

**Bureau of Environmental Health**  
 8930 Stanford Boulevard, Columbia, MD 21045  
 Main: 410-313-2640 | Fax: 410-313-2648  
 TDD 410-313-2323 | Toll Free 1-866-313-6300  
[www.hchealth.org](http://www.hchealth.org)  
 Facebook: [www.facebook.com/hocohealth](http://www.facebook.com/hocohealth)

Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 2/12/19 **ONSITE SEWAGE DISPOSAL SYSTEM** P 564784

APPROVAL DATE: 04/16/2019 **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 5525 Jacks Landing Way

SUBDIVISION: Jack's Landing LOT: 4 TAX ID: 05-599485

CONTRACTOR: Farm & Home Excavation EMAIL: farmhouseex@verizon.net

CONTRACTOR ADDRESS: 901 Driver Road, Marriottsville, MD 21104 PHONE: 410-442-2139

PROPERTY OWNER: Amrish and Mansi Vyas EMAIL: \_\_\_\_\_

OWNER ADDRESS: 3586 Laurel View Way, Laurel, MD 20724 PHONE: 301-331-6561

SEPTIC TANK SIZE (GALLONS): 1500 TANK MANUFACTURER: Mayer Bros Babylon

PUMP MODEL: Gould WE05H PUMP SIZE: 1/2 PUMP TANK CAPACITY: 2000

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 4\* APPLICATION RATE: 1.2  
4\*  
doubl  
ed  
due to  
RO

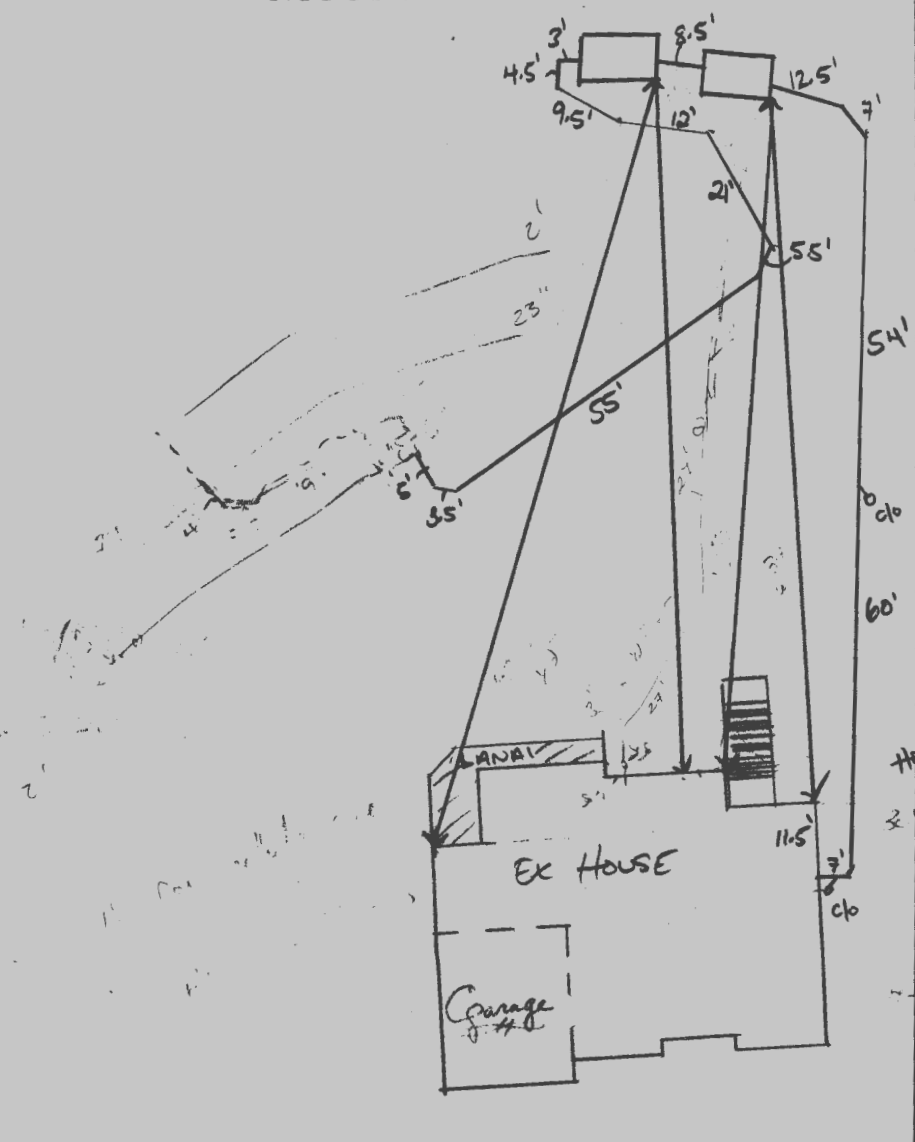
TRENCHES:	LINEAR FEET REQUIRED: <u>220 doubled due to R/O system</u>	INLET DEPTH: <u>2 - 2.5</u>
	TRENCH WIDTH: <u>2</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>5</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:	Install according to LPD design plan. R/O backwash line must bypass treatment tank	

ISSUED BY: Jeff Williams ISSUE DATE: 3/21/2019 EXPIRATION DATE: 2/12/2020

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRAIENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM  
 ELECTRICAL PERMIT ISSUED E \_\_\_\_\_
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.  
 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.  
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE



ROAD NAME  
JACKS LANDING WAY

TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
2'	2'-2.5'	8'
NUMBER OF TRENCHES		4
TOTAL LENGTH		227'
ABSORPTION AREA		454 ft <sup>2</sup> + SIDE WALLS
DISTRIBUTION BOX LEVEL		LPD (N/A)
DISTRIBUTION BOX BAFFLE		N/A
DISTRIBUTION BOX PORT		N/A

SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5'
BAFFLES	YES
BAFFLE FILTER	OUTLET
MANHOLE LOC	FRONT/BACK
6" PORT LOC	INLET
WATERTIGHT TEST	N/A
SLOTTED	YES
DATE ON LID	2/12/2019
SEPTIC TANK 2 LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	2000 GAL
SEAM LOC	TOP
TANK LID DEPTH	2'
BAFFLES	INLET
BAFFLE FILTER	NO
MANHOLE LOC	FRONT/BACK
6" PORT LOC	NO
WATERTIGHT TEST	—
SLOTTED	—
DATE ON LID	02/12/2019

PRE-CONSTRUCTION:

3/28/2019 TANK, SDA, AND TRENCHES STAKED. WAS ON SITE AT THE TIME OF STAKING BY SURVEY TEAM. OK TO START. (u)

NOT TECHNICALLY DISAPPROVABLE.

INSTALLATION:

3/28/2019 SHC INSTALLED AND 4" SCH 40 PVC LINE INSTALLED TO LOCATION OF TANKS. OK TO BACK FILL (u) 4/1/2019 (AM) INSPECTED TANK PLACEMENT. REINSP F.M. INSTALL PM (u) (PM) F.M. INSTALLED PER SPEC (3" PVC). OK TO COVER (u) 4/8/2019 TRENCHES COMPLETED. TWO TANK FACING TRENCHES CEM'IN CONST. (u) 4/10/2019 SEPTIC ON BREAKER CIRCUIT 30. ALARM ON GCFI CIRCUIT IN UTILITY ROOM. DO NOT IGNORE OK TO COVER TRENCHES (u) 4/12/2019 WATER TREATMENT BACKWASH LINE INSTALLED. REINSP. OUTLET BAFFLE. (u) 4/16/2019 ELECTRICAL OK ST OUTLET BAFFLE INSTALLED w/ FILTER (u)

FINAL INSPECTOR

DATE OF APPROVAL 04/16/2019



# VOGEL ENGINEERING + TIMMONS GROUP

3300 North Ridge Road, Suite 110, Ellicott City, MD 21043  
P 410.461.7666 F 410.461.8961 [www.timmons.com](http://www.timmons.com)

**Date:** September 19, 2018  
**To:** Howard County Health Department  
**Attn:** Mr. Jeff Williams  
**cc:**  
**Subject:** Jack's Landing – Lot 4  
**Project Number:** 13-31.00

## ATTACHED:

# Copies	Description
3	Onesite Sewage Disposal System Design Plan

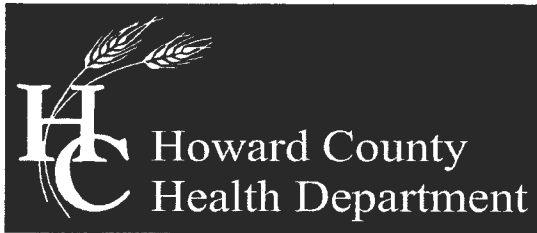
Remarks:

Thank you

Matthew Ahearn 

Transmitted by:

\_\_\_\_\_  
Received by:



Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

SEWAGE DISPOSAL SYSTEM SPECIFICATIONS WORKSHEET

Address: \_\_\_\_\_

Subdivision: Jacks Landing Lot: 4

Initial system:	Application rate: <u>1.2</u>	Effective area beginning depth: <u>5</u>	Bottom maximum depth: <u>8</u>
1 <sup>st</sup> Replacement:	Application rate: <u>0.8</u>	Effective area beginning depth: <u>5</u>	Bottom maximum depth: <u>8</u>
2 <sup>nd</sup> Replacement:	Application rate: <u>0.8</u>	Effective area beginning depth: <u>5</u>	Bottom maximum depth: <u>8</u>

Design Flow = 150 gallons per day per bedroom

Design flow ÷ application rate = square footage of drainfield required

Linear length of trench required = drainfield square footage x sidewall reduction percentage ÷ trench width

Sidewall reduction credit formula:

$$\frac{W + 2}{W + 1 + 2D} \times 100 = \text{Percent of length of standard trench where } W = \text{trench width and } D = \text{depth between effective area beginning depth and trench bottom.}$$

Standard design requirements:

- Trenches must be located to provide room for 3 systems in the disposal area
- All trenches must be equal length unless low pressure dosed
- All trenches must be on contour
- Minimum trench spacing: 10' for all trenches utilizing sidewall reduction credit. Additional spacing may be necessary for any trench using over 3.5' of effective sidewall. In those cases, the spacing formula is 2D + W up to a maximum spacing of 18'.
- Minimum trench spacing for trenches with no sidewall credit (bottom area only) is 6' for a 2' wide trench and 9' for a 3' wide trench (spacing is measured edge to edge)
- Maximum trench length is 100'
- Maximum pipe depth is 4'

Additional requirements:

★ - System needs to be designed for double # of bedrooms w/ whole house R/O with 1:1 or better backwash ratio - details of R/O including backwash line joining system downstream of tank must be included on OSDS plan

Approved: [Signature] Date: 2/8/18

Real Property Data Search

Search Result for HOWARD COUNTY

<a href="#">View Map</a>		<a href="#">View GroundRent Redemption</a>			<a href="#">View GroundRent Registration</a>				
<b>Tax Exempt:</b>		<b>Special Tax Recapture:</b>							
<b>Exempt Class:</b>		NONE							
<b>Account Identifier:</b>		<b>District - 05 Account Number - 599485</b>							
Owner Information									
<b>Owner Name:</b>		VYAS MANSI G VYAS AMRISH J			<b>Use:</b>		RESIDENTIAL		
<b>Mailing Address:</b>		3586 LAUREL VIEW CT LAUREL MD 20724-			<b>Principal Residence:</b>		NO		
					<b>Deed Reference:</b>		/18178/ 00281		
Location & Structure Information									
<b>Premises Address:</b>		5525 JACKS LANDING WAY CLARKSVILLE 21029-0000			<b>Legal Description:</b>		LOT 4 1.377 A. 5525 JACKS LANDING WAY JACKS LANDING PH. 1		
<b>Map:</b>	<b>Grid:</b>	<b>Parcel:</b>	<b>Sub District:</b>	<b>Subdivision:</b>	<b>Section:</b>	<b>Block:</b>	<b>Lot:</b>	<b>Assessment Year:</b>	<b>Plat No:</b>
0034	0003	0414		3952			4	2017	<b>Plat Ref:</b> 23952-55
<b>Special Tax Areas:</b>					<b>Town:</b>		NONE		
					<b>Ad Valorem:</b>				
					<b>Tax Class:</b>				
<b>Primary Structure Built</b>		<b>Above Grade Living Area</b>		<b>Finished Basement Area</b>		<b>Property Land Area</b>		<b>County Use</b>	
						1.3770 AC			
<b>Stories</b>	<b>Basement</b>	<b>Type</b>	<b>Exterior</b>	<b>Full/Half Bath</b>	<b>Garage</b>	<b>Last Major Renovation</b>			
Value Information									
		<b>Base Value</b>		<b>Value</b>		<b>Phase-in Assessments</b>			
				As of		As of		As of	
				01/01/2017		07/01/2018		07/01/2019	
<b>Land:</b>		253,700		253,700					
<b>Improvements</b>		0		0					
<b>Total:</b>		253,700		253,700		253,700		253,700	
<b>Preferential Land:</b>		0						0	
Transfer Information									
<b>Seller:</b> HOWARD MARTY ANTHONY				<b>Date:</b> 05/15/2018		<b>Price:</b> \$365,900			
<b>Type:</b> ARMS LENGTH VACANT				<b>Deed1:</b> /18178/ 00281		<b>Deed2:</b>			
<b>Seller:</b>				<b>Date:</b>		<b>Price:</b>			
<b>Type:</b>				<b>Deed1:</b>		<b>Deed2:</b>			
<b>Seller:</b>				<b>Date:</b>		<b>Price:</b>			
<b>Type:</b>				<b>Deed1:</b>		<b>Deed2:</b>			
Exemption Information									
<b>Partial Exempt Assessments:</b>		<b>Class</b>		07/01/2018		07/01/2019			
<b>County:</b>		000		0.00					
<b>State:</b>		000		0.00					
<b>Municipal:</b>		000		0.00 0.00		0.00 0.00			
<b>Tax Exempt:</b>		<b>Special Tax Recapture:</b>							
<b>Exempt Class:</b>		NONE							
Homestead Application Information									
<b>Homestead Application Status:</b> No Application									
Homeowners' Tax Credit Application Information									

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**Maura J. Rossman, M.D., Health Officer**

**MEMORANDUM**

**TO:** Amrish and Mansi Vyas  
Property Owners

**CC:** Caruso Homes

**FROM:** Jeff Williams  
Program Supervisor, Well & Septic Program

**RE:** B18003388, Jacks Landing Lot 4

**DATE:** October 18, 2018

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I have reviewed the above referenced building permit and have the following comments:

1. An OSDS plan must be approved by the Health Department prior to our approval of the building permit. The plan must match the building permit with regards to locations of all items on the plot plan and the number of bedrooms shown on the floor plans.
2. Details of the whole house reverse osmosis system must be submitted with the OSDS plan indicating the make/model along with certification from the manufacturer that the model will reduce the sodium, chlorides, and total dissolved solids from the existing levels to below the EPA recommended limit. The frequency and volume of backwash must be stated as well and the OSDS plan must show where the backwash line will leave the house and connect to the OSDS system.
3. The floorplans indicate 4 bedrooms on the 2<sup>nd</sup> floor. The library on the first floor meets the Health Department definition of a bedroom with the full bathroom option that appears to have been chosen. The hobby room and den in the basement may meet the definition of bedrooms if there are windows in those rooms. The plan submitted for my review is a poor print and difficult to read. A more legible plan with the house exterior views must be submitted to determine if those rooms will be counted as bedrooms. The lot has a maximum bedroom limitation of 5 bedrooms. The last OSDS plan submitted for my review indicated 4 bedrooms. The OSDS plan and the floor plans must indicate the same number of bedrooms before my approval of the building permit.

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Maura J. Rossman, M.D., Health Officer

**MEMORANDUM**

**TO:** Rob Vogel  
Vogel Engineering

**FROM:** Jeff Williams  
Program Supervisor, Well & Septic Program

**RE:** Jack's Landing Lot 4 OSDS plan

**DATE:** October 4, 2018

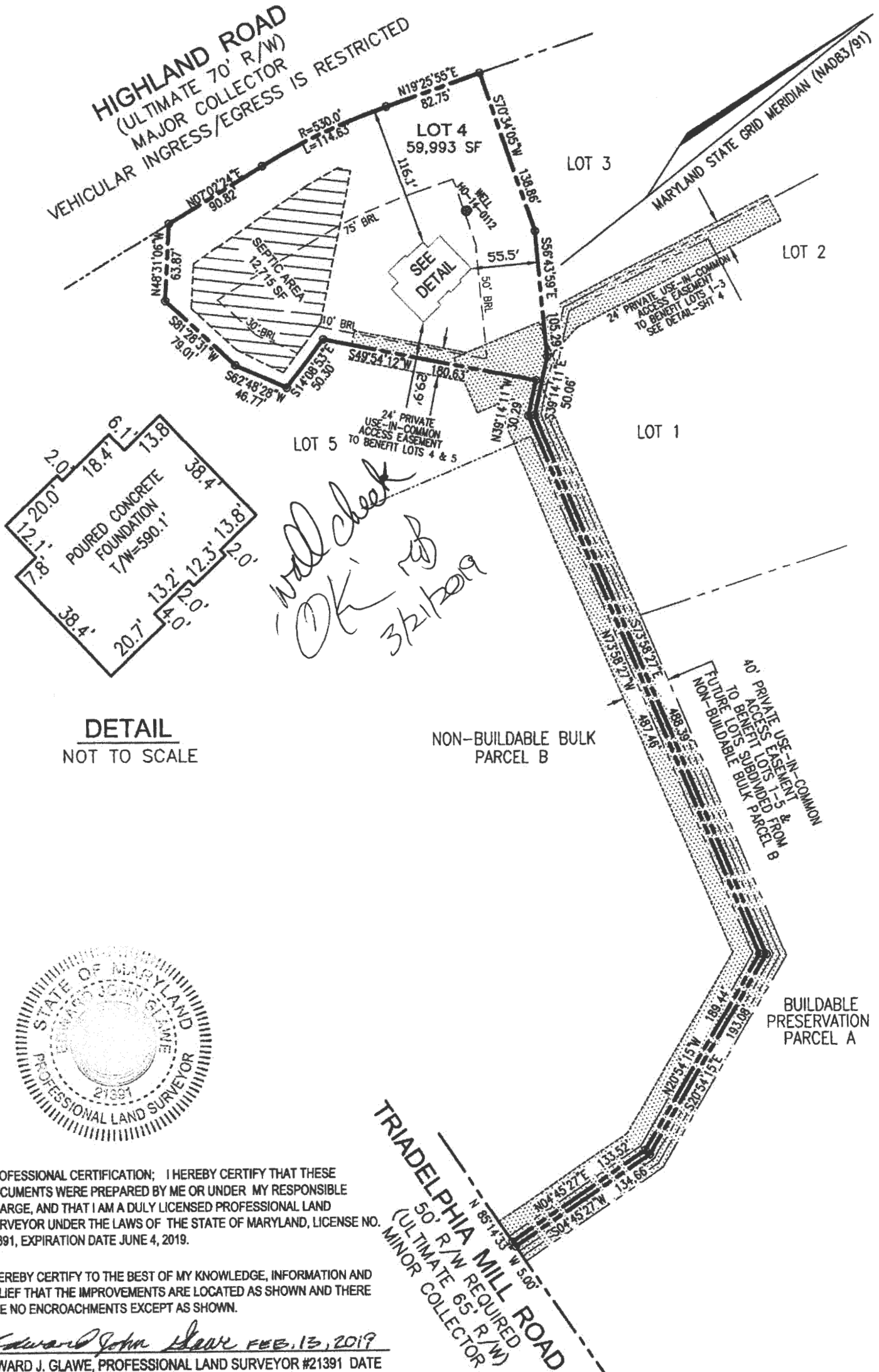
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I have reviewed the above referenced OSDS design plan submitted on 9/19/18 and have the following comments

1. On page 1 the trench cross section shows a 4" diameter pipe.
2. Trench 4 is longer than the other trenches, yet is designed for equal flow. Redesign the lateral perforations so that there is equal flow per linear foot and add a column on table D to show flow per linear foot per lateral.
3. The trenches bend too much along contour for a practical installation. One possible solution is to center feed trenches 3 and 4 at the bend point and do the same for trench 1 while straightening it out a bit a few inches off contour.
4. Information on the reverse osmosis system is required as part of the design plan. We will need the make and model, manufacturer specs, installation requirements, backwash ratio, backwash frequency and volume, etc.
5. Table D on page 2 needs to show lateral length

**HIGHLAND ROAD**  
(ULTIMATE 70' R/W)  
MAJOR COLLECTOR

VEHICULAR INGRESS/EGRESS IS RESTRICTED



**DETAIL**  
NOT TO SCALE



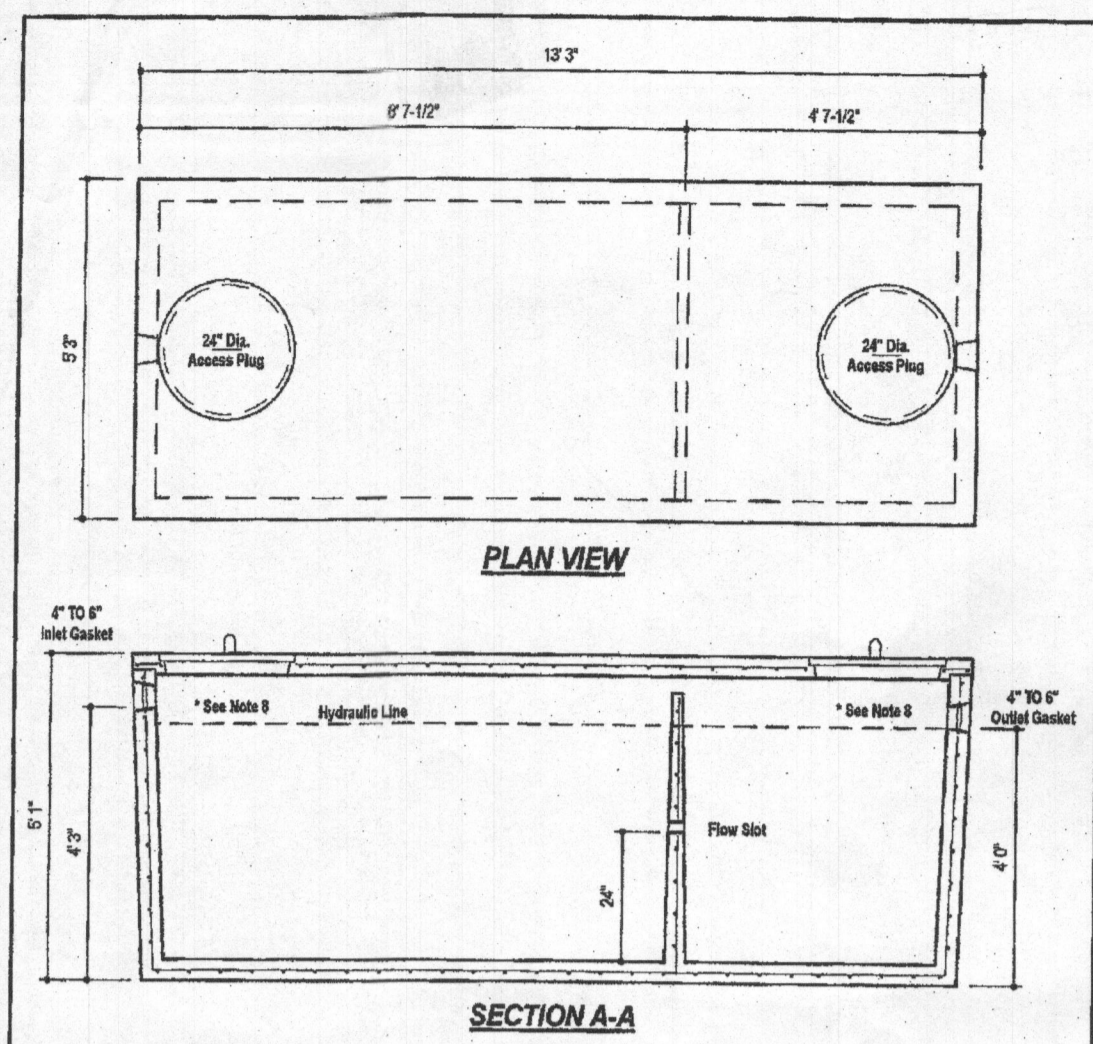
PROFESSIONAL CERTIFICATION; I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21391, EXPIRATION DATE JUNE 4, 2019.

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THAT THE IMPROVEMENTS ARE LOCATED AS SHOWN AND THERE ARE NO ENCROACHMENTS EXCEPT AS SHOWN.

*Edward J. Glawe* FEB. 13, 2019  
EDWARD J. GLAW, PROFESSIONAL LAND SURVEYOR #21391 DATE

THIS WALL CHECK DRAWING CONTAINS A HORIZONTAL TOLERANCE IN ACCURACY OF 0.1' AND A VERTICAL TOLERANCE IN ACCURACY OF 0.2'

SCALE 1" = 100'	DATE 12/20/2018	<b>VOGEL ENGINEERING + TIMMONS GROUP</b> ENGINEERS - SURVEYORS - PLANNERS 3300 NORTH RIDGE ROAD SUITE 110 ELLICOTT CITY, MARYLAND 21043 TEL: 410-461-7666 FAX: 410-461-8961	<b>WALL CHECK DRAWING</b> 5525 JACK'S LANDING WAY LOT 4 JACK'S LANDING PLAT NUMBER 23953 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DRAWN BY B.D.A.	CHECKED BY E.J.G.		
PLAT NUMBER 23952-23955	JOB NUMBER 13-31		



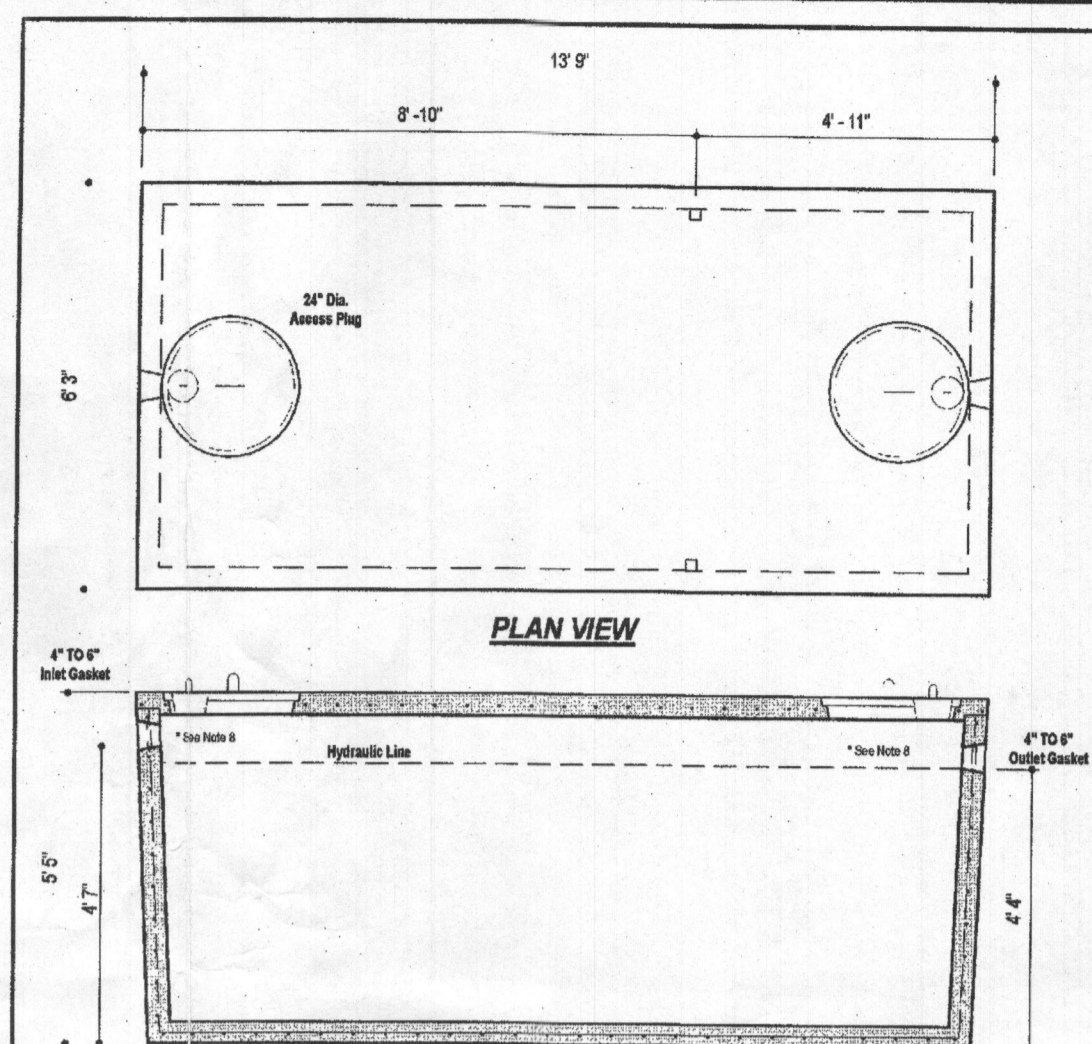
**DESIGN DATA & GENERAL NOTES**

- 1) Construct through Frost Line (FL) 48" deep. Density = 144 pcf.
- 2) Construct - Paved Type 18 per ASTM C 936.
- 3) Adhesions & sealants per ASTM C 936 & C 934-02.
- 4) Reinforcing per ASTM A 601. Min. 5-10" cover.
- 5) Top with 1/2" sand with high-pipe mesh.
- 6) 2" wall, 1/2" sand, 4" top thickness.
- 7) 1/2" thick 1/2" cover.
- 8) Depending on use of tank, inlet & outlet baffles may be required by code.

**WEIGHT = 16,750 lbs.**

**Mayer Bros, Inc.**  
 4341 Rock Road  
 Ellicott City, Maryland 21037  
 Tel: 410.786.6041  
 Fax: 410.786.6108  
 www.mayerbros.com

**1,500 GALLON (Non-Traffic) 2-Compartment**  
 Stock Item  
 Diag. No. 1600-2C No Scale Aug. 11, 2008



**DESIGN DATA & GENERAL NOTES**

- 1) Construct through Frost Line (FL) 48" deep. Density = 144 pcf.
- 2) Construct - Paved Type 18 per ASTM C 936.
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- 6) 2" wall, 1/2" sand, 4" top thickness.
- 7) 1/2" thick 1/2" cover.
- 8) Depending on use of tank, inlet & outlet baffles may be required by code.

**WEIGHT = 19,000 lbs.**

**Mayer Bros, Inc.**  
 4341 Rock Road  
 Ellicott City, Maryland 21037  
 Tel: 410.786.6041  
 Fax: 410.786.6108  
 www.mayerbros.com

**2,000 GALLON SEPTIC TANK 1-Compartment**  
 Stock Item (Approx. 19,000 lbs)  
 Diag. No. 2000-1C No Scale Aug. 11, 2008

**Wastewater**

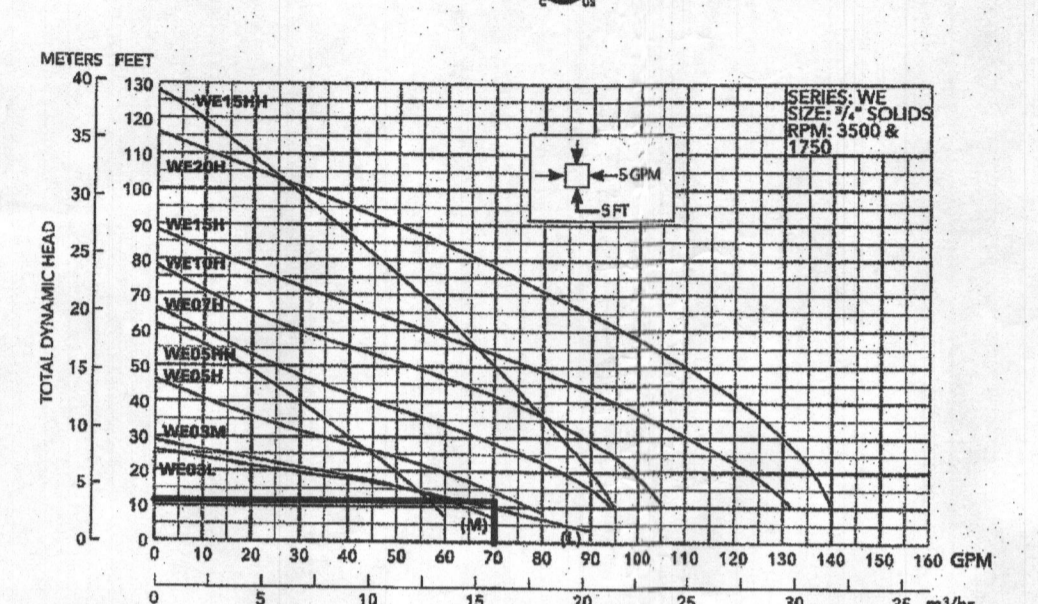
**APPLICATIONS**  
 Specifically designed for the following uses:  
 • Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

**SPECIFICATIONS**  
**Pump**  
 • Solids handling capabilities: 1/2" maximum  
 • Discharge size: 2" NPT  
 • Capacities: up to 140 GPM  
 • Total heads: up to 128 feet TDH  
 • Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.  
 • See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

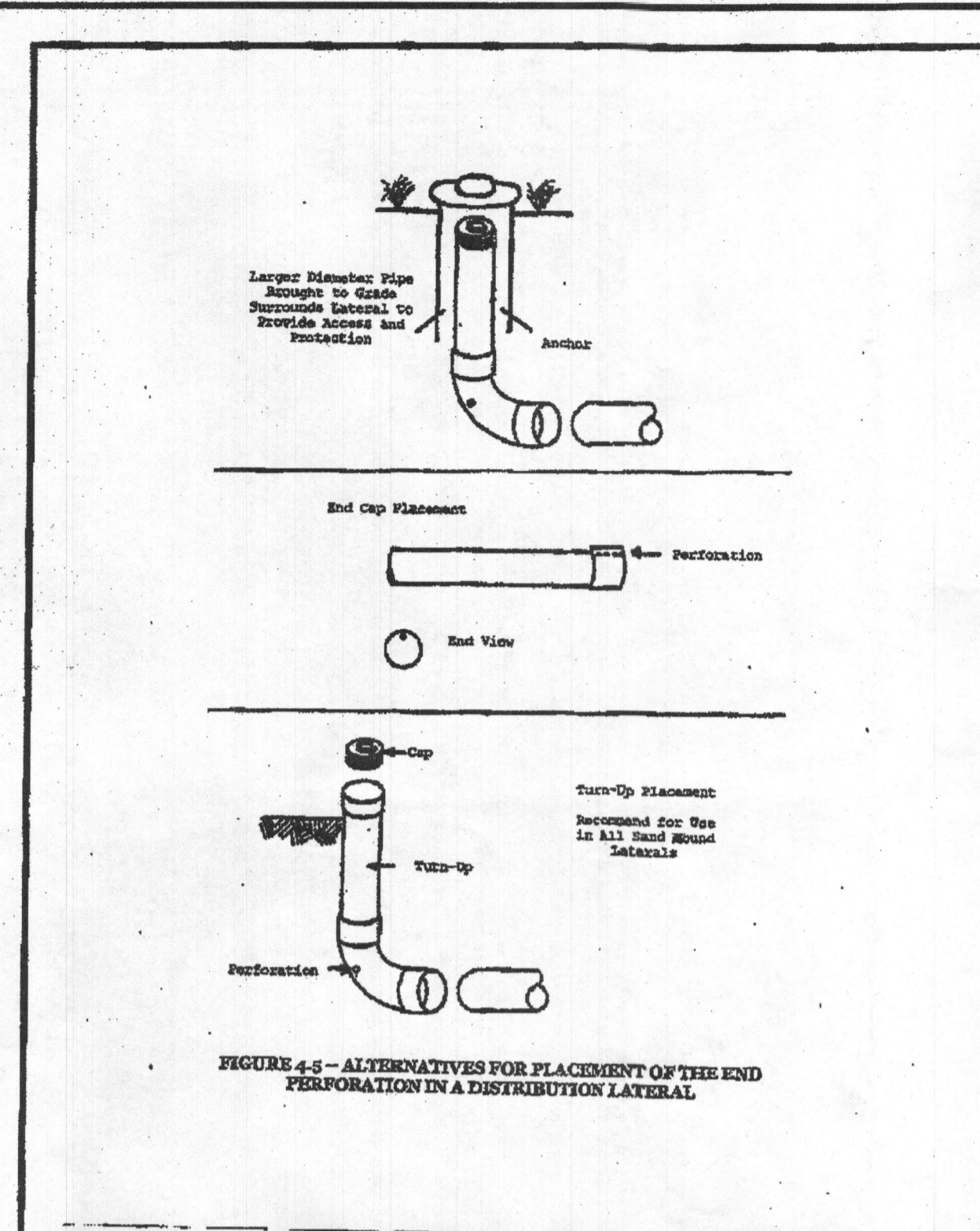
**MOTORS**  
 • Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.  
 • Class B insulation on 1/2 - 1 1/2 HP models.  
 • Class F insulation on 2 HP models.

**Single phase (60 Hz):**  
 • Capacitor start motors for maximum starting torque.  
 • Built-in overload with automatic reset.

**AGENCY LISTINGS**  
 Approved by NSF and CSA 2.2-1.08 (Underwriters Laboratories) by Canadian Standards Association File #333649

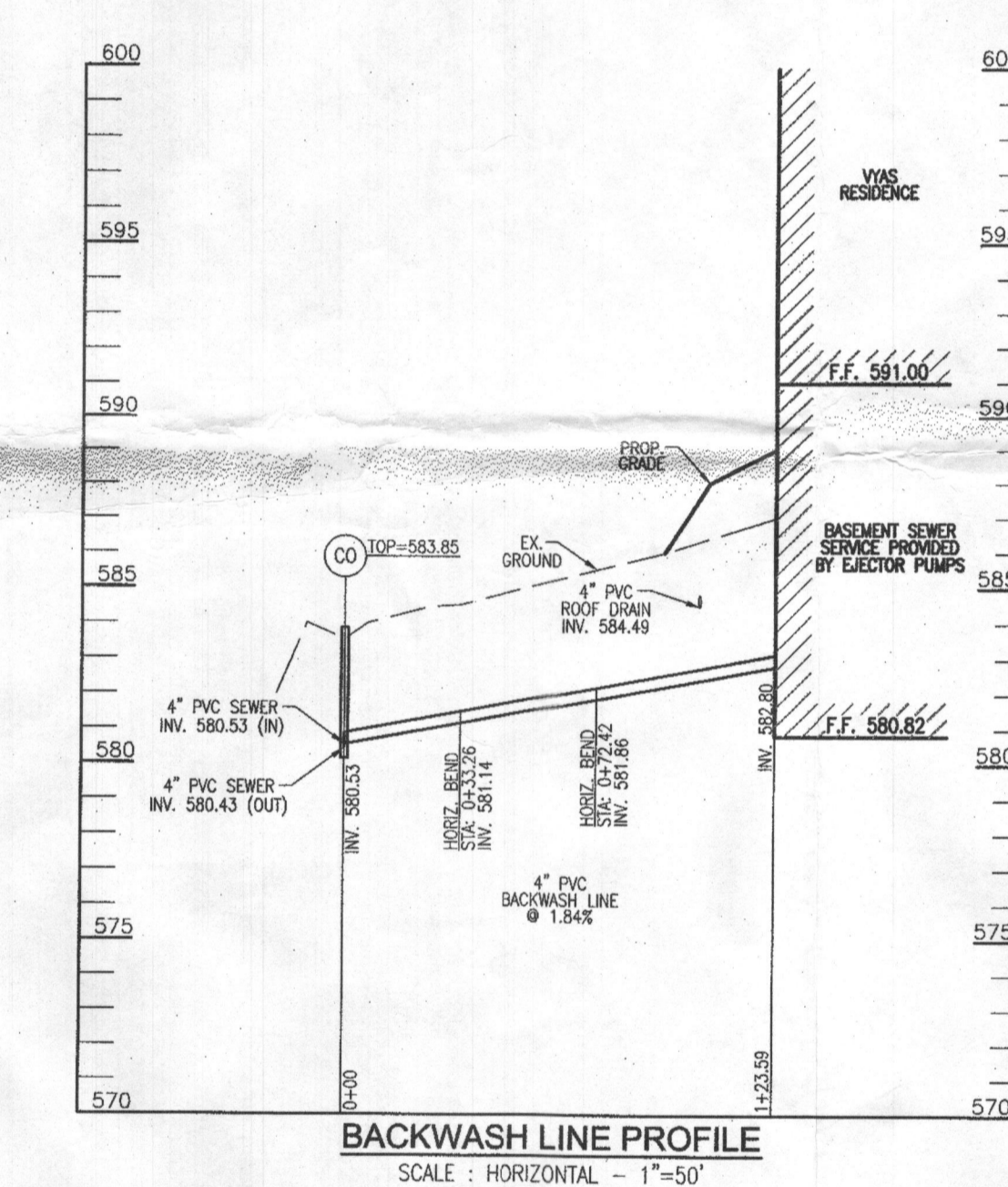
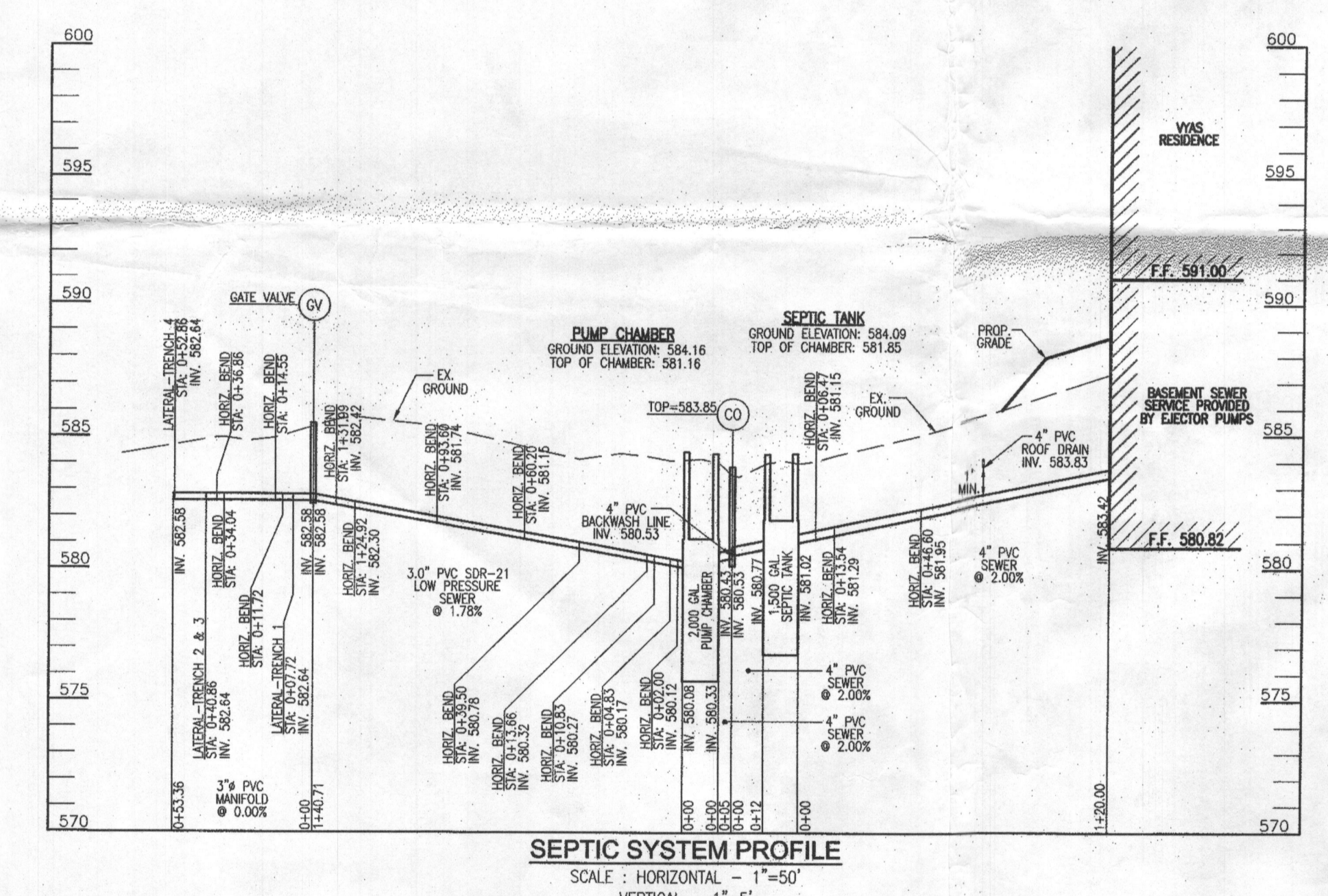
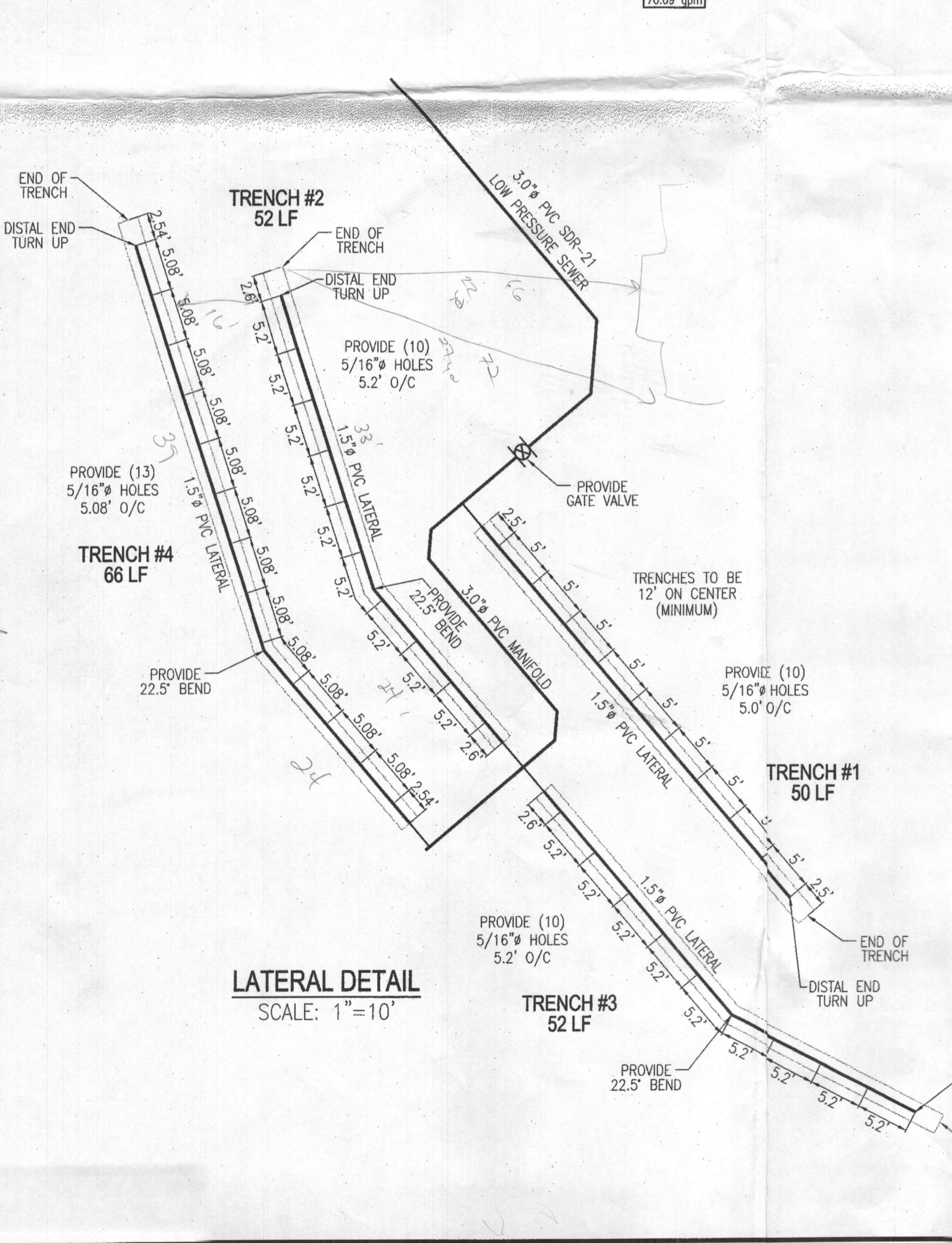


FLOW: 70.1 GPM  
 H=11.45'  
 USE GOULDS WEDSH



**TABLE D WORKSHEET**

TRENCH	RELATIVE ELEV.	TRENCH LENGTH	LATERAL LENGTH	ASSUMED HEAD	ORIFICE DIAMETER	ORIFICE FLOW RATE	ORIFICE SPACING	NUMBER OF ORIFICES	FLOW RATE PER LF	TRENCH FLOW RATE
1	582.64	50	47.5'	2.00'	5/16"	1.63 gpm	5.0'	10	0.33 gpm/ft	16.3 gpm
2	582.64	52	49.4'	2.00'	5/16"	1.63 gpm	5.2'	10	0.31 gpm/ft	16.3 gpm
3	582.64	52	49.4'	2.00'	5/16"	1.63 gpm	5.2'	10	0.31 gpm/ft	16.3 gpm
4	582.64	66	63.46'	2.00'	5/16"	1.63 gpm	5.08'	13	0.32 gpm/ft	21.19 gpm
										70.09 gpm



**LIBERTY PURE SOLUTIONS, INC.**

2824 Paper Mill Road  
 Phoenix, MD 21131  
 Local: (410) 527-1024  
 Toll Free: 1-800-253-2692  
 Fax: (410) 527-1026

November 7, 2018  
 Dear Mr. Williams:

Per our discussions currently and in 2016 Liberty Pure solutions, Inc. will manufacture and install the following into Jacks Landing Unit 4:

One 1800 gpd turnkey Reverse Osmosis plant with booster pump, adjustment valves and gauges for pre, post, boosted and product water as well as recycled water. This unit will comply with the 1:1 product/waste ratio, and produce up to 1800gpd.

Pretreatment will consist of sediment filtration, pH adjustment, softening and/or anti-scale feed system. Post Treatment will include pH adjustment and UV light following a 300-400gal storage tank with constant pressure system for delivery to the home.

There will also be adequate septic, or separate drain filed provided for discharge.

Current mw water levels for Sodium \_\_\_\_\_ 275mg/L  
 Chlorides \_\_\_\_\_ 65mg/L  
 TDS \_\_\_\_\_ 1200mg/L

We guarantee to reduce sodium to <50ppm and Chloride's to <50ppm as required.

We certify that the waste water stream from the RO system will not exceed the product water (1:1 maximum). We also have a softener and Neutralizer that will backwash approximately 1-2 times per week at 80 gal maximum per event.

As I understand you have already received the documents outlining the design plan for our proposed units. If you have any additional questions, please do not hesitate to call us.

Sincerely,  
 Douglas R. Workman, CI, CSR, CWSIII (MD)  
 President, Liberty Pure Solutions, Inc.

**OWNER**  
 MANSI G. VYAS  
 AMRISH J. VYAS  
 3586 LAUREL VIEW CT.  
 LAUREL, MD 20724  
 (301) 832-4526

**BUILDER**  
 CARUSO HOMES  
 C/O GARY EVANS  
 2120 BALDWIN AVE., #200  
 CROFTON, MD 21114  
 (301) 832-4526

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**JACK'S LANDING - LOT 4**  
 5525 JACKS LANDING WAY  
 CLARKSVILLE, MD 21029  
 1.38 AC.  
 (PLAT: 23952-23955)

L 16178 / F 281  
 TAX MAP: 34 GRID: 03  
 5TH ELECTION DISTRICT

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 8407 MAIN STREET  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8961

**PROFESSIONAL CERTIFICATE**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2020

DESIGN BY: RHV  
 DRAWN BY: JMR  
 CHECKED BY: RHV  
 DATE: NOVEMBER 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 13-31

2 SHEET OF 2

**GENERAL NOTES:**

1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
2. THE MAXIMUM EARTH COVER OVER THE TANK IS 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
3. ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
4. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON CURRENT HOWARD COUNTY GIS DATA AND HAS BEEN FIELD VERIFIED TO BE ACCURATE.
5. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
6. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWNGRADE OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN USING ALL REASONABLE EFFORTS.
7. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
8. SEPTIC SYSTEM MUST BE DESIGNED FOR DOUBLE THE NUMBER OF BEDROOMS, WITH WHOLE HOUSE REVERSE OSMOSIS, WITH 1:1 OR BETTER BACKWASH RATIO.

**SYSTEM CALCULATIONS:**

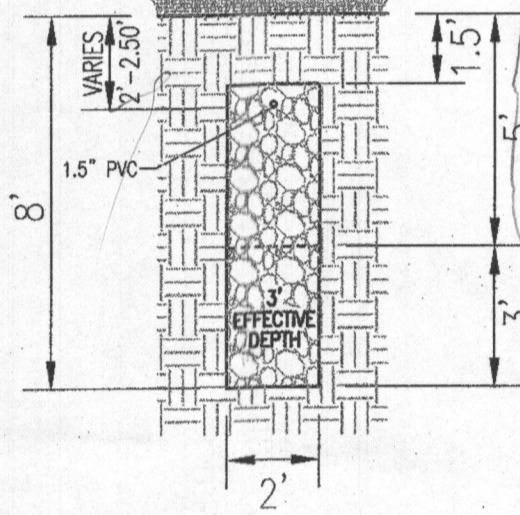
**INITIAL SYSTEM:**  
 4 BEDROOMS AT 600GPD / 1.2 ABSORPTION RATE = 500 SQ. FT.  
 500 SQ. FT. / 2 (TRENCH WIDTH) x .44 (SIDEWALL REDUCTION) = 110 LINEAR FEET  
 DOUBLE FOR BACKWASH SYSTEM: 220 LINEAR FEET REQUIRED  
 220 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.  
 (4 TRENCHES OF 50, 52, 52 & 66 FEET IN LENGTH)

**FIRST REPLACEMENT SYSTEM:**  
 4 BEDROOMS AT 600GPD / 0.8 ABSORPTION RATE = 750 SQ. FT.  
 750 SQ. FT. / 2 (TRENCH WIDTH) x .44 (SIDEWALL REDUCTION) = 165 LINEAR FEET  
 DOUBLE FOR BACKWASH SYSTEM: 330 LINEAR FEET REQUIRED  
 330 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.  
 (5 TRENCHES OF 50, 58, 58, 82 & 82 FEET IN LENGTH)

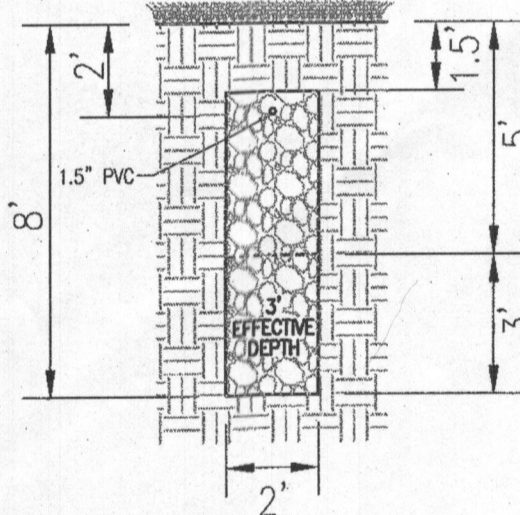
**SECOND REPLACEMENT SYSTEM:**  
 4 BEDROOMS AT 600GPD / 0.8 ABSORPTION RATE = 750 SQ. FT.  
 750 SQ. FT. / 2 (TRENCH WIDTH) x .44 (SIDEWALL REDUCTION) = 165 LINEAR FEET  
 DOUBLE FOR BACKWASH SYSTEM: 330 LINEAR FEET REQUIRED  
 331 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.  
 (5 TRENCHES OF 79, 77, 58 & 38 FEET IN LENGTH)

**INITIAL SYSTEM TRENCH INFO:**

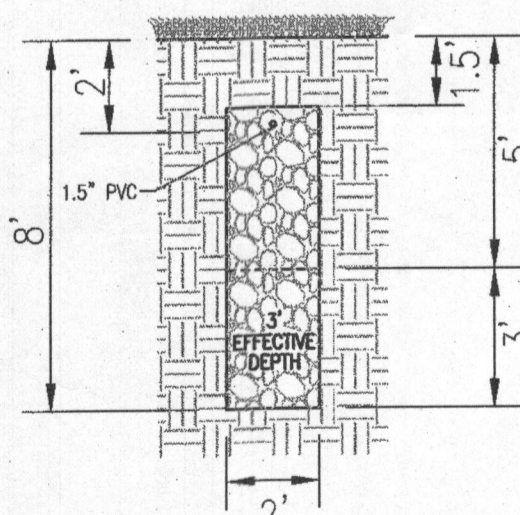
TRENCH LENGTH	INTO BOTTOM OF TRENCH	EXISTING GROUND
1 50'	582.64	577.14
2 52'	582.64	576.95
3 52'	582.64	576.83
4 66'	582.64	576.64



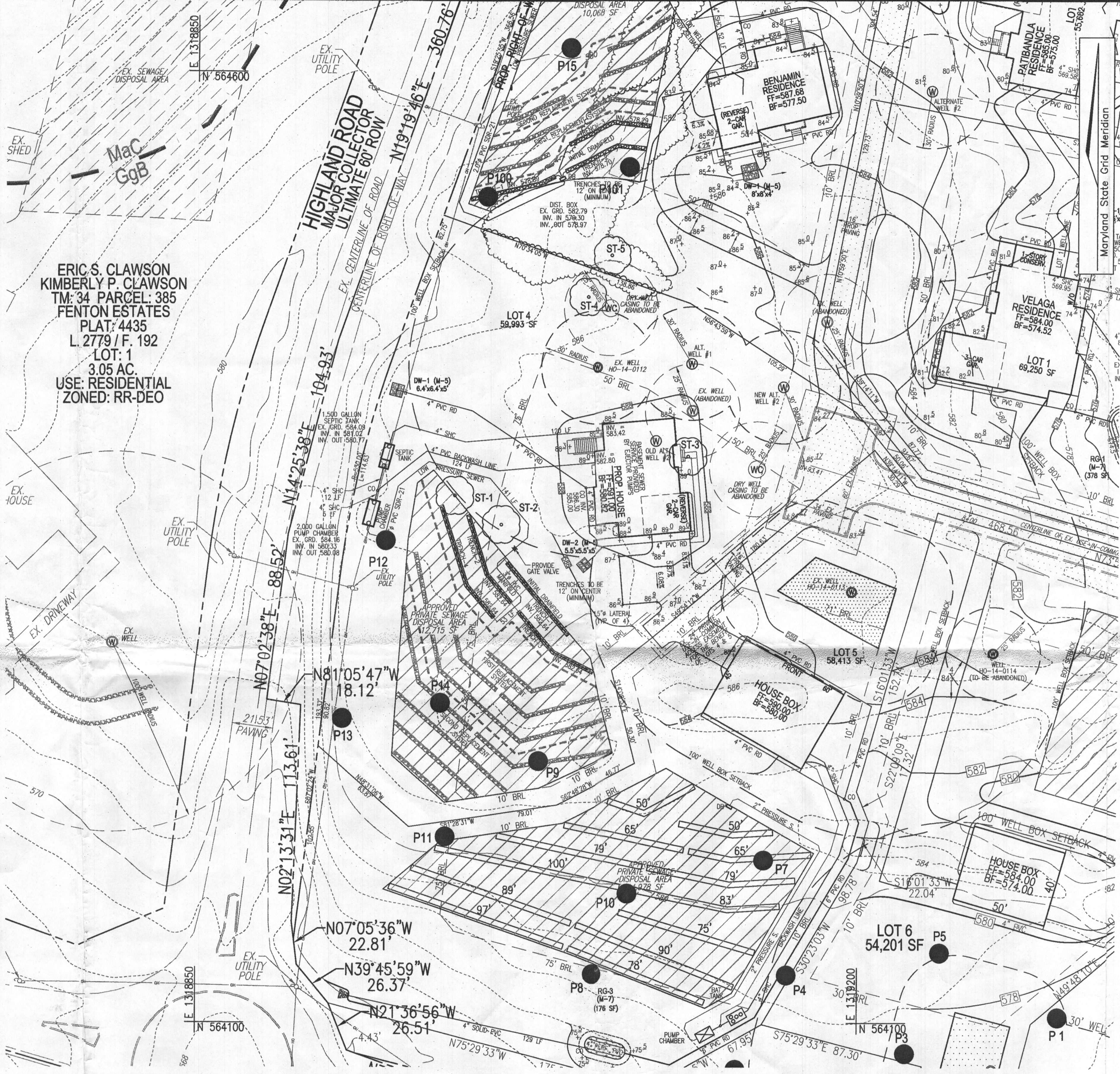
**INITIAL SYSTEM TRENCH DETAIL**  
NOT TO SCALE



**1ST REPLACEMENT TRENCH DETAIL**  
NOT TO SCALE



**2ND REPLACEMENT TRENCH DETAIL**  
NOT TO SCALE

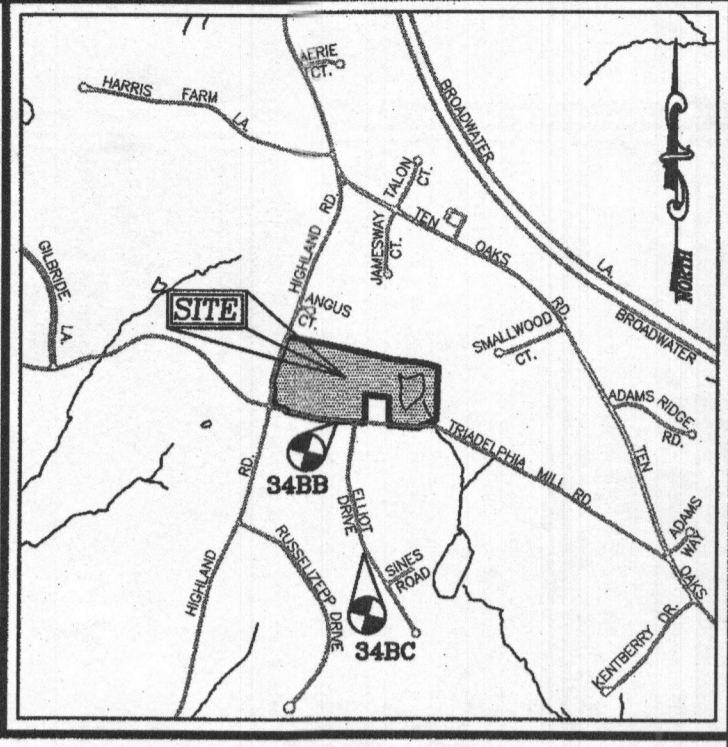


**WELL LOCATION CERTIFICATION:**  
 THE EXISTING WELL SHOWN ON THIS PLAN (TAG #HO-14-0112) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.

**PLAN VIEW**  
 SCALE: 1"=30'

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 34BB (CONC. MON.)  
 N 563,899.232 E 1319560.973 ELEV. 559.29  
 SOUTH SIDE TRAPEZOIDAL MILL ROAD, APPROX. 3' EAST OF CENTERLINE OF DRIVEWAY FOR HOUSE # 13295  
 HOWARD COUNTY BENCHMARK 34BC (CONC. MON.)  
 N 562,546.600 E 1,319,851.319 ELEV. 529.572  
 SOUTH SIDE OF ELLIOTT DRIVE, EAST OF CENTERLINE FOR THE DRIVEWAY FOR HOUSE NUMBER 13318.



**VICINITY MAP**  
 SCALE: 1"=2,000'  
 ADC MAP COORDINATE: PAGE: 24 GRID: EB

**LEGEND:**

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- PROPOSED RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING TREE LINE
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING UTILITY POLE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING USE-IN-COMMON ACCESS EASEMENT
- EXISTING WELL LOCATION
- APPROVED WELL LOCATION (FIELD LOCATED)
- PROPOSED ALTERNATE WELL LOCATION
- EXISTING DRY WELL CASING (TO BE ABANDONED)
- EXISTING PRIVATE SDA
- APPROVED PRIVATE SDA
- APPROVED WELL BOX
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- PASSED PERC. TEST
- FAILED PERC. TEST
- EXISTING SPECIMEN TREE

Approved Septic System Plan  
 Howard County Health Department

Signature: \_\_\_\_\_ Date: 11/30/18

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDED OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

**OWNER**  
 MANISH G. VYAS  
 AMRISH J. VYAS  
 3586 LAUREL VIEW CT.  
 LAUREL, MD 20724  
 (301) 832-4526

**BUILDER**  
 CARUSO HOMES  
 C/O GARY EVANS  
 2120 BALDWIN AVE., #200  
 CROFTON, MD 21114  
 (301) 832-4526

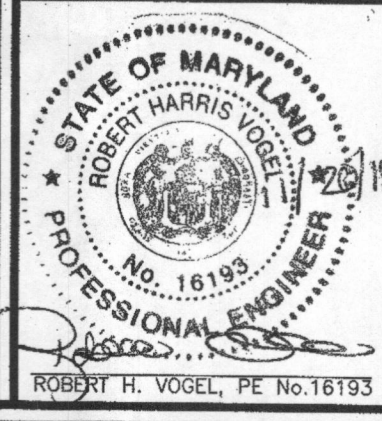
**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**JACK'S LANDING - LOT 4**  
 5525 JACKS LANDING WAY  
 CLARKSVILLE, MD 21029  
 1.38 AC  
 (PLAT: 23952-23955)

L 18178 / F 281  
 TAX MAP: 34 GRID: 03  
 5TH ELECTION DISTRICT

PARCEL: 414  
 ZONED: RR-DEO  
 HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
 ENGINEERS • SURVEYORS • PLANNERS  
 3300 N. RIDGE ROAD, SUITE 110  
 ELLICOTT CITY, MD 21043  
 TEL: 410.461.7666  
 FAX: 410.461.8966



DESIGN BY: RHV  
 DRAWN BY: JMR  
 CHECKED BY: RHV  
 DATE: NOVEMBER 2018  
 SCALE: AS SHOWN  
 W.O. NO.: 13-51

**PROFESSIONAL CERTIFICATE**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18195 EXPIRATION DATE: 08-27-2020