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SOIL, GEOLOGY, & GEOLOGIC HAZARD STUDY
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
PARCEL NO. 44040-00-014
EL PASO COUNTY, COLORADO

Prepared for

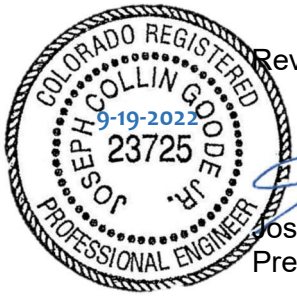
Richard Elliott
812 East Monument Street
Colorado Springs, Colorado 80903

September 14, 2022

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Logan L. Langford, P.G.
Geologist



Reviewed by:

Joseph C. Goode, Jr, P.E.
President

LLL/jhr

Encl.

Entech Job No. 221662
AAprojects/2022/221662 countysoil/geo

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1.0 SUMMARY

Project Location

The project lies in the NE ¼ of Section 4, Township 14 South, Range 64 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located at the southwest corner of Curtis Road and Davis Road, approximately 5 miles southeast of Falcon, Colorado.

Project Description

Total acreage involved in the project is approximately 49 acres. The proposed site development consists of 8 single-family rural residential lots. The development will utilize individual wells and on-site wastewater treatment systems.

Scope of Report

This report presents the results of our geologic investigation, treatment of engineering geologic hazard study, natural features, and wastewater study for individual sewage treatment systems.

Land Use and Engineering Geology

This site was found to be suitable for the proposed development. Areas were encountered where the geologic conditions will impose some constraints on development and land use. These include areas of artificial fill, potentially seasonal shallow groundwater areas, loose or collapsible soils, hydrocompaction, and potentially expansive soils. Based on the proposed development plan, it appears that these areas will have some impact on the development. These conditions will be discussed in greater detail in the report.

In general, it is our opinion that the development can be achieved if the observed geologic conditions on site are either avoided or properly mitigated. All recommendations are subject to the limitations discussed in the report.

2.0 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in portions of the NE $^1/_4$ Section 4, Township 14 South, Range 64 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located at the southwest corner of Curtis Road and Davis Road, approximately 5 miles southeast of Falcon, Colorado. The approximate location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site is gently to moderately sloping. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included grazing and pasture land. Previously several trailers and out buildings exist along the northern portion of this site, a fire had occurred and the trailers burned. The out buildings still exist. The site contains primarily low grasses with some trees in the northern portion of the site around the previous trailer locations. Low areas with internal drainage exist on the site. No major drainages were observed on this site. Site Photographs are included in Appendix A. The locations and directions of the photographs are indicated on Figure 3.

Total acreage involved in the proposed development is approximately 49 acres. A total of 8 rural single-family lots are proposed. The area will be serviced by individual wells and sewage treatment systems. The Development Plan is shown on, Figure 3.

The site was previously investigated as part of a Soil, Geology and Wastewater Study was performed for a property east of the project site by Entech Engineering, Inc. revise date, May 13, 2002 (Reference 1), and a Soil, Geology, and Wastewater Study, Entech Job No. 42455, dated July 22, 2005 (Reference 2). Three percolation borings were previously performed on the site to determine general suitability of the site for construction and the use of on-site wastewater treatment systems. These reports were used in evaluating the site.

As part of this investigation, five test borings were drilled on July 26, 2022, and three tactile test pits were excavated on August 5, 2022. The Test Boring and Test Pit Logs are included in Appendix B, the Laboratory Testing Results are included in Appendix C, and a Summary of the Laboratory Testing Results is presented in Tables 1 and 2.

3.0 SCOPE OF THE REPORT

The scope of the report will include a general geologic analysis utilizing published geologic data. Detailed site-specific mapping will be conducted to obtain general information in respect to major geographic and geologic features, geologic descriptions and their effects on the development of the property.

4.0 FIELD INVESTIGATION

Our field investigation on this site consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The Soil Conservation Service (SCS) survey was also reviewed to evaluate the site. The position of mappable units within the subject property are shown on the Geologic Map. Our mapping procedures involved both field reconnaissance and measurements and air photo reconnaissance and interpretation. The same mapping procedures have also been utilized to produce the Engineering Geology Map which identified pertinent geologic conditions affecting development. The field reconnaissance was performed by personnel of Entech Engineering, Inc. in the previously studied report and on August 5, 2022.

In addition, three test pits and five test borings were performed on the site to determine the general suitability of the site for the use of individual wastewater treatment systems. The locations of the percolation tests are shown on the Development Plan, Test Boring and Test Pit Location Map, Figure 3. The profile hole logs area presented in Appendix B. Results of this testing will be discussed later in this report.

Laboratory testing was also performed on some of the soils to classify and determine the soils engineering characteristics. Laboratory tests include moisture content, ASTM D-2216 grain-size analysis, ASTM D-422, and Atterberg Limits, ASTM D-4318. Swell tests included both FHA Swell Tests and Swell/Consolidation Tests. Results of the laboratory testing are included in Appendix C. A Summary of Laboratory Test Results is presented in Tables 1 and 2.

5.0 SOIL, GEOLOGY AND ENGINEERING GEOLOGY

5.1 General Geology

Physiographically, the site lies in the western portion of the Great Plains Physiographic Province. Approximately 17 miles to the west is a major structural feature known as the Rampart Range Fault. This fault marks the boundary between the Great Plains Physiographic Province and the Southern Rocky Mountain Province. The site exists within the southern edge of a large structural feature known as the Denver Basin. Bedrock in the area tends to be very gently dipping in a northerly direction. The rocks in the area of the site are sedimentary in nature, and typically Tertiary to Upper Cretaceous in age. The bedrock underlying the site consists of the Dawson Arkose Formation. Overlying this formation are unconsolidated deposits of man-made fill and eolian sand deposits of the Quaternary Age. The eolian sands were deposited by wind in the form of low ridges or dunes. The site's stratigraphy will be discussed in more detail in Section 5.3.

5.2 Soil Conservation Survey

The Soil Conservation Service has mapped one soil type on the site (Figure 4) (Reference 3). In general, the soils consist of sandy loam and loamy sand. The soils are described as follows:

Type	Description
97	Truckton sandy loam, 3-9%

Complete descriptions of the soil types are presented in Appendix D. The soils have generally been described to have moderate to rapid permeabilities. The main limitation for these soils is frost action potential. Roads and streets may require special designs. Possible hazards with soil erosion are present on the site. The erosion potential can be controlled with vegetation. The majority of the soils have been described to have moderate erosion hazards.

5.3 Site Stratigraphy

The Corral Bluffs Quadrangle Geology Map showing the site is presented in Figure 5 (Reference 4). The Geology Map prepared for the site is presented in Figure 6. Two mappable units were identified on this site which are described as follows:

- **Qaf** **Artificial Fill of Quaternary Age:** These man-made fill deposits are associated with erosion berms observed on this site.

- **Qes** **Eolian Sand of Quaternary Age:** These are windblown fine grained sands that were deposited by the action of the prevailing winds from the west and northwest. They typically occur as large dune deposits or narrow ridges. The soils are typically tan to brown and have a uniform gradation. The materials tend to have a high permeability and low density.

The bedrock underlying the site is the Dawson Formation of Tertiary to Cretaceous Age. The Dawson Formation typically consists of arkosic sandstone interbedded with fine sandstone, siltstone and claystone or shale. Typically, it is buff to light brown and light gray in color.

The soils listed above were mapped from the *Geologic Map of the Pueblo 1x2 Quadrangle, South-Central Colorado*, distributed by the USGS in 1978 (Reference 2), the *Geologic Map for the Corral Bluffs Quadrangle* by Paul E. Soister in 1968 (Reference 6, Figure 5) and site-specific mapping of the site. The profile holes drilled by Entech Engineering, Inc. were also used in evaluating the site and are included in Appendix B. The Geology Map prepared for the site is presented in Figure 6.

5.4 Soil Conditions

The soils encountered in the Test Borings and Test Pits can be grouped into three general soil and rock types. The soils were classified using the Unified Soil Classification System (USCS). The test pit soils were also classified using the USDA Textural Soil Classification.

Soil Type 1 is a silty sand and very clayey sand (SM, SC). The sand soils were encountered in all of the test borings, and in Test Pit Nos. 2 and 3. The sand was encountered at the existing surface and extending to depths of 3 feet to the termination of the test borings (20 feet bgs). These soils were encountered at loose to medium dense to loose states and at dry to moist conditions. Samples tested had 17 to 37 percent of the soil size particles passing the No. 200 Sieve. Atterberg Limits Testing resulted in a liquid limit of No-Value and a plastic index of Non-Plastic. Sulfate testing resulted in less than 0.01 percent soluble sulfate by weight, indicating negligible potential for below grade concrete degradation due to sulfate attack.

Soil Type 2 is a very sandy clay (CL). The clay soils were encountered in Test Boring Nos. 1 and 3, and in Test Pit Nos. 1 and 2. The clays were encountered at the existing ground surface to depths of 3 to 11 feet bgs in the test borings and at the existing ground surface in the test pits, and extended to depths of 6 to 14 feet bgs. The clay was encountered at firm to stiff consistencies and moist conditions. The samples tested had approximately 53 to 75 percent of the soil size particles passing the No. 200 sieve. Atterberg Limits Testing resulted in a liquid limit of 35 and a plastic index of 21. Swell/Consolidation Testing on a sample of the sandy clay resulted in a volume change of 0.0%, which is in the low expansion range. Sulfate testing resulted in 0.01 percent soluble sulfate by weight, indicating negligible potential for below grade concrete degradation due to sulfate attack.

Soil Type 3 is sandy siltstone and very sandy claystone (ML, CL). The bedrock was encountered in Test Boring Nos. 1 and 3. The bedrock was encountered at depths ranging from 13 to 14 feet bgs and extended to the termination of the borings (20 feet bgs). The bedrock was encountered at hard consistencies and moist conditions. The bedrock had 57 to 96 percent of the soil sized particles passing the No. 200 sieve. Atterberg Limits Testing resulted in liquid limits of 60 to 30 and plastic indexes of 28 to 15. Swell/Consolidation Testing on a sample of the sandy siltstone resulted in a volume change of 1.4%, which is in the low expansion. Sulfate testing resulted in 0.00 to 0.01 percent soluble sulfate by weight, indicating negligible potential for below grade concrete degradation due to sulfate attack.

The Test Borings and Test Pit Logs are presented in Appendix B. Laboratory Test Results are presented in Appendix C. The Laboratory Test Results are summarized in Tables 1 and 2.

5.5 Groundwater

Groundwater or signs of seasonal groundwater were not encountered in the test borings or test pits (Appendix B). Areas of potentially seasonal shallow groundwater have been mapped in low-lying areas on the site and are indicated on the geology map, Figure 6. These areas are discussed in the following section. Fluctuation in groundwater conditions may occur due to variations in rainfall and other factors not readily apparent at this time. Isolated sand layers within the variable soil profile, sometimes only a few feet in thickens and width, can carry water in the subsurface. Additionally, perched water conditions can occur on this site where water can flow through permeable sands overlying less permeable bedrock. Builders and planners should be

cognizant of the potential for the occurrence of such subsurface water features during construction on-site and deal with each individual problem as necessary at the time of construction.

6.0 ENGINEERING GEOLOGY – IDENTIFICATION AND MITIGATION OF GEOLOGIC HAZARDS

As mentioned previously, detailed mapping has been performed on this site to produce an Engineering Geology Map (Figure 6). This map shows the location of various geologic conditions of which the developers should be cognizant during the planning, design and construction stages of the project. These hazards and the recommended mitigation techniques are as follows:

Potentially Seasonal Shallow Groundwater Area – Constraint

In these areas, we would anticipate the potential for periodically high subsurface moisture conditions. The areas of internal drainage are mapped as having the potential for seasonal shallow groundwater on a seasonal basis. These Areas appear to be associated with older blowout features and surrounded by older sand dune ridges. Should construction be necessary in portions of these areas the following precautions should be taken. No areas of the site have been mapped in any floodplain zones, according to Fema Map No. 08041CO785G.

Mitigation: In these locations, foundation in areas subject to severe frost heave potential should penetrate to a sufficient depth so as to discourage the formation of ice lenses beneath foundations. At this location and elevation, a foundation depth for frost protection of 30 inches is recommended. In areas where high subsurface moisture conditions are anticipated periodically, a subsurface perimeter drain will be necessary to help prevent the seepage of water into areas located below grade. Typical drain details are presented in Figure 8 through 10. Any grading in these areas should be done in a manner that directs surface flow around construction to avoid areas of ponded water. Areas of organic material will require removal before any filling is done. Specific recommendations should be made after additional investigation of each building site. The groundwater level may be at sufficient depth in some areas as to not to affect construction.

Artificial Fill – Constraint

These are areas of man-made fill associated with erosion berms on site.

Mitigation: The small erosion berms could be penetrated by foundations. Should any uncontrolled fill be encountered beneath foundations, removal and recompaction ata minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 will be required.

Hydrocompaction – Constraint

Areas in which this hazard has been identified are acceptable as building sites. However, in areas identified for this hazard classification, we anticipate a potential for settlement movements upon saturation of these surficial soils. The low density, uniform grain sized, windblown sand deposits are particularly susceptible to this type of phenomenon.

Mitigation: The potential for settlement movement is directly related to saturation of the soils below the foundation areas. Therefore, good surface and subsurface drainage is extremely critical in these areas in order to minimize the potential for saturation of these soils. The ground surface around all permanent structures should be positively sloped away from the structure to all points, and water must not be allowed to stand or pond anywhere on the site. We recommend that the ground surface within 10 feet of the structures be sloped away with a minimum gradient of ten percent. If this is not possible on the upslope side of the structures, then a well-defined swale should be created to intercept the surface water and carry it quickly and safely around and away from the structures. Roof drains should be made to discharge well away from the structures and into areas of positive drainage. Where several structures are involved, the overall drainage design should be such that water directed away from one structure is not directed against an adjacent building. Planting and watering in the immediate vicinity of the structures, as well as general lawn irrigation, should be minimized.

Collapsible Soils - Constraint

Some of the soils encountered in the profile holes indicated collapsible characteristics such as pinholes and low density. A consolidation of 4.7% was measured on a sample of silt in the Swell/Consolidation Test. These areas are very sporadic, therefore, none have been indicated on the maps. The potential for collapsible soils exists particularly in the eolian sand deposits, however, collapsible soils could be encountered anywhere on the site.

Mitigation: Should collapsible soils be encountered beneath foundations, removal and recompaction of the upper 2 to 4 feet with thorough moisture conditioning at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 will be necessary. If very loose

conditions are encountered at foundation grade, recompaction of the upper 2 feet of soil may also be recommended. Specific recommendations should be made after additional investigation of each building site.

Expansive Soils - Constraint

The site is mapped within an area of windblown sand or silt. This mapping generally has low swell potential, but the upper 6 to 12 inches may have areas with moderate swell potential. Additionally, clay lenses may be encountered in the alluvial deposits on-site. Expansive clays and silt lenses were encountered in the subsurface soils in some of the profile holes drilled on-site. These soils are sporadic; therefore, none have been indicated on the map. These soils can cause differential movement in the structure foundations. These occurrences should be identified and dealt with on an individual basis.

Mitigation: Mitigation of expansive soils on this site will require special foundation design. Overexcavation of the expansive material encountered beneath foundations and replacement with non-expansive material encountered beneath foundations and replacement with non-expansive soils at a minimum of 95% of its maximum Modified Proctor Dry Density STM D-1557 is a suitable mitigation which is common in the area. Floor slabs on expansive soils should be expected to experience movement. Overexcavation and replacement has been successful in minimizing slab movements. Final recommendations should be determined after additional investigation of each building site.

6.1 Relevance of Geologic Conditions to Land Use Planning

The development will be rural single-family residential lots. It is our opinion that the existing geologic and engineering geologic conditions will impose some minor constraints on the proposed development and construction. The most Signiant problem affecting development will be that of hydrocompaction and potentially seasonal shallow groundwater which may be satisfactorily mitigated through proper engineering design and construction practices or avoidance.

The upper soils are typically at loose to moderately dense states. Foundations anticipated for the site are standard spread footings. Areas of collapsible or loose soils may be encountered that require removal and recompaction. The soils should be thoroughly moisture conditioned and

compacted at a minimum of 95% of it maximum Modified Proctor Dry Density, ASTM D-1557. Any uncontrolled fill encountered beneath foundations will also require recompaction.

Typically, the soils in the area are non-expansive, however, lenses of clay can be encountered in the subsurface. Clay soils, which are typically expansive, were encountered in some of the profile holes. If expansive soils are encountered beneath foundations, mitigation may be necessary. Overexcavation of the expansive soil and replacement with non-expansive structural fill compacted at a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 is a typical mitigation used in the area. The need for mitigation should be determined on an individual basis at the time of construction. These soils will not prohibit development.

Areas of hydrocompaction exist on the site where there is the potential for settlement movements upon saturation of surficial soils. Good surface and subsurface drainage is critical and the ground surface should be positively sloped away from structures at all points. Roof drains should be made to discharge well away from structures and planting and watering in the immediate vicinity of structures should be avoided.

Areas of potentially seasonal shallow groundwater have been mapped on-site. these are areas of internal drainage. Drains may be necessary to help prevent the intrusion of water into areas below grade. Groundwater was not encountered in any of the test pits or test borings. Test Pit No. 2 was excavated in a low area. Further investigation is recommended on an individual lot basis prior to construction. The water table may be a sufficient depth to not affect construction.

Previously several trailers and out buildings exist along the northern portion of this site, a fire had occurred and the trailers burned. The out buildings still exist. It is our understanding they are to be removed prior to construction. All foundation components and septic field should be completely removed prior to construction.

In summary, development of the site can be achieved if the items mentioned above are mitigated. These items can be mitigated through proper design and construction.

7.0 ROADWAY AND EMBANKMENT CONSTRUCTION RECOMMENDATIONS

In general, the site soils are suitable for the proposed roadways and embankments. If excavations encroach on the groundwater level unstable soil conditions may be encountered. Excavation of saturated soils will be difficult with rubber-tired equipment. Stabilization using shot rock or geogrids may be necessary.

Any areas to receive fill should have all topsoil, organic material or debris removed. Prior to fill placement Entech should observe the subgrade. Fill must be properly benched and compacted to minimize potentially unstable conditions in slope areas. Fill slopes should be 3:1. The subgrade should be scarified and moisture conditioned to within 2% of optimum moisture content and compacted to a minimum of 95% of its maximum Modified Proctor Dry Density, ASTM D-1557 (non-cohesive soils), moisture conditioned to within 2% of optimum moisture content and compacted to a minimum of 95% of its maximum Standard Proctor Dry Density, ASTM D-698 (cohesive soils) for placing new fill. Areas receiving fill may require stabilization with rock or fabric if shallow groundwater conditions are encountered.

New fill should be placed in thin lifts not to exceed 6 inches after compaction while maintaining at least 95% of its maximum Modified Proctor Dry Density, ASTM D-1557. These materials should be placed at a moisture content conducive to compaction, usually 0 to ±2% of Proctor optimum moisture content. The placement and compaction of fill should be observed and tested by Entech during construction. Entech should approve any import materials prior to placing or hauling them to the site. Additional investigation will be required for pavement designs once roadway grading is completed and utilities are installed.

8.0 ECONOMIC MINERAL RESOURCES

Some of the sandy materials on-site could be considered a low grade sand resource. According to the El Paso County Aggregate Resource Evaluation Map (Reference 7), the area of the site is mapped as upland deposits. According to the Atlas of Sand, Gravel and Quarry Aggregate Resources, Colorado Front Range Counties distributed by the Colorado Geological Survey (Reference 8) the site is mapped as U3 – Upland deposits: sand, fine aggregates. According to the Evaluation of Mineral and Mineral Fuel Potential (Reference 9), the area of the site has been mapped as "Fair" for industrial minerals. Considering the silty nature of much of the materials encountered on site and abundance of similar materials through the region, they would be considered to have little significance as an economic resource.

According to the Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands (Reference 9), the site is mapped within the Denver Basin Coal Region. The area of the site has been mapped as "Fair" for coal resources. No metallic mineral resources have been mapped on the site (Reference 9).

The site has been mapped as "Fair to Good" for oil and gas resources (Reference 9). No oil or gas fields have been discovered in the area of the site. Wells have been drilled southwest of the site, but no no oil or gas was reported and they were plugged and abandoned. The sedimentary rocks in the area lacked the essential elements for oil or gas; therefore, it would not be considered a significant resource.

9.0 EROSION CONTROL

The soil types observed on the site are mildly to highly susceptible to wind erosion, and moderately to highly susceptible to water erosion. A minor wind erosion and dust problem may be created for a short time during and immediately after construction. Should the problem be considered severe enough during this time, watering of the cut areas or the use of chemical palliative may be required to control dust. However, once construction has been completed and vegetation reestablished, the potential for wind erosion should be considerably reduced.

With regard to water erosion, loosely compacted soils will be the most susceptible to water erosion, residually weathered soils and weathered bedrock materials become increasingly less susceptible to water erosion. For typical soils observed on this site, allowable velocities for unvegetated and unlined earth channels for the soils on this site would be on the order of2 to 3 feet/second, depending upon the sediment load carried by the water. Permissible velocities may be increased through the use of vegetation to something on the order of 4 to 7 feet/second, depending upon the type of vegetation established. Should the anticipated velocities exceed these values, some form of channel lining material may be required to reduce erosion potential. These might consist of some of the synthetic channel lining materials on the market or conventional riprap. In cases where ditch-lining materials are still insufficient to control erosion, small check dams or sediment traps may be required. The check dams will serve to reduce flow velocities, as well as provide small traps for containing sediment. The determination of the amount, location and placement of ditch linings, check dams and of the special erosion control features should be performed by or in conjunction with the drainage engineer who is more familiar with the flow quantities and velocities.

Cut and fill slope areas will be subjected primarily to sheetwash and rill erosion. Unchecked rill erosion can eventually lead to concentrated flows of water and gully erosion. The best means to combat this type of erosion is, where possible, the adequate re-vegetation of cut and fill slopes. Cut and fill slopes having gradients more than three (3) horizontal to one (1) vertical become increasingly more difficult to revegetate successfully. Therefore, recommendations pertaining to the vegetation of the cut and fill slopes may require input from a qualified landscape architect and/or the Natural Resource Conservation Service (previously the Soil Conservation Service).

10.0 CLOSURE

It is our opinion that the existing geologic engineering and geologic conditions will impose some constraints on development and construction of the site. The majority of these conditions can be avoided by construction. The proposed development and use is consistent with anticipated geologic and engineering geologic conditions.

It should be pointed out that because of the nature of data obtained by random sampling of such variable and nonhomogeneous materials as soil and rock, it is important that we be informed of any differences observed between surface and subsurface conditions encountered in construction and those assumed in the body of this report. Individual investigations for building sites and septic systems will be required prior to construction. Construction and design personnel should be made familiar with the contents of this report. Reporting such discrepancies to Entech. Engineering, Inc. soon after they are discovered would be greatly appreciated and could possibly help avoid construction and development problems.

This report has been prepared for the Richard Elliott for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

We trust that this report has provided you with all the information that you required. Should you require additional information, please do not hesitate to contact Entech Engineering, Inc.

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TABLES

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

CLIENT RICHARD ELLIOTT
PROJECT FALCON ACRES
JOB NO. 221662

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/ CONSOL (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
1	2	10			29.4	NV	NP	<0.01			SM	SAND, SILTY
1	4	2-3			36.9						SM	SAND, SILTY
1	5	5			17.2						SM	SAND, SILTY
2	3	5	11.2	110.2	52.9	35	21	0.01		0.0	CL	CLAY, VERY SANDY
3	1	15	33.1	86.6	95.5	60	28	0.01		1.4	MH	SILTSTONE, SANDY
3	3	20			57.3	30	15	0.00			CL	CLAYSTONE, VERY SANDY

TABLE 2

SUMMARY OF LABORATORY TEST RESULTS

CLIENT RICHARD ELLIOTT
PROJECT FALCON ACRES
JOB NO. 221662

SOIL TYPE	TEST PIT NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT (%)	PLASTIC INDEX (%)	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/ CONSOL (%)	UNIFIED CLASSIFICATION	SOIL DESCRIPTION
1	TP-3	4			27.0						SM	SAND, SILTY
1	TP-2	2.5			49.1						SC	SAND, VERY CLAYEY
2	TP-1	1			75.1						CL	CLAY, SANDY

Table 3: Summary of Waste Water Treatment Conditions

Test Pit No.	Depth to Refusal (ft.)	LIMITING LAYER	Engineered Design Required (Y/N)
1	>8	4A	Y
2	>8	4A	Y
3	>8	3	N

FIGURES

ENTECH ENGINEERING, INC.
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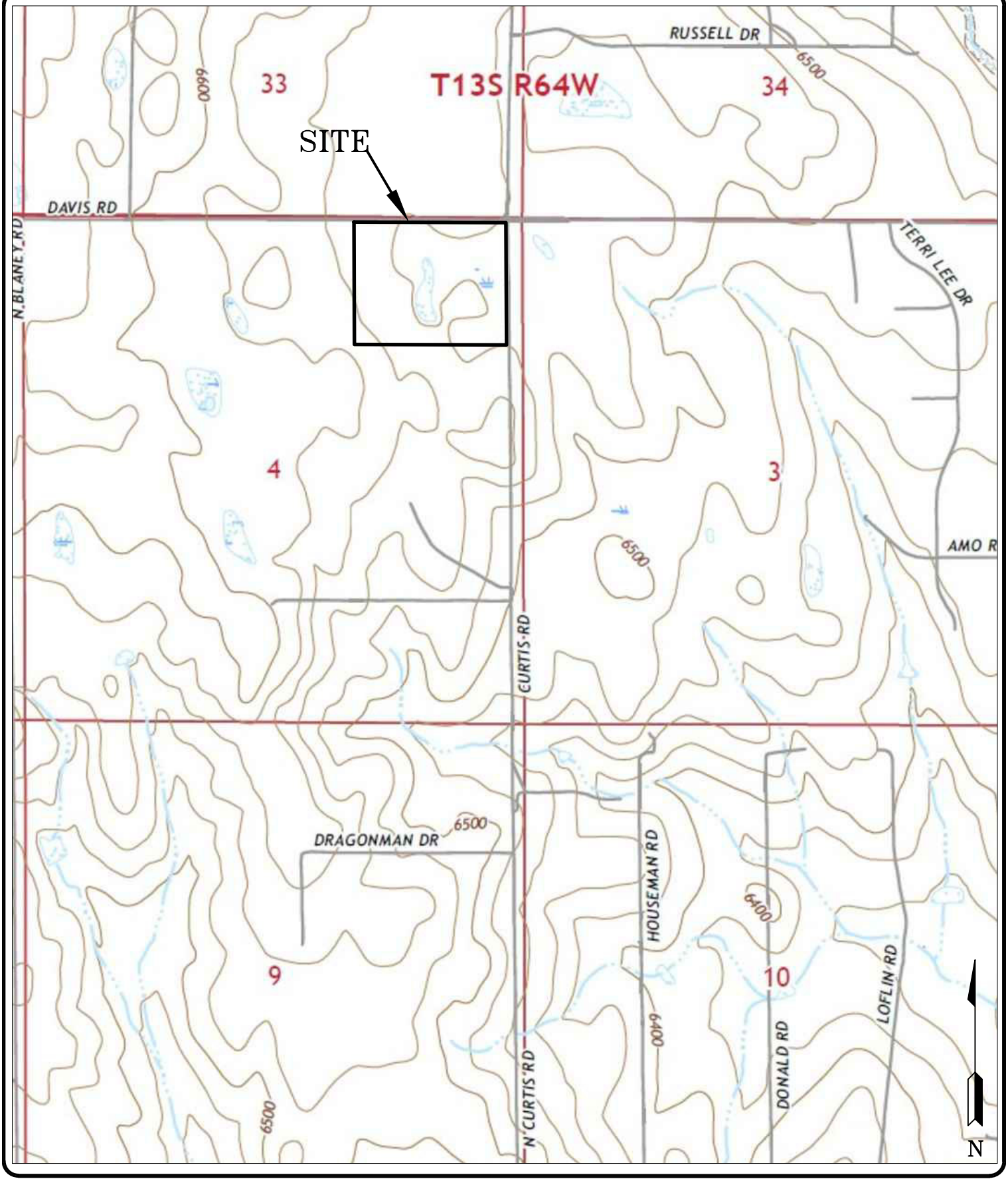
VICINITY MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
JHR	8/10/22	LLL	

JOB NO.: 221662

FIG NO.: 1



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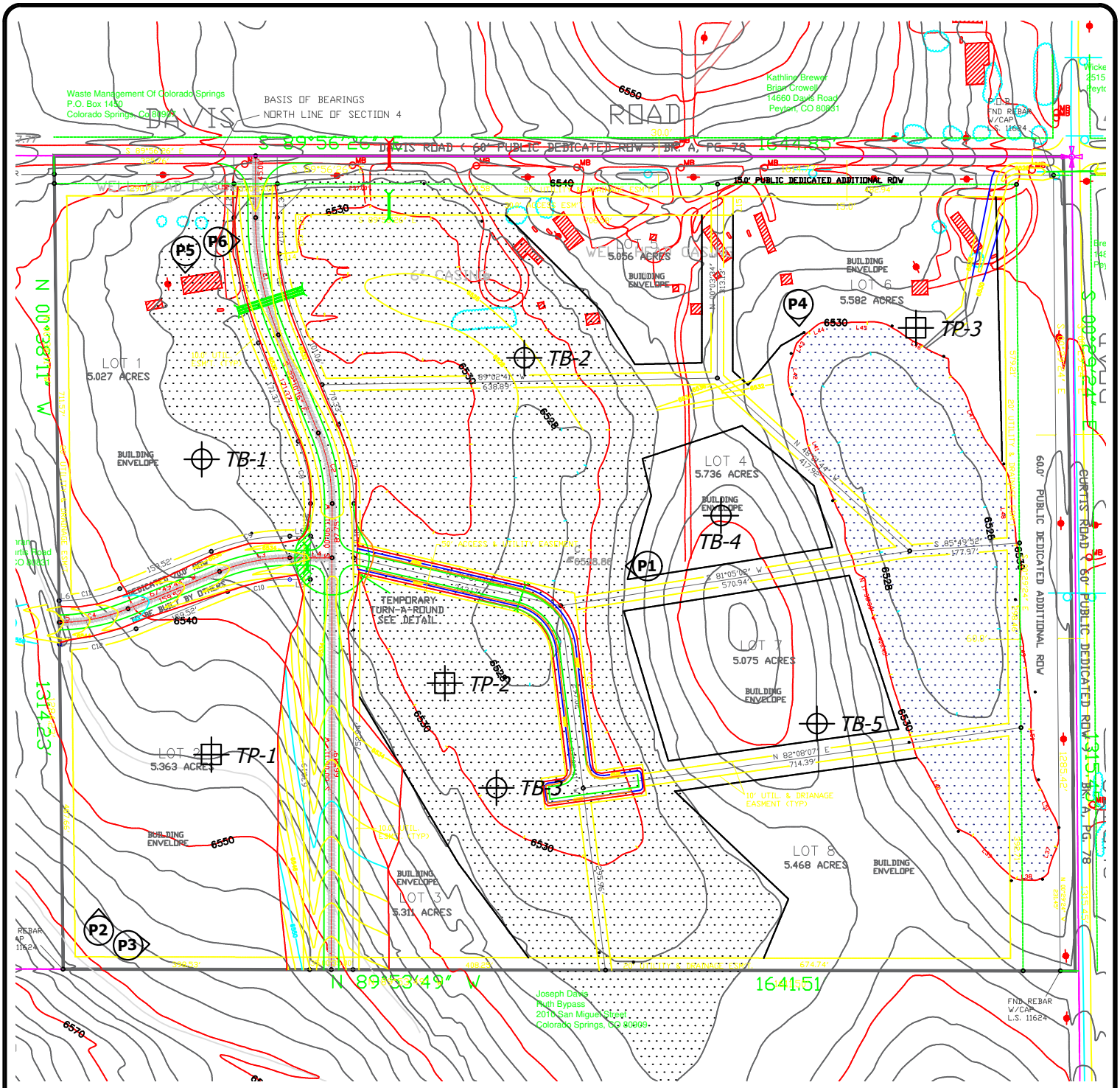
505 ELKTON DRIVE
COLORADO SPRINGS, CO. 80907 (719) 531-5599

USGS MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
JHR	8/10/22	LLL	

JOB NO.: 221662

FIG NO.: 2



TB- APPROXIMATE TEST BORING LOCATION AND NUMBER

TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

P1 - APPROXIMATE PHOTOGRAPH LOCATION AND DIRECTION

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COLORADO SPRINGS, CO. 80907 (719) 531-5599

SITE PLAN/TESTING LOCATION MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
LLL	8/10/22		

JOB NO.: 221662

FIG NO.: 3

N

ENTECH
ENGINEERING, INC.
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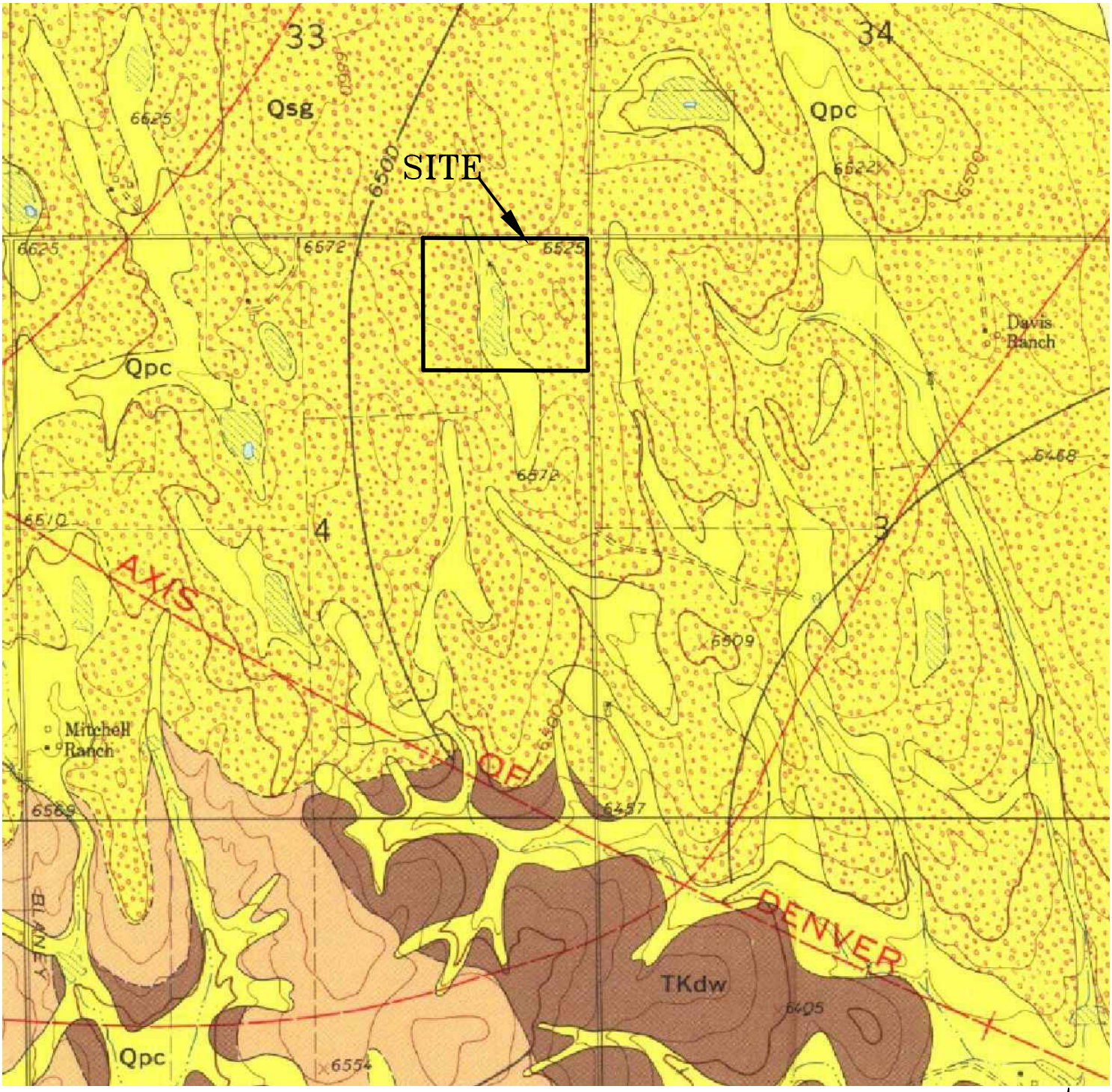
COLORADO SPRINGS, CO. 80907 (719) 531-5599

SOIL SURVEY MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
JHR	8/10/22	LLL	

JOB NO.: 221662

FIG NO.: 4



N

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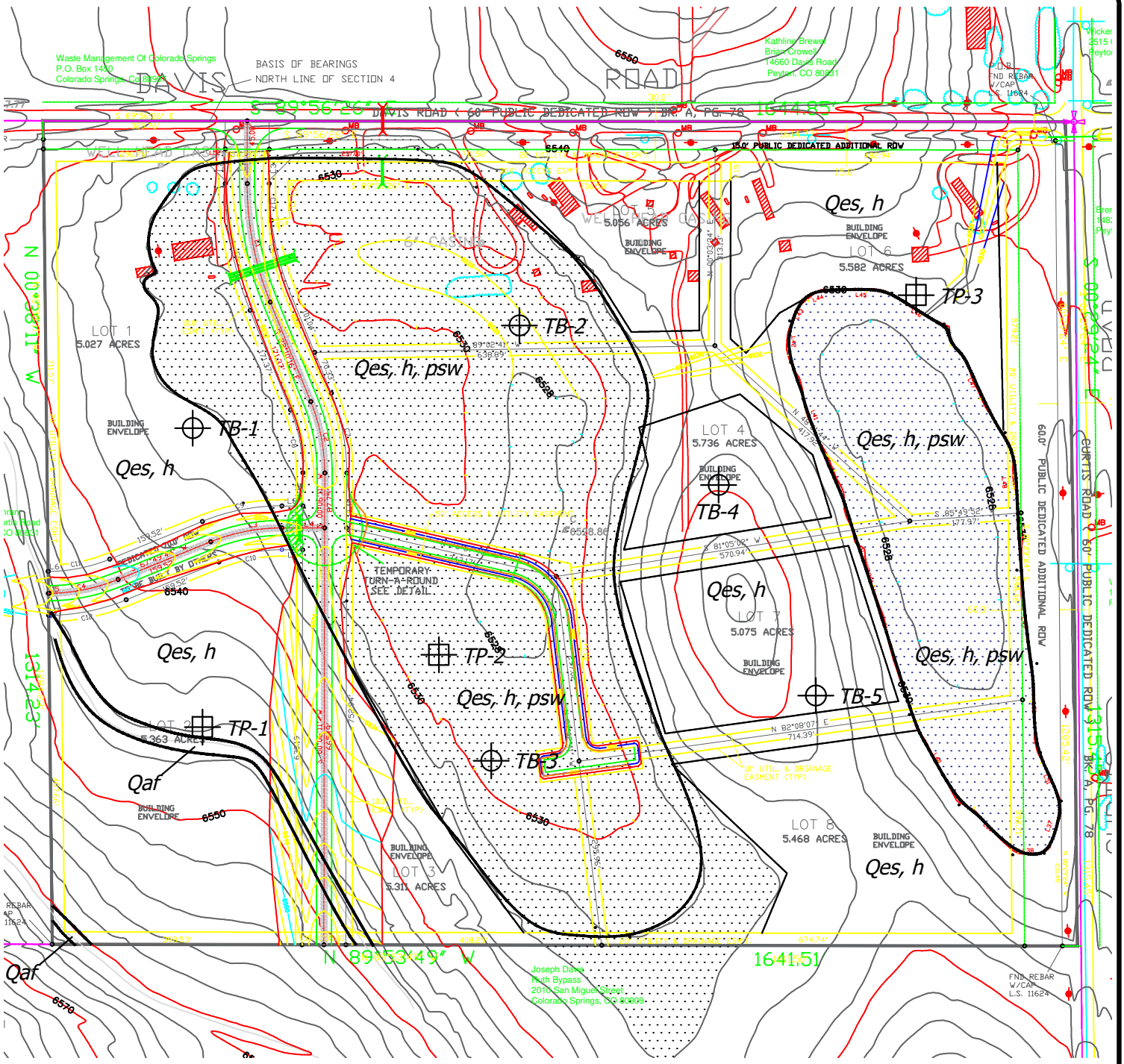
COLORADO SPRINGS, CO. 80907 (719) 531-5599

CORRAL BLUFFS QUADRANGLE GEOLOGIC MAP
FALCON ACRES
NORTH CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
JHR	8/10/22	LLL	

JOB NO.: 221662

FIG NO.: 5



LEGEND

Qaf - Artificial Fill of Quaternary Age:
Man made fill deposits

Qes - Eolian Sand of Quaternary Age:
Wind blown sand deposits

h - hydrocompaction

psw - potentially seasonal shallow groundwater

TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

TB- APPROXIMATE TEST BORING LOCATION AND NUMBER

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GEOLOGY/ENGINEERING GEOLOGY MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
LLL	8/10/22		

JOB NO.: 221662

FIG NO.: 6

N

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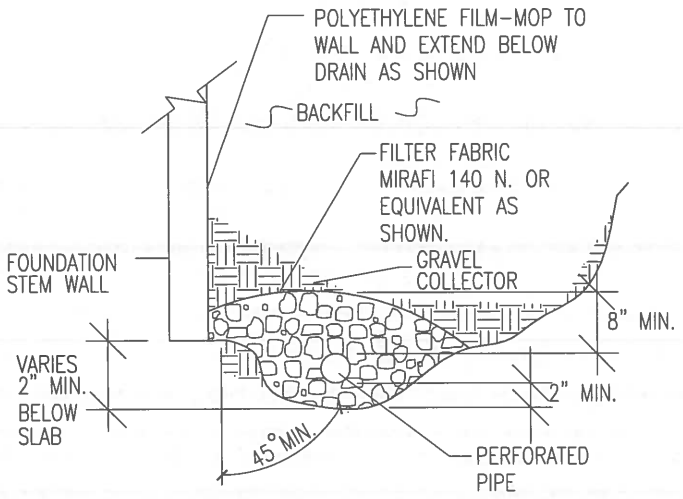
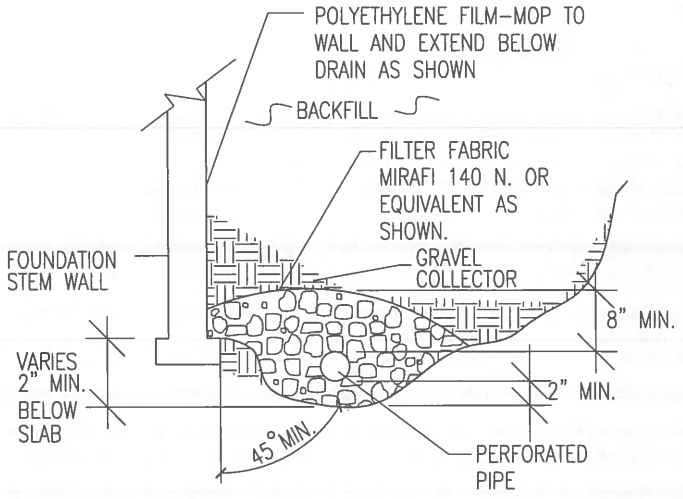
FEMA FLOODPLAIN MAP
FALCON ACRES
CURTIS ROAD AND DAVIS ROAD
EL PASO COUNTY, CO.
FOR: RICHARD ELLIOTT

DRAWN:	DATE:	CHECKED:	DATE:
LLL	8/10/22		

JOB NO.: 221662

FIG NO.: 7





NOTES:

–GRAVEL SIZE IS RELATED TO DIAMETER OF PIPE PERFORATIONS–85% GRAVEL GREATER THAN 2x PERFORATION DIAMETER.

–PIPE DIAMETER DEPENDS UPON EXPECTED SEEPAGE. 4–INCH DIAMETER IS MOST OFTEN USED.

–ALL PIPE SHALL BE PERFORATED PLASTIC. THE DISCHARGE PORTION OF THE PIPE SHOULD BE NON–PERFORATED PIPE.

–FLEXIBLE PIPE MAY BE USED UP TO 8 FEET IN DEPTH, IF SUCH PIPE IS DESIGNED TO WITHSTAND THE PRESSURES. RIGID PLASTIC PIPE WOULD OTHERWISE BE REQUIRED.

–MINIMUM GRADE FOR DRAIN PIPE TO BE 1% OR 3 INCHES OF FALL IN 25 FEET.

–DRAIN TO BE PROVIDED WITH A FREE GRAVITY OUTFALL, IF POSSIBLE. A SUMP AND PUMP MAY BE USED IF GRAVITY OUT FALL IS NOT AVAILABLE.

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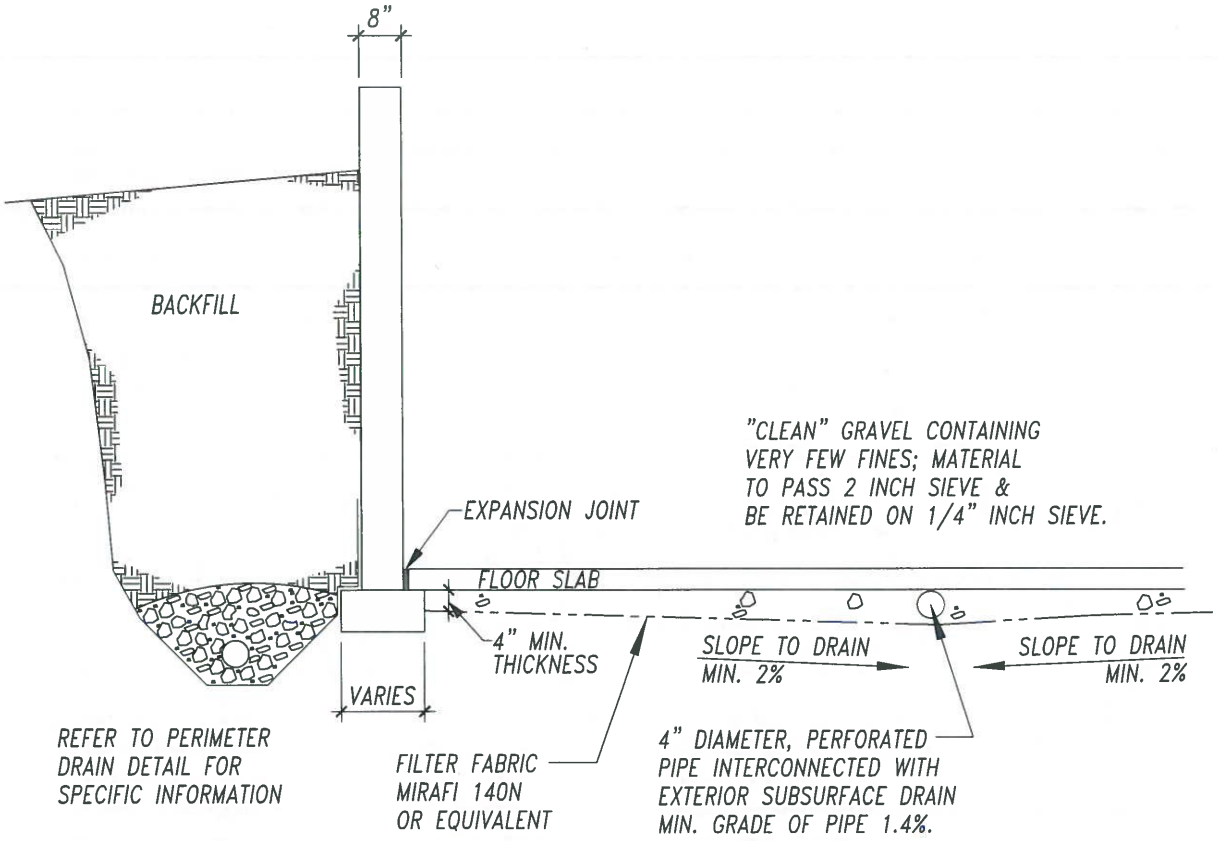
PERIMETER DRAIN DETAIL

DRAWN:	DATE:	DESIGNED:	CHECKED:

JOB NO.: 221662

FIG NO.: 8



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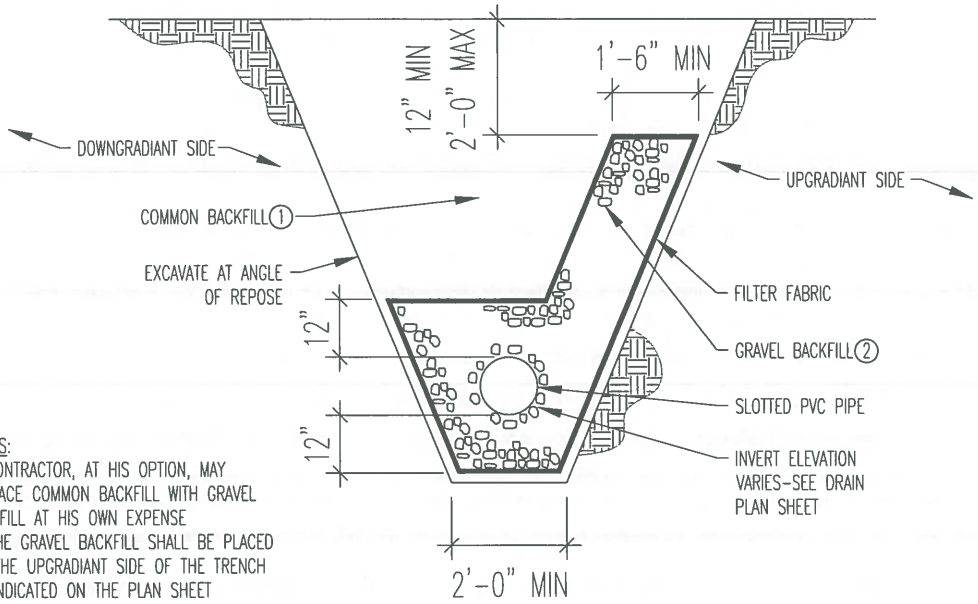
TYP. UNDERSLAB DRAINAGE LAYER (CAPILLARY BREAK)

DRAWN BY:	DATE:	DESIGNED BY:	CHECKED:

JOB NO.: 221662

FIG NO.: 9

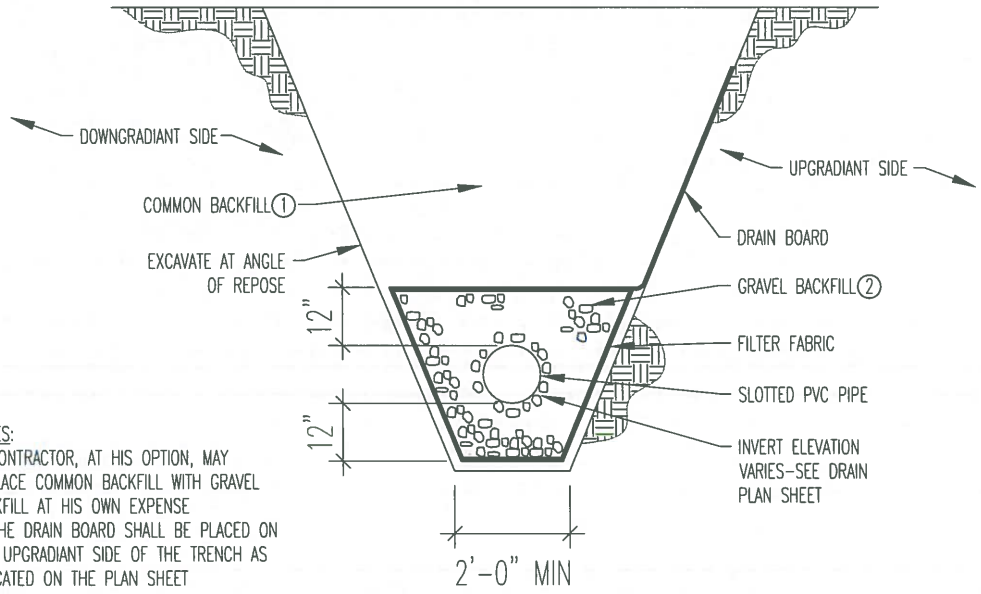


NOTES:
1. CONTRACTOR, AT HIS OPTION, MAY REPLACE COMMON BACKFILL WITH GRAVEL BACKFILL AT HIS OWN EXPENSE
2. THE GRAVEL BACKFILL SHALL BE PLACED ON THE UPGRADIANT SIDE OF THE TRENCH AS INDICATED ON THE PLAN SHEET

EXTEND PIPE TO DAYLIGHT

INTERCEPTOR DRAIN DETAIL

N.T.S.



NOTES:
1. CONTRACTOR, AT HIS OPTION, MAY REPLACE COMMON BACKFILL WITH GRAVEL BACKFILL AT HIS OWN EXPENSE
2. THE DRAIN BOARD SHALL BE PLACED ON THE UPGRADIANT SIDE OF THE TRENCH AS INDICATED ON THE PLAN SHEET

EXTEND PIPE TO DAYLIGHT

INTERCEPTOR DRAIN DETAIL

N.T.S.

ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, CO. 80907 (719) 531-5599

INTERCEPTOR DRAIN DETAIL

DRAWN BY:	DATE:	DESIGNED:	CHECKED:

JOB NO.: 221662

FIG. NO.: 10

APPENDIX A: Site Photographs

1

Looking west from the central portion of the site.

August 5, 2022

2

Looking north from the southwest portion of the site.

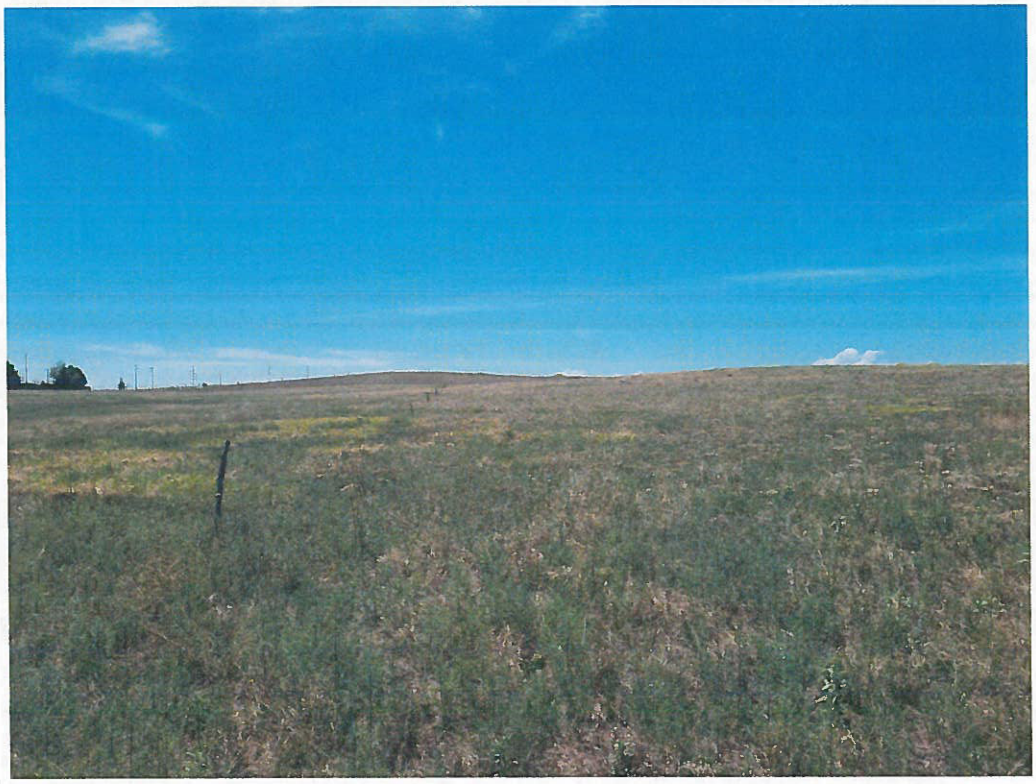
August 5, 2022

Job No. 221662

3

Looking east from the southwest corner of the site.

August 5, 2022



4

Looking south from the southwest site corner

August 5, 2022

Job No. 221662

5

Looking south from the northwest portion of the site.

August 5, 2022

6

Looking east from the northwest portion of the site.

August 5, 2022

Job No. 221662

APPENDIX B: Test Boring and Test Pit Logs

TEST BORING NO. 1
DATE DRILLED 7/26/2022
Job # 221662

REMARKS

DRY TO 19', 7/28/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			19	9.1	1
5			8	6.0	1
10			25	15.4	1
					2
15			50	27.6	3
20			50/9"	12.9	3

SAND, SILTY, FINE TO COARSE GRAINED, BROWN TO TAN, MEDIUM DENSE TO LOOSE, MOIST

CLAY, SANDY, TAN

SILTSTONE, SANDY, TAN, HARD, MOIST

TEST BORING NO. 2
DATE DRILLED 7/26/2022
CLIENT RICHARD ELLIOTT
LOCATION FALCON ACRES

REMARKS

DRY TO 19', 7/28/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			16	4.2	1
5			13	5.7	1
10			13	7.6	1
15			18	11.1	1
20			12	23.6	1

SAND, SILTY, FINE TO COARSE GRAINED, BROWN TO TAN, MEDIUM DENSE, MOIST

ENTECH
ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

TEST BORING LOG

DRAWN:	DATE:	CHECKED: JHR	DATE: 8-5-22

JOB NO.: 221662
FIG NO.: B-1

TEST BORING NO. 3
DATE DRILLED 7/26/2022
Job # 221662

REMARKS

DRY TO 19', 7/28/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			48	9.1	1
5			34	8.8	2
10			18	21.3	1
15			50/5"	20.8	3
20			50/4"	14.6	3

SAND, SILTY, FINE TO COARSE GRAINED, DARK BROWN, DENSE, MOIST

CLAY, SANDY, TAN, VERY STIFF, MOIST

SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE, MOIST

CLAYSTONE, VERY SANDY, BROWN, HARD, MOIST

TEST BORING NO. 4
DATE DRILLED 7/23/2022
CLIENT RICHARD ELLIOTT
LOCATION FALCON ACRES

REMARKS

DRY TO 20', 7/28/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			23	4.2	1
5			21	3.1	1
10			17	5.1	1
15			19	6.8	1
20			38	6.4	1

SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE TO DENSE, MOIST

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505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

TEST BORING LOG

DRAWN:	DATE:	CHECKED: JHR	DATE: 8-5-22

JOB NO.: 221662
FIG NO.: B-2

TEST BORING NO. 5
DATE DRILLED 7/23/2022
Job # 221662

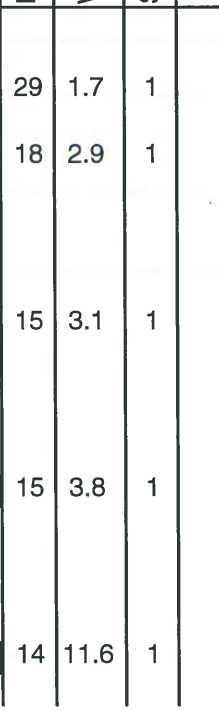
TEST BORING NO.
DATE DRILLED
CLIENT RICHARD ELLIOTT
LOCATION FALCON ACRES

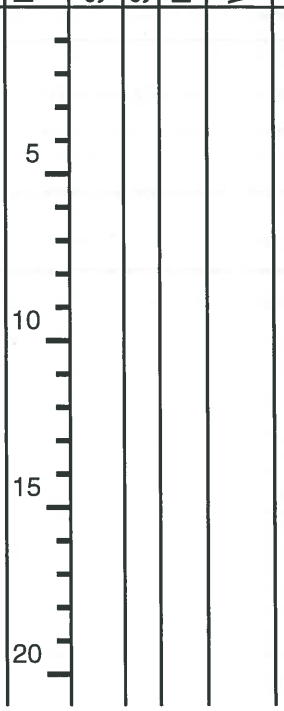
REMARKS

DRY TO 20', 7/28/22

REMARKS

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	SAND, SILTY, FINE TO COARSE GRAINED, TAN, MEDIUM DENSE TO DENSE, MOIST				
			29	1.7	1
5			18	2.9	1
10			15	3.1	1
15			15	3.8	1
20			14	11.6	1





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COLORADO SPRINGS, COLORADO 80907

TEST BORING LOG

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662
FIG NO.: B-3

TEST PIT NO. 1
DATE EXCAVATED 8/5/2022
Job # 221662

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
topsoil, sandy clay loam, brown, moist	1					
	2					
sandy clay, fine to medium grained, brown, moist	3			ma		4A
	4					
	5			ma		4A
	6					
sandy loam, fine to coarse grained, brown, moist	7			ma		2A
	8					
	9					
	10					

TEST PIT NO. 2
DATE EXCAVATED 8/5/2022
CLIENT RICHARD ELLIOT
LOCATION FALCON ACRES

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
Refusal @ 6-feet						
topsoil, sandy clay loam, brown, moist	1					
	2					
sandy clay, fine to medium grained, dark brown, moist	3			ma		4A
	4					
sandy clay, fine to medium grained, dark brown, moist	5			bl	s	4
	6					
	7					
	8					
	9					
	10					

Soil Structure Shape
granular - gr
platy - pl
blocky - bl
prismatic - pr
single grain - sg
massive - ma

Soil Structure Grade
weak - w
moderate - m
strong - s
loose - l

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COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

DRAWN:	DATE:	CHECKED:	DATE:
jhr	8/10/22	JHR	8-6-22

JOB NO.: 221662
FIG NO.: B-4

TEST PIT NO. 3
DATE EXCAVATED 8/5/2022
Job # 221662

DATE EXCAVATED 8/5/2022
CLIENT RICHARD ELLIOT
LOCATION FALCON ACRES

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
topsoil, sandy clay loam, brown, moist	1					
sandy clay loam, fine to coarse grained, dark brown, moist	2			gr	m	3
	3					
	4			gr	m	3
	5					
	6			gr	m	3
	7					
	8					
	9					
	10					

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	USDA Soil Type
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					

Soil Structure Shape
granular - gr
platy - pl
blocky - bl
prismatic - pr
single grain - sg
massive - ma

Soil Structure Grade
weak - w
moderate - m
strong - s
loose - l

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COLORADO SPRINGS, COLORADO 80907

TEST PIT LOG

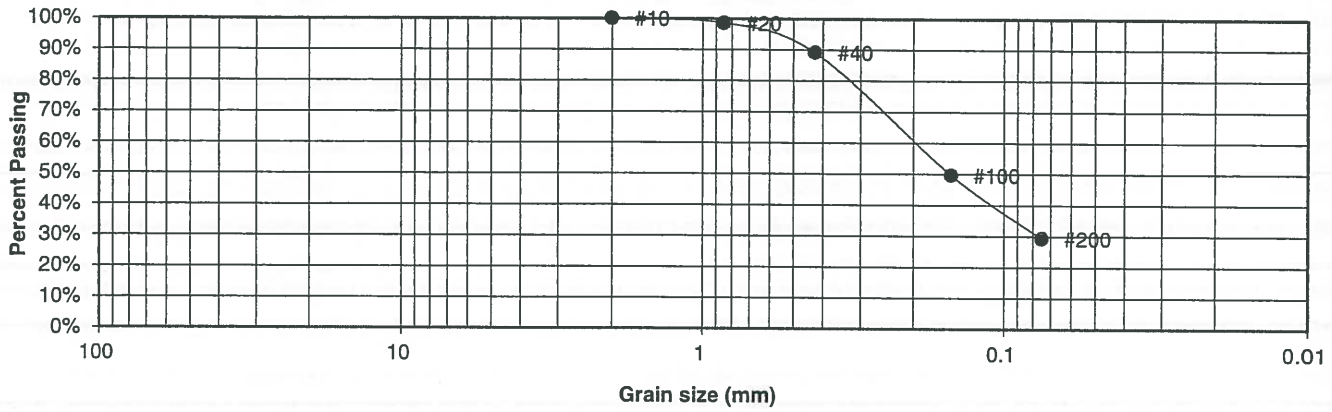
DRAWN:	DATE:	CHECKED:	DATE:
jhr	8/10/22	JHR	8-5-22

JOB NO.: 221662
FIG NO.: B-5

APPENDIX C: Laboratory Test Results

UNIFIED CLASSIFICATION	SM	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	1	PROJECT	FALCON ACRES
TEST BORING #	2	JOB NO.	221662
DEPTH (FT)	10	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	98.6%
40	89.1%
100	49.7%
200	29.4%

Atterberg Limits

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

Swell

Moisture at start	
Moisture at finish	
Moisture increase	
Initial dry density (pcf)	
Swell (psf)	

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505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

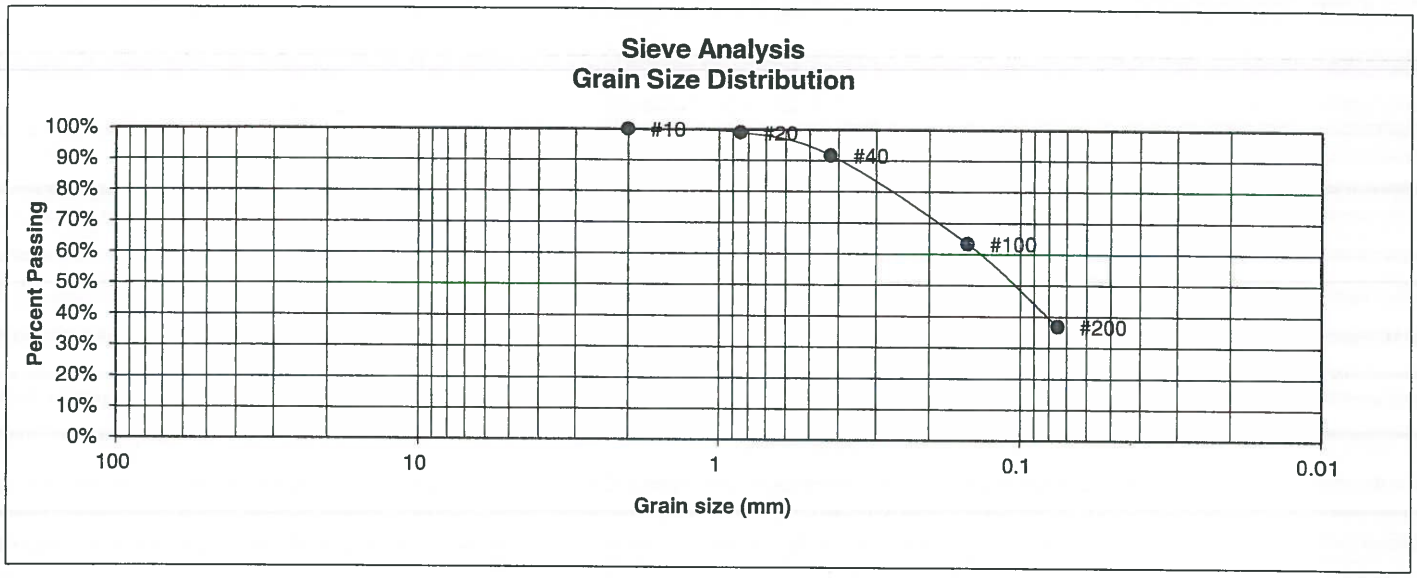
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: C-1

UNIFIED CLASSIFICATION	SM	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	1	PROJECT	FALCON ACRES
TEST BORING #	4	JOB NO.	221662
DEPTH (FT)	2-3	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	98.9%
40	91.6%
100	63.4%
200	36.9%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)

ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

LABORATORY TEST RESULTS

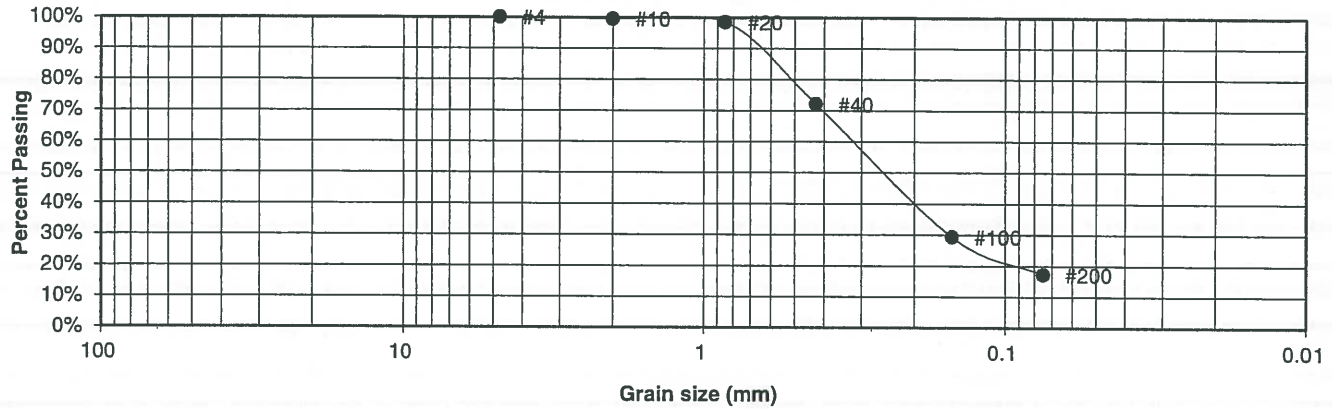
DRAWN:	DATE:	CHECKED:	DATE:
		8-5-22	JHR

JOB NO.: 221662

FIG NO.: C-2

UNIFIED CLASSIFICATION	SM	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	1	PROJECT	FALCON ACRES
TEST BORING #	5	JOB NO.	221662
DEPTH (FT)	5	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.5%
20	98.5%
40	72.1%
100	29.3%
200	17.2%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)

ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

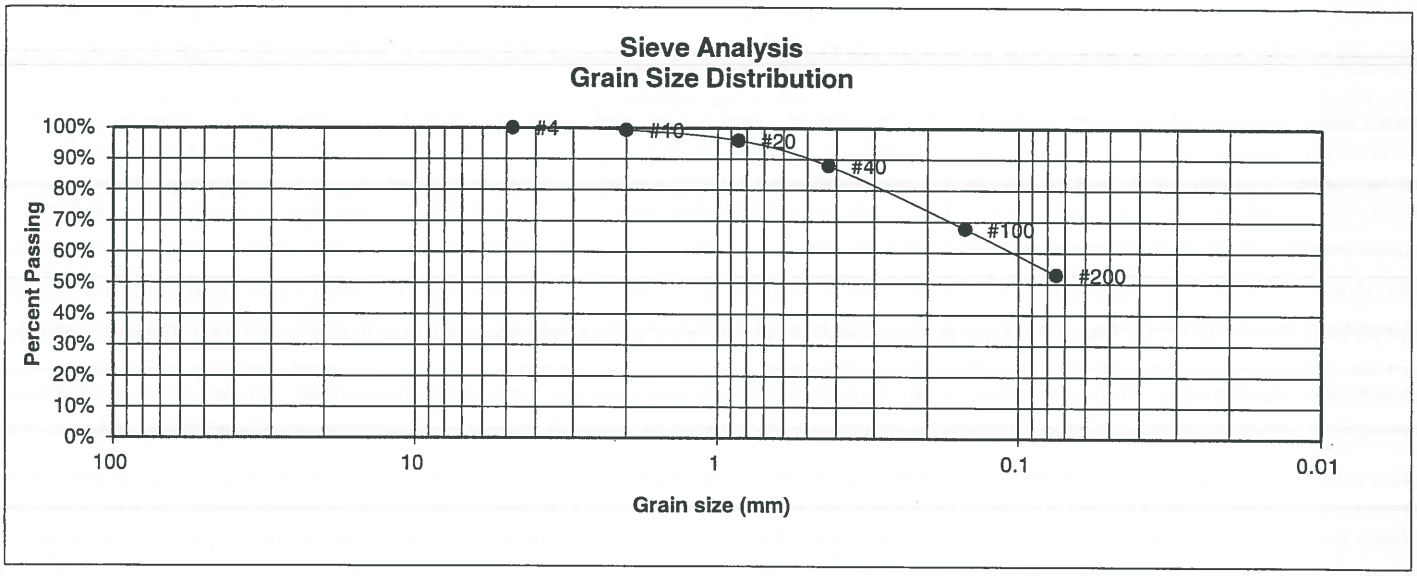
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: C-3

UNIFIED CLASSIFICATION	CL	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	2	PROJECT	FALCON ACRES
TEST BORING #	3	JOB NO.	221662
DEPTH (FT)	5	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.3%
20	96.0%
40	87.9%
100	67.7%
200	52.9%

Atterberg Limits	
Plastic Limit	14
Liquid Limit	35
Plastic Index	21

Swell	
Moisture at start	
Moisture at finish	
Moisture increase	
Initial dry density (pcf)	
Swell (psf)	

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505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

LABORATORY TEST RESULTS

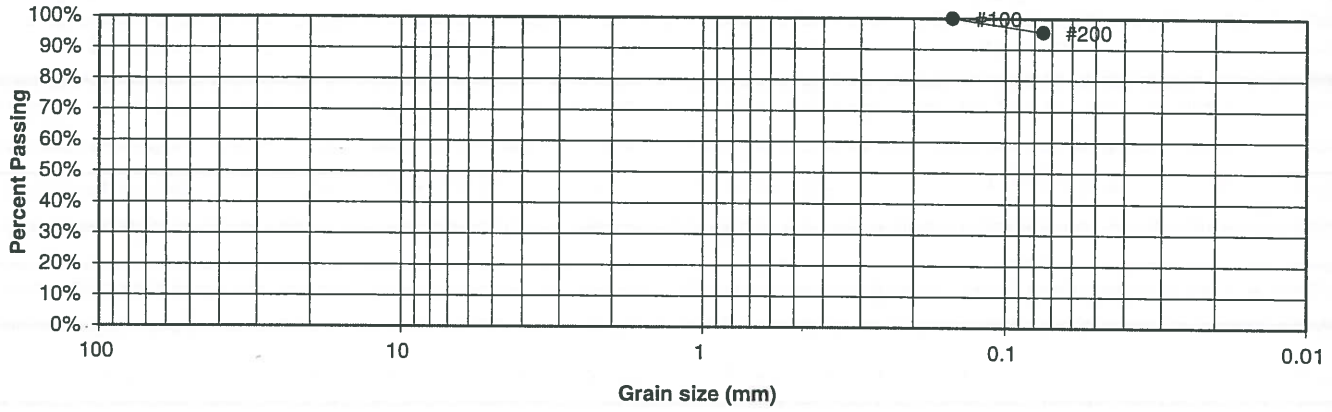
DRAWN:	DATE:	CHECKED:	DATE:
		SMR	8-5-22

JOB NO.: 221662

FIG NO.: C-4

UNIFIED CLASSIFICATION	MH	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	3	PROJECT	FALCON ACRES
TEST BORING #	1	JOB NO.	221662
DEPTH (FT)	15	TEST BY	BL

Sieve Analysis
Grain Size Distribution



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	
20	
40	
100	100.0%
200	95.5%

Atterberg Limits

Plastic Limit	32
Liquid Limit	60
Plastic Index	28

Swell

Moisture at start	
Moisture at finish	
Moisture increase	
Initial dry density (pcf)	
Swell (psf)	

ENTECH
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505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

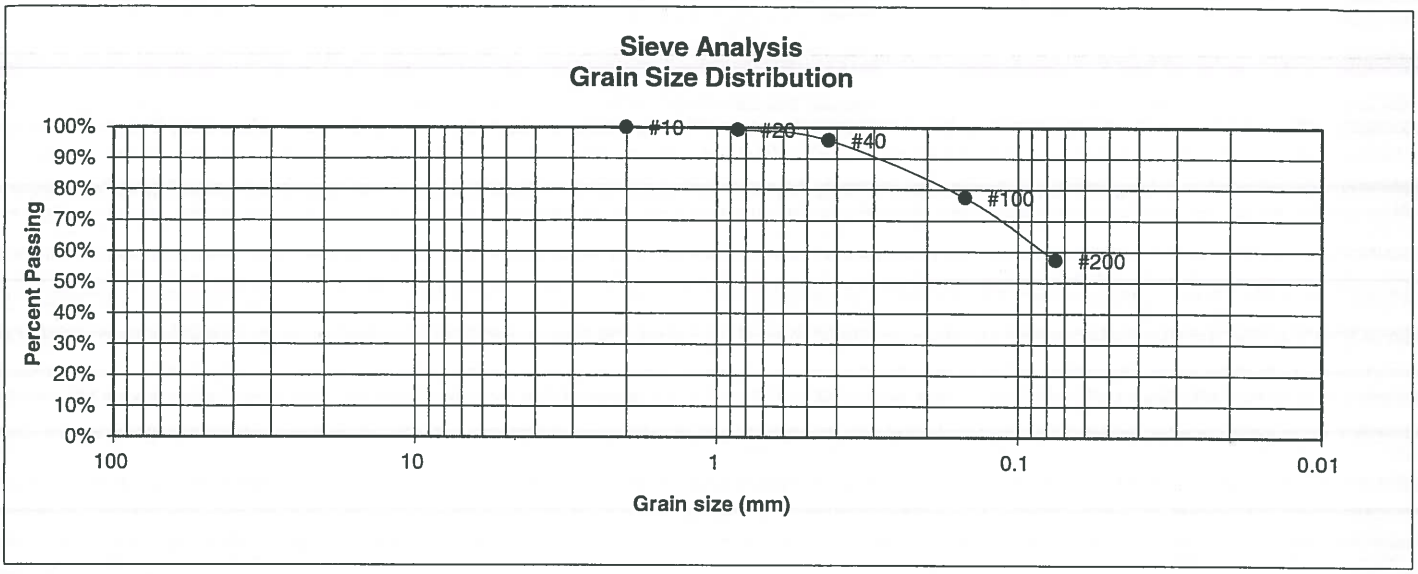
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: C-5

UNIFIED CLASSIFICATION	CL	CLIENT	RICHARD ELLIOTT
SOIL TYPE #	3	PROJECT	FALCON ACRES
TEST BORING #	3	JOB NO.	221662
DEPTH (FT)	20	TEST BY	BL



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	99.3%
40	95.9%
100	77.5%
200	57.3%

Atterberg Limits	
Plastic Limit	15
Liquid Limit	30
Plastic Index	15

Swell	
Moisture at start	
Moisture at finish	
Moisture increase	
Initial dry density (pcf)	
Swell (psf)	

ENTECH
ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

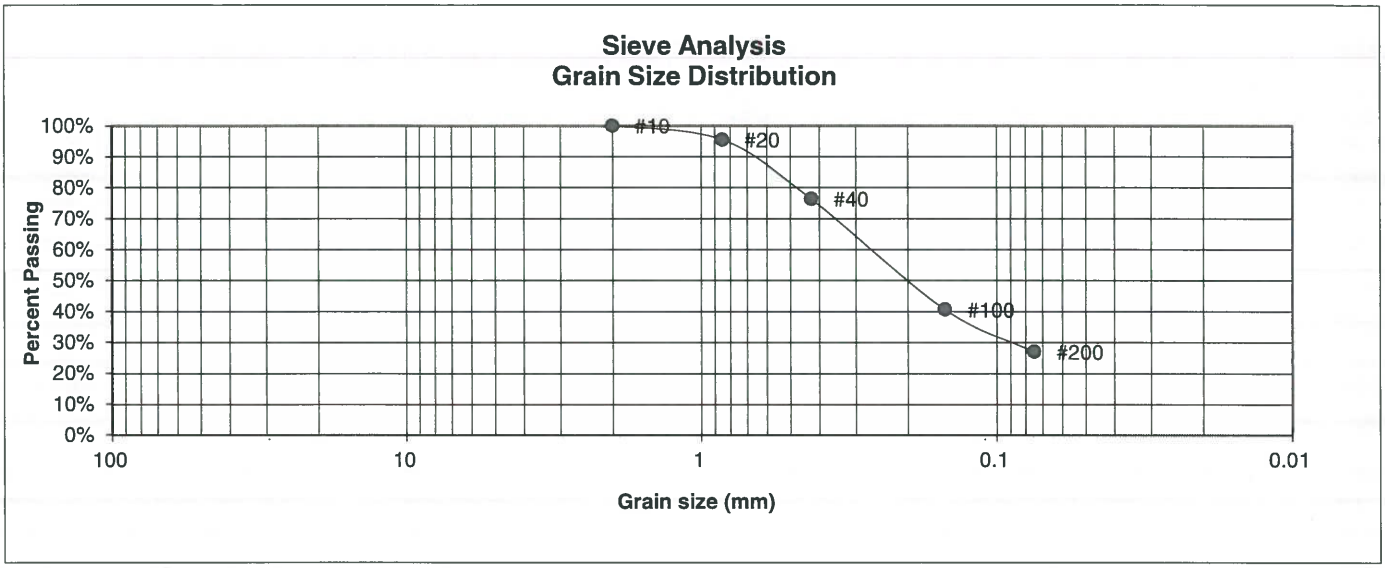
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: L-6

BORING NO.	TP-3	UNIFIED CLASSIFICATION	SM	TEST BY	BL
DEPTH(ft)	4	AASHTO CLASSIFICATION		JOB NO.	221662
CLIENT	RICHARD ELLIOTT				
PROJECT	FALCON ACRES				



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	
10	100.0%
20	95.5%
40	76.3%
100	40.6%
200	27.0%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)

ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, COLORADO 80907

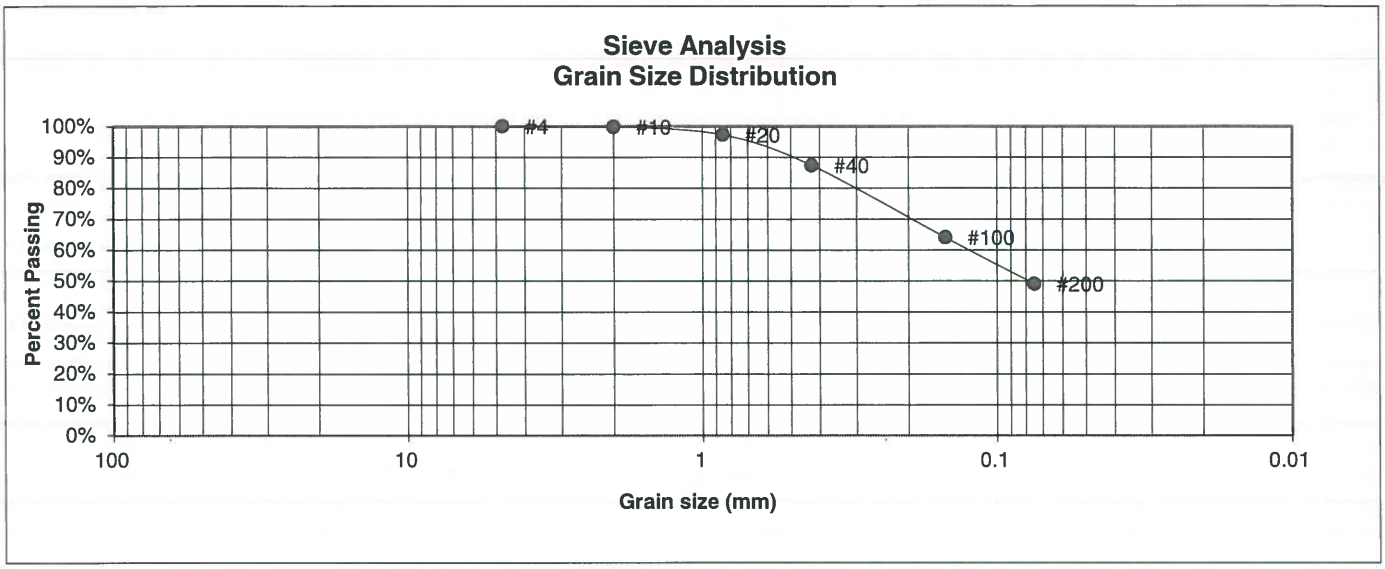
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHL	8-5-22

JOB NO.: 221662

FIG NO.: C-7

BORING NO.	TP-2	UNIFIED CLASSIFICATION	SC	TEST BY	BL
DEPTH(ft)	2.5	AASHTO CLASSIFICATION		JOB NO.	221662
CLIENT	RICHARD ELLIOTT				
PROJECT	FALCON ACRES				



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.9%
20	97.3%
40	87.4%
100	64.1%
200	49.1%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)

ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
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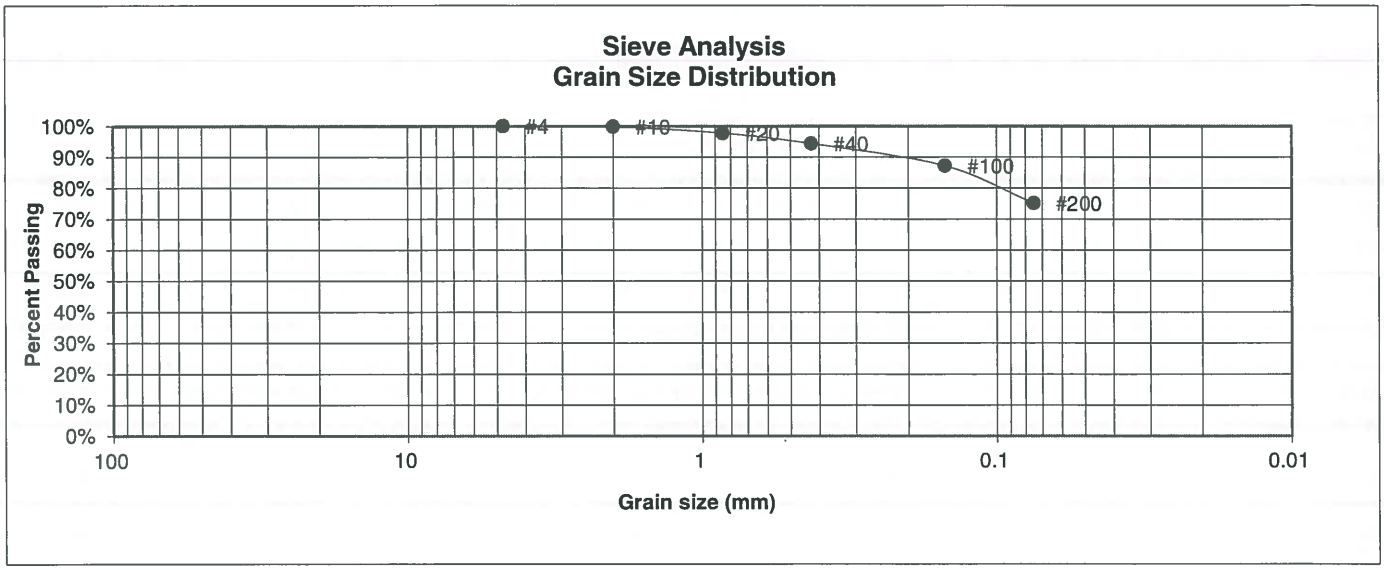
LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: C-8

BORING NO.	TP-1	UNIFIED CLASSIFICATION	CL	TEST BY	BL
DEPTH(ft)	5	AASHTO CLASSIFICATION		JOB NO.	221662
CLIENT	RICHARD ELLIOTT				
PROJECT	FALCON ACRES				



U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.8%
20	97.7%
40	94.3%
100	87.2%
200	75.1%

Atterberg Limits
Plastic Limit
Liquid Limit
Plastic Index

Swell
Moisture at start
Moisture at finish
Moisture increase
Initial dry density (pcf)
Swell (psf)

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LABORATORY TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

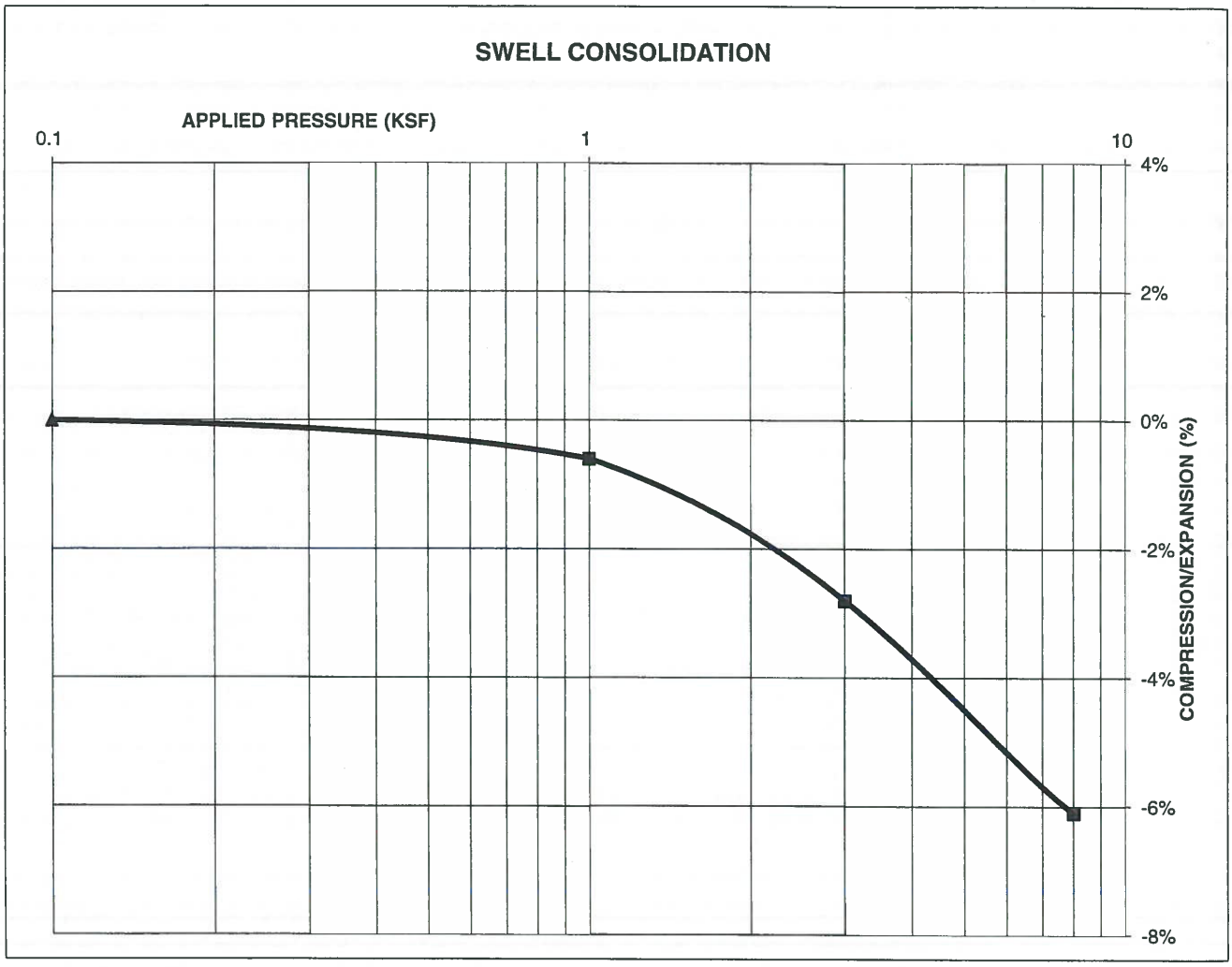
JOB NO.: 221662

FIG NO.: C-9

CONSOLIDATION TEST RESULTS

TEST BORING #	3	DEPTH(ft)	5
DESCRIPTION	CL	SOIL TYPE	2
NATURAL UNIT DRY WEIGHT (PCF)			110
NATURAL MOISTURE CONTENT			11.2%
SWELL/CONSOLIDATION (%)			0.0%

JOB NO. 221662
CLIENT RICHARD ELLIOTT
PROJECT FALCON ACRES



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SWELL CONSOLIDATION
TEST RESULTS

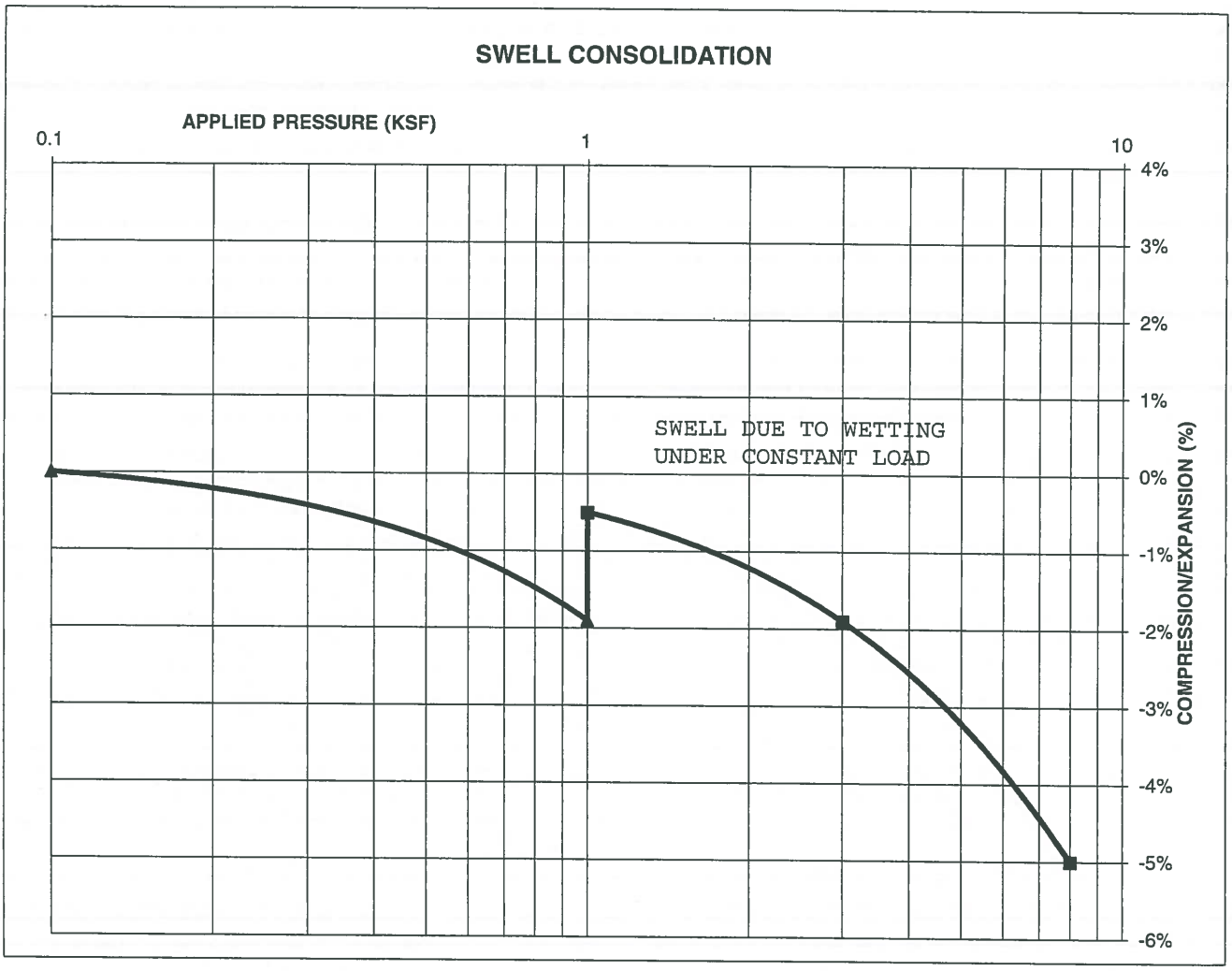
DRAWN:	DATE:	CHECKED:	DATE:
		SHR	8-5-22

JOB NO.: 221662
FIG NO.: C-10

CONSOLIDATION TEST RESULTS

TEST BORING #	1	DEPTH(ft)	15
DESCRIPTION	MH	SOIL TYPE	3
NATURAL UNIT DRY WEIGHT (PCF)			87
NATURAL MOISTURE CONTENT			33.1%
SWELL/CONSOLIDATION (%)			1.4%

JOB NO. 221662
CLIENT RICHARD ELLIOTT
PROJECT FALCON ACRES



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SWELL CONSOLIDATION
TEST RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662
FIG NO.: C-11

CLIENT	RICHARD ELLIOTT	JOB NO.	221662
PROJECT	FALCON ACRES	DATE	8/1/2022
LOCATION	FALCON ACRES	TEST BY	BL

BORING NUMBER	DEPTH, (ft)	SOIL TYPE NUMBER	UNIFIED CLASSIFICATION	WATER SOLUBLE SULFATE, (wt%)
TB-1	15	3	MH	0.01
TB-2	10	1	SM	<0.01
TB-3	5	2	CL	0.01
TB-3	20	3	CL	0.00

QC BLANK PASS

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LABORATORY TEST
SULFATE RESULTS

DRAWN:	DATE:	CHECKED:	DATE:
		JHR	8-5-22

JOB NO.: 221662

FIG NO.: C-12

APPENDIX D: Soil Survey Descriptions

El Paso County Area, Colorado

97—Truckton sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j2
Elevation: 5,300 to 6,850 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 85 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 12 inches: sandy loam
Bt2 - 12 to 19 inches: sandy loam
C - 19 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline (0.1 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 8 percent
Landform: Interfluves, hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Landform: Interfluves, low hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No