El Paso County, CO
Public Health
Prevent • Promote • Protect

Environmental Health Division

1675 W. Garden of the Gods Rd., Suite 2044
Colorado Springs, CO 80907
(719) 578-3199 *phone*
(719) 575-8664 *fax*
www.elpasocountyhealth.org

ENGINEERED ON-SITE WASTEWATER TREATMENT SYSTEM
FINAL INSPECTION FORM

P

On-site ID: ON0049849 Tax schedule (APN) #: 4305003039 Permit Type: New ☒ Major ☐ Minor ☐

Environmental Health Specialist: Neil Mayes Final Inspection Date: 9/19/2019 **Approved: YES** ☒ **NO** ☐

Residential Property Information:

Owner: Chad Wolf Address: 7950 Mallard Dr, Peyton CO 80831 Approved No. Bedrooms: 5

Water supply: Municipal ☐ Well ☒ Cistern ☐ Date well installation verified: 9/19/2019 GPS of Well: 38°56.845'N 104°34.721'W

Approval will be revoked if in the future any well is found to be within 50 feet of the septic tank and/or 100 feet of the soil treatment area.

Minimum System Requirements: Soil Type: 2 LTAR: 0.60 Limiting Layer: ☒ Groundwater 58 – 60" ☐ Bedrock

OWTS Tank: Capacity (gallons): 1500

Soil Treatment Area (STA): Sq. Ft. (10-1): 1000 Sq. Ft. (10-2): 1000 Sq. Ft. (10-3): 700 Sq. Ft. (with Diverter Valve): (10-2)/(2)

NDDS (STA): Sq. Ft. (10-1): ___ NDDS Factor: ___ Sq. Ft. (NDDS adjustment): ___

Engineering:

Design Engineer: Geoquest, LLC **Engineer design #:** 17 - 0447

Date engineer record drawing/certification letter received: 11/1/2019

Final system installation:

Licenses Installer: Tier 2: ☒ **Installer:** Kunau Drill, LLC

Treatment Level: 1 ☐ 1PD ☒ 2 ☐ 2N ☐ 3 ☐ 3N ☐

OWTS Tank: GPS Location: 38°56.843'N 104°34.693'W

Construction Material: Concrete Capacity (gallon): 1500 Existing ☐ New ☒

OWTS Pump Tank: YES ☒ NO ☐ Capacity (gallon): 500 Audio/visual Alarm: YES ☒ NO ☐

Pump (Gal/dose): 120 Dose: 32.6 GPM Total Dynamic Head: 21.1 FT Elevation difference: N/A

Soil Treatment Area (STA): GPS Location: 38°56.852'N 104°34.744'W Total Sq. Ft installed: 720

Configuration: Trench ☐ Bed ☒ Distribution: Gravity ☐ Pressure Dosed ☒ NDDS ☐

☐ Rock and Pipe: Width: ___ Total Length: ___ Installation Depth: ___

Depth of Rock (under pipe): ___ Type of cover on Rock: ___

☒ Chambers: Type: Quick 4+ LP Sq. Ft/chamber: 12 No. Chambers: 60 Installation Depth (range): 10 – 12"

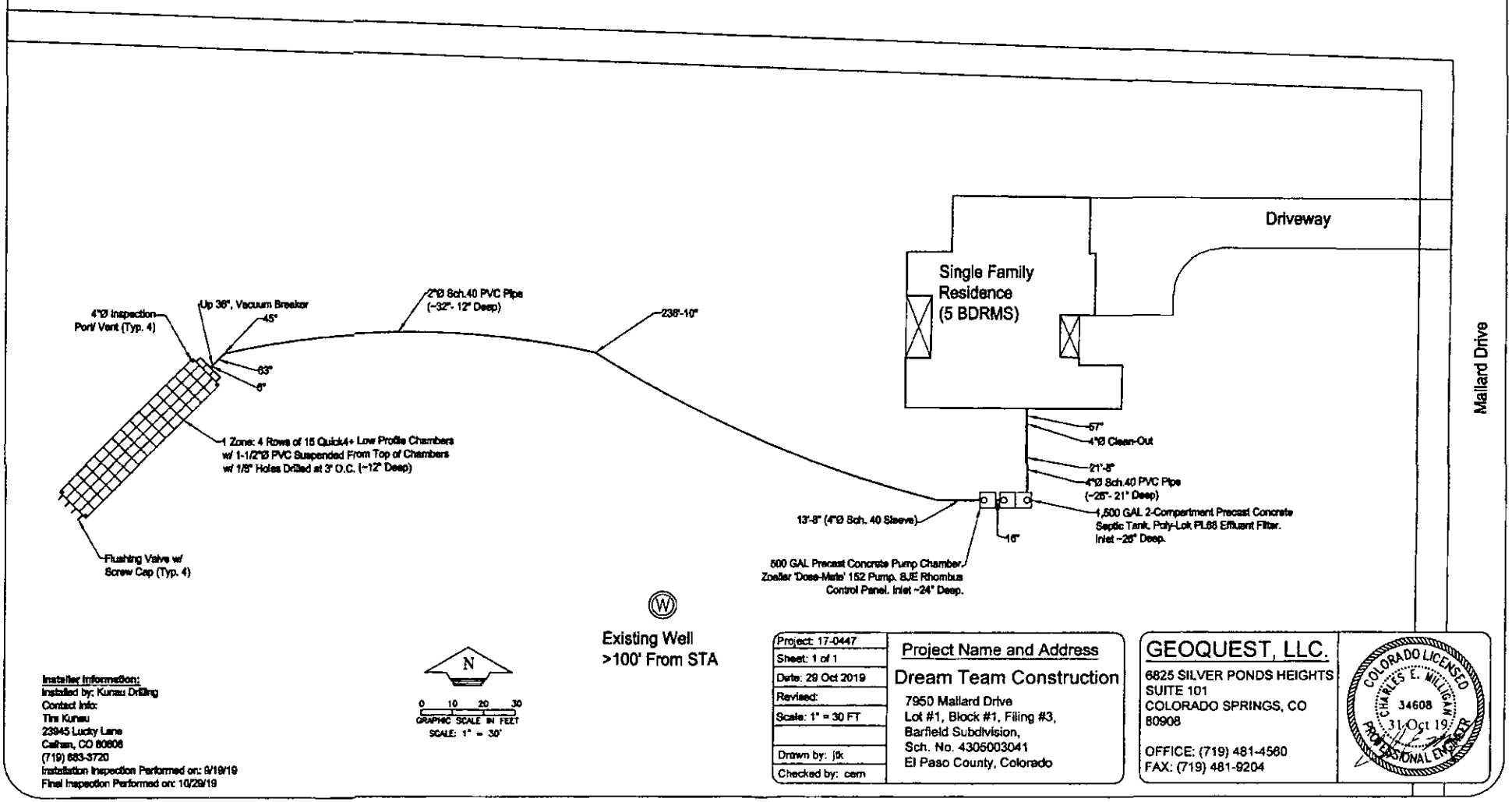
☐ NDDS: # Zones: ___ # Laterals/zone: ___

☐ Seepage Pit: # Rings: ___

Notes:

On-Site Wastewater Treatment System (OWTS) Record Drawing

Geoquest, LLC. has Provided this Design in Accordance with the Standards of Practice Common to the Area. However, as with All Underground Absorption Fields, Guarantee from Failure is Impossible. Even with Proper Installation, as Outlined for this Proposed Construction, There Can Remain Many Uncertainties, and Difficulties Can Still Arise in the Operation of the System in the Future. Proper Design, Construction, and Maintenance can Assist in Minimizing Uncertainties, but Cannot Entirely Eliminate Them. Homeowners Should be Advised of Maintenance and Special Considerations for Septic Systems. Refer to El Paso County Public Health Brochure: "Maintaining Your Septic System" for Additional Information. Due to the Possibility of Unknown Water Usage Factors, Geoquest, LLC. Provides No Warranty of this Design or Installation Against Failure or Damage of Any Type.



Installer Information:
Installed by: Kunau Drilling
Contact Info:
Tim Kunau
23945 Lucky Lane
Calhan, CO 80808
(719) 683-3720
Installation Inspection Performed on: 9/19/19
Final Inspection Performed on: 10/29/19

Project: 17-0447	Project Name and Address
Sheet: 1 of 1	Dream Team Construction
Date: 29 Oct 2019	7950 Mallard Drive
Revised:	Lot #1, Block #1, Filing #3,
Scale: 1" = 30 FT	Barfield Subdivision,
	Sch. No. 4305003041
Drawn by: jtk	El Paso County, Colorado
Checked by: cem	

GEOQUEST, LLC.
6825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
80908

OFFICE: (719) 481-4560
FAX: (719) 481-9204

COLORADO LICENSED
CHARLES E. WILLIAM
34608
31 Oct 19
PROFESSIONAL ENGINEER

Notify Environmental Health of any change of ownership, type of business activity, business name, or billing address by calling (719) 578-3199. Failure to notify Environmental Health may result in late penalties, Permit/License denial or revocation, and business closure. PERMITS/LICENSES TO OPERATE AND ANNUAL FEE PAYMENTS ARE NOT TRANSFERABLE. Permits become void on change of ownership. New owners must apply and pay for a new Permit(s)/License(s) prior to beginning operation.

Attn: CHAD WOLF
7950 MALLARD DR
PEYTON, CO 80831

El Paso County, CO
Public Health
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EL PASO COUNTY PUBLIC HEALTH
ENVIRONMENTAL HEALTH DIVISION
1675 W. GARDEN OF THE GODS ROAD, SUITE 2044
COLORADO SPRINGS, CO 80907
PHONE: (719) 578-3199 FAX: (719) 578-3188
www.elpasocountyhealth.org

NEW SYSTEM PERMIT - OWTS

Valid From 11/20/2018 To 11/20/2019

PERMITEE : CHAD WOLF
7950 MALLARD DR
PEYTON, CO 80831

OWNER NAME : **CHAD WOLF**

Onsite ID: ON0049849
Tax Schedule # : 4305003039
Permit Issue Date: 11/20/2018
Dwelling Type: RESIDENTIAL
# of Bedrooms (if Res): 5
Proposed Use (if Comm):
Designed Gallons/Day:
Water Source: PRIVATE WELL

System Installation Requirements:

- **An Engineered OWTS system to be installed on site due to encountering seasonal and standing groundwater between 48 - 60", requiring a Tier II licensed installer.**
- **System installation to include pressure dosed chamber in a bed configuration, max installation depth of 12" due to ground water evidence. Minimum tank requirements 1500 gallon and 700 sq ft of soil treatment area (59 Q4 / 47 Arc 36 chambers required).**
- **The system must be installed per approved Geoquest, LLC design document #17-0447 stamped and dated 1/2/2018, changes to the approved design document must be submitted and approved by Public Health prior to installation.**
- **All horizontal setbacks must be maintained through system installation. In addition system must remain completely uncovered, including the tank size, for final inspection.**
- **The well must be installed at time of final inspection, or final approval will not be given until well installation is verified.**
- **Engineered systems require the as built drawing and certification letter from the engineer be submitted to Public Health prior to final approval and Regional Building sign off**
- **Ensure that all work is completed prior to contacting and requesting final line for inspection, otherwise additional fees may be incurred.**

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7950 MALLARD DR
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This permit is issued in accordance with 25-10-106 Colorado Revised Statutes. The PERMIT EXPIRES upon completion/installation of the Onsite Wastewater Treatment System, or at the end of twelve (12) months from date of issue, whichever occurs first. If both a Building Permit and an Onsite Wastewater Treatment System Permit are issued for the same property and construction has not commenced prior to the expiration date of the Building Permit, the Onsite Wastewater Permit shall expire at the same time as the Building Permit. This permit is revocable if all stated requirements are not met. The Onsite Wastewater Treatment System must be installed by an El Paso County Licensed System Contractor, or the property owner.

The Health Officer shall assume no responsibility in case of failure or inadequacy of an Onsite Wastewater Treatment System, beyond consulting in good faith with the property owner or representative. Access to the property shall be authorized at reasonable time for the purpose of making such inspections as are necessary to determine compliance with the requirements of this law (permit).

Inspection request line: Call (719) 575-8699 before 3:30 p.m. the business day prior to the requested inspection date.

Authorized By: Environmental Health Specialist

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Colorado Springs, CO 80907
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SB0010562 AR0014616 ON0049849

APPLICATION FOR AN ON-SITE WASTEWATER TREATMENT SYSTEM PERMIT

Property Information:
Property Address: 7950 Mallard Drive City and Zip: Peyton 80831
Legal Description: Single Family Residence Lot #1 Filing #1 Banfield Sub
Tax Schedule #: 4305003039 Lot size: 5.3 acres
Is the property gated: ☐ Yes ☑ No Please provide a gate code if necessary: _____
Site Located Inside City Limits: ☐ Yes ☑ No Proposed Use: ☑ Residential ☐ Commercial
Water Supply: ☑ Well ☐ Cistern ☐ Municipal *Potential* Number of Bedrooms: 5 NM
Has a Conditional Acceptance Document been issued for this property: ☐ Yes ☐ No ☑ Unsure

Owner Information: ☐ Primary Contact
Owner: Chad Nolf Daytime Phone: 719.393.2317
Owners Mailing Address: 2180 Victor Place Ste. A Colo Spg CO 80915
Email Address: paige.dreamteam@gmail.com Fax #: _____
General Contractor: Dreamteam Construction Phone/Email: 317-945-8874

OWTS Installer Information: ☐ Primary Contact
System Installer: Kunau Drilling Daytime Phone: 719.683.3720
Email Address: kunaudrilling@aol.com Licensed installer: ☐ Tier 1 ☑ Tier 2

All engineer-design systems *must* be installed by a Tier 2 licensed installer

CURRENT FEES AS APPROVED BY THE EL PASO COUNTY BOARD OF HEALTH

All payments are due at the time of application submittal; by cash, check or major credit card (Visa / MC)

☑ **New Permit:** $750.00 (EPCPH Charge) + $147.00 (EPC Planning Dept. Surcharge) + $23.00 (CDPHE Surcharge) = **$920.00**
☐ **Major Repair Permit:** $535.00 (EPCPH Charge) + $23.00 (CDPHE Surcharge) = **$558.00**
☐ **Minor Repair Permit:** $245.00 (EPCPH Charge) + $23.00 (CDPHE Surcharge) = **$268.00**

Permits expire one year from date of issuance, unless otherwise noted

***REQUIRED*: Provide a complete written scope of work to be performed on the property.**

New build home

The following documents **MUST** be included with your application.

- A soils report: including at least 1 soil profile excavation pit, in accordance with section 8.5 A-F of OWTS regulations
- A clear and legible design document: including the proposed and alternate locations, as well as system layout, labeled with all setbacks to pertinent structures and features in table 7-1.
- Provide directions to property, from a main highway, on the back side of application.

Failure to provide the above listed documents may result in denial of the permit application

I certify that the information provided on this application is in compliance with Section 8.3, Chapter 8 of the On-site Wastewater System (OWS) Regulations of the El Paso County Board of Health. I also authorize the assigned representative of El Paso County Public Health to enter onto this property in order to obtain information necessary for the issuance of a permit.

Applicant Signature: [signature] Date: 10/30/18

Reviewed 2018 approved fee (12/04/2017)

Nol

- Property address or lot number must be clearly marked and visible from the road.
- Profile excavation test pit and/or soil profile holes must be clearly marked
- Proposed and alternate soil treatment areas must be protected from compaction and disturbance
- Locked gates require the gate code or lock combination be provided on front of application
- Please provide directions to the property from a main highway, by text or picture, below.

Failure to comply with the above information may result in an additional charge for a return trip.

Permit #: _____ Site Inspection date: 11/1/18

Date Approvals Rcvd: Development Services: 10/31/18 Floodplain/enumerations: 10/31/18

Design: ☐ Conventional ☒ Engineer Design Engineer: Geoquest, LLC

Engineer Job #: 17-0447 Engineer Date Stamped: 11/2/2018

LTAR/Soil Type: 0.60 Groundwater: 58" PP1/ 60" PP2 Bedrock: — PP1/ — PP2

Minimum Requirements: Tank Capacity: 1500 Soil Treatment Area: 700

System Feed: ☐ Gravity ☐ Pump to Gravity ☒ Pressure Dosed ☐ Other: _____

System Media: ☒ Chambers ☐ Rock and Pipe ☐ Other Soil Treatment Area: ☐ Trenches ☒ Bed

Additional Comments: Ground was saturated at 48"

E.H. Specialist: Matt Wing Date: 11/16/18 ☒ Approved ☐ Denied

CW0049849
4305003039
9/19/19

30 October 2019

6825 Silver Ponds Heights #101
Colorado Springs, CO 80908
(719) 481-4560

El Paso County Health Department
1675 West Garden of the Gods Road
Colorado Springs, Colorado 80907

Re: Septic System Inspection, GQ #17-0447
Lot #1, Block #1, Filing #3,
Barfield Subdivision,
7950 Mallard Drive,
El Paso County, Colorado

Dear Sir or Madam,

We inspected the installation of the engineered septic system at the above address at several points during its construction as well as the finished product. It has been installed in accordance with our engineered plans and specification. This includes having the correct size septic tanks, the proper grade on all pipes and sections of the absorption field, the correct depth, size and configuration of the absorption field, and the backfill around and over the field.

The field should be seeded in the future to allow for vegetation growth next spring. Additional grading may be required in the future to repair any minor erosion areas until the grass seed takes hold. You should ensure that no vehicles are allowed to park on any portion of the system.

The system is ready for final certification from the El Paso County Health Department. **A Certificate of Occupancy (CO) will not be issued by PPRBD until El Paso County Health Department has received this letter and the Record Drawing.** Please call me if you have any questions.

Sincerely,

Charles E. Milligan
Civil Engineer

COLORADO LICENSED
CHARLES E. MILLIGAN
34608
31 Oct 19
PROFESSIONAL ENGINEER

6825 Silver Ponds Heights #101
Colorado Springs, CO 80908
(719) 481-4560

PROFILE PIT EVALUATION

FOR

DREAM TEAM CONSTRUCTION

JOB #17-0447

Lot #1,
Barfield Subdivision,
7950 Mallard Drive,
El Paso County,
Colorado

Respectfully submitted,

Charles E. Milligan, P.E.
Civil Engineer

COLORADO REGISTERED
CHARLES E. MILLIGAN
34608
28 NOV 17
PROFESSIONAL ENGINEER

PROFILE PIT FINDINGS

Enclosed are the results of the profile pit for the septic system to be installed at **Lot #1, Barfield Subdivision, 7950 Mallard Drive, El Paso County, Colorado**. The location of the test pit was determined by Dream Team Construction. The residence will not be on a public water system. The number of bedrooms in the design for the residence is unknown. Due to the natural slope of the property, the entire system will feed to the northwest at approximately 3% at least 20 feet. All applicable portions of the El Paso County Health Department Onsite Wastewater Treatment System Regulations (OWTS) must be complied with for the installation of the treatment system.

The inspection was performed on November 7, 2017, in accordance with Table 10-1 of the **E.P.C.P.H. OWTS Regulations**.

Soil Profile #1:

0 to 6" - Topsoil- loam, organic composition.

6" to 32" - USDA soil texture sandy loam, soil type 2, structure shape granular, structure grade 2, non-cemented, LTAR 0.60, brown in color, 7.5YR 4/3.

32" to 8' - USDA soil texture loamy sand, soil type 1, structure shape none, structure grade 0, non-cemented, LTAR 0.80, pale brown in color, 10YR 6/3, saturated at 48 inches, groundwater at 58 inches.

Soil Profile #2:

0 to 6" - Topsoil- loam, organic composition.

6" to 30" - USDA soil texture sandy loam, soil type 2, structure shape granular, structure grade 2, non-cemented, LTAR 0.60, brown in color, 7.5YR 4/3.

30" to 8' - USDA soil texture loamy sand, soil type 1, structure shape none, structure grade 0, non-cemented, LTAR 0.80, pale brown in color, 10YR 6/3, saturated at 48 inches, groundwater at 60 inches.

Groundwater was encountered at the depth of 58 inches in Profile Pit #1 and 60 inches in Profile Pit #2 during the inspection. Saturated at the depth of 48 inches in Profile Pit #1 and Profile Pit #2 during the inspection. Bedrock was not encountered during the inspection. No known wells were observed within 100 feet of the proposed system. **All setbacks shall conform to county regulations.**

Due to encountering groundwater, the septic system to be installed on this site shall be designed by a Colorado Licensed Engineer. Based on the observed conditions, we feel a design based on an LTAR of 0.60, GPD/SF (USDA 2, treatment soil, treatment level 1) is reasonable. A uniformly pressure dosed soil treatment area is required. Maximum depth of the installation shall be not deeper than 12 inches below existing grade.

If during construction of the field itself, subsurface conditions change considerably or if the location of the proposed field changes, this office shall be notified to determine whether the conditions are adequate for the system as designed or whether a new system needs to be designed.

Weather conditions at the time of the test consisted of mostly cloudy skies with cold temperatures.

PROFILE PIT LOG - Profile Pit #1

JOB#: 17-0447
DATE EVALUATED: 07 Nov 2017
EQUIPMENT USED: MINI-EXCAVATOR

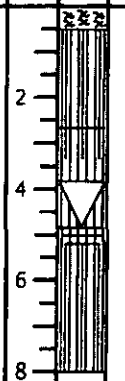
0"-6" **TOPSOIL**
Loam
Organic Composition

6"- 32" **Sand**
Fine-coarse Grained
Low-moderate Density
Moderate Moisture Content
Low Clay Content
Low Cohesion
Low Plasticity
Brown Color
7.5YR 4/3

USDA Soil Texture: Sandy Loam
USDA Soil Type: 2
USDA Structure Shape: Granular
USDA Structure Grade: 2
Cementation Class: Non-cemented
Long Term Acceptance Rate (LTAR, Treatment Level 1):0.60

32"- 8' **Sand**
Fine-coarse Grained
Low-moderate Density
High Moisture Content
Low Clay Content
Low Cohesion
Low Plasticity
Pale Brown Color
10YR 6/3

USDA Soil Texture: Loamy Sand
USDA Soil Type: 1
USDA Structure Shape: None
USDA Structure Grade: 0
Cementation Class: Non-cemented
Long Term Acceptance Rate (LTAR, Treatment Level 1):0.80
Saturated @ 48"
Groundwater @ 58"



LTAR to be Used for OWTS Sizing: **0.60GPD/SF (USDA Type 2, Treatment soil, Treatment Level 1)**
Depth to Groundwater (Permanent or Seasonal): Saturated @ 48" and Permanent @ 58"
Depth to Bedrock and Type: Not Encountered
Depth to Proposed Infiltrative Surface from Ground Surface: Max Depth 12" (Uniformly pressure dosed STA)
Soil Treatment Area Slope and Direction: NW @ 3%

Note: See El Paso County Board of Health Regulation Chapter 8: On-Site Wastewater Treaments Systems (OWTS) Regulations for Additional Information. Refer to Table 10-1 for Corresponding LTAR if Treatment Level 2, 2N, 3, or 3N will be Implemented in the Design of the OWTS. System Sizing Depends on a Number of Factors (i.e. LTAR, # of Bedrooms, Type of Soil Treament Area (STA), Method of Transfer to the STA (Gravity, Dosed, or Pressure Dosed), and Type of Storage / Distribution Media Used in the STA)

Project: 17-0447
Sheet: 1 of 2
Date: 16 Nov 2017
Scale: 1/4" = 1'
Drawn by: mtj
Checked by: cem

Project Name and Address
Dream Team Construction
7950 Mallard Dr
Lot 1
Barfield Subdivision
Sch. No. 4305003039
El Paso County, Colorado

GEOQUEST, LLC.
6825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
80908

OFFICE: (719) 481-4560
FAX: (719) 481-9204

PROFILE PIT LOG - Profile Pit #2

JOB#: 17-0447
DATE EVALUATED: 07 Nov 2017
EQUIPMENT USED: MINI-EXCAVATOR

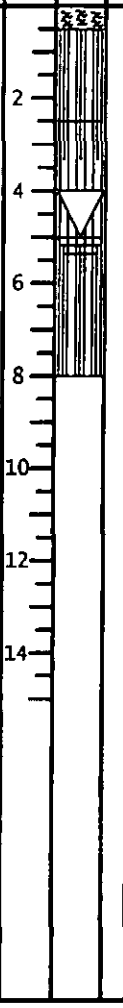
0"-6" **TOPSOIL**
Loam
Organic Composition

6"- 30" **Sand**
Fine-coarse Grained
Low-moderate Density
Moderate Moisture Content
Low Clay Content
Low Cohesion
Low Plasticity
Brown Color
7.5YR 4/3

USDA Soil Texture: Sandy Loam
USDA Soil Type: 2
USDA Structure Shape: Granular
USDA Structure Grade: 2
Cementation Class: Non-cemented
Long Term Acceptance Rate (LTAR, Treatment Level 1):0.60

30"- 8' **Sand**
Fine-coarse Grained
Low-moderate Density
High Moisture Content
Low Clay Content
Low Cohesion
Low Plasticity
Pale Brown Color
10YR 6/3

USDA Soil Texture: Loamy Sand
USDA Soil Type: 1
USDA Structure Shape: None
USDA Structure Grade: 0
Cementation Class: Non-cemented
Long Term Acceptance Rate (LTAR, Treatment Level 1):0.80
Saturated @ 48"
Groundwater @ 60"



LTAR to be Used for OWTS Sizing: **0.60GPD/SF (USDA Type 2, Treatment soil, Treatment Level 1)**
Depth to Groundwater (Permanent or Seasonal): Saturated @ 48" and Permanent @ 60"
Depth to Bedrock and Type: Not Encountered
Depth to Proposed Infiltrative Surface from Ground Surface: Max Depth 12" (Uniformly pressure dosed STA)
Soil Treatment Area Slope and Direction: NW @ 3%

Note: See El Paso County Board of Health Regulation Chapter 8: On-Site Wastewater Treaments Systems (OWTS) Regulations for Additional Information. Refer to Table 10-1 for Corresponding LTAR if Treatment Level 2, 2N, 3, or 3N will be Implemented in the Design of the OWTS. System Sizing Depends on a Number of Factors (i.e. LTAR, # of Bedrooms, Type of Soil Treament Area (STA), Method of Transfer to the STA (Gravity, Dosed, or Pressure Dosed), and Type of Storage / Distribution Media Used in the STA)

Project: 17-0447
Sheet: 2 of 2
Date: 16 Nov 2017
Scale: 1/4" = 1'
Drawn by: mtj
Checked by: cem

Project Name and Address
Dream Team Construction
7950 Mallard Dr
Lot 1
Barfield Subdivision
Sch. No. 4305003039
El Paso County, Colorado

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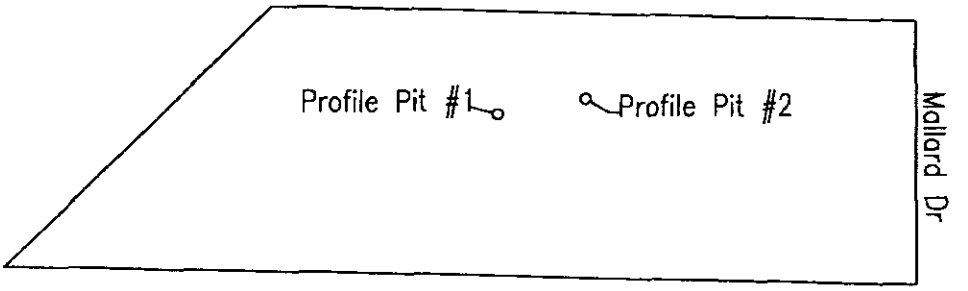
COLORADO SPRINGS, CO
80908

OFFICE: (719) 481-4560
FAX: (719) 481-9204

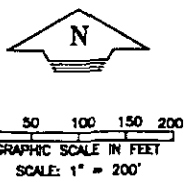
GEOQUEST LLC

SITE MAP

Lot 1
Barfield Subdivision
7950 Mallard Dr
El Paso County,
Colorado,
Job #17-0447



Location from Northeast Lot Corner to Profile Pit #1:
S. 77° W. – 455'
Location from Profile Pit #1 to Profile Pit #2:
N. 80° E. – 95'
GPS Coordinates:
Pit 1; N. 38° 56' 51.14" W. 104° 34' 45.47"
Pit 2; N. 38° 56' 51.29" W. 104° 34' 44.28"



Cover Page

CALCULATIONS (New OWTS):
Proposed Single Family
Residence with 5 Bedrooms

LTAR = 0.60 Gallons per Day per Square Foot (GPD/SF). USDA Soil Type 2 per Profile Pit Evaluations 11/7/2017 Ground Water Encountered at 48"

Q = (3 BDRM)(150 GPD) + (2 BDRM)(75 GPD)
Q = 600.0 Gallons per Day (GPD)

$A = \frac{Q}{LTAR} = \frac{600.0\ GPD}{0.60\ GPD/SF}$ ✓

A = 600.0 SF

Uniformly Pressure Dosed Chamber Bed:
A = (600.0 SF)(1.0)(0.7)
A = 700.0 SF Required ✓

CHAMBER BED SYSTEM (Uniformly Pressure Dosed):
Infiltrator Systems Inc. Quick 4 Plus Low-Profile Chambers
Chambers = SF RQD / 12.0 SF per Chamber
Chambers = 700 SF / 12.0 SF = Min. 59 Chambers ✓
Install 1 Zones: 4 Rows x 15 Chambers Long
 # Chambers Provided = 60 Total
Total Contact Area Actual = 720.0 SF
Total Contact Area Required = 700.0 SF

Note: Use of Alternative Chambers is Acceptable.
For ARC 36 Chambers (15.0 SF / Chamber, Min. 47 Chambers). ✓
Install 1 Zone, 4 Rows of 12 Chambers (48 Total). Contact Engineer for Clarification.

INSPECTIONS REQUIRED ARE AS FOLLOWS:
1.) Engineer to Inspect Excavation Prior to Placement of Approved Sand Fill.
2.) Engineer Will Inspect the Installation of All OWTS Components (i.e. All Plumbing, Tanks, Pump Chamber, STA, etc.) *Prior to Backfill.*
3.) Engineer to Inspect the Soil Treatment Area After Backfill to Insure Min. Cover and Proper Drainage Away from Soil Treatment Area.
Please Notify this Office Min. 24 Hours Prior to Inspection.

TANK SIZES:
✓ Main Tank Size = Min. 1,500 Gallons (Two-Compartment)
✓ Pump Chamber = Min. 500 Gallons (Use of Two-Compartment 1,000 Gal. Septic Tank w/ Pump in Second Compartment is an Acceptable Alternative for the Pump *Chamber. See Pump Chamber Detail on Page 5 for Additional Information).*

IMPORTED SAND SPECIFICATION (See Page 3 and 4):
Sand for Soil Treatment Area Absorption Bed to be Imported

✓ "Preferred" Sand Media:
Effective Size (D10) = 0.25-0.60 mm
Coefficient of Uniformity, Cu (D60/D10) ≤ 4.0
Note: 100% Passing #4 Sieve
Less Than 3% Passing #200 Sieve

"Secondary" Sand Media:
Effective Size (D10) = 0.15-0.60 mm
Coefficient of Uniformity, Cu (D60/D10) ≤ 7.0
Note: 100% Passing #4 Sieve
Less Than 3% Passing #200 Sieve

Note: ASTM C-33 w/ Less Than 3% Fines Generally Meets "Secondary" Sand Media Requirements.

Gradation Curve of the Sand Media Used MUST be Provided to Engineer Prior to to Installation. Gradation Must be Dated No More Than One Month Prior to Installation Date.

HOMEOWNER RESPONSIBILITY:
- Have Septic Tank Pump Every 3-5 Years (or As Needed, Contact Licensed Pumper)
- Have OWTS Inspected Annually
  - *-Clean Effluent Filter*
  - -Flush Laterals
  - -Function Test Valve Assemblies
  - -Check Water Levels in Inspection Ports
- Plant Native Grass Over STA (No Plants with Roots or that Require Irrigation)
- Don't Pour Chemicals Down Drain
- Don't Throw Trash in Toilet (Minimize Toilet Paper Consumption)
- Use of Garbage Disposal is Discouraged
- Conserve Water and Repair Leaking Fixtures

This is NOT a Complete List (Contact Local Health Department and EPA List of Septic "Do's and Don'ts"

GENERAL NOTES:
All Work per El Paso County Board of Health Regulations Chapter 8: On-Site Wastewater Treatment Systems (OWTS) Criteria.

All Setbacks Shall Conform to El Paso County Regulations (See Table 7-1 in the Regulations for Additional Information). Contractor/Homeowner Must Verify All Setbacks and Obtain Utility Clearances Prior to Construction.

Contractor/Homeowner is Responsible for Permit. Contractor/Homeowner Must Obtain Approval of Engineered OWTS from the El Paso County Health Department.

All Bends Limited to 45 Degree Ells or Long Sweep Quarter Bends. Areas Under Driveways Shall Be Protected as Per El Paso County Health Department Regulations.

Building Sewer Clean-Outs Shall Be Installed within 5 FT of the Structure and at Intervals Not to Exceed 100' in Straight Runs and When the Cumulative Change in Direction Exceeds 135 Degrees.

Grade Surrounding Area to Drain Away from the Soil Treatment Area (STA).

Paving, Planting of Trees/Shrubs, and **Vehicular Traffic** or Hoofed Animal Traffic of Any Kind Over the STA may Cause Premature Failure and **Is Prohibited.**

Refer to Sheet 2, 3, 4, and 5 for Additional Details and Information.

GEOQUEST, LLC.
6825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
80908

OFFICE: (719) 481-4560
FAX: (719) 481-9204

COLORADO REGISTERED PE CHARLES E. MILLER 34600 2-28-18

Project: 17-0447	*Project Name and Address*
Sheet: 1 of 5	Dream Team Construction
Date: 29 Dec. 2017	7950 Mallard Drive
Revised:	Lot # 1, Filing # 1,
Drawn by: mas	Barfield Subdivision
Checked by: cem	*Sch. No. 4305003039*
	El Paso County, Colorado

Geoquest, LLC. has Provided this Design in Accordance with the Standards of Practice Common to the Area. However, as with All Underground Absorption Fields, Guarantee from Failure is Impossible. Even with Proper Installation, as Outlined for this Proposed Construction, There Can Remain Many Uncertainties, and Difficulties Can Still Arise in the Operation of the System in the Future. Proper Design, Construction, and Maintenance can Assist in Minimizing Uncertainties, but Cannot Entirely Eliminate Them. Homeowners *Should be Advised of Maintenance and Special Considerations for Septic Systems. Refer to El Paso County Public Health Brochure: "Maintaining Your Septic System" for Additional* Information. Due to the Possibility of Unknown Water Usage Factors, Geoquest, LLC. Provides No Warranty of this Design or Installation Against Failure or Damage of Any Type.

CHAMBER BED SYSTEM (Uniformly Pressure Dosed):
Infiltrator Systems Inc. Quick 4 Plus Low-Profile Chambers
Chambers = SF RQD / 12.0 SF per Chamber
Chambers = 700 SF / 12.0 SF = Min. 59 Chambers
Install 1 Zones: 4 Rows x 15 Chambers Long
Chambers Provided = 60 Total
Total Contact Area Actual = 720.0 SF
Total Contact Area Required = 700.0 SF

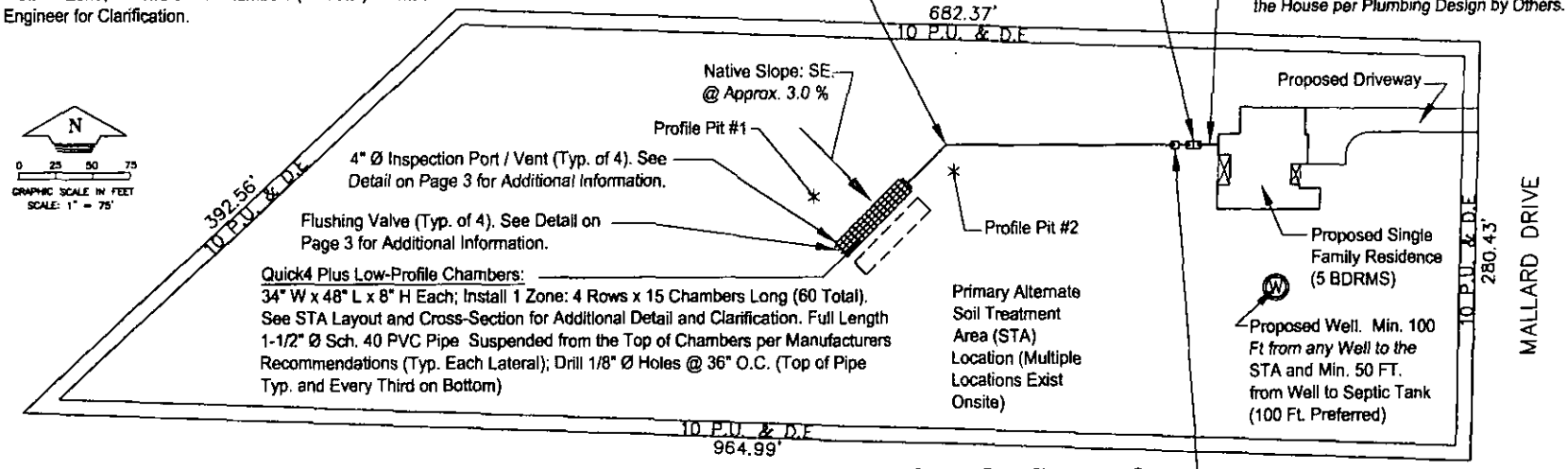
Note: Use of Alternative Chambers is Acceptable. For ARC 36 Chambers (15.0 SF / Chamber, Min. 47 Chambers). Install 1 Zone, 4 Rows of 12 Chambers (48 Total). Contact Engineer for Clarification.

OWTS to be Roped Off (Caution Tape or Temporary Construction Fencing is Acceptable) Prior To and During Construction to Prevent Construction Traffic from Compacting Surface Soils and Protect the STA from Traffic After Installation.

Min. 1,500 Gal. Precast Concrete Two Compartment Septic Tank w/ EPCPH Approved Effluent Filter (Requires Regular Maintenance) on Outlet. Main Tank Inlet Approx. 24" Below Existing Grade. Risers to Grade with Secure Access Cover (Min. 3" Above Finish Grade, Water Tight, Typ. *All Septic Tank Access Locations). Exact Locations to be Field Determined.*

4" Ø PVC Solid Pipe from the Proposed House to the Septic Tank, with Cleanout within 5 FT of House and at Intervals Not to Exceed 100 FT in Straight Runs and When the Cumulative Change in Direction Exceeds 135 Degrees. Maintain 2.0% Min. and 3.0% Max. Grade on Pipe Feeding the Septic Tank. Exact Location of the Discharge Line from *the House per Plumbing Design by Others.*

2" Ø Pipe from Pump Chamber to *Level Zone Manifold. Install* Vacuum Breaker at Highest Point per Manufacturers Recommendations.



Quick4 Plus Low-Profile Chambers:
34" W x 48" L x 8" H Each; Install 1 Zone: 4 Rows x 15 Chambers Long (60 Total). See STA Layout and Cross-Section for Additional Detail and Clarification. Full Length 1-1/2" Ø Sch. 40 PVC Pipe Suspended from the Top of Chambers per Manufacturers Recommendations (Typ. Each Lateral); Drill 1/8" Ø Holes @ 36" O.C. (Top of Pipe Typ. and Every Third on Bottom)

Primary Alternate Soil Treatment Area (STA) Location (Multiple Locations Exist Onsite)

Min. 500 Gal. Precast Concrete Pump Chamber per County Health Department Regulations (Use of Two Compartment 1,000 Gal. Septic Tank w/ Pump in Second Compartment is an Acceptable Alternative for the Pump Chamber. See Pump Chamber Detail on Page 5 for Additional Information). Pump Chamber Inlet Approx. 30" Below Existing Grade. Risers to Grade with Secure Access Cover (Min. 3" Above Finish Grade, Water Tight, Typ. All Septic Tank Access Locations). Exact Locations to be Field Determined.

Minor Rotation or Curvature (ie. Less Than 15°) of the Soil Treatment Area (STA) Beds to Best Fit the Site Topography is Acceptable (i.e. Parallel to Site Contours). STA shall Maintain the Approximate Orientation Shown w/ Respect to Buildings and Lot Lines. Contact Engineer for Clarification.

* *Indicates Geoquest, LLC. Profile Pit Test Locations*
Location from Northeast Lot Corner to Profile Pit #1: S. 77° W. - 455'
Location from Profile Pit #1 to Profile Pit #2: N. 80° E. - 95'
GPS Coordinates Profile Pit #1: N. 38° 56' 51.14" , W. 104° 34' 45.47"
GPS Coordinates Profile Pit #2: N. 38° 56' 51.29" , W. 104° 34' 44.28"

Site Plan

Install Drainage Swale on All Uphill Sides to Ensure Surface Runoff is Diverted Around the STA. Downspouts *near the* STA Shall Discharge into the Swale or Extended Beyond the STA.

GEOQUEST, LLC.
6825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
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FAX: (719) 481-9204

COLORADO REGISTERED CHARLES E. MILLIGAN 34608 PE

Project: 17-0447	**Project Name and Address**
Sheet: 2 of 5	Dream Team Construction
Date: 29 Dec. 2017	7950 Mallard Drive
Revised:	*Lot # 1, Filing # 1,*
Drawn by: mas	Barfield Subdivision
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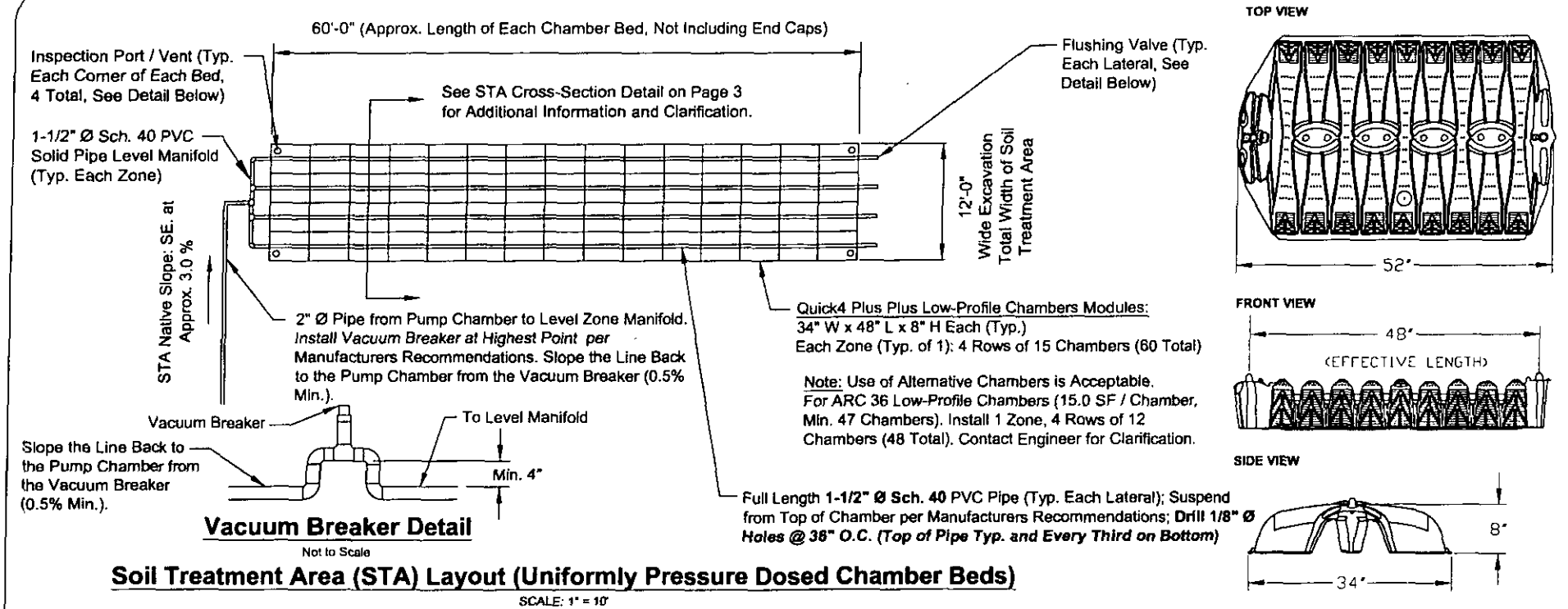


Vacuum Breaker Detail

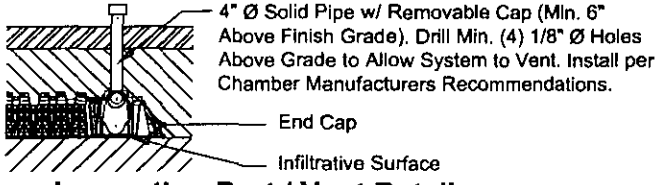
Not to Scale

Soil Treatment Area (STA) Layout (Uniformly Pressure Dosed Chamber Beds)

SCALE: 1" = 10'

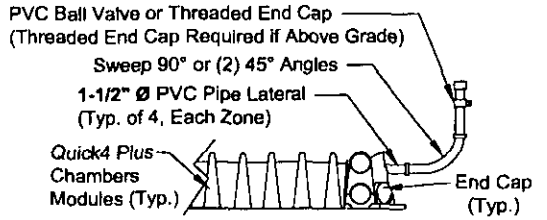
Quick 4 Plus Low Profile Details

Not to Scale



Inspection Port / Vent Detail

Not to Scale



Min. 6" Above Finish Grade or May be Placed in Small Valve Box if Desired. This Will Provide Access to Flush Each Lateral, Allowing for Removal of the Build-Up of Organics (System Maintenance).

Flushing Valve Detail

Not to Scale

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SUITE 101
COLORADO SPRINGS, CO
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FAX: (719) 481-9204

COLORADO REGISTERED CHARLES E. MILLIGAN 34608 PROFESSIONAL ENGINEER

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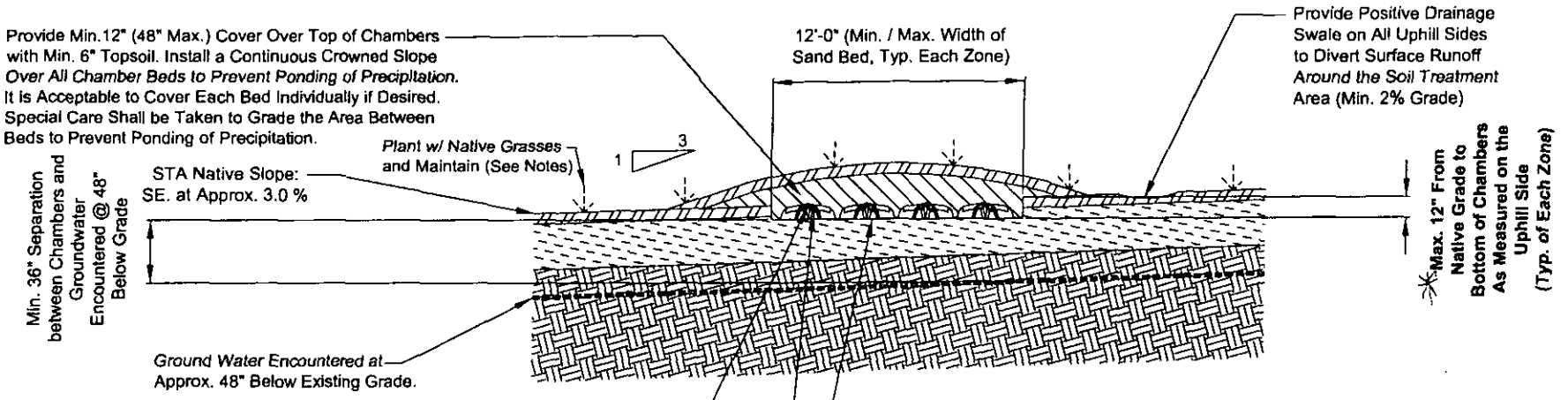

Note: Use of Alternative Chambers is Acceptable. For ARC 36 Low-Profile Chambers (15.0 SF / Chamber, Min. 47 Chambers). Install 1 Zone, 4 Rows of 12 Chambers (48 Total). Contact Engineer for Clarification.

Soil Treatment Area (STA) Cross-Section (Uniformly Pressure Dosed Chamber Beds)

Not to Scale

- Topsoil (Min. 6" on Final Cover). Native Topsoil (Approx. 6", Remove from STA and Stockpile for Re-Use on Final Cover)
- Approved Granular Material to Provide Cover (Min. 12", Max. 48" Total, Including Topsoil)
- Native Soil - Sandy Loam (USDA 2, Approx. 6" - 32" Below Existing Grade)
- Native Soil - Loamy Sand (USDA 1, Approx. 32" - 8' Below Existing Grade)

Imported Clean Well Graded Sand Fill Under Chamber Bed per EPCHD Specifications Below As Necessary to Maintain Min. 36" to Groundwater at 48" Below Native Grade. Sand Should Not be Required if STA is Installed Parallel to Site Contours.

NOTES:

All Work per El Paso County Board of Health Regulations Chapter 8: On-Site Wastewater Treatment Systems (OWTS) Criteria.

Contact Soil Conservation Service or County Extension Agent for Vegetation Best Suited for the Area. Grasses are Best. Trees and Shrubs May Damage/Block Pipes. Vegetation Shall Be Maintained and Mowed to Prevent Formation of Bio-Matting. Do Not Pave Over the Soil Treatment Area.

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8825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
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OFFICE: (719) 481-4560
FAX: (719) 481-9204

COLORADO REGISTERED CHARLES E. MILLIGAN 34608 PROFESSIONAL ENGINEER

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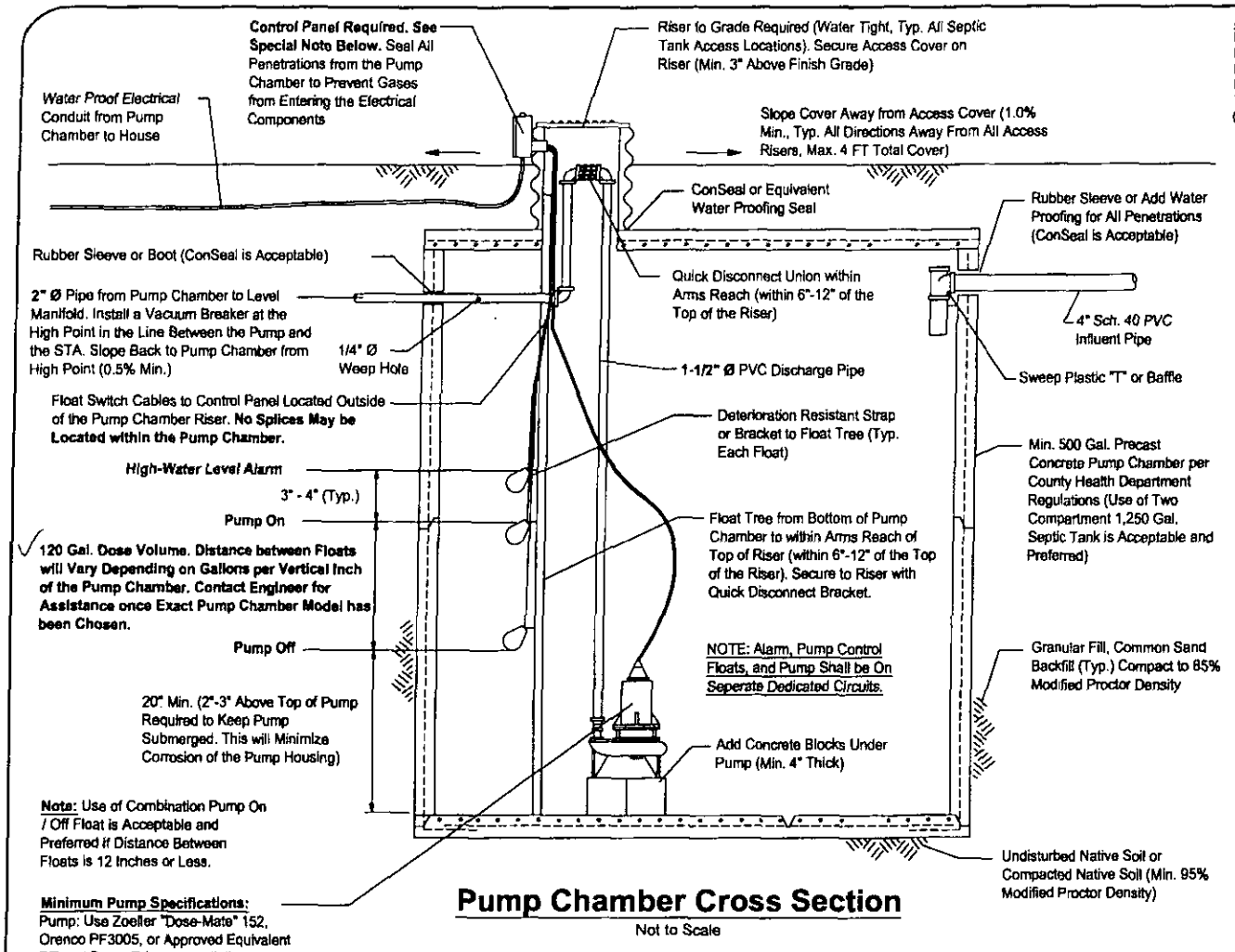

Pump Chamber Cross Section

Not to Scale

Minimum Pump Specifications:
Pump: Use Zoeller "Dose-Mate" 152, Orenco PF3005, or Approved Equivalent
Effluent Pump Prior to Installation (May be Revised Once System has Been Plumbed and Exact Site Conditions are Verified)
Design Flow Rate = Min. 32.6 GPM
Total Dynamic Head (TDH) = Approx. 21.1 ft
Operating (Residual) Head = 4 FT
Dose Volume = 120 Gallon Dose Required

Special Note: Per El Paso County Board of Health Regulations Chapter 8: On-Site Wastewater Treatment Systems (OWTS) Criteria, the *Pump System Shall have a Mechanism for Tracking Both the Amount of Time the Pump Runs (Pump Run Counter) and the Number of* Cycles the Pump Operates (Event Counter). A Manual Pump Run Switch is Required. A Control Panel is the Most Common Device to Fulfill these Requirements (as well as the Alarm System).

***We Recommend the use of the Orenco MVP, Aquaworlx IPC, SJE-Rhombus or Approved Equivalent Control Panel Equipped with a* Manual Pump Run Switch, Pump Run Counter, and Event Counter. Engineer to Approve Prior to Installation.**

Electrical Code Requirements: All Electrical Work, Equipment, and Material Shall Comply with the Requirements of the Currently Applicable National Electrical Code as Designated by the State Electrical Board Rules and Regulations (3 CCR 710-1) on the Date of the Permit. The Electrical Installer Shall Contact the Electrical Inspector for the Location where the OWTS is Constructed. All Electrical Components Shall be Protected from Moisture and Corrosive Gases. Special Care Shall be Taken to Ensure the Electrical Requirements of Each Component Meet Manufacturer Specifications (i.e. Voltage and Amperage).

1. All Wire Splices Shall be Enclosed in the Control Panel. The Control Panel Shall be Placed in an Accessible Location Positioned Outside of the Tank Riser.
2. All Wires Shall be Spliced with Corrosion-Resistant, Watertight Connectors. **NO WIRE SPLICES ARE ALLOWED WITHIN THE PUMP CHAMBER OR RISER.**
3. Conduits Shall be Sealed to Prevent Gases from Entering the Control Panel *and Electrical panel.*
4. A Means to Disconnect the House Power Supply to OWTS Components Shall be Provided at the Control Panel.
5. The Branch Circuit Wire from the Building to the Control Panel Shall be a Minimum of 24" Below the Ground Surface. Lines Buried Less than 24" are Allowed, but Will be Required to be in Conduit or have Ground Fault Protection on the Circuit. Conduit from the Control Panel to the House is Strongly Recommended for All Wiring.
6. Conduit Risers for Physical Protection Must Extend Min. 18" Below Finish Grade.

Best Practices Guidelines: The Following "Best Practices" are Intended to Facilitate Maintenance and Servicing of the Electrical Components Associated with Lift Stations, Dosing Systems, and Treatment Units that are Part of an OWTS.

1. The "Quick Disconnect" for the Pump Discharge pipe (i.e. Union) Shall be Located within 6"-12" of the Top of the Riser(s). Electrical Lines at the Septic Tank, Dosing Tank, or Treatment Unit Must be Placed in such a Manner as to Protect them from *Damage During Backfill. Conduit from the Control Panel to the House is Strongly* Recommended for All Wiring
2. The Floats Shall be Secured to a Separate Float Tree with Approved Connecting Straps or Brackets that will Remain Secure Underwater and Not Deteriorate. Electrical Tape is Not Acceptable. Top of Float Tree to be within 6" - 12" of the Top of the Riser.
3. The Risers Shall be Secured to the Tank to Maintain the Riser in an Upright and Plumb Position. Special Care Shall be Taken During Backfill to Ensure Riser Maintains Upright and Plumb Position.
4. Control Panel Shall be Placed within "Line of Sight" of the Pump.
5. The Alarm, Pump Control Floats, and Pump Shall be Placed on a Separate Dedicated Circuits

GEOQUEST, LLC.
6825 SILVER PONDS HEIGHTS
SUITE 101
COLORADO SPRINGS, CO
80908

OFFICE: (719) 481-4560
FAX: (719) 481-9204

COLORADO REGISTERED CHARLES E. MILLIGAN 34609 PE 2 JAN 18

Project: 17-0447	Project Name and Address
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