ENTECH
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WASTEWATER STUDY
FLYING HORSE NORTH, FILING NO. 4
EL PASO COUNTY, COLORADO

Prepared for:

Flying Horse North, LLC
2138 Flying Horse Club Drive
Colorado Springs, Colorado 80921

Attn: Drew Balsick

September 11, 2024

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: 09/11/24

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

LLL

PCD No.

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1 SUMMARY

Project Location

The site consists of portions of the S½ of Section 30, and the NE¼ of Section 31, Township 11 South, Range 65 West of the 6th Principal Meridian, and a portion of the NE¼ of Section 36, Township 11 South, Range 66 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately 3½ miles northeast of Colorado Springs, Colorado.

Project Description

Flying Horse North Filing No. 4 Subdivision is approximately 175 acres with forty-eight (48) lots proposed for the filing along with three full spectrum detention ponds and other associated site improvements. The proposed development is to consist of approximately 2.5 to 5-acre single-family residential lots. The development will be serviced by individual water wells and on-site wastewater systems (OWTS).

Scope of Report

This report presents the results of our geologic evaluation and treatment of engineering geologic hazard study for the use of onsite wastewater treatment systems (OWTS).

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 seasonal and potentially seasonal shallow groundwater areas, drainage areas, areas of seasonally ponded water, erosion, artificial fill, expansive soils, and potential for elevated radon levels. 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 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The site consists of portions of the S½ of Section 30, and the NE¼ of Section 31, Township 11 South, Range 65 West of the 6th Principal Meridian, and a portion of the NE¼ of Section 36, Township 11 South, Range 66 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located approximately 3½ miles northeast of Colorado Springs, Colorado, at the east end of Stagecoach Road between Highway 83 and Black Forest Road. The location of the site is as shown on the Vicinity Map, Figure 1.

The topography of the site varies from gently to moderately sloping generally to the east and north with some steeper slopes along the drainages in portions of the site. Palmer Divide is located to the west of Filing No. 4. The drainages on site generally flow in a northerly direction through the site. Water was not observed in any of the drainages or ponds within Filing No. 4 at the time of our site investigation. The site contains primarily field grasses and weeds in with areas of scattered ponderosa pine trees in the northern portion of the site along Old Stagecoach Road. Site photographs are included in Appendix A. The locations and directions of the photographs are indicated in Figure 3.

Flying Horse North Filing No. 4 Subdivision is approximately 175 acres with forty-eight (48) lots proposed for the filing along with three full spectrum detention ponds and other associated site improvements. The proposed development is to consist of approximately 2.5 to 5-acre single-family residential lots. Grading is expected to be primarily associated with the construction of roads and the three detention ponds. The Site and Exploration Plan is presented in Figure 3.

3 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 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 Engineering Geology Map which identified pertinent geologic conditions affecting development. The field mapping was initially performed by personnel of Entech Engineering, Inc. (Entech) on November 21 and December 2, 2014. Field mapping was updated by Entech on October 31 and November 3, 2017 (References 1 and 2). The site was revisited and additional mapping completed in July and August of 2024. Recent site photographs are included in Appendix A.

Fifteen (15) test borings were drilled and six (6) test pits excavated across the site as part of this study to determine the soils classification and engineering characteristics. The borings were drilled to depths of 20 feet using a truck-mounted, continuous flight auger drilling rig supplied and operated by Entech, and the test pits were excavated to depths ranging from 6 to 8 feet. Test Boring Nos. 13 – 15 were placed in proposed pond locations.

Five (5) test borings and six (6) test pits from previous Flying Horse North investigations were used in the in preparing this report (Reference 3). The location of the previous Test Borings and Test Pits indicated on the Site and Exploration Plan, Figure 3.

Laboratory testing was performed on some of the soils to classify and determine the soils engineering characteristics. Laboratory tests included moisture content testing, ASTM D-2216, tests included grain-size analysis ASTM D-422, Atterberg Limits ASTM D-4318, 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. Previous Laboratory Testing Summary and Test Boring and Test Pit Logs are included in Appendix D.

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

Physiographically, the site lies in the western portion of the Great Plains Physiographic Province. Approximately 10 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 northerly direction (Reference 4). The rocks in the area of the site are sedimentary in nature,

and typically Tertiary to Cretaceous in age. The bedrock underlying the site consists of the Dawson Arkose Formation. Overlying this formation are unconsolidated deposits of residual, colluvial, man-made, and alluvial soils of the Quaternary Age. The residual soils are produced by the in-situ action of weathering of the bedrock on site. Some colluvial soils exist which are deposited by gravity and sheetwash. The alluvial soils were deposited by water in the drainages on site. Man-made soils exist as earthen dams and erosion berms. 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 5), previously the Soil Conservation Service (Reference 6) has mapped two soil types on the site (Figure 4). In general, the soils classify as coarse sandy loam, and 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 rapid permeabilities. Limitations on development include, limited ability to support a load, shrink swell potential, slopes and frost action potential. 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 Black Forest Quadrangle Geology Map showing the site is presented in Figure 6 (Reference 7). 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 Holocene Age:** These are man placed fill deposits associated with erosion berms, earthen dams on-site, and stockpiles of fill. Additionally, temporary stockpiles were observed on the site. Other areas of fill may exist on the site other than those mapped due to on-going construction.

Qal **Recent Alluvium of Quaternary Age:** These are recent stream deposits associated with the drainages on-site. These materials generally consist of silty to clayey sands and may contain clay lenses. Highly organic soils may be encountered in some of these areas.

Tkd **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. Areas of colluvial soils may exist on some of the slopes on site. These materials are derived from the bedrock materials and have been re-deposited by the action of sheetwash and gravity.

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 man placed fill deposits, alluvial deposits, and 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 Black Forest Quadrangle* distributed by the Colorado Geological Survey in 2003 (References 7), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 8), and the *Geologic Map of the Denver 1^0 x 2^0 Quadrangle*, distributed by the US Geological Survey in 1981 (Reference 9). The Test Borings and Test Pit Logs used in evaluating the site and are included in Appendix B. The Geology Map prepared for the site is presented in Figure 7.

5.4 Groundwater

Groundwater was encountered in TB-2 and TB-13 at depths of 18 and 20 feet bgs. Groundwater was not encountered in the remaining test borings which were drilled to 20 feet. Areas of seasonal, potentially seasonal shallow groundwater, and seasonally ponded water have been mapped in the drainages and low-lying areas on the site. 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. It should be noted that in the sandy materials on-site, 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. 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.

Groundwater and Floodplain Areas – Constraint

Drainages are located in the southeast and northern portions of Filing No. 4, and several minor drainages are located across the site that generally flow in northerly directions. None of the drainages on the site have been mapped within floodplain zones according to the FEMA Map No. 08041CO315G, (Figure 7, Reference 11). Areas where potentially seasonal shallow, seasonal shallow, and seasonally ponded water have been indicated on the site geology/engineering geology map, Figure 6. Lots adjacent to the drainages may experience higher groundwater levels during peak flows. Finished floor levels must be a minimum of one floor above any floodplain level. **Exact floodplain locations and drainage studies are beyond the scope of this report.**

The seasonally shallow groundwater and potentially seasonal shallow groundwater areas located on the site are shown on the Geology/Engineering Geology Map, Figure 7. Portions of these areas mapped with these hazards have been identified in the National Wetland Inventory as Freshwater Emergent Wetland habitats classified as PEM1C (Palustrine – P, Emergent – EM, Persistent – 1, Seasonally Flooded – C), and Freshwater Pond habitat classified as PUSCh (Palustrine – P, Emergent – US, Seasonally Flooded – C, Diked/Impounded – H), (Figure 7, Reference 12).

6 ON-SITE WASTEWATER TREATMENT

The site was evaluated for individual on-site wastewater treatment systems in accordance with El Paso Land Development Code. Twelve (12) tactile test pits were excavated across the Filing No. 4. The test pits were located in potential locations of future systems. The approximate locations of the Test Pits are indicated on Figure 3, and on the Septic Suitability Map, Figure 9. Test Pit Logs are included in Appendix B, and Laboratory Test Results in Appendix C. Previous Laboratory Testing Summary and Test Pit Logs are included in Appendix D.

The Natural Resource Conservation Service (Reference 5), previously the Soil Conservation Service (Reference 6) has been mapped with two soil descriptions. The Soil Survey Map (Reference 5) is presented in Figure 4, and the Soil Survey Descriptions are presented in Appendix D. The soils are described as having slow to rapid percolation rates. The majority of the soils have been described with moderate permeabilities.

Soils encountered in the tactile test pits consisted of sandy loam, sandy clay loam, and sandy clay, sandstone with silt to silty sandstone and clayey sandstone. Signs of seasonal occurring groundwater were not observed in the test pits. The limiting layers encountered in the test pits are sandy loam (2A), sandy clay loam (Soil Types 3 and 3A), sandstone (sandy clay loam when classified as a soil) (Soil Type 3A), sandstone (sandy clay when classified as a soil) (Soil Type 4A), and claystone (sandy clay when classified as a soil). The soil types correspond to LTAR values ranging from 0.50 to 0.15 gallons per day per square foot.

On-site Wastewater Systems are to be designed on a per lot basis at the time of building permit. The systems are to meet County Chapter 8 OWTS criteria and State CDPHE criteria including any required mitigation to accommodate respective leach fields and infrastructure including, but not limited to earthwork grading, berming and diversion swale implementation, installation of secondary sand filters or any other higher treatment levels and dosing as required on a per lot basis and determined by test pit results and site topography. There are no identified geologic hazards on the site that are prohibitive to future OWTS design at this time.

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems (OWTS) and that contamination of surface and subsurface water resources should not occur provided the OWTS sites are evaluated and installed accordance to El Paso County and State Guidelines and properly maintained. Based on the testing performed as part of this investigation designed systems will likely be required for the majority of the lots. A Septic Suitability Map is presented in Figure 8. OWTS sites should not be located within defined drainages. Individual soil testing is required on the lots prior to construction. Absorption fields must be located a minimum of 100 feet from any well, including those on adjacent properties. Absorption fields must also be located a minimum of 50 feet from any drainages, floodplains or ponded areas and 25 feet from dry gulches.

7 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. Individual 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 Flying Horse North, LLC 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.

8 REFERENCES

1. Entech Engineering, Inc., February 26, 2015. *Soil, Geology, Geologic Hazard, and Wastewater Study, Shamrock Ranch, El Paso County, Colorado*. Entech Job No. 141588
2. Entech Engineering, Inc., February 22, 2016. *Soil, Geology, Geologic Hazard, and Wastewater Study, Flying Horse North, PUD Submittal, El Paso County, Colorado.* Entech Job No. 160118.
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5. Natural Resource Conservation *Service,* June 20, 2007*. Web Soil Survey.* United States Department Agriculture, hhtp://web soil survey.nrcs.usda.gov.
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7. Thorson, Jon P. 2003. *Geologic Map of the Black Forest Quadrangle, El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 03-6.
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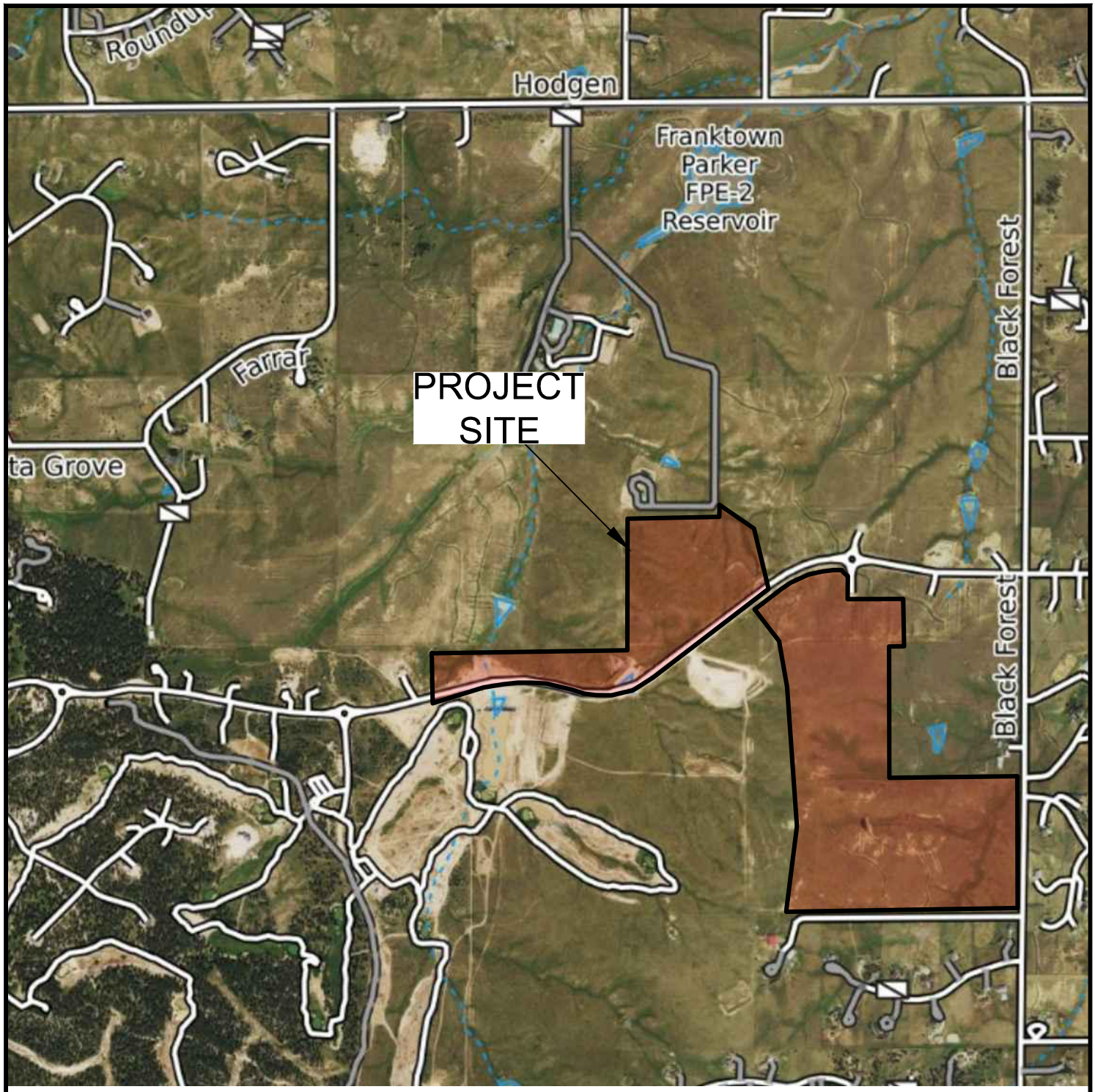
10. Hart, Stephen S. 1974. *Potentially Swelling Soil and Rock in the Front Range Urban Corridor, Colorado*. Colorado Springs-Castle Rock Map. Colorado Geological Survey. Environmental Geology 7.
11. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado.* Map Number 08041CO315G.
12. U.S. Fish & Wildlife Service. *National Wetlands Inventory*. Department of the Interior, fws.gov/wetlands/data/Mapper.html.

FIGURES



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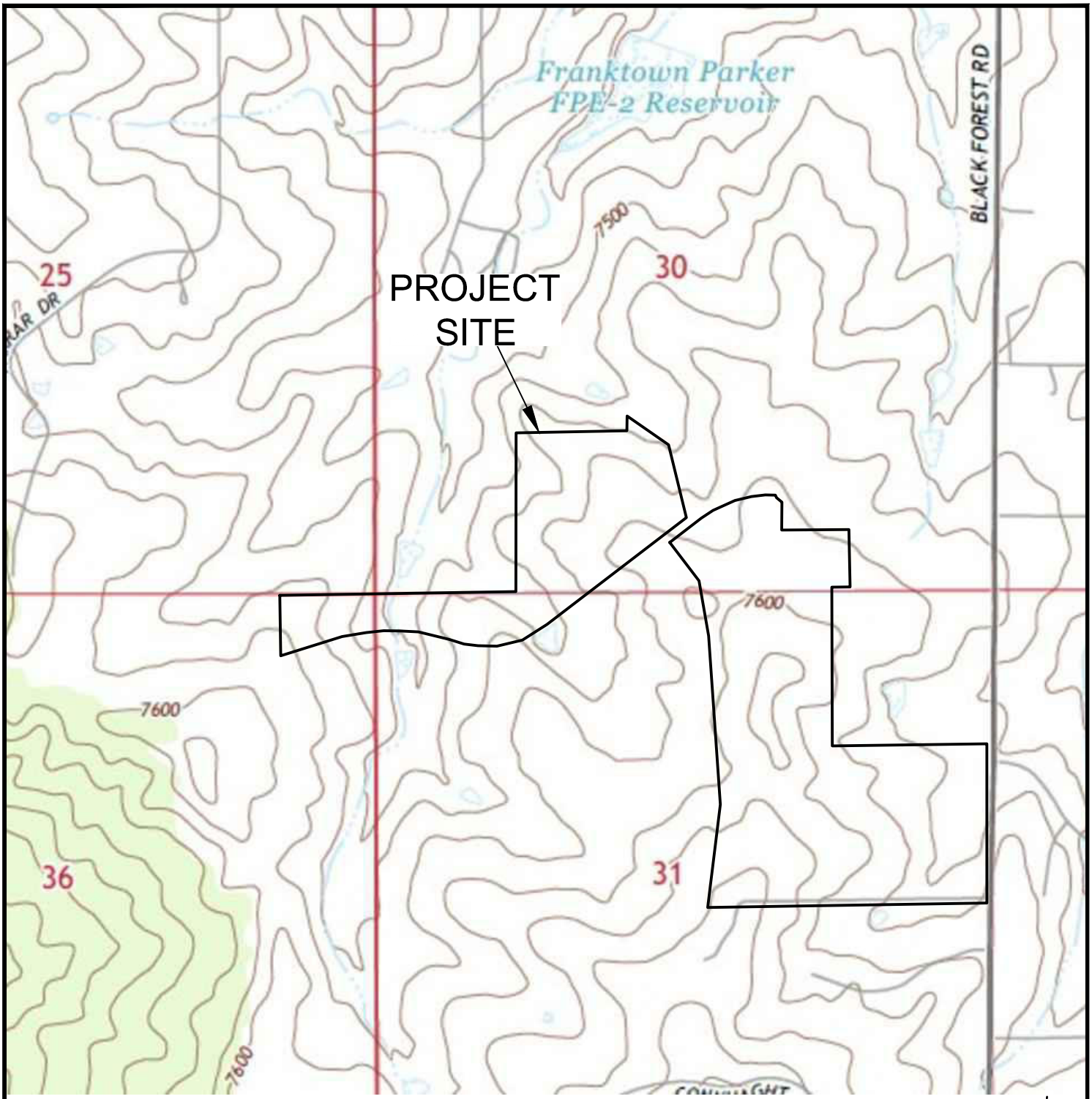
VICINITY MAP

FLYING HORSE NORTH FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO.
241144

FIG. 1



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USGS TOPOGRAPHY MAP

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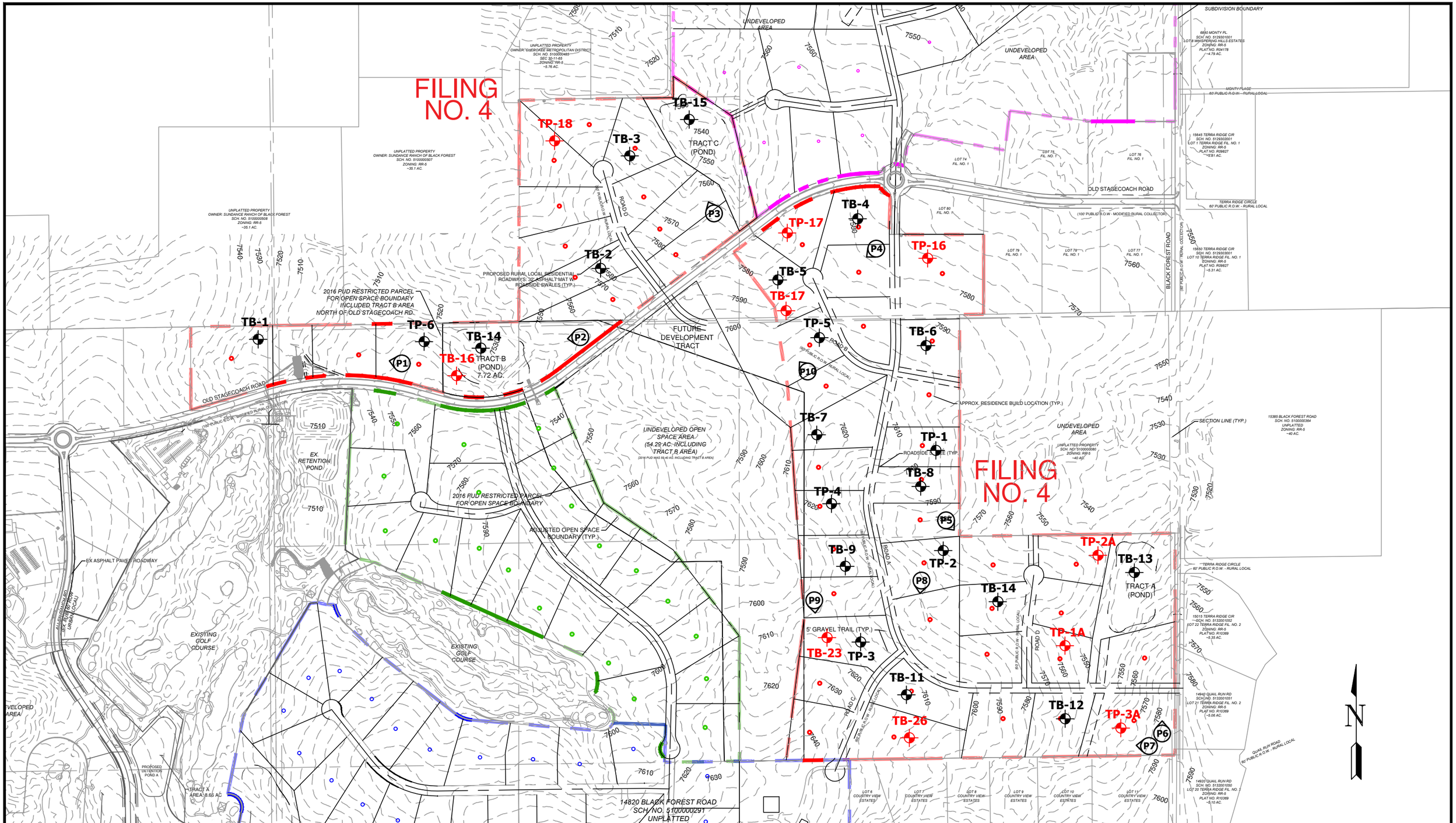
FLYING HORSE NORTH, LLC

JOB NO.
241144

FIG. 2



TB- APPROXIMATE TEST BORING LOCATION AND NUMBER

TP- APPROXIMATE TEST PIT LOCATION AND NUMBER

P2 - APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER

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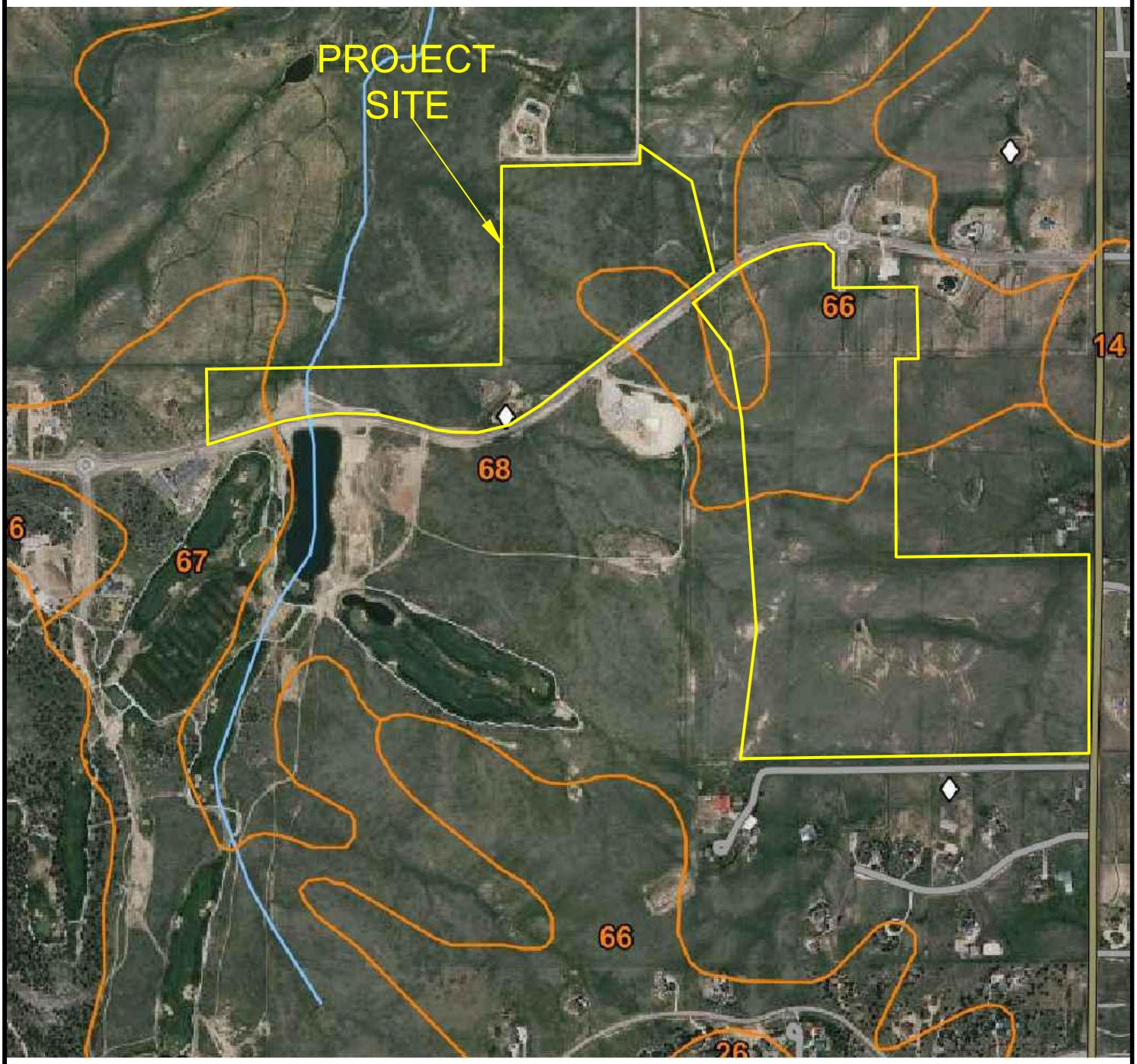
SITE AND EXPLORATION PLAN

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. 3



N

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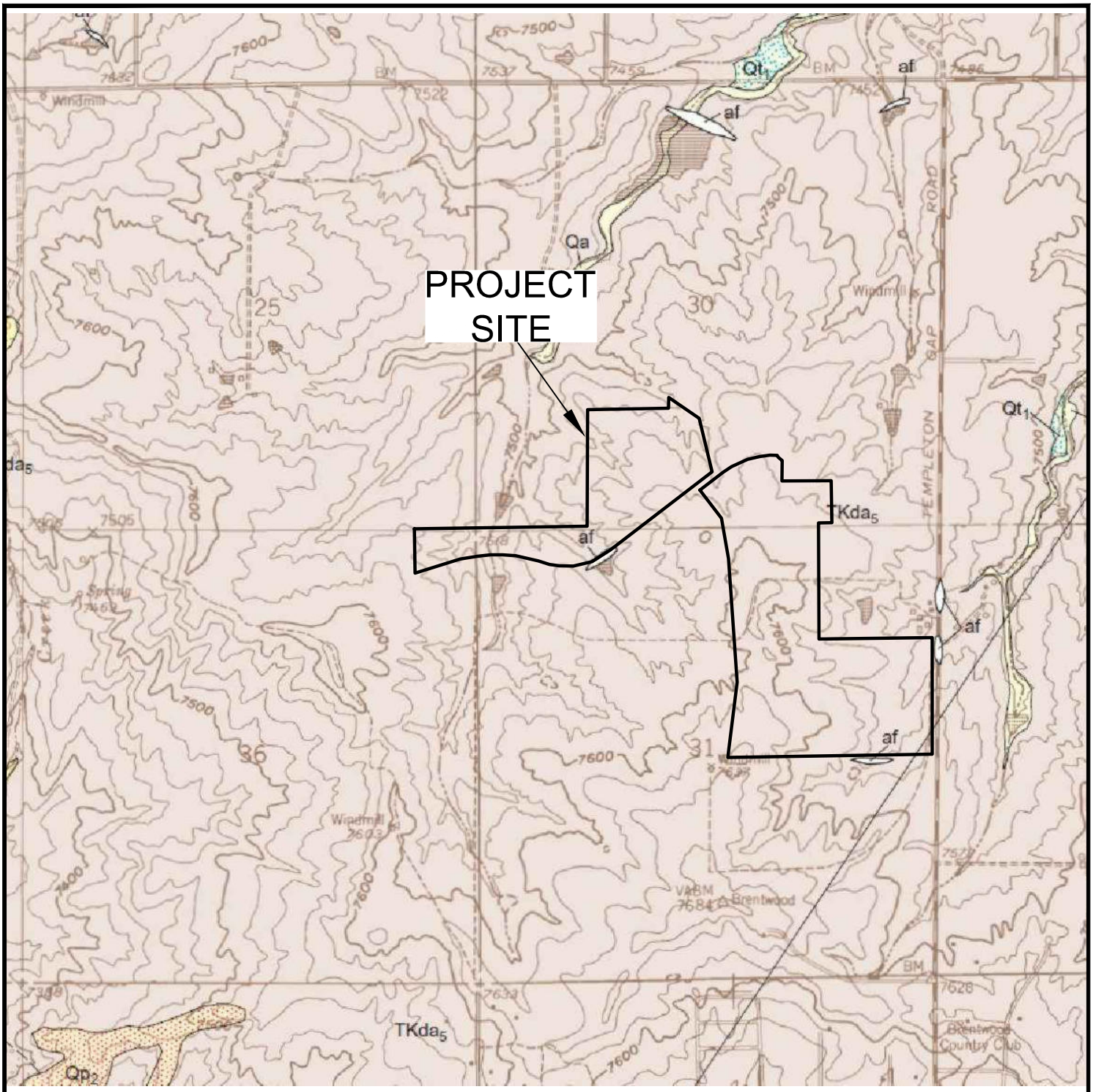
SOIL SURVEY MAP

FLYING HORSE NORTH, FILIN G NO. 4
FLYING HORSE NORTH, LLC

JOB NO.
241144

FIG. 4



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GEOLOGIC MAP OF THE BLACK FOREST QUADRANGLE

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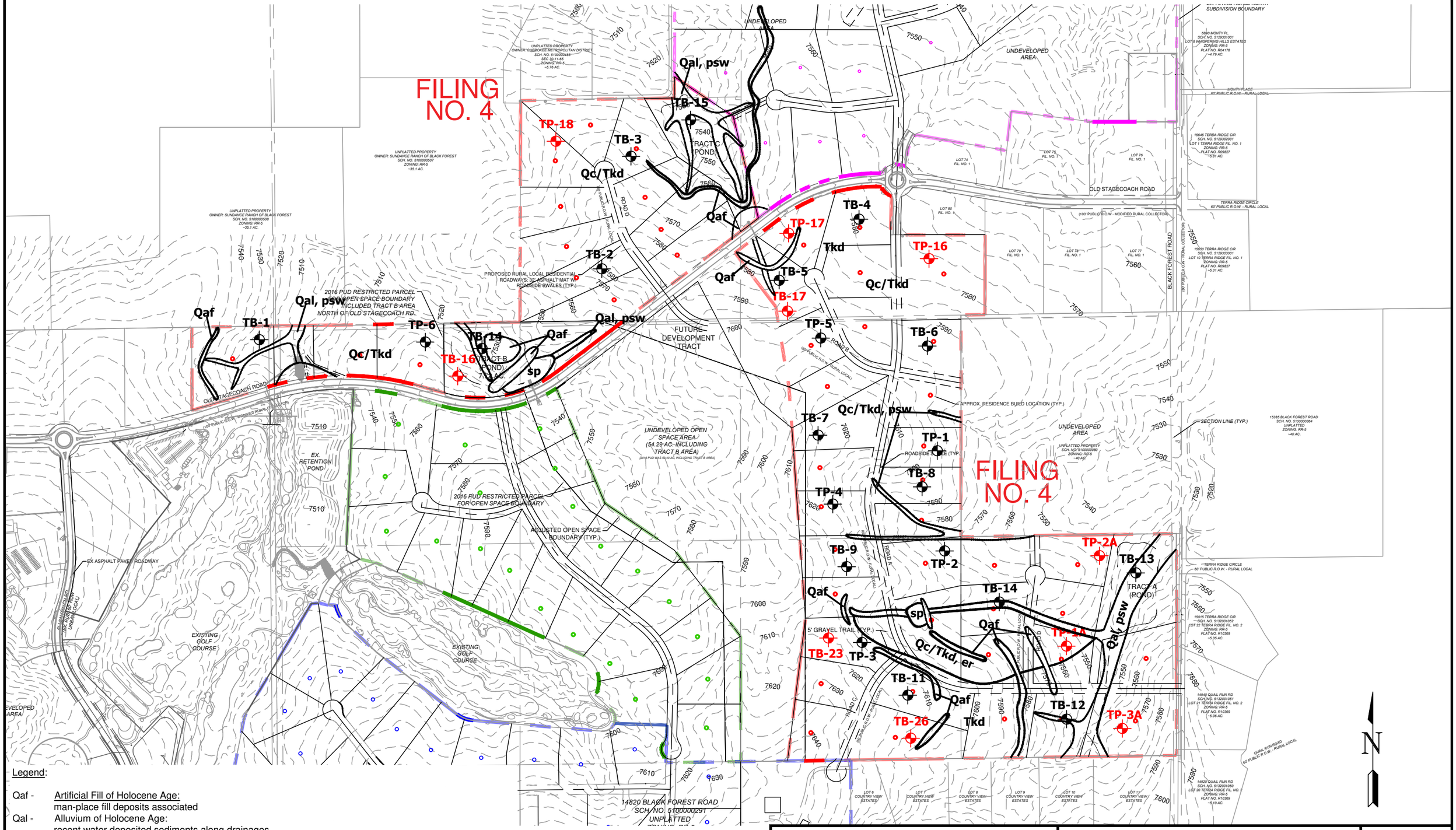
FIG. 5



Legend:

Qaf - Artificial Fill of Holocene Age:
man-place fill deposits associated

Qal - Alluvium of Holocene Age:
recent water deposited sediments along drainages

Qc/Tkd - Colluvium of Quaternary Age overlying the Dawson Formation of Tertiary to Cretaceous Age:
Sheetwash and residual soil deposits overlying arkosic sandstone with interbedded claystone and siltstone

er - erosion
psw - potential seasonally shallow groundwater area
sp - seasonally area of ponded water

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GEOLOGY / ENGINEERING MAP

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FLYING HORSE NORTH, LLC

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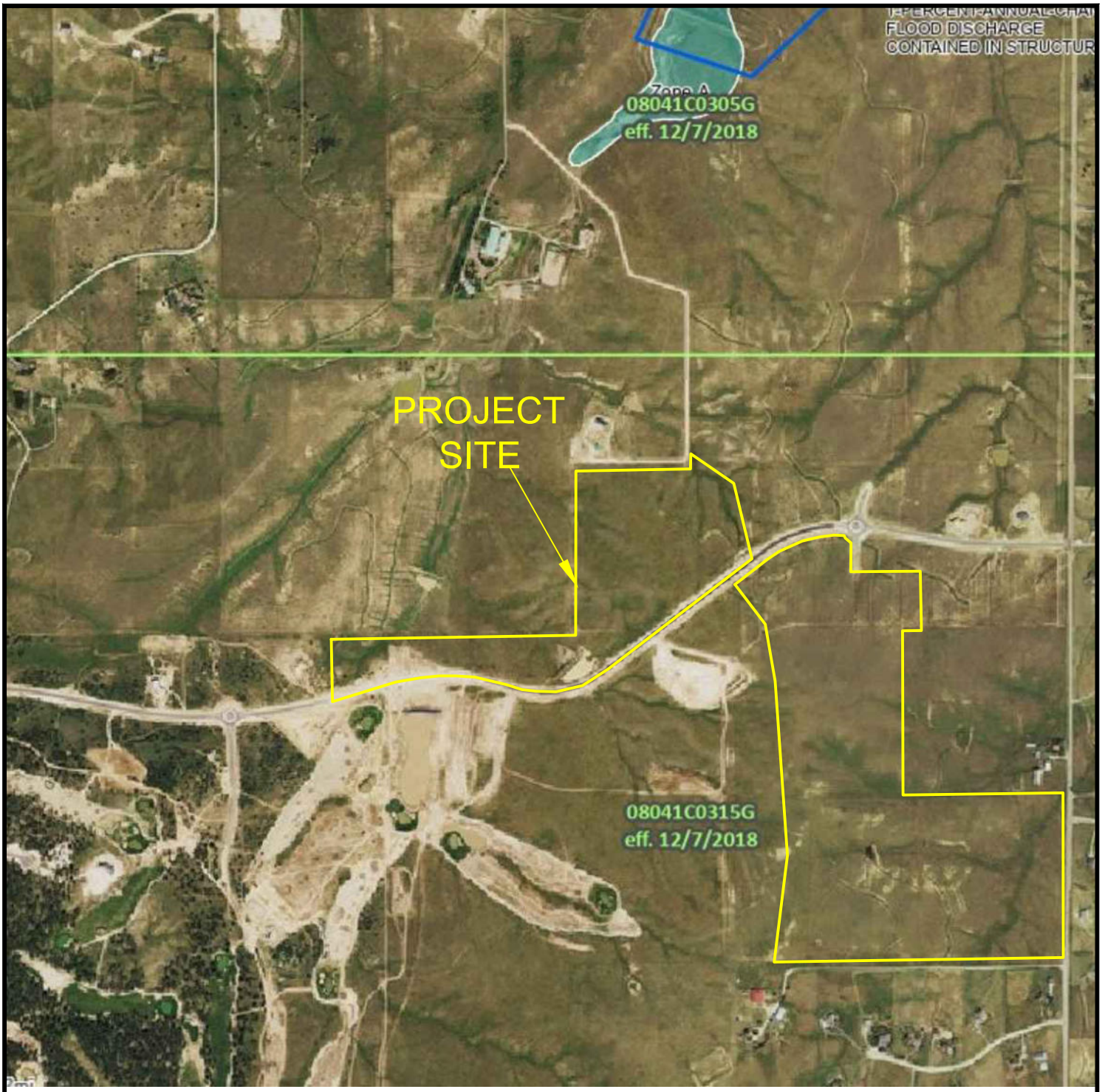
FIG. 6



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FEMA FLOODPLAIN MAP

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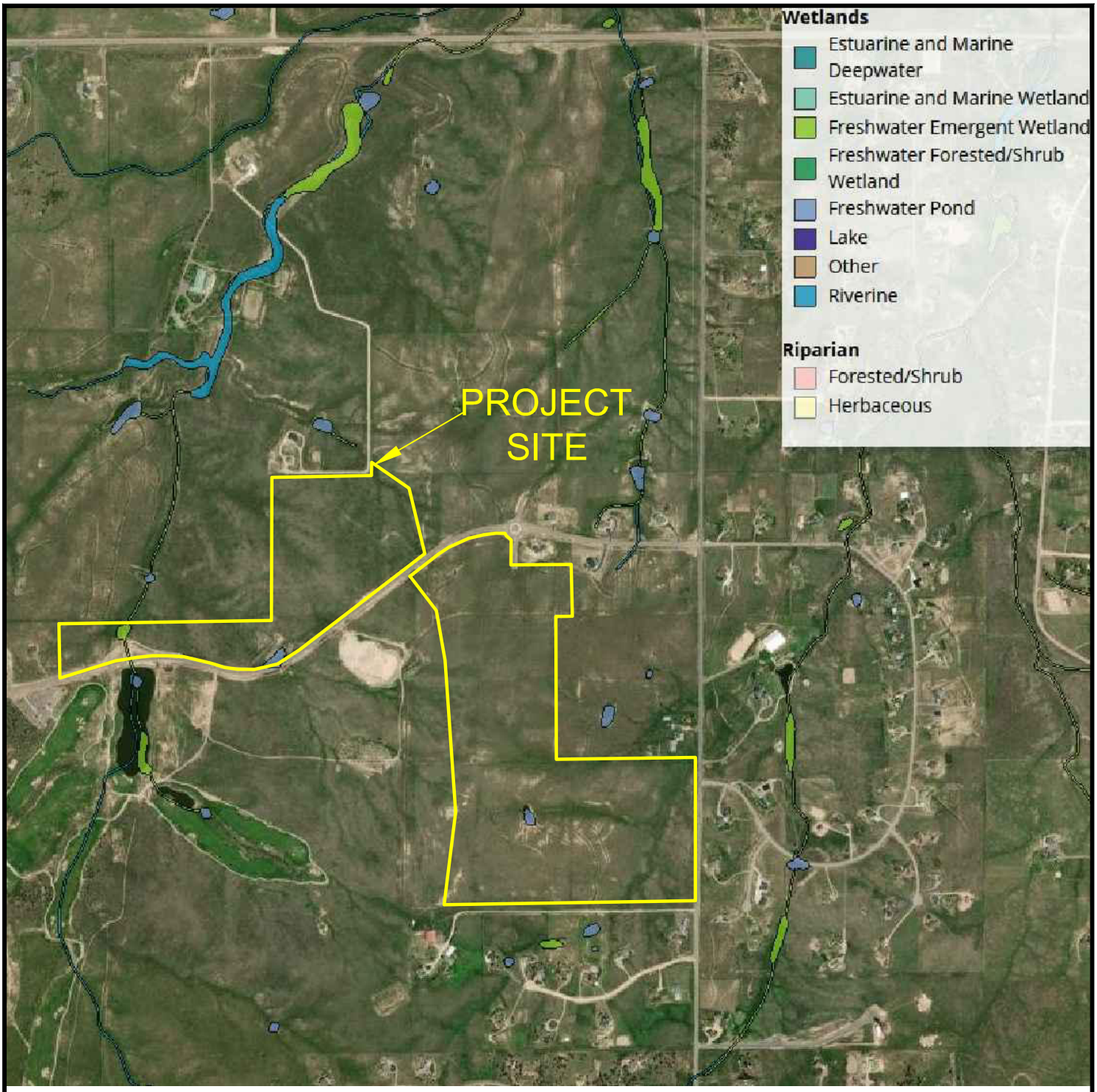
FIG. 7



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ENTECH ENGINEERING, INC.

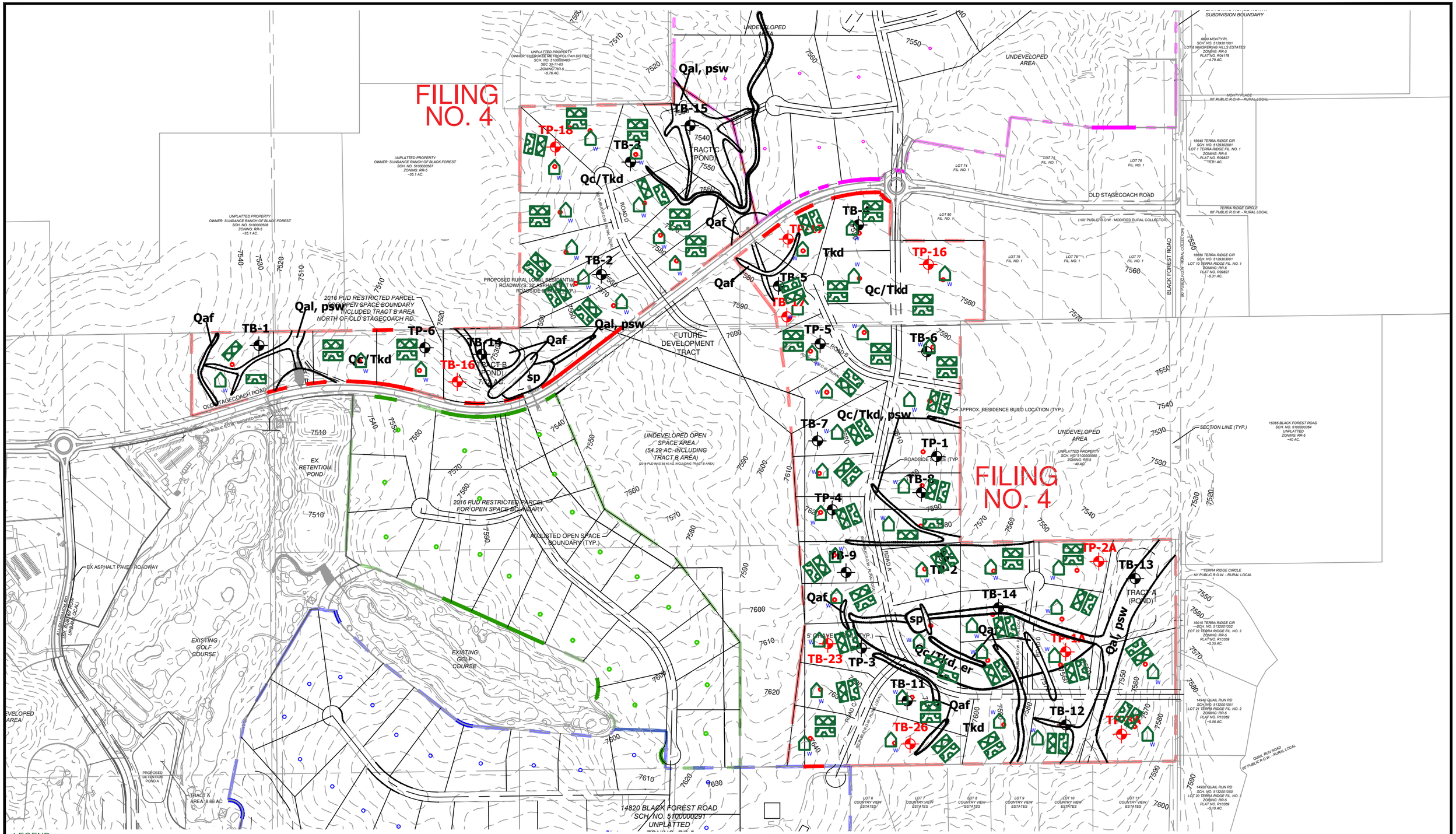
U.S. FISH AND WILDLIFE SERVICES NATIONAL WETLANDS INVENTORY

FLYING HORSE NORTH, FILING NO. 4

FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. 8



LEGEND:

- POSSIBLE OWTS LOCATIONS
- POSSIBLE OWTS ALTERNATE LOCATION
- POSSIBLE HOUSE LOCATIONS

W *- WATER WELLS MUST BE A MINIMUM OF 100 FT FROM OWTS ABSORPTION FIELDS

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OWTS SUITABILITY MAP

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. 9

APPENDIX A: Site Photographs

1

Looking west from the northwestern portion of the site.

July 11, 2024

2

Looking west from the northern portion of the site towards Tract B.

July 11, 2024

Job No. 241144

3

Looking northwest from the northeastern portion of the site.

July 11, 2024

4

Looking southwest from the northeastern portion of the site.

July 11, 2024

Job No. 241144

5

Looking southeast from the southeastern portion of the site.

July 11, 2024

6

Looking north from the southeast corner of the site.

July 11, 2024

Job No. 241144

7

Looking west from the southeast corner of the site.

July 11, 2024

8

Looking southwest along existing earthen dam and pond in the southern portion of the site.

August 22, 2024

Job No. 241144

9

Looking south from the southwestern portion of the site.

July 11, 2024

10

Looking northwest from the west-central portion of the site.

August 22, 2024

Job No. 241144

APPENDIX B: Test Boring and Test Pit Logs

TABLE B-1

DEPTH TO BEDROCK

TEST BORING	DEPTH TO BEDROCK (ft.)	DEPTH TO GROUNDWATER (ft.)
1	>20	>20
2	11	18
3	17	>20
4	9	>20
5	12	>20
6	7	>20
7	16	>20
8	>20	>20
9	>20	>20
10	13	>20
11	>20	>20
12	>20	>20
13	11	>20
14	18	>20
15	12	>20

TEST BORING 1
DATE DRILLED 7/24/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			11	7.1	2
5			12	3.4	2
10			20	10.9	2
15			43	10.0	1
20			29	16.1	1

24" TOPSOIL

CLAY, WITH SAND, BROWN, STIFF to VERY STIFF, MOIST

SAND, CLAYEY, OLIVE, DENSE to MEDIUM DENSE, MOIST

TEST BORING 2
DATE DRILLED 7/24/2024

REMARKS

WATER @ 18', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			15	6.0	1
5			25	11.7	1
10			40	7.0	1
15			50/6"	9.0	3
20			37	15.8	4

6" TOPSOIL

SAND, SILTY, LIGHT BROWN, MEDIUM DENSE to DENSE, MOIST

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

CLAYSTONE, EXTREMELY WEAK, OLIVE, HIGHLY WEATHERED (CLAY, SANDY, HARD, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-1

TEST BORING 3
DATE DRILLED 7/24/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			22	4.6	1
5			29	5.8	1
10			32	6.4	1
15			44	8.0	1
20			50/8"	7.5	3

6" TOPSOIL

SAND, GRAVELLY, WITH SILT, LIGHT BROWN to OLIVE, MEDIUM DENSE to DENSE, MOIST

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

TEST BORING 4
DATE DRILLED 7/24/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			13	6.4	2
5			4	8.3	2
10			50/11"	6.6	3
15			50/11"	5.7	3
20			50/9"	4.9	3

12" TOPSOIL

CLAY, SANDY, BROWN, STIFF to SOFT, MOIST

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

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TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-2

TEST BORING 5
DATE DRILLED 7/24/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			13	9.1	2
5			11	8.7	2
10			25	3.2	1
15			50/10"	5.5	3
20			39	6.9	3

12" TOPSOIL

CLAY, SANDY, BROWN, STIFF, MOIST

SAND, CLAYEY, OLIVE, MEDIUM DENSE, MOIST

SANDSTONE, EXTREMELY WEAK, OLIVE, COMPLETELY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 6
DATE DRILLED 7/29/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			13	10.7	2
5			10	11.5	2
10			50/10"	3.3	3
15			50	4.5	3
20			50/8"	7.6	3

12" TOPSOIL

CLAY, SANDY, BROWN, STIFF, MOIST

SANDSTONE, EXTREMELY WEAK, BROWN to OLIVE, COMPLETELY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-3

TEST BORING 7
DATE DRILLED 7/29/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			9	8.8	2
5			10	13.6	2
10			27	9.1	1
15			26	13.5	2
20			50/4"	7.4	3

12" TOPSOIL

CLAY, SANDY, BROWN to OLIVE, STIFF, MOIST

SAND, CLAYEY, OLIVE, MEDIUM DENSE, MOIST

CLAY, SANDY, OLIVE, VERY STIFF, MOIST

SANDSTONE, MEDIUM STRONG, TAN, MODERATELY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)

TEST BORING 8
DATE DRILLED 7/24/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			13	7.6	2
5			15	8.3	2
10			15	4.3	1
15			26	8.0	1
20			45	7.5	1

12" TOPSOIL

CLAY, SANDY, BROWN, STIFF, MOIST

SAND, CLAYEY, LIGHT BROWN to BROWN, MEDIUM DENSE to DENSE, MOIST

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-4

TEST BORING 9
DATE DRILLED 8/5/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Description
						12" TOPSOIL
			13	5.9	1	SAND, SILTY, BROWN, MEDIUM DENSE to DENSE, MOIST to DRY
5			33	2.8	1	
10			17	7.3	2	CLAY, SANDY, BROWN, VERY STIFF, MOIST
						SAND, SILTY, LIGHT BROWN to OLIVE, MEDIUM DENSE to DENSE, MOIST
15			21	5.0	1	
20			46	5.7	1	

TEST BORING 10
DATE DRILLED 8/5/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	Description
						12" TOPSOIL
			31	5.2	1	SAND, CLAYEY, BROWN to OLIVE, DENSE to MEDIUM DENSE, MOIST
5			23	5.5	1	
10			36	8.8	1	
						SANDSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)
15			50/11"	8.5	3	
20			50/10"	8.2	3	

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-5

TEST BORING 11
DATE DRILLED 8/5/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			11	10.6	2	12" TOPSOIL CLAY, SANDY, BROWN, STIFF, MOIST
5			12	6.7	2	
						SAND, SILTY, OLIVE, MEDIUM DENSE to DENSE, MOIST
10			29	4.4	1	
15			32	5.6	1	
20			34	10.9	2	CLAY, SANDY, OLIVE, HARD, MOIST

TEST BORING 12
DATE DRILLED 8/5/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			9	8.1	2	12" TOPSIL CLAY, WITH SAND, BROWN, STIFF, MOIST
5			25	2.6	1	SAND, SILTY, BROWN, MEDIUM DENSE, DRY
10			16	14.1	2	CLAY, SANDY, OLIVE to BROWN, VERY STIFF to HARD, MOIST
15			47	15.5	2	
20			14	5.7	1	SAND, SILTY, OLIVE, MEDIUM DENSE, MOIST

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-6

TEST BORING 13
DATE DRILLED 8/29/2024

REMARKS

WATER AT 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	3' TOPSOIL SAND, SILTY, DARK BROWN to BROWN, LOOSE to DENSE, DRY to MOIST		18	2.5	1
5			8	0.9	1
10			41	10.9	1
	SANDSTONE, VERY WEAK, OLIVE, COMPLETELY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)				
15			50/10"	9.3	3
20			50/10"	10.8	3

TEST BORING 14
DATE DRILLED 8/29/2024

REMARKS

DRY TO 20', 9/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
	6" TOPSOIL SAND, WITH SILT, OLIVE, MEDIUM DENSE, MOIST		13	3.0	1
5			25	10.9	1
10			24	7.6	1
15			32	12.0	1
20	SANDSTONE, VERY WEAK, LIGHT BROWN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)		50/11"	10.8	3

ENTECH ENGINEERING, INC.

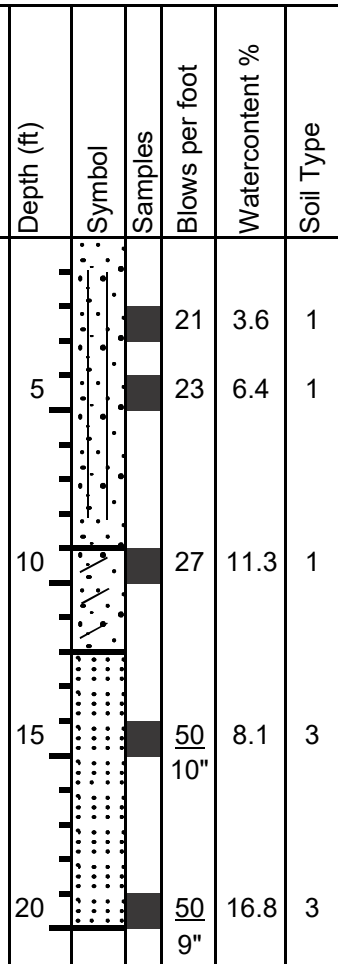
TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-7

TEST BORING 15
DATE DRILLED 8/29/2024



REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 9/3/24						
12" TOPSOIL SAND, SILTY, LIGHT BROWN to OLIVE, MEDIUM DENSE, MOIST				21	3.6	1
	5			23	6.4	1
SAND, CLAYEY, OLIVE, MEDIUM DENSE, MOIST	10			27	11.3	1
SANDSTONE, VERY WEAK, OLIVE, COMPLETELY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)	15			50/10"	8.1	3
	20			50/9"	16.8	3

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-8

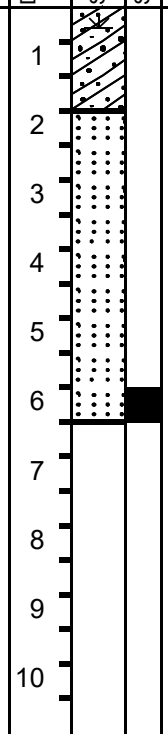
TEST PIT 1

DATE EXCAVATED 8/23/2024

REMARKS

39.005520º, -104.70500º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-6IN), SANDY CLAY FINE to MEDIUM GRAINED, DARK BROWN					
SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN			GR	W	4A
WEATHERED SILTY SANDSTONE (DAWSON FORMTAION), SANDY CLAY LOAM FINE TO COARSE GRAINED, LIGHT BROWN			GR	MA	3A
*-excavation refusal at 6ft					



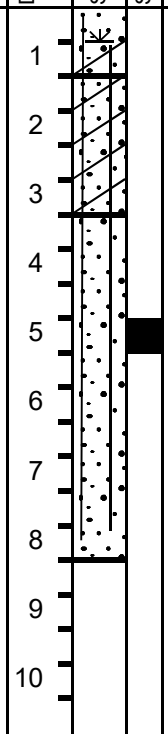
TEST PIT 2

DATE EXCAVATED 8/23/2024

REMARKS

39.05263º, -104.70477º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-12IN), SANDY CLAY LOAM, FINE to MEDIUM GRAINED, DARK BROWN					
SANDY CLAY LOAM, FINE TO COARSE GRAINED, BROWN			GR	W	3A
SANDY LOAM, FINE to COARSE GRAINED, LIGHT BROWN			GR	W	2A



Soil Structure Shape

granular - gr
platy - pl
blocky - bl
prismatic - pr
single grain - sg

Soil Structure Grade

weak - w
moderate - m
strong - s
loose - l
massive - ma

ENTECH ENGINEERING, INC.

TEST PIT LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-9

TEST PIT 3
DATE EXCAVATED 8/23/2024

REMARKS

39.05030º, -104.70699º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-12IN), SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN					
1					
2					
SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN			GR	W	4A
3					
4					
5					
SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN			GR	MA	4A
6					
7					
8					
9					
10					

TEST PIT 4
DATE EXCAVATED 8/23/2024

REMARKS

39.05382º, -104.70712º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-12IN), SANDY LOAM, FINE TO COARSE GRAINED, DARK BROWN					
1					
2					
SANDY CLAY, FINE TO COARSE GRAINED, LIGHT BROWN			GR	W	4A
3					
4					
5					
SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN			GR	MA	4A
6					
7					
8					
9					
10					

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

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

ENTECH ENGINEERING, INC.

TEST PIT LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-10

TEST BORING 5
DATE DRILLED 8/23/2024

REMARKS

39.05618º, -104.70669º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
1					
2					
3			GR	M	4
4					
5					
6			GR	MA	4A
7					
8					
9					
10					

TOPSOIL (0-12IN), SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN

SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN

SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN

TEST BORING 6
DATE DRILLED 8/23/2024

REMARKS

39.05608º, -104.71579º

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

TOPSOIL (0-12IN) SANDY CLAY LOAM, FINE TO MEDIUM GRAINED, DARK BROWN

GRAVELLY, SANDY CLAY LOAM, FINE TO COARSE GRAINED, BROWN

SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN

GRAVELLY, SANDY CLAY LOAM, FINE TO COARSE GRAINED, BROWN

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

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

ENTECH ENGINEERING, INC.

TEST PIT LOGS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. B-11

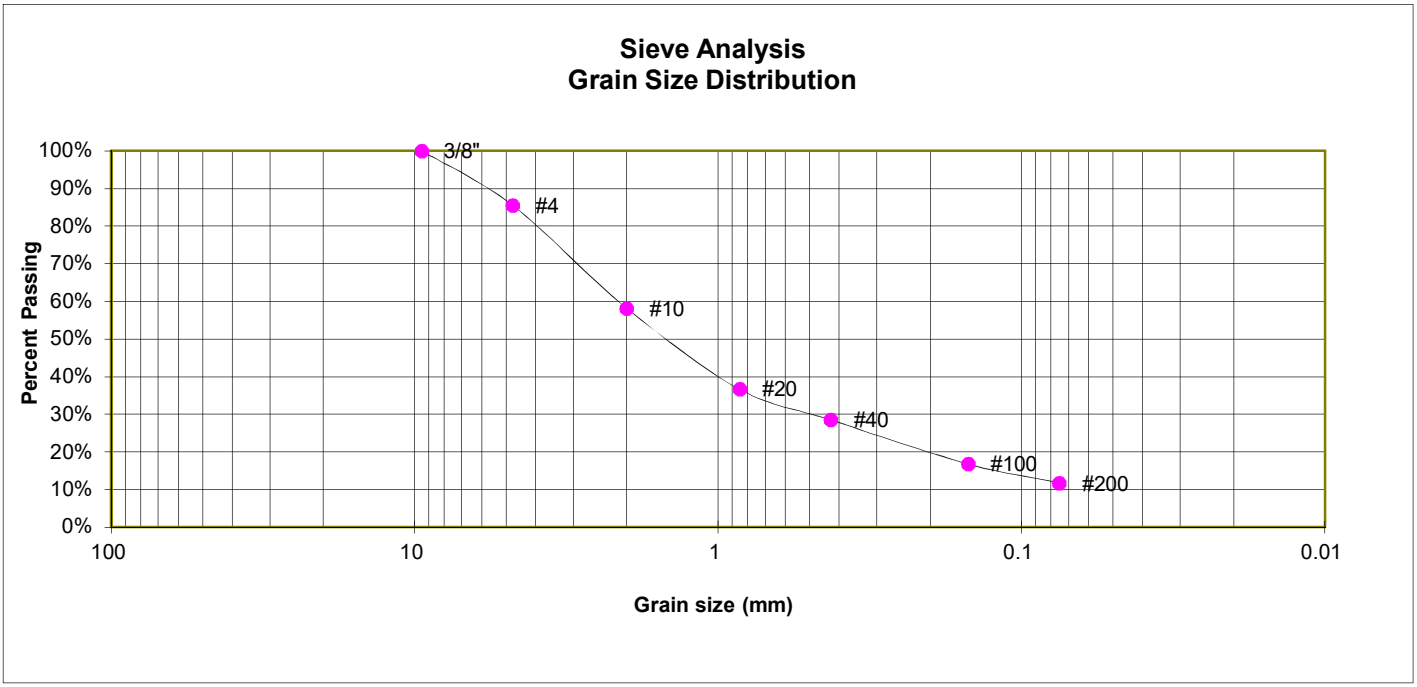
APPENDIX C: Laboratory Testing Results

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 %)	SWELL/ CONSOL (%)	USCS	SOIL DESCRIPTION
1	14	2-3			11.8						SW-SM	SAND, WITH SILT
1	15	10			47.3						SC	SAND, CLAYEY
1	3	5			11.1	NV	NP	NP	<0.01		SW-SM	SAND, WITH SILT
1	8	15			12.4						SM	SAND, SILTY
1	11	10			12.0	26	24	2			SM	SAND, SILTY
2	1	2-3			72.5	29	22	7	0.00		CL	CLAY, WITH SAND
2	5	5			50.7						CL	CLAY, SANDY
2	7	5	13.2	104.2	77.0					0.4	CL	CLAY, WITH SAND
2	9	10	7.4	103.8	50.8	27	16	11		1.2	CL	CLAY, SANDY
2	12	2-3			70.7						CL	CLAY, WITH SAND
3	13	15			20.1						SM	SANDSTONE (SAND, SILTY)
3	4	10			41.8	32	18	14	0.00		CL	SANDSTONE (SAND, CLAYEY)
3	6	10			12.1						SM	SANDSTONE (SAND, SILTY)
3	10	15			35.1	32	21	11			CL	SANDSTONE (SAND, CLAYEY)
4	2	20			55.8	32	21	11	<0.01		CL	CLAYSTONE (CLAY, SANDY)

TEST BORING	14	SOIL DESCRIPTION	SAND, WITH SILT
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	85.5%
10	58.2%
20	36.7%
40	28.5%
100	16.8%
200	11.8%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

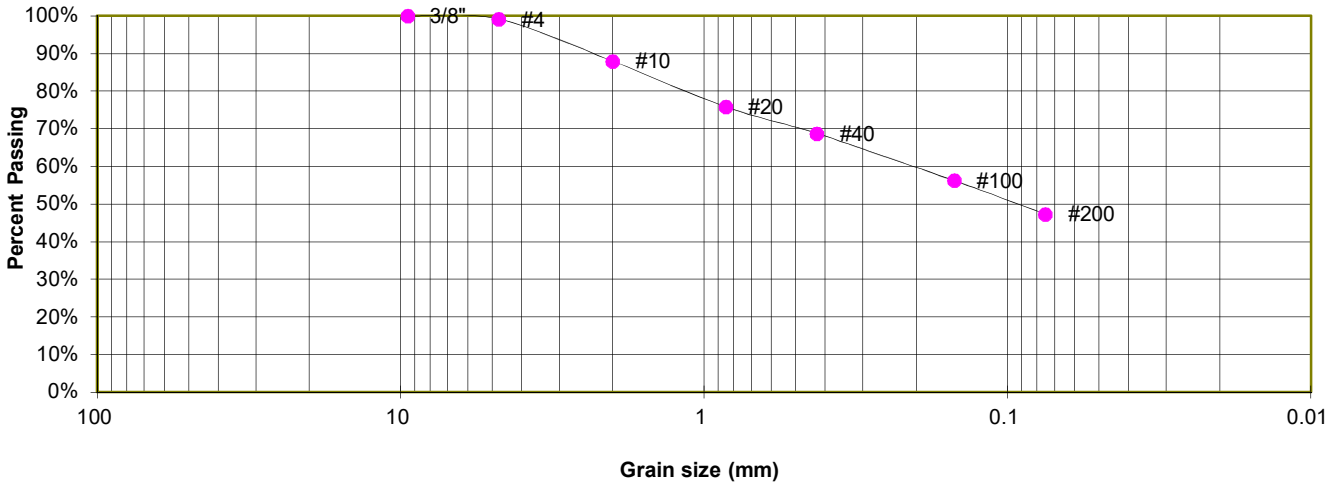
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-1

TEST BORING	15	SOIL DESCRIPTION	SAND, CLAYEY
DEPTH (FT)	10	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.1%
10	88.0%
20	75.9%
40	68.8%
100	56.3%
200	47.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC

ENTECH ENGINEERING, INC.

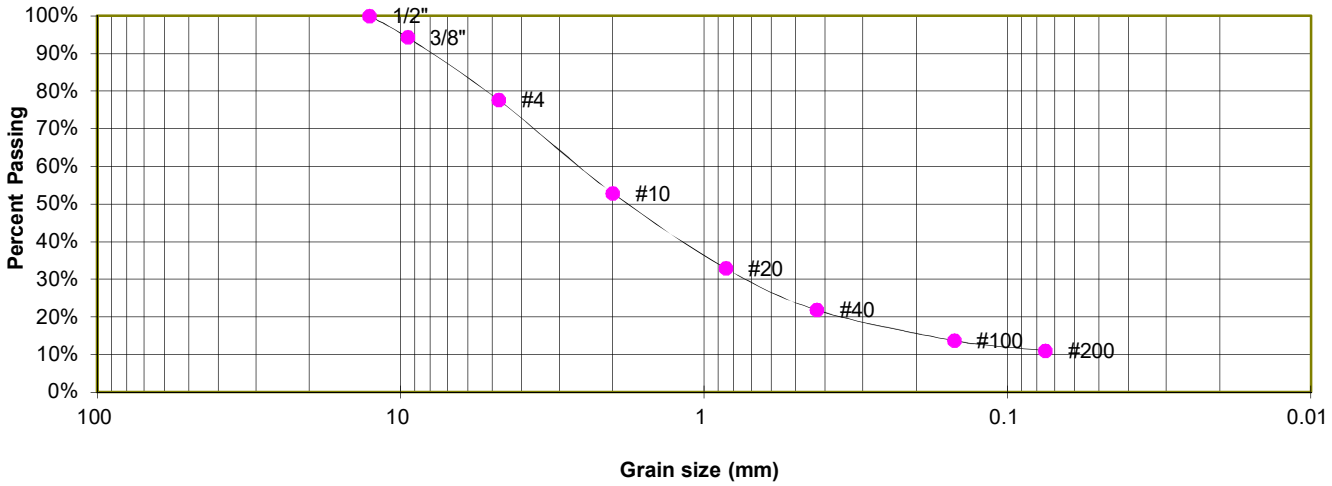
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-2

TEST BORING	3	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"	94.3%
4	77.6%
10	52.9%
20	33.0%
40	21.8%
100	13.7%
200	11.1%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

ENTECH ENGINEERING, INC.

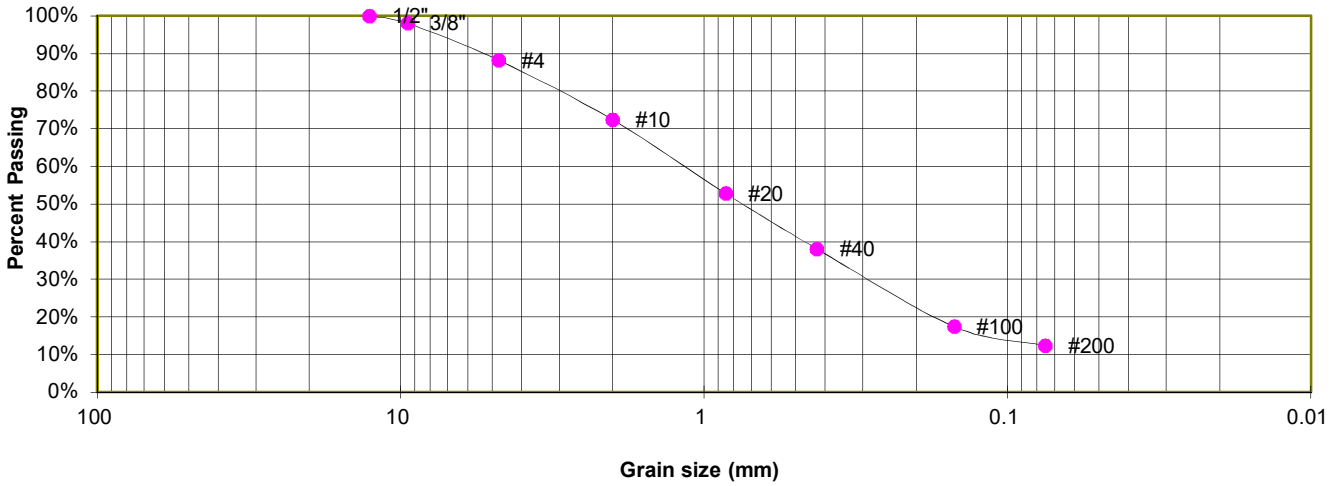
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-3

TEST BORING	8	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	15	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.1%
4	88.2%
10	72.4%
20	52.8%
40	38.1%
100	17.4%
200	12.4%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

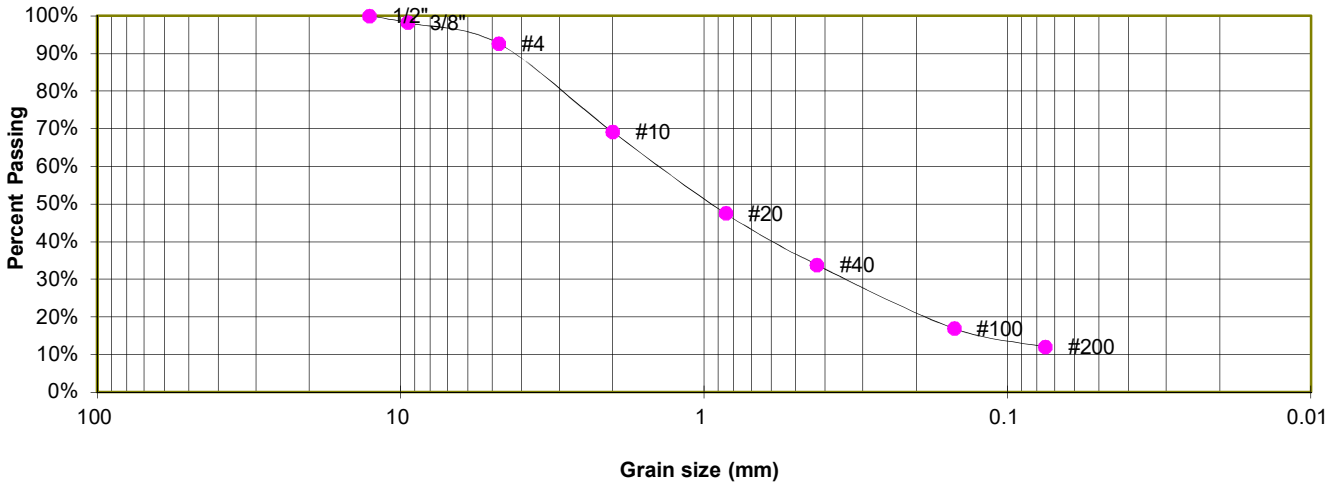
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-4

TEST BORING	11	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	10	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.2%
4	92.6%
10	69.1%
20	47.5%
40	33.8%
100	16.9%
200	12.0%

ATTERBERG LIMITS

Plastic Limit	24
Liquid Limit	26
Plastic Index	2

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

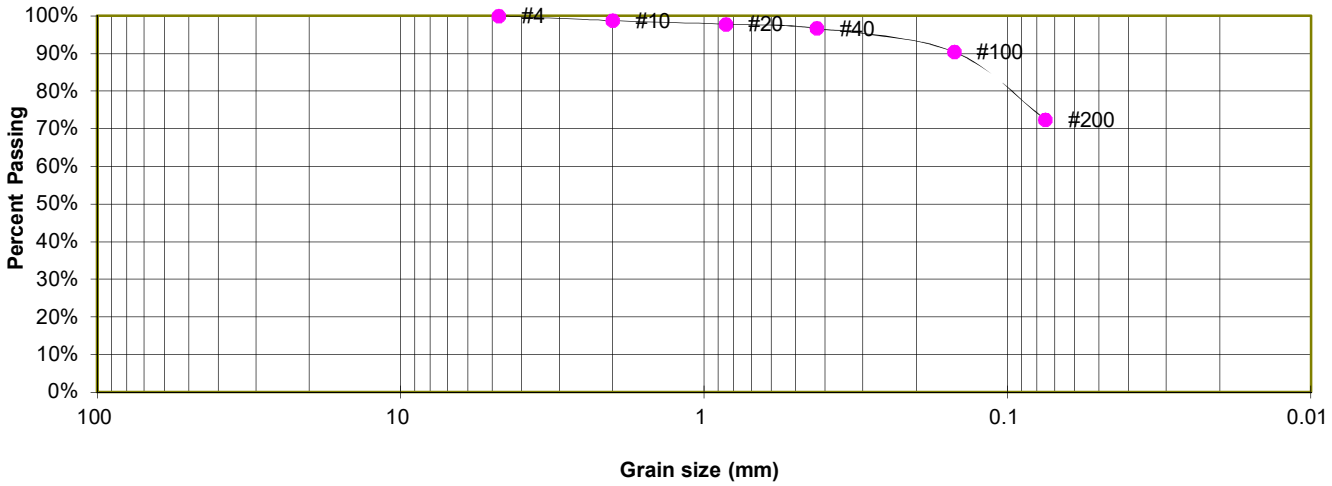
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-5

TEST BORING	1	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	2-3	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	98.7%
20	97.8%
40	96.7%
100	90.4%
200	72.5%

ATTERBERG LIMITS

Plastic Limit	22
Liquid Limit	29
Plastic Index	7

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

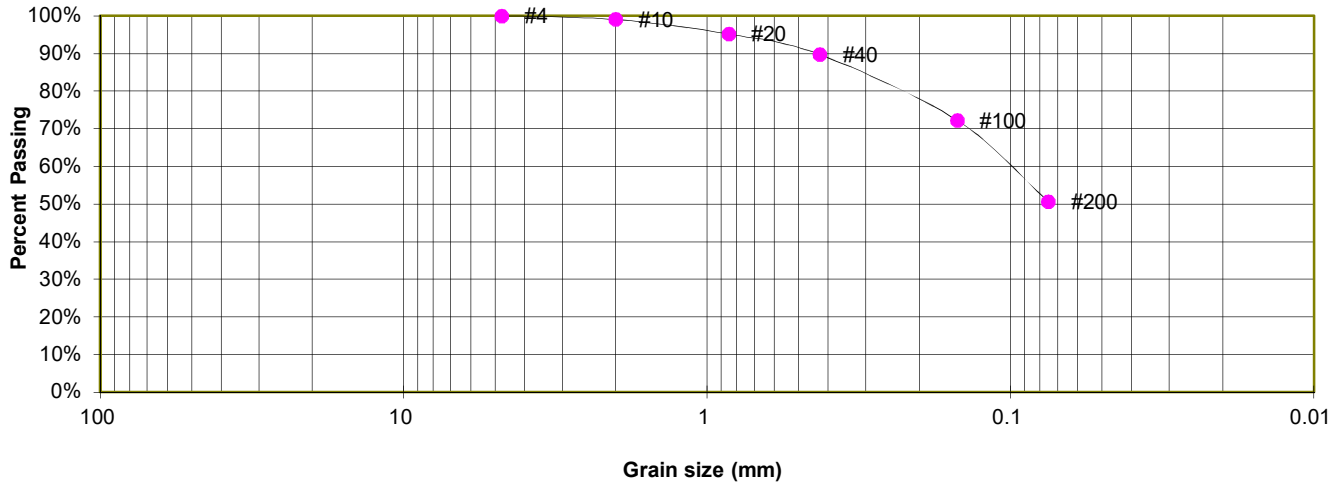
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-6

TEST BORING	5	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	99.0%
20	95.2%
40	89.7%
100	72.3%
200	50.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

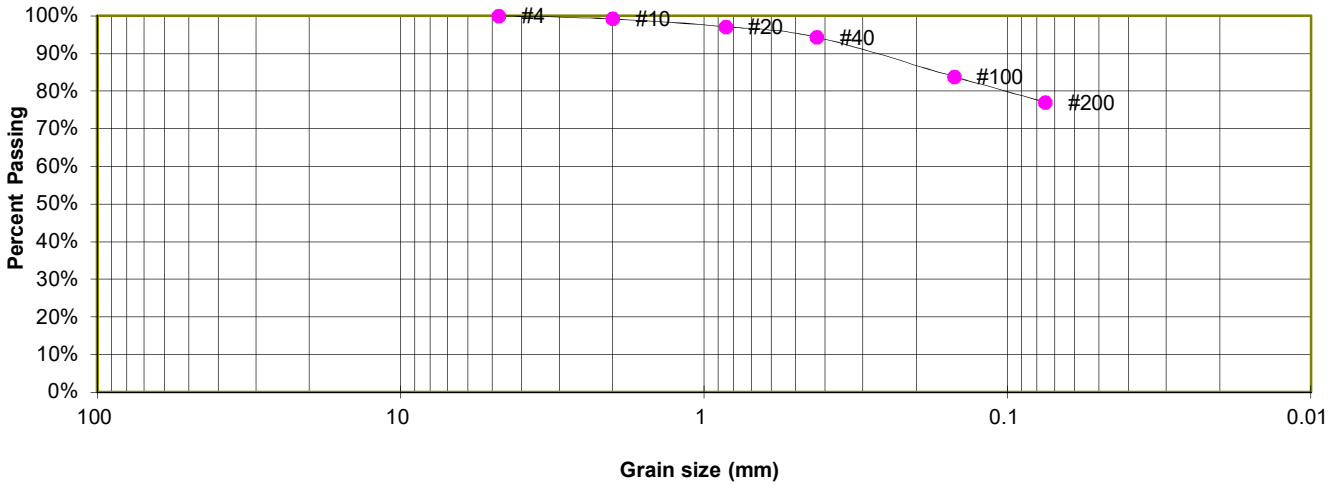
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-7

TEST BORING	7	SOIL DESCRIPTION	CLAY, WITH SAND
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	99.2%
20	97.1%
40	94.4%
100	83.9%
200	77.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

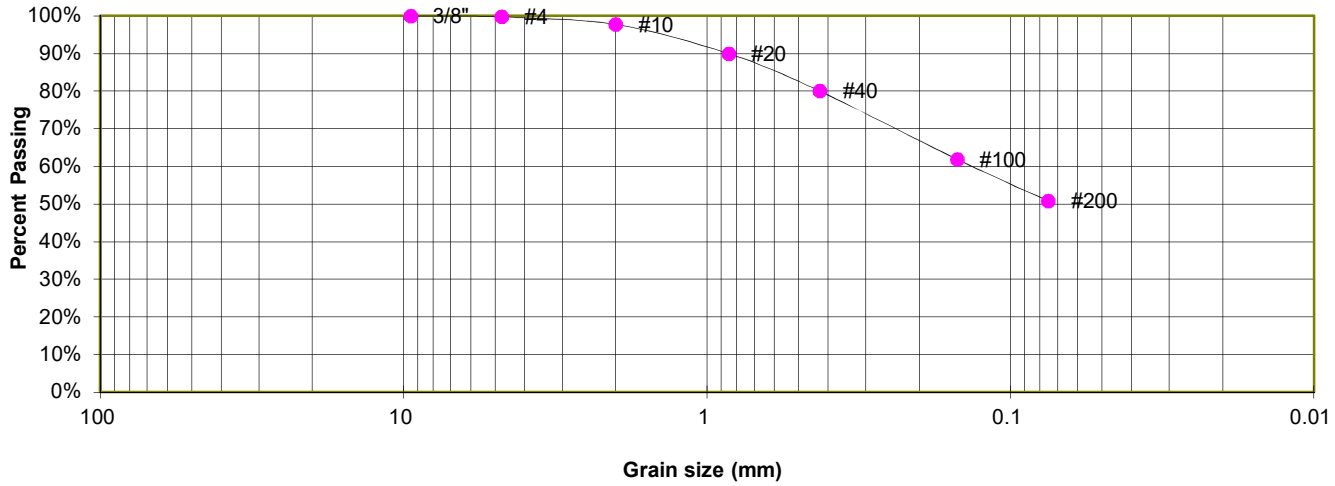
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-8

TEST BORING	9	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	10	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.7%
10	97.8%
20	90.0%
40	80.0%
100	61.9%
200	50.8%

ATTERBERG LIMITS

Plastic Limit	16
Liquid Limit	27
Plastic Index	11

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

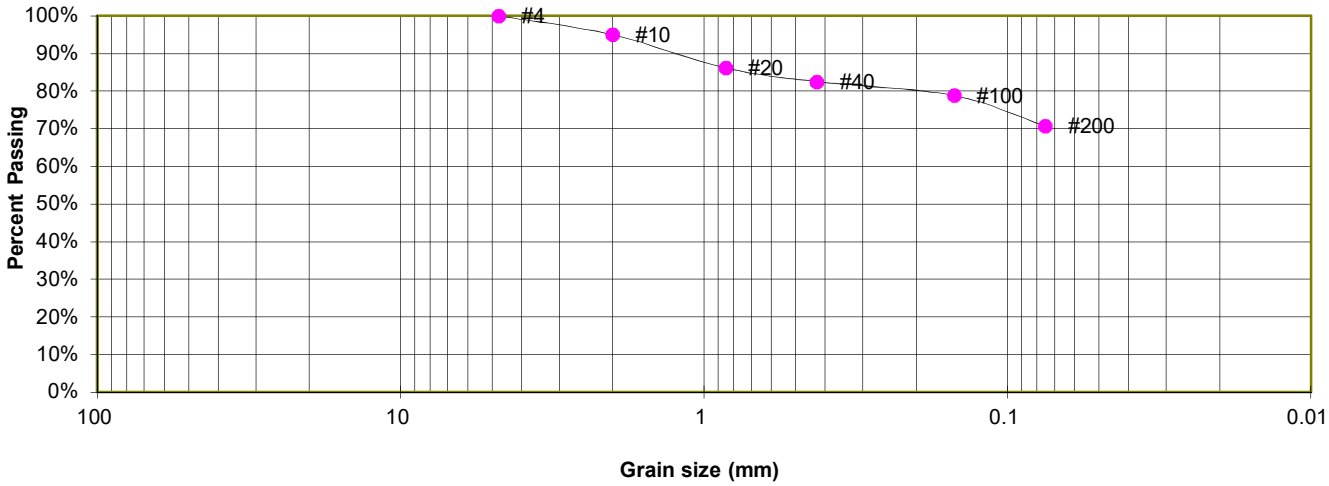
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-9

TEST BORING	12	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	2-3	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	95.0%
20	86.2%
40	82.5%
100	78.8%
200	70.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

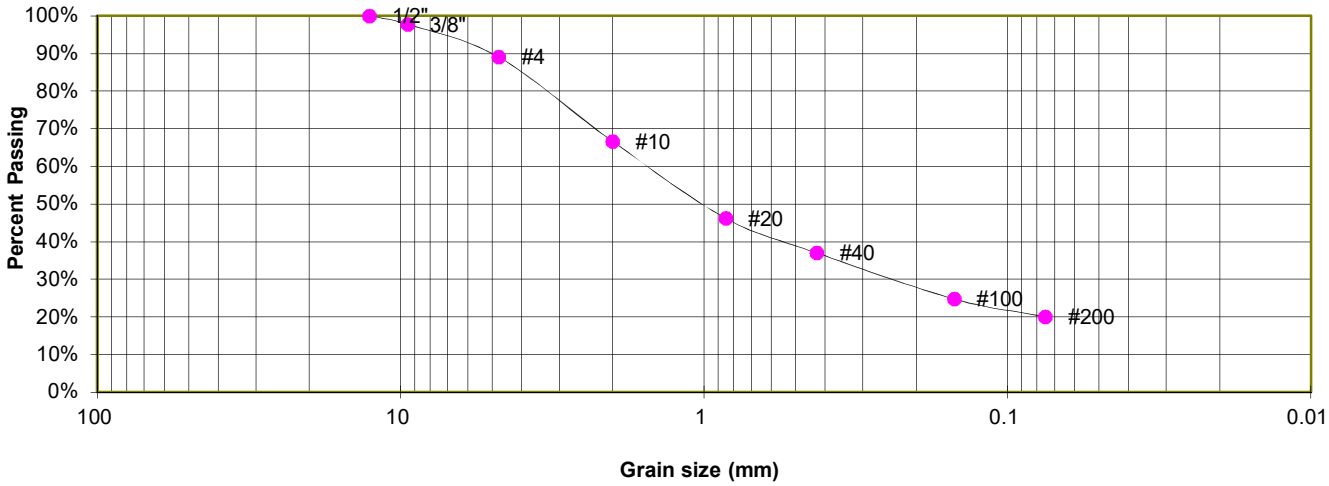
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-10

TEST BORING	13	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	15	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.8%
4	89.1%
10	66.6%
20	46.3%
40	37.0%
100	24.8%
200	20.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

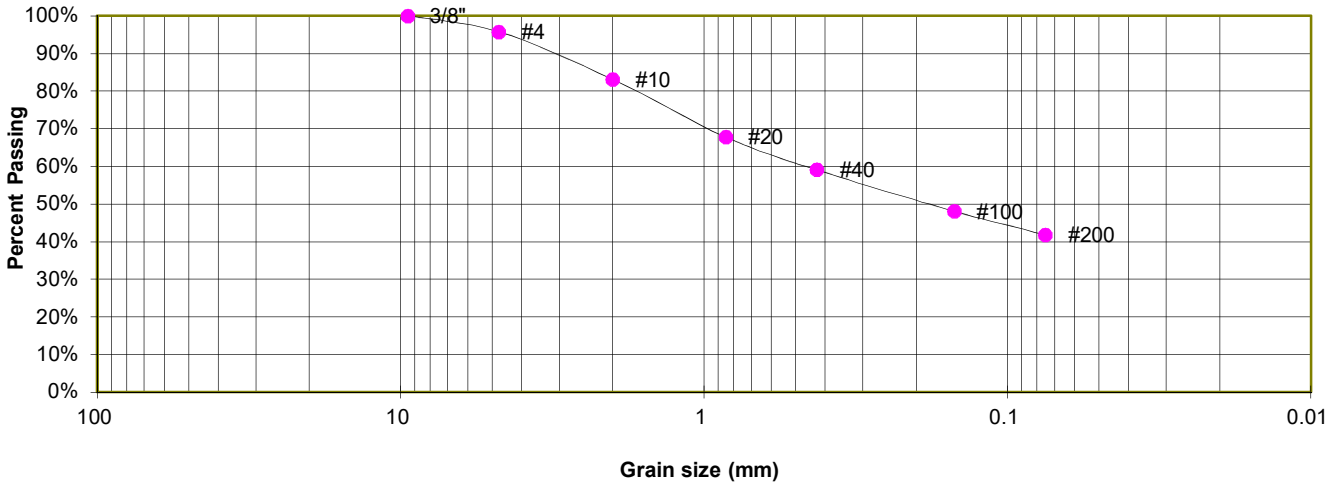
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-11

TEST BORING	4	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"	100.0%
4	95.8%
10	83.1%
20	67.8%
40	59.1%
100	48.1%
200	41.8%

ATTERBERG LIMITS

Plastic Limit	18
Liquid Limit	32
Plastic Index	14

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

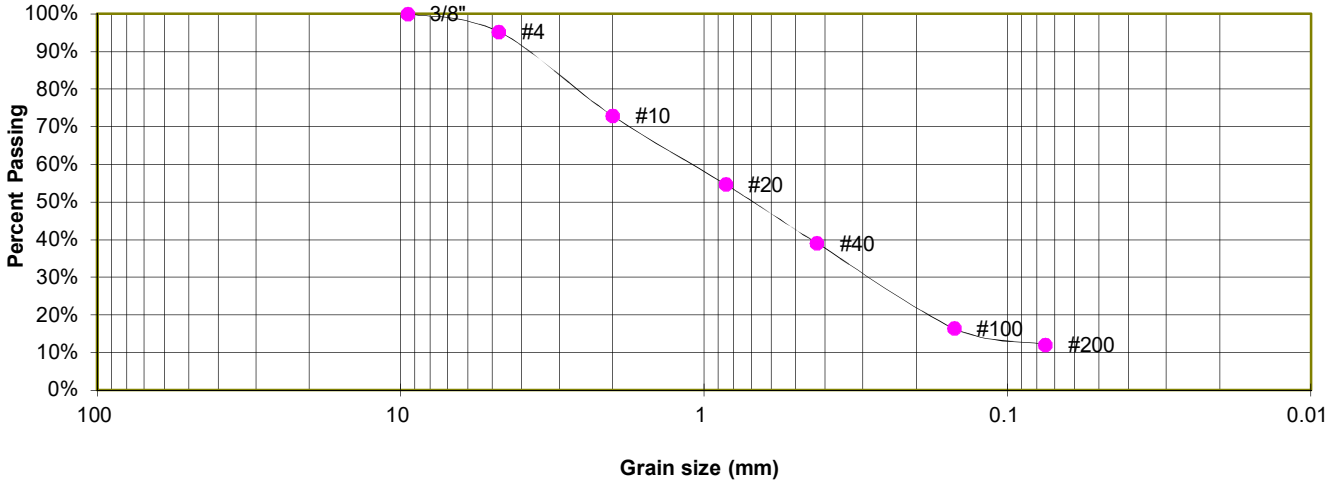
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-12

TEST BORING	6	SOIL DESCRIPTION	SANDSTONE (SAND, SILTY)
DEPTH (FT)	10	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	95.3%
10	72.9%
20	54.7%
40	39.1%
100	16.5%
200	12.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

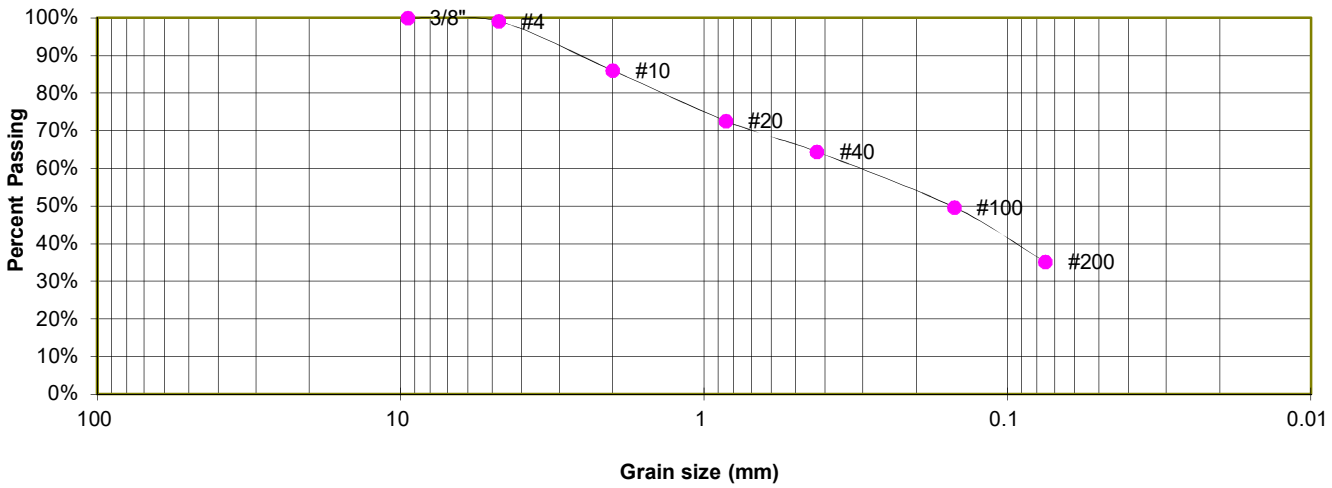
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-13

TEST BORING	10	SOIL DESCRIPTION	SANDSTONE (SAND, CLAYEY)
DEPTH (FT)	15	SOIL TYPE	3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.1%
10	86.1%
20	72.6%
40	64.4%
100	49.7%
200	35.1%

ATTERBERG LIMITS

Plastic Limit	21
Liquid Limit	32
Plastic Index	11

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

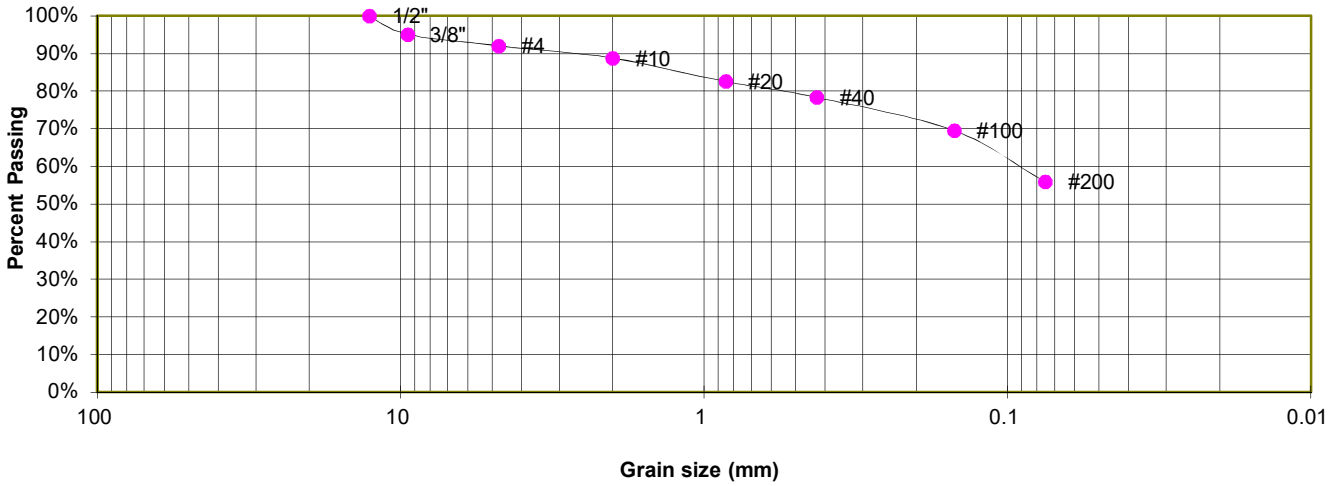
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-14

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"	100.0%
3/8"	95.1%
4	92.1%
10	88.8%
20	82.5%
40	78.3%
100	69.5%
200	55.8%

ATTERBERG LIMITS

Plastic Limit	21
Liquid Limit	32
Plastic Index	11

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-15

TEST BORING	7	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	5	SOIL TYPE	2

SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF): 104
NATURAL MOISTURE CONTENT: 13.2%
SWELL/COLLAPSE (%): 0.4%

ENTECH ENGINEERING, INC.

SWELL TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-16

TEST BORING	9	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	10	SOIL TYPE	2

SWELL/COLLAPSE TEST RESULTS

NATURAL UNIT DRY WEIGHT (PCF):	104
NATURAL MOISTURE CONTENT:	7.4%
SWELL/COLLAPSE (%):	1.2%

ENTECH ENGINEERING, INC.

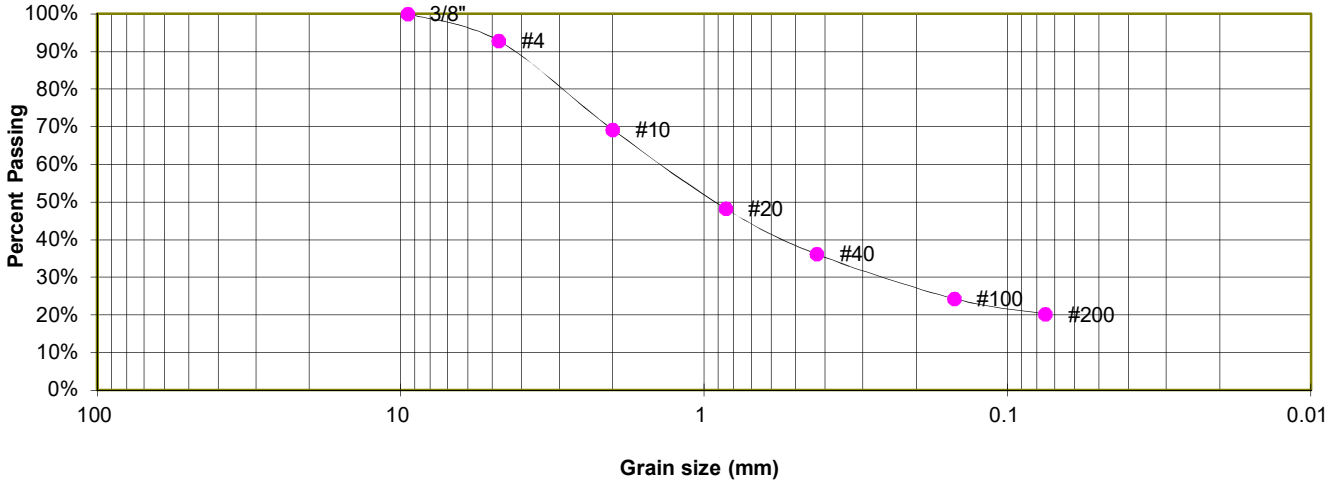
SWELL TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-17

TEST PIT	TP-1	SOIL DESCRIPTION	SAND, SILTY
DEPTH (FT)	6	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	92.9%
10	69.2%
20	48.3%
40	36.2%
100	24.3%
200	20.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

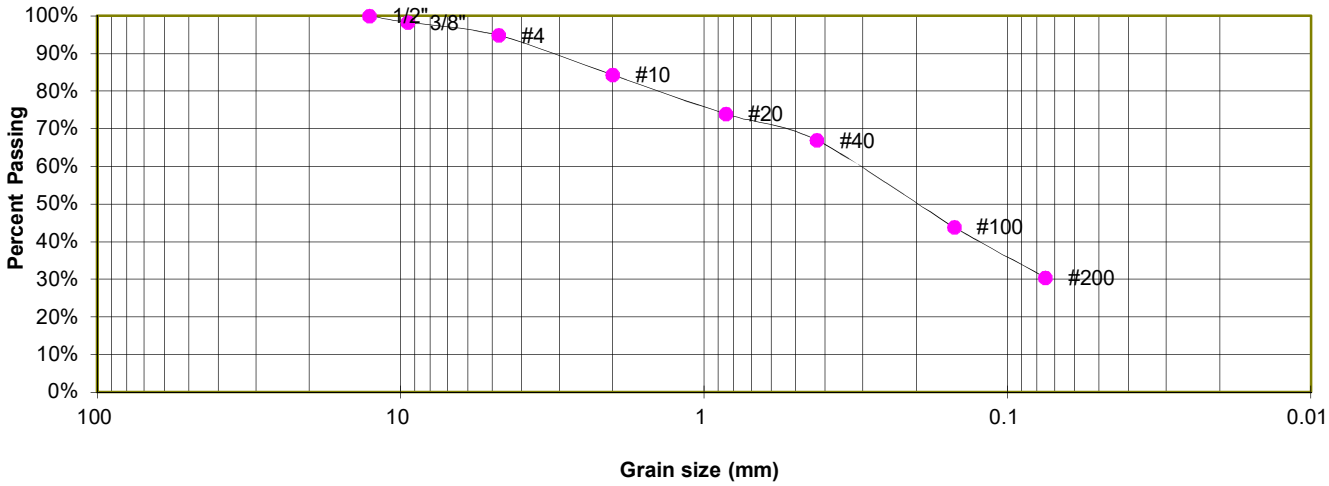
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-18

TEST PIT	TP-2	SOIL DESCRIPTION	SAND, SILTY
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"	98.3%
4	94.8%
10	84.3%
20	74.0%
40	66.9%
100	43.9%
200	30.5%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM

ENTECH ENGINEERING, INC.

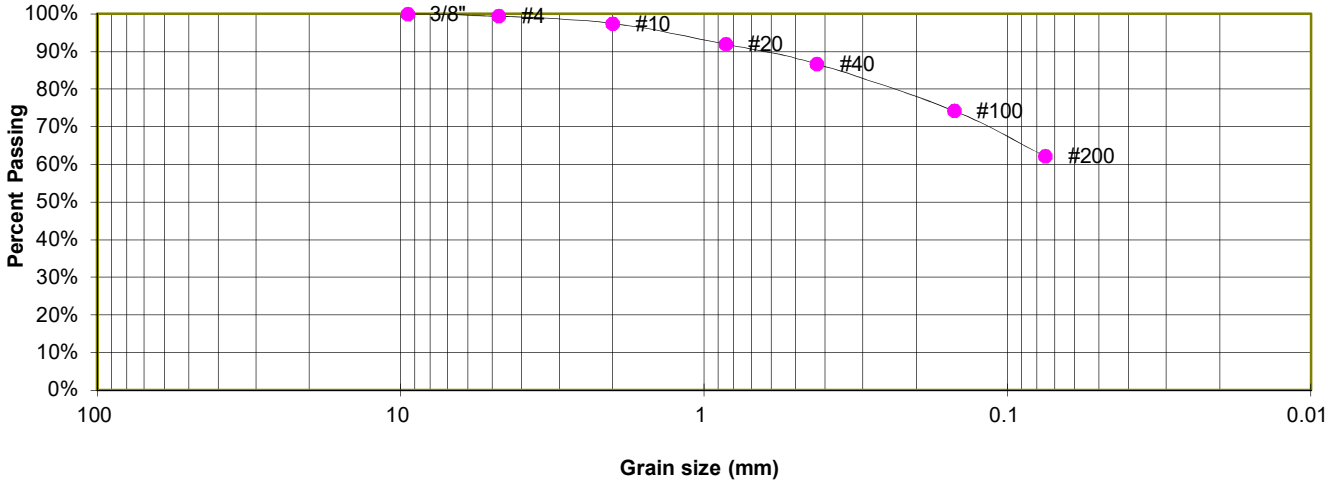
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-19

TEST PIT	TP-3	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	3	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	99.4%
10	97.5%
20	92.0%
40	86.7%
100	74.3%
200	62.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

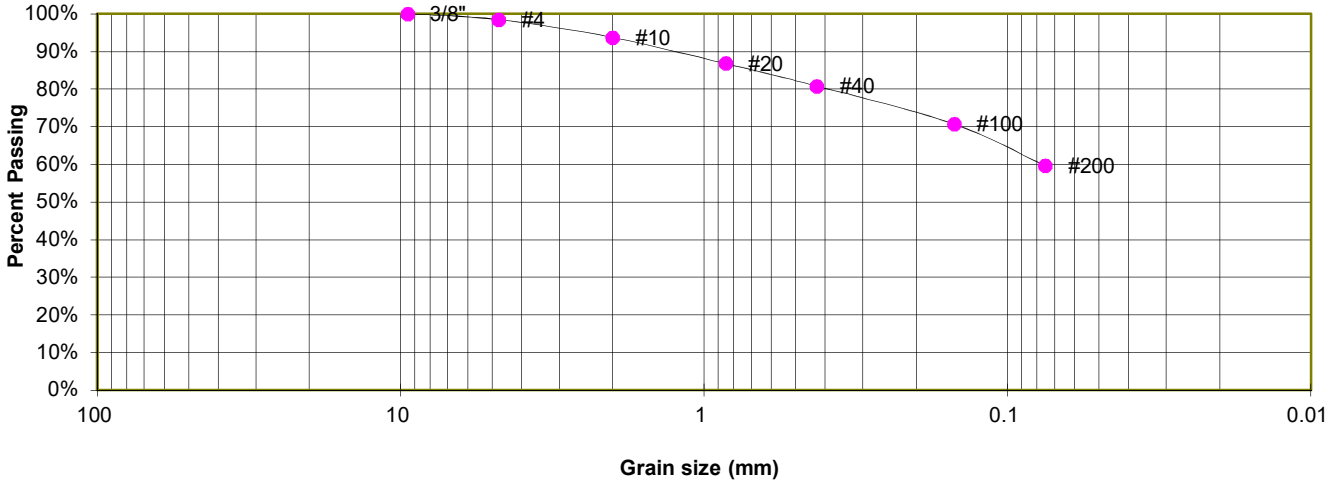
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-20

TEST PIT	TP-4	SOIL DESCRIPTION	CLAY, SANDY
DEPTH (FT)	6	SOIL TYPE	2



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	98.5%
10	93.7%
20	86.8%
40	80.8%
100	70.8%
200	59.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

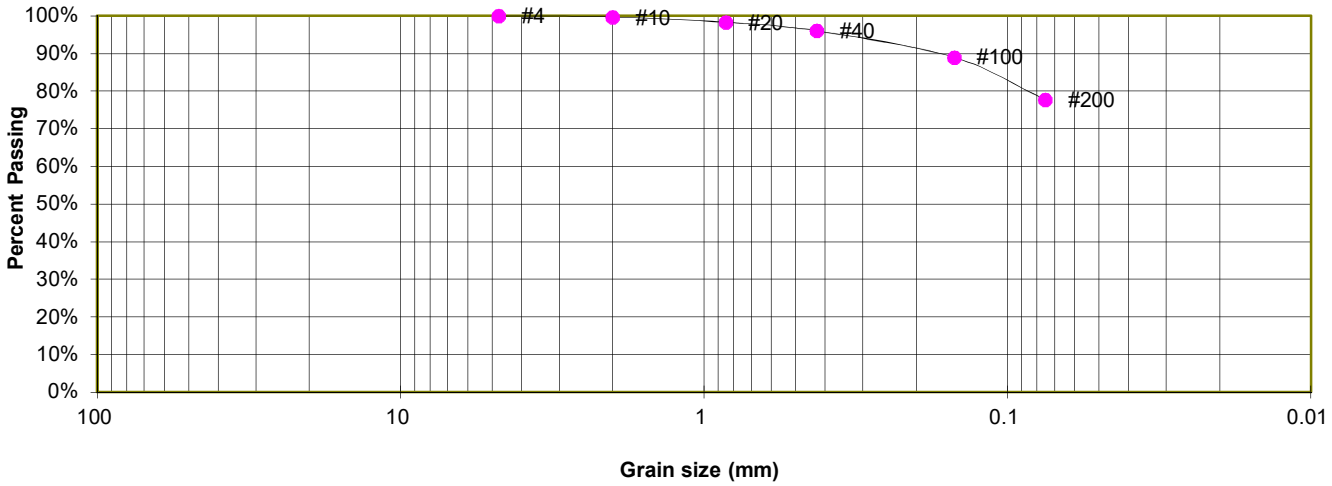
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-21

TEST PIT	TP-5	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	3	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	99.7%
20	98.3%
40	96.1%
100	89.0%
200	77.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

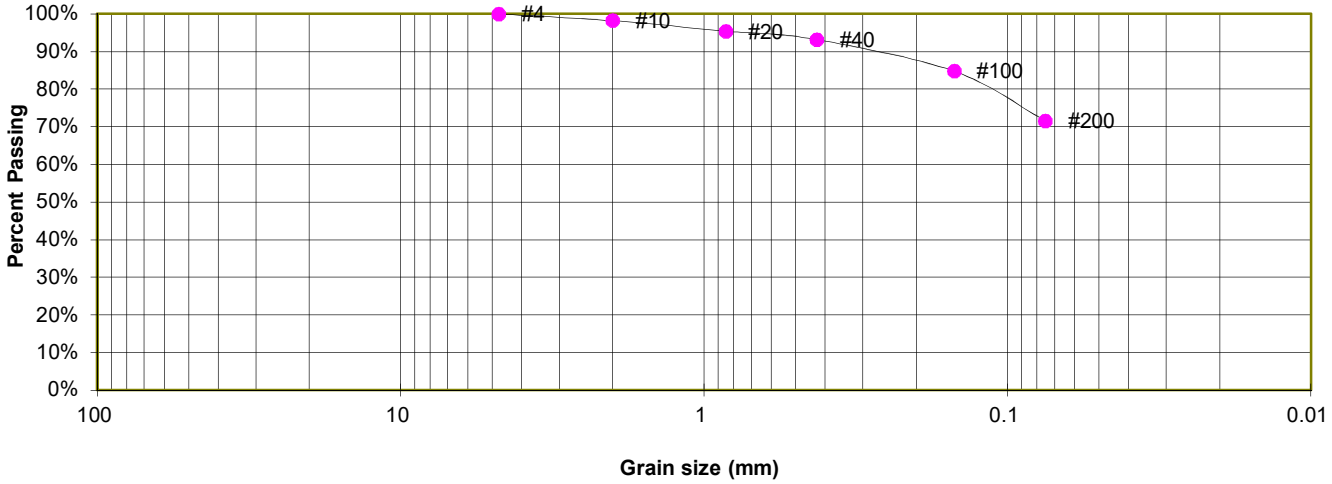
LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-22

TEST PIT	TP-6	SOIL DESCRIPTION	CLAY, WITH SAND
DEPTH (FT)	6	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	98.2%
20	95.4%
40	93.2%
100	84.8%
200	71.7%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL

ENTECH ENGINEERING, INC.

LABORATORY TEST RESULTS

FLYING HORSE NORTH, FILING NO. 4
FLYING HORSE NORTH, LLC

JOB NO. 241144

FIG. C-23

APPENDIX D: EEI Laboratory Testing Summary and Test Boring Logs Job No. 220404

TEST BORING 15
DATE DRILLED 12/22/2023

REMARKS

DRY TO 20', 12/22/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			17	5.5	1
5			14	6.3	1
10			25	4.4	1
15			50	6.6	3
20			50/10"	8.0	3

6" TOPSOIL

SAND, CLAYEY, OLIVE, MEDIUM DENSE, MOIST

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

TEST BORING 16
DATE DRILLED 1/3/2024

REMARKS

DRY TO 20', 1/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			25	6.5	1
5			23	13.8	1
10			10	12.5	1
15			47	8.9	1
20			50	11.1	1

SAND, SILTY, TAN, MEDIUM DENSE, MOIST

SAND, SILTY, TAN, DENSE to VERY DENSE, MOIST (SANDSTONE, WEAK, RESIDUAL SOIL)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE DEVELOPMENT

JOB NO. 220404

FIG. B-8

TEST BORING 17
DATE DRILLED 12/28/2023

REMARKS

DRY TO 20', 12/28/23

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			19	8.0	2
5			5	8.6	2
10			22	3.8	2
15			44	3.9	1
20			50/10"	4.4	4

6" TOPSOIL

CLAY, SANDY, BROWN, VERY STIFF, MOIST

SILT, SANDY, BROWN, MEDIUM STIFF, MOIST

CLAY, SANDY, BROWN, VERY STIFF, MOIST

SAND, SILTY, TAN, DENSE, MOIST

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

TEST BORING 18
DATE DRILLED 1/3/2024

REMARKS

DRY TO 20', 1/3/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			23	6.5	1
5			17	13.8	1
10			27	12.5	1
15			47	8.9	1
20			49	11.1	1

SAND, SILTY, TAN, MEDIUM DENSE, MOIST

SAND, SILTY, TAN, DENSE, MOIST (SANDSTONE, WEAK, RESIDUAL SOIL)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE DEVELOPMENT

JOB NO. 220404

FIG. B-9

TEST BORING 23
DATE DRILLED 1/9/2024

REMARKS

DRY TO 20', 1/9/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			10	12.1	1	SAND, CLAYEY, LIGHT BROWN, LOOSE to MEDIUM DENSE, MOIST
5			7	13.2	1	
10			7	11.2	1	
15			19	7.9	1	SAND, SILTY, LIGHT BROWN, MEDIUM DENSE, MOIST
20			27	5.1	1	

TEST BORING 24
DATE DRILLED 1/9/2024

REMARKS

DRY TO 20', 1/9/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			15	5.5	1	SAND, SILTY, TAN, MEDIUM DENSE to DENSE, MOIST
5			16	9.2	1	
10			19	6.2	1	
15			31	9.4	1	
20			50/11"	10.5	3	SANDSTONE, VERY WEAK, OLIVE, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE DEVELOPMENT

JOB NO. 220404

FIG. B-12

TEST BORING 25
DATE DRILLED 1/9/2024

REMARKS

DRY TO 20', 1/9/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			21	6.2	2	6" TOPSOIL CLAY, WITH SAND, BROWN to OLIVE, VERY STIFF, MOIST
5			19	16.4	2	
10			50/8"	8.1	3	SANDSTONE, VERY WEAK, TAN to OLIVE, HIGHLY WEATHERED (SAND, CLAYEY, VERY DENSE, MOIST)
15			50/9"	10.0	3	
20			50/10"	8.9	3	

TEST BORING 26
DATE DRILLED 1/9/2024

REMARKS

DRY TO 20', 1/9/24

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type	
			12	13.0	1	SAND, CLAYEY, BROWN, MEDIUM DENSE, MOIST
5			12	6.2	1	SAND, SILTY, BROWN to TAN, MEDIUM DENSE, MOIST
10			23	7.7	1	
15			50/11"	6.8	1	SAND, SILTY, TAN, DENSE to VERY DENSE, MOIST (SANDSTONE, WEAK, RESIDUAL SOIL)
20			41	12.6	1	

ENTECH ENGINEERING, INC.

TEST BORING LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE DEVELOPMENT

JOB NO. 220404

FIG. B-13

TEST PIT 1A
DATE EXCAVATED 1/22/2024
REMARKS

39.0051544º, -104.704348º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-12IN), SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN					
1					
2			GR	MA	4A
SANDY CLAY, FINE to MEDIUM GRAINED, LIGHT BROWN					
3					
4					
5					
WEATHERED SILTY SANDSTONE (DAWSON FORMTAION), SANDY CLAY LOAM FINE TO COARSE GRAINED, REDDISH BROWN					
6			GR	MA	4A
7					
8					
9					
10					

TEST PIT 2A
DATE EXCAVATED 1/22/2024
REMARKS

39.052459º, -104.702088º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
TOPSOIL (0-6IN), SANDY CLAY, FINE to MEDIUM GRAINED, DARK BROWN					
1					
2					
SANDY CLAY LOAM, FINE TO COARSE GRAINED, BROWN					
3			GR	M	4
4					
5					
WEATHERED SILTY to CLAYEY SANDSTONE (DAWSON FORMTAION), SANDY CLAY LOAM FINE TO COARSE GRAINED, REDDISH BROWN			GR	MA	4A
6					
7					
8					
9					
10					

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

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

ENTECH ENGINEERING, INC.

TEST PIT LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE NORTH, LLC

JOB NO. 220404

FIG. B-18

TEST PIT 3A
DATE EXCAVATED 1/22/2024
REMARKS

39.050334º, -104.702484º

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type	
1						TOPSOIL (0-12IN), SANDY CLAY, FINE TO COARSE GRAINED, DARK BROWN
2			GR	W	4A	
3						SANDY CLAY, FINE to MEDIUM GRAINED, OLIVE BROWN
4						
5						
6			GR	MA	4A	FORMATIONAL SITLY TO CLAYEY SANDSTONE (DAWSON FORMATION), SANDY CLAY LOAM to SANDY CLAY, FINE TO COARSE GRAINED, LIGHT BROWN TO
7						
8						*-SIGNS OF SEASONAL GW AT 4FT
9						
10						

Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	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

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

ENTECH ENGINEERING, INC.

TEST PIT LOGS

FLYING HORSE NORTH SKETCH PLAN
FLYING HORSE NORTH, LLC

JOB NO. 220404

FIG. B-19

APPENDIX E: Soil Survey Descriptions

El Paso County Area, Colorado

66—Peyton sandy loam, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 369c
Elevation: 6,800 to 7,600 feet
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Peyton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 1 to 5 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): Moderately high (0.20 to 0.60 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: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

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

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

El Paso County Area, Colorado

67—Peyton sandy loam, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 369d
Elevation: 6,800 to 7,600 feet
Mean annual air temperature: 43 to 45 degrees F
Frost-free period: 115 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 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: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

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

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

El Paso County Area, Colorado

68—Peyton-Pring complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369f
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Peyton and similar soils: 40 percent
Pring and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peyton

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 12 inches: sandy loam
Bt - 12 to 25 inches: sandy clay loam
BC - 25 to 35 inches: sandy loam
C - 35 to 60 inches: sandy loam

Properties and qualities

Slope: 3 to 5 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): Moderately high (0.20 to 0.60 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: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: B
Ecological site: R049XY216CO - Sandy Divide
Hydric soil rating: No

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 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
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

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

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023