



**GEOTECHNICAL INVESTIGATION**

**INDUSTRIAL BUILDINGS**

**9000 WEST 900 SOUTH**

**OGDEN, UTAH**

**PREPARED FOR:**

**RASS CONSTRUCTION  
700 SOUTH 6150 WEST  
OGDEN, UTAH 84404**

**ATTENTION: ROB HOWARD**

**PROJECT NO. 1210119**

**MARCH 26, 2021**

# TABLE OF CONTENTS

EXECUTIVE SUMMARY..... Page 1

SCOPE. .... Page 2

SITE CONDITIONS. .... Page 2

FIELD STUDY..... Page 3

SUBSURFACE CONDITIONS..... Page 3

SUBSURFACE WATER. .... Page 5

PROPOSED CONSTRUCTION. .... Page 5

RECOMMENDATIONS..... Page 6

- A. Site Grading..... Page 6
- B. Foundations..... Page 8
- C. Concrete Slab-on-Grade..... Page 10
- D. Lateral Earth Pressures..... Page 10
- E. Subsurface Drains..... Page 11
- F. Seismicity, Faulting and Liquefaction..... Page 12
- G. Water Soluble Sulfates..... Page 13
- H. Pavement..... Page 14
- I. Preconstruction Meeting..... Page 16

LIMITATIONS..... Page 17

REFERENCES . .... Page 18

**FIGURES**

- TEST PIT, BORING AND CPT LOCATIONS ..... FIGURE 1
- EXPLORATORY BORING LOG ..... FIGURE 2
- TEST PIT LOGS ..... FIGURE 3
- TEST PIT & EXPLORATORY BORING LEGEND AND NOTES ..... FIGURE 4
- CONSOLIDATION TEST RESULTS ..... FIGURES 5-7
- GRADATION TEST RESULTS ..... FIGURE 8
- SHEAR-WAVE VELOCITY MEASUREMENTS ..... FIGURE 9
- SUMMARY OF FIELD AND LABORATORY TEST RESULTS ..... TABLE I

**APPENDIX**

CONE PENETRATION TEST (CPT)

## EXECUTIVE SUMMARY

1. Approximately 2 feet of fill overlying lean clay was encountered in Test Pit TP-1. Approximately 1 to 1½ feet of topsoil was encountered in the boring and the other test pits overlying clay or sand. Very soft clay was encountered between depths of approximately 8 and 23½ feet in Boring B-1 and between approximately 9 and 26 feet for the cone penetration test. Interlayered lean clay and silty sand was encountered below this depth.
2. Results of shear wave velocity measurements obtained during the CPT indicate that Site Class E is appropriate for this site per the 2018 International Building Code.
3. Subsurface water was estimated at the time of test pit excavation on March 3, 2021 or measured on that day for the boring and test pits excavated earlier to be at depths of approximately 4 to 9 feet. The estimated depths to water could be a few feet off from the actual depth to water. Fluctuations in water levels should be expected over time.
4. The proposed buildings may be supported on spread footings bearing on the undisturbed natural soil within 4 feet of the original grade or on compacted structural fill extending down to the undisturbed natural soil within 4 feet of the original grade. Spread footings may be designed using a net allowable bearing pressure of 1,500 pounds per square foot. Footings bearing on at least 2 and 4 feet of structural fill may be designed for net allowable bearing pressures of 2,500 and 3,500 pounds per square foot, respectively.
5. Some of the upper soil consists of clay and will be easily disturbed by construction equipment traffic when it is very moist to wet. Placement of 1 to 2 feet of granular fill may be needed to facilitate construction and site access when the upper soil is very moist to wet, such as in the wet time of the year.
6. Geotechnical information related to foundations, subgrade preparation, pavement design and materials is included in this report.

## **SCOPE**

This report presents the results of a geotechnical investigation for the proposed industrial development located on the south side of 900 South Street at approximately 9000 West in Ogden, Utah. The report presents the subsurface conditions encountered, laboratory test results and recommendations for foundations and pavement. The study was conducted in general accordance with our proposal dated February 16, 2021.

Field exploration was conducted to obtain information on the subsurface conditions. Samples obtained during the field investigation were tested in the laboratory to determine physical and engineering characteristics of the on-site soil. Information obtained from the field and laboratory was used to define conditions at the site for our engineering analysis and to develop recommendations for the proposed foundations and pavement.

This report has been prepared to summarize the data obtained during the study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction are included in the report.

## **SITE CONDITIONS**

At the time of the field study, there were no permanent structures or pavement on the site. The site consists of undeveloped ground. There is a ditch that extends through the property as indicated on Figure 1.

The ground surface for most of the site slopes gently down toward the west.

Vegetation at the site consists predominantly of grass.

There are fields and a runway east of the site, a railroad and fields to the south, fields and a house to the west, and 900 South Street to the north.

## **FIELD STUDY**

The boring was drilled, two test pits excavated and the cone penetration test (CPT) with shear wave velocity measurements performed on February 26, 2021. Three test pits were excavated on March 3, 2021. The boring was advanced using direct push. The test pits were excavated using a tracked excavator. The approximate locations of the boring, test pits and CPT are presented on Figure 1. The boring and test pits were logged by an engineer from AGECE. Logs of the subsurface conditions encountered in the boring and test pits are presented on Figures 2 and 3 with legend and notes on Figure 4. The CPT data are presented in the appendix. The shear wave velocity measurements obtained during the CPT are presented on Figure 9.

The test pits were backfilled without significant compaction. The backfill should be removed and replaced with properly compacted fill where it will support buildings, slabs, pavement and other site features sensitive to differential settlement.

## **SUBSURFACE CONDITIONS**

Approximately 2 feet of fill overlying lean clay was encountered in Test Pit TP-1. Approximately 1 to 1 ½ feet of topsoil was encountered in the boring and the other test pits overlying clay or sand. Very soft clay was encountered between depths of approximately 8 and 23 ½ feet in Boring B-1 and between approximately 9 and 26 feet for the cone penetration test. Interlayered lean clay and silty sand was encountered below this depth.

A description of the soil encountered in the boring and test pits follows:

Fill - The upper approximately ½ foot of fill in Test Pit TP-1 consists of silty gravel with sand. It is underlain by fill consisting of silty sand with some gravel. The fill is slightly moist to moist and brown to dark brown.

Laboratory tests on the fill indicate it has a moisture content of 9 percent. The results of a gradation test on the fill are presented on Figure 8.

Topsoil - The topsoil consists of silty sand to sandy lean clay. It is slightly moist to moist, dark brown and contains organics.

Lean Clay - The clay contains small to large amounts of sand and some thin silt and sand layers. It is very soft to stiff, moist to wet and brown to gray.

Laboratory tests on the clay indicate it has natural moisture contents of 28 to 82 percent and natural dry densities of 53 and 72 pounds per cubic foot (pcf). An unconfined compressive strength of 2,135 pounds per square foot (psf) was measured for a sample of clay. Results of consolidation tests on the clay indicate it will compress a small to large amount with the addition of light to moderate loads. Results of the tests are presented on Figures 5 and 6.

Interlayered Lean Clay and Silty Sand - The interlayered soil contains silt layers. It is medium stiff, medium dense, very moist to wet and brown to gray.

Laboratory tests on the interlayered soil indicate it has natural moisture contents of 21 to 31 percent and natural dry densities of 93 to 100 pcf. Results of a consolidation test on the interlayered soil indicate it will compress a small amount with the addition of light to moderate loads. Results of the test are presented on Figure 7.

Silty Sand - The sand contains thin clay and silt layers. It is medium dense, moist to wet and brown to gray.

Laboratory tests conducted on samples of the sand indicate it has natural moisture contents of 16 to 30 percent and a natural dry density of 94 pcf.

Results of the laboratory tests are summarized on Table I and are included in the logs of the boring and test pits.

### **SUBSURFACE WATER**

Subsurface water was estimated at the time of test pit excavation on March 3, 2021 or measured on that day for the boring and test pits excavated earlier to be at depths of approximately 4 to 9 feet. The estimated depths to water could be a few feet off from the actual depth to water. Fluctuations in water levels should be expected over time. We expect water levels to be highest in the spring and summer and lowest in the fall and winter.

### **PROPOSED CONSTRUCTION**

We anticipate the proposed buildings will be single-story structures with a slab-on-grade floors. We have assumed maximum column loads will be on the order of 50 kips and maximum wall loads will be on the order of 5 kips per lineal foot.

We anticipate that car parking and truck access areas will be constructed. We have assumed three traffic conditions; one with no significant truck traffic, one with five delivery trucks and two semis per day and a third with five delivery trucks and ten semis per day.

If the proposed construction, building loads or traffic is significantly different from what is described above, we should be notified so that we can reevaluate our recommendations.

## RECOMMENDATIONS

Based on the subsoil conditions encountered, laboratory test results and the proposed construction, the following recommendations are given:

### A. Site Grading

Site grading plans were not provided for our review. If the site will be raised more than about 3 feet, the fill should be placed well in advance of building construction, at least 3 months prior. The settlement should be monitored to determine when building construction may begin.

#### 1. Subgrade Preparation

Prior to placing site grading fill or base course, the organics, debris, unsuitable fill and other deleterious material should be removed from below proposed building, slabs, pavement and other improvements sensitive to differential settlement.

Some of the upper soil consists of clay and will be easily disturbed by construction equipment traffic when it is very moist to wet. Placement of 1 to 2 feet of granular fill may be needed to facilitate construction and site access when the upper soil is very moist to wet, such as in the wet time of the year.

#### 2. Excavation

Excavation at the site can be accomplished with typical excavation equipment. Excavations that extend below the water level should be dewatered prior to placement of fill and concrete. Free-draining gravel should be used as fill below the original water level. A geotextile may be placed below the gravel to facilitate construction.



### 3. Compaction

Compaction of materials placed at the site should equal or exceed the minimum densities as indicated below when compared to the maximum dry density as determined by ASTM D 1557.

| Fill To Support               | Compaction Criteria |
|-------------------------------|---------------------|
| Foundations                   | ≥ 95%               |
| Concrete Slabs                | ≥ 90%               |
| Pavement                      |                     |
| Base Course                   | ≥ 95%               |
| Fill placed below Base Course | ≥ 90%               |
| Landscaping                   | ≥ 85%               |
| Retaining Wall Backfill       | 85 - 90%            |

To facilitate the compaction process, the fill should be compacted at a moisture content within 2 percent of the optimum.

Fill and pavement materials placed for the project should be frequently tested for compaction.

### 4. Materials

Materials placed as fill to support the buildings should be non-expansive granular soil. Most of the natural soil is not expected to be suitable for use as structural fill but may be considered for use as site grading fill and utility trench backfill outside of building areas if the topsoil, organics and other deleterious materials are removed or it may be used in landscaping areas.

Use of the on-site soil as fill or backfill will likely require moisture conditioning (wetting or drying) to facilitate compaction. Drying of the soil may not be practical during cold or wet periods of the year.

Listed below are materials recommended for imported structural fill.

| Fill to Support                | Recommendations   |
|--------------------------------|---|
| Footings                       | Non-expansive granular soil<br>Passing No. 200 Sieve < 35%<br>Liquid Limit < 30%<br>Maximum size 4 inches |
| Floor Slab<br>(Upper 4 inches) | Sand and/or Gravel<br>Passing No. 200 Sieve < 5%<br>Maximum size 2 inches                                 |
| Slab Support                   | Non-expansive granular soil<br>Passing No. 200 Sieve < 50%<br>Liquid Limit < 30%<br>Maximum size 6 inches |

Free-draining gravel should be used as fill below the original water level.

#### 5. Drainage

The ground surface surrounding the proposed buildings should be sloped away from the buildings in all directions. Roof downspouts and drains should discharge beyond the limits of backfill.

The collection and diversion of drainage away from the pavement surface is important to the satisfactory performance of the pavement section. Proper drainage should be provided.

### B. Foundations

#### 1. Bearing Material

With the proposed construction and the subsurface conditions encountered, the proposed buildings may be supported on spread footings bearing on the undisturbed natural soil within 4 feet of the original grade or on compacted structural fill extending down to the undisturbed natural soil within 4 feet of the original grade. At least 2 feet of structural fill should be provided below footings that would otherwise bear on the soil more than 4 feet below original

grade. Structural fill placed below footings should extend out away from the edge of the footings at least a distance equal to the depth of fill beneath footings.

Unsuitable fill, topsoil, organics, debris and other deleterious materials should be removed from below proposed foundation areas.

2. Bearing Pressures

Spread footings bearing on the natural soil within 4 feet of the original grade may be designed using a net allowable bearing pressure of 1,500 pounds per square foot. Footings bearing on at least 2 and 4 feet of structural fill may be designed for net allowable bearing pressures of 2,500 and 3,500 pounds per square foot, respectively.

3. Temporary Loading Conditions

The bearing pressure indicated above may be increased by one-half for temporary loading conditions such as for wind and seismic loads.

4. Settlement

Based on the subsoil conditions encountered and the assumed building loads, we estimate that total and differential settlement will be less than 1 and ½ inch, respectively.

5. Frost Depth

Exterior footings and footings beneath unheated areas should be placed at least 30 inches below grade for frost protection.

6. Foundation Base

The base of footing excavations should be cleared of loose or deleterious material prior to fill or concrete placement.

7. Construction Observation

A representative of the geotechnical engineer should observe footing excavations prior to structural fill or concrete placement.

**C. Concrete Slab-on-Grade**

1. Slab Support

Concrete slabs may be supported on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil. Topsoil, debris, unsuitable fill and other deleterious materials should be removed from below proposed floor slabs.

2. Underslab Sand and/or Gravel

A 4-inch layer of free-draining sand and/or gravel with less than 5 percent passing the No. 200 sieve should be placed below the concrete slabs for ease of construction and to promote even curing of the slab concrete.

3. Vapor Barrier

A vapor barrier should be placed below the concrete floor if the floor will receive an impermeable floor covering. The barrier will reduce the amount of water vapor passing from below the slab to the floor covering.

**D. Lateral Earth Pressures**

1. Lateral Resistance for Footings

Lateral resistance for footings placed on the natural soil or on compacted structural fill is controlled by sliding resistance between the footings and the foundation soils. A friction value of 0.35 may be used in design for ultimate lateral resistance for footings.

2. Subgrade Walls and Retaining Structures

The following equivalent fluid weights are given for design of subgrade walls and retaining structures. The active condition is where the wall moves away from the soil. The passive condition is where the wall moves into the soil and the at-rest condition is where the wall does not move. The values listed assume a horizontal surface adjacent the wall.

| Soil Type     | Active | At-Rest | Passive |
|---------------|--------|---------|---------|
| Sand & Gravel | 40 pcf | 55 pcf  | 300 pcf |
| Clay & Silt   | 50 pcf | 60 pcf  | 250 pcf |

3. Seismic Conditions

Under seismic conditions, the equivalent fluid weight should be increased by 33 pcf for the active condition and 18 pcf for the at-rest condition, and decreased by 33 pcf for the passive condition. This assumes a peak ground acceleration of 0.54g for a 2 percent probability of exceedance in a 50-year period.

4. Safety Factors

The values recommended above assume mobilization of the soil to achieve the assumed soil strength. Conventional safety factors used for structural analysis for such items as overturning and sliding resistance should be used in design.

**E. Subsurface Drains**

If the lowest floor level of a building extends below the original ground surface elevation, the subgrade floor portion of the building should be protected with a subsurface drain system. The perimeter drain system should consist of at least the following items:

1. The subsurface drain should consist of a perforated pipe installed in a gravel filled trench around the perimeter of the below grade floor portion of the building.
2. The flow line of the pipe should be placed at least 18 inches below the finished floor level and should slope to a sump or outlet where water can be removed by pumping or by gravity flow.
3. If placing the gravel and drain pipe requires excavation below the bearing level of the footing, the excavation for the drain pipe and gravel should have a slope no steeper than 1 horizontal to 1 vertical away from the edge of the footing to avoid disturbing the soil below the footing.
4. A filter fabric should be placed between the natural soil and the drain gravel. This will help reduce the potential for fine-grained materials filling in the void spaces of the gravel.
5. The subgrade floor slab should have at least 6 inches of free draining gravel placed below it and the under slab gravel should connect to the perimeter drain.
6. Consideration should be given to installing cleanouts to allow access into the perimeter drain, should cleaning of the pipe be required in the future.

**F. Seismicity, Faulting and Liquefaction**

1. Seismicity

Listed below is a summary of the site parameters that may be used with the 2018 International Building Code:

| Description                                      | Value |
|--|-------|
| Site Class                                       | E     |
| $S_s$ - $MCE_R$ ground motion (period = 0.2s)    | 0.86g |
| $S_1$ - $MCE_R$ ground motion (period = 1.0s)    | 0.31g |
| $F_a$ - Site amplification factor at 0.2s        | 1.26  |
| $F_v$ - Site amplification factor at 1.0s        | 2.76  |
| PGA - $MCE_G$ peak ground acceleration           | 0.37g |
| $PGA_M$ - Site modified peak ground acceleration | 0.54g |

## 2. Faulting

No surface traces of potentially active faults are mapped to extend through the site. The closest surface trace of a potentially active fault is mapped to be approximately 11 miles to the east (Utah Geological Survey, 2021).

## 3. Liquefaction

The site is located in an area mapped as having a "high" potential for liquefaction (Anderson and others, 1994). We estimate liquefaction-induced settlement could be on the order of 1 to 2 inches for the 2018 IBC seismic event. Less than half of this settlement is expected to be differential over the building area. We expect that the buildings will be designed to accommodate the liquefaction-induced settlement. The liquefaction could be mitigated installing aggregate piers below buildings or supporting buildings on deep foundations.

## G. **Water Soluble Sulfates**

One sample of the natural soil was tested in the laboratory for water soluble sulfate content. Test results indicate that there is less than 0.1 percent water soluble sulfate in the sample tested. Based on the test results and published literature, sulfate resistant cement is not needed for concrete placed in contact with the natural soil.

However, due to the location of the site, there is a potential for some of the natural soil to contain high water soluble sulfates. We recommend the use of Type II cement, a water to cement ratio not to exceed 0.5 and compressive strength of at least 4,000 psi for concrete to be placed in contact with the natural soil. Other conditions may dictate the type of cement to be used in concrete for the project.

## H. Pavement

Based on the subsoil conditions encountered, laboratory test results and the assumed traffic as indicated in the Proposed Construction section of the report, the following pavement support recommendations are given:

### 1. Subgrade Support

The upper soil at the site consists of clay and sand. A California Bearing Ratio (CBR) of 3 percent was used for our analysis, which assumes a clay subgrade.

### 2. Pavement Thickness

Based on the subsoil conditions, assumed traffic, a design life of 20 years for flexible and 30 years for rigid pavement and methods presented by AASHTO, the following pavement sections are calculated:

| Traffic                      | Rigid<br>Pavement              | Flexible Pavement     |                |                    |
|------------------------------|--------------------------------|-----------------------|----------------|--------------------|
|                              | Portland<br>Cement<br>Concrete | Asphaltic<br>Concrete | Base<br>Course | Granular<br>Borrow |
| Predominantly car<br>traffic | 5"                             | 3"                    | 3"             | 6"                 |
| Two semi trucks<br>per day   | 5"                             | 3½"                   | 6"             | 8"                 |
| Ten semi trucks per<br>day   | 6"                             | 4"                    | 6"             | 12"                |



A pavement section consisting of at least 6½ inches of Portland cement concrete over at least 4 inches of base course is recommended for the dumpster approach slab.

3. Pavement Material and Construction

a. Flexible Pavement (Asphaltic Concrete)

The pavement materials should meet the material specifications for the applicable jurisdiction. The use of other materials may result in the need for different pavement material thicknesses.

b. Rigid Pavement (Portland Cement Concrete)

The design assumes that a concrete shoulder or curb will be placed at the edge of the pavement and that the pavement will have aggregate interlock joints.

The pavement materials should meet the material specifications for the applicable jurisdiction. The pavement thicknesses indicated above assume that the concrete will have a 28-day compressive strength of 5,000 pounds per square inch. Concrete should be air entrained with approximately 6 percent air. The maximum allowable slump will depend on the method of placement, but should not exceed 4 inches.

4. Jointing

Joints for concrete pavement should be laid out in a square or rectangular pattern. Joint spacings should not exceed 30 times the thickness of the slab. The joint spacings indicated should accommodate the contraction of the concrete and under these conditions steel reinforcing will not be required. The depth of joints should be approximately one-fourth the slab thickness.

**I. Preconstruction Meeting**

A preconstruction meeting should be held with representatives of the owner, project architect, geotechnical engineer, general contractor, earthwork contractor and other members of the design team to review construction plans, specifications, methods and schedule.

## LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the test pits excavated, boring drilled and CPT measurements obtained at the approximate locations indicated on Figure 1 and the data obtained from laboratory testing. Variations in the subsurface conditions may not become evident until additional exploration or excavation is conducted. If the subsurface conditions or groundwater level is found to be significantly different from what is described above, we should be notified to reevaluate the recommendations given.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes, P.E., P.G.

Reviewed by Jay R. McQuivey, P.E.

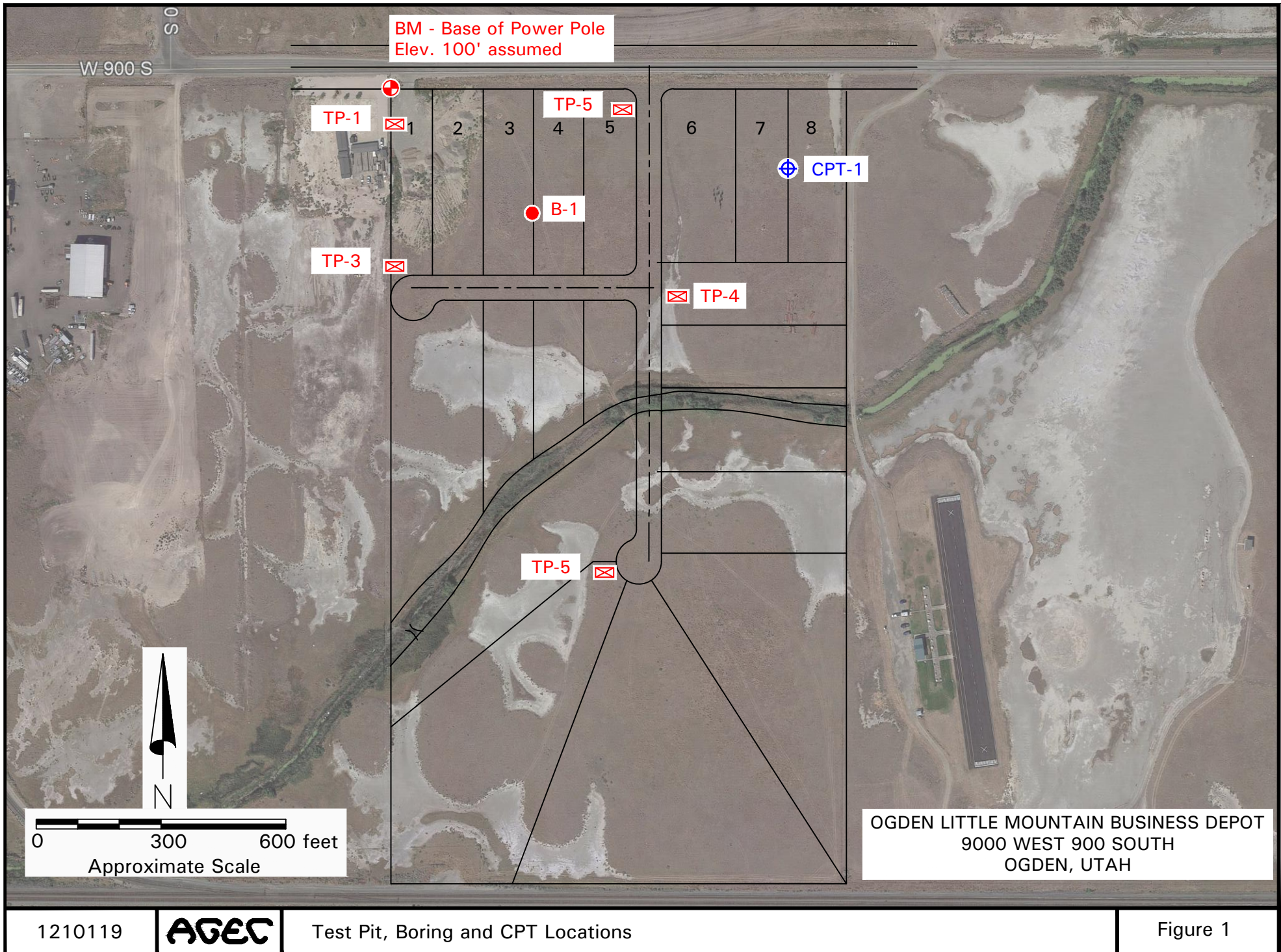
DRH/rs

## REFERENCES

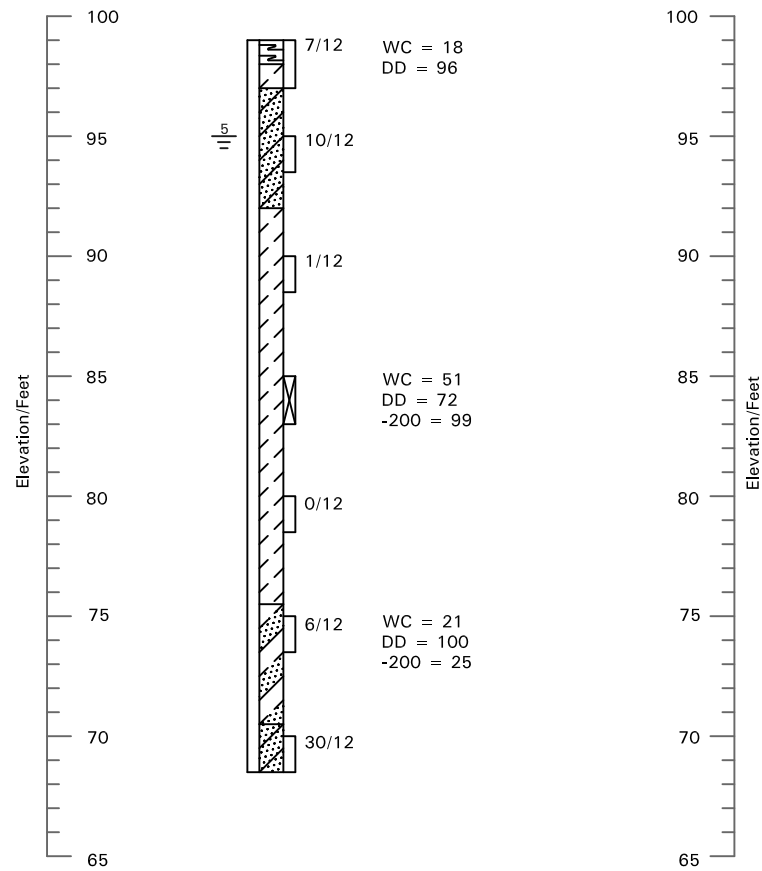
Anderson, L.R., Keaton, J.R., and Bay, J., 1994; Liquefaction Potential Map for Weber County, Utah; Utah Geological Survey Contract Report 94-1.

International Code Council, 2017; 2018 International Building Code, Falls Church, Virginia.

Utah Geological Survey, 2021; Utah Quaternary Fault and Fold Database, <http://geology.utah.gov/resources/data-databases/qfaults/> accessed March 24, 2021.

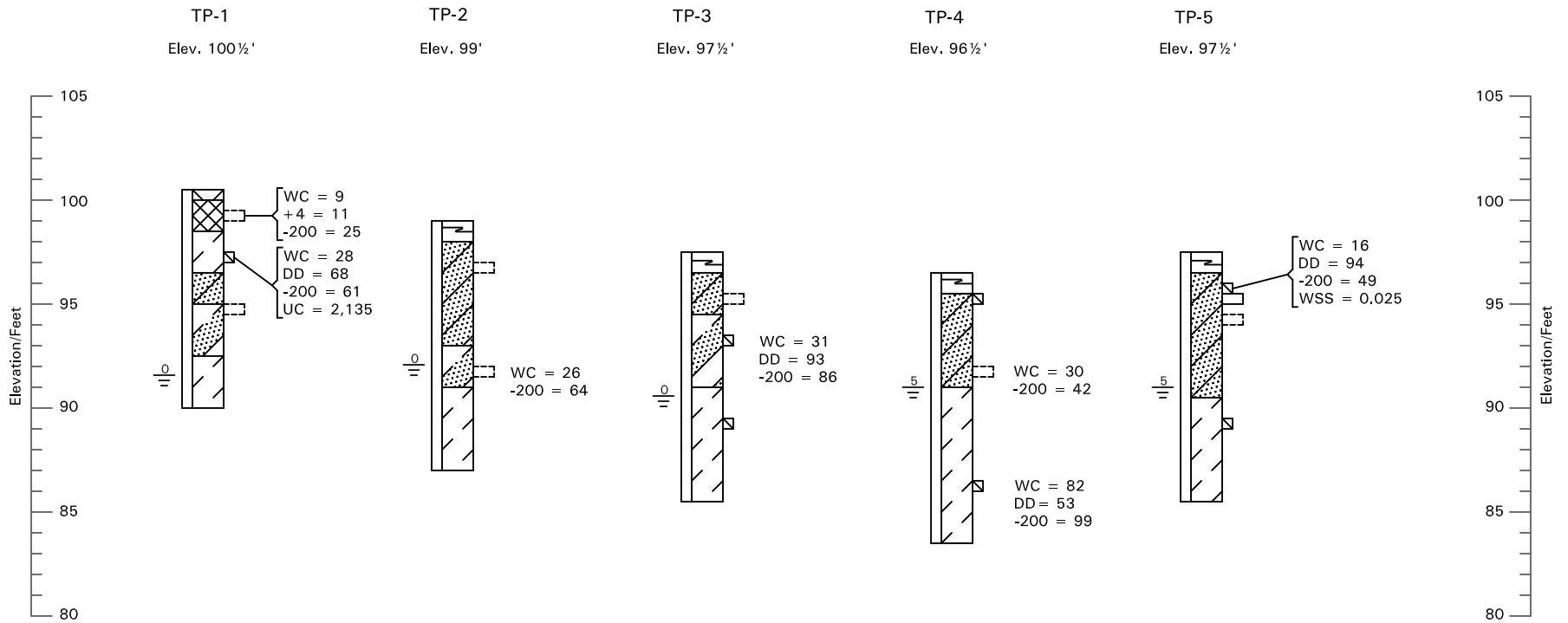


B-1  
Elev. 99'



Approximate Vertical Scale 1" = 8'

See Figure 4 for Legend and Notes



Approximate Vertical Scale 1" = 8'

See Figure 4 for Legend and Notes

LEGEND:



Fill; silty gravel with sand, slightly moist, dark brown.



Fill; silty sand, some gravels, moist, brown.



Topsoil; silty sand to sandy lean clay, slightly moist to moist, dark brown, organics.



Lean Clay (CL); small to large amount of sand, some thin silt and sand layers, very soft to stiff, moist to wet, brown to gray.



Interlayered Lean Clay and Silty Sand (CL/SM); silt layers, medium stiff, medium dense, very moist to wet, brown to gray.



Silty Sand (SM); thin silt and lean clay layers, medium dense, moist to wet, brown to gray.



10/12 California Drive sample taken. The symbol 10/12 indicates that 10 blows from a 140-pound automatic hammer falling 30 inches were required to drive the sampler 12 inches.



Indicates Shelby tube sample taken.



Indicates relatively undisturbed hand drive sample taken.



Indicates disturbed sample taken.



Indicates relatively undisturbed block sample taken.



Indicates slotted 1 1/2 inch PVC pipe installed in the boring or test pit to the depth shown.



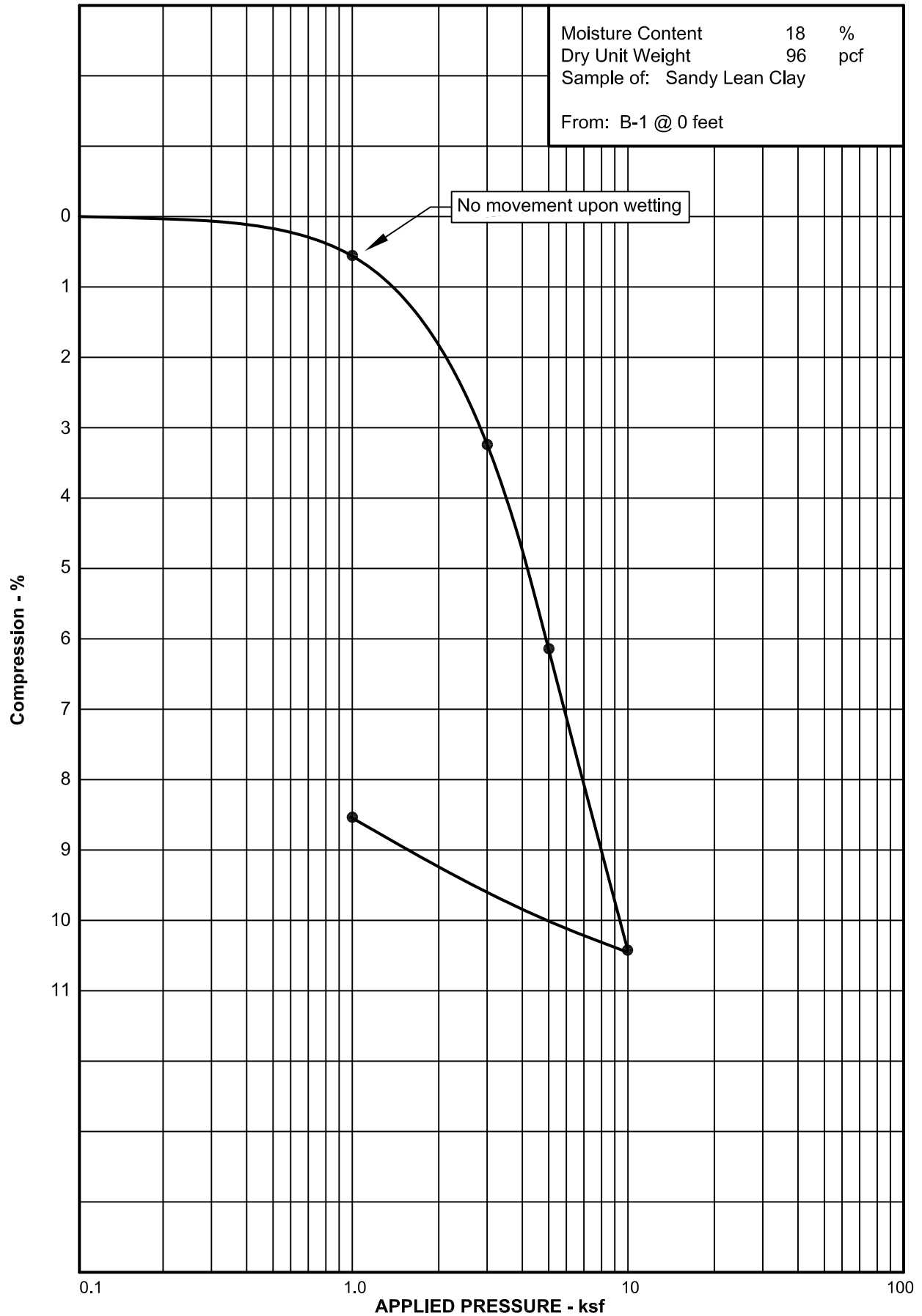
Indicates the depth to free water and the number of days after drilling and excavation the measurement was taken.

NOTES:

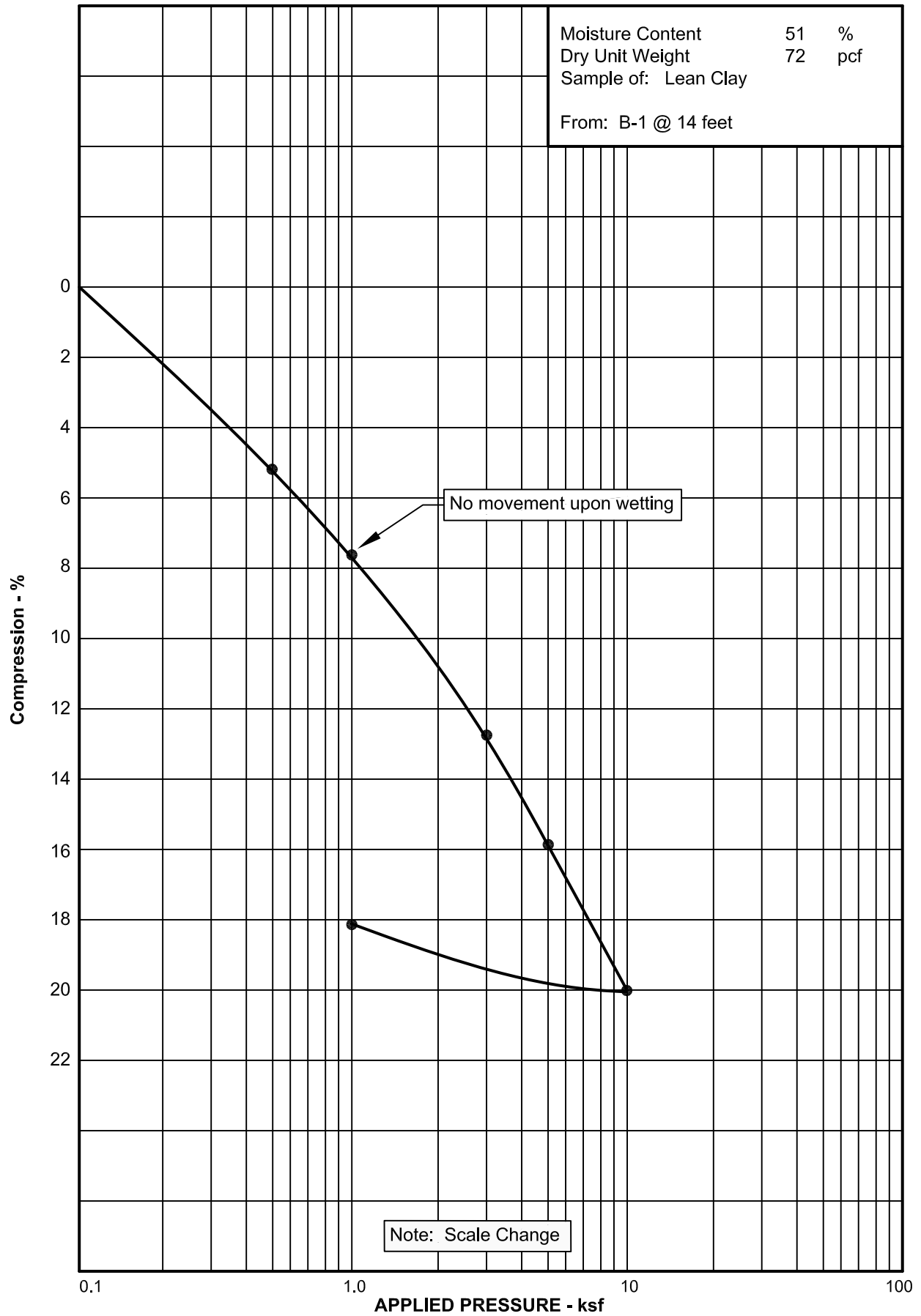
1. The boring was drilled on February 26, 2021 with direct push. The test pits were excavated on February 26 and March 3, 2021 with a tracked excavator.
2. Locations of the boring and test pits were measured approximately by pacing from features shown on the site plan provided.
3. Elevations of the boring and test pits were measured by automatic level and refer to the benchmark shown on Figure 1.
4. The boring and test pit locations and elevations should be considered accurate only to the degree implied by the method used.
5. The lines between materials shown on the logs represent the approximate boundaries between material types and the transitions may be gradual.
6. The water level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level will occur with time.
7. WC = Water Content (%);  
 DD = Dry Density (pcf);  
 +4 = Percent Retained on the No. 4 Sieve;  
 -200 = Percent Passing the No. 200 Sieve;  
 UC = Unconfined Compressive Strength (psf);  
 WSS = Water Soluble Sulfates (%).



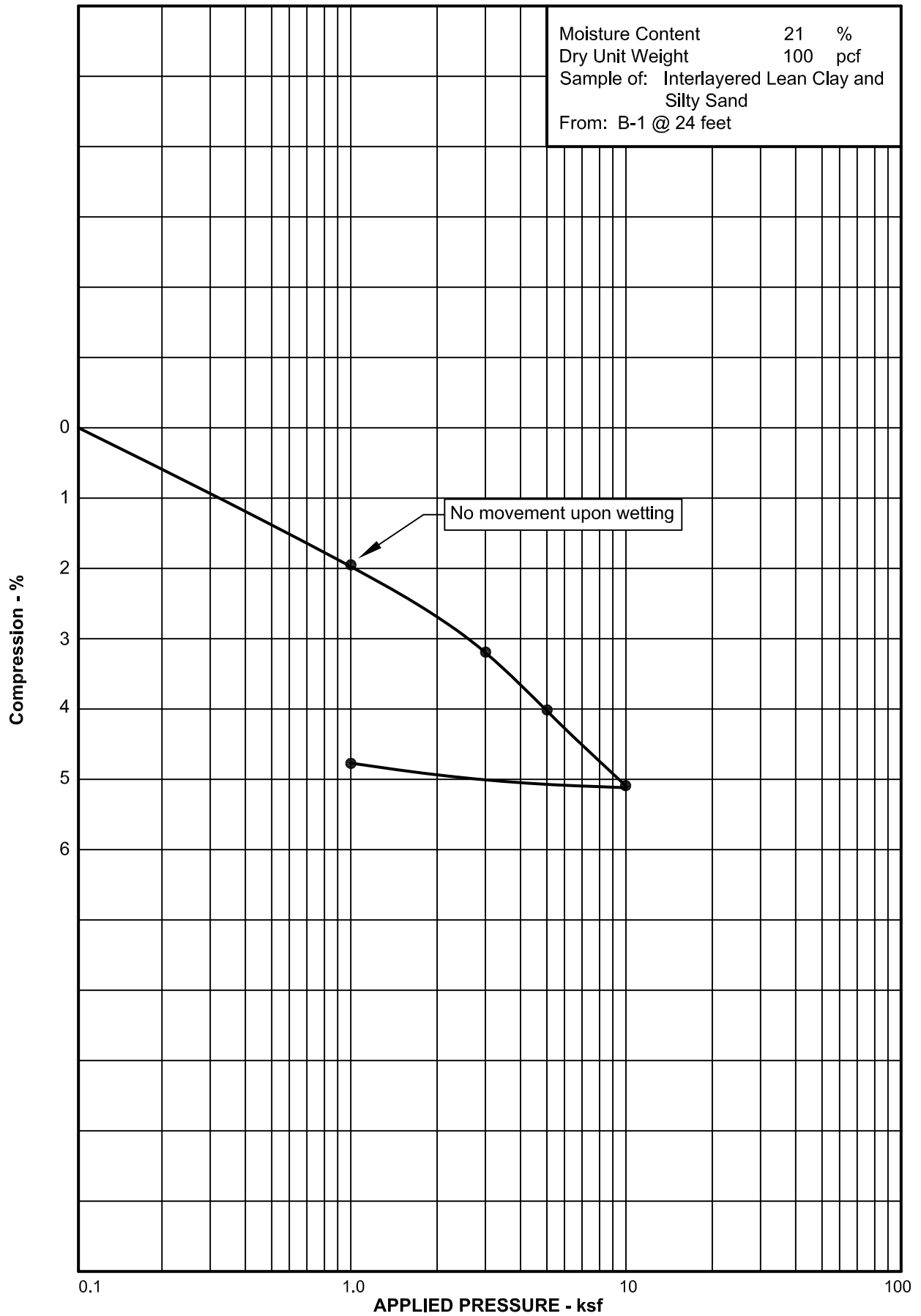
# Applied Geotechnical Engineering Consultants, Inc.



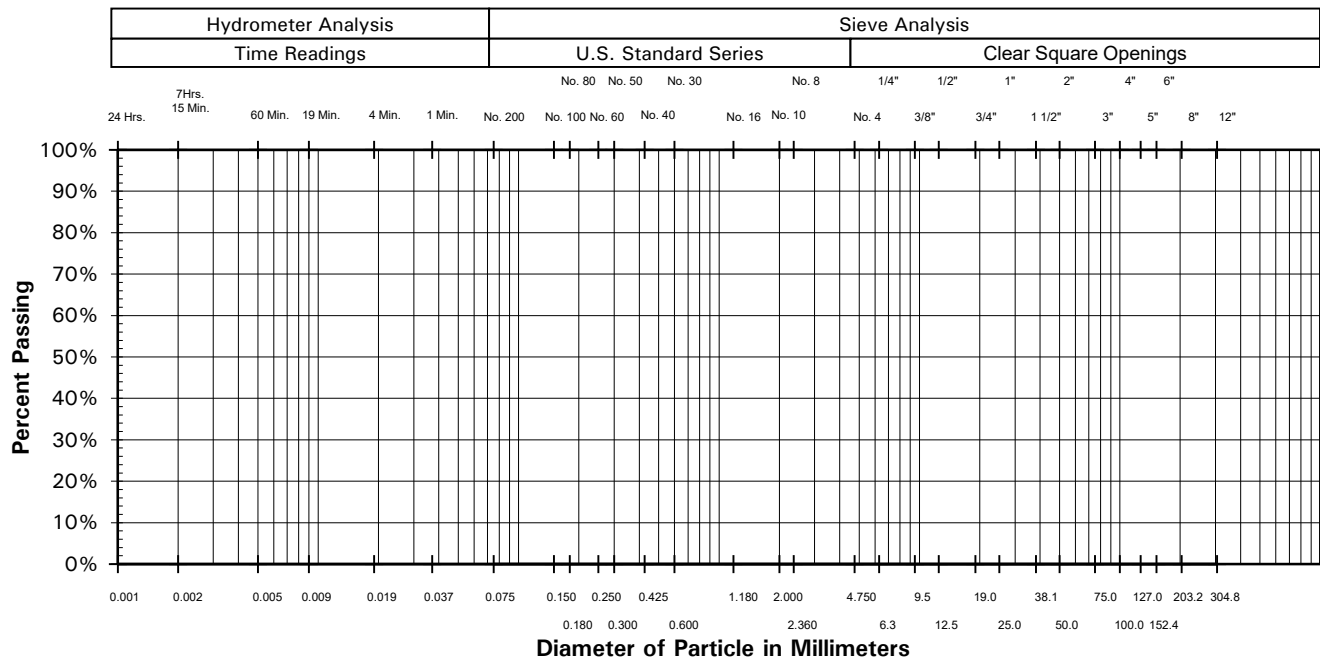
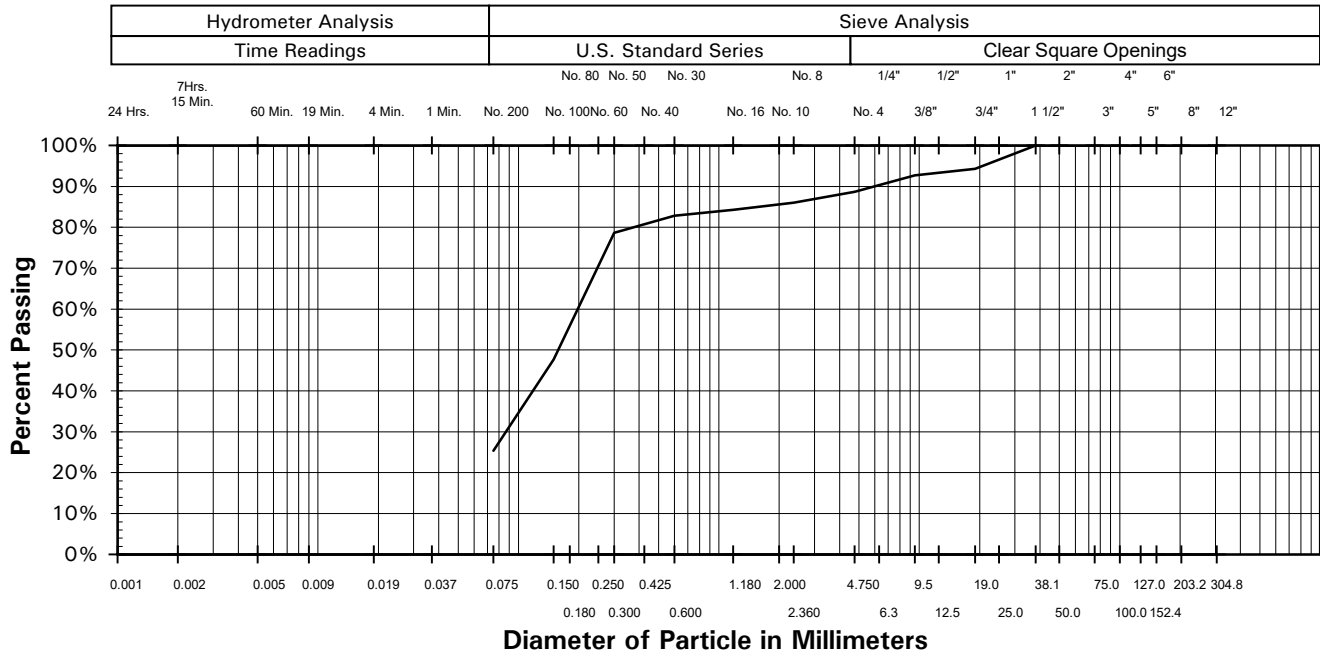
# Applied Geotechnical Engineering Consultants, Inc.



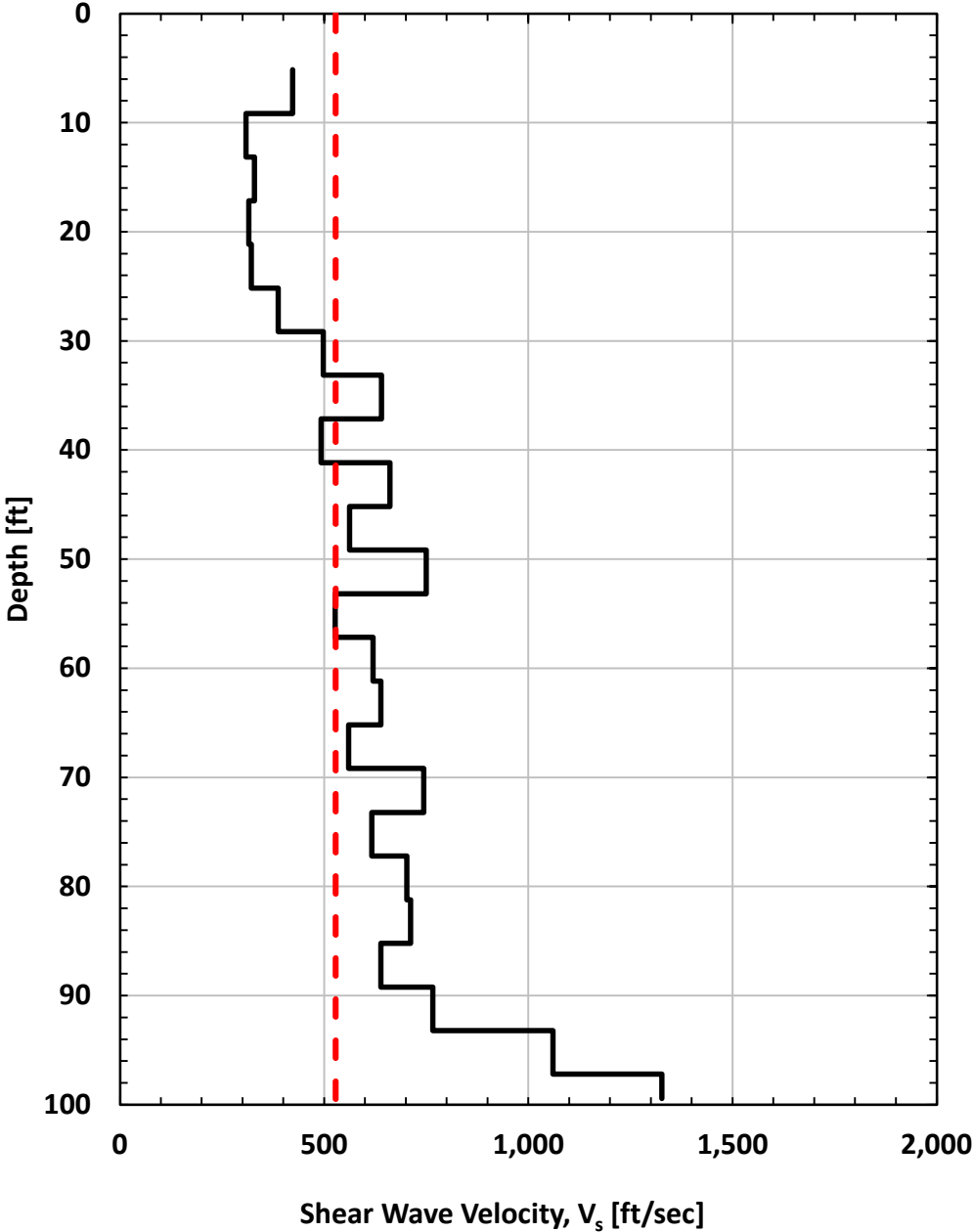
# Applied Geotechnical Engineering Consultants, Inc.



# APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



### Shear Wave Velocity Measurements



Project Number: 1210119  
Project Name: Ogden Little Mountain Business Depot  
Measurement Method: Seismic Cone Penetration Test (SCPT)

Date of Test: 2/26/2021

$V_{s30}$ : 528 [ft/s]

Figure 9



# APPENDIX

## CONE PENETRATION TEST (CPT)

Project: 1210119

Location: Ogden Little Mountain Business Depot

