1 01- Site Plan
1" = 80'-0"

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17055 W Goshawk Rd, 80908 (A.D.U.)

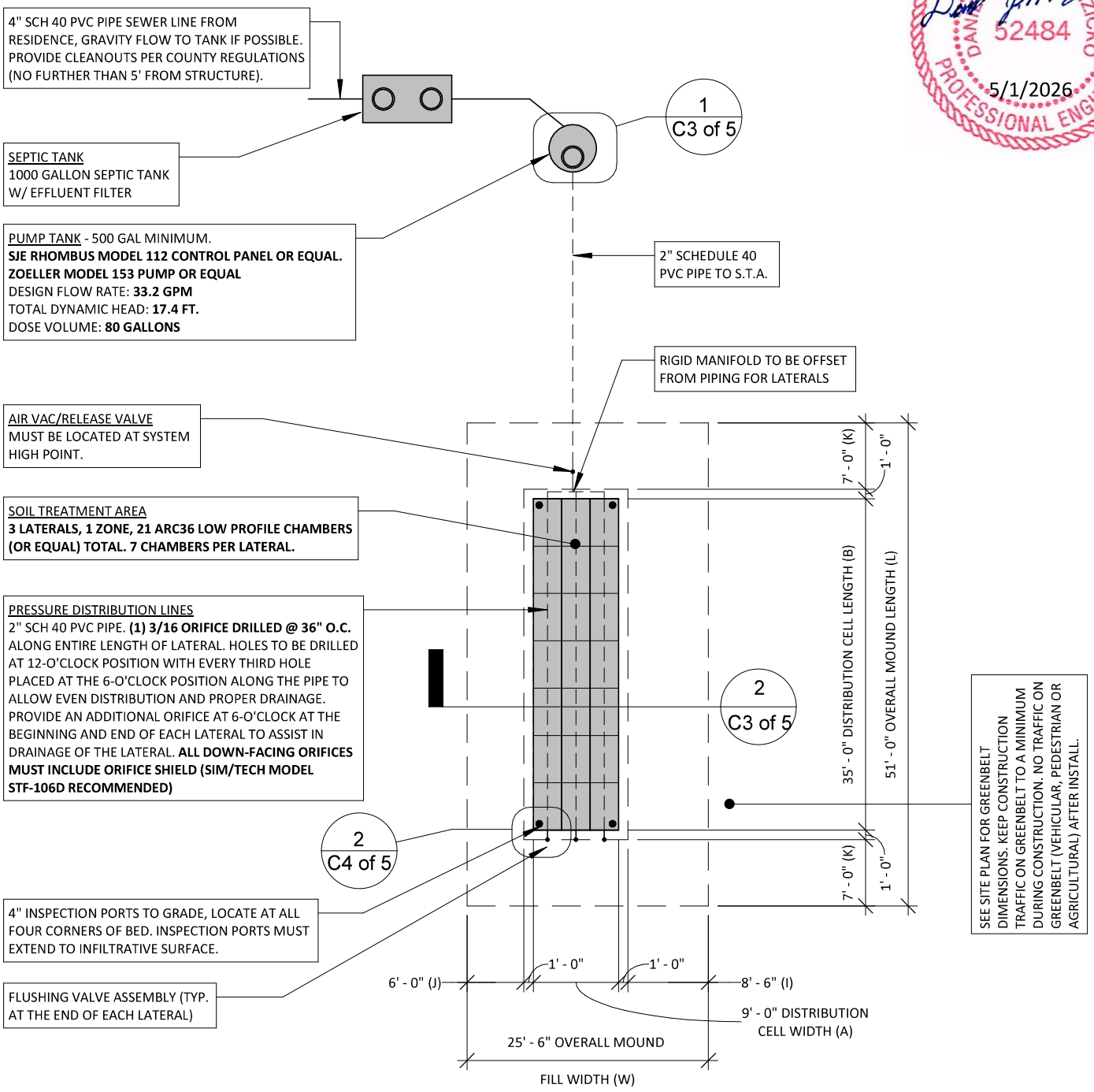
OWTS Design

Site Plan

Project number	26-068
Date	5/1/2026
Drawn by	J.DUMKE
Checked by	D.MIZICKO

C1 of 5

Scale 1" = 80'-0"



1 STA - 3 Row, Pressure Dosed, Mound
1/16" = 1'-0"

COLORADO LICENSED
DANIEL JOSEPH MIZICKO
52484
PROFESSIONAL ENGINEER
5/1/2026

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OWTS Design

System Layout

Project number	26-068
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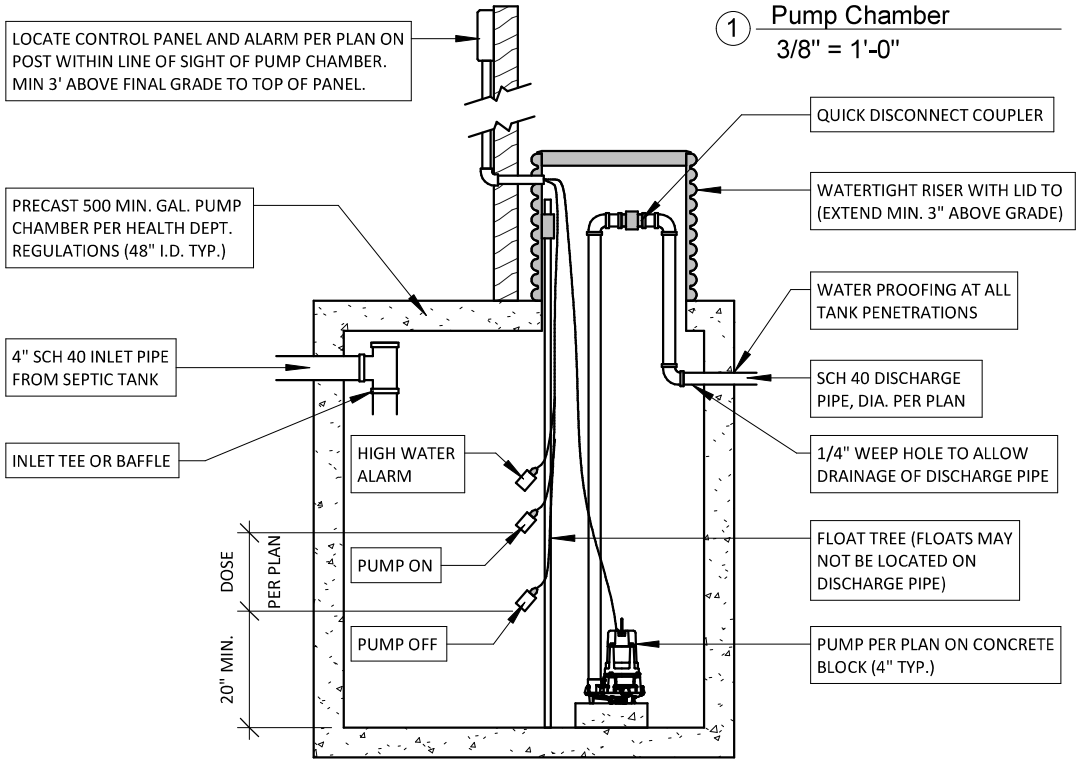
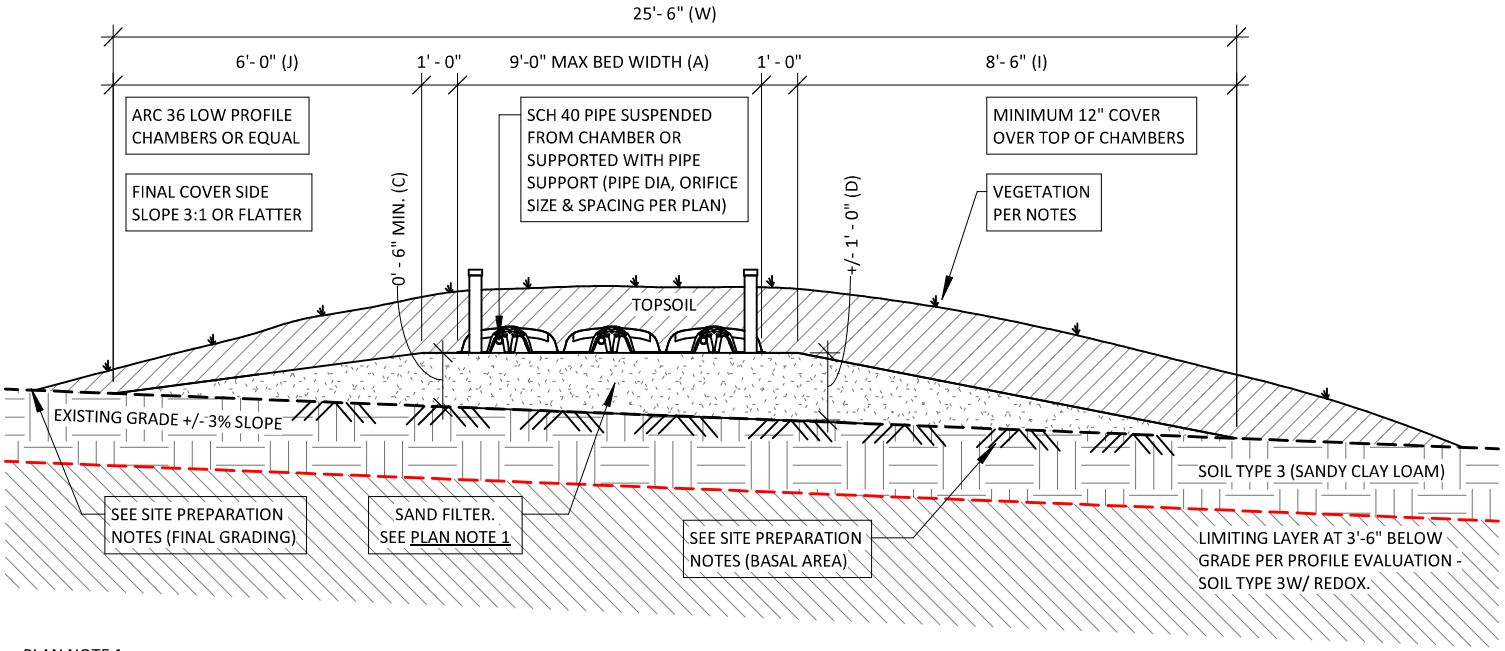
C2 of 5

Scale 1/16" = 1'-0"



1 Pump Chamber
3/8" = 1'-0"



PLAN NOTE 1:
SAND FILTER MEDIA MUST MEET "SECONDARY" SAND MEDIA REQUIREMENTS OUTLINED IN CHAPTER 8 OF THE EL PASO COUNTY BOARD OF HEALTH REGULATIONS. A GRADATION OF THE SAND MEDIA MUST BE PROVIDED. THE GRADATION MUST BE DATED NO MORE THAN ONE MONTH PRIOR TO THE INSTALLATION DATE. **SAND FILTER DEPTHS SHOWN ARE THE MINIMUM REQUIRED DEPTHS. ACTUAL DEPTHS MAY INCREASE DUE TO ACTUAL TOPOGRAPHY ONSITE. THE TOPOGRAPHY VARIES BY APPROXIMATELY 1'-0" ACROSS THE LENGTH OF THE MOUND.**
PLAN NOTE 2:
INFILTRATIVE SURFACE TO BE INSTALLED LEVEL WITH A MAXIMUM TOLERANCE OF +/- 1" PER 50' OF DISTRIBUTION CELL LENGTH.

2 STA Section - 3 Row Mound, Sand Filter
3/16" = 1'-0"

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OWTS Design

Sections

Project number	26-068
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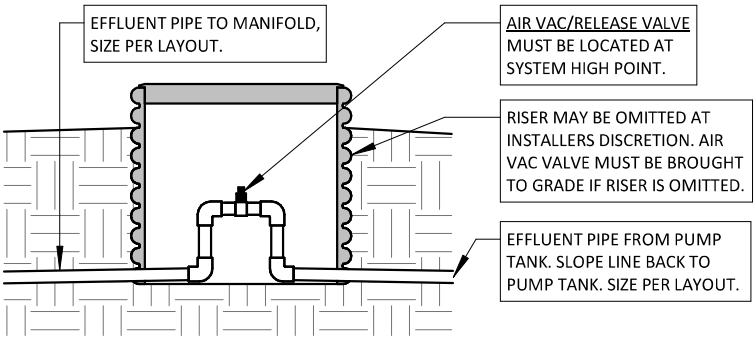
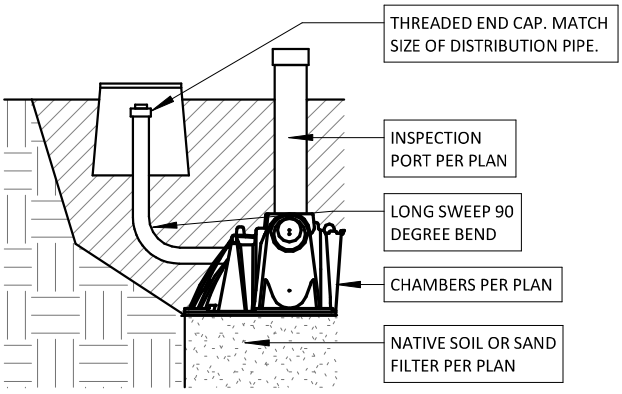
C3 of 5

Scale As indicated



1 Air Vac Release Valve/Rigid Manifold
1/2" = 1'-0"



2 Flushing Assembly
1/2" = 1'-0"

COLORADO LICENSED DANIEL JOSEPH MIZICKO 52484 PROFESSIONAL ENGINEER
5/1/2026

OPERATION AND SYSTEM MAINTENANCE:
HOMEOWNERS ARE RESPONSIBLE FOR EDUCATING THEMSELVES ABOUT THE COMPONENTS AND OPERATION OF THEIR ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) TO ENSURE THAT THE SYSTEM FUNCTIONS PROPERLY. HOMEOWNERS SHOULD BE ADVISED OF RECOMMENDED MAINTENANCE AND/OR SPECIAL CONSIDERATIONS (EFFLUENT FILTER, DIVERTER VALVES, PUMP CONTROL, INSPECTION PORTS, ETC) FOR THEIR SEPTIC SYSTEM. REFER TO THE EL PASO COUNTY PUBLIC HEATH DEPARTMENT OR YOUR LOCAL HEALTH DEPARTMENT AUTHORITY FOR MORE INFORMATION REGARDING SEPTIC SYSTEM CARE.
IT IS THE HOMEOWNERS RESPONSIBILITY TO PRACTICE WATER CONSERVATION AS MUCH AS PRACTICAL. REPAIR LEAKING FAUCETS AND TOILETS IMMEDIATELY. LEAKING PLUMBING FIXTURES CAN SATURATE AND ULTIMATELY FAIL A ONSITE WASTEWATER TREATMENT SYSTEM IN A VERY SHORT PERIOD OF TIME. GROUND DWELLING RODENTS CAN CAUSE EXTENSIVE DAMAGE TO AN OWTS. HOMEOWNERS ARE RESPONSIBLE FOR RODENT CONTROL IN AND AROUND THE OWTS.
HOMEOWNER INSTALL:
IN THE CASE OF A HOMEOWNER INSTALL, HOMEOWNERS ARE ACKNOWLEDGING THEY ARE COMPETENT AND KNOWLEDGEABLE OF THE EL PASO COUNTY OWTS REGULATIONS AND TAKE FULL RESPONSIBILITY TO ENSURE THE INSTALL MEETS ALL REQUIREMENTS SET FORTH IN THIS DESIGN AS WELL AS ALL RULES AND REGULATIONS SET FORTH BY EL PASO COUNTY.

NOTES & LIMITATIONS:
ALL OWTS ELEMENTS MUST MAINTAIN A MINIMUM 10' FROM PROPERTY LINE.
ALL STA ELEMENTS MUST MAINTAIN A MINIMUM 100' SETBACK FROM THE WELL ONSITE (IF APPLICABLE) IN ADDITION TO ANY NEIGHBORING WELLS

THE DESIGN OF THIS SYSTEM HAS BEEN PREPARED IN ACCORDANCE WITH THE STANDARDS AND REGULATIONS OUTLINED BY THE EL PASO COUNTY HEALTH DEPARTMENT. ALL REGULATIONS APPLY TO THIS DESIGN INCLUDING BUT NOT LIMITED TO: PROPERTY LINE SETBACKS, PIPE CLEANOUTS, WELL SETBACKS, ETC. THIS DESIGN MUST BE COORDINATED WITH FINAL AS-CONSTRUCTED CONDITIONS ONSITE (FINAL ELEVATIONS, STRUCTURE LAYOUT, SITE GRADING, DRAINAGE, ETC.) PRIOR TO CONSTRUCTION. IF DURING CONSTRUCTION, UNFORESEEN CIRCUMSTANCES REQUIRE MODIFICATIONS TO THE DESIGN, JDM CONSULTING LLC. MUST BE NOTIFIED IMMEDIATELY TO RE-EVALUATE THE DESIGN. JDM CONSULTING LLC. SHALL NOT BE HELD LIABLE FOR DESIGN CHANGES AND/OR ADDITIONS TO THE DESIGN DUE TO UNFORESEEN CIRCUMSTANCES. THIS DESIGN IS INTENDED FOR RESIDENTIAL WASTEWATER FLOWS ONLY, AND SHALL NOT BE USED FOR ANY COMMERCIAL PURPOSES. ANY COMMERCIAL USE OF THIS SYSTEM WILL RENDER THE DESIGN NULL AND VOID.

THIS DESIGN IS BASED OFF INFORMATION AVAILABLE AT THE TIME OF DESIGN AND CRITERIA DETERMINED BY THE PROFILE EVALUATION. SOIL CONDITIONS CAN VARY ACROSS AN STA, JDM CONSULTING, LLC. IS NOT RESPONSIBLE FOR VARYING SOIL CONDITIONS ONSITE. PERFORMANCE OF A SYSTEM IS HIGHLY VARIABLE DEPENDING ON HOMEOWNER WATER USE, DRAINAGE, HEAVY RAINFALL OR SNOWFALL, DEEP FREEZE, ETC. DUE TO THE AFOREMENTIONED VARIABLES, NO WARRANTY AGAINST FAILURE IS GIVEN OR IMPLIED BY JDM CONSULTING, LLC. PUMP SIZE (IF APPLICABLE) MAY CHANGE BASED ON ACTUAL AS BUILT CONDITIONS, WHICH ARE OUT OF OUR CONTROL. PUMP SIZE WILL BE CONFIRMED AT THE AS-BUILT INSPECTION.

(HOMEOWNER) RE-ESTABLISH VEGETATION OVER SOIL TREATMENT AREA AS SOON AS POSSIBLE AFTER INSTALLATION. HOWEVER, NO IRRIGATION IS ALLOWED ON SOIL TREATMENT AREA. NATIVE GRASSES AND PLANTS WITH SHALLOW ROOT SYSTEMS ARE RECOMMENDED. CONTACT SOIL CONSERVATION SERVICE OR COUNTY EXTENSION AGENT FOR INFORMATION REGARDING NATIVE VEGETATION.

NO VEHICULAR TRAFFIC OR LIVESTOCK SHOULD BE PERMITTED ON THE SOIL TREATMENT AREA. WITH LAWN CARE EQUIPMENT, SUCH AS A RIDING LAWN MOWER OR TRACTOR, IT IS IMPORTANT NOT TO TRAVEL ON THE SOIL TREATMENT AREA WHEN THE SOIL IS SATURATED. WINTER TRAFFIC ON THE SOIL TREATMENT AREA SHOULD ALSO BE AVOIDED TO MINIMIZE FROST PENETRATION IN COLDER CLIMATE AREAS AND TO MINIMIZE COMPACTION IN OTHER AREAS.

ALL ONSITE DRAINAGE (INCLUDING GUTTERS, DOWNSPOUTS, ETC.) MUST BE DIVERTED TO AVOID THE SOIL TREATMENT AREA.

JDM CONSULTING, LLC RECOMMENDS AGAINST USING WATER SOFTENERS IN CONJUNCTION WITH AN OWTS. IN THE EVENT A WATER SOFTENER IS INSTALLED, IT SHALL BE PLUMBED SUCH THAT ANY FLUSH CYCLES DRAIN INTO A SEPARATE SEEPAGE PIT AND NOT THE OWTS.

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17055 W Goshawk Rd, 80908 (A.D.U.)

OWTS Design

Details & Notes

Project number	26-068
Date	5/1/2026
Drawn by	J.DUMKE
Checked by	D.MIZICKO

Scale As indicated

SITE PREPARATION:

ULTIMATE SUCCESS OR FAILURE OF A MOUND RELIES ON A CLEAR COMMUNICATION BETWEEN THE REGULATOR, DESIGN ENGINEER, AND THE SYSTEM INSTALLER, WHICH INCLUDES AN UNDERSTANDING OF BASIC SITE PREPARATION AND CONSTRUCTION PRINCIPLES. CRITICAL ISSUES ARE NOTED BELOW:

PROPER PROCEDURES MUST BE FOLLOWED TO PROTECT THE ENTIRE MOUND AREA, INCLUDING THE DOWN-GRADIENT GREENBELT AREA, BOTH DURING AND AFTER CONSTRUCTION. AFTER ESTABLISHING A SUITABLE LOCATION FOR THE MOUND SYSTEM, IT SHOULD BE SUITABLY FENCED OR OTHERWISE UNMISTAKABLY IDENTIFIED TO PREVENT FURTHER DISTURBANCE UNTIL ACTUAL CONSTRUCTION OF THE MOUND SYSTEM CAN OCCUR. SITE PLANNING RESULTING IN A LOCATION FOR THE MOUND THAT IS ISOLATED FROM OTHER ANTICIPATED HOME CONSTRUCTION ACTIVITIES IS ENCOURAGED.

SOIL SMEARING AND COMPACTION, WHICH CAN REDUCE INFILTRATION CAPACITY, WILL OCCUR IF SOILS ARE DISTURBED WHEN WET. MOUND SYSTEM CONSTRUCTION ACTIVITIES SHOULD BE SCHEDULED ONLY WHEN SOILS ARE SUFFICIENTLY DRY. ACCEPTABLE SOIL MOISTURE CONTENT OF THE SOILS TO A DEPTH OF ONE FOOT SHOULD BE EVALUATED BY ROLLING A SAMPLE OF SOIL BETWEEN THE HANDS. IF THE SOIL CAN BE ROLLED INTO A 1/4 INCH OR SMALLER "WIRE" IT IS CONSIDERED TOO WET AND MUST BE ALLOWED TO DRY BEFORE PREPARING.

EXCESS VEGETATION MUST BE REMOVED FROM THE MOUND BASAL AREA. TREES SHOULD BE CUT FLUSH TO THE GROUND AND OTHER VEGETATION OVER SIX INCHES IN LENGTH SHOULD BE MOWED AND SUBSEQUENTLY REMOVED.

THE GROUND SURFACE OF THE ENTIRE BASAL AREA OF THE MOUND SHOULD BE SUITABLY PREPARED BY ROUGHENING IN A RIDGE AND FURROW FASHION WITH RIDGES FOLLOWING THE CONTOURS. METHODS THAT CAN BE CONSIDERED FOR ROUGHENING INCLUDE CHISEL TEETH FASTENED TO THE BACKHOE BUCKET, PLOWING WITH A MULTIPLE BOTTOM AGRICULTURAL CHISEL PLOW, OR MOLDBOARD PLOW. ROTOTILLING IS NOT ACCEPTABLE AS IT WILL DESTROY SOIL STRUCTURE. SAND FILL MATERIAL SHOULD BE APPLIED IMMEDIATELY AFTER ROUGHENING AND PRIOR TO ANY SUBSEQUENT PRECIPITATION.

A GRADATION OF THE SAND FILL MUST BE PROVIDED PRIOR TO INSTALLATION TO ENSURE THE PROPER SAND FILL LOADING RATE. PLACEMENT OF FILL MATERIAL MUST THEN BE ACCOMPLISHED FROM THE END AND UPSLOPE SIDES UTILIZING A TRACKED VEHICLE OR EQUIPMENT WITH ADEQUATE REACH TO MINIMIZE SOIL COMPACTION. A MINIMUM OF EIGHT INCHES OF FILL MATERIAL SHOULD BE MAINTAINED BELOW THE TRACKS TO MINIMIZE COMPACTION. WHEELED VEHICLES MUST BE PREVENTED FROM TRAVEL OVER THE MOUND BASAL AREA AND DOWNSLOPE GREENBELT AREA.

FINAL GRADING OF THE MOUND AREA SHOULD DIVERT SURFACE WATER DRAINAGE AWAY FROM THE MOUND. THE ENTIRE MOUND AREA SHOULD BE SEEDED AND MULCHED TO PROMOTE VEGETATIVE GROWTH. THE SUGGESTED MINIMUM GREENBELT AREA IS PROVIDED.

OPERATION & MAINTENANCE:

THE OWNER IS RESPONSIBLE FOR ENSURING THE CONTINUOUS OPERATION AND MAINTENANCE OF THE SYSTEM. IT IS RECOMMENDED THAT DEED ADVISORIES BE RECORDED TO COMMUNICATE TO THE SYSTEM OWNER AND SUBSEQUENT FUTURE OWNERS THE IMPORTANCE OF ROUTINE AND REGULAR MAINTENANCE ACTIVITIES. IT IS SUGGESTED THAT A MAINTENANCE INSPECTION BE CONDUCTED ON AN ANNUAL BASIS BY A TRAINED MAINTENANCE PROVIDER. THE LOCAL PUBLIC HEALTH AGENCY OR OTHER MANAGEMENT ENTITY MAY REQUIRE OVERSIGHT OF THE ON-SITE SYSTEM BY A MAINTENANCE PROVIDER. IN SUCH CASES, THE MAINTENANCE PROVIDER WILL BE RESPONSIBLE FOR THE CONTINUOUS OPERATION AND MAINTENANCE OF THE SYSTEM AND MUST SUBMIT APPROPRIATE INSPECTION RECORDS TO THE LOCAL AGENCY OR OTHER APPROPRIATE JURISDICTION.

SUGGESTED ROUTINE AND PREVENTATIVE MAINTENANCE WILL INCLUDE:

SCUM AND SLUDGE LEVELS IN THE SEPTIC TANK AS WELL AS THE PUMP CHAMBER NEED TO BE ROUTINELY INSPECTED AND TANKS PUMPED AS NECESSARY. DEPENDING ON TANK SIZE AND USAGE, PUMPING WILL TYPICALLY BE REQUIRED AT INTERVALS EXCEEDING EVERY 1 TO 3 YEARS.

A PERIODIC INSPECTION OF THE MOUND SYSTEM'S PERFORMANCE IS NECESSARY TO ENSURE PROPER AND CONTINUED FUNCTION. LIQUID LEVELS IN THE OBSERVATION PORTS SHOULD BE CHECKED AND EXAMINATIONS MADE FOR ANY SEEPAGE AROUND THE EXTENTS OF THE MOUND. THE PRESSURE DISTRIBUTION SYSTEM SHOULD BE ASSESSED AND LATERALS FLUSHED AS NECESSARY. IT IS RECOMMENDED THAT ALL COMPONENTS OF A MOUND SYSTEM BE EVALUATED AND MAINTAINED AT LEAST ONCE PER YEAR.

A WATER CONSERVATION PLAN WITHIN THE HOUSE OR ESTABLISHMENT WILL HELP ENSURE THAT THE MOUND SYSTEM WILL NOT BE HYDRAULICALLY OVERLOADED.

AVOID TRAFFIC ABOVE THE MOUND AND DOWNSLOPE GREENBELT AREA. NO VEHICULAR TRAFFIC OR LIVESTOCK SHOULD BE PERMITTED. WITH LAWN CARE EQUIPMENT, SUCH AS A RIDING LAWN MOWER OR TRACTOR, IT IS IMPORTANT NOT TO TRAVEL ON THE MOUND OR THE DOWNSLOPE AREA WHEN THE SOIL IS SATURATED. WINTER TRAFFIC ON THE MOUND SHOULD ALSO BE AVOIDED TO MINIMIZE FROST PENETRATION IN COLDER CLIMATE AREAS AND TO MINIMIZE COMPACTION IN OTHER AREAS.

"SITE PREPARATION" AND "OPERATION & MAINTENANCE" FROM "COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT - MOUNDED WASTEWATER TREATMENT SYSTEMS" DOCUMENT.

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17055 W Goshawk Rd, 80908 (A.D.U.)

OWTS Design

Site Preparation

Project number	26-068
Date	5/1/2026
Drawn by	J.DUMKE
Checked by	D.MIZICKO

C5 of 5

Scale 3/8" = 1'-0"

JDM CONSULTING, LLC

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Mound Design Worksheet (Sand Filter above Grade, Less than 24" of Sand)

Site Criteria: 17055 W Goshawk Rd, 80908 (A.D.U.)

Profile Evaluation by: JDM Consulting, LLC; Dated March 26, 2026, Job# 26-068

1 Soil Profile

0 - 0'-3" Topsoil
0'-3" - 2'-6" - Soil Type 2 (LTAR = 0.60, TL1)
2'-6" - 3'-6" - Soil Type 3 (LTAR = 0.35, TL1)
3'-6" - 8'-0" - Soil Type 3 W/Redox (LTAR = 0.35, TL1)

2 Slope +/- **3** %

3 # of bedrooms: **2** Bedrooms

COLORADO LICENSED JOSEPH DANIEL ZICKO 52484 PROFESSIONAL ENGINEER

5/1/2026

Step 1: Evaluate the quantity and quality of wastewater generated.

Residential Flows (Yes/No): **Yes**

Daily Flow = 150 gal/day * 3 Bedrooms + 75 gal/day * # of bedrooms over 3

Full Use Bedrooms:	2
# of partial use bedrooms:	0
Adjustment Factor*	0.7

***Use Adjustment factor 0.7 (Table 10-1) Treatment Level 1 application rate will be used (8.11.D.2)**

Daily Flow 210 Gal/Day

Step 2: Evaluate the soil profile and site description for maximum soil loading rate and hydraulic linear loading rate.

Depth to Limiting Layer = 42 Inches

Define Limiting Layer; Soil Type 3 w/ Redox.

Using Tables 2 & 3 the soil loading rate (SLR) and linear loading rate (LLR) are selected.

Soil Loading Rate (SLR) = 0.35 gpd/ft^2

Linear Loading Rate (LLR) = 6.0 gpd/lineal foot

Step 3: Select the sand fill loading rate; (From Figure 4)

Will "Preferred Sand" or "Secondary Sand" be used for this design?
Therefore, the sand fill loading rate will be either :

Secondary Sand
0.8

gpd/ft^2

Step 4: Determine the distribution cell width (A).

A = Linear Loading Rate ÷ Sand Fill Loading Rate

A = **7.5** ft
Round A to = **9** ft

(Width will be increased to 9' to accommodate three rows of chambers) The length will not be shortened with the increase in width

Step 5: Determine the distribution cell length (B).

B = Design Flow Rate ÷ Linear Loading Rate

B = **35.0** ft
Round B to = **35** ft

(Length will increased to accommodate an even number of chambers)

Note: Per Regulation 43, a one foot extension of the minimum final cover elevation is required around the entire perimeter of the mound prior to the allowable 3:1 slope. Therefore, the final cover over the distribution cell width will be two feet larger than the numbers calculated in steps 4 and 5; One foot extension on each of

Step 6: Determine the minimum basal area width (A + I).

The soil infiltration width represents the width required to absorb the effluent into the natural soil.

A + I = Linear Loading Rate ÷ Soil (Basal) Loading Rate

A + I = 17.1 ft A = 9 ft

I* = 8.1 ft

***(Note: "I" will also be calculated based on side slope, which may result in a greater width requirement; See Step 10)**

Step 7: Determine mound fill depth (C) at the upslope edge of the distribution cell.

The depth of fill (C) at the upslope edge of the distribution cell will be the fill required to elevate the base of the stone the required height above the limiting layer.

The required elevation above grade is (C): 0.50 feet.

Step 8: **Determine the mound fill depth (D) at the downslope edge of the distribution cell.**

For a given slope, the following can be used:

D = C + % slope(A + 1) Note: express slope as decimal, i.e., 4% = 0.04

D = 0.80

Step 9: **Determine mound depths (E) and (F).**

E = 0.67 ft. (total depth of distribution media) Use Low Profile Chambers

F = 0.83 ft. (minimum amount of final cover, 1 foot beyond cell)

Step 10: **Determine the downslope width (I).**

Using a recommended side slope of 3:1 the calculations is as follows:

I = 3(D + E + F) x downslope correction factor Downslope Correction Factor: 1.10

I = 7.59 ft. Round to 8 ft.

Use Greater "I" from Step 6 or Step 10 = 8.5 ft.

Step 11: **Determine the upslope width (J).**

Using a recommended side slope of 3:1 the calculations is as follows:

J = 3(C + E + F) x upslope correction factor Upslope Correction Factor: 0.92

J = 5.52 Round to 6 ft.

Step 12: **Determine the end slope length (K).**

Using a recommended side slope of 3:1 the calculations is as follows:

K = 3[(C+D)/2 +E +F]

K = 6.45 Round to 7 ft.

Step 13: Determine the overall width (W) and length (L) of the mound fill.

W = *A + I + J

W = 25.5 ft. Round to 25.5 ft.

L = B + 2K

L = 51 ft. Round to 51 ft.

***The additional 1' mound extension around the mound perimeter noted in Step 5 will be added to the "A" and "B" calculations in this step.**

A	Distribution cell width	**9.00**	ft.
B	Distribution cell length	**35.00**	ft.
C	Up slope fill depth under distribution cell	**0.50**	ft.
D	Downslope fill depth under distribution cell	**0.80**	ft.
E	Distribution cell depth	**0.67**	ft.
F	Depth of final cover	**0.83**	ft.
I	Distance from edge of distribution cell to downslope edge of fill	**8.50**	ft. ft.
J	Distance from edge of distribution cell to up slope edge of fill	**6.00**	ft. ft.
K	Distance from end of distribution cell to edge of fill	**7.00**	ft. ft.
L	Overall mound fill length	**51.00**	ft.
W	Overall mound fill width	**25.50**	ft.
X	Proposed Side-Slope	**3:1**	

Zoeller Company

System Head Curve and Pump Selection Tool

Static Head Information		Elev. difference from low water to system high point
Static Head - elevation difference from low water to outfall	10.0 feet	
System high point above outfall?	Yes	11.0 feet

Friction Head Information		
Pipe		
How many different pipes in the system (not counting laterals)?	1	
Pipe 1 Length	70 feet	
Pipe 1 Size	2 inches	
Pipe 1 Class	SCH 40	
Pipe 2 Length		
Pipe 2 Size		
Pipe 2 Class		
Pipe 3 Length		
Pipe 3 Size		
Pipe 3 Class		
Pressurized Laterals?	Yes	Flow Deviation Along Lateral
How many are dosed at once?	3	0.6%
Length of one lateral	35 feet	✓
Size of lateral	2 inches	
Class of lateral	SCH 40	

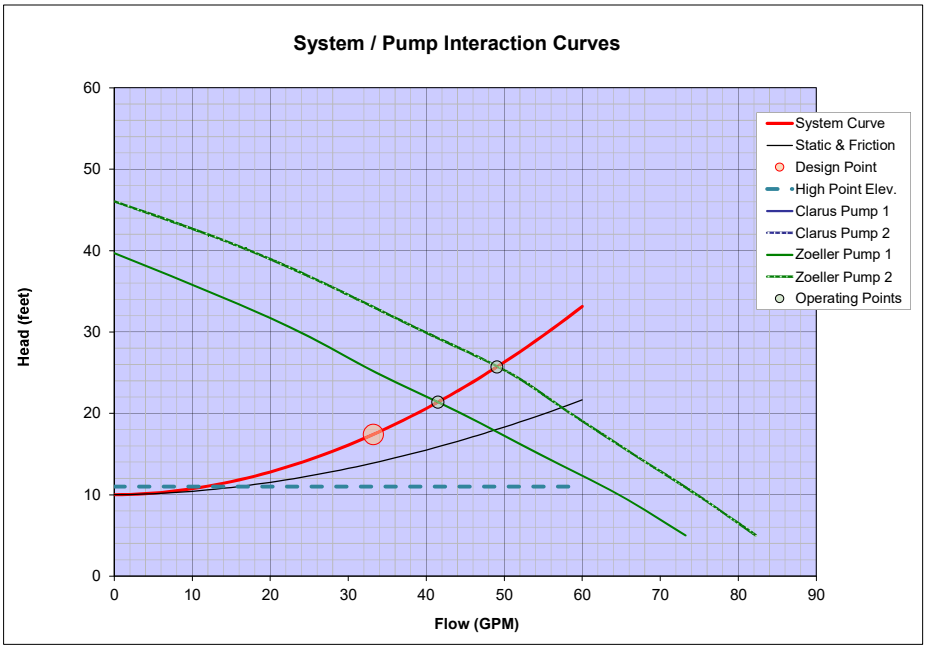
Fittings & Discharge Assemblies

Type	Size	Quantity	Flow
90 Elbow	2 inches	9	100 %
Tee (branch flow)	2 inches	2	100 %

Special Friction Considerations		
Weep Hole	Yes	3/8 "
Add-In Friction	15 % of Pipe Loss	
Automatic Multizone Valve?	No	
Pressure Filter?	No	

Operating Head Information		
System Type	Low Pressure Pipe	
Required Pressure	3.5 feet	
Number of Orifices	42	
Size of Orifices	3/16"	
Spider Valve Orifice Sizes (Data originates from Spider Valve Sizing Tab)		

Factors and Coefficients	
Hazen-Williams C Factor	130
Discharge Coefficient (Cd)	0.61
Lateral Design Mode	On



NOTE: THE DISPLAYED PUMP CURVES HAVE BEEN ADJUSTED TO ACCOUNT FOR THE EFFECT OF THE WEEP HOLE

Pump Selection	60 Hz	Frequency	
Clarus Environmental Pumps			**Operating Points**
Clarus Pump 1			
Flow Control Orifice?			
Clarus Pump 2			
Flow Control Orifice?			
Zoeller Pump Company Pumps			
Zoeller Pump 1	153, 0.5hp, 60Hz		41.5 GPM @ 21.4'
Zoeller Pump 2	140/4140, 1hp, 60Hz		49.1 GPM @ 25.7'

Design Point
33.2 GPM
@ 17.4 ' TDH

Curve Zoom Range	60 GPM

Project Data	Notes:
Project Name:	
Project Address	
Contact Info:	

Version 4.51

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Property Address:	17055 W Goshawk Rd (A.D.U.)	Date:	March 26, 2026
	Colorado Springs, CO 80908	Job #:	26-068
Endorsement:	Daniel J. Mizicko, P.E.		

Purpose of Investigation: To determine the subsurface suitably for an Onsite Wastewater Treatment System (OWTS) as well as outline design criteria for a future Soil Treatment Area (STA) through both visual and tactile evaluations of the onsite subsurface soil. The onsite evaluation and associated soil testing were conducted in compliance with the El Paso County Board of Health OWTS Regulations.

COLORADO LICENSED DANIEL J. MIZICKO 52484 PROFESSIONAL ENGINEER 3/26/2026

Profile Pit Summary	
Profile Pit #1	
Lat:	**39° 4'48.24"N**
Long:	**104°38'33.60"W**
0 - 0'-3"	**Topsoil**
0'-3" - 2'-6"	**Soil Type 2**
2'-6" - 3'-6"	**Soil Type 3**
3'-6" - 8'-0"	**Soil Type 3**
-	-
Profile Pit #2	
Lat:	**39° 4'48.30"N**
Long:	**104°38'33.99"W**
0 - 0'-3"	**Topsoil**
0'-3" - 3'-6"	**Soil Type 2**
3'-6" - 8'-0"	**Soil Type 3**
-	-
-	-
Existing Well (If applicable)	
Lat:	**39° 4'44.01"N**
Long:	**104°38'28.82"W**

Profile Pit #1		Profile Pit #2	
	Topsoil		Topsoil
1'-0"	Soil Type 2	1'-0"	Soil Type 2
2'-0"		2'-0"	
3'-0"	Soil Type 3	3'-0"	
4'-0"	Soil Type 3 w/ Redox.	4'-0"	Soil Type 3 w/ Redox.
5'-0"		5'-0"	
6'-0"		6'-0"	
7'-0"		7'-0"	
8'-0"		8'-0"	
9'-0"		9'-0"	

Recommendations:

An Engineered On-Site Wastewater Treatment System (OWTS) will be required for this site due to: (a) Redoximorphic features (groundwater and/or seasonally saturated soils) identified in Profile Pit #1 & Profile Pit #2. A mounded sand filter meeting the requirements in Chapter 8 of the El Paso County Board of Health On-Site Wastewater Treatment Systems (OWTS) Regulations is recommended. The most restrictive soil in the treatment zone of the soil treatment area will vary depending on final design.

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Site Map:

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Job Number:	26-068	Test Pit#	Pit #1
Date of Evaluation:	March 20, 2026	Total Depth:	8'-0"
Evaluator:	J.Dumke	STA Slope and Direction:	S 80° E @ ±3%
Excavator:	Advanced Septic	Latitude:	39° 4'48.24"N
Equipment:	Mini Excavator	Longitude:	104°38'33.60"W

17055 W Goshawk Rd, 80908 (A.D.U.)

Depth Below Grade	Sample Depth	USDA Soil texture	USDA Soil Structure - Type	USDA Soil Structure Grade	Soil Type	Redoximorphic Features Present (Y/N)
0 - 0'-3"	**Topsoil**					
0'-3" - 2'-6"	**2'-0"**	**Sandy Loam**	**Granular**	**Moderate**	**Soil Type 2**	**No**
2'-6" - 3'-6"	**3'-0"**	**Sandy Clay Loam**	**Granular**	**Strong**	**Soil Type 3**	**No**
3'-6" - 8'-0"	**-**	**Sandy Clay Loam**	**Granular**	**Strong**	**Soil Type 3**	**Yes***
-	-	-	-	-	-	-

Total Depth =	**8'-0"**		Comments:
Groundwater Evidence?	**Yes**	**3'-6"**	***Redoximorphic features (groundwater and/or seasonally saturated soils) identified in Profile Pit #1.**
Bedrock Encountered?	**No**	-	
Is Dawson Arkose (DA) or Cemented Sands (CS) Present?	**No**		
Is the material fractured and/or Jointed	**No**		
If Yes, what is the cementation class?	-		
Is the Dawson Arkose or Cemented Sand a limiting layer?	-		
Type "R" Soils (High Rock Content) Encountered?	**No**		

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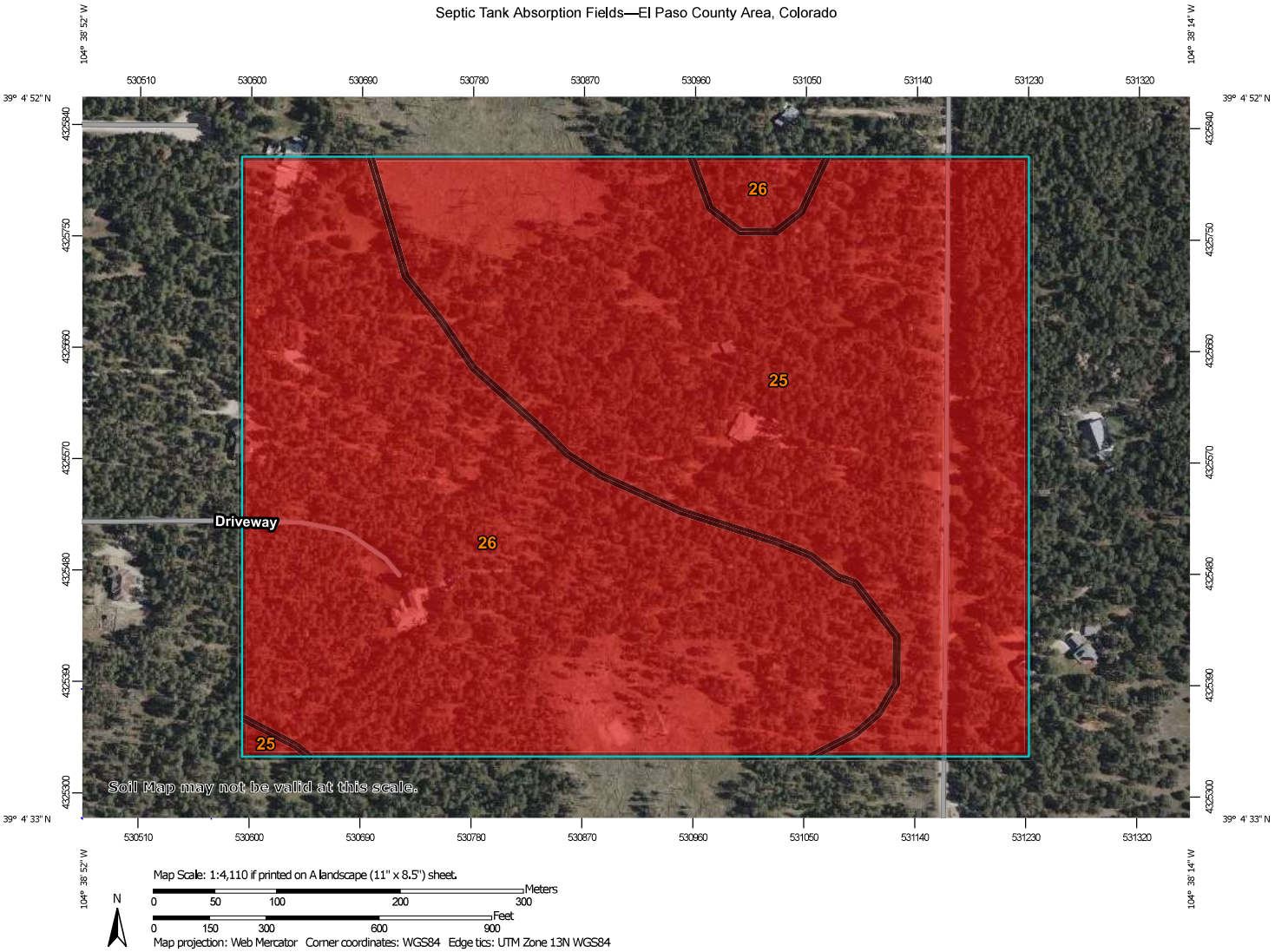
Job Number:	26-068	Test Pit#	Pit #2
Date of Evaluation:	March 20, 2026	Total Depth:	8'-0"
Evaluator:	J.Dumke	STA Slope and Direction:	S 80° E @ ±3%
Excavator:	Advanced Septic	Latitude:	39° 4'48.30"N
Equipment:	Mini Excavator	Longitude:	104°38'33.99"W

17055 W Goshawk Rd, 80908 (A.D.U.)

Depth Below Grade	Sample Depth	USDA Soil texture	USDA Soil Structure - Type	USDA Soil Structure Grade	Soil Type	Redoximorphic Features Present (Y/N)
0 - 0'-3"	**Topsoil**					
0'-3" - 3'-6"	**-**	**Sandy Loam**	**Granular**	**Moderate**	**Soil Type 2**	**No**
3'-6" - 8'-0"	**-**	**Sandy Clay Loam**	**Granular**	**Strong**	**Soil Type 3**	**Yes***
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Total Depth =	**8'-0"**		Comments:
Groundwater Evidence?	**Yes**	**3'-6"**	***Redoximorphic features (groundwater and/or seasonally saturated soils) identified in Profile Pit #2.**
Bedrock Encountered?	**No**	-	
Is Dawson Arkose (DA) or Cemented Sands (CS) Present?	**No**		
Is the material fractured and/or Jointed	**No**		
If Yes, what is the cementation class?	-		
Is the Dawson Arkose or Cemented Sand a limiting layer?	-		
Type "R" Soils (High Rock Content) Encountered?	**No**		

Septic Tank Absorption Fields—El Paso County Area, Colorado



Map Scale: 1:4,110 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 23, 2024—Aug 4, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic Tank Absorption Fields

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
25	Elbeth sandy loam, 3 to 8 percent slopes	Very limited	Elbeth (85%)	Slow water movement (1.00)	38.4	50.0%
26	Elbeth sandy loam, 8 to 15 percent slopes	Very limited	Elbeth (85%)	Slow water movement (1.00)	38.4	50.0%
				Slope (0.63)		
Totals for Area of Interest					**76.7**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	76.7	100.0%
Totals for Area of Interest	**76.7**	**100.0%**

Description

ENG - Engineering

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to

validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–El Paso County Area, Colorado														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
25—Elbeth sandy loam, 3 to 8 percent slopes														
Elbeth	85	B	0-3	Sandy loam	SC, SC-SM	A-4, A-2-4	0- 0- 0	0- 0- 0	85-93-100	80-90-100	50-60-70	25-33-40	25-28-30	5-8 -10
			3-23	Loamy sand	SM	A-1, A-2-4	0- 0- 0	0- 0- 0	85-93-100	80-90-100	40-58-75	15-23-30	20-23-25	NP-3 -5
			23-68	Sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4, A-6	0- 0- 0	0- 0- 0	85-93-100	80-90-100	65-78-90	30-43-55	25-30-35	5-10-15
			68-74	Sandy clay loam	CL, SC	A-4, A-2	0- 0- 0	0- 0- 0	85-93-100	80-90-100	50-70-90	25-40-55	25-28-30	5-8 -10

Engineering Properties–El Paso County Area, Colorado														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
26—Elbeth sandy loam, 8 to 15 percent slopes														
Elbeth	85	B	0-3	Sandy loam	SC, SC-SM	A-2-4, A-4	0- 0- 0	0- 0- 0	85-93-100	80-90-100	50-60-70	25-33-40	25-28-30	5-8 -10
			3-23	Loamy sand	SM	A-2-4, A-1	0- 0- 0	0- 0- 0	85-93-100	80-90-100	40-58-75	15-23-30	20-23-25	NP-3 -5
			23-68	Sandy clay loam	CL-ML, SC, SC-SM	A-6, A-4, A-2	0- 0- 0	0- 0- 0	85-93-100	80-90-100	65-78-90	30-43-55	25-30-35	5-10-15
			68-74	Sandy clay loam	CL, SC	A-4, A-2	0- 0- 0	0- 0- 0	85-93-100	80-90-100	50-70-90	25-40-55	25-28-30	5-8 -10

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 23, Aug 29, 2025