

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

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

RECEIPT DATE: 2/24/23 **ONSITE SEWAGE DISPOSAL SYSTEM** P 572799
 APPROVAL DATE: 7/25/2023 **PERMIT: CONSTRUCTION** A _____
 PROPERTY ADDRESS: 1886 DAVIS BRANCH ROAD, WOODSTOCK, MD 21163
 SUBDIVISION: MYRTUE PROPERTY LOT: 33 TAX ID: 03-352498
 CONTRACTOR: FARM AND HOME EXCAVATING, INC. EMAIL: farmhomeex@verizon.net
 CONTRACTOR ADDRESS: 901 DRIVER ROAD, MARRIOTTSVILLE, MD 21104 PHONE: (410)442-2139
 PROPERTY OWNER: SONSHINE MD LP EMAIL: nbontempi@keystonecustomhomes
 OWNER ADDRESS: 227 GRANITE RUN ROAD, LANCASTER, PA 17601 PHONE: (717)469-9060
 SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: MAYER BROS., INC.
 PUMP MODEL: Zoeller BN151 PUMP SIZE: 0.3 PUMP TANK CAPACITY: 2000

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 7 APPLICATION RATE: 1.2

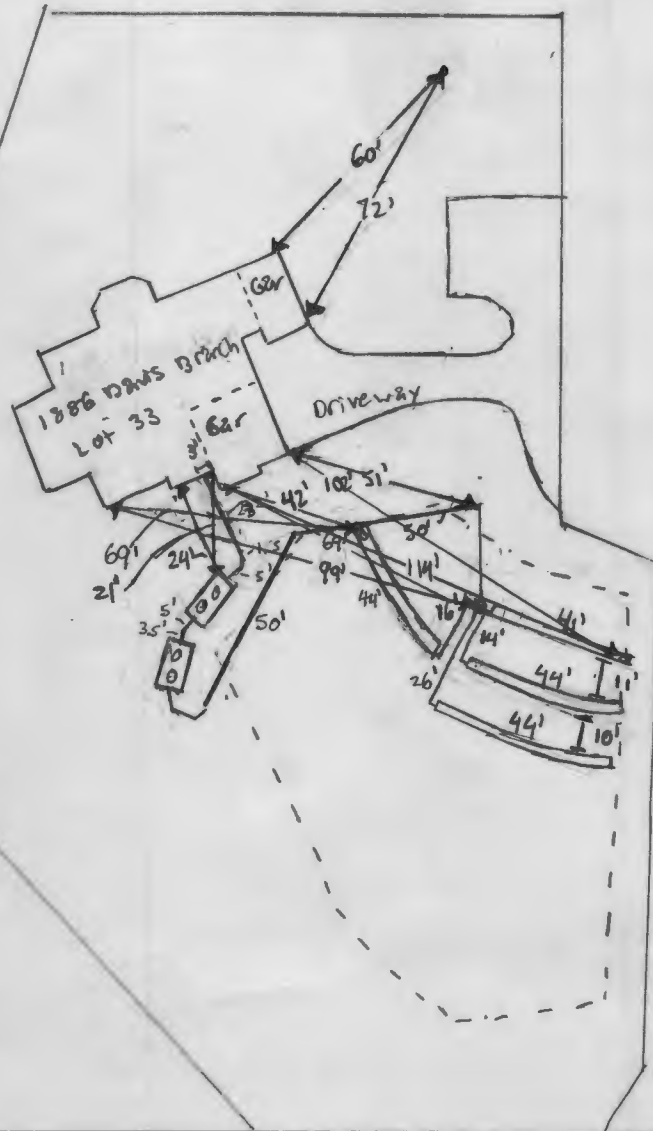
TRENCHES:	LINEAR FEET REQUIRED: <u>162</u>	INLET DEPTH: <u>2.0</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>4.5</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>2.0</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:	INSTALL AT LEAST 1 CLEANOUT IN SHC. THE INSTALLED SYSTEM MUST PASS A PUMP & ALARM TEST BEFORE THE SEPTIC PERMIT IS GRANTED FINAL APPROVAL AND BEFORE HEALTH DEPARTMENT APPROVES OCCUPANCY.	

ISSUED BY: R BRICKER H.O. ISSUE DATE: 3/15/22 EXPIRATION DATE: 3/15/23

- 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 DOWNGRADIENT 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 no. B22003441
- 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 1" ≈ 50'



ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'		4.5'
NUMBER OF TRENCHES		4
TOTAL LENGTH		173'
ABSORPTION AREA		519 ft ²
DISTRIBUTION BOX LEVEL		
DISTRIBUTION BOX BAFFLE		yes
DISTRIBUTION BOX PORT		yes

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL	yes
MANUFACTURER	Babylon
CAPACITY	2000 GAL
SEAM LOC	Top
TANK LID DEPTH	2'-1"
BAFFLES	6" Front
BAFFLE FILTER	
MANHOLE LOC	Front & back
6" PORT LOC	
WATERTIGHT TEST	
SLOTTED	yes
DATE ON LID	5/17/2023

PUMP/SEPTIC TANK LEVEL

SEPTIC TANK 2 LEVEL	yes
MANUFACTURER	Babylon
CAPACITY	2000 GAL
SEAM LOC	Top
TANK LID DEPTH	2'-1"
BAFFLES	
BAFFLE FILTER	
MANHOLE LOC	Front & back
6" PORT LOC	
WATERTIGHT TEST	
SLOTTED	
DATE ON LID	5/17/2023

PRE-CONSTRUCTION:

6/15/2023 - Moved D-box further from house & more into SDA to feed d-box to trenches easier. pump tank moved to be directly in line w/ septic tank, still meets 20' from house & 10' from garage. 1, 1₂, & 1₄ moved downhill 4' to make room for D-box space. SDA staked. All trenches measured @ 41'. 1₂ elevation 2.5" - 1" difference, 1 elevation 2" - 3" difference, 1₃ elevation 3" - 2" difference 1₄ 1" difference in elevation. Give ok to start. (SP)

INSTALLATION: 6/21/2023 - saw both tanks. back baffle @ septic tank installed; 4" D-box set 1, installed, length @ 41', inlet @ 2.0' - 2.5'. Rain started pouring, watches needed to set pipe @ 1st 10' & then backfill. Give ok to backfill tank & T. (SP)

6/22/2023 - Front line from house foundation to tank installed. 6" front baffle installed 1₂ - 1₄ installed. Inlet @ 2' per plan & width @ 3' per plan. D-box set. Reinspect for back line from Pump tank to D-box & Pump & Alarm test. (SP)

6/30/2023 - Line from pump tank to D-box installed, 280 PSI SCHD 40 PVC used. We outside pump tank sleeved. Give ok to backfill. Inaugural well. Reinspect for P & A. (SP)

7/25/2023 - Pump on separate circuit from alarm. Alarm inside of house, Audio good. Pump goes to D-box. P & A successful (SP)

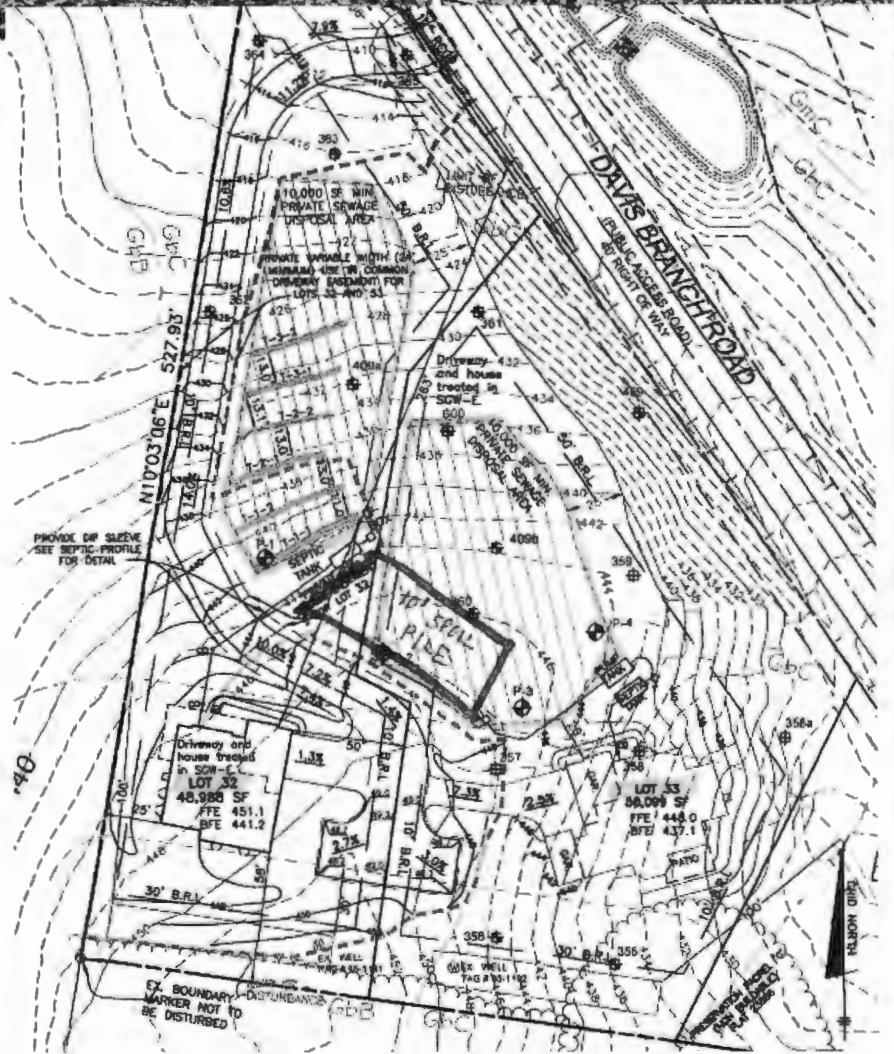
FINAL INSPECTOR

S. Page

DATE OF APPROVAL

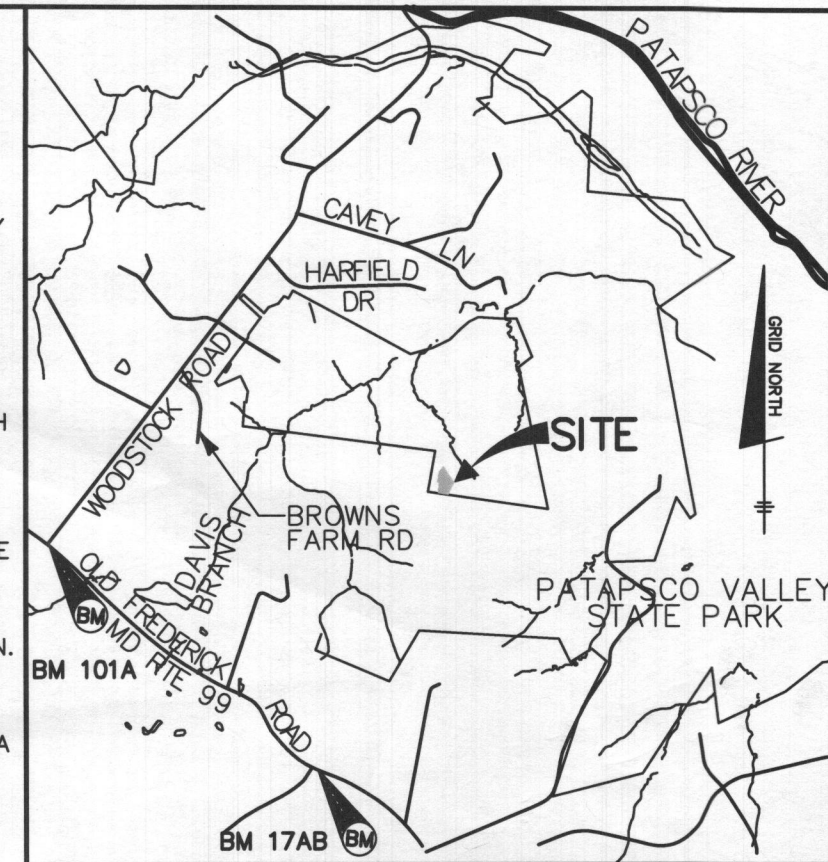
7/24/2023

1886 Davis Branch Rd. Lot 33 – 10' high spoil pile found on top of the Sewage Disposal Area (SDA)
April 14, 2023 – R. Rappaport

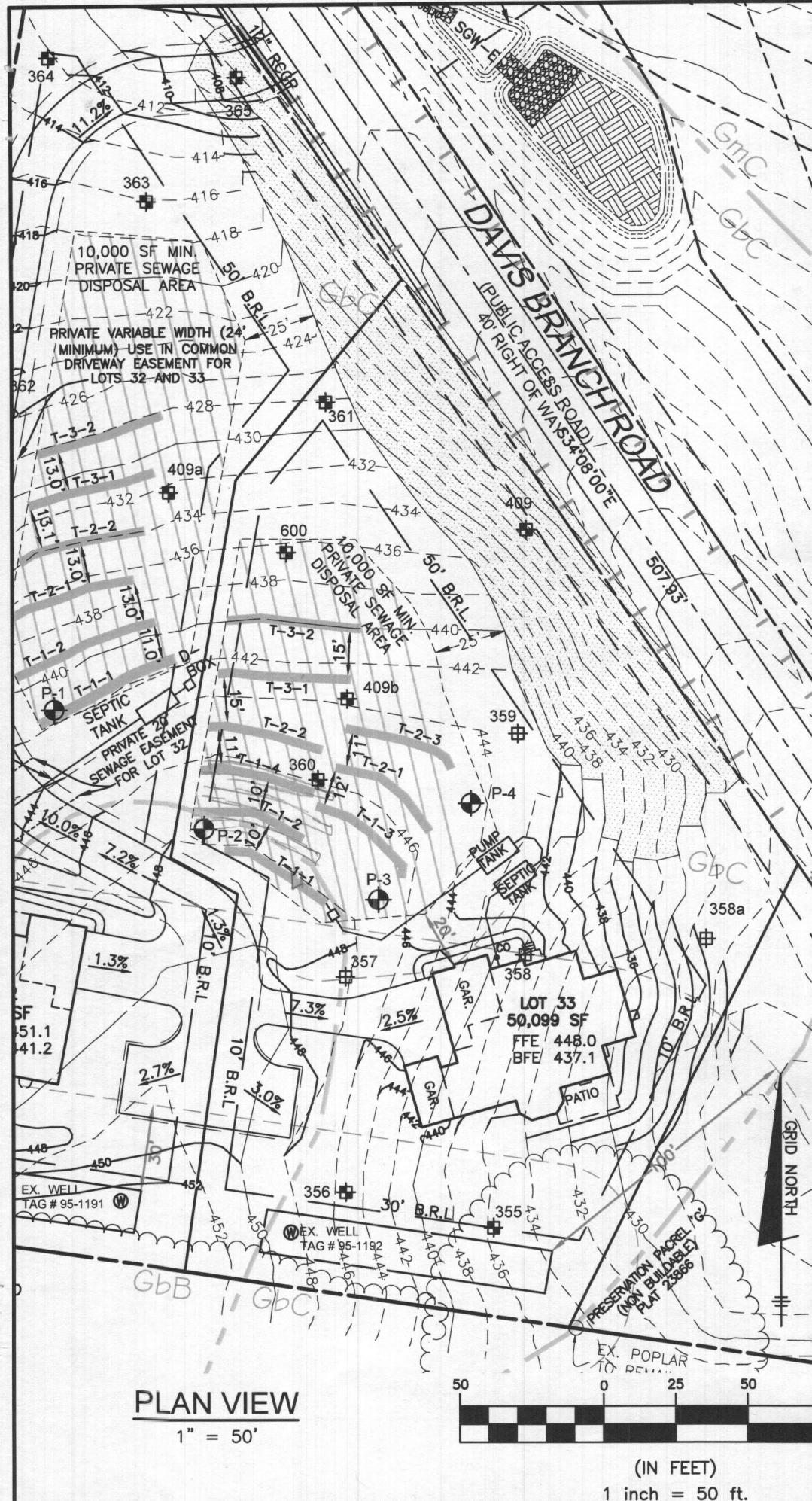


GENERAL NOTES

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR MYRTUE PROPERTY, PLAT NUMBER 25865. REFER TO THE PLAT FOR LOT DIMENSIONS, LOT AREA, ALL EASEMENTS AND CONDITIONS.
2. THE EXISTING WELL SHOWN ON THIS PLAN (HO-95-1192) HAS BEEN FIELD LOCATED BY DAFT, McCUNE WALKER, INC. AND IS SHOWN IN ACCORDANCE WITH THEIR SURVEY.
3. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
4. TOPOGRAPHY SHOWN WAS FLOWN BY VIRGINIA RESOURCE MAPPING, INC. DATED FEBRUARY 2003 AND SUPPLEMENTED WITH FIELD SURVEY BY DMW, INC. DATED 2005.
5. SEDIMENT AND EROSION CONTROLS WILL BE SUBMITTED BY HOWARD SOILS CONSERVATION DISTRICT AS A CUSTOM GRADING PLAN.
6. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED BUILDING PERMIT AND CUSTOM GRADING PLANS.
7. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
8. ANY CHANGES 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.
9. ANY ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
10. THE SEPTIC TANK WILL BE A 2000 GALLON TWO COMPARTMENT TANK. THE PUMP TANK WILL BE ONE-COMPARTMENT 2000 GAL. TANK.
11. THE MAXIMUM EARTH COVER OVER THE TANK IS 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
12. ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS/OR SEPTIC SYSTEM HAVE BEEN SHOWN.



LOCATION MAP
SCALE: 1" = 2000'

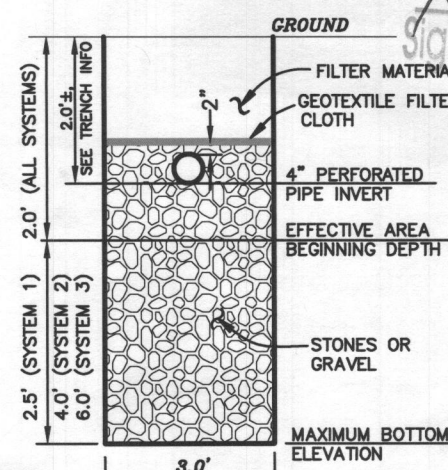


PLAN VIEW
1" = 50'

(IN FEET)
1 inch = 50 ft.

LEGEND

- 400 — PROPOSED CONTOURS
- - - 400 - - - EXISTING CONTOURS
- - - 398 - - - EXISTING CONTOURS
- [Hatched Box] EXISTING PRIVATE SEWAGE DISPOSAL AREA
- [Circle with W] EXISTING WELL BOX
- [Dotted Box] EXISTING SLOPES 25% OR GREATER
- [Wavy Line] EXISTING TREELINE
- MaC SOILS MAP SYMBOL
- - - SOILS DELINEATION LINE
- [Star] PERC TEST PASSED 2003
- [Cross] PERC TEST FAILED 2003
- [Circle with X] PERC TEST PASSED 2020



TYPICAL TRENCH DETAIL
NOT TO SCALE

Approved Septic System Plan
Howard County Health Department
2000-gal Septic Tank
w/ 2000-gal Pump Tank
Zoeller BNIST pump
or equiv
Signature: *[Signature]*
Date: 5/18/22
To Gravity Drainfield
for 7-bed room SFJ

Professional Certification. 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. 28376, Expiration Date: 01-01-2023.



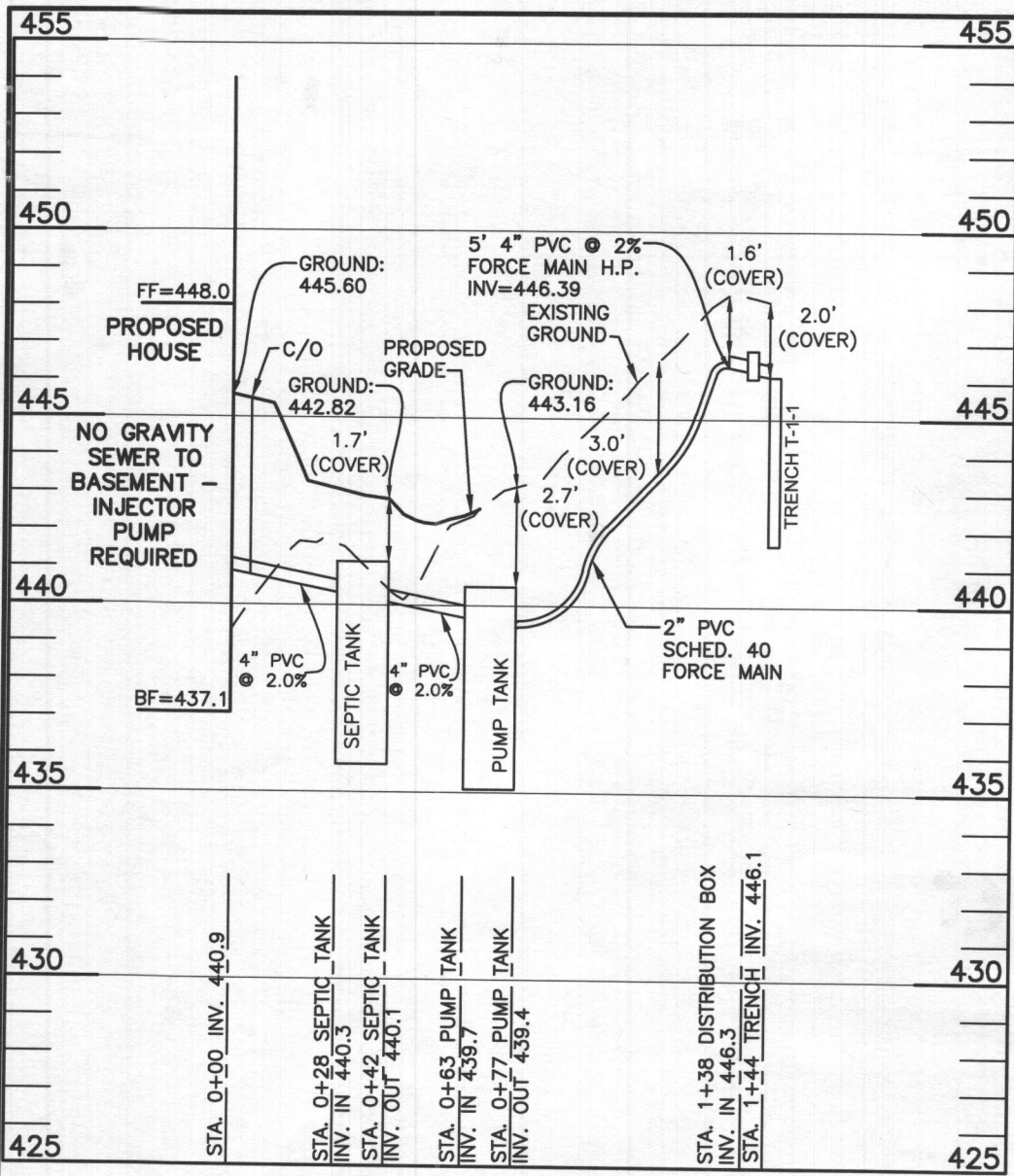
BEI-AAM

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OWNER/BUILDER:
KEYSTONE CUSTOM HOMES, INC.
227 GRANITE RUN DR.
SUITE 100
LANCASTER, PA 17601
717-464-9060

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
3300 NORTH RIDGE ROAD ▲ SUITE 140
ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 ▲ (F) 410-465-6644
WWW.BEI-CVLENGINEERING.COM

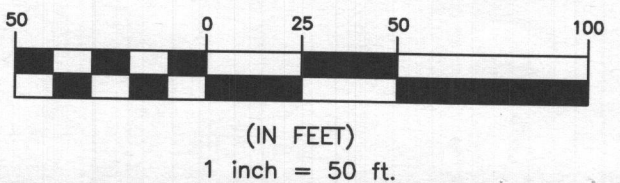
PROJECT:		MYRTUE PROPERTY LOT 33	
LOCATION: TAX MAP: 10, GRID: 24, PARCEL: 225, ZONED: RC-DEO 1886 DAVIS BRANCH RD. WOODSTOCK, MD 21163 6TH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID 352498			
TITLE:		ONSITE SEWAGE DISPOSAL PLAN	
HOUSE TYPE:		CUSTOM - KEYSTONE HOMES	
DATE:	MAY, 2022	PROJECT NO.	2099
SCALE:	AS SHOWN	DRAWING	1 OF 4



SEPTIC OUTFALL LOT 33

SCALE: 1"=50' HORIZ., 1"=5' VERT.

HEALTH DEPARTMENT SPEC SHEET INFORMATION - LOT 33			
System	Application Rate	Effective Depth	Bottom Depth
1st Replacement	1.2	2.0	4.5
2nd Replacement	1.2	2.0	6.0
3rd Replacement	1.2	2.0	8.0



INITIAL SYSTEM		
Number of Bedrooms	7	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.0	ft
Bottom Max Depth	4.5	ft
Design Flow	1050	gpd
Drainage Field square footage	875	sf
Sidewall Reduction Credit	0.56	
Trench width	3	ft
Effective Area Depth	2.5	ft
Trench Spacing	10	ft
Linear Length of trench Required	162	lf

1ST REPLACEMENT SYSTEM		
Number of Bedrooms	7	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.0	ft
Bottom Max Depth	6.0	ft
Design Flow	1050	gpd
Drainage Field square footage	875	sf
Sidewall Reduction Credit	0.42	
Trench width	3	ft
Effective Area Depth	4	ft
Trench Spacing	11	ft
Linear Length of trench Required	122	lf

2ND REPLACEMENT SYSTEM		
Number of Bedrooms	7	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.0	ft
Bottom Max Depth	8.0	ft
Design Flow	1050	gpd
Drainage Field square footage	875	sf
Sidewall Reduction Credit	0.31	
Trench width	3	ft
Effective Area Depth	6	ft
Trench Spacing	15	ft
Linear Length of trench Required	91	lf

TRENCH DESIGN - LOT 33					
INITIAL SYSTEM		1ST REPLACEMENT SYSTEM		2ND REPLACEMENT SYSTEM	
T-1-1	LENGTH 40.6 ft	T-2-1	LENGTH 40.6 ft	T-3-1	LENGTH 45.6 ft
	GROUND ELEVATION 448.1		GROUND ELEVATION 445.5		GROUND ELEVATION 442.8
	INVERT ELEVATION 446.1		INVERT ELEVATION 443.5		INVERT ELEVATION 440.8
	MAX BOTTOM ELEVATION 443.6		MAX BOTTOM ELEVATION 439.5		MAX BOTTOM ELEVATION 434.8
T-1-2	LENGTH 40.6 ft	T-2-2	LENGTH 40.6 ft	T-3-2	LENGTH 45.6 ft
	GROUND ELEVATION 447.2		GROUND ELEVATION 445.0		GROUND ELEVATION 440.0
	INVERT ELEVATION 445.2		INVERT ELEVATION 443.0		INVERT ELEVATION 438.0
	MAX BOTTOM ELEVATION 442.7		MAX BOTTOM ELEVATION 439.0		MAX BOTTOM ELEVATION 432.0
T-1-3	LENGTH 40.6 ft	T-2-3	LENGTH 40.6 ft		
	GROUND ELEVATION 446.6		GROUND ELEVATION 444.6		
	INVERT ELEVATION 444.6		INVERT ELEVATION 442.6		
	MAX BOTTOM ELEVATION 442.1		MAX BOTTOM ELEVATION 436.6		
T-1-4	LENGTH 40.6 ft				
	GROUND ELEVATION 446.2				
	INVERT ELEVATION 444.2				
	MAX BOTTOM ELEVATION 441.7				

Approved Septic System Plan
Howard County Health Department

OSDS approved as illustrated/described
R. Miller 5/18/22
Signature Date

Professional Certification. 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. 28376, Expiration Date: 01-01-2023.



BEI-AAM

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SEPTIC INVERT CHART - LOT 33	
INV @ HOUSE	440.9
GROUND @ HOUSE	445.6
INV IN SEPTIC TANK	440.3
INV OUT SEPTIC TANK	440.1
TOP OF SEPTIC TANK	441.2
GROUND OVER SEPTIC TANK	442.8
INV IN PUMP TANK	439.7
INV OUT PUMP TANK	439.4
TOP OF PUMP TANK	440.5
GROUND OVER PUMP TANK	443.2
INV IN DIST BOX	446.4
INV OUT DIST BOX	446.3
GROUND AT DIST BOX	448.5

OWNER/BUILDER:
KEYSTONE CUSTOM HOMES, INC.
227 GRANITE RUN DR.
SUITE 100
LANCASTER, PA 17601
717-464-9060

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
3300 NORTH RIDGE ROAD ▲ SUITE 140
ELLCOTT CITY, MARYLAND 21043
(P) 410-465-6105 ▲ (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

PROJECT:	MYRTUE PROPERTY LOT 33		
LOCATION:	TAX MAP: 10, GRID: 24, PARCEL: 225, ZONED: RC-DEO 1886 DAVIS BRANCH RD. WOODSTOCK, MD 21163 6TH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID 352498		
TITLE:	ONSITE SEWAGE DISPOSAL PLAN		
HOUSE TYPE:	CUSTOM - KEYSTONE HOMES		
DATE:	MAY, 2022	PROJECT NO.	2099
SCALE:	AS SHOWN	DRAWING	2 OF 4

Pumping Station

Diameter of Force Main and Manifold = 2" PVC SCH. 40
 Length of Force Main = 62 feet SCH.40 gallons/100 feet = 17.4 Table 4.2

Volume of Main = 10.8 gallons

Total Volume = 10.8 gallons

Minimum Dose must be greater than 1/6 of the design flow 175 gallons

Minimum Dose must be greater than the volume of the main 11 gallons

Use minimum dose of 180 gallons okay Doses per Day = 5.833333

Size Pump Chamber

Pump chamber must be able to hold one dose and one days design flow

One day Capacity = 1050 gallons
 Dose = 180 gallons
 Totals = 1230 gallons

Use 2,000 gallon pump tank

Tank Dimensions:	Exterior	Interior		
Length:	13.75 feet	Length:	13.08 feet	Walls: 0.33 feet
Width:	6.25 feet	Width:	5.58 feet	Bottom: 0.33 feet
Height:	5.42 feet	Height:	4.67 feet	Top: 0.42 feet
		Area:	73.05 sf	Bottom to Inlet: 4.58 feet
		Volume:	340.89 cf	

Sizing the Pump

Flow: runtime = 5.000 minutes
 rate = 36.00 gallons/minute

Design Head: Design Head = Static Head + Friction Head
 Static Head = highest elevation of main - pump off elevation
 Highest component of system = 446.39 Main HP
 Pump off elevation = 436.90
 Static Head = 9.49 feet
 Friction Head = Head loss due to pipe friction
 2.0" pipe = 62 feet
 90° bends 3 loss per bend@7' 21 feet per table 4.3
 45° bends 2 loss per bend@4' 8 feet per table 4.3
 Gate Valve 0 loss for tee 0 feet per table 4.3
 Friction loss per table 4.4 = 2.16 (ft/100 ft)
 Equivalent Length = 91 Friction loss = 1.97 feet
 Total Friction Head = 1.97
 Design Head = 11.46 feet

Pump Requirements:

Performance = 36.00 gpm
 Head of Water = 11.46 feet of head

Pump Selection: Zoeller Pump Company, Model 151
 1/3 horse power

Pump Flow Rate = 42.95 gallons/minute per rating curve. Run time: 4.19 Minutes
 TDH analysis 12.22 ft
 Between design and curve? Yes

Design Pump Chamber

Ground over Tank = 443.16 Cover = 2.66 ft
 Top of Tank = 440.50
 Invert of Tank = 435.41
 Riser = 0.50 feet
 Pump Height = 0.97 feet

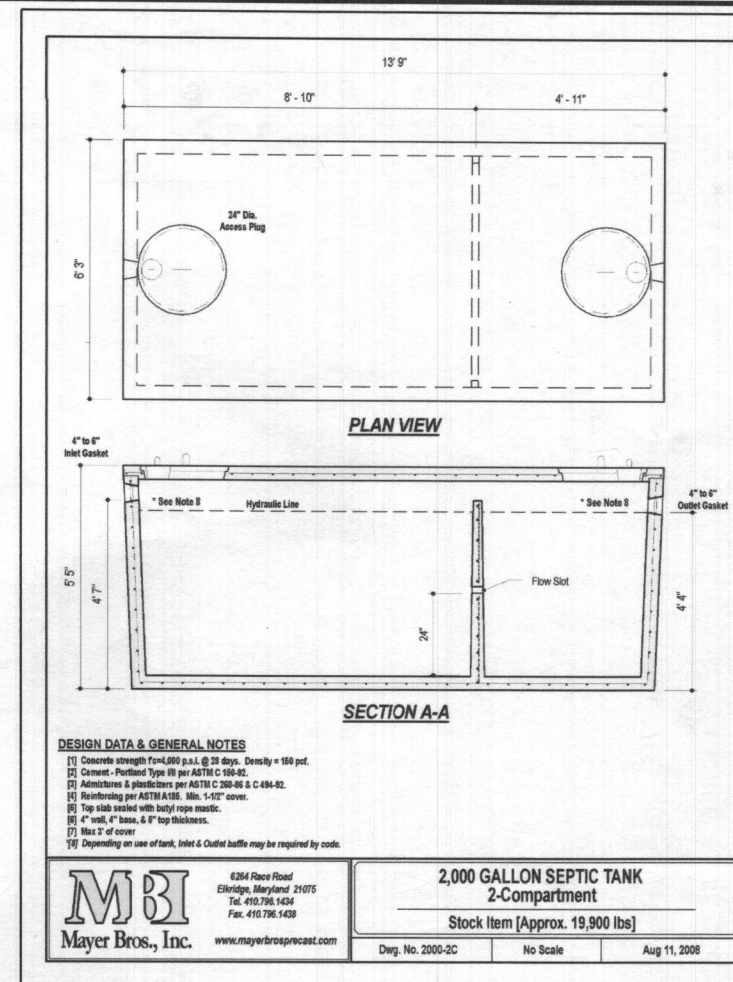
Min. Pump off = 436.89
 Selected Pump off = 436.90

Dose = 24.1 cf
 Area of Pit = 73.05 sf

Pump on dist. = 0.33
 Pump on Elev. = 437.23

Distance between Pump on and Highwater Alarm = 0.5 feet
 Highwater Alarm Elevation = 437.73

Dist. for day stored above alarm 1.92
 Minimum Inlet Elev. = 439.65
 Tank Inlet = 439.66 Okay
 Dist. Alarm to Inlet = 1.93 Okay



MBI
 Mayer Bros., Inc.
 6264 Race Road
 Ellicott City, Maryland 21075
 Tel. 410.796.1424
 Fax. 410.796.1439
 www.mayerbroscast.com

Approved Septic System Plan
 Howard County Health Department
OSDS approved as illustrated
[Signature]
 5/18/22
 Date

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK, PUMP AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER.

THIS PLAN IS FOR SEPTIC DESIGN ONLY

Professional Certification. 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. 28376, Expiration Date: 01-01-2023.



BEI-AAM

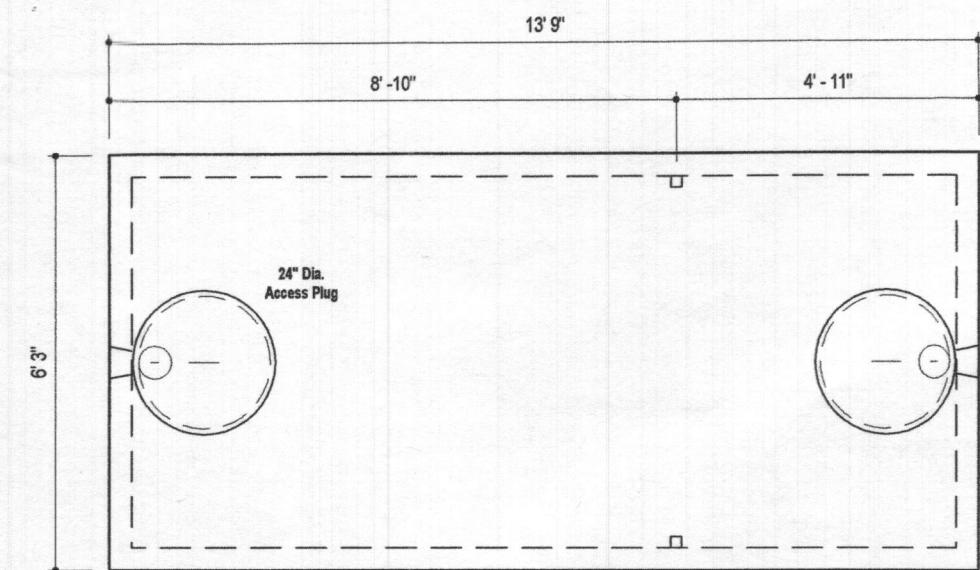
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SEE MANUFACTURER'S SPECIFICATIONS FOR DETAILS. EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

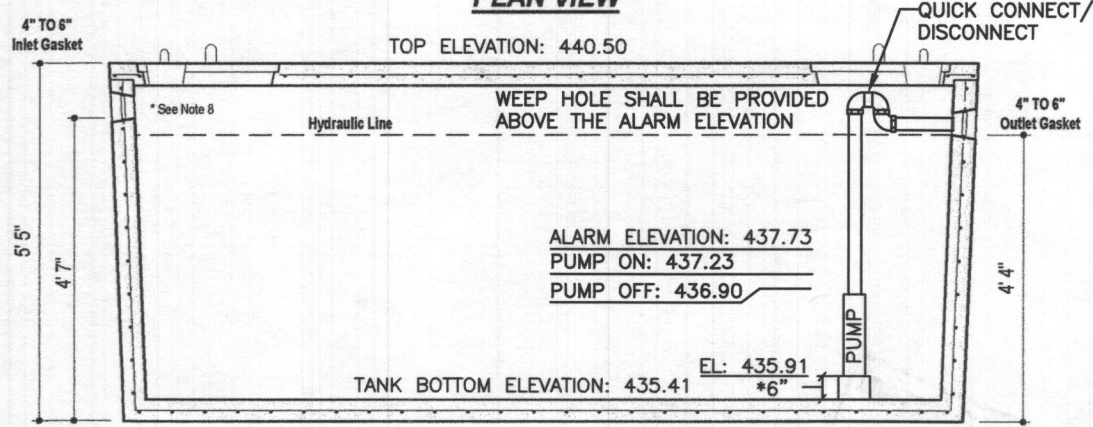
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TITLE:	ONSITE SEWAGE DISPOSAL PLAN	
HOUSE TYPE:	CUSTOM - KEYSTONE HOMES	
DATE:	MAY, 2022	PROJECT NO. 2099
SCALE:	AS SHOWN	DRAWING 3 OF 4



PLAN VIEW



SECTION A-A

*USE BLOCK OR SUPPORT TO RAISE PUMP INLET A MINIMUM OF 0.5' OFF BOTTOM OF TANK

- DESIGN DATA & GENERAL NOTES**
- [1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 150 pcf.
 - [2] Cement - Portland Type III per ASTM C 150-92.
 - [3] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.
 - [4] Reinforcing per ASTM A186. Min. 1-1/2" cover.
 - [5] Top slab sealed with butyl rope mastic.
 - [6] 4" wall, 4" base, & 6" top thickness.
 - [7] Max 3' of cover
 - [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

WEIGHT = 19,000 lbs.

MBI
Mayer Bros., Inc.
6264 Race Road
Elkridge, Maryland 21075
Tel. 410.796.1434
Fax. 410.796.1438
www.mayerbrosprecast.com

2,000 GALLON SEPTIC TANK
1-Compartment
Stock Item [Approx. 19,000 lbs]
Dwg. No. 2000-1C No Scale Aug. 11, 2008

Trusted. Tested. Tough.™



SECTION: 2.15.080
FM2784
1017
Supersedes
0315

TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps

PRODUCT SPECIFICATIONS

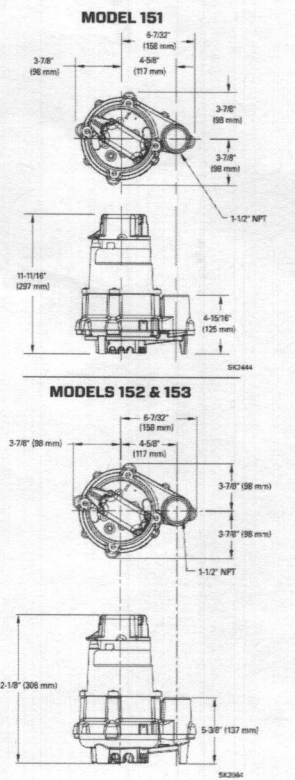
MOTOR	Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
PUMP	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	3.0 - 10.5
	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	Cord Type	UL listed power cord
	Max. Head	44' (13.4 m)
MATERIALS	Max. Flow Rate	77 GPM (291 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Plastic or cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
Mechanical Seals	Carbon and ceramic	
Impeller Type	Non-clogging vortex	
Impeller	Engineered thermoplastic	
Hardware	Stainless steel	
Motor Shaft	AISI 1215 steel	
Gasket	Neoprene	

NOTE: The sizing of effluent systems normally requires variable level float controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

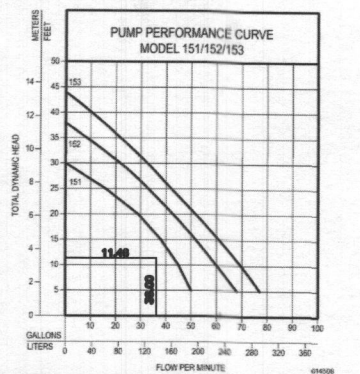


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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com



TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL	151	152	153				
Feet	Meters	Gal	Liters	Gal	Liters	Gal	Liters
5	1.5	50	189	89	281	77	291
10	3.0	45	170	81	231	70	265
15	4.5	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	19	61	34	129	42	159
30	9.1	-	-	23	87	33	125
35	10.7	-	-	-	-	22	85
40	12.2	-	-	-	-	11	42
Shut-off Head:	30 ft. (9.1m)	38 ft. (11.6m)	44 ft. (13.4m)				



RECOMMENDED PUMP:

MODEL COMPARISON

Model	Seal	Mode	Volts	Ph	Amps	HP	H _z	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	8.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.0	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.0	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Auto	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17	*	2 or 3
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Auto	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m). 50' (15 m) cords are available for 230 V units only.

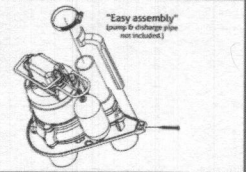
NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

SELECTION GUIDE

- For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM1228 for correct model of simplex control panel.
- See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rods or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1 1/2" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates surge, dewatering and effluent applications



CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

Float Tree:	Elev.	Relative to Bottom
Bottom of Tank	435.41	
Top of Pump	436.64	1' 2 11/16"
Pump Off	436.70	1' 3 7/16"
Pump On	437.03	1' 7 3/8"
High Alarm	437.53	2' 1 3/8"

Approved Septic System Plan
Howard County Health Department
OSTS Design approved
as illustrated
Signature: RBueler
Date: 5/18/22

Professional Certification. 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. 28376, Expiration Date: 01-01-2023.



BEI-AAM

2022.05.11 10:03:57 -04'00

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK, PUMP AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER.

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURER'S SPECIFICATIONS FOR DETAILS. EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

OWNER/BUILDER:
KEYSTONE CUSTOM HOMES, INC.
227 GRANITE RUN DR.
SUITE 100
LANCASTER, PA 17601
717-464-9060

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
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ELLCOTT CITY, MARYLAND 21043
(P) 410-465-6105 ▲ (F) 410-465-6644
WWW.BEI-CMLENGINEERING.COM

PROJECT: **MYRTUE PROPERTY LOT 33**

LOCATION: TAX MAP: 10, GRID: 24, PARCEL: 225, ZONED: RC-DEO
1886 DAVIS BRANCH RD. WOODSTOCK, MD 21163
6TH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID 352498

TITLE: **ONSITE SEWAGE DISPOSAL PLAN**

HOUSE TYPE: **CUSTOM - KEYSTONE HOMES**

DATE: **MAY, 2022** PROJECT NO. **2099**

SCALE: **AS SHOWN** DRAWING **4** OF **4**