West Point Dairy Expansion

Geotechnical Engineering Report

Hyrum, Utah

April 3, 2026 | Terracon Project No. 61255214

Prepared for:

Excel Engineering
100 Camelot Drive
Fond du Lac, WI 54935

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April 3, 2026

Excel Engineering
100 Camelot Drive
Fond du Lac, WI 54935

Attn: David Koenes, PE
P: (920) 926-9800
E: David.k@ExcelEngineer.com

Re: Geotechnical Engineering Report
West Point Dairy Expansion
570 North 500 West
Hyrum, Utah
Terracon Project No. 61255214

Dear Mr. Koenes:

We have completed the scope of Geotechnical Engineering services for the above-referenced project in general accordance with Terracon Proposal No. P61255214 dated January 1, 2025. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

PROFESSIONAL ENGINEER
No. 9865858-2202
CHARLES V. MOLTHEN
4/3/26
STATE OF UTAH

Michael J. Schillage, P.E.
Project Engineer

Charles V. Molthen, P.E.
Operations Manager III

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Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks that direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Report Summary

Topic[1]	Overview statement[2]
Project Description	4 proposed structures in this expansion: ▪ Facility additions to the north (8,000 and 10,000 square feet) ▪ Two 40,000-gallon water storage silos ▪ Wastewater treatment facility to the southeast (Up to 15,000 square feet) ▪ Automatic storage and retrieval system (ASRS) building (81,000 square feet, 110 feet tall) Anticipated loading included in **Project Description**.
Geotechnical Characterization	Some areas of existing undocumented fill up to 10 feet deep Lean clays and silts to approximately 70 feet Groundwater was observed between approximately 5 and 15 feet during our exploration.
Earthwork	Existing undocumented fill can and should remain in place beneath proposed northern addition and water storage silos due to the proximity of the additions to existing structures. This fill will need to be thoroughly improved through soil mixing procedures as specified by the specialty contractor.
Foundations	Borings from this report and the report dated June 23, 2020, under Terracon project number 61195071 were used in our engineering analysis to formulate our recommendations. Ground improvement is recommended for foundation support at this site. Ground improvement plan and soil parameters are to be determined by specialty contractor. Deep foundations can be used but are not recommended for this site due to potential vibration impacts to adjacent structures and buckling and/or cracking, particularly during a seismic event, in the thick layer of low strength clay.
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

1. If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed expansion to the existing dairy plant located at 570 North 500 West in Hyrum, Utah. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- subsurface soil conditions
- groundwater conditions
- Seismic Site Class per IBC
- site preparation and earthwork
- demolition considerations
- foundation considerations
- floor slab design and construction

The geotechnical engineering Scope of Services for this project included the advancement of test borings, Cone Penetration Tests (CPT), geophysical testing, laboratory testing, engineering analysis, and preparation of this report.

Terracon previously completed a geotechnical study at this site under project number 61195071 dated June 23, 2020. Data from that report was used in conjunction with the data collected during the exploration for this project in our analysis of this site.

Drawings showing the site and exploration locations are shown in the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included in the boring logs and/or as separate graphs in the **Exploration and Laboratory Results** section.

Project Description

Item	Description
Information provided	An email request for proposal was provided by Excel Engineering on August 21, 2025. The request included a Parcel Map and an exploration plan from a geotechnical exploration completed at the site in 2019. On December 4, 2025, Excel Engineering provided us with a revised site plan that was revised to include two water storage silos as well as a future building addition. In total, the 4 expansion areas are as follows:

Item	Description
Project description	▪ The project includes two distinct additions to the north end of the warehouse that will be no greater than three stories in height. ▪ A large automatic storage and retrieval system (ASRS) refrigerated storage facility is proposed to the south. ▪ Two 40,000-gallon water storage silos to be constructed up against the south side of the eastern wing of the building. ▪ A building addition will be constructed to the southeast of the plant as part of the existing wastewater treatment facility. Exact size and location are unknown at the time of writing.
Proposed structure	Structures associated with the project include the two additions to the north with approximate footprints of 8,000 square feet and 10,000 square feet. To the south, a 110-foot-tall building with a footprint of approximately 81,000 square feet is proposed. The two water silos will be side-by-side, approximately 15 feet apart from each other, with a capacity of 40,000 gallons each. The proposed addition to the southeast is assumed to have a footprint no greater than 15,000 square feet and will not exceed three stories in height.
Building construction	The northern additions will be constructed of precast concrete structural systems including the roof structure, beams, columns, and walls. The ASRS facility will be a rack supported structure enclosed with insulated metal panels the full height of the structure. A transition bay between the existing building and the ASRS building is anticipated. The water storage silos and any water storage tanks within the wastewater structure to the southeast are assumed to be constructed of steel. The wastewater addition building will be constructed of precast concrete as well.
Finished floor elevation	Finished floor elevation for the building is anticipated to be at or near existing grade.

Item	Description
Maximum loads	Anticipated structural loads were provided by Excel Engineering. Additions to the north end and wastewater addition to southeast ▪ Interior Columns: 300 kips ▪ Perimeter Columns: 200 kips ▪ Walls: 10 kips per linear foot (klf) ▪ Slabs: o Area load: 250 psf to 1000 psf o Forklift axle load: 15 kips o AASHTON HS-20 & HS-25 load: 40 kip/axle Rack Supported Storage Building (ASRS): ▪ Typical column load: 100 kips + 60k short term load ▪ Equivalent uniform pressure at ASRS building is ~4000 psf assuming (18 high, 2400# pallets) ▪ Settlement Criteria for ASRS will be limited to ¾ in. total and ½ in. over 50 ft differential Water storage silos 375,000 lbs total weight per silo (including weight of silo itself)
Grading/slopes	A site grading plan was not provided. We have considered no more than 2 feet of cut or fill will be required to develop final grades.
Below-grade structures	None
Free-standing retaining walls	None
Pavements	None
Building code	2021 IBC

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel information	The project is located at 570 North 500 West in Hyrum, Utah. The project property is a multi-parcel property totaling approximately 24 acres. Latitude/Longitude (approximate): 41° 38′ 48.87″ N, 111° 52′ 07.34″ W See **Site Location**
Existing improvements	The site is currently developed as a large food grade dairy facility. This consists of one central building as well as smaller support buildings around it. Paved and unpaved access ways and parking areas surround the structures and cover the areas where the proposed expansions are.
Existing topography	Regionally, the site is gently sloping with a slope of approximately 3% and drains to the northeast.
Liquefaction potential[1]	Moderate probability based on available published liquefaction maps.

1. Christenson, G.E., & Shaw, L.M. (2008). *Liquefaction special study areas, Wasatch Front and nearby areas, Utah*. Supplement Map to Utah Geological Survey Circular 106.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based on our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated in the individual logs. The individual logs can be found in the **Exploration and Laboratory Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model layer	Layer name	General description
1	**Asphalt and base**	Varying thicknesses of asphalt over aggregate base course
2	**Fill**	Clayey gravel and lean clay/silt with varying amounts of sands and gravels

Model layer	Layer name	General description
3	**Fine-grained soil**	Very soft to stiff lean clay and silt
4	**Sand and gravel**	Medium dense to very dense sand and gravel

Groundwater

The borings were advanced in the dry using a drilling technique that allows short-term groundwater observations to be made while drilling. Groundwater seepage was encountered in all explorations except for one of the borings at depths ranging from approximately 5 to 15 feet below ground surface. A dissipation test was run in CPT-B29 and groundwater was measured at 4.8 feet below ground surface. Groundwater conditions may change because of seasonal variations in rainfall, runoff, and other conditions not apparent at the time of drilling. Long-term groundwater monitoring was outside the scope of services for this project.

Dewatering

Based on the observed water table, dewatering may be required at this site during construction. Dewatering efforts will include pumping groundwater from the proposed excavation area to draw down the water table level temporarily during construction to provide an accessible subgrade. Design of a dewatering plan is not included in the scope of this project and is the responsibility of the earthwork contractor.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

We performed one geophysical survey within the area of the proposed project that measured shear wave velocities to a depth of 100 feet. The survey results are presented in the **Exploration and Laboratory Results** section of this report, and the approximate survey locations are shown in the **Exploration Plan**.

Based on the shear wave velocity testing we completed at this site, the average shear wave velocity within the upper 100-foot soil profile was determined to be 670 ft/s, which would correspond to a Seismic Site Classification of D. However, because this site has the potential to liquefy during a seismic event, it is our professional opinion that a **Seismic Site Classification of F** be considered for the project.

Liquefaction

The site is located in an area designated on published liquefaction maps with a moderate potential for liquefaction. CPT-B29 was pushed within the ASRS building footprint and extended to a maximum depth of 76.3 feet to evaluate the liquefaction potential of the site. To assess the liquefaction potential, CPT data was evaluated using the computer program CLiq v.1.2.0.30 (CPT liquefaction assessment software). The CLiq software program calculates soil resistance against liquefaction in general accordance with Robertson and Wride (1998) and procedures outlined in NCEER-97-0022. Liquefaction analysis results and output are presented in the **Supporting Information** section.

A design event with 2% probability of exceedance in 50 years (PGA = 0.46) and earthquake magnitude of 6.64 was used to determine an estimate of settlement across the soil profile. These parameters correspond to the automatically selected B/C Site Class boundary.

This site is mapped in the Provo Formation, *Qp*. These Lake Bonneville lacustrine deposits are typically clayey silts to silty clays with thinly bedded sand layers of lacustrine and alluvial sands and are 18,000 to 14,500 years before present. These sand layers have a low liquefaction susceptibility (i.e., higher factor of safety against triggering) due to their age (Pleistocene) which is not reflected in the SPT and CPT penetration data (Kramer and Stewart, 2025, p. 691-693). Liquefaction has been observed to occur in younger soil deposits (i.e. Holocene deposits) and is generally absent in older deposits. Mechanisms such as cementation (chemical precipitation), particle reorientation under weak shaking in small earthquakes or other vibrations and increased lateral stresses may play a role (Kramer and Stewart, 2025)[1].

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[1] Kramer, S. L. and Stewart, J. P. (2025) Geotechnical Earthquake Engineering, CRC Press 2025, Age Adjustment, pp. 691 – 693.

Given these conditions, an aging factor correction was applied to the liquefaction-induced settlement analysis in CLiq. The liquefaction settlement potential was calculated to be 2.4 inches. We anticipate the liquefaction settlement potential during a seismic event from approximately 2 to 4 inches.

It is our understanding that soil mixing will likely be used to support the foundations of the proposed construction. This ground improvement will mitigate liquefaction potential and reduce post-earthquake settlement. Mitigation will depend on the method determined and the analysis performed by the specialty contractor.

Corrosivity

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials that will be used for project construction.

Corrosivity Test Results Summary

Boring	Sample depth (feet)	Soil description	Soluble sulfate (mg/kg)	Soluble chloride (mg/kg)	Electrical resistivity (Ω-cm)	pH
B-27	0–5	Fill — Sandy lean clay with gravel	45	375	1,500	9.3
B-30	1–5	Lean clay with sand	82	375	740	8.6

Results of soluble sulfate testing can be classified in accordance with ACI 318 — Building Code Requirements for Structural Concrete. Numerous sources are available to characterize the corrosion potential to buried metals using the parameters above. ANSI/AWWA is commonly used for ductile iron, while threshold values for evaluating the effect on steel can be specific to the buried feature (e.g., piling, culverts, or welded wire reinforcement) or agency for which the work is performed. Imported fill materials may have significantly different properties than the site materials noted above and should be evaluated if expected to be in contact with metals used for construction. Consultation with a NACE-certified corrosion professional is recommended for buried metals on the site.

Mapping by the NRCS includes qualitative severity of corrosion to concrete and steel. Based on this source, the near-surface materials are rated "Moderate" for corrosion to concrete and "High" for corrosion of steel.

Geotechnical Overview

The site appears suitable for the proposed construction based on the geotechnical conditions encountered in the test borings, provided that the recommendations provided in this report are implemented in the design and construction phases of this project.

The subsurface materials generally consisted of fine-grained material throughout the soil column with variable amounts of sand generally varying in consistency from very soft to stiff. Medium dense to very dense sands and gravels were encountered at depth in some of the borings. Groundwater was encountered approximately between 5 and 15 feet below ground surface during exploration.

Foundation and Floor Slab Support

Because the depth of the very soft to soft clays extends so far below the ground surface, we recommend a specialty contractor to design a ground improvement plan for this site. Deep foundations are not recommended for this site due to the low strength clays extending far beneath the surface. Many deep foundation systems that would be considered cost-effective for this project are at risk of buckling or cracking in very soft fine-grained soils, especially during a seismic event. Based on information provided by Keller, who was consulted during the project, one possible method of ground improvement that may be suitable for this site is a type of soil mixing. This would allow the foundation system to “float” over the soft clays on a densified crust constructed by soil mixing. In addition some soil mixed columns would be extended to the competent coarse-grained layer below to provide additional bearing support.

Unstable Soils

Effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

Undocumented Fill

Undocumented fill will be soil mixed by a specialty contractor for foundation and floor slab support. The thickest layers of fill encountered during our subsurface exploration were nearest the existing plant; in the area of the building addition to the north and the silos to be added to the south. Due to the proximity of these additions to the existing structures, we recommend that the in-situ fill be left in place to reduce the effects of its removal to the adjacent structures. Removal of fill soils to the depth that it was encountered could cause foundation support issues beneath the existing structures.

Because we recommend existing undocumented fill be left in place to reduce the effects on adjacent structures, this fill should be treated with soil mixing procedures to increase its suitability for foundation and floor slab support.

The recommendations contained in this report are based on the results of field and laboratory testing (presented in the **Exploration and Laboratory Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report's limitations.

Earthwork

Earthwork is anticipated to include demolition, clearing and grubbing, excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations and floor slabs.

Demolition

The proposed ASRS building will be constructed within the footprint of an existing building, which will need to be demolished, as well as exterior sidewalks, pavements, and utilities. We recommend existing foundations, slabs, and utilities be removed from within the proposed building footprint and at least 5 feet beyond the outer edge of foundations.

For areas outside the proposed building footprints and foundation bearing zones, existing foundations, floor slabs, and utilities should be removed where they conflict with proposed utilities, retaining walls, and pavements. In such cases, existing foundations, floor slabs, and utilities should be removed to a depth of at least 2 feet below the affected utility or design pavement subgrade elevation.

Site Preparation

Prior to placing fill, any existing pavements, vegetation, topsoil, and root mats should be removed. Complete stripping of the topsoil should be performed in the proposed building areas.

Subgrade Preparation

The subgrade should be proofrolled with an adequately loaded vehicle such as a fully loaded tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or their representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Excessively wet or dry material should either be removed or moisture conditioned and recompacted.

All exposed areas that will receive fill, once properly cleared and benched where necessary, should be scarified to a minimum depth of 10 inches, moisture conditioned as necessary, and compacted per the compaction requirements in this report. Compacted Structural Fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation or pavement construction.

Based on the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic, or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Existing Fill

As noted in **Geotechnical Characterization**, all borings drilled for this project encountered previously placed fill to depths ranging from about 1 to 10 feet below ground surface. We have no records to indicate the degree of control, and consequently, the fill is considered unreliable for support of foundation loads as-is.

In the areas of the building additions to the north of the plant and the areas of the water storage silos, existing fill should remain in place to mitigate the effects that fill removal to those depths would have on adjacent structures. This existing undocumented fill should remain in place but will need to be considered and mixed per the specialty contractor specifications to be approved for foundation or floor slab support.

Existing undocumented fill may remain in place beneath the ASRS building and wastewater treatment building to the southeast as well, provided it is properly mass mixed per specialty contractor specifications.

Excavation

We anticipate that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Soil Stabilization

If the exposed subgrade is unstable during proofrolling operations, it could be stabilized using one of the methods outlined below. The appropriate method of improvement, if required, would depend on factors such as schedule, weather, the size of the area to be stabilized, and the nature of the instability. More detailed recommendations can be provided during construction as the need for subgrade stabilization occurs. Performing site grading operations during warm seasons and dry periods would help reduce the amount of subgrade stabilization required.

- **Scarification and Recompaction** — It may be feasible to scarify, dry, and recompact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot, if the unstable soil is at or near groundwater levels, or if construction is performed during a period of wet or cool weather when drying is difficult.
- **Crushed Stone** — The use of crushed stone or crushed gravel is a common procedure to improve subgrade stability. Typical undercut depths would be expected to range from about 6 to 24 inches below finished subgrade elevation. The use of high modulus geotextiles (i.e., engineering fabric or geogrid) could also be considered after underground work, such as utility construction, is completed. Prior to placing the fabric or geogrid, we recommend that all below-grade construction, such as utility line installation, be completed to avoid damaging the fabric or geogrid. Equipment should not be operated above the fabric or geogrid until one full lift of crushed stone fill is placed above it. The maximum particle size of granular material placed over geotextile fabric or geogrid should not exceed 1½ inches.

Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types

Fill required to achieve design grade should be classified as Structural Fill and General Fill. Structural Fill is material used below or within 10 feet of structures or constructed slopes. General Fill is material used to achieve grade outside of these areas or beneath pavements.

Reuse of On-Site Soil: Based on the fine-grained nature of native soils, reuse as Structural Fill is not allowed. Native soils may be utilized as General Fill provided it meets the requirements listed in the Imported Fill Materials section but are not anticipated to be suitable for this use given their fine-grained nature.

Imported Fill Materials: Imported fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 4 inches in size. Pea gravel or other similar noncementitious, uniformly graded materials should not be used as fill or backfill without the prior approval of the geotechnical engineer. Both on-site and imported fill material should meet the following requirements:

Fill type[1]	Application	Requirements		
		Gradation		Plasticity
		Size	Percent fines by weight	
Structural Fill	Below foundations, concrete slabs, or other structural areas	4 inch No. 4 Sieve No. 200 Sieve	100 30–80 < 30	Liquid Limit 20 max Plasticity Index 5 max
General Fill	Fill in nonstructural areas and below pavements	4 inch No. 200 Sieve	100 < 50	Liquid Limit 35 max Plasticity Index 15 max
Stabilization Fill[2]	Fill used to stabilize yielding, potentially pumping subgrade	6 inch No. 200 Sieve	100 5 max	--
Floor Slab Base Course	Immediately below floor slabs	In accordance with American Concrete Institute (ACI) 302.1R-15 and 360R-10		
Aggregate Base Course	Under pavement	Meet UDOT Section 02721[3] Untreated Base Course (UTBC) or APWA Specifications		

1. All fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.
2. Stabilization Fill should consist of crushed angular rock.
3. 2017 Standard Specifications for Road and Bridge Construction.

Fill Placement and Compaction Requirements

Structural and General Fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
Maximum lift thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (e.g., jumping jack or plate compactor) is used	Same as Structural Fill
Minimum compaction requirements[1,2]	98% of max below foundations 95% of max above foundations, below floor slabs	92% of max
Water content range[1]	Within 2% of optimum moisture content as determined by the modified Proctor test at the time of placement and compaction	As required to achieve minimum compaction requirements

1. Maximum density and optimum water content as determined by the modified Proctor test (ASTM D 1557).
2. If the granular material is a coarse sand or gravel, of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254). Materials not amenable to density testing should be placed and compacted to a stable condition observed by the Geotechnical Engineer or representative.

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with Structural Fill or bedding material in accordance with public works specifications for the utility to be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from existing foundations without an engineering review of shoring requirements and geotechnical observation during construction.

On-site materials are considered suitable for backfill of utility and pipe trenches from 1 foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

For low-permeability subgrades, utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath the building should be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. The trench should provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to comply with the water content and compaction recommendations for Structural Fill stated previously in this report.

Grading and Drainage

All grades must provide effective drainage away from the building during and after construction and should be maintained throughout the life of the structure. Water retained next to the building can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential floor slab and/or foundation movements, cracked slabs and walls, and roof leaks. The roof should have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building.

Exposed ground should be sloped and maintained at a minimum of 5% away from the building for at least 10 feet beyond the perimeter of the building. Locally, flatter grades may be necessary to transition ADA access requirements for flatwork. After building construction and landscaping have been completed, final grades should be verified to document that effective drainage has been achieved. Grades around the structure should also be periodically inspected and adjusted, as necessary, as part of the structure’s maintenance program. Where paving or flatwork abuts the structure, a maintenance program should be established to effectively seal and maintain joints and prevent surface water infiltration.

Earthwork Construction Considerations

Shallow excavations for the proposed structure are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to the construction of grade-supported improvements such as floor slabs. Construction traffic over the completed subgrades should be kept to a minimum. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed or scarified, moisture conditioned, and recompacted prior to floor slab construction.

The groundwater table could affect ground improvement efforts. A temporary dewatering system consisting of sumps with pumps may be necessary to perform the selected ground improvement method.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent to or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, and proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to the placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas. Where not specified by local ordinance, one density and water content test should be performed for every 100 linear feet of compacted utility trench backfill, and a minimum of one test should be performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer's presence into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

Based on proposed construction and existing foundation types, shallow foundations are not recommended to be placed on native ground. Shallow foundations should be supported on an approved ground improvement system.

Deep Foundations

Due to the very soft, low strength soils encountered to significant depths at this site, many deep foundation systems are not suitable for the proposed construction, such as concrete rigid inclusions or micropiles. These systems may face buckling or cracking concerns in this soft soil layer, especially during a seismic event. There are some deep foundation methods that would be suitable for this site, such as driven pipe piles, but are considered to be less cost-effective than ground improvement. If deep foundation recommendations are desired, please contact our office.

Ground Improvement

As an alternative to supporting the structure on deep foundations, the structure, and potentially floor slabs, could be supported on lower strength/lower density native soils if ground improvement methods are utilized. Ground improvement methods are proprietary systems designed by licensed contractors who could provide further information regarding support options. **We recommend special attention be paid to the existing undocumented fill in the areas of the building addition to the north and the water storage silos, which should not be removed but should be considered during design.**

After consulting with Keller, a specialty contractor who performs work in the area, the recommended ground improvement method is a soil mixing procedure. This would include mixing the in-situ soil, potentially with grout, to create a densified version of the soil conditions to assist in footing support. This densified crust would create a uniform layer across the building footprint to reduce differential settlement. In addition, some of the soil mixing columns should be extended to the depth of the competent sand and gravel layer beneath (approximately 70 feet below ground surface) to provide additional bearing capacity for the foundation system.

Please coordinate with the ground modification contractor to provide bearing capacity and estimated settlement values.

Additionally, wick drains and surcharging in the building footprints should be considered at this site to accelerate consolidation and reduce settlement potential during/after construction. **Careful consideration should be given to the effect of this procedure on adjacent buildings if this is implemented in the building in addition to the north of the existing plant.**

Floor Slabs

Design parameters for floor slabs assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Existing fill materials and materials described as possible fill were observed at the site to depths of 1 to 10 feet below existing grade. As previously described, any existing fill present beneath floor slabs in the addition to the north should remain in place due to loading from adjacent structures but will need to be soil mixed per specialty contractor specifications.

Floor Slab Design Parameters

Item	Description
Floor slab support[1,2]	Use 4 inches base course meeting material specifications of ACI 302 overlying 12 inches of properly placed and compacted Structural Fill. Subgrade compacted to recommendations in **Earthwork**.
Estimated modulus of subgrade reaction[3]	200 pounds per square inch per inch (psi/in.) for point loads

1. Floor slabs should be structurally independent of building footings or walls to reduce the possibility of floor slab cracking caused by differential movements between the slab and foundation.

Item	Description

2. Heavily loaded floor slabs will require ground improvement.
3. Modulus of subgrade reaction is an estimated value based on our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads, the modulus of subgrade reaction would be lower.

The use of a vapor retarder should be considered beneath concrete slabs-on-grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings; when the project includes humidity-controlled areas; or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut contraction joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations, refer to the ACI Design Manual. Joints or cracks should be sealed with a waterproof, nonextruding compressible compound specifically recommended for heavy-duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through the use of sufficient control joints, appropriate reinforcing, or other means.

Settlement of floor slabs supported on existing fill materials cannot be accurately predicted but could be larger than normal and result in some cracking. Mitigation measures, as noted in **Existing Fill** within **Earthwork**, are critical to the performance of floor slabs. In addition to the mitigation measures, the floor slab can be stiffened by adding steel reinforcement, grade beams, and/or post-tensioned elements.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to the construction of floor slabs, the affected material should be removed, and Structural Fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should observe the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high-traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located.

General Comments

Our analysis and opinions are based on our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, or bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials, or hazardous conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

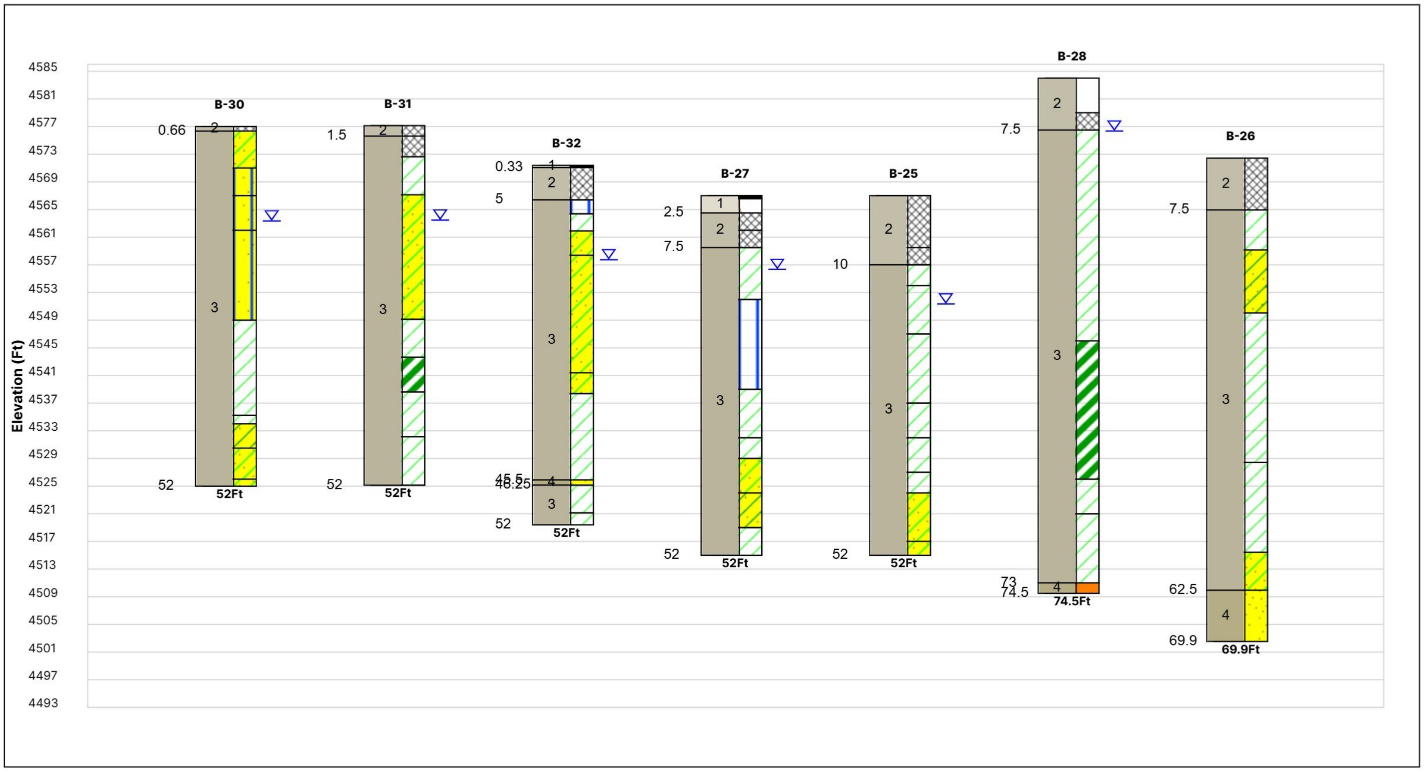
Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others.

Construction and site development have the potential to affect adjacent properties. Such impacts can include damage due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, and noise or air quality concerns. Evaluation of these items on nearby properties is commonly associated with contractor means and methods and is not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of the surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

Contents:

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions

#	Layer Name	General Description
1	**Asphalt and base**	Varying thicknesses of asphalt over aggregate base course
2	**Fill**	Clayey gravel and lean clay/silty with varying amounts of sands and gravels
3	**Fine-grained soil**	Very soft to stiff lean clay and silt
4	**Sand and gravel**	Medium dense to very dense sand and gravel

Attachments

Exploration and Testing Procedures

Field Exploration

Exploration type	Number of explorations	Approximate boring depth (feet)	Location
Soil boring	2	52	Facility additions to the north
Soil boring	1	70[1]	
Soil boring	1	52	Water silos
Soil boring	2	52	Wastewater addition
Soil boring	1	75[1]	ASRS Facility
CPT	1	76.3[1]	

1. Exploration terminated due to equipment refusal.

Exploration Layout and Elevations: Terracon personnel provided the exploration layout using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. Approximate ground surface elevations were estimated using Google Earth. If elevations and a more precise explorations layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a truck- and track-mounted drill rig using both continuous flight, hollow-stem auger and mud rotary drilling techniques, as noted on the logs. Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as *N*-values, are indicated in the boring logs at the test depths. Ring-lined, split-barrel sampling procedures are similar to standard split-spoon sampling procedures; however, blow counts are typically recorded at 6-inch intervals for a total of 24 inches of penetration. Ring-lined, split barrel sampler blow counts are not considered N-values. We observed and recorded groundwater levels during drilling and sampling. For safety purposes, all borings were backfilled with auger cuttings after their completion. Pavements were patched with cold-mix asphalt.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. Groundwater was encountered at depths ranging from approximately 5 to 15 feet below the ground surface. A dissipation test was run in CPT-B29 and groundwater was measured at 4.8 feet below ground surface.

The sampling depths, penetration distances, and other sampling information were recorded in the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

CPT Subsurface Exploration Procedures: The CPT was performed using a truck-mounted rig to hydraulically push an instrumented cone through the soil while nearly continuous readings of soil strength and pore pressure were recorded to a portable computer. No soil samples were gathered through this exploration technique. One pore pressure dissipation was completed in a granular layer below the water table.

Geophysical Testing: Multi-channel Analysis of Surface Waves (MASW) was conducted to evaluate subsurface shear wave velocities to a depth of approximately 100 feet. It involves generating and recording Rayleigh waves using an array of geophones and a seismic source (typically a sledgehammer). The recorded data were analyzed in a dispersion analysis. The resulting dispersion curve was inverted to produce a 1-D shear wave velocity profile, providing insights into material stiffness and stratigraphy. Higher shear wave velocities (V_s) generally correspond to denser or more competent materials. No direct soil samples were obtained during this survey.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests, in general accordance with referenced standards:

- Moisture Content — ASTM D2216: Laboratory Determination of Water (Moisture) Content of Soil by Mass
- Corrosivity Suite — ASTM C1580-20: Standard Test Method for Water-Soluble Sulfate in Soil, AASHTO T289: Standard Test Method for Measuring pH of Soil for Use in Corrosion Evaluations, ASTM D512-23: Standard Test Methods for Chloride Ion in Water, ASTM G57-20: Standard Test Method for Measurement of Soil Resistivity Using the Wenner Four-Electrode Method
- One-Dimensional Consolidation — ASTM D2435-04: One-Dimensional Consolidation

- Atterberg Limits — ASTM D4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- Grain Size Analysis — ASTM D422: Standard Test Method for Particle-Size Analysis of Soils
- Triaxial UU Test — ASTM D2850: Standard Test Method for Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

The laboratory testing program included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Note: All attachments are one page unless noted above.

Site Location

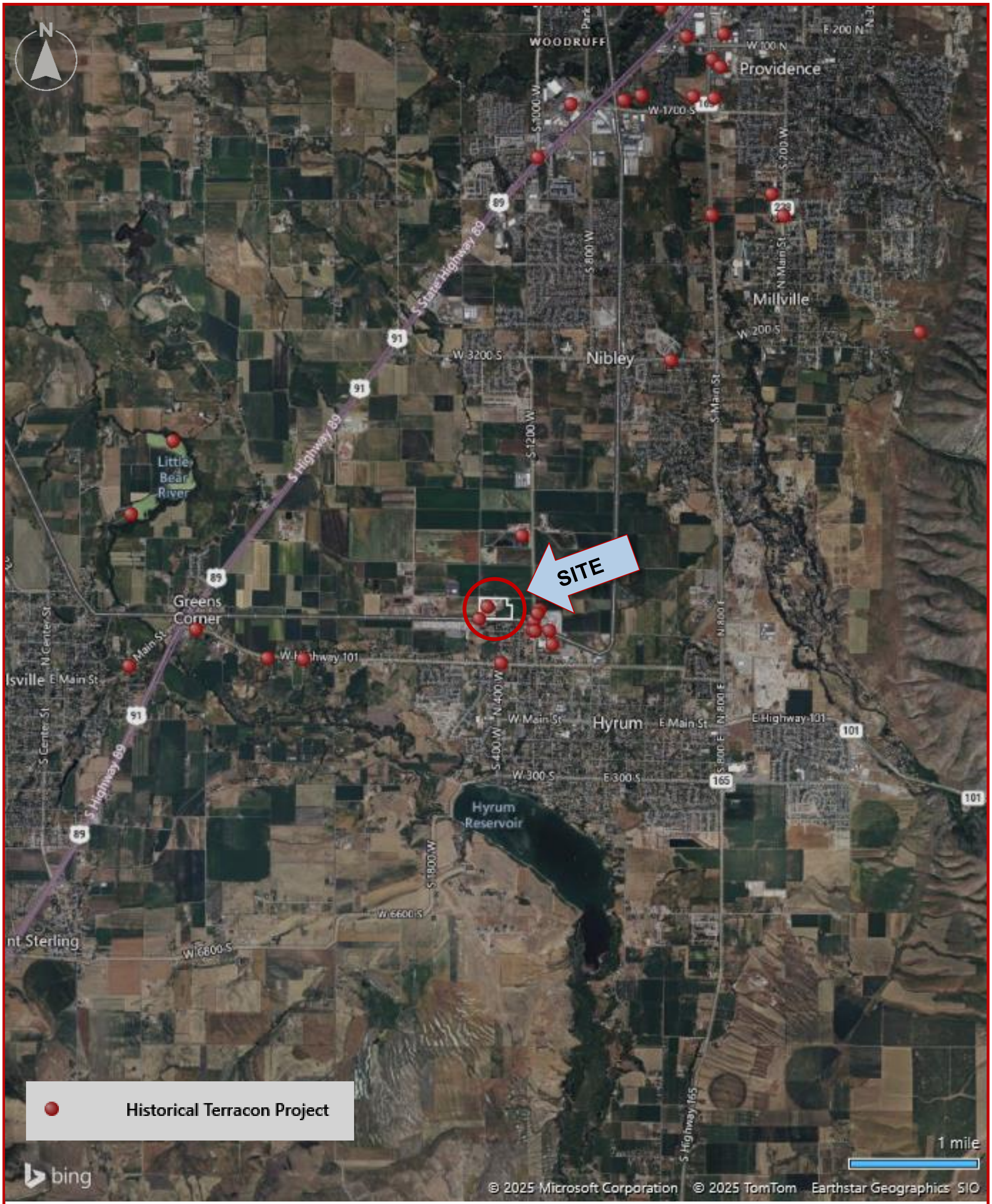


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan

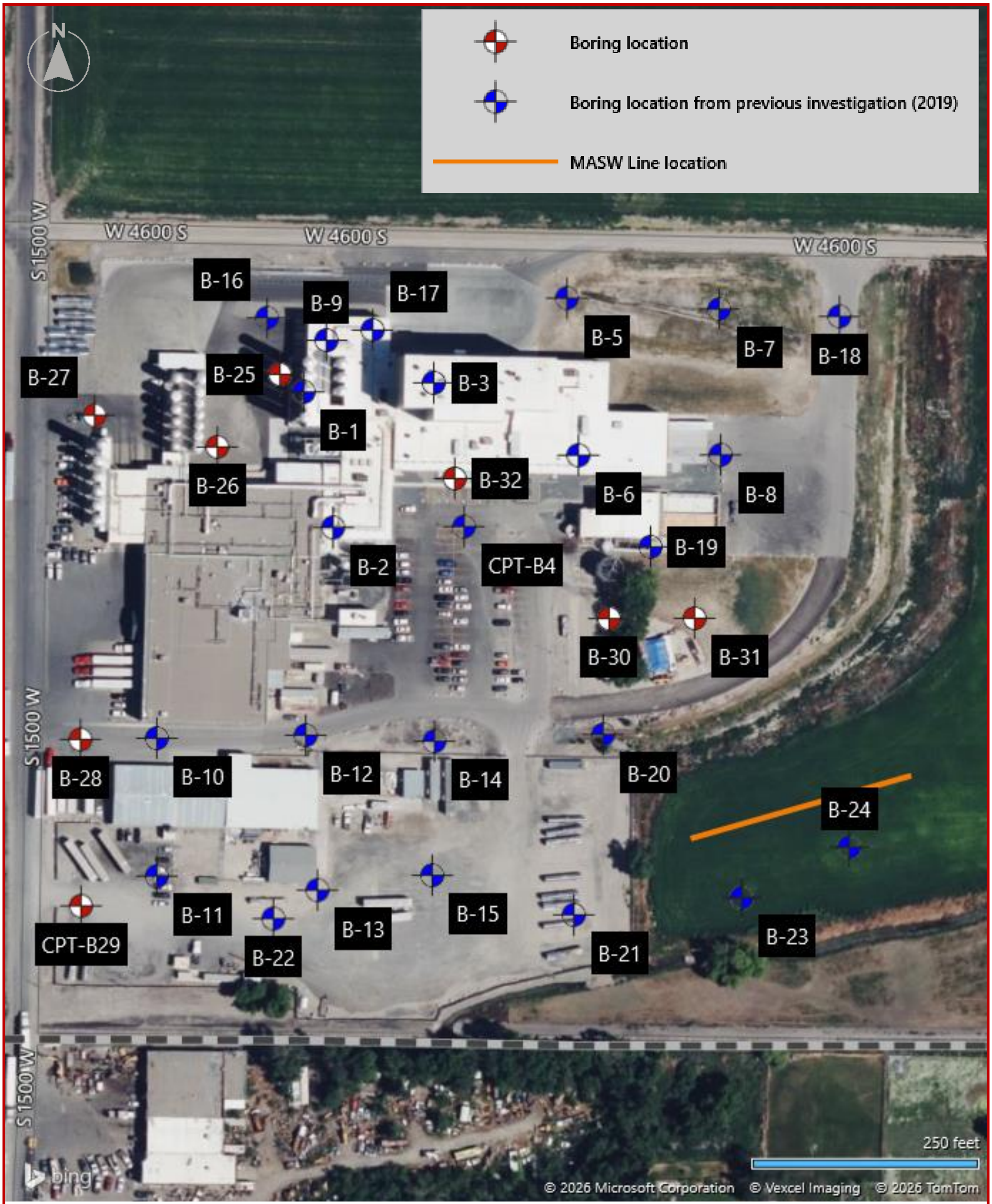


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Note: All attachments are one page unless noted above.

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6476° Longitude: -111.8682°

BORING LOG NO. B-25

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4567(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits		
															LL	PL	PI
2	▨		**FILL- SILTY GRAVEL,** brown to gray, trace white mineralization		4567.0												
						☒	15		9-14-12-9 N = 26		6	49.9	28.5	21.6	NP	NP	NP
				5		☒	12		7-5-3-3 N = 8								
		7.5	**FILL- LEAN CLAY WITH GRAVEL,** dark to light brown		4559.5	☒	5		1-3-5-4 N = 8								
3	▧	10.0	**LEAN CLAY (CL),** dark gray, very soft to medium stiff	10	4557.0	⧗	19.9		4-6-8-12	3.25	33			99.1	35	25	10
		13.0	- light brown, with oxidation staining		4554.0			▽									
				15		☒	21		1-2-2-3 N = 4								
		20.0	- trace silt	20	4547.0	☒	24		1-3-2-4 N = 5		31						
				25		☒	24		WoH-WoH-WoH-WoH N = 0		34			88.0	34	24	10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 15 Ft. While drilling

Advancement Method
0-52 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with soil cuttings and bentonite chips, capped with cold patch asphalt concrete upon completion.

Drill Rig
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL/EL

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6476° Longitude: -111.8682°

BORING LOG NO. B-25

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4567(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
3	▨	30.0	- with black mottling		4537.0	⊠	24		WoH-1-3-2 N = 4								
	▨	35.0	- dark gray, trace black mottling, trace oxidation staining	35	4532.0	⧗	24		2-2-3-4	0.5	37			99.0	47	19	28
	▨	40.0	- trace fine sand	40	4527.0	⊠	24		WoH-WoH-WoH-2 N = 0								
	▨	43.0	**LEAN CLAY WITH SAND (CL),** fine to coarse grained sand, dark gray, very soft		4524.0												
	▨			45		⊠	24		WoH-WoH-WoH-3 N = 0								
	▨	50.0	- with black mottling	50	4517.0	⊠	24		WoH-WoH-WoH-3 N = 0								
			Boring Terminated at 52 Ft														

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 15 Ft. While drilling

Advancement Method
0-52 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with soil cuttings and bentonite chips, capped with cold patch asphalt concrete upon completion.

Drill Rig
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL/EL

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6473639° Longitude: -111.86843333333°

BORING LOG NO. B-26

Terracon
6952 S High Tech Dr.,
Ste B Midvale, UT 84047-3772

Surface Elevation:
4572.44(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Fines	Percent Sand	Percent Gravel	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
2	▨		**FILL- GRAVELLY SILT,** dark brown		4572.4											
						☒	7	4-7-9-12 N = 16								
				5		☒	20	WoH-2-3-6 N = 5								
3	▨	7.5	**LEAN CLAY (CL),** tan, medium stiff to stiff		4564.9											
						☒	24	3-6-6-7 N = 12		29	93.4	4.1	2.5	36	23	13
				10		☒		1-3-5-7 N = 8								
				15		☒	24	4-6-6-6 N = 12			88.1	11.9	0	35	18	17
	▨	17.0	**SANDY LEAN CLAY (CL),** fine grained sand, oxidation staining, with 4 inch sand lenses, medium stiff to stiff		4555.4											
				20		■	12		0.75	30	64.0			31	25	6
	▨	22.4	**LEAN CLAY (CL),** blueish gray, very soft to medium stiff		4550.0											
				25		☒	24	1-2-3-4 N = 5		34	89.2					
				30		☒	24	WoH-WoH-WoH-WoH N = 0								
				35		☒	24	WoH-WoH-WoH-WoH N = 0								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations

Groundwater not encountered while drilling due to drilling method

Advancement Method
0-12.5 Ft. 4.25" Hollow Stem Auger
12.5-70 Ft. Mud/Wash Rotary

Abandonment Method
Boring backfilled with soil cuttings and bentonite chips, capped with cold patch asphalt concrete upon completion.

Equipment
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL/EL

Start Date
01/29/2026

Completion Date
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6473639° Longitude: -111.86843333333°

BORING LOG NO. B-26

Terracon
6952 S High Tech Dr.,
Ste B Midvale, UT 84047-3772

Surface Elevation:
4572.44(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Fines	Percent Sand	Percent Gravel	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
3	▨		**LEAN CLAY (CL),** blueish gray, very soft to medium stiff (continued)		4535.4											
				40		■	24		1.25	37	98.7			46	19	27
	▨	44.0	- 4 inch thick sand lens	45	4528.4	☒	24	3-3-WoH-1 N = 3								
				50		☒	24	WoH-WoH-1-3 N = 1								
				55		☒	24	WoH-WoH-2-3 N = 2								
	▨	57.0	**LEAN CLAY WITH SAND (CL),** fine to coarse grained sand, dark gray, medium stiff	60	4515.4	☒	24	4-4-3-16 N = 7								
4	▨	62.5	**POORLY GRADED SAND (SP),** fine grained sand, medium dense to very dense	65	4509.9	☒	24	12-11-14-11 N = 25								
					4502.5	☒	9	2-8-50/5"								

Boring Refusal at 69.9 Ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations

Groundwater not encountered while drilling due to drilling method

Advancement Method
0-12.5 Ft. 4.25" Hollow Stem Auger
12.5-70 Ft. Mud/Wash Rotary

Abandonment Method
Boring backfilled with soil cuttings and bentonite chips, capped with cold patch asphalt concrete upon completion.

Equipment
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL/EL

Start Date
01/29/2026

Completion Date
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6475° Longitude: -111.8689°

BORING LOG NO. B-27

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4567(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
					4567.0												
1		0.5	**ASPHALT,** approximately 5.5 inches thick		4566.6						3						
		2.5	**AGGREGATE BASE COURSE,** 24 inches thick		4564.5												
2		5.0	**FILL- SANDY LEAN CLAY WITH GRAVEL,** fine to coarse grained sand, dark gray to whitish gray, stiff, angular gravel, trace white mineralization		4562.0		11		5-5-4-6 N = 9								
		7.5	**FILL- SANDY LEAN CLAY,** fine to coarse grained sand, light greenish gray, very stiff, trace gravel, trace white mineralization, trace geotextile	5	4559.5		10		5-9-8-12 N = 17		28						
3			**LEAN CLAY (CL),** light gray, stiff to hard, trace fine grained sand, trace oxidation staining, trace gravel				21	▽	5-5-7-8 N = 12								
		15.0		10	4552.0		8		1-17-24-20								
			SILT (ML), light gray, soft to medium stiff, with oxidation staining	15			24		2-2-3-2 N = 5								
				20			17		3-4-4-5		36			91.5	NP	NP	NP
		28.0		25	4539.0		24		1-1-1-1 N = 2								
			LEAN CLAY (CL), dark gray with black mottling, very soft, trace oxidation staining, trace fine grained sand														

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 10 Ft. While drilling

Advancement Method
0-52 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings mixed with cement, capped with cold patch asphalt concrete upon completion.

Drill Rig
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6475° Longitude: -111.8689°

BORING LOG NO. B-27

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4567(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
3			**LEAN CLAY (CL),** dark gray with black mottling, very soft, trace oxidation staining, trace fine grained sand (continued)		4537.0		24		0/''-0/''-0/''-4	1.25							
		35.0	- with oxidation staining	35	4532.0		24		WoH-WoH-WoH-1 N = 0		38			98.6	49	20	29
		38.0	**LEAN CLAY WITH SAND (CL),** fine to coarse grained sand, dark gray, medium stiff		4529.0												
				40			22		1-1-4-3 N = 5								
		43.0	**SANDY LEAN CLAY (CL),** fine to coarse grained sand, dark gray with black mottling, soft, trace oxidation staining		4524.0												
				45			24		WoH-2-1-2 N = 3								
		48.0	**LEAN CLAY (CL),** dark gray, soft, trace fine grained sand, trace black mottling		4519.0												
				50			24		1-3-4-5	0.75							

Boring Terminated at 52 Ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 10 Ft. While drilling

Advancement Method
0-52 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings mixed with cement, capped with cold patch asphalt concrete upon completion.

Drill Rig
1503/Mobile B-57

Hammer Type
Automatic

Logged By
ACL

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6465° Longitude: -111.8690°

BORING LOG NO. B-28

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4584(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Fines	Percent Sand	Percent Gravel	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
2			**VOID,** hydro vacuumed to 5 feet		4584.0												
	▩	5.0	**FILL- POORLY GRADED GRAVEL,** dark brown	5	4579.0	☒	5	▽	WoH-WoH-4-4 N = 4		17						
3	▨	7.5	**LEAN CLAY (CL),** bluish gray, very soft to medium stiff, with oxidation staining, few sand lenses, trace gravel		4576.5	☒	24		1-2-2-4 N = 4								
				10		■	24			2.0	26	89	11	0	33	24	9
				15		☒	24		1-1-1-3 N = 2								
				20		☒	4		2-1-3-3 N = 4								
				25		☒	24		2-3-4-6 N = 7								
						☒	24		2-WoH-1-2 N = 1		33	94.4	5.6	0	35	22	13

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 7 Ft. While drilling

Advancement Method
10-74.75 Ft. 2" Mud/Wash Rotary
0-10 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with bentonite upon completion and surface was patched with cold asphalt

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
EB

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6465° Longitude: -111.8690°

BORING LOG NO. B-28

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4584(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Fines	Percent Sand	Percent Gravel	Atterberg Limits		
															LL	PL	PI
3			**LEAN CLAY (CL),** bluish gray, very soft to medium stiff, with oxidation staining, few sand lenses, trace gravel (continued)		4554.0	☒	24		2-WoH-1-2 N = 1		33	94.4	5.6	0	35	22	13
				35		⧗	10		1-2-1-3		36	99.4	0.6	0	38	19	19
		38.0	**FAT CLAY (CH),** light gray, very soft to soft, trace silt, trace sand		4546.0												
				40		☒	24		WoH-WoH-WoH-3 N = 0								
				45		☒	24		WoH-WoH-3-3 N = 3								
				50		☒	24		1-WoH-WoH-2 N = 0								
				55		■	24			1.5	43	99.7	0.3	0	61	23	38
		58.0	**LEAN CLAY (CL),** dark gray, soft, trace silt		4526.0	☒	24		WoH-WoH-3-4 N = 3								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 7 Ft. While drilling

Advancement Method
10-74.75 Ft. 2" Mud/Wash Rotary
0-10 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with bentonite upon completion and surface was patched with cold asphalt

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
EB

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6465° Longitude: -111.8690°

BORING LOG NO. B-28

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4584(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Fines	Percent Sand	Percent Gravel	Atterberg Limits		
															LL	PL	PI
3	▨		**LEAN CLAY (CL),** dark gray, soft, trace silt (continued)		4524.0	☒	24		WoH-WoH-3-4 N = 3								
	▨	63.0	- brownish gray, medium dense	65	4521.0	☒	20		7-9-12-17 N = 21		33	90	9.8	0.2	32	22	10
	▨			70		☒	20		5-7-7-8 N = 14								
4	▨	73.0	**POORLY GRADED GRAVEL WITH SAND (GP),** brownish gray, loose		4511.0	☒	4		10-50/6'' N = N > 50								

Boring Refusal at 74.5 Ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 7 Ft. While drilling

Advancement Method
10-74.75 Ft. 2" Mud/Wash Rotary
0-10 Ft. 4.25" Hollow Stem Auger

Abandonment Method
Boring backfilled with bentonite upon completion and surface was patched with cold asphalt

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
EB

Boring Started
01/29/2026

Boring Completed
01/29/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6469° Longitude: -111.8669°

BORING LOG NO. B-30

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4577(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
					4577.0												
2		0.7	**FILL- CLAYEY GRAVEL,** sub-angular gravel, dark brown with gray		4576.3												
3			**LEAN CLAY WITH SAND (CL),** fine grained sand, light tannish gray, medium stiff								23						
							2		4-4-3-6 N = 7								
		6.0		5	4571.0		24			0.25							
			SILT WITH SAND (ML), trace gravel, fine grained sand, tannish gray to gray, soft to medium stiff				18		1-2-3-4 N = 5								
		10.0	- occasional oxidation staining	10	4567.0		18		1-3-4-5 N = 7		24						
								▽									
		15.0	- increase in clay content	15	4562.0		18		WoH-2-3-4 N = 5		29	0.7	22.1	77.2	NP	NP	NP
				20			24		1-2-2-3 N = 4								
				25			8		2-6-6-9								
		28.0	**LEAN CLAY (CL),** dark gray, very soft to soft		4549.0												

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 13 Ft. While drilling

Advancement Method
0-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/23/2026

Boring Completed
01/23/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6469°
Longitude: -111.8669°

BORING LOG NO. B-30

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4577(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits		
															LL	PL	PI
					4547.0												
3	▨		**LEAN CLAY (CL),** dark gray, very soft to soft (continued)			☒	24		1-WoH-2-2 N = 2								
				35		■	24			0.25	33	0	0.7	99.3	46	19	27
				40		☒	24		WoH-WoH-2-3 N = 2								
		41.8	- trace sand seam at 41.75 feet		4535.3												
	▨	43.0	**SANDY LEAN CLAY (CL),** fine grained sand, dark gray, medium stiff		4534.0												
				45		☒	16		1-3-4-3 N = 7								
	▨	46.5	**LEAN CLAY WITH SAND (CL),** dark gray, very soft		4530.5												
				50		☒	24		1-1-WoH-2 N = 1								
		51.0	- 3 inch sand lens		4526.0												

Boring Terminated at 52 Ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 13 Ft. While drilling

Advancement Method
0-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/23/2026

Boring Completed
01/23/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6468° Longitude: -111.8666°

BORING LOG NO. B-31

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4577.13(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
					4577.1												
2	▨	1.5	**FILL- CLAYEY GRAVEL,** coarse grained gravel, dark brown with gray		4575.6												
3	▨	4.5	**FILL- GRAVELLY LEAN CLAY,** grayish brown		4572.6	☒	1		4-2-2-1 N = 4								
	▨	10.0	**LEAN CLAY (CL),** light gray to gray, very soft to medium stiff	5	4567.1	☒	14		1-WoH-1-2 N = 1								
						⧗	8		1-3-6-6		23						
	▨	28.0	**LEAN CLAY WITH SAND (CL),** light gray to gray, soft to stiff, occasional oxidation staining	10	4549.1	☒	16		3-4-4-5 N = 8								
								▽									
				15		■	24			1.75	26	0	18	82	28	21	7
				20		☒	24		1-1-2-3 N = 3								
				25		☒	24		1-5-5-5 N = 10								
	▨		**LEAN CLAY (CL),** gray, soft														

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 13 Ft. While drilling

Advancement Method
0-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/22/2026

Boring Completed
01/22/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6468° Longitude: -111.8666°

BORING LOG NO. B-31

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4577.13(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
3			**LEAN CLAY (CL),** gray, soft (continued)		4547.1		20		1-2-3-4								
		33.5	**FAT CLAY (CH),** gray, soft		4543.6												
				35			24		WoH-1-2-3 N = 3		36			99.1	50	21	29
		38.5	**LEAN CLAY (CL),** gray, very soft		4538.6												
				40			24		WoH-WoH-WoH-2 N = 0								
		45.0	- stiff, with occasional sand lenses	45	4532.1		24		2-7-15-15	1.5	39			92.5	46	21	25
				50			24		WoH-WoH-1-4 N = 1								
			Boring Terminated at 52 Ft														

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
∇ 13 Ft. While drilling

Advancement Method
0-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/22/2026

Boring Completed
01/22/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6472° Longitude: -111.8675°

BORING LOG NO. B-32

6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4571.39(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	PL	PI
					4571.4												
1		0.3	**ASPHALT,** approximately 4 inches thick		4571.1												
2		5.0	**FILL- SILTY GRAVEL WITH SAND,** coarse grained gravel, sub-rounded gravel, light gray with brown	5	4566.4												
3		7.0	**SILT (ML),** light tannish gray, soft		4564.4	⊠	18		2-2-2-3 N = 4								
		9.5	**LEAN CLAY (CL),** light gray, stiff		4561.9	⧗	10		4-5-6-7	2.25	33			93.8	44	24	20
			LEAN CLAY WITH SAND (CL), light grayish brown, soft to medium stiff	10		⊠	18		1-2-3-4 N = 5								
		13.0			4558.4			▽									
			- light grayish blue to dark gray, oxidation staining	15		⊠	24		1-2-3-4 N = 5								
				20		■	24			2	30	0.1	16.9	82.9	32	25	7
				25		⊠	24		1-2-3-5 N = 5								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 13 Ft. While drilling

Advancement Method
0-5 Ft. 8" Airvac
5-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings and bentonite, capped with asphalt upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/23/2026

Boring Completed
01/23/2026

West Point Dairy Expansion
570 N 500 W, Hyrum, UT,USA
Terracon Project No. 61255214

Latitude: 41.6472° Longitude: -111.8675°

BORING LOG NO. B-32

Terracon
6952 S High Tech Dr., Ste B
Midvale, UT 84047-3772

Surface Elevation:
4571.39(Ft) +/-

Model Layer	Graphic Log	Lithology Depth (Ft.)	Material Description	Depth (Ft.)	Elevation (Ft.)	Sample Type	Recovery (In.)	Water Level Observations	Field Test Results	Hand Penetrometer (tsf)	Water Content (%)	Percent Gravel	Percent Sand	Percent Fines	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
		30.0			4541.4												
3			- decrease in sand content				24		WoH-WoH-2-3 N = 2								
		33.0	**LEAN CLAY (CL),** trace sand, dark gray, soft, trace black specks		4538.4												
				35			24		0/''-2-2-5		29						
				40			24		WoH-WoH-2-3 N = 2								
4		45.5	**POORLY GRADED SAND (SP),** medium grained sand, dark gray, loose	45	4525.9												
3		46.3	**LEAN CLAY (CL),** trace sand, dark gray, wet, very soft to soft		4525.1		24		2-3-1-2 N = 4								
		50.3	trace sand seam at 50.25 feet	50	4521.1		24		1-WoH-1-2 N = 1								

Boring Terminated at 52 Ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes

Water Level Observations
▽ 13 Ft. While drilling

Advancement Method
0-5 Ft. 8" Airvac
5-52 Ft. 6.75" Hollow Stem Auger

Abandonment Method
Boring backfilled with auger cuttings and bentonite, capped with asphalt upon completion.

Drill Rig
478/Geoprobe 3100GT

Hammer Type
Automatic

Logged By
AL

Boring Started
01/23/2026

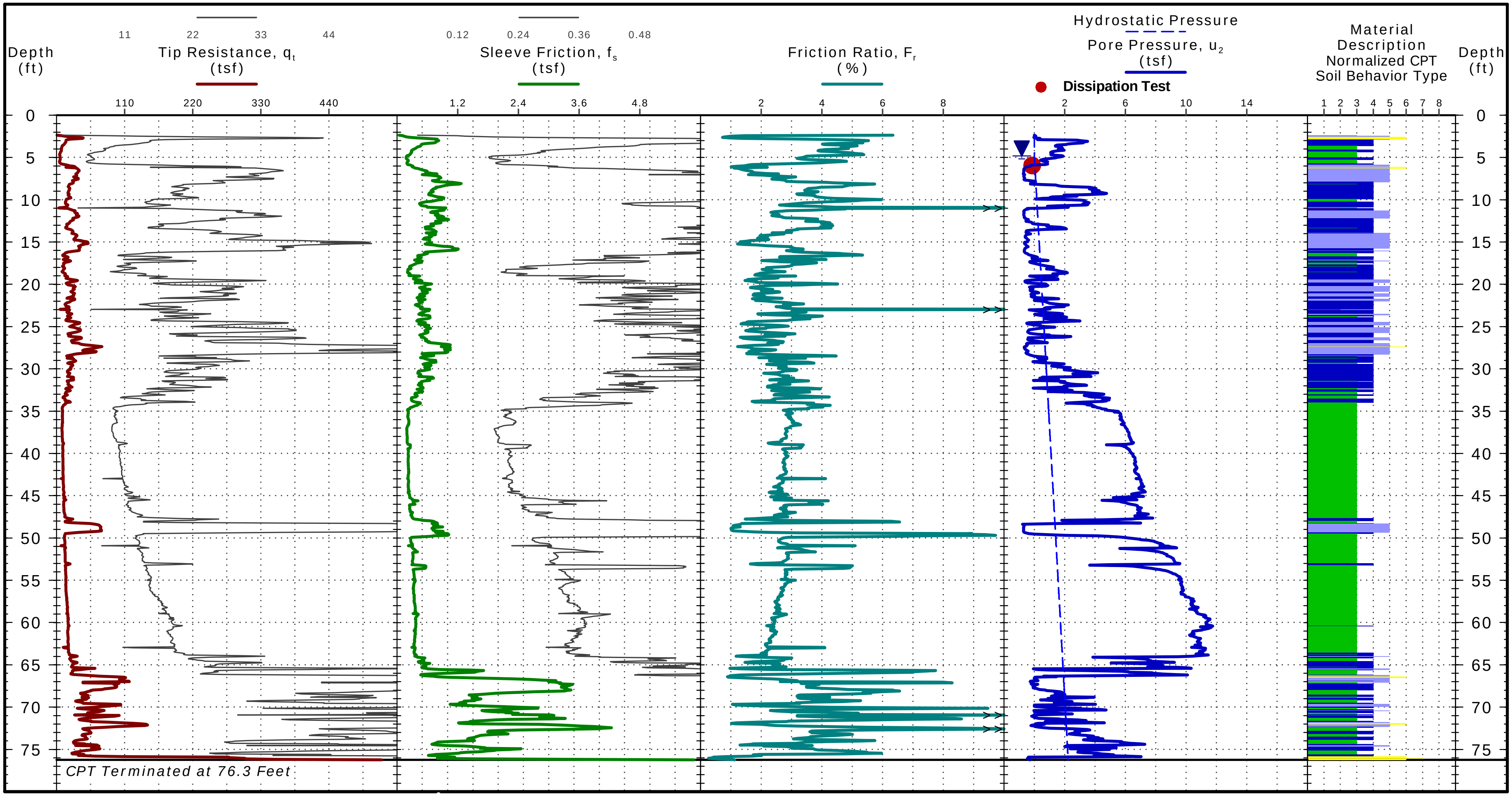
Boring Completed
01/23/2026

West Point Dairy Expansion
570 N 500 W | Hyrum, UT
Terracon Project No. 61255214

CPT Sounding ID CPT-B29

Terracon
6952 S High Tech Dr, Ste B
Midvale, UT

CPT Started: 1/29/2026
CPT Completed: 1/29/2026



See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data, if any.

See Supporting Information for explanation of symbols and abbreviations.

Notes

Test Location: See Exploration Plan

CPT Equipment

CPT Rig:

Operator: JC

CPT sensor calibration reports available upon request

Probe No. 5912

Water Level Observation

▼ 4.8 ft measured water depth

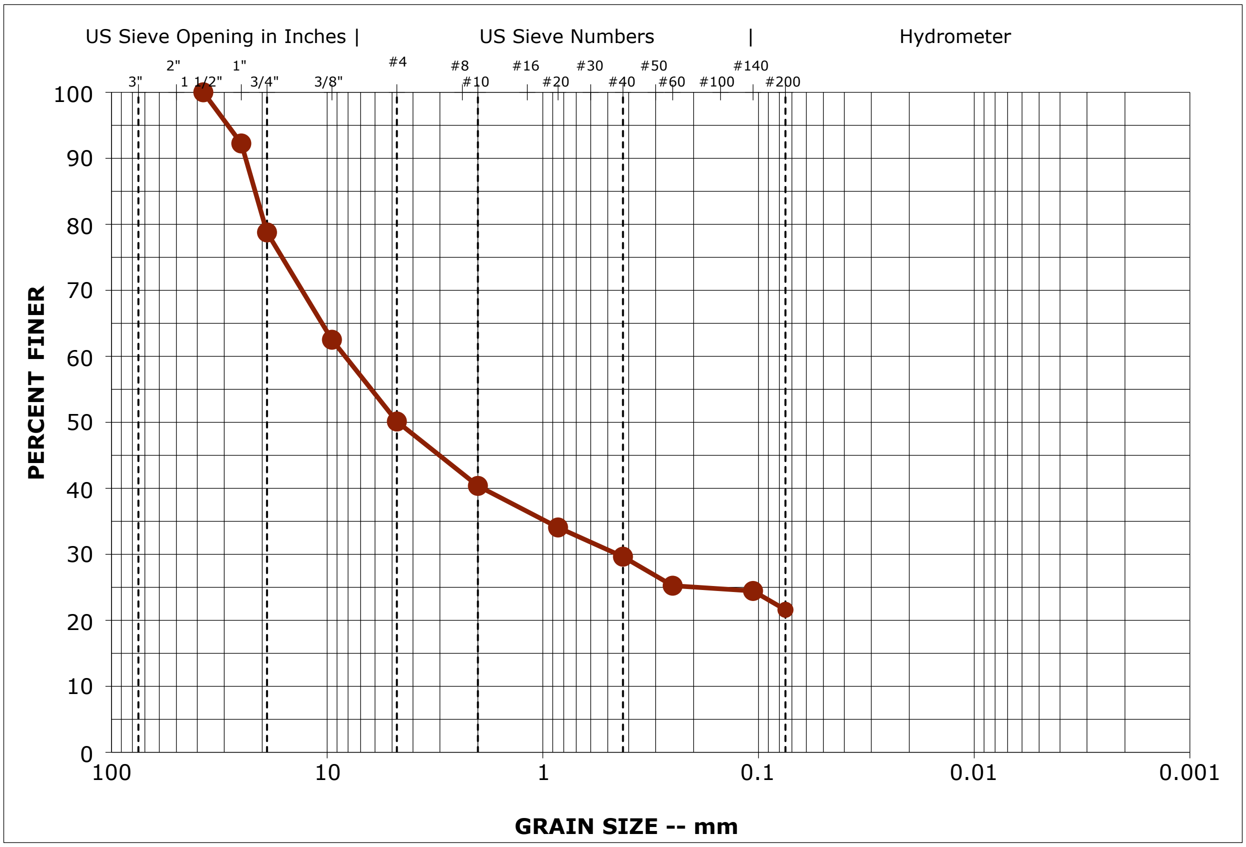
(used in normalizations and correlations)

Normalized Soil Behavior Type (Robertson 1990)

🟥 1 Sensitive, fine grained
🟧 2 Organic soils - clay
🟩 3 Clay - silty clay to clay
🟦 4 Silt mixtures - clayey silt to silty clay
🟪 5 Sand mixtures - silty sand to sandy silt
🟨 6 Sands - clean sand to silty sand
🟫 7 Gravelly sand to dense sand
🟫 8 Very stiff sand to clayey sand
⬛ 9 Very stiff fine grained

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



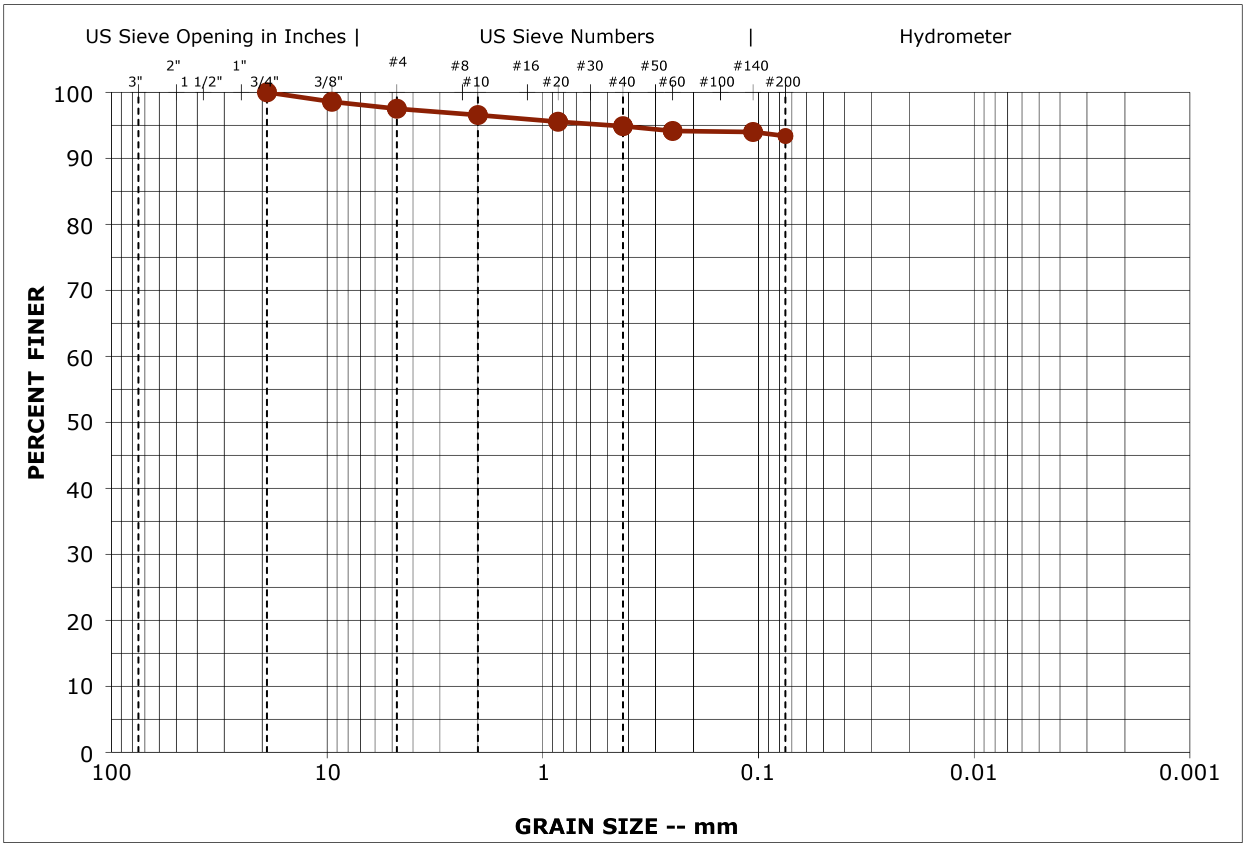
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-25	2.5 - 3.0	Silty Gravel With Sand	GM	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	49.9	28.5	21.6	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	29.6	D_{100}	37.500	C_C	1.33
2"	100.0	#60	25.2	D_{60}	8.256		
1 1/2"	100.0	#140	24.4	D_{30}	0.450	C_U	448.52
1"	92.2	#200	21.6	Estimated D_{10}	0.018		
3/4"	78.8	-	-	Remarks			
3/8"	62.5	-	-	N/A			
#4	50.1	-	-				
#10	40.4	-	-				
#20	34.1	-	-				

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



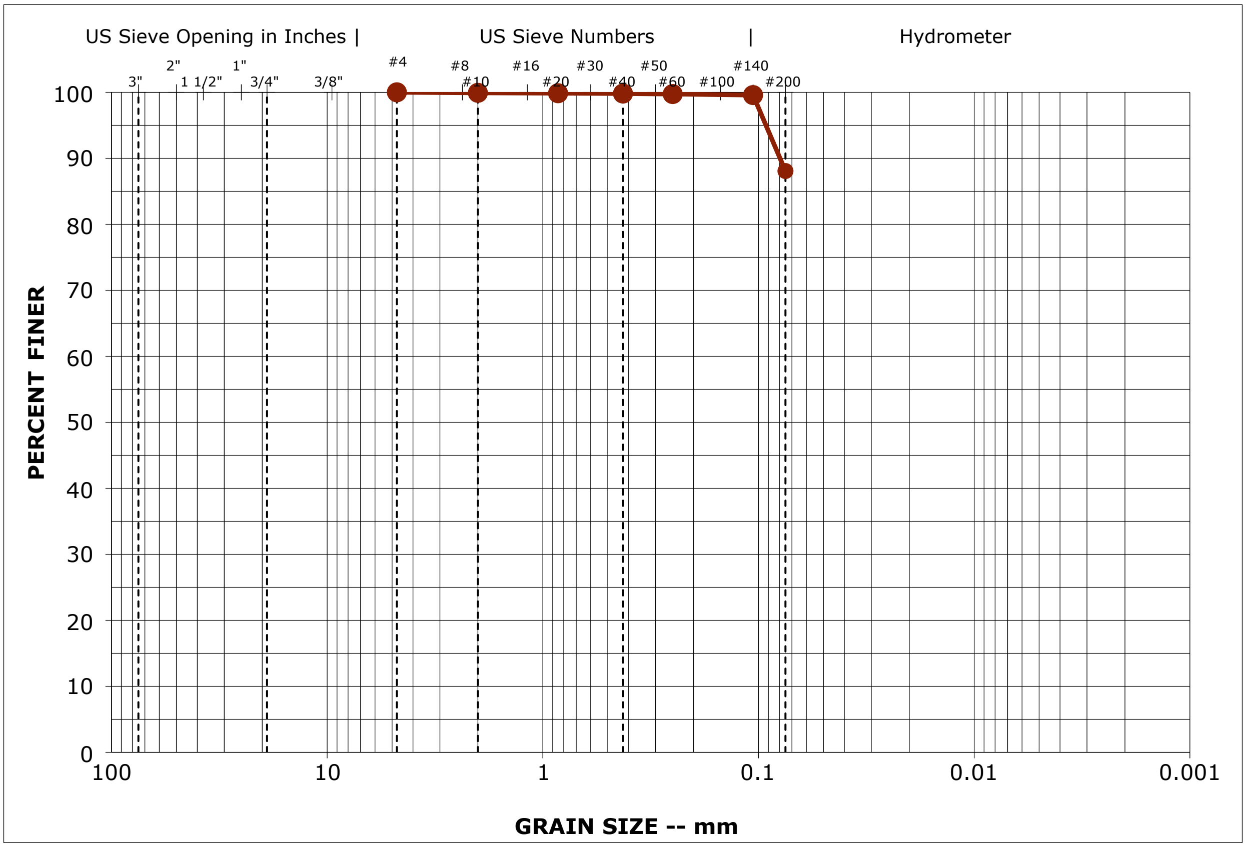
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-26	7.5 - 9.5	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	2.5	4.1	93.4	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	94.9	D_{100}	19.000	C_C	-
2"	100.0	#60	94.1	D_{60}	-		
1 1/2"	100.0	#140	94.0	D_{30}	-	C_U	-
1"	100.0	#200	93.4	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	98.6	-	-	N/A			
#4	97.5	-	-				
#10	96.6	-	-				
#20	95.5	-	-				

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



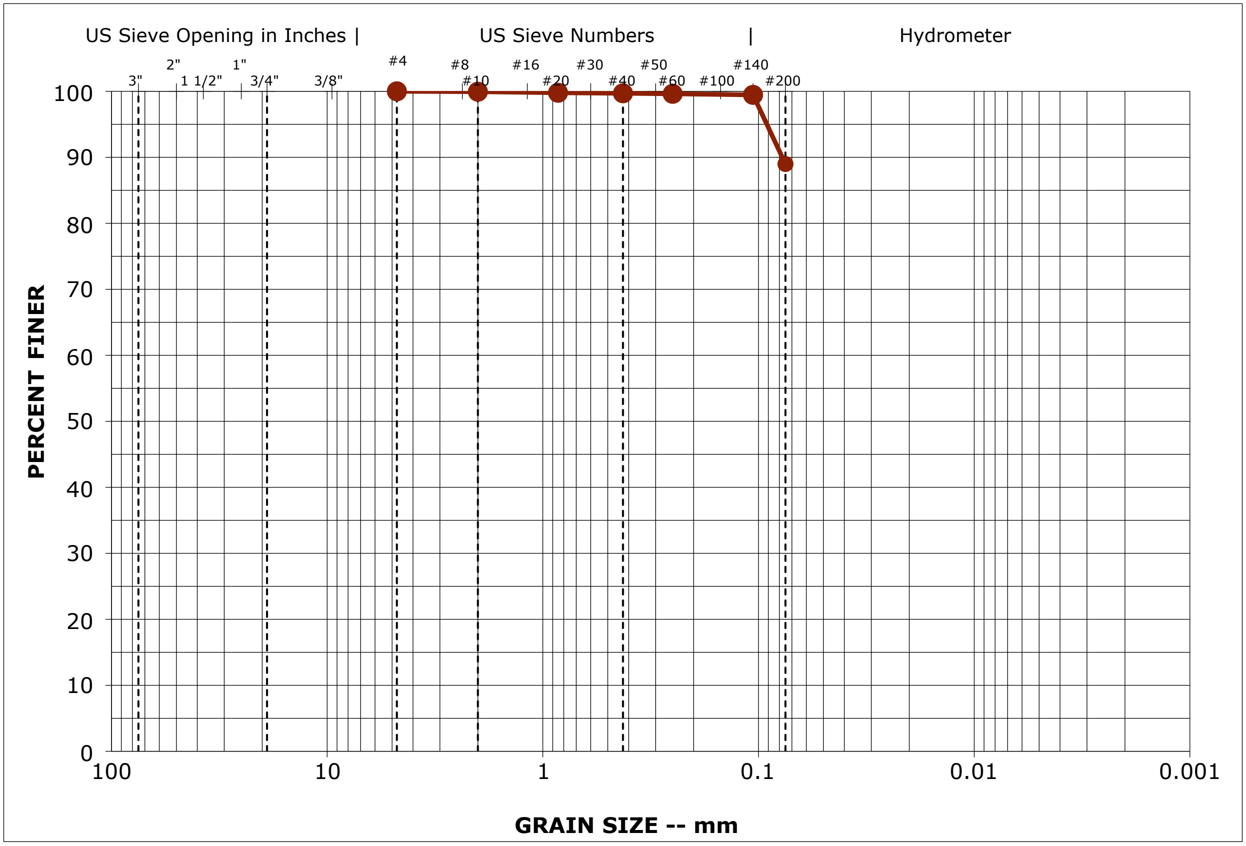
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-26	13.5 - 15.5	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	11.9	88.1	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.8	D_{100}	4.750	C_C	-
2"	100.0	#60	99.7	D_{60}	-		
1 1/2"	100.0	#140	99.6	D_{30}	-	C_U	-
1"	100.0	#200	88.1	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	99.9	-	-				
#20	99.9	-	-				

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-28	10 - 12	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	11.0	89.0	N/A	N/A

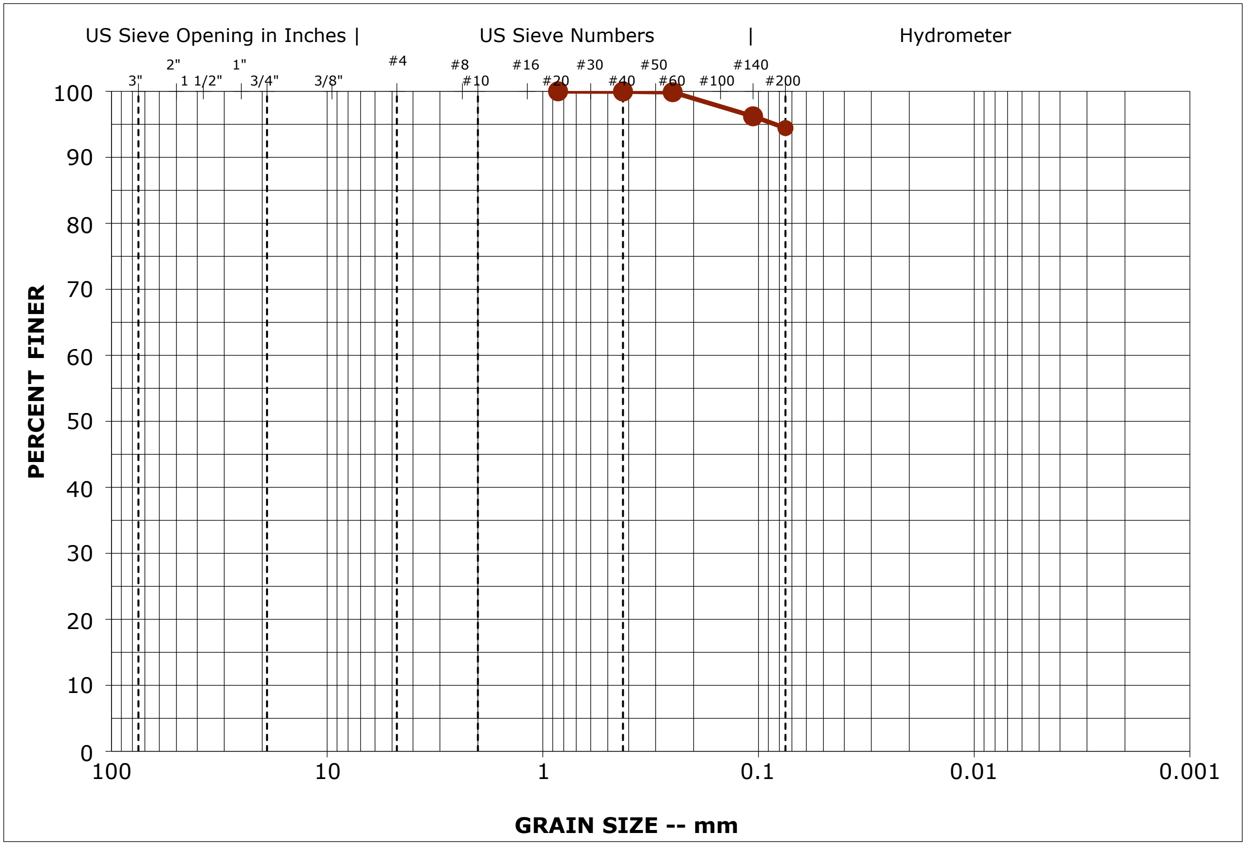
Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.7	D_{100}	4.750	C_C	-
2"	100.0	#60	99.6	D_{60}	-		
1 1/2"	100.0	#140	99.5	D_{30}	-	C_U	-
1"	100.0	#200	89.0	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	99.9	-	-				
#20	99.8	-	-				

West Point Dairy Expansion
570 N 500 W | Hyrum, UT
Terracon Project No. 61255214

6952 S High Tech Dr, Ste B
Midvale, UT 84047-3772

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



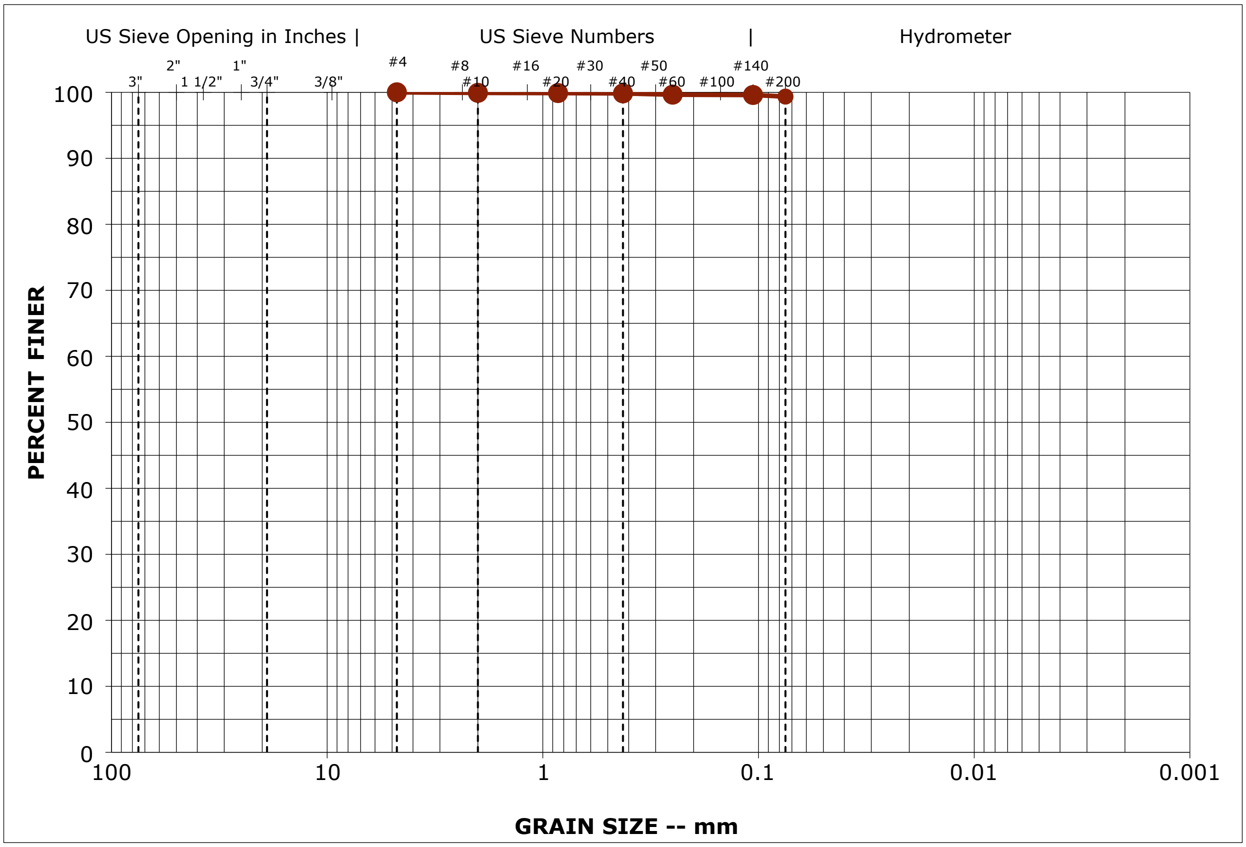
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-28	28.5 - 30.5	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	5.6	94.4	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	100.0	D_{100}	0.850	C_C	-
2"	100.0	#60	99.9	D_{60}	-		
1 1/2"	100.0	#140	96.2	D_{30}	-	C_U	-
1"	100.0	#200	94.4	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	100.0	-	-				
#20	100.0	-	-				

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-28	33.5 - 35.5	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	0.6	99.4	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.8	D_{100}	4.750	C_C	-
2"	100.0	#60	99.6	D_{60}	-		
1 1/2"	100.0	#140	99.6	D_{30}	-	C_U	-
1"	100.0	#200	99.4	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	99.9	-	-				
#20	99.9	-	-				

Terracon
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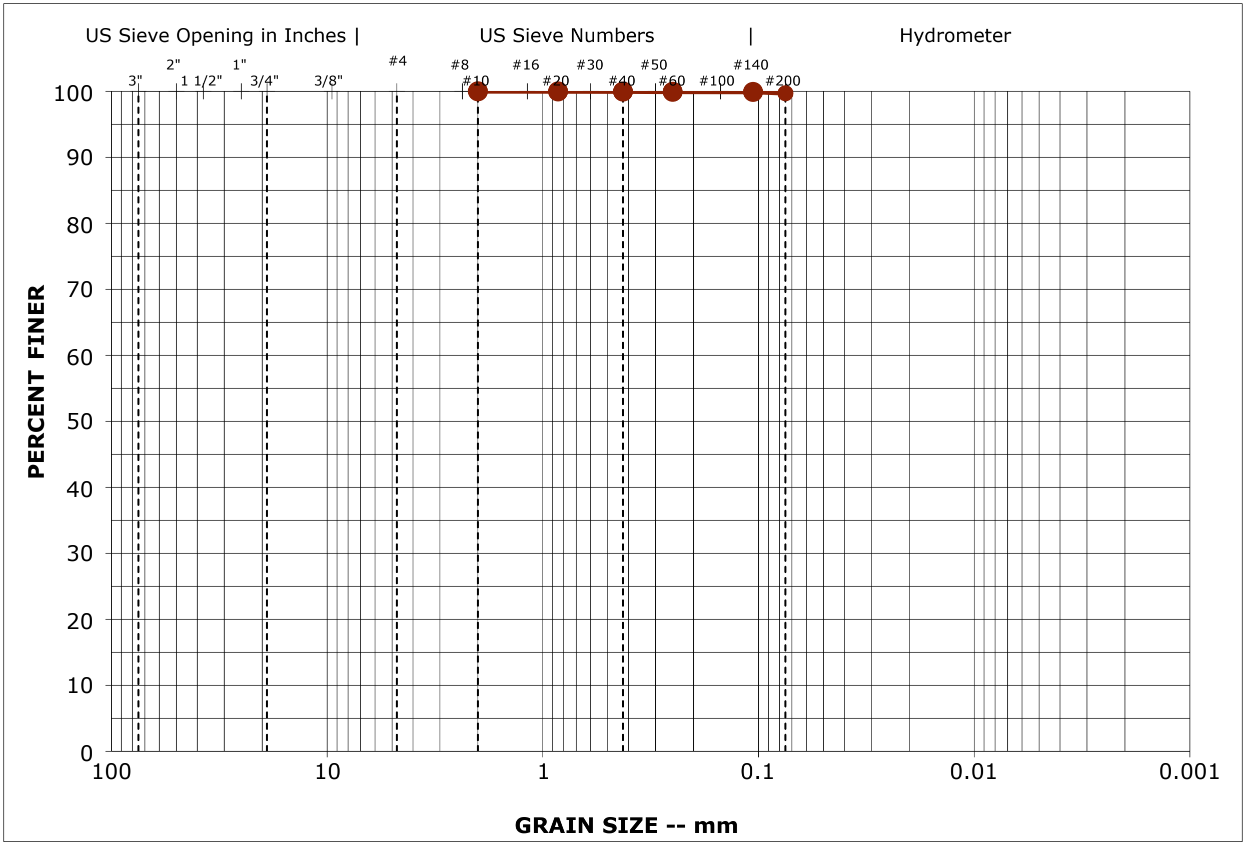
Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-28	53.5 - 55.5	Fat Clay	CH	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	0.3	99.7	N/A	N/A

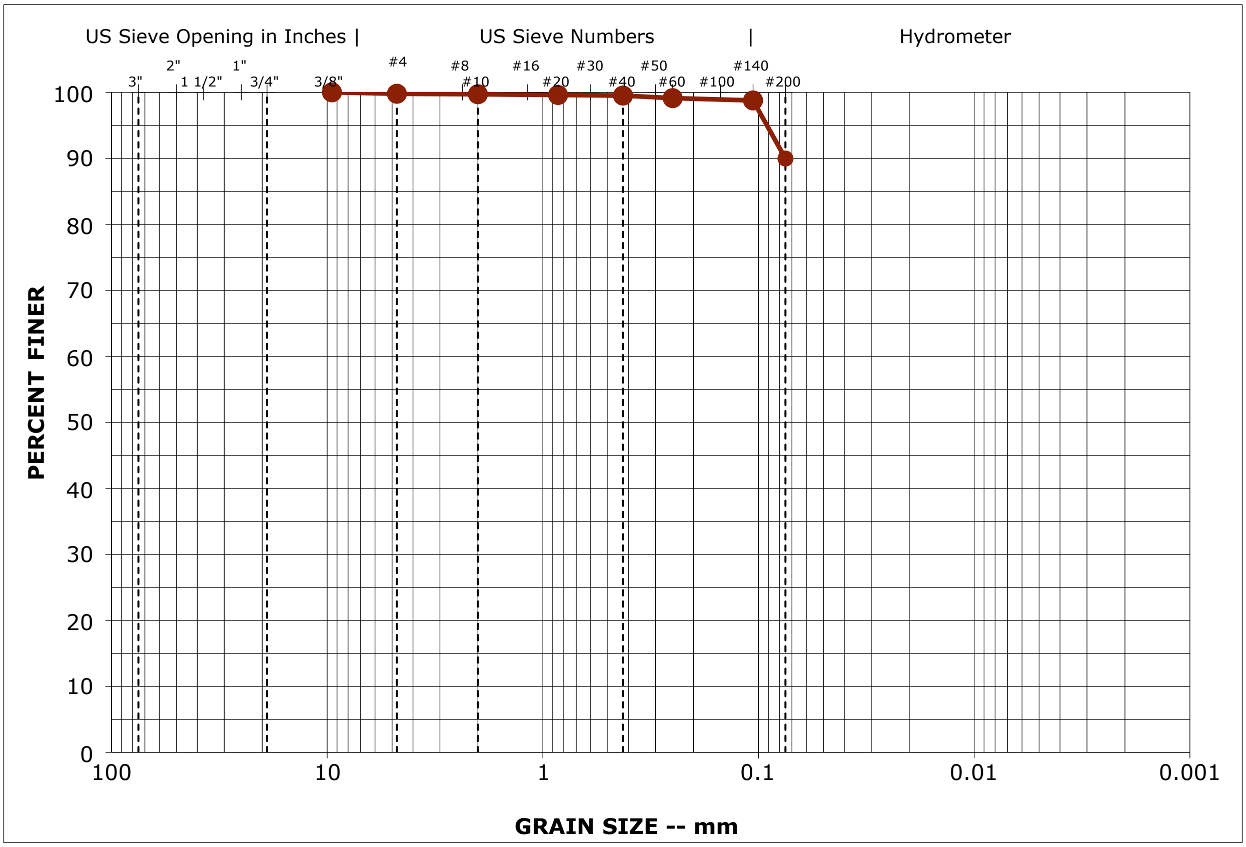
Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	100.0	D_{100}	2.000	C_C	-
2"	100.0	#60	99.9	D_{60}	-		
1 1/2"	100.0	#140	99.9	D_{30}	-	C_U	-
1"	100.0	#200	99.7	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	100.0	-	-				
#20	100.0	-	-				

West Point Dairy Expansion
570 N 500 W | Hyrum, UT
Terracon Project No. 61255214

6952 S High Tech Dr, Ste B
Midvale, UT 84047-3772

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-28	63.5 - 65.5	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.2	9.8	90.0	N/A	N/A

Sieve	% Finer	Sieve	% Finer
3"	100.0	#40	99.5
2"	100.0	#60	99.1
1 1/2"	100.0	#140	98.8
1"	100.0	#200	90.0
3/4"	100.0	-	-
3/8"	100.0	-	-
#4	99.8	-	-
#10	99.7	-	-
#20	99.6	-	-

Grain Size		Coefficients	
D_{100}	9.500	C_C	-
D_{60}	-		
D_{30}	-	C_U	-
D_{10}	-		

Remarks
N/A

6952 S High Tech Dr, Ste B
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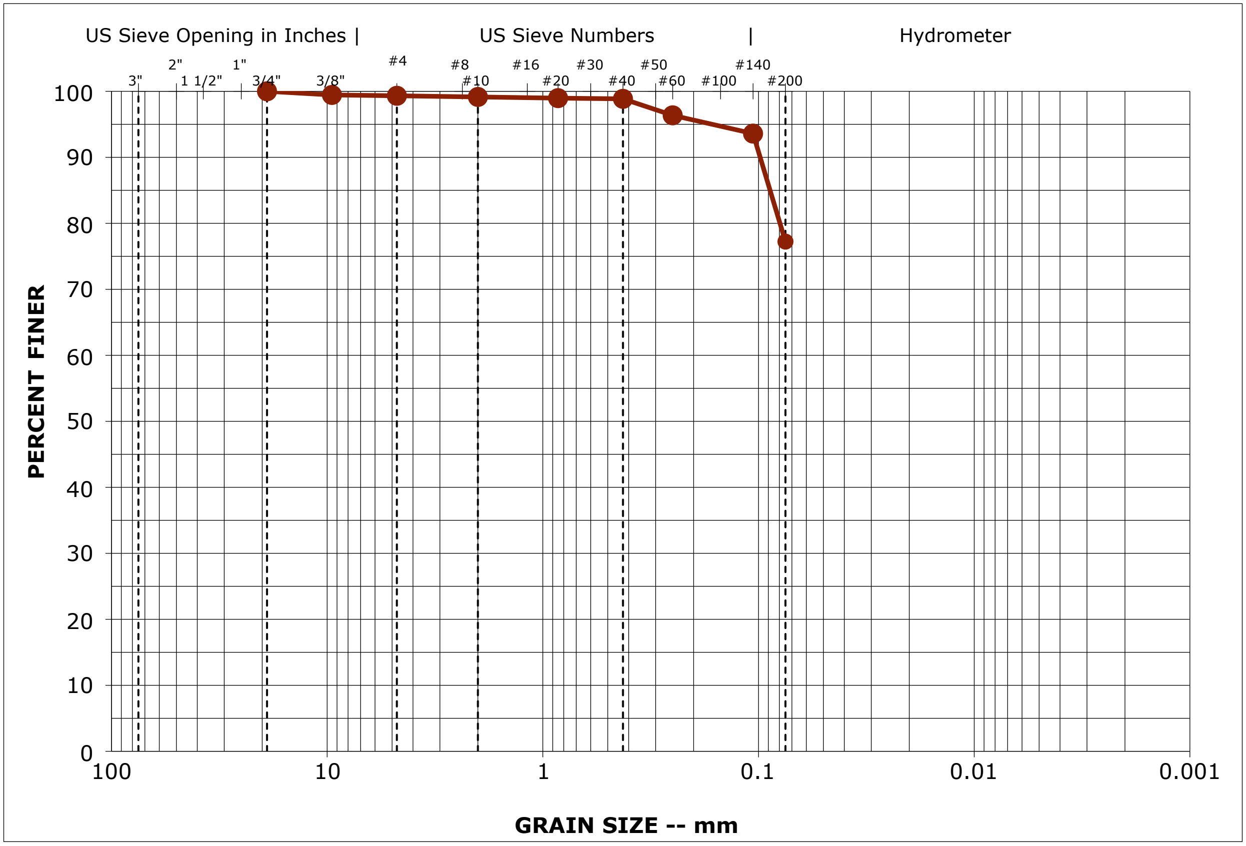
Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



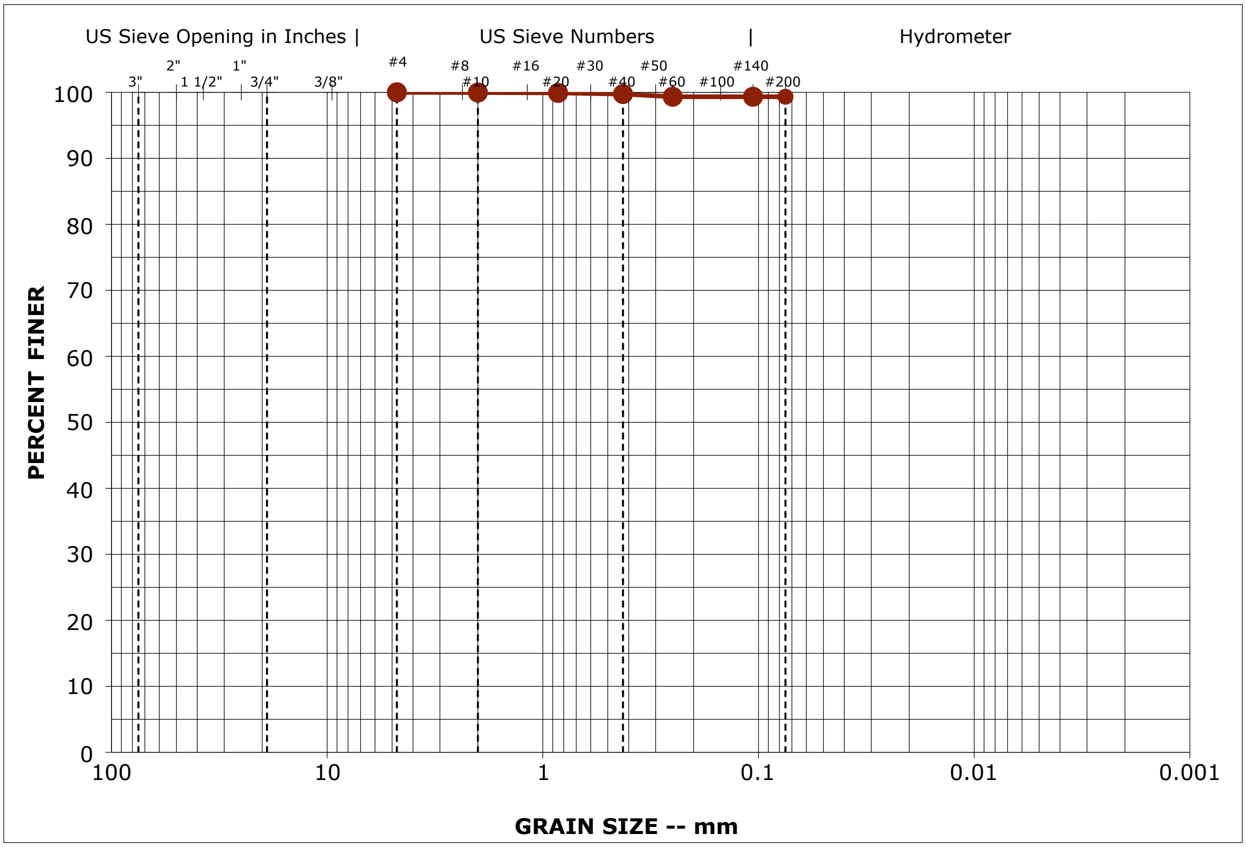
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-30	15 - 17	Silt With Sand	ML	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.7	22.1	77.2	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	98.9	D_{100}	19.000	C_C	-
2"	100.0	#60	96.4	D_{60}	-		
1 1/2"	100.0	#140	93.6	D_{30}	-	C_U	-
1"	100.0	#200	77.2	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	99.4	-	-	N/A			
#4	99.3	-	-				
#10	99.1	-	-				
#20	99.0	-	-				

Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-30	35 - 37	Lean Clay	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	0.7	99.3	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.7	D_{100}	4.750	C_C	-
2"	100.0	#60	99.3	D_{60}	-		
1 1/2"	100.0	#140	99.3	D_{30}	-	C_U	-
1"	100.0	#200	99.3	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	100.0	-	-				
#20	99.9	-	-				

Terracon
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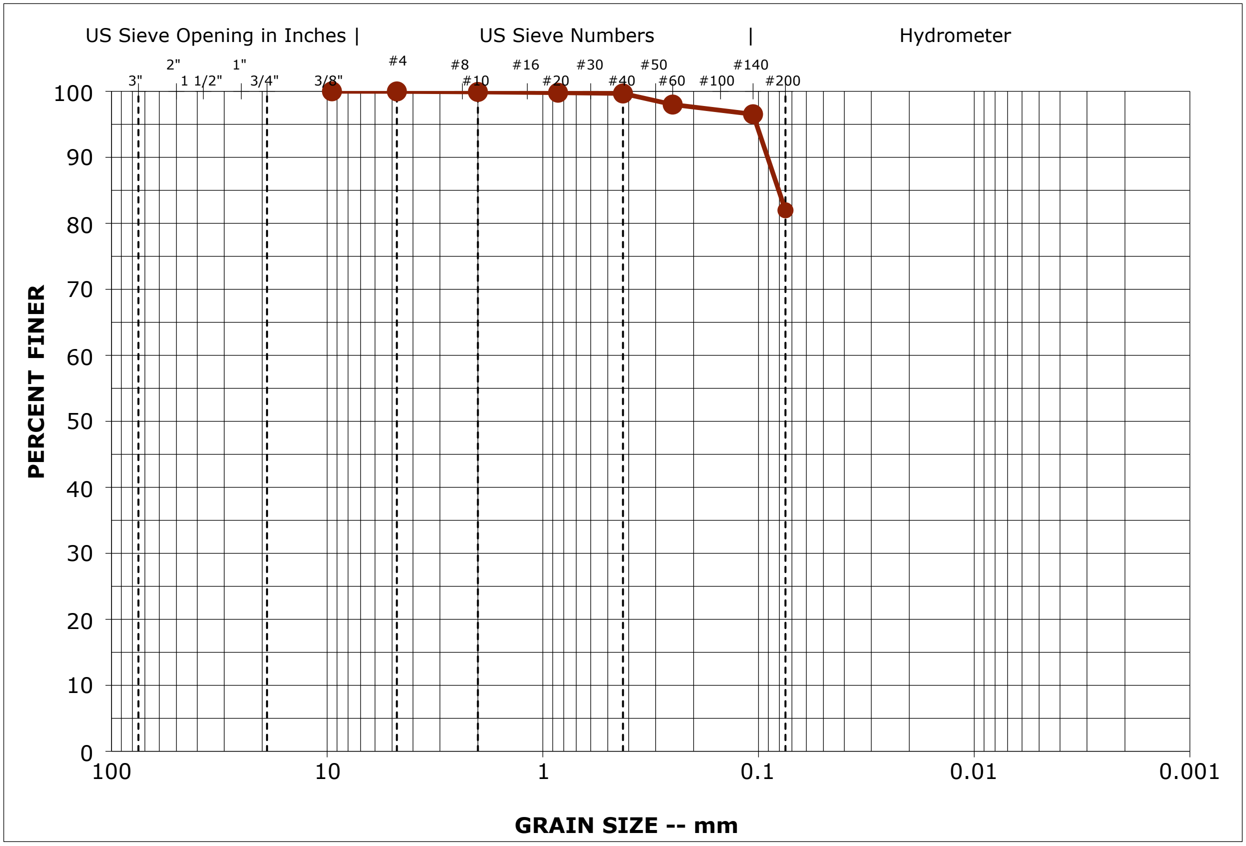
Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-31	15 - 17	Silty Clay with Sand	CL-ML	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.0	18.0	82.0	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.7	D_{100}	9.500	C_C	-
2"	100.0	#60	98.0	D_{60}	-		
1 1/2"	100.0	#140	96.5	D_{30}	-	C_U	-
1"	100.0	#200	82.0	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	100.0	-	-				
#10	99.9	-	-				
#20	99.8	-	-				

6952 S High Tech Dr, Ste B
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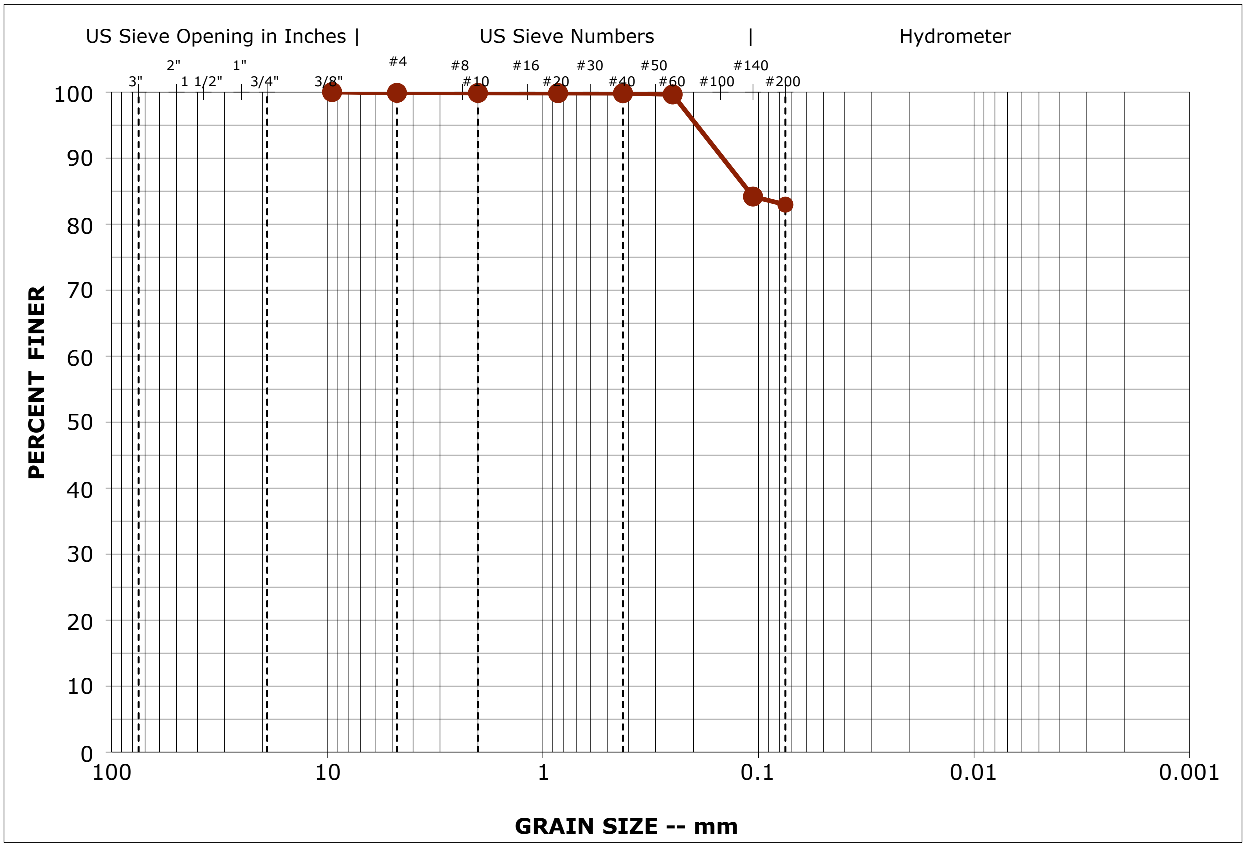
Particle-Size Distribution of Soils Using Sieve Analysis

ASTM D422-Method B



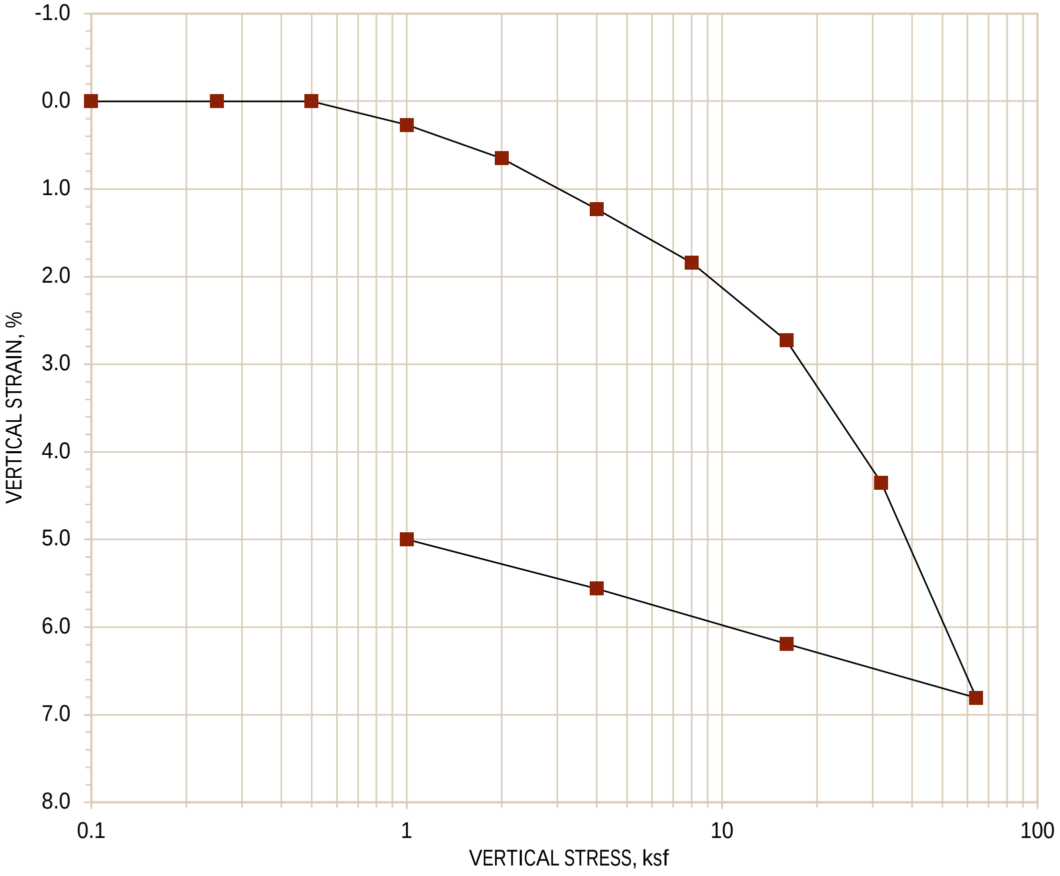
Boring ID	Depth (Ft.)	Description	USCS	Specific Gravity
B-32	20 - 22	Lean Clay With Sand	CL	N/A

% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay
0.0	0.1	16.9	82.9	N/A	N/A

Sieve	% Finer	Sieve	% Finer	Grain Size		Coefficients	
3"	100.0	#40	99.8	D_{100}	0.850	C_C	-
2"	100.0	#60	99.6	D_{60}	-		
1 1/2"	100.0	#140	84.2	D_{30}	-	C_U	-
1"	100.0	#200	82.9	D_{10}	-		
3/4"	100.0	-	-	Remarks			
3/8"	100.0	-	-	N/A			
#4	99.9	-	-				
#10	99.9	-	-				
#20	99.8	-	-				

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)



Before Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	120
Sample Height (in):	1.00	Moisture Content (%):	32
Sample Volume (cf):	0.0026	Dry Unit Weight (pcf):	91

After Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	122
Sample Height (in):	0.95	Moisture Content (%):	27
Sample Volume (cf):	0.0025	Dry Unit Weight (pcf):	96

Soil Properties

Liquid Limit:	35	Percent Fines:	99
Plasticity Index:	10	Classification:	Lean clay

Note(s)

Saturated at 100 psf

Project: West Point Dairy Expansion

Terracon

Project Number: 61255214

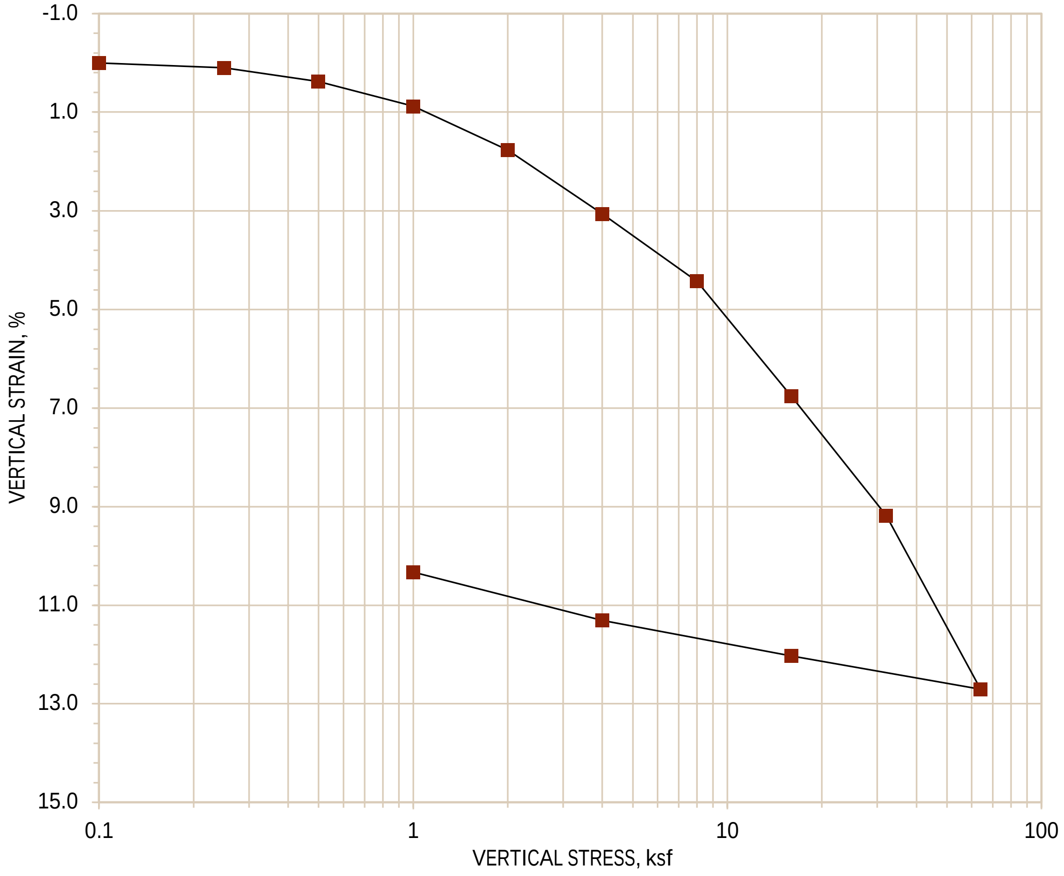
Location: Hyrum, UT

6952 S High Tech Dr Suite B
Midvale, Utah 84047

Sample: B-25 @ 10'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)

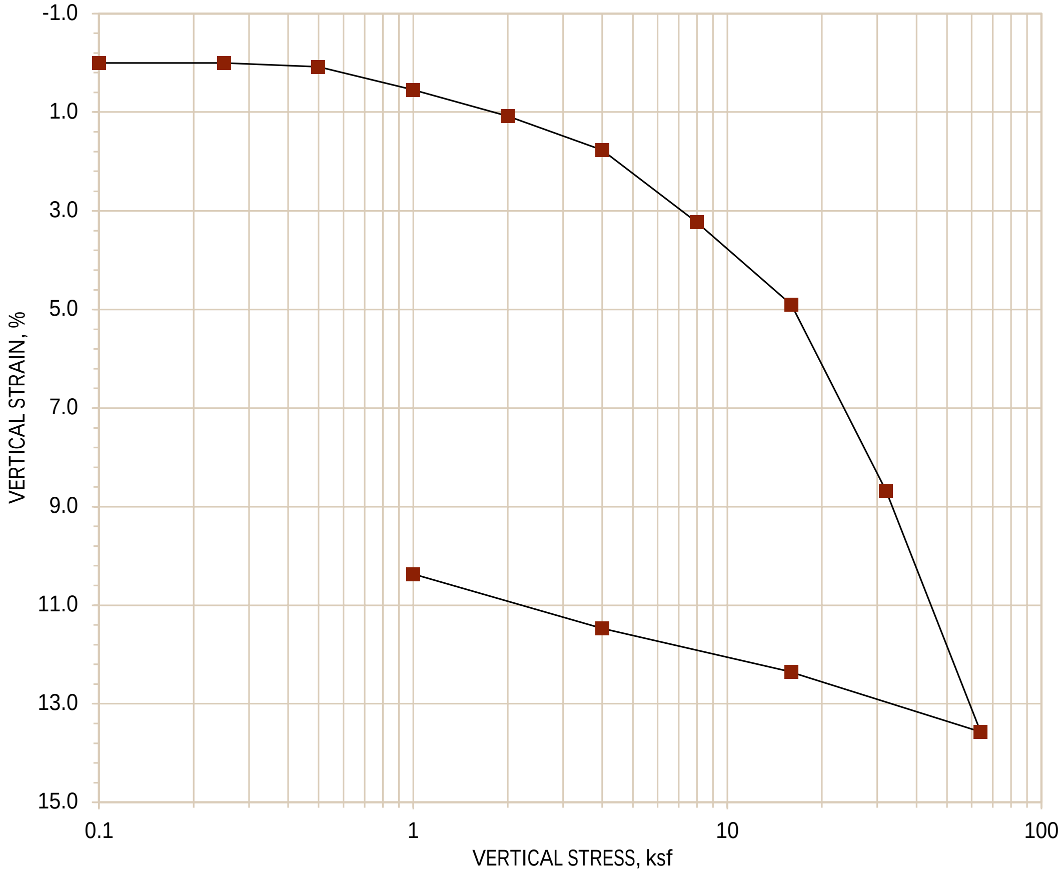


Before Consolidation			
Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	119
Sample Height (in):	1.00	Moisture Content (%):	31
Sample Volume (cf):	0.0026	Dry Unit Weight (pcf):	91
After Consolidation			
Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	128
Sample Height (in):	0.89	Moisture Content (%):	26
Sample Volume (cf):	0.0023	Dry Unit Weight (pcf):	102
Soil Properties			
Liquid Limit:	31	Percent Fines:	64
Plasticity Index:	6	Classification:	Sandy lean clay
Note(s)			
Saturated at 100 psf			

Project: West Point Dairy Expansion	Terracon	Project Number: 61255214
Location: Hyrum, UT	6952 S High Tech Dr Suite B Midvale, Utah 84047	Sample: B-26 @ 18.5'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)

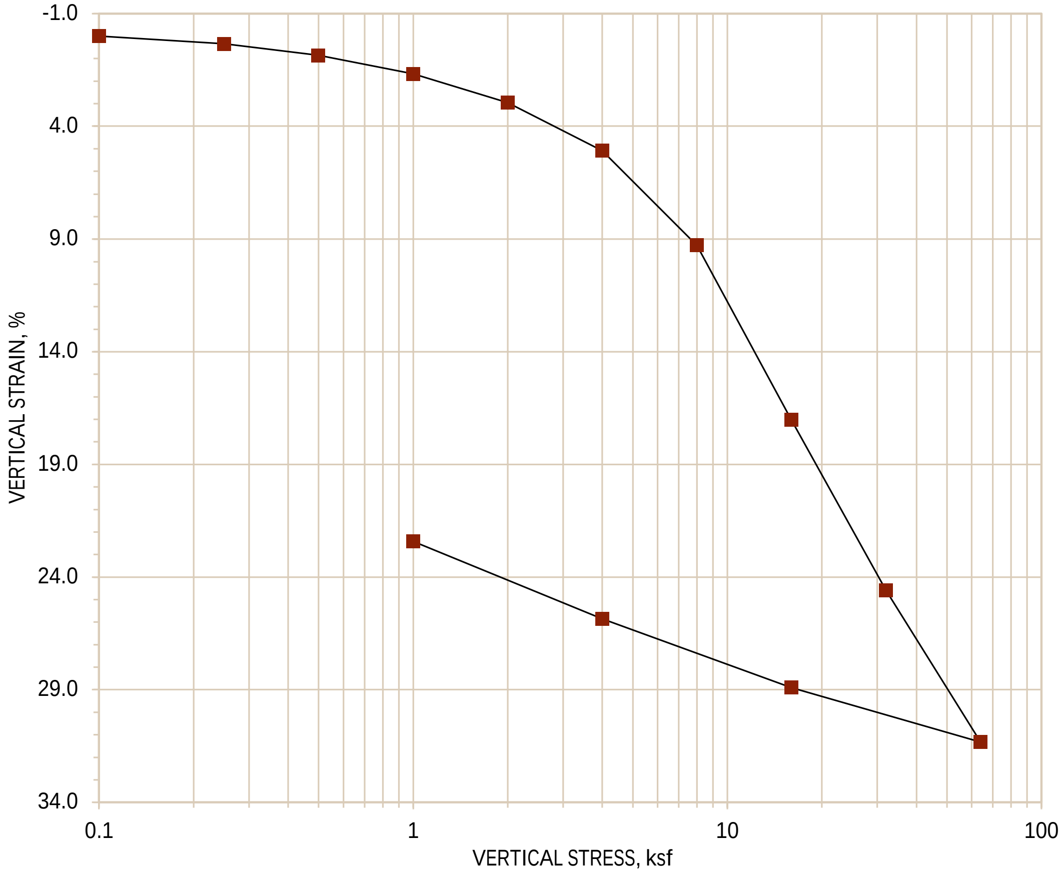


Before Consolidation			
Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	120
Sample Height (in):	1.00	Moisture Content (%):	27
Sample Volume (cf):	0.0028	Dry Unit Weight (pcf):	94
After Consolidation			
Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	128
Sample Height (in):	0.89	Moisture Content (%):	21
Sample Volume (cf):	0.0025	Dry Unit Weight (pcf):	106
Soil Properties			
Liquid Limit:	33	Percent Fines:	89
Plasticity Index:	9	Classification:	Lean clay
Note(s)			
Saturated at 100 psf			

Project: West Point Dairy Expansion	Terracon 6952 S High Tech Dr Suite B Midvale, Utah 84047	Project Number: 61255214
Location: Hyrum, UT		Sample: B-28 @ 10'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)



Before Consolidation

Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	109
Sample Height (in):	1.00	Moisture Content (%):	42
Sample Volume (cf):	0.0028	Dry Unit Weight (pcf):	77

After Consolidation

Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	127
Sample Height (in):	0.77	Moisture Content (%):	27
Sample Volume (cf):	0.0022	Dry Unit Weight (pcf):	100

Soil Properties

Liquid Limit:	61	Percent Fines:	100
Plasticity Index:	38	Classification:	Fat clay

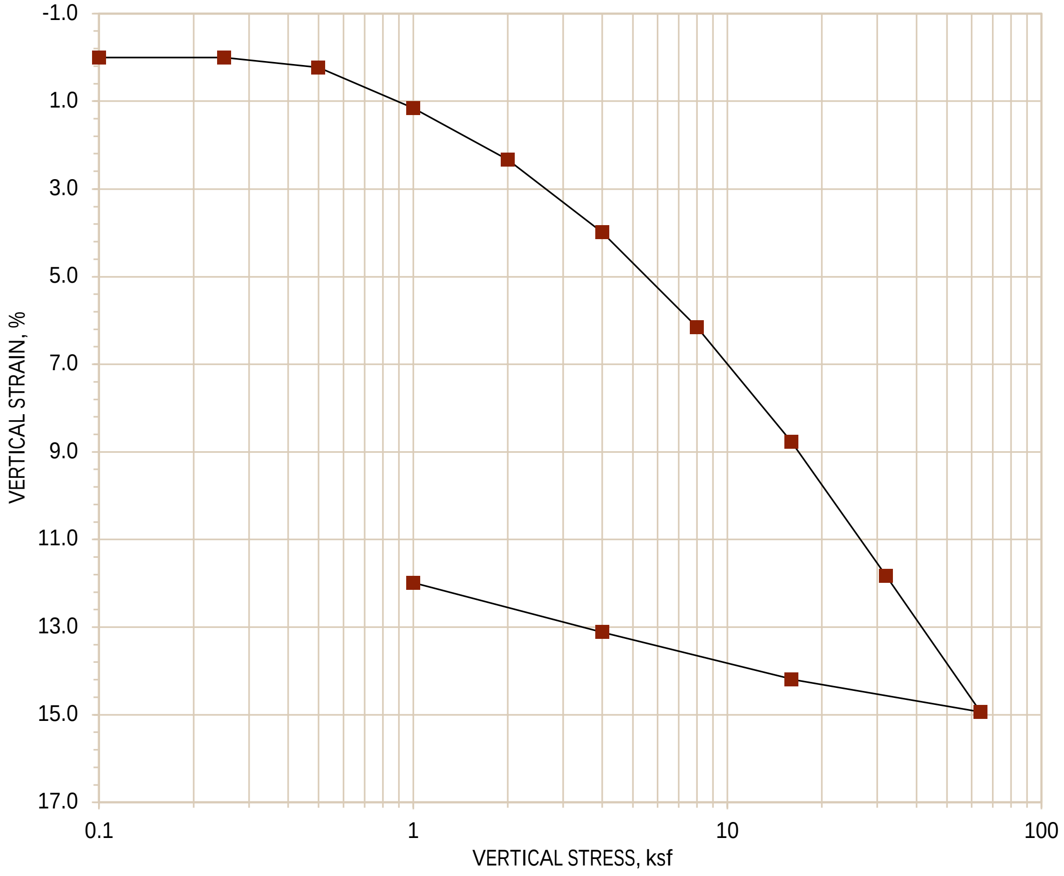
Note(s)

Saturated at 100 psf

Project: West Point Dairy Expansion	Terracon	Project Number: 61255214
Location: Hyrum, UT	6952 S High Tech Dr Suite B Midvale, Utah 84047	Sample: B-28 @ 53.5'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)



Before Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	117
Sample Height (in):	1.00	Moisture Content (%):	35
Sample Volume (cf):	0.0026	Dry Unit Weight (pcf):	86

After Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	121
Sample Height (in):	0.88	Moisture Content (%):	23
Sample Volume (cf):	0.0023	Dry Unit Weight (pcf):	98

Soil Properties

Liquid Limit:	46	Percent Fines:	99
Plasticity Index:	27	Classification:	Lean clay

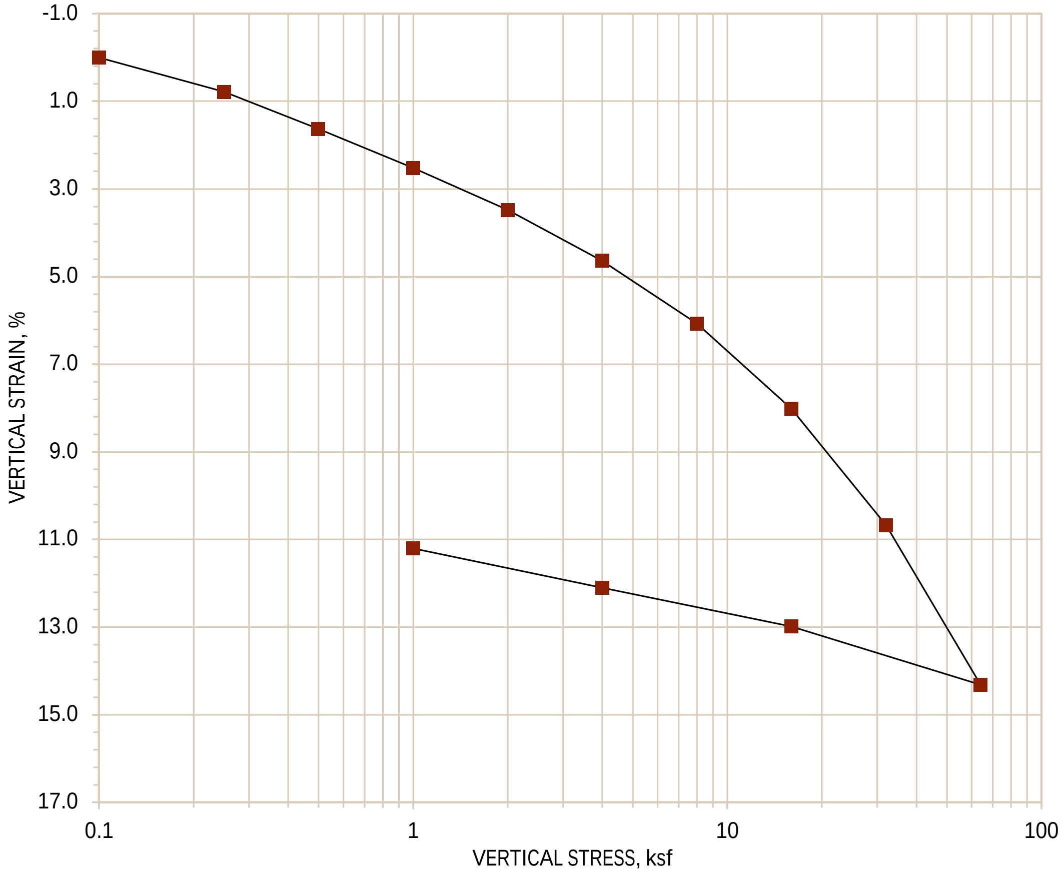
Note(s)

Saturated at 100 psf

Project: West Point Dairy Expansion	Terracon 6952 S High Tech Dr Suite B Midvale, Utah 84047	Project Number: 61255214
Location: Hyrum, UT		Sample: B-30 @ 35'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)

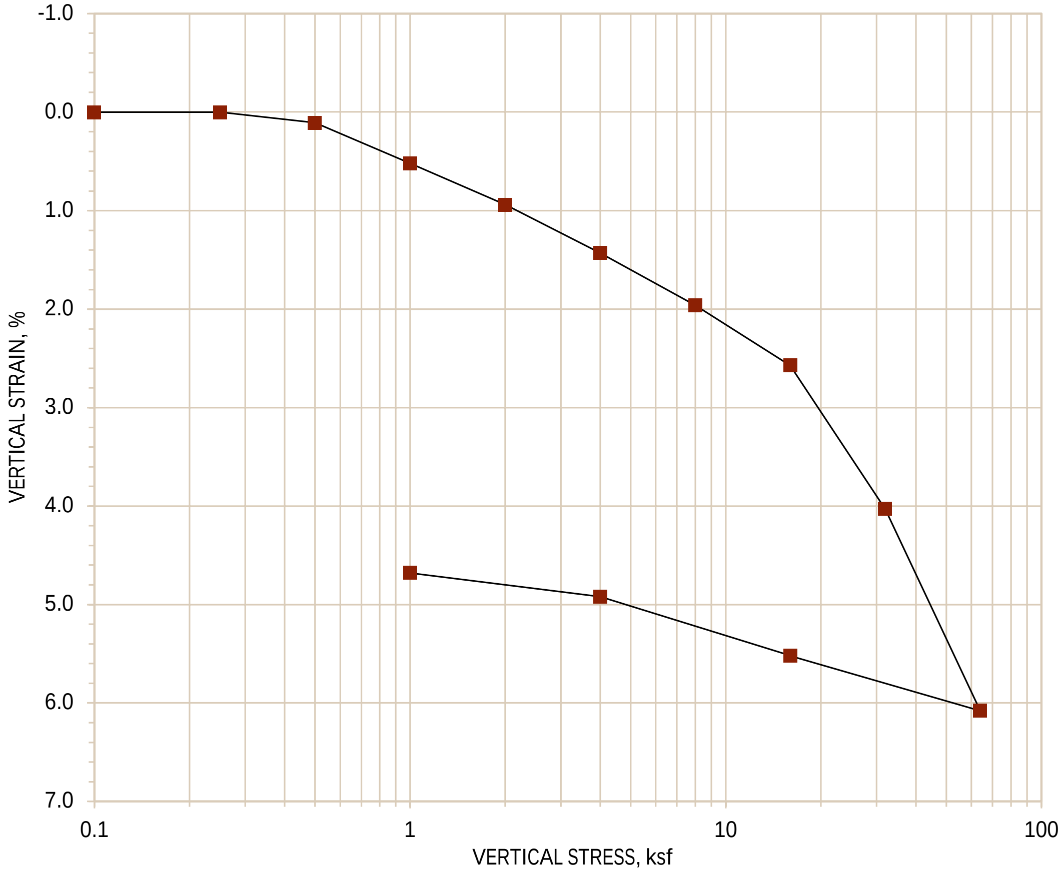


Before Consolidation			
Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	121
Sample Height (in):	1.00	Moisture Content (%):	28
Sample Volume (cf):	0.0028	Dry Unit Weight (pcf):	95
After Consolidation			
Sample Diameter (in):	2.50	Moist Unit Weight (pcf):	134
Sample Height (in):	0.87	Moisture Content (%):	23
Sample Volume (cf):	0.0025	Dry Unit Weight (pcf):	109
Soil Properties			
Liquid Limit:	28	Percent Fines:	82
Plasticity Index:	7	Classification:	Lean clay with sand
Note(s)			
Saturated at 100 psf			

Project: West Point Dairy Expansion	Terracon	Project Number: 61255214
Location: Hyrum, UT	6952 S High Tech Dr Suite B Midvale, Utah 84047	Sample: B-31 @ 15'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)

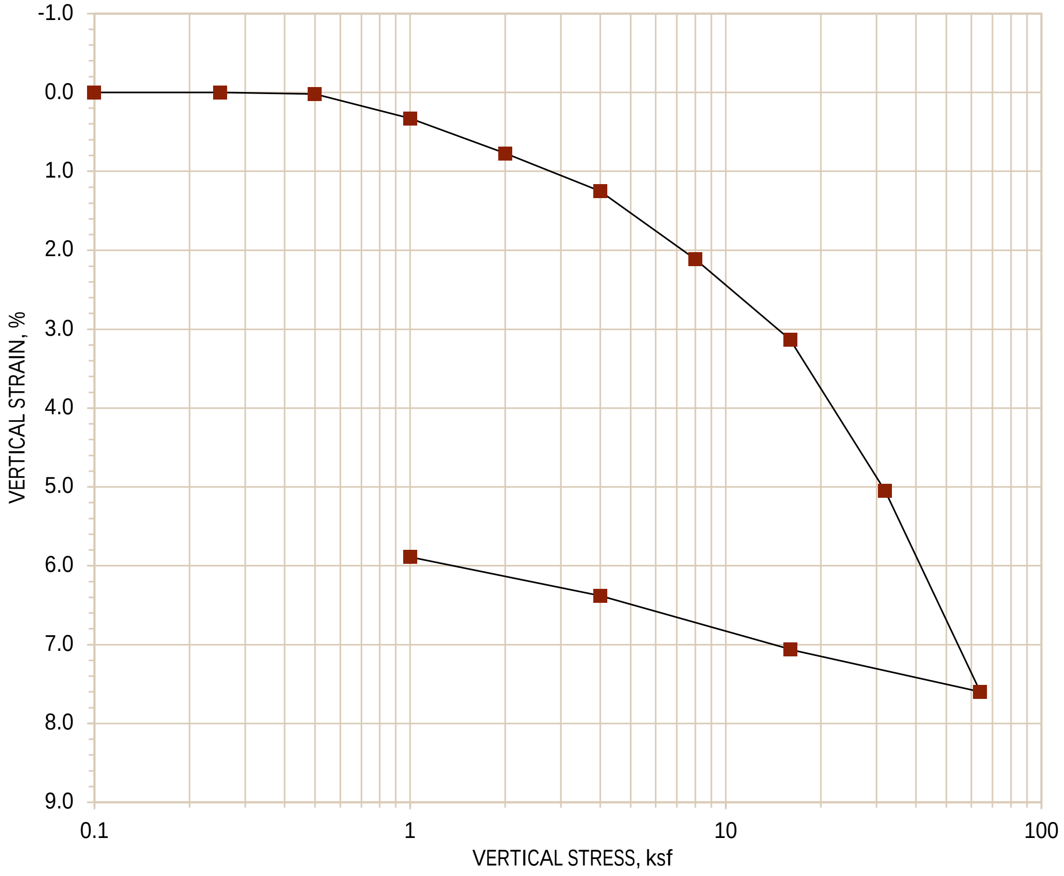


Before Consolidation			
Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	122
Sample Height (in):	1.00	Moisture Content (%):	32
Sample Volume (cf):	0.0026	Dry Unit Weight (pcf):	92
After Consolidation			
Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	125
Sample Height (in):	0.95	Moisture Content (%):	29
Sample Volume (cf):	0.0025	Dry Unit Weight (pcf):	97
Soil Properties			
Liquid Limit:	46	Percent Fines:	93
Plasticity Index:	25	Classification:	Lean clay
Note(s)			
Saturated at 100 psf			

Project: West Point Dairy Expansion	Terracon	Project Number: 61255214
Location: Hyrum, UT	6952 S High Tech Dr Suite B Midvale, Utah 84047	Sample: B-31 @ 45'

CONSOLIDATION TEST DATA

ASTM D2435/D2435M-11(2020)



Before Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	120
Sample Height (in):	1.00	Moisture Content (%):	30
Sample Volume (cf):	0.0026	Dry Unit Weight (pcf):	93

After Consolidation

Sample Diameter (in):	2.41	Moist Unit Weight (pcf):	123
Sample Height (in):	0.94	Moisture Content (%):	25
Sample Volume (cf):	0.0025	Dry Unit Weight (pcf):	99

Soil Properties

Liquid Limit:	32	Percent Fines:	83
Plasticity Index:	7	Classification:	Lean clay with sand

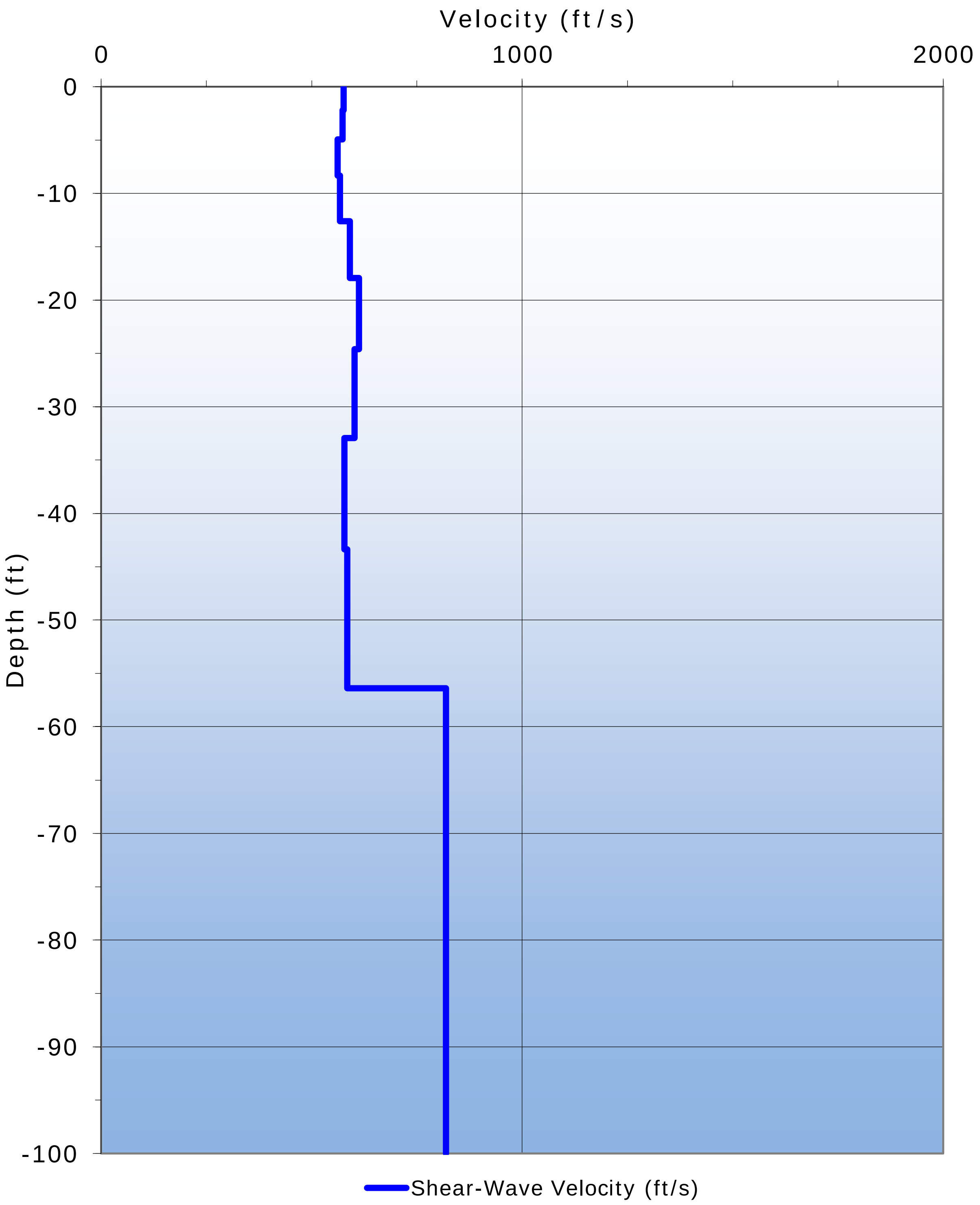
Note(s)

Saturated at 100 psf

Project: West Point Dairy Expansion	Terracon 6952 S High Tech Dr Suite B Midvale, Utah 84047	Project Number: 61255214
Location: Hyrum, UT		Sample: B-32 @ 20'

Shear Wave Velocity Profile

West Point Dairy Expansion
Terracon Project No. 61255214
Test Midpoint: 41.6462°, -111.8660°



Weighted Average Shear Wave Velocity (Vs100') - 670 ft/sec

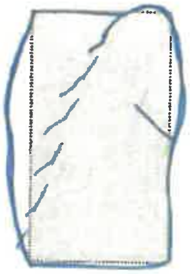
Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

Project: Terracon
No: M00385-701 (61255214)
Location: West Point Dairy Expansion
Date: 3/2/2026
By: CJ

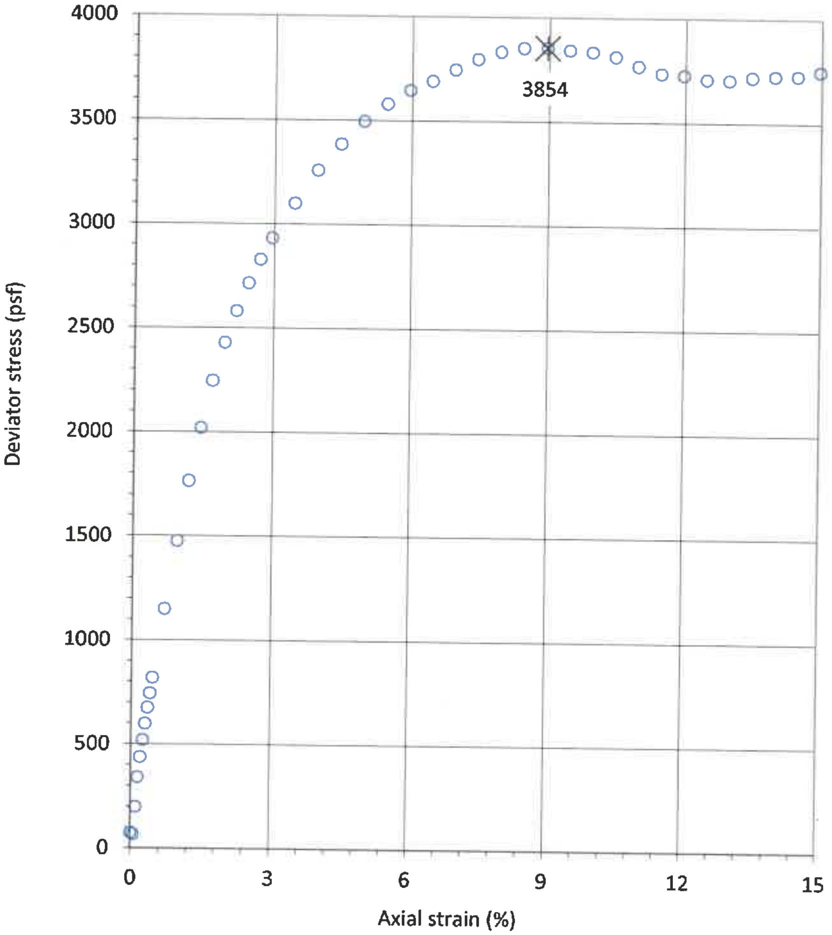
Boring No.: B-28
Sample:
Depth: 10'
Sample Description: Greyish brown clay
Sample type: Undisturbed-trimmed from Shelby tube

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.993	
Sample diameter, D (in.)	2.859	
Sample volume, V (ft^3)	0.0223	
Wt. rings + wet soil (g)	1209.57	
Wt. rings/tare (g)	0.00	
Moist soil, Ws (g)	1209.57	
Moist unit wt., γ_m (pcf)	119.8	
Dry unit wt., γ_d (pcf)	**92.3**	
Saturation (%)	96.9	
Void ratio, *e*	0.83	



Wet soil + tare (g)	486.16
Dry soil + tare (g)	403.08
Tare (g)	124.09
Water content, w (%)	**29.8**
Confining stress, σ_3 (psf)	992
Shear rate (in/min)	0.0180
Strain at failure, ε_f (%)	8.96
Deviator stress at failure, $(\sigma_1\text{-}\sigma_3)_f$ (psf)	3854
Shear stress at failure, $q_f = (\sigma_1\text{-}\sigma_3)_f/2$ (psf)	1927

Axial Strain (%)	σ_d σ_1-σ_3 (psf)	Q 1/2 σ_d (psf)
0.00	72.4	36.2
0.05	66.2	33.1
0.10	196.2	98.1
0.15	340.1	170.1
0.20	436.9	218.4
0.25	518.5	259.2
0.30	597.2	298.6
0.35	672.9	336.4
0.40	742.6	371.3
0.45	818.2	409.1
0.70	1147.8	573.9
0.95	1475.9	738.0
1.20	1762.0	881.0
1.45	2017.5	1008.8
1.70	2245.8	1122.9
1.95	2429.5	1214.8
2.20	2580.8	1290.4
2.45	2713.6	1356.8
2.70	2826.3	1413.2
2.95	2929.6	1464.8
3.45	3097.4	1548.7
3.95	3257.6	1628.8
4.45	3385.3	1692.7
4.95	3494.3	1747.2
5.46	3579.8	1789.9
5.95	3645.2	1822.6
6.45	3690.2	1845.1
6.95	3745.4	1872.7
7.46	3797.2	1898.6
7.95	3832.0	1916.0
8.45	3850.0	1925.0
8.96	3853.7	1926.9
9.46	3842.0	1921.0
9.96	3834.9	1917.5
10.46	3812.0	1906.0
10.96	3768.3	1884.2
11.46	3735.1	1867.6
11.96	3725.4	1862.7
12.46	3707.8	1853.9
12.96	3705.7	1852.9
13.46	3720.8	1860.4
13.96	3725.6	1862.8
14.46	3727.5	1863.8
14.96	3746.8	1873.4
14.96	3746.8	1873.4



Entered by: CJ
Reviewed:

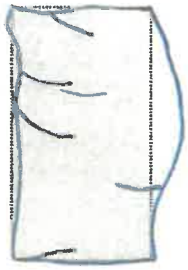
Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

Project: Terracon
No: M00385-701 (61255214)
Location: West Point Dairy Expansion
Date: 3/2/2026
By: CJ

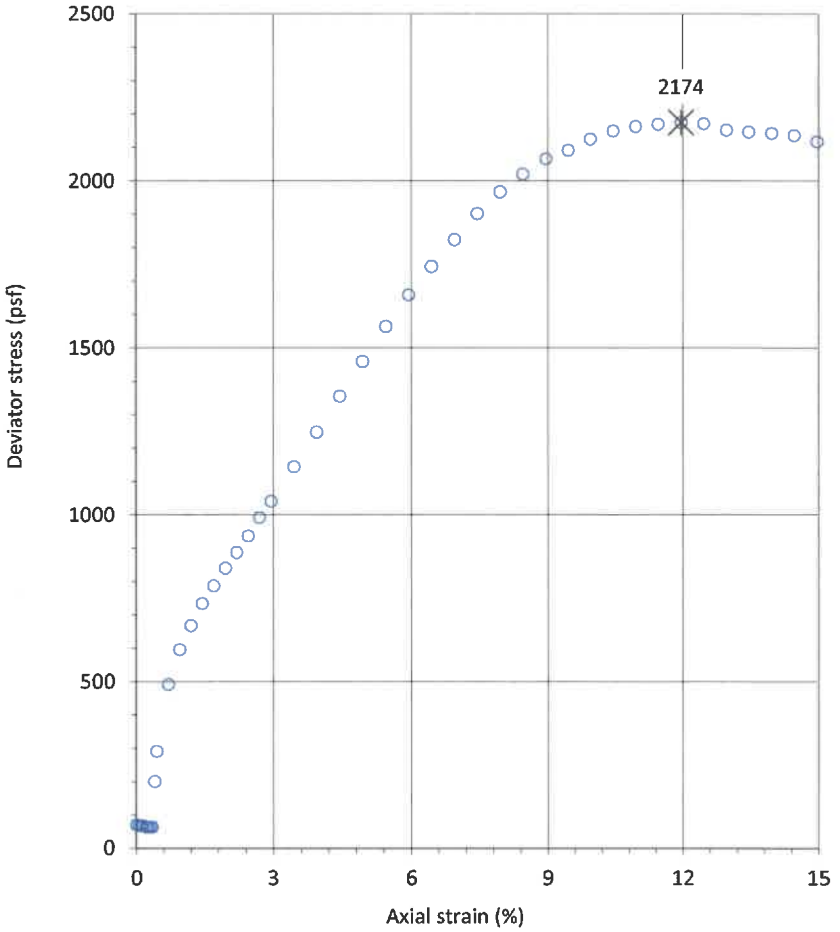
Boring No.: B-30
Sample:
Depth: 35'
Sample Description: Greyish brown clay
Sample type: Undisturbed-trimmed from Shelby tube

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.999	
Sample diameter, D (in.)	2.839	
Sample volume, V (ft^3)	0.0220	
Wt. rings + wet soil (g)	1156.92	
Wt. rings/tare (g)	0.00	
Moist soil, Ws (g)	1156.92	
Moist unit wt., γ_m (pcf)	116.1	
Dry unit wt., γ_d (pcf)	**86.6**	
Saturation (%)	96.6	
Void ratio, *e*	0.95	



Wet soil + tare (g)	331.66
Dry soil + tare (g)	280.13
Tare (g)	128.41
Water content, w (%)	**34.0**
Confining stress, σ_3 (psf)	2692
Shear rate (in/min)	0.0180
Strain at failure, ε_f (%)	11.96
Deviator stress at failure, $(\sigma_1\text{-}\sigma_3)_f$ (psf)	2174
Shear stress at failure, $q_f = (\sigma_1\text{-}\sigma_3)_f/2$ (psf)	1087

Axial Strain (%)	σ_d σ_1-σ_3 (psf)	Q 1/2 σ_d (psf)
0.00	71.1	35.6
0.05	67.6	33.8
0.10	67.9	34.0
0.15	67.8	33.9
0.20	64.4	32.2
0.25	63.7	31.8
0.30	63.8	31.9
0.35	63.6	31.8
0.40	200.8	100.4
0.45	290.2	145.1
0.70	490.8	245.4
0.95	596.2	298.1
1.20	667.6	333.8
1.45	733.4	366.7
1.70	786.5	393.3
1.95	839.3	419.7
2.20	886.5	443.3
2.45	935.6	467.8
2.70	990.9	495.4
2.95	1039.8	519.9
3.45	1142.9	571.5
3.95	1247.2	623.6
4.45	1354.0	677.0
4.95	1459.1	729.6
5.45	1563.0	781.5
5.95	1657.7	828.9
6.45	1742.5	871.3
6.95	1823.3	911.7
7.45	1901.0	950.5
7.95	1966.2	983.1
8.45	2019.3	1009.7
8.96	2064.3	1032.2
9.46	2091.8	1045.9
9.95	2125.0	1062.5
10.46	2149.0	1074.5
10.96	2162.2	1081.1
11.46	2169.2	1084.6
11.96	2173.7	1086.9
12.46	2170.4	1085.2
12.96	2151.6	1075.8
13.46	2145.6	1072.8
13.96	2141.9	1071.0
14.46	2135.3	1067.7
14.96	2116.2	1058.1
14.96	2116.2	1058.1



Entered by: CJ

Reviewed:

Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils
(ASTM D2850)

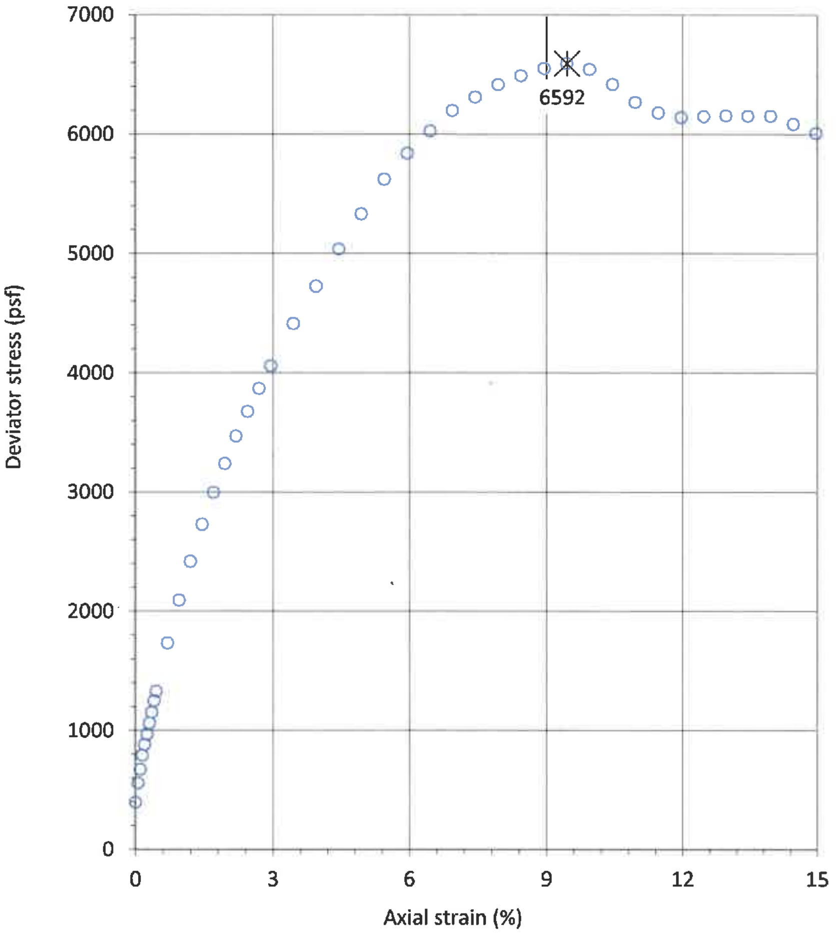
Project: Terracon
No: M00385-701 (61255214)
Location: West Point Dairy Expansion
Date: 3/2/2026
By: CJ

Boring No.: B-31
Sample:
Depth: 15'
Sample Description: Brown clay with sand
Sample type: Undisturbed-trimmed from Shelby tube

Specific gravity, Gs 2.79 Assumed
Sample height, H (in.) 5.982
Sample diameter, D (in.) 2.821
Sample volume, V (ft^3) 0.0216
Wt. rings + wet soil (g) 1498.98
Wt. rings/tare (g) 280.43
Moist soil, Ws (g) 1218.55
Moist unit wt., γ_m (pcf) 124.2
Dry unit wt., γ_d (pcf) **96.2**
Saturation (%) 99.7
Void ratio, *e* 0.81

Wet soil + tare (g) 553.13
Dry soil + tare (g) 460.14
Tare (g) 140.80
Water content, w (%) **29.1**
Confining stress, σ_3 (psf) 1576
Shear rate (in/min) 0.0179
Strain at failure, ε_f (%) 9.45
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf) 6592
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf) 3296

Axial Strain (%)	σ_d σ_1-σ_3 (psf)	Q 1/2 σ_d (psf)
0.00	393.2	196.6
0.05	556.1	278.0
0.10	670.5	335.2
0.15	790.5	395.3
0.20	880.5	440.2
0.25	964.0	482.0
0.30	1060.0	530.0
0.35	1149.5	574.8
0.40	1245.1	622.6
0.45	1325.4	662.7
0.70	1732.1	866.1
0.95	2091.8	1045.9
1.20	2417.4	1208.7
1.45	2725.9	1363.0
1.70	2994.6	1497.3
1.95	3238.1	1619.1
2.20	3465.4	1732.7
2.45	3674.0	1837.0
2.70	3866.6	1933.3
2.95	4054.9	2027.5
3.45	4411.9	2206.0
3.95	4723.9	2362.0
4.45	5035.7	2517.9
4.95	5332.3	2666.2
5.45	5619.6	2809.8
5.95	5838.1	2919.1
6.46	6025.9	3013.0
6.95	6194.5	3097.3
7.45	6307.8	3153.9
7.95	6413.9	3207.0
8.45	6488.0	3244.0
8.96	6549.5	3274.8
9.45	6591.5	3295.8
9.95	6540.0	3270.0
10.46	6415.2	3207.6
10.96	6267.5	3133.8
11.46	6177.2	3088.6
11.96	6137.9	3069.0
12.46	6146.0	3073.0
12.96	6154.3	3077.2
13.46	6151.3	3075.7
13.96	6150.4	3075.2
14.46	6084.5	3042.3
14.96	6006.0	3003.0
14.96	6006.0	3003.0



Entered by: CJ
Reviewed:

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Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils
(ASTM D2850)

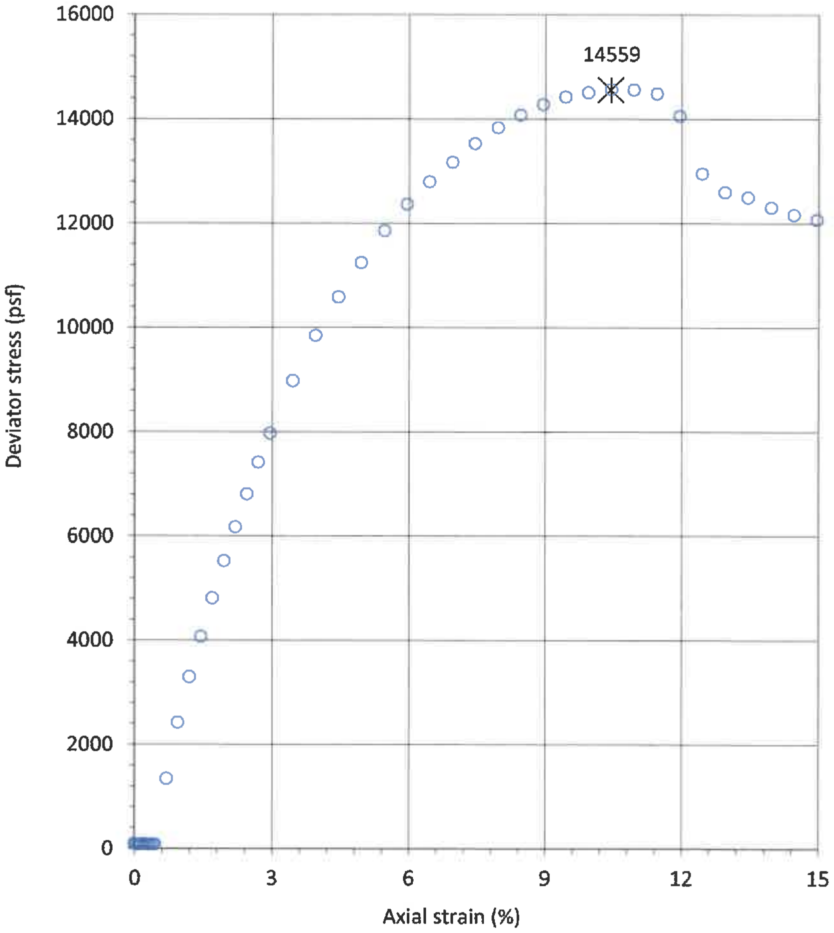
Project:	Terracon
No:	M00385-701 (61255214)
Location:	West Point Dairy Expansion
Date:	3/2/2026
By:	CJ

Boring No.:	B-31
Sample:	
Depth:	45'
Sample Description:	Grey clay
Sample type:	Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.94	Assumed
Sample height, H (in.)	5.394	
Sample diameter, D (in.)	2.402	
Sample volume, V (ft^3)	0.0141	
Wt. rings + wet soil (g)	999.80	
Wt. rings/tare (g)	255.14	
Moist soil, Ws (g)	744.66	
Moist unit wt., γ_m (pcf)	116.1	
Dry unit wt., γ_d (pcf)	**81.2**	
Saturation (%)	99.8	
Void ratio, *e*	1.26	

Wet soil + tare (g)	217.54
Dry soil + tare (g)	198.56
Tare (g)	154.31
Water content, w (%)	**42.9**
Confining stress, σ_3 (psf)	3190
Shear rate (in/min)	0.0162
Strain at failure, ε_f (%)	10.46
Deviator stress at failure, $(\sigma_1\text{-}\sigma_3)_f$ (psf)	14559
Shear stress at failure, $q_f = (\sigma_1\text{-}\sigma_3)_f/2$ (psf)	7280

Axial Strain (%)	σ_d σ_1-σ_3 (psf)	Q 1/2 σ_d (psf)
0.00	89.2	44.6
0.05	80.9	40.5
0.10	80.6	40.3
0.15	84.1	42.0
0.20	84.8	42.4
0.25	83.6	41.8
0.30	80.1	40.1
0.35	79.0	39.5
0.40	83.4	41.7
0.45	79.0	39.5
0.70	1337.2	668.6
0.95	2422.5	1211.3
1.20	3292.0	1646.0
1.45	4066.9	2033.5
1.70	4804.9	2402.5
1.95	5523.0	2761.5
2.20	6172.3	3086.2
2.45	6805.9	3403.0
2.70	7411.8	3705.9
2.95	7965.0	3982.5
3.45	8980.1	4490.1
3.95	9844.3	4922.2
4.45	10583.0	5291.5
4.95	11239.0	5619.5
5.45	11851.0	5925.5
5.95	12359.0	6179.5
6.45	12794.0	6397.0
6.95	13169.0	6584.5
7.45	13524.0	6762.0
7.95	13829.0	6914.5
8.45	14073.0	7036.5
8.95	14271.0	7135.5
9.45	14417.0	7208.5
9.95	14504.0	7252.0
10.46	14559.0	7279.5
10.95	14557.0	7278.5
11.46	14482.0	7241.0
11.95	14053.0	7026.5
12.46	12943.0	6471.5
12.95	12592.0	6296.0
13.46	12493.0	6246.5
13.96	12303.0	6151.5
14.46	12162.0	6081.0
14.96	12068.0	6034.0
14.96	12068.0	6034.0



Entered by: CJ

Reviewed:

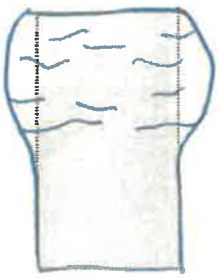
Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

Project: Terracon
No: M00385-701 (61255214)
Location: West Point Dairy Expansion
Date: 3/2/2026
By: CJ

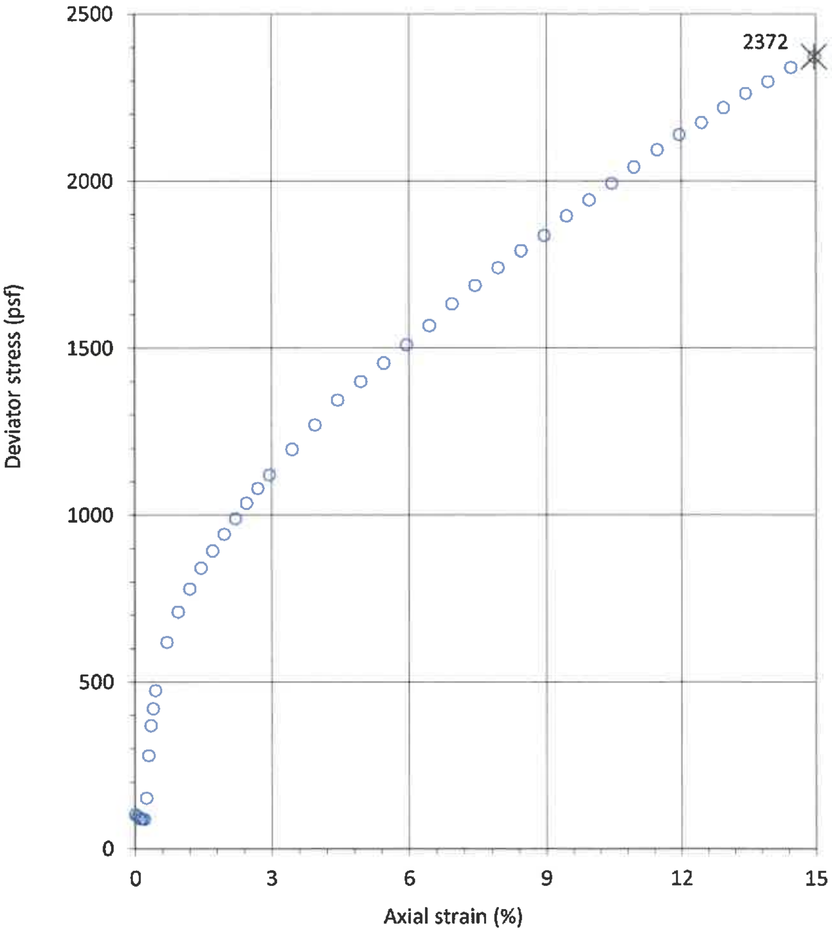
Boring No.: B-32
Sample:
Depth: 20'
Sample Description: Brown clay
Sample type: Undisturbed-trimmed from Shelby tube

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.993	
Sample diameter, D (in.)	2.820	
Sample volume, V (ft^3)	0.0217	
Wt. rings + wet soil (g)	1171.15	
Wt. rings/tare (g)	0.00	
Moist soil, Ws (g)	1171.15	
Moist unit wt., γ_m (pcf)	119.2	
Dry unit wt., γ_d (pcf)	**91.4**	
Saturation (%)	96.9	
Void ratio, *e*	0.85	



Wet soil + tare (g)	220.19
Dry soil + tare (g)	198.64
Tare (g)	127.73
Water content, w (%)	**30.4**
Confining stress, σ_3 (psf)	1884
Shear rate (in/min)	0.0180
Strain at failure, ε_f (%)	14.96
Deviator stress at failure, $(\sigma_1\text{-}\sigma_3)_f$ (psf)	2372
Shear stress at failure, $q_f = (\sigma_1\text{-}\sigma_3)_f/2$ (psf)	1186

Axial Strain (%)	σ_d σ_1-σ_3 (psf)	Q 1/2 σ_d (psf)
0.00	102.3	51.2
0.05	96.2	48.1
0.10	90.1	45.1
0.15	89.5	44.7
0.20	86.9	43.4
0.25	153.0	76.5
0.30	279.4	139.7
0.35	369.7	184.9
0.40	420.4	210.2
0.45	474.1	237.0
0.70	619.1	309.6
0.95	709.6	354.8
1.20	778.4	389.2
1.45	841.0	420.5
1.70	891.6	445.8
1.95	941.9	470.9
2.20	988.9	494.4
2.45	1035.4	517.7
2.70	1078.9	539.5
2.95	1119.3	559.7
3.45	1196.5	598.3
3.95	1269.7	634.9
4.45	1345.0	672.5
4.95	1399.5	699.8
5.45	1455.9	728.0
5.95	1509.5	754.8
6.45	1567.5	783.8
6.95	1633.4	816.7
7.45	1687.1	843.6
7.95	1740.2	870.1
8.45	1790.1	895.1
8.95	1836.4	918.2
9.46	1895.8	947.9
9.95	1943.3	971.7
10.45	1993.3	996.7
10.96	2042.4	1021.2
11.46	2093.4	1046.7
11.96	2138.4	1069.2
12.46	2175.1	1087.6
12.96	2218.9	1109.5
13.46	2262.3	1131.2
13.96	2297.0	1148.5
14.46	2338.8	1169.4
14.96	2372.3	1186.2
14.96	2372.3	1186.2



Entered by: CJ
Reviewed:

Client

Excel Engineering Inc
Fond du Lac, WI

Project

West Point Dairy Expansion
61255214

Date Received: 2/20/2026

Corrosivity Suite - *Results*

Sample Location		B - 27	B - 30
Sample Depth (ft.)		0 - 5	1 - 5
Acidity (pH)	**AASHTO T289**	9.3	8.6
Water Soluble Sulfate Ion Content (mg/Kg)	**AASHTO T290B**	45	82
Water Soluble Chloride Ion Content (mg/Kg)	**AASHTO T291A**	375	375
Oxidation-Reduction Potential (RmV)	**ASTM G200**	240.6	240.0
Electrical Resistivity (Ω·cm)	**ASTM G57**	1500	740
Total Dissolved Salts (mg/Kg)	**AWWA 2520 B**	1065	1410
Water Soluble Sulfide Content (mg/Kg)	**AWWA 4500-S,D**	Nil	Nil

Verified By: *Myles Warner*
2/27/2026

These tests were performed in general accordance with the applicable AASHTO, ASTM, and AWWA test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced without the full written consent of Terracon Consultants Inc.. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar materials.

Supporting Information

Contents:

Note: All attachments are one page unless noted above.

General Notes

Sampling

- Auger Cuttings
- Modified California Ring Sampler
- Rock Core
- Dynamic Cone Penetrometer
- Modified Dames & Moore Ring Sampler
- Dual Sampler SPT
- Grab Sample
- GeoProbe Macro Core or Large Bore
- No Recovery
- Ring Sampler
- Shelby Tube
- Standard Penetration Test
- Split Spoon
- Texas Cone Penetrometer
- Vane Shear

Water Level

▽	Water Initially Encountered
▽	Water Level After a Specified Period of Time
▼	Water Level After a Specified Period of Time
▨	Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

Field Tests

N	Standard Penetration Test Resistance (Blows/Ft.)
(HP)	Hand Penetrometer
(T)	Torvane
(DCP)	Dynamic Cone Penetrometer
UC	Unconfined Compressive Strength
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		**Consistency of Fine-Grained Soils** (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	**Standard Penetration or N-Value (Blows/Ft.)**	**Consistency**	**Unconfined Compressive Strength Qu (tsf)**	**Standard Penetration or N-Value (Blows/Ft.)**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N] Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P] Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If the field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to the group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to the group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to the group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to the group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to the group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to the group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.

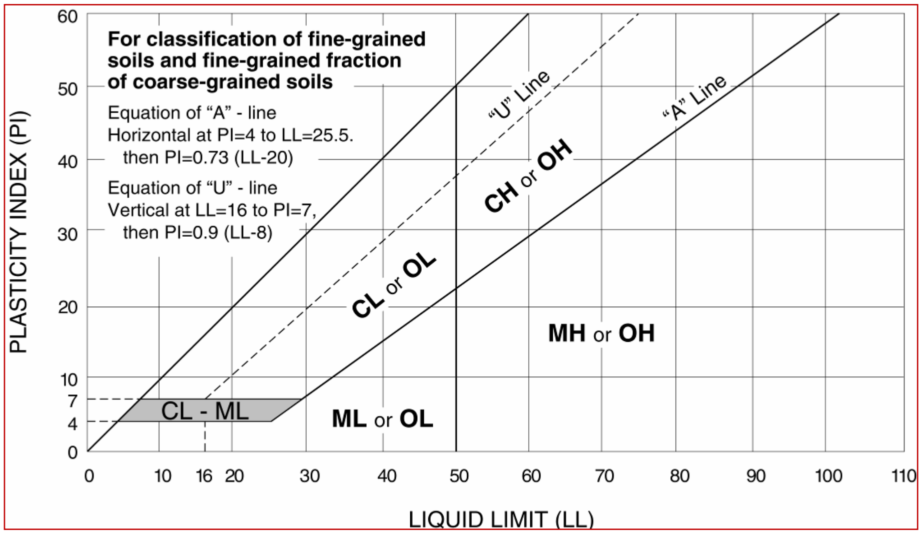


TABLE OF CONTENTS

CPT-B29 results

LIQUEFACTION ANALYSIS REPORT

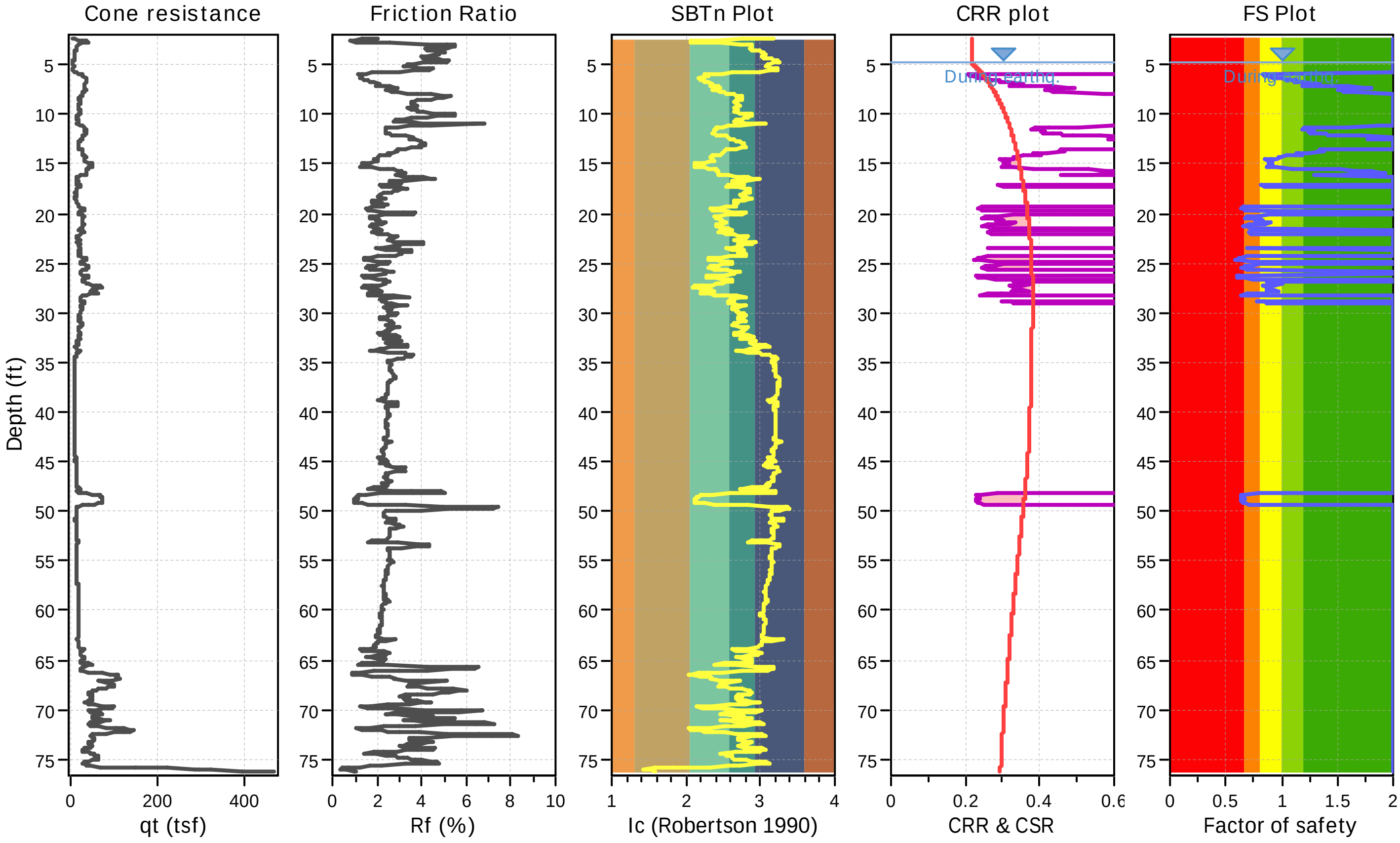
Project title :

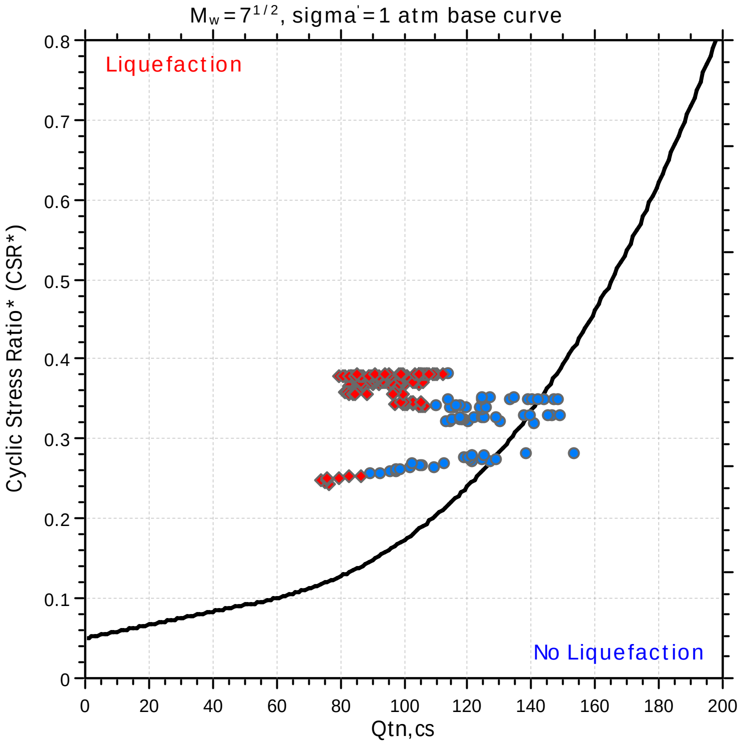
Location :

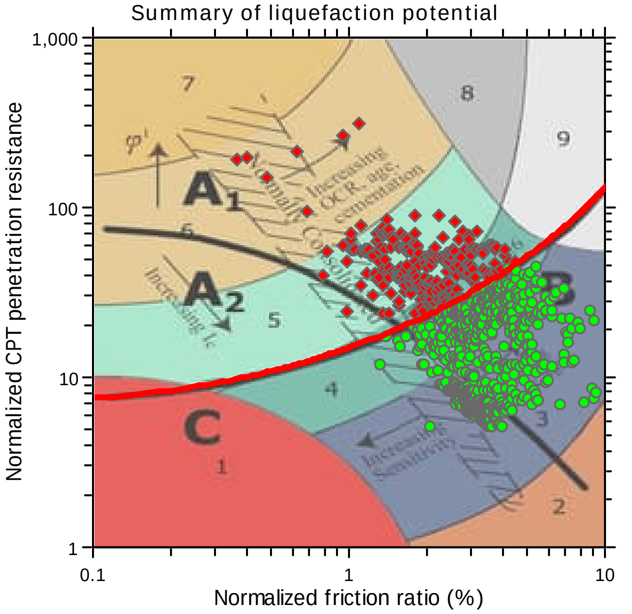
CPT file : CPT-B29

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	4.80 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	4.80 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	50.00 ft
Earthquake magnitude M_w:	6.64	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.46	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

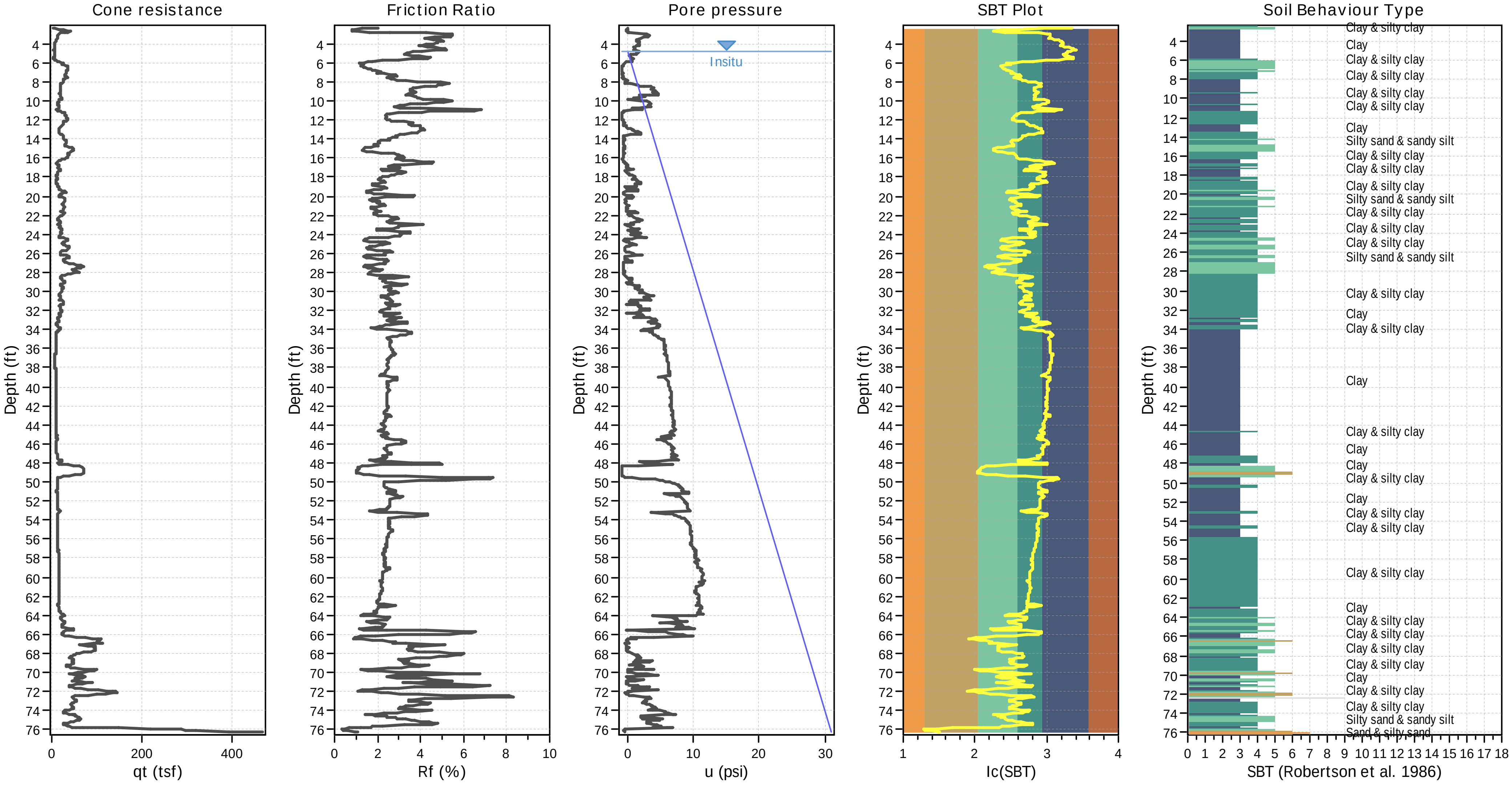






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and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

CPT basic interpretation plots



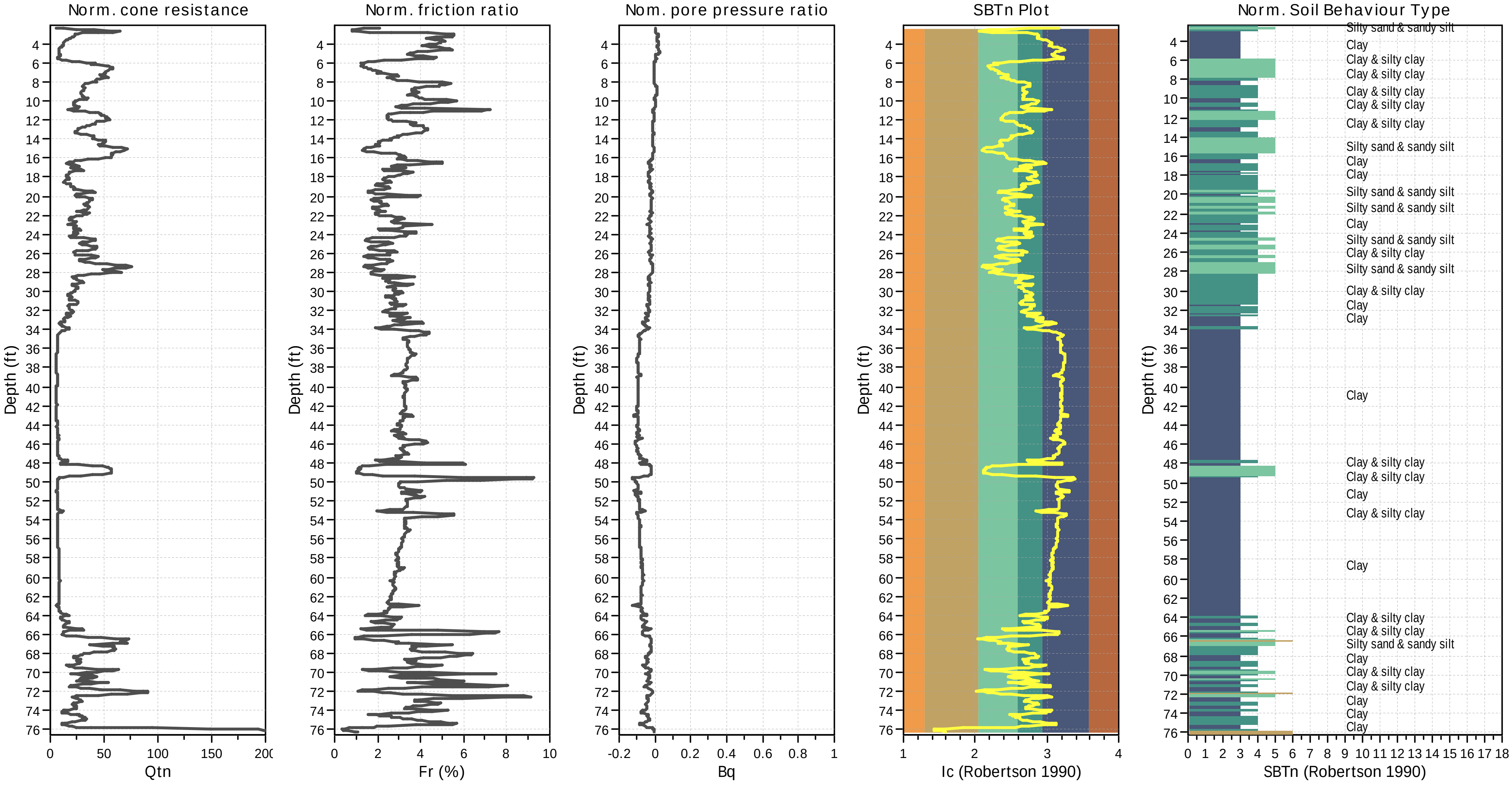
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	4.80 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:	6.64	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.46	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	4.80 ft	Fill height:	N/A	Limit depth:	50.00 ft

SBT legend

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

CPT basic interpretation plots (normalized)



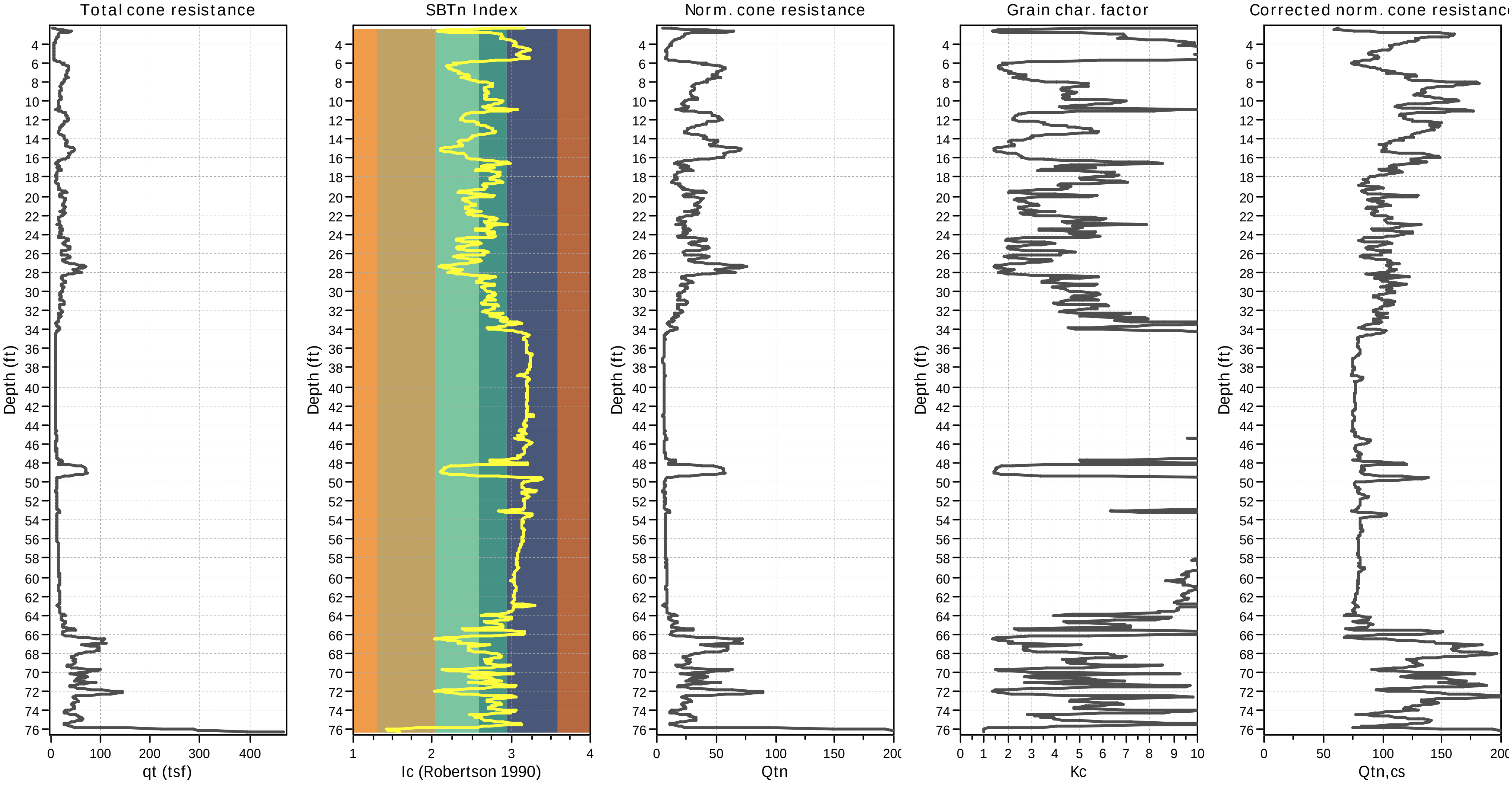
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	4.80 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:	6.64	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.46	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	4.80 ft	Fill height:	N/A	Limit depth:	50.00 ft

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)



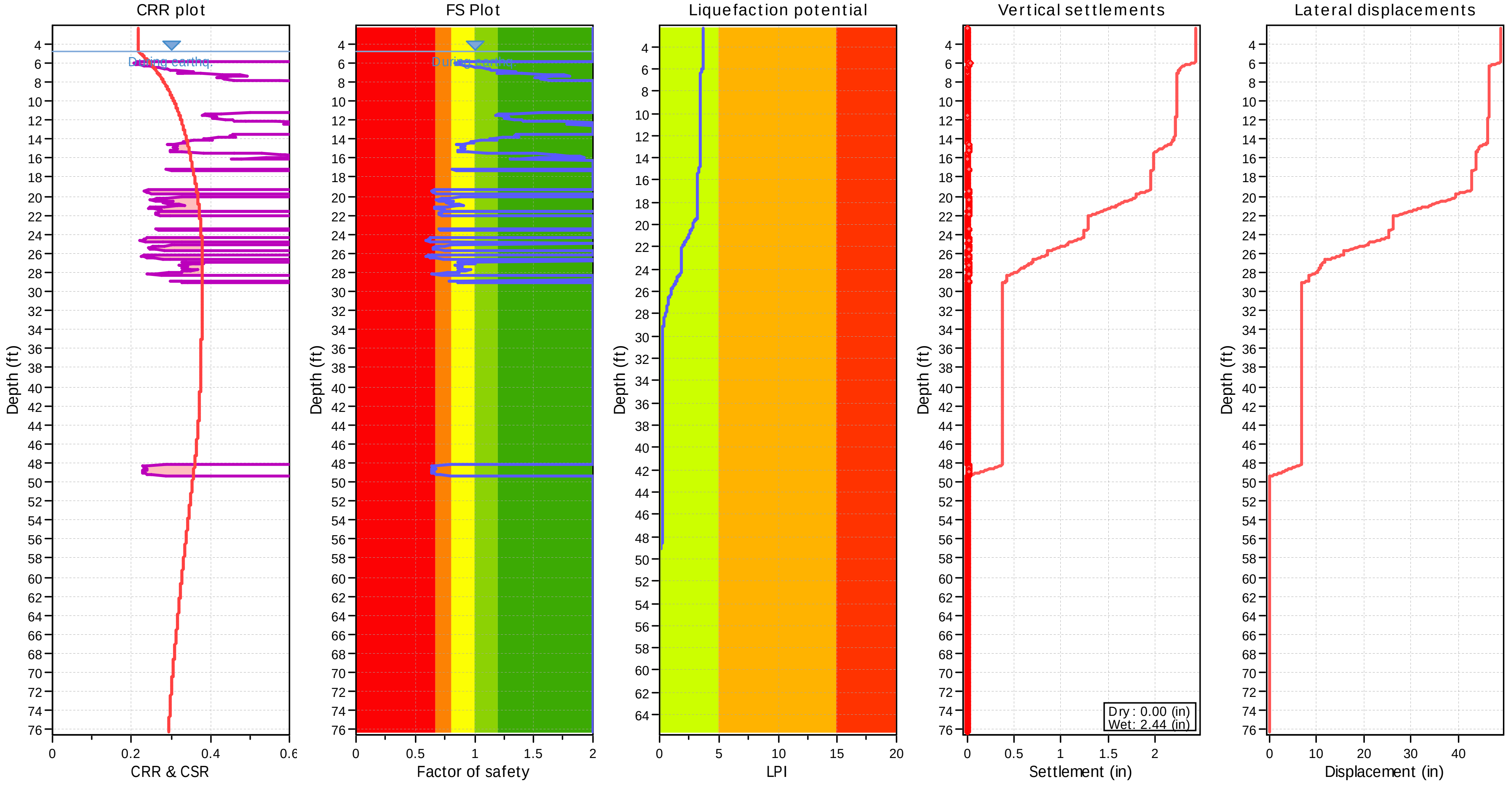
Input parameters and analysis data

Analysis method: NCEER (1998)
Fines correction method: NCEER (1998)
Points to test: Based on Ic value
Earthquake magnitude M_w: 6.64
Peak ground acceleration: 0.46
Depth to water table (insitu): 4.80 ft

Depth to water table (erthq.): 4.80 ft
Average results interval: 3
Ic cut-off value: 2.60
Unit weight calculation: Based on SBT
Use fill: No
Fill height: N/A

Fill weight: N/A
Transition detect. applied: No
K_σ applied: Yes
Clay like behavior applied: Sands only
Limit depth applied: Yes
Limit depth: 50.00 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	4.80 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:	6.64	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.46	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	4.80 ft	Fill height:	N/A	Limit depth:	50.00 ft

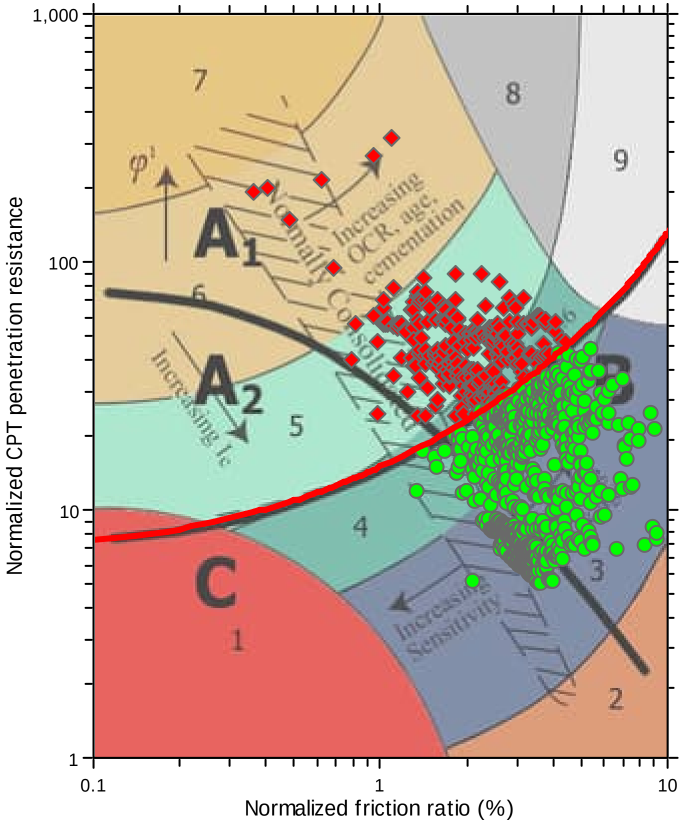
F.S. color scheme

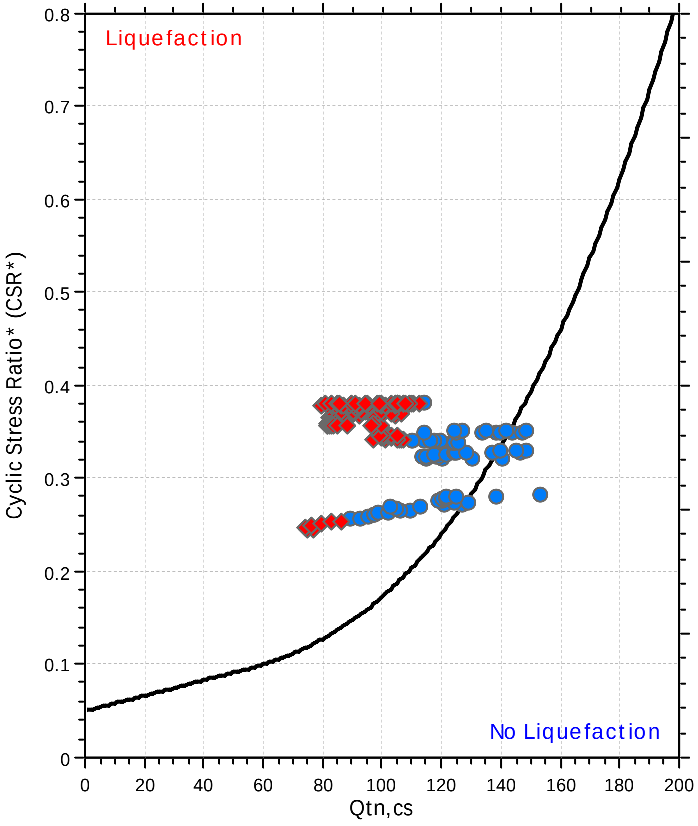
- 🟥 Almost certain it will liquefy
- 🟧 Very likely to liquefy
- 🟨 Liquefaction and no liq. are equally likely
- 🟩 Unlike to liquefy
- 🟩 Almost certain it will not liquefy

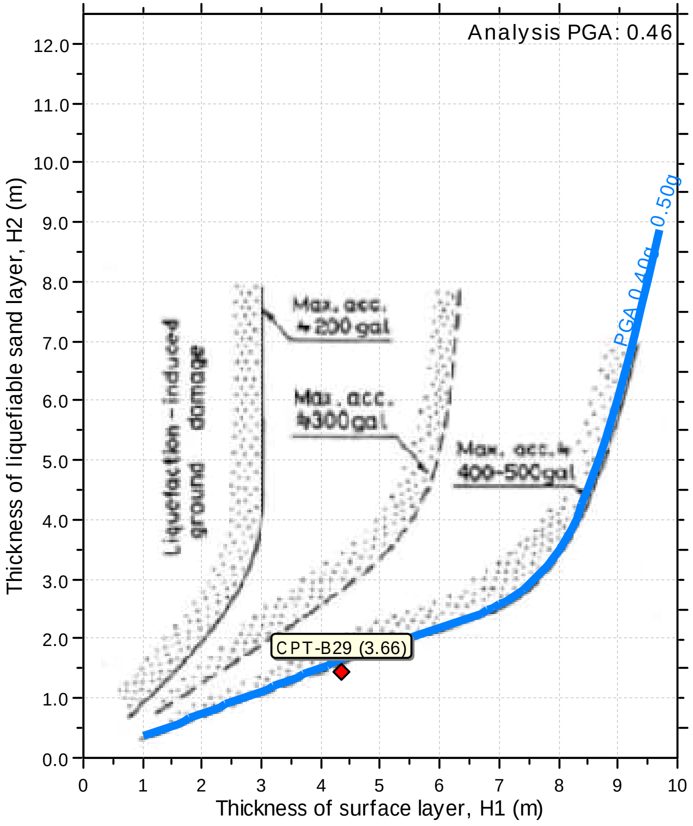
LPI color scheme

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

Liquefaction analysis summary plots



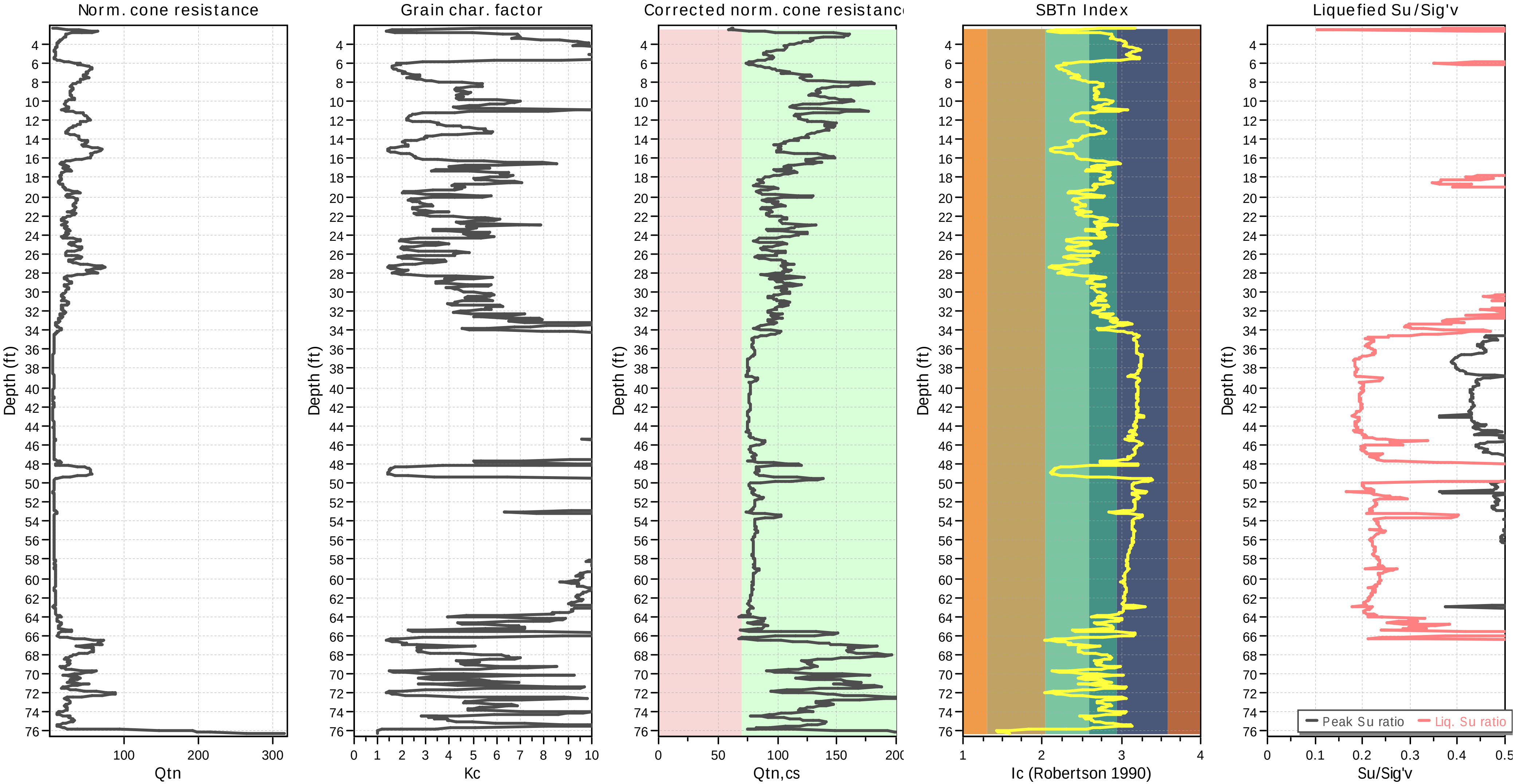




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	4.80 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:	6.64	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.46	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	4.80 ft	Fill height:	N/A	Limit depth:	50.00 ft

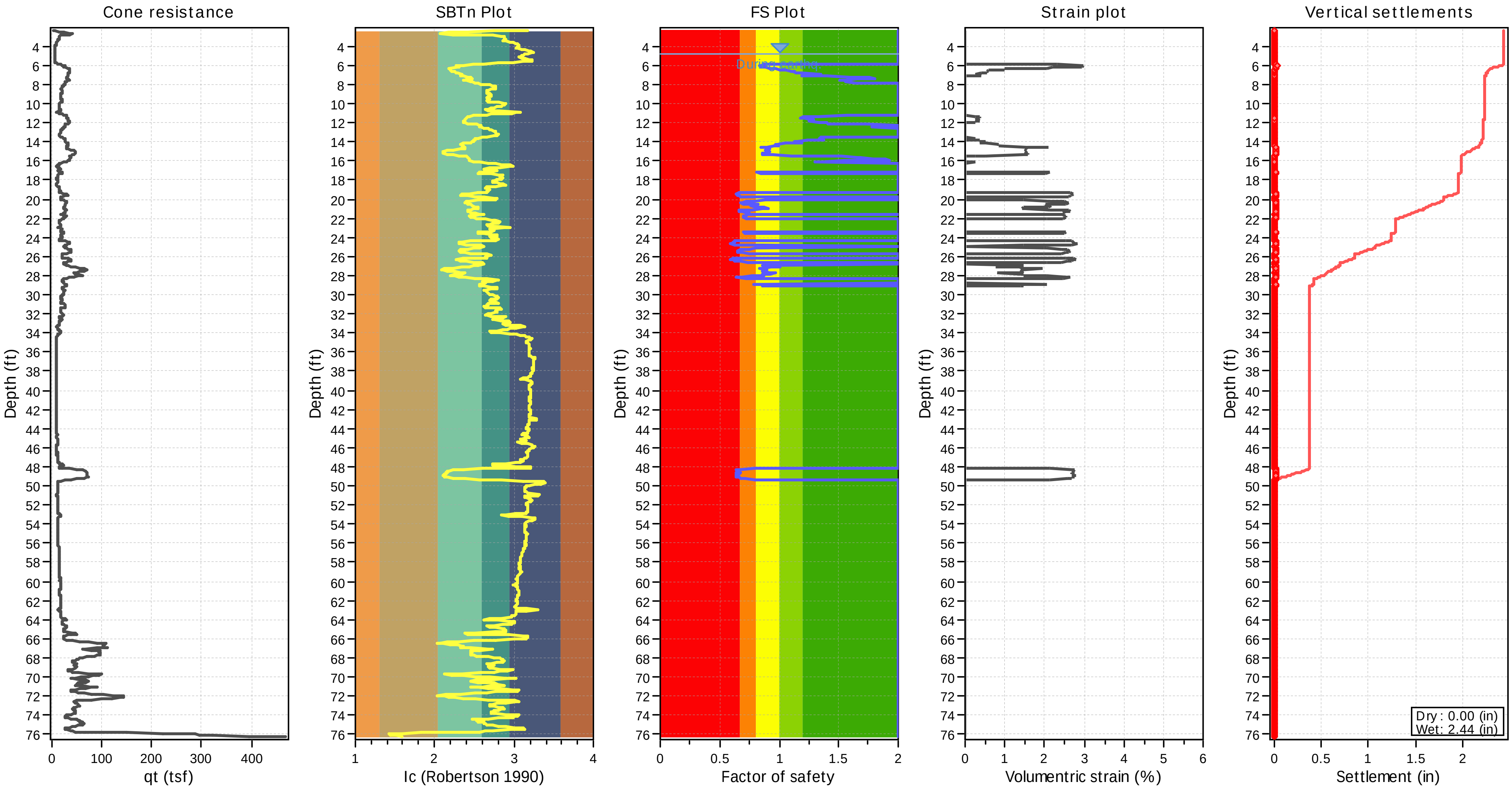
Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	4.80 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:	6.64	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.46	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	4.80 ft	Fill height:	N/A	Limit depth:	50.00 ft

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