GeoStrata

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Preliminary Geotechnical Engineering and Geologic Hazards Investigation for the Micron-Lehi Mixed Use Development Utah County, Utah

GeoStrata Job No. 704-001

June 09, 2011

Prepared for:

Micron Technology Inc.
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Boise, Idaho 83707-006
c/o LEI Engineers & Surveyors

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APPENDICES

1.0 EXECUTIVE SUMMARY

This report presents the results of a preliminary geotechnical engineering and geologic hazards investigation conducted for a proposed multi-use development located north of SR 92 about 2 miles east of I-15 in Lehi, Utah. The purposes of this investigation were to provide preliminary geotechnical design information for general site grading and the design and construction of foundations, slabs-on-grade and exterior concrete flatwork and a preliminary assessment of geologic hazards that could impact development of the site. It should be understood that this report is preliminary in nature and a design level geotechnical engineering and geologic hazards investigation and report should be prepared prior to construction.

Based on the test pits excavated across the site, native soils generally consist of about 1 to 2 feet of topsoil overlying interbedded zones of Lean Clay with sand (CL), Sandy Lean Clay (CL), and Lean Clay (CL). Historic man-made fill consisting of Clayey Gravel with sand and Silty Clayey Sand with gravel was encountered in test pits TP-3 and TP-4 through the maximum depths explored. Five feet of historic man made fill comprised of Sandy Lean Clay was encountered in test pit TP-5. The stratification lines shown on the enclosed test pit logs represent an approximate boundary between soil types. The actual in situ transition may be more gradual. Groundwater was not encountered in our test pits at the time of excavation.

The test pits excavated for this preliminary investigation encountered fill soils east and west of the existing IM Flash facility. These undocumented fill soils pose a high risk of settlement for the planned development. Removal and replacement with properly placed and compacted structural fill of at least several feet of these fill soils will be necessary below structures and to a lesser extend roadways and utilities to reduce the risk of excessive settlement. Structures with large footing loads will likely require all of the undocumented fill to be removed and replaced with structural fill or be founded on deep foundations which extend through the fill.

Based on the limited subsurface exploration and laboratory testing performed for this study it appears that in general, foundations for the proposed development may consist of conventional spread and continuous footings. One exception to this may be heavily loaded foundations where the existing undocumented fill is present. Our preliminary analysis indicates allowable bearing capacities for the site in the range of 1,000 to 2,000 psf for conventional spread and continuous footings; however, actual bearing capacities will depend on the type of structure, actual foundation loads, and soils at the building site.

Laboratory testing performed for this report indicates a CBR value for the native clay soils at the site of 1.70 percent which represents relatively weak soils with respect to pavement design. Based on this value we anticipate relatively thick pavement sections. For residential streets with light traffic we anticipate the pavement section may be on the order of 3 inches of asphalt over 14 inches of untreated base course. For commercial and industrial areas with some large truck traffic we anticipate a pavement section on the order of 4.5 inches of asphalt over 25 inches of untreated base course. Actual pavement sections will depend on the actual anticipated traffic and subgrade soils in that area.

A mapped fault has been indentified that trends through the northern portion of the subject property. Further fault investigations are necessary to assess whether the reported fault is considered active. If the fault is found to be active then appropriate fault setbacks will need to be designed. The potential impact to the proposed development could include a non-buildable setback area along the fault up to 100 feet wide.

Stream flooding and alluvial fan flooding/debris flow hazards exist over areas of the proposed development occupied by drainages and stream deposits, alluvial fan deposits and alluvial deposits. Stream flooding and alluvial fan flooding/debris flows can be generated as a result of runoff from spring snowmelt and cloudburst rainstorms. Additional stream flooding and alluvial fan flooding/debris flow hazard analyses should be conducted for the proposed development to assess the potential impact of these hazards at the site and to design potential mitigation for the assessed hazards where required.

NOTICE: The scope of services provided within this report is limited to the preliminary assessment of the surface and subsurface conditions for the proposed Micron-Lehi conceptual land use plan. This executive summary is not intended to replace the report of which it is part and should not be used separately from the report. The executive summary is provided solely for purposes of overview. The executive summary omits a number of details, any one of which could be crucial to the proper application 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 a proposed multi-use development located north of SR 92 about 2 miles east of I15 in Lehi, Utah. The purposes of this investigation were to provide preliminary geotechnical design information for general site grading and the design and construction of foundations, slabs-on-grade and exterior concrete flatwork and a preliminary assessment of geologic hazards engineering. It should be understood that this report is preliminary in nature and a design level geotechnical investigation and report should be prepared prior to construction.

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 dated March 4, 2011 and the signed Consultant Agreement.

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

As we understand that about 870 acres of land is conceptualized as a "workplace neighborhood" with mixed office, technical / manufacturing and residential uses located within walking distance of a retail & mixed use "social Heart". Associated with this conceptualized use plan will be accompanying open space, roadways, utilities, and other infrastructure. The subject site is located in Lehi, Utah as shown on the Site Vicinity Map (Plate A-1).

3.0 METHOD OF STUDY

3.1 FIELD INVESTIGATION

As a part of this investigation, subsurface soil conditions at the site were explored by completing and logging six test pits to depths of approximately 8 to 9 ½ feet below the existing site grade. The approximate locations of the test pits are shown on the Site Exploration Map, Plate A-2 in Appendix A. A log of the subsurface conditions, as encountered in the test pits, was recorded by a qualified engineer and is presented in Appendix B, Plates B-1 through B-6. A Key to USCS Soil Symbols and Terminology used on the test pit logs is found on Plate B-7 in Appendix B.

Disturbed soil samples were obtained at varying depths throughout the test pits. The soils observed in the explorations were classified according to the Unified Soil Classification System (USCS). Classifications for the individual soil units are shown on the attached test pit logs and discussed in Section 4 of this report.

A field geologic reconnaissance was conducted as a part of this investigation to observe existing geologic conditions, to make field observations of the mapped geology of the site and to observe and assess potential geologic hazards.

3.2 LABORATORY INVESTIGATION

Representative soil samples were tested in the laboratory to assess pertinent engineering properties. Moisture content and density determinations were performed to estimate the in-place moisture conditions of the on-site soils. Grain size distributions and atterberg limits tests were performed to aid in developing engineering characteristics of the soils. One dimensional consolidation/collapse tests were performed to assess the settlement vs. load characteristics of the clay soils at the site. Torvane shear strength measurements were made to assess the strength of the clay soils. A California Bearing Ratio (CBR) test was performed to assess the strength of the clay soils with respect to pavement design. Resistivity, pH, and soluble sulfate tests were performed to estimate the corrosion potential of native soils to concrete and ferrous metals.

Results of the laboratory tests indicate that the in situ soils have a moisture content of 11.3% to 26.3%. Unit weights ranged from 92.1 pcf to 96.9 pcf. Consolidation/collapse tests indicated that the native clay soils are moderately compressible and have a low to moderate collapse potential when subjected to loads and water. The CBR test indicates that the native clay soils have a CBR value of 1.7 % which is relatively weak with respect to pavement design. Results of the laboratory tests are included on the test pit log, in Appendix B, in the Laboratory summary report on Plate C-1 in Appendix C and the individual test results also included on Plates C-2 to C- 6 in Appendix C.

3.3 GEOLOGICAL HAZARDS ASSESSMENT

The geologic conditions at the site were evaluated by conducting a literature review, which consisted of reviewing available geologic literature and geologic maps pertinent to the site, as indicated in the references cited section of this report. Both published and unpublished reports were reviewed as a part of this investigation.

4.0 GENERALIZED SITE CONDITIONS

4.1 SURFACE CONDITIONS

The subject site is currently undeveloped and located at the base of Traverse Mountain around the existing IM Flash facility. The site generally slopes down to the south at a grade of about 10 to 20 percent. Vegetation generally consists of common grasses and weeds with occasional pockets of trees. An existing shed and garage were located east of the proposed structure. A portion of the site west of the IM Flash facility includes parking areas and small out buildings.

4.2 SUBSURFACE CONDITIONS

As previously mentioned, the subsurface soil conditions were explored at the proposed building location by completing six test pits across the site to approximate depths of 8 to 9 ½ feet below existing site grade. Subsurface soil conditions encountered in the test pits were logged at the time of excavation and are included in Appendix B as Plates B-1 through B-6. The soil and moisture conditions encountered during our investigation are discussed below.

4.2.1 Soils

Based on the test pits excavated across the site, native soils generally consist of about 1 to 2 feet of topsoil overlying interbedded zones of Lean Clay with sand (CL), Sandy Lean Clay (CL), and Lean Clay (CL). Historic man-made fill consisting of Clayey Gravel with sand and Silty Clayey Sand with gravel was encountered in test pits TP-3 and TP-4 through the maximum depths explored. Five feet of historic man made fill comprised of Sandy Lean Clay was encountered in test pit TP-5. The stratification lines shown on the enclosed test pit logs represent an approximate boundary between soil types. The actual in situ transition may be more gradual.

Please note that soil samples are normally discarded 30 days after submittal of the report unless we receive a specific request in writing to retain the samples for a longer period.

4.2.2 Groundwater/Moisture Content Conditions

Groundwater was not encountered in our boring at the time of completion. Moisture content for the soils encountered at the site ranged from a low of 11.3% to 26.3%. Seasonal fluctuations in precipitation, surface runoff from adjacent properties, or other on or offsite sources may increase moisture conditions at the site; groundwater conditions may rise several feet depending on the time of year.

5.0 GEOLGIC CONDITIONS

5.1 GEOLOGIC SETTING

The site is located in Lehi, Utah at an elevation between approximately 4850 to 5150 feet, on the southern flank of the Traverse Mountains along the northern portion of the Utah Valley (Plate A-1). The Utah Valley represents a deep, sediment-filled structural basin of Cenozoic age flanked by uplifted blocks, the Wasatch Range on the east, and the Lake Mountains, West Mountain, the Goshen Hills, and Warm Springs Mountain (the northern end of Long Ridge) to the west (Machette, 1992; Hintze, 1980; Hintze, 1993). The Wasatch Range is the easternmost expression of pronounced Basin and Range extension in north-central Utah.

The near-surface geology of the Utah Lake Valley is dominated by sediments, which were deposited within the last 30,000 years by Lake Bonneville (Hintze, 1993). The lacustrine sediments near the mountain front consist mostly of gravel and sand. 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 valley 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. Most surficial deposits along the Wasatch fault zone were deposited during the Bonneville Lake Cycle that was the last cycle of Lake Bonneville between approximately 32 to 10 ka (thousands of years ago) and in the Holocene (< 10 ka).

Surface sediments at the subject site are mapped predominantly as Quaternary Lake Bonneville sand and silt deposits (Qlsb) across most of the site (Biek, 2005, Plates A-3 and A-4). Some Quaternary Lake Bonneville gravel and sand deposits (Qlgb) are mapped along the northern edge of the site. Older post Lake Bonneville alluvial fan deposits (Qaf1) are mapped along the northern portion of site overlying the Quaternary Lake Bonneville gravel and sand deposits (Qlgb). A large area in the west-central portion of the site is mapped as a younger alluvial fan deposit (Qafy). Two areas along the south-central portion of the site are mapped as Quaternary alluvial and colluvial deposits (Qac). Young alluvial deposits (Qaly) are mapped in a drainage channel in the east-middle portion of the subject site. Shallow deposits of hillside colluvium on the slopes and stream alluvium associated with drainages were observed along the northern edge of the site during our field investigation. The majority of the sediments observed across the site during our field investigation consisted of clay with sand and lesser amounts of gravel and silt (Plates B-1 to B-6).

5.2 TECTONIC SETTING AND FAULTING

The Traverse Mountains mark the northern extent of the Provo segment of the Wasatch fault and form a structural boundary between the Salt Lake City and Provo segments of the Wasatch fault zone. The site is located approximately 3.7 miles south of the Fort Canyon fault that connects the Salt Lake and Provo segments of the Wasatch fault zone (Biek, 2005; Machette, 1992; Hecker, 1993). The Fort Canyon fault transfers motion along the Wasatch fault zone 8.5 km to the east, from the southern part of Salt Lake Valley to Utah Valley. Pleistocene glacial outwash is displaced 3-6 m along the Fort Canyon fault near Dry Creek (Alpine, Utah) (Machette, 1992). The main trace of the Provo segment of the Wasatch Fault Zone is located approximately 2.7 miles east of the site.

The Traverse Mountain South fault is mapped trending through the northern portion of the subject site in a southwest to northeastern trend (Biek, 2005, Plates A-3 and A-4). It should be noted that several faults in the area of the subject site have been found to be active as a result of surface fault rupture investigations conducted for other subject properties. The fault mapped trending through the site should be investigated further by means of surface fault rupture investigation trenching prior to design of habitable structures and critical infrastructure. This additional surface fault rupture investigation should provide detailed information about the age and location of the fault mapped across the subject site. Setback areas will need to be established along this fault if the age of the fault observed during the additional fault trenching suggests that that the fault is active and that setbacks are necessary. The setback associated with this fault could be up to 50 feet wide on either side of the fault depending on the nature of the planned land use in close proximity to the fault.

5.3 OTHER GEOLOGIC HAZARDS

Geologic hazards can be defined as naturally occurring geologic conditions or processes that could present a danger to human life and property. These hazards must be considered before development of the site. There are several hazards in addition to faulting that may be present at the site, and which should be considered in the design of roads and critical facilities such as water tanks and structures designed for human habitation. In addition to faulting discussed previously, other geologic hazards considered significant for this site include stream flooding, alluvial fan flooding/debris flow, and liquefaction.

5.3.1 Stream Flooding

Stream flooding on the site is a hazard that is related to spring snowmelt and run-off and flash–flooding from summer rainstorms in and along streambeds and stream channels. Flood hazards should be considered when planning for development of habitable structures and essential and critical facilities located within areas having a potential flood risk.

The risk of stream flooding exists in portions of the site occupied by drainage channels that trend through the subject site generally from north to south as well as in low-lying portions of the site where flood runoff might collect. Areas of the site with surface sediments mapped as Quaternary alluvial and colluvial deposits (Qac) and young alluvial deposits (Qaly) have a risk for stream flooding. No active water flows were noted in our site reconnaissance and it is assumed that the drainage channels observed along the northern and east-middle portions of the site are ephemeral streams.

The dry washes and stream channels located on and north of the subject site were observed by an engineering geologist during the fieldwork conducted for this investigation. This observation was conducted to aid in the assessment of the potential stream flood hazard at the site and to provide information to form recommendations for additional studies that may be required to engineer any proposed mitigation. Some portions of these drainages were observed to have well defined streambeds. The ephemeral streams associated with these drainages could pose a stream flood hazard at the subject site. The stream flooding hazard at the site should be assessed as part of the grading and drainage planning for the site and assessed stream flooding hazards should be mitigated before development of the site.

5.3.2 Alluvial Fan Flooding/Debris Flow

Alluvial fan flooding is a potential hazard that should be considered in areas of the site containing Holocene age alluvial fans (Qaf1, Qafy). Alluvial fan flooding typically occurs as a debris flood consisting of a mixture of soil, organic material, and rock debris transported by fast-moving flood water. Debris flows can be a hazard on alluvial fans or in stream channels above alluvial fans as well and typically consist of a muddy slurry of clastic sediments. Just like with stream flooding, debris floods and debris flows can occur as a result of runoff from spring snowmelt and cloudburst rainstorms. Debris slides, which are a type of shallow landslide, can also mobilize a debris flow.

The risk of debris floods and debris flows does exist in and along the drainages and streambeds discussed in the above stream flood section. The older post Lake Bonneville alluvial fan deposits (Qaf1) mapped along the northern portion of site and the large area in the west-central portion of the site mapped as a younger alluvial fan deposit (Qafy) (Biek, 2005) are areas where potential alluvial fan flooding/debris flow hazards exist.

GeoStrata recommends that the alluvial fan flooding/debris flow potential at the site be assessed and that potential hazards be appropriately mitigated during the design of the development. Debris flow hazard assessment includes estimating maximum potential flow direction, debris flow volumes and flow speeds. Mitigation of these potential hazards includes design and construction of detention basins and conveyance structures.

5.3.3 Liquefaction

Certain areas within the Intermountain region also 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.

The Liquefaction Potential Map for a part of Utah County, Utah map was reviewed to provide a preliminary assessment of the liquefaction potential of the site. Based on our review of the map and the location of the site, the site is considered to have a very low potential for liquefaction during a major seismic event.

6.0 PRELIMINARY ENGINEERING ANALYSES AND RECOMMENDATIONS

6.1 GENERAL

Based on the preliminary subsurface investigation and analysis, 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. 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.

6.2 EARTHWORK

6.2.1 Existing Fill

The test pits excavated for this preliminary investigation encountered fill soils east and west of the existing IM Flash facility. Based on conversations with Micron personnel, we understand that the fill encountered was not compacted during placement and no compaction testing was performed. We understand the fill to the west covers a relatively large area and is relatively deep. We understand the fill to the east is less extensive. These undocumented fill soils pose a high risk of settlement for the planned development. Removal and replacement with properly placed and compacted structural fill of at least several feet of these fill soils will be necessary below structures and to a lesser extend roadways and utilities to reduce the risk of excessive settlement. Structures with large footing loads will likely require all of the undocumented fill to be removed and replaced with structural fill or be founded on deep foundations which extend through the fill.

As an alternative to removal of the undocumented fill, the parameters of the fill can be identified through a series of additional borings and test pits. Where these soils are identified, the areas can be designated as open space and left as undeveloped in the development master plan.

6.2.4 Structural Fill and Compaction

All fill placed for the support of structures, pavement, and flatwork concrete should consist of structural fill. Based on the limited laboratory testing performed on the samples collected from our testing pit it appears that the majority of the existing soils across the site may be used as structural fill; however, it should be understood that the clay soils can be difficult to moisture condition and compact. An imported material may be required to achieve adequate compaction.

6.3 CONVENTIONAL FOUNDATIONS

Based on the limited subsurface exploration and laboratory testing performed for this study it appears that in general, foundations for the proposed development may consist of conventional spread and continuous footings. One exception to this may be heavily loaded foundations where the existing undocumented fill is present. Our preliminary analysis indicates allowable bearing capacities for the site in the range of 1,000 to 2,000 psf for conventional spread and continuous footings; however, actual bearing capacities will depend on the type of structure, actual foundation loads, and soils at the building site. A design level geotechnical study should be performed prior to design construction of structures at this site.

6.4 PAVEMENT SECTION

Laboratory testing performed for this report indicates a CBR value for the native clay soils at the site of 1.70 percent which represents relatively weak soils with respect to pavement design. Based on this value we anticipate relatively thick pavement sections. For residential streets with light traffic we anticipate the pavement section may be on the order of 3 inches of asphalt over 14 inches of untreated base course. For commercial and industrial areas with some large truck traffic we anticipate a pavement section on the order of 4.5 inches of asphalt over 25 inches of untreated base course. Actual pavement sections will depend on the actual anticipated traffic and subgrade soils in that area. A design level geotechnical study should be performed prior to design and construction of roadway at the site.

6.5 SOIL CORROSION AND REACTIVITY

As part of our preliminary investigation two samples of the native soils retrieved from our test pits were tested to evaluate the corrosion potential of ferrous metals in contact with native soils and to assess the sulfate attack potential to concrete. Soluble sulfate tests indicate that the subgrade soils at the site have sulfate contents of 68.6 to 117 ppm which represent a low potential for sulfate attack. Based on these tests we anticipate that Type I or II cement can be used at the site.

The resistivity and pH tests indicated that the subgrade soils tested have minimum soil resistivities of 800 to 1,900 OHM-cm and pH values of 7.93 to 8.65. Based on these result, the native soils at the site are considered highly to extremely corrosive to ferrous metal. Consideration should be given to retaining the services of a qualified corrosion engineer to provide an assessment of any metal in contact with existing site soils.

6.6 GEOLOGIC HAZARDS

As noted previously in the Geologic Section of this report, there is a mapped fault that trends through the northern portion of the subject property. Further fault investigations are necessary to assess whether the reported fault is considered active. If the fault is found to be active then appropriate fault setbacks will need to be designed. The potential impact to the proposed development could include a non-buildable setback area along the fault up to 100 feet wide.

Stream flooding and alluvial fan flooding/debris flow hazards exist over areas of the proposed development occupied by drainages and stream deposits, alluvial fan deposits and alluvial deposits. Stream flooding and alluvial fan flooding/debris flows can be generated as a result of runoff from spring snowmelt and cloudburst rainstorms. Additional stream flooding and alluvial fan flooding/debris flow hazard analyses should be conducted for the proposed development to assess the potential impact of these hazards at the site and to design potential mitigation for the assessed hazards where required.

7.0 CLOSURE

7.1 LIMITATIONS

The recommendations contained in this report are preliminary in nature and are based on limited field exploration, laboratory testing, and limited information regarding the proposed construction. The subsurface data used in the preparation of this report was obtained from the explorations made for this investigation. It is possible that variations in subsurface conditions could exist beyond the points explored. A design level geotechnical engineering and geologic hazards investigation and report should be completed prior to construction at the proposed development. This design level report should be based on actual building locations and structural loads.

This report was prepared in accordance with the generally accepted standard of practice at the time the report was written. No 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.

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 by calling (801) 501-0583.

8.0 REFERENCES

Anderson, L., Keaton, J.R., Bischoff, J.E., 1994, Liquefaction Map for Utah County, Utah, Utah Geological Survey, Contract No. 94-3, pg. 46

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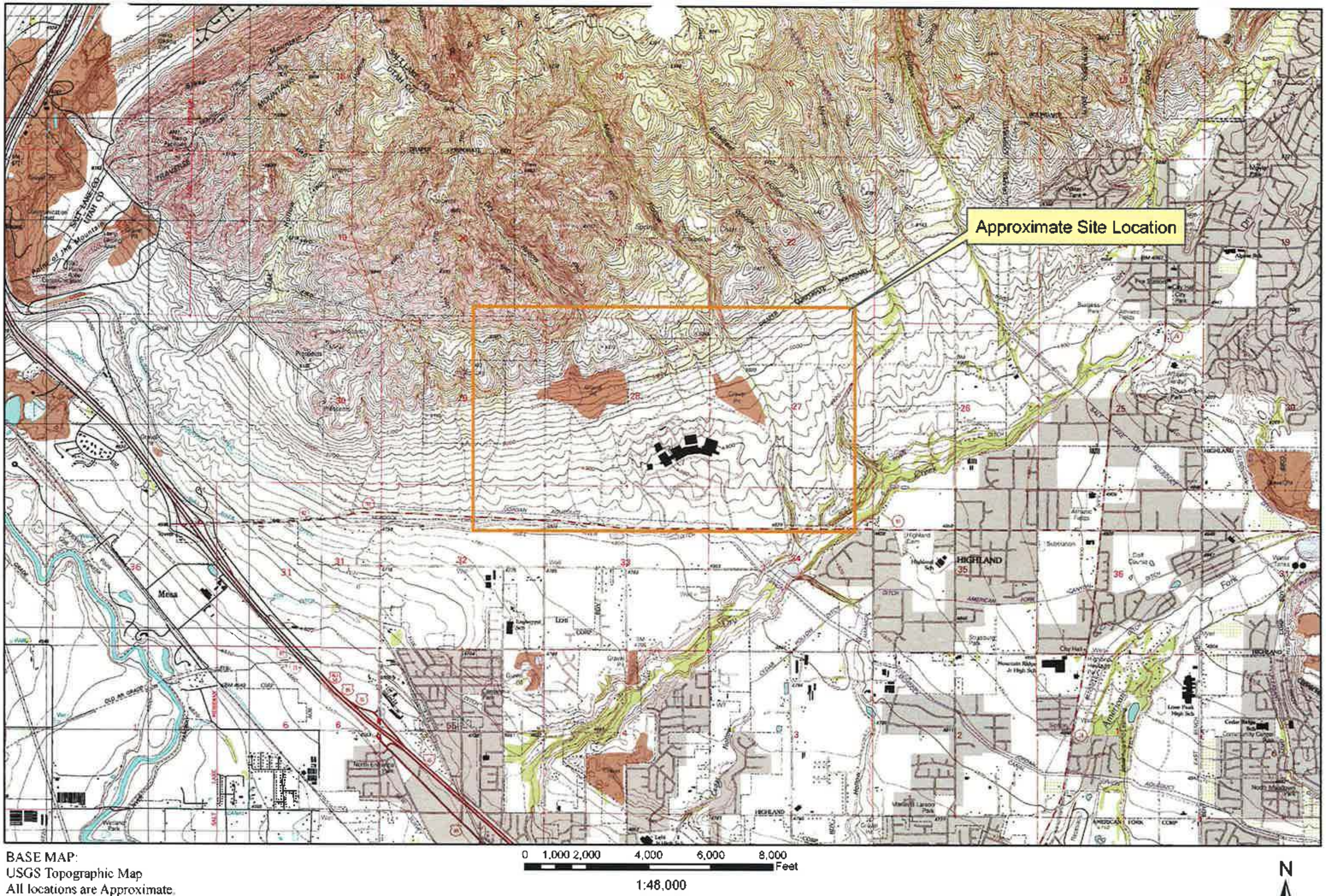
Machette, M. 1992, Surficial geologic map of the Wasatch Fault Zone, Eastern Part of Utah Valley Utah County and Parts of Salt Lake and Juab Counties, Utah, 1:50,000, 1992 United States Geological Survey, I-2095.

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



BASE MAP:
USGS Topographic Map
All locations are Approximate.

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Micron-Lehi Mixed Use Development
Micron Technology Inc
Lehi, Utah
Project Number: 704-001

Site Vicinity Map

Plate A-1

BASE MAP:
2009 1 Foor Orthophotography obtained from the AGRC.
All locations are Approximate.

0 500 1,000 2,000 3,000 4,000 Feet

1:16,000

N

Legend

Approx. Test Pit Location

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Lehi, Utah
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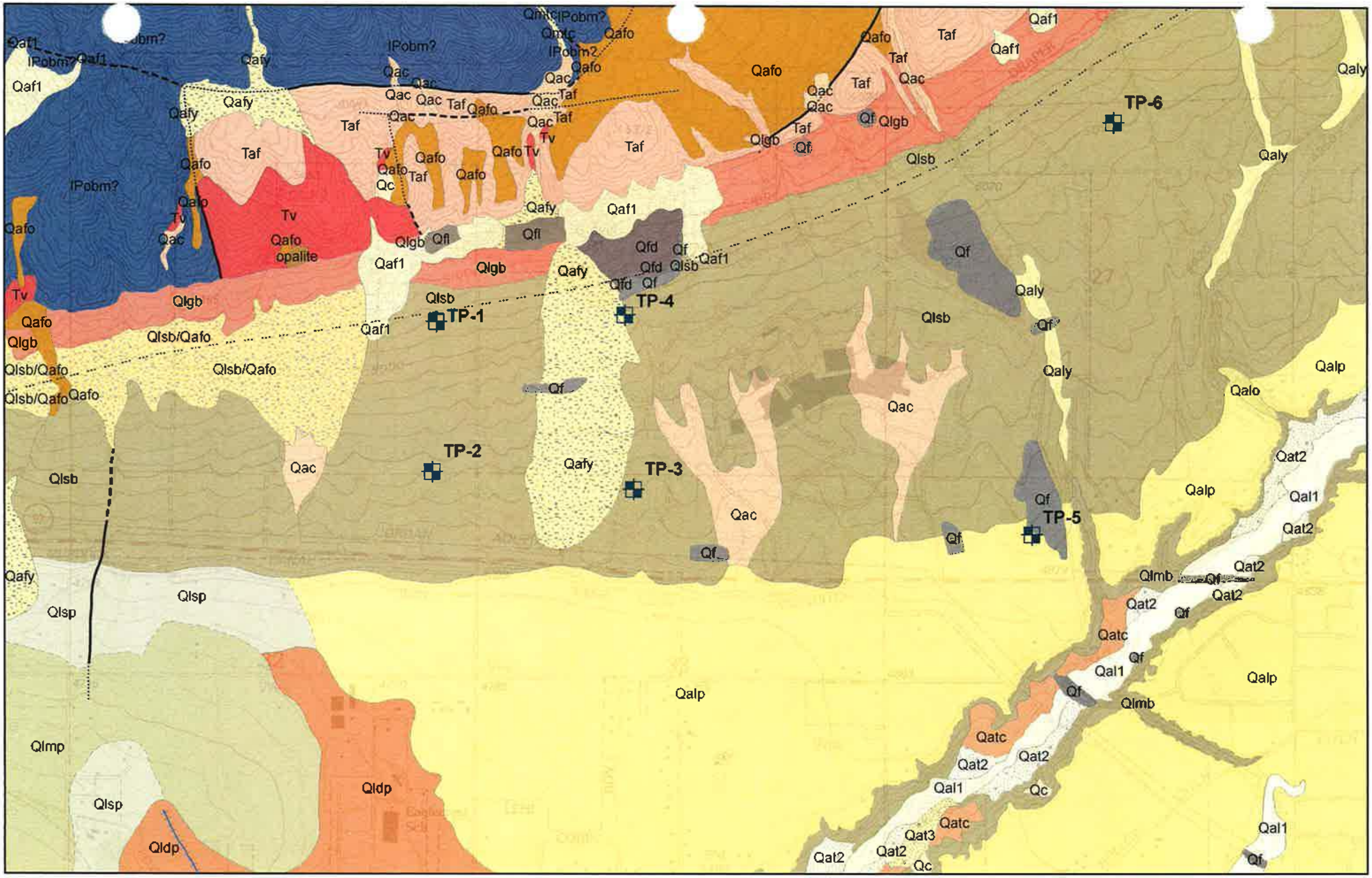
Site Exploration Map

Plate
A-2



BASE MAP:
USGS Topographic Map obtained from the AGRC
Biek, (2005) UGS Lehi 7.5' Surfical Geologic Map
All locations are approximate

0 500 1,000 2,000 3,000 4,000 Feet

1:20,000

N

Legend

Approx. Test Pit Location

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Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah
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Surfical Geologic Map

Plate
A-3

Geologic Unit Descriptions

- Contact, well located
- fault, normal, well located
- Contact, approximately located
- Fault, normal, approximately located
- Fault, normal, concealed
- Fault, geophysical, very approximately located
- Beachbars, Bonneville, well located
- Shoreline, bonneville, well located
- Shoreline, provo, approximately located
- Qal1 - Stream deposits
- Qat2 - Stream-terrace deposits
- Qat3 - Stream-terrace deposits
- Qaly - Young alluvial deposits
- Qalo - Older alluvial deposits
- Qalp - Alluvial deposits related to the Provo phase of the Bonneville lake cycle
- Qaf1 - Modern alluvial-fan deposits
- Qaf3 - Level 3 alluvial-fan deposits
- Qafy - Younger undifferentiated alluvial-fan deposits
- Qafp - Alluvial-fan deposits related to the Provo phase of the Bonneville lake cycle
- Qlgb/Qafo - Lacustrine sand and gravel deposits over older alluvial-fan deposits
- Qlgb/IPobm? - Lacustrine gravel and sand over Bingham Mine Formation(?)
- Qafo - Older alluvial-fan deposits
- Qf - Artificial fill
- Qfl - Landfill deposits
- Qfd - Disturbed land
- Qc - Colluvial deposits
- Qlgp - Lacustrine gravel and sand
- Qlgb - Lacustrine gravel and sand over Oquirrh Group undivided
- Qlsp - Lacustrine sand and silt
- Qlsb - Lacustrine sand and silt
- Qlmp - Lacustrine silt and clay
- Qlmb - Lacustrine silt and clay
- Qldp - Deltaic deposits
- Qac - Alluvial and colluvial deposits
- Qatc - Alluvial terrace and colluvial deposits
- Qmtc - Talus and colluvium
- Qlsb/Qafo
- Taf - Alluvial-fan deposits
- Tv - Volcanic rocks of the east Traverse Mountains, undivided
- IPobm? - Bingham Mine Formation
- opalite - Volcanic rocks of the east Traverse Mountains, undivided

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Micron Technology Inc
Lehi, Utah
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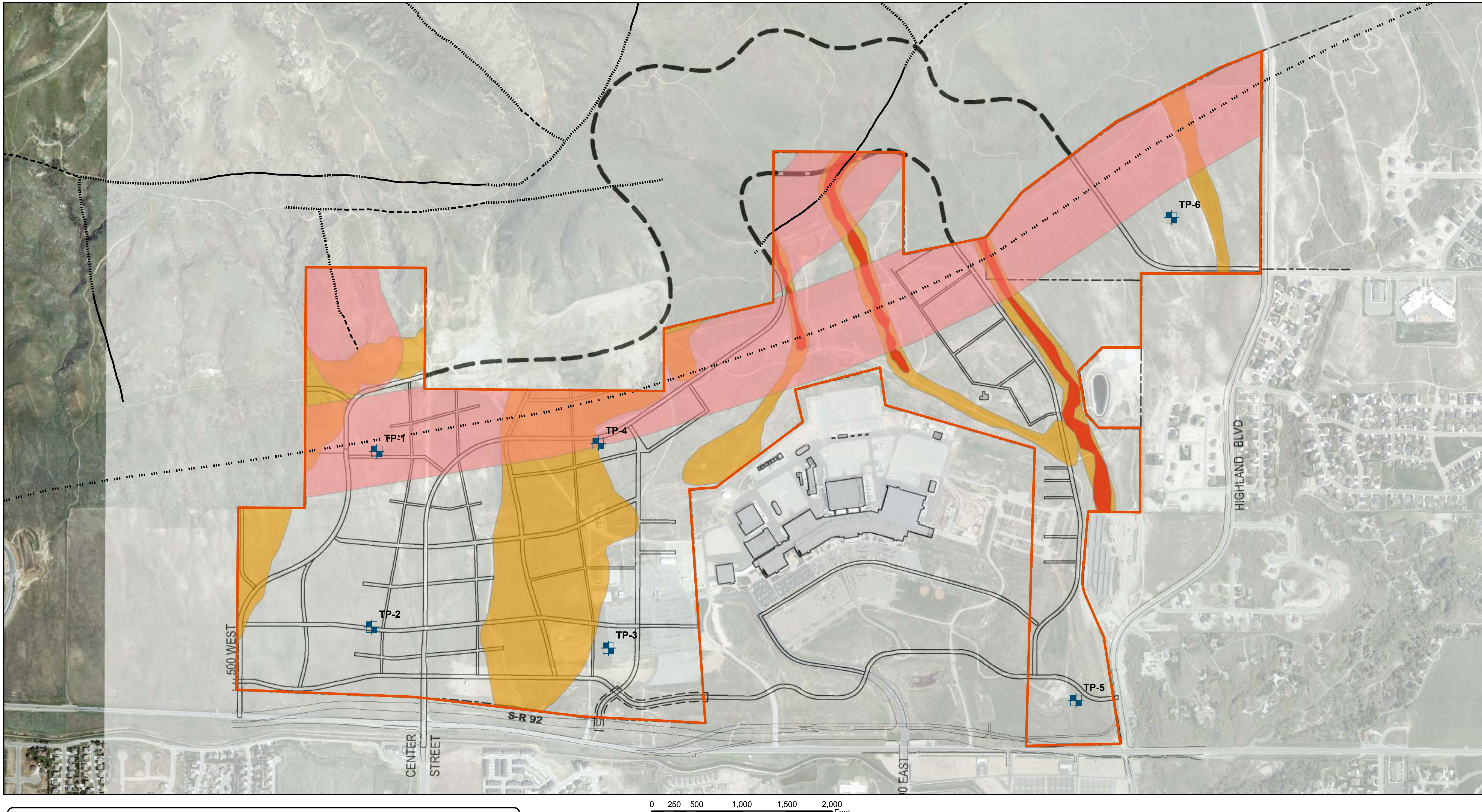
Surfical Geologic Unit Descriptions

Plate A-4



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Legend

- Approx. Test Pit Location
- Site Boundary
- Fault Hazard Zone
- Potential Stream Channel Zone
- Potential Alluvial Fan/Debris Flow Hazard Zone
- Fault, normal, well located
- Fault, normal, approximately located
- Fault, normal, concealed
- Fault, geophysical, approximately located
- Road
- Future Road (Draper)

BASE MAP:
2009 One Foot Othophotography obtained from the AGRC.
Potential Geologic Hazard Zones based on Biek, (2005)
UGS Lehi 7.5' Surfical Geologic Map
All locations are approximate.

GeoStrata

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah
Project Number: 704-001

Potential Geologic Hazards Area Map

Plate A-5

APPENDIX B

DATE	
STARTED:	5/11/11
COMPLETED:	5/11/11
BACKFILLED:	5/11/11

Micron-Lehi Development
Micron Technology Inc
Lehi, Utah
Project Number 704-001

GeoStrata Rep: J. Mattson
Rig Type: Rubber Tire Trackhoe

TEST PIT NO: **TP-1**
Sheet 1 of 1

LOCATION
NORTHING EASTING ELEVATION

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					Top Soil; Lean CLAY - dark brown, stiff, moist, organics throughout.						
					CL	Lean CLAY with sand - medium brown, sitff moist, minor pinholes.						
1		3" O.D. thin-walled hand sampler							84.9	33	11	
					CL	Sandy Lean CLAY - medium brown, stiff, slightly moist.						
	5											
2												
		Grab sample										
						Bottom of Test Pit @ 9 Feet						
3	10											

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

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

GeoStrata

Plate
B-1

DATE	
STARTED:	5/11/11
COMPLETED:	5/11/11
BACKFILLED:	5/11/11

Micron-Lehi Development
Micron Technology Inc
Lehi, Utah
Project Number 704-001

GeoStrata Rep: J. Mattson
Rig Type: Rubber Tire Trackhoe

TEST PIT NO:
TP-2
Sheet 1 of 1

LOCATION: NORTHING | EASTING | ELEVATION

MATERIAL DESCRIPTION

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					Top Soil; Lean CLAY with gravel - dark brown, stiff, moist, organics throughout.					
					CL	Sandy Lean CLAY - medium brown, stiff, moist, organics to 5 feet.					
1											
		3" O.D. thin-walled hand sampler					92.3	16.7	70.0	26	9
	5										
2											
					CL	Lean CLAY - medium brown, stiff, slightly moist.					
		Grab sample									
						Bottom of Test Pit @ 9 Feet					
3	10										

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

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

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

GeoStrata

Plate B-2

LOG_OF_TEST_PITS_PLATE TEST PIT LOGS.GPJ IGES.GDT 6/6/11

DATE		
STARTED	5/11/11	
COMPLETED:	5/11/11	
BACKFILLED:	5/11/11	

Micron-Lehi Development
Micron Technology Inc
Lehi, Utah
Project Number 704-001

GeoStrata Rep: J. Mattson
Rig Type: Rubber Tire Trackhoe

TEST PIT NO: **TP-3**
Sheet 1 of 1

LOCATION
NORTHING | EASTING | ELEVATION

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				GC	Fill; Clayey GRAVEL with sand - medium brown, dense, moist, organcis to 2.5 feet.					
1		Grab sample						11.3	43.2	25	8
	5										
2											
		Grab sample									
3	10					Bottom of Test Pit @ 9.5 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
- 3" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate B-3

DATE				TEST PIT NO:
STARTED: 5/11/11	COMPLETED: 5/11/11	Micron-Lehi Development Micron Technology Inc Lehi, Utah	GeoStrata Rep: J. Mattson	TP-4
BACKFILLED: 5/11/11		Project Number 704-001	Rig Type: Rubber Tire Trackhoe	Sheet 1 of 1

LOCATION

NORTHING EASTING ELEVATION

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				SC-SM	Fill; Silty Clayey SAND with gravel - medium brown, dense, moist, organics to 2 feet.						
1		Grab sample							29.4	23	6	
	5											
2												
		Grab sample										
						Bottom of Test Pit @ 8 Feet						
3	10											

GeoStrata

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

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate

B-4

DATE	
STARTED:	5/11/11
COMPLETED:	5/11/11
BACKFILLED:	5/11/11

Micron-Lehi Development
Micron Technology Inc
Lehi, Utah
Project Number 704-001

GeoStrata Rep: J. Mattson
Rig Type: Rubber Tire Trackhoe

TEST PIT NO: **TP-5**
Sheet 1 of 1

LOCATION
NORTHING EASTING ELEVATION

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					Top Soil; Sandy Lean CLAY with gravel - medium brown, stiff, moist, organics throughout.						
					CL	Fill; Sandy Lean CLAY with gravel - medium to dark brown, dense, moist.						
1		Grab sample										
	5				CL	Lean CLAY - medium brown, dense, moist.						
		3" O.D. thin-walled hand sampler					92.1	20.6	88.8	27	9	
2												
		Grab sample										
3	10					Bottom of Test Pit @ 9.5 Feet						

GeoStrata

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

WATER LEVEL
- MEASURED
- ESTIMATED

NOTES:

Plate B-5

DATE	
STARTED:	5/11/11
COMPLETED:	5/11/11
BACKFILLED:	5/11/11

Micron-Lehi Development
Micron Technology Inc
Lehi, Utah
Project Number 704-001

GeoStrata Rep: J. Mattson
Rig Type: Rubber Tire Trackhoe

TEST PIT NO:
TP-6
Sheet 1 of 1

LOCATION

NORTHING | EASTING | ELEVATION

Moisture Content and Atterberg Limits

Plastic Limit | Moisture Content | Liquid Limit

10 20 30 40 50 60 70 80 90

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					Top Soil; Lean CLAY - dark brown, stiff, moist, organics throughout.					
		▥			CL	Lean CLAY - light brown, stiff, moist.					
		⧗			CL	Lean CLAY - medium brown, stiff, moist, iron deposits, minor pinholes, old organics.					
1		⧗					96.9	26.3	95.9	31	9
	5										
2		▥									
						Bottom of Test Pit @ 9 Feet					
3	10										

GeoStrata

SAMPLE TYPE
▥ - GRAB SAMPLE
⧗ - 3" O.D. THIN-WALLED HAND SAMPLER

WATER LEVEL
▼ - MEASURED
▽ - ESTIMATED

NOTES:

Plate
B-6

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			USCS SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	GRAVELS (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SANDS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
			SC	CLAYEY SANDS SAND-GRAVEL-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid limit less than 50)		ML	INORGANIC SILTS & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid limit greater than 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

LOG KEY SYMBOLS

BORING SAMPLE LOCATION

TEST-PIT SAMPLE LOCATION

WATER LEVEL (level after completion)

WATER LEVEL (level where first encountered)

CEMENTATION

DESCRIPTION	DESCRIPTION
WEAKELY	CRUMBLES OR BREAKS WITH HANDLING OR SLIGHT FINGER PRESSURE
MODERATELY	CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE
STRONGLY	WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE

OTHER TESTS KEY

C	CONSOLIDATION	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	DS	DIRECT SHEAR
UC	UNCONFINED COMPRESSION	T	TRIAXIAL
S	SOLUBILITY	R	RESISTIVITY
O	ORGANIC CONTENT	RV	R-VALUE
CBR	CALIFORNIA BEARING RATIO	SU	SOLUBLE SULFATES
COMP	MOISTURE/DENSITY RELATIONSHIP	PM	PERMEABILITY
CI	CALIFORNIA IMPACT	-200	% FINER THAN #200
COL	COLLAPSE POTENTIAL	Gs	SPECIFIC GRAVITY
SS	SHRINK SWELL	SL	SWELL LOAD

MODIFIERS

DESCRIPTION	%
TRACE	<5
SOME	5 - 12
WITH	>12

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
DRY	ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
MOIST	DAMP BUT NO VISIBLE WATER
WET	VISIBLE FREE WATER, USUALLY SOIL BELOW WATER TABLE

STRATIFICATION

DESCRIPTION	THICKNESS	DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"	OCCASIONAL	ONE OR LESS PER FOOT OF THICKNESS
LAYER	1/2 - 12"	FREQUENT	MORE THAN ONE PER FOOT OF THICKNESS

GENERAL NOTES

1. Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
2. No warranty is provided as to the continuity of soil conditions between individual sample locations.
3. Logs represent general soil conditions observed at the point of exploration on the date indicated.
4. In general, Unified Soil Classification designations presented on the logs were evaluated by visual methods only. Therefore, actual designations (based on laboratory tests) may vary.

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT (blows/ft)	MODIFIED CA. SAMPLER (blows/ft)	CALIFORNIA SAMPLER (blows/ft)	RELATIVE DENSITY (%)	FIELD TEST
VERY LOOSE	<4	<4	<5	0 - 15	EASILY PENETRATED WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
LOOSE	4 - 10	5 - 12	5 - 15	15 - 35	DIFFICULT TO PENETRATE WITH 1/2-INCH REINFORCING ROD PUSHED BY HAND
MEDIUM DENSE	10 - 30	12 - 35	15 - 40	35 - 65	EASILY PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
DENSE	30 - 50	35 - 60	40 - 70	65 - 85	DIFFICULT TO PENETRATED A FOOT WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER
VERY DENSE	>50	>60	>70	85 - 100	PENETRATED ONLY A FEW INCHES WITH 1/2-INCH REINFORCING ROD DRIVEN WITH 5-LB HAMMER

CONSISTENCY - FINE-GRAINED SOIL

		TORVANE	POCKET PENETROMETER	FIELD TEST
CONSISTENCY	SPT (blows/ft)	UNTRAINED SHEAR STRENGTH (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	
VERY SOFT	<2	<0.125	<0.25	EASILY PENETRATED SEVERAL INCHES BY THUMB. EXUDES BETWEEN THUMB AND FINGERS WHEN SQUEEZED BY HAND.
SOFT	2 - 4	0.125 - 0.25	0.25 - 0.5	EASILY PENETRATED ONE INCH BY THUMB. MOLDED BY LIGHT FINGER PRESSURE.
MEDIUM STIFF	4 - 8	0.25 - 0.5	0.5 - 1.0	PENETRATED OVER 1/2 INCH BY THUMB WITH MODERATE EFFORT. MOLDED BY STRONG FINGER PRESSURE.
STIFF	8 - 15	0.5 - 1.0	1.0 - 2.0	INDENTED ABOUT 1/2 INCH BY THUMB BUT PENETRATED ONLY WITH GREAT EFFORT.
VERY STIFF	15 - 30	1.0 - 2.0	2.0 - 4.0	READILY INDENTED BY THUMBNAIL.
HARD	>30	>2.0	>4.0	INDENTED WITH DIFFICULTY BY THUMBNAIL.

GeoStrata

Soil Symbols Description Key

Micron-Lehi Development
Micron Technology Inc.
Lehi, UT
Project Number 704-001

Plate B-7

APPENDIX C

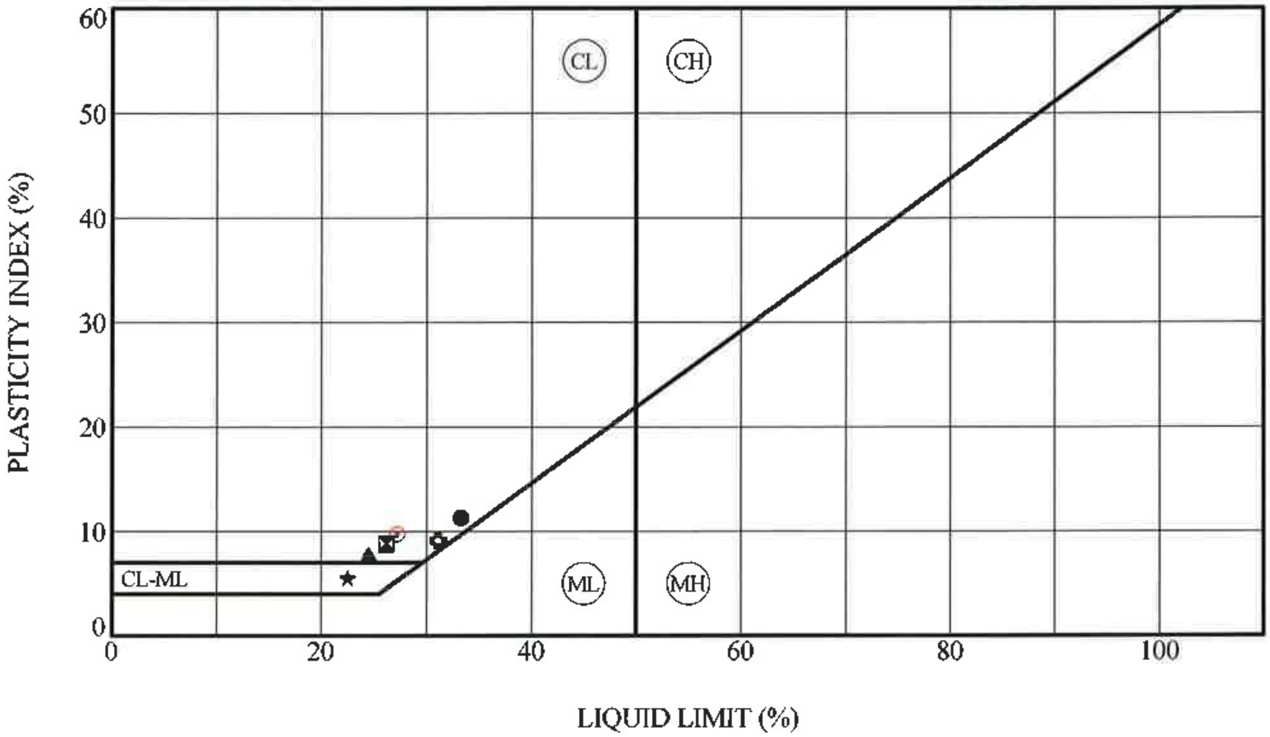
Boring No.	Sample Depth (feet)	USCS Soil Classification	Undrained Shear Strength (psf)	Natural Dry Density	Natural Moisture Content (%)	Gradation			Atterberg Limits		Resistivity (Ω·cm)	pH	Soluble Sulfate (ppm)	Proctor		CBR	Cosolidation			
						Gravel (%)	Sand (%)	Fines (%)	Liquid Limit	Plasticity Index				Max. Dry Density (pcf)	Opt. Moisture (%)	Bearing Ratio (%)	C_c	C_r	OCR	Collapse (%)
TP-1	3.0	CL	280			0.3	14.8	84.9	33	11	800	8.65	68.6	101.3	20.5	1.7				
TP-2	4.0	CL	430	92.3	16.7%	8.9	21.1	70.0	26	9							0.114	0.009	3.02	1.85
TP-3	3.0	GC			11.3	30	26.8	43.2	25	8										
TP-4	3.0	SC-SM				27.5	43.1	29.4	23	6										
TP-5	5.5	CL	650	92.1	20.6%	1.3	9.9	88.8	27	9	1900	7.93	117				0.125	0.016	3.44	0.08
TP-6	2.0		730																	
TP-6	4.0	CL	510	96.9	26.3%	0.0	4.1	95.9	31	9							0.098	0.014	13.9	0

GeoStrata

Lab Summary Report

Micron-Lehi Mixed-Use Development
Micron Technology
Lehi, UT
Project Number 704-001

Plate C-1



	Sample Location	Depth (ft)	LL (%)	PL (%)	PI (%)	Fines (%)	Classification
●	**TP-1**	**3.0**	**33**	**22**	**11**		**Lean CLAY w/sand**
⊠	**TP-2**	**4.0**	**26**	**17**	**9**		**Sandy Lean CLAY**
▲	**TP-3**	**3.0**	**25**	**17**	**8**		**Clayey GRAVEL w/sand**
★	**TP-4**	**3.0**	**23**	**17**	**6**		**Silty Clayey SAND w/gravel**
⊙	**TP-5**	**5.5**	**27**	**18**	**9**		**Lean CLAY**
✪	**TP-6**	**4.0**	**31**	**22**	**9**		**Lean CLAY**

GeoStrata

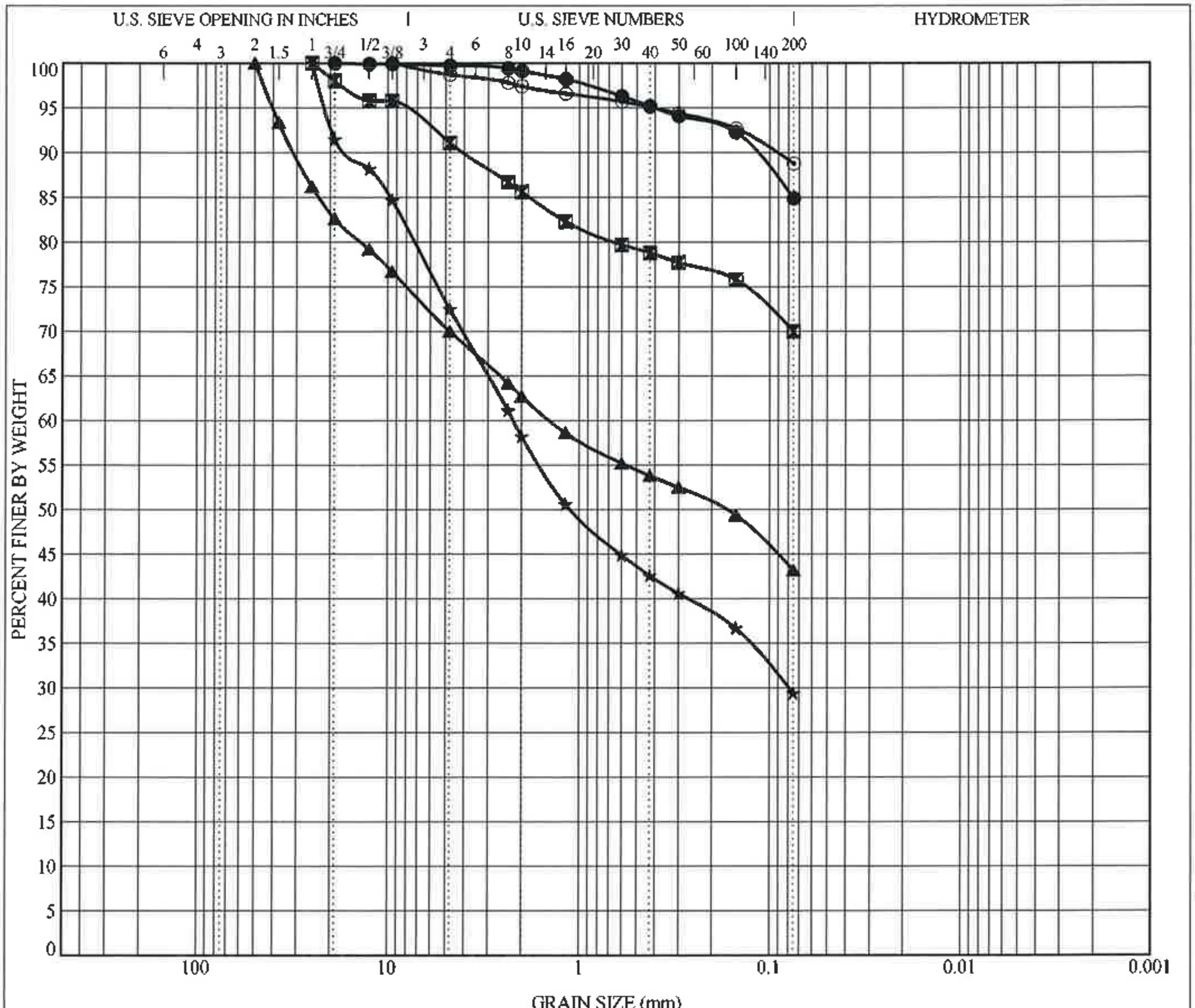
ATTERBERG LIMITS' RESULTS - ASTM D 4318

Micron-Lehi Mixed-Use Development

Micron Technology Inc
Lehi, Utah
Project Number: 704-001

Plate

C - 2



Sample Location		Depth	Classification	LL	PL	PI	Cc	Cu
●	**TP-1**	**3.0**	**Lean CLAY w/sand**	**33**	**22**	**11**		
⊠	**TP-2**	**4.0**	**Sandy Lean CLAY**	**26**	**17**	**9**		
▲	**TP-3**	**3.0**	**Clayey GRAVEL w/sand**	**25**	**17**	**8**		
★	**TP-4**	**3.0**	**Silty Clayey SAND w/gravel**	**23**	**17**	**6**		
⊙	**TP-5**	**5.5**	**Lean CLAY**	**27**	**18**	**9**		

Sample Loctaion		Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-1**	**3.0**	**19**				**0.3**	**14.8**	**84.9**	
⊠	**TP-2**	**4.0**	**25**				**8.9**	**21.1**	**70.0**	
▲	**TP-3**	**3.0**	**50**	**1.413**			**30.0**	**26.8**	**43.2**	
★	**TP-4**	**3.0**	**25**	**2.216**	**0.079**		**27.5**	**43.1**	**29.4**	
⊙	**TP-5**	**5.5**	**9.5**				**1.3**	**9.9**	**88.8**	

GeoStrata

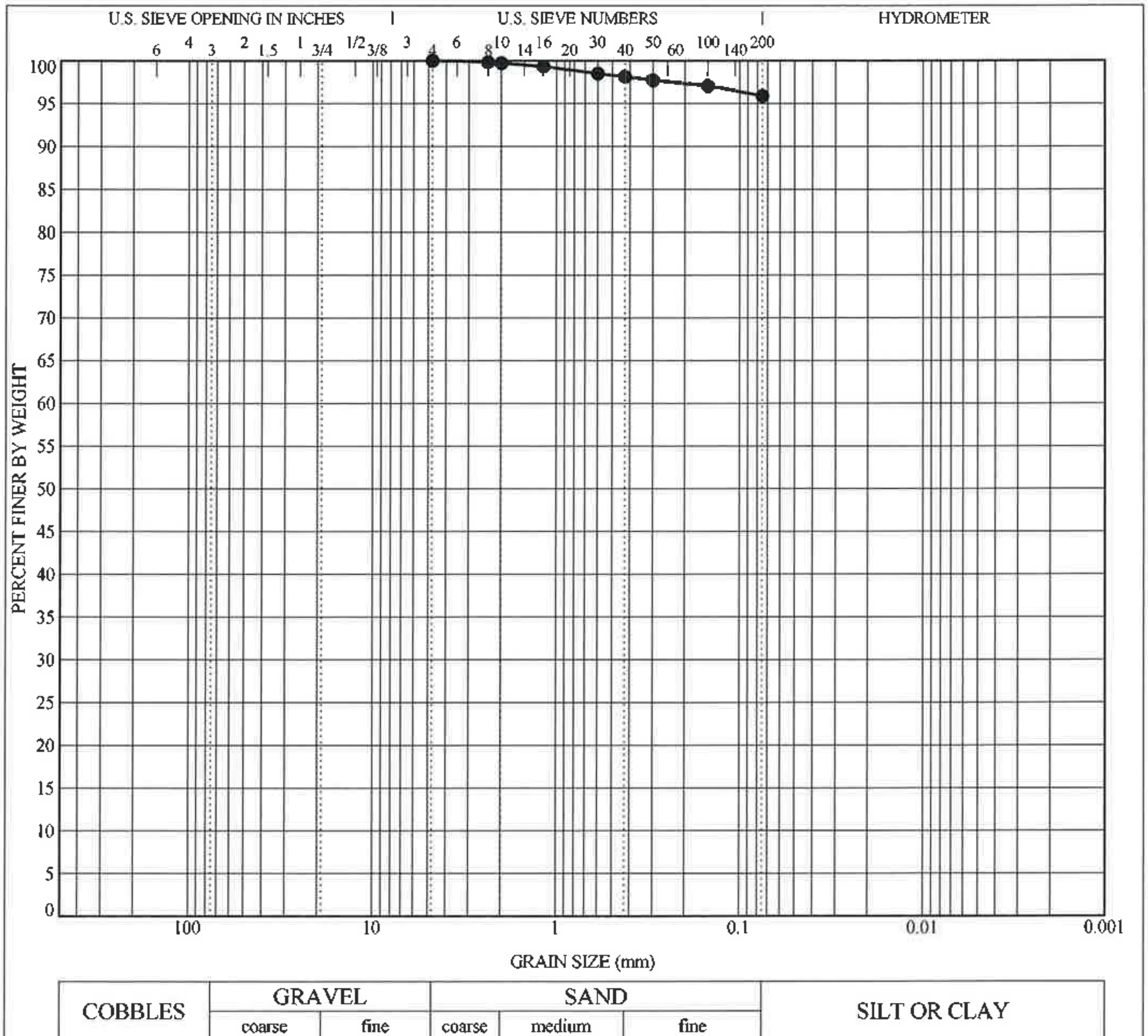
GRAIN SIZE DISTRIBUTION - ASTM C 136

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate

C - 3



Sample Location	Depth	Classification	LL	PL	PI	Cc	Cu
● **TP-6**	**4.0**	**Lean CLAY**	**31**	**22**	**9**		

Sample Loctaion	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **TP-6**	**4.0**	**4.75**				**0.0**	**4.1**	**95.9**	

GeoStrata

GRAIN SIZE DISTRIBUTION - ASTM C 136

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate

C - 4

Source of Material: TP-1 3.0 ft.

Material Description: Lean CLAY w/sand

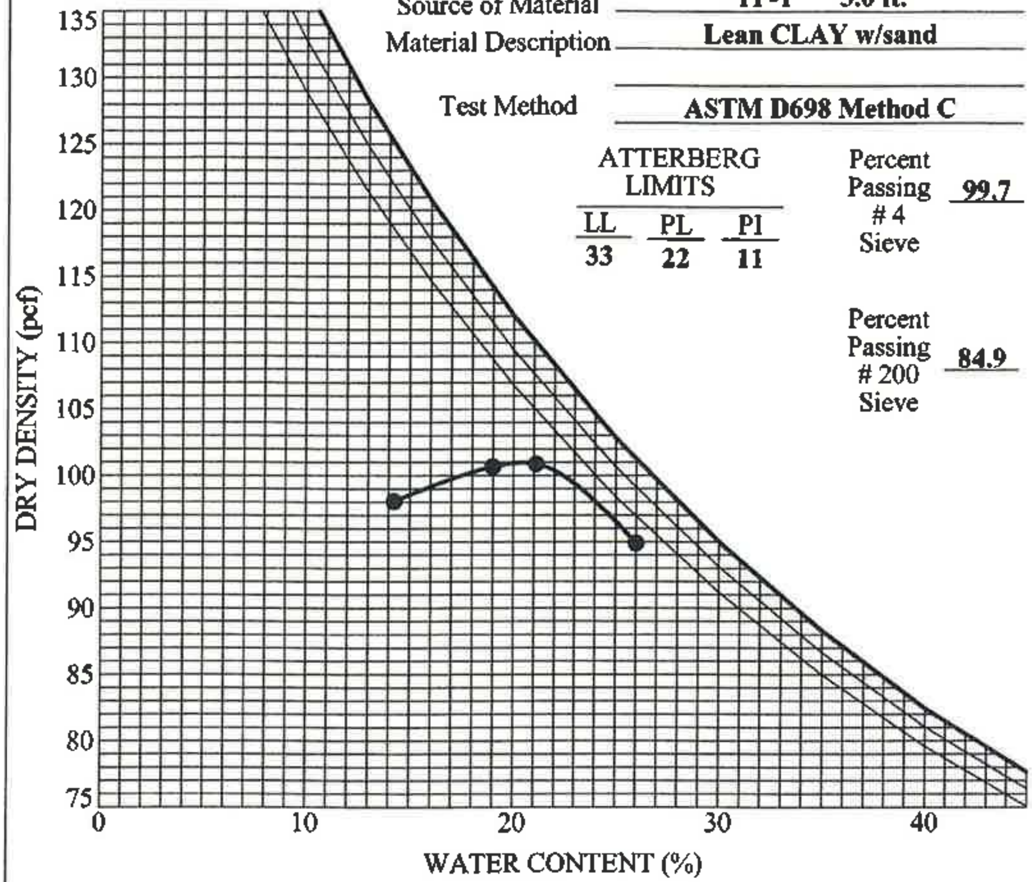
Test Method: ASTM D698 Method C

ATTERBERG LIMITS

LL	PL	PI
33	22	11

Percent Passing # 4 Sieve: 99.7

Percent Passing # 200 Sieve: 84.9



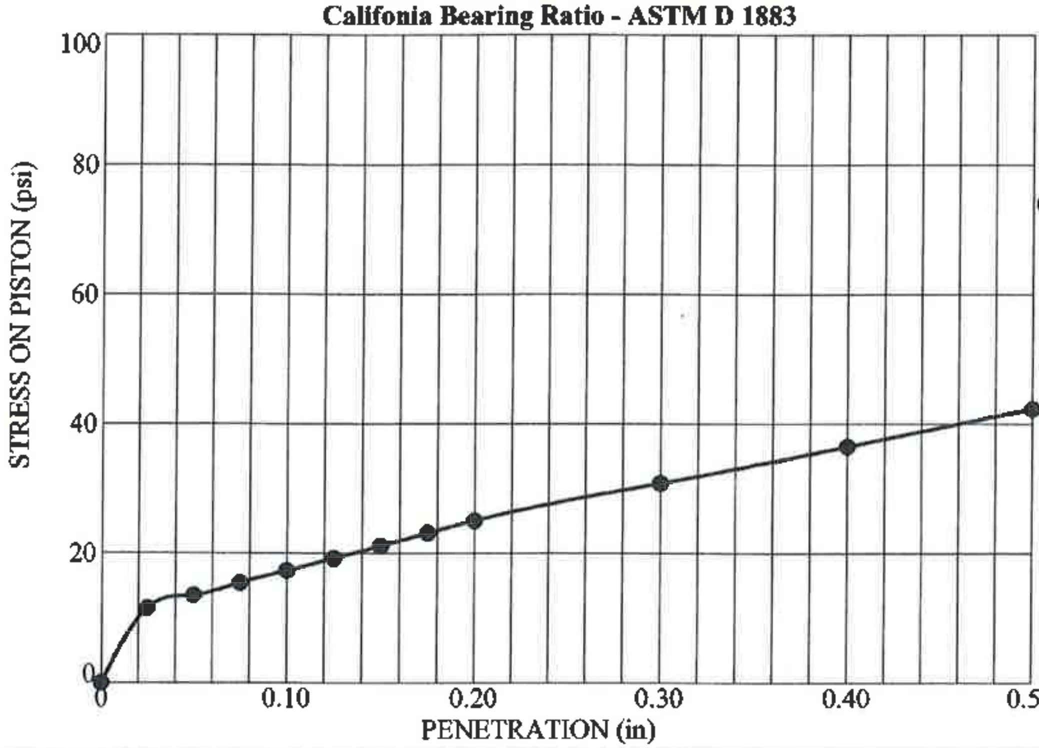
TEST RESULTS

Maximum Dry Density	101.0 (pcf)
Optimum Water Content	20.5 (%)
Percent Rock	0.0 (%)
Corrected Maximum Dry Density	NA (pcf)
Corrected Optimum Water Content	NA (%)

Curves of 100% Saturation for Specific Gravity Equal to:

2.60, 2.70, 2.80

California Bearing Ratio - ASTM D 1883



Dry Density	96.9 (pcf)
Relative Compaction	96 (%)
Surcharge	50 (psf)
% Standard CBR	1.70
Swell	1.75 (%)

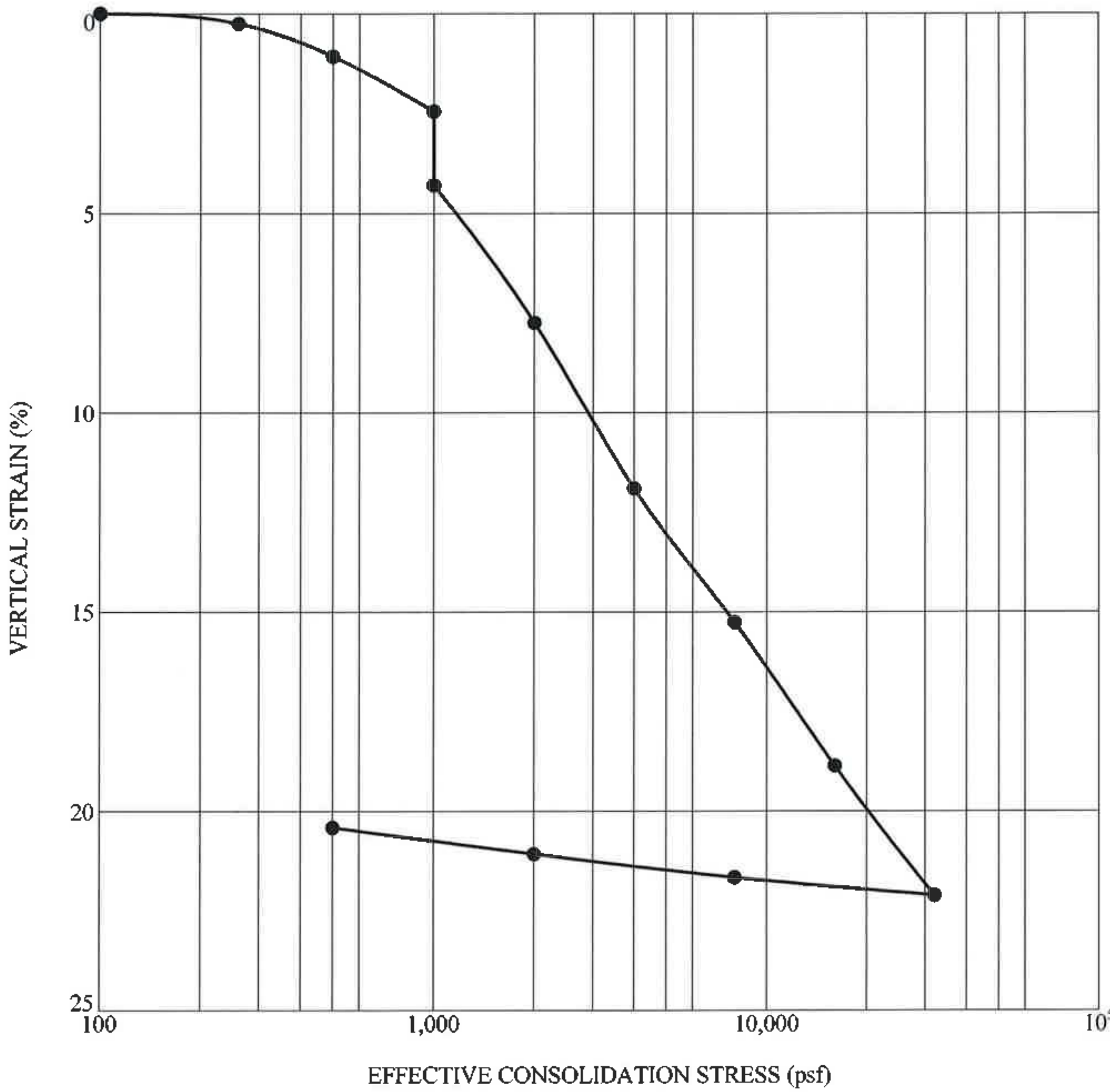
GeoStrata

COMPACTION AND CBR TEST

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate C - 5



	Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	C'_c	C'_r	OCR
●	**TP-2**	**4.0**	**Sandy Lean CLAY**	**92**	**17**	**0.114**	**0.009**	**3.0**

GeoStrata

1-D CONSOLIDATION TEST - ASTM D 2435

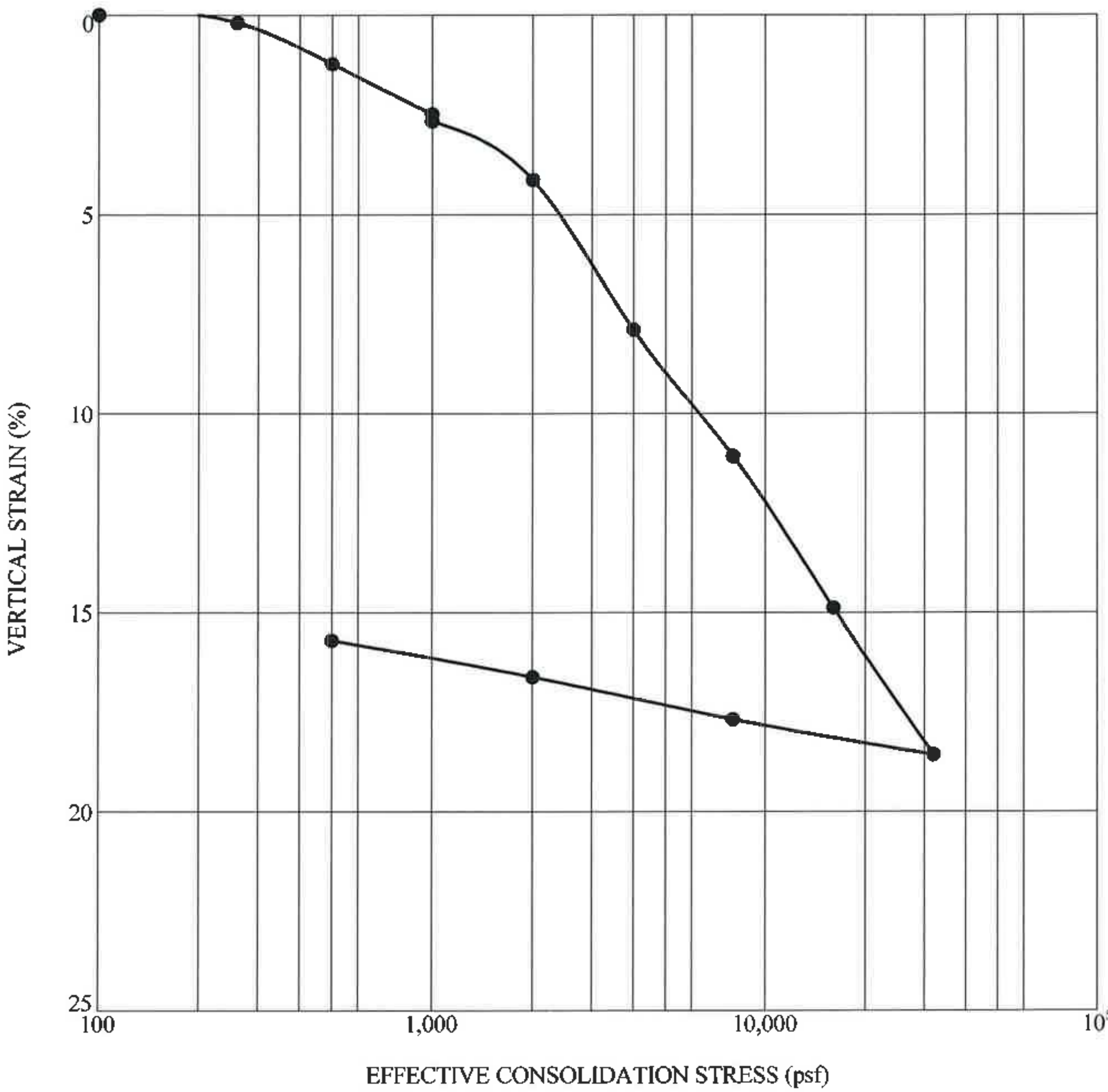
Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate

C - 6

C_CONSOL TEST PIT LOGS.GPJ GEOSTRATA.GDT 6/9/11



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	C'_c	C'_r	OCR
● **TP-5**	**5.5**	**Lean CLAY**	92	21	0.125	0.016	3.4

GeoStrata

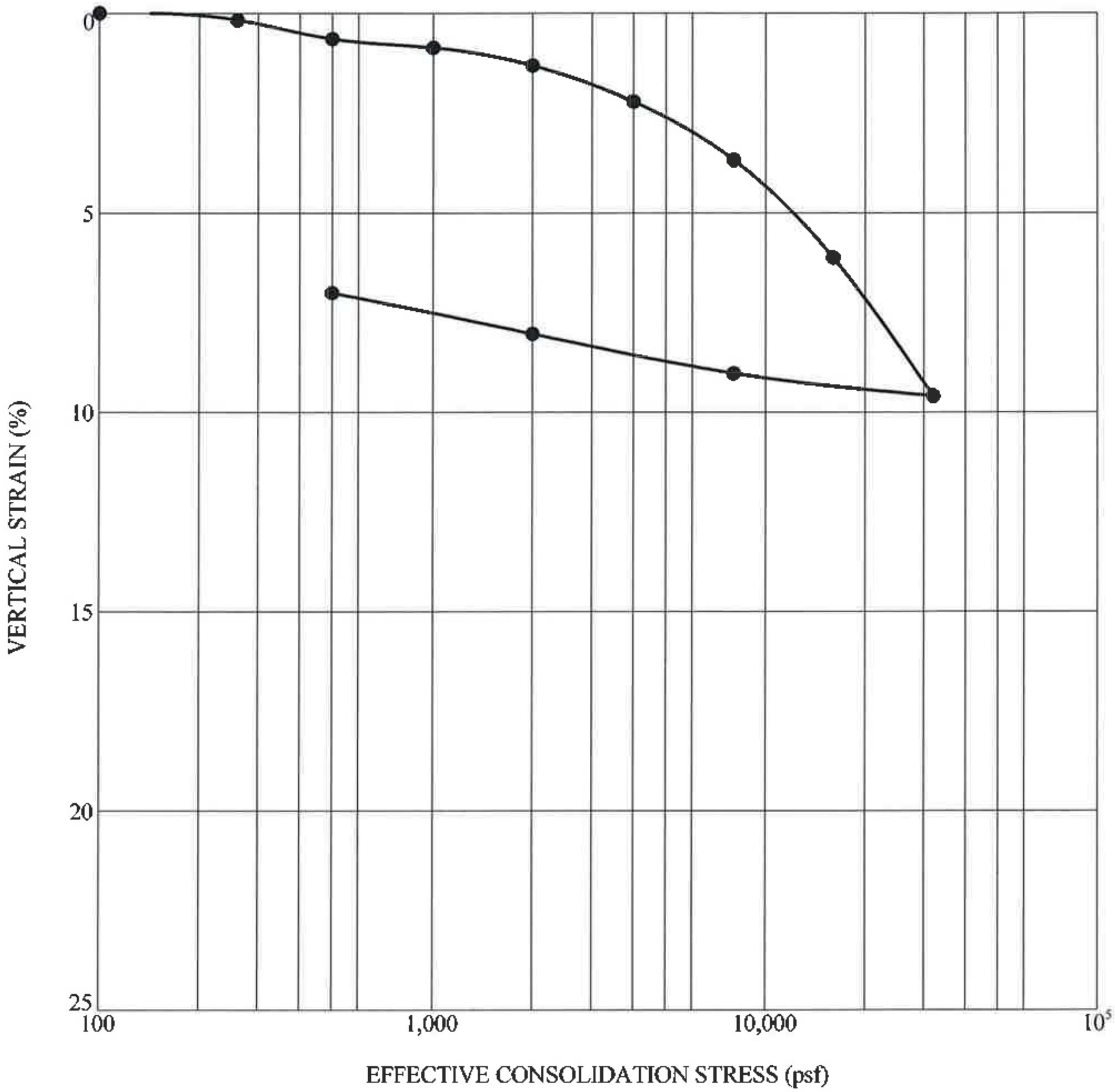
1-D CONSOLIDATION TEST - ASTM D 2435

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate

C - 7



Sample Location	Depth (ft)	Classification	γ_d (pcf)	MC (%)	C'_c	C'_r	OCR
● **TP-6**	**4.0**	**Lean CLAY**	**97**	**26**	**0.098**	**0.014**	**13.9**

GeoStrata

1-D CONSOLIDATION TEST - ASTM D 2435

Micron-Lehi Mixed-Use Development
Micron Technology Inc
Lehi, Utah

Project Number: 704-001

Plate

C - 8