Business Services
Contracts Office
5735 47th Avenue ● Sacramento, CA 95824
(916) 643-2464
Janea Marking, Chief Business Officer
Robert Aldama, Purchasing Manager II

ADDENDUM NO. 1

Date: October 01, 2024

Issued by: Sacramento City Unified School District

Project: **Project #: 0110-468**
0110-468 Ethel Phillips Elementary School Campus Renewal

This addenda shall supersede the original Information, attachments, and specifications regarding **Project No. 0110-468** where it adds to, deletes from, clarifies or otherwise modifies them. All other conditions and any previous addenda shall remain unchanged.

Part A – Lease-Leaseback Documents

AD1.01 Refer to **0110-468 RFP, Page 3, II. Project**

Revised to Read: Respondents are required in their Proposal either to identify TimberQuest as their Prefabricated Modular Building subcontractor or to commit to provide modular buildings themselves (including demonstrating in their Proposal that the Respondent has in-house capability to timely supply modular buildings that can meet the basis of design criteria).

AD1.02 Refer to **0110-468 RFP, V. Proposal Format and Content**

Revised to Read: Provide seven (7) hard copies and one (1) separate electronic pdf files of the Proposal **without the fee proposal** in a three-ring binder or spiral bound, not to exceed **thirty-five (35)** single-sided pages, no less than 10 point Times New Roman, Arial, or equivalent font, total length (Cover pages, Table of Contents, Tabs, Addenda (if any), OSHA forms, DVBE Certification pages, financial information forms in Section 12 below, resumes, and required Attachments J, K, and L are excluded from page count). Material must be in 8½ x 11 inch format. 11in. x 17in. sized paper will be accepted for the site logistics plan but will count as two (2) single-sided pages. ***QR codes and website hyper-links will not be considered***. If an addendum is issued, please include it right after the cover letter. In the event of any discrepancy between the hard copy and the pdf copy of the Proposal, the hard copy will control. In a separate, sealed envelope provide one (1) hard copy of the fee proposal and one (1) electronic copy pdf flash drive. The entire proposal package (binders and fee proposal) shall be separately sealed in a box or envelope labeled with a copy of the "Submittal Cover" specified below.

AD1.03 Refer to **0110-468 RFP, V. Proposal Format and Content, Body of Submittal**

Revised to Read:

The following sections should be included in the order listed:

1. A cover letter signed by an officer of the firm submitting the Proposal, or signed by another person with authority to act on behalf of and bind the firm. Indicate contact person(s) for the project. If an addendum is issued, please also acknowledge it on the cover letter. If Respondent is a joint venture, a principal or officer of each member of the joint venture must sign the cover letter. The cover letter shall include a certification in substantially the following form: "[Respondent] certifies under penalty of perjury, under the laws of the State of California, that all information provided in its Proposal, including without limitation in exhibits and Attachments thereto and its Fee Proposal, is true and correct." **Failure to include such a certification shall make the Proposal non-responsive and unavailable for award.**	**Pass/Fail**
2. All issued addenda. It is the responsibility of Respondents to check the District's website to ensure that they have received all addenda.	**Pass/Fail**
3. Respondents must hold a California Contractors License, Class **B – General Building Contractor**, which is current, valid and in good standing with the California Contractor's State License Board. Provide the following information for the license: a. Name of license holder exactly as on file b. License Classification c. License Number d. Date Issued e. Expiration Date	**Pass/Fail**
4. General information about your firm, including number of employees, type of business structure, years in business, website, name(s) of owner(s), home office location, local office location (if different), DIR registration number, federal tax I.D. number, whether you are a small business or disabled veteran business enterprise (DVBE), and market areas. Also include any signatory requirements to Union participation.	**5 Points**
5. Describe your approach to ensuring that the District meets its goals of 20% local business participation and 3% DVBE participation.	**5 Points**
6. Describe the history of any disputes and performance problems by the Respondent as a contractor (**Nationwide**). At a minimum, discuss whether or not any of the following have occurred and, if they have occurred, please explain. If any of the following ***have not*** occurred, state "N/A" or similar in response to the item. A response to each of the following sub-issues is required: a. Suspension or revocation of any license of the Respondent, or of any parent, subsidiary, predecessor company, or affiliated company, within the last ten (10) years. An affiliated company is one with at least 10%	**25 Points** Loss of points from the total

	common ownership, or with the same qualifying individual, or that has two or more board members or officers in common. (Less 1-10 points per incident, depending on the reason, the company, and when the incident occurred)	possible is specified for each issue
b.	Any EPA, Air Quality Management District, or Regional Water Quality Control Board finding against the Respondent or the owner of a project on which the Respondent was the prime contractor in the past five (5) years. (Less 1 point per incident)	
c.	In the past five (5) years, any violation by the Respondent of any provision of California apprenticeship laws or regulations, or the laws pertaining to use of apprentices on public works, or the laws requiring use of a "skilled and trained workforce" on certain public works projects. "Skilled and trained" violations should include only violations by the Respondent not subcontractors of any tier and should be counted as one (1) violation per project. (Less 1 point per incident up to a maximum of 5 points)	
d.	Payment by the Respondent of liquidated damages of $100,000 or more on any contract in the last five (5) years. (Less 1 point per incident. The District retains discretion to subtract additional points for any incident in which over $150,000 in liquidated damages was paid, up to a maximum of 5 points.)	
e.	Termination of the Respondent for cause and/or default within the last ten (10) years. Incidents where the termination was withdrawn or changed to a termination for convenience need not be listed. (Less 10 points if in the last 5 years; less 5 points if over 5 years ago)	
f.	In the past five (5) years, cancellation of any insurance policy or refusal of any insurance company to renew an insurance policy due to non-payment of premiums or losses claimed. (Less 3 points per incident)	
g.	Any finding by any public entity in the past five (5) years that the Respondent was not a "responsible" bidder or proposer. (Less 5 points per incident, unless based solely on lack of experience)	
h.	Any finding by a court or arbitrator in the past ten (10) years that the Respondent was liable for making any false or fraudulent claim or material misrepresentation to a public agency or entity. (Less 10 points if in the last 5 years; less 5 points if over 5 years ago)	
i.	Withdrawal of a bid or proposal for mistake in the past ten (10) years. (Less 1 point per incident)	
j.	Withdrawal of a bid or proposal after a contract award to the Respondent in the past ten (10) years. (Less 3 points per incident)	
k.	Any claims in excess of $250,000 made in the past five (5) years which were either a) asserted by the Respondent against a project owner in arbitration or litigation and compromised for 40% or less than the amount asserted or b) asserted against the Respondent by a project owner in arbitration or litigation and compromised for 60% or more than the amount asserted. (Less 1-5 points per incident depending on amount of the claim and portion of the claim agreed to in the settlement.)	

7. Describe the Respondent's safety record and safety program for local office, including at least a. The Respondent's worker safety program and how construction safety would be managed for the project. (4 points) b. Any CAL OSHA or Federal OSHA finding against the Respondent for any "serious," "willful" or "repeat" violations of its safety or health regulations in the past five years. (none = 3 points; 1-2 = 2 points; 3-4 = 1 point; > 4 = 0 points) c. For each of the last three complete years - Provide the Average Lost Workday Incident Rate (LWIR), the Average Recordable Incident Rate (RIR) and the Experience Modification Rate (EMR) provided by your worker's compensation insurance carrier. (3 points – 1pt each)	**10 Points**
8. Identify the key personnel proposed to work on the Project, providing the names and levels of responsibility of the day-to-day project manager, superintendent, and modular/ pre-fab design-assist lead. Emphasize specifics as it relates to experience with a) Pre-fabrication and/or Modular Construction, b) CTE programs, and c) occupied sites. Attach résumés for all identified key staff. Projects referenced on résumés should include contract value, start and finish dates, and delivery method (*e.g.,* design-build, lease-leaseback, construction manager at risk). No substitution of personnel identified will be allowed without the District's approval. The assigned point values will be based on the following personnel: a. Full-time on-site Superintendent (15 Points) b. Assistant Superintendent (Foreman/General Foreman also acceptable) (10 Points) c. Project Manager (10 Points) d. Design-assist Lead (5 Points)	**40 Points**
9. Specific Respondent experience with K-12 or community college district projects subject to DSA review/approval in Northern California in the last ten (10) years, with an emphasis on a) Pre-fabrication and/or Modular Construction projects, b) projects with occupied sites, and c) conducted under lease-leaseback or design build procurement methodologies. Please include brief project description, procurement methodology, constructed values, dates (start and completion), names of owners and their contact information, and names of architects/engineers and their contact information. Clearly identify whether or not on any project(s) you exceeded the originally established Total Base Rent or Guaranteed Maximum Price in the past ten (10) years (identify the initial contract value, the amount and the reasons for exceeding the price). For purposes of this requirement, Respondents will receive greater points for demonstrated experience on projects of $15 million or more. For purposes of this requirement, Respondents will receive greater points for demonstrated experience on projects involving modular construction and/or occupied sites. The District may contact selected project contacts to assess similarity of work and quality of performance. The assigned point values will be based on the four (4) projects that the District concludes are the most applicable to the current Project.	**40 Points**

10. Describe in detail your experience, approach, and methods for carrying out Preconstruction Services, including without limitation the input and participation of the Pre-fabrication and/or Modular Building supplier and its design team. The assigned point values will be based on the following categories: a. How will you work collaboratively with the Architect, CM, and other District personnel and consultants? Please include overall project approach for modular system design and construction/fabrication methodology. (Provide examples) (15 Points) b. Scheduling. Describe capabilities for project scheduling, including typical software programs utilized and experience of personnel in these programs. Discuss briefly the plan for scheduling of this Project, including Phases and Increments in relation to each other, schedule tracking, and schedule updates. The District is open to creative scheduling that will reduce the overall length of time of design and construction, as well as minimize the impact to the campus as a whole. (30 points) c. Describe constructability and BIM modeling approach (10 Points) d. Describe process for developing the Total Base Rent, including developing subcontractor scopes of work, DVBE outreach, and bidding. Describe methods used to minimize scope gap and process to manage scope gap if one arises. (5 Points)	**60 Points**
11. Describe in detail your approach and methods for carrying out the Construction Services, including without limitation how you will minimize the risk of building fabrication delays. The assigned point values will be based on the following categories: a. Any creative methodology or technology that your firm uses or unique resources that your firm can offer. (5 Points) b. Describe how Respondent will manage construction to minimize delays, including due to unforeseen related adverse site or existing building conditions, and/or weather-related adverse site conditions, and/or delays in modular/pre-fabricated building construction and delivery, and/or delays resulting from long lead materials. (15 Points) c. Describe how Respondent will manage the Project during construction. The site will be occupied during construction. Include a site logistics plan and a site-specific safety plan with narrative of management of the plans. Also, discuss the continuance of budget control and tracking methodologies. Discuss ensuring compliance through completion of construction, including all close-out documents. (35 Points) d. Describe how the Respondent will ensure that Respondent and all subcontractors comply with “skilled and trained workforce requirements” in the Project Labor Agreement. (5 Points)	**60 Points**
12. Financial Information – Provide the following financial information (1 point each): a. A current “Comprehensive Insight Plus Report” from a commercial credit rating service, such as Dunn and Bradstreet. b. A letter from a financial institution stating a current line of credit. c. A letter from a California admitted surety or insurance company stating bonding limit that can be applied to this Project(s).	**5 Points**

d. A letter from insurance company indicating ability to provide insurance. e. Indicate current value of all work the Respondent has under contract.	
13. Non-Collusion Affidavit	**Pass/Fail**
14. Iran Contracting Act Certification	**Pass/Fail**
15. Certification Regarding Russian Sanctions	**Pass/Fail**

Maximum Technical Points: 250 points

Short-listed Interview: Interviewees are required to bring proposed design options and team, including the design-assist lead. Please be prepared to present a project case study with the schedule. Present challenges and lessons learned from the project case study.
Maximum Interview Points: 100 Points

Fee Proposal

Submit the completed Fee Proposal (**Exhibit D**) in separate, sealed envelope, clearly labeled as the Fee Proposal.

The Fee Proposal will be scored as follows:

Scored Services	Basis for Evaluation	Points
Total of Preconstruction Fees and Costs	More than 10% below average: 10 points 7.6% to 10% below average: 9 points 5.1% to 7.5% below average: 8 points 2.1 to 5% below average: 7 points Between 2% below and 2% above average: 6 points 2.1 to 5% above average: 5 points 5.1% to 7.5% above average: 4 points 7.6 to 10% above average: 3 points 10.1% to 15% above average: 2 points 15.1 to 20% above average: 1 points More than 25% higher: 0 points	**10 Points**
Total of Construction Increment Fees and Costs	More than 10% below average: 25 points 7.6% to 10% below average: 23 points 5.1% to 7.5% below average: 21 points 2.1 to 5% below average: 19 points Between 2% below and 2% above average: 17 points 2.1 to 5% above average: 15 points 5.1% to 7.5% above average: 13 points 7.6 to 10% above average: 11 points 10.1% to 15% above average: 9 points 15.1 to 20% above average: 7 points More than 25% higher: 0 points	**25 Points**

Finance Rate	Lowest rate to up to .99% over the lowest rate: 10 points Lowest rate plus 1% to 1.99%: 9 points Lowest rate plus 2% to 2.99%: 7 points Lowest rate plus 3% to 3.99%: 5 points Lowest rate plus 4% to 4.99%: 3 points Lowest rate plus 5% or more: 0 points	**10 Points**

Maximum Fee Proposal Points: **45 Points**

TOTAL POTENTIAL POINTS for RFP: 395 Points

AD1.04 Refer to **0110-468 RFP, Page 15, VI. Selection Process, Item 7**

Revised to Read: Prior to the interviews (if conducted), the District will develop standard questions to ask of each presenter, which the District may or may not share with the firms prior to the interviews. The interview will be worth up to **one hundred (100)** points, based on the average of the individual evaluators' scores, for a total potential score of **three hundred fifty (350)** points. Final average technical scores then will be recalculated.

AD1.05 Refer to **0110-468 RFP, Page 15, VI. Selection Process, Item 8**

Revised to Read: After final calculation of the technical scores, the fee proposal portion will be opened and scored in accordance the with Fee Proposal standards identified above. The best value score will be determined by totaling the technical points, the interview points, and the fee proposal points (up to a total **395** maximum points.)

AD1.06 Refer to **0510-433 RFP, EXHIBIT E – Facilities Lease, EXHIBIT D – GENERAL CONSTRUCTION TERMS AND CONDITIONS, Article 1, Section 1.33, Item 4**

Revised to Read: The Architect or other appropriate party receiving the RFI, will attempt to provide a response to the District Representative within fourteen (14) calendar days of receipt. The District Representative will in turn review the response and forward it to the Contractor. Should the response to an RFI be required by a specific critical date the Contractor shall indicate that date on the RFI.

AD1.07 Refer to **0510-433 RFP, EXHIBIT C - ALLOWABLE GENERAL CONDITIONS COSTS AND OTHER PROJECT COSTS**

Revised to Read:

Project (On Site Jobsite Staff)		Direct Cost of the Work	General Conditions	Overhead and Profit	Paid by District
1	Operations Manager		X		
2	Project Manager		X		
3	Project Superintendent		X		

4	Project Engineer		X		
5	Home Office Engineer		X		
6	Scheduling Engineer		X		
7	Field Engineer		X		
8	Draftsman/Detailer		X		
9	Record Drawings		X		
10	Field Accountant		X		
11	Time Keeper/Checker		X		
12	Secretarial/Clerk Typist		X		
13	Independent Surveyor	X			
14	Safety &. E.E.O. officer		X		
15	Runner/Water Boy		X		
16	Vacation Time/Job Site Staff		X		
17	Sick Leave/Job Site Staff		X		
18	Bonuses/Job Site Staff			X	
19	Quality Control Program		X		
20	Qualified SWPPP Practitioner (QSP)	X			
21	SWPPP Creation, Approval, Notifications	X			

Temporary Utilities		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Telephone Installation		X		
2	Telephone Monthly Charges		X		
3	Elect Power Installation	X			
4	Elect Power Distribution - Wiring/Spider boxes/ Lighting for construction	X			
5	Elect Power Monthly Charges				X
6	Water Service for construction	X			
7	Heating & Cooling Costs for construction	X			
8	Light Bulbs & Misc. Supplies for construction	X			
9	Clean-Up-Periodical	X			
10	Clean-Up-Final	X			
11	Dump Permits and Fees	X			
12	Recycling/Trash Dumpster Removal/Hauling	X			
13	Flagger/Traffic Control	X			
14	Dust Control	X			
15	Temporary Road and Maintenance if required	X			
16	Trash Chute & Hopper (if applicable)	X			

Direct Job Costs		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Wages of Construction Labor	X			
2	Labor/Fringe Benefits & Burden	X			
3	Subcontract Costs	X			
4	Material & Equipment/Included		X		
	a. Contractor Owned Equip, trucks		X		

	b. Small Tools - Purchase		X		
	c. Small Tools - Rental		X		
5	Warranty Work & Coordination			X	

Temporary Facilities		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Office Trailers	X			
2	**Required**: Shared Trailer including offices for IOR & CM (Trailer must include lockable doors, conditioned air, 3 desks, 3 chairs, 2 file cabinet, and Business Grade Hardline Internet connection)	X			
3	Storage Trailer & Tool Shed Rental	X			
4	Office Furniture/Equip/computers	X			
5	Xerox Copies/Misc Printing	X			
6	Postage/UPS/FedEx	X			
7	Project Photographs	X			
8	Temporary Toilets	X			
9	Project Sign	X			
10	Temporary Fencing/Enclosures	X			
11	Covered Walkways if required	X			
12	Barricades	X			
13	Temporary Stairs	X			
14	Opening Protection	X			
15	Safety Railing & Nets	X			
16	Drinking Water/Cooler/Cup		X		
17	Safety/First Aid Supplies		X		
18	Fire Fighting Equipment		X		
19	Security Guards	X			
20	Watchman Service	X			
21	Phone lines, cell phones, WiFi/Hardline Internet		X		
22	Temporary “Swing space” portables to house teachers and students as required for phasing				X
23	Utility connections and civil work needed for temporary “swing space” portables as required for phasing	X			

Miscellaneous Project Costs		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Performance and Payment Bonds	X			
2	Developer-provided insurance				
3	Printing - Drwgs & Specs		X		
4	Initial Soils Investigation				X
5	Testing and Inspection				X
6	Maintenance After Occupancy				X
7	Facility Operator/Training	X			

8	Fees				X
Hoisting		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Hoist & Tower Rental	X			
2	Hoist Landing & Fronts	X			
3	Hoist Operator	X			
4	Hoist Safety Inspections	X			
5	Hoist Material Skips/Hoppers	X			
6	Erect & Dismantle Hoists	X			
7	Crane Rental	X			
8	Crane Operators	X			
9	Crane Safety Inspections	X			
10	Erect & Dismantle Crane	X			
11	Fuel, Repairs, Maintenance	X			
12	Crane Raising/Jumping Costs	X			
13	Safety Inspections	X			
14	Forklift Rental	X			
15	Forklift Operator	X			
16	Forklift Safety Inspections	X			
17	Fuel, Repairs, Maintenance	X			
Contractor's Main Office Staff		**Direct Cost of the Work**	**General Conditions**	**Overhead and Profit**	**Paid by District**
1	Corporate Executives			X	
2	Principal in Charge			X	
3	Estimating Cost Engineering			X	
4	Value Engineering			X	
5	Scheduling			X	
6	Drafting and Detailing			X	
7	Purchasing & Contracts			X	
8	Accounting & Bookkeeping			X	
9	Safety & E.E.O Officer			X	
10	Secretarial			X	
11	Clerk/Typist			X	
12	Computer/Data Processing			X	
13	Legal (General Services/Pertaining to			X	
14	Travel & Subsistence			X	
15	Fringe Benefits & Burden			X	
16	Vacation Time/Main Office			X	
17	Bonuses/Main Office			X	

Part B – Bidder Questions

QUESTION #1: What type of framing was used for the existing buildings?

RESPONSE: All buildings are rated as Type V-B. Some of the existing buildings are constructed with steel frames and wood-framed infill walls. Other buildings are light-wood framed.

QUESTION #2: Do any of the existing buildings have a sprinkler system?

RESPONSE: Yes

QUESTION #3: If the existing buildings have sprinkler systems, what buildings are they?

RESPONSE: Building H. The sprinklers are limited to the stage only.

QUESTION #4: Will the new modular buildings have a sprinkler system?

RESPONSE: No

QUESTION #5: Section V. Proposal Format and Content (Page 9 of RFP): There are no page size constraints in the Proposal Format other than thirty-five (35) single-side pages. We would like to confirm that 11”x17” pages acceptable for schedule and site logistics.

RESPONSE: See **AD1.02**

QUESTION #6: Section V. Proposal Format and Content (Page 9 of RFP): Is a spiral bound proposal with tabs and front and back covers an acceptable submission format in lieu of the three-ring binder?

RESPONSE: See **AD1.02**

QUESTION #7: Section V. Proposal Format and Content, Body of Submittal, Item #7 (Page 12 of RFP): While the proposal Body of the Submittal does not request OSHA forms, the Proposal Format and Content section (pg. 9) mentions that OSHA forms will not contribute to the proposal page count. Please clarify whether OSHA forms are required.

RESPONSE: Refer to **RFP, V. Proposal Format and Content, Body of Submittal, Section 7, Item b**

QUESTION #8: Section V. Proposal Format and Content, Body of Submittal, Item #8 (Page 12 of RFP) for Key Personnel: is a Foreman/General Foreman acceptable in place of the requested Assistant Superintendent?

RESPONSE: See **AD1.03**

QUESTION #9: Section V.I. Submittal Process, Item #7 (Page 15 of RFP): This item notes the interview is worth fifty (50) points based on the average of the individual evaluators' scores, for a total potential score of two hundred forty (260) points. Please confirm that maximum score between technical and interview is two hundred sixty (260) points.

RESPONSE: See **AD1.04** & **AD1.05**

QUESTION #10: Section IV. Scope of Work, Item #1, e. (Page 8 of the RFP): This item notes that "Any costs associated with TimberQuest, input will be included in the LLB Entity's Preconstruction Phase Cost." Please clarify what specific scope of work is to be included in our Preconstruction Phase Cost related to Timber Quest's involvement.

RESPONSE: The District's expectation is that LLB Entities will engage with TimberQuest as necessary to fulfill the requirements of Exhibits H to the Facilities Lease, including but not limited to: collaboration meeting participation, preliminary scheduling, preliminary cost estimate preparation, value engineering, constructability review, development of Total Base Rent, and long lead items assessment.

QUESTION #11: Exhibit L, Russian Sanctions (Page 36 of RFP): There are two fields at the bottom of the form that are required to be filled in "Provider Number and Initiative Name". Please clarify what is required in these two fields or if they can be left blank so long as the balance of the form is complete.

RESPONSE: Provider Number and Initiative Name can be left blank

List of Attachments

AD1.08 – Ethel Phillips – Geotechnical Engineering and Geologic Hazards Report (191 Pages)

AD1.09 – Ethel Phillips – Hazardous Material Survey Final Report (195 Pages)

END OF ADDENDUM NO. 1

Acknowledgement of this Addendum will be required at time of bid.

Raney Geotechnical Inc.

September 25, 2024

Sacramento City Unified School District
c/o Mr. Ryan Wade
Kitchell CEM
2450 Venture Oaks Way, Ste 500
Sacramento, California 95833

Geotechnical Engineering and Geologic Hazards Report
ETHEL PHILLIPS MODERNIZATION
2930 21st Avenue
Sacramento, California 95820
File No. 3073-002.00P

INTRODUCTION

Our firm has completed this Geotechnical Engineering and Geologic Hazard Study for the proposed modernization of the existing Ethel Phillips Elementary School campus in Sacramento, California. The purposes of this investigation have been to explore the existing soil, geologic, and groundwater conditions at the site, and to provide geologic hazards and geotechnical engineering conclusions and recommendations for use by the other members of the design team for design and construction of the proposed project. This report presents the results of our study.

Scope of Services

Our scope of services for this project included the following tasks:

1. perform a site reconnaissance;
2. review of United States Geological Survey (USGS) topographic maps, aerial photographs and available groundwater data;

3. perform subsurface explorations, including the drilling and sampling of nine borings and two cone penetrometer tests (CPT) to depths of about five to 60 feet below the existing ground surface (bgs);
4. collect representative bulk samples of soils;
5. perform laboratory testing of selected soil samples;
6. perform engineering analyses; and,
7. preparation of this report.

We also retained the services of GEOCON Consultants, Inc. to prepare a Geologic Hazards Evaluation to meet the requirements of the California Geological Survey (CGS).

Figures and Attachments

This report contains a Site Plan showing the boring and CPT locations as Plate 1 and the Logs of Soil Borings as Plates 2 through 10. A Unified Soil Classification System is included on Plate 11, which includes nomenclature used to describe the soils. Laboratory test results are included as Plates 12 through 16.

Appendix A includes a *Geologic Hazards Evaluation* prepared by GEOCON Consultants, Inc. (GEOCON) for the site. Appendix B includes the CPT sounding logs and Appendix C contains the results of the liquefaction analysis.

Field Exploration and Laboratory Testing

As part of our study for the proposed improvements, our field exploration included the drilling and sampling of nine soil borings (B1 through B9) and two CPTs (CPT-01 and CPT-02) at the approximate locations shown on Plate 1.

The borings were performed on July 31, 2024 to depths of about five to 16½ feet below existing site grades utilizing a CME-55 HT truck-mounted drilling rig equipped with six-inch-diameter solid flight augers. At various intervals, soil samples were recovered with a 2½-inch outside diameter (O.D.), 2-inch inside diameter (I.D.), modified California split-spoon sampler. The samplers were driven by an automatic 140-pound hammer freely falling 30 inches. The number of blows of the hammer required to drive the 18-inch-long samplers each six-inch interval were recorded. The sum of the blows required to drive the sampler the lower 12-inch interval is designated the penetration resistance or "blow count" for that particular drive.

The modified California samples were retained in 2-inch diameter by 6-inch long, thin-walled brass tubes contained within the sampler. After recovery, the field representative visually classified the soil recovered in the tubes. After the samples were classified, the ends of the tubes and plastic bags were sealed to preserve the natural moisture contents.

In addition to the driven samples, representative bulk samples of near-surface soils also were collected and retained in plastic bags. Driven and bulk samples were taken to our laboratory for additional soil classification and selection of samples for testing.

The CPT soundings were completed on September 19, 2024 and were advanced at a rate of about one inch per second using a 15-square-centimeter cone penetrometer at the locations shown in Plate 1. The CPTs were advanced by using a 25-ton, truck-mounted, CPT rig provided by Middle Earth Geo Testing, Inc. of Hayward, California. The CPT soundings were advanced to a penetration depth of about 60 feet below existing grades. Data was collected from the CPTs at approximate depth intervals of five centimeters (or about two inches), with shear wave velocity measurements obtained at approximately five-foot intervals. Copies of the CPT logs are presented in Appendix B.

Selected undisturbed soil samples were tested to determine dry unit weight (American Society of Testing and Materials [ASTM] D2937) and natural moisture content (ASTM D2216). The results of these tests are included on the boring logs at the depth each tested sample was obtained. Two representative samples of the near-surface soil were subjected to Expansion Index testing (ASTM D4829); the results of this test are presented on Plate 12.

One representative sample of the near-surface soil was subjected to Plasticity Index testing (ASTM D4318); the results of this test is presented on Plate 13.

Two representative samples of anticipated pavement subgrade soils were subjected to Resistance "R" Value testing in accordance with California Test 301. The results of the test are presented in Plate 14.

Two samples of representative near-surface soil were submitted to Sunland Analytical to determine the soil pH and minimum resistivity (California Test 643), Sulfate concentration (California Test 417), and Chloride concentration (California Test 422). The test results are presented in Plates 15 and 16.

Proposed Construction

Based on our correspondence with Kitchell and review of a *Site Improvement Plan* prepared by HMC Architects, we understand the project will consist of the modernization of the existing campus, including a new kindergarten building at the west end of the campus, new playground areas, new outdoor covered eating area, new hardcourts, new parking and drive area, new fire lane, new sidewalks, and a new turf field (we understand the new turf field may be constructed of synthetic turf).

We understand the new kindergarten building will be a single-story, slab-on-grade structure covering about 7400 square feet in plan area. We understand the new building will be a wood-frame structure or a modular building.

Grading plans were not available; however, based on the existing site topography, we anticipate excavations and fills on the order of one to two feet will be required for development of the site, excluding underground utilities.

FINDINGS

Site Description

The project site is located at the existing Ethel Phillips Elementary School located at 2930 21st Avenue in Sacramento, California. The property is bounded to the north by 21st Avenue; beyond which is existing residential development, to the south and east by also existing residential development, and to the west by commercial development; beyond which is Franklin Boulevard. At the time of our field exploration in July and September of 2024, the area of the proposed structures is vacant land covered in grass, used as a play area. A majority of the proposed fire lane area is occupied by existing asphalt concrete. The proposed covered eating area is currently occupied by asphalt concrete hardcourts.

Based on our observations, the site is generally flat across the school campus. Review of a *United States Geological Survey* (*USGS) 7.5-Minute Series Topographic Map of the Sacramento East Quadrangle*, dated 2021, indicates the existing ground surface at the site is approximately +25 feet relative mean sea level (msl) referencing the North American Vertical Datum of 1988 (NAVD88).

Historical Aerial Photograph Review

Review of historic aerial photographs from 1947, 1957, 1964, 1966, 1984, 1993, 1998, 2002, 2005, 2009, and every other year from 2010 through 2024. In 1947, the school site appears to be occupied by residential structures or vacant land. The aerial of 1957 reveals that a majority of the school campus on eastern end has been developed. The structures on the western end of the school campus can first be seen in the 1998 aerial photograph. Pavement improvements (hardcourt and new parking areas) can be seen in the 2002 photograph. Between 2002 and 2022 the site has remained essentially the same. At the time of our field reconnaissance in July 2024, the site has remained relatively unchanged since 2002.

Soil Conditions

Nine exploratory borings (B1 through B9) were performed on July 31, 2024 and two CPTs (CPT-01 and CPT-02) were performed on September 19, 2024 at the approximate locations shown on Plate 1.

Boring locations B1, B5, and B7 were performed within existing asphalt concrete surfaces and the asphalt thicknesses encountered varied from about three to six inches at those borings. The aggregate base encountered beneath the asphalt concrete ranged from 10 to 12 inches thick.

The soil conditions at the surface or beneath the existing pavements at the boring locations generally consists of stiff to hard variably cemented lean clay (locally known as “hardpan”) with varying clay, silt, and sand content to the explored depth of five to 16½ feet bgs. At location B3, hard silt with sand was encountered beneath the clay layer.

At the CPT locations, the soundings revealed soil behavior types similar to clay and silty clay throughout the majority of the 60 foot depth of the CPTs. At CPT-02, interbedded silty sand layers were encountered from depths of about 45 to 60 feet below the existing ground surface.

Following completion of the drilling and sampling at the boring and CPT locations, the boreholes were backfilled with native soil cuttings and CPT holes were backfilled with a slurry of neat cement and water in accordance with Sacramento County Environmental Management Department’s requirements. Borings through asphalt concrete surface were sealed with non-shrink concrete patch painted with black dye.

For specific information regarding the soil conditions at a specific exploration location, please refer to the Logs of Soil Borings, Plates 2 through 10 and CPT sounding reports in Appendix B.

Groundwater

Groundwater was not encountered within the explored five to 16½ foot bgs at the boring locations performed on July 31, 2024. On September 19, 2024 groundwater dissipation tests were performed during the advancement of the CPTs. Results of the CPT dissipation tests revealed groundwater levels at about 26½ to 28 feet bgs at the CPT locations.

To supplement the groundwater data, we reviewed available groundwater data published by the California Department of Water Resources (DWR, 2019) from a monitoring well (08N05E18Q001M) located about ½ -mile northeast of the site. DWR has monitored water levels in the well from October 1963 to October 2017, however the data recorded from April 2011 to October 2017 at this well are listed as questionable data. Ground surface elevation at the well is indicated to be about +27 feet msl which is similar to the school site's elevation of +25 feet msl. Groundwater measurements at the DWR well have a "high" groundwater elevation of about +6 feet msl in July 2015, which is about 21 feet bgs at the well location. Groundwater measurements at the DWR well recorded a "low" groundwater elevation of about -17 feet msl in October 1966, which is about 44 feet bgs at the well location. Based on this data, groundwater elevations in the vicinity of the site have fluctuated from about 21 to 44 feet below the existing ground surface during the last 60 years.

Geologic Hazards

Geologic hazards specific to the site as outlined in CGS Note 48 are included in the report prepared by GEOCON and included in Appendix A. Refer to the GEOCON report for additional information regarding geologic hazards at the site.

CONCLUSIONS

Shear Wave Velocities and Seismic Site Class

Shear wave velocities obtained at locations CPT-01 and CPT-02 varied from about 878 to 1634 feet per second (fps) within the upper 60 feet of the soil profile. The average shear wave velocity within the upper 60 feet was determined in accordance with Section 1613A.3.2 of the 2022 California Building Code (CBC) and Chapter 20 of American Society of Civil Engineers (ASCE) 7-16 and was found to be about 1264 fps at CPT-01 and about 1098 fps at CPT-02.

A shear wave velocity of 1231 fps was encountered at a depth of about 60 feet below the existing ground surface at CPT-02. Based on the site geology and our analysis, we anticipated the soils from a depth of 60 to 100 feet have at least the same shear wave velocity as that encountered at a depth of 60 feet below the existing ground surface at CPT-02. Based on this assumption, the average shear wave velocity within the upper 100 feet of the ground surface at CPT-02 is calculated to be about 1211 fps.

Review of the geology of the area indicates the site is underlain by the Pleistocene-aged (10,000 to 700,000 years before present) lower unit of the Riverbank Formation. The Riverbank Formation has been identified as a material meeting Site Classification C (Wills, et al., 2000[1]).

Based on Table 20.3-1 of ASCE 7-16, a seismic Site Class C applies to sites with average shear wave velocities between 1200 to 2500 fps for the upper 100 feet of the ground surface. Based on the shear wave velocity data collected from the CPTs, assuming the soils from a depth of 60 to 100 feet have at least the same shear wave velocity encountered at a depth of 60 feet below the existing ground surface at CPT-02, and the geology of the site, it is our opinion that a Site Class C is applicable to the site, in accordance with Table 20.3-1 of ASCE 7-16 and the 2022 CBC.

Seismic Design - 2022 CBC/ASCE 7-16 Seismic Design Criteria

The 2022 California Building Code (CBC) references the American Society of Civil Engineers (ASCE) Standard 7-16 for seismic design. To assist with the structural design of this project, we have provided seismic design parameters for the 2022 CBC; which have been determined based on the sites locations and the web interface developed by the Structural Engineers Associate of California (SEAOC) and the Office of Statewide Health Planning and Development (OSHPD).

The seismic design parameters summarized below in Table 1 may be used for seismic design of the planned improvements at the site.

Table 1: 2022 CBC Seismic Design Parameters

Latitude: 38.5330° N Longitude: 121.4781° W	ASCE 7-16 Table/Figure	2022 CBC Figure/Section/Table	Factor/ Coefficient	2022 CBC Values
0.2-second Period MCE	Figure 22-1	Figure: 1613.2.1(1)	S_S	0.570 g

[1] Wills, C.J, et al, 2000, "A Site Conditions Map for California Based on Geology and Shear-Wave Velocity," Bulletin of the Seismological Society of America, 90, 6B., pp.S187-S208, December 2000.

Latitude: 38.5330° N Longitude: 121.4781° W	ASCE 7-16 Table/Figure	2022 CBC Figure/Section/Table	Factor/ Coefficient	2022 CBC Values
1.0 second Period MCE_R	Figure 22-2	Figure: 1113.2.1(2)	S_1	0.253 g
Soil Class	Table 20.3-1	Section: 1613.2.2	Site Class	C
Site Coefficient	Table 11.4-1	Table: 1613.2.3 (1)	F_a	1.272
Site Coefficient	Table 11.4-2	Table: 1613.2.3(2)	F_v	1.500
Adjusted MCE Spectral Response Parameters	Equation 11.4-1	Equation: 16-36	S_{MS}	0.725 g
	Equation 11.4-2	Equation: 16-37	S_{M1}	0.380 g
Design Spectral Acceleration Parameters	Equation 11.4-3	Equation: 16-38	S_{DS}	0.483 g
	Equation 11.4-4	Equation: 16-39	S_{D1}	0.253 g
Seismic Design Category	Table 11.6-1	Table: 1613.2.5(1)	Risk Category I to IV	D
	Table 11.6-2	Table: 1613.2.5(2)	Risk Category I to IV	D

Notes: MCE_R = Risk-Targeted Maximum Considered Earthquake; g = gravity

Liquefaction Potential

Liquefaction is a soil strength loss phenomenon that typically occurs in loose, saturated cohesionless soils as a result of strong ground shaking during earthquakes. The potential for liquefaction at a site usually is determined based on the results of a subsurface soil investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include shallow and deep foundation bearing capacity failure, lateral spreading of soil, and differential settlement of soils below foundations, all of which can contribute to structural damage or collapse.

A liquefaction analysis to determine factors of safety against liquefaction was performed for the soil and groundwater conditions encountered at CPT-01 and CPT-02 performed during our field explorations.

Seismic Settlement

We performed a liquefaction analysis of data obtained from CPT-01 and CPT-02, using a historic high groundwater level of 20 feet below the ground surface during a seismic event. The analysis was performed using soil liquefaction assessment software Cliq (Version 3.5.2.22) developed by GeoLogismiki. The software utilizes data collected from CPT soundings to determine factors of safety against liquefaction for varying earthquake input energies and uses the results of the National Center for Earthquake Engineering Research (NCEER) liquefaction evaluation methods summarized by Youd, et al (2001). Input values were obtained using the results of the CPT soundings referenced above.

A peak ground acceleration (PGAM) of 0.24 g was used in the liquefaction analysis based on Equation 11.8-1 of American Society of Civil Engineers (ASCE) 7-16. A mode magnitude earthquake of 6.5 was used for this analysis using the 2014 USGS National Seismic Hazard Mapping Project (NSHMP) Probabilistic Seismic Hazard Analysis (PSHA) Interactive Deaggregation web site.

Liquefaction potential at the site also was evaluated based on the Liquefaction Potential Index (LPI). The LPI is a measure of the liquefaction potential based on an analysis of the entire vertical soil profile, and not just discrete layers (Iwasaki, 1986; Toprak and Holzer, 2003). Factors taken into consideration for the LPI calculations include: thickness of the liquefied layer; proximity of the liquefied layer to the surface; and, the factor of safety. The LPI ranges from 0 to 100 with the value zero representing no liquefaction potential. Surface manifestations of liquefaction occur at LPI $\geq$ 5. The LPI for the soil conditions at CPT-01 and CPT-02 were calculated to be 0.0 and 0.04, respectively, indicating a very low potential for liquefaction during the design seismic event (mode magnitude earthquake of 6.5 and a PGA of 0.24 g).

The results of the liquefaction analysis at the CPT locations using Cliq indicate calculated seismic settlements between zero and 0.59 inches at CPT-01 and CPT-02, respectively. However, the settlement estimate calculated at CPT-02 is generally shown at depths from about 50 to 60 feet below the existing ground surface. Given the depth of the estimated settlement calculated, the geology of the site, and the relatively stiff, cemented soils encountered within the upper 15 to 20 feet of the site, seismic settlement at the site is anticipated to be negligible and does not need to be accounted for in design of the overlying structures. Differential seismic induced settlement is considered to be negligible at the site. As noted previously, the presence of non-liquefiable soil layers overlying and interbedded within the liquefiable layers will likely mitigate the impact of seismically induced settlement at the ground surface.

The potential for dry sand seismic settlement was also evaluated for soils above the groundwater table. The upper 20 feet of the existing ground surface was generally observed to be relatively stiff, cemented cohesive soils and/or relatively dense granular soils. Therefore, dry sand seismic settlement at the site is not anticipated.

Based on the results of our analysis, it is our opinion that the potential for loss of bearing capacity (strength) beneath the prepared building pads is very low and does not need to be further mitigated in the design of the structure, provided the recommendations of this report are incorporated into the design of the building.

The site is relatively flat and sloping ground is not located in the immediately vicinity of the site. Therefore, lateral spread due to liquefaction is not anticipated at the site or in the vicinity.

Copies of the output files for the liquefaction analysis, including the results of the 2014 USGS NSHMP PSHA Interactive Deaggregation, are provided in Appendix C.

Soil Expansion Potential

Laboratory test results on near-surface soils encountered at boring locations B3 and B7 indicate these materials were found to have low expansion potential when tested in accordance with ASTM D4318 test method as shown in Plate 12. Additional laboratory test performed on the soil samples indicate these material possesses low plasticity when tested in accordance with the ASTM D4318 test method as shown in Plate 13.

Based on the laboratory test results and the soil conditions encountered at the site, special site preparation or foundation design to mitigate the effects of expansive soils will not be required for development of this site.

Bearing Capacity

The results of our study indicate the undisturbed site soils can provide adequate support for the proposed improvements provided the recommendations of this report are carefully followed. Clearing operations to remove vegetation and remnants of any existing improvements (i.e., hardcourts, classrooms, etc.) will disturb the underlying materials and create loose and variable soil conditions. Disturbed soils must be excavated to expose a firm base and the excavations widened, as necessary to provide equipment access, and backfilled with engineered fill to provide uniform support for the planned structures. Engineered fill that is properly placed and

compacted as recommended in this report will be capable of supporting the proposed structures and pavements.

Pavement Subgrade Quality

Laboratory test results indicate the near-surface clays are moderate quality materials for support of asphalt concrete pavements. Laboratory tests on near-surface soil collected from the site revealed that these materials possess Resistance ("R") values of 23 and 36 when tested in accordance with California Test 301 as shown on Plate 14.

Effect of New Construction on Existing Development

There are existing buildings and other improvements (e.g., pavements, exterior flatwork, underground utilities, etc.) adjacent to the planned buildings. We assume that the buildings are supported on conventional shallow foundations (isolated spread and/or continuous footings). For excavations that will encroach within a one horizontal to one vertical (1H:1V) projection from the bottom of the existing building foundations, stabilizing the existing buildings and/or other improvements using an underpinning system that supports the existing foundations may be required should be evaluated by the Geotechnical Engineer in coordination with the design team.

Groundwater Effect on Development

Free groundwater was not encountered in the explored five to 16½ feet bgs of the borings performed at the site in July of 2024. Review of available groundwater data revealed the groundwater elevation at nearby monitoring wells has ranged from 21 to 44 feet below the existing ground surface.

Groundwater levels at the site should be expected to fluctuate throughout the year based on variations in seasonal precipitation, local pumping, and other factors. Locally perched shallower groundwater may be encountered.

Based on current explorations performed at the site and historical groundwater data, we do not anticipate excavations within about 20 feet of the existing ground surface to encounter permanent groundwater, although locally perched water could be encountered and require localized dewatering (depending on the time of year). If perched is encountered, the use of sumps or submersible pumps could be used as methods to lower the groundwater level.

If excavations extend deeper than about 20 feet below the ground surface, dewatering may be

required. The dewatering method used will depend on the soil conditions, depth of the excavation and amount of groundwater present within the excavation. Dewatering, if required, should be the contractor's responsibility. The dewatering system should be designed and constructed by a dewatering contractor with local experience. We recommend the selected dewatering system lower the groundwater level to at least two feet below the bottom of the proposed excavations.

Seasonal Water

During the wet season, infiltrating surface runoff water will create a saturated surface condition. It is probable that grading operations attempted following the onset of winter rains and prior to prolonged drying periods will be hampered by high soil moisture contents, especially due to the relatively low permeability of the near-surface soils and underlying cemented soils. Such soil, intended for use as engineered fill, will likely require a prolonged period of dry weather and/or considerable aeration to reach a moisture content suitable to achieve required compaction. This should be considered in the construction schedule for the project.

Soils beneath existing pavements will likely be at an elevated moisture content regardless of the time of year and will require drying before compaction or use as fill. Such soils, intended for use as engineered fill, will require considerable aeration and/or drying to reach a moisture content that will permit the soils to be properly compacted. This should be considered in the construction schedule for the project.

Typical remedial measures include discing and aerating the soils during dry weather, mixing the soils with dryer materials, removing and replacing the soils with an approved fill material, stabilization with a geogrid reinforcement, and/or mixing the soils with an approved hydrating agent such as a lime or cement product. Our firm should be consulted prior to implementing any remedial measure to observe the unstable subgrade condition and provide site-specific recommendations.

Excavation Conditions

The surface and near-surface soils should be readily excavatable with conventional construction equipment. The underlying cemented soils (locally referred to as "hardpan") will be slower to excavate, but special excavation equipment is not anticipated. Subsurface remnants from previous development, if any, at the site can be slow to excavate with a standard, rubber-tired backhoe; however, experience has shown that excavators can remove these materials with moderate effort.

Based on the borings performed at the site, excavations associated with building foundations, shallow trenches for utilities, and other excavations less than five feet deep associated with the planned construction, should stand vertically for short periods of time (i.e., less than one day) required for construction.

Excavations deeper than five feet that will be entered by workers should be sloped, braced, or shored in accordance with current Occupational Safety and Health Administration (OSHA) regulations. The contractor must provide an adequately constructed and braced shoring system in accordance with federal, state, and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground.

Excavated materials should not be stockpiled directly adjacent to an open trench to prevent surcharge loading of the trench sidewalls. Excessive truck and equipment traffic also should be avoided near open trenches. If material is stored or heavy equipment is operated near an excavation, stronger shoring would be needed to resist the extra pressure due to the superimposed loads.

Soil Suitability for Engineered Fill Construction

The existing on-site soils are considered suitable for use as engineered fill provided that they do not contain significant quantities of organics, rubble and deleterious debris, and are at a proper moisture content to achieve the desired degree of compaction.

Existing pavements (asphalt concrete and concrete) and concrete improvements within areas to be removed and replaced may be broken up and pulverized for use as fill. Asphalt and Portland cement concrete rubble may be used as fill provided it is processed into fragments less than three inches in largest dimension, is mixed with soil to form a compactable mixture, and is approved by the Owner. Note that reuse of the pulverized materials is only acceptable from a geotechnical perspective and should be approved by the Owner prior to use.

Clean aggregate base materials recovered from pavement demolition, if any, may be used in engineered fill construction. The existing asphalt concrete may be pulverized and used as engineered fill and/or aggregate sub-base outside the planned building footprints provided the material is pulverized to less than three inches in largest dimension and mixed to form a compactable mixture.

Preliminary Soil Corrosion Potential

Tow samples of near-surface soil were submitted to Sunland Analytical Lab of Rancho Cordova, California for testing to determine minimum resistivity, pH, and chloride and sulfate concentrations to help evaluate the potential for corrosive attack upon reinforced concrete and

buried metal. The results of the corrosivity testing are summarized in Table 2. Copies of the corrosion test reports are presented on Plates 15 and 16.

Table 2: Corrosion Test Results

Sample Location	Depth (feet)	Soil Type	Analyte / Test Method			
			pH	Chloride Content (ppm)	Sulfate Content (ppm)	Resistivity (ohm-cm)
			CA DOT 643 Modified*	CA DOT 422	CA DOT 417	CA DOT 643 Modified*
B2	1.5	CL	6.41	1.5	13.0	4,020
B7	2.0	CL	--	--	<.1	4,020

Notes: * = Small cell method CA DOT = California Department of Transportation
Ω-cm = Ohm-centimeters ppm = Parts per million

The California Department of Transportation Corrosion and Structural Concrete Field Investigation Branch, Corrosion Guidelines, Version 3.2, dated March 2021, considers a site to be corrosive to foundation elements if one or more of the following conditions exists for the representative soil and/or water samples taken: has a chloride concentration greater than or equal to 500 ppm, sulfate concentration greater than or equal to 2000 ppm, or the pH is 5.5 or less.

Based on the above test results, the on-site soils are not considered corrosive to buried metal or to concrete for the samples tested.

Table 19.3.1.1 – Exposure Categories and Classes, of American Concrete Institute (ACI) 318-19, Section 19.3 – Concrete Durability Requirements, as referenced in Section 1904.1 of the 2022 CBC, indicates the severity of sulfate exposure for the samples tested is Exposure Class S0. Exposure Class S0 is assigned for conditions where the water-soluble sulfate concentration in contact with concrete is low and injurious sulfate attack is not a concern. The project structural engineer should review the requirements of ACI 318 and determine their applicability to the site.

Raney Geotechnical, Inc. are not corrosion engineers. Therefore, if it is desired to further define the soil corrosion potential at the site a corrosion engineer should be consulted.

RECOMMENDATIONS

General

The recommendations presented below are appropriate for typical construction in the late spring through fall months. The on-site soils likely will be saturated by rainfall in the winter and early spring months and will not be compactable without drying by aeration or chemical treatment. Should the construction schedule require work to continue during the wet months, additional recommendations can be provided, as conditions dictate.

Site preparation should be accomplished in accordance with the provisions of this report. A representative of the Geotechnical Engineer should be present during all earthwork operations to evaluate compliance with the recommendations included in this report. The Geotechnical Engineer of Record referenced herein should be considered the Geotechnical Engineer that is retained to provide geotechnical engineering observation and testing services during construction.

Site Clearing

The site should be cleared of all surface and subsurface debris; remnants of prior structures, if any; utilities to be relocated or abandoned, including trench backfill and associated pipe bedding material, if any; and, any other items designated for removal. Where practical, site clearing should extend at least two feet beyond the limits of the planned improvement areas.

Surface vegetation should be removed by stripping. Strippings may be stockpiled for later use in landscape areas or disposed of off-site. Strippings should not be used in general fill construction, but may be used in landscaped areas, provided they are kept at least five feet from any structure, including adjacent flatwork and pavements, moisture conditioned, and receive compactive effort.

Existing trees designated for removal, if any, should include the entire rootball and roots larger than ½-inch in diameter. Adequate removal of debris and roots may require laborers and handpicking to clear the subgrade soils to the satisfaction of the Geotechnical Engineer's on-site representative.

Depressions resulting from removal of the above items, as well as any loose, soft, or saturated soils should be cleaned out to firm native soil and backfilled with engineered fill in accordance with the recommendations in this report. It is important that the Geotechnical Engineer's representative be present on a periodic basis during clearing operations to verify adequate removal of the surface and subsurface items, as well as the proper backfilling of resulting excavations.

Subgrade Preparation

Structural areas to receive fill, remain at-grade or achieved by excavation, should be scarified to a depth of at least six inches. The scarified soil should be thoroughly moisture conditioned to at least optimum and compacted to at least 90 percent relative compaction. Relative compaction and optimum moisture should be based on the maximum dry density as determined in accordance with the ASTM D1557 Test Method.

The upper six inches of final pad grade should be thoroughly moisture conditioned to at least the optimum moisture content, and uniformly compacted to at least 90 percent of the ASTM D1557 maximum dry density at a moisture content of at least the optimum moisture.

The upper six inches of pavement subgrade should be moisture conditioned to at least the optimum moisture content and compacted to no less than 95 percent relative compaction, regardless of whether final subgrade is achieved by excavation, filling or left at existing grade. Final pavement subgrade processing and compaction should be performed after completion of underground utilities and must be stable under construction traffic prior to aggregate base placement.

Final pavement subgrade processing and compaction should be performed just prior to placement of aggregate base, after construction of underground utilities is complete. The moisture content of the subgrade soils must be maintained until covered by aggregate base, or the subgrade soils re-moisture conditioned just prior to base placement.

To help identify unstable pavement subgrades, a proof-roll should be performed with a fully-loaded water truck on the exposed pavement subgrades prior to placement of aggregate base. The proof-roll should be observed by a representative of the Geotechnical Engineer.

If unstable soil conditions are encountered during subgrade preparation, stabilizing the subgrade soils may be required to achieve a stable pavement subgrade. Typical recommendations for stabilizing unstable soil subgrades include: cross-rip, blade, and aerate; removal and

replacement; geogrid stabilization; and/or, chemical treatment. Stabilization recommendations will depend on the actual conditions encountered at the time of construction and should be determined by the project team, including the Geotechnical Engineer. Typically geogrid stabilization of isolated unstable areas is the most efficient stabilization technique and considered the most likely stabilization option at the site.

If hardpan, as identified by the Geotechnical Engineer's representative, is encountered at the exposed ground surface, scarification and recompaction as noted above is not required.

Site clearing and compaction operations should be performed in the presence of the Geotechnical Engineer's representative who will evaluate the performance of the subgrade under compactive load and identify loose or unstable soils that could require additional subgrade preparation.

Engineered Fill

On-site soils are considered suitable for use in engineered fill construction, provided they do not contain significant concentrations of organic materials, rubble debris, or particles greater than three inches in maximum dimension.

Imported fill materials, if required, should be compactable granular materials with an Expansion Index of 20 or less; an organic content less than five percent; do not contain particles greater than three inches in maximum dimension, and be within a compactable moisture content. Additionally, import fill materials that will be used within pavement areas should be non-expansive and have a minimum Resistance value of 20 when tested in accordance with California Test 301.

Imported fill should be observed and approved by the Geotechnical Engineer at least three business days prior to being transported to the site. Also, if import fills are required (other than aggregate base), the contractor must provide appropriate documentation that the import is clean of known contamination and within acceptable corrosion limits.

Engineered fill should be placed in lifts not exceeding six inches in compacted thickness with each lift being uniformly moisture conditioned to at least the optimum moisture content and compacted to not less than 90 percent of the maximum dry density per ASTM D1557.

The upper six inches of final pad grade should be thoroughly moisture conditioned to at least the optimum moisture content, and uniformly compacted to at least 90 percent of the ASTM D1557 maximum dry density at a moisture content of at least the optimum moisture.

The upper six inches of final pavement subgrade should be uniformly compacted to at least 95 percent of the ASTM D1557 maximum dry density at a moisture content of at least the optimum moisture and must be stable under construction traffic prior to placement of aggregate base.

Permanent excavation and fill slopes should be constructed no steeper than two horizontal to one vertical (2H:1V) and should be vegetated as soon as practical following grading to minimize erosion. As a minimum, the following erosion control measures should be considered: placement of straw bale sediment barriers or construction of silt filter fences in areas where surface run-off may be concentrated. Slopes should be over-built and cutback to design grades and inclinations.

A representative of the Geotechnical Engineer should be present during site preparation and all grading operations to observe and test the fill to verify compliance with these recommendations and the project specifications.

Utility Trench Backfill

Bedding of utilities and initial backfill should be in accordance with the manufacturer's recommendations for the pipe materials selected.

Utility trench backfill should be placed in relatively thin lifts, uniformly moisture conditioned to at least the optimum moisture content and mechanically compacted to at least 90 percent of the ASTM D1557 maximum dry density. The actual lift thickness should be determined in the field based on material type and compaction equipment used. Utility trench backfill should be continuously observed and tested during construction.

Trench backfill materials and compaction within street rights-of-way should conform to the applicable portions of the current Sacramento County standards, latest edition. The upper six inches of utility trench backfill within pavement areas should be compacted to at least 95 percent of the ASTM D1557 maximum dry density.

Underground utility trenches, which are aligned nearly parallel with foundations, should be located at least three feet from the outer edge of foundations. Trenches should not encroach into the zone extending outward at a one horizontal to one vertical (1H:1V) inclination below the bottom of the foundations.

Foundation Design

Based on our understanding of the proposed improvements, we anticipate the new kindergarten building will be supported on shallow, spread foundations. The proposed shade structures can be supported on isolated spread and/or drilled pier foundation systems. The sections below provide design parameters for each system.

Shallow, Spread Foundations

The proposed kindergarten building and shade structures may be supported upon isolated spread foundations extending at least 18 inches into the final subgrade level, as measured from lowest adjacent soil grade. Isolated spread foundations should maintain a minimum 18-inch dimension.

Foundations bearing on undisturbed native soils and/or engineered fill may be sized for maximum vertical compressive loads utilizing a maximum allowable soil bearing pressures of 3000 pounds per square foot (psf) for dead plus live load; this bearing value may be increased by one-third to include the effects of seismic or wind forces. The weight of foundation concrete extending below lowest adjacent soil grade may be disregarded in sizing computations.

We recommend that all foundations be adequately reinforced to provide structural continuity, mitigate cracking, and enable spanning of local soil irregularities. Reinforcement should be determined by the project structural engineer.

Resistance to lateral displacement of shallow foundations may be computed using an ultimate friction factor of 0.25 multiplied by the effective vertical load on each foundation. Additional lateral resistance may be achieved using an ultimate passive earth pressure against the vertical projection of the foundation equal to an equivalent fluid pressure of 300 psf per foot of depth. These two modes of resistance should not be added unless the passive earth pressure component is reduced by 50 percent. The upper one foot of passive resistance should be neglected if the area in front of the foundation does not contain flatwork or pavement for at least five lateral feet from the outside edge of the foundation.

Drilled Pier Foundation Design

The shade structures may also be supported on drilled, cast-in-place concrete piers (drilled piers) extending at least three feet below lowest adjacent soil grade. Drilled piers should have a minimum shaft diameter of 18 inches to help facilitate proper cleaning of the bottom of the pier. Drilled piers extending at least five feet below the existing ground surface may be sized utilizing

a maximum allowable end bearing capacity of 4000 psf or an allowable skin friction of 300 pounds per square foot (psf) for dead plus live loads, which may be applied over the surface of the pier extending deeper than 12 inches below grade. Those values may be increased by one-third to include short-term wind or seismic forces.

Uplift resistance of pier foundations may be computed using the following resisting forces, where applicable: 1) weight of the pier concrete (150 pounds per cubic foot [pcf]), and 2) an allowable skin friction of 300 psf applied over the shaft area of the pier. Increased uplift resistance can be achieved by increasing the diameter of the pier or increasing the depth. The upper one foot of skin friction should be disregarded unless the pier is completely surrounded by slab concrete for a distance of at least three feet from the edge of the foundation pier.

Torsional resistance may be computed using the allowable skin friction of 300 psf applied over the shaft area of the pier.

Sizing of drilled piers to resist lateral loads can be evaluated using Section 1807.3.2 of the 2022 CBC. An allowable value of 300 pcf for lateral bearing as defined in Table 1806.2 of the CBC may be used for the coefficients S_1 and S_3 for the nonconstrained and constrained conditions, respectively. The allowable lateral value may be increased 1/3 for total loading that includes wind and/or earthquake loads. The upper 12 inches of the subgrade should be neglected for the nonconstrained condition.

Reinforcement and concrete should be placed in the pier excavations as soon as possible after excavation is completed to minimize the chances of sidewall caving into the excavations. We recommend that the pier contractor be prepared to case the pier holes or use drilling slurry, if conditions require. Voids created by excessive sloughing may be backfilled with slurry and/or additional structure concrete, if approved by the project structural engineer.

The soils should be readily excavatable with conventional construction equipment. However, larger drill rigs may be required to penetrate the hardpan encountered near the surface of the site. Based on the borings performed at the site, excavations associated with drilled pier foundations should stand vertically for short periods of time (i.e., less than one day) required for construction. However, relatively cohesionless sands may encountered and result in caving or sloughing; therefore, the drilling contractor should be prepared to case the drilled pier excavations, if necessary.

If the drilled piers are constructed in the "dry" (with dry being less than two inches of water at the base of the excavation), the concrete may be placed by the free-fall method, using a short hopper or back-chute to direct the concrete flow out of the truck into a vertical stream of flowing concrete with a relatively small diameter. The stream is directed to avoid hitting the sides of the excavation or any reinforcing cages. For the free-fall method of concrete placement, we recommend the concrete mix be designed with a slump of five to seven inches.

Where groundwater will be encountered which cannot be controlled such that more than six inches of water accumulates at the bottom of the pier excavation, concrete should be placed using a tremie. For concrete placed using the tremie method, a slump of six to eight inches, and a maximum aggregate size of ¾-inch is recommended. The required slump should be obtained by using plasticizers or water-reducing agents. Addition of water on-site to establish the recommended slump should not be allowed.

When extracting temporary casings or tremie methods from the excavation, care should be taken to maintain a head of concrete to prevent infiltration of water and soil into the shaft area. The head of concrete should always be greater than the head of water outside the pier or tremie, taking into account the differences in unit weights of concrete and water.

Interior Floor Slab Support

Interior concrete slab-on-grade floors should be at least four inches thick and contain reinforcement for crack control. Final reinforcement and joint spacing should be determined by the project structural engineer. Proper and consistent location of the reinforcement near mid-slab is essential to its performance.

Floor slabs should be underlain by a layer of free-draining crushed rock, serving as a deterrent to migration of capillary moisture. The crushed rock layer should be between four and six inches thick and graded such that 100 percent passes a one-inch sieve and no appreciable amount passes a No. 4 sieve. Additional moisture protection may be provided by placing a vapor retarder membrane (at least 10-mils thick) directly over the crushed rock. The membrane should meet or exceed the minimum specifications as outlined in ASTM E1745 and be installed in strict conformance with the manufacturer’s recommendations.

Floor slab construction over the past 30 years or more has included placement of a thin layer of sand or pea gravel over the vapor retarder membrane. The intent of the sand or pea gravel is to aid in the proper curing of the slab concrete and to protect the membrane prior to concrete placement. However, debate over excessive moisture vapor emissions from floor slabs includes

concern for water trapped within the sand or pea gravel. Consequently, we consider the use of the sand or pea gravel layer as optional and not required from a geotechnical perspective. The concrete curing benefits should be weighed against efforts to reduce slab moisture vapor transmission.

The recommendations presented above are intended to mitigate any significant soils-related cracking of the slab-on-grade floors. More important to the performance and appearance of a Portland cement concrete slab is the quality of the concrete, the workmanship of the concrete contractor, the curing techniques utilized, and the spacing of control joints.

Floor Slab Moisture Penetration Resistance

It is likely that floor slab subgrade soils will become saturated at some time during the life of the structures, especially when the slab is constructed during the wet seasons, or when constantly wet ground or poor drainage conditions exist adjacent to the structures. For this reason, it should be assumed that the interior slab intended for moisture-sensitive floor coverings or materials, require protection against moisture or moisture vapor penetration. Standard practice includes placing a layer of gravel/crushed rock and a vapor retarder membrane (and possibly a layer of sand/pea gravel) as discussed above. Recommendations contained in this report concerning foundation and floor slab design are presented as minimum requirements only from the geotechnical engineering standpoint.

It is emphasized that the use of gravel/crushed rock and membrane below the slab will not "moisture proof" the slab, nor will it assure that slab moisture transmission levels will be low enough to prevent damage to floor coverings or other building components. It is emphasized that we are not slab moisture proofing or moisture protection experts. The sub-slab gravel/crushed rock and vapor retarder membrane simply offers a first line of defense against soil-related moisture. If increased protection against moisture vapor penetration of the slab is desired, a concrete moisture protection specialist should be consulted. The design team should consider all available measures for slab moisture protection. It is commonly accepted that maintaining the lowest practical water-cement ratio in the slab concrete is one of the most effective ways to reduce future moisture vapor penetration of the completed slabs.

Exterior Flatwork

Areas to receive exterior concrete flatwork (i.e., sidewalks) should be moisture conditioned to at least the optimum moisture content and uniformly compacted to at least 90 percent relative compaction prior to concrete placement. Proper moisture conditioning of the subgrade soils is

considered essential to the performance of exterior flatwork. Exterior flatwork should be underlain by at least four inches of aggregate base uniformly compacted to not less than 90 percent relative compaction.

Exterior flatwork concrete should be at least four inches thick and consideration should be given to thickening the outside edge of the flatwork to twice the slab thickness and reinforcing the slabs with rebar for crack control. Practices recommended by the Portland Cement Association (PCA) for proper placement and curing of concrete should be followed during exterior concrete flatwork construction.

Expansion joints should be provided to allow for minor vertical movement of the flatwork. Exterior flatwork should be constructed independent of the perimeter building foundation and isolated column foundations by the placement of a layer of felt material between the flatwork and the foundation.

Areas adjacent to new exterior flatwork should be landscaped to maintain more uniform soil moisture conditions adjacent to and under the flatwork. We recommend that final landscaping plans not allow fallow ground adjacent to exterior concrete flatwork.

Pavement Design

The anticipated pavement subgrade soils are anticipated to exhibit moderate subgrade qualities for support of asphalt concrete pavements. An R-value of 20 was used in our pavement design. The following pavement sections have been calculated based on the results of R-value testing, and the procedures contained within Chapters 600 to 670 of the California Highway Design Manual, 7th edition, utilizing design Traffic Indices (TIs) considered appropriate for the proposed development. The project civil engineer should determine the appropriate TI based on anticipated traffic conditions. Additional pavement sections can be provided upon request.

Table 3: Pavement Design Alternatives

Traffic Index (TI)	Traffic Condition	Pavement Subgrade (R-Value = 20)		
		Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)	Portland Cement Concrete (inches)
4.5	Hardcourts and Automobile Parking Only	2½*	7	--
		--	7	4
5.5	Moderate Truck Traffic and Emergency Vehicles	2½	11	--
		3*	9	--
		--	9	4

Note: * = Asphalt concrete thickness contains the Caltrans safety factor.

We emphasize that the performance of pavements is critically dependent upon uniform and adequate compaction of the soil subgrade, as well as all engineered fill and utility trench backfill within the limits of the pavement. The upper six inches of pavement subgrades should be compacted to at least 95 percent relative compaction at a moisture content of at least the optimum moisture content. We recommend that the final subgrade compaction be achieved following completion of underground utility line trench backfill.

If hardpan, as identified by the Geotechnical Engineer's representative, is encountered at the exposed ground surface, scarification and recompaction as noted above is not required.

Aggregate base utilized within the pavement section should be compacted to at least 95 percent relative compaction.

In the summer heat, high axle loads coupled with shear stresses induced by sharply turning tire movements can lead to failure in asphalt concrete pavements. Therefore, consideration should be given to using a Portland cement concrete (PCC) section in areas subjected to concentrated heavy wheel loading, such as entry driveways and trash encloures. As a minimum, the concrete sections noted above should be considered.

We suggest the concrete slabs be constructed with thickened edges in accordance with ACI design standards, latest edition. Reinforcing for crack control, should be provided in accordance with ACI guidelines. Reinforcement must be located at mid-slab depth to be effective. Joint

spacing and details should conform to the current PCA or ACI guidelines. Portland cement concrete should achieve a minimum compressive strength of 3500 psi at 28 days. Construction of Portland cement concrete pavements should be performed in accordance with applicable ACI or PCA standards.

All pavement materials and construction methods of structural pavement sections should conform to the applicable provisions of the *Caltrans Standard Specifications*, latest edition.

Site Drainage

Final site grading should be accomplished to provide positive drainage of surface water away from structures and prevent ponding of water adjacent to foundations, slabs, or pavements. The grade adjacent to houses should be sloped away from foundations at a minimum two percent slope for a distance of at least five feet, where possible.

Roof gutter downspouts and surface drains should drain onto pavements or be connected to rigid non-perforated piping directed to an appropriate drainage point away from the buildings. Ponding of surface water should not be allowed adjacent to buildings or pavements. Landscape berms, if planned, should not be constructed in such a manner as to promote drainage toward structures.

Geotechnical Engineering Observation and Testing During Earthwork Construction

Site preparation should be accomplished in accordance with the recommendations of this report. Geotechnical testing and observation during construction is considered a continuation of our geotechnical engineering investigation. Raney Geotechnical, Inc. should be retained to provide testing and observation services during site clearing, preparation, earthwork, and foundation construction at the project to verify compliance with this geotechnical report and the project plans and specifications, and to provide consultation as required during construction. These services are beyond the scope of work authorized for this investigation; however, we would be pleased to submit a proposal to provide these services upon request.

In the event that Raney Geotechnical, Inc. is not retained to provide geotechnical engineering observation and testing services during construction, the Geotechnical Engineer retained to provide these services should indicate in writing that they agree with the recommendations of this report or prepare supplemental recommendations as necessary. A final report by the "Geotechnical Engineer" should be prepared upon completion of the project.

Additional Services

We recommend that Raney Geotechnical, Inc. be retained to review the final plans and specifications to determine if the intent of our recommendations has been implemented in those documents. We would be pleased to submit a proposal to provide these services upon request.

LIMITATIONS

Our recommendations are based upon the information provided regarding the proposed project, combined with our analysis of site conditions revealed by the field exploration and laboratory testing programs. We have used our engineering judgment based upon the information provided and the data generated from our study. This report has been prepared in substantial compliance with generally accepted geotechnical engineering practices that exist in the area of the project at the time the report was prepared. No warranty, either express or implied, is provided.

If the proposed construction is modified or re-sited; or, if it is found during construction that subsurface conditions differ from those we encountered at the boring locations, we should be afforded the opportunity to review the new information or changed conditions to determine if our conclusions and recommendations must be modified.
We emphasize that this report is applicable only to the proposed construction and the investigated site and should not be utilized for construction on any other site.

The conclusions and recommendations of this report are considered valid for a period of three years. If design is not completed and construction has not started within three years of the date of this report, the report must be reviewed and updated as necessary.

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The following Plates are attached and complete this report:

Plate 1 – Plot Plan
Plates 2 through 10 – Logs of Borings
Plate 11 – Unified Soil Classification System
Plate 12 – Expansion Index Test Results
Plate 13 – Atterberg's Limits Test Results
Plate 14 – Resistance Value Test Results
Plates 15 and 16 – Corrosion Test Results

Very truly yours,

RANEY GEOTECHNICAL, INC

Guang H. Zhu
Staff Engineer

Matthew S. Moyneur
Senior Engineer

PROJECT NUMBER: 3073-002.00P

NOTES:

1. BORING LOCATIONS SHOWN ARE APPROXIMATE.
2. PREPARED FROM A SITE PLAN BY HMC ARCHITECTS AND A 11/23/2023 GOOGLE EARTH IMAGE.

KEY:

B1 BORING LOCATION AND NUMBER

PROPOSED STRUCTURE

SITE PLAN

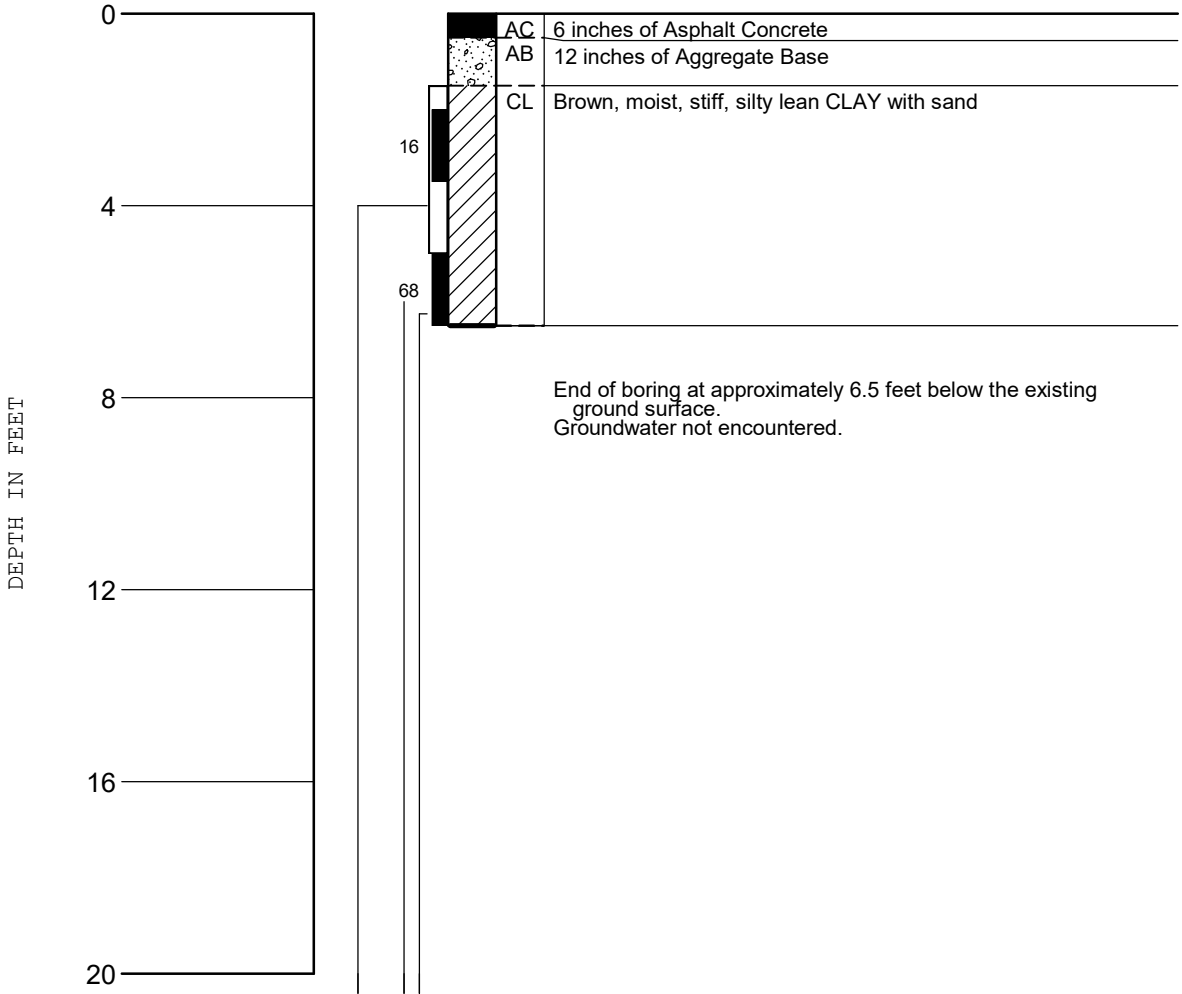
Raney Geotechnical Inc.

PLATE 1

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 1

DRILLED: 7/31/24



End of boring at approximately 6.5 feet below the existing ground surface.
Groundwater not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. UNDISTURBED SAMPLE OBTAINED WITH 2" I.D. MODIFIED CALIFORNIA SAMPLER.
4. SAMPLER PENETRATION RESISTANCE IN BLOWS PER FOOT OR FRACTION THEREOF; 140-POUND HAMMER, 30" DROP.
5. DISTURBED SAMPLE OBTAINED FROM AUGERS.
6. FREE GROUNDWATER WAS ENCOUNTERED IN BORINGS.

LOG OF BORING

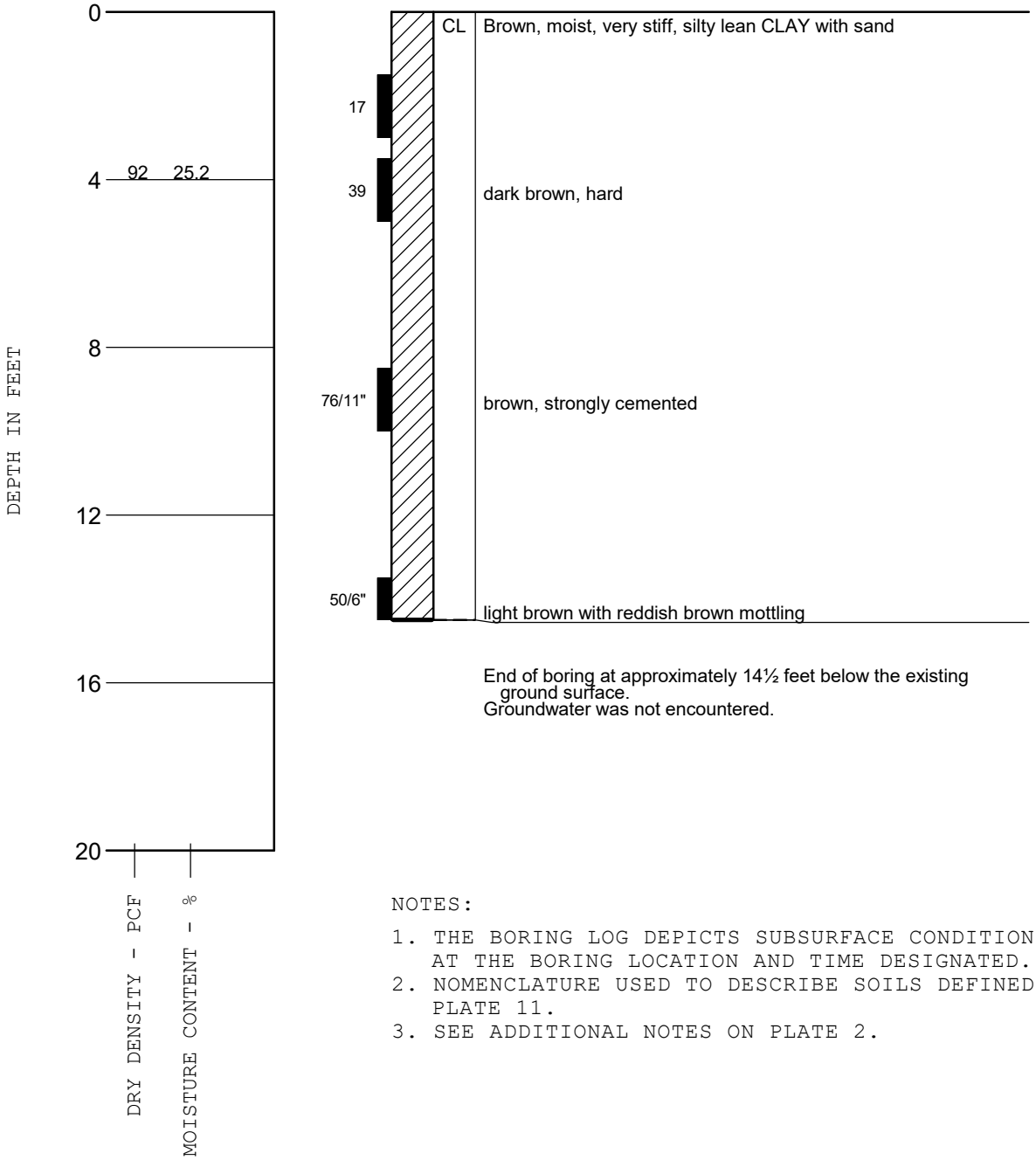
Raney Geotechnical Inc

PLATE 2

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 2

DRILLED: 7/31/24



End of boring at approximately 14½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

Raney Geotechnical Inc

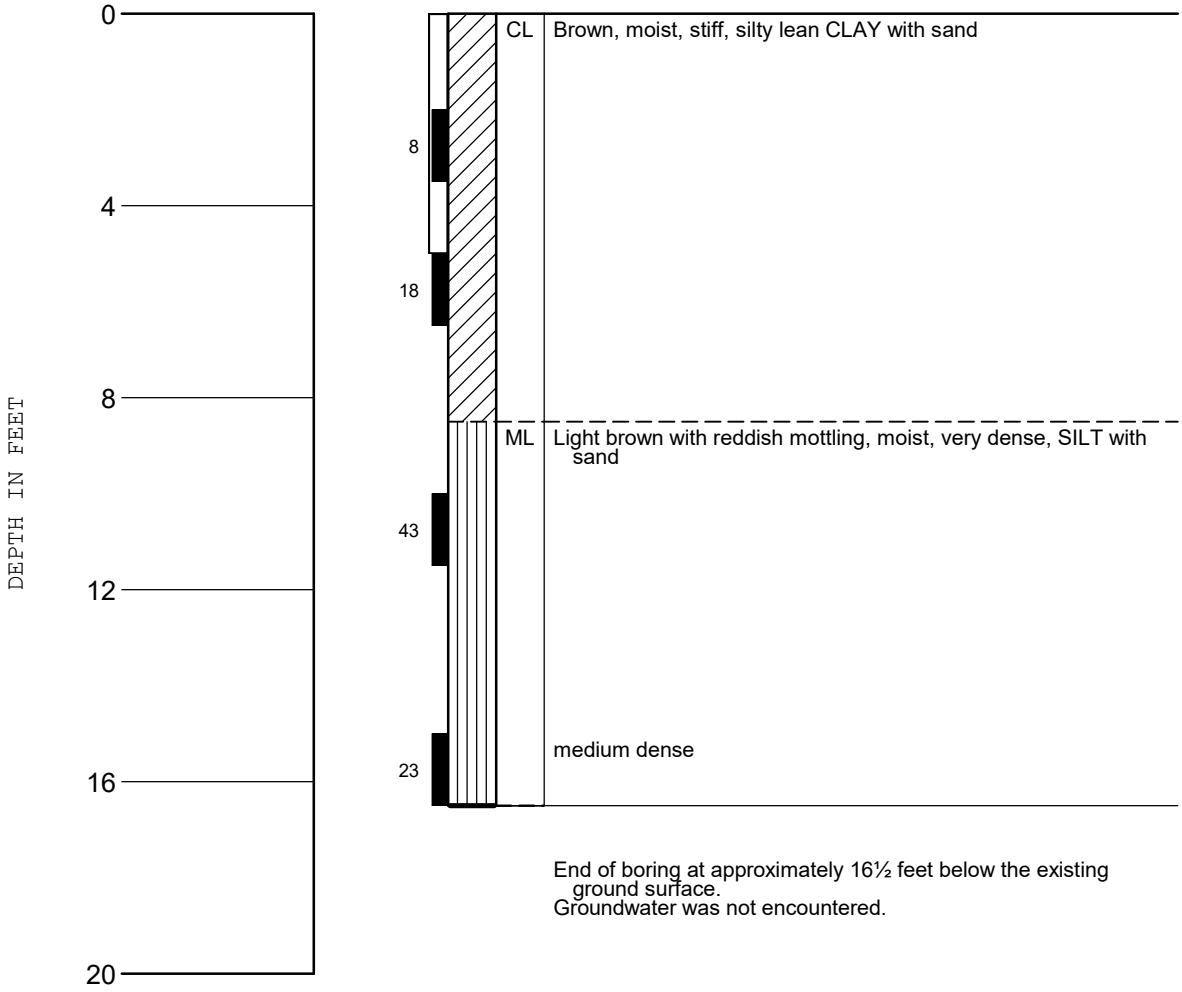
LOG OF BORING

PLATE 3

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 3

DRILLED: 7/31/24



End of boring at approximately 16½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

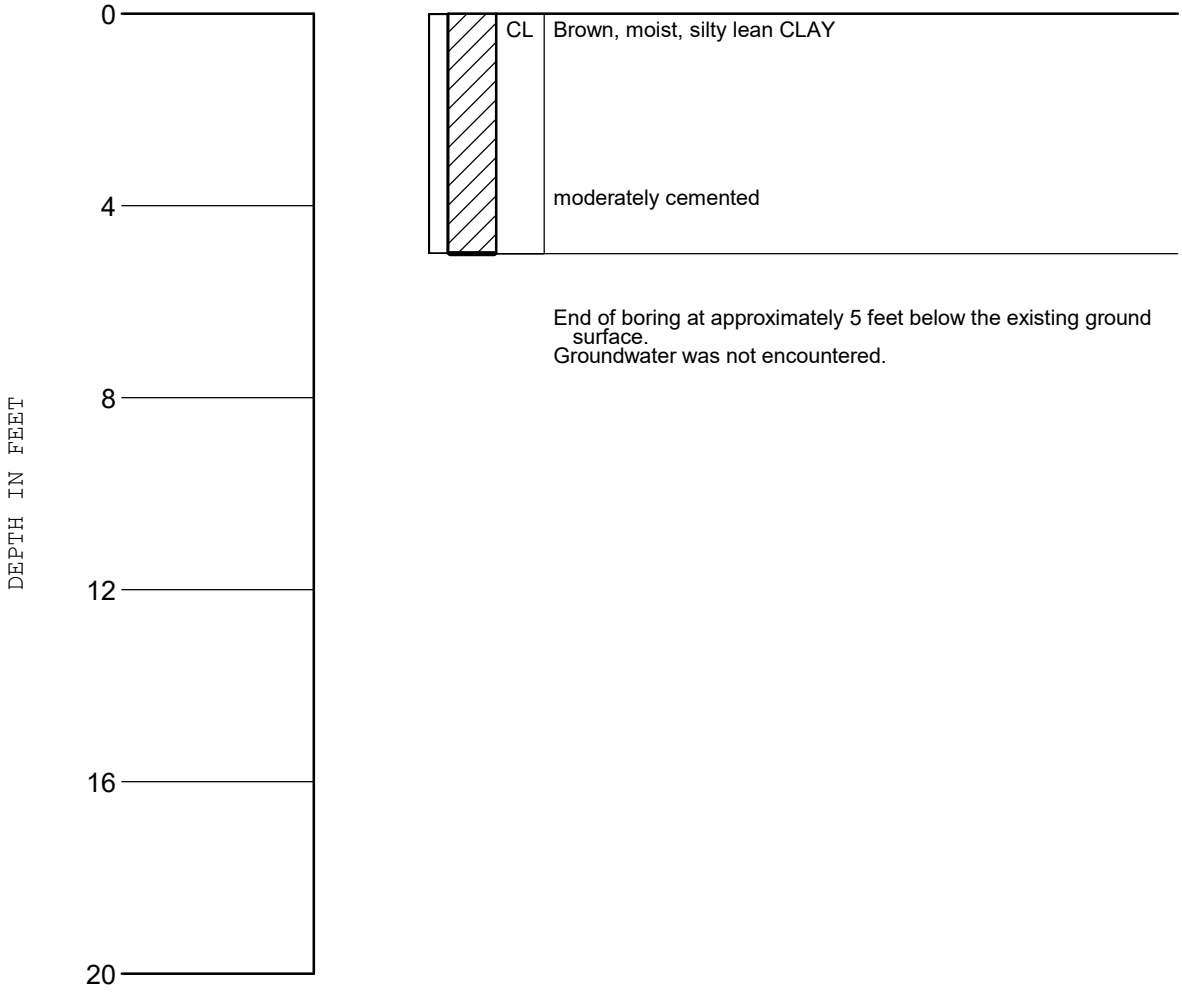
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 4

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

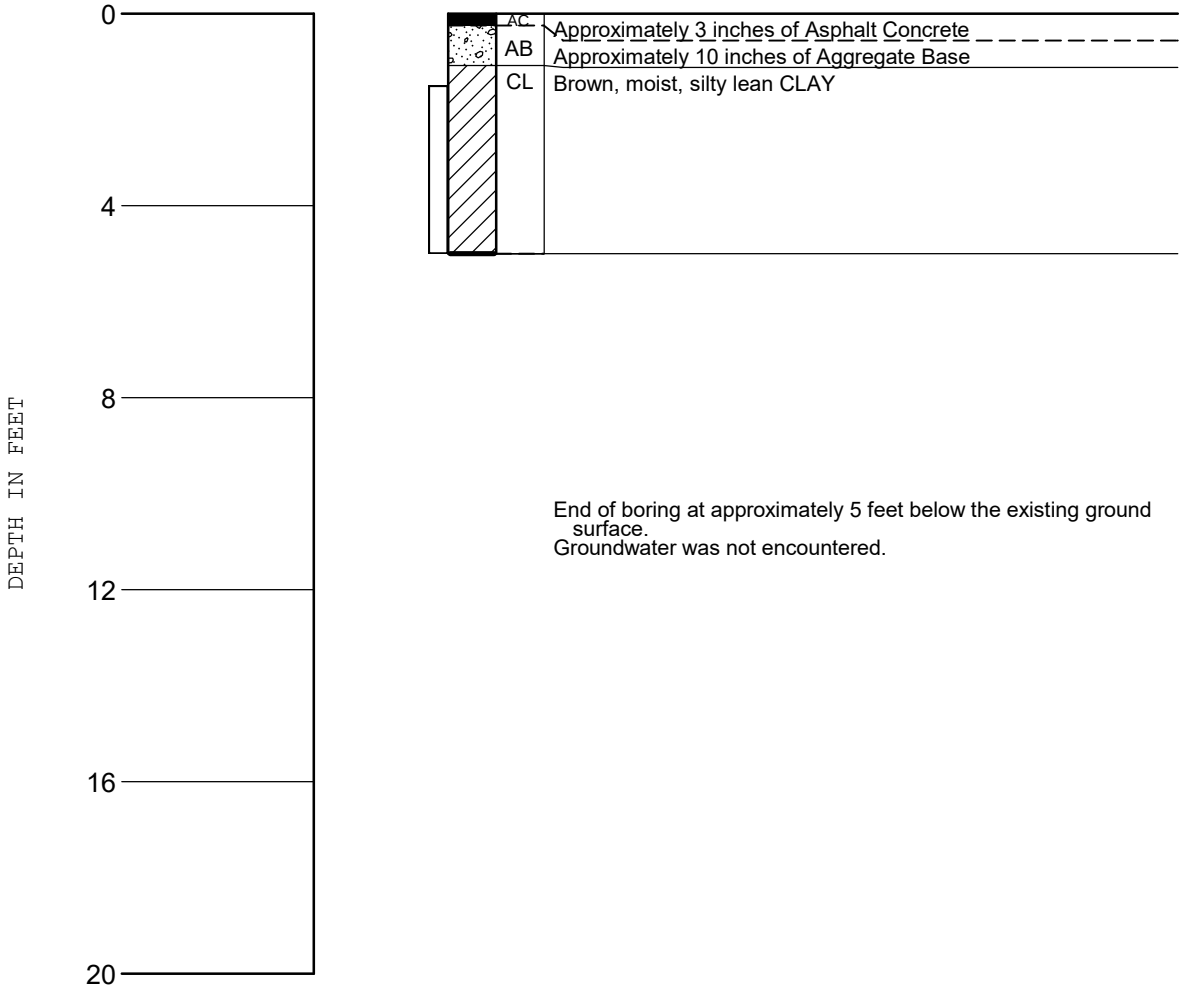
LOG OF BORING

Raney Geotechnical Inc

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 5

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

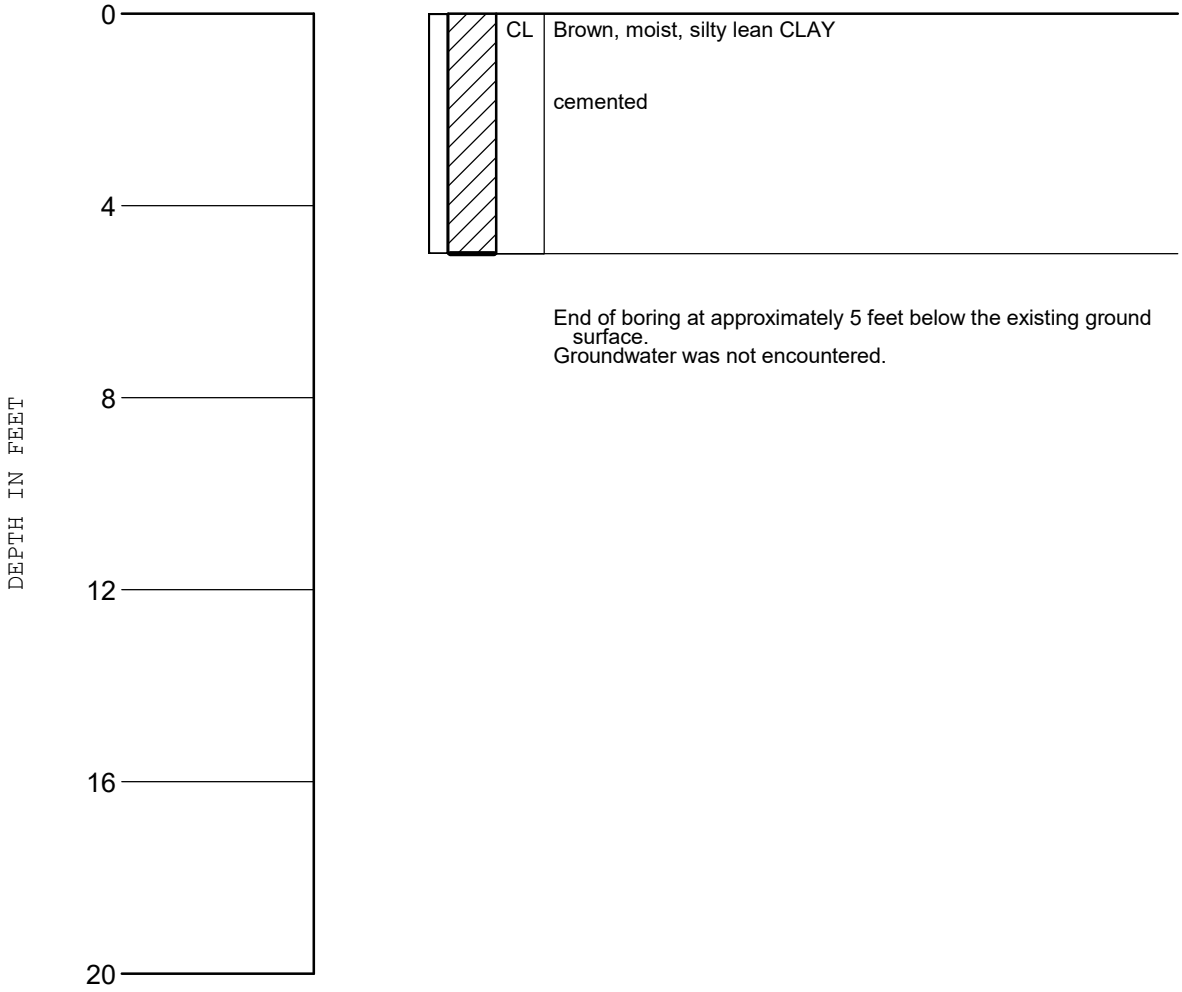
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 6

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

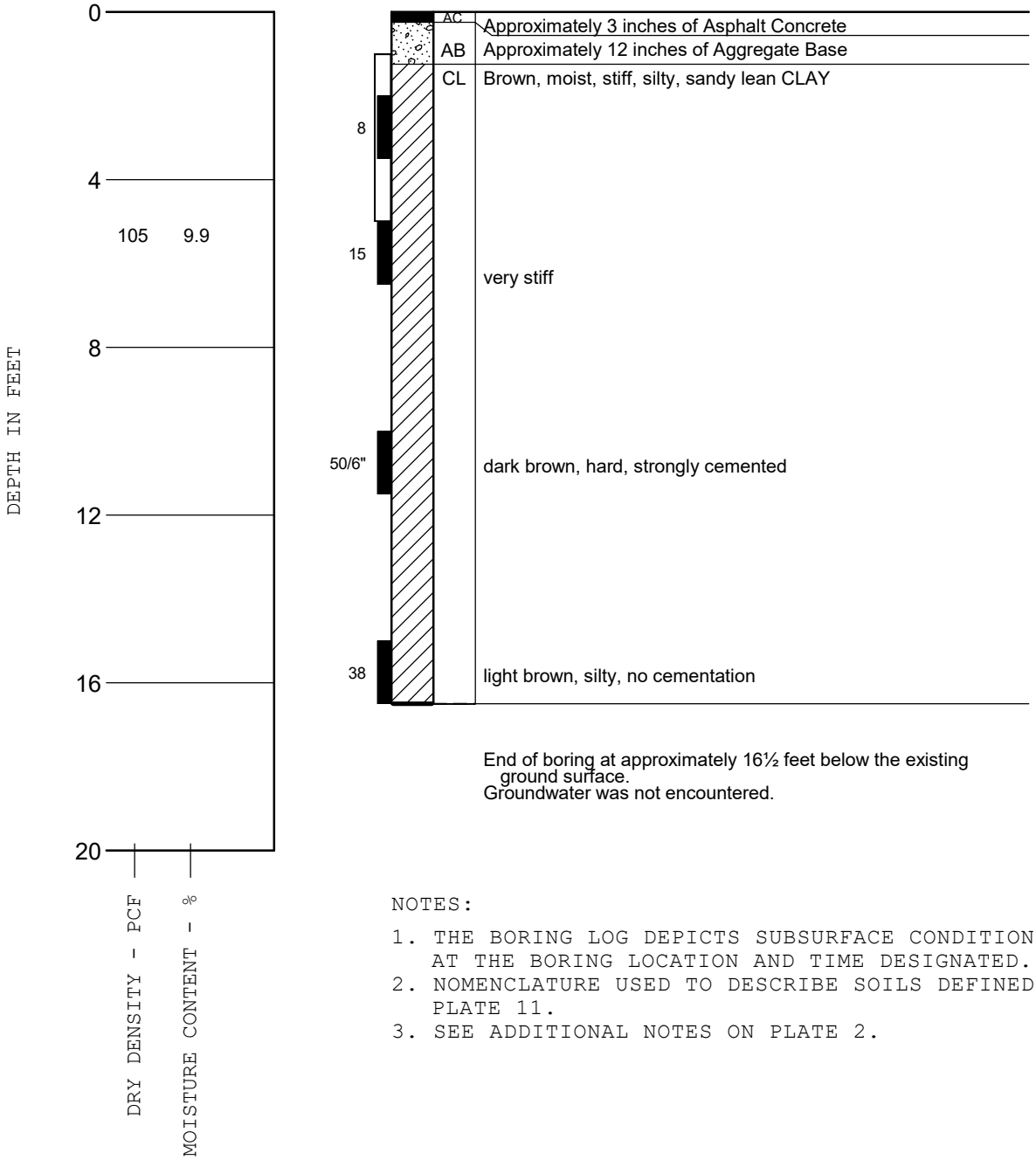
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 7

DRILLED: 7/31/24



End of boring at approximately 16½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

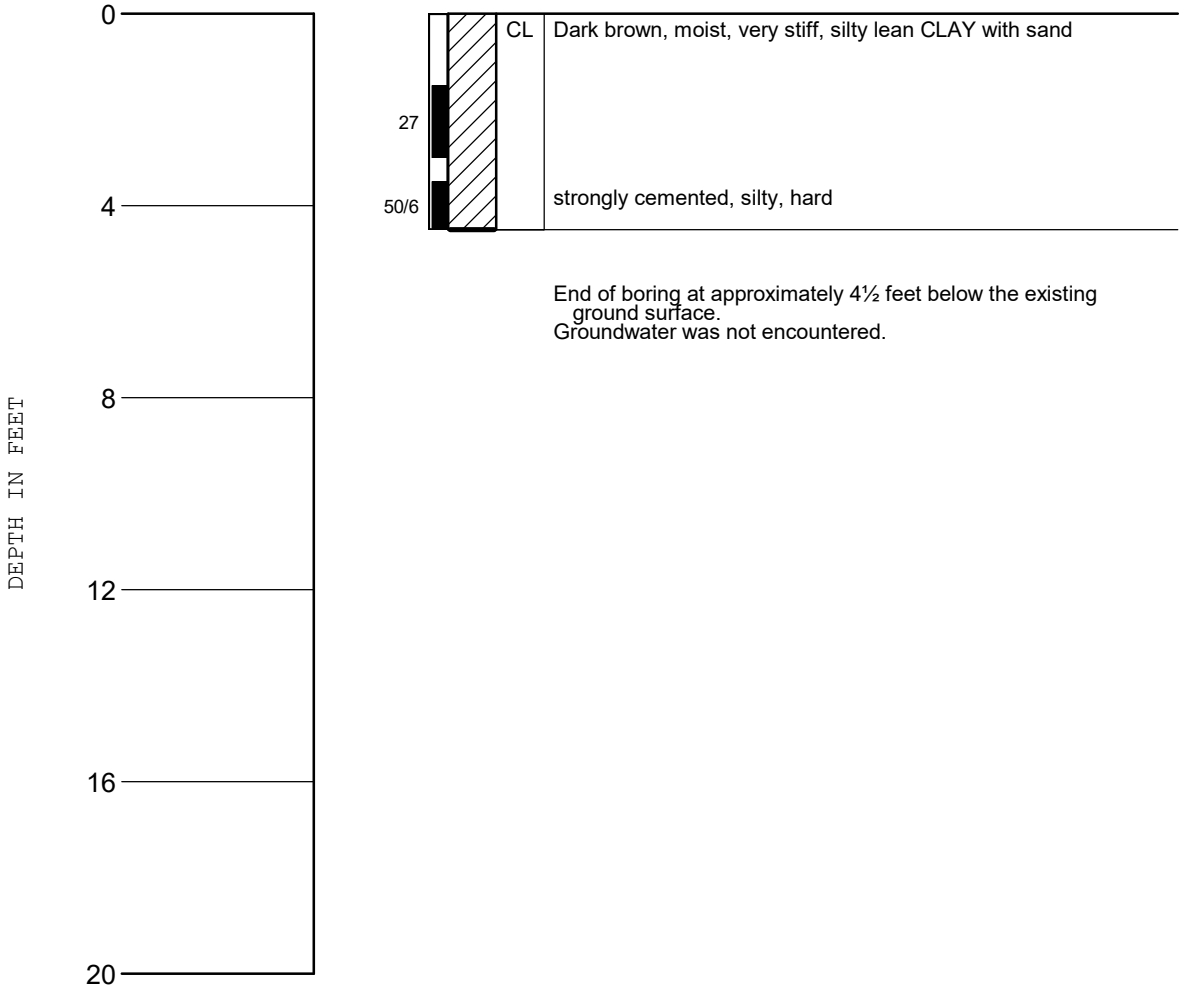
LOG OF BORING

Raney Geotechnical Inc

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 8

DRILLED: 7/31/24



End of boring at approximately 4½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

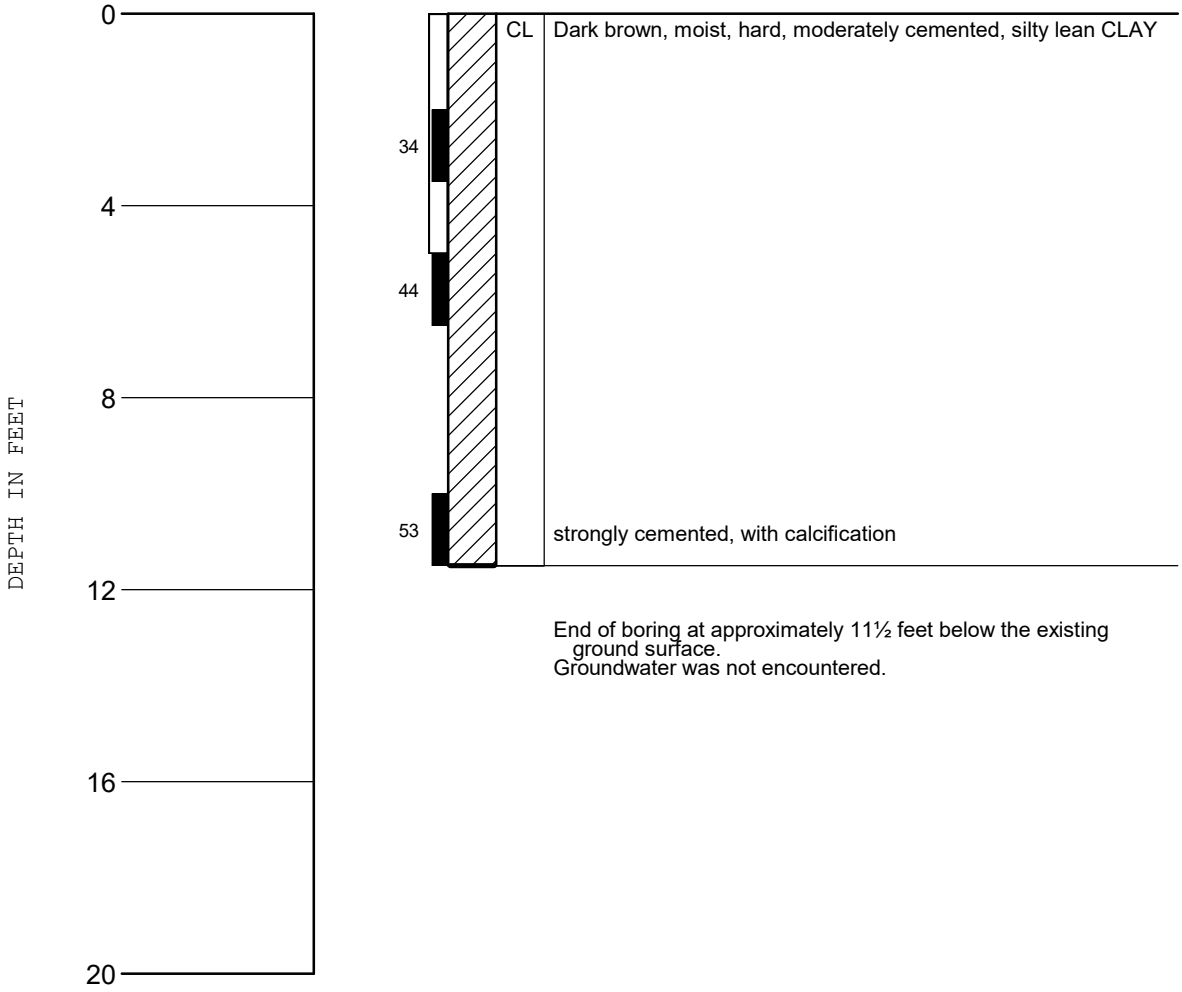
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 9

DRILLED: 7/31/24



End of boring at approximately 11½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 3073-002.00P

PLATE NUMBER: 11

GRAPH	SYMBOL	DESCRIPTION	MAJOR DIVISIONS		
	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES	CLEAN GRAVELS WITH LESS THAN 5% FINES	GRAVEL AND GRAVELLY SOILS	COARSE GRAINED SOILS MORE THAN 50% LARGER THAN NO. 200 SIEVE
	GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES			
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	GRAVELS WITH MORE THAN 12% FINES	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES			
	SW	WELL GRADED SANDS, GRAVELLY SANDS	CLEAN SANDS WITH LESS THAN 5% FINES	SANDS AND SANDY SOILS	
	SP	POORLY GRADED SANDS, GRAVELLY SANDS			
	SM	SILTY SANDS, SAND-SILT MIXTURES	SANDS WITH MORE THAN 12% FINES	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES			
	ML	INORGANIC SILTS, ROCK FLOUR, OR CLAYEY SILTS WITH SLIGHT PLASTICITY	LIQUID LIMIT LESS THAN 50	SILTS AND CLAYS	FINE GRAINED SOILS MORE THAN 50% SMALLER THAN NO. 200 SIEVE
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS			
	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY			
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTS, ELASTIC SILTS	LIQUID LIMIT GREATER THAN 50	SILTS AND CLAYS	
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS			
	OH	ORGANIC CLAYS AND ORGANIC SILTS OF MEDIUM TO HIGH PLASTICITY			
	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT	HIGHLY ORGANIC SOILS		

UNIFIED SOIL CLASSIFICATION SYSTEM

Raney Geotechnical Inc

PLATE 11

Expansion Index Tests
ASTM D4829

Sample Location: B3
Material Description: Brown lean CLAY with sand
Method: ASTM D4829

Depth (ft)	Initial Moisture Content (%)	Final Moisture Content (%)	Dry Density (pcf)	Expansion Index
0-5’	9.7	22.6	109.2	34

Sample Location: B7
Material Description: Brown sandy lean CLAY
Method: ASTM D4829

Depth (ft)	Initial Moisture Content (%)	Final Moisture Content (%)	Dry Density (pcf)	Expansion Index
1-5’	8.5	18.6	115.8	12

Project Number: 3073-002.00P

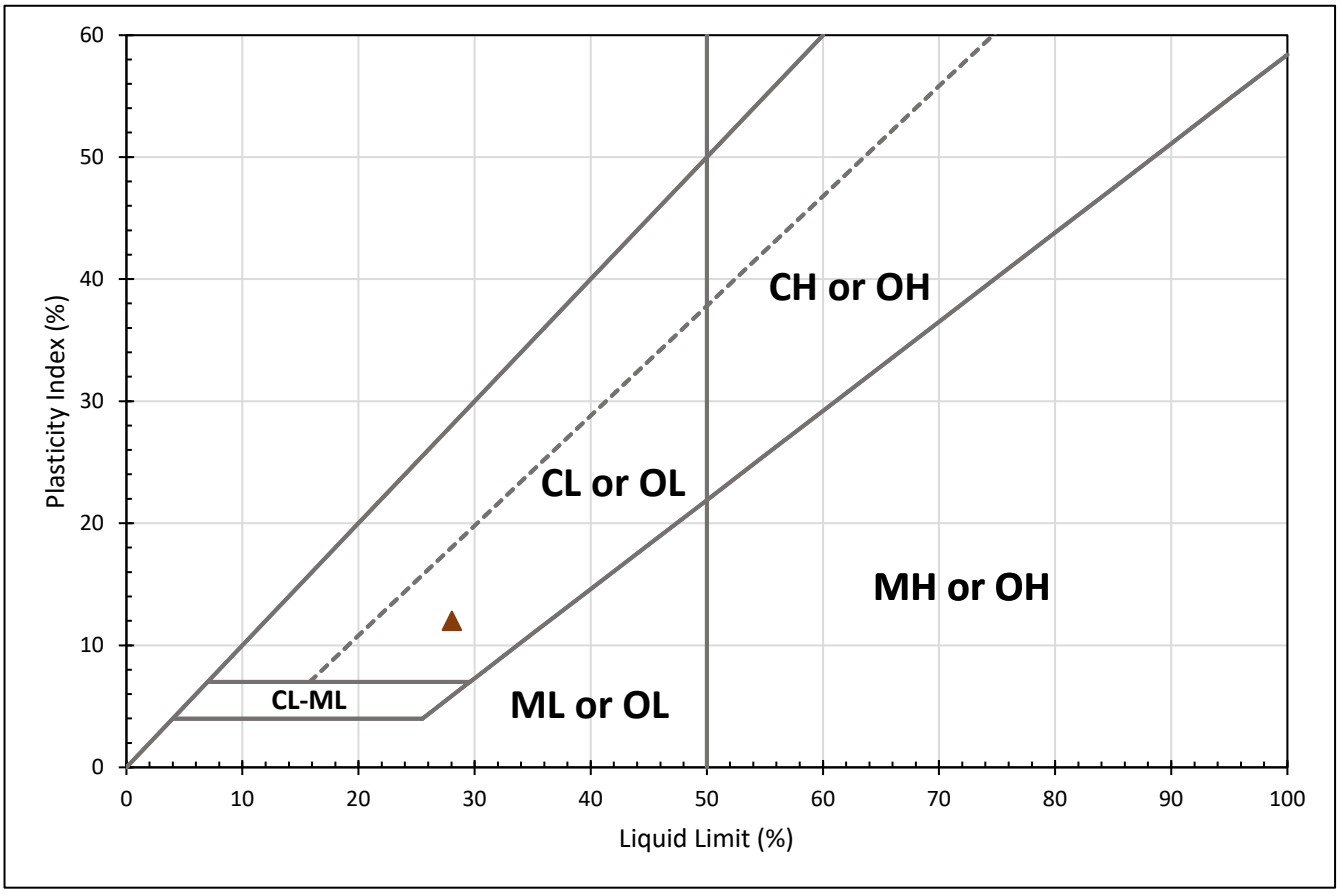
Classification of Expansive Soil

Expansion Index	Expansion Potential
0-20	Very Low
21-50	Low
51-90	Moderate
91-130	High
Above 130	Very High

EXPANSION INDEX DATA

Raney Geotechnical Inc.

Atterberg Limits
ASTM D4318



Symbol	Sample No.	Depth	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	USCS	Soil Description
▲	B3	0-5'	28	16	12	CL	Brown, lean CLAY with sand

Project Number: 3073-002.00P

Plasticity Index Data

Raney Geotechnical Inc.

Resistance Value Test
California Test Method 301G

Sample Location: B1
Depth: 1.5'-5'
Material Description: Brown lean CLAY with sand

Test Number	Dry Density (Pcf)	Moisture Content (%)	Exudation Pressure (Psi)	Expansion Pressure (Psf)	Resistance Value
1	120.5	13.4	314	65	24
2	119.3	14.0	264	48	20
3	115.4	15.2	201	30	9

Resistance value at 300 psi exudation pressure = 23

Project Number: 3073-002.00P

Sample Location: B6
Depth: 0 – 5'
Material Description: Brown silty lean CLAY

Test Number	Dry Density (pcf)	Moisture Content (%)	Exudation Pressure (Psi)	Expansion Pressure (Psf)	Resistance Value
1	121.4	11.8	318	43	43
2	119.7	12.3	260	0	25
3	118.8	13.3	147	0	10

Resistance value at 300 psi exudation pressure = 36

RESISTANCE VALUE DATA

Raney Geotechnical Inc.

PLATE 14

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 08/09/2024
Date Submitted 08/06/2024

To: Hao Zhu
Raney Geotechnical
3140 Beacon Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Ty Bui
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : B2-1I Site ID : 1.
Thank you for your business.

* For future reference to this analysis please use SUN # 92857-192326.

EVALUATION FOR SOIL CORROSION

Soil pH	6.410		
Minimum Resistivity	4.02 ohm-cm (x1000)		
Chloride	1.5 ppm	00.00015	%
Sulfate	13.0 ppm	00.00130	%

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

Project Number: 3073-002.00P

SOIL CORROSION POTENTIAL

Raney Geotechnical Inc.

Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported / /
Date Submitted 08/06/2024

To: Hao Zhu
Raney Geotechnical
3140 Beacon Blvd.
West Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Ty Bui
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : B7-1I Site ID : 1.
Thank you for your business.

* For future reference to this analysis please use SUN # 92858-192327.

EVALUATION FOR SOIL CORROSION

Soil pH	No Test
Minimum Resistivity	4.02 ohm-cm (x1000)
Chloride	No Test
Sulfate	< .1

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

Project Number: 3073-002.00P

SOIL CORROSION POTENTIAL

Raney Geotechnical Inc.

APPENDIX A

GEOCON Consultants, Inc. *Geologic Hazards Evaluation* Report

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S2882-05-01
September 25, 2024

VIA ELECTRONIC MAIL

Matthew Moyneur, PE, GE
Raney Geotechnical
3140 Beacon Blvd
West Sacramento, California 95691

Subject: GEOLOGIC HAZARDS EVALUATION
ETHEL PHILLIPS ELEMENTARY SCHOOL MODERNIZATION
2930 21ST AVENUE
SACRAMENTO, CALIFORNIA

Mr. Moyneur:

In accordance with our Agreement with Raney Geotechnical, Inc. dated August 30, 2024, we performed a geologic hazards evaluation for the proposed modernization of the existing Ethel Phillips Elementary School campus in Sacramento, California.

We understand that a Geotechnical Investigation was already performed by Raney for the proposed modernization project (Raney, 2024), however a Geologic Hazards Evaluation is now required. The purpose of our study was to evaluate the surface and subsurface conditions at the site based on subsurface information provided by Raney Geotechnical and prepare a *Geologic Hazards Evaluation* that meets the current California Geological Survey (CGS) review guidelines. Based on our evaluation, the primary geologic hazard that may impact the project is possible seismic-induced soil liquefaction. Further evaluation and mitigation of this geologic hazard should be addressed in the project geotechnical report.

The accompanying report presents our findings and conclusions from our study. Please contact us if you have any questions concerning the contents of this report.

Respectfully submitted,

GEOCON CONSULTANTS, INC.

Lauren A. Herbert, EIT, GIT
Senior Staff Engineer

Thomas C. DeSimone, PG, CEG
Senior Geologist

PROFESSIONAL GEOLOGIST
THOMAS C. De SIMONE
No. #2715
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Jeremy J. Zorne, PE, GE
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
JEREMY J. ZORNE
No. 2636
GEOTECHNICAL
STATE OF CALIFORNIA

TABLE OF CONTENTS

TABLE OF CONTENTS

GEOLOGIC HAZARDS EVALUATION

1.0 INTRODUCTION AND PURPOSE

This report presents the results of our geologic hazards evaluation for the proposed modernization of the existing Ethel Phillips Elementary School campus in Sacramento, California. The approximate site location is depicted on the Vicinity Map, Figure 1.

Per the Division of the State Architect (DSA) requirements (DSA IR A-4.13), a *Geologic Hazards Evaluation* subject to review by the California Geological Survey (CGS) is required for the project.

The purpose of our study was to evaluate the subsurface conditions at the site based on subsurface data and laboratory test results from Raney Geotechnical and perform a *Geologic Hazards Evaluation* that meets the current CGS review guidelines.

1.1 Scope of Services

To prepare this report, we performed the following scope of services:

- Reviewed geologic maps, aerial photographs and other literature pertaining to the site to aid in evaluating geologic hazards present at or near the site.
- Performed a site reconnaissance in conjunction with Raney's field investigation to review project limits and site geological conditions.
- Analyzed the boring logs, Cone Penetrometer Test (CPT) logs, and other relevant data provided by Raney and prepared this report to summarize our findings, conclusions, and recommendations with respect to the geologic hazards associated with this project.

A Vicinity Map is presented as Figure 1 and an Aerial Site Plan is presented as Figure 2. Approximate locations of the proposed new buildings and exploratory borings and CPTs performed by Raney are shown on the Proposed Development Plan, Figure 3. A Topographic Map is presented as Figure 4 and a Geologic Map is presented as Figure 5. Geologic Cross Sections, based on the results of Raney Geotechnical's field investigation and published geologic mapping, are presented as Figures 6 and 7. A Regional Fault Map is presented as Figure 8 and a Regional Seismicity Map is presented as Figure 9. Lastly, a FEMA Flood Hazard Map is presented as Figure 10. Boring logs, CPT sounding logs, and an excerpt from the liquefaction potential analysis prepared by Raney Geotechnical are presented in Appendix A.

2.0 SITE AND PROJECT DESCRIPTION

2.1 Site Location and Description

The existing Ethel Phillips Elementary School site consists of Sacramento County Assessor Parcel Numbers 019-0094-013, and 019-0102-001 through -003, totaling approximately 7.2 acres. The site is bounded to the north and south by 21st Avenue and 23rd Avenue, respectively, beyond which are residential subdivisions. The site is further bounded to the east by commercial development and to the west by an additional residential subdivision. The current site configuration is shown on the Aerial Site Map, Figure 2. At the time of our field reconnaissance, the site was developed with classroom buildings, portables, athletic turf, perimeter fencing, an asphalt-paved parking lot, and landscaping. Current site conditions are shown in Photos 1 and 2.

2.2 Project Description

Based on the site plan prepared by HMC Architects (revised June 17, 2024) and our review of Raney Geotechnical's *Geotechnical Engineering Report*, we understand that the project consists of constructing a new kindergarten building, playground, outdoor covered patio, hardcourts, asphalt-paved parking and driving areas, turf field, and exterior flatwork improvements. We understand that the new kindergarten building will be constructed at-grade and no retaining walls or below-ground basements are planned at this time. We anticipate the project will also include the construction of other ancillary facilities, improvements, and underground utility infrastructure. Approximate locations and configuration of proposed site improvements are shown on the Proposed Development Plan, Figure 3.

2.3 2.3 Current Topography

The United States Geological Survey (USGS) topographic map of the Sacramento East Quadrangle (USGS, 2021) depicts the topography of the site and vicinity as generally flat with an elevation of approximately 25 feet above mean sea level (MSL), relative to the North American Vertical Datum of 1988 (NAVD88). A portion of the USGS Topographic Map showing the site location is presented as Figure 4.

3.0 SOIL AND GEOLOGIC CONDITIONS

We identified soil and geologic conditions by reviewing referenced geologic literature (Section 7.0), reviewing subsurface data provided by Raney Geotechnical, and performing a geologic reconnaissance of the site and surrounding area.

3.1 Site and Regional Geology

The site is located within the Great Valley Geomorphic Province of California, more commonly referred to as the Sacramento Valley. The Sacramento Valley is a broad depression bounded by the Sierra Nevada mountain range to the east, the Coast Ranges to the west, and the Sacramento - San Joaquin delta to the south. The valley has been filled with a thick sequence of sediments derived from weathering of the adjacent mountain ranges resulting in a stratigraphic section of Cretaceous, Tertiary, and Quaternary deposits.

Based on the *Preliminary Geologic Map of the Sacramento 30' X 60' Quadrangle*, compiled by Gutierrez, C.I., 2011, the site is underlain by the middle member of the Pleistocene-age Riverbank Formation (map symbol Qr_2), which is described as older alluvium consisting of interbedded layers of clay, silt, and sand deposited by rivers and streams emanating from the Sierra Nevada.

Subsurface conditions encountered during Raney Geotechnical's field investigation at the site are generally consistent with the mapped geology of the area. A portion of the geologic map covering the site vicinity is presented as Figure 5, Regional Geologic Map. Generalized Geologic Cross-Sections of the site are presented as Figures 6 and 7.

3.2 Existing Pavement

Existing pavement was encountered in boring locations B1, B5, and B7, and CPT locations CPT1 and CPT2 performed by Raney Geotechnical on July 31 and September 19, 2024. Approximate pavement structural section thicknesses are included in Raney Geotechnical's report

3.3 Riverbank Formation

Riverbank Formation was encountered below the pavement section or topsoil in Raney Geotechnical's boring and CPT locations to the maximum depth explored of approximately 61 feet. The material generally consisted of stiff to hard silt (ML) and silty lean clay (CL) with varying amounts of sand. A lens of relatively dense silty sand was encountered in CPT2 below a depth of about 50 feet, overlying a denser layer of poorly graded sand encountered at a depth of about 59 feet.

Soil conditions described in the previous paragraphs are generalized. The exploratory boring and CPT logs are included in Raney Geotechnical's report.

4.0 GROUNDWATER

Raney Geotechnical encountered groundwater in each of their CPTs performed on September 19, 2024 at depths ranging from 26.5 to 27.8 feet.

We reviewed available depth-to-groundwater data on the California Department of Water Resources (DWR) Sustainable Groundwater Management Act (SGMA) Data Viewer (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels). The SGMA Data Viewer website indicates that depth to groundwater at and near the site ranges from approximately 20 to 40 feet (Spring 2023). This is consistent with the findings of Raney's subsurface explorations.

It should be noted that fluctuations in the level of groundwater may occur due to variations in precipitation, temperature, and other factors. Depth to groundwater can also vary significantly due to localized pumping, irrigation practices, and seasonal fluctuations. Therefore, it is possible that groundwater may be higher or lower than the levels observed during the investigation and/or reported herein.

5.0 SEISMICITY AND GEOLOGIC HAZARDS

5.1 Mapped Geologic Hazard Zones

According to our review of the CGS Information Warehouse website, (https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/) as well as other published literature, the site is not located within a mapped geologic hazard zone associated with seismic hazards, landslides, liquefaction, tsunami/seiche, or surface fault rupture.

5.2 Regional Active Faults / Surface Fault Rupture Hazard

The numerous faults in California include Holocene-active, pre-Holocene (Quaternary), and inactive faults (pre-Quaternary). The criteria for these major groups were developed by the California Geological Survey (CGS, formerly known as the California Division of Mines and Geology) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2018). By definition, a Holocene-active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a state-designated Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards (CGS, 2023). No Holocene-active or pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

According to the Fault Activity Map of California by the California Geological Survey (CGS, https://maps.conservation.ca.gov/cgs/fam/), the closest fault with historic displacement is Green Valley Fault within the larger Green Valley Fault zone, which ruptured within the last 200 years about 42.4 miles southwest of the site. According to the United States Geological Survey's 2008 National Seismic Hazard Map, (USGS, https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/) the closest mapped Holocene-active fault is the Segment 4 of the Great Valley Fault System, located approximately 28.4 miles southwest of the site. The closest mapped pre-Holocene (Quaternary) fault to the site is the Midland Fault, a concealed fault located approximately 19 miles southwest of the site. Based on the USGS National Seismic Hazard Maps website (https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_main.cfm), Table 1 lists faults and fault systems within 50 miles of the site that are considered capable of producing earthquakes with a moment magnitude (MW) of 6.5 or greater. The closest fault of any age is the Willows Fault zone, which is considered pre-quaternary in age, older than 1.6 million years.

Additional faults within the vicinity of the site are shown in the Regional Fault Map, Figure 8.

TABLE 1
FAULT SYSTEMS WITHIN 50 MILES OF THE SITE

Fault Name	Approximate Distance Miles	Maximum Earthquake Magnitude (Mw)
Great Valley 4a, Trout Creek	28.4	6.6
Great Valley 4b, Gordon Valley	30.2	6.8
Great Valley 5, Pittsburg Kirby Hills	32.1	6.7
Great Valley 5, Mysterious Ridge	32.8	7.1
Hunting Creek-Berryessa	39.5	7.1
Green Valley Connected	39.5	6.8
West Napa	48.5	6.7
Greenville Connected	48.8	7.0

5.3 Seismicity

As with all of California, the site has experienced historic earthquakes from various regional faults, although the local site region has a history of relatively low seismicity in comparison with more active seismic regions such as the San Francisco Bay Area or southern California.

An examination of available historic data from the California Geological Survey's Historical Earthquake Online Database (CGS, https://maps.conservation.ca.gov/cgs/historicearthquakes/) suggests that the site may have experienced ground shaking equivalent to Modified Mercalli Intensity (MMI) of VII. The most intense earthquake ground shaking likely resulted from an earthquake between Vacaville and Winters on April 19, 1892, with an epicenter located approximately 30 miles west of the site. The earthquake had approximate Richter Scale Magnitudes of 6.6 and was felt as far away as Chico, Sonora, and Salinas. Additionally, an earthquake occurred two days later than the first on April 21, 1892, with an epicenter about 23 miles west of the site. The earthquake had an approximate Richter Scale Magnitude of 6.4 and resulted in ground shaking in the site vicinity equivalent to a Modified Mercalli Intensity (MMI) of VII. Additional earthquakes in the vicinity of the site are shown in the Regional Seismicity Map, Figure 9.

We used the USGS Unified Hazard Tool (USGS, 2023) to determine the deaggregated seismic source parameters including controlling magnitude and fault distance. The USGS estimated modal magnitude is 5.5 and the estimated Peak Ground Acceleration (PGA) for the Maximum Considered Earthquake (MCE) with a 2,475-year return period is 0.34g.

While listing PGA is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. The site could be subjected to ground shaking in the event of an earthquake along the faults mentioned above or other area faults.

5.4 Liquefaction and Seismic Settlement

Liquefaction is a phenomenon in which loose, saturated, cohesionless soil deposits located beneath the groundwater table lose strength when subjected to intense and prolonged ground shaking. The seismic excitation increases pore water pressure creating a buoyant effect of the loose soil. When liquefaction occurs, building foundations may sink or tilt and differential ground settlement may occur. Other effects may include sand boils (ground loss) and lateral spreading if the liquefiable soil is located adjacent to a steep free face. The areas that have the greatest potential for liquefaction are those in which the water table is less than 50 feet below ground surface and the soils are predominately clean, poorly graded sand deposits of loose to medium-dense relative density.

The site is not located in a currently established State of California Seismic Hazard Zone for liquefaction. The site is also underlain by non-liquefiable clay within the upper 50 feet of ground surface. However, based on the presence of groundwater within the upper 30 feet beneath the site, liquefaction is a possibility. Based on the results of liquefaction analyses performed by Raney Geotechnical (2024), sandy soils at the CPT2 location between 50 and 60 feet have potential for liquefaction (see Appendix A). Consequences (secondary effects) of liquefaction may include loss of soil bearing capacity for shallow foundations, ground loss (sand boils), lateral slope displacements (lateral spreading) and ground surface settlement. While settlement in this zone is a possibility, surface manifestations and loss of foundation bearing capacity are unlikely due to the approximately 50-feet-thick, non-liquefiable clay overlying the sand. Evaluation of liquefaction potential and mitigation of liquefaction and related secondary effects should be performed by Raney Geotechnical as part of their geotechnical investigation.

5.5 Lateral Spreading

Because the site topography is generally flat and level and there is no adjacent free-face or sloping geometry, lateral spreading resulting from liquefaction is not anticipated and is not considered to be a hazard for the site.

5.6 Unsaturated Seismic Settlement

Strong seismic shaking can induce settlement of unsaturated, loose sandy soil. Based on the results of Raney Geotechnical's subsurface investigation, the upper 50 feet of soil primarily consists of stiff to hard clayey and silty soil with varying amounts of cementation. Because of this, unsaturated seismic settlement due to seismic shaking is not anticipated and is not considered to be a hazard for the site.

5.7 Landslides and Slope Stability

The site has not been evaluated with respect to seismic landslide hazard by CGS, and no landslide data are available on the California Department of Conservation interactive Landslide Inventory map (https://maps.conservation.ca.gov/cgs/lsi/). The site is relatively flat and level and there are no significant slopes on or adjacent to the site. Therefore, landslides and slope instability are not hazards for the site.

5.8 Tsunamis and Seiches

The site is located approximately 92 miles from the Pacific Ocean and is not located near any large body of water. Therefore, tsunamis (seismic sea waves) or seiches (wave oscillations in an enclosed or semi-enclosed body of water) are not hazards for the site at this time.

5.9 Flooding and Dam Failure Inundation

Based on the Flood Hazard Zone Layer from the National Flood Hazard Database prepared by the Federal Emergency Management Agency (FEMA) (https://hazards-fema.maps.arcgis.com/home/index.html), the site has a "area with reduced flood risk due to levee" (FEMA, 2024). Therefore, flooding is not considered to be a hazard for the site. A presentation of the FEMA flood map surrounding the site is shown in the FEMA Flood Hazard Map, Figure 10.

Based on the California Division of Safety of Dams (DSOD) *California Dam Breach Inundation Map Web Publisher* (DWR, https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2, accessed September 2024), the site does not appear to be located within the inundation zone any reservoirs. Therefore, dam failure inundation is not considered to be a hazard for the site.

5.10 Expansive Soil

Laboratory testing performed by Raney Geotechnical indicates low expansion potential and low plasticity in the near-surface clay soils at the site. Therefore, expansive soil is not considered to be a hazard for the site.

5.11 Soil Corrosion Potential

Soil corrosion potential testing is being performed by Raney Geotechnical. Refer to Raney Geotechnical's report for test results and related discussion.

5.12 Volcanic Activity

The nearest active volcanic area to the site is the Clear Lake Volcanic Field, located approximately 76 miles northwest of the site (USGS, 2024). Due to the distance between the site and the nearest volcanic field, the potential for direct impacts to the site due to regional volcanic activity is low.

5.13 Naturally Occurring Asbestos

The site is not located within an area mapped as an ultramafic rock unit, former asbestos mine, historic asbestos prospect, or other reported occurrence of asbestos in California. Naturally occurring asbestos (NOA) minerals (chrysotile, tremolite, actinolite, crocidolite, anthophyllite, and amosite) are more likely to be encountered in areas with ultramafic rocks or sheared metavolcanic rocks due to metamorphic processes. The site is not within an area of known mapped NOA occurrence (Van Gosen and Clinkenbeard, 2011). Based on the site geology, which consists of alluvial deposits, the likelihood of NOA being present at the site is considered to be low.

5.14 Oil Fields & Methane Zones

Based on a review of the California Geologic Energy Management Division (CalGEM) online mapping system, the site is located approximately 3.5 miles northwest of the boundary of the Florin Gas field, and approximately 4.8 miles east of the boundary of the Greens Lake Gas field. No oil or gas wells are mapped in the immediate vicinity of the site (CalGEM, 2024), the closest being a plugged dry gas well located approximately 1.5 miles west-southwest of the site. Due to the voluntary nature of record reporting by the oil and gas well drilling companies, wells may be improperly located or not shown on the location map. Other wells could be encountered during construction. Any wells encountered would need to be properly abandoned in accordance with the current requirements of CalGEM.

5.15 Radon

The United States Environmental Protection Agency's (USEPA) Map of Radon Zones (USEPA, 2021) depicts the radon potential in each U.S. County. Areas in Zone 1 have the highest radon potential, and those in Zone 3 have the lowest. Sacramento County is depicted on the map in Zone 3 (i.e., low potential). The project site is not within a California Department of Conservation study area for indoor radon potential (2024). Therefore, there is a low potential for radon at the site.

6.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, the geologic consultant should be notified so that supplemental findings can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information contained herein are brought to the attention of the design team for the project and incorporated into the plans and specifications.

Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geologic principles and practices used in the site area at this time. No warranty is provided, express or implied.

7.0 REFERENCES

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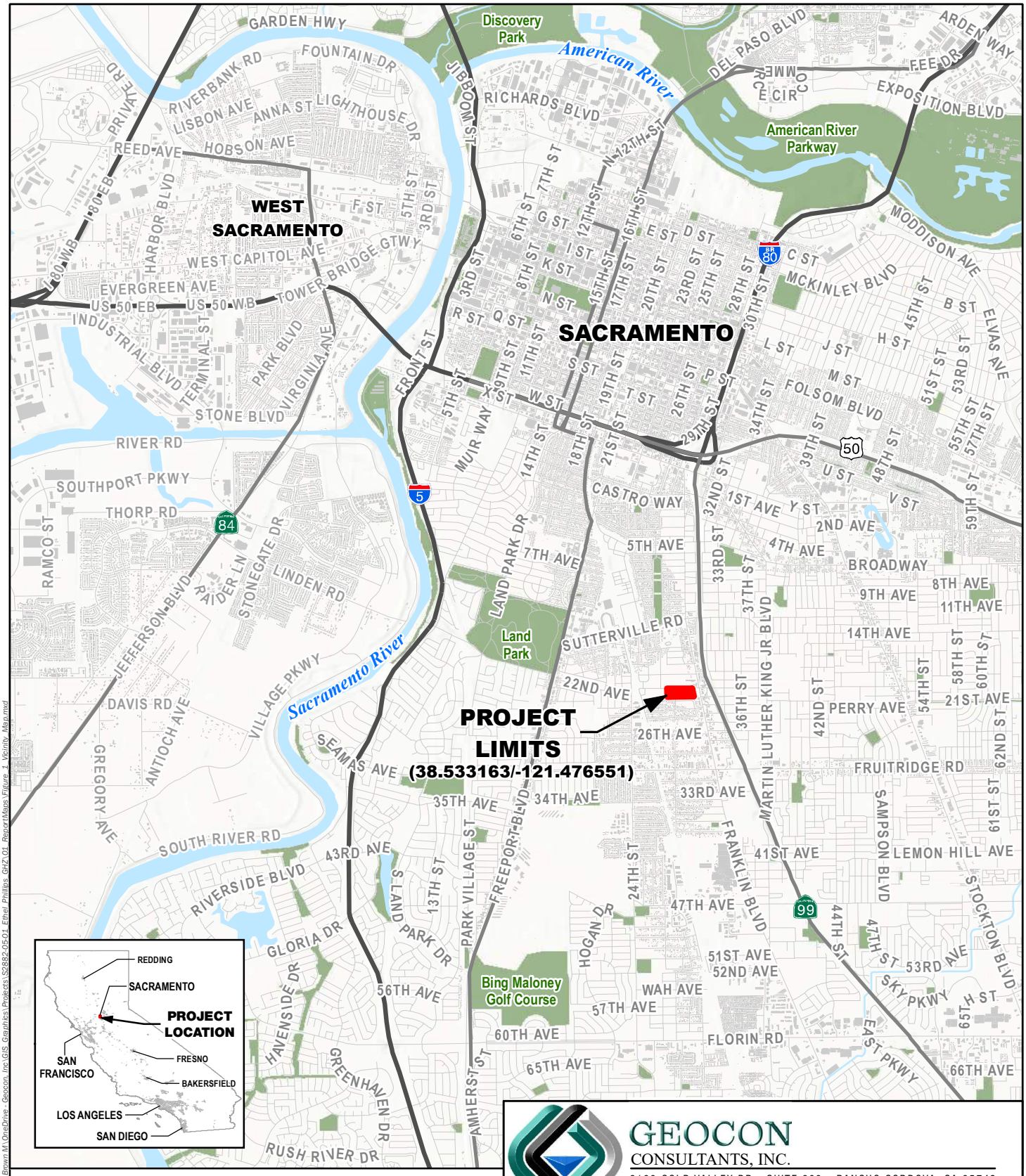


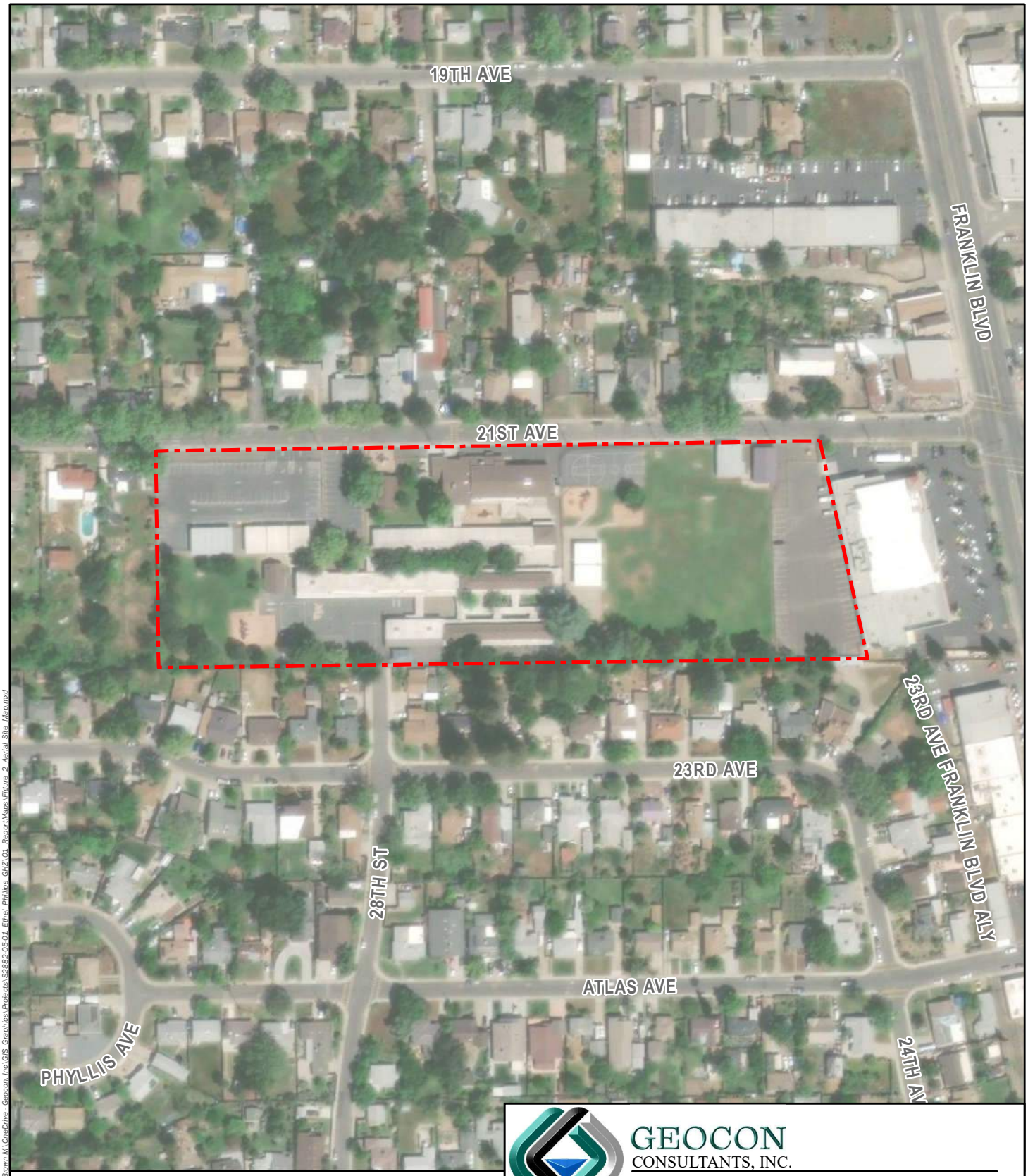
GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

VICINITY MAP

S2882-05-01	September 2024	Figure 1



Legend

Approximate Site Boundary

N

0 200

Scale in Feet

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

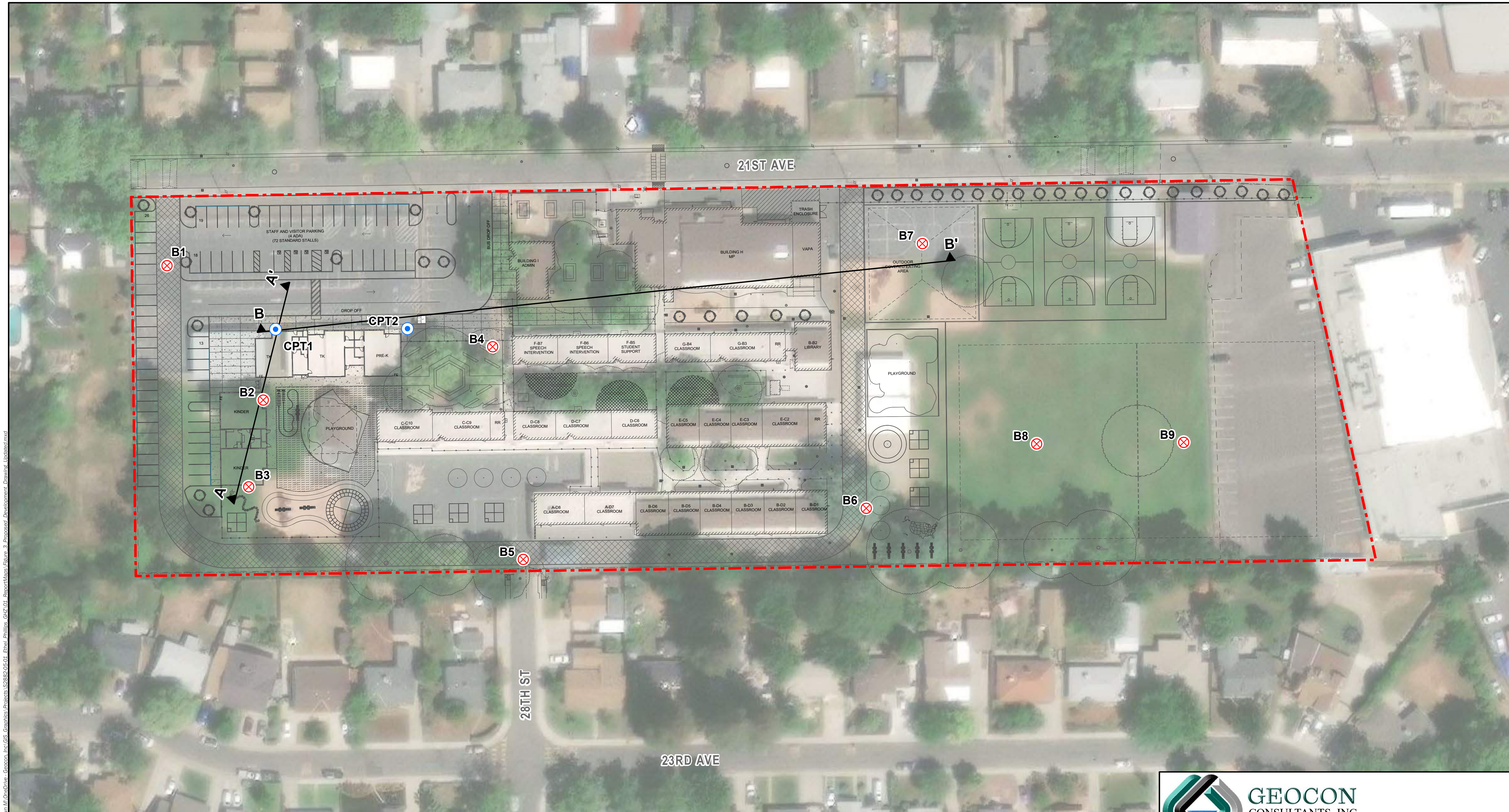
Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

AERIAL SITE MAP

S2882-05-01	September 2024	Figure 2

GEOCON 9/9/2024 USER Brown M PATH C:\Users\Brown M\OneDrive - Geocon, Inc\GIS Graphics\Projects\S2882-05-01 Ethel Phillips GHZ\01 Report\Maps\Figure 2 Aerial Site Map.mxd



Proposed Development Design Drawing by HMC Architects (6/17/2024)

Legend

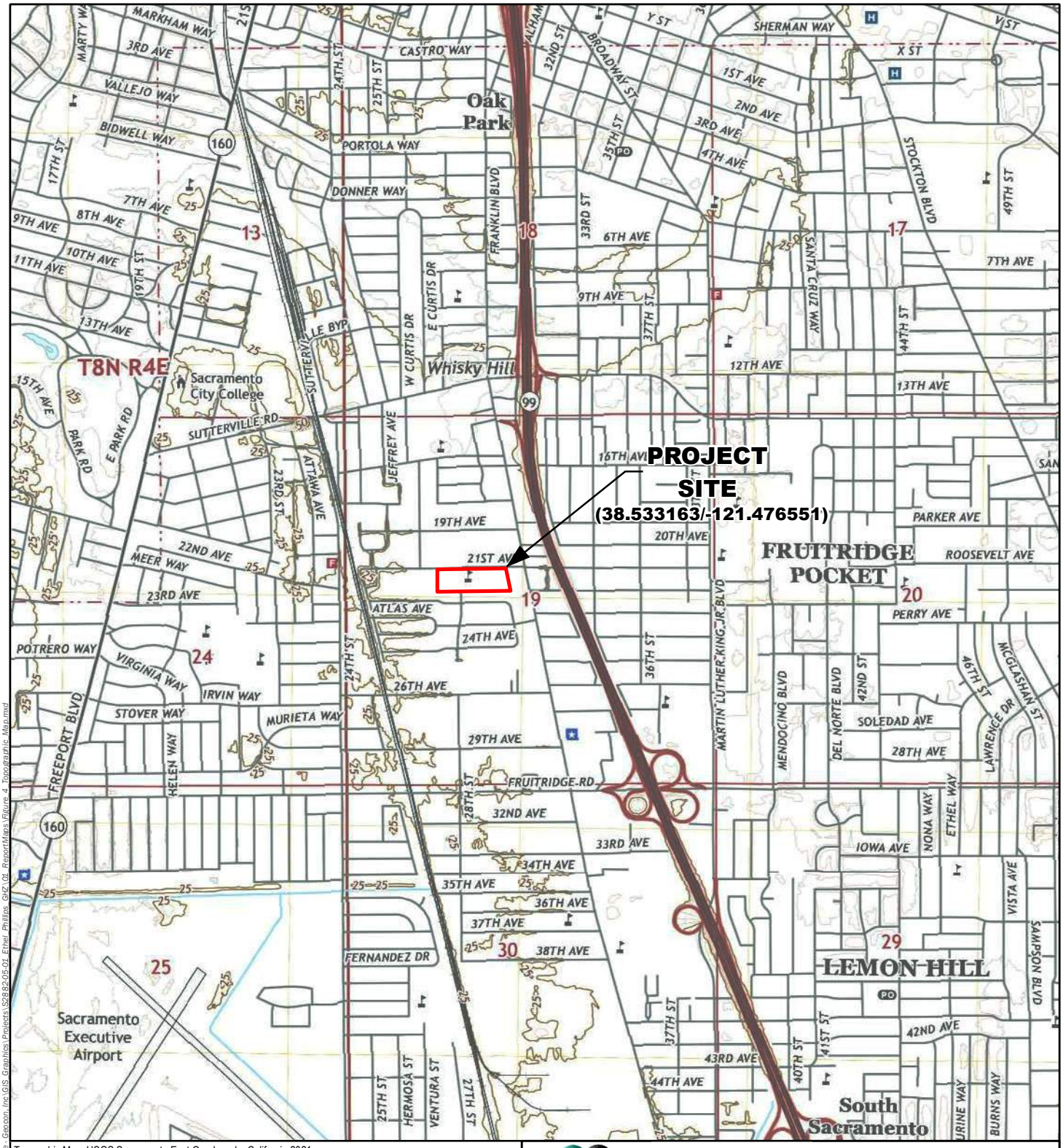
- Approximate Boring Location (Raney, July 2024)
- Approximate Cone Penetration Tests (CPT) Sample Location (Raney, July 2024)
- Approximate Cross-Section Location (Figures 6 and 7)
- Approximate Site Boundary

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

Ethel Phillips Elementary School Modernization
2930 21st Avenue
Sacramento, California

PROPOSED DEVELOPMENT PLAN

S2882-05-01	September 2024	Figure 3



Topograhic Map: USGS Sacramento East Quadrangle, California 2021

N

0 2,000

Scale in Feet

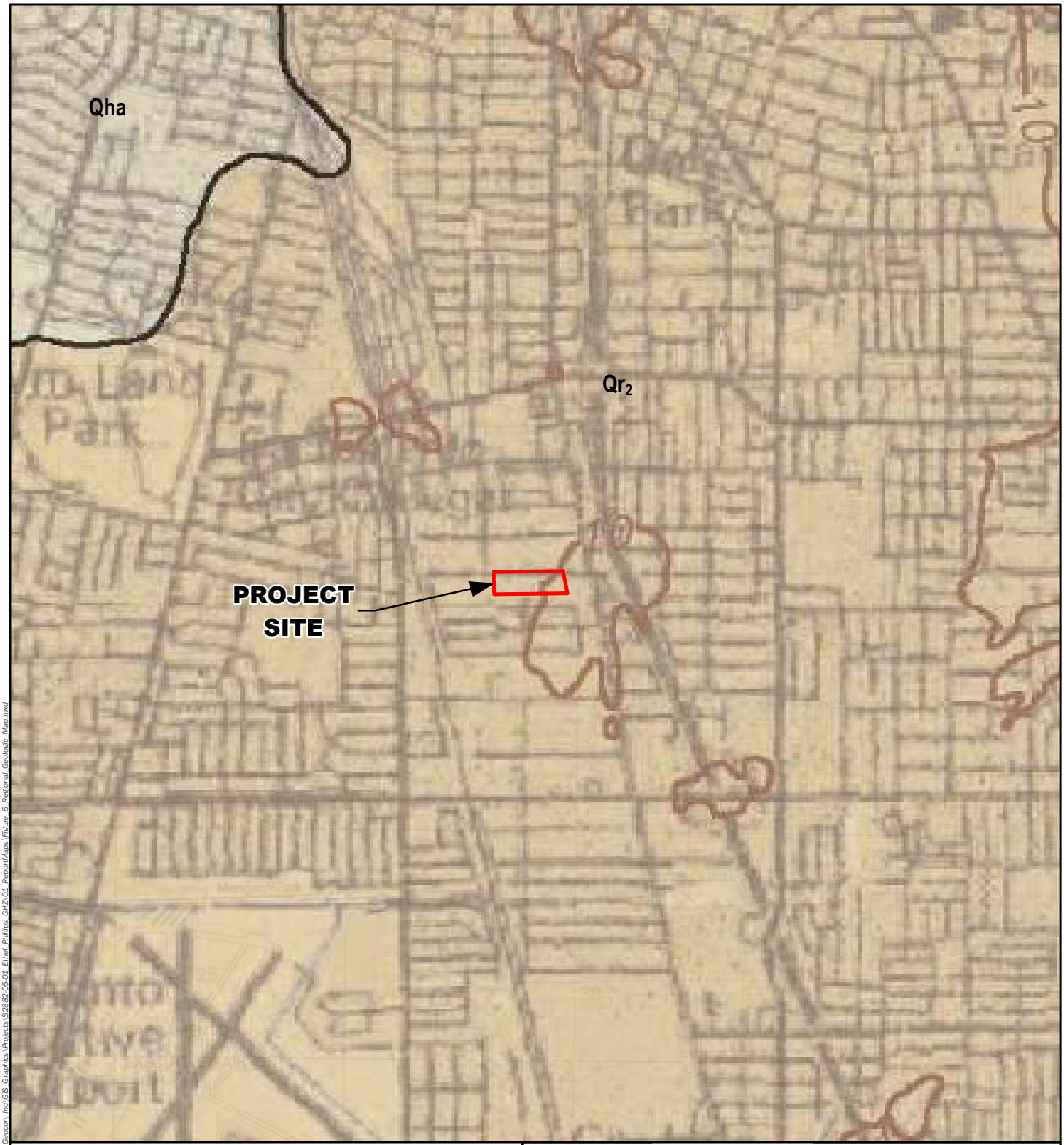
GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 - FAX 916.852.9132

Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

TOPOGRAPHIC MAP

S2882-05-01	September 2024	Figure 4



Preliminary Geologic Map of the Sacramento 30'x60' Quadrangle, California; Carlos I. Gutierrez, 2011

Unit Explantion

Qha	Holocene alluvium
Qr_2	Riverbank Formation - Middle Unit

N

0 2,000

Scale in Feet

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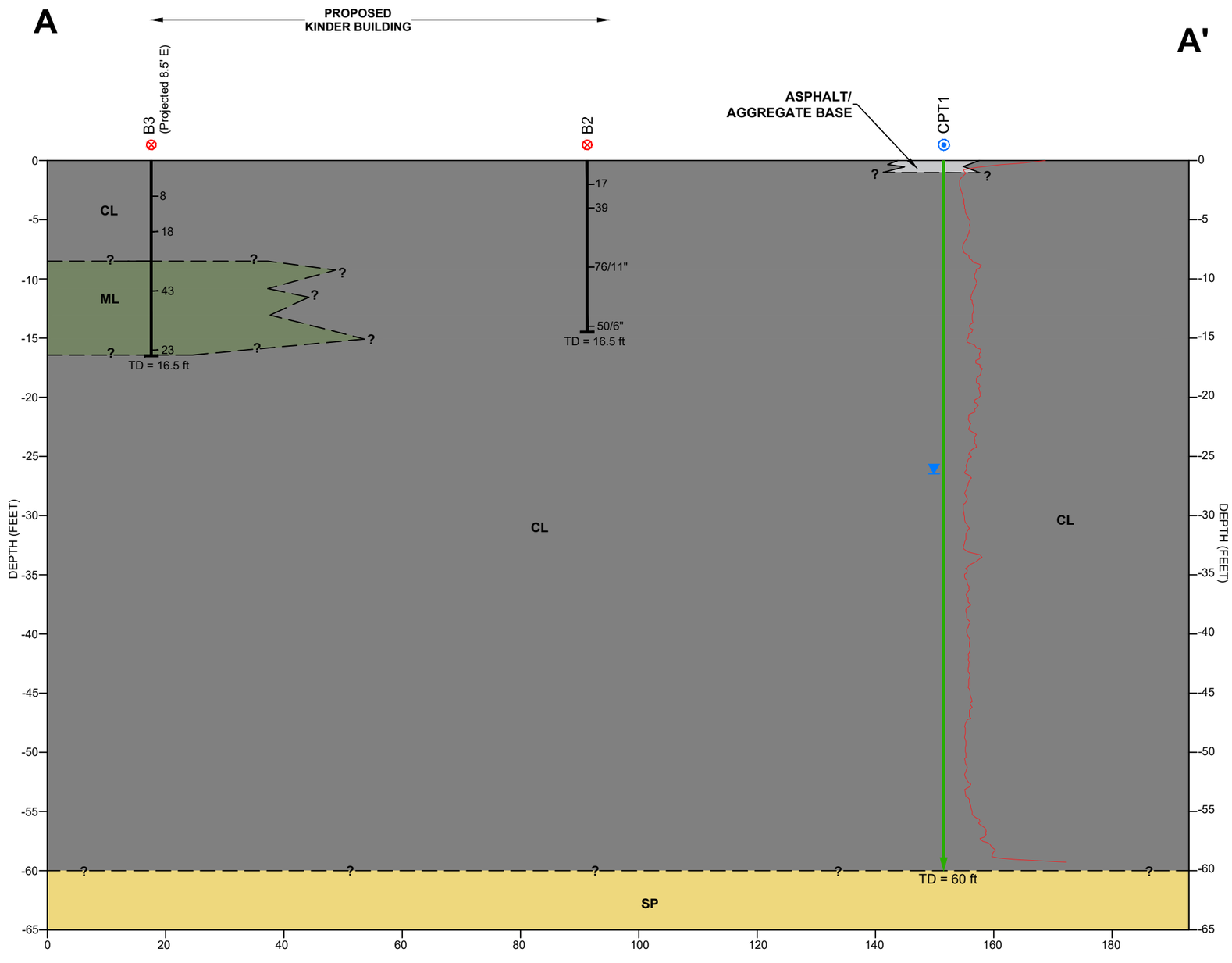
PHONE 916.852.9118 - FAX 916.852.9132

Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

REGIONAL GEOLOGIC MAP

S2882-05-01	September 2024	Figure 5



Legend

B3 — Exploration Location

43 — Blow Count (California Modified Sampler)

Water Level

CPT1 — CPT Location

Tip Resistance Plot

Soil Contacts

Soil Classifications:

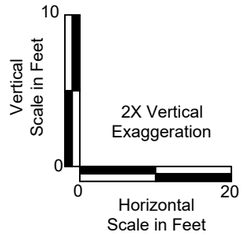
SP = Poorly graded sands, gravelly sands, little or no fines

ML = Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity

CL = Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

Abbreviations:

ft = Feet



Notes:

1. This figure depicts generalized subsurface conditions inferred from Raney's explorations and is intended for use as general geologic characterization and an aid for design. Actual subsurface conditions, including groundwater depths/elevations, may vary. Please refer to the Raney Report for detailed subsurface conditions encountered at each boring/CPT location.

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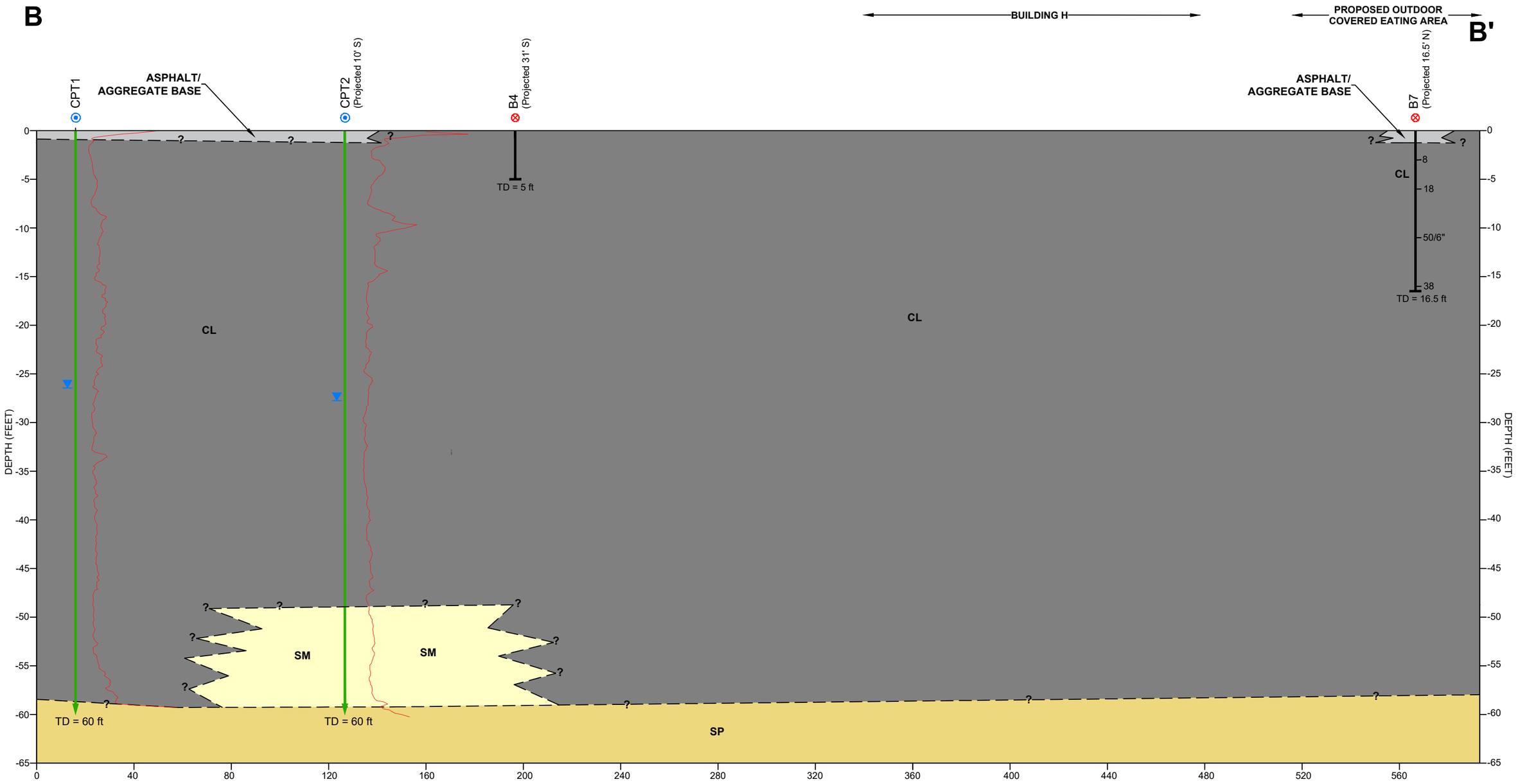
CROSS SECTION A-A'

S2882-05-01	September 2024	Figure 6

C:\Users\Brown MI\OneDrive - Geocon, Inc\GIS_Graphics\Projects\S2882-05-01_Ethel_Phillips_GHZ\01_ReportMaps\Figure_3_X_Section_A.dwg



Legend

B7 — Exploration Location

18 — Blow Count (California Modified Sampler)

Water Level

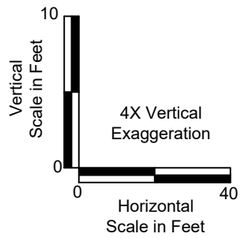
CPT2 — CPT Location

Tip Resistance Plot

Soil Contacts

Soil Classifications:
SP = Poorly graded sands, gravelly sands, little or no fines
SM = Silty sands with or without gravel
CL = Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

Abbreviations:
ft = Feet



Notes:
1. This figure depicts generalized subsurface conditions inferred from Raney's explorations and is intended for use as general geologic characterization and an aid for design. Actual subsurface conditions, including groundwater depths/elevations, may vary. Please refer to the Raney Report for detailed subsurface conditions encountered at each boring/CPT location.

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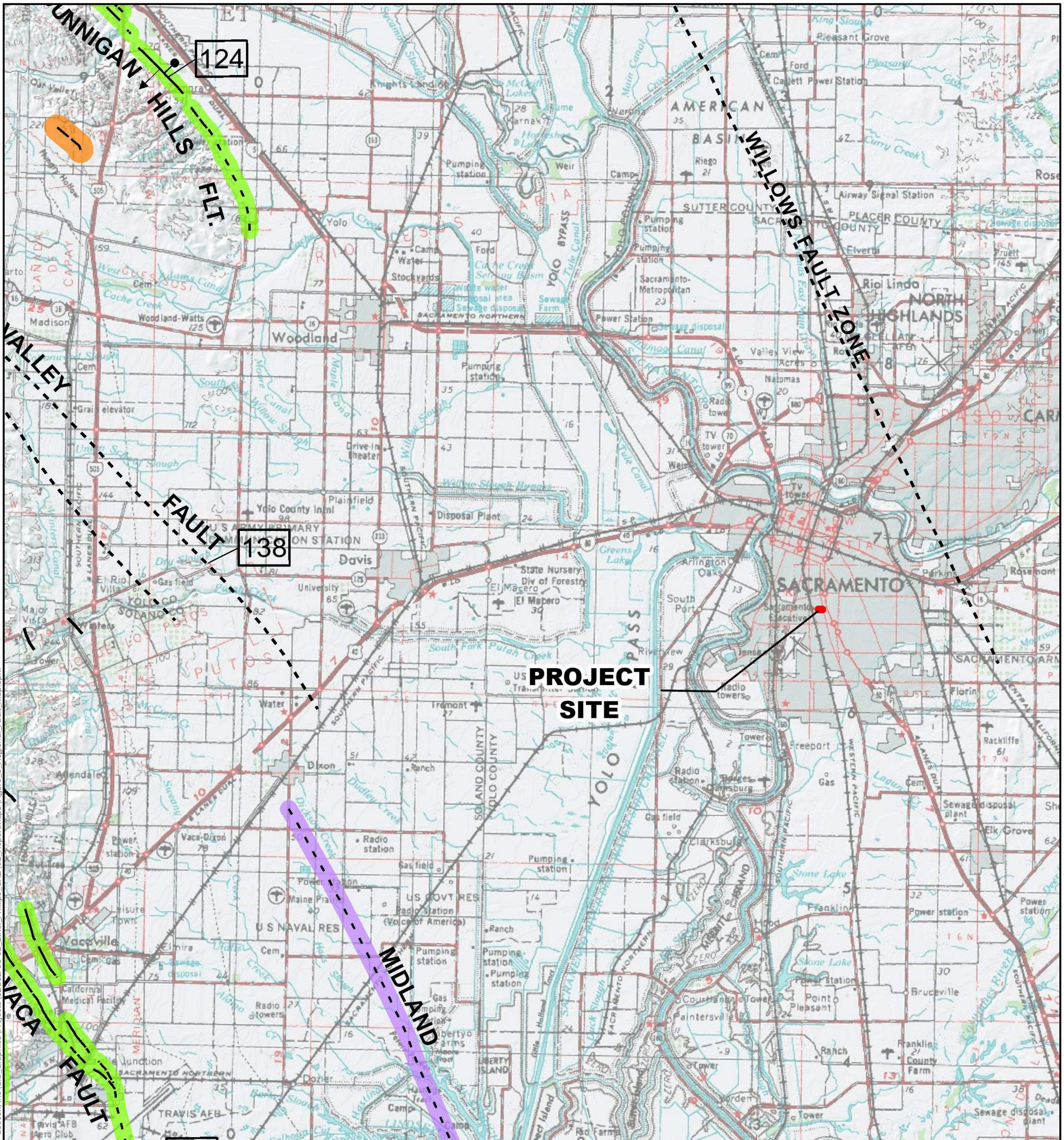
CROSS SECTION B-B'

S2882-05-01	September 2024	Figure 7

C:\Users\Brown MOneDrive - Geocon, Inc\GIS_Graphics\Projects\S2882-05-01_Ethel_Phillips_GHZ\01_ReportMaps\Figure_3_X_Section_A.dwg



Fault Activity Map of California by Charles W. Jennings and William A. Bryant published in 2010. (California Department of Conservation, GIS)

Legend

- Structural discontinuity
- Fault, Certain
- Fault, Approximate
- Fault, Concealed
- Thrust Fault, Certain
- Thrust Fault, Approximate
- Fault with Late Quaternary Activity (within past 700,000 years)
- Quaternary Fault (activity with in past 1.6 million years)

N

0 5
Scale in Miles

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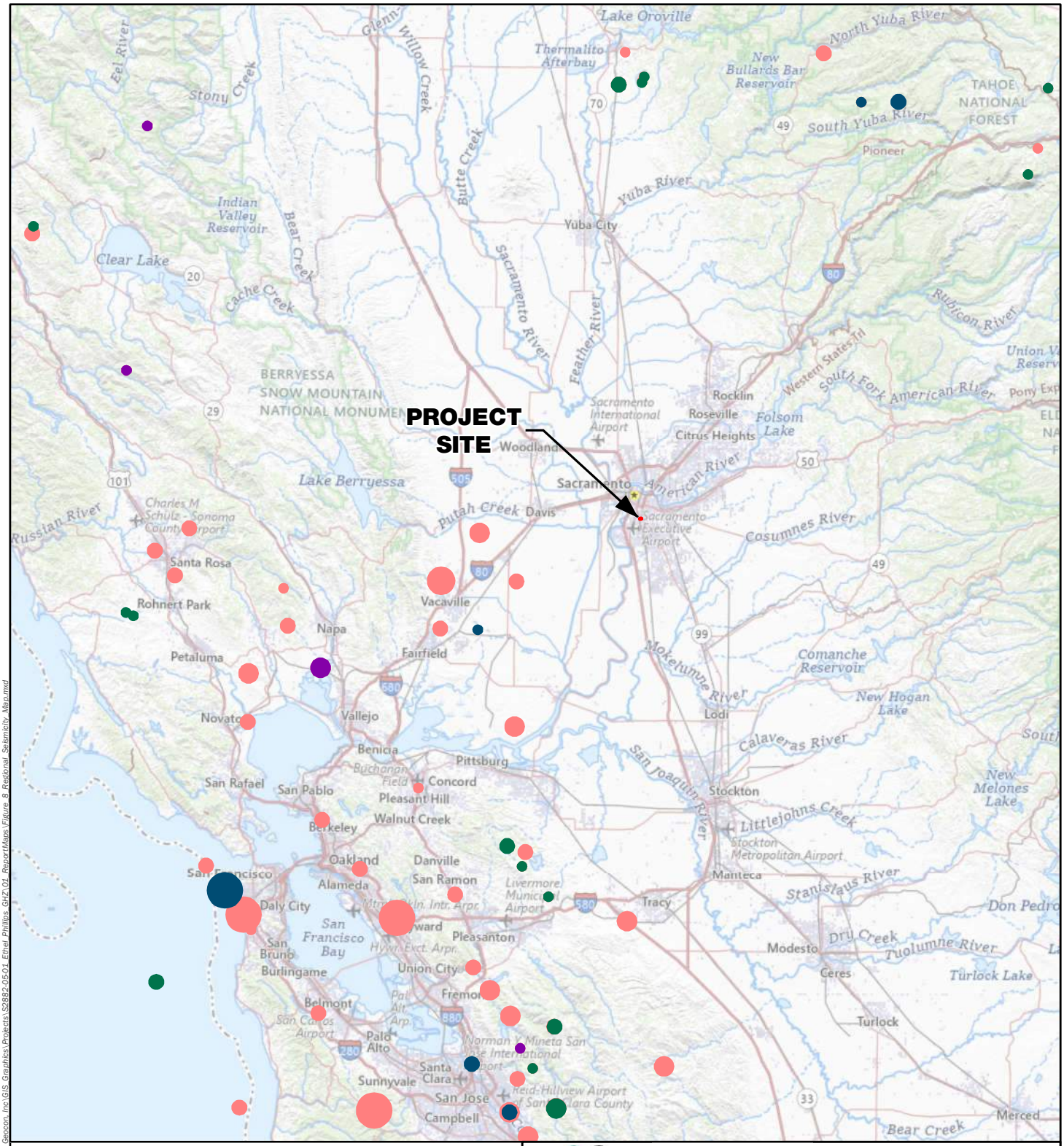
REGIONAL FAULT MAP

S2882-05-01	September 2024	Figure 8



Epicenters of and Areas Damaged by M>5 California Earthquakes, 1800-2023; California Department of Conservation and NOAA

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Sacramento, California

REGIONAL SEISMICITY MAP

S2882-05-01	September 2024	Figure 9

Legend

- Approximate Site Boundary
- FEMA Flood Hazard Zone
- Area with Reduced Flood Risk Due to Levee

N

0 500

Scale in Feet

Flood Hazard Zone layer from FEMA National Flood Hazard Database; https://hazards-fema.maps.arcgis.com/ 9/10/2024

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Sacramento, California

FEMA FLOOD HAZARD MAP

S2882-05-01	September 2024	Figure 10

GEOCON 9/10/2024 USER Brown M PATH C:\Users\Brown M OneDrive - Geocon, Inc\GIS Graphics\Projects\S2882-05-01 Ethel Phillips GIZ\01 ReportMaps\Figure 9 FEMA Flood Map.mxd

Photo No. 1 - Representative existing site conditions facing west.

Photo No. 2 – CPT2 location in existing pavement facing south.

PHOTOS NO. 1 & 2

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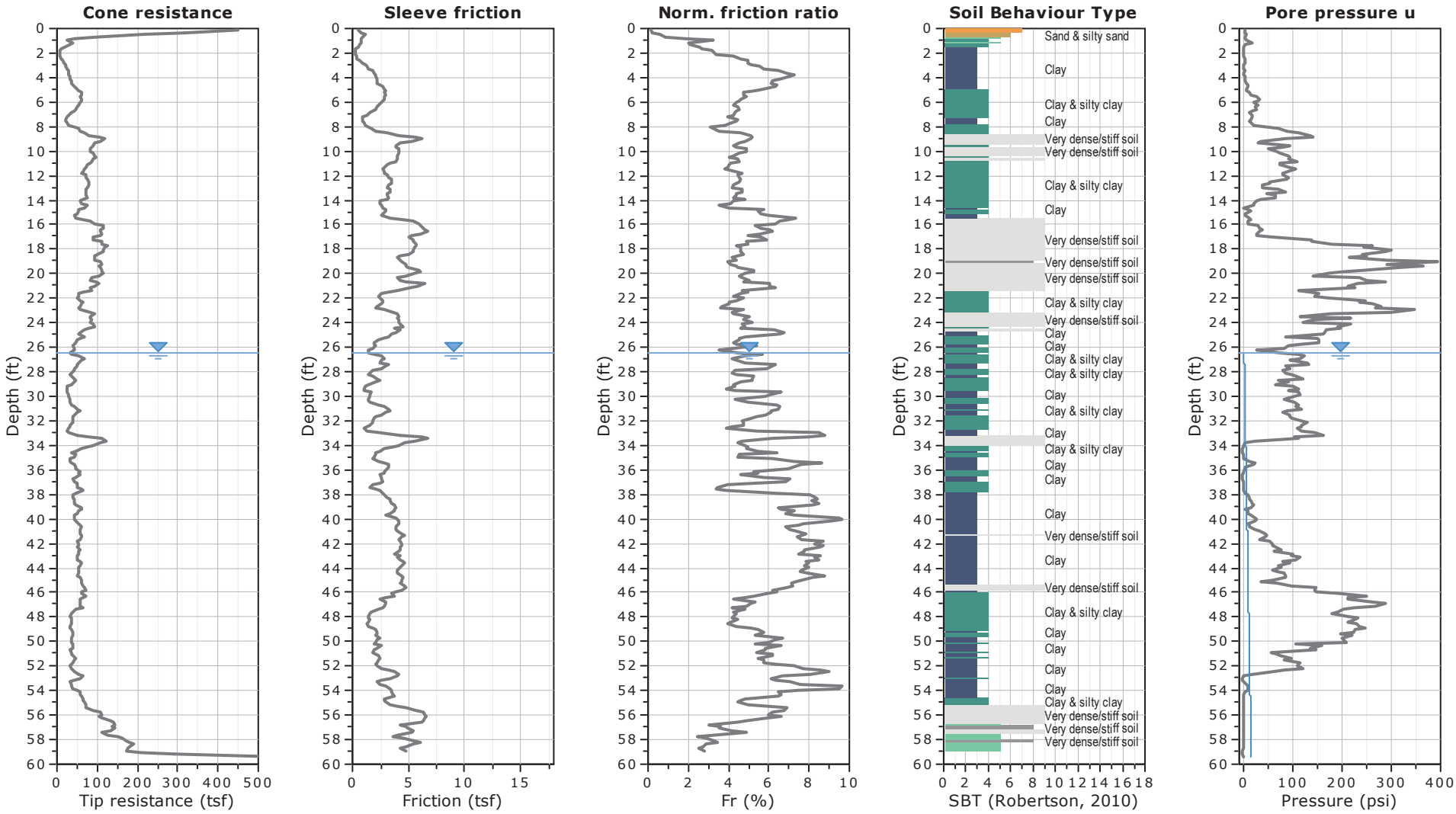
Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

GEOCON Project No. S2882-05-01 | September 2024

APPENDIX A



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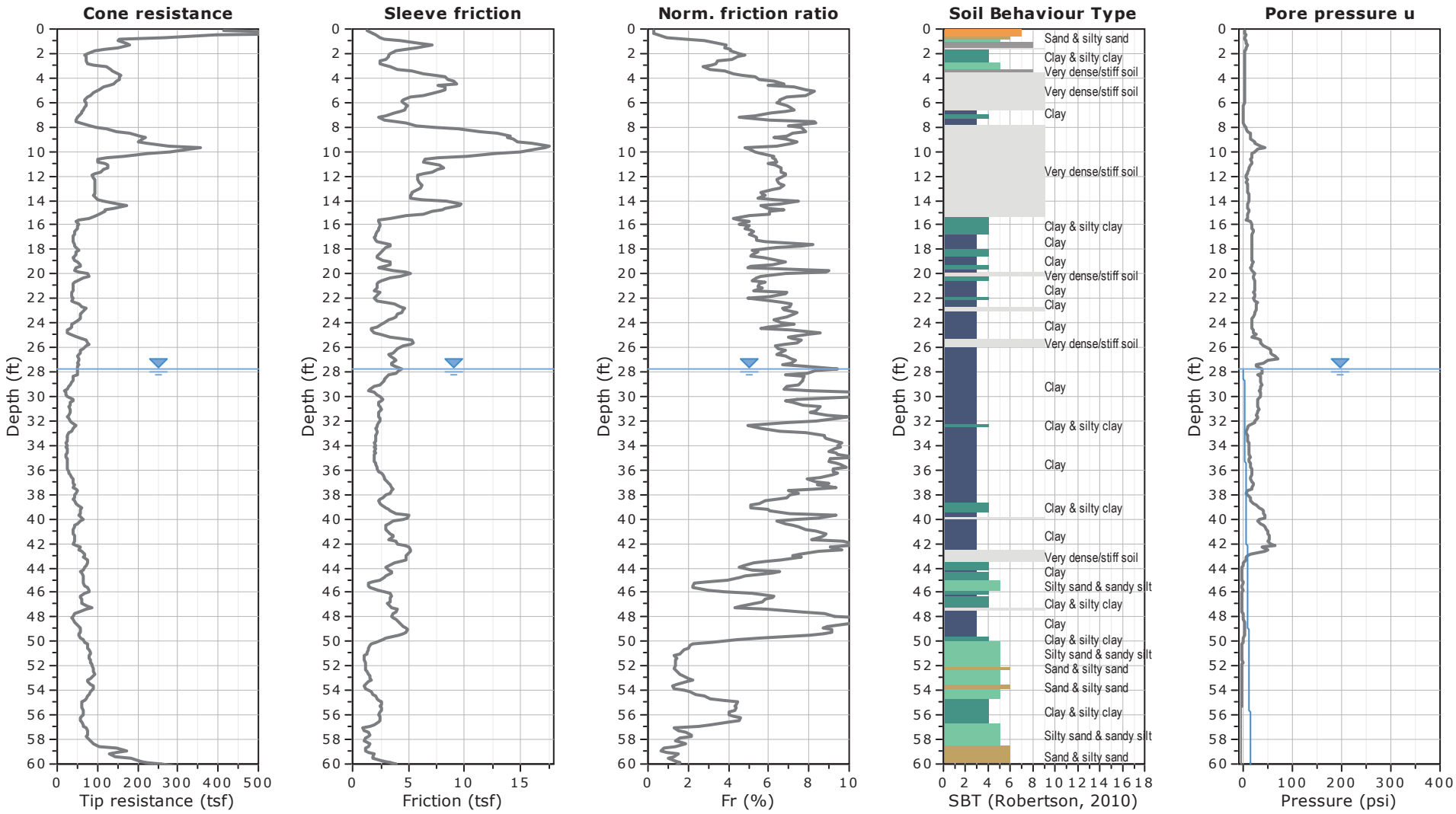
CPT1

Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

S2882-05-01	September 2024	Figure A1



GEOCON
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PHONE 916.852.9118 – FAX 916.852.9132

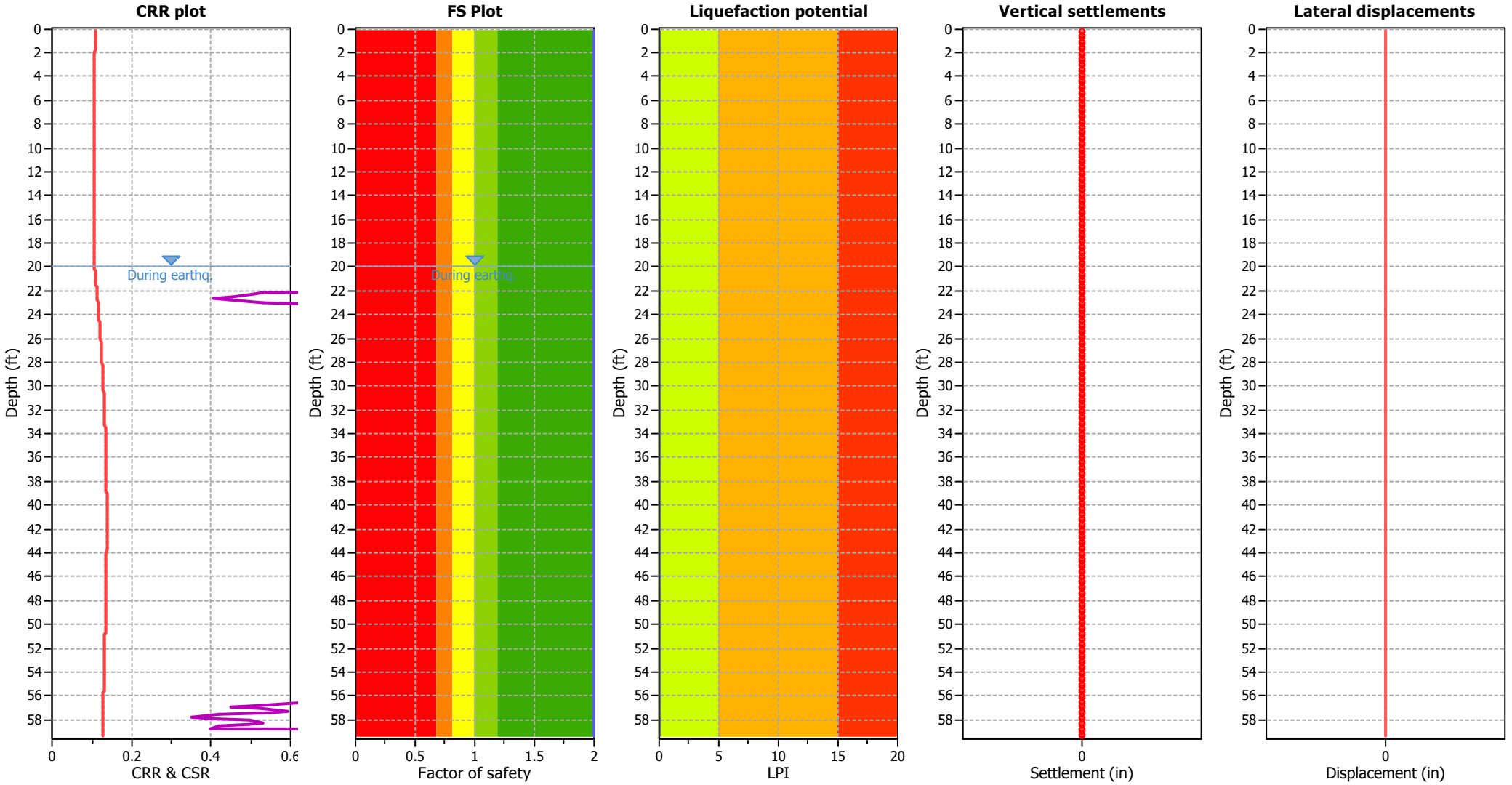
CPT2

Ethel Phillips Elementary School Modernization

2930 21st Avenue
Sacramento, California

S2882-05-01	September 2024	Figure A2

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

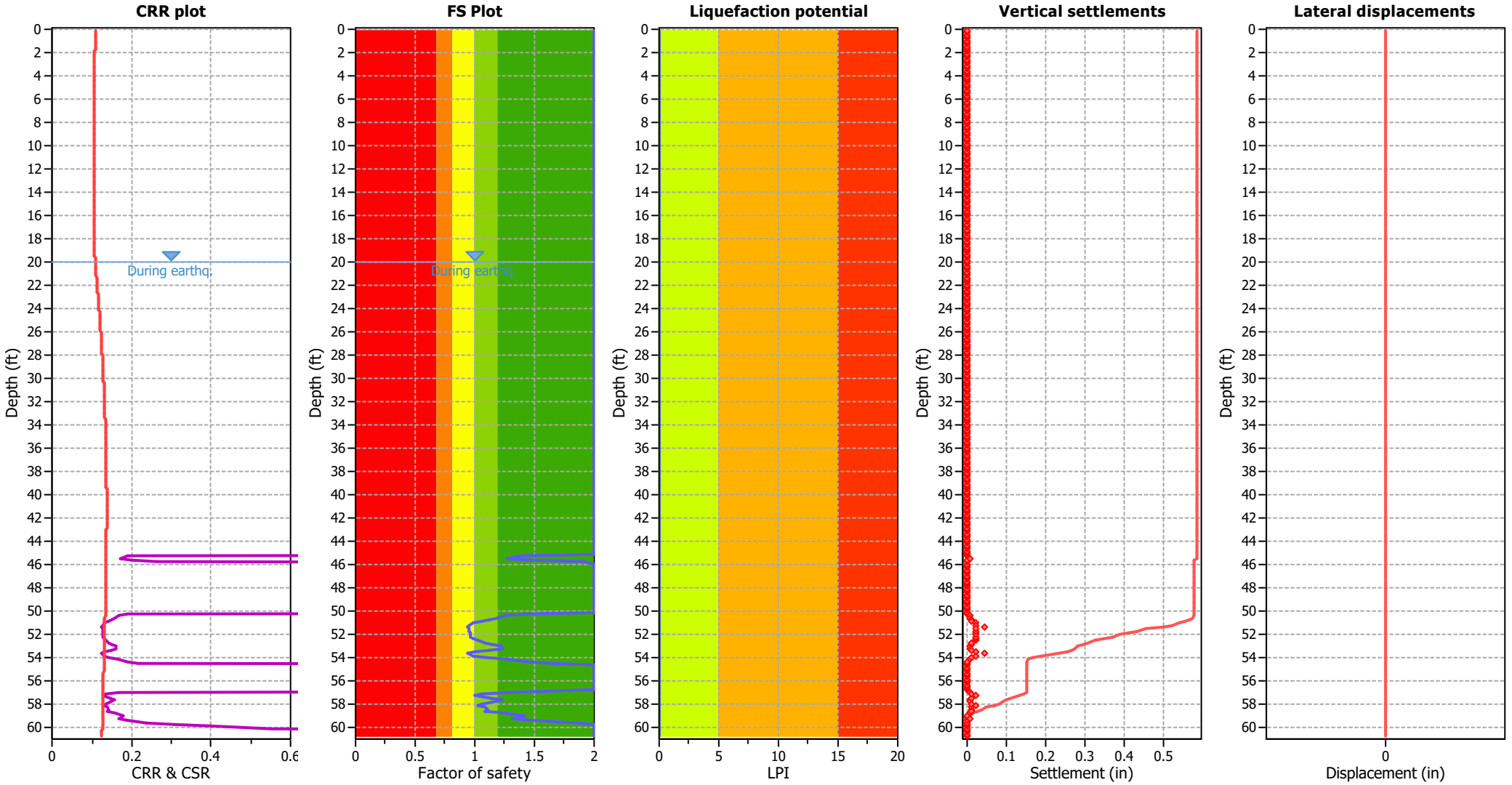
F.S. color scheme

- 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 overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

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

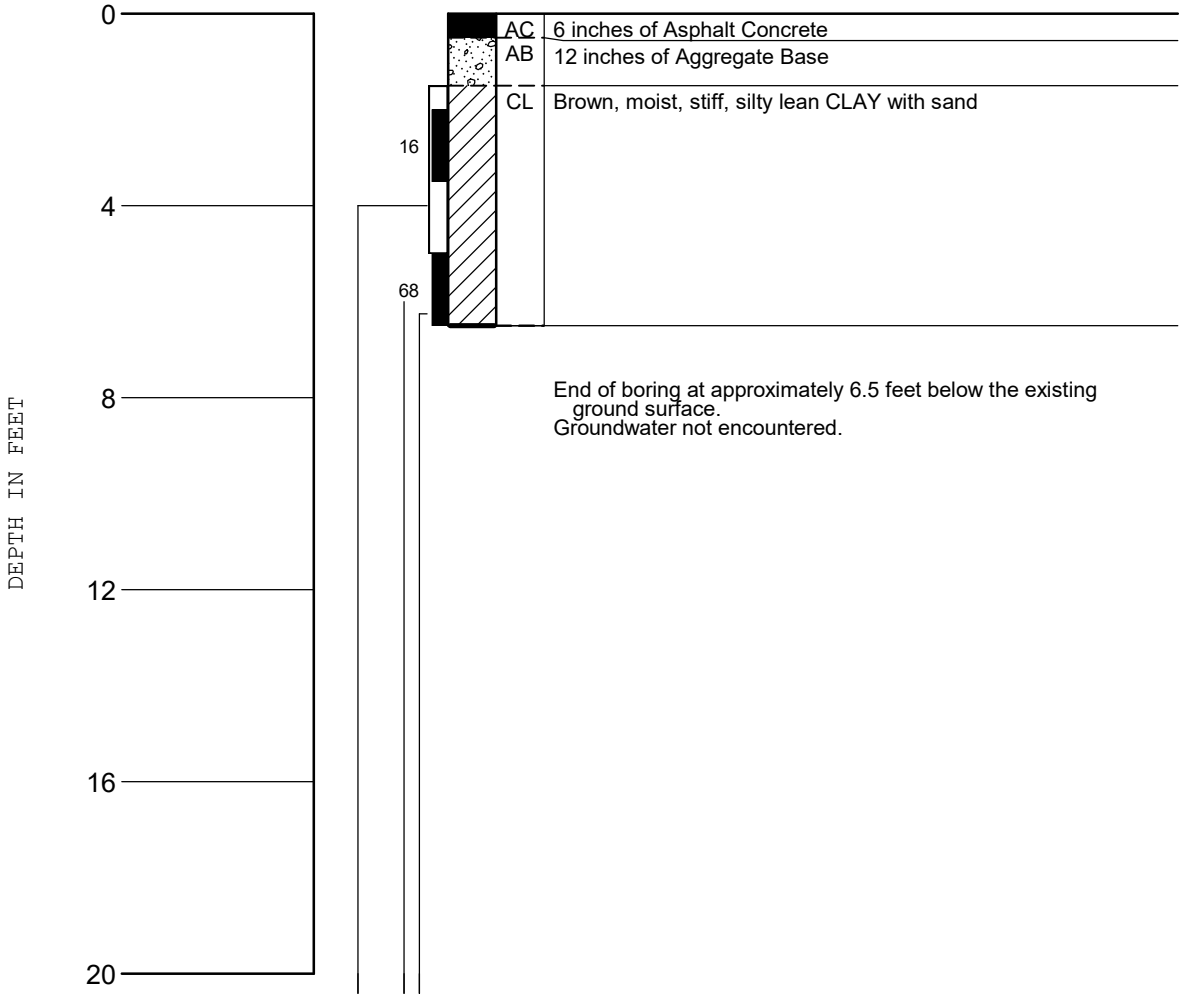
LPI color scheme

- Very high risk
- High risk
- Low risk

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 1

DRILLED: 7/31/24



End of boring at approximately 6.5 feet below the existing ground surface.
Groundwater not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. UNDISTURBED SAMPLE OBTAINED WITH 2" I.D. MODIFIED CALIFORNIA SAMPLER.
4. SAMPLER PENETRATION RESISTANCE IN BLOWS PER FOOT OR FRACTION THEREOF; 140-POUND HAMMER, 30" DROP.
5. DISTURBED SAMPLE OBTAINED FROM AUGERS.
6. FREE GROUNDWATER WAS ENCOUNTERED IN BORINGS.

LOG OF BORING

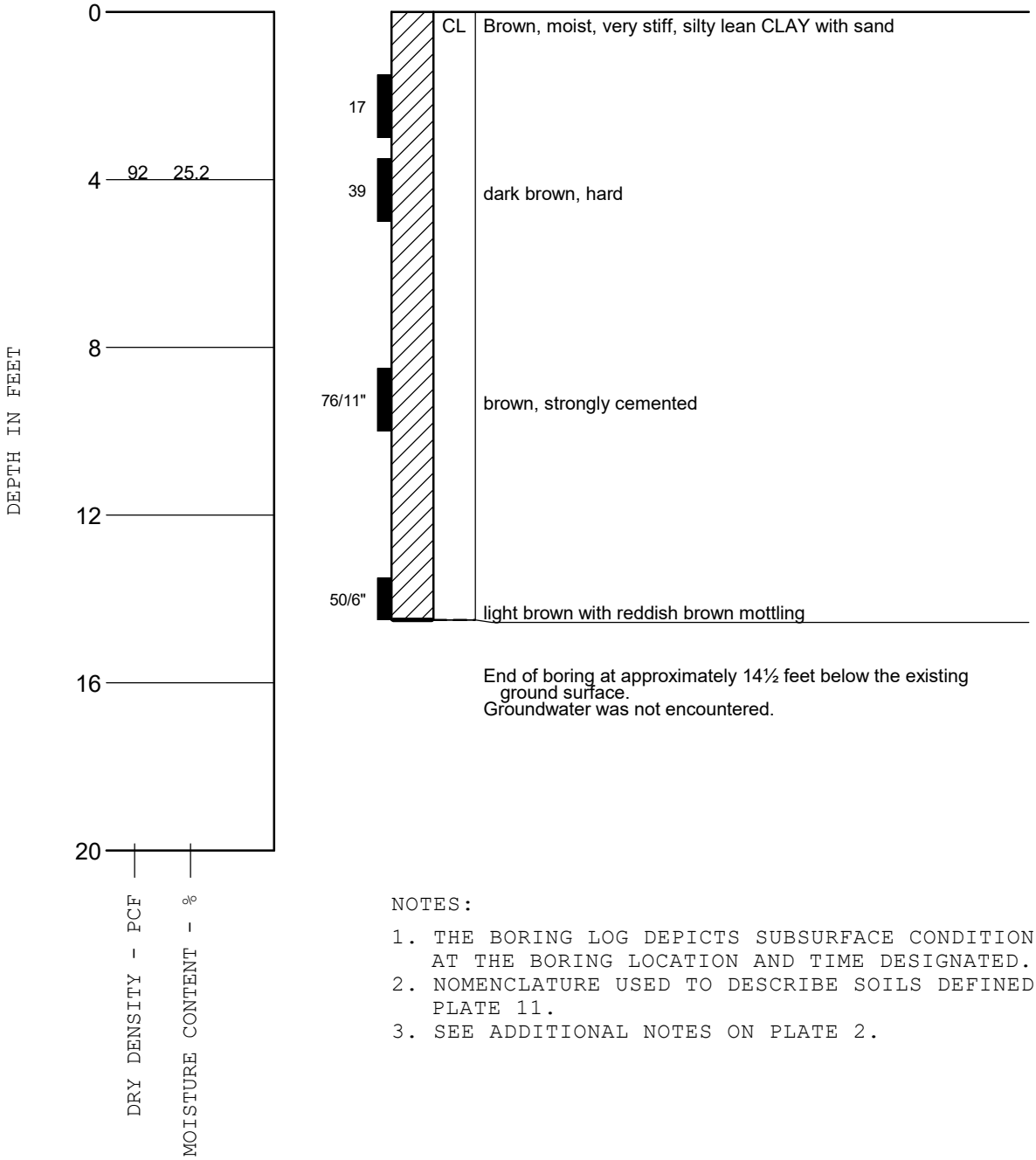
Raney Geotechnical Inc

PLATE 2

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 2

DRILLED: 7/31/24



End of boring at approximately 14½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

Raney Geotechnical Inc

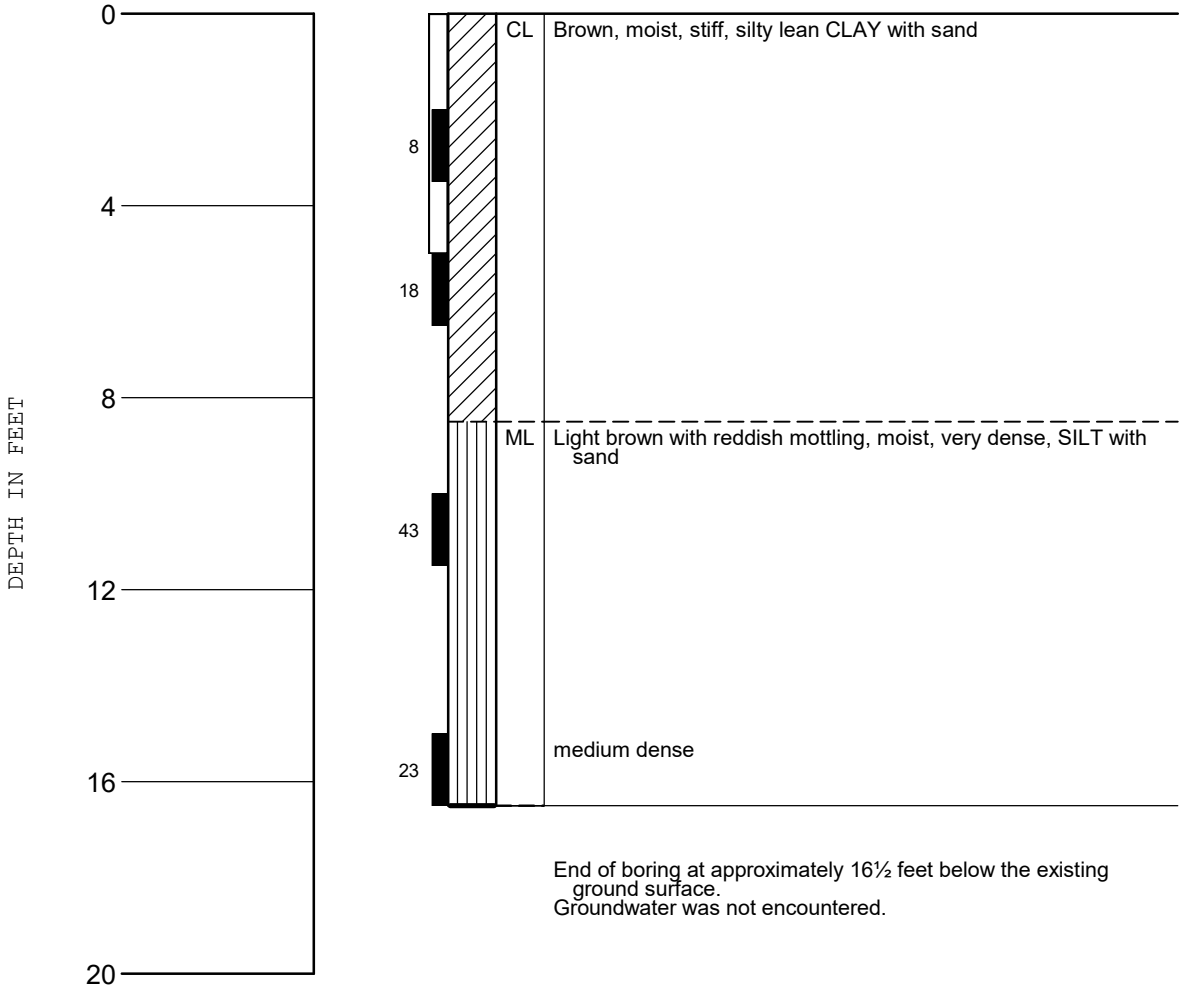
LOG OF BORING

PLATE 3

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 3

DRILLED: 7/31/24



End of boring at approximately 16½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

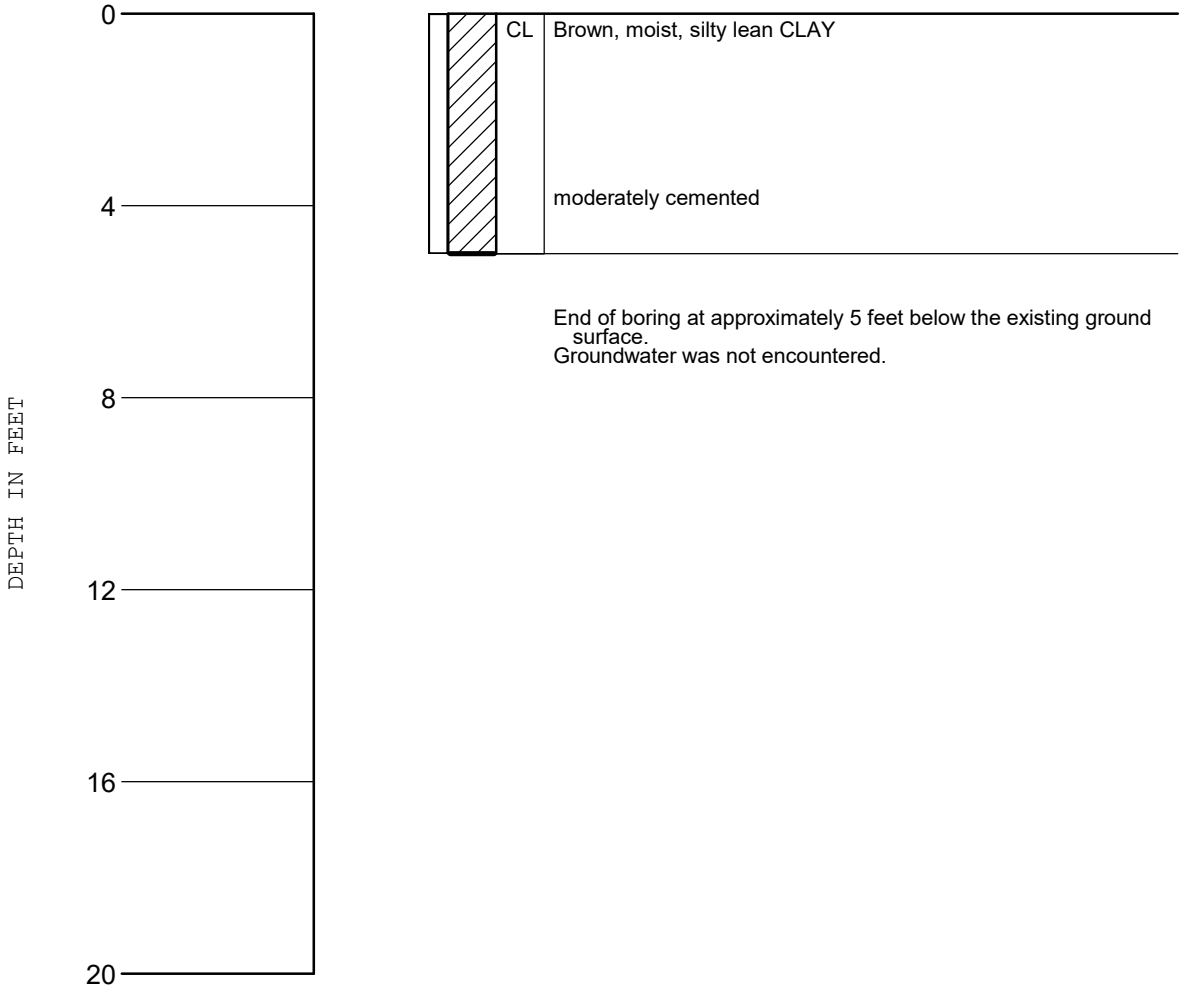
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 4

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

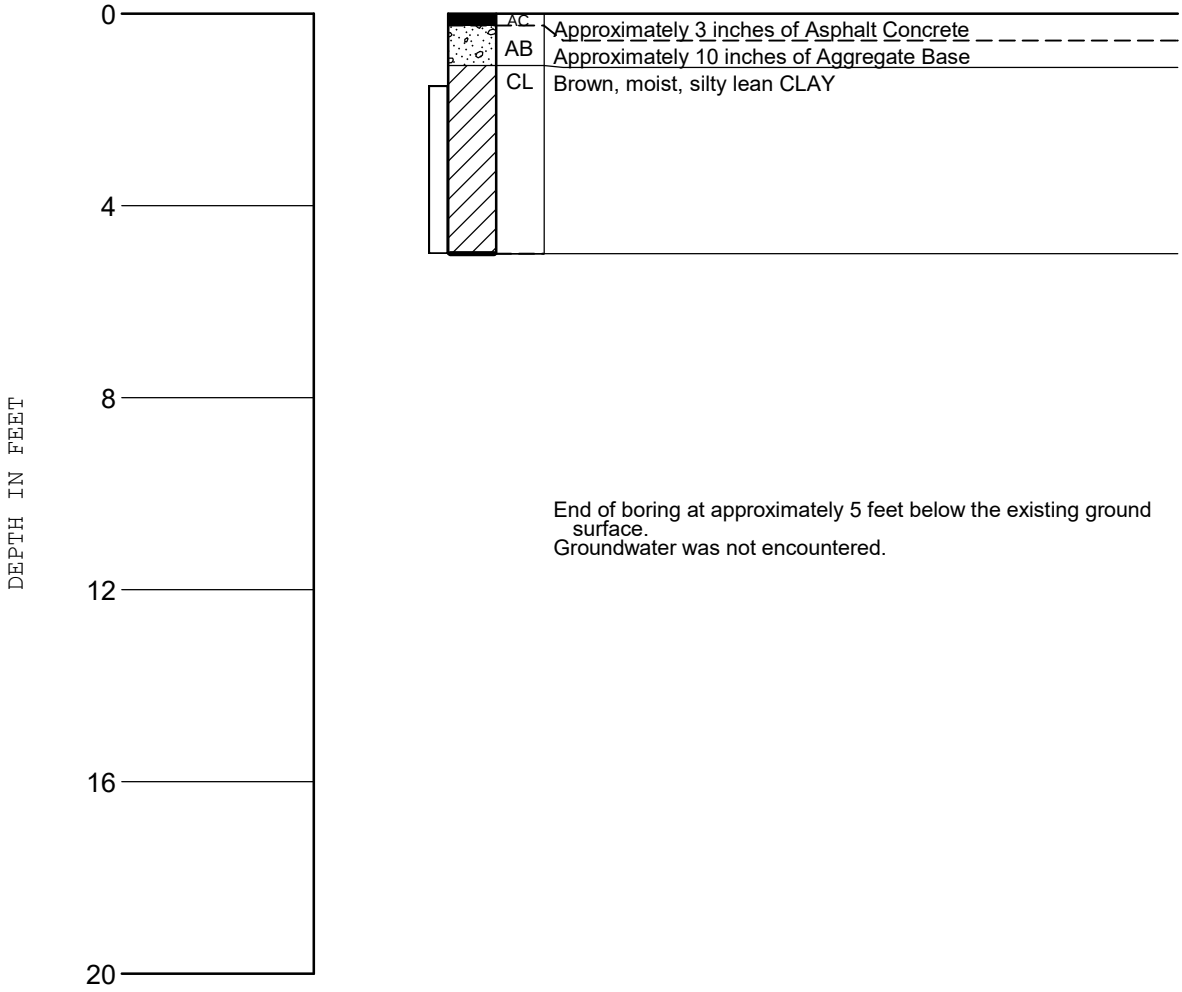
LOG OF BORING

Raney Geotechnical Inc

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 5

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

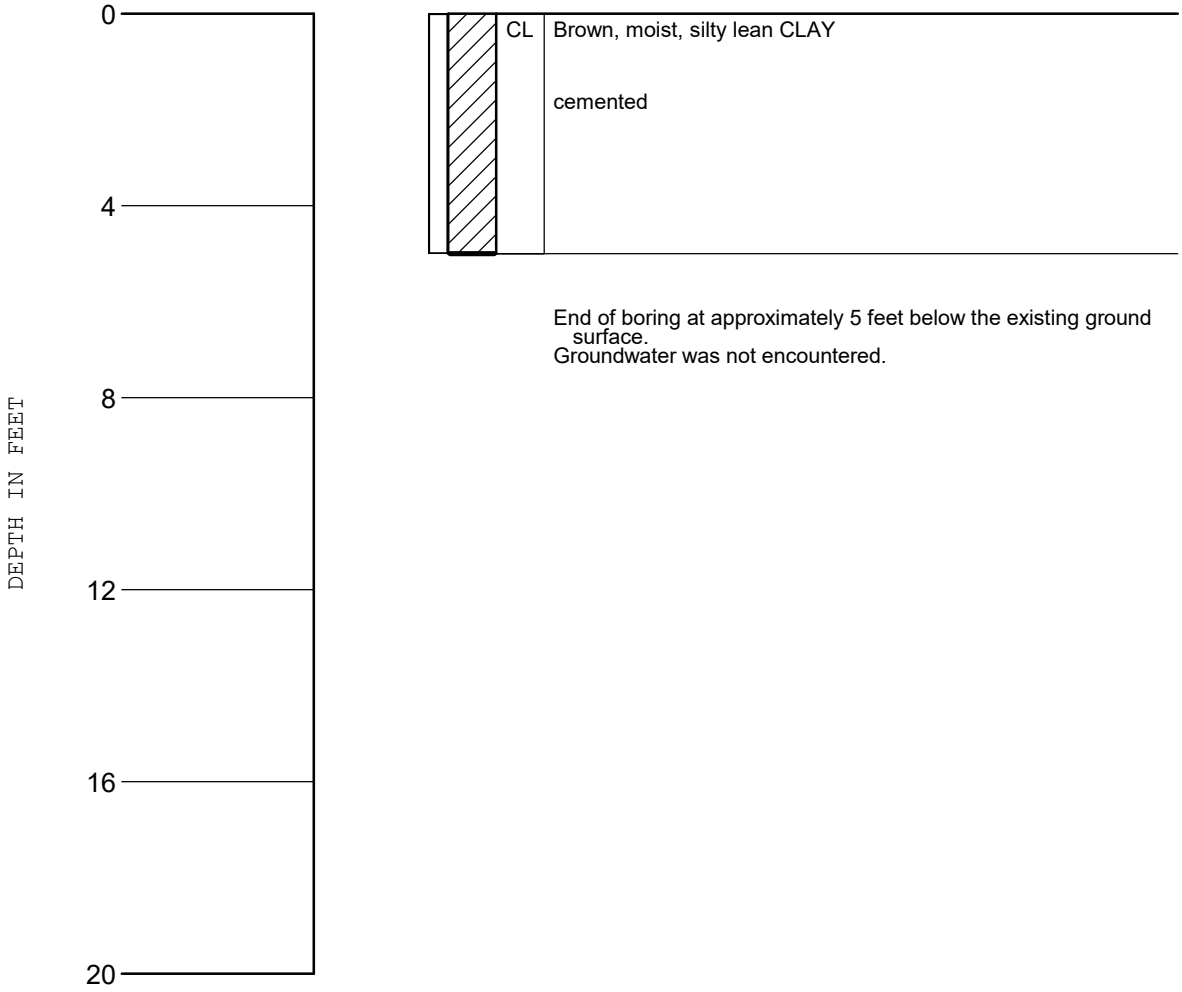
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 6

DRILLED: 7/31/24



End of boring at approximately 5 feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

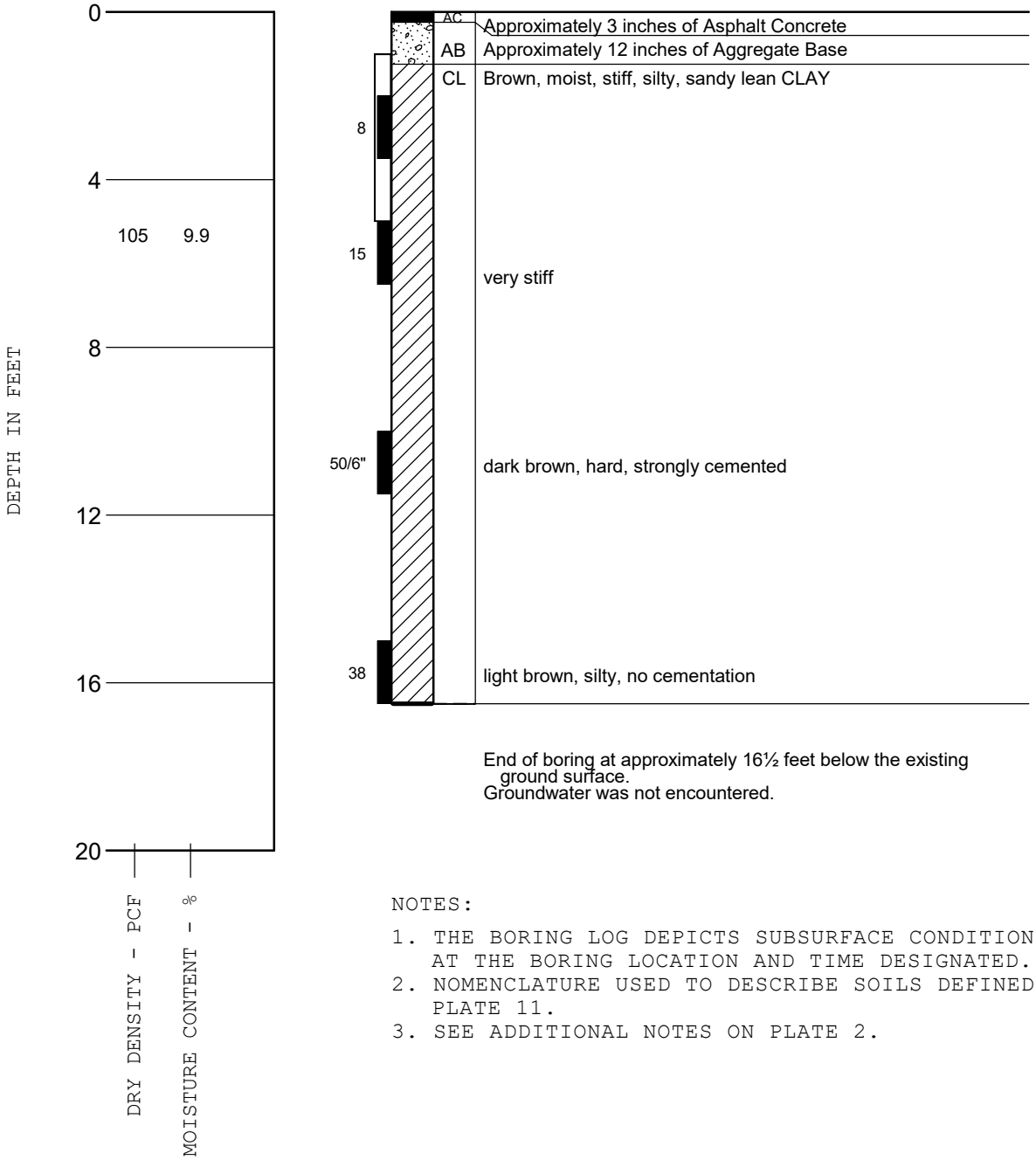
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 7

DRILLED: 7/31/24



End of boring at approximately 16½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

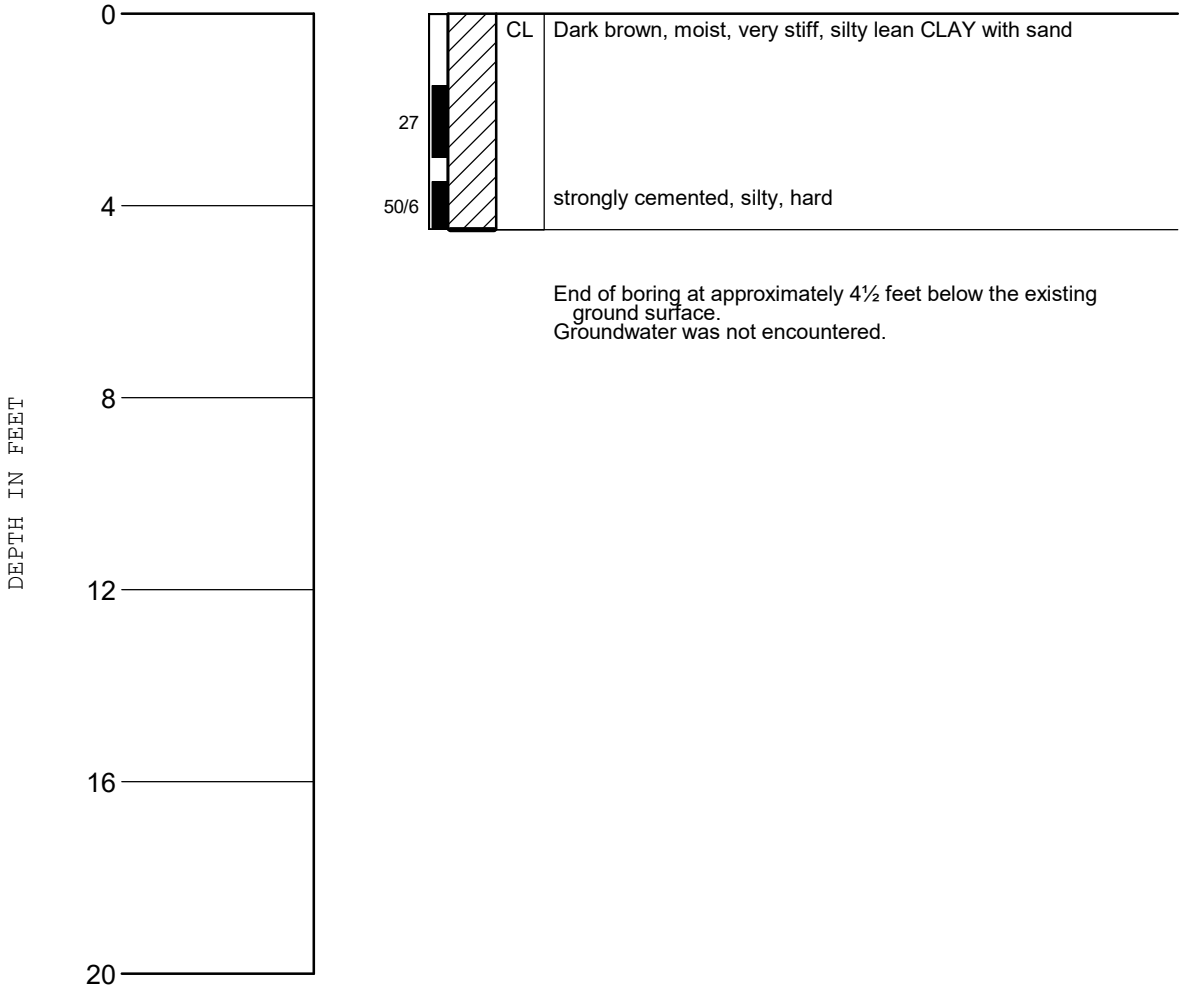
LOG OF BORING

Raney Geotechnical Inc

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 8

DRILLED: 7/31/24



End of boring at approximately 4½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

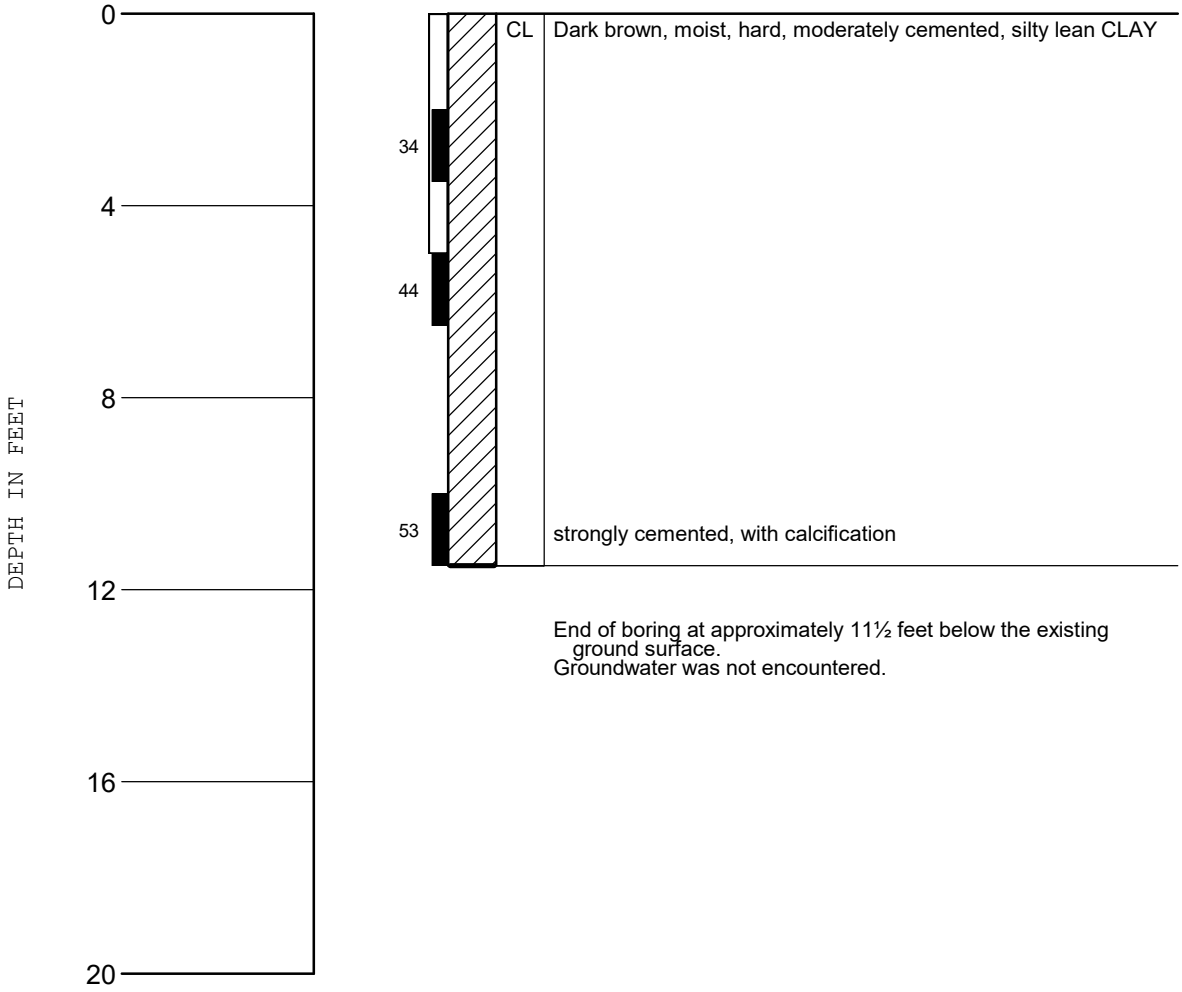
Raney Geotechnical Inc

LOG OF BORING

PROJECT NUMBER: 5995-001.00 PROJECT NAME: Ethel Phillips Modernization
DRAWN BY: HZ DATE: 7/31/2024

BORING 9

DRILLED: 7/31/24



End of boring at approximately 11½ feet below the existing ground surface.
Groundwater was not encountered.

NOTES:

1. THE BORING LOG DEPICTS SUBSURFACE CONDITIONS ONLY AT THE BORING LOCATION AND TIME DESIGNATED.
2. NOMENCLATURE USED TO DESCRIBE SOILS DEFINED ON PLATE 11.
3. SEE ADDITIONAL NOTES ON PLATE 2.

Raney Geotechnical Inc

LOG OF BORING

APPENDIX B

Logs of CPTs

Raney Geotechnical

https://www.raneygeotechnical.com/

CPT: CPT-01

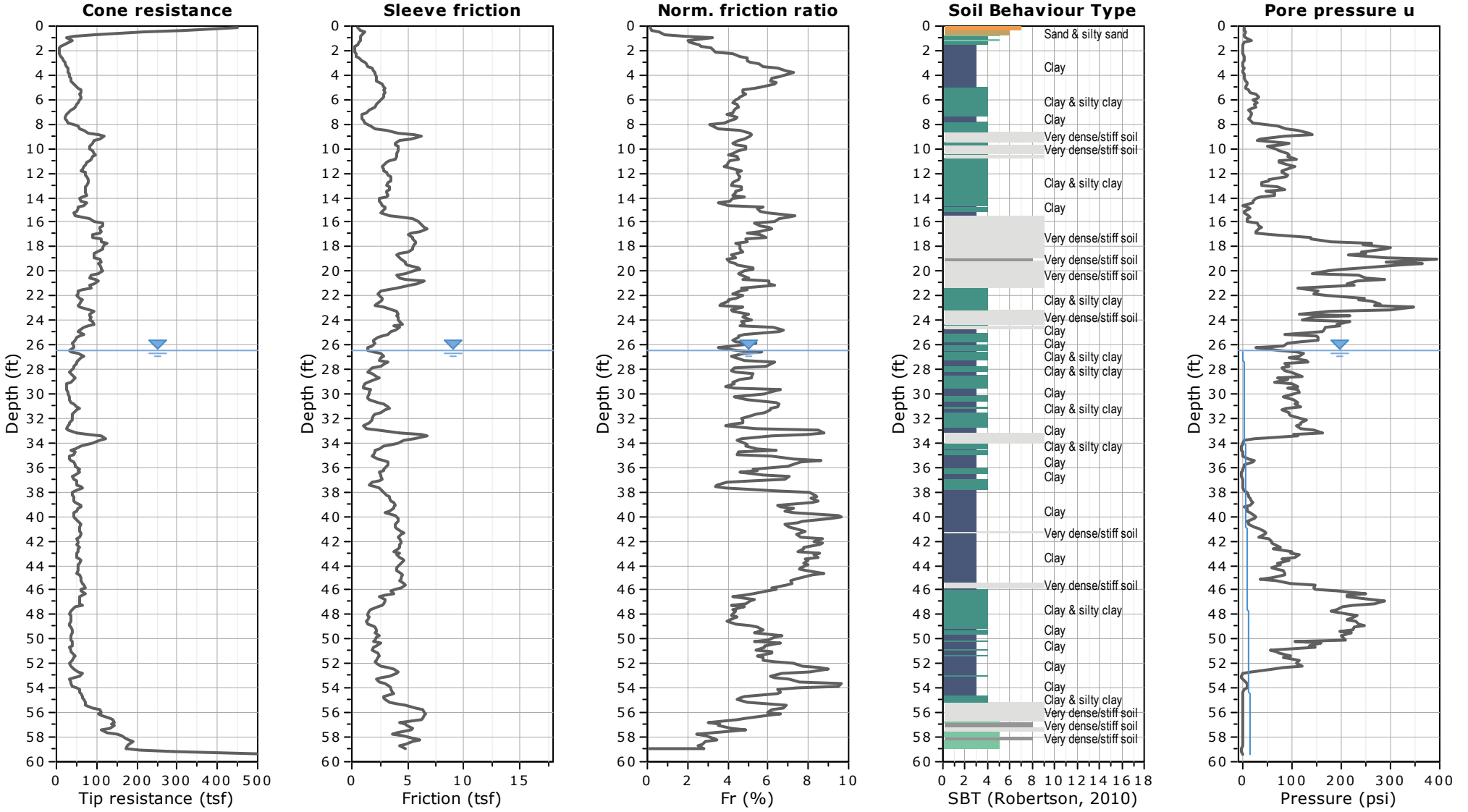
Total depth: 59.38 ft, Date: 9/19/2024

Cone Type: 15cm²

Cone Operator: JM-IY

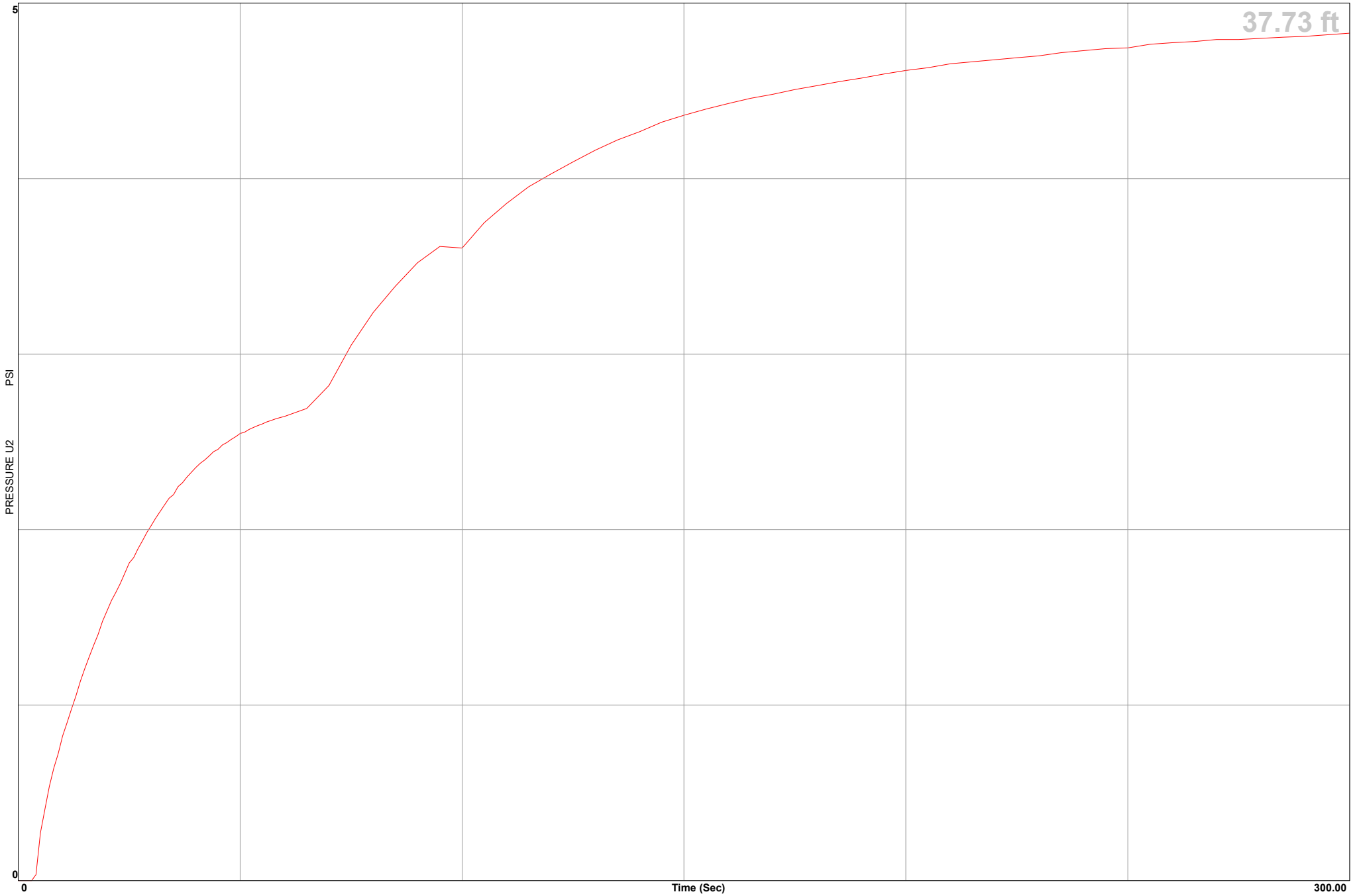
Project: Ethel Phillips Modernization

Location: 2930 21st Avenue, Sacramento, CA 95820



Raney Geotechnical

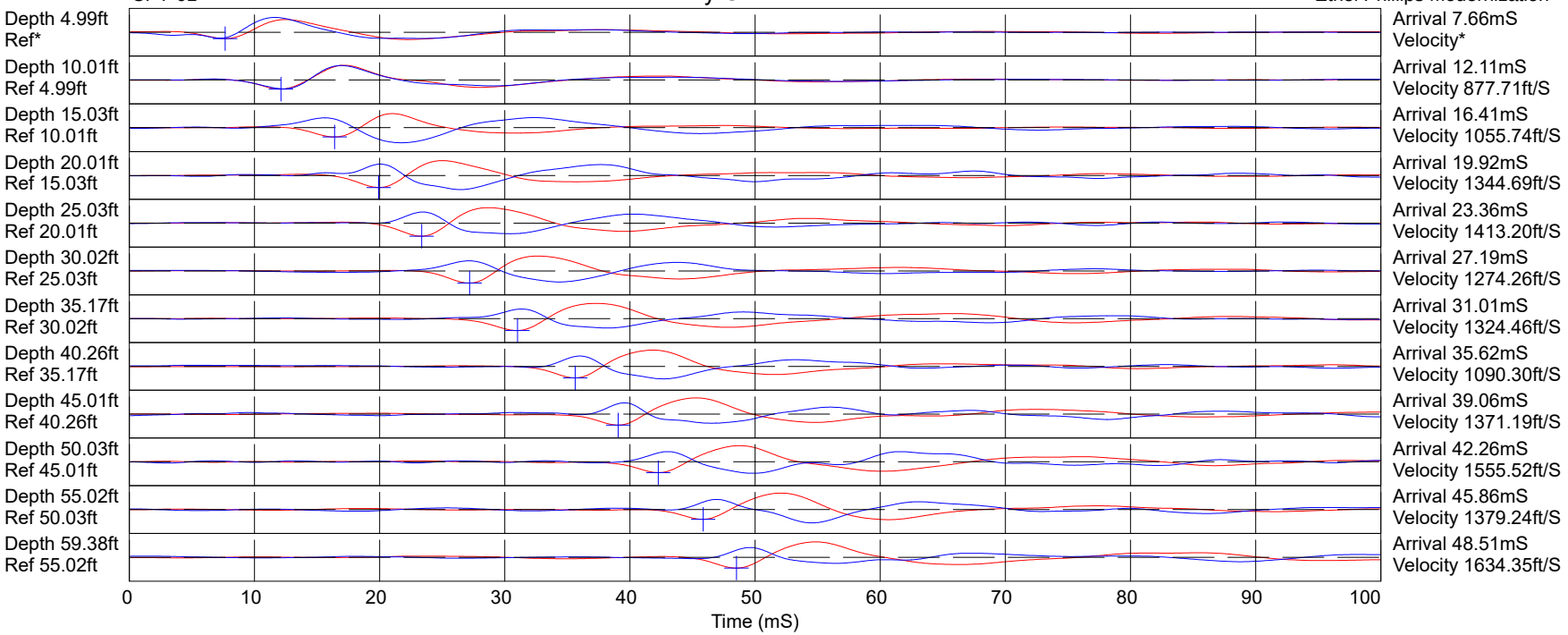
Location	Ethel Phillips Modernization	Operator	JM-IY	
Job Number	3073-002-00P	Cone Number	DDG1589	GPS
Hole Number	CPT-01	Date and Time	9/19/2024 2:07:53 PM	
Equilized Pressure	4.8	EST GW Depth During Test	26.5	



CPT-01

Raney Geotechnical

Ethel Phillips Modernization



Hammer to Rod String Distance (ft): 5.83

* = Not Determined

COMMENT:

CPT: CPT-02

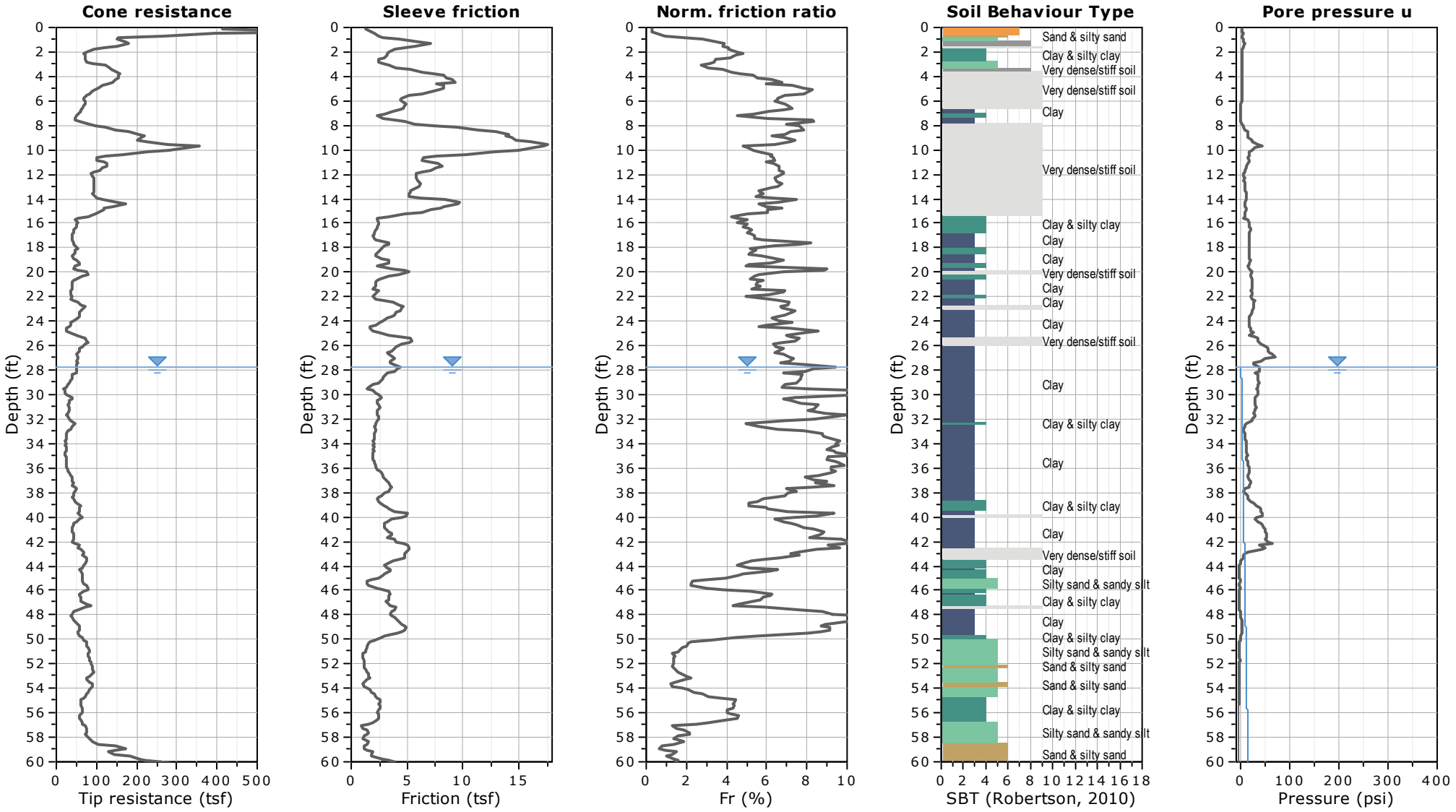
Total depth: 60.70 ft, Date: 9/19/2024

Cone Type: 15cm²

Cone Operator: JM-IY

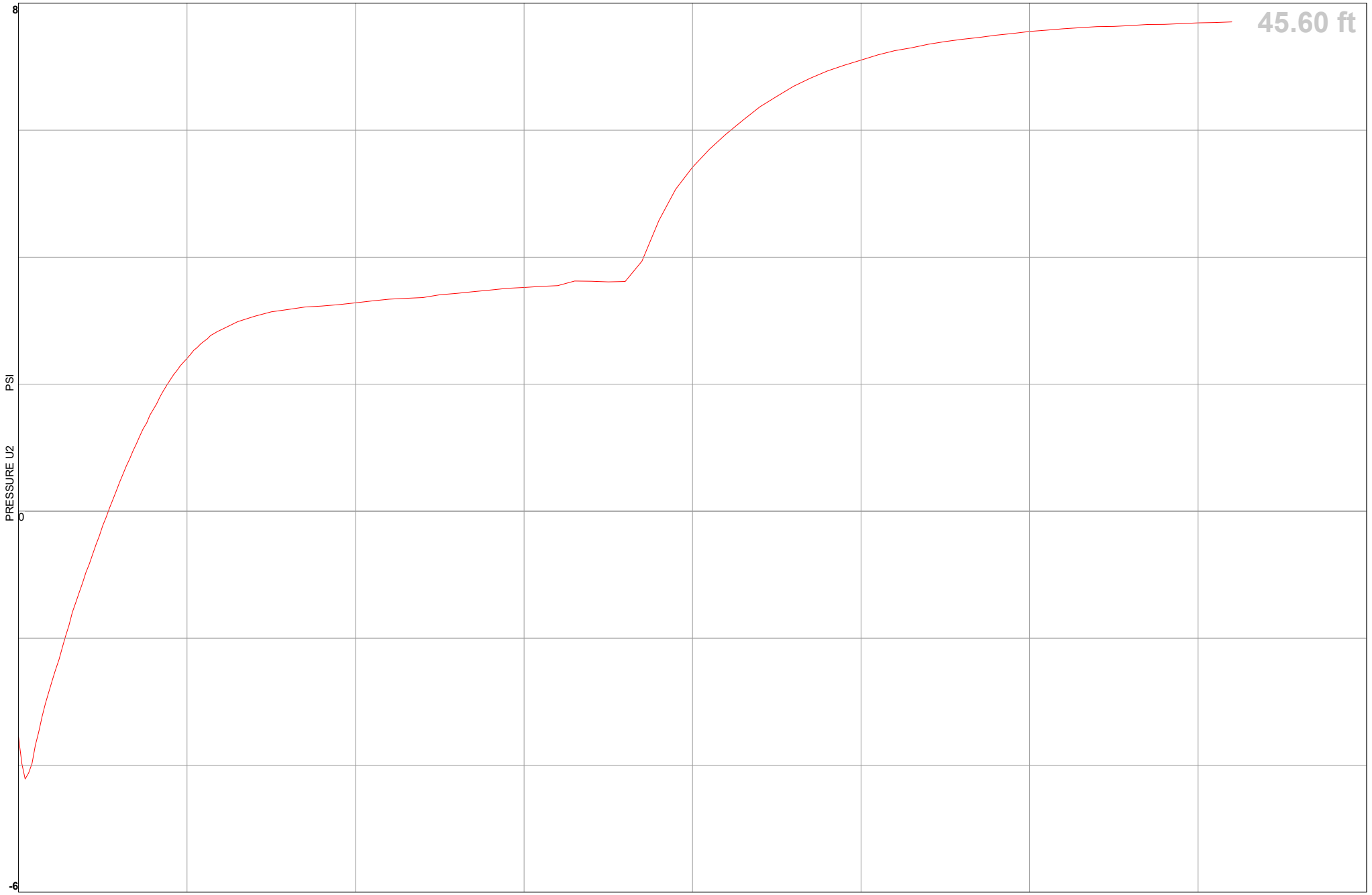
Project: Ethel Phillips Modernization

Location: 2930 21st Avenue, Sacramento, CA 95820



Raney Geotechnical

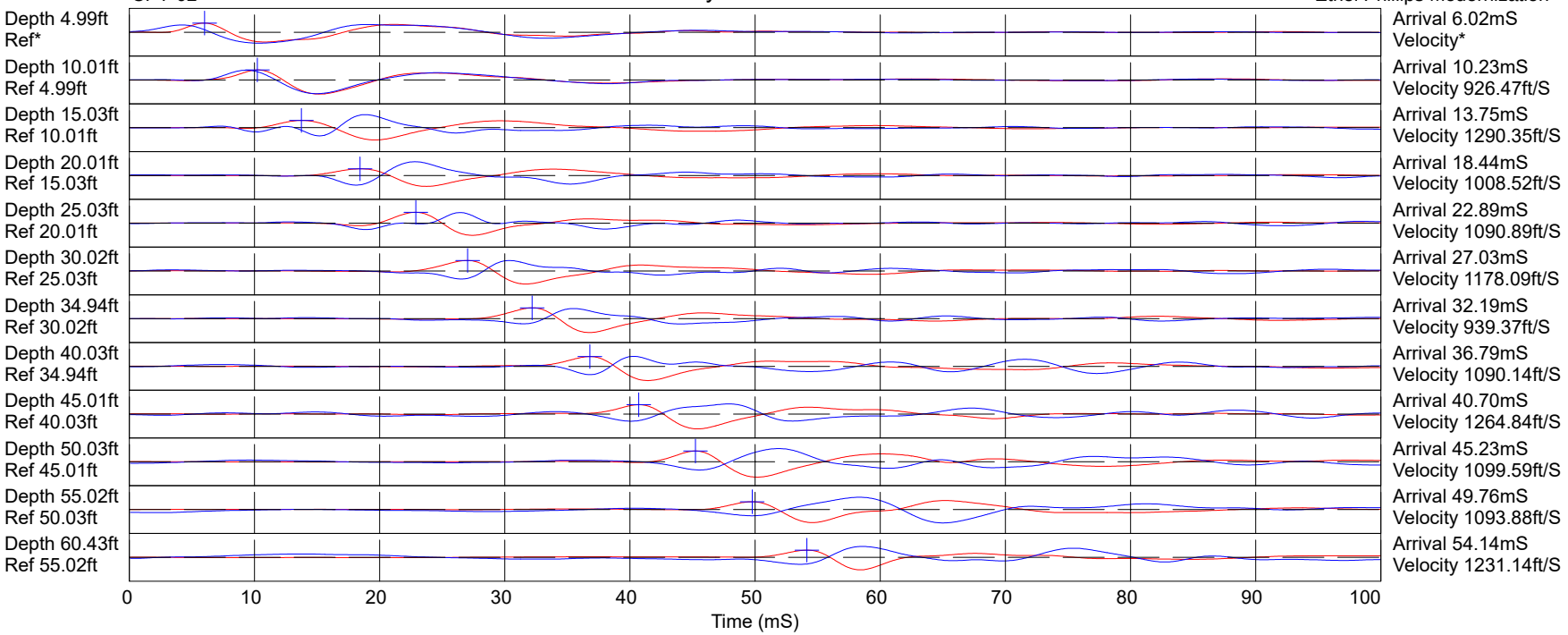
Location	Ethel Phillips Modernization	Operator	JM-IY	GPS
Job Number	3073-002-00P	Cone Number	DDG1589	
Hole Number	CPT-02	Date and Time	9/19/2024 3:06:36 PM	
Equilized Pressure	7.6	EST GW Depth During Test	27.8	



CPT-02

Raney Geotechnical

Ethel Phillips Modernization



Hammer to Rod String Distance (ft): 5.83
* = Not Determined

COMMENT:

APPENDIX C

Liquefaction Analysis Results

GeoLogismiki
Geotechnical Engineers
Merarhias 56
http://www.geologismiki.gr

LIQUEFACTION ANALYSIS REPORT

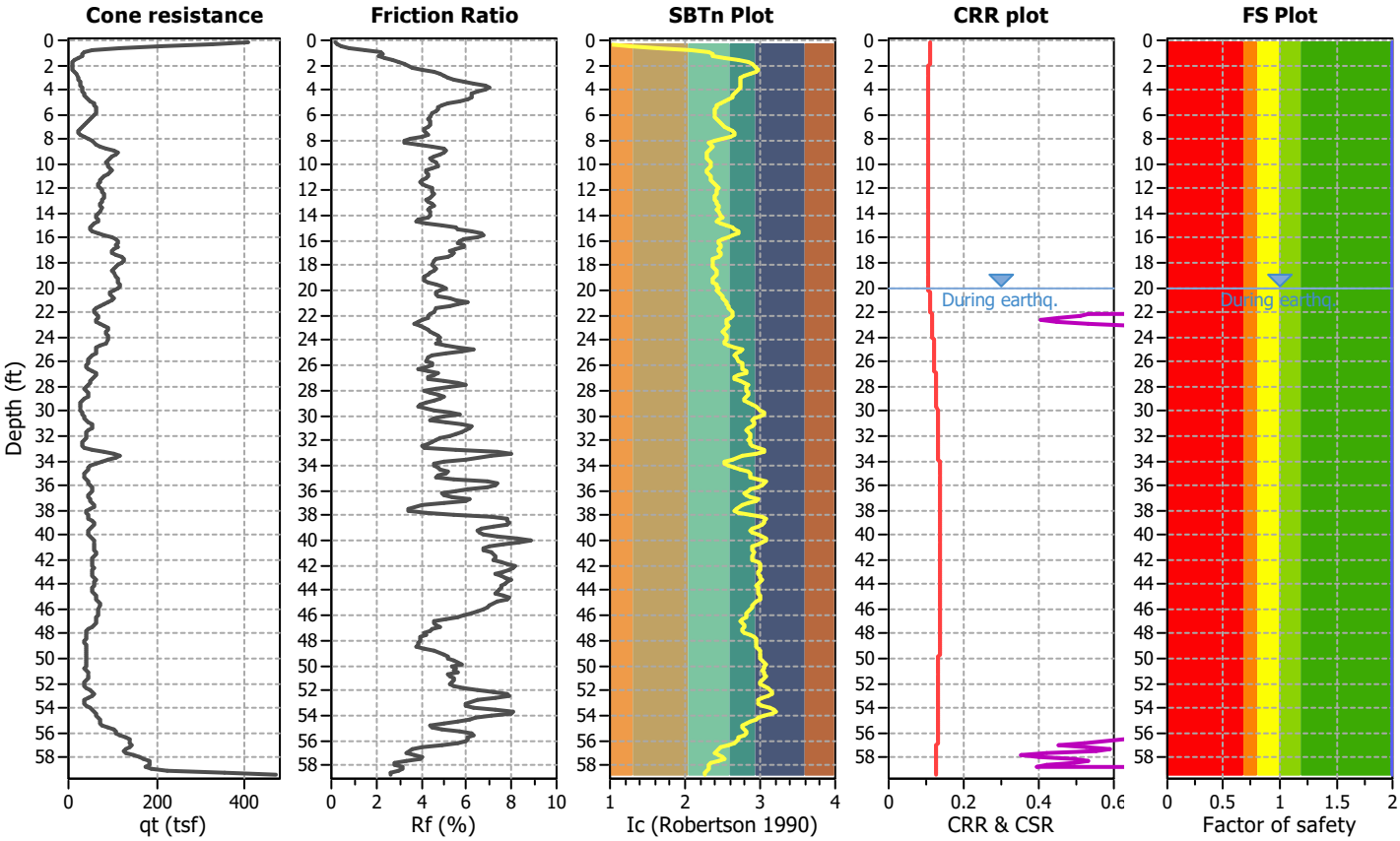
Project title : 3073-002.00P

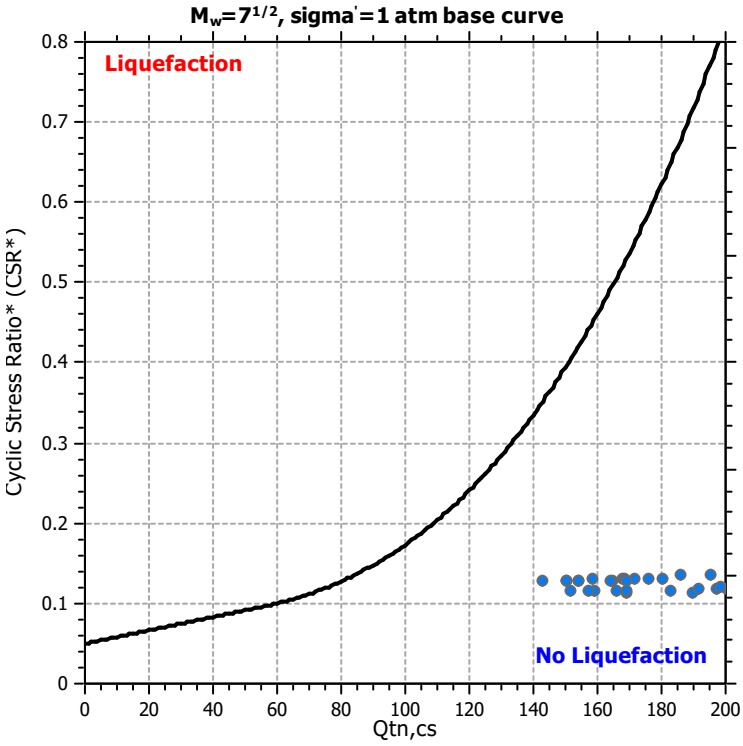
Location : Ethel Philips ES

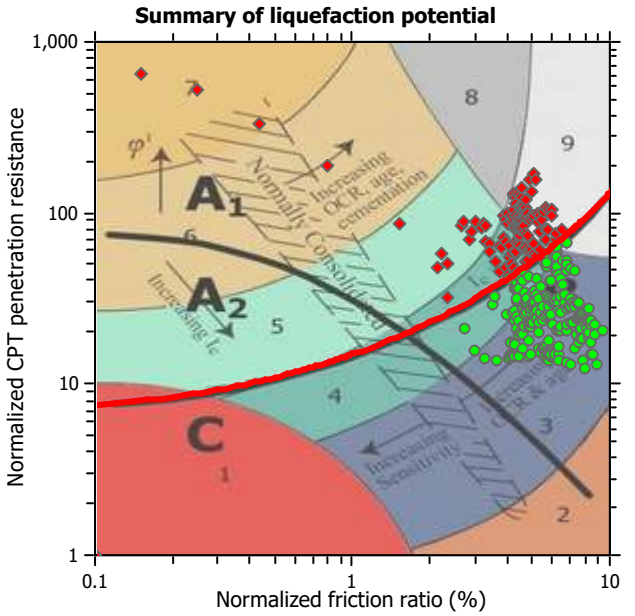
CPT file : CPT-01

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	26.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.24	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

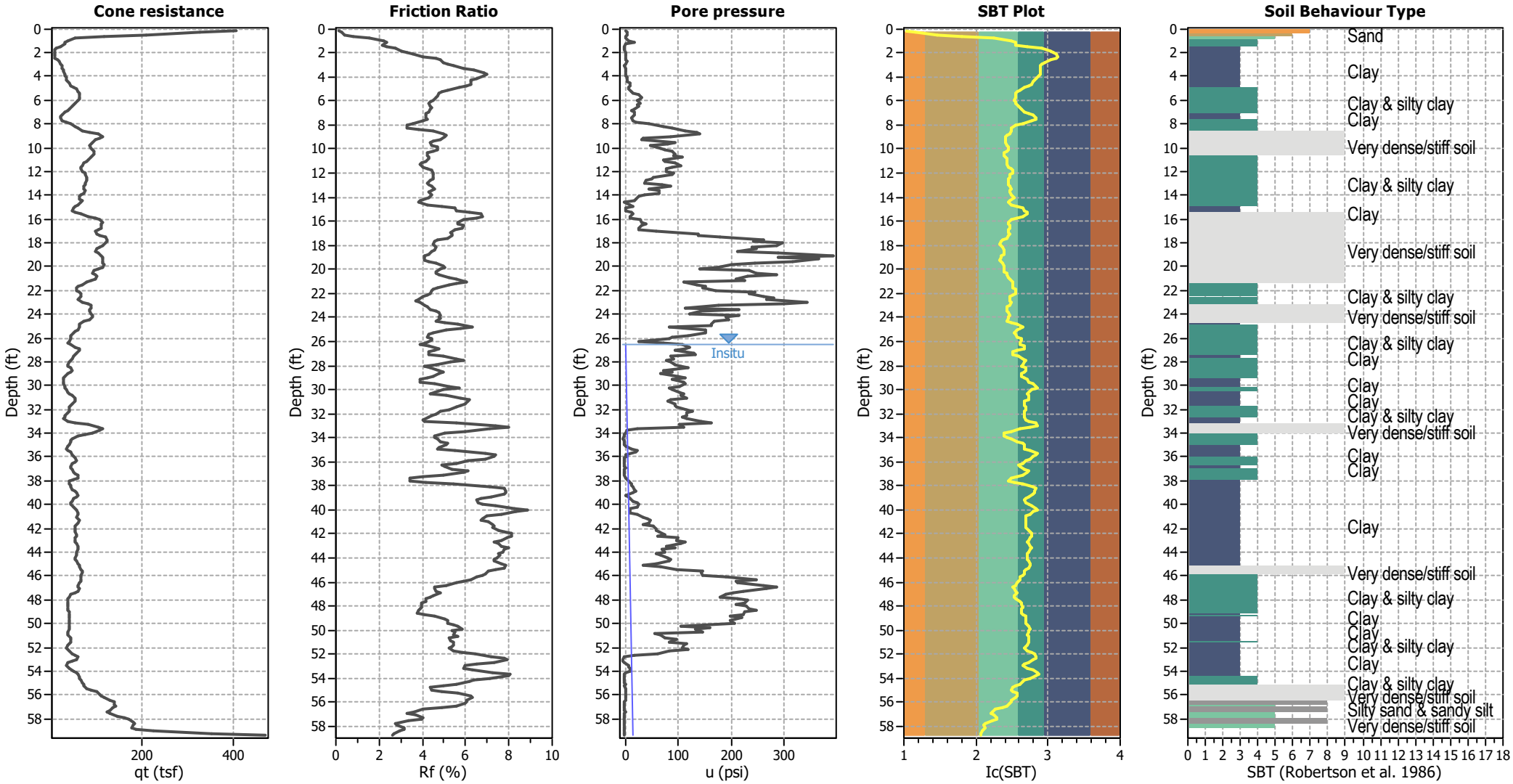






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

CPT basic interpretation plots



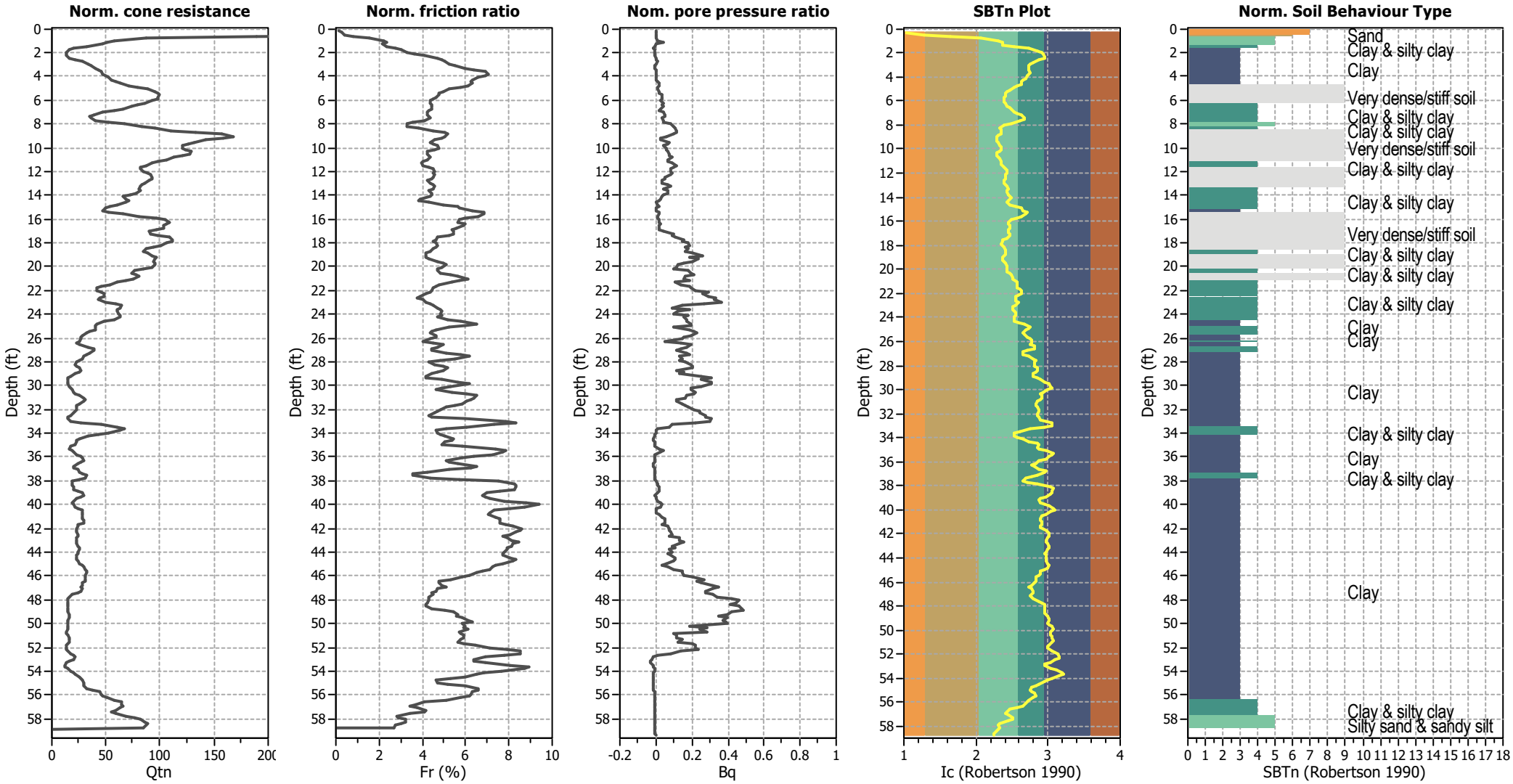
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

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

CPT basic interpretation plots (normalized)



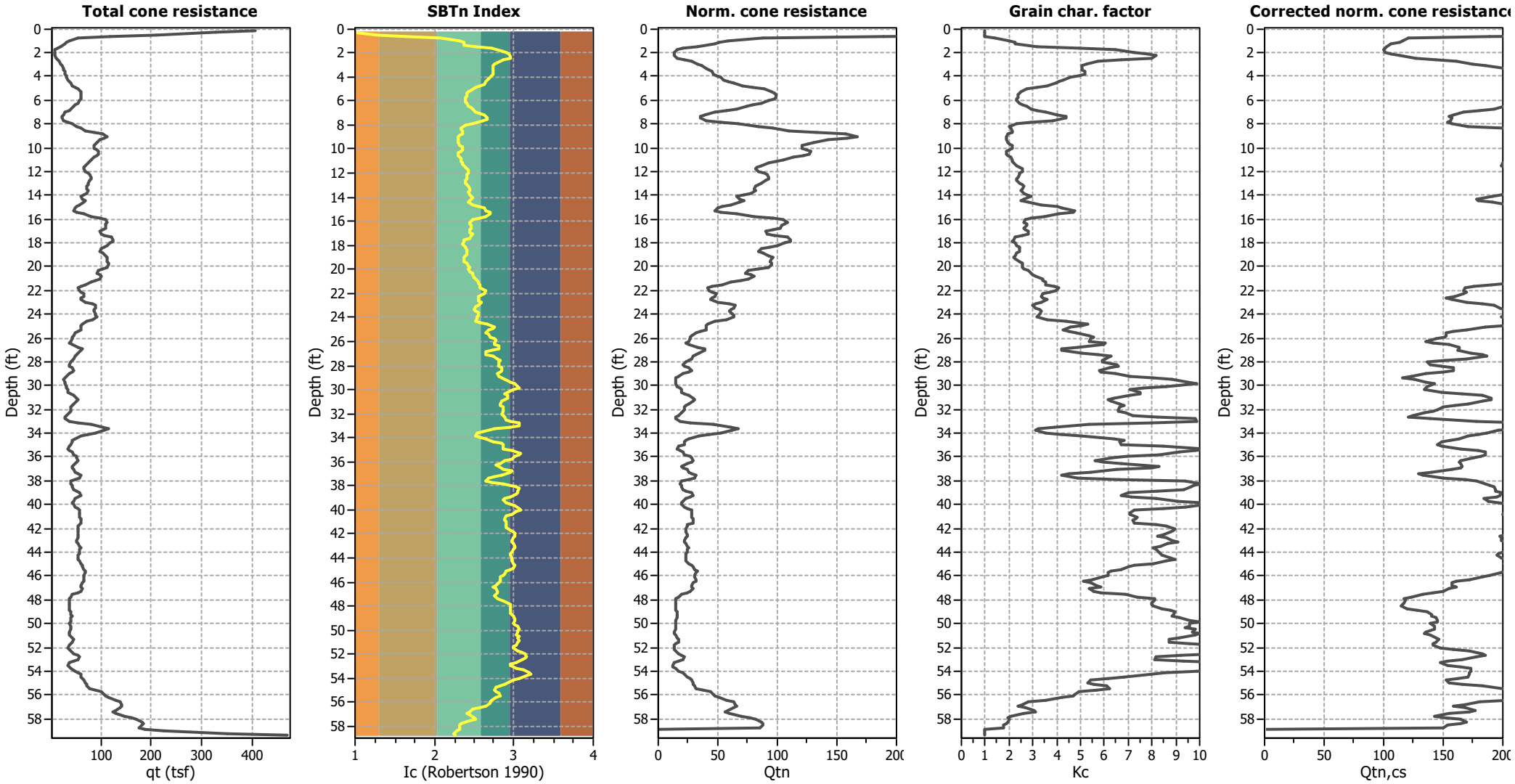
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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

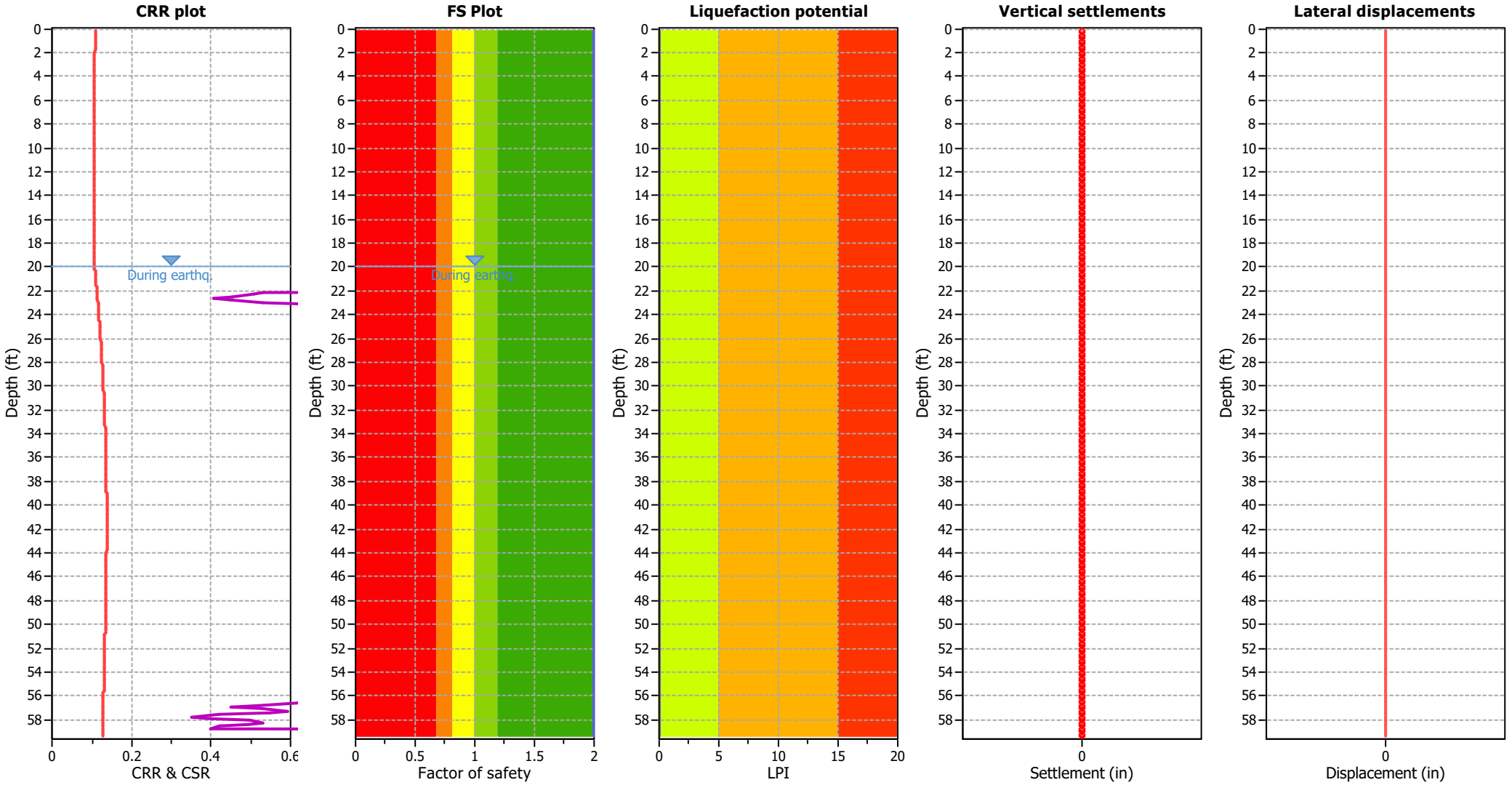
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

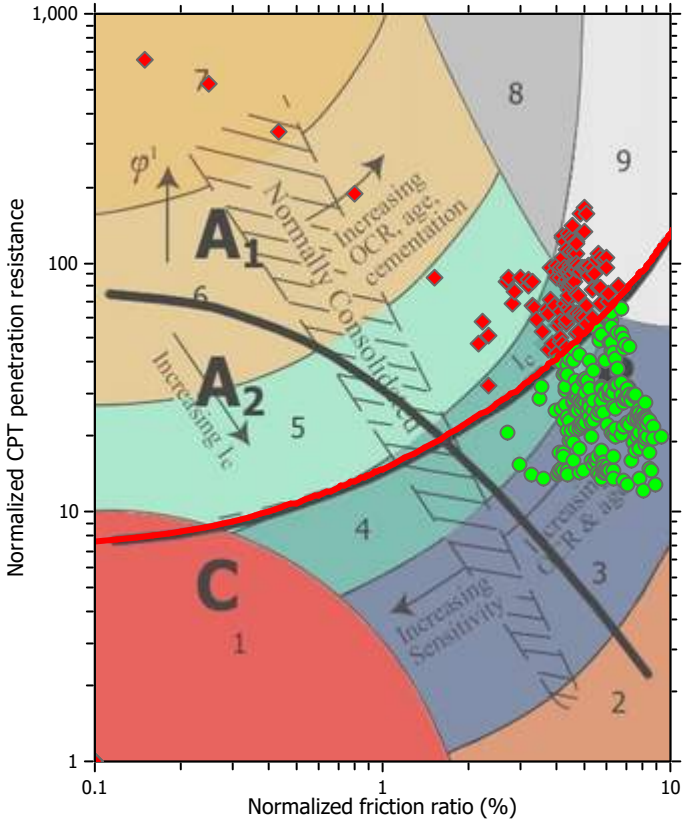
F.S. color scheme

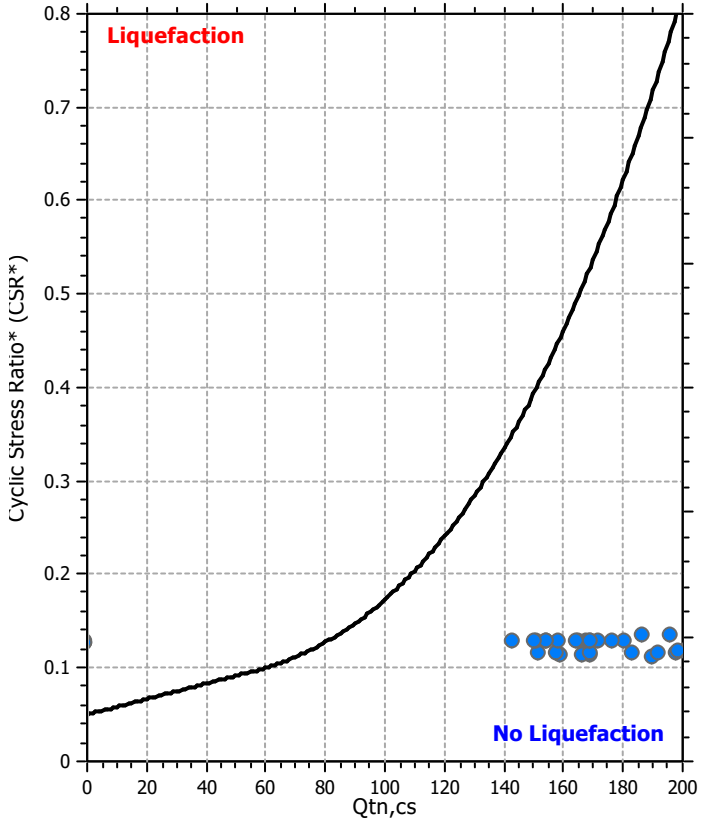
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

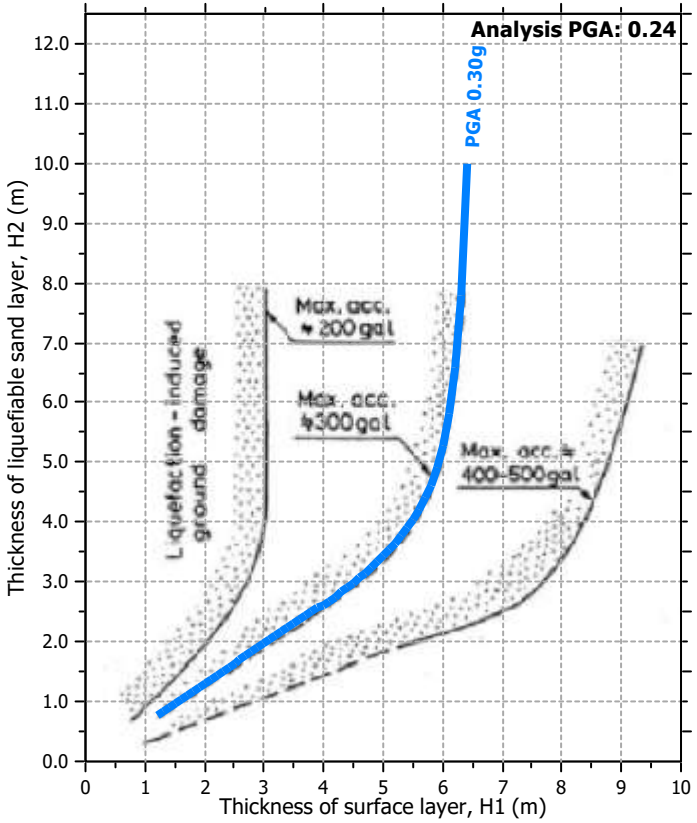
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



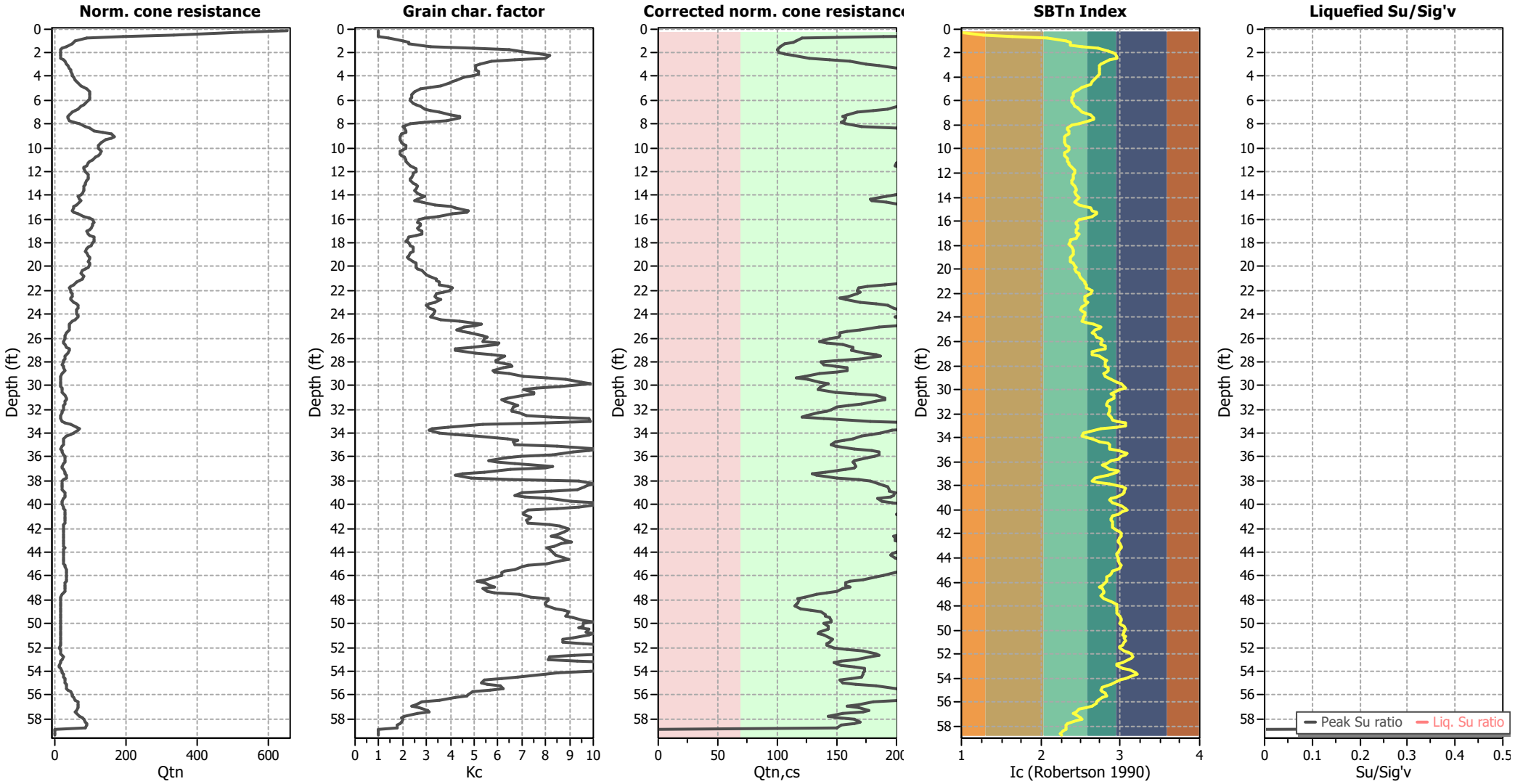




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.16	450.84	0.56	1.52	0.00	121.32
2	0.33	317.79	0.72	3.14	0.00	122.89
3	0.49	214.56	1.17	3.87	0.17	122.61
4	0.66	94.61	0.84	0.95	5.04	121.52
5	0.82	44.48	0.84	0.91	14.96	118.62
6	0.98	24.70	0.80	5.16	23.10	117.45
7	1.15	39.42	0.79	16.78	25.31	116.47
8	1.31	30.71	0.63	0.49	25.25	115.17
9	1.48	18.42	0.48	-2.06	31.77	112.11
10	1.64	11.59	0.31	-1.93	41.63	108.90
11	1.80	8.79	0.27	-1.42	48.64	106.81
12	1.97	8.90	0.29	-0.97	52.21	106.44
13	2.13	8.78	0.29	-0.94	54.47	106.87
14	2.30	8.05	0.33	-0.94	55.90	107.98
15	2.46	9.58	0.43	0.38	55.21	110.29
16	2.62	12.62	0.62	0.98	49.86	113.50
17	2.79	18.36	0.90	1.88	45.41	116.30
18	2.95	21.75	1.11	-0.26	43.03	118.25
19	3.12	22.50	1.23	-2.00	42.13	119.60
20	3.28	25.15	1.43	-1.01	42.27	120.99
21	3.44	27.45	1.77	0.38	42.27	122.28
22	3.61	28.56	1.95	-0.20	42.82	123.28
23	3.77	29.13	2.10	-0.18	42.67	123.81
24	3.94	30.61	2.13	1.01	41.54	124.17
25	4.10	33.11	2.15	1.89	39.74	124.37
26	4.27	34.80	2.15	2.50	38.16	124.56
27	4.43	36.00	2.18	3.74	37.31	125.06
28	4.59	38.87	2.49	8.41	36.42	125.84
29	4.76	43.03	2.73	8.75	34.36	126.74
30	4.92	50.40	2.84	5.80	31.89	127.41
31	5.09	55.10	2.93	6.16	29.04	127.85
32	5.25	61.37	2.90	11.86	27.47	128.12
33	5.41	62.21	2.97	13.21	26.77	128.14
34	5.58	59.28	2.88	25.42	26.54	128.17
35	5.74	62.80	2.90	31.54	26.29	128.00
36	5.91	61.62	2.78	29.12	25.91	127.67
37	6.07	57.83	2.53	20.95	26.13	126.96
38	6.23	53.48	2.28	28.38	26.86	126.21
39	6.40	49.58	2.20	23.63	27.88	125.53
40	6.56	45.93	2.07	25.44	28.99	124.86
41	6.73	42.53	1.86	15.69	30.18	123.76
42	6.89	35.88	1.53	10.44	31.82	122.18
43	7.05	29.09	1.23	16.53	34.00	120.14
44	7.22	24.26	0.96	17.59	36.91	118.38
45	7.38	20.77	0.92	14.00	38.75	117.41
46	7.55	21.76	0.94	10.86	38.85	117.65
47	7.71	25.09	1.04	13.55	35.99	118.44
48	7.87	29.63	1.12	18.41	30.26	119.99

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	8.04	43.98	1.36	45.54	26.08	121.87
50	8.20	52.20	1.72	70.56	23.55	123.90
51	8.37	58.70	2.08	87.70	24.02	126.41
52	8.53	66.74	3.13	111.97	24.64	129.00
53	8.69	80.23	4.19	135.50	24.21	131.79
54	8.86	105.88	5.55	139.56	23.04	133.80
55	9.02	119.61	6.17	84.94	22.20	134.48
56	9.19	109.01	5.27	32.87	22.24	133.78
57	9.35	92.52	4.22	29.55	22.30	132.41
58	9.51	91.69	3.90	92.76	22.61	131.44
59	9.68	87.94	3.90	79.81	23.29	131.30
60	9.84	83.81	4.10	47.88	24.33	131.35
61	10.01	84.01	4.11	66.29	24.46	131.50
62	10.17	90.55	4.10	73.31	23.55	131.59
63	10.33	94.97	4.08	89.07	22.36	131.62
64	10.50	98.22	3.96	92.75	22.40	131.59
65	10.66	90.53	4.05	89.80	23.06	131.37
66	10.83	84.62	3.85	106.54	23.88	130.84
67	10.99	82.02	3.35	72.80	24.20	130.02
68	11.15	75.53	3.07	73.51	24.34	129.12
69	11.32	70.91	2.84	93.31	24.73	128.47
70	11.48	69.95	2.70	105.71	25.72	128.10
71	11.65	63.74	2.80	87.33	27.08	128.05
72	11.81	61.71	2.91	77.55	27.90	128.43
73	11.98	70.38	3.15	77.85	27.76	128.91
74	12.14	71.68	3.28	91.18	27.03	129.55
75	12.30	76.34	3.53	88.74	26.88	129.93
76	12.47	78.10	3.56	53.37	26.45	130.20
77	12.63	80.63	3.54	51.18	26.16	130.05
78	12.80	78.17	3.30	37.91	25.99	129.68
79	12.96	75.18	3.10	36.06	26.78	129.46
80	13.12	71.58	3.36	70.47	27.66	129.46
81	13.29	71.80	3.39	84.53	28.15	129.48
82	13.45	72.58	3.16	45.38	27.98	129.26
83	13.62	70.57	3.08	64.67	27.43	129.17
84	13.78	75.78	3.23	64.64	28.36	129.02
85	13.94	64.89	3.09	34.80	29.26	128.31
86	14.11	56.78	2.40	25.11	30.26	127.42
87	14.27	60.68	2.45	18.93	28.22	127.08
88	14.44	74.14	2.60	18.08	27.38	127.52
89	14.60	68.72	2.72	-1.94	29.49	127.94
90	14.76	52.82	3.01	9.09	33.17	127.95
91	14.93	54.07	2.92	13.05	36.79	127.65
92	15.09	49.20	2.71	0.81	37.90	127.17
93	15.26	44.46	2.61	1.68	40.58	127.45
94	15.42	46.83	3.38	10.90	40.33	129.10
95	15.58	65.50	4.52	14.85	37.32	131.39
96	15.75	84.30	5.44	8.43	33.78	133.22

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	15.91	95.11	5.94	9.10	30.19	134.35
98	16.08	114.96	6.08	27.87	28.52	134.97
99	16.24	113.91	6.39	31.64	28.06	135.26
100	16.40	106.73	6.43	37.84	29.10	135.46
101	16.57	109.17	6.72	30.14	29.21	135.31
102	16.73	110.60	6.06	25.36	28.36	134.85
103	16.90	107.07	5.27	24.30	28.50	134.01
104	17.06	90.71	5.07	58.85	29.57	133.60
105	17.22	91.61	5.46	138.87	29.33	133.74
106	17.39	111.32	5.49	136.87	27.97	134.21
107	17.55	112.65	5.70	178.83	25.44	134.57
108	17.72	127.30	5.66	262.41	24.96	134.68
109	17.88	119.41	5.59	243.02	24.63	134.57
110	18.04	113.52	5.41	298.63	25.39	134.37
111	18.21	113.42	5.40	287.00	26.18	133.98
112	18.37	102.22	5.00	240.02	26.79	133.30
113	18.54	94.16	4.31	248.92	27.10	132.44
114	18.70	95.13	4.04	213.06	27.11	131.93
115	18.86	92.75	4.22	289.59	26.00	132.13
116	19.03	107.58	4.43	393.91	25.33	132.69
117	19.19	113.25	4.78	290.00	24.97	133.10
118	19.36	105.30	4.81	365.84	25.58	133.37
119	19.52	108.36	4.97	316.90	26.90	133.95
120	19.69	112.19	6.00	244.91	27.65	134.54
121	19.85	113.14	6.05	200.81	27.96	134.79
122	20.01	113.48	5.52	173.20	27.63	134.23
123	20.18	105.84	4.82	140.71	28.05	133.09
124	20.34	85.39	4.07	233.54	29.47	132.22
125	20.51	83.64	4.32	248.15	30.18	132.10
126	20.67	96.42	4.74	286.85	30.89	133.53
127	20.83	105.53	6.52	230.81	31.41	134.26
128	21.00	94.25	5.77	209.93	33.54	134.34
129	21.16	81.03	5.23	225.98	33.48	133.01
130	21.33	85.13	4.01	111.54	34.25	131.37
131	21.49	64.86	3.25	135.55	34.27	129.34
132	21.65	55.00	2.59	152.00	36.27	127.58
133	21.82	54.20	2.32	144.82	37.22	126.63
134	21.98	50.88	2.45	170.81	36.56	126.78
135	22.15	58.57	2.67	246.02	35.18	127.40
136	22.31	66.31	2.77	235.44	33.45	127.70
137	22.47	62.67	2.60	261.89	32.86	127.18
138	22.64	55.90	2.15	279.94	33.22	126.32
139	22.80	55.00	2.06	265.98	34.65	126.59
140	22.97	57.42	2.90	345.60	33.12	128.30
141	23.13	83.66	3.60	300.83	31.37	130.21
142	23.29	94.11	4.03	177.00	30.78	131.21
143	23.46	81.28	4.12	113.23	31.71	131.45
144	23.62	82.11	4.03	215.67	32.84	131.40

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	23.79	86.00	4.08	143.96	33.00	131.45
146	23.95	81.36	4.20	120.77	32.51	131.69
147	24.11	90.08	4.31	216.07	32.31	132.02
148	24.28	92.79	4.53	190.69	31.79	131.77
149	24.44	80.91	3.77	195.80	34.49	131.58
150	24.61	68.39	4.33	168.25	38.76	130.84
151	24.77	57.27	3.92	163.36	43.37	130.37
152	24.93	53.77	3.56	161.34	42.16	129.58
153	25.10	66.66	3.17	83.30	39.84	128.71
154	25.26	59.01	2.71	150.60	38.11	127.65
155	25.43	51.08	2.32	152.34	39.38	126.26
156	25.59	46.79	2.00	152.88	40.98	125.15
157	25.75	44.09	1.93	118.03	43.78	124.66
158	25.92	39.01	2.09	89.41	44.47	124.33
159	26.08	43.58	1.80	82.08	43.87	123.67
160	26.25	42.87	1.46	26.00	43.58	122.68
161	26.41	33.72	1.49	72.19	46.97	122.80
162	26.57	35.12	1.99	108.57	46.65	124.61
163	26.74	54.44	2.63	121.98	41.24	126.62
164	26.90	67.50	2.80	113.30	37.72	127.53
165	27.07	59.77	2.59	93.29	37.94	127.40
166	27.23	52.23	2.52	129.40	42.21	127.55
167	27.40	50.45	3.22	131.98	45.57	127.76
168	27.56	49.33	3.01	85.30	48.01	127.63
169	27.72	43.59	2.54	91.83	46.93	126.28
170	27.89	43.93	1.87	77.10	46.39	124.43
171	28.05	37.33	1.52	85.77	46.23	122.66
172	28.22	32.49	1.41	94.83	49.11	122.41
173	28.38	35.02	1.82	103.72	49.24	123.60
174	28.54	43.89	2.25	118.51	47.66	125.11
175	28.71	47.25	2.41	70.62	45.62	125.48
176	28.87	44.24	2.01	88.88	46.10	124.39
177	29.04	35.34	1.46	65.11	48.65	122.14
178	29.20	25.96	1.11	100.25	51.55	119.94
179	29.36	26.54	1.02	111.90	55.44	118.85
180	29.53	25.71	1.08	89.31	58.76	119.91
181	29.69	24.78	1.62	110.94	61.36	120.99
182	29.86	27.01	1.61	113.31	62.61	121.83
183	30.02	27.23	1.56	102.42	57.74	121.67
184	30.18	32.92	1.39	82.69	53.65	121.56
185	30.35	32.30	1.46	89.34	51.45	121.78
186	30.51	32.90	1.61	102.45	53.27	123.35
187	30.68	37.46	2.37	110.67	53.25	125.30
188	30.84	44.20	2.88	103.81	51.51	127.26
189	31.00	51.23	3.29	116.95	48.51	128.43
190	31.17	57.05	3.43	86.85	47.46	128.62
191	31.33	50.09	3.02	79.04	47.86	127.93
192	31.50	44.13	2.55	93.29	49.56	126.48

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	31.66	39.94	2.11	94.61	50.39	125.16
194	31.82	38.11	1.94	96.48	49.71	124.25
195	31.99	39.61	1.84	116.32	49.18	123.82
196	32.15	38.17	1.79	128.14	49.40	123.23
197	32.32	33.67	1.57	117.16	50.52	122.19
198	32.48	31.01	1.27	116.65	51.96	120.63
199	32.64	27.36	1.04	107.97	56.18	119.97
200	32.81	25.41	1.34	115.93	62.59	121.87
201	32.97	28.18	2.39	144.37	62.82	126.21
202	33.14	48.58	4.28	161.36	55.28	130.68
203	33.30	79.09	6.25	103.12	43.73	133.82
204	33.46	110.18	6.79	110.26	36.27	134.99
205	33.63	121.33	5.63	22.11	32.20	134.57
206	33.79	108.37	4.71	2.15	31.68	133.18
207	33.96	88.87	4.16	-0.06	34.23	131.67
208	34.12	74.62	3.57	-2.29	37.91	130.03
209	34.28	61.29	2.87	-3.56	42.29	128.21
210	34.45	46.49	2.41	-3.96	48.48	126.32
211	34.61	35.39	2.13	-3.23	50.44	125.23
212	34.78	47.76	2.06	-1.91	49.59	124.59
213	34.94	44.48	1.89	-1.97	49.89	124.15
214	35.10	31.78	1.83	0.25	57.30	124.15
215	35.27	33.57	2.29	10.80	64.21	125.05
216	35.43	35.27	2.88	23.04	62.54	126.71
217	35.60	44.64	3.26	18.31	59.82	127.71
218	35.76	46.80	3.19	1.41	56.54	128.16
219	35.93	47.80	3.17	1.99	50.81	128.03
220	36.09	56.79	2.84	-1.90	48.22	127.82
221	36.25	53.56	2.80	-2.20	44.72	127.37
222	36.42	56.37	2.50	-2.90	46.48	126.97
223	36.58	47.08	2.56	-3.36	49.93	126.54
224	36.75	39.30	2.59	-2.73	56.55	126.46
225	36.91	41.82	2.69	-0.62	55.38	126.48
226	37.07	50.47	2.52	-2.02	48.91	125.91
227	37.24	49.01	1.84	-1.92	43.93	124.79
228	37.40	48.95	1.59	-1.84	39.61	124.37
229	37.57	62.73	2.04	-2.12	37.81	125.43
230	37.73	66.28	2.48	-1.05	41.43	126.66
231	37.89	45.41	2.76	2.49	49.42	127.12
232	38.06	38.34	2.91	6.27	60.78	127.26
233	38.22	40.26	3.17	11.90	63.37	127.70
234	38.39	42.39	3.38	11.89	62.31	128.20
235	38.55	44.30	3.42	14.53	61.76	128.56
236	38.71	44.31	3.56	15.92	60.69	128.89
237	38.88	47.63	3.71	18.97	56.25	129.49
238	39.04	62.19	3.87	13.94	51.25	129.88
239	39.21	59.74	3.81	1.44	49.76	130.03
240	39.37	54.83	3.80	7.03	51.60	129.54

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	39.53	51.24	3.35	8.54	55.98	128.73
242	39.70	43.56	3.00	13.52	59.72	128.56
243	39.86	42.69	3.84	21.25	63.57	128.87
244	40.03	43.57	3.99	25.54	64.33	129.71
245	40.19	48.00	4.19	22.30	60.75	130.10
246	40.35	55.70	4.12	8.86	57.21	130.36
247	40.52	56.99	4.07	9.80	52.26	130.39
248	40.68	60.13	3.95	9.77	51.52	130.23
249	40.85	56.67	3.83	22.12	51.41	130.18
250	41.01	56.80	3.99	32.24	52.67	130.42
251	41.17	57.77	4.38	42.66	52.48	130.99
252	41.34	62.94	4.65	45.85	52.05	131.26
253	41.50	61.25	4.38	44.05	52.12	131.12
254	41.67	56.32	4.15	32.38	56.15	130.70
255	41.83	50.24	4.22	51.31	57.73	130.62
256	41.99	55.24	4.40	57.50	59.19	130.71
257	42.16	52.25	4.40	59.20	58.98	130.75
258	42.32	51.27	4.25	63.49	58.44	130.70
259	42.49	56.45	4.27	74.55	57.34	130.59
260	42.65	55.03	4.14	61.32	56.30	130.35
261	42.81	52.17	3.80	99.59	57.70	130.25
262	42.98	50.74	4.24	97.31	58.79	130.12
263	43.14	49.86	4.04	113.29	59.73	130.41
264	43.31	51.99	4.30	104.57	58.10	130.69
265	43.47	58.84	4.50	78.64	56.72	131.18
266	43.64	59.78	4.67	93.10	55.51	131.33
267	43.80	58.64	4.43	68.27	56.09	131.15
268	43.96	55.16	4.27	75.03	56.50	130.73
269	44.13	54.85	4.05	57.46	56.74	130.46
270	44.29	55.49	4.05	67.50	57.09	130.28
271	44.46	52.41	4.03	81.33	58.52	130.41
272	44.62	51.13	4.34	84.33	59.08	130.66
273	44.78	56.00	4.48	83.49	57.80	131.00
274	44.95	60.39	4.44	57.12	55.49	131.15
275	45.11	61.67	4.35	34.18	52.13	131.14
276	45.28	62.38	4.32	66.92	51.16	131.31
277	45.44	65.52	4.61	97.60	49.85	131.64
278	45.60	69.15	4.74	145.73	47.99	131.76
279	45.77	71.01	4.35	143.47	47.51	131.35
280	45.93	62.22	3.92	144.90	47.44	130.53
281	46.10	59.42	3.53	191.17	46.25	130.13
282	46.26	70.16	3.70	248.49	44.38	129.54
283	46.42	62.99	3.03	210.78	42.66	128.71
284	46.59	57.84	2.46	212.50	44.13	127.97
285	46.75	55.84	3.02	261.85	45.14	127.81
286	46.92	56.40	2.93	287.38	46.04	128.13
287	47.08	56.83	2.83	268.55	43.81	127.94
288	47.24	63.61	2.68	223.22	44.51	127.27

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	47.41	48.29	2.32	203.03	45.86	125.87
290	47.57	40.41	1.70	190.37	50.75	124.00
291	47.74	35.40	1.53	179.35	52.79	122.42
292	47.90	33.31	1.42	210.90	55.74	121.99
293	48.06	35.36	1.49	230.94	55.85	122.02
294	48.23	34.81	1.55	226.16	55.25	122.10
295	48.39	35.26	1.44	210.56	55.19	121.86
296	48.56	34.33	1.36	227.92	55.52	121.64
297	48.72	32.85	1.45	235.28	57.07	122.15
298	48.88	34.13	1.75	247.41	58.56	123.29
299	49.05	37.55	2.07	226.30	59.18	124.41
300	49.21	38.40	2.23	222.70	58.89	124.97
301	49.38	39.20	2.16	197.32	58.64	124.96
302	49.54	38.32	2.05	219.87	59.92	125.24
303	49.70	37.60	2.50	199.14	61.51	125.25
304	49.87	35.58	2.23	201.50	63.13	125.17
305	50.03	34.58	2.06	207.07	61.61	124.56
306	50.20	38.81	1.97	103.59	61.46	124.98
307	50.36	39.18	2.54	158.91	60.89	125.13
308	50.52	38.01	2.15	133.40	62.49	124.97
309	50.69	33.76	1.90	145.28	61.98	124.09
310	50.85	36.74	1.86	54.67	63.29	123.84
311	51.02	34.98	2.02	66.75	62.38	124.56
312	51.18	40.92	2.39	73.65	60.00	125.52
313	51.35	47.65	2.51	97.11	58.19	126.00
314	51.51	42.76	2.34	81.76	58.13	125.72
315	51.67	38.67	2.14	114.99	61.50	125.03
316	51.84	34.90	2.10	111.33	65.37	124.70
317	52.00	32.31	2.23	108.30	68.58	125.04
318	52.17	34.42	2.54	119.44	69.81	126.29
319	52.33	40.10	3.26	82.02	68.98	127.77
320	52.49	43.83	3.73	59.49	65.58	129.22
321	52.66	54.13	4.10	15.76	60.21	130.04
322	52.82	63.37	3.99	-2.33	55.99	130.03
323	52.99	58.95	3.38	-5.20	55.88	128.81
324	53.15	43.67	2.55	-4.43	60.55	126.83
325	53.31	33.79	2.15	-1.25	66.99	125.41
326	53.48	35.21	2.40	5.02	72.72	125.64
327	53.64	34.33	2.99	6.28	73.79	126.82
328	53.81	38.28	3.33	9.10	69.99	127.97
329	53.97	49.53	3.46	8.56	62.80	128.77
330	54.13	57.46	3.51	0.84	57.51	129.33
331	54.30	59.15	3.67	-1.14	55.21	129.68
332	54.46	61.03	3.73	-1.46	50.50	129.32
333	54.63	63.38	2.88	-1.27	47.38	128.83
334	54.79	66.16	2.89	-1.25	44.11	128.31
335	54.95	69.25	2.95	-1.79	43.43	128.85
336	55.12	72.57	3.41	-0.59	44.66	129.77

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	55.28	71.35	4.04	-1.33	47.11	131.04
338	55.45	73.47	4.85	-0.97	47.65	132.47
339	55.61	88.44	5.71	-0.68	45.02	133.89
340	55.77	106.13	6.37	-0.59	41.68	134.89
341	55.94	111.82	6.48	-0.89	40.80	135.37
342	56.10	104.00	6.65	-0.86	40.30	135.47
343	56.27	112.08	6.51	0.23	37.98	135.57
344	56.43	132.84	6.35	-0.88	34.16	135.63
345	56.59	140.84	6.15	-1.26	29.67	134.89
346	56.76	143.77	4.24	-1.93	28.00	134.18
347	56.92	135.66	4.76	-2.58	26.65	133.61
348	57.09	144.06	4.98	-1.88	28.62	134.12
349	57.25	132.33	5.40	-1.76	30.96	134.22
350	57.41	111.64	5.27	-1.06	31.39	133.65
351	57.58	127.25	4.04	-1.33	28.09	132.83
352	57.74	149.81	3.63	-2.10	23.92	132.65
353	57.91	160.94	4.47	-2.09	22.88	133.75
354	58.07	172.77	5.54	-1.99	23.50	135.11
355	58.23	180.28	6.09	-2.14	22.85	135.67
356	58.40	190.42	5.43	-2.22	21.97	135.38
357	58.56	179.75	4.80	-2.48	20.74	134.50
358	58.73	175.40	4.29	-2.52	20.93	134.09
359	58.89	174.11	4.77	-2.63	N/A	87.36
360	59.06	208.17	-272311.73	-2.64	N/A	87.36
361	59.22	291.28	-272311.73	-3.67	N/A	87.36
362	59.38	559.03	-272311.73	-1.54	N/A	87.36

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
1	0.16	0.01	0.00	0.01	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
2	0.33	0.02	0.00	0.02	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
3	0.49	0.03	0.00	0.03	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
4	0.66	0.04	0.00	0.04	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
5	0.82	0.05	0.00	0.05	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
6	0.98	0.06	0.00	0.06	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
7	1.15	0.07	0.00	0.07	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
8	1.31	0.08	0.00	0.08	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
9	1.48	0.09	0.00	0.09	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
10	1.64	0.10	0.00	0.10	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
11	1.80	0.11	0.00	0.11	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
12	1.97	0.11	0.00	0.11	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
13	2.13	0.12	0.00	0.12	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
14	2.30	0.13	0.00	0.13	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
15	2.46	0.14	0.00	0.14	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
16	2.62	0.15	0.00	0.15	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
17	2.79	0.16	0.00	0.16	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
18	2.95	0.17	0.00	0.17	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
19	3.12	0.18	0.00	0.18	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
20	3.28	0.19	0.00	0.19	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
21	3.44	0.20	0.00	0.20	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
22	3.61	0.21	0.00	0.21	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
23	3.77	0.22	0.00	0.22	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
24	3.94	0.23	0.00	0.23	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
25	4.10	0.24	0.00	0.24	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
26	4.27	0.25	0.00	0.25	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
27	4.43	0.26	0.00	0.26	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
28	4.59	0.27	0.00	0.27	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
29	4.76	0.28	0.00	0.28	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
30	4.92	0.29	0.00	0.29	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
31	5.09	0.30	0.00	0.30	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
32	5.25	0.31	0.00	0.31	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
33	5.41	0.32	0.00	0.32	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
34	5.58	0.33	0.00	0.33	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
35	5.74	0.34	0.00	0.34	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
36	5.91	0.35	0.00	0.35	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
37	6.07	0.36	0.00	0.36	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
38	6.23	0.38	0.00	0.38	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
39	6.40	0.39	0.00	0.39	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
40	6.56	0.40	0.00	0.40	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
41	6.73	0.41	0.00	0.41	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
42	6.89	0.42	0.00	0.42	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
43	7.05	0.43	0.00	0.43	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
44	7.22	0.44	0.00	0.44	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
45	7.38	0.44	0.00	0.44	0.98	0.154	1.44	0.107	1.00	1.00	2.000	No
46	7.55	0.45	0.00	0.45	0.98	0.154	1.44	0.107	1.00	1.00	2.000	No
47	7.71	0.46	0.00	0.46	0.98	0.154	1.44	0.106	1.00	1.00	2.000	No
48	7.87	0.47	0.00	0.47	0.98	0.153	1.44	0.106	1.00	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
49	8.04	0.48	0.00	0.48	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
50	8.20	0.49	0.00	0.49	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
51	8.37	0.50	0.00	0.50	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
52	8.53	0.52	0.00	0.52	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
53	8.69	0.53	0.00	0.53	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
54	8.86	0.54	0.00	0.54	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
55	9.02	0.55	0.00	0.55	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
56	9.19	0.56	0.00	0.56	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
57	9.35	0.57	0.00	0.57	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
58	9.51	0.58	0.00	0.58	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
59	9.68	0.59	0.00	0.59	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
60	9.84	0.60	0.00	0.60	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
61	10.01	0.61	0.00	0.61	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
62	10.17	0.62	0.00	0.62	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
63	10.33	0.63	0.00	0.63	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
64	10.50	0.65	0.00	0.65	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
65	10.66	0.66	0.00	0.66	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
66	10.83	0.67	0.00	0.67	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
67	10.99	0.68	0.00	0.68	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
68	11.15	0.69	0.00	0.69	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
69	11.32	0.70	0.00	0.70	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
70	11.48	0.71	0.00	0.71	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
71	11.65	0.72	0.00	0.72	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
72	11.81	0.73	0.00	0.73	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
73	11.98	0.74	0.00	0.74	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
74	12.14	0.75	0.00	0.75	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
75	12.30	0.76	0.00	0.76	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
76	12.47	0.77	0.00	0.77	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
77	12.63	0.78	0.00	0.78	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
78	12.80	0.79	0.00	0.79	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
79	12.96	0.80	0.00	0.80	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
80	13.12	0.82	0.00	0.82	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
81	13.29	0.83	0.00	0.83	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
82	13.45	0.84	0.00	0.84	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
83	13.62	0.85	0.00	0.85	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
84	13.78	0.86	0.00	0.86	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
85	13.94	0.87	0.00	0.87	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
86	14.11	0.88	0.00	0.88	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
87	14.27	0.89	0.00	0.89	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
88	14.44	0.90	0.00	0.90	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
89	14.60	0.91	0.00	0.91	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
90	14.76	0.92	0.00	0.92	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
91	14.93	0.93	0.00	0.93	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
92	15.09	0.94	0.00	0.94	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
93	15.26	0.95	0.00	0.95	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
94	15.42	0.96	0.00	0.96	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
95	15.58	0.97	0.00	0.97	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
96	15.75	0.98	0.00	0.98	0.97	0.151	1.44	0.105	1.00	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
97	15.91	1.00	0.00	1.00	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
98	16.08	1.01	0.00	1.01	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
99	16.24	1.02	0.00	1.02	0.97	0.151	1.44	0.104	1.00	1.00	2.000	No
100	16.40	1.03	0.00	1.03	0.97	0.151	1.44	0.104	1.00	1.00	2.000	No
101	16.57	1.04	0.00	1.04	0.97	0.151	1.44	0.104	1.00	1.00	2.000	No
102	16.73	1.05	0.00	1.05	0.96	0.150	1.44	0.104	1.00	1.00	2.000	No
103	16.90	1.06	0.00	1.06	0.96	0.150	1.44	0.104	1.00	1.00	2.000	No
104	17.06	1.07	0.00	1.07	0.96	0.150	1.44	0.104	1.00	1.00	2.000	No
105	17.22	1.08	0.00	1.08	0.96	0.150	1.44	0.104	1.00	1.00	2.000	No
106	17.39	1.09	0.00	1.09	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
107	17.55	1.11	0.00	1.11	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
108	17.72	1.12	0.00	1.12	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
109	17.88	1.13	0.00	1.13	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
110	18.04	1.14	0.00	1.14	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
111	18.21	1.15	0.00	1.15	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
112	18.37	1.16	0.00	1.16	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
113	18.54	1.17	0.00	1.17	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
114	18.70	1.18	0.00	1.18	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
115	18.86	1.19	0.00	1.19	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
116	19.03	1.20	0.00	1.20	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
117	19.19	1.21	0.00	1.21	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
118	19.36	1.23	0.00	1.23	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
119	19.52	1.24	0.00	1.24	0.96	0.149	1.44	0.104	0.97	1.00	2.000	No
120	19.69	1.25	0.00	1.25	0.96	0.149	1.44	0.104	0.97	1.00	2.000	No
121	19.85	1.26	0.00	1.26	0.96	0.149	1.44	0.104	0.97	1.00	2.000	No
122	20.01	1.27	0.00	1.27	0.96	0.149	1.44	0.104	0.96	1.00	0.107	No
123	20.18	1.28	0.01	1.28	0.96	0.150	1.44	0.104	0.96	1.00	0.108	No
124	20.34	1.29	0.01	1.28	0.96	0.150	1.44	0.104	0.96	1.00	0.108	No
125	20.51	1.30	0.02	1.29	0.96	0.151	1.44	0.105	0.96	1.00	0.109	No
126	20.67	1.31	0.02	1.29	0.96	0.151	1.44	0.105	0.96	1.00	0.109	No
127	20.83	1.32	0.03	1.30	0.95	0.152	1.44	0.105	0.96	1.00	0.110	No
128	21.00	1.34	0.03	1.30	0.95	0.152	1.44	0.106	0.96	1.00	0.110	No
129	21.16	1.35	0.04	1.31	0.95	0.153	1.44	0.106	0.96	1.00	0.111	No
130	21.33	1.36	0.04	1.32	0.95	0.153	1.44	0.106	0.96	1.00	0.111	No
131	21.49	1.37	0.05	1.32	0.95	0.154	1.44	0.107	0.96	1.00	0.112	No
132	21.65	1.38	0.05	1.33	0.95	0.154	1.44	0.107	0.96	1.00	0.112	No
133	21.82	1.39	0.06	1.33	0.95	0.155	1.44	0.107	0.95	1.00	0.112	No
134	21.98	1.40	0.06	1.34	0.95	0.155	1.44	0.108	0.95	1.00	0.113	No
135	22.15	1.41	0.07	1.34	0.95	0.156	1.44	0.108	0.95	1.00	0.113	No
136	22.31	1.42	0.07	1.35	0.95	0.156	1.44	0.108	0.95	1.00	0.114	No
137	22.47	1.43	0.08	1.35	0.95	0.157	1.44	0.109	0.95	1.00	0.114	No
138	22.64	1.44	0.08	1.36	0.95	0.157	1.44	0.109	0.95	1.00	0.115	No
139	22.80	1.45	0.09	1.36	0.95	0.158	1.44	0.109	0.95	1.00	0.115	No
140	22.97	1.46	0.09	1.37	0.95	0.158	1.44	0.110	0.95	1.00	0.115	No
141	23.13	1.47	0.10	1.37	0.95	0.158	1.44	0.110	0.95	1.00	0.116	No
142	23.29	1.48	0.10	1.38	0.95	0.159	1.44	0.110	0.95	1.00	0.116	No
143	23.46	1.49	0.11	1.39	0.95	0.159	1.44	0.110	0.95	1.00	0.117	No
144	23.62	1.50	0.11	1.39	0.95	0.160	1.44	0.111	0.95	1.00	0.117	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
145	23.79	1.52	0.12	1.40	0.95	0.160	1.44	0.111	0.95	1.00	0.117	No
146	23.95	1.53	0.12	1.40	0.95	0.160	1.44	0.111	0.95	1.00	0.118	No
147	24.11	1.54	0.13	1.41	0.94	0.161	1.44	0.112	0.94	1.00	0.118	No
148	24.28	1.55	0.13	1.41	0.94	0.161	1.44	0.112	0.94	1.00	0.118	No
149	24.44	1.56	0.14	1.42	0.94	0.162	1.44	0.112	0.94	1.00	0.119	No
150	24.61	1.57	0.14	1.43	0.94	0.162	1.44	0.112	0.94	1.00	0.119	No
151	24.77	1.58	0.15	1.43	0.94	0.162	1.44	0.113	0.94	1.00	0.120	No
152	24.93	1.59	0.15	1.44	0.94	0.163	1.44	0.113	0.94	1.00	0.120	No
153	25.10	1.60	0.16	1.44	0.94	0.163	1.44	0.113	0.94	1.00	0.120	No
154	25.26	1.61	0.16	1.45	0.94	0.163	1.44	0.113	0.94	1.00	0.121	No
155	25.43	1.62	0.17	1.45	0.94	0.164	1.44	0.114	0.94	1.00	0.121	No
156	25.59	1.63	0.17	1.46	0.94	0.164	1.44	0.114	0.94	1.00	0.121	No
157	25.75	1.64	0.18	1.46	0.94	0.164	1.44	0.114	0.94	1.00	0.122	No
158	25.92	1.65	0.18	1.47	0.94	0.165	1.44	0.114	0.94	1.00	0.122	No
159	26.08	1.66	0.19	1.47	0.94	0.165	1.44	0.115	0.94	1.00	0.122	No
160	26.25	1.67	0.19	1.48	0.94	0.165	1.44	0.115	0.94	1.00	0.123	No
161	26.41	1.68	0.20	1.48	0.94	0.166	1.44	0.115	0.93	1.00	0.123	No
162	26.57	1.69	0.21	1.49	0.94	0.166	1.44	0.115	0.93	1.00	0.123	No
163	26.74	1.70	0.21	1.49	0.94	0.166	1.44	0.115	0.93	1.00	0.124	No
164	26.90	1.71	0.22	1.50	0.93	0.167	1.44	0.116	0.93	1.00	0.124	No
165	27.07	1.72	0.22	1.50	0.93	0.167	1.44	0.116	0.93	1.00	0.124	No
166	27.23	1.74	0.23	1.51	0.93	0.167	1.44	0.116	0.93	1.00	0.125	No
167	27.40	1.75	0.23	1.51	0.93	0.168	1.44	0.116	0.93	1.00	0.125	No
168	27.56	1.76	0.24	1.52	0.93	0.168	1.44	0.116	0.93	1.00	0.125	No
169	27.72	1.77	0.24	1.53	0.93	0.168	1.44	0.117	0.93	1.00	0.126	No
170	27.89	1.78	0.25	1.53	0.93	0.168	1.44	0.117	0.93	1.00	0.126	No
171	28.05	1.79	0.25	1.54	0.93	0.169	1.44	0.117	0.93	1.00	0.126	No
172	28.22	1.80	0.26	1.54	0.93	0.169	1.44	0.117	0.93	1.00	0.126	No
173	28.38	1.81	0.26	1.55	0.93	0.169	1.44	0.117	0.93	1.00	0.127	No
174	28.54	1.82	0.27	1.55	0.93	0.170	1.44	0.118	0.93	1.00	0.127	No
175	28.71	1.83	0.27	1.56	0.93	0.170	1.44	0.118	0.93	1.00	0.127	No
176	28.87	1.84	0.28	1.56	0.93	0.170	1.44	0.118	0.93	1.00	0.127	No
177	29.04	1.85	0.28	1.57	0.93	0.170	1.44	0.118	0.92	1.00	0.128	No
178	29.20	1.86	0.29	1.57	0.92	0.171	1.44	0.118	0.92	1.00	0.128	No
179	29.36	1.87	0.29	1.58	0.92	0.171	1.44	0.118	0.92	1.00	0.128	No
180	29.53	1.88	0.30	1.58	0.92	0.171	1.44	0.119	0.92	1.00	0.129	No
181	29.69	1.89	0.30	1.58	0.92	0.171	1.44	0.119	0.92	1.00	0.129	No
182	29.86	1.90	0.31	1.59	0.92	0.172	1.44	0.119	0.92	1.00	0.129	No
183	30.02	1.91	0.31	1.59	0.92	0.172	1.44	0.119	0.92	1.00	0.129	No
184	30.18	1.92	0.32	1.60	0.92	0.172	1.44	0.119	0.92	1.00	0.130	No
185	30.35	1.93	0.32	1.60	0.92	0.172	1.44	0.119	0.92	1.00	0.130	No
186	30.51	1.94	0.33	1.61	0.92	0.172	1.44	0.120	0.92	1.00	0.130	No
187	30.68	1.95	0.33	1.61	0.92	0.173	1.44	0.120	0.92	1.00	0.130	No
188	30.84	1.96	0.34	1.62	0.92	0.173	1.44	0.120	0.92	1.00	0.130	No
189	31.00	1.97	0.34	1.63	0.92	0.173	1.44	0.120	0.92	1.00	0.131	No
190	31.17	1.98	0.35	1.63	0.91	0.173	1.44	0.120	0.92	1.00	0.131	No
191	31.33	1.99	0.35	1.64	0.91	0.173	1.44	0.120	0.92	1.00	0.131	No
192	31.50	2.00	0.36	1.64	0.91	0.173	1.44	0.120	0.92	1.00	0.131	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
193	31.66	2.01	0.36	1.65	0.91	0.174	1.44	0.120	0.92	1.00	0.132	No
194	31.82	2.02	0.37	1.65	0.91	0.174	1.44	0.121	0.91	1.00	0.132	No
195	31.99	2.03	0.37	1.66	0.91	0.174	1.44	0.121	0.91	1.00	0.132	No
196	32.15	2.04	0.38	1.66	0.91	0.174	1.44	0.121	0.91	1.00	0.132	No
197	32.32	2.05	0.38	1.67	0.91	0.174	1.44	0.121	0.91	1.00	0.132	No
198	32.48	2.06	0.39	1.67	0.91	0.174	1.44	0.121	0.91	1.00	0.133	No
199	32.64	2.07	0.39	1.68	0.91	0.175	1.44	0.121	0.91	1.00	0.133	No
200	32.81	2.08	0.40	1.68	0.90	0.175	1.44	0.121	0.91	1.00	0.133	No
201	32.97	2.09	0.40	1.69	0.90	0.175	1.44	0.121	0.91	1.00	0.133	No
202	33.14	2.10	0.41	1.69	0.90	0.175	1.44	0.121	0.91	1.00	0.133	No
203	33.30	2.11	0.41	1.70	0.90	0.175	1.44	0.121	0.91	1.00	0.133	No
204	33.46	2.12	0.42	1.70	0.90	0.175	1.44	0.121	0.91	1.00	0.134	No
205	33.63	2.13	0.43	1.71	0.90	0.175	1.44	0.122	0.91	1.00	0.134	No
206	33.79	2.15	0.43	1.71	0.90	0.175	1.44	0.122	0.91	1.00	0.134	No
207	33.96	2.16	0.44	1.72	0.90	0.175	1.44	0.122	0.91	1.00	0.134	No
208	34.12	2.17	0.44	1.73	0.90	0.176	1.44	0.122	0.91	1.00	0.134	No
209	34.28	2.18	0.45	1.73	0.90	0.176	1.44	0.122	0.91	1.00	0.134	No
210	34.45	2.19	0.45	1.74	0.89	0.176	1.44	0.122	0.91	1.00	0.135	No
211	34.61	2.20	0.46	1.74	0.89	0.176	1.44	0.122	0.91	1.00	0.135	No
212	34.78	2.21	0.46	1.75	0.89	0.176	1.44	0.122	0.90	1.00	0.135	No
213	34.94	2.22	0.47	1.75	0.89	0.176	1.44	0.122	0.90	1.00	0.135	No
214	35.10	2.23	0.47	1.76	0.89	0.176	1.44	0.122	0.90	1.00	0.135	No
215	35.27	2.24	0.48	1.76	0.89	0.176	1.44	0.122	0.90	1.00	0.135	No
216	35.43	2.25	0.48	1.77	0.89	0.176	1.44	0.122	0.90	1.00	0.135	No
217	35.60	2.26	0.49	1.77	0.89	0.176	1.44	0.122	0.90	1.00	0.136	No
218	35.76	2.27	0.49	1.78	0.89	0.176	1.44	0.122	0.90	1.00	0.136	No
219	35.93	2.28	0.50	1.78	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
220	36.09	2.29	0.50	1.79	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
221	36.25	2.30	0.51	1.79	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
222	36.42	2.31	0.51	1.80	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
223	36.58	2.32	0.52	1.81	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
224	36.75	2.33	0.52	1.81	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
225	36.91	2.34	0.53	1.82	0.88	0.176	1.44	0.122	0.90	1.00	0.136	No
226	37.07	2.35	0.53	1.82	0.88	0.177	1.44	0.122	0.90	1.00	0.136	No
227	37.24	2.36	0.54	1.83	0.87	0.177	1.44	0.122	0.90	1.00	0.137	No
228	37.40	2.37	0.54	1.83	0.87	0.177	1.44	0.122	0.90	1.00	0.137	No
229	37.57	2.38	0.55	1.84	0.87	0.177	1.44	0.122	0.90	1.00	0.137	No
230	37.73	2.39	0.55	1.84	0.87	0.177	1.44	0.122	0.90	1.00	0.137	No
231	37.89	2.40	0.56	1.85	0.87	0.177	1.44	0.122	0.89	1.00	0.137	No
232	38.06	2.42	0.56	1.85	0.87	0.177	1.44	0.122	0.89	1.00	0.137	No
233	38.22	2.43	0.57	1.86	0.87	0.176	1.44	0.122	0.89	1.00	0.137	No
234	38.39	2.44	0.57	1.86	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
235	38.55	2.45	0.58	1.87	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
236	38.71	2.46	0.58	1.87	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
237	38.88	2.47	0.59	1.88	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
238	39.04	2.48	0.59	1.88	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
239	39.21	2.49	0.60	1.89	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
240	39.37	2.50	0.60	1.90	0.86	0.176	1.44	0.122	0.89	1.00	0.137	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
241	39.53	2.51	0.61	1.90	0.86	0.176	1.44	0.122	0.89	1.00	0.137	No
242	39.70	2.52	0.61	1.91	0.85	0.176	1.44	0.122	0.89	1.00	0.137	No
243	39.86	2.53	0.62	1.91	0.85	0.176	1.44	0.122	0.89	1.00	0.137	No
244	40.03	2.54	0.62	1.92	0.85	0.176	1.44	0.122	0.89	1.00	0.137	No
245	40.19	2.55	0.63	1.92	0.85	0.176	1.44	0.122	0.89	1.00	0.137	No
246	40.35	2.56	0.64	1.93	0.85	0.176	1.44	0.122	0.89	1.00	0.137	No
247	40.52	2.57	0.64	1.93	0.85	0.176	1.44	0.122	0.89	1.00	0.138	No
248	40.68	2.59	0.65	1.94	0.84	0.176	1.44	0.122	0.89	1.00	0.138	No
249	40.85	2.60	0.65	1.95	0.84	0.176	1.44	0.122	0.89	1.00	0.138	No
250	41.01	2.61	0.66	1.95	0.84	0.175	1.44	0.122	0.88	1.00	0.138	No
251	41.17	2.62	0.66	1.96	0.84	0.175	1.44	0.122	0.88	1.00	0.138	No
252	41.34	2.63	0.67	1.96	0.84	0.175	1.44	0.122	0.88	1.00	0.138	No
253	41.50	2.64	0.67	1.97	0.84	0.175	1.44	0.121	0.88	1.00	0.138	No
254	41.67	2.65	0.68	1.97	0.84	0.175	1.44	0.121	0.88	1.00	0.138	No
255	41.83	2.66	0.68	1.98	0.83	0.175	1.44	0.121	0.88	1.00	0.138	No
256	41.99	2.67	0.69	1.98	0.83	0.175	1.44	0.121	0.88	1.00	0.138	No
257	42.16	2.68	0.69	1.99	0.83	0.175	1.44	0.121	0.88	1.00	0.138	No
258	42.32	2.69	0.70	2.00	0.83	0.175	1.44	0.121	0.88	1.00	0.137	No
259	42.49	2.70	0.70	2.00	0.83	0.174	1.44	0.121	0.88	1.00	0.137	No
260	42.65	2.71	0.71	2.01	0.83	0.174	1.44	0.121	0.88	1.00	0.137	No
261	42.81	2.72	0.71	2.01	0.83	0.174	1.44	0.121	0.88	1.00	0.137	No
262	42.98	2.74	0.72	2.02	0.82	0.174	1.44	0.121	0.88	1.00	0.137	No
263	43.14	2.75	0.72	2.02	0.82	0.174	1.44	0.121	0.88	1.00	0.137	No
264	43.31	2.76	0.73	2.03	0.82	0.174	1.44	0.121	0.88	1.00	0.137	No
265	43.47	2.77	0.73	2.03	0.82	0.174	1.44	0.120	0.88	1.00	0.137	No
266	43.64	2.78	0.74	2.04	0.82	0.174	1.44	0.120	0.88	1.00	0.137	No
267	43.80	2.79	0.74	2.05	0.82	0.173	1.44	0.120	0.88	1.00	0.137	No
268	43.96	2.80	0.75	2.05	0.81	0.173	1.44	0.120	0.88	1.00	0.137	No
269	44.13	2.81	0.75	2.06	0.81	0.173	1.44	0.120	0.88	1.00	0.137	No
270	44.29	2.82	0.76	2.06	0.81	0.173	1.44	0.120	0.87	1.00	0.137	No
271	44.46	2.83	0.76	2.07	0.81	0.173	1.44	0.120	0.87	1.00	0.137	No
272	44.62	2.84	0.77	2.07	0.81	0.173	1.44	0.120	0.87	1.00	0.137	No
273	44.78	2.85	0.77	2.08	0.81	0.172	1.44	0.120	0.87	1.00	0.137	No
274	44.95	2.86	0.78	2.09	0.80	0.172	1.44	0.119	0.87	1.00	0.137	No
275	45.11	2.87	0.78	2.09	0.80	0.172	1.44	0.119	0.87	1.00	0.137	No
276	45.28	2.89	0.79	2.10	0.80	0.172	1.44	0.119	0.87	1.00	0.137	No
277	45.44	2.90	0.79	2.10	0.80	0.172	1.44	0.119	0.87	1.00	0.137	No
278	45.60	2.91	0.80	2.11	0.80	0.172	1.44	0.119	0.87	1.00	0.137	No
279	45.77	2.92	0.80	2.11	0.80	0.171	1.44	0.119	0.87	1.00	0.137	No
280	45.93	2.93	0.81	2.12	0.79	0.171	1.44	0.119	0.87	1.00	0.136	No
281	46.10	2.94	0.81	2.12	0.79	0.171	1.44	0.119	0.87	1.00	0.136	No
282	46.26	2.95	0.82	2.13	0.79	0.171	1.44	0.118	0.87	1.00	0.136	No
283	46.42	2.96	0.82	2.14	0.79	0.171	1.44	0.118	0.87	1.00	0.136	No
284	46.59	2.97	0.83	2.14	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
285	46.75	2.98	0.83	2.15	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
286	46.92	2.99	0.84	2.15	0.78	0.170	1.44	0.118	0.87	1.00	0.136	No
287	47.08	3.00	0.84	2.16	0.78	0.170	1.44	0.118	0.87	1.00	0.136	No
288	47.24	3.01	0.85	2.16	0.78	0.170	1.44	0.118	0.87	1.00	0.136	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
289	47.41	3.02	0.86	2.17	0.78	0.170	1.44	0.118	0.87	1.00	0.136	No
290	47.57	3.03	0.86	2.17	0.78	0.169	1.44	0.117	0.87	1.00	0.136	No
291	47.74	3.04	0.87	2.18	0.78	0.169	1.44	0.117	0.87	1.00	0.136	No
292	47.90	3.05	0.87	2.18	0.77	0.169	1.44	0.117	0.87	1.00	0.135	No
293	48.06	3.06	0.88	2.19	0.77	0.169	1.44	0.117	0.86	1.00	0.135	No
294	48.23	3.07	0.88	2.19	0.77	0.169	1.44	0.117	0.86	1.00	0.135	No
295	48.39	3.08	0.89	2.20	0.77	0.168	1.44	0.117	0.86	1.00	0.135	No
296	48.56	3.09	0.89	2.20	0.77	0.168	1.44	0.117	0.86	1.00	0.135	No
297	48.72	3.10	0.90	2.21	0.77	0.168	1.44	0.116	0.86	1.00	0.135	No
298	48.88	3.11	0.90	2.21	0.76	0.168	1.44	0.116	0.86	1.00	0.135	No
299	49.05	3.12	0.91	2.22	0.76	0.168	1.44	0.116	0.86	1.00	0.135	No
300	49.21	3.13	0.91	2.22	0.76	0.167	1.44	0.116	0.86	1.00	0.135	No
301	49.38	3.14	0.92	2.23	0.76	0.167	1.44	0.116	0.86	1.00	0.135	No
302	49.54	3.15	0.92	2.23	0.76	0.167	1.44	0.116	0.86	1.00	0.134	No
303	49.70	3.16	0.93	2.24	0.76	0.167	1.44	0.116	0.86	1.00	0.134	No
304	49.87	3.17	0.93	2.24	0.75	0.167	1.44	0.115	0.86	1.00	0.134	No
305	50.03	3.19	0.94	2.25	0.75	0.166	1.44	0.115	0.86	1.00	0.134	No
306	50.20	3.20	0.94	2.25	0.75	0.166	1.44	0.115	0.86	1.00	0.134	No
307	50.36	3.21	0.95	2.26	0.75	0.166	1.44	0.115	0.86	1.00	0.134	No
308	50.52	3.22	0.95	2.26	0.75	0.166	1.44	0.115	0.86	1.00	0.134	No
309	50.69	3.23	0.96	2.27	0.75	0.165	1.44	0.115	0.86	1.00	0.134	No
310	50.85	3.24	0.96	2.27	0.74	0.165	1.44	0.115	0.86	1.00	0.134	No
311	51.02	3.25	0.97	2.28	0.74	0.165	1.44	0.114	0.86	1.00	0.133	No
312	51.18	3.26	0.97	2.28	0.74	0.165	1.44	0.114	0.86	1.00	0.133	No
313	51.35	3.27	0.98	2.29	0.74	0.165	1.44	0.114	0.86	1.00	0.133	No
314	51.51	3.28	0.98	2.29	0.74	0.164	1.44	0.114	0.86	1.00	0.133	No
315	51.67	3.29	0.99	2.30	0.74	0.164	1.44	0.114	0.86	1.00	0.133	No
316	51.84	3.30	0.99	2.30	0.73	0.164	1.44	0.114	0.86	1.00	0.133	No
317	52.00	3.31	1.00	2.31	0.73	0.164	1.44	0.114	0.86	1.00	0.133	No
318	52.17	3.32	1.00	2.31	0.73	0.163	1.44	0.113	0.86	1.00	0.133	No
319	52.33	3.33	1.01	2.32	0.73	0.163	1.44	0.113	0.85	1.00	0.132	No
320	52.49	3.34	1.01	2.33	0.73	0.163	1.44	0.113	0.85	1.00	0.132	No
321	52.66	3.35	1.02	2.33	0.73	0.163	1.44	0.113	0.85	1.00	0.132	No
322	52.82	3.36	1.02	2.34	0.72	0.163	1.44	0.113	0.85	1.00	0.132	No
323	52.99	3.37	1.03	2.34	0.72	0.162	1.44	0.113	0.85	1.00	0.132	No
324	53.15	3.38	1.03	2.35	0.72	0.162	1.44	0.112	0.85	1.00	0.132	No
325	53.31	3.39	1.04	2.35	0.72	0.162	1.44	0.112	0.85	1.00	0.132	No
326	53.48	3.40	1.04	2.36	0.72	0.162	1.44	0.112	0.85	1.00	0.132	No
327	53.64	3.41	1.05	2.36	0.72	0.161	1.44	0.112	0.85	1.00	0.131	No
328	53.81	3.42	1.05	2.37	0.71	0.161	1.44	0.112	0.85	1.00	0.131	No
329	53.97	3.43	1.06	2.37	0.71	0.161	1.44	0.112	0.85	1.00	0.131	No
330	54.13	3.44	1.06	2.38	0.71	0.161	1.44	0.111	0.85	1.00	0.131	No
331	54.30	3.46	1.07	2.39	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
332	54.46	3.47	1.08	2.39	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
333	54.63	3.48	1.08	2.40	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
334	54.79	3.49	1.09	2.40	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
335	54.95	3.50	1.09	2.41	0.70	0.160	1.44	0.111	0.85	1.00	0.130	No
336	55.12	3.51	1.10	2.41	0.70	0.159	1.44	0.110	0.85	1.00	0.130	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
337	55.28	3.52	1.10	2.42	0.70	0.159	1.44	0.110	0.85	1.00	0.130	No
338	55.45	3.53	1.11	2.42	0.70	0.159	1.44	0.110	0.85	1.00	0.130	No
339	55.61	3.54	1.11	2.43	0.70	0.159	1.44	0.110	0.85	1.00	0.130	No
340	55.77	3.55	1.12	2.44	0.70	0.158	1.44	0.110	0.85	1.00	0.130	No
341	55.94	3.56	1.12	2.44	0.69	0.158	1.44	0.110	0.85	1.00	0.130	No
342	56.10	3.57	1.13	2.45	0.69	0.158	1.44	0.109	0.85	1.00	0.129	No
343	56.27	3.59	1.13	2.45	0.69	0.158	1.44	0.109	0.85	1.00	0.129	No
344	56.43	3.60	1.14	2.46	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
345	56.59	3.61	1.14	2.47	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
346	56.76	3.62	1.15	2.47	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
347	56.92	3.63	1.15	2.48	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
348	57.09	3.64	1.16	2.48	0.68	0.156	1.44	0.109	0.84	1.00	0.129	No
349	57.25	3.65	1.16	2.49	0.68	0.156	1.44	0.108	0.84	1.00	0.129	No
350	57.41	3.66	1.17	2.49	0.68	0.156	1.44	0.108	0.84	1.00	0.128	No
351	57.58	3.67	1.17	2.50	0.68	0.156	1.44	0.108	0.84	1.00	0.128	No
352	57.74	3.68	1.18	2.51	0.68	0.156	1.44	0.108	0.84	1.00	0.128	No
353	57.91	3.69	1.18	2.51	0.68	0.155	1.44	0.108	0.84	1.00	0.128	No
354	58.07	3.71	1.19	2.52	0.68	0.155	1.44	0.108	0.84	1.00	0.128	No
355	58.23	3.72	1.19	2.52	0.67	0.155	1.44	0.107	0.84	1.00	0.128	No
356	58.40	3.73	1.20	2.53	0.67	0.155	1.44	0.107	0.84	1.00	0.128	No
357	58.56	3.74	1.20	2.54	0.67	0.154	1.44	0.107	0.84	1.00	0.128	No
358	58.73	3.75	1.21	2.54	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
359	58.89	3.76	1.21	2.54	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
360	59.06	3.76	1.22	2.55	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
361	59.22	3.77	1.22	2.55	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
362	59.38	3.78	1.23	2.55	0.66	0.154	1.44	0.107	0.84	1.00	0.127	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)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.16	406.52	0.77	0.15	0.50	653.12	1.00	653.12	4.000	No	No	2.00
2	0.33	327.77	0.97	0.25	0.50	526.58	1.00	526.58	4.000	No	No	2.00
3	0.49	209.03	1.28	0.44	0.50	335.78	1.00	335.78	4.000	No	No	2.00
4	0.66	117.91	1.64	0.80	0.50	189.38	1.00	189.38	4.000	No	No	2.00
5	0.82	54.63	2.07	1.51	0.63	87.69	1.38	121.00	4.000	No	No	2.00
6	0.98	36.31	2.32	2.22	0.70	58.24	1.98	115.60	4.000	No	No	2.00
7	1.15	31.72	2.37	2.33	0.72	50.85	2.24	113.71	4.000	No	No	2.00
8	1.31	29.59	2.37	2.14	0.72	47.42	2.23	105.66	4.000	No	No	2.00
9	1.48	20.22	2.52	2.34	0.77	32.35	3.15	101.84	4.000	No	No	2.00
10	1.64	12.90	2.72	2.76	0.82	20.58	4.94	101.67	4.000	No	Yes	2.00
11	1.80	9.74	2.85	3.03	0.86	15.47	6.44	99.58	4.000	No	Yes	2.00
12	1.97	8.80	2.90	3.30	0.88	13.96	7.26	101.29	4.000	No	Yes	2.00
13	2.13	8.56	2.94	3.64	0.89	13.55	7.79	105.63	4.000	No	Yes	2.00
14	2.30	8.79	2.96	4.09	1.00	13.92	8.14	113.29	4.000	No	Yes	2.00
15	2.46	10.08	2.95	4.67	1.00	15.97	7.97	127.37	4.000	No	Yes	2.00
16	2.62	13.53	2.87	4.88	0.87	21.50	6.71	144.31	4.000	No	Yes	2.00
17	2.79	17.59	2.79	5.03	0.84	28.00	5.73	160.39	4.000	No	Yes	2.00
18	2.95	20.87	2.75	5.22	0.83	33.26	5.23	173.81	4.000	No	Yes	2.00
19	3.12	23.12	2.73	5.48	0.83	36.86	5.04	185.86	4.000	No	Yes	2.00
20	3.28	25.02	2.73	5.95	0.83	39.90	5.07	202.28	4.000	No	Yes	2.00
21	3.44	27.05	2.73	6.40	0.83	43.14	5.07	218.77	4.000	No	Yes	2.00
22	3.61	28.38	2.74	6.89	0.83	45.26	5.18	234.56	4.000	No	Yes	2.00
23	3.77	29.44	2.74	7.06	0.83	46.94	5.15	241.90	4.000	No	Yes	2.00
24	3.94	30.96	2.72	6.92	0.82	49.38	4.92	243.13	4.000	No	Yes	2.00
25	4.10	32.87	2.69	6.57	0.81	52.42	4.57	239.35	4.000	No	Yes	2.00
26	4.27	34.68	2.66	6.28	0.80	55.31	4.26	235.83	4.000	No	Yes	2.00
27	4.43	36.63	2.64	6.25	0.80	58.43	4.11	239.88	4.000	No	Yes	2.00
28	4.59	39.40	2.62	6.30	0.79	62.87	3.94	247.87	4.000	No	Yes	2.00
29	4.76	44.21	2.58	6.11	0.78	70.58	3.58	252.55	4.000	No	No	2.00
30	4.92	49.61	2.53	5.74	0.77	79.24	3.17	251.06	4.000	No	No	2.00
31	5.09	55.74	2.46	5.21	0.75	89.07	2.73	243.42	4.000	No	No	2.00
32	5.25	59.71	2.43	4.94	0.74	95.43	2.51	239.86	4.000	No	No	2.00
33	5.41	61.20	2.41	4.79	0.73	97.80	2.42	236.72	4.000	No	No	2.00
34	5.58	61.77	2.40	4.75	0.73	98.70	2.39	235.95	4.000	No	No	2.00
35	5.74	61.65	2.40	4.66	0.73	98.49	2.36	232.26	4.000	No	No	2.00
36	5.91	61.14	2.39	4.50	0.72	97.66	2.31	225.65	4.000	No	No	2.00
37	6.07	58.02	2.39	4.39	0.73	92.63	2.34	216.55	4.000	No	No	2.00
38	6.23	53.98	2.41	4.36	0.73	86.12	2.43	209.42	4.000	No	No	2.00
39	6.40	50.04	2.44	4.40	0.74	79.77	2.57	204.97	4.000	No	No	2.00
40	6.56	46.33	2.46	4.45	0.75	73.80	2.73	201.14	4.000	No	No	2.00
41	6.73	41.70	2.49	4.41	0.75	66.34	2.90	192.48	4.000	No	No	2.00
42	6.89	36.04	2.53	4.32	0.77	57.24	3.16	180.71	4.000	No	No	2.00
43	7.05	29.96	2.57	4.20	0.78	47.45	3.52	166.89	4.000	No	No	2.00
44	7.22	24.94	2.63	4.23	0.80	39.37	4.03	158.74	4.000	No	Yes	2.00
45	7.38	22.47	2.67	4.27	0.81	35.38	4.38	154.84	4.000	No	Yes	2.00
46	7.55	22.72	2.67	4.35	0.81	35.78	4.40	157.25	4.000	No	Yes	2.00
47	7.71	25.70	2.61	4.10	0.79	40.54	3.86	156.66	4.000	No	Yes	2.00
48	7.87	33.27	2.49	3.58	0.76	52.69	2.91	153.54	4.000	No	No	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	8.04	42.58	2.39	3.32	0.73	67.64	2.33	157.67	4.000	No	No	2.00
50	8.20	52.60	2.33	3.30	0.71	83.72	2.03	170.18	4.000	No	No	2.00
51	8.37	60.51	2.34	3.85	0.71	95.92	2.09	200.01	4.000	No	No	2.00
52	8.53	70.16	2.36	4.50	0.71	110.09	2.16	237.35	4.000	No	No	2.00
53	8.69	86.14	2.34	5.01	0.71	133.03	2.11	280.29	4.000	No	No	2.00
54	8.86	103.64	2.31	5.14	0.70	156.88	1.98	310.31	4.000	No	No	2.00
55	9.02	112.74	2.29	5.05	0.70	167.55	1.89	317.10	4.000	No	No	2.00
56	9.19	107.76	2.29	4.87	0.70	157.94	1.90	299.53	4.000	No	No	2.00
57	9.35	98.49	2.29	4.56	0.70	142.40	1.90	270.83	4.000	No	No	2.00
58	9.51	91.69	2.30	4.40	0.70	130.98	1.93	253.23	4.000	No	No	2.00
59	9.68	88.87	2.32	4.49	0.70	125.70	2.00	251.97	4.000	No	No	2.00
60	9.84	86.19	2.35	4.72	0.71	120.84	2.12	256.26	4.000	No	No	2.00
61	10.01	87.02	2.35	4.75	0.71	120.53	2.13	257.32	4.000	No	No	2.00
62	10.17	90.94	2.33	4.54	0.71	123.96	2.03	252.08	4.000	No	No	2.00
63	10.33	95.80	2.30	4.25	0.70	128.42	1.91	245.06	4.000	No	No	2.00
64	10.50	95.88	2.30	4.23	0.70	127.02	1.91	242.88	4.000	No	No	2.00
65	10.66	92.51	2.31	4.30	0.70	121.42	1.98	240.43	4.000	No	No	2.00
66	10.83	87.01	2.34	4.34	0.71	113.19	2.07	234.23	4.000	No	No	2.00
67	10.99	81.94	2.34	4.21	0.71	105.45	2.11	222.00	4.000	No	No	2.00
68	11.15	77.31	2.35	4.03	0.71	98.38	2.12	208.70	4.000	No	No	2.00
69	11.32	73.44	2.36	3.95	0.72	92.51	2.17	200.47	4.000	No	No	2.00
70	11.48	69.57	2.38	4.04	0.72	86.92	2.29	198.78	4.000	No	No	2.00
71	11.65	66.43	2.42	4.27	0.73	82.38	2.46	202.78	4.000	No	No	2.00
72	11.81	66.44	2.44	4.49	0.74	81.68	2.57	210.11	4.000	No	No	2.00
73	11.98	69.11	2.43	4.56	0.74	84.05	2.55	214.57	4.000	No	No	2.00
74	12.14	74.04	2.41	4.53	0.73	89.00	2.45	218.40	4.000	No	No	2.00
75	12.30	76.50	2.41	4.56	0.73	91.00	2.43	221.57	4.000	No	No	2.00
76	12.47	79.29	2.40	4.51	0.73	93.29	2.38	221.93	4.000	No	No	2.00
77	12.63	79.65	2.39	4.40	0.73	92.72	2.34	217.08	4.000	No	No	2.00
78	12.80	78.59	2.39	4.26	0.73	90.54	2.32	210.06	4.000	No	No	2.00
79	12.96	75.67	2.41	4.35	0.73	86.42	2.42	209.34	4.000	No	No	2.00
80	13.12	73.77	2.43	4.50	0.74	83.56	2.54	212.22	4.000	No	No	2.00
81	13.29	72.95	2.44	4.58	0.74	81.89	2.61	213.45	4.000	No	No	2.00
82	13.45	72.59	2.44	4.47	0.74	80.68	2.58	208.44	4.000	No	No	2.00
83	13.62	73.82	2.42	4.32	0.74	81.21	2.51	203.67	4.000	No	No	2.00
84	13.78	71.20	2.45	4.45	0.74	77.69	2.64	204.76	4.000	No	No	2.00
85	13.94	66.41	2.47	4.43	0.75	71.82	2.77	198.60	4.000	No	No	2.00
86	14.11	61.16	2.49	4.39	0.76	65.55	2.91	191.02	4.000	No	No	2.00
87	14.27	64.16	2.44	3.93	0.74	68.03	2.62	178.04	4.000	No	No	2.00
88	14.44	68.02	2.42	3.86	0.74	71.47	2.50	178.75	4.000	No	No	2.00
89	14.60	65.35	2.47	4.31	0.75	68.19	2.80	190.89	4.000	No	No	2.00
90	14.76	58.63	2.55	5.00	0.77	60.75	3.38	205.22	4.000	No	No	2.00
91	14.93	52.14	2.63	5.62	0.80	53.59	4.01	214.92	4.000	No	Yes	2.00
92	15.09	49.32	2.65	5.68	0.80	50.22	4.22	211.71	4.000	No	Yes	2.00
93	15.26	46.89	2.70	6.31	0.82	47.35	4.73	223.99	4.000	No	Yes	2.00
94	15.42	52.40	2.70	6.81	0.82	52.52	4.68	245.94	4.000	No	Yes	2.00
95	15.58	65.71	2.64	6.87	0.80	65.41	4.11	268.67	4.000	No	Yes	2.00
96	15.75	81.79	2.57	6.56	0.78	80.79	3.48	281.10	4.000	No	No	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	15.91	98.34	2.49	5.98	0.75	96.35	2.90	279.77	4.000	No	No	2.00
98	16.08	108.32	2.45	5.72	0.74	105.28	2.66	279.98	4.000	No	No	2.00
99	16.24	112.34	2.44	5.66	0.74	108.30	2.59	281.00	4.000	No	No	2.00
100	16.40	110.42	2.46	5.96	0.75	105.59	2.74	289.61	4.000	No	No	2.00
101	16.57	109.28	2.47	5.92	0.75	103.66	2.76	285.94	4.000	No	No	2.00
102	16.73	109.33	2.45	5.56	0.74	102.87	2.64	271.12	4.000	No	No	2.00
103	16.90	103.31	2.45	5.35	0.74	96.39	2.66	256.06	4.000	No	No	2.00
104	17.06	97.53	2.47	5.46	0.75	90.23	2.81	253.57	4.000	No	No	2.00
105	17.22	99.49	2.47	5.42	0.75	91.36	2.78	253.53	4.000	No	No	2.00
106	17.39	107.37	2.44	5.22	0.74	97.96	2.58	252.92	4.000	No	No	2.00
107	17.55	119.86	2.38	4.73	0.72	108.74	2.25	244.89	4.000	No	No	2.00
108	17.72	123.07	2.36	4.63	0.72	110.89	2.19	243.27	4.000	No	No	2.00
109	17.88	123.93	2.36	4.52	0.71	110.90	2.16	239.03	4.000	No	No	2.00
110	18.04	119.43	2.37	4.62	0.72	106.03	2.25	238.18	4.000	No	No	2.00
111	18.21	113.68	2.39	4.68	0.73	100.13	2.34	234.76	4.000	No	No	2.00
112	18.37	106.99	2.41	4.63	0.73	93.48	2.42	226.49	4.000	No	No	2.00
113	18.54	100.54	2.42	4.48	0.73	87.15	2.46	214.78	4.000	No	No	2.00
114	18.70	97.62	2.42	4.35	0.73	84.02	2.47	207.14	4.000	No	No	2.00
115	18.86	102.79	2.39	4.16	0.72	88.01	2.32	204.27	4.000	No	No	2.00
116	19.03	109.20	2.37	4.15	0.72	93.00	2.24	208.14	4.000	No	No	2.00
117	19.19	113.75	2.36	4.15	0.72	96.32	2.19	211.41	4.000	No	No	2.00
118	19.36	113.64	2.38	4.32	0.72	95.53	2.27	216.76	4.000	No	No	2.00
119	19.52	113.07	2.41	4.70	0.73	94.28	2.44	229.82	4.000	No	No	2.00
120	19.69	114.89	2.43	4.99	0.74	95.10	2.54	241.38	4.000	No	No	2.00
121	19.85	115.91	2.44	5.11	0.74	95.29	2.58	245.89	4.000	No	No	2.00
122	20.01	113.29	2.43	4.88	0.74	92.54	2.54	234.60	4.000	No	No	2.00
123	20.18	104.19	2.44	4.67	0.74	84.44	2.59	218.92	4.000	No	No	2.00
124	20.34	94.61	2.47	4.72	0.75	75.94	2.80	212.35	4.000	No	No	2.00
125	20.51	92.17	2.49	4.81	0.75	73.41	2.90	213.01	4.000	No	No	2.00
126	20.67	98.87	2.50	5.32	0.76	78.23	3.01	235.57	4.000	No	No	2.00
127	20.83	102.23	2.52	5.63	0.76	80.34	3.09	248.46	4.000	No	No	2.00
128	21.00	96.81	2.56	6.12	0.78	75.30	3.44	258.99	4.000	No	No	2.00
129	21.16	89.43	2.56	5.68	0.78	69.04	3.43	236.75	4.000	No	No	2.00
130	21.33	79.28	2.58	5.34	0.78	60.62	3.56	215.78	4.000	No	No	2.00
131	21.49	70.25	2.58	4.77	0.78	53.26	3.56	189.80	0.716	No	No	2.00
132	21.65	60.10	2.62	4.63	0.79	44.99	3.91	176.13	3.600	No	Yes	2.00
133	21.82	55.61	2.64	4.52	0.80	41.23	4.09	168.58	3.600	No	Yes	2.00
134	21.98	57.25	2.62	4.44	0.80	42.26	3.97	167.67	3.600	No	Yes	2.00
135	22.15	61.72	2.60	4.36	0.79	45.48	3.72	169.26	0.531	No	No	2.00
136	22.31	66.09	2.56	4.14	0.78	48.64	3.42	166.49	0.509	No	No	2.00
137	22.47	65.36	2.55	3.92	0.77	47.86	3.33	159.18	0.455	No	No	2.00
138	22.64	61.74	2.56	3.76	0.77	44.86	3.39	151.87	0.406	No	No	2.00
139	22.80	60.38	2.59	4.02	0.78	43.48	3.63	157.74	0.445	No	No	2.00
140	22.97	69.74	2.55	4.18	0.77	50.24	3.37	169.26	0.531	No	No	2.00
141	23.13	82.35	2.52	4.34	0.76	59.40	3.09	183.30	0.653	No	No	2.00
142	23.29	89.19	2.50	4.47	0.76	64.15	2.99	192.07	0.739	No	No	2.00
143	23.46	88.26	2.52	4.68	0.77	62.98	3.14	197.77	0.799	No	No	2.00
144	23.62	85.40	2.55	4.86	0.77	60.41	3.32	200.68	4.000	No	No	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	23.79	85.46	2.55	4.89	0.77	60.09	3.35	201.20	4.000	No	No	2.00
146	23.95	88.12	2.54	4.85	0.77	61.71	3.27	201.67	4.000	No	No	2.00
147	24.11	90.61	2.54	4.88	0.77	63.17	3.24	204.37	4.000	No	No	2.00
148	24.28	90.82	2.52	4.71	0.77	63.05	3.15	198.73	0.810	No	No	2.00
149	24.44	83.36	2.58	5.15	0.78	57.08	3.60	205.54	4.000	No	No	2.00
150	24.61	71.39	2.67	5.74	0.81	47.97	4.38	210.03	3.600	No	Yes	2.00
151	24.77	62.17	2.75	6.50	0.83	40.98	5.30	217.04	3.600	No	Yes	2.00
152	24.93	61.19	2.73	5.96	0.83	40.19	5.05	202.89	3.600	No	Yes	2.00
153	25.10	61.71	2.69	5.24	0.81	40.53	4.59	185.86	3.600	No	Yes	2.00
154	25.26	60.77	2.66	4.62	0.80	39.84	4.25	169.51	3.600	No	Yes	2.00
155	25.43	54.48	2.68	4.44	0.81	35.31	4.50	158.77	3.600	No	Yes	2.00
156	25.59	49.35	2.71	4.37	0.82	31.59	4.81	151.96	3.600	No	Yes	2.00
157	25.75	45.03	2.76	4.63	0.84	28.38	5.38	152.71	3.600	No	Yes	2.00
158	25.92	43.61	2.77	4.62	0.84	27.26	5.53	150.69	3.600	No	Yes	2.00
159	26.08	42.76	2.76	4.34	0.84	26.60	5.40	143.70	3.600	No	Yes	2.00
160	26.25	40.92	2.76	4.03	0.84	25.29	5.34	135.08	3.600	No	Yes	2.00
161	26.41	38.23	2.82	4.50	0.85	23.24	6.06	140.96	3.600	No	Yes	2.00
162	26.57	42.55	2.81	4.97	0.85	25.90	6.00	155.28	3.600	No	Yes	2.00
163	26.74	54.00	2.71	4.72	0.82	33.52	4.86	163.00	3.600	No	Yes	2.00
164	26.90	62.15	2.65	4.42	0.80	39.00	4.18	163.13	3.600	No	Yes	2.00
165	27.07	61.45	2.65	4.41	0.80	38.43	4.22	162.26	3.600	No	Yes	2.00
166	27.23	55.85	2.73	5.13	0.83	34.33	5.06	173.64	3.600	No	Yes	2.00
167	27.40	52.33	2.79	5.77	0.85	31.73	5.76	182.84	3.600	No	Yes	2.00
168	27.56	49.27	2.83	6.15	0.86	29.55	6.30	186.00	3.600	No	Yes	2.00
169	27.72	46.84	2.82	5.49	0.85	28.03	6.06	169.71	3.600	No	Yes	2.00
170	27.89	42.84	2.81	4.82	0.85	25.51	5.94	151.47	3.600	No	Yes	2.00
171	28.05	39.15	2.80	4.29	0.85	23.16	5.90	136.73	3.600	No	Yes	2.00
172	28.22	36.31	2.85	4.59	0.86	21.19	6.54	138.60	3.600	No	Yes	2.00
173	28.38	38.65	2.85	4.96	0.86	22.56	6.57	148.19	3.600	No	Yes	2.00
174	28.54	43.46	2.83	5.19	0.86	25.53	6.22	158.74	3.600	No	Yes	2.00
175	28.71	46.46	2.79	4.98	0.85	27.44	5.77	158.42	3.600	No	Yes	2.00
176	28.87	43.35	2.80	4.72	0.85	25.43	5.88	149.44	3.600	No	Yes	2.00
177	29.04	36.40	2.85	4.42	0.86	20.97	6.44	135.02	3.600	No	Yes	2.00
178	29.20	30.61	2.89	4.17	0.88	17.28	7.10	122.75	3.600	No	Yes	2.00
179	29.36	27.52	2.95	4.17	1.00	14.43	8.03	115.82	3.600	No	Yes	2.00
180	29.53	27.17	3.00	4.91	1.00	14.19	8.85	125.63	3.600	No	Yes	2.00
181	29.69	27.34	3.04	5.65	1.00	14.24	9.52	135.57	3.600	No	Yes	2.00
182	29.86	27.91	3.06	6.15	1.00	14.51	9.85	142.93	3.600	No	Yes	2.00
183	30.02	30.49	2.99	5.32	1.00	15.90	8.60	136.71	3.600	No	Yes	2.00
184	30.18	32.13	2.93	4.87	0.89	17.82	7.60	135.32	3.600	No	Yes	2.00
185	30.35	34.02	2.89	4.63	0.88	18.99	7.08	134.39	3.600	No	Yes	2.00
186	30.51	35.67	2.92	5.38	0.88	19.81	7.51	148.70	3.600	No	Yes	2.00
187	30.68	39.71	2.92	6.06	0.88	22.12	7.50	165.92	3.600	No	Yes	2.00
188	30.84	45.89	2.89	6.48	0.88	25.79	7.09	182.89	3.600	No	Yes	2.00
189	31.00	52.30	2.84	6.36	0.86	29.71	6.41	190.31	3.600	No	Yes	2.00
190	31.17	54.15	2.83	6.22	0.86	30.80	6.17	190.17	3.600	No	Yes	2.00
191	31.33	51.67	2.83	6.03	0.86	29.23	6.26	182.98	3.600	No	Yes	2.00
192	31.50	46.00	2.86	5.81	0.87	25.70	6.64	170.75	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	31.66	42.09	2.87	5.49	0.87	23.30	6.83	159.24	3.600	No	Yes	2.00
194	31.82	40.70	2.86	5.08	0.87	22.47	6.68	150.04	3.600	No	Yes	2.00
195	31.99	40.27	2.85	4.86	0.86	22.20	6.56	145.54	3.600	No	Yes	2.00
196	32.15	38.89	2.86	4.71	0.87	21.33	6.61	140.93	3.600	No	Yes	2.00
197	32.32	36.02	2.88	4.55	0.87	19.56	6.86	134.24	3.600	No	Yes	2.00
198	32.48	32.32	2.90	4.28	0.88	17.31	7.20	124.60	3.600	No	Yes	2.00
199	32.64	29.56	2.97	4.43	1.00	14.63	8.21	120.16	3.600	No	Yes	2.00
200	32.81	28.75	3.06	5.97	1.00	14.16	9.84	139.39	3.600	No	Yes	2.00
201	32.97	36.08	3.06	7.86	1.00	18.00	9.90	178.24	3.600	No	Yes	2.00
202	33.14	53.91	2.95	8.31	1.00	27.35	7.99	218.55	3.600	No	Yes	2.00
203	33.30	81.08	2.76	7.31	0.84	45.74	5.37	245.68	3.600	No	Yes	2.00
204	33.46	104.67	2.62	6.07	0.79	60.73	3.92	237.78	3.600	No	Yes	2.00
205	33.63	113.94	2.53	5.11	0.77	67.08	3.22	215.85	4.000	No	No	2.00
206	33.79	106.31	2.52	4.64	0.76	62.47	3.14	195.86	0.779	No	No	2.00
207	33.96	90.62	2.58	4.69	0.78	52.42	3.56	186.41	0.682	No	No	2.00
208	34.12	74.90	2.65	4.86	0.80	42.43	4.22	178.96	3.600	No	Yes	2.00
209	34.28	60.75	2.73	5.04	0.83	33.58	5.07	170.37	3.600	No	Yes	2.00
210	34.45	47.67	2.84	5.43	0.86	25.51	6.40	163.26	3.600	No	Yes	2.00
211	34.61	43.17	2.87	5.37	0.87	22.79	6.84	155.99	3.600	No	Yes	2.00
212	34.78	42.51	2.86	5.03	0.87	22.42	6.65	149.11	3.600	No	Yes	2.00
213	34.94	41.32	2.87	4.93	0.87	21.69	6.72	145.71	3.600	No	Yes	2.00
214	35.10	36.65	2.98	5.83	1.00	17.56	8.49	149.07	3.600	No	Yes	2.00
215	35.27	33.70	3.08	7.42	1.00	16.01	10.27	164.49	3.600	No	Yes	2.00
216	35.43	38.08	3.06	7.84	1.00	18.18	9.83	178.71	3.600	No	Yes	2.00
217	35.60	42.44	3.02	7.74	1.00	20.34	9.12	185.56	3.600	No	Yes	2.00
218	35.76	46.52	2.97	7.24	1.00	22.33	8.30	185.31	3.600	No	Yes	2.00
219	35.93	50.47	2.88	6.36	0.87	26.28	6.93	182.12	3.600	No	Yes	2.00
220	36.09	52.71	2.84	5.82	0.86	27.66	6.34	175.38	3.600	No	Yes	2.00
221	36.25	55.54	2.78	5.09	0.84	29.47	5.58	164.47	3.600	No	Yes	2.00
222	36.42	52.30	2.81	5.24	0.85	27.45	5.96	163.56	3.600	No	Yes	2.00
223	36.58	47.54	2.87	5.64	0.87	24.50	6.73	164.81	3.600	No	Yes	2.00
224	36.75	42.70	2.97	6.48	1.00	20.05	8.30	166.44	3.600	No	Yes	2.00
225	36.91	43.84	2.95	6.27	1.00	20.56	8.01	164.77	3.600	No	Yes	2.00
226	37.07	47.08	2.85	5.25	0.86	24.15	6.50	156.89	3.600	No	Yes	2.00
227	37.24	49.45	2.76	4.21	0.84	25.80	5.41	139.65	3.600	No	Yes	2.00
228	37.40	53.53	2.68	3.56	0.81	28.42	4.54	129.09	3.600	No	Yes	2.00
229	37.57	59.30	2.65	3.58	0.80	31.77	4.20	133.36	3.600	No	Yes	2.00
230	37.73	58.14	2.72	4.35	0.82	30.63	4.90	150.14	3.600	No	Yes	2.00
231	37.89	50.05	2.86	5.70	0.87	25.40	6.61	167.93	3.600	No	Yes	2.00
232	38.06	41.44	3.03	7.55	1.00	18.99	9.37	177.93	3.600	No	Yes	2.00
233	38.22	40.47	3.07	8.29	1.00	18.47	10.05	185.57	3.600	No	Yes	2.00
234	38.39	42.50	3.06	8.29	1.00	19.40	9.77	189.48	3.600	No	Yes	2.00
235	38.55	43.87	3.05	8.34	1.00	20.00	9.62	192.50	3.600	No	Yes	2.00
236	38.71	45.65	3.03	8.25	1.00	20.80	9.35	194.42	3.600	No	Yes	2.00
237	38.88	51.61	2.97	7.55	1.00	23.61	8.23	194.19	3.600	No	Yes	2.00
238	39.04	56.69	2.89	7.00	0.87	28.27	7.03	198.77	3.600	No	Yes	2.00
239	39.21	59.03	2.86	6.77	0.87	29.57	6.69	197.76	3.600	No	Yes	2.00
240	39.37	55.35	2.89	6.92	0.88	27.41	7.11	194.90	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	39.53	50.01	2.96	7.12	1.00	22.58	8.16	184.24	3.600	No	Yes	2.00
242	39.70	46.04	3.02	7.81	1.00	20.63	9.10	187.68	3.600	No	Yes	2.00
243	39.86	43.56	3.07	8.80	1.00	19.40	10.10	196.00	3.600	No	Yes	2.00
244	40.03	45.08	3.08	9.42	1.00	20.06	10.31	206.75	3.600	No	Yes	2.00
245	40.19	49.36	3.03	8.75	1.00	22.02	9.36	206.13	3.600	No	Yes	2.00
246	40.35	53.76	2.98	8.06	1.00	24.02	8.47	203.34	3.600	No	Yes	2.00
247	40.52	57.74	2.90	7.33	0.88	28.09	7.27	204.14	3.600	No	Yes	2.00
248	40.68	58.13	2.89	7.11	0.88	28.29	7.09	200.72	3.600	No	Yes	2.00
249	40.85	58.17	2.89	7.06	0.88	28.25	7.07	199.71	3.600	No	Yes	2.00
250	41.01	57.55	2.91	7.40	0.88	27.75	7.36	204.33	3.600	No	Yes	2.00
251	41.17	59.75	2.91	7.60	0.88	28.81	7.32	210.80	3.600	No	Yes	2.00
252	41.34	61.29	2.90	7.62	0.88	29.55	7.22	213.31	3.600	No	Yes	2.00
253	41.50	60.76	2.90	7.56	0.88	29.20	7.23	211.26	3.600	No	Yes	2.00
254	41.67	56.55	2.96	7.88	1.00	24.77	8.20	203.13	3.600	No	Yes	2.00
255	41.83	54.61	2.99	8.19	1.00	23.81	8.59	204.65	3.600	No	Yes	2.00
256	41.99	53.38	3.01	8.56	1.00	23.18	8.96	207.79	3.600	No	Yes	2.00
257	42.16	53.78	3.01	8.51	1.00	23.30	8.91	207.58	3.600	No	Yes	2.00
258	42.32	54.27	3.00	8.35	1.00	23.46	8.77	205.76	3.600	No	Yes	2.00
259	42.49	55.21	2.98	8.04	1.00	23.82	8.50	202.37	3.600	No	Yes	2.00
260	42.65	55.68	2.97	7.69	1.00	23.97	8.24	197.46	3.600	No	Yes	2.00
261	42.81	53.89	2.99	7.94	1.00	23.09	8.59	198.33	3.600	No	Yes	2.00
262	42.98	52.41	3.00	8.10	1.00	22.37	8.86	198.21	3.600	No	Yes	2.00
263	43.14	52.38	3.02	8.45	1.00	22.29	9.10	202.87	3.600	No	Yes	2.00
264	43.31	54.99	2.99	8.20	1.00	23.40	8.69	203.28	3.600	No	Yes	2.00
265	43.47	58.20	2.97	8.11	1.00	24.77	8.34	206.64	3.600	No	Yes	2.00
266	43.64	60.24	2.96	7.89	1.00	25.61	8.05	206.09	3.600	No	Yes	2.00
267	43.80	59.00	2.96	7.93	1.00	24.99	8.19	204.61	3.600	No	Yes	2.00
268	43.96	57.18	2.97	7.81	1.00	24.12	8.29	199.93	3.600	No	Yes	2.00
269	44.13	56.13	2.97	7.73	1.00	23.59	8.35	196.92	3.600	No	Yes	2.00
270	44.29	55.24	2.98	7.72	1.00	23.13	8.44	195.16	3.600	No	Yes	2.00
271	44.46	54.13	3.00	8.08	1.00	22.58	8.79	198.58	3.600	No	Yes	2.00
272	44.62	54.38	3.01	8.31	1.00	22.63	8.93	202.20	3.600	No	Yes	2.00
273	44.78	56.92	2.99	8.17	1.00	23.69	8.61	203.95	3.600	No	Yes	2.00
274	44.95	60.19	2.95	7.72	1.00	25.05	8.04	201.45	3.600	No	Yes	2.00
275	45.11	62.24	2.90	7.37	0.88	28.42	7.24	205.64	3.600	No	Yes	2.00
276	45.28	64.15	2.89	7.23	0.87	29.37	7.01	205.85	3.600	No	Yes	2.00
277	45.44	67.17	2.87	7.09	0.87	30.90	6.71	207.32	3.600	No	Yes	2.00
278	45.60	70.42	2.83	6.77	0.86	32.62	6.29	205.17	3.600	No	Yes	2.00
279	45.77	69.54	2.83	6.51	0.86	32.18	6.18	199.02	3.600	No	Yes	2.00
280	45.93	66.52	2.82	6.19	0.86	30.66	6.17	189.13	3.600	No	Yes	2.00
281	46.10	66.74	2.80	5.83	0.85	30.87	5.91	182.35	3.600	No	Yes	2.00
282	46.26	67.31	2.77	5.31	0.84	31.32	5.51	172.50	3.600	No	Yes	2.00
283	46.42	66.89	2.74	4.79	0.83	31.27	5.15	161.04	3.600	No	Yes	2.00
284	46.59	62.18	2.77	4.79	0.84	28.73	5.46	156.72	3.600	No	Yes	2.00
285	46.75	60.35	2.79	4.89	0.84	27.66	5.67	156.84	3.600	No	Yes	2.00
286	46.92	60.28	2.80	5.11	0.85	27.47	5.86	161.04	3.600	No	Yes	2.00
287	47.08	62.68	2.76	4.72	0.84	28.83	5.39	155.37	3.600	No	Yes	2.00
288	47.24	59.58	2.77	4.62	0.84	27.19	5.53	150.49	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	47.41	53.73	2.80	4.41	0.85	24.19	5.82	140.89	3.600	No	Yes	2.00
290	47.57	44.12	2.88	4.50	0.87	19.17	6.92	132.57	3.600	No	Yes	2.00
291	47.74	39.16	2.91	4.29	0.88	16.69	7.39	123.37	3.600	No	Yes	2.00
292	47.90	37.68	2.96	4.27	1.00	14.51	8.10	117.58	3.600	No	Yes	2.00
293	48.06	37.70	2.96	4.29	1.00	14.49	8.13	117.77	3.600	No	Yes	2.00
294	48.23	38.35	2.95	4.23	1.00	14.73	7.98	117.54	3.600	No	Yes	2.00
295	48.39	37.99	2.95	4.15	1.00	14.54	7.97	115.87	3.600	No	Yes	2.00
296	48.56	37.38	2.96	4.13	1.00	14.26	8.05	114.74	3.600	No	Yes	2.00
297	48.72	37.18	2.98	4.46	1.00	14.14	8.43	119.21	3.600	No	Yes	2.00
298	48.88	38.25	3.00	5.00	1.00	14.55	8.80	128.07	3.600	No	Yes	2.00
299	49.05	40.04	3.01	5.47	1.00	15.25	8.96	136.66	3.600	No	Yes	2.00
300	49.21	41.49	3.01	5.62	1.00	15.81	8.89	140.52	3.600	No	Yes	2.00
301	49.38	41.71	3.00	5.57	1.00	15.87	8.82	140.03	3.600	No	Yes	2.00
302	49.54	41.33	3.02	5.86	1.00	15.67	9.15	143.40	3.600	No	Yes	2.00
303	49.70	40.14	3.04	6.11	1.00	15.15	9.56	144.85	3.600	No	Yes	2.00
304	49.87	38.84	3.07	6.34	1.00	14.58	9.99	145.59	3.600	No	Yes	2.00
305	50.03	38.78	3.05	5.85	1.00	14.52	9.59	139.24	3.600	No	Yes	2.00
306	50.20	39.78	3.04	5.98	1.00	14.89	9.55	142.19	3.600	No	Yes	2.00
307	50.36	40.57	3.04	5.94	1.00	15.18	9.40	142.67	3.600	No	Yes	2.00
308	50.52	39.08	3.06	6.12	1.00	14.54	9.81	142.73	3.600	No	Yes	2.00
309	50.69	37.77	3.05	5.70	1.00	13.98	9.68	135.33	3.600	No	Yes	2.00
310	50.85	36.44	3.07	5.80	1.00	13.41	10.03	134.47	3.600	No	Yes	2.00
311	51.02	38.48	3.06	5.93	1.00	14.20	9.79	138.99	3.600	No	Yes	2.00
312	51.18	42.32	3.02	5.90	1.00	15.71	9.17	144.07	3.600	No	Yes	2.00
313	51.35	44.99	3.00	5.78	1.00	16.74	8.71	145.82	3.600	No	Yes	2.00
314	51.51	44.44	2.99	5.66	1.00	16.48	8.69	143.32	3.600	No	Yes	2.00
315	51.67	40.26	3.04	5.93	1.00	14.77	9.56	141.18	3.600	No	Yes	2.00
316	51.84	36.90	3.10	6.42	1.00	13.40	10.58	141.85	3.600	No	Yes	2.00
317	52.00	35.50	3.14	7.11	1.00	12.81	11.47	146.98	3.600	No	Yes	2.00
318	52.17	37.10	3.16	7.92	1.00	13.42	11.82	158.54	3.600	No	Yes	2.00
319	52.33	40.70	3.15	8.50	1.00	14.81	11.58	171.55	3.600	No	Yes	2.00
320	52.49	46.78	3.10	8.51	1.00	17.18	10.64	182.80	3.600	No	Yes	2.00
321	52.66	54.13	3.03	7.76	1.00	20.04	9.22	184.82	3.600	No	Yes	2.00
322	52.82	58.86	2.96	6.89	1.00	21.85	8.16	178.41	3.600	No	Yes	2.00
323	52.99	55.27	2.96	6.37	1.00	20.39	8.14	165.92	3.600	No	Yes	2.00
324	53.15	45.42	3.03	6.41	1.00	16.48	9.31	153.46	3.600	No	Yes	2.00
325	53.31	37.55	3.12	6.92	1.00	13.37	11.03	147.43	3.600	No	Yes	2.00
326	53.48	34.49	3.20	8.08	1.00	12.14	12.65	153.60	3.600	No	Yes	2.00
327	53.64	36.04	3.21	8.91	1.00	12.71	12.96	164.84	3.600	No	Yes	2.00
328	53.81	40.83	3.16	8.72	1.00	14.55	11.87	172.60	3.600	No	Yes	2.00
329	53.97	48.51	3.06	7.62	1.00	17.49	9.90	173.14	3.600	No	Yes	2.00
330	54.13	55.42	2.99	6.83	1.00	20.13	8.54	171.89	3.600	No	Yes	2.00
331	54.30	59.21	2.95	6.53	1.00	21.54	7.97	171.75	3.600	No	Yes	2.00
332	54.46	61.17	2.88	5.94	0.87	24.98	6.86	171.31	3.600	No	Yes	2.00
333	54.63	63.50	2.82	5.27	0.86	26.31	6.16	161.93	3.600	No	Yes	2.00
334	54.79	66.24	2.77	4.63	0.84	27.88	5.45	151.95	3.600	No	Yes	2.00
335	54.95	69.31	2.75	4.69	0.83	29.28	5.31	155.47	3.600	No	Yes	2.00
336	55.12	71.04	2.78	5.14	0.84	29.82	5.57	165.97	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	55.28	72.45	2.82	5.95	0.85	30.03	6.10	183.07	3.600	No	Yes	2.00
338	55.45	77.74	2.83	6.56	0.86	32.19	6.22	200.06	3.600	No	Yes	2.00
339	55.61	89.33	2.78	6.58	0.84	37.61	5.64	212.21	3.600	No	Yes	2.00
340	55.77	102.12	2.72	6.28	0.82	43.84	4.95	217.05	3.600	No	Yes	2.00
341	55.94	107.30	2.71	6.27	0.82	46.26	4.78	220.93	3.600	No	Yes	2.00
342	56.10	109.29	2.70	6.19	0.82	47.18	4.68	220.60	3.600	No	Yes	2.00
343	56.27	116.30	2.65	5.77	0.80	50.83	4.23	215.03	3.600	No	Yes	2.00
344	56.43	128.58	2.58	5.07	0.78	57.47	3.54	203.71	4.000	No	No	2.00
345	56.59	139.13	2.48	4.12	0.75	63.93	2.82	180.61	0.628	No	No	2.00
346	56.76	140.06	2.44	3.70	0.74	64.95	2.59	168.01	0.521	No	No	2.00
347	56.92	141.14	2.41	3.39	0.73	65.95	2.40	158.59	0.451	No	No	2.00
348	57.09	137.32	2.45	3.78	0.74	63.18	2.67	168.87	0.528	No	No	2.00
349	57.25	129.32	2.51	4.15	0.76	58.41	3.02	176.50	0.591	No	No	2.00
350	57.41	123.72	2.52	4.08	0.76	55.56	3.09	171.64	0.550	No	No	2.00
351	57.58	129.54	2.44	3.43	0.74	59.40	2.60	154.39	0.422	No	No	2.00
352	57.74	145.97	2.34	2.84	0.71	69.03	2.07	143.14	0.353	No	No	2.00
353	57.91	161.14	2.31	2.89	0.70	76.86	1.96	150.77	0.399	No	No	2.00
354	58.07	171.30	2.33	3.20	0.71	81.31	2.03	164.87	0.497	No	No	2.00
355	58.23	181.13	2.31	3.21	0.70	86.36	1.96	169.13	0.530	No	No	2.00
356	58.40	183.45	2.29	3.03	0.69	87.94	1.87	164.44	0.494	No	No	2.00
357	58.56	181.82	2.25	2.72	0.68	87.87	1.76	154.25	0.421	No	No	2.00
358	58.73	176.39	2.26	2.68	0.68	84.92	1.77	150.49	0.397	No	No	2.00
359	58.89	185.86	N/A	-49844.39	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
360	59.06	224.48	N/A	-82250.86	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
361	59.22	352.79	N/A	-78022.44	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
362	59.38	469.75	N/A	-58440.14	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: 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	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.16	2.00	0.00	0.00	0.16	0.00	0.33	2.00	0.00	0.00	0.16	0.00
0.49	2.00	0.00	0.00	0.16	0.00	0.66	2.00	0.00	0.00	0.16	0.00
0.82	2.00	0.00	0.00	0.16	0.00	0.98	2.00	0.00	0.00	0.16	0.00
1.15	2.00	0.00	0.00	0.16	0.00	1.31	2.00	0.00	0.00	0.16	0.00
1.48	2.00	0.00	0.00	0.16	0.00	1.64	2.00	0.00	0.00	0.16	0.00
1.80	2.00	0.00	0.00	0.16	0.00	1.97	2.00	0.00	0.00	0.16	0.00
2.13	2.00	0.00	0.00	0.16	0.00	2.30	2.00	0.00	0.00	0.16	0.00
2.46	2.00	0.00	0.00	0.16	0.00	2.62	2.00	0.00	0.00	0.16	0.00
2.79	2.00	0.00	0.00	0.16	0.00	2.95	2.00	0.00	0.00	0.16	0.00
3.12	2.00	0.00	0.00	0.16	0.00	3.28	2.00	0.00	0.00	0.16	0.00
3.44	2.00	0.00	0.00	0.16	0.00	3.61	2.00	0.00	0.00	0.16	0.00
3.77	2.00	0.00	0.00	0.16	0.00	3.94	2.00	0.00	0.00	0.16	0.00
4.10	2.00	0.00	0.00	0.16	0.00	4.27	2.00	0.00	0.00	0.16	0.00
4.43	2.00	0.00	0.00	0.16	0.00	4.59	2.00	0.00	0.00	0.16	0.00
4.76	2.00	0.00	0.00	0.16	0.00	4.92	2.00	0.00	0.00	0.16	0.00
5.09	2.00	0.00	0.00	0.16	0.00	5.25	2.00	0.00	0.00	0.16	0.00
5.41	2.00	0.00	0.00	0.16	0.00	5.58	2.00	0.00	0.00	0.16	0.00
5.74	2.00	0.00	0.00	0.16	0.00	5.91	2.00	0.00	0.00	0.16	0.00
6.07	2.00	0.00	0.00	0.16	0.00	6.23	2.00	0.00	0.00	0.16	0.00
6.40	2.00	0.00	0.00	0.16	0.00	6.56	2.00	0.00	0.00	0.16	0.00
6.73	2.00	0.00	0.00	0.16	0.00	6.89	2.00	0.00	0.00	0.16	0.00
7.05	2.00	0.00	0.00	0.16	0.00	7.22	2.00	0.00	0.00	0.16	0.00
7.38	2.00	0.00	0.00	0.16	0.00	7.55	2.00	0.00	0.00	0.16	0.00
7.71	2.00	0.00	0.00	0.16	0.00	7.87	2.00	0.00	0.00	0.16	0.00
8.04	2.00	0.00	0.00	0.16	0.00	8.20	2.00	0.00	0.00	0.16	0.00
8.37	2.00	0.00	0.00	0.16	0.00	8.53	2.00	0.00	0.00	0.16	0.00
8.69	2.00	0.00	0.00	0.16	0.00	8.86	2.00	0.00	0.00	0.16	0.00
9.02	2.00	0.00	0.00	0.16	0.00	9.19	2.00	0.00	0.00	0.16	0.00
9.35	2.00	0.00	0.00	0.16	0.00	9.51	2.00	0.00	0.00	0.16	0.00
9.68	2.00	0.00	0.00	0.16	0.00	9.84	2.00	0.00	0.00	0.16	0.00
10.01	2.00	0.00	0.00	0.16	0.00	10.17	2.00	0.00	0.00	0.16	0.00
10.33	2.00	0.00	0.00	0.16	0.00	10.50	2.00	0.00	0.00	0.16	0.00
10.66	2.00	0.00	0.00	0.16	0.00	10.83	2.00	0.00	0.00	0.16	0.00
10.99	2.00	0.00	0.00	0.16	0.00	11.15	2.00	0.00	0.00	0.16	0.00
11.32	2.00	0.00	0.00	0.16	0.00	11.48	2.00	0.00	0.00	0.16	0.00
11.65	2.00	0.00	0.00	0.16	0.00	11.81	2.00	0.00	0.00	0.16	0.00
11.98	2.00	0.00	0.00	0.16	0.00	12.14	2.00	0.00	0.00	0.16	0.00
12.30	2.00	0.00	0.00	0.16	0.00	12.47	2.00	0.00	0.00	0.16	0.00
12.63	2.00	0.00	0.00	0.16	0.00	12.80	2.00	0.00	0.00	0.16	0.00
12.96	2.00	0.00	0.00	0.16	0.00	13.12	2.00	0.00	0.00	0.16	0.00
13.29	2.00	0.00	0.00	0.16	0.00	13.45	2.00	0.00	0.00	0.16	0.00
13.62	2.00	0.00	0.00	0.16	0.00	13.78	2.00	0.00	0.00	0.16	0.00
13.94	2.00	0.00	0.00	0.16	0.00	14.11	2.00	0.00	0.00	0.16	0.00
14.27	2.00	0.00	0.00	0.16	0.00	14.44	2.00	0.00	0.00	0.16	0.00
14.60	2.00	0.00	0.00	0.16	0.00	14.76	2.00	0.00	0.00	0.16	0.00
14.93	2.00	0.00	0.00	0.16	0.00	15.09	2.00	0.00	0.00	0.16	0.00
15.26	2.00	0.00	0.00	0.16	0.00	15.42	2.00	0.00	0.00	0.16	0.00
15.58	2.00	0.00	0.00	0.16	0.00	15.75	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
15.91	2.00	0.00	0.00	0.16	0.00	16.08	2.00	0.00	0.00	0.16	0.00
16.24	2.00	0.00	0.00	0.16	0.00	16.40	2.00	0.00	0.00	0.16	0.00
16.57	2.00	0.00	0.00	0.16	0.00	16.73	2.00	0.00	0.00	0.16	0.00
16.90	2.00	0.00	0.00	0.16	0.00	17.06	2.00	0.00	0.00	0.16	0.00
17.22	2.00	0.00	0.00	0.16	0.00	17.39	2.00	0.00	0.00	0.16	0.00
17.55	2.00	0.00	0.00	0.16	0.00	17.72	2.00	0.00	0.00	0.16	0.00
17.88	2.00	0.00	0.00	0.16	0.00	18.04	2.00	0.00	0.00	0.16	0.00
18.21	2.00	0.00	0.00	0.16	0.00	18.37	2.00	0.00	0.00	0.16	0.00
18.54	2.00	0.00	0.00	0.16	0.00	18.70	2.00	0.00	0.00	0.16	0.00
18.86	2.00	0.00	0.00	0.16	0.00	19.03	2.00	0.00	0.00	0.16	0.00
19.19	2.00	0.00	0.00	0.16	0.00	19.36	2.00	0.00	0.00	0.16	0.00
19.52	2.00	0.00	0.00	0.16	0.00	19.69	2.00	0.00	0.00	0.16	0.00
19.85	2.00	0.00	0.00	0.16	0.00	20.01	2.00	0.00	0.00	0.16	0.00
20.18	2.00	0.00	0.00	0.16	0.00	20.34	2.00	0.00	0.00	0.16	0.00
20.51	2.00	0.00	0.00	0.16	0.00	20.67	2.00	0.00	0.00	0.16	0.00
20.83	2.00	0.00	0.00	0.16	0.00	21.00	2.00	0.00	0.00	0.16	0.00
21.16	2.00	0.00	0.00	0.16	0.00	21.33	2.00	0.00	0.00	0.16	0.00
21.49	2.00	0.00	0.00	0.16	0.00	21.65	2.00	0.00	0.00	0.16	0.00
21.82	2.00	0.00	0.00	0.16	0.00	21.98	2.00	0.00	0.00	0.16	0.00
22.15	2.00	0.00	0.00	0.16	0.00	22.31	2.00	0.00	0.00	0.16	0.00
22.47	2.00	0.00	0.00	0.16	0.00	22.64	2.00	0.00	0.00	0.16	0.00
22.80	2.00	0.00	0.00	0.16	0.00	22.97	2.00	0.00	0.00	0.16	0.00
23.13	2.00	0.00	0.00	0.16	0.00	23.29	2.00	0.00	0.00	0.16	0.00
23.46	2.00	0.00	0.00	0.16	0.00	23.62	2.00	0.00	0.00	0.16	0.00
23.79	2.00	0.00	0.00	0.16	0.00	23.95	2.00	0.00	0.00	0.16	0.00
24.11	2.00	0.00	0.00	0.16	0.00	24.28	2.00	0.00	0.00	0.16	0.00
24.44	2.00	0.00	0.00	0.16	0.00	24.61	2.00	0.00	0.00	0.16	0.00
24.77	2.00	0.00	0.00	0.16	0.00	24.93	2.00	0.00	0.00	0.16	0.00
25.10	2.00	0.00	0.00	0.16	0.00	25.26	2.00	0.00	0.00	0.16	0.00
25.43	2.00	0.00	0.00	0.16	0.00	25.59	2.00	0.00	0.00	0.16	0.00
25.75	2.00	0.00	0.00	0.16	0.00	25.92	2.00	0.00	0.00	0.16	0.00
26.08	2.00	0.00	0.00	0.16	0.00	26.25	2.00	0.00	0.00	0.16	0.00
26.41	2.00	0.00	0.00	0.16	0.00	26.57	2.00	0.00	0.00	0.16	0.00
26.74	2.00	0.00	0.00	0.16	0.00	26.90	2.00	0.00	0.00	0.16	0.00
27.07	2.00	0.00	0.00	0.16	0.00	27.23	2.00	0.00	0.00	0.16	0.00
27.40	2.00	0.00	0.00	0.16	0.00	27.56	2.00	0.00	0.00	0.16	0.00
27.72	2.00	0.00	0.00	0.16	0.00	27.89	2.00	0.00	0.00	0.16	0.00
28.05	2.00	0.00	0.00	0.16	0.00	28.22	2.00	0.00	0.00	0.16	0.00
28.38	2.00	0.00	0.00	0.16	0.00	28.54	2.00	0.00	0.00	0.16	0.00
28.71	2.00	0.00	0.00	0.16	0.00	28.87	2.00	0.00	0.00	0.16	0.00
29.04	2.00	0.00	0.00	0.16	0.00	29.20	2.00	0.00	0.00	0.16	0.00
29.36	2.00	0.00	0.00	0.16	0.00	29.53	2.00	0.00	0.00	0.16	0.00
29.69	2.00	0.00	0.00	0.16	0.00	29.86	2.00	0.00	0.00	0.16	0.00
30.02	2.00	0.00	0.00	0.16	0.00	30.18	2.00	0.00	0.00	0.16	0.00
30.35	2.00	0.00	0.00	0.16	0.00	30.51	2.00	0.00	0.00	0.16	0.00
30.68	2.00	0.00	0.00	0.16	0.00	30.84	2.00	0.00	0.00	0.16	0.00
31.00	2.00	0.00	0.00	0.16	0.00	31.17	2.00	0.00	0.00	0.16	0.00
31.33	2.00	0.00	0.00	0.16	0.00	31.50	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
31.66	2.00	0.00	0.00	0.16	0.00	31.82	2.00	0.00	0.00	0.16	0.00
31.99	2.00	0.00	0.00	0.16	0.00	32.15	2.00	0.00	0.00	0.16	0.00
32.32	2.00	0.00	0.00	0.16	0.00	32.48	2.00	0.00	0.00	0.16	0.00
32.64	2.00	0.00	0.00	0.16	0.00	32.81	2.00	0.00	0.00	0.16	0.00
32.97	2.00	0.00	0.00	0.16	0.00	33.14	2.00	0.00	0.00	0.16	0.00
33.30	2.00	0.00	0.00	0.16	0.00	33.46	2.00	0.00	0.00	0.16	0.00
33.63	2.00	0.00	0.00	0.16	0.00	33.79	2.00	0.00	0.00	0.16	0.00
33.96	2.00	0.00	0.00	0.16	0.00	34.12	2.00	0.00	0.00	0.16	0.00
34.28	2.00	0.00	0.00	0.16	0.00	34.45	2.00	0.00	0.00	0.16	0.00
34.61	2.00	0.00	0.00	0.16	0.00	34.78	2.00	0.00	0.00	0.16	0.00
34.94	2.00	0.00	0.00	0.16	0.00	35.10	2.00	0.00	0.00	0.16	0.00
35.27	2.00	0.00	0.00	0.16	0.00	35.43	2.00	0.00	0.00	0.16	0.00
35.60	2.00	0.00	0.00	0.16	0.00	35.76	2.00	0.00	0.00	0.16	0.00
35.93	2.00	0.00	0.00	0.16	0.00	36.09	2.00	0.00	0.00	0.16	0.00
36.25	2.00	0.00	0.00	0.16	0.00	36.42	2.00	0.00	0.00	0.16	0.00
36.58	2.00	0.00	0.00	0.16	0.00	36.75	2.00	0.00	0.00	0.16	0.00
36.91	2.00	0.00	0.00	0.16	0.00	37.07	2.00	0.00	0.00	0.16	0.00
37.24	2.00	0.00	0.00	0.16	0.00	37.40	2.00	0.00	0.00	0.16	0.00
37.57	2.00	0.00	0.00	0.16	0.00	37.73	2.00	0.00	0.00	0.16	0.00
37.89	2.00	0.00	0.00	0.16	0.00	38.06	2.00	0.00	0.00	0.16	0.00
38.22	2.00	0.00	0.00	0.16	0.00	38.39	2.00	0.00	0.00	0.16	0.00
38.55	2.00	0.00	0.00	0.16	0.00	38.71	2.00	0.00	0.00	0.16	0.00
38.88	2.00	0.00	0.00	0.16	0.00	39.04	2.00	0.00	0.00	0.16	0.00
39.21	2.00	0.00	0.00	0.16	0.00	39.37	2.00	0.00	0.00	0.16	0.00
39.53	2.00	0.00	0.00	0.16	0.00	39.70	2.00	0.00	0.00	0.16	0.00
39.86	2.00	0.00	0.00	0.16	0.00	40.03	2.00	0.00	0.00	0.16	0.00
40.19	2.00	0.00	0.00	0.16	0.00	40.35	2.00	0.00	0.00	0.16	0.00
40.52	2.00	0.00	0.00	0.16	0.00	40.68	2.00	0.00	0.00	0.16	0.00
40.85	2.00	0.00	0.00	0.16	0.00	41.01	2.00	0.00	0.00	0.16	0.00
41.17	2.00	0.00	0.00	0.16	0.00	41.34	2.00	0.00	0.00	0.16	0.00
41.50	2.00	0.00	0.00	0.16	0.00	41.67	2.00	0.00	0.00	0.16	0.00
41.83	2.00	0.00	0.00	0.16	0.00	41.99	2.00	0.00	0.00	0.16	0.00
42.16	2.00	0.00	0.00	0.16	0.00	42.32	2.00	0.00	0.00	0.16	0.00
42.49	2.00	0.00	0.00	0.16	0.00	42.65	2.00	0.00	0.00	0.16	0.00
42.81	2.00	0.00	0.00	0.16	0.00	42.98	2.00	0.00	0.00	0.16	0.00
43.14	2.00	0.00	0.00	0.16	0.00	43.31	2.00	0.00	0.00	0.16	0.00
43.47	2.00	0.00	0.00	0.16	0.00	43.64	2.00	0.00	0.00	0.16	0.00
43.80	2.00	0.00	0.00	0.16	0.00	43.96	2.00	0.00	0.00	0.16	0.00
44.13	2.00	0.00	0.00	0.16	0.00	44.29	2.00	0.00	0.00	0.16	0.00
44.46	2.00	0.00	0.00	0.16	0.00	44.62	2.00	0.00	0.00	0.16	0.00
44.78	2.00	0.00	0.00	0.16	0.00	44.95	2.00	0.00	0.00	0.16	0.00
45.11	2.00	0.00	0.00	0.16	0.00	45.28	2.00	0.00	0.00	0.16	0.00
45.44	2.00	0.00	0.00	0.16	0.00	45.60	2.00	0.00	0.00	0.16	0.00
45.77	2.00	0.00	0.00	0.16	0.00	45.93	2.00	0.00	0.00	0.16	0.00
46.10	2.00	0.00	0.00	0.16	0.00	46.26	2.00	0.00	0.00	0.16	0.00
46.42	2.00	0.00	0.00	0.16	0.00	46.59	2.00	0.00	0.00	0.16	0.00
46.75	2.00	0.00	0.00	0.16	0.00	46.92	2.00	0.00	0.00	0.16	0.00
47.08	2.00	0.00	0.00	0.16	0.00	47.24	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
47.41	2.00	0.00	0.00	0.16	0.00	47.57	2.00	0.00	0.00	0.16	0.00
47.74	2.00	0.00	0.00	0.16	0.00	47.90	2.00	0.00	0.00	0.16	0.00
48.06	2.00	0.00	0.00	0.16	0.00	48.23	2.00	0.00	0.00	0.16	0.00
48.39	2.00	0.00	0.00	0.16	0.00	48.56	2.00	0.00	0.00	0.16	0.00
48.72	2.00	0.00	0.00	0.16	0.00	48.88	2.00	0.00	0.00	0.16	0.00
49.05	2.00	0.00	0.00	0.16	0.00	49.21	2.00	0.00	0.00	0.16	0.00
49.38	2.00	0.00	0.00	0.16	0.00	49.54	2.00	0.00	0.00	0.16	0.00
49.70	2.00	0.00	0.00	0.16	0.00	49.87	2.00	0.00	0.00	0.16	0.00
50.03	2.00	0.00	0.00	0.16	0.00	50.20	2.00	0.00	0.00	0.16	0.00
50.36	2.00	0.00	0.00	0.16	0.00	50.52	2.00	0.00	0.00	0.16	0.00
50.69	2.00	0.00	0.00	0.16	0.00	50.85	2.00	0.00	0.00	0.16	0.00
51.02	2.00	0.00	0.00	0.16	0.00	51.18	2.00	0.00	0.00	0.16	0.00
51.35	2.00	0.00	0.00	0.16	0.00	51.51	2.00	0.00	0.00	0.16	0.00
51.67	2.00	0.00	0.00	0.16	0.00	51.84	2.00	0.00	0.00	0.16	0.00
52.00	2.00	0.00	0.00	0.16	0.00	52.17	2.00	0.00	0.00	0.16	0.00
52.33	2.00	0.00	0.00	0.16	0.00	52.49	2.00	0.00	0.00	0.16	0.00
52.66	2.00	0.00	0.00	0.16	0.00	52.82	2.00	0.00	0.00	0.16	0.00
52.99	2.00	0.00	0.00	0.16	0.00	53.15	2.00	0.00	0.00	0.16	0.00
53.31	2.00	0.00	0.00	0.16	0.00	53.48	2.00	0.00	0.00	0.16	0.00
53.64	2.00	0.00	0.00	0.16	0.00	53.81	2.00	0.00	0.00	0.16	0.00
53.97	2.00	0.00	0.00	0.16	0.00	54.13	2.00	0.00	0.00	0.16	0.00
54.30	2.00	0.00	0.00	0.16	0.00	54.46	2.00	0.00	0.00	0.16	0.00
54.63	2.00	0.00	0.00	0.16	0.00	54.79	2.00	0.00	0.00	0.16	0.00
54.95	2.00	0.00	0.00	0.16	0.00	55.12	2.00	0.00	0.00	0.16	0.00
55.28	2.00	0.00	0.00	0.16	0.00	55.45	2.00	0.00	0.00	0.16	0.00
55.61	2.00	0.00	0.00	0.16	0.00	55.77	2.00	0.00	0.00	0.16	0.00
55.94	2.00	0.00	0.00	0.16	0.00	56.10	2.00	0.00	0.00	0.16	0.00
56.27	2.00	0.00	0.00	0.16	0.00	56.43	2.00	0.00	0.00	0.16	0.00
56.59	2.00	0.00	0.00	0.16	0.00	56.76	2.00	0.00	0.00	0.16	0.00
56.92	2.00	0.00	0.00	0.16	0.00	57.09	2.00	0.00	0.00	0.16	0.00
57.25	2.00	0.00	0.00	0.16	0.00	57.41	2.00	0.00	0.00	0.16	0.00
57.58	2.00	0.00	0.00	0.16	0.00	57.74	2.00	0.00	0.00	0.16	0.00
57.91	2.00	0.00	0.00	0.16	0.00	58.07	2.00	0.00	0.00	0.16	0.00
58.23	2.00	0.00	0.00	0.16	0.00	58.40	2.00	0.00	0.00	0.16	0.00
58.56	2.00	0.00	0.00	0.16	0.00	58.73	2.00	0.00	0.00	0.16	0.00
58.89	2.00	0.00	0.00	0.16	0.00	59.06	2.00	0.00	0.00	0.16	0.00
59.22	2.00	0.00	0.00	0.16	0.00	59.38	2.00	0.00	0.00	0.16	0.00

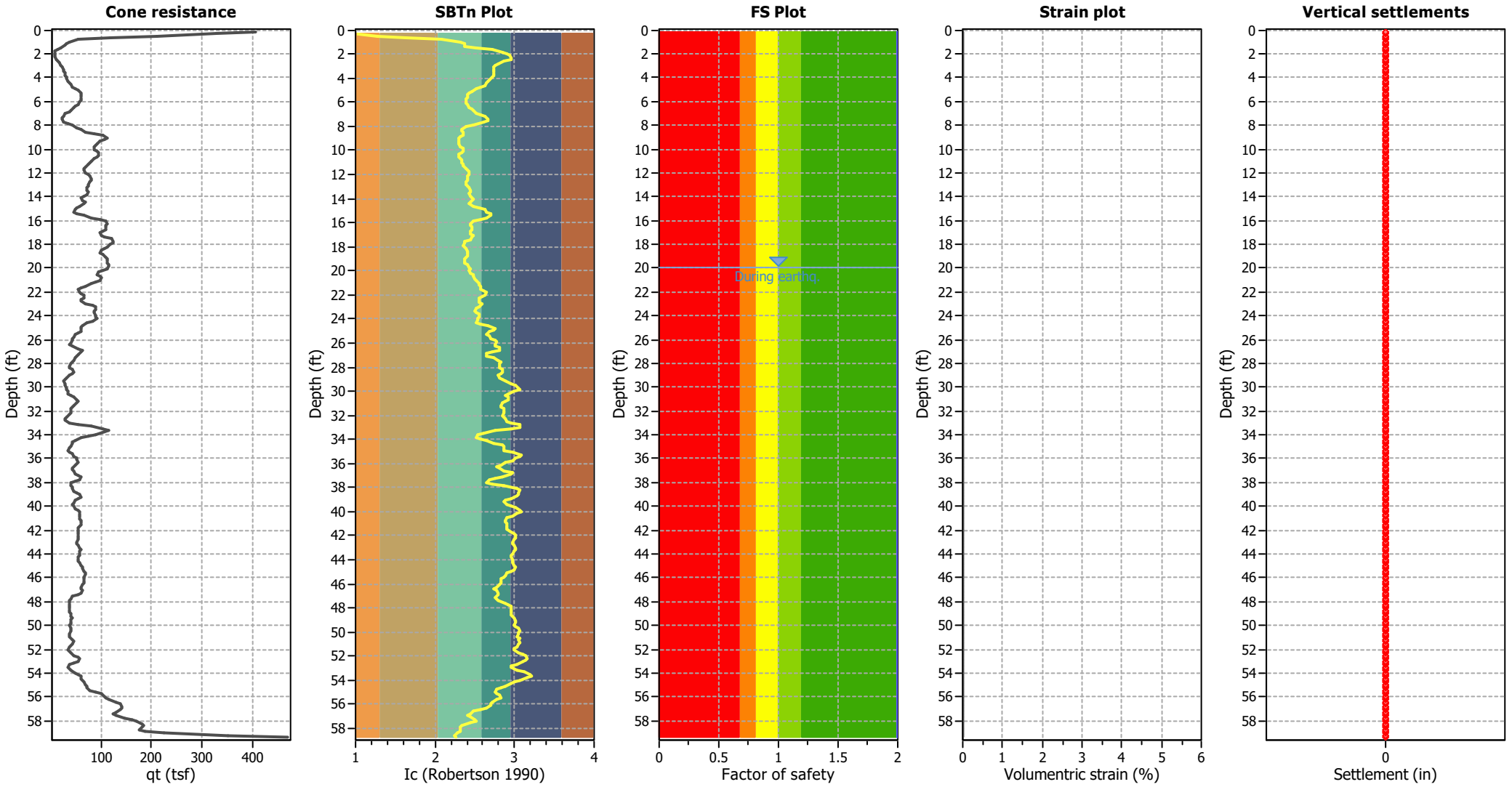
Overall liquefaction potential: 0.00

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
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 due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.01	234.60	2.00	0.00	1.00	0.00	20.18	218.92	2.00	0.00	1.00	0.00
20.34	212.35	2.00	0.00	1.00	0.00	20.51	213.01	2.00	0.00	1.00	0.00
20.67	235.57	2.00	0.00	1.00	0.00	20.83	248.46	2.00	0.00	1.00	0.00
21.00	258.99	2.00	0.00	1.00	0.00	21.16	236.75	2.00	0.00	1.00	0.00
21.33	215.78	2.00	0.00	1.00	0.00	21.49	189.80	2.00	0.00	1.00	0.00
21.65	176.13	2.00	0.00	1.00	0.00	21.82	168.58	2.00	0.00	1.00	0.00
21.98	167.67	2.00	0.00	1.00	0.00	22.15	169.26	2.00	0.00	1.00	0.00
22.31	166.49	2.00	0.00	1.00	0.00	22.47	159.18	2.00	0.00	1.00	0.00
22.64	151.87	2.00	0.00	1.00	0.00	22.80	157.74	2.00	0.00	1.00	0.00
22.97	169.26	2.00	0.00	1.00	0.00	23.13	183.30	2.00	0.00	1.00	0.00
23.29	192.07	2.00	0.00	1.00	0.00	23.46	197.77	2.00	0.00	1.00	0.00
23.62	200.68	2.00	0.00	1.00	0.00	23.79	201.20	2.00	0.00	1.00	0.00
23.95	201.67	2.00	0.00	1.00	0.00	24.11	204.37	2.00	0.00	1.00	0.00
24.28	198.73	2.00	0.00	1.00	0.00	24.44	205.54	2.00	0.00	1.00	0.00
24.61	210.03	2.00	0.00	1.00	0.00	24.77	217.04	2.00	0.00	1.00	0.00
24.93	202.89	2.00	0.00	1.00	0.00	25.10	185.86	2.00	0.00	1.00	0.00
25.26	169.51	2.00	0.00	1.00	0.00	25.43	158.77	2.00	0.00	1.00	0.00
25.59	151.96	2.00	0.00	1.00	0.00	25.75	152.71	2.00	0.00	1.00	0.00
25.92	150.69	2.00	0.00	1.00	0.00	26.08	143.70	2.00	0.00	1.00	0.00
26.25	135.08	2.00	0.00	1.00	0.00	26.41	140.96	2.00	0.00	1.00	0.00
26.57	155.28	2.00	0.00	1.00	0.00	26.74	163.00	2.00	0.00	1.00	0.00
26.90	163.13	2.00	0.00	1.00	0.00	27.07	162.26	2.00	0.00	1.00	0.00
27.23	173.64	2.00	0.00	1.00	0.00	27.40	182.84	2.00	0.00	1.00	0.00
27.56	186.00	2.00	0.00	1.00	0.00	27.72	169.71	2.00	0.00	1.00	0.00
27.89	151.47	2.00	0.00	1.00	0.00	28.05	136.73	2.00	0.00	1.00	0.00
28.22	138.60	2.00	0.00	1.00	0.00	28.38	148.19	2.00	0.00	1.00	0.00
28.54	158.74	2.00	0.00	1.00	0.00	28.71	158.42	2.00	0.00	1.00	0.00
28.87	149.44	2.00	0.00	1.00	0.00	29.04	135.02	2.00	0.00	1.00	0.00
29.20	122.75	2.00	0.00	1.00	0.00	29.36	115.82	2.00	0.00	1.00	0.00
29.53	125.63	2.00	0.00	1.00	0.00	29.69	135.57	2.00	0.00	1.00	0.00
29.86	142.93	2.00	0.00	1.00	0.00	30.02	136.71	2.00	0.00	1.00	0.00
30.18	135.32	2.00	0.00	1.00	0.00	30.35	134.39	2.00	0.00	1.00	0.00
30.51	148.70	2.00	0.00	1.00	0.00	30.68	165.92	2.00	0.00	1.00	0.00
30.84	182.89	2.00	0.00	1.00	0.00	31.00	190.31	2.00	0.00	1.00	0.00
31.17	190.17	2.00	0.00	1.00	0.00	31.33	182.98	2.00	0.00	1.00	0.00
31.50	170.75	2.00	0.00	1.00	0.00	31.66	159.24	2.00	0.00	1.00	0.00
31.82	150.04	2.00	0.00	1.00	0.00	31.99	145.54	2.00	0.00	1.00	0.00
32.15	140.93	2.00	0.00	1.00	0.00	32.32	134.24	2.00	0.00	1.00	0.00
32.48	124.60	2.00	0.00	1.00	0.00	32.64	120.16	2.00	0.00	1.00	0.00
32.81	139.39	2.00	0.00	1.00	0.00	32.97	178.24	2.00	0.00	1.00	0.00
33.14	218.55	2.00	0.00	1.00	0.00	33.30	245.68	2.00	0.00	1.00	0.00
33.46	237.78	2.00	0.00	1.00	0.00	33.63	215.85	2.00	0.00	1.00	0.00
33.79	195.86	2.00	0.00	1.00	0.00	33.96	186.41	2.00	0.00	1.00	0.00
34.12	178.96	2.00	0.00	1.00	0.00	34.28	170.37	2.00	0.00	1.00	0.00
34.45	163.26	2.00	0.00	1.00	0.00	34.61	155.99	2.00	0.00	1.00	0.00
34.78	149.11	2.00	0.00	1.00	0.00	34.94	145.71	2.00	0.00	1.00	0.00
35.10	149.07	2.00	0.00	1.00	0.00	35.27	164.49	2.00	0.00	1.00	0.00
35.43	178.71	2.00	0.00	1.00	0.00	35.60	185.56	2.00	0.00	1.00	0.00

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

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
35.76	185.31	2.00	0.00	1.00	0.00	35.93	182.12	2.00	0.00	1.00	0.00
36.09	175.38	2.00	0.00	1.00	0.00	36.25	164.47	2.00	0.00	1.00	0.00
36.42	163.56	2.00	0.00	1.00	0.00	36.58	164.81	2.00	0.00	1.00	0.00
36.75	166.44	2.00	0.00	1.00	0.00	36.91	164.77	2.00	0.00	1.00	0.00
37.07	156.89	2.00	0.00	1.00	0.00	37.24	139.65	2.00	0.00	1.00	0.00
37.40	129.09	2.00	0.00	1.00	0.00	37.57	133.36	2.00	0.00	1.00	0.00
37.73	150.14	2.00	0.00	1.00	0.00	37.89	167.93	2.00	0.00	1.00	0.00
38.06	177.93	2.00	0.00	1.00	0.00	38.22	185.57	2.00	0.00	1.00	0.00
38.39	189.48	2.00	0.00	1.00	0.00	38.55	192.50	2.00	0.00	1.00	0.00
38.71	194.42	2.00	0.00	1.00	0.00	38.88	194.19	2.00	0.00	1.00	0.00
39.04	198.77	2.00	0.00	1.00	0.00	39.21	197.76	2.00	0.00	1.00	0.00
39.37	194.90	2.00	0.00	1.00	0.00	39.53	184.24	2.00	0.00	1.00	0.00
39.70	187.68	2.00	0.00	1.00	0.00	39.86	196.00	2.00	0.00	1.00	0.00
40.03	206.75	2.00	0.00	1.00	0.00	40.19	206.13	2.00	0.00	1.00	0.00
40.35	203.34	2.00	0.00	1.00	0.00	40.52	204.14	2.00	0.00	1.00	0.00
40.68	200.72	2.00	0.00	1.00	0.00	40.85	199.71	2.00	0.00	1.00	0.00
41.01	204.33	2.00	0.00	1.00	0.00	41.17	210.80	2.00	0.00	1.00	0.00
41.34	213.31	2.00	0.00	1.00	0.00	41.50	211.26	2.00	0.00	1.00	0.00
41.67	203.13	2.00	0.00	1.00	0.00	41.83	204.65	2.00	0.00	1.00	0.00
41.99	207.79	2.00	0.00	1.00	0.00	42.16	207.58	2.00	0.00	1.00	0.00
42.32	205.76	2.00	0.00	1.00	0.00	42.49	202.37	2.00	0.00	1.00	0.00
42.65	197.46	2.00	0.00	1.00	0.00	42.81	198.33	2.00	0.00	1.00	0.00
42.98	198.21	2.00	0.00	1.00	0.00	43.14	202.87	2.00	0.00	1.00	0.00
43.31	203.28	2.00	0.00	1.00	0.00	43.47	206.64	2.00	0.00	1.00	0.00
43.64	206.09	2.00	0.00	1.00	0.00	43.80	204.61	2.00	0.00	1.00	0.00
43.96	199.93	2.00	0.00	1.00	0.00	44.13	196.92	2.00	0.00	1.00	0.00
44.29	195.16	2.00	0.00	1.00	0.00	44.46	198.58	2.00	0.00	1.00	0.00
44.62	202.20	2.00	0.00	1.00	0.00	44.78	203.95	2.00	0.00	1.00	0.00
44.95	201.45	2.00	0.00	1.00	0.00	45.11	205.64	2.00	0.00	1.00	0.00
45.28	205.85	2.00	0.00	1.00	0.00	45.44	207.32	2.00	0.00	1.00	0.00
45.60	205.17	2.00	0.00	1.00	0.00	45.77	199.02	2.00	0.00	1.00	0.00
45.93	189.13	2.00	0.00	1.00	0.00	46.10	182.35	2.00	0.00	1.00	0.00
46.26	172.50	2.00	0.00	1.00	0.00	46.42	161.04	2.00	0.00	1.00	0.00
46.59	156.72	2.00	0.00	1.00	0.00	46.75	156.84	2.00	0.00	1.00	0.00
46.92	161.04	2.00	0.00	1.00	0.00	47.08	155.37	2.00	0.00	1.00	0.00
47.24	150.49	2.00	0.00	1.00	0.00	47.41	140.89	2.00	0.00	1.00	0.00
47.57	132.57	2.00	0.00	1.00	0.00	47.74	123.37	2.00	0.00	1.00	0.00
47.90	117.58	2.00	0.00	1.00	0.00	48.06	117.77	2.00	0.00	1.00	0.00
48.23	117.54	2.00	0.00	1.00	0.00	48.39	115.87	2.00	0.00	1.00	0.00
48.56	114.74	2.00	0.00	1.00	0.00	48.72	119.21	2.00	0.00	1.00	0.00
48.88	128.07	2.00	0.00	1.00	0.00	49.05	136.66	2.00	0.00	1.00	0.00
49.21	140.52	2.00	0.00	1.00	0.00	49.38	140.03	2.00	0.00	1.00	0.00
49.54	143.40	2.00	0.00	1.00	0.00	49.70	144.85	2.00	0.00	1.00	0.00
49.87	145.59	2.00	0.00	1.00	0.00	50.03	139.24	2.00	0.00	1.00	0.00
50.20	142.19	2.00	0.00	1.00	0.00	50.36	142.67	2.00	0.00	1.00	0.00
50.52	142.73	2.00	0.00	1.00	0.00	50.69	135.33	2.00	0.00	1.00	0.00
50.85	134.47	2.00	0.00	1.00	0.00	51.02	138.99	2.00	0.00	1.00	0.00
51.18	144.07	2.00	0.00	1.00	0.00	51.35	145.82	2.00	0.00	1.00	0.00

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

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
51.51	143.32	2.00	0.00	1.00	0.00	51.67	141.18	2.00	0.00	1.00	0.00
51.84	141.85	2.00	0.00	1.00	0.00	52.00	146.98	2.00	0.00	1.00	0.00
52.17	158.54	2.00	0.00	1.00	0.00	52.33	171.55	2.00	0.00	1.00	0.00
52.49	182.80	2.00	0.00	1.00	0.00	52.66	184.82	2.00	0.00	1.00	0.00
52.82	178.41	2.00	0.00	1.00	0.00	52.99	165.92	2.00	0.00	1.00	0.00
53.15	153.46	2.00	0.00	1.00	0.00	53.31	147.43	2.00	0.00	1.00	0.00
53.48	153.60	2.00	0.00	1.00	0.00	53.64	164.84	2.00	0.00	1.00	0.00
53.81	172.60	2.00	0.00	1.00	0.00	53.97	173.14	2.00	0.00	1.00	0.00
54.13	171.89	2.00	0.00	1.00	0.00	54.30	171.75	2.00	0.00	1.00	0.00
54.46	171.31	2.00	0.00	1.00	0.00	54.63	161.93	2.00	0.00	1.00	0.00
54.79	151.95	2.00	0.00	1.00	0.00	54.95	155.47	2.00	0.00	1.00	0.00
55.12	165.97	2.00	0.00	1.00	0.00	55.28	183.07	2.00	0.00	1.00	0.00
55.45	200.06	2.00	0.00	1.00	0.00	55.61	212.21	2.00	0.00	1.00	0.00
55.77	217.05	2.00	0.00	1.00	0.00	55.94	220.93	2.00	0.00	1.00	0.00
56.10	220.60	2.00	0.00	1.00	0.00	56.27	215.03	2.00	0.00	1.00	0.00
56.43	203.71	2.00	0.00	1.00	0.00	56.59	180.61	2.00	0.00	1.00	0.00
56.76	168.01	2.00	0.00	1.00	0.00	56.92	158.59	2.00	0.00	1.00	0.00
57.09	168.87	2.00	0.00	1.00	0.00	57.25	176.50	2.00	0.00	1.00	0.00
57.41	171.64	2.00	0.00	1.00	0.00	57.58	154.39	2.00	0.00	1.00	0.00
57.74	143.14	2.00	0.00	1.00	0.00	57.91	150.77	2.00	0.00	1.00	0.00
58.07	164.87	2.00	0.00	1.00	0.00	58.23	169.13	2.00	0.00	1.00	0.00
58.40	164.44	2.00	0.00	1.00	0.00	58.56	154.25	2.00	0.00	1.00	0.00
58.73	150.49	2.00	0.00	1.00	0.00	58.89	-1.00	2.00	0.00	1.00	0.00
59.06	-1.00	2.00	0.00	1.00	0.00	59.22	-1.00	2.00	0.00	1.00	0.00
59.38	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.00

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

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.16	406.52	653.12	1.00	653.12	0.77	1.18	1.18
0.33	327.77	526.58	1.00	526.58	0.97	1.12	1.12
0.49	209.03	335.78	1.00	335.78	1.28	1.00	1.00
0.66	117.91	189.38	1.00	189.38	1.64	0.88	0.88
0.82	54.63	87.69	1.38	121.00	2.07	0.78	0.78
0.98	36.31	58.24	1.98	115.60	2.32	0.78	0.78
1.15	31.72	50.85	2.24	113.71	2.37	0.77	0.77
1.31	29.59	47.42	2.23	105.66	2.37	0.76	0.76
1.48	20.22	32.35	3.15	101.84	2.52	0.75	0.75
1.64	12.90	20.58	4.94	101.67	2.72	0.75	0.75
1.80	9.74	15.47	6.44	99.58	2.85	0.75	0.75
1.97	8.80	13.96	7.26	101.29	2.90	0.75	0.75
2.13	8.56	13.55	7.79	105.63	2.94	0.76	0.76
2.30	8.79	13.92	8.14	113.29	2.96	0.77	0.77
2.46	10.08	15.97	7.97	127.37	2.95	0.79	0.79
2.62	13.53	21.50	6.71	144.31	2.87	0.82	0.82
2.79	17.59	28.00	5.73	160.39	2.79	0.84	0.84
2.95	20.87	33.26	5.23	173.81	2.75	0.86	0.86
3.12	23.12	36.86	5.04	185.86	2.73	0.87	0.87
3.28	25.02	39.90	5.07	202.28	2.73	0.89	0.89
3.44	27.05	43.14	5.07	218.77	2.73	0.91	0.91
3.61	28.38	45.26	5.18	234.56	2.74	0.92	0.92
3.77	29.44	46.94	5.15	241.90	2.74	0.93	0.93
3.94	30.96	49.38	4.92	243.13	2.72	0.93	0.93
4.10	32.87	52.42	4.57	239.35	2.69	0.93	0.93
4.27	34.68	55.31	4.26	235.83	2.66	0.92	0.92
4.43	36.63	58.43	4.11	239.88	2.64	0.93	0.93
4.59	39.40	62.87	3.94	247.87	2.62	0.93	0.93
4.76	44.21	70.58	3.58	252.55	2.58	0.94	0.94
4.92	49.61	79.24	3.17	251.06	2.53	0.94	0.94
5.09	55.74	89.07	2.73	243.42	2.46	0.93	0.93
5.25	59.71	95.43	2.51	239.86	2.43	0.93	0.93
5.41	61.20	97.80	2.42	236.72	2.41	0.92	0.92
5.58	61.77	98.70	2.39	235.95	2.40	0.92	0.92
5.74	61.65	98.49	2.36	232.26	2.40	0.92	0.92
5.91	61.14	97.66	2.31	225.65	2.39	0.91	0.91
6.07	58.02	92.63	2.34	216.55	2.39	0.90	0.90
6.23	53.98	86.12	2.43	209.42	2.41	0.90	0.90
6.40	50.04	79.77	2.57	204.97	2.44	0.89	0.89
6.56	46.33	73.80	2.73	201.14	2.46	0.89	0.89
6.73	41.70	66.34	2.90	192.48	2.49	0.88	0.88
6.89	36.04	57.24	3.16	180.71	2.53	0.87	0.87
7.05	29.96	47.45	3.52	166.89	2.57	0.85	0.85
7.22	24.94	39.37	4.03	158.74	2.63	0.84	0.84
7.38	22.47	35.38	4.38	154.84	2.67	0.83	0.83
7.55	22.72	35.78	4.40	157.25	2.67	0.84	0.84
7.71	25.70	40.54	3.86	156.66	2.61	0.84	0.84
7.87	33.27	52.69	2.91	153.54	2.49	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.04	42.58	67.64	2.33	157.67	2.39	0.84	0.84
8.20	52.60	83.72	2.03	170.18	2.33	0.85	0.85
8.37	60.51	95.92	2.09	200.01	2.34	0.89	0.89
8.53	70.16	110.09	2.16	237.35	2.36	0.92	0.92
8.69	86.14	133.03	2.11	280.29	2.34	0.96	0.96
8.86	103.64	156.88	1.98	310.31	2.31	0.99	0.99
9.02	112.74	167.55	1.89	317.10	2.29	0.99	0.99
9.19	107.76	157.94	1.90	299.53	2.29	0.98	0.98
9.35	98.49	142.40	1.90	270.83	2.29	0.95	0.95
9.51	91.69	130.98	1.93	253.23	2.30	0.94	0.94
9.68	88.87	125.70	2.00	251.97	2.32	0.94	0.94
9.84	86.19	120.84	2.12	256.26	2.35	0.94	0.94
10.01	87.02	120.53	2.13	257.32	2.35	0.94	0.94
10.17	90.94	123.96	2.03	252.08	2.33	0.94	0.94
10.33	95.80	128.42	1.91	245.06	2.30	0.93	0.93
10.50	95.88	127.02	1.91	242.88	2.30	0.93	0.93
10.66	92.51	121.42	1.98	240.43	2.31	0.93	0.93
10.83	87.01	113.19	2.07	234.23	2.34	0.92	0.92
10.99	81.94	105.45	2.11	222.00	2.34	0.91	0.91
11.15	77.31	98.38	2.12	208.70	2.35	0.90	0.90
11.32	73.44	92.51	2.17	200.47	2.36	0.89	0.89
11.48	69.57	86.92	2.29	198.78	2.38	0.89	0.89
11.65	66.43	82.38	2.46	202.78	2.42	0.89	0.89
11.81	66.44	81.68	2.57	210.11	2.44	0.90	0.90
11.98	69.11	84.05	2.55	214.57	2.43	0.90	0.90
12.14	74.04	89.00	2.45	218.40	2.41	0.91	0.91
12.30	76.50	91.00	2.43	221.57	2.41	0.91	0.91
12.47	79.29	93.29	2.38	221.93	2.40	0.91	0.91
12.63	79.65	92.72	2.34	217.08	2.39	0.90	0.90
12.80	78.59	90.54	2.32	210.06	2.39	0.90	0.90
12.96	75.67	86.42	2.42	209.34	2.41	0.90	0.90
13.12	73.77	83.56	2.54	212.22	2.43	0.90	0.90
13.29	72.95	81.89	2.61	213.45	2.44	0.90	0.90
13.45	72.59	80.68	2.58	208.44	2.44	0.90	0.90
13.62	73.82	81.21	2.51	203.67	2.42	0.89	0.89
13.78	71.20	77.69	2.64	204.76	2.45	0.89	0.89
13.94	66.41	71.82	2.77	198.60	2.47	0.89	0.89
14.11	61.16	65.55	2.91	191.02	2.49	0.88	0.88
14.27	64.16	68.03	2.62	178.04	2.44	0.86	0.86
14.44	68.02	71.47	2.50	178.75	2.42	0.86	0.86
14.60	65.35	68.19	2.80	190.89	2.47	0.88	0.88
14.76	58.63	60.75	3.38	205.22	2.55	0.89	0.89
14.93	52.14	53.59	4.01	214.92	2.63	0.90	0.90
15.09	49.32	50.22	4.22	211.71	2.65	0.90	0.90
15.26	46.89	47.35	4.73	223.99	2.70	0.91	0.91
15.42	52.40	52.52	4.68	245.94	2.70	0.93	0.93
15.58	65.71	65.41	4.11	268.67	2.64	0.95	0.95
15.75	81.79	80.79	3.48	281.10	2.57	0.96	0.96

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.91	98.34	96.35	2.90	279.77	2.49	0.96	0.96
16.08	108.32	105.28	2.66	279.98	2.45	0.96	0.96
16.24	112.34	108.30	2.59	281.00	2.44	0.96	0.96
16.40	110.42	105.59	2.74	289.61	2.46	0.97	0.97
16.57	109.28	103.66	2.76	285.94	2.47	0.97	0.97
16.73	109.33	102.87	2.64	271.12	2.45	0.95	0.95
16.90	103.31	96.39	2.66	256.06	2.45	0.94	0.94
17.06	97.53	90.23	2.81	253.57	2.47	0.94	0.94
17.22	99.49	91.36	2.78	253.53	2.47	0.94	0.94
17.39	107.37	97.96	2.58	252.92	2.44	0.94	0.94
17.55	119.86	108.74	2.25	244.89	2.38	0.93	0.93
17.72	123.07	110.89	2.19	243.27	2.36	0.93	0.93
17.88	123.93	110.90	2.16	239.03	2.36	0.93	0.93
18.04	119.43	106.03	2.25	238.18	2.37	0.93	0.93
18.21	113.68	100.13	2.34	234.76	2.39	0.92	0.92
18.37	106.99	93.48	2.42	226.49	2.41	0.91	0.91
18.54	100.54	87.15	2.46	214.78	2.42	0.90	0.90
18.70	97.62	84.02	2.47	207.14	2.42	0.89	0.89
18.86	102.79	88.01	2.32	204.27	2.39	0.89	0.89
19.03	109.20	93.00	2.24	208.14	2.37	0.90	0.90
19.19	113.75	96.32	2.19	211.41	2.36	0.90	0.90
19.36	113.64	95.53	2.27	216.76	2.38	0.90	0.90
19.52	113.07	94.28	2.44	229.82	2.41	0.92	0.92
19.69	114.89	95.10	2.54	241.38	2.43	0.93	0.93
19.85	115.91	95.29	2.58	245.89	2.44	0.93	0.93
20.01	113.29	92.54	2.54	234.60	2.43	0.92	0.92
20.18	104.19	84.44	2.59	218.92	2.44	0.91	0.91
20.34	94.61	75.94	2.80	212.35	2.47	0.90	0.90
20.51	92.17	73.41	2.90	213.01	2.49	0.90	0.90
20.67	98.87	78.23	3.01	235.57	2.50	0.92	0.92
20.83	102.23	80.34	3.09	248.46	2.52	0.93	0.93
21.00	96.81	75.30	3.44	258.99	2.56	0.94	0.94
21.16	89.43	69.04	3.43	236.75	2.56	0.92	0.92
21.33	79.28	60.62	3.56	215.78	2.58	0.90	0.90
21.49	70.25	53.26	3.56	189.80	2.58	0.88	0.88
21.65	60.10	44.99	3.91	176.13	2.62	0.86	0.86
21.82	55.61	41.23	4.09	168.58	2.64	0.85	0.85
21.98	57.25	42.26	3.97	167.67	2.62	0.85	0.85
22.15	61.72	45.48	3.72	169.26	2.60	0.85	0.85
22.31	66.09	48.64	3.42	166.49	2.56	0.85	0.85
22.47	65.36	47.86	3.33	159.18	2.55	0.84	0.84
22.64	61.74	44.86	3.39	151.87	2.56	0.83	0.83
22.80	60.38	43.48	3.63	157.74	2.59	0.84	0.84
22.97	69.74	50.24	3.37	169.26	2.55	0.85	0.85
23.13	82.35	59.40	3.09	183.30	2.52	0.87	0.87
23.29	89.19	64.15	2.99	192.07	2.50	0.88	0.88
23.46	88.26	62.98	3.14	197.77	2.52	0.88	0.88
23.62	85.40	60.41	3.32	200.68	2.55	0.89	0.89

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.79	85.46	60.09	3.35	201.20	2.55	0.89	0.89
23.95	88.12	61.71	3.27	201.67	2.54	0.89	0.89
24.11	90.61	63.17	3.24	204.37	2.54	0.89	0.89
24.28	90.82	63.05	3.15	198.73	2.52	0.89	0.89
24.44	83.36	57.08	3.60	205.54	2.58	0.89	0.89
24.61	71.39	47.97	4.38	210.03	2.67	0.90	0.90
24.77	62.17	40.98	5.30	217.04	2.75	0.90	0.90
24.93	61.19	40.19	5.05	202.89	2.73	0.89	0.89
25.10	61.71	40.53	4.59	185.86	2.69	0.87	0.87
25.26	60.77	39.84	4.25	169.51	2.66	0.85	0.85
25.43	54.48	35.31	4.50	158.77	2.68	0.84	0.84
25.59	49.35	31.59	4.81	151.96	2.71	0.83	0.83
25.75	45.03	28.38	5.38	152.71	2.76	0.83	0.83
25.92	43.61	27.26	5.53	150.69	2.77	0.83	0.83
26.08	42.76	26.60	5.40	143.70	2.76	0.82	0.82
26.25	40.92	25.29	5.34	135.08	2.76	0.81	0.81
26.41	38.23	23.24	6.06	140.96	2.82	0.81	0.81
26.57	42.55	25.90	6.00	155.28	2.81	0.83	0.83
26.74	54.00	33.52	4.86	163.00	2.71	0.84	0.84
26.90	62.15	39.00	4.18	163.13	2.65	0.84	0.84
27.07	61.45	38.43	4.22	162.26	2.65	0.84	0.84
27.23	55.85	34.33	5.06	173.64	2.73	0.86	0.86
27.40	52.33	31.73	5.76	182.84	2.79	0.87	0.87
27.56	49.27	29.55	6.30	186.00	2.83	0.87	0.87
27.72	46.84	28.03	6.06	169.71	2.82	0.85	0.85
27.89	42.84	25.51	5.94	151.47	2.81	0.83	0.83
28.05	39.15	23.16	5.90	136.73	2.80	0.81	0.81
28.22	36.31	21.19	6.54	138.60	2.85	0.81	0.81
28.38	38.65	22.56	6.57	148.19	2.85	0.82	0.82
28.54	43.46	25.53	6.22	158.74	2.83	0.84	0.84
28.71	46.46	27.44	5.77	158.42	2.79	0.84	0.84
28.87	43.35	25.43	5.88	149.44	2.80	0.83	0.83
29.04	36.40	20.97	6.44	135.02	2.85	0.81	0.81
29.20	30.61	17.28	7.10	122.75	2.89	0.79	0.79
29.36	27.52	14.43	8.03	115.82	2.95	0.78	0.78
29.53	27.17	14.19	8.85	125.63	3.00	0.68	1.01
29.69	27.34	14.24	9.52	135.57	3.04	1.02	1.02
29.86	27.91	14.51	9.85	142.93	3.06	1.01	1.04
30.02	30.49	15.90	8.60	136.71	2.99	0.81	0.81
30.18	32.13	17.82	7.60	135.32	2.93	0.81	0.81
30.35	34.02	18.99	7.08	134.39	2.89	0.80	0.80
30.51	35.67	19.81	7.51	148.70	2.92	0.83	0.83
30.68	39.71	22.12	7.50	165.92	2.92	0.85	0.85
30.84	45.89	25.79	7.09	182.89	2.89	0.87	0.87
31.00	52.30	29.71	6.41	190.31	2.84	0.88	0.88
31.17	54.15	30.80	6.17	190.17	2.83	0.88	0.88
31.33	51.67	29.23	6.26	182.98	2.83	0.87	0.87
31.50	46.00	25.70	6.64	170.75	2.86	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.66	42.09	23.30	6.83	159.24	2.87	0.84	0.84
31.82	40.70	22.47	6.68	150.04	2.86	0.83	0.83
31.99	40.27	22.20	6.56	145.54	2.85	0.82	0.82
32.15	38.89	21.33	6.61	140.93	2.86	0.81	0.81
32.32	36.02	19.56	6.86	134.24	2.88	0.80	0.80
32.48	32.32	17.31	7.20	124.60	2.90	0.79	0.79
32.64	29.56	14.63	8.21	120.16	2.97	0.78	0.78
32.81	28.75	14.16	9.84	139.39	3.06	0.80	1.01
32.97	36.08	18.00	9.90	178.24	3.06	1.42	1.29
33.14	53.91	27.35	7.99	218.55	2.95	0.91	0.91
33.30	81.08	45.74	5.37	245.68	2.76	0.93	0.93
33.46	104.67	60.73	3.92	237.78	2.62	0.92	0.92
33.63	113.94	67.08	3.22	215.85	2.53	0.90	0.90
33.79	106.31	62.47	3.14	195.86	2.52	0.88	0.88
33.96	90.62	52.42	3.56	186.41	2.58	0.87	0.87
34.12	74.90	42.43	4.22	178.96	2.65	0.86	0.86
34.28	60.75	33.58	5.07	170.37	2.73	0.85	0.85
34.45	47.67	25.51	6.40	163.26	2.84	0.84	0.84
34.61	43.17	22.79	6.84	155.99	2.87	0.83	0.83
34.78	42.51	22.42	6.65	149.11	2.86	0.83	0.83
34.94	41.32	21.69	6.72	145.71	2.87	0.82	0.82
35.10	36.65	17.56	8.49	149.07	2.98	0.83	0.83
35.27	33.70	16.01	10.27	164.49	3.08	1.30	1.14
35.43	38.08	18.18	9.83	178.71	3.06	1.63	1.30
35.60	42.44	20.34	9.12	185.56	3.02	1.84	1.45
35.76	46.52	22.33	8.30	185.31	2.97	0.87	0.87
35.93	50.47	26.28	6.93	182.12	2.88	0.87	0.87
36.09	52.71	27.66	6.34	175.38	2.84	0.86	0.86
36.25	55.54	29.47	5.58	164.47	2.78	0.85	0.85
36.42	52.30	27.45	5.96	163.56	2.81	0.84	0.84
36.58	47.54	24.50	6.73	164.81	2.87	0.85	0.85
36.75	42.70	20.05	8.30	166.44	2.97	0.85	0.85
36.91	43.84	20.56	8.01	164.77	2.95	0.85	0.85
37.07	47.08	24.15	6.50	156.89	2.85	0.84	0.84
37.24	49.45	25.80	5.41	139.65	2.76	0.81	0.81
37.40	53.53	28.42	4.54	129.09	2.68	0.80	0.80
37.57	59.30	31.77	4.20	133.36	2.65	0.80	0.80
37.73	58.14	30.63	4.90	150.14	2.72	0.83	0.83
37.89	50.05	25.40	6.61	167.93	2.86	0.85	0.85
38.06	41.44	18.99	9.37	177.93	3.03	1.57	1.36
38.22	40.47	18.47	10.05	185.57	3.07	1.70	1.32
38.39	42.50	19.40	9.77	189.48	3.06	1.82	1.39
38.55	43.87	20.00	9.62	192.50	3.05	1.83	1.43
38.71	45.65	20.80	9.35	194.42	3.03	1.90	1.49
38.88	51.61	23.61	8.23	194.19	2.97	0.88	0.88
39.04	56.69	28.27	7.03	198.77	2.89	0.89	0.89
39.21	59.03	29.57	6.69	197.76	2.86	0.88	0.88
39.37	55.35	27.41	7.11	194.90	2.89	0.88	0.88

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	50.01	22.58	8.16	184.24	2.96	0.87	0.87
39.70	46.04	20.63	9.10	187.68	3.02	1.57	1.47
39.86	43.56	19.40	10.10	196.00	3.07	2.01	1.39
40.03	45.08	20.06	10.31	206.75	3.08	2.08	1.43
40.19	49.36	22.02	9.36	206.13	3.03	2.18	1.57
40.35	53.76	24.02	8.47	203.34	2.98	0.89	0.89
40.52	57.74	28.09	7.27	204.14	2.90	0.89	0.89
40.68	58.13	28.29	7.09	200.72	2.89	0.89	0.89
40.85	58.17	28.25	7.07	199.71	2.89	0.89	0.89
41.01	57.55	27.75	7.36	204.33	2.91	0.89	0.89
41.17	59.75	28.81	7.32	210.80	2.91	0.90	0.90
41.34	61.29	29.55	7.22	213.31	2.90	0.90	0.90
41.50	60.76	29.20	7.23	211.26	2.90	0.90	0.90
41.67	56.55	24.77	8.20	203.13	2.96	0.89	0.89
41.83	54.61	23.81	8.59	204.65	2.99	0.89	0.89
41.99	53.38	23.18	8.96	207.79	3.01	2.22	1.66
42.16	53.78	23.30	8.91	207.58	3.01	2.21	1.66
42.32	54.27	23.46	8.77	205.76	3.00	0.89	0.89
42.49	55.21	23.82	8.50	202.37	2.98	0.89	0.89
42.65	55.68	23.97	8.24	197.46	2.97	0.88	0.88
42.81	53.89	23.09	8.59	198.33	2.99	0.89	0.89
42.98	52.41	22.37	8.86	198.21	3.00	2.10	1.60
43.14	52.38	22.29	9.10	202.87	3.02	1.99	1.59
43.31	54.99	23.40	8.69	203.28	2.99	0.89	0.89
43.47	58.20	24.77	8.34	206.64	2.97	0.89	0.89
43.64	60.24	25.61	8.05	206.09	2.96	0.89	0.89
43.80	59.00	24.99	8.19	204.61	2.96	0.89	0.89
43.96	57.18	24.12	8.29	199.93	2.97	0.89	0.89
44.13	56.13	23.59	8.35	196.92	2.97	0.88	0.88
44.29	55.24	23.13	8.44	195.16	2.98	0.88	0.88
44.46	54.13	22.58	8.79	198.58	3.00	1.95	1.61
44.62	54.38	22.63	8.93	202.20	3.01	2.09	1.62
44.78	56.92	23.69	8.61	203.95	2.99	0.89	0.89
44.95	60.19	25.05	8.04	201.45	2.95	0.89	0.89
45.11	62.24	28.42	7.24	205.64	2.90	0.89	0.89
45.28	64.15	29.37	7.01	205.85	2.89	0.89	0.89
45.44	67.17	30.90	6.71	207.32	2.87	0.89	0.89
45.60	70.42	32.62	6.29	205.17	2.83	0.89	0.89
45.77	69.54	32.18	6.18	199.02	2.83	0.89	0.89
45.93	66.52	30.66	6.17	189.13	2.82	0.87	0.87
46.10	66.74	30.87	5.91	182.35	2.80	0.87	0.87
46.26	67.31	31.32	5.51	172.50	2.77	0.86	0.86
46.42	66.89	31.27	5.15	161.04	2.74	0.84	0.84
46.59	62.18	28.73	5.46	156.72	2.77	0.84	0.84
46.75	60.35	27.66	5.67	156.84	2.79	0.84	0.84
46.92	60.28	27.47	5.86	161.04	2.80	0.84	0.84
47.08	62.68	28.83	5.39	155.37	2.76	0.83	0.83
47.24	59.58	27.19	5.53	150.49	2.77	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.41	53.73	24.19	5.82	140.89	2.80	0.81	0.81
47.57	44.12	19.17	6.92	132.57	2.88	0.80	0.80
47.74	39.16	16.69	7.39	123.37	2.91	0.79	0.79
47.90	37.68	14.51	8.10	117.58	2.96	0.78	0.78
48.06	37.70	14.49	8.13	117.77	2.96	0.78	0.78
48.23	38.35	14.73	7.98	117.54	2.95	0.78	0.78
48.39	37.99	14.54	7.97	115.87	2.95	0.78	0.78
48.56	37.38	14.26	8.05	114.74	2.96	0.77	0.77
48.72	37.18	14.14	8.43	119.21	2.98	0.78	0.78
48.88	38.25	14.55	8.80	128.07	3.00	0.79	1.04
49.05	40.04	15.25	8.96	136.66	3.01	0.93	1.09
49.21	41.49	15.81	8.89	140.52	3.01	1.00	1.13
49.38	41.71	15.87	8.82	140.03	3.00	0.97	1.13
49.54	41.33	15.67	9.15	143.40	3.02	0.92	1.12
49.70	40.14	15.15	9.56	144.85	3.04	1.12	1.08
49.87	38.84	14.58	9.99	145.59	3.07	0.99	1.04
50.03	38.78	14.52	9.59	139.24	3.05	0.91	1.04
50.20	39.78	14.89	9.55	142.19	3.04	0.87	1.06
50.36	40.57	15.18	9.40	142.67	3.04	1.13	1.08
50.52	39.08	14.54	9.81	142.73	3.06	0.95	1.04
50.69	37.77	13.98	9.68	135.33	3.05	0.84	1.00
50.85	36.44	13.41	10.03	134.47	3.07	0.82	0.96
51.02	38.48	14.20	9.79	138.99	3.06	0.89	1.01
51.18	42.32	15.71	9.17	144.07	3.02	1.04	1.12
51.35	44.99	16.74	8.71	145.82	3.00	0.82	0.82
51.51	44.44	16.48	8.69	143.32	2.99	0.82	0.82
51.67	40.26	14.77	9.56	141.18	3.04	0.93	1.06
51.84	36.90	13.40	10.58	141.85	3.10	0.91	0.96
52.00	35.50	12.81	11.47	146.98	3.14	0.97	0.92
52.17	37.10	13.42	11.82	158.54	3.16	1.10	0.96
52.33	40.70	14.81	11.58	171.55	3.15	1.41	1.06
52.49	46.78	17.18	10.64	182.80	3.10	1.60	1.23
52.66	54.13	20.04	9.22	184.82	3.03	1.76	1.43
52.82	58.86	21.85	8.16	178.41	2.96	0.86	0.86
52.99	55.27	20.39	8.14	165.92	2.96	0.85	0.85
53.15	45.42	16.48	9.31	153.46	3.03	1.09	1.18
53.31	37.55	13.37	11.03	147.43	3.12	0.91	0.95
53.48	34.49	12.14	12.65	153.60	3.20	1.02	0.87
53.64	36.04	12.71	12.96	164.84	3.21	1.26	0.91
53.81	40.83	14.55	11.87	172.60	3.16	1.41	1.04
53.97	48.51	17.49	9.90	173.14	3.06	1.46	1.25
54.13	55.42	20.13	8.54	171.89	2.99	0.85	0.85
54.30	59.21	21.54	7.97	171.75	2.95	0.85	0.85
54.46	61.17	24.98	6.86	171.31	2.88	0.85	0.85
54.63	63.50	26.31	6.16	161.93	2.82	0.84	0.84
54.79	66.24	27.88	5.45	151.95	2.77	0.83	0.83
54.95	69.31	29.28	5.31	155.47	2.75	0.83	0.83
55.12	71.04	29.82	5.57	165.97	2.78	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.28	72.45	30.03	6.10	183.07	2.82	0.87	0.87
55.45	77.74	32.19	6.22	200.06	2.83	0.89	0.89
55.61	89.33	37.61	5.64	212.21	2.78	0.90	0.90
55.77	102.12	43.84	4.95	217.05	2.72	0.90	0.90
55.94	107.30	46.26	4.78	220.93	2.71	0.91	0.91
56.10	109.29	47.18	4.68	220.60	2.70	0.91	0.91
56.27	116.30	50.83	4.23	215.03	2.65	0.90	0.90
56.43	128.58	57.47	3.54	203.71	2.58	0.89	0.89
56.59	139.13	63.93	2.82	180.61	2.48	0.87	0.87
56.76	140.06	64.95	2.59	168.01	2.44	0.85	0.85
56.92	141.14	65.95	2.40	158.59	2.41	0.84	0.84
57.09	137.32	63.18	2.67	168.87	2.45	0.85	0.85
57.25	129.32	58.41	3.02	176.50	2.51	0.86	0.86
57.41	123.72	55.56	3.09	171.64	2.52	0.85	0.85
57.58	129.54	59.40	2.60	154.39	2.44	0.83	0.83
57.74	145.97	69.03	2.07	143.14	2.34	0.82	0.82
57.91	161.14	76.86	1.96	150.77	2.31	0.83	0.83
58.07	171.30	81.31	2.03	164.87	2.33	0.85	0.85
58.23	181.13	86.36	1.96	169.13	2.31	0.85	0.85
58.40	183.45	87.94	1.87	164.44	2.29	0.85	0.85
58.56	181.82	87.87	1.76	154.25	2.25	0.83	0.83
58.73	176.39	84.92	1.77	150.49	2.26	0.83	0.83
58.89	185.86	-1.00	1.00	-1.00	-1.00	0.00	0.00
59.06	224.48	-1.00	1.00	-1.00	-1.00	0.00	0.00
59.22	352.79	-1.00	1.00	-1.00	-1.00	0.00	0.00
59.38	469.75	-1.00	1.00	-1.00	-1.00	0.00	0.00

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

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LIQUEFACTION ANALYSIS REPORT

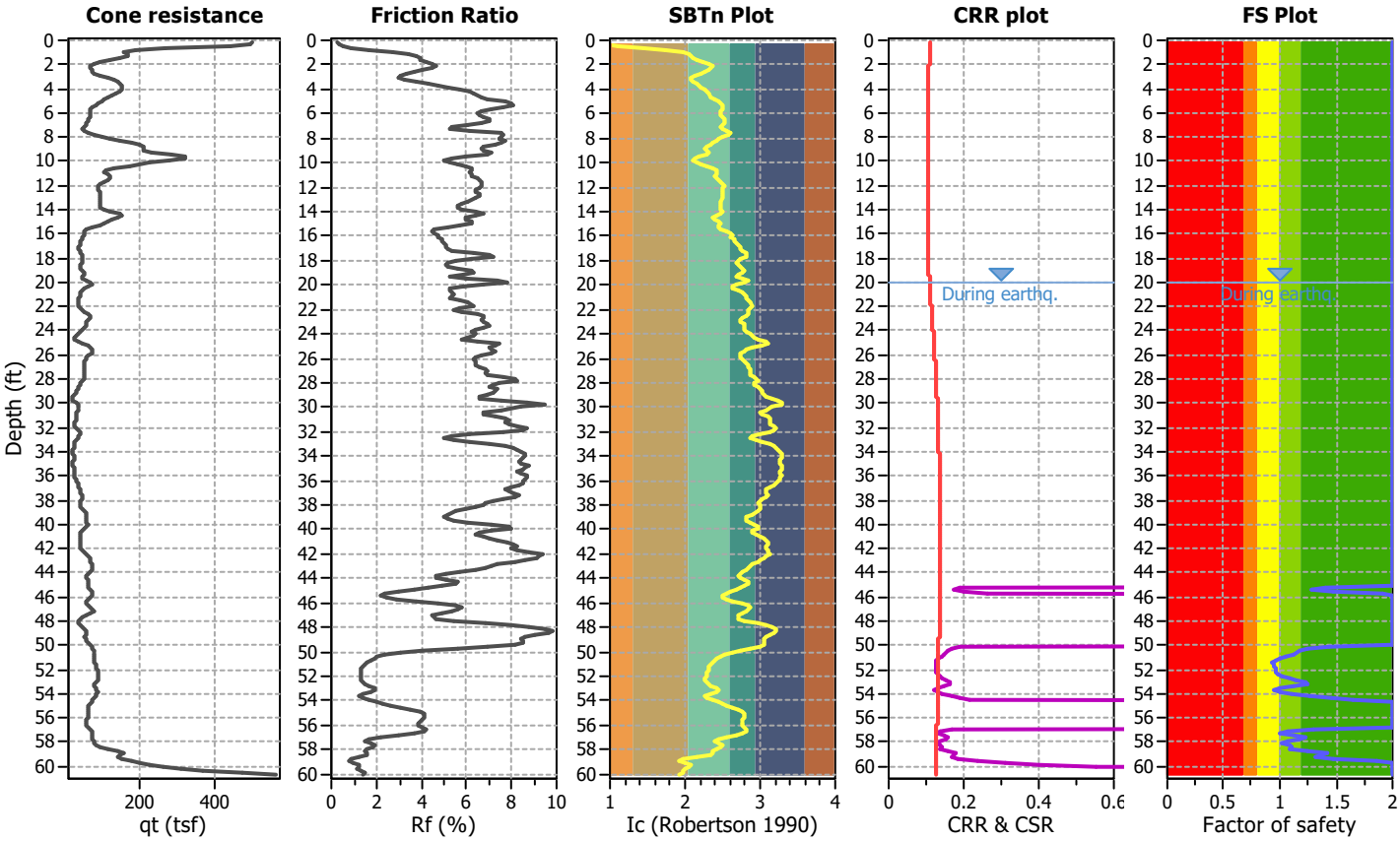
Project title : 3073-002.00P

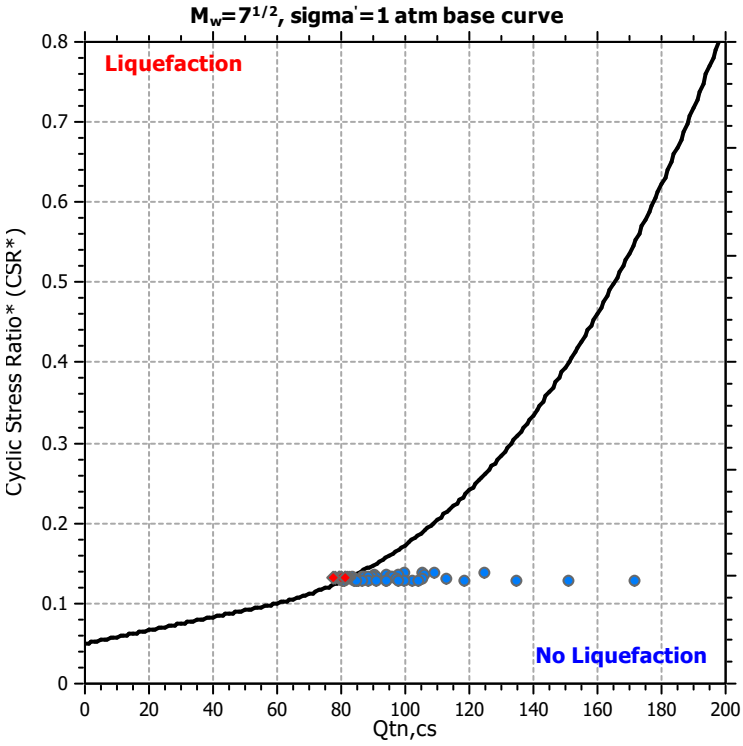
Location : Ethel Philips ES

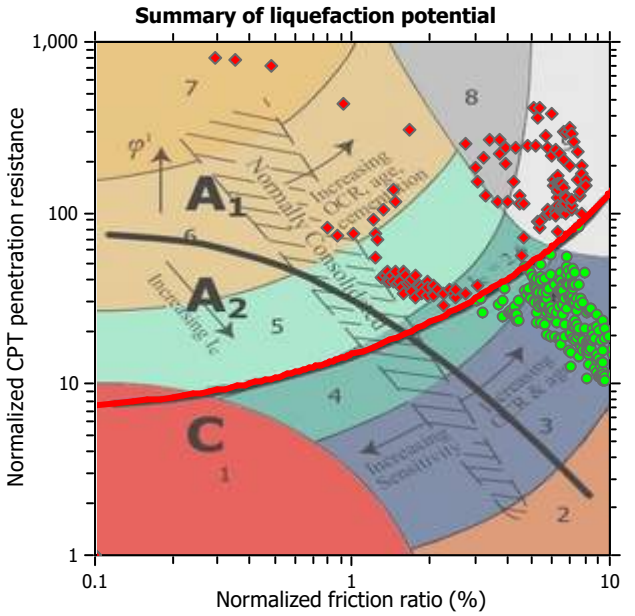
CPT file : CPT-02

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	26.50 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	20.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.24	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

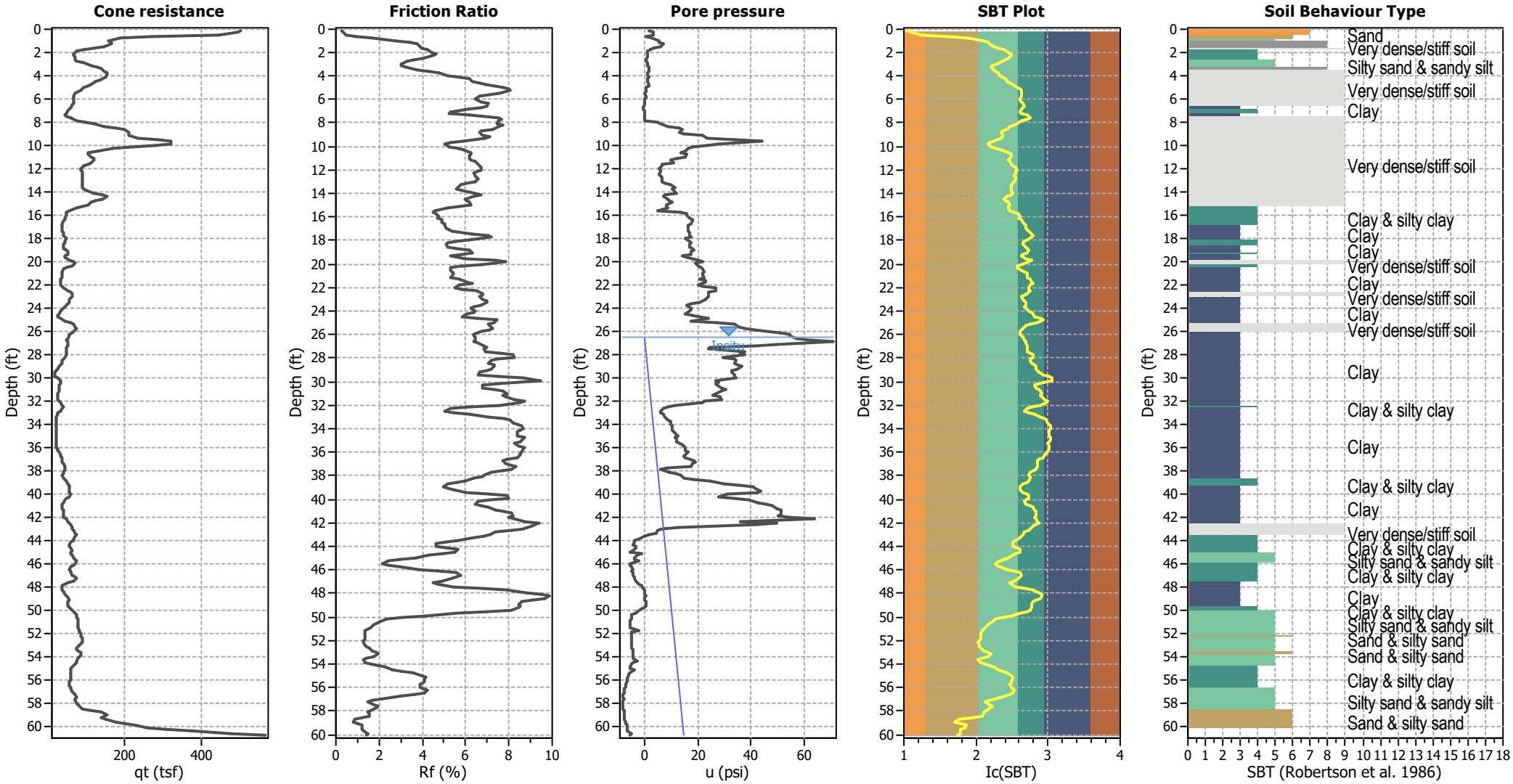






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

CPT basic interpretation plots



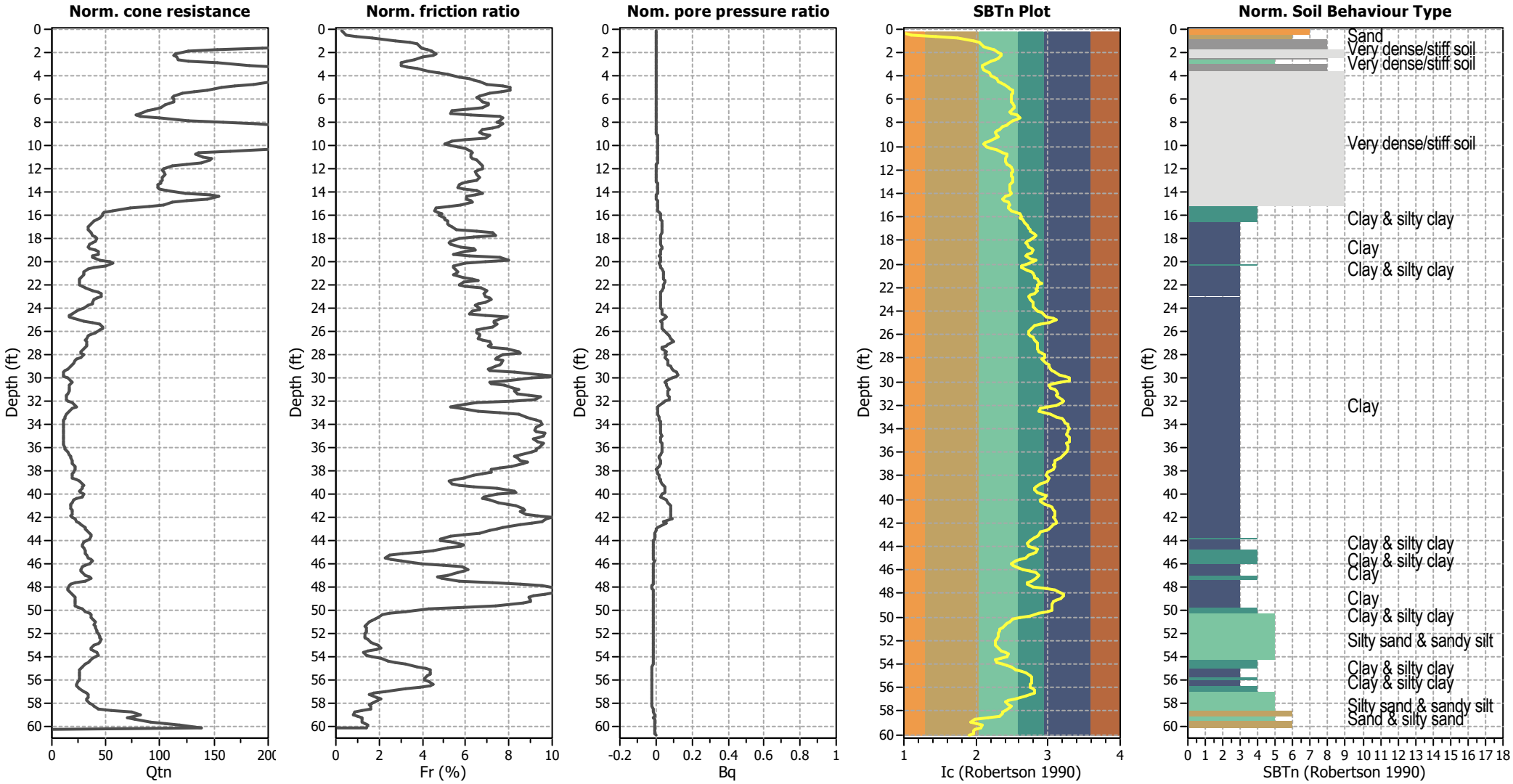
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

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

CPT basic interpretation plots (normalized)



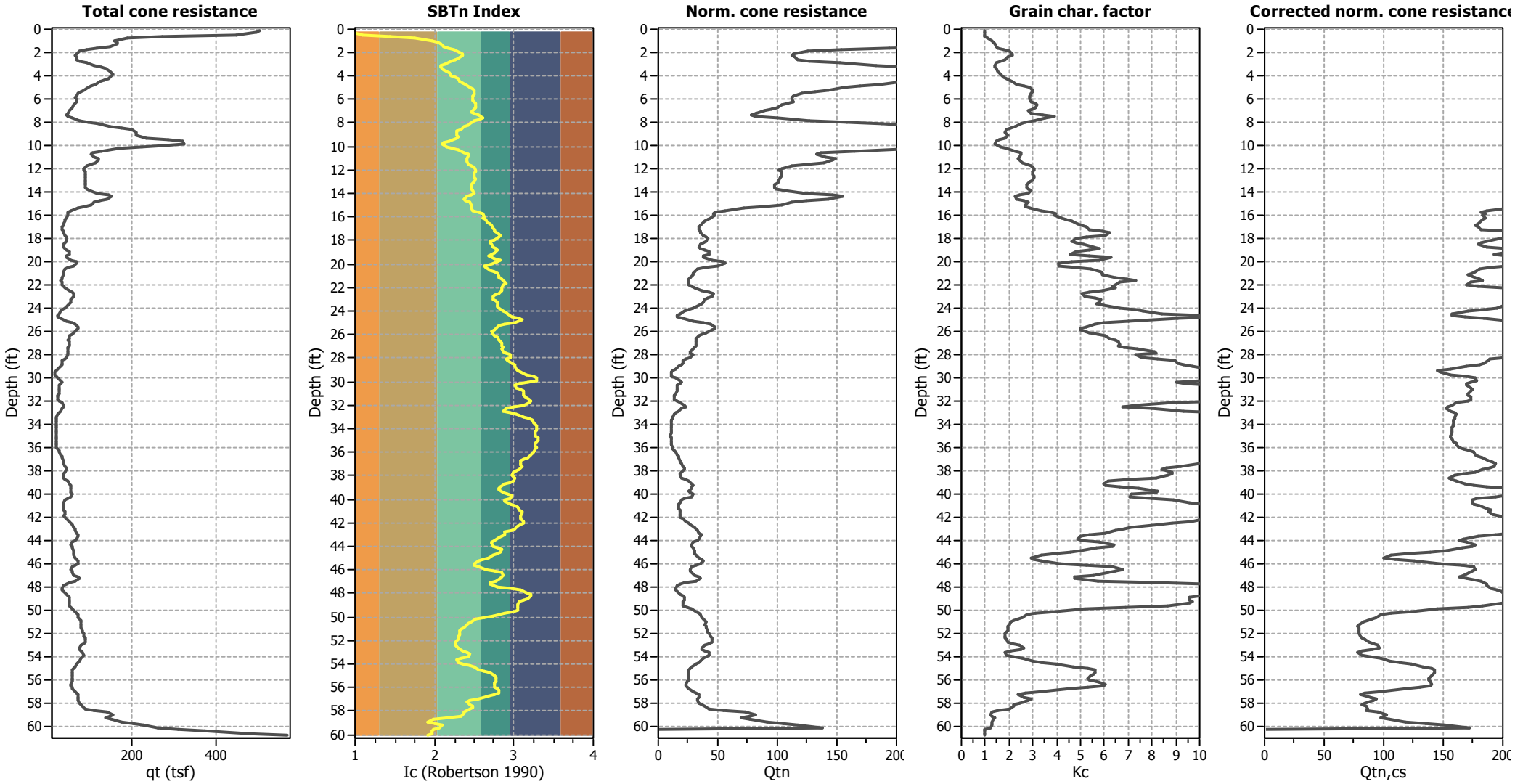
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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

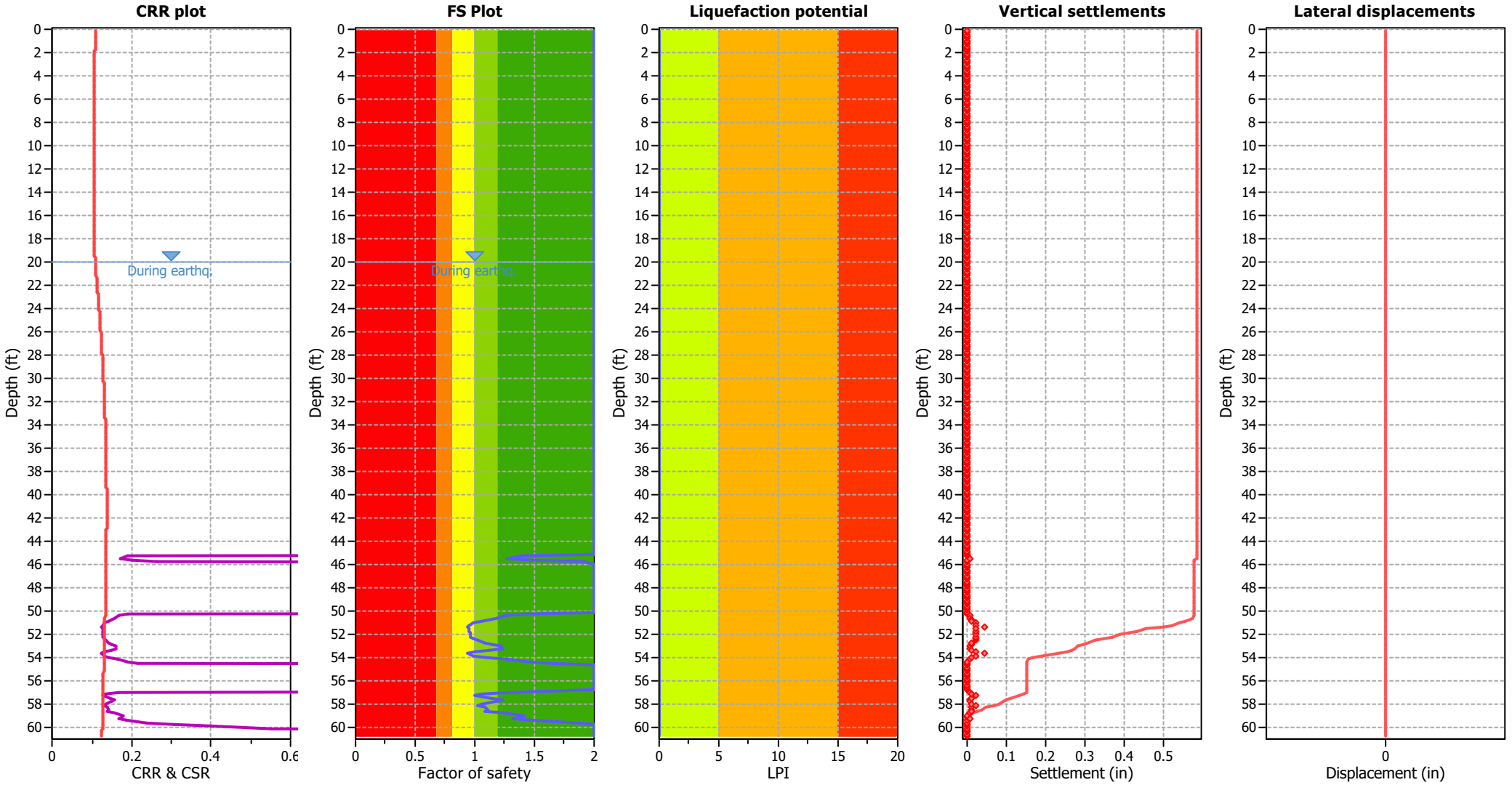
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

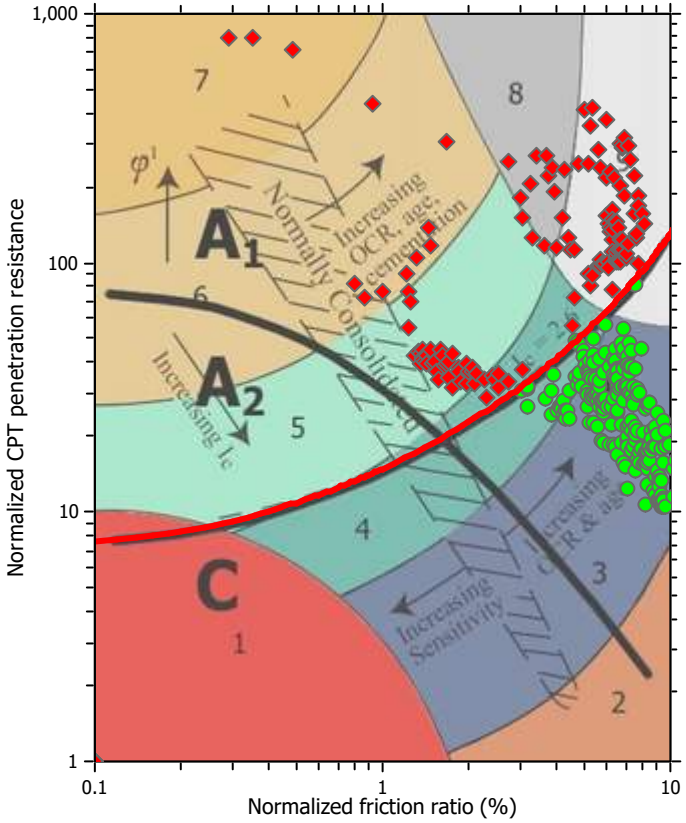
F.S. color scheme

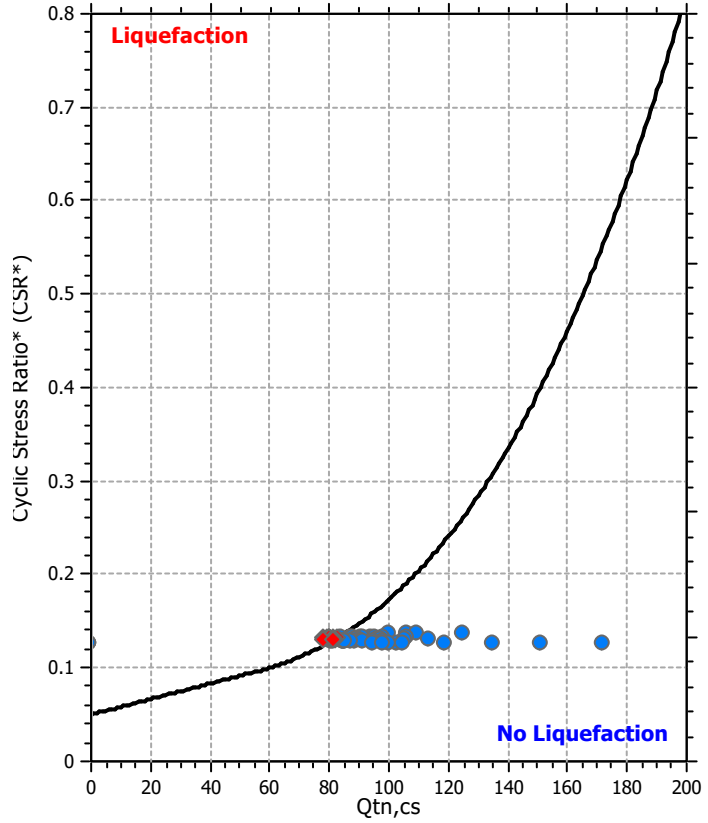
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

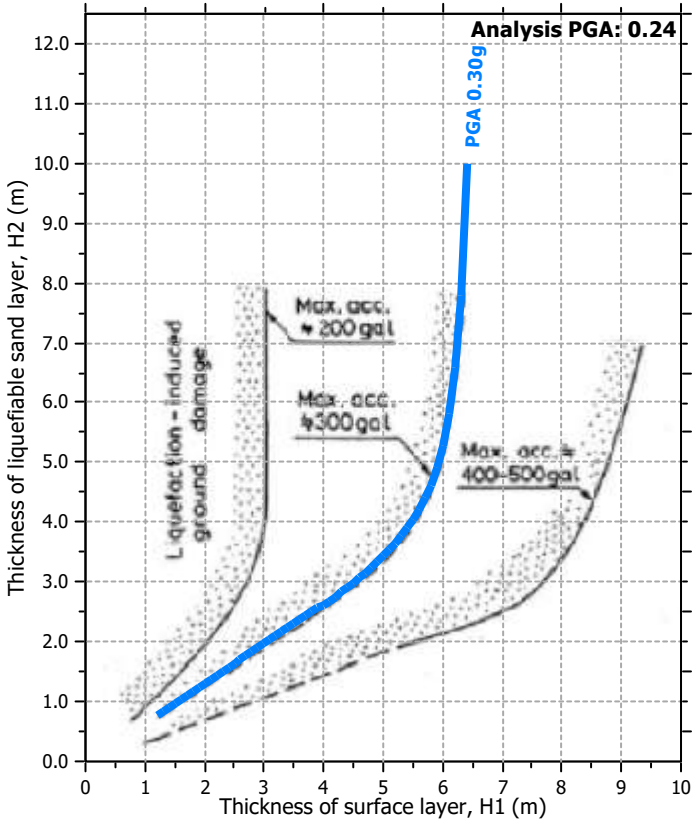
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



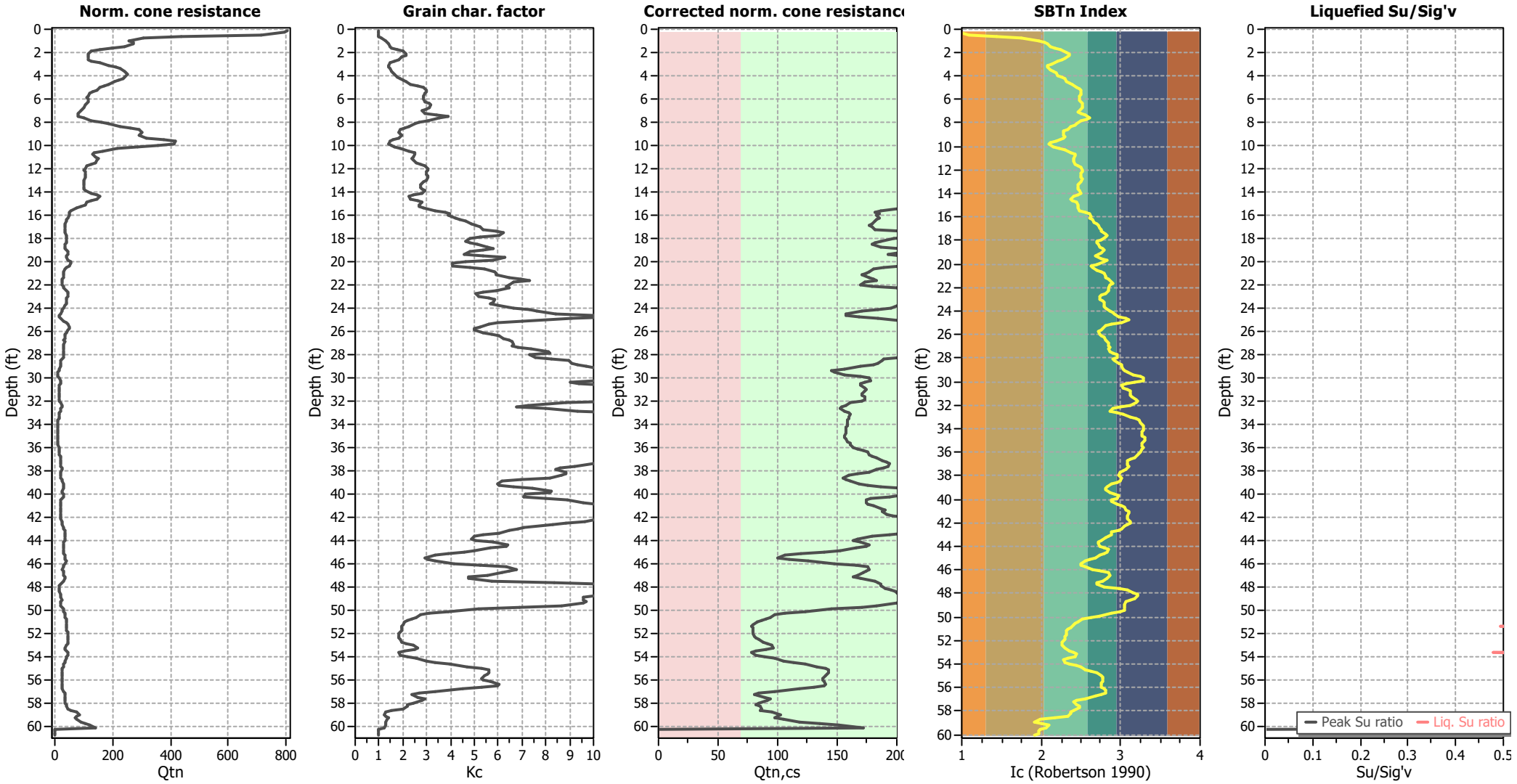




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	20.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.24	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	26.50 ft	Fill height:	N/A	Limit depth:	N/A

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.16	414.45	1.26	1.93	0.00	128.20
2	0.33	674.54	1.85	3.19	0.00	129.48
3	0.49	395.24	2.12	3.51	0.00	130.77
4	0.66	264.63	2.50	0.67	2.08	130.60
5	0.82	154.11	2.84	2.90	7.05	131.56
6	0.98	152.01	4.23	5.60	12.13	133.46
7	1.15	172.46	6.08	5.33	14.04	135.64
8	1.31	181.56	7.09	7.12	14.96	136.24
9	1.48	151.41	5.74	6.05	16.25	135.47
10	1.64	117.76	4.84	3.57	17.96	133.46
11	1.80	94.15	3.83	2.22	20.65	131.56
12	1.97	74.19	3.37	1.13	23.12	130.04
13	2.13	67.16	3.24	0.95	24.63	129.35
14	2.30	71.88	3.22	0.96	24.38	129.03
15	2.46	71.63	2.98	0.96	22.76	128.46
16	2.62	71.86	2.48	0.90	21.38	127.86
17	2.79	74.72	2.50	0.90	19.46	127.96
18	2.95	90.38	2.87	0.93	16.89	129.17
19	3.12	120.61	3.33	1.32	15.30	130.83
20	3.28	131.59	4.07	1.52	15.22	132.69
21	3.44	137.67	5.29	1.92	16.25	134.45
22	3.61	150.59	6.37	1.82	17.36	136.01
23	3.77	157.91	7.42	1.45	18.36	137.17
24	3.94	155.80	8.26	1.44	19.42	137.28
25	4.10	153.19	8.52	1.48	20.85	137.28
26	4.27	145.88	9.11	1.39	22.24	137.28
27	4.43	138.68	9.37	1.34	23.09	137.28
28	4.59	128.29	7.68	1.28	24.39	137.28
29	4.76	115.31	8.33	1.50	25.82	137.17
30	4.92	105.94	8.25	1.52	28.33	137.01
31	5.09	96.58	7.94	0.85	29.75	136.51
32	5.25	90.63	7.33	0.48	30.70	135.67
33	5.41	81.07	6.32	0.38	30.68	134.46
34	5.58	75.10	5.15	0.33	30.49	133.06
35	5.74	69.61	4.54	0.63	30.10	132.00
36	5.91	68.04	4.44	0.47	29.86	131.67
37	6.07	72.01	4.59	0.36	30.05	131.90
38	6.23	71.59	4.92	0.22	30.39	132.09
39	6.40	68.54	4.79	0.21	31.43	132.06
40	6.56	64.91	4.69	-0.11	31.92	131.60
41	6.73	62.49	4.25	-0.34	31.64	130.90
42	6.89	61.31	3.71	-0.30	30.70	129.68
43	7.05	55.37	2.93	-0.04	29.46	128.06
44	7.22	51.06	2.29	0.07	30.29	127.12
45	7.38	47.47	2.85	0.27	33.49	127.83
46	7.55	47.85	3.91	0.04	36.18	129.76
47	7.71	58.32	4.83	0.24	33.96	131.84
48	7.87	81.55	5.67	0.34	30.94	134.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	8.04	97.84	7.41	4.81	28.48	136.27
50	8.20	123.21	9.45	5.90	27.40	137.28
51	8.37	146.05	11.43	8.94	25.47	137.28
52	8.53	180.74	12.96	12.90	23.77	137.28
53	8.69	204.62	14.11	14.30	21.95	137.28
54	8.86	220.27	13.81	13.35	21.51	137.28
55	9.02	210.85	14.36	14.77	21.94	137.28
56	9.19	200.77	14.79	21.75	22.63	137.28
57	9.35	223.65	16.09	23.46	21.67	137.28
58	9.51	276.14	17.65	33.81	18.49	137.28
59	9.68	356.60	17.20	44.13	16.56	137.28
60	9.84	329.95	16.50	28.05	15.89	137.28
61	10.01	281.31	14.96	23.52	17.31	137.28
62	10.17	228.30	12.79	17.82	19.58	137.28
63	10.33	164.66	10.25	16.42	22.27	137.28
64	10.50	122.77	7.58	15.12	25.35	137.28
65	10.66	102.39	6.42	13.89	27.28	135.71
66	10.83	99.63	6.35	16.04	27.38	135.46
67	10.99	117.46	7.01	15.51	26.85	136.13
68	11.15	124.58	7.82	12.18	26.47	136.90
69	11.32	124.45	8.17	9.96	27.08	137.11
70	11.48	116.58	7.71	11.00	27.84	136.79
71	11.65	108.82	7.13	6.63	29.07	135.93
72	11.81	92.67	6.30	6.47	30.44	135.00
73	11.98	85.37	5.82	5.67	31.32	134.29
74	12.14	89.13	5.77	5.96	31.11	134.11
75	12.30	92.19	5.87	6.23	30.61	134.21
76	12.47	92.34	5.90	5.53	30.57	134.39
77	12.63	93.97	6.12	6.30	30.95	134.53
78	12.80	92.37	6.21	6.74	31.09	134.60
79	12.96	93.26	6.05	6.68	30.88	134.45
80	13.12	94.12	5.77	6.58	30.00	134.08
81	13.29	94.15	5.26	7.87	29.35	133.74
82	13.45	93.70	5.27	9.99	29.30	133.43
83	13.62	89.86	5.18	11.46	29.15	133.42
84	13.78	96.19	5.21	10.57	29.65	133.93
85	13.94	99.42	6.27	11.01	30.37	135.43
86	14.11	113.48	8.43	11.92	29.43	137.28
87	14.27	150.01	9.77	7.54	26.84	137.28
88	14.44	171.97	9.61	7.37	25.38	137.28
89	14.60	141.14	8.35	8.82	26.19	137.28
90	14.76	118.82	8.02	9.50	28.08	137.11
91	14.93	118.14	7.07	10.56	29.36	136.22
92	15.09	105.77	6.35	8.28	28.77	134.87
93	15.26	96.48	4.82	8.39	28.89	132.88
94	15.42	79.05	3.33	8.77	29.87	130.02
95	15.58	53.02	2.37	5.19	32.86	127.45
96	15.75	46.95	2.33	13.52	35.50	126.25

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	15.91	54.91	2.45	15.60	36.42	126.36
98	16.08	50.45	2.51	16.04	36.07	126.40
99	16.24	49.31	2.34	16.77	37.73	126.15
100	16.40	46.28	2.33	18.26	38.88	125.67
101	16.57	42.55	2.18	18.07	40.17	125.25
102	16.73	41.95	2.08	17.68	41.32	124.81
103	16.90	39.69	2.05	16.39	42.22	124.51
104	17.06	38.13	2.00	16.55	43.03	124.53
105	17.22	40.10	2.13	16.64	43.79	124.75
106	17.39	39.39	2.24	16.37	46.16	126.28
107	17.55	42.43	3.39	17.03	47.66	127.44
108	17.72	44.74	3.35	17.03	46.86	128.22
109	17.88	48.32	3.03	17.77	43.01	127.84
110	18.04	52.58	2.68	15.33	40.92	127.19
111	18.21	47.16	2.53	16.98	40.04	126.53
112	18.37	46.32	2.35	17.30	41.12	125.87
113	18.54	43.67	2.18	16.94	42.49	125.33
114	18.70	38.88	2.17	16.95	44.52	125.60
115	18.86	42.49	2.67	18.01	45.66	126.84
116	19.03	49.85	3.34	18.36	43.84	128.18
117	19.19	56.36	3.40	17.61	41.16	128.48
118	19.36	55.93	2.79	17.28	39.72	127.61
119	19.52	47.97	2.31	14.09	43.65	127.61
120	19.69	41.90	3.67	16.08	47.82	129.11
121	19.85	55.18	4.81	20.22	45.75	131.29
122	20.01	76.88	5.20	21.82	40.07	132.09
123	20.18	78.42	4.33	19.25	37.09	131.39
124	20.34	63.06	3.34	20.33	37.36	129.48
125	20.51	52.13	2.65	21.05	40.88	127.45
126	20.67	41.95	2.39	21.95	43.97	125.96
127	20.83	39.87	2.16	22.31	46.09	125.26
128	21.00	40.95	2.19	21.92	46.39	124.98
129	21.16	39.48	2.17	21.83	46.28	124.78
130	21.33	39.21	2.01	22.13	48.70	124.93
131	21.49	35.87	2.41	20.96	50.82	125.00
132	21.65	35.05	2.33	22.91	52.45	125.03
133	21.82	35.91	2.10	23.01	49.64	124.63
134	21.98	40.29	1.96	20.49	48.89	124.45
135	22.15	36.08	2.15	21.98	48.35	125.53
136	22.31	44.73	2.91	26.97	48.75	127.43
137	22.47	53.35	3.73	26.85	46.25	129.46
138	22.64	62.31	4.30	23.99	43.67	130.88
139	22.80	70.28	4.61	24.03	42.30	131.48
140	22.97	67.28	4.49	23.98	42.92	131.47
141	23.13	59.77	4.35	23.32	44.79	130.98
142	23.29	56.66	4.04	22.95	46.02	130.48
143	23.46	57.31	3.86	20.55	45.74	129.96
144	23.62	56.05	3.60	17.25	45.19	129.42

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	23.79	53.91	3.28	15.63	46.55	128.45
146	23.95	43.63	2.79	17.47	49.68	127.35
147	24.11	37.32	2.62	17.62	52.39	126.00
148	24.28	37.22	2.14	16.75	53.85	124.60
149	24.44	31.77	1.70	15.51	57.10	123.14
150	24.61	24.85	1.68	18.04	63.29	122.46
151	24.77	23.66	1.92	20.69	66.26	123.39
152	24.93	31.42	2.41	24.23	59.57	125.78
153	25.10	48.93	3.31	17.42	51.15	128.60
154	25.26	62.29	4.39	27.39	46.70	131.02
155	25.43	70.38	5.29	33.89	44.74	132.47
156	25.59	74.84	5.47	35.62	43.11	133.02
157	25.75	78.22	5.19	37.84	41.90	132.70
158	25.92	72.80	4.54	41.35	42.00	131.83
159	26.08	62.96	4.00	50.55	43.74	130.90
160	26.25	58.49	3.94	54.65	45.54	130.19
161	26.41	57.32	3.69	54.39	46.76	129.58
162	26.57	52.20	3.30	57.25	47.69	129.07
163	26.74	50.34	3.37	62.31	48.73	129.06
164	26.90	53.58	3.75	70.78	49.31	129.54
165	27.07	55.01	3.95	49.72	49.64	129.67
166	27.23	50.84	3.55	41.28	49.26	129.54
167	27.40	54.57	3.55	24.40	50.35	129.31
168	27.56	49.76	3.73	24.04	52.67	129.85
169	27.72	48.57	4.45	37.43	55.75	130.21
170	27.89	51.62	4.21	36.20	55.91	130.30
171	28.05	50.06	3.87	37.67	52.56	129.59
172	28.22	49.56	3.28	29.72	53.52	128.62
173	28.38	40.76	3.05	34.07	56.29	127.63
174	28.54	38.23	2.84	34.33	59.14	127.08
175	28.71	38.73	2.86	33.67	59.79	126.74
176	28.87	37.18	2.73	34.66	60.55	126.28
177	29.04	33.78	2.43	36.71	62.05	125.13
178	29.20	29.13	1.91	34.78	64.63	123.42
179	29.36	24.06	1.52	32.82	69.41	121.67
180	29.53	19.57	1.46	32.76	76.41	121.31
181	29.69	19.82	1.89	34.03	80.55	122.13
182	29.86	22.61	2.14	33.85	80.27	123.61
183	30.02	25.01	2.50	34.44	70.66	125.07
184	30.18	38.36	2.72	26.96	63.43	125.97
185	30.35	39.99	2.63	27.87	59.33	126.01
186	30.51	34.07	2.33	26.95	60.92	125.48
187	30.68	31.96	2.33	27.23	64.94	125.04
188	30.84	29.92	2.42	29.03	66.83	125.18
189	31.00	31.56	2.53	30.52	67.59	125.33
190	31.17	31.56	2.49	28.73	67.06	125.25
191	31.33	30.60	2.33	26.98	68.64	124.93
192	31.50	27.53	2.31	25.81	71.93	124.56

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	31.66	24.99	2.31	28.18	74.23	124.65
194	31.82	27.88	2.49	28.72	72.56	124.90
195	31.99	31.15	2.46	22.30	67.15	125.12
196	32.15	34.73	2.27	21.62	58.62	125.16
197	32.32	45.05	2.15	11.36	52.14	125.08
198	32.48	43.06	2.16	8.98	50.23	124.98
199	32.64	39.31	2.10	7.22	55.28	124.77
200	32.81	34.86	2.14	6.03	60.65	124.45
201	32.97	29.47	2.14	5.94	67.08	124.15
202	33.14	26.33	2.13	6.96	72.29	123.80
203	33.30	25.55	2.07	7.64	74.83	123.57
204	33.46	25.25	2.06	8.13	76.32	123.36
205	33.63	23.73	2.02	8.71	78.23	123.17
206	33.79	22.64	1.99	9.66	79.47	123.09
207	33.96	23.61	2.03	10.05	80.04	123.04
208	34.12	23.02	2.01	10.58	79.31	123.12
209	34.28	23.81	2.02	10.69	78.75	123.08
210	34.45	24.18	1.98	10.65	78.16	123.22
211	34.61	24.32	2.09	10.90	78.54	123.20
212	34.78	23.36	2.01	11.72	80.99	123.06
213	34.94	21.07	1.96	12.56	80.78	122.96
214	35.10	24.26	2.00	11.63	80.04	122.99
215	35.27	24.38	2.00	11.92	78.14	123.23
216	35.43	24.18	2.07	12.25	78.62	123.37
217	35.60	24.33	2.12	13.07	79.40	123.60
218	35.76	24.41	2.20	14.21	78.70	123.78
219	35.93	25.76	2.18	15.22	77.10	124.16
220	36.09	27.88	2.36	15.27	75.27	124.66
221	36.25	29.00	2.54	15.48	73.51	125.34
222	36.42	31.46	2.70	16.54	70.91	125.96
223	36.58	35.09	2.82	15.06	67.28	126.48
224	36.75	38.36	2.87	14.70	64.86	127.00
225	36.91	39.54	3.11	15.13	64.69	127.38
226	37.07	37.93	3.21	18.49	64.28	127.87
227	37.24	42.54	3.39	18.90	65.11	128.18
228	37.40	39.88	3.52	17.92	63.16	128.60
229	37.57	45.54	3.59	17.47	60.25	128.84
230	37.73	52.02	3.48	8.60	57.81	128.85
231	37.89	47.08	3.35	5.94	56.99	128.39
232	38.06	44.59	2.99	9.15	58.66	127.61
233	38.22	41.50	2.70	12.26	58.81	126.67
234	38.39	40.13	2.41	13.60	58.08	125.99
235	38.55	41.85	2.32	14.80	55.95	125.76
236	38.71	45.46	2.40	18.75	50.92	126.09
237	38.88	51.64	2.53	24.52	47.34	127.03
238	39.04	60.49	2.97	30.02	46.58	127.93
239	39.21	56.26	3.24	36.13	46.94	128.67
240	39.37	57.32	3.35	41.07	49.48	129.32

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	39.53	57.50	3.91	41.21	52.90	130.44
242	39.70	55.31	4.99	43.62	56.31	131.40
243	39.86	60.66	4.98	42.44	55.91	131.77
244	40.03	63.05	4.48	30.91	51.58	131.07
245	40.19	58.47	3.60	27.79	51.38	129.85
246	40.35	49.38	3.23	33.99	55.21	128.58
247	40.52	44.39	3.04	39.22	58.88	127.82
248	40.68	41.70	2.97	42.72	61.64	127.41
249	40.85	39.37	2.94	45.88	63.73	127.37
250	41.01	39.23	3.10	47.73	65.17	127.72
251	41.17	40.81	3.43	49.70	65.38	128.25
252	41.34	42.55	3.57	51.38	64.82	128.69
253	41.50	43.71	3.61	51.26	64.00	128.62
254	41.67	42.36	3.28	50.94	64.93	128.81
255	41.83	41.88	3.87	50.36	66.72	129.04
256	41.99	41.25	4.02	54.33	67.23	129.97
257	42.16	47.88	4.61	63.88	64.01	130.93
258	42.32	58.16	5.09	36.11	61.74	131.71
259	42.49	55.11	5.13	49.61	58.78	132.17
260	42.65	62.67	5.13	42.06	56.51	132.20
261	42.81	67.25	4.89	12.60	51.47	132.18
262	42.98	68.93	4.76	6.66	50.48	132.05
263	43.14	65.90	4.80	4.83	48.88	132.09
264	43.31	74.86	4.80	4.28	46.75	131.95
265	43.47	77.06	4.31	2.00	43.70	131.48
266	43.64	75.10	3.77	0.22	41.98	130.52
267	43.80	71.50	3.27	-1.92	41.31	129.50
268	43.96	68.04	2.97	-3.50	42.11	128.98
269	44.13	65.49	3.24	-3.88	45.59	128.93
270	44.29	55.90	3.45	-4.35	48.55	129.21
271	44.46	59.46	3.49	-3.27	48.17	129.07
272	44.62	65.63	3.04	-2.94	45.15	128.71
273	44.78	64.31	2.83	-4.37	42.04	127.86
274	44.95	64.07	2.41	-5.35	39.83	126.70
275	45.11	63.49	1.84	-1.21	36.21	125.06
276	45.28	64.67	1.41	-2.56	32.90	123.72
277	45.44	67.47	1.44	-3.65	30.54	123.43
278	45.60	73.82	1.59	-3.56	31.02	124.91
279	45.77	78.22	2.28	-2.09	33.00	126.75
280	45.93	77.52	2.85	-5.41	37.54	128.42
281	46.10	68.21	3.37	-5.42	43.24	129.17
282	46.26	58.67	3.49	-4.72	48.30	129.32
283	46.42	58.19	3.39	-4.41	49.98	129.23
284	46.59	61.15	3.38	-4.84	48.88	129.20
285	46.75	62.66	3.38	-4.52	47.52	129.09
286	46.92	62.41	3.17	-4.04	44.43	129.23
287	47.08	75.65	3.32	-3.69	40.69	129.60
288	47.24	85.13	3.53	-3.53	40.72	130.30

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	47.41	71.33	4.03	-3.38	45.50	130.46
290	47.57	54.15	3.93	-2.87	56.68	130.01
291	47.74	44.57	3.65	-2.15	64.58	129.23
292	47.90	41.31	3.54	-0.95	70.36	128.73
293	48.06	37.25	3.65	-0.24	73.53	128.78
294	48.23	38.58	3.91	0.25	74.13	129.19
295	48.39	42.84	4.13	0.35	71.66	129.78
296	48.56	46.40	4.32	0.36	67.10	130.45
297	48.72	54.49	4.57	0.41	63.49	131.06
298	48.88	58.12	4.79	0.36	61.63	131.50
299	49.05	56.35	4.87	0.36	61.67	131.65
300	49.21	55.92	4.82	0.53	62.08	131.48
301	49.38	55.39	4.54	0.52	61.54	131.03
302	49.54	54.09	4.09	0.47	58.05	130.02
303	49.70	58.04	3.03	0.08	50.61	128.86
304	49.87	63.37	2.68	-1.15	42.78	127.35
305	50.03	69.48	2.04	-2.40	36.35	126.08
306	50.20	75.06	1.62	-3.33	31.48	124.74
307	50.36	75.81	1.52	-4.77	29.03	123.98
308	50.52	76.43	1.48	-4.71	27.81	123.63
309	50.69	79.36	1.38	-4.79	26.45	123.35
310	50.85	82.35	1.32	-5.08	25.05	122.98
311	51.02	82.67	1.24	-5.34	23.84	122.27
312	51.18	80.51	1.01	-5.52	23.45	121.74
313	51.35	79.31	1.08	-5.26	22.93	121.41
314	51.51	83.29	1.09	-5.51	22.95	121.74
315	51.67	84.30	1.13	-2.04	22.57	121.91
316	51.84	84.87	1.14	-4.81	22.29	122.05
317	52.00	87.69	1.14	-4.83	21.70	122.13
318	52.17	90.80	1.14	-4.83	21.28	122.29
319	52.33	91.11	1.18	-4.84	21.39	122.62
320	52.49	91.25	1.28	-4.81	21.88	123.17
321	52.66	93.84	1.41	-4.75	22.80	123.82
322	52.82	91.52	1.54	-4.68	24.41	124.26
323	52.99	83.21	1.59	-4.64	26.78	124.44
324	53.15	77.13	1.62	-4.58	28.43	124.07
325	53.31	75.09	1.40	-4.48	27.22	123.23
326	53.48	81.94	1.10	-4.43	24.03	122.25
327	53.64	89.56	1.04	-4.38	21.62	121.75
328	53.81	89.69	1.11	-4.38	22.35	122.58
329	53.97	86.19	1.48	-4.32	24.88	123.60
330	54.13	81.19	1.62	-4.31	27.94	124.55
331	54.30	78.45	1.76	-2.85	30.64	125.20
332	54.46	75.90	2.01	-4.30	33.19	125.79
333	54.63	72.56	2.15	-4.75	36.48	126.41
334	54.79	67.33	2.40	-5.07	40.33	126.89
335	54.95	62.16	2.60	-5.37	43.46	127.18
336	55.12	61.94	2.57	-3.82	44.95	127.21

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	55.28	61.73	2.50	-5.37	44.91	127.18
338	55.45	62.15	2.57	-5.66	44.70	127.20
339	55.61	63.18	2.58	-5.95	43.99	127.19
340	55.77	64.74	2.46	-6.22	43.42	127.03
341	55.94	63.04	2.39	-6.29	43.70	126.84
342	56.10	60.26	2.42	-6.63	45.28	126.79
343	56.27	58.17	2.50	-6.91	46.77	126.77
344	56.43	57.44	2.45	-6.93	46.44	126.63
345	56.59	60.36	2.28	-7.19	43.50	126.08
346	56.76	64.42	1.90	-7.37	39.50	125.11
347	56.92	65.02	1.55	-7.57	33.15	123.26
348	57.09	72.75	0.91	-7.73	28.56	121.92
349	57.25	77.27	1.10	-7.96	26.52	121.66
350	57.41	75.66	1.37	-8.05	28.41	122.92
351	57.58	74.17	1.53	-7.33	30.17	123.56
352	57.74	73.32	1.49	-7.79	29.49	123.20
353	57.91	76.07	1.15	-7.81	26.91	122.47
354	58.07	83.43	1.09	-7.84	25.06	122.30
355	58.23	85.08	1.34	-7.89	24.95	123.28
356	58.40	89.17	1.60	-7.84	23.61	123.96
357	58.56	104.16	1.36	-7.76	18.00	124.09
358	58.73	148.79	1.13	-7.69	12.43	123.73
359	58.89	174.07	1.12	-7.62	10.79	124.01
360	59.06	147.21	1.39	-7.55	13.01	125.31
361	59.22	128.81	1.90	-7.49	15.56	126.18
362	59.38	144.70	1.79	-7.45	14.58	127.00
363	59.55	184.77	1.83	-6.77	12.74	128.34
364	59.71	205.51	2.68	-6.78	12.22	130.26
365	59.88	219.04	3.33	-6.65	12.20	132.23
366	60.04	257.61	3.88	-6.58	10.73	133.43
367	60.20	310.30	3.90	-6.42	N/A	87.36
368	60.37	365.08	-272311.72	-6.30	N/A	87.36
369	60.53	440.84	-272311.72	-4.98	N/A	87.36
370	60.70	627.22	-272311.72	-5.11	N/A	87.36

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
1	0.16	0.01	0.00	0.01	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
2	0.33	0.02	0.00	0.02	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
3	0.49	0.03	0.00	0.03	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
4	0.66	0.04	0.00	0.04	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
5	0.82	0.05	0.00	0.05	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
6	0.98	0.06	0.00	0.06	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
7	1.15	0.08	0.00	0.08	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
8	1.31	0.09	0.00	0.09	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
9	1.48	0.10	0.00	0.10	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
10	1.64	0.11	0.00	0.11	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
11	1.80	0.12	0.00	0.12	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
12	1.97	0.13	0.00	0.13	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
13	2.13	0.14	0.00	0.14	1.00	0.156	1.44	0.108	1.00	1.00	2.000	No
14	2.30	0.15	0.00	0.15	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
15	2.46	0.16	0.00	0.16	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
16	2.62	0.17	0.00	0.17	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
17	2.79	0.18	0.00	0.18	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
18	2.95	0.19	0.00	0.19	1.00	0.155	1.44	0.108	1.00	1.00	2.000	No
19	3.12	0.20	0.00	0.20	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
20	3.28	0.22	0.00	0.22	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
21	3.44	0.23	0.00	0.23	0.99	0.155	1.44	0.108	1.00	1.00	2.000	No
22	3.61	0.24	0.00	0.24	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
23	3.77	0.25	0.00	0.25	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
24	3.94	0.26	0.00	0.26	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
25	4.10	0.27	0.00	0.27	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
26	4.27	0.28	0.00	0.28	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
27	4.43	0.29	0.00	0.29	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
28	4.59	0.30	0.00	0.30	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
29	4.76	0.32	0.00	0.32	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
30	4.92	0.33	0.00	0.33	0.99	0.155	1.44	0.107	1.00	1.00	2.000	No
31	5.09	0.34	0.00	0.34	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
32	5.25	0.35	0.00	0.35	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
33	5.41	0.36	0.00	0.36	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
34	5.58	0.37	0.00	0.37	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
35	5.74	0.38	0.00	0.38	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
36	5.91	0.39	0.00	0.39	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
37	6.07	0.40	0.00	0.40	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
38	6.23	0.41	0.00	0.41	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
39	6.40	0.43	0.00	0.43	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
40	6.56	0.44	0.00	0.44	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
41	6.73	0.45	0.00	0.45	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
42	6.89	0.46	0.00	0.46	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
43	7.05	0.47	0.00	0.47	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
44	7.22	0.48	0.00	0.48	0.99	0.154	1.44	0.107	1.00	1.00	2.000	No
45	7.38	0.49	0.00	0.49	0.98	0.154	1.44	0.107	1.00	1.00	2.000	No
46	7.55	0.50	0.00	0.50	0.98	0.154	1.44	0.107	1.00	1.00	2.000	No
47	7.71	0.51	0.00	0.51	0.98	0.154	1.44	0.106	1.00	1.00	2.000	No
48	7.87	0.52	0.00	0.52	0.98	0.153	1.44	0.106	1.00	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
49	8.04	0.53	0.00	0.53	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
50	8.20	0.54	0.00	0.54	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
51	8.37	0.56	0.00	0.56	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
52	8.53	0.57	0.00	0.57	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
53	8.69	0.58	0.00	0.58	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
54	8.86	0.59	0.00	0.59	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
55	9.02	0.60	0.00	0.60	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
56	9.19	0.61	0.00	0.61	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
57	9.35	0.62	0.00	0.62	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
58	9.51	0.63	0.00	0.63	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
59	9.68	0.65	0.00	0.65	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
60	9.84	0.66	0.00	0.66	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
61	10.01	0.67	0.00	0.67	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
62	10.17	0.68	0.00	0.68	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
63	10.33	0.69	0.00	0.69	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
64	10.50	0.70	0.00	0.70	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
65	10.66	0.71	0.00	0.71	0.98	0.153	1.44	0.106	1.00	1.00	2.000	No
66	10.83	0.72	0.00	0.72	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
67	10.99	0.74	0.00	0.74	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
68	11.15	0.75	0.00	0.75	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
69	11.32	0.76	0.00	0.76	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
70	11.48	0.77	0.00	0.77	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
71	11.65	0.78	0.00	0.78	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
72	11.81	0.79	0.00	0.79	0.98	0.152	1.44	0.106	1.00	1.00	2.000	No
73	11.98	0.80	0.00	0.80	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
74	12.14	0.81	0.00	0.81	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
75	12.30	0.82	0.00	0.82	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
76	12.47	0.84	0.00	0.84	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
77	12.63	0.85	0.00	0.85	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
78	12.80	0.86	0.00	0.86	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
79	12.96	0.87	0.00	0.87	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
80	13.12	0.88	0.00	0.88	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
81	13.29	0.89	0.00	0.89	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
82	13.45	0.90	0.00	0.90	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
83	13.62	0.91	0.00	0.91	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
84	13.78	0.92	0.00	0.92	0.97	0.152	1.44	0.105	1.00	1.00	2.000	No
85	13.94	0.93	0.00	0.93	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
86	14.11	0.95	0.00	0.95	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
87	14.27	0.96	0.00	0.96	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
88	14.44	0.97	0.00	0.97	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
89	14.60	0.98	0.00	0.98	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
90	14.76	0.99	0.00	0.99	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
91	14.93	1.00	0.00	1.00	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
92	15.09	1.01	0.00	1.01	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
93	15.26	1.02	0.00	1.02	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
94	15.42	1.03	0.00	1.03	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
95	15.58	1.04	0.00	1.04	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
96	15.75	1.06	0.00	1.06	0.97	0.151	1.44	0.105	1.00	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
97	15.91	1.07	0.00	1.07	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
98	16.08	1.08	0.00	1.08	0.97	0.151	1.44	0.105	1.00	1.00	2.000	No
99	16.24	1.09	0.00	1.09	0.97	0.151	1.44	0.104	0.99	1.00	2.000	No
100	16.40	1.10	0.00	1.10	0.97	0.151	1.44	0.104	0.99	1.00	2.000	No
101	16.57	1.11	0.00	1.11	0.97	0.151	1.44	0.104	0.99	1.00	2.000	No
102	16.73	1.12	0.00	1.12	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
103	16.90	1.13	0.00	1.13	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
104	17.06	1.14	0.00	1.14	0.96	0.150	1.44	0.104	0.99	1.00	2.000	No
105	17.22	1.15	0.00	1.15	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
106	17.39	1.16	0.00	1.16	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
107	17.55	1.17	0.00	1.17	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
108	17.72	1.18	0.00	1.18	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
109	17.88	1.19	0.00	1.19	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
110	18.04	1.20	0.00	1.20	0.96	0.150	1.44	0.104	0.98	1.00	2.000	No
111	18.21	1.21	0.00	1.21	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
112	18.37	1.22	0.00	1.22	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
113	18.54	1.23	0.00	1.23	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
114	18.70	1.24	0.00	1.24	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
115	18.86	1.25	0.00	1.25	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
116	19.03	1.26	0.00	1.26	0.96	0.150	1.44	0.104	0.97	1.00	2.000	No
117	19.19	1.27	0.00	1.27	0.96	0.150	1.44	0.104	0.96	1.00	2.000	No
118	19.36	1.28	0.00	1.28	0.96	0.150	1.44	0.104	0.96	1.00	2.000	No
119	19.52	1.29	0.00	1.29	0.96	0.149	1.44	0.104	0.96	1.00	2.000	No
120	19.69	1.30	0.00	1.30	0.96	0.149	1.44	0.104	0.96	1.00	2.000	No
121	19.85	1.31	0.00	1.31	0.96	0.149	1.44	0.104	0.96	1.00	2.000	No
122	20.01	1.33	0.00	1.33	0.96	0.149	1.44	0.104	0.96	1.00	0.108	No
123	20.18	1.34	0.01	1.33	0.96	0.150	1.44	0.104	0.96	1.00	0.109	No
124	20.34	1.35	0.01	1.34	0.96	0.150	1.44	0.104	0.95	1.00	0.109	No
125	20.51	1.36	0.02	1.34	0.96	0.151	1.44	0.105	0.95	1.00	0.110	No
126	20.67	1.37	0.02	1.35	0.96	0.151	1.44	0.105	0.95	1.00	0.110	No
127	20.83	1.38	0.03	1.35	0.95	0.152	1.44	0.105	0.95	1.00	0.111	No
128	21.00	1.39	0.03	1.36	0.95	0.152	1.44	0.106	0.95	1.00	0.111	No
129	21.16	1.40	0.04	1.36	0.95	0.153	1.44	0.106	0.95	1.00	0.111	No
130	21.33	1.41	0.04	1.37	0.95	0.153	1.44	0.106	0.95	1.00	0.112	No
131	21.49	1.42	0.05	1.37	0.95	0.154	1.44	0.107	0.95	1.00	0.112	No
132	21.65	1.43	0.05	1.38	0.95	0.154	1.44	0.107	0.95	1.00	0.113	No
133	21.82	1.44	0.06	1.38	0.95	0.155	1.44	0.107	0.95	1.00	0.113	No
134	21.98	1.45	0.06	1.39	0.95	0.155	1.44	0.108	0.95	1.00	0.114	No
135	22.15	1.46	0.07	1.39	0.95	0.155	1.44	0.108	0.95	1.00	0.114	No
136	22.31	1.47	0.07	1.40	0.95	0.156	1.44	0.108	0.95	1.00	0.114	No
137	22.47	1.48	0.08	1.40	0.95	0.156	1.44	0.108	0.94	1.00	0.115	No
138	22.64	1.49	0.08	1.41	0.95	0.157	1.44	0.109	0.94	1.00	0.115	No
139	22.80	1.50	0.09	1.42	0.95	0.157	1.44	0.109	0.94	1.00	0.116	No
140	22.97	1.51	0.09	1.42	0.95	0.158	1.44	0.109	0.94	1.00	0.116	No
141	23.13	1.52	0.10	1.43	0.95	0.158	1.44	0.110	0.94	1.00	0.116	No
142	23.29	1.53	0.10	1.43	0.95	0.158	1.44	0.110	0.94	1.00	0.117	No
143	23.46	1.55	0.11	1.44	0.95	0.159	1.44	0.110	0.94	1.00	0.117	No
144	23.62	1.56	0.11	1.44	0.95	0.159	1.44	0.110	0.94	1.00	0.117	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
145	23.79	1.57	0.12	1.45	0.95	0.160	1.44	0.111	0.94	1.00	0.118	No
146	23.95	1.58	0.12	1.45	0.95	0.160	1.44	0.111	0.94	1.00	0.118	No
147	24.11	1.59	0.13	1.46	0.94	0.160	1.44	0.111	0.94	1.00	0.119	No
148	24.28	1.60	0.13	1.46	0.94	0.161	1.44	0.111	0.94	1.00	0.119	No
149	24.44	1.61	0.14	1.47	0.94	0.161	1.44	0.112	0.94	1.00	0.119	No
150	24.61	1.62	0.14	1.47	0.94	0.161	1.44	0.112	0.94	1.00	0.120	No
151	24.77	1.63	0.15	1.48	0.94	0.162	1.44	0.112	0.94	1.00	0.120	No
152	24.93	1.64	0.15	1.48	0.94	0.162	1.44	0.112	0.93	1.00	0.120	No
153	25.10	1.65	0.16	1.49	0.94	0.163	1.44	0.113	0.93	1.00	0.121	No
154	25.26	1.66	0.16	1.50	0.94	0.163	1.44	0.113	0.93	1.00	0.121	No
155	25.43	1.67	0.17	1.50	0.94	0.163	1.44	0.113	0.93	1.00	0.121	No
156	25.59	1.68	0.17	1.51	0.94	0.164	1.44	0.113	0.93	1.00	0.122	No
157	25.75	1.69	0.18	1.51	0.94	0.164	1.44	0.114	0.93	1.00	0.122	No
158	25.92	1.70	0.18	1.52	0.94	0.164	1.44	0.114	0.93	1.00	0.122	No
159	26.08	1.71	0.19	1.52	0.94	0.165	1.44	0.114	0.93	1.00	0.123	No
160	26.25	1.72	0.19	1.53	0.94	0.165	1.44	0.114	0.93	1.00	0.123	No
161	26.41	1.74	0.20	1.54	0.94	0.165	1.44	0.115	0.93	1.00	0.123	No
162	26.57	1.75	0.21	1.54	0.94	0.165	1.44	0.115	0.93	1.00	0.124	No
163	26.74	1.76	0.21	1.55	0.94	0.166	1.44	0.115	0.93	1.00	0.124	No
164	26.90	1.77	0.22	1.55	0.93	0.166	1.44	0.115	0.93	1.00	0.124	No
165	27.07	1.78	0.22	1.56	0.93	0.166	1.44	0.115	0.93	1.00	0.125	No
166	27.23	1.79	0.23	1.56	0.93	0.167	1.44	0.116	0.92	1.00	0.125	No
167	27.40	1.80	0.23	1.57	0.93	0.167	1.44	0.116	0.92	1.00	0.125	No
168	27.56	1.81	0.24	1.57	0.93	0.167	1.44	0.116	0.92	1.00	0.126	No
169	27.72	1.82	0.24	1.58	0.93	0.167	1.44	0.116	0.92	1.00	0.126	No
170	27.89	1.83	0.25	1.58	0.93	0.168	1.44	0.116	0.92	1.00	0.126	No
171	28.05	1.84	0.25	1.59	0.93	0.168	1.44	0.116	0.92	1.00	0.126	No
172	28.22	1.85	0.26	1.60	0.93	0.168	1.44	0.117	0.92	1.00	0.127	No
173	28.38	1.86	0.26	1.60	0.93	0.168	1.44	0.117	0.92	1.00	0.127	No
174	28.54	1.87	0.27	1.61	0.93	0.169	1.44	0.117	0.92	1.00	0.127	No
175	28.71	1.88	0.27	1.61	0.93	0.169	1.44	0.117	0.92	1.00	0.127	No
176	28.87	1.89	0.28	1.62	0.93	0.169	1.44	0.117	0.92	1.00	0.128	No
177	29.04	1.90	0.28	1.62	0.93	0.169	1.44	0.118	0.92	1.00	0.128	No
178	29.20	1.91	0.29	1.63	0.92	0.170	1.44	0.118	0.92	1.00	0.128	No
179	29.36	1.92	0.29	1.63	0.92	0.170	1.44	0.118	0.92	1.00	0.128	No
180	29.53	1.93	0.30	1.64	0.92	0.170	1.44	0.118	0.92	1.00	0.129	No
181	29.69	1.94	0.30	1.64	0.92	0.170	1.44	0.118	0.92	1.00	0.129	No
182	29.86	1.95	0.31	1.65	0.92	0.171	1.44	0.118	0.92	1.00	0.129	No
183	30.02	1.96	0.31	1.65	0.92	0.171	1.44	0.118	0.91	1.00	0.129	No
184	30.18	1.97	0.32	1.66	0.92	0.171	1.44	0.119	0.91	1.00	0.130	No
185	30.35	1.99	0.32	1.66	0.92	0.171	1.44	0.119	0.91	1.00	0.130	No
186	30.51	2.00	0.33	1.67	0.92	0.171	1.44	0.119	0.91	1.00	0.130	No
187	30.68	2.01	0.33	1.67	0.92	0.172	1.44	0.119	0.91	1.00	0.130	No
188	30.84	2.02	0.34	1.68	0.92	0.172	1.44	0.119	0.91	1.00	0.131	No
189	31.00	2.03	0.34	1.68	0.92	0.172	1.44	0.119	0.91	1.00	0.131	No
190	31.17	2.04	0.35	1.69	0.91	0.172	1.44	0.119	0.91	1.00	0.131	No
191	31.33	2.05	0.35	1.69	0.91	0.172	1.44	0.119	0.91	1.00	0.131	No
192	31.50	2.06	0.36	1.70	0.91	0.172	1.44	0.120	0.91	1.00	0.131	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
193	31.66	2.07	0.36	1.70	0.91	0.173	1.44	0.120	0.91	1.00	0.132	No
194	31.82	2.08	0.37	1.71	0.91	0.173	1.44	0.120	0.91	1.00	0.132	No
195	31.99	2.09	0.37	1.71	0.91	0.173	1.44	0.120	0.91	1.00	0.132	No
196	32.15	2.10	0.38	1.72	0.91	0.173	1.44	0.120	0.91	1.00	0.132	No
197	32.32	2.11	0.38	1.72	0.91	0.173	1.44	0.120	0.91	1.00	0.132	No
198	32.48	2.12	0.39	1.73	0.91	0.173	1.44	0.120	0.91	1.00	0.133	No
199	32.64	2.13	0.39	1.73	0.91	0.173	1.44	0.120	0.91	1.00	0.133	No
200	32.81	2.14	0.40	1.74	0.90	0.174	1.44	0.120	0.91	1.00	0.133	No
201	32.97	2.15	0.40	1.74	0.90	0.174	1.44	0.120	0.90	1.00	0.133	No
202	33.14	2.16	0.41	1.75	0.90	0.174	1.44	0.121	0.90	1.00	0.133	No
203	33.30	2.17	0.41	1.75	0.90	0.174	1.44	0.121	0.90	1.00	0.133	No
204	33.46	2.18	0.42	1.76	0.90	0.174	1.44	0.121	0.90	1.00	0.134	No
205	33.63	2.19	0.43	1.76	0.90	0.174	1.44	0.121	0.90	1.00	0.134	No
206	33.79	2.20	0.43	1.77	0.90	0.174	1.44	0.121	0.90	1.00	0.134	No
207	33.96	2.21	0.44	1.77	0.90	0.174	1.44	0.121	0.90	1.00	0.134	No
208	34.12	2.22	0.44	1.78	0.90	0.175	1.44	0.121	0.90	1.00	0.134	No
209	34.28	2.23	0.45	1.78	0.90	0.175	1.44	0.121	0.90	1.00	0.134	No
210	34.45	2.24	0.45	1.79	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
211	34.61	2.25	0.46	1.79	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
212	34.78	2.26	0.46	1.80	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
213	34.94	2.27	0.47	1.80	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
214	35.10	2.28	0.47	1.81	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
215	35.27	2.29	0.48	1.81	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
216	35.43	2.30	0.48	1.82	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
217	35.60	2.31	0.49	1.82	0.89	0.175	1.44	0.121	0.90	1.00	0.135	No
218	35.76	2.32	0.49	1.83	0.89	0.175	1.44	0.122	0.90	1.00	0.136	No
219	35.93	2.33	0.50	1.83	0.88	0.175	1.44	0.122	0.90	1.00	0.136	No
220	36.09	2.34	0.50	1.84	0.88	0.175	1.44	0.122	0.90	1.00	0.136	No
221	36.25	2.35	0.51	1.84	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
222	36.42	2.36	0.51	1.85	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
223	36.58	2.37	0.52	1.85	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
224	36.75	2.38	0.52	1.86	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
225	36.91	2.39	0.53	1.87	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
226	37.07	2.40	0.53	1.87	0.88	0.175	1.44	0.122	0.89	1.00	0.136	No
227	37.24	2.41	0.54	1.88	0.87	0.175	1.44	0.122	0.89	1.00	0.136	No
228	37.40	2.42	0.54	1.88	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
229	37.57	2.44	0.55	1.89	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
230	37.73	2.45	0.55	1.89	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
231	37.89	2.46	0.56	1.90	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
232	38.06	2.47	0.56	1.90	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
233	38.22	2.48	0.57	1.91	0.87	0.175	1.44	0.122	0.89	1.00	0.137	No
234	38.39	2.49	0.57	1.91	0.86	0.175	1.44	0.122	0.89	1.00	0.137	No
235	38.55	2.50	0.58	1.92	0.86	0.175	1.44	0.122	0.89	1.00	0.137	No
236	38.71	2.51	0.58	1.92	0.86	0.175	1.44	0.122	0.89	1.00	0.137	No
237	38.88	2.52	0.59	1.93	0.86	0.175	1.44	0.122	0.89	1.00	0.137	No
238	39.04	2.53	0.59	1.94	0.86	0.175	1.44	0.122	0.89	1.00	0.137	No
239	39.21	2.54	0.60	1.94	0.86	0.175	1.44	0.121	0.89	1.00	0.137	No
240	39.37	2.55	0.60	1.95	0.86	0.175	1.44	0.121	0.89	1.00	0.137	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
241	39.53	2.56	0.61	1.95	0.86	0.175	1.44	0.121	0.88	1.00	0.137	No
242	39.70	2.57	0.61	1.96	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
243	39.86	2.58	0.62	1.96	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
244	40.03	2.59	0.62	1.97	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
245	40.19	2.60	0.63	1.97	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
246	40.35	2.61	0.64	1.98	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
247	40.52	2.63	0.64	1.98	0.85	0.175	1.44	0.121	0.88	1.00	0.137	No
248	40.68	2.64	0.65	1.99	0.84	0.175	1.44	0.121	0.88	1.00	0.137	No
249	40.85	2.65	0.65	2.00	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
250	41.01	2.66	0.66	2.00	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
251	41.17	2.67	0.66	2.01	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
252	41.34	2.68	0.67	2.01	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
253	41.50	2.69	0.67	2.02	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
254	41.67	2.70	0.68	2.02	0.84	0.174	1.44	0.121	0.88	1.00	0.137	No
255	41.83	2.71	0.68	2.03	0.83	0.174	1.44	0.121	0.88	1.00	0.137	No
256	41.99	2.72	0.69	2.03	0.83	0.174	1.44	0.121	0.88	1.00	0.137	No
257	42.16	2.73	0.69	2.04	0.83	0.174	1.44	0.120	0.88	1.00	0.137	No
258	42.32	2.74	0.70	2.04	0.83	0.174	1.44	0.120	0.88	1.00	0.137	No
259	42.49	2.75	0.70	2.05	0.83	0.173	1.44	0.120	0.88	1.00	0.137	No
260	42.65	2.76	0.71	2.06	0.83	0.173	1.44	0.120	0.88	1.00	0.137	No
261	42.81	2.77	0.71	2.06	0.83	0.173	1.44	0.120	0.88	1.00	0.137	No
262	42.98	2.78	0.72	2.07	0.82	0.173	1.44	0.120	0.87	1.00	0.137	No
263	43.14	2.80	0.72	2.07	0.82	0.173	1.44	0.120	0.87	1.00	0.137	No
264	43.31	2.81	0.73	2.08	0.82	0.173	1.44	0.120	0.87	1.00	0.137	No
265	43.47	2.82	0.73	2.08	0.82	0.173	1.44	0.120	0.87	1.00	0.137	No
266	43.64	2.83	0.74	2.09	0.82	0.172	1.44	0.120	0.87	1.00	0.137	No
267	43.80	2.84	0.74	2.10	0.82	0.172	1.44	0.119	0.87	1.00	0.137	No
268	43.96	2.85	0.75	2.10	0.81	0.172	1.44	0.119	0.87	1.00	0.137	No
269	44.13	2.86	0.75	2.11	0.81	0.172	1.44	0.119	0.87	1.00	0.137	No
270	44.29	2.87	0.76	2.11	0.81	0.172	1.44	0.119	0.87	1.00	0.137	No
271	44.46	2.88	0.76	2.12	0.81	0.172	1.44	0.119	0.87	1.00	0.137	No
272	44.62	2.89	0.77	2.12	0.81	0.172	1.44	0.119	0.87	1.00	0.137	No
273	44.78	2.90	0.77	2.13	0.81	0.171	1.44	0.119	0.87	1.00	0.137	No
274	44.95	2.91	0.78	2.13	0.80	0.171	1.44	0.119	0.87	1.00	0.137	No
275	45.11	2.92	0.78	2.14	0.80	0.171	1.44	0.119	0.87	1.00	0.137	No
276	45.28	2.93	0.79	2.14	0.80	0.171	1.44	0.119	0.87	1.00	0.136	No
277	45.44	2.94	0.79	2.15	0.80	0.171	1.44	0.118	0.87	1.00	0.136	No
278	45.60	2.95	0.80	2.15	0.80	0.171	1.44	0.118	0.87	1.00	0.136	No
279	45.77	2.96	0.80	2.16	0.80	0.170	1.44	0.118	0.87	1.00	0.136	No
280	45.93	2.97	0.81	2.16	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
281	46.10	2.98	0.81	2.17	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
282	46.26	3.00	0.82	2.18	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
283	46.42	3.01	0.82	2.18	0.79	0.170	1.44	0.118	0.87	1.00	0.136	No
284	46.59	3.02	0.83	2.19	0.79	0.169	1.44	0.118	0.86	1.00	0.136	No
285	46.75	3.03	0.83	2.19	0.79	0.169	1.44	0.117	0.86	1.00	0.136	No
286	46.92	3.04	0.84	2.20	0.78	0.169	1.44	0.117	0.86	1.00	0.136	No
287	47.08	3.05	0.84	2.20	0.78	0.169	1.44	0.117	0.86	1.00	0.136	No
288	47.24	3.06	0.85	2.21	0.78	0.169	1.44	0.117	0.86	1.00	0.136	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
289	47.41	3.07	0.86	2.21	0.78	0.169	1.44	0.117	0.86	1.00	0.135	No
290	47.57	3.08	0.86	2.22	0.78	0.168	1.44	0.117	0.86	1.00	0.135	No
291	47.74	3.09	0.87	2.23	0.78	0.168	1.44	0.117	0.86	1.00	0.135	No
292	47.90	3.10	0.87	2.23	0.77	0.168	1.44	0.116	0.86	1.00	0.135	No
293	48.06	3.11	0.88	2.24	0.77	0.168	1.44	0.116	0.86	1.00	0.135	No
294	48.23	3.12	0.88	2.24	0.77	0.167	1.44	0.116	0.86	1.00	0.135	No
295	48.39	3.13	0.89	2.25	0.77	0.167	1.44	0.116	0.86	1.00	0.135	No
296	48.56	3.14	0.89	2.25	0.77	0.167	1.44	0.116	0.86	1.00	0.135	No
297	48.72	3.15	0.90	2.26	0.77	0.167	1.44	0.116	0.86	1.00	0.135	No
298	48.88	3.17	0.90	2.26	0.76	0.167	1.44	0.116	0.86	1.00	0.135	No
299	49.05	3.18	0.91	2.27	0.76	0.166	1.44	0.115	0.86	1.00	0.134	No
300	49.21	3.19	0.91	2.28	0.76	0.166	1.44	0.115	0.86	1.00	0.134	No
301	49.38	3.20	0.92	2.28	0.76	0.166	1.44	0.115	0.86	1.00	0.134	No
302	49.54	3.21	0.92	2.29	0.76	0.166	1.44	0.115	0.86	1.00	0.134	No
303	49.70	3.22	0.93	2.29	0.76	0.166	1.44	0.115	0.86	1.00	0.134	No
304	49.87	3.23	0.93	2.30	0.75	0.165	1.44	0.115	0.86	1.00	0.134	No
305	50.03	3.24	0.94	2.30	0.75	0.165	1.44	0.115	0.86	1.00	0.134	No
306	50.20	3.25	0.94	2.31	0.75	0.165	1.44	0.114	0.86	1.00	0.134	No
307	50.36	3.26	0.95	2.31	0.75	0.165	1.44	0.114	0.86	1.00	0.134	No
308	50.52	3.27	0.95	2.32	0.75	0.164	1.44	0.114	0.85	1.00	0.133	No
309	50.69	3.28	0.96	2.32	0.75	0.164	1.44	0.114	0.85	1.00	0.133	No
310	50.85	3.29	0.96	2.33	0.74	0.164	1.44	0.114	0.85	1.00	0.133	No
311	51.02	3.30	0.97	2.33	0.74	0.164	1.44	0.114	0.85	1.00	0.133	No
312	51.18	3.31	0.97	2.34	0.74	0.164	1.44	0.113	0.85	1.00	0.133	No
313	51.35	3.32	0.98	2.34	0.74	0.163	1.44	0.113	0.85	1.00	0.133	No
314	51.51	3.33	0.98	2.35	0.74	0.163	1.44	0.113	0.85	1.00	0.133	No
315	51.67	3.34	0.99	2.35	0.74	0.163	1.44	0.113	0.85	1.00	0.133	No
316	51.84	3.35	0.99	2.36	0.73	0.163	1.44	0.113	0.85	1.00	0.133	No
317	52.00	3.36	1.00	2.36	0.73	0.163	1.44	0.113	0.85	1.00	0.132	No
318	52.17	3.37	1.00	2.37	0.73	0.162	1.44	0.113	0.85	1.00	0.132	No
319	52.33	3.38	1.01	2.37	0.73	0.162	1.44	0.112	0.85	1.00	0.132	No
320	52.49	3.39	1.01	2.38	0.73	0.162	1.44	0.112	0.85	1.00	0.132	No
321	52.66	3.40	1.02	2.38	0.73	0.162	1.44	0.112	0.85	1.00	0.132	No
322	52.82	3.41	1.02	2.39	0.72	0.161	1.44	0.112	0.85	1.00	0.132	No
323	52.99	3.42	1.03	2.39	0.72	0.161	1.44	0.112	0.85	1.00	0.132	No
324	53.15	3.43	1.03	2.40	0.72	0.161	1.44	0.112	0.85	1.00	0.132	No
325	53.31	3.44	1.04	2.40	0.72	0.161	1.44	0.112	0.85	1.00	0.131	No
326	53.48	3.45	1.04	2.41	0.72	0.161	1.44	0.111	0.85	1.00	0.131	No
327	53.64	3.46	1.05	2.41	0.72	0.160	1.44	0.111	0.85	1.00	0.131	No
328	53.81	3.47	1.05	2.42	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
329	53.97	3.48	1.06	2.42	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
330	54.13	3.49	1.06	2.43	0.71	0.160	1.44	0.111	0.85	1.00	0.131	No
331	54.30	3.50	1.07	2.43	0.71	0.159	1.44	0.111	0.85	1.00	0.131	No
332	54.46	3.51	1.08	2.44	0.71	0.159	1.44	0.110	0.85	1.00	0.131	No
333	54.63	3.52	1.08	2.44	0.71	0.159	1.44	0.110	0.85	1.00	0.130	No
334	54.79	3.53	1.09	2.45	0.71	0.159	1.44	0.110	0.85	1.00	0.130	No
335	54.95	3.54	1.09	2.45	0.70	0.159	1.44	0.110	0.85	1.00	0.130	No
336	55.12	3.55	1.10	2.46	0.70	0.158	1.44	0.110	0.84	1.00	0.130	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
337	55.28	3.56	1.10	2.46	0.70	0.158	1.44	0.110	0.84	1.00	0.130	No
338	55.45	3.58	1.11	2.47	0.70	0.158	1.44	0.110	0.84	1.00	0.130	No
339	55.61	3.59	1.11	2.47	0.70	0.158	1.44	0.109	0.84	1.00	0.130	No
340	55.77	3.60	1.12	2.48	0.70	0.157	1.44	0.109	0.84	1.00	0.129	No
341	55.94	3.61	1.12	2.49	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
342	56.10	3.62	1.13	2.49	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
343	56.27	3.63	1.13	2.50	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
344	56.43	3.64	1.14	2.50	0.69	0.157	1.44	0.109	0.84	1.00	0.129	No
345	56.59	3.65	1.14	2.51	0.69	0.156	1.44	0.108	0.84	1.00	0.129	No
346	56.76	3.66	1.15	2.51	0.69	0.156	1.44	0.108	0.84	1.00	0.129	No
347	56.92	3.67	1.15	2.52	0.69	0.156	1.44	0.108	0.84	1.00	0.129	No
348	57.09	3.68	1.16	2.52	0.68	0.156	1.44	0.108	0.84	1.00	0.128	No
349	57.25	3.69	1.16	2.53	0.68	0.155	1.44	0.108	0.84	1.00	0.128	No
350	57.41	3.70	1.17	2.53	0.68	0.155	1.44	0.108	0.84	1.00	0.128	No
351	57.58	3.71	1.17	2.54	0.68	0.155	1.44	0.108	0.84	1.00	0.128	No
352	57.74	3.72	1.18	2.54	0.68	0.155	1.44	0.107	0.84	1.00	0.128	No
353	57.91	3.73	1.18	2.55	0.68	0.155	1.44	0.107	0.84	1.00	0.128	No
354	58.07	3.74	1.19	2.55	0.68	0.154	1.44	0.107	0.84	1.00	0.128	No
355	58.23	3.75	1.19	2.56	0.67	0.154	1.44	0.107	0.84	1.00	0.128	No
356	58.40	3.76	1.20	2.56	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
357	58.56	3.77	1.20	2.57	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
358	58.73	3.78	1.21	2.57	0.67	0.154	1.44	0.107	0.84	1.00	0.127	No
359	58.89	3.79	1.21	2.58	0.67	0.153	1.44	0.106	0.84	1.00	0.127	No
360	59.06	3.80	1.22	2.58	0.67	0.153	1.44	0.106	0.84	1.00	0.127	No
361	59.22	3.81	1.22	2.59	0.67	0.153	1.44	0.106	0.84	1.00	0.127	No
362	59.38	3.82	1.23	2.59	0.66	0.153	1.44	0.106	0.84	1.00	0.127	No
363	59.55	3.83	1.23	2.60	0.66	0.153	1.44	0.106	0.84	1.00	0.127	No
364	59.71	3.84	1.24	2.60	0.66	0.152	1.44	0.106	0.84	1.00	0.126	No
365	59.88	3.85	1.24	2.61	0.66	0.152	1.44	0.106	0.83	1.00	0.126	No
366	60.04	3.86	1.25	2.61	0.66	0.152	1.44	0.105	0.83	1.00	0.126	No
367	60.20	3.87	1.25	2.62	0.66	0.152	1.44	0.105	0.83	1.00	0.126	No
368	60.37	3.88	1.26	2.62	0.66	0.152	1.44	0.105	0.83	1.00	0.126	No
369	60.53	3.88	1.26	2.62	0.65	0.151	1.44	0.105	0.83	1.00	0.126	No
370	60.70	3.89	1.27	2.62	0.65	0.151	1.44	0.105	0.83	1.00	0.126	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)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.16	501.19	0.89	0.29	0.50	805.21	1.00	805.21	4.000	No	No	2.00
2	0.33	494.79	0.96	0.35	0.50	794.91	1.00	794.91	4.000	No	No	2.00
3	0.49	444.84	1.10	0.48	0.50	714.65	1.00	714.65	4.000	No	No	2.00
4	0.66	271.36	1.44	0.92	0.50	435.91	1.00	435.91	4.000	No	No	2.00
5	0.82	190.30	1.75	1.68	0.53	305.65	1.08	330.56	4.000	No	No	2.00
6	0.98	159.59	1.97	2.75	0.60	256.31	1.28	328.98	4.000	No	No	2.00
7	1.15	168.77	2.04	3.44	0.62	271.02	1.34	364.21	4.000	No	No	2.00
8	1.31	168.56	2.07	3.74	0.63	270.68	1.38	373.53	4.000	No	No	2.00
9	1.48	150.32	2.11	3.92	0.64	241.36	1.44	347.75	4.000	No	No	2.00
10	1.64	121.16	2.17	3.97	0.66	194.49	1.54	299.81	4.000	No	No	2.00
11	1.80	95.40	2.25	4.21	0.68	153.08	1.75	267.50	4.000	No	No	2.00
12	1.97	78.52	2.32	4.44	0.70	125.95	1.99	250.17	4.000	No	No	2.00
13	2.13	71.09	2.36	4.62	0.71	113.99	2.15	245.63	4.000	No	No	2.00
14	2.30	70.24	2.35	4.49	0.71	112.60	2.13	239.35	4.000	No	No	2.00
15	2.46	71.81	2.31	4.04	0.70	115.11	1.95	224.29	4.000	No	No	2.00
16	2.62	72.75	2.27	3.65	0.69	116.61	1.81	211.46	4.000	No	No	2.00
17	2.79	79.00	2.21	3.32	0.67	126.63	1.65	208.88	4.000	No	No	2.00
18	2.95	95.25	2.13	3.05	0.65	152.73	1.48	225.39	4.000	No	No	2.00
19	3.12	114.21	2.08	3.00	0.63	183.17	1.39	255.50	4.000	No	No	2.00
20	3.28	129.98	2.08	3.26	0.63	208.49	1.39	290.12	4.000	No	No	2.00
21	3.44	139.98	2.11	3.75	0.64	224.53	1.44	323.60	4.000	No	No	2.00
22	3.61	148.75	2.15	4.28	0.65	238.60	1.50	358.80	4.000	No	No	2.00
23	3.77	154.79	2.18	4.76	0.66	248.29	1.57	389.43	4.000	No	No	2.00
24	3.94	155.65	2.21	5.19	0.67	249.66	1.65	411.04	4.000	No	No	2.00
25	4.10	151.64	2.25	5.70	0.68	243.20	1.76	429.22	4.000	No	No	2.00
26	4.27	145.94	2.29	6.18	0.70	234.01	1.90	443.80	4.000	No	No	2.00
27	4.43	137.64	2.32	6.35	0.70	220.66	1.98	437.58	4.000	No	No	2.00
28	4.59	127.45	2.35	6.65	0.71	204.27	2.13	434.58	4.000	No	No	2.00
29	4.76	116.54	2.39	6.96	0.72	186.72	2.30	429.28	4.000	No	No	2.00
30	4.92	105.96	2.45	7.73	0.74	169.72	2.63	446.84	4.000	No	No	2.00
31	5.09	97.73	2.48	8.05	0.75	156.48	2.84	444.01	4.000	No	No	2.00
32	5.25	89.44	2.50	8.08	0.76	143.13	2.98	426.78	4.000	No	No	2.00
33	5.41	82.27	2.50	7.65	0.76	131.60	2.98	391.99	4.000	No	No	2.00
34	5.58	75.27	2.50	7.13	0.76	120.33	2.95	354.79	4.000	No	No	2.00
35	5.74	70.92	2.49	6.68	0.75	113.33	2.89	327.47	4.000	No	No	2.00
36	5.91	69.89	2.48	6.51	0.75	111.66	2.85	318.66	4.000	No	No	2.00
37	6.07	70.55	2.49	6.63	0.75	112.70	2.88	324.80	4.000	No	No	2.00
38	6.23	70.72	2.49	6.78	0.76	112.95	2.93	331.32	4.000	No	No	2.00
39	6.40	68.35	2.52	7.07	0.76	109.13	3.10	337.75	4.000	No	No	2.00
40	6.56	65.31	2.53	7.06	0.77	104.23	3.17	330.73	4.000	No	No	2.00
41	6.73	62.90	2.52	6.75	0.76	100.34	3.13	313.91	4.000	No	No	2.00
42	6.89	59.72	2.50	6.12	0.76	95.21	2.98	283.83	4.000	No	No	2.00
43	7.05	55.91	2.47	5.37	0.75	89.08	2.79	248.93	4.000	No	No	2.00
44	7.22	51.30	2.49	5.29	0.76	81.65	2.92	238.27	4.000	No	No	2.00
45	7.38	48.79	2.56	6.25	0.78	77.61	3.43	266.24	4.000	No	No	2.00
46	7.55	51.21	2.62	7.62	0.79	81.48	3.90	317.74	4.000	No	Yes	2.00
47	7.71	62.57	2.57	7.73	0.78	99.71	3.51	349.93	4.000	No	No	2.00
48	7.87	79.26	2.51	7.58	0.76	126.50	3.02	381.90	4.000	No	No	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	8.04	100.92	2.45	7.48	0.74	157.94	2.65	419.06	4.000	No	No	2.00
50	8.20	122.46	2.42	7.73	0.74	187.90	2.50	470.53	4.000	No	No	2.00
51	8.37	150.14	2.38	7.54	0.72	225.02	2.26	507.49	4.000	No	No	2.00
52	8.53	177.31	2.33	7.26	0.71	259.95	2.06	534.80	4.000	No	No	2.00
53	8.69	202.07	2.28	6.76	0.69	289.69	1.87	541.17	4.000	No	No	2.00
54	8.86	212.11	2.27	6.66	0.69	299.43	1.83	546.76	4.000	No	No	2.00
55	9.02	210.87	2.28	6.81	0.69	294.38	1.87	549.57	4.000	No	No	2.00
56	9.19	212.04	2.30	7.13	0.70	293.13	1.94	567.51	4.000	No	No	2.00
57	9.35	233.90	2.28	6.93	0.69	317.98	1.84	585.39	4.000	No	No	2.00
58	9.51	285.95	2.18	5.95	0.66	378.74	1.58	597.49	4.000	No	No	2.00
59	9.68	321.41	2.12	5.34	0.65	417.10	1.46	607.97	4.000	No	No	2.00
60	9.84	323.08	2.10	5.03	0.64	413.31	1.42	588.08	4.000	No	No	2.00
61	10.01	280.19	2.15	5.28	0.65	356.68	1.50	535.18	4.000	No	No	2.00
62	10.17	225.03	2.22	5.65	0.67	285.79	1.66	473.97	4.000	No	No	2.00
63	10.33	172.15	2.29	5.95	0.70	218.11	1.90	414.33	4.000	No	No	2.00
64	10.50	130.16	2.37	6.25	0.72	164.46	2.24	368.62	4.000	No	No	2.00
65	10.66	108.48	2.42	6.29	0.73	136.13	2.49	338.58	4.000	No	No	2.00
66	10.83	106.72	2.42	6.22	0.74	132.40	2.50	331.14	4.000	No	No	2.00
67	10.99	114.10	2.41	6.23	0.73	139.84	2.43	339.92	4.000	No	No	2.00
68	11.15	122.35	2.40	6.31	0.73	148.20	2.38	352.97	4.000	No	No	2.00
69	11.32	122.03	2.42	6.51	0.73	146.41	2.46	360.25	4.000	No	No	2.00
70	11.48	116.75	2.43	6.61	0.74	138.76	2.56	355.71	4.000	No	No	2.00
71	11.65	106.14	2.46	6.69	0.75	125.05	2.74	342.37	4.000	No	No	2.00
72	11.81	95.71	2.49	6.76	0.76	111.78	2.94	328.86	4.000	No	No	2.00
73	11.98	89.14	2.51	6.75	0.76	103.12	3.08	317.38	4.000	No	No	2.00
74	12.14	88.98	2.51	6.60	0.76	101.82	3.05	310.06	4.000	No	No	2.00
75	12.30	91.31	2.50	6.47	0.76	103.34	2.97	306.73	4.000	No	No	2.00
76	12.47	92.92	2.50	6.48	0.76	104.11	2.96	308.24	4.000	No	No	2.00
77	12.63	92.98	2.51	6.60	0.76	103.20	3.02	311.62	4.000	No	No	2.00
78	12.80	93.29	2.51	6.63	0.76	102.54	3.04	311.95	4.000	No	No	2.00
79	12.96	93.35	2.50	6.50	0.76	101.56	3.01	305.68	4.000	No	No	2.00
80	13.12	93.94	2.48	6.12	0.75	101.12	2.87	290.65	4.000	No	No	2.00
81	13.29	94.11	2.47	5.83	0.75	100.27	2.78	278.62	4.000	No	No	2.00
82	13.45	92.71	2.47	5.70	0.75	97.85	2.77	271.14	4.000	No	No	2.00
83	13.62	93.41	2.47	5.64	0.75	97.68	2.75	268.55	4.000	No	No	2.00
84	13.78	95.31	2.48	5.88	0.75	98.84	2.82	278.94	4.000	No	No	2.00
85	13.94	103.19	2.49	6.49	0.76	106.18	2.93	311.15	4.000	No	No	2.00
86	14.11	121.12	2.47	6.79	0.75	123.57	2.79	344.77	4.000	No	No	2.00
87	14.27	145.28	2.41	6.42	0.73	146.83	2.43	356.66	4.000	No	No	2.00
88	14.44	154.49	2.37	6.02	0.72	154.70	2.25	347.32	4.000	No	No	2.00
89	14.60	144.10	2.39	6.05	0.73	143.09	2.35	335.70	4.000	No	No	2.00
90	14.76	126.17	2.44	6.24	0.74	124.23	2.60	322.57	4.000	No	No	2.00
91	14.93	114.38	2.47	6.30	0.75	111.64	2.78	310.31	4.000	No	No	2.00
92	15.09	106.93	2.46	5.74	0.74	103.42	2.69	278.69	4.000	No	No	2.00
93	15.26	93.89	2.46	5.20	0.75	89.96	2.71	243.94	4.000	No	No	2.00
94	15.42	76.29	2.48	4.66	0.75	72.36	2.86	206.65	4.000	No	No	2.00
95	15.58	59.81	2.55	4.55	0.77	56.08	3.33	186.53	4.000	No	No	2.00
96	15.75	51.79	2.60	4.69	0.79	48.06	3.78	181.59	4.000	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	15.91	50.99	2.62	4.87	0.79	46.92	3.94	185.00	4.000	No	Yes	2.00
98	16.08	51.79	2.61	4.80	0.79	47.30	3.88	183.52	4.000	No	Yes	2.00
99	16.24	48.92	2.65	5.00	0.80	44.27	4.18	185.22	4.000	No	Yes	2.00
100	16.40	46.30	2.67	5.05	0.81	41.51	4.40	182.66	4.000	No	Yes	2.00
101	16.57	43.85	2.69	5.14	0.82	38.95	4.65	181.14	4.000	No	Yes	2.00
102	16.73	41.65	2.72	5.19	0.82	36.64	4.88	178.75	4.000	No	Yes	2.00
103	16.90	40.17	2.73	5.24	0.83	35.02	5.06	177.19	4.000	No	Yes	2.00
104	17.06	39.55	2.75	5.36	0.83	34.18	5.23	178.67	4.000	No	Yes	2.00
105	17.22	39.44	2.76	5.55	0.84	33.82	5.38	182.06	4.000	No	Yes	2.00
106	17.39	40.88	2.80	6.51	0.85	34.77	5.89	204.78	4.000	No	Yes	2.00
107	17.55	42.43	2.83	7.26	0.86	35.82	6.22	222.65	4.000	No	Yes	2.00
108	17.72	45.41	2.81	7.36	0.85	38.12	6.04	230.26	4.000	No	Yes	2.00
109	17.88	48.79	2.75	6.35	0.83	40.81	5.22	213.14	4.000	No	Yes	2.00
110	18.04	49.59	2.71	5.68	0.82	41.25	4.80	197.95	4.000	No	Yes	2.00
111	18.21	48.92	2.69	5.28	0.82	40.41	4.62	186.89	4.000	No	Yes	2.00
112	18.37	45.96	2.71	5.26	0.82	37.60	4.84	181.90	4.000	No	Yes	2.00
113	18.54	43.20	2.74	5.31	0.83	34.99	5.11	178.96	4.000	No	Yes	2.00
114	18.70	41.93	2.77	5.75	0.84	33.63	5.54	186.21	4.000	No	Yes	2.00
115	18.86	43.99	2.79	6.38	0.85	35.04	5.78	202.61	4.000	No	Yes	2.00
116	19.03	49.82	2.76	6.47	0.84	39.60	5.39	213.64	4.000	No	Yes	2.00
117	19.19	54.30	2.71	5.99	0.82	43.06	4.85	208.71	4.000	No	Yes	2.00
118	19.36	53.65	2.69	5.42	0.81	42.31	4.56	193.06	4.000	No	Yes	2.00
119	19.52	48.83	2.76	6.15	0.84	37.98	5.35	203.34	4.000	No	Yes	2.00
120	19.69	48.59	2.83	7.61	0.86	37.36	6.25	233.58	4.000	No	Yes	2.00
121	19.85	58.27	2.80	8.00	0.85	44.78	5.80	259.76	4.000	No	Yes	2.00
122	20.01	70.46	2.69	6.91	0.82	54.36	4.63	251.71	3.600	No	Yes	2.00
123	20.18	73.08	2.63	5.98	0.80	56.27	4.06	228.72	3.600	No	Yes	2.00
124	20.34	64.83	2.64	5.42	0.80	49.45	4.11	203.45	3.600	No	Yes	2.00
125	20.51	52.68	2.71	5.44	0.82	39.54	4.79	189.38	3.600	No	Yes	2.00
126	20.67	44.96	2.76	5.51	0.84	33.23	5.42	180.15	3.600	No	Yes	2.00
127	20.83	41.24	2.80	5.63	0.85	30.11	5.87	176.85	3.600	No	Yes	2.00
128	21.00	40.42	2.81	5.57	0.85	29.28	5.94	173.86	3.600	No	Yes	2.00
129	21.16	40.20	2.81	5.47	0.85	28.93	5.92	171.12	3.600	No	Yes	2.00
130	21.33	38.50	2.85	5.92	0.86	27.39	6.45	176.59	3.600	No	Yes	2.00
131	21.49	37.03	2.88	6.31	0.87	26.05	6.93	180.58	3.600	No	Yes	2.00
132	21.65	35.93	2.91	6.60	0.88	25.02	7.31	182.97	3.600	No	Yes	2.00
133	21.82	37.40	2.86	5.91	0.87	26.03	6.66	173.35	3.600	No	Yes	2.00
134	21.98	37.74	2.85	5.70	0.86	26.13	6.49	169.66	3.600	No	Yes	2.00
135	22.15	40.70	2.84	5.96	0.86	28.11	6.37	179.10	3.600	No	Yes	2.00
136	22.31	45.08	2.85	6.72	0.86	31.03	6.46	200.48	3.600	No	Yes	2.00
137	22.47	53.84	2.80	6.97	0.85	37.18	5.91	219.69	3.600	No	Yes	2.00
138	22.64	62.34	2.76	6.92	0.84	43.15	5.36	231.27	3.600	No	Yes	2.00
139	22.80	66.97	2.73	6.82	0.83	46.27	5.08	234.87	3.600	No	Yes	2.00
140	22.97	66.12	2.75	6.94	0.83	45.33	5.20	235.90	3.600	No	Yes	2.00
141	23.13	61.57	2.78	7.15	0.84	41.74	5.59	233.52	3.600	No	Yes	2.00
142	23.29	58.24	2.80	7.20	0.85	39.08	5.86	228.95	3.600	No	Yes	2.00
143	23.46	56.97	2.80	6.91	0.85	38.00	5.80	220.32	3.600	No	Yes	2.00
144	23.62	56.01	2.79	6.57	0.84	37.16	5.68	211.10	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	23.79	51.44	2.81	6.46	0.85	33.75	5.97	201.55	3.600	No	Yes	2.00
146	23.95	45.20	2.86	6.65	0.87	29.17	6.67	194.51	3.600	No	Yes	2.00
147	24.11	39.64	2.91	6.62	0.88	25.16	7.30	183.63	3.600	No	Yes	2.00
148	24.28	35.68	2.93	6.32	0.89	22.35	7.64	170.81	3.600	No	Yes	2.00
149	24.44	31.52	2.98	6.15	1.00	18.60	8.44	156.98	3.600	No	Yes	2.00
150	24.61	27.02	3.07	6.94	1.00	15.70	10.03	157.43	3.600	No	Yes	2.00
151	24.77	26.95	3.11	7.91	1.00	15.55	10.83	168.38	3.600	No	Yes	2.00
152	24.93	34.97	3.02	7.64	1.00	20.35	9.06	184.30	3.600	No	Yes	2.00
153	25.10	47.88	2.89	7.30	0.87	29.65	7.01	207.79	3.600	No	Yes	2.00
154	25.26	60.91	2.81	7.31	0.85	38.16	6.01	229.18	3.600	No	Yes	2.00
155	25.43	69.64	2.78	7.43	0.84	43.74	5.58	244.20	3.600	No	Yes	2.00
156	25.59	74.99	2.75	7.25	0.83	47.11	5.24	246.96	3.600	No	Yes	2.00
157	25.75	75.84	2.73	6.83	0.83	47.54	5.00	237.47	3.600	No	Yes	2.00
158	25.92	71.95	2.73	6.52	0.83	44.79	5.01	224.61	3.600	No	Yes	2.00
159	26.08	65.46	2.76	6.53	0.84	40.25	5.37	216.30	3.600	No	Yes	2.00
160	26.25	60.36	2.79	6.61	0.85	36.66	5.75	210.92	3.600	No	Yes	2.00
161	26.41	56.80	2.81	6.61	0.85	34.14	6.02	205.49	3.600	No	Yes	2.00
162	26.57	54.12	2.83	6.59	0.86	32.26	6.22	200.78	3.600	No	Yes	2.00
163	26.74	52.95	2.85	6.78	0.86	31.37	6.45	202.49	3.600	No	Yes	2.00
164	26.90	53.85	2.86	7.08	0.87	31.78	6.59	209.33	3.600	No	Yes	2.00
165	27.07	53.92	2.86	7.19	0.87	31.71	6.66	211.20	3.600	No	Yes	2.00
166	27.23	54.03	2.86	7.05	0.86	31.71	6.57	208.47	3.600	No	Yes	2.00
167	27.40	52.15	2.87	7.17	0.87	30.40	6.82	207.44	3.600	No	Yes	2.00
168	27.56	51.38	2.91	7.89	0.88	29.67	7.36	218.45	3.600	No	Yes	2.00
169	27.72	50.45	2.96	8.49	1.00	27.29	8.11	221.19	3.600	No	Yes	2.00
170	27.89	50.61	2.96	8.55	1.00	27.29	8.14	222.24	3.600	No	Yes	2.00
171	28.05	50.91	2.91	7.71	0.88	29.14	7.34	213.78	3.600	No	Yes	2.00
172	28.22	47.28	2.92	7.48	0.89	26.84	7.56	203.02	3.600	No	Yes	2.00
173	28.38	43.32	2.97	7.37	1.00	22.98	8.24	189.32	3.600	No	Yes	2.00
174	28.54	39.73	3.01	7.70	1.00	20.92	8.95	187.25	3.600	No	Yes	2.00
175	28.71	38.54	3.02	7.67	1.00	20.20	9.12	184.14	3.600	No	Yes	2.00
176	28.87	37.06	3.03	7.60	1.00	19.33	9.31	179.96	3.600	No	Yes	2.00
177	29.04	33.87	3.05	7.37	1.00	17.52	9.70	169.93	3.600	No	Yes	2.00
178	29.20	29.49	3.09	7.08	1.00	15.07	10.39	156.51	3.600	No	Yes	2.00
179	29.36	24.74	3.15	7.14	1.00	12.43	11.70	145.50	3.600	No	Yes	2.00
180	29.53	21.63	3.24	8.24	1.00	10.71	13.75	147.16	3.600	No	Yes	2.00
181	29.69	21.15	3.29	9.53	1.00	10.41	15.02	156.45	3.600	No	Yes	2.00
182	29.86	22.97	3.29	10.36	1.00	11.36	14.94	169.72	3.600	No	Yes	2.00
183	30.02	29.12	3.17	9.04	1.00	14.64	12.06	176.52	3.600	No	Yes	2.00
184	30.18	34.88	3.07	7.95	1.00	17.69	10.06	178.09	3.600	No	Yes	2.00
185	30.35	37.86	3.01	7.13	1.00	19.24	9.00	173.12	3.600	No	Yes	2.00
186	30.51	35.73	3.04	7.20	1.00	18.04	9.41	169.67	3.600	No	Yes	2.00
187	30.68	32.38	3.09	7.77	1.00	16.20	10.47	169.56	3.600	No	Yes	2.00
188	30.84	31.56	3.12	8.21	1.00	15.71	10.98	172.60	3.600	No	Yes	2.00
189	31.00	31.44	3.13	8.43	1.00	15.60	11.19	174.59	3.600	No	Yes	2.00
190	31.17	31.66	3.12	8.27	1.00	15.66	11.05	173.03	3.600	No	Yes	2.00
191	31.33	30.29	3.14	8.42	1.00	14.90	11.49	171.11	3.600	No	Yes	2.00
192	31.50	28.10	3.19	8.91	1.00	13.70	12.42	170.16	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	31.66	27.20	3.22	9.45	1.00	13.18	13.10	172.66	3.600	No	Yes	2.00
194	31.82	28.39	3.19	9.20	1.00	13.77	12.61	173.52	3.600	No	Yes	2.00
195	31.99	31.60	3.12	8.15	1.00	15.40	11.07	170.52	3.600	No	Yes	2.00
196	32.15	37.24	3.00	6.52	1.00	18.29	8.82	161.29	3.600	No	Yes	2.00
197	32.32	41.15	2.90	5.62	0.88	21.79	7.24	157.73	3.600	No	Yes	2.00
198	32.48	42.61	2.87	5.28	0.87	22.67	6.79	154.03	3.600	No	Yes	2.00
199	32.64	39.19	2.95	5.76	1.00	19.13	7.99	152.85	3.600	No	Yes	2.00
200	32.81	34.64	3.03	6.55	1.00	16.74	9.34	156.28	3.600	No	Yes	2.00
201	32.97	30.31	3.12	7.59	1.00	14.46	11.05	159.85	3.600	No	Yes	2.00
202	33.14	27.21	3.19	8.43	1.00	12.83	12.53	160.78	3.600	No	Yes	2.00
203	33.30	25.82	3.22	8.81	1.00	12.08	13.27	160.37	3.600	No	Yes	2.00
204	33.46	24.96	3.24	8.99	1.00	11.61	13.72	159.27	3.600	No	Yes	2.00
205	33.63	24.00	3.27	9.27	1.00	11.09	14.30	158.56	3.600	No	Yes	2.00
206	33.79	23.46	3.28	9.47	1.00	10.78	14.69	158.34	3.600	No	Yes	2.00
207	33.96	23.24	3.29	9.55	1.00	10.64	14.86	158.08	3.600	No	Yes	2.00
208	34.12	23.63	3.28	9.43	1.00	10.80	14.64	158.13	3.600	No	Yes	2.00
209	34.28	23.83	3.27	9.27	1.00	10.87	14.46	157.18	3.600	No	Yes	2.00
210	34.45	24.26	3.26	9.21	1.00	11.05	14.28	157.84	3.600	No	Yes	2.00
211	34.61	24.11	3.27	9.26	1.00	10.95	14.40	157.63	3.600	No	Yes	2.00
212	34.78	23.08	3.30	9.69	1.00	10.40	15.16	157.70	3.600	No	Yes	2.00
213	34.94	23.07	3.30	9.57	1.00	10.36	15.10	156.44	3.600	No	Yes	2.00
214	35.10	23.41	3.29	9.41	1.00	10.50	14.86	156.08	3.600	No	Yes	2.00
215	35.27	24.44	3.26	9.14	1.00	10.98	14.28	156.78	3.600	No	Yes	2.00
216	35.43	24.47	3.27	9.31	1.00	10.97	14.42	158.16	3.600	No	Yes	2.00
217	35.60	24.50	3.28	9.60	1.00	10.94	14.66	160.51	3.600	No	Yes	2.00
218	35.76	25.04	3.27	9.54	1.00	11.18	14.45	161.48	3.600	No	Yes	2.00
219	35.93	26.23	3.25	9.40	1.00	11.73	13.95	163.72	3.600	No	Yes	2.00
220	36.09	27.76	3.23	9.28	1.00	12.45	13.40	166.87	3.600	No	Yes	2.00
221	36.25	29.67	3.21	9.27	1.00	13.35	12.88	171.91	3.600	No	Yes	2.00
222	36.42	32.08	3.17	9.04	1.00	14.48	12.13	175.60	3.600	No	Yes	2.00
223	36.58	35.19	3.12	8.51	1.00	15.95	11.11	177.17	3.600	No	Yes	2.00
224	36.75	37.88	3.09	8.25	1.00	17.21	10.45	179.77	3.600	No	Yes	2.00
225	36.91	38.84	3.09	8.39	1.00	17.62	10.40	183.31	3.600	No	Yes	2.00
226	37.07	40.26	3.08	8.54	1.00	18.25	10.29	187.85	3.600	No	Yes	2.00
227	37.24	40.38	3.09	8.88	1.00	18.26	10.51	192.01	3.600	No	Yes	2.00
228	37.40	42.91	3.07	8.64	1.00	19.42	9.99	194.09	3.600	No	Yes	2.00
229	37.57	46.02	3.03	8.10	1.00	20.85	9.23	192.54	3.600	No	Yes	2.00
230	37.73	48.36	2.99	7.57	1.00	21.91	8.61	188.77	3.600	No	Yes	2.00
231	37.89	48.01	2.98	7.19	1.00	21.68	8.41	182.35	3.600	No	Yes	2.00
232	38.06	44.52	3.00	7.17	1.00	19.97	8.83	176.25	3.600	No	Yes	2.00
233	38.22	42.24	3.00	6.79	1.00	18.83	8.87	166.99	3.600	No	Yes	2.00
234	38.39	41.36	2.99	6.37	1.00	18.36	8.68	159.45	3.600	No	Yes	2.00
235	38.55	42.71	2.96	5.91	1.00	18.95	8.15	154.49	3.600	No	Yes	2.00
236	38.71	46.60	2.88	5.48	0.87	22.64	6.95	157.47	3.600	No	Yes	2.00
237	38.88	52.88	2.82	5.23	0.86	26.13	6.15	160.64	3.600	No	Yes	2.00
238	39.04	56.57	2.81	5.39	0.85	28.06	5.98	167.77	3.600	No	Yes	2.00
239	39.21	58.54	2.82	5.69	0.85	28.97	6.06	175.55	3.600	No	Yes	2.00
240	39.37	57.60	2.86	6.35	0.87	28.16	6.63	186.61	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	39.53	57.31	2.91	7.46	0.88	27.62	7.42	204.94	3.600	No	Yes	2.00
242	39.70	58.43	2.97	8.28	1.00	25.86	8.24	213.12	3.600	No	Yes	2.00
243	39.86	60.23	2.96	8.35	1.00	26.62	8.14	216.78	3.600	No	Yes	2.00
244	40.03	61.21	2.89	7.42	0.88	29.50	7.11	209.69	3.600	No	Yes	2.00
245	40.19	57.41	2.89	6.87	0.88	27.54	7.06	194.49	3.600	No	Yes	2.00
246	40.35	51.23	2.95	6.76	1.00	22.28	7.97	177.63	3.600	No	Yes	2.00
247	40.52	45.71	3.01	7.15	1.00	19.70	8.88	174.97	3.600	No	Yes	2.00
248	40.68	42.43	3.05	7.50	1.00	18.15	9.59	174.08	3.600	No	Yes	2.00
249	40.85	40.76	3.08	7.89	1.00	17.34	10.14	175.85	3.600	No	Yes	2.00
250	41.01	40.49	3.10	8.35	1.00	17.17	10.53	180.79	3.600	No	Yes	2.00
251	41.17	41.58	3.10	8.66	1.00	17.61	10.59	186.48	3.600	No	Yes	2.00
252	41.34	43.09	3.09	8.75	1.00	18.25	10.44	190.45	3.600	No	Yes	2.00
253	41.50	43.61	3.08	8.52	1.00	18.43	10.22	188.34	3.600	No	Yes	2.00
254	41.67	43.38	3.09	8.81	1.00	18.28	10.47	191.33	3.600	No	Yes	2.00
255	41.83	42.58	3.12	9.34	1.00	17.87	10.95	195.76	3.600	No	Yes	2.00
256	41.99	44.48	3.12	9.98	1.00	18.67	11.09	207.17	3.600	No	Yes	2.00
257	42.16	49.84	3.08	9.71	1.00	21.01	10.22	214.71	3.600	No	Yes	2.00
258	42.32	54.44	3.05	9.56	1.00	23.00	9.62	221.25	3.600	No	Yes	2.00
259	42.49	59.26	3.00	9.05	1.00	25.08	8.86	222.14	3.600	No	Yes	2.00
260	42.65	62.18	2.97	8.50	1.00	26.30	8.29	218.04	3.600	No	Yes	2.00
261	42.81	66.58	2.89	7.73	0.88	30.96	7.08	219.25	3.600	No	Yes	2.00
262	42.98	67.48	2.88	7.45	0.87	31.44	6.85	215.42	3.600	No	Yes	2.00
263	43.14	69.97	2.85	7.13	0.86	32.77	6.49	212.63	3.600	No	Yes	2.00
264	43.31	72.66	2.81	6.64	0.85	34.28	6.02	206.28	3.600	No	Yes	2.00
265	43.47	75.70	2.76	5.89	0.84	36.16	5.37	194.00	3.600	No	Yes	2.00
266	43.64	74.55	2.73	5.27	0.83	35.77	5.01	179.26	3.600	No	Yes	2.00
267	43.80	71.52	2.72	4.85	0.82	34.28	4.88	167.20	3.600	No	Yes	2.00
268	43.96	68.30	2.73	4.82	0.83	32.49	5.04	163.69	3.600	No	Yes	2.00
269	44.13	63.09	2.79	5.34	0.85	29.41	5.76	169.53	3.600	No	Yes	2.00
270	44.29	60.23	2.84	5.92	0.86	27.61	6.42	177.10	3.600	No	Yes	2.00
271	44.46	60.28	2.84	5.80	0.86	27.61	6.33	174.81	3.600	No	Yes	2.00
272	44.62	63.08	2.79	5.19	0.84	29.27	5.67	166.00	3.600	No	Yes	2.00
273	44.78	64.61	2.73	4.47	0.83	30.35	5.02	152.46	3.600	No	Yes	2.00
274	44.95	63.91	2.69	3.87	0.81	30.23	4.58	138.60	3.600	No	Yes	2.00
275	45.11	64.03	2.62	3.09	0.79	30.75	3.90	120.07	3.600	No	Yes	2.00
276	45.28	65.18	2.55	2.51	0.77	31.79	3.33	105.93	0.191	No	No	1.40
277	45.44	68.61	2.50	2.25	0.76	33.90	2.96	100.21	0.174	No	No	1.27
278	45.60	73.13	2.51	2.52	0.76	36.07	3.03	109.35	0.202	No	No	1.48
279	45.77	76.47	2.55	3.05	0.77	37.33	3.35	125.02	0.262	No	No	1.92
280	45.93	74.59	2.64	3.96	0.80	35.50	4.15	147.24	3.600	No	Yes	2.00
281	46.10	68.06	2.75	4.98	0.83	31.37	5.27	165.33	3.600	No	Yes	2.00
282	46.26	61.62	2.84	5.83	0.86	27.59	6.36	175.46	3.600	No	Yes	2.00
283	46.42	59.27	2.87	6.08	0.87	26.25	6.74	176.91	3.600	No	Yes	2.00
284	46.59	60.60	2.85	5.88	0.86	26.93	6.49	174.75	3.600	No	Yes	2.00
285	46.75	62.01	2.83	5.61	0.86	27.70	6.19	171.38	3.600	No	Yes	2.00
286	46.92	66.85	2.77	5.16	0.84	30.31	5.52	167.29	3.600	No	Yes	2.00
287	47.08	74.34	2.70	4.68	0.82	34.37	4.75	163.35	3.600	No	Yes	2.00
288	47.24	77.32	2.71	4.88	0.82	35.72	4.76	170.05	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	47.41	70.15	2.79	5.71	0.85	31.53	5.75	181.17	3.600	No	Yes	2.00
290	47.57	56.64	2.97	7.22	1.00	22.11	8.33	184.19	3.600	No	Yes	2.00
291	47.74	46.65	3.09	8.51	1.00	17.94	10.37	186.05	3.600	No	Yes	2.00
292	47.90	41.03	3.17	9.53	1.00	15.58	11.97	186.56	3.600	No	Yes	2.00
293	48.06	39.04	3.21	10.30	1.00	14.73	12.89	189.86	3.600	No	Yes	2.00
294	48.23	39.56	3.21	10.69	1.00	14.90	13.07	194.73	3.600	No	Yes	2.00
295	48.39	42.61	3.18	10.43	1.00	16.11	12.34	198.89	3.600	No	Yes	2.00
296	48.56	47.92	3.12	9.69	1.00	18.23	11.06	201.61	3.600	No	Yes	2.00
297	48.72	53.01	3.07	9.15	1.00	20.25	10.08	204.16	3.600	No	Yes	2.00
298	48.88	56.33	3.05	8.93	1.00	21.55	9.59	206.66	3.600	No	Yes	2.00
299	49.05	56.80	3.05	9.00	1.00	21.69	9.60	208.25	3.600	No	Yes	2.00
300	49.21	55.89	3.05	9.00	1.00	21.27	9.71	206.48	3.600	No	Yes	2.00
301	49.38	55.14	3.04	8.63	1.00	20.91	9.57	200.04	3.600	No	Yes	2.00
302	49.54	55.84	2.99	7.38	1.00	21.14	8.67	183.40	3.600	No	Yes	2.00
303	49.70	58.50	2.88	5.91	0.87	24.73	6.88	170.17	3.600	No	Yes	2.00
304	49.87	63.61	2.74	4.28	0.83	27.93	5.17	144.52	3.600	No	Yes	2.00
305	50.03	69.27	2.62	3.20	0.79	31.47	3.93	123.68	3.600	No	Yes	2.00
306	50.20	73.40	2.52	2.46	0.76	34.28	3.10	106.37	0.192	No	No	1.44
307	50.36	75.70	2.46	2.12	0.75	35.86	2.73	97.94	0.167	No	No	1.25
308	50.52	77.13	2.43	1.97	0.74	36.78	2.56	94.15	0.158	No	No	1.18
309	50.69	79.31	2.40	1.83	0.73	38.12	2.38	90.69	0.149	No	No	1.12
310	50.85	81.39	2.37	1.68	0.72	39.46	2.20	87.01	0.141	No	No	1.06
311	51.02	81.77	2.34	1.51	0.71	39.92	2.07	82.43	0.132	No	No	0.99
312	51.18	80.75	2.32	1.43	0.71	39.45	2.02	79.77	0.127	No	No	0.96
313	51.35	80.96	2.31	1.37	0.70	39.64	1.97	77.96	0.124	No	No	0.93
314	51.51	82.24	2.31	1.40	0.70	40.23	1.97	79.21	0.126	No	No	0.95
315	51.67	84.09	2.30	1.39	0.70	41.22	1.93	79.54	0.127	No	No	0.96
316	51.84	85.56	2.29	1.38	0.70	42.00	1.90	79.84	0.127	No	No	0.96
317	52.00	87.72	2.28	1.35	0.69	43.22	1.84	79.68	0.127	No	No	0.96
318	52.17	89.80	2.27	1.34	0.69	44.36	1.80	80.03	0.128	No	No	0.97
319	52.33	90.98	2.27	1.37	0.69	44.87	1.81	81.40	0.130	No	No	0.98
320	52.49	92.00	2.28	1.46	0.69	45.16	1.86	84.02	0.135	No	No	1.02
321	52.66	92.14	2.31	1.59	0.70	44.86	1.95	87.63	0.143	No	No	1.08
322	52.82	89.46	2.35	1.76	0.71	42.95	2.13	91.48	0.151	No	No	1.15
323	52.99	83.89	2.41	1.97	0.73	39.47	2.42	95.62	0.161	No	No	1.23
324	53.15	78.41	2.45	2.05	0.74	36.34	2.65	96.18	0.163	No	No	1.24
325	53.31	77.99	2.42	1.85	0.73	36.36	2.48	90.17	0.148	No	No	1.13
326	53.48	82.13	2.34	1.50	0.71	39.16	2.09	81.70	0.131	No	No	1.00
327	53.64	87.00	2.28	1.30	0.69	42.26	1.84	77.58	0.123	No	No	0.94
328	53.81	88.42	2.30	1.42	0.70	42.68	1.91	81.42	0.130	No	No	0.99
329	53.97	85.63	2.36	1.71	0.72	40.48	2.18	88.44	0.144	No	No	1.10
330	54.13	81.89	2.44	2.07	0.74	37.80	2.58	97.45	0.166	No	No	1.27
331	54.30	78.46	2.50	2.40	0.76	35.48	2.97	105.47	0.189	No	No	1.45
332	54.46	75.58	2.55	2.74	0.77	33.55	3.38	113.39	0.216	No	No	1.65
333	54.63	71.86	2.62	3.19	0.79	31.17	3.95	123.24	3.600	No	Yes	2.00
334	54.79	67.28	2.70	3.74	0.82	28.44	4.68	133.17	3.600	No	Yes	2.00
335	54.95	63.74	2.76	4.19	0.83	26.39	5.32	140.27	3.600	No	Yes	2.00
336	55.12	61.87	2.78	4.39	0.84	25.34	5.63	142.61	3.600	No	Yes	2.00

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

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	55.28	61.87	2.78	4.37	0.84	25.29	5.62	142.17	3.600	No	Yes	2.00
338	55.45	62.27	2.78	4.34	0.84	25.44	5.58	141.87	3.600	No	Yes	2.00
339	55.61	63.27	2.76	4.25	0.84	25.92	5.43	140.64	3.600	No	Yes	2.00
340	55.77	63.56	2.75	4.13	0.83	26.08	5.31	138.39	3.600	No	Yes	2.00
341	55.94	62.59	2.76	4.11	0.84	25.57	5.37	137.20	3.600	No	Yes	2.00
342	56.10	60.40	2.79	4.29	0.84	24.38	5.70	138.96	3.600	No	Yes	2.00
343	56.27	58.53	2.81	4.47	0.85	23.37	6.02	140.68	3.600	No	Yes	2.00
344	56.43	58.56	2.81	4.39	0.85	23.37	5.95	139.05	3.600	No	Yes	2.00
345	56.59	60.63	2.76	3.88	0.83	24.57	5.32	130.80	3.600	No	Yes	2.00
346	56.76	63.16	2.68	3.21	0.81	26.15	4.52	118.20	3.600	No	Yes	2.00
347	56.92	67.29	2.55	2.28	0.77	28.95	3.37	97.70	0.167	No	No	1.30
348	57.09	71.57	2.45	1.74	0.74	31.76	2.66	84.63	0.136	No	No	1.06
349	57.25	75.11	2.40	1.57	0.73	33.83	2.39	80.81	0.129	No	No	1.01
350	57.41	75.59	2.45	1.85	0.74	33.57	2.64	88.77	0.145	No	No	1.13
351	57.58	74.27	2.49	2.07	0.75	32.53	2.90	94.37	0.158	No	No	1.23
352	57.74	74.41	2.47	1.97	0.75	32.69	2.80	91.52	0.151	No	No	1.18
353	57.91	77.49	2.41	1.69	0.73	34.66	2.44	84.52	0.136	No	No	1.06
354	58.07	81.41	2.37	1.54	0.72	36.94	2.21	81.46	0.130	No	No	1.02
355	58.23	85.78	2.36	1.64	0.72	38.99	2.19	85.50	0.138	No	No	1.08
356	58.40	92.69	2.33	1.61	0.71	42.63	2.04	86.97	0.141	No	No	1.11
357	58.56	113.93	2.17	1.24	0.66	55.21	1.54	85.29	0.138	No	No	1.08
358	58.73	142.23	1.98	0.87	0.60	73.21	1.29	94.58	0.159	No	No	1.25
359	58.89	156.58	1.92	0.79	0.58	82.22	1.25	102.58	0.180	No	No	1.42
360	59.06	149.92	2.00	1.01	0.61	76.61	1.31	100.30	0.174	No	No	1.37
361	59.22	140.13	2.09	1.24	0.64	69.56	1.41	97.87	0.167	No	No	1.32
362	59.38	152.65	2.06	1.24	0.63	76.60	1.36	104.50	0.186	No	No	1.47
363	59.55	178.23	1.99	1.20	0.61	91.39	1.30	118.90	0.236	No	No	1.87
364	59.71	203.01	1.97	1.31	0.60	104.85	1.29	134.83	0.308	No	No	2.00
365	59.88	227.29	1.97	1.48	0.60	117.51	1.29	151.05	0.401	No	No	2.00
366	60.04	262.22	1.91	1.43	0.58	138.04	1.25	172.02	0.553	No	No	2.00
367	60.20	310.90	N/A	-29562.96	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
368	60.37	371.99	N/A	-49316.96	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
369	60.53	477.63	N/A	-57480.47	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
370	60.70	565.02	N/A	-48529.57	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: 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	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.16	2.00	0.00	0.00	0.16	0.00	0.33	2.00	0.00	0.00	0.16	0.00
0.49	2.00	0.00	0.00	0.16	0.00	0.66	2.00	0.00	0.00	0.16	0.00
0.82	2.00	0.00	0.00	0.16	0.00	0.98	2.00	0.00	0.00	0.16	0.00
1.15	2.00	0.00	0.00	0.16	0.00	1.31	2.00	0.00	0.00	0.16	0.00
1.48	2.00	0.00	0.00	0.16	0.00	1.64	2.00	0.00	0.00	0.16	0.00
1.80	2.00	0.00	0.00	0.16	0.00	1.97	2.00	0.00	0.00	0.16	0.00
2.13	2.00	0.00	0.00	0.16	0.00	2.30	2.00	0.00	0.00	0.16	0.00
2.46	2.00	0.00	0.00	0.16	0.00	2.62	2.00	0.00	0.00	0.16	0.00
2.79	2.00	0.00	0.00	0.16	0.00	2.95	2.00	0.00	0.00	0.16	0.00
3.12	2.00	0.00	0.00	0.16	0.00	3.28	2.00	0.00	0.00	0.16	0.00
3.44	2.00	0.00	0.00	0.16	0.00	3.61	2.00	0.00	0.00	0.16	0.00
3.77	2.00	0.00	0.00	0.16	0.00	3.94	2.00	0.00	0.00	0.16	0.00
4.10	2.00	0.00	0.00	0.16	0.00	4.27	2.00	0.00	0.00	0.16	0.00
4.43	2.00	0.00	0.00	0.16	0.00	4.59	2.00	0.00	0.00	0.16	0.00
4.76	2.00	0.00	0.00	0.16	0.00	4.92	2.00	0.00	0.00	0.16	0.00
5.09	2.00	0.00	0.00	0.16	0.00	5.25	2.00	0.00	0.00	0.16	0.00
5.41	2.00	0.00	0.00	0.16	0.00	5.58	2.00	0.00	0.00	0.16	0.00
5.74	2.00	0.00	0.00	0.16	0.00	5.91	2.00	0.00	0.00	0.16	0.00
6.07	2.00	0.00	0.00	0.16	0.00	6.23	2.00	0.00	0.00	0.16	0.00
6.40	2.00	0.00	0.00	0.16	0.00	6.56	2.00	0.00	0.00	0.16	0.00
6.73	2.00	0.00	0.00	0.16	0.00	6.89	2.00	0.00	0.00	0.16	0.00
7.05	2.00	0.00	0.00	0.16	0.00	7.22	2.00	0.00	0.00	0.16	0.00
7.38	2.00	0.00	0.00	0.16	0.00	7.55	2.00	0.00	0.00	0.16	0.00
7.71	2.00	0.00	0.00	0.16	0.00	7.87	2.00	0.00	0.00	0.16	0.00
8.04	2.00	0.00	0.00	0.16	0.00	8.20	2.00	0.00	0.00	0.16	0.00
8.37	2.00	0.00	0.00	0.16	0.00	8.53	2.00	0.00	0.00	0.16	0.00
8.69	2.00	0.00	0.00	0.16	0.00	8.86	2.00	0.00	0.00	0.16	0.00
9.02	2.00	0.00	0.00	0.16	0.00	9.19	2.00	0.00	0.00	0.16	0.00
9.35	2.00	0.00	0.00	0.16	0.00	9.51	2.00	0.00	0.00	0.16	0.00
9.68	2.00	0.00	0.00	0.16	0.00	9.84	2.00	0.00	0.00	0.16	0.00
10.01	2.00	0.00	0.00	0.16	0.00	10.17	2.00	0.00	0.00	0.16	0.00
10.33	2.00	0.00	0.00	0.16	0.00	10.50	2.00	0.00	0.00	0.16	0.00
10.66	2.00	0.00	0.00	0.16	0.00	10.83	2.00	0.00	0.00	0.16	0.00
10.99	2.00	0.00	0.00	0.16	0.00	11.15	2.00	0.00	0.00	0.16	0.00
11.32	2.00	0.00	0.00	0.16	0.00	11.48	2.00	0.00	0.00	0.16	0.00
11.65	2.00	0.00	0.00	0.16	0.00	11.81	2.00	0.00	0.00	0.16	0.00
11.98	2.00	0.00	0.00	0.16	0.00	12.14	2.00	0.00	0.00	0.16	0.00
12.30	2.00	0.00	0.00	0.16	0.00	12.47	2.00	0.00	0.00	0.16	0.00
12.63	2.00	0.00	0.00	0.16	0.00	12.80	2.00	0.00	0.00	0.16	0.00
12.96	2.00	0.00	0.00	0.16	0.00	13.12	2.00	0.00	0.00	0.16	0.00
13.29	2.00	0.00	0.00	0.16	0.00	13.45	2.00	0.00	0.00	0.16	0.00
13.62	2.00	0.00	0.00	0.16	0.00	13.78	2.00	0.00	0.00	0.16	0.00
13.94	2.00	0.00	0.00	0.16	0.00	14.11	2.00	0.00	0.00	0.16	0.00
14.27	2.00	0.00	0.00	0.16	0.00	14.44	2.00	0.00	0.00	0.16	0.00
14.60	2.00	0.00	0.00	0.16	0.00	14.76	2.00	0.00	0.00	0.16	0.00
14.93	2.00	0.00	0.00	0.16	0.00	15.09	2.00	0.00	0.00	0.16	0.00
15.26	2.00	0.00	0.00	0.16	0.00	15.42	2.00	0.00	0.00	0.16	0.00
15.58	2.00	0.00	0.00	0.16	0.00	15.75	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
15.91	2.00	0.00	0.00	0.16	0.00	16.08	2.00	0.00	0.00	0.16	0.00
16.24	2.00	0.00	0.00	0.16	0.00	16.40	2.00	0.00	0.00	0.16	0.00
16.57	2.00	0.00	0.00	0.16	0.00	16.73	2.00	0.00	0.00	0.16	0.00
16.90	2.00	0.00	0.00	0.16	0.00	17.06	2.00	0.00	0.00	0.16	0.00
17.22	2.00	0.00	0.00	0.16	0.00	17.39	2.00	0.00	0.00	0.16	0.00
17.55	2.00	0.00	0.00	0.16	0.00	17.72	2.00	0.00	0.00	0.16	0.00
17.88	2.00	0.00	0.00	0.16	0.00	18.04	2.00	0.00	0.00	0.16	0.00
18.21	2.00	0.00	0.00	0.16	0.00	18.37	2.00	0.00	0.00	0.16	0.00
18.54	2.00	0.00	0.00	0.16	0.00	18.70	2.00	0.00	0.00	0.16	0.00
18.86	2.00	0.00	0.00	0.16	0.00	19.03	2.00	0.00	0.00	0.16	0.00
19.19	2.00	0.00	0.00	0.16	0.00	19.36	2.00	0.00	0.00	0.16	0.00
19.52	2.00	0.00	0.00	0.16	0.00	19.69	2.00	0.00	0.00	0.16	0.00
19.85	2.00	0.00	0.00	0.16	0.00	20.01	2.00	0.00	0.00	0.16	0.00
20.18	2.00	0.00	0.00	0.16	0.00	20.34	2.00	0.00	0.00	0.16	0.00
20.51	2.00	0.00	0.00	0.16	0.00	20.67	2.00	0.00	0.00	0.16	0.00
20.83	2.00	0.00	0.00	0.16	0.00	21.00	2.00	0.00	0.00	0.16	0.00
21.16	2.00	0.00	0.00	0.16	0.00	21.33	2.00	0.00	0.00	0.16	0.00
21.49	2.00	0.00	0.00	0.16	0.00	21.65	2.00	0.00	0.00	0.16	0.00
21.82	2.00	0.00	0.00	0.16	0.00	21.98	2.00	0.00	0.00	0.16	0.00
22.15	2.00	0.00	0.00	0.16	0.00	22.31	2.00	0.00	0.00	0.16	0.00
22.47	2.00	0.00	0.00	0.16	0.00	22.64	2.00	0.00	0.00	0.16	0.00
22.80	2.00	0.00	0.00	0.16	0.00	22.97	2.00	0.00	0.00	0.16	0.00
23.13	2.00	0.00	0.00	0.16	0.00	23.29	2.00	0.00	0.00	0.16	0.00
23.46	2.00	0.00	0.00	0.16	0.00	23.62	2.00	0.00	0.00	0.16	0.00
23.79	2.00	0.00	0.00	0.16	0.00	23.95	2.00	0.00	0.00	0.16	0.00
24.11	2.00	0.00	0.00	0.16	0.00	24.28	2.00	0.00	0.00	0.16	0.00
24.44	2.00	0.00	0.00	0.16	0.00	24.61	2.00	0.00	0.00	0.16	0.00
24.77	2.00	0.00	0.00	0.16	0.00	24.93	2.00	0.00	0.00	0.16	0.00
25.10	2.00	0.00	0.00	0.16	0.00	25.26	2.00	0.00	0.00	0.16	0.00
25.43	2.00	0.00	0.00	0.16	0.00	25.59	2.00	0.00	0.00	0.16	0.00
25.75	2.00	0.00	0.00	0.16	0.00	25.92	2.00	0.00	0.00	0.16	0.00
26.08	2.00	0.00	0.00	0.16	0.00	26.25	2.00	0.00	0.00	0.16	0.00
26.41	2.00	0.00	0.00	0.16	0.00	26.57	2.00	0.00	0.00	0.16	0.00
26.74	2.00	0.00	0.00	0.16	0.00	26.90	2.00	0.00	0.00	0.16	0.00
27.07	2.00	0.00	0.00	0.16	0.00	27.23	2.00	0.00	0.00	0.16	0.00
27.40	2.00	0.00	0.00	0.16	0.00	27.56	2.00	0.00	0.00	0.16	0.00
27.72	2.00	0.00	0.00	0.16	0.00	27.89	2.00	0.00	0.00	0.16	0.00
28.05	2.00	0.00	0.00	0.16	0.00	28.22	2.00	0.00	0.00	0.16	0.00
28.38	2.00	0.00	0.00	0.16	0.00	28.54	2.00	0.00	0.00	0.16	0.00
28.71	2.00	0.00	0.00	0.16	0.00	28.87	2.00	0.00	0.00	0.16	0.00
29.04	2.00	0.00	0.00	0.16	0.00	29.20	2.00	0.00	0.00	0.16	0.00
29.36	2.00	0.00	0.00	0.16	0.00	29.53	2.00	0.00	0.00	0.16	0.00
29.69	2.00	0.00	0.00	0.16	0.00	29.86	2.00	0.00	0.00	0.16	0.00
30.02	2.00	0.00	0.00	0.16	0.00	30.18	2.00	0.00	0.00	0.16	0.00
30.35	2.00	0.00	0.00	0.16	0.00	30.51	2.00	0.00	0.00	0.16	0.00
30.68	2.00	0.00	0.00	0.16	0.00	30.84	2.00	0.00	0.00	0.16	0.00
31.00	2.00	0.00	0.00	0.16	0.00	31.17	2.00	0.00	0.00	0.16	0.00
31.33	2.00	0.00	0.00	0.16	0.00	31.50	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
31.66	2.00	0.00	0.00	0.16	0.00	31.82	2.00	0.00	0.00	0.16	0.00
31.99	2.00	0.00	0.00	0.16	0.00	32.15	2.00	0.00	0.00	0.16	0.00
32.32	2.00	0.00	0.00	0.16	0.00	32.48	2.00	0.00	0.00	0.16	0.00
32.64	2.00	0.00	0.00	0.16	0.00	32.81	2.00	0.00	0.00	0.16	0.00
32.97	2.00	0.00	0.00	0.16	0.00	33.14	2.00	0.00	0.00	0.16	0.00
33.30	2.00	0.00	0.00	0.16	0.00	33.46	2.00	0.00	0.00	0.16	0.00
33.63	2.00	0.00	0.00	0.16	0.00	33.79	2.00	0.00	0.00	0.16	0.00
33.96	2.00	0.00	0.00	0.16	0.00	34.12	2.00	0.00	0.00	0.16	0.00
34.28	2.00	0.00	0.00	0.16	0.00	34.45	2.00	0.00	0.00	0.16	0.00
34.61	2.00	0.00	0.00	0.16	0.00	34.78	2.00	0.00	0.00	0.16	0.00
34.94	2.00	0.00	0.00	0.16	0.00	35.10	2.00	0.00	0.00	0.16	0.00
35.27	2.00	0.00	0.00	0.16	0.00	35.43	2.00	0.00	0.00	0.16	0.00
35.60	2.00	0.00	0.00	0.16	0.00	35.76	2.00	0.00	0.00	0.16	0.00
35.93	2.00	0.00	0.00	0.16	0.00	36.09	2.00	0.00	0.00	0.16	0.00
36.25	2.00	0.00	0.00	0.16	0.00	36.42	2.00	0.00	0.00	0.16	0.00
36.58	2.00	0.00	0.00	0.16	0.00	36.75	2.00	0.00	0.00	0.16	0.00
36.91	2.00	0.00	0.00	0.16	0.00	37.07	2.00	0.00	0.00	0.16	0.00
37.24	2.00	0.00	0.00	0.16	0.00	37.40	2.00	0.00	0.00	0.16	0.00
37.57	2.00	0.00	0.00	0.16	0.00	37.73	2.00	0.00	0.00	0.16	0.00
37.89	2.00	0.00	0.00	0.16	0.00	38.06	2.00	0.00	0.00	0.16	0.00
38.22	2.00	0.00	0.00	0.16	0.00	38.39	2.00	0.00	0.00	0.16	0.00
38.55	2.00	0.00	0.00	0.16	0.00	38.71	2.00	0.00	0.00	0.16	0.00
38.88	2.00	0.00	0.00	0.16	0.00	39.04	2.00	0.00	0.00	0.16	0.00
39.21	2.00	0.00	0.00	0.16	0.00	39.37	2.00	0.00	0.00	0.16	0.00
39.53	2.00	0.00	0.00	0.16	0.00	39.70	2.00	0.00	0.00	0.16	0.00
39.86	2.00	0.00	0.00	0.16	0.00	40.03	2.00	0.00	0.00	0.16	0.00
40.19	2.00	0.00	0.00	0.16	0.00	40.35	2.00	0.00	0.00	0.16	0.00
40.52	2.00	0.00	0.00	0.16	0.00	40.68	2.00	0.00	0.00	0.16	0.00
40.85	2.00	0.00	0.00	0.16	0.00	41.01	2.00	0.00	0.00	0.16	0.00
41.17	2.00	0.00	0.00	0.16	0.00	41.34	2.00	0.00	0.00	0.16	0.00
41.50	2.00	0.00	0.00	0.16	0.00	41.67	2.00	0.00	0.00	0.16	0.00
41.83	2.00	0.00	0.00	0.16	0.00	41.99	2.00	0.00	0.00	0.16	0.00
42.16	2.00	0.00	0.00	0.16	0.00	42.32	2.00	0.00	0.00	0.16	0.00
42.49	2.00	0.00	0.00	0.16	0.00	42.65	2.00	0.00	0.00	0.16	0.00
42.81	2.00	0.00	0.00	0.16	0.00	42.98	2.00	0.00	0.00	0.16	0.00
43.14	2.00	0.00	0.00	0.16	0.00	43.31	2.00	0.00	0.00	0.16	0.00
43.47	2.00	0.00	0.00	0.16	0.00	43.64	2.00	0.00	0.00	0.16	0.00
43.80	2.00	0.00	0.00	0.16	0.00	43.96	2.00	0.00	0.00	0.16	0.00
44.13	2.00	0.00	0.00	0.16	0.00	44.29	2.00	0.00	0.00	0.16	0.00
44.46	2.00	0.00	0.00	0.16	0.00	44.62	2.00	0.00	0.00	0.16	0.00
44.78	2.00	0.00	0.00	0.16	0.00	44.95	2.00	0.00	0.00	0.16	0.00
45.11	2.00	0.00	0.00	0.16	0.00	45.28	1.40	0.00	0.00	0.16	0.00
45.44	1.27	0.00	0.00	0.16	0.00	45.60	1.48	0.00	0.00	0.16	0.00
45.77	1.92	0.00	0.00	0.16	0.00	45.93	2.00	0.00	0.00	0.16	0.00
46.10	2.00	0.00	0.00	0.16	0.00	46.26	2.00	0.00	0.00	0.16	0.00
46.42	2.00	0.00	0.00	0.16	0.00	46.59	2.00	0.00	0.00	0.16	0.00
46.75	2.00	0.00	0.00	0.16	0.00	46.92	2.00	0.00	0.00	0.16	0.00
47.08	2.00	0.00	0.00	0.16	0.00	47.24	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
47.41	2.00	0.00	0.00	0.16	0.00	47.57	2.00	0.00	0.00	0.16	0.00
47.74	2.00	0.00	0.00	0.16	0.00	47.90	2.00	0.00	0.00	0.16	0.00
48.06	2.00	0.00	0.00	0.16	0.00	48.23	2.00	0.00	0.00	0.16	0.00
48.39	2.00	0.00	0.00	0.16	0.00	48.56	2.00	0.00	0.00	0.16	0.00
48.72	2.00	0.00	0.00	0.16	0.00	48.88	2.00	0.00	0.00	0.16	0.00
49.05	2.00	0.00	0.00	0.16	0.00	49.21	2.00	0.00	0.00	0.16	0.00
49.38	2.00	0.00	0.00	0.16	0.00	49.54	2.00	0.00	0.00	0.16	0.00
49.70	2.00	0.00	0.00	0.16	0.00	49.87	2.00	0.00	0.00	0.16	0.00
50.03	2.00	0.00	0.00	0.16	0.00	50.20	1.44	0.00	0.00	0.16	0.00
50.36	1.25	0.00	0.00	0.16	0.00	50.52	1.18	0.00	0.00	0.16	0.00
50.69	1.12	0.00	0.00	0.16	0.00	50.85	1.06	0.00	0.00	0.16	0.00
51.02	0.99	0.00	0.00	0.16	0.00	51.18	0.96	0.00	0.00	0.16	0.00
51.35	0.93	0.00	0.00	0.16	0.01	51.51	0.95	0.00	0.00	0.16	0.01
51.67	0.96	0.00	0.00	0.16	0.00	51.84	0.96	0.00	0.00	0.16	0.00
52.00	0.96	0.00	0.00	0.16	0.00	52.17	0.97	0.00	0.00	0.16	0.00
52.33	0.98	0.00	0.00	0.16	0.00	52.49	1.02	0.00	0.00	0.16	0.00
52.66	1.08	0.00	0.00	0.16	0.00	52.82	1.15	0.00	0.00	0.16	0.00
52.99	1.23	0.00	0.00	0.16	0.00	53.15	1.24	0.00	0.00	0.16	0.00
53.31	1.13	0.00	0.00	0.16	0.00	53.48	1.00	0.00	0.00	0.16	0.00
53.64	0.94	0.00	0.00	0.16	0.01	53.81	0.99	0.00	0.00	0.16	0.00
53.97	1.10	0.00	0.00	0.16	0.00	54.13	1.27	0.00	0.00	0.16	0.00
54.30	1.45	0.00	0.00	0.16	0.00	54.46	1.65	0.00	0.00	0.16	0.00
54.63	2.00	0.00	0.00	0.16	0.00	54.79	2.00	0.00	0.00	0.16	0.00
54.95	2.00	0.00	0.00	0.16	0.00	55.12	2.00	0.00	0.00	0.16	0.00
55.28	2.00	0.00	0.00	0.16	0.00	55.45	2.00	0.00	0.00	0.16	0.00
55.61	2.00	0.00	0.00	0.16	0.00	55.77	2.00	0.00	0.00	0.16	0.00
55.94	2.00	0.00	0.00	0.16	0.00	56.10	2.00	0.00	0.00	0.16	0.00
56.27	2.00	0.00	0.00	0.16	0.00	56.43	2.00	0.00	0.00	0.16	0.00
56.59	2.00	0.00	0.00	0.16	0.00	56.76	2.00	0.00	0.00	0.16	0.00
56.92	1.30	0.00	0.00	0.16	0.00	57.09	1.06	0.00	0.00	0.16	0.00
57.25	1.01	0.00	0.00	0.16	0.00	57.41	1.13	0.00	0.00	0.16	0.00
57.58	1.23	0.00	0.00	0.16	0.00	57.74	1.18	0.00	0.00	0.16	0.00
57.91	1.06	0.00	0.00	0.16	0.00	58.07	1.02	0.00	0.00	0.16	0.00
58.23	1.08	0.00	0.00	0.16	0.00	58.40	1.11	0.00	0.00	0.16	0.00
58.56	1.08	0.00	0.00	0.16	0.00	58.73	1.25	0.00	0.00	0.16	0.00
58.89	1.42	0.00	0.00	0.16	0.00	59.06	1.37	0.00	0.00	0.16	0.00
59.22	1.32	0.00	0.00	0.16	0.00	59.38	1.47	0.00	0.00	0.16	0.00
59.55	1.87	0.00	0.00	0.16	0.00	59.71	2.00	0.00	0.00	0.16	0.00
59.88	2.00	0.00	0.00	0.16	0.00	60.04	2.00	0.00	0.00	0.16	0.00
60.20	2.00	0.00	0.00	0.16	0.00	60.37	2.00	0.00	0.00	0.16	0.00
60.53	2.00	0.00	0.00	0.16	0.00	60.70	2.00	0.00	0.00	0.16	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI

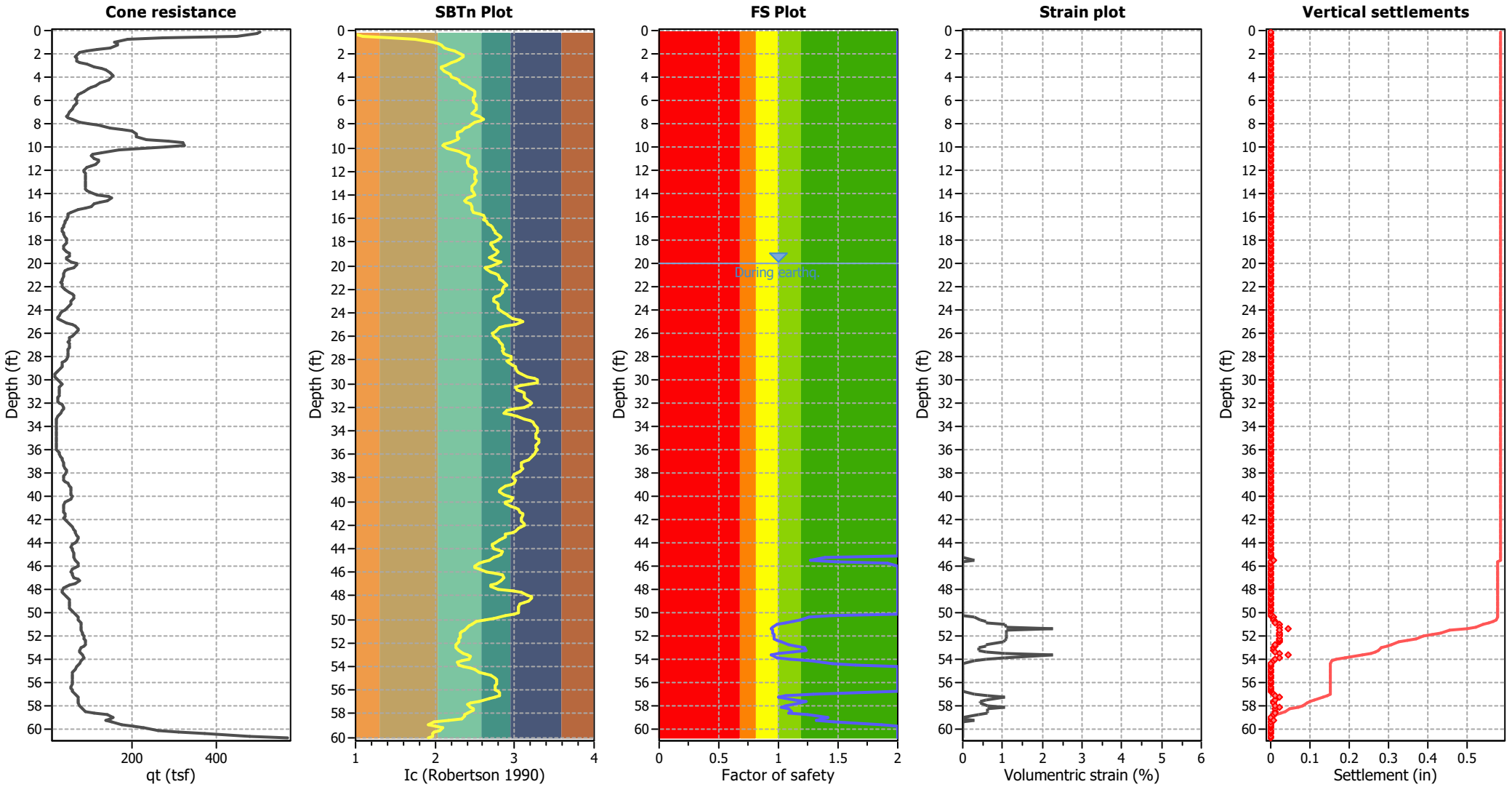
Overall liquefaction potential: 0.04

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
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 due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
20.01	251.71	2.00	0.00	1.00	0.00	20.18	228.72	2.00	0.00	1.00	0.00
20.34	203.45	2.00	0.00	1.00	0.00	20.51	189.38	2.00	0.00	1.00	0.00
20.67	180.15	2.00	0.00	1.00	0.00	20.83	176.85	2.00	0.00	1.00	0.00
21.00	173.86	2.00	0.00	1.00	0.00	21.16	171.12	2.00	0.00	1.00	0.00
21.33	176.59	2.00	0.00	1.00	0.00	21.49	180.58	2.00	0.00	1.00	0.00
21.65	182.97	2.00	0.00	1.00	0.00	21.82	173.35	2.00	0.00	1.00	0.00
21.98	169.66	2.00	0.00	1.00	0.00	22.15	179.10	2.00	0.00	1.00	0.00
22.31	200.48	2.00	0.00	1.00	0.00	22.47	219.69	2.00	0.00	1.00	0.00
22.64	231.27	2.00	0.00	1.00	0.00	22.80	234.87	2.00	0.00	1.00	0.00
22.97	235.90	2.00	0.00	1.00	0.00	23.13	233.52	2.00	0.00	1.00	0.00
23.29	228.95	2.00	0.00	1.00	0.00	23.46	220.32	2.00	0.00	1.00	0.00
23.62	211.10	2.00	0.00	1.00	0.00	23.79	201.55	2.00	0.00	1.00	0.00
23.95	194.51	2.00	0.00	1.00	0.00	24.11	183.63	2.00	0.00	1.00	0.00
24.28	170.81	2.00	0.00	1.00	0.00	24.44	156.98	2.00	0.00	1.00	0.00
24.61	157.43	2.00	0.00	1.00	0.00	24.77	168.38	2.00	0.00	1.00	0.00
24.93	184.30	2.00	0.00	1.00	0.00	25.10	207.79	2.00	0.00	1.00	0.00
25.26	229.18	2.00	0.00	1.00	0.00	25.43	244.20	2.00	0.00	1.00	0.00
25.59	246.96	2.00	0.00	1.00	0.00	25.75	237.47	2.00	0.00	1.00	0.00
25.92	224.61	2.00	0.00	1.00	0.00	26.08	216.30	2.00	0.00	1.00	0.00
26.25	210.92	2.00	0.00	1.00	0.00	26.41	205.49	2.00	0.00	1.00	0.00
26.57	200.78	2.00	0.00	1.00	0.00	26.74	202.49	2.00	0.00	1.00	0.00
26.90	209.33	2.00	0.00	1.00	0.00	27.07	211.20	2.00	0.00	1.00	0.00
27.23	208.47	2.00	0.00	1.00	0.00	27.40	207.44	2.00	0.00	1.00	0.00
27.56	218.45	2.00	0.00	1.00	0.00	27.72	221.19	2.00	0.00	1.00	0.00
27.89	222.24	2.00	0.00	1.00	0.00	28.05	213.78	2.00	0.00	1.00	0.00
28.22	203.02	2.00	0.00	1.00	0.00	28.38	189.32	2.00	0.00	1.00	0.00
28.54	187.25	2.00	0.00	1.00	0.00	28.71	184.14	2.00	0.00	1.00	0.00
28.87	179.96	2.00	0.00	1.00	0.00	29.04	169.93	2.00	0.00	1.00	0.00
29.20	156.51	2.00	0.00	1.00	0.00	29.36	145.50	2.00	0.00	1.00	0.00
29.53	147.16	2.00	0.00	1.00	0.00	29.69	156.45	2.00	0.00	1.00	0.00
29.86	169.72	2.00	0.00	1.00	0.00	30.02	176.52	2.00	0.00	1.00	0.00
30.18	178.09	2.00	0.00	1.00	0.00	30.35	173.12	2.00	0.00	1.00	0.00
30.51	169.67	2.00	0.00	1.00	0.00	30.68	169.56	2.00	0.00	1.00	0.00
30.84	172.60	2.00	0.00	1.00	0.00	31.00	174.59	2.00	0.00	1.00	0.00
31.17	173.03	2.00	0.00	1.00	0.00	31.33	171.11	2.00	0.00	1.00	0.00
31.50	170.16	2.00	0.00	1.00	0.00	31.66	172.66	2.00	0.00	1.00	0.00
31.82	173.52	2.00	0.00	1.00	0.00	31.99	170.52	2.00	0.00	1.00	0.00
32.15	161.29	2.00	0.00	1.00	0.00	32.32	157.73	2.00	0.00	1.00	0.00
32.48	154.03	2.00	0.00	1.00	0.00	32.64	152.85	2.00	0.00	1.00	0.00
32.81	156.28	2.00	0.00	1.00	0.00	32.97	159.85	2.00	0.00	1.00	0.00
33.14	160.78	2.00	0.00	1.00	0.00	33.30	160.37	2.00	0.00	1.00	0.00
33.46	159.27	2.00	0.00	1.00	0.00	33.63	158.56	2.00	0.00	1.00	0.00
33.79	158.34	2.00	0.00	1.00	0.00	33.96	158.08	2.00	0.00	1.00	0.00
34.12	158.13	2.00	0.00	1.00	0.00	34.28	157.18	2.00	0.00	1.00	0.00
34.45	157.84	2.00	0.00	1.00	0.00	34.61	157.63	2.00	0.00	1.00	0.00
34.78	157.70	2.00	0.00	1.00	0.00	34.94	156.44	2.00	0.00	1.00	0.00
35.10	156.08	2.00	0.00	1.00	0.00	35.27	156.78	2.00	0.00	1.00	0.00
35.43	158.16	2.00	0.00	1.00	0.00	35.60	160.51	2.00	0.00	1.00	0.00

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

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
35.76	161.48	2.00	0.00	1.00	0.00	35.93	163.72	2.00	0.00	1.00	0.00
36.09	166.87	2.00	0.00	1.00	0.00	36.25	171.91	2.00	0.00	1.00	0.00
36.42	175.60	2.00	0.00	1.00	0.00	36.58	177.17	2.00	0.00	1.00	0.00
36.75	179.77	2.00	0.00	1.00	0.00	36.91	183.31	2.00	0.00	1.00	0.00
37.07	187.85	2.00	0.00	1.00	0.00	37.24	192.01	2.00	0.00	1.00	0.00
37.40	194.09	2.00	0.00	1.00	0.00	37.57	192.54	2.00	0.00	1.00	0.00
37.73	188.77	2.00	0.00	1.00	0.00	37.89	182.35	2.00	0.00	1.00	0.00
38.06	176.25	2.00	0.00	1.00	0.00	38.22	166.99	2.00	0.00	1.00	0.00
38.39	159.45	2.00	0.00	1.00	0.00	38.55	154.49	2.00	0.00	1.00	0.00
38.71	157.47	2.00	0.00	1.00	0.00	38.88	160.64	2.00	0.00	1.00	0.00
39.04	167.77	2.00	0.00	1.00	0.00	39.21	175.55	2.00	0.00	1.00	0.00
39.37	186.61	2.00	0.00	1.00	0.00	39.53	204.94	2.00	0.00	1.00	0.00
39.70	213.12	2.00	0.00	1.00	0.00	39.86	216.78	2.00	0.00	1.00	0.00
40.03	209.69	2.00	0.00	1.00	0.00	40.19	194.49	2.00	0.00	1.00	0.00
40.35	177.63	2.00	0.00	1.00	0.00	40.52	174.97	2.00	0.00	1.00	0.00
40.68	174.08	2.00	0.00	1.00	0.00	40.85	175.85	2.00	0.00	1.00	0.00
41.01	180.79	2.00	0.00	1.00	0.00	41.17	186.48	2.00	0.00	1.00	0.00
41.34	190.45	2.00	0.00	1.00	0.00	41.50	188.34	2.00	0.00	1.00	0.00
41.67	191.33	2.00	0.00	1.00	0.00	41.83	195.76	2.00	0.00	1.00	0.00
41.99	207.17	2.00	0.00	1.00	0.00	42.16	214.71	2.00	0.00	1.00	0.00
42.32	221.25	2.00	0.00	1.00	0.00	42.49	222.14	2.00	0.00	1.00	0.00
42.65	218.04	2.00	0.00	1.00	0.00	42.81	219.25	2.00	0.00	1.00	0.00
42.98	215.42	2.00	0.00	1.00	0.00	43.14	212.63	2.00	0.00	1.00	0.00
43.31	206.28	2.00	0.00	1.00	0.00	43.47	194.00	2.00	0.00	1.00	0.00
43.64	179.26	2.00	0.00	1.00	0.00	43.80	167.20	2.00	0.00	1.00	0.00
43.96	163.69	2.00	0.00	1.00	0.00	44.13	169.53	2.00	0.00	1.00	0.00
44.29	177.10	2.00	0.00	1.00	0.00	44.46	174.81	2.00	0.00	1.00	0.00
44.62	166.00	2.00	0.00	1.00	0.00	44.78	152.46	2.00	0.00	1.00	0.00
44.95	138.60	2.00	0.00	1.00	0.00	45.11	120.07	2.00	0.00	1.00	0.00
45.28	105.93	1.40	0.00	1.00	0.00	45.44	100.21	1.27	0.29	1.00	0.01
45.60	109.35	1.48	0.00	1.00	0.00	45.77	125.02	1.92	0.00	1.00	0.00
45.93	147.24	2.00	0.00	1.00	0.00	46.10	165.33	2.00	0.00	1.00	0.00
46.26	175.46	2.00	0.00	1.00	0.00	46.42	176.91	2.00	0.00	1.00	0.00
46.59	174.75	2.00	0.00	1.00	0.00	46.75	171.38	2.00	0.00	1.00	0.00
46.92	167.29	2.00	0.00	1.00	0.00	47.08	163.35	2.00	0.00	1.00	0.00
47.24	170.05	2.00	0.00	1.00	0.00	47.41	181.17	2.00	0.00	1.00	0.00
47.57	184.19	2.00	0.00	1.00	0.00	47.74	186.05	2.00	0.00	1.00	0.00
47.90	186.56	2.00	0.00	1.00	0.00	48.06	189.86	2.00	0.00	1.00	0.00
48.23	194.73	2.00	0.00	1.00	0.00	48.39	198.89	2.00	0.00	1.00	0.00
48.56	201.61	2.00	0.00	1.00	0.00	48.72	204.16	2.00	0.00	1.00	0.00
48.88	206.66	2.00	0.00	1.00	0.00	49.05	208.25	2.00	0.00	1.00	0.00
49.21	206.48	2.00	0.00	1.00	0.00	49.38	200.04	2.00	0.00	1.00	0.00
49.54	183.40	2.00	0.00	1.00	0.00	49.70	170.17	2.00	0.00	1.00	0.00
49.87	144.52	2.00	0.00	1.00	0.00	50.03	123.68	2.00	0.00	1.00	0.00
50.20	106.37	1.44	0.00	1.00	0.00	50.36	97.94	1.25	0.29	1.00	0.01
50.52	94.15	1.18	0.42	1.00	0.01	50.69	90.69	1.12	0.59	1.00	0.01
50.85	87.01	1.06	0.60	1.00	0.01	51.02	82.43	0.99	1.06	1.00	0.02
51.18	79.77	0.96	1.09	1.00	0.02	51.35	77.96	0.93	2.27	1.00	0.04

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

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
51.51	79.21	0.95	1.10	1.00	0.02	51.67	79.54	0.96	1.09	1.00	0.02
51.84	79.84	0.96	1.09	1.00	0.02	52.00	79.68	0.96	1.09	1.00	0.02
52.17	80.03	0.97	1.09	1.00	0.02	52.33	81.40	0.98	1.07	1.00	0.02
52.49	84.02	1.02	1.04	1.00	0.02	52.66	87.63	1.08	0.60	1.00	0.01
52.82	91.48	1.15	0.58	1.00	0.01	52.99	95.62	1.23	0.42	1.00	0.01
53.15	96.18	1.24	0.42	1.00	0.01	53.31	90.17	1.13	0.59	1.00	0.01
53.48	81.70	1.00	1.07	1.00	0.02	53.64	77.58	0.94	2.28	1.00	0.04
53.81	81.42	0.99	1.07	1.00	0.02	53.97	88.44	1.10	0.60	1.00	0.01
54.13	97.45	1.27	0.29	1.00	0.01	54.30	105.47	1.45	0.00	1.00	0.00
54.46	113.39	1.65	0.00	1.00	0.00	54.63	123.24	2.00	0.00	1.00	0.00
54.79	133.17	2.00	0.00	1.00	0.00	54.95	140.27	2.00	0.00	1.00	0.00
55.12	142.61	2.00	0.00	1.00	0.00	55.28	142.17	2.00	0.00	1.00	0.00
55.45	141.87	2.00	0.00	1.00	0.00	55.61	140.64	2.00	0.00	1.00	0.00
55.77	138.39	2.00	0.00	1.00	0.00	55.94	137.20	2.00	0.00	1.00	0.00
56.10	138.96	2.00	0.00	1.00	0.00	56.27	140.68	2.00	0.00	1.00	0.00
56.43	139.05	2.00	0.00	1.00	0.00	56.59	130.80	2.00	0.00	1.00	0.00
56.76	118.20	2.00	0.00	1.00	0.00	56.92	97.70	1.30	0.29	1.00	0.01
57.09	84.63	1.06	0.61	1.00	0.01	57.25	80.81	1.01	1.08	1.00	0.02
57.41	88.77	1.13	0.60	1.00	0.01	57.58	94.37	1.23	0.42	1.00	0.01
57.74	91.52	1.18	0.43	1.00	0.01	57.91	84.52	1.06	0.62	1.00	0.01
58.07	81.46	1.02	1.07	1.00	0.02	58.23	85.50	1.08	0.61	1.00	0.01
58.40	86.97	1.11	0.60	1.00	0.01	58.56	85.29	1.08	0.61	1.00	0.01
58.73	94.58	1.25	0.42	1.00	0.01	58.89	102.58	1.42	0.00	1.00	0.00
59.06	100.30	1.37	0.00	1.00	0.00	59.22	97.87	1.32	0.29	1.00	0.01
59.38	104.50	1.47	0.00	1.00	0.00	59.55	118.90	1.87	0.00	1.00	0.00
59.71	134.83	2.00	0.00	1.00	0.00	59.88	151.05	2.00	0.00	1.00	0.00
60.04	172.02	2.00	0.00	1.00	0.00	60.20	-1.00	2.00	0.00	1.00	0.00
60.37	-1.00	2.00	0.00	1.00	0.00	60.53	-1.00	2.00	0.00	1.00	0.00
60.70	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.59

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

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.16	501.19	805.21	1.00	805.21	0.89	1.24	1.24
0.33	494.79	794.91	1.00	794.91	0.96	1.24	1.24
0.49	444.84	714.65	1.00	714.65	1.10	1.21	1.21
0.66	271.36	435.91	1.00	435.91	1.44	1.07	1.07
0.82	190.30	305.65	1.08	330.56	1.75	1.00	1.00
0.98	159.59	256.31	1.28	328.98	1.97	1.00	1.00
1.15	168.77	271.02	1.34	364.21	2.04	1.02	1.02
1.31	168.56	270.68	1.38	373.53	2.07	1.03	1.03
1.48	150.32	241.36	1.44	347.75	2.11	1.01	1.01
1.64	121.16	194.49	1.54	299.81	2.17	0.98	0.98
1.80	95.40	153.08	1.75	267.50	2.25	0.95	0.95
1.97	78.52	125.95	1.99	250.17	2.32	0.94	0.94
2.13	71.09	113.99	2.15	245.63	2.36	0.93	0.93
2.30	70.24	112.60	2.13	239.35	2.35	0.93	0.93
2.46	71.81	115.11	1.95	224.29	2.31	0.91	0.91
2.62	72.75	116.61	1.81	211.46	2.27	0.90	0.90
2.79	79.00	126.63	1.65	208.88	2.21	0.90	0.90
2.95	95.25	152.73	1.48	225.39	2.13	0.91	0.91
3.12	114.21	183.17	1.39	255.50	2.08	0.94	0.94
3.28	129.98	208.49	1.39	290.12	2.08	0.97	0.97
3.44	139.98	224.53	1.44	323.60	2.11	1.00	1.00
3.61	148.75	238.60	1.50	358.80	2.15	1.02	1.02
3.77	154.79	248.29	1.57	389.43	2.18	1.04	1.04
3.94	155.65	249.66	1.65	411.04	2.21	1.05	1.05
4.10	151.64	243.20	1.76	429.22	2.25	1.07	1.07
4.27	145.94	234.01	1.90	443.80	2.29	1.07	1.07
4.43	137.64	220.66	1.98	437.58	2.32	1.07	1.07
4.59	127.45	204.27	2.13	434.58	2.35	1.07	1.07
4.76	116.54	186.72	2.30	429.28	2.39	1.07	1.07
4.92	105.96	169.72	2.63	446.84	2.45	1.08	1.08
5.09	97.73	156.48	2.84	444.01	2.48	1.07	1.07
5.25	89.44	143.13	2.98	426.78	2.50	1.06	1.06
5.41	82.27	131.60	2.98	391.99	2.50	1.04	1.04
5.58	75.27	120.33	2.95	354.79	2.50	1.02	1.02
5.74	70.92	113.33	2.89	327.47	2.49	1.00	1.00
5.91	69.89	111.66	2.85	318.66	2.48	0.99	0.99
6.07	70.55	112.70	2.88	324.80	2.49	1.00	1.00
6.23	70.72	112.95	2.93	331.32	2.49	1.00	1.00
6.40	68.35	109.13	3.10	337.75	2.52	1.01	1.01
6.56	65.31	104.23	3.17	330.73	2.53	1.00	1.00
6.73	62.90	100.34	3.13	313.91	2.52	0.99	0.99
6.89	59.72	95.21	2.98	283.83	2.50	0.96	0.96
7.05	55.91	89.08	2.79	248.93	2.47	0.93	0.93
7.22	51.30	81.65	2.92	238.27	2.49	0.93	0.93
7.38	48.79	77.61	3.43	266.24	2.56	0.95	0.95
7.55	51.21	81.48	3.90	317.74	2.62	0.99	0.99
7.71	62.57	99.71	3.51	349.93	2.57	1.01	1.01
7.87	79.26	126.50	3.02	381.90	2.51	1.04	1.04

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.04	100.92	157.94	2.65	419.06	2.45	1.06	1.06
8.20	122.46	187.90	2.50	470.53	2.42	1.09	1.09
8.37	150.14	225.02	2.26	507.49	2.38	1.11	1.11
8.53	177.31	259.95	2.06	534.80	2.33	1.12	1.12
8.69	202.07	289.69	1.87	541.17	2.28	1.13	1.13
8.86	212.11	299.43	1.83	546.76	2.27	1.13	1.13
9.02	210.87	294.38	1.87	549.57	2.28	1.13	1.13
9.19	212.04	293.13	1.94	567.51	2.30	1.14	1.14
9.35	233.90	317.98	1.84	585.39	2.28	1.15	1.15
9.51	285.95	378.74	1.58	597.49	2.18	1.15	1.15
9.68	321.41	417.10	1.46	607.97	2.12	1.16	1.16
9.84	323.08	413.31	1.42	588.08	2.10	1.15	1.15
10.01	280.19	356.68	1.50	535.18	2.15	1.12	1.12
10.17	225.03	285.79	1.66	473.97	2.22	1.09	1.09
10.33	172.15	218.11	1.90	414.33	2.29	1.06	1.06
10.50	130.16	164.46	2.24	368.62	2.37	1.03	1.03
10.66	108.48	136.13	2.49	338.58	2.42	1.01	1.01
10.83	106.72	132.40	2.50	331.14	2.42	1.00	1.00
10.99	114.10	139.84	2.43	339.92	2.41	1.01	1.01
11.15	122.35	148.20	2.38	352.97	2.40	1.02	1.02
11.32	122.03	146.41	2.46	360.25	2.42	1.02	1.02
11.48	116.75	138.76	2.56	355.71	2.43	1.02	1.02
11.65	106.14	125.05	2.74	342.37	2.46	1.01	1.01
11.81	95.71	111.78	2.94	328.86	2.49	1.00	1.00
11.98	89.14	103.12	3.08	317.38	2.51	0.99	0.99
12.14	88.98	101.82	3.05	310.06	2.51	0.99	0.99
12.30	91.31	103.34	2.97	306.73	2.50	0.98	0.98
12.47	92.92	104.11	2.96	308.24	2.50	0.98	0.98
12.63	92.98	103.20	3.02	311.62	2.51	0.99	0.99
12.80	93.29	102.54	3.04	311.95	2.51	0.99	0.99
12.96	93.35	101.56	3.01	305.68	2.50	0.98	0.98
13.12	93.94	101.12	2.87	290.65	2.48	0.97	0.97
13.29	94.11	100.27	2.78	278.62	2.47	0.96	0.96
13.45	92.71	97.85	2.77	271.14	2.47	0.95	0.95
13.62	93.41	97.68	2.75	268.55	2.47	0.95	0.95
13.78	95.31	98.84	2.82	278.94	2.48	0.96	0.96
13.94	103.19	106.18	2.93	311.15	2.49	0.99	0.99
14.11	121.12	123.57	2.79	344.77	2.47	1.01	1.01
14.27	145.28	146.83	2.43	356.66	2.41	1.02	1.02
14.44	154.49	154.70	2.25	347.32	2.37	1.01	1.01
14.60	144.10	143.09	2.35	335.70	2.39	1.00	1.00
14.76	126.17	124.23	2.60	322.57	2.44	1.00	1.00
14.93	114.38	111.64	2.78	310.31	2.47	0.99	0.99
15.09	106.93	103.42	2.69	278.69	2.46	0.96	0.96
15.26	93.89	89.96	2.71	243.94	2.46	0.93	0.93
15.42	76.29	72.36	2.86	206.65	2.48	0.89	0.89
15.58	59.81	56.08	3.33	186.53	2.55	0.87	0.87
15.75	51.79	48.06	3.78	181.59	2.60	0.87	0.87

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.91	50.99	46.92	3.94	185.00	2.62	0.87	0.87
16.08	51.79	47.30	3.88	183.52	2.61	0.87	0.87
16.24	48.92	44.27	4.18	185.22	2.65	0.87	0.87
16.40	46.30	41.51	4.40	182.66	2.67	0.87	0.87
16.57	43.85	38.95	4.65	181.14	2.69	0.87	0.87
16.73	41.65	36.64	4.88	178.75	2.72	0.86	0.86
16.90	40.17	35.02	5.06	177.19	2.73	0.86	0.86
17.06	39.55	34.18	5.23	178.67	2.75	0.86	0.86
17.22	39.44	33.82	5.38	182.06	2.76	0.87	0.87
17.39	40.88	34.77	5.89	204.78	2.80	0.89	0.89
17.55	42.43	35.82	6.22	222.65	2.83	0.91	0.91
17.72	45.41	38.12	6.04	230.26	2.81	0.92	0.92
17.88	48.79	40.81	5.22	213.14	2.75	0.90	0.90
18.04	49.59	41.25	4.80	197.95	2.71	0.88	0.88
18.21	48.92	40.41	4.62	186.89	2.69	0.87	0.87
18.37	45.96	37.60	4.84	181.90	2.71	0.87	0.87
18.54	43.20	34.99	5.11	178.96	2.74	0.86	0.86
18.70	41.93	33.63	5.54	186.21	2.77	0.87	0.87
18.86	43.99	35.04	5.78	202.61	2.79	0.89	0.89
19.03	49.82	39.60	5.39	213.64	2.76	0.90	0.90
19.19	54.30	43.06	4.85	208.71	2.71	0.90	0.90
19.36	53.65	42.31	4.56	193.06	2.69	0.88	0.88
19.52	48.83	37.98	5.35	203.34	2.76	0.89	0.89
19.69	48.59	37.36	6.25	233.58	2.83	0.92	0.92
19.85	58.27	44.78	5.80	259.76	2.80	0.94	0.94
20.01	70.46	54.36	4.63	251.71	2.69	0.94	0.94
20.18	73.08	56.27	4.06	228.72	2.63	0.92	0.92
20.34	64.83	49.45	4.11	203.45	2.64	0.89	0.89
20.51	52.68	39.54	4.79	189.38	2.71	0.88	0.88
20.67	44.96	33.23	5.42	180.15	2.76	0.86	0.86
20.83	41.24	30.11	5.87	176.85	2.80	0.86	0.86
21.00	40.42	29.28	5.94	173.86	2.81	0.86	0.86
21.16	40.20	28.93	5.92	171.12	2.81	0.85	0.85
21.33	38.50	27.39	6.45	176.59	2.85	0.86	0.86
21.49	37.03	26.05	6.93	180.58	2.88	0.87	0.87
21.65	35.93	25.02	7.31	182.97	2.91	0.87	0.87
21.82	37.40	26.03	6.66	173.35	2.86	0.86	0.86
21.98	37.74	26.13	6.49	169.66	2.85	0.85	0.85
22.15	40.70	28.11	6.37	179.10	2.84	0.86	0.86
22.31	45.08	31.03	6.46	200.48	2.85	0.89	0.89
22.47	53.84	37.18	5.91	219.69	2.80	0.91	0.91
22.64	62.34	43.15	5.36	231.27	2.76	0.92	0.92
22.80	66.97	46.27	5.08	234.87	2.73	0.92	0.92
22.97	66.12	45.33	5.20	235.90	2.75	0.92	0.92
23.13	61.57	41.74	5.59	233.52	2.78	0.92	0.92
23.29	58.24	39.08	5.86	228.95	2.80	0.92	0.92
23.46	56.97	38.00	5.80	220.32	2.80	0.91	0.91
23.62	56.01	37.16	5.68	211.10	2.79	0.90	0.90

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.79	51.44	33.75	5.97	201.55	2.81	0.89	0.89
23.95	45.20	29.17	6.67	194.51	2.86	0.88	0.88
24.11	39.64	25.16	7.30	183.63	2.91	0.87	0.87
24.28	35.68	22.35	7.64	170.81	2.93	0.85	0.85
24.44	31.52	18.60	8.44	156.98	2.98	0.84	0.84
24.61	27.02	15.70	10.03	157.43	3.07	1.14	1.12
24.77	26.95	15.55	10.83	168.38	3.11	1.30	1.11
24.93	34.97	20.35	9.06	184.30	3.02	1.63	1.45
25.10	47.88	29.65	7.01	207.79	2.89	0.90	0.90
25.26	60.91	38.16	6.01	229.18	2.81	0.92	0.92
25.43	69.64	43.74	5.58	244.20	2.78	0.93	0.93
25.59	74.99	47.11	5.24	246.96	2.75	0.93	0.93
25.75	75.84	47.54	5.00	237.47	2.73	0.92	0.92
25.92	71.95	44.79	5.01	224.61	2.73	0.91	0.91
26.08	65.46	40.25	5.37	216.30	2.76	0.90	0.90
26.25	60.36	36.66	5.75	210.92	2.79	0.90	0.90
26.41	56.80	34.14	6.02	205.49	2.81	0.89	0.89
26.57	54.12	32.26	6.22	200.78	2.83	0.89	0.89
26.74	52.95	31.37	6.45	202.49	2.85	0.89	0.89
26.90	53.85	31.78	6.59	209.33	2.86	0.90	0.90
27.07	53.92	31.71	6.66	211.20	2.86	0.90	0.90
27.23	54.03	31.71	6.57	208.47	2.86	0.90	0.90
27.40	52.15	30.40	6.82	207.44	2.87	0.89	0.89
27.56	51.38	29.67	7.36	218.45	2.91	0.91	0.91
27.72	50.45	27.29	8.11	221.19	2.96	0.91	0.91
27.89	50.61	27.29	8.14	222.24	2.96	0.91	0.91
28.05	50.91	29.14	7.34	213.78	2.91	0.90	0.90
28.22	47.28	26.84	7.56	203.02	2.92	0.89	0.89
28.38	43.32	22.98	8.24	189.32	2.97	0.88	0.88
28.54	39.73	20.92	8.95	187.25	3.01	1.77	1.49
28.71	38.54	20.20	9.12	184.14	3.02	1.78	1.44
28.87	37.06	19.33	9.31	179.96	3.03	1.69	1.38
29.04	33.87	17.52	9.70	169.93	3.05	1.50	1.25
29.20	29.49	15.07	10.39	156.51	3.09	1.17	1.08
29.36	24.74	12.43	11.70	145.50	3.15	0.93	0.89
29.53	21.63	10.71	13.75	147.16	3.24	0.89	0.76
29.69	21.15	10.41	15.02	156.45	3.29	1.15	0.74
29.86	22.97	11.36	14.94	169.72	3.29	1.30	0.81
30.02	29.12	14.64	12.06	176.52	3.17	1.52	1.05
30.18	34.88	17.69	10.06	178.09	3.07	1.64	1.26
30.35	37.86	19.24	9.00	173.12	3.01	1.58	1.37
30.51	35.73	18.04	9.41	169.67	3.04	1.40	1.29
30.68	32.38	16.20	10.47	169.56	3.09	1.39	1.16
30.84	31.56	15.71	10.98	172.60	3.12	1.44	1.12
31.00	31.44	15.60	11.19	174.59	3.13	1.50	1.11
31.17	31.66	15.66	11.05	173.03	3.12	1.48	1.12
31.33	30.29	14.90	11.49	171.11	3.14	1.38	1.06
31.50	28.10	13.70	12.42	170.16	3.19	1.36	0.98

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.66	27.20	13.18	13.10	172.66	3.22	1.36	0.94
31.82	28.39	13.77	12.61	173.52	3.19	1.46	0.98
31.99	31.60	15.40	11.07	170.52	3.12	1.43	1.10
32.15	37.24	18.29	8.82	161.29	3.00	1.32	1.31
32.32	41.15	21.79	7.24	157.73	2.90	0.84	0.84
32.48	42.61	22.67	6.79	154.03	2.87	0.83	0.83
32.64	39.19	19.13	7.99	152.85	2.95	0.83	0.83
32.81	34.64	16.74	9.34	156.28	3.03	1.23	1.20
32.97	30.31	14.46	11.05	159.85	3.12	1.23	1.03
33.14	27.21	12.83	12.53	160.78	3.19	1.22	0.92
33.30	25.82	12.08	13.27	160.37	3.22	1.18	0.86
33.46	24.96	11.61	13.72	159.27	3.24	1.17	0.83
33.63	24.00	11.09	14.30	158.56	3.27	1.15	0.79
33.79	23.46	10.78	14.69	158.34	3.28	1.12	0.77
33.96	23.24	10.64	14.86	158.08	3.29	1.15	0.76
34.12	23.63	10.80	14.64	158.13	3.28	1.13	0.77
34.28	23.83	10.87	14.46	157.18	3.27	1.13	0.78
34.45	24.26	11.05	14.28	157.84	3.26	1.11	0.79
34.61	24.11	10.95	14.40	157.63	3.27	1.16	0.78
34.78	23.08	10.40	15.16	157.70	3.30	1.12	0.74
34.94	23.07	10.36	15.10	156.44	3.30	1.09	0.74
35.10	23.41	10.50	14.86	156.08	3.29	1.11	0.75
35.27	24.44	10.98	14.28	156.78	3.26	1.11	0.78
35.43	24.47	10.97	14.42	158.16	3.27	1.14	0.78
35.60	24.50	10.94	14.66	160.51	3.28	1.16	0.78
35.76	25.04	11.18	14.45	161.48	3.27	1.20	0.80
35.93	26.23	11.73	13.95	163.72	3.25	1.19	0.84
36.09	27.76	12.45	13.40	166.87	3.23	1.28	0.89
36.25	29.67	13.35	12.88	171.91	3.21	1.38	0.95
36.42	32.08	14.48	12.13	175.60	3.17	1.46	1.03
36.58	35.19	15.95	11.11	177.17	3.12	1.52	1.14
36.75	37.88	17.21	10.45	179.77	3.09	1.54	1.23
36.91	38.84	17.62	10.40	183.31	3.09	1.67	1.26
37.07	40.26	18.25	10.29	187.85	3.08	1.71	1.30
37.24	40.38	18.26	10.51	192.01	3.09	1.80	1.30
37.40	42.91	19.42	9.99	194.09	3.07	1.87	1.39
37.57	46.02	20.85	9.23	192.54	3.03	1.90	1.49
37.73	48.36	21.91	8.61	188.77	2.99	0.87	0.87
37.89	48.01	21.68	8.41	182.35	2.98	0.87	0.87
38.06	44.52	19.97	8.83	176.25	3.00	1.57	1.43
38.22	42.24	18.83	8.87	166.99	3.00	1.41	1.35
38.39	41.36	18.36	8.68	159.45	2.99	0.84	0.84
38.55	42.71	18.95	8.15	154.49	2.96	0.83	0.83
38.71	46.60	22.64	6.95	157.47	2.88	0.84	0.84
38.88	52.88	26.13	6.15	160.64	2.82	0.84	0.84
39.04	56.57	28.06	5.98	167.77	2.81	0.85	0.85
39.21	58.54	28.97	6.06	175.55	2.82	0.86	0.86
39.37	57.60	28.16	6.63	186.61	2.86	0.87	0.87

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	57.31	27.62	7.42	204.94	2.91	0.89	0.89
39.70	58.43	25.86	8.24	213.12	2.97	0.90	0.90
39.86	60.23	26.62	8.14	216.78	2.96	0.90	0.90
40.03	61.21	29.50	7.11	209.69	2.89	0.90	0.90
40.19	57.41	27.54	7.06	194.49	2.89	0.88	0.88
40.35	51.23	22.28	7.97	177.63	2.95	0.86	0.86
40.52	45.71	19.70	8.88	174.97	3.01	1.53	1.41
40.68	42.43	18.15	9.59	174.08	3.05	1.49	1.30
40.85	40.76	17.34	10.14	175.85	3.08	1.47	1.24
41.01	40.49	17.17	10.53	180.79	3.10	1.55	1.23
41.17	41.58	17.61	10.59	186.48	3.10	1.71	1.26
41.34	43.09	18.25	10.44	190.45	3.09	1.78	1.30
41.50	43.61	18.43	10.22	188.34	3.08	1.79	1.32
41.67	43.38	18.28	10.47	191.33	3.09	1.62	1.31
41.83	42.58	17.87	10.95	195.76	3.12	1.91	1.28
41.99	44.48	18.67	11.09	207.17	3.12	1.98	1.33
42.16	49.84	21.01	10.22	214.71	3.08	2.26	1.50
42.32	54.44	23.00	9.62	221.25	3.05	2.49	1.64
42.49	59.26	25.08	8.86	222.14	3.00	2.50	1.79
42.65	62.18	26.30	8.29	218.04	2.97	0.91	0.91
42.81	66.58	30.96	7.08	219.25	2.89	0.91	0.91
42.98	67.48	31.44	6.85	215.42	2.88	0.90	0.90
43.14	69.97	32.77	6.49	212.63	2.85	0.90	0.90
43.31	72.66	34.28	6.02	206.28	2.81	0.89	0.89
43.47	75.70	36.16	5.37	194.00	2.76	0.88	0.88
43.64	74.55	35.77	5.01	179.26	2.73	0.86	0.86
43.80	71.52	34.28	4.88	167.20	2.72	0.85	0.85
43.96	68.30	32.49	5.04	163.69	2.73	0.84	0.84
44.13	63.09	29.41	5.76	169.53	2.79	0.85	0.85
44.29	60.23	27.61	6.42	177.10	2.84	0.86	0.86
44.46	60.28	27.61	6.33	174.81	2.84	0.86	0.86
44.62	63.08	29.27	5.67	166.00	2.79	0.85	0.85
44.78	64.61	30.35	5.02	152.46	2.73	0.83	0.83
44.95	63.91	30.23	4.58	138.60	2.69	0.81	0.81
45.11	64.03	30.75	3.90	120.07	2.62	0.78	0.78
45.28	65.18	31.79	3.33	105.93	2.55	0.76	0.76
45.44	68.61	33.90	2.96	100.21	2.50	0.75	0.75
45.60	73.13	36.07	3.03	109.35	2.51	0.76	0.76
45.77	76.47	37.33	3.35	125.02	2.55	0.79	0.79
45.93	74.59	35.50	4.15	147.24	2.64	0.82	0.82
46.10	68.06	31.37	5.27	165.33	2.75	0.85	0.85
46.26	61.62	27.59	6.36	175.46	2.84	0.86	0.86
46.42	59.27	26.25	6.74	176.91	2.87	0.86	0.86
46.59	60.60	26.93	6.49	174.75	2.85	0.86	0.86
46.75	62.01	27.70	6.19	171.38	2.83	0.85	0.85
46.92	66.85	30.31	5.52	167.29	2.77	0.85	0.85
47.08	74.34	34.37	4.75	163.35	2.70	0.84	0.84
47.24	77.32	35.72	4.76	170.05	2.71	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.41	70.15	31.53	5.75	181.17	2.79	0.87	0.87
47.57	56.64	22.11	8.33	184.19	2.97	0.87	0.87
47.74	46.65	17.94	10.37	186.05	3.09	1.64	1.28
47.90	41.03	15.58	11.97	186.56	3.17	1.59	1.11
48.06	39.04	14.73	12.89	189.86	3.21	1.63	1.05
48.23	39.56	14.90	13.07	194.73	3.21	1.74	1.06
48.39	42.61	16.11	12.34	198.89	3.18	1.84	1.15
48.56	47.92	18.23	11.06	201.61	3.12	1.92	1.30
48.72	53.01	20.25	10.08	204.16	3.07	2.02	1.45
48.88	56.33	21.55	9.59	206.66	3.05	2.12	1.54
49.05	56.80	21.69	9.60	208.25	3.05	2.15	1.55
49.21	55.89	21.27	9.71	206.48	3.05	2.12	1.52
49.38	55.14	20.91	9.57	200.04	3.04	1.99	1.49
49.54	55.84	21.14	8.67	183.40	2.99	0.87	0.87
49.70	58.50	24.73	6.88	170.17	2.88	0.85	0.85
49.87	63.61	27.93	5.17	144.52	2.74	0.82	0.82
50.03	69.27	31.47	3.93	123.68	2.62	0.79	0.79
50.20	73.40	34.28	3.10	106.37	2.52	0.76	0.76
50.36	75.70	35.86	2.73	97.94	2.46	0.74	0.74
50.52	77.13	36.78	2.56	94.15	2.43	0.74	0.74
50.69	79.31	38.12	2.38	90.69	2.40	0.73	0.73
50.85	81.39	39.46	2.20	87.01	2.37	0.72	0.72
51.02	81.77	39.92	2.07	82.43	2.34	0.71	0.71
51.18	80.75	39.45	2.02	79.77	2.32	0.57	0.71
51.35	80.96	39.64	1.97	77.96	2.31	0.49	0.70
51.51	82.24	40.23	1.97	79.21	2.31	0.55	0.71
51.67	84.09	41.22	1.93	79.54	2.30	0.56	0.71
51.84	85.56	42.00	1.90	79.84	2.29	0.58	0.71
52.00	87.72	43.22	1.84	79.68	2.28	0.57	0.71
52.17	89.80	44.36	1.80	80.03	2.27	0.59	0.71
52.33	90.98	44.87	1.81	81.40	2.27	0.66	0.71
52.49	92.00	45.16	1.86	84.02	2.28	0.72	0.72
52.66	92.14	44.86	1.95	87.63	2.31	0.72	0.72
52.82	89.46	42.95	2.13	91.48	2.35	0.73	0.73
52.99	83.89	39.47	2.42	95.62	2.41	0.74	0.74
53.15	78.41	36.34	2.65	96.18	2.45	0.74	0.74
53.31	77.99	36.36	2.48	90.17	2.42	0.73	0.73
53.48	82.13	39.16	2.09	81.70	2.34	0.67	0.71
53.64	87.00	42.26	1.84	77.58	2.28	0.48	0.70
53.81	88.42	42.68	1.91	81.42	2.30	0.66	0.71
53.97	85.63	40.48	2.18	88.44	2.36	0.73	0.73
54.13	81.89	37.80	2.58	97.45	2.44	0.74	0.74
54.30	78.46	35.48	2.97	105.47	2.50	0.76	0.76
54.46	75.58	33.55	3.38	113.39	2.55	0.77	0.77
54.63	71.86	31.17	3.95	123.24	2.62	0.79	0.79
54.79	67.28	28.44	4.68	133.17	2.70	0.80	0.80
54.95	63.74	26.39	5.32	140.27	2.76	0.81	0.81
55.12	61.87	25.34	5.63	142.61	2.78	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.28	61.87	25.29	5.62	142.17	2.78	0.82	0.82
55.45	62.27	25.44	5.58	141.87	2.78	0.82	0.82
55.61	63.27	25.92	5.43	140.64	2.76	0.81	0.81
55.77	63.56	26.08	5.31	138.39	2.75	0.81	0.81
55.94	62.59	25.57	5.37	137.20	2.76	0.81	0.81
56.10	60.40	24.38	5.70	138.96	2.79	0.81	0.81
56.27	58.53	23.37	6.02	140.68	2.81	0.81	0.81
56.43	58.56	23.37	5.95	139.05	2.81	0.81	0.81
56.59	60.63	24.57	5.32	130.80	2.76	0.80	0.80
56.76	63.16	26.15	4.52	118.20	2.68	0.78	0.78
56.92	67.29	28.95	3.37	97.70	2.55	0.74	0.74
57.09	71.57	31.76	2.66	84.63	2.45	0.72	0.72
57.25	75.11	33.83	2.39	80.81	2.40	0.62	0.71
57.41	75.59	33.57	2.64	88.77	2.45	0.73	0.73
57.58	74.27	32.53	2.90	94.37	2.49	0.74	0.74
57.74	74.41	32.69	2.80	91.52	2.47	0.73	0.73
57.91	77.49	34.66	2.44	84.52	2.41	0.72	0.72
58.07	81.41	36.94	2.21	81.46	2.37	0.66	0.71
58.23	85.78	38.99	2.19	85.50	2.36	0.72	0.72
58.40	92.69	42.63	2.04	86.97	2.33	0.72	0.72
58.56	113.93	55.21	1.54	85.29	2.17	0.72	0.72
58.73	142.23	73.21	1.29	94.58	1.98	0.74	0.74
58.89	156.58	82.22	1.25	102.58	1.92	0.75	0.75
59.06	149.92	76.61	1.31	100.30	2.00	0.75	0.75
59.22	140.13	69.56	1.41	97.87	2.09	0.74	0.74
59.38	152.65	76.60	1.36	104.50	2.06	0.76	0.76
59.55	178.23	91.39	1.30	118.90	1.99	0.78	0.78
59.71	203.01	104.85	1.29	134.83	1.97	0.81	0.81
59.88	227.29	117.51	1.29	151.05	1.97	0.83	0.83
60.04	262.22	138.04	1.25	172.02	1.91	0.86	0.86
60.20	310.90	-1.00	1.00	-1.00	-1.00	0.00	0.00
60.37	371.99	-1.00	1.00	-1.00	-1.00	0.00	0.00
60.53	477.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
60.70	565.02	-1.00	1.00	-1.00	-1.00	0.00	0.00

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

U.S. Geological Survey - Earthquake Hazards Program

Unified Hazard Tool

Please do not use this tool to obtain ground motion parameter values for the design code reference documents covered by the U.S. Seismic Design Maps web tools (e.g., the International Building Code and the ASCE 7 or 41 Standard). The values returned by the two applications are not identical.

Please also see the new USGS Earthquake Hazard Toolbox for access to the most recent NSHMs for the conterminous U.S. and Hawaii.

Input

Edition

Dynamic: Conterminous U.S. 2014 (update…

Spectral Period

Peak Ground Acceleration

Latitude

Decimal degrees

38.533

Time Horizon

Return period in years

2475

Longitude

Decimal degrees, negative values for western longitudes

-121.4781

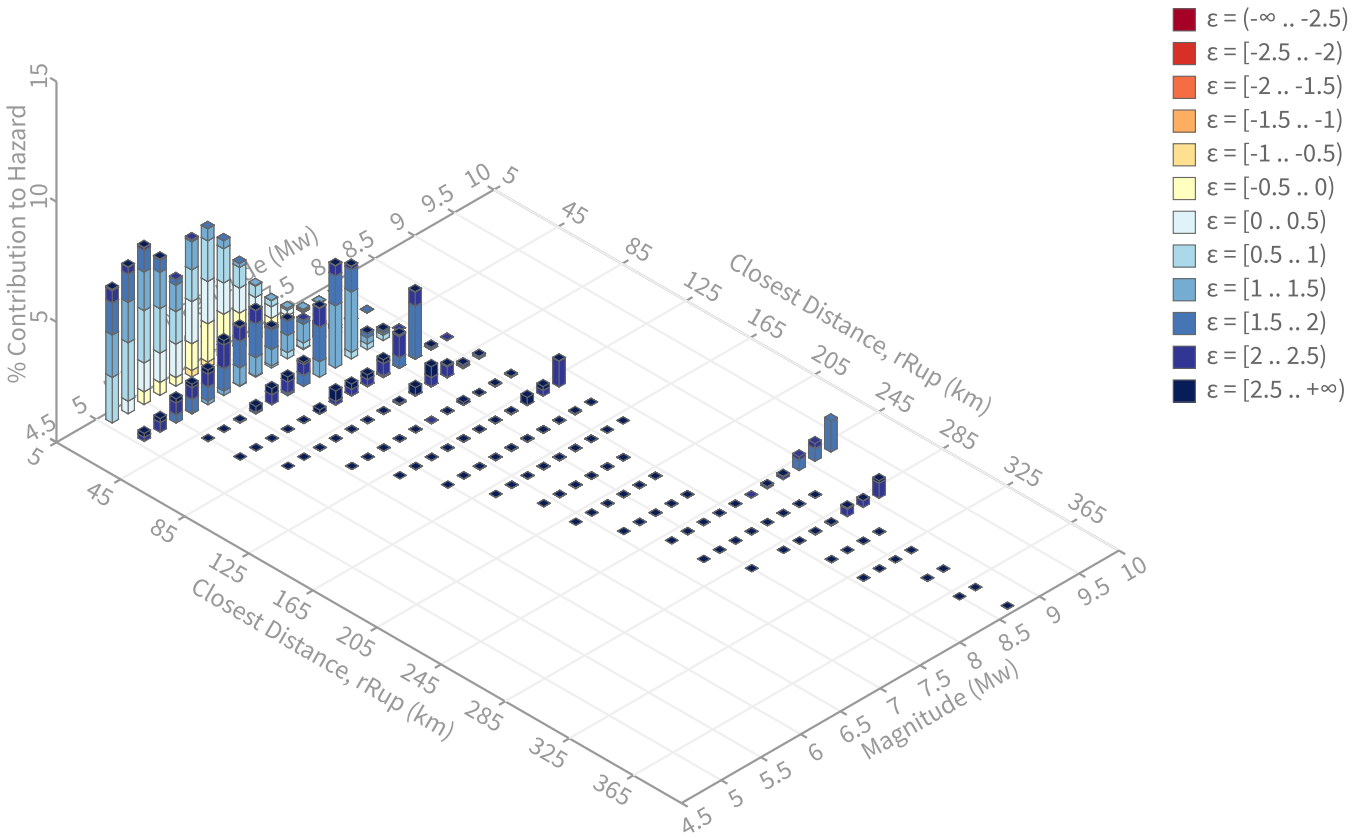
Site Class

360 m/s (C/D boundary)

Deaggregation

Component

Total



Summary statistics for, Deaggregation: Total

Deaggregation targets

Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
PGA ground motion: 0.32459258 g

Recovered targets

Return period: 2782.8576 yrs
Exceedance rate: 0.00035934286 yr^{-1}

Totals

Binned: 100 %
Residual: 0 %
Trace: 0.4 %

Mean (over all sources)

m: 6.48
r: 38.27 km
ε_0: 1.22 σ

Mode (largest m-r bin)

m: 5.5
r: 10.96 km
ε_0: 0.89 σ
Contribution: 6.53 %

Mode (largest m-r-ε_0 bin)

m: 7.12
r: 47.83 km
ε_0: 1.3 σ
Contribution: 2.59 %

Discretization

r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys

ε0: [-∞ .. -2.5)
ε1: [-2.5 .. -2.0)
ε2: [-2.0 .. -1.5)
ε3: [-1.5 .. -1.0)
ε4: [-1.0 .. -0.5)
ε5: [-0.5 .. 0.0)
ε6: [0.0 .. 0.5)
ε7: [0.5 .. 1.0)
ε8: [1.0 .. 1.5)
ε9: [1.5 .. 2.0)
ε10: [2.0 .. 2.5)
ε11: [2.5 .. +∞]

Deaggregation Contributors

Source Set ↳ Source	Type	r	m	ε_0	lon	lat	az	%
UC33brAvg_FM32 (opt)	Grid							33.65
PointSourceFinite: -121.478, 38.600		8.60	5.78	0.47	121.478°W	38.600°N	0.00	3.07
PointSourceFinite: -121.478, 38.600		8.60	5.78	0.47	121.478°W	38.600°N	0.00	3.05
PointSourceFinite: -121.478, 38.573		6.69	5.69	0.23	121.478°W	38.573°N	0.00	2.77
PointSourceFinite: -121.478, 38.573		6.69	5.69	0.23	121.478°W	38.573°N	0.00	2.76
PointSourceFinite: -121.478, 38.636		11.40	5.91	0.75	121.478°W	38.636°N	0.00	1.36
PointSourceFinite: -121.478, 38.636		11.40	5.91	0.75	121.478°W	38.636°N	0.00	1.36
UC33brAvg_FM31 (opt)	Grid							33.45
PointSourceFinite: -121.478, 38.600		8.60	5.78	0.47	121.478°W	38.600°N	0.00	3.07
PointSourceFinite: -121.478, 38.600		8.60	5.78	0.47	121.478°W	38.600°N	0.00	3.05
PointSourceFinite: -121.478, 38.573		6.69	5.69	0.23	121.478°W	38.573°N	0.00	2.77
PointSourceFinite: -121.478, 38.573		6.69	5.69	0.23	121.478°W	38.573°N	0.00	2.77
PointSourceFinite: -121.478, 38.636		11.40	5.91	0.75	121.478°W	38.636°N	0.00	1.36
PointSourceFinite: -121.478, 38.636		11.40	5.91	0.75	121.478°W	38.636°N	0.00	1.36
UC33brAvg_FM31	System							14.84
Great Valley 04a Trout Creek [2]		47.52	7.11	1.46	122.013°W	38.526°N	269.26	4.34
Hunting Creek - Berryessa [0]		66.27	7.45	2.06	122.223°W	38.415°N	258.83	1.65
Great Valley 06 (Midland) alt1 [0]		33.07	6.85	1.62	121.814°W	38.396°N	242.55	1.57
UC33brAvg_FM32	System							13.57
Great Valley 04a Trout Creek [2]		47.52	7.22	1.35	122.013°W	38.526°N	269.26	4.55
Hunting Creek - Berryessa [0]		66.27	7.46	2.05	122.223°W	38.415°N	258.83	1.60
sub0_ch_bot.in	Interface							2.47
Cascadia Megathrust - whole CSZ Characteristic		245.33	9.15	1.88	122.945°W	40.376°N	328.89	2.47
sub0_ch_mid.in	Interface							1.07
Cascadia Megathrust - whole CSZ Characteristic		286.90	8.96	2.25	123.829°W	40.347°N	315.72	1.07

ENTEK
CONSULTING GROUP, INC.
4200 Rocklin Road, Suite 7, Rocklin, CA 95677 Phone (916) 632-6800 Fax (916) 632-6812 www.entekgroup.com

HAZARDOUS MATERIALS SURVEY
FINAL REPORT

OWNER/CLIENT

Sacramento City Unified School District
425 1st Avenue
Sacramento, CA 95818

CONTACT

Mr. Chris Ralston, Director III
Facilities Management, Maintenance & Operations, and Resource Management

SURVEY ADDRESS

Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

BUILDING(S) SURVEYED

Full Campus Survey
Campus Renewal Project

PREPARED BY

Jose Hernandez
CAC #22-6995 & CDPH I/A #10754
Entek Consulting Group, Inc.
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Entek Project #24-7284

September 16, 2024

ENTEK

TABLE OF CONTENTS

Executive Summary

The United States Environmental Protection Agency, National Emission Standards for Hazardous Air Pollutants (US EPA NESHAP), 40 CFR Part 61 - Nov. 20, 1990, requires an owner or operator of a demolition or renovation project to thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos-containing materials (ACM) prior to the commencement of that project.

This inspection report was requested by Mr. Anthony Lea, Facilities Project Technician with the Sacramento City Unified School District (SCUSD) on behalf of Mr. Chris Ralston, Director III with the SCUSD.

The purpose of the inspection was to comply with US EPA NESHAP requirements and the Sacramento Metropolitan Air Quality Management District (SMAQMD) which has jurisdiction for this project site to determine if asbestos containing materials are present which may be impacted during an upcoming Modernization Project, which will include renovation of 11 buildings at Ethel Phillips Elementary School located at 2930 21st Avenue in Sacramento, California.

Paints, coatings, and glazed ceramic tiles were also tested for lead content for compliance with Cal/OSHA lead in construction regulations.

The attached drawings show approximate sample locations and also identify those bulk sample materials analyzed and found to contain asbestos greater than 1% with a (+) after the sample number. Materials analyzed and found to contain less than 1% asbestos or reported as none detected have a (-) after each sample number.

Contractors and other individuals who view the sample locations and associated results indicated with either a (-) or a (+) on the drawings to make determinations take the risk of misidentifying a material and may arrive at determinations which are in direct conflict with the written findings of this report. This use of the drawings and the information provided on it relating to individual sample results in determining if a material does or does not contain asbestos is not recommended.

This is a summary of the report. The report must be read in its entirety, and the reader must review all the detailed information provided in the body of the report prior to making any interpretations, or conclusions pertaining to the information. Any conclusions made by the reader about the information provided in the body of this report which are contradictory or not included in this report are the responsibility of the reader.

Asbestos

From August 5, 2024 to August 7, 2024, Entek conducted a survey specific to areas designated by the Owner which included all interior and exterior areas of all buildings at the Ethel Phillips Elementary School campus.

The results of testing for asbestos during this survey indicate asbestos is present in multiple materials throughout the campus. A quick summary is detailed in the following bullet points, with specifics pertaining to individual materials found in later sections of this report.

Materials Found to Contain Asbestos:

Throughout Campus

- Exterior Stucco - All buildings where found
- Window glazing putty - All buildings at windows where found
- Asbestos cement “transite” water or drain pipe - Assumed to exist below surface grade where found
- Hydronic pipe insulation - Assumed to exist on abandoned hot water pipes from old central boiler system in ceiling or wall cavities or below surface grade where found
- Metal door insulation - Assumed to exist in doors at old boiler rooms/mechanical spaces
- Roofing debris - Assumed to exist throughout attic & ceiling joist spaces NO ATTIC ACCESS WAS FOUND - ADDITIONAL INVESTIGATION SHOULD BE MADE IF CEILINGS WILL BE REMOVED DURING PROJECT
- White coated penetration mastic - Throughout roof penetrations on permanent buildings where found

MPR/Office Building

- Black 9" vinyl floor tile and black mastic – MPR Building, Room A-1 and adjacent storage rooms where found
- Dark green mottled 9" vinyl floor tile and black mastic – MPR Building, Room A-1 and adjacent storage rooms where found
- Gray-green streaked 9" vinyl floor tile and black mastic – MPR Building, Room A-1 and adjacent storage rooms where found
- Pink streaked 9" vinyl floor tile and black mastic – MPR Building, Room A-1 and adjacent storage rooms where found
- Tan mottled 9" vinyl floor tile and black mastic – MPR Building, Room A-1 and adjacent storage rooms where found
- Light gray mottled 12" vinyl floor tile and black mastic – MPR Building, south entry foyer where found
- Cementitious texture plaster - MPR Building, Room A-1 and Stage where found
- Drywall and joint compound - Throughout MPR building behind glue-on ceiling tiles where found
- Brown mottled 12" vinyl floor tile and black mastic – MPR Building, Mail Room and Southwest Room where found
- Black mastic associated with Brown square pattern sheet vinyl flooring with paper backing and tan mastic - Office Building, Manager’s Office Restroom
- Rough textured plaster - Hallway between MPR and Office Buildings where found
- Gray-black roof curb/penetration mastic - Office Building Roof, at HVAC curbs

Kindergarten Building

- Black mastic associated with brown mottled 12" vinyl floor tile - Throughout Kindergarten Building where found
- Black mastic associated with Gray sheet vinyl flooring - Kindergarten Building

restroom

Building with Rooms B2-B7

- Black mastic associated with beige mottled 12" vinyl floor tile - Classroom B4
- Green vinyl floor tile sublayer and black mastic associated with Gray with multi-colored specks sheet vinyl flooring and yellow mastic - Classroom B4
- Black/yellow carpet mastic – Classrooms B3-B7, beneath carpet
- Black mastic associated with brown mottled 12" vinyl floor tile - Classroom B3, & B5-B7

Building with Classrooms C-2 - C-5

- Black mastic associated with gray mottled 12" vinyl floor tile - Classroom C-2 where found
- Black mastic associated with brown mottled 12" vinyl floor tile - Classrooms C-3 & C-4 where found
- Black/yellow carpet mastic – Classrooms C-5 where found

Building with Classrooms C-6 - C-10

- Blue-green streaked 9" vinyl floor tile and black mastic – Classroom C-6 where found
- Light green with tan streaks 9" vinyl floor tile and black mastic – Classroom C-6 where found
- Dark green with tan streaks 9" vinyl floor tile and black mastic – Classroom C-6 where found
- Black mastic associated with brown mottled 12" vinyl floor tile - Classrooms C-8 - C-10 where found
- Black mastic associated with tan mottled 12" vinyl floor tile - Classroom C-7 where found
- Black mastic associated with gray mottled 12" vinyl floor tile - Classroom C-9 where found

Building with Classrooms D-1 - D-8

- Black/yellow carpet mastic – Throughout building, beneath the carpet where found
- Tan with brown streaks 12" vinyl floor tile and black mastic – Classroom D-1 where found
- Black 9" vinyl floor tile and black mastic – Classroom D-1 Closet where found
- Black mastic associated with brown mottled 12" vinyl floor tile - Classroom D-2 where found
- Black mastic associated with tan mottled 12" vinyl floor tile - Classroom D-3 where found

Portables B8-B10

- Metal roof mastic - At roof seams, holes, and edges

Portable C11

- Tan vinyl floor tile sublayer associated with gray mottled 12" vinyl floor tile and yellow mastic and leveling compound - Throughout floors where found
- Brown streaked 9" vinyl floor tile and black mastic – North and South closets
- Drywall and joint compound - Throughout building and assumed behind glued on

ceiling tiles where found

Lead

Entek investigated existing paints and applied coatings to determine if lead was present in these materials. The materials detailed in the following list were all found or assumed to contain more than 5,000 parts per million (ppm) lead and are classified as lead-based paint (LBP). If more than 100 square feet of these materials are impacted by a "trigger task", prior notification to Cal/OSHA will be required.

- Ceramic glazing - 6" Red ceramic wall base tile associated with the old locker rooms inside the MPR building
- Green colored paint - Interior wood door trim/components associated with the Laundry Room inside the MPR Building
- Blue colored paint - Interior wood doors - MPR Building where found
- White colored paint - Interior wood door frames - Office Building where found
- Blue colored paint - Exterior wood door/door frames associated with the permanent building throughout campus
- Beige colored paint - Exterior wood support beams associated with covered walkways throughout campus
- Blue colored paint - Metal round support columns associated with covered walkways throughout campus

The materials detailed in the following list were all found or assumed to contain lead in amounts less than 5,000 ppm and are classified as lead containing paint (LCP). Any work designated by California Occupational Safety Health Administration (Cal/OSHA) as a "trigger task" which will impact these paints, coatings, or materials must be done by properly trained personnel, in compliance with all lead related Cal/OSHA regulations and requirements.

- White colored paint - Interior plaster walls - MPR/Office Building where found
- Tan colored paint - Interior wood door frames - MPR/Office Building where found
- Tan colored paint - Interior wood doors - MPR/Office Building where found
- Light yellow colored paint - Interior drywall walls - Office Building, Nurse Office where found
- Tan colored paint - Interior wood cabinets/wooden components - Kindergarten Building where found
- Blue colored paint - Interior metal doors - Kindergarten Building where found
- Green colored paint - Interior plaster/stucco walls - Hallway between MPR and Office Buildings where found
- Beige colored paint - Interior rough textured plaster walls - Hallway between Office and MPR Buildings where found
- Teal colored paint - Interior wood wall panels - Office Building, Principal's Office
- Beige colored paint - Exterior concrete walls associated with the permanent building throughout campus
- Blue colored paint - Exterior wooden components associated with the CCTV Shed
- Beige colored paint - Exterior wood siding associated with the CCTV Shed

All other paints and materials were determined not to contain lead above the analysis method detection limits of 39-97 ppm.

Other Hazardous Materials

Entek did not specifically inspect for mercury containing fluorescent light tubes or light ballasts which may contain polychlorinated biphenyls (PCBs) or equipment or systems which may contain Freon or other fluorocarbons. However, due to the age of the school, information pertaining to these materials is included in this report for your use and reference.

Introduction

This report presents results of an asbestos and lead survey performed by Entek which included all accessible interior and exterior areas of all buildings for an upcoming campus renewal project at Ethel Phillips Elementary School located at 2930 21st Avenue Sacramento, California. It is our understanding that all structures are planned for renovation.

The inspection was conducted by Mr. Jose Hernandez from August 5-7, 2024. Mr. Hernandez is a Cal/OSHA Certified Asbestos Consultant (CAC) and State of California Department of Public Health (CDPH) certified Lead Inspector/Assessor.

This report was requested by Mr. Anthony Lea, Facilities Project Technician with the Sacramento City Unified School District (SCUSD) on behalf of Mr. Chris Ralston, Director III with the SCUSD.

Building Descriptions

For the purposes of this survey, the Ethel Phillips Elementary School campus has been divided up into eleven (11) distinct buildings or sections. These buildings or sections are referred to as follows:

- MPR/Office Building
- Kindergarten Building
- Building with Rooms B2-B7
- Building with Rooms C-2 - C-5
- Building with Room C-6 - C-10
- Building with Rooms D1-D8
- Portables B1 and C1
- Portables B8-B10
- Portables B11-B13
- Portable C11
- CCTV Shed

Interior finish materials found throughout this campus include carpet, vinyl floor tiles, sheet vinyl flooring, rubber vinyl base cove, drywall, plaster, ceramic tile, wood or fiberboard wall panels, nailed-on ceiling tiles, glued-on ceiling tiles, and acoustic ceiling panels.

Exterior finish materials include stucco, concrete, brick and mortar, wood and metal components, and painted wood siding. Select windows on the standalone classroom buildings consist of wood framing with glass panes and glazing putty. The rest of the buildings have aluminum framed windows. Roof systems on the majority of the buildings

were a combination of asphaltic and single-ply membrane roofing with various roofing mastics around penetrations. Mechanical systems are roof and wall mounted HVAC units.

The roofs from the majority of the portable buildings consisted of metal panels with mastics at the seams/edges/fasteners. Select portables have single-ply membrane roofs and asphalt shingles.

The CCTV Shed is a stand alone wood structure with a painted exterior wooden components. The only suspect asbestos material observed on this structure was the rolled asphaltic roofing system.

Asbestos Inspection and Sample Collection Protocols

Entek included all accessible interior and exterior areas of the buildings included in this report, but used only limited methods to look within enclosed wall or ceiling cavities during this investigation. Entek did include all suspect materials observed in, on, or associated with the areas included in this report.

Bulk samples were collected of various materials suspected to contain asbestos by utilizing a power drill and coring tube, cutting the materials with a razor knife, or use of other appropriate hand tools.

Surfacing materials were collected in a statistically random manner representative of the associated homogenous area as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987, and the Sacramento Metropolitan Air Quality Management District (SMAQMD) Compliance Assistance Advisory published in June 2010.

Thermal system insulation (TSI) materials were collected in a randomly distributed manner from each homogenous area that was not assumed to be ACM as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Miscellaneous materials were collected from each homogenous area in a manner sufficient to determine whether the material is or is not ACM as required in 40 CFR Part 763, Asbestos-Containing Materials in Schools; Final Rule and Notice, published October 30, 1987.

Approximate locations of all samples collected during this inspection are indicated on the “Bulk Asbestos Material Analysis Request Form for Entek”, which served as the chain of custody for the samples, and on the building diagrams attached to this report.

Asbestos Bulk Sample Results

There were several materials observed which are considered “suspect” under US EPA guidelines. Under current US EPA guidelines for conducting building inspections for ACM, all "suspect" materials must be assumed to contain asbestos until otherwise determined by laboratory testing.

The samples of materials suspected of containing asbestos were submitted to Eurofins/EMlab P&K, a laboratory located in Tustin, California. These samples were subsequently analyzed by polarized light microscopy (PLM) with dispersion staining.

The US EPA NESHAP and SMAQMD uses the terms Regulated Asbestos Containing Material (RACM), Category I, and Category II when identifying materials which contain asbestos in amounts greater than 1%. Cal/OSHA uses the term ACCM which indicates a manufactured construction material contains greater than 0.1% asbestos by weight by the PLM method. This definition can be found in Title 8, 1529.

All samples found to contain <1% asbestos by PLM analysis which are not identified as containing >1% asbestos, classified as RACM, CAT-I, or CAT-II materials in the following results tables were additionally analyzed using the 400 point count (PC) method with analysis by PLM. This additional analysis is required by NESHAP and enforced by SMAQMD. The PC method analysis results were used only to verify a material did not contain >1% asbestos as a single layer material, or as a composite result which is provided for materials such as sheet rock/drywall and joint compound used for wall/ceiling systems. A result reported as none detected or “trace” by the PC method only verified the initial PLM result of <1% and shall not be used to determine the identified material does not contain asbestos. Copies of Asbestech’s laboratory reports and accreditations are attached.

Neither OSHA or Cal/OSHA allow for composite sampling of wall system materials, and neither address the use of the PC method to confirm a material identified as containing <1% asbestos by the PLM method either contains <1% asbestos or is non-detected for asbestos. As a result, reporting of the asbestos content related to a composited material such as sheet rock/drywall and joint compound does not apply to determining if a material is or is not an ACM by OSHA or an ACCM by Cal/OSHA.

A total of 378 bulk samples were collected of all the materials considered to be "suspect" which are expected to be impacted by the renovation/demolition project. Some of those samples contained multiple layers which were individually analyzed to determine their asbestos content. Analysis of all samples collected was by PLM with dispersion staining. Results of the analysis are listed in the following tables:

Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus & Roofs					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM/PC**	**Location**	**NESHAP/ Cal/OSHA Classification**	**Total Estimated Quantity**
132A-G	Exterior Stucco	<1% CHRYSOTILE *Confirmed by 400 Point Count*	Throughout campus at permanent building exteriors	ACCM	>10,000 Sq.
n/a	Asbestos Cement "Transite" Pipe	Assumed to Contain Asbestos	Throughout campus below surface grade at water or drainage pipe	CAT-II	Unknown if Present
n/a	Hydronic Pipe Insulation	Assumed to Contain Asbestos	Interior ceiling or wall cavities, exterior below surface grade at old hot water pipe from central boiler units	RACM	Unknown if Present
n/a	Roofing Debris	Assumed to Contain Asbestos	Attic & ceiling joist spaces throughout campus at permanent buildings - Leftover from previous roofing projects.	CAT-I	Unknown if Present
No access to above ceilings spaces was obtained throughout campus. It is unknown if roofing debris from previous roof removal projects is present in any area. Additional investigation of above ceiling spaces should be made if ceilings will be removed.					
n/a	Door Core Insulation	Assumed to Contain Asbestos	Doors to old boiler and mechanical spaces	RACM	Unknown if Present
125A-B	Gray-Black curb & penetration mastic	**5% CHRYSOTILE** (Gray Roofing Mastic) NONE DETECTED (Black Roofing Material)	Office Building Roof, at HVAC curbs	CAT-II (Gray Roofing Mastic)	~20 Sq.

Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus & Roofs					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM/PC**	**Location**	**NESHAP/ Cal/OSHA Classification**	**Total Estimated Quantity**
128A-E	White coated penetration mastic	**5% CHRYSOTILE**	Throughout roof penetrations on permanent buildings	CAT-II	~100 Sq.

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Suspect Materials Found or Assumed TO Contain Asbestos MPR/Office Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM/PC**	**Location**	**NESHAP/ Cal/OSHA Classification**	**Total Estimated Quantity**
01A-B	Black 9" vinyl floor tile, black mastic, white compound	**3% CHRYSOTILE** (Floor Tile) **3% CHRYSOTILE** (Black Mastic) NONE DETECTED (White Compound)	Room A-1 and adjacent storage rooms, where found	CAT-I CAT-I	1,000 Sq. 1,000 Sq.
02A-B	Dark green mottled 9" vinyl floor tile, black mastic	**>1% CHRYSOTILE** (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Room A-1, where found	CAT-I CAT-I	Included in Quantity Above
Please note the dark green 9" floor tile associated with sample series 02 must be treated as greater than 1% asbestos since it was not verified by 400 point count to be less than 1%.					
03A-B	Gray-green streaked 9" vinyl floor tile, black mastic	**4% CHRYSOTILE** (Floor Tile) **4% CHRYSOTILE** (Black Mastic)	Room A-1, where found	CAT-I CAT-I	Included in Quantity Above
04A-B	Pink streaked 9" vinyl floor tile, black mastic	**5% CHRYSOTILE** (Floor Tile) **4% CHRYSOTILE** (Black Mastic)	Room A-1, where found	CAT-I CAT-I	Included in Quantity Above
06A-B	Tan mottled 9" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Room A-1, where found	CAT-I (Black Mastic)	Included in Quantity Above
07A-B	Light gray mottled 12" vinyl floor tile, black mastic	**>1% CHRYSOTILE** (Floor Tile) **4% CHRYSOTILE** (Black Mastic)	MPR Building - South entry foyer, where found	CAT-I CAT-I	96 Sq. 96 Sq.
Please note the light gray 12" floor tile associated with sample series 07 must be treated as greater than 1% asbestos since it was not verified by 400 point count to be less than 1%.					
17A-C	Cementitious Textured Plaster	<1% CHRYSOTILE *Confirmed by 400 Point Count*	Room A-1 and Stage	ACCM	~950 Sq.
20A-B	Drywall with joint compound	<1% CHRYSOTILE (Composite) *Confirmed by 400 Point Count*	Throughout MPR building, at ceiling behind glue-on ceiling tiles where found	ACCM	Undetermined

Suspect Materials Found or Assumed TO Contain Asbestos MPR/Office Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM/PC**	**Location**	**NESHAP/ Cal/OSHA Classification**	**Total Estimated Quantity**
28A-B	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Mail Room and Southwest Room, where found	CAT-I (Black Mastic)	350 Sq.
33A-B	Brown square pattern sheet vinyl flooring, tan mastic, black mastic	NONE DETECTED (Sheet Vinyl Flooring) NONE DETECTED (Tan Mastic) **5% CHRYSOTILE** (Black Mastic)	Office Building - Manager's Office Restroom	CAT-I (Black Mastic)	21 Sq.
38A-C	Rough Textured Plaster	<1% CHRYSOTILE *Confirmed by 400 Point Count*	Hallway between Office and MPR	ACCM	~900 Sq.
Please note that various colored 9" vinyl floor tiles where found inside Room A-1 and adjacent storage rooms, therefore a total quantity for the entire rooms is listed above to capture the various colored tiles. Please see sample series 05, 08-16, 18-19, 21-27, 29-32, 34-37, & 39-44 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

Suspect Materials Found or Assumed TO Contain Asbestos Kindergarten Building					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
47A-B	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Throughout Kindergarten Building where found	CAT-I (Black Mastic)	Up to 1,800 Sq.
48A-B	Gray sheet vinyl flooring, black mastic	NONE DETECTED (Sheet Vinyl Flooring) **2% CHRYSOTILE** (Black Mastic)	Restroom	CAT-I (Black Mastic)	65 Sq.
Please see sample series 45-46, & 49-54 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

Suspect Materials Found or Assumed TO Contain Asbestos Building with Rooms B2-B7					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
59A-B	Beige mottled 12" vinyl floor tile, black mastic, cream vinyl floor tile sublayer, transparent mastic	NONE DETECTED (Beige Floor Tile) **2% CHRYSOTILE** (Black Mastic) NONE DETECTED (Cream Floor Tile) NONE DETECTED (Transparent Mastic)	Classroom B4 at patch	CAT-I (Black Mastic)	3 Sq.
60A-B	Gray with multi-colored specks sheet vinyl flooring, yellow mastic, green vinyl floor tile sublayer, black mastic	NONE DETECTED (Sheet Vinyl Flooring) NONE DETECTED (Yellow Mastic) **2% CHRYSOTILE** (Green Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom B4	CAT-I CAT-I	354 Sq. 354 Sq.
61A-B	Yellow and black carpet mastic	**2% CHRYSOTILE** (Black Mastic) NONE DETECTED (Yellow Mastic)	Classrooms B3-B7	CAT-I (Black Mastic)	2,715 Sq.
62A-B	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classrooms B3, B5-B7	CAT-I (Black Mastic)	1,416 Sq.
Please see sample series 55-58, & 63-71 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

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Suspect Materials Found or Assumed TO Contain Asbestos Building with Classrooms C-2 - C-5					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
72A-B	Gray mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-2, where found	CAT-I (Black Mastic)	884 Sq.
73A-B	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classrooms C-3 and C-4, where found	CAT-I (Black Mastic)	1,768 Sq.
75A-B	Black/Yellow carpet mastic	**2% CHRYSOTILE**	Classroom C-5	CAT-I	884 Sq.
Please see sample series 74, & 76-89 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

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Suspect Materials Found or Assumed TO Contain Asbestos Building with Classrooms C-6 - C-10					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
90A-B	Blue-Green streaked 9" vinyl floor tile, black mastic	**2% CHRYSOTILE** (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-6 (multiple colored floor tiles inside room)	CAT-I CAT-I	Up to 884 Sq. 884 Sq.
91A-B	Light Green with tan streaks 9" vinyl floor tile, black mastic	**2% CHRYSOTILE** (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-6 (multiple colored floor tiles inside room)	CAT-I CAT-I	Included in Quantity Above
92A-B	Dark Green with tan streaks 9" vinyl floor tile, black mastic	**2% CHRYSOTILE** (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-6 (multiple colored floor tiles inside room)	CAT-I CAT-I	Included in Quantity Above
93A-B	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classrooms C-8-C-10, where found	CAT-I (Black Mastic)	1,326 Sq.
94A-B	Tan mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-7, where found	CAT-I (Black Mastic)	442 Sq.
95A-B	Gray mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom C-9, where found	CAT-I (Black Mastic)	442 Sq.
Please note that various colored 9" vinyl floor tiles where found inside Classroom C-6 and therefore a total quantity for the entire room is listed above to capture the various colored tiles. Please see sample series 96-105 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

Suspect Materials Found or Assumed TO Contain Asbestos Building with Rooms D-1 - D-8					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
107A	Black/yellow carpet mastic	**2% CHRYSOTILE**	Throughout Building with Classrooms D-1 through D-8 at closets and where found	CAT-1	100 Sq.
108A-B	Tan with brown streaks 12" vinyl floor tile, black mastic	**4% CHRYSOTILE** (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Classroom D-6, where found	CAT-I (Floor Tile) CAT-I (Black Mastic)	884 Sq. 884 Sq.
109A-B	Tan with brown streaks 9" vinyl floor tile, black mastic	**4% CHRYSOTILE** (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Classroom D-1	CAT-I CAT-I	884 Sq. 884 Sq.
110A	Black 9" vinyl floor tile, black mastic	**5% CHRYSOTILE** (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom D-1 Closet	CAT-I CAT-I	12 Sq. 12 Sq.
111A	Brown mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom D-2, where found	CAT-I (Black Mastic)	884 Sq.
112A	Tan mottled 12" vinyl floor tile, black mastic	NONE DETECTED (Floor Tile) **2% CHRYSOTILE** (Black Mastic)	Classroom D-3, where found	CAT-I (Black Mastic)	884 Sq.
Please see sample series 106, & 113-122 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

Suspect Materials Found or Assumed TO Contain Asbestos Portable Rooms B1 & C1					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 139-146 in Appendix A for materials found not to contain asbestos in this area.					

Suspect Materials Found or Assumed TO Contain Asbestos Portable Rooms B8-B10					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
153A-B	Metal Roof Mastic	NONE DETECTED (White Mastic) **2% CHRYSOTILE** (Gray Mastic)	Metal roof at seams, holes, and edges	CAT-II (Gray Mastic)	150 Sq. Distributed
Please see sample series 147-152 in Appendix A for materials found not to contain asbestos in this area.					

Suspect Materials Found or Assumed TO Contain Asbestos Portable Rooms B11-B13					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 154-159 in Appendix A for materials found not to contain asbestos in this area.					

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Suspect Materials Found or Assumed TO Contain Asbestos Portable C11					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP/ Cal/OSHA Classification**	**Total Estimated Quantity**
160A-B	Gray mottled 12" vinyl floor tile, yellow mastic, gray leveling compound, tan floor tile sublayer	NONE DETECTED (Gray Floor Tile) NONE DETECTED (Yellow Mastic) NONE DETECTED (Leveling Compound) **3% CHRYSOTILE** (Tan Floor Tile)	Portable C11, where found	CAT-I (Tan Floor Tile)	Up to 780 Sq.
161A-B	Brown streaked 9" vinyl floor tile, black mastic	**3% CHRYSOTILE** (Floor Tile) **3% CHRYSOTILE** (Black Mastic)	Portable C11, At North and South Closets	CAT-I (Floor Tile) CAT-I (Black Mastic)	Up to 92 Sq. 92 Sq.
165A-B	Drywall with joint compound	<1% CHRYSOTILE (Composite) *Confirmed by 400 Point Count*	Portable C11, where found - Assumed above glued-on ceiling tiles	ACCM	~1,200 Sq.
Please see sample series 162-164, & 166-167 in Appendix A for materials found not to contain asbestos in this area. Please refer to table labeled Suspect Materials Found or Assumed TO Contain Asbestos Throughout Campus for additional materials.					

Suspect Materials Found or Assumed TO Contain Asbestos CCTV Shed					
Sample ID#'s	**Suspect Material**	**Asbestos Content/Type (%) by PLM**	**Location**	**NESHAP Classification**	**Total Estimated Quantity**
None	None	None	None	None	None
Please see sample series 131.5 in Appendix A for materials found not to contain asbestos in this area.					

NOTE: Any CAT-I or CAT-II materials identified in the previous tables which will be subjected to mechanical removal, must be considered RACM for the purposes of notification to SMAQMD and classification of waste. Removal of any CAT-I or CAT-II materials prior to demolition of a building is dependent upon how the materials will be impacted and if the impact will cause the materials to become friable. If any remaining CAT-I or CAT-II materials will become friable they must be removed prior to the initiation of demolition.

NOTE: Cal/OSHA regulates all materials containing greater than 0.1% asbestos. As a result, impact to materials identified as ACCM and ACM must be performed by properly asbestos trained personnel utilizing appropriate personal protection, work practices, as well as, properly constructed and demarcated work areas or containments, in accordance with Cal/OSHA asbestos regulations.

All sample number noted in the tables above start with EGG-24-7284-

The tables above provide an estimate of the amount of materials in square feet (Sq.) or linear feet (Ln.). **Contractors are responsible for quantifying the exact quantity of materials impacted by the renovation or demolition and shall not rely on the quantities in the above tables.**

US EPA AHERA uses three terms when determining the classification of a material for the purpose of sampling. These terms include miscellaneous, surfacing, and thermal system insulation (TSI).

Miscellaneous materials are building materials on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or TSI.

Surfacing materials are materials that are sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceiling and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

TSI is material applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain, water condensation, or for other purposes.

The information provided in this report are for use by the Owner in determining where asbestos containing materials are located, and whether or not any future work may impact those materials. The information is also provided for use by any contractor who may perform work in areas impacting the materials listed in this report, and for use as appropriate by asbestos abatement contractors to provide costs related to work impacting ACM.

Any building materials which are considered “suspect” for containing asbestos which have not been identified in this report must be assumed to contain asbestos in amounts >1% until properly investigated and/or tested.

Materials commonly excluded from being suspected for containing asbestos include, but are not limited to: unwrapped pink and yellow fiberglass insulating materials or products, foam insulation, bare concrete, wood, metal, plastic, or glass. All other types of building materials or coatings on the materials listed above are commonly listed as “suspect” and must be tested prior to impact by a Contractor. Work impacting these untested or newly discovered materials must cease until an investigation can be completed.

Asbestos Regulatory Requirements

US EPA

The property included in this survey report is located in Sacramento County. Sacramento Metropolitan Air Quality Management District (SMAQMD) has been given authority for enforcement of the NESHAP regulations by means of their own rules (Rule 902).

A demolition is the wrecking, taking out, or burning of any load supporting structural member. A renovation is everything else. Ten day written notification to the SMAQMD is required prior to the performance of any demolition project regardless of asbestos being present or not. This notification would also apply to any renovation project which involves the wrecking, taking out, or burning of any load bearing structural member during a renovation as well.

There is a sufficient amount of ACM present to require a 10 day notification to the SMAQMD be submitted prior to starting work which will impact materials identified as RACM or Category I and Category II materials if they are made friable. If more than 160 square feet, 260 linear feet or 35 cubic feet of RACM is planned for removal on the project, formal written notification to SMAQMD is required.

Cal/OSHA

Disturbance of any ACM or ACCM could generate airborne asbestos fibers and would be regulated by Cal/OSHA. Cal/OSHA worker health and safety regulations apply during any disturbance of ACM or ACCM by a person while in the employ of another. This is true regardless of friability or quantity disturbed.

Since it has been estimated more than 100 square feet of ACCM and ACM does exist and may be impacted during the upcoming project, a licensed asbestos contractor, certified by the State of California, and registered with Cal/OSHA is recommended to perform the asbestos related removal work.

For compliance with Title 8, Section 341.9, the asbestos contractor must send written notice at least one day (24 hours) prior to start of any work which will impact any amount of asbestos to the local office for the State of California, Department of Occupational Safety and Health, and perform all work in accordance with Cal/OSHA requirements.

Lead Inspection, Sampling, & Results

An X-Ray Fluorescence (XRF) instrument was utilized as a screening tool in order to determine the presence or absence of lead in paints, coatings, and glazed ceramic tiles throughout the campus. Results shown in the following tables have a margin of error as indicated on the data sheet found in Appendix B.

A total of 15 bulk samples of the painted surfaces from various locations throughout the site that had inconclusive XRF results were collected and submitted to Eurofins/EMlab P&K a laboratory located in Tustin, CA. These samples were subsequently analyzed by atomic absorption spectrometry (AAS). Results of the XRF readings and laboratory results are listed in the following tables:

Paints/Coatings/ Materials Determined to be Lead Based Paint (LBP)		
Paint/Coating Color or Material	**Lead Content (mg/cm^2 or ppm)**	**Component/Location**
Ceramic Glazing	8.9 mg/cm^2	6"x6" Red Ceramic Wall Tile / MPR Building, At Base of Walls inside the Old Locker Rooms
Green Paint	2.8 mg/cm^2	Interior Wood Door Trim/Components / MPR Building, Where Found
Blue Paint	1.9 mg/cm^2	Interior Wood Doors / MPR Building, Where Found
White Paint	2.1 mg/cm^2	Interior Wood Door Frames / Office Building, Where Found
Blue Paint	1.0 mg/cm^2	Exterior Wood Doors/Door Frames / Throughout Permanent Classroom Buildings, Where Found
Beige Paint	1.4 mg/cm^2	Exterior Wood Support Beams / Throughout Ceilings of Covered Walkways, Where Found
Blue Paint	1.5 mg/cm^2	Exterior Metal Round Support Columns / Throughout Covered Walkways
Beige Paint	2.6 mg/cm^2	Exterior Wood Siding / Throughout Permanent Classroom Buildings, Where Found

LBP - Materials/coatings/paints meeting the definition of lead-based paint as defined by the CDPH and the US EPA, currently defined as containing lead in concentrations equal to or greater than 1.0 mg/cm^2, 5,000 ppm, or 0.5% by weight.

Paints/Coatings/ Materials Determined to be Lead Containing Paint (LCP)		
Paint/Coating Color or Material	**Lead Content (mg/cm^2 or ppm)**	**Component/Location**
White Paint	0.1 mg/cm^2	Interior Plaster Walls / Throughout MPR/Office Building, Where Found
Tan Paint	0.2 mg/cm^2	Interior Door Frames / Throughout MPR/Office Building, Where Found
Tan Paint	0.1 mg/cm^2	Interior Doors / Throughout MPR/Office Building, Where Found
Light Yellow Paint	0.1 mg/cm^2	Interior Drywall Walls / Office Building, Throughout Walls and Ceiling of the Nurse's Office
Tan Paint	0.2 mg/cm^2	Interior Wood Cabinets/Wooden Components / Throughout Kindergarten Building, Where Found
Blue Paint	0.8 mg/cm^2	Interior Metal Doors / Throughout Kindergarten Building, Where Found

Paints/Coatings/ Materials Determined to be Lead Containing Paint (LCP)		
Paint/Coating Color or Material	**Lead Content (mg/cm^2 or ppm)**	**Component/Location**
Green Paint	120 ppm	Interior Plaster-Stucco Walls / Throughout Hallway between MPR and Office Buildings, Where Found
Beige Paint	190 ppm	Interior Rough Textures Plaster Walls / Throughout Hallway between MPR and Office Buildings, Where Found
Teal Paint	81 ppm	Interior Wood Wall Panels / Office Building, Principal's Office
Beige Paint	0.6 mg/cm^2	Exterior Concrete Walls / Throughout Permanent Buildings, Where Found
Blue Paint	0.1 mg/cm^2	Exterior Wooden Components / CCTV Shed
Beige Paint	0.1 mg/cm^2	Exterior Wood Siding / CCTV Shed

LCP - Materials/coatings/paints which contain measurable amounts of lead. The disturbance of these materials/coatings/paints is regulated by Cal/OSHA.

All other paints and materials were determined not to contain lead above the analysis method detection limits of 39-97 ppm.

Lead Regulatory Compliance

Any upcoming project which may result in the disturbance of lead containing products or surfaces, but is not intended to remediate a lead hazard or specifically designed to remove LBP to reduce or eliminate a known hazard, would be considered "lead related construction work".

Lead related construction work does not fit the classification of a "lead abatement project" under CDPH Title 17 regulations. "*Abatement*" is defined in Title 17, Division 1, Chapter 8, Article 1 as "any set of measures designed to reduce or eliminate lead hazards or LBP for public and residential buildings, but does not include containment or cleaning." A *lead hazard* is defined in Title 17, Division 1, Chapter 8, Article 1 as "deteriorated LBP, lead contaminated dust, lead contaminated soil, disturbing LBP or presumed LBP without containment, or any other nuisance which may result in persistent and quantifiable lead exposure."

Lead related construction work means any "construction, alteration, painting, demolition, salvage, renovation, repair, or maintenance of any residential or public building, including preparation and cleanup, that, by using or disturbing lead-containing material or soil, may result in significant exposure of adults or children to lead". (Title 17, California Code of Regulations, Division 1, Chapter 8, Article 1).

Currently, Cal/OSHA has not established a definition for LBP, nor have they established minimum concentrations where their regulations do not apply. Cal/OSHA regulates all

construction activities involving materials containing lead, including LBP. These regulations are found in CCR, Title 8 Section 1532.1 (§1532.1) Lead in Construction.

Since Cal/OSHA has not established a concentration of lead in a product where their regulations do not apply, any disturbance to products containing lead come under the jurisdiction of Cal/OSHA and their regulations. Disturbance of paints/coatings or materials determined to be LBP may trigger a pre-work notification to Cal/OSHA if "trigger tasks" disturb 100 square feet or more of those paints/coatings or materials. Trigger tasks are described in Title 8 CCR 1532.1.

Fluorescent Light Tubes and Polychlorinated Biphenyls (PCBs)

Fluorescent light tubes which contain mercury are considered a universal waste and must be packaged and recycled appropriately if they are removed from a building and not used again. The regulation, called the Universal Waste Rule, are in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 23.

Fluorescent light tubes are the bulb or tube portion of an electric lighting device and are commonly referred to as "lamps".Examples of other common electric lamps considered to be universal wastes include, but are not limited to, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration (TTLC) and/or the Soluble Threshold Limit Concentration (STLC) values. Therefore, these lamps must be sent to an authorized recycle facility or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum, if removed lamps will not be reused they must be packaged in boxes/ packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions. Each container must be labeled or marked clearly with one of the following phrases: "Universal Waste Lamp(s)," or "Waste Lamp(s)," or "Used Lamp(s)." Entek recommends shipping any lamp not designated for reuse to a universal waste recycling facility once they have been packaged.

PCB containing light ballasts are to be considered a hazardous waste, and must be properly manifested for transport to a hazardous waste facility. Any contractor who may perform PCB related work (inspection, removal, clean-up) must be trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as, other applicable federal, state, and local laws, and regulations. While light ballasts marked "No PCB" are not considered a hazardous waste, they are considered a universal waste. As a result, removal, packaging, and disposal/recycling of these types of ballasts must be conducted in accordance with current regulations of Title 22.

Freon and Fluorocarbons

Freon and other fluorocarbon products associated with HVAC systems, refrigerators, etc. may be present in or on the exterior of the buildings included in this investigation. Prior to demolition of a structure or removal of existing HVAC systems, refrigerators, or any other type of equipment which typically uses these types of coolant products shall have the coolant materials investigated prior to their demolition and removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

Limitations

Entek inspected all specified interior and exterior areas of all buildings located at the Ethel Phillips Elementary School campus. The information provided in this inspection report may not be used to extend the inspection results to areas not included in this report without additional review and sampling as necessary.

Entek did not perform destructive sampling to look into ceiling and wall cavities. As a result, it may be possible for materials to be hidden in these areas which are not included in this report. Entek also did not employ any destructive measures on floors of interior spaces or exterior areas covered with asphalt, concrete, or dirt.

If any new materials not listed as having been sampled, or listed as assumed for containing asbestos in this report are discovered, the new material must be assumed to contain asbestos until properly inspected and tested for asbestos content.

Entek's policy is to retain a full copy of these written documents for three (3) years once the file is closed. At the end of the 3 year period the written files will be destroyed without further notice. It is suggested copies of the file(s) are maintained as per the District's policy.

Entek will be providing only this electronic copy of the report and its attachments for your use. Thank you for choosing Entek for your environmental needs. Please call me at (916) 632-6800 if you have any questions regarding this report.

Prepared By:

Jose Hernandez, CAC, I/A
Project Manager

Reviewed By:

Blake Howes, CAC, I/A
Vice President

Appendices

A. Asbestos Related Documents
B. Lead Related Documents
C. Backup Documents

APPENDIX A

ASBESTOS RELATED DOCUMENTS

- Bulk Asbestos Analysis Report From Eurofins/EMLab P&K-Tustin
- Bulk Asbestos Material Analysis Request Form for Entek
- Asbestos Bulk Sample Location Drawing
- SMAQMD Asbestos Survey Form
- SMAQMD Demolition/Renovation Form
  (To be completed by Owner)

eurofins | Built Environment Testing

ENTEK CONSULTING GROUP, INC.

Report for:

Jose Hernandez
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding:
Eurofins EPK Built Environment Testing, LLC
Project: 24-7284 Sacramento City Unified School District; Ethel Phillips Elementary School 2930 21st Avenue Sacramento, CA 95820
EML ID: 3750911

Approved by:

Approved Signatory
Danny Li

Dates of Analysis:
Asbestos PLM: 08-23-2024 to 08-26-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200757-0

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples with Layer Asbestos Content > 1%:	36

Location: ECG-24-7284-01A, 9"X9" Black Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1, Northeast Storage Room
Lab ID-Version‡: 18479167-1

Sample Layers	Asbestos Content
Black Floor Tile	3% Chrysotile
Black Mastic	3% Chrysotile
White Compound	ND
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-01B was not analyzed due to prior positive series.

Location: ECG-24-7284-02A, 9"x9" Dark Green Mottled Vinyl Floor Tile with Black Mastic/MPR Building, Northeast Storage Room
Lab ID-Version‡: 18479169-1

Sample Layers	Asbestos Content
Green Floor Tile	< 1% Chrysotile
Black Mastic	3% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-02B was not analyzed due to prior positive series.

Location: ECG-24-7284-03A, 9"x9" Gray-Green Streaked Vinyl Floor tile with Black Mastic/MPR Building, Room A-1
Lab ID-Version‡: 18479171-1

Sample Layers	Asbestos Content
Gray Floor Tile	4% Chrysotile
Black Mastic	4% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-03B was not analyzed due to prior positive series.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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ASBESTOS PLM REPORT

Location: ECG-24-7284-04A, 9"x9" Pink Streaked Vinyl Floor Tile with Black Mastic/ MPR Building, Room A-1

Lab ID-Version‡: 18479173-1

Sample Layers	Asbestos Content
Pink Floor Tile	5% Chrysotile
Black Mastic	4% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-04B was not analyzed due to prior positive series.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: ECG-24-7284-05A, 9"x9" Light Gray Speckled Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1

Lab ID-Version‡: 18479175-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Sample Composite Homogeneity:	Moderate

Comments: Mastic not detected.

Location: ECG-24-7284-05B, 9"x9" Light Gray Speckled Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1, Northeast Storage Room

Lab ID-Version‡: 18479176-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Sample Composite Homogeneity:	Moderate

Comments: Mastic not detected.

Location: ECG-24-7284-06A, 9"x9" Tan Mottled Vinyl Floor Tile with Black Mastic/ MPR Building, Room A-1

Lab ID-Version‡: 18479177-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black Mastic	3% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-06B was not analyzed due to prior positive series.

Location: ECG-24-7284-07A, 12"x12" Light Gray Mottled Vinyl Floor Tile with Black & Yellow Mastic/MPR Building, South Entry Foyer

Lab ID-Version‡: 18479179-1

Sample Layers	Asbestos Content
Blue Floor Tile	< 1% Chrysotile
Black Mastic	4% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-7284-07B was not analyzed due to prior positive series.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: ECG-24-7284-08A, 12"x12" Pink with Multi-Colored Specks Vinyl Floor Tile with Yellow Mastic/MPR Building, Multi-Purpose Room Lab ID-Version‡: 18479181-1

Sample Layers	Asbestos Content
Pink Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-08B, 12"x12" Pink with Multi-Colored Specks Vinyl Floor Tile with Yellow Mastic/MPR Building, Multi-Purpose Room Lab ID-Version‡: 18479182-1

Sample Layers	Asbestos Content
Pink Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-09A, Terrazzo Shower Pan with Grout/MPR Building, Old Boy's Locker Room Lab ID-Version‡: 18479183-1

Sample Layers	Asbestos Content
Multicolored Flooring	ND
Off-White Grout	ND
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-09B, Terrazzo Shower Pan with Grout/MPR Building, Old Boy's Locker Room Lab ID-Version‡: 18479184-1

Sample Layers	Asbestos Content
Multicolored Flooring	ND
Off-White Grout	ND
Sample Composite Homogeneity:	Poor

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: ECG-24-7284-10A, 2"x2" Brown Ceramic Floor Tile with Grout and Mortar/ MPR Building, Old Boy's Locker Room

Lab ID-Version‡: 18479185-1

Sample Layers	Asbestos Content
Brown Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-10B, 2"x2" Brown Ceramic Floor Tile with Grout and Mortar/ MPR Building, Old Boy's Locker Room

Lab ID-Version‡: 18479186-1

Sample Layers	Asbestos Content
Brown Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-11A, Concrete Slab/MPR Building, South Stage Mechanical Room

Lab ID-Version‡: 18479187-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-11B, Concrete Slab/MPR Building, Laundry Room

Lab ID-Version‡: 18479188-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-12A, 6"x6" Red Ceramic Wall Base Tile with Grout and Mortar/ MPR Building, Old Boy's Locker Room

Lab ID-Version‡: 18479189-1

Sample Layers	Asbestos Content
Red Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-12B, 6"x6" Red Ceramic Wall Base Tile with Grout and Mortar/ MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479190-1

Sample Layers	Asbestos Content
Red Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-13A, 4" Brown Vinyl Base Cove with Mastic/MPR Building, Room A-1

Lab ID-Version‡: 18479191-1

Sample Layers	Asbestos Content
Brown Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-13B, 4" Brown Vinyl Base Cove with Mastic/MPR Building, Southwest Room

Lab ID-Version‡: 18479192-1

Sample Layers	Asbestos Content
Brown Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: ECG-24-7284-14A, 4" Black Vinyl Base Cove with Mastic/MPR Building, Room A-1

Lab ID-Version‡: 18479193-1

Sample Layers	Asbestos Content
Black Cove Base	ND
Brown Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-14B, 4" Black Vinyl Base Cove with Mastic/MPR Building, Stage

Lab ID-Version‡: 18479194-1

Sample Layers	Asbestos Content
Black Cove Base	ND
Brown Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-15A, 4" Light Gray Vinyl Base Cove with Mastic/MPR Building, Stage

Lab ID-Version‡: 18479195-1

Sample Layers	Asbestos Content
Light Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-15B, 4" Light Gray Vinyl Base Cove with Mastic/MPR Building, Kitchen

Lab ID-Version‡: 18479196-1

Sample Layers	Asbestos Content
Light Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: ECG-24-7284-16A, Plaster/MPR Building, Multi-Purpose Room Lab ID-Version‡: 18479197-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-16B, Plaster/MPR Building, Kitchen Lab ID-Version‡: 18479198-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-16C, Plaster/MPR Building, Mail Room Lab ID-Version‡: 18479199-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-16D, Plaster/MPR Building, Stage Lab ID-Version‡: 18479200-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

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Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

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ASBESTOS PLM REPORT

Location: ECG-24-7284-16E, Plaster/MPR Building, Room A-1 Lab ID-Version‡: 18479201-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-16F, Plaster/MPR Building, Sprinkler Control Valve Room Lab ID-Version‡: 18479202-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-16G, Plaster/MPR Building, Custodian Closet Lab ID-Version‡: 18479203-1

Sample Layers	Asbestos Content
Gray Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-17A, Cementitious Textured Plaster/MPR Building, Stage Lab ID-Version‡: 18479204-1

Sample Layers	Asbestos Content
Light Gray Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-17B, Cementitious Textured Plaster/MPR Building, Room A-1

Lab ID-Version‡: 18479205-1

Sample Layers	Asbestos Content
Light Gray Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-17C, Cementitious Textured Plaster/MPR Building, Room A-1

Lab ID-Version‡: 18479206-1

Sample Layers	Asbestos Content
Light Gray Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-18A, Plastic Wall Panel Glue/MPR Building, Kitchen Lab ID-Version‡: 18479207-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-18B, Plastic Wall Panel Glue/MPR Building, Kitchen Lab ID-Version‡: 18479208-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-19A, 12"x12" Glue-on Ceiling Tile with Pinholes/MPR Building, Stage

Lab ID-Version‡: 18479209-1

Sample Layers	Asbestos Content
Brown Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-19B, 12"x12" Glue-on Ceiling Tile with Pinholes/MPR Building, Stage

Lab ID-Version‡: 18479210-1

Sample Layers	Asbestos Content
Brown Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-20A, Drywall with Joint Compound behind Ceiling Tile/MPR Building, Stage

Lab ID-Version‡: 18479211-1

Sample Layers	Asbestos Content
Off-White Joint Compound	2% Chrysotile
White Drywall	ND
Composite Asbestos Fibrous Content:	< 1% Asbestos
Composite Non-Asbestos Content:	5% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Good

Comments: Composite asbestos content provided is only for Drywall/Joint compound. Composite content provided for this analysis has been performed by following the NESHAP guidelines. Sample ECG-24-7284-20B was not analyzed due to prior positive series.

Location: ECG-24-7284-21A, 12"x12" Glue-on Ceiling Tile with Pinholes & Fissures/ MPR Building, Multi-Purpose Room

Lab ID-Version‡: 18479213-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Brown Glue	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-21B, 12"x12" Glue-on Ceiling Tile with Pinholes & Fissures/ MPR Building, Multi-Purpose Room

Lab ID-Version‡: 18479214-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Brown Glue	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-22A, HVAC Seam Tape and Mastic/MPR Building, North Stage Mechanical Room

Lab ID-Version‡: 18479215-1

Sample Layers	Asbestos Content
Tan Tape	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-22B, HVAC Seam Tape and Mastic/MPR Building, HVAC Closet adjacent Room A-1

Lab ID-Version‡: 18479216-1

Sample Layers	Asbestos Content
Tan Tape	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-23A, Vibration Dampener/MPR Building, HVAC Closet adjacent Room A-1

Lab ID-Version‡: 18479217-1

Sample Layers	Asbestos Content
Black Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-23B, Vibration Dampener/MPR Building, South Stage Mechanical Room

Lab ID-Version‡: 18479218-1

Sample Layers	Asbestos Content
Black Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-24A, Canvas HVAC Duct Wrap with Fiberglass Insulation/MPR Building, PE Storage Room

Lab ID-Version‡: 18479219-1

Sample Layers	Asbestos Content
White Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-24B, Canvas HVAC Duct Wrap with Fiberglass Insulation/MPR Building, PE Storage Room

Lab ID-Version‡: 18479220-1

Sample Layers	Asbestos Content
White Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-24C, Canvas HVAC Duct Wrap with Fiberglass Insulation/MPR Building, PE Storage Room

Lab ID-Version‡: 18479221-1

Sample Layers	Asbestos Content
White Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-25A, Drywall with Joint Compound (Patch)/MPR Building, North Stage Mechanical Room

Lab ID-Version‡: 18479222-1

Sample Layers	Asbestos Content
Off-White Joint Compound	ND
White Drywall	ND
Composite Non-Asbestos Content:	5% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-25B, Drywall with Joint Compound (Patch)/MPR Building, North Stage Mechanical Room

Lab ID-Version‡: 18479223-1

Sample Layers	Asbestos Content
Off-White Joint Compound	ND
White Drywall	ND
Composite Non-Asbestos Content:	5% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-26A, Drywall with Joint Compound/MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479539-1

Sample Layers	Asbestos Content
White Joint Compound (Trace)	ND
Cream Tape	ND
White Joint Compound 2 (Trace)	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-26B, Drywall with Joint Compound/MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479540-1

Sample Layers	Asbestos Content
Yellow Fibrous Material	ND
Blue Fibrous Material	ND
White Joint Compound (Trace)	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	5% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-27C, Skip Trowel Texture/MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479541-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-27A, Skip Trowel Texture/MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479224-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-27B, Skip Trowel Texture/MPR Building, Old Girl's Locker Room

Lab ID-Version‡: 18479225-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-28A, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/MPR Building, Mail Room Office

Lab ID-Version‡: 18479226-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	ND
Composite Non-Asbestos Content:	< 1% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-28B, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/ MPR Building, Southwest Room

Lab ID-Version‡: 18479227-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	3% Chrysotile
Composite Non-Asbestos Content:	< 1% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-29A, 2'x4' Ceiling Panel with Pinholes & Fissures/MPR Building, West Lobby

Lab ID-Version‡: 18479228-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-29B, 2'x4' Ceiling Panel with Pinholes & Fissures/MPR Building, West Lobby

Lab ID-Version‡: 18479229-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-30A, 2'x4' Ceiling Panel with 2'x2' Pattern/MPR Building, West Lobby

Lab ID-Version‡: 18479230-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-30B, 2'x4' Ceiling Panel with 2'x2' Pattern/MPR Building, West Lobby

Lab ID-Version‡: 18479231-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-30.5A, Cinder Block with Mortar/MPR Building, West Lobby

Lab ID-Version‡: 18479232-1

Sample Layers	Asbestos Content
Gray Cementitious Material (Cinder Block)	ND
Gray Mortar	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-30.5B, Cinder Block with Mortar/MPR Building, West Lobby

Lab ID-Version‡: 18479542-1

Sample Layers	Asbestos Content
Gray Cementitious Material (Cinder Block)	ND
Gray Mortar	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-30.6A, Black Roofing Debris/MPR Building, Attic above Mail Room Office

Lab ID-Version‡: 18479233-1

Sample Layers	Asbestos Content
Black Roofing Material Debris	ND
Composite Non-Asbestos Content:	< 1% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-30.6B, Black Roofing Debris/MPR Building, Attic above Mail Room Office

Lab ID-Version‡: 18479234-1

Sample Layers	Asbestos Content
Black Roofing Material Debris	ND
Composite Non-Asbestos Content:	< 1% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-31A, Plastic Wall Panel Glue/Office Building, Nurse's Office Restroom

Lab ID-Version‡: 18479235-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-31B, Plastic Wall Panel Glue/Office Building, Nurse's Office Restroom

Lab ID-Version‡: 18479236-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-32A, Gray Speckled Sheet Vinyl Flooring with Paper Backing and Mastic over Beige Sheet Vinyl Flooring with Paper Backing and Mastic/Office Building, Nurse's Office Restroom

Lab ID-Version‡: 18479237-1

Sample Layers	Asbestos Content
Gray Sheet Flooring	ND
Yellow Mastic	ND
Beige Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-32B, Gray Speckled Sheet Vinyl Flooring with Paper Backing and Mastic over Beige Sheet Vinyl Flooring with Paper Backing and Mastic/Office Building, Nurse's Office Restroom

Lab ID-Version‡: 18479238-1

Sample Layers	Asbestos Content
Gray Sheet Flooring	ND
Yellow Mastic	ND
Beige Sheet Flooring with Fibrous Backing	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-33A, Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Mastic/Office Building, Manager's Office Restroom

Lab ID-Version‡: 18479239-1

Sample Layers	Asbestos Content
Brown Sheet Flooring with Fibrous Backing	ND
Tan Mastic	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-33B, Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Mastic/Office Building, Manager's Office Restroom

Lab ID-Version‡: 18479240-1

Sample Layers	Asbestos Content
Brown Sheet Flooring with Fibrous Backing	ND
Tan Mastic	ND
Black Mastic	5% Chrysotile
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

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Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Location: ECG-24-7284-34A, Blue-Gray Carpet Tile with Remnant Yellow Mastic/Office Building, Front Office

Lab ID-Version‡: 18479241-1

Sample Layers	Asbestos Content
Blue Carpet	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	75% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-34B, Blue-Gray Carpet Tile with Remnant Yellow Mastic/Office Building, Manager's Office

Lab ID-Version‡: 18479242-1

Sample Layers	Asbestos Content
Blue Carpet	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	75% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-35A, 4" Gray Vinyl Base Cove with Mastic/Office Building, Manager's Office

Lab ID-Version‡: 18479243-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-35B, 4" Gray Vinyl Base Cove with Mastic/Office Building, Spare Office

Lab ID-Version‡: 18479244-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-36A, 4" Brown Vinyl Base Cove with Mastic/Office Building, Nurse's Office

Lab ID-Version‡: 18479245-1

Sample Layers	Asbestos Content
Brown Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-36B, 4" Brown Vinyl Base Cove with Mastic/Office Building, IT Room

Lab ID-Version‡: 18479246-1

Sample Layers	Asbestos Content
Brown Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-37A, Gray Window Caulking/Office Building, Front Office

Lab ID-Version‡: 18479247-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-37B, Gray Window Caulking/Office Building, Nurse's Office

Lab ID-Version‡: 18479248-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-38A, Rough Textured Plaster/Hallway between Office and MPR Buildings

Lab ID-Version‡: 18479249-1

Sample Layers	Asbestos Content
Green Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-38B, Rough Textured Plaster/Hallway between Office and MPR Buildings

Lab ID-Version‡: 18479250-1

Sample Layers	Asbestos Content
Green Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-38C, Rough Textured Plaster/Hallway between Office and MPR Buildings

Lab ID-Version‡: 18479251-1

Sample Layers	Asbestos Content
Green Plaster	< 1% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-39A, Drywall with Joint Compound/Office Building, Office Storage

Lab ID-Version‡: 18479252-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Blue Fibrous Material	ND
Yellow Fibrous Material	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers 3% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-39B, Drywall with Joint Compound/Office Building, Manager's Office Restroom

Lab ID-Version‡: 18479253-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Blue Fibrous Material	ND
Yellow Fibrous Material	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers 3% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-40A, 12"x12" Glue-on Ceiling Tile with Pinholes/Office Building, IT Room

Lab ID-Version‡: 18479254-1

Sample Layers	Asbestos Content
Brown Glue	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-40B, 12"x12" Glue-on Ceiling Tile with Pinholes/Office Building, IT Room

Lab ID-Version‡: 18479255-1

Sample Layers	Asbestos Content
Brown Glue	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-41A, Drywall behind Ceiling Tiles/Office Building, IT Room

Lab ID-Version‡: 18479256-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	3% Cellulose < 1% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-41B, Drywall behind Ceiling Tiles/Office Building, IT Room

Lab ID-Version‡: 18479257-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	3% Cellulose < 1% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-42A, Plaster Board/Office Building, Above Ceiling of Manager's Office

Lab ID-Version‡: 18479258-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	3% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-42B, Plaster Board/Office Building, Above Ceiling of Manager's Office

Lab ID-Version‡: 18479259-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	3% Cellulose
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-43A, 12"x12" Glue-On Ceiling Tile with Fissures/Office Building, Manager's Office

Lab ID-Version‡: 18479260-1

Sample Layers	Asbestos Content
White Cementitious Material	ND
Gray Ceiling Tile	ND
Yellow Foam	ND
Gray Fibrous Material	ND
Composite Non-Asbestos Content:	55% Glass Fibers 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-43B, 12"x12" Glue-On Ceiling Tile with Fissures/Office Building, Principal's Office

Lab ID-Version‡: 18479261-1

Sample Layers	Asbestos Content
White Cementitious Material	ND
Gray Ceiling Tile	ND
Yellow Foam	ND
Gray Fibrous Material	ND
Brown Mastic	ND
Composite Non-Asbestos Content:	55% Glass Fibers 5% Synthetic Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-44A, Plaster/Office Building, Front Office Lab ID-Version‡: 18479262-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-44B, Plaster/Office Building, Manager's Office Lab ID-Version‡: 18479263-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-44C, Plaster/Office Building, Office Storage Lab ID-Version‡: 18479264-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-45A, Concrete Slab/Kindergarten Building, HVAC Closet Lab ID-Version‡: 18479265-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-45B, Concrete Slab/Kindergarten Building, HVAC Closet Lab ID-Version‡: 18479266-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-46A, Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Black & Yellow Mastic/Kindergarten Building, Southeast Storage Room Lab ID-Version‡: 18479267-1

Sample Layers	Asbestos Content
Brown Sheet Flooring with Fibrous Backing	ND
Black/Yellow Mastic	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-46B, Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Black & Yellow Mastic/Kindergarten Building, Southeast Storage Room Lab ID-Version‡: 18479268-1

Sample Layers	Asbestos Content
Brown Sheet Flooring with Fibrous Backing	ND
Black/Yellow Mastic	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-47A, 12"x12" Brown Mottled Vinyl Floor Tile with Black & Yellow Mastic/Kindergarten Building, Classroom Lab ID-Version‡: 18479269-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-47B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-48A, Gray Sheet Vinyl Flooring with Mastic/Kindergarten Building, Restroom

Lab ID-Version‡: 18479271-1

Sample Layers	Asbestos Content
Gray Sheet Flooring with Fibrous Backing	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-48B was not analyzed due to prior positive series.

Location: ECG-24-7284-49A, Blue Carpet with Yellow Mastic/Kindergarten Building, Classroom

Lab ID-Version‡: 18479273-1

Sample Layers	Asbestos Content
Blue Carpet	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	60% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-49B, Blue Carpet with Yellow Mastic/Kindergarten Building, Classroom

Lab ID-Version‡: 18479274-1

Sample Layers	Asbestos Content
Blue Carpet	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	60% Synthetic Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-50A, 4" Brown Vinyl Base Cove with Mastic/Kindergarten Building, Classroom

Lab ID-Version‡: 18479275-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-50B, 4" Brown Vinyl Base Cove with Mastic/Kindergarten Building, Sink Room

Lab ID-Version‡: 18479276-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-51A, 4" Gray Vinyl Base Cove with Mastic/Kindergarten Building, Classroom

Lab ID-Version‡: 18479277-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-51B, 4" Gray Vinyl Base Cove with Mastic/Kindergarten Building, Classroom

Lab ID-Version‡: 18479278-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-52A, Plaster/Kindergarten Building

Lab ID-Version‡: 18479279-1

Sample Layers	Asbestos Content
White Plaster	ND
Green Plaster	ND
Sample Composite Homogeneity:	Good

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Sacramento, CA 95820

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ASBESTOS PLM REPORT

Location: ECG-24-7284-52B, Plaster/Kindergarten Building Lab ID-Version‡: 18479280-1

Sample Layers	Asbestos Content
White Plaster	ND
Green Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-52C, Plaster/Kindergarten Building Lab ID-Version‡: 18479281-1

Sample Layers	Asbestos Content
White Plaster	ND
Green Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-52D, Plaster/Kindergarten Building Lab ID-Version‡: 18479282-1

Sample Layers	Asbestos Content
White Plaster	ND
Green Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-52E, Plaster/Kindergarten Building Lab ID-Version‡: 18479283-1

Sample Layers	Asbestos Content
White Plaster	ND
Green Plaster	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Location: ECG-24-7284-53A, Plastic Wall Panel Glue/Kindergarten Building, Restroom

Lab ID-Version‡: 18479284-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-53B, Plastic Wall Panel Glue/Kindergarten Building, Restroom

Lab ID-Version‡: 18479285-1

Sample Layers	Asbestos Content
Yellow Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-54A, 12"x12" Nail-on Ceiling Tile with Pinholes/Kindergarten Building

Lab ID-Version‡: 18479286-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-54B, 12"x12" Nail-on Ceiling Tile with Pinholes/Kindergarten Building

Lab ID-Version‡: 18479287-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-55A, Concrete Slab/Building B, Library B2 Lab ID-Version‡: 18479288-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-55B, Concrete Slab/Building B, Library B2 Lab ID-Version‡: 18479289-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-56A, Yellow Carpet Mastic/Building B, Library B2 Lab ID-Version‡: 18479290-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-56B, Yellow Carpet Mastic/Building B, Library B2 Lab ID-Version‡: 18479291-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-57A, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic and Leveler/ Building B, Library B2

Lab ID-Version‡: 18479292-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-57B, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Building B, Library B2

Lab ID-Version‡: 18479293-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-58A, 4" Gray Vinyl Base Cove with Mastic/Building B, Library B2

Lab ID-Version‡: 18479294-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Cream Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-58B, 4" Gray Vinyl Base Cove with Mastic/Building B, Library B2

Lab ID-Version‡: 18479295-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Cream Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-59A, 12"x12" Beige Mottled Vinyl Floor Tile with Black Mastic over Beige Vinyl Floor Tile with Mastic/Building B, Classroom B4, At North Entry

Lab ID-Version‡: 18479296-1

Sample Layers	Asbestos Content
Beige Floor Tile	ND
Black Mastic	2% Chrysotile
Cream Floor Tile	ND
Transparent Mastic	ND
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-59B was not analyzed due to prior positive series.

Location: ECG-24-7284-60A, Gray with Multi-Colored Specks Sheet Vinyl Flooring with Paper Backing and Black & Yellow Mastic/Building B, Classroom B4

Lab ID-Version‡: 18479298-1

Sample Layers	Asbestos Content
Green Floor Tile	2% Chrysotile
Black Mastic	2% Chrysotile
Gray Sheet Flooring with Fibrous Backing	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Good

Comments: Samples ECG-24-7284-60B was not analyzed due to prior positive series.

Location: ECG-24-7284-61A, Yellow and Black Carpet Mastic/Building B, Classroom B4

Lab ID-Version‡: 18479300-1

Sample Layers	Asbestos Content
Black Mastic	2% Chrysotile
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-61B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-62A, 12"x12' Brown Mottled Vinyl Floor Tile with Black Mastic/ Building B, Classroom B3

Lab ID-Version‡: 18479302-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-62B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-63A, 4" Brown Vinyl Base Cove with Mastic/Building B, Classroom B3

Lab ID-Version‡: 18479304-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-63B, 4" Brown Vinyl Base Cove with Mastic/Building B, Classroom B5

Lab ID-Version‡: 18479305-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-64A, Gray-Blue Epoxy Coating/Building B, Boy's Restroom

Lab ID-Version‡: 18479306-1

Sample Layers	Asbestos Content
Gray Coating	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-64B, Gray-Blue Epoxy Coating/Building B, Girl's Restroom

Lab ID-Version‡: 18479307-1

Sample Layers	Asbestos Content
Gray Coating	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-65A, Drywall with Joint Compound/Building B, Boy's Restroom

Lab ID-Version‡: 18479308-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-65B, Drywall with Joint Compound/Building B, Girl's Restroom

Lab ID-Version‡: 18479309-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-66A, Skim Coat/Building B, Boy's Restroom

Lab ID-Version‡: 18479310-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-66B, Skim Coat/Building B, Girl's Restroom

Lab ID-Version‡: 18479311-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-66C, Skim Coat/Building B, Girl's Restroom Lab ID-Version‡: 18479312-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-67D, Plaster/Building B, Classroom B5 Lab ID-Version‡: 18479316-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-67E, Plaster/Building B, Classroom B6 Lab ID-Version‡: 18479317-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-67A, Plaster/Building B, Library B2 Lab ID-Version‡: 18479313-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-67B, Plaster/Building B, Classroom B3 Lab ID-Version‡: 18479314-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-67F, Plaster/Building B, Classroom B7 Lab ID-Version‡: 18479318-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-67G, Plaster/Building B, Classroom B7 Lab ID-Version‡: 18479319-1

Sample Layers	Asbestos Content
Beige Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-68A, Plaster/Building B, Classroom B5 HVAC Closet Lab ID-Version‡: 18479320-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-68B, Plaster/Building B, Classroom B6 HVAC Closet Lab ID-Version‡: 18479321-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-68C, Plaster/Building B, Classroom B7 HVAC Closet Lab ID-Version‡: 18479322-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-68D, Plaster/Building B, Classroom B3 HVAC Closet Lab ID-Version‡: 18479323-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-68E, Plaster/Building B, Classroom B4 HVAC Closet Lab ID-Version‡: 18479324-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-69A, HVAC Seam Mastic/Building B, Classroom B3 HVAC Closet

Lab ID-Version‡: 18479325-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-69B, HVAC Seam Mastic/Building B, Classroom B5 HVAC Closet

Lab ID-Version‡: 18479326-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-70A, 12"x12" Nail-on Ceiling Tile with Pinholes/Building B, Library B2

Lab ID-Version‡: 18479327-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-70B, 12"x12" Nail-on Ceiling Tile with Pinholes/Building B, Classroom B3

Lab ID-Version‡: 18479328-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-71A, Gray Mortar and Decorative Glass Black Wall/Building B, Library B2

Lab ID-Version‡: 18479329-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-71B, Gray Mortar and Decorative Glass Black Wall/Building B, Library B2

Lab ID-Version‡: 18479330-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-72A, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-2

Lab ID-Version‡: 18479331-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-72B was not analyzed due to prior positive series.

Location: ECG-24-7284-73A, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/Building C, Classroom C-3 Closet

Lab ID-Version‡: 18479333-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-73B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-74A, 12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-5

Lab ID-Version‡: 18479335-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-74B, 12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-5

Lab ID-Version‡: 18479336-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-75A, Black and Yellow Carpet Mastic/Building C, Classroom C-5

Lab ID-Version‡: 18479337-1

Sample Layers	Asbestos Content
Black/Yellow Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-75B was not analyzed due to prior positive series.

Location: ECG-24-7284-76A, 4" Gray Vinyl Base Cove with Mastic/Building C, Classroom C-2

Lab ID-Version‡: 18479339-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

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Sacramento, CA 95820

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2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
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Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Location: ECG-24-7284-76B, 4" Gray Vinyl Base Cove with Mastic/Building C, Classroom C-2

Lab ID-Version‡: 18479340-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-77A, 4" Brown Vinyl Base Cove with Mastic/Building C, Classroom C-3

Lab ID-Version‡: 18479341-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-77B, 4" Brown Vinyl Base Cove with Mastic/Building C, Classroom C-4

Lab ID-Version‡: 18479342-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-78A, Concrete Slab/Building C, Classroom C-4

Lab ID-Version‡: 18479343-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-78B, Concrete Slab/Building C, Classroom C-4

Lab ID-Version‡: 18479344-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-79A, Tan Epoxy Coating/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479345-1

Sample Layers	Asbestos Content
Tan Coating	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-79B, Tan Epoxy Coating/Building C, Girl's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479346-1

Sample Layers	Asbestos Content
Tan Coating	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-80A, 4" White Ceramic Tile with Grout and Mortar/Building C, Girl's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479347-1

Sample Layers	Asbestos Content
White Ceramic Tile	ND
White Grout	ND
White Mortar	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-80B, 4" White Ceramic Tile with Grout and Mortar/Building C, Girl's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479348-1

Sample Layers	Asbestos Content
White Ceramic Tile	ND
White Grout	ND
White Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-81A, Drywall with Joint Compound/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479349-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-81B, Drywall with Joint Compound/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479350-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-82A, Skip Trowel Texture/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479351-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-82B, Skip Trowel Texture/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479352-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-82C, Skip Trowel Texture/Building C, Boy's Restroom adjacent Classroom C-2

Lab ID-Version‡: 18479353-1

Sample Layers	Asbestos Content
White Texture	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-83A, Plaster/Building C, Classroom C-2

Lab ID-Version‡: 18479354-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-83B, Plaster/Building C, Classroom C-2

Lab ID-Version‡: 18479355-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-83C, Plaster/Building C, Classroom C-3 Lab ID-Version‡: 18479356-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-83D, Plaster/Building C, Classroom C-4 Lab ID-Version‡: 18479357-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-83E, Plaster/Building C, Classroom C-5 Lab ID-Version‡: 18479358-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-84A, Plaster Board/Building C, HVAC Closet for Classrooms C-4 & C-5 Lab ID-Version‡: 18479359-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-84B, Plaster Board/Building C, HVAC Closet for Classrooms C-2 & C-3

Lab ID-Version‡: 18479360-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-85A, Drywall with Joint Compound/Building C, HVAC Closet for Classrooms C-2 & C-3

Lab ID-Version‡: 18479361-1

Sample Layers	Asbestos Content
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-85B, Drywall with Joint Compound/Building C, HVAC Closet for Classrooms C-4 & C-5

Lab ID-Version‡: 18479362-1

Sample Layers	Asbestos Content
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-86A, HVAC Seam Mastic/Building C, HVAC Closet for Classrooms C-4 & C-5

Lab ID-Version‡: 18479363-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-86B, HVAC Seam Mastic/Building C, HVAC Closet for Classrooms C-2 & C-3

Lab ID-Version‡: 18479364-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-87A, Vibration Dampener/Building C, HVAC Closet for Classrooms C-4 & C-5

Lab ID-Version‡: 18479365-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-87B, Vibration Dampener/Building C, HVAC Closet for Classrooms C-2 & C-3

Lab ID-Version‡: 18479366-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-88A, 12"x12" Nail-on Ceiling Tile with Pinholes/Building C, Classroom C-3

Lab ID-Version‡: 18479367-1

Sample Layers	Asbestos Content
Yellow Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-88B, 12"x12" Nail-on Ceiling Tile with Pinholes/Building C, Classroom C-2

Lab ID-Version‡: 18479368-1

Sample Layers	Asbestos Content
Yellow Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-89A, Gray Mortar and Decorative Glass Block Wall/Building C, Classroom C-2

Lab ID-Version‡: 18479369-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-89B, Gray Mortar and Decorative Glass Block Wall/Building C, Classroom C-2

Lab ID-Version‡: 18479370-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-90A, 9"x9" Blue-Green Streaked Vinyl Floor Tile with Black Mastic/Building C, Classroom C-6

Lab ID-Version‡: 18479371-1

Sample Layers	Asbestos Content
Green Floor Tile	2% Chrysotile
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-90B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-91A, 9"x9" Light Green with Tan Streaks Vinyl Floor Tile and Black Mastic/Building C, Classroom C-6

Lab ID-Version‡: 18479373-1

Sample Layers	Asbestos Content
Green Floor Tile	2% Chrysotile
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-91B was not analyzed due to prior positive series.

Location: ECG-24-7284-92A, 9"x9" Dark Green with Tan Streaks Vinyl Floor Tile and Black Mastic/Building C, Classroom C-6

Lab ID-Version‡: 18479375-1

Sample Layers	Asbestos Content
Green Floor Tile	2% Chrysotile
Black Mastic	2% Chrysotile
Beige Compound	ND
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-92B was not analyzed due to prior positive series.

Location: ECG-24-7284-93A, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/Building C, Classroom C-8

Lab ID-Version‡: 18479377-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic (Trace)	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-93B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-94A, 12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-7

Lab ID-Version‡: 18479379-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black Mastic (Trace)	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-94B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-95A, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-9

Lab ID-Version‡: 18479381-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-95B was not analyzed due to prior positive series.

Location: ECG-24-7284-96A, 4" Gray Vinyl Base Cove with Mastic/Building C, Classroom C-7

Lab ID-Version‡: 18479383-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-96B, 4" Gray Vinyl Base Cove with Mastic/Building C, Classroom C-9

Lab ID-Version‡: 18479384-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-97A, 4" Brown Vinyl Base Cove with Mastic/Building C, Classroom C-7

Lab ID-Version‡: 18479385-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-97B, 4" Brown Vinyl Base Cove with Mastic/Building C, Classroom C-9

Lab ID-Version‡: 18479386-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-98A, Yellow Carpet Mastic/Building C, Classroom C-6

Lab ID-Version‡: 18479387-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-98B, Yellow Carpet Mastic/Building C, Classroom C-7

Lab ID-Version‡: 18479388-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-99A, Gray-Blue Epoxy Coating/Building C, Boy's Restroom Adjacent Classroom C-9

Lab ID-Version‡: 18479389-1

Sample Layers	Asbestos Content
Gray Coating	ND
Sample Composite Homogeneity:	Good

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2841 Dow Avenue, Suite 300, Tustin, CA 92780
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Date of Sampling: 08-05-2024
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ASBESTOS PLM REPORT

Location: ECG-24-7284-99B, Gray-Blue Epoxy Coating/Building C, Girl's Restroom Adjacent Classroom C-9

Lab ID-Version‡: 18479390-1

Sample Layers	Asbestos Content
Gray Coating	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-100A, Drywall with Joint Compound/Building C, Boy's Restroom adjacent Classroom C-9

Lab ID-Version‡: 18479391-1

Sample Layers	Asbestos Content
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-100B, Drywall with Joint Compound/Building C, Girl's Restroom adjacent Classroom C-9

Lab ID-Version‡: 18479392-1

Sample Layers	Asbestos Content
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-101A, Skim Coat/Building C, Boy's Restroom adjacent Classroom C-9

Lab ID-Version‡: 18479393-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-101B, Skim Coat/Building C, Boy's Restroom adjacent Classroom C-9

Lab ID-Version‡: 18479394-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-101C, Skim Coat/Building C, Girl's Restroom adjacent Classroom C-9

Lab ID-Version‡: 18479395-1

Sample Layers	Asbestos Content
White Skim Coat	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-102A, Plaster/Building C, Classroom C-6

Lab ID-Version‡: 18479396-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-102B, Plaster/Building C, Classroom C-8

Lab ID-Version‡: 18479397-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-102C, Plaster/Building C, Classroom C-9 Lab ID-Version‡: 18479398-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-103A, Plaster/Building C, Classroom C-6 HVAC Closet Lab ID-Version‡: 18479399-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-103B, Plaster/Building C, Classroom C-8 HVAC Closet Lab ID-Version‡: 18479400-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-103C, Plaster/Building C, Classroom C-9 HVAC Closet Lab ID-Version‡: 18479401-1

Sample Layers	Asbestos Content
Green Plaster	ND
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-104A, 12"x12" Nail-on Ceiling Tile with Pinholes/Building C, Classroom C-3

Lab ID-Version‡: 18479402-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-104B, 12"x12" Nail-on Ceiling Tile with Pinholes/Building C, Classroom C-2

Lab ID-Version‡: 18479403-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-105A, HVAC Seam Mastic/Building C, Classroom C-6 HVAC Closet

Lab ID-Version‡: 18479404-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-105B, HVAC Seam Mastic/Building C, Classroom C-6 HVAC Closet

Lab ID-Version‡: 18479405-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-106A, Concrete Slab/Building D, HVAC Closet for Classrooms D-1 & D-2

Lab ID-Version‡: 18479406-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-106B, Concrete Slab/Building D, HVAC Closet for Classrooms D-3 & D-4

Lab ID-Version‡: 18479407-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-107A, Black and Yellow Carpet Mastic/Building D, Classroom D-5 Closet

Lab ID-Version‡: 18479408-1

Sample Layers	Asbestos Content
Black/Yellow Mastic	2% Chrysotile
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-108A, 12"x12" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic/Building D, Classroom D-6 Closet

Lab ID-Version‡: 18479409-1

Sample Layers	Asbestos Content
Tan Floor Tile	4% Chrysotile
Black Mastic	3% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-24-7284-108B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-109A, 9"x9" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic/Building D, Classroom D-1

Lab ID-Version‡: 18479411-1

Sample Layers	Asbestos Content
Tan Floor Tile	4% Chrysotile
Black Mastic	3% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-24-7284-109B was not analyzed due to prior positive series.

Location: ECG-24-7284-110A, 9"x9" Black Vinyl Floor Tile and Black Mastic/Building D, Classroom D-1 Closet

Lab ID-Version‡: 18479413-1

Sample Layers	Asbestos Content
Black Floor Tile	5% Chrysotile
Black Mastic (Trace)	2% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-111A, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/Building D, Classroom D-2

Lab ID-Version‡: 18479414-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-112A, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/Building D, Classroom D-3

Lab ID-Version‡: 18479415-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-113A, 4" Brown Vinyl Base Cove with Mastic/Building D, Classroom D-4

Lab ID-Version‡: 18479416-1

Sample Layers	Asbestos Content
Brown Cove Base	ND
White Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-114A, Gray Sheet Vinyl Flooring with Paper Backing and Blue Mastic over Leveler/Building D, Restroom between Classrooms D-7 & D-8

Lab ID-Version‡: 18479417-1

Sample Layers	Asbestos Content
Gray Sheet Flooring with Fibrous Backing	ND
Blue Mastic	ND
Gray Leveling Compound	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-114B, Gray Sheet Vinyl Flooring with Paper Backing and Blue Mastic over Leveler/Building D, Restroom between Classrooms D-7 & D-8

Lab ID-Version‡: 18479418-1

Sample Layers	Asbestos Content
Gray Sheet Flooring with Fibrous Backing	ND
Blue Mastic	ND
Gray Leveling Compound	ND
Brown Floor Tile	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-115A, Gray Wood Pattern Vinyl Plank Flooring with Clear Mastic over Beige Vinyl Floor Tile and Mastic/Building D, Classroom D-7

Lab ID-Version‡: 18479419-1

Sample Layers	Asbestos Content
Gray Flooring	ND
Transparent Mastic	ND
Beige Floor Tile	ND
Gray Mastic	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-115B, Gray Wood Pattern Vinyl Plank Flooring with Clear Mastic over Beige Vinyl Floor Tile and Mastic/Building D, Classroom D-7 Lab ID-Version‡: 18479420-1

Sample Layers	Asbestos Content
Gray Flooring	ND
Transparent Mastic	ND
Beige Floor Tile	ND
Gray Mastic	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-116A, Plaster/Building D, Classroom D-2 Lab ID-Version‡: 18479421-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-116B, Plaster/Building D, Classroom D-4 Lab ID-Version‡: 18479422-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-116C, Plaster/Building D, Classroom D-5 Lab ID-Version‡: 18479423-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-117A, Wallpaper over Drywall and Joint Compound/Building D, Classroom D-3

Lab ID-Version‡: 18479424-1

Sample Layers	Asbestos Content
Beige Wallpaper	ND
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-117B, Wallpaper over Drywall and Joint Compound/Building D, Classroom D-3

Lab ID-Version‡: 18479425-1

Sample Layers	Asbestos Content
Beige Wallpaper	ND
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-118A, Plaster/Building D, Classroom D-7

Lab ID-Version‡: 18479426-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-118B, Plaster/Building D, Classroom D-7

Lab ID-Version‡: 18479427-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-118C, Plaster/Building D, Classroom D-8

Lab ID-Version‡: 18479428-1

Sample Layers	Asbestos Content
White Plaster	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-119A, Drywall with Joint Compound/Building D, Restroom between Classrooms D-7 & D-8

Lab ID-Version‡: 18479429-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-119B, Drywall with Joint Compound/Building D, Restroom between Classrooms D-7 & D-8

Lab ID-Version‡: 18479430-1

Sample Layers	Asbestos Content
White Texture	ND
Cream Tape	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-120A, 12"x12" Nail-on Ceiling Tile with Pinholes/Building D, Classroom D-6

Lab ID-Version‡: 18479431-1

Sample Layers	Asbestos Content
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	90% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-121A, 12"x12" Glue-on Ceiling Tile with Pinholes/Building D, Classroom D-3

Lab ID-Version‡: 18479432-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-121B, 12"x12" Glue-on Ceiling Tile with Pinholes/Building D, Classroom D-3

Lab ID-Version‡: 18479433-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-122A, 12"x12" Nail-on Ceiling Tile with Pinholes/Building D, Classroom D-8

Lab ID-Version‡: 18479434-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	90% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-122B, 12"x12" Nail-on Ceiling Tile with Pinholes/Building D, Classroom D-7

Lab ID-Version‡: 18479435-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	90% Cellulose
Sample Composite Homogeneity:	Good

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Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

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2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

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ASBESTOS PLM REPORT

Location: ECG-24-7284-123A, White Rolled Asphalt Roofing/Building B, Roof, East Lab ID-Version‡: 18479436-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-123B, White Rolled Asphalt Roofing/MPR Building Lower Roof, South Lab ID-Version‡: 18479437-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-123C, White Rolled Asphalt Roofing/Building C Roof, West Lab ID-Version‡: 18479438-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-123D, White Rolled Asphalt Roofing/Building C Roof, East Lab ID-Version‡: 18479439-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: ECG-24-7284-123E, White Rolled Asphalt Roofing/Building D Roof, East Lab ID-Version‡: 18479440-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-123F, White Rolled Asphalt Roofing/Building D Roof, West Lab ID-Version‡: 18479441-1

Sample Layers	Asbestos Content
White Asphalt Roof Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: ECG-24-7284-124A, Red-Brown Composition Roof Shingle with Felt Paper/ Office Building Roof, Southwest Lab ID-Version‡: 18479442-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt 1	ND
Black Roofing Felt 2	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-124B, Red-Brown Composition Roof Shingle with Felt Paper/ MPR Building Roof, Southwest Lab ID-Version‡: 18479443-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-124C, Red-Brown Composition Roof Shingle with Felt Paper/ Building B, Library Roof, East

Lab ID-Version‡: 18479444-1

Sample Layers	Asbestos Content
Black Roofing Shingle	ND
Black Roofing Felt 1	ND
Black Roofing Felt 2	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-124D, Red-Brown Composition Roof Shingle with Felt Paper/ Kindergarten Building Roof, East

Lab ID-Version‡: 18479445-1

Sample Layers	Asbestos Content
Black Roofing Shingle 1	ND
Black Roofing Shingle 2	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-124E, Red-Brown Composition Roof Shingle with Felt Paper/ Building C Roof, East

Lab ID-Version‡: 18479446-1

Sample Layers	Asbestos Content
Black Roofing Shingle 1	ND
Black Roofing Shingle 2	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-124F, Red-Brown Composition Roof Shingle with Felt Paper/ Building D Roof, West

Lab ID-Version‡: 18479447-1

Sample Layers	Asbestos Content
Black Roofing Shingle 1	ND
Black Roofing Shingle 2	ND
Black Roofing Felt	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-125A, Gray-Black Curb & Penetration Mastic/Office Building Roof, West

Lab ID-Version‡: 18479448-1

Sample Layers	Asbestos Content
Gray Roofing Mastic	5% Chrysotile
Black Roofing Material	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Good

Comments: Sample ECG-24-7284-125B was not analyzed due to prior positive series.

Location: ECG-24-7284-126A, Beige Penetration Mastic/Office Building Roof, East

Lab ID-Version‡: 18479450-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-127A, Gray Penetration Mastic/Office Building Roof, East

Lab ID-Version‡: 18479451-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-128A, White Coated Penetration Mastic/MPR Building Lower Roof, South

Lab ID-Version‡: 18479452-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-128B, White Coated Penetration Mastic/Building B Roof, Near Center

Lab ID-Version‡: 18479453-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-128C, White Coated Penetration Mastic/Building C Roof, East

Lab ID-Version‡: 18479454-1

Sample Layers	Asbestos Content
White Mastic	5% Chrysotile
Sample Composite Homogeneity:	Good

Comments: Samples ECG-24-7284-128D and ECG-24-7284-128E were not analyzed due to prior positive series.

Location: ECG-24-7284-129A, Gray HVAC Flashing Mastic/Building C Roof, West at HVAC Unit Base

Lab ID-Version‡: 18479457-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-129B, Gray HVAC Flashing Mastic/Building D Roof, West at HVAC Unit Base

Lab ID-Version‡: 18479458-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity:	Good

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2841 Dow Avenue, Suite 300, Tustin, CA 92780
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ASBESTOS PLM REPORT

Location: ECG-24-7284-130A, Beige Flashing Mastic/Building C Roof, West at Vent Fan Base

Lab ID-Version‡: 18479459-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-130B, Beige Flashing Mastic/Building D Roof, West at Vent Fan Base

Lab ID-Version‡: 18479460-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-131A, Black Roof Patch/Covered Walkway Roofs, North of Building D

Lab ID-Version‡: 18479461-1

Sample Layers	Asbestos Content
Black Roofing Material (Patch)	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-131B, Black Roof Patch/Covered Walkway Roofs, North of Building D

Lab ID-Version‡: 18479462-1

Sample Layers	Asbestos Content
Black Roofing Material (Patch)	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-131.5A, Rolled Asphalt Roofing/CCTV Shed Roof Lab ID-Version‡: 18479543-1

Sample Layers	Asbestos Content
Black Asphalt Roofing	ND
Composite Non-Asbestos Content:	20% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132A, Stucco/Exterior, Office Building, South Lab ID-Version‡: 18479463-1

Sample Layers	Asbestos Content
Beige Stucco	< 1% Chrysotile
Gray Stucco	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132B, Stucco/Exterior, MPR Building, Southeast Lab ID-Version‡: 18479464-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132C, Stucco/Exterior, Kindergarten Building, Southeast Corner Lab ID-Version‡: 18479465-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-132D, Stucco/Exterior, Building B, Southeast Lab ID-Version‡: 18479466-1

Sample Layers	Asbestos Content
White Stucco	ND
Gray Stucco	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132E, Stucco/Exterior, Building C, South Lab ID-Version‡: 18479467-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132F, Stucco/Exterior, Building D, Northeast Corner Lab ID-Version‡: 18479468-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-132G, Stucco/Exterior, Building D, Southwest Corner Lab ID-Version‡: 18479469-1

Sample Layers	Asbestos Content
Gray Stucco	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-133A, Brick and Mortar/Exterior, Office Building, Southwest Corner

Lab ID-Version‡: 18479470-1

Sample Layers	Asbestos Content
Beige Brick	ND
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-133B, Brick and Mortar/Exterior, Kindergarten Building, Northeast Corner

Lab ID-Version‡: 18479471-1

Sample Layers	Asbestos Content
Beige Brick	ND
Gray Mortar	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-134A, Concrete Wall/Exterior, Building B, Northeast Corner

Lab ID-Version‡: 18479472-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-134B, Concrete Wall/Exterior, Building C, East

Lab ID-Version‡: 18479473-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-135A, Cementitious Wall Panel/Exterior, Northeast Side of Building C

Lab ID-Version‡: 18479474-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-135B, Cementitious Wall Panel/Exterior, Northeast Side of Building D

Lab ID-Version‡: 18479475-1

Sample Layers	Asbestos Content
Gray Cementitious Material	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-136A, White Window Caulking/Exterior, East Side of Kindergarten Building

Lab ID-Version‡: 18479476-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-136B, White Window Caulking/Exterior, East Side of Kindergarten Building

Lab ID-Version‡: 18479477-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-137A, Gray Window Caulking/Exterior, Building D, North Lab ID-Version‡: 18479478-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-137B, Gray Window Caulking/Exterior, Building C, South Lab ID-Version‡: 18479479-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-138A, Window Glazing Putty/Exterior, Office Building, South

Lab ID-Version‡: 18479480-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-138B, Window Glazing Putty/Exterior, Building B, Northwest Lab ID-Version‡: 18479481-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-138C, Window Glazing Putty/Exterior, Building C, Northwest Lab ID-Version‡: 18479482-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-139A, Yellow Carpet Mastic/Portable Classroom B1 Lab ID-Version‡: 18479483-1

Sample Layers	Asbestos Content
Yellow Carpet Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-139B, Yellow Carpet Mastic/Portable Classroom C1 Lab ID-Version‡: 18479484-1

Sample Layers	Asbestos Content
Yellow Carpet Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-140A, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Portable Classroom B1 Lab ID-Version‡: 18479485-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Good

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C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
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Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

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ASBESTOS PLM REPORT

Location: ECG-24-7284-140B, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Portable Classroom C1

Lab ID-Version‡: 18479486-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-141A, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom B1

Lab ID-Version‡: 18479487-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-141B, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom C1

Lab ID-Version‡: 18479488-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-142A, Drywall behind Tagboard/Portable Classroom B1

Lab ID-Version‡: 18479489-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-142B, Drywall behind Tagboard/Portable Classroom C1 Lab ID-Version‡: 18479490-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-143A, 2'x4' Ceiling Panel/Portable Classroom B1 Lab ID-Version‡: 18479491-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-143B, 2'x4' Ceiling Panel/Portable Classroom C1 Lab ID-Version‡: 18479544-1

Sample Layers	Asbestos Content
White Ceiling Tile	ND
Composite Non-Asbestos Content:	40% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-144A, Expansion Joint Caulking/Portable Classroom B1 Lab ID-Version‡: 18479492-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-144B, Expansion Joint Caulking/Portable Classroom C1 Lab ID-Version‡: 18479493-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-145A, Single Ply Membrane Roofing/Portable Classroom B1 Lab ID-Version‡: 18479494-1

Sample Layers	Asbestos Content
Gray Roofing Material	ND
Composite Non-Asbestos Content:	10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-145B, Single Ply Membrane Roofing/Portable Classroom C1 Lab ID-Version‡: 18479495-1

Sample Layers	Asbestos Content
Gray Roofing Material	ND
Composite Non-Asbestos Content:	10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-146A, Penetration Mastic/Portable Classroom B1 Lab ID-Version‡: 18479496-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-146B, Penetration Mastic/Portable Classroom C1 Lab ID-Version‡: 18479497-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-147A, Yellow Carpet Mastic/Portable Classroom B8 Lab ID-Version‡: 18479498-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-147B, Yellow Carpet Mastic/Portable Classroom B10 Lab ID-Version‡: 18479499-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-148A, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Portable Classroom B8 Lab ID-Version‡: 18479500-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-148B, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Portable Classroom B10

Lab ID-Version‡: 18479501-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Black Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-149A, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom B8

Lab ID-Version‡: 18479502-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
White Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-149B, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom B10

Lab ID-Version‡: 18479503-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
White Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-150A, Drywall behind Tagboard/Portable Classroom B9

Lab ID-Version‡: 18479504-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-150B, Drywall behind Tagboard/Portable Classroom B10 Lab ID-Version‡: 18479505-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-151A, 2'x4' Ceiling Panel/Portable Classroom B9 Lab ID-Version‡: 18479506-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
Composite Non-Asbestos Content:	50% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-151B, 2'x4' Ceiling Panel/Portable Classroom B10 Lab ID-Version‡: 18479507-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
Composite Non-Asbestos Content:	50% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-152A, Expansion Joint Caulking/Portable Classroom B9 Lab ID-Version‡: 18479508-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-152B, Expansion Joint Caulking/Portable Classroom B9 Lab ID-Version‡: 18479509-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-153A, Roof Mastic/Portable Classroom B8 Lab ID-Version‡: 18479510-1

Sample Layers	Asbestos Content
White Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-153B, Roof Mastic/Portable Classroom B9 Lab ID-Version‡: 18479511-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-154A, Yellow Carpet Mastic with White Leveler/Portable Classroom B11 Lab ID-Version‡: 18479512-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-154B, Yellow Carpet Mastic with White Leveler/Portable Classroom B12

Lab ID-Version‡: 18479513-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-155A, 12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic/Portable Classroom B11

Lab ID-Version‡: 18479514-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-155B, 12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic/Portable Classroom B12

Lab ID-Version‡: 18479515-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-156A, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom B11

Lab ID-Version‡: 18479516-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-156B, 4" Gray Vinyl Base Cove with Mastic/Portable Classroom B12

Lab ID-Version‡: 18479517-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-157A, Drywall behind Tagboard/Portable Classroom B11

Lab ID-Version‡: 18479518-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-157B, Drywall behind Tagboard/Portable Classroom B12

Lab ID-Version‡: 18479519-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-158A, Expansion Joint Caulking/Portable Classroom B11

Lab ID-Version‡: 18479520-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: ECG-24-7284-158B, Expansion Joint Caulking/Portable Classroom B12 Lab ID-Version‡: 18479521-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-159A, Roof Mastic/Portable Classroom B11 Lab ID-Version‡: 18479522-1

Sample Layers	Asbestos Content
Dark Gray Mastic	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-159B, Roof Mastic/Portable Classroom B12 Lab ID-Version‡: 18479523-1

Sample Layers	Asbestos Content
Dark Gray Mastic	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-160A, 12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic/Portable C11, Southwest Lab ID-Version‡: 18479524-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Yellow Mastic	ND
Gray Leveling Compound	ND
Tan Floor Tile	3% Chrysotile
Sample Composite Homogeneity:	Poor

Comments: Sample ECG-24-7284-160B was not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: ECG-24-7284-161A, 9"x9" Brown Streaked Vinyl Floor Tile with Black Mastic/ Portable C11, North Closet

Lab ID-Version‡: 18479526-1

Sample Layers	Asbestos Content
Brown Floor Tile	3% Chrysotile
Black Mastic	3% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Sample ECG-24-7284-161B was not analyzed due to prior positive series.

Location: ECG-24-7284-162A, Gray Speckled Sheet Vinyl Flooring with Yellow Mastic/ Portable C11 Restroom

Lab ID-Version‡: 18479528-1

Sample Layers	Asbestos Content
Gray Sheet Flooring	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-162B, Gray Speckled Sheet Vinyl Flooring with Yellow Mastic/ Portable C11 Restroom

Lab ID-Version‡: 18479529-1

Sample Layers	Asbestos Content
Gray Sheet Flooring	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-163A, 4" Gray Vinyl Base Cove with Mastic/Portable C11, North

Lab ID-Version‡: 18479530-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Dark Brown Mastic	ND
Composite Non-Asbestos Content:	< 1% Talc
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: ECG-24-7284-163B, 4" Gray Vinyl Base Cove with Mastic/Portable C11, East

Lab ID-Version‡: 18479531-1

Sample Layers	Asbestos Content
Gray Cove Base	ND
Dark Brown Mastic	ND
Composite Non-Asbestos Content:	< 1% Talc
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-164A, 12"x12" Glue-on Ceiling Tile/Portable C11, East

Lab ID-Version‡: 18479532-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	50% Cellulose 30% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-164B, 12"x12" Glue-on Ceiling Tile/Portable C11, Restroom

Lab ID-Version‡: 18479533-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
Brown Mastic	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	80% Cellulose
Sample Composite Homogeneity:	Moderate

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Location: ECG-24-7284-165A, Drywall with Joint Compound/Portable C-11, Northwest Corner adjacent to Closet

Lab ID-Version‡: 18479534-1

Sample Layers	Asbestos Content
Off-White Texture	2% Chrysotile
Cream Tape	ND
Off-White Joint Compound	2% Chrysotile
White Drywall with Brown Paper	ND
Composite Asbestos Fibrous Content:	< 1% Asbestos
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Comments: Composite asbestos content provided is only for Drywall/Joint compound. Composite content provided for this analysis has been performed by following the NESHAP guidelines. Sample ECG-24-7284-165B was not analyzed due to prior positive series.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Date of Sampling: 08-05-2024
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Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Location: ECG-24-7284-166A, Plastic Wall Panel Glue/Portable C11 Restroom Lab ID-Version‡: 18479536-1

Sample Layers	Asbestos Content
White Glue	ND
Sample Composite Homogeneity:	Good

Location: ECG-24-7284-167A, Brown Composition Shingle Roof/Portable C11 Lab ID-Version‡: 18479537-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Light Brown Rocks	ND
Black Roofing Shingle with Dark Brown Rocks	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: ECG-24-7284-167B, Brown Composition Shingle Roof/Portable C11 Lab ID-Version‡: 18479538-1

Sample Layers	Asbestos Content
Black Roofing Shingle with Dark Brown Rocks	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Good

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples Not Analyzed:	31

ECG-24-7284-01B, 9"X9" Black Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1, Sprinkler Control Valve Room Lab ID-Version‡: 18479168-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-02B, 9"x9" Dark Green Mottled Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1 Lab ID-Version‡: 18479170-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-03B, 9"x9" Gray-Green Streaked Vinyl Floor tile with Black Mastic/MPR Building, Room A-1, Northeast Storage Lab ID-Version‡: 18479172-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-04B, 9"x9" Pink Streaked Vinyl Floor Tile with Black Mastic/ MPR Building, Room A-1 Lab ID-Version‡: 18479174-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-06B, 9"x9" Tan Mottled Vinyl Floor Tile with Black Mastic/MPR Building, Room A-1 Lab ID-Version‡: 18479178-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-07B, 12"x12" Light Gray Mottled Vinyl Floor Tile with Black & Yellow Mastic/MPR Building, South Entry Foyer Lab ID-Version‡: 18479180-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-20B, Drywall with Joint Compound behind Ceiling Tile/MPR Building, Stage Lab ID-Version‡: 18479212-0

NOT ANALYZED	**POSITIVE STOP**

Sample results described as "Positive Stop" were not analyzed because the previous sample layer(s) contained asbestos >1%. Sample results described as "Sample Bag Empty" were not analyzed because while the sample bag was submitted it did not contain a discernible sample. Sample results described as "No Sample Submitted" were not analyzed because the sample bag was not submitted with the project. Sample results described as "Insufficient Sample" were not analyzed because while the sample was submitted for analysis, there was insufficient material present to analyze the sample confidently. Sample results described as "Per Client Request" were submitted to the laboratory but not analyzed because the laboratory was requested to hold the sample.

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C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

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(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples Not Analyzed:	31

ECG-24-7284-47B, 12"x12" Brown Mottled Vinyl Floor Tile with Black & Yellow Mastic/Kindergarten Building, Southeast Closet Lab ID-Version‡: 18479270-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-48B, Gray Sheet Vinyl Flooring with Mastic and Leveler/ Kindergarten Building, Restroom Lab ID-Version‡: 18479272-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-59B, 12"x12" Beige Mottled Vinyl Floor Tile with Black Mastic over Beige Vinyl Floor Tile with Mastic/Building B, Classroom B4, At North Entry Lab ID-Version‡: 18479297-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-60B, Gray with Multi-Colored Specks Sheet Vinyl Flooring with Paper Backing and Black & Yellow Mastic/Building B, Classroom B4 Lab ID-Version‡: 18479299-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-61B, Yellow and Black Carpet Mastic/Building B, Classroom B3 Lab ID-Version‡: 18479301-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-62B, 12"x12' Brown Mottled Vinyl Floor Tile with Black Mastic/ Building B, Classroom B5 Lab ID-Version‡: 18479303-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-67C, Plaster/Building B, Classroom B4 Lab ID-Version‡: 18479315-0

NOT ANALYZED	**POSITIVE STOP**

Sample results described as "Positive Stop" were not analyzed because the previous sample layer(s) contained asbestos >1%. Sample results described as "Sample Bag Empty" were not analyzed because while the sample bag was submitted it did not contain a discernible sample. Sample results described as "No Sample Submitted" were not analyzed because the sample bag was not submitted with the project. Sample results described as "Insufficient Sample" were not analyzed because while the sample was submitted for analysis, there was insufficient material present to analyze the sample confidently. Sample results described as "Per Client Request" were submitted to the laboratory but not analyzed because the laboratory was requested to hold the sample.

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C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

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Date of Sampling: 08-05-2024
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Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples Not Analyzed:	31

ECG-24-7284-72B, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-2 Closet Lab ID-Version‡: 18479332-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-73B, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-4 Lab ID-Version‡: 18479334-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-75B, Black and Yellow Carpet Mastic/Building C, Classroom C-5 Closet Lab ID-Version‡: 18479338-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-90B, 9"x9" Blue-Green Streaked Vinyl Floor Tile with Black Mastic/Building C, Classroom C-6 Lab ID-Version‡: 18479372-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-91B, 9"x9" Light Green with Tan Streaks Vinyl Floor Tile and Black Mastic/Building C, Classroom C-6 Lab ID-Version‡: 18479374-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-92B, 9"x9" Dark Green with Tan Streaks Vinyl Floor Tile and Black Mastic/Building C, Classroom C-6 Lab ID-Version‡: 18479376-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-93B, 12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-8 Lab ID-Version‡: 18479378-0

NOT ANALYZED	**POSITIVE STOP**

Sample results described as "Positive Stop" were not analyzed because the previous sample layer(s) contained asbestos >1%. Sample results described as "Sample Bag Empty" were not analyzed because while the sample bag was submitted it did not contain a discernible sample. Sample results described as "No Sample Submitted" were not analyzed because the sample bag was not submitted with the project. Sample results described as "Insufficient Sample" were not analyzed because while the sample was submitted for analysis, there was insufficient material present to analyze the sample confidently. Sample results described as "Per Client Request" were submitted to the laboratory but not analyzed because the laboratory was requested to hold the sample.

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Date of Sampling: 08-05-2024
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ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples Not Analyzed:	31

ECG-24-7284-94B, 12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-7 Lab ID-Version‡: 18479380-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-95B, 12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic/ Building C, Classroom C-9 Lab ID-Version‡: 18479382-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-108B, 12"x12" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic/Building D, Classroom D-6 Closet Lab ID-Version‡: 18479410-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-109B, 9"x9" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic/Building D, Classroom D-1 Lab ID-Version‡: 18479412-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-125B, Gray-Black Curb & Penetration Mastic/Office Building Roof, East Lab ID-Version‡: 18479449-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-128D, White Coated Penetration Mastic/Building C Roof, West Lab ID-Version‡: 18479455-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-128E, White Coated Penetration Mastic/Building D Roof, West Lab ID-Version‡: 18479456-0

NOT ANALYZED	**POSITIVE STOP**

Sample results described as "Positive Stop" were not analyzed because the previous sample layer(s) contained asbestos >1%. Sample results described as "Sample Bag Empty" were not analyzed because while the sample bag was submitted it did not contain a discernible sample. Sample results described as "No Sample Submitted" were not analyzed because the sample bag was not submitted with the project. Sample results described as "Insufficient Sample" were not analyzed because while the sample was submitted for analysis, there was insufficient material present to analyze the sample confidently. Sample results described as "Per Client Request" were submitted to the laboratory but not analyzed because the laboratory was requested to hold the sample.

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Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-26-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	378
Total Samples Analyzed:	347
Total Samples Not Analyzed:	31

ECG-24-7284-160B, 12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic/Portable C11, West Lab ID-Version‡: 18479525-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-161B, 9"x9" Brown Streaked Vinyl Floor Tile with Black Mastic/ Portable C11, South Closet Lab ID-Version‡: 18479527-0

NOT ANALYZED	**POSITIVE STOP**

ECG-24-7284-165B, Drywall with Joint Compound/Portable C-11, North Closet, Southeast Corner Lab ID-Version‡: 18479535-0

NOT ANALYZED	**POSITIVE STOP**

Sample results described as "Positive Stop" were not analyzed because the previous sample layer(s) contained asbestos >1%. Sample results described as "Sample Bag Empty" were not analyzed because while the sample bag was submitted it did not contain a discernible sample. Sample results described as "No Sample Submitted" were not analyzed because the sample bag was not submitted with the project. Sample results described as "Insufficient Sample" were not analyzed because while the sample was submitted for analysis, there was insufficient material present to analyze the sample confidently. Sample results described as "Per Client Request" were submitted to the laboratory but not analyzed because the laboratory was requested to hold the sample.

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eurofins | Built Environment Testing

ENTEK CONSULTING GROUP, INC.

Report for:

Jose Hernandez
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding:

Eurofins EPK Built Environment Testing, LLC
Project: 24-7284 Sacramento City Unified School District; Ethel Phillips Elementary School 2930 21st Avenue Sacramento, CA 95820
EML ID: 3750911

Approved by:

Approved Signatory
Danny Li

Dates of Analysis:
Asbestos-EPA 400 point count: 09-05-2024

Service SOPs: Asbestos-EPA 400 point count (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1262)
NVLAP Lab Code 200757-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received and tested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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C/O: Jose Hernandez
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Sacramento, CA 95820

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2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 09-05-2024

ASBESTOS POINT COUNT REPORT

Location:	ECG-24-7284-17A Cementitious Textured Plaster/MPR Building, Stage		
Total Points Counted:	400		
Lab ID-Version‡:	18554046-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Light Gray Plaster	Chrysotile	1	0.25
Layer Totals:		1	0.25

Location:	ECG-24-7284-17B Cementitious Textured Plaster/MPR Building, Room A-1		
Total Points Counted:	400		
Lab ID-Version‡:	18554047-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Light Gray Plaster	Chrysotile	0	< 0.25
Layer Totals:		0	NA

Comments: Asbestos was detected, but no points counted.

Location:	ECG-24-7284-17C Cementitious Textured Plaster/MPR Building, Room A-1		
Total Points Counted:	400		
Lab ID-Version‡:	18554048-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Light Gray Plaster	Chrysotile	1	0.25
Layer Totals:		1	0.25

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

All samples were received in acceptable condition unless otherwise noted. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.
Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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C/O: Jose Hernandez
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Sacramento, CA 95820

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Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 09-05-2024

ASBESTOS POINT COUNT REPORT

Location:	ECG-24-7284-20A Drywall with Joint Compound behind Ceiling Tile/MPR Building, Stage		
Total Points Counted:	400		
Lab ID-Version‡:	18554049-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Off-White Joint Compound with White Drywall (Composite)	Chrysotile	2	0.5
Layer Totals:		2	0.5

Location:	ECG-24-7284-38A Rough Textured Plaster/Hallway between Office and MPR Buildings		
Total Points Counted:	400		
Lab ID-Version‡:	18554050-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Green Plaster	Chrysotile	0	< 0.25
Layer Totals:		0	NA

Comments: Asbestos was detected, but no points counted.

Location:	ECG-24-7284-38B Rough Textured Plaster/Hallway between Office and MPR Buildings		
Total Points Counted:	400		
Lab ID-Version‡:	18554051-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Green Plaster	Chrysotile	1	0.25
Layer Totals:		1	0.25

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of points counted and multiplied by 100.

The results relate only to the items tested. Interpretation is left to the company and/or persons who conducted the field work. The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

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Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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C/O: Jose Hernandez
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Sacramento, CA 95820

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Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 09-05-2024

ASBESTOS POINT COUNT REPORT

Location:	ECG-24-7284-38C Rough Textured Plaster/Hallway between Office and MPR Buildings		
Total Points Counted:	400		
Lab ID-Version‡:	18554052-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Green Plaster	Chrysotile	2	0.5
Layer Totals:		2	0.5

Location:	ECG-24-7284-132A Stucco/Exterior, Office Building, South		
Total Points Counted:	400		
Lab ID-Version‡:	18554053-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Beige Stucco	Chrysotile	2	0.5
Layer Totals:		2	0.5

Location:	ECG-24-7284-165A Drywall with Joint Compound/Portable C-11, Northwest Corner adjacent to Closet		
Total Points Counted:	400		
Lab ID-Version‡:	18554054-1		
Sample Layers	**Asbestos Type**	**Asbestos Points Counted**	**Asbestos Concentration (%)**
Off-White Joint Compound with White Drywall (Composite)	Chrysotile	3	0.75
Layer Totals:		3	0.75

The analytical sensitivity is 1 asbestos point. The limit of detection is 1 asbestos point divided by the total number of points counted and multiplied by 100.

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Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

ENTEK
BULK ASBESTOS MATERIAL Analysis *Request*

003750911

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com and jhernandez@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-01A	9"x9" Black Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1, Northeast Storage Room
ECG-24-7284-01B	9"x9" Black Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1, Sprinkler Control Valve Room
ECG-24-7284-02A	9"x9" Dark Green Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Northeast Storage Room
ECG-24-7284-02B	9"x9" Dark Green Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-03A	9"x9" Gray-Green Streaked Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-03B	9"x9" Gray-Green Streaked Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1, Northeast Storage Room
ECG-24-7284-04A	9"x9" Pink Streaked Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-04B	9"x9" Pink Streaked Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-05A	9"x9" Light Gray Speckled Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-05B	9"x9" Light Gray Speckled Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1, Northeast Storage Room
ECG-24-7284-06A	9"x9" Tan Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-06B	9"x9" Tan Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Room A-1
ECG-24-7284-07A	12"x12" Light Gray Mottled Vinyl Floor Tile with Black & Yellow Mastic / MPR Building, South Entry Foyer

Delivered by: _____ via FedEx____ **Date:** 8/15/24 **Time:** 7:00 PM

Received by: STEVEN CASTILLO **Date:** 8/9/24 **Time:** 9:30 AM/PM

ENTEK
BULK ASBESTOS MATERIAL Analysis *Request*

003750911

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-07B	12"x12" Light Gray Mottled Vinyl Floor Tile with Black & Yellow Mastic / MPR Building, South Entry Foyer
ECG-24-7284-08A	12"x12" Pink with Multi-colored Specks Vinyl Floor Tile with Yellow Mastic / MPR Building, Muti-Purpose Room
ECG-24-7284-08B	12"x12" Pink with Multi-colored Specks Vinyl Floor Tile with Yellow Mastic / MPR Building, Muti-Purpose Room
ECG-24-7284-09A	Terrazzo Shower Pan with Grout / MPR Building, Old Boy's Locker Room
ECG-24-7284-09B	Terrazzo Shower Pan with Grout / MPR Building, Old Boy's Locker Room
ECG-24-7284-10A	2"x2" Brown Ceramic Floor Tile with Grout and Mortar / MPR Building, Old Boy's Locker Room
ECG-24-7284-10B	2"x2" Brown Ceramic Floor Tile with Grout and Mortar / MPR Building, Old Boy's Locker Room
ECG-24-7284-11A	Concrete Slab / MPR Building, South Stage Mechanical Room
ECG-24-7284-11B	Concrete Slab / MPR Building, Laundry Room
ECG-24-7284-12A	6"x6" Red Ceramic Wall Base Tile with Grout and Mortar / MPR Building, Old Boy's Locker Room
ECG-24-7284-12B	6"x6" Red Ceramic Wall Base Tile with Grout and Mortar / MPR Building, Old Girl's Locker Room
ECG-24-7284-13A	4" Brown Vinyl Base Cove with Mastic / MPR Building, Room A-1

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Date of Sampling: 8/5/24-8/7/24
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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-13B	4" Brown Vinyl Base Cove with Mastic and Mesh / MPR Building, Southwest Room
ECG-24-7284-14A	4" Black Vinyl Base Cove with Mastic / MPR Building, Room A-1
ECG-24-7284-14B	4" Black Vinyl Base Cove with Mastic / MPR Building, Stage
ECG-24-7284-15A	4" Light Gray Vinyl Base Cove with Mastic / MPR Building, Stage
ECG-24-7284-15B	4" Light Gray Vinyl Base Cove with Mastic / MPR Building, Kitchen
ECG-24-7284-16A	Plaster / MPR Building, Multi-Purpose Room
ECG-24-7284-16B	Plaster / MPR Building, Kitchen
ECG-24-7284-16C	Plaster / MPR Building, Mail Room
ECG-24-7284-16D	Plaster / MPR Building, Stage
ECG-24-7284-16E	Plaster / MPR Building, Room A-1
ECG-24-7284-16F	Plaster / MPR Building, Sprinkler Control Valve Room
ECG-24-7284-16G	Plaster / MPR Building, Custodian Closet
ECG-24-7284-17A	Cementitious Textured Plaster / MPR Building, Stage
ECG-24-7284-17B	Cementitious Textured Plaster / MPR Building, Room A-1
ECG-24-7284-17C	Cementitious Textured Plaster / MPR Building, Room A-1
ECG-24-7284-18A	Plastic Wall Panel Glue / MPR Building, Kitchen

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
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Collected by: Jose Hernandez
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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-18B	Plastic Wall Panel Glue / MPR Building, Kitchen
ECG-24-7284-19A	12"x12" Glue-on Ceiling Tile with Pinholes / MPR Building, Stage
ECG-24-7284-19B	12"x12" Glue-on Ceiling Tile with Pinholes / MPR Building, Stage
ECG-24-7284-20A	Drywall with Joint Compound behind Ceiling Tile / MPR Building, Stage
ECG-24-7284-20B	Drywall with Joint Compound behind Ceiling Tile / MPR Building, Stage
ECG-24-7284-21A	12"x12" Glue-on Ceiling Tile with Pinholes & Fissures / MPR Building, Multi-Purpose Room
ECG-24-7284-21B	12"x12" Glue-on Ceiling Tile with Pinholes & Fissures / MPR Building, Multi-Purpose Room
ECG-24-7284-22A	HVAC Seam Tape and Mastic / MPR Building, North Stage Mechanical Room
ECG-24-7284-22B	HVAC Seam Tape and Mastic / MPR Building, HVAC Closet adjacent Room A-1
ECG-24-7284-23A	Vibration Dampener / MPR Building, HVAC Closet adjacent Room A-1
ECG-24-7284-23B	Vibration Dampener / MPR Building, South Stage Mechanical Room
ECG-24-7284-24A	Canvas HVAC Duct Wrap with Fiberglass Insulation / MPR Building, PE Storage Room
ECG-24-7284-24B	Canvas HVAC Duct Wrap with Fiberglass Insulation / MPR Building, PE Storage Room
ECG-24-7284-24C	Canvas HVAC Duct Wrap with Fiberglass Insulation / MPR Building, PE Storage Room
ECG-24-7284-25A	Drywall with Joint Compound (Patch) / MPR Building, North Stage Mechanical Room

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Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-25B	Drywall with Joint Compound (Patch) / MPR Building, North Stage Mechanical Room
ECG-24-7284-26A	Drywall with Joint Compound / MPR Building, Old Girl's Locker Room
ECG-24-7284-26B	Drywall with Joint Compound / MPR Building, Old Girl's Locker Room
ECG-24-7284-27A	Skip Trowel Texture / MPR Building, Old Girl's Locker Room
ECG-24-7284-27B	Skip Trowel Texture / MPR Building, Old Girl's Locker Room
ECG-24-7284-27C	Skip Trowel Texture / MPR Building, Old Girl's Locker Room
ECG-24-7284-28A	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Mail Room Office
ECG-24-7284-28B	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / MPR Building, Southwest Room
ECG-24-7284-29A	2'x4' Ceiling Panel with Pinholes & Fissures / MPR Building, West Lobby
ECG-24-7284-29B	2'x4' Ceiling Panel with Pinholes & Fissures / MPR Building, West Lobby
ECG-24-7284-30A	2'x4' Ceiling Panel with 2'x2' Pattern / MPR Building, West Lobby
ECG-24-7284-30B	2'x4' Ceiling Panel with 2'x2' Pattern / MPR Building, West Lobby
ECG-24-7284-30.5A	Cinder Block with Mortar / MPR Building, West Lobby
ECG-24-7284-30.5B	Cinder Block with Mortar / MPR Building, West Lobby
ECG-24-7284-30.6A	Black Roofing Debris / MPR Building, Attic above Mail Room Office
ECG-24-7284-30.6B	Black Roofing Debris / MPR Building, Attic above Mail Room Office

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-31A	Plastic Wall Panel Glue / Office Building, Nurse's Office Restroom
ECG-24-7284-31B	Plastic Wall Panel Glue / Office Building, Nurse's Office Restroom
ECG-24-7284-32A	Gray Speckled Sheet Vinyl Flooring with Paper Backing and Mastic over Beige Sheet Vinyl Flooring with Paper Backing and Mastic / Office Building, Nurse's Office Restroom
ECG-24-7284-32B	Gray Speckled Sheet Vinyl Flooring with Paper Backing and Mastic over Beige Sheet Vinyl Flooring with Paper Backing and Mastic / Office Building, Nurse's Office Restroom
ECG-24-7284-33A	Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Mastic / Office Building, Manager's Office Restroom
ECG-24-7284-33B	Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Mastic / Office Building, Manager's Office Restroom
ECG-24-7284-34A	Blue-Gray Carpet Tile with Remnant Yellow Mastic / Office Building, Front Office
ECG-24-7284-34B	Blue-Gray Carpet Tile with Remnant Yellow Mastic / Office Building, Manager's Office
ECG-24-7284-35A	4" Gray Vinyl Base Cove with Mastic / Office Building, Manager's Office
ECG-24-7284-35B	4" Gray Vinyl Base Cove with Mastic / Office Building, Spare Office
ECG-24-7284-36A	4" Brown Vinyl Base Cove with Mastic / Office Building, Nurse's Office
ECG-24-7284-36B	4" Brown Vinyl Base Cove with Mastic / Office Building, IT Room
ECG-24-7284-37A	Gray Window Caulking / Office Building, Front Office
ECG-24-7284-37B	Gray Window Caulking / Office Building, Nurse's Office

Https://entekgroupinc.sharepoint.com/sites/Entekgroup/Shared Documents/Clients/Sacramento City USD/24-7284 Ethel Phillips ES - AsbPb/Bulk Asb/Bulk Asb Rqst 8-5-24.docx

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mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-38A	Rough Textured Plaster / Hallway between Office and MPR Buildings
ECG-24-7284-38B	Rough Textured Plaster / Hallway between Office and MPR Buildings
ECG-24-7284-38C	Rough Textured Plaster / Hallway between Office and MPR Buildings
ECG-24-7284-39A	Drywall with Joint Compound / Office Building, Office Storage
ECG-24-7284-39B	Drywall with Joint Compound / Office Building, Manager's Office Restroom
ECG-24-7284-40A	12"x12" Glue-on Ceiling Tile with Pinholes / Office Building, IT Room
ECG-24-7284-40B	12"x12" Glue-on Ceiling Tile with Pinholes / Office Building, IT Room
ECG-24-7284-41A	Drywall behind Ceiling Tiles / Office Building, IT Room
ECG-24-7284-41B	Drywall behind Ceiling Tiles / Office Building, IT Room
ECG-24-7284-42A	Plaster Board / Office Building, Above Ceiling of Manager's Office
ECG-24-7284-42B	Plaster Board / Office Building, Above Ceiling of Manager's Office
ECG-24-7284-43A	12"x12" Glue-on Ceiling Tile with Fissures / Office Building, Manager's Office
ECG-24-7284-43B	12"x12" Glue-on Ceiling Tile with Fissures / Office Building, Principal's Office
ECG-24-7284-44A	Plaster / Office Building, Front Office
ECG-24-7284-44B	Plaster / Office Building, Manager's Office
ECG-24-7284-44C	Plaster / Office Building, Office Storage

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-45A	Concrete Slab / Kindergarten Building, HVAC Closet
ECG-24-7284-45B	Concrete Slab / Kindergarten Building, HVAC Closet
ECG-24-7284-46A	Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Black & Yellow Mastic / Kindergarten Building, Southeast Storage Room
ECG-24-7284-46B	Brown Square Pattern Vinyl Sheet Flooring with Paper Backing and Black & Yellow Mastic / Kindergarten Building, Southeast Storage Room
ECG-24-7284-47A	12"x12" Brown Mottled Vinyl Floor Tile with Black & Yellow Mastic / Kindergarten Building, Classroom
ECG-24-7284-47B	12"x12" Brown Mottled Vinyl Floor Tile with Black & Yellow Mastic / Kindergarten Building, Southeast Closet
ECG-24-7284-48A	Gray Sheet Vinyl Flooring with Mastic / Kindergarten Building, Restroom
ECG-24-7284-48B	Gray Sheet Vinyl Flooring with Mastic and Leveler / Kindergarten Building, Restroom
ECG-24-7284-49A	Blue Carpet with Yellow Mastic / Kindergarten Building, Classroom
ECG-24-7284-49B	Blue Carpet with Yellow Mastic / Kindergarten Building, Classroom
ECG-24-7284-50A	4" Brown Vinyl Base Cove with Mastic / Kindergarten Building, Classroom
ECG-24-7284-50B	4" Brown Vinyl Base Cove with Mastic / Kindergarten Building, Sink Room
ECG-24-7284-51A	4" Gray Vinyl Base Cove with Mastic / Kindergarten Building, Classroom
ECG-24-7284-51B	4" Gray Vinyl Base Cove with Mastic / Kindergarten Building, Classroom

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-52A	Plaster / Kindergarten Building
ECG-24-7284-52B	Plaster / Kindergarten Building
ECG-24-7284-52C	Plaster / Kindergarten Building
ECG-24-7284-52D	Plaster / Kindergarten Building
ECG-24-7284-52E	Plaster / Kindergarten Building
ECG-24-7284-53A	Plastic Wall Panel Glue / Kindergarten Building, Restroom
ECG-24-7284-53B	Plastic Wall Panel Glue / Kindergarten Building, Restroom
ECG-24-7284-54A	12"x12" Nail-on Ceiling Tile with Pinholes / Kindergarten Building
ECG-24-7284-54B	12"x12" Nail-on Ceiling Tile with Pinholes / Kindergarten Building
ECG-24-7284-55A	Concrete Slab / Building B, Library B2
ECG-24-7284-55B	Concrete Slab / Building B, Library B2
ECG-24-7284-56A	Yellow Carpet Mastic / Building B, Library B2
ECG-24-7284-56B	Yellow Carpet Mastic / Building B, Library B2
ECG-24-7284-57A	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic and Leveler / Building B, Library B2
ECG-24-7284-57B	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Building B, Library B2

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-58A	4" Gray Vinyl Base Cove with Mastic / Building B, Library B2
ECG-24-7284-58B	4" Gray Vinyl Base Cove with Mastic / Building B, Library B2
ECG-24-7284-59A	12"x12" Beige Mottled Vinyl Floor Tile with Black Mastic over Beige Vinyl Floor Tile with Mastic / Building B, Classroom B4, At North Entry
ECG-24-7284-59B	12"x12" Beige Mottled Vinyl Floor Tile with Black Mastic over Beige Vinyl Floor Tile with Mastic / Building B, Classroom B4, At North Entry
ECG-24-7284-60A	Gray with Multi-colored Specks Sheet Vinyl Flooring with Paper Backing and Black & Yellow Mastic / Building B, Classroom B4
ECG-24-7284-60B	Gray with Multi-colored Specks Sheet Vinyl Flooring with Paper Backing and Black & Yellow Mastic / Building B, Classroom B4
ECG-24-7284-61A	Yellow and Black Carpet Mastic / Building B, Classroom B4
ECG-24-7284-61B	Yellow and Black Carpet Mastic / Building B, Classroom B3
ECG-24-7284-62A	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building B, Classroom B3
ECG-24-7284-62B	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building B, Classroom B5
ECG-24-7284-63A	4" Brown Vinyl Base Cove with Mastic / Building B, Classroom B3
ECG-24-7284-63B	4" Brown Vinyl Base Cove with Mastic / Building B, Classroom B5
ECG-24-7284-64A	Gray-Blue Epoxy Coating / Building B, Boy's Restroom
ECG-24-7284-64B	Gray-Blue Epoxy Coating / Building B, Girl's Restroom

Delivered by: _____ via FedEx____ **Date:** 8/15/24 **Time:** 7:00 PM

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ENTEK

BULK ASBESTOS MATERIAL Analysis *Request*

003750911

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

Please e-mail results at mainoffice@entekgroup.com and jhernandez@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-65A	Drywall with Joint Compound / Building B, Boy's Restroom
ECG-24-7284-65B	Drywall with Joint Compound / Building B, Girl's Restroom
ECG-24-7284-66A	Skim Coat / Building B, Boy's Restroom
ECG-24-7284-66B	Skim Coat / Building B, Girl's Restroom
ECG-24-7284-66C	Skim Coat / Building B, Girl's Restroom
ECG-24-7284-67A	Plaster / Building B, Library B2
ECG-24-7284-67B	Plaster / Building B, Classroom B3
ECG-24-7284-67C	Plaster / Building B, Classroom B4
ECG-24-7284-67D	Plaster / Building B, Classroom B5
ECG-24-7284-67E	Plaster / Building B, Classroom B6
ECG-24-7284-67F	Plaster / Building B, Classroom B7
ECG-24-7284-67G	Plaster / Building B, Classroom B7
ECG-24-7284-68A	Plaster / Building B, Classroom B5 HVAC Closet
ECG-24-7284-68B	Plaster / Building B, Classroom B6 HVAC Closet
ECG-24-7284-68C	Plaster / Building B, Classroom B7 HVAC Closet
ECG-24-7284-68D	Plaster / Building B, Classroom B3 HVAC Closet

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-68E	Plaster / Building B, Classroom B4 HVAC Closet
ECG-24-7284-69A	HVAC Seam Mastic / Building B, Classroom B3 HVAC Closet
ECG-24-7284-69B	HVAC Seam Mastic / Building B, Classroom B5 HVAC Closet
ECG-24-7284-70A	12"x12" Nail-on Ceiling Tile with Pinholes / Building B, Library B2
ECG-24-7284-70B	12"x12" Nail-on Ceiling Tile with Pinholes / Building B, Classroom B3
ECG-24-7284-71A	Gray Mortar around Decorative Glass Block Wall / Building B, Library B2
ECG-24-7284-71B	Gray Mortar around Decorative Glass Block Wall / Building B, Library B2
ECG-24-7284-72A	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-2
ECG-24-7284-72B	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-2 Closet
ECG-24-7284-73A	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-3 Closet
ECG-24-7284-73B	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-4
ECG-24-7284-74A	12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-5
ECG-24-7284-74B	12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-5
ECG-24-7284-75A	Black and Yellow Carpet Mastic / Building C, Classroom C-5
ECG-24-7284-75B	Black and Yellow Carpet Mastic / Building C, Classroom C-5 Closet

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Job Number: 24-7284
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Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-76A	4" Gray Vinyl Base Cove with Mastic / Building C, Classroom C-2
ECG-24-7284-76B	4" Gray Vinyl Base Cove with Mastic / Building C, Classroom C-2
ECG-24-7284-77A	4" Brown Vinyl Base Cove with Mastic / Building C, Classroom C-3
ECG-24-7284-77B	4" Brown Vinyl Base Cove with Mastic / Building C, Classroom C-4
ECG-24-7284-78A	Concrete Slab / Building C, Classroom C-4
ECG-24-7284-78B	Concrete Slab / Building C, Classroom C-4
ECG-24-7284-79A	Tan Epoxy Coating / Building C, Boy's Restroom adjacent Classroom C-2
ECG-24-7284-79B	Tan Epoxy Coating / Building C, Girl's Restroom adjacent Classroom C-2
ECG-24-7284-80A	4" White Ceramic Wall Tile with Grout and Mortar / Building C, Girl's Restroom adjacent Classroom C-2
ECG-24-7284-80B	4" White Ceramic Wall Tile with Grout and Mortar / Building C, Girl's Restroom adjacent Classroom C-2
ECG-24-7284-81A	Drywall with Joint Compound / Building C, Boy's Restroom adjacent Classroom C-2
ECG-24-7284-81B	Drywall with Joint Compound / Building C, Boy's Restroom adjacent Classroom C-2
ECG-24-7284-82A	Skip Trowel Texture / Building C, Boy's Restroom adjacent Classroom C-2
ECG-24-7284-82B	Skip Trowel Texture / Building C, Boy's Restroom adjacent Classroom C-2
ECG-24-7284-82C	Skip Trowel Texture / Building C, Boy's Restroom adjacent Classroom C-2

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
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Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-83A	Plaster / Building C, Classroom C-2
ECG-24-7284-83B	Plaster / Building C, Classroom C-2
ECG-24-7284-83C	Plaster / Building C, Classroom C-3
ECG-24-7284-83D	Plaster / Building C, Classroom C-4
ECG-24-7284-83E	Plaster / Building C, Classroom C-5
ECG-24-7284-84A	Plaster Board / Building C, HVAC Closet for Classrooms C-4 & C-5
ECG-24-7284-84B	Plaster Board / Building C, HVAC Closet for Classrooms C-2 & C-3
ECG-24-7284-85A	Drywall with Joint Compound / Building C, HVAC Closet for Classrooms C-2 & C-3
ECG-24-7284-85B	Drywall with Joint Compound / Building C, HVAC Closet for Classrooms C-4 & C-5
ECG-24-7284-86A	HVAC Seam Mastic / Building C, HVAC Closet for Classrooms C-4 & C-5
ECG-24-7284-86B	HVAC Seam Mastic / Building C, HVAC Closet for Classrooms C-2 & C-3
ECG-24-7284-87A	Vibration Dampener / Building C, HVAC Closet for Classrooms C-4 & C-5
ECG-24-7284-87B	Vibration Dampener / Building C, HVAC Closet for Classrooms C-2 & C-3
ECG-24-7284-88A	12"x12" Nail-on Ceiling Tile with Pinholes / Building C, Classroom C-3
ECG-24-7284-88B	12"x12" Nail-on Ceiling Tile with Pinholes / Building C, Classroom C-2
ECG-24-7284-89A	Gray Mortar around Decorative Glass Block Wall / Building C, Classroom C-2

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Job Number: 24-7284
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2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-89B	Gray Mortar around Decorative Glass Block Wall / Building C, Classroom C-2
ECG-24-7284-90A	9"x9" Blue-Green Streaked Vinyl Floor Tile with Black Mastic / Building C, Classroom C-6
ECG-24-7284-90B	9"x9" Blue-Green Streaked Vinyl Floor Tile with Black Mastic / Building C, Classroom C-6
ECG-24-7284-91A	9"x9" Light Green with Tan Streaks Vinyl Floor Tile and Black Mastic / Building C, Classroom C-6
ECG-24-7284-91B	9"x9" Light Green with Tan Streaks Vinyl Floor Tile and Black Mastic / Building C, Classroom C-6
ECG-24-7284-92A	9"x9" Dark Green with Tan Streaks Vinyl Floor Tile and Black Mastic / Building C, Classroom C-6
ECG-24-7284-92B	9"x9" Dark Green with Tan Streaks Vinyl Floor Tile and Black Mastic / Building C, Classroom C-6
ECG-24-7284-93A	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-8
ECG-24-7284-93B	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-8
ECG-24-7284-94A	12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-7
ECG-24-7284-94B	12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-7
ECG-24-7284-95A	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-9
ECG-24-7284-95B	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Building C, Classroom C-9
ECG-24-7284-96A	4" Gray Vinyl Base Cove with Mastic / Building C, Classroom C-7

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mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-96B	4" Gray Vinyl Base Cove with Mastic / Building C, Classroom C-9
ECG-24-7284-97A	4" Brown Vinyl Base Cove with Mastic / Building C, Classroom C-7
ECG-24-7284-97B	4" Brown Vinyl Base Cove with Mastic / Building C, Classroom C-8
ECG-24-7284-98A	Yellow Carpet Mastic / Building C, Classroom C-6
ECG-24-7284-98B	Yellow Carpet Mastic / Building C, Classroom C-7
ECG-24-7284-99A	Gray-Blue Epoxy Coating / Building C, Boy's Restroom adjacent Classroom C-9
ECG-24-7284-99B	Gray-Blue Epoxy Coating / Building C, Girl's Restroom adjacent Classroom C-9
ECG-24-7284-100A	Drywall with Joint Compound / Building C, Boy's Restroom adjacent Classroom C-9
ECG-24-7284-100B	Drywall with Joint Compound / Building C, Girl's Restroom adjacent Classroom C-9
ECG-24-7284-101A	Skim Coat / Building C, Boy's Restroom adjacent Classroom C-9
ECG-24-7284-101B	Skim Coat / Building C, Boy's Restroom adjacent Classroom C-9
ECG-24-7284-101C	Skim Coat / Building C, Girl's Restroom adjacent Classroom C-9
ECG-24-7284-102A	Plaster / Building C, Classroom C-6
ECG-24-7284-102B	Plaster / Building C, Classroom C-8
ECG-24-7284-102C	Plaster / Building C, Classroom C-9
ECG-24-7284-103A	Plaster / Building C, Classroom C-6 HVAC Closet

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-103B	Plaster / Building C, Classroom C-8 HVAC Closet
ECG-24-7284-103C	Plaster / Building C, Classroom C-9 HVAC Closet
ECG-24-7284-104A	12"x12" Nail-on Ceiling Tile with Pinholes / Building C, Classroom C-3
ECG-24-7284-104B	12"x12" Nail-on Ceiling Tile with Pinholes / Building C, Classroom C-2
ECG-24-7284-105A	HVAC Seam Mastic / Building C, Classroom C-6 HVAC Closet
ECG-24-7284-105B	HVAC Seam Mastic / Building C, Classroom C-8 HVAC Closet
ECG-24-7284-106A	Concrete Slab / Building D, HVAC Closet for Classrooms D-1 & D-2
ECG-24-7284-106B	Concrete Slab / Building D, HVAC Closet for Classrooms D-3 & D-4
ECG-24-7284-107A	Black and Yellow Carpet Mastic / Building D, Classroom D-5 Closet
ECG-24-7284-108A	12"x12" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic / Building D, Classroom D-6 Closet
ECG-24-7284-108B	12"x12" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic / Building D, Classroom D-6 Closet
ECG-24-7284-109A	9"x9" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic / Building D, Classroom D-1
ECG-24-7284-109B	9"x9" Tan with Brown Streaks Vinyl Floor Tile and Black Mastic / Building D, Classroom D-1
ECG-24-7284-110A	9"x9" Black Vinyl Floor Tile and Black Mastic / Building D, Classroom D-1 Closet

Delivered by: [signature] via FedEx **Date:** 8/15/24 **Time:** 7:00 PM

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-111A	12"x12" Brown Mottled Vinyl Floor Tile with Black Mastic / Building D, Classroom D-2
ECG-24-7284-112A	12"x12" Tan Mottled Vinyl Floor Tile with Black Mastic / Building D, Classroom D-3
ECG-24-7284-113A	4" Brown Vinyl Base Cove with Mastic / Building D, Classroom D-4
ECG-24-7284-114A	Gray Sheet Vinyl Flooring with Paper Backing and Blue Mastic over Leveler / Building D, Restroom between Classrooms D-7 & D-8
ECG-24-7284-114B	Gray Sheet Vinyl Flooring with Paper Backing and Blue Mastic over Leveler / Building D, Restroom between Classrooms D-7 & D-8
ECG-24-7284-115A	Gray Wood Pattern Vinyl Plank Flooring with Clear Mastic over Beige Viny Floor Tile and Mastic / Building D, Classroom D-7
ECG-24-7284-115B	Gray Wood Pattern Vinyl Plank Flooring with Clear Mastic over Beige Viny Floor Tile and Mastic / Building D, Classroom D-7
ECG-24-7284-116A	Plaster / Building D, Classroom D-2
ECG-24-7284-116B	Plaster / Building D, Classroom D-4
ECG-24-7284-116C	Plaster / Building D, Classroom D-5
ECG-24-7284-117A	Wallpaper over Drywall and Joint Compound / Building D, Classroom D-3
ECG-24-7284-117B	Wallpaper over Drywall and Joint Compound / Building D, Classroom D-3
ECG-24-7284-118A	Plaster / Building D, Classroom D-7
ECG-24-7284-118B	Plaster / Building D, Classroom D-7

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-118C	Plaster / Building D, Classroom D-8
ECG-24-7284-119A	Drywall with Joint Compound / Building D, Restroom between Classrooms D-7 & D-8
ECG-24-7284-119B	Drywall with Joint Compound / Building D, Restroom between Classrooms D-7 & D-8
ECG-24-7284-120A	12"x12" Nail-on Ceiling Tile with Pinholes / Building D, Classroom D-6
ECG-24-7284-121A	12"x12" Glue-on Ceiling Tile with Pinholes / Building D, Classroom D-3
ECG-24-7284-121B	12"x12" Glue-on Ceiling Tile with Pinholes / Building D, Classroom D-3
ECG-24-7284-122A	12"x12" Nail-on Ceiling Tile with Pinholes / Building D, Classroom D-8
ECG-24-7284-122B	12"x12" Nail-on Ceiling Tile with Pinholes / Building D, Classroom D-7
ECG-24-7284-123A	White Rolled Asphalt Roofing / Building B Roof, East
ECG-24-7284-123B	White Rolled Asphalt Roofing / MPR Building Lower Roof, South
ECG-24-7284-123C	White Rolled Asphalt Roofing / Building C Roof, West
ECG-24-7284-123D	White Rolled Asphalt Roofing / Building C Roof, East
ECG-24-7284-123E	White Rolled Asphalt Roofing / Building D Roof, East
ECG-24-7284-123F	White Rolled Asphalt Roofing / Building D Roof, West
ECG-24-7284-124A	Red-Brown Composition Roof Shingle with Felt Paper / Office Building Roof, Southwest
ECG-24-7284-124B	Red-Brown Composition Roof Shingle with Felt Paper / MPR Building Roof, Southwest

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-124C	Red-Brown Composition Roof Shingle with Felt Paper / Building B, Library Roof, East
ECG-24-7284-124D	Red-Brown Composition Roof Shingle with Felt Paper / Kindergarten Building Roof, East
ECG-24-7284-124E	Red-Brown Composition Roof Shingle with Felt Paper / Building C Roof, East
ECG-24-7284-124F	Red-Brown Composition Roof Shingle with Felt Paper / Building D Roof, West
ECG-24-7284-125A	Gray-Black Curb & Penetration Mastic / Office Building Roof, West
ECG-24-7284-125B	Gray-Black Curb & Penetration Mastic / Office Building Roof, East
ECG-24-7284-126A	Beige Penetration Mastic / Office Building Roof, East
ECG-24-7284-127A	Gray Penetration Mastic / Office Building Roof, East
ECG-24-7284-128A	White Coated Penetration Mastic / MPR Building Lower Roof, South
ECG-24-7284-128B	White Coated Penetration Mastic / Building B Roof, Near Center
ECG-24-7284-128C	White Coated Penetration Mastic / Building C Roof, East
ECG-24-7284-128D	White Coated Penetration Mastic / Building C Roof, West
ECG-24-7284-128E	White Coated Penetration Mastic / Building D Roof, West
ECG-24-7284-129A	Gray HVAC Flashing Mastic / Building C Roof, West at HVAC Unit Base
ECG-24-7284-129B	Gray HVAC Flashing Mastic / Building D Roof, West at HVAC Unit Base
ECG-24-7284-130A	Beige Flashing Mastic / Building C Roof, West at Vent Fan Base

Delivered by: _____ via FedEx____ **Date:** _8_/_15_/_24_ **Time:** _7:00_PM

Received by: STEVEN CASTILLO **Date:** 8/19/24 **Time:** 9:30 AM/PM

ENTEK
BULK ASBESTOS MATERIAL Analysis *Request*

003750911

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-130B	Beige Flashing Mastic / Building D Roof, West at Vent Fan Base
ECG-24-7284-131A	Black Roof Patch / Covered Walkway Roofs, North of Building D
ECG-24-7284-131B	Black Roof Patch / Covered Walkway Roofs, North of Building D
ECG-24-7284-131.5A	Rolled Asphalt Roofing / CCTV Shed Roof
ECG-24-7284-132A	Stucco / Exterior, Office Building, South
ECG-24-7284-132B	Stucco / Exterior, MPR Building, Southeast
ECG-24-7284-132C	Stucco / Exterior, Kindergarten Building, Southeast Corner
ECG-24-7284-132D	Stucco / Exterior, Building B, Southeast
ECG-24-7284-132E	Stucco / Exterior, Building C, South
ECG-24-7284-132F	Stucco / Exterior, Building D, Northeast Corner
ECG-24-7284-132G	Stucco / Exterior, Building D, Southwest Corner
ECG-24-7284-133A	Brick and Mortar / Exterior, Office Building, Southwest Corner
ECG-24-7284-133B	Brick and Mortar / Exterior, Kindergarten Building, Northeast Corner
ECG-24-7284-134A	Concrete Wall / Exterior, Building B, Northeast Corner
ECG-24-7284-134B	Concrete Wall / Exterior, Building C, East

Delivered by: _____ via FedEx____ **Date:** 8/15/24 **Time:** 7:00 PM

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-135A	Cementitious Wall Panel / Exterior, Northeast Side of Building C
ECG-24-7284-135B	Cementitious Wall Panel / Exterior, Northeast Side of Building D
ECG-24-7284-136A	White Window Caulking / Exterior, East Side of Kindergarten Building
ECG-24-7284-136B	White Window Caulking / Exterior, East Side of Kindergarten Building
ECG-24-7284-137A	Gray Window Caulking / Exterior, Building D, North
ECG-24-7284-137A	Gray Window Caulking / Exterior, Building C, South
ECG-24-7284-138A	Window Glazing Putty / Exterior, Office Building, South
ECG-24-7284-138B	Window Glazing Putty / Exterior, Building B, Northwest
ECG-24-7284-138C	Window Glazing Putty / Exterior, Building C, Northwest
ECG-24-7284-139A	Yellow Carpet Mastic / Portable Classroom B1
ECG-24-7284-139B	Yellow Carpet Mastic / Portable Classroom C1
ECG-24-7284-140A	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Portable Classroom B1
ECG-24-7284-140B	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Portable Classroom C1
ECG-24-7284-141A	4" Gray Vinyl Base Cove with Mastic / Portable Classroom B1
ECG-24-7284-141B	4" Gray Vinyl Base Cove with Mastic / Portable Classroom C1
ECG-24-7284-142A	Drywall behind Tagboard / Portable Classroom B1

Delivered by: _____ via FedEx ____ **Date:** 8/15/24 **Time:** 7:00 PM

Received by: ~~STEVEN CASTILLO~~ **Date:** 8/19/24 **Time:** 9:30 AM/PM

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-142B	Drywall behind Tagboard / Portable Classroom C1
ECG-24-7284-143A	2'x4' Ceiling Panel / Portable Classroom B1
ECG-24-7284-143B	2'x4' Ceiling Panel / Portable Classroom C1
ECG-24-7284-144A	Expansion Joint Caulking / Portable Classroom B1
ECG-24-7284-144B	Expansion Joint Caulking / Portable Classroom C1
ECG-24-7284-145A	Single Ply Membrane Roofing / Portable Classroom B1
ECG-24-7284-145B	Single Ply Membrane Roofing / Portable Classroom C1
ECG-24-7284-146A	Penetration Mastic / Portable Classroom B1
ECG-24-7284-146B	Penetration Mastic / Portable Classroom C1
ECG-24-7284-147A	Yellow Carpet Mastic / Portable Classroom B8
ECG-24-7284-147B	Yellow Carpet Mastic / Portable Classroom B10
ECG-24-7284-148A	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Portable Classroom B8
ECG-24-7284-148B	12"x12" Gray Mottled Vinyl Floor Tile with Black Mastic / Portable Classroom B10
ECG-24-7284-149A	4" Gray Vinyl Base Cove with Mastic / Portable Classroom B8
ECG-24-7284-149B	4" Gray Vinyl Base Cove with Mastic / Portable Classroom B10
ECG-24-7284-150A	Drywall behind Tagboard / Portable Classroom B9

Delivered by: _____ via FedEx____ Date: __8_/_15_/_24_ Time: _7:00_PM

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

Special Instructions: *Stop analysis upon first positive result (>1%) for sample in a series. Also stop analysis upon first positive result (>1%) in the joint compound for sample series.*

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-150B	Drywall behind Tagboard / Portable Classroom B10
ECG-24-7284-151A	2'x4' Ceiling Panel / Portable Classroom B9
ECG-24-7284-151B	2'x4' Ceiling Panel / Portable Classroom B10
ECG-24-7284-152A	Expansion Joint Caulking / Portable Classroom B9
ECG-24-7284-152B	Expansion Joint Caulking / Portable Classroom B9
ECG-24-7284-153A	Roof Mastic / Portable Classroom B8
ECG-24-7284-153B	Roof Mastic / Portable Classroom B9
ECG-24-7284-154A	Yellow Carpet Mastic with White Leveler / Portable Classroom B11
ECG-24-7284-154B	Yellow Carpet Mastic with White Leveler / Portable Classroom B12
ECG-24-7284-155A	12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic / Portable Classroom B11
ECG-24-7284-155B	12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic / Portable Classroom B12
ECG-24-7284-156A	4" Gray Vinyl Base Cove with Mastic / Portable Classroom B11
ECG-24-7284-156B	4" Gray Vinyl Base Cove with Mastic / Portable Classroom B12
ECG-24-7284-157A	Drywall behind Tagboard / Portable Classroom B11
ECG-24-7284-157B	Drywall behind Tagboard / Portable Classroom B12
ECG-24-7284-158A	Expansion Joint Caulking / Portable Classroom B11

Delivered by: _____ via FedEx____ **Date:** 8/15/24 **Time:** 7:00 PM

Received by: STEVEN CASTILLO **Date:** 8/19/24 **Time:** 9:30 AM/PM

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Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
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Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

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SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-158B	Expansion Joint Caulking / Portable Classroom B12
ECG-24-7284-159A	Roof Mastic / Portable Classroom B11
ECG-24-7284-159B	Roof Mastic / Portable Classroom B12
ECG-24-7284-160A	12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic / Portable C11, Southwest
ECG-24-7284-160B	12"x12" Gray Mottled Vinyl Floor Tile with Yellow Mastic / Portable C11, West
ECG-24-7284-161A	9"x9" Brown Streaked Vinyl Floor Tile with Black Mastic / Portable C11, North Closet
ECG-24-7284-161B	9"x9" Brown Streaked Vinyl Floor Tile with Black Mastic / Portable C11, South Closet
ECG-24-7284-162A	Gray Speckled Sheet Vinyl Flooring with Yellow Mastic / Portable C11 Restroom
ECG-24-7284-162B	Gray Speckled Sheet Vinyl Flooring with Yellow Mastic / Portable C11 Restroom
ECG-24-7284-163A	4" Gray Vinyl Base Cove with Mastic / Portable C11, North
ECG-24-7284-163B	4" Gray Vinyl Base Cove with Mastic / Portable C11, East
ECG-24-7284-164A	12"x12" Glue-on Ceiling Tile / Portable C11, East
ECG-24-7284-164B	12"x12" Glue-on Ceiling Tile / Portable C11 Restroom
ECG-24-7284-165A	Drywall with Joint Compound / Portable C11, Northwest Corner adjacent to Closet
ECG-24-7284-165B	Drywall with Joint Compound / Portable C11, North Closet, Southeast Corner
ECG-24-7284-166A	Plastic Wall Panel Glue / Portable C11 Restroom

Delivered by: _____ via FedEx____ **Date:** _8_/_15_/_24_ **Time:** _7:00_ **PM**

Received by: STEVEN CASTILLO **Date:** 8/19/24 **Time:** 9:30 **AM**/PM

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Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: 5 Days

Analysis Requested: Asbestos by PLM with Dispersion Staining

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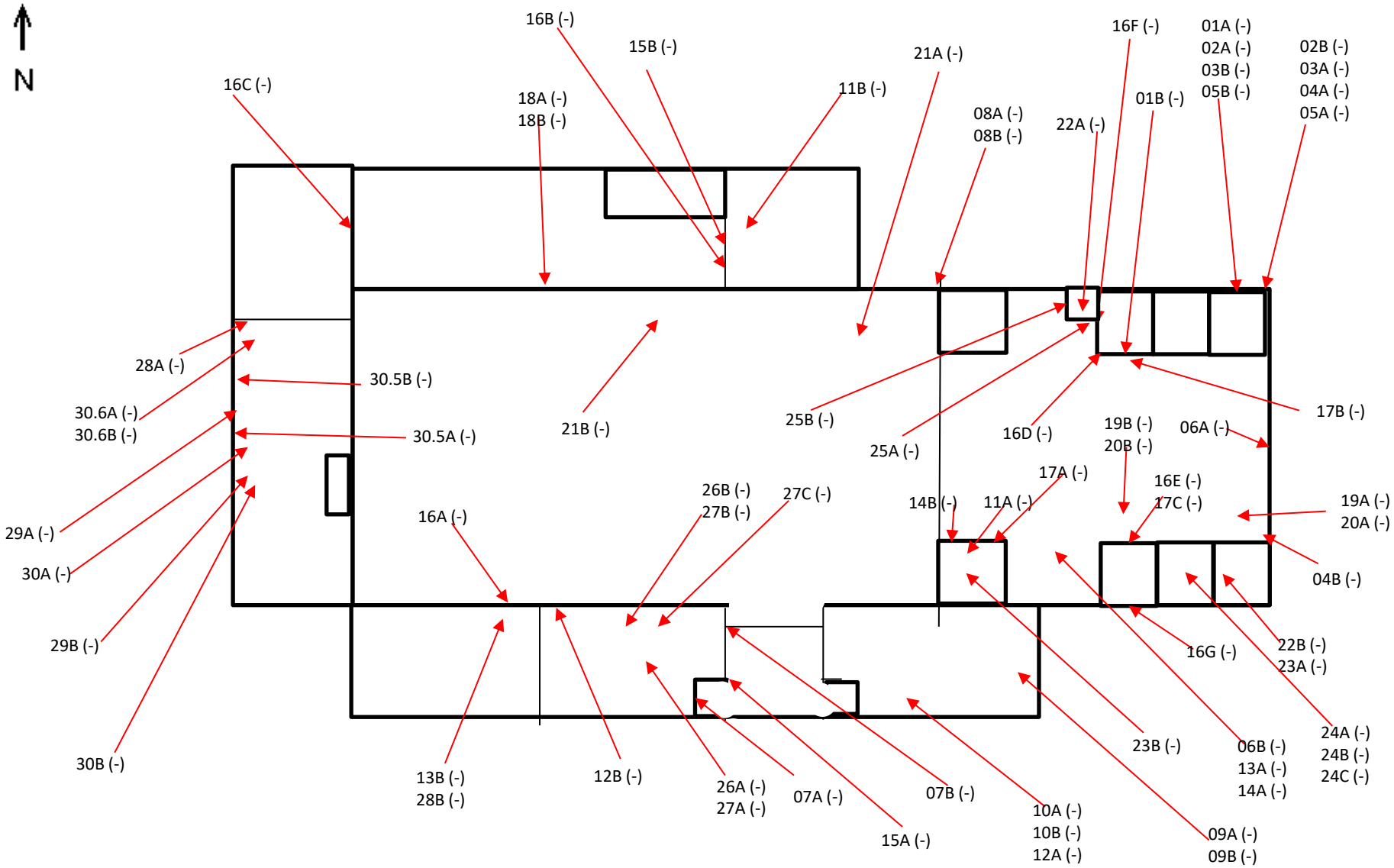
SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-167A	Brown Composition Shingle Roof / Portable C11
ECG-24-7284-167B	Brown Composition Shingle Roof / Portable C11

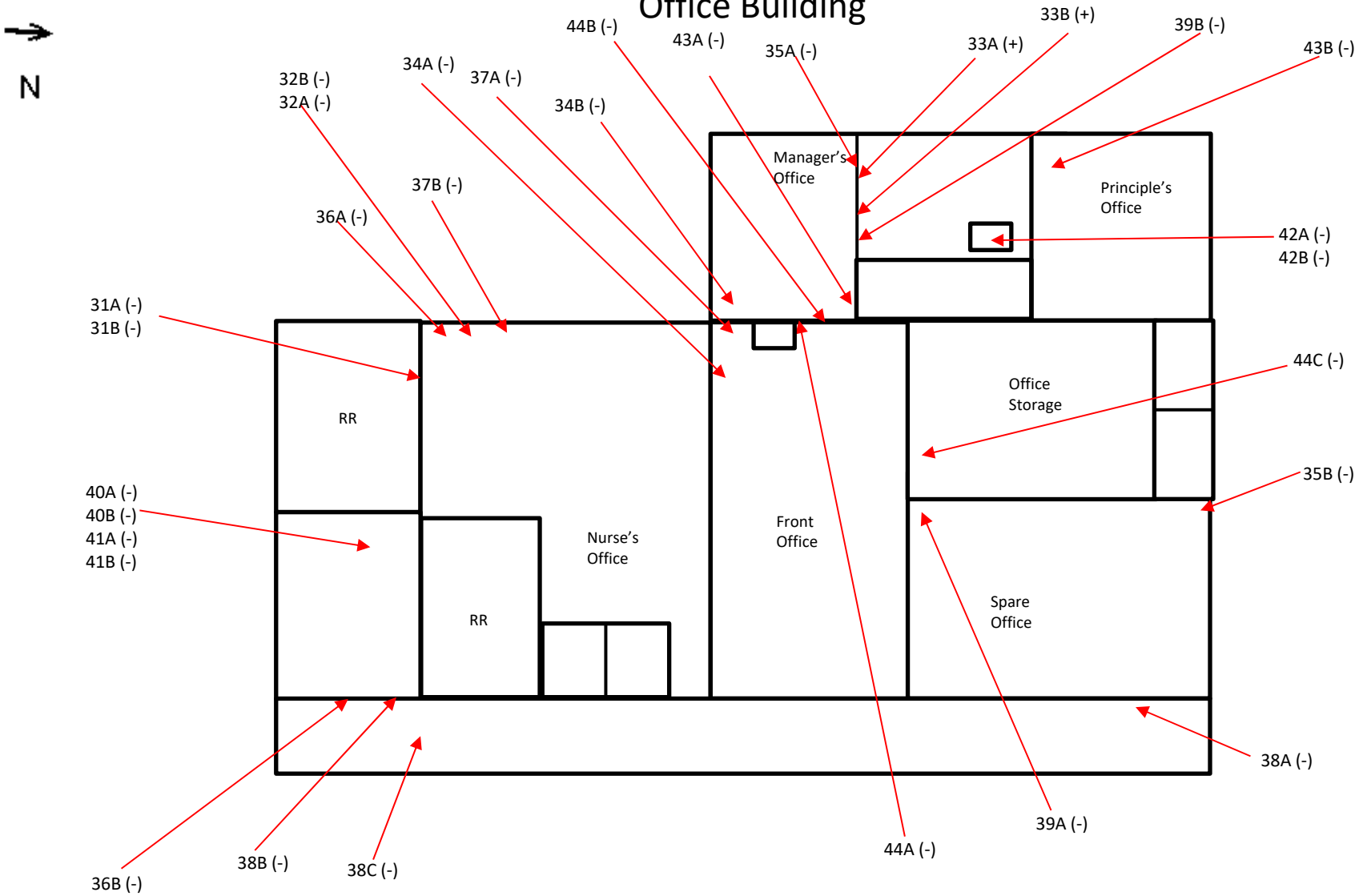
Delivered by: _____ via FedEx ____ **Date:** 8/15/24 **Time:** 7:00 **PM**

Received by: STEVEN CASTILLO **Date:** 8/16/24 **Time:** 930 **AM/PM**



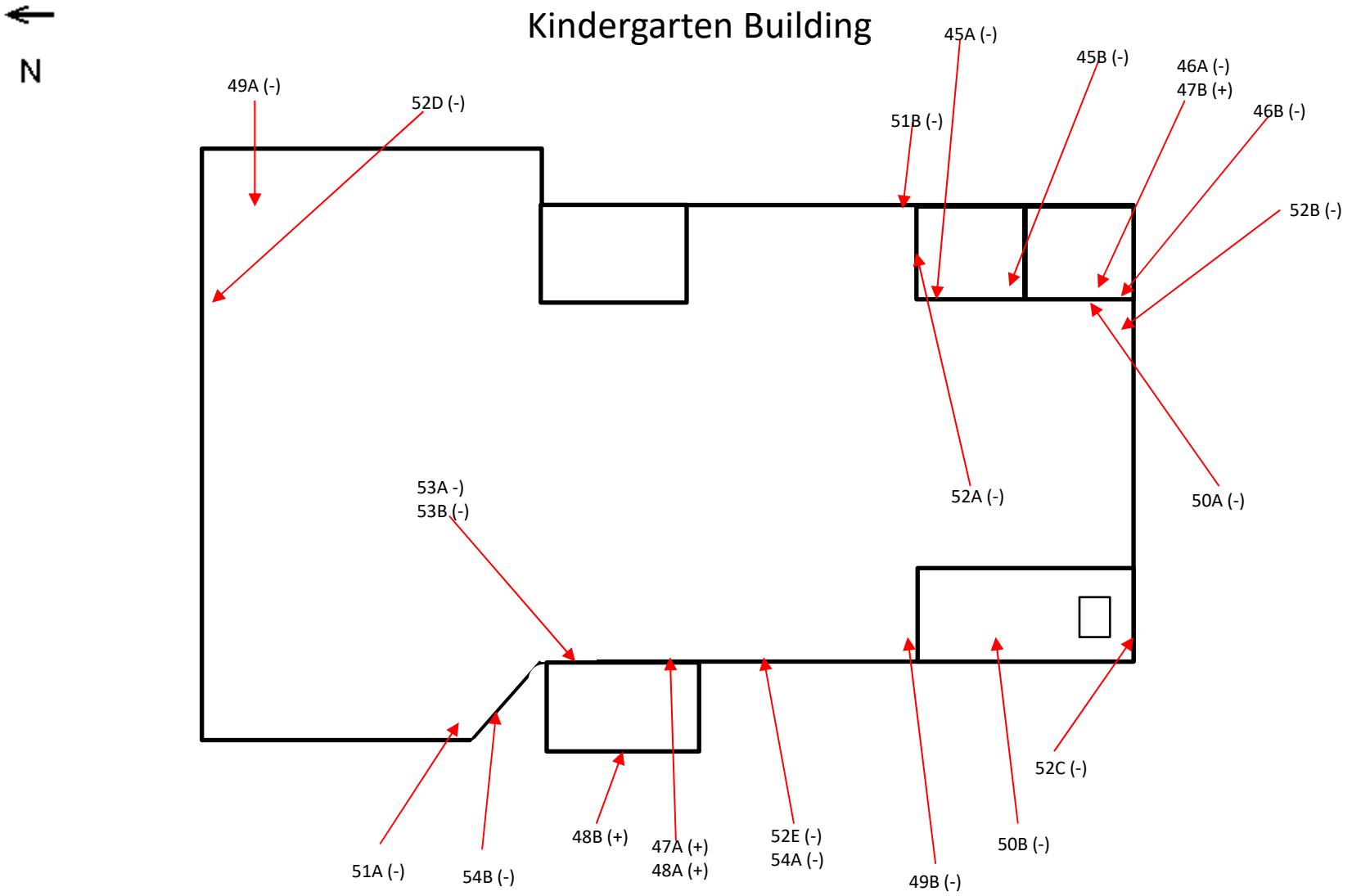
Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Asbestos Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

Office Building



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Asbestos Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

Kindergarten Building



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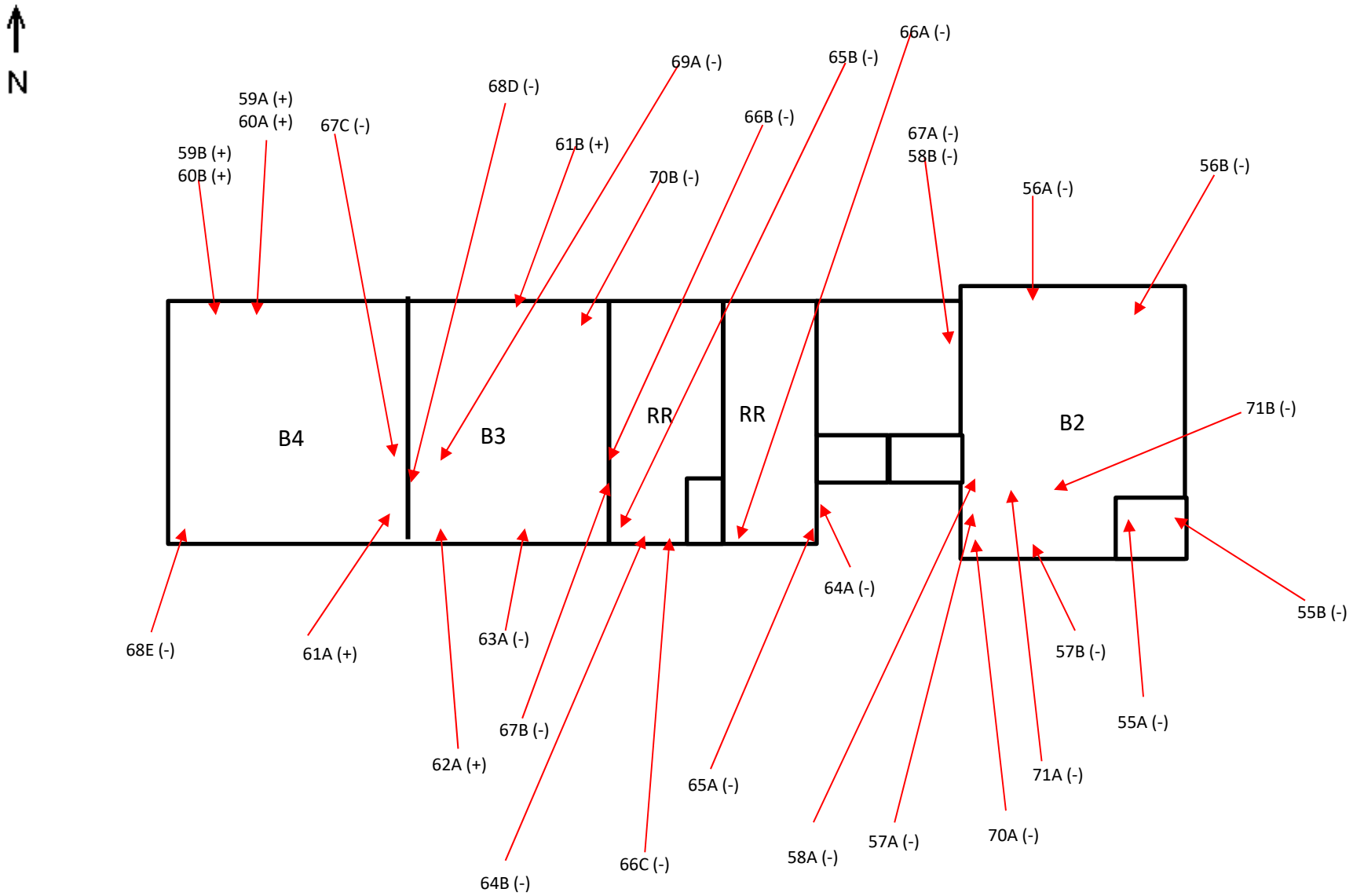

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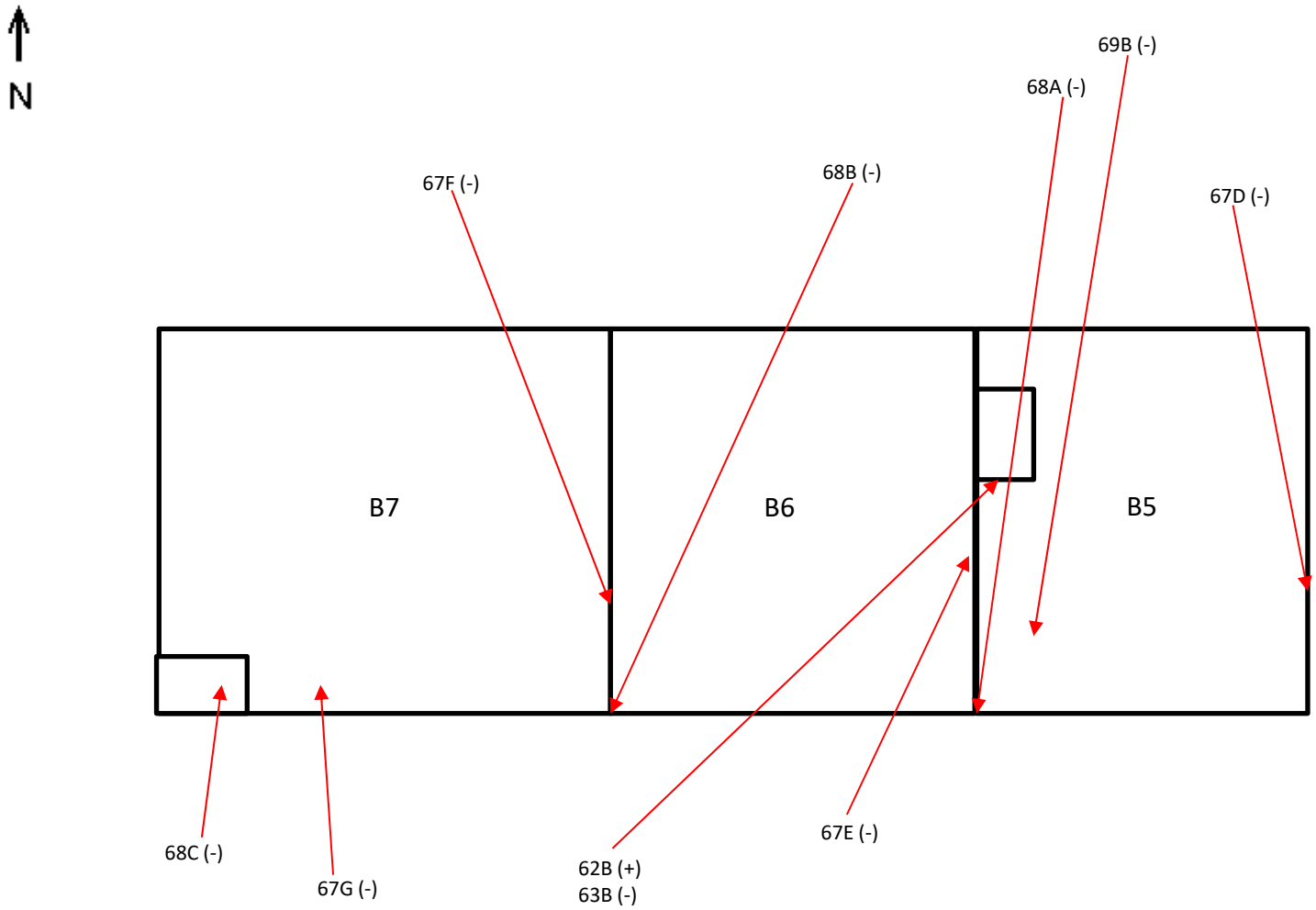

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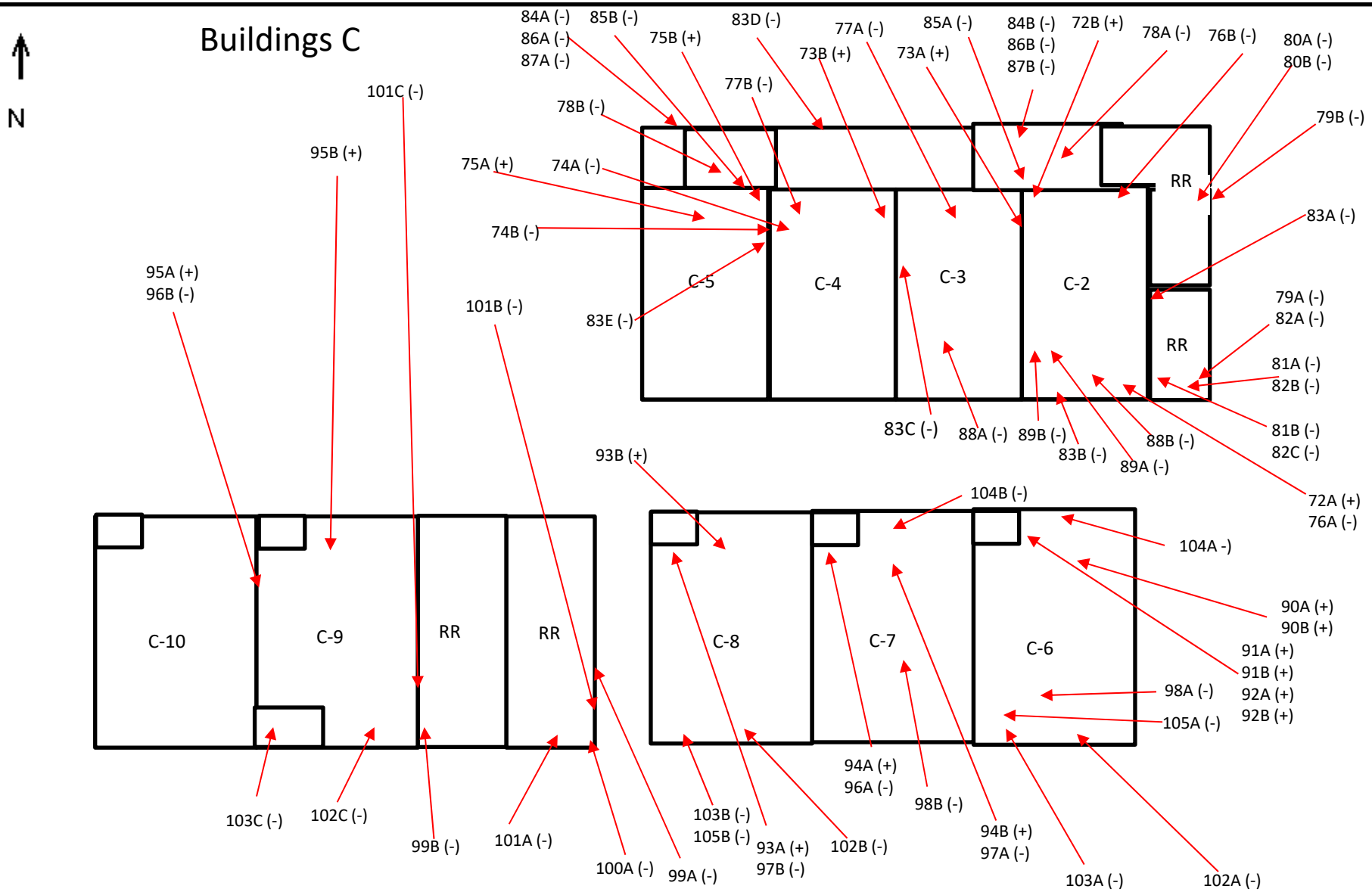
Buildings C



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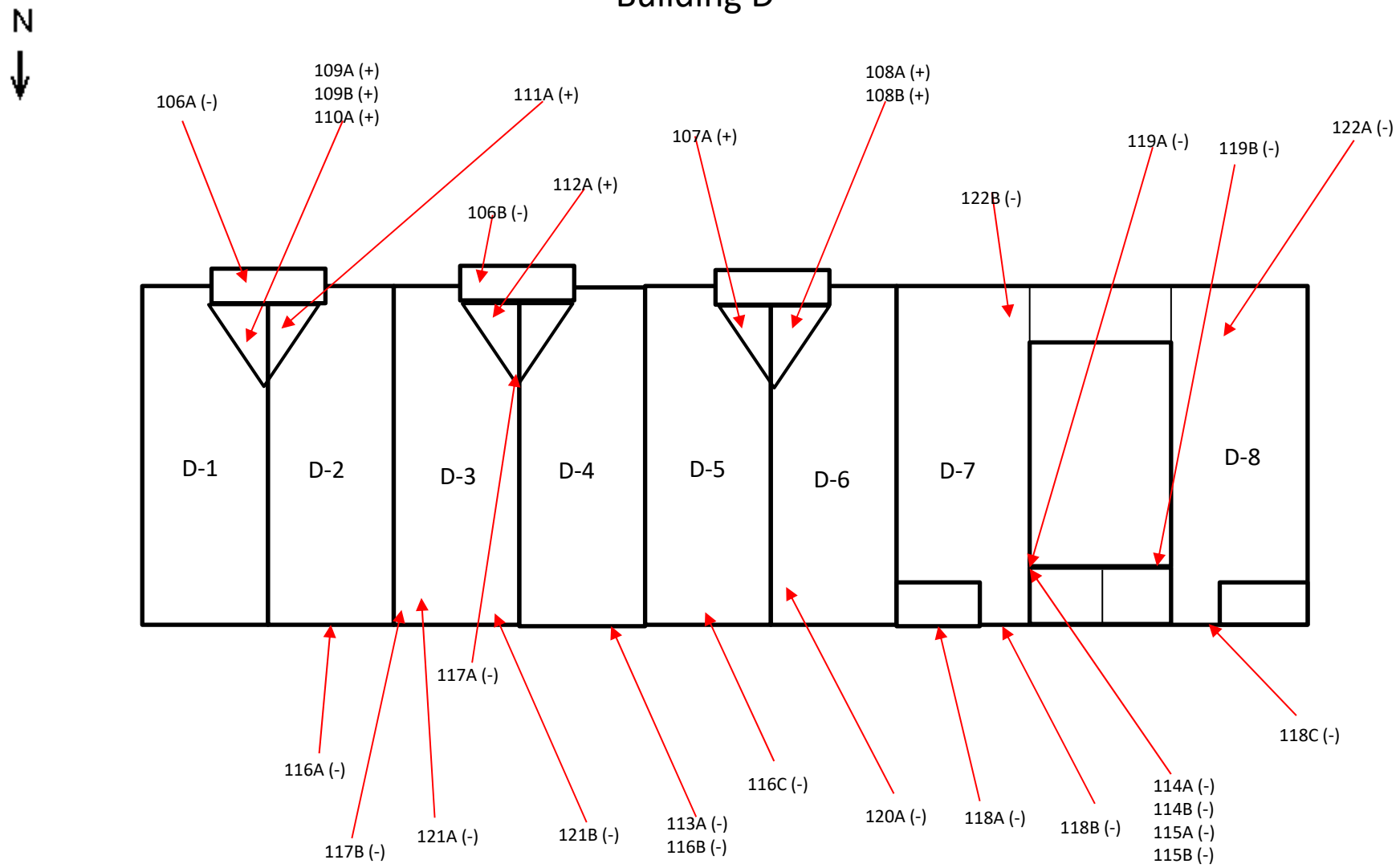
Building D



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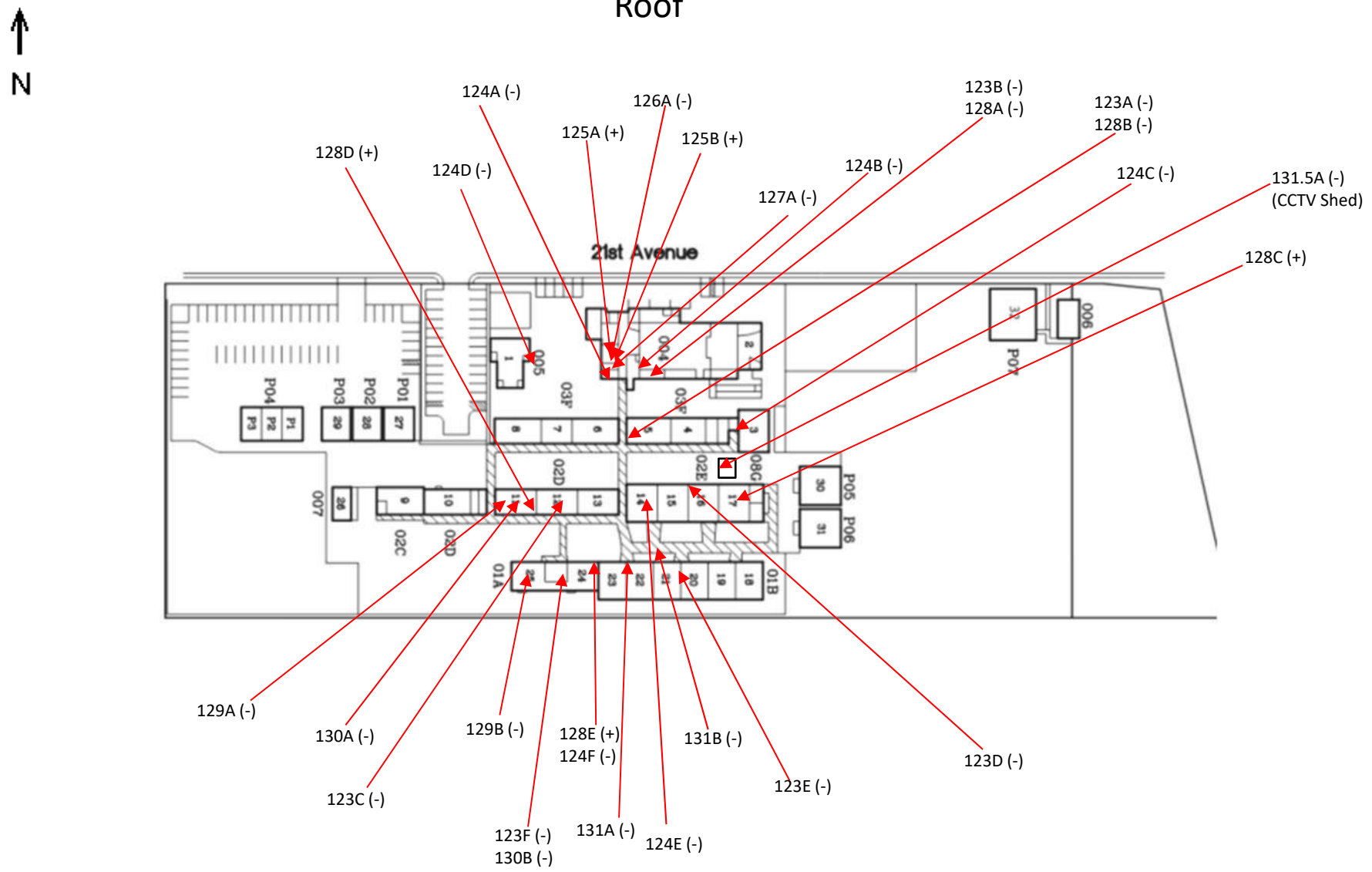
Roof



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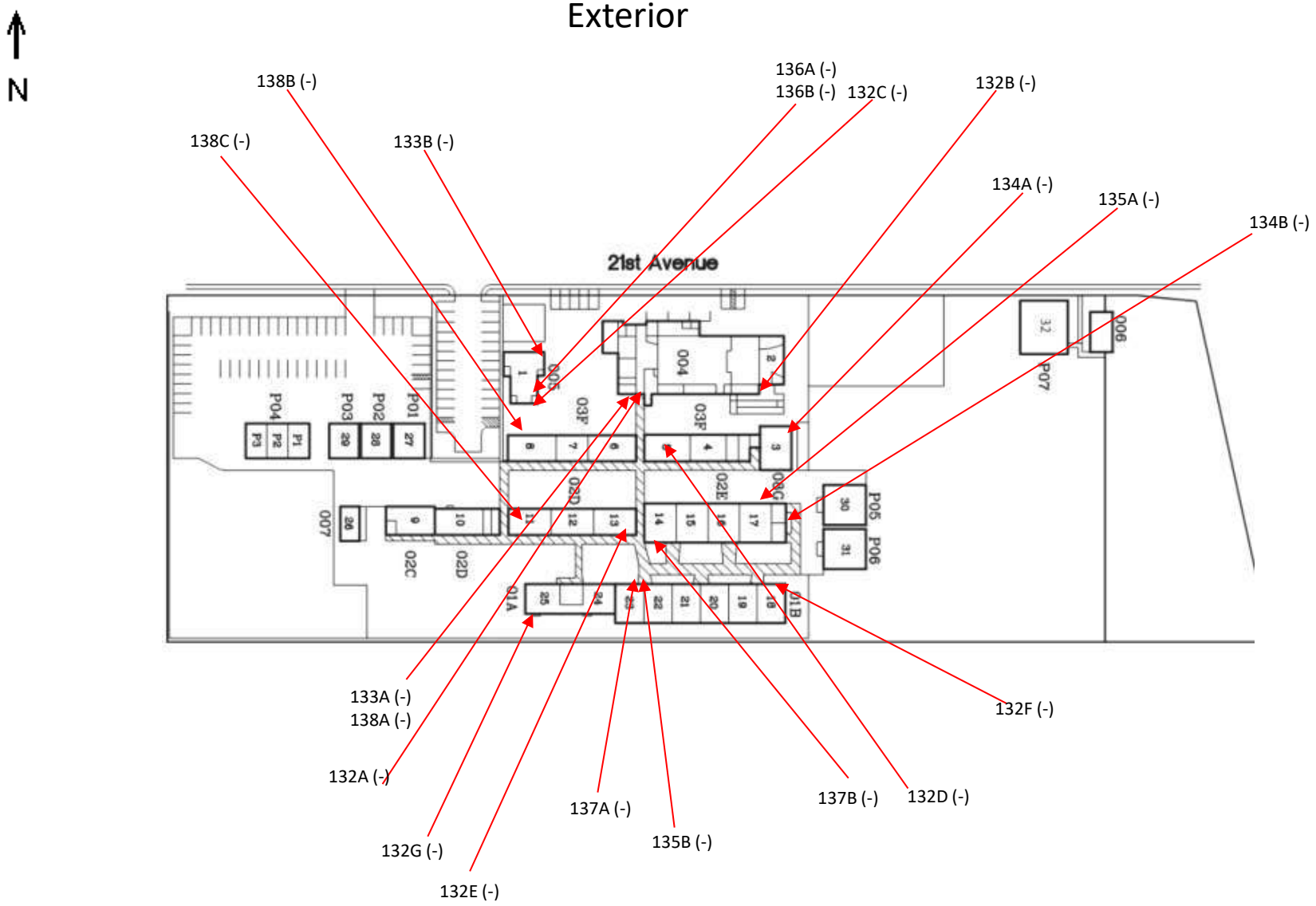
Exterior



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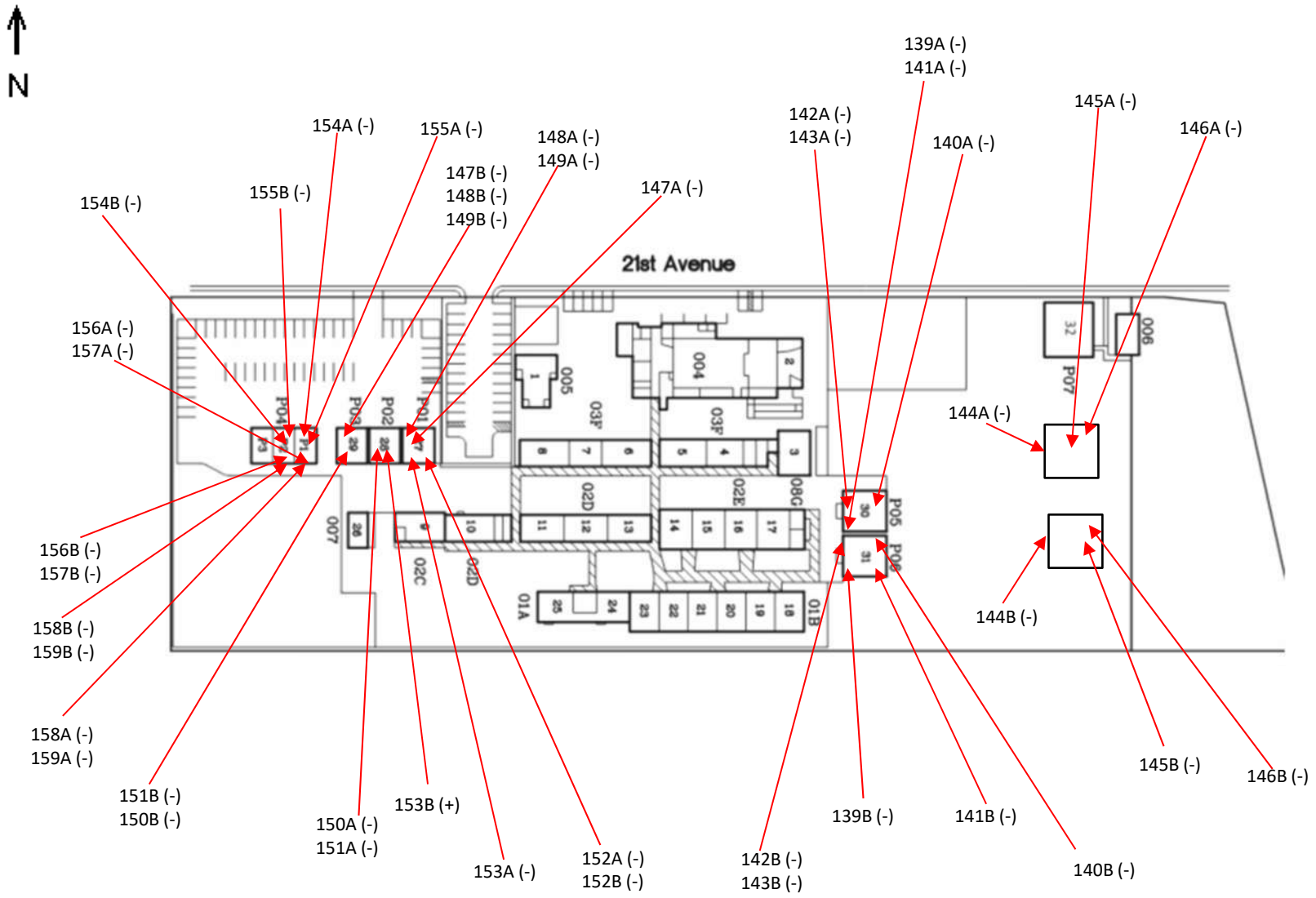

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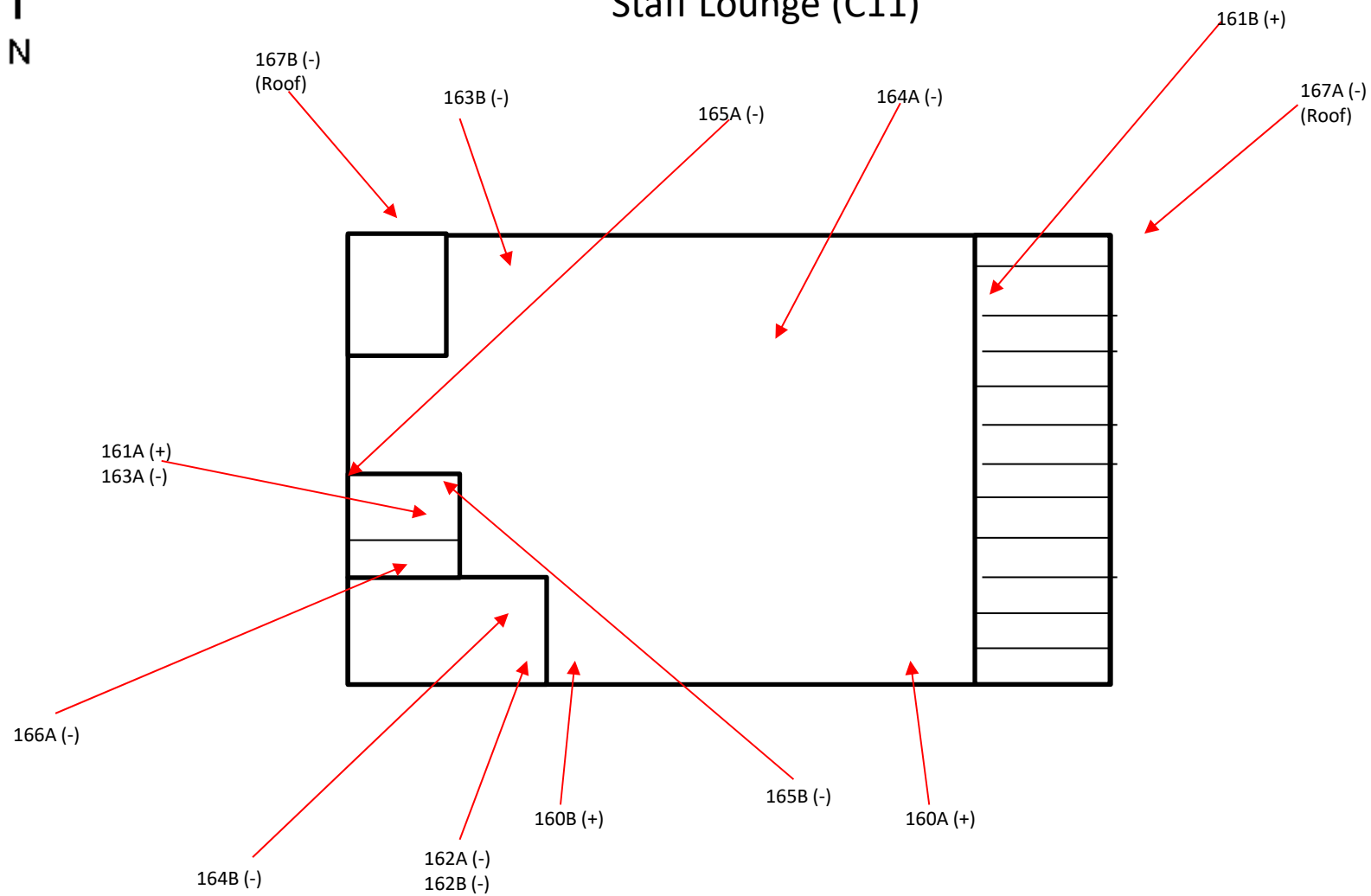
Staff Lounge (C11)



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Asbestos Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

Asbestos Survey Form
(See Instructions)

777 12th Street, 3rd Floor
Sacramento, CA 95814
Office (916) 874-4800
Fax (916) 874-4899
Email:
asbestos@airquaility.org

1. Purpose of Survey	☑ Renovation	☐ Demolition

2. Facility Information

Project Area(s) Description		
Ethel Phillips Elementary School Campus Renewal Project		
Address: 2930 21st Avenue	City: Sacramento	# of Structures: 11

3. Owner Information

Name: Sacramento City Unified School District			
Address: 425 1st Avenue	City/State: Sacramento	Zip: 95818	
Contact: Anthony Lea	Phone: (916) 317-9480	Fax:	Email: anthony-lea@scusd.edu

4. Consultant Information — **Survey Date(s):** 08/05/24 to 08/07/2024

Company Name: Entek Consulting Group, Inc.			
Name: Jose Hernandez			DOSH #: 22-6995
Address: 4200 Rocklin Road, Suite 7	City/State: Rocklin, California	Zip: 95677	
Phone: (916) 632-6800	Fax: (916) 632-6812	Email: jhernandez@entekgroup.com	Signature:

5. Client Information (If different than owner) ☐ General Contractor ☐ Insurance Company ☐ Architect ☐ Property Manager ☐ Other _____

Name			
Address	City/State	Zip: 95678	
Contact	Phone / Fax	Email	

6. Have all of the suspect materials that will be disturbed been sampled?	■ Yes ☐ No

If no, explain why:

7. Summary of Total Asbestos Containing Material (ACM) Findings

Regulated Asbestos Containing Material (RACM) (Includes materials subject to known mechanical removal and fire damaged materials)			Category II		Category I	
Square Ft.	Linear Ft.	Cubic Ft.	Square Ft.	Linear Ft.	Square Ft.	Linear Ft.
0	0	0	270	0	18970	0

To receive future SMAQMD Rule updates and changes affecting your industry (check one box):

☐ Please send e-mail notices to ☐ I will sign up myself at www.airquality.org/listserve/ to receive emailed notices.

■ I am already subscribed. ☐ I want the District to mail notices to the address on this application: ☐ Owner ☐ Consultant

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Asbestos Renovation/Demolition Notification Form

777 12th Street, 3rd Floor
Sacramento, CA 95814
Office (279) 207-1122
Fax (279) 207-1144
Asbestos@airquality.org

1

Building Department Permit Application # (if known) : _____

- ☑ Renovation (Do not complete Section 5)
- ☐ Demolition (Complete all sections)
- ☐ Ordered Demo - Attach ordered demo letter
- ☐ Emergency Demo - SMAQMD Emergency #: _____

2

Contractor	Owner Sacramento City Unified School District-Anthony Lea
Address	Address 425 1st Avenue
City, State / Zip	City, State / Zip Sacramento, CA 95820
Email	Email anthony-lea@scusd.edu
Telephone	Telephone (916) 317-9480

3

Structure Name Ethel Phillips Elementary School	Renovation Area Campus Renewal Project	# of Floors 1
Project Address 2930 21st Avenue	City / Zip Sacramento / 958118	Year Built 1980

4

Preference for return of form	☐ **E-mail :**	☐ **Other :**

DEMOLITION ONLY – Start date must be at least 10 working days from the day of your postmark or hand delivery of this form.

5

Start Date _____ _____ _____	Revision # 1 2 3 4 5 6 7 8 9 (circle)
Completion Date _____ _____ _____	New Start Date _____ _____ _____
	New Completion Date _____ _____ _____

Method of Demo (Check Applicable): ☐Manual/Hand Tools ☐Mechanical/Heavy Equipment ☐Other

Procedure to be followed if RACM is found or Category II material becomes friable:

I have read and understand the directions. The information on this form is true and accurate. I certify that the asbestos survey conducted represents the facility as built.

6

Applicant Name (Print)	☐ Owner ☐ Rep / Agent ☐ Contractor	**Permit may be issued on:**
Phone Number		
Applicant's Signature	Date	

Have DOSH Consultant complete and sign below OR attach completed Asbestos Survey Form and Consultant's report.

CONSULTANT USE ONLY

Company Name Entek Consulting Group, Inc.		Telephone (916) 632-6800	
Surveyor Name Jose Hernandez		DOSH # 22-6995	Survey Date 08/05/24 to 08/07/2024
Analytical Method PLM by Dispersion Staining		Pt Count Materials <10%? ☐Yes ☑ No ☐ Declined by Client	
Amount of RACM	Square Feet 0	Linear Feet 0	Cubic Feet 0
Amount of Category I 18970		Amount of Category II 270	
Project Address 2930 21st Avenue		City Sacramento	Zip 95820
Suspect Materials Present? ☑Yes ☐ No		Consultant's Signature	

SMAQMD USE ONLY

Date Received / Date Postmarked _____ Date Approved & Returned _____

Project # _____ Check # _____ Receipt # _____ Amount Paid _____ Staff _____

APPENDIX B

LEAD RELATED DOCUMENTS

- Lead in Paint Samples Analysis Report From Eurofins/EMLab P&K-Tustin
- Bulk Lead Material Analysis Request Form for Entek
- Lead Bulk Sample Location Drawing
- Lead Hazard Evaluation Report (CDPH 8552)
- X-Ray Fluorescence Instrument Data Sheet

eurofins | Built Environment Testing

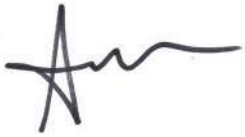
ENTEK CONSULTING GROUP, INC.

Report for:

Jose Hernandez
Entek Consulting Group
4200 Rocklin Road, Suite 7
Rocklin, CA 95677

Regarding:
Eurofins EPK Built Environment Testing, LLC
Project: 24-7284 Sacramento City Unified School District; Ethel Phillips Elementary School 2930 21st Avenue Sacramento, CA 95820
EML ID: 3750872

Approved by:



Approved Signatory
Andrew Arestegui

Dates of Analysis:
Lead - Flame AA: 08-22-2024

Service SOPs: Lead - Flame AA (EM-BC-S-8443)
AIHA LAP, LLC accredited service, Lab ID #178697

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received and tested. Sample size, as it relates to Wipe samples only, is supplied by the client.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.
Eurofins EPK Built Environment Testing, LLC's LabServe® reporting system includes automated fail-safes to ensure that all AIHA LAP, LLC quality requirements are met and notifications are added to reports when any quality steps remain pending.

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-23-2024

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-24-7284-01Pb: Tan Paint on Plaster Wall/MPR Building, Multi-Purpose Room	ECG-24-7284-02Pb: White Paint on Cementitious Textured Plaster/ MPR Building, Stage	ECG-24-7284-03Pb: White Paint on Drywall/MPR Building, Old Girl's Locker Room	ECG-24-7284-04Pb: Gray Paint on Plaster Wall/MPR Building, Old Girl's Locker Room
Comments (see below)	None	None	None	None
Lab ID-Version‡:	18477032-1	18477033-1	18477034-1	18477035-1
Analysis Date:	08/22/2024	08/22/2024	08/22/2024	08/22/2024
Sample type	Paint Chip sample	Paint Chip sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	40 ppm	40 ppm	39 ppm	40 ppm
Sample size	0.2504 grams	0.2530 grams	0.2542 grams	0.2531 grams
§Total Lead Result	< 40 ppm	< 40 ppm	< 39 ppm	< 40 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-23-2024

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-24-7284-05Pb: Green Paint on Plaster-Stucco/ MPR Building, Laundry Room	ECG-24-7284-06Pb: Beige Paint on Rough Textured Plaster/Hallway Between Office and MPR Buildings	ECG-24-7284-07Pb: Teal Paint on Plywood Walls/ Office Building, Principal's Office	ECG-24-7284-08Pb: White Paint on Plaster Walls/ Kindergarten Building
Comments (see below)	None	None	None	None
Lab ID-Version‡:	18477036-1	18477037-1	18477038-1	18477039-1
Analysis Date:	08/22/2024	08/22/2024	08/22/2024	08/22/2024
Sample type	Paint Chip sample	Paint Chip sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	39 ppm	39 ppm	40 ppm	39 ppm
Sample size	0.2549 grams	0.2591 grams	0.2512 grams	0.2540 grams
§Total Lead Result	120 ppm	190 ppm	81 ppm	< 39 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-23-2024

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-24-7284-09Pb: Tan Paint on Plaster Walls/Kindergarten Building	ECG-24-7284-10Pb: Glazing on 4" Ceramic Wall Tile/ Building C, Girl's Restroom Adjacent Classroom C-2	ECG-24-7284-11Pb: Off-White Paint on Metal HVAC Duct/ Building B, Classroom B-3	ECG-24-7284-12Pb: Beige Paint on Stucco/Exterior, Building B, West of Classroom B-4
Comments (see below)	None	None	None	None
Lab ID-Version‡:	18477040-1	18477041-1	18477042-1	18477043-1
Analysis Date:	08/22/2024	08/22/2024	08/22/2024	08/22/2024
Sample type	Paint Chip sample	Bulk sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	40 ppm	40 ppm	97 ppm	39 ppm
Sample size	0.2528 grams	0.2515 grams	0.1028 grams	0.2541 grams
§Total Lead Result	< 40 ppm	< 40 ppm	< 97 ppm	< 39 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: Entek Consulting Group
C/O: Jose Hernandez
Re: 24-7284 Sacramento City Unified School District;
Ethel Phillips Elementary School 2930 21st Avenue
Sacramento, CA 95820

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Date of Sampling: 08-05-2024
Date of Receipt: 08-19-2024
Date of Report: 08-23-2024

LEAD: FLAME ATOMIC ABSORPTION SPECTROMETRY

Location:	ECG-24-7284-13Pb: Beige Paint on Wood Siding/Exterior, Portable Classroom B8	ECG-24-7284-14Pb: Blue Paint on Metal Roof Flashing/Exterior, At Covered Walkways Between Classroom Building B&C	ECG-24-7284-15Pb: Blue Paint on Wood Fascia/ Exterior, East Side of Library B-2
Comments (see below)	None	None	None
Lab ID-Version‡:	18477044-1	18477045-1	18477046-1
Analysis Date:	08/22/2024	08/22/2024	08/22/2024
Sample type	Paint Chip sample	Paint Chip sample	Paint Chip sample
Method*	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified	NIOSH 7082 & EPA 7000B modified
† Method Reporting Limit	39 ppm	40 ppm	39 ppm
Sample size	0.2563 grams	0.2524 grams	0.2542 grams
§Total Lead Result	< 39 ppm	< 40 ppm	< 39 ppm

Comments:

Sample results have not been corrected for blank values.

Bulk samples are not covered under the AIHA LAP, LLC service accreditation.

Wipe samples must meet ASTM E1792 criteria. Method Reporting Limits may not be valid for non-ASTM E1792 wipe samples.

*Sample preparation and analytical methods are based upon NIOSH 7082 and EPA 7000B.

† The Method Reporting Limit is the minimum concentration of Lead that the laboratory can confidently detect in the sample.

§ Total Lead Result has been rounded to two significant figures to reflect analytical precision.

‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

ENTEK
BULK LEAD MATERIAL *Analysis Request*

003750872

ENTEK CONSULTING GROUP, INC.
4200 ROCKLIN ROAD, SUITE 7
ROCKLIN, CA 95677
(916) 632-6800 PHONE
(916) 632-6812 FAX
mainoffice@entekgroup.com

Date of Sampling: 8/5/24-8/7/24
Job Number: 24-7284
Client Name: Sacramento City Unified School District
Site Address: Ethel Phillips Elementary School
2930 21st Avenue
Sacramento, CA 95820

Lab: Eurofins/EmLab P&K - Tustin
Collected by: Jose Hernandez
Turnaround Time: Standard Turnaround Time

Analysis Requested: Lead by Flame Atomoic Absorption Spectroscopy

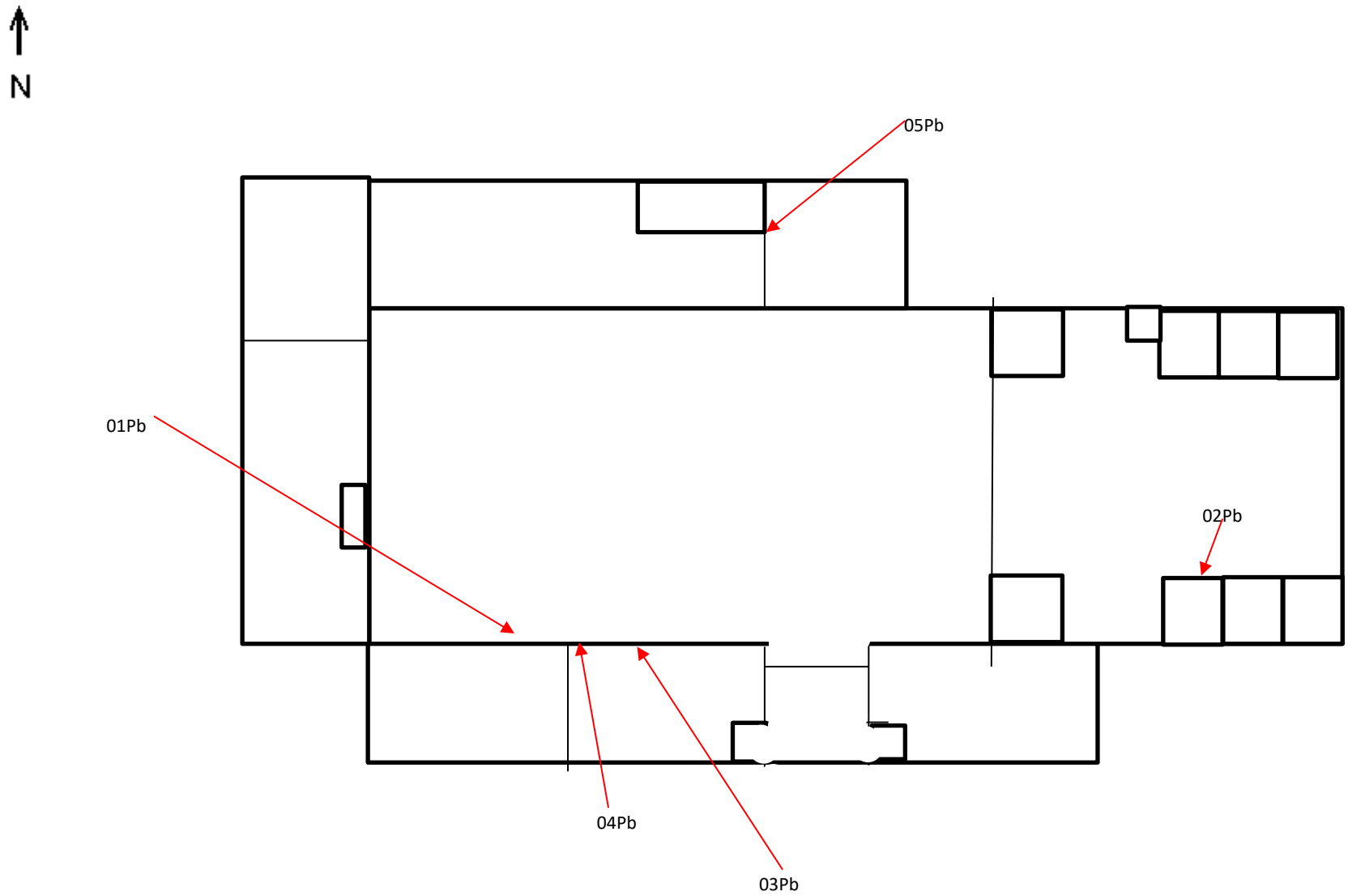
Special Instructions: Please report result in PPM and % by weight.

Please e-mail results at mainoffice@entekgroup.com and jhernandez@entekgroup.com as soon as available and include copy of submittal with those results.

SAMPLE #	MATERIAL DESCRIPTION/LOCATION
ECG-24-7284-01Pb	Tan Paint on Plaster Wall / MPR Building, Multi-Purpose Room
ECG-24-7284-02Pb	White Paint on Cementitious Textured Plaster / MPR Building, Stage
ECG-24-7284-03Pb	White Paint on Drywall / MPR Building, Old Girl's Locker Room
ECG-24-7284-04Pb	Gray Paint on Plaster Wall / MPR Building, Old Girl's Locker Room
ECG-24-7284-05Pb	Green Paint on Plaster-Stucco / MPR Building, Laundry Room
ECG-24-7284-06Pb	Beige Paint on Rough Textured Plaster / Hallway between Office and MPR Buildings
ECG-24-7284-07Pb	Teal Paint on Plywood Walls / Office Building, Principal's Office
ECG-24-7284-08Pb	White Paint on Plaster Walls / Kindergarten Building
ECG-24-7284-09Pb	Tan Paint on Plaster Walls / Kindergarten Building
ECG-24-7284-10Pb	Glazing on 4" Ceramic Wall Tile / Building C, Girl's Restroom adjacent Classroom C-2
ECG-24-7284-11Pb	Off-White Paint on Metal HVAC Duct / Building B, Classroom B-3
ECG-24-7284-12Pb	Beige Paint on Stucco / Exterior, Building B, West of Classroom B-4
ECG-24-7284-13Pb	Beige Paint on Wood Siding / Exterior, Portable Classroom B8
ECG-24-7284-14Pb	Blue Paint on Metal Roof Flashing / Exterior, At Covered Walkways between Classroom Buildings B & C
ECG-24-7284-15Pb	Blue Paint on Wood Fascia / Exterior, East Side of Library B-2

Delivered by: _____ via FedEx____ **Date:** 8/15/24 **Time:** 7:00 PM

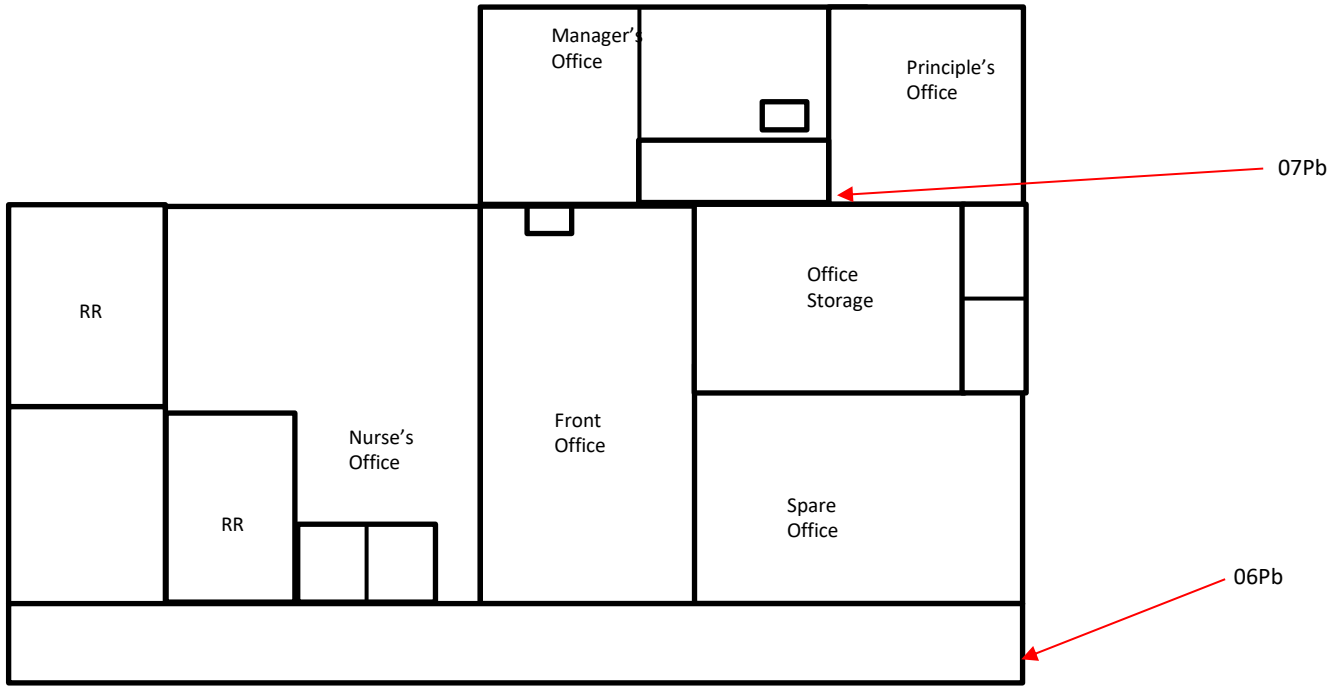
Received by: STEVEN CASTILLO **Date:** 8/19/24 **Time:** 9:30A AM/PM



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Lead Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

Office Building

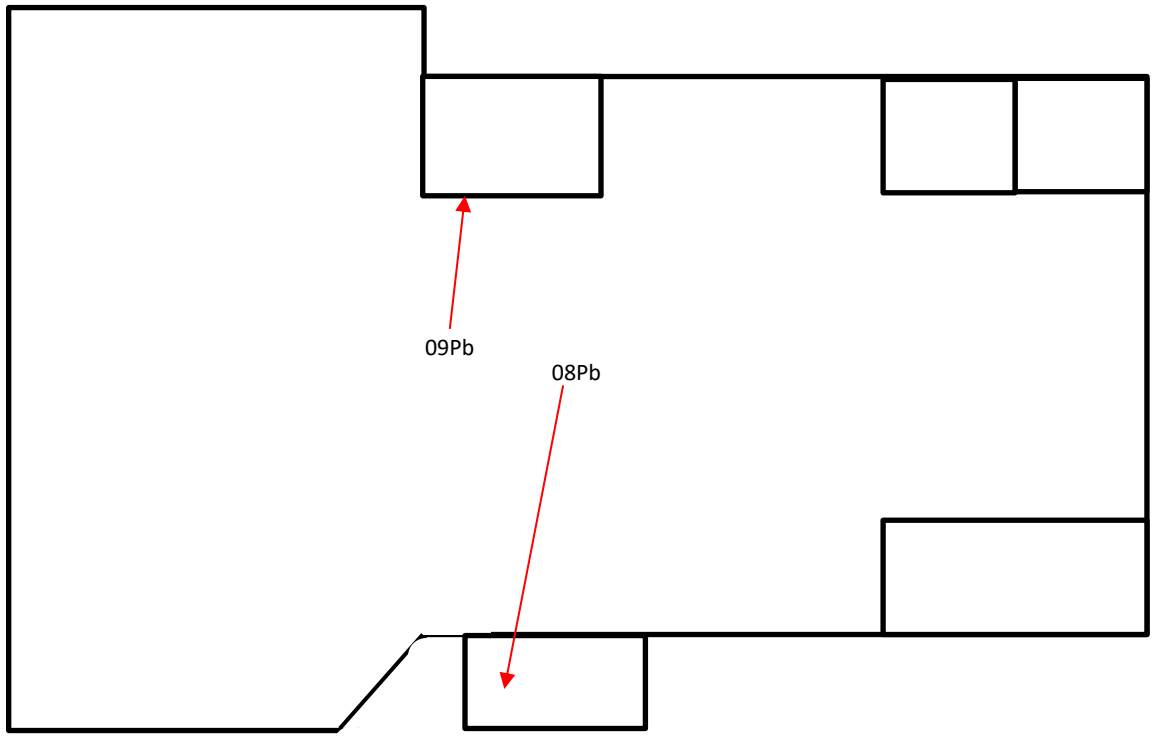
N



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Lead Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

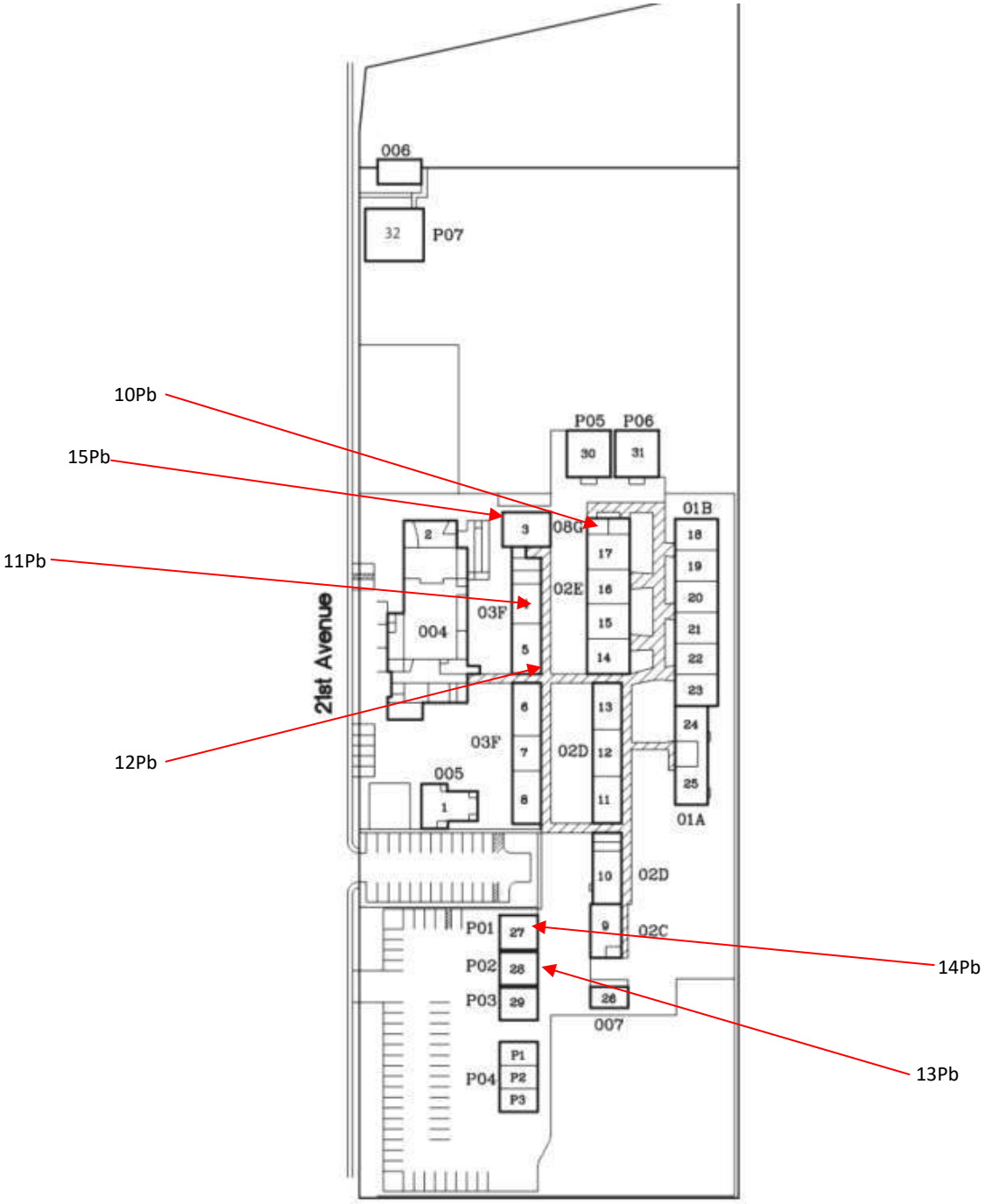
Kindergarten Building

N



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Lead Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

N



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin CA 95677 Map Not to Scale	Lead Bulk Sample Locations Collected by Jose Hernandez On August 5 -7, 2024 Project Number 24-7284

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 08/05/24 to 08/07/2024

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
2930 21st Avenue	Sacramento	Sacramento	95820

Construction date (year) of structure	Type of structure	Children living in structure?
1980	☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
Sacramento City Unified School District (Anthony Lea)	(916) 317-9480

Address [number, street, apartment (if applicable)]	City	State	Zip Code
425 1st Avenue	Sacramento	California	95818

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected ☑ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other intact lead containing paint detected

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Entek Consulting Group, Inc. - Jose Hernandez	(916) 632-6800

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4200 Rocklin Road, Suite 7	Rocklin	CA	95677

CDPH certification number	Signature	Date
10754		9-16-24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

N/A

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Date	Test #	Serial #	Pass/Fail	Unit type	Calibration Pb	Pb +/-	Pb P/F	Description
8/5/2024 0:00	931	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #1
8/5/2024 0:00	932	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #2
8/5/2024 0:00	933	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #3
8/5/2024 0:00	934	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Average
8/5/2024 0:00	936	X550-02401		mg/cm2	LeadPaint	0.1	0.1 Negative	White plaster walls - MPR/Office Building
8/5/2024 0:00	937	X550-02401		mg/cm2	LeadPaint	8.9	0.1 Positive	Red 6" ceramic wall tile - MPR/Office Building
8/5/2024 0:00	939	X550-02401		mg/cm2	LeadPaint	0.2	0.1 Negative	Tan door frames - MPR/Office Building
8/5/2024 0:00	943	X550-02401		mg/cm2	LeadPaint	0.1	0.1 Negative	Tan doors - MPR/Office Building
8/5/2024 0:00	947	X550-02401		mg/cm2	LeadPaint	2.8	0.1 Positive	Green wood door trim/components - MPR Building
8/5/2024 0:00	948	X550-02401		mg/cm2	LeadPaint	1.9	0.1 Positive	Blue wood doors - MPR/Office building
8/5/2024 0:00	950	X550-02401		mg/cm2	LeadPaint	2.1	0.1 Positive	White wood door frames - Office Building
8/5/2024 0:00	951	X550-02401		mg/cm2	LeadPaint	0.1	0.1 Negative	Light yellow plaster - Office Building
8/6/2024 8:28	952	X550-0240	Pass	mg/cm2	PCS Cal	0.9	0.1 Negative	Calibration Test #1
8/6/2024 8:28	953	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #2
8/6/2024 8:29	954	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #3
8/6/2024 8:29	955	X550-0240	Pass	mg/cm2	PCS Cal	0.9	0.1 Negative	Calibration Average
8/6/2024 8:47	964	X550-02401		mg/cm2	LeadPaint	0.2	0.1 Negative	Tan wood cabinets/components - Kindergarten Building
8/6/2024 8:49	967	X550-02401		mg/cm2	LeadPaint	0.8	0.1 Negative	Blue metal doors - Kindergarten Building
8/7/2024 0:00	968	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #1
8/7/2024 0:00	969	X550-0240	Pass	mg/cm2	PCS Cal	1.1	0.1 Positive	Calibration Test #2
8/7/2024 0:00	970	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Test #3
8/7/2024 0:00	971	X550-0240	Pass	mg/cm2	PCS Cal	1	0.1 Positive	Calibration Average
8/7/2024 0:00	975	X550-02401		mg/cm2	LeadPaint	1	0.1 Positive	Blue exterior wood doors/door frames - Permanent Classroom Buildings
8/7/2024 0:00	977	X550-02401		mg/cm2	LeadPaint	1.4	0.1 Positive	Beige exterior wood support beams - Covered walkways
8/7/2024 0:00	978	X550-02401		mg/cm2	LeadPaint	1.5	0.1 Positive	Blue exterior metal support columns - Covered walkways
8/7/2024 0:00	979	X550-02401		mg/cm2	LeadPaint	2.6	0.1 Positive	Blue exterior wood siding - Permanent Classrooms Buildings
8/7/2024 0:00	980	X550-02401		mg/cm2	LeadPaint	0.6	0.1 Negative	Beige concrete walls - Permanent Classroom Buildings
8/7/2024 0:00	987	X550-02401		mg/cm2	LeadPaint	0.1	0.1 Negative	Blue exterior wood components - CCTV Shed
8/7/2024 0:00	988	X550-02401		mg/cm2	LeadPaint	0.1	0.1 Negative	Beige wood siding - CCTV Shed

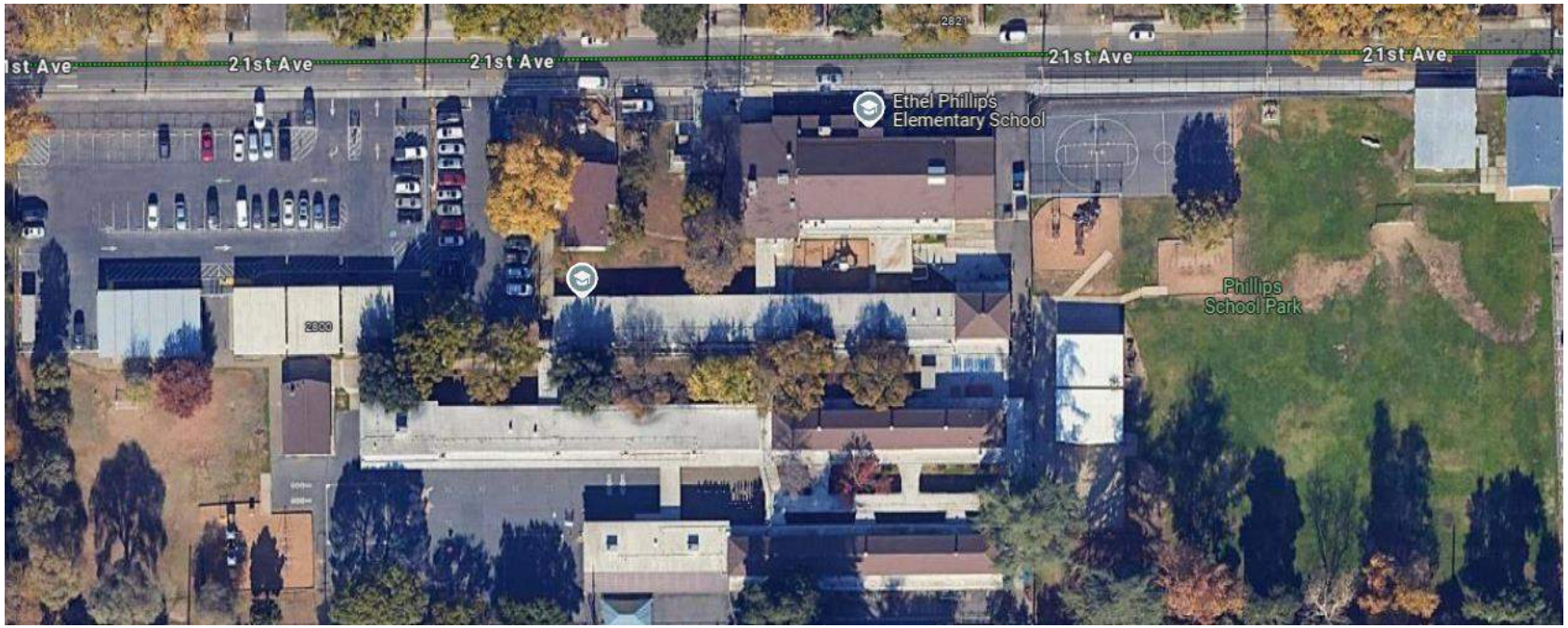
APPENDIX C

BACK UP DOCUMENTS

- Site Map
- Inspector Accreditations and Certifications
- Laboratory Accreditations for Asbestos and Lead Analysis

N

Site Map



Sacramento City Unified School District Ethel Phillips Elementary School Campus Renewal Project 2930 21st Avenue Sacramento, CA 95820	Entek Consulting Group, Inc. 4200 Rocklin Road, Suite 7 Rocklin, CA 95677 Map Not to Scale	Site Map Project Number 24-7284

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Name **Jose A Hernandez**

Certification No. **22-6995**

Expires on **01/21/25**

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
 **Jose Hernandez**	Lead Inspector/Assessor	LRC-00010754	1/9/2025

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

Eurofins EMLab P&K -Tustin

2841 Dow Avenue, Suite #300

Tustin, CA 92780

Scope of the certificate is limited to the
"Fields of Accreditation"
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **3047**

Effective Date: **5/1/2023**

Expiration Date: **4/30/2025**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Program Manager
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Fields of Accreditation

Eurofins EMLab P&K -Tustin

2841 Dow Avenue, Suite #300
Tustin, CA 92780
Phone: 5232981015

Certificate Number: **3047**
Expiration Date: **4/30/2025**

Field of Accreditation:121 - Bulk Asbestos Analysis of Hazardous Waste

121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 5/1/2023, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Eurofins EPK Built Environment Testing, LLC - Tustin

2841 Dow Ave Suite 300 Tustin, CA 92780

Laboratory ID: LAP-178697

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs, LLC (AIHA LAP) accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

☑	**INDUSTRIAL HYGIENE**	Accreditation Expires: November 01, 2025
☑	**ENVIRONMENTAL LEAD**	Accreditation Expires: November 01, 2025
☑	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: November 01, 2025
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:
☐	**BE FIELD/MOBILE**	Accreditation Expires:

Specific Field(s) of Testing/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O. Morton

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision21: 10/24/2023

Date Issued: 01/01/2024

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

Eurofins EPK Built Environment Testing, LLC - Tustin

Laboratory ID: LAP-178697

2841 Dow Ave Suite 300 Tustin, CA 92780

Issue Date: 01/01/2024
Expire Date: 11/01/2025

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 03/01/2017

Component, parameter, characteristic, material, or product tested	Technology sub-type/Detector	Method	Method Description *(for internal methods only)*
Paint	AA	EPA SW-846 7000B Modified	N/A
		NIOSH 7082	N/A
Settled Dust by Wipe	AA	EPA SW-846 7000B Modified	N/A
		NIOSH 7082	N/A

A complete listing of currently accredited ELLAP laboratories is available on the AIHA LAP, LLC website at: *http://www.aihaaccreditedlabs.org*