



ENTECH
ENGINEERING, INC.

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

**WASTEWATER STUDY
TIMBERS AT BLACK FOREST SUBDIVISION
9220 ARROYA LANE
PARCEL NO. 52054-00-041
EL PASO COUNTY, COLORADO**



Prepared for:
Timbers at Black Forest Subdivision 2025, LLC
3880 Inspiration Drive
Colorado Springs, Colorado 80917
Attn: Michael Turner

March 5, 2026

Respectfully Submitted,

ENTECH ENGINEERING, INC.

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

Reviewed by:



Digitally signed by Joseph C Goode Jr.

Date: 03/05/26

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

Entech Job No. 251875
LLL/JCG

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
	4.1 Previous Investigations.....	3
5	SOIL, GEOLOGY, AND ENGINEERING GEOLOGY.....	3
	5.1 General Geology	3
	5.2 Soil Conservation Survey	4
	5.3 Site Stratigraphy.....	4
	5.4 Soil Conditions	5
	5.5 Groundwater	6
6	ON-SITE WASTEWATER TREATMENT	7
7	CLOSURE.....	9
8	REFERENCES.....	10

FIGURES

Figure 1:	Vicinity Map
Figure 2:	USGS Map
Figure 3:	Site and Exploration Plan
Figure 4:	Soil Survey Map
Figure 5:	Geologic Map of the Black Forest Quadrangle
Figure 6:	Geology/Engineering Geology Map
Figure 7:	Floodplain Map
Figure 8:	USFWS Wetlands Map
Figure 9:	OWTS Suitability Map

APPENDIX A:	Site Photographs
APPENDIX B:	Test Boring and Test Pit Logs
APPENDIX C:	Laboratory Test Results
APPENDIX D:	Soil Survey Descriptions

1 SUMMARY

Project Location

The project site is located within the SW¼ of Section 22, Township 12 South, Range 65 West of the 6th Principal Meridian in El Paso County, Colorado. The site is located just south of the Palmer Divide and approximately 2 miles north-northeast of Colorado Springs city limits on the southern side of Black Forest. The location of the site is as shown in the Vicinity Map (Figure 1).

Project Description

Timbers at Black Forest Subdivision will consist of twenty rural residential lots the approximately 55-acre parcel. The proposed lots are to be a minimum of 2.5 acres and will be serviced by individual water wells and on-site wastewater treatment systems (OWTS). An existing gravel driveway leads to two existing residences in the eastern portion of the site with a barn, several sheds and outbuildings are currently located on Lots 9 and 10. All existing structures will be removed. Three existing water wells are shown on the site plan located on Lots 11 and 15. The existing residences pre-date septic permitting requirements and existing records were not available through the El Paso County Public Health Department.

Scope of Report

This report presents the results of our geologic evaluation and treatment of engineering geologic hazard study with respect to OWTS proposed for the subdivision.

Land Use and Engineering Geology

This site was found to be suitable for the proposed development; however, geologic conditions in certain areas will impose some constraints on development and land use. These include areas of artificial fill, potentially expansive soils, shallow bedrock, seasonal shallow and shallow groundwater areas, drainage areas, downslope creep, potentially unstable slopes, and the potential for elevated radon levels. These conditions are discussed in greater detail in this report.

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

2 GENERAL SITE CONDITIONS AND PROJECT DESCRIPTION

The topography of the site is generally gradually sloping to the southwest with moderate slopes to the west along the Sand Creek drainage in the western portion of the site. The drainage generally flows in southwesterly direction, and water was observed flowing along the Sand Creek drainage, with other drainages on the site dry at the time of this investigation. The site boundaries are indicated in the USGS Map (Figure 2). Previous land uses have included agricultural and rural residential. The site primarily contains field grasses and weeds with Ponderosa Pines along the northern side of the site. Site photographs are included in Appendix A.

Timbers at Black Forest Subdivision will consist of twenty rural residential lots the approximately 55-acre parcel. The proposed lots are to be a minimum of 2.5 acres and will be serviced by individual water wells and on-site wastewater treatment systems (OWTS). The proposed lot configuration and roadway alignment are shown in the Site and Exploration Plan (Figure 3).

3 SCOPE OF THE REPORT

The scope of this report is to evaluate the site for the use of individual on-site wastewater treatment systems. Detailed site-specific mapping was conducted to obtain general information with respect to major geographic and geologic features, geologic descriptions, and their effects on the development of the property in accordance with the El Paso Land Development Code.

4 FIELD INVESTIGATION

Our field investigation consisted of the preparation of a geologic map of any bedrock features and significant surficial deposits. The site was also evaluated using the Web Soil Survey from the Natural Resource Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS). The position of mappable units within the subject property is 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 field mapping was performed by personnel of Entech on October 22, 2025. Site photographs taken October 22, December are included in Appendix A.

Six (6) test borings were drilled and five (5) tactile test pits were excavated across the project site to determine the classification and engineering characteristics of the soils. 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 of 5 to 8 feet.

The locations of the test borings and test pits are indicated on the Site and Exploration Plan (Figure 3). The Test Boring and Test Pit Logs are included in Appendix B, and Laboratory Test Results are included in Appendix C. The results of the testing will be discussed later in this report.

Laboratory testing was performed to classify and determine the engineering characteristics of the soils. Laboratory tests included moisture content testing (ASTM D2216), grain-size analysis (ASTM D422), and Atterberg Limits testing (ASTM D4318). Swell testing included one-dimensional swell/consolidation testing. Results of the laboratory testing are included in Appendix C.

4.1 Previous Investigations

Information from the previously completed Entech *Soils and Geology & Wastewater Studies* (References 2 through 5) were used in evaluating the site and are listed below:

- *Soil, Geology, and Geologic Hazard Study, The Retreat at TimberRidge 2.5+ Acre Lots, Vollmer Road and Arroya Lane*, dated April 12, 2017. Entech Job No. 170209.
- *Soil and Geology & Waste Water Study, Retreat at TimberRidge Filing No. 3, Vollmer Road and Arroya Lane*, dated June 10, 2022. Entech Job No. 221106.
- *Soil and Geology & Waste Water Study, Vollmer Road and Arroya Lane, Parcel No. 52214-00-002*, dated October 4, 2023. Entech Job No. 231494.
- *Soil and Geology & Waste Water Study, Retreat at TimberRidge Filing No. 4, Vollmer Road and Arroya Lane*, dated October 4, 2023. Entech Job No. 231468.

5 SOIL, GEOLOGY, AND ENGINEERING GEOLOGY

5.1 General Geology

The site lies in the western portion of the Great Plains Physiographic Province just south of the Palmer Divide on the southern side of Black Forest. A major structural feature known as the Rampart Range Fault lies approximately 12 miles to the west. 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 1). 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 of Tertiary to Cretaceous Age. Overlying this formation are unconsolidated deposits of residual, colluvial,

alluvial, and man-placed fill of the Quaternary Age. The residual soils are produced by the in-situ action of weathering of the bedrock on site. Some areas of colluvial soils deposited by gravity and sheetwash exist. The alluvial soils were deposited by water along the Sand Creek drainage in the western portion of site and as low terrace deposits along the drainage. Man-placed fill exists as earthen embankments along the drainage in the northern western and north-central portion of the site. 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 6), previously the Soil Conservation Service (Reference 7), has mapped three soil types on the site (Figure 4). In general, it is a sandy loam. The soils are described in Exhibit 1 below.

Exhibit 1: Soil Survey Description

Type	Description
40	Kettle gravelly loamy sand, 3 to 8% slopes
41	Kettle gravelly loamy sand, 8 to 40% slopes
71	Pring coarse sandy loam, 3 to 8% slopes

Complete descriptions of each soil type are presented in Appendix D. The soil has generally been described as having moderately high 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 soil has been described to have moderate erosion hazards.

5.3 Site Stratigraphy

The Geologic Map of the Black Forest Quadrangle showing the site is presented in Figure 5 (Reference 8). The Geology Map prepared for the site is presented in Figure 6. Four mappable units were identified on this site that are described as follows:

Qaf Artificial Fill of Quaternary Age: These are man-placed fill deposits associated with the earthen embankments located on portions of Lots 6, and 11. Fill is likely associated with the existing farm houses, pool, and other structures. Other areas of fill may exist on the site other than those mapped.

- Qal Alluvium of Quaternary Age:** These are modern stream deposits associated with the Sand Creek drainage in the northwestern portion of the site. These materials generally consist of silty to clayey sands and gravel.
- Qay₂ Young alluvium two of late and middle? Holocene Age:** This material is a water-deposited terrace alluvium, typically classified as a silty to well-graded sand, brown to dark brown in color and of loose to moderate density. These deposits can sometimes be very highly stratified containing thin layers of very silty and clayey soil. Young alluvium two is analogous with the Piney Creek Alluvium in the Denver area.
- 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 consist of 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 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 (Reference 8), the *Geologic Map of the Colorado Springs-Castle Rock Area*, distributed by the US Geological Survey in 1979 (Reference 9), and the *Geologic Map of the Denver 1° x 2° Quadrangle*, distributed by the US Geological Survey in 1981 (Reference 10). The Test Borings and Test Pit Logs used in evaluating the site are included in Appendix B. The Geology Map prepared for the site is presented in Figure 6.

5.4 Soil Conditions

The soils encountered in the test pits can be grouped into one general soil type. The soils were classified using the USDA textural soil classification.

Gravelly Sand Loam to Sandy Loam (Soil Type 2A/R1 or 2A) The gravelly sandy loam and sandy loam was encountered at various depths in all of the test pits.

Gravelly Sandy Clay Loam (Soil Type 3A/R1) The gravelly sandy clay loam was encountered in TP-3 underlying the layer of topsoil and extended to a depth of 4 feet bgs.

Sandy Clay (Soil Type 4A) The sandy clay was encountered in TP-4 underlying the lay of topsoil and extended to a depth of 3 feet.

Dawson Sandstone (Soil Type 3A or 3A/R1) The completely weathered sandstone or sandy clay loam to very gravelly sandy clay loam when classified as a soil. The completely weathered sandstone was encountered in TP-1, TP-2, TP-3, and TP-4 at depths ranging from 3 to 6 feet bgs.

The Test Pit Logs are presented in Appendix B. Laboratory Test Results are presented in Appendix C, and a Summary of Laboratory Test Results is presented in Table C-1.

5.5 Groundwater

Groundwater was encountered in three of the test borings (TB-1, TB-2, and TB-6) at depths of 10 to 16 feet bgs. The remaining three borings were dry to the depths explored. All of the test borings were drilled to 20 feet. Redoximorphic features were encountered in two of the five test pits (TP-3 and TP-4) at depths of 4 to 6 feet bgs. Areas of potential seasonally shallow groundwater and shallow groundwater have been mapped in the drainages and some 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 including development of the site and surrounding 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.

Drainage and Floodplain Areas – Constraint

The topography of the site is generally gradually sloping to the southwest with moderate to steep slopes along the Sand Creek drainage in the western portion of the site. The drainage generally flows in southwesterly direction. Areas within the drainages on-site have been identified as areas of seasonally wet and/or seasonally high groundwater areas. Water was observed in the two ponds on-site, and was observed flowing in Sand Creek drainage along the western side of the property. The majority of the drainages across the site were dry. The western site has been mapped as a physiographic floodplain associated with the Sand Creek drainage, however, the

site is located just north of the limit of study for the FEMA Map No. 08041CO535G, (Figure 7, Reference 12). The drainage/floodplain area will be avoided by the proposed development on the lots.

The Sand Creek Drainage in the northwest portion of the site has been included in the National Wetlands Inventory as a Freshwater Wetland habitat classified as **R4SBC** (Riverine intermittent – R4; Stream Bed – SB, Seasonally Flooded – C,) (Figure 8, Reference 13). These areas will be avoided by the proposed development.

Potential Seasonally Shallow and Shallow Groundwater Areas – Constraint

The Sand Creek drainage in the western portion of the site, and existing stock ponds have been identified as shallow groundwater areas. The other drainages and minor drainage swales on the site have been identified as potentially seasonal shallow groundwater areas. In these areas, we would anticipate periodic high subsurface moisture conditions and frost heave potential on a seasonal basis. Groundwater was encountered in three of the test borings (TB-1, TB-2, and TB-6) at depths of 10 to 16 feet bgs which were drilled to 20 feet during or subsequent to drilling. The remaining three borings were dry to the depths explored. Redoximorphic features were encountered in two of the five test pits (TP-3 and TP-4) at depths of 4 to 6 feet bgs. OWTS should not be placed within areas identified as potential seasonally shallow or shallow groundwater areas. Where signs of seasonally occurring groundwater area encountered, mounding of the OWTS will be necessary.

Debris Flow Susceptibility – Hazard

The site is not located within an area of debris flow susceptibility according to the *Debris Flow Susceptibility Map of El Paso County, Colorado* by McCoy et al. in 2018 (Reference 14).

6 ON-SITE WASTEWATER TREATMENT

The site was evaluated for individual on-site wastewater treatment systems in accordance with El Paso Land Development Code. Test pits were located in potential locations of future soil treatment areas on five of the proposed lots. The approximate locations of the Test Pits are indicated on the Site and Exploration Plan (Figure 3), the Geology/Engineering Geology Map (Figure 6), and the OWTS Suitability Map (Figure 9). Test Pit Logs are included in Appendix B, and Laboratory Test Results in Appendix C.

The Natural Resource Conservation Service (Reference 2), previously the Soil Conservation Service (Reference 3) has been mapped with two soil descriptions. The Soil Survey Map (Reference 2) is presented in Figure 4, and the Soil Survey Descriptions are presented in Appendix D. The soils are described as having rapid percolation rates. The majority of the soils have been described with moderate to high permeabilities.

Soils encountered in the tactile test pits consisted of sandy loam to gravelly sandy loam, gravelly sandy clay loam, sandy clay, and completely weathered sandstone or gravelly sandy clay loam when classified as a soil. Signs of seasonal occurring groundwater were observed in TP-3 and TP-4 at depths of 4 to 6 feet. The limiting layers encountered in the test pits are the sandy clay (4A), the gravelly sandy loam (2A, R1), gravelly sandy clay loam (3A, R1). The soil types correspond to LTAR values ranging from 0.50 to 0.20 gallons per day per square foot. Owing to the potential for shallow groundwater conditions, shallow bedrock, high rock percentage and clayey soils engineered OWTS are anticipated to be required for the lots. Where shallow groundwater conditions are encountered mounding of the OWTS would be necessary. We expect that areas may be available on the lots where mounds would not be required. A minimum of 4 feet of separation between the potential groundwater elevation and the base of the absorption field is required.

On-site Wastewater Systems are to be evaluated for each lot prior to obtaining a 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.

Records for the old septic systems could not be located. The old systems if encountered in future owts absorption field areas will require removal.

In summary, it is our opinion that the 2.5 acre lots are 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 according to El Paso County and State Guidelines and properly maintained. An OWTS Suitability Map is presented in Figure 9. OWTS sites should not be located within defined drainages. Individual soil testing is

required on each lot 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 OWTS 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 Timbers at Black Forest Subdivision 2025, 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

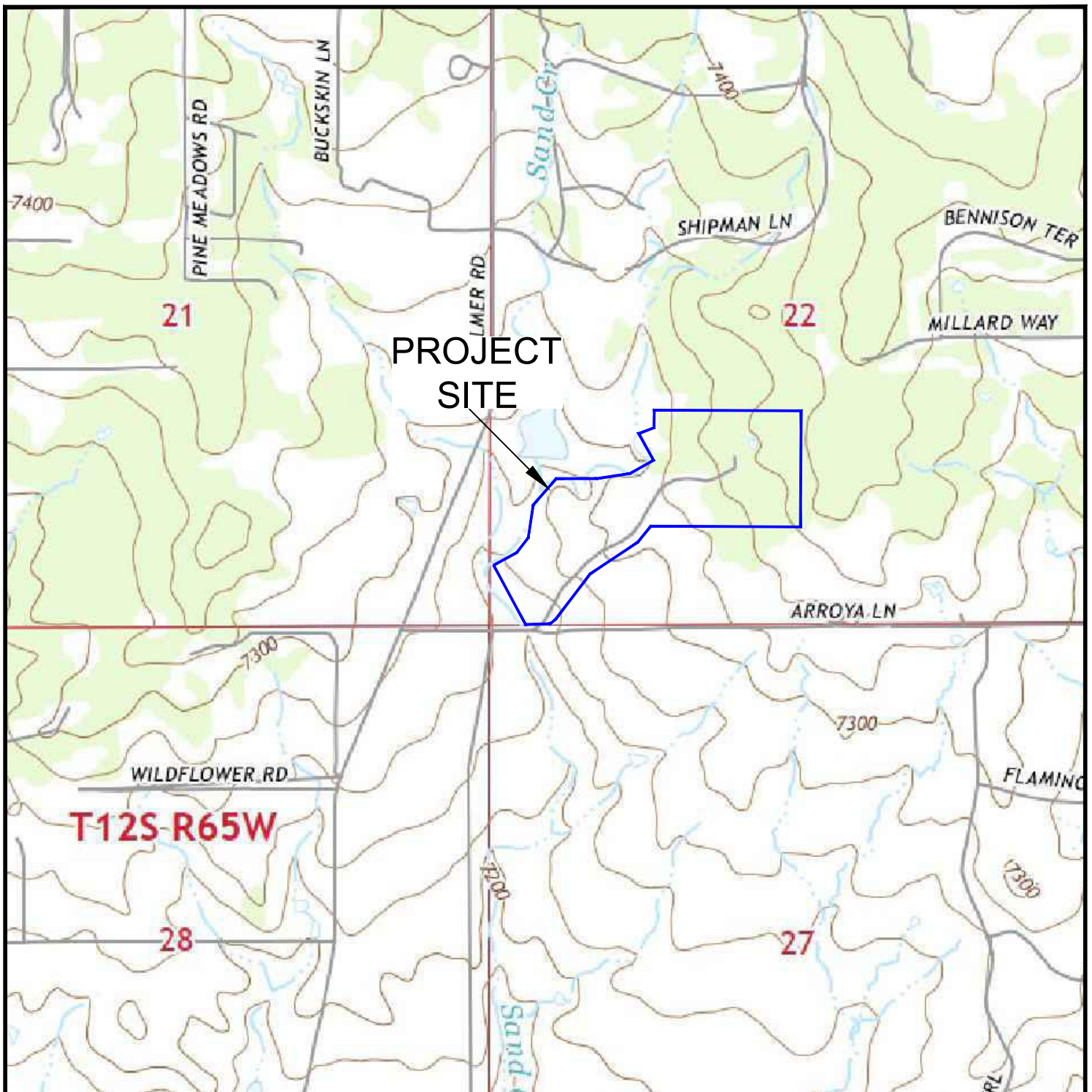
1. Bryant, Bruce; McGrew, Laura W. and Wobus, Reinhard A. 1981. *Geologic Structure Map of the Denver 1° x 2° Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map 1-1163.
2. Entech Engineering, Inc. April 12, 2017. *Soil, Geology, and Geologic Hazard Study, The Retreat at TimberRidge 2.5+ Acre Lots, Vollmer Road and Arroya Lane, El Paso County, Colorado*. Entech Job No. 170209.
3. Entech Engineering, Inc. Dated June 10, 2022. *Soil and Geology Study & Wastewater Study, Retreat at TimberRidge, Filing No. 3, Vollmer Road and Arroya Lane, El Paso County, Colorado*. Entech Job No. 221106.
4. Entech Engineering, Inc. Dated October 4, 2023. *Soil and Geology Study & Wastewater Study, Vollmer Road and Arroya Lane, Parcel No 52214-00-002, El Paso County, Colorado*. Entech Job No. 231494.
5. Entech Engineering, Inc. Revised date August 30, 2024. *Soil and Geology Study & Wastewater Study, Retreat at TimberRidge, Filing No. 4, Parcel No. 52220-00-023, El Paso County, Colorado*. Entech Job No. 231468.
6. Natural Resource Conservation Service, June 20, 2007. *Web Soil Survey*. United States Department Agriculture, <http://web soil survey.nrcs.usda.gov>.
7. United States Department of Agriculture Soil Conservation Service. June 1981. *Soil Survey of El Paso County Area, Colorado*.
8. Thorson, Jon P. 2003. *Geologic Map of the Black Forest Quadrangle, El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 03-6.
9. 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.
10. Bryant, Bruce, McGrew, Laura W., and Wobus, Reinhard A. 1981. *Geologic Map of the Denver 1° x 2° Quadrangle, North-Central Colorado*. U.S. Geologic Survey. Map 1-1163.
11. 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.
12. Federal Emergency Management Agency. December 7, 2018. *Flood Insurance Rate Maps for the City of Colorado Springs, Colorado*. Map Number 08041C0305G.
13. U.S. Fish & Wildlife Service, May 1, 2020. *National Wetlands Inventory*. Department of the Interior, fws.gov/wetlands/data/Mapper.html.
14. McCoy, KM; Morgan, ML; Berry, KL. 2018. *Debris Flow Susceptibility Map of El Paso County, Colorado*. Colorado Geological Survey. Open-File Report 18-11.

FIGURES



VICINITY MAP
9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

JOB NO.
251875
FIG. 1



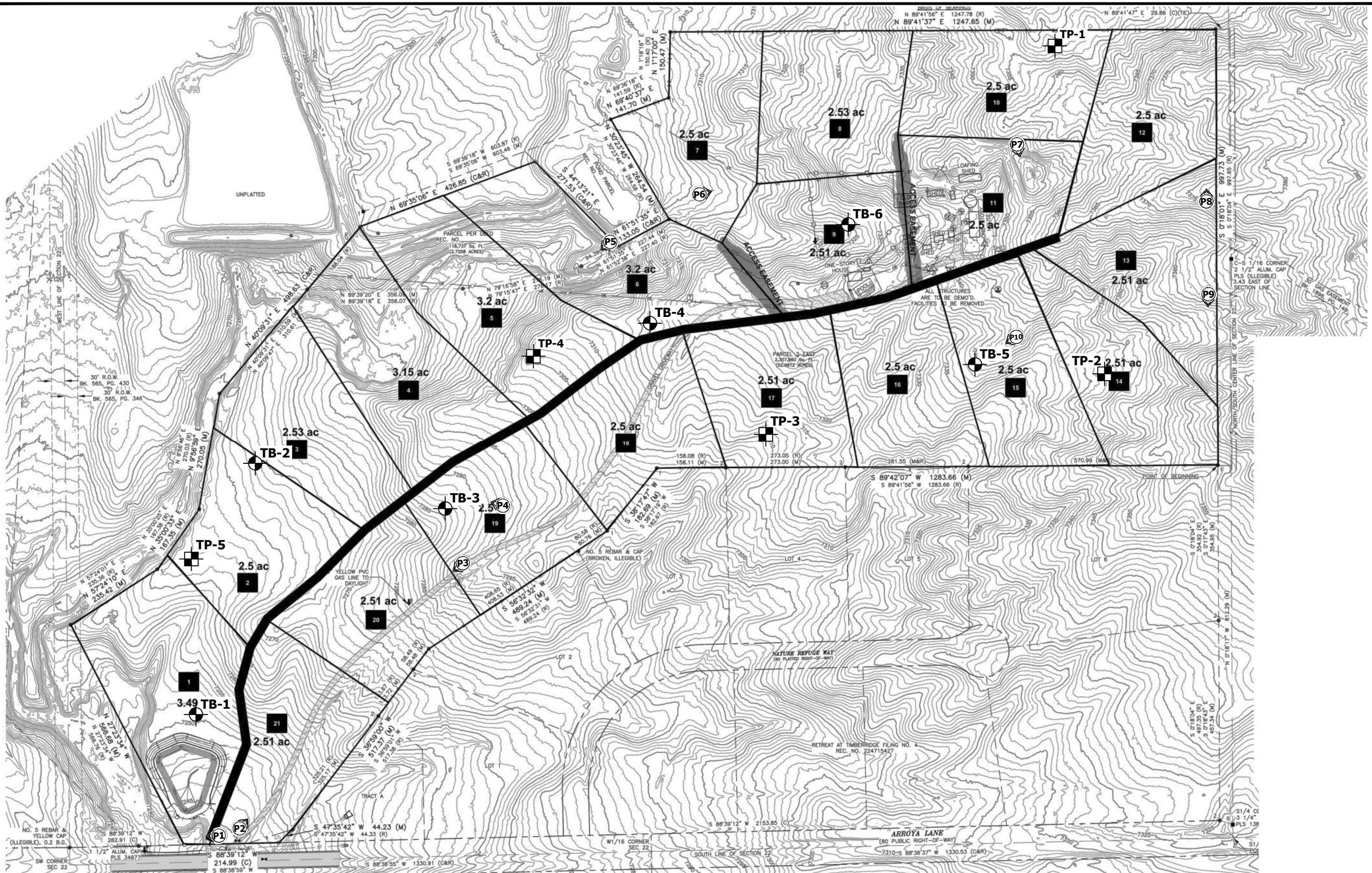
USGS TOPOGRAPHY MAP

9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

JOB NO.

251875

FIG. 2

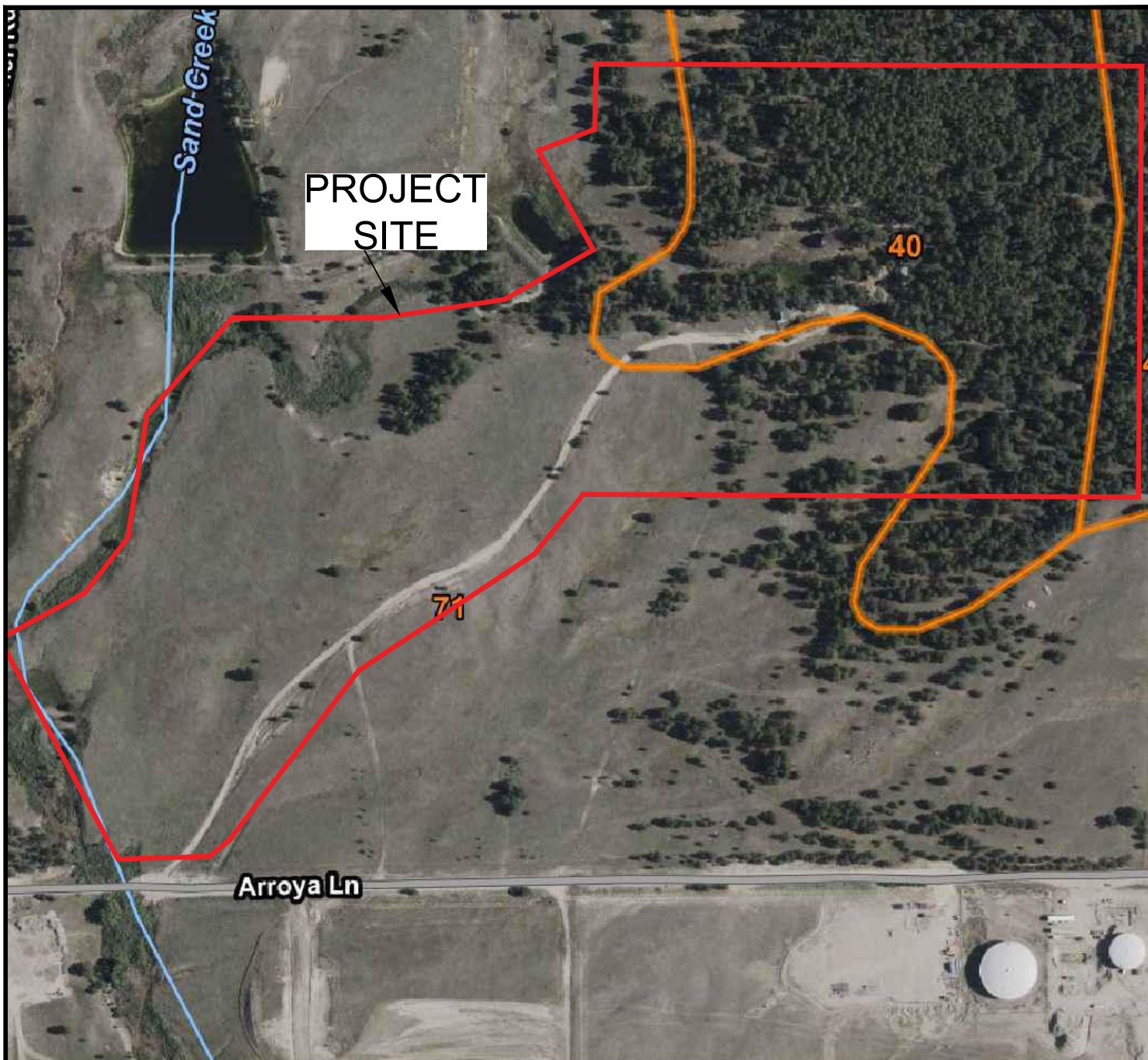


- APPROXIMATE TEST PIT LOCATION AND NUMBER
- APPROXIMATE TEST BORING LOCATION AND NUMBER
- APPROXIMATE PHOTOGRAPH LOCATION AND NUMBER



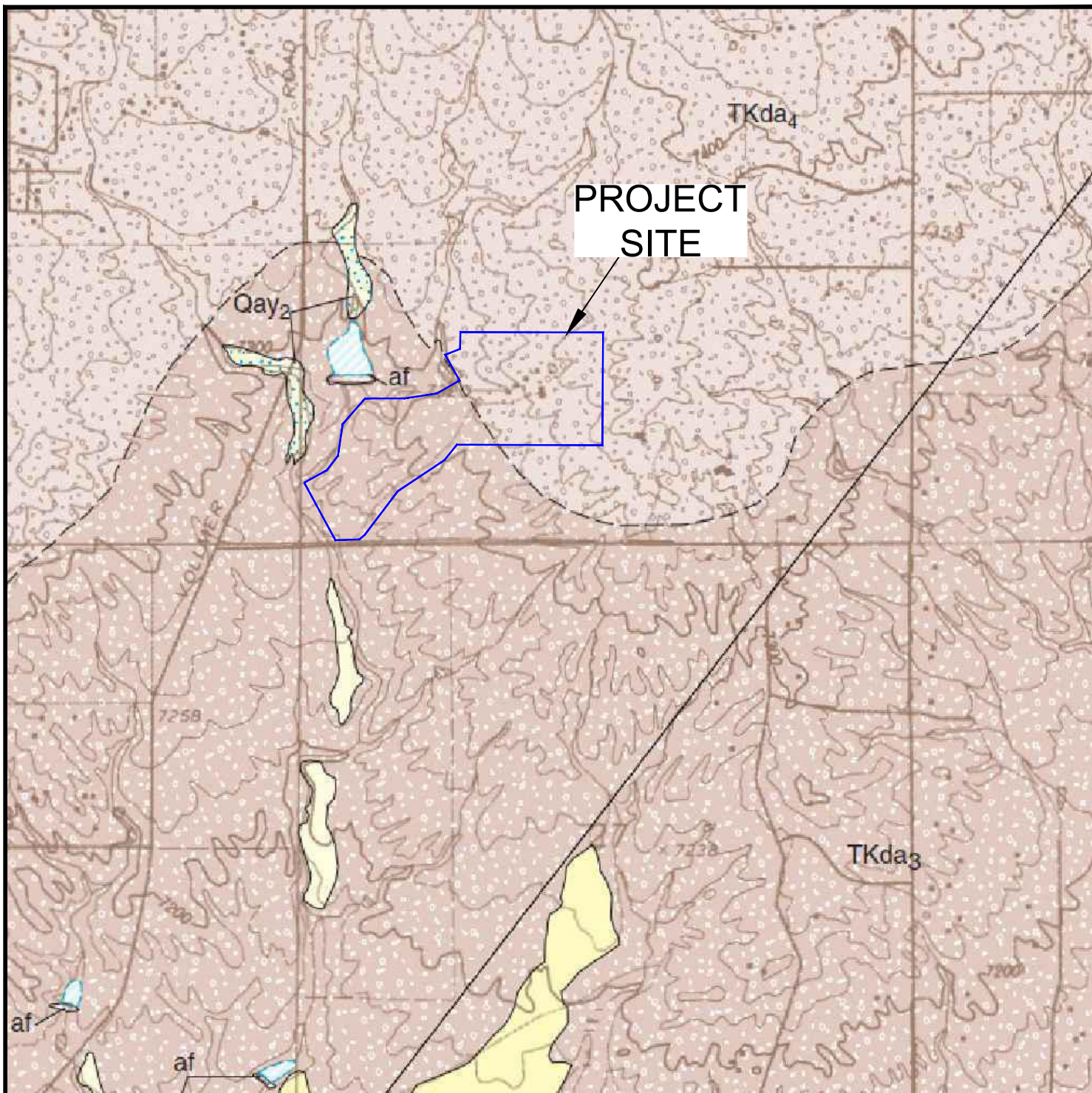
SITE AND EXPLORATION PLAN
9220 ARROYA LANE
TIMBERS AT BLACK FOREST SUBDIVISION 2025, LLC

JOB NO.
251875
FIG. 3



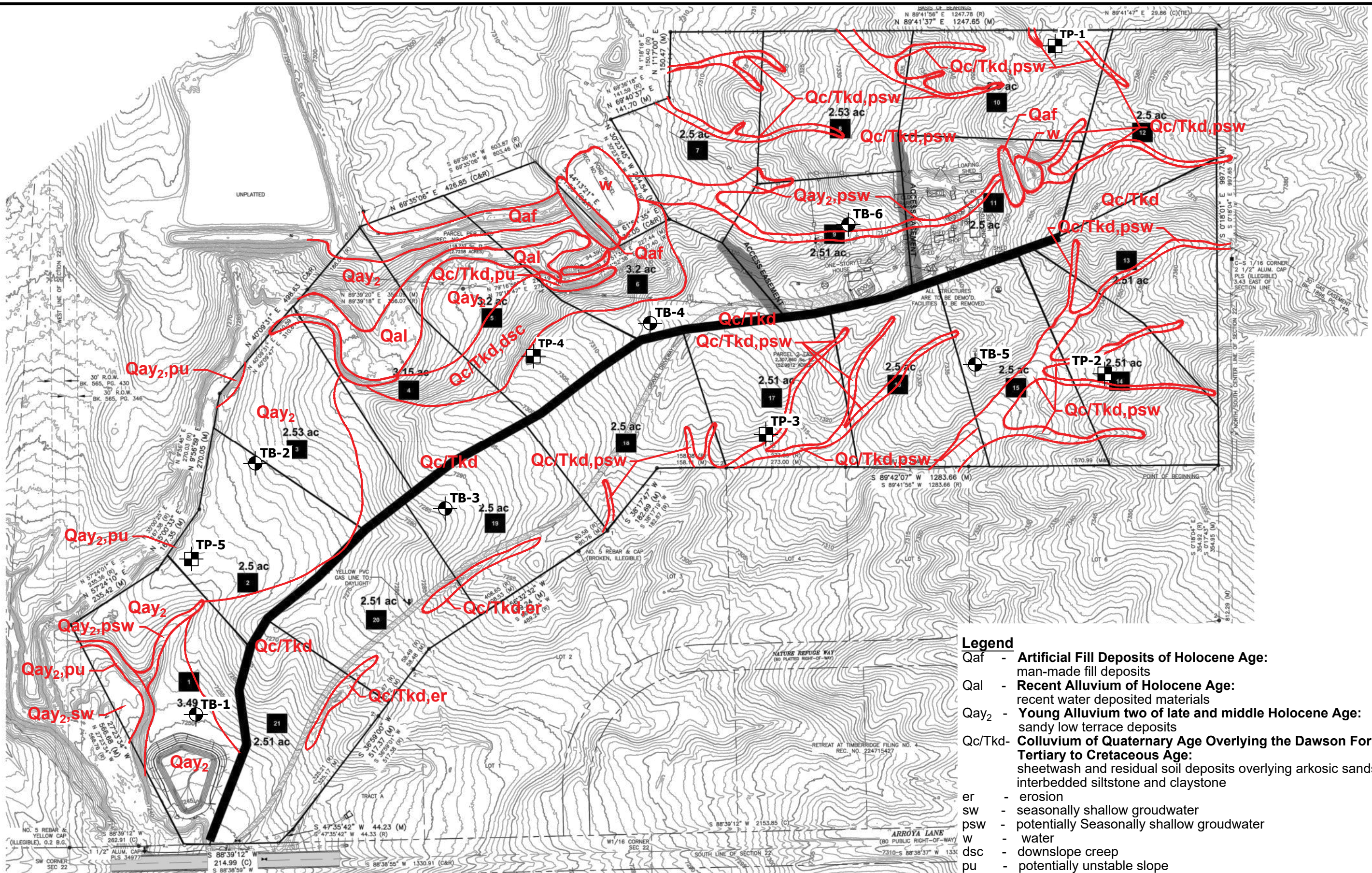
SOIL SURVEY MAP
9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

JOB NO.
251875
FIG. 4



**GEOLOGIC MAP OF THE
COLORADO SPRINGS QUADRANGLE**
9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

**JOB NO.
251875
FIG. 5**



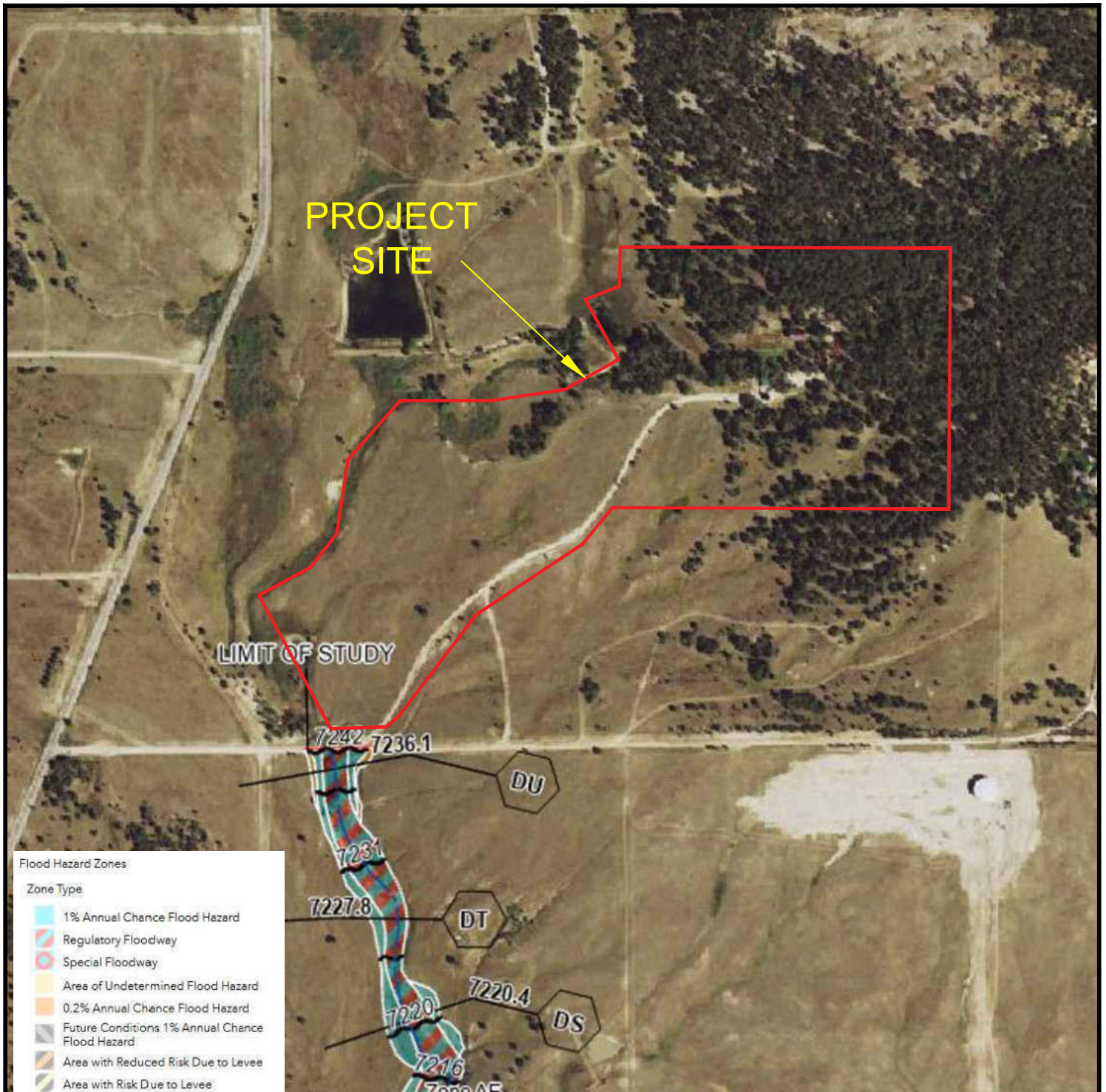
- Legend**
- Qaf - **Artificial Fill Deposits of Holocene Age:**
man-made fill deposits
 - Qal - **Recent Alluvium of Holocene Age:**
recent water deposited materials
 - Qay₂ - **Young Alluvium two of late and middle Holocene Age:**
sandy low terrace deposits
 - Qc/Tkd - **Colluvium of Quaternary Age Overlying the Dawson Formation of Tertiary to Cretaceous Age:**
sheetwash and residual soil deposits overlying arkosic sandstone with interbedded siltstone and claystone
 - er - erosion
 - sw - seasonally shallow groudwater
 - psw - potentially Seasonally shallow groudwater
 - w - water
 - dsc - downslope creep
 - pu - potentially unstable slope



**GEOLOGY / ENGINEERING
GEOLOGY MAP**
9220 ARROYA LANE
TIMBERS AT BLACK FOREST SUBDIVISION 2025, LLC

JOB NO.
251875

FIG. 6

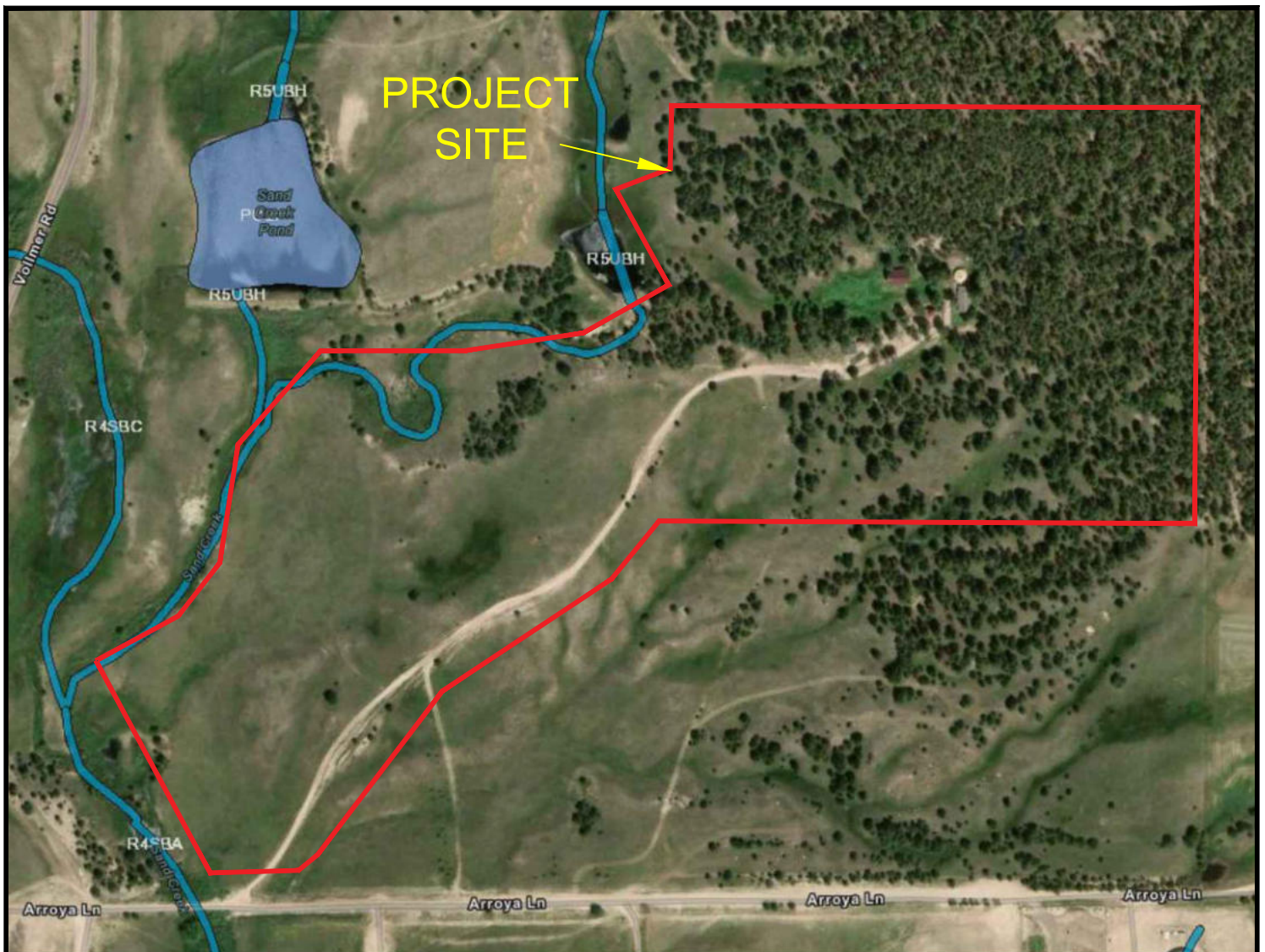


FEMA FLOODPLAIN MAP

9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

JOB NO.
251875

FIG. 7



FEMA FLOODPLAIN MAP

9220 ARROYA LANE
TIMBERS AT BLACK FOREST
SUBDIVISION 2025, LLC

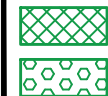
JOB NO.

251875

FIG. 8

[illegible]

LEGEND:



- POSSIBLE OWTS LOCATIONS
- POSSIBLE OWTS ALTERNATE LOCATIONS

w

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



ENTECH
ENGINEERING, INC.

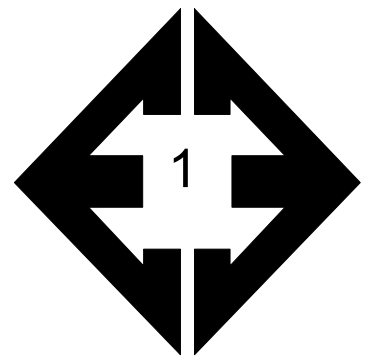
OWTS SUITABILITY MAP

**5740 BURGESS ROAD
CR SHEA HOMES**

JOB NO.
251875

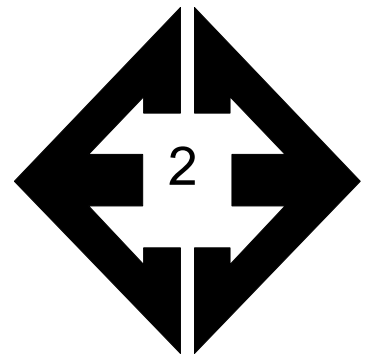
FIG. 9

APPENDIX A: Site Photographs



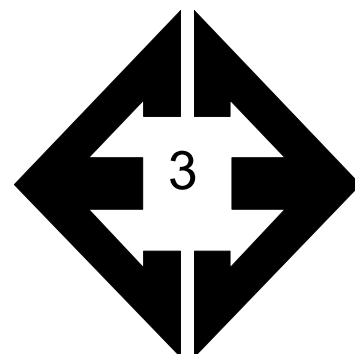
Looking west from the southern side of the site.

October 22, 2025



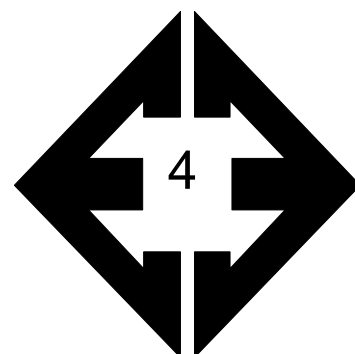
Looking southwest from the eastern portion of the site.

October 22, 2025



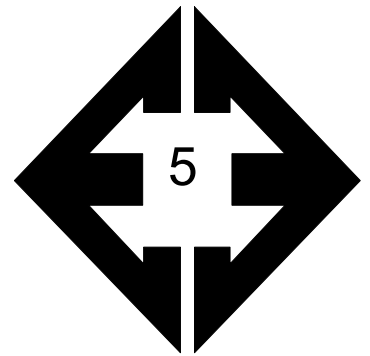
**Looking southwest
along gravel driveway
in area of erosion from
southern portion of the
site.**

October 22, 2025



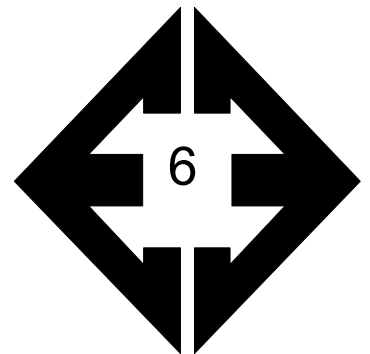
**Looking west from the
northern portion of the
site.**

October 22, 2025



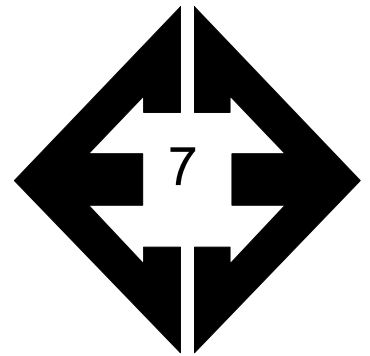
**Looking southwest
along the potentially
unstable slopes from
the northern portion of
the site.**

October 22, 2025



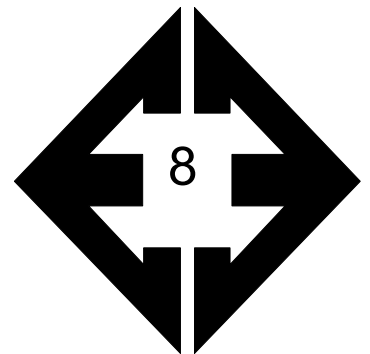
**Looking east towards
existing barn and farm
houses from the
northern side of the
site.**

October 22, 2025



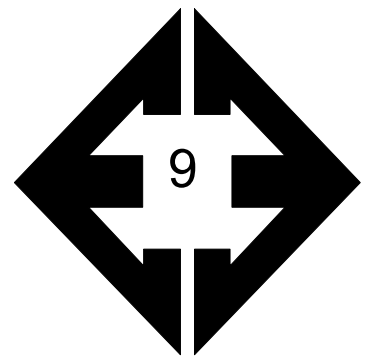
**Looking south towards
area of ponded water
in stock pond along
Lots 11 and 12.**

October 22, 2025



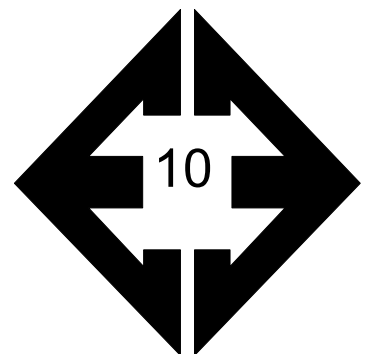
**Looking north from the
eastern side of the
site.**

October 22, 2025



**Looking south from
the northern portion of
the site.**

October 22, 2025



**Looking southwest
from the southeastern
portion of the site.**

December 2, 2025

APPENDIX B: Test Boring and Test Pit Logs

TEST BORING 1
DATE DRILLED 12/1/2025
REMARKS

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			42	7.1	1
5			50 10"	8.5	3
10			50 11"	7.8	3
15			50	10.9	3
20			50 10"	17.3	3

WATER @ 16', 12/2/25

SAND, SILTY, TAN, DENSE, MOIST

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

TEST BORING 2
DATE DRILLED 12/1/2025
REMARKS

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			2	5.6	1
5			3	3.3	1
10			4	6.1	1
15			4	23.7	2
20			50 10"	18.2	3

WATER @ 10', 12/2/25

SAND, SILTY, TAN, VERY LOOSE,
MOIST

CLAY, SANDY, GRAY, MEDIUM,
SOFT, MOIST

SANDSTONE, EXTREMELY WEAK,
TAN, HIGHLY WEATHERED (SAND,
WITH SILT, VERY DENSE, MOIST)



TEST BORING LOGS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. B-1

TEST BORING 3
DATE DRILLED 12/1/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 12/2/25						
SAND, SILTY, TAN, MEDIUM DENSE, MOIST				10	9.8	1
	5			24	7.3	1
SANDSTONE, EXTREMELY WEAK, TAN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)	10			50 11"	7.0	3
	15			50 11"	7.2	3
	20			50	10.5	3

TEST BORING 4
DATE DRILLED 12/1/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
DRY TO 20', 12/2/25						
SAND, SILTY, TAN, MEDIUM DENSE, MOIST				20	5.2	1
	5			15	6.4	1
CLAY, SANDY, BROWN to GRAY, HARD, MOIST	10			38	13.4	2
SANDSTONE, EXTREMELY WEAK, TAN, HIGHLY WEATHERED (SAND, SILTY, VERY DENSE, MOIST)	15			50 5"	6.6	3
	20			50 6"	7.7	3



TEST BORING LOGS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. B-2

TEST BORING 5
DATE DRILLED 12/1/2025
REMARKS

DRY TO 20', 12/2/25

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

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

Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			9	7.2	1
5			6	3.1	1
10			23	9.7	1
15			50 10"	9.3	3
20			50 9"	9.4	3

TEST BORING 6
DATE DRILLED 12/1/2025
REMARKS

WATER @ 15', 12/2/25

SAND, CLAYEY, TAN, LOOSE,
MOIST

SAND, SILTY, TAN, DENSE, MOIST

SANDSTONE, EXTREMELY WEAK,
TAN, MODERATELY WEATHERED
(SAND, SILTY, VERY DENSE,
MOIST)



Depth (ft)	Symbol	Samples	Blows per foot	Watercontent %	Soil Type
			7	17.1	1
5			27	11.5	1
10			50 9"	7.8	3
15			50 9"	11.0	3
20			50 8"	7.8	3



TEST BORING LOGS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. B-3

TABLE B-1
DEPTH TO BEDROCK & GROUNDWATER

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

TEST PIT 1
DATE EXCAVATED 12/10/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
topsoil, sandy loam, dark brown	1					
very gravelly sandy loam, fine to coarse grained, light brown,	2			gr	w	2A R1
completely weathered Dawson sandstone, light brown, dense (very gravelly sandy clay loam)	3			ma		3A R1
	4					
	5					
	6					
	7					
	8					
	9					
	10					

TEST PIT 2
DATE EXCAVATED 12/10/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
topsoil, sandy loam, brown	1					
very gravelly sandy loam, fine to coarse grained, light brown, moist	2			gr	w	2A R1
completely weathered Dawson sandstone, light brown, dense (very gravelly sandy clay loam)	3			ma		3A R1
	4					
	5					
	6					
	7					
	8					
	9					
	10					

Soil Structure Shape

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

Soil Structure Grade

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



TEST PIT LOGS

TIMBERS OF BLACK FOREST SUBDIVISION
TIMBERS OF BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. B-4

TEST PIT 3
DATE EXCAVATED 12/10/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
topsoil sandy clay loam, dark brown	1					
very gravelly sandy clay loam, fine to coarse grained, light brown, moist	2			gr	w	3A
	3					
	4			gr	w	2A
sandy loam, fine to coarse grained, light brown, moist	5					
	6			ma		3A
completely weathered Dawson sandstone, light brown, dense (sandy clay loam)	7					
	8					
	9					
	10					

*redoximorphic features at 6'

TEST PIT 4
DATE EXCAVATED 12/10/2025
REMARKS

REMARKS	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
topsoil sandy clay, dark brown	1					
sandy clay, fine grained, brown, moist	2			gr	w	4A
	3					
sandy loam, fine to coarse grained, light brown, moist	4			gr	w	2A
	5			ma		3A
completely weathered Dawson sandstone, light brown, dense (gravelly sandy clay loam)	6					
	7					
	8					
	9					
	10					

*redoximorphic features at 4'

Soil Structure Shape

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

Soil Structure Grade

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



TEST PIT LOGS

TIMBERS OF BLACK FOREST SUBDIVISION
TIMBERS OF BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. B-5

TEST BORING 5
 DATE DRILLED 12/10/2025
 REMARKS

	Depth (ft)	Symbol	Samples	Soil Structure Shape	Soil Structure Grade	Soil Type
topsoil, sandy loam, dark brown	1					
very gravelly sandy loam, fine to coarse grained, light brown, moist	2			gr	w	2A R1
	3					
	4					
sandy loam, fine to coarse grained, light brown, moist	5			gr	w	2A
	6					
	7					
	8					
	9					
	10					

Soil Structure Shape

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

Soil Structure Grade

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



TEST PIT LOGS

TIMBERS OF BLACK FOREST SUBDIVISION
 TIMBERS OF BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
 251875

FIG. B-6

APPENDIX C: Laboratory Test Results

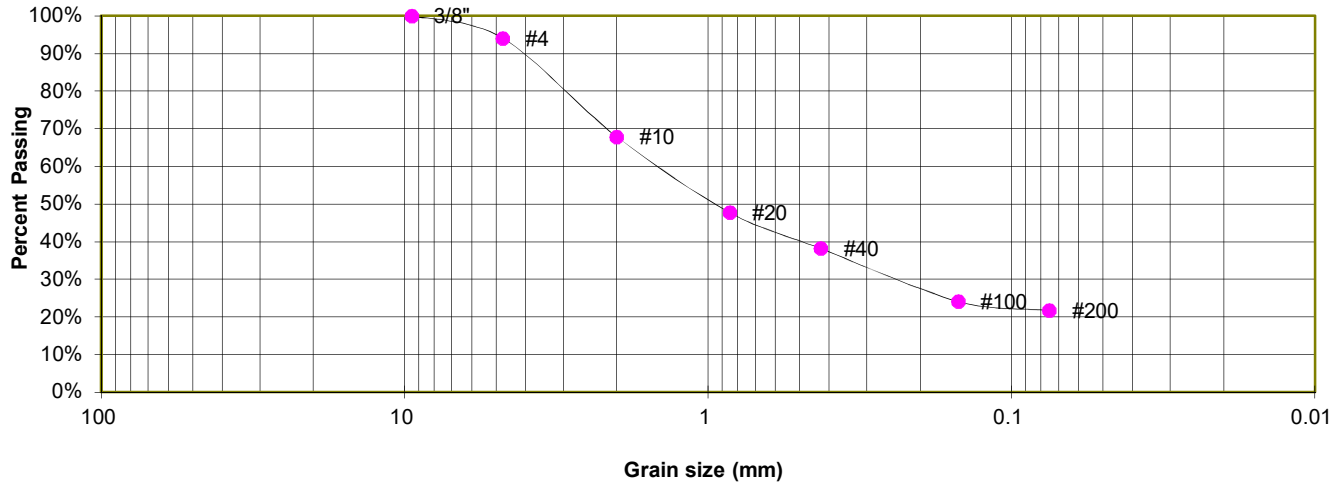
TABLE C-1
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	PASSING NO. 200 SIEVE (%)	LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX	SULFATE (WT %)	FHA SWELL (PSF)	USCS	SOIL DESCRIPTION
1	6	2-3	21.8	29	21	8	<0.01		SC	FILL, SAND, CLAYEY
1	1	2-3	12.5	NV	NP	NP	<0.01		SM	SAND, SILTY
1	5	5	12.4						SM	SAND, SILTY
2	4	10	68.2				<0.01	330	CL	CLAY, SANDY
3	2	15	6.1						SW-SM	SANDSTONE (SAND, WITH SILT)
3	3	10	12.2	31	23	8	<0.01		SM	SANDSTONE (SAND, SILTY)

TEST BORING 6
DEPTH (FT) 2-3

SOIL DESCRIPTION FILL, SAND, CLAYEY
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	94.1%
10	67.9%
20	47.8%
40	38.2%
100	24.2%
200	21.8%

ATTERBERG LIMITS

Plastic Limit	21
Liquid Limit	29
Plastic Index	8

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

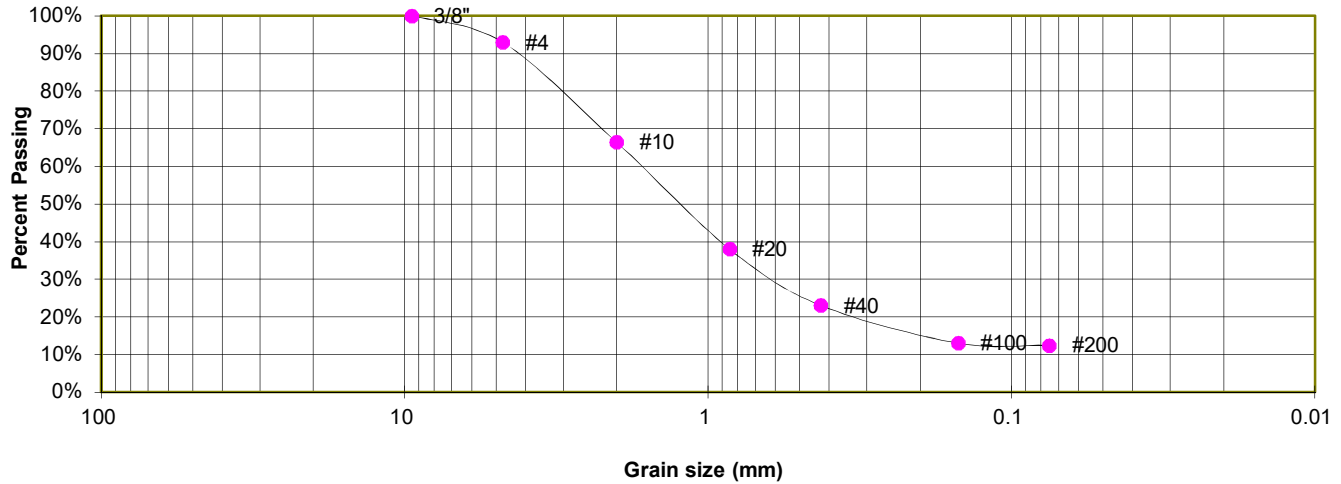
JOB NO.
251875

FIG. C-1

TEST BORING	1
DEPTH (FT)	2-3

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE 1

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	93.0%
10	66.4%
20	38.1%
40	23.1%
100	13.0%
200	12.5%

ATTERBERG LIMITS

Plastic Limit	NP
Liquid Limit	NV
Plastic Index	NP

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

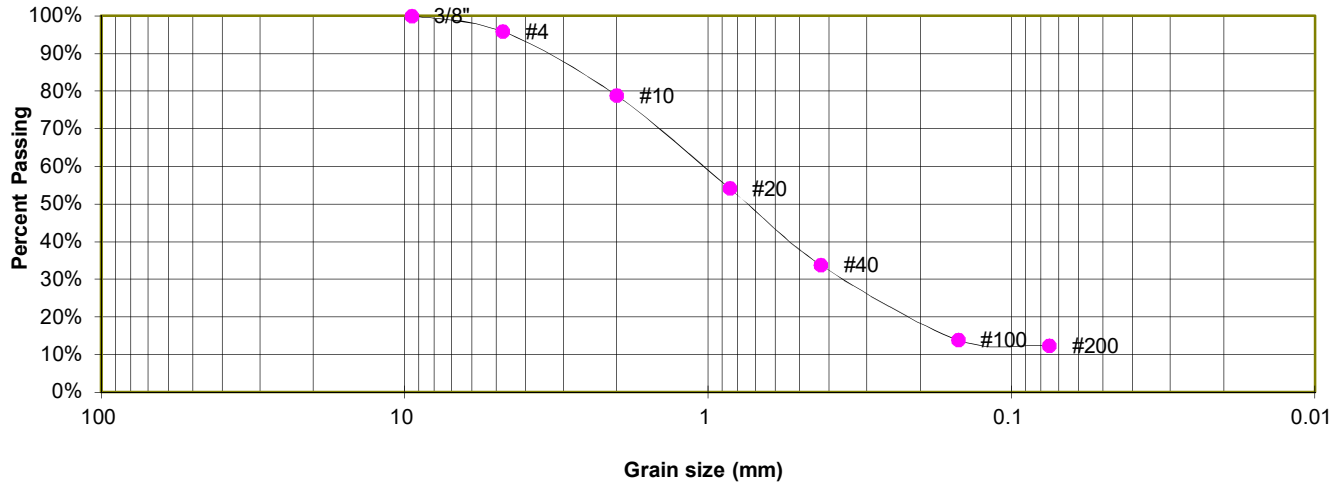
JOB NO.
251875

FIG. C-2

TEST BORING 5
DEPTH (FT) 5

SOIL DESCRIPTION SAND, SILTY
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	95.8%
10	78.8%
20	54.2%
40	33.8%
100	13.9%
200	12.4%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

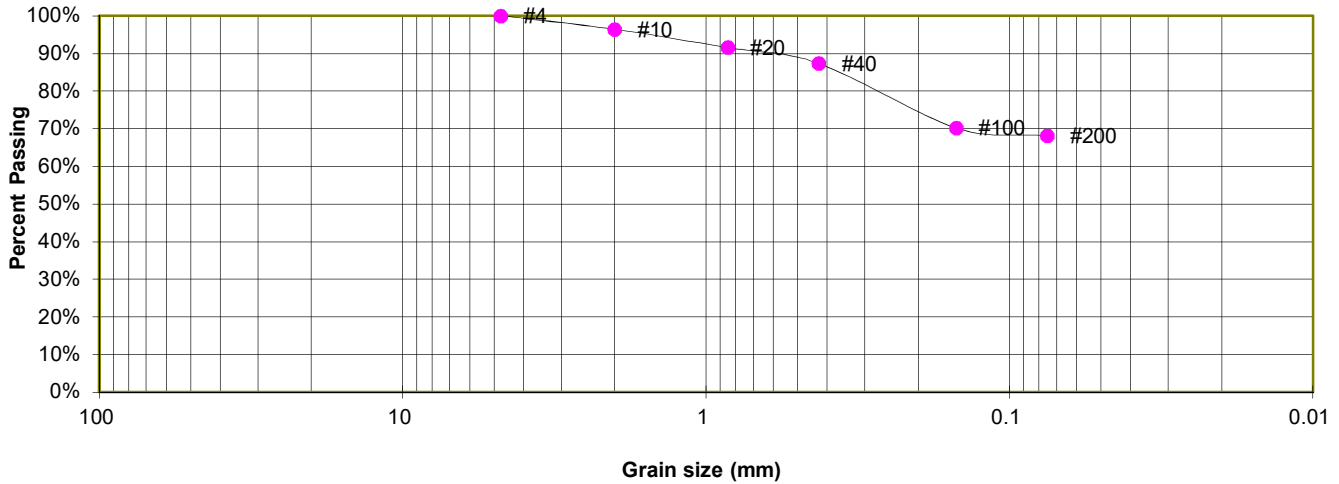
JOB NO.
251875

FIG. C-3

TEST BORING	4
DEPTH (FT)	10

SOIL DESCRIPTION CLAY, SANDY
SOIL TYPE 2

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	96.4%
20	91.6%
40	87.4%
100	70.2%
200	68.2%

FHA SWELL

Moisture at start	19.2%
Moisture at finish	25.8%
Moisture increase	6.6%
Initial dry density (pcf)	93
Swell (psf)	330

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

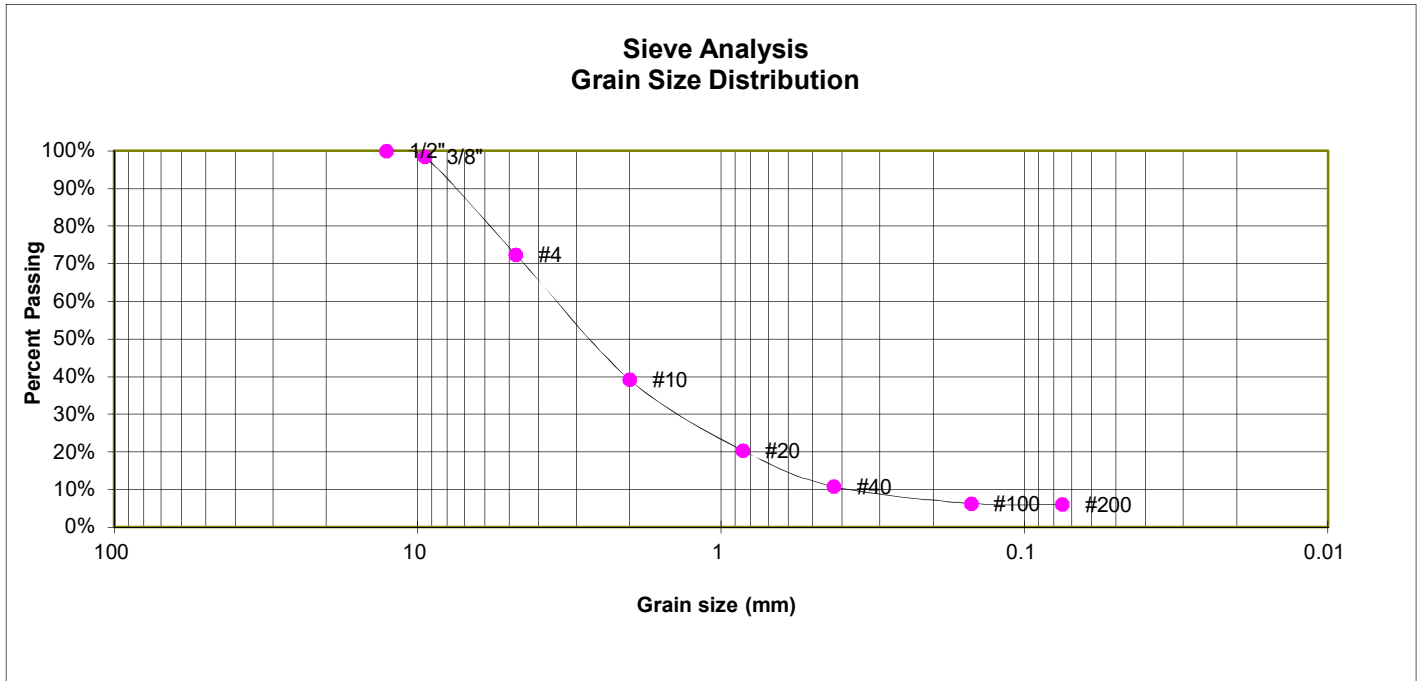
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. C-4

TEST BORING	2
DEPTH (FT)	15

SOIL DESCRIPTION SANDSTONE (SAND, WITH SILT)
SOIL TYPE 3



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	98.4%
4	72.5%
10	39.2%
20	20.4%
40	10.8%
100	6.3%
200	6.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM



LABORATORY TEST RESULTS
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

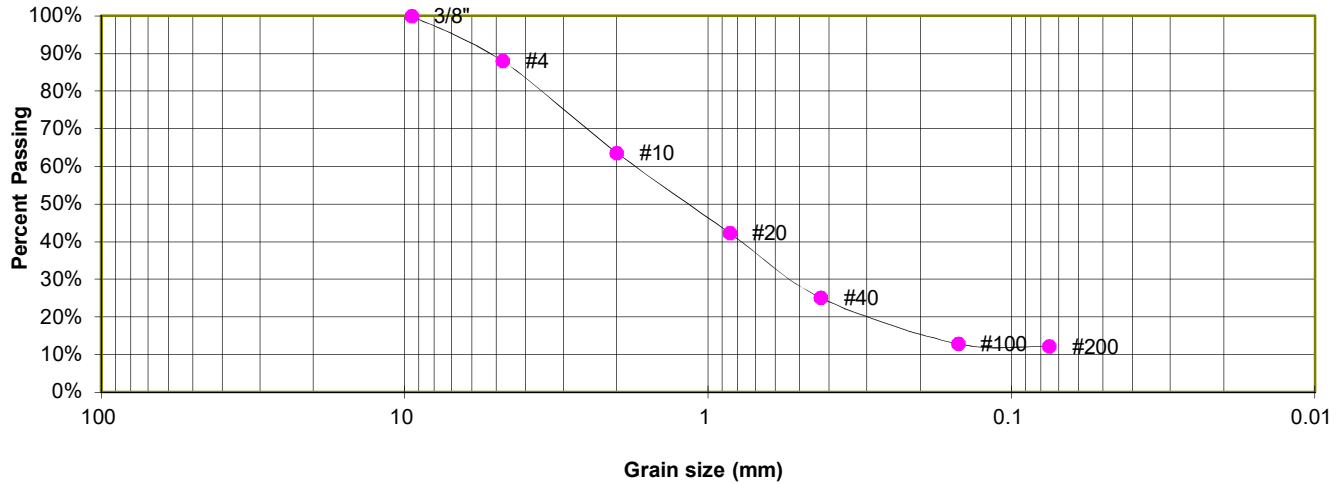
JOB NO.
251875

FIG. C-5

TEST BORING	3
DEPTH (FT)	10

SOIL DESCRIPTION SANDSTONE (SAND, SILTY)
SOIL TYPE 3

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	88.0%
10	63.6%
20	42.4%
40	25.1%
100	12.9%
200	12.2%

ATTERBERG LIMITS

Plastic Limit	23
Liquid Limit	31
Plastic Index	8

SOIL CLASSIFICATION

USCS CLASSIFICATION: SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

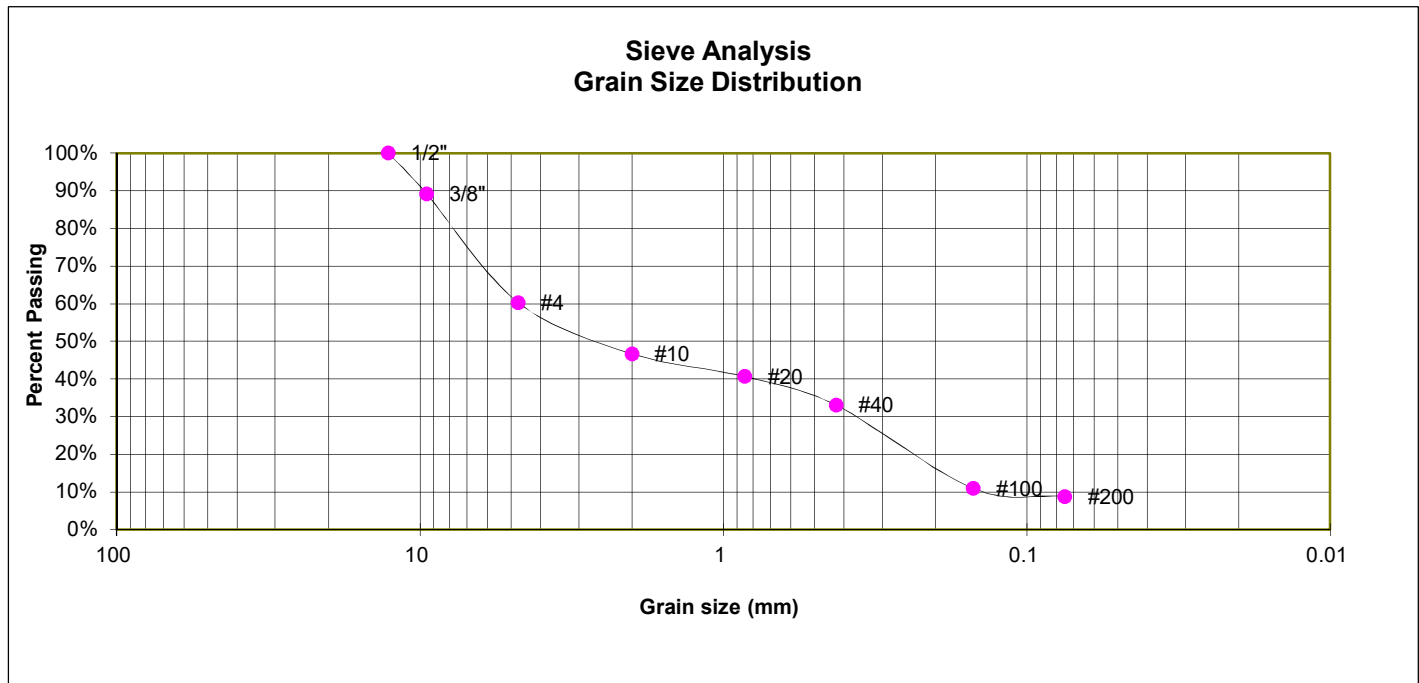
JOB NO.
251875

FIG. C-6

TABLE C-2
SUMMARY OF LABORATORY TEST RESULTS

SOIL TYPE	TEST BORING NO.	DEPTH (FT)	PASSING NO. 200 SIEVE (%)	RETAINED NO. 10 SIEVE (%)	USCS	SOIL DESCRIPTION
1	TP-1	2-3	8.8	53.3	SP-SM	SAND, GRAVELLY, WITH SILT
1	TP-1	4-5	10.3	51.8	SW-SM	SAND, GRAVELLY, WITH SILT
1	TP-2	2-3	9.2	48.7	SW-SM	SAND, GRAVELLY, WITH SILT
1	TP-2	5-6	10.0	45.6	SW-SM	SAND, GRAVELLY, WITH SILT
1	TP-3	2-3	7.2	43.5	SP-SM	SAND, GRAVELLY, WITH SILT
1	TP-3	6-7	39.3	17.1	SC	SAND, CLAYEY
2	TP-4	2-3	58.2	2.2	CL	CLAY, SANDY
1	TP-4	4-5	11.2	16.4	SW-SM	SAND, WITH SILT
1	TP-5	3-4	3.1	38.2	SW	SAND, SLIGHTLY SILTY
1	TP-5	7-8	35.3	19.9	SC	SAND, CLAYEY

TEST BORING	TP-1	SOIL DESCRIPTION SAND, GRAVELLY, 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"	100.0%
3/8"	89.2%
4	60.3%
10	46.7%
20	40.7%
40	33.0%
100	10.9%
200	8.8%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SP-SM



LABORATORY TEST RESULTS
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

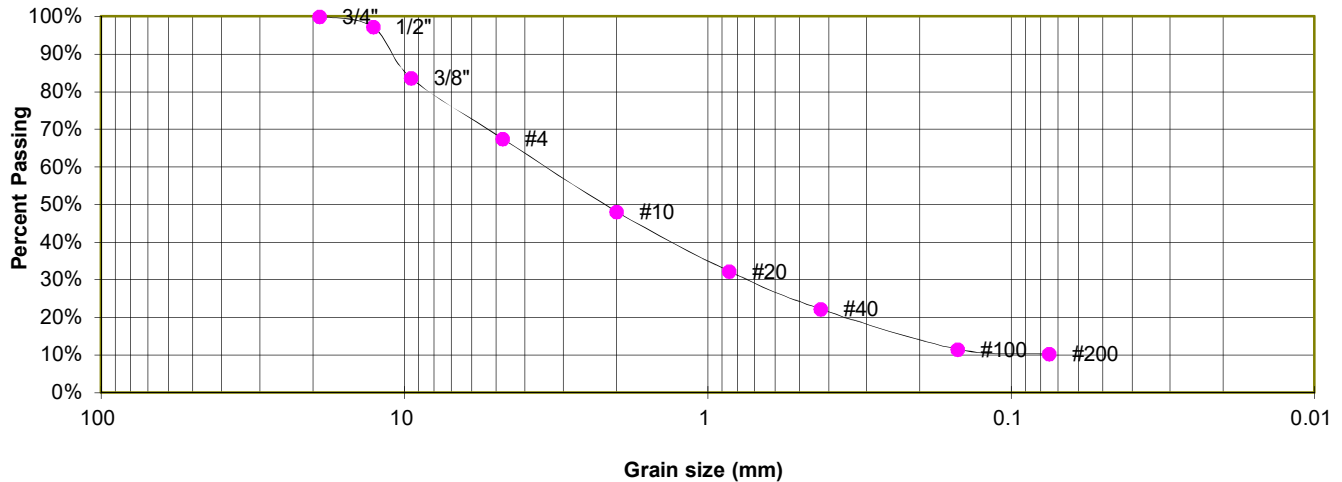
JOB NO.
251875

FIG. C-6

TEST BORING TP-1
DEPTH (FT) 4-5

SOIL DESCRIPTION SAND, GRAVELLY, WITH SILT
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	100.0%
1/2"	97.3%
3/8"	83.6%
4	67.5%
10	48.2%
20	32.2%
40	22.2%
100	11.6%
200	10.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

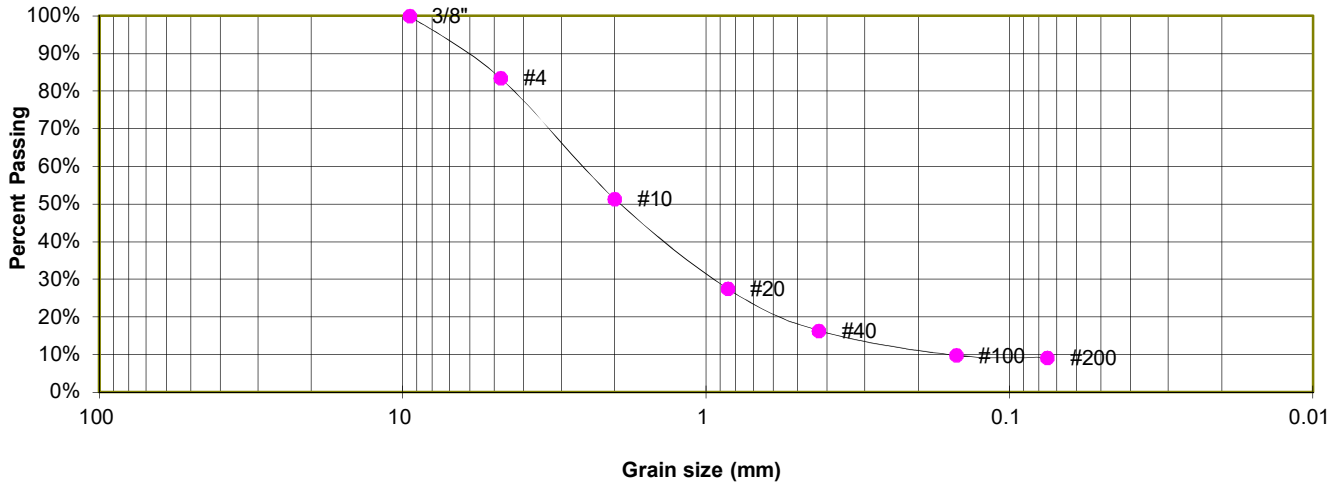
JOB NO.
251875

FIG. C-8

TEST BORING TP-2
DEPTH (FT) 2-3

SOIL DESCRIPTION SAND, GRAVELLY, WITH SILT
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	83.4%
10	51.3%
20	27.6%
40	16.4%
100	9.8%
200	9.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM

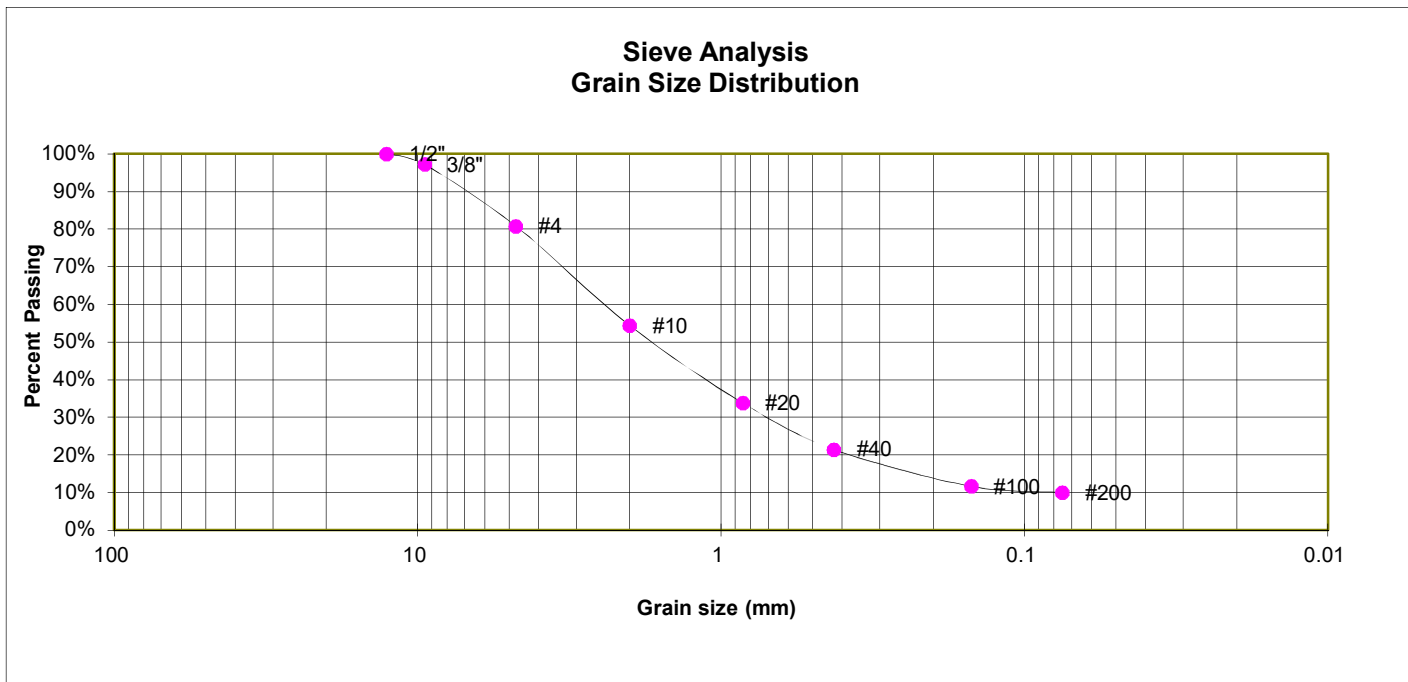


LABORATORY TEST RESULTS
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. C-9

TEST BORING	TP-2	SOIL DESCRIPTION	SAND, GRAVELLY, WITH SILT
DEPTH (FT)	5-6	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.2%
4	80.8%
10	54.4%
20	33.9%
40	21.5%
100	11.7%
200	10.0%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

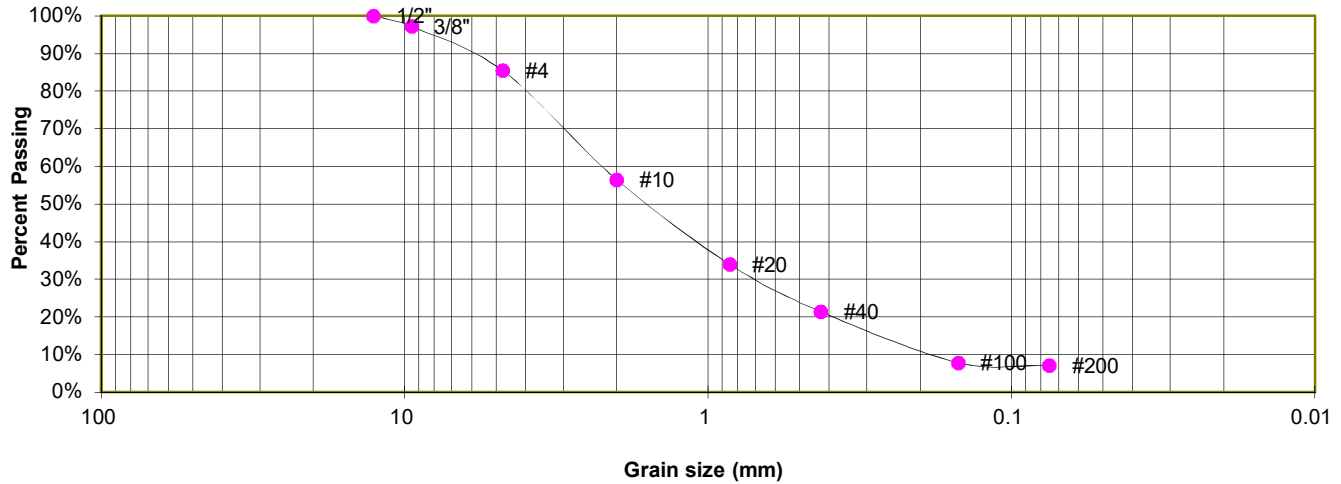
JOB NO.
251875

FIG. C-10

TEST BORING TP-3
DEPTH (FT) 2-3

SOIL DESCRIPTION SAND, GRAVELLY, WITH SILT
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	97.2%
4	85.5%
10	56.5%
20	34.0%
40	21.4%
100	7.9%
200	7.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SP-SM



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

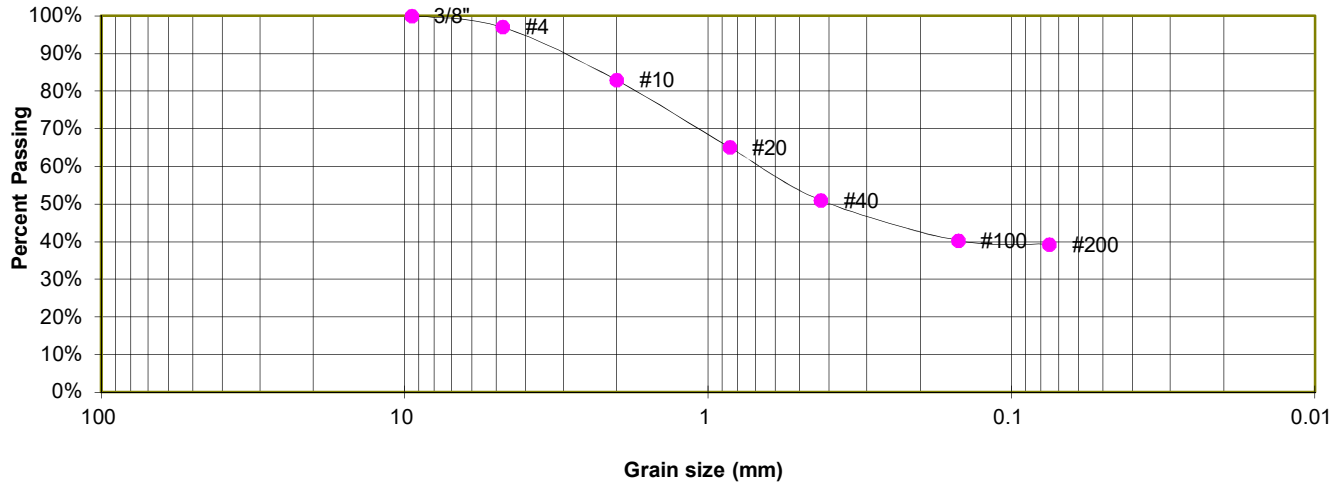
JOB NO.
251875

FIG. C-11

TEST BORING TP-3
DEPTH (FT) 6-7

SOIL DESCRIPTION SAND, CLAYEY
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	97.0%
10	82.9%
20	65.0%
40	51.0%
100	40.3%
200	39.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC



LABORATORY TEST RESULTS
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

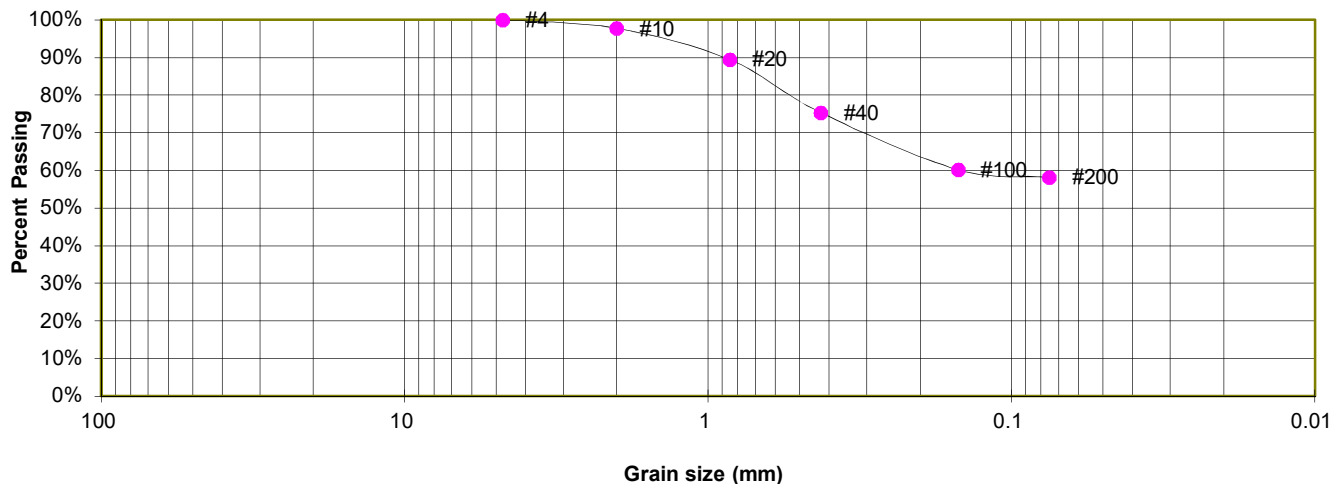
JOB NO.
251875

FIG. C-12

TEST BORING TP-4
DEPTH (FT) 2-3

SOIL DESCRIPTION CLAY, SANDY
SOIL TYPE 2

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	
4	100.0%
10	97.8%
20	89.5%
40	75.3%
100	60.2%
200	58.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: CL



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

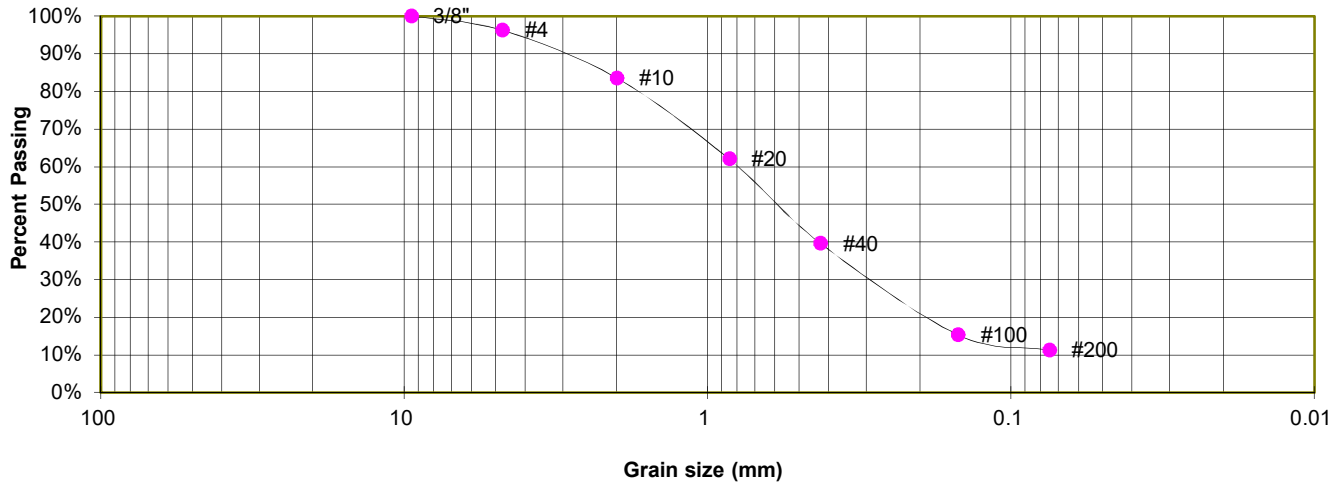
JOB NO.
251875

FIG. C-13

TEST BORING TP-4
DEPTH (FT) 4-5

SOIL DESCRIPTION SAND, WITH SILT
SOIL TYPE 1

**Sieve Analysis
Grain Size Distribution**



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	
3/8"	100.0%
4	96.3%
10	83.6%
20	62.1%
40	39.6%
100	15.4%
200	11.2%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW-SM



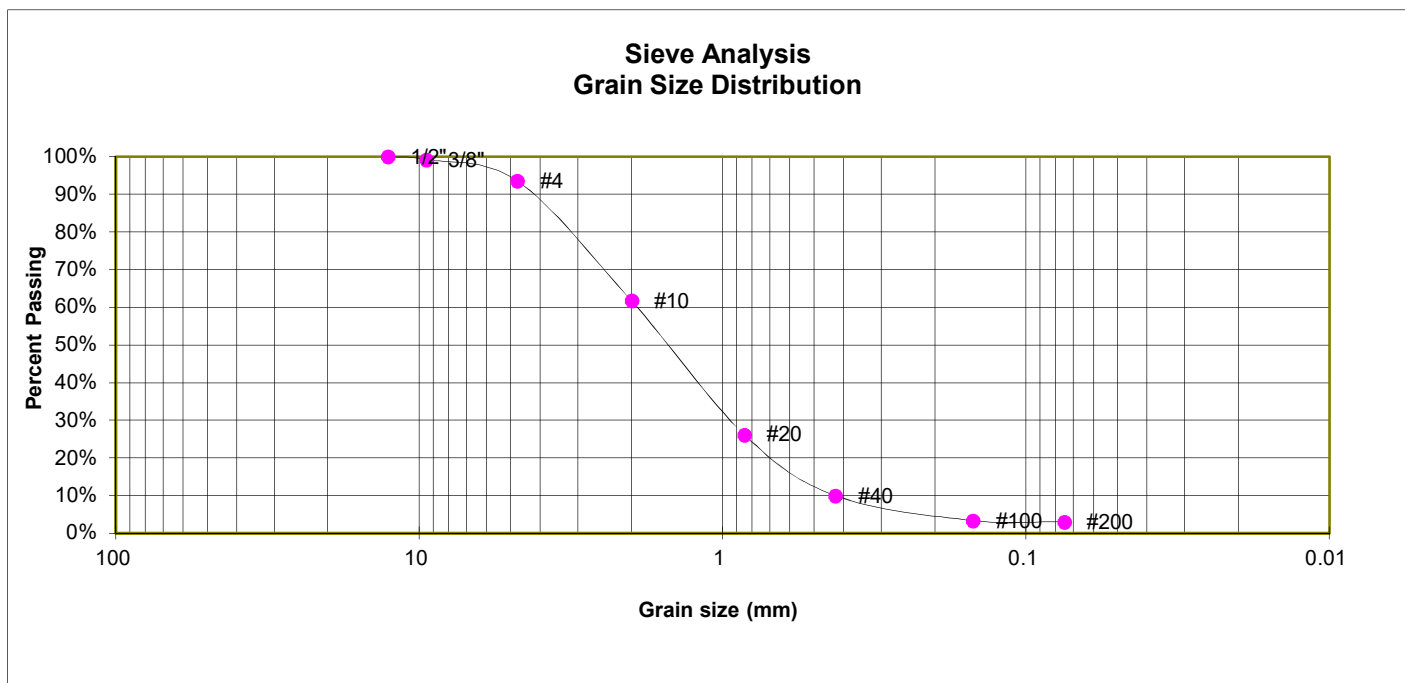
LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. C-14

TEST BORING	TP-5	SOIL DESCRIPTION	SAND, SLIGHTLY SILTY
DEPTH (FT)	3-4	SOIL TYPE	1



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	99.2%
4	93.6%
10	61.8%
20	26.2%
40	10.0%
100	3.4%
200	3.1%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SW



LABORATORY TEST RESULTS

9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

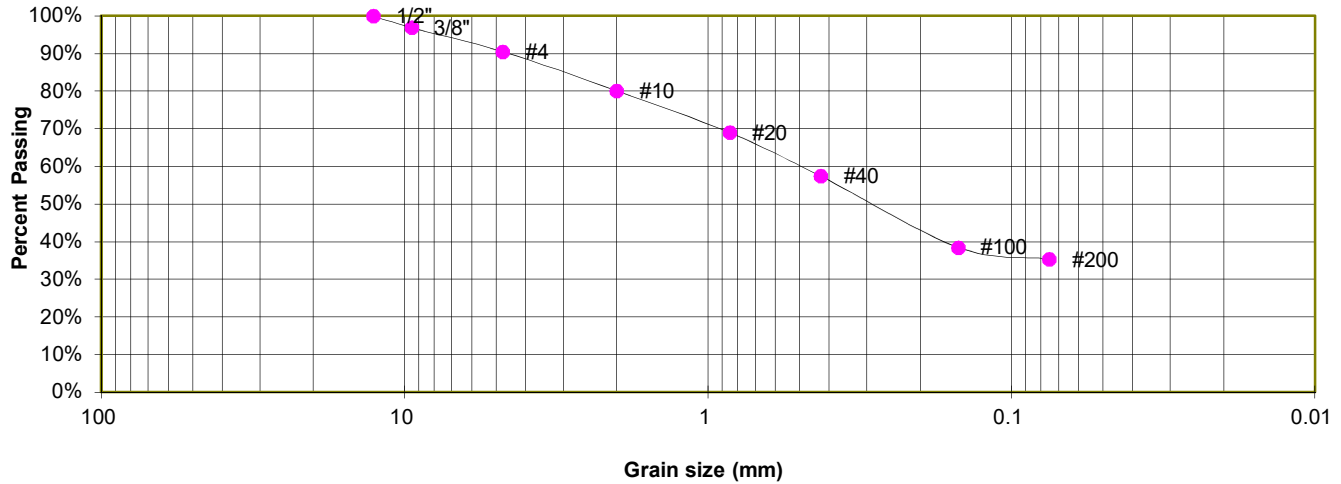
JOB NO.
251875

FIG. C-15

TEST BORING TP-5
DEPTH (FT) 7-8

SOIL DESCRIPTION SAND, CLAYEY
SOIL TYPE 1

Sieve Analysis Grain Size Distribution



GRAIN SIZE ANALYSIS

U.S. Sieve #	Percent Finer
3"	
1 1/2"	
3/4"	
1/2"	100.0%
3/8"	96.9%
4	90.5%
10	80.1%
20	69.0%
40	57.4%
100	38.5%
200	35.3%

SOIL CLASSIFICATION

USCS CLASSIFICATION: SC



LABORATORY TEST RESULTS
9220 ARROYA LANE
IMBERS AT BLACK FOREST SUBDIVISION 2025, LL

JOB NO.
251875

FIG. C-16

APPENDIX D: USDA Soil Survey Descriptions

El Paso County Area, Colorado

40—Kettle gravelly loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 368g

Elevation: 7,000 to 7,700 feet

Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kettle

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand

Bt - 16 to 40 inches: gravelly sandy loam

C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 3 to 8 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
(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 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: F048AY908CO - Mixed Conifer

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 23, Aug 29, 2025

El Paso County Area, Colorado

41—Kettle gravelly loamy sand, 8 to 40 percent slopes

Map Unit Setting

National map unit symbol: 368h

Elevation: 7,000 to 7,700 feet

Farmland classification: Not prime farmland

Map Unit Composition

Kettle and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kettle

Setting

Landform: Hills

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Sandy alluvium derived from arkose

Typical profile

E - 0 to 16 inches: gravelly loamy sand

Bt - 16 to 40 inches: gravelly sandy loam

C - 40 to 60 inches: extremely gravelly loamy sand

Properties and qualities

Slope: 8 to 40 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Runoff class: Medium

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 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: F048AY908CO - Mixed Conifer

Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 23, Aug 29, 2025

El Paso County Area, Colorado

71—Pring coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369k

Elevation: 6,800 to 7,600 feet

Farmland classification: Not prime farmland

Map Unit Composition

Pring and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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: 10 percent

Hydric soil rating: No

Pleasant

Percent of map unit: 5 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado

Survey Area Data: Version 23, Aug 29, 2025