GeoStrata

Geotechnical Investigation

Micron Property – Highland Emerald and Single Family

Approximately 500 West and State Road 92
Lehi, Utah

January 27, 2021

Prepared For:

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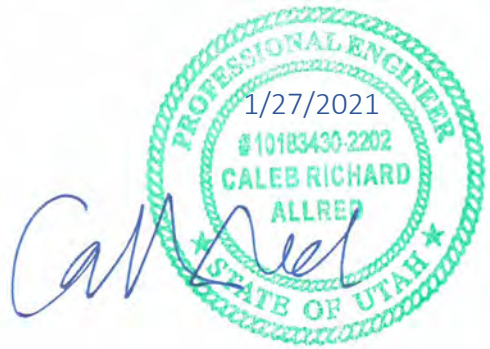
Preliminary Geotechnical Investigation
Micron Property Highland Single Family 128-Acre Portion
Approximately 500 West and State Road 92
Lehi, Utah

GeoStrata Job No. 589-100



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APPENDICES

1.0 EXECUTIVE SUMMARY

This report presents the preliminary findings of a geotechnical investigation conducted for 128-acres of the Micron Property at approximately 500 West and State Road 92, in Lehi and Draper, of Utah County. We understand that this section of the proposed development consists of medium to low density residential development. The development will include different structures, with "low" including single family residences 1 to 2 stories in height with basements (if feasible), and "medium" consisting of townhouse and duplex structures. The development for this section will be constructed across 128 acres. We anticipate footing loads on the order of 2 to 4 kips per lineal foot and column loads of up to 20 kips. The purposes of this investigation were to assess the nature and engineering properties of the subsurface soils at the site and to provide recommendations for general site grading and the design and construction of foundations, slabs-on-grade, and exterior concrete flatwork. The area of this section of the Micron Property contains some geologic hazards that have not been addressed in this report. All recommendations and conclusion in this report are consisted preliminary.

Based on the subsurface conditions encountered at the site, it is our opinion that the subject site is suitable for the proposed development provided that the recommendations contained in this report are incorporated into the design and construction of the project.

As a part of this investigation, subsurface soil conditions were explored by advancing 43 exploratory test pits depths ranging from 6 to 14 feet below the existing site grade. Based on the results of our field observations as well as on our review of applicable surficial geologic maps, the site is overlain partially by approximately 1 to 1½ feet of topsoil covered a majority of the site. Underlying the topsoil, we encountered deposits mapped by Biek (2005) as consisting of Upper Pleistocene-aged materials deposits. Groundwater was not encountered in any of the completed test pits for the section.

Due to the presence of dense granular soils (sands and gravels) and fine-grained soils with low potential for collapsible soil present at the proposed buildings elevations (between 2 to 8 feet below the existing ground surface), strip and spread footings can be placed entirely on non-collapsible undisturbed native soils. If soil at the foundation elevation appears to have a hydro-collapsible nature (pinholes, low natural density, etc.), collapse testing in the laboratory should be performed on a lot-by-lot basis to confirm the that potential collapse will not adversely affect the proposed construction. Foundation elements should not be founded on collapsible soils, and if these soils are encountered, they should be over-excavated according to the results of lot-specific laboratory collapse testing. According to our preliminary soil collapse testing, structural fill below footings will not be required. The site may then be brought back up to design grade using properly placed and compacted structural fill. Strip and spread footings should be a minimum of 20 and 30 inches wide, respectively. Exterior shallow footings and spread footings should be embedded at least 30 inches below final grade for frost protection and confinement. Interior strip shallow footings not susceptible to frost conditions should be embedded at least 18 inches for confinement. Conventional strip and spread footings founded on a native granular soil or on structural fill may be proportioned for a maximum net allowable bearing capacity of **2,000 pounds per square foot (psf)**.

Additional recommendations concerning other aspects of the proposed construction may be found in the body of this report.

2.0 INTRODUCTION

2.1 PURPOSE AND SCOPE OF WORK

This report presents the results of a preliminary geotechnical investigation conducted for 128-acres of the property termed the Micron Property located in Lehi on the border of Highland and slightly in the city of Draper at approximately 500 West and State Road 92 in Lehi and Draper, in Utah County, Utah. The purposes of this investigation were to assess the nature and engineering properties of the subsurface soils at the site and to provide recommendations for general site grading and the design and construction of foundations, slabs-on-grade, and exterior concrete flatwork.

The scope of work completed for this study included a site reconnaissance, subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this report. Our services were performed in accordance with our proposal and signed authorization, dated November 18, 2020.

The recommendations contained in this report are subject to the limitations presented in the LIMITATIONS section of this report (Section 7.1).

2.2 PROJECT DESCRIPTION

Due to the size of the Micron Property project, we have divided the property into smaller sections containing similar proposed development types for the purposes of our investigation. This preliminary geotechnical investigation has been completed for Highland Emerald Single-Family Lots, which represents the eastern-most 128-acres of the proposed building portions of the development. The property is located at approximately 500 West and State Road 92, in Lehi and Draper, Utah County, Utah (see Plate A-1, *Site Vicinity Map*). Plate A-2, *Site Section Map*, shows how we have divided up the buildable portions of the Micron property. Based on information received from the Client, we understand that steep and hard to access portions of the Micron Property will not be developed, and the Draper portion of the site has not been fully investigated due to changing plans of development and ability to obtain proper permits. The subject 128-acres portion of the Micron Property will be developed with low density (single family residential lots) and medium density (small acre single family lots to townhomes) development. The resulting construction will include one- to two-story, wood-framed single-family residences founded on conventional spread and strip footings and one- to three-story townhouse structures founded on conventional spread and strip footings. If larger structures are

planned, then GeoStrata should be consulted and our recommendations should be updated if necessary. Each of these types of structures are anticipated to have basements or crawlspaces if feasible. We anticipate footing loads on the order of 2 to 4 kips per lineal foot and column loads of up to 20 kips. As stated before, if the anticipated footing loads exceed assumptions or the proposed construction is different than what we have assumed, please contact GeoStrata with the updated information and allow for further analysis. Our investigation for the development will be used to provide geotechnical design parameters for construction of buildings, parking areas, driveways, and associated landscaping and utilities.

3.0 METHOD OF STUDY

3.1 FIELD INVESTIGATION

As a part of this investigation, subsurface soil conditions were explored by advancing 23 exploratory test pits on the subject property (ME-TP-01 to ME-TP-18, ME-TP-21 to ME-TP-22, and ME-TP-24 to ME-TP-25). Twenty (20) additional test pits (ME-TP-26 to ME-TP-40 and ME-TP-49 to 51) that have been advanced on the adjacent phase of the Micron Property project have likewise been included in this report to provide supplemental data where appropriate. The test pits were excavated to depths ranging from 6 to 14 feet below the existing site grade. The approximate locations of the explorations are shown on Plate A-3, *Highland Emerald Single Family,* in Appendix A. Exploration points were placed to provide optimum coverage of the site in the areas of proposed residential development. Logs of the subsurface conditions, as encountered in the test pit explorations, were recorded at the time of excavation and advancement by a staff engineer current employed at GeoStrata and are presented on Plates B-1 to B-43 in Appendix B. A *Soil Symbols Description Key* used in the borehole and test pit logs is included as Plate B-44.

The test pits were excavated with a track mounted excavator. Both bulk and relatively undisturbed soil samples were obtained from the test pits. Relatively undisturbed soil samples were obtained from the test pit in the form of tube samples and block samples. All samples were transported to our laboratory for testing to evaluate engineering properties of the various earth materials observed. The soils were classified according to the *Unified Soil Classification System* (USCS) by the Geotechnical Engineer. Classifications for the individual soil units are shown on the attached Test Pit Logs, Plates B-1 to B-43 in Appendix B.

3.2 LABORATORY INVESTIGATION

Geotechnical laboratory tests were conducted on selected relatively undisturbed and bulk soil samples obtained during our field investigation. The laboratory testing program was designed to evaluate the engineering characteristics of onsite earth materials. Laboratory tests conducted during this investigation include:

- Grain Size Distribution Analysis (ASTM D422)
- Atterberg Limits (ASTM D4318)
- 1-D Collapse Consolidation Test (ASTM D2435)
- California Bearing Ratio Test (ASTM D1883)
- Direct Shear Test (ASTM D3080)

The results of laboratory tests are presented on the Test Pit Logs in Appendix B (Plates B-1 to B-43), the test result plates presented in Appendix C (Plates C-2 to C-28) and in the *Summary of Laboratory Test Results* Table (Plate C-1).

3.3 ENGINEERING ANALYSIS

Engineering analyses were performed using soil data obtained from the laboratory test results and empirical correlations from material density, depositional characteristics and classification. Appropriate factors of safety were applied to the results consistent with industry standards and the accepted standard of care.

4.0 GENERALIZED SITE CONDITIONS

4.1 SURFACE CONDITIONS

At the time of our subsurface investigation in this 128-acre portion of the Micron Property, no structures existed on the site. The only site improvements consisted of dirt roadways and fences constructed across the site. A natural drainage is located on the eastern portion of the property and was dry at the time of our investigation. This drainage terminates into a residential development to the south of the subject property. The remainder of the property slopes gently to the south (towards Utah Lake) and has a maximum topographic relief of approximately 110 feet. The subject property is bound on the east by Highland Boulevard, on the south by an established residential development as well as pair of water storage tanks, and on the west and north by undeveloped hillside property.

4.2 SUBSURFACE CONDITIONS

As previously mentioned, the subsurface soil conditions were explored at the subject property by advancing 23 exploratory test pits to depths ranging from 6 to 14 feet below the existing site grade. In addition 20 additional test pits advanced on the adjacent parcel to the north and west were likewise included in this report. Subsurface soil conditions were logged using the United Soils Classification System (USCS) at the time of the investigation and are included on the Test Pit Logs in Appendix B (Plates B-1 through B-43). The soil and moisture conditions encountered during our investigation are discussed below.

4.2.1 Soils

Based on the results of our field observations as well as on our review of applicable surficial geologic maps, the site is largely overlain by approximately 1 to 1½ feet of topsoil. Underlying the topsoil, we encountered deposits mapped by Biek (2005) as consisting largely of Pleistocene-aged materials deposits associated with the Bonneville Lake cycle. Descriptions of the soil units shown in the area are described below;

Qlsb - Lacustrine sand and silt (Upper Pleistocene) − Fine- to coarse-grained lacustrine sand and silt with minor gravel; typically, thick bedded and well sorted. This geologic soil unit is mapped at the locations of all the test pits completed in the section with test pits ME-TP-10 and 24 on the border of the adjacent soil unit (Qlgb). The soils were generally visually classified as a fine-grained Lean CLAY (CL) or Sandy SILT (ML), or a coarse-grained Silty SAND (SM) to Silty GRAVEL (GM) with varying amounts of silt, sand, and gravel. Some of the block samples

obtained from the test pits contain pinhole texture and could be moisture sensitive. A summary of our laboratory testing results completed to assess this hazard is presented in Section 4.2.3 of this report.

Qlgb, Lacustrine gravel and sand (Upper Pleistocene) − Moderately to well-sorted, moderately to well-rounded, clast-supported, pebble to cobble gravel and pebbly sand; thin to thick bedded. This geologic soil unit is mapped at the locations of ME-TP-10 and 24. These test pits are one the border of this unit and the adjacent soil unit (Qlsb). The soils consisted of coarse-grained soils.

The stratification lines shown on the enclosed test pit represent the approximate boundary between soil types USCS classifications of the soils (Plates B-1 to B-43). The actual in-situ transition may be gradual. Due to the nature and depositional characteristics of the native soils, care should be taken in interpolating subsurface conditions between and beyond the exploration locations.

4.2.2 Groundwater

Groundwater was not encountered in any of the 43 test pits assessed for this portion of the Micron Property. Seasonal fluctuations in precipitation, surface runoff from adjacent properties, or other on or offsite sources may increase moisture conditions. The observed groundwater conditions can change seasonally depending on the time of year and will impact the proposed construction. It is recommended that lowest floor slab elevation for each structure should be maintained a minimum of 3 feet above any observed groundwater conditions.

4.2.3 Collapsible Soils

Collapse (often referred to as “hydro-collapse”) is a phenomena whereby undisturbed soils exhibit volumetric strain and consolidation upon wetting under increased loading conditions. Collapsible soils can cause differential settling of structures and roadways. Collapsible soils do not necessarily preclude development and can be mitigated by over-excavating porous, potentially collapsible soils and replacing with engineered fill and by controlling surface drainage and runoff. For some structures that are particularly sensitive to differential settlement, or in areas where collapsible soils are identified at great depth, a deep foundation system should be considered.

Soils that have a potential to collapse under increased loading and moisture conditions are typically characterized by a pinhole structure and relatively low unit weights. In general,

potentially collapsible soils are observed in fine-grained soils that include clay and silt, although collapsible soils may include sandy soils. Test results of the collapse test show negligible to low collapse potential. A table of the collapse test results, depth, and test pit number are provided below. This information is also contained in Plates C-9 to C-21.

Test Pit Number	Sample Depth	Collapse Potential
ME-TP-02	3.0	0.37
ME-TP-03	5.0	-0.01
ME-TP-04	4.0	0.07
ME-TP-07	4.0	0.09
ME-TP-08	3.0	0.01
ME-TP-08	12.	0.01
ME-TP-10	5.0	0.43
ME-TP-12	4.0	0.22
ME-TP-13	11.0	0.12
ME-TP-15	3.0	0.03
ME-TP-18	3.0	0.07
ME-TP-22	3.5	0.01

Based on these lab test results, it is anticipated that no structural fill may be required under the structures that extend into fine-grained soils with a pinhole texture. The collapsible soils encountered will not present a significant risk to the foundation elements within the proposed development if the recommendations presented in this report are incorporated into the design and construction of the structures.

5.0 GEOLOGIC CONDITIONS

5.1 GEOLOGIC SETTING

The site is located at an elevation between 4,985 and 5,095 feet above mean sea level within the northern portion of Utah Valley. The Utah Valley is a deep, sediment-filled structural basin of Cenozoic age flanked by the Wasatch Range to the east and the Lake Mountains, East Tintic Mountains, and the West Hills to the West (Hintze, 1980). The Wasatch Range is the easternmost expression of pronounced Basin and Range extension in north-central Utah.

The near-surface geology of Utah Valley is dominated by sediments deposited within the last 30,000 years by Lake Bonneville (Scott and others, 1983). As the lake receded, streams began to incise large deltas formed at the mouths of major canyons along the Wasatch Range, and the eroded material was deposited in shallow lakes and marshes in the basin and in a series of recessional deltas and alluvial fans. Sediments toward the center of the valleys are predominately deep-water deposits of clay, silt and fine sand. However, these deep-water deposits are in places covered by a thin post-Bonneville alluvial cover. Surface soil units as mapped by Biek (2005) consisted of Upper Pleistocene-aged materials deposits. Based on the soil and groundwater conditions encountered during our investigation, it is considered likely that each of our test pits were terminated in the mapped deposit.

5.2 FAULTING AND SEISMICITY

The site lies within the north-south trending belt of seismicity known as the Intermountain Seismic Belt (ISB) (Hecker, 1993). The ISB extends from northwestern Montana through southwestern Utah. An active fault is defined as a fault that has had activity within the Holocene (<11ka). Based on information provided by Geologic Hazards on the Utah Geologic Hazard Portal, faults associated with the Wasatch Fault Zone (WFZ) are present to the north and west of the subject property (see Plate A-5, *Fault and Fault Special Study Area Map*). As a result, the northeastern portion of the subject 128-acre development are identified as being located within a surficial faulting special study area. As discussed previously, this portion of the property are located within Draper City limits, and as such no geotechnical recommendations were completed within this area. It is possible that a series of fault investigations including trenches across the proposed building pads may be required prior to development within the area identified on Plate A-5. However, when considering the most recently published geologic maps containing the subject site, no active faults are mapped through or immediately adjacent to the site (Black and others, 2003, and Constenius, et al., 2011). The 128-acre portion of Micron Property is located

approximately 3 miles east of the northern strand of the Provo section of the Wasatch Fault Zone. The Provo section is one of the longest sections of the Wasatch Fault Zone (Hecker, 1993) and is estimated to be approximately 43 miles long with a reported rupture length of 37 miles and a maximum potential to produce earthquakes up to magnitude (M_s) 7.5 to 7.7 (Black and others, 2003). The 128-acre portion of Micron Property is also located approximately 6.5 miles north to northeast of the mapped Utah Lake Faults and Folds (ULFF). The ULFF consists of several northeast to northwest trending faults and folds located beneath Utah Lake and are reported to have been active in the past 15 ka (Black et al, 2003). However, since the ULFF is at the bottom of a large lake these faults are poorly understood – as such, the USGS does not include ULFF in their fault database for seismic hazard analysis. Analysis of the ground shaking hazard along the Wasatch Front suggests that the Wasatch Fault Zone is the single greatest contributor to the seismic hazard in the Salt Lake City region. Each of the faults listed above show evidence of Holocene-aged movement and is therefore considered active.

Spectral responses for the Risk-Targeted Maximum Considered Earthquake (MCE_R) are shown in the table below. These values generally correspond to a one percent probability of structure collapse in 50 years for a "firm rock" site. To account for site effects, site coefficients which vary with the magnitude of spectral acceleration are used. Based on our field exploration to 14 feet and our geologic review of the site, it is our opinion that this location is best described as a Site Class C. The spectral accelerations are calculated based on the site's approximate latitude and longitude of 40.448° and -111.821˚ respectively and the Seismic Design Maps web-based application at https://seismicmaps.org/.

Description	Value
Site Class	C
S_s - MCE_R ground motion (period – 0.2s)	1.38
S_1 - MCE_R ground motion (period – 1.0s)	0.511
F_a - Site amplification factor at 1.0s	1.200
F_v - Site amplification factor at 1.0s	1.500
PGA - MCE_G peak ground acceleration	0.625
PGA_M – Site modified peak ground acceleration	0.750

It should be noted that our investigation did not include a site-specific ground motion hazard analysis and a Site Class C has been used to determine the seismic parameters presented above based on maximum depths explored of 12 feet and our geologic review. The seismic parameters

presented herein may be used for design of the proposed structures provided that structural design allows for the ground motion hazard analysis exception in ASCE 7-16 Section 11.4.8. Alternatively, GeoStrata may be contacted to complete a ground motion hazard analysis in accordance with ASCE 7-16 Chapter 21.

5.3 LIQUEFACTION

Certain areas within the intermountain region possess a potential for liquefaction during seismic events. Liquefaction is a phenomenon whereby loose, saturated, granular soil deposits lose a significant portion of their shear strength due to excess pore water pressure buildup resulting from dynamic loading, such as that caused by an earthquake. Among other effects, liquefaction can result in densification of such deposits causing settlements of overlying layers after an earthquake as excess pore water pressures are dissipated. The primary factors affecting liquefaction potential of a soil deposit are: (1) level and duration of seismic ground motions; (2) soil type and consistency; and (3) depth to groundwater.

Based on our review of the *Liquefaction-Special Study Areas, Wastach Front and nearby Area, Utah*, this portion of the Micron Property is located in an area currently designated as having a "Very Low to Low" liquefaction potential. "Low" liquefaction potential indicates that there is between a 5% to 10% probability of having an earthquake within a 100-year period that will be strong enough to cause liquefaction. "Very Low" liquefaction potential indicates that there is less than 5% probability of having an earthquake within a 100-year period that will be strong enough to cause liquefaction.

The near-surface soils observed within our test pits consisted of unsaturated soils. Groundwater was not observed in the test pits. A liquefaction analysis was beyond the scope of the project; however, if the owner or client wishes to have greater understanding of the liquefaction potential of the soils at greater depths, a liquefaction analysis should be completed at the site.

5.4 OTHER GEOLOGIC HAZARDS

According to the latest update to the Geologic Hazards on Utah Geologic Hazard Portal, a portion of the 128-acre portion of Micron Property is located in special study areas for debris flows and slope stability. Maps of these hazard are included on Plates A-6 to A-7. Recommendations for development in these mapped hazards special study areas should be addressed in a geologic hazard report or reports. The results of these reports and findings may limit the development or require mitigation prior to the development of the site.

6.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

6.1 GENERAL CONCLUSIONS

Based on the subsurface conditions encountered at the site, it is our opinion that the subject site is suitable for the proposed construction provided that the recommendations contained in this report are complied with. This conclusion should be understood as preliminary, and the results of geologic hazard analysis could designate some portions of this development as hazardous or unbuildable.

The recommendations presented in this report are based on our understanding of the proposed project, the subsurface conditions observed during field exploration, the results of laboratory testing, and our engineering analyses. If subsurface conditions other than those described herein are encountered in conjunction with construction, and/or if design and layout changes are initiated, we must be informed so that the recommendations herein can be reviewed and revised as changes or conditions may require.

Based on our observations, the subject site is overlain by ½-foot of topsoil soils. Increased depth of topsoil may be encountered in the drainages or within the alluvial fan deposits. These soils would need to be over-excavated in all areas underlying footing elements, pavements and any other areas which would underlie structural elements of the new development.

Although not encountered in our test pits completed during our investigation, the possibility exists that undocumented fill soils may be present on the subject property as a result of previous grading activities or nearby roadway construction. The owner and contractor should be aware that the possibility exists that sections of undocumented fill may be present at the subject property.

6.2 EARTHWORK

Prior to the placement of foundations, general site grading is recommended to provide proper support for foundations, exterior concrete flatwork, concrete slabs-on-grade, and pavement sections. Site grading is also recommended to provide proper drainage and moisture control on the subject property and to aid in preventing differential movement in foundation soils as a result of variations in moisture conditions.

6.2.1 General Site Preparation and Grading

In areas beneath footings and concrete flat work, the highly organic topsoil (top 3 to 6 inches) should be stripped and stockpiled for use in landscape areas or disposal. Debris, vegetation, undocumented fill, roots, loose, soft or other deleterious materials should also be removed. If over-excavation is required, the excavation should extend a minimum of one foot laterally for every foot of depth of over-excavation. The exposed subgrade should be proof-rolled with heavy equipment to identify loose, soft or otherwise disturbed soils. If soft soils are observed, they should be stabilized in accordance with our recommendations in the Soft Soil Stabilization Section (Section 6.2.3); if loose soils are observed, they should be compacted as recommended in Section 6.2.4.

A GeoStrata representative should observe the site preparation and grading operations to assess that the recommendations presented in this report are complied with.

6.2.2 Excavation Stability

Based on Occupational Safety and Health Administration (OSHA) guidelines for excavation safety, trenches with vertical walls up to 5 feet in depth may be occupied, however, the presence of fill soils, loose soils, or wet soils may require that the walls be flattened to maintain safe working conditions. When the trench is deeper than 5 feet, we recommend a trench-shield or shoring be used as a protective system to workers in the trench. Based on our soil observations, laboratory testing, and OSHA guidelines, native soils at the site classify as Type C soils. Deeper excavations, if required, should be constructed with side slopes no steeper than one and one- and one-half horizontal to one vertical (1.5H:1V). Wet conditions should be anticipated side slopes will likely need to be further flattened to maintain slope stability. Alternatively, shoring or trench boxes may be used to improve safe work conditions in trenches. The contractor is ultimately responsible for trench and site safety. Pertinent OSHA requirements should be met to provide a safe work environment. If site specific conditions arise that require engineering analysis in accordance with OSHA regulations, GeoStrata can respond and provide recommendations as needed.

We recommend that a GeoStrata representative be on-site during all excavations to assess the exposed soils in trench walls.

6.2.3 Soft Soil Stabilization

Based on observations during our field investigation, if near-surface soils become saturated soft or pumping soils may be exposed in excavations at the site. Once exposed, all subgrade surfaces beneath proposed structure, pavements, and flat work concrete should be proof rolled with heavy wheeled-construction equipment. If soft or pumping soils are encountered, these soils should be stabilized prior to construction of footings. Stabilization of the subgrade soils can be accomplished using a clean, coarse angular material worked into the soft subgrade. We recommend the material be greater than 2-inch diameter, but less than 6 inches. A locally available pit-run gravel may be suitable but should contain a high percentage of particles larger than 2 inches and have less than 7 percent fines (material passing the No. 200 sieve). A pit-run gravel may not be as effective as a coarse, angular material in stabilizing the soft soils and may require more material and greater effort. The stabilization material should be worked (pushed) into the soft subgrade soils until a firm relatively unyielding surface is established. Once a firm, relatively unyielding surface is achieved, the area may be brought to final design grade using structural fill.

In large areas of soft subgrade soils, stabilization of the subgrade may not be practical using the method outlined above. In these areas it may be more economical to place a woven geotextile fabric against the soft soils covered by 18 inches of coarse, sub-rounded to rounded material over the woven geotextile. An inexpensive non-woven geotextile “filter” fabric should also be placed over the top of the coarse, sub-rounded to rounded fill prior to placing structural fill or pavement section soils to reduce infiltration of fines from above. The woven geotextile should be Mirafi RS280i or prior approved equivalent. The filter fabric should consist of a Mirafi 140N, or equivalent as approved by the Geotechnical Engineer.

We recommend that a GeoStrata representative be on-site to assess the exposed excavation soils and be allowed to review the excavation plans when they are prepared in order to evaluate their compatibility with these recommendations.

6.2.4 Structural Fill and Compaction

All fill placed for the support of structures, flatwork or pavements, should consist of structural fill. Onsite soils may be utilized for structural fill, although the contractor should be aware that due to the over-sized aggregates or the clayey composition of the native soils, it may be difficult if not impossible to maintain active and accurate proctor values for moisture conditioning and compaction. As such, the native soil onsite may need to be screened and well mixed prior to the

use of the native soils as structural fill for development. Onsite undocumented fill soils may likewise be used as structural fill. The contractor should have confidence that the anticipated method of compaction will be suitable for the type of structural fill used. All structural fills should be free of vegetation, debris or frozen material, and should contain no inert materials larger than **4 inches** in nominal diameter.

If an imported material will be used as structural fill, it should consist a relatively well-graded granular soil with a maximum of 50 percent passing the No. 4 sieve and a maximum fines content (minus No.200 mesh sieve) of 25 percent. Fill material potion finer than the No. 40 sieve should have a liquid limit (LL) less than 35 and a plasticity index (PI) less than 25. The table below provides our recommended gradation and Atterberg limits requirements for structural fill.

Grain Size	Percent Passing
4-inch	100
2-inch	85 to 100
No. 4	15 to 50
No. 200	< 25
Liquid Limit (LL)	<35
Plasticity Index (PI)	<25

All structural fill soils should be approved by the Geotechnical Engineer prior to placement. Earth materials not meeting the aforementioned criteria may be suitable for use as structural fill; however, such material should be evaluated on a case-by-case basis and should be approved by the Geotechnical Engineer prior to use. These requirements for structural fill meet the needs of the site; however, regulating entities including special service districts, cities etc. may require the use of a predefined structural fill for use in their utility corridors/trenches. The contractor should be aware of the special requirements of structural fill by these regulating entities.

GeoStrata observed that some of the native soils meet the requirements for A-1-a according to AASTHO soil classification system. A table of the laboratory tests and soil classification are provided below;

Sample Location and Depth	USCS Classification	AASTHO Classification	Can be used as onsite structural fill
ME-TP-01	SM	A-1-b	Yes
ME-TP-03	GM	A-1-b	Yes
ME-TP-03	CL	A-6	No
ME-TP-04	CL	A-6	No
ME-TP-05	SM	A-2-4	Yes
ME-TP-06	SM	A-2-4	Yes
ME-TP-09	ML	A-4	No
ME-TP-10	CL	A-6	No
ME-TP-11	SP-SM	A-1-b	Yes
ME-TP-13	CL	A-6	No
ME-TP-17	CL	A-6	No
ME-TP-24	SM	A-1-a	Yes
ME-TP-25	SC	A-4	Yes
ME-TP-26	SC-SM	A-2-4	Yes
ME-TP-27	SM	A-1-b	Yes
ME-TP-29	SP-SM	A-1-b	Yes
ME-TP-33	GM	A-1-a	Yes
ME-TP-34	SM	A-4	No
ME-TP-36	GM	A-4	No
ME-TP-55	GM	A-1-b	Yes

All structural fill should be placed in maximum 10-inch loose lifts if compacted by small hand-operated compaction equipment, maximum 12-inch loose lifts if compacted by riding rollers or heavy duty compaction equipment that is capable of efficiently compacting the entire thickness of the lift. We recommend that all structural fill be compacted on a horizontal plane, unless otherwise approved by the geotechnical engineer. Structural fill should be compacted to at least 95% of the maximum dry density, as determined by ASTM D-1557, for fill 5 feet or less in thickness. The required compaction should be increased to 98% for fills greater than 5 feet in thickness. The moisture content should be at or slightly above the optimum moisture content at

the time of placement and compaction. Also, prior to placing any fill, the excavations should be observed by the geotechnical engineer to observe that any unsuitable materials or loose soils have been removed. In addition, proper grading should precede placement of fill, as described in the **General Site Preparation and Grading** subsection of this report (Section 6.2.1).

We understand that grading fills and structural fill will be placed up to 12 feet in total height. Fill soils placed for subgrade below exterior flat work and pavements, should be within 3% of the optimum moisture content when placed and compacted to at least 95% of the maximum dry density as determined by ASTM D-1557, for fills less than 6 feet in depth. Fill soils placed for subgrade below exterior flat work and pavements, should be within 3% of the optimum moisture content when placed and compacted to at least 95% of the maximum dry density as determined by ASTM D-1557, for fills more than 6 feet and less than 12 feet in depth. If fills greater than 12 feet in thickness are anticipated, GeoStrata should be contacted for recommendations concerning the placement of such sections. All utility trenches backfilled below the proposed structure, pavements, and flatwork concrete, should be backfilled with onsite soils or structural fill that is within 3% of the optimum moisture content when placed and compacted to at least 95% of the maximum dry density as determined by ASTM D-1557. All other trenches, in landscape areas, should be backfilled and compacted to at least 90% of the maximum dry density (ASTM D-1557).

The gradation, placement, moisture, and compaction recommendations contained in this section meet our minimum requirements but may not meet the requirements of other governing agencies such as city, county, or state entities. If their requirements exceed our recommendations, their specifications should override those presented in this report.

6.3 FOUNDATIONS

The foundations for the proposed structures may consist of conventional strip and/or spread footings. Strip and spread footings should be a minimum of 20 and 30 inches wide, respectively, and exterior shallow footings should be embedded at least 30 inches below final grade for frost protection and confinement. Interior shallow footings not susceptible to frost conditions should be embedded at least 18 inches for confinement.

6.3.1 Installation and Bearing Material

Due to the presence of dense granular soils (sands and gravels) and fine-grained soils with low potential for collapsible soil present at the proposed buildings elevations (between 2 to 8 feet below the existing ground surface), strip and spread footings can be placed entirely on non-

collapsible undisturbed native soils. If soil at the foundation elevation appears to have a hydro-collapsible nature (pinholes, low natural density, etc.), collapse testing in the laboratory should be performed on a lot-by-lot basis to confirm the that potential collapse will not adversely affect the proposed construction. Foundation elements should not be founded on collapsible soils, and if these soils are encountered, they should be over-excavated according to the results of lot-specific laboratory collapse testing. According to our preliminary soil collapse testing, structural fill depth below footings will not be required. The site may then be brought back up to design grade using properly placed and compacted structural fill. Structural fill should meet material recommendations and be placed and compacted as recommended in Section 6.2.4 of this report.

Foundation elements should not be founded on undocumented fill, and if these soils are encountered, they should be over-excavated until suitable, native soils are exposed. Foundation elements should not be founded on combination soils (i.e. partially on clay and partially on gravels), and if these soils condition are encountered, they should be over-excavated a minimum of 1-foot. The site may then be brought back up to design grade using properly placed and compacted structural fill. Structural fill should meet material recommendations and be placed and compacted as recommended in Section 6.2.4 of this report.

All organic material, soft areas, frozen material or other inappropriate material shall be removed from the footing zone to a depth determined by the Geotechnical Engineer and be replaced with structural fill where over excavation is required.

6.3.2 Bearing Pressure

Conventional strip and spread footings founded on a native soil or on structural fill may be proportioned for a maximum net allowable bearing capacity of **2,000 pounds per square foot (psf).** The recommended net allowable bearing pressure refers to the total dead load and can be increased by ⅓ to include the sum of all loads including wind and seismic.

6.3.3 Settlement

Settlements of properly designed and constructed conventional footings, founded as described above, are anticipated to be less than 1 inch. Differential settlements should be on the order of half the total settlement over 30 feet.

6.3.4 Frost Depth

All exterior footings and spread footings are to be constructed at least 30 inches below the ground surface for frost protection and confinement. This includes walk-out areas and may

require fill to be placed around buildings. Interior strip footings not susceptible to frost conditions should be embedded at least 18 inches for confinement. If foundations are constructed through the winter months, all soils on which footings will bear shall be protected from freezing.

6.3.5 Construction Observation

A geotechnical engineer shall periodically monitor excavations prior to installation of footings. Inspection of soil before placement of structural fill or concrete is required to detect any field conditions not encountered in the investigation which would alter the recommendations of this report. All structural fill material shall be tested under the direction of a geotechnical engineer for material and compaction requirements.

6.3.6 Foundation Drainage

As stated in Section 4.2.2 of this report, groundwater was not encountered in the test pits. IRC Section R405 *Foundation Drainage* recommends the construction of a foundation drain around any walls or portions thereof that retain earth and enclose spaces and floors below grade. Where a site is located in well-drained gravel or sand/gravel mixture soils, a dedicated drainage system is not required.

We recommend that the IRC Section R405 Foundation Drainage recommends be complied with. The foundation drain should consist of a 4-inch perforated pipe placed at or below the footing elevation. The pipe should be covered with at least 12 inches of free draining gravel (containing less than 5 percent passing the No. 4 sieve) and be graded to a free gravity outfall or to a pumped sump. A separator fabric, such as Mirafi 140N, should separate the free draining gravel and native soil (i.e. the separator fabric should be placed between the gravel and the native soils at the bottom of the gravel, the side of the gravel where the gravel does not lie against the concrete footing or foundation and at the top of the gravel). We recommend that the gravel extend up the foundation wall to within 2 feet of the final ground surface. As an alternative, the gravel extending up the foundation wall may be replaced with a prefabricated drain panel, such as Ecodrain-E. We recommend that the foundation drain construction be observed and documented in a subsequent observation letter.

As an added precaution, the following moisture protection mitigation recommendation should be implemented to help reduce the risk from potential settlement from occurring. These items are summarized as follows:

- Moisture should not be allowed to infiltrate into the soils in the vicinity of the foundations. As such, design strategies to minimize ponding and infiltration near the home should be implemented.
- The ground surface within 10 feet of the entire perimeter of the building should slope a minimum of five percent away from the structure. Alternatively, a slope of 5% is acceptable if the water is conveyed to a concrete ditch that will convey the water to a point of discharge that is at least 10 feet from the structures.
- Roof runoff devices (rain gutters) should be installed to direct all runoff a minimum of 10 feet away from the structure and preferably day-lighted to the curb where it can be transferred to the storm drain system. Rain gutters discharging roof runoff adjacent to or within the near vicinity of the structure may result in excessive differential settlement.
- We recommend irrigation around foundations be minimized by selective landscaping and that irrigation valves be constructed at least 5 feet away from foundations.
- Jetting (injecting water beneath the surface) to compact backfill against foundation soils may result in excessive settlement beneath the building and is not allowed.
- Backfill against foundations walls should be placed and compacted in accordance with the Section 6.2.4.
- Any additional precautions which may become evident during construction.

6.4 CONCRETE SLAB-ON-GRADE CONSTRUCTION

Concrete slabs-on-grade should be constructed over at least 4 inches of compacted gravel. Disturbed native soils should be compacted to at least 95% of the maximum dry density as determined by ASTM D-1557 (modified proctor) prior to placement of gravel. The gravel should consist of road base or clean drain rock with a ¾-inch maximum particle size and no more than 12 percent fines passing the No. 200 mesh sieve. The gravel layer should be compacted to at least 95 percent of the maximum dry density of modified proctor or until tight and relatively unyielding if the material is non-proctorable. The maximum load on the floor slab should not exceed 100 psf; greater loads would require additional subgrade preparation and additional structural fill. All concrete slabs should be designed to minimize cracking as a result of shrinkage. Consideration should be given to reinforcing the slab with welded wire, re-bar, or fiber mesh.

6.5 EARTH PRESSURE AND LATERAL RESISTANCE

Lateral forces imposed upon conventional foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the

footing and the supporting subgrade. In determining the frictional resistance, a coefficient of friction of 0.41 should be used for native soils against concrete or 0.43 for structural fill against concrete.

Ultimate lateral earth pressures from native soil backfill acting against retaining walls and buried structures may be computed from the lateral pressure coefficients or equivalent fluid densities presented in the following table:

Condition	Lateral Pressure Coefficient	Equivalent Fluid Density (pounds per cubic foot)
Active[1]	0.29	34
At-rest[2]	0.48	58
Passive[1]	11.62	1394
Seismic Active[3]	0.33	40
Seismic Passive[4]	-8.93	-1072

[1]Based on Coulomb's equation

[2]Based on Jaky

[3]Based on Lew et al. (2010)

[4]Based on Mononobe-Okabe Equation

These coefficients and densities assume level, granular backfill with no buildup of hydrostatic pressures. The force of the water should be added to the presented values if hydrostatic pressures are anticipated. If sloping backfill is present, we recommend the geotechnical engineer be consulted to provide more accurate lateral pressure parameters once the design geometry is established.

Walls and structures allowed to rotate slightly should use the active condition. If the element is constrained against rotation, the at-rest condition should be used. These values should be used with an appropriate factor of safety against overturning and sliding. A value of 1.5 is typically used. Additionally, if passive resistance is calculated in conjunction with frictional resistance, the passive resistance should be reduced by ½.

For seismic analyses, the *active* and *passive* earth pressure coefficient provided in the table is based on Lew et al (2010) and Mononobe-Okabe respectively and only accounts for the dynamic horizontal thrust produced by ground motion. Hence, the resulting dynamic thrust pressure should be added to the static pressure to determine the total pressure on the wall. The pressure distribution of the dynamic horizontal thrust may be closely approximated as an inverted triangle

with stress decreasing with depth and the resultant acting at a distance approximately 0.6 times the loaded height of the structure, measured upward from the bottom of the structure.

The coefficients shown assume a vertical wall face. Hydrostatic and surcharge loadings, if any, should be added. Over-compaction behind walls should be avoided. Resisting passive earth pressure from soils subject to frost or heave, or otherwise above prescribed minimum depths of embedment, should usually be neglected in design.

6.6 PAVEMENT SECTION

For pavement design, the following CBR laboratory test result was obtained:

Test Pit	Depth (ft)	Soil Type	CBR (%)
ME- TP-04	1.0	CL	4.3
ME-TP-10	1.0	CL	3.9

The test results indicate that CBR value of 4.0 would an acceptable approximation of the site CBR value. No traffic information was available at the time this report was prepared; therefore, GeoStrata has assumed traffic counts for the local and private roads and parking areas. We assumed that vehicle traffic along the local and private roadways will consist of approximately 1,500 passenger car trips per day, 2 small trucks per day, and 2 large trucks per day with a 20-year design life. Based on these assumptions, our analysis uses 51,000 ESAL's for for a 20-year design life of the pavement. We assumed that vehicle traffic along the collector and arterial roads will consist of approximately 1,275,000 ESAL's for a 20-year design life (approximately 25 times greater than private roads).

Based on these assumptions, our analysis uses 51,000 and 1,275,000 ESAL's for the traffic over the life of the pavement. Asphalt has been assumed to be a high stability plant mix or Superpave mix with a minimum CBR of 70. The untreated base course material (road base or UTBC) composed of crushed stone with a minimum CBR of 30. The table below presents equivalent recommended pavement sections based on the above assumptions. The City of Lehi minimum pavement section may govern the pavement design.

Local and Private Roadways Pavement Sections

Pavement Materials	Recommended Minimum Thickness (in)		
	Pavement 1	Pavement 2	City Minimum
Asphaltic Concrete	3	3	3
Untreated Base Course	6	8	6
Granular Borrow/ Engineered Fill	9	6	15

Collector and Arterial Pavement Sections

Pavement Materials	Recommended Minimum Thickness (in)		
	Pavement 1	Pavement 2	City Minimum
Asphaltic Concrete	5	6.5	6.5
Untreated Base Course	8	9	6
Granular Borrow/ Engineered Fill	17	9	15

The pavement section thicknesses above assume that there is no mixing over time between the road base and the softer native layers below. In order to prevent mixing or fines migration, and thereby prolong the life of the pavement section, we recommend that the owner give consideration to placing a non-woven filter fabric between the native soils and the road base. We recommend that a Propex Geotex® NW-401, NW-601, or a GeoStrata-approved equivalent be used.

If traffic conditions vary significantly from our stated assumptions, GeoStrata should be contacted so we can modify our pavement design parameters accordingly. Specifically, if the traffic counts are significantly higher or lower, we should be contacted to review the pavement sections as necessary. The pavement sections thicknesses above assumes that the majority of construction traffic including cement trucks, cranes, loaded haulers, etc. has ceased. If a significant volume of construction traffic occurs after the pavement section has been constructed, the owner should anticipate maintenance or a decrease in the design life of the pavement area.

In our experience, in areas with heavy truck loads where trucks frequently turn around, backup, or load and unload, such as areas around dumpsters, pavements experience more distress. To prolong the life of the pavement in these areas, consideration should be given to using a Portland

cement concrete (rigid) pavement in these areas. The table below presents our recommended rigid pavement section.

Rigid Pavement Section

Pavement Materials	Recommended Minimum Thickness (in)
	Rigid Pavement 1
Concrete	5
Untreated Base Course	6

Concrete should consist of a low slump, low water cement ratio mix with a minimum 28-day compressive strength of 4,000 psi. Base course should be compacted to at least 95% of the maximum dry density as determined by the ASTM D-1557.

The pavement sections discussed above meet our minimum recommendations for pavement design. It should be noted that more stringent pavement section requirements may be enforced by Lehi City, Draper City, Utah County or other governing agency.

7.0 CLOSURE

7.1 LIMITATIONS

The recommendations contained in this report are based on our limited field exploration, laboratory testing, and understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the explorations made for this investigation. It is possible that variations in the soil and groundwater conditions could exist between and beyond the points explored. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site that are different from those described in this report, GeoStrata should be immediately notified so that we may make any necessary revisions to recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, GeoStrata should be notified.

This report was prepared in accordance with the generally accepted standard of practice at the time the report was written. No other warranty, expressed or implied, is made.

It is the Client's responsibility to see that all parties to the project including the Designer, Contractor, Subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

7.2 ADDITIONAL SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during construction. GeoStrata staff should be on site to verify compliance with these recommendations. These tests and observations should include, but not necessarily be limited to, the following:

- Observations and testing during site preparation, earthwork and structural fill placement.
- Observation of foundation soils to assess their suitability for footing placement.
- Observation of soft/loose soils over-excavation.
- Observation of temporary excavations and shoring.
- Consultation as may be required during construction.
- Quality control and observation of concrete placement.

We also recommend that project plans and specifications be reviewed by GeoStrata to verify compatibility with our conclusions and recommendations. Additional information concerning the scope and cost of these services can be obtained from our office.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding the report or wish to discuss additional services, please do not hesitate to contact us at your convenience at (801) 501-0583.

7.3 ACKNOWLEDGEMENTS

This project was made possible through the help of Dan Mitchell and Scott Bishop with D.R. Horton, they scheduled meetings with the landowners and worked on permits for land disturbance and scheduled a second trackhoe to dig the east side of the property test pits at the site. Dale Judd with JSI Ventures, LLC, the operator with the excavation company that completed the test pits on the west side of the property. Bryce Jackson, E.I.T., Nate Flores, Ashley Peay, and James Moore with GeoStrata all logged test pits and collected samples at the site. Jerry Olson and Jack Berry with Micron Technology, Inc met multiple times to discuss utility location. There are others with GeoStrata, D.R. Horton, and Micron Technology Inc. that made this project happen. Thank you.

REFERENCES CITED

Biek, R.F., 2005, Geologic Map of the Lehi Quadrangle and Part of the Timpanogos Cave Quadrangle, Salt Lake and Utah Counties, Utah, Utah Geological Survey Map 210, Scale 1:24,000.

Black, B.D., Hecker, S., Hylland M.D., Christenson, G.E, and McDonald, G.N., 2003, Quaternary fault and fold database and map of Utah: Utah Geological Survey Map 193 DM.

Christenson G.E., Shaw L. M., 2008, Liquefaction Special Study Areas, Wasatch Front and Nearby Areas, Utah, Scale 1:250,000, Supplement Map to Utah Geological Survey Circular 106

Hecker, S., 1993, Quaternary Tectonics of Utah with Emphasis on Earthquake-Hazard Characterization: Utah Geological Survey Bulletin, 127.

Hintze, L.F., 1980, Geologic map of Utah: Utah Geological and Mineral Survey Map A-1, Scale 1:500,000.

Hintze, L.F. 1993, Geologic History of Utah, Brigham Young University Studies, Special Publication 7, 202p.

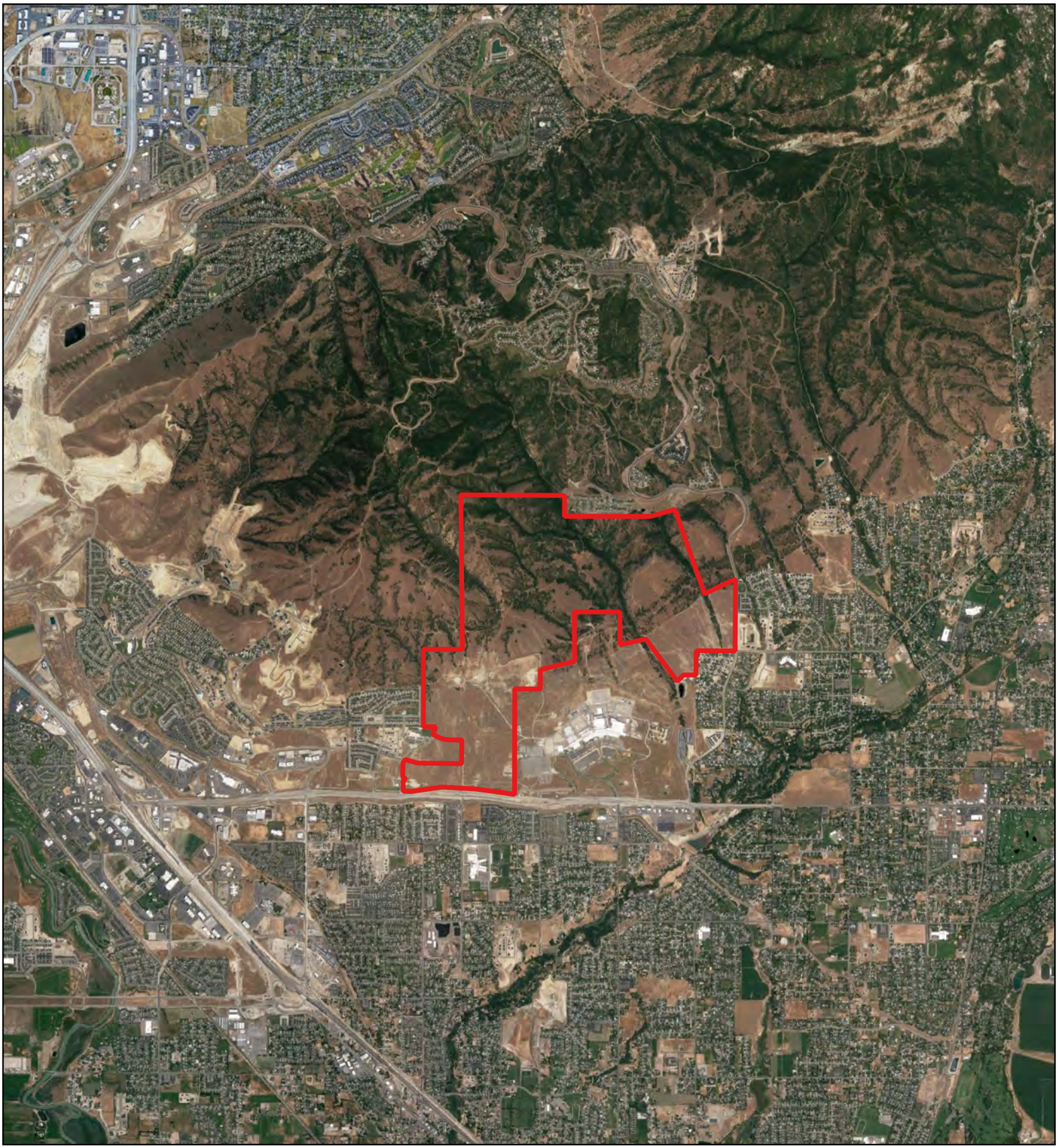
International Building Code, 2018; International Building Council.

Lew, M., Sitar, N., Al Atik, L., Pourzanjani, M., and Hudson, M.B., 2010, Seismic earth pressures on deep building basements; SEAOC 2010 Convention Proceedings, p.12.

Scott, W.E., McCoy, W.D., Shorba, R.R., and Meyer, R., 1983, Reinterpretation of the exposed record of the last two cycles of Lake Bonneville, western United States: Quaternary Research, v.20, p. 261-285.

Stokes, W.L., 1986, Geology of Utah: Utah Museum of Natural History and Utah Geological and Mineral Survey Occasional Paper Number 6, p 280.

APPENDIX A



Legend

Bondaries

400 0 400 800 1200 1600 ft

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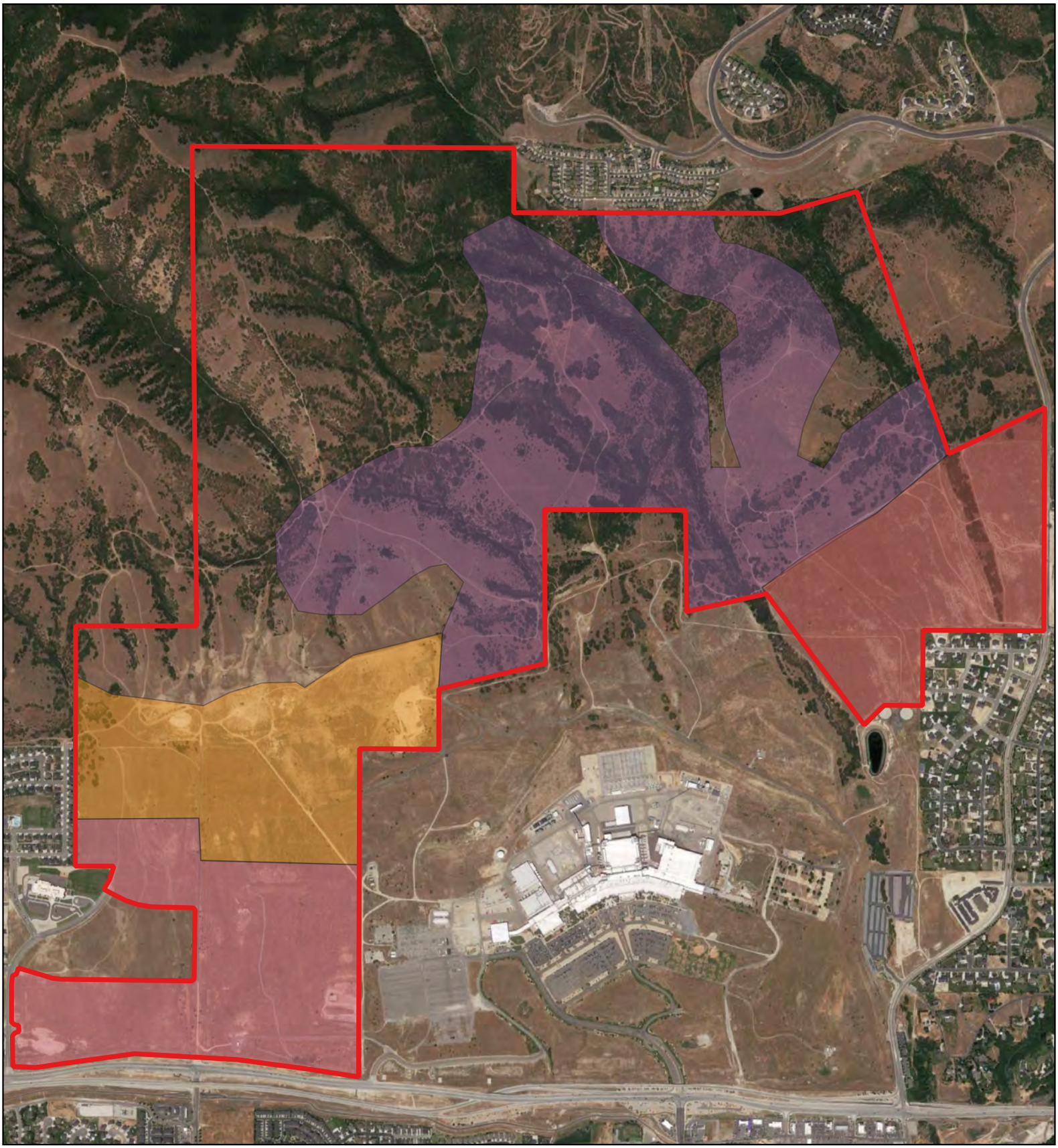
N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number

Site Vicinity Map

Plate A-1



400 0 400 800 1200 1600 ft

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N

GeoStrata

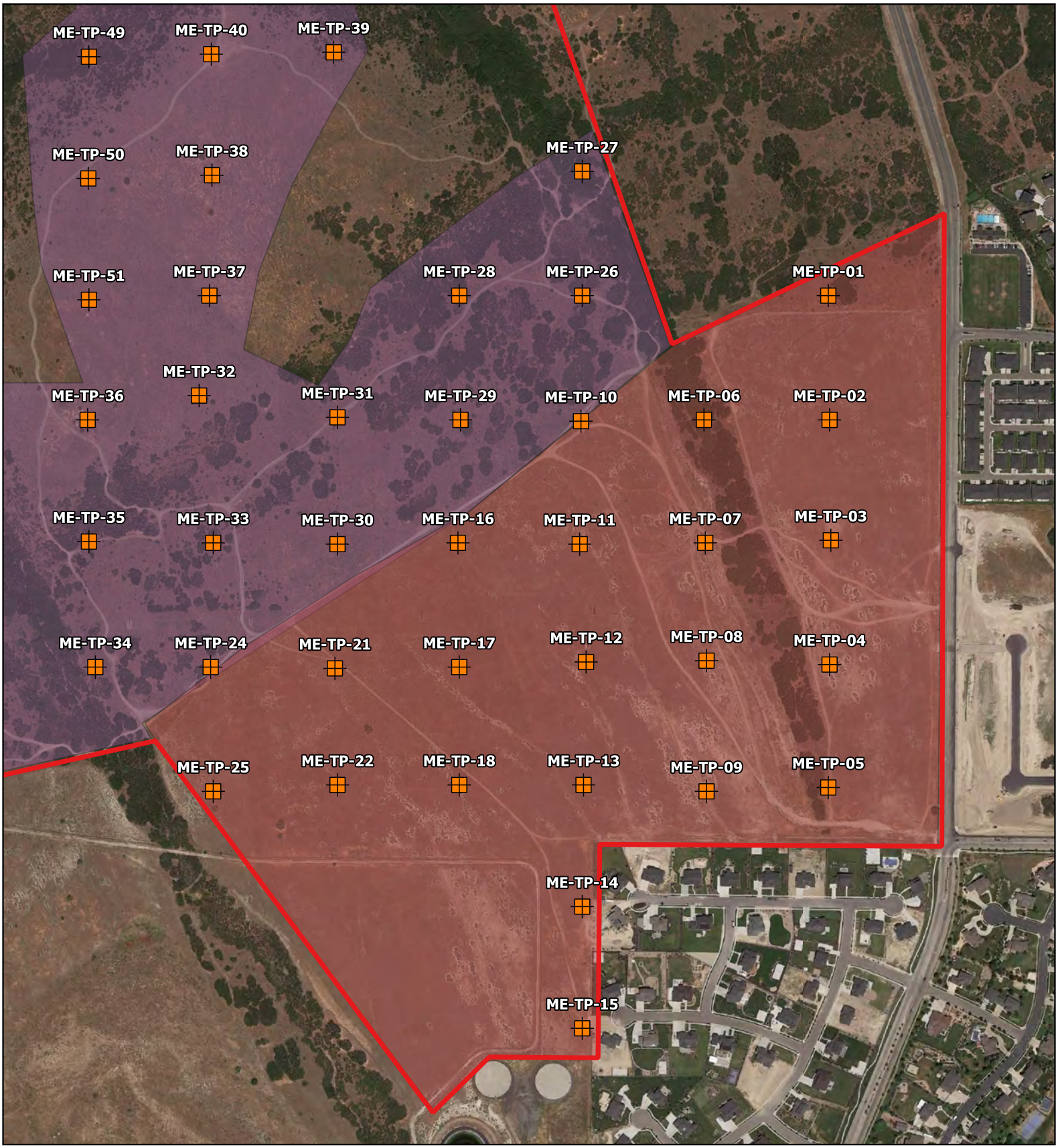
Legend

- Mircon Property Boundaries
- High Density Single Family, Commerial, and Apartments
- Lehi Emerald Single Family and Single Family
- Highland Emerald Single Family
- Mountain Single Family

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number

Site Section Map

Plate A-2



Legend

- Mircon Property Boundaries
- Approximate Test Pit Location
- High Density Single Family, Commercial, and Apartments
- Lehi Emerald Single Family and Single Family
- Highland Emerald Single Family
- Mountain Single Family

400 0 400 800 1200 1600 ft

1:6000

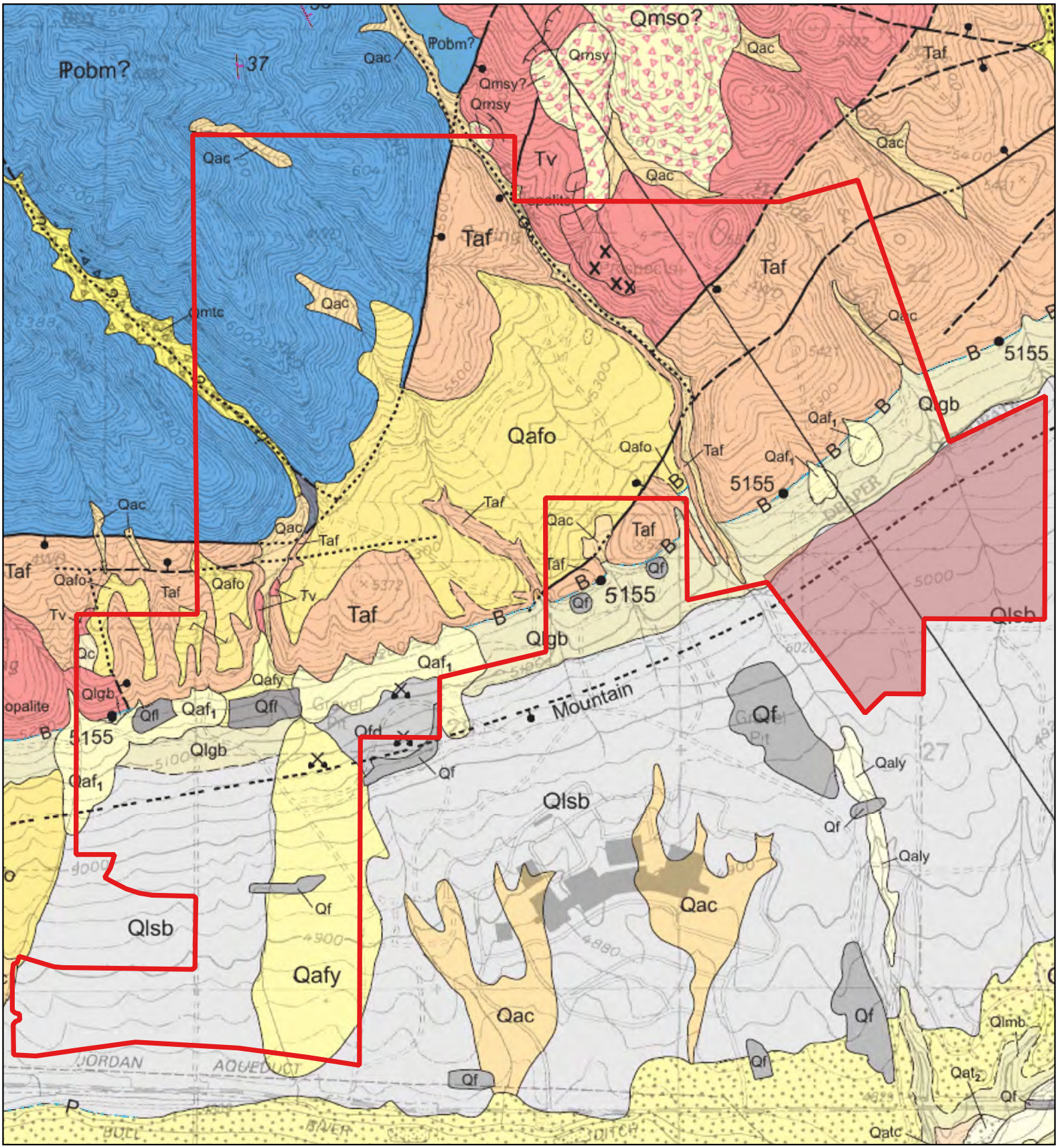
N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah

Highland Emerald Single Family Section Exploration Map

Plate A-5



Legend

- Mircon Property Boundaries
- Highland Emerald Single Family

400 0 400 800 1200 1600 ft

1:17000

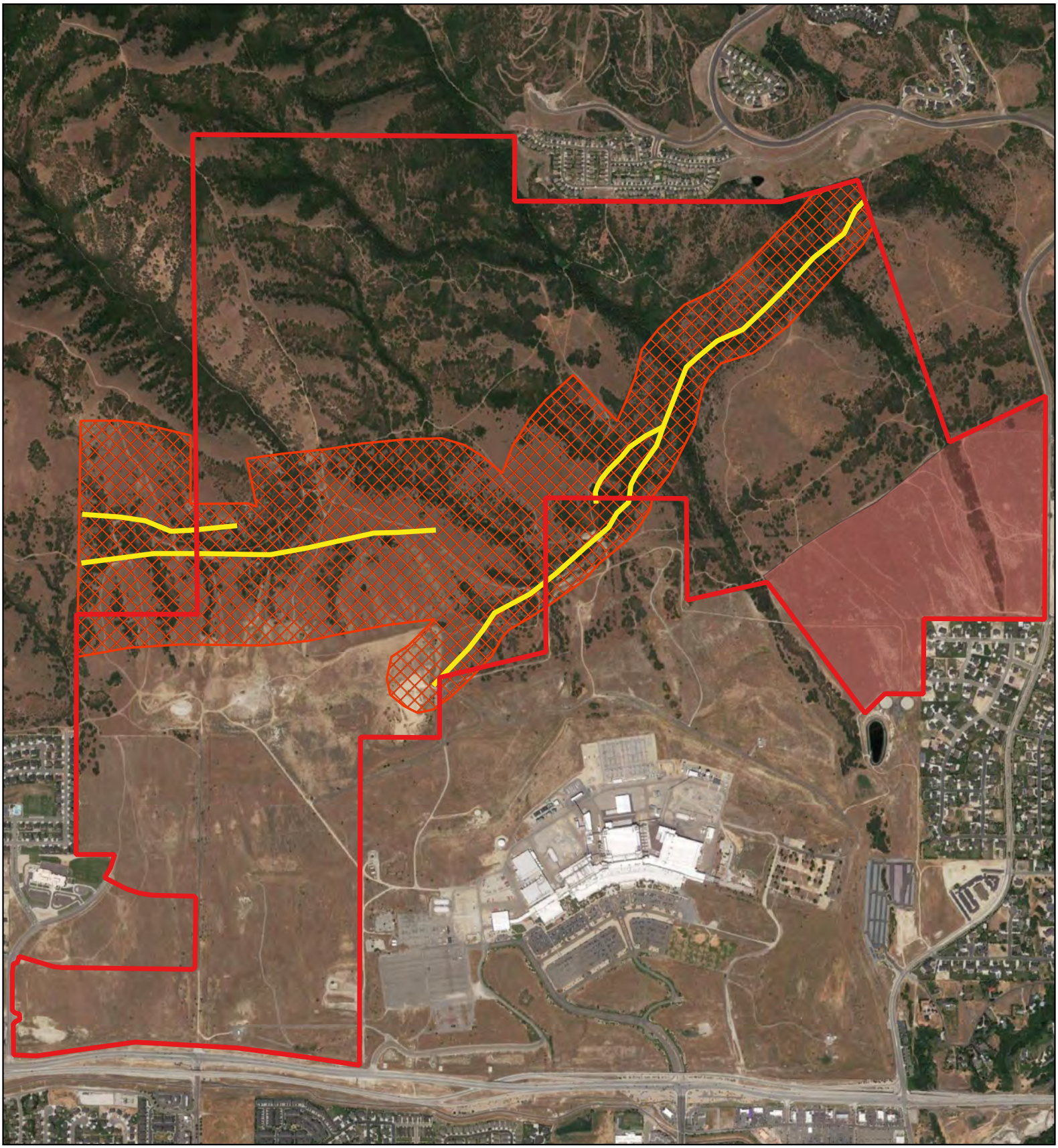
N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number 589-100

Site Geology Map

Plate A-4



Legend

- Mircon Property Boundaries
- Highland Emerald Single Family
- Approximate Faults
- Fault Special Study Area

400 0 400 800 1200 1600 ft

1:17000

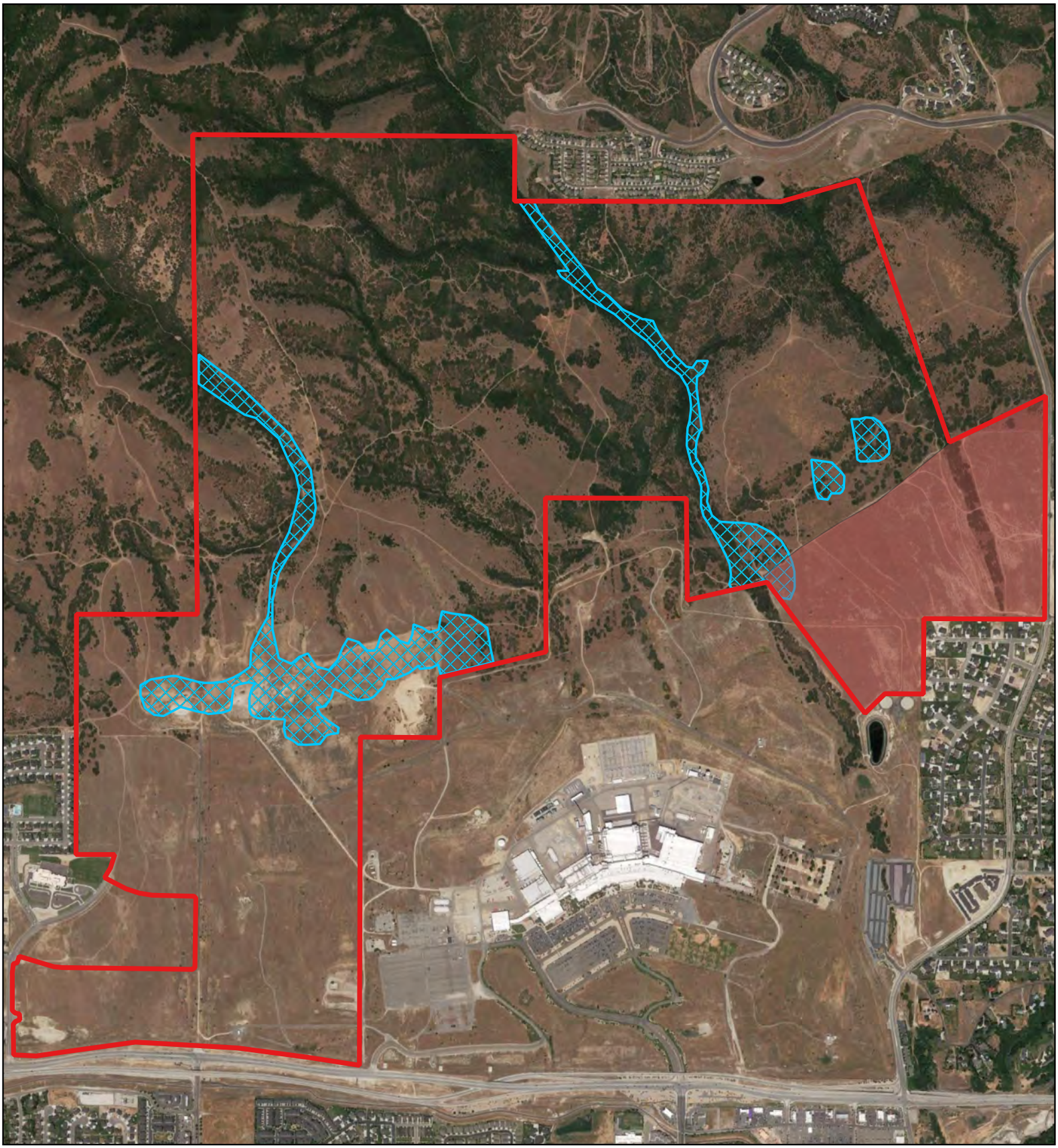
N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number 589-100

Faults and Fault Special Study Area Map

Plate A-5



Legend

- Mircon Property Boundaries
- Highland Emerald Single Family
- Debris Flow Study Areas

400 0 400 800 1200 1600 ft

1:17000

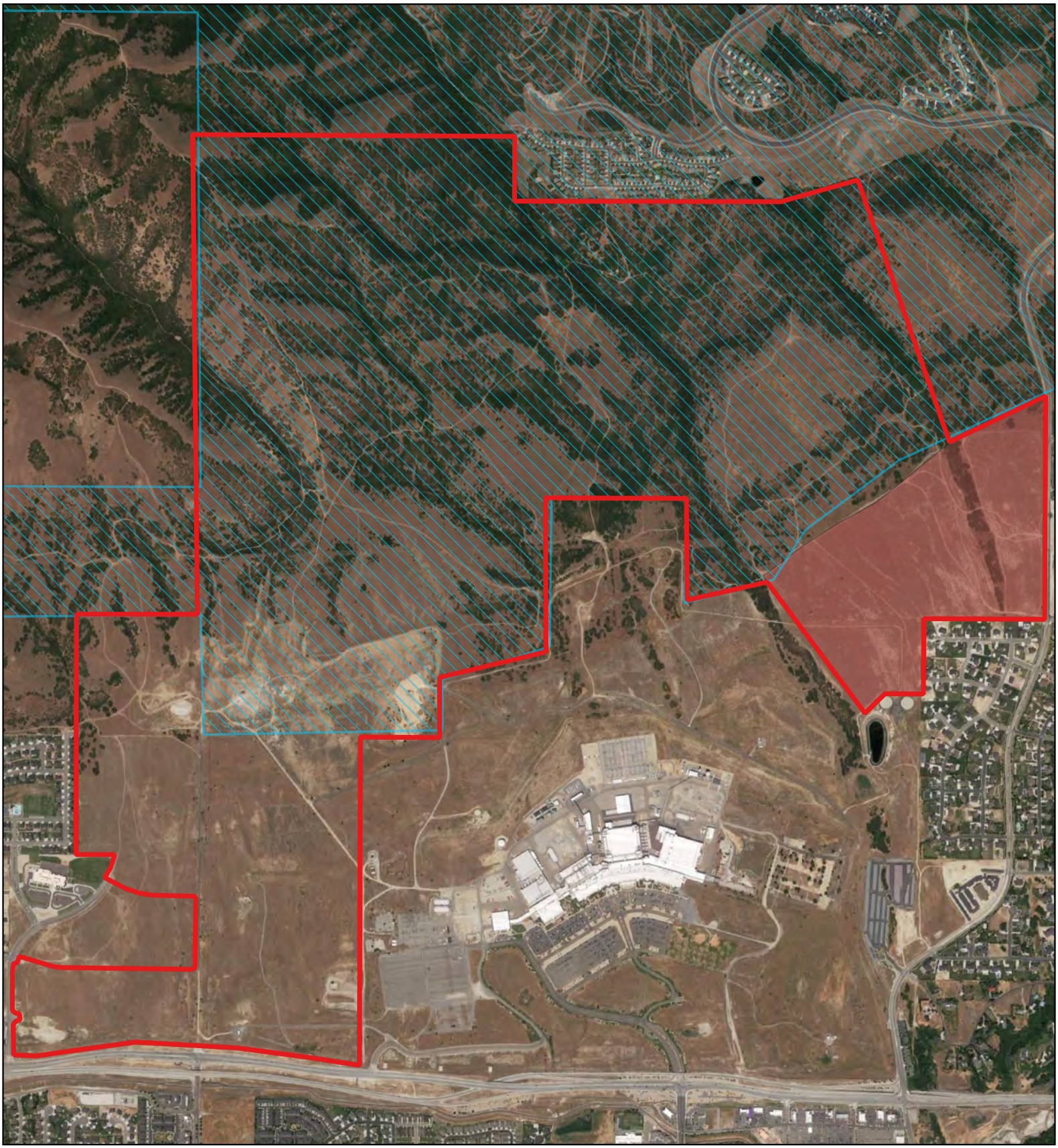
N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number 589-100

Debris Flow Special Study Area Map

Plate A-6



Legend

- Mircon Property Boundaries
- Slope Stability Special Study Area
- Highland Emerald Single Family

400 0 400 800 1200 1600 ft

1:17000

N

GeoStrata

D.R. Horton
Mircon Property
Lehi/Draper, Utah
Project Number 589-100

Slope Special Study Area Map

Plate A-7

APPENDIX B

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-01
Sheet 1 of 1

LOCATION
NORTHING 4,478,261.00 EASTING 4,478,261.00 ELEVATION 5,075-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SP	Poorly Graded SAND with gravel - medium dense, moist, dark brown, subrounded gravel up to 3 inches in diameter						
1					SM	Silty SAND with gravel - dense, moist, brown, occasional organics		6.4	22.6			●
	5											
2												
					SM	Silty SAND - dense, moist, light brown						
3	10											
						Bottom of Test Pit @ 12 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 1

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-02
Sheet 1 of 1

LOCATION
NORTHING 4,478,112.00 EASTING 4,478,112.00 ELEVATION 5,043-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					CL	Sandy Lean CLAY - stiff, moist, dense					
1							85.5	20.8	63.7	34	13
	5										
					SC-SM	Silty Clayey SAND - dense, moist, tan					
2											
3	10										
4						Bottom of Test Pit @ 13 Feet					

Moisture Content and Atterberg Limits
Plastic Limit | Moisture Content | Liquid Limit
10 20 30 40 50 60 70 80 90

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 2

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-03
Sheet 1 of 1

LOCATION
NORTHING 4,477,976.00 EASTING 4,477,976.00 ELEVATION 5,025-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					GM	Silty GRAVEL with sand - dense, moist, brown					
1								7.3	17.4		
					SM	Silty SAND - dense, moist, light brown					
	5				CL	Lean CLAY - stiff, moist, brown, sand was observed to be fine-grained	96.4	19.7	92.4	30	9
2											
3	10							20.2	93.7		
						Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 3

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-04
Sheet 1 of 1

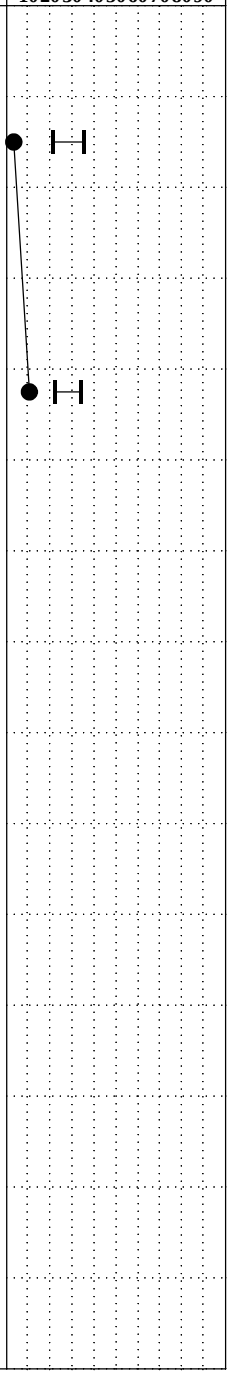
LOCATION
NORTHING 4,477,827.00 EASTING 4,477,827.00 ELEVATION 5,002-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					CL	Lean CLAY - stiff, moist, tan, minor cementation		3.2	97.1	35	14
1							98.4	10.4	92.9	34	12
	5										
2					SM	Silty SAND - dense, moist, light brown					
	10										
3						Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90



SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 4

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-05
Sheet 1 of 1

LOCATION
NORTHING 4,477,674.00 EASTING 4,477,674.00 ELEVATION 4,978-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SM	Silty SAND with gravel - dense, moist, light brown						
1								6.5	33.5			●
	5					- subrounded cobbles up to 7 inches in diameter						
2					SM	Silty SAND with gravel - dense, moist, light brown						
3	10					Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 5

DATE	
STARTED:	12/2/20
COMPLETED:	12/2/20
BACKFILLED:	12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO: ME-TP-06
Sheet 1 of 1

LOCATION
NORTHING 4,478,114.00 EASTING 4,478,114.00 ELEVATION 5,055-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					SP	Poorly Graded SAND with silt and gravel - medium dense, moist, dark brown					
					SM	Silty SAND with gravel - dense, moist, light brown		6.6	26.4		
1					SP	Poorly Graded SAND - medium dense, moist, brown					
	5										
2					GP	Poorly Graded GRAVEL with sand - dense, moist, light brown, subrounded gravel and cobbles up to 10 inches in diameter					
3	10					Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 6

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-07
Sheet 1 of 1

LOCATION
NORTHING 4,477,972.00 EASTING 4,477,972.00 ELEVATION 5,031-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					CL	Sandy Lean CLAY - stiff, moist, brown					
1							92.3	14.2	67.8	32	9
	5										
2											
3	10				SP	Poorly Graded SAND - medium dense, moist, light brown, sand is coarse grained					
					SM	Silty SAND - dense, moist, light brown					
4						Bottom of Test Pit @ 13 Feet					

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 7

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-08
Sheet 1 of 1

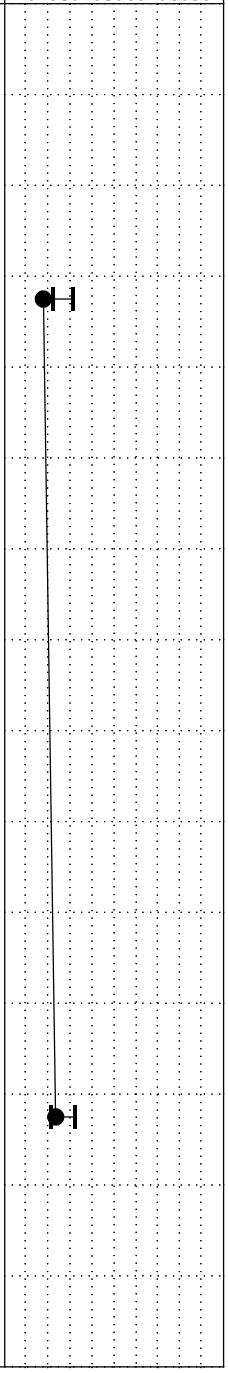
LOCATION
NORTHING 4,477,831.00 EASTING 4,477,831.00 ELEVATION 5,013-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					SM	Silty SAND - dense, moist, tan					
					CL	Lean CLAY - stiff, moist, brown, iron staining throughout					
1							95.1	17.6	90.3	31	9
	5										
2											
3	10						92.9	23.3	98.8	32	11
4						Bottom of Test Pit @ 14 Feet					

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90



2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 8

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-09
Sheet 1 of 1

LOCATION
NORTHING 4,477,678.00 EASTING 4,477,678.00 ELEVATION 4,986-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					ML	SILT - stiff, moist, tan						
1												
					ML	SILT - stiff, moist, brown, iron staining throughout		18.1	96.4			●
2	5											
					GP	Poorly Graded GRAVEL with sand - medium dense, moist, tan, occasional cobbles throughout						
3	10											
4						Bottom of Test Pit @ 13 Feet						

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 9

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-10
Sheet 1 of 1

LOCATION
NORTHING 4,478,112.00 EASTING 4,478,112.00 ELEVATION 5,074-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					CL	Lean CLAY with sand - stiff, moist, light brown		4.4	84.0	38	16
1											
	5						73.9	13.7	78.7	NP	NP
2					GP	Poorly Graded GRAVEL with sand - medium dense, moist, tan, occasional cobbles throughout					
3	10					Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 10

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-11
Sheet 1 of 1

LOCATION
NORTHING 4,477,967.00 EASTING 4,477,967.00 ELEVATION 5,046-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SM	Silty SAND - dense, moist, light brown						
1					SC-SM	Silty Clayey SAND - medium dense, moist, light brown						
	5											
2					SP	Poorly Graded SAND with silt - medium dense, moist, tan		5.2	5.9			●
	10											
3												
4						Bottom of Test Pit @ 13 Feet						

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 11

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-12
Sheet 1 of 1

LOCATION
NORTHING 4,477,829.00 EASTING 4,477,829.00 ELEVATION 5,024-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					SM	Silty SAND - dense, moist, light brown					
1					CL-ML	Silty CLAY - medium stiff, moist, brown, iron staining throughout	97.0	23.6	93.5	32	11
	5										
2											
3	10										
4						Bottom of Test Pit @ 13 Feet					

Moisture Content and Atterberg Limits
Plastic Limit | Moisture Content | Liquid Limit
10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 12

DATE
STARTED: 12/2/20
COMPLETED: 12/2/20
BACKFILLED: 12/2/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: N. F.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-13
Sheet 1 of 1

LOCATION
NORTHING 4,477,669.00 EASTING 4,477,669.00 ELEVATION 5,001-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SM	Silty SAND - dense, moist, light brown						
1												
	5				CL	Lean CLAY - medium stiff, moist, brown, iron staining throughout		12.3	88.2			
2												
3	10						100.1	16.7	85.9	34	15	
						Bottom of Test Pit @ 12 Feet						
4												

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 13

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J. M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-14
Sheet 1 of 1

LOCATION
NORTHING 4,477,536.00 EASTING 4,477,536.00 ELEVATION 4,987-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					ML	SILT - stiff, moist, tan, iron staining throughout						
1								14.8	97.2			●
	5				CL	Lean CLAY - stiff, moist, brown, iron staining throughout						
2						- orange mottling						
3	10					Bottom of Test Pit @ 12 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 14

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J. M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-15
Sheet 1 of 1

LOCATION
NORTHING 4,477,389.00 EASTING 4,477,389.00 ELEVATION 4,975-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Sandy Lean CLAY - dark brown, moist, organics throughout						
					CL	Lean CLAY - stiff to hard, moist, light brown with white mottling						
1							96.8	15.5	97.2	32	11	
	5											
2												
3	10											
						Bottom of Test Pit @ 12 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 15

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-16
Sheet 1 of 1

LOCATION
NORTHING 4,477,972.00 EASTING 4,477,972.00 ELEVATION 5,073-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					ML	Sandy SILT - stiff, moist, tan with orange mottling						
1					SM	Silty SAND - medium dense, moist, light brown						
	5											
2												
					SM	Silty SAND with cobbles and boulders - medium dense, moist, light brown, occasional boulders up to 2 feet in diameter						
3	10											
						Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 16

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-17
Sheet 1 of 1

LOCATION
NORTHING 4,477,823.00 EASTING 4,477,823.00 ELEVATION 5,040-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Sandy Lean CLAY - dark brown, moist						
					CL	Sandy Lean CLAY - hard, moist, dark brown, occasional pea sized gravels throughout		12.8	69.9	41	19	
1					CL-ML	Silty CLAY - hard, moist, tan						
	5				CL-ML	Silty CLAY - hard, moist, grey with orange mottling, sand is fine-grained						
2												
3	10					Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 17

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-18
Sheet 1 of 1

LOCATION
NORTHING 4,477,682.00 EASTING 4,477,682.00 ELEVATION 5,016-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Sandy Lean CLAY - dark brown, moist, organics throughout						
					CL	Lean CLAY - stiff, moist, light brown						
1							88.6	20.5	91.7	42	15	
	5											
2					CL	Lean CLAY with sand - stiff, moist, brown with orange mottling, sand was observed to be fine-grained, clay was finley laminated						
3	10					Bottom of Test Pit @ 12 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 18

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-21
Sheet 1 of 1

LOCATION
NORTHING 4,477,818.00 EASTING 4,477,818.00 ELEVATION 5,060-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					ML	Sandy SILT - stiff, moist, tan, minor cementation						
1												
	5											
2												
					SP	Poorly Graded SAND with gravel - medium dense, moist, dark brown, subrounded gravel up to 3 inches in diameter						
3	10					- subangular to subrounded cobbles and boulders up to 13 inches in diameter						
4						Bottom of Test Pit @ 13 Feet						

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 19

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-22
Sheet 1 of 1

LOCATION
NORTHING 4,477,680.00 EASTING 4,477,680.00 ELEVATION 5,033-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout					
					CL	Lean CLAY - medium stiff, moist, light brown, pinhole structures from 2 to 4 feet					
1							92.8	22.1	90.7	40	16
	5					- orange mottling					
2											
3	10										
						Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 20

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-24
Sheet 1 of 1

LOCATION
NORTHING 4,477,820.00 EASTING 4,477,820.00 ELEVATION 5,085-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout					
					SM	Silty SAND - dense, moist, light brown			13.3		
1					SP	Poorly Graded SAND - medium dense, moist, reddish brown					
	5										
2						- rounded cobbles and boulders up to 12 inches in diameter					
3	10										
4						Bottom of Test Pit @ 13 Feet					

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-25
Sheet 1 of 1

LOCATION
NORTHING 4,477,672.00 EASTING 4,477,672.00 ELEVATION 5,047-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout						
					SC	Clayey SAND - dense, moist, light brown		5.1	37.3	27	9	● H
1												
	5											
2					SP	Poorly Graded SAND - medium dense, moist, reddish brown						
						- rounded cobbles and boulders up to 24 inches in diameter						
						- trackhoe refusal						
3	10					Bottom of Test Pit @ 9 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 22

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-26
Sheet 1 of 1

LOCATION
NORTHING 4,478,261.00 EASTING 4,478,261.00 ELEVATION 5,115-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SC-SM	Silty Clayey SAND - dense, moist, tan, large root casts throughout		3.3	27.9	25	7	● H
1					SP	Poorly Graded SAND - medium dense, moist, dark brown						
	5											
					ML	SILT - hard, moist, tan, medium cementation with pinhole structures throughout						
2					SP	Poorly Graded SAND - medium dense, moist, brown, coarse grained sand						
3	10				SM	Silty SAND - medium dense, moist, tan						
						Bottom of Test Pit @ 11 Feet						
4												

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 23

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-27
Sheet 1 of 1

LOCATION
NORTHING 4,478,414.00 EASTING 4,478,414.00 ELEVATION 5,127-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL with sand - medium dense, moist, tan, occasional cobbles throughout						
1												
	5								22.7	NP	NP	
2					ML	SILT with gravel - hard, moist, brown with yellow and reddish brown mottling,						
						Bottom of Test Pit @ 8 Feet						
3	10											
4												

Moisture Content and Atterberg Limits
Plastic Limit — Moisture Content — Liquid Limit
10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 24

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-28
Sheet 1 of 1

LOCATION
NORTHING 4,478,254.00 EASTING 4,478,254.00 ELEVATION 5,138-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout						
					SM	Silty SAND with gravel - dense, moist, light brown, subrounded cobbles up to 7 inches in diameter						
1												
	5											
2												
3	10					Bottom of Test Pit @ 10 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 25

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: A. Peay
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-29
Sheet 1 of 1

LOCATION
NORTHING 4,478,116.00 EASTING 4,478,116.00 ELEVATION 5,111-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SP	Poorly Graded SAND with silt - medium dense, moist, reddish brown, pinhole structures throughout						
					SP-SM	Poorly Graded SAND with silt - medium dense, moist, brown			11.9			
1												
	5				GP	Poorly Graded GRAVEL with silt and clay - very dense, brown with yellow and orange mottling, moist						
2												
3	10					Bottom of Test Pit @ 10.5 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 26

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-30
Sheet 1 of 1

LOCATION
NORTHING 4,477,967.00 EASTING 4,477,967.00 ELEVATION 5,098-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SM	Silty SAND - dense, moist, light brown						
1												
	5						82.9	23.0	44.7	NP	NP	●
2					ML	SILT - stiff, moist, tan						
					SP	Poorly Graded SAND with gravel - medium dense, moist, reddish brown, subrounded gravel and cobbles up to 8 inches in diameter						
3	10					Bottom of Test Pit @ 10 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 27

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-31
Sheet 1 of 1

LOCATION
NORTHING 4,478,121.00 EASTING 4,478,121.00 ELEVATION 5,135-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					ML	Sandy SILT - stiff, moist, tan, minor cementation						
					GM	Silty GRAVEL - dense, moist, reddish brown, subangular cobbles and boulders up to 30 inches in diameter						
1												
	5											
2												
3	10					Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 28

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-32
Sheet 1 of 1

LOCATION
NORTHING 4,478,145.00 EASTING 4,478,145.00 ELEVATION 5,222-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SP	Poorly Graded SAND with gravel - medium dense, moist, dark brown, subrounded gravel up to 6 inches in diameter						
1												
	5											
2												
3	10					Bottom of Test Pit @ 12 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 29

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-33
Sheet 1 of 1

LOCATION
NORTHING 4,477,969.00 EASTING 4,477,969.00 ELEVATION 5,128-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL - dense, moist, brown with gray mottling, occasional cobbles throughout						
						- grey						
1												
	5								17.4			
2						- light brown						
3	10					Bottom of Test Pit @ 10 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 30

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-34
Sheet 1 of 1

LOCATION
NORTHING 4,477,820.00 EASTING 4,477,820.00 ELEVATION 5,102-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout						
					SM	Silty SAND - dense, moist, light brown						
1												
	5							7.5	43.1			●
2												
					SP	Poorly Graded SAND - medium dense, moist, light brown						
3	10					Bottom of Test Pit @ 10 Feet						
4												

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 31

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-35
Sheet 1 of 1

LOCATION
NORTHING 4,477,969.00 EASTING 4,477,969.00 ELEVATION 5,147-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					SC	Clayey SAND - dense, moist, brown						
1					GM	Silty GRAVEL- very dense, moist, grayish brown, cobbles and boulders up to 24 inches in diameter						
	5											
2												
						- trackhoe refusal						
						Bottom of Test Pit @ 8 Feet						
3	10											
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 32

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-36
Sheet 1 of 1

LOCATION
NORTHING 4,478,117.00 EASTING 4,478,117.00 ELEVATION 5,235-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout					
					GM	Silty GRAVEL - dense, moist, brown, gravels average 2 to 4 inches in diameter		13.9	47.8		
1					SP	Poorly Graded SAND with gravel - medium dense, moist, brown, subrounded gravels and cobbles up to 6 inches in diameter					
	5										
2											
3	10				GP	Poorly Graded GRAVEL with sand - medium dense, moist, tan, occasional cobbles throughout					
						Bottom of Test Pit @ 12 Feet					
4											

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 33

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-37
Sheet 1 of 1

LOCATION
NORTHING 4,478,262.00 EASTING 4,478,262.00 ELEVATION 5,208-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty CLAY with gravel - dark brown, moist, organics throughout						
					GM-GC	Silty GRAVEL with clay - dense to very dense, moist, light brown						
1						- orange and brown mottling						
	5					- cobbles and boulders up to 12 inches in diameter						
2												
						Bottom of Test Pit @ 8 Feet						
3	10											
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 34

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-38
Sheet 1 of 1

LOCATION
NORTHING 4,478,405.00 EASTING 4,478,405.00 ELEVATION 5,342-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty CLAY with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL - dense to very dense, moist, light brown, cobbles and boulders up to 12 inches in diameter						
1												
	5											
2												
						-Refusal @ 8 feet						
						Bottom of Test Pit @ 8 Feet						
3	10											
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 35

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-39
Sheet 1 of 1

LOCATION
NORTHING 4,478,551.00 EASTING 4,478,551.00 ELEVATION 5,348-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty CLAY with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL - dense to very dense, moist, light brown, cobbles and boulders up to 12 inches in diameter						
1												
	5											
2						-Refusal @ 6 feet Bottom of Test Pit @ 6 Feet						
3	10											
4												

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 36

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-40
Sheet 1 of 1

LOCATION
NORTHING 4,478,551.00 EASTING 4,478,551.00 ELEVATION 5,416-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty CLAY with gravel - dark brown, moist, organics throughout						
					GP	Poorly Graded GRAVEL with silt and sand - dense to very dense, moist, light brown with orange mottling, cobbles up to 8 inches in diameter						
1												
	5					- boulders up to 18 inches in diameter						
2						- increased moisture						
	10											
3												
4						Bottom of Test Pit @ 12 Feet						

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 37

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-41
Sheet 1 of 1

LOCATION
NORTHING 4,478,697.00 EASTING 4,478,697.00 ELEVATION 5,382-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit)
0	0					TOPSOIL - Sandy Lean Clay with gravel - dark brown, moist, organics throughout						
					CL	Lean CLAY - Lean CLAY - stiff, reddish brown with white mottling, moist						
1												
	5											
2												
					CL	Sandy Lean CLAY with gravel - stiff to hard, moist, light brown, gravels and cobbles up to 10 inches in diameter						
3	10											
						Bottom of Test Pit @ 12 Feet						
4												

Moisture Content and Atterberg Limits
Plastic Limit — Moisture Content — Liquid Limit
10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 38

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-42
Sheet 1 of 1

LOCATION
NORTHING 4,478,843.00 EASTING 4,478,843.00 ELEVATION 5,461-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Sandy Lean Clay with gravel - dark brown, moist, organics throughout						
					CL	Lean CLAY - Lean CLAY - stiff, reddish brown with white mottling, moist						
1												
	5											
2					CL	Sandy Lean CLAY with gravel - stiff to hard, moist, light brown, gravels and cobbles up to 10 inches in diameter						
						Bottom of Test Pit @ 6 Feet						
3	10											
4												

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 39

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-48
Sheet 1 of 1

LOCATION
NORTHING 4,478,697.00 EASTING 4,478,697.00 ELEVATION 5,423-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout						
					GC	Clayey GRAVEL - dense, moist, light brown						
1												
	5											
2												
					SP	Poorly Graded SAND - medium dense, moist, reddish brown						
3	10											
						Bottom of Test Pit @ 11 Feet						
4												

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 40

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-50
Sheet 1 of 1

LOCATION
NORTHING 4,478,401.00 EASTING 4,478,401.00 ELEVATION 5,355-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty CLAY with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL - dense to very dense, moist, light brown with orange mottling, cobbles and boulders up to 12 inches in diameter						
1												
	5					-Refusal @ 6 feet						
2												
3	10					Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 41

DATE
STARTED: 12/3/20
COMPLETED: 12/3/20
BACKFILLED: 12/3/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-51
Sheet 1 of 1

LOCATION
NORTHING 4,478,257.00 EASTING 4,478,257.00 ELEVATION 5,318-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit)
0	0					TOPSOIL; Lean CLAY - moist, brown, organics throughout						
					GM	Silty GRAVEL - dense, moist, reddish brown, cobbles and boulders up to 12 inches in diameter						
1												
	5											
2												
					SP	Poorly Graded SAND - medium dense, moist, reddish brown						
3	10											
						Bottom of Test Pit @ 12 Feet						
4												

Moisture Content and Atterberg Limits
Plastic Limit — Moisture Content — Liquid Limit
10 20 30 40 50 60 70 80 90

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 42

DATE
STARTED: 12/4/20
COMPLETED: 12/4/20
BACKFILLED: 12/4/20

D.R. Horton
Micron Property
Lehi, Utah
Project Number 589-100

GeoStrata Rep: J.M.
Rig Type: Kamatsu 200 Trackhoe

TEST PIT NO:
ME-TP-55
Sheet 1 of 1

LOCATION
NORTHING 4,478,121.00 EASTING 4,478,121.00 ELEVATION 5,191-ft

DEPTH METERS	DEPTH FEET	SAMPLES	WATER LEVEL	GRAPHICAL LOG	UNIFIED SOIL CLASSIFICATION	MATERIAL DESCRIPTION	Dry Density(pcf)	Moisture Content %	Percent minus 200	Liquid Limit	Plasticity Index	Moisture Content and Atterberg Limits (Plastic Limit / Moisture Content / Liquid Limit; 10 20 30 40 50 60 70 80 90)
0	0					TOPSOIL - Silty SAND with gravel - dark brown, moist, organics throughout						
					GM	Silty GRAVEL with sand - dense to very dense, moist, brown, subrounded gravels and cobbles up to 6 inches in diameter		17.5	20.4			●
1												
	5											
2												
3	10					Bottom of Test Pit @ 11 Feet						
4												

2020 LOG OF TEST PIT - PLATE (B) 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

GeoStrata

SAMPLE TYPE
- GRAB SAMPLE
- 2.5" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate
B - 43

Unified Soil Classification Per ASTM D 2488

Primary Divisions			Group Symbol	Group Name
COARSE-GRAINED SOILS more than 50% retained on the No. 200 Sieve	GRAVEL More than half of the coarse fraction is larger than the #4 sieve	Clean Gravel	GW	Well Graded GRAVEL
			GP	Poorly Graded GRAVEL
		Gravel with Duel Classifications	GW-GM	Well Graded GRAVEL with silt
			GP-GM	Poorly Graded GRAVEL with silt
			GW-GC	Well Graded GRAVEL with clay
			GP-GC	Poorly Graded GRAVEL with clay
		Gravel with Fines	GM	Silty GRAVEL
			GC	Clayey GRAVEL
			GC-GM	Silty, Clayey GRAVEL
	SAND More than half of the coarse fraction is smaller than the #4 sieve	Clean Sand	SW	Well Graded SAND
			SP	Poorly Graded SAND
		Sand with Dual Classifications	SW-SM	Well Graded SAND with silt
			SP-SM	Poorly Graded SAND with silt
			SW-SC	Well Graded SAND with clay
			SP-SC	Well Graded SAND with clay
		Sand with Fines	SM	Silty SAND
			SC	Clayey SAND
			SC-SM	Silty, Clayey SAND
FINE-GRAINED SOILS 50% or more passes No. 200 Sieve	SILTY & CLAY less than 50%	Inorganic	CL	Lean CLAY
			ML	SILT
			CL-ML	Silty CLAY
		Organic	OL	Organic CLAY or Organic SILT
	SILTY & CLAY LL 50% or more	Inorganic	CH	Fat CLAY
			MH	Elastic SILT
		Organic	OH	Organic CLAY or Organic SILT
	Highly Organic Soils		PT	Peat

Exploration Log Key

Sample Symbols	Ground Water Symbol
Auger Cuttings	Measured Groundwater Elevation
California Sampler	Estimated Groundwater Elevation
Rock Core	
Bag or Block Sample	
Modified California Sampler	
No Recovery	
Split Spoon	
Shelby Tube	
Dames and More Sampler	

Relative Density	SPT N (blows/ft)
Very Loose	0 to 4
Loose	5 to 10
Med. Dense	11 to 30
Dense	31 to 50
Very Dense	>51

Consistency	SPT N (blows/ft)
Very Soft	0 to 1
Soft	2 to 4
Med. Stiff	5 to 8
Stiff	9 to 15
Very Stiff	16 to 30
Hard	31 to 60
Very Hard	>61

Modifiers	
Description	Percentage
Trace	less than 5
Some	5 to 12
With	more than 12

GeoStrata

Soil Symbols and Description Key

D.R. Horton
Micron Property
Lehi/Draper, Utah
Project Number: 589-100

Plate B-44

APPENDIX C

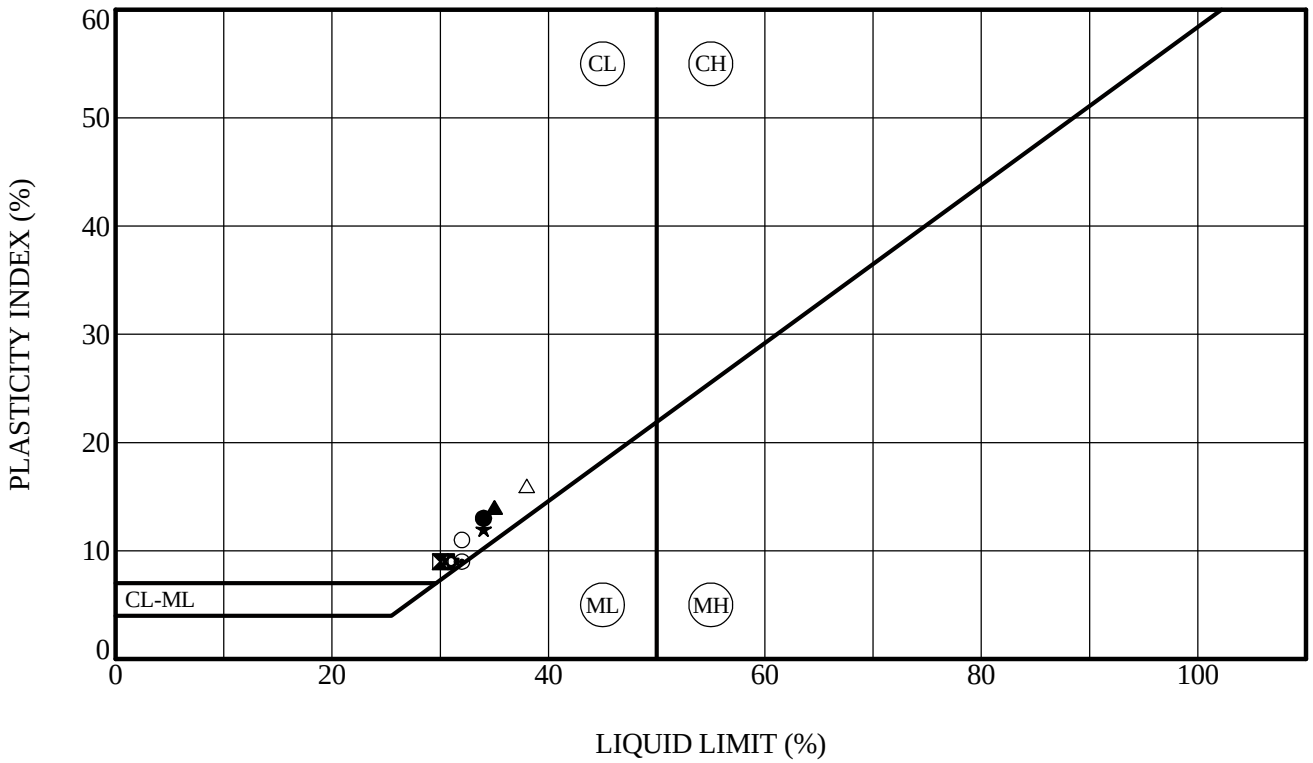
Test Pit No.	Sample Depth (feet)	USCS Soil Classification	Natural Moisture Content (%)	Natural Dry Density (pcf)	Optimum Moisture Content (%)	Maximum Dry Density (pcf)	Gradation			Atterberg		Collapse (%)	CBR (%)
							Gravel (%)	Sand (%)	Fines (%)	LL	PI		
ME-TP-01	3	SM	6.4				37.3	40.1	22.6				
ME-TP-02	3	CL	20.8	85.5					63.7	34	13	0.37	
ME-TP-03	3.5	GM	7.3				52.2	30.4	17.4				
ME-TP-03	5	CL	19.7	96.4					92.4	30	9		
ME-TP-03	11	CL	20.2				0.0	6.3	93.7				
ME-TP-04	1	CL	3.2		18.5	107	0.1	2.8	97.1	35	14		4.3
ME-TP-04	4	CL	10.4	98.4					92.9	34	12	0.07	
ME-TP-05	3	SM	6.5				25.2	41.3	33.5				
ME-TP-06	2	SM	6.6				30.3	43.3	26.4				
ME-TP-07	4	CL	14.2	92.3					67.8	32	9	0.09	
ME-TP-08	3	CL	17.6	95.1					90.3	31	9	0.01	
ME-TP-08	12	CL	23.3	92.9					98.8	32	11	0.01	
ME-TP-09	4	ML	18.1				0.0	3.6	96.4				
ME-TP-10	1	CL	4.4		21.8	100	0.1	15.9	84.0	38	16		3.9
ME-TP-10	5	ML	13.7	73.9					78.7	NP	NP	0.43	
ME-TP-11	7	SP-SM	5.2				3.4	90.7	5.9				
ME-TP-12	4	CL	23.6	97					93.5	32	11	0.22	
ME-TP-13	5	CL	12.3				1.2	10.6	88.2				
ME-TP-13	11	CL	16.7	100.1					85.9	34	15	0.12	
ME-TP-14	3		14.8						97.2				
ME-TP-15	3	CL	15.5	96.8					97.2	32	11	0.03	
ME-TP-17	2	CL	12.8				5.6	24.5	69.9	41	19		
ME-TP-18	3	CL	20.5	88.6					91.7	42	15	0.07	
ME-TP-22	3.5	CL	22.1	92.8					90.7	40	16	0.01	
ME-TP-24	3	SM					12.7	74.0	13.3				
ME-TP-25	3	SC	5.1				2.7	60.0	37.3	27	9		
ME-TP-26	3	SC-SM	3.3				2.3	69.8	27.9	25	7		
ME-TP-27	5	GM					42.0	35.3	22.7	NP	NP		
ME-TP-29	3	SP-SM					6.2	81.9	11.9				
ME-TP-30	5	SM	23	82.9					44.7	NP	NP	0.04	
ME-TP-33	5	GM					52.2	30.4	17.4				
ME-TP-34	5	SM	7.5				1.7	55.2	43.1				
ME-TP-36	1	GM	13.9				42.8	9.4	47.8				
ME-TP-55	3	GM	17.5				39.8	39.8	20.4				

GeoStrata

Lab Summary Report

D.R. Horton
Micron Property – Highland Emerald Single Family
Lehi/Draper, Utah
Project Number: 589-100

Plate C - 1



Sample Location		Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**ME-TP-02**	**3.0**	**34**	**21**	**13**	**63.7**	**Sandy Lean CLAY**
⊠	**ME-TP-03**	**5.0**	**30**	**21**	**9**	**92.4**	**Lean CLAY**
▲	**ME-TP-04**	**1.0**	**35**	**21**	**14**	**97.1**	**Lean CLAY**
★	**ME-TP-04**	**4.0**	**34**	**22**	**12**	**92.9**	**Lean CLAY**
⊙	**ME-TP-07**	**4.0**	**32**	**23**	**9**	**67.8**	**Sandy Lean CLAY**
✿	**ME-TP-08**	**3.0**	**31**	**22**	**9**	**90.3**	**Lean CLAY**
○	**ME-TP-08**	**12.0**	**32**	**21**	**11**	**98.8**	**Lean CLAY**
△	**ME-TP-10**	**1.0**	**38**	**22**	**16**	**84.0**	**Lean CLAY with sand**

ATTERBERG LIMITS' RESULTS - ASTM D 4318

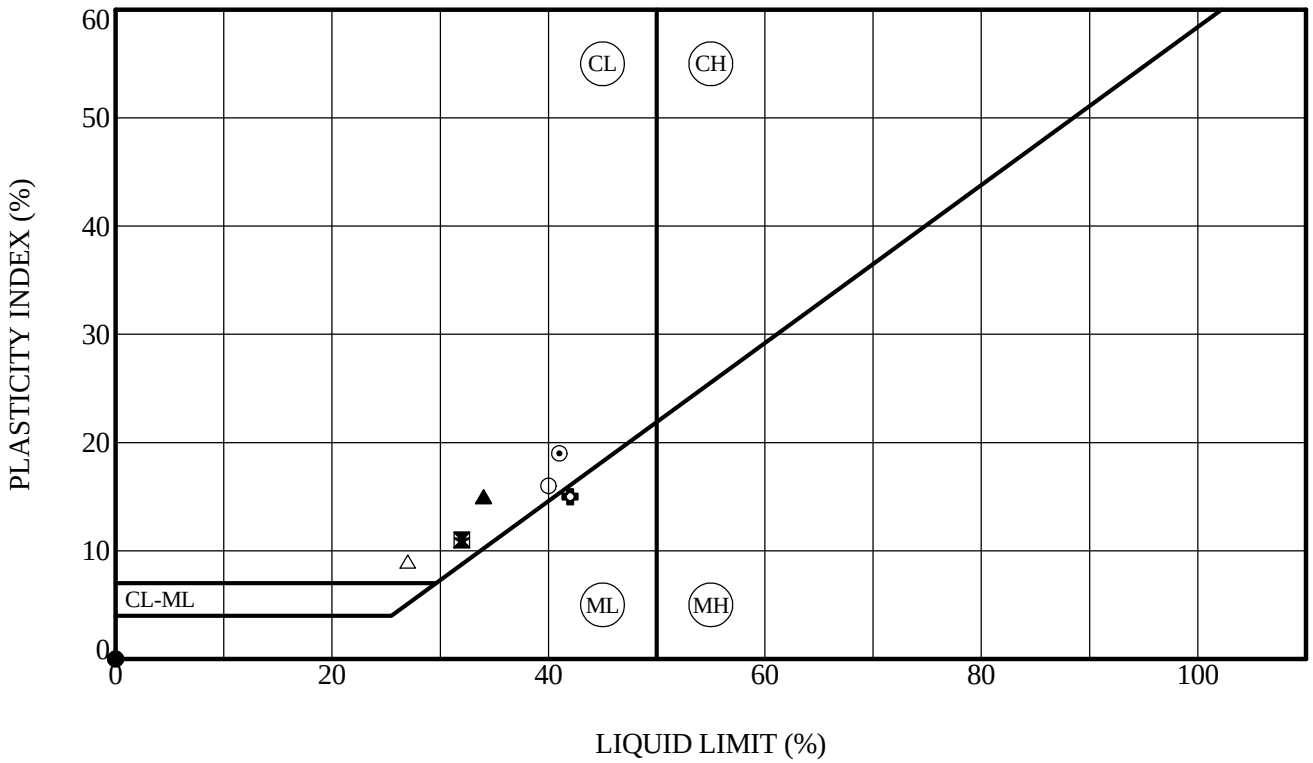
GeoStrata

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 2

C_ATTERBERG 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



Sample Location		Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**ME-TP-10**	**5.0**	**NP**	**NP**	**NP**	**78.7**	**Sandy SILT**
⊠	**ME-TP-12**	**4.0**	**32**	**21**	**11**	**93.5**	**Lean CLAY**
▲	**ME-TP-13**	**11.0**	**34**	**19**	**15**	**85.9**	**Lean CLAY**
★	**ME-TP-15**	**3.0**	**32**	**21**	**11**	**97.2**	**Lean CLAY**
⊙	**ME-TP-17**	**2.0**	**41**	**22**	**19**	**69.9**	**Sandy Lean CLAY**
✿	**ME-TP-18**	**3.0**	**42**	**27**	**15**	**91.7**	**Lean CLAY**
○	**ME-TP-22**	**3.5**	**40**	**24**	**16**	**90.7**	**Lean CLAY**
△	**ME-TP-25**	**3.0**	**27**	**18**	**9**	**37.3**	**Clayey SAND**

ATTERBERG LIMITS' RESULTS - ASTM D 4318

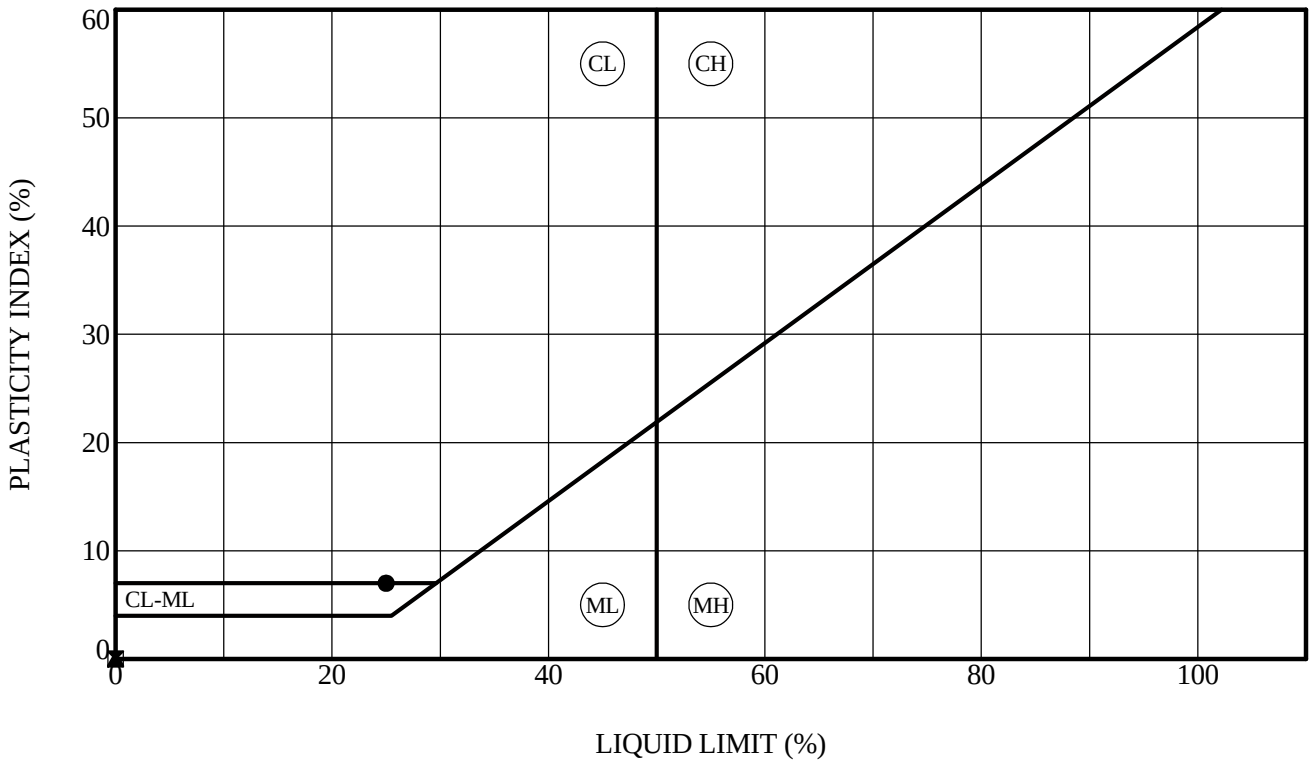
GeoStrata

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 3

C_ATTERBERG 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**ME-TP-26**	**3.0**	**25**	**18**	**7**	**27.9**	**Silty Clayey SAND**
⊠	**ME-TP-27**	**5.0**	**NP**	**NP**	**NP**	**22.7**	**Silty GRAVEL with sand**
▲	**ME-TP-30**	**5.0**	**NP**	**NP**	**NP**	**44.7**	**Silty SAND**

ATTERBERG LIMITS' RESULTS - ASTM D 4318

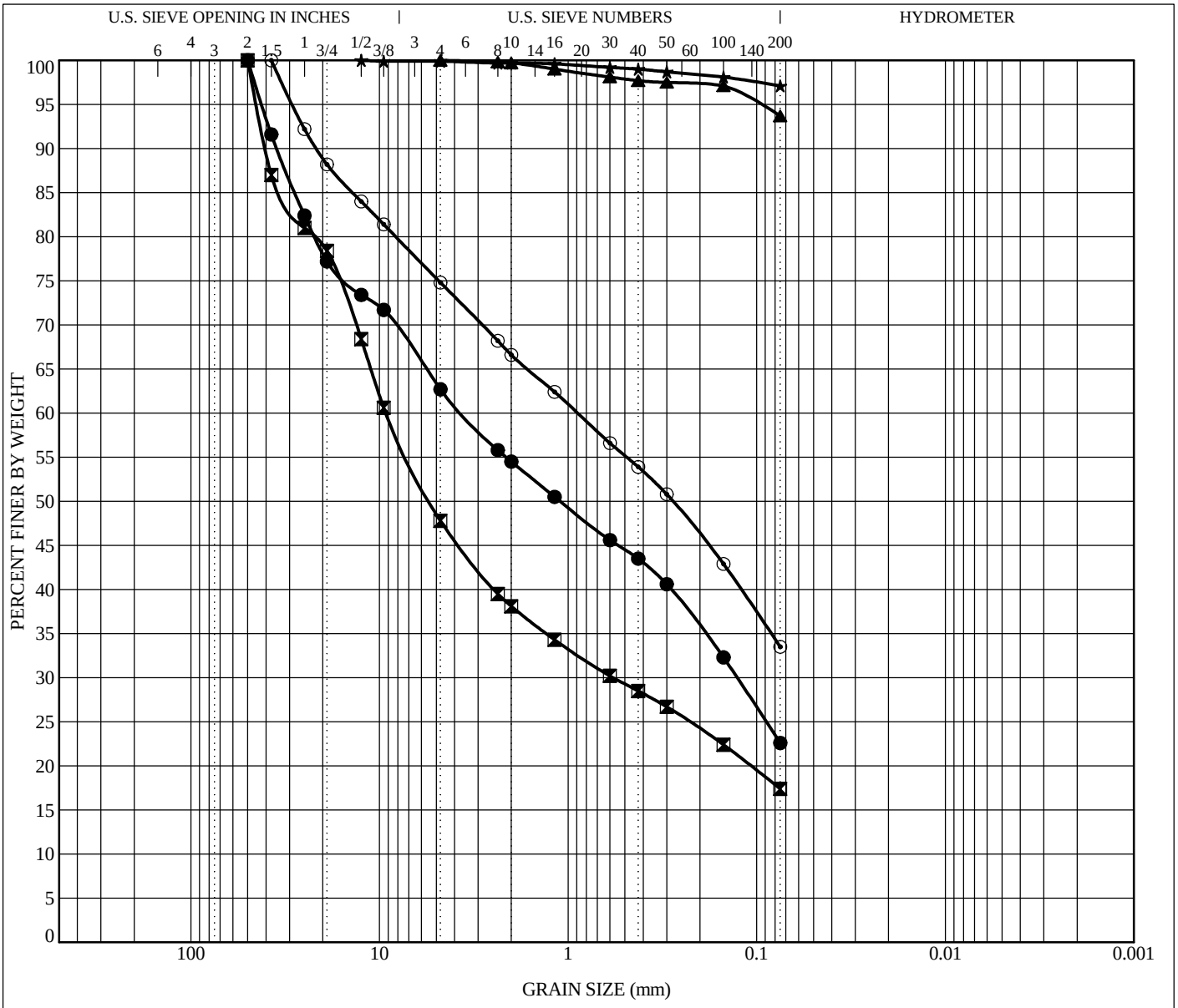
GeoStrata

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 4

C_ATTERBERG 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
●	**ME-TP-01**	**3.0**	**Silty SAND with gravel**					
⊠	**ME-TP-03**	**3.5**	**Silty GRAVEL with sand**					
▲	**ME-TP-03**	**11.0**	**Lean CLAY**					
★	**ME-TP-04**	**1.0**	**Lean CLAY**	**35**	**21**	**14**		
⊙	**ME-TP-05**	**3.0**	**Silty SAND with gravel**					

	Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**ME-TP-01**	**3.0**	**50**	**3.613**	**0.127**		**37.3**	**40.1**	**22.6**	
⊠	**ME-TP-03**	**3.5**	**50**	**9.196**	**0.576**		**52.2**	**30.4**	**17.4**	
▲	**ME-TP-03**	**11.0**	**4.75**				**0.0**	**6.3**	**93.7**	
★	**ME-TP-04**	**1.0**	**12.5**				**0.1**	**2.8**	**97.1**	
⊙	**ME-TP-05**	**3.0**	**37.5**	**0.892**			**25.2**	**41.3**	**33.5**	

GeoStrata

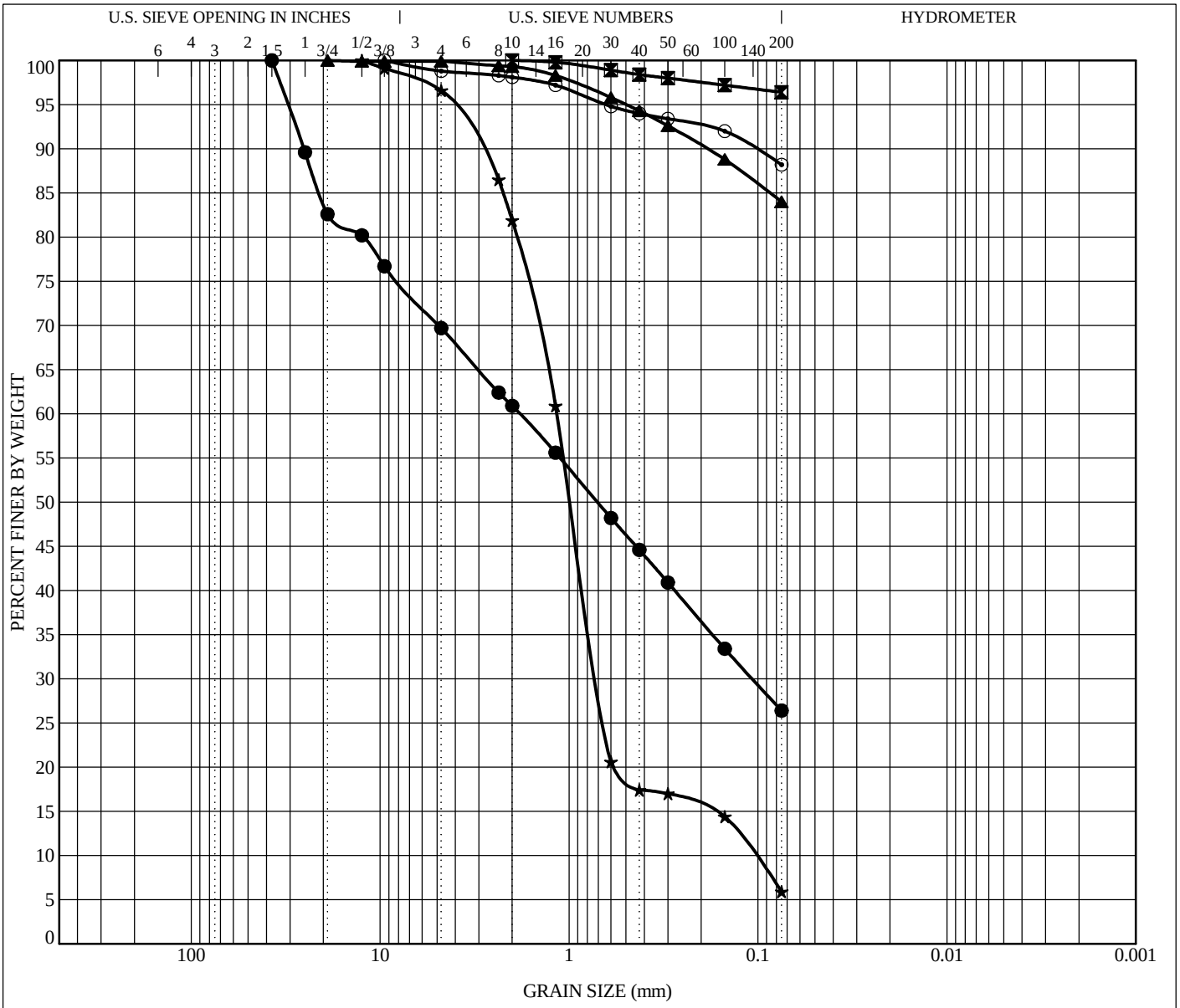
GRAIN SIZE DISTRIBUTION - ASTM D422

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 5

C_GSD 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
●	**ME-TP-06**	**2.0**	**Silty SAND with gravel**					
⊠	**ME-TP-09**	**4.0**	**SILT**					
▲	**ME-TP-10**	**1.0**	**Lean CLAY with sand**	**38**	**22**	**16**		
★	**ME-TP-11**	**7.0**	**Poorly Graded SAND with silt**				**4.05**	**11.09**
⊙	**ME-TP-13**	**5.0**	**Lean CLAY**					

	Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**ME-TP-06**	**2.0**	**37.5**	**1.829**	**0.107**		**30.3**	**43.3**	**26.4**	
⊠	**ME-TP-09**	**4.0**	**2**				**0.0**	**3.6**	**96.4**	
▲	**ME-TP-10**	**1.0**	**19**				**0.1**	**15.9**	**84.0**	
★	**ME-TP-11**	**7.0**	**12.5**	**1.162**	**0.703**	**0.105**	**3.4**	**90.7**	**5.9**	
⊙	**ME-TP-13**	**5.0**	**9.5**				**1.2**	**10.6**	**88.2**	

GeoStrata

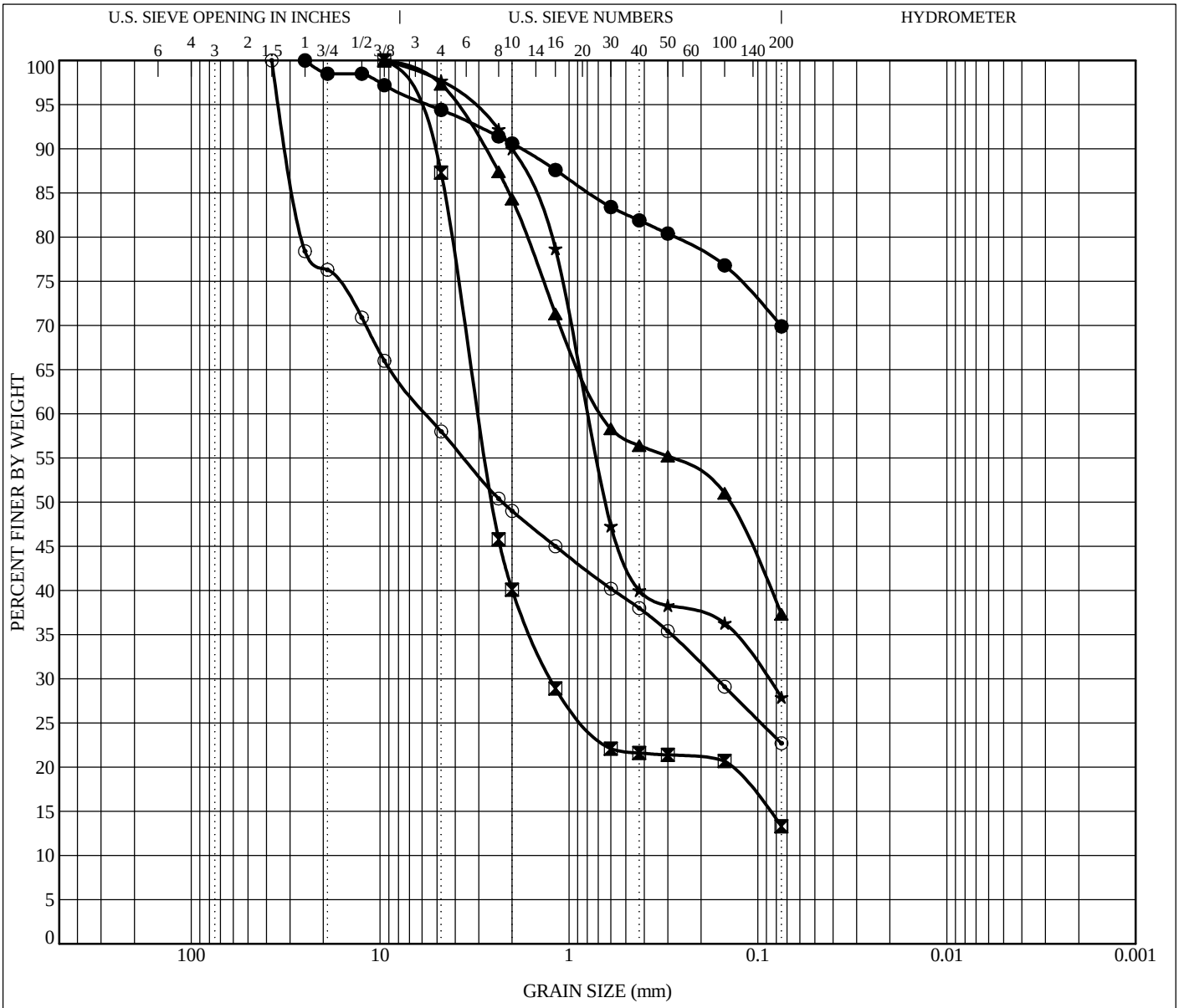
GRAIN SIZE DISTRIBUTION - ASTM D422

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 6

C_GSD 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
●	**ME-TP-17**	**2.0**	**Sandy Lean CLAY**	**41**	**22**	**19**		
⊠	**ME-TP-24**	**3.0**	**Silty SAND**					
▲	**ME-TP-25**	**3.0**	**Clayey SAND**	**27**	**18**	**9**		
★	**ME-TP-26**	**3.0**	**Silty Clayey SAND**	**25**	**18**	**7**		
⊙	**ME-TP-27**	**5.0**	**Silty GRAVEL with sand**	**NP**	**NP**	**NP**		

	Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**ME-TP-17**	**2.0**	**25**				**5.6**	**24.5**	**69.9**	
⊠	**ME-TP-24**	**3.0**	**9.5**	**2.998**	**1.243**		**12.7**	**74.0**	**13.3**	
▲	**ME-TP-25**	**3.0**	**9.5**	**0.655**			**2.7**	**60.0**	**37.3**	
★	**ME-TP-26**	**3.0**	**9.5**	**0.789**	**0.089**		**2.3**	**69.8**	**27.9**	
⊙	**ME-TP-27**	**5.0**	**37.5**	**5.649**	**0.166**		**42.0**	**35.3**	**22.7**	

GeoStrata

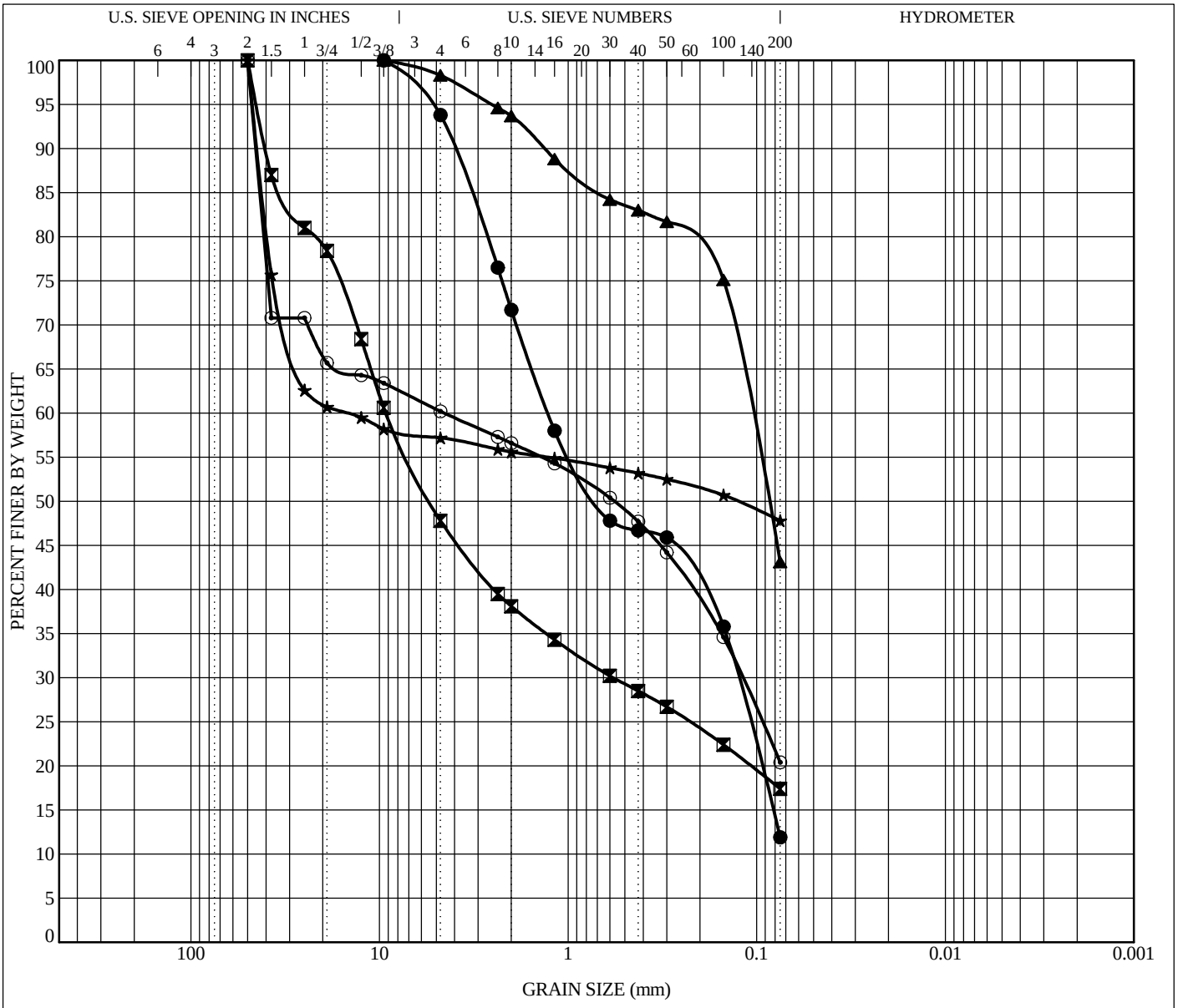
GRAIN SIZE DISTRIBUTION - ASTM D422

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 7

C_GSD 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
●	**ME-TP-29**	**3.0**	**Poorly Graded SAND with silt**				**0.18**	**17.96**
⊠	**ME-TP-33**	**5.0**	**Silty GRAVEL with sand**					
▲	**ME-TP-34**	**5.0**	**Silty SAND**					
★	**ME-TP-36**	**1.0**	**Silty GRAVEL**					
⊙	**ME-TP-55**	**3.0**	**Silty GRAVEL with sand**					

	Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**ME-TP-29**	**3.0**	**9.5**	**1.274**	**0.127**		**6.2**	**81.9**	**11.9**	
⊠	**ME-TP-33**	**5.0**	**50**	**9.196**	**0.576**		**52.2**	**30.4**	**17.4**	
▲	**ME-TP-34**	**5.0**	**9.5**	**0.108**			**1.7**	**55.2**	**43.1**	
★	**ME-TP-36**	**1.0**	**50**	**14.883**			**42.8**	**9.4**	**47.8**	
⊙	**ME-TP-55**	**3.0**	**50**	**4.526**	**0.12**		**39.8**	**39.8**	**20.4**	

GeoStrata

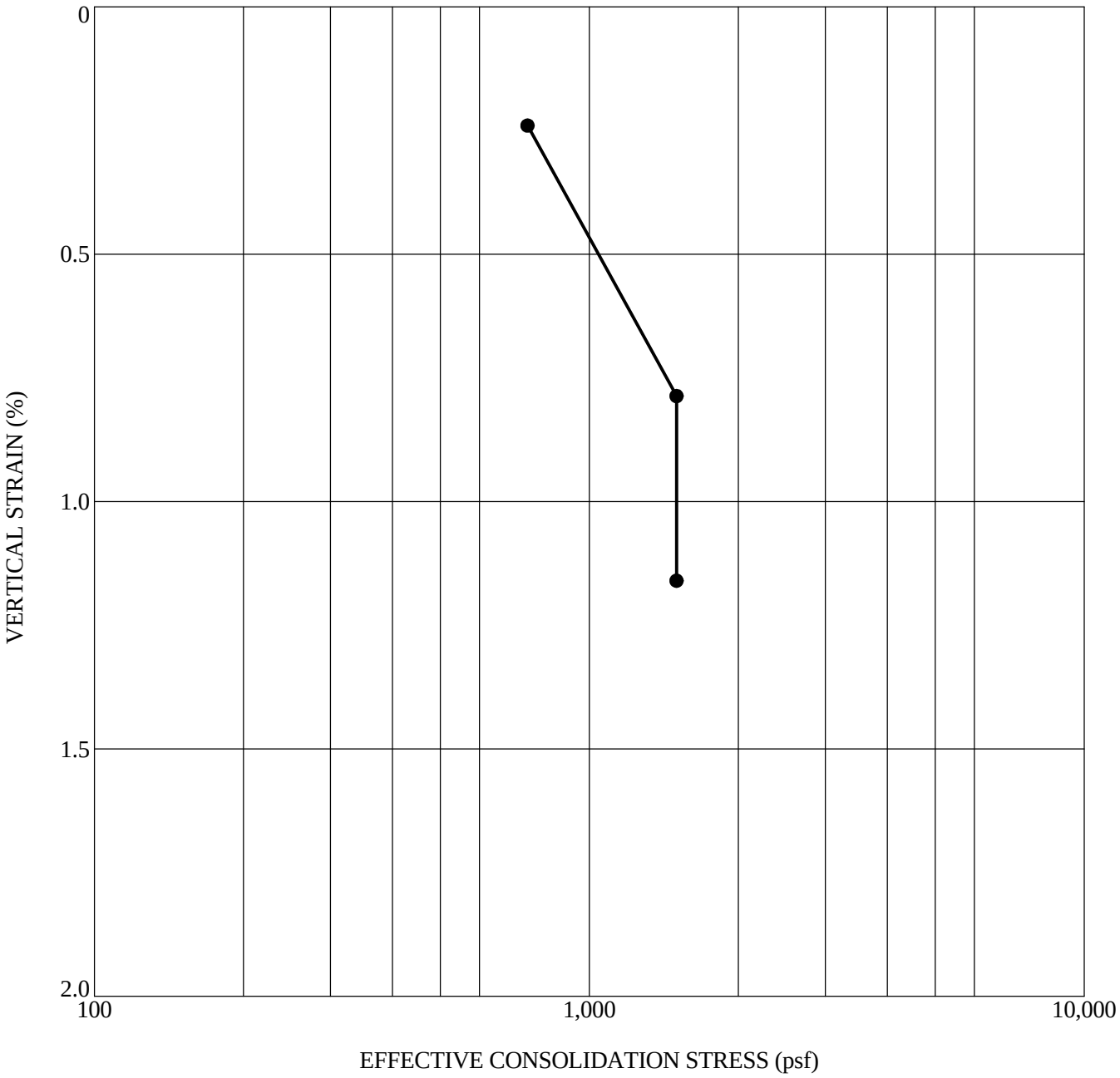
GRAIN SIZE DISTRIBUTION - ASTM D422

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 8

C_GSD 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-02**	**3.0**	**Sandy Lean CLAY**	**86**	**21**	**1500**		**0.37**

GeoStrata

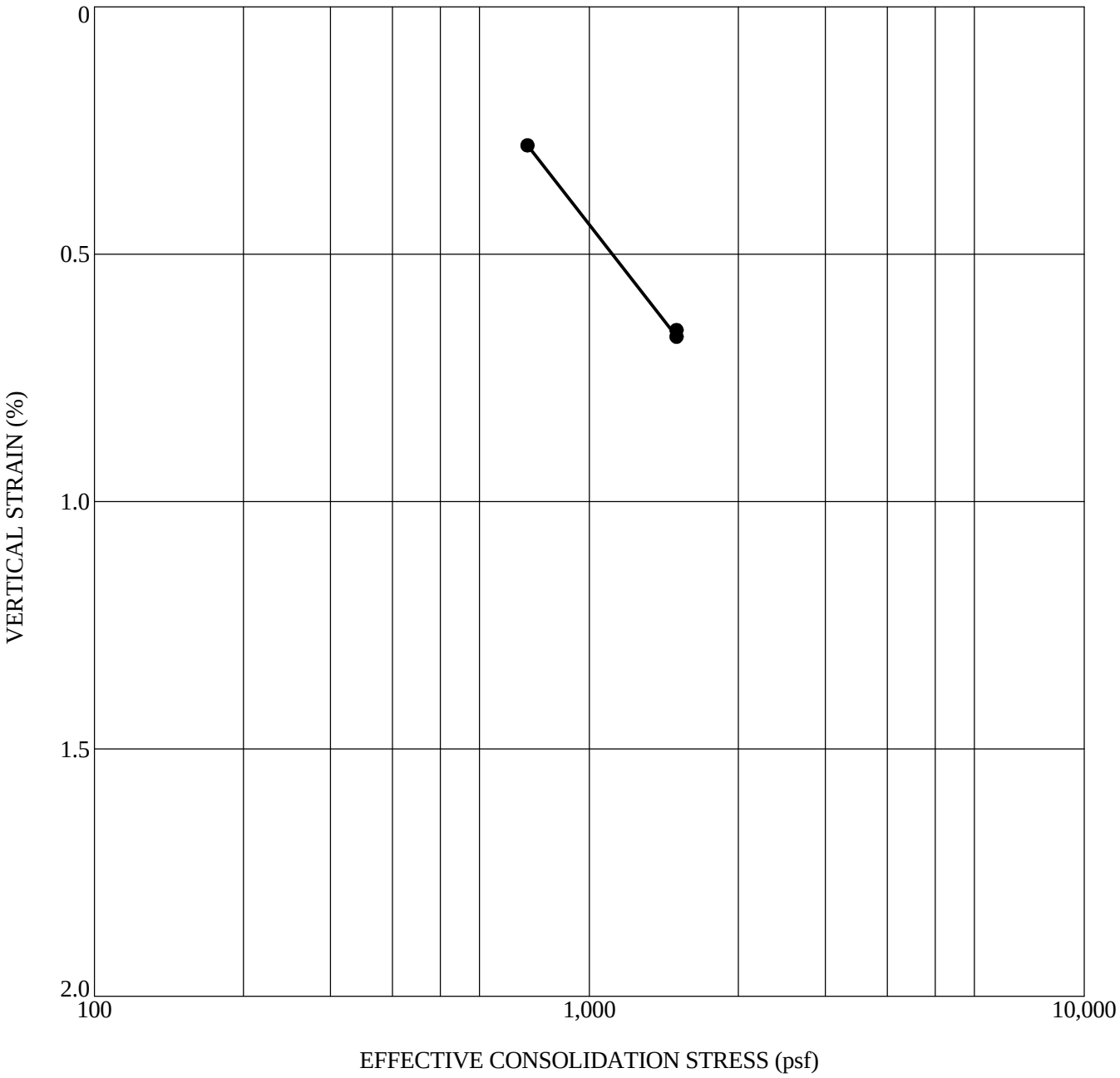
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 9

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-03**	**5.0**	**Lean CLAY**	**96**	**22**	**1500**	**0.01**	

GeoStrata

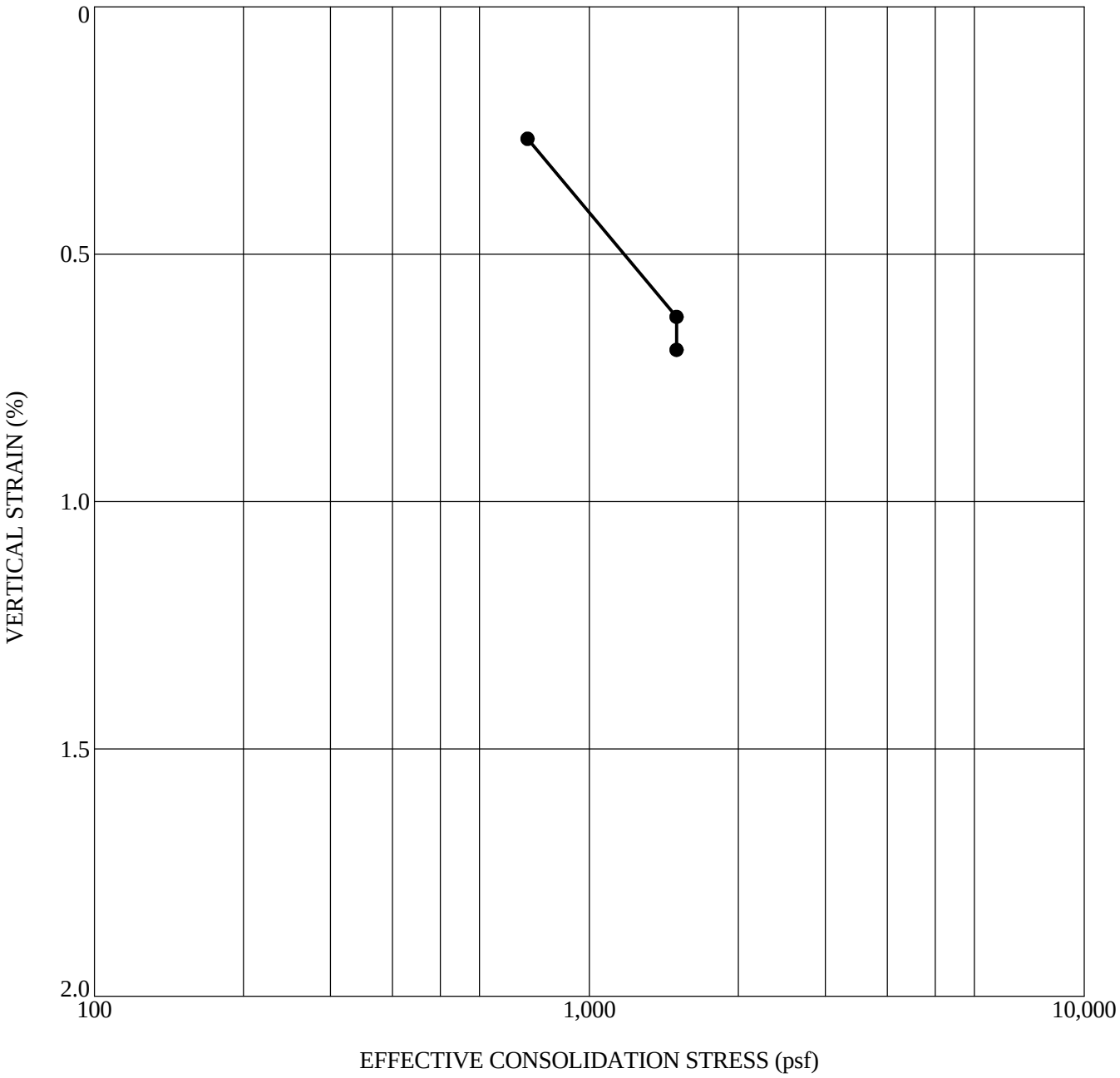
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 10

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
● **ME-TP-04**	**4.0**	**Lean CLAY**	**98**	**10**	**1500**		**0.07**

GeoStrata

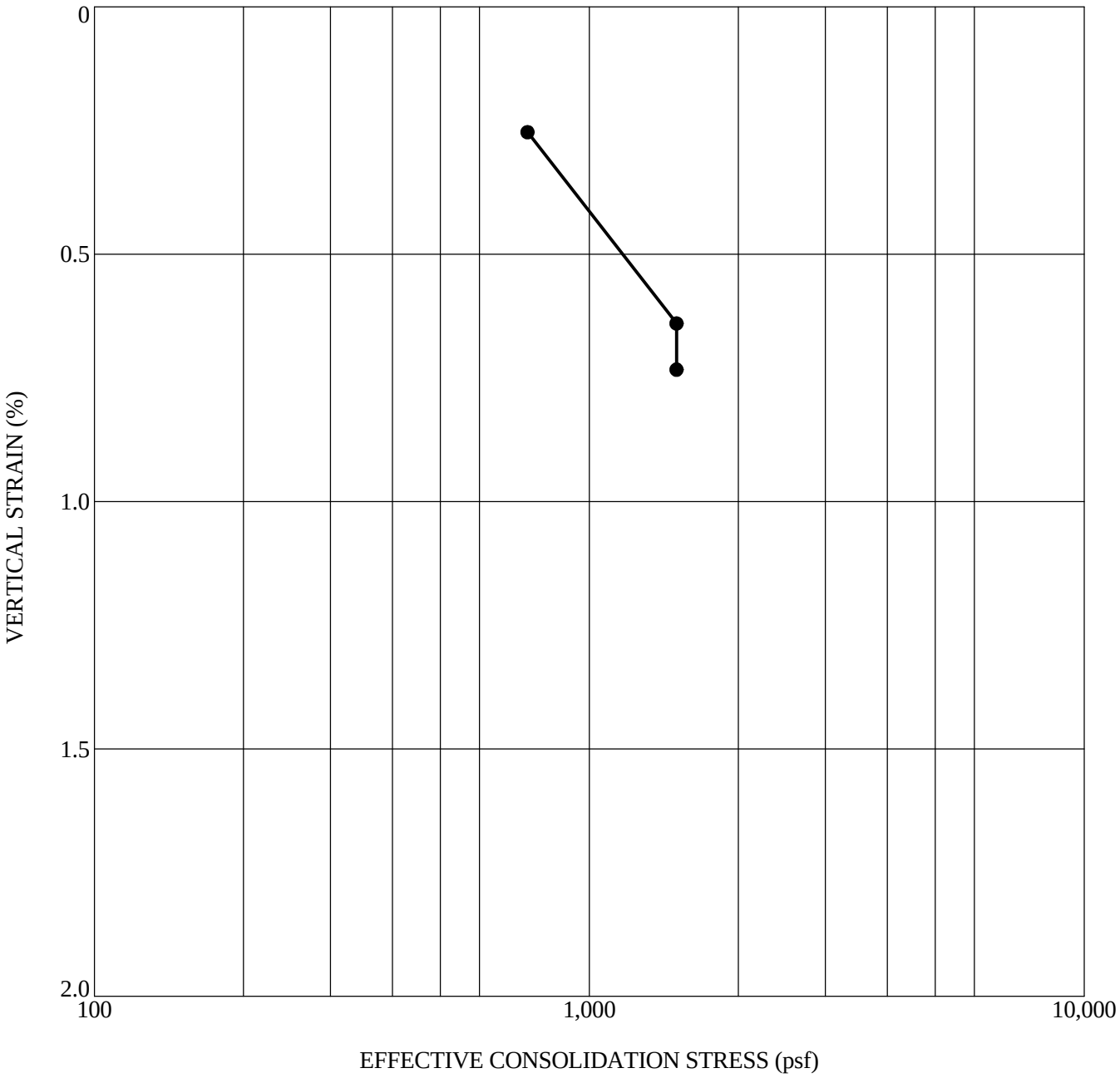
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 11

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-07**	**4.0**	**Sandy Lean CLAY**	**92**	**16**	**1500**		**0.09**

GeoStrata

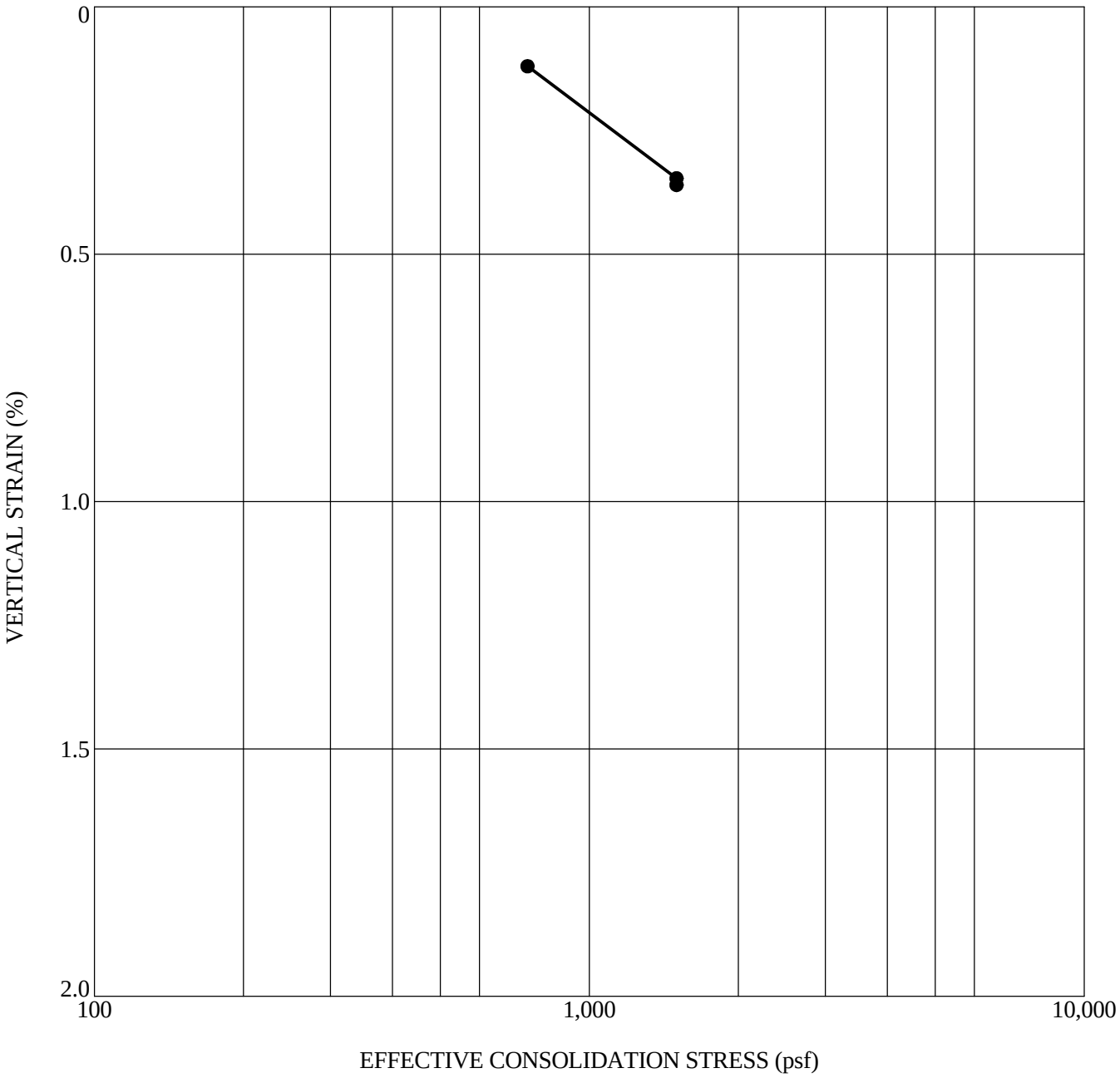
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 12

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-08**	**3.0**	**Lean CLAY**	**95**	**15**	**1500**		**0.01**

GeoStrata

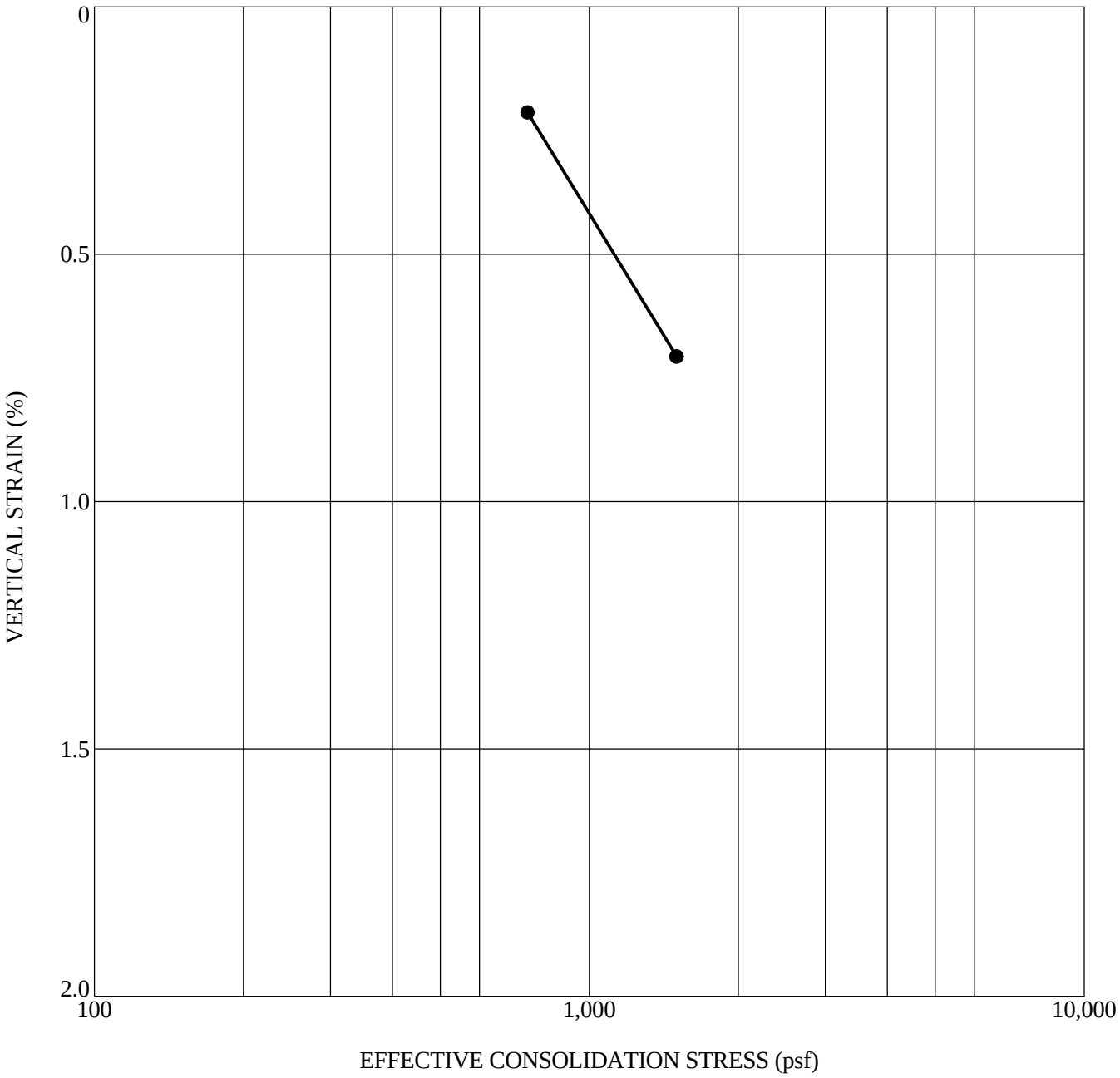
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 13

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-08**	**12.0**	**Lean CLAY**	**93**	**23**	**1500**		**0.01**

GeoStrata

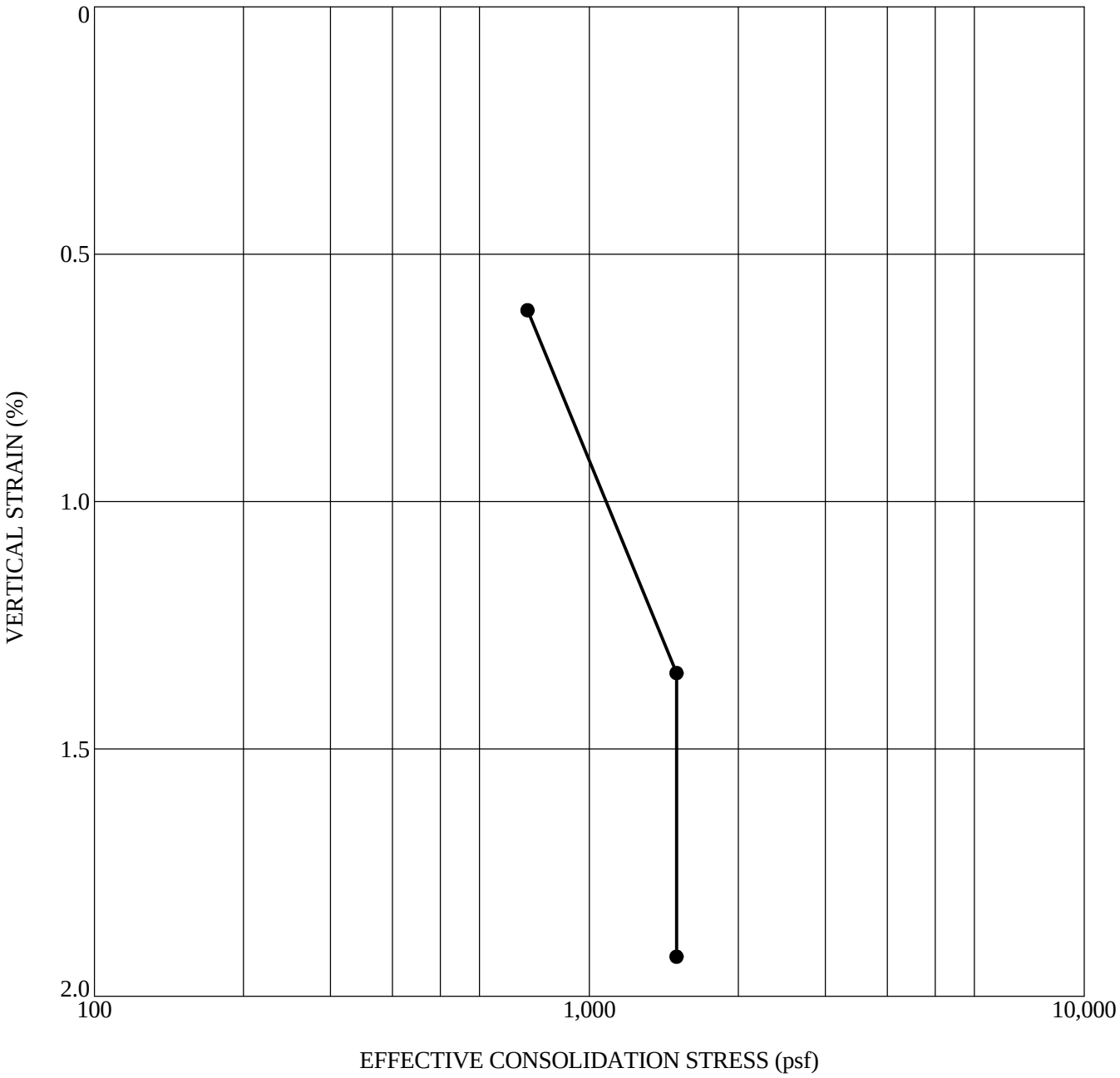
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 14

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-10**	**5.0**	**Sandy SILT**	**82**	**17**	**1500**		**0.43**

GeoStrata

1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

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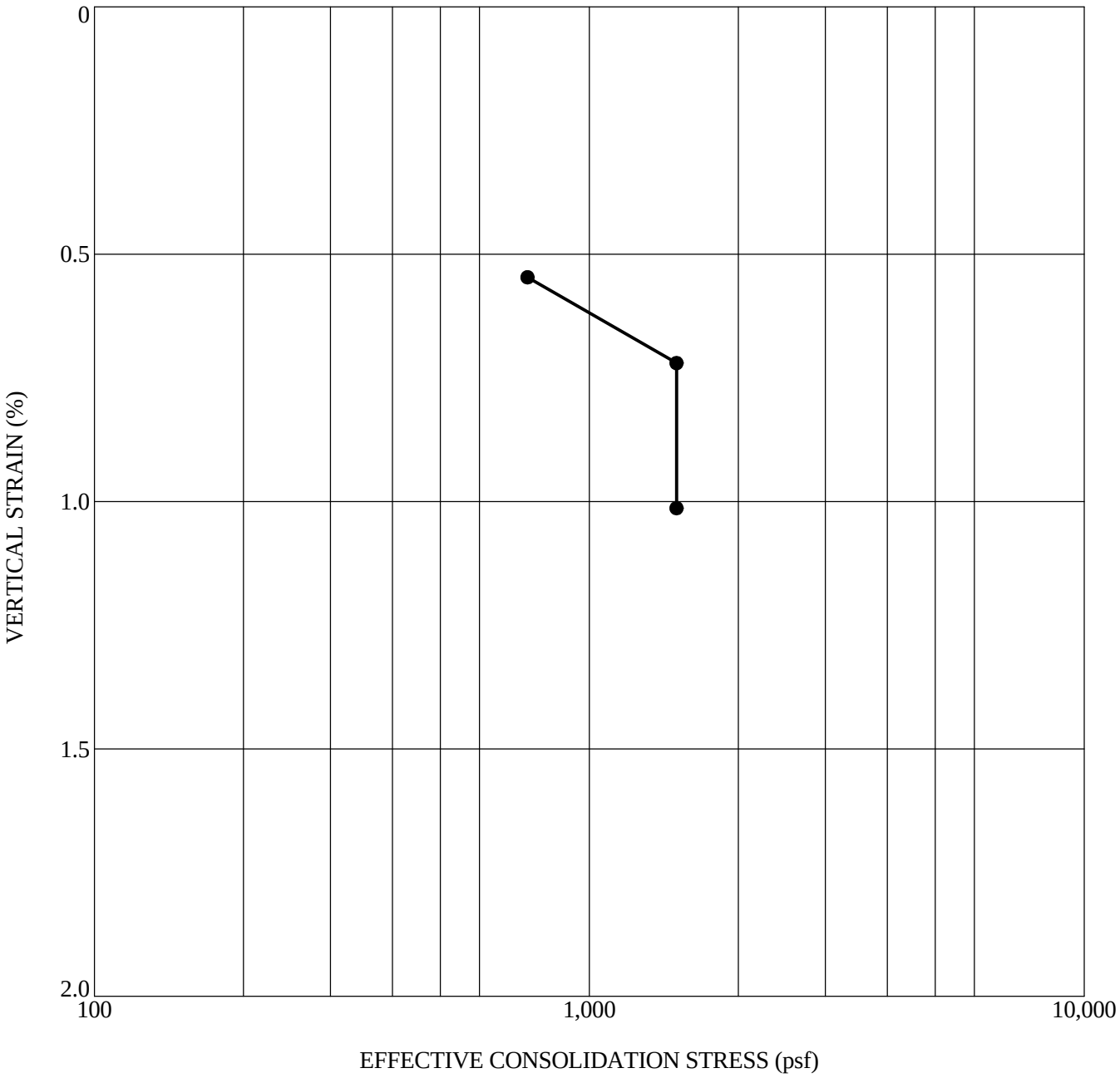


Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
● **ME-TP-12**	**4.0**	**Lean CLAY**	**97**	**25**	**1500**		**0.22**

GeoStrata

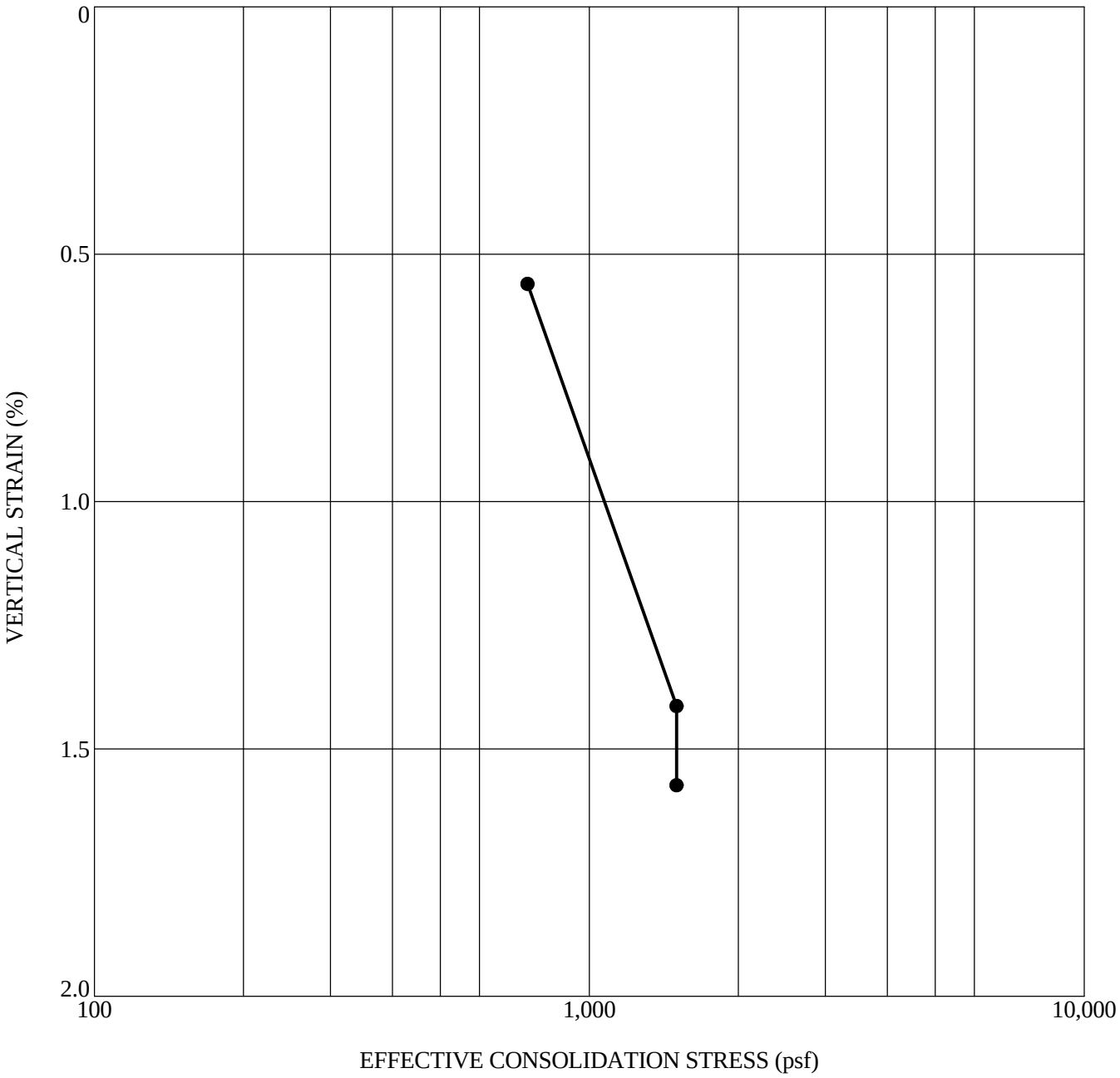
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 16

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
● **ME-TP-13**	**11.0**	**Lean CLAY**	**100**	**19**	**1500**		**0.12**

GeoStrata

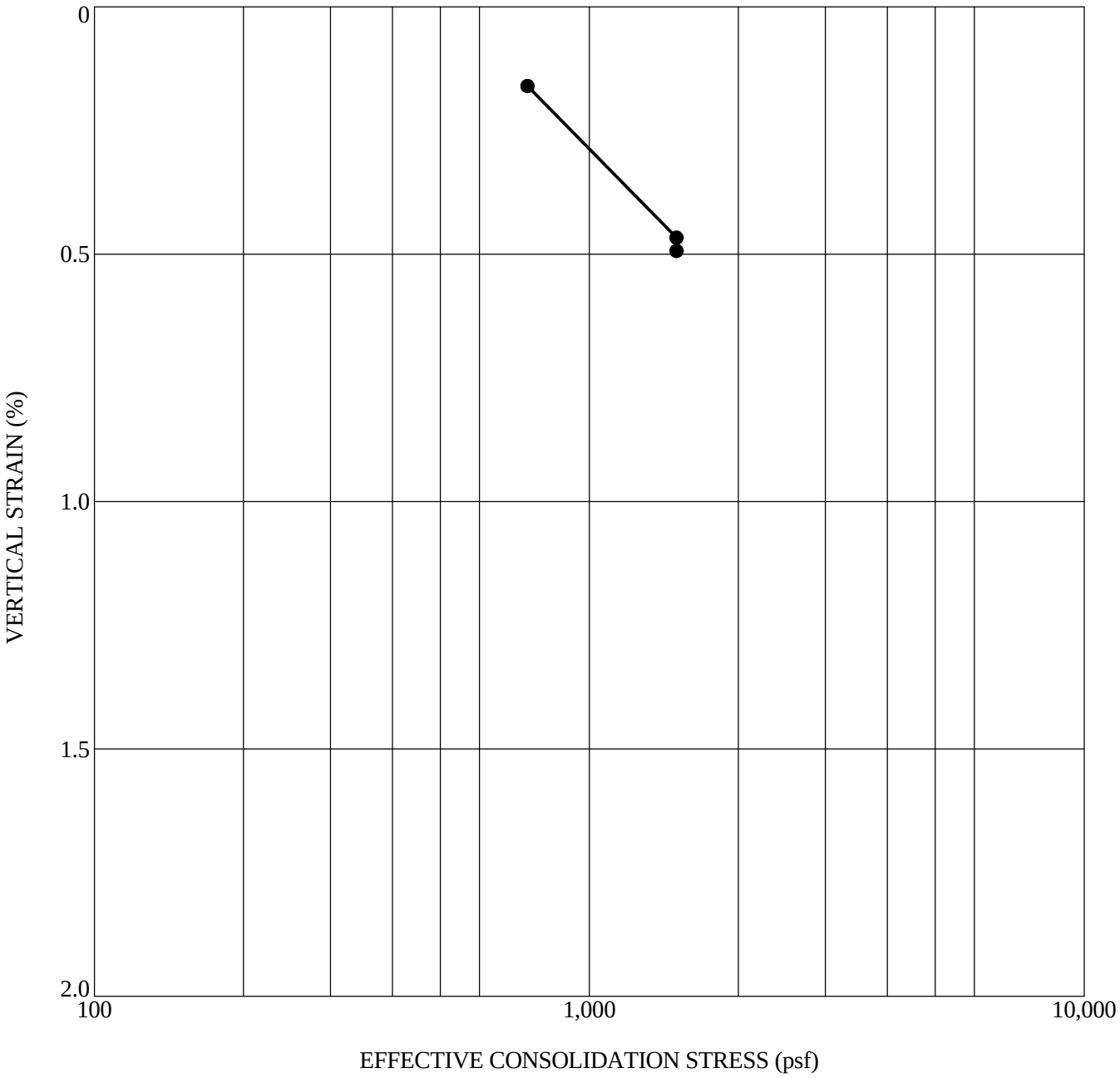
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 17

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-15**	**3.0**	**Lean CLAY**	**97**	**16**	**1500**		**0.03**

GeoStrata

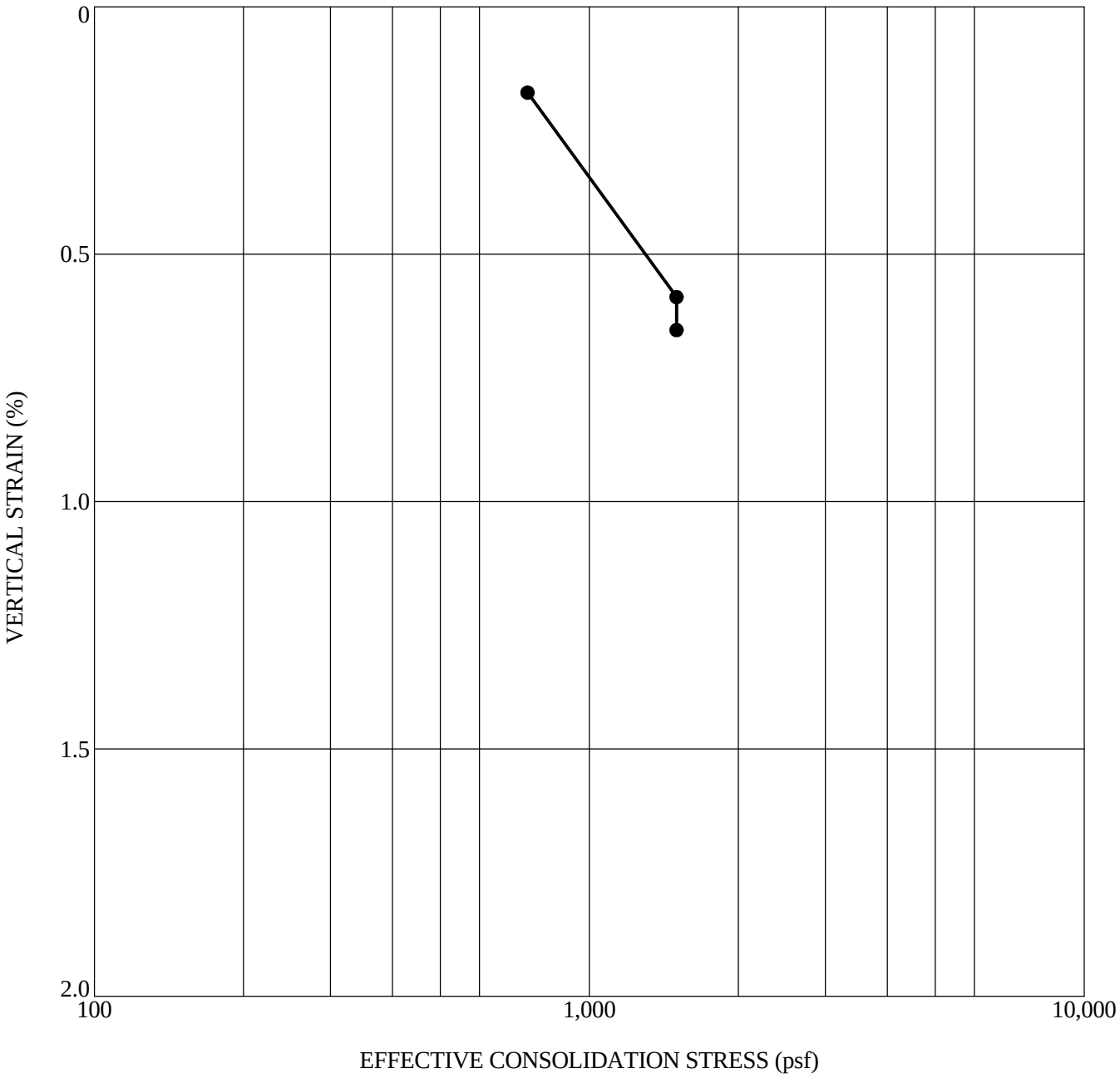
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 18

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-18**	**3.0**	**Lean CLAY**	**89**	**20**	**1500**		**0.07**

GeoStrata

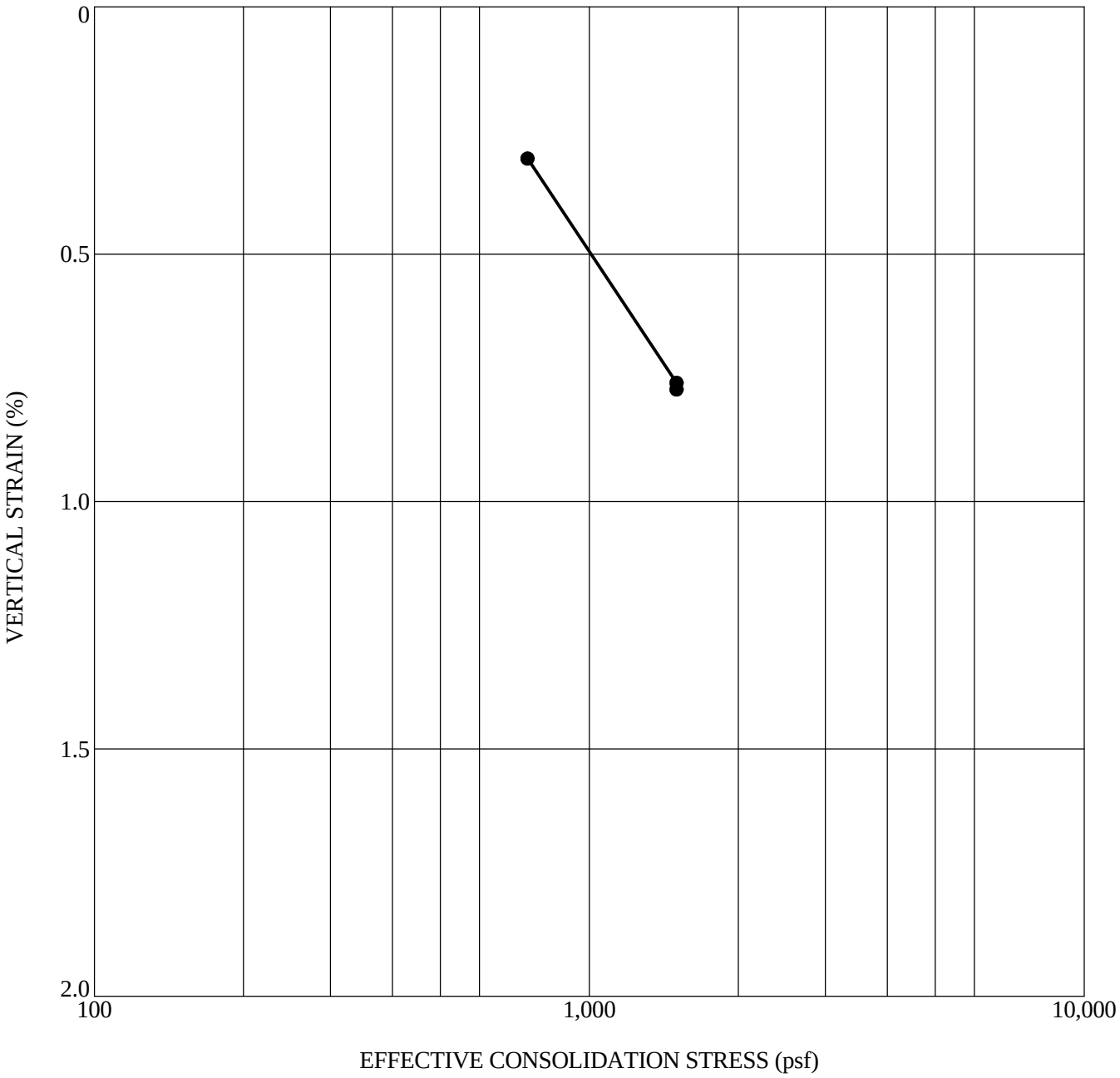
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 19

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-22**	**3.5**	**Lean CLAY**	**93**	**22**	**1500**		**0.01**

GeoStrata

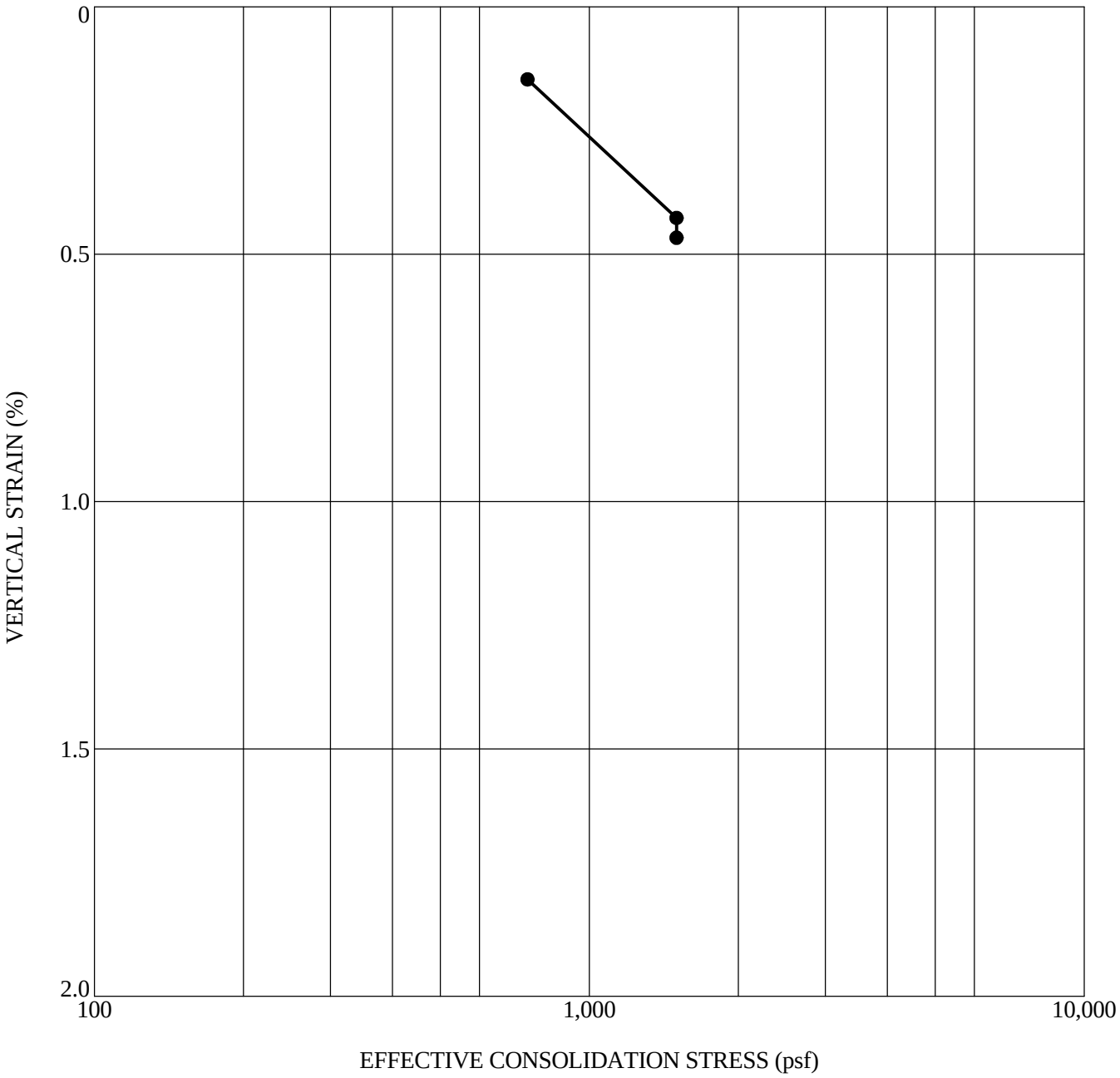
1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 20

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	Inundation Load (psf)	Swell (%)	Collapse (%)
●	**ME-TP-30**	**5.0**	**Silty SAND**	**83**	**24**	**1500**		**0.04**

GeoStrata

1-D SWELL/COLLAPSE TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

C - 21

C_SWELL/COLLAPSE 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

Source of Material: **ME-TP-04 1.0 ft.**

Material Description: **Lean CLAY**

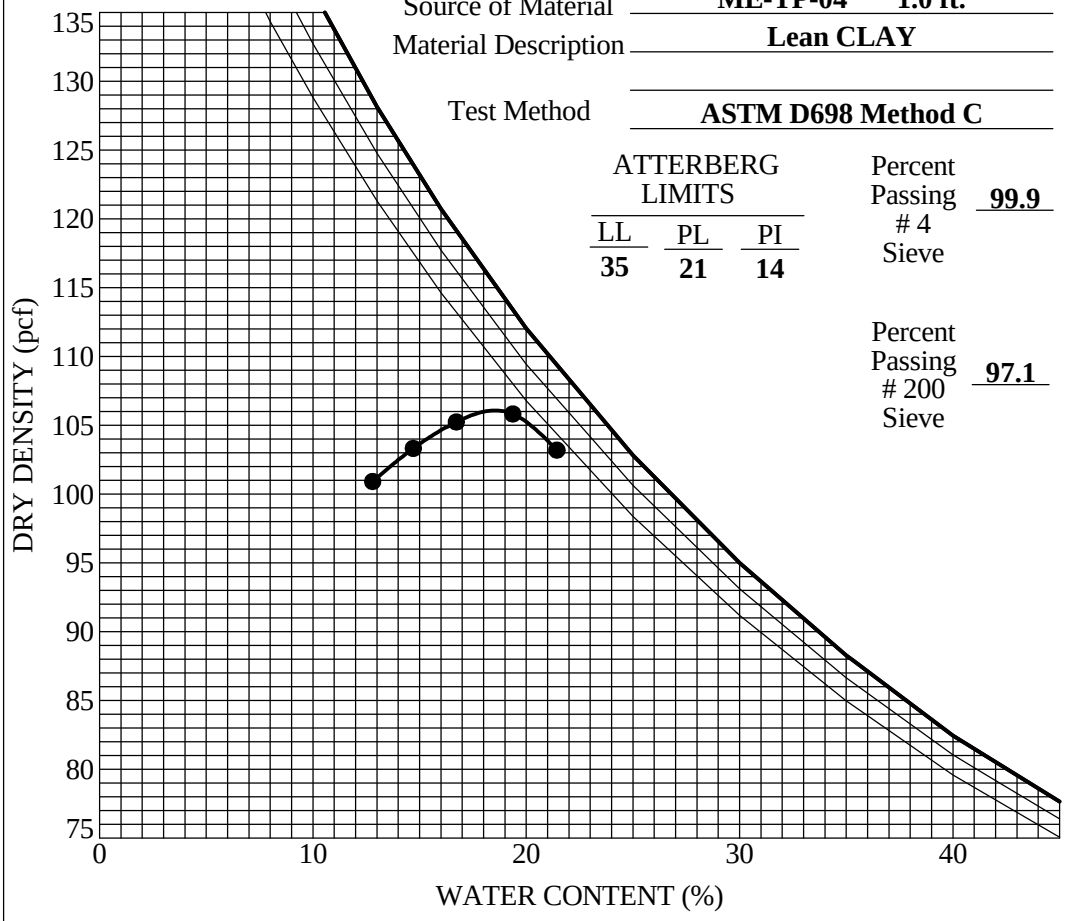
Test Method: **ASTM D698 Method C**

ATTERBERG LIMITS

LL	PL	PI
35	21	14

Percent Passing # 4 Sieve: **99.9**

Percent Passing # 200 Sieve: **97.1**



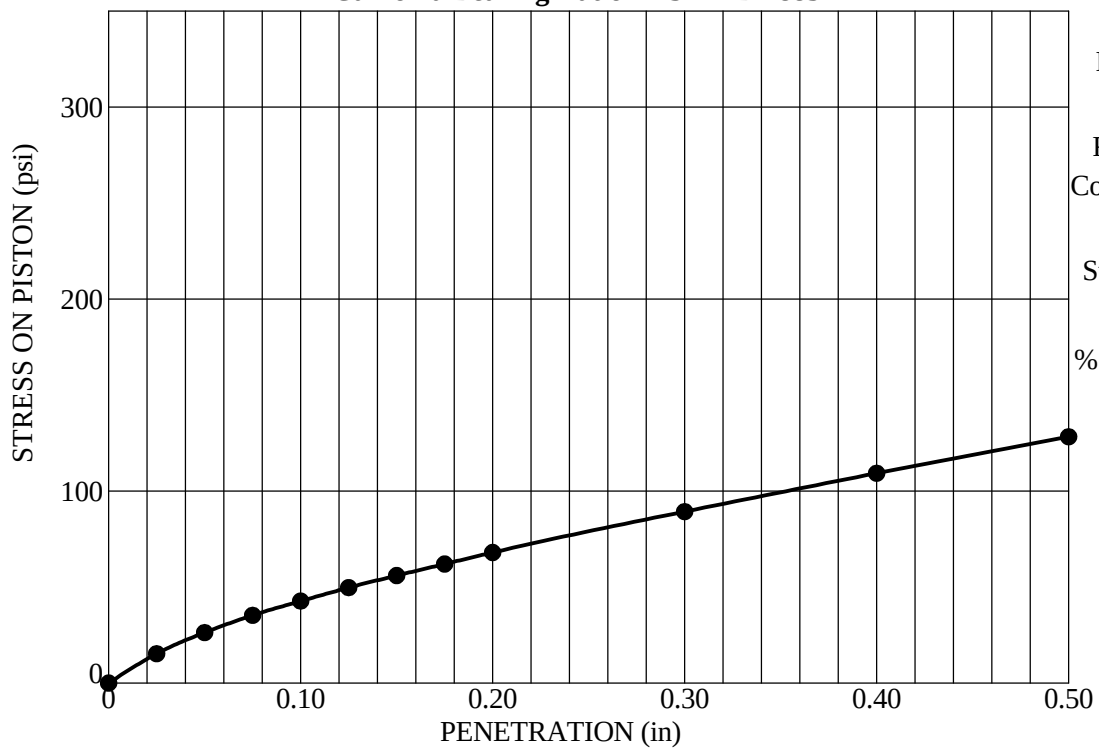
TEST RESULTS

Maximum Dry Density	**107.0** (pcf)
Optimum Water Content	**18.5** (%)
Percent Rock	_____ (%)
Corrected Maximum Dry Density	_____ (pcf)
Corrected Optimum Water Content	_____ (%)

Curves of 100% Saturation for Specific Gravity Equal to:

2.60, 2.70, 2.80

Califonia Bearing Ratio - ASTM D 1883



Dry Density	**107.0** (pcf)
Relative Compaction	**100** (%)
Surcharge	**51** (psf)
% Standard CBR	**4.30**
Swell	**0.24** (%)

GeoStrata

COMPACTION AND CBR TEST

D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

Plate

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C_COMPACTION SPLIT 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

Source of Material: **ME-TP-10 1.0 ft.**

Material Description: **Lean CLAY with sand**

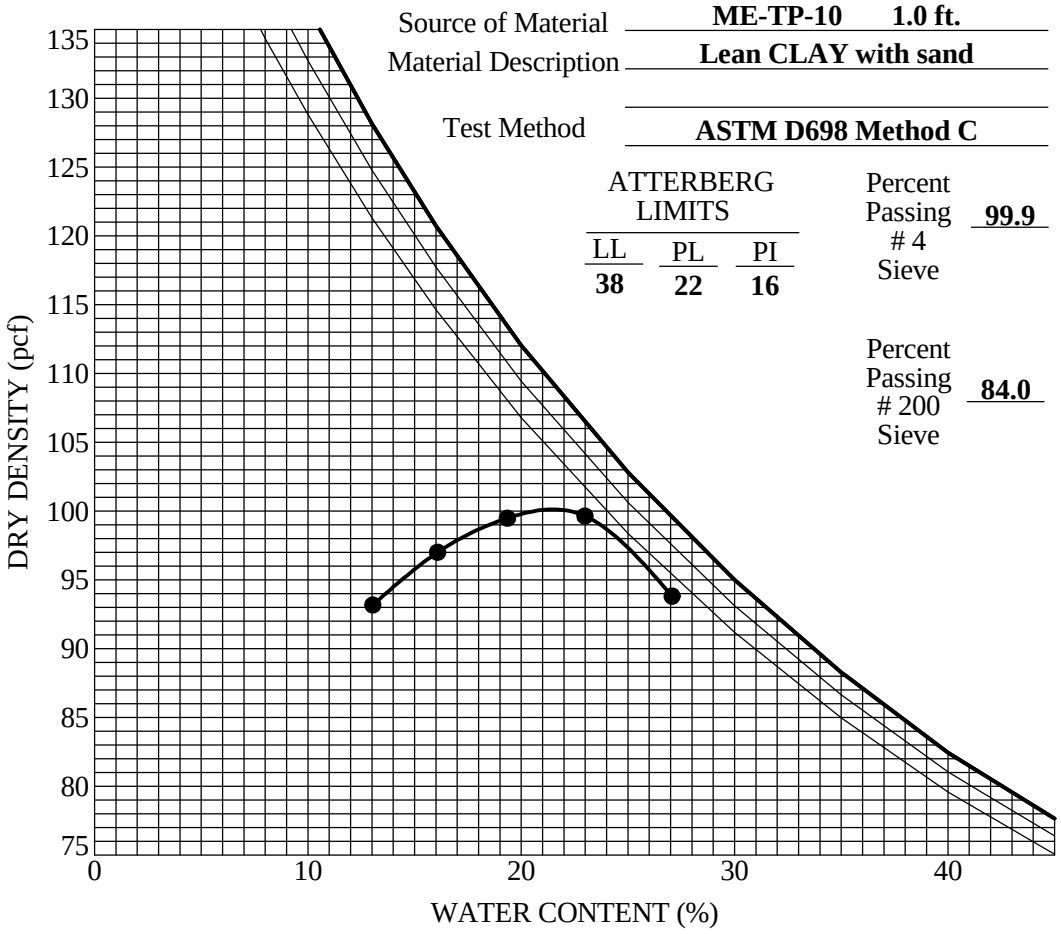
Test Method: **ASTM D698 Method C**

ATTERBERG LIMITS

LL	PL	PI
38	22	16

Percent Passing # 4 Sieve: **99.9**

Percent Passing # 200 Sieve: **84.0**



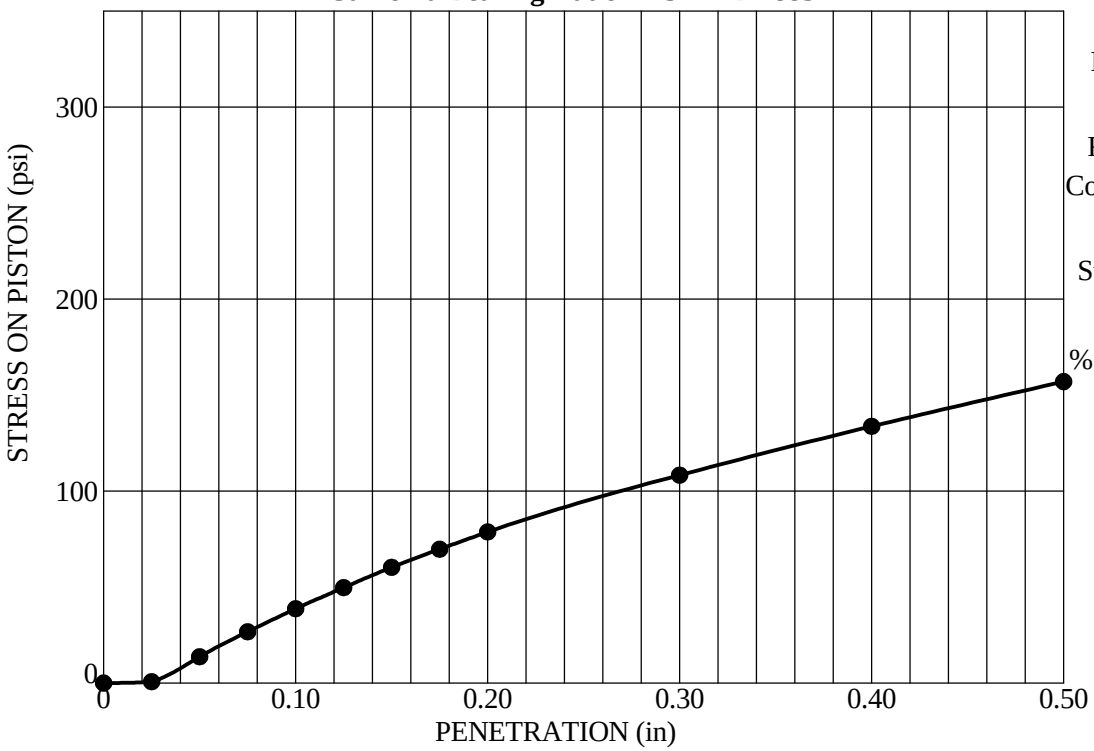
TEST RESULTS

Maximum Dry Density	**100.0** (pcf)
Optimum Water Content	**21.8** (%)
Percent Rock	_____ (%)
Corrected Maximum Dry Density	_____ (pcf)
Corrected Optimum Water Content	_____ (%)

Curves of 100% Saturation for Specific Gravity Equal to:

2.60, 2.70, 2.80

Califonia Bearing Ratio - ASTM D 1883



Dry Density	**100.5** (pcf)
Relative Compaction	**100** (%)
Surcharge	**50** (psf)
% Standard CBR	**3.90**
Swell	**0.46** (%)

GeoStrata

COMPACTION AND CBR TEST

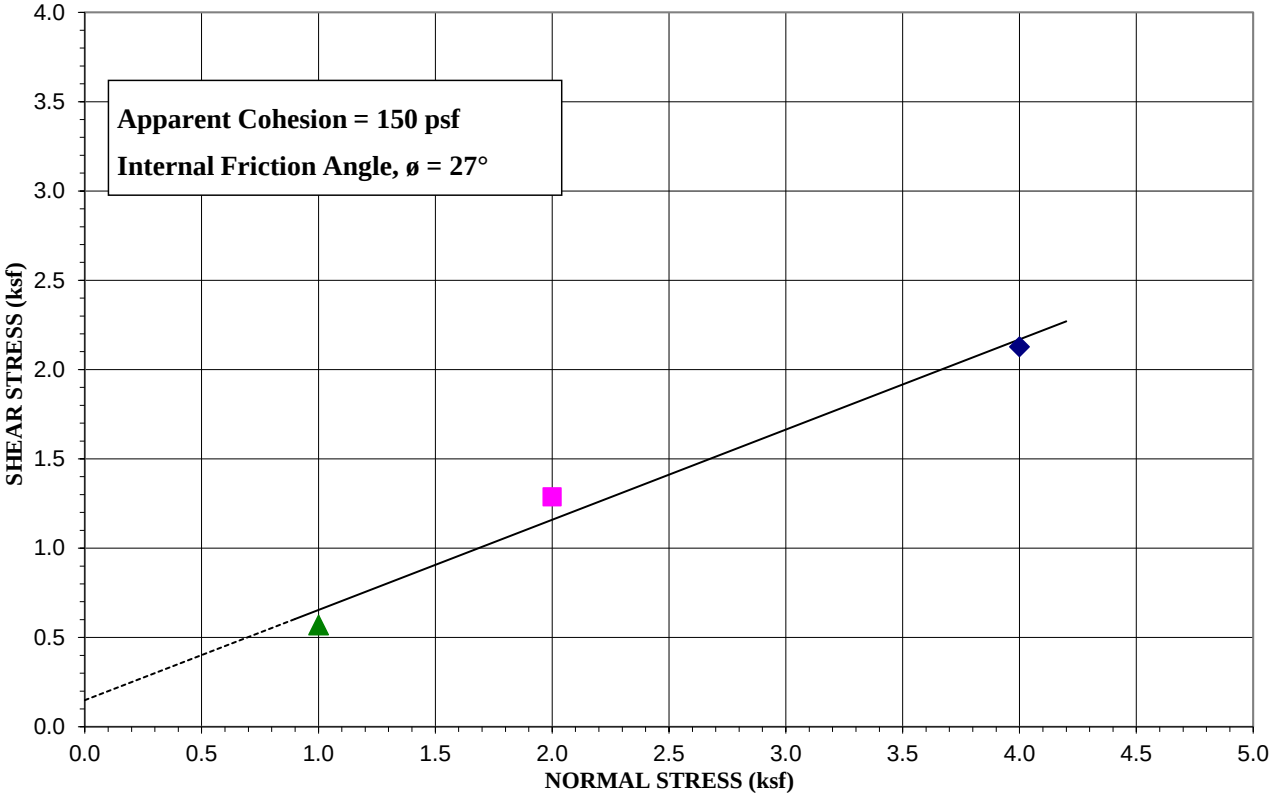
D.R. Horton
Micron Property
Lehi, Utah
Project Number: 589-100

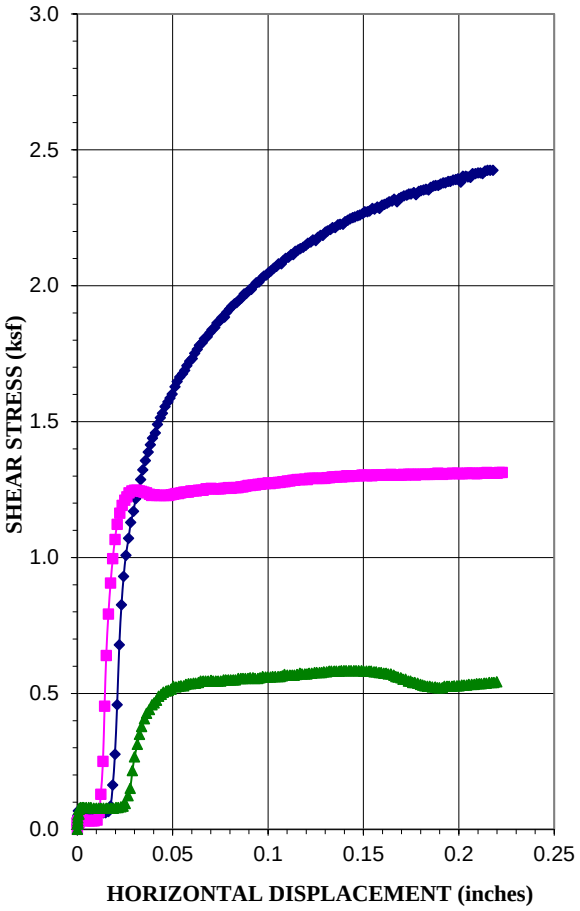
Plate

C - 23

C_COMPACTION SPLIT 2020 GINT UPDATE TEMPLATE.GPJ GEOSTRATA.GDT 1/26/21

DIRECT SHEAR TEST





Sample Location:	ME-TP-13 at 5 feet
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	**1 (◆)**	**2 (■)**	**3 (▲)**
Sample Type	Remolded		
Initial Height, in.	1.002	0.966	0.975
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	99.8	105.1	104.1
Dry Density After, pcf	101.6	107.0	105.9
Moisture % Before	13.2	14.6	15.3
Moisture % After	23.1	22.9	24.4
Saturation, % Before	53.2	67.5	69.0
Saturation, % After	97.5	111.0	115.1
Normal Load, ksf	4.0	2.0	1.0
Shear Stress, ksf	2.13	1.29	0.57
Strain Rate	0.002592 IN/MIN		

Sample Properties	
Cohesion, psf	150
Friction Angle, ϕ	27
Liquid Limit, %	-
Plasticity Index, %	-
Percent Gravel	1.2
Percent Sand	10.5
Percent Passing No. 200 sieve	88.2
Classification	CL

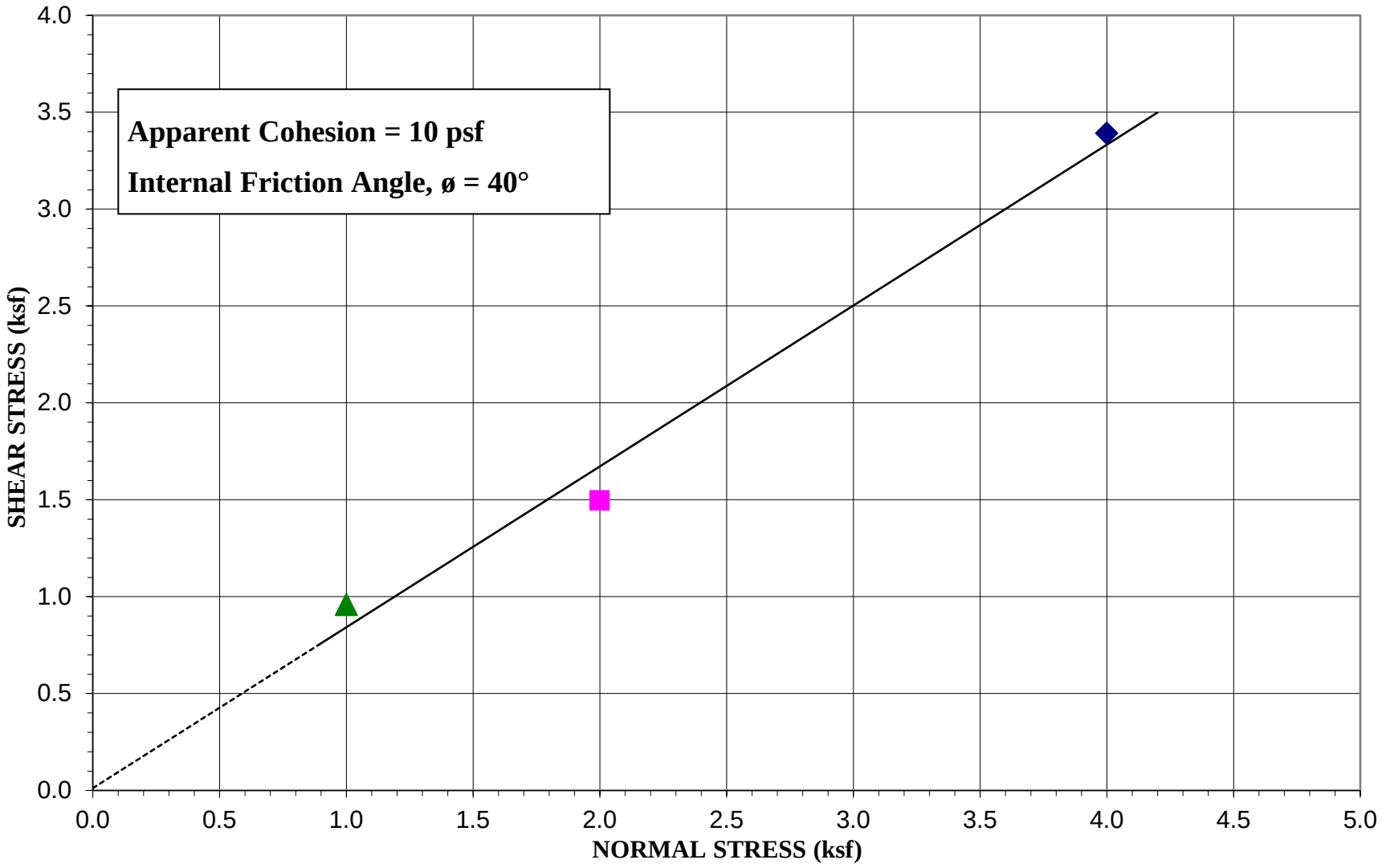
PROJECT: Micron Property

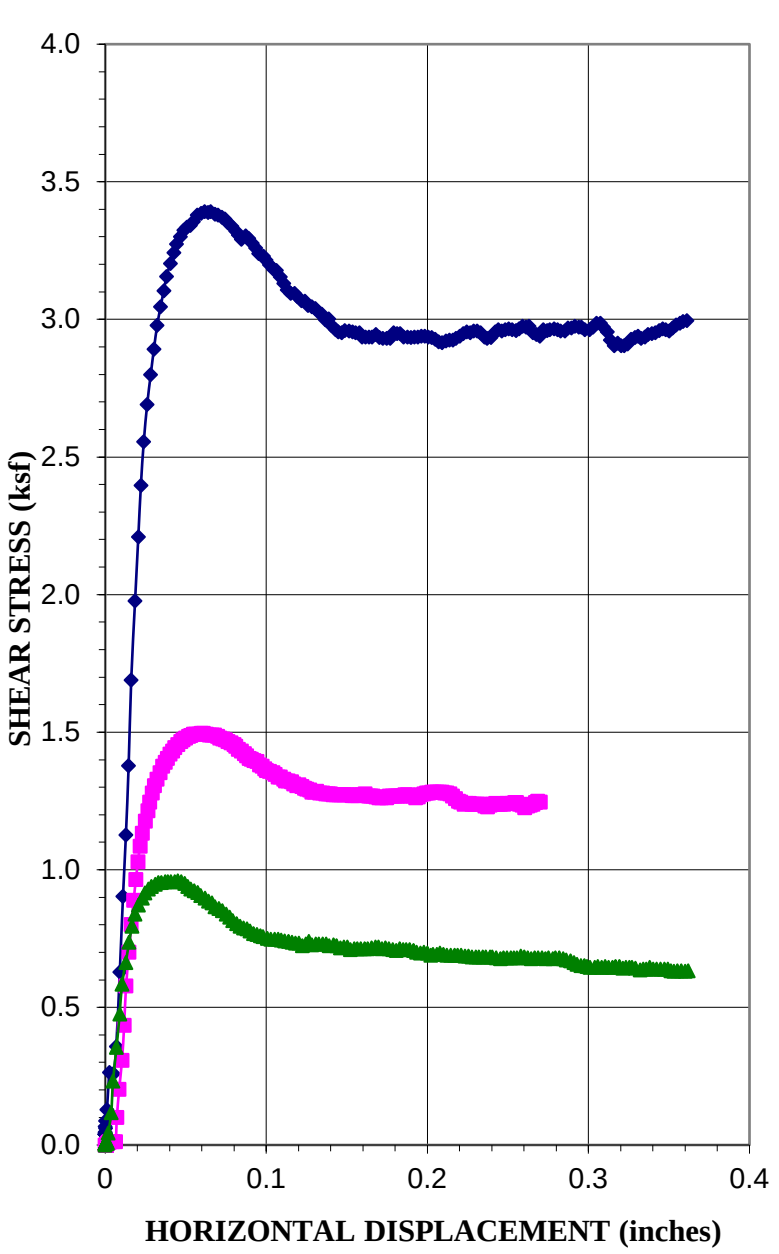
PROJECT NO.: **589-100**

GeoStrata

Plate
TP-13

DIRECT SHEAR TEST





Source:	ME-TP-29 at 3 feet
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	**1 (◆)**	**2 (■)**	**3 (▲)**
Sample Type	Remolded		
Initial Height, in.	1.026	1.033	1.02
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	104.4	103.9	105.4
Dry Density After, pcf	106.5	105.7	107.3
Moisture % Before	5.5	6.9	7.4
Moisture % After	19.7	21.2	19.2
Saturation, % Before	25.1	30.9	34.4
Saturation, % After	94.4	99.6	93.9
Normal Load, ksf	4.0	2.0	1.0
Shear Stress, ksf	3.39	1.50	0.96
Strain Rate	0.003333 IN/MIN		

Sample Properties	
Cohesion, psf	10
Friction Angle, ϕ	40
Liquid Limit, %	NP
Plasticity Index, %	NP
Percent Gravel	6.2
Percent Sand	82
Percent Passing No. 200 sieve	11.9
Classification	SP-SM

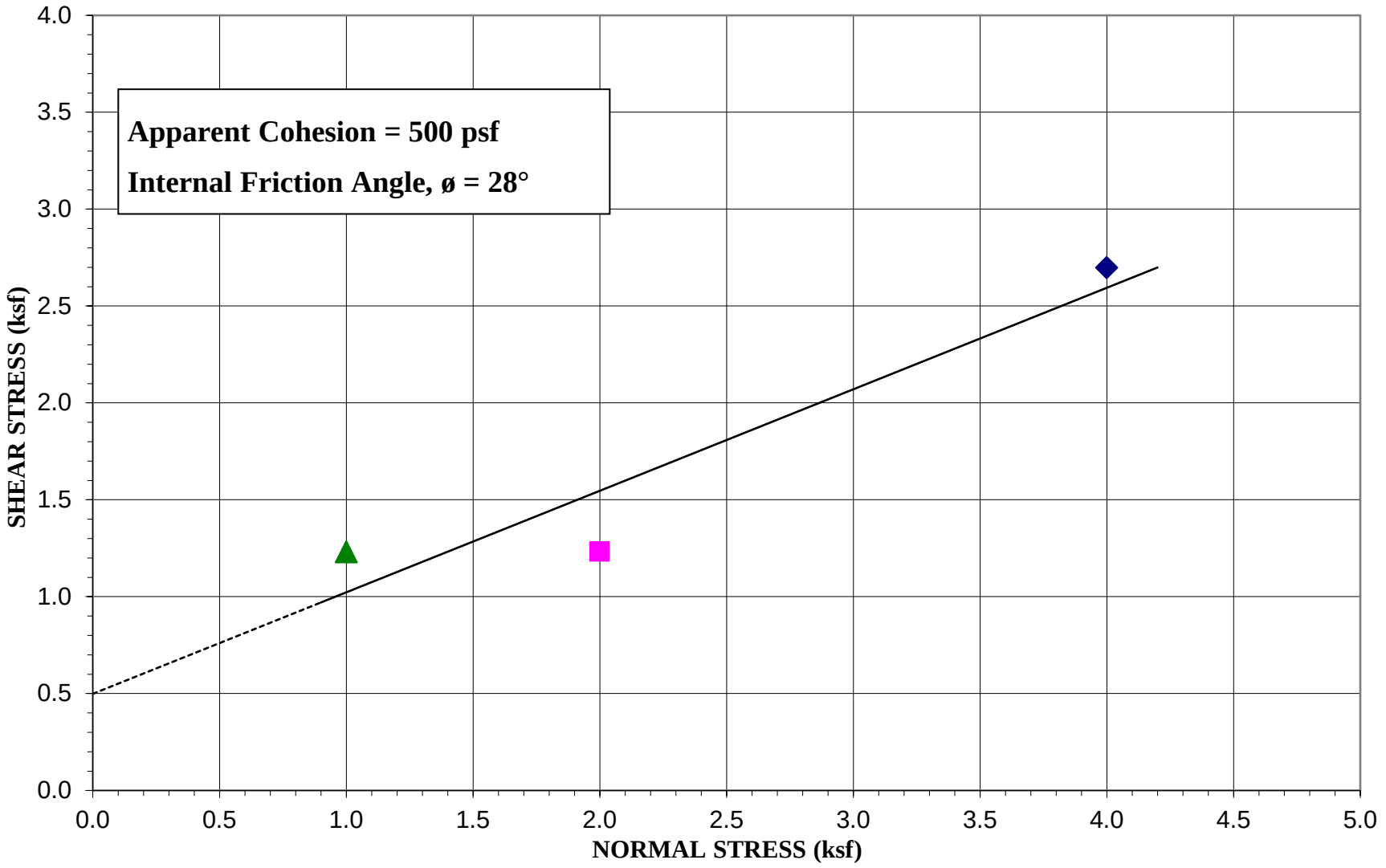
PROJECT: Micron Property

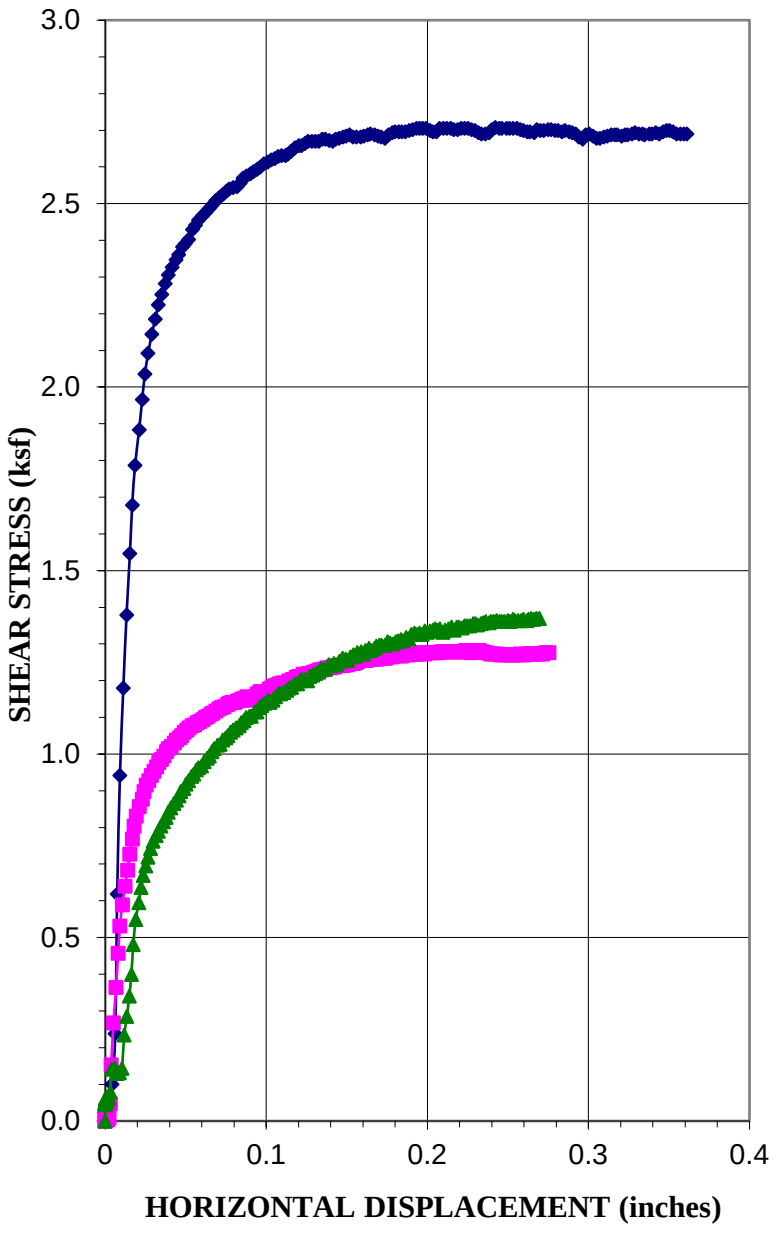
PROJECT NO.: **589-100**

GeoStrata

Plate C-25

DIRECT SHEAR TEST





Source:	ME-TP-33 at 5 feet
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	**1 (◆)**	**2 (■)**	**3 (▲)**
Sample Type	Remolded		
Initial Height, in.	0.901	0.947	0.948
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	96.1	91.9	91.6
Dry Density After, pcf	98.6	94.3	94.1
Moisture % Before	12.6	10.9	9.5
Moisture % After	24.3	28.9	28.5
Saturation, % Before	46.2	36.2	31.4
Saturation, % After	95.2	101.8	99.8
Normal Load, ksf	4.0	2.0	1.0
Shear Stress, ksf	2.70	1.23	1.23
Strain Rate	0.003333 IN/MIN		

Sample Properties	
Cohesion, psf	500
Friction Angle, ϕ	28
Liquid Limit, %	0
Plasticity Index, %	0
Percent Gravel	52.2
Percent Sand	30.5
Percent Passing No. 200 sieve	17.4
Classification	GM

PROJECT: Micron Property

PROJECT NO.: **589-100**

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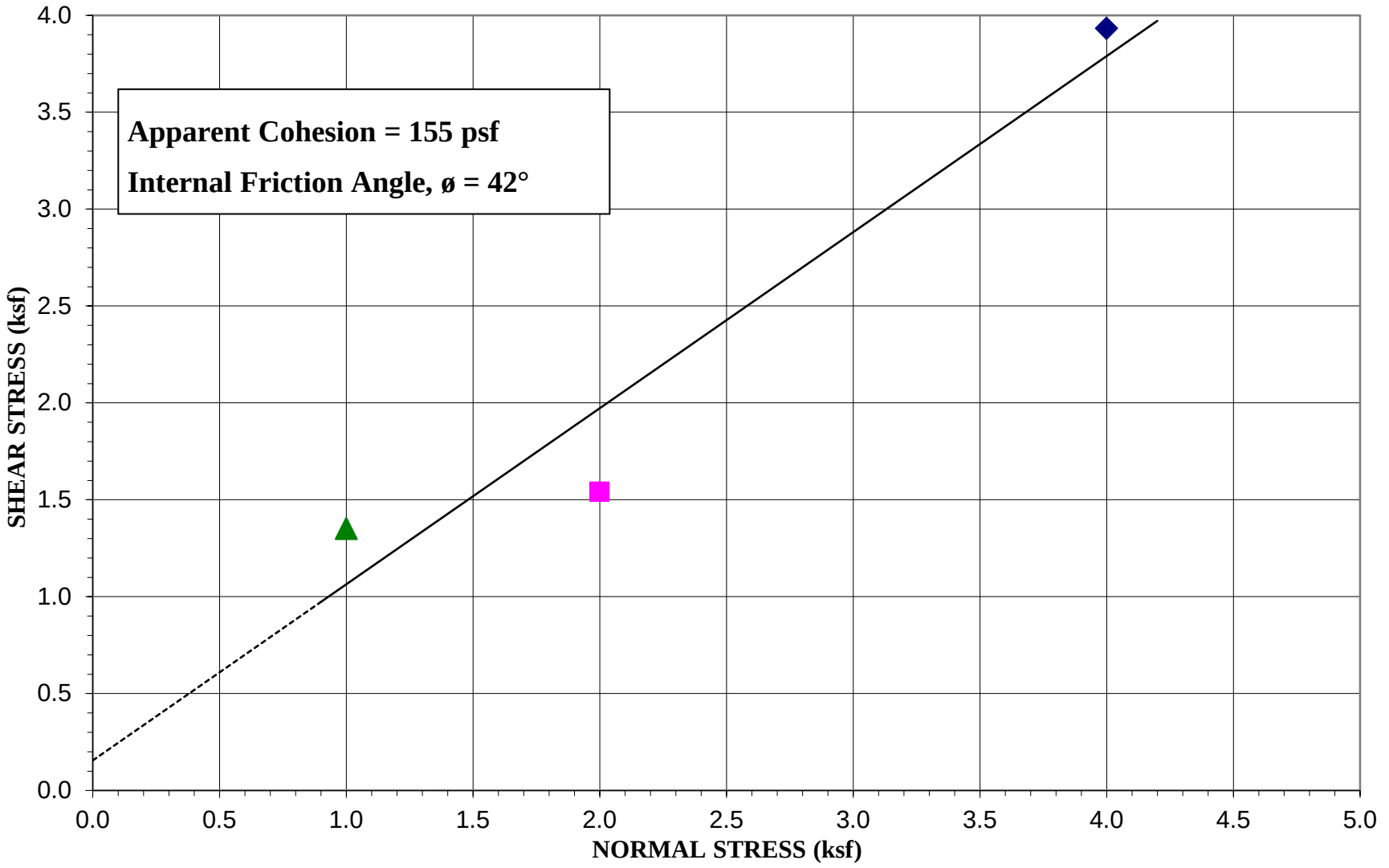
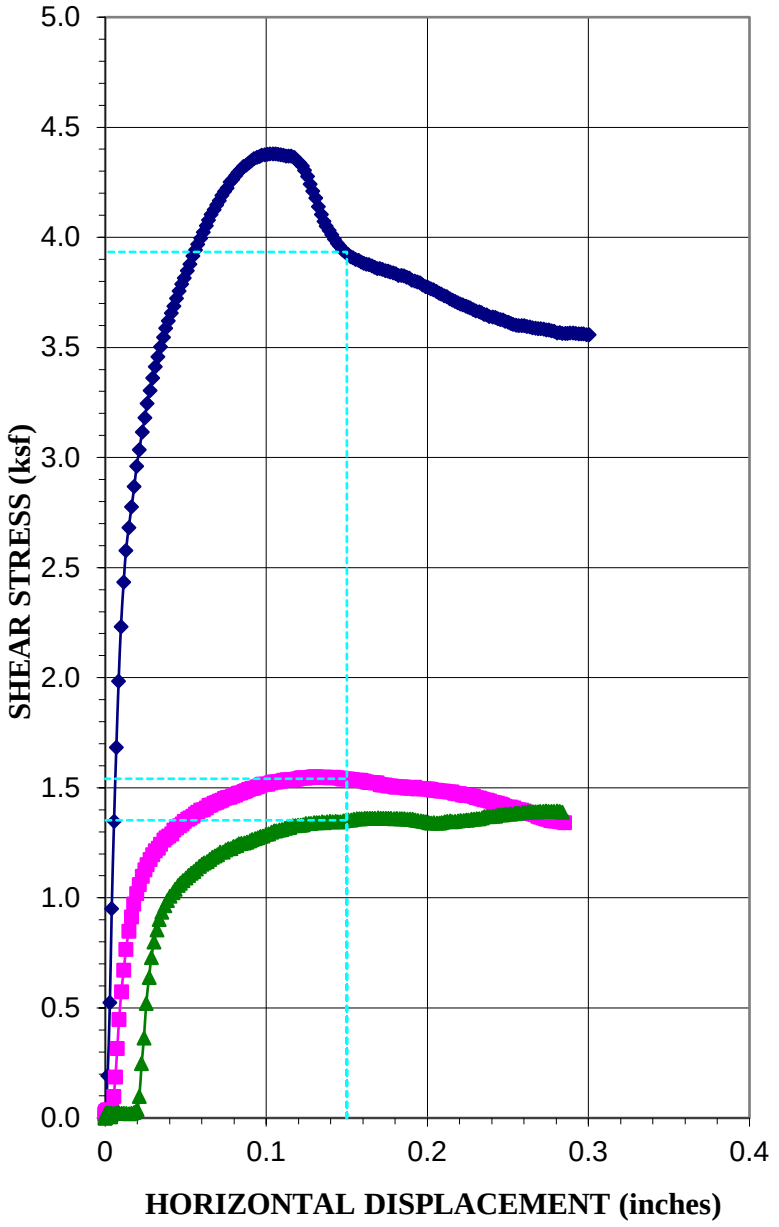
DIRECT SHEAR TEST





Sample Location:	ME-TP-13 at 5 feet
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	**1 (◆)**	**2 (■)**	**3 (▲)**
Sample Type	Remolded		
Initial Height, in.	1.002	0.966	0.975
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	118.4	120.8	120.8
Dry Density After, pcf	119.9	122.3	122.3
Moisture % Before	15.7	17.0	14.2
Moisture % After	29.3	33.0	32.4
Saturation, % Before	105.3	122.2	101.8
Saturation, % After	205.0	249.0	244.2
Normal Load, ksf	4.0	2.0	1.0
Shear Stress, ksf	3.93	1.54	1.35
Strain Rate	0.002592 IN/MIN		

Sample Properties	
Cohesion, psf	155
Friction Angle, ϕ	42
Liquid Limit, %	-
Plasticity Index, %	-
Percent Gravel	1.2
Percent Sand	10.5
Percent Passing No. 200 sieve	88.2
Classification	CL

PROJECT: Micron Property

PROJECT NO.: **589-100**

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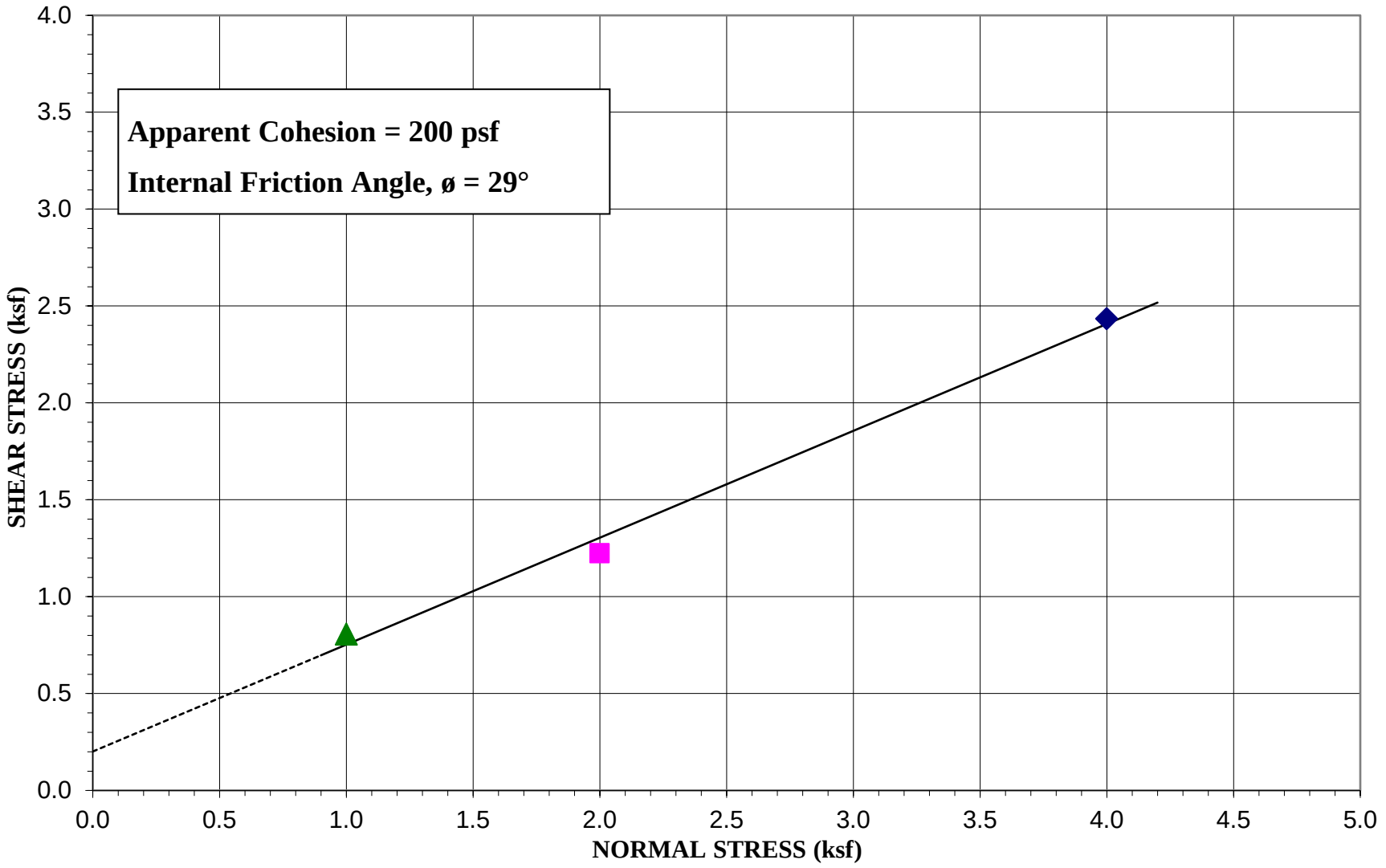
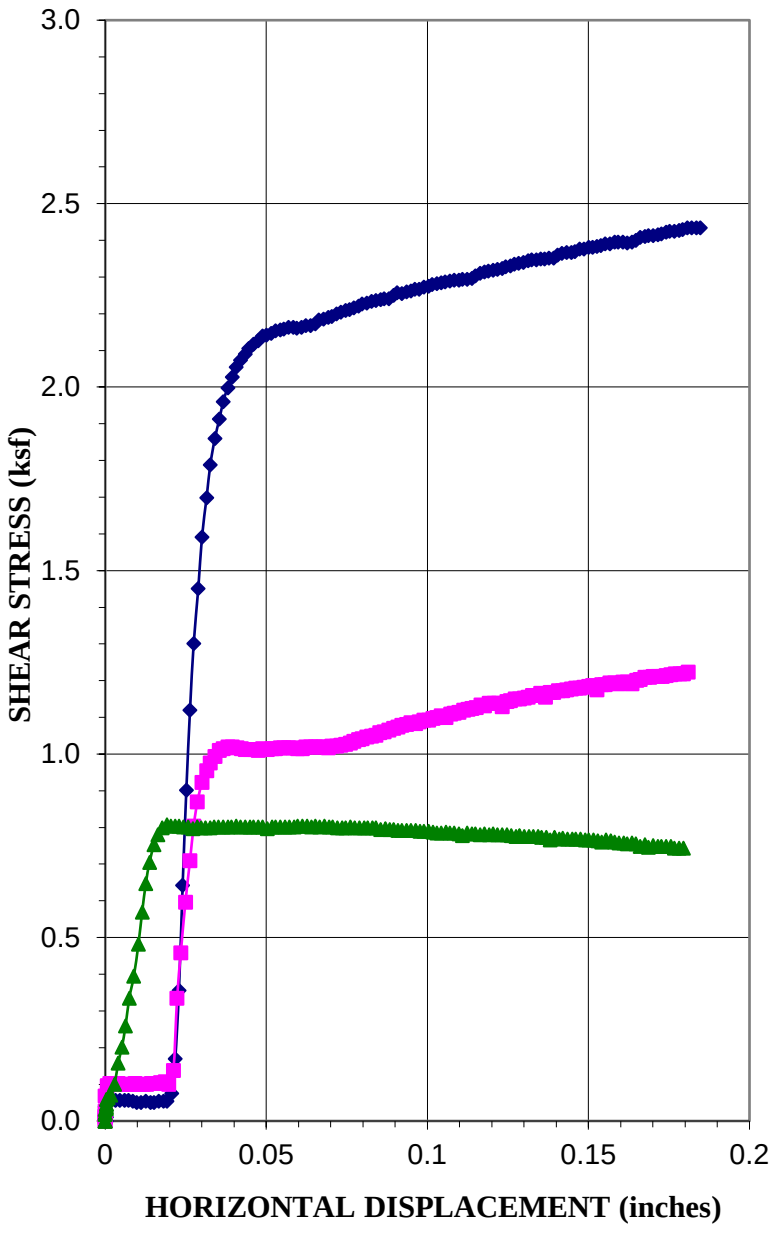
Plate C-27

DIRECT SHEAR TEST





Sample Location:	ME-TP-13 at 5 feet
Type of Test:	Consolidated Drained/Saturated

Test No. (Symbol)	**1 (◆)**	**2 (■)**	**3 (▲)**
Sample Type	Remolded		
Initial Height, in.	1.002	0.966	0.975
Diameter, in.	2.5	2.5	2.5
Dry Density Before, pcf	84.3	87.6	86.9
Dry Density After, pcf	86.1	89.4	88.6
Moisture % Before	19.2	20.0	20.0
Moisture % After	29.4	30.9	33.7
Saturation, % Before	52.9	59.7	58.5
Saturation, % After	84.6	96.4	102.9
Normal Load, ksf	4.0	2.0	1.0
Shear Stress, ksf	2.43	1.22	0.81
Strain Rate	0.002592 IN/MIN		

Sample Properties	
Cohesion, psf	200
Friction Angle, ϕ	29
Liquid Limit, %	-
Plasticity Index, %	-
Percent Gravel	39.8
Percent Sand	39.8
Percent Passing No. 200 sieve	20.4
Classification	GM

PROJECT: Micron Property

PROJECT NO.: **589-100**

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APPENDIX D

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

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Important Information about this Geotechnical Engineering Report

D.R. Horton
Micron Property
Lehi/Drpaer, Utah
Project Number: 589-100

Plate D-1

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration* by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*

GEOPROFESSIONAL BUSINESS ASSOCIATION

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