

3/7/2025

Grove 4B LLC
15 N King Street Suite 3
Leesburg, VA 20176

Subject: Sewage Treatment System Construction Permit
PIN: 295473285
Permit: HDSP-2025-001592

The permit to construct an onsite sewage treatment system includes this approval letter and the approved plans prepared by Christopher Froemel., consisting of 16 pages, and dated 12/6/2024, which are attached. The application for a permit was submitted pursuant to 32.1-163.5 of the Code of Virginia which requires the Health Department to accept private soil evaluations and designs from a DPOR licensed onsite soil evaluator (OSE) or a professional engineer (PE) working in consultation with an OSE. The permitted system is certified as complying with the Board of Health's regulations by: Christopher Froemel OSE / PE # 1940001387 Phone # 703-856-6273. This permit is issued in reliance upon that certification. This permit is null and void if conditions are changed from those shown on the application, or the approved plans referenced above.

System Type: Alternative **

This permit is for a MicroFast .75 dispersing TL-3 effluent via pump to a shallow placed gravity trench onsite sewage system. System design is for 5 bedrooms. Maximum limit of 750 gallons per day residential strength effluent.

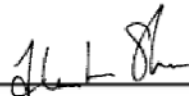
**If this permit is issued for an Alternative system, then it is the owner's responsibility to follow the operation and maintenance manual and abide by the requirements in 12VAC5-613-140, and Chapter 1067.04 of the Loudoun County Codified Ordinance.*

The Loudoun County Health Department must inspect and approve the system prior to backfill or covering the system. Installation inspection requests are to be made by the appropriately licensed sewage system installer; inspection requests should be made at least 24 hours in advance. In addition to the Health Department inspection, the certifying licensed professional must inspect the system and submit the appropriate documentation to the Health Department.

Prior to system use, all required inspections, documentation, and approvals must be completed and submitted to the Health Department; if applicable, the Department will issue an operation permit upon satisfactory completion of all regulatory requirements. This construction permit is transferrable until expired or deemed null and void (*A permit transfer form may be obtained from the Virginia Department of Health website for Water and Wastewater Services*).

To ensure compliance with all applicable local, state, and/or federal regulations, it is recommended that the Loudoun County Department of Building and Development and the Department of Planning and Zoning be contacted prior to acting on this permit. Building and Development may be contacted at 703-777-0220 or bad@loudoun.gov, and Planning and Zoning may be contacted at 703-777-0246 or dpz@loudoun.gov.

This permit to construct a sewage treatment system expires: 9/7/2026.

Signature:  _____

Print Name: Hannah Shaw (EHS)

3/07/2025

Grove 4B LLC
15 N King Street Suite 3
Leesburg, VA 20176

RE: Documents for Signature and Permit
PIN: 295473285 – Quarter Branch Rd LCTM: /10//51/////4B Application: HDSP-2025-001592

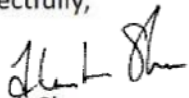
Dear Owners:

Enclosed are the following two documents: sewage treatment system construction permit for your onsite sewage treatment system, and State Notice of Alternative Onsite Sewage System.

The State Notice of Alternative Onsite Sewage System requires the signature(s) of the legal owner(s) of the property as shown on the current deed of record. The signature(s) must be notarized. The State Notice of Alternative Onsite Sewage System must be recorded at the Loudoun County Clerk of the Courts office with the deed of the parcel for which the system serves. You are responsible for having said document recorded. Verification of the recordation will be required by the Loudoun County Health Department, and it must be recorded prior to issuance of an operations permit.

If you have any further questions about the documents or the process, please contact me at 571-528-3844 or the front desk at (703) 777-0234.

Respectfully,



Hannah Shaw
Environmental Health Specialist Sr.
Onsite Sewage Treatment and Well Water Division
Loudoun County Health Department

cc: file

Enclosures

- 1- Sewage disposal construction drawings permit and construction
- 2- State Notice of Alternative Onsite Sewage Disposal System

STATE NOTICE OF ALTERNATIVE ONSITE SEWAGE SYSTEM

OWNER: GROVE 4B, LLC, a Virginia limited liability company

COUNTY: LOUDOUN

ELECTION DISTRICT: CATOCTIN

PROPERTY DESCRIPTION: Quarter Branch Road (lot 4B)

PARCEL IDENTIFICATION NUMBER (PIN): 295473285

SEPTIC PERMIT NUMBER: HDSP-2025-001592

TO WHOM IT MAY CONCERN:

The Loudoun County Health Department, 1 Harrison Street, S.E., Leesburg, Virginia 20175, has approved an alternative onsite sewage system ("**Alternative System**") for use for the property identified above as long as such Alternative System is properly operated, maintained, and performs in accordance with the *Regulations for Alternative Onsite Sewage Systems* (12VAC5-613-10 et seq.), as amended, and Chapter 1067 of the Codified Ordinances of Loudoun County, as amended. The Alternative System approved for the above-identified property has components that are described as follows:

A MicroFast .75 dispersing TL-3 effluent via pump to a shallow placed gravity trench onsite sewage system

The Permit identified above is issued in accordance with the provisions of Title 32.1, Chapter 6 of the *Code of Virginia*, as amended, and 12VAC5-610-340 of the *Sewage Handling and Disposal Regulations* of the Virginia Department of Health, as amended. The continued validity of this Permit is contingent upon compliance with the operations and maintenance requirements contained in the *Regulations for Alternative Onsite Sewage Systems* of the Virginia Department of Health (12VAC5-613-10 et seq.), as amended, and Chapter 1067 of the Codified Ordinances of Loudoun County, as amended. The Owner(s) of the property identified above is advised to be aware of the operation and maintenance instructions for the Alternative System and to follow them. Copies of the operation and maintenance instructions can be found by contacting the Loudoun County Health Department.

Title 15.2-2157 of the *Code of Virginia* requires you to record in the land records a reference to the applicable maintenance regulations for each component of the Alternative System, which shall be transferred with the title to the property upon its sale or transfer. Before the Permit for the Alternative System will be issued, you must record this Notice in the land records of the Clerk of the Circuit Court of Loudoun County. You must furnish to the Loudoun County Health Department certification from the Clerk of the Circuit Court showing the deed book number and page (or instrument number) upon which this Notice was recorded. This notice must be indexed in the grantor index under your name in the land records.

I have read and understand this State Notice of Alternative Onsite Sewage System.

OWNER: GROVE 4B, LLC, a Virginia limited liability company

By: _____ (SEAL)
Signature of Owner

Name (Printed) _____
Title: _____

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, To-wit:

I, the undersigned Notary Public, in and for the jurisdiction aforesaid, do hereby certify that _____
as _____ of _____ whose name is signed to the foregoing Agreement,
appeared before me and personally acknowledged the same in my jurisdiction aforesaid.

GIVEN under my hand and seal this ___ day of _____, 20 ___.

My commission expires: _____
Registration Number: _____

Notary Public

Application Completeness Check List
Record Number: HDSP-2025-001592

Date: February 21, 2025

Required	Accepted	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Specification Page
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sanitary Survey
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	OSE/PE Cover Page/Certification Statement
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Survey Plat
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Site Soil Evaluation
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Construction Drawing
<input type="checkbox"/>	<input type="checkbox"/>	Petition for VDH Services
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Site Plan
<input type="checkbox"/>	<input type="checkbox"/>	Conditional Assessment Form
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Plan Review
<input type="checkbox"/>	<input type="checkbox"/>	WASTEWATER CHARACTERIZATION

Application Comments

Christopher Froemel
January, 10 2025

CFR

X

RECEIVED BY

FEB 21 2025

Septic and Well Application Check List

(Complete prior to accepting application)

ENVIRONMENTAL HEALTH DEPT PIN 295473285

Permit # HD SP. 2025.001592
F50

General Information

- Type of application is indicated
- Applicant and owner information complete
- Please ask for owner's contact #
- Directions indicated
- Site address indicated *partial*
- Name of subdivision (if applicable)
- PIN # indicated
- Number of marketable bedrooms
- Type of sewage disposal indicated
- Type of water indicated
- Type of construction
- Addition check information indicated (if applicable)
- Legal owner's name, signature and date signed *
- Correct fees paid, receipt given and recorded *
- Application marked with received date

Well/Septic – OSE/WWSP/PE Plans Checklist

- Certification statement provided & signed
- System specifications provided
- Construction drawing provided
- Soils work provided (new and old) (Septic)
- Surveyed plat/waiver* (Septic) &/or site plan** (Well)
- Sanitary survey
- Condition Assessment Form (SR/VU)

Y or **N** Plan Review Fee Required

Comments: _____

Remind applicant to mark property lines and house.

*If needed ask for EHS help!

** Well applications are required to have a site plan. Surveyed plat is not required but can be accepted in addition to or in lieu of the site plan. (Site plans/surveys are required as part of the application not as part of the OSE/PE/WWSP package).

FRONT COUNTER APPLICATION CHECKED BY:

SIGNATURE: *Sharon Banks*

Innovative Environmental Services

PO Box 56
Toms Brook Va 22660
Phone: 703-856-6273
InnovativeEnv@outlook.com

Revisions received 3/6/2025

Signature Affidavit for Loudoun County Environmental Health Submissions

Property Address: Quarter Branch Road

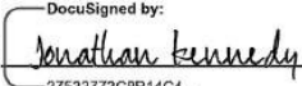
Pin #: 295-47-3285

Subdivision: _____ Lot #: _____

I authorize Innovative Environmental Services to sign as my agent any applications pertaining to Well and Septic Systems on the properties that we are currently working on.

I also give permission to the Virginia Department of Health and Innovative Environmental Services to enter on to the property described during normal business hours for the purpose of processing the application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved.

Legal Owner Jonathan Kennedy
(Print Name, Required Current Legal Owner)

Signature  _____
27533773C8B14C4...

Date 11/15/2024

Commonwealth of Virginia

Application for: Sewage System Water Supply

VDH Use only
Health Department ID# _____
Due Date _____

Owner Grove 4B LLC
Mailing Address 15 N King Street Suite 3
Leesburg, VA 20176
Agent Christopher S. Froemel - Innovative Environmental Services
Mailing Address PO Box 56
Toms Brook VA 22660
Site Address Quarter Branch Road
Lovettsville VA, 20180

Phone 202-750-4050
Phone _____
Fax Kennedy@KennedySellsVA.com
Phone _____
Phone 703-856-6273
Fax _____
Email InnovativeEnv@outlook.com

Directions to Property: W Market St, R Leesburg Pke, R Charles Town Pke, R Charles Gap Rd, L Main St, L First St, L Old Wheatland Rd, R Milltown Rd, R Lovettsville Rd, L Quarter Branch Rd, Lot on Left
Subdivision Grove Family Section _____ Block _____ Lot 4B
Tax Map 295-47-3285 Other Property Identification _____ Dimension/Acreage of Property 1.56

Sewage System

Type of Approval: Applicants for new construction are advised to apply for a certification letter to determine if land is suitable for a sewage system and to apply for a construction permit (valid for 18 months) **only when ready to build.**

Certification Letter Construction Permit Voluntary Upgrade Repair Permit Minor Modification

Proposed Use:

Single Family Home (Number of Bedrooms 5) Multi-Family Dwelling (Total Number of Bedrooms _____)
Other (describe) _____

Basement? Yes No Walk-out Basement? Yes No Fixtures in Basement Yes No

Conditional permit desired? Yes No If yes, which conditions do you want?

Reduced water flow Limited Occupancy Intermittent or seasonal use Temporary use not to exceed 1 year

Do you wish to apply for a betterment loan eligibility letter? Yes No *There is a \$50 fee for determination of eligibility.

Water Supply

Will the water supply be Public or Private? Is the water supply Existing or Proposed?

If proposed, is this a replacement well? Yes No If yes, will the old well be abandoned? Yes No

Will any buildings within 50' of the proposed well be termite treated? Yes No

Well Type (e.g. domestic use, agricultural, irrigation, etc.) Domestic

All Applicants

Is this property intended to serve as your (owners) principal place of residence? Yes No

All applications must be accompanied by private sector evaluations and designs, unless a petition for VDH services is approved. Is a Petition for Service form attached? Yes No

In order for VDH to process your application for a sewage system you must attached a plat of the property and a site sketch. For water supplies, a plat of the property is recommended and a site sketch is required. The site sketch should show your property lines, actual and/or proposed buildings and the desired location of your well and/or sewage system. When the site evaluation is conducted the property lines, building location and the proposed well and sewage sites must be clearly marked and the property sufficiently visible to see the topography. I give permission to the Virginia Department of Health to enter onto the property described during normal business hours for the purpose of processing this application and to perform quality assurance checks of evaluations and designs certified by a private sector Onsite Soil Evaluator or Professional Engineer as necessary until the sewage disposal system and/or private water supply has been constructed and approved.

Christopher Froemel

12/6/2024

Signature of Owner/ Agent

Date

OSE/PE Report For:

Construction
PermitRepair
PermitVoluntary Upgrade
PermitCertification
LetterSubdivision
Approval

Property Location:

911 Address: Quarter Branch Road City: Lovettsville
 Lot 4B Section _____ Subdivision Grove Family
 GPIN or Tax Map # 295-47-3285 Health Dept ID # _____
 Latitude _____ Longitude _____

Applicant or Client Mailing Address:

Name: Grove 4B LLC
 Street: 15 N King Street Suite 3
 City: Leesburg State VA Zip Code 20176

Prepared by:

OSE Name Christopher Froemel License # 1940001387
 Address Po Box 56
 City Toms Brook State VA Zip Code 22660
 PE Name _____ License # _____
 Address _____
 City _____ State _____ Zip Code _____

Date of Report 12/6/24 Date of Revision #1 3/5/2025
 OSE/PE Job # 693 Date of Revision #2 _____

Contents/Index of this report (e.g., Site Evaluation Summary, Soil Profile Descriptions, Site Sketch, Abbreviated Design, etc.)

Common Wealth of Virginia Application

OSE-PE Application
Well design and Well Drawing
System Specs & Construction Drawing

Pumps Specs and MicroFast Specs

Soils Summary and Profile page
Abbreviated Design
Site Sketch and Sanitary Survey

Certification Statement

I hereby certify that the evaluations and/or designs contained herein were conducted in accordance with the *applicable provisions of the Sewage Handling and Disposal Regulations (12 VAC5-610), the Private Well Regulations (12 VAC5-630), the Regulations for Alternative Onsite Sewage Systems (12VAC5-613)* and all other applicable laws, regulations and policies implemented by the Virginia Department of Health. I further certify that I currently possess any professional license required by the laws and regulations of the Commonwealth that have been duly issued by the applicable agency charged with licensure to perform the work contained herein. The potential for both conventional and alternative onsite sewage systems has been discussed with the owner/applicant.



The work attached to this cover page has been conducted under an exemption to the practice of engineering, specifically the exemption in Code of Virginia Section 54.1-402.A.11

I recommend that a (select one): construction permit certification letter subdivision approval be (select one) Issued
 repair permit voluntary upgrade Denied

OSE/PE Signature Christopher Froemel Date 12/6/2024

System Specifications

VDH Use Only
HDIN: _____

Application Information

Name: Grove 4B LLC Address: 15 N King Street Suite 3 Leesburg, VA 20176
Phone: 202-750-4050

Location Information

Tax Map/GPIN #: 295-47-3285 Property Address: Quarter Branch Road Lovettsville VA. 20180
Subdivision: Grove Family Section: _____ Block: _____ Lot: 4B
Directions: W Market St, R Leesburg Pke, R Charles Town Pke, R Clarkes Gap Rd, L Main St, L First St, L Old Wheatland Rd, R Milltown Rd, R Lovettsville Rd, L Quarter Branch Rd, Lot on Left

General Information

Property Type (e.g. residential): Residential Number of Bedrooms: 5
Daily Flow: 750 gpd Conditions: None
Notes: _____

Sewer Line

Diameter: 4" in. Material: Schedule 40 PVC (or equivalent) Notes: Slope = 1.25" per 10' minimum

Pretreatment Unit(s)

Treatment Level: TL-3 Septic Tank Capacity: 1500 gallons
Number of Septic Tanks 1 Size of Septic Tank(s) _____ gallons

Per the Sewage Handling and Disposal Regulations, check which option(s) chosen:

Septic tank with inspection port Septic tank with effluent filter Reduced maintenance septic tank

Secondary treatment device(s), if applicable: MicroFast .75

Notes: See MicroFast Spec Pages

Conveyance Line

Conveyance Method: Pump System with 1,500 gallon Tank
If pumping, include pump specifications sheet.
Material: Sch 40 Diameter: 2"
Notes: See Pump Specs Pages

Distribution Method and Header Lines

Distribution Method: Distribution Box
No. of boxes: 2 No. of outlets: 8
Surge or splitter box required: Yes No
Header Line Material: 4" ID 1500 lb crush strength Fall= 2" per 100'

Percolation Lines/Absorption Area

Dispersal Method (e.g. laterals, pad, mound): Laterals

If using pressure dispersal (e.g. drip), include pressure dispersal specifications sheet.

No. of laterals/pads: 8 Length of lateral(s)/pad(s): 75 ft. Width of lateral(s)/pad(s): 24 in.

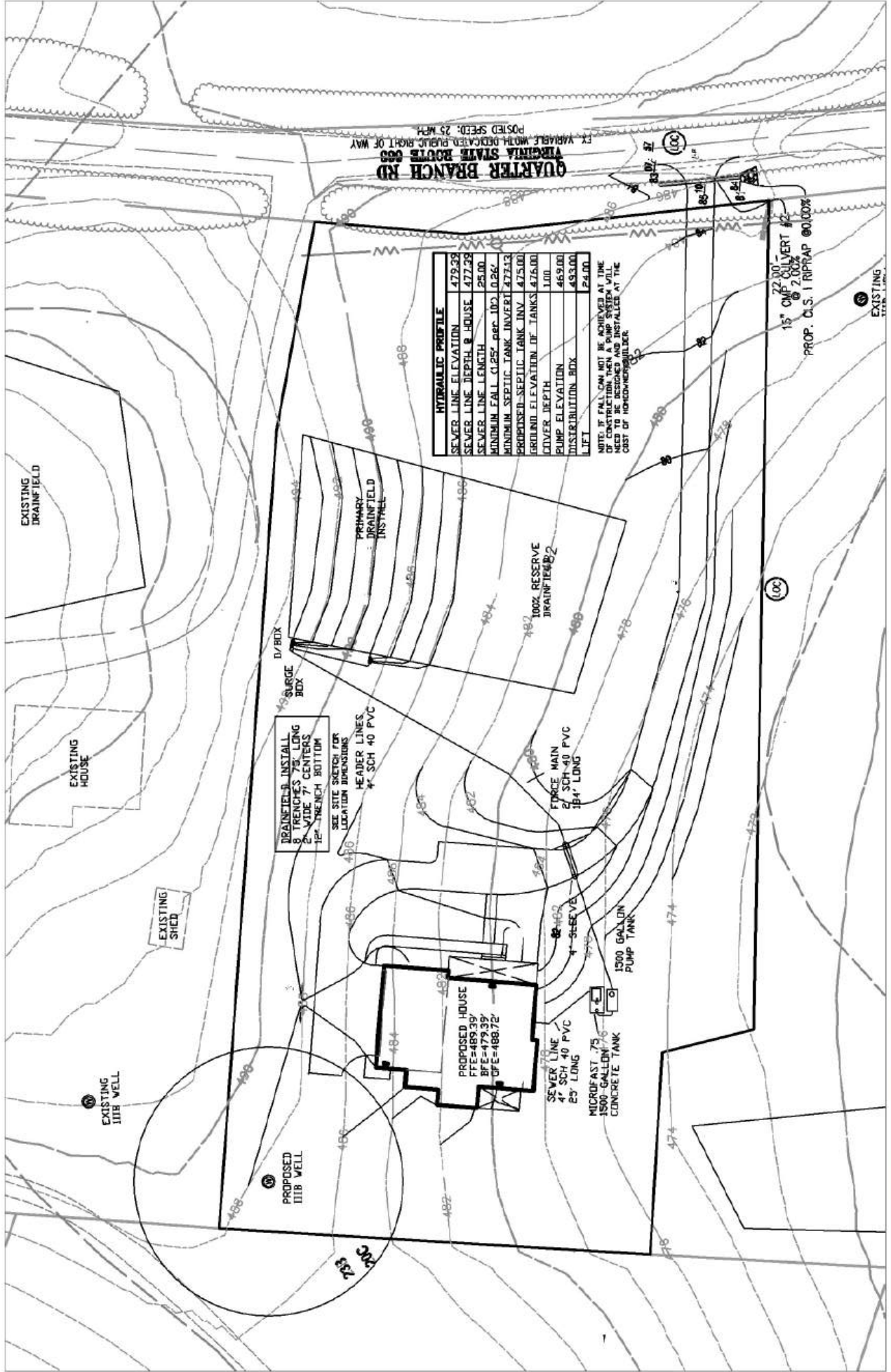
Center to center spacing: 7 ft. Installation depth: 12 in. Aggregate depth: 13 in.

Size/Type of Aggregate: Clean gravel/crushed stone from 1/2 inch to 1-1/2 inches Lateral/pad slope: 2 to 4" in. per 100 ft.

Reserve Area Provided: 100 % Notes: Aggregate Size = 0.5 - 1.5" clean washed stone. May use EZ flow or Bundle Pipe.

Please Note: Cover Drainfield area with 12"+ of clean fill material after percolation lines are installed

SDS CONSTRUCTION DRAWING



INNOVATIVE ENVIRONMENTAL PO Box 56 Toms Brook, Virginia 22660 703-856-6273	Client: Grove 4B LLC	PIN: 312-45-5957	
	Project: Quarter Branch Rd	Lot: 4B	COUNTY
	Date: March 2025	Scale: 1"=50'	Loudoun

DRAINFIELD DOSE PUMP (TIMED DOSE)

- THE ELECTRICAL MOTOR CONTROL CENTER AND MASTER DISCONNECT SWITCH SHALL BE PLACED IN SECURE LOCATION ABOVE GRADE AND REMOTE FROM THE PUMP STATIONS
- EACH MOTOR CONTROL CENTER SHALL BE PROVIDED WITH A MANUAL OVERRIDE SWITCH
- A HIGH WATER ALARM WITH REMOTE SENSING AND ELECTRICAL CIRCUITRY SEPARATE FROM THE MOTOR CONTROL CENTER CIRCUITRY SHALL PROVIDED
- THE ALARM SHALL BE AUDIOWISUAL AND SHALL ALARM IN AN AREA WHERE IT MAY BE EASILY MONITORED
- THE ELECTRICAL CONNECTIONS SHALL BE MADE HARDWIRED IN ELECTRICAL JUNCTION BOX
- ALL PIPING SHALL BE PRESSURE TYPE WITH PRESSURE TYPE FITTINGS
- USE GLUE DR SCREW FITTINGS ONLY. DO NOT USE COMPRESSION FITTINGS
- FORCE MAIN SHALL BE PLACED DEEP ENOUGH TO PREVENT FREEZING
- PUMP CHAMBER SHALL BE LEVEL AND WATER TIGHT

DRAINFIELD PUMP DOSING CALCULATIONS (TIMED DOSE)
PREFERRED CONTROL PANEL LOCATION IS OUTSIDE

PUMP CHAMBER SIZE	1500 gal	Pump:	Zoeller 140
GALLONS PER CYCLE	236 gal		
CYCLES PER DAY	2.23		
OPERATIONAL GPM	45 gpm	Run Time:	5 Min.
PUMP CYCLE TIME (GALS PER CYCLE / GPM)		Rest Time:	10 Hrs.
Prince William Must be less than 50 gpm			

Timer panel required. Limit flow to 525 GPD

A	Number of bedrooms	5
B	Number of Occupants	10
C	Design flow in gallons per day	750
D	Minimum pump capacity in gallons per minute using 2" force main	21 gpm
E	Maximum pump capacity in gallons per minute using 2" force main	84 gpm
F	Relative elevation of force main at surge basin / distribution box	493 ft
G	Relative elevation of pump off float switch	469 ft
H	Static head in feet (F-G)	24 ft
I	Equivalent length of 2" pipe in feet for this system (all materials are 2")	
1.	Length of 2" force main	184'
2.	4 90 degree bends (7' per bend)	28'
3.	4 45 degree bends (4' per bend)	16'
4.	1 check valve	28'
5.	1 gate valve	2'
	Total (1+2+3+4+5)	258'
J	Friction loss per 100' of 2" pipe (C=150)	0.80 feet/100'
K	Number of 100' pipe increments (J/100)	2.58
L	Friction head for this system (J*K)	2.07
M	Total Dynamic Head (H+L)	26.1
N	Pump chamber volume in gallons	1500 gal
O	Gallons per inch in pump chamber inside length = 114.0" inside width = 57"	27.27 gal/inch
P	Number of soil absorption trenches	8
Q	Length of soil absorption trenches	75
R	Total linear feet of percolation piping (P*Q)	600
S	Volume pumped for enhanced flow dose (R x 0.653 x 60%)	236 gal
T	Volume pumped per pump cycle in inches (S/O)	8.65 inches
U	Minimum emergency storage in gallons (C/4)	188 gal
V	Minimum emergency storage in inches (U/O)	6.9 inches

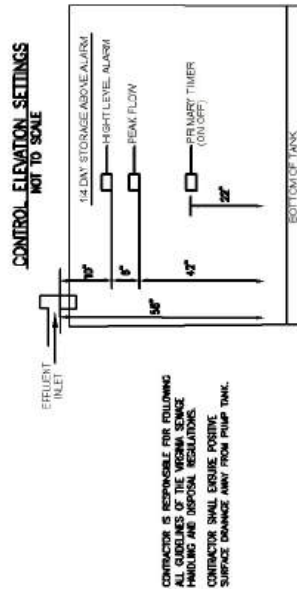
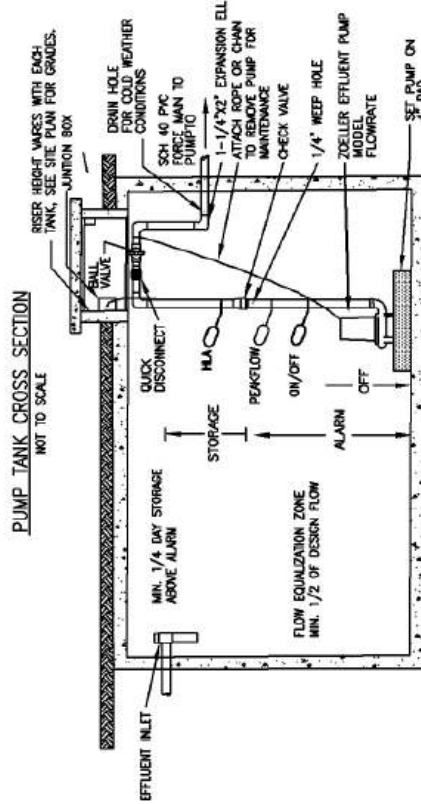
Pump Selection

Pump Must Supply Minimum of: 21 gpm and maximum of: 84 gpm

Pump selection based on operating curve: Zoeller 140

Anticipated Pump Rate From System Versus Pump Curve: 46 gpm

* NOTE: TDH should be confirmed at the time of installation



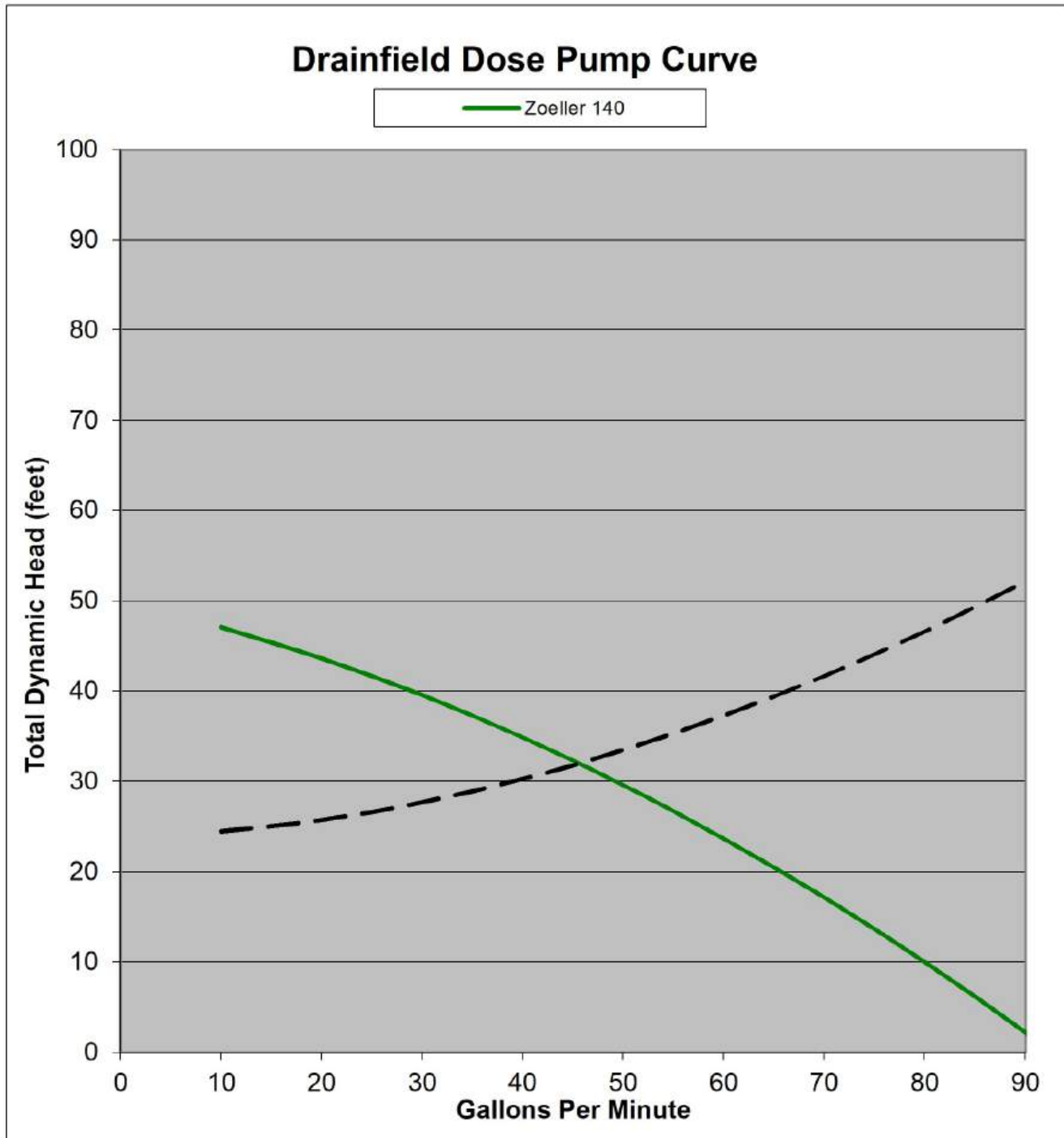
CONTRACTOR IS RESPONSIBLE FOR FOLLOWING ALL LOCAL AND STATE REGULATIONS REGARDING PERMITS, HOLDING AND DISPOSAL REGULATIONS. CONTRACTOR SHALL OBTAIN PERMITS. SURFACE DRAINAGE AWAY FROM PUMP TANK.

Control Panel
 Unless otherwise specified, use American SEQ AB124 J LOP or equal panel
 USE PW panel in Prince William County and Duplex, FX panel in Fairfax

Client: Grove 4B LLC	PIN: 312-45-5957
Project: Quarter Branch Rd	Lot: 4B
Date: December 2024	Scale: X
County: Loudoun	

INNOVATIVE ENVIRONMENTAL

Po Box 56
 Toms Brook, Virginia 22660
 703-856-6273



Pump Selection

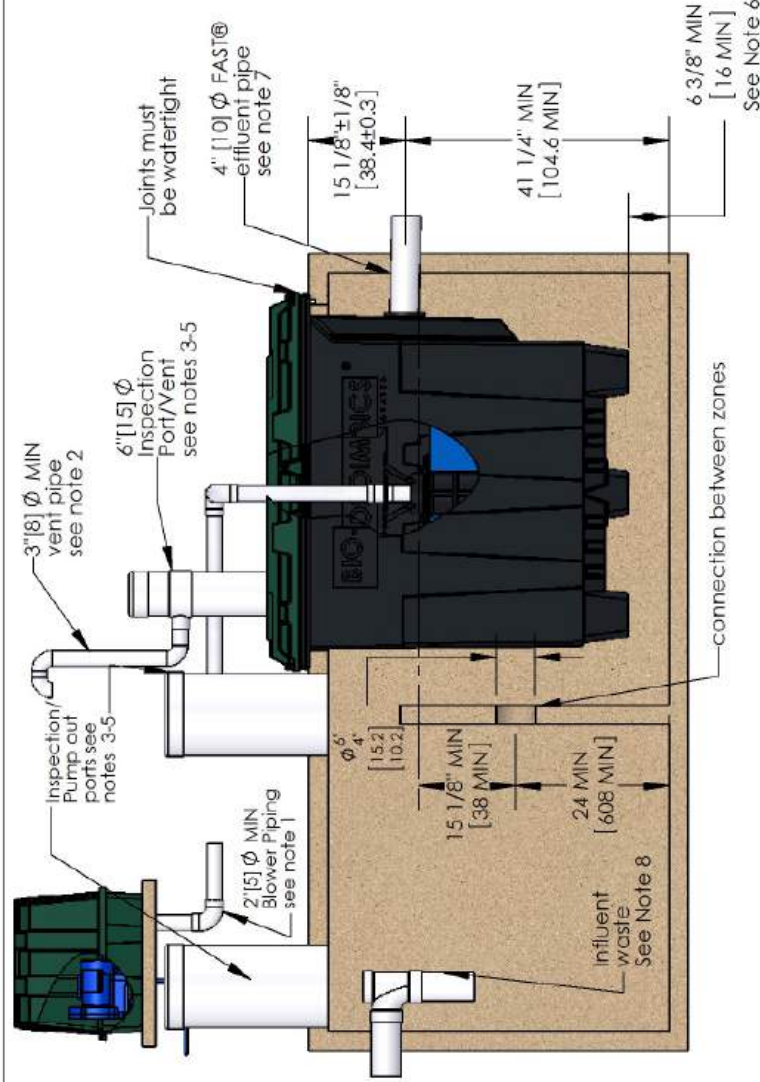
Pump Must Supply Minimum of 21 gpm and maximum of 84 gpm

Pump selection based on operating curve: **Zoeller 140**

Anticipated Pump Rate From System Versus Pump Curve: **46 gpm**

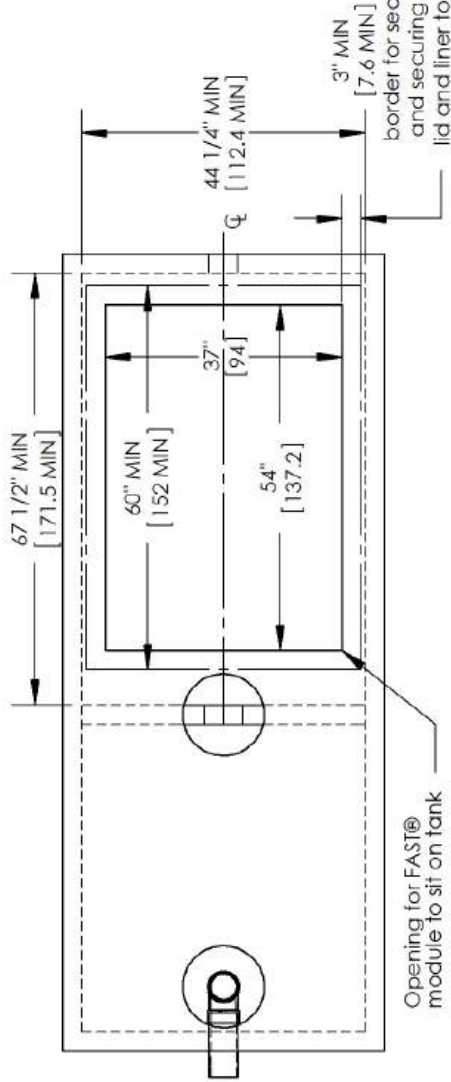
NOTES

1. Airline piping to FAST® may not exceed 100 FT [30m] total length and have a maximum of 4 elbows in the piping system. For distances greater than 100 FT [30m] consult factory. Blower must be located above flood levels on a concrete base 26" X 20" X 2" [65 X 50 X 5cm] min.
2. Vent to desired location and cover opening with a vent grate with at least 7 sq in. [45 sq. cm] open surface area. Secure with stainless steel screws. Vent piping must not allow condensate build up or create back pressure. Vent must be above finished grade or higher (see sheet 4 of 4).
3. All appurtenances to FAST® (e.g. tanks, access ports, electrical, etc.) must conform to all applicable country, state, province, and local plumbing and electrical codes. Pump out access shall be adequate to thoroughly clean out both zones.
4. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
5. Tank, piping, conduit, etc. are provided by others. Blower control system by Bio-Microbics, Inc. See Installation Manual.
6. If less than the specified minimums are considered necessary, consult factory for guidance.
7. All piping and ancillary equipment installed after FAST must not impede or restrict free flow of effluent.
8. The tank(s) shall be designed to prevent air passage between the settling zone/tank and the treatment zone and preventing an air lock. Examples include a baffle wall sealed to the lid or treatment zone inlet line with a pipe cap. Consult factory for guidance.
9. Installations using a FAST® system lid are capable of withstanding AASHTO H-10 equivalent loads. Any installation in which a FAST lid is buried deeper than 3 feet, or where additional loading conditions may occur, a professional engineer should be consulted. FAST® with feet option should be considered. Refer to Installation Manual for more details.
10. Specialized treatment levels may require specific features to be incorporated into the design. Consult factory for guidance.



Settling Zone
37.5 Gallon MIN [1700L MIN]

Treatment Zone
625 Gallon MIN [2400L MIN]



Opening for FAST® module to sit on tank

border for sealing and securing the lid and liner to tank

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF BIO-MICROBICS, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF BIO-MICROBICS, INC. IS PROHIBITED. DESIGN AND INVENTION RIGHTS ARE RESERVED IN THE INTEREST OF TECHNOLOGICAL ADVANCEMENT, ALL PRODUCTS ARE SUBJECT TO DESIGN AND/OR MATERIAL CHANGE WITHOUT NOTICE.

BIO-MICROBICS © 2013

DO NOT SCALE UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN./IN [± 0.05 CM/CM]	IB	DATE	DRAWING NUMBER MicroFAST® 0.75 FAST Unit	SHEET 1 OF 4
	NAME	DATE		
DRAWN	CYC	12/18/2006	MicroFAST® 0.75 with lid	REV. INH-07-D
CHECKED	PF	9/18/2013	REVISED 9/18/2013	



Specifications for MicroFAST 0.75 Wastewater Treatment System

1. GENERAL
The contractor shall furnish and install (1) MicroFAST@0.75 treatment system as manufactured by Bio-Microbics, Inc. The treatment system shall be complete with all needed equipment as shown on the drawings and specified herein.

The principal items of equipment shall include FAST@ system insert, leg extensions, or lid, blower assembly, blower controls and alarms. All other items will be provided by others. The MicroFAST 0.75 unit shall be situated within a 625 Gallon[2400L] minimum compartment as shown on the drawings. Suggested maximum seifling zone is (1X) the daily flow. Tank must provide adequate pump out access and conform to local, state, and all other applicable codes. The contractor shall coordinate the proper fabrication of the tank between the tank and FAST system suppliers as well as the installation of the FAST unit, and delivery to the job site.

2. OPERATING CONDITIONS

The MicroFAST 0.75 treatment system shall be capable of treating the wastewater produced by typical family activities (bath, laundry, kitchen, etc.) ranging from (1) one to (11) eleven persons and not to exceed 750 US Gallons per day (2800L/PD) provided the waste contains nothing that will interfere with biological treatment. The FAST system is a biological treatment system not meant for non-biodegradable or industrial wastewater.

3. MEDIA

The FAST media shall be manufactured of rigid PVC, polyethylene, or polypropylene and it shall be supported by the polyethylene insert. The media shall be fixed in position and contain no moving or wearing parts and shall not corrode. The media shall be designed and installed to ensure that sloughed solids descend through the media to the bottom of the septic tank.

4. BLOWER

The MicroFAST 0.75 unit shall come equipped with a regenerative type blower capable of delivering 17-25 CFM [31-46m3/hr]. The blower assembly shall include an inlet filter with metal filter element. The blower shall be mounted outside the tank on a contractor supplied concrete base. Blower piping to the tank shall use non-corrosive material (PVC, Galvanized, or Stainless Steel). Do not run galvanized pipe inside the treatment tank. Refer to Installation Manual for further details.

5. REMOTE MOUNTED BLOWER

The blower must not set in standing water and its elevation must be higher than the normal flood level. A two-piece, rectangular housing shall be provided. The discharge air line from the blower to the MicroFAST System, shall be provided and installed by the contractor.

6. ELECTRICAL

The electrical source should be within 150 feet [45 meters] of the blower, consult local codes for longer wiring distances. All wiring must conform to all applicable codes(IEC, NEC, etc.). Wiring distances must prevent significant voltage loss. Input power on 60Hz electrical systems 110/220VAC, 1Ø, 3.5/1.7 FLA, on 50 Hz electrical systems 220VAC, 1Ø, 1.9 FLA. Other voltages and phase are also available. Actual power consumption varies with site conditions. All conduit and wiring shall be supplied by contractor.

7. CONTROLS

The control panel provides power to the blower with an alarm system consisting of a visual and audible alarm capable of signaling blower circuit failure and high water conditions. The control panel is equipped with SFR@ (Sequencing Fixed Reactor) timed control feature. A manual silence button is included.

8. INSTALLATION AND OPERATING INSTRUCTIONS

All work must be done in accordance with local codes and regulations. Installation of the FAST 0.75 shall be done in accordance with the written instructions provided by the manufacturer. Manuals shall be furnished, which will include a description of system installation, operation, and maintenance procedures.

9. FLOW AND DOSING

FAST systems have been successfully designed, tested and certified receiving gravity, demand-based influent flow. When influent flow is controlled by pump or other means to help with highly variable flow conditions, then multiple dosing events should be used to maximize performance. The flow rate shall not exceed 5 gpm (19 Lpm) with a maximum hourly flow not to exceed 10% of the design daily flow (75 gph [280 LPH]).

10. WARRANTY

Bio-Microbics, Inc. warrants all new residential FAST@ models (MicroFAST@ 0.50, 0.625, 0.75, 0.90, and 1.5) against defects in materials and workmanship for a period of two years from date of shipment which ever occurs first. All other FAST@ system models are warranted for a period of one year after installation or eighteen months from date of shipment, whichever occurs first. All are subject to the following terms and conditions below: During the warranty period, if any part is defective or fails to perform as specified when operating at design conditions, and if the equipment has been installed and is being operated and maintained in accordance with the written instructions provided by Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other repair or replace at its discretion such defective parts free of charge. Defective parts must be returned by owner to Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other expenses resulting from replacement of the defective parts and from installation of parts furnished under this warranty and regular maintenance items such as filters or bulbs shall be borne by the owner. This warranty does not cover general system misuse, aerator components which have been damaged by flooding or any components that have been disassembled by unauthorized persons, improperly installed or damaged due to altered or improper wiring or overload protection. This warranty applies only to the treatment plant and does not include any of the structure wiring, plumbing, drainage, septic tank or disposal system. Bio-Microbics, Inc. reserves the right to revise, change or modify the construction and/or design of the FAST system, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in present equipment. Bio-Microbics, Inc. is not responsible for consequential or incidental damages of any nature resulting from such things as, but not limited to, defect in design, material, or workmanship, or delays in delivery, replacements or repairs.

THIS WARRANTY IS LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. Contact your local distributor for parts and service.

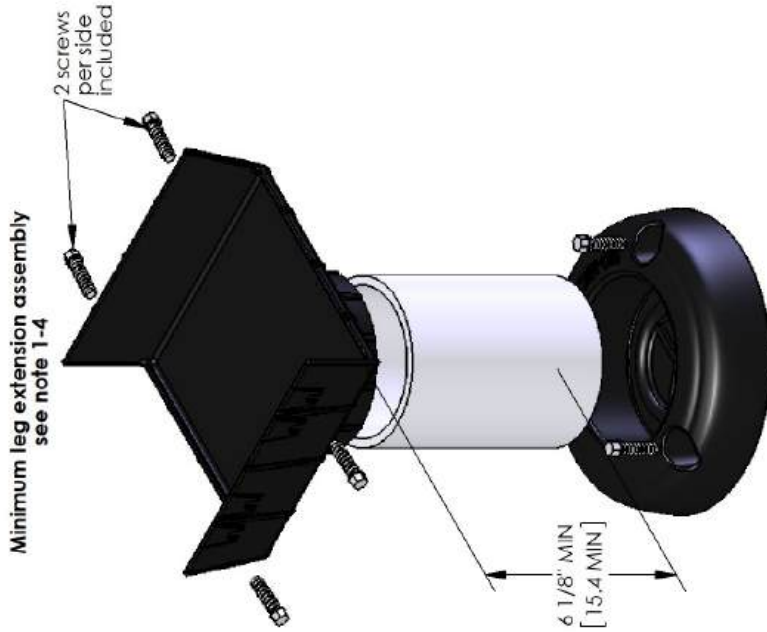
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<p>BIO MICROBICS BETTER WATER. BETTER WORLD.</p> <p>MicroFAST 0.75 FAST Unit</p>	<p>DO NOT SCALE</p> <p>UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]</p>	<p>WEIGHT</p>	<p>DRAWING NUMBER</p>	<p>SHEET</p>
	<p>NAME DATE</p> <p>DRAWN CJC 12/18/2006</p> <p>CHECKED PF 9/18/2013</p>	<p>SIZE</p> <p>A</p>	<p>MicroFAST@ 0.75 Specifications</p>	<p>3 OF 4</p>

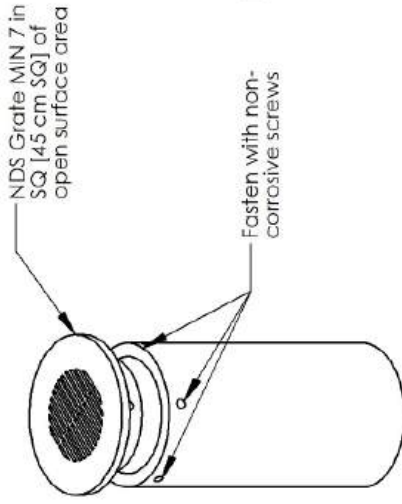
REVISED 9/18/2013

REV. INI-07-D



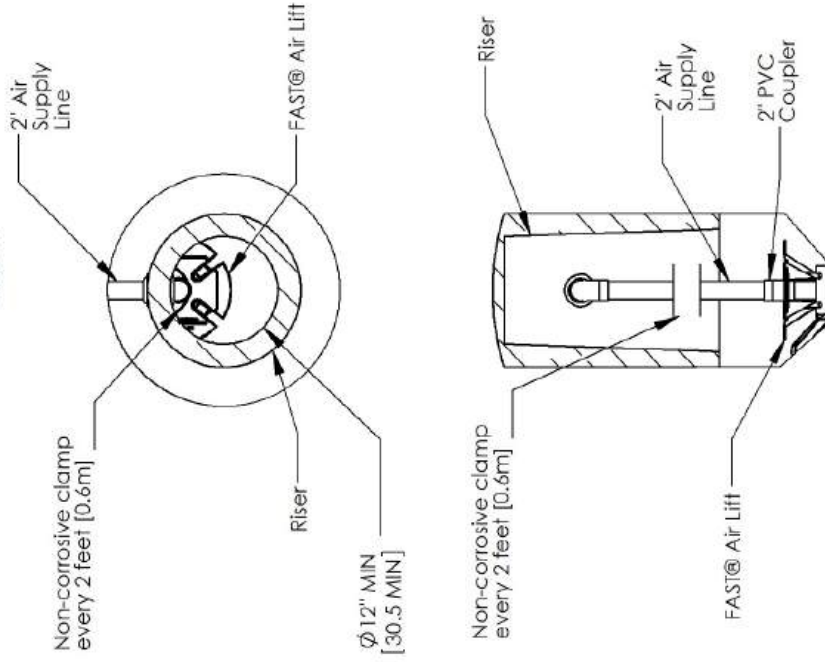
DETAIL
SCALE 1 : 5

FAST® Vent Option



DETAIL
SCALE 1 : 4

Alternate Air Supply Option



- Notes
1. Secure leg extension to the FAST® unit by placing two screws on each side of the leg extension (4 screws per foot are included).
 2. Cut 4\" schd. 40 PVC pipe (not included) to obtain the desired height. Minimum pipe length of 6 1/8\" [15.56cm] will provide minimum clearance of 6 3/8 inches [16.2 cm]. For heights greater than 18\" [45.7cm] use schd. 80 PVC pipe (not included). Consult factory for extending leg beyond 36\" [90cm].
 3. Anchor the leg extensions to the tank with non-corrosive hardware (not included) at the provided mounting points.
 4. If less than the specified minimums are considered necessary, consult factory for guidance.
 5. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2ft [0.6m] minimum.
 6. Tank, anchors, piping conduit, blower, housing pad and vents are provided by others.



MicroFAST 0.75 FAST Unit

DO NOT SCALE		WEIGHT	IB	DATE
UNLESS NOTED DIMENSIONS ARE IN INCHES (CENTIMETERS) TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]		NAME	DATE	
		DRAWN CTC	12/18/2006	
		CHECKED PF	9/18/2013	
		DRAWING NUMBER	MicroFAST® 0.75 Details	
		SIZE	A	
		SHEET	4 OF 4	
		REVISED	9/18/2013 REV. INI-09-X	

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Site and Soil Evaluation Report

VDH Use Only
HDIN: _____

General Information

Date: 12/6/2024 Loudoun County Health Department
 Owner: Grove 4B LLC Phone: 202-750-4050
 Owner Address: 15 N King Street Suite 3, Leesburg, VA 20176
 Property Address: Quarter Branch Road Lovettsville VA, 20180
 Tax Map/GPIN #: 295-47-3285
 Subdivision: Grove Family Section: _____ Block: _____ Lot: 4B

Soil Information Summary

- Position in landscape satisfactory: Yes No Describe landscape position: Sideslope
- Slope: 12-13 %
- Depth to rock/impervious strata: Max. 40 in. Min. 30 in. Not observed 28" Reserve
- Free Water Present: Yes No Range in inches: _____
- Depth to seasonal water table (gray mottling or gray color): _____ inches Not observed
- Soil percolation rate estimated: Yes No Estimated rate: 60 min/in at 12 inches depth
 Texture Group: I II III IV 60 min/in at 6 inches depth (RESERVE)
- Percolation test performed: Yes No If yes, provide additional data on percolation test results.

Name and title of evaluator: Christopher S. Froemel

Signature: Christopher Froemel

Site approved: Absorption Trenches (describe dispersal area, e.g. absorption trenches) dispersing TL-3 (proposed level of treatment at time of evaluation) to be placed at 12 (inches) depth at site designated on permit. Site provides a total of 7,236 square feet of absorption area for primary and reserve (if applicable).

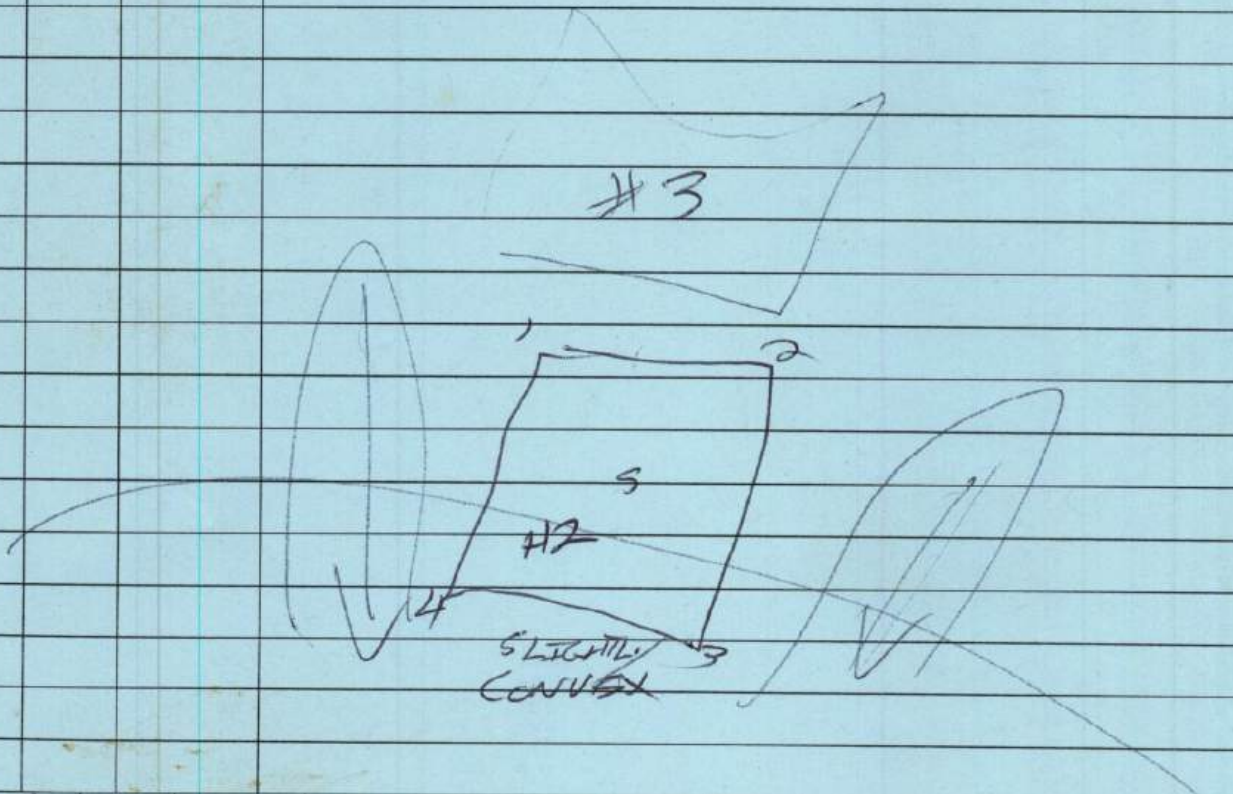
Site disapproved: Reasons for rejection (check all that apply)

- Position in landscape subject to flooding or periodic saturation.
- Insufficient depth of suitable soil over hard rock.
- Insufficient depth of suitable soil to seasonal water table.
- Rates of absorption too slow.
- Insufficient area of acceptable soil for required absorption area, and/or reserve area.
- Proposed system too close to well.
- Other (specify) _____



Date 12/8/05 Project GROVE Site # 2

Pit#	Horz	Depth	Description
H2AD 0-9			DK-B SIL GR LO
BK 8-28			5/8" R 5/6" = HSL w/ 25% CHINA
			1-2" MSK FR
CR 28-40			GREEN STONE



<u>✓</u>			<u>60</u>	<u>12-14'</u>		<u>28</u>	
Approve	Perc	Denied	Rate	Depth	H2O	Cr	Restriction

Profile Description - Soil Evaluation Report

Review Date: 6/30/2005
 Subdivision Name: Grove, Kevin
 Site Number: 2

VDH No. _____
 Page 6 of 12

Hole	Horizon	Depth (in)	Description	Texture Group
1	Ap	0-10	7.5YR 4/4 silt loam, moderate, medium granular structure, moist, friable	III
	Bt	10-20	7.5YR 5/6 silty clay loam, moderate, medium subangular blocky structure, moist, friable	III
	C	20-50	10YR 5/4 gravelly/channery silt loam, massive structure, moist, loose manganese stains CR@30"	III
2	Ap	0-8	7.5YR 4/4 silt loam, moderate, medium granular structure, moist, friable	III
	Bt	8-24	10YR 4/4 silty clay loam, moderate, medium subangular blocky structure, moist, friable few manganese stains	III
	C	24-60	5Y 5/4 channery silt loam, massive structure, moist, loose dense @ 30+", CR@40" - stringer	III
3	Ap	0-12	7.5YR 4/4 silt loam, moderate, medium granular structure, moist, friable	III
	Bt	12-22	10YR 5/4 silty clay loam, moderate, medium single grain structure, moist, friable	III
	B C	22-34	10YR 5/4 pebbly silty clay loam, moderate, medium single grain structure, moist, friable manganese stains dense w/ depth	III
	C	34-60	10YR 5/4 loam, massive structure, moist, friable dense	II
4	Ap	0-10	7.5YR 4/4 silt loam, moderate, medium granular structure, moist, friable	III
	Bt	10-22	7.5YR 5/6 silty clay loam, moderate, medium subangular blocky structure, moist, friable	III
	C	22-50	7.5YR 5/8 channery silty clay loam, massive structure, moist, friable, greenstone CR@28"	III
5	Ap	0-12	7.5YR 4/4 silt loam, moderate, medium granular structure, moist, friable	III
	Bt	12-22	5YR 5/6 silty clay loam, moderate, medium subangular blocky structure, moist, friable	III
	B C	22-34	7.5YR 5/4 silty clay loam, weak, medium single grain structure, moist, friable manganese stains	III
	C	34-60	10YR 5/4 channery silt loam, massive structure, moist, friable,	III

Geologic Province Blue Ridge

Parent Material: mixed metadiabase

Recommended Install Depth: 12-14"

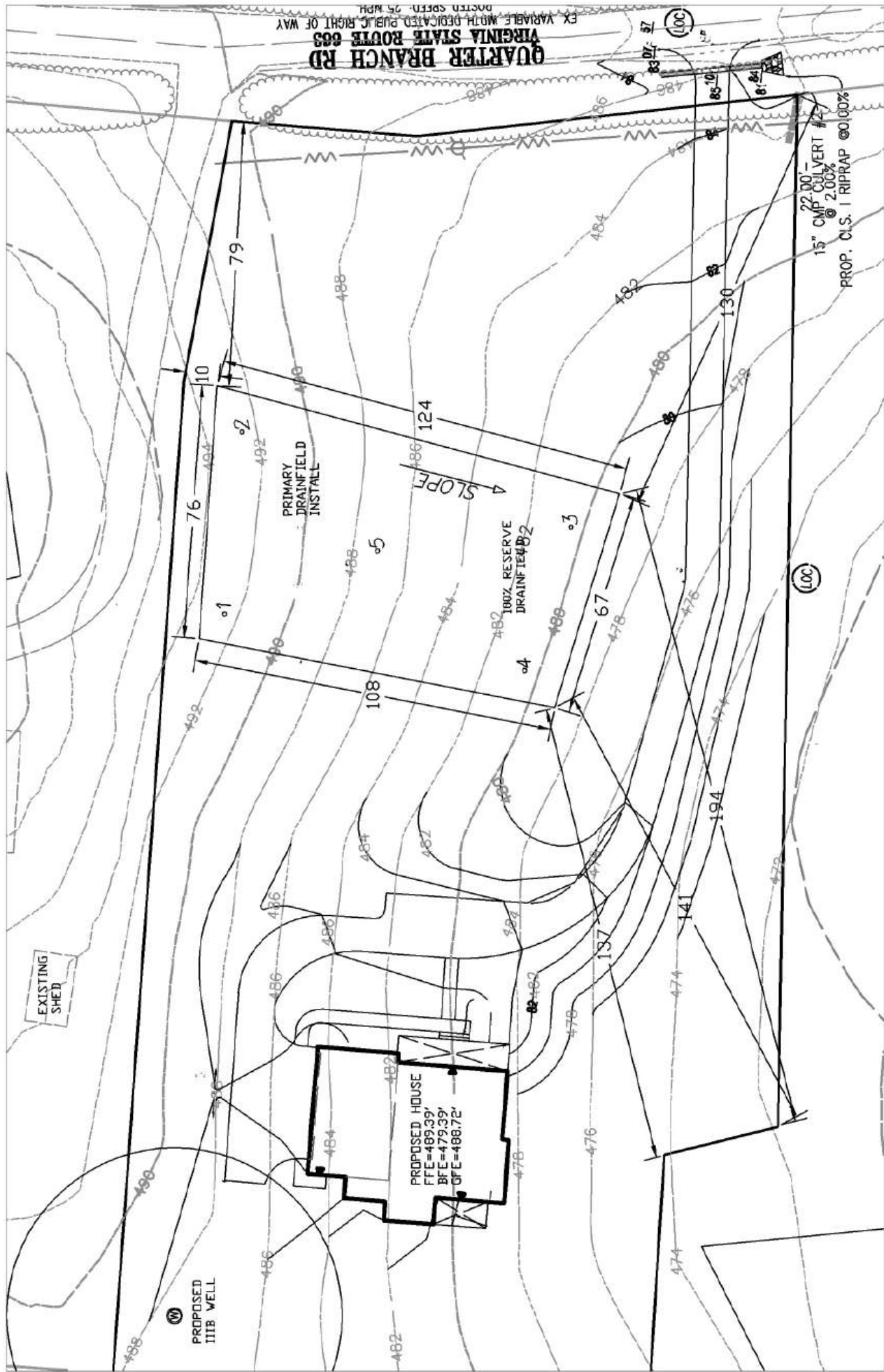
Primary/Installation Area Abbreviated Design Form

A. System type (conventional, Alternative trench, Drip, Mound, Pad, ect)		TL-3 Trench
B. Estimated or measured Percolation Rate		<i>60 mpi</i>
C. Slope		<i>12-13%</i>
D. Depth of Evaluation		<i>60"</i>
E. Proposed Installation Depth		<i>12"</i>
F. Installing below restriction? No		
G. Minimum Installation Depth (% slope-8/2 (Round Down) + 18" for Conv or 12" for TL-3)		<i>12"</i>
H. Type of limiting feature		<i>Cr</i>
I. Depth of limiting feature		<i>30"</i>
J. Minimum required stand-off to limiting feature		<i>18"</i>
K. Stand-off distance provided in design		<i>18"</i>
L. Design flow basis: number of Bedrooms		5 Bedrooms
M. Minimum Area Required per bedroom (per gallon in design based on gpd)		<i>235 sqft</i>
<i>Loading Rate / Total gallons per bedroom = sqft Required per Bdr (.64/150=235)</i>		
N. Available Area Across slope		<i>76'</i>
O. Proposed width of system (<i>line length, pad with, Active Mound width, etc.</i>)		<i>75'</i>
P. Width of Trench		<i>2'</i>
Q. Center spacing increase due to slope		<i>1</i>
R. Center-to-Center Spacing (<i>20-29% Cr >24" = +1'</i>) (<i>10-19% Cr <24" = +1'</i>) (<i>20-29% Cr <24" = +2'</i>)		<i>7'</i>
S. Proposed number of lines to be installed		<i>8</i>
T. Availabe area Down Slope (includes area for reseve if combined in this site)		<i>108'</i>
U. Down slope distance required for installation		<i>51'</i>
V. Minimum Square Footage required per regulations		<i>1,175</i>
W. Square Footage to be installed per Design		<i>1,200</i>
Does the site require a reseve area		Yes Amount Required <i>100%</i>
Does this site have a reserve area included with it?		Yes

100% Reserve Area Abbreviated Design Form (Site 2)

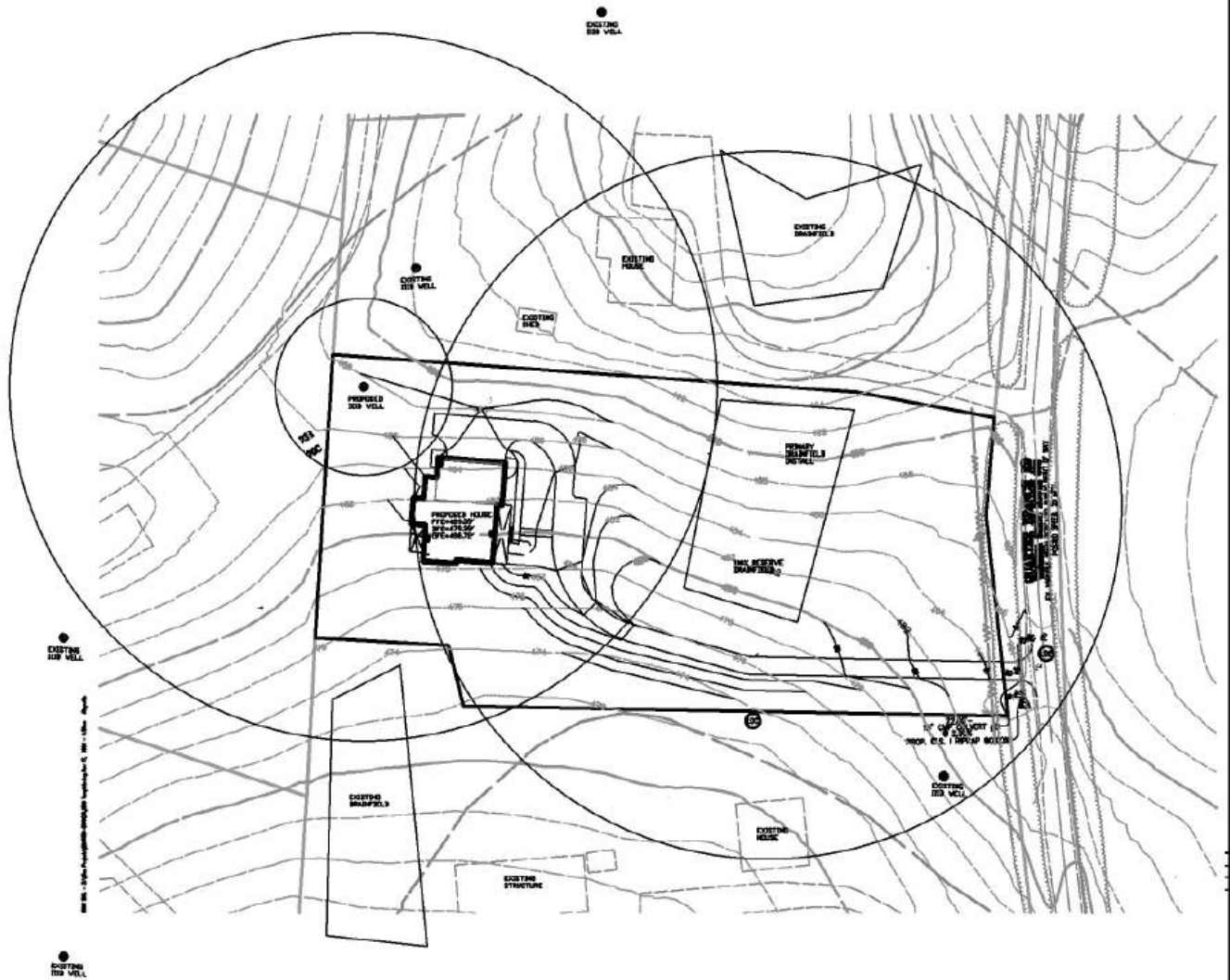
A. System type (conventional, Alternative trench, Drip, Mound, Pad, ect)	TL-3 Drip
B. Estimated or measured Percolation Rate	60 mpi
C. Slope	12-13%
D. Depth of Evaluation	60"
E. Proposed Installation Depth	6"
F. Installing below restriction? No	
G. Minimum Installation Depth (% slope-8/2 (Round Down) + 18" for Conv or 12" for TL-3)	1"
H. Type of limiting feature	Cr
I. Depth of limiting feature	28"
J. Minimum required stand-off to limiting feature	18"
K. Stand-off distance provided in design	22"
L. Design flow basis: number of Bedrooms	5 Bedrooms
M. Minimum Area Required per bedroom (per gallon in design based on gpd)	500 sqft
<i>Loading Rate / Total gallons per bedroom = sqft Required per Bdr (.30/150=500)</i>	
N. Available Area Across slope	67'
O. Proposed width of system (<i>line length, pad with, Active Mound width, etc.</i>)	67'
P. Width of Trench	.5'
Q. Center spacing increase due to slope	0
R. Center-to-Center Spacing (20-29% Cr >24" = +1') (10-19% Cr <24" = +1') (20-29% Cr <24" = +2')	2'
S. Proposed number of lines to be installed	20
T. Availabe area Down Slope (includes area for reseve if combined in this site)	57'
U. Down slope distance required for installation	40'
V. Minimum Square Footage required per regulations	2,500
W. Square Footage to be installed per Design	2,680

SITE SKETCH DRAWING



INNOVATIVE ENVIRONMENTAL PO Box 56 Toms Brook, Virginia 22660 703-856-6273	Client:	Grove 4B LLC	PIN:	312-45-5957
	Project:	Quarter Branch Rd	Lot:	4B
	Date:	March 2025	Scale:	1"=40'
			County:	Loudoun

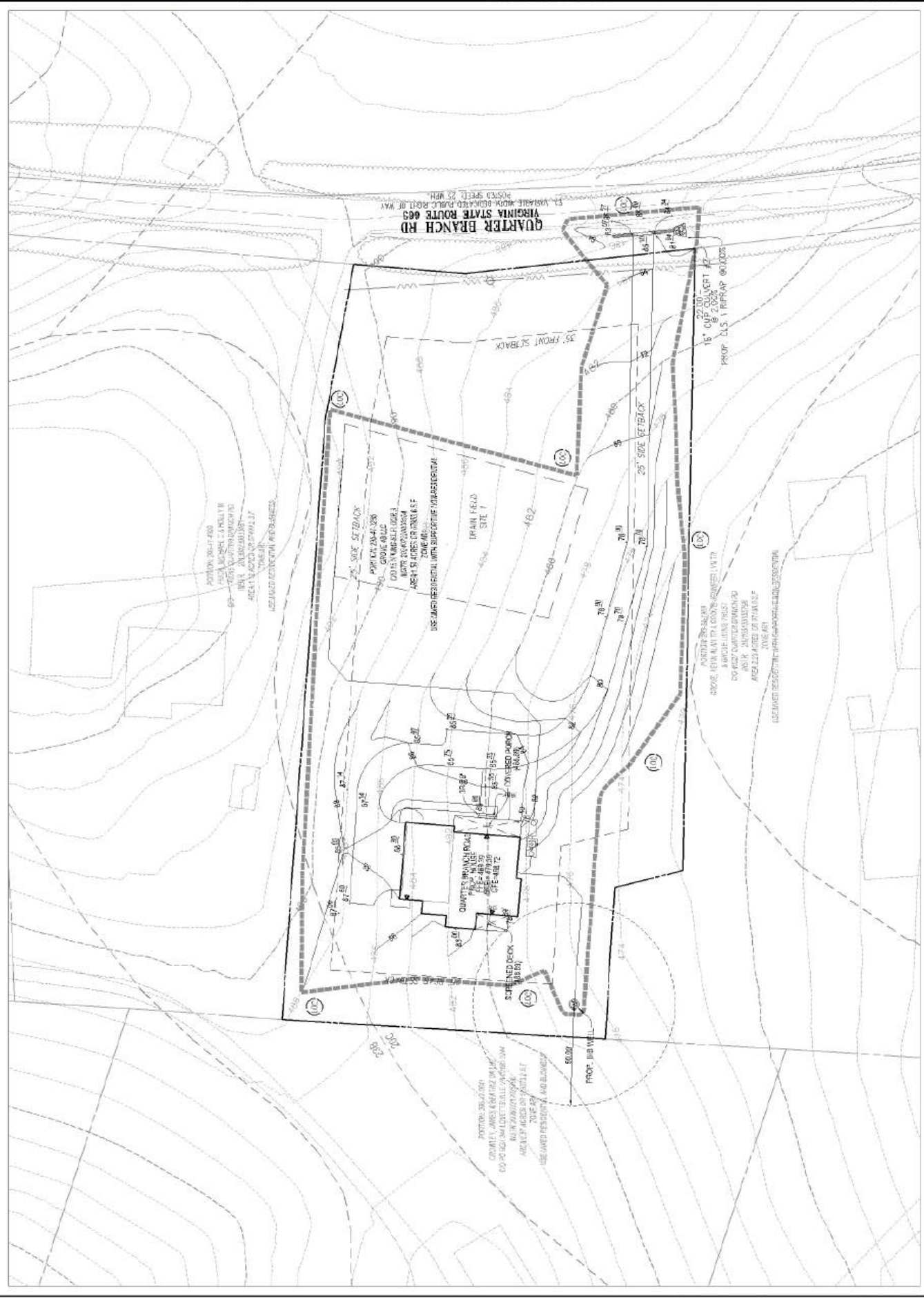
SANITARY SURVEY



Innovative Environmental
 PO Box 56
 Toms Brook, Virginia 22660
 703-856-6273

Client:	Grove 4B LLC	PIN:	312-45-5957	
Project:	Quarter Branch Rd	Lot:	4B	COUNTY
Date:	March 2025	Scale:	1"=100'	Loudoun

DATE: 06/14/17
CL: 2
SCALE: 1"=20'
SHEET: 01
OF: 01



RECEIPT (REC-2025-00008910)

BILLING CONTACT

Innovative Environmental Services LLC
PO BOX 56
Toms Brook, VA 22660

PAYMENT METHOD:

- Cash
- Credit Card
- Check No. _____
- Other _____

TRANSACTION: Fee Payment

PAYMENT DATE: 02/21/2025

REFERENCE #	INVOICE NUMBER	DESCRIPTION	AMOUNT (\$)
HDSP-2025-001592	INV-2025-00001687	FSO Septic Permit - County Permit Fee	\$200.00
	INV-2025-00001687	FSO Septic Permit - State Permit Indemnification	\$10.00
	INV-2025-00001687	Technical Sewage Plan Review	\$150.00
	INV-2025-00001687	FSO Septic Permit - State Permit Fee	\$215.00

SUBTOTAL: \$575.00

TOTAL PAID: \$575.00