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

SOILS AND GEOLOGY STUDY
STERLING RANCH EAST – FILING NO. 8
EL PASO COUNTY, COLORADO

Prepared for:
Classic SRJ
2138 Flying Horse Club Drive
Colorado Springs, CO 80921

Attn: Loren Moreland

August 27, 2025
Revised October 15, 2025
Revised September 4, 2026

Respectfully Submitted,

ENTECH ENGINEERING, INC.

Logan L. Langford, P.G.
Sr. Geologist

Reviewed by:

COLORADO LICENSED JOSEPH COLLIN GOODE 23725 PROFESSIONAL ENGINEER

Digitally signed by Joseph C. Goode Jr.
Date: 09/04/26

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

LLL/JG
Entech Job No. 220572

PCD No. _____

Table of Contents

1 SUMMARY..... 1

2 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION..... 2

3 SCOPE OF THE REPORT..... 2

4 FIELD INVESTIGATION..... 2

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY..... 4

5.1 General Geology..... 4

5.2 Soil Conservation Survey..... 4

5.3 Site Stratigraphy..... 5

5.4 Soil Conditions..... 6

6 ENGINEERING GEOLOGY – IDENTIFICATION AND MITIGATION OF GEOLOGIC HAZARDS..... 7

6.1 Relevance of Geologic Conditions to Land Use Planning..... 10

7 ECONOMIC MINERAL RESOURCES..... 11

8 EROSION CONTROL..... 12

9 ROADWAY AND EMBANKMENT CONSTRUCTION RECOMMENDATIONS..... 13

10 CLOSURE..... 14

11 REFERENCES..... 15

FIGURES

Figure 1: Vicinity Map
Figure 2: USGS Map
Figure 3: Site and Exploration Plan
Figure 4: Cut/Fill Plan
Figure 5: Soil Survey Map
Figure 6: Geologic Map of the Falcon NW Quadrangle
Figure 7: Geology/Engineering Geology Map
Figure 8: Floodplain Map
Figure 9: Typical Perimeter Drain Details
Figure 10: Underslab Drainage Layer (Capillary Break)
Figure 11: Interceptor Drain Detail

APPENDIX A: Site Photographs
APPENDIX B: Test Boring Logs
APPENDIX C: Laboratory Test Results
APPENDIX D: Piezometer Boring Logs and Laboratory Testing Summary
APPENDIX E: Soil Survey Descriptions

1 SUMMARY

Project Location

The project lies in portions of the NE¼ of the NE¼, of Section 33, and the NW¼ of the NW¼, of Section 34, Township 12 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately one-mile northeast of Colorado Springs, Colorado.

Project Description

Sterling Ranch East Filing No. 8 consists of 25.46 acres, with one hundred and fifty-four (154) single-family residential lots proposed. Basement and crawlspace construction is proposed for the residential structures. The proposed development will be serviced by Sterling Ranch Metropolitan District.

Scope of Report

This report presents the results of our geologic evaluation and treatment of engineering geologic hazard study.

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 minor constraints on development and land use. These include areas of artificial fill, hydrocompaction, potential for expansive soils, and seasonally shallow groundwater areas. 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.

Based on the results of our investigation 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 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located in portions of the NE¼ of the NE¼, of Section 33, and the NW¼ of the NW¼, of Section 34, Township 12 South, Range 65West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately one-mile northeast of Colorado Springs, Colorado, at the northwest corner of Briargate Parkway and Sterling Ranch Road. The location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site is gradually sloping to the south, with moderate to steep slopes along a cut slope through the central portion of the site. The southern portion of the site has been used a borrow area for fill used in other portions of Sterling Ranch. No drainages were observed on the site; however, water was observed to the south of the site at the southwest corner of Briargate Parkway and Sterling Ranch Road. The site boundaries are indicated on the USGS Map, Figure 2. Previous land uses have included a fill borrow area, grazing and pasture land. The southern portion of the site is sparsely vegetated with weeds, and northern portion of the site contains primarily field grasses, cacti, yucca, and weeds. Site photographs, taken August 31, 2026, are included in Appendix A.

Sterling Ranch East Filing No. 8 consists of 25.46 acres, with one hundred and fifty-four (154) single-family residential lots proposed. The majority of the site will be filled. Proposed grading is shown on Figures 3 and 6. Basement and crawlspace construction is proposed for the residential structures. The Site and Exploration Plan is presented in Figure 3, and the Cut/Fill Plan is presented in Figure 4. Fills up to 13 feet and cuts up to 4 feet are indicated on the Cut/Fill Plan.

3 SCOPE OF THE REPORT

The scope of the report includes 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 FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The Natural Resource Conservation Service (NRCS), previously 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 Geology/Engineering Geology Map which identified pertinent geologic conditions affecting development. The original field mapping was performed by personnel of Entech Engineering, Inc. on March 14, 2022. The site was revisited on August 31, 2026, to verify previous mapping and check for any significant changes to the site.

Geologic Hazard Studies were previously performed by Entech for the entire Sterling Ranch development, October 31, 2006 (Reference 1), and nearby or adjacent Sterling Ranch East Filings in 2022 through 2024 (References 2 through 7). Information from these reports was used in evaluating the site.

Five test borings were drilled as part of this investigation on March 22, and September 13, 2022 to determine general soil and bedrock characteristics. TB-1 though TB-4 were drilling within Filing No. 8 and TB-5 was drilled in the detention pond located east of the filing. The locations of the test borings are indicated on the Site and Exploration Plan, Figure 3. The Test Boring Logs are presented in Appendix B, and Summarized on Table B-1. 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 included grain-size analysis ASTM D-422, Atterberg Limits ASTM D-4318, and volume change testing using Swell/Consolidation test. Sulfate testing was performed on select samples to evaluate potential for below grade concrete degradation due to sulfate attack. Results of the laboratory testing are included in Appendix C. A Summary of Laboratory Test Results is presented in Table C-1.

Four additional borings were completed by Entech on February 18, 2026. Two borings were placed along the northwest side of the pond, one shallow hand boring on the pond slope, and one boring placed in the eastern portion of the pond bottom. Three piezometers were placed in the borings identified as P-1 through P-3. Approximate locations of the piezometers are shown in the Site and Exploration Plan, Figure 3. Boring logs and a summary of the laboratory testing results are included in Appendix D.

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

The site lies in the western portion of the Great Plains Physiographic Province. Approximately 12½ 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 southeastern edge of a large structural feature known as the Denver Basin. Bedrock in the area tends to be very gently dipping in a northeasterly direction (Reference 8). The rocks in the area of the site are sedimentary in nature and typically Upper Cretaceous in age. The bedrock underlying the site consists of the Dawson Formation of Tertiary to Cretaceous Age. The Dawson Formation typically consists of arkosic sandstone with interbedded fine-grained sandstone, siltstone and claystone. Overlying this formation are variable layers of eolian sands, alluvial deposits, residual soil, and man placed fill. The residual soils were derived from the in-situ weathering of the bedrock materials on-site. These soils consisted of silty to clayey sands and sandy clays. The fill is associated with the ongoing fill stockpiling and grading associated with Briargate Parkway The site's stratigraphy will be discussed in more detail in Section 5.3.

5.2 Soil Conservation Survey

The Natural Resource Conservation Service (Reference 9), previously the Soil Conservation Service (Reference 10) has mapped two soil types on the site (Figure 5). In general, the soils classify as coarse sandy loam. The soils are described as follows:

Type	Description
8	Blakeland Loamy Sand, 1 to 9% slopes
19	Columbine Gravelly Sandy Loam, 0 to 3% slopes

Complete descriptions of each soil type are presented in Appendix E. The soils have generally been described to have moderate to moderately rapid permeability. 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 Falcon NW Quadrangle Geology Map showing the site is presented in Figure 6 (Reference 11). The Geology Map prepared for the site is presented in Figure 7. Three mappable units were identified on this site which are described as follows:

Qaf **Artificial Fill of Quaternary Age:** These recent man-made deposits associated with fill for the existing water main along the eastern side of the site and grading that has completed placed for Briargate Parkway and Sterling Ranch Road. Additionally, fill stockpiles are located across the central portion of the filing.

Qes **Eolian Sand of Quaternary Age:** These deposits are fine to medium grained soil deposited on the site by the action of prevailing winds from the west and northwest. They typically occur as large dune deposits or narrow ridges. These soil types are typically tan to brown in color and tend to have very uniform or well-sorted gradation, and tend to have a relatively high permeability and low density.

Qao_1 **Old alluvium one of Holocene Age:** These materials consist of stream-deposited alluvium, typically classified as a silty to well-graded sand, brown to dark brown in color and of moderate density occurring as terrace deposits. Old Alluvium One can sometimes be very highly stratified containing thing layers of very silty and clayey soil. This unit correlates to the Louviers Alluvium in the Denver area.

The bedrock underlying the site consists of the Dawson Formation of Tertiary to Cretaceous Age. The Dawson Formation typically consists of arkosic sandstone with interbedded fine-grained sandstone, siltstone and claystone. Overlying this formation is a variable layer of residual soil. The residual soils were derived from the in-situ weathering of the bedrock materials on-site. These soils consisted of silty to clayey sands and sandy clays.

The soils listed above were mapped from site-specific mapping, the *Geologic Map of the Falcon NW Quadrangle* distributed by the Colorado Geological Survey in 2003 (Reference 11), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 12), and the *Geologic Map of the Pueblo 1^0 x 2^0 Quadrangle*, distributed by the US Geological Survey in 1981 (Reference 13). The Test Borings were also used in evaluating the site and are included in Appendix B. The Geology/Engineering Geology Map prepared for the site is presented in Figure 7.

5.4 Soil Conditions

The soils encountered in the Test Borings can be grouped into four general soil types. The soils were classified using the Unified Soil Classification System (USCS).

Soil Type 1 silty sand to sand with silt (SW-SM, SM), encountered in TB-1 through TB-3, and TB-5 at the existing ground surface and extending to depths ranging from 6 to 18 feet bgs. These soils were encountered at medium dense to dense states and at dry to moist conditions.

Soil Type 2 sandy clay (CL), encountered in TB-4 at the existing surface and extended to approximately 8 feet bgs. The clay was encountered at very stiff hard consistencies and at moist conditions. FHA Swell Testing resulted in an expansion pressure of 300 psf, indicating a low expansion potential.

Soil Type 3 completely weathered to highly weathered silty to clayey sandstone, or silty to clayey sand when classified as a soil (SM, SC). The sandstone was encountered in TB-1 and TB-5 at depths ranging from 13 bgs and extending to the termination of the borings (20 to 30 feet). The sandstone was encountered at dense to very dense states and at moist conditions.

Soil Type 4 sandy claystone, or a clay with sand when classified as a soil (CL). The claystone was encountered in TB-2 – TB-4 at depths of 6 to 18 feet bgs and extended to the termination of the borings (20 feet). The claystone was encountered at hard consistencies and at moist conditions. One-dimensional swell/collapse testing on a sample of claystone resulted in 0.5% volume change indicating a low expansion potential

5.5 Groundwater

Depth to groundwater was measured in each of the borings at the conclusion of, and subsequent to drilling. Groundwater was encountered in all of the borings when measured subsequent to drilling at depths ranging from 7 to 13 feet bgs. Depending on final grading elevations and development of the site the groundwater may affect utility placement on portions of this site. Groundwater is not anticipated to affect the proposed shallow foundations. It should be noted that groundwater levels could change due to seasonal variations, changes in land runoff characteristics, and future development of nearby areas. For the sandy materials on site, it should be noted that some groundwater conditions might be encountered due to the variability in the soil profile. Isolated sand and gravel layers within the soils, sometimes only a few feet in thickness and width, can carry water in the subsurface. Groundwater may also flow on top of the underlying

bedrock or clays. Builders and planners should monitor potential occurrences of such subsurface water features during construction on-site and mitigate as necessary at the time of construction.

Three (3) temporary piezometers (P-1 – P-3) were previously installed adjacent to and within the pond to evaluate groundwater conditions for the proposed pond. The pond is located east of the lots in Filing 8 across Sterling Ranch Road. The readings taken for the piezometers are shown in Exhibit 2.

Exhibit 2: Temporary Piezometers Measurements

Piezometer	Total Boring Depth (ft.)	Groundwater Depth (ft.) 2/20/2026	Groundwater Depth (ft.) 3/10/2026	Groundwater Depth (ft.) 4/20/2026	Groundwater Depth (ft.) 9/3/2026
P-1	20	17.7	16.8	17.7	18
P-2	20	18.4	18.2	18.5	>20
P-3(1)	20	3.5	2	2.8	3.2

(1) – P-3 was drilled in the detention pond which has already been graded.

6 ENGINEERING GEOLOGY – IDETIFICATION AND MITIGATION OF GEOLOGIC HAZARDS

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:

Artificial Fill – Constraint

These are areas of man-made fill associated with an existing water main along the eastern and southern side of the site in addition to filling and grading that has been placed for future Briargate Parkway and Sterling Ranch Road. Portions of the filing are currently being used temporary fill stockpiling for the on-going development activity within Sterling Ranch East. The fill piles will be mitigated with the anticipated site grading.

Mitigation: Any uncontrolled fill encountered beneath foundations will require removal and recompaction to a minimum of 95% of its maximum Modified Proctor Dry Density (ASTM D1557).

Collapsible Soils – Constraint

The majority of the soils encountered on-site do not exhibit collapsible characteristics, however, minor areas of loose soils were encountered in the test borings drilled on site. Additionally, areas mapped as Qes (eolian sand) have the potential for hydrocompation.

Mitigation: Should loose or collapsible soils be encountered beneath foundations, recompaction and moisture conditioning of the upper 2 feet of soil at compacted to a minimum of 95% of its maximum Modified Proctor Dry Density (ASTM D1557). Roadway areas may also experience movement. Proofrolling and recompaction of soft areas should be performed during site work.

Expansive Soils – Constraint

Expansive soils were encountered in the two of test borings drilled on site. These occurrences are typically sporadic; therefore, none have been indicated on the maps. The clays and claystone, if encountered at foundation grade, can cause differential movement in structures. These occurrences should be identified and dealt with on an individual basis.

Mitigation Should expansive soils be encountered beneath foundations; mitigation will be necessary. Mitigation of expansive soils will require special foundation design. Overexcavation 3 to 5 feet and replacement with non-expansive soils compacted to a minimum of 95% of its maximum Modified Proctor Dry Density (ASTM D1557) 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. The use of structural floors should be considered for basement construction on highly expansive clays. Final recommendations should be determined after additional investigation of each building site.

Areas of Erosion - constraint

These are areas that are undergoing erosion by water and sheetwash producing gullies and rill erosion. The areas significant erosion observed on the site are located in the former borrow areas where most of the vegetation had been removed.

Mitigation: Due to the nature of the soils on this site, virtually all the soils are subject to erosion by wind and water. Other minor areas of erosion were observed on site other than those mapped, particularly where some rill erosion has occurred. Areas of erosion can occur across the entire site, particularly if the soils are disturbed during construction. Vegetation reduces the potential for erosion. The areas identified where erosion is actually taking place may require check dams, regrading and revegetation using channel lining mats to anchor vegetation. Further recommendations for erosion control are discussed under Section 8.0 "Erosion Control" of this report. Recommendations pertaining to revegetation may require input from a qualified landscape

architect and/or the Natural Resource Conservation Service (previously Soil Conservation Service).

Bedrock – Constraint

Bedrock was encountered in four the test borings at depths ranging from 6 to 18 feet. A Summary of the Depth to Bedrock is included in Table B-1. Shallow bedrock may be encountered in some areas of this site, and will likely be encountered in deep cuts for utility excavations. Where claystone or sandstone are encountered, excavation/grading may be difficult requiring track excavators.

Groundwater and Floodplain Areas – Constraint

The site is not mapped within floodplain zones according to the FEMA Map No. 08041CO533G, Figure 8 (Reference 14). The topography of the site is gradually sloping to the south-southwest. No wetlands have been mapped on the site according the US Fish and Wildlife Service National Wetlands Inventory (Reference 15). No drainages were observed on the site, however, standing water was observed to the south of the site and in the detention pond that has been excavated to the east of the filing. Groundwater was encountered in all of the test borings at depths of 7 to 13 feet. A minimum separation of 3 feet between foundation components and groundwater levels is recommended. The proposed housing has crawlspaces.

Mitigation: Foundations must have a minimum 30-inch depth for frost protection. Subsurface perimeter drains are recommended for structures with any crawlspaces or useable space below grade. Groundwater is not anticipated to affect the construction of shallow foundations on the site, however, if shallow groundwater is encountered the additional drains will be required. Typical drain details are presented in Figures 9 through 11. Any grading in these areas should be done to direct surface flow around construction to avoid areas of ponded water. Structures should not block drainages. All organic material should be completely removed prior to any fill placement. Finished floor levels must be located a minimum of one foot above floodplain levels.

Potentially Unstable Slope Areas - hazard

These slopes are considered stable in their present condition; however, considerable care must be exercised in these areas not to create a condition which would tend to activate instability. These areas are primarily located along the cut slope of the former borrow area in the central portion of the site.

Mitigation: Building should be avoided in these areas unless properly mitigated. These areas will likely be regraded during the site development. Fill placed along these slopes should be properly benched into the slope as to not create unstable conditions.

Radon – Hazard

Radon levels for the area have been reported by the Colorado Geologic Survey in the open file, Report No. 91-4 (Reference 16). Average Radon levels for the 80908-zip code is 3.40 pCi/l. The following is a table of radon levels in this area:

Average Radon Levels for the 80908 Zip Code	
0 < 4 pCi/L	50.00%
4 < 10 pCi/L	50.00%
10 < 20 pCi/L	0.00%
> 20 pCi/L	0.00%

Mitigation:

The potential for high radon levels is present for the site. Build-up of radon gas can usually be mitigated by providing increased ventilation of basement and crawlspace and sealing joints. Specific requirements for mitigation should be based on site specific testing.

6.1 Relevance of Geologic Conditions to Land Use Planning

We understand that the development will be single-family residential with basement and crawlspace construction. A full spectrum detention basin will be located east of Sterling Ranch Road at the northeast corner of Briargate Parkway and Sterling Ranch Road. 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 significant hazard affecting development is associated with the potentially unstable slope on the site that will be mitigated by the site grading. Other hazards on the site can be satisfactorily mitigated through proper engineering design and construction practices.

The upper materials were generally encountered at medium dense to dense states. The granular soils encountered in the upper soil profiles of the test borings should provide good support for foundations. Loose soils if encountered at foundation depth will require mitigation. Foundations anticipated for the site are standard spread footings possibly in conjunction with overexcavation in areas of expansive soils or recompaction in areas of loose soils. Excavation is anticipated to be moderate with rubber-tired equipment for the site sand materials, and will require track

mounted equipment for the dense sandstone. Expansive layers may also be encountered in the soil and bedrock on this site. Areas of expansive soils encountered on site are sporadic; therefore, none have been indicated on the maps. Expansive soils, if encountered, will require special foundation design and/or overexcavation. These soils will not prohibit development.

Groundwater was encountered in the test borings at depths ranging from 7 to 13 feet. The proposed grading shows fill across the majority of the site. It is anticipated that the grading will raise the site to allow for basement construction. Additional investigation after grading is recommended to evaluation conditions. A minimum separation of 3 feet between foundation components and groundwater levels is recommended unless special drains are installed. Typical drain details are presented in Figures 9 through 11. The site does not lie within any floodplain zones according to the FEMA Map No. 08041CO533G, dated December 7, 2108 (Figure 8, Reference 8). Exact locations of floodplain and specific drainage studies are beyond the scope of this report.

The granular site soils are susceptible to erosion and gullying and may require the construction of check dams and revegetation of the site soils after construction. General recommendations for erosion control are discussed under Section 8.0 "Erosion Control".

Potentially unstable slope areas were observed in the central portion of the site along a cut of the former borrow area. Regrading will be required in this area. Any fill placed along the slope should be properly benched into the slope. Any retaining walls proposed should be designed for the global slope stability by a qualified professional engineer. This includes cuts made for terracing in backyards. Proper control of drainage at both the surface and subsurface is important. Saturation of materials should be avoided that may create unstable conditions.

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 or through avoidance. Investigation on each lot is recommended prior to construction.

7 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 17), the area is not mapped with any aggregate deposits. According to the *Atlas of Sand, Gravel and Quarry Aggregate Resources, Colorado Front Range Counties* distributed by the Colorado Geological

Survey (Reference 18), areas of the site are not mapped with any resources. According to the *Evaluation of Mineral and Mineral Fuel Potential* (Reference 19), the area of the site has been mapped as "Fair" for industrial minerals. However, considering the silty nature of much of these materials and abundance of similar materials through the region and the close proximity to developed land, 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 19) the site is mapped within the Denver Basin Coal Region. However, the area of the site has been mapped as "Poor" for coal resources. No active or inactive mines have been mapped in the area of the site. No metallic mineral resources have been mapped on-site (Reference 19).

The site has been mapped as "Fair" for oil and gas resources (Reference 19). No oil or gas fields have been discovered in the area of the site. The sedimentary rocks in the area may lack the geologic structure for trapping oil or gas; therefore, it may not be considered a significant resource. Hydraulic fracturing is a new method that is being used to extract oil and gas from rocks. It utilizes pressurized fluid to extract oil and gas from rocks that would not normally be productive. The area of the site has not been explored to determine if the rocks underlying the site would be commercially viable utilizing hydraulic fracturing. The practice of hydraulic fracturing has come under review due to concerns about environmental impacts, health and safety.

8 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 re-established, 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 become increasingly less susceptible to water erosion. For the typical soils observed on-site, allowable velocities or unvegetated and unlined earth channels would be on the order of 3 to 4 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 Soil Conservation Service.

9 ROADWAY AND EMBANKMENT CONSTRUCTION RECOMMENDATIONS

In general, the site soils are suitable for the proposed roadways and embankments. Groundwater is not expected to be encountered, however, may be encountered in deeper cuts for utilities. 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 no steeper than 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 D1557) prior to 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 to a minimum of 95% of its maximum Modified Proctor Dry Density (ASTM D1557). Where fill depths are greater than 10 feet, compaction to a minimum of 98% of its maximum Modified Proctor Dry Density

(ASTM D1557) will be required. 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.

10 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 mitigated through proper engineering design and construction practices. The proposed development and use are 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 non-homogeneous 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. Additional investigations for building sites 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.

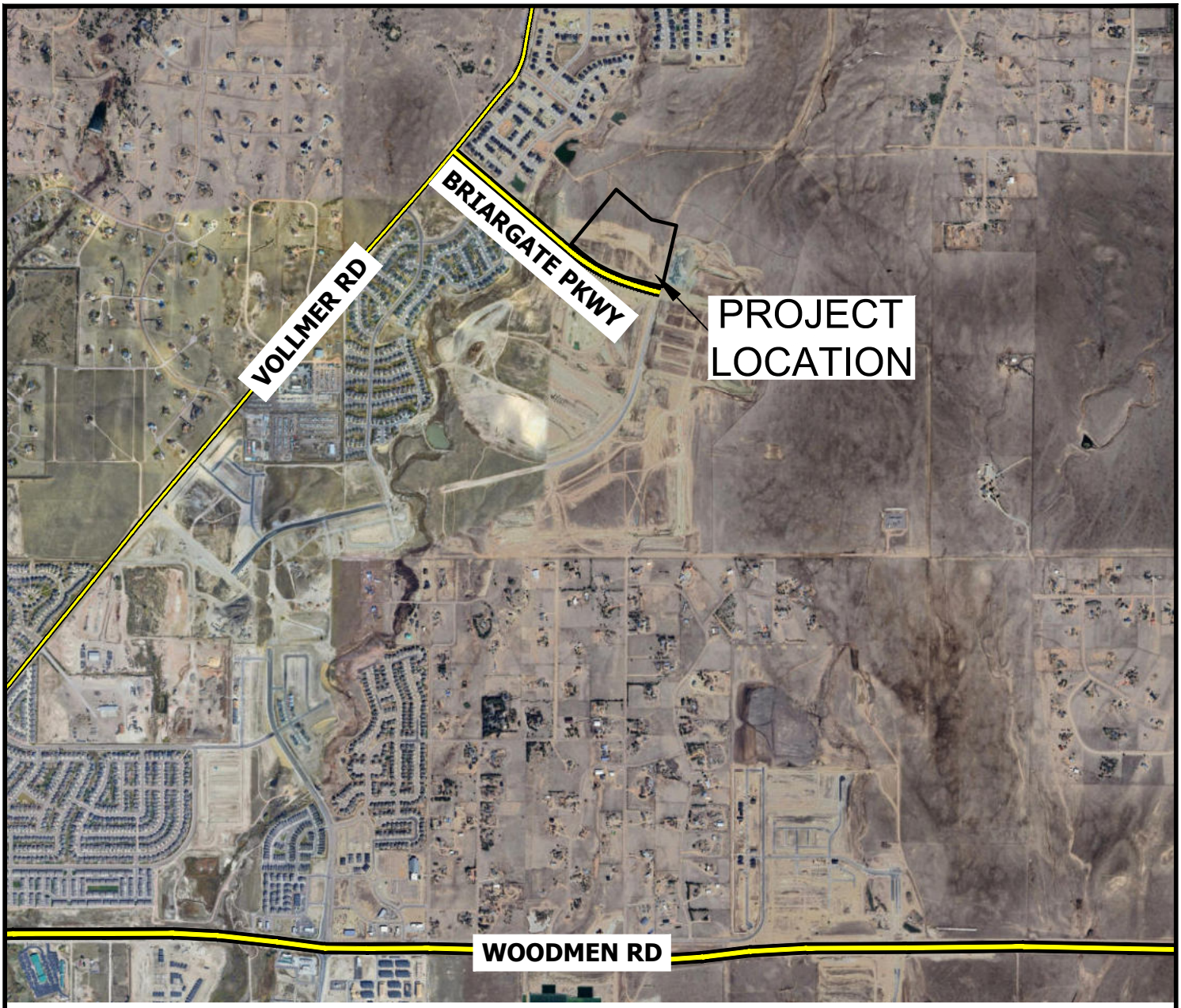
This report has been prepared for Classic SRJ. for application to the proposed project in accordance with generally accepted geologic soil and engineering practices. No other warranty expressed or implied is made.

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.

11 REFERENCES

1. Entech Engineering, Inc. October 31, 2006. *Geologic Hazard/Land Use Study and Preliminary Subsurface Soil Investigation, Sterling Ranch. El Paso County, Colorado.* Entech Job No. 82556.
2. Entech Engineering, Inc. April 19, 2022. *Soil, Geology, & Geologic Hazard Study, Sterling Ranch East – Preliminary Plan No. 1, Parcel Nos. 17, 18, 22, 23, 24, 26, 37, & 38, El Paso County, Colorado.* Entech Job No. 220571.
3. Entech Engineering, Inc. Revised September 15, 2022. *Soil, Geology, & Geologic Hazard Study, Foursquare at Sterling Ranch East – Preliminary Plan No. 2, Parcel Nos. 19, El Paso County, Colorado.* Entech Job No. 220572.
4. Entech Engineering, Inc. April 13, 2022. *Soil, Geology, & Geologic Hazard Study, The Villages at Sterling Ranch East – Preliminary Plan No. 3, Parcel Nos. 14, 15, 20, & 21, El Paso County, Colorado.* Entech Job No. 220573.
5. Entech Engineering, Inc. June 27, 2023. *Soil and Geology Study, Sterling Ranch East – Filing No. 5, El Paso County, Colorado.* Entech Job No. 230544.
6. Entech Engineering, Inc. October 15, 2024. *Soil and Geology Study, Sterling Ranch East – Filing No. 3, El Paso County, Colorado.* Entech Job No. 241088.
7. Entech Engineering, Inc. September 24, 2024. *Soil and Geology Study, Preliminary Plan Sterling Ranch East – Filing No. 6, El Paso County, Colorado.* Entech Job No. 241419.
8. Scott, Glen R., Taylor, Richard B., Epis, Rudy C., and Wobus, Reinhard A. 1978. *Geologic Structure Map of the Pueblo 1° x 2° Quadrangle, North-Central Colorado*. Sheet 2. U.S. Geologic Survey. Map I-1022.
9. Natural Resource Conservation *Service,* September 22, 2015. *Web Soil Survey.* United States Department Agriculture, http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.
10. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado.*
11. Madole, Richard F., 2003. *Geologic Map of the Falcon NW Quadrangle, El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 03-8.
12. Trimble, Donald E. and Machette, Michael N. 1979. *Geologic Map of the Colorado Springs-Castle Rock Area, Front Range Urban Corridor, Colorado*. USGS, Map I-857-F.
13. Scott, Glen R., Taylor, Richard B., Epis, Rudy C., and Wobus, Reinhard A. 1978. *Geologic Map of the Denver 1º x 2º Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map 1-1022.
14. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for El Paso County, Colorado and Incorporated Areas.* Map Number 08041CO533G.
15. U.S. Fish & Wildlife Service, May 1, 2020. *National Wetlands Inventory*. Department of the Interior, fws.gov/wetlands/data/Mapper.html.
16. Colorado Geological Survey. 1991. *Results of the 1987-88 EPA Supported Radon Study in Colorado*. Open-file Report 91-4.
17. El Paso County Planning Development. December 1995. *El Paso County Aggregate Resource Evaluation Maps.*
18. Schwochow, S.D.; Shroba, R.R. and Wicklein, P.C. 1974. *Atlas of Sand, Gravel, and Quarry Aggregate Resources, Colorado Front Range Counties*. Colorado Geological Survey. Special Publication 5-B.
19. Keller, John W.; TerBest, Harry and Garrison, Rachel E. 2003. *Evaluation of Mineral and Mineral Fuel Potential of El Paso County State Mineral Lands Administered by the Colorado State Land Board*. Colorado Geological Survey. Open-File Report 03-07.

FIGURES



N

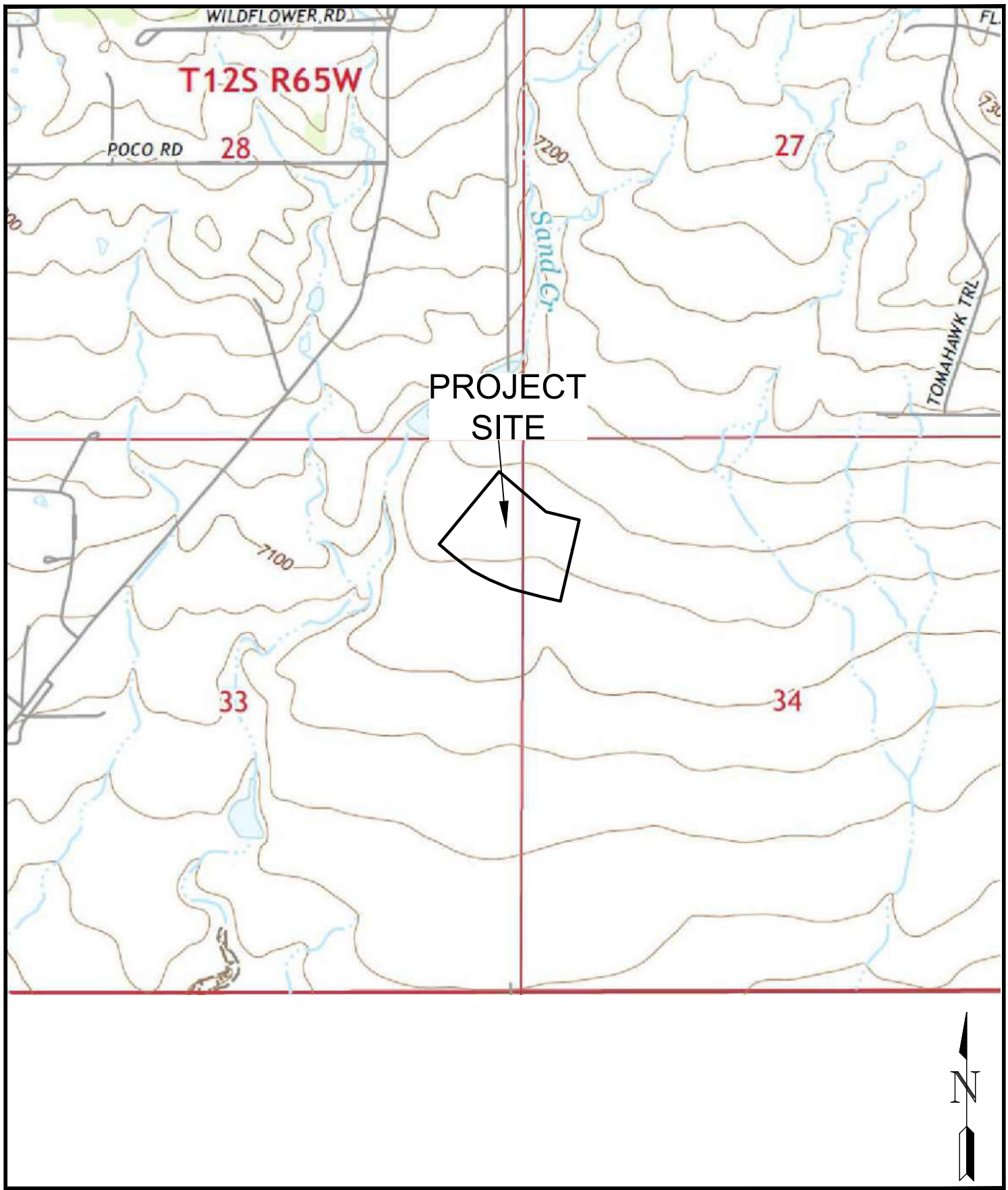
ENTECH ENGINEERING, INC.

VICINITY MAP

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 1



ENTECH ENGINEERING, INC.

USGS TOPOGRAPHY MAP

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 2

TB-1
(13',13')

P4

TB-2
(18',13')

P3

TB-4
(12',8')

P2

P-1

P-2

P5

P6

TB-3
(6',7')

P1

TB-5
(13',14.5')

P-3

- APPROXIMATE TEST BORING LOCATION AND NUMBER (DEPTH TO BEDROCK, DEPTH TO GROUNDWATER)

P2 - APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER

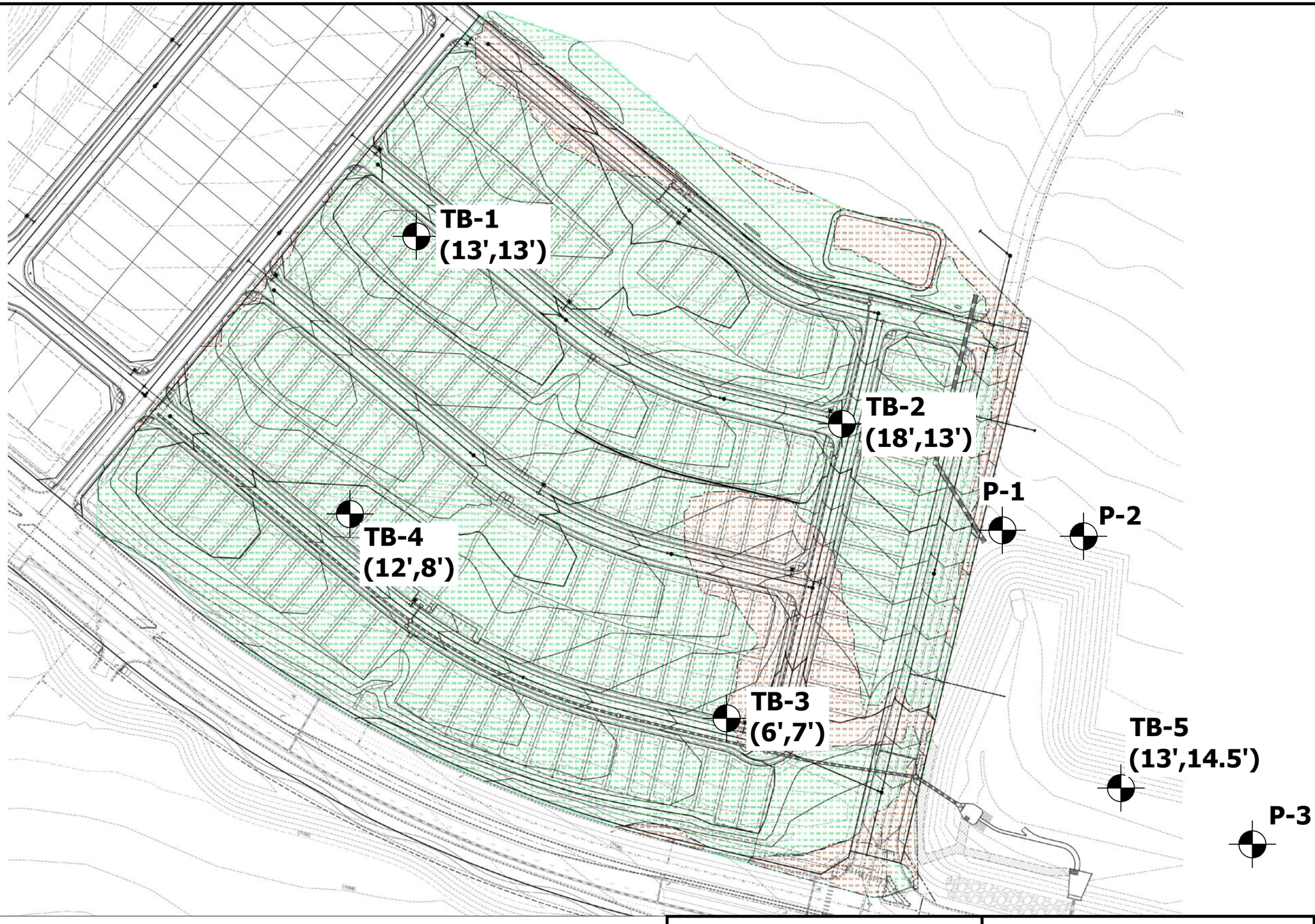
ENTECH ENGINEERING, INC.

SITE AND EXPLORATION PLAN

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO.
220572

FIG. 3



- APPROXIMATE TEST BORING LOCATION AND NUMBER
(DEPTH TO BEDROCK, DEPTH TO GROUNDWATER)

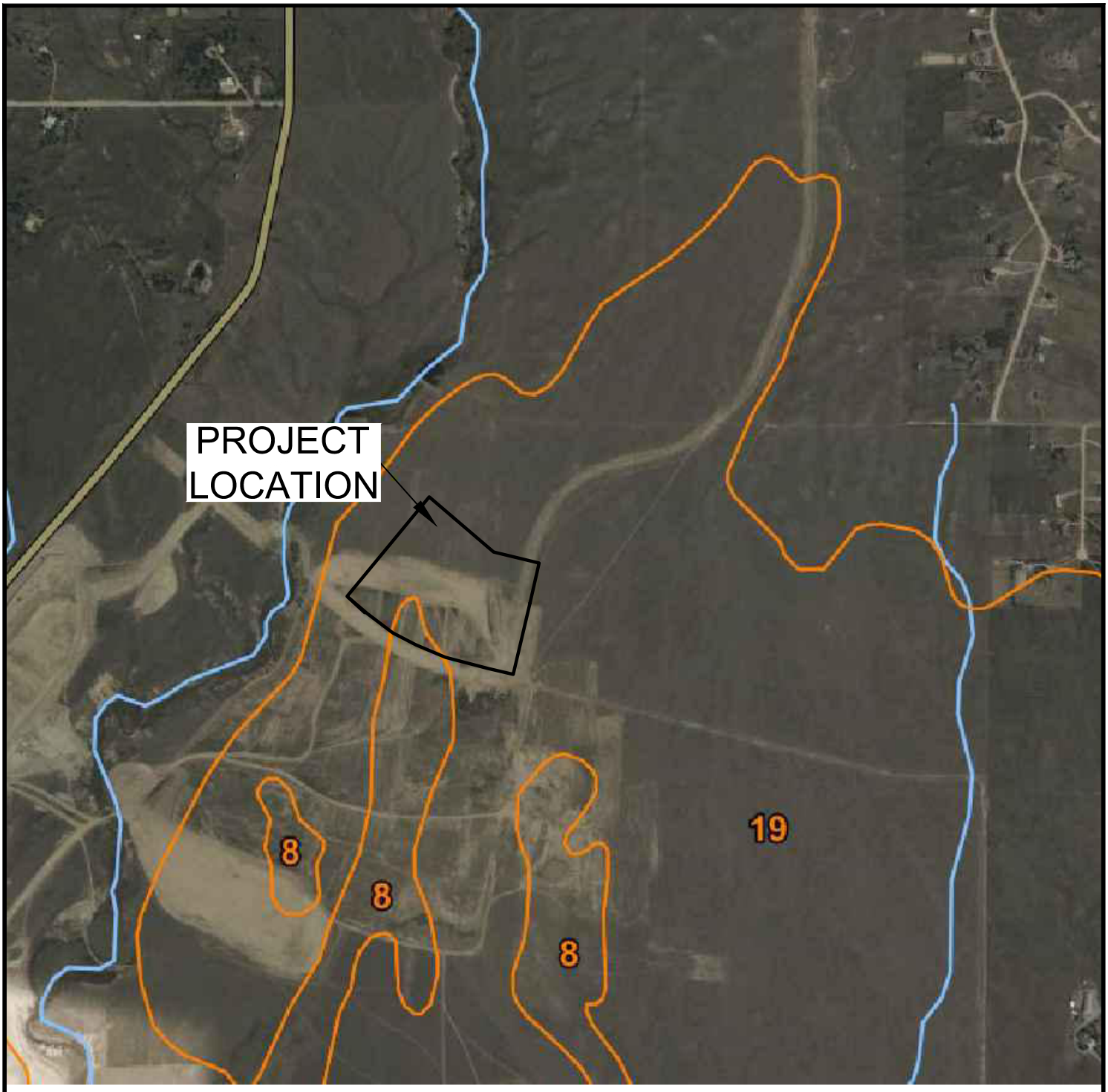
ENTECH ENGINEERING, INC.

CUT/FILL PLAN

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO.
220572

FIG. 4



N

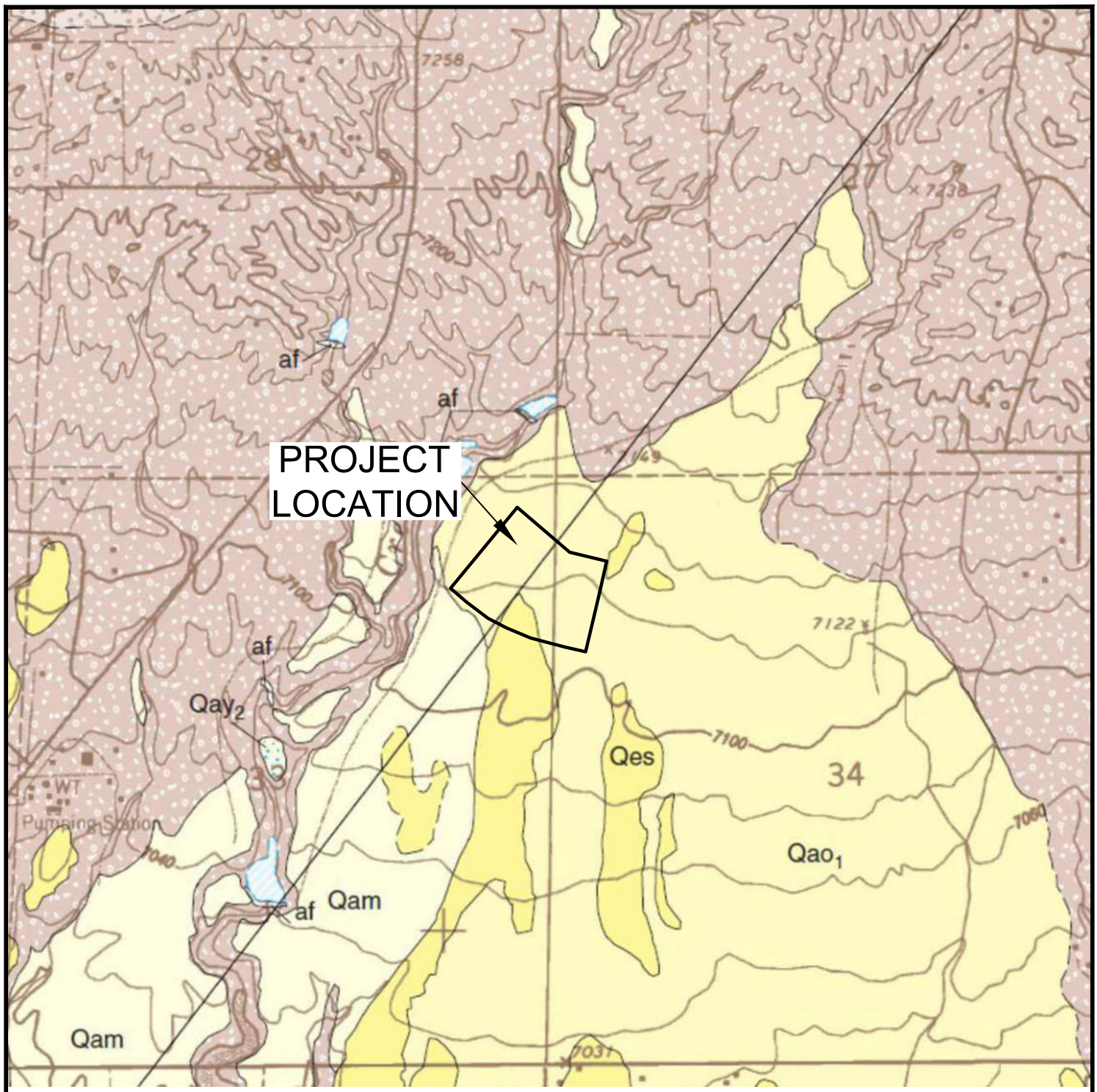
ENTECH ENGINEERING, INC.

SOIL SURVEY MAP

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 5



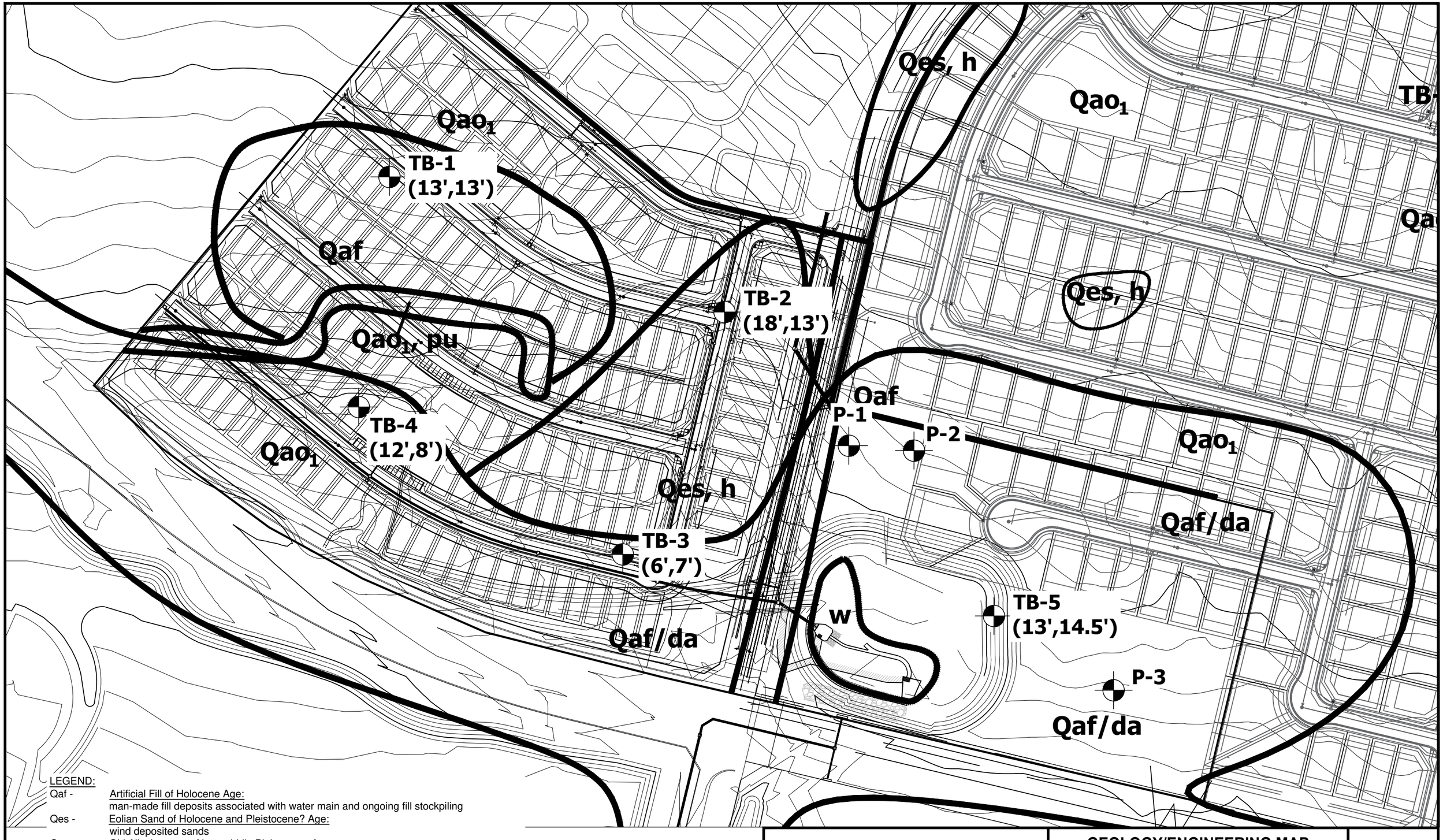
N

ENTECH ENGINEERING, INC.

GEOLOGIC MAP OF THE FALCON NW QUADRANGLE
STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 6



LEGEND:

Qaf - Artificial Fill of Holocene Age:
man-made fill deposits associated with water main and ongoing fill stockpiling

Qes - Eolian Sand of Holocene and Pleistocene? Age:
wind deposited sands

Qao_1 - Old Alluvium one of late-middle Pleistocene Age:
older terrace deposit

h - hydrocompaction

pu - potentially unstable slope

w - Standing water

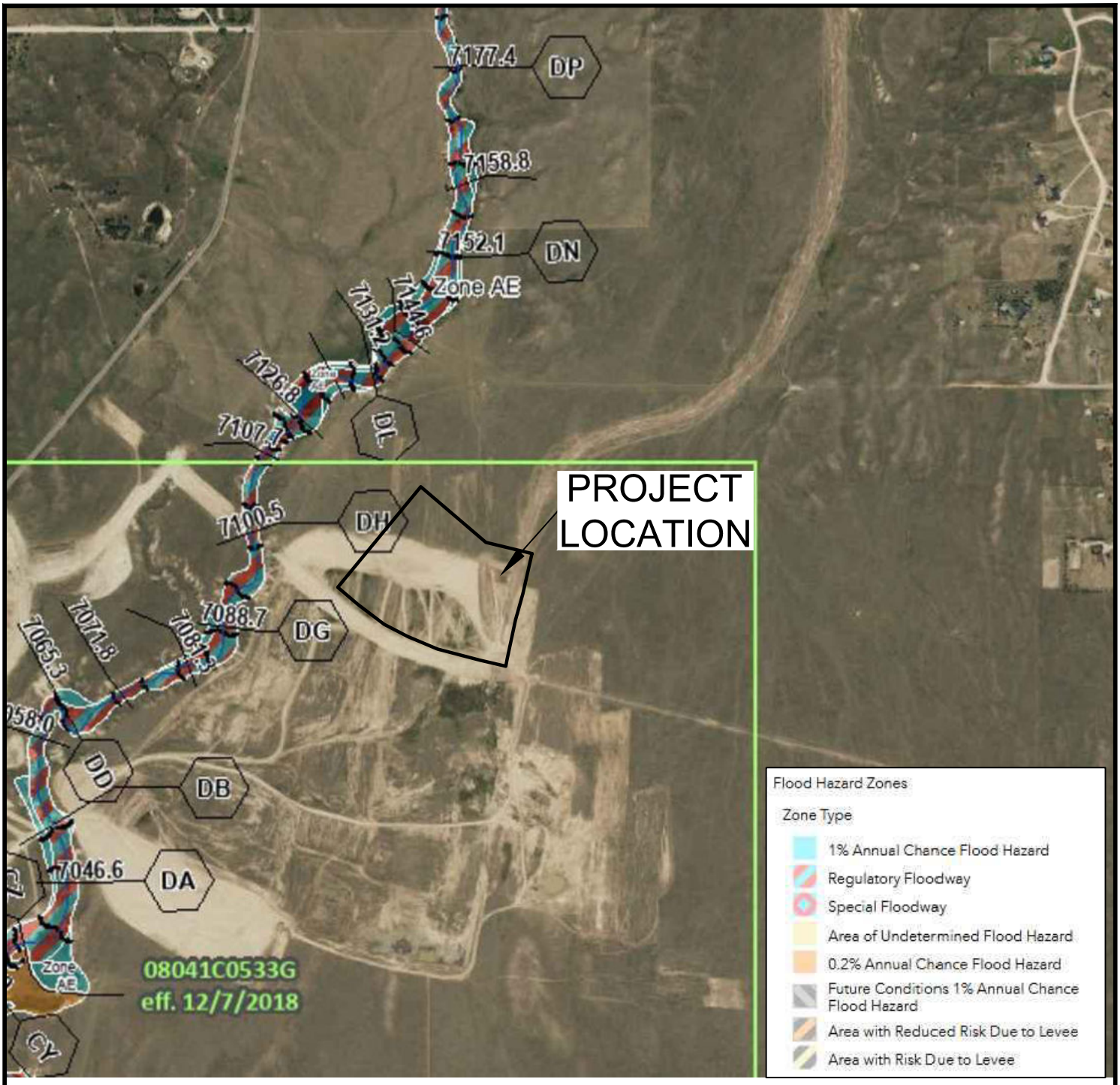
ENTECH ENGINEERING, INC.

GEOLOGY/ENGINEERING MAP

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 7



N

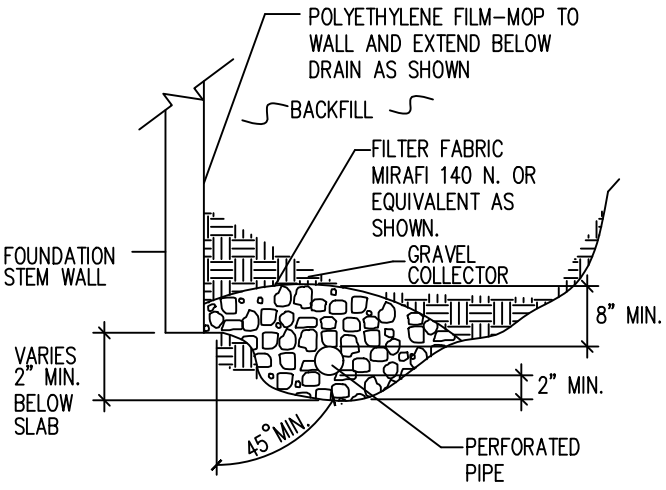
ENTECH ENGINEERING, INC.

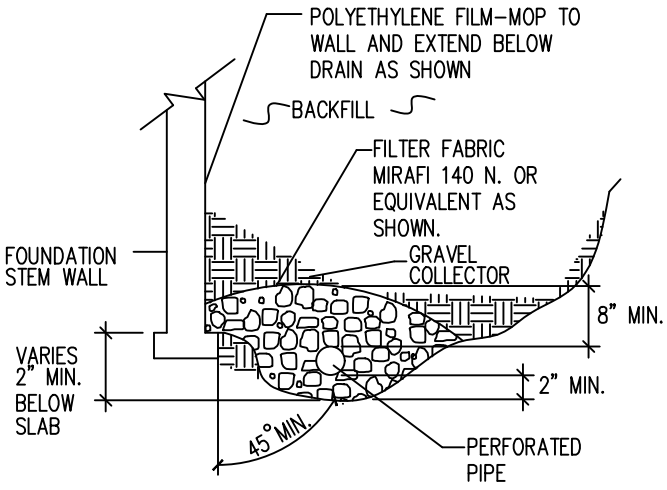
SOIL SURVEY MAP

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 8





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.

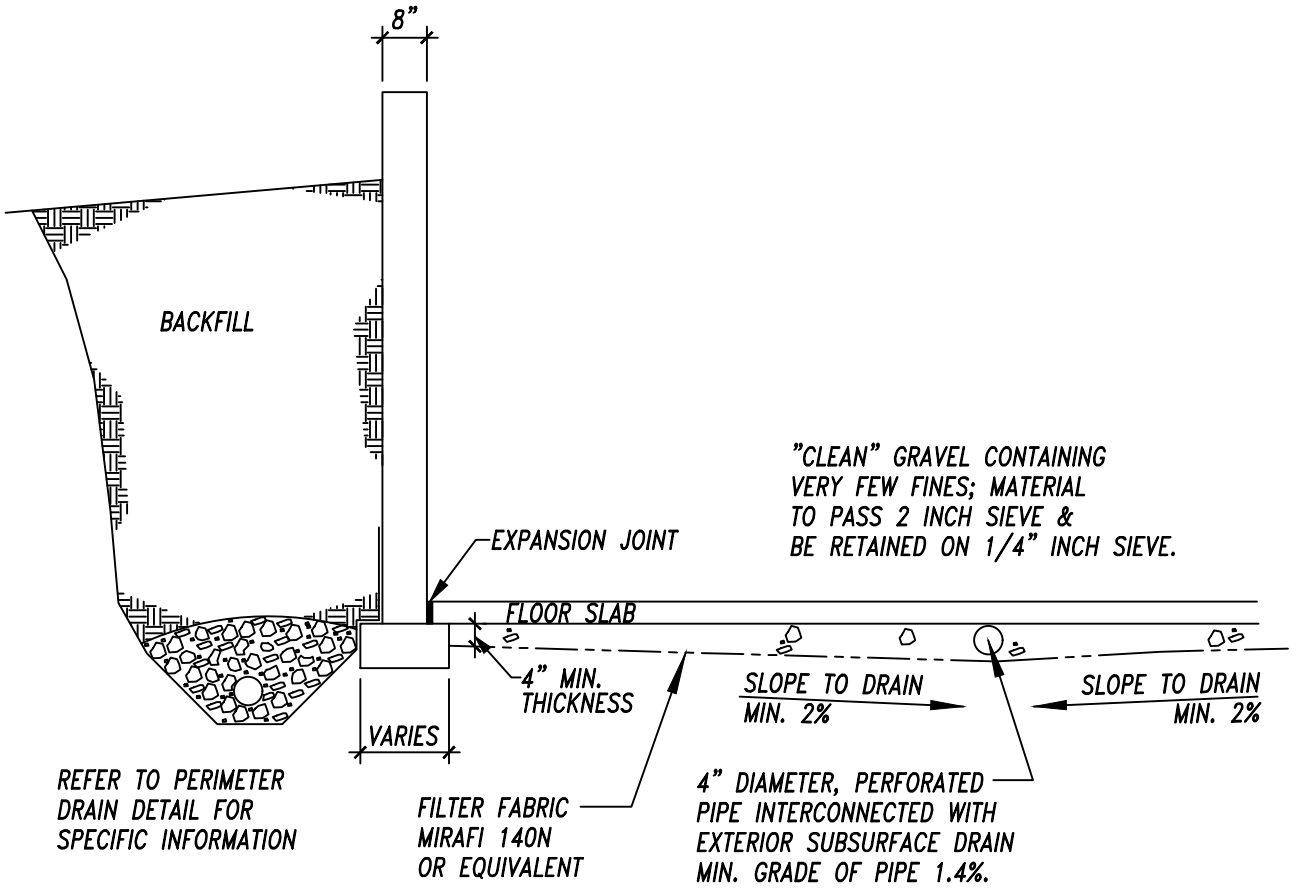
ENTECH ENGINEERING, INC.

PERIMETER DRAIN DETAIL

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 9

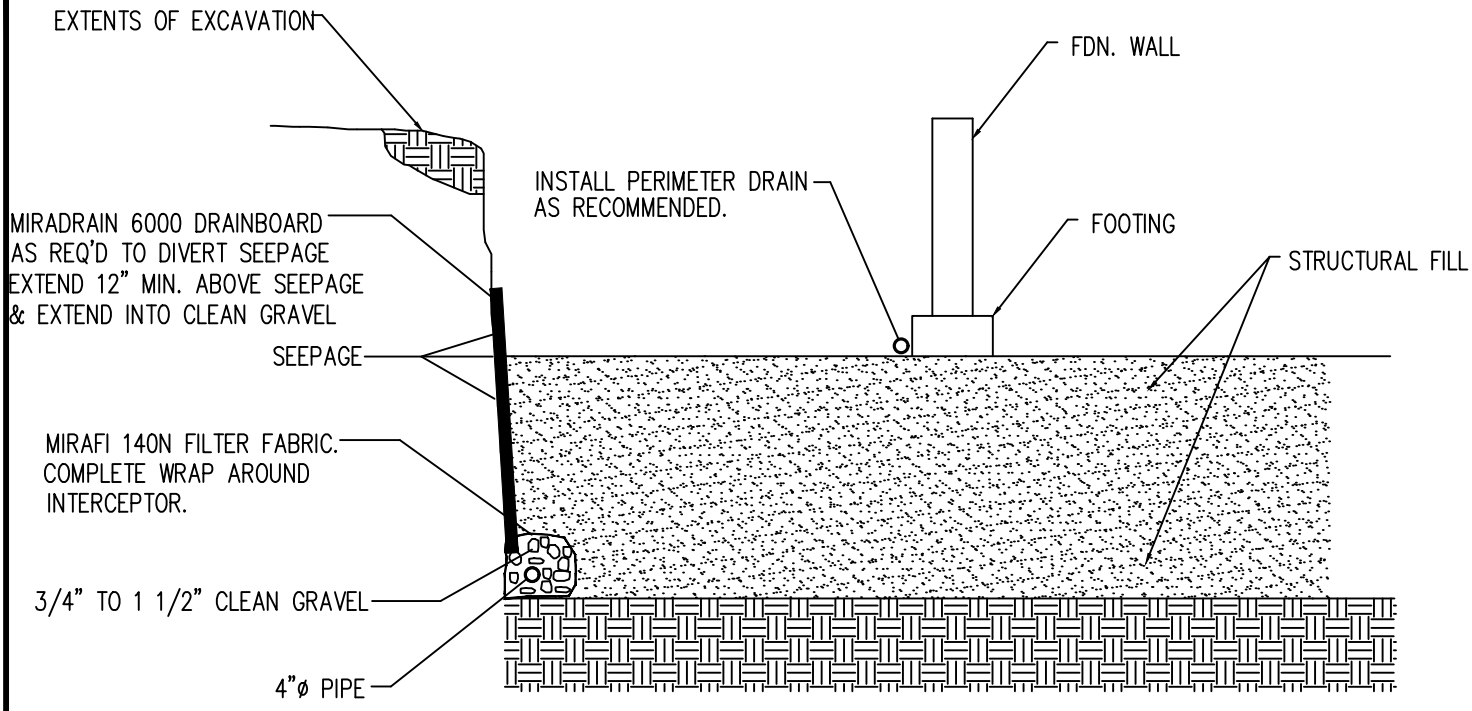


ENTECH ENGINEERING, INC.

TYP. UNDERSLAB DRAINAGE LAYER (CAPILLARY BREAK)
STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 10



NOTE:
EXTEND INTERCEPTOR DRAIN TO UNDERDRAIN OR TO SUMP.
BENCH DRAIN INTO NATIVE SOILS 12 INCHES MINIMUM.

INTERCEPTOR DRAIN DETAIL

N.T.S.

ENTECH ENGINEERING, INC.

INTERCEPTOR DRAIN DETAIL

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. 11

APPENDIX A: Site Photographs



1

Looking northwest from the eastern side of the site.

August 31. 2026



2

Looking north from the southern side of the site.

August 31. 2026

Job No. 220572



3

Looking northeast from the southern side of the site.

August 31. 2026



4

Looking west from the northern portion of the site.

August 31. 2026

Job No. 220572



5

Looking south from the eastern portion of the site.

August 31. 2026



6

Looking southeast from the eastern portion of the site.

August 31. 2026

Job No. 220572

APPENDIX B: Test Boring Logs

TEST BORING 1
DATE DRILLED 3/22/2022

REMARKS

WATER @ 13', 3/28/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			20	2.1	1
5			30	3.4	1
10			29	11.6	1
15			50/9"	12.2	3
20			50/5"	9.6	3

SAND, WITH SILT, TAN, MEDIUM DENSE to DENSE, DRY to MOIST

SANDSTONE, WEAK, GRAY, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 2
DATE DRILLED 3/22/2022

REMARKS

WATER @ 13', 3/22/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			11	1.7	1
5			30	2.8	1
10			23	10.0	1
15			40	11.5	1
20			50/9"	14.1	4

SAND, SILTY, TAN, MEDIUM DENSE to DENSE, DRY to MOIST

CLAYSTONE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. B-1

TEST BORING 3
DATE DRILLED 3/22/2022

REMARKS

WATER AT 7', 3/22/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	SAND, SILTY, TAN, MEDIUM DENSE, MOIST				
			24	9.7	1
5			25	10.8	1
	CLAYSTONE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)				
10			50/8"	13.4	4
15			50/10"	14.8	4
20			50/5"	12.8	4

TEST BORING 4
DATE DRILLED 3/22/2022

REMARKS

WATER AT 8', 3/22/22

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	CLAY, SANDY, TAN, VERY STIFF to HARD, MOIST				
			16	12.9	2
5			31	14.3	2
	CLAYSTONE, WEAK, GRAY, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)				
10			50/5"	10.4	4
15			50/5"	13.0	4
20			50/6"	20.6	4

ENTECH ENGINEERING, INC.

TEST BORING LOGS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

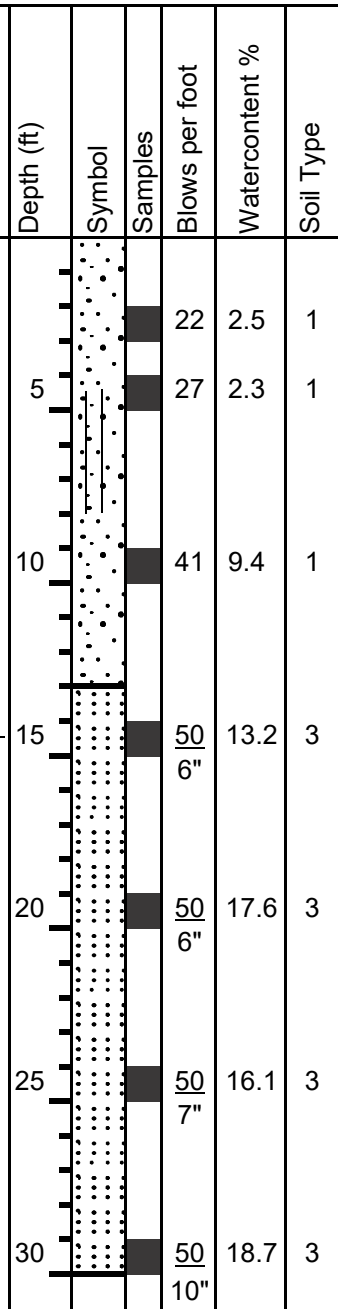
JOB NO. 220572

FIG. B-2

TEST BORING 5
DATE DRILLED 9/13/2022

REMARKS

WATER @ 14.5', 9/14/22



Depth (ft)	Description	Blows per foot	Watercontent %	Soil Type
	SAND, WITH SILT, TAN, MEDIUM DENSE to DENSE, DRY to MOIST	22	2.5	1
5		27	2.3	1
10		41	9.4	1
15	SANDSTONE, VERY WEAK, GRAY, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)	50/6"	13.2	3
20		50/6"	17.6	3
25		50/7"	16.1	3
30		50/10"	18.7	3

ENTECH ENGINEERING, INC.

TEST BORING LOGS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. B-3

TABLE B-1

DEPTH TO GROUNDWATER & BEDROCK

TEST BORING	DEPTH TO GROUNDWATER (ft.)	DEPTH TO BEDROCK (ft.)
1	13	13
2	13	18
3	7	6
4	8	8
5	14.5	13

APPENDIX C: Laboratory Testing Results

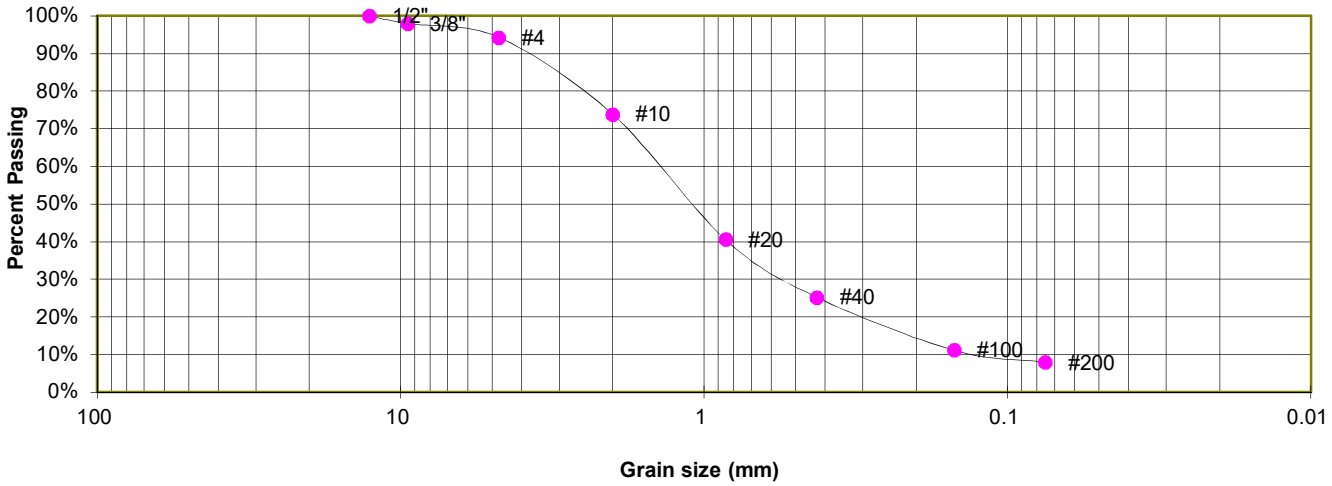
ENTECH ENGINEERING, INC.

TABLE C-1
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	FHA SWELL (PSF)	SWELL/ CONSOL (%)	USCS	SOIL DESCRIPTION
1	1	5			8.0	NV	NP	NP	0.03			SW-SM	SAND, WITH SILT
1	3	2-3	11.0	122.3	14.7	NV	NP	NP	0.03		0.0	SM	SAND, SILTY
1	5	5			9.2							SW-SM	SAND, WITH SILT
2	4	5			50.5					300		CL	CLAY, SANDY
3	1	20			27.4	22	13	9	0.03			SC	SANDSTONE (SAND, CLAYEY)
3	3	10			47.0							SC	SANDSTONE (SAND, CLAYEY)
3	5	25			44.6							SM	SANDSTONE (SAND, SILTY)
4	2	20	14.6	116.8	50.8	29	20	9	0.02		0.5	CL	CLAYSTONE (CLAY, SANDY)

Project: Sterling Ranch East, Filing No. 8
Client: Classic SRJ
Job No: 220572

TEST BORING	1	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	5	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.0%
4	94.3%
10	73.9%
20	40.6%
40	25.2%
100	11.1%
200	8.0%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

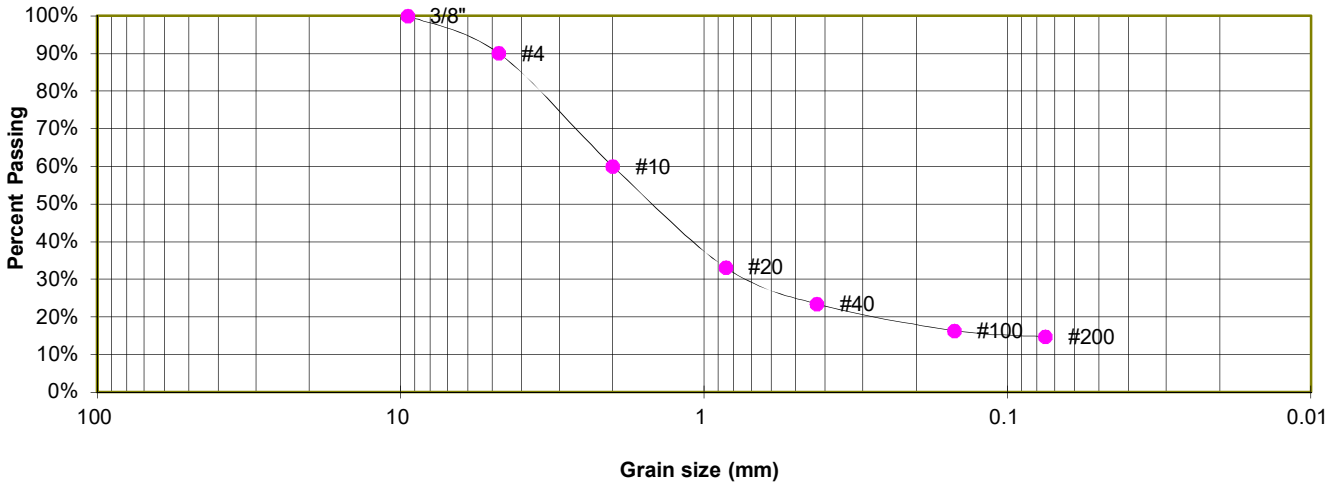
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-1

TEST BORING	3	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	2-3	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	90.1%
10	60.0%
20	33.2%
40	23.5%
100	16.4%
200	14.7%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

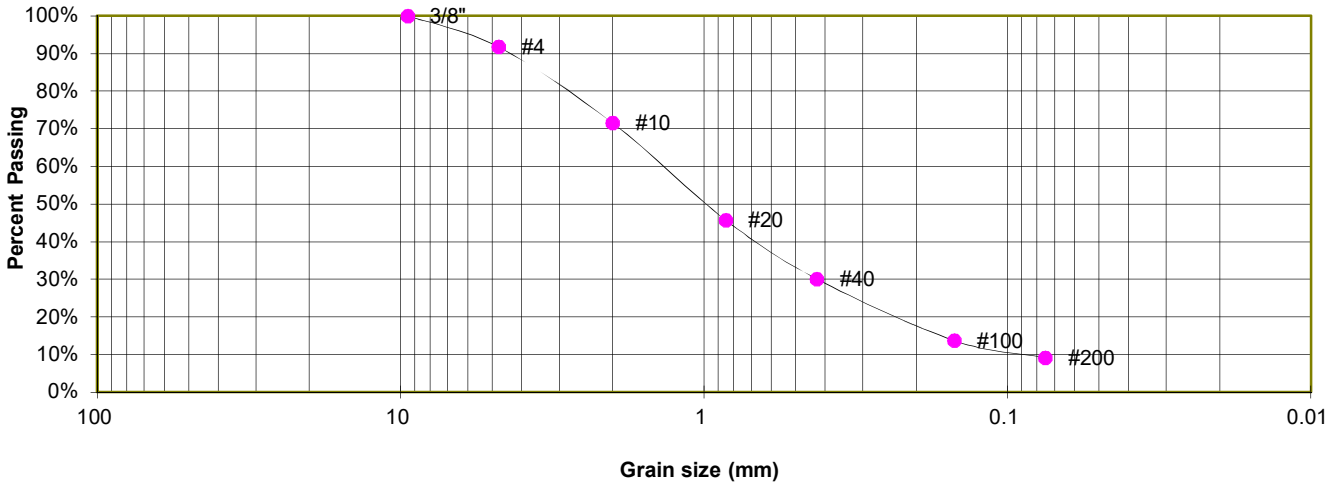
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-2

TEST BORING	5	SOIL DESCRIPTION	SAND, WITH SILT
DEPTH (FT)	5	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	91.7%
10	71.5%
20	45.8%
40	30.1%
100	13.8%
200	9.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

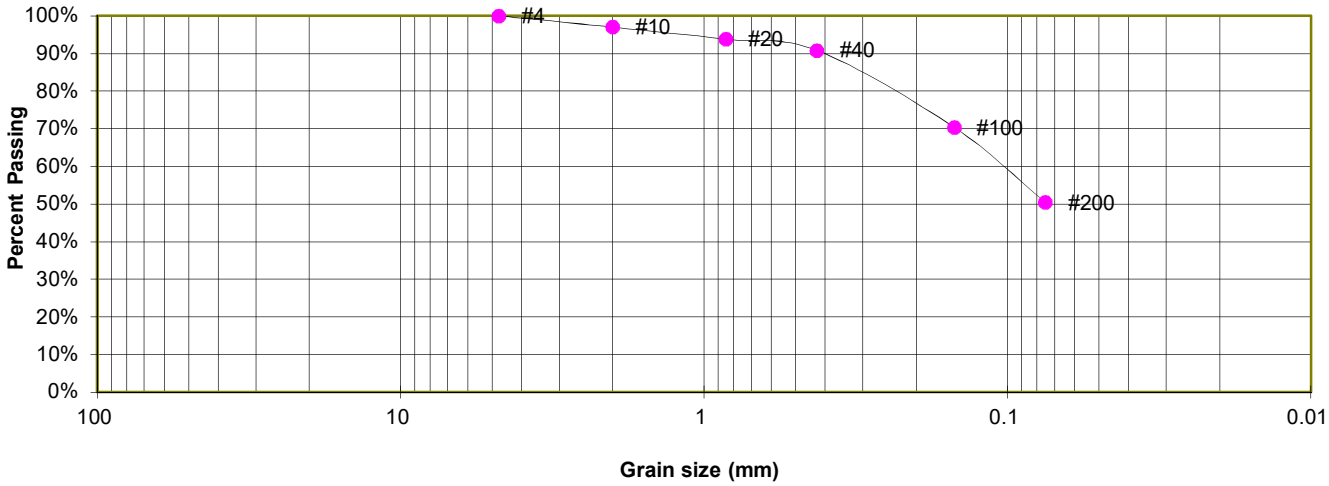
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-3

TEST BORING	4	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	5	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	97.0%
20	93.8%
40	90.9%
100	70.4%
200	50.5%

FHA SWELL

Moisture at start	16.2%
Moisture at finish	20.7%
Moisture increase	4.6%
Initial dry density (pcf)	99
Swell (psf)	300

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

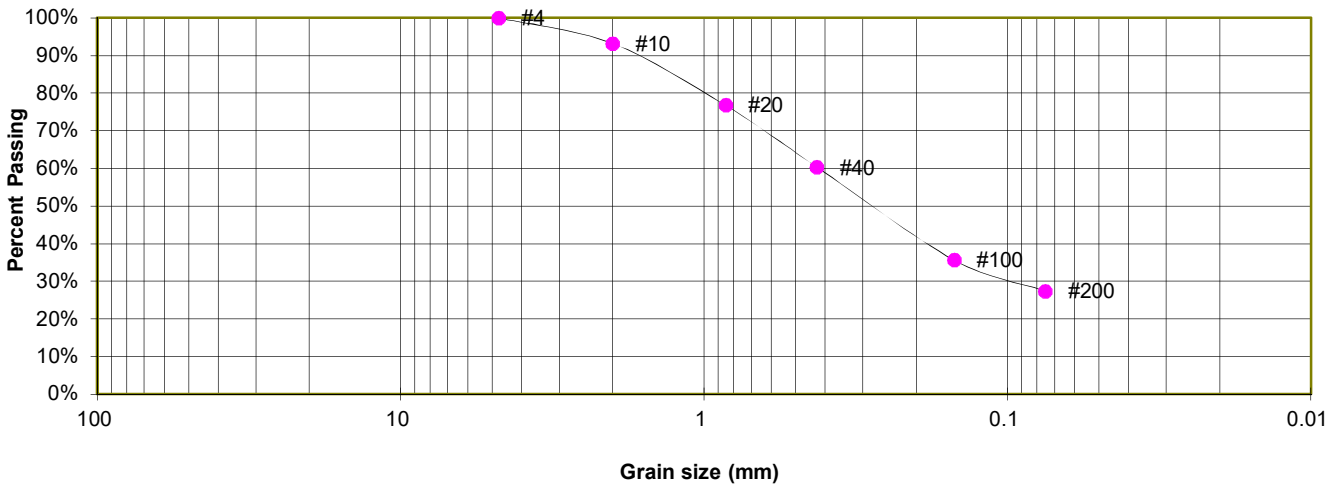
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-4

TEST BORING	1	SOIL DESCRIPTION	SANDSTONE (SAND, CLAYEY)
DEPTH (FT)	20	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	93.2%
20	76.8%
40	60.4%
100	35.7%
200	27.4%

ATTERBERG LIMITS

Plastic Limit	13
Liquid Limit	22
Plastic Index	9

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

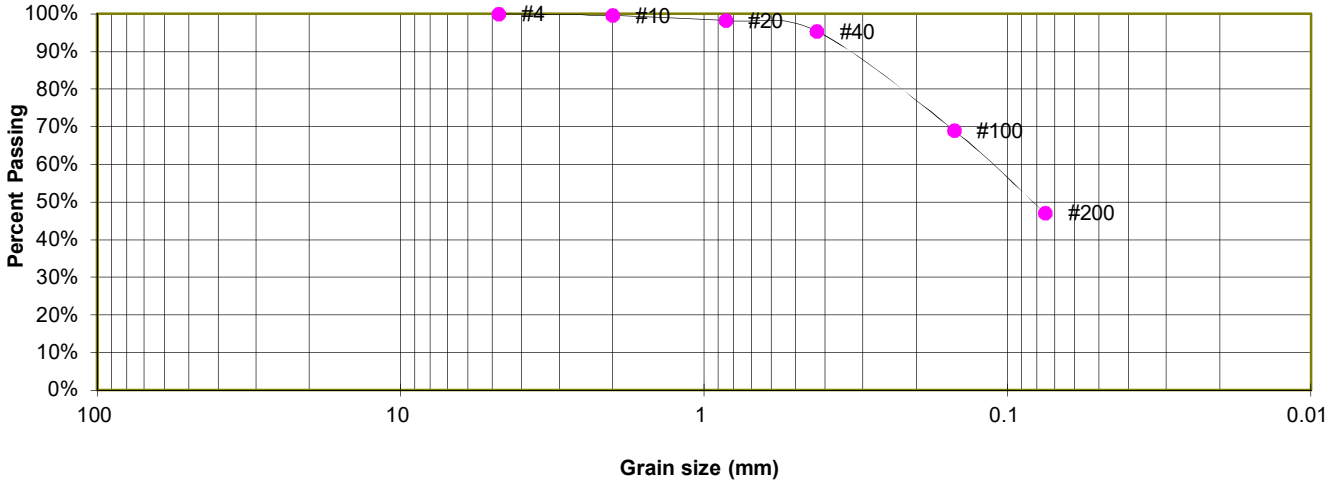
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-5

TEST BORING	3	SOIL DESCRIPTION	SANDSTONE (SAND, CLAYEY)
DEPTH (FT)	10	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	99.6%
20	98.2%
40	95.4%
100	69.1%
200	47.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

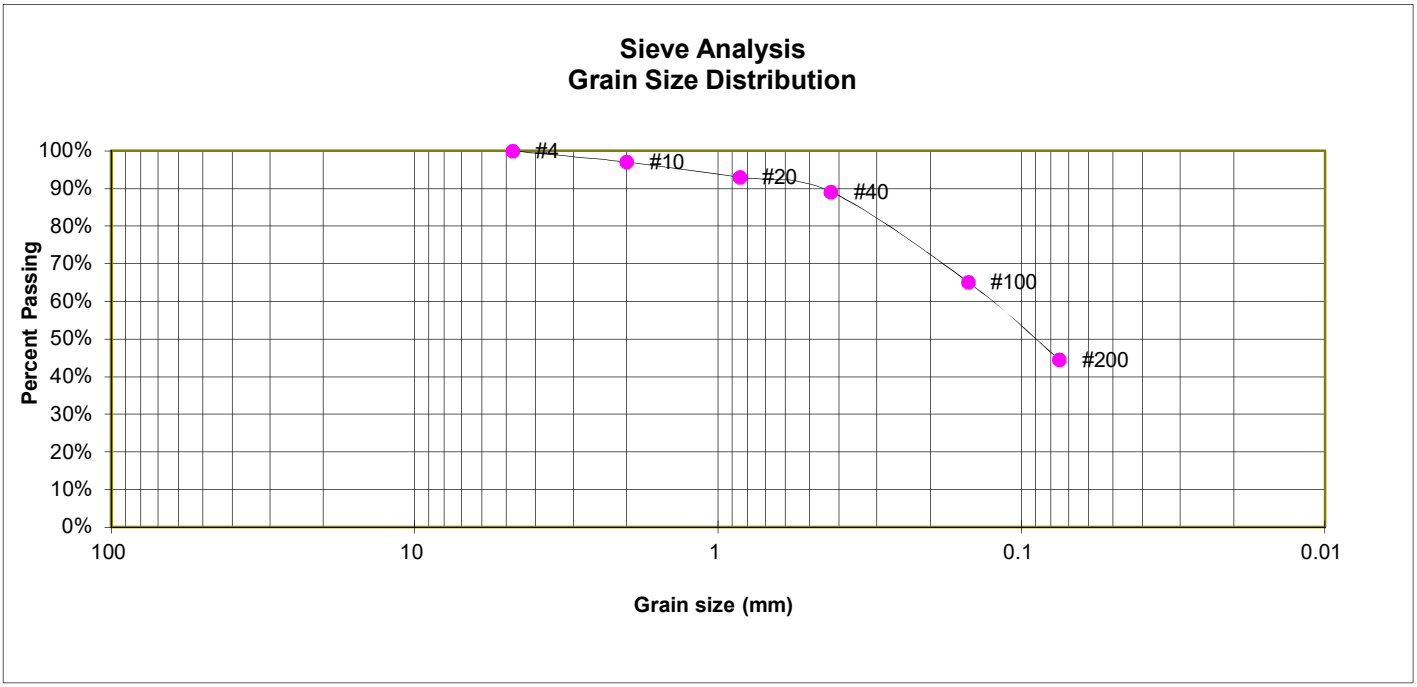
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-6

TEST BORING	5	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	25	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	97.0%
20	93.1%
40	89.2%
100	65.2%
200	44.6%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

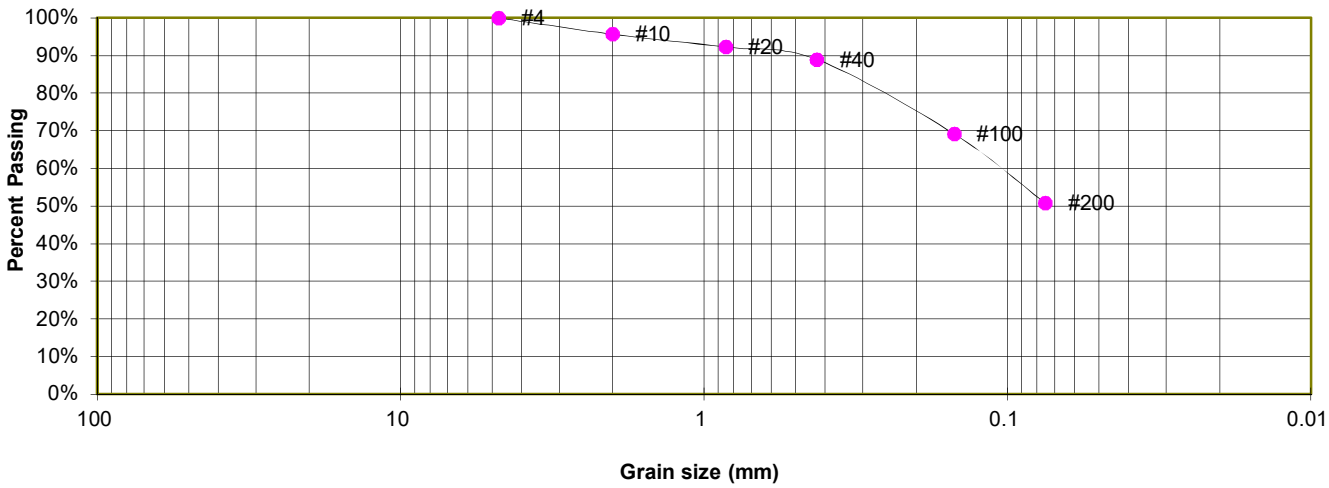
LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-7

TEST BORING	2	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	20	SOIL TYPE	4



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	95.6%
20	92.3%
40	88.9%
100	69.2%
200	50.8%

ATTERBERG LIMITS

Plastic Limit	20
Liquid Limit	29
Plastic Index	9

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

LABORATORY TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-8

TEST BORING	3	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	2-3	SOIL TYPE	1



SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 122
NATURAL MOISTURE CONTENT: 11.0%
SWELL/COLLAPSE (%): 0.0%

ENTECH ENGINEERING, INC.

SWELL TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-9

TEST BORING	2	SOIL DESCRIPTION	CLAYSTONE (CLAY, SANDY)
DEPTH (FT)	20	SOIL TYPE	4



SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 117
NATURAL MOISTURE CONTENT: 14.6%
SWELL/COLLAPSE (%): 0.5%

ENTECH ENGINEERING, INC.

SWELL TEST RESULTS

STERLING RANCH EAST, FILING NO. 8
CLASSIC SRJ

JOB NO. 220572

FIG. C-10

APPENDIX D: Piezometer Boring Logs and Laboratory Testing Summary

TEST BORING P-1
DATE DRILLED 2/18/2026

REMARKS

WATER @ 17.7', 2/20/26

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	SAND, WITH SILT, TAN, MEDIUM DENSE, MOIST		24	5.7	2
5			15	4.0	2
10			16	12.2	2
15	SANDSTONE, EXTREMELY WEAK, GRAY, HIGHLY WEATHERED (SAND, WITH SILT, VERY DENSE, MOIST)		50/8"	10.7	3
20			50/7"	10.8	3

TEST BORING P-2
DATE DRILLED 2/18/2026

REMARKS

WATER @ 18.4', 2/20/26

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	FILL 0-8', CLAY, SANDY, DARK BROWN, VERY STIFF, MOIST		19	15.9	1
5	FILL, SAND, CLAYEY, DARK BROWN, MEDIUM DENSE, MOIST		10	8.5	1
10	SAND, SILTY, TAN, MEDIUM DENSE, MOIST		27	14.2	2
15	SANDSTONE, EXTREMELY WEAK, GRAY, HIGHLY WEATHERED (SAND, WITH SILT, VERY DENSE, MOIST)		50/6"	17.0	3
20			50/8"	15.0	3

ENTECH ENGINEERING, INC.

TEST BORING LOGS

STERLING RANCH EAST, F-8, POND
CLASSIC SRJ

JOB NO. 220572

FIG. D-1

TEST BORING P-3
DATE DRILLED 2/18/2026

REMARKS

WATER @ 3.5', 2/20/26

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
					2
			50/6"	11.3	3
5			50/7"	18.6	3
10			50/9"	17.6	3
15			50/9"	18.2	3
20			50/8"	13.6	3

SAND, CLAYEY, BROWN

SANDSTONE, EXTREMELY WEAK, GRAY, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

TEST BORING HB-1
DATE DRILLED 2/18/2026

REMARKS

DRILLED WITH A 3" HAND AUGER

WATER @ 3', 2/20/26

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			*	12.3	1
			*	13.2	2
			*	14.3	3
5					
10					
15					
20					

FILL 0-2', SAND, CLAYEY, BROWN

SAND, CLAYEY, BROWN

SANDSTONE, EXTREMELY WEAK, GRAY, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

* - BULK SAMPLE TAKEN

AUGER REFUSAL AT 3.5'

ENTECH ENGINEERING, INC.

TEST BORING LOGS

STERLING RANCH EAST, F-8, POND
CLASSIC SRJ

JOB NO. 220572

FIG. D-2

TABLE D-1

DEPTH TO GROUNDWATER & BEDROCK

TEST BORING	DEPTH TO GROUNDWATER (ft.)	DEPTH TO BEDROCK (ft.)
P-1	17.7	12
P-2	18.4	12
P-3	3.5	1
HB-1	3	3

TABLE D-2
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	WATER (%)	DRY DENSITY (PCF)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	SWELL/ CONSOL (%)	USCS	SOIL DESCRIPTION
1	P-2	2-3	17.6	104.4	58.2	27	20	7		-0.3	CL	FILL, CLAY, SANDY
1	HB-1	0-1			25.4						SC	FILL, SAND, CLAYEY
2	P-1	2-3			11.1						SW-SM	SAND, WITH SILT
3	P-1	15			8.2	NV	NP	NP			SW-SM	SANDSTONE (SAND, WITH SILT)
3	P-3	10			41.7	NV	NP	NP			SM	SANDSTONE (SAND, SILTY)

Project: Sterling Ranch East, Filing No. 8, Pond
Client: Classic SRJ
Job No: 220572

APPENDIX E: Soil Survey Descriptions

El Paso County Area, Colorado

8—Blakeland loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369v
Elevation: 4,600 to 5,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Blakeland and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blakeland

Setting

Landform: Flats, hills
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock and/or eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 11 inches: loamy sand
AC - 11 to 27 inches: loamy sand
C - 27 to 60 inches: sand

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XB210CO - Sandy Foothill
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 22, Sep 3, 2024

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Fans, fan terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit: 1 percent

Landform: Swales
Hydric soil rating: Yes

Other soils
Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 22, Sep 3, 2024