79	1.59	2.20	0.75	0.797	1.19	0.671	0.78	1.00	2.000	No
1079	50.81	3.80	1.60	2.20	0.75	0.797	1.19	0.671	0.79	1.00	2.000	No
1080	50.87	3.80	1.60	2.20	0.75	0.796	1.19	0.671	0.80	1.00	2.000	No
1081	50.94	3.80	1.60	2.20	0.75	0.796	1.19	0.671	0.79	1.00	2.000	No
1082	51.02	3.81	1.60	2.21	0.75	0.796	1.19	0.670	0.82	1.00	2.000	No
1083	51.10	3.81	1.61	2.21	0.75	0.795	1.19	0.670	0.83	1.00	2.000	No
1084	51.15	3.82	1.61	2.21	0.75	0.795	1.19	0.670	0.84	1.00	2.000	No
1085	51.23	3.82	1.61	2.21	0.75	0.795	1.19	0.670	0.84	1.00	2.000	No
1086	51.26	3.82	1.61	2.21	0.75	0.795	1.19	0.670	0.85	1.00	2.000	No
1087	51.33	3.83	1.61	2.21	0.74	0.795	1.19	0.669	0.80	1.00	2.000	No
1088	51.40	3.83	1.61	2.22	0.74	0.794	1.19	0.669	0.81	1.00	2.000	No
1089	51.46	3.83	1.62	2.22	0.74	0.794	1.19	0.669	0.84	1.00	2.000	No
1090	51.53	3.84	1.62	2.22	0.74	0.794	1.19	0.669	0.85	1.00	2.000	No
1091	51.60	3.84	1.62	2.22	0.74	0.794	1.19	0.669	0.86	1.00	2.000	No
1092	51.66	3.85	1.62	2.22	0.74	0.793	1.19	0.668	0.85	1.00	2.000	No
1093	51.74	3.85	1.63	2.23	0.74	0.793	1.19	0.668	0.83	1.00	2.000	No
1094	51.80	3.85	1.63	2.23	0.74	0.793	1.19	0.668	0.82	1.00	2.000	No
1095	51.85	3.86	1.63	2.23	0.74	0.793	1.19	0.668	0.82	1.00	2.000	No
1096	51.92	3.86	1.63	2.23	0.74	0.792	1.19	0.668	0.84	1.00	2.000	No
1097	52.01	3.87	1.63	2.23	0.74	0.792	1.19	0.667	0.86	1.00	2.000	No
1098	52.07	3.87	1.64	2.23	0.74	0.792	1.19	0.667	0.86	1.00	2.000	No
1099	52.13	3.87	1.64	2.24	0.74	0.792	1.19	0.667	0.86	1.00	2.000	No
1100	52.19	3.88	1.64	2.24	0.74	0.791	1.19	0.667	0.87	1.00	2.000	No
1101	52.26	3.88	1.64	2.24	0.74	0.791	1.19	0.667	0.87	1.00	2.000	No
1102	52.34	3.89	1.64	2.24	0.74	0.791	1.19	0.666	0.86	1.00	2.000	No
1103	52.38	3.89	1.64	2.24	0.74	0.791	1.19	0.666	0.86	1.00	2.000	No
1104	52.47	3.89	1.65	2.25	0.74	0.790	1.19	0.666	0.84	1.00	2.000	No
1105	52.51	3.90	1.65	2.25	0.74	0.790	1.19	0.666	0.84	1.00	2.000	No
1106	52.60	3.90	1.65	2.25	0.74	0.790	1.19	0.666	0.84	1.00	2.000	No
1107	52.64	3.90	1.65	2.25	0.74	0.790	1.19	0.665	0.81	1.00	2.000	No
1108	52.73	3.91	1.66	2.25	0.74	0.789	1.19	0.665	0.77	1.00	2.000	No
1109	52.77	3.91	1.66	2.25	0.74	0.789	1.19	0.665	0.77	1.00	2.000	No
1110	52.86	3.92	1.66	2.26	0.74	0.789	1.19	0.665	0.77	1.00	2.000	No
1111	52.90	3.92	1.66	2.26	0.74	0.789	1.19	0.665	0.83	1.00	2.000	No
1112	52.97	3.92	1.66	2.26	0.74	0.788	1.19	0.664	0.77	1.00	2.000	Yes
1113	53.04	3.93	1.67	2.26	0.74	0.788	1.19	0.664	0.77	1.00	2.000	Yes
1114	53.10	3.93	1.67	2.26	0.73	0.788	1.19	0.664	0.82	1.00	2.000	Yes
1115	53.17	3.94	1.67	2.27	0.73	0.788	1.19	0.664	0.78	1.00	2.000	Yes
1116	53.24	3.94	1.67	2.27	0.73	0.787	1.19	0.663	0.80	1.00	2.000	Yes
1117	53.31	3.94	1.67	2.27	0.73	0.787	1.19	0.663	0.79	1.00	2.000	No
1118	53.36	3.95	1.68	2.27	0.73	0.787	1.19	0.663	0.81	1.00	2.000	No
1119	53.43	3.95	1.68	2.27	0.73	0.787	1.19	0.663	0.84	1.00	2.000	No
1120	53.50	3.96	1.68	2.28	0.73	0.786	1.19	0.662	0.84	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1121	53.56	3.96	1.68	2.28	0.73	0.786	1.19	0.662	0.84	1.00	2.000	No
1122	53.63	3.96	1.68	2.28	0.73	0.786	1.19	0.662	0.84	1.00	2.000	No
1123	53.71	3.97	1.69	2.28	0.73	0.786	1.19	0.662	0.84	1.00	2.000	No
1124	53.77	3.97	1.69	2.28	0.73	0.785	1.19	0.662	0.85	1.00	2.000	No
1125	53.84	3.98	1.69	2.28	0.73	0.785	1.19	0.661	0.85	1.00	2.000	Yes
1126	53.91	3.98	1.69	2.29	0.73	0.785	1.19	0.661	0.84	1.00	2.000	Yes
1127	53.99	3.98	1.70	2.29	0.73	0.784	1.19	0.661	0.85	1.00	2.000	Yes
1128	54.03	3.99	1.70	2.29	0.73	0.784	1.19	0.661	0.84	1.00	2.000	Yes
1129	54.12	3.99	1.70	2.29	0.73	0.784	1.19	0.661	0.82	1.00	2.000	Yes
1130	54.16	3.99	1.70	2.29	0.73	0.784	1.19	0.660	0.81	1.00	2.000	Yes
1131	54.25	4.00	1.70	2.30	0.73	0.783	1.19	0.660	0.77	1.00	2.000	Yes
1132	54.29	4.00	1.70	2.30	0.73	0.783	1.19	0.660	0.77	1.00	2.000	Yes
1133	54.38	4.01	1.71	2.30	0.73	0.783	1.19	0.660	0.77	1.00	2.000	Yes
1134	54.41	4.01	1.71	2.30	0.73	0.783	1.19	0.659	0.77	1.00	2.000	Yes
1135	54.49	4.01	1.71	2.30	0.73	0.782	1.19	0.659	0.77	1.00	2.000	Yes
1136	54.56	4.02	1.71	2.31	0.73	0.782	1.19	0.659	0.77	1.00	2.000	Yes
1137	54.63	4.02	1.72	2.31	0.73	0.782	1.19	0.659	0.78	1.00	2.000	Yes
1138	54.70	4.03	1.72	2.31	0.73	0.782	1.19	0.658	0.83	1.00	2.000	Yes
1139	54.76	4.03	1.72	2.31	0.73	0.781	1.19	0.658	0.84	1.00	2.000	Yes
1140	54.82	4.03	1.72	2.31	0.73	0.781	1.19	0.658	0.84	1.00	2.000	Yes
1141	54.89	4.04	1.72	2.32	0.72	0.781	1.19	0.658	0.84	1.00	2.000	Yes
1142	54.97	4.04	1.73	2.32	0.72	0.780	1.19	0.658	0.84	1.00	2.000	Yes
1143	55.01	4.05	1.73	2.32	0.72	0.780	1.19	0.657	0.84	1.00	2.000	No
1144	55.10	4.05	1.73	2.32	0.72	0.780	1.19	0.657	0.84	1.00	2.000	No
1145	55.14	4.05	1.73	2.32	0.72	0.780	1.19	0.657	0.83	1.00	2.000	No
1146	55.20	4.06	1.73	2.32	0.72	0.780	1.19	0.657	0.77	1.00	2.000	No
1147	55.27	4.06	1.74	2.33	0.72	0.779	1.19	0.657	0.78	1.00	2.000	No
1148	55.34	4.07	1.74	2.33	0.72	0.779	1.19	0.656	0.80	1.00	2.000	No
1149	55.41	4.07	1.74	2.33	0.72	0.779	1.19	0.656	0.80	1.00	2.000	No
1150	55.48	4.07	1.74	2.33	0.72	0.778	1.19	0.656	0.80	1.00	2.000	No
1151	55.54	4.08	1.74	2.33	0.72	0.778	1.19	0.656	0.82	1.00	2.000	No
1152	55.61	4.08	1.75	2.34	0.72	0.778	1.19	0.655	0.84	1.00	2.000	No
1153	55.67	4.09	1.75	2.34	0.72	0.778	1.19	0.655	0.85	1.00	2.000	No
1154	55.74	4.09	1.75	2.34	0.72	0.777	1.19	0.655	0.84	1.00	2.000	No
1155	55.82	4.09	1.75	2.34	0.72	0.777	1.19	0.655	0.84	1.00	2.000	No
1156	55.86	4.10	1.75	2.34	0.72	0.777	1.19	0.655	0.80	1.00	2.000	No
1157	55.94	4.10	1.76	2.35	0.72	0.777	1.19	0.654	0.76	1.00	2.000	No
1158	56.01	4.11	1.76	2.35	0.72	0.776	1.19	0.654	0.76	1.00	2.000	No
1159	56.08	4.11	1.76	2.35	0.72	0.776	1.19	0.654	0.76	1.00	2.000	Yes
1160	56.12	4.11	1.76	2.35	0.72	0.776	1.19	0.654	0.76	1.00	2.000	Yes
1161	56.19	4.12	1.76	2.35	0.72	0.775	1.19	0.653	0.76	1.00	2.000	Yes
1162	56.25	4.12	1.77	2.36	0.72	0.775	1.19	0.653	0.76	1.00	2.000	Yes
1163	56.32	4.13	1.77	2.36	0.72	0.775	1.19	0.653	0.80	1.00	2.000	Yes
1164	56.38	4.13	1.77	2.36	0.72	0.775	1.19	0.653	0.81	1.00	2.000	Yes
1165	56.45	4.13	1.77	2.36	0.72	0.774	1.19	0.652	0.82	1.00	2.000	No
1166	56.52	4.14	1.77	2.36	0.72	0.774	1.19	0.652	0.83	1.00	2.000	No
1167	56.59	4.14	1.78	2.37	0.72	0.774	1.19	0.652	0.84	1.00	2.000	Yes
1168	56.66	4.15	1.78	2.37	0.72	0.774	1.19	0.652	0.84	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1169	56.73	4.15	1.78	2.37	0.71	0.773	1.19	0.651	0.79	1.00	2.000	Yes
1170	56.79	4.15	1.78	2.37	0.71	0.773	1.19	0.651	0.76	1.00	2.000	Yes
1171	56.84	4.16	1.78	2.37	0.71	0.773	1.19	0.651	0.76	1.00	2.000	No
1172	56.92	4.16	1.79	2.37	0.71	0.772	1.19	0.651	0.78	1.00	2.000	No
1173	56.99	4.17	1.79	2.38	0.71	0.772	1.19	0.651	0.82	1.00	2.000	No
1174	57.04	4.17	1.79	2.38	0.71	0.772	1.19	0.650	0.78	1.00	2.000	No
1175	57.11	4.17	1.79	2.38	0.71	0.772	1.19	0.650	0.80	1.00	2.000	No
1176	57.17	4.18	1.79	2.38	0.71	0.771	1.19	0.650	0.79	1.00	2.000	No
1177	57.24	4.18	1.80	2.38	0.71	0.771	1.19	0.650	0.80	1.00	2.000	No
1178	57.30	4.18	1.80	2.39	0.71	0.771	1.19	0.649	0.82	1.00	2.000	No
1179	57.38	4.19	1.80	2.39	0.71	0.771	1.19	0.649	0.84	1.00	2.000	No
1180	57.44	4.19	1.80	2.39	0.71	0.770	1.19	0.649	0.84	1.00	2.000	No
1181	57.51	4.20	1.81	2.39	0.71	0.770	1.19	0.649	0.85	1.00	2.000	No
1182	57.56	4.20	1.81	2.39	0.71	0.770	1.19	0.649	0.85	1.00	2.000	No
1183	57.64	4.20	1.81	2.40	0.71	0.770	1.19	0.648	0.84	1.00	2.000	No
1184	57.70	4.21	1.81	2.40	0.71	0.769	1.19	0.648	0.83	1.00	2.000	No
1185	57.77	4.21	1.81	2.40	0.71	0.769	1.19	0.648	0.84	1.00	2.000	No
1186	57.83	4.22	1.81	2.40	0.71	0.769	1.19	0.648	0.84	1.00	2.000	No
1187	57.90	4.22	1.82	2.40	0.71	0.768	1.19	0.647	0.82	1.00	2.000	No
1188	57.97	4.22	1.82	2.41	0.71	0.768	1.19	0.647	0.75	1.00	2.000	No
1189	58.06	4.23	1.82	2.41	0.71	0.768	1.19	0.647	0.75	1.00	2.000	No
1190	58.10	4.23	1.82	2.41	0.71	0.768	1.19	0.647	0.75	1.00	2.000	Yes
1191	58.16	4.24	1.83	2.41	0.71	0.767	1.19	0.647	0.75	1.00	2.000	Yes
1192	58.23	4.24	1.83	2.41	0.71	0.767	1.19	0.646	0.75	1.00	2.000	Yes
1193	58.28	4.24	1.83	2.41	0.71	0.767	1.19	0.646	0.79	1.00	2.000	Yes
1194	58.36	4.25	1.83	2.42	0.71	0.767	1.19	0.646	0.82	1.00	2.000	Yes
1195	58.42	4.25	1.83	2.42	0.71	0.766	1.19	0.646	0.83	1.00	2.000	Yes
1196	58.49	4.26	1.84	2.42	0.71	0.766	1.19	0.645	0.84	1.00	2.000	Yes
1197	58.56	4.26	1.84	2.42	0.71	0.766	1.19	0.645	0.84	1.00	2.000	Yes
1198	58.63	4.26	1.84	2.42	0.70	0.765	1.19	0.645	0.79	1.00	2.000	Yes
1199	58.68	4.27	1.84	2.43	0.70	0.765	1.19	0.645	0.78	1.00	2.000	Yes
1200	58.76	4.27	1.84	2.43	0.70	0.765	1.19	0.644	0.79	1.00	2.000	Yes
1201	58.81	4.28	1.85	2.43	0.70	0.765	1.19	0.644	0.82	1.00	2.000	Yes
1202	58.90	4.28	1.85	2.43	0.70	0.764	1.19	0.644	0.85	1.00	2.000	Yes
1203	58.96	4.28	1.85	2.43	0.70	0.764	1.19	0.644	0.85	1.00	2.000	Yes
1204	59.02	4.29	1.85	2.44	0.70	0.764	1.19	0.644	0.85	1.00	2.000	Yes
1205	59.07	4.29	1.85	2.44	0.70	0.764	1.19	0.643	0.85	1.00	2.000	Yes
1206	59.15	4.30	1.86	2.44	0.70	0.763	1.19	0.643	0.85	1.00	2.000	Yes
1207	59.21	4.30	1.86	2.44	0.70	0.763	1.19	0.643	0.84	1.00	2.000	Yes
1208	59.29	4.30	1.86	2.44	0.70	0.763	1.19	0.643	0.85	1.00	2.000	Yes
1209	59.34	4.31	1.86	2.44	0.70	0.763	1.19	0.643	0.84	1.00	2.000	No
1210	59.41	4.31	1.86	2.45	0.70	0.762	1.19	0.642	0.84	1.00	2.000	No
1211	59.48	4.32	1.87	2.45	0.70	0.762	1.19	0.642	0.85	1.00	2.000	No
1212	59.54	4.32	1.87	2.45	0.70	0.762	1.19	0.642	0.85	1.00	2.000	No
1213	59.60	4.32	1.87	2.45	0.70	0.762	1.19	0.642	0.86	1.00	2.000	No
1214	59.69	4.33	1.87	2.45	0.70	0.761	1.19	0.641	0.86	1.00	2.000	No
1215	59.73	4.33	1.87	2.46	0.70	0.761	1.19	0.641	0.85	1.00	2.000	No
1216	59.81	4.33	1.88	2.46	0.70	0.761	1.19	0.641	0.83	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1217	59.89	4.34	1.88	2.46	0.70	0.760	1.19	0.641	0.77	1.00	2.000	No
1218	59.93	4.34	1.88	2.46	0.70	0.760	1.19	0.640	0.75	1.00	2.000	No
1219	60.02	4.35	1.88	2.46	0.70	0.760	1.19	0.640	0.75	1.00	2.000	Yes
1220	60.06	4.35	1.88	2.47	0.70	0.760	1.19	0.640	0.77	1.00	2.000	Yes
1221	60.12	4.35	1.89	2.47	0.70	0.759	1.19	0.640	0.82	1.00	2.000	Yes
1222	60.19	4.36	1.89	2.47	0.70	0.759	1.19	0.640	0.83	1.00	2.000	Yes
1223	60.26	4.36	1.89	2.47	0.70	0.759	1.19	0.639	0.84	1.00	2.000	Yes
1224	60.32	4.37	1.89	2.47	0.70	0.759	1.19	0.639	0.84	1.00	2.000	Yes
1225	60.39	4.37	1.90	2.48	0.70	0.758	1.19	0.639	0.84	1.00	2.000	Yes
1226	60.46	4.37	1.90	2.48	0.70	0.758	1.19	0.639	0.84	1.00	2.000	Yes
1227	60.53	4.38	1.90	2.48	0.69	0.758	1.19	0.638	0.83	1.00	2.000	Yes
1228	60.58	4.38	1.90	2.48	0.69	0.758	1.19	0.638	0.80	1.00	2.000	Yes
1229	60.66	4.39	1.90	2.48	0.69	0.757	1.19	0.638	0.74	1.00	2.000	Yes
1230	60.72	4.39	1.91	2.48	0.69	0.757	1.19	0.638	0.74	1.00	2.000	Yes
1231	60.78	4.39	1.91	2.49	0.69	0.757	1.19	0.638	0.78	1.00	2.000	Yes
1232	60.87	4.40	1.91	2.49	0.69	0.756	1.19	0.637	0.83	1.00	2.000	Yes
1233	60.93	4.40	1.91	2.49	0.69	0.756	1.19	0.637	0.84	1.00	2.000	Yes
1234	61.01	4.41	1.91	2.49	0.69	0.756	1.19	0.637	0.84	1.00	2.000	Yes
1235	61.04	4.41	1.92	2.49	0.69	0.756	1.19	0.637	0.84	1.00	2.000	Yes
1236	61.11	4.41	1.92	2.50	0.69	0.755	1.19	0.636	0.81	1.00	2.000	Yes
1237	61.18	4.42	1.92	2.50	0.69	0.755	1.19	0.636	0.78	1.00	2.000	Yes
1238	61.24	4.42	1.92	2.50	0.69	0.755	1.19	0.636	0.76	1.00	2.000	Yes
1239	61.31	4.43	1.92	2.50	0.69	0.754	1.19	0.636	0.78	1.00	2.000	Yes
1240	61.37	4.43	1.93	2.50	0.69	0.754	1.19	0.635	0.80	1.00	2.000	Yes
1241	61.45	4.43	1.93	2.51	0.69	0.754	1.19	0.635	0.84	1.00	2.000	Yes
1242	61.50	4.44	1.93	2.51	0.69	0.754	1.19	0.635	0.84	1.00	2.000	Yes
1243	61.56	4.44	1.93	2.51	0.69	0.753	1.19	0.635	0.82	1.00	2.000	No
1244	61.64	4.45	1.93	2.51	0.69	0.753	1.19	0.635	0.82	1.00	2.000	No
1245	61.69	4.45	1.94	2.51	0.69	0.753	1.19	0.634	0.83	1.00	2.000	No
1246	61.77	4.45	1.94	2.52	0.69	0.753	1.19	0.634	0.83	1.00	2.000	Yes
1247	61.83	4.46	1.94	2.52	0.69	0.752	1.19	0.634	0.82	1.00	2.000	Yes
1248	61.91	4.46	1.94	2.52	0.69	0.752	1.19	0.634	0.74	1.00	2.000	Yes
1249	61.97	4.47	1.94	2.52	0.69	0.752	1.19	0.633	0.74	1.00	2.000	Yes
1250	62.02	4.47	1.95	2.52	0.69	0.751	1.19	0.633	0.74	1.00	2.000	Yes
1251	62.12	4.48	1.95	2.53	0.69	0.751	1.19	0.633	0.79	1.00	2.000	Yes
1252	62.18	4.48	1.95	2.53	0.69	0.751	1.19	0.633	0.82	1.00	2.000	Yes
1253	62.22	4.48	1.95	2.53	0.69	0.751	1.19	0.632	0.82	1.00	2.000	Yes
1254	62.28	4.49	1.95	2.53	0.69	0.750	1.19	0.632	0.83	1.00	2.000	Yes
1255	62.36	4.49	1.96	2.53	0.69	0.750	1.19	0.632	0.81	1.00	2.000	Yes
1256	62.42	4.49	1.96	2.54	0.69	0.750	1.19	0.632	0.82	1.00	2.000	Yes
1257	62.49	4.50	1.96	2.54	0.68	0.749	1.19	0.631	0.81	1.00	2.000	No
1258	62.55	4.50	1.96	2.54	0.68	0.749	1.19	0.631	0.81	1.00	2.000	No
1259	62.62	4.51	1.96	2.54	0.68	0.749	1.19	0.631	0.81	1.00	2.000	No
1260	62.69	4.51	1.97	2.54	0.68	0.749	1.19	0.631	0.77	1.00	2.000	No
1261	62.75	4.51	1.97	2.55	0.68	0.748	1.19	0.631	0.74	1.00	2.000	Yes
1262	62.83	4.52	1.97	2.55	0.68	0.748	1.19	0.630	0.80	1.00	2.000	Yes
1263	62.88	4.52	1.97	2.55	0.68	0.748	1.19	0.630	0.82	1.00	2.000	Yes
1264	62.96	4.53	1.98	2.55	0.68	0.748	1.19	0.630	0.85	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1265	63.01	4.53	1.98	2.55	0.68	0.747	1.19	0.630	0.85	1.00	2.000	Yes
1266	63.07	4.53	1.98	2.55	0.68	0.747	1.19	0.629	0.84	1.00	2.000	No
1267	63.14	4.54	1.98	2.56	0.68	0.747	1.19	0.629	0.85	1.00	2.000	No
1268	63.20	4.54	1.98	2.56	0.68	0.747	1.19	0.629	0.84	1.00	2.000	Yes
1269	63.27	4.55	1.99	2.56	0.68	0.746	1.19	0.629	0.81	1.00	2.000	Yes
1270	63.34	4.55	1.99	2.56	0.68	0.746	1.19	0.629	0.73	1.00	2.000	Yes
1271	63.40	4.55	1.99	2.56	0.68	0.746	1.19	0.628	0.73	1.00	2.000	Yes
1272	63.47	4.56	1.99	2.57	0.68	0.745	1.19	0.628	0.73	1.00	2.000	Yes
1273	63.53	4.56	1.99	2.57	0.68	0.745	1.19	0.628	0.73	1.00	2.000	No
1274	63.61	4.57	2.00	2.57	0.68	0.745	1.19	0.628	0.82	1.00	2.000	No
1275	63.67	4.57	2.00	2.57	0.68	0.745	1.19	0.627	0.81	1.00	2.000	No
1276	63.74	4.57	2.00	2.57	0.68	0.744	1.19	0.627	0.79	1.00	2.000	Yes
1277	63.80	4.58	2.00	2.58	0.68	0.744	1.19	0.627	0.79	1.00	2.000	Yes
1278	63.86	4.58	2.00	2.58	0.68	0.744	1.19	0.627	0.83	1.00	2.000	Yes
1279	63.93	4.59	2.01	2.58	0.68	0.744	1.19	0.626	0.83	1.00	2.000	Yes
1280	64.00	4.59	2.01	2.58	0.68	0.743	1.19	0.626	0.84	1.00	2.000	No
1281	64.05	4.59	2.01	2.58	0.68	0.743	1.19	0.626	0.83	1.00	2.000	Yes
1282	64.13	4.60	2.01	2.59	0.68	0.743	1.19	0.626	0.84	1.00	2.000	Yes
1283	64.19	4.60	2.01	2.59	0.68	0.742	1.19	0.626	0.84	1.00	2.000	Yes
1284	64.25	4.61	2.02	2.59	0.68	0.742	1.19	0.625	0.84	1.00	2.000	Yes
1285	64.33	4.61	2.02	2.59	0.68	0.742	1.19	0.625	0.83	1.00	2.000	Yes
1286	64.39	4.61	2.02	2.59	0.68	0.742	1.19	0.625	0.83	1.00	2.000	Yes
1287	64.46	4.62	2.02	2.60	0.67	0.741	1.19	0.625	0.84	1.00	2.000	Yes
1288	64.51	4.62	2.02	2.60	0.67	0.741	1.19	0.625	0.85	1.00	2.000	Yes
1289	64.58	4.62	2.03	2.60	0.67	0.741	1.19	0.624	0.85	1.00	2.000	No
1290	64.65	4.63	2.03	2.60	0.67	0.741	1.19	0.624	0.85	1.00	2.000	No
1291	64.72	4.63	2.03	2.60	0.67	0.740	1.19	0.624	0.84	1.00	2.000	No
1292	64.79	4.64	2.03	2.60	0.67	0.740	1.19	0.624	0.85	1.00	2.000	No
1293	64.85	4.64	2.03	2.61	0.67	0.740	1.19	0.623	0.82	1.00	2.000	No
1294	64.91	4.64	2.04	2.61	0.67	0.740	1.19	0.623	0.77	1.00	2.000	No
1295	64.98	4.65	2.04	2.61	0.67	0.739	1.19	0.623	0.73	1.00	2.000	No
1296	65.05	4.65	2.04	2.61	0.67	0.739	1.19	0.623	0.73	1.00	2.000	No
1297	65.11	4.66	2.04	2.61	0.67	0.739	1.19	0.622	0.73	1.00	2.000	Yes
1298	65.18	4.66	2.04	2.62	0.67	0.739	1.19	0.622	0.74	1.00	2.000	Yes
1299	65.24	4.66	2.05	2.62	0.67	0.738	1.19	0.622	0.78	1.00	2.000	Yes
1300	65.31	4.67	2.05	2.62	0.67	0.738	1.19	0.622	0.82	1.00	2.000	Yes
1301	65.37	4.67	2.05	2.62	0.67	0.738	1.19	0.622	0.82	1.00	2.000	Yes
1302	65.44	4.68	2.05	2.62	0.67	0.737	1.19	0.621	0.80	1.00	2.000	Yes
1303	65.51	4.68	2.05	2.63	0.67	0.737	1.19	0.621	0.75	1.00	2.000	Yes
1304	65.57	4.68	2.06	2.63	0.67	0.737	1.19	0.621	0.74	1.00	2.000	Yes
1305	65.63	4.69	2.06	2.63	0.67	0.737	1.19	0.621	0.76	1.00	2.000	Yes
1306	65.70	4.69	2.06	2.63	0.67	0.736	1.19	0.620	0.80	1.00	2.000	Yes
1307	65.77	4.70	2.06	2.63	0.67	0.736	1.19	0.620	0.83	1.00	2.000	Yes
1308	65.84	4.70	2.07	2.64	0.67	0.736	1.19	0.620	0.81	1.00	2.000	Yes
1309	65.89	4.70	2.07	2.64	0.67	0.736	1.19	0.620	0.79	1.00	2.000	Yes
1310	65.96	4.71	2.07	2.64	0.67	0.735	1.19	0.619	0.79	1.00	2.000	Yes
1311	66.04	4.71	2.07	2.64	0.67	0.735	1.19	0.619	0.83	1.00	2.000	No
1312	66.09	4.72	2.07	2.64	0.67	0.735	1.19	0.619	0.83	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1313	66.16	4.72	2.08	2.65	0.67	0.734	1.19	0.619	0.83	1.00	2.000	No
1314	66.23	4.73	2.08	2.65	0.67	0.734	1.19	0.619	0.81	1.00	2.000	No
1315	66.29	4.73	2.08	2.65	0.67	0.734	1.19	0.618	0.81	1.00	2.000	No
1316	66.36	4.73	2.08	2.65	0.67	0.734	1.19	0.618	0.77	1.00	2.000	No
1317	66.43	4.74	2.08	2.65	0.67	0.733	1.19	0.618	0.79	1.00	2.000	No
1318	66.48	4.74	2.09	2.66	0.67	0.733	1.19	0.618	0.81	1.00	2.000	No
1319	66.55	4.75	2.09	2.66	0.66	0.733	1.19	0.617	0.82	1.00	2.000	No
1320	66.62	4.75	2.09	2.66	0.66	0.733	1.19	0.617	0.83	1.00	2.000	No
1321	66.68	4.75	2.09	2.66	0.66	0.732	1.19	0.617	0.83	1.00	2.000	No
1322	66.75	4.76	2.09	2.66	0.66	0.732	1.19	0.617	0.83	1.00	2.000	No
1323	66.82	4.76	2.10	2.67	0.66	0.732	1.19	0.617	0.83	1.00	2.000	No
1324	66.88	4.77	2.10	2.67	0.66	0.732	1.19	0.616	0.83	1.00	2.000	No
1325	66.95	4.77	2.10	2.67	0.66	0.731	1.19	0.616	0.83	1.00	2.000	No
1326	67.01	4.77	2.10	2.67	0.66	0.731	1.19	0.616	0.82	1.00	2.000	No
1327	67.08	4.78	2.10	2.67	0.66	0.731	1.19	0.616	0.82	1.00	2.000	No
1328	67.14	4.78	2.11	2.67	0.66	0.731	1.19	0.616	0.81	1.00	2.000	No
1329	67.21	4.78	2.11	2.68	0.66	0.730	1.19	0.615	0.82	1.00	2.000	No
1330	67.28	4.79	2.11	2.68	0.66	0.730	1.19	0.615	0.82	1.00	2.000	No
1331	67.35	4.79	2.11	2.68	0.66	0.730	1.19	0.615	0.82	1.00	2.000	No
1332	67.40	4.80	2.11	2.68	0.66	0.729	1.19	0.615	0.82	1.00	2.000	No
1333	67.47	4.80	2.12	2.68	0.66	0.729	1.19	0.614	0.81	1.00	2.000	No
1334	67.53	4.80	2.12	2.69	0.66	0.729	1.19	0.614	0.82	1.00	2.000	No
1335	67.61	4.81	2.12	2.69	0.66	0.729	1.19	0.614	0.83	1.00	2.000	No
1336	67.67	4.81	2.12	2.69	0.66	0.728	1.19	0.614	0.88	1.00	2.000	No
1337	67.73	4.81	2.12	2.69	0.66	0.728	1.19	0.614	0.72	1.00	2.000	No
1338	67.80	4.82	2.13	2.69	0.66	0.728	1.19	0.614	0.72	1.00	2.000	No
1339	67.87	4.82	2.13	2.69	0.66	0.728	1.19	0.614	0.72	1.00	2.000	No
1340	67.93	4.82	2.13	2.69	0.66	0.728	1.19	0.614	0.72	1.00	2.000	No
1341	68.00	4.82	2.13	2.69	0.66	0.728	1.19	0.613	0.72	1.00	2.000	No

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
σ_v:	Total overburden pressure at test point (tsf)
u_0:	Water pressure at test point (tsf)
σ_v':	Effective overburden pressure based on GWT during earthquake (tsf)
r_d:	Nonlinear shear mass factor
CSR:	Cyclic Stress Ratio
MSF:	Magnitude Scaling Factor
CSR_{eq}:	CSR adjusted for M=7.5
K_σ:	Effective overburden stress factor
CSR^*:	CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
305	0.02	213.38	0.00	1.62	0.33	0.95	196.53	0.00	196.53	1.565	No	No	2.00
306	0.10	208.35	0.00	1.60	0.35	0.95	184.27	0.00	184.27	0.868	No	No	1.63
307	0.15	206.17	0.00	1.55	0.35	0.95	182.01	0.00	182.01	0.789	No	No	1.48
308	0.23	202.71	0.00	1.53	0.34	0.95	190.05	0.00	190.05	1.129	No	No	2.00
309	0.29	198.38	0.00	1.57	0.37	0.95	174.27	0.00	174.27	0.585	No	No	1.07
310	0.36	192.59	0.00	1.61	0.37	0.95	169.58	0.00	169.58	0.497	No	No	0.90
311	0.43	187.23	0.00	1.67	0.37	0.95	173.52	0.00	173.52	0.569	No	No	1.04
312	0.47	188.50	0.00	1.70	0.39	0.94	159.02	0.00	159.02	0.362	No	No	0.64
313	0.54	191.50	0.00	1.70	0.37	0.95	172.81	0.00	172.81	0.555	No	No	1.01
314	0.62	203.45	0.00	1.67	0.36	0.95	181.59	0.00	181.59	0.775	No	No	1.43
315	0.68	214.49	0.00	1.68	0.34	0.95	192.00	0.00	192.00	1.240	No	No	2.00
316	0.75	223.04	0.00	1.70	0.33	0.95	203.35	0.00	203.35	2.297	No	No	2.00
317	0.81	229.21	1.59	1.73	0.32	0.95	205.21	0.00	205.21	2.570	No	No	2.00
318	0.88	233.37	3.98	1.76	0.32	0.95	208.96	0.03	208.99	3.264	No	No	2.00
319	0.94	237.30	4.62	1.77	0.31	0.95	214.71	0.11	214.82	4.000	No	No	2.00
320	1.00	243.51	3.55	1.76	0.31	0.95	215.91	0.01	215.92	4.000	No	No	2.00
321	1.07	249.18	0.00	1.70	0.30	0.95	226.11	0.00	226.11	4.000	No	No	2.00
322	1.14	243.30	0.86	1.72	0.29	0.95	230.33	0.00	230.33	4.000	No	No	2.00
323	1.21	227.74	7.61	1.81	0.33	0.95	199.14	3.30	202.44	2.177	No	No	2.00
324	1.27	206.13	16.54	1.92	0.30	0.95	183.53	36.12	219.65	4.000	No	No	2.00
325	1.34	192.44	20.85	1.97	0.30	0.95	171.37	49.21	220.58	4.000	No	No	2.00
326	1.41	180.40	23.13	2.00	0.31	0.95	162.66	54.12	216.78	4.000	No	No	2.00
327	1.47	161.34	28.85	2.07	0.31	0.95	150.70	63.92	214.61	4.000	No	No	2.00
328	1.53	144.95	35.21	2.15	0.35	0.94	118.92	65.97	184.89	0.892	No	No	1.62
329	1.59	132.96	40.32	2.22	0.35	0.94	117.65	70.59	188.23	1.036	No	No	1.89
330	1.65	131.99	40.52	2.22	0.35	0.94	117.58	70.74	188.32	1.040	No	No	1.89
331	1.72	149.62	32.04	2.11	0.36	0.94	115.89	61.55	177.43	0.657	No	No	1.17
332	1.80	179.66	19.01	1.95	0.32	0.94	165.10	42.71	207.80	3.023	No	No	2.00
333	1.86	220.29	5.17	1.78	0.33	0.94	197.67	0.28	197.95	1.689	No	No	2.00
334	1.92	255.95	0.00	1.67	0.30	0.95	225.97	0.00	225.97	4.000	No	No	2.00
335	1.98	293.89	0.00	1.59	0.26	0.95	262.73	0.00	254.00	4.000	No	No	2.00
336	2.05	337.81	0.00	1.50	0.26	0.95	302.19	0.00	254.00	4.000	No	No	2.00
337	2.12	389.98	0.00	1.42	0.26	0.95	345.32	0.00	254.00	4.000	No	No	2.00
338	2.20	434.07	0.00	1.38	0.26	0.95	402.74	0.00	254.00	4.000	No	No	2.00
339	2.26	461.75	0.00	1.37	0.26	0.95	420.36	0.00	254.00	4.000	No	No	2.00
340	2.33	461.78	0.00	1.39	0.26	0.95	419.22	0.00	254.00	4.000	No	No	2.00
341	2.39	458.12	0.00	1.43	0.26	0.95	402.28	0.00	254.00	4.000	No	No	2.00
342	2.44	453.96	0.00	1.48	0.26	0.95	409.94	0.00	254.00	4.000	No	No	2.00
343	2.51	455.34	0.00	1.53	0.26	0.95	407.50	0.00	254.00	4.000	No	No	2.00
344	2.58	453.56	0.00	1.56	0.26	0.95	405.40	0.00	254.00	4.000	No	No	2.00
345	2.65	442.09	0.00	1.56	0.26	0.95	404.54	0.00	254.00	4.000	No	No	2.00
346	2.71	429.03	0.00	1.55	0.26	0.95	376.11	0.00	254.00	4.000	No	No	2.00
347	2.77	415.55	0.00	1.55	0.26	0.95	369.82	0.00	254.00	4.000	No	No	2.00
348	2.84	416.72	0.00	1.54	0.26	0.94	367.84	0.00	254.00	4.000	No	No	2.00
349	2.90	429.00	0.00	1.52	0.26	0.94	378.72	0.00	254.00	4.000	No	No	2.00
350	2.97	434.30	0.00	1.49	0.26	0.94	402.14	0.00	254.00	4.000	No	No	2.00
351	3.04	422.05	0.00	1.48	0.26	0.94	381.48	0.00	254.00	4.000	No	No	2.00
352	3.10	405.68	0.00	1.48	0.26	0.94	345.44	0.00	254.00	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
353	3.17	388.91	0.00	1.49	0.26	0.94	357.81	0.00	254.00	4.000	No	No	2.00
354	3.23	378.51	0.00	1.49	0.26	0.94	336.16	0.00	254.00	4.000	No	No	2.00
355	3.31	355.86	0.00	1.50	0.26	0.94	317.17	0.00	254.00	4.000	No	No	2.00
356	3.37	341.64	0.00	1.49	0.26	0.94	296.90	0.00	254.00	4.000	No	No	2.00
357	3.43	327.04	0.00	1.48	0.26	0.94	297.76	0.00	254.00	4.000	No	No	2.00
358	3.50	312.78	0.00	1.48	0.26	0.94	277.84	0.00	254.00	4.000	No	No	2.00
359	3.57	296.21	0.00	1.49	0.26	0.94	258.50	0.00	254.00	4.000	No	No	2.00
360	3.62	282.42	0.00	1.52	0.26	0.94	253.17	0.00	253.17	4.000	No	No	2.00
361	3.70	273.50	0.00	1.55	0.28	0.94	239.84	0.00	239.84	4.000	No	No	2.00
362	3.76	263.94	0.00	1.58	0.29	0.93	233.08	0.00	233.08	4.000	No	No	2.00
363	3.82	257.13	0.00	1.60	0.30	0.93	225.66	0.00	225.66	4.000	No	No	2.00
364	3.88	250.79	0.00	1.61	0.30	0.93	220.24	0.00	220.24	4.000	No	No	2.00
365	3.96	246.12	0.00	1.61	0.31	0.93	214.81	0.00	214.81	4.000	No	No	2.00
366	4.02	242.97	0.00	1.61	0.31	0.93	212.16	0.00	212.16	4.000	No	No	2.00
367	4.10	240.65	0.00	1.61	0.32	0.92	210.98	0.00	210.98	3.724	No	No	2.00
368	4.16	240.15	0.00	1.61	0.32	0.92	207.97	0.00	207.97	3.055	No	No	2.00
369	4.24	239.28	0.00	1.61	0.32	0.92	210.37	0.00	210.37	3.574	No	No	2.00
370	4.29	240.05	0.00	1.61	0.32	0.92	208.20	0.00	208.20	3.102	No	No	2.00
371	4.35	238.73	0.00	1.62	0.32	0.92	209.79	0.00	209.79	3.441	No	No	2.00
372	4.42	237.55	0.00	1.63	0.32	0.92	206.34	0.00	206.34	2.756	No	No	2.00
373	4.48	234.33	0.00	1.63	0.32	0.92	204.58	0.00	204.58	2.473	No	No	2.00
374	4.56	230.49	0.00	1.64	0.33	0.92	200.41	0.00	200.41	1.936	No	No	2.00
375	4.62	226.40	0.00	1.64	0.34	0.92	195.25	0.00	195.25	1.463	No	No	2.00
376	4.67	222.37	0.00	1.63	0.34	0.92	192.82	0.00	192.82	1.292	No	No	2.00
377	4.74	217.14	0.00	1.62	0.35	0.91	188.86	0.00	188.86	1.067	No	No	1.83
378	4.81	211.30	0.00	1.60	0.36	0.91	180.37	0.00	180.37	0.738	No	No	1.25
379	4.88	208.39	0.00	1.55	0.36	0.91	176.27	0.00	176.27	0.629	No	No	1.06
380	4.95	206.79	0.00	1.48	0.36	0.91	180.48	0.00	180.48	0.741	No	No	1.26
381	5.01	208.46	0.00	1.41	0.36	0.91	175.61	0.00	175.61	0.614	No	No	1.03
382	5.08	211.33	0.00	1.41	0.36	0.91	180.61	0.00	180.61	0.745	No	No	1.26
383	5.15	216.01	0.00	1.45	0.35	0.91	188.17	0.00	188.17	1.033	No	No	1.77
384	5.21	218.93	0.00	1.47	0.35	0.91	188.33	0.00	188.33	1.041	No	No	1.78
385	5.26	221.41	0.00	1.49	0.35	0.91	188.47	0.00	188.47	1.048	No	No	1.79
386	5.34	225.56	0.00	1.52	0.34	0.91	194.79	0.00	194.79	1.428	No	No	2.00
387	5.39	232.47	0.00	1.54	0.33	0.91	199.57	0.00	199.57	1.847	No	No	2.00
388	5.48	239.68	0.00	1.54	0.32	0.91	207.41	0.00	207.41	2.949	No	No	2.00
389	5.54	245.28	0.00	1.54	0.31	0.92	214.66	0.00	214.66	4.000	No	No	2.00
390	5.60	245.15	0.00	1.54	0.31	0.92	214.95	0.00	214.95	4.000	No	No	2.00
391	5.66	238.91	0.00	1.55	0.32	0.91	206.74	0.00	206.74	2.827	No	No	2.00
392	5.74	231.13	0.00	1.59	0.33	0.91	196.86	0.00	196.86	1.592	No	No	2.00
393	5.79	224.42	0.00	1.63	0.34	0.91	192.84	0.00	192.84	1.293	No	No	2.00
394	5.86	218.21	0.00	1.69	0.35	0.91	187.70	0.00	187.70	1.011	No	No	1.71
395	5.93	208.91	4.09	1.76	0.36	0.90	179.28	0.03	179.32	0.707	No	No	1.18
396	5.99	191.17	11.94	1.86	0.35	0.90	168.09	16.75	184.84	0.890	No	No	1.50
397	6.05	168.29	20.90	1.97	0.35	0.90	141.86	45.14	187.00	0.979	No	No	1.66
398	6.12	140.17	31.11	2.10	0.35	0.90	120.76	61.34	182.10	0.792	No	No	1.33
399	6.19	121.25	38.48	2.19	0.39	0.89	94.85	63.57	158.41	0.356	No	No	0.57
400	6.26	114.58	40.52	2.22	0.39	0.89	92.00	64.53	156.53	0.339	No	No	0.54

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
401	6.32	127.93	33.50	2.13	0.38	0.89	102.67	60.47	163.14	0.406	No	No	0.65
402	6.39	150.15	23.52	2.01	0.36	0.90	129.56	49.65	179.21	0.704	No	No	1.17
403	6.45	176.07	12.84	1.87	0.38	0.89	148.53	19.12	167.65	0.467	No	No	0.76
404	6.51	197.32	3.68	1.76	0.38	0.89	168.36	0.01	168.37	0.478	No	No	0.77
405	6.57	214.48	0.00	1.65	0.35	0.90	183.82	0.00	183.82	0.852	No	No	1.42
406	6.65	224.10	0.00	1.58	0.34	0.90	193.94	0.00	193.94	1.367	No	No	2.00
407	6.72	227.25	0.00	1.54	0.34	0.90	194.68	0.00	194.68	1.419	No	No	2.00
408	6.78	224.00	0.00	1.54	0.34	0.90	192.26	0.00	192.26	1.256	No	No	2.00
409	6.85	215.38	0.00	1.57	0.35	0.90	184.61	0.00	184.61	0.881	No	No	1.47
410	6.92	203.04	0.00	1.61	0.37	0.89	170.50	0.00	170.50	0.513	No	No	0.83
411	6.97	187.91	0.00	1.67	0.39	0.88	157.97	0.00	157.97	0.352	No	No	0.56
412	7.03	170.20	2.13	1.74	0.42	0.88	142.99	0.00	142.99	0.249	No	No	0.38
413	7.13	155.00	7.49	1.81	0.45	0.87	122.61	2.42	125.02	0.184	No	No	0.27
414	7.19	147.90	10.02	1.84	0.45	0.87	117.56	8.26	125.82	0.186	No	No	0.28
415	7.23	149.01	9.50	1.83	0.44	0.87	124.30	6.96	131.26	0.202	No	No	0.30
416	7.31	155.34	6.80	1.80	0.44	0.87	125.24	1.44	126.68	0.188	No	No	0.28
417	7.37	160.43	4.44	1.77	0.43	0.87	133.53	0.06	133.60	0.209	No	No	0.32
418	7.43	164.65	2.59	1.74	0.43	0.87	137.05	0.00	137.05	0.222	No	No	0.34
419	7.50	165.86	2.08	1.74	0.43	0.87	136.15	0.00	136.15	0.219	No	No	0.33
420	7.56	165.65	1.94	1.74	0.43	0.87	136.51	0.00	136.51	0.220	No	No	0.33
421	7.63	165.25	1.57	1.73	0.43	0.87	136.24	0.00	136.24	0.219	No	No	0.33
422	7.70	164.00	1.32	1.73	0.43	0.87	134.81	0.00	134.81	0.214	No	No	0.32
423	7.76	161.95	1.54	1.73	0.43	0.87	132.93	0.00	132.93	0.207	No	No	0.31
424	7.82	157.59	2.86	1.75	0.44	0.87	130.53	0.00	130.53	0.199	No	No	0.30
425	7.90	151.45	4.94	1.77	0.45	0.86	122.97	0.15	123.12	0.179	No	No	0.26
426	7.96	143.60	7.90	1.81	0.46	0.86	116.68	3.08	119.76	0.171	No	No	0.25
427	8.02	135.41	12.47	1.87	0.44	0.86	110.80	15.68	126.48	0.187	No	No	0.28
428	8.10	127.56	17.59	1.93	0.43	0.87	103.53	31.07	134.60	0.213	No	No	0.32
429	8.15	120.51	22.89	2.00	0.42	0.87	98.73	43.34	142.07	0.244	No	No	0.37
430	8.23	117.29	25.98	2.04	0.42	0.87	94.33	48.37	142.69	0.247	No	No	0.37
431	8.29	118.30	27.16	2.05	0.41	0.87	96.15	50.63	146.79	0.269	No	No	0.41
432	8.36	123.33	26.28	2.04	0.40	0.87	101.58	50.18	151.76	0.301	No	No	0.46
433	8.43	130.61	23.66	2.01	0.40	0.87	107.19	46.29	153.47	0.314	No	No	0.48
434	8.48	139.44	18.76	1.95	0.40	0.87	114.11	35.60	149.71	0.287	No	No	0.44
435	8.56	150.27	12.43	1.87	0.42	0.86	122.22	16.16	138.38	0.228	No	No	0.34
436	8.65	161.41	6.52	1.79	0.43	0.86	132.15	1.15	133.30	0.208	No	No	0.31
437	8.69	176.44	1.01	1.73	0.42	0.86	140.57	0.00	140.57	0.237	No	No	0.36
438	8.78	190.70	0.00	1.67	0.39	0.87	160.77	0.00	160.77	0.380	No	No	0.59
439	8.82	205.61	0.00	1.61	0.37	0.88	170.26	0.00	170.26	0.508	No	No	0.80
440	8.91	210.13	0.00	1.59	0.36	0.88	180.72	0.00	180.72	0.748	No	No	1.21
441	8.95	219.52	0.00	1.56	0.37	0.88	172.83	0.00	172.83	0.555	No	No	0.88
442	9.01	234.36	0.00	1.53	0.34	0.89	195.78	0.00	195.78	1.503	No	No	2.00
443	9.07	258.41	0.00	1.49	0.30	0.90	221.78	0.00	221.78	4.000	No	No	2.00
444	9.14	281.06	0.00	1.45	0.28	0.90	239.75	0.00	239.75	4.000	No	No	2.00
445	9.20	301.36	0.00	1.40	0.26	0.91	258.98	0.00	254.00	4.000	No	No	2.00
446	9.28	320.85	0.00	1.36	0.26	0.91	276.85	0.00	254.00	4.000	No	No	2.00
447	9.33	337.76	0.00	1.35	0.26	0.91	291.11	0.00	254.00	4.000	No	No	2.00
448	9.40	356.28	0.00	1.37	0.26	0.91	302.22	0.00	254.00	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
449	9.48	377.79	0.00	1.39	0.26	0.91	324.20	0.00	254.00	4.000	No	No	2.00
450	9.54	401.21	0.00	1.39	0.26	0.91	346.11	0.00	254.00	4.000	No	No	2.00
451	9.61	426.00	0.00	1.40	0.26	0.91	362.10	0.00	254.00	4.000	No	No	2.00
452	9.68	451.20	0.00	1.40	0.26	0.91	387.56	0.00	254.00	4.000	No	No	2.00
453	9.73	488.64	0.00	1.36	0.26	0.91	410.47	0.00	254.00	4.000	No	No	2.00
454	9.80	524.50	0.00	1.30	0.26	0.91	457.85	0.00	254.00	4.000	No	No	2.00
455	9.88	554.16	0.00	1.25	0.26	0.91	479.18	0.00	254.00	4.000	No	No	2.00
456	9.93	560.87	0.00	1.28	0.26	0.91	486.09	0.00	254.00	4.000	No	No	2.00
457	10.00	554.03	0.00	1.32	0.26	0.91	474.50	0.00	254.00	4.000	No	No	2.00
458	10.06	520.05	0.00	1.38	0.26	0.90	461.09	0.00	254.00	4.000	No	No	2.00
459	10.12	474.49	0.00	1.42	0.26	0.90	398.37	0.00	254.00	4.000	No	No	2.00
460	10.20	428.50	0.00	1.46	0.26	0.90	357.18	0.00	254.00	4.000	No	No	2.00
461	10.26	404.31	0.00	1.45	0.26	0.90	342.69	0.00	254.00	4.000	No	No	2.00
462	10.32	387.40	0.00	1.44	0.26	0.90	335.95	0.00	254.00	4.000	No	No	2.00
463	10.39	372.70	0.00	1.43	0.26	0.90	313.48	0.00	254.00	4.000	No	No	2.00
464	10.45	358.00	0.00	1.42	0.26	0.90	304.70	0.00	254.00	4.000	No	No	2.00
465	10.52	349.58	0.00	1.38	0.26	0.90	297.98	0.00	254.00	4.000	No	No	2.00
466	10.58	343.14	0.00	1.33	0.26	0.90	291.61	0.00	254.00	4.000	No	No	2.00
467	10.64	336.80	0.00	1.30	0.26	0.90	287.91	0.00	254.00	4.000	No	No	2.00
468	10.71	332.64	0.00	1.28	0.26	0.90	281.46	0.00	254.00	4.000	No	No	2.00
469	10.78	329.82	0.00	1.27	0.26	0.90	280.67	0.00	254.00	4.000	No	No	2.00
470	10.84	329.42	0.00	1.27	0.26	0.90	280.41	0.00	254.00	4.000	No	No	2.00
471	10.92	329.36	0.00	1.26	0.26	0.90	280.14	0.00	254.00	4.000	No	No	2.00
472	10.98	329.22	0.00	1.26	0.26	0.90	280.22	0.00	254.00	4.000	No	No	2.00
473	11.04	325.47	0.00	1.26	0.26	0.90	279.79	0.00	254.00	4.000	No	No	2.00
474	11.12	326.31	0.00	1.26	0.26	0.90	270.27	0.00	254.00	4.000	No	No	2.00
475	11.18	328.95	0.00	1.23	0.26	0.90	282.07	0.00	254.00	4.000	No	No	2.00
476	11.25	338.35	0.00	1.16	0.26	0.90	286.25	0.00	254.00	4.000	No	No	2.00
477	11.33	342.47	0.00	1.10	0.26	0.90	293.91	0.00	254.00	4.000	No	No	2.00
478	11.37	343.10	0.00	1.09	0.26	0.90	292.32	0.00	254.00	4.000	No	No	2.00
479	11.46	340.85	0.00	1.11	0.26	0.90	287.58	0.00	254.00	4.000	No	No	2.00
480	11.50	332.39	0.00	1.13	0.26	0.90	287.95	0.00	254.00	4.000	No	No	2.00
481	11.58	325.48	0.00	1.16	0.26	0.90	270.51	0.00	254.00	4.000	No	No	2.00
482	11.64	319.91	0.00	1.19	0.26	0.90	269.75	0.00	254.00	4.000	No	No	2.00
483	11.71	322.19	0.00	1.19	0.26	0.90	273.49	0.00	254.00	4.000	No	No	2.00
484	11.79	324.47	0.00	1.18	0.26	0.90	276.03	0.00	254.00	4.000	No	No	2.00
485	11.83	327.22	0.00	1.17	0.26	0.90	275.30	0.00	254.00	4.000	No	No	2.00
486	11.91	328.33	0.00	1.17	0.26	0.90	280.21	0.00	254.00	4.000	No	No	2.00
487	11.96	328.29	0.00	1.17	0.26	0.90	278.63	0.00	254.00	4.000	No	No	2.00
488	12.04	326.25	0.00	1.17	0.26	0.90	274.93	0.00	254.00	4.000	No	No	2.00
489	12.09	322.66	0.00	1.19	0.26	0.90	274.79	0.00	254.00	4.000	No	No	2.00
490	12.16	320.64	0.00	1.19	0.26	0.89	269.24	0.00	254.00	4.000	No	No	2.00
491	12.24	318.36	0.00	1.19	0.26	0.89	269.56	0.00	254.00	4.000	No	No	2.00
492	12.29	318.49	0.00	1.18	0.26	0.89	268.73	0.00	254.00	4.000	No	No	2.00
493	12.37	319.53	0.00	1.18	0.26	0.89	269.30	0.00	254.00	4.000	No	No	2.00
494	12.43	320.43	0.00	1.17	0.26	0.89	271.96	0.00	254.00	4.000	No	No	2.00
495	12.50	321.91	0.00	1.17	0.26	0.89	270.75	0.00	254.00	4.000	No	No	2.00
496	12.57	321.74	0.00	1.17	0.26	0.89	272.79	0.00	254.00	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
497	12.61	320.60	0.00	1.17	0.26	0.89	271.29	0.00	254.00	4.000	No	No	2.00
498	12.70	318.55	0.00	1.17	0.26	0.89	267.61	0.00	254.00	4.000	No	No	2.00
499	12.75	317.11	0.00	1.17	0.26	0.89	267.39	0.00	254.00	4.000	No	No	2.00
500	12.83	316.67	0.00	1.17	0.26	0.89	267.36	0.00	254.00	4.000	No	No	2.00
501	12.87	311.94	0.00	1.20	0.26	0.89	266.29	0.00	254.00	4.000	No	No	2.00
502	12.96	300.87	0.00	1.27	0.26	0.89	255.15	0.00	254.00	4.000	No	No	2.00
503	13.01	265.17	0.00	1.44	0.28	0.88	237.14	0.00	237.14	4.000	No	No	2.00
504	13.10	220.18	0.00	1.63	0.38	0.85	167.42	0.00	167.42	0.463	No	No	0.69
505	13.15	160.03	13.52	1.88	0.40	0.84	133.25	20.65	153.90	4.000	Yes	No	2.00
506	13.23	118.70	30.11	2.09	0.43	0.83	80.79	51.79	132.59	4.000	Yes	No	2.00
507	13.29	85.08	47.55	2.31	0.44	0.82	66.00	62.32	128.32	4.000	Yes	No	2.00
508	13.35	69.95	56.79	2.42	0.47	0.81	51.47	62.16	113.62	4.000	Yes	No	2.00
509	13.41	59.25	64.06	2.51	0.48	0.81	44.27	62.19	106.46	4.000	Yes	No	2.00
510	13.46	51.60	69.29	2.58	0.49	0.80	40.02	62.13	102.15	4.000	Yes	No	2.00
511	13.55	45.83	73.20	2.63	0.51	0.80	33.16	0.00	33.16	4.000	Yes	Yes	2.00
512	13.60	41.17	76.07	2.66	0.52	0.79	30.55	0.00	30.55	4.000	Yes	Yes	2.00
513	13.67	38.76	76.17	2.66	0.52	0.79	28.96	0.00	28.96	1.138	No	Yes	1.52
514	13.75	37.31	75.28	2.65	0.53	0.79	27.45	0.00	27.45	1.092	No	Yes	1.46
515	13.79	36.98	72.99	2.62	0.53	0.79	27.11	0.00	27.11	1.081	No	Yes	1.44
516	13.88	37.31	70.85	2.60	0.53	0.79	28.10	58.96	87.05	0.123	No	No	0.16
517	13.96	37.82	68.75	2.57	0.53	0.79	28.14	58.58	86.72	0.122	No	No	0.16
518	13.99	37.55	68.06	2.56	0.53	0.79	28.21	58.46	86.66	0.122	No	No	0.16
519	14.06	36.85	69.13	2.58	0.53	0.79	27.42	58.44	85.86	0.121	No	No	0.16
520	14.13	35.81	69.80	2.59	0.53	0.78	26.47	58.29	84.77	0.120	No	No	0.16
521	14.20	35.10	70.74	2.60	0.54	0.78	25.76	58.26	84.02	0.120	No	No	0.16
522	14.28	34.80	71.75	2.61	0.54	0.78	25.75	0.00	25.75	1.004	No	Yes	1.33
523	14.33	34.80	75.90	2.66	0.53	0.78	25.76	0.00	25.76	1.004	No	Yes	1.33
524	14.41	38.16	75.85	2.66	0.53	0.78	25.74	0.00	25.74	4.000	Yes	Yes	2.00
525	14.48	42.73	73.79	2.63	0.51	0.79	33.53	0.00	33.53	4.000	Yes	Yes	2.00
526	14.51	49.31	69.29	2.58	0.50	0.79	36.33	61.06	97.39	4.000	Yes	No	2.00
527	14.60	54.51	66.15	2.54	0.49	0.80	41.04	61.75	102.79	4.000	Yes	No	2.00
528	14.68	59.44	62.87	2.50	0.48	0.80	45.72	62.30	108.02	4.000	Yes	No	2.00
529	14.72	62.02	60.88	2.47	0.48	0.80	47.94	62.40	110.34	4.000	Yes	No	2.00
530	14.80	60.11	63.21	2.50	0.48	0.80	47.12	62.79	109.91	4.000	Yes	No	2.00
531	14.88	55.81	67.98	2.56	0.49	0.79	41.10	62.17	103.28	4.000	Yes	No	2.00
532	14.92	49.88	75.23	2.65	0.50	0.79	37.73	0.00	37.73	4.000	Yes	Yes	2.00
533	15.00	48.20	77.56	2.68	0.51	0.79	33.08	0.00	33.08	4.000	Yes	Yes	2.00
534	15.05	47.74	77.58	2.68	0.50	0.79	37.15	0.00	37.15	1.382	No	Yes	1.84
535	15.13	48.91	73.95	2.64	0.50	0.79	36.55	0.00	36.55	1.415	No	Yes	1.88
536	15.20	47.64	71.13	2.60	0.50	0.79	35.72	0.00	35.72	1.375	No	Yes	1.82
537	15.27	46.30	68.24	2.57	0.51	0.78	34.02	60.18	94.20	0.130	No	No	0.17
538	15.30	45.02	65.61	2.53	0.51	0.78	33.28	59.41	92.69	0.129	No	No	0.17
539	15.37	43.41	65.60	2.53	0.52	0.78	32.63	59.22	91.85	0.128	No	No	0.17
540	15.44	40.32	68.52	2.57	0.52	0.78	30.23	59.14	89.36	0.125	No	No	0.16
541	15.50	35.83	75.03	2.65	0.53	0.77	26.16	0.00	26.16	1.012	No	Yes	1.33
542	15.57	31.13	82.71	2.75	0.54	0.77	22.36	0.00	22.36	0.870	No	Yes	1.14
543	15.64	27.81	88.96	2.82	0.55	0.77	19.56	0.00	19.56	0.769	No	Yes	1.00
544	15.71	26.47	92.01	2.86	0.55	0.77	18.66	0.00	18.66	0.728	No	Yes	0.95

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
545	15.78	26.78	91.65	2.86	0.55	0.77	19.32	0.00	19.32	0.736	No	Yes	0.96
546	15.84	28.96	87.00	2.80	0.55	0.77	20.20	0.00	20.20	0.801	No	Yes	1.04
547	15.92	32.45	79.21	2.70	0.54	0.77	23.50	0.00	23.50	0.904	No	Yes	1.18
548	16.00	36.21	71.56	2.61	0.53	0.77	27.10	0.00	27.10	1.015	No	Yes	1.32
549	16.04	37.55	67.70	2.56	0.53	0.77	28.60	58.50	87.10	0.123	No	No	0.16
550	16.12	36.81	67.37	2.55	0.54	0.77	26.43	57.81	84.24	0.120	No	No	0.16
551	16.16	34.49	70.21	2.59	0.54	0.77	25.37	58.05	83.42	0.119	No	No	0.15
552	16.24	34.08	72.55	2.62	0.54	0.77	23.32	0.00	23.32	0.947	No	Yes	1.23
553	16.33	33.01	76.76	2.67	0.53	0.77	25.50	0.00	25.50	0.914	No	Yes	1.19
554	16.37	34.01	78.74	2.70	0.54	0.77	22.94	0.00	22.94	0.944	No	Yes	1.22
555	16.45	35.58	78.80	2.70	0.53	0.77	25.59	0.00	25.59	4.000	Yes	Yes	2.00
556	16.49	41.89	70.87	2.60	0.53	0.77	28.98	59.22	88.20	4.000	Yes	No	2.00
557	16.58	48.02	61.86	2.49	0.50	0.78	37.26	59.65	96.91	4.000	Yes	No	2.00
558	16.62	51.58	57.88	2.44	0.50	0.78	39.54	59.20	98.73	4.000	Yes	No	2.00
559	16.70	48.99	63.08	2.50	0.50	0.78	37.07	59.90	96.97	4.000	Yes	No	2.00
560	16.79	44.63	71.53	2.61	0.52	0.77	31.29	0.00	31.29	4.000	Yes	Yes	2.00
561	16.83	41.38	77.24	2.68	0.52	0.77	29.54	0.00	29.54	4.000	Yes	Yes	2.00
562	16.90	43.23	74.47	2.64	0.52	0.77	29.58	0.00	29.58	1.206	No	Yes	1.56
563	16.97	45.49	71.03	2.60	0.51	0.78	35.50	0.00	35.50	1.271	No	Yes	1.65
564	17.01	45.80	69.62	2.58	0.51	0.77	34.62	60.63	95.25	0.132	No	No	0.17
565	17.10	42.41	72.91	2.62	0.52	0.77	30.22	0.00	30.22	1.178	No	Yes	1.52
566	17.14	38.19	77.27	2.68	0.53	0.77	27.71	0.00	27.71	1.053	No	Yes	1.36
567	17.23	35.61	79.83	2.71	0.53	0.76	24.96	0.00	24.96	0.976	No	Yes	1.26
568	17.27	33.09	81.92	2.74	0.54	0.76	24.36	0.00	24.36	0.901	No	Yes	1.16
569	17.36	31.18	83.56	2.76	0.54	0.76	22.01	0.00	22.01	0.844	No	Yes	1.08
570	17.40	30.14	83.81	2.76	0.55	0.76	20.66	0.00	20.66	0.813	No	Yes	1.04
571	17.49	29.30	85.30	2.78	0.54	0.76	22.00	0.00	22.00	0.788	No	Yes	1.01
572	17.53	29.91	86.27	2.79	0.55	0.76	20.12	0.00	20.12	0.805	No	Yes	1.03
573	17.62	31.02	86.90	2.80	0.54	0.76	21.98	0.00	21.98	0.836	No	Yes	1.07
574	17.67	35.88	79.88	2.71	0.54	0.76	24.42	0.00	24.42	0.977	No	Yes	1.25
575	17.75	39.51	73.66	2.63	0.52	0.77	30.97	0.00	30.97	1.080	No	Yes	1.39
576	17.83	41.18	69.83	2.59	0.52	0.76	30.01	59.33	89.33	0.125	No	No	0.16
577	17.89	39.21	71.86	2.61	0.53	0.76	28.10	0.00	28.10	1.069	No	Yes	1.37
578	17.93	36.35	76.14	2.66	0.53	0.76	26.46	0.00	26.46	0.986	No	Yes	1.26
579	18.02	35.60	77.84	2.69	0.54	0.76	23.58	0.00	23.58	0.963	No	Yes	1.23
580	18.06	35.27	79.07	2.70	0.53	0.76	26.40	0.00	26.40	4.000	Yes	Yes	2.00
581	18.15	36.51	77.75	2.68	0.53	0.76	25.66	0.00	25.66	4.000	Yes	Yes	2.00
582	18.19	38.34	76.28	2.67	0.53	0.76	26.32	0.00	26.32	4.000	Yes	Yes	2.00
583	18.28	44.68	69.66	2.58	0.52	0.76	30.42	59.42	89.84	4.000	Yes	No	2.00
584	18.32	69.74	48.54	2.32	0.51	0.77	39.76	55.93	95.69	4.000	Yes	No	2.00
585	18.41	108.42	28.70	2.07	0.43	0.80	84.45	50.66	135.12	4.000	Yes	No	2.00
586	18.49	147.67	15.94	1.91	0.41	0.81	120.83	27.89	148.72	4.000	Yes	No	2.00
587	18.53	174.01	10.70	1.85	0.42	0.80	130.87	10.77	141.64	4.000	Yes	No	2.00
588	18.62	186.89	9.42	1.83	0.40	0.81	146.25	7.24	153.49	4.000	Yes	No	2.00
589	18.66	197.89	9.30	1.83	0.39	0.81	151.47	7.00	158.46	0.356	No	No	0.50
590	18.74	204.10	9.97	1.84	0.37	0.82	159.33	9.26	168.59	0.481	No	No	0.68
591	18.79	211.78	8.91	1.82	0.37	0.82	162.30	6.08	168.38	0.478	No	No	0.68
592	18.87	218.05	5.93	1.79	0.37	0.82	170.72	0.70	171.43	0.529	No	No	0.75

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
593	18.92	224.19	3.23	1.75	0.37	0.82	174.53	0.00	174.53	0.590	No	No	0.84
594	19.01	226.54	2.86	1.75	0.36	0.82	177.59	0.00	177.59	0.661	No	No	0.95
595	19.05	226.44	5.23	1.78	0.36	0.82	176.75	0.29	177.04	0.648	No	No	0.93
596	19.14	224.83	7.35	1.80	0.36	0.82	174.36	2.57	176.93	0.645	No	No	0.93
597	19.18	219.23	10.02	1.84	0.35	0.83	174.54	9.88	184.42	0.874	No	No	1.28
598	19.27	216.00	11.32	1.85	0.36	0.82	163.50	14.17	177.67	0.664	No	No	0.95
599	19.32	212.24	12.51	1.87	0.35	0.83	167.94	19.00	186.94	0.976	No	No	1.43
600	19.40	212.10	12.81	1.87	0.35	0.83	165.63	20.01	185.64	0.922	No	No	1.35
601	19.44	209.74	13.93	1.89	0.35	0.83	164.40	24.33	188.73	1.060	No	No	1.55
602	19.53	209.07	14.62	1.90	0.34	0.83	162.49	26.87	189.36	1.092	No	No	1.59
603	19.57	208.59	15.21	1.90	0.34	0.83	164.94	29.32	194.27	1.390	No	No	2.00
604	19.66	209.39	15.26	1.90	0.34	0.83	163.59	29.39	192.99	1.303	No	No	1.89
605	19.70	210.56	14.05	1.89	0.34	0.83	164.15	24.80	188.95	1.071	No	No	1.56
606	19.79	213.01	11.68	1.86	0.36	0.82	165.85	15.63	181.48	0.772	No	No	1.11
607	19.83	217.03	8.97	1.82	0.37	0.82	166.53	6.35	172.88	0.556	No	No	0.79
608	19.92	222.56	6.95	1.80	0.37	0.82	171.20	1.88	173.08	0.560	No	No	0.79
609	20.00	228.39	5.60	1.78	0.36	0.82	178.10	0.48	178.58	0.687	No	No	0.98
610	20.05	232.71	4.30	1.77	0.36	0.82	180.96	0.05	181.01	0.757	No	No	1.09
611	20.09	231.40	4.32	1.77	0.35	0.82	182.36	0.06	182.42	0.802	No	No	1.16
612	20.18	228.82	4.65	1.77	0.37	0.82	174.26	0.11	174.36	0.587	No	No	0.83
613	20.23	223.55	5.52	1.78	0.37	0.82	173.79	0.43	174.22	0.584	No	No	0.83
614	20.30	218.32	6.50	1.79	0.37	0.81	168.07	1.25	169.32	0.493	No	No	0.69
615	20.38	210.67	8.24	1.82	0.38	0.81	160.67	4.32	164.99	0.430	No	No	0.60
616	20.43	201.38	10.67	1.85	0.38	0.81	154.88	11.50	166.38	0.448	No	No	0.62
617	20.51	192.76	13.08	1.88	0.38	0.81	146.06	19.88	165.93	0.442	No	No	0.61
618	20.56	184.74	15.39	1.90	0.37	0.81	141.24	27.90	169.15	0.490	No	No	0.68
619	20.62	177.80	17.44	1.93	0.37	0.81	136.89	34.36	171.25	0.526	No	No	0.74
620	20.70	171.49	19.39	1.95	0.37	0.81	130.42	39.43	169.85	0.501	No	No	0.70
621	20.76	165.95	21.22	1.98	0.37	0.81	126.75	43.80	170.56	0.514	No	No	0.72
622	20.82	161.86	22.98	2.00	0.37	0.81	124.04	47.56	171.59	0.532	No	No	0.75
623	20.89	158.47	24.98	2.02	0.37	0.81	121.13	51.29	172.42	0.548	No	No	0.77
624	20.98	156.26	26.74	2.05	0.37	0.81	119.07	54.19	173.26	0.564	No	No	0.79
625	21.02	156.86	27.10	2.05	0.37	0.81	119.01	54.80	173.82	0.575	No	No	0.81
626	21.11	159.81	26.04	2.04	0.36	0.81	122.75	53.61	176.36	0.631	No	No	0.89
627	21.15	164.67	23.31	2.00	0.37	0.81	125.83	48.58	174.42	0.588	No	No	0.83
628	21.24	167.72	20.96	1.97	0.37	0.81	129.98	43.61	173.59	0.571	No	No	0.80
629	21.28	168.31	18.33	1.94	0.38	0.80	128.31	36.09	164.40	0.422	No	No	0.58
630	21.37	167.93	16.35	1.92	0.40	0.80	124.80	29.59	154.39	0.321	No	No	0.43
631	21.41	167.72	14.08	1.89	0.41	0.79	126.06	22.09	148.15	0.277	No	No	0.37
632	21.50	169.20	12.51	1.87	0.42	0.78	124.86	16.59	141.45	0.241	No	No	0.32
633	21.55	171.31	11.01	1.85	0.43	0.78	125.80	11.57	137.37	0.224	No	No	0.29
634	21.63	174.09	9.59	1.83	0.43	0.78	129.00	7.31	136.31	0.219	No	No	0.29
635	21.68	172.99	9.16	1.83	0.43	0.78	130.23	6.16	136.39	0.220	No	No	0.29
636	21.74	175.17	7.96	1.81	0.45	0.77	121.58	3.25	124.83	0.183	No	No	0.24
637	21.80	179.62	6.20	1.79	0.43	0.78	133.36	0.84	134.20	0.212	No	No	0.28
638	21.87	188.88	3.45	1.76	0.42	0.78	140.45	0.00	140.46	0.237	No	No	0.31
639	21.94	194.85	1.69	1.73	0.41	0.78	144.57	0.00	144.57	0.257	No	No	0.34
640	22.02	200.69	0.26	1.72	0.41	0.79	148.50	0.00	148.50	0.279	No	No	0.37

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
641	22.09	209.78	0.00	1.69	0.39	0.79	155.54	0.00	155.54	0.330	No	No	0.44
642	22.16	220.95	0.00	1.67	0.37	0.80	168.26	0.00	168.26	0.476	No	No	0.66
643	22.20	237.53	0.00	1.63	0.36	0.81	177.94	0.00	177.94	0.670	No	No	0.94
644	22.29	252.83	0.00	1.58	0.33	0.82	200.03	0.00	200.03	1.895	No	No	2.00
645	22.33	269.80	0.00	1.54	0.32	0.83	209.86	0.00	209.86	3.456	No	No	2.00
646	22.42	280.61	0.00	1.52	0.30	0.84	224.66	0.00	224.66	4.000	No	No	2.00
647	22.46	288.76	0.00	1.52	0.29	0.84	230.13	0.00	230.13	4.000	No	No	2.00
648	22.55	291.74	0.00	1.52	0.29	0.84	232.59	0.00	232.59	4.000	No	No	2.00
649	22.60	292.91	0.00	1.53	0.29	0.84	232.90	0.00	232.90	4.000	No	No	2.00
650	22.66	293.42	0.00	1.54	0.29	0.84	233.20	0.00	233.20	4.000	No	No	2.00
651	22.74	290.27	0.00	1.56	0.29	0.84	233.76	0.00	233.76	4.000	No	No	2.00
652	22.82	284.36	0.00	1.58	0.30	0.83	223.62	0.00	223.62	4.000	No	No	2.00
653	22.87	273.62	0.00	1.61	0.31	0.83	216.17	0.00	216.17	4.000	No	No	2.00
654	22.96	264.97	0.00	1.64	0.33	0.82	203.21	0.00	203.21	2.278	No	No	2.00
655	23.00	260.39	0.00	1.65	0.33	0.82	199.17	0.00	199.17	1.806	No	No	2.00
656	23.09	258.28	0.00	1.65	0.33	0.82	203.09	0.00	203.09	2.262	No	No	2.00
657	23.13	259.76	0.00	1.63	0.33	0.82	197.13	0.00	197.13	1.616	No	No	2.00
658	23.21	261.11	0.00	1.61	0.33	0.82	202.97	0.00	202.97	2.245	No	No	2.00
659	23.26	263.90	0.00	1.60	0.32	0.82	206.64	0.00	206.64	2.808	No	No	2.00
660	23.34	262.82	0.00	1.61	0.32	0.82	204.57	0.00	204.57	2.471	No	No	2.00
661	23.38	256.25	0.00	1.64	0.33	0.82	199.76	0.00	199.76	1.866	No	No	2.00
662	23.47	248.73	0.00	1.66	0.35	0.81	188.22	0.00	188.22	1.035	No	No	1.47
663	23.52	240.11	0.00	1.69	0.35	0.81	183.69	0.00	183.69	0.847	No	No	1.19
664	23.60	234.11	0.00	1.71	0.36	0.80	175.96	0.00	175.96	0.622	No	No	0.86
665	23.65	227.13	1.20	1.73	0.37	0.80	171.76	0.00	171.76	0.535	No	No	0.74
666	23.74	221.73	3.03	1.75	0.38	0.79	164.67	0.00	164.67	0.426	No	No	0.58
667	23.78	208.41	6.28	1.79	0.38	0.79	161.51	0.99	162.50	0.399	No	No	0.54
668	23.83	199.25	7.50	1.81	0.42	0.77	136.97	2.54	139.52	0.232	No	No	0.30
669	23.91	186.13	9.33	1.83	0.41	0.78	141.72	6.86	148.58	0.280	No	No	0.37
670	24.00	179.32	9.91	1.84	0.43	0.77	128.47	8.22	136.68	4.000	Yes	No	2.00
671	24.04	162.35	16.04	1.91	0.40	0.78	123.66	28.47	152.13	4.000	Yes	No	2.00
672	24.13	144.40	24.50	2.02	0.40	0.78	104.54	47.49	152.02	4.000	Yes	No	2.00
673	24.17	118.66	36.71	2.17	0.40	0.78	90.81	61.06	151.87	4.000	Yes	No	2.00
674	24.26	96.45	47.93	2.31	0.44	0.76	64.90	62.22	127.12	4.000	Yes	No	2.00
675	24.30	72.80	61.28	2.48	0.46	0.75	53.31	64.03	117.34	4.000	Yes	No	2.00
676	24.39	58.24	71.20	2.60	0.50	0.73	36.18	0.00	36.18	4.000	Yes	Yes	2.00
677	24.44	44.53	82.94	2.75	0.51	0.72	32.20	0.00	32.20	4.000	Yes	Yes	2.00
678	24.53	36.88	90.41	2.84	0.54	0.71	23.04	0.00	23.04	4.000	Yes	Yes	2.00
679	24.57	28.83	99.75	2.96	0.55	0.71	19.81	0.00	19.81	4.000	Yes	Yes	2.00
680	24.66	24.67	100.00	3.02	0.56	0.70	15.13	0.00	15.13	0.566	No	Yes	0.69
681	24.70	21.93	100.00	3.02	0.57	0.70	14.36	0.00	14.36	0.494	No	Yes	0.60
682	24.79	21.42	100.00	2.97	0.57	0.70	14.08	0.00	14.08	4.000	Yes	Yes	2.00
683	24.83	21.36	95.96	2.91	0.57	0.70	14.07	0.00	14.07	4.000	Yes	Yes	2.00
684	24.92	21.46	94.72	2.90	0.57	0.70	14.19	0.00	14.19	4.000	Yes	Yes	2.00
685	24.96	21.66	91.22	2.85	0.57	0.70	14.25	0.00	14.25	4.000	Yes	Yes	2.00
686	25.05	22.10	84.41	2.77	0.57	0.70	14.42	0.00	14.42	4.000	Yes	Yes	2.00
687	25.09	23.34	71.78	2.61	0.57	0.69	14.99	0.00	14.99	4.000	Yes	Yes	2.00
688	25.18	24.82	64.29	2.52	0.57	0.69	16.65	54.36	71.01	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
689	25.22	27.90	57.10	2.43	0.57	0.69	17.28	52.81	70.09	4.000	Yes	No	2.00
690	25.31	30.22	51.74	2.36	0.56	0.70	21.16	52.23	73.39	4.000	Yes	No	2.00
691	25.35	28.24	53.51	2.38	0.56	0.70	21.32	52.85	74.17	4.000	Yes	No	2.00
692	25.42	24.32	60.58	2.47	0.59	0.69	13.27	52.57	65.84	4.000	Yes	No	2.00
693	25.48	20.53	72.01	2.61	0.58	0.69	13.26	0.00	13.26	4.000	Yes	Yes	2.00
694	25.56	20.90	75.71	2.66	0.58	0.69	13.67	0.00	13.67	4.000	Yes	Yes	2.00
695	25.62	21.47	79.69	2.71	0.57	0.69	14.09	0.00	14.09	4.000	Yes	Yes	2.00
696	25.68	21.98	83.44	2.76	0.57	0.69	14.44	0.00	14.44	4.000	Yes	Yes	2.00
697	25.74	22.24	88.80	2.82	0.57	0.69	14.72	0.00	14.72	4.000	Yes	Yes	2.00
698	25.80	23.12	92.68	2.87	0.57	0.69	14.66	0.00	14.66	4.000	Yes	Yes	2.00
699	25.88	24.93	92.03	2.86	0.56	0.70	16.23	0.00	16.23	0.563	No	Yes	0.68
700	25.95	27.99	86.19	2.79	0.55	0.70	18.41	0.00	18.41	0.641	No	Yes	0.77
701	26.00	31.34	77.36	2.68	0.55	0.70	20.87	0.00	20.87	0.725	No	Yes	0.88
702	26.07	33.42	72.54	2.62	0.54	0.70	23.07	0.00	23.07	0.778	No	Yes	0.94
703	26.13	32.41	77.19	2.68	0.54	0.70	22.67	0.00	22.67	0.751	No	Yes	0.91
704	26.21	32.01	84.51	2.77	0.55	0.70	18.78	0.00	18.78	0.740	No	Yes	0.89
705	26.30	31.61	90.63	2.85	0.54	0.70	22.29	0.00	22.29	4.000	Yes	Yes	2.00
706	26.34	50.40	70.22	2.59	0.55	0.70	21.75	56.99	78.74	4.000	Yes	No	2.00
707	26.43	80.40	48.70	2.32	0.46	0.74	59.57	61.20	120.77	4.000	Yes	No	2.00
708	26.47	134.31	26.73	2.05	0.43	0.76	88.33	48.49	136.82	4.000	Yes	No	2.00
709	26.55	180.37	16.07	1.91	0.36	0.79	144.97	30.63	175.60	4.000	Yes	No	2.00
710	26.59	230.35	7.41	1.81	0.38	0.78	164.73	2.61	167.34	4.000	Yes	No	2.00
711	26.67	269.51	1.21	1.73	0.32	0.81	209.82	0.00	209.82	4.000	Yes	No	2.00
712	26.76	304.97	0.00	1.67	0.27	0.84	246.39	0.00	246.39	4.000	No	No	2.00
713	26.80	331.00	0.00	1.64	0.26	0.84	261.65	0.00	254.00	4.000	No	No	2.00
714	26.88	346.10	0.00	1.64	0.26	0.84	279.12	0.00	254.00	4.000	No	No	2.00
715	26.92	356.70	0.00	1.65	0.26	0.84	283.70	0.00	254.00	4.000	No	No	2.00
716	27.00	358.73	0.00	1.66	0.26	0.84	286.63	0.00	254.00	4.000	No	No	2.00
717	27.05	358.90	0.00	1.67	0.26	0.84	283.73	0.00	254.00	4.000	No	No	2.00
718	27.12	364.84	0.00	1.66	0.26	0.84	283.85	0.00	254.00	4.000	No	No	2.00
719	27.18	378.64	0.00	1.63	0.26	0.84	300.52	0.00	254.00	4.000	No	No	2.00
720	27.25	395.55	0.00	1.58	0.26	0.84	316.30	0.00	254.00	4.000	No	No	2.00
721	27.32	406.93	0.00	1.54	0.26	0.84	323.78	0.00	254.00	4.000	No	No	2.00
722	27.38	415.55	0.00	1.50	0.26	0.84	327.28	0.00	254.00	4.000	No	No	2.00
723	27.44	422.59	0.00	1.45	0.26	0.84	336.51	0.00	254.00	4.000	No	No	2.00
724	27.52	423.60	0.00	1.40	0.26	0.84	340.22	0.00	254.00	4.000	No	No	2.00
725	27.58	413.60	0.00	1.37	0.26	0.84	329.38	0.00	254.00	4.000	No	No	2.00
726	27.65	397.16	0.00	1.36	0.26	0.84	312.48	0.00	254.00	4.000	No	No	2.00
727	27.71	380.68	0.00	1.38	0.26	0.84	300.94	0.00	254.00	4.000	No	No	2.00
728	27.78	367.46	0.00	1.39	0.26	0.84	290.03	0.00	254.00	4.000	No	No	2.00
729	27.84	356.46	0.00	1.40	0.26	0.84	280.88	0.00	254.00	4.000	No	No	2.00
730	27.91	347.03	0.00	1.42	0.26	0.84	274.60	0.00	254.00	4.000	No	No	2.00
731	27.97	339.71	0.00	1.45	0.26	0.84	267.45	0.00	254.00	4.000	No	No	2.00
732	28.04	334.71	0.00	1.49	0.26	0.84	263.31	0.00	254.00	4.000	No	No	2.00
733	28.12	336.59	0.00	1.49	0.26	0.84	262.51	0.00	254.00	4.000	No	No	2.00
734	28.17	343.43	0.00	1.45	0.26	0.84	271.66	0.00	254.00	4.000	No	No	2.00
735	28.25	353.32	0.00	1.41	0.26	0.84	279.29	0.00	254.00	4.000	No	No	2.00
736	28.33	360.46	0.00	1.39	0.26	0.83	285.71	0.00	254.00	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
737	28.37	363.81	0.00	1.40	0.26	0.83	288.35	0.00	254.00	4.000	No	No	2.00
738	28.46	361.90	0.00	1.41	0.26	0.83	286.98	0.00	254.00	4.000	No	No	2.00
739	28.50	346.70	0.00	1.44	0.26	0.83	280.98	0.00	254.00	4.000	No	No	2.00
740	28.56	333.48	0.00	1.46	0.27	0.83	251.51	0.00	251.51	4.000	No	No	2.00
741	28.63	320.90	0.00	1.47	0.26	0.83	255.54	0.00	254.00	4.000	No	No	2.00
742	28.69	316.64	0.00	1.45	0.27	0.83	250.06	0.00	250.06	4.000	No	No	2.00
743	28.76	303.18	0.00	1.46	0.28	0.82	238.88	0.00	238.88	4.000	No	No	2.00
744	28.84	285.77	0.00	1.49	0.31	0.81	216.69	0.00	216.69	4.000	No	No	2.00
745	28.90	262.85	0.00	1.58	0.33	0.80	200.34	0.00	200.34	1.928	No	No	2.00
746	28.98	241.58	0.00	1.68	0.37	0.78	174.89	0.00	174.89	0.598	No	No	0.80
747	29.03	218.13	7.47	1.81	0.38	0.77	159.24	2.68	161.91	4.000	Yes	No	2.00
748	29.09	200.11	16.88	1.92	0.36	0.78	144.10	33.27	177.37	4.000	Yes	No	2.00
749	29.18	185.85	24.97	2.02	0.34	0.79	137.34	54.08	191.42	4.000	Yes	No	2.00
750	29.21	176.90	31.96	2.11	0.33	0.79	132.88	65.06	197.93	4.000	Yes	No	2.00
751	29.30	168.68	37.80	2.19	0.33	0.79	126.61	70.43	197.04	4.000	Yes	No	2.00
752	29.38	160.16	43.02	2.25	0.34	0.79	118.90	73.03	191.93	4.000	Yes	No	2.00
753	29.42	148.25	47.93	2.31	0.35	0.78	112.43	74.62	187.05	4.000	Yes	No	2.00
754	29.50	131.67	53.74	2.38	0.37	0.77	97.19	73.51	170.71	4.000	Yes	No	2.00
755	29.58	114.56	59.90	2.46	0.41	0.75	78.10	70.58	148.68	4.000	Yes	No	2.00
756	29.62	99.57	64.82	2.52	0.42	0.74	70.62	69.91	140.53	4.000	Yes	No	2.00
757	29.69	102.45	60.54	2.47	0.44	0.73	61.14	66.02	127.16	4.000	Yes	No	2.00
758	29.76	142.68	40.04	2.21	0.41	0.75	83.88	62.20	146.08	4.000	Yes	No	2.00
759	29.82	219.28	14.89	1.90	0.34	0.79	164.22	28.04	192.26	4.000	Yes	No	2.00
760	29.89	294.86	0.00	1.68	0.27	0.82	248.05	0.00	248.05	4.000	No	No	2.00
761	29.95	330.26	0.00	1.62	0.26	0.83	270.68	0.00	254.00	4.000	No	No	2.00
762	30.03	334.04	0.00	1.65	0.26	0.83	256.40	0.00	254.00	4.000	No	No	2.00
763	30.07	318.07	1.95	1.74	0.26	0.83	258.16	0.00	254.00	4.000	No	No	2.00
764	30.15	307.49	5.21	1.78	0.30	0.81	227.83	0.32	228.15	4.000	No	No	2.00
765	30.20	291.01	7.92	1.81	0.29	0.81	226.86	4.32	231.17	4.000	No	No	2.00
766	30.27	289.71	6.55	1.79	0.31	0.80	211.65	1.48	213.13	4.000	No	No	2.00
767	30.33	292.84	4.51	1.77	0.30	0.81	223.81	0.09	223.90	4.000	No	No	2.00
768	30.39	310.19	0.46	1.72	0.29	0.81	234.52	0.00	234.52	4.000	Yes	No	2.00
769	30.47	297.78	2.98	1.75	0.26	0.83	259.76	0.00	254.00	4.000	Yes	No	2.00
770	30.54	275.53	8.65	1.82	0.34	0.79	190.32	5.82	196.14	4.000	Yes	No	2.00
771	30.59	223.46	22.25	1.99	0.28	0.82	183.75	55.08	238.83	4.000	Yes	No	2.00
772	30.66	184.28	34.56	2.14	0.33	0.79	130.99	67.94	198.93	4.000	Yes	No	2.00
773	30.73	142.27	49.86	2.34	0.37	0.77	100.59	72.57	173.16	4.000	Yes	No	2.00
774	30.80	117.78	60.07	2.46	0.40	0.75	79.23	70.95	150.18	4.000	Yes	No	2.00
775	30.86	104.03	65.63	2.53	0.42	0.74	71.63	70.41	142.04	4.000	Yes	No	2.00
776	30.93	95.68	68.54	2.57	0.42	0.73	67.72	70.01	137.73	4.000	Yes	No	2.00
777	30.99	90.05	70.17	2.59	0.44	0.73	59.73	68.05	127.78	4.000	Yes	No	2.00
778	31.06	95.05	65.88	2.54	0.45	0.72	58.45	66.70	125.15	4.000	Yes	No	2.00
779	31.13	113.17	54.70	2.40	0.41	0.74	79.00	68.97	147.97	4.000	Yes	No	2.00
780	31.18	144.71	38.89	2.20	0.38	0.76	101.62	65.53	167.15	4.000	Yes	No	2.00
781	31.26	170.57	27.76	2.06	0.34	0.78	132.70	58.54	191.25	4.000	Yes	No	2.00
782	31.33	190.46	20.07	1.96	0.36	0.77	138.42	42.39	180.81	4.000	Yes	No	2.00
783	31.38	201.06	16.82	1.92	0.36	0.77	146.24	33.32	179.57	4.000	Yes	No	2.00
784	31.45	210.35	14.27	1.89	0.36	0.77	153.96	24.87	178.83	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
785	31.52	219.85	11.82	1.86	0.37	0.76	157.23	15.77	172.99	4.000	Yes	No	2.00
786	31.61	227.60	10.07	1.84	0.36	0.77	166.07	9.79	175.86	4.000	Yes	No	2.00
787	31.65	239.41	8.99	1.82	0.36	0.77	170.26	6.47	176.73	4.000	Yes	No	2.00
788	31.73	262.92	6.40	1.79	0.35	0.77	185.13	1.20	186.32	4.000	Yes	No	2.00
789	31.80	294.73	3.50	1.76	0.30	0.80	228.13	0.01	228.14	4.000	Yes	No	2.00
790	31.87	323.88	1.25	1.73	0.26	0.82	257.10	0.00	254.00	4.000	Yes	No	2.00
791	31.93	335.59	1.95	1.74	0.26	0.82	264.93	0.00	254.00	4.000	No	No	2.00
792	31.99	333.67	4.68	1.77	0.26	0.82	260.56	0.14	254.00	4.000	No	No	2.00
793	32.06	331.80	6.96	1.80	0.26	0.82	252.27	2.34	254.00	4.000	No	No	2.00
794	32.11	326.96	9.17	1.83	0.26	0.82	260.34	8.82	254.00	4.000	No	No	2.00
795	32.17	330.35	9.00	1.83	0.26	0.82	249.10	7.99	254.00	4.000	No	No	2.00
796	32.24	336.76	7.80	1.81	0.26	0.82	260.12	4.33	254.00	4.000	No	No	2.00
797	32.30	353.67	4.60	1.77	0.26	0.82	275.04	0.13	254.00	4.000	No	No	2.00
798	32.37	367.05	1.91	1.74	0.26	0.82	288.23	0.00	254.00	4.000	No	No	2.00
799	32.44	371.82	0.00	1.71	0.26	0.82	291.03	0.00	254.00	4.000	No	No	2.00
800	32.50	363.33	0.00	1.69	0.26	0.82	285.88	0.00	254.00	4.000	No	No	2.00
801	32.56	350.72	0.00	1.66	0.26	0.82	268.26	0.00	254.00	4.000	No	No	2.00
802	32.63	338.67	0.00	1.61	0.26	0.82	261.48	0.00	254.00	4.000	No	No	2.00
803	32.70	335.28	0.00	1.56	0.26	0.82	257.66	0.00	254.00	4.000	No	No	2.00
804	32.76	331.39	0.00	1.55	0.26	0.82	260.17	0.00	254.00	4.000	No	No	2.00
805	32.83	330.89	0.00	1.55	0.27	0.82	251.38	0.00	251.38	4.000	No	No	2.00
806	32.89	337.73	0.00	1.55	0.26	0.82	256.30	0.00	254.00	4.000	No	No	2.00
807	32.95	356.22	0.00	1.54	0.26	0.82	275.86	0.00	254.00	4.000	No	No	2.00
808	33.02	380.54	0.00	1.53	0.26	0.82	294.94	0.00	254.00	4.000	No	No	2.00
809	33.10	401.81	0.00	1.52	0.26	0.82	312.52	0.00	254.00	4.000	No	No	2.00
810	33.16	406.91	0.00	1.53	0.26	0.82	324.96	0.00	254.00	4.000	No	No	2.00
811	33.25	402.92	0.00	1.56	0.26	0.82	306.49	0.00	254.00	4.000	No	No	2.00
812	33.29	392.05	0.00	1.58	0.26	0.82	303.01	0.00	254.00	4.000	No	No	2.00
813	33.37	384.33	0.00	1.54	0.26	0.82	299.49	0.00	254.00	4.000	No	No	2.00
814	33.45	374.37	0.00	1.50	0.26	0.82	288.36	0.00	254.00	4.000	No	No	2.00
815	33.50	360.72	0.00	1.50	0.26	0.82	279.68	0.00	254.00	4.000	No	No	2.00
816	33.59	349.75	0.00	1.55	0.26	0.82	267.62	0.00	254.00	4.000	No	No	2.00
817	33.63	323.61	0.00	1.65	0.26	0.82	262.76	0.00	254.00	4.000	No	No	2.00
818	33.68	283.99	7.67	1.81	0.31	0.79	211.08	3.53	214.61	4.000	Yes	No	2.00
819	33.76	232.83	23.37	2.00	0.30	0.80	171.56	56.15	227.71	4.000	Yes	No	2.00
820	33.82	189.11	37.90	2.19	0.31	0.78	138.69	73.37	212.06	4.000	Yes	No	2.00
821	33.88	153.48	49.33	2.33	0.35	0.76	110.09	74.80	184.90	4.000	Yes	No	2.00
822	33.96	124.73	59.84	2.46	0.39	0.74	84.41	72.33	156.74	4.000	Yes	No	2.00
823	34.02	102.36	69.27	2.58	0.42	0.72	68.66	70.45	139.11	4.000	Yes	No	2.00
824	34.08	87.60	76.61	2.67	0.45	0.71	57.22	0.00	57.22	4.000	Yes	Yes	2.00
825	34.14	76.19	81.46	2.73	0.46	0.70	50.70	0.00	50.70	4.000	Yes	Yes	2.00
826	34.23	68.01	83.08	2.75	0.48	0.69	43.33	0.00	43.33	4.000	Yes	Yes	2.00
827	34.28	60.90	82.24	2.74	0.49	0.68	39.34	0.00	39.34	1.285	No	Yes	1.54
828	34.34	55.27	80.89	2.72	0.50	0.68	35.39	0.00	35.39	1.158	No	Yes	1.38
829	34.41	49.90	80.88	2.72	0.51	0.67	31.42	0.00	31.42	1.037	No	Yes	1.24
830	34.49	46.04	82.50	2.74	0.52	0.66	28.20	0.00	28.20	0.950	No	Yes	1.13
831	34.53	45.17	82.35	2.74	0.53	0.66	27.44	0.00	27.44	0.930	No	Yes	1.11
832	34.61	48.29	78.18	2.69	0.52	0.67	29.57	0.00	29.57	0.998	No	Yes	1.19

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
833	34.70	54.26	71.41	2.61	0.51	0.67	34.45	0.00	34.45	1.130	No	Yes	1.35
834	34.75	64.03	66.03	2.54	0.50	0.68	39.52	61.29	100.81	0.139	No	No	0.17
835	34.83	71.14	64.54	2.52	0.47	0.69	49.89	63.91	113.81	0.159	No	No	0.19
836	34.88	74.20	66.12	2.54	0.47	0.69	49.40	64.15	113.56	0.158	No	No	0.19
837	34.92	72.44	68.64	2.57	0.48	0.69	46.02	63.74	109.76	0.152	No	No	0.18
838	35.01	70.96	69.81	2.59	0.48	0.69	46.12	64.01	110.13	0.152	No	No	0.18
839	35.10	71.26	69.51	2.58	0.48	0.69	46.19	63.97	110.17	4.000	Yes	No	2.00
840	35.13	76.52	65.03	2.53	0.48	0.69	46.53	63.07	109.60	4.000	Yes	No	2.00
841	35.20	80.74	62.03	2.49	0.45	0.70	57.39	65.39	122.78	4.000	Yes	No	2.00
842	35.29	85.28	59.36	2.45	0.46	0.70	55.12	63.98	119.10	4.000	Yes	No	2.00
843	35.33	87.79	58.74	2.45	0.46	0.70	56.20	64.09	120.29	4.000	Yes	No	2.00
844	35.42	92.29	56.87	2.42	0.44	0.70	62.79	65.31	128.10	4.000	Yes	No	2.00
845	35.46	96.49	54.52	2.39	0.44	0.71	64.96	65.07	130.02	4.000	Yes	No	2.00
846	35.55	97.70	53.55	2.38	0.44	0.71	65.33	64.80	130.13	4.000	Yes	No	2.00
847	35.58	98.10	53.25	2.38	0.44	0.71	65.31	64.67	129.98	4.000	Yes	No	2.00
848	35.66	99.98	52.62	2.37	0.44	0.71	65.70	64.52	130.22	0.198	No	No	0.24
849	35.72	102.90	50.96	2.35	0.43	0.71	69.43	64.82	134.25	0.212	No	No	0.26
850	35.78	104.81	49.21	2.33	0.43	0.71	71.70	64.62	136.32	0.219	No	No	0.27
851	35.84	104.98	48.11	2.31	0.43	0.71	69.76	63.58	133.34	0.209	No	No	0.26
852	35.91	104.11	48.08	2.31	0.43	0.71	69.57	63.52	133.09	0.208	No	No	0.26
853	35.98	103.98	48.42	2.32	0.43	0.71	69.55	63.68	133.24	0.208	No	No	0.26
854	36.05	105.15	48.66	2.32	0.43	0.71	69.38	63.76	133.14	0.208	No	No	0.26
855	36.11	107.23	48.55	2.32	0.43	0.71	72.20	64.44	136.64	4.000	Yes	No	2.00
856	36.19	106.56	49.52	2.33	0.42	0.71	74.31	65.46	139.77	4.000	Yes	No	2.00
857	36.25	100.35	53.46	2.38	0.43	0.71	67.99	65.48	133.48	4.000	Yes	No	2.00
858	36.32	91.53	59.33	2.45	0.45	0.70	58.50	64.91	123.42	4.000	Yes	No	2.00
859	36.36	84.15	65.01	2.53	0.46	0.69	54.85	65.45	120.31	4.000	Yes	No	2.00
860	36.43	83.14	66.03	2.54	0.46	0.69	51.84	64.83	116.67	4.000	Yes	No	2.00
861	36.52	86.36	63.62	2.51	0.45	0.69	56.31	65.51	121.82	4.000	Yes	No	2.00
862	36.57	93.88	58.37	2.44	0.44	0.70	61.74	65.51	127.25	4.000	Yes	No	2.00
863	36.64	101.50	53.72	2.38	0.43	0.70	68.13	65.62	133.76	4.000	Yes	No	2.00
864	36.69	108.91	49.94	2.34	0.42	0.71	72.92	65.29	138.21	4.000	Yes	No	2.00
865	36.77	116.26	47.69	2.31	0.42	0.71	78.11	65.55	143.66	4.000	Yes	No	2.00
866	36.85	121.44	47.15	2.30	0.40	0.72	84.86	67.01	151.87	0.302	No	No	0.38
867	36.89	127.92	46.93	2.30	0.40	0.72	84.87	66.89	151.76	4.000	Yes	No	2.00
868	36.97	127.95	48.86	2.32	0.38	0.73	93.65	70.22	163.88	4.000	Yes	No	2.00
869	37.03	123.81	52.72	2.37	0.40	0.72	85.20	69.83	155.03	4.000	Yes	No	2.00
870	37.12	115.56	57.79	2.43	0.41	0.71	75.48	69.14	144.62	4.000	Yes	No	2.00
871	37.15	111.13	60.34	2.47	0.41	0.71	74.40	69.68	144.08	4.000	Yes	No	2.00
872	37.22	112.37	60.09	2.46	0.41	0.71	74.89	69.74	144.63	4.000	Yes	No	2.00
873	37.29	121.00	58.32	2.44	0.41	0.72	78.40	70.13	148.54	4.000	Yes	No	2.00
874	37.35	142.98	52.94	2.37	0.38	0.73	94.60	72.46	167.06	4.000	Yes	No	2.00
875	37.42	179.31	44.16	2.26	0.32	0.77	128.23	76.21	204.44	4.000	Yes	No	2.00
876	37.49	207.19	38.55	2.19	0.27	0.80	170.45	81.54	251.99	4.000	Yes	No	2.00
877	37.56	213.09	38.12	2.19	0.27	0.80	165.88	79.99	245.87	4.000	No	No	2.00
878	37.62	192.72	44.01	2.26	0.30	0.78	143.77	80.02	223.79	4.000	No	No	2.00
879	37.68	166.72	51.64	2.36	0.34	0.76	117.10	77.88	194.98	1.442	No	No	1.90
880	37.74	155.77	54.28	2.39	0.37	0.74	99.05	74.25	173.30	0.565	No	No	0.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
881	37.83	151.55	53.95	2.39	0.34	0.76	115.75	78.65	194.40	1.399	No	No	1.85
882	37.89	157.66	49.26	2.33	0.36	0.74	106.04	73.70	179.73	0.719	No	No	0.95
883	37.96	156.54	47.69	2.31	0.35	0.75	113.73	74.82	188.55	1.051	No	No	1.40
884	38.02	155.13	47.03	2.30	0.35	0.75	112.18	74.02	186.20	0.945	No	No	1.27
885	38.07	148.39	48.69	2.32	0.37	0.74	102.35	72.41	174.76	0.595	No	No	0.78
886	38.16	142.01	50.17	2.34	0.37	0.73	96.95	71.77	168.72	0.483	No	No	0.63
887	38.22	139.62	49.53	2.33	0.38	0.73	96.37	71.29	167.66	0.467	No	No	0.61
888	38.28	139.43	48.45	2.32	0.38	0.73	96.30	70.70	167.00	0.457	No	No	0.59
889	38.34	139.47	48.02	2.31	0.38	0.73	96.23	70.45	166.67	0.453	No	No	0.59
890	38.42	138.78	48.54	2.32	0.38	0.73	96.26	70.74	167.00	0.457	No	No	0.59
891	38.48	135.94	50.51	2.34	0.38	0.73	94.64	71.33	165.97	0.443	No	No	0.57
892	38.53	139.03	50.17	2.34	0.39	0.72	89.39	69.77	159.16	0.363	No	No	0.46
893	38.60	141.92	49.99	2.34	0.36	0.74	103.88	73.51	177.39	0.656	No	No	0.87
894	38.67	148.41	48.73	2.32	0.37	0.74	101.48	72.21	173.70	0.573	No	No	0.75
895	38.73	153.10	49.47	2.33	0.36	0.74	105.09	73.56	178.64	0.689	No	No	0.91
896	38.80	173.34	46.35	2.29	0.34	0.75	115.26	74.39	189.65	1.107	No	No	1.47
897	38.86	204.60	41.43	2.23	0.29	0.78	153.27	80.23	233.50	4.000	No	No	2.00
898	38.93	230.44	37.79	2.18	0.26	0.80	184.75	84.05	254.00	4.000	Yes	No	2.00
899	39.00	230.57	39.25	2.20	0.26	0.80	181.82	85.00	254.00	4.000	Yes	No	2.00
900	39.07	206.74	45.34	2.28	0.28	0.79	154.06	83.64	237.70	4.000	Yes	No	2.00
901	39.14	177.85	53.05	2.38	0.32	0.76	124.09	80.48	204.57	4.000	Yes	No	2.00
902	39.21	157.22	58.43	2.44	0.35	0.74	108.16	78.45	186.62	4.000	Yes	No	2.00
903	39.27	147.80	59.59	2.46	0.36	0.74	101.13	76.92	178.05	4.000	Yes	No	2.00
904	39.33	144.44	57.75	2.43	0.36	0.74	100.33	76.02	176.36	4.000	Yes	No	2.00
905	39.39	143.74	54.33	2.39	0.37	0.73	99.43	74.38	173.80	4.000	Yes	No	2.00
906	39.47	142.40	51.66	2.36	0.37	0.73	98.78	72.99	171.78	4.000	Yes	No	2.00
907	39.53	140.82	50.02	2.34	0.38	0.73	96.41	71.55	167.96	4.000	Yes	No	2.00
908	39.58	139.40	50.28	2.34	0.38	0.73	95.17	71.35	166.52	0.450	No	No	0.58
909	39.67	138.88	50.65	2.35	0.38	0.72	95.10	71.52	166.62	0.452	No	No	0.58
910	39.73	138.85	51.51	2.36	0.38	0.72	95.13	71.94	167.07	0.458	No	No	0.59
911	39.81	141.62	51.22	2.35	0.38	0.72	95.02	71.77	166.80	0.454	No	No	0.59
912	39.84	147.81	50.18	2.34	0.37	0.73	101.76	73.05	174.81	0.596	No	No	0.78
913	39.92	150.33	50.62	2.35	0.35	0.74	110.28	75.54	185.82	4.000	Yes	No	2.00
914	40.00	147.37	52.95	2.37	0.36	0.73	101.20	74.25	175.44	4.000	Yes	No	2.00
915	40.04	142.34	55.83	2.41	0.37	0.73	94.77	73.73	168.50	4.000	Yes	No	2.00
916	40.12	138.95	58.13	2.44	0.37	0.73	98.14	75.55	173.69	4.000	Yes	No	2.00
917	40.20	136.97	59.66	2.46	0.38	0.72	93.18	74.72	167.90	4.000	Yes	No	2.00
918	40.24	130.60	62.10	2.49	0.38	0.72	90.18	74.69	164.86	4.000	Yes	No	2.00
919	40.32	125.66	63.12	2.50	0.39	0.71	82.88	72.93	155.82	4.000	Yes	No	2.00
920	40.37	120.80	63.69	2.51	0.40	0.71	81.46	72.69	154.15	4.000	Yes	No	2.00
921	40.44	118.28	63.66	2.51	0.40	0.71	78.59	71.87	150.46	0.292	No	No	0.37
922	40.52	116.40	63.76	2.51	0.41	0.70	76.91	71.42	148.33	0.278	No	No	0.35
923	40.56	116.13	63.58	2.51	0.41	0.70	76.96	71.38	148.33	4.000	Yes	No	2.00
924	40.64	119.46	61.87	2.49	0.41	0.70	77.79	71.11	148.91	4.000	Yes	No	2.00
925	40.71	125.63	58.71	2.45	0.39	0.71	84.39	71.94	156.33	4.000	Yes	No	2.00
926	40.78	130.13	56.38	2.42	0.38	0.72	91.12	72.94	164.06	4.000	Yes	No	2.00
927	40.83	127.75	57.18	2.43	0.39	0.71	88.08	72.41	160.49	4.000	Yes	No	2.00
928	40.93	122.41	59.72	2.46	0.40	0.70	78.73	70.70	149.42	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
929	40.97	117.89	62.09	2.49	0.40	0.70	78.65	71.42	150.07	4.000	Yes	No	2.00
930	41.05	117.75	61.98	2.49	0.41	0.70	77.51	71.07	148.58	0.280	No	No	0.35
931	41.10	115.91	62.37	2.49	0.40	0.70	78.44	71.45	149.89	0.288	No	No	0.36
932	41.18	114.44	62.66	2.50	0.41	0.70	74.30	70.36	144.66	0.257	No	No	0.32
933	41.23	112.89	63.63	2.51	0.41	0.70	74.07	70.57	144.65	0.257	No	No	0.32
934	41.30	113.73	63.55	2.51	0.41	0.70	74.81	70.76	145.57	0.262	No	No	0.33
935	41.36	114.67	63.11	2.50	0.41	0.70	76.16	71.01	147.17	0.271	No	No	0.34
936	41.42	120.81	60.12	2.46	0.41	0.70	76.01	70.07	146.07	0.265	No	No	0.33
937	41.49	123.46	59.36	2.45	0.38	0.71	88.95	73.43	162.39	0.398	No	No	0.51
938	41.55	126.75	58.94	2.45	0.40	0.70	82.06	71.37	153.42	0.313	No	No	0.40
939	41.63	127.76	59.55	2.46	0.39	0.71	83.54	71.99	155.53	0.330	No	No	0.42
940	41.69	133.97	57.57	2.43	0.38	0.72	91.16	73.41	164.57	0.424	No	No	0.55
941	41.75	137.09	56.35	2.42	0.37	0.72	96.66	74.46	171.12	0.523	No	No	0.68
942	41.82	136.08	56.60	2.42	0.38	0.71	90.71	72.92	163.62	0.412	No	No	0.53
943	41.88	133.06	57.56	2.43	0.39	0.71	88.64	72.71	161.35	0.386	No	No	0.50
944	41.95	132.19	57.33	2.43	0.38	0.71	89.31	72.81	162.12	0.395	No	No	0.51
945	42.01	132.26	56.27	2.42	0.39	0.71	88.50	72.18	160.69	0.379	No	No	0.49
946	42.09	133.80	54.59	2.39	0.39	0.71	88.52	71.52	160.04	0.372	No	No	0.48
947	42.15	137.73	52.16	2.36	0.38	0.71	92.58	71.56	164.14	0.419	No	No	0.54
948	42.22	140.41	50.90	2.35	0.37	0.72	97.48	72.28	169.76	0.500	No	No	0.65
949	42.30	142.44	50.18	2.34	0.38	0.71	94.54	71.14	165.67	0.439	No	No	0.57
950	42.34	141.67	50.72	2.35	0.37	0.72	97.28	72.13	169.41	0.494	No	No	0.64
951	42.42	142.75	50.53	2.34	0.38	0.71	95.47	71.56	167.03	0.458	No	No	0.59
952	42.50	142.06	50.75	2.35	0.37	0.72	97.07	72.09	169.16	0.490	No	No	0.64
953	42.54	143.30	50.58	2.34	0.38	0.71	95.49	71.59	167.07	0.458	No	No	0.59
954	42.62	143.77	51.56	2.36	0.37	0.72	98.44	72.85	171.30	0.527	No	No	0.69
955	42.70	145.38	52.49	2.37	0.37	0.72	98.22	73.23	171.45	0.529	No	No	0.69
956	42.74	148.57	53.03	2.38	0.37	0.72	99.47	73.81	173.28	0.564	No	No	0.74
957	42.82	154.58	52.03	2.36	0.36	0.73	106.21	75.16	181.36	0.768	No	No	1.02
958	42.86	157.33	51.97	2.36	0.34	0.73	113.00	76.95	189.95	1.123	No	No	1.49
959	42.94	157.83	52.19	2.36	0.36	0.73	106.07	75.20	181.27	0.765	No	No	1.01
960	43.01	154.98	53.58	2.38	0.35	0.73	107.46	76.23	183.69	0.847	No	No	1.13
961	43.07	156.09	53.48	2.38	0.36	0.73	105.83	75.74	181.57	0.775	No	No	1.03
962	43.15	155.22	53.60	2.38	0.35	0.73	108.81	76.60	185.41	0.912	No	No	1.22
963	43.21	154.45	53.05	2.38	0.36	0.72	105.13	75.36	180.49	0.741	No	No	0.98
964	43.26	153.38	52.44	2.37	0.36	0.72	103.72	74.69	178.41	0.683	No	No	0.90
965	43.32	152.86	51.80	2.36	0.36	0.72	105.87	74.96	180.83	0.752	No	No	0.99
966	43.41	152.89	51.22	2.35	0.36	0.72	103.58	74.06	177.64	0.663	No	No	0.87
967	43.47	153.60	50.55	2.34	0.36	0.72	103.53	73.71	177.23	0.652	No	No	0.86
968	43.54	156.87	49.37	2.33	0.36	0.72	107.29	74.08	181.37	0.768	No	No	1.02
969	43.61	161.50	48.45	2.32	0.35	0.73	111.35	74.64	185.98	0.936	No	No	1.25
970	43.67	166.20	48.21	2.32	0.34	0.73	114.75	75.39	190.14	1.133	No	No	1.50
971	43.74	170.79	47.88	2.31	0.34	0.74	118.85	76.27	195.11	1.452	No	No	1.91
972	43.82	173.34	47.60	2.31	0.33	0.74	122.81	77.12	199.94	1.885	No	No	2.00
973	43.86	171.83	47.91	2.31	0.33	0.74	121.10	76.87	197.97	1.690	No	No	2.00
974	43.94	166.33	49.49	2.33	0.34	0.73	115.04	76.20	191.23	1.195	No	No	1.58
975	43.99	159.55	51.28	2.35	0.35	0.73	109.09	75.56	184.66	0.883	No	No	1.17
976	44.07	155.36	52.22	2.37	0.36	0.72	104.29	74.73	179.02	0.699	No	No	0.92

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
977	44.11	151.07	53.21	2.38	0.36	0.72	104.75	75.32	180.08	0.729	No	No	0.96
978	44.20	148.15	54.12	2.39	0.37	0.71	98.59	74.06	172.65	0.552	No	No	0.72
979	44.24	145.86	55.50	2.41	0.37	0.71	97.27	74.28	171.55	0.531	No	No	0.69
980	44.33	147.34	55.65	2.41	0.37	0.71	99.18	74.87	174.05	0.580	No	No	0.76
981	44.38	149.65	55.26	2.40	0.36	0.72	102.18	75.53	177.71	0.664	No	No	0.88
982	44.46	151.20	54.49	2.39	0.36	0.72	102.73	75.35	178.07	4.000	Yes	No	2.00
983	44.51	145.83	55.72	2.41	0.36	0.72	102.87	75.91	178.78	4.000	Yes	No	2.00
984	44.59	137.24	58.31	2.44	0.38	0.70	89.26	73.15	162.41	4.000	Yes	No	2.00
985	44.64	123.22	62.91	2.50	0.40	0.70	82.51	72.76	155.27	4.000	Yes	No	2.00
986	44.72	112.48	64.91	2.52	0.42	0.68	70.09	69.78	139.87	4.000	Yes	No	2.00
987	44.81	104.67	66.85	2.55	0.43	0.67	64.83	68.77	133.60	4.000	Yes	No	2.00
988	44.85	102.96	66.79	2.55	0.43	0.67	64.74	68.73	133.47	0.209	No	No	0.26
989	44.93	104.43	67.67	2.56	0.43	0.67	66.28	69.39	135.67	0.217	No	No	0.27
990	44.97	109.84	66.29	2.54	0.43	0.67	68.01	69.55	137.55	0.224	No	No	0.28
991	45.06	117.89	64.95	2.52	0.41	0.69	76.80	71.72	148.52	0.279	No	No	0.35
992	45.11	129.83	62.93	2.50	0.39	0.70	84.48	73.33	157.80	0.350	No	No	0.45
993	45.17	136.17	62.53	2.49	0.37	0.71	95.61	76.36	171.97	0.539	No	No	0.70
994	45.23	139.36	62.02	2.49	0.38	0.70	91.43	75.02	166.45	0.449	No	No	0.58
995	45.29	136.95	62.27	2.49	0.38	0.70	91.89	75.23	167.12	0.459	No	No	0.60
996	45.36	135.61	62.07	2.49	0.38	0.70	89.68	74.54	164.22	4.000	Yes	No	2.00
997	45.43	167.45	50.14	2.34	0.39	0.69	87.42	69.23	156.65	4.000	Yes	No	2.00
998	45.49	190.73	45.30	2.28	0.26	0.78	172.54	88.32	254.00	4.000	Yes	No	2.00
999	45.56	331.07	20.32	1.97	0.35	0.72	139.24	43.21	182.45	4.000	Yes	No	2.00
1000	45.62	444.95	11.69	1.86	0.26	0.78	409.45	26.93	254.00	4.000	Yes	No	2.00
1001	45.69	526.04	9.09	1.83	0.26	0.78	424.66	11.78	254.00	4.000	Yes	No	2.00
1002	45.76	450.40	21.26	1.98	0.26	0.78	331.01	73.75	254.00	4.000	Yes	No	2.00
1003	45.81	338.50	37.66	2.18	0.26	0.78	241.72	97.23	254.00	4.000	Yes	No	2.00
1004	45.88	256.80	51.66	2.36	0.26	0.78	176.68	93.85	254.00	4.000	Yes	No	2.00
1005	45.95	205.45	61.49	2.48	0.28	0.77	147.22	90.59	237.82	4.000	Yes	No	2.00
1006	46.02	180.36	65.53	2.53	0.32	0.74	120.98	84.55	205.53	4.000	Yes	No	2.00
1007	46.08	165.21	67.01	2.55	0.34	0.73	113.13	82.74	195.88	4.000	Yes	No	2.00
1008	46.15	158.27	66.12	2.54	0.35	0.72	107.73	80.92	188.65	4.000	Yes	No	2.00
1009	46.21	155.49	64.09	2.51	0.35	0.72	103.25	79.03	182.28	4.000	Yes	No	2.00
1010	46.28	164.32	58.80	2.45	0.35	0.72	105.56	77.87	183.43	4.000	Yes	No	2.00
1011	46.34	181.73	51.58	2.36	0.32	0.74	129.09	81.07	210.16	4.000	Yes	No	2.00
1012	46.41	199.65	45.63	2.28	0.29	0.76	146.50	81.92	228.42	4.000	Yes	No	2.00
1013	46.47	203.48	44.69	2.27	0.29	0.76	150.59	82.26	232.84	4.000	Yes	No	2.00
1014	46.54	195.56	48.54	2.32	0.30	0.75	138.69	81.85	220.55	4.000	No	No	2.00
1015	46.61	192.98	51.41	2.36	0.32	0.74	126.09	80.17	206.26	4.000	No	No	2.00
1016	46.69	200.56	50.56	2.34	0.29	0.76	144.24	84.54	228.78	4.000	No	No	2.00
1017	46.75	214.76	46.93	2.30	0.28	0.77	158.95	86.05	245.00	4.000	No	No	2.00
1018	46.80	221.70	45.13	2.28	0.27	0.77	163.38	85.85	249.23	4.000	No	No	2.00
1019	46.87	223.33	44.82	2.27	0.27	0.77	162.33	85.34	247.68	4.000	No	No	2.00
1020	46.93	222.83	45.36	2.28	0.27	0.77	163.13	85.97	249.10	4.000	Yes	No	2.00
1021	46.99	217.19	46.48	2.29	0.27	0.77	162.05	86.53	248.58	4.000	Yes	No	2.00
1022	47.06	204.58	49.73	2.33	0.29	0.76	147.40	84.88	232.28	4.000	Yes	No	2.00
1023	47.15	191.96	52.89	2.37	0.32	0.74	129.80	81.94	211.74	4.000	Yes	No	2.00
1024	47.20	186.16	54.61	2.40	0.32	0.74	128.80	82.51	211.31	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1025	47.27	188.92	53.20	2.38	0.31	0.74	132.12	82.72	214.84	4.000	No	No	2.00
1026	47.35	190.66	51.86	2.36	0.30	0.75	136.81	83.28	220.09	4.000	Yes	No	2.00
1027	47.40	184.19	52.53	2.37	0.31	0.74	133.02	82.62	215.65	4.000	Yes	No	2.00
1028	47.48	175.67	54.36	2.39	0.34	0.72	115.38	78.74	194.12	4.000	Yes	No	2.00
1029	47.53	166.94	56.67	2.42	0.34	0.72	115.02	79.65	194.67	4.000	Yes	No	2.00
1030	47.59	166.54	55.79	2.41	0.35	0.72	110.79	78.11	188.90	4.000	No	No	2.00
1031	47.66	165.47	55.12	2.40	0.34	0.72	114.31	78.79	193.10	4.000	No	No	2.00
1032	47.73	165.30	54.34	2.39	0.34	0.72	112.01	77.81	189.82	4.000	No	No	2.00
1033	47.80	166.88	53.72	2.38	0.35	0.72	110.08	77.00	187.08	4.000	No	No	2.00
1034	47.85	178.49	50.38	2.34	0.34	0.72	117.75	77.40	195.14	4.000	No	No	2.00
1035	47.93	196.14	45.48	2.28	0.30	0.75	140.94	80.39	221.33	4.000	No	No	2.00
1036	47.98	216.37	40.34	2.22	0.29	0.76	154.31	79.48	233.79	4.000	No	No	2.00
1037	48.06	223.51	38.26	2.19	0.27	0.77	169.79	81.06	250.85	4.000	No	No	2.00
1038	48.12	218.67	39.15	2.20	0.28	0.76	159.01	79.45	238.46	4.000	No	No	2.00
1039	48.18	200.32	43.87	2.26	0.30	0.75	141.75	79.40	221.15	4.000	No	No	2.00
1040	48.26	183.11	48.72	2.32	0.33	0.73	122.09	77.61	199.70	4.000	No	No	2.00
1041	48.32	171.38	51.58	2.36	0.34	0.72	115.27	77.37	192.64	4.000	No	No	2.00
1042	48.37	166.64	52.29	2.37	0.35	0.72	112.27	76.92	189.19	4.000	No	No	2.00
1043	48.46	165.27	51.50	2.36	0.35	0.71	110.30	76.00	186.30	4.000	No	No	2.00
1044	48.52	168.05	50.32	2.34	0.35	0.71	111.58	75.73	187.31	4.000	No	No	2.00
1045	48.59	179.77	47.92	2.31	0.34	0.72	118.70	76.25	194.96	4.000	No	No	2.00
1046	48.66	195.63	45.30	2.28	0.31	0.74	139.58	79.92	219.50	4.000	No	No	2.00
1047	48.70	209.72	44.11	2.26	0.29	0.76	152.11	82.20	234.32	4.000	No	No	2.00
1048	48.79	215.32	44.19	2.26	0.28	0.76	155.28	83.06	238.35	4.000	No	No	2.00
1049	48.83	219.42	44.46	2.27	0.28	0.76	154.47	83.06	237.53	4.000	No	No	2.00
1050	48.91	218.81	45.34	2.28	0.27	0.77	163.50	86.05	249.54	4.000	No	No	2.00
1051	48.98	214.15	47.27	2.30	0.28	0.76	153.99	85.01	238.99	4.000	No	No	2.00
1052	49.04	211.10	48.43	2.32	0.30	0.75	142.27	82.72	224.99	4.000	No	No	2.00
1053	49.10	209.86	48.24	2.32	0.28	0.76	155.34	86.02	241.36	4.000	No	No	2.00
1054	49.17	215.16	45.64	2.28	0.29	0.75	150.19	82.87	233.07	4.000	No	No	2.00
1055	49.24	209.86	45.71	2.28	0.28	0.76	156.13	84.44	240.57	4.000	Yes	No	2.00
1056	49.29	196.34	48.14	2.31	0.30	0.74	140.79	82.15	222.94	4.000	Yes	No	2.00
1057	49.38	177.12	53.10	2.38	0.34	0.72	115.50	78.18	193.68	4.000	Yes	No	2.00
1058	49.44	163.73	57.27	2.43	0.35	0.71	107.01	77.68	184.69	4.000	Yes	No	2.00
1059	49.51	161.15	58.56	2.44	0.35	0.71	107.23	78.25	185.47	4.000	Yes	No	2.00
1060	49.57	161.32	58.33	2.44	0.35	0.71	109.34	78.74	188.08	4.000	Yes	No	2.00
1061	49.64	160.37	56.82	2.42	0.35	0.71	107.27	77.57	184.85	4.000	Yes	No	2.00
1062	49.70	170.47	54.44	2.39	0.36	0.70	104.49	75.81	180.30	4.000	Yes	No	2.00
1063	49.77	206.44	47.92	2.31	0.31	0.73	134.02	80.25	214.27	4.000	Yes	No	2.00
1064	49.84	257.98	41.07	2.23	0.26	0.77	195.34	90.19	254.00	4.000	Yes	No	2.00
1065	49.88	312.06	33.92	2.14	0.26	0.77	227.02	88.34	254.00	4.000	Yes	No	2.00
1066	49.97	317.82	34.46	2.14	0.26	0.77	258.51	96.21	254.00	4.000	Yes	No	2.00
1067	50.06	291.88	39.75	2.21	0.26	0.77	207.78	91.78	254.00	4.000	Yes	No	2.00
1068	50.11	240.28	50.09	2.34	0.26	0.77	170.28	91.16	254.00	4.000	Yes	No	2.00
1069	50.16	204.32	57.79	2.43	0.29	0.75	141.46	87.44	228.90	4.000	Yes	No	2.00
1070	50.21	185.21	61.32	2.48	0.32	0.72	121.78	83.35	205.13	4.000	Yes	No	2.00
1071	50.28	173.11	61.83	2.49	0.33	0.72	120.91	83.29	204.20	4.000	Yes	No	2.00
1072	50.35	172.81	57.66	2.43	0.35	0.71	109.98	78.66	188.64	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1073	50.41	169.63	55.07	2.40	0.33	0.72	120.38	80.42	200.80	4.000	Yes	No	2.00
1074	50.47	173.89	52.49	2.37	0.35	0.71	111.98	76.94	188.92	4.000	Yes	No	2.00
1075	50.56	181.64	50.45	2.34	0.33	0.72	119.91	78.01	197.92	4.000	Yes	No	2.00
1076	50.62	199.29	45.61	2.28	0.31	0.74	139.31	80.07	219.37	4.000	Yes	No	2.00
1077	50.68	211.30	42.33	2.24	0.28	0.75	156.74	81.88	238.63	4.000	Yes	No	2.00
1078	50.74	207.11	43.47	2.26	0.29	0.75	150.40	81.26	231.66	4.000	No	No	2.00
1079	50.81	193.98	47.38	2.30	0.32	0.72	128.43	78.45	206.88	4.000	No	No	2.00
1080	50.87	184.49	50.76	2.35	0.33	0.72	123.00	79.00	202.00	4.000	No	No	2.00
1081	50.94	179.19	52.82	2.37	0.32	0.72	126.38	80.98	207.35	4.000	No	No	2.00
1082	51.02	173.52	53.40	2.38	0.34	0.71	115.42	78.30	193.72	4.000	No	No	2.00
1083	51.10	166.14	54.00	2.39	0.35	0.70	108.89	76.81	185.70	4.000	No	No	2.00
1084	51.15	163.83	52.17	2.36	0.35	0.70	107.55	75.59	183.14	4.000	No	No	2.00
1085	51.23	162.89	51.37	2.35	0.35	0.70	109.33	75.67	185.00	4.000	No	No	2.00
1086	51.26	170.38	47.58	2.31	0.36	0.70	105.87	72.71	178.58	4.000	No	No	2.00
1087	51.33	176.12	45.23	2.28	0.33	0.72	125.45	76.26	201.71	4.000	No	No	2.00
1088	51.40	177.46	44.49	2.27	0.33	0.71	122.81	75.07	197.88	4.000	No	No	2.00
1089	51.46	167.33	47.63	2.31	0.35	0.70	109.05	73.56	182.61	4.000	No	No	2.00
1090	51.53	157.36	50.84	2.35	0.37	0.69	100.75	73.11	173.86	4.000	No	No	2.00
1091	51.60	154.95	51.43	2.36	0.37	0.69	98.84	72.89	171.73	4.000	No	No	2.00
1092	51.66	160.29	49.02	2.33	0.36	0.69	103.19	72.81	176.00	4.000	No	No	2.00
1093	51.74	168.85	45.76	2.28	0.35	0.70	113.14	73.47	186.61	4.000	No	No	2.00
1094	51.80	174.82	43.49	2.26	0.34	0.71	118.84	73.36	192.20	4.000	No	No	2.00
1095	51.85	172.70	44.41	2.27	0.34	0.71	117.25	73.61	190.86	4.000	No	No	2.00
1096	51.92	162.57	48.10	2.31	0.36	0.70	108.10	73.59	181.69	4.000	No	No	2.00
1097	52.01	151.80	51.78	2.36	0.38	0.68	94.89	72.00	166.89	4.000	No	No	2.00
1098	52.07	145.10	53.32	2.38	0.38	0.68	91.89	71.89	163.78	4.000	No	No	2.00
1099	52.13	142.88	52.82	2.37	0.38	0.68	92.30	71.79	164.09	4.000	No	No	2.00
1100	52.19	140.90	52.72	2.37	0.39	0.67	89.67	71.03	160.70	4.000	No	No	2.00
1101	52.26	141.64	52.22	2.37	0.39	0.67	87.10	70.11	157.21	4.000	No	No	2.00
1102	52.34	145.73	50.84	2.35	0.38	0.68	93.76	71.26	165.02	4.000	No	No	2.00
1103	52.38	153.59	48.50	2.32	0.37	0.68	98.86	71.39	170.25	4.000	No	No	2.00
1104	52.47	158.18	47.81	2.31	0.36	0.69	105.22	72.67	177.89	4.000	No	No	2.00
1105	52.51	159.39	52.73	2.37	0.36	0.69	104.86	75.13	179.99	4.000	No	No	2.00
1106	52.60	163.99	56.82	2.42	0.36	0.69	102.37	76.22	178.59	4.000	No	No	2.00
1107	52.64	180.70	56.90	2.42	0.33	0.71	117.39	80.40	197.79	4.000	No	No	2.00
1108	52.73	204.41	52.02	2.36	0.29	0.74	147.71	86.30	234.01	4.000	No	No	2.00
1109	52.77	211.46	50.88	2.35	0.27	0.76	163.76	89.93	253.69	4.000	No	No	2.00
1110	52.86	196.40	55.08	2.40	0.31	0.73	135.30	84.51	219.80	4.000	No	No	2.00
1111	52.90	184.15	58.54	2.44	0.35	0.70	109.14	78.77	187.91	4.000	No	No	2.00
1112	52.97	181.47	58.19	2.44	0.31	0.73	131.20	84.77	215.97	4.000	Yes	No	2.00
1113	53.04	183.48	55.14	2.40	0.32	0.72	128.15	82.58	210.74	4.000	Yes	No	2.00
1114	53.10	182.36	52.56	2.37	0.34	0.70	113.51	77.38	190.89	4.000	Yes	No	2.00
1115	53.17	180.02	51.29	2.35	0.32	0.72	127.44	80.47	207.90	4.000	Yes	No	2.00
1116	53.24	185.49	48.42	2.32	0.33	0.71	121.24	77.21	198.46	4.000	Yes	No	2.00
1117	53.31	182.25	48.66	2.32	0.32	0.72	126.82	78.81	205.63	4.000	No	No	2.00
1118	53.36	174.87	50.61	2.35	0.33	0.71	118.96	77.84	196.80	4.000	No	No	2.00
1119	53.43	164.50	53.84	2.39	0.36	0.69	103.36	75.24	178.60	4.000	No	No	2.00
1120	53.50	158.84	55.42	2.41	0.36	0.69	101.51	75.41	176.92	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1121	53.56	160.22	53.72	2.38	0.36	0.69	105.08	75.65	180.73	4.000	No	No	2.00
1122	53.63	161.42	51.62	2.36	0.36	0.69	106.40	75.01	181.41	4.000	No	No	2.00
1123	53.71	160.25	50.19	2.34	0.36	0.69	103.85	73.61	177.46	4.000	No	No	2.00
1124	53.77	157.53	50.22	2.34	0.37	0.68	101.79	73.08	174.87	4.000	No	No	2.00
1125	53.84	156.86	50.41	2.34	0.37	0.68	99.61	72.60	172.20	4.000	Yes	No	2.00
1126	53.91	156.16	51.14	2.35	0.36	0.68	102.21	73.66	175.87	4.000	Yes	No	2.00
1127	53.99	156.56	52.07	2.36	0.37	0.68	100.16	73.55	173.71	4.000	Yes	No	2.00
1128	54.03	159.32	55.08	2.40	0.36	0.68	100.87	75.09	175.96	4.000	Yes	No	2.00
1129	54.12	165.59	56.54	2.42	0.35	0.70	109.28	78.01	187.29	4.000	Yes	No	2.00
1130	54.16	175.66	57.01	2.43	0.34	0.70	115.90	80.03	195.93	4.000	Yes	No	2.00
1131	54.25	183.14	56.87	2.42	0.32	0.72	126.00	82.77	208.77	4.000	Yes	No	2.00
1132	54.29	197.36	56.00	2.41	0.32	0.72	128.06	82.95	211.01	4.000	Yes	No	2.00
1133	54.38	218.73	52.47	2.37	0.28	0.75	152.69	87.89	240.57	4.000	Yes	No	2.00
1134	54.41	242.38	47.56	2.31	0.26	0.76	179.41	91.82	254.00	4.000	Yes	No	2.00
1135	54.49	245.23	45.76	2.28	0.26	0.76	186.07	92.15	254.00	4.000	Yes	No	2.00
1136	54.56	223.85	48.88	2.32	0.27	0.75	159.92	87.64	247.56	4.000	Yes	No	2.00
1137	54.63	191.38	55.50	2.41	0.32	0.71	125.63	82.06	207.68	4.000	Yes	No	2.00
1138	54.70	168.81	60.07	2.46	0.35	0.69	105.91	78.43	184.34	4.000	Yes	No	2.00
1139	54.76	159.56	60.17	2.46	0.36	0.69	102.21	77.43	179.64	4.000	Yes	No	2.00
1140	54.82	158.29	57.22	2.43	0.36	0.69	102.54	76.42	178.96	4.000	Yes	No	2.00
1141	54.89	158.53	54.16	2.39	0.36	0.68	102.25	75.07	177.33	4.000	Yes	No	2.00
1142	54.97	158.53	52.68	2.37	0.36	0.68	102.08	74.36	176.44	4.000	Yes	No	2.00
1143	55.01	158.90	53.00	2.37	0.36	0.68	102.09	74.51	176.59	4.000	No	No	2.00
1144	55.10	160.11	53.90	2.39	0.36	0.68	103.01	75.17	178.18	4.000	No	No	2.00
1145	55.14	170.62	51.49	2.36	0.36	0.68	104.79	74.52	179.31	4.000	No	No	2.00
1146	55.20	180.73	49.10	2.33	0.32	0.71	127.75	79.32	207.07	4.000	No	No	2.00
1147	55.27	186.98	48.03	2.31	0.32	0.71	127.47	78.61	206.08	4.000	No	No	2.00
1148	55.34	183.96	49.51	2.33	0.33	0.70	119.91	77.49	197.41	4.000	No	No	2.00
1149	55.41	181.01	50.28	2.34	0.33	0.70	120.05	77.95	198.00	4.000	No	No	2.00
1150	55.48	177.59	50.75	2.35	0.33	0.70	120.15	78.24	198.38	4.000	No	No	2.00
1151	55.54	170.21	52.63	2.37	0.35	0.69	111.59	76.90	188.49	4.000	No	No	2.00
1152	55.61	160.68	55.42	2.41	0.36	0.68	102.21	75.60	177.81	4.000	No	No	2.00
1153	55.67	156.42	56.24	2.42	0.37	0.68	97.18	74.56	171.74	4.000	No	No	2.00
1154	55.74	155.75	57.31	2.43	0.36	0.68	101.48	76.17	177.64	4.000	No	No	2.00
1155	55.82	163.26	56.95	2.42	0.36	0.68	100.61	75.79	176.39	4.000	No	No	2.00
1156	55.86	187.16	55.20	2.40	0.34	0.70	115.32	79.10	194.41	4.000	No	No	2.00
1157	55.94	234.60	48.50	2.32	0.27	0.75	162.98	88.19	251.17	4.000	No	No	2.00
1158	56.01	290.49	41.38	2.23	0.26	0.75	213.26	94.90	254.00	4.000	No	No	2.00
1159	56.08	323.56	37.31	2.18	0.26	0.75	244.29	97.34	254.00	4.000	Yes	No	2.00
1160	56.12	312.94	39.19	2.20	0.26	0.75	234.28	97.47	254.00	4.000	Yes	No	2.00
1161	56.19	271.83	46.06	2.29	0.26	0.75	190.46	93.51	254.00	4.000	Yes	No	2.00
1162	56.25	220.40	55.72	2.41	0.28	0.74	154.05	89.95	244.00	4.000	Yes	No	2.00
1163	56.32	186.93	61.94	2.49	0.34	0.70	115.09	81.68	196.77	4.000	Yes	No	2.00
1164	56.38	167.94	63.81	2.51	0.34	0.69	108.92	80.55	189.47	4.000	Yes	No	2.00
1165	56.45	162.39	61.19	2.48	0.35	0.69	105.09	78.60	183.69	4.000	No	No	2.00
1166	56.52	158.20	59.25	2.45	0.36	0.68	101.11	76.79	177.90	4.000	No	No	2.00
1167	56.59	154.78	58.90	2.45	0.37	0.68	98.32	75.89	174.21	4.000	Yes	No	2.00
1168	56.66	163.28	56.29	2.42	0.37	0.67	96.42	74.37	170.79	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1169	56.73	180.63	51.37	2.35	0.33	0.70	121.24	78.85	200.10	4.000	Yes	No	2.00
1170	56.79	200.12	46.49	2.29	0.30	0.72	140.56	81.00	221.56	4.000	Yes	No	2.00
1171	56.84	200.93	47.14	2.30	0.30	0.73	144.49	82.46	226.95	4.000	No	No	2.00
1172	56.92	187.01	52.08	2.36	0.33	0.70	123.25	79.76	203.01	4.000	No	No	2.00
1173	56.99	178.26	55.57	2.41	0.35	0.68	106.08	76.73	182.81	4.000	No	No	2.00
1174	57.04	175.78	56.26	2.42	0.33	0.70	122.59	81.56	204.15	4.000	No	No	2.00
1175	57.11	182.00	52.90	2.37	0.34	0.70	116.95	78.48	195.42	4.000	No	No	2.00
1176	57.17	180.63	51.32	2.35	0.33	0.70	120.97	78.76	199.72	4.000	No	No	2.00
1177	57.24	177.71	50.43	2.34	0.34	0.70	118.37	77.59	195.96	4.000	No	No	2.00
1178	57.30	169.25	51.98	2.36	0.35	0.68	109.51	76.02	185.53	4.000	No	No	2.00
1179	57.38	159.62	54.47	2.39	0.37	0.67	100.36	74.69	175.05	4.000	No	No	2.00
1180	57.44	152.98	55.90	2.41	0.37	0.67	95.35	73.92	169.27	4.000	No	No	2.00
1181	57.51	150.60	55.83	2.41	0.38	0.67	93.82	73.47	167.29	4.000	No	No	2.00
1182	57.56	153.32	54.02	2.39	0.38	0.67	94.59	72.93	167.52	4.000	No	No	2.00
1183	57.64	157.82	51.92	2.36	0.37	0.67	101.35	73.80	175.15	4.000	No	No	2.00
1184	57.70	160.77	50.22	2.34	0.36	0.68	103.89	73.63	177.52	4.000	No	No	2.00
1185	57.77	159.90	49.94	2.34	0.37	0.67	101.09	72.75	173.83	4.000	No	No	2.00
1186	57.83	160.74	52.12	2.36	0.37	0.67	99.20	73.32	172.52	4.000	No	No	2.00
1187	57.90	176.42	52.77	2.37	0.36	0.68	106.07	75.48	181.54	4.000	No	No	2.00
1188	57.97	212.25	47.71	2.31	0.30	0.72	140.18	81.71	221.89	4.000	No	No	2.00
1189	58.06	248.35	41.51	2.23	0.26	0.75	187.30	88.66	254.00	4.000	No	No	2.00
1190	58.10	267.86	37.00	2.17	0.26	0.75	193.91	85.22	254.00	4.000	Yes	No	2.00
1191	58.16	254.84	38.87	2.20	0.26	0.75	187.81	86.01	254.00	4.000	Yes	No	2.00
1192	58.23	223.78	45.45	2.28	0.28	0.74	156.59	84.37	240.95	4.000	Yes	No	2.00
1193	58.28	188.99	54.23	2.39	0.33	0.69	118.51	79.53	198.04	4.000	Yes	No	2.00
1194	58.36	165.61	60.34	2.47	0.36	0.68	102.63	77.61	180.24	4.000	Yes	No	2.00
1195	58.42	156.04	60.99	2.47	0.37	0.67	98.23	76.60	174.82	4.000	Yes	No	2.00
1196	58.49	154.94	58.02	2.44	0.37	0.67	95.37	74.74	170.12	4.000	Yes	No	2.00
1197	58.56	164.00	52.50	2.37	0.37	0.67	99.24	73.51	172.75	4.000	Yes	No	2.00
1198	58.63	176.99	47.68	2.31	0.34	0.69	118.96	76.17	195.14	4.000	Yes	No	2.00
1199	58.68	186.12	45.42	2.28	0.33	0.70	125.74	76.46	202.20	4.000	Yes	No	2.00
1200	58.76	181.08	47.26	2.30	0.33	0.69	120.86	76.41	197.27	4.000	Yes	No	2.00
1201	58.81	165.24	52.63	2.37	0.35	0.68	107.01	75.66	182.67	4.000	Yes	No	2.00
1202	58.90	151.42	57.52	2.43	0.39	0.65	88.51	72.66	161.17	4.000	Yes	No	2.00
1203	58.96	143.44	60.00	2.46	0.38	0.66	88.65	73.57	162.21	4.000	Yes	No	2.00
1204	59.02	144.08	58.72	2.45	0.39	0.65	88.53	73.10	161.63	4.000	Yes	No	2.00
1205	59.07	145.50	56.65	2.42	0.38	0.66	89.83	72.69	162.53	4.000	Yes	No	2.00
1206	59.15	148.95	53.71	2.38	0.38	0.66	91.35	71.92	163.27	4.000	Yes	No	2.00
1207	59.21	151.44	51.32	2.35	0.38	0.66	95.87	72.05	167.92	4.000	Yes	No	2.00
1208	59.29	153.44	49.98	2.34	0.38	0.66	94.91	71.13	166.05	4.000	Yes	No	2.00
1209	59.34	153.35	49.98	2.34	0.38	0.66	95.56	71.31	166.87	4.000	No	No	2.00
1210	59.41	152.38	50.42	2.34	0.38	0.66	95.46	71.50	166.96	4.000	No	No	2.00
1211	59.48	150.09	51.15	2.35	0.38	0.66	92.68	71.12	163.79	4.000	No	No	2.00
1212	59.54	146.57	51.74	2.36	0.39	0.65	90.30	70.75	161.06	4.000	No	No	2.00
1213	59.60	144.09	51.75	2.36	0.39	0.65	87.36	69.97	157.33	4.000	No	No	2.00
1214	59.69	143.69	52.05	2.36	0.39	0.65	86.96	70.00	156.96	4.000	No	No	2.00
1215	59.73	148.18	55.01	2.40	0.39	0.65	89.56	71.97	161.53	4.000	No	No	2.00
1216	59.81	162.34	56.09	2.41	0.37	0.66	98.05	74.74	172.79	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1217	59.89	178.92	55.44	2.41	0.33	0.69	121.20	80.82	202.01	4.000	No	No	2.00
1218	59.93	191.80	53.23	2.38	0.32	0.70	129.78	82.10	211.88	4.000	No	No	2.00
1219	60.02	191.49	53.39	2.38	0.32	0.70	129.57	82.13	211.69	4.000	Yes	No	2.00
1220	60.06	180.92	56.42	2.42	0.33	0.69	120.43	81.04	201.46	4.000	Yes	No	2.00
1221	60.12	168.15	60.08	2.46	0.36	0.67	103.88	77.87	181.75	4.000	Yes	No	2.00
1222	60.19	157.29	62.64	2.50	0.36	0.67	98.57	77.23	175.81	4.000	Yes	No	2.00
1223	60.26	153.79	61.57	2.48	0.37	0.66	94.27	75.67	169.95	4.000	Yes	No	2.00
1224	60.32	152.25	59.73	2.46	0.37	0.66	95.38	75.36	170.74	4.000	Yes	No	2.00
1225	60.39	152.49	58.25	2.44	0.37	0.66	94.53	74.60	169.13	4.000	Yes	No	2.00
1226	60.46	155.18	56.82	2.42	0.38	0.66	94.40	74.02	168.42	4.000	Yes	No	2.00
1227	60.53	163.60	54.11	2.39	0.36	0.67	101.17	74.76	175.92	4.000	Yes	No	2.00
1228	60.58	180.15	48.80	2.32	0.35	0.68	113.75	75.47	189.23	4.000	Yes	No	2.00
1229	60.66	193.27	46.00	2.29	0.31	0.70	133.89	78.95	212.84	4.000	Yes	No	2.00
1230	60.72	195.61	46.92	2.30	0.32	0.70	132.87	79.30	212.18	4.000	Yes	No	2.00
1231	60.78	181.08	52.83	2.37	0.33	0.69	119.98	79.25	199.23	4.000	Yes	No	2.00
1232	60.87	164.61	58.83	2.45	0.37	0.66	99.08	76.08	175.16	4.000	Yes	No	2.00
1233	60.93	153.52	61.69	2.48	0.37	0.66	93.64	75.53	169.17	4.000	Yes	No	2.00
1234	61.01	151.37	61.14	2.48	0.37	0.66	93.65	75.36	169.00	4.000	Yes	No	2.00
1235	61.04	157.22	58.20	2.44	0.38	0.66	93.89	74.40	168.29	4.000	Yes	No	2.00
1236	61.11	168.23	54.93	2.40	0.35	0.67	106.91	76.68	183.59	4.000	Yes	No	2.00
1237	61.18	181.49	51.37	2.35	0.33	0.69	119.33	78.34	197.67	4.000	Yes	No	2.00
1238	61.24	186.62	50.30	2.34	0.32	0.69	125.36	79.37	204.73	4.000	Yes	No	2.00
1239	61.31	182.48	51.79	2.36	0.33	0.69	119.13	78.51	197.64	4.000	Yes	No	2.00
1240	61.37	167.78	57.26	2.43	0.35	0.68	109.59	78.39	187.99	4.000	Yes	No	2.00
1241	61.45	155.84	62.49	2.49	0.38	0.65	90.65	74.94	165.59	4.000	Yes	No	2.00
1242	61.50	151.45	65.00	2.52	0.38	0.65	91.30	75.88	167.19	4.000	Yes	No	2.00
1243	61.56	156.06	63.10	2.50	0.36	0.66	99.34	77.60	176.95	4.000	No	No	2.00
1244	61.64	158.95	61.29	2.48	0.36	0.67	101.25	77.55	178.80	4.000	No	No	2.00
1245	61.69	157.71	61.15	2.48	0.37	0.66	97.72	76.50	174.22	4.000	No	No	2.00
1246	61.77	158.59	61.73	2.48	0.37	0.66	96.21	76.27	172.49	4.000	Yes	No	2.00
1247	61.83	175.37	57.04	2.43	0.36	0.67	102.92	76.46	179.38	4.000	Yes	No	2.00
1248	61.91	198.46	51.07	2.35	0.30	0.71	138.57	83.32	221.89	4.000	Yes	No	2.00
1249	61.97	217.95	46.45	2.29	0.28	0.73	153.47	84.30	237.77	4.000	Yes	No	2.00
1250	62.02	208.47	49.93	2.34	0.28	0.72	151.95	86.20	238.16	4.000	Yes	No	2.00
1251	62.12	186.91	56.92	2.42	0.34	0.68	114.86	79.71	194.57	4.000	Yes	No	2.00
1252	62.18	165.51	63.93	2.51	0.36	0.66	99.79	77.99	177.78	4.000	Yes	No	2.00
1253	62.22	157.48	65.91	2.54	0.36	0.66	98.78	78.29	177.07	4.000	Yes	No	2.00
1254	62.28	159.12	63.21	2.50	0.37	0.66	95.82	76.63	172.45	4.000	Yes	No	2.00
1255	62.36	160.24	60.58	2.47	0.36	0.67	103.32	77.89	181.20	4.000	Yes	No	2.00
1256	62.42	163.62	58.03	2.44	0.36	0.66	100.77	76.25	177.02	4.000	Yes	No	2.00
1257	62.49	163.86	57.38	2.43	0.36	0.67	103.24	76.68	179.93	4.000	No	No	2.00
1258	62.55	166.45	57.10	2.43	0.36	0.67	103.51	76.64	180.15	4.000	No	No	2.00
1259	62.62	173.63	55.26	2.40	0.35	0.67	106.62	76.74	183.36	4.000	No	No	2.00
1260	62.69	184.87	51.42	2.36	0.33	0.68	120.15	78.59	198.74	4.000	No	No	2.00
1261	62.75	187.95	48.69	2.32	0.32	0.70	130.43	79.78	210.21	4.000	Yes	No	2.00
1262	62.83	179.49	49.68	2.33	0.35	0.67	113.43	75.88	189.31	4.000	Yes	No	2.00
1263	62.88	160.53	55.84	2.41	0.37	0.66	99.88	75.14	175.01	4.000	Yes	No	2.00
1264	62.96	148.43	60.45	2.47	0.39	0.64	85.60	72.86	158.47	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1265	63.01	144.23	61.18	2.48	0.39	0.64	85.78	73.15	158.92	4.000	Yes	No	2.00
1266	63.07	143.91	59.77	2.46	0.38	0.65	90.32	73.96	164.27	4.000	No	No	2.00
1267	63.14	146.84	58.38	2.44	0.39	0.64	84.63	71.89	156.52	4.000	No	No	2.00
1268	63.20	153.57	59.35	2.45	0.38	0.65	92.24	74.35	166.59	4.000	Yes	No	2.00
1269	63.27	175.79	56.74	2.42	0.35	0.67	105.77	77.13	182.90	4.000	Yes	No	2.00
1270	63.34	203.44	52.12	2.36	0.30	0.71	138.19	83.80	221.99	4.000	Yes	No	2.00
1271	63.40	222.15	47.14	2.30	0.27	0.73	161.66	86.90	248.56	4.000	Yes	No	2.00
1272	63.47	220.10	44.87	2.27	0.29	0.72	152.55	82.90	235.44	4.000	Yes	No	2.00
1273	63.53	197.23	48.60	2.32	0.32	0.70	132.20	80.19	212.39	4.000	No	No	2.00
1274	63.61	177.89	53.45	2.38	0.36	0.66	102.79	74.90	177.70	4.000	No	No	2.00
1275	63.67	169.81	56.53	2.42	0.36	0.66	104.01	76.56	180.57	4.000	No	No	2.00
1276	63.74	172.90	55.18	2.40	0.34	0.67	112.48	78.31	190.80	4.000	Yes	No	2.00
1277	63.80	168.05	56.51	2.42	0.35	0.67	110.35	78.29	188.65	4.000	Yes	No	2.00
1278	63.86	159.11	59.58	2.46	0.38	0.65	92.79	74.58	167.38	4.000	Yes	No	2.00
1279	63.93	150.16	62.95	2.50	0.38	0.65	91.74	75.40	167.14	4.000	Yes	No	2.00
1280	64.00	149.42	63.04	2.50	0.38	0.64	89.64	74.82	164.46	4.000	No	No	2.00
1281	64.05	147.86	62.78	2.50	0.38	0.65	91.21	75.19	166.40	4.000	Yes	No	2.00
1282	64.13	148.39	61.25	2.48	0.39	0.64	87.93	73.78	161.71	4.000	Yes	No	2.00
1283	64.19	148.38	59.48	2.46	0.38	0.64	90.47	73.90	164.37	4.000	Yes	No	2.00
1284	64.25	151.52	56.27	2.42	0.38	0.64	90.59	72.76	163.34	4.000	Yes	No	2.00
1285	64.33	155.16	51.17	2.35	0.38	0.64	94.18	71.53	165.71	4.000	Yes	No	2.00
1286	64.39	158.35	44.24	2.27	0.38	0.64	97.21	68.43	165.64	4.000	Yes	No	2.00
1287	64.46	158.66	40.00	2.21	0.39	0.64	95.89	65.07	160.96	4.000	Yes	No	2.00
1288	64.51	156.38	38.80	2.20	0.39	0.63	93.12	63.42	156.55	4.000	Yes	No	2.00
1289	64.58	155.16	39.73	2.21	0.40	0.63	91.20	63.72	154.91	4.000	No	No	2.00
1290	64.65	154.94	40.91	2.22	0.39	0.64	93.15	65.10	158.25	4.000	No	No	2.00
1291	64.72	150.63	47.88	2.31	0.38	0.64	93.81	69.74	163.55	4.000	No	No	2.00
1292	64.79	152.72	54.11	2.39	0.40	0.63	83.08	69.84	152.92	4.000	No	No	2.00
1293	64.85	162.01	57.51	2.43	0.36	0.65	99.77	75.77	175.54	4.000	No	No	2.00
1294	64.91	186.58	55.45	2.41	0.34	0.68	116.70	79.59	196.29	4.000	No	No	2.00
1295	64.98	207.32	53.05	2.38	0.30	0.71	142.97	85.58	228.55	4.000	No	No	2.00
1296	65.05	219.26	50.89	2.35	0.28	0.72	152.25	86.86	239.11	4.000	No	No	2.00
1297	65.11	213.16	50.68	2.35	0.29	0.71	147.23	85.41	232.64	4.000	Yes	No	2.00
1298	65.18	198.75	51.38	2.35	0.32	0.69	126.91	80.38	207.29	4.000	Yes	No	2.00
1299	65.24	179.70	54.81	2.40	0.34	0.67	114.87	78.80	193.67	4.000	Yes	No	2.00
1300	65.31	167.52	57.84	2.44	0.36	0.65	99.65	75.86	175.51	4.000	Yes	No	2.00
1301	65.37	164.14	60.65	2.47	0.37	0.65	97.70	76.33	174.04	4.000	Yes	No	2.00
1302	65.44	173.86	58.62	2.45	0.35	0.66	106.60	78.09	184.70	4.000	Yes	No	2.00
1303	65.51	185.88	55.61	2.41	0.33	0.68	122.87	81.35	204.22	4.000	Yes	No	2.00
1304	65.57	191.37	54.15	2.39	0.32	0.69	126.34	81.62	207.97	4.000	Yes	No	2.00
1305	65.63	183.96	56.60	2.42	0.33	0.68	119.95	80.98	200.93	4.000	Yes	No	2.00
1306	65.70	169.75	61.46	2.48	0.35	0.66	105.16	78.71	183.88	4.000	Yes	No	2.00
1307	65.77	161.63	64.44	2.52	0.37	0.64	92.61	76.09	168.71	4.000	Yes	No	2.00
1308	65.84	164.33	62.73	2.50	0.36	0.65	100.38	77.78	178.16	4.000	Yes	No	2.00
1309	65.89	172.40	56.75	2.42	0.35	0.67	111.01	78.58	189.58	4.000	Yes	No	2.00
1310	65.96	168.75	54.80	2.40	0.35	0.67	110.78	77.68	188.46	4.000	Yes	No	2.00
1311	66.04	161.08	55.29	2.40	0.38	0.64	91.29	72.56	163.85	4.000	No	No	2.00
1312	66.09	152.62	59.92	2.46	0.38	0.64	93.02	74.77	167.79	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	FC (%)	Ic	m	C_N	q_{c1N}	Δq_{c1N}	$q_{c1N,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1313	66.16	157.14	59.74	2.46	0.38	0.64	91.05	74.15	165.20	4.000	No	No	2.00
1314	66.23	161.83	59.34	2.45	0.36	0.65	101.77	77.01	178.79	4.000	No	No	2.00
1315	66.29	172.68	56.02	2.41	0.36	0.65	103.29	76.15	179.44	4.000	No	No	2.00
1316	66.36	176.34	54.80	2.40	0.34	0.67	116.18	79.16	195.34	4.000	No	No	2.00
1317	66.43	175.22	54.58	2.39	0.35	0.66	110.19	77.42	187.61	4.000	No	No	2.00
1318	66.48	168.11	55.25	2.40	0.36	0.65	100.50	75.07	175.57	4.000	No	No	2.00
1319	66.55	161.05	55.82	2.41	0.37	0.65	99.18	74.94	174.12	4.000	No	No	2.00
1320	66.62	156.83	55.49	2.41	0.38	0.64	93.27	73.18	166.45	4.000	No	No	2.00
1321	66.68	153.74	55.75	2.41	0.38	0.64	90.66	72.57	163.23	4.000	No	No	2.00
1322	66.75	152.85	55.24	2.40	0.38	0.64	91.73	72.66	164.39	4.000	No	No	2.00
1323	66.82	153.92	54.29	2.39	0.38	0.64	91.01	72.07	163.08	4.000	No	No	2.00
1324	66.88	155.45	53.46	2.38	0.38	0.64	92.67	72.17	164.83	4.000	No	No	2.00
1325	66.95	157.96	52.81	2.37	0.38	0.64	94.81	72.46	167.27	4.000	No	No	2.00
1326	67.01	160.99	52.60	2.37	0.37	0.64	96.39	72.79	169.18	4.000	No	No	2.00
1327	67.08	164.39	51.64	2.36	0.37	0.65	99.31	73.12	172.43	4.000	No	No	2.00
1328	67.14	166.37	49.31	2.33	0.37	0.65	102.17	72.70	174.87	4.000	No	No	2.00
1329	67.21	166.85	47.67	2.31	0.37	0.64	100.27	71.30	171.58	4.000	No	No	2.00
1330	67.28	166.10	47.83	2.31	0.37	0.64	99.87	71.29	171.16	4.000	No	No	2.00
1331	67.35	166.08	48.95	2.32	0.37	0.64	100.33	72.02	172.35	4.000	No	No	2.00
1332	67.40	168.70	47.22	2.30	0.37	0.64	100.05	70.99	171.03	4.000	No	No	2.00
1333	67.47	168.80	45.66	2.28	0.36	0.65	105.57	71.47	177.04	4.000	No	No	2.00
1334	67.53	172.32	44.12	2.26	0.38	0.64	99.47	68.92	168.39	4.000	No	No	2.00
1335	67.61	173.94	33.62	2.13	0.38	0.64	105.10	61.13	166.23	4.000	No	No	2.00
1336	67.67	183.50	15.29	1.90	0.46	0.58	96.49	23.64	120.13	4.000	No	No	2.00
1337	67.73	190.33	100.00	4.06	0.31	0.69	126.51	0.00	126.51	4.000	No	Yes	2.00
1338	67.80	199.39	100.00	4.06	0.30	0.70	128.41	0.00	128.41	4.000	No	Yes	2.00
1339	67.87	199.12	100.00	4.06	0.29	0.71	136.35	0.00	136.35	4.000	No	Yes	2.00
1340	67.93	217.14	100.00	4.06	0.31	0.69	126.73	0.00	126.73	4.000	No	Yes	2.00
1341	68.00	232.32	100.00	4.06	0.26	0.73	172.57	0.00	172.57	4.000	No	Yes	2.00

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_t:	Total cone resistance
FC:	Fines content (%)
I_c:	Soil behavior type index
m:	Stress exponent
C_N:	Overburden correction factor
q_{c1N}:	Normalized and adjusted cone resistance
Δq_{c1N}:	Cone resistance correction factor due to fines
$q_{c1N,cs}$:	Normalized and adjusted cone resistance
$CRR_{7.5}$:	Cyclic resistance ratio for M_w=7.5
FS:	Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
0.02	2.00	0.00	0.00	0.02	0.00	0.10	1.63	0.00	0.00	0.02	0.00
0.15	1.48	0.00	0.00	0.02	0.00	0.23	2.00	0.00	0.00	0.02	0.00
0.29	1.07	0.00	0.00	0.02	0.00	0.36	0.90	0.00	0.00	0.02	0.02
0.43	1.04	0.00	0.00	0.02	0.00	0.47	0.64	0.00	0.00	0.01	0.04
0.54	1.01	0.00	0.00	0.02	0.00	0.62	1.43	0.00	0.00	0.02	0.00
0.68	2.00	0.00	0.00	0.02	0.00	0.75	2.00	0.00	0.00	0.02	0.00
0.81	2.00	0.00	0.00	0.02	0.00	0.88	2.00	0.00	0.00	0.02	0.00
0.94	2.00	0.00	0.00	0.02	0.00	1.00	2.00	0.00	0.00	0.02	0.00
1.07	2.00	0.00	0.00	0.02	0.00	1.14	2.00	0.00	0.00	0.02	0.00
1.21	2.00	0.00	0.00	0.02	0.00	1.27	2.00	0.00	0.00	0.02	0.00
1.34	2.00	0.00	0.00	0.02	0.00	1.41	2.00	0.00	0.00	0.02	0.00
1.47	2.00	0.00	0.00	0.02	0.00	1.53	1.62	0.00	0.00	0.02	0.00
1.59	1.89	0.00	0.00	0.02	0.00	1.65	1.89	0.00	0.00	0.02	0.00
1.72	1.17	0.00	0.00	0.02	0.00	1.80	2.00	0.00	0.00	0.02	0.00
1.86	2.00	0.00	0.00	0.02	0.00	1.92	2.00	0.00	0.00	0.02	0.00
1.98	2.00	0.00	0.00	0.02	0.00	2.05	2.00	0.00	0.00	0.02	0.00
2.12	2.00	0.00	0.00	0.02	0.00	2.20	2.00	0.00	0.00	0.02	0.00
2.26	2.00	0.00	0.00	0.02	0.00	2.33	2.00	0.00	0.00	0.02	0.00
2.39	2.00	0.00	0.00	0.02	0.00	2.44	2.00	0.00	0.00	0.02	0.00
2.51	2.00	0.00	0.00	0.02	0.00	2.58	2.00	0.00	0.00	0.02	0.00
2.65	2.00	0.00	0.00	0.02	0.00	2.71	2.00	0.00	0.00	0.02	0.00
2.77	2.00	0.00	0.00	0.02	0.00	2.84	2.00	0.00	0.00	0.02	0.00
2.90	2.00	0.00	0.00	0.02	0.00	2.97	2.00	0.00	0.00	0.02	0.00
3.04	2.00	0.00	0.00	0.02	0.00	3.10	2.00	0.00	0.00	0.02	0.00
3.17	2.00	0.00	0.00	0.02	0.00	3.23	2.00	0.00	0.00	0.02	0.00
3.31	2.00	0.00	0.00	0.02	0.00	3.37	2.00	0.00	0.00	0.02	0.00
3.43	2.00	0.00	0.00	0.02	0.00	3.50	2.00	0.00	0.00	0.02	0.00
3.57	2.00	0.00	0.00	0.02	0.00	3.62	2.00	0.00	0.00	0.02	0.00
3.70	2.00	0.00	0.00	0.02	0.00	3.76	2.00	0.00	0.00	0.02	0.00
3.82	2.00	0.00	0.00	0.02	0.00	3.88	2.00	0.00	0.00	0.02	0.00
3.96	2.00	0.00	0.00	0.02	0.00	4.02	2.00	0.00	0.00	0.02	0.00
4.10	2.00	0.00	0.00	0.02	0.00	4.16	2.00	0.00	0.00	0.02	0.00
4.24	2.00	0.00	0.00	0.03	0.00	4.29	2.00	0.00	0.00	0.02	0.00
4.35	2.00	0.00	0.00	0.02	0.00	4.42	2.00	0.00	0.00	0.02	0.00
4.48	2.00	0.00	0.00	0.02	0.00	4.56	2.00	0.00	0.00	0.02	0.00
4.62	2.00	0.00	0.00	0.02	0.00	4.67	2.00	0.00	0.00	0.02	0.00
4.74	1.83	0.00	0.00	0.02	0.00	4.81	1.25	0.00	0.00	0.02	0.00
4.88	1.06	0.00	0.00	0.02	0.00	4.95	1.26	0.00	0.00	0.02	0.00
5.01	1.03	0.00	0.00	0.02	0.00	5.08	1.26	0.00	0.00	0.02	0.00
5.15	1.77	0.00	0.00	0.02	0.00	5.21	1.78	0.00	0.00	0.02	0.00
5.26	1.79	0.00	0.00	0.02	0.00	5.34	2.00	0.00	0.00	0.02	0.00
5.39	2.00	0.00	0.00	0.02	0.00	5.48	2.00	0.00	0.00	0.02	0.00
5.54	2.00	0.00	0.00	0.02	0.00	5.60	2.00	0.00	0.00	0.02	0.00
5.66	2.00	0.00	0.00	0.02	0.00	5.74	2.00	0.00	0.00	0.02	0.00
5.79	2.00	0.00	0.00	0.02	0.00	5.86	1.71	0.00	0.00	0.02	0.00
5.93	1.18	0.00	0.00	0.02	0.00	5.99	1.50	0.00	0.00	0.02	0.00
6.05	1.66	0.00	0.00	0.02	0.00	6.12	1.33	0.00	0.00	0.02	0.00
6.19	0.57	0.00	0.00	0.02	0.09	6.26	0.54	0.00	0.00	0.02	0.08

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
6.32	0.65	0.00	0.00	0.02	0.06	6.39	1.17	0.00	0.00	0.02	0.00
6.45	0.76	0.00	0.00	0.02	0.04	6.51	0.77	0.00	0.00	0.02	0.04
6.57	1.42	0.00	0.00	0.02	0.00	6.65	2.00	0.00	0.00	0.02	0.00
6.72	2.00	0.00	0.00	0.02	0.00	6.78	2.00	0.00	0.00	0.02	0.00
6.85	1.47	0.00	0.00	0.02	0.00	6.92	0.83	0.00	0.00	0.02	0.03
6.97	0.56	0.00	0.00	0.02	0.06	7.03	0.38	0.00	0.00	0.02	0.10
7.13	0.27	0.00	0.00	0.03	0.18	7.19	0.28	0.00	0.00	0.02	0.12
7.23	0.30	0.00	0.00	0.01	0.08	7.31	0.28	0.00	0.00	0.02	0.14
7.37	0.32	0.00	0.00	0.02	0.12	7.43	0.34	0.00	0.00	0.02	0.10
7.50	0.33	0.00	0.00	0.02	0.12	7.56	0.33	0.00	0.00	0.02	0.12
7.63	0.33	0.00	0.00	0.02	0.12	7.70	0.32	0.00	0.00	0.02	0.12
7.76	0.31	0.00	0.00	0.02	0.11	7.82	0.30	0.00	0.00	0.02	0.11
7.90	0.26	0.00	0.00	0.02	0.15	7.96	0.25	0.00	0.00	0.02	0.12
8.02	0.28	0.00	0.00	0.02	0.11	8.10	0.32	0.00	0.00	0.02	0.14
8.15	0.37	0.00	0.00	0.02	0.10	8.23	0.37	0.00	0.00	0.02	0.13
8.29	0.41	0.00	0.00	0.02	0.09	8.36	0.46	0.00	0.00	0.02	0.11
8.43	0.48	0.00	0.00	0.02	0.09	8.48	0.44	0.00	0.00	0.02	0.08
8.56	0.34	0.00	0.00	0.03	0.15	8.65	0.31	0.00	0.00	0.03	0.16
8.69	0.36	0.00	0.00	0.01	0.07	8.78	0.59	0.00	0.00	0.03	0.10
8.82	0.80	0.00	0.00	0.01	0.02	8.91	1.21	0.00	0.00	0.03	0.00
8.95	0.88	0.00	0.00	0.01	0.01	9.01	2.00	0.00	0.00	0.02	0.00
9.07	2.00	0.00	0.00	0.02	0.00	9.14	2.00	0.00	0.00	0.02	0.00
9.20	2.00	0.00	0.00	0.02	0.00	9.28	2.00	0.00	0.00	0.02	0.00
9.33	2.00	0.00	0.00	0.02	0.00	9.40	2.00	0.00	0.00	0.02	0.00
9.48	2.00	0.00	0.00	0.02	0.00	9.54	2.00	0.00	0.00	0.02	0.00
9.61	2.00	0.00	0.00	0.02	0.00	9.68	2.00	0.00	0.00	0.02	0.00
9.73	2.00	0.00	0.00	0.02	0.00	9.80	2.00	0.00	0.00	0.02	0.00
9.88	2.00	0.00	0.00	0.02	0.00	9.93	2.00	0.00	0.00	0.02	0.00
10.00	2.00	0.00	0.00	0.02	0.00	10.06	2.00	0.00	0.00	0.02	0.00
10.12	2.00	0.00	0.00	0.02	0.00	10.20	2.00	0.00	0.00	0.02	0.00
10.26	2.00	0.00	0.00	0.02	0.00	10.32	2.00	0.00	0.00	0.02	0.00
10.39	2.00	0.00	0.00	0.02	0.00	10.45	2.00	0.00	0.00	0.02	0.00
10.52	2.00	0.00	0.00	0.02	0.00	10.58	2.00	0.00	0.00	0.02	0.00
10.64	2.00	0.00	0.00	0.02	0.00	10.71	2.00	0.00	0.00	0.02	0.00
10.78	2.00	0.00	0.00	0.02	0.00	10.84	2.00	0.00	0.00	0.02	0.00
10.92	2.00	0.00	0.00	0.02	0.00	10.98	2.00	0.00	0.00	0.02	0.00
11.04	2.00	0.00	0.00	0.02	0.00	11.12	2.00	0.00	0.00	0.02	0.00
11.18	2.00	0.00	0.00	0.02	0.00	11.25	2.00	0.00	0.00	0.02	0.00
11.33	2.00	0.00	0.00	0.02	0.00	11.37	2.00	0.00	0.00	0.01	0.00
11.46	2.00	0.00	0.00	0.03	0.00	11.50	2.00	0.00	0.00	0.01	0.00
11.58	2.00	0.00	0.00	0.02	0.00	11.64	2.00	0.00	0.00	0.02	0.00
11.71	2.00	0.00	0.00	0.02	0.00	11.79	2.00	0.00	0.00	0.02	0.00
11.83	2.00	0.00	0.00	0.01	0.00	11.91	2.00	0.00	0.00	0.03	0.00
11.96	2.00	0.00	0.00	0.01	0.00	12.04	2.00	0.00	0.00	0.03	0.00
12.09	2.00	0.00	0.00	0.01	0.00	12.16	2.00	0.00	0.00	0.02	0.00
12.24	2.00	0.00	0.00	0.02	0.00	12.29	2.00	0.00	0.00	0.02	0.00
12.37	2.00	0.00	0.00	0.02	0.00	12.43	2.00	0.00	0.00	0.02	0.00
12.50	2.00	0.00	0.00	0.02	0.00	12.57	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
12.61	2.00	0.00	0.00	0.01	0.00	12.70	2.00	0.00	0.00	0.03	0.00
12.75	2.00	0.00	0.00	0.01	0.00	12.83	2.00	0.00	0.00	0.03	0.00
12.87	2.00	0.00	0.00	0.01	0.00	12.96	2.00	0.00	0.00	0.03	0.00
13.01	2.00	0.00	0.00	0.01	0.00	13.10	0.69	0.00	0.00	0.03	0.07
13.15	2.00	0.00	0.00	0.02	0.00	13.23	2.00	0.00	0.00	0.02	0.00
13.29	2.00	0.00	0.00	0.02	0.00	13.35	2.00	0.00	0.00	0.02	0.00
13.41	2.00	0.00	0.00	0.02	0.00	13.46	2.00	0.00	0.00	0.02	0.00
13.55	2.00	0.00	0.00	0.03	0.00	13.60	2.00	0.00	0.00	0.02	0.00
13.67	1.52	0.00	0.00	0.02	0.00	13.75	1.46	0.00	0.00	0.03	0.00
13.79	1.44	0.00	0.00	0.01	0.00	13.88	0.16	0.00	0.00	0.03	0.17
13.96	0.16	0.00	0.00	0.02	0.16	13.99	0.16	0.00	0.00	0.01	0.07
14.06	0.16	0.00	0.00	0.02	0.14	14.13	0.16	0.00	0.00	0.02	0.14
14.20	0.16	0.00	0.00	0.02	0.14	14.28	1.33	0.00	0.00	0.02	0.00
14.33	1.33	0.00	0.00	0.01	0.00	14.41	2.00	0.00	0.00	0.03	0.00
14.48	2.00	0.00	0.00	0.02	0.00	14.51	2.00	0.00	0.00	0.01	0.00
14.60	2.00	0.00	0.00	0.02	0.00	14.68	2.00	0.00	0.00	0.02	0.00
14.72	2.00	0.00	0.00	0.01	0.00	14.80	2.00	0.00	0.00	0.03	0.00
14.88	2.00	0.00	0.00	0.02	0.00	14.92	2.00	0.00	0.00	0.01	0.00
15.00	2.00	0.00	0.00	0.03	0.00	15.05	1.84	0.00	0.00	0.01	0.00
15.13	1.88	0.00	0.00	0.03	0.00	15.20	1.82	0.00	0.00	0.02	0.00
15.27	0.17	0.00	0.00	0.02	0.13	15.30	0.17	0.00	0.00	0.01	0.06
15.37	0.17	0.00	0.00	0.02	0.13	15.44	0.16	0.00	0.00	0.02	0.13
15.50	1.33	0.00	0.00	0.02	0.00	15.57	1.14	0.00	0.00	0.02	0.00
15.64	1.00	0.00	0.00	0.02	0.00	15.71	0.95	0.00	0.00	0.02	0.01
15.78	0.96	0.00	0.00	0.02	0.01	15.84	1.04	0.00	0.00	0.02	0.00
15.92	1.18	0.00	0.00	0.02	0.00	16.00	1.32	0.00	0.00	0.02	0.00
16.04	0.16	0.00	0.00	0.01	0.08	16.12	0.16	0.00	0.00	0.02	0.16
16.16	0.15	0.00	0.00	0.01	0.08	16.24	1.23	0.00	0.00	0.03	0.00
16.33	1.19	0.00	0.00	0.03	0.00	16.37	1.22	0.00	0.00	0.01	0.00
16.45	2.00	0.00	0.00	0.03	0.00	16.49	2.00	0.00	0.00	0.01	0.00
16.58	2.00	0.00	0.00	0.03	0.00	16.62	2.00	0.00	0.00	0.01	0.00
16.70	2.00	0.00	0.00	0.03	0.00	16.79	2.00	0.00	0.00	0.03	0.00
16.83	2.00	0.00	0.00	0.01	0.00	16.90	1.56	0.00	0.00	0.02	0.00
16.97	1.65	0.00	0.00	0.02	0.00	17.01	0.17	0.00	0.00	0.01	0.07
17.10	1.52	0.00	0.00	0.03	0.00	17.14	1.36	0.00	0.00	0.01	0.00
17.23	1.26	0.00	0.00	0.03	0.00	17.27	1.16	0.00	0.00	0.01	0.00
17.36	1.08	0.00	0.00	0.03	0.00	17.40	1.04	0.00	0.00	0.01	0.00
17.49	1.01	0.00	0.00	0.03	0.00	17.53	1.03	0.00	0.00	0.01	0.00
17.62	1.07	0.00	0.00	0.03	0.00	17.67	1.25	0.00	0.00	0.01	0.00
17.75	1.39	0.00	0.00	0.03	0.00	17.83	0.16	0.00	0.00	0.03	0.15
17.89	1.37	0.00	0.00	0.02	0.00	17.93	1.26	0.00	0.00	0.01	0.00
18.02	1.23	0.00	0.00	0.03	0.00	18.06	2.00	0.00	0.00	0.01	0.00
18.15	2.00	0.00	0.00	0.03	0.00	18.19	2.00	0.00	0.00	0.01	0.00
18.28	2.00	0.00	0.00	0.03	0.00	18.32	2.00	0.00	0.00	0.01	0.00
18.41	2.00	0.00	0.00	0.03	0.00	18.49	2.00	0.00	0.00	0.02	0.00
18.53	2.00	0.00	0.00	0.01	0.00	18.62	2.00	0.00	0.00	0.03	0.00
18.66	0.50	0.00	0.00	0.01	0.05	18.74	0.68	0.00	0.00	0.03	0.06
18.79	0.68	0.00	0.00	0.01	0.03	18.87	0.75	0.00	0.00	0.03	0.05

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
18.92	0.84	0.00	0.00	0.01	0.01
19.05	0.93	0.00	0.00	0.01	0.01
19.18	1.28	0.00	0.00	0.01	0.00
19.32	1.43	0.00	0.00	0.01	0.00
19.44	1.55	0.00	0.00	0.01	0.00
19.57	2.00	0.00	0.00	0.01	0.00
19.70	1.56	0.00	0.00	0.01	0.00
19.83	0.79	0.00	0.00	0.01	0.02
20.00	0.98	0.00	0.00	0.03	0.00
20.09	1.16	0.00	0.00	0.01	0.00
20.23	0.83	0.00	0.00	0.02	0.02
20.38	0.60	0.00	0.00	0.02	0.07
20.51	0.61	0.00	0.00	0.02	0.06
20.62	0.74	0.00	0.00	0.02	0.03
20.76	0.72	0.00	0.00	0.02	0.03
20.89	0.77	0.00	0.00	0.02	0.04
21.02	0.81	0.00	0.00	0.01	0.02
21.15	0.83	0.00	0.00	0.01	0.02
21.28	0.58	0.00	0.00	0.01	0.04
21.41	0.37	0.63	0.36	0.04	0.06
21.55	0.29	0.71	0.32	0.04	0.06
21.68	0.29	0.71	0.32	0.04	0.06
21.80	0.28	0.72	0.31	0.07	0.10
21.94	0.34	0.66	0.34	0.07	0.10
22.09	0.44	0.56	0.42	0.07	0.08
22.20	0.94	0.00	0.00	0.01	0.00
22.33	2.00	0.00	0.00	0.01	0.00
22.46	2.00	0.00	0.00	0.01	0.00
22.60	2.00	0.00	0.00	0.01	0.00
22.74	2.00	0.00	0.00	0.02	0.00
22.87	2.00	0.00	0.00	0.01	0.00
23.00	2.00	0.00	0.00	0.01	0.00
23.13	2.00	0.00	0.00	0.01	0.00
23.26	2.00	0.00	0.00	0.01	0.00
23.38	2.00	0.00	0.00	0.01	0.00
23.52	1.19	0.00	0.00	0.01	0.00
23.65	0.74	0.00	0.00	0.01	0.02
23.78	0.54	0.00	0.00	0.01	0.04
23.91	0.37	0.63	0.36	0.08	0.10
24.04	2.00	0.00	0.00	0.01	0.00
24.17	2.00	0.00	0.00	0.01	0.00
24.30	2.00	0.00	0.00	0.01	0.00
24.44	2.00	0.00	0.00	0.01	0.00
24.57	2.00	0.00	0.00	0.01	0.00
24.70	0.60	0.00	0.00	0.01	0.03
24.83	2.00	0.00	0.00	0.01	0.00
24.96	2.00	0.00	0.00	0.01	0.00
25.09	2.00	0.00	0.00	0.01	0.00
19.01	0.95	0.00	0.00	0.03	0.01
19.14	0.93	0.00	0.00	0.03	0.01
19.27	0.95	0.00	0.00	0.03	0.01
19.40	1.35	0.00	0.00	0.03	0.00
19.53	1.59	0.00	0.00	0.03	0.00
19.66	1.89	0.00	0.00	0.03	0.00
19.79	1.11	0.00	0.00	0.03	0.00
19.92	0.79	0.00	0.00	0.03	0.04
20.05	1.09	0.00	0.00	0.01	0.00
20.18	0.83	0.00	0.00	0.03	0.03
20.30	0.69	0.00	0.00	0.02	0.05
20.43	0.62	0.00	0.00	0.02	0.04
20.56	0.68	0.00	0.00	0.02	0.04
20.70	0.70	0.00	0.00	0.03	0.05
20.82	0.75	0.00	0.00	0.02	0.03
20.98	0.79	0.00	0.00	0.03	0.04
21.11	0.89	0.00	0.00	0.03	0.02
21.24	0.80	0.00	0.00	0.03	0.04
21.37	0.43	0.57	0.41	0.09	0.10
21.50	0.32	0.68	0.33	0.09	0.12
21.63	0.29	0.71	0.32	0.09	0.13
21.74	0.24	0.76	0.29	0.06	0.09
21.87	0.31	0.69	0.33	0.07	0.10
22.02	0.37	0.63	0.36	0.07	0.09
22.16	0.66	0.00	0.00	0.02	0.05
22.29	2.00	0.00	0.00	0.03	0.00
22.42	2.00	0.00	0.00	0.03	0.00
22.55	2.00	0.00	0.00	0.03	0.00
22.66	2.00	0.00	0.00	0.02	0.00
22.82	2.00	0.00	0.00	0.03	0.00
22.96	2.00	0.00	0.00	0.03	0.00
23.09	2.00	0.00	0.00	0.03	0.00
23.21	2.00	0.00	0.00	0.03	0.00
23.34	2.00	0.00	0.00	0.03	0.00
23.47	1.47	0.00	0.00	0.03	0.00
23.60	0.86	0.00	0.00	0.03	0.02
23.74	0.58	0.00	0.00	0.03	0.07
23.83	0.30	0.70	0.32	0.05	0.07
24.00	2.00	0.00	0.00	0.03	0.00
24.13	2.00	0.00	0.00	0.03	0.00
24.26	2.00	0.00	0.00	0.03	0.00
24.39	2.00	0.00	0.00	0.03	0.00
24.53	2.00	0.00	0.00	0.03	0.00
24.66	0.69	0.00	0.00	0.03	0.05
24.79	2.00	0.00	0.00	0.03	0.00
24.92	2.00	0.00	0.00	0.03	0.00
25.05	2.00	0.00	0.00	0.03	0.00
25.18	2.00	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
25.22	2.00	0.00	0.00	0.01	0.00	25.31	2.00	0.00	0.00	0.03	0.00
25.35	2.00	0.00	0.00	0.01	0.00	25.42	2.00	0.00	0.00	0.02	0.00
25.48	2.00	0.00	0.00	0.02	0.00	25.56	2.00	0.00	0.00	0.03	0.00
25.62	2.00	0.00	0.00	0.02	0.00	25.68	2.00	0.00	0.00	0.02	0.00
25.74	2.00	0.00	0.00	0.02	0.00	25.80	2.00	0.00	0.00	0.02	0.00
25.88	0.68	0.00	0.00	0.02	0.04	25.95	0.77	0.00	0.00	0.02	0.03
26.00	0.88	0.00	0.00	0.02	0.01	26.07	0.94	0.00	0.00	0.02	0.01
26.13	0.91	0.00	0.00	0.02	0.01	26.21	0.89	0.00	0.00	0.03	0.02
26.30	2.00	0.00	0.00	0.03	0.00	26.34	2.00	0.00	0.00	0.01	0.00
26.43	2.00	0.00	0.00	0.03	0.00	26.47	2.00	0.00	0.00	0.01	0.00
26.55	2.00	0.00	0.00	0.02	0.00	26.59	2.00	0.00	0.00	0.01	0.00
26.67	2.00	0.00	0.00	0.03	0.00	26.76	2.00	0.00	0.00	0.03	0.00
26.80	2.00	0.00	0.00	0.01	0.00	26.88	2.00	0.00	0.00	0.03	0.00
26.92	2.00	0.00	0.00	0.01	0.00	27.00	2.00	0.00	0.00	0.02	0.00
27.05	2.00	0.00	0.00	0.02	0.00	27.12	2.00	0.00	0.00	0.02	0.00
27.18	2.00	0.00	0.00	0.02	0.00	27.25	2.00	0.00	0.00	0.02	0.00
27.32	2.00	0.00	0.00	0.02	0.00	27.38	2.00	0.00	0.00	0.02	0.00
27.44	2.00	0.00	0.00	0.02	0.00	27.52	2.00	0.00	0.00	0.02	0.00
27.58	2.00	0.00	0.00	0.02	0.00	27.65	2.00	0.00	0.00	0.02	0.00
27.71	2.00	0.00	0.00	0.02	0.00	27.78	2.00	0.00	0.00	0.02	0.00
27.84	2.00	0.00	0.00	0.02	0.00	27.91	2.00	0.00	0.00	0.02	0.00
27.97	2.00	0.00	0.00	0.02	0.00	28.04	2.00	0.00	0.00	0.02	0.00
28.12	2.00	0.00	0.00	0.02	0.00	28.17	2.00	0.00	0.00	0.02	0.00
28.25	2.00	0.00	0.00	0.02	0.00	28.33	2.00	0.00	0.00	0.02	0.00
28.37	2.00	0.00	0.00	0.01	0.00	28.46	2.00	0.00	0.00	0.03	0.00
28.50	2.00	0.00	0.00	0.01	0.00	28.56	2.00	0.00	0.00	0.02	0.00
28.63	2.00	0.00	0.00	0.02	0.00	28.69	2.00	0.00	0.00	0.02	0.00
28.76	2.00	0.00	0.00	0.02	0.00	28.84	2.00	0.00	0.00	0.02	0.00
28.90	2.00	0.00	0.00	0.02	0.00	28.98	0.80	0.00	0.00	0.02	0.03
29.03	2.00	0.00	0.00	0.02	0.00	29.09	2.00	0.00	0.00	0.02	0.00
29.18	2.00	0.00	0.00	0.03	0.00	29.21	2.00	0.00	0.00	0.01	0.00
29.30	2.00	0.00	0.00	0.02	0.00	29.38	2.00	0.00	0.00	0.02	0.00
29.42	2.00	0.00	0.00	0.01	0.00	29.50	2.00	0.00	0.00	0.02	0.00
29.58	2.00	0.00	0.00	0.02	0.00	29.62	2.00	0.00	0.00	0.01	0.00
29.69	2.00	0.00	0.00	0.02	0.00	29.76	2.00	0.00	0.00	0.02	0.00
29.82	2.00	0.00	0.00	0.02	0.00	29.89	2.00	0.00	0.00	0.02	0.00
29.95	2.00	0.00	0.00	0.02	0.00	30.03	2.00	0.00	0.00	0.02	0.00
30.07	2.00	0.00	0.00	0.01	0.00	30.15	2.00	0.00	0.00	0.02	0.00
30.20	2.00	0.00	0.00	0.02	0.00	30.27	2.00	0.00	0.00	0.02	0.00
30.33	2.00	0.00	0.00	0.02	0.00	30.39	2.00	0.00	0.00	0.02	0.00
30.47	2.00	0.00	0.00	0.02	0.00	30.54	2.00	0.00	0.00	0.02	0.00
30.59	2.00	0.00	0.00	0.02	0.00	30.66	2.00	0.00	0.00	0.02	0.00
30.73	2.00	0.00	0.00	0.02	0.00	30.80	2.00	0.00	0.00	0.02	0.00
30.86	2.00	0.00	0.00	0.02	0.00	30.93	2.00	0.00	0.00	0.02	0.00
30.99	2.00	0.00	0.00	0.02	0.00	31.06	2.00	0.00	0.00	0.02	0.00
31.13	2.00	0.00	0.00	0.02	0.00	31.18	2.00	0.00	0.00	0.02	0.00
31.26	2.00	0.00	0.00	0.02	0.00	31.33	2.00	0.00	0.00	0.02	0.00
31.38	2.00	0.00	0.00	0.01	0.00	31.45	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
31.52	2.00	0.00	0.00	0.02	0.00	31.61	2.00	0.00	0.00	0.03	0.00
31.65	2.00	0.00	0.00	0.01	0.00	31.73	2.00	0.00	0.00	0.03	0.00
31.80	2.00	0.00	0.00	0.02	0.00	31.87	2.00	0.00	0.00	0.02	0.00
31.93	2.00	0.00	0.00	0.02	0.00	31.99	2.00	0.00	0.00	0.02	0.00
32.06	2.00	0.00	0.00	0.02	0.00	32.11	2.00	0.00	0.00	0.01	0.00
32.17	2.00	0.00	0.00	0.02	0.00	32.24	2.00	0.00	0.00	0.02	0.00
32.30	2.00	0.00	0.00	0.02	0.00	32.37	2.00	0.00	0.00	0.02	0.00
32.44	2.00	0.00	0.00	0.02	0.00	32.50	2.00	0.00	0.00	0.02	0.00
32.56	2.00	0.00	0.00	0.02	0.00	32.63	2.00	0.00	0.00	0.02	0.00
32.70	2.00	0.00	0.00	0.02	0.00	32.76	2.00	0.00	0.00	0.02	0.00
32.83	2.00	0.00	0.00	0.02	0.00	32.89	2.00	0.00	0.00	0.02	0.00
32.95	2.00	0.00	0.00	0.02	0.00	33.02	2.00	0.00	0.00	0.02	0.00
33.10	2.00	0.00	0.00	0.02	0.00	33.16	2.00	0.00	0.00	0.02	0.00
33.25	2.00	0.00	0.00	0.03	0.00	33.29	2.00	0.00	0.00	0.01	0.00
33.37	2.00	0.00	0.00	0.02	0.00	33.45	2.00	0.00	0.00	0.03	0.00
33.50	2.00	0.00	0.00	0.01	0.00	33.59	2.00	0.00	0.00	0.03	0.00
33.63	2.00	0.00	0.00	0.01	0.00	33.68	2.00	0.00	0.00	0.01	0.00
33.76	2.00	0.00	0.00	0.03	0.00	33.82	2.00	0.00	0.00	0.02	0.00
33.88	2.00	0.00	0.00	0.02	0.00	33.96	2.00	0.00	0.00	0.03	0.00
34.02	2.00	0.00	0.00	0.02	0.00	34.08	2.00	0.00	0.00	0.02	0.00
34.14	2.00	0.00	0.00	0.02	0.00	34.23	2.00	0.00	0.00	0.03	0.00
34.28	1.54	0.00	0.00	0.02	0.00	34.34	1.38	0.00	0.00	0.02	0.00
34.41	1.24	0.00	0.00	0.02	0.00	34.49	1.13	0.00	0.00	0.02	0.00
34.53	1.11	0.00	0.00	0.01	0.00	34.61	1.19	0.00	0.00	0.03	0.00
34.70	1.35	0.00	0.00	0.03	0.00	34.75	0.17	0.83	0.26	0.04	0.05
34.83	0.19	0.81	0.27	0.09	0.10	34.88	0.19	0.81	0.27	0.04	0.05
34.92	0.18	0.82	0.27	0.04	0.05	35.01	0.18	0.82	0.27	0.09	0.10
35.10	2.00	0.00	0.00	0.03	0.00	35.13	2.00	0.00	0.00	0.01	0.00
35.20	2.00	0.00	0.00	0.02	0.00	35.29	2.00	0.00	0.00	0.03	0.00
35.33	2.00	0.00	0.00	0.01	0.00	35.42	2.00	0.00	0.00	0.03	0.00
35.46	2.00	0.00	0.00	0.01	0.00	35.55	2.00	0.00	0.00	0.03	0.00
35.58	2.00	0.00	0.00	0.01	0.00	35.66	0.24	0.76	0.30	0.08	0.08
35.72	0.26	0.74	0.30	0.06	0.06	35.78	0.27	0.73	0.31	0.06	0.06
35.84	0.26	0.74	0.30	0.06	0.06	35.91	0.26	0.74	0.30	0.06	0.06
35.98	0.26	0.74	0.30	0.08	0.08	36.05	0.26	0.74	0.30	0.06	0.07
36.11	2.00	0.00	0.00	0.02	0.00	36.19	2.00	0.00	0.00	0.02	0.00
36.25	2.00	0.00	0.00	0.02	0.00	36.32	2.00	0.00	0.00	0.02	0.00
36.36	2.00	0.00	0.00	0.01	0.00	36.43	2.00	0.00	0.00	0.02	0.00
36.52	2.00	0.00	0.00	0.03	0.00	36.57	2.00	0.00	0.00	0.02	0.00
36.64	2.00	0.00	0.00	0.02	0.00	36.69	2.00	0.00	0.00	0.02	0.00
36.77	2.00	0.00	0.00	0.02	0.00	36.85	0.38	0.62	0.37	0.08	0.07
36.89	2.00	0.00	0.00	0.01	0.00	36.97	2.00	0.00	0.00	0.02	0.00
37.03	2.00	0.00	0.00	0.02	0.00	37.12	2.00	0.00	0.00	0.03	0.00
37.15	2.00	0.00	0.00	0.01	0.00	37.22	2.00	0.00	0.00	0.02	0.00
37.29	2.00	0.00	0.00	0.02	0.00	37.35	2.00	0.00	0.00	0.02	0.00
37.42	2.00	0.00	0.00	0.02	0.00	37.49	2.00	0.00	0.00	0.02	0.00
37.56	2.00	0.00	0.00	0.02	0.00	37.62	2.00	0.00	0.00	0.02	0.00
37.68	1.90	0.00	0.00	0.02	0.00	37.74	0.74	0.00	0.00	0.02	0.02

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
37.83	1.85	0.00	0.00	0.02	0.00	37.89	0.95	0.00	0.00	0.02	0.00
37.96	1.40	0.00	0.00	0.02	0.00	38.02	1.27	0.00	0.00	0.02	0.00
38.07	0.78	0.00	0.00	0.02	0.02	38.16	0.63	0.00	0.00	0.03	0.04
38.22	0.61	0.00	0.00	0.02	0.03	38.28	0.59	0.00	0.00	0.02	0.03
38.34	0.59	0.00	0.00	0.02	0.03	38.42	0.59	0.00	0.00	0.03	0.04
38.48	0.57	0.00	0.00	0.02	0.03	38.53	0.46	0.54	0.44	0.05	0.03
38.60	0.87	0.00	0.00	0.02	0.01	38.67	0.75	0.00	0.00	0.02	0.02
38.73	0.91	0.00	0.00	0.02	0.01	38.80	1.47	0.00	0.00	0.02	0.00
38.86	2.00	0.00	0.00	0.02	0.00	38.93	2.00	0.00	0.00	0.02	0.00
39.00	2.00	0.00	0.00	0.02	0.00	39.07	2.00	0.00	0.00	0.02	0.00
39.14	2.00	0.00	0.00	0.02	0.00	39.21	2.00	0.00	0.00	0.02	0.00
39.27	2.00	0.00	0.00	0.02	0.00	39.33	2.00	0.00	0.00	0.02	0.00
39.39	2.00	0.00	0.00	0.02	0.00	39.47	2.00	0.00	0.00	0.03	0.00
39.53	2.00	0.00	0.00	0.02	0.00	39.58	0.58	0.00	0.00	0.02	0.03
39.67	0.58	0.00	0.00	0.03	0.04	39.73	0.59	0.00	0.00	0.02	0.03
39.81	0.59	0.00	0.00	0.02	0.04	39.84	0.78	0.00	0.00	0.01	0.01
39.92	2.00	0.00	0.00	0.02	0.00	40.00	2.00	0.00	0.00	0.02	0.00
40.04	2.00	0.00	0.00	0.01	0.00	40.12	2.00	0.00	0.00	0.02	0.00
40.20	2.00	0.00	0.00	0.02	0.00	40.24	2.00	0.00	0.00	0.01	0.00
40.32	2.00	0.00	0.00	0.03	0.00	40.37	2.00	0.00	0.00	0.01	0.00
40.44	0.37	0.63	0.36	0.07	0.05	40.52	0.35	0.65	0.35	0.07	0.06
40.56	2.00	0.00	0.00	0.01	0.00	40.64	2.00	0.00	0.00	0.02	0.00
40.71	2.00	0.00	0.00	0.02	0.00	40.78	2.00	0.00	0.00	0.02	0.00
40.83	2.00	0.00	0.00	0.01	0.00	40.93	2.00	0.00	0.00	0.03	0.00
40.97	2.00	0.00	0.00	0.01	0.00	41.05	0.35	0.65	0.35	0.08	0.06
41.10	0.36	0.64	0.36	0.04	0.03	41.18	0.32	0.68	0.33	0.09	0.07
41.23	0.32	0.68	0.33	0.04	0.03	41.30	0.33	0.67	0.34	0.07	0.05
41.36	0.34	0.66	0.35	0.06	0.05	41.42	0.33	0.67	0.34	0.06	0.04
41.49	0.51	0.00	0.00	0.02	0.04	41.55	0.40	0.60	0.38	0.06	0.04
41.63	0.42	0.58	0.40	0.08	0.05	41.69	0.55	0.00	0.00	0.02	0.03
41.75	0.68	0.00	0.00	0.02	0.02	41.82	0.53	0.00	0.00	0.02	0.03
41.88	0.50	0.50	0.47	0.06	0.04	41.95	0.51	0.49	0.49	0.06	0.04
42.01	0.49	0.51	0.46	0.06	0.03	42.09	0.48	0.52	0.45	0.08	0.05
42.15	0.54	0.00	0.00	0.02	0.03	42.22	0.65	0.00	0.00	0.02	0.03
42.30	0.57	0.00	0.00	0.02	0.04	42.34	0.64	0.00	0.00	0.01	0.01
42.42	0.59	0.00	0.00	0.02	0.04	42.50	0.64	0.00	0.00	0.02	0.03
42.54	0.59	0.00	0.00	0.01	0.02	42.62	0.69	0.00	0.00	0.03	0.03
42.70	0.69	0.00	0.00	0.02	0.03	42.74	0.74	0.00	0.00	0.01	0.01
42.82	1.02	0.00	0.00	0.02	0.00	42.86	1.49	0.00	0.00	0.01	0.00
42.94	1.01	0.00	0.00	0.02	0.00	43.01	1.13	0.00	0.00	0.02	0.00
43.07	1.03	0.00	0.00	0.02	0.00	43.15	1.22	0.00	0.00	0.02	0.00
43.21	0.98	0.00	0.00	0.02	0.00	43.26	0.90	0.00	0.00	0.02	0.01
43.32	0.99	0.00	0.00	0.02	0.00	43.41	0.87	0.00	0.00	0.03	0.01
43.47	0.86	0.00	0.00	0.02	0.01	43.54	1.02	0.00	0.00	0.02	0.00
43.61	1.25	0.00	0.00	0.02	0.00	43.67	1.50	0.00	0.00	0.02	0.00
43.74	1.91	0.00	0.00	0.02	0.00	43.82	2.00	0.00	0.00	0.02	0.00
43.86	2.00	0.00	0.00	0.01	0.00	43.94	1.58	0.00	0.00	0.03	0.00
43.99	1.17	0.00	0.00	0.01	0.00	44.07	0.92	0.00	0.00	0.03	0.01

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
44.11	0.96	0.00	0.00	0.01	0.00	44.20	0.72	0.00	0.00	0.03	0.02
44.24	0.69	0.00	0.00	0.01	0.01	44.33	0.76	0.00	0.00	0.03	0.02
44.38	0.88	0.00	0.00	0.01	0.01	44.46	2.00	0.00	0.00	0.03	0.00
44.51	2.00	0.00	0.00	0.01	0.00	44.59	2.00	0.00	0.00	0.03	0.00
44.64	2.00	0.00	0.00	0.01	0.00	44.72	2.00	0.00	0.00	0.03	0.00
44.81	2.00	0.00	0.00	0.03	0.00	44.85	0.26	0.74	0.30	0.04	0.03
44.93	0.27	0.73	0.31	0.08	0.06	44.97	0.28	0.72	0.31	0.04	0.03
45.06	0.35	0.65	0.35	0.09	0.05	45.11	0.45	0.55	0.43	0.04	0.02
45.17	0.70	0.00	0.00	0.02	0.02	45.23	0.58	0.00	0.00	0.02	0.02
45.29	0.60	0.00	0.00	0.02	0.02	45.36	2.00	0.00	0.00	0.02	0.00
45.43	2.00	0.00	0.00	0.02	0.00	45.49	2.00	0.00	0.00	0.02	0.00
45.56	2.00	0.00	0.00	0.02	0.00	45.62	2.00	0.00	0.00	0.02	0.00
45.69	2.00	0.00	0.00	0.02	0.00	45.76	2.00	0.00	0.00	0.02	0.00
45.81	2.00	0.00	0.00	0.02	0.00	45.88	2.00	0.00	0.00	0.02	0.00
45.95	2.00	0.00	0.00	0.02	0.00	46.02	2.00	0.00	0.00	0.02	0.00
46.08	2.00	0.00	0.00	0.02	0.00	46.15	2.00	0.00	0.00	0.02	0.00
46.21	2.00	0.00	0.00	0.02	0.00	46.28	2.00	0.00	0.00	0.02	0.00
46.34	2.00	0.00	0.00	0.02	0.00	46.41	2.00	0.00	0.00	0.02	0.00
46.47	2.00	0.00	0.00	0.02	0.00	46.54	2.00	0.00	0.00	0.02	0.00
46.61	2.00	0.00	0.00	0.02	0.00	46.69	2.00	0.00	0.00	0.02	0.00
46.75	2.00	0.00	0.00	0.02	0.00	46.80	2.00	0.00	0.00	0.01	0.00
46.87	2.00	0.00	0.00	0.02	0.00	46.93	2.00	0.00	0.00	0.02	0.00
46.99	2.00	0.00	0.00	0.02	0.00	47.06	2.00	0.00	0.00	0.02	0.00
47.15	2.00	0.00	0.00	0.03	0.00	47.20	2.00	0.00	0.00	0.02	0.00
47.27	2.00	0.00	0.00	0.02	0.00	47.35	2.00	0.00	0.00	0.02	0.00
47.40	2.00	0.00	0.00	0.02	0.00	47.48	2.00	0.00	0.00	0.02	0.00
47.53	2.00	0.00	0.00	0.02	0.00	47.59	2.00	0.00	0.00	0.02	0.00
47.66	2.00	0.00	0.00	0.02	0.00	47.73	2.00	0.00	0.00	0.02	0.00
47.80	2.00	0.00	0.00	0.02	0.00	47.85	2.00	0.00	0.00	0.02	0.00
47.93	2.00	0.00	0.00	0.02	0.00	47.98	2.00	0.00	0.00	0.02	0.00
48.06	2.00	0.00	0.00	0.02	0.00	48.12	2.00	0.00	0.00	0.02	0.00
48.18	2.00	0.00	0.00	0.02	0.00	48.26	2.00	0.00	0.00	0.02	0.00
48.32	2.00	0.00	0.00	0.02	0.00	48.37	2.00	0.00	0.00	0.02	0.00
48.46	2.00	0.00	0.00	0.03	0.00	48.52	2.00	0.00	0.00	0.02	0.00
48.59	2.00	0.00	0.00	0.02	0.00	48.66	2.00	0.00	0.00	0.02	0.00
48.70	2.00	0.00	0.00	0.01	0.00	48.79	2.00	0.00	0.00	0.03	0.00
48.83	2.00	0.00	0.00	0.01	0.00	48.91	2.00	0.00	0.00	0.02	0.00
48.98	2.00	0.00	0.00	0.02	0.00	49.04	2.00	0.00	0.00	0.02	0.00
49.10	2.00	0.00	0.00	0.02	0.00	49.17	2.00	0.00	0.00	0.02	0.00
49.24	2.00	0.00	0.00	0.02	0.00	49.29	2.00	0.00	0.00	0.02	0.00
49.38	2.00	0.00	0.00	0.03	0.00	49.44	2.00	0.00	0.00	0.02	0.00
49.51	2.00	0.00	0.00	0.02	0.00	49.57	2.00	0.00	0.00	0.02	0.00
49.64	2.00	0.00	0.00	0.02	0.00	49.70	2.00	0.00	0.00	0.02	0.00
49.77	2.00	0.00	0.00	0.02	0.00	49.84	2.00	0.00	0.00	0.02	0.00
49.88	2.00	0.00	0.00	0.01	0.00	49.97	2.00	0.00	0.00	0.03	0.00
50.06	2.00	0.00	0.00	0.03	0.00	50.11	2.00	0.00	0.00	0.02	0.00
50.16	2.00	0.00	0.00	0.01	0.00	50.21	2.00	0.00	0.00	0.02	0.00
50.28	2.00	0.00	0.00	0.02	0.00	50.35	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
50.41	2.00	0.00	0.00	0.02	0.00	50.47	2.00	0.00	0.00	0.02	0.00
50.56	2.00	0.00	0.00	0.03	0.00	50.62	2.00	0.00	0.00	0.02	0.00
50.68	2.00	0.00	0.00	0.02	0.00	50.74	2.00	0.00	0.00	0.02	0.00
50.81	2.00	0.00	0.00	0.02	0.00	50.87	2.00	0.00	0.00	0.02	0.00
50.94	2.00	0.00	0.00	0.02	0.00	51.02	2.00	0.00	0.00	0.02	0.00
51.10	2.00	0.00	0.00	0.03	0.00	51.15	2.00	0.00	0.00	0.01	0.00
51.23	2.00	0.00	0.00	0.03	0.00	51.26	2.00	0.00	0.00	0.01	0.00
51.33	2.00	0.00	0.00	0.02	0.00	51.40	2.00	0.00	0.00	0.02	0.00
51.46	2.00	0.00	0.00	0.02	0.00	51.53	2.00	0.00	0.00	0.02	0.00
51.60	2.00	0.00	0.00	0.02	0.00	51.66	2.00	0.00	0.00	0.02	0.00
51.74	2.00	0.00	0.00	0.02	0.00	51.80	2.00	0.00	0.00	0.02	0.00
51.85	2.00	0.00	0.00	0.02	0.00	51.92	2.00	0.00	0.00	0.02	0.00
52.01	2.00	0.00	0.00	0.03	0.00	52.07	2.00	0.00	0.00	0.02	0.00
52.13	2.00	0.00	0.00	0.02	0.00	52.19	2.00	0.00	0.00	0.02	0.00
52.26	2.00	0.00	0.00	0.02	0.00	52.34	2.00	0.00	0.00	0.02	0.00
52.38	2.00	0.00	0.00	0.01	0.00	52.47	2.00	0.00	0.00	0.03	0.00
52.51	2.00	0.00	0.00	0.01	0.00	52.60	2.00	0.00	0.00	0.03	0.00
52.64	2.00	0.00	0.00	0.01	0.00	52.73	2.00	0.00	0.00	0.03	0.00
52.77	2.00	0.00	0.00	0.01	0.00	52.86	2.00	0.00	0.00	0.03	0.00
52.90	2.00	0.00	0.00	0.01	0.00	52.97	2.00	0.00	0.00	0.02	0.00
53.04	2.00	0.00	0.00	0.02	0.00	53.10	2.00	0.00	0.00	0.02	0.00
53.17	2.00	0.00	0.00	0.02	0.00	53.24	2.00	0.00	0.00	0.02	0.00
53.31	2.00	0.00	0.00	0.02	0.00	53.36	2.00	0.00	0.00	0.02	0.00
53.43	2.00	0.00	0.00	0.02	0.00	53.50	2.00	0.00	0.00	0.02	0.00
53.56	2.00	0.00	0.00	0.02	0.00	53.63	2.00	0.00	0.00	0.02	0.00
53.71	2.00	0.00	0.00	0.02	0.00	53.77	2.00	0.00	0.00	0.02	0.00
53.84	2.00	0.00	0.00	0.02	0.00	53.91	2.00	0.00	0.00	0.02	0.00
53.99	2.00	0.00	0.00	0.02	0.00	54.03	2.00	0.00	0.00	0.01	0.00
54.12	2.00	0.00	0.00	0.03	0.00	54.16	2.00	0.00	0.00	0.01	0.00
54.25	2.00	0.00	0.00	0.03	0.00	54.29	2.00	0.00	0.00	0.01	0.00
54.38	2.00	0.00	0.00	0.03	0.00	54.41	2.00	0.00	0.00	0.01	0.00
54.49	2.00	0.00	0.00	0.02	0.00	54.56	2.00	0.00	0.00	0.02	0.00
54.63	2.00	0.00	0.00	0.02	0.00	54.70	2.00	0.00	0.00	0.02	0.00
54.76	2.00	0.00	0.00	0.02	0.00	54.82	2.00	0.00	0.00	0.02	0.00
54.89	2.00	0.00	0.00	0.02	0.00	54.97	2.00	0.00	0.00	0.02	0.00
55.01	2.00	0.00	0.00	0.01	0.00	55.10	2.00	0.00	0.00	0.03	0.00
55.14	2.00	0.00	0.00	0.01	0.00	55.20	2.00	0.00	0.00	0.02	0.00
55.27	2.00	0.00	0.00	0.02	0.00	55.34	2.00	0.00	0.00	0.02	0.00
55.41	2.00	0.00	0.00	0.02	0.00	55.48	2.00	0.00	0.00	0.02	0.00
55.54	2.00	0.00	0.00	0.02	0.00	55.61	2.00	0.00	0.00	0.02	0.00
55.67	2.00	0.00	0.00	0.02	0.00	55.74	2.00	0.00	0.00	0.02	0.00
55.82	2.00	0.00	0.00	0.02	0.00	55.86	2.00	0.00	0.00	0.01	0.00
55.94	2.00	0.00	0.00	0.02	0.00	56.01	2.00	0.00	0.00	0.02	0.00
56.08	2.00	0.00	0.00	0.02	0.00	56.12	2.00	0.00	0.00	0.01	0.00
56.19	2.00	0.00	0.00	0.02	0.00	56.25	2.00	0.00	0.00	0.02	0.00
56.32	2.00	0.00	0.00	0.02	0.00	56.38	2.00	0.00	0.00	0.02	0.00
56.45	2.00	0.00	0.00	0.02	0.00	56.52	2.00	0.00	0.00	0.02	0.00
56.59	2.00	0.00	0.00	0.02	0.00	56.66	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
56.73	2.00	0.00	0.00	0.02	0.00	56.79	2.00	0.00	0.00	0.02	0.00
56.84	2.00	0.00	0.00	0.01	0.00	56.92	2.00	0.00	0.00	0.02	0.00
56.99	2.00	0.00	0.00	0.02	0.00	57.04	2.00	0.00	0.00	0.01	0.00
57.11	2.00	0.00	0.00	0.02	0.00	57.17	2.00	0.00	0.00	0.02	0.00
57.24	2.00	0.00	0.00	0.02	0.00	57.30	2.00	0.00	0.00	0.02	0.00
57.38	2.00	0.00	0.00	0.02	0.00	57.44	2.00	0.00	0.00	0.02	0.00
57.51	2.00	0.00	0.00	0.02	0.00	57.56	2.00	0.00	0.00	0.02	0.00
57.64	2.00	0.00	0.00	0.02	0.00	57.70	2.00	0.00	0.00	0.02	0.00
57.77	2.00	0.00	0.00	0.02	0.00	57.83	2.00	0.00	0.00	0.02	0.00
57.90	2.00	0.00	0.00	0.02	0.00	57.97	2.00	0.00	0.00	0.02	0.00
58.06	2.00	0.00	0.00	0.02	0.00	58.10	2.00	0.00	0.00	0.01	0.00
58.16	2.00	0.00	0.00	0.02	0.00	58.23	2.00	0.00	0.00	0.02	0.00
58.28	2.00	0.00	0.00	0.02	0.00	58.36	2.00	0.00	0.00	0.02	0.00
58.42	2.00	0.00	0.00	0.02	0.00	58.49	2.00	0.00	0.00	0.02	0.00
58.56	2.00	0.00	0.00	0.02	0.00	58.63	2.00	0.00	0.00	0.02	0.00
58.68	2.00	0.00	0.00	0.02	0.00	58.76	2.00	0.00	0.00	0.02	0.00
58.81	2.00	0.00	0.00	0.02	0.00	58.90	2.00	0.00	0.00	0.03	0.00
58.96	2.00	0.00	0.00	0.02	0.00	59.02	2.00	0.00	0.00	0.02	0.00
59.07	2.00	0.00	0.00	0.01	0.00	59.15	2.00	0.00	0.00	0.02	0.00
59.21	2.00	0.00	0.00	0.02	0.00	59.29	2.00	0.00	0.00	0.03	0.00
59.34	2.00	0.00	0.00	0.01	0.00	59.41	2.00	0.00	0.00	0.02	0.00
59.48	2.00	0.00	0.00	0.02	0.00	59.54	2.00	0.00	0.00	0.02	0.00
59.60	2.00	0.00	0.00	0.02	0.00	59.69	2.00	0.00	0.00	0.03	0.00
59.73	2.00	0.00	0.00	0.01	0.00	59.81	2.00	0.00	0.00	0.02	0.00
59.89	2.00	0.00	0.00	0.03	0.00	59.93	2.00	0.00	0.00	0.01	0.00
60.02	2.00	0.00	0.00	0.03	0.00	60.06	2.00	0.00	0.00	0.01	0.00
60.12	2.00	0.00	0.00	0.02	0.00	60.19	2.00	0.00	0.00	0.02	0.00
60.26	2.00	0.00	0.00	0.02	0.00	60.32	2.00	0.00	0.00	0.02	0.00
60.39	2.00	0.00	0.00	0.02	0.00	60.46	2.00	0.00	0.00	0.02	0.00
60.53	2.00	0.00	0.00	0.02	0.00	60.58	2.00	0.00	0.00	0.02	0.00
60.66	2.00	0.00	0.00	0.02	0.00	60.72	2.00	0.00	0.00	0.02	0.00
60.78	2.00	0.00	0.00	0.02	0.00	60.87	2.00	0.00	0.00	0.03	0.00
60.93	2.00	0.00	0.00	0.02	0.00	61.01	2.00	0.00	0.00	0.02	0.00
61.04	2.00	0.00	0.00	0.01	0.00	61.11	2.00	0.00	0.00	0.02	0.00
61.18	2.00	0.00	0.00	0.02	0.00	61.24	2.00	0.00	0.00	0.02	0.00
61.31	2.00	0.00	0.00	0.02	0.00	61.37	2.00	0.00	0.00	0.02	0.00
61.45	2.00	0.00	0.00	0.02	0.00	61.50	2.00	0.00	0.00	0.02	0.00
61.56	2.00	0.00	0.00	0.02	0.00	61.64	2.00	0.00	0.00	0.02	0.00
61.69	2.00	0.00	0.00	0.02	0.00	61.77	2.00	0.00	0.00	0.02	0.00
61.83	2.00	0.00	0.00	0.02	0.00	61.91	2.00	0.00	0.00	0.03	0.00
61.97	2.00	0.00	0.00	0.02	0.00	62.02	2.00	0.00	0.00	0.02	0.00
62.12	2.00	0.00	0.00	0.03	0.00	62.18	2.00	0.00	0.00	0.02	0.00
62.22	2.00	0.00	0.00	0.01	0.00	62.28	2.00	0.00	0.00	0.02	0.00
62.36	2.00	0.00	0.00	0.02	0.00	62.42	2.00	0.00	0.00	0.02	0.00
62.49	2.00	0.00	0.00	0.02	0.00	62.55	2.00	0.00	0.00	0.02	0.00
62.62	2.00	0.00	0.00	0.02	0.00	62.69	2.00	0.00	0.00	0.02	0.00
62.75	2.00	0.00	0.00	0.02	0.00	62.83	2.00	0.00	0.00	0.02	0.00
62.88	2.00	0.00	0.00	0.02	0.00	62.96	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}	Depth (ft)	FS	m(FS)	H_1*m(FS)	d_z	LPI_{ISH}
63.01	2.00	0.00	0.00	0.02	0.00	63.07	2.00	0.00	0.00	0.02	0.00
63.14	2.00	0.00	0.00	0.02	0.00	63.20	2.00	0.00	0.00	0.02	0.00
63.27	2.00	0.00	0.00	0.02	0.00	63.34	2.00	0.00	0.00	0.02	0.00
63.40	2.00	0.00	0.00	0.02	0.00	63.47	2.00	0.00	0.00	0.02	0.00
63.53	2.00	0.00	0.00	0.02	0.00	63.61	2.00	0.00	0.00	0.02	0.00
63.67	2.00	0.00	0.00	0.02	0.00	63.74	2.00	0.00	0.00	0.02	0.00
63.80	2.00	0.00	0.00	0.02	0.00	63.86	2.00	0.00	0.00	0.02	0.00
63.93	2.00	0.00	0.00	0.02	0.00	64.00	2.00	0.00	0.00	0.02	0.00
64.05	2.00	0.00	0.00	0.02	0.00	64.13	2.00	0.00	0.00	0.02	0.00
64.19	2.00	0.00	0.00	0.02	0.00	64.25	2.00	0.00	0.00	0.02	0.00
64.33	2.00	0.00	0.00	0.02	0.00	64.39	2.00	0.00	0.00	0.02	0.00
64.46	2.00	0.00	0.00	0.02	0.00	64.51	2.00	0.00	0.00	0.02	0.00
64.58	2.00	0.00	0.00	0.02	0.00	64.65	2.00	0.00	0.00	0.02	0.00
64.72	2.00	0.00	0.00	0.02	0.00	64.79	2.00	0.00	0.00	0.02	0.00
64.85	2.00	0.00	0.00	0.02	0.00	64.91	2.00	0.00	0.00	0.02	0.00
64.98	2.00	0.00	0.00	0.02	0.00	65.05	2.00	0.00	0.00	0.02	0.00
65.11	2.00	0.00	0.00	0.02	0.00	65.18	2.00	0.00	0.00	0.02	0.00
65.24	2.00	0.00	0.00	0.02	0.00	65.31	2.00	0.00	0.00	0.02	0.00
65.37	2.00	0.00	0.00	0.02	0.00	65.44	2.00	0.00	0.00	0.02	0.00
65.51	2.00	0.00	0.00	0.02	0.00	65.57	2.00	0.00	0.00	0.02	0.00
65.63	2.00	0.00	0.00	0.02	0.00	65.70	2.00	0.00	0.00	0.02	0.00
65.77	2.00	0.00	0.00	0.02	0.00	65.84	2.00	0.00	0.00	0.02	0.00
65.89	2.00	0.00	0.00	0.01	0.00	65.96	2.00	0.00	0.00	0.02	0.00
66.04	2.00	0.00	0.00	0.02	0.00	66.09	2.00	0.00	0.00	0.02	0.00
66.16	2.00	0.00	0.00	0.02	0.00	66.23	2.00	0.00	0.00	0.02	0.00
66.29	2.00	0.00	0.00	0.02	0.00	66.36	2.00	0.00	0.00	0.02	0.00
66.43	2.00	0.00	0.00	0.02	0.00	66.48	2.00	0.00	0.00	0.02	0.00
66.55	2.00	0.00	0.00	0.02	0.00	66.62	2.00	0.00	0.00	0.02	0.00
66.68	2.00	0.00	0.00	0.02	0.00	66.75	2.00	0.00	0.00	0.02	0.00
66.82	2.00	0.00	0.00	0.02	0.00	66.88	2.00	0.00	0.00	0.02	0.00
66.95	2.00	0.00	0.00	0.02	0.00	67.01	2.00	0.00	0.00	0.02	0.00
67.08	2.00	0.00	0.00	0.02	0.00	67.14	2.00	0.00	0.00	0.02	0.00
67.21	2.00	0.00	0.00	0.02	0.00	67.28	2.00	0.00	0.00	0.02	0.00
67.35	2.00	0.00	0.00	0.02	0.00	67.40	2.00	0.00	0.00	0.02	0.00
67.47	2.00	0.00	0.00	0.02	0.00	67.53	2.00	0.00	0.00	0.02	0.00
67.61	2.00	0.00	0.00	0.02	0.00	67.67	2.00	0.00	0.00	0.02	0.00
67.73	2.00	0.00	0.00	0.02	0.00	67.80	2.00	0.00	0.00	0.02	0.00
67.87	2.00	0.00	0.00	0.02	0.00	67.93	2.00	0.00	0.00	0.02	0.00
68.00	2.00	0.00	0.00	0.02	0.00						

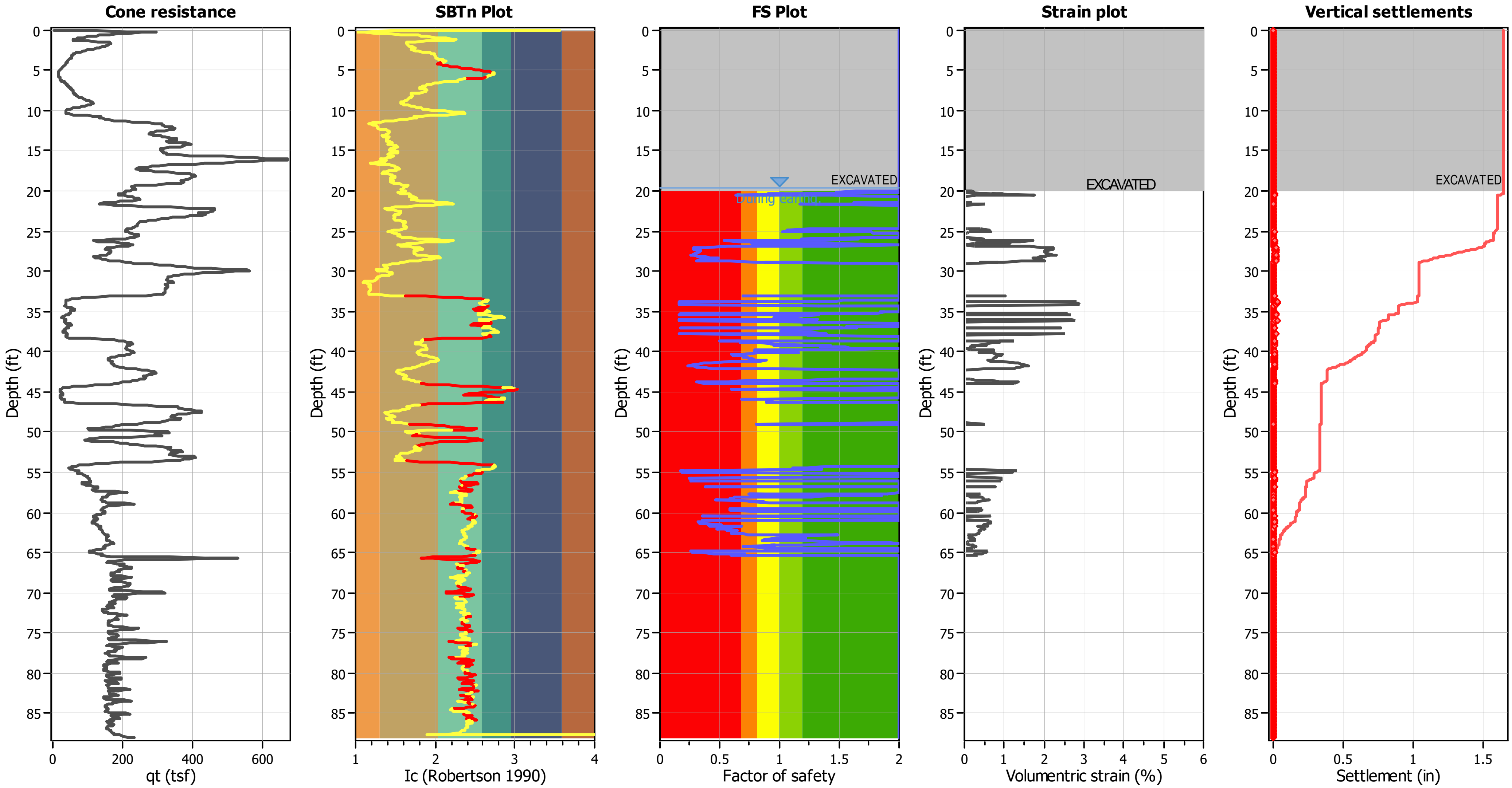
Overall liquefaction potential: 11.04

LPI_{ISH} > 5.0 - Liquefaction manifestation is expected

Abbreviations

FS: Calculated factor of safety for test point
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement of dry sands ::

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
0.02	1.62	186.43	1.00	186.43	0	0	0.53	0.000	0.00	0.00	0.00	0.000
0.10	1.60	182.06	1.00	182.06	0	0	0.53	0.000	0.00	0.00	0.00	0.000
0.15	1.55	180.49	1.00	180.49	0	0	0.53	0.000	0.00	0.00	0.00	0.000
0.23	1.53	177.42	1.00	177.42	0	0	0.53	0.000	0.00	0.00	0.00	0.000
0.29	1.57	173.15	1.00	173.15	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.36	1.61	167.49	1.00	167.49	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.43	1.67	162.08	1.02	165.02	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.47	1.70	162.80	1.04	169.27	0	0	0.57	0.000	0.00	0.00	0.00	0.000
0.54	1.70	165.24	1.04	171.78	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.62	1.67	175.71	1.02	179.21	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.68	1.68	185.07	1.02	189.57	0	0	0.54	0.000	0.00	0.00	0.00	0.000
0.75	1.70	192.00	1.04	199.69	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.81	1.73	196.81	1.06	208.54	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.88	1.76	199.82	1.08	215.80	0	0	0.55	0.000	0.00	0.00	0.00	0.000
0.94	1.77	202.89	1.09	220.25	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.00	1.76	208.19	1.08	224.07	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.07	1.70	213.60	1.04	221.69	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.14	1.72	207.98	1.05	219.11	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.21	1.81	193.33	1.11	215.04	0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.27	1.92	173.42	1.21	209.40	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.34	1.97	161.06	1.27	203.96	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.41	2.00	150.43	1.30	195.89	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.47	2.07	133.61	1.41	188.12	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.53	2.15	119.14	1.56	185.66	0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.59	2.22	108.56	1.71	185.45	0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.65	2.22	107.60	1.71	184.51	0	0	0.55	0.000	0.00	0.00	0.00	0.000
1.72	2.11	122.86	1.48	181.68	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.80	1.95	149.24	1.24	185.06	0	0	0.57	0.000	0.00	0.00	0.00	0.000
1.86	1.78	185.32	1.09	202.06	0	0	0.56	0.000	0.00	0.00	0.00	0.000
1.92	1.67	217.03	1.01	220.06	0	0	0.57	0.000	0.00	0.00	0.00	0.000
1.98	1.59	250.56	1.00	250.56	0	0	0.57	0.000	0.00	0.00	0.00	0.000
2.05	1.50	289.69	1.00	289.69	0	0	0.57	0.000	0.00	0.00	0.00	0.000
2.12	1.42	336.28	1.00	336.28	0	0	0.57	0.000	0.00	0.00	0.00	0.000
2.20	1.38	375.36	1.00	375.36	0	0	0.57	0.000	0.00	0.00	0.00	0.000
2.26	1.37	399.29	1.00	399.29	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.33	1.39	398.17	1.00	398.17	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.39	1.43	393.72	1.00	393.72	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.44	1.48	388.19	1.00	388.19	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.51	1.53	387.50	1.00	387.50	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.58	1.56	384.75	1.00	384.75	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.65	1.56	374.52	1.00	374.52	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.71	1.55	363.49	1.00	363.49	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.77	1.55	351.66	1.00	351.66	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.84	1.54	352.54	1.00	352.54	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.90	1.52	363.38	1.00	363.38	0	0	0.58	0.000	0.00	0.00	0.00	0.000
2.97	1.49	368.32	1.00	368.32	0	0	0.58	0.000	0.00	0.00	0.00	0.000
3.04	1.48	357.79	1.00	357.79	0	0	0.58	0.000	0.00	0.00	0.00	0.000
3.10	1.48	343.56	1.00	343.56	0	0	0.58	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
3.17	1.49	328.73	1.00	328.73	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.23	1.49	319.84	1.00	319.84	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.31	1.50	300.03	1.00	300.03	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.37	1.49	287.95	1.00	287.95	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.43	1.48	275.60	1.00	275.60	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.50	1.48	263.33	1.00	263.33	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.57	1.49	248.84	1.00	248.84	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.62	1.52	236.34	1.00	236.34	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.70	1.55	228.01	1.00	228.01	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.76	1.58	219.22	1.00	219.22	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.82	1.60	212.96	1.00	212.96	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.88	1.61	207.30	1.00	207.30	0	0	0.59	0.000	0.00	0.00	0.00	0.000
3.96	1.61	203.21	1.00	203.21	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.02	1.61	200.57	1.00	200.57	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.10	1.61	198.41	1.00	198.41	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.16	1.61	197.83	1.00	197.83	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.24	1.61	196.84	1.00	196.84	0	0	0.60	0.000	0.00	0.00	0.00	0.000
4.29	1.61	197.32	1.00	197.32	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.35	1.62	195.93	1.00	195.93	0	0	0.60	0.000	0.00	0.00	0.00	0.000
4.42	1.63	194.68	1.00	194.68	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.48	1.63	191.67	1.00	191.67	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.56	1.64	188.17	1.00	187.76	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.62	1.64	184.64	1.00	184.39	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.67	1.63	181.44	1.00	181.44	0	0	0.58	0.000	0.00	0.00	0.00	0.000
4.74	1.62	177.26	1.00	177.26	0	0	0.58	0.000	0.00	0.00	0.00	0.000
4.81	1.60	172.60	1.00	172.60	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.88	1.55	170.84	1.00	170.84	0	0	0.59	0.000	0.00	0.00	0.00	0.000
4.95	1.48	170.69	1.00	170.69	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.01	1.41	173.16	1.00	173.16	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.08	1.41	175.46	1.00	175.46	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.15	1.45	178.55	1.00	178.55	0	0	0.58	0.000	0.00	0.00	0.00	0.000
5.21	1.47	180.42	1.00	180.42	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.26	1.49	181.94	1.00	181.94	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.34	1.52	184.75	1.00	184.75	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.39	1.54	189.90	1.00	189.90	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.48	1.54	195.53	1.00	195.53	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.54	1.54	200.07	1.00	200.07	0	0	0.61	0.000	0.00	0.00	0.00	0.000
5.60	1.54	199.83	1.00	199.83	0	0	0.61	0.000	0.00	0.00	0.00	0.000
5.66	1.55	194.26	1.00	194.26	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.74	1.59	187.03	1.00	187.03	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.79	1.63	180.54	1.00	180.54	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.86	1.69	174.27	1.03	179.43	0	0	0.59	0.000	0.00	0.00	0.00	0.000
5.93	1.76	165.25	1.08	178.62	0	0	0.60	0.000	0.00	0.00	0.00	0.000
5.99	1.86	149.32	1.15	172.43	0	0	0.59	0.000	0.00	0.00	0.00	0.000
6.05	1.97	129.54	1.27	164.15	0	0	0.59	0.000	0.00	0.00	0.00	0.000
6.12	2.10	106.04	1.46	154.52	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.19	2.19	90.49	1.65	149.40	0	0	0.63	0.000	0.00	0.00	0.00	0.000
6.26	2.22	85.10	1.71	145.91	0	0	0.63	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
6.32	2.13	96.01	1.51	145.38	0	0	0.62	0.000	0.00	0.00	0.00	0.000
6.39	2.01	114.37	1.31	149.66	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.45	1.87	136.28	1.16	158.68	0	0	0.62	0.000	0.00	0.00	0.00	0.000
6.51	1.76	154.76	1.08	166.75	0	0	0.62	0.000	0.00	0.00	0.00	0.000
6.57	1.65	170.28	1.00	171.09	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.65	1.58	179.36	1.00	179.36	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.72	1.54	182.61	1.00	182.61	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.78	1.54	179.75	1.00	179.75	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.85	1.57	172.01	1.00	172.01	0	0	0.60	0.000	0.00	0.00	0.00	0.000
6.92	1.61	161.13	1.00	161.13	0	0	0.62	0.000	0.00	0.00	0.00	0.000
6.97	1.67	147.95	1.02	150.54	0	0	0.63	0.000	0.00	0.00	0.00	0.000
7.03	1.74	132.67	1.06	141.19	0	0	0.65	0.000	0.00	0.00	0.00	0.000
7.13	1.81	119.59	1.11	132.88	0	0	0.67	0.000	0.00	0.00	0.00	0.000
7.19	1.84	113.52	1.14	128.87	0	0	0.67	0.000	0.00	0.00	0.00	0.000
7.23	1.83	114.40	1.13	129.29	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.31	1.80	119.69	1.10	132.24	0	0	0.67	0.000	0.00	0.00	0.00	0.000
7.37	1.77	123.98	1.08	134.39	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.43	1.74	127.55	1.07	136.24	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.50	1.74	128.48	1.06	136.67	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.56	1.74	128.23	1.06	136.26	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.63	1.73	127.88	1.06	135.48	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.70	1.73	126.84	1.06	134.12	0	0	0.66	0.000	0.00	0.00	0.00	0.000
7.76	1.73	125.10	1.06	132.51	0	0	0.67	0.000	0.00	0.00	0.00	0.000
7.82	1.75	121.34	1.07	129.88	0	0	0.67	0.000	0.00	0.00	0.00	0.000
7.90	1.77	116.06	1.09	126.31	0	0	0.68	0.000	0.00	0.00	0.00	0.000
7.96	1.81	109.37	1.11	121.95	0	0	0.68	0.000	0.00	0.00	0.00	0.000
8.02	1.87	102.23	1.16	118.63	0	0	0.67	0.000	0.00	0.00	0.00	0.000
8.10	1.93	95.34	1.22	116.39	0	0	0.67	0.000	0.00	0.00	0.00	0.000
8.15	2.00	89.16	1.30	115.74	0	0	0.66	0.000	0.00	0.00	0.00	0.000
8.23	2.04	86.20	1.35	116.54	0	0	0.66	0.000	0.00	0.00	0.00	0.000
8.29	2.05	86.71	1.37	119.16	0	0	0.66	0.000	0.00	0.00	0.00	0.000
8.36	2.04	90.48	1.36	122.81	0	0	0.65	0.000	0.00	0.00	0.00	0.000
8.43	2.01	96.21	1.31	126.13	0	0	0.65	0.000	0.00	0.00	0.00	0.000
8.48	1.95	103.54	1.24	128.04	0	0	0.66	0.000	0.00	0.00	0.00	0.000
8.56	1.87	112.73	1.16	130.76	0	0	0.67	0.000	0.00	0.00	0.00	0.000
8.65	1.79	122.23	1.10	134.74	0	0	0.67	0.000	0.00	0.00	0.00	0.000
8.69	1.73	134.89	1.05	142.28	0	0	0.67	0.000	0.00	0.00	0.00	0.000
8.78	1.67	146.82	1.02	149.36	0	0	0.64	0.000	0.00	0.00	0.00	0.000
8.82	1.61	159.54	1.00	159.54	0	0	0.63	0.000	0.00	0.00	0.00	0.000
8.91	1.59	163.33	1.00	163.33	0	0	0.62	0.000	0.00	0.00	0.00	0.000
8.95	1.56	171.28	1.00	171.28	0	0	0.63	0.000	0.00	0.00	0.00	0.000
9.01	1.53	183.58	1.00	183.58	0	0	0.62	0.000	0.00	0.00	0.00	0.000
9.07	1.49	203.55	1.00	203.55	0	0	0.63	0.000	0.00	0.00	0.00	0.000
9.14	1.45	222.60	1.00	222.60	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.20	1.40	240.18	1.00	240.18	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.28	1.36	257.20	1.00	257.20	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.33	1.35	271.06	1.00	271.06	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.40	1.37	285.08	1.00	285.08	0	0	0.64	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
9.48	1.39	301.19	1.00	301.19	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.54	1.39	319.77	1.00	319.77	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.61	1.40	338.93	1.00	338.93	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.68	1.40	358.57	1.00	358.57	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.73	1.36	390.58	1.00	390.58	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.80	1.30	422.45	1.00	422.45	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.88	1.25	449.31	1.00	449.31	0	0	0.64	0.000	0.00	0.00	0.00	0.000
9.93	1.28	452.95	1.00	452.95	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.00	1.32	444.44	1.00	444.44	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.06	1.38	413.27	1.00	413.27	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.12	1.42	374.04	1.00	374.04	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.20	1.46	335.72	1.00	335.72	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.26	1.45	316.63	1.00	316.63	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.32	1.44	303.60	1.00	303.60	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.39	1.43	292.22	1.00	292.22	0	0	0.64	0.000	0.00	0.00	0.00	0.000
10.45	1.42	281.18	1.00	281.18	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.52	1.38	275.84	1.00	275.84	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.58	1.33	272.38	1.00	272.38	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.64	1.30	268.56	1.00	268.56	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.71	1.28	265.77	1.00	265.77	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.78	1.27	263.62	1.00	263.62	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.84	1.27	263.34	1.00	263.34	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.92	1.26	263.34	1.00	263.34	0	0	0.65	0.000	0.00	0.00	0.00	0.000
10.98	1.26	263.24	1.00	263.24	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.04	1.26	259.99	1.00	259.99	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.12	1.26	260.74	1.00	260.74	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.18	1.23	263.95	1.00	263.95	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.25	1.16	274.30	1.00	274.30	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.33	1.10	279.68	1.00	279.68	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.37	1.09	280.88	1.00	280.88	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.46	1.11	278.06	1.00	278.06	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.50	1.13	269.99	1.00	269.99	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.58	1.16	263.07	1.00	263.07	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.64	1.19	257.24	1.00	257.24	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.71	1.19	258.78	1.00	258.78	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.79	1.18	260.78	1.00	260.78	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.83	1.17	263.51	1.00	263.51	0	0	0.65	0.000	0.00	0.00	0.00	0.000
11.91	1.17	264.35	1.00	264.35	0	0	0.66	0.000	0.00	0.00	0.00	0.000
11.96	1.17	264.22	1.00	264.22	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.04	1.17	262.09	1.00	262.09	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.09	1.19	258.62	1.00	258.62	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.16	1.19	256.71	1.00	256.71	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.24	1.19	254.67	1.00	254.67	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.29	1.18	254.96	1.00	254.96	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.37	1.18	255.81	1.00	255.81	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.43	1.17	256.62	1.00	256.62	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.50	1.17	257.88	1.00	257.88	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.57	1.17	257.64	1.00	257.64	0	0	0.66	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
12.61	1.17	256.68	1.00	256.68	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.70	1.17	254.84	1.00	254.84	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.75	1.17	253.64	1.00	253.64	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.83	1.17	253.08	1.00	253.08	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.87	1.20	247.77	1.00	247.77	0	0	0.66	0.000	0.00	0.00	0.00	0.000
12.96	1.27	235.97	1.00	235.97	0	0	0.66	0.000	0.00	0.00	0.00	0.000
13.01	1.44	202.02	1.00	202.02	0	0	0.66	0.000	0.00	0.00	0.00	0.000
13.10	1.63	162.23	1.00	162.23	0	0	0.67	0.000	0.00	0.00	0.00	0.000
13.15	1.88	112.52	1.17	131.87	0	0	0.69	0.000	0.00	0.00	0.00	0.000
13.23	2.09	80.16	1.43	115.02	0	0	0.71	0.000	0.00	0.00	0.00	0.000
13.29	2.31	54.95	1.97	108.30	0	0	0.72	0.000	0.00	0.00	0.00	0.000
13.35	2.42	44.01	2.41	105.90	0	0	0.73	0.000	0.00	0.00	0.00	0.000
13.41	2.51	36.47	2.84	103.46	0	0	0.74	0.000	0.00	0.00	0.00	0.000
13.46	2.58	31.21	3.20	99.84	0	0	0.74	0.000	0.00	0.00	0.00	0.000
13.55	2.63	27.31	3.50	95.56	0	0	0.74	0.000	0.00	0.00	0.00	0.000
13.60	2.66	24.23	3.74	90.54	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.67	2.66	22.70	3.75	85.04	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.75	2.65	21.82	3.67	80.07	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.79	2.62	21.70	3.48	75.56	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.88	2.60	21.97	3.32	72.84	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.96	2.57	22.36	3.16	70.63	0	0	0.75	0.000	0.00	0.00	0.00	0.000
13.99	2.56	22.21	3.11	69.06	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.06	2.58	21.70	3.19	69.13	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.13	2.59	20.99	3.24	67.94	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.20	2.60	20.49	3.31	67.74	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.28	2.61	20.23	3.38	68.46	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.33	2.66	20.03	3.72	74.57	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.41	2.66	22.06	3.72	82.03	0	0	0.76	0.000	0.00	0.00	0.00	0.000
14.48	2.63	24.94	3.55	88.46	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.51	2.58	29.25	3.20	93.55	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.60	2.54	32.65	2.98	97.15	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.68	2.50	35.94	2.76	99.18	0	0	0.74	0.000	0.00	0.00	0.00	0.000
14.72	2.47	37.69	2.64	99.44	0	0	0.74	0.000	0.00	0.00	0.00	0.000
14.80	2.50	36.25	2.78	100.83	0	0	0.74	0.000	0.00	0.00	0.00	0.000
14.88	2.56	33.16	3.10	102.92	0	0	0.75	0.000	0.00	0.00	0.00	0.000
14.92	2.65	29.00	3.67	106.31	0	0	0.75	0.000	0.00	0.00	0.00	0.000
15.00	2.68	27.79	3.87	107.46	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.05	2.68	27.48	3.87	106.31	0	0	0.75	0.000	0.00	0.00	0.00	0.000
15.13	2.64	28.38	3.56	101.03	0	0	0.75	0.000	0.00	0.00	0.00	0.000
15.20	2.60	27.75	3.34	92.58	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.27	2.57	27.07	3.12	84.52	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.30	2.53	26.43	2.94	77.67	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.37	2.53	25.41	2.94	74.66	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.44	2.57	23.32	3.14	73.29	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.50	2.65	20.25	3.65	73.91	0	0	0.76	0.000	0.00	0.00	0.00	0.000
15.57	2.75	17.10	4.35	74.32	0	0	0.77	0.000	0.00	0.00	0.00	0.000
15.64	2.82	14.96	5.00	74.72	0	0	0.77	0.000	0.00	0.00	0.00	0.000
15.71	2.86	14.15	5.34	75.61	0	0	0.77	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
15.78	2.86	14.31	5.30	75.85	0	0	0.77	0.000	0.00	0.00	0.00	0.000
15.84	2.80	15.58	4.78	74.56	0	0	0.77	0.000	0.00	0.00	0.00	0.000
15.92	2.70	17.91	4.02	71.92	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.00	2.61	20.47	3.37	68.99	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.04	2.56	21.46	3.08	66.15	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.12	2.55	20.99	3.06	64.25	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.16	2.59	19.45	3.27	63.54	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.24	2.62	19.07	3.45	65.74	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.33	2.67	18.22	3.80	69.18	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.37	2.70	18.72	3.97	74.35	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.45	2.70	19.61	3.98	78.00	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.49	2.60	23.74	3.32	78.74	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.58	2.49	27.96	2.70	75.43	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.62	2.44	30.40	2.47	74.95	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.70	2.50	28.42	2.77	78.82	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.79	2.61	25.22	3.37	84.93	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.83	2.68	22.95	3.84	88.12	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.90	2.64	24.17	3.60	87.08	0	0	0.77	0.000	0.00	0.00	0.00	0.000
16.97	2.60	25.68	3.33	85.49	0	0	0.77	0.000	0.00	0.00	0.00	0.000
17.01	2.58	25.93	3.22	83.57	0	0	0.77	0.000	0.00	0.00	0.00	0.000
17.10	2.62	23.69	3.48	82.35	0	0	0.77	0.000	0.00	0.00	0.00	0.000
17.14	2.68	20.96	3.84	80.53	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.23	2.71	19.31	4.07	78.62	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.27	2.74	17.74	4.27	75.75	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.36	2.76	16.55	4.43	73.34	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.40	2.76	15.93	4.46	71.00	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.49	2.78	15.37	4.61	70.81	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.53	2.79	15.67	4.71	73.76	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.62	2.80	16.25	4.77	77.57	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.67	2.71	19.32	4.08	78.75	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.75	2.63	21.70	3.54	76.73	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.83	2.59	22.86	3.24	74.02	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.89	2.61	21.57	3.39	73.19	0	0	0.78	0.000	0.00	0.00	0.00	0.000
17.93	2.66	19.68	3.74	73.67	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.02	2.69	19.14	3.89	74.47	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.06	2.70	18.87	4.00	75.54	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.15	2.68	19.62	3.88	76.20	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.19	2.67	20.73	3.76	77.85	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.28	2.58	24.75	3.23	79.84	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.32	2.32	41.51	2.01	83.53	0	0	0.78	0.000	0.00	0.00	0.00	0.000
18.41	2.07	68.57	1.41	96.35	0	0	0.75	0.000	0.00	0.00	0.00	0.000
18.49	1.91	96.90	1.20	116.29	0	0	0.73	0.000	0.00	0.00	0.00	0.000
18.53	1.85	115.90	1.14	132.37	0	0	0.74	0.000	0.00	0.00	0.00	0.000
18.62	1.83	124.87	1.13	141.03	0	0	0.73	0.000	0.00	0.00	0.00	0.000
18.66	1.83	132.29	1.13	149.25	0	0	0.72	0.000	0.00	0.00	0.00	0.000
18.74	1.84	136.10	1.13	154.44	0	0	0.71	0.000	0.00	0.00	0.00	0.000
18.79	1.82	141.59	1.12	159.21	0	0	0.71	0.000	0.00	0.00	0.00	0.000
18.87	1.79	146.77	1.10	161.01	0	0	0.70	0.000	0.00	0.00	0.00	0.000

:: Post-earthquake settlement of dry sands :: (continued)

Depth (ft)	Ic	Q_{tn}	K_c	$Q_{tn,cs}$	$N_{1,60}$ (blows)	G_{max} (tsf)	CSR	Shear, γ (%)	$e_{vol(15)}$ (%)	N_c	e_v (%)	Settle. (in)
18.92	1.75	151.91	1.07	163.09	0	0	0.70	0.000	0.00	0.00	0.00	0.000
19.01	1.75	153.50	1.07	164.30	0	0	0.69	0.000	0.00	0.00	0.00	0.000
19.05	1.78	152.42	1.09	166.27	0	0	0.70	0.000	0.00	0.00	0.00	0.000
19.14	1.80	150.34	1.11	166.85	0	0	0.70	0.000	0.00	0.00	0.00	0.000
19.18	1.84	145.47	1.14	165.15	0	0	0.69	0.000	0.00	0.00	0.00	0.000
19.27	1.85	142.65	1.15	163.81	0	0	0.70	0.000	0.00	0.00	0.00	0.000
19.32	1.87	139.63	1.16	162.10	0	0	0.68	0.000	0.00	0.00	0.00	0.000
19.40	1.87	139.27	1.16	162.12	0	0	0.68	0.000	0.00	0.00	0.00	0.000
19.44	1.89	137.23	1.18	161.45	0	0	0.69	0.000	0.00	0.00	0.00	0.000
19.53	1.90	136.38	1.18	161.53	0	0	0.69	0.000	0.00	0.00	0.00	0.000
19.57	1.90	135.78	1.19	161.76	0	0	0.69	0.000	0.00	0.00	0.00	0.000
19.66	1.90	136.13	1.19	162.26	0	0	0.69	0.000	0.00	0.00	0.00	0.000

Total estimated settlement: 0.00

Abbreviations

Q_{tn}: Normalized cone resistance
K_c: Fines correction factor
$Q_{tn,cs}$: Equivalent clean sand normalized cone resistance
G_{max}: Small strain shear modulus
CSR: Soil cyclic stress ratio
γ: Cyclic shear strain
$e_{vol(15)}$: Volumetric strain after 15 cycles
N_c: Equivalent number of cycles
e_v: Volumetric strain
Settle.: Calculated settlement

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
19.70	188.95	1.56	0.14	0.67	0.00	19.79	181.48	1.11	0.39	0.66	0.00
19.83	172.88	0.79	0.73	0.66	0.00	19.92	173.08	0.79	0.73	0.66	0.01
20.00	178.58	0.98	0.51	0.66	0.01	20.05	181.01	1.09	0.41	0.66	0.00
20.09	182.42	1.16	0.36	0.66	0.00	20.18	174.36	0.83	0.69	0.66	0.01
20.23	174.22	0.83	0.69	0.66	0.00	20.30	169.32	0.69	0.82	0.66	0.01
20.38	164.99	0.60	0.95	0.65	0.01	20.43	166.38	0.62	0.91	0.65	0.01
20.51	165.93	0.61	0.92	0.65	0.01	20.56	169.15	0.68	0.82	0.65	0.01
20.62	171.25	0.74	0.76	0.65	0.00	20.70	169.85	0.70	0.80	0.65	0.01
20.76	170.56	0.72	0.78	0.65	0.01	20.82	171.59	0.75	0.75	0.65	0.01
20.89	172.42	0.77	0.73	0.65	0.01	20.98	173.26	0.79	0.70	0.64	0.01
21.02	173.82	0.81	0.69	0.64	0.00	21.11	176.36	0.89	0.59	0.64	0.01
21.15	174.42	0.83	0.67	0.64	0.00	21.24	173.59	0.80	0.69	0.64	0.01
21.28	164.40	0.58	0.95	0.64	0.00	21.37	154.39	0.43	1.28	0.64	0.01
21.41	148.15	0.37	1.34	0.64	0.01	21.50	141.45	0.32	1.41	0.64	0.01
21.55	137.37	0.29	1.46	0.64	0.01	21.63	136.31	0.29	1.46	0.63	0.02
21.68	136.39	0.29	1.46	0.63	0.01	21.74	124.83	0.24	1.61	0.63	0.01
21.80	134.20	0.28	1.48	0.63	0.01	21.87	140.46	0.31	1.41	0.63	0.01
21.94	144.57	0.34	1.36	0.63	0.01	22.02	148.50	0.37	1.32	0.63	0.01
22.09	155.54	0.44	1.25	0.63	0.01	22.16	168.26	0.66	0.81	0.62	0.01
22.20	177.94	0.94	0.52	0.62	0.00	22.29	200.03	2.00	0.00	0.62	0.00
22.33	209.86	2.00	0.00	0.62	0.00	22.42	224.66	2.00	0.00	0.62	0.00
22.46	230.13	2.00	0.00	0.62	0.00	22.55	232.59	2.00	0.00	0.62	0.00
22.60	232.90	2.00	0.00	0.62	0.00	22.66	233.20	2.00	0.00	0.62	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
22.74	233.76	2.00	0.00	0.61	0.00	22.82	223.62	2.00	0.00	0.61	0.00
22.87	216.17	2.00	0.00	0.61	0.00	22.96	203.21	2.00	0.00	0.61	0.00
23.00	199.17	2.00	0.00	0.61	0.00	23.09	203.09	2.00	0.00	0.61	0.00
23.13	197.13	2.00	0.00	0.61	0.00	23.21	202.97	2.00	0.00	0.61	0.00
23.26	206.64	2.00	0.00	0.61	0.00	23.34	204.57	2.00	0.00	0.60	0.00
23.38	199.76	2.00	0.00	0.60	0.00	23.47	188.22	1.47	0.16	0.60	0.00
23.52	183.69	1.19	0.30	0.60	0.00	23.60	175.96	0.86	0.59	0.60	0.01
23.65	171.76	0.74	0.69	0.60	0.00	23.74	164.67	0.58	0.88	0.60	0.01
23.78	162.50	0.54	0.95	0.60	0.00	23.83	139.52	0.30	1.34	0.60	0.01
23.91	148.58	0.37	1.25	0.60	0.01	24.00	136.68	2.00	0.00	0.59	0.00
24.04	152.13	2.00	0.00	0.59	0.00	24.13	152.02	2.00	0.00	0.59	0.00
24.17	151.87	2.00	0.00	0.59	0.00	24.26	127.12	2.00	0.00	0.59	0.00
24.30	117.34	2.00	0.00	0.59	0.00	24.39	36.18	2.00	0.00	0.59	0.00
24.44	32.20	2.00	0.00	0.59	0.00	24.53	23.04	2.00	0.00	0.58	0.00
24.57	19.81	2.00	0.00	0.58	0.00	24.66	15.13	0.69	0.00	0.58	0.00
24.70	14.36	0.60	0.00	0.58	0.00	24.79	14.08	2.00	0.00	0.58	0.00
24.83	14.07	2.00	0.00	0.58	0.00	24.92	14.19	2.00	0.00	0.58	0.00
24.96	14.25	2.00	0.00	0.58	0.00	25.05	14.42	2.00	0.00	0.58	0.00
25.09	14.99	2.00	0.00	0.58	0.00	25.18	71.01	2.00	0.00	0.57	0.00
25.22	70.09	2.00	0.00	0.57	0.00	25.31	73.39	2.00	0.00	0.57	0.00
25.35	74.17	2.00	0.00	0.57	0.00	25.42	65.84	2.00	0.00	0.57	0.00
25.48	13.26	2.00	0.00	0.57	0.00	25.56	13.67	2.00	0.00	0.57	0.00
25.62	14.09	2.00	0.00	0.57	0.00	25.68	14.44	2.00	0.00	0.57	0.00
25.74	14.72	2.00	0.00	0.56	0.00	25.80	14.66	2.00	0.00	0.56	0.00
25.88	16.23	0.68	0.00	0.56	0.00	25.95	18.41	0.77	0.00	0.56	0.00
26.00	20.87	0.88	0.00	0.56	0.00	26.07	23.07	0.94	0.00	0.56	0.00
26.13	22.67	0.91	0.00	0.56	0.00	26.21	18.78	0.89	0.00	0.56	0.00
26.30	22.29	2.00	0.00	0.55	0.00	26.34	78.74	2.00	0.00	0.55	0.00
26.43	120.77	2.00	0.00	0.55	0.00	26.47	136.82	2.00	0.00	0.55	0.00
26.55	175.60	2.00	0.00	0.55	0.00	26.59	167.34	2.00	0.00	0.55	0.00
26.67	209.82	2.00	0.00	0.55	0.00	26.76	246.39	2.00	0.00	0.55	0.00
26.80	254.00	2.00	0.00	0.55	0.00	26.88	254.00	2.00	0.00	0.54	0.00
26.92	254.00	2.00	0.00	0.54	0.00	27.00	254.00	2.00	0.00	0.54	0.00
27.05	254.00	2.00	0.00	0.54	0.00	27.12	254.00	2.00	0.00	0.54	0.00
27.18	254.00	2.00	0.00	0.54	0.00	27.25	254.00	2.00	0.00	0.54	0.00
27.32	254.00	2.00	0.00	0.54	0.00	27.38	254.00	2.00	0.00	0.54	0.00
27.44	254.00	2.00	0.00	0.54	0.00	27.52	254.00	2.00	0.00	0.53	0.00
27.58	254.00	2.00	0.00	0.53	0.00	27.65	254.00	2.00	0.00	0.53	0.00
27.71	254.00	2.00	0.00	0.53	0.00	27.78	254.00	2.00	0.00	0.53	0.00
27.84	254.00	2.00	0.00	0.53	0.00	27.91	254.00	2.00	0.00	0.53	0.00
27.97	254.00	2.00	0.00	0.53	0.00	28.04	254.00	2.00	0.00	0.53	0.00
28.12	254.00	2.00	0.00	0.52	0.00	28.17	254.00	2.00	0.00	0.52	0.00
28.25	254.00	2.00	0.00	0.52	0.00	28.33	254.00	2.00	0.00	0.52	0.00
28.37	254.00	2.00	0.00	0.52	0.00	28.46	254.00	2.00	0.00	0.52	0.00
28.50	254.00	2.00	0.00	0.52	0.00	28.56	251.51	2.00	0.00	0.52	0.00
28.63	254.00	2.00	0.00	0.52	0.00	28.69	250.06	2.00	0.00	0.51	0.00
28.76	238.88	2.00	0.00	0.51	0.00	28.84	216.69	2.00	0.00	0.51	0.00
28.90	200.34	2.00	0.00	0.51	0.00	28.98	174.89	0.80	0.52	0.51	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
29.03	161.91	2.00	0.00	0.51	0.00	29.09	177.37	2.00	0.00	0.51	0.00
29.18	191.42	2.00	0.00	0.51	0.00	29.21	197.93	2.00	0.00	0.51	0.00
29.30	197.04	2.00	0.00	0.50	0.00	29.38	191.93	2.00	0.00	0.50	0.00
29.42	187.05	2.00	0.00	0.50	0.00	29.50	170.71	2.00	0.00	0.50	0.00
29.58	148.68	2.00	0.00	0.50	0.00	29.62	140.53	2.00	0.00	0.50	0.00
29.69	127.16	2.00	0.00	0.50	0.00	29.76	146.08	2.00	0.00	0.50	0.00
29.82	192.26	2.00	0.00	0.50	0.00	29.89	248.05	2.00	0.00	0.49	0.00
29.95	254.00	2.00	0.00	0.49	0.00	30.03	254.00	2.00	0.00	0.49	0.00
30.07	254.00	2.00	0.00	0.49	0.00	30.15	228.15	2.00	0.00	0.49	0.00
30.20	231.17	2.00	0.00	0.49	0.00	30.27	213.13	2.00	0.00	0.49	0.00
30.33	223.90	2.00	0.00	0.49	0.00	30.39	234.52	2.00	0.00	0.49	0.00
30.47	254.00	2.00	0.00	0.48	0.00	30.54	196.14	2.00	0.00	0.48	0.00
30.59	238.83	2.00	0.00	0.48	0.00	30.66	198.93	2.00	0.00	0.48	0.00
30.73	173.16	2.00	0.00	0.48	0.00	30.80	150.18	2.00	0.00	0.48	0.00
30.86	142.04	2.00	0.00	0.48	0.00	30.93	137.73	2.00	0.00	0.48	0.00
30.99	127.78	2.00	0.00	0.48	0.00	31.06	125.15	2.00	0.00	0.47	0.00
31.13	147.97	2.00	0.00	0.47	0.00	31.18	167.15	2.00	0.00	0.47	0.00
31.26	191.25	2.00	0.00	0.47	0.00	31.33	180.81	2.00	0.00	0.47	0.00
31.38	179.57	2.00	0.00	0.47	0.00	31.45	178.83	2.00	0.00	0.47	0.00
31.52	172.99	2.00	0.00	0.47	0.00	31.61	175.86	2.00	0.00	0.46	0.00
31.65	176.73	2.00	0.00	0.46	0.00	31.73	186.32	2.00	0.00	0.46	0.00
31.80	228.14	2.00	0.00	0.46	0.00	31.87	254.00	2.00	0.00	0.46	0.00
31.93	254.00	2.00	0.00	0.46	0.00	31.99	254.00	2.00	0.00	0.46	0.00
32.06	254.00	2.00	0.00	0.46	0.00	32.11	254.00	2.00	0.00	0.46	0.00
32.17	254.00	2.00	0.00	0.46	0.00	32.24	254.00	2.00	0.00	0.45	0.00
32.30	254.00	2.00	0.00	0.45	0.00	32.37	254.00	2.00	0.00	0.45	0.00
32.44	254.00	2.00	0.00	0.45	0.00	32.50	254.00	2.00	0.00	0.45	0.00
32.56	254.00	2.00	0.00	0.45	0.00	32.63	254.00	2.00	0.00	0.45	0.00
32.70	254.00	2.00	0.00	0.45	0.00	32.76	254.00	2.00	0.00	0.45	0.00
32.83	251.38	2.00	0.00	0.44	0.00	32.89	254.00	2.00	0.00	0.44	0.00
32.95	254.00	2.00	0.00	0.44	0.00	33.02	254.00	2.00	0.00	0.44	0.00
33.10	254.00	2.00	0.00	0.44	0.00	33.16	254.00	2.00	0.00	0.44	0.00
33.25	254.00	2.00	0.00	0.44	0.00	33.29	254.00	2.00	0.00	0.44	0.00
33.37	254.00	2.00	0.00	0.43	0.00	33.45	254.00	2.00	0.00	0.43	0.00
33.50	254.00	2.00	0.00	0.43	0.00	33.59	254.00	2.00	0.00	0.43	0.00
33.63	254.00	2.00	0.00	0.43	0.00	33.68	214.61	2.00	0.00	0.43	0.00
33.76	227.71	2.00	0.00	0.43	0.00	33.82	212.06	2.00	0.00	0.43	0.00
33.88	184.90	2.00	0.00	0.43	0.00	33.96	156.74	2.00	0.00	0.42	0.00
34.02	139.11	2.00	0.00	0.42	0.00	34.08	57.22	2.00	0.00	0.42	0.00
34.14	50.70	2.00	0.00	0.42	0.00	34.23	43.33	2.00	0.00	0.42	0.00
34.28	39.34	1.54	0.00	0.42	0.00	34.34	35.39	1.38	0.00	0.42	0.00
34.41	31.42	1.24	0.00	0.42	0.00	34.49	28.20	1.13	0.00	0.42	0.00
34.53	27.44	1.11	0.00	0.42	0.00	34.61	29.57	1.19	0.00	0.41	0.00
34.70	34.45	1.35	0.00	0.41	0.00	34.75	100.81	0.17	1.31	0.41	0.01
34.83	113.81	0.19	1.15	0.41	0.01	34.88	113.56	0.19	1.15	0.41	0.01
34.92	109.76	0.18	1.19	0.41	0.01	35.01	110.13	0.18	1.18	0.41	0.01
35.10	110.17	2.00	0.00	0.41	0.00	35.13	109.60	2.00	0.00	0.41	0.00
35.20	122.78	2.00	0.00	0.40	0.00	35.29	119.10	2.00	0.00	0.40	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
35.33	120.29	2.00	0.00	0.40	0.00	35.42	128.10	2.00	0.00	0.40	0.00
35.46	130.02	2.00	0.00	0.40	0.00	35.55	130.13	2.00	0.00	0.40	0.00
35.58	129.98	2.00	0.00	0.40	0.00	35.66	130.22	0.24	0.96	0.40	0.01
35.72	134.25	0.26	0.93	0.40	0.01	35.78	136.32	0.27	0.91	0.39	0.01
35.84	133.34	0.26	0.93	0.39	0.01	35.91	133.09	0.26	0.93	0.39	0.01
35.98	133.24	0.26	0.93	0.39	0.01	36.05	133.14	0.26	0.92	0.39	0.01
36.11	136.64	2.00	0.00	0.39	0.00	36.19	139.77	2.00	0.00	0.39	0.00
36.25	133.48	2.00	0.00	0.39	0.00	36.32	123.42	2.00	0.00	0.39	0.00
36.36	120.31	2.00	0.00	0.38	0.00	36.43	116.67	2.00	0.00	0.38	0.00
36.52	121.82	2.00	0.00	0.38	0.00	36.57	127.25	2.00	0.00	0.38	0.00
36.64	133.76	2.00	0.00	0.38	0.00	36.69	138.21	2.00	0.00	0.38	0.00
36.77	143.66	2.00	0.00	0.38	0.00	36.85	151.87	0.38	0.77	0.38	0.01
36.89	151.76	2.00	0.00	0.38	0.00	36.97	163.88	2.00	0.00	0.37	0.00
37.03	155.03	2.00	0.00	0.37	0.00	37.12	144.62	2.00	0.00	0.37	0.00
37.15	144.08	2.00	0.00	0.37	0.00	37.22	144.63	2.00	0.00	0.37	0.00
37.29	148.54	2.00	0.00	0.37	0.00	37.35	167.06	2.00	0.00	0.37	0.00
37.42	204.44	2.00	0.00	0.37	0.00	37.49	251.99	2.00	0.00	0.37	0.00
37.56	245.87	2.00	0.00	0.36	0.00	37.62	223.79	2.00	0.00	0.36	0.00
37.68	194.98	1.90	0.01	0.36	0.00	37.74	173.30	0.74	0.39	0.36	0.00
37.83	194.40	1.85	0.02	0.36	0.00	37.89	179.73	0.95	0.29	0.36	0.00
37.96	188.55	1.40	0.11	0.36	0.00	38.02	186.20	1.27	0.15	0.36	0.00
38.07	174.76	0.78	0.37	0.36	0.00	38.16	168.72	0.63	0.45	0.35	0.00
38.22	167.66	0.61	0.47	0.35	0.00	38.28	167.00	0.59	0.48	0.35	0.00
38.34	166.67	0.59	0.48	0.35	0.00	38.42	167.00	0.59	0.47	0.35	0.00
38.48	165.97	0.57	0.49	0.35	0.00	38.53	159.16	0.46	0.62	0.35	0.00
38.60	177.39	0.87	0.33	0.35	0.00	38.67	173.70	0.75	0.37	0.35	0.00
38.73	178.64	0.91	0.30	0.34	0.00	38.80	189.65	1.47	0.09	0.34	0.00
38.86	233.50	2.00	0.00	0.34	0.00	38.93	254.00	2.00	0.00	0.34	0.00
39.00	254.00	2.00	0.00	0.34	0.00	39.07	237.70	2.00	0.00	0.34	0.00
39.14	204.57	2.00	0.00	0.34	0.00	39.21	186.62	2.00	0.00	0.34	0.00
39.27	178.05	2.00	0.00	0.34	0.00	39.33	176.36	2.00	0.00	0.33	0.00
39.39	173.80	2.00	0.00	0.33	0.00	39.47	171.78	2.00	0.00	0.33	0.00
39.53	167.96	2.00	0.00	0.33	0.00	39.58	166.52	0.58	0.46	0.33	0.00
39.67	166.62	0.58	0.45	0.33	0.00	39.73	167.07	0.59	0.44	0.33	0.00
39.81	166.80	0.59	0.45	0.33	0.00	39.84	174.81	0.78	0.34	0.33	0.00
39.92	185.82	2.00	0.00	0.32	0.00	40.00	175.44	2.00	0.00	0.32	0.00
40.04	168.50	2.00	0.00	0.32	0.00	40.12	173.69	2.00	0.00	0.32	0.00
40.20	167.90	2.00	0.00	0.32	0.00	40.24	164.86	2.00	0.00	0.32	0.00
40.32	155.82	2.00	0.00	0.32	0.00	40.37	154.15	2.00	0.00	0.32	0.00
40.44	150.46	0.37	0.65	0.32	0.01	40.52	148.33	0.35	0.66	0.31	0.01
40.56	148.33	2.00	0.00	0.31	0.00	40.64	148.91	2.00	0.00	0.31	0.00
40.71	156.33	2.00	0.00	0.31	0.00	40.78	164.06	2.00	0.00	0.31	0.00
40.83	160.49	2.00	0.00	0.31	0.00	40.93	149.42	2.00	0.00	0.31	0.00
40.97	150.07	2.00	0.00	0.31	0.00	41.05	148.58	0.35	0.64	0.30	0.01
41.10	149.89	0.36	0.63	0.30	0.00	41.18	144.66	0.32	0.65	0.30	0.01
41.23	144.65	0.32	0.65	0.30	0.00	41.30	145.57	0.33	0.65	0.30	0.01
41.36	147.17	0.34	0.64	0.30	0.00	41.42	146.07	0.33	0.64	0.30	0.00
41.49	162.39	0.51	0.47	0.30	0.00	41.55	153.42	0.40	0.60	0.30	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
41.63	155.53	0.42	0.59	0.30	0.01	41.69	164.57	0.55	0.43	0.29	0.00
41.75	171.12	0.68	0.34	0.29	0.00	41.82	163.62	0.53	0.45	0.29	0.00
41.88	161.35	0.50	0.48	0.29	0.00	41.95	162.12	0.51	0.47	0.29	0.00
42.01	160.69	0.49	0.49	0.29	0.00	42.09	160.04	0.48	0.50	0.29	0.00
42.15	164.14	0.54	0.43	0.29	0.00	42.22	169.76	0.65	0.35	0.29	0.00
42.30	165.67	0.57	0.40	0.28	0.00	42.34	169.41	0.64	0.35	0.28	0.00
42.42	167.03	0.59	0.38	0.28	0.00	42.50	169.16	0.64	0.35	0.28	0.00
42.54	167.07	0.59	0.38	0.28	0.00	42.62	171.30	0.69	0.33	0.28	0.00
42.70	171.45	0.69	0.32	0.28	0.00	42.74	173.28	0.74	0.30	0.28	0.00
42.82	181.36	1.02	0.19	0.27	0.00	42.86	189.95	1.49	0.07	0.27	0.00
42.94	181.27	1.01	0.19	0.27	0.00	43.01	183.69	1.13	0.15	0.27	0.00
43.07	181.57	1.03	0.19	0.27	0.00	43.15	185.41	1.22	0.13	0.27	0.00
43.21	180.49	0.98	0.20	0.27	0.00	43.26	178.41	0.90	0.24	0.27	0.00
43.32	180.83	0.99	0.20	0.27	0.00	43.41	177.64	0.87	0.25	0.27	0.00
43.47	177.23	0.86	0.25	0.26	0.00	43.54	181.37	1.02	0.19	0.26	0.00
43.61	185.98	1.25	0.12	0.26	0.00	43.67	190.14	1.50	0.06	0.26	0.00
43.74	195.11	1.91	0.01	0.26	0.00	43.82	199.94	2.00	0.00	0.26	0.00
43.86	197.97	2.00	0.00	0.26	0.00	43.94	191.23	1.58	0.05	0.26	0.00
43.99	184.66	1.17	0.13	0.26	0.00	44.07	179.02	0.92	0.22	0.25	0.00
44.11	180.08	0.96	0.20	0.25	0.00	44.20	172.65	0.72	0.28	0.25	0.00
44.24	171.55	0.69	0.29	0.25	0.00	44.33	174.05	0.76	0.26	0.25	0.00
44.38	177.71	0.88	0.23	0.25	0.00	44.46	178.07	2.00	0.00	0.25	0.00
44.51	178.78	2.00	0.00	0.25	0.00	44.59	162.41	2.00	0.00	0.24	0.00
44.64	155.27	2.00	0.00	0.24	0.00	44.72	139.87	2.00	0.00	0.24	0.00
44.81	133.60	2.00	0.00	0.24	0.00	44.85	133.47	0.26	0.57	0.24	0.00
44.93	135.67	0.27	0.56	0.24	0.01	44.97	137.55	0.28	0.55	0.24	0.00
45.06	148.52	0.35	0.50	0.24	0.01	45.11	157.80	0.45	0.44	0.24	0.00
45.17	171.97	0.70	0.27	0.24	0.00	45.23	166.45	0.58	0.32	0.23	0.00
45.29	167.12	0.60	0.32	0.23	0.00	45.36	164.22	2.00	0.00	0.23	0.00
45.43	156.65	2.00	0.00	0.23	0.00	45.49	254.00	2.00	0.00	0.23	0.00
45.56	182.45	2.00	0.00	0.23	0.00	45.62	254.00	2.00	0.00	0.23	0.00
45.69	254.00	2.00	0.00	0.23	0.00	45.76	254.00	2.00	0.00	0.23	0.00
45.81	254.00	2.00	0.00	0.22	0.00	45.88	254.00	2.00	0.00	0.22	0.00
45.95	237.82	2.00	0.00	0.22	0.00	46.02	205.53	2.00	0.00	0.22	0.00
46.08	195.88	2.00	0.00	0.22	0.00	46.15	188.65	2.00	0.00	0.22	0.00
46.21	182.28	2.00	0.00	0.22	0.00	46.28	183.43	2.00	0.00	0.22	0.00
46.34	210.16	2.00	0.00	0.22	0.00	46.41	228.42	2.00	0.00	0.21	0.00
46.47	232.84	2.00	0.00	0.21	0.00	46.54	220.55	2.00	0.00	0.21	0.00
46.61	206.26	2.00	0.00	0.21	0.00	46.69	228.78	2.00	0.00	0.21	0.00
46.75	245.00	2.00	0.00	0.21	0.00	46.80	249.23	2.00	0.00	0.21	0.00
46.87	247.68	2.00	0.00	0.21	0.00	46.93	249.10	2.00	0.00	0.21	0.00
46.99	248.58	2.00	0.00	0.20	0.00	47.06	232.28	2.00	0.00	0.20	0.00
47.15	211.74	2.00	0.00	0.20	0.00	47.20	211.31	2.00	0.00	0.20	0.00
47.27	214.84	2.00	0.00	0.20	0.00	47.35	220.09	2.00	0.00	0.20	0.00
47.40	215.65	2.00	0.00	0.20	0.00	47.48	194.12	2.00	0.00	0.20	0.00
47.53	194.67	2.00	0.00	0.20	0.00	47.59	188.90	2.00	0.00	0.19	0.00
47.66	193.10	2.00	0.00	0.19	0.00	47.73	189.82	2.00	0.00	0.19	0.00
47.80	187.08	2.00	0.00	0.19	0.00	47.85	195.14	2.00	0.00	0.19	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
47.93	221.33	2.00	0.00	0.19	0.00	47.98	233.79	2.00	0.00	0.19	0.00
48.06	250.85	2.00	0.00	0.19	0.00	48.12	238.46	2.00	0.00	0.19	0.00
48.18	221.15	2.00	0.00	0.18	0.00	48.26	199.70	2.00	0.00	0.18	0.00
48.32	192.64	2.00	0.00	0.18	0.00	48.37	189.19	2.00	0.00	0.18	0.00
48.46	186.30	2.00	0.00	0.18	0.00	48.52	187.31	2.00	0.00	0.18	0.00
48.59	194.96	2.00	0.00	0.18	0.00	48.66	219.50	2.00	0.00	0.18	0.00
48.70	234.32	2.00	0.00	0.18	0.00	48.79	238.35	2.00	0.00	0.17	0.00
48.83	237.53	2.00	0.00	0.17	0.00	48.91	249.54	2.00	0.00	0.17	0.00
48.98	238.99	2.00	0.00	0.17	0.00	49.04	224.99	2.00	0.00	0.17	0.00
49.10	241.36	2.00	0.00	0.17	0.00	49.17	233.07	2.00	0.00	0.17	0.00
49.24	240.57	2.00	0.00	0.17	0.00	49.29	222.94	2.00	0.00	0.17	0.00
49.38	193.68	2.00	0.00	0.16	0.00	49.44	184.69	2.00	0.00	0.16	0.00
49.51	185.47	2.00	0.00	0.16	0.00	49.57	188.08	2.00	0.00	0.16	0.00
49.64	184.85	2.00	0.00	0.16	0.00	49.70	180.30	2.00	0.00	0.16	0.00
49.77	214.27	2.00	0.00	0.16	0.00	49.84	254.00	2.00	0.00	0.16	0.00
49.88	254.00	2.00	0.00	0.16	0.00	49.97	254.00	2.00	0.00	0.15	0.00
50.06	254.00	2.00	0.00	0.15	0.00	50.11	254.00	2.00	0.00	0.15	0.00
50.16	228.90	2.00	0.00	0.15	0.00	50.21	205.13	2.00	0.00	0.15	0.00
50.28	204.20	2.00	0.00	0.15	0.00	50.35	188.64	2.00	0.00	0.15	0.00
50.41	200.80	2.00	0.00	0.15	0.00	50.47	188.92	2.00	0.00	0.15	0.00
50.56	197.92	2.00	0.00	0.14	0.00	50.62	219.37	2.00	0.00	0.14	0.00
50.68	238.63	2.00	0.00	0.14	0.00	50.74	231.66	2.00	0.00	0.14	0.00
50.81	206.88	2.00	0.00	0.14	0.00	50.87	202.00	2.00	0.00	0.14	0.00
50.94	207.35	2.00	0.00	0.14	0.00	51.02	193.72	2.00	0.00	0.14	0.00
51.10	185.70	2.00	0.00	0.13	0.00	51.15	183.14	2.00	0.00	0.13	0.00
51.23	185.00	2.00	0.00	0.13	0.00	51.26	178.58	2.00	0.00	0.13	0.00
51.33	201.71	2.00	0.00	0.13	0.00	51.40	197.88	2.00	0.00	0.13	0.00
51.46	182.61	2.00	0.00	0.13	0.00	51.53	173.86	2.00	0.00	0.13	0.00
51.60	171.73	2.00	0.00	0.13	0.00	51.66	176.00	2.00	0.00	0.13	0.00
51.74	186.61	2.00	0.00	0.12	0.00	51.80	192.20	2.00	0.00	0.12	0.00
51.85	190.86	2.00	0.00	0.12	0.00	51.92	181.69	2.00	0.00	0.12	0.00
52.01	166.89	2.00	0.00	0.12	0.00	52.07	163.78	2.00	0.00	0.12	0.00
52.13	164.09	2.00	0.00	0.12	0.00	52.19	160.70	2.00	0.00	0.12	0.00
52.26	157.21	2.00	0.00	0.12	0.00	52.34	165.02	2.00	0.00	0.11	0.00
52.38	170.25	2.00	0.00	0.11	0.00	52.47	177.89	2.00	0.00	0.11	0.00
52.51	179.99	2.00	0.00	0.11	0.00	52.60	178.59	2.00	0.00	0.11	0.00
52.64	197.79	2.00	0.00	0.11	0.00	52.73	234.01	2.00	0.00	0.11	0.00
52.77	253.69	2.00	0.00	0.11	0.00	52.86	219.80	2.00	0.00	0.11	0.00
52.90	187.91	2.00	0.00	0.10	0.00	52.97	215.97	2.00	0.00	0.10	0.00
53.04	210.74	2.00	0.00	0.10	0.00	53.10	190.89	2.00	0.00	0.10	0.00
53.17	207.90	2.00	0.00	0.10	0.00	53.24	198.46	2.00	0.00	0.10	0.00
53.31	205.63	2.00	0.00	0.10	0.00	53.36	196.80	2.00	0.00	0.10	0.00
53.43	178.60	2.00	0.00	0.10	0.00	53.50	176.92	2.00	0.00	0.09	0.00
53.56	180.73	2.00	0.00	0.09	0.00	53.63	181.41	2.00	0.00	0.09	0.00
53.71	177.46	2.00	0.00	0.09	0.00	53.77	174.87	2.00	0.00	0.09	0.00
53.84	172.20	2.00	0.00	0.09	0.00	53.91	175.87	2.00	0.00	0.09	0.00
53.99	173.71	2.00	0.00	0.09	0.00	54.03	175.96	2.00	0.00	0.09	0.00
54.12	187.29	2.00	0.00	0.08	0.00	54.16	195.93	2.00	0.00	0.08	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
54.25	208.77	2.00	0.00	0.08	0.00	54.29	211.01	2.00	0.00	0.08	0.00
54.38	240.57	2.00	0.00	0.08	0.00	54.41	254.00	2.00	0.00	0.08	0.00
54.49	254.00	2.00	0.00	0.08	0.00	54.56	247.56	2.00	0.00	0.08	0.00
54.63	207.68	2.00	0.00	0.07	0.00	54.70	184.34	2.00	0.00	0.07	0.00
54.76	179.64	2.00	0.00	0.07	0.00	54.82	178.96	2.00	0.00	0.07	0.00
54.89	177.33	2.00	0.00	0.07	0.00	54.97	176.44	2.00	0.00	0.07	0.00
55.01	176.59	2.00	0.00	0.07	0.00	55.10	178.18	2.00	0.00	0.07	0.00
55.14	179.31	2.00	0.00	0.07	0.00	55.20	207.07	2.00	0.00	0.07	0.00
55.27	206.08	2.00	0.00	0.06	0.00	55.34	197.41	2.00	0.00	0.06	0.00
55.41	198.00	2.00	0.00	0.06	0.00	55.48	198.38	2.00	0.00	0.06	0.00
55.54	188.49	2.00	0.00	0.06	0.00	55.61	177.81	2.00	0.00	0.06	0.00
55.67	171.74	2.00	0.00	0.06	0.00	55.74	177.64	2.00	0.00	0.06	0.00
55.82	176.39	2.00	0.00	0.05	0.00	55.86	194.41	2.00	0.00	0.05	0.00
55.94	251.17	2.00	0.00	0.05	0.00	56.01	254.00	2.00	0.00	0.05	0.00
56.08	254.00	2.00	0.00	0.05	0.00	56.12	254.00	2.00	0.00	0.05	0.00
56.19	254.00	2.00	0.00	0.05	0.00	56.25	244.00	2.00	0.00	0.05	0.00
56.32	196.77	2.00	0.00	0.05	0.00	56.38	189.47	2.00	0.00	0.05	0.00
56.45	183.69	2.00	0.00	0.04	0.00	56.52	177.90	2.00	0.00	0.04	0.00
56.59	174.21	2.00	0.00	0.04	0.00	56.66	170.79	2.00	0.00	0.04	0.00
56.73	200.10	2.00	0.00	0.04	0.00	56.79	221.56	2.00	0.00	0.04	0.00
56.84	226.95	2.00	0.00	0.04	0.00	56.92	203.01	2.00	0.00	0.04	0.00
56.99	182.81	2.00	0.00	0.04	0.00	57.04	204.15	2.00	0.00	0.03	0.00
57.11	195.42	2.00	0.00	0.03	0.00	57.17	199.72	2.00	0.00	0.03	0.00
57.24	195.96	2.00	0.00	0.03	0.00	57.30	185.53	2.00	0.00	0.03	0.00
57.38	175.05	2.00	0.00	0.03	0.00	57.44	169.27	2.00	0.00	0.03	0.00
57.51	167.29	2.00	0.00	0.03	0.00	57.56	167.52	2.00	0.00	0.03	0.00
57.64	175.15	2.00	0.00	0.02	0.00	57.70	177.52	2.00	0.00	0.02	0.00
57.77	173.83	2.00	0.00	0.02	0.00	57.83	172.52	2.00	0.00	0.02	0.00
57.90	181.54	2.00	0.00	0.02	0.00	57.97	221.89	2.00	0.00	0.02	0.00
58.06	254.00	2.00	0.00	0.02	0.00	58.10	254.00	2.00	0.00	0.02	0.00
58.16	254.00	2.00	0.00	0.02	0.00	58.23	240.95	2.00	0.00	0.01	0.00
58.28	198.04	2.00	0.00	0.01	0.00	58.36	180.24	2.00	0.00	0.01	0.00
58.42	174.82	2.00	0.00	0.01	0.00	58.49	170.12	2.00	0.00	0.01	0.00
58.56	172.75	2.00	0.00	0.01	0.00	58.63	195.14	2.00	0.00	0.01	0.00
58.68	202.20	2.00	0.00	0.01	0.00	58.76	197.27	2.00	0.00	0.01	0.00
58.81	182.67	2.00	0.00	0.00	0.00	58.90	161.17	2.00	0.00	0.00	0.00
58.96	162.21	2.00	0.00	0.00	0.00	59.02	161.63	2.00	0.00	0.00	0.00
59.07	162.53	2.00	0.00	0.00	0.00	59.15	163.27	2.00	0.00	0.00	0.00
59.21	167.92	2.00	0.00	0.00	0.00	59.29	166.05	2.00	0.00	0.00	0.00
59.34	166.87	2.00	0.00	0.00	0.00	59.41	166.96	2.00	0.00	0.00	0.00
59.48	163.79	2.00	0.00	0.00	0.00	59.54	161.06	2.00	0.00	0.00	0.00
59.60	157.33	2.00	0.00	0.00	0.00	59.69	156.96	2.00	0.00	0.00	0.00
59.73	161.53	2.00	0.00	0.00	0.00	59.81	172.79	2.00	0.00	0.00	0.00
59.89	202.01	2.00	0.00	0.00	0.00	59.93	211.88	2.00	0.00	0.00	0.00
60.02	211.69	2.00	0.00	0.00	0.00	60.06	201.46	2.00	0.00	0.00	0.00
60.12	181.75	2.00	0.00	0.00	0.00	60.19	175.81	2.00	0.00	0.00	0.00
60.26	169.95	2.00	0.00	0.00	0.00	60.32	170.74	2.00	0.00	0.00	0.00
60.39	169.13	2.00	0.00	0.00	0.00	60.46	168.42	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
60.53	175.92	2.00	0.00	0.00	0.00	60.58	189.23	2.00	0.00	0.00	0.00
60.66	212.84	2.00	0.00	0.00	0.00	60.72	212.18	2.00	0.00	0.00	0.00
60.78	199.23	2.00	0.00	0.00	0.00	60.87	175.16	2.00	0.00	0.00	0.00
60.93	169.17	2.00	0.00	0.00	0.00	61.01	169.00	2.00	0.00	0.00	0.00
61.04	168.29	2.00	0.00	0.00	0.00	61.11	183.59	2.00	0.00	0.00	0.00
61.18	197.67	2.00	0.00	0.00	0.00	61.24	204.73	2.00	0.00	0.00	0.00
61.31	197.64	2.00	0.00	0.00	0.00	61.37	187.99	2.00	0.00	0.00	0.00
61.45	165.59	2.00	0.00	0.00	0.00	61.50	167.19	2.00	0.00	0.00	0.00
61.56	176.95	2.00	0.00	0.00	0.00	61.64	178.80	2.00	0.00	0.00	0.00
61.69	174.22	2.00	0.00	0.00	0.00	61.77	172.49	2.00	0.00	0.00	0.00
61.83	179.38	2.00	0.00	0.00	0.00	61.91	221.89	2.00	0.00	0.00	0.00
61.97	237.77	2.00	0.00	0.00	0.00	62.02	238.16	2.00	0.00	0.00	0.00
62.12	194.57	2.00	0.00	0.00	0.00	62.18	177.78	2.00	0.00	0.00	0.00
62.22	177.07	2.00	0.00	0.00	0.00	62.28	172.45	2.00	0.00	0.00	0.00
62.36	181.20	2.00	0.00	0.00	0.00	62.42	177.02	2.00	0.00	0.00	0.00
62.49	179.93	2.00	0.00	0.00	0.00	62.55	180.15	2.00	0.00	0.00	0.00
62.62	183.36	2.00	0.00	0.00	0.00	62.69	198.74	2.00	0.00	0.00	0.00
62.75	210.21	2.00	0.00	0.00	0.00	62.83	189.31	2.00	0.00	0.00	0.00
62.88	175.01	2.00	0.00	0.00	0.00	62.96	158.47	2.00	0.00	0.00	0.00
63.01	158.92	2.00	0.00	0.00	0.00	63.07	164.27	2.00	0.00	0.00	0.00
63.14	156.52	2.00	0.00	0.00	0.00	63.20	166.59	2.00	0.00	0.00	0.00
63.27	182.90	2.00	0.00	0.00	0.00	63.34	221.99	2.00	0.00	0.00	0.00
63.40	248.56	2.00	0.00	0.00	0.00	63.47	235.44	2.00	0.00	0.00	0.00
63.53	212.39	2.00	0.00	0.00	0.00	63.61	177.70	2.00	0.00	0.00	0.00
63.67	180.57	2.00	0.00	0.00	0.00	63.74	190.80	2.00	0.00	0.00	0.00
63.80	188.65	2.00	0.00	0.00	0.00	63.86	167.38	2.00	0.00	0.00	0.00
63.93	167.14	2.00	0.00	0.00	0.00	64.00	164.46	2.00	0.00	0.00	0.00
64.05	166.40	2.00	0.00	0.00	0.00	64.13	161.71	2.00	0.00	0.00	0.00
64.19	164.37	2.00	0.00	0.00	0.00	64.25	163.34	2.00	0.00	0.00	0.00
64.33	165.71	2.00	0.00	0.00	0.00	64.39	165.64	2.00	0.00	0.00	0.00
64.46	160.96	2.00	0.00	0.00	0.00	64.51	156.55	2.00	0.00	0.00	0.00
64.58	154.91	2.00	0.00	0.00	0.00	64.65	158.25	2.00	0.00	0.00	0.00
64.72	163.55	2.00	0.00	0.00	0.00	64.79	152.92	2.00	0.00	0.00	0.00
64.85	175.54	2.00	0.00	0.00	0.00	64.91	196.29	2.00	0.00	0.00	0.00
64.98	228.55	2.00	0.00	0.00	0.00	65.05	239.11	2.00	0.00	0.00	0.00
65.11	232.64	2.00	0.00	0.00	0.00	65.18	207.29	2.00	0.00	0.00	0.00
65.24	193.67	2.00	0.00	0.00	0.00	65.31	175.51	2.00	0.00	0.00	0.00
65.37	174.04	2.00	0.00	0.00	0.00	65.44	184.70	2.00	0.00	0.00	0.00
65.51	204.22	2.00	0.00	0.00	0.00	65.57	207.97	2.00	0.00	0.00	0.00
65.63	200.93	2.00	0.00	0.00	0.00	65.70	183.88	2.00	0.00	0.00	0.00
65.77	168.71	2.00	0.00	0.00	0.00	65.84	178.16	2.00	0.00	0.00	0.00
65.89	189.58	2.00	0.00	0.00	0.00	65.96	188.46	2.00	0.00	0.00	0.00
66.04	163.85	2.00	0.00	0.00	0.00	66.09	167.79	2.00	0.00	0.00	0.00
66.16	165.20	2.00	0.00	0.00	0.00	66.23	178.79	2.00	0.00	0.00	0.00
66.29	179.44	2.00	0.00	0.00	0.00	66.36	195.34	2.00	0.00	0.00	0.00
66.43	187.61	2.00	0.00	0.00	0.00	66.48	175.57	2.00	0.00	0.00	0.00
66.55	174.12	2.00	0.00	0.00	0.00	66.62	166.45	2.00	0.00	0.00	0.00
66.68	163.23	2.00	0.00	0.00	0.00	66.75	164.39	2.00	0.00	0.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

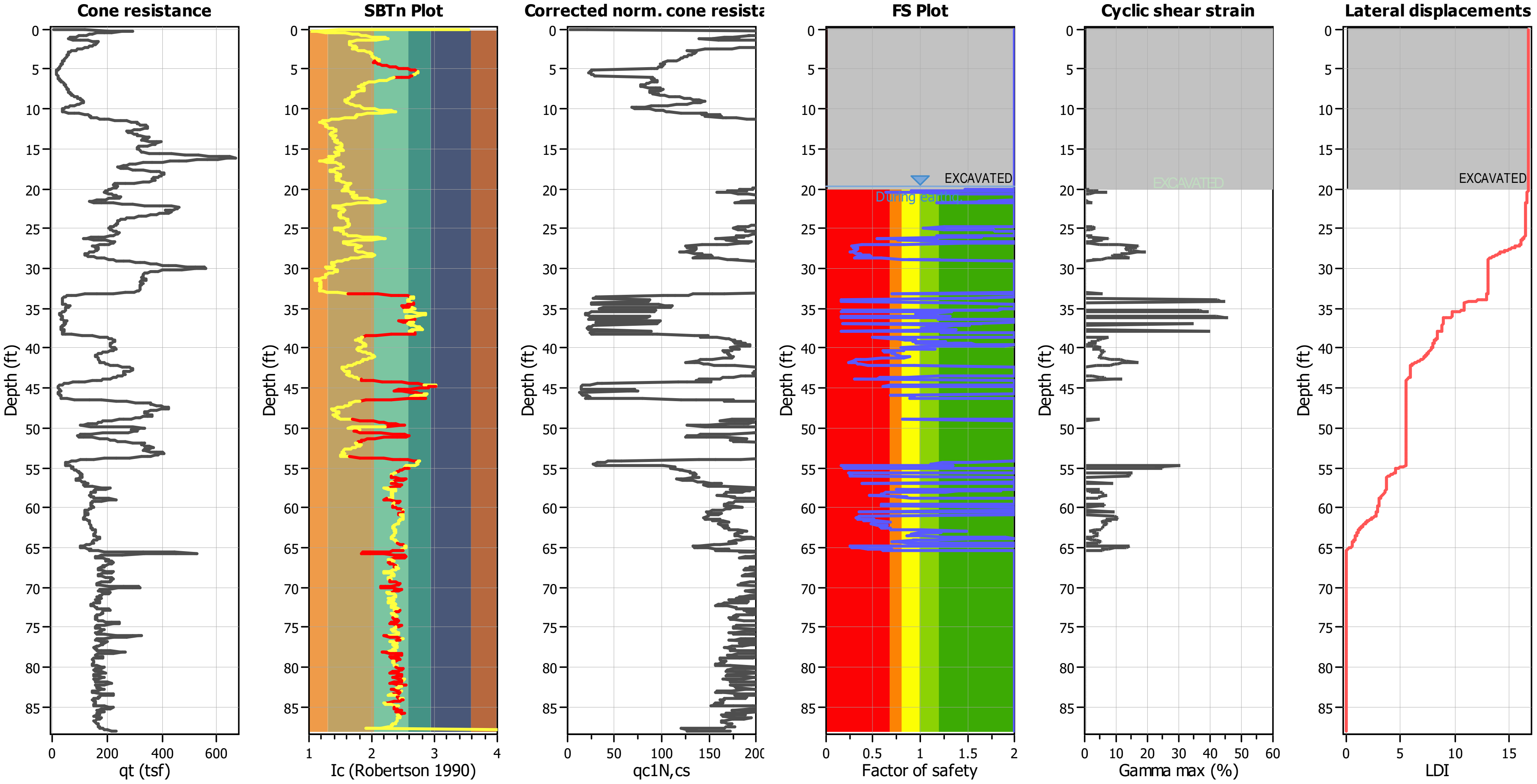
Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$q_{c1N,cs}$	FS	e_v (%)	DF	Settlement (in)
66.82	163.08	2.00	0.00	0.00	0.00	66.88	164.83	2.00	0.00	0.00	0.00
66.95	167.27	2.00	0.00	0.00	0.00	67.01	169.18	2.00	0.00	0.00	0.00
67.08	172.43	2.00	0.00	0.00	0.00	67.14	174.87	2.00	0.00	0.00	0.00
67.21	171.58	2.00	0.00	0.00	0.00	67.28	171.16	2.00	0.00	0.00	0.00
67.35	172.35	2.00	0.00	0.00	0.00	67.40	171.03	2.00	0.00	0.00	0.00
67.47	177.04	2.00	0.00	0.00	0.00	67.53	168.39	2.00	0.00	0.00	0.00
67.61	166.23	2.00	0.00	0.00	0.00	67.67	120.13	2.00	0.00	0.00	0.00
67.73	126.51	2.00	0.00	0.00	0.00	67.80	128.41	2.00	0.00	0.00	0.00
67.87	136.35	2.00	0.00	0.00	0.00	67.93	126.73	2.00	0.00	0.00	0.00
68.00	172.57	2.00	0.00	0.00	0.00						

Total estimated settlement: 0.67

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

Estimation of post-earthquake lateral Displacements



Abbreviations

q_t: Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c: Soil Behaviour Type Index
$q_{c1N,cs}$: Equivalent clean sand normalized CPT total cone resistance

F.S.: Factor of safety
γ_{max}: Maximum cyclic shear strain
LDI: Lateral displacement index

:: Lateral displacement index calculation ::

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
19.70	188.95	0.03	1.56	-0.29	0.01	0.01
19.79	181.48	0.04	1.11	-0.18	0.03	0.03
19.83	172.88	0.05	0.79	-0.06	0.05	0.03
19.92	173.08	0.05	0.79	-0.06	0.05	0.05
20.00	178.58	0.04	0.98	-0.14	0.04	0.04
20.05	181.01	0.04	1.09	-0.18	0.03	0.02
20.09	182.42	0.04	1.16	-0.20	0.03	0.01
20.18	174.36	0.05	0.83	-0.08	0.05	0.05
20.23	174.22	0.05	0.83	-0.08	0.05	0.03
20.30	169.32	0.06	0.69	-0.01	0.06	0.05
20.38	164.99	0.06	0.60	0.05	0.06	0.06
20.43	166.38	0.06	0.62	0.03	0.06	0.04
20.51	165.93	0.06	0.61	0.04	0.06	0.06
20.56	169.15	0.06	0.68	-0.01	0.06	0.04
20.62	171.25	0.05	0.74	-0.04	0.05	0.03
20.70	169.85	0.05	0.70	-0.02	0.05	0.06
20.76	170.56	0.05	0.72	-0.03	0.05	0.04
20.82	171.59	0.05	0.75	-0.04	0.05	0.04
20.89	172.42	0.05	0.77	-0.05	0.05	0.05
20.98	173.26	0.05	0.79	-0.07	0.05	0.05
21.02	173.82	0.05	0.81	-0.07	0.05	0.03
21.11	176.36	0.05	0.89	-0.11	0.04	0.05
21.15	174.42	0.05	0.83	-0.08	0.05	0.03
21.24	173.59	0.05	0.80	-0.07	0.05	0.05
21.28	164.40	0.06	0.58	0.06	0.06	0.03
21.37	154.39	0.08	0.43	0.19	0.08	0.09
21.41	148.15	0.10	0.37	0.27	0.10	0.05
21.50	141.45	0.12	0.32	0.36	0.12	0.12
21.55	137.37	0.13	0.29	0.41	0.13	0.07
21.63	136.31	0.13	0.29	0.42	0.13	0.14
21.68	136.39	0.13	0.29	0.42	0.13	0.07
21.74	124.83	0.17	0.24	0.55	0.17	0.12
21.80	134.20	0.14	0.28	0.44	0.14	0.11
21.87	140.46	0.12	0.31	0.37	0.12	0.10
21.94	144.57	0.11	0.34	0.32	0.11	0.09
22.02	148.50	0.10	0.37	0.27	0.10	0.08
22.09	155.54	0.08	0.44	0.18	0.08	0.07
22.16	168.26	0.06	0.66	0.00	0.06	0.05
22.20	177.94	0.04	0.94	-0.13	0.04	0.02
22.29	200.03	0.02	2.00	-0.45	0.00	0.00
22.33	209.86	0.02	2.00	-0.60	0.00	0.00
22.42	224.66	0.01	2.00	-0.82	0.00	0.00
22.46	230.13	0.01	2.00	-0.91	0.00	0.00
22.55	232.59	0.01	2.00	-0.94	0.00	0.00
22.60	232.90	0.01	2.00	-0.95	0.00	0.00
22.66	233.20	0.01	2.00	-0.95	0.00	0.00
22.74	233.76	0.01	2.00	-0.96	0.00	0.00
22.82	223.62	0.01	2.00	-0.81	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
22.87	216.17	0.01	2.00	-0.69	0.00	0.00
22.96	203.21	0.02	2.00	-0.50	0.00	0.00
23.00	199.17	0.02	2.00	-0.44	0.00	0.00
23.09	203.09	0.02	2.00	-0.50	0.00	0.00
23.13	197.13	0.02	2.00	-0.41	0.00	0.00
23.21	202.97	0.02	2.00	-0.50	0.00	0.00
23.26	206.64	0.02	2.00	-0.55	0.00	0.00
23.34	204.57	0.02	2.00	-0.52	0.00	0.00
23.38	199.76	0.02	2.00	-0.45	0.00	0.00
23.47	188.22	0.03	1.47	-0.28	0.01	0.01
23.52	183.69	0.04	1.19	-0.21	0.02	0.01
23.60	175.96	0.05	0.86	-0.10	0.05	0.05
23.65	171.76	0.05	0.74	-0.04	0.05	0.03
23.74	164.67	0.06	0.58	0.05	0.06	0.07
23.78	162.50	0.07	0.54	0.08	0.07	0.03
23.83	139.52	0.12	0.30	0.38	0.12	0.08
23.91	148.58	0.10	0.37	0.27	0.10	0.09
24.00	136.68	0.13	2.00	0.41	0.00	0.00
24.04	152.13	0.09	2.00	0.22	0.00	0.00
24.13	152.02	0.09	2.00	0.22	0.00	0.00
24.17	151.87	0.09	2.00	0.22	0.00	0.00
24.26	127.12	0.16	2.00	0.53	0.00	0.00
24.30	117.34	0.21	2.00	0.63	0.00	0.00
24.39	36.18	0.00	2.00	0.00	0.00	0.00
24.44	32.20	0.00	2.00	0.00	0.00	0.00
24.53	23.04	0.00	2.00	0.00	0.00	0.00
24.57	19.81	0.00	2.00	0.00	0.00	0.00
24.66	15.13	0.00	0.69	0.00	0.00	0.00
24.70	14.36	0.00	0.60	0.00	0.00	0.00
24.79	14.08	0.00	2.00	0.00	0.00	0.00
24.83	14.07	0.00	2.00	0.00	0.00	0.00
24.92	14.19	0.00	2.00	0.00	0.00	0.00
24.96	14.25	0.00	2.00	0.00	0.00	0.00
25.05	14.42	0.00	2.00	0.00	0.00	0.00
25.09	14.99	0.00	2.00	0.00	0.00	0.00
25.18	71.01	0.61	2.00	0.94	0.00	0.00
25.22	70.09	0.62	2.00	0.94	0.00	0.00
25.31	73.39	0.58	2.00	0.94	0.00	0.00
25.35	74.17	0.57	2.00	0.94	0.00	0.00
25.42	65.84	0.69	2.00	0.94	0.00	0.00
25.48	13.26	0.00	2.00	0.00	0.00	0.00
25.56	13.67	0.00	2.00	0.00	0.00	0.00
25.62	14.09	0.00	2.00	0.00	0.00	0.00
25.68	14.44	0.00	2.00	0.00	0.00	0.00
25.74	14.72	0.00	2.00	0.00	0.00	0.00
25.80	14.66	0.00	2.00	0.00	0.00	0.00
25.88	16.23	0.00	0.68	0.00	0.00	0.00
25.95	18.41	0.00	0.77	0.00	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
26.00	20.87	0.00	0.88	0.00	0.00	0.00
26.07	23.07	0.00	0.94	0.00	0.00	0.00
26.13	22.67	0.00	0.91	0.00	0.00	0.00
26.21	18.78	0.00	0.89	0.00	0.00	0.00
26.30	22.29	0.00	2.00	0.00	0.00	0.00
26.34	78.74	0.51	2.00	0.92	0.00	0.00
26.43	120.77	0.19	2.00	0.60	0.00	0.00
26.47	136.82	0.13	2.00	0.41	0.00	0.00
26.55	175.60	0.05	2.00	-0.10	0.00	0.00
26.59	167.34	0.06	2.00	0.02	0.00	0.00
26.67	209.82	0.02	2.00	-0.60	0.00	0.00
26.76	246.39	0.00	2.00	-1.16	0.00	0.00
26.80	254.00	0.00	2.00	-1.28	0.00	0.00
26.88	254.00	0.00	2.00	-1.28	0.00	0.00
26.92	254.00	0.00	2.00	-1.28	0.00	0.00
27.00	254.00	0.00	2.00	-1.28	0.00	0.00
27.05	254.00	0.00	2.00	-1.28	0.00	0.00
27.12	254.00	0.00	2.00	-1.28	0.00	0.00
27.18	254.00	0.00	2.00	-1.28	0.00	0.00
27.25	254.00	0.00	2.00	-1.28	0.00	0.00
27.32	254.00	0.00	2.00	-1.28	0.00	0.00
27.38	254.00	0.00	2.00	-1.28	0.00	0.00
27.44	254.00	0.00	2.00	-1.28	0.00	0.00
27.52	254.00	0.00	2.00	-1.28	0.00	0.00
27.58	254.00	0.00	2.00	-1.28	0.00	0.00
27.65	254.00	0.00	2.00	-1.28	0.00	0.00
27.71	254.00	0.00	2.00	-1.28	0.00	0.00
27.78	254.00	0.00	2.00	-1.28	0.00	0.00
27.84	254.00	0.00	2.00	-1.28	0.00	0.00
27.91	254.00	0.00	2.00	-1.28	0.00	0.00
27.97	254.00	0.00	2.00	-1.28	0.00	0.00
28.04	254.00	0.00	2.00	-1.28	0.00	0.00
28.12	254.00	0.00	2.00	-1.28	0.00	0.00
28.17	254.00	0.00	2.00	-1.28	0.00	0.00
28.25	254.00	0.00	2.00	-1.28	0.00	0.00
28.33	254.00	0.00	2.00	-1.28	0.00	0.00
28.37	254.00	0.00	2.00	-1.28	0.00	0.00
28.46	254.00	0.00	2.00	-1.28	0.00	0.00
28.50	254.00	0.00	2.00	-1.28	0.00	0.00
28.56	251.51	0.00	2.00	-1.24	0.00	0.00
28.63	254.00	0.00	2.00	-1.28	0.00	0.00
28.69	250.06	0.00	2.00	-1.21	0.00	0.00
28.76	238.88	0.00	2.00	-1.04	0.00	0.00
28.84	216.69	0.01	2.00	-0.70	0.00	0.00
28.90	200.34	0.02	2.00	-0.46	0.00	0.00
28.98	174.89	0.05	0.80	-0.09	0.05	0.05
29.03	161.91	0.07	2.00	0.09	0.00	0.00
29.09	177.37	0.04	2.00	-0.12	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
29.18	191.42	0.03	2.00	-0.33	0.00	0.00
29.21	197.93	0.02	2.00	-0.42	0.00	0.00
29.30	197.04	0.02	2.00	-0.41	0.00	0.00
29.38	191.93	0.03	2.00	-0.33	0.00	0.00
29.42	187.05	0.03	2.00	-0.26	0.00	0.00
29.50	170.71	0.05	2.00	-0.03	0.00	0.00
29.58	148.68	0.10	2.00	0.26	0.00	0.00
29.62	140.53	0.12	2.00	0.37	0.00	0.00
29.69	127.16	0.16	2.00	0.53	0.00	0.00
29.76	146.08	0.10	2.00	0.30	0.00	0.00
29.82	192.26	0.03	2.00	-0.34	0.00	0.00
29.89	248.05	0.00	2.00	-1.18	0.00	0.00
29.95	254.00	0.00	2.00	-1.28	0.00	0.00
30.03	254.00	0.00	2.00	-1.28	0.00	0.00
30.07	254.00	0.00	2.00	-1.28	0.00	0.00
30.15	228.15	0.01	2.00	-0.88	0.00	0.00
30.20	231.17	0.01	2.00	-0.92	0.00	0.00
30.27	213.13	0.01	2.00	-0.65	0.00	0.00
30.33	223.90	0.01	2.00	-0.81	0.00	0.00
30.39	234.52	0.01	2.00	-0.97	0.00	0.00
30.47	254.00	0.00	2.00	-1.28	0.00	0.00
30.54	196.14	0.02	2.00	-0.39	0.00	0.00
30.59	238.83	0.00	2.00	-1.04	0.00	0.00
30.66	198.93	0.02	2.00	-0.44	0.00	0.00
30.73	173.16	0.05	2.00	-0.06	0.00	0.00
30.80	150.18	0.09	2.00	0.25	0.00	0.00
30.86	142.04	0.11	2.00	0.35	0.00	0.00
30.93	137.73	0.13	2.00	0.40	0.00	0.00
30.99	127.78	0.16	2.00	0.52	0.00	0.00
31.06	125.15	0.17	2.00	0.55	0.00	0.00
31.13	147.97	0.10	2.00	0.27	0.00	0.00
31.18	167.15	0.06	2.00	0.02	0.00	0.00
31.26	191.25	0.03	2.00	-0.32	0.00	0.00
31.33	180.81	0.04	2.00	-0.17	0.00	0.00
31.38	179.57	0.04	2.00	-0.15	0.00	0.00
31.45	178.83	0.04	2.00	-0.14	0.00	0.00
31.52	172.99	0.05	2.00	-0.06	0.00	0.00
31.61	175.86	0.05	2.00	-0.10	0.00	0.00
31.65	176.73	0.04	2.00	-0.11	0.00	0.00
31.73	186.32	0.03	2.00	-0.25	0.00	0.00
31.80	228.14	0.01	2.00	-0.88	0.00	0.00
31.87	254.00	0.00	2.00	-1.28	0.00	0.00
31.93	254.00	0.00	2.00	-1.28	0.00	0.00
31.99	254.00	0.00	2.00	-1.28	0.00	0.00
32.06	254.00	0.00	2.00	-1.28	0.00	0.00
32.11	254.00	0.00	2.00	-1.28	0.00	0.00
32.17	254.00	0.00	2.00	-1.28	0.00	0.00
32.24	254.00	0.00	2.00	-1.28	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
32.30	254.00	0.00	2.00	-1.28	0.00	0.00
32.37	254.00	0.00	2.00	-1.28	0.00	0.00
32.44	254.00	0.00	2.00	-1.28	0.00	0.00
32.50	254.00	0.00	2.00	-1.28	0.00	0.00
32.56	254.00	0.00	2.00	-1.28	0.00	0.00
32.63	254.00	0.00	2.00	-1.28	0.00	0.00
32.70	254.00	0.00	2.00	-1.28	0.00	0.00
32.76	254.00	0.00	2.00	-1.28	0.00	0.00
32.83	251.38	0.00	2.00	-1.24	0.00	0.00
32.89	254.00	0.00	2.00	-1.28	0.00	0.00
32.95	254.00	0.00	2.00	-1.28	0.00	0.00
33.02	254.00	0.00	2.00	-1.28	0.00	0.00
33.10	254.00	0.00	2.00	-1.28	0.00	0.00
33.16	254.00	0.00	2.00	-1.28	0.00	0.00
33.25	254.00	0.00	2.00	-1.28	0.00	0.00
33.29	254.00	0.00	2.00	-1.28	0.00	0.00
33.37	254.00	0.00	2.00	-1.28	0.00	0.00
33.45	254.00	0.00	2.00	-1.28	0.00	0.00
33.50	254.00	0.00	2.00	-1.28	0.00	0.00
33.59	254.00	0.00	2.00	-1.28	0.00	0.00
33.63	254.00	0.00	2.00	-1.28	0.00	0.00
33.68	214.61	0.01	2.00	-0.67	0.00	0.00
33.76	227.71	0.01	2.00	-0.87	0.00	0.00
33.82	212.06	0.01	2.00	-0.63	0.00	0.00
33.88	184.90	0.04	2.00	-0.23	0.00	0.00
33.96	156.74	0.08	2.00	0.16	0.00	0.00
34.02	139.11	0.12	2.00	0.38	0.00	0.00
34.08	57.22	0.00	2.00	0.00	0.00	0.00
34.14	50.70	0.00	2.00	0.00	0.00	0.00
34.23	43.33	0.00	2.00	0.00	0.00	0.00
34.28	39.34	0.00	1.54	0.00	0.00	0.00
34.34	35.39	0.00	1.38	0.00	0.00	0.00
34.41	31.42	0.00	1.24	0.00	0.00	0.00
34.49	28.20	0.00	1.13	0.00	0.00	0.00
34.53	27.44	0.00	1.11	0.00	0.00	0.00
34.61	29.57	0.00	1.19	0.00	0.00	0.00
34.70	34.45	0.00	1.35	0.00	0.00	0.00
34.75	100.81	0.30	0.17	0.79	0.30	0.16
34.83	113.81	0.23	0.19	0.67	0.23	0.24
34.88	113.56	0.23	0.19	0.67	0.23	0.12
34.92	109.76	0.25	0.18	0.71	0.25	0.13
35.01	110.13	0.25	0.18	0.70	0.25	0.26
35.10	110.17	0.25	2.00	0.70	0.00	0.00
35.13	109.60	0.25	2.00	0.71	0.00	0.00
35.20	122.78	0.18	2.00	0.57	0.00	0.00
35.29	119.10	0.20	2.00	0.61	0.00	0.00
35.33	120.29	0.19	2.00	0.60	0.00	0.00
35.42	128.10	0.16	2.00	0.51	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
35.46	130.02	0.15	2.00	0.49	0.00	0.00
35.55	130.13	0.15	2.00	0.49	0.00	0.00
35.58	129.98	0.15	2.00	0.49	0.00	0.00
35.66	130.22	0.15	0.24	0.49	0.15	0.14
35.72	134.25	0.14	0.26	0.44	0.14	0.10
35.78	136.32	0.13	0.27	0.42	0.13	0.10
35.84	133.34	0.14	0.26	0.45	0.14	0.11
35.91	133.09	0.14	0.26	0.46	0.14	0.11
35.98	133.24	0.14	0.26	0.46	0.14	0.13
36.05	133.14	0.14	0.26	0.46	0.14	0.11
36.11	136.64	0.13	2.00	0.41	0.00	0.00
36.19	139.77	0.12	2.00	0.38	0.00	0.00
36.25	133.48	0.14	2.00	0.45	0.00	0.00
36.32	123.42	0.18	2.00	0.57	0.00	0.00
36.36	120.31	0.19	2.00	0.60	0.00	0.00
36.43	116.67	0.21	2.00	0.64	0.00	0.00
36.52	121.82	0.19	2.00	0.58	0.00	0.00
36.57	127.25	0.16	2.00	0.52	0.00	0.00
36.64	133.76	0.14	2.00	0.45	0.00	0.00
36.69	138.21	0.13	2.00	0.40	0.00	0.00
36.77	143.66	0.11	2.00	0.33	0.00	0.00
36.85	151.87	0.09	0.38	0.22	0.09	0.09
36.89	151.76	0.09	2.00	0.22	0.00	0.00
36.97	163.88	0.06	2.00	0.06	0.00	0.00
37.03	155.03	0.08	2.00	0.18	0.00	0.00
37.12	144.62	0.11	2.00	0.32	0.00	0.00
37.15	144.08	0.11	2.00	0.32	0.00	0.00
37.22	144.63	0.11	2.00	0.32	0.00	0.00
37.29	148.54	0.10	2.00	0.27	0.00	0.00
37.35	167.06	0.06	2.00	0.02	0.00	0.00
37.42	204.44	0.02	2.00	-0.52	0.00	0.00
37.49	251.99	0.00	2.00	-1.24	0.00	0.00
37.56	245.87	0.00	2.00	-1.15	0.00	0.00
37.62	223.79	0.01	2.00	-0.81	0.00	0.00
37.68	194.98	0.03	1.90	-0.38	0.00	0.00
37.74	173.30	0.05	0.74	-0.07	0.05	0.04
37.83	194.40	0.03	1.85	-0.37	0.00	0.00
37.89	179.73	0.04	0.95	-0.16	0.04	0.03
37.96	188.55	0.03	1.40	-0.28	0.02	0.01
38.02	186.20	0.03	1.27	-0.25	0.02	0.01
38.07	174.76	0.05	0.78	-0.09	0.05	0.03
38.16	168.72	0.06	0.63	0.00	0.06	0.06
38.22	167.66	0.06	0.61	0.01	0.06	0.04
38.28	167.00	0.06	0.59	0.02	0.06	0.04
38.34	166.67	0.06	0.59	0.03	0.06	0.04
38.42	167.00	0.06	0.59	0.02	0.06	0.06
38.48	165.97	0.06	0.57	0.03	0.06	0.04
38.53	159.16	0.07	0.46	0.13	0.07	0.04

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
38.60	177.39	0.04	0.87	-0.12	0.04	0.03
38.67	173.70	0.05	0.75	-0.07	0.05	0.04
38.73	178.64	0.04	0.91	-0.14	0.04	0.03
38.80	189.65	0.03	1.47	-0.30	0.01	0.01
38.86	233.50	0.01	2.00	-0.96	0.00	0.00
38.93	254.00	0.00	2.00	-1.28	0.00	0.00
39.00	254.00	0.00	2.00	-1.28	0.00	0.00
39.07	237.70	0.00	2.00	-1.02	0.00	0.00
39.14	204.57	0.02	2.00	-0.52	0.00	0.00
39.21	186.62	0.03	2.00	-0.26	0.00	0.00
39.27	178.05	0.04	2.00	-0.13	0.00	0.00
39.33	176.36	0.05	2.00	-0.11	0.00	0.00
39.39	173.80	0.05	2.00	-0.07	0.00	0.00
39.47	171.78	0.05	2.00	-0.05	0.00	0.00
39.53	167.96	0.06	2.00	0.01	0.00	0.00
39.58	166.52	0.06	0.58	0.03	0.06	0.04
39.67	166.62	0.06	0.58	0.03	0.06	0.06
39.73	167.07	0.06	0.59	0.02	0.06	0.05
39.81	166.80	0.06	0.59	0.02	0.06	0.05
39.84	174.81	0.05	0.78	-0.09	0.05	0.02
39.92	185.82	0.03	2.00	-0.24	0.00	0.00
40.00	175.44	0.05	2.00	-0.10	0.00	0.00
40.04	168.50	0.06	2.00	0.00	0.00	0.00
40.12	173.69	0.05	2.00	-0.07	0.00	0.00
40.20	167.90	0.06	2.00	0.01	0.00	0.00
40.24	164.86	0.06	2.00	0.05	0.00	0.00
40.32	155.82	0.08	2.00	0.17	0.00	0.00
40.37	154.15	0.08	2.00	0.19	0.00	0.00
40.44	150.46	0.09	0.37	0.24	0.09	0.08
40.52	148.33	0.10	0.35	0.27	0.10	0.09
40.56	148.33	0.10	2.00	0.27	0.00	0.00
40.64	148.91	0.10	2.00	0.26	0.00	0.00
40.71	156.33	0.08	2.00	0.16	0.00	0.00
40.78	164.06	0.06	2.00	0.06	0.00	0.00
40.83	160.49	0.07	2.00	0.11	0.00	0.00
40.93	149.42	0.09	2.00	0.26	0.00	0.00
40.97	150.07	0.09	2.00	0.25	0.00	0.00
41.05	148.58	0.10	0.35	0.27	0.10	0.10
41.10	149.89	0.09	0.36	0.25	0.09	0.05
41.18	144.66	0.11	0.32	0.32	0.11	0.11
41.23	144.65	0.11	0.32	0.32	0.11	0.06
41.30	145.57	0.10	0.33	0.30	0.10	0.09
41.36	147.17	0.10	0.34	0.28	0.10	0.07
41.42	146.07	0.10	0.33	0.30	0.10	0.07
41.49	162.39	0.07	0.51	0.08	0.07	0.05
41.55	153.42	0.09	0.40	0.20	0.09	0.07
41.63	155.53	0.08	0.42	0.18	0.08	0.08
41.69	164.57	0.06	0.55	0.05	0.06	0.05

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
41.75	171.12	0.05	0.68	-0.04	0.05	0.04
41.82	163.62	0.06	0.53	0.07	0.06	0.05
41.88	161.35	0.07	0.50	0.10	0.07	0.05
41.95	162.12	0.07	0.51	0.09	0.07	0.05
42.01	160.69	0.07	0.49	0.11	0.07	0.05
42.09	160.04	0.07	0.48	0.12	0.07	0.07
42.15	164.14	0.06	0.54	0.06	0.06	0.05
42.22	169.76	0.05	0.65	-0.02	0.05	0.05
42.30	165.67	0.06	0.57	0.04	0.06	0.06
42.34	169.41	0.06	0.64	-0.01	0.06	0.03
42.42	167.03	0.06	0.59	0.02	0.06	0.06
42.50	169.16	0.06	0.64	-0.01	0.06	0.05
42.54	167.07	0.06	0.59	0.02	0.06	0.03
42.62	171.30	0.05	0.69	-0.04	0.05	0.05
42.70	171.45	0.05	0.69	-0.04	0.05	0.05
42.74	173.28	0.05	0.74	-0.07	0.05	0.02
42.82	181.36	0.04	1.02	-0.18	0.03	0.03
42.86	189.95	0.03	1.49	-0.30	0.01	0.01
42.94	181.27	0.04	1.01	-0.18	0.03	0.03
43.01	183.69	0.04	1.13	-0.21	0.03	0.02
43.07	181.57	0.04	1.03	-0.18	0.03	0.03
43.15	185.41	0.03	1.22	-0.24	0.02	0.02
43.21	180.49	0.04	0.98	-0.17	0.04	0.03
43.26	178.41	0.04	0.90	-0.14	0.04	0.03
43.32	180.83	0.04	0.99	-0.17	0.04	0.02
43.41	177.64	0.04	0.87	-0.13	0.04	0.05
43.47	177.23	0.04	0.86	-0.12	0.04	0.03
43.54	181.37	0.04	1.02	-0.18	0.03	0.03
43.61	185.98	0.03	1.25	-0.25	0.02	0.02
43.67	190.14	0.03	1.50	-0.31	0.01	0.01
43.74	195.11	0.03	1.91	-0.38	0.00	0.00
43.82	199.94	0.02	2.00	-0.45	0.00	0.00
43.86	197.97	0.02	2.00	-0.42	0.00	0.00
43.94	191.23	0.03	1.58	-0.32	0.01	0.01
43.99	184.66	0.04	1.17	-0.23	0.03	0.01
44.07	179.02	0.04	0.92	-0.15	0.04	0.04
44.11	180.08	0.04	0.96	-0.16	0.04	0.02
44.20	172.65	0.05	0.72	-0.06	0.05	0.05
44.24	171.55	0.05	0.69	-0.04	0.05	0.03
44.33	174.05	0.05	0.76	-0.08	0.05	0.05
44.38	177.71	0.04	0.88	-0.13	0.04	0.02
44.46	178.07	0.04	2.00	-0.13	0.00	0.00
44.51	178.78	0.04	2.00	-0.14	0.00	0.00
44.59	162.41	0.07	2.00	0.08	0.00	0.00
44.64	155.27	0.08	2.00	0.18	0.00	0.00
44.72	139.87	0.12	2.00	0.38	0.00	0.00
44.81	133.60	0.14	2.00	0.45	0.00	0.00
44.85	133.47	0.14	0.26	0.45	0.14	0.07

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
44.93	135.67	0.13	0.27	0.43	0.13	0.13
44.97	137.55	0.13	0.28	0.40	0.13	0.06
45.06	148.52	0.10	0.35	0.27	0.10	0.10
45.11	157.80	0.08	0.45	0.15	0.08	0.04
45.17	171.97	0.05	0.70	-0.05	0.05	0.04
45.23	166.45	0.06	0.58	0.03	0.06	0.04
45.29	167.12	0.06	0.60	0.02	0.06	0.05
45.36	164.22	0.06	2.00	0.06	0.00	0.00
45.43	156.65	0.08	2.00	0.16	0.00	0.00
45.49	254.00	0.00	2.00	-1.28	0.00	0.00
45.56	182.45	0.04	2.00	-0.20	0.00	0.00
45.62	254.00	0.00	2.00	-1.28	0.00	0.00
45.69	254.00	0.00	2.00	-1.28	0.00	0.00
45.76	254.00	0.00	2.00	-1.28	0.00	0.00
45.81	254.00	0.00	2.00	-1.28	0.00	0.00
45.88	254.00	0.00	2.00	-1.28	0.00	0.00
45.95	237.82	0.00	2.00	-1.02	0.00	0.00
46.02	205.53	0.02	2.00	-0.53	0.00	0.00
46.08	195.88	0.02	2.00	-0.39	0.00	0.00
46.15	188.65	0.03	2.00	-0.29	0.00	0.00
46.21	182.28	0.04	2.00	-0.19	0.00	0.00
46.28	183.43	0.04	2.00	-0.21	0.00	0.00
46.34	210.16	0.02	2.00	-0.60	0.00	0.00
46.41	228.42	0.01	2.00	-0.88	0.00	0.00
46.47	232.84	0.01	2.00	-0.95	0.00	0.00
46.54	220.55	0.01	2.00	-0.76	0.00	0.00
46.61	206.26	0.02	2.00	-0.54	0.00	0.00
46.69	228.78	0.01	2.00	-0.89	0.00	0.00
46.75	245.00	0.00	2.00	-1.14	0.00	0.00
46.80	249.23	0.00	2.00	-1.20	0.00	0.00
46.87	247.68	0.00	2.00	-1.18	0.00	0.00
46.93	249.10	0.00	2.00	-1.20	0.00	0.00
46.99	248.58	0.00	2.00	-1.19	0.00	0.00
47.06	232.28	0.01	2.00	-0.94	0.00	0.00
47.15	211.74	0.01	2.00	-0.63	0.00	0.00
47.20	211.31	0.01	2.00	-0.62	0.00	0.00
47.27	214.84	0.01	2.00	-0.67	0.00	0.00
47.35	220.09	0.01	2.00	-0.75	0.00	0.00
47.40	215.65	0.01	2.00	-0.69	0.00	0.00
47.48	194.12	0.03	2.00	-0.36	0.00	0.00
47.53	194.67	0.03	2.00	-0.37	0.00	0.00
47.59	188.90	0.03	2.00	-0.29	0.00	0.00
47.66	193.10	0.03	2.00	-0.35	0.00	0.00
47.73	189.82	0.03	2.00	-0.30	0.00	0.00
47.80	187.08	0.03	2.00	-0.26	0.00	0.00
47.85	195.14	0.03	2.00	-0.38	0.00	0.00
47.93	221.33	0.01	2.00	-0.77	0.00	0.00
47.98	233.79	0.01	2.00	-0.96	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
48.06	250.85	0.00	2.00	-1.23	0.00	0.00
48.12	238.46	0.00	2.00	-1.03	0.00	0.00
48.18	221.15	0.01	2.00	-0.77	0.00	0.00
48.26	199.70	0.02	2.00	-0.45	0.00	0.00
48.32	192.64	0.03	2.00	-0.34	0.00	0.00
48.37	189.19	0.03	2.00	-0.29	0.00	0.00
48.46	186.30	0.03	2.00	-0.25	0.00	0.00
48.52	187.31	0.03	2.00	-0.27	0.00	0.00
48.59	194.96	0.03	2.00	-0.38	0.00	0.00
48.66	219.50	0.01	2.00	-0.74	0.00	0.00
48.70	234.32	0.01	2.00	-0.97	0.00	0.00
48.79	238.35	0.00	2.00	-1.03	0.00	0.00
48.83	237.53	0.00	2.00	-1.02	0.00	0.00
48.91	249.54	0.00	2.00	-1.21	0.00	0.00
48.98	238.99	0.00	2.00	-1.04	0.00	0.00
49.04	224.99	0.01	2.00	-0.83	0.00	0.00
49.10	241.36	0.00	2.00	-1.08	0.00	0.00
49.17	233.07	0.01	2.00	-0.95	0.00	0.00
49.24	240.57	0.00	2.00	-1.07	0.00	0.00
49.29	222.94	0.01	2.00	-0.80	0.00	0.00
49.38	193.68	0.03	2.00	-0.36	0.00	0.00
49.44	184.69	0.04	2.00	-0.23	0.00	0.00
49.51	185.47	0.03	2.00	-0.24	0.00	0.00
49.57	188.08	0.03	2.00	-0.28	0.00	0.00
49.64	184.85	0.04	2.00	-0.23	0.00	0.00
49.70	180.30	0.04	2.00	-0.17	0.00	0.00
49.77	214.27	0.01	2.00	-0.66	0.00	0.00
49.84	254.00	0.00	2.00	-1.28	0.00	0.00
49.88	254.00	0.00	2.00	-1.28	0.00	0.00
49.97	254.00	0.00	2.00	-1.28	0.00	0.00
50.06	254.00	0.00	2.00	-1.28	0.00	0.00
50.11	254.00	0.00	2.00	-1.28	0.00	0.00
50.16	228.90	0.01	2.00	-0.89	0.00	0.00
50.21	205.13	0.02	2.00	-0.53	0.00	0.00
50.28	204.20	0.02	2.00	-0.51	0.00	0.00
50.35	188.64	0.03	2.00	-0.28	0.00	0.00
50.41	200.80	0.02	2.00	-0.46	0.00	0.00
50.47	188.92	0.03	2.00	-0.29	0.00	0.00
50.56	197.92	0.02	2.00	-0.42	0.00	0.00
50.62	219.37	0.01	2.00	-0.74	0.00	0.00
50.68	238.63	0.00	2.00	-1.04	0.00	0.00
50.74	231.66	0.01	2.00	-0.93	0.00	0.00
50.81	206.88	0.02	2.00	-0.55	0.00	0.00
50.87	202.00	0.02	2.00	-0.48	0.00	0.00
50.94	207.35	0.02	2.00	-0.56	0.00	0.00
51.02	193.72	0.03	2.00	-0.36	0.00	0.00
51.10	185.70	0.03	2.00	-0.24	0.00	0.00
51.15	183.14	0.04	2.00	-0.21	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
51.23	185.00	0.04	2.00	-0.23	0.00	0.00
51.26	178.58	0.04	2.00	-0.14	0.00	0.00
51.33	201.71	0.02	2.00	-0.48	0.00	0.00
51.40	197.88	0.02	2.00	-0.42	0.00	0.00
51.46	182.61	0.04	2.00	-0.20	0.00	0.00
51.53	173.86	0.05	2.00	-0.07	0.00	0.00
51.60	171.73	0.05	2.00	-0.04	0.00	0.00
51.66	176.00	0.05	2.00	-0.10	0.00	0.00
51.74	186.61	0.03	2.00	-0.26	0.00	0.00
51.80	192.20	0.03	2.00	-0.34	0.00	0.00
51.85	190.86	0.03	2.00	-0.32	0.00	0.00
51.92	181.69	0.04	2.00	-0.18	0.00	0.00
52.01	166.89	0.06	2.00	0.02	0.00	0.00
52.07	163.78	0.06	2.00	0.06	0.00	0.00
52.13	164.09	0.06	2.00	0.06	0.00	0.00
52.19	160.70	0.07	2.00	0.11	0.00	0.00
52.26	157.21	0.08	2.00	0.15	0.00	0.00
52.34	165.02	0.06	2.00	0.05	0.00	0.00
52.38	170.25	0.05	2.00	-0.02	0.00	0.00
52.47	177.89	0.04	2.00	-0.13	0.00	0.00
52.51	179.99	0.04	2.00	-0.16	0.00	0.00
52.60	178.59	0.04	2.00	-0.14	0.00	0.00
52.64	197.79	0.02	2.00	-0.42	0.00	0.00
52.73	234.01	0.01	2.00	-0.97	0.00	0.00
52.77	253.69	0.00	2.00	-1.27	0.00	0.00
52.86	219.80	0.01	2.00	-0.75	0.00	0.00
52.90	187.91	0.03	2.00	-0.27	0.00	0.00
52.97	215.97	0.01	2.00	-0.69	0.00	0.00
53.04	210.74	0.01	2.00	-0.61	0.00	0.00
53.10	190.89	0.03	2.00	-0.32	0.00	0.00
53.17	207.90	0.02	2.00	-0.57	0.00	0.00
53.24	198.46	0.02	2.00	-0.43	0.00	0.00
53.31	205.63	0.02	2.00	-0.53	0.00	0.00
53.36	196.80	0.02	2.00	-0.40	0.00	0.00
53.43	178.60	0.04	2.00	-0.14	0.00	0.00
53.50	176.92	0.04	2.00	-0.12	0.00	0.00
53.56	180.73	0.04	2.00	-0.17	0.00	0.00
53.63	181.41	0.04	2.00	-0.18	0.00	0.00
53.71	177.46	0.04	2.00	-0.12	0.00	0.00
53.77	174.87	0.05	2.00	-0.09	0.00	0.00
53.84	172.20	0.05	2.00	-0.05	0.00	0.00
53.91	175.87	0.05	2.00	-0.10	0.00	0.00
53.99	173.71	0.05	2.00	-0.07	0.00	0.00
54.03	175.96	0.05	2.00	-0.10	0.00	0.00
54.12	187.29	0.03	2.00	-0.27	0.00	0.00
54.16	195.93	0.02	2.00	-0.39	0.00	0.00
54.25	208.77	0.02	2.00	-0.58	0.00	0.00
54.29	211.01	0.01	2.00	-0.62	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
54.38	240.57	0.00	2.00	-1.07	0.00	0.00
54.41	254.00	0.00	2.00	-1.28	0.00	0.00
54.49	254.00	0.00	2.00	-1.28	0.00	0.00
54.56	247.56	0.00	2.00	-1.18	0.00	0.00
54.63	207.68	0.02	2.00	-0.57	0.00	0.00
54.70	184.34	0.04	2.00	-0.22	0.00	0.00
54.76	179.64	0.04	2.00	-0.16	0.00	0.00
54.82	178.96	0.04	2.00	-0.15	0.00	0.00
54.89	177.33	0.04	2.00	-0.12	0.00	0.00
54.97	176.44	0.05	2.00	-0.11	0.00	0.00
55.01	176.59	0.05	2.00	-0.11	0.00	0.00
55.10	178.18	0.04	2.00	-0.14	0.00	0.00
55.14	179.31	0.04	2.00	-0.15	0.00	0.00
55.20	207.07	0.02	2.00	-0.56	0.00	0.00
55.27	206.08	0.02	2.00	-0.54	0.00	0.00
55.34	197.41	0.02	2.00	-0.41	0.00	0.00
55.41	198.00	0.02	2.00	-0.42	0.00	0.00
55.48	198.38	0.02	2.00	-0.43	0.00	0.00
55.54	188.49	0.03	2.00	-0.28	0.00	0.00
55.61	177.81	0.04	2.00	-0.13	0.00	0.00
55.67	171.74	0.05	2.00	-0.04	0.00	0.00
55.74	177.64	0.04	2.00	-0.13	0.00	0.00
55.82	176.39	0.05	2.00	-0.11	0.00	0.00
55.86	194.41	0.03	2.00	-0.37	0.00	0.00
55.94	251.17	0.00	2.00	-1.23	0.00	0.00
56.01	254.00	0.00	2.00	-1.28	0.00	0.00
56.08	254.00	0.00	2.00	-1.28	0.00	0.00
56.12	254.00	0.00	2.00	-1.28	0.00	0.00
56.19	254.00	0.00	2.00	-1.28	0.00	0.00
56.25	244.00	0.00	2.00	-1.12	0.00	0.00
56.32	196.77	0.02	2.00	-0.40	0.00	0.00
56.38	189.47	0.03	2.00	-0.30	0.00	0.00
56.45	183.69	0.04	2.00	-0.21	0.00	0.00
56.52	177.90	0.04	2.00	-0.13	0.00	0.00
56.59	174.21	0.05	2.00	-0.08	0.00	0.00
56.66	170.79	0.05	2.00	-0.03	0.00	0.00
56.73	200.10	0.02	2.00	-0.45	0.00	0.00
56.79	221.56	0.01	2.00	-0.78	0.00	0.00
56.84	226.95	0.01	2.00	-0.86	0.00	0.00
56.92	203.01	0.02	2.00	-0.50	0.00	0.00
56.99	182.81	0.04	2.00	-0.20	0.00	0.00
57.04	204.15	0.02	2.00	-0.51	0.00	0.00
57.11	195.42	0.03	2.00	-0.38	0.00	0.00
57.17	199.72	0.02	2.00	-0.45	0.00	0.00
57.24	195.96	0.02	2.00	-0.39	0.00	0.00
57.30	185.53	0.03	2.00	-0.24	0.00	0.00
57.38	175.05	0.05	2.00	-0.09	0.00	0.00
57.44	169.27	0.06	2.00	-0.01	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
57.51	167.29	0.06	2.00	0.02	0.00	0.00
57.56	167.52	0.06	2.00	0.01	0.00	0.00
57.64	175.15	0.05	2.00	-0.09	0.00	0.00
57.70	177.52	0.04	2.00	-0.13	0.00	0.00
57.77	173.83	0.05	2.00	-0.07	0.00	0.00
57.83	172.52	0.05	2.00	-0.06	0.00	0.00
57.90	181.54	0.04	2.00	-0.18	0.00	0.00
57.97	221.89	0.01	2.00	-0.78	0.00	0.00
58.06	254.00	0.00	2.00	-1.28	0.00	0.00
58.10	254.00	0.00	2.00	-1.28	0.00	0.00
58.16	254.00	0.00	2.00	-1.28	0.00	0.00
58.23	240.95	0.00	2.00	-1.07	0.00	0.00
58.28	198.04	0.02	2.00	-0.42	0.00	0.00
58.36	180.24	0.04	2.00	-0.16	0.00	0.00
58.42	174.82	0.05	2.00	-0.09	0.00	0.00
58.49	170.12	0.05	2.00	-0.02	0.00	0.00
58.56	172.75	0.05	2.00	-0.06	0.00	0.00
58.63	195.14	0.03	2.00	-0.38	0.00	0.00
58.68	202.20	0.02	2.00	-0.48	0.00	0.00
58.76	197.27	0.02	2.00	-0.41	0.00	0.00
58.81	182.67	0.04	2.00	-0.20	0.00	0.00
58.90	161.17	0.07	2.00	0.10	0.00	0.00
58.96	162.21	0.07	2.00	0.09	0.00	0.00
59.02	161.63	0.07	2.00	0.09	0.00	0.00
59.07	162.53	0.07	2.00	0.08	0.00	0.00
59.15	163.27	0.07	2.00	0.07	0.00	0.00
59.21	167.92	0.06	2.00	0.01	0.00	0.00
59.29	166.05	0.06	2.00	0.03	0.00	0.00
59.34	166.87	0.06	2.00	0.02	0.00	0.00
59.41	166.96	0.06	2.00	0.02	0.00	0.00
59.48	163.79	0.06	2.00	0.06	0.00	0.00
59.54	161.06	0.07	2.00	0.10	0.00	0.00
59.60	157.33	0.08	2.00	0.15	0.00	0.00
59.69	156.96	0.08	2.00	0.16	0.00	0.00
59.73	161.53	0.07	2.00	0.10	0.00	0.00
59.81	172.79	0.05	2.00	-0.06	0.00	0.00
59.89	202.01	0.02	2.00	-0.48	0.00	0.00
59.93	211.88	0.01	2.00	-0.63	0.00	0.00
60.02	211.69	0.01	2.00	-0.63	0.00	0.00
60.06	201.46	0.02	2.00	-0.47	0.00	0.00
60.12	181.75	0.04	2.00	-0.19	0.00	0.00
60.19	175.81	0.05	2.00	-0.10	0.00	0.00
60.26	169.95	0.05	2.00	-0.02	0.00	0.00
60.32	170.74	0.05	2.00	-0.03	0.00	0.00
60.39	169.13	0.06	2.00	-0.01	0.00	0.00
60.46	168.42	0.06	2.00	0.00	0.00	0.00
60.53	175.92	0.05	2.00	-0.10	0.00	0.00
60.58	189.23	0.03	2.00	-0.29	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
60.66	212.84	0.01	2.00	-0.64	0.00	0.00
60.72	212.18	0.01	2.00	-0.63	0.00	0.00
60.78	199.23	0.02	2.00	-0.44	0.00	0.00
60.87	175.16	0.05	2.00	-0.09	0.00	0.00
60.93	169.17	0.06	2.00	-0.01	0.00	0.00
61.01	169.00	0.06	2.00	-0.01	0.00	0.00
61.04	168.29	0.06	2.00	0.00	0.00	0.00
61.11	183.59	0.04	2.00	-0.21	0.00	0.00
61.18	197.67	0.02	2.00	-0.42	0.00	0.00
61.24	204.73	0.02	2.00	-0.52	0.00	0.00
61.31	197.64	0.02	2.00	-0.42	0.00	0.00
61.37	187.99	0.03	2.00	-0.28	0.00	0.00
61.45	165.59	0.06	2.00	0.04	0.00	0.00
61.50	167.19	0.06	2.00	0.02	0.00	0.00
61.56	176.95	0.04	2.00	-0.12	0.00	0.00
61.64	178.80	0.04	2.00	-0.14	0.00	0.00
61.69	174.22	0.05	2.00	-0.08	0.00	0.00
61.77	172.49	0.05	2.00	-0.06	0.00	0.00
61.83	179.38	0.04	2.00	-0.15	0.00	0.00
61.91	221.89	0.01	2.00	-0.78	0.00	0.00
61.97	237.77	0.00	2.00	-1.02	0.00	0.00
62.02	238.16	0.00	2.00	-1.03	0.00	0.00
62.12	194.57	0.03	2.00	-0.37	0.00	0.00
62.18	177.78	0.04	2.00	-0.13	0.00	0.00
62.22	177.07	0.04	2.00	-0.12	0.00	0.00
62.28	172.45	0.05	2.00	-0.05	0.00	0.00
62.36	181.20	0.04	2.00	-0.18	0.00	0.00
62.42	177.02	0.04	2.00	-0.12	0.00	0.00
62.49	179.93	0.04	2.00	-0.16	0.00	0.00
62.55	180.15	0.04	2.00	-0.16	0.00	0.00
62.62	183.36	0.04	2.00	-0.21	0.00	0.00
62.69	198.74	0.02	2.00	-0.43	0.00	0.00
62.75	210.21	0.02	2.00	-0.60	0.00	0.00
62.83	189.31	0.03	2.00	-0.29	0.00	0.00
62.88	175.01	0.05	2.00	-0.09	0.00	0.00
62.96	158.47	0.07	2.00	0.14	0.00	0.00
63.01	158.92	0.07	2.00	0.13	0.00	0.00
63.07	164.27	0.06	2.00	0.06	0.00	0.00
63.14	156.52	0.08	2.00	0.16	0.00	0.00
63.20	166.59	0.06	2.00	0.03	0.00	0.00
63.27	182.90	0.04	2.00	-0.20	0.00	0.00
63.34	221.99	0.01	2.00	-0.78	0.00	0.00
63.40	248.56	0.00	2.00	-1.19	0.00	0.00
63.47	235.44	0.01	2.00	-0.99	0.00	0.00
63.53	212.39	0.01	2.00	-0.64	0.00	0.00
63.61	177.70	0.04	2.00	-0.13	0.00	0.00
63.67	180.57	0.04	2.00	-0.17	0.00	0.00
63.74	190.80	0.03	2.00	-0.32	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
63.80	188.65	0.03	2.00	-0.29	0.00	0.00
63.86	167.38	0.06	2.00	0.02	0.00	0.00
63.93	167.14	0.06	2.00	0.02	0.00	0.00
64.00	164.46	0.06	2.00	0.06	0.00	0.00
64.05	166.40	0.06	2.00	0.03	0.00	0.00
64.13	161.71	0.07	2.00	0.09	0.00	0.00
64.19	164.37	0.06	2.00	0.06	0.00	0.00
64.25	163.34	0.07	2.00	0.07	0.00	0.00
64.33	165.71	0.06	2.00	0.04	0.00	0.00
64.39	165.64	0.06	2.00	0.04	0.00	0.00
64.46	160.96	0.07	2.00	0.10	0.00	0.00
64.51	156.55	0.08	2.00	0.16	0.00	0.00
64.58	154.91	0.08	2.00	0.18	0.00	0.00
64.65	158.25	0.08	2.00	0.14	0.00	0.00
64.72	163.55	0.07	2.00	0.07	0.00	0.00
64.79	152.92	0.09	2.00	0.21	0.00	0.00
64.85	175.54	0.05	2.00	-0.10	0.00	0.00
64.91	196.29	0.02	2.00	-0.40	0.00	0.00
64.98	228.55	0.01	2.00	-0.88	0.00	0.00
65.05	239.11	0.00	2.00	-1.04	0.00	0.00
65.11	232.64	0.01	2.00	-0.94	0.00	0.00
65.18	207.29	0.02	2.00	-0.56	0.00	0.00
65.24	193.67	0.03	2.00	-0.36	0.00	0.00
65.31	175.51	0.05	2.00	-0.10	0.00	0.00
65.37	174.04	0.05	2.00	-0.08	0.00	0.00
65.44	184.70	0.04	2.00	-0.23	0.00	0.00
65.51	204.22	0.02	2.00	-0.51	0.00	0.00
65.57	207.97	0.02	2.00	-0.57	0.00	0.00
65.63	200.93	0.02	2.00	-0.46	0.00	0.00
65.70	183.88	0.04	2.00	-0.22	0.00	0.00
65.77	168.71	0.06	2.00	0.00	0.00	0.00
65.84	178.16	0.04	2.00	-0.13	0.00	0.00
65.89	189.58	0.03	2.00	-0.30	0.00	0.00
65.96	188.46	0.03	2.00	-0.28	0.00	0.00
66.04	163.85	0.06	2.00	0.06	0.00	0.00
66.09	167.79	0.06	2.00	0.01	0.00	0.00
66.16	165.20	0.06	2.00	0.05	0.00	0.00
66.23	178.79	0.04	2.00	-0.14	0.00	0.00
66.29	179.44	0.04	2.00	-0.15	0.00	0.00
66.36	195.34	0.03	2.00	-0.38	0.00	0.00
66.43	187.61	0.03	2.00	-0.27	0.00	0.00
66.48	175.57	0.05	2.00	-0.10	0.00	0.00
66.55	174.12	0.05	2.00	-0.08	0.00	0.00
66.62	166.45	0.06	2.00	0.03	0.00	0.00
66.68	163.23	0.07	2.00	0.07	0.00	0.00
66.75	164.39	0.06	2.00	0.06	0.00	0.00
66.82	163.08	0.07	2.00	0.07	0.00	0.00
66.88	164.83	0.06	2.00	0.05	0.00	0.00

:: Estimation of post-earthquake lateral Displacements :: (continued)

Depth (ft)	$q_{c1N,cs}$	$Gamma_{lim}$ (%)	FS	Fa	$Gamma_{max}$ (%)	LDI
66.95	167.27	0.06	2.00	0.02	0.00	0.00
67.01	169.18	0.06	2.00	-0.01	0.00	0.00
67.08	172.43	0.05	2.00	-0.05	0.00	0.00
67.14	174.87	0.05	2.00	-0.09	0.00	0.00
67.21	171.58	0.05	2.00	-0.04	0.00	0.00
67.28	171.16	0.05	2.00	-0.04	0.00	0.00
67.35	172.35	0.05	2.00	-0.05	0.00	0.00
67.40	171.03	0.05	2.00	-0.03	0.00	0.00
67.47	177.04	0.04	2.00	-0.12	0.00	0.00
67.53	168.39	0.06	2.00	0.00	0.00	0.00
67.61	166.23	0.06	2.00	0.03	0.00	0.00
67.67	120.13	0.19	2.00	0.60	0.00	0.00
67.73	126.51	0.00	2.00	0.00	0.00	0.00
67.80	128.41	0.00	2.00	0.00	0.00	0.00
67.87	136.35	0.00	2.00	0.00	0.00	0.00
67.93	126.73	0.00	2.00	0.00	0.00	0.00
68.00	172.57	0.00	2.00	0.00	0.00	0.00

Total estimated displacement: 7.99

Abbreviations

Depth:	Depth of test point
$q_{c1N,cs}$:	Adjusted and corrected cone resistance due to fines
$Gamma_{lim}$:	Limiting shear strain
FS:	Calculated factor of safety against liquefaction
Fa:	
$Gamma_{max}$:	Maximum cyclic shear strain
Lat. disp.:	Lateral displacement

:: Strength loss calculation Idriss & Boulanger (2008) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.02	213.38	186.43	1.00	186.43	1.62	0.92	0.92
0.10	208.35	182.06	1.00	182.06	1.60	0.67	0.92
0.15	206.17	180.49	1.00	180.49	1.55	0.62	0.91
0.23	202.71	177.42	1.00	177.42	1.53	0.81	0.91
0.29	198.38	173.15	1.00	173.15	1.57	0.50	0.91
0.36	192.59	167.49	1.00	167.49	1.61	0.44	0.90
0.43	187.23	162.08	1.02	165.02	1.67	0.49	0.90
0.47	188.50	162.80	1.04	169.27	1.70	0.34	0.90
0.54	191.50	165.24	1.04	171.78	1.70	0.48	0.90
0.62	203.45	175.71	1.02	179.21	1.67	0.62	0.91
0.68	214.49	185.07	1.02	189.57	1.68	0.87	0.92
0.75	223.04	192.00	1.04	199.69	1.70	0.92	0.92
0.81	229.21	196.81	1.06	208.54	1.73	0.93	0.93
0.88	233.37	199.82	1.08	215.80	1.76	0.93	0.93
0.94	237.30	202.89	1.09	220.25	1.77	0.93	0.93
1.00	243.51	208.19	1.08	224.07	1.76	0.94	0.94
1.07	249.18	213.60	1.04	221.69	1.70	0.94	0.94
1.14	243.30	207.98	1.05	219.11	1.72	0.94	0.94
1.21	227.74	193.33	1.11	215.04	1.81	0.92	0.92
1.27	206.13	173.42	1.21	209.40	1.92	0.91	0.91
1.34	192.44	161.06	1.27	203.96	1.97	0.72	0.90
1.41	180.40	150.43	1.30	195.89	2.00	0.59	0.89
1.47	161.34	133.61	1.41	188.12	2.07	0.50	0.87
1.53	144.95	119.14	1.56	185.66	2.15	0.27	0.85
1.59	132.96	108.56	1.71	185.45	2.22	0.29	0.84
1.65	131.99	107.60	1.71	184.51	2.22	0.29	0.84
1.72	149.62	122.86	1.48	181.68	2.11	0.24	0.86
1.80	179.66	149.24	1.24	185.06	1.95	0.56	0.89
1.86	220.29	185.32	1.09	202.06	1.78	0.92	0.92
1.92	255.95	217.03	1.01	220.06	1.67	0.94	0.94
1.98	293.89	250.56	1.00	250.56	1.59	0.97	0.97
2.05	337.81	289.69	1.00	289.69	1.50	0.99	0.99
2.12	389.98	336.28	1.00	336.28	1.42	1.01	1.01
2.20	434.07	375.36	1.00	375.36	1.38	1.03	1.03
2.26	461.75	399.29	1.00	399.29	1.37	1.04	1.04
2.33	461.78	398.17	1.00	398.17	1.39	1.04	1.04
2.39	458.12	393.72	1.00	393.72	1.43	1.04	1.04
2.44	453.96	388.19	1.00	388.19	1.48	1.04	1.04
2.51	455.34	387.50	1.00	387.50	1.53	1.04	1.04
2.58	453.56	384.75	1.00	384.75	1.56	1.04	1.04
2.65	442.09	374.52	1.00	374.52	1.56	1.03	1.03
2.71	429.03	363.49	1.00	363.49	1.55	1.03	1.03
2.77	415.55	351.66	1.00	351.66	1.55	1.02	1.02
2.84	416.72	352.54	1.00	352.54	1.54	1.02	1.02
2.90	429.00	363.38	1.00	363.38	1.52	1.03	1.03
2.97	434.30	368.32	1.00	368.32	1.49	1.03	1.03
3.04	422.05	357.79	1.00	357.79	1.48	1.02	1.02
3.10	405.68	343.56	1.00	343.56	1.48	1.02	1.02

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.17	388.91	328.73	1.00	328.73	1.49	1.01	1.01
3.23	378.51	319.84	1.00	319.84	1.49	1.01	1.01
3.31	355.86	300.03	1.00	300.03	1.50	0.99	0.99
3.37	341.64	287.95	1.00	287.95	1.49	0.99	0.99
3.43	327.04	275.60	1.00	275.60	1.48	0.98	0.98
3.50	312.78	263.33	1.00	263.33	1.48	0.97	0.97
3.57	296.21	248.84	1.00	248.84	1.49	0.96	0.96
3.62	282.42	236.34	1.00	236.34	1.52	0.96	0.96
3.70	273.50	228.01	1.00	228.01	1.55	0.95	0.95
3.76	263.94	219.22	1.00	219.22	1.58	0.94	0.94
3.82	257.13	212.96	1.00	212.96	1.60	0.94	0.94
3.88	250.79	207.30	1.00	207.30	1.61	0.94	0.94
3.96	246.12	203.21	1.00	203.21	1.61	0.93	0.93
4.02	242.97	200.57	1.00	200.57	1.61	0.93	0.93
4.10	240.65	198.41	1.00	198.41	1.61	0.93	0.93
4.16	240.15	197.83	1.00	197.83	1.61	0.93	0.93
4.24	239.28	196.84	1.00	196.84	1.61	0.93	0.93
4.29	240.05	197.32	1.00	197.32	1.61	0.93	0.93
4.35	238.73	195.93	1.00	195.93	1.62	0.93	0.93
4.42	237.55	194.68	1.00	194.68	1.63	0.93	0.93
4.48	234.33	191.67	1.00	191.67	1.63	0.92	0.92
4.56	230.49	188.17	1.00	187.76	1.64	0.92	0.92
4.62	226.40	184.64	1.00	184.39	1.64	0.92	0.92
4.67	222.37	181.44	1.00	181.44	1.63	0.89	0.91
4.74	217.14	177.26	1.00	177.26	1.62	0.78	0.91
4.81	211.30	172.60	1.00	172.60	1.60	0.59	0.91
4.88	208.39	170.84	1.00	170.84	1.55	0.53	0.91
4.95	206.79	170.69	1.00	170.69	1.48	0.60	0.91
5.01	208.46	173.16	1.00	173.16	1.41	0.52	0.91
5.08	211.33	175.46	1.00	175.46	1.41	0.60	0.91
5.15	216.01	178.55	1.00	178.55	1.45	0.76	0.91
5.21	218.93	180.42	1.00	180.42	1.47	0.76	0.91
5.26	221.41	181.94	1.00	181.94	1.49	0.77	0.92
5.34	225.56	184.75	1.00	184.75	1.52	0.92	0.92
5.39	232.47	189.90	1.00	189.90	1.54	0.92	0.92
5.48	239.68	195.53	1.00	195.53	1.54	0.93	0.93
5.54	245.28	200.07	1.00	200.07	1.54	0.93	0.93
5.60	245.15	199.83	1.00	199.83	1.54	0.93	0.93
5.66	238.91	194.26	1.00	194.26	1.55	0.93	0.93
5.74	231.13	187.03	1.00	187.03	1.59	0.92	0.92
5.79	224.42	180.54	1.00	180.54	1.63	0.89	0.91
5.86	218.21	174.27	1.03	179.43	1.69	0.75	0.91
5.93	208.91	165.25	1.08	178.62	1.76	0.59	0.90
5.99	191.17	149.32	1.15	172.43	1.86	0.50	0.89
6.05	168.29	129.54	1.27	164.15	1.97	0.33	0.86
6.12	140.17	106.04	1.46	154.52	2.10	0.26	0.84
6.19	121.25	90.49	1.65	149.40	2.19	0.19	0.81
6.26	114.58	85.10	1.71	145.91	2.22	0.18	0.80

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.32	127.93	96.01	1.51	145.38	2.13	0.20	0.82
6.39	150.15	114.37	1.31	149.66	2.01	0.27	0.85
6.45	176.07	136.28	1.16	158.68	1.87	0.32	0.87
6.51	197.32	154.76	1.08	166.75	1.76	0.43	0.89
6.57	214.48	170.28	1.00	171.09	1.65	0.66	0.90
6.65	224.10	179.36	1.00	179.36	1.58	0.91	0.91
6.72	227.25	182.61	1.00	182.61	1.54	0.92	0.92
6.78	224.00	179.75	1.00	179.75	1.54	0.87	0.91
6.85	215.38	172.01	1.00	172.01	1.57	0.68	0.91
6.92	203.04	161.13	1.00	161.13	1.61	0.45	0.90
6.97	187.91	147.95	1.02	150.54	1.67	0.33	0.88
7.03	170.20	132.67	1.06	141.19	1.74	0.25	0.87
7.13	155.00	119.59	1.11	132.88	1.81	0.18	0.85
7.19	147.90	113.52	1.14	128.87	1.84	0.17	0.85
7.23	149.01	114.40	1.13	129.29	1.83	0.19	0.85
7.31	155.34	119.69	1.10	132.24	1.80	0.19	0.85
7.37	160.43	123.98	1.08	134.39	1.77	0.21	0.86
7.43	164.65	127.55	1.07	136.24	1.74	0.22	0.86
7.50	165.86	128.48	1.06	136.67	1.74	0.22	0.86
7.56	165.65	128.23	1.06	136.26	1.74	0.22	0.86
7.63	165.25	127.88	1.06	135.48	1.73	0.22	0.86
7.70	164.00	126.84	1.06	134.12	1.73	0.21	0.86
7.76	161.95	125.10	1.06	132.51	1.73	0.21	0.86
7.82	157.59	121.34	1.07	129.88	1.75	0.20	0.85
7.90	151.45	116.06	1.09	126.31	1.77	0.18	0.85
7.96	143.60	109.37	1.11	121.95	1.81	0.17	0.84
8.02	135.41	102.23	1.16	118.63	1.87	0.16	0.83
8.10	127.56	95.34	1.22	116.39	1.93	0.16	0.82
8.15	120.51	89.16	1.30	115.74	2.00	0.16	0.81
8.23	117.29	86.20	1.35	116.54	2.04	0.16	0.81
8.29	118.30	86.71	1.37	119.16	2.05	0.16	0.81
8.36	123.33	90.48	1.36	122.81	2.04	0.18	0.81
8.43	130.61	96.21	1.31	126.13	2.01	0.18	0.82
8.48	139.44	103.54	1.24	128.04	1.95	0.19	0.83
8.56	150.27	112.73	1.16	130.76	1.87	0.19	0.84
8.65	161.41	122.23	1.10	134.74	1.79	0.21	0.86
8.69	176.44	134.89	1.05	142.28	1.73	0.24	0.87
8.78	190.70	146.82	1.02	149.36	1.67	0.35	0.88
8.82	205.61	159.54	1.00	159.54	1.61	0.45	0.90
8.91	210.13	163.33	1.00	163.33	1.59	0.60	0.90
8.95	219.52	171.28	1.00	171.28	1.56	0.48	0.91
9.01	234.36	183.58	1.00	183.58	1.53	0.92	0.92
9.07	258.41	203.55	1.00	203.55	1.49	0.93	0.93
9.14	281.06	222.60	1.00	222.60	1.45	0.95	0.95
9.20	301.36	240.18	1.00	240.18	1.40	0.96	0.96
9.28	320.85	257.20	1.00	257.20	1.36	0.97	0.97
9.33	337.76	271.06	1.00	271.06	1.35	0.98	0.98
9.40	356.28	285.08	1.00	285.08	1.37	0.99	0.99

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.48	377.79	301.19	1.00	301.19	1.39	1.00	1.00
9.54	401.21	319.77	1.00	319.77	1.39	1.01	1.01
9.61	426.00	338.93	1.00	338.93	1.40	1.02	1.02
9.68	451.20	358.57	1.00	358.57	1.40	1.02	1.02
9.73	488.64	390.58	1.00	390.58	1.36	1.04	1.04
9.80	524.50	422.45	1.00	422.45	1.30	1.05	1.05
9.88	554.16	449.31	1.00	449.31	1.25	1.06	1.06
9.93	560.87	452.95	1.00	452.95	1.28	1.07	1.07
10.00	554.03	444.44	1.00	444.44	1.32	1.06	1.06
10.06	520.05	413.27	1.00	413.27	1.38	1.05	1.05
10.12	474.49	374.04	1.00	374.04	1.42	1.03	1.03
10.20	428.50	335.72	1.00	335.72	1.46	1.01	1.01
10.26	404.31	316.63	1.00	316.63	1.45	1.00	1.00
10.32	387.40	303.60	1.00	303.60	1.44	1.00	1.00
10.39	372.70	292.22	1.00	292.22	1.43	0.99	0.99
10.45	358.00	281.18	1.00	281.18	1.42	0.98	0.98
10.52	349.58	275.84	1.00	275.84	1.38	0.98	0.98
10.58	343.14	272.38	1.00	272.38	1.33	0.98	0.98
10.64	336.80	268.56	1.00	268.56	1.30	0.98	0.98
10.71	332.64	265.77	1.00	265.77	1.28	0.97	0.97
10.78	329.82	263.62	1.00	263.62	1.27	0.97	0.97
10.84	329.42	263.34	1.00	263.34	1.27	0.97	0.97
10.92	329.36	263.34	1.00	263.34	1.26	0.97	0.97
10.98	329.22	263.24	1.00	263.24	1.26	0.97	0.97
11.04	325.47	259.99	1.00	259.99	1.26	0.97	0.97
11.12	326.31	260.74	1.00	260.74	1.26	0.97	0.97
11.18	328.95	263.95	1.00	263.95	1.23	0.97	0.97
11.25	338.35	274.30	1.00	274.30	1.16	0.98	0.98
11.33	342.47	279.68	1.00	279.68	1.10	0.98	0.98
11.37	343.10	280.88	1.00	280.88	1.09	0.98	0.98
11.46	340.85	278.06	1.00	278.06	1.11	0.98	0.98
11.50	332.39	269.99	1.00	269.99	1.13	0.98	0.98
11.58	325.48	263.07	1.00	263.07	1.16	0.97	0.97
11.64	319.91	257.24	1.00	257.24	1.19	0.97	0.97
11.71	322.19	258.78	1.00	258.78	1.19	0.97	0.97
11.79	324.47	260.78	1.00	260.78	1.18	0.97	0.97
11.83	327.22	263.51	1.00	263.51	1.17	0.97	0.97
11.91	328.33	264.35	1.00	264.35	1.17	0.97	0.97
11.96	328.29	264.22	1.00	264.22	1.17	0.97	0.97
12.04	326.25	262.09	1.00	262.09	1.17	0.97	0.97
12.09	322.66	258.62	1.00	258.62	1.19	0.97	0.97
12.16	320.64	256.71	1.00	256.71	1.19	0.97	0.97
12.24	318.36	254.67	1.00	254.67	1.19	0.97	0.97
12.29	318.49	254.96	1.00	254.96	1.18	0.97	0.97
12.37	319.53	255.81	1.00	255.81	1.18	0.97	0.97
12.43	320.43	256.62	1.00	256.62	1.17	0.97	0.97
12.50	321.91	257.88	1.00	257.88	1.17	0.97	0.97
12.57	321.74	257.64	1.00	257.64	1.17	0.97	0.97

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.61	320.60	256.68	1.00	256.68	1.17	0.97	0.97
12.70	318.55	254.84	1.00	254.84	1.17	0.97	0.97
12.75	317.11	253.64	1.00	253.64	1.17	0.97	0.97
12.83	316.67	253.08	1.00	253.08	1.17	0.97	0.97
12.87	311.94	247.77	1.00	247.77	1.20	0.96	0.96
12.96	300.87	235.97	1.00	235.97	1.27	0.96	0.96
13.01	265.17	202.02	1.00	202.02	1.44	0.93	0.93
13.10	220.18	162.23	1.00	162.23	1.63	0.41	0.90
13.15	160.03	112.52	1.17	131.87	1.88	0.24	0.84
13.23	118.70	80.16	1.43	115.02	2.09	0.14	0.80
13.29	85.08	54.95	1.97	108.30	2.31	0.14	0.75
13.35	69.95	44.01	2.41	105.90	2.42	0.12	0.72
13.41	59.25	36.47	2.84	103.46	2.51	0.11	0.69
13.46	51.60	31.21	3.20	99.84	2.58	0.11	0.68
13.55	45.83	27.31	3.50	95.56	2.63	0.10	1.89
13.60	41.17	24.23	3.74	90.54	2.66	0.10	1.69
13.67	38.76	22.70	3.75	85.04	2.66	0.10	1.58
13.75	37.31	21.82	3.67	80.07	2.65	0.09	1.52
13.79	36.98	21.70	3.48	75.56	2.62	0.09	1.50
13.88	37.31	21.97	3.32	72.84	2.60	0.09	0.63
13.96	37.82	22.36	3.16	70.63	2.57	0.09	0.64
13.99	37.55	22.21	3.11	69.06	2.56	0.09	0.63
14.06	36.85	21.70	3.19	69.13	2.58	0.09	0.63
14.13	35.81	20.99	3.24	67.94	2.59	0.09	0.63
14.20	35.10	20.49	3.31	67.74	2.60	0.09	0.63
14.28	34.80	20.23	3.38	68.46	2.61	0.09	1.40
14.33	34.80	20.03	3.72	74.57	2.66	0.09	1.39
14.41	38.16	22.06	3.72	82.03	2.66	0.09	1.53
14.48	42.73	24.94	3.55	88.46	2.63	0.10	1.73
14.51	49.31	29.25	3.20	93.55	2.58	0.10	0.67
14.60	54.51	32.65	2.98	97.15	2.54	0.11	0.68
14.68	59.44	35.94	2.76	99.18	2.50	0.11	0.69
14.72	62.02	37.69	2.64	99.44	2.47	0.12	0.70
14.80	60.11	36.25	2.78	100.83	2.50	0.12	0.69
14.88	55.81	33.16	3.10	102.92	2.56	0.11	0.68
14.92	49.88	29.00	3.67	106.31	2.65	0.11	2.01
15.00	48.20	27.79	3.87	107.46	2.68	0.10	1.94
15.05	47.74	27.48	3.87	106.31	2.68	0.11	1.92
15.13	48.91	28.38	3.56	101.03	2.64	0.11	1.97
15.20	47.64	27.75	3.34	92.58	2.60	0.10	1.91
15.27	46.30	27.07	3.12	84.52	2.57	0.10	0.66
15.30	45.02	26.43	2.94	77.67	2.53	0.10	0.66
15.37	43.41	25.41	2.94	74.66	2.53	0.10	0.65
15.44	40.32	23.32	3.14	73.29	2.57	0.09	0.64
15.50	35.83	20.25	3.65	73.91	2.65	0.09	1.41
15.57	31.13	17.10	4.35	74.32	2.75	0.09	1.21
15.64	27.81	14.96	5.00	74.72	2.82	0.09	1.07
15.71	26.47	14.15	5.34	75.61	2.86	0.09	1.01

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.78	26.78	14.31	5.30	75.85	2.86	0.09	1.02
15.84	28.96	15.58	4.78	74.56	2.80	0.09	1.11
15.92	32.45	17.91	4.02	71.92	2.70	0.09	1.26
16.00	36.21	20.47	3.37	68.99	2.61	0.09	1.41
16.04	37.55	21.46	3.08	66.15	2.56	0.09	0.63
16.12	36.81	20.99	3.06	64.25	2.55	0.09	0.63
16.16	34.49	19.45	3.27	63.54	2.59	0.09	0.62
16.24	34.08	19.07	3.45	65.74	2.62	0.09	1.32
16.33	33.01	18.22	3.80	69.18	2.67	0.09	1.27
16.37	34.01	18.72	3.97	74.35	2.70	0.09	1.31
16.45	35.58	19.61	3.98	78.00	2.70	0.09	1.37
16.49	41.89	23.74	3.32	78.74	2.60	0.09	0.64
16.58	48.02	27.96	2.70	75.43	2.49	0.10	0.66
16.62	51.58	30.40	2.47	74.95	2.44	0.10	0.67
16.70	48.99	28.42	2.77	78.82	2.50	0.10	0.66
16.79	44.63	25.22	3.37	84.93	2.61	0.10	1.74
16.83	41.38	22.95	3.84	88.12	2.68	0.10	1.60
16.90	43.23	24.17	3.60	87.08	2.64	0.10	1.68
16.97	45.49	25.68	3.33	85.49	2.60	0.10	1.77
17.01	45.80	25.93	3.22	83.57	2.58	0.10	0.65
17.10	42.41	23.69	3.48	82.35	2.62	0.10	1.64
17.14	38.19	20.96	3.84	80.53	2.68	0.09	1.46
17.23	35.61	19.31	4.07	78.62	2.71	0.09	1.36
17.27	33.09	17.74	4.27	75.75	2.74	0.09	1.25
17.36	31.18	16.55	4.43	73.34	2.76	0.09	1.17
17.40	30.14	15.93	4.46	71.00	2.76	0.09	1.13
17.49	29.30	15.37	4.61	70.81	2.78	0.09	1.09
17.53	29.91	15.67	4.71	73.76	2.79	0.09	1.12
17.62	31.02	16.25	4.77	77.57	2.80	0.09	1.16
17.67	35.88	19.32	4.08	78.75	2.71	0.09	1.36
17.75	39.51	21.70	3.54	76.73	2.63	0.10	1.50
17.83	41.18	22.86	3.24	74.02	2.59	0.09	0.64
17.89	39.21	21.57	3.39	73.19	2.61	0.09	1.48
17.93	36.35	19.68	3.74	73.67	2.66	0.09	1.37
18.02	35.60	19.14	3.89	74.47	2.69	0.09	1.34
18.06	35.27	18.87	4.00	75.54	2.70	0.09	1.32
18.15	36.51	19.62	3.88	76.20	2.68	0.09	1.37
18.19	38.34	20.73	3.76	77.85	2.67	0.09	1.44
18.28	44.68	24.75	3.23	79.84	2.58	0.10	0.65
18.32	69.74	41.51	2.01	83.53	2.32	0.10	0.71
18.41	108.42	68.57	1.41	96.35	2.07	0.14	0.78
18.49	147.67	96.90	1.20	116.29	1.91	0.20	0.82
18.53	174.01	115.90	1.14	132.37	1.85	0.22	0.85
18.62	186.89	124.87	1.13	141.03	1.83	0.28	0.86
18.66	197.89	132.29	1.13	149.25	1.83	0.31	0.87
18.74	204.10	136.10	1.13	154.44	1.84	0.38	0.87
18.79	211.78	141.59	1.12	159.21	1.82	0.40	0.88
18.87	218.05	146.77	1.10	161.01	1.79	0.47	0.88

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.92	224.19	151.91	1.07	163.09	1.75	0.51	0.89
19.01	226.54	153.50	1.07	164.30	1.75	0.55	0.89
19.05	226.44	152.42	1.09	166.27	1.78	0.56	0.89
19.14	224.83	150.34	1.11	166.85	1.80	0.54	0.89
19.18	219.23	145.47	1.14	165.15	1.84	0.57	0.88
19.27	216.00	142.65	1.15	163.81	1.85	0.44	0.88
19.32	212.24	139.63	1.16	162.10	1.87	0.50	0.88
19.40	212.10	139.27	1.16	162.12	1.87	0.48	0.87
19.44	209.74	137.23	1.18	161.45	1.89	0.48	0.87
19.53	209.07	136.38	1.18	161.53	1.90	0.46	0.87
19.57	208.59	135.78	1.19	161.76	1.90	0.50	0.87
19.66	209.39	136.13	1.19	162.26	1.90	0.48	0.87
19.70	210.56	137.25	1.18	161.66	1.89	0.47	0.87
19.79	213.01	139.56	1.15	160.78	1.86	0.47	0.88
19.83	217.03	143.16	1.13	161.07	1.82	0.45	0.88
19.92	222.56	147.47	1.11	163.14	1.80	0.49	0.88
20.00	228.39	151.76	1.09	166.04	1.78	0.58	0.89
20.05	232.71	155.11	1.08	167.94	1.77	0.62	0.89
20.09	231.40	154.13	1.08	166.92	1.77	0.65	0.89
20.18	228.82	152.10	1.09	165.16	1.77	0.51	0.89
20.23	223.55	148.13	1.09	161.97	1.78	0.51	0.88
20.30	218.32	144.13	1.10	158.84	1.79	0.45	0.88
20.38	210.67	138.24	1.12	154.56	1.82	0.38	0.87
20.43	201.38	131.12	1.14	149.70	1.85	0.35	0.87
20.51	192.76	124.50	1.17	145.30	1.88	0.30	0.86
20.56	184.74	118.44	1.19	141.35	1.90	0.29	0.85
20.62	177.80	113.22	1.22	138.02	1.93	0.27	0.84
20.70	171.49	108.45	1.25	135.06	1.95	0.25	0.84
20.76	165.95	104.30	1.27	132.68	1.98	0.24	0.83
20.82	161.86	101.13	1.30	131.43	2.00	0.24	0.83
20.89	158.47	98.34	1.33	131.16	2.02	0.24	0.82
20.98	156.26	96.36	1.37	131.64	2.05	0.23	0.82
21.02	156.86	96.59	1.37	132.61	2.05	0.24	0.82
21.11	159.81	98.59	1.35	133.40	2.04	0.25	0.83
21.15	164.67	102.34	1.31	133.56	2.00	0.25	0.83
21.24	167.72	104.81	1.27	132.92	1.97	0.26	0.83
21.28	168.31	105.90	1.23	130.33	1.94	0.24	0.84
21.37	167.93	106.11	1.21	127.88	1.92	0.21	0.84
21.41	167.72	106.58	1.18	125.57	1.89	0.21	0.84
21.50	169.20	107.88	1.16	125.24	1.87	0.20	0.84
21.55	171.31	109.65	1.15	125.56	1.85	0.20	0.84
21.63	174.09	111.78	1.13	126.42	1.83	0.21	0.84
21.68	172.99	111.13	1.13	125.23	1.83	0.21	0.84
21.74	175.17	112.85	1.12	125.88	1.81	0.18	0.84
21.80	179.62	116.24	1.10	127.80	1.79	0.21	0.85
21.87	188.88	123.17	1.08	132.46	1.76	0.24	0.86
21.94	194.85	127.64	1.06	135.36	1.73	0.25	0.86
22.02	200.69	131.94	1.05	138.33	1.72	0.27	0.87

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.09	209.78	138.57	1.03	143.22	1.69	0.31	0.87
22.16	220.95	146.67	1.02	149.32	1.67	0.42	0.88
22.20	237.53	159.25	1.00	159.25	1.63	0.55	0.89
22.29	252.83	171.20	1.00	171.20	1.58	0.91	0.91
22.33	269.80	184.67	1.00	184.67	1.54	0.92	0.92
22.42	280.61	192.76	1.00	192.76	1.52	0.92	0.92
22.46	288.76	198.44	1.00	198.44	1.52	0.93	0.93
22.55	291.74	200.00	1.00	200.00	1.52	0.93	0.93
22.60	292.91	200.40	1.00	200.40	1.53	0.93	0.93
22.66	293.42	200.30	1.00	200.30	1.54	0.93	0.93
22.74	290.27	197.18	1.00	197.18	1.56	0.93	0.93
22.82	284.36	191.93	1.00	191.93	1.58	0.92	0.92
22.87	273.62	183.14	1.00	183.14	1.61	0.92	0.92
22.96	264.97	176.09	1.00	176.09	1.64	0.91	0.91
23.00	260.39	172.54	1.00	172.72	1.65	0.91	0.91
23.09	258.28	171.01	1.00	171.05	1.65	0.91	0.91
23.13	259.76	172.62	1.00	172.62	1.63	0.91	0.91
23.21	261.11	174.01	1.00	174.01	1.61	0.91	0.91
23.26	263.90	176.29	1.00	176.29	1.60	0.91	0.91
23.34	262.82	175.21	1.00	175.21	1.61	0.91	0.91
23.38	256.25	169.43	1.00	169.43	1.64	0.90	0.90
23.47	248.73	163.20	1.01	165.44	1.66	0.76	0.90
23.52	240.11	156.40	1.03	161.51	1.69	0.66	0.89
23.60	234.11	151.84	1.04	158.11	1.71	0.52	0.89
23.65	227.13	146.42	1.06	154.67	1.73	0.47	0.88
23.74	221.73	141.98	1.07	152.18	1.75	0.39	0.88
23.78	208.41	132.01	1.10	145.23	1.79	0.38	0.87
23.83	199.25	125.60	1.11	139.57	1.81	0.23	0.86
23.91	186.13	116.48	1.13	131.44	1.83	0.26	0.85
24.00	179.32	111.85	1.13	126.85	1.84	0.21	0.84
24.04	162.35	99.23	1.20	119.20	1.91	0.21	0.83
24.13	144.40	85.79	1.33	113.69	2.02	0.18	0.81
24.17	118.66	67.66	1.60	108.22	2.17	0.17	0.77
24.26	96.45	52.83	1.99	104.95	2.31	0.13	0.74
24.30	72.80	37.92	2.66	100.94	2.48	0.13	0.70
24.39	58.24	29.12	3.34	97.31	2.60	0.10	2.00
24.44	44.53	21.14	4.37	92.37	2.75	0.10	1.50
24.53	36.88	17.16	5.16	88.51	2.84	0.09	1.23
24.57	28.83	13.10	6.30	82.58	2.96	0.09	0.94
24.66	24.67	11.00	6.93	76.18	3.02	0.08	0.79
24.70	21.93	9.61	7.00	67.25	3.02	0.08	0.69
24.79	21.42	9.35	6.40	59.81	2.97	0.08	0.67
24.83	21.36	9.31	5.82	54.13	2.91	0.08	0.66
24.92	21.46	9.35	5.66	52.94	2.90	0.08	0.67
24.96	21.66	9.44	5.25	49.56	2.85	0.08	0.67
25.05	22.10	9.65	4.52	43.59	2.77	0.08	0.69
25.09	23.34	10.67	3.39	36.13	2.61	0.08	0.73
25.18	24.82	11.68	2.85	33.31	2.52	0.07	0.56

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.22	27.90	13.62	2.42	32.99	2.43	0.07	0.58
25.31	30.22	15.11	1.00	15.11	2.36	0.07	0.59
25.35	28.24	13.93	2.24	31.18	2.38	0.07	0.58
25.42	24.32	11.53	2.62	30.20	2.47	0.07	0.56
25.48	20.53	9.16	3.40	31.19	2.61	0.07	0.63
25.56	20.90	9.24	3.71	34.25	2.66	0.08	0.64
25.62	21.47	9.41	4.06	38.21	2.71	0.08	0.66
25.68	21.98	9.55	4.42	42.17	2.76	0.08	0.68
25.74	22.24	9.64	4.98	48.00	2.82	0.08	0.69
25.80	23.12	10.07	5.42	54.55	2.87	0.08	0.72
25.88	24.93	10.95	5.34	58.54	2.86	0.08	0.78
25.95	27.99	12.45	4.70	58.52	2.79	0.08	0.89
26.00	31.34	14.41	3.85	55.49	2.68	0.09	1.01
26.07	33.42	15.68	3.45	54.04	2.62	0.09	1.08
26.13	32.41	14.94	3.83	57.27	2.68	0.09	1.04
26.21	32.01	14.39	4.53	65.14	2.77	0.08	1.03
26.30	31.61	14.18	5.18	73.48	2.85	0.09	1.01
26.34	50.40	24.47	3.27	79.95	2.59	0.08	0.65
26.43	80.40	42.62	2.02	86.05	2.32	0.13	0.71
26.47	134.31	77.32	1.37	105.61	2.05	0.15	0.79
26.55	180.37	107.82	1.20	129.57	1.91	0.31	0.84
26.59	230.35	141.90	1.11	157.57	1.81	0.42	0.88
26.67	269.51	169.41	1.06	178.97	1.73	0.90	0.90
26.76	304.97	194.75	1.01	197.58	1.67	0.93	0.93
26.80	331.00	212.91	1.00	212.91	1.64	0.94	0.94
26.88	346.10	222.46	1.00	222.46	1.64	0.95	0.95
26.92	356.70	228.78	1.00	228.98	1.65	0.95	0.95
27.00	358.73	229.19	1.01	231.37	1.66	0.95	0.95
27.05	358.90	228.59	1.02	232.34	1.67	0.95	0.95
27.12	364.84	232.89	1.01	234.88	1.66	0.95	0.95
27.18	378.64	243.58	1.00	243.58	1.63	0.96	0.96
27.25	395.55	257.16	1.00	257.16	1.58	0.97	0.97
27.32	406.93	266.97	1.00	266.97	1.54	0.98	0.98
27.38	415.55	275.36	1.00	275.36	1.50	0.98	0.98
27.44	422.59	283.68	1.00	283.68	1.45	0.99	0.99
27.52	423.60	287.94	1.00	287.94	1.40	0.99	0.99
27.58	413.60	283.24	1.00	283.24	1.37	0.99	0.99
27.65	397.16	271.90	1.00	271.90	1.36	0.98	0.98
27.71	380.68	259.59	1.00	259.59	1.38	0.97	0.97
27.78	367.46	249.32	1.00	249.32	1.39	0.96	0.96
27.84	356.46	241.22	1.00	241.22	1.40	0.96	0.96
27.91	347.03	233.32	1.00	233.32	1.42	0.95	0.95
27.97	339.71	226.63	1.00	226.63	1.45	0.95	0.95
28.04	334.71	220.83	1.00	220.83	1.49	0.95	0.95
28.12	336.59	221.94	1.00	221.94	1.49	0.95	0.95
28.17	343.43	228.30	1.00	228.30	1.45	0.95	0.95
28.25	353.32	237.43	1.00	237.43	1.41	0.96	0.96
28.33	360.46	243.43	1.00	243.43	1.39	0.96	0.96

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
28.37	363.81	245.24	1.00	245.24	1.40	0.96	0.96
28.46	361.90	242.99	1.00	242.99	1.41	0.96	0.96
28.50	346.70	230.63	1.00	230.63	1.44	0.95	0.95
28.56	333.48	220.46	1.00	220.46	1.46	0.94	0.94
28.63	320.90	211.46	1.00	211.46	1.47	0.94	0.94
28.69	316.64	209.38	1.00	209.38	1.45	0.94	0.94
28.76	303.18	200.10	1.00	200.10	1.46	0.93	0.93
28.84	285.77	186.62	1.00	186.62	1.49	0.92	0.92
28.90	262.85	167.68	1.00	167.68	1.58	0.90	0.90
28.98	241.58	149.58	1.03	153.41	1.68	0.51	0.89
29.03	218.13	130.45	1.11	144.92	1.81	0.36	0.87
29.09	200.11	115.79	1.21	140.31	1.92	0.31	0.85
29.18	185.85	104.45	1.33	139.28	2.02	0.32	0.83
29.21	176.90	97.00	1.48	143.27	2.11	0.34	0.82
29.30	168.68	90.53	1.63	147.65	2.19	0.33	0.81
29.38	160.16	84.30	1.80	151.65	2.25	0.31	0.80
29.42	148.25	76.59	1.99	152.15	2.31	0.29	0.79
29.50	131.67	66.46	2.25	149.48	2.38	0.23	0.77
29.58	114.56	56.35	2.58	145.37	2.46	0.18	0.75
29.62	99.57	47.94	2.89	138.37	2.52	0.16	0.73
29.69	102.45	50.03	2.62	130.96	2.47	0.14	0.73
29.76	142.68	75.25	1.70	127.87	2.21	0.16	0.79
29.82	219.28	126.72	1.19	150.49	1.90	0.49	0.86
29.89	294.86	181.20	1.03	185.81	1.68	0.91	0.91
29.95	330.26	206.61	1.00	206.61	1.62	0.93	0.93
30.03	334.04	206.74	1.01	208.08	1.65	0.93	0.93
30.07	318.07	192.32	1.06	204.38	1.74	0.92	0.92
30.15	307.49	183.65	1.09	200.30	1.78	0.92	0.92
30.20	291.01	172.00	1.12	191.81	1.81	0.91	0.91
30.27	289.71	171.90	1.10	189.53	1.79	0.91	0.91
30.33	292.84	174.86	1.08	189.65	1.77	0.91	0.91
30.39	310.19	187.77	1.05	197.18	1.72	0.92	0.92
30.47	297.78	178.47	1.07	191.22	1.75	0.91	0.91
30.54	275.53	161.71	1.12	181.43	1.82	0.90	0.90
30.59	223.46	124.76	1.29	160.68	1.99	0.86	0.86
30.66	184.28	98.23	1.54	151.40	2.14	0.35	0.82
30.73	142.27	71.52	2.07	147.95	2.34	0.23	0.78
30.80	117.78	56.81	2.59	147.12	2.46	0.18	0.75
30.86	104.03	49.00	2.94	144.06	2.53	0.17	0.73
30.93	95.68	44.45	3.14	139.73	2.57	0.16	0.72
30.99	90.05	41.47	3.26	135.33	2.59	0.14	0.71
31.06	95.05	44.45	2.96	131.46	2.54	0.14	0.72
31.13	113.17	55.28	2.30	126.99	2.40	0.17	0.75
31.18	144.71	75.09	1.66	124.91	2.20	0.21	0.79
31.26	170.57	92.21	1.39	127.80	2.06	0.31	0.82
31.33	190.46	105.88	1.25	132.87	1.96	0.30	0.84
31.38	201.06	113.08	1.21	136.95	1.92	0.33	0.84
31.45	210.35	119.35	1.18	140.88	1.89	0.37	0.85

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.52	219.85	125.79	1.15	145.11	1.86	0.38	0.86
31.61	227.60	130.95	1.14	148.72	1.84	0.45	0.87
31.65	239.41	138.30	1.13	155.62	1.82	0.50	0.87
31.73	262.92	153.32	1.10	168.83	1.79	0.74	0.89
31.80	294.73	173.72	1.08	186.90	1.76	0.91	0.91
31.87	323.88	192.47	1.06	203.40	1.73	0.92	0.92
31.93	335.59	198.87	1.06	211.34	1.74	0.93	0.93
31.99	333.67	195.69	1.09	212.53	1.77	0.93	0.93
32.06	331.80	192.85	1.11	213.35	1.80	0.92	0.92
32.11	326.96	188.42	1.13	212.34	1.83	0.92	0.92
32.17	330.35	190.37	1.13	214.23	1.83	0.92	0.92
32.24	336.76	194.76	1.11	216.97	1.81	0.93	0.93
32.30	353.67	206.82	1.09	224.48	1.77	0.93	0.93
32.37	367.05	216.61	1.06	230.11	1.74	0.94	0.94
32.44	371.82	220.82	1.05	230.91	1.71	0.95	0.95
32.50	363.33	216.71	1.03	223.96	1.69	0.94	0.94
32.56	350.72	211.06	1.01	213.07	1.66	0.94	0.94
32.63	338.67	206.53	1.00	206.53	1.61	0.93	0.93
32.70	335.28	206.98	1.00	206.98	1.56	0.93	0.93
32.76	331.39	205.00	1.00	205.00	1.55	0.93	0.93
32.83	330.89	204.56	1.00	204.56	1.55	0.93	0.93
32.89	337.73	208.75	1.00	208.75	1.55	0.94	0.94
32.95	356.22	220.93	1.00	220.93	1.54	0.95	0.95
33.02	380.54	236.69	1.00	236.69	1.53	0.96	0.96
33.10	401.81	250.94	1.00	250.94	1.52	0.97	0.97
33.16	406.91	252.61	1.00	252.61	1.53	0.97	0.97
33.25	402.92	247.73	1.00	247.73	1.56	0.96	0.96
33.29	392.05	240.06	1.00	240.06	1.58	0.96	0.96
33.37	384.33	237.54	1.00	237.54	1.54	0.96	0.96
33.45	374.37	234.02	1.00	234.02	1.50	0.95	0.95
33.50	360.72	225.04	1.00	225.04	1.50	0.95	0.95
33.59	349.75	215.06	1.00	215.06	1.55	0.94	0.94
33.63	323.61	193.12	1.00	193.28	1.65	0.92	0.92
33.68	283.99	161.32	1.11	179.52	1.81	0.90	0.90
33.76	232.83	124.42	1.31	162.50	2.00	0.80	0.86
33.82	189.11	95.42	1.63	155.89	2.19	0.45	0.82
33.88	153.48	73.88	2.05	151.16	2.33	0.28	0.79
33.96	124.73	57.37	2.58	147.80	2.46	0.19	0.75
34.02	102.36	45.16	3.20	144.38	2.58	0.16	0.72
34.08	87.60	37.38	3.78	141.42	2.67	0.14	2.62
34.14	76.19	31.71	4.23	134.02	2.73	0.13	2.26
34.23	68.01	28.09	4.38	123.11	2.75	0.12	2.01
34.28	60.90	24.98	4.30	107.43	2.74	0.11	1.78
34.34	55.27	22.57	4.17	94.14	2.72	0.11	1.61
34.41	49.90	20.21	4.17	84.29	2.72	0.10	1.44
34.49	46.04	18.47	4.33	79.91	2.74	0.10	1.32
34.53	45.17	18.08	4.31	77.96	2.74	0.10	1.29
34.61	48.29	19.65	3.92	77.09	2.69	0.10	1.39

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
34.70	54.26	22.80	3.36	76.59	2.61	0.10	1.57
34.75	64.03	27.71	2.97	82.23	2.54	0.11	0.66
34.83	71.14	31.10	2.87	89.18	2.52	0.12	0.68
34.88	74.20	32.29	2.97	96.01	2.54	0.12	0.68
34.92	72.44	31.17	3.15	98.21	2.57	0.12	0.68
35.01	70.96	30.33	3.24	98.19	2.59	0.12	0.67
35.10	71.26	30.46	3.21	97.94	2.58	0.12	0.67
35.13	76.52	33.36	2.90	96.74	2.53	0.12	0.68
35.20	80.74	35.65	2.71	96.52	2.49	0.13	0.69
35.29	85.28	38.07	2.55	97.02	2.45	0.13	0.70
35.33	87.79	39.31	2.51	98.79	2.45	0.13	0.70
35.42	92.29	41.68	2.41	100.46	2.42	0.14	0.71
35.46	96.49	44.01	2.29	100.69	2.39	0.14	0.72
35.55	97.70	44.69	2.24	100.10	2.38	0.14	0.72
35.58	98.10	44.91	2.23	99.93	2.38	0.14	0.72
35.66	99.98	45.86	2.19	100.66	2.37	0.14	0.72
35.72	102.90	47.51	2.12	100.61	2.35	0.15	0.73
35.78	104.81	48.71	2.04	99.38	2.33	0.15	0.73
35.84	104.98	48.95	1.99	97.61	2.31	0.14	0.73
35.91	104.11	48.49	1.99	96.63	2.31	0.14	0.73
35.98	103.98	48.32	2.01	96.97	2.32	0.14	0.73
36.05	105.15	48.79	2.02	98.43	2.32	0.14	0.73
36.11	107.23	49.78	2.01	100.18	2.32	0.15	0.73
36.19	106.56	49.22	2.05	101.10	2.33	0.15	0.73
36.25	100.35	45.52	2.24	101.76	2.38	0.15	0.72
36.32	91.53	40.39	2.55	102.87	2.45	0.13	0.71
36.36	84.15	36.19	2.90	104.91	2.53	0.13	0.69
36.43	83.14	35.56	2.97	105.52	2.54	0.13	0.69
36.52	86.36	37.30	2.81	104.73	2.51	0.13	0.70
36.57	93.88	41.47	2.49	103.37	2.44	0.14	0.71
36.64	101.50	45.77	2.25	102.91	2.38	0.15	0.72
36.69	108.91	49.92	2.07	103.45	2.34	0.15	0.73
36.77	116.26	53.81	1.98	106.37	2.31	0.16	0.74
36.85	121.44	56.34	1.95	110.13	2.30	0.18	0.75
36.89	127.92	59.45	1.95	115.69	2.30	0.18	0.76
36.97	127.95	58.96	2.03	119.43	2.32	0.21	0.76
37.03	123.81	56.11	2.20	123.44	2.37	0.19	0.75
37.12	115.56	51.14	2.46	125.82	2.43	0.17	0.74
37.15	111.13	48.61	2.61	126.68	2.47	0.17	0.73
37.22	112.37	49.17	2.59	127.41	2.46	0.17	0.73
37.29	121.00	53.38	2.49	132.89	2.44	0.17	0.74
37.35	142.98	64.70	2.21	142.99	2.37	0.22	0.77
37.42	179.31	84.32	1.84	155.13	2.26	0.38	0.80
37.49	207.19	99.76	1.65	164.92	2.19	0.83	0.83
37.56	213.09	102.73	1.64	168.51	2.19	0.83	0.83
37.62	192.72	90.55	1.83	166.12	2.26	0.58	0.81
37.68	166.72	75.73	2.15	162.73	2.36	0.33	0.79
37.74	155.77	69.85	2.28	158.98	2.39	0.24	0.78

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
37.83	151.55	67.92	2.26	153.47	2.39	0.33	0.77
37.89	157.66	71.98	2.04	147.05	2.33	0.26	0.78
37.96	156.54	71.83	1.98	141.97	2.31	0.29	0.78
38.02	155.13	71.29	1.95	139.02	2.30	0.28	0.78
38.07	148.39	67.62	2.02	136.47	2.32	0.24	0.77
38.16	142.01	64.19	2.08	133.67	2.34	0.22	0.77
38.22	139.62	63.18	2.05	129.80	2.33	0.22	0.76
38.28	139.43	63.32	2.01	127.16	2.32	0.21	0.77
38.34	139.47	63.39	1.99	126.17	2.31	0.21	0.77
38.42	138.78	62.86	2.01	126.49	2.32	0.21	0.76
38.48	135.94	61.02	2.10	127.99	2.34	0.21	0.76
38.53	139.03	62.48	2.08	130.12	2.34	0.19	0.76
38.60	141.92	63.80	2.07	132.35	2.34	0.25	0.77
38.67	148.41	67.06	2.02	135.48	2.32	0.23	0.77
38.73	153.10	68.97	2.05	141.50	2.33	0.25	0.78
38.80	173.34	79.21	1.92	152.33	2.29	0.30	0.80
38.86	204.60	95.59	1.74	166.76	2.23	0.74	0.82
38.93	230.44	109.36	1.63	178.32	2.18	0.84	0.84
39.00	230.57	108.69	1.67	182.01	2.20	0.84	0.84
39.07	206.74	94.83	1.88	178.65	2.28	0.82	0.82
39.14	177.85	78.77	2.22	174.54	2.38	0.39	0.79
39.21	157.22	67.84	2.50	169.33	2.44	0.29	0.77
39.27	147.80	63.32	2.56	162.23	2.46	0.26	0.77
39.33	144.44	62.25	2.46	153.03	2.43	0.25	0.76
39.39	143.74	62.79	2.28	143.06	2.39	0.24	0.76
39.47	142.40	62.79	2.15	134.99	2.36	0.23	0.76
39.53	140.82	62.44	2.08	129.62	2.34	0.22	0.76
39.58	139.40	61.68	2.09	128.75	2.34	0.21	0.76
39.67	138.88	61.28	2.10	128.92	2.35	0.21	0.76
39.73	138.85	60.99	2.14	130.71	2.36	0.22	0.76
39.81	141.62	62.25	2.13	132.58	2.35	0.21	0.76
39.84	147.81	65.29	2.08	135.99	2.34	0.24	0.77
39.92	150.33	66.24	2.10	139.26	2.35	0.28	0.77
40.00	147.37	64.22	2.21	141.98	2.37	0.24	0.77
40.04	142.34	61.21	2.36	144.15	2.41	0.22	0.76
40.12	138.95	59.05	2.48	146.39	2.44	0.24	0.76
40.20	136.97	57.76	2.57	148.20	2.46	0.22	0.75
40.24	130.60	54.42	2.71	147.57	2.49	0.22	0.75
40.32	125.66	52.01	2.78	144.40	2.50	0.19	0.74
40.37	120.80	49.79	2.81	140.03	2.51	0.19	0.73
40.44	118.28	48.67	2.81	136.79	2.51	0.18	0.73
40.52	116.40	47.80	2.82	134.65	2.51	0.18	0.73
40.56	116.13	47.69	2.81	133.77	2.51	0.18	0.73
40.64	119.46	49.39	2.70	133.26	2.49	0.18	0.73
40.71	125.63	52.65	2.51	132.23	2.45	0.19	0.74
40.78	130.13	55.10	2.38	131.37	2.42	0.21	0.75
40.83	127.75	53.81	2.43	130.58	2.43	0.20	0.74
40.93	122.41	50.88	2.57	130.74	2.46	0.18	0.74

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
40.97	117.89	48.44	2.71	131.35	2.49	0.18	0.73
41.05	117.75	48.34	2.70	130.77	2.49	0.18	0.73
41.10	115.91	47.46	2.73	129.50	2.49	0.18	0.73
41.18	114.44	46.71	2.75	128.34	2.50	0.17	0.73
41.23	112.89	45.85	2.81	128.78	2.51	0.17	0.72
41.30	113.73	46.17	2.80	129.43	2.51	0.17	0.72
41.36	114.67	46.61	2.78	129.34	2.50	0.17	0.73
41.42	120.81	49.76	2.59	129.03	2.46	0.17	0.73
41.49	123.46	51.00	2.55	129.98	2.45	0.21	0.74
41.55	126.75	52.45	2.52	132.41	2.45	0.19	0.74
41.63	127.76	52.68	2.56	134.86	2.46	0.19	0.74
41.69	133.97	55.73	2.45	136.43	2.43	0.21	0.75
41.75	137.09	57.35	2.38	136.65	2.42	0.23	0.75
41.82	136.08	56.81	2.40	136.09	2.42	0.21	0.75
41.88	133.06	55.19	2.45	135.09	2.43	0.20	0.75
41.95	132.19	54.82	2.44	133.50	2.43	0.21	0.75
42.01	132.26	55.09	2.38	131.04	2.42	0.20	0.75
42.09	133.80	56.09	2.29	128.54	2.39	0.20	0.75
42.15	137.73	58.33	2.17	126.76	2.36	0.21	0.75
42.22	140.41	59.76	2.12	126.40	2.35	0.22	0.76
42.30	142.44	60.77	2.08	126.57	2.34	0.21	0.76
42.34	141.67	60.26	2.11	126.97	2.35	0.22	0.76
42.42	142.75	60.71	2.10	127.41	2.34	0.21	0.76
42.50	142.06	60.29	2.11	127.12	2.35	0.22	0.76
42.54	143.30	60.84	2.10	127.82	2.34	0.22	0.76
42.62	143.77	60.73	2.15	130.28	2.36	0.23	0.76
42.70	145.38	61.12	2.19	133.77	2.37	0.23	0.76
42.74	148.57	62.32	2.21	138.00	2.38	0.24	0.76
42.82	154.58	65.11	2.17	141.09	2.36	0.26	0.77
42.86	157.33	66.27	2.16	143.45	2.36	0.30	0.77
42.94	157.83	66.36	2.17	144.33	2.36	0.26	0.77
43.01	154.98	64.68	2.24	144.98	2.38	0.28	0.77
43.07	156.09	65.13	2.24	145.66	2.38	0.27	0.77
43.15	155.22	64.65	2.24	144.96	2.38	0.28	0.77
43.21	154.45	64.42	2.22	142.74	2.38	0.26	0.77
43.26	153.38	64.08	2.19	140.10	2.37	0.25	0.77
43.32	152.86	63.98	2.16	137.97	2.36	0.26	0.77
43.41	152.89	64.08	2.13	136.46	2.35	0.25	0.77
43.47	153.60	64.51	2.10	135.43	2.34	0.25	0.77
43.54	156.87	66.20	2.05	135.53	2.33	0.26	0.77
43.61	161.50	68.41	2.01	137.38	2.32	0.28	0.78
43.67	166.20	70.46	2.00	140.80	2.32	0.30	0.78
43.74	170.79	72.49	1.98	143.87	2.31	0.33	0.78
43.82	173.34	73.62	1.97	145.24	2.31	0.36	0.79
43.86	171.83	72.82	1.99	144.61	2.31	0.34	0.78
43.94	166.33	69.87	2.05	143.43	2.33	0.31	0.78
43.99	159.55	66.40	2.13	141.59	2.35	0.28	0.77
44.07	155.36	64.27	2.18	139.84	2.37	0.26	0.77

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
44.11	151.07	62.14	2.22	138.16	2.38	0.26	0.76
44.20	148.15	60.59	2.27	137.42	2.39	0.23	0.76
44.24	145.86	59.24	2.34	138.50	2.41	0.23	0.76
44.33	147.34	59.75	2.35	140.15	2.41	0.24	0.76
44.38	149.65	60.78	2.33	141.35	2.40	0.25	0.76
44.46	151.20	61.55	2.29	140.74	2.39	0.25	0.76
44.51	145.83	58.95	2.35	138.50	2.41	0.26	0.76
44.59	137.24	54.65	2.49	136.03	2.44	0.21	0.75
44.64	123.22	47.90	2.76	132.32	2.50	0.19	0.73
44.72	112.48	43.15	2.89	124.80	2.52	0.16	0.72
44.81	104.67	39.66	3.02	119.91	2.55	0.15	0.70
44.85	102.96	38.97	3.02	117.68	2.55	0.15	0.70
44.93	104.43	39.36	3.08	121.26	2.56	0.15	0.70
44.97	109.84	41.70	2.99	124.48	2.54	0.16	0.71
45.06	117.89	45.08	2.89	130.50	2.52	0.18	0.72
45.11	129.83	50.22	2.76	138.82	2.50	0.20	0.73
45.17	136.17	52.80	2.74	144.62	2.49	0.24	0.74
45.23	139.36	54.15	2.71	146.60	2.49	0.22	0.74
45.29	136.95	53.08	2.72	144.51	2.49	0.22	0.74
45.36	135.61	52.53	2.71	142.38	2.49	0.21	0.74
45.43	167.45	68.77	2.08	143.12	2.34	0.19	0.78
45.49	190.73	80.22	1.88	150.98	2.28	0.80	0.80
45.56	331.07	156.87	1.26	197.45	1.97	0.30	0.89
45.62	444.95	219.63	1.15	253.06	1.86	0.94	0.94
45.69	526.04	262.86	1.13	296.04	1.83	0.97	0.97
45.76	450.40	212.75	1.27	270.76	1.98	0.94	0.94
45.81	338.50	148.06	1.63	240.84	2.18	0.88	0.88
45.88	256.80	105.02	2.15	225.77	2.36	0.83	0.83
45.95	205.45	79.95	2.68	213.88	2.48	0.80	0.80
46.02	180.36	68.68	2.93	201.45	2.53	0.42	0.78
46.08	165.21	62.30	3.03	189.08	2.55	0.35	0.76
46.15	158.27	59.79	2.97	177.77	2.54	0.31	0.76
46.21	155.49	59.18	2.84	167.99	2.51	0.28	0.76
46.28	164.32	64.06	2.52	161.24	2.45	0.28	0.77
46.34	181.73	73.36	2.15	157.45	2.36	0.44	0.78
46.41	199.65	82.88	1.89	157.04	2.28	0.65	0.80
46.47	203.48	84.79	1.86	157.64	2.27	0.73	0.80
46.54	195.56	79.94	2.01	160.84	2.32	0.55	0.80
46.61	192.98	77.78	2.14	166.31	2.36	0.41	0.79
46.69	200.56	81.13	2.10	170.35	2.34	0.67	0.80
46.75	214.76	88.35	1.95	171.91	2.30	0.81	0.81
46.80	221.70	91.95	1.88	172.48	2.28	0.82	0.82
46.87	223.33	92.68	1.86	172.78	2.27	0.82	0.82
46.93	222.83	92.16	1.88	173.69	2.28	0.82	0.82
46.99	217.19	89.25	1.93	172.09	2.29	0.81	0.81
47.06	204.58	82.66	2.06	170.55	2.33	0.73	0.80
47.15	191.96	76.27	2.21	168.40	2.37	0.46	0.79
47.20	186.16	73.28	2.29	168.02	2.40	0.45	0.78

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.27	188.92	74.79	2.22	166.26	2.38	0.49	0.79
47.35	190.66	75.88	2.16	163.84	2.36	0.55	0.79
47.40	184.19	72.97	2.19	159.85	2.37	0.49	0.78
47.48	175.67	68.86	2.28	156.99	2.39	0.33	0.78
47.53	166.94	64.56	2.40	154.92	2.42	0.33	0.77
47.59	166.54	64.61	2.35	152.05	2.41	0.30	0.77
47.66	165.47	64.37	2.32	149.24	2.40	0.32	0.77
47.73	165.30	64.48	2.28	146.94	2.39	0.30	0.77
47.80	166.88	65.23	2.25	146.67	2.38	0.29	0.77
47.85	178.49	70.92	2.09	148.35	2.34	0.33	0.78
47.93	196.14	79.80	1.89	150.75	2.28	0.55	0.80
47.98	216.37	90.26	1.71	154.22	2.22	0.75	0.81
48.06	223.51	94.10	1.64	154.73	2.19	0.82	0.82
48.12	218.67	91.57	1.67	153.06	2.20	0.81	0.81
48.18	200.32	81.87	1.83	149.76	2.26	0.55	0.80
48.26	183.11	72.96	2.02	147.34	2.32	0.36	0.78
48.32	171.38	67.22	2.15	144.28	2.36	0.32	0.77
48.37	166.64	65.05	2.18	141.78	2.37	0.30	0.77
48.46	165.27	64.67	2.14	138.56	2.36	0.29	0.77
48.52	168.05	66.09	2.09	138.08	2.34	0.29	0.77
48.59	179.77	71.55	1.99	142.12	2.31	0.33	0.78
48.66	195.63	78.89	1.88	148.51	2.28	0.53	0.79
48.70	209.72	85.13	1.84	156.48	2.26	0.76	0.80
48.79	215.32	87.32	1.84	160.76	2.26	0.81	0.81
48.83	219.42	88.85	1.85	164.43	2.27	0.81	0.81
48.91	218.81	88.15	1.88	166.06	2.28	0.81	0.81
48.98	214.15	85.38	1.96	167.30	2.30	0.81	0.81
49.04	211.10	83.62	2.01	167.85	2.32	0.61	0.80
49.10	209.86	83.12	2.00	166.20	2.32	0.80	0.80
49.17	215.16	86.22	1.90	163.43	2.28	0.74	0.81
49.24	209.86	83.95	1.90	159.35	2.28	0.80	0.80
49.29	196.34	77.49	2.00	154.60	2.31	0.58	0.79
49.38	177.12	68.05	2.22	150.93	2.38	0.32	0.77
49.44	163.73	61.45	2.43	149.44	2.43	0.28	0.76
49.51	161.15	60.04	2.50	150.31	2.44	0.29	0.76
49.57	161.32	60.11	2.49	149.72	2.44	0.30	0.76
49.64	160.37	60.12	2.41	144.76	2.42	0.28	0.76
49.70	170.47	64.74	2.28	147.85	2.39	0.26	0.77
49.77	206.44	81.13	1.99	161.15	2.31	0.47	0.80
49.84	257.98	105.07	1.73	182.03	2.23	0.83	0.83
49.88	312.06	131.79	1.52	200.94	2.14	0.87	0.87
49.97	317.82	133.77	1.54	205.84	2.14	0.87	0.87
50.06	291.88	119.54	1.69	202.01	2.21	0.85	0.85
50.11	240.28	93.33	2.08	194.04	2.34	0.82	0.82
50.16	204.32	76.16	2.46	187.40	2.43	0.69	0.79
50.21	185.21	67.70	2.66	180.38	2.48	0.41	0.77
50.28	173.11	62.96	2.70	169.69	2.49	0.40	0.76
50.35	172.81	64.02	2.45	157.08	2.43	0.30	0.77

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
50.41	169.63	63.59	2.32	147.27	2.40	0.37	0.77
50.47	173.89	65.97	2.19	144.42	2.37	0.30	0.77
50.56	181.64	69.59	2.09	145.77	2.34	0.35	0.78
50.62	199.29	78.24	1.89	148.20	2.28	0.53	0.79
50.68	211.30	84.30	1.77	149.63	2.24	0.80	0.80
50.74	207.11	82.08	1.82	148.99	2.26	0.71	0.80
50.81	193.98	75.29	1.96	147.87	2.30	0.41	0.79
50.87	184.49	70.32	2.11	148.29	2.35	0.37	0.78
50.94	179.19	67.51	2.20	148.84	2.37	0.42	0.77
51.02	173.52	65.08	2.23	145.28	2.38	0.32	0.77
51.10	166.14	61.98	2.26	140.20	2.39	0.28	0.76
51.15	163.83	61.60	2.17	133.90	2.36	0.27	0.76
51.23	162.89	61.40	2.14	131.19	2.35	0.28	0.76
51.26	170.38	65.46	1.97	129.09	2.31	0.25	0.77
51.33	176.12	68.43	1.88	128.62	2.28	0.37	0.78
51.40	177.46	69.16	1.85	128.08	2.27	0.34	0.78
51.46	167.33	64.08	1.97	126.50	2.31	0.27	0.77
51.53	157.36	59.18	2.11	125.01	2.35	0.24	0.76
51.60	154.95	58.04	2.14	124.15	2.36	0.23	0.75
51.66	160.29	60.75	2.03	123.46	2.33	0.24	0.76
51.74	168.85	65.03	1.90	123.55	2.28	0.28	0.77
51.80	174.82	68.09	1.82	123.63	2.26	0.31	0.77
51.85	172.70	66.90	1.85	123.70	2.27	0.30	0.77
51.92	162.57	61.71	1.99	123.03	2.31	0.26	0.76
52.01	151.80	56.43	2.16	121.63	2.36	0.22	0.75
52.07	145.10	53.41	2.23	119.03	2.38	0.21	0.74
52.13	142.88	52.66	2.20	116.11	2.37	0.21	0.74
52.19	140.90	51.89	2.20	114.15	2.37	0.20	0.74
52.26	141.64	52.25	2.18	113.70	2.37	0.19	0.74
52.34	145.73	54.12	2.11	114.34	2.35	0.21	0.74
52.38	153.59	57.76	2.01	116.11	2.32	0.22	0.75
52.47	158.18	59.68	1.98	118.26	2.31	0.25	0.76
52.51	159.39	58.69	2.20	129.14	2.37	0.26	0.76
52.60	163.99	59.12	2.41	142.34	2.42	0.26	0.76
52.64	180.70	65.25	2.41	157.39	2.42	0.35	0.77
52.73	204.41	75.81	2.17	164.25	2.36	0.77	0.79
52.77	211.46	78.87	2.11	166.77	2.35	0.79	0.79
52.86	196.40	71.49	2.32	165.59	2.40	0.55	0.78
52.90	184.15	65.77	2.50	164.57	2.44	0.30	0.77
52.97	181.47	64.84	2.48	160.97	2.44	0.51	0.77
53.04	183.48	66.49	2.32	154.22	2.40	0.45	0.77
53.10	182.36	66.92	2.19	146.72	2.37	0.31	0.77
53.17	180.02	66.39	2.13	141.60	2.35	0.42	0.77
53.24	185.49	69.38	2.01	139.25	2.32	0.35	0.78
53.31	182.25	68.00	2.02	137.14	2.32	0.40	0.77
53.36	174.87	64.50	2.10	135.59	2.35	0.34	0.77
53.43	164.50	59.57	2.25	134.28	2.39	0.26	0.76
53.50	158.84	56.96	2.33	132.93	2.41	0.25	0.75

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.56	160.22	57.91	2.25	130.19	2.38	0.26	0.75
53.63	161.42	58.91	2.15	126.55	2.36	0.26	0.76
53.71	160.25	58.83	2.08	122.55	2.34	0.25	0.76
53.77	157.53	57.75	2.08	120.37	2.34	0.24	0.75
53.84	156.86	57.39	2.09	120.13	2.34	0.23	0.75
53.91	156.16	56.87	2.13	120.91	2.35	0.24	0.75
53.99	156.56	56.70	2.17	122.99	2.36	0.24	0.75
54.03	159.32	56.84	2.32	131.68	2.40	0.25	0.75
54.12	165.59	58.60	2.39	140.20	2.42	0.29	0.75
54.16	175.66	62.09	2.42	150.12	2.43	0.34	0.76
54.25	183.14	64.77	2.41	156.12	2.42	0.43	0.77
54.29	197.36	70.20	2.36	165.94	2.41	0.45	0.78
54.38	218.73	79.35	2.19	173.62	2.37	0.80	0.80
54.41	242.38	90.26	1.97	177.95	2.31	0.81	0.81
54.49	245.23	92.07	1.90	174.94	2.28	0.82	0.82
54.56	223.85	82.52	2.03	167.22	2.32	0.80	0.80
54.63	191.38	67.87	2.34	158.68	2.41	0.42	0.77
54.70	168.81	58.28	2.59	150.94	2.46	0.28	0.75
54.76	159.56	54.92	2.60	142.56	2.46	0.26	0.75
54.82	158.29	55.22	2.43	134.14	2.43	0.26	0.75
54.89	158.53	56.17	2.27	127.50	2.39	0.25	0.75
54.97	158.53	56.53	2.20	124.24	2.37	0.25	0.75
55.01	158.90	56.55	2.21	125.14	2.37	0.25	0.75
55.10	160.11	56.67	2.26	127.91	2.39	0.25	0.75
55.14	170.62	61.21	2.14	131.11	2.36	0.26	0.76
55.20	180.73	65.67	2.04	133.69	2.33	0.41	0.77
55.27	186.98	68.31	1.99	135.99	2.31	0.40	0.78
55.34	183.96	66.62	2.05	136.82	2.33	0.34	0.77
55.41	181.01	65.21	2.09	136.12	2.34	0.35	0.77
55.48	177.59	63.74	2.11	134.40	2.35	0.35	0.77
55.54	170.21	60.40	2.20	132.61	2.37	0.30	0.76
55.61	160.68	56.01	2.33	130.72	2.41	0.25	0.75
55.67	156.42	54.21	2.38	128.85	2.42	0.23	0.74
55.74	155.75	53.64	2.43	130.56	2.43	0.25	0.74
55.82	163.26	56.35	2.41	136.08	2.42	0.25	0.75
55.86	187.16	65.39	2.32	151.88	2.40	0.33	0.77
55.94	234.60	85.25	2.01	171.37	2.32	0.81	0.81
56.01	290.49	109.78	1.74	191.33	2.23	0.84	0.84
56.08	323.56	124.93	1.62	201.96	2.18	0.86	0.86
56.12	312.94	119.57	1.67	199.99	2.20	0.85	0.85
56.19	271.83	99.98	1.91	191.11	2.29	0.83	0.83
56.25	220.40	76.72	2.35	180.25	2.41	0.79	0.79
56.32	186.93	62.75	2.70	169.57	2.49	0.35	0.76
56.38	167.94	55.63	2.82	156.87	2.51	0.31	0.75
56.45	162.39	54.40	2.66	144.51	2.48	0.28	0.75
56.52	158.20	53.42	2.54	135.81	2.45	0.26	0.74
56.59	154.78	52.27	2.52	131.85	2.45	0.24	0.74
56.66	163.28	55.92	2.38	133.05	2.42	0.23	0.75

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
56.73	180.63	63.63	2.14	135.95	2.35	0.36	0.77
56.79	200.12	72.42	1.93	139.64	2.29	0.56	0.78
56.84	200.93	72.43	1.95	141.56	2.30	0.63	0.78
56.92	187.01	65.54	2.17	142.18	2.36	0.38	0.77
56.99	178.26	61.16	2.34	143.22	2.41	0.27	0.76
57.04	175.78	60.05	2.38	142.77	2.42	0.40	0.76
57.11	182.00	63.32	2.21	139.84	2.37	0.33	0.77
57.17	180.63	63.28	2.13	135.07	2.35	0.36	0.76
57.24	177.71	62.47	2.09	130.81	2.34	0.33	0.76
57.30	169.25	58.90	2.16	127.51	2.36	0.28	0.76
57.38	159.62	54.69	2.29	124.99	2.39	0.24	0.75
57.44	152.98	51.85	2.36	122.31	2.41	0.22	0.74
57.51	150.60	51.00	2.36	120.10	2.41	0.22	0.74
57.56	153.32	52.46	2.26	118.73	2.39	0.22	0.74
57.64	157.82	54.59	2.16	118.02	2.36	0.24	0.75
57.70	160.77	56.09	2.08	116.91	2.34	0.25	0.75
57.77	159.90	55.81	2.07	115.66	2.34	0.24	0.75
57.83	160.74	55.45	2.17	120.39	2.36	0.23	0.75
57.90	176.42	60.77	2.20	133.82	2.37	0.27	0.76
57.97	212.25	75.34	1.98	148.98	2.31	0.56	0.79
58.06	248.35	91.26	1.75	159.43	2.23	0.81	0.81
58.10	267.86	100.85	1.61	162.13	2.17	0.83	0.83
58.16	254.84	94.86	1.66	157.72	2.20	0.82	0.82
58.23	223.78	80.22	1.89	151.45	2.28	0.80	0.80
58.28	188.99	64.33	2.27	146.27	2.39	0.35	0.77
58.36	165.61	54.37	2.61	141.68	2.47	0.27	0.75
58.42	156.04	50.92	2.64	134.65	2.47	0.25	0.74
58.49	154.94	51.28	2.47	126.82	2.44	0.23	0.74
58.56	164.00	55.97	2.19	122.54	2.37	0.23	0.75
58.63	176.99	62.03	1.98	122.59	2.31	0.33	0.76
58.68	186.12	66.05	1.89	124.63	2.28	0.37	0.77
58.76	181.08	63.54	1.96	124.50	2.30	0.34	0.77
58.81	165.24	56.19	2.20	123.36	2.37	0.27	0.75
58.90	151.42	49.94	2.45	122.14	2.43	0.20	0.73
58.96	143.44	46.59	2.59	120.46	2.46	0.21	0.73
59.02	144.08	47.07	2.51	118.27	2.45	0.20	0.73
59.07	145.50	48.03	2.40	115.21	2.42	0.21	0.73
59.15	148.95	49.99	2.25	112.36	2.38	0.21	0.73
59.21	151.44	51.45	2.13	109.82	2.35	0.22	0.74
59.29	153.44	52.47	2.07	108.82	2.34	0.21	0.74
59.34	153.35	52.41	2.07	108.70	2.34	0.21	0.74
59.41	152.38	51.91	2.09	108.68	2.34	0.21	0.74
59.48	150.09	50.86	2.13	108.16	2.35	0.21	0.74
59.54	146.57	49.44	2.15	106.47	2.36	0.20	0.73
59.60	144.09	48.53	2.15	104.55	2.36	0.19	0.73
59.69	143.69	48.27	2.17	104.64	2.36	0.19	0.73
59.73	148.18	48.98	2.31	113.28	2.40	0.20	0.73
59.81	162.34	53.47	2.37	126.68	2.41	0.24	0.74

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.89	178.92	59.25	2.33	138.34	2.41	0.38	0.76
59.93	191.80	64.42	2.22	143.31	2.38	0.46	0.77
60.02	191.49	64.19	2.23	143.28	2.38	0.46	0.77
60.06	180.92	59.50	2.39	141.98	2.42	0.38	0.76
60.12	168.15	54.09	2.59	140.12	2.46	0.27	0.74
60.19	157.29	49.78	2.75	136.66	2.50	0.25	0.73
60.26	153.79	48.86	2.68	130.91	2.48	0.23	0.73
60.32	152.25	48.78	2.57	125.35	2.46	0.23	0.73
60.39	152.49	49.19	2.49	122.28	2.44	0.23	0.73
60.46	155.18	50.42	2.41	121.40	2.42	0.22	0.74
60.53	163.60	54.04	2.27	122.53	2.39	0.25	0.74
60.58	180.15	61.35	2.02	124.12	2.32	0.30	0.76
60.66	193.27	66.87	1.91	127.67	2.29	0.46	0.77
60.72	195.61	67.33	1.95	130.98	2.30	0.45	0.77
60.78	181.08	60.22	2.20	132.78	2.37	0.36	0.76
60.87	164.61	52.76	2.52	132.89	2.45	0.25	0.74
60.93	153.52	48.31	2.69	129.82	2.48	0.23	0.73
61.01	151.37	47.71	2.65	126.60	2.48	0.23	0.73
61.04	157.22	50.37	2.48	125.06	2.44	0.22	0.74
61.11	168.23	54.91	2.31	126.77	2.40	0.28	0.75
61.18	181.49	60.54	2.14	129.35	2.35	0.35	0.76
61.24	186.62	62.61	2.09	130.73	2.34	0.39	0.76
61.31	182.48	60.64	2.16	130.75	2.36	0.35	0.76
61.37	167.78	53.91	2.43	131.09	2.43	0.30	0.74
61.45	155.84	48.54	2.74	132.83	2.49	0.22	0.73
61.50	151.45	46.48	2.90	134.68	2.52	0.22	0.72
61.56	156.06	48.39	2.78	134.27	2.50	0.26	0.73
61.64	158.95	49.74	2.66	132.43	2.48	0.26	0.73
61.69	157.71	49.34	2.65	130.95	2.48	0.24	0.73
61.77	158.59	49.42	2.69	132.92	2.48	0.24	0.73
61.83	175.37	56.17	2.42	135.91	2.43	0.26	0.75
61.91	198.46	65.87	2.12	139.85	2.35	0.57	0.77
61.97	217.95	74.30	1.93	143.16	2.29	0.79	0.79
62.02	208.47	69.62	2.07	144.23	2.34	0.78	0.78
62.12	186.91	59.80	2.41	144.31	2.42	0.33	0.76
62.18	165.51	50.78	2.83	143.59	2.51	0.26	0.74
62.22	157.48	47.71	2.96	141.18	2.54	0.26	0.73
62.28	159.12	48.88	2.78	135.96	2.50	0.24	0.73
62.36	160.24	49.88	2.62	130.70	2.47	0.27	0.73
62.42	163.62	51.62	2.47	127.70	2.44	0.25	0.74
62.49	163.86	51.84	2.44	126.38	2.43	0.26	0.74
62.55	166.45	52.72	2.42	127.73	2.43	0.26	0.74
62.62	173.63	55.57	2.33	129.22	2.40	0.28	0.75
62.69	184.87	60.55	2.14	129.50	2.36	0.35	0.76
62.75	187.95	62.45	2.02	126.05	2.32	0.44	0.76
62.83	179.49	59.19	2.06	121.99	2.33	0.30	0.76
62.88	160.53	50.92	2.36	119.95	2.41	0.24	0.74
62.96	148.43	45.76	2.61	119.54	2.47	0.20	0.72

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.01	144.23	44.22	2.66	117.44	2.48	0.20	0.72
63.07	143.91	44.42	2.57	114.26	2.46	0.21	0.72
63.14	146.84	45.66	2.49	113.84	2.44	0.19	0.72
63.20	153.57	47.54	2.55	121.15	2.45	0.22	0.73
63.27	175.79	55.40	2.40	133.14	2.42	0.27	0.75
63.34	203.44	66.04	2.17	143.40	2.36	0.57	0.77
63.40	222.15	74.21	1.95	145.02	2.30	0.79	0.79
63.47	220.10	74.36	1.87	138.77	2.27	0.78	0.79
63.53	197.23	65.05	2.01	131.05	2.32	0.46	0.77
63.61	177.89	56.92	2.24	127.21	2.38	0.25	0.75
63.67	169.81	53.24	2.39	127.37	2.42	0.26	0.74
63.74	172.90	54.59	2.32	126.75	2.40	0.31	0.75
63.80	168.05	52.59	2.39	125.75	2.42	0.30	0.74
63.86	159.11	48.85	2.56	125.13	2.46	0.22	0.73
63.93	150.16	45.14	2.77	124.84	2.50	0.22	0.72
64.00	149.42	44.85	2.77	124.27	2.50	0.21	0.72
64.05	147.86	44.39	2.75	122.29	2.50	0.22	0.72
64.13	148.39	44.89	2.66	119.42	2.48	0.21	0.72
64.19	148.38	45.28	2.56	115.73	2.46	0.21	0.72
64.25	151.52	47.05	2.38	111.91	2.42	0.21	0.73
64.33	155.16	49.61	2.13	105.54	2.35	0.21	0.73
64.39	158.35	52.60	1.84	96.93	2.27	0.21	0.74
64.46	158.66	53.91	1.70	91.54	2.21	0.19	0.74
64.51	156.38	53.43	1.66	88.72	2.20	0.18	0.74
64.58	155.16	52.69	1.69	89.01	2.21	0.18	0.74
64.65	154.94	52.23	1.73	90.22	2.22	0.19	0.74
64.72	150.63	48.78	1.98	96.81	2.31	0.20	0.73
64.79	152.72	47.70	2.27	108.17	2.39	0.18	0.73
64.85	162.01	49.74	2.44	121.62	2.43	0.25	0.73
64.91	186.58	58.16	2.34	135.83	2.41	0.34	0.75
64.98	207.32	65.62	2.22	145.41	2.38	0.67	0.77
65.05	219.26	70.37	2.11	148.82	2.35	0.78	0.78
65.11	213.16	68.39	2.11	144.00	2.35	0.74	0.78
65.18	198.75	63.35	2.14	135.39	2.35	0.41	0.77
65.24	179.70	55.91	2.30	128.75	2.40	0.33	0.75
65.31	167.52	51.11	2.46	125.89	2.44	0.25	0.74
65.37	164.14	49.25	2.62	129.22	2.47	0.24	0.73
65.44	173.86	52.80	2.51	132.35	2.45	0.28	0.74
65.51	185.88	57.46	2.34	134.67	2.41	0.40	0.75
65.57	191.37	59.64	2.27	135.35	2.39	0.42	0.76
65.63	183.96	56.45	2.40	135.25	2.42	0.37	0.75
65.70	169.75	50.55	2.67	135.12	2.48	0.28	0.74
65.77	161.63	47.23	2.86	135.12	2.52	0.23	0.73
65.84	164.33	48.46	2.75	133.32	2.50	0.26	0.73
65.89	172.40	52.58	2.40	126.41	2.42	0.31	0.74
65.96	168.75	51.94	2.30	119.59	2.40	0.30	0.74
66.04	161.08	49.32	2.33	114.79	2.40	0.21	0.73
66.09	152.62	45.44	2.58	117.29	2.46	0.22	0.72

:: Strength loss calculation (Idriss & Boulanger (2008) :: (continued)

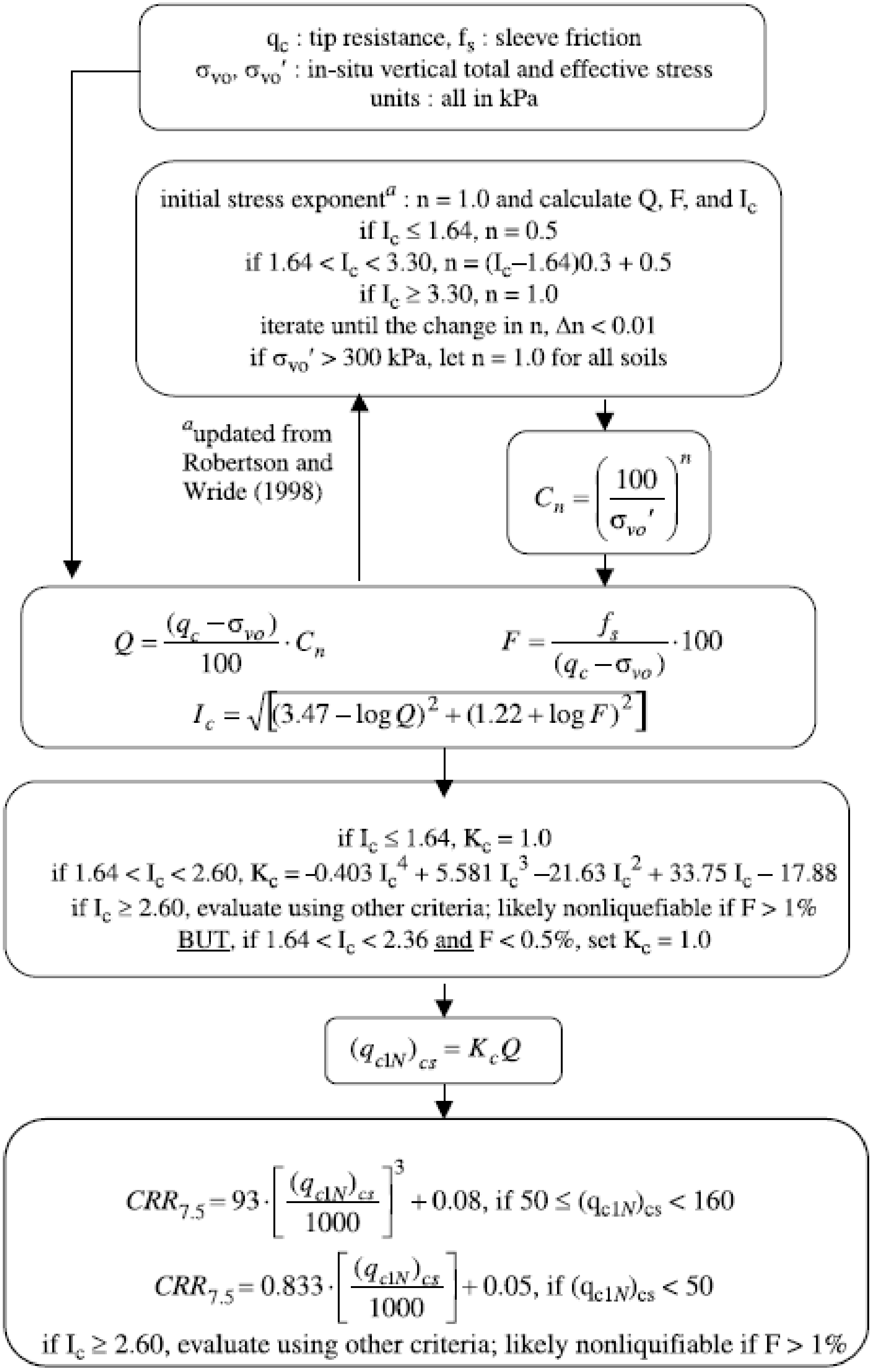
Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
66.16	157.14	46.84	2.57	120.41	2.46	0.22	0.73
66.23	161.83	48.36	2.55	123.20	2.45	0.26	0.73
66.29	172.68	52.63	2.37	124.48	2.41	0.26	0.74
66.36	176.34	54.10	2.30	124.55	2.40	0.33	0.74
66.43	175.22	53.77	2.29	123.19	2.39	0.29	0.74
66.48	168.11	51.29	2.33	119.27	2.40	0.24	0.74
66.55	161.05	48.87	2.35	115.06	2.41	0.24	0.73
66.62	156.83	47.59	2.34	111.23	2.41	0.22	0.73
66.68	153.74	46.52	2.35	109.35	2.41	0.21	0.73
66.75	152.85	46.33	2.32	107.69	2.40	0.21	0.72
66.82	153.92	46.87	2.28	106.71	2.39	0.21	0.73
66.88	155.45	47.61	2.24	106.44	2.38	0.21	0.73
66.95	157.96	48.55	2.20	107.00	2.37	0.22	0.73
67.01	160.99	49.54	2.19	108.68	2.37	0.22	0.73
67.08	164.39	50.86	2.15	109.29	2.36	0.23	0.74
67.14	166.37	52.13	2.04	106.61	2.33	0.24	0.74
67.21	166.85	52.73	1.98	104.19	2.31	0.23	0.74
67.28	166.10	52.40	1.98	103.88	2.31	0.23	0.74
67.35	166.08	52.02	2.03	105.57	2.32	0.23	0.74
67.40	168.70	53.36	1.96	104.45	2.30	0.22	0.74
67.47	168.80	53.82	1.90	102.06	2.28	0.24	0.74
67.53	172.32	55.43	1.84	101.89	2.26	0.22	0.75
67.61	173.94	59.34	1.52	90.03	2.13	0.21	0.76
67.67	183.50	69.51	1.19	82.87	1.90	0.14	0.78
67.73	190.33	52.99	26.61	1409.89	4.06	0.61	3.79
67.80	199.39	55.58	26.61	1478.71	4.06	0.65	3.97
67.87	199.12	55.49	26.61	1476.23	4.06	0.75	3.96
67.93	217.14	60.64	26.61	1613.28	4.06	0.61	4.33
68.00	232.32	64.97	26.61	1728.61	4.06	0.77	4.64

Abbreviations

q_t:	Total cone resistance
K_c:	Cone resistance correction factor due to fines
$Q_{tn,cs}$:	Adjusted and corrected cone resistance due to fines
I_c:	Soil behavior type index
$S_{u(liq)}/\sigma'_v$:	Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$:	Calculated peak undrained strength ratio

Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



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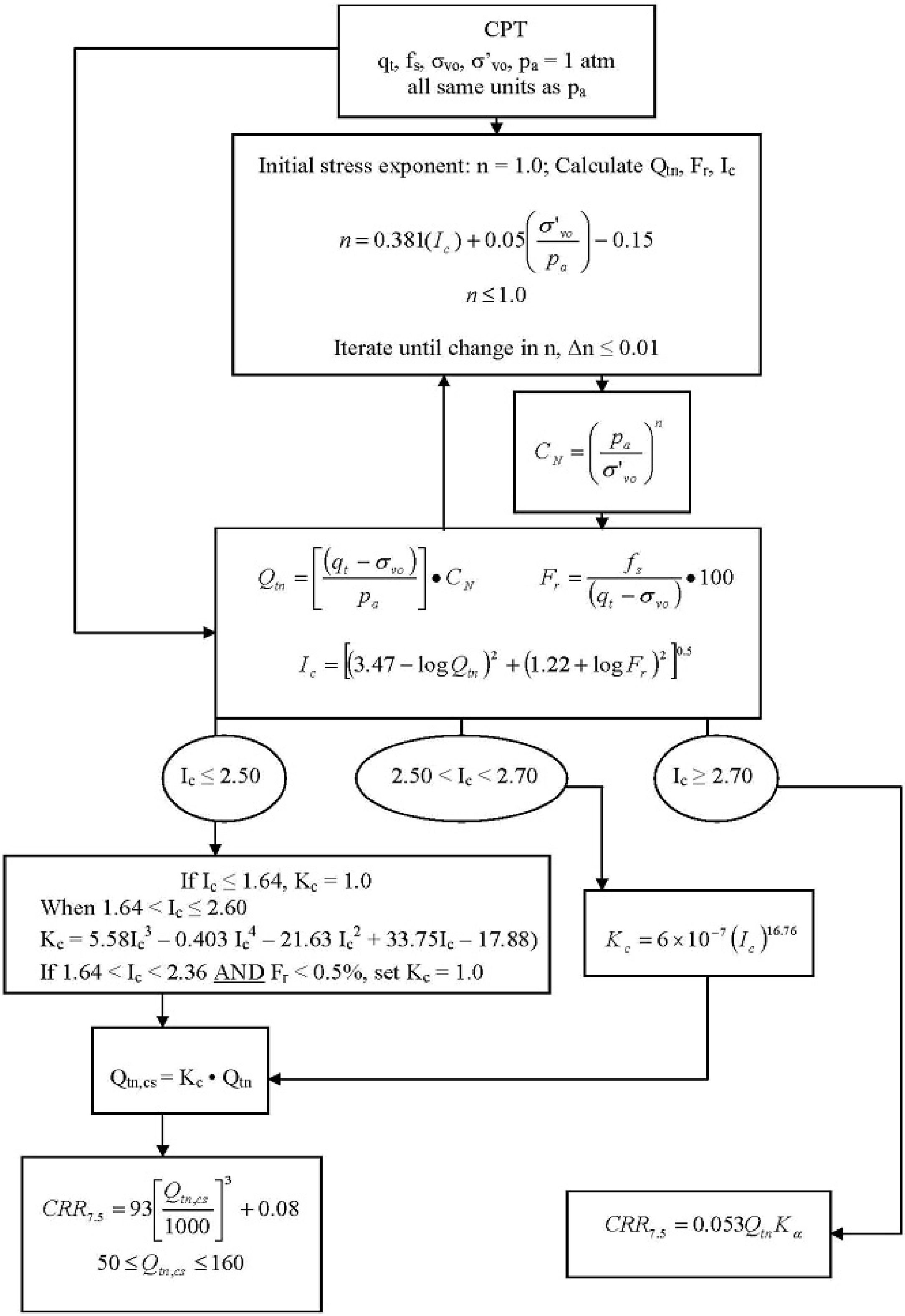
[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



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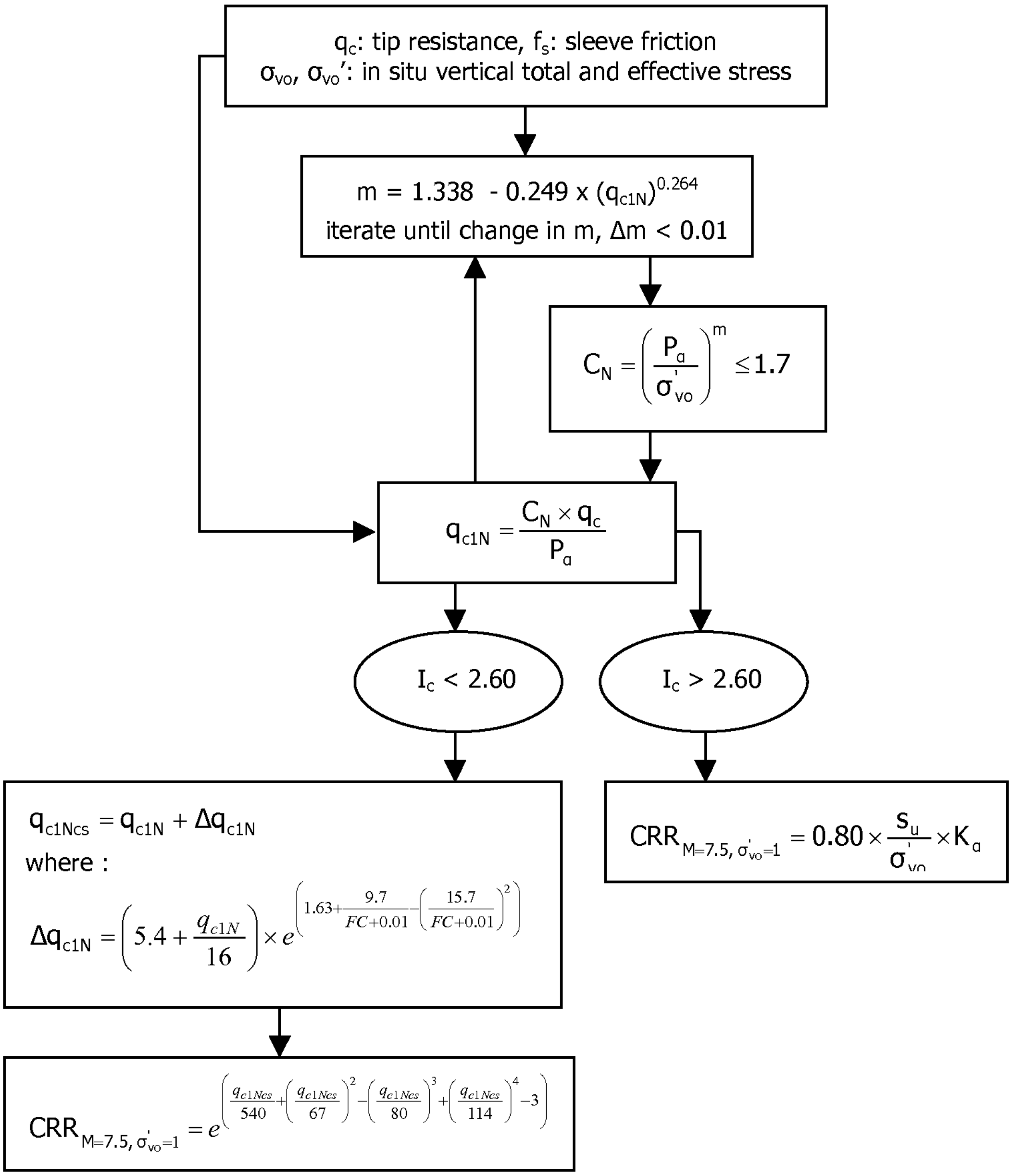
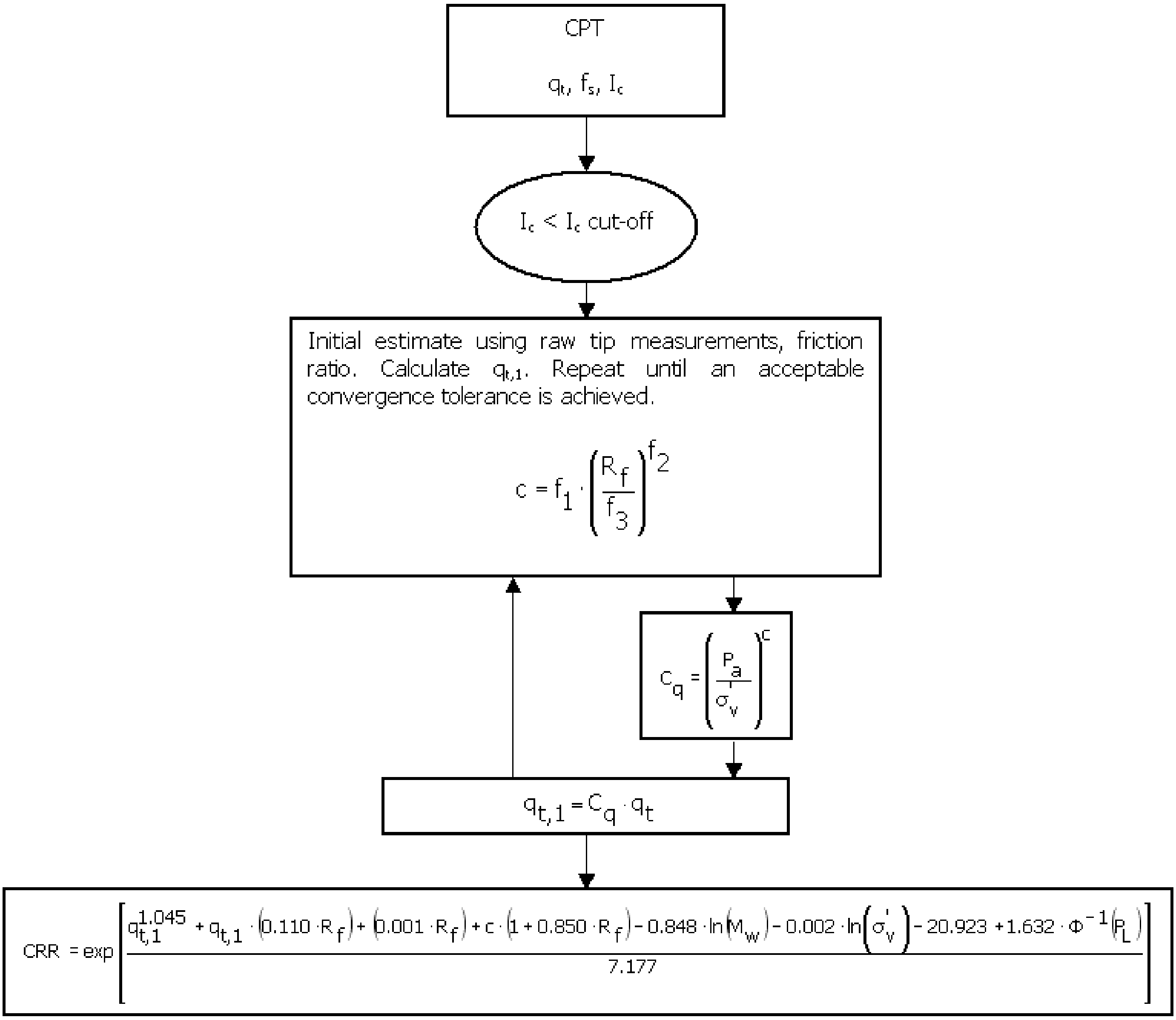
[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Initial estimate using raw tip measurements, friction ratio. Calculate $q_{t,1}$. Repeat until an acceptable convergence tolerance is achieved.

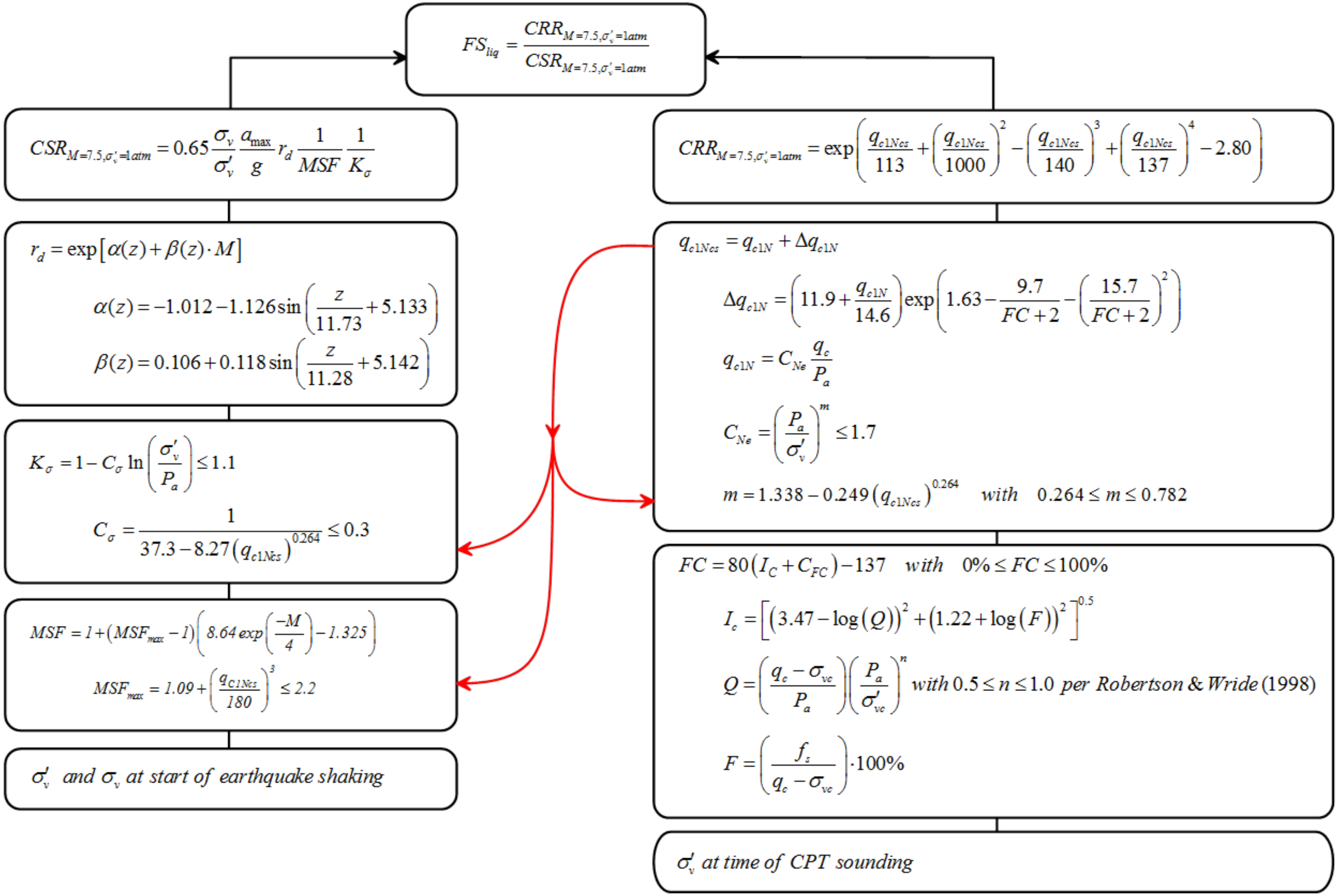
$$c = f_1 \cdot \left(\frac{R_f}{f_3}\right)^{f_2}$$

$$C_q = \left(\frac{P_a}{\sigma'_v}\right)^c$$

$$q_{t,1} = C_q \cdot q_t$$

$$CRR = \exp\left[\frac{q_{t,1}^{1.045} + q_{t,1} \cdot (0.110 \cdot R_f) + (0.001 \cdot R_f) + c \cdot (1 + 0.850 \cdot R_f) - 0.848 \cdot \ln(M_w) - 0.002 \cdot \ln(\sigma'_v) - 20.923 + 1.632 \cdot \Phi^{-1}(P_L)}{7.177}\right]$$

Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)



$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65\frac{\sigma_v}{\sigma'_v}\frac{a_{\max}}{g}r_d\frac{1}{MSF}\frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z)+\beta(z)\cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126\sin\left(\frac{z}{11.73}+5.133\right)$$

$$\beta(z) = 0.106 + 0.118\sin\left(\frac{z}{11.28}+5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3-8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1+(MSF_{max}-1)\left(8.64\exp\left(\frac{-M}{4}\right)-1.325\right)$$

$$MSF_{max} = 1.09+\left(\frac{q_{c1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113}+\left(\frac{q_{c1Ncs}}{1000}\right)^2-\left(\frac{q_{c1Ncs}}{140}\right)^3+\left(\frac{q_{c1Ncs}}{137}\right)^4-2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9+\frac{q_{c1N}}{14.6}\right)\exp\left(1.63-\frac{9.7}{FC+2}-\left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{N\sigma}\frac{q_c}{P_a}$$

$$C_{N\sigma} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

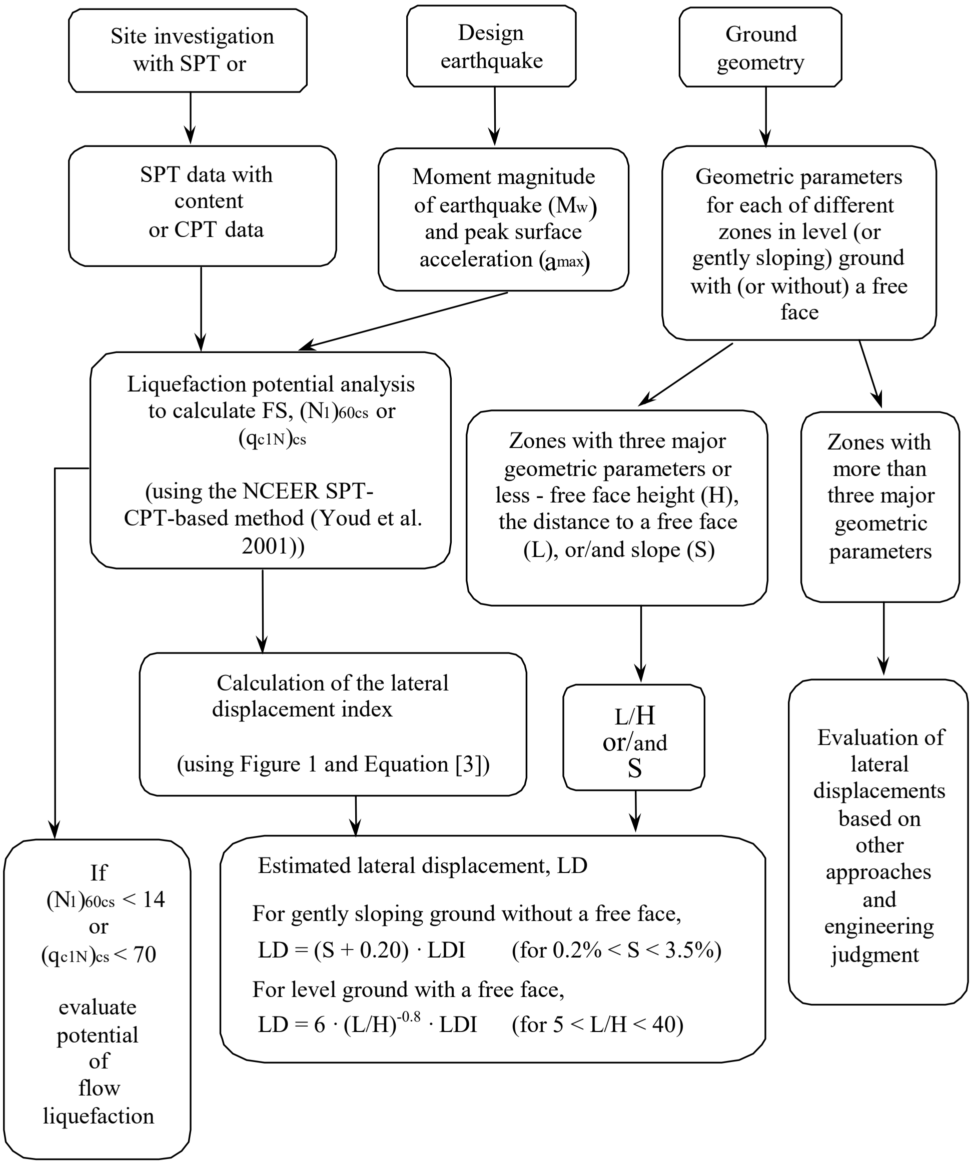
$$I_c = \left[\left(3.47-\log\left(Q\right)\right)^2+\left(1.22+\log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c-\sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \ with\ 0.5 \le n \le 1.0\ per\ Robertson\ \&\ Wride\ (1998)$$

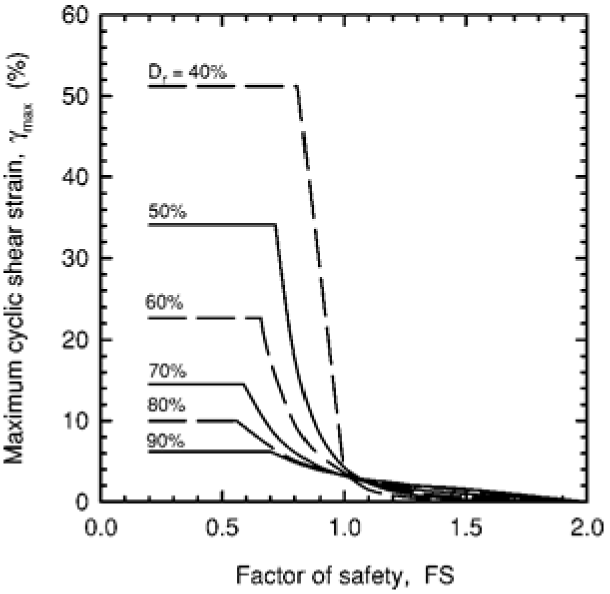
$$F = \left(\frac{f_s}{q_c-\sigma_{vc}}\right)\cdot 100\%$$

σ'_v *at time of CPT sounding*

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



[1] **Figure 1**

$$LDI = \int_0^{Z_{max}} \gamma_{max} dz$$

[1] **Equation [3]**

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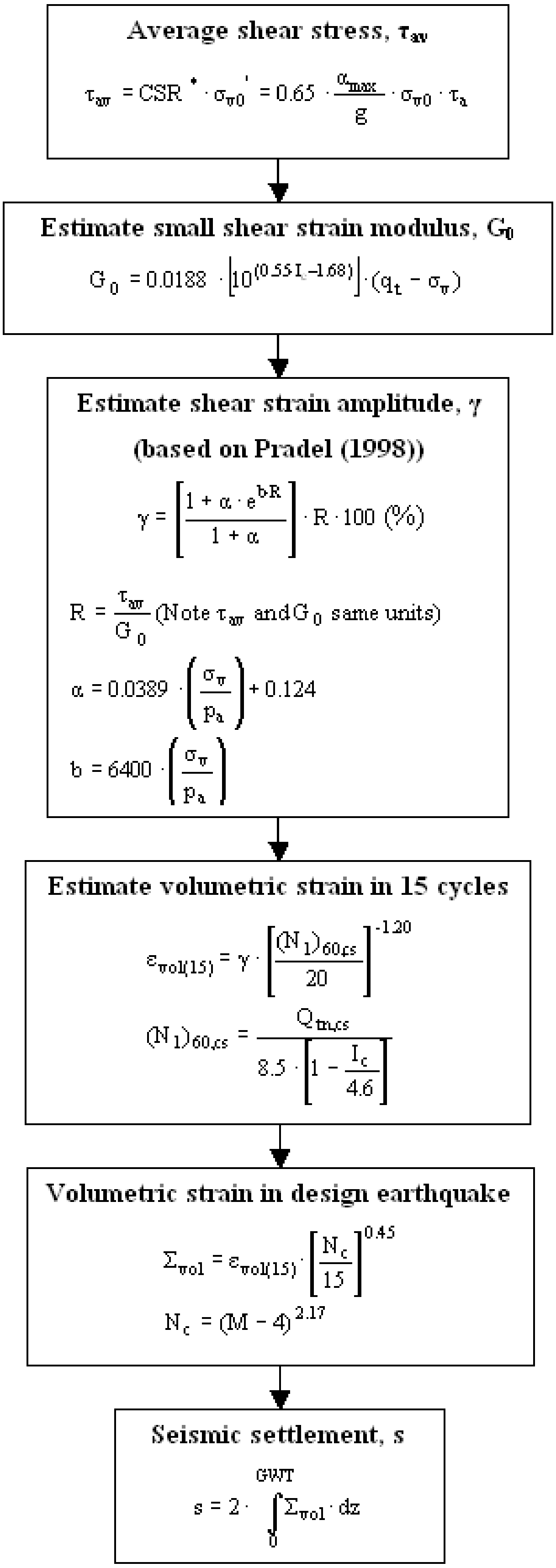
[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Average shear stress, τ_{av}

$$\tau_{av} = CSR^{*} \cdot \sigma_{v0}' = 0.65 \cdot \frac{a_{max}}{g} \cdot \sigma_{v0} \cdot \tau_{a}$$

Estimate small shear strain modulus, G_0

$$G_0 = 0.0188 \cdot \left[10^{(0.55 I_c - 1.68)}\right] \cdot (q_t - \sigma_v)$$

Estimate shear strain amplitude, γ

(based on Pradel (1998))

$$\gamma = \left[\frac{1 + \alpha \cdot e^{bR}}{1 + \alpha}\right] \cdot R \cdot 100\ (\%)$$

$$R = \frac{\tau_{av}}{G_0} \text{(Note } \tau_{av} \text{ and } G_0 \text{ same units)}$$

$$\alpha = 0.0389 \cdot \left(\frac{\sigma_v}{p_a}\right) + 0.124$$

$$b = 6400 \cdot \left(\frac{\sigma_v}{p_a}\right)$$

Estimate volumetric strain in 15 cycles

$$\varepsilon_{vol(15)} = \gamma \cdot \left[\frac{(N_1)_{60,cs}}{20}\right]^{-1.20}$$

$$(N_1)_{60,cs} = \frac{Q_{tn,cs}}{8.5 \cdot \left[1 - \frac{I_c}{4.6}\right]}$$

Volumetric strain in design earthquake

$$\Sigma_{vol} = \varepsilon_{vol(15)} \cdot \left[\frac{N_c}{15}\right]^{0.45}$$

$$N_c = (M - 4)^{2.17}$$

Seismic settlement, s

$$s = 2 \cdot \int_{0}^{GWT} \Sigma_{vol} \cdot dz$$

Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

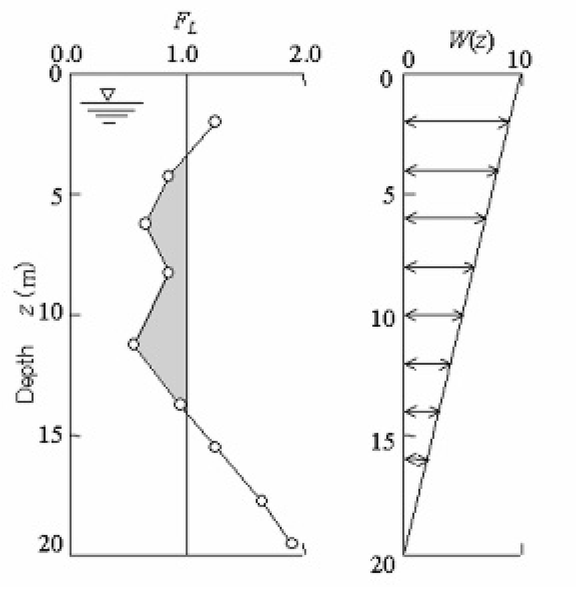
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\textbf{LPI} = \int_0^{20} (10 - 0{,}5_Z) \times F_I \times d_z$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) +$$

$$4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B +$$
$$0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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SOILS REPORT REVIEW LETTER

March 30, 2023

LOG # 125167
SOILS/GEOLOGY FILE - 2
LIQ

S&R Partners, LLC
737 Lamar Street
Los Angeles, CA 90031

TRACT: FREIGHT DEPOT TRACT (M R 72-75/76) /// BEAUDRY WATER WORKS TRACT (M R 14-60)
LOT(S): D /// 25 / 26 / VAC ORD 9460 / VAC ORD 9460 / 27 / 28 / 30 / 31 / 32 / 33 / 34 / 35 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 10749 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / VAC ORD 9460 / 17 / 16
LOCATION: 130, 114, 110 W College St., 973, 971, 963, 959, 955, 953, 949, 945, 943 N North Main St., 117, 119 W Bruno St.

CURRENT REFERENCE REPORT/LETTER(S)	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Soils Report	721036101	02/17/2023	LANGAN

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed 4-story office space building over 2-story parking podium and 1-level subterranean parking.

The project includes multiple parcels. The site is relatively level and currently occupied by a paved parking lot. Field investigation consisted of four hollow-stem auger borings, drilled to depths ranging from 50-65 feet and four cone penetration tests performed to depths ranging from 14 to 88 feet. The earth materials at the subsurface exploration locations consist of up to 5 feet of uncertified fill underlain by alluvial deposits.

The consultants recommend to support the proposed structure(s) on mat-type foundations bearing on native undisturbed 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:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2023 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. Revise liquefaction analyses to address the following items:

    a. Provide justification and appropriate laboratory testing for all layers considered non-potentially liquefiable (based on the screening criteria followed by the consultant) to substantiate such argument.

    Note: The Department requires that the criteria for soils “not susceptible” to liquefaction be demonstrated. The soils considered “not susceptible” to liquefaction are soils with a PI >= 18 that are not sensitive or soils having a saturated moisture content <= 80% of the liquid limit.

    b. The consultants used blow counts from California Modified samplers with no reduction. Provide conversion factor to correlate the Cal Mod N-values to SPT N-values. Revise liquefaction analyses accordingly.

    c. Provide liquefaction analyses for all borings where N-values are available. The most critical seismic settlement shall be used for the foundation design.

    d. Provide detailed printouts of the liquefaction analyses showing the C_N (overburden correction factor), r_d (stress reduction coefficient), overburden pressure, the corrected N values, MSF (magnitude scaling factor), $K\sigma$ (confining stress correction factor) and settlement calculation.

2. Storm water infiltration is not allowed on any site where the water may saturate soils that are subject to liquefaction, and the total and differential settlement (static and seismic) is greater than 1.5 inches and 0.75 inches, respectively. If onsite infiltration is proposed, liquefaction analyses shall be provided assuming the design ground water table (i.e., the ground water during an earthquake) at the proposed level of infiltration. Clearly indicate if the onsite infiltration is recommended.

3. In the event on-site infiltration is proposed, provide an evaluation on the following items (please refer to Information Bulletin P/BC 2020-118, which can be downloaded from our web site www.ladbs.org):

    a. Potential on creating perched ground water conditions.

    b. Presence of potential expansive soils and/or susceptibility for hydroconsolidation.

    c. Influence of the proposed infiltration system on adjacent proposed/existing foundations and retaining walls.

    d. The “Time Interval” shown on Percolation Test Data sheets is 10 minutes for each trial. However, based on the “Time of Measurement”, each trial appears to last 5 minutes. Revise the calculations accordingly.

4. Revise the retaining wall calculations and recommendations to address the following items:

    a. Indicate why a friction angle of 39 degrees was used? The upper soils consist of sand (LB-1), silt/sand (LB-2), clay (LB-3) and silt/sand (LB-4).

    b. Revise the unit weight used in the equivalent fluid pressure calculation. Alternatively, provide justification for using a value of 110 PCF.

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 flash drive, and the appropriate fees will be required for submittal.

DAN L. STOICA
Geotechnical Engineer I

DLS/dls
Log No. 125167
213-482-0480

cc: LANGAN, Project Consultant
LA District Office

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Preliminary Geotechnical Investigation Report

for

Creative Workplace Development
130 West College
Los Angeles, California

Prepared For:

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S&R Partners, LLC
737 Lamar Street Street
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Principal/ Vice President

LANGAN

17 February 2023
721036101

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1. INTRODUCTION

In accordance with our 4 October 2022 engineering services agreement for geotechnical engineering services and subsequent authorization by S&R Partners, LLC (Client), we have completed a preliminary geotechnical engineering investigation for the proposed 130 West College Street Project (Project) located at 130 West College Street (Site) in Los Angeles, California. The purpose of this report is to summarize our understanding of the geotechnical and geological aspects of the Site, including existing site conditions, and to provide preliminary geotechnical, seismic, and foundation recommendations for the proposed Project. Recommendations provided herein have been prepared in accordance with the 2020 City of Los Angeles Building Code (LABC) and with applicable City of Los Angeles Department of Building and Safety (LADBS) design bulletins.

2. PROJECT DESCRIPTION

2.1 Site Conditions

The approximate 2.2-acre Site is located at 110, 114 & 130 West College Street, 117 & 119 West Bruno Street, and 943, 945, 949, 953, 955, 959, 963, 971, & 973 North Main Street[1] within the Chinatown area of Los Angeles, California. The Site is bordered by West College Street to the northeast, North Alameda Street to the northwest, Bruno Street to the southwest and North Main Street to the southeast. The Site is generally rectangular in shape and is occupied by a paved parking lot being used for school buses. The Site's vicinity map is shown on Figure 1.

2.2 Proposed Development

Based on the concept drawings titled "130 West College Street" by Grimshaw Architects, LLP, dated 14 October 2022, the Project includes demolition of existing asphalt and construction of a four-story creative office space (Type III-B) over a Type I-A podium parking garage which consists of two-stories above grade over one-story below grade. The Project would also include ground floor commercial restaurant and retail uses.

The below grade parking structure foundation level typically is 13 to 15 feet below grade. Structural loads were provided via email by Holmes on 21 December 2022 indicated preliminary column loads are up to 850 kips for dead load and 475 kips for live load.

3. REGIONAL GEOLOGIC SETTING

The Site is located near the northwestern portion of the Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of mountain ranges separated by northwest trending valleys that are subparallel to faults that branch from the San Andreas Fault.

More specifically, the Site is within the Central Block of the Los Angeles Basin, an extensive sediment-filled depression bound by the San Gabriel Mountains on the north, Santa Monica Mountains and the Pacific Ocean on the west, the Palos Verdes Peninsula on the southwest, the Santa Ana Mountains on the southeast, and the Puente, San Jose, and Chino Hills on the east. The basin's structural history includes extension and strike-slip faulting, followed by oblique contraction via thrusting and strike-slip faulting (Yerkes et al, 1965). The region has a complex

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[1] The Site is associated with the following Los Angeles County Assessor Parcel Numbers (APN): 5409-008-001, 5409-008-002, 5409-008-003, 5409-008-004, 5409-008-005, 5409-008-006, and 5409-008-015

geologic history including periods of uplift, subsidence, sea-level transgression and regression, and folding and faulting.

Locally, the Project is underlain by the late Pleistocene- to Holocene-age older young alluvium deposits (Campbell, 2014). The deposits are described as unconsolidated, generally friable, stream deposited silt, sand and gravel on flood plains. See Figures 2A and 2B.

4. AVAILABLE INFORMATION REVIEW

In addition to the field investigation described in Section 5.1, below, LANGAN reviewed available information to evaluate historic site use, regional and local geology, existing building foundations, site grading, and geologic hazards. The available information reviewed is discussed herein and the sources are listed in the references section.

4.1 Geologic Hazards Review

Our geologic hazard review was performed in general accordance with CGS Special Publication 117A, "Guidelines for Evaluating and Mitigating Seismic Hazards in California." The following subsections present the results of our review of the hazards as they pertain to the Site.

- Regional Faulting and Seismicity – Figure 2A presents a fault and earthquake epicenter map (Figure 2B presents an explanation of the faults and earthquake epicenters on Figure 2A). The closest mapped active faults to the Site are the Upper Elysian Fault, approximately 0.12 miles north of the Site, the Lower Elysian Fault, 3.2 miles south of the Site, and the Hollywood Fault approximately 3.8 miles north of the Site.

  A search of the USGS ANSS Comprehensive Earthquake Catalog indicates that as of 25 October 2022, 41 earthquakes with magnitudes of 5.0 or greater have occurred within a 62-mile radius of the Site since 1900.

  The entire City of Los Angeles, including the Site, is located in an active seismic area that has historically been affected by generally moderate to occasionally strong levels of earthquake-induced ground shaking. Therefore, the Project is expected to experience strong levels of ground shaking from nearby faults as well as ground shaking from other active seismic areas in the southern California region.

- Surface Rupture – Based on our review of the CGS "Earthquake Zones of Required Investigation, Los Angeles Quadrangle", the Site is outside and located approximately 3.6 miles away from the nearest mapped Alquist-Priolo Earthquake Fault Zone for the Hollywood Fault as defined by the Alquist-Priolo Earthquake Fault Zoning (AP) Act. The geologic review does not indicate the presence of active surface faulting within or directly adjacent to the Site as shown in Figure 3. Therefore the potential for surface rupture is very low.

- Liquefaction – Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose to medium dense sand and gravel, low-plasticity silt, and low-plasticity clay deposits.

  The Site is located within a state designated liquefaction hazard zone as shown on the "Earthquake Zones of Required Investigation Los Angeles Quadrangle" by the CGS as shown in Figure 4. Preliminary calculations conducted on cone penetration tests (CPTs) and borings indicate a medium to high potential for liquefaction under seismic loading. Therefore, a site-specific liquefaction potential evaluation was performed for the proposed development and is described in Section 7.1 of this report. As concluded therein, liquefaction-induced settlements are anticipated to range from approximately 0.2 to 1.5 inches.

- Landslides – Based on our review of the "Earthquake Zones of Required Investigation Los Angeles Quadrangle" by the CGS, the Site is not located within an 'Earthquake-Induced Landslide' zone as presented on Figure 5. Therefore the potential for earthquake-induced landslides is very low.

- Subsidence –Land subsidence may be induced from withdrawal of oil, gas, or water from wells. Based on a search of the Cal GEM (formerly the Division of Oil, Gas & Geothermal Resources (DOGGR)) Well Finder online tool, the Site is partially located in an oil and gas field with the closest plugged dry well located at a distance of 0.2 miles north of the Site. However, according to our review of the available information from CalGEM, the likelihood of land subsidence caused by oil, gas, or water withdrawal from oil wells is low because there are no active wells near the Site, and therefore, need not be considered in design. See Figure 6 for the Site location with respect to mapped oil fields. Therefore, the Site is not located in a land subsidence zone.

- Flood Mapping – Based on the FEMA Flood Map 06037C1628F effective 26 September 2008, the Project is not mapped within an area of flood hazard. Additionally, the Site is not mapped at a Dam Failure Inundation Boundary. Refer to Figure 8 and 9. Therefore, the Site is not considered to be inundated under FEMA – 100 year flood event.

- Historical High Groundwater – Based on our review of the "Seismic Hazard Zone Report for the Los Angeles 7.5-Minute Quadrangle, Los Angeles County, California" by the CGS, the historical high groundwater depth at the Site is approximately 20 feet. Please see Section 7 of this report for our recommended design groundwater elevation.

- Seismic-Induced Ground Deformations – Seismic-induced ground deformations include ground surface settlement and differential settlement resulting from liquefaction of saturated cohesionless soils and cyclic densification of unsaturated sands and gravels caused by earthquakes. The Site is within a zone of liquefaction hazard and subject to strong ground shaking, as such, an evaluation of the seismic-induced ground deformations at the Site analysis is provided in Section 7.1 of this report. In addition, due to the site being relatively flat with no slopes, there is no risk of lateral spreading due to a seismic event.

- Tsunami and Seiche – A tsunami is a long, high sea wave based by an earthquake, submarine landslide, or other disturbances. A seiche is an oscillation of surface water in an enclosed or semi-enclosed basin such as a lake, bay, or harbor. The California Tsunami Maps and Data Interactive Map, accessed on 25 October, 2022 show that the Site is outside a Hazard Area. Also, no bodies of water are adjacent to the Site and therefore, the potential for a tsunami or seiche to impact the Project is low.

- Expansive Soils – Expansive soils can result in differential movement of structures, including slab heave and cracking, differential movement between foundations, and cracking of pavements and sidewalks. Potentially expansive soils are defined by the 2020 LABC as soils with expansion indices (EI) greater than 20. Based on our subsurface investigation, the soils at or near the Project's approximate planned foundation level are anticipated to be predominantly granular (non-plastic) and therefore, the potential for expansive soils to be present at the Site is very low.

- Soil Erosion – Soil erosion is the removal of soil by water and/or wind. Factors which influence the erosion potential include the soil type, amount of rainfall, wind, length and steepness of slopes, and the amount and type of vegetation covering the Site and slopes. The Site is fully developed with pavement and has limited landscaping. The Project does not include slopes, or Site features which may be susceptible to erosion; therefore, erosion potential of soils at the Site and loss of topsoil is low.

- Methane Zone - Based on the Los Angeles Building and Safety Department Methane and Methane Buffer Map dated 31 March 2004, the Project is mapped within a methane zone. The potential presence of soil gas and any required mitigations (if any) should be evaluated in accordance with Division 71 of the 2020 LABC and LADBS Information Bulletin No. P/BC 2020-101.

- Collapsible Soils - Collapsible soils, or soils susceptible to hydroconsolidation, are geologically young, unconsolidated, low-density, loose, dry soils commonly present in arid to semi-arid regions, such as Southern California. These soils generally occur within the upper 10 to 15 feet of wind deposited sands or silts, alluvial fans, colluvial soils, stream banks, or residual mudflow soils. Collapsible soils have granular particles that are supported by clay or silt and can be chemically cemented in place creating a porous structure. The bonds supporting this porous structure generally have enough shear strength to support loads, however, once water is introduced, the porous structure collapses and the granular particles are weakened and rearranged. A rise in groundwater or increase in surface water infiltration, combined with the weight of a structure, can cause rapid settlement, resulting in cracking of foundations and walls. Based on the Site geology and results of the subsurface investigation, soils potentially susceptible to collapse are not at the site.

4.2 Aerial Photographs

Several historical aerial photographs dated between 1923 and 2022 were analyzed. Based on our review, the Site was developed as early as 1923 with a railroad spur and what appears to be a small warehouse building on the west side of the site. Between 1923 and 1989 the railroad spur was removed and additional buildings were constructed. By 1994 most of the buildings had been demolished and site graded. The site was paved and being used as a parking lot by 2002.

5. SUBSURFACE INVESTIGATION AND FINDINGS

5.1 Field Investigation

Our subsurface exploration program consisted of four hollow-stem auger (HSA) borings (identified as LB-1 to LB-4), drilled to depths ranging from 50 to 65 feet, and four cone penetration (CPTs) tests (identified as LCPT-1 to LCPT-4), performed to depths ranging from 14 to 88 feet. Prior to drilling, the boring location was marked out by a LANGAN field engineer. Underground Service Alert of Southern California (USA/DigAlert) was contacted to locate and mark known public underground utilities within the public right-of-way. A private utility-locating subcontractor also confirmed that the boring locations were clear of conductive underground utilities. Refer to Figure 10 for approximate exploration locations.

Borings were drilled by Martini Drilling, Inc., on 15 and 16 October 2022 using a truck-mounted drill rig under the full-time observation of a LANGAN field engineer. The borings were hand-augered to a depth of approximately 5 feet and subsequently advanced with the drill rig using conventional drilling techniques. Standard Penetration Tests (SPT)1 and California Modified Ring samples were generally collected at 5-foot intervals until boring termination depth. California Modified Ring samples were collected at select locations using a 3.0-inch-outer-diameter split-barrel California sampler lined with 2.42-inch-inner-diameter brass rings. SPT N-values were recorded to identify the relative density and stiffness of the cohesionless and cohesive soils, respectively.

Upon completion, the borings were backfilled via tremie method with cement-grout slurry to near ground surface, and the surface was patched with quick-dry set concrete. Excess soil cuttings were temporarily stored on Site in Department of Transportation (DOT) approved 55-gallon drums for subsequent characterization and disposal. Excess soil cuttings encountered are pending characterization and disposal.

CPTs were performed by Kehoe Testing and Engineering, on 15 October 2022 under the full-time observation of a LANGAN field engineer. Cone resistance, sleeve friction and pore pressure measurements were recorded at the CPT locations.

Retrieved soil samples were visually examined and classified in the field following the Unified Soil Classification System (USCS) and confirmed by re-examination in our office. A copy of the boring logs and CPT test results are provided in Appendix B.

5.2 Percolation Testing

Percolation testing was performed in borings LP-1 and LP-2 at depths of approximately 10 to 15 feet. The tests were performed on 15 October 2022 under full-time observation of a LANGAN field engineer. The percolation tests consisted of measuring the drop in water over time in a 2-inch diameter polyvinyl chloride (PVC) pipe with a solid end cap and a minimum of 5 feet of slotted section at the bottom. A filter pack was poured around the slotted PVC section. See Figure 10 for approximate field percolation test location.

The percolation tests were performed in general accordance with the City of Los Angeles Department of Building and Safety), Information Bulletin / Public – Building Code 2020-118: Guidelines for Storm Water Infiltration, Document No.: P/BC 2020-118, Dated Effective 1 January 2020, and LADBS "Planning and Land Development Handbook for Low Impact Development (LID). Percolation test results are provided in Appendix C. Listed below is the summary of the test results.

Table 1 – Percolation Result

Boring Location	Test Type	Field-Infiltration Rates (inch-per-hour)	Soil Type at Test Depth
LP-1	Falling Head	2.5	Sand (SP)

LP-2	Falling Head	2.7	Sand (SP)
Selected Infiltration Rate		**2.5 inches-per-hour**	

Additional design criteria is discussed in Section 7.7 of this report.

Laboratory Investigation

Soil samples obtained from the borings were visually examined in the field, and classifications were confirmed by re-examination in our office. Geotechnical laboratory testing was performed on select soil samples and included the following tests:

- Direct Shear (ASTM D3080)
- Consolidation (ASTM D2435)
- Finer than No. 200 Sieve Analyses (ASTM D1140)
- Expansion Index (ASTM D4829)
- Atterberg Limits (ASTM D4318)
- Sulfate Content (CTM Test 417)
- Electrical Resistivity (CTM Test 643)
- Chloride Content (CTM Test 422)
- Soil pH (CTM Test 643)

The laboratory testing was performed by AP Engineering and Testing, Inc., (License number TA10130) under supervision of a California-licensed Geotechnical Engineer (GE). We reviewed the laboratory testing results provided to Langan Engineering on 28 October 2022 and accept responsibility for the use of the testing in our analysis. Laboratory test results are included in Appendix D.

6. SUBSURFACE CONDITIONS

LANGAN's interpretation of the subsurface conditions is based on the historic data review and soils encountered during our field exploration program. In general, the Site is underlain by artificial fill overlying young alluvial soil deposits. Subsurface cross-sections are presented graphically in Figures 11A and 11B. Details regarding the subsurface materials encountered are presented in the boring logs included in Appendix B.

- Fill: Beneath the 4- to 5-inches thick layer of asphalt, fill soils were generally encountered. The fill stratum generally extended to depths ranging from approximately 1 to 5 feet within the borings explored. Where observed, these soils generally consist of dark brown, moist silty sand, clayey sand, variable amounts of gravel.

  Laboratory testing of select fill samples within boring LB-1 measured minimum resistivity, soil pH, soluble sulfate content, and chloride content which are discussed in Section 7.5. Expansion index (EI) testing of a selected sample in boring LB-1 at approximately 0 to 5 feet below existing grade measured an EI of 15, indicating very low expansion potential.

- Young Alluvium (Qyf): The fill stratum was observed to be underlain by a stratum of young alluvial fan deposits extending to the maximum depth explored of approximately 66.5 feet below existing grade. These soils generally consist of brown, yellow-brown, to whitish brown typically medium dense to very dense, and moist fine to coarse sand with variable amounts of silt and gravel.

SPT N-values of granular soils typically vary between 10 and 50 blows/foot. SPT N-values of cohesive soils typically vary between 3 and 27 blows/foot. Higher isolated SPT N-values of silty and clayey soils between 34 to 54 blows/foot were observed in borings LB-1 and LB-4.

Direct shear testing of one silty sand sample in boring LB-1 at approximately 20 feet below existing grade measured a peak cohesion and internal friction angle of 200 psf and 39 degrees, respectively, and an ultimate cohesion and internal friction angle of 100 psf and 39 degrees, respectively. Direct shear testing of one clayey sand sample in boring LB-3 at approximately 35 feet below existing grade measured a peak cohesion and internal friction angle of 400 psf and 29 degrees, respectively, and an ultimate cohesion and internal friction angle of 350 psf and 37 degrees, respectively.

Laboratory testing of select samples in the alluvium indicated that the soils have varying silt and clay contents ranging from 5.9 up to over 97 percent of the soil based on ASTM D1140. Laboratory testing of one sample in LB-1, approximately 35 feet below existing grade, measured liquid limit of 30, plastic limits of 24, and a plasticity index of 6. Corrosion test results are summarized in Section 6.5 of this report. Results of consolidation tests performed on four (4) samples at 25, 35, and 40 feet below existing grade are provided in Appendix C.

- Groundwater: Groundwater was encountered in all the borings at a depth between approximately 24 to 27 feet below ground surface. Historic high groundwater depth is reported at approximately 20 feet.

7. PRELIMINARY GEOTECHNICAL EVALUATION AND DESIGN RECOMMENDATIONS

Based on our subsurface investigation and our preliminary engineering analyses, the Project is considered feasible from a geotechnical engineering standpoint. Presented below are the results of our preliminary geotechnical evaluation and recommendations based on data obtained to date. Based on historic ground water levels and observed groundwater levels within our borings, we recommend that the design groundwater level be taken at 20 below ground surface (approximate elevation of 294, NAVD88).

7.1 Liquefaction and Seismically-Induced Settlement

Liquefaction evaluation was performed in accordance with the 2020 LABC and ASCE 7-16 requirements. For this analysis, we utilized a factor of safety (FS) of 1.1 and 1.0 and Design Peak Ground Acceleration (Two-Thirds-PGAM) of 0.690g and (PGAM) of 0.947g as the criteria for determining zones that are potentially liquefiable, respectively, consistent with the recommendations of SP-117A and LADBS Bulletin P/BC 2020-151. We used a Mw 6.74 and Mw 6.85 for a 475 and 2475 Year Return period. To evaluate the liquefaction potential at the Site, we utilized the Boulanger and Idriss (2014) method the computer program CLiq. Based on the results of our analysis using the CPT data from our field investigation, there are potentially liquefiable layers at depth ranging from around 27 to 39 feet below ground surface. In order to estimate the amount of post-earthquake settlement, we used the method by Tokimatsu and Seed (1987) in which the seismically induced cyclic stress ratios and corrected N-values are related to the volumetric strain of the soil. The amount of soil settlement during a strong seismic event will depend on the thickness of the liquefiable layers and/or consistency of the soil. Using Tokimatsu and Seed (1987) the expected settlement is 0.4 to 0.6 inches. Additionally, we utilized the computer program LiquefyPro, a soil profile from Borings LB-1 and LB-4. Based on our analysis, liquefaction-induced settlements are anticipated to range from approximately 0.2 to 1.5 inches. The results of these analysis are attached in Appendix E.

7.2 Seismic Design Parameters

Structures can be designed in accordance with the provisions of ASCE 7-16 and 2020 LABC. Based on the available subsurface information, site-specific shear wave velocity measurements from seismic CPTs, and in accordance with the seismic provisions of these codes, the soils underlying the Site can be characterized as Site Class D. Our evaluation of the site class considered the residual strength of the potentially liquefiable layers to estimate the average shear wave velocity.

As such, the following seismic design criteria may be used.

Criteria	Mapped Value (Site Class D)
MCE_R Spectral response acceleration at Short Periods, S_S	2.002g
MCE_R Spectral response acceleration at 1 second period, S_1	0.715g
Short Period Site Coefficient, F_a	1.0
Short Period Site Coefficient, F_v	2.5
Site-modified MCE_R Spectral Response Acceleration at Short Periods, S_{MS}	2.002g
Site-modified MCE_R Spectral Response Acceleration at 1 second period, S_{M1}	1.787g
Design Spectral Response Acceleration at short periods, S_{DS}	1.335g
Design Spectral Response Acceleration at 1 second period, S_{D1}	1.191g
MCE_G Peak Ground Acceleration, PGA_M	0.947g

The recommended mapped values of F_v, S_{M1}, and S_{D1} above have been increased by 150 percent in accordance with the exception of Section 11.4.8.1 of Supplement No. 3 to ASCE 7-16. If the structural engineer elects not to use this exception in the seismic design approach, we should be notified so that we may develop site-specific response spectra and seismic design criteria in accordance with Chapter 21 of ASCE 7-16.

Based on our geotechnical evaluation, select layers are potentially liquefiable. However, we assume the fundamental period of the structure is 0.5 second or less based on the proposed number of stories of the structure; therefore, the soils underlying the Site may be characterized as Site Class D and the recommended mapped values above are applicable. If the Project structural engineer determines during the design phase that the fundamental period of the structure is greater than 0.5 second the soils underlying the Site will be characterized as Site Class F and a site-specific ground motion study in accordance with Chapter 21 of ASCE 7-16 will be required. During the design phase of the Project, the Project structural engineer should clarify the seismic design approach so that LANGAN can provide recommendations for seismic design criteria, either based on mapped values or based on Site-specific ground motion hazard analysis in accordance with Section 11.4.8 of ASCE 7-16.

7.3 Foundation Design

The Project will include one level of subterranean parking, and we assume that foundations will be bearing 13 to 15 feet below grade to allow for up at 3 feet thick mat. Based on the subsurface conditions encountered, the Project's proposed buildings may be supported on a mat foundation bearing on a proof-rolled subgrade. Mat foundations can be designed using a preliminary allowable bearing pressure of 3,000 psf and designed with a preliminary modulus of subgrade reaction, K, equal to 150 pounds per cubic inch (pci). The allowable bearing capacity for mat foundations can be increased by 1/3 for temporary transient loading, such as earthquake or wind. The modulus of subgrade reaction should be adjusted based on the size of the mat using the following equation: K' = K*[(B+1)/2B]2 where B = width of the mat, and K' = design subgrade modulus of a mat.

Total Mat settlements (static and dynamic) are calculated to be less than 4-inches with total differential settlements (static and dynamic) less than 2 inch over 50 feet.

The foundation subgrade should be observed and approved by a qualified Geotechnical Engineer and a City of Los Angeles Deputy Grading Inspector prior to steel or concrete placement. Any areas loosened by excavation should be re-compacted or replaced with lean concrete. Foundations should be constructed as soon as possible following subgrade approval. The contractor shall be responsible for maintaining the subgrade in its approved condition (i.e. free of water, debris, etc.) until the footing is constructed.

Foundations bearing on appropriately prepared subgrade comprised of alluvial soils can be designed to resist lateral sliding using an ultimate coefficient of friction equal to 0.35, respectively.

7.4 Below-Grade Walls

Below-grade walls of the Project's proposed one-story below grade podium structure are presumed to be fixed against rotation as the top of the walls will be connected to the ground floor slab. Below-grade walls can be designed to resist soil and surcharge pressures using the parameters below, and in earth pressure distributions in Figure 12.

- Soil Unit Weight = 110 pounds per cubic foot (pcf)
- Friction Angle = 39 degrees
- At-rest Earth Pressure (restrained wall) = 41 psf / foot
- The vertical distance between the proposed final grade and the proposed top of foundation is anticipated to be greater than 6 feet for the proposed basement level, and the design peak ground acceleration at the Project Site is greater than 0.4g; therefore, additional earth pressures caused by seismic ground shaking should be considered in design. Restrained walls should be designed for seismic loading conditions as defined in the Los Angeles Department of Building and Safety Information Bulletin P/BC 2020-083 "Retaining Wall Design" using a seismic force increment of 26 psf / foot.
- Lateral loads from uniform surcharges on the retaining wall backfill may be considered to impart surcharge to the restrained walls utilizing the above provided respective earth pressure coefficients presuming a rectangular pressure distribution. Surcharge loading

from adjacent foundations should be considered where the adjacent foundations are supported on soil above a 1H:1V theoretical influence line projecting upwards from the base of the below grade wall. Lateral loading from neighboring foundations need not be considered if these foundations bear below the above-mentioned influence line.

- Surcharge loading should consider adjacent streets, vehicular traffic, and sidewalks. Where vehicular traffic will pass within 10 feet of below-grade walls, temporary traffic loads should be considered in the design of walls. Traffic loads may be modeled by a uniform pressure of 100 psf / foot applied on the upper 10 feet of the walls, such as a fire truck or car parked on the street beyond the sidewalk.

The recommended design groundwater level is below the anticipated bottom of the structures foundation. At a minimum, we recommend damp-proofing (such as Grace Water Shield water barrier membrane or equivalent) be utilized in below-grade closed areas that may house equipment, finishes, or occupants that could be adversely impacted by moisture intrusion. A final choice regarding moisture / vapor protection and mitigation for enclosed below-grade areas should be made after reviewing environmental site conditions and below-grade space use and performance criteria during the design phase of the Project. To avoid any undesired vapor accumulation behind walls, prefabricated drainage panels (such as MiraDRAIN or equivalent) are recommended to be placed in uniformly spaced strips behind the walls; for typical 4-foot-wide drainage panel rolls, we recommend a 4-foot edge-to-edge spacing at this time. Final damp-proofing should be coordinated with applicable methane mitigation requirements. In addition, a perimeter foundation drain should be installed to collect and route any accumulated water to the site drainage system. Perimeter foundation drains should consist of perforated, durable and structurally sufficient pipe surrounded with clean gravel and completely encased in geosynthetic filter fabric.

7.5 Expansive Soil Considerations.

Expansive soils swell or shrink when the moisture content of the soil changes. A soil's moisture content can change through cyclic wet/dry weather cycles, variations in the groundwater level, installation of irrigation systems, change in landscape plantings, and changes in site grading. Leaking utilities can also drastically change soil moisture content.

Potentially expansive soils are defined by the 2020 LABC as soils with expansion indices (EI) of greater than 20. Based on laboratory testing of soils within the upper 5-feet from the existing parking lot pavement surface shows a very low expansion potential (i.e. EI=15).

The Site should be designed to promote positive drainage away from the tops of shoring systems and building footprints, and landscaping should consist of mainly drought tolerant native planting that requires limited irrigation.

7.6 Corrosion Considerations

Chemical analyses performed on a select sample obtained from the borings for this study is summarized below.

Sample	Soil Type	Depth (feet)	Resistivity (ohm-cm)	pH	Soluble Sulfate (ppm)	Chloride (ppm)
LB-1/B-1	Clayey Sand	0 - 5	1169	7.8	687	287

Based on the corrosion test results, the alluvial soils in the upper 5 feet of the Site are considered to be noncorrosive to concrete and low to moderately corrosive ferrous metals. Based on ACI 318, the soil as Exposure Class S1 for sulfate and Exposure Class C1 for chloride. A corrosion expert should be consulted if metal pipe is proposed to be in contact with soil. Based on the laboratory data summarized herein, ACI 318requires that concrete should be designed using Type II cement (ASTM C150), a maximum water-to-cement ratio of 0.5, and a minimum specified compressive strength (f'c) of 4,000 pounds per square inch (psi). A copy of the corrosion test results for this study is provided in Appendix E.

7.7 Infiltration Design Support

Based on our field percolation test result and Los Angeles Information Bulletin P/BC: 2020-118 and LADBS "Planning and Land Development Handbook for Low Impact Development (LID)" the Site is not suitable for storm water infiltration based on the following:

- The Site is in a mapped liquefaction hazard zone and storm water infiltration will further impact the Site from a liquefaction hazard point of view.

7.8 Utility Support

Utilities can be supported on native soils. The bedding material should extend at least 12 inches over the top of the utility unless otherwise required by the utility owner. Utility subgrade should be confirmed to be free of standing water, firm, and unyielding prior to placement of bedding material. Utility trenches above pipe bedding should be backfilled in accordance with the recommendations provided herein for fill compaction requirements using either previously excavated soil (if suitable), or with approved imported material. All backfill should be compacted per Section 9.1 of this report.

8. TEMPORARY EXCAVATION SUPPORT

Temporary excavations are anticipated for the proposed development. Temporary excavations will be required to facilitate below-grade excavation for the proposed subterranean parking basement and will need to be constructed in accordance with Cal/OSHA requirements. . Based on our evaluation of subsurface data, proposed temporary excavations at the Site are anticipated to range up to 13 feet to 15 feet. Maximum temporary excavated slopes should be no steeper than 2H:1V (Horizontal:Vertical).

Based on the anticipated depths and limits of excavation, temporary excavation support will be required to excavate the Site to the lowest proposed bottom of excavation level. The excavation support can consist of conventional soldier piles and lagging. The temporary excavation support system can be designed with the following preliminary parameters.

Cantilever Shoring Wall (maximum height of 13ft):

- The soil pressure distribution for excavation support is a function of the type of excavation support system and the any bracing used. For design, the shoring system should be designed using a triangular pressure distribution having a maximum pressure of 25H reducing to zero towards the top of the wall, where H is the height of the wall in feet.
- The design earth pressure on the lagging can be 0.6 times the earth pressure or a maximum of 400 psf in accordance with California Department of Transportation (2011), "Trenching and Shoring Manual," Revision 1, August 2011.

- Surcharge loading along the walls should consider all proposed building conditions on the north and south sides. Surcharge loading should be considered where the neighboring building foundations are supported on material above a 1:1 (horizontal:vertical) theoretical influence line extending upward from the base of the below-grade wall. Surcharge loading from neighboring building foundations need not be considered if these foundations are supported outside the aforementioned influence line.
- Surcharge loading due to temporary traffic and construction loading within a distance of 10 feet from the wall top should be designed based on published documentation, such as Federal Highway Administration (FHWA) or Naval Facilities Engineering Command (NAVFAC) Design Manuals and as set forth in LADBS Information Bulletin 2017-141 "Guidelines for Determining Live Loads Surcharge From Sidewalk Pedestrian Traffic And Street Traffic", whichever is stricter. Development of surcharge distributions other than specified in LADBS Information Bulletin should be developed by the Project shoring engineer and subsequently reviewed by LANGAN for confirmation.
- Passive resistance against soldier beams below the excavated level should be based on an equivalent fluid weight of 150 psf/foot beginning 3 feet below the lowest subgrade level in front of the soldier beams. A maximum of 3 times the width of the soldier beam can be considered as contributing to passive resistance. Care must be taken during construction so as not to excavate any soil providing lateral restraint to the shoring system's toe.
- Deflection at the top of the excavation support system will be a function of the design and sequence of installation. The system should be designed to limit deflections adjacent to existing public streets to less than 1 inch, but in no case should deformations be such that cause damage or loss of support to areas, structures, and utilities beyond the excavation. For temporary excavation walls adjacent to the public right-of-way or a public structure, the allowable maximum deflection of shoring system should be 1 inch. This deflection shall be measured at the top of soldier piles.

9. EXCAVATION AND GRADING

Prior to the commencement of excavation and grading, a meeting should be held at the Site with the owner, city inspector, excavation/grading contractor, civil engineer, and Geotechnical Engineer to discuss the work schedule and geotechnical aspects of the grading.

All pavement, vegetation, and deleterious materials should be disposed of off-site prior to initiation of grading operations.

Any foundation and abandoned utility remnants or construction debris associated with former site structures encountered within excavations should be fully removed, where practical, and any void spaces that may be created should be backfilled with approved compacted structural fill. If utility pipes are too deep to be removed economically in proposed pavement areas, they should be filled with cement and sand grout or equivalent material that will prevent future collapse of the pipe.

After completion of excavation, including removal of all below grade remnants, stripping, grubbing, removal of asphalt, base course material, the soil subgrade should be compacted in-place by proof-rolling with at least 6 passes of a vibratory roller compactor having a minimum static drum weight of 5 tons. Any areas exhibiting rutting or pumping should be removed and replaced with compacted engineered fill material.

Any soft, loose, or unsuitable soils identified by the City of Los Angeles Deputy Grading Inspector during subgrade preparation should be removed and replaced with approved compacted fill.

Any environmentally unsuitable soils encountered during the excavation process should be removed and properly disposed of off-site in accordance with all state and local regulations.

Surface site elements, such as site pavers, planters, and walkways can be supported on subgrade soils comprised of compacted fill or native alluvial soils prepared in accordance with the recommendations provided herein.

9.1 Fill Material and Compaction Criteria

Fill material (imported or re-used) should be free of organic and other deleterious materials and should have a maximum particle size no greater than 3 inches. The on-site granular portions of the alluvial soils containing less than 12 percent passing the #200 sieve are suitable for use as compacted fill. Any excavated on-site soils not meeting the gradation criteria should be mixed such that the gradation of the excavated soils is acceptable, as determined by the Geotechnical Engineer. All fills should be placed in accordance with the placement and compaction criteria discussed in this report. Imported fill should contain no more than 12 percent passing the #200 sieve by dry weight and have a plasticity index less than 7. Grain size distributions, maximum dry density, and optimum water content determinations should be made on representative samples of the proposed fill material.

Cobbles encountered during grading may be reused as backfill if they are processed to form a well-graded granular mixture comprised of material no larger than 3 inches in its largest diameter.

All primary structural fill beneath proposed structures should be placed in uniform lifts (maximum 12-inches thick prior to compaction) and compacted to a minimum of 95 percent of the maximum dry density at a moisture content within 3 percent of optimum moisture content, as determined by ASTM D1557 (Modified Proctor compaction).

All fill placement should be subject to controlled engineering observation by the City of Los Angeles Deputy Grading Inspector. No fill material should be placed on areas where free water is standing or on surfaces which have not been approved by the City of Los Angeles Deputy Grading Inspector.

All other cohesive backfill should be placed in uniform lifts (maximum 8-inches thick prior to compaction) and compacted to at least 90 percent of its maximum dry density at a moisture content within 3 percent of optimum moisture content, as determined by the ASTM D1557 (Modified Proctor compaction).

All cohesionless backfill should be placed in uniform lifts (maximum 8-inches thick prior to compaction) and compacted to at least 95 percent of its maximum dry density at a moisture content within 3 percent of optimum moisture content, as determined by the ASTM D1557 (Modified Proctor compaction).

9.2 Site Drainage

Proper drainage should be maintained at all times. Ponding or trapping of water in localized areas can cause differing moisture levels in the subsurface soil. Drainage should be directed away from the tops of excavations and existing foundations. Erosion protection and drainage control measures should be implemented during periods of inclement weather. During rainfall events, backfill operations may need to be restricted to allow for proper moisture control during fill placement.

The Site should be graded to ensure positive drainage away from the locations of the Project.

9.3 Hardscape Elements

Site pavers and walkways can be supported on compacted fill or native soils after excavating to the required subgrade level, then proof-rolled using an approved compactor such as a 5-ton (static drum weight) vibratory roller compactor, or equivalent. Any soft, loose or unsuitable soils identified by the City of Los Angeles Deputy Grading Inspector during proof-rolling should be removed and replaced with approved compacted fill.

10. RECOMMENDED FUTURE TASKS AND INTERACTION

We recommend performing the following supplemental studies during the design phase and prior to the issuance of a building permit:

1. Review structural loading, and confirm or refine preliminary foundation types, bearing capacities, and anticipated settlements.
2. Review of final civil and grading plans, structural plans and loads, perform final foundation analyses, and develop final foundation and temporary excavation recommendations.

To maintain our continuity of responsibility on this Project, we recommend the above work be performed by Langan.

11. SERVICES DURING DESIGN, CONSTRUCTION DOCUMENTS AND CONSTRUCTION QUALITY ASSURANCE

During final design, the Geotechnical engineer of record should be retained to consult with the design team as geotechnical questions arise. Technical specifications and design drawings should incorporate the recommendations in this report. When authorized, Langan will assist the design team in preparing specification sections related to geotechnical issues such as earthwork, ground improvement, shallow foundations, backfill and excavation support. Langan should also, when authorized, review the project plans, as well as Contractor submittals relating to materials and construction procedures for geotechnical work, to confirm the designs incorporate the intent of our recommendations.

Langan has investigated and interpreted the Site subsurface conditions and developed the foundation design recommendations contained herein, and is therefore best suited to perform quality assurance observation and testing of geotechnical-related work during construction. The work requiring quality assurance confirmation and/or special inspections per the Building Code includes, but is not limited to, earthwork, backfill, ground improvement, shallow and deep foundations, and excavation support.

Recognizing that construction observation is the final stage of geotechnical design, quality assurance observation during construction by Langan is necessary to confirm the design assumptions and design elements, to maintain our continuity of responsibility on this project, and allow us to make changes to our recommendations, as necessary. The foundation system and general geotechnical construction methods recommended herein are predicated upon Langan assisting with the final design and providing construction observation services for the Owner.

Should Langan not be retained for these services, we cannot assume the role of geotechnical engineer of record, and the entity providing the final design and construction observation services must serve as the engineer of record.

12. LIMITATIONS

The conclusions and preliminary recommendations provided in this report result from our interpretation of the geotechnical conditions existing at the Site. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in structures or their locations should be brought to LANGAN's attention as soon as possible so that we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to LANGAN's attention for evaluation, as they may affect our recommendations.

This report has been prepared to assist the owner in their preliminary design process and is only applicable to the design of the specific project identified. The information in this report cannot be utilized or depended on by engineers or contractors who are involved in evaluations or designs of facilities (including underpinning, grouting, stabilization, etc.) on adjacent properties which are beyond the limits of that which is the specific subject of this report.

Environmental issues (such as permitting or potentially contaminated soil and groundwater) are outside the scope of this study and should be addressed in a separate evaluation.

13. REFERENCES

13.1 PUBLICATIONS

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Sitar, Nicholas, Mikola, Roozbeh Geraili, and Candia, Gabriel (2012), "Seismically Induced Lateral Earth Pressures on Retaining Structures and Basement Walls", *Geotechnical Engineering State of the Art Practice, Keynote Lectures from GeoCongress 2012, ASCE Geotechnical Special Publication No. 226*.

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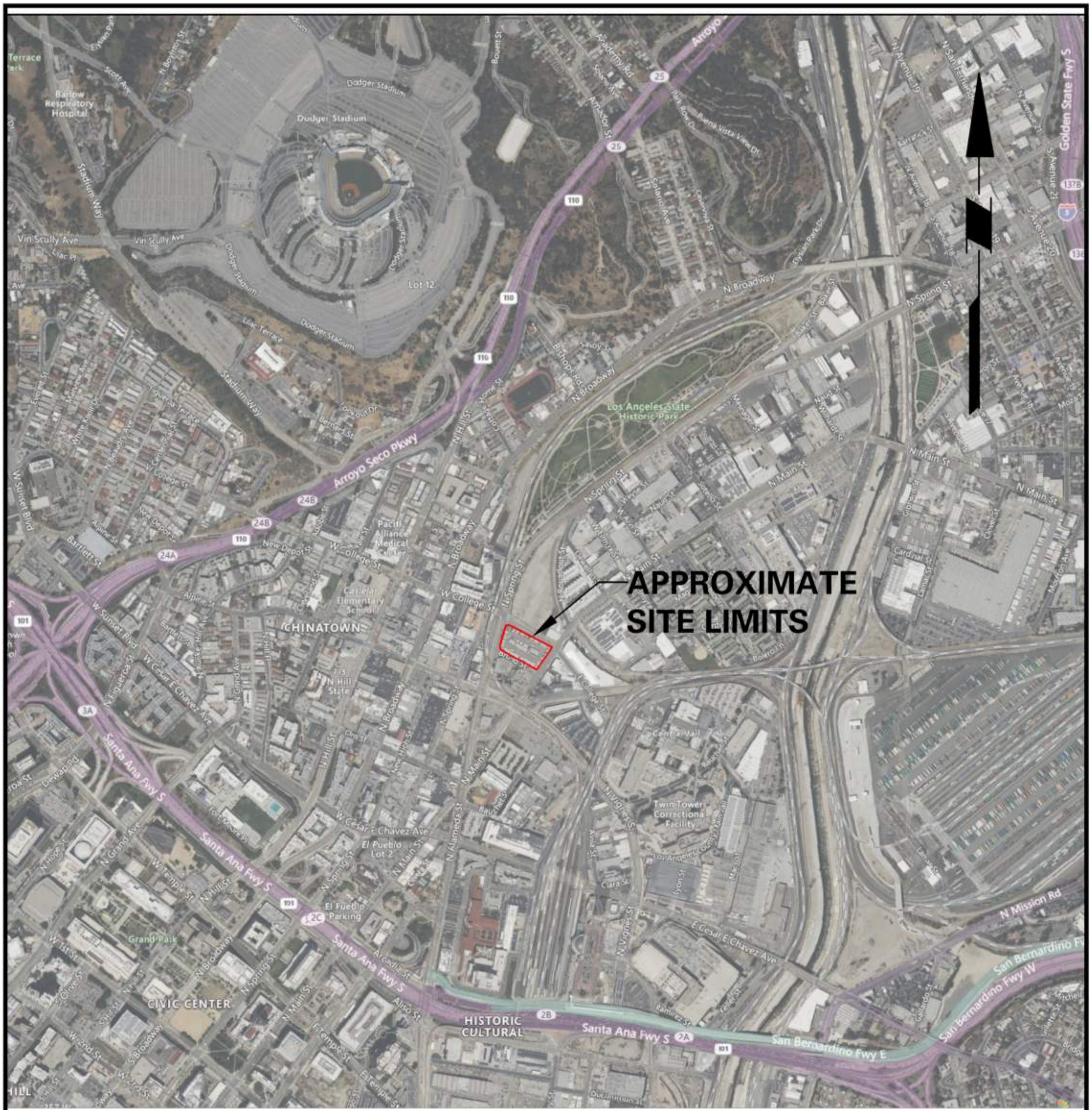
FIGURES



LEGEND:

— APPROXIMATE SITE LIMITS

NOTES:

1. BACKGROUND REFERENCED FROM BING IMAGES ON 12 SEPTEMBER 2022.

2000 0 1000 2000

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Project

130 W COLLEGE STREET

LOS ANGELES
LOS ANGELES COUNTY CALIFORNIA

Figure Title

SITE VICINITY MAP

Project No.
721036101

Date
SEPTEMBER 2022

Scale
1" = 1000'

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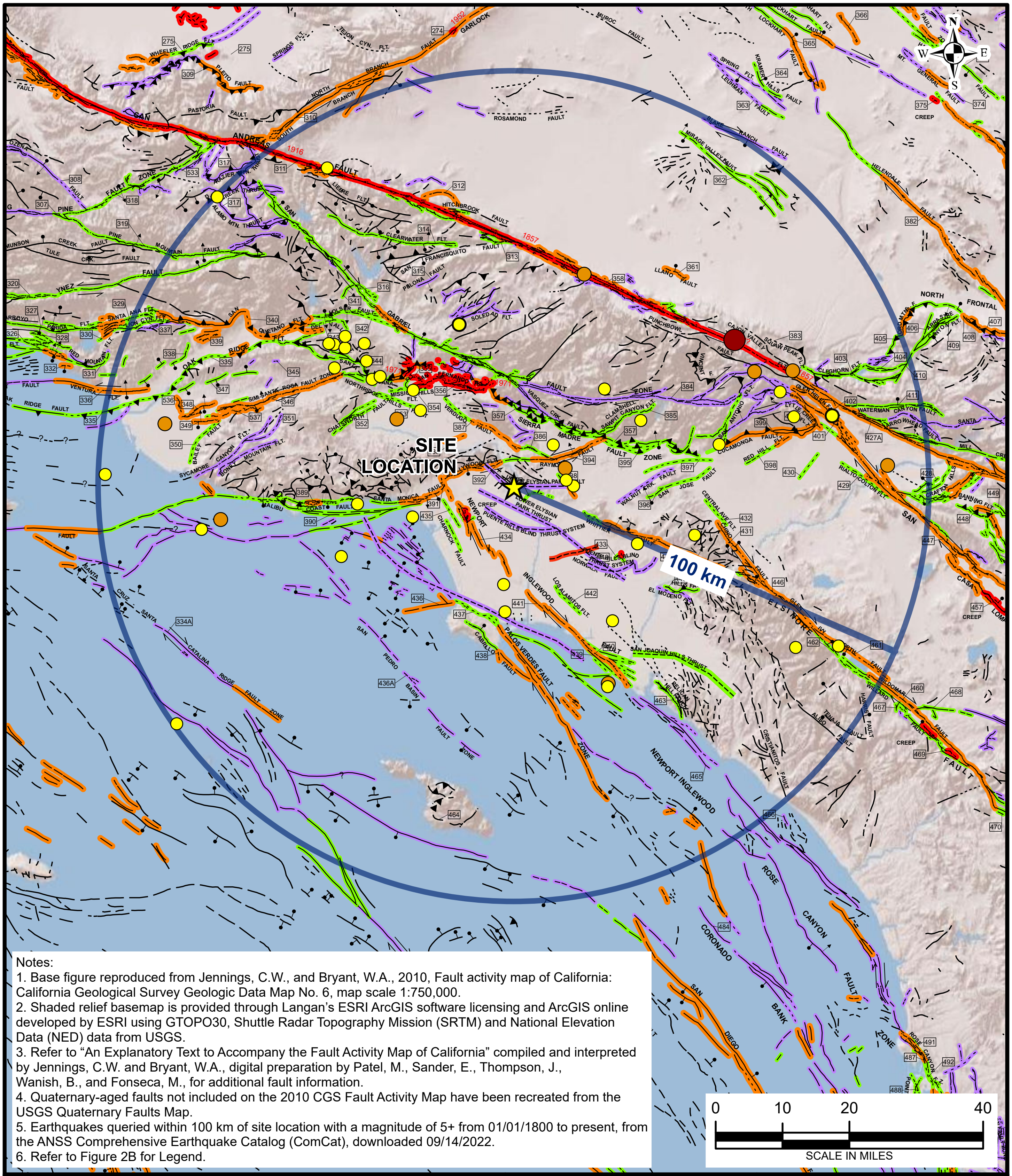
Figure No.

1



Notes:
1. Base figure reproduced from Jennings, C.W., and Bryant, W.A., 2010, Fault activity map of California: California Geological Survey Geologic Data Map No. 6, map scale 1:750,000.
2. Shaded relief basemap is provided through Langan's ESRI ArcGIS software licensing and ArcGIS online developed by ESRI using GTOPO30, Shuttle Radar Topography Mission (SRTM) and National Elevation Data (NED) data from USGS.
3. Refer to "An Explanatory Text to Accompany the Fault Activity Map of California" compiled and interpreted by Jennings, C.W. and Bryant, W.A., digital preparation by Patel, M., Sander, E., Thompson, J., Wanish, B., and Fonseca, M., for additional fault information.
4. Quaternary-aged faults not included on the 2010 CGS Fault Activity Map have been recreated from the USGS Quaternary Faults Map.
5. Earthquakes queried within 100 km of site location with a magnitude of 5+ from 01/01/1800 to present, from the ANSS Comprehensive Earthquake Catalog (ComCat), downloaded 09/14/2022.
6. Refer to Figure 2B for Legend.

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Figure Title

MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS

Project No. 721036101

Date SEPTEMBER 2022

Scale 1 inch = 20 miles

Drawn By TO

Figure 2A

LEGEND:

☆ Site Location

Fault Age

🟥 Historic

🟧 Holocene

🟩 Late Quaternary

🟪 Early Quaternary

⬛ Pre-Quaternary Fault

☐ 100 km Search Radius

Earthquake Epicenter

● Magnitude 5.0 to 5.9

● Magnitude 6.0 to 6.9

● Magnitude 7.0 to 7.4

● Magnitude 7.5 to 8.0

Fault Symbols

Bar and ball on downthrown side (relative or apparent).

⇄ Relative or apparent direction of lateral movement.

↑ Direction of dip.

▼ Low angle fault (barbs on upper plate). Fault surface generally dips less than 45° but locally may have been subsequently steepened.

491 Numbers refer to annotations listed in the appendices of the accompanying report.

Structural discontinuity (offshore) separating differing Neogene structural domains.

▨ Brawley Seismic Zone.

Fault Classification

Fault along which historic (last 200 years) displacement has occurred and is associated with one or more of the following:
(a) a recorded earthquake with surface rupture. (Also included are some well-defined surface breaks caused by ground shaking during earthquakes, e.g. extensive ground breakage, not on the White Wolf fault, caused by the Arvin-Tehachapi earthquake of 1952). The date of the associated earthquake is indicated. Where repeated surface ruptures on the same fault have occurred, only the date of the latest movement may be indicated, especially if earlier reports are not well documented as to location of ground breaks.
(b) fault creep slippage - slow ground displacement usually without accompanying earthquakes.
(c) displaced survey lines.

1906 ▶
1906 ▷
A triangle to the right or left of the date indicates termination point of observed surface displacement. Solid red triangle indicates known location of rupture termination point. Open black triangle indicates uncertain or estimated location of rupture termination point.

▶1906◀ Date bracketed by triangles indicates local fault break.

1906 No triangle by date indicates an intermediate point along fault break.

CREEP Fault that exhibits fault creep slippage. Hachures indicate linear extent of fault creep. Annotation (creep with leader) indicates representative locations where fault creep has been observed and recorded.

1906 ■
1906 ■
Square on fault indicates where fault creep slippage has occurred that has been triggered by an earthquake on some other fault. Date of causative earthquake indicated. Squares to right and left of date indicate terminal points between which triggered creep slippage has occurred (creep either continuous or intermittent between these end points).

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LOS ANGELES COUNTY
CALIFORNIA

Figure Title
MAP OF MAJOR FAULTS AND EARTHQUAKE EPICENTERS LEGEND

Project No.
721036101
Date
SEPTEMBER 2022
Scale
NOT TO SCALE
Drawn By
TO

Figure
2B

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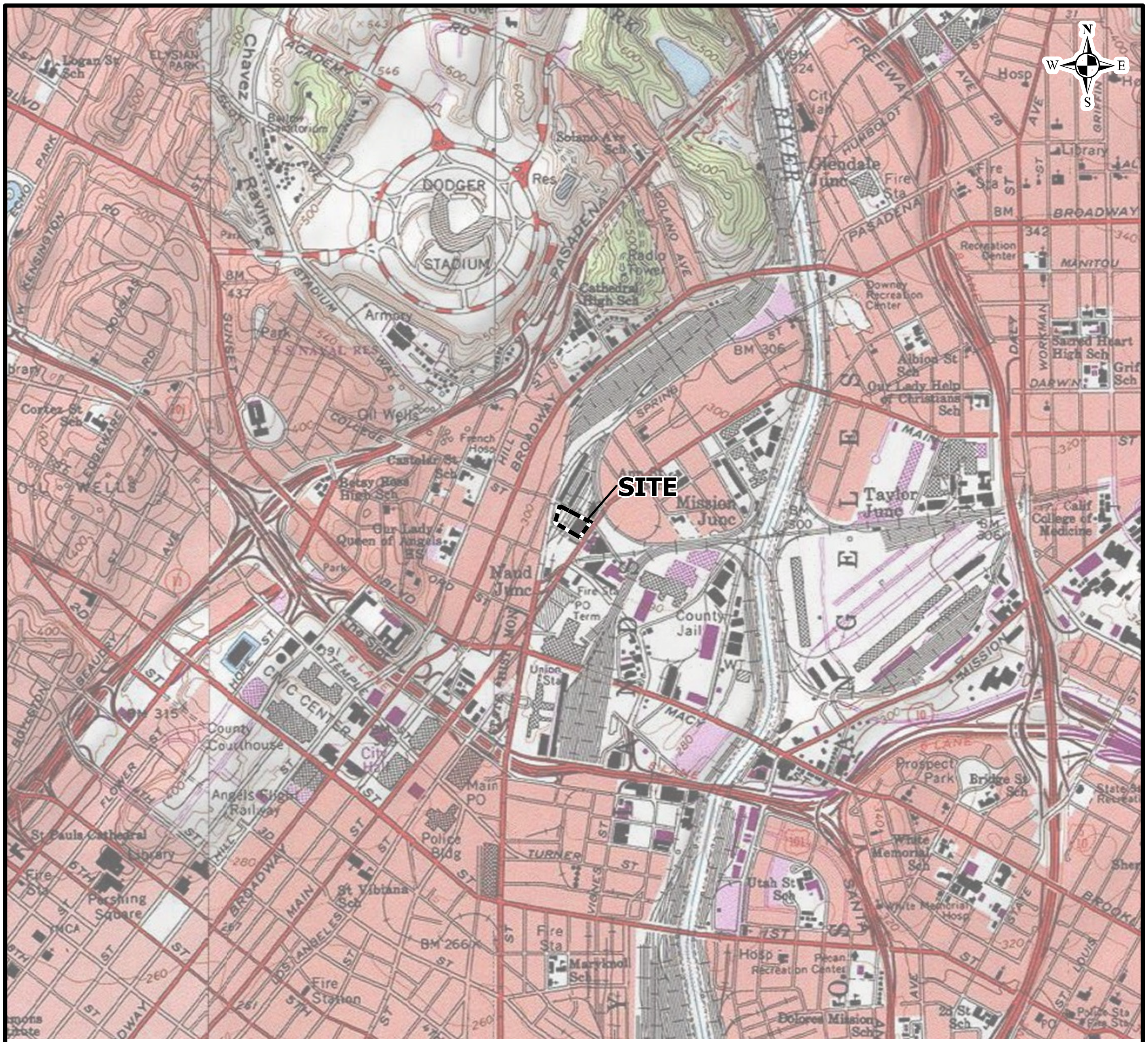

Legend

Fault Trace

- ▬▬ Accurately Located
- ━ ━ Approximately Located
- ?━ ━ Approximately Located, Queried
- - - - Inferred
- - -? Inferred, Queried
- ••••• Concealed
- ?•••• Concealed, Queried
- — - Aerial Photo Lineament
- 🟨 Fault Zone
- ⬚ Approximate Site Boundary

Notes:
1. Alquist-Priolo fault traces, fault zones, landslide zones, and liquefaction zones provided by the CGS.
2. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.

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LOS ANGELES COUNTY CALIFORNIA

Figure Title
ALQUIST-PRIOLO EARTHQUAKE FAULT ZONE

Project No.
721036101
Date
SEPTEMBER 2022
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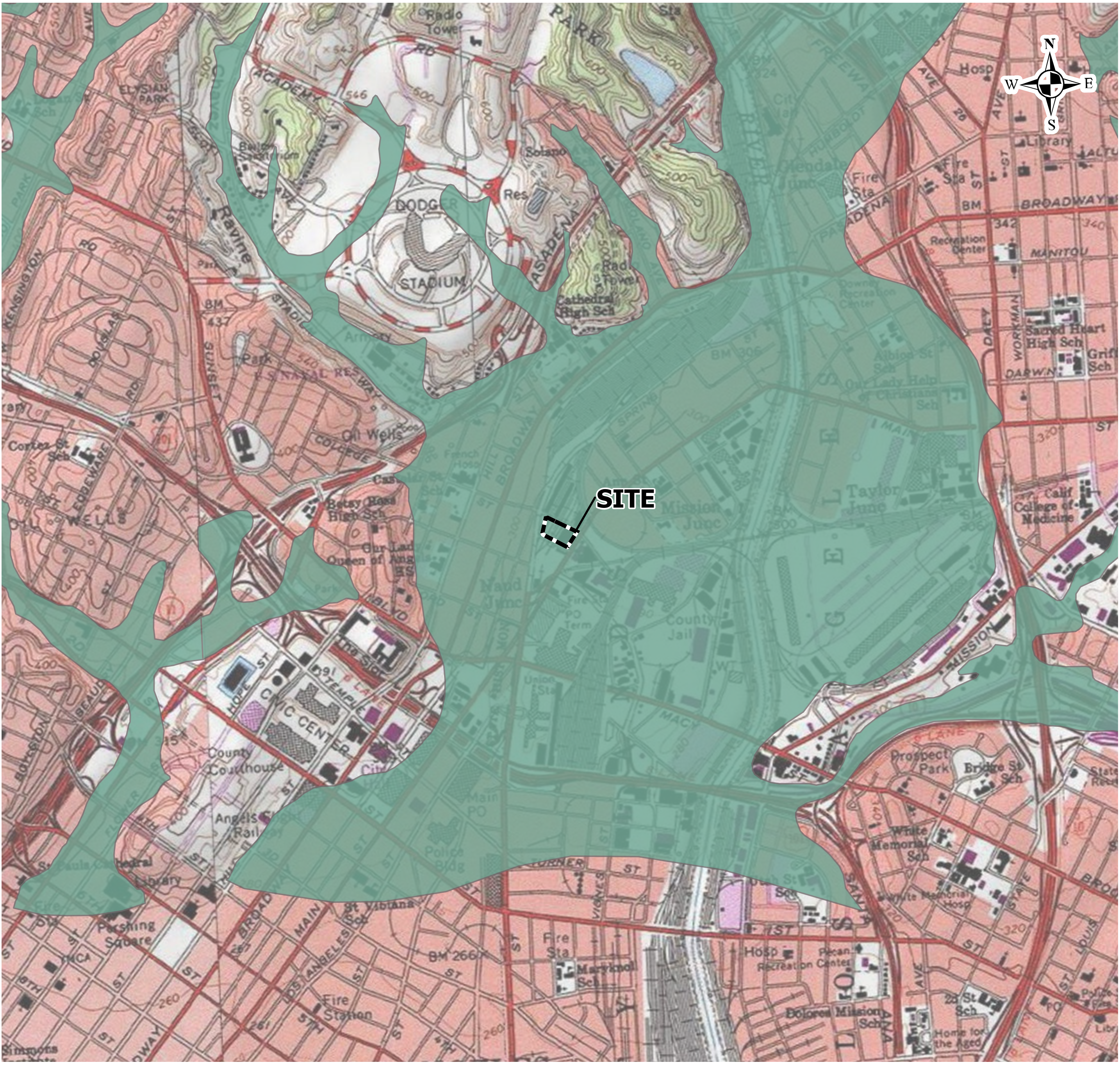
Figure
3



Legend

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

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. Liquifaction Susceptibility dataset provided in GIS format by the California Department of Conservation. This data is preliminary and has not been reviewed for conformity with United States Geological Survey (USGS) editorial standards or with the North American Stratigraphic Code.

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Figure Title
LIQUEFACTION SUSCEPTIBILITY MAP

Project No. 721036101
Date SEPTEMBER 2022
Scale 1" =2,000 '
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Figure 4

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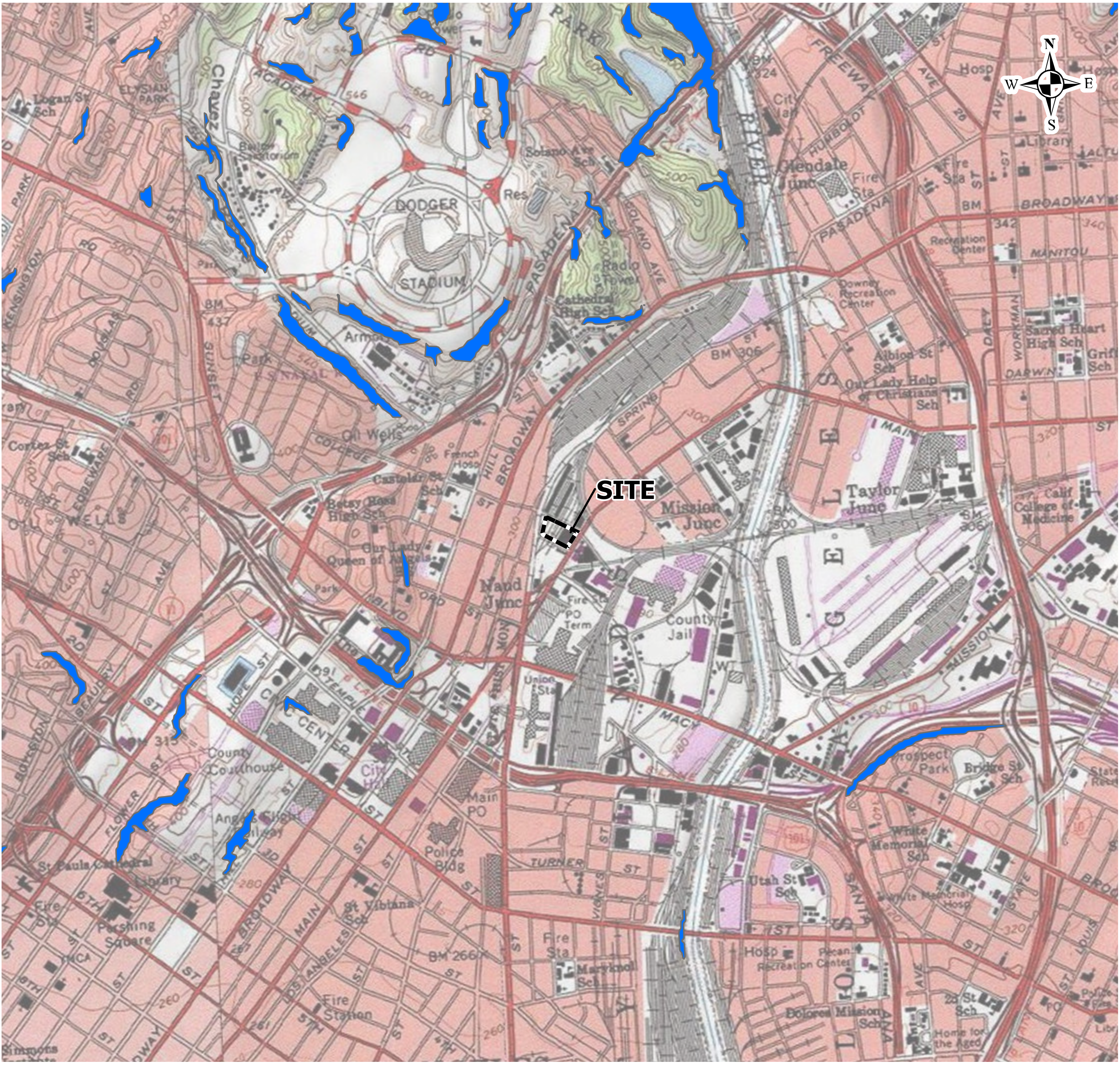

Legend

Earthquake-Induced Landslide Zones

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

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. Liquifaction Susceptibility dataset provided in GIS format by Los Angeles County (lacounty.gov). This data is preliminary and has not been reviewed for conformity with United States Geological Survey (USGS) editorial standards or with the North American Stratigraphic Code.

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Project 130 W COLLEGE STREET LOS ANGELES LOS ANGELES COUNTY CALIFORNIA	Figure Title EARTHQUAKE INDUCED LANDSLIDE MAP	Project No. 721036101 Date SEPTEMBER 2022 Scale 1" =2,000 ' Drawn By TO	Figure 5

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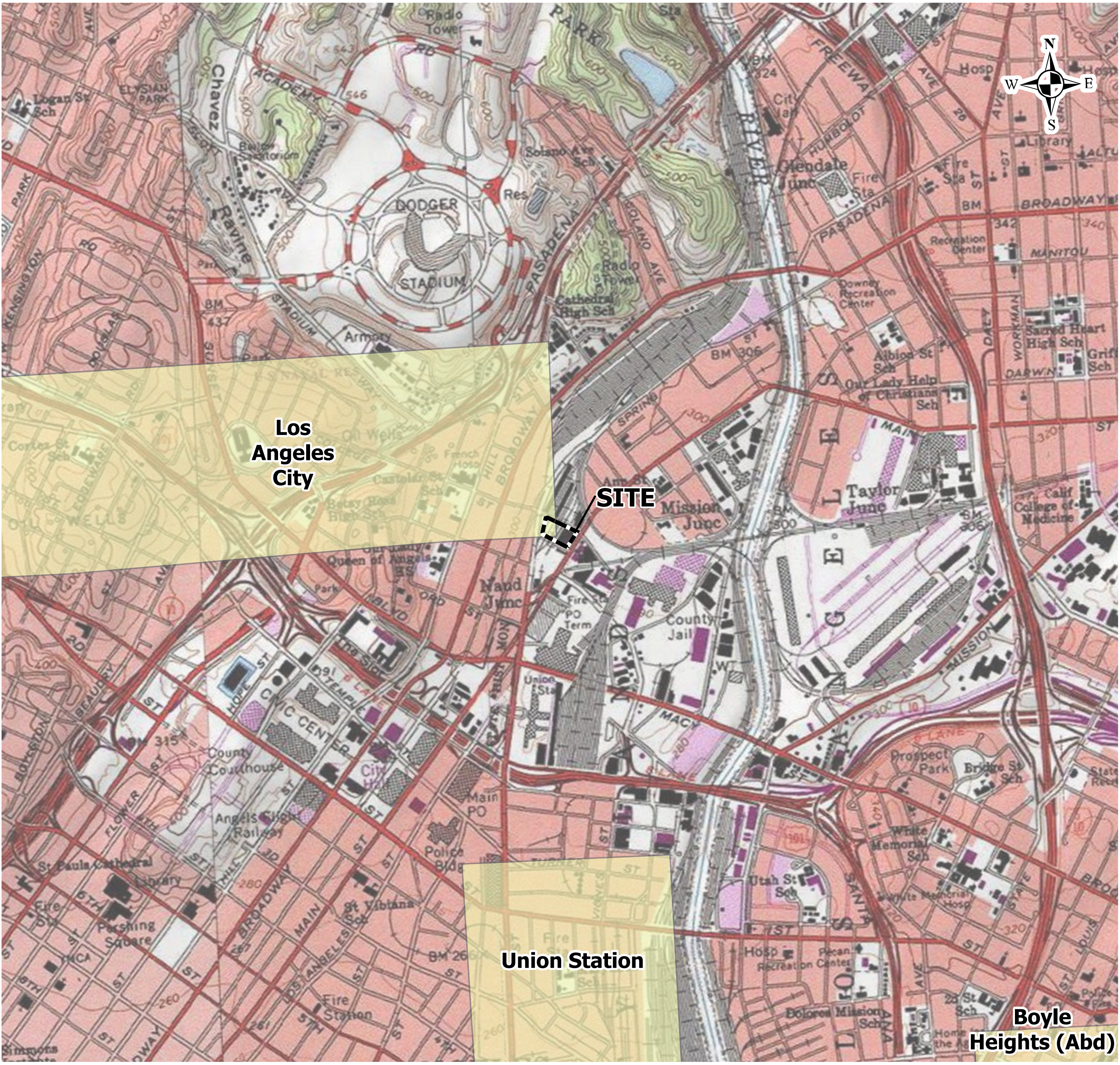

Legend

⬚ Approximate site boundary

🟨 Boundary of State-Designated Oil/Gas Fields

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. Oil/Gas Fields (Inside LA County) dataset provided in GIS format by the City of Los Angeles GeoHub.

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Figure Title
NEARBY OIL FIELDS

Project No.
721036101
Date
SEPTEMBER 2022
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1" =2,000 '
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Figure
6

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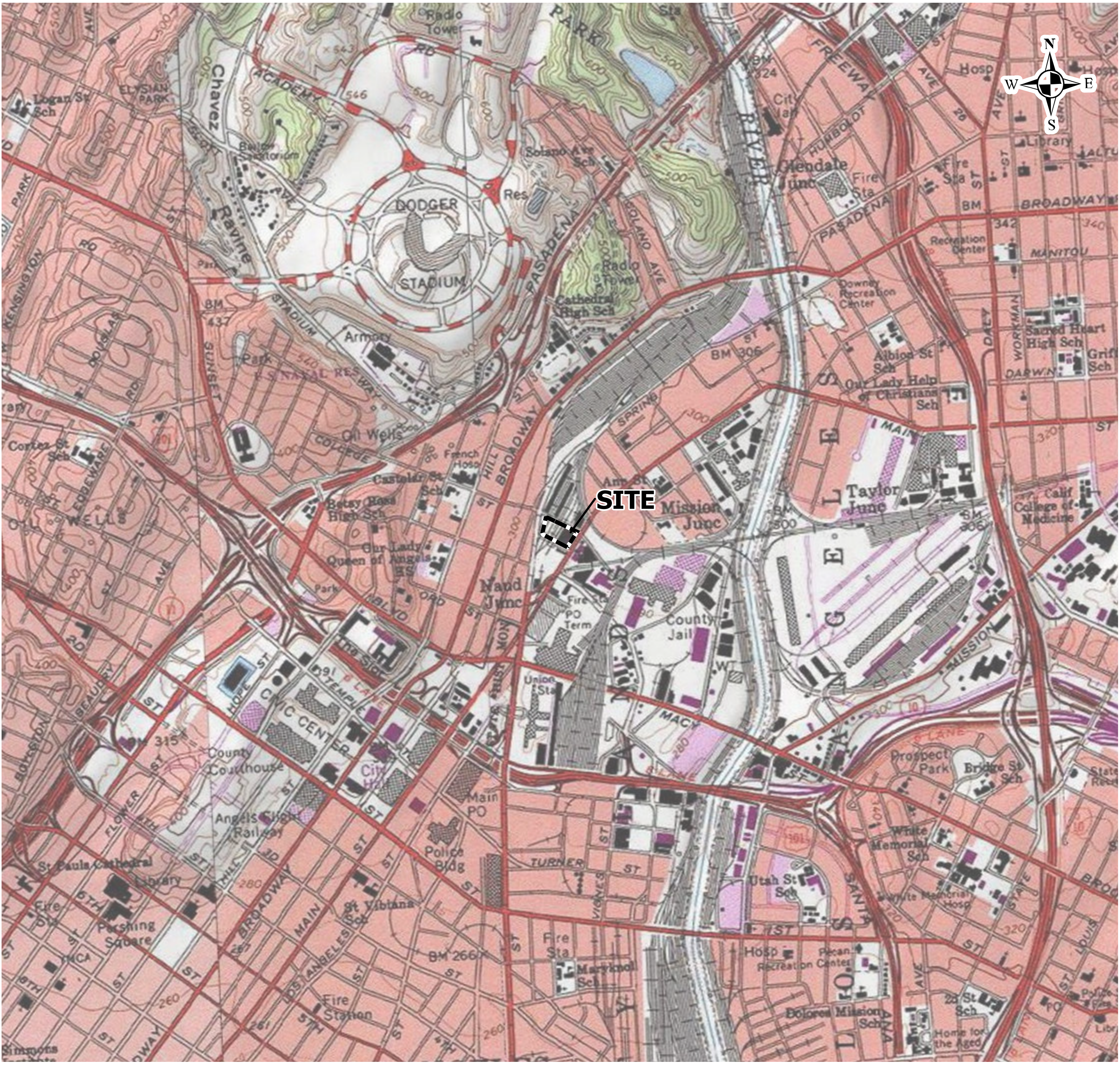

Legend

▭ Approximate site boundary

— Los Angeles County - Tsunami Inundation Runup Line

▭ Los Angeles County - Tsunami Inundation Zones

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. Tsunami Inundation Zone dataset provided in GIS format by the City of Los Angeles GeoHub.

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Figure Title

TSUNAMI INUNDATION HAZARD MAP

Project No. 721036101

Date SEPTEMBER 2022

Scale 1" =2,000 '

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Figure 7

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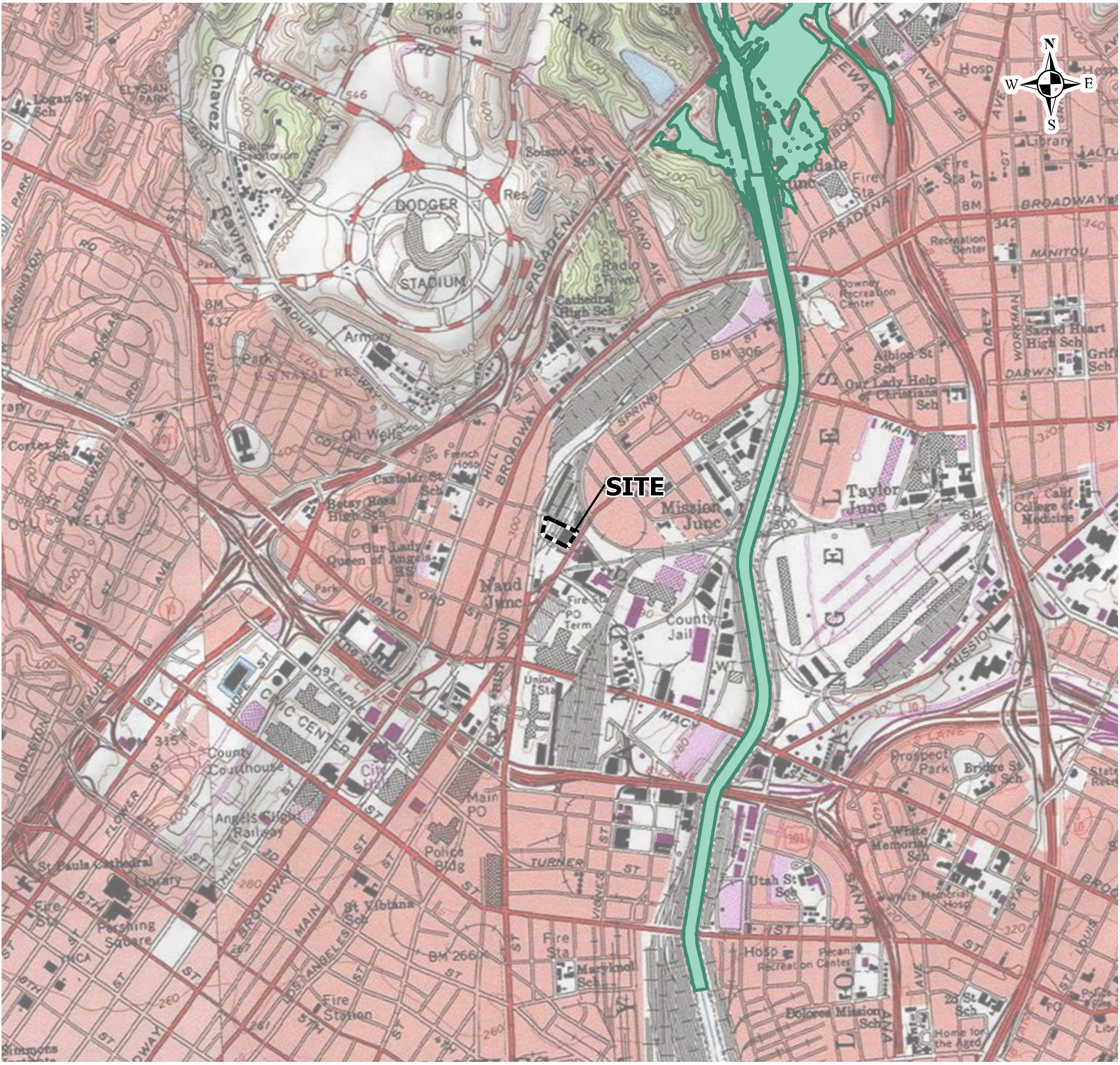

Legend

▚ Approximate site boundary

🟩 Dam Failure Inundation Boundary

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. Tsunami Inundation Zone dataset provided in GIS format by the City of Los Angeles GeoHub.

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STREET

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LOS ANGELES
COUNTY CALIFORNIA

Figure Title

DAM FAILURE
INUNDATION
HAZARD MAP

Project No.
721036101

Date
SEPTEMBER 2022

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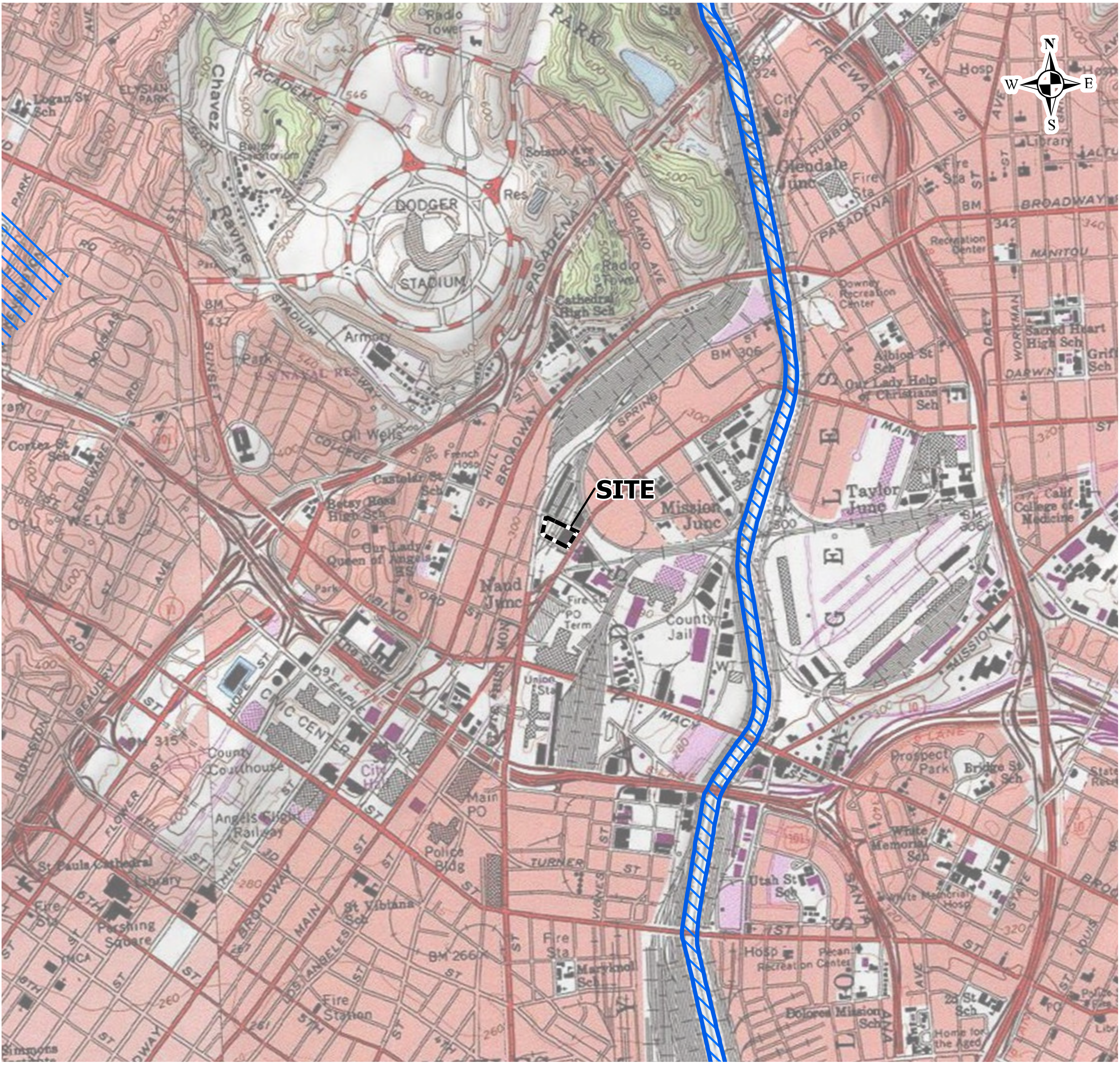

Legend

▭ Approximate site boundary

FEMA Flood Zone

▨ 100 Year Flood Zone

▨ 500 Year Flood Zone

Notes:
1. Seamless Topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online, National Geographic Society, i-cubed.
2. FEMA Flood Zone dataset provided in GIS format by the City of Los Angeles GeoHub.

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SCALE IN FEET

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Project
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Figure Title
FEMA FLOOD HAZARD MAP

Project No. 721036101
Date SEPTEMBER 2022
Scale 1" =2,000 '
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Figure
9

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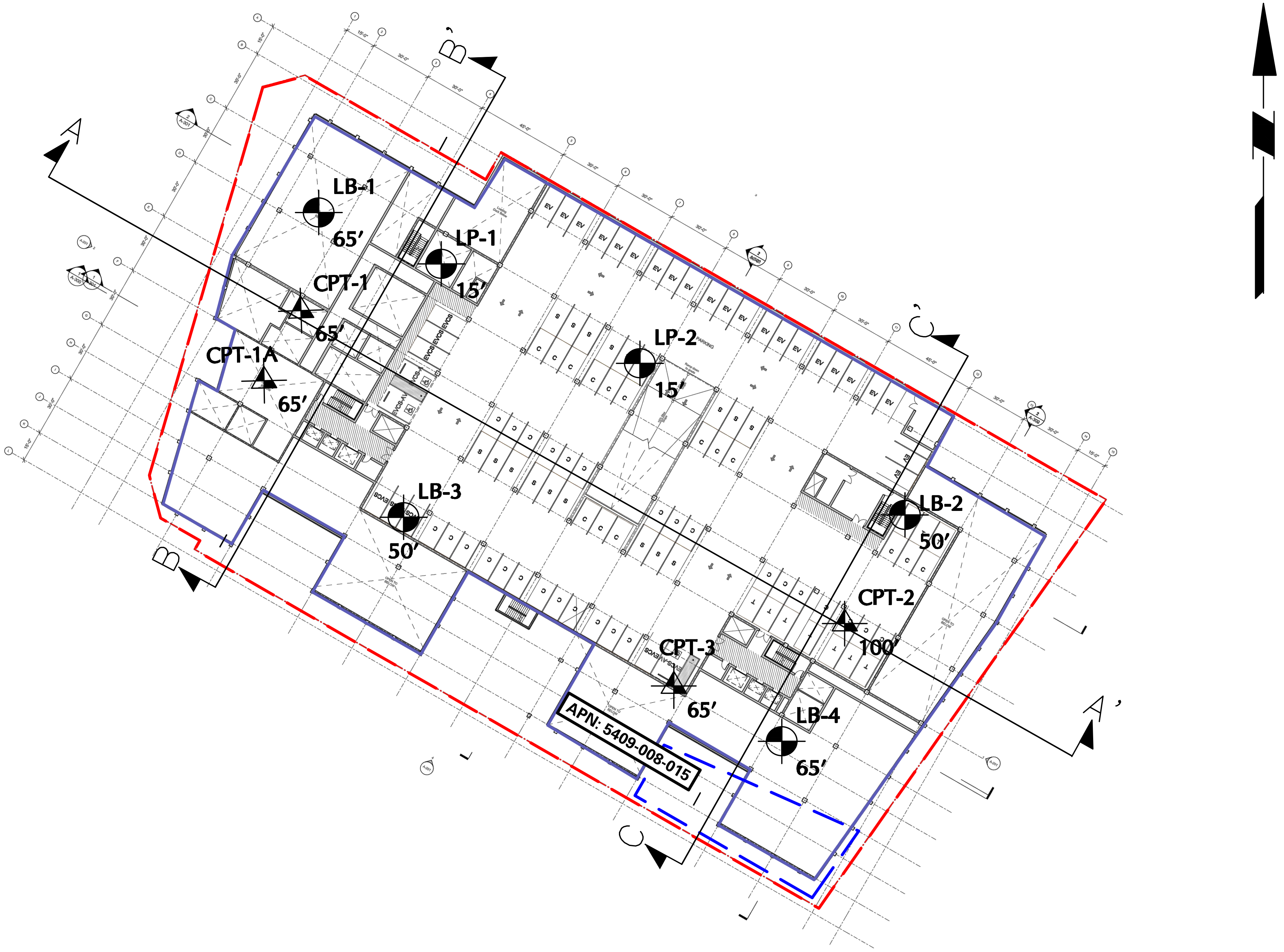

LEGEND:

🟥 — —	APPROXIMATE SITE LIMITS
🟦 — —	APPROXIMATE LIMITS OF PARCEL MAP
LB-4 ⊕ 65'	APPROXIMATE BORING LOCATIONS
LP-1 ⊕ 25'	APPROXIMATE PERCOLATION TEST LOCATIONS
CPT-1 ▲ 50'	APPROXIMATE CPT LOCATIONS
▭	APPROXIMATE PROPOSED BUILDING LIMITS
⌊⌋	APPROXIMATE LOCATION OF CROSS SECTIONS

NOTES:

1. BACKGROUND IMAGE AND BUILDING LIMITS REFERENCED FROM CONCEPT DESIGN REPORT TITLED "130 WEST COLLEGE" DRAWING A-103 SHEET TITLED "LEVEL P1" PREPARED BY GRIMSHAW DATED SEPTEMBER 2022.
2. BORING LOCATIONS ARE APPROXIMATE

60 0 30 60
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Figure Title
EXPLORATION MAP

Project No. 721036101
Date NOVEMBER 2022
Scale AS SHOWN
Drawn By KT

Figure No.
10

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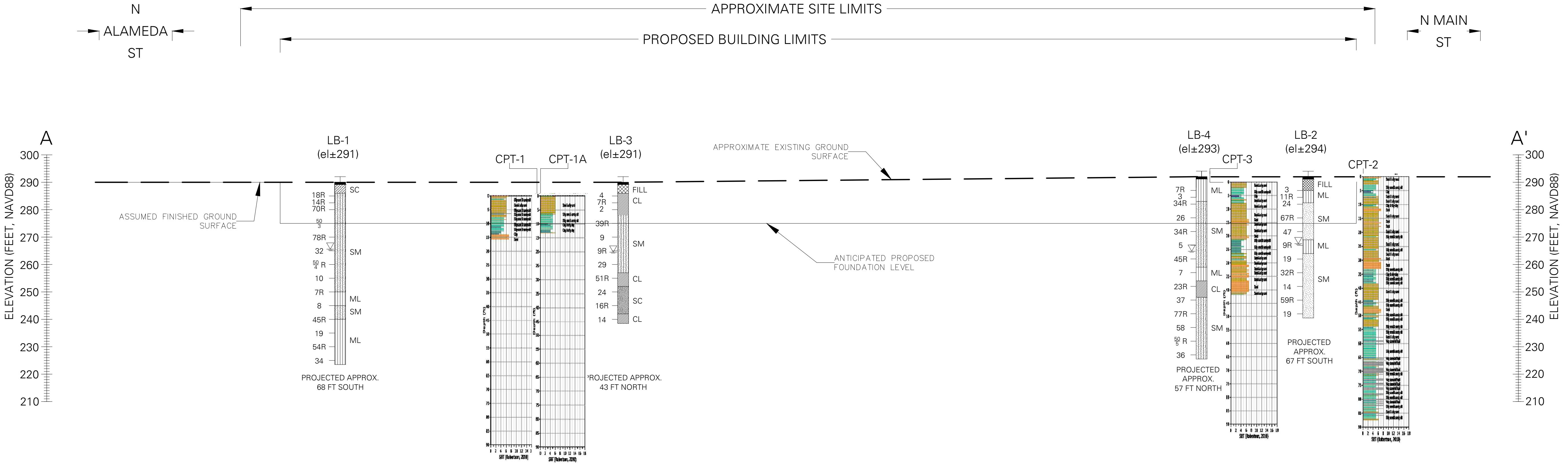
CROSS SECTION A-A'



LEGEND:

— —	EXISTING GROUND SURFACE
▬	PROPOSED FINISHED FLOOR
▩	FILL
▨	CLAY (CL)
▥	SILT (ML)
░	SAND (SP)
▥	SILTY SAND (SM)
■	ASPHALT

LB-6
el±55.9
N(R)

LB-6 el±55.9	BORING ID AND ELEVATION (FEET, NAVD 88)
N	SPT BLOWCOUNT: THE NUMBER OF BLOWS OF A 140 POUND AUTOMATIC HAMMER FREE FALLING FROM A HEIGHT OF 30 INCHES NEEDED TO DRIVE A 2-INCH OUTER DIAMETER SPLIT SPOON SAMPLER 12 INCHES AFTER AN INITIAL PENETRATION OF 6 INCHES, OR UNTIL REFUSAL IS ENCOUNTERED.
N(R)	CALIFORNIA MODIFIED SPLIT-SPOON SAMPLER BLOWCOUNT: THE NUMBER OF BLOWS A 140 POUND AUTOMATIC HAMMER FREE FALLING FROM A HEIGHT 30 INCHES NEEDED TO DRIVE A 3-INCH OUTER DIAMETER CALIFORNIA MODIFIED SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION, OR UNTIL REFUSAL IS ENCOUNTERED.

40 20 0 40
SCALE IN FEET (VERTICAL)

40 20 0 40
SCALE IN FEET (HORIZONTAL)

NOTES

1. THE FIGURE SHOWS GENERALIZED SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS IN CONDITIONS SHOULD BE EXPECTED BETWEEN BORING LOCATIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED SEE BORING LOGS.
2. LANGAN BORINGS LB-1 THROUGH LB-4 WERE DRILLED BY MARTINI DRILLING BETWEEN 15 AND 16 OCTOBER 2022 UNDER FULL-TIME ENGINEERING OBSERVATION OF A LANGAN FIELD ENGINEER.
3. SEE FIGURE 10 FOR LOCATION OF CROSS-SECTION WITH RESPECT TO SITE PLAN.
4. SITE LIMITS ARE APPROXIMATE

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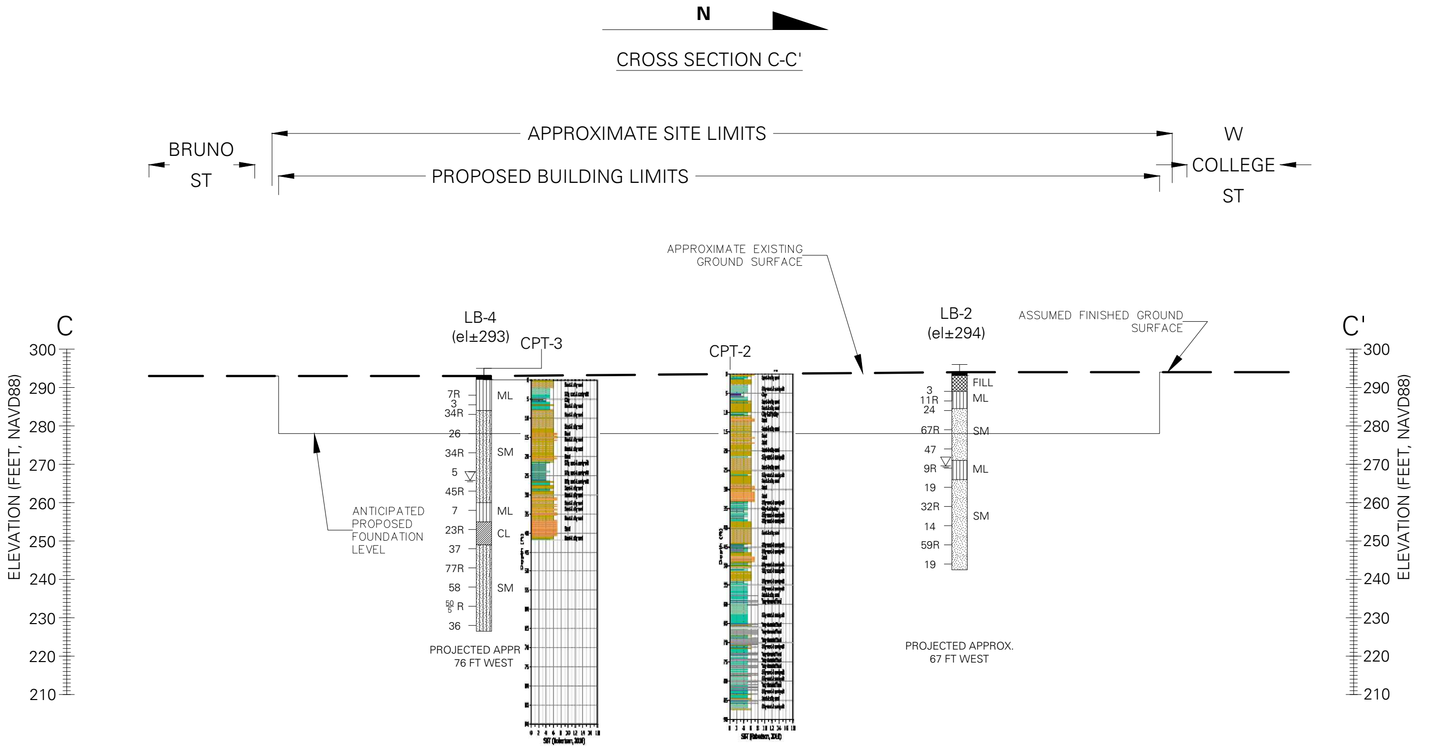
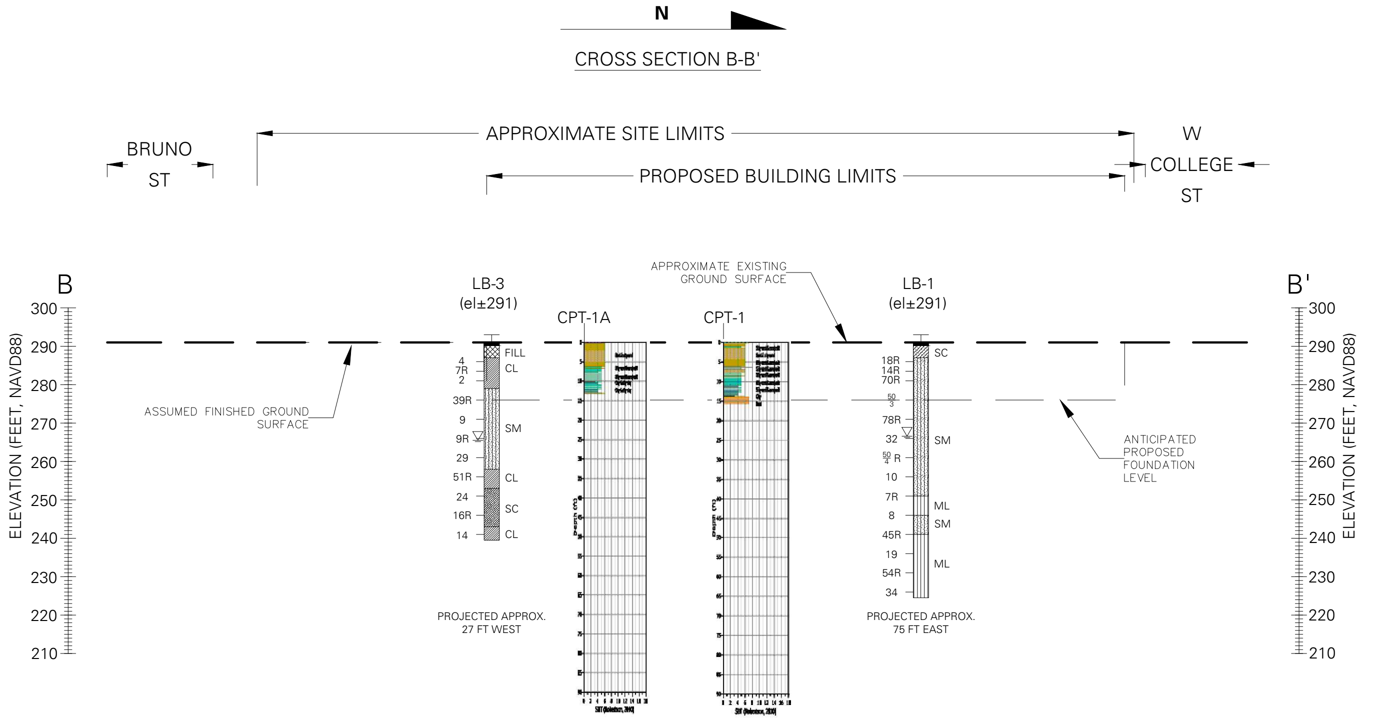
130 W COLLEGE STREET
LOS ANGELES
LOS ANGELES COUNTY CALIFORNIA

GENERALIZED SUBSURFACE CROSS-SECTION A-A'

721036101
OCTOBER 2022
1" = 40'
AC

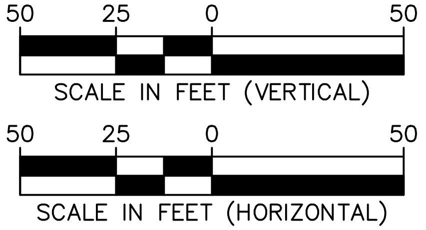
11A

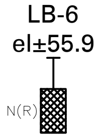




LEGEND:

— —	EXISTING GROUND SURFACE
▬	PROPOSED FINISHED FLOOR
▩	FILL
▨	CLAY (CL)
▥	SILT (ML)
░	SAND (SP)
▥	SILTY SAND (SM)
■	ASPHALT





LB-6 el±55.9	BORING ID AND ELEVATION (FEET, NAVD 88)
N	SPT BLOWCOUNT: THE NUMBER OF BLOWS OF A 140 POUND AUTOMATIC HAMMER FREE FALLING FROM A HEIGHT OF 30 INCHES NEEDED TO DRIVE A 2-INCH OUTER DIAMETER SPLIT SPOON SAMPLER 12 INCHES AFTER AN INITIAL PENETRATION OF 6 INCHES, OR UNTIL REFUSAL IS ENCOUNTERED.
N(R)	CALIFORNIA MODIFIED SPLIT-SPOON SAMPLER BLOWCOUNT: THE NUMBER OF BLOWS A 140 POUND AUTOMATIC HAMMER FREE FALLING FROM A HEIGHT 30 INCHES NEEDED TO DRIVE A 3-INCH OUTER DIAMETER CALIFORNIA MODIFIED SAMPLER 12 INCHES AFTER 6 INCHES OF INITIAL PENETRATION, OR UNTIL REFUSAL IS ENCOUNTERED.

NOTES

1. THE FIGURE SHOWS GENERALIZED SUBSURFACE CONDITIONS AT THE RESPECTIVE BORING LOCATIONS. VARIATIONS IN CONDITIONS SHOULD BE EXPECTED BETWEEN BORING LOCATIONS. FOR A DETAILED DESCRIPTION OF CONDITIONS ENCOUNTERED SEE BORING LOGS.
2. LANGAN BORINGS LB-1 THROUGH LB-4 WERE DRILLED BY MARTINI DRILLING BETWEEN 15 AND 16 OCTOBER 2022 UNDER FULL-TIME ENGINEERING OBSERVATION OF A LANGAN FIELD ENGINEER.
3. SEE FIGURE 10 FOR LOCATION OF CROSS-SECTION WITH RESPECT TO SITE PLAN.
4. SITE LIMITS ARE APPROXIMATE

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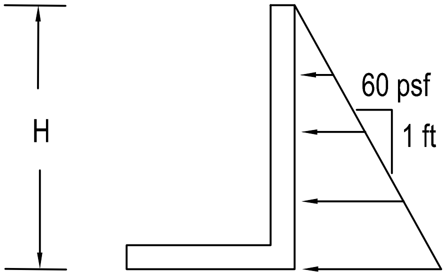
LOS ANGELES COUNTY CALIFORNIA

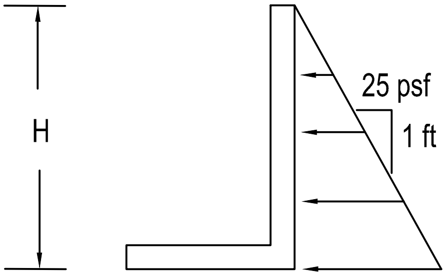
GENERALIZED SUBSURFACE CROSS-SECTION B-B' AND C-C'

721036101
OCTOBER 2022
1" = 60'
AC

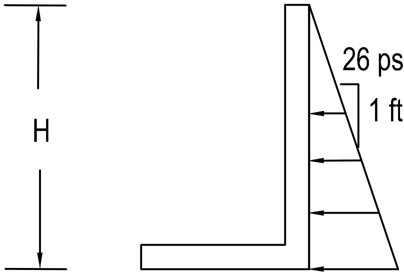
11B



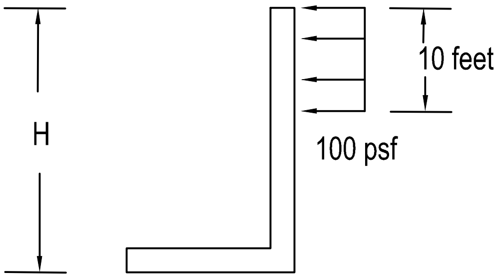
At-Rest Earth Pressure (Po)



Active Earth Pressure (Po)



Seismic Earth Pressure Increment (ΔP_{ae})



Minimum Surcharge (q_s)

Symbols:
H = Height of Wall (feet)
psf=pounds per square foot
P_o = At-Rest Earth Pressure (Restrained Walls)
ΔP_{ae} = Earth Pressure Increment
qs = surcharge

Notes:

1. Seismic Earth Pressure Increment should be added to the Active Earth Pressure and any applicable surcharges.
2. Minimum surcharge shown is based on a fire truck or car parked 10 feet beyond the wall. If higher surcharge loads are anticipated (e.g., adjacent buildings, heavy construction equipment, etc.), the surcharge loading should be evaluated on a case by case basis.
3. Seismic Earth pressure is determined in accordance with city of Los Angeles Department of Building and Safety Information Bulletin P/BC 2020-083.

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Project

130 W COLLEGE STREET

LOS ANGELES

LOS ANGELES COUNTY CALIFORNIA

Figure Title

DESIGN EARTH PRESSURES FOR BASEMENT WALLS

Project No.
721036101

Date
OCTOBER 2022

Scale
NOT TO SCALE

Drawn By
JMG

Figure No.
12

Filename: \\langan.com\data\LAX\data1\721036101\Project Data\CAD\01\2D-DesignFiles\721036101 Design Earth Pressures.dwg Date: 11/16/2022 Time: 15:21 User: djudge Style Table: ---- Layout: Figure 16 - Design Earth Pressure For New Basement Walls

APPENDIX A
Earthquake Catalog Search Result

TABLE A.1 - USGS ANSS COMPREHENSIVE CATALOG SEARCH RESULTS

Date	Latitude	Longitude	Approximate Magnitude	Magnitude Type	Approximate Distance from Site (km)
3/29/2014	33.9325	-117.9158	5.10	mw	33
7/29/2008	33.9485	-117.7663	5.44	mw	45
4/26/1997	34.3690	-118.6700	5.07	ml	53
6/26/1995	34.3940	-118.6690	5.02	ml	54
3/20/1994	34.2310	-118.4750	5.24	ml	29
1/29/1994	34.3060	-118.5790	5.06	ml	42
1/19/1994	34.3780	-118.6190	5.07	ml	50
1/19/1994	34.3790	-118.7120	5.06	ml	56
1/18/1994	34.3770	-118.6980	5.24	ml	55
1/17/1994	34.3260	-118.6980	5.58	ml	52
1/17/1994	34.3400	-118.6140	5.20	ml	47
1/17/1994	34.2750	-118.4930	5.89	ml	33
1/17/1994	34.2130	-118.5370	6.70	mw	32
6/28/1991	34.2700	-117.9930	5.80	mw	32
2/28/1990	34.1440	-117.6970	5.51	ml	50
12/3/1988	34.1510	-118.1300	5.02	ml	14
10/4/1987	34.0740	-118.0980	5.25	ml	13
10/1/1987	34.0610	-118.0790	5.90	mw	14
9/4/1981	33.5575	-119.1195	5.45	ml	99
1/1/1979	33.9165	-118.6872	5.21	ml	45
2/21/1973	33.9790	-119.0502	5.30	mw	76
2/9/1971	34.4160	-118.3700	5.30	mh	41
2/9/1971	34.4160	-118.3700	5.80	mh	41
2/9/1971	34.4160	-118.3700	5.80	mh	41
2/9/1971	34.4160	-118.3700	6.60	mw	41
9/12/1970	34.2548	-117.5343	5.22	ml	68
11/14/1941	33.7907	-118.2637	5.12	ml	30
5/31/1938	33.6993	-117.5112	5.23	ml	78
3/11/1933	33.8500	-118.2660	5.00	ml	24
3/11/1933	33.6238	-118.0012	5.29	mh	53
3/11/1933	33.7667	-117.9850	5.02	mh	40
3/11/1933	33.6308	-117.9995	6.40	mw	53
8/31/1930	34.0300	-118.6430	5.25	ms	38
4/18/1928	34.1000	-119.3000	5.20	uk	98
8/4/1927	34.0000	-118.5000	5.30	uk	25
7/23/1923	34.0890	-117.2590	6.21	mw	90
3/10/1922	34.2090	-119.1430	6.53	mw	85
10/23/1916	34.7000	-119.0000	5.50	ml	100
5/15/1910	33.7000	-117.4000	5.30	mw	87
5/13/1910	33.7000	-117.4000	5.00	ml	87
4/11/1910	33.7000	-117.4000	5.00	ml	87

Notes:

1. The listed Earthquake Catalog Search results obtained from USGS ANSS Comprehensive Catalog on 03 November 2022.
2. Earthquake Catalog search results include earthquake events within 100 km of the Site with magnitudes of 5.0 or greater since 1900.

APPENDIX B
Langan Boring Logs

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Log of Boring **LB-1** Sheet 1 of 2

Project Creative Workplace Development		Project No. 721036103	
Location 130 West College Street		Elevation and Datum 291.8	
Drilling Company Martini Drilling		Date Started 10/15/2022	Date Finished 10/15/2022
Drilling Equipment CME 75		Completion Depth 66.5 ft	Rock Depth ---
Size and Type of Bit 6in O.D. Hollow Stem Auger		Number of Samples: Disturbed 14; Undisturbed ---; Core ---	
Casing Diameter (in) ---	Casing Depth (ft) ---	Water Level (ft.): First ▽ 24.4; Completion ▼ ---; 24 HR. ▼ ---	
Casing Hammer ---	Weight (lbs) ---; Drop (in) ---	Drilling Foreman Jeff Frazer	
Sampler 2-inch O.D. split spoon; 3-inch O.D Cal Mod; Bulk			
Sampler Hammer Automatic	Weight (lbs) 140; Drop (in) 30	Field Engineer Khoa Tran	

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+291.8	Asphalt 4 inches and Aggregate Base 6 inches.	0						
+291.0	Dark brown, clayey SAND, trace fine gravel, (SC), moist.	2						
+287.8		4						
	Medium dense, brown, fine to medium coarse silty SAND, trace fine gravel, (SM), moist.	6	S-1	CR	10	8 9 9	18	
	Medium dense, yellow-brown, fine to coarse SAND, trace silt, fine to corase gravel, (SM), moist.	8	S-2	CR	10	11 9 5	14	
	Very dense, white-brown, fine to coarse SAND, some silt, fine to coarse gravel, (SM), moist.	10	S-3	CR	10	11 31 39	70	
		12						
		14						
	Very dense, yellow-brown, fine to coarse SAND, some silt, trace fine gravel, (SM), moist.	16	S-4	SPT	9	22 50/3	50/3	
		18						
	Top: very dense, yellow-brown, fine to coarse SAND, some silt, trace fine gravel, (SM), moist. Bottom: very dense, dark bluish-gray, fine to coarse SAND, some silt, fine to coarse gravel, (SM), moist.	20	S-5	CR	18	18 37 41	78	
		22						
		▽ 24						
	Dense, gray, fine to coarse SAND, some silt, (SM), wet.	26	S-6	SPT	18	7 15 17	32	
		28						
	Dense, gray, fine to coarse SAND, some silt, (SM), wet.	30	S-7	CR	10	42 50/4	50/4	
		32						
		34						
		35						

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Log of Boring **LB-1** Sheet 2 of 2

Project	Project No.
Creative Workplace Development	721036103

Location	Elevation and Datum
130 West College Street	291.8

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+256.8	Stiff, dark gray, lean silty SAND, trace fine silt, trace clay, low plasticity, (SM), wet.	35 36 38	S-8	SPT	18	3 4 6	10	
	+251.8	Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, strong odor, (ML), wet.	40 42 44	S-9	CR	10	2 3 4	7	
	+246.8	Stiff, dark gray, lean silty SAND, some silt, trace clay, low plasticity, strong odor, (SM), wet.	46 48	S-10	SPT	17	1 3 5	8	
	+241.8	Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	50 52 54	S-11	CR	18	9 18 27	45	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	56 58	S-12	SPT	18	3 7 12	19	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	60 62 64	S-13	CR	18	7 17 37	54	
		Stiff, dark gray, lean SILT, some fine sand, trace clay, low plasticity, (ML), wet.	66	S-14	SPT	18	6 14 20	34	
	+225.3	End boring at 66.5 feet. Groundwater encountered at 24.5 feet. Boring backfilled with grout.	68 70 72 74 76 78						

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Log of Boring **LB-2** Sheet 1 of 2

Project: Creative Workplace Development
Project No.: 721036103
Location: 130 West College Street
Elevation and Datum: 294
Drilling Company: Martini Drilling
Date Started: 10/04/2022
Date Finished: 10/05/2021
Drilling Equipment: CME 75
Completion Depth: 51.5 ft
Rock Depth: ---
Size and Type of Bit: 6in O.D. Hollow Stem Auger
Number of Samples: Disturbed 11 Undisturbed --- Core ---
Casing Diameter (in): ---
Casing Depth (ft): ---
Water Level (ft.): First ▽ 27 Completion ▼ --- 24 HR. ▼ ---
Casing Hammer: --- Weight (lbs): --- Drop (in): ---
Drilling Foreman: Jeff Frazer
Sampler: 2-inch O.D. split spoon; 3-inch O.D Cal Mod
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30
Field Engineer: Khoa Tran

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+294.0	Asphalt 4 inches and Aggregate Base 6 inches.	0						
	+293.2	Dark brown, silty fine to medium SAND, some gravel, (SM), brikes and asphalt debris, moist. [FILL]	2 4						
	+288.9	Soft, brown, fine to medium sandy SILT, (ML), moist.	6	S-1	SPT	18	1 1 2	3	
		Stiff, brown, fine to medium sandy SILT, (ML), moist.	8	S-2	CR	10	5 5 6	11	
	+284.5	Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	10 12 14	S-3	SPT	10	8 9 15	24	
		Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	16 18	S-4	CR	10	16 31 36	67	
		Whitish-brown, fine to coarse SAND, trace silt, some fine to coarse gravel, (SM), moist.	20 22	S-5	SPT	12	24 29 18	47	
	+271.0	Stiff, gray, SILT, some fine sand, low plasticity, (ML), wet. ▽	24 26	S-6	CR	16	4 4 5	9	
	+266.0		28 30						

Project Creative Workplace Development	Project No. 721036103
Location 130 West College Street	Elevation and Datum 294

Elev. (ft)	Sample Description	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+264.0	Dense, Bluish-gray, silty fine to medium SAND, trace fine gravel, (SM), wet.	30	S-7	SPT	18	11 11 8	19	
		32						
		34						
	Dense, Bluish-gray, silty fine to medium SAND, trace fine gravel, (SM), wet.	36	S-8	CR	10	10 19 13	32	
		38						
	Stiff, bluish-gray, silty SAND, trace fine silt, low plasticity, (SM), wet.	40	S-9	SPT	18	2 6 8	14	
		42						
		44						
	Very dense, bluish-gray, fine to coarse sand, trace silt, (SM), strong odor, wet.	46	S-10	CR	18	5 19 40	59	
		48						
	Very dense, bluish-gray, fine to coarse sand, trace silt, (SM), strong odor, wet.	50	S-11	SPT	15	4 7 12	19	
+242.5	End boring at 51.5 feet. Groundwater encountered at 27 feet. Boring backfilled with grout.	52						
		54						
		56						
		58						
		60						
		62						
		64						
		66						
		67.5						

LANGAN Log of Boring **LB-3** Sheet 1 of 2

Project: Creative Workplace Development		Project No.: 721036103	
Location: 130 West College Street		Elevation and Datum: 290.6	
Drilling Company: Martini Drilling		Date Started: 10/07/2022	Date Finished: 10/07/2022
Drilling Equipment: CME 75		Completion Depth: 51.5 ft	Rock Depth: ---
Size and Type of Bit: 6in O.D. Hollow Stem Auger		Number of Samples: Disturbed 12; Undisturbed ---; Core ---	
Casing Diameter (in): ---	Casing Depth (ft): ---	Water Level (ft.): First ▽ 25.5; Completion ▼ ---; 24 HR. ▽ ---	
Casing Hammer: --- Weight (lbs): ---	Drop (in): ---	Drilling Foreman: Jeff Frazer	
Sampler: 2-inch O.D. split spoon; 3-inch O.D Cal Mod		Field Engineer: Khoa Tran	
Sampler Hammer: Automatic Weight (lbs): 140	Drop (in): 30		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+290.6	Asphalt 5 inches and Aggregate Base 5 inches.	0						
	+289.8	Dark brown, fine to coarse clayey SAND, (SC), moist. [FILL]	2						
	+286.6		4						
		Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	6	S-1	SPT	18	1 2 2	4	
		Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	8	S-2	CR	10	2 3 4	7	
		Soft, orangish-brown, fine to medium sandy CLAY, (CL), moist.	10	S-3	SPT	17	1 1	2	
	+278.6		12						
		Dense, grayish-brown, fine to coarse SAND, some silt, trace fine to coarse gravel, (SP), moist.	14	S-4	CR	10	12 18 21	39	
		Stiff, gray, sandy SILT, (SM), low plasticity, moist.	16	S-5	CR	10	3 3 6	9	
			18						
		Medium dense, gray-brown, fine to coarse silty SAND, trace fine to coarse gravel, (SM), moist.	20	S-6	SPT	18	12 15 14	29	
			22						
			24						
		Very dense, bluish-gray, silty fine SAND, (SM), wet. ▽	26	S-7	CR	16	11 22 29	51	
			28						
			30						

\\LANGAN.COM\DATA\LAX\DATA1\721036101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\721036101_LB1-4.GPJ ... 10/28/2022 2:18:34 PM ... Report: Log - LANGAN

LANGAN

Log of Boring **LB-3** Sheet 2 of 2

Project	Project No.
Creative Workplace Development	721036103
Location	**Elevation and Datum**
130 West College Street	290.6

Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+260.6	Very dense, bluish-gray, silty fine SAND, (SM), wet.	30	S-8	SPT	18	3 7 17	24	
+257.6	Very stiff, bluish gray, CLAY, trace fine sand, (CL), wet.	36	S-9	CR	18	3 7 9	16	
+252.6	Medium dense, bluish-gray, clayey SAND, trace fine gravel, high plasticity clay, (SC), wet.	40	S-10	SPT	18	1 3 11	14	
	Dense, bluish-gray, clayey fine to coarse SAND, some fine to coarse gravel, high plasticity clay, (SC), wet.	46	S-11	CR	18	9 22 26	48	
+242.6	Very stiff, bluish-gray, fine sandy CLAY, low plasticity, trace fine gracel, (CL), wet.	50	S-12	SPT	18	4 12 15	27	
+239.1	End boring at 51.5 feet. Groundwater encountered at Boring backfilled with grout.	52						

Depth Scale: 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 67.5

\\LANGAN.COM\DATA\LAX\DATA1\721036101\PROJECT DATA_DISCIPLINE\GEOTECHNICAL\GINTLOGS\721036101_LB1-4.GPJ ... 10/28/2022 2:18:34 PM ... Report: Log - LANGAN

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Log of Boring **LB-4** Sheet 1 of 2

Project: Creative Workplace Development
Project No.: 721036103
Location: 130 West College Street
Elevation and Datum: 292.8
Drilling Company: Martini Drilling
Date Started: 10/07/2022
Date Finished: 10/07/2022
Drilling Equipment: CME 75
Completion Depth: 66.5 ft
Rock Depth: ---
Size and Type of Bit: 6in O.D. Hollow Stem Auger
Number of Samples: Disturbed 14 Undisturbed --- Core ---
Casing Diameter (in): ---
Casing Depth (ft): ---
Water Level (ft.): First ▽ 27.2 Completion ▼ --- 24 HR. ▼ ---
Casing Hammer: --- Weight (lbs): --- Drop (in): ---
Drilling Foreman: Jeff Frazer
Sampler: 2-inch O.D. split spoon; 3-inch O.D Cal Mod; Bulk
Field Engineer: Khoa Tran
Sampler Hammer: Automatic Weight (lbs): 140 Drop (in): 30

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+292.8		0						
+292.0	Asphalt 5 inches and Aggregate Base 5 inches.							
	Redish-brown, fine to medium sandy SILT, (ML), moist.	2						Bulk sample from 0 - 5 feet.
		4						
	Medium stiff, brown, fine to medium sandy SILT, (ML), moist.	6	S-1	CR	10	3 3 4	7	
	Soft, brown, fine to medium sandy SILT, (ML), moist.	8	S-2	SPT	18	1 1 2	3	
+283.8	Dense, whitish-brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, trace fine to coarse gravel, (SM), moist.	10	S-3	CR	18	3 12 22	34	
		12						
		14						
	Medium dense, light brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, (SM), wet.	16	S-4	SPT	16	3 12 14	26	
		18						
	Dense, light brown, fine to coarse SAND, trace fine to coarse gravel, trace silt, (SM), wet.	20	S-5	CR	18	7 13 21	34	
		22						
		24						
	Medium stiff, greyish-brown, silty SAND, fine silt, (SM), moist. ▽	26	S-6	SPT	18	1 2 3	5	
+264.8		28						
	Medium stiff, greyish-brown, sandy SILT, fine sand, (ML), wet.	30	S-7	CR	16	3 5 40	45	
		32						
+259.8		34						
		35						

LANGAN

Log of Boring **LB-4** Sheet 2 of 2

Project	Project No.
Creative Workplace Development	721036103
Location	**Elevation and Datum**
130 West College Street	292.8

Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
+257.8	Medium stiff, bluish-gray, silty SAND, trace fine silt, (SM), wet.	35 36	S-8	SPT	17	2 3 4	7	
+254.8	Very stiff, bluish-gray, CLAY, trace fine sand, high plasticity, (CL), strong odor, wet.	38 40 42	S-9	CR	16	6 10 13	23	
+248.8	Dense, bluish-gray, fine to coarse SAND, some silt, trace fine gravel, (SM), strong odor, wet.	44 46 48	S-10	SPT	10	5 16 21	37	
	Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	50 52 54	S-11	CR	10	19 34 43	77	
	Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	56 58	S-12	SPT	16	13 30 28	58	
	Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	60 62 64	S-13	CR	11	4 50/5	50/5	
	Very dense, bluish-gray, silty fine to coarse SAND, trace fine gravel, (SM), strong odor, wet.	66	S-14	SPT	18	23 18 18	36	
+226.3	End boring at 66.5 feet. Groundwater encountered at 27 feet. Boring backfilled with grout.	68 70 72 74 76 78						

APPENDIX C
Infiltration Results

PERCOLATION TEST DATA SHEET

Project:	LP-1	Project No.:	721036101	Date:	10/15/2022
Test Hole No.:	130 W College Street	Tested By:	JMG		
Depth of Test Hole (ft):	20	USCS Soil Classification:		SP	
PVC Pipe Dimension:	2-in I.D. x 15 ft long with 5 ft screen	Test Hole Diameter (in):		8	

Trial No.	Date	Time of Measurement	Initial Depth to Water (ft)	Time of Measurement	Final Depth to Water (ft)	Volume of Water Infiltrated (cu.in.)	Surface Area (sq.in.)	Time Interval (min)	Percolation Rate (in/hr)
Pre-Soak	10/15/2022	12:50 PM	6.50	1:00 PM	11.60	3076	4122	30	--
Pre-Soak	10/15/2022	1:01 PM	7.30	1:11 PM	12.80	3318	3880	30	--
#1 (Refill)	10/15/2022	1:15 PM	5.10	1:20 PM	8.20	1870	4544	10	2.47
#2 (Refill)	10/15/2022	1:23 PM	6.05	1:28 PM	9.30	1960	4257	10	2.76
#3 (Refill)	10/15/2022	1:28 PM	6.10	1:33 PM	9.10	1810	4242	10	2.56
#4 (Refill)	10/15/2022	1:34 PM	6.20	1:39 PM	9.50	1991	4212	10	2.84
#5 (Refill)	10/15/2022	1:40 PM	6.10	1:45 PM	9.30	1930	4242	10	2.73
#6 (Refill)	10/15/2022	1:47 PM	6.00	1:52 PM	8.95	1779	4273	10	2.50
#7 (Refill)	10/15/2022	1:54 PM	6.30	1:59 PM	9.10	1689	4182	10	2.42
#8 (Refill)	10/15/2022	2:01 PM	6.00	2:06 PM	8.85	1719	4273	10	2.41

Comments:	1. Percolation test was performed in accordance with the Boring Percolation Test Procedure provided in the "Guidelines for Design, Investigation, and Reporting - Low Impact Development Stormwater Infiltration," prepared by County of Los Angeles Department of Public Works, dated 30 June 2021. 2. Weather: Sunny and warm. 3. Updated per remarks as shown on C.U.P No. 201000144	Average Stabilized Rate	2.45

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PERCOLATION TEST DATA SHEET

Project:	LP-1	Project No.:	721036101	Date:	10/15/2022
Test Hole No.:	130 W College Street	Tested By:	JMG		
Depth of Test Hole (ft):	20	USCS Soil Classification:		SP	
PVC Pipe Dimension:	2-in I.D. x 15 ft long with 5 ft screen	Test Hole Diameter (in):		8	

Trial No.	Date	Time of Measurement	Initial Depth to Water (ft)	Time of Measurement	Final Depth to Water (ft)	Volume of Water Infiltrated (cu.in.)	Surface Area (sq.in.)	Time Interval (min)	Percolation Rate (in/hr)
Pre-Soak	10/15/2022	11:18 AM	9.00	11:28 PM	14.00	3016	3368	30	--
#1 (Refill)	10/15/2022	11:48 AM	12.50	11:53 PM	14.00	905	2312	10	2.35
#2 (Refill)	10/15/2022	11:55 AM	6.00	12:00 PM	9.00	1810	4273	10	2.54
#3 (Refill)	10/15/2022	12:03 PM	6.30	12:08 PM	9.30	1810	4182	10	2.60
#4 (Refill)	10/15/2022	12:10 PM	6.00	12:15 PM	9.20	1930	4273	10	2.71
#5 (Refill)	10/15/2022	12:17 PM	5.80	11:22 PM	8.90	1870	4333	10	2.59
#6 (Refill)	10/15/2022	12:25 PM	6.50	12:30 PM	9.60	1870	4122	10	2.72
#7 (Refill)	10/15/2022	12:32 PM	6.00	12:37 PM	9.20	1930	4273	10	2.71
#8 (Refill)	10/15/2022	12:39 AM	6.15	12:44 PM	9.40	1960	4227	10	2.78

Comments:	1. Percolation test was performed in accordance with the Boring Percolation Test Procedure provided in the "Guidelines for Design, Investigation, and Reporting - Low Impact Development Stormwater Infiltration," prepared by County of Los Angeles Department of Public Works, dated 30 June 2021. 2. Weather: Sunny and warm. 3. Updated per remarks as shown on C.U.P No. 201000144	Average Stabilized Rate	2.74

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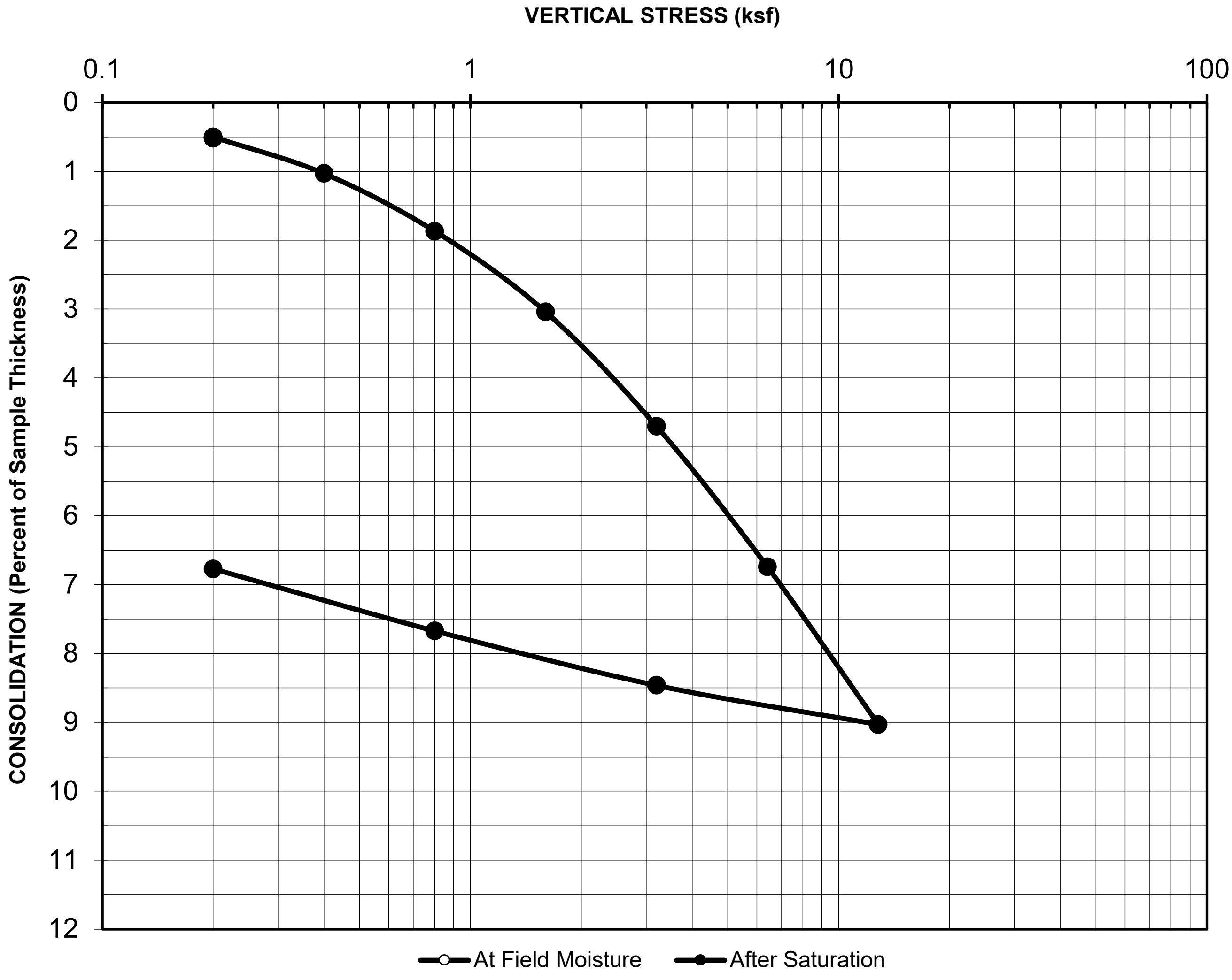
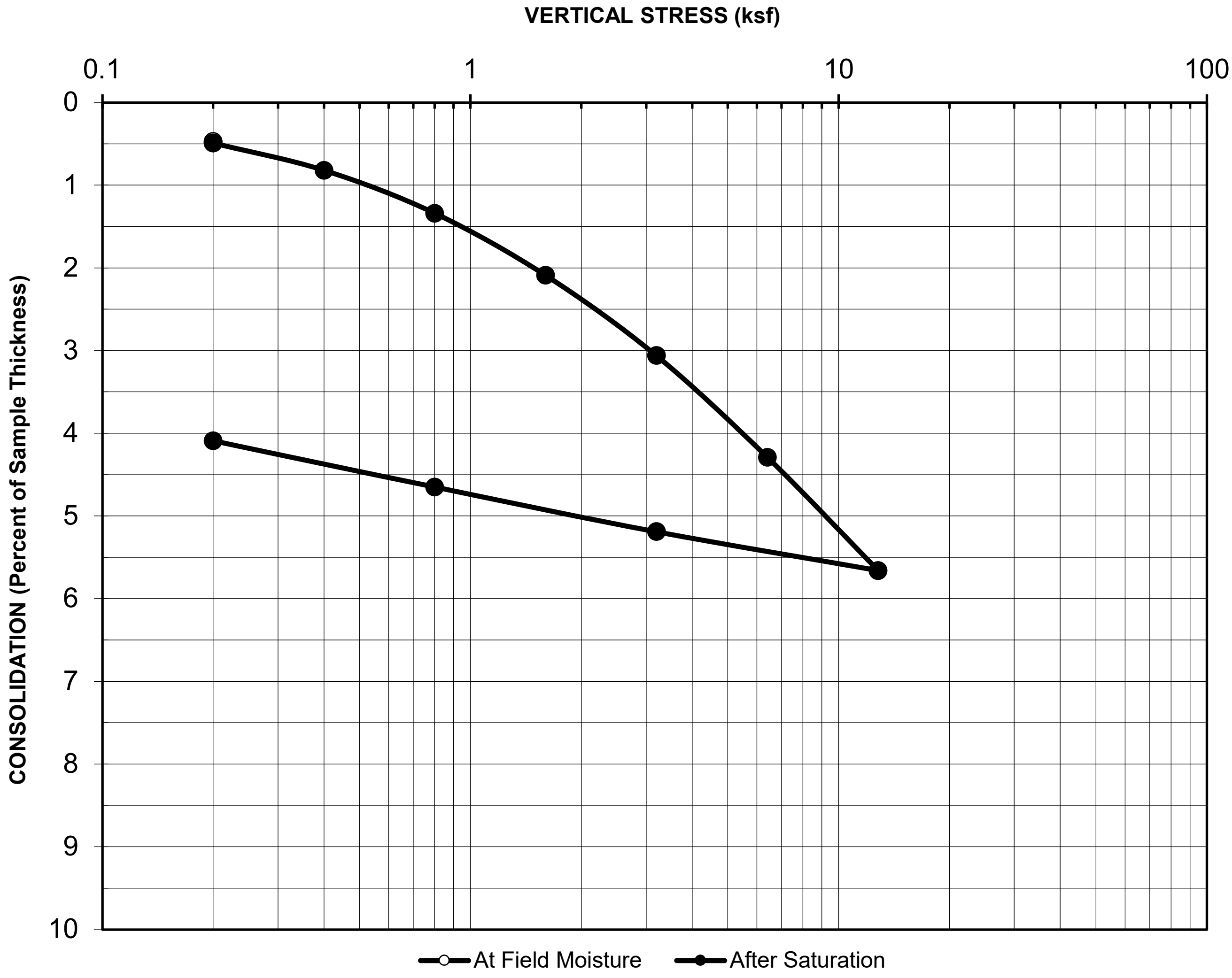
APPENDIX D
Laboratory Test Results



Boring No. :	LB-1	Initial Dry Unit Weight (pcf):	94.6
Sample No.:	S-9	Initial Moisture Content (%):	26.1
Depth (feet):	40	Final Moisture Content (%):	27.5
Sample Type:	Mod Cal	Assumed Specific Gravity:	2.7
Soil Description:	Sandy Clay	Initial Void Ratio:	0.78
Remarks:	Swell= 0.02% upon inundation		

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street
Project No.: 721036101
Date: 10/20/2022
AP No: 22-1039 **Sheet No:** 1



Boring No. : LB-2

Sample No.: S-6

Depth (feet): 25

Sample Type: Mod Cal

Soil Description: Silty Sand

Remarks: Collapse= 0.02% upon inundation

Initial Dry Unit Weight (pcf): 100.6

Initial Moisture Content (%): 24.6

Final Moisture Content (%): 24.7

Assumed Specific Gravity: 2.7

Initial Void Ratio: 0.67

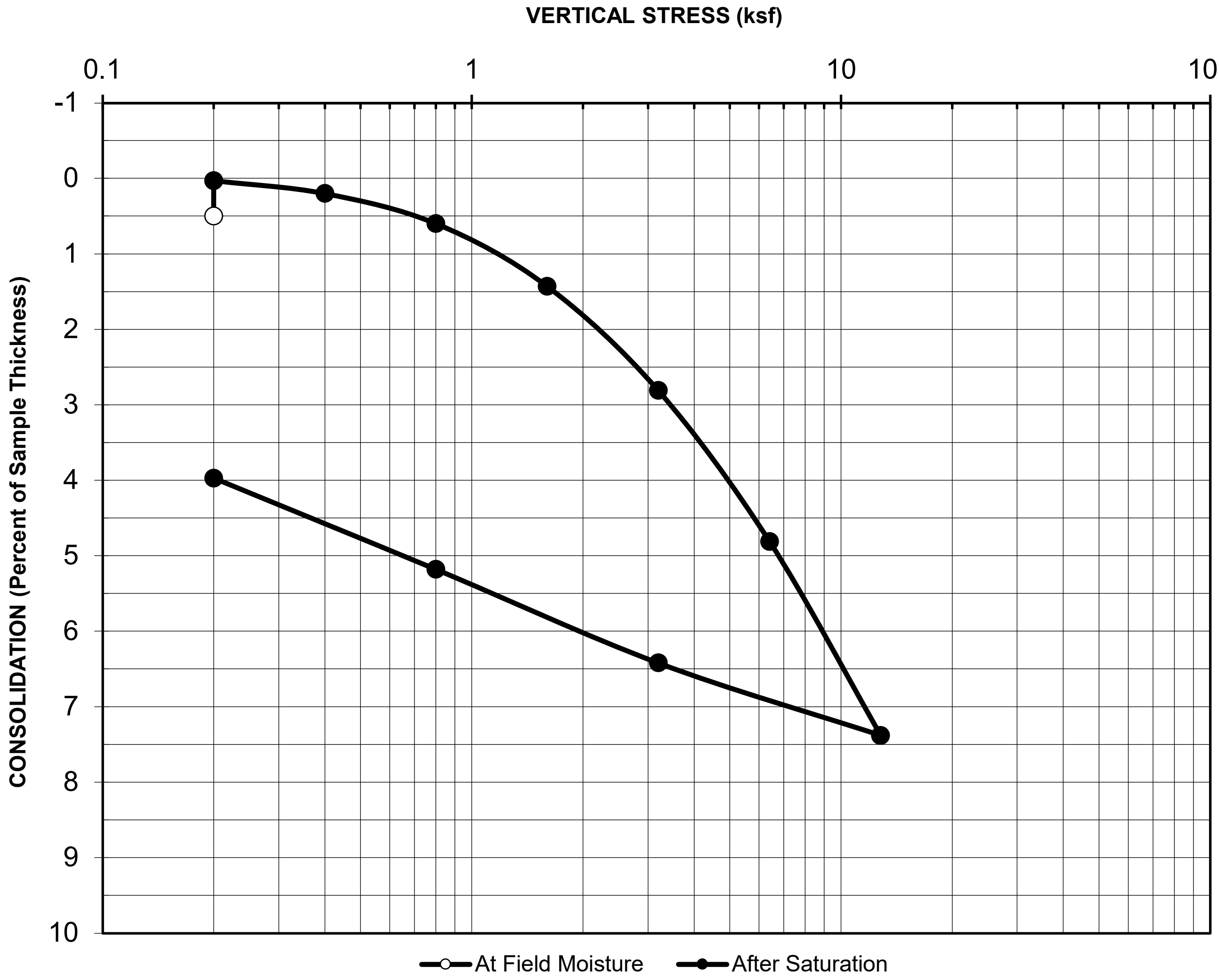
CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street

Project No.: 721036101

Date: 10/20/2022

AP No: 22-1039 **Sheet No:** 1



Boring No. : LB-3

Sample No.: S-9

Depth (feet): 35

Sample Type: Mod Cal

Soil Description: Clay w/sand

Remarks: Swell= 0.47% upon inundation

Initial Dry Unit Weight (pcf): 90.8

Initial Moisture Content (%): 30.0

Final Moisture Content (%): 31.8

Assumed Specific Gravity: 2.7

Initial Void Ratio: 0.86

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street

Project No.: 721036101

Date: 10/20/2022

AP No: 22-1039 **Sheet No:** 1

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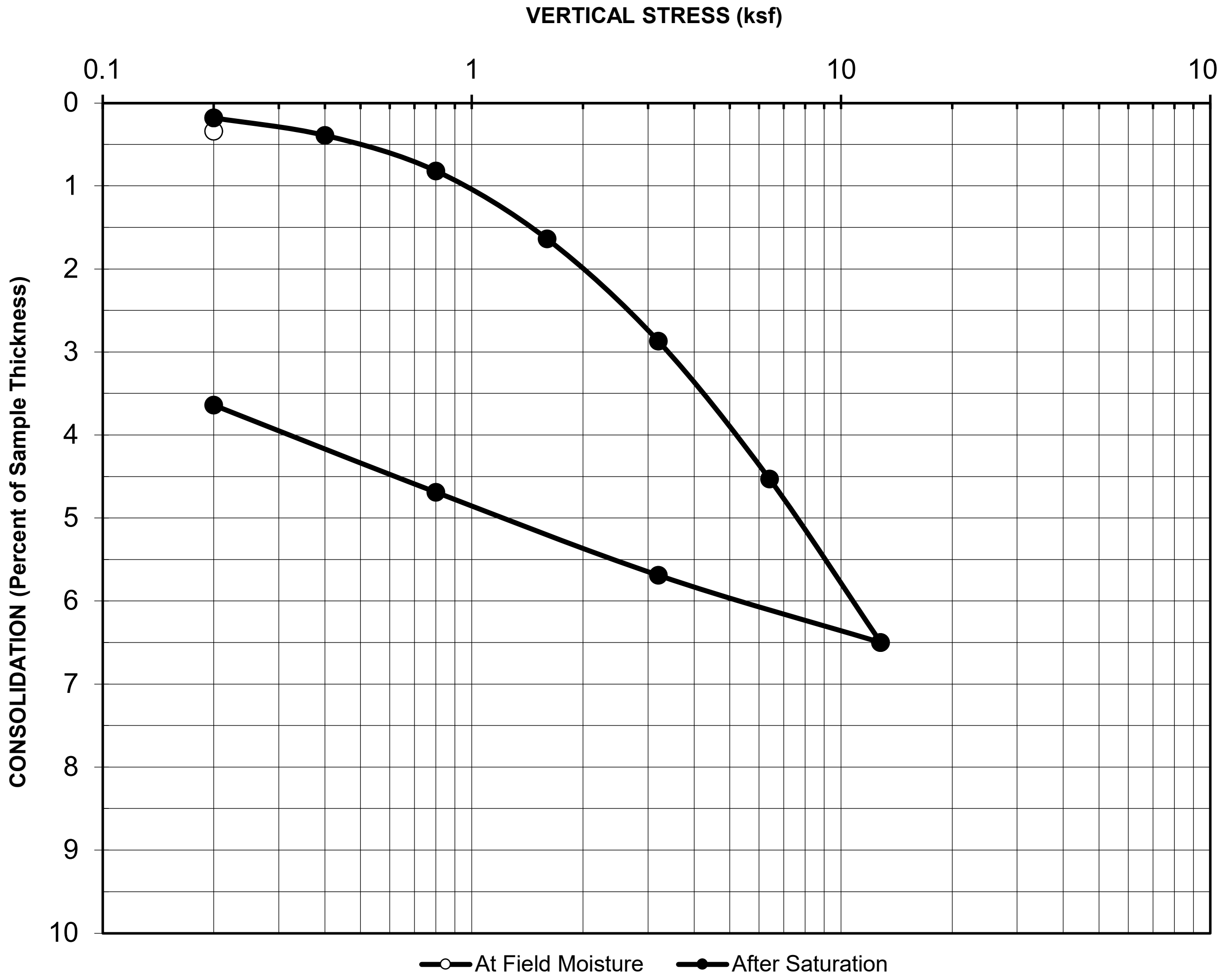

Boring No. : LB-4

Sample No.: S-9

Depth (feet): 40

Sample Type: Mod Cal

Soil Description: Sandy Clay

Remarks: Swell= 0.16% upon inundation

Initial Dry Unit Weight (pcf): 94.5

Initial Moisture Content (%): 29.7

Final Moisture Content (%): 29.6

Assumed Specific Gravity: 2.7

Initial Void Ratio: 0.78

CONSOLIDATION CURVE
ASTM D 2435

Project Name: 130 W College Street

Project No.: 721036101

Date: 10/20/2022

AP No: 22-1039 **Sheet No:** 1

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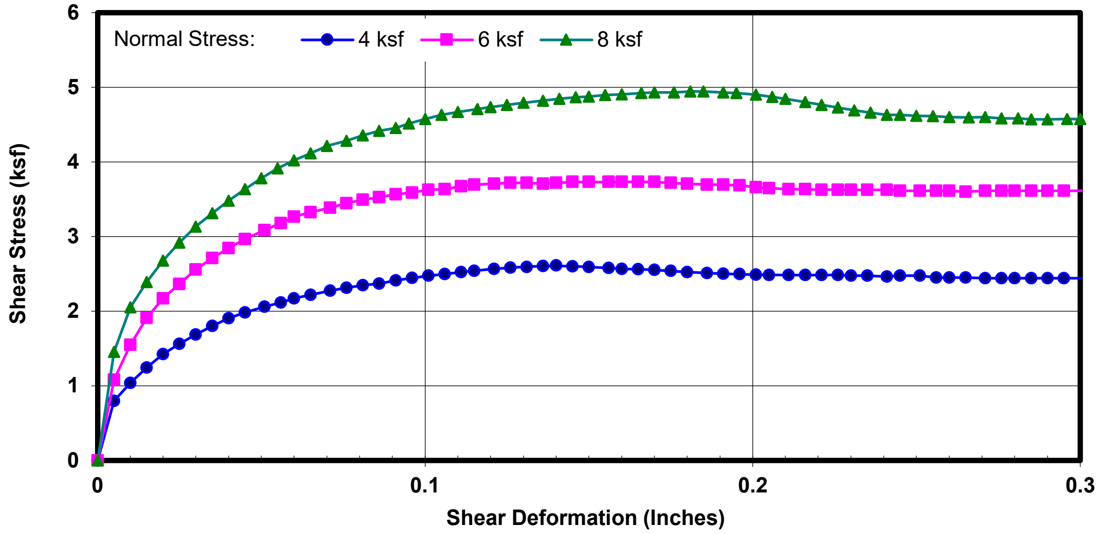
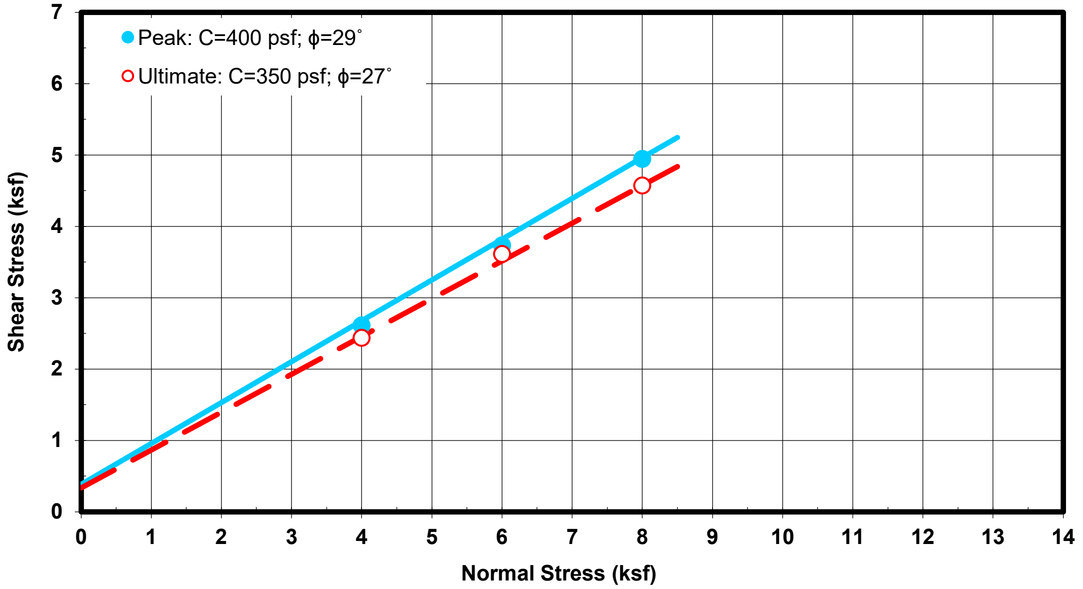
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-3
Sample No.: S-9 **Depth (ft):** 35
Sample Type: Mod. Cal.
Soil Description: Clay w/sand
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/24/22
Computed By: NR **Date:** 10/25/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.0	89.2	30.0	33.0	91	100	4	2.611	2.440
						6	3.732	3.612
						8	4.944	4.572





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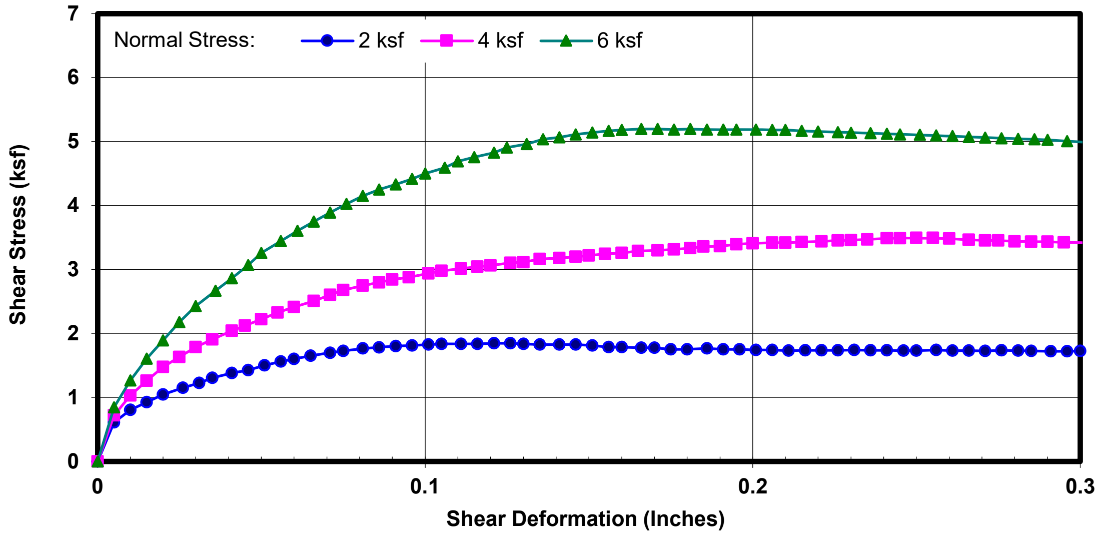
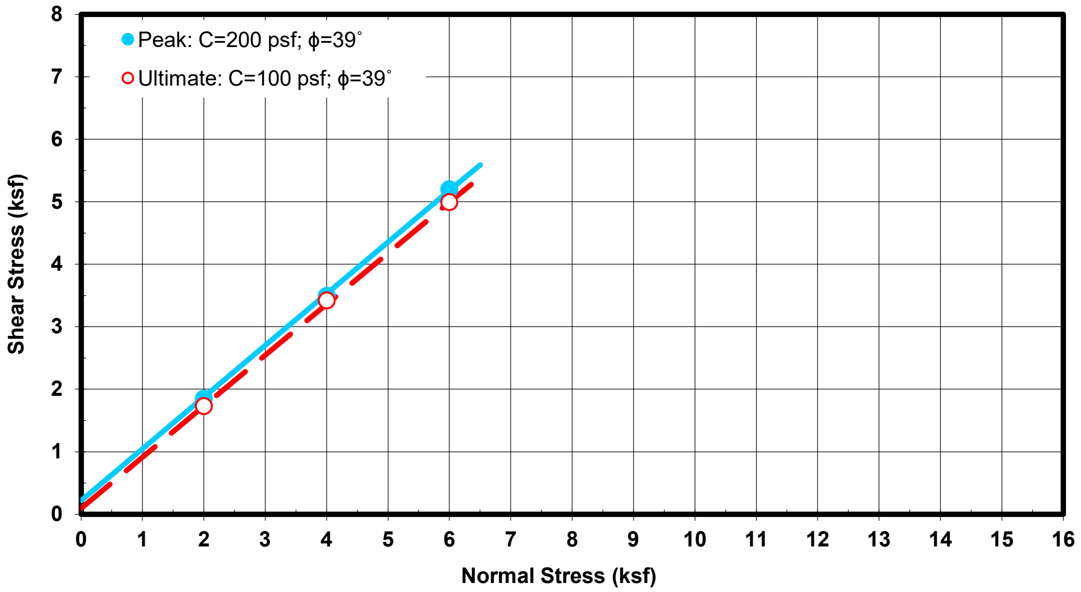
DIRECT SHEAR TEST RESULTS
ASTM D 3080

Project Name: 130 W College Street
Project No.: 721036101
Boring No.: LB-1
Sample No.: S-5 **Depth (ft):** 20
Sample Type: Mod. Cal.
Soil Description: Silty Sand w/gravel
Test Condition: Inundated **Shear Type:** Regular

Tested By: ST **Date:** 10/21/22
Computed By: NR **Date:** 10/24/22
Checked by: AP **Date:** 10/26/22

Wet Unit Weight (pcf)	Dry Unit Weight (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Initial Degree Saturation (%)	Final Degree Saturation (%)	Normal Stress (ksf)	Peak Shear Stress (ksf)	Ultimate Shear Stress (ksf)
116.5	111.7	4.3	16.8	23	89	2	1.848	1.728
						4	3.492	3.420
						6	5.198	4.993





CORROSION TEST RESULTS

Client Name: Langan Engineering
Project Name: 130 W College Street
Project No.: 721036101
AP Job No.: 22-1039
Date: 10/25/22

Boring No.	Sample No.	Depth (feet)	Soil Description	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
LB-1	B-1	0-5	Clayey Sand	1,169	7.8	687	287

NOTES:
Resistivity Test and pH: California Test Method 643
Sulfate Content : California Test Method 417
Chloride Content : California Test Method 422
ND = Not Detectable
NA = Not Sufficient Sample
NR = Not Requested

EXPANSION INDEX TEST RESULTS

ASTM D 4829

Client Name: Langan Engineering
Project Name: 130 W College Street
Project No.: 721036101

AP Job No.: 22-1039
Date: 10/24/22

Boring No.	Sample No.	Depth (ft)	Soil Description	Molded Dry Density (pcf)	Molded Moisture Content (%)	Init. Degree Saturation (%)	Measured Expansion Index	Corrected Expansion Index
LB-1	B-1	0-5	Clayey Sand	116.1	8.0	48.0	16	15

ASTM EXPANSION CLASSIFICATION

Expansion Index	Classification
0-20	V. Low
21-50	Low
51-90	Medium
91-130	High
>130	V. High

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PERCENT PASSING NO. 200 SIEVE

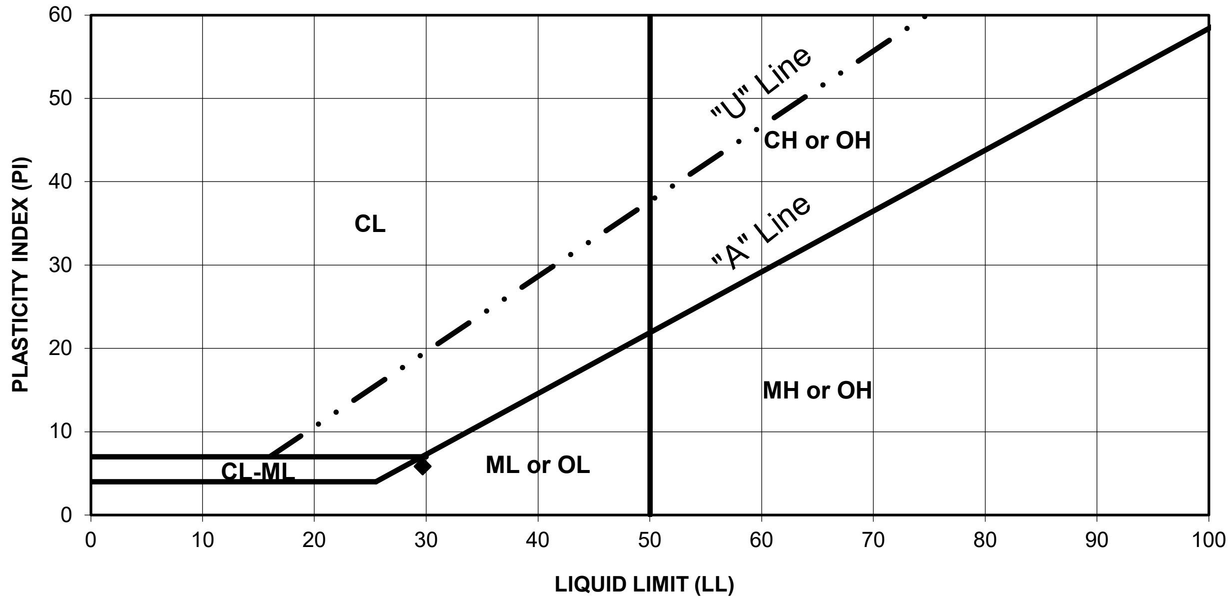
ASTM D1140

Client:	Langan Engineering	AP Lab No.:	22-1039
Project Name:	130 W College Street	Test Date:	10/21/22
Project Number:	721036101		

Boring No.	Sample No.	Depth (ft)	Percent Fines (%)
LB-1	S-8	35	75.0
LB-1	S-10	45	76.9
LB-2	S-9	40	74.1
LB-3	S-5	15	50.8
LB-3	S-6	20	5.9
LB-4	S-6	25	47.7
LB-4	S-8	35	97.5

ATTERBERG LIMITS
ASTM D 4318

Client Name: Langan Engineering — Tested By: DK — Date: 10/24/22
Project Name: 130 W College Street — Computed By: NR — Date: 10/25/22
Project No.: 721036101 — Checked By: AP — Date: 10/26/22



PROCEDURE USED

☐ Wet Preparation

☒ Dry Preparation

☒ Procedure A
Multipoint Test

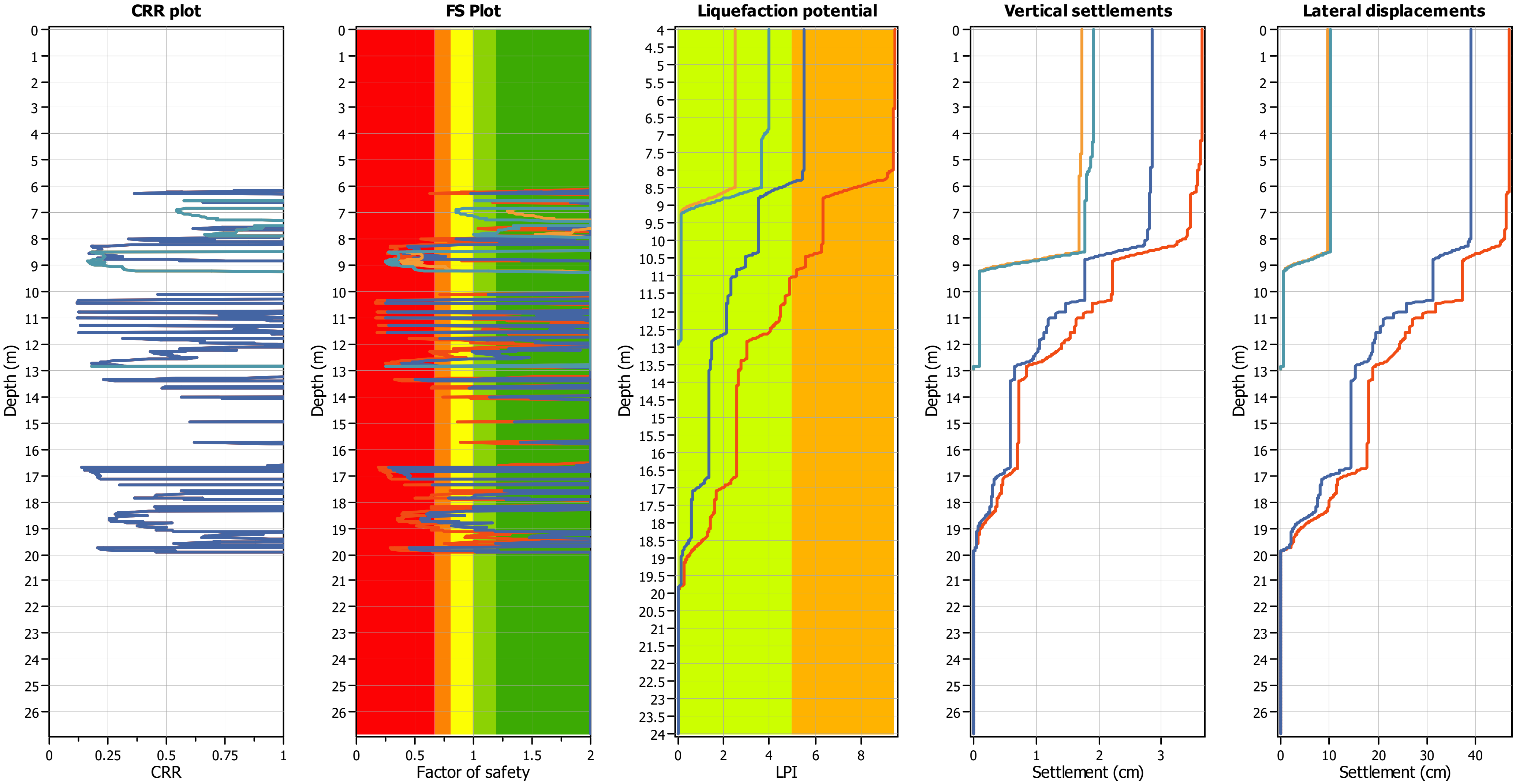
☐ Procedure B
One-point Test

Symbol	Boring Number	Sample Number	Depth (feet)	LL	PL	PI	Plasticity Chart Symbol
♦	LB-1	S-8	35	30	24	6	ML

APPENDIX E
Liquefaction Results Output

Project: Creative Workplace Development

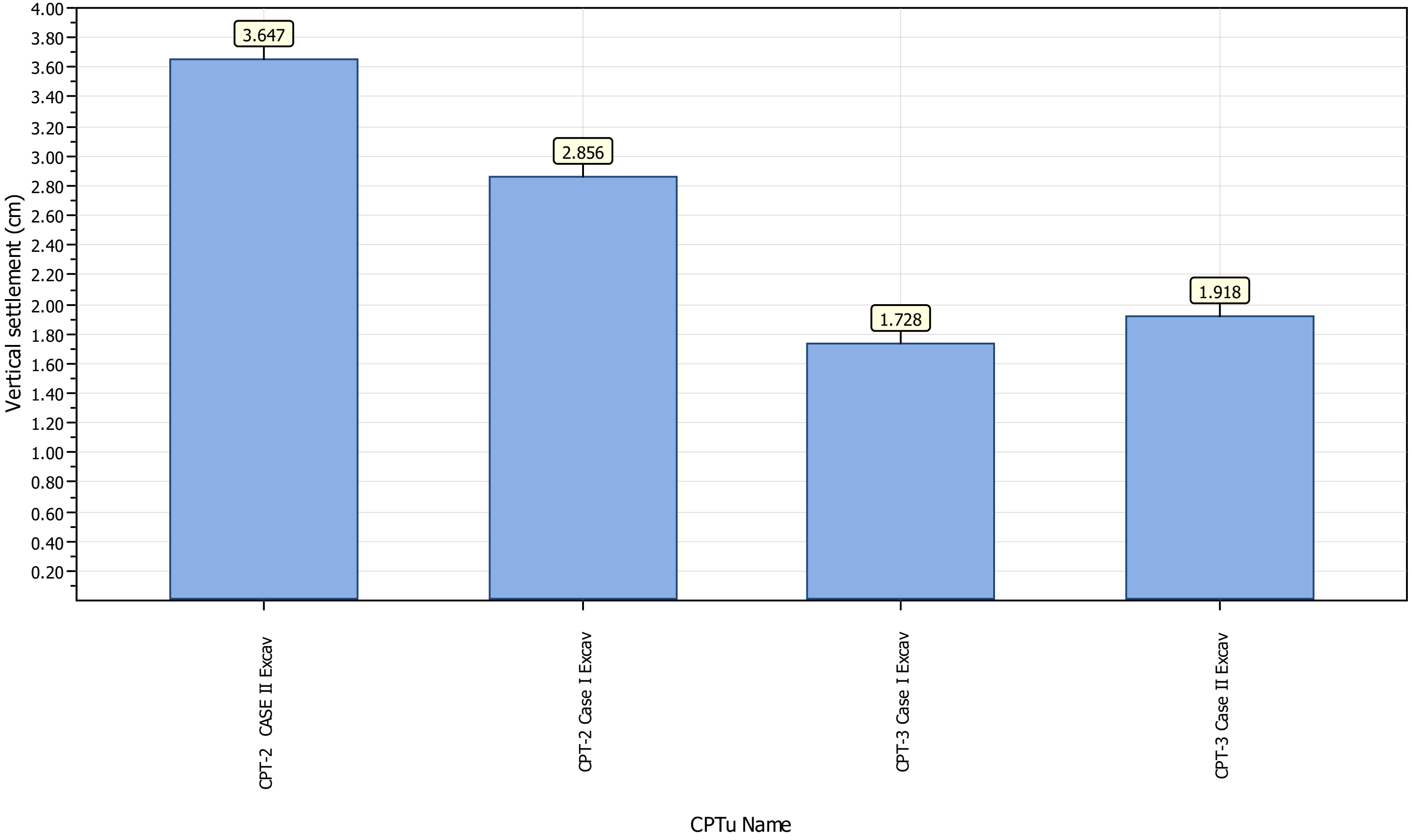
Overlay Cyclic Liquefaction Plots



Project title : Creative Workplace Development

Location : 130 W College Street

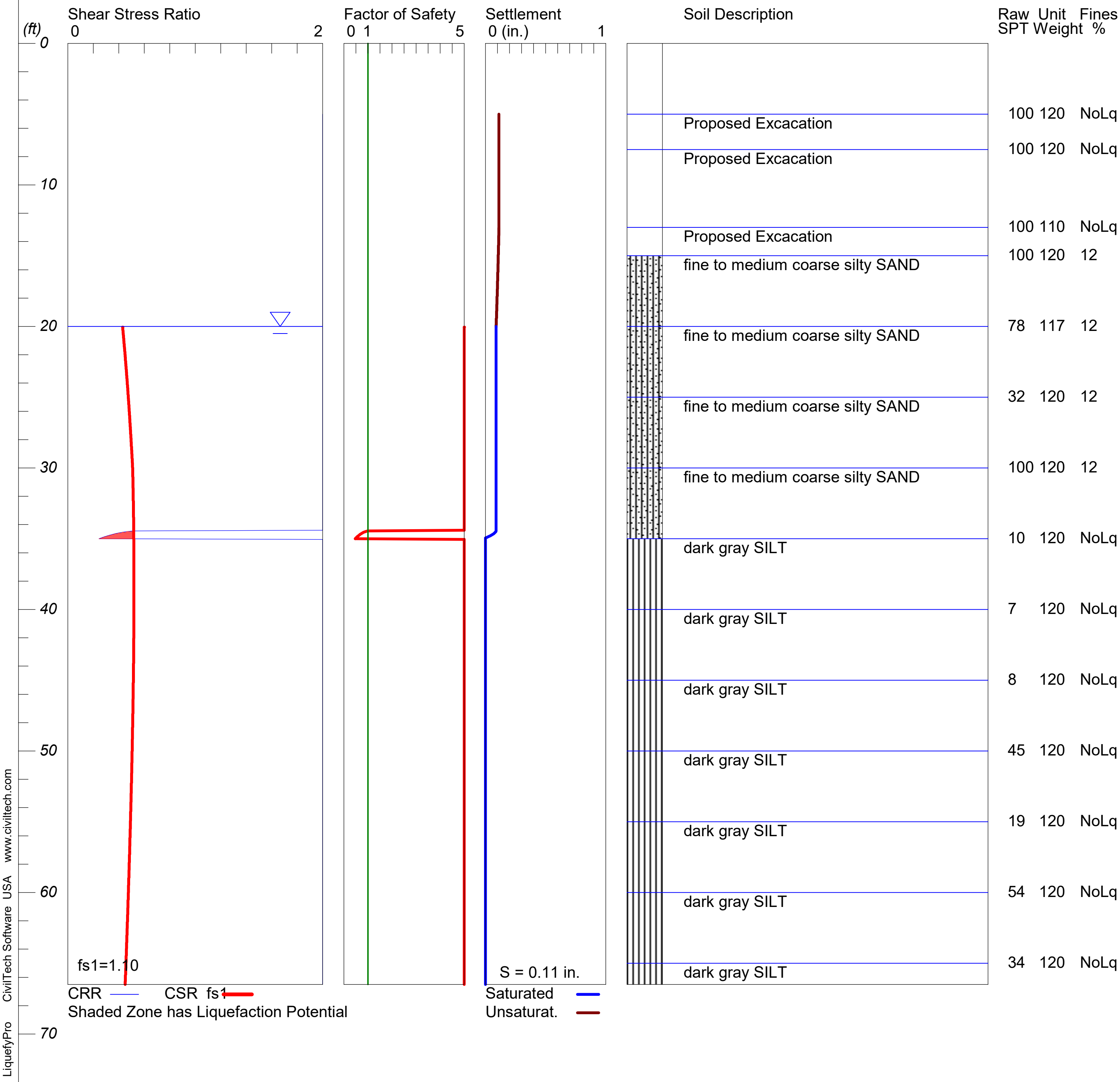
Overall vertical settlements report



LIQUEFACTION ANALYSIS

130 West College Street

Hole No.=LB-1 Case I - E ***Water Depth=20 ft*** ***Surface Elev.=290.7*** ***Magnitude=6.74***
Acceleration=0.631g

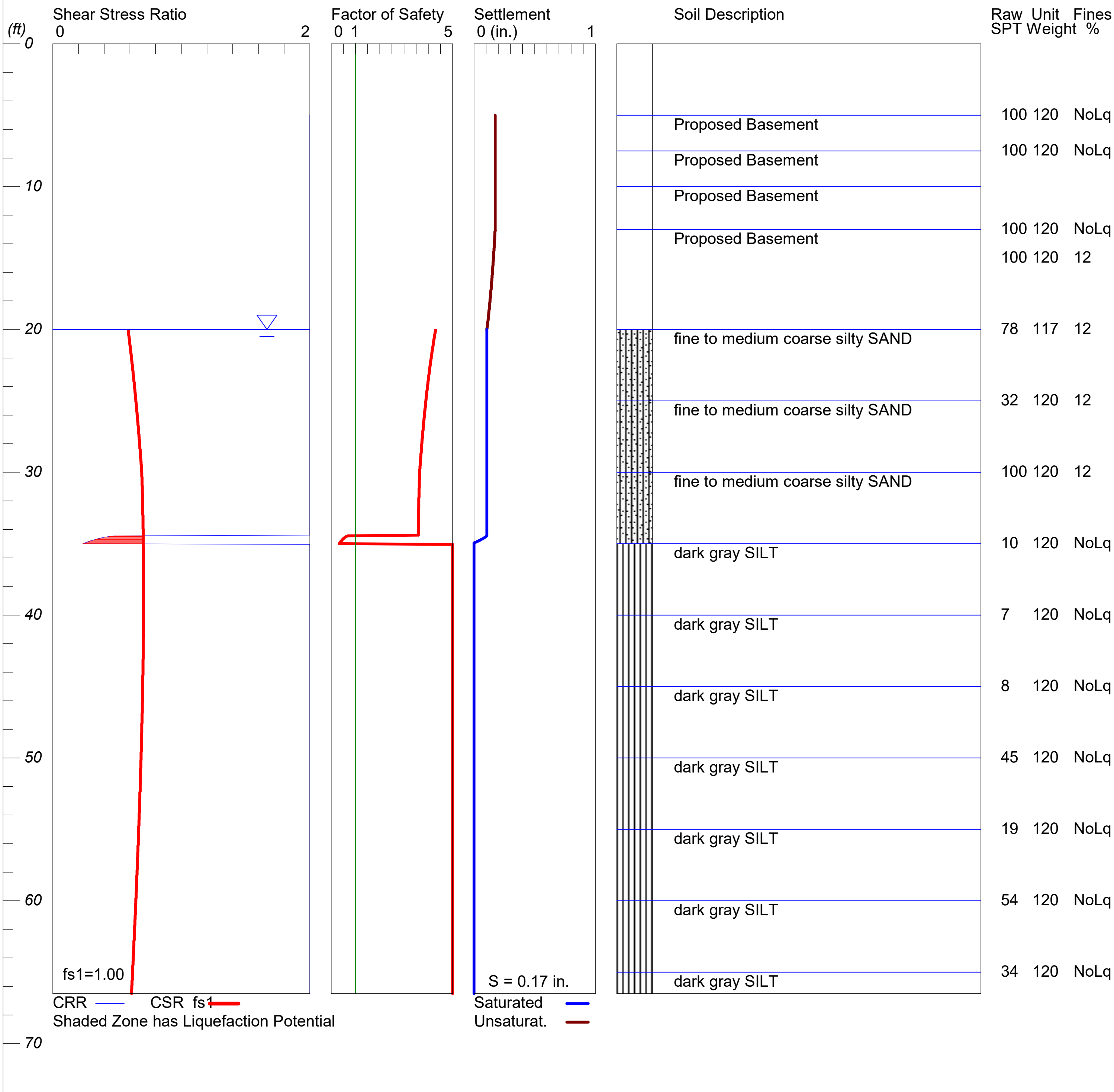


LIQUEFACTION ANALYSIS

130 West College Street

Hole No.=LB-1 - Case II Excavation Water Depth=20 ft Surface Elev.=290.1 Magnitude=6.85

Acceleration=0.947g



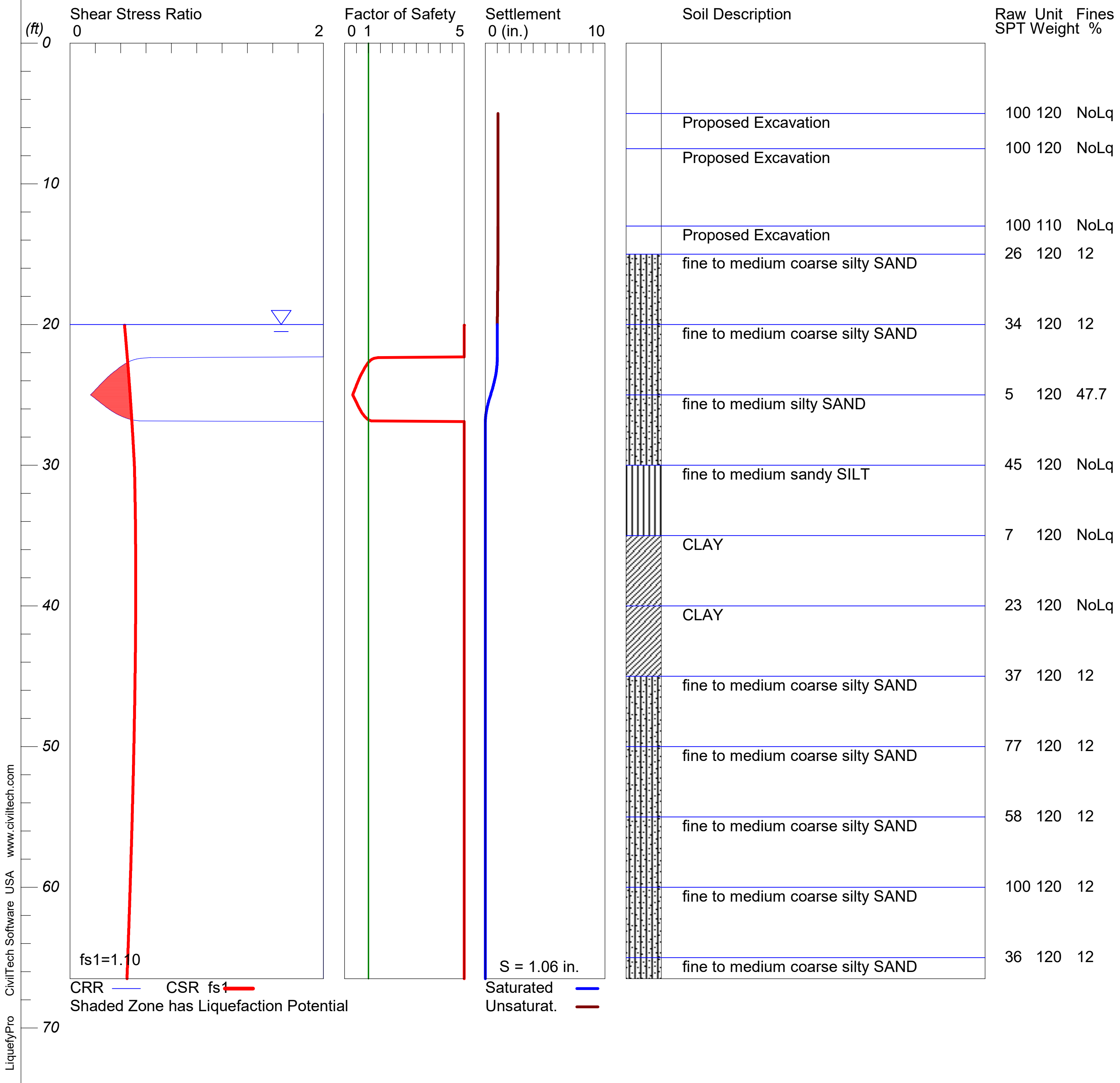
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

130 West College Street

Hole No.=LB-4 Case I Excav   Water Depth=20 ft   Surface Elev.=292.8   Magnitude=6.74

Acceleration=0.631g



LIQUEFACTION ANALYSIS

130 West College Street

Hole No.=LB-4 Case II - Exc ***Water Depth=20 ft*** ***Surface Elev.=292.8*** ***Magnitude=6.85***
Acceleration=0.947g