

Architectural
Structural
Geotechnical



Materials Testing
Forensic
Civil/Planning

Job No. 185466

March 1, 2022

SMH Consultants
411 S. Tejon Street
Suite 1
Colorado Springs, CO 80903

Re: Wastewater Study
18885 Brown Rd
Lots 1-3, Owl Ridge Subdivision
El Paso County, Colorado

Ref: *Land Survey Plat Map*, prepared by SMH Consultants, Project No. 2010CS4031, last dated November, 19, 2020.

Dear Brett:

As requested, personnel of RMG – Rocky Mountain Group has performed a preliminary investigation and site reconnaissance at the above referenced address. It is our understanding the parcels included in this study are:

- EPC Schedule No. 5100000447: addressed as 18885 Brown Road, consisting of approximately 61.55 acres zoned RR-5.

Project Description:

The site consists of approximately 61.55 acres and is partially developed. An existing two-story agricultural residence is located on the southwest corner of the property. It is our understanding the existing 61.55 acres is to be subdivided into a total of three lots. Parcel A is to be subdivided into two lots of approximately 21.6 acres and 35 acres, respectively. Parcel B, which is to encompass 5 acres, is to retain the existing residence, well, and septic. The Proposed Lot Layout is included as Figure 2

Each new lot is to be serviced by an on-site wastewater treatment system (OWTS) and an individual water supply well. The site is to be accessed from Brown Road. A Site Vicinity Map is included as Figure 1.

This letter is to provide information for the on-site wastewater report per the On-Site Wastewater Treatment Systems (OWTS) Regulations of the El Paso County Board of Health pursuant to Chapter 8.

The following are also excluded from the scope of this report including (but not limited to) foundation recommendations, site grading/surface drainage recommendations, subsurface drainage recommendations, geologic, natural and environmental hazards such as landslides, unstable slopes, seismicity, snow avalanches, water flooding, corrosive soils, erosion, radon, wild fire protection, hazardous waste and natural resources.

Previous Studies and Field Investigation

Reports of previous geotechnical engineering/geologic investigations for this site were available for our review and are listed below:

1. *Soils and Geology Study, 18885 Brown Road, Lots 1-3, Owl Ridge Subdivision, El Paso County, Colorado*, prepared by RMG-Rocky Mountain Group, Job No. 185466, dated November 15, 2021.

SITE CONDITIONS

Personnel of RMG performed a preliminary reconnaissance visit on September, 8, 2021. The purpose of the reconnaissance visit was to evaluate the site surface characteristics including landscape position, topography, vegetation, natural and cultural features, and current and historic land uses. Four 8-foot deep test pits were observed on September 22, 2021. The test pit locations are presented on the Test Pit Location Map, Figure 3.

The site vegetation primarily consists of native grasses and other prairie-type vegetation. Deciduous trees are scattered sparsely across the site. The site generally slopes down from the west to east with an elevation difference of approximately 70 feet across the site. There appears to be multiple irrigation ditch features that traverse the site from west to east. The water levels in the irrigation ditch areas are anticipated to vary dependent upon local precipitation levels.

The following conditions were observed with regard to the 61.55-acre parcel:

- A well currently does exist near the existing residence;
- Runoff and irrigation features anticipated to cause deleterious effects to treatment systems on the site were observed;
- No major waterways exist on the property. The entire site lies outside the designated floodway or floodplain;
- A minor, potentially seasonally wet drainage way is located on proposed lot 3. However, this feature is outside of the proposed building area;
- Slopes greater than 20 percent do not exist on the site; and
- Significant man-made cuts do exist on the site, in the form of irrigation ditches.

Treatment Areas

Treatment areas at a minimum must achieve the following:

- Treatment areas must be 4 feet above groundwater or bedrock as defined by the Definitions 8.3.4 of the Regulations of the El Paso County Board of Health, Chapter 8 OWTS Regulations, most recently amended May 23, 2018;

- Each lot (after purchase but prior to construction of an OWTS) will require an OWTS Site Evaluation report prepared per *the Regulations of the El Paso County Board of Health, Chapter 8 OWTS Regulations*. During the site reconnaissance, a minimum of two 8-foot deep test pits will need to be excavated in the vicinity of the proposed treatment area;
- Comply with any physical setback requirements of Table 7-1 of the El Paso County Department of Health and Environment (EPCHDE);
- Treatment areas are to be located a minimum 100 feet from any well (existing or proposed), including those located on adjacent properties per Table 7-2 per the EPCHDE;

Treatment areas are to be located a minimum distance of 100 feet from any well location. Treatment areas are also to be located a minimum of 50 feet from any spring, lake, watercourse, irrigation ditch, stream or wetland. Other setbacks for the treatment area include, but are not limited to, a minimum of 10 feet from property lines, dry gulches, cut banks and fill areas (from the crest).

DOCUMENT REVIEW

RMG has reviewed the provided site plan (prepared by SMH Consultants) and identified the soil conditions anticipated to be encountered during construction of the proposed OWTS for 18885 Brown Road, based on our site observations and a review of documented Natural Resource Conservation Service - NRCS Web Soil Survey data provided at websoilsurvey.nrcs.usda.gov. The Web Soil Survey Descriptions are presented below. A review of FEMA Map No. 08041C0305G, effective December 7, 2018 indicates that the proposed treatment areas are not located within an identified floodplain.

SOIL EVALUATION

Personnel of RMG performed a soil evaluation to include four 8-foot deep test pits, on September, 22, 2021 (Test Pit TP-1 through TP-4), utilizing the visual and tactile method for the evaluation of the site soils. The test pits were excavated in areas that appeared most likely to be used for residential construction. The Test Pit Logs are presented in Figure 4. A Septic Suitability Map is presented in Figure 5.

The soil conditions as indicated by the NRCS data are anticipated to consist of Brussett loam with 3 to 5 percent slopes, Peyton sandy loam with 5 to 9 percent slopes and the Peyton-Pring complex with 8 to 15 percent slopes. Properties of the Brussett loam include well drained soils, depth of the water table is anticipated to be greater than 80 inches, runoff is anticipated to be low, frequency of flooding and/or ponding is anticipated to be none, and landforms include hills. Properties of the Peyton sandy loam include well drained soils, depth of the water table is anticipated to be greater than 80 inches, runoff is anticipated to be medium, frequency of flooding and/or ponding is anticipated to be none, and landforms include hills. Properties of the Peyton-Pring complex include well drained soils, depth of the water table is anticipated to be greater than 80 inches, runoff is anticipated to be medium, frequency of flooding and/or ponding is anticipated to be none, and landforms include hills.

The USDA Soil Survey Map is presented in Figure 6.

Bedrock was not encountered in the test pits performed by RMG. Neither groundwater nor redoximorphic features (indicating the fluctuation of groundwater or higher groundwater levels) were observed in the test pits.

CONCLUSIONS

In summary, it is our opinion the site is suitable for individual on-site wastewater treatment systems within the cited limitations. Contamination of surface and subsurface water resources should not occur if the treatment areas are evaluated and installed according to El Paso County Health Department and state guidelines in conjunction with proper maintenance.

LIMITATIONS

The information provided in this report is based upon the subsurface conditions observed in the test pit excavations and accepted engineering procedures. The subsurface conditions encountered in the excavation for the treatment area may vary from those encountered in the test pit excavations. Therefore, depth to limiting or restrictive conditions, bedrock, and groundwater may be different from the results reported in this letter. The proposed residences and OWTS should be located outside of the existing potentially seasonally wet drainage channels and the irrigation ditch features.

Individual wastewater treatment systems are proposed for each new lot. Additional OWTS site evaluations for the proposed lots will need to be performed in accordance with the applicable health department codes prior to construction.

I hope this provides the information you have requested. Should you have questions, please feel free to contact our office.

Cordially, Reviewed by,
RMG – Rocky Mountain Group RMG – Rocky Mountain Group

Kelli Zigler
Project Geologist

Tony Munger, P.E.
Geotechnical Project Manager



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CITY-COUNTY HEALTH DEPARTMENT
COLORADO SPRINGS, COLORADO

SEWAGE DISPOSAL INSPECTION FORM

permit #000328

APPROVAL: V.A. & F.H.A.

YES NO

Full Black Fresh

DATE OF INSP. 6/18/79

ENVIRONMENTALIST Krueger

LOCATION (STREET NUMBER) 18885 Brown Rd.

OCCUPANT Hovgen

LEGAL DESCRIPTION

CONTRACTOR _____ NO. OF BEDROOMS 4

TYPE OF CONSTRUCTION Dwelling

SYSTEM INSTALLED BY Russ Palmer

PRIMARY TREATMENT

COMMERCIAL MFG. YES SIZE 1250

NON. COMMERCIAL _____ SIZE _____

TYPE OF MATERIAL _____ NO. COMPARTMENTS _____

WIDTH _____ LENGTH _____ GALLONS _____ DEPTH (TOTAL) _____ LIQ. CAP. _____

SECONDARY TREATMENT

DISPOSAL FIELD _____ SOIL _____ PERC. TEST _____

TOTAL LENGTH OF TILE LINES 254' NUMBER OF LINES 3 DISTANCE BETWEEN LINES 11'-14'

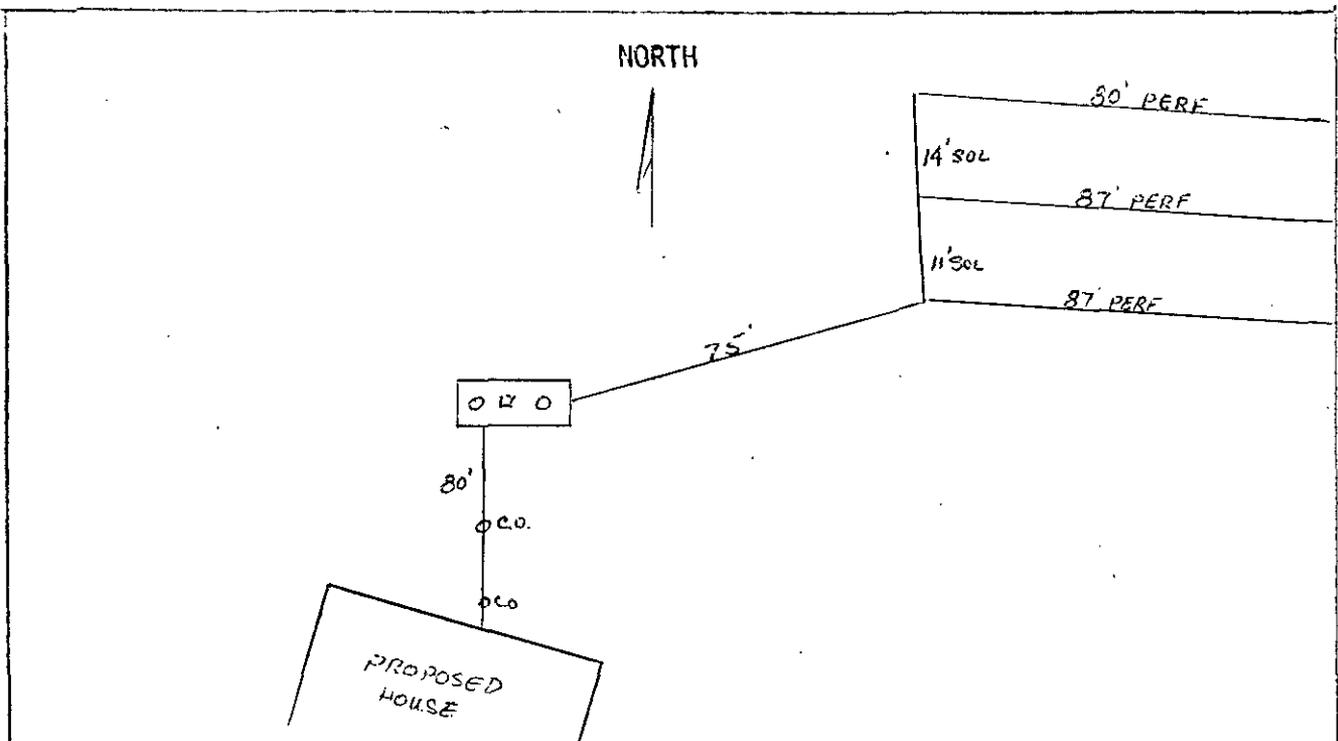
ABSORB. AREA 762' TYPE OF TILE PLASTIC TRENCH DEPTH 2' COVER TRENCH WIDTH 36" GRADE _____

TYPE FILTER MATERIAL river rock DEPTH 12" UNDER TILE 6" OVER TILE 2"

LEACHING PITS (NO.) _____ SOIL _____ PERC. TEST _____ LINING MATERIAL _____

CAPACITY SQ. FT. _____ DIAM _____ WORKING DEPTH _____

DISPOSAL BED LENGTH _____ WIDTH _____ DEPTH _____ TOTAL SQ. FT. _____



Handwritten signature or initials.

000328

Acres 102+

EL PASO COUNTY • COUNTY HEALTH DEPARTMENT
501 North Foote Avenue • Colorado Springs, Colorado - 475-8240

Water Supply Well

Receipt No. 2796

PERMIT

TO CONSTRUCT, ALTER, REPAIR OR MODIFY AN INDIVIDUAL SEWAGE DISPOSAL SYSTEM

Issued To Sandra Haugen Date May 23, 1979

Address of Property Brown Road, Black Forest, Colorado

(Permit valid at this address only)

Sewage-Disposal System work to be performed by _____ Phone _____

This Permit is issued in accordance with 25-10-106 Colorado Revised Statutes 1973, as amended. PERMIT EXPIRES upon completion-installation of sewage-disposal system or at the end of six (6) months from date of issue - whichever occurs first - (unless work is in progress).

- This Permit does not denote approval of zoning and acreage requirements. -

Permit Fee \$50.00 Charles H. Dowding, Jr., M.D., M.P.H.
Director, City-County Health Department

Date of Expiration November 23, 1979 Karon C. Springer
Environmentalist

NOTE: LEAVE ENTIRE SEWAGE-DISPOSAL SYSTEM UNCOVERED FOR FINAL INSPECTION.

24-HOUR ADVANCE NOTICE REQUIRED

760 Sq. Ft.

Septic tank	<u>1250</u>	gals.	Field	<u>253</u>	Feet of trench	<u>36</u>	inches wide
		OR-	Field	<u>380</u>	Feet of trench	<u>24</u>	inches wide
Seepage bed		ft. long		ft. wide.	Seepage pit		sq. ft. _____ diam. _____ w/d

The Health Officer shall assume no responsibility in case of failure or inadequacy of a sewage-disposal system, beyond consulting in good faith with the property owner or representative. Free access to the property shall be authorized at reasonable times for the purpose of making such inspections as are necessary to determine compliance with requirements of this law.

Date 5/9/79

EL PASO CITY-COUNTY HEALTH DEPARTMENT
501 NORTH FOOTE AVENUE
COLORADO SPRINGS, COLORADO
636-0125

Application for permit to construct, Remodel, or Install a Sewage Disposal System

Name of Owner Sandro Hougen Phone 495-4279

Address of Property Brown Rd

Legal Description of Property sw 1/4 of nw 1/4 - meets e bounds

Owner's Address (if different) _____ Phone _____

Systems Contractor _____ Address _____

Type of Construction House Source and Type of Water Supply WELL

Size of Lot 102' A

The construction of the Sewage Disposal System will comply with all applicable Laws, Ordinances, Standards or Resolutions.

HEALTH DEPARTMENT USE ONLY

Permit Number _____ Receipt Number _____

Number of Bedrooms 4 Tank Capacity 1250 gallons Absorption area 760 Sq. Ft.

REMARKS _____
3' trench = 253'
2' trench = 380'

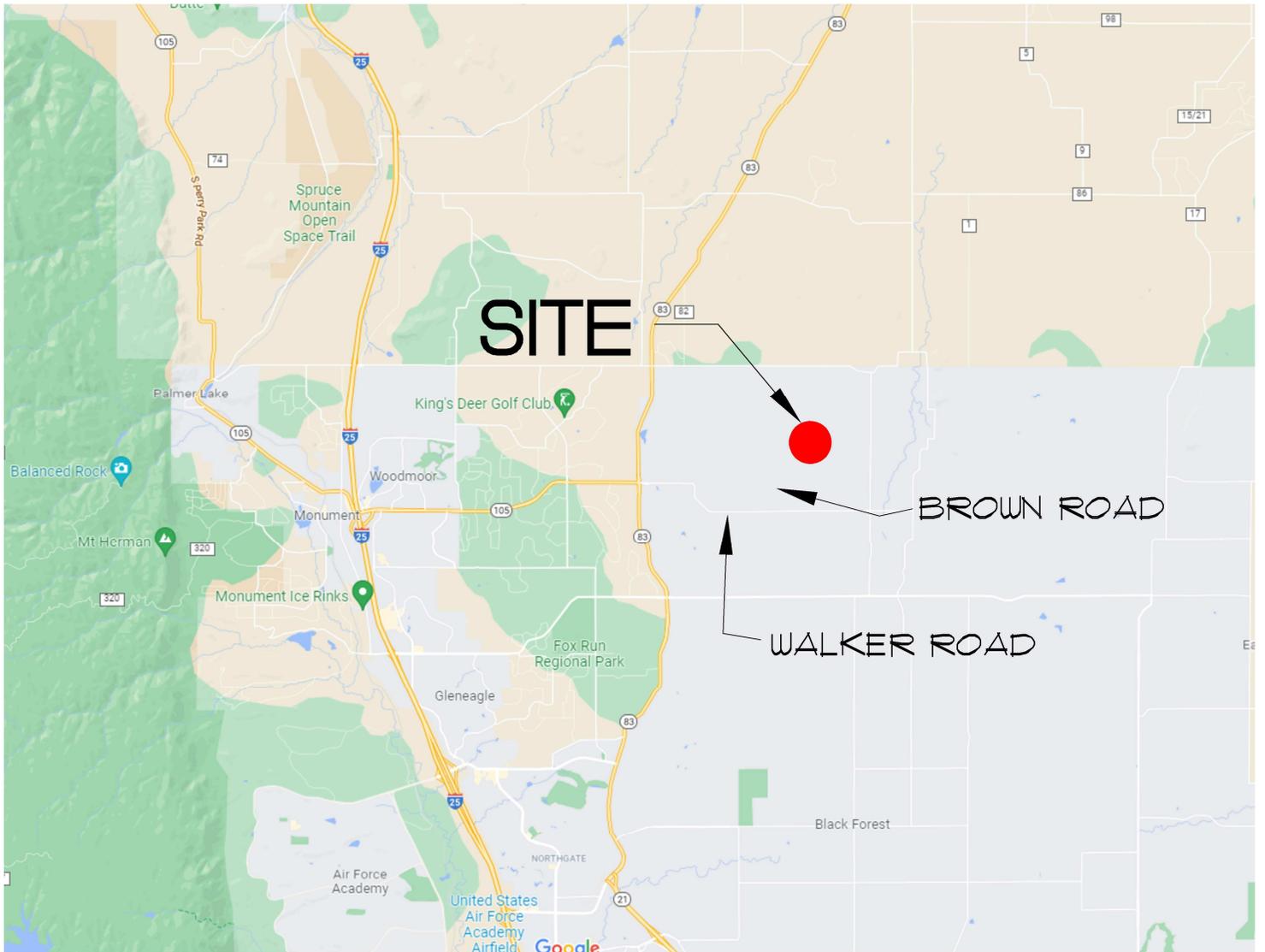
APPLICATION IS APPROVED DENIED

ENVIRONMENTALIST [Signature] DATE 5/9 19 79

PLOT PLAN WILL INCLUDE THE FOLLOWING

Plot plan may be drawn on the back of this sheet or on a separate sheet.

- 1. Streams, Lakes, Ponds, Irrigation Ditches and other Water Courses
- 2. North Direction
- 3. Location of Property Line
- 4. Buildings
- 5. Wells
- 6. Location of Proposed Septic System
- 7. Location of percolation test
- 8. Geographical features
- 9. Other Information as required



NOT TO SCALE



ROCKY MOUNTAIN GROUP

Southern Office
 Colorado Springs, CO
 80918
 (719) 548-0600
Central Office:
 Englewood, CO 80112
 (303) 688-9475
Northern Office:
 Greeley / Evans, CO 80620
 (970) 330-1071

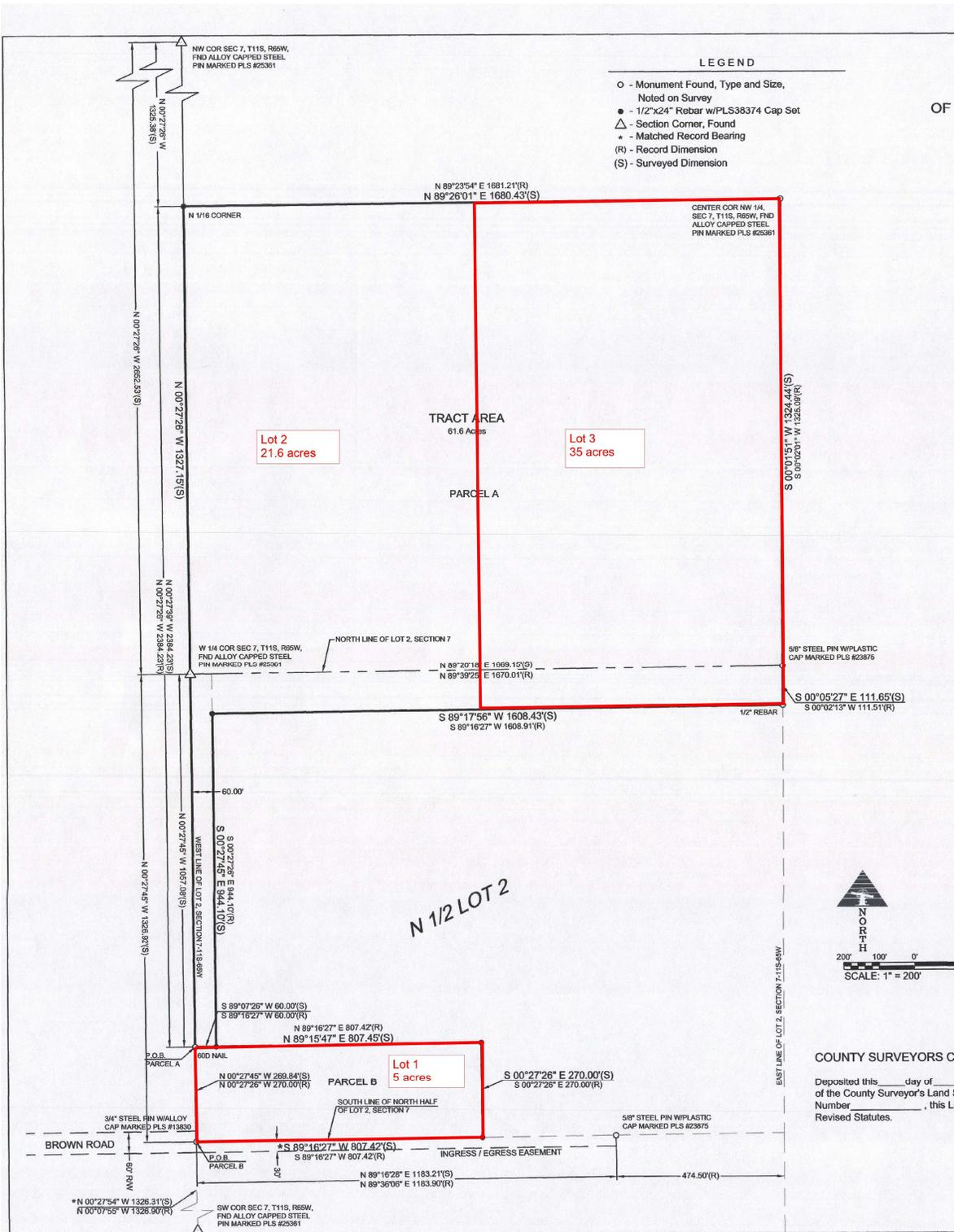
SITE VICINITY MAP

18885 BROWN ROAD
 LOTS 1-3, OWL RIDGE SUBDIVISION
 EL PASO COUNTY, COLORADO
 SMH CONSULTANTS

JOB No. 185466

FIG No. 1

DATE 3-1-2022



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PROPOSED LOT LAYOUT

18885 BROWN ROAD
 LOTS 1-3, OWL RIDGE SUBDIVISION
 EL PASO COUNTY, COLORADO
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FIG No. 2

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DENOTES APPROXIMATE LOCATION OF TEST PITS



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TEST PIT LOCATION MAP

18885 BROWN ROAD
 LOTS 1-3, OWL RIDGE SUBDIVISION
 EL PASO COUNTY, COLORADO
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FIG No. 3

DATE 3-1-2022

TEST PIT TP-1			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT SILTY CLAY (STRONG)	2ft		4
	4ft		
	6ft		
	8ft		
	8ft		

TEST PIT TP-2			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 5.0 FT SANDY CLAY (STRONG)	2ft		4
	4ft		
5.0 - 8.0 FT SANDY LOAM (MODERATE)	6ft		2
	8ft		

SOIL DESCRIPTIONS



SANDY CLAY



SANDY LOAM



SILTY CLAY

TEST PIT LOGS

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FIG No. 4

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TEST PIT TP-3			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT CLAY LOAM (MODERATE)	2ft 4ft 6ft 8ft		R-1

TEST PIT TP-4			
DATE OBSERVED: 09/22/21			
SOIL DESCRIPTION	DEPTH (FT)	SYMBOL	SOIL TYPE
0 - 8.0 FT SILTY CLAY (STRONG)	2ft 4ft 6ft 8ft		4

SOIL DESCRIPTIONS



CLAY LOAM



SILTY CLAY



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TEST PIT LOGS

18885 BROWN ROAD
LOTS 1-3, OWL RIDGE SUBDIVISION
EL PASO COUNTY, COLORADO
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FIG No. 4

PAGE 2 OF 2

DATE 3-1-2022



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DENOTES PROPOSED PRIMARY AND ALTERNATE SEPTIC LOCATIONS



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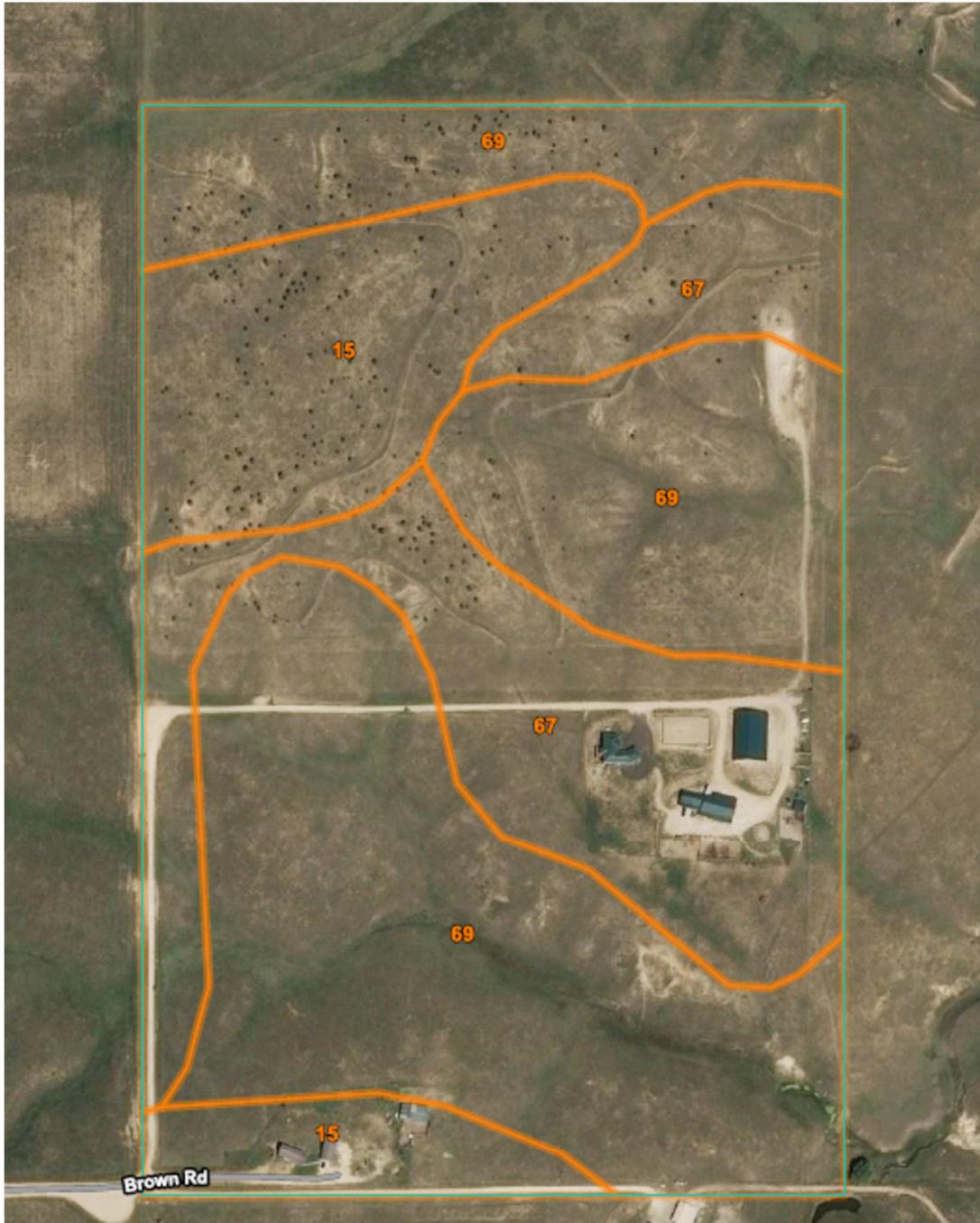
SEPTIC SUITABILITY MAP

18885 BROWN ROAD
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JOB No. 185466

FIG No. 5

DATE 3-1-2022



- 15 - BRUSSETT LOAM, 3 TO 5 PERCENT SLOPES
- 67 - PEYTON SANDY LOAM, 5 TO 9 PERCENT SLOPES
- 69 - PEYTON-PRING COMPLEX, 8 TO 15 PERCENT SLOPES



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USDA SOIL SURVEY MAP

18885 BROWN ROAD
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FIG No. 6

DATE 3-1-2022