

**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: 7/7/25      **ONSITE SEWAGE DISPOSAL SYSTEM**      P 589120

APPROVAL DATE: 11/5/2025 **PERMIT: UPGRADE**      A \_\_\_\_\_

PROPERTY ADDRESS: 6513 Old Hill Top Court

SUBDIVISION: Clarksville Crossing      LOT: Parcel D      TAX ID: 05-344298

CONTRACTOR: Hatfields Equipment      EMAIL: ken@hatfieldsequipment.com

CONTRACTOR ADDRESS: 517 Annapolis Junction, MD 20701      PHONE: 301-490-4289

PROPERTY OWNER: Williamsburg Homes      EMAIL: \_\_\_\_\_

OWNER ADDRESS: 5485 Harpers Farm Road, Columbia, MD 21044      PHONE: 410-997-8800

SEPTIC TANK SIZE: 2000      PUMP SIZE: Model BN-151      PUMP TANK CAPACITY: 1500

DISTRIBUTION SYSTEM:     GRAVITY     PRESSURE DOSED    BEDROOMS: 6    APPLICATION RATE: 0.6

TRENCHES:	LINEAR FEET REQUIRED: <u>250</u>	INLET DEPTH: <u>3</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>5</u>
LOCATION:	<b>SYSTEM TO BE STAKED BY DESIGNER AND VERIFIED BY APPROVING AUTHORITY DURING PRE-CONSTRUCTION INSPECTION.</b>	
NOTES:		

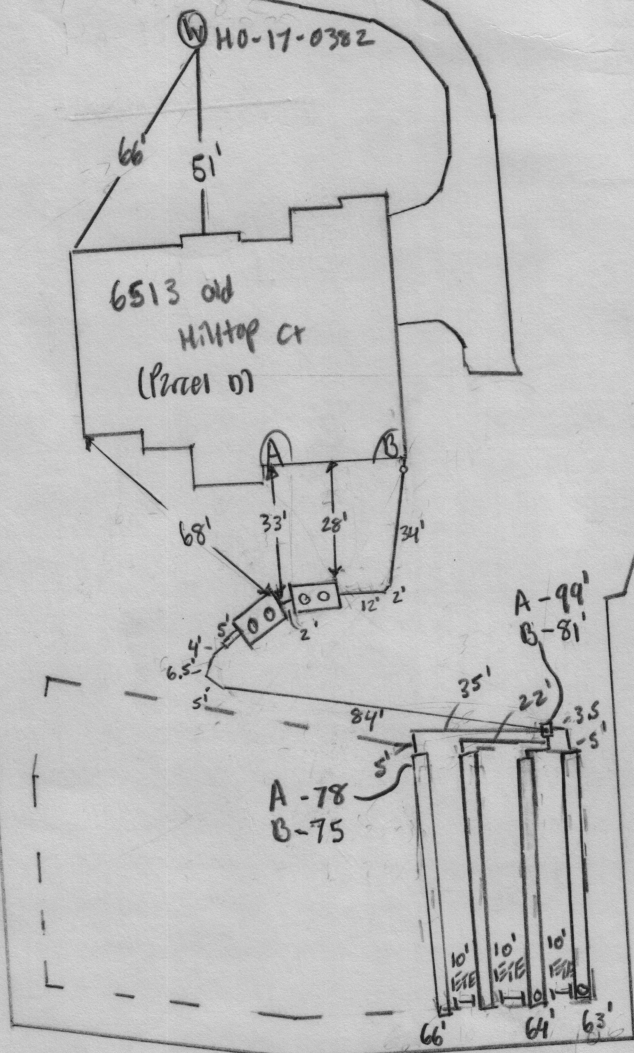
ISSUED BY: D. Bernard      ISSUE DATE: 7/7/2025      EXPIRATION DATE: 7/7/26

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR REGISTERED WITH THE STATE OF MD ON-SITE WASTEWATER PROFESSIONALS BOARD: CONFIRMED
- 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 SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADE 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 25003653
- NOTE: THE HCHD DOES NOT WARRANT ANY SYSTEM AND CANNOT GUARANTEE THE PERFORMANCE OF THIS SYSTEM AS DESIGNED. BY ACCEPTING THIS PERMIT, THE OWNER AND/OR APPLICANT ACKNOWLEDGE THAT THE SPECIFICATIONS DETAILED IN THIS DESIGN ARE ONE POSSIBLE OPTION AND THAT THE HCHD WILL REVIEW OTHER PROPOSALS. YOU HAVE THE OPTION TO SEEK THE ADVICE OF A QUALIFIED DESIGN CONSULTANT OR PROFESSIONAL ENGINEER FOR FURTHER GUIDANCE.
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- 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.**

1" = 50'

NOT TO SCALE



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	3'	8'
NUMBER OF TRENCHES		4
TOTAL LENGTH		258'
ABSORPTION AREA		774A <sup>3</sup>
DISTRIBUTION BOX LEVEL		—
DISTRIBUTION BOX BAFFLE		90° turn down
DISTRIBUTION BOX PORT		yes

SEPTIC TANK DATA	
SEPTIC TANK 1 LEVEL	yes
MANUFACTURER	Babylon
CAPACITY	2000 GAL
SEAM LOC	Top
TANK LID DEPTH	3'-2'
BAFFLES	4" back & 6" front
BAFFLE FILTER	—
MANHOLE LOC	Front & back
6" PORT LOC	—
WATERTIGHT TEST	—
SLOTTED	yes
DATE ON LID	6/20/2025
PUMP/SEPTIC TANK LEVEL	
MANUFACTURER	Babylon
CAPACITY	1500 GAL
SEAM LOC	Top
TANK LID DEPTH	3'-2'
BAFFLES	—
BAFFLE FILTER	—
MANHOLE LOC	Front & back
6" PORT LOC	—
WATERTIGHT TEST	—
SLOTTED	—
DATE ON LID	6/10/2025

ROAD NAME

SEPTIC CONTRACTOR ONSITE INSTALLING SYTEM: TODD TRACEY  
SEPTIC CONTRACTOR ONSITE LICENSED WITH THE STATE OF MD: YES/NO

PRE-CONSTRUCTION NOTES:

8/6/2025 - Installer onsite for pre-con tank sized per plan. OK to install.  
SOA staked, but contour does not match plan, ~18" difference. (SP)

8/7/2025 - Sparkle w/ Engineer, Engineer staked old earth line on SOA & some cut on other side of SOA.

Bottom of SOA excavated to reveal original ground. 1' under trenches to be installed from excavated grade ~78' bottom.  
INSTALLATION NOTES: trench 62.5' long & 10' apart. 10' EFB. (SPIMB)

8/7/2025 - Installer onsite. Tanks installed. Babylon tanks. 3'-2" of cover. Cured date ~7 days. Slot in sl.  
Adequate fall to tanks. SCHED 40 PVC used. c/c @ base. OK to Beckman. (SPIMB)

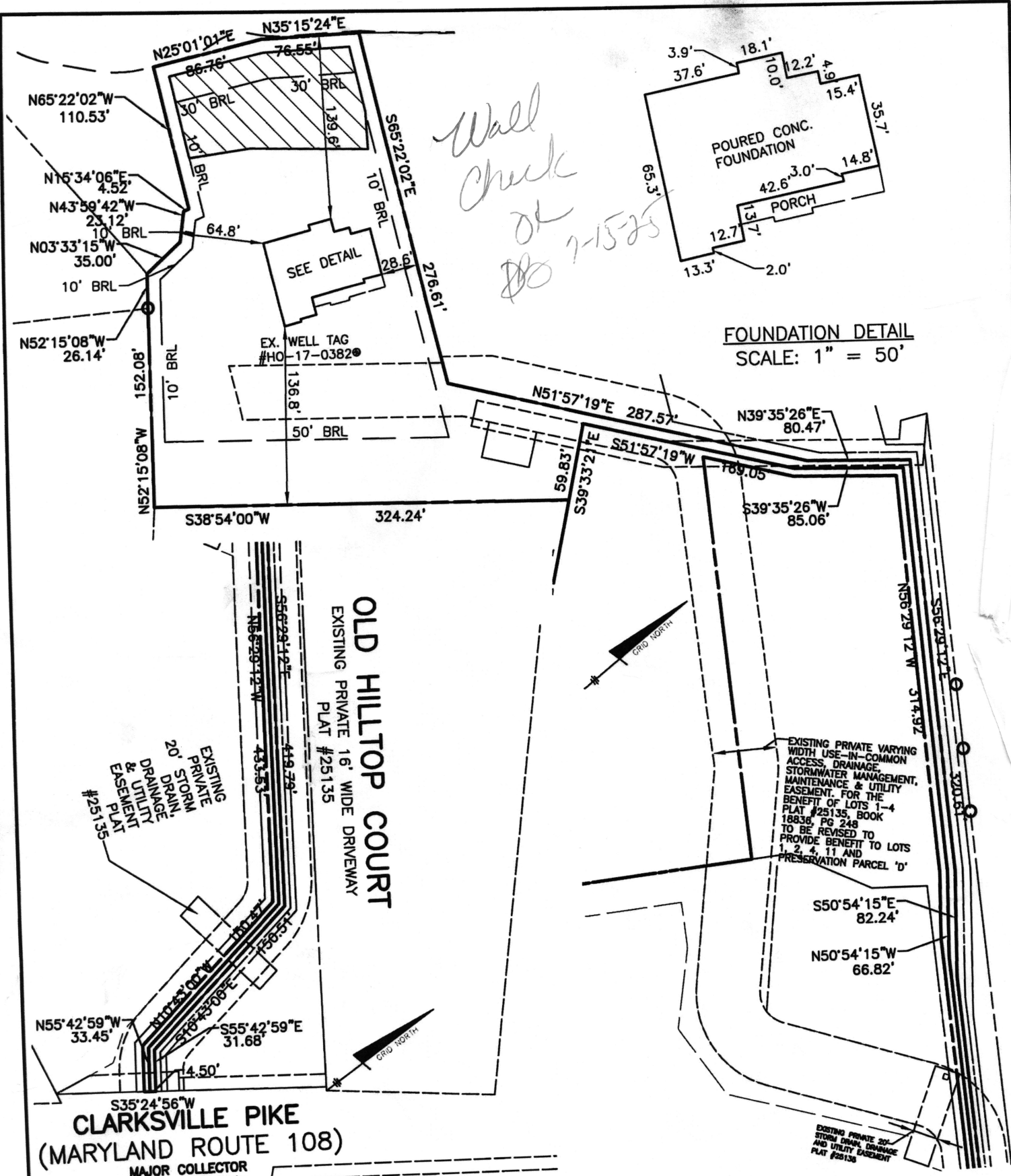
8/8/2025 - Installer onsite for inspection. Half of 1st trench staked. Bottom per plan. Inlet @ 3'. Installer waiting for  
stone. PM installed outside of PT. PM inspection done. 1st & 2nd trenches done. OK to Beckman. (SP)

8/11/2025 - Installer onsite for inspection. Bottom 2 trenches finished, inlet @ 3', bottom @ 8', length @ 66' & 65'. 10' EFB.  
PM finishing installation upon arrival. 2" SCHED 40 & 280 PSI. PM ran 2nd baffle in d-box, told installer to use  
90° turn down. (SP)

FINAL INSPECTOR S. Pyle / M. Burns DATE OF APPROVAL 11/5/2025

11/5/2025 - Installer onsite for P&A. Annu & usual OK, pump successfully goes to d-box. (SPIMB)

CONTROL PANEL DATA	
CONTROL PANEL HEIGHT	36"
(MIN 30")	
INSPECTION DATE	8/8/2025
INSPECTION: PASS/FAIL (CIRCLE ONE)	



*Wall  
check  
OK  
7-15-25  
DB*

**FOUNDATION DETAIL**  
SCALE: 1" = 50'

EXISTING PRIVATE VARYING  
WIDTH USE-IN-COMMON  
ACCESS, DRAINAGE,  
STORMWATER MANAGEMENT,  
MAINTENANCE & UTILITY  
EASEMENT. FOR THE  
BENEFIT OF LOTS 1-4  
PLAT #25135, BOOK  
18836, PG 248  
TO BE REVISED TO  
PROVIDE BENEFIT TO LOTS  
1, 2, 4, 11 AND  
PRESERVATION PARCEL 'D'

S50°54'15"E  
82.24'  
N50°54'15"W  
66.82'

EXISTING PRIVATE 20'  
STORM DRAIN, DRAINAGE  
AND UTILITY EASEMENT  
PLAT #25135

**CLARKSVILLE PIKE**  
(MARYLAND ROUTE 108)

MAJOR COLLECTOR  
ULTIMATE 80' R/W  
NEIGHBORHOOD STREET

**SURVEYOR'S CERTIFICATE**

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. 21320, EXPIRATION DATE  
1-7-2027 AND TO THE BEST OF MY PROFESSIONAL  
KNOWLEDGE, INFORMATION AND BELIEF, THAT THE  
DIMENSIONS OF THE BUILDING WALLS SHOWN HEREON  
ARE CORRECT; THAT THEY ARE BASED ON A FIELD RUN  
SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC.  
ON 05/08/2025.

*Donald A. Mason*  
DONALD A. MASON  
PROFESSIONAL LAND SURVEYOR  
MARYLAND REG. No. 21320



FEMA FIRM No. 24027C0130D  
ZONE: X  
DATED: 11/6/2013

**BENCHMARK**

ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-485-8105 ▲ (F) 410-485-6844  
WWW.BEI-CIVLENGINEERING.COM

TOP OF FOUNDATION WALL = 473.3'  
OFFSET DIMENSIONS TO PROPERTY LINES ARE ± 0.1'

**WALL CHECK**  
**CLARKSVILLE CROSSING**  
**PHASE 2, AREA 2**  
**PLAT No.'S 26640 THRU 26643**  
**PRESERVATION PARCEL 'D'**

6513 OLD HILLTOP COURT

5TH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

SCALE: 1" = 100' DATE: 05/09/2025

FIELD OBS. BY ML  
COMP. BY DAM  
DRAWN BY DAM

CHK'D



Bureau of Environmental Health
8930 Stanford Blvd | Columbia, MD 21045
410.313.2640 - Voice/Relay
410.313.2648 - Fax
1.866.313.6300 - Toll Free

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

AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN ON-SITE TREATMENT SYSTEM

This agreement is entered into by and between the Howard County Health Department ("the Health Department") and Sonnypreet Singh + Sandeep Kaur ("the Owner").

WHEREAS, the Owner owns a tract of land at street address 6513 Old Hilltop Court, Highland MD 20777 and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 34, Block # -, Parcel # 0301, Deed Reference # 22463 and Tax Account # 051605089 ("the Property").

WHEREAS, the Property lacks an available public drinking water source and is required to have and individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit HO-17-0382 that has been tested by the Health Department (or a private laboratory certified to perform testing) for radionuclide particles. The results of the tests have shown that the gross alpha particle content and/or the gross beta particle content and/or the combined radium 226/228 levels exceeds the standards of 15 picocuries per liter (pCi/L), 4 millirems per year (mrem/yr) and/or 5pCi/L respectively.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the maximum contaminate levels (MCL's) for radionuclides.

WHEREAS, MDE has determined that radium can be effectively removed from the drinking water by the use of treatment devices (e.g., ion exchange or reverse osmosis).

WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce radionuclides.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.

NOW THEREFORE, the parties have agreed to the following terms and conditions:

- 1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.
2. The Owner agrees to install and maintain a water treatment device, which effectively reduces the gross alpha, gross beta and radium levels to below their respective MCL. The Health Department shall verify that the treatment device is operating effectively and the Owner agrees to allow access to the Health Department to collect a follow-up sample(s).



**Pumping Station**

Diameter of Force Main and Manifold = 2" PVC SCH. 40  
 Length of Force Main = 82.2 feet SCH.40 gallons/100 feet = 17.4 Table 4.2  
 Volume of Main = 14.3 gallons  
 Total Volume = 14.3 gallons  
 Minimum Dose must be greater than 1/6 of the design flow 125 gallons  
 Minimum Dose must be greater than the volume of the main 14 gallons  
 Use minimum dose of 150 gallons okay Doses per Day = 5.00

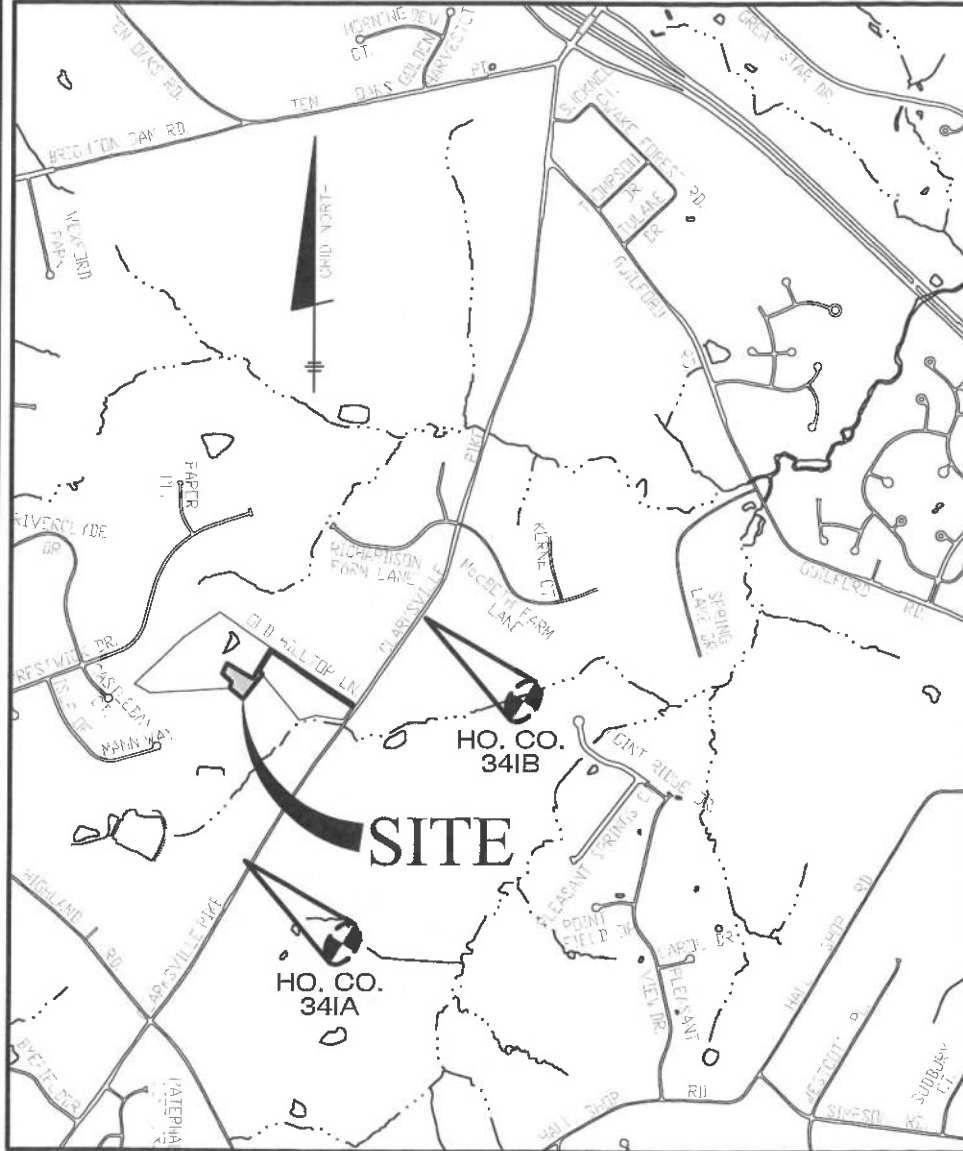
**Size Pump Chamber**

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

One day Capacity = 750 gallons  
 Dose = 150 gallons  
 Totals = 900 gallons

Use 1,500 gallon pump tank

Tank Dimensions:		Exterior	Interior	Walls:	
Length:	10.92 feet	Length:	10.25 feet	Bottom:	0.33 feet
Width:	6.25 feet	Width:	5.58 feet	Top:	0.33 feet
Height:	5.58 feet	Height:	4.92 feet	Bottom to Inlet:	4.5 feet
		Area:	57.23 sf		
		Volume:	281.38 cf		



SCALE: 1" = 2000'  
 ADC MAP 31; GRID C4

**Sizing the Pump**

Flow: runtime = 5.000 minutes  
 rate = 30.00 gallons/minute

Design Head: Design Head = Static Head + Friction Head  
 Static Head = highest elevation of main - pump off elevation  
 Highest component of system = 480.9 Main HP  
 Pump off elevation = 466.00  
 Static Head = 14.90 feet  
 Friction Head = Head loss due to pipe friction  
 2.0" pipe = 82.2 feet  
 45° bends 3 loss for bend 12 feet per table 4.3  
 90° bends 3 loss for bend 15 feet per table 4.3  
 Gate Valve 0 loss for tee 0 feet per table 4.3  
 Friction loss per table 4.4 = 1.54 (ft/100 ft)  
 Equivalent Length = 109.2 Friction loss 1.68 feet  
 Total Friction Head = 1.68

Design Head = 16.58 feet

**Pump Requirements:**

Performance = 30.00 gpm  
 Head of Water = 16.58 feet of head

Pump Selection: Zoeller Pump Company, Model 151  
 0.3 horse power

Pump Flow Rate = 34.00 gallons/minute per rating curve. Run time: 4.41 Minutes  
 TDH analysis 17.03 ft  
 Between design and curve? Yes

**Design Pump Chamber**

Ground over Tank = 472.70 Cover = 3.00 ft  
 Top of Tank = 469.70  
 Invert of Tank = 464.45  
 6" Riser = 0.50 feet  
 Pump Height = 1.00 feet

Min. Pump off = 465.95  
 Selected Pump off = 466.00

Dose = 20.1 cf  
 Area of Pit = 57.23 sf

Pump on dist. = 0.35  
 Pump on Elev. = 466.35

Distance between Pump on and Highwater Alarm = 0.5 feet  
 Highwater Alarm Elevation = 466.85

Dist. for day stored above alarm 1.75  
 Minimum Inlet Elev. = 468.60  
 Tank Inlet = 468.62 Okay  
 Dist. Alarm to Inlet = 1.77 Okay

**GENERAL NOTES**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR CLARKSVILLE CROSSING, PLAT NUMBER 26640-26643 REFER TO THE PLAT FOR LOT DIMENSIONS, LOT AREA, ALL EASEMENTS AND CONDITIONS.
2. THE EXISTING WELL SHOWN ON THIS PLAN (HO-17-0382) HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC. AND IS ACCURATELY SHOWN.
3. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
4. TOPOGRAPHY SHOWN WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED AUGUST, 2013, AND INCLUDES PROPOSED GRADING AS SHOWN ON THE MASS GRADING PLAN FOR LOTS 1-4 AS EXISTING CONDITIONS.
5. SEDIMENT AND EROSION CONTROLS WILL BE SUBMITTED TO HOWARD SOIL 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 SHALL BE A 1,500 GALLON SINGLE COMPARTMENT TANK.
11. THE MAXIMUM EARTH COVER OVER A 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.
13. ANY FUTURE WELLS SHALL BE 10' FROM DRIVEWAY.
14. DRY WELL FACILITIES ARE NOT ALLOWED CLOSER THAN 100' TO A WELL SITE OR WELL BOX.

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. 45577, Expiration Date: 06/08/2026

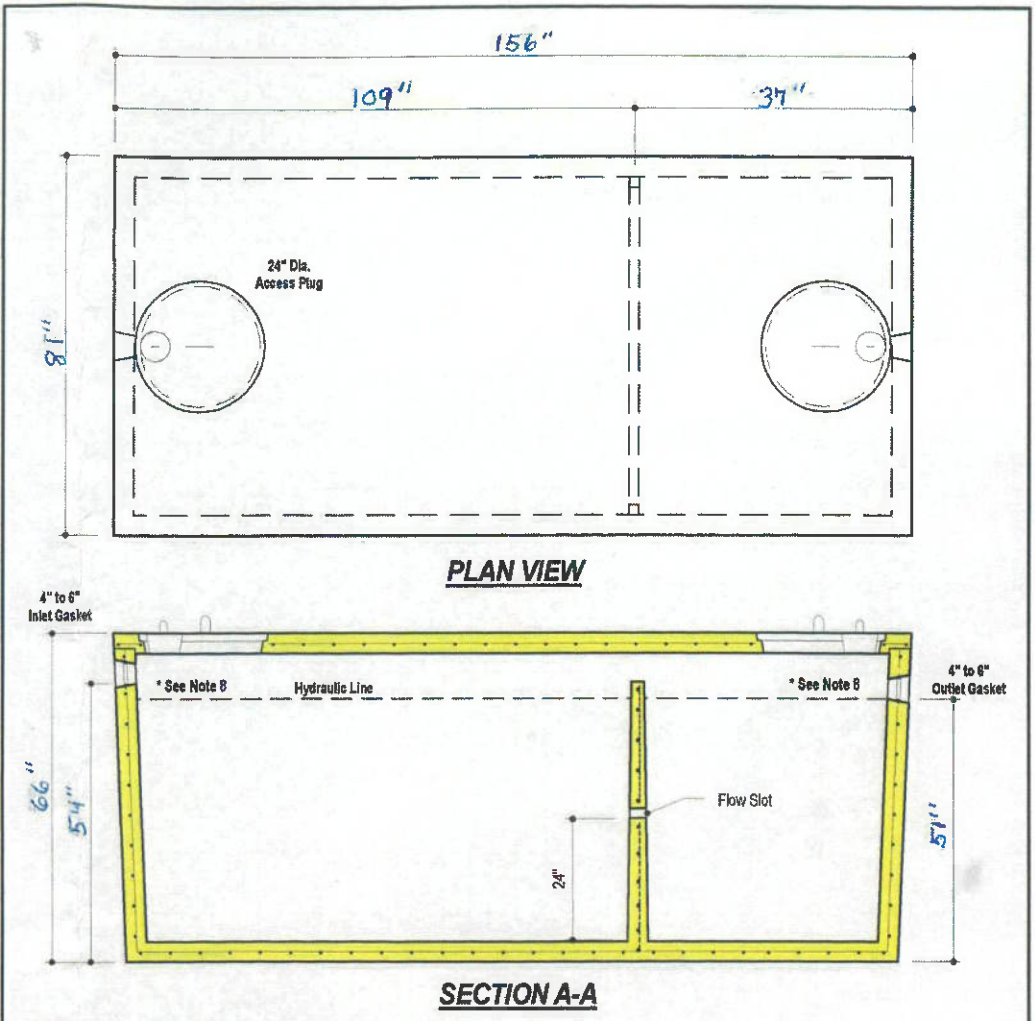
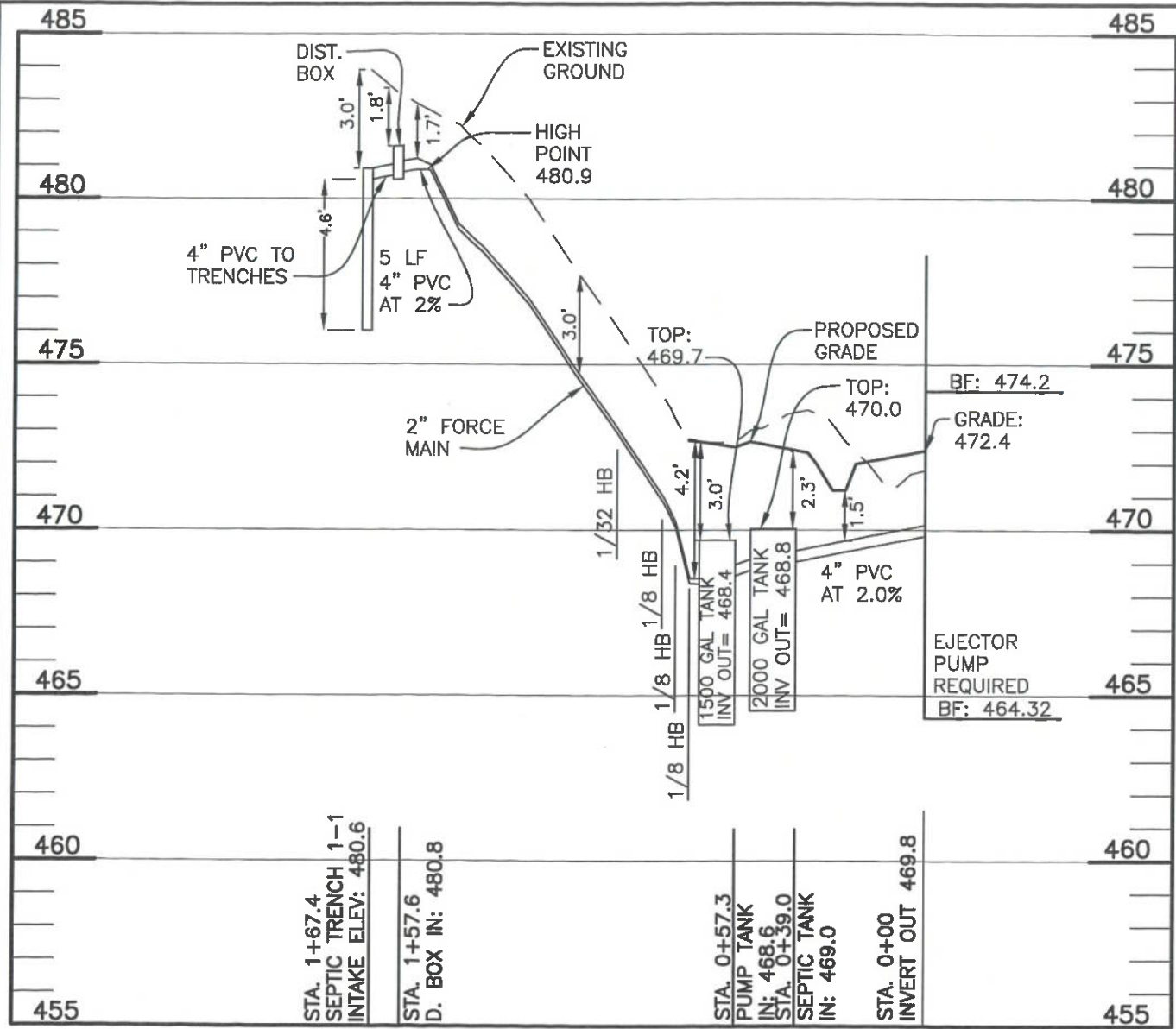


John M. Carney  
 1/22/25

PROJECT:	CLARKSVILLE CROSSING PARCEL D		
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605089 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND		
TITLE:	ONSITE SEWAGE DISPOSAL SYSTEM PLAN		
HOUSE TYPE:	WELLINGTON		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	1 OF 4

BUILDER:  
 WILLIAMSBURG HOMES  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044  
 410-997-8800

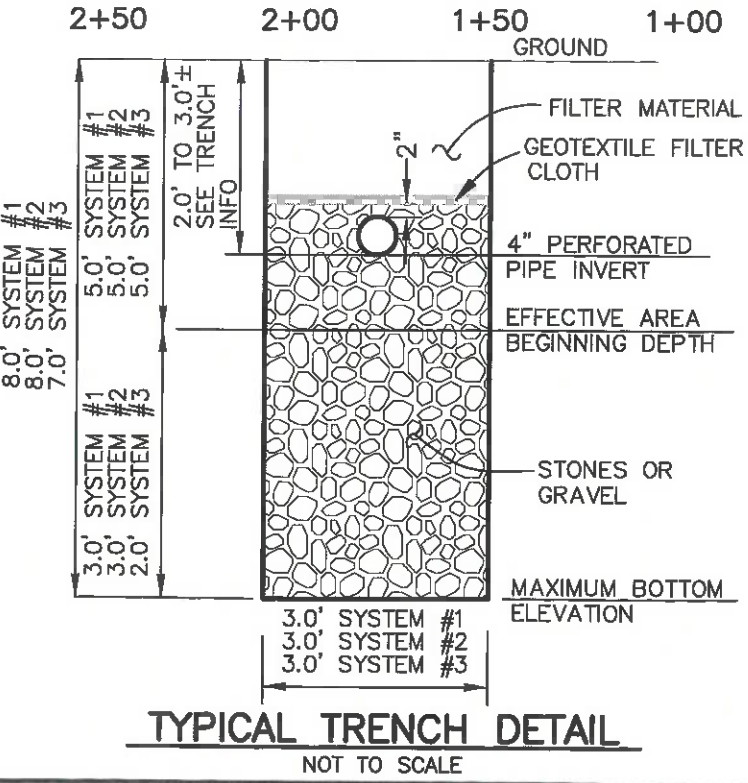
BENCHMARK  
 ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
 ENGINEERING, INC.  
 3300 NORTH RIDGE ROAD ▲ SUITE 140  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 ▲ (F) 410-465-6644  
 WWW.BEI-CVILENGINEERING.COM



**DESIGN DATA & GENERAL NOTES**

[1] Concrete strength f<sub>c</sub>=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 260-86 & C 494-92.  
 [4] Reinforcing per ASTM A166. 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.

**2,000 GALLON SEPTIC TANK  
2-Compartment**  
Stock Item [Approx. 19,900 lbs]



**SEPTIC INVERT CHART - PAR. D**

INV @ HOUSE	469.8
GROUND @ HOUSE	472.4
INV IN TANK	469.0
INV OUT TANK	468.8
TOP OF TANK	470.0
GROUND OVER TANK	472.3
INV IN PUMP TANK	468.6
INV OUT PUMP TANK	468.4
TOP OF PUMP TANK	469.7
GROUND OVER TANK	472.7
INV IN DIST BOX	480.8
INV OUT DIST BOX	480.7
GROUND AT DIST BOX	483.4

**SEPTIC DESIGN INFORMATION - PARCEL D**

System	Application Rate	Effective Depth	Bottom Depth
Initial	0.6	5.0	8.0
1st Replacement	0.8	5.0	8.0
2nd Replacement	1.2	5.0	7.0

**BUILDER:**  
WILLIAMSBURG HOMES  
5485 HARPERS FARM ROAD  
COLUMBIA, MARYLAND 21044  
410-997-8800

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**INITIAL SYSTEM - PARCEL D**

Number of Bedrooms	6	
Application Rate	0.6	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1500	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	250	lf

**1st REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	0.8	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1125	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	188	lf

**2nd REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	7.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.63	
Trench width	3	ft
Effective Area Depth	2	ft
Trench Spacing	10	ft
Linear Length of trench Required	156	lf

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. 45577, Expiration Date: 06/08/2026



John M. Carney  
1/22/25

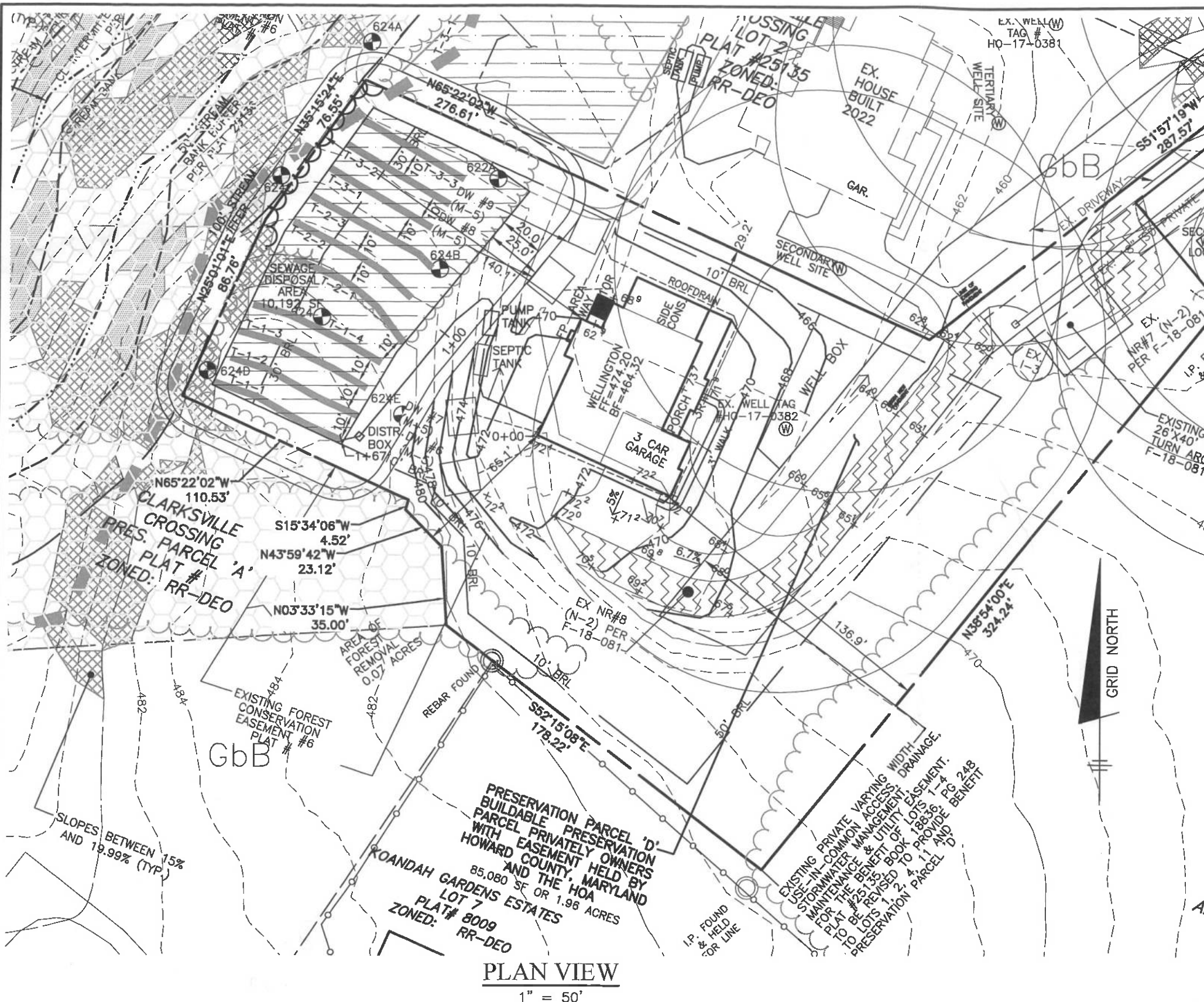
**PROJECT:** CLARKSVILLE CROSSING  
PARCEL D

**LOCATION:** TAX MAP: 34 - GRID: 23 - PARCEL: 301  
6513 OLD HILLTOP CT. - TAX ID: 05-605089  
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

**TITLE:** ONSITE SEWAGE DISPOSAL SYSTEM PLAN

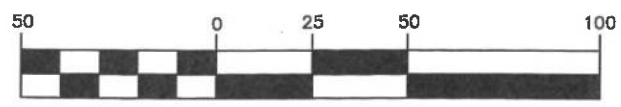
**HOUSE TYPE:** WELLINGTON

<b>DATE:</b>	NOVEMBER, 2024	<b>PROJECT NO.</b>	2525
<b>SCALE:</b>	AS SHOWN	<b>DRAWING</b>	3 OF 4



TRENCH DATA - PARCEL D					
INITIAL SYSTEM		FIRST REPLACEMENT		SECOND REPLACEMENT	
TRENCH 1-1		TRENCH 2-1		TRENCH 3-1	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	484.0	GROUND ELEVATION	479.9	GROUND ELEVATION	475.5
INVERT ELEVATION	480.6	INVERT ELEVATION	477.9	INVERT ELEVATION	473.5
MAX BOTTOM ELEVATION	476.0	MAX BOTTOM ELEVATION	471.9	MAX BOTTOM ELEVATION	468.5
TRENCH 1-2		TRENCH 2-2		TRENCH 3-2	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	484.0	GROUND ELEVATION	478.1	GROUND ELEVATION	473.6
INVERT ELEVATION	480.6	INVERT ELEVATION	476.1	INVERT ELEVATION	471.6
MAX BOTTOM ELEVATION	476.0	MAX BOTTOM ELEVATION	470.1	MAX BOTTOM ELEVATION	466.6
TRENCH 1-3		TRENCH 2-3		TRENCH 3-3	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	482.9	GROUND ELEVATION	476.5	GROUND ELEVATION	472.4
INVERT ELEVATION	480.2	INVERT ELEVATION	474.5	INVERT ELEVATION	470.4
MAX BOTTOM ELEVATION	474.9	MAX BOTTOM ELEVATION	468.5	MAX BOTTOM ELEVATION	465.4
TRENCH 1-4					
LENGTH	62.5 ft				
GROUND ELEVATION	481.7				
INVERT ELEVATION	479.7				
MAX BOTTOM ELEVATION	473.7				

PLAN VIEW  
1" = 50'



(IN FEET)  
1 inch = 50 ft.

BUILDER:  
WILLIAMSBURG HOMES  
5485 HARPERS FARM ROAD  
COLUMBIA, MARYLAND 21044  
410-997-8800

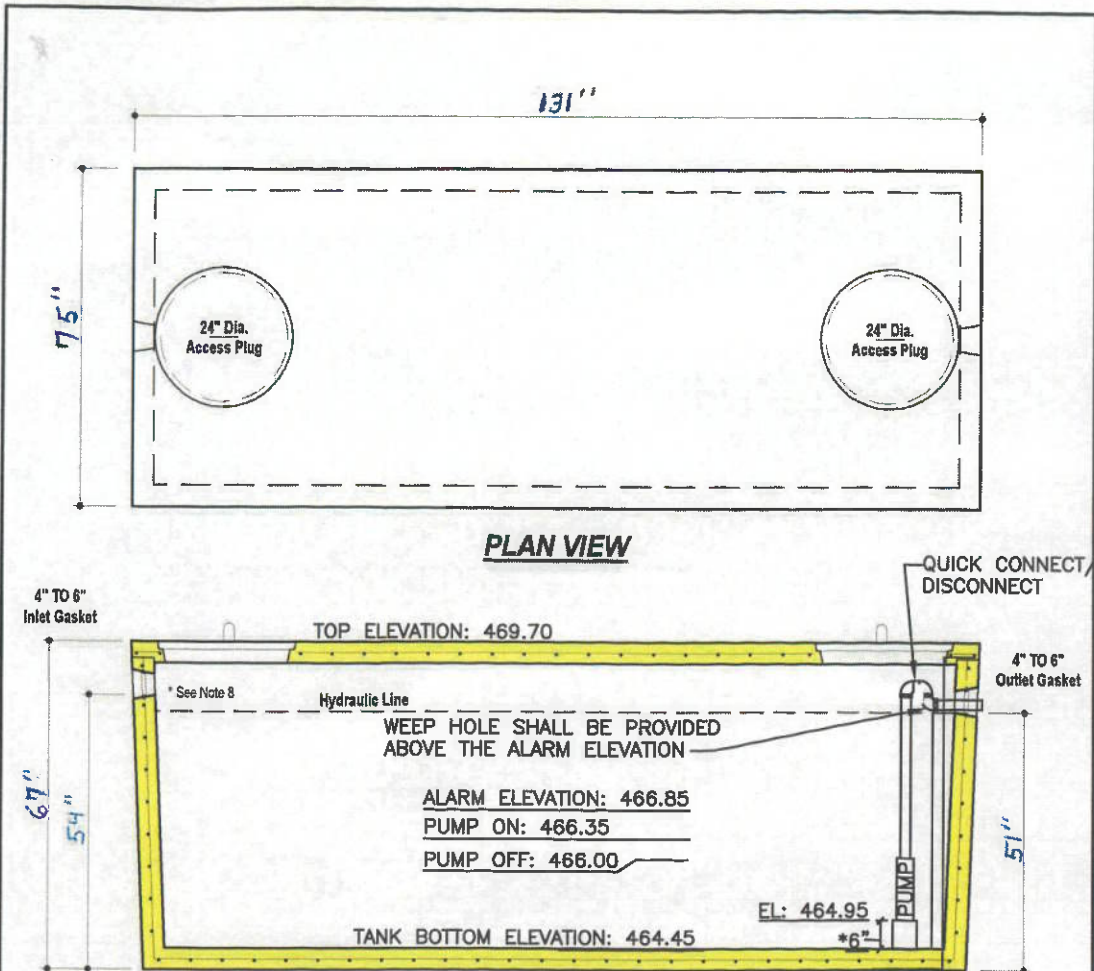
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John M. Carney  
1/22/25

PROJECT:	CLARKSVILLE CROSSING PARCEL D		
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605089 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND		
TITLE:	ONSITE SEWAGE DISPOSAL SYSTEM PLAN		
HOUSE TYPE:	WELLINGTON		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	2 OF 4



**DESIGN DATA & GENERAL NOTES**

- [1] Concrete strength  $f_c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type I/II per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.
- [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3" of cover
- [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

Float Tree:	Elev.	Relative to Bottom
Bottom of Tank	464.45	
Top of Pump	465.95	1' 6"
Pump Off	466.00	1' 6 1/2"
Pump On	466.35	1' 10 3/4"
High Alarm	466.85	2' 4 3/4"

**1,500 GALLON SEPTIC/PUMP TANK**  
**1-Compartment**  
 NON-TRAFFIC MAX 3 ft. OF COVER



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Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: 2.15.080  
 FM2784  
 1017  
 Supersedes  
 0315

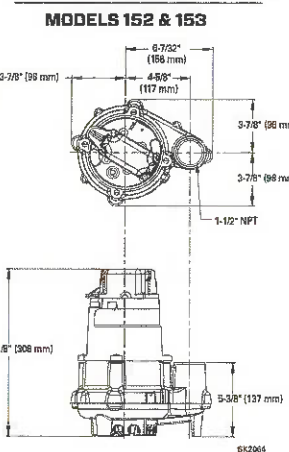
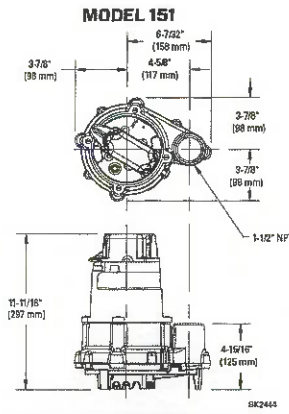
**TECHNICAL DATA SHEET**  
**DOSE-MATE SERIES**  
 Models 151, 152, 153 Effluent Pumps

**PRODUCT SPECIFICATIONS**

MOTOR	Specifications
Horse Power	1/5 (151), 4/10 (152), 1/2 (153)
Voltage	115 or 230
Phase	1 Ph
Hertz	60 Hz
RPM	3450
Type	Permanent split capacitor
Insulation	Class B
Amps	3.0 - 10.5
Operation	Automatic or non-automatic
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)
Max. Flow Rate	77 GPM (291 LPM)
Max. Operating Temp.	130 °F (54 °C)
Cooling	Oil filled
Motor Protection	Auto reset thermal overload
MATERIALS	Specifications
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(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

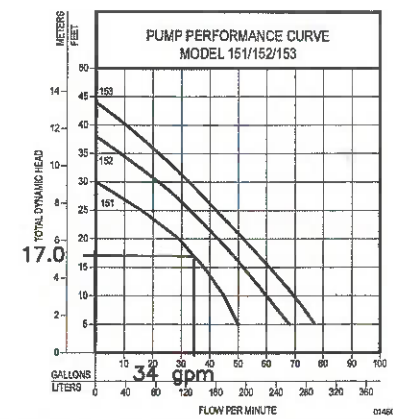
NOTE: See model comparison chart for specific details.



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**TOTAL DYNAMIC HEAD**  
**FLOW PER MINUTE**

Feet	Meters	151		152		153	
		Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	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)	



Model	MODEL COMPARISON											
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex	
N151	Single	Non	115	1	6.0	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	

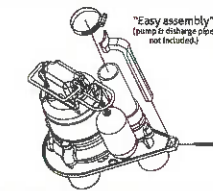
\*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m), 60' (16 m) cords are available for 230V units only.  
 NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

**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 rocks or bricks under the pump
  - Made of durable, noncorrosive ABS
  - Raises pump 2" (5 cm) off bottom of basin
  - Provides the ability to raise intakes by adding sections of 1/2" or 2" (DN40 or DN50) PVC piping
  - Attaches securely to pump
  - Accommodates sump, dewatering and effluent applications
- NOTE: Make sure float is free from obstruction.



**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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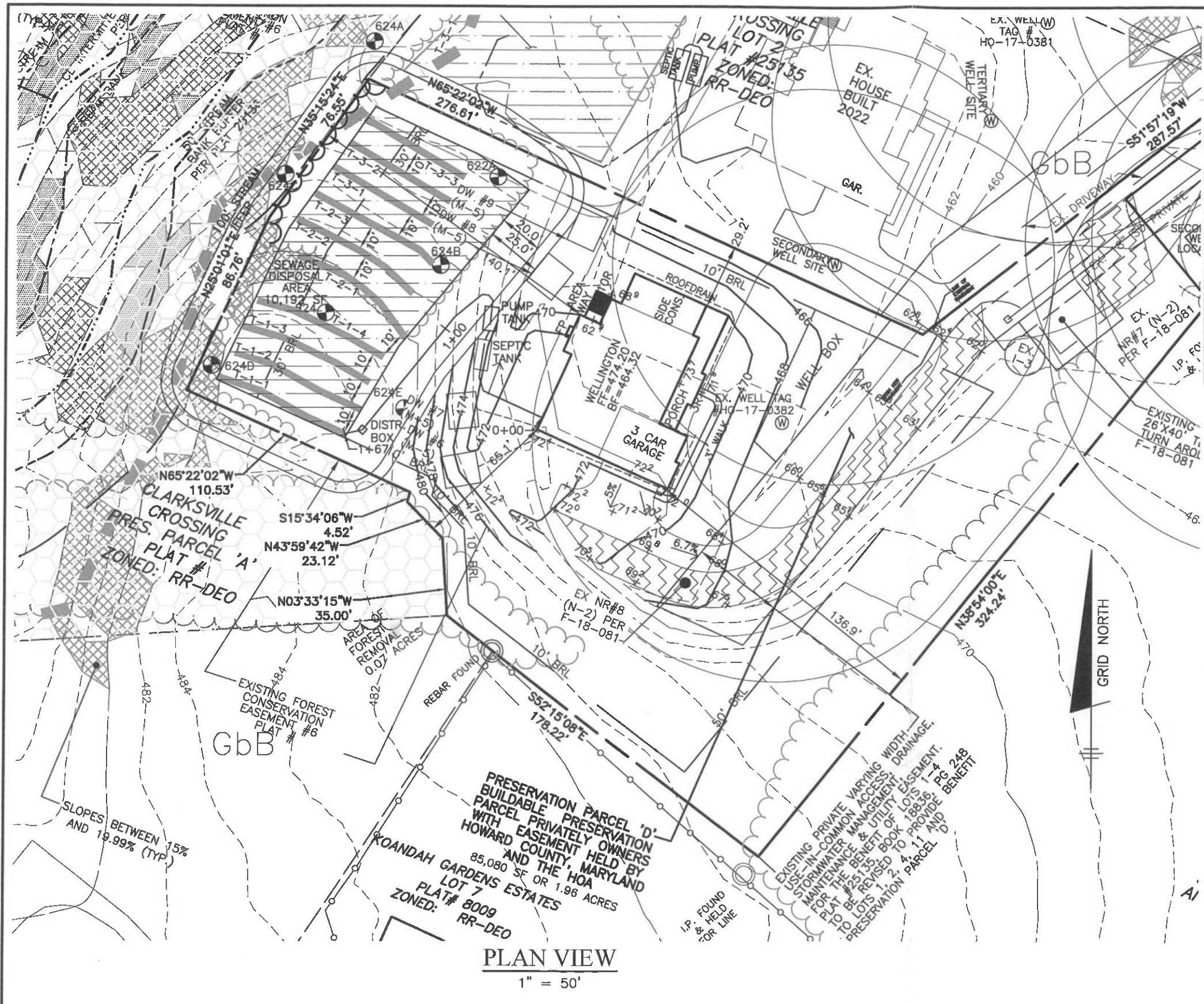
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John M. Carney  
1/22/25

**BUILDER:**  
 WILLIAMSBURG HOMES  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044  
 410-997-8800

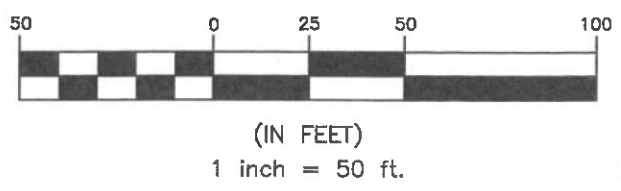
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PROJECT:	<b>CLARKSVILLE CROSSING PARCEL D</b>		
LOCATION:	<b>TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605089 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND</b>		
TITLE:	<b>ONSITE SEWAGE DISPOSAL SYSTEM PLAN</b>		
HOUSE TYPE:	<b>WELLINGTON</b>		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	4 OF 4



TRENCH DATA - PARCEL D					
INITIAL SYSTEM		FIRST REPLACEMENT		SECOND REPLACEMENT	
<b>TRENCH 1-1</b>		<b>TRENCH 2-1</b>		<b>TRENCH 3-1</b>	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	484.0	GROUND ELEVATION	479.9	GROUND ELEVATION	475.5
INVERT ELEVATION	480.6	INVERT ELEVATION	477.9	INVERT ELEVATION	473.5
MAX BOTTOM ELEVATION	476.0	MAX BOTTOM ELEVATION	471.9	MAX BOTTOM ELEVATION	468.5
<b>TRENCH 1-2</b>		<b>TRENCH 2-2</b>		<b>TRENCH 3-2</b>	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	484.0	GROUND ELEVATION	478.1	GROUND ELEVATION	473.6
INVERT ELEVATION	480.6	INVERT ELEVATION	476.1	INVERT ELEVATION	471.6
MAX BOTTOM ELEVATION	476.0	MAX BOTTOM ELEVATION	470.1	MAX BOTTOM ELEVATION	466.6
<b>TRENCH 1-3</b>		<b>TRENCH 2-3</b>		<b>TRENCH 3-3</b>	
LENGTH	62.5 ft	LENGTH	62.5 ft	LENGTH	52.1 ft
GROUND ELEVATION	482.9	GROUND ELEVATION	476.5	GROUND ELEVATION	472.4
INVERT ELEVATION	480.2	INVERT ELEVATION	474.5	INVERT ELEVATION	470.4
MAX BOTTOM ELEVATION	474.9	MAX BOTTOM ELEVATION	468.5	MAX BOTTOM ELEVATION	465.4
<b>TRENCH 1-4</b>					
LENGTH	62.5 ft				
GROUND ELEVATION	481.7				
INVERT ELEVATION	479.7				
MAX BOTTOM ELEVATION	473.7				

PLAN VIEW  
1" = 50'



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John M. Carney  
1/22/25

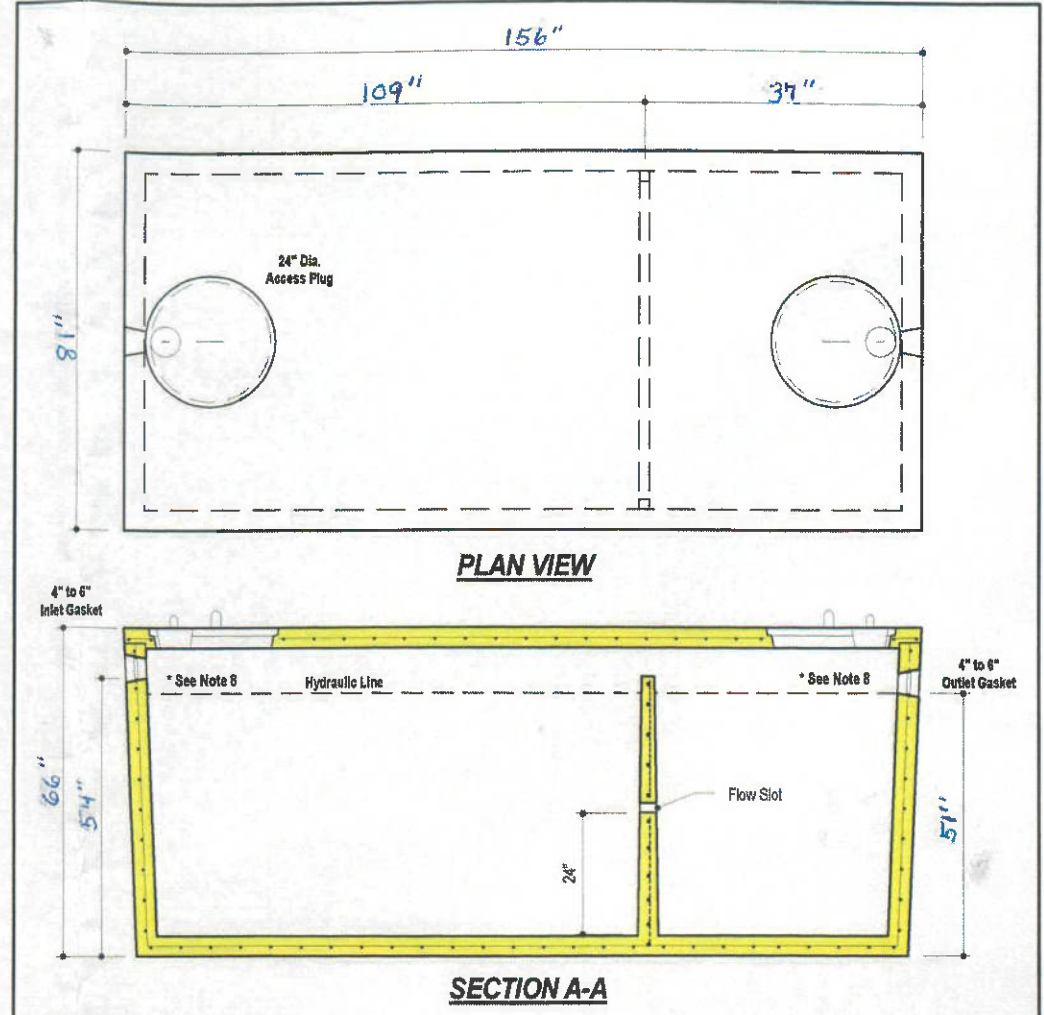
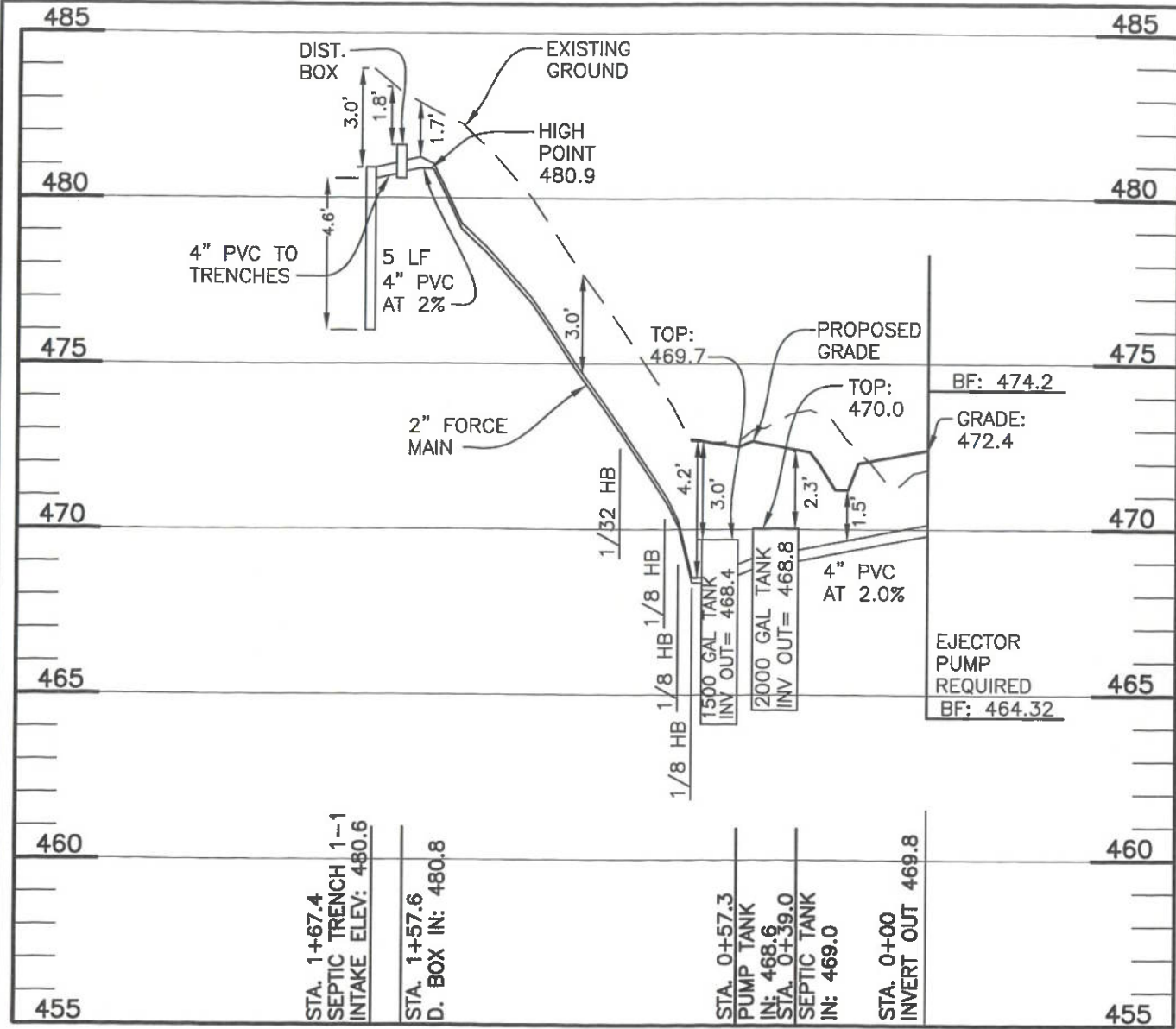
PROJECT:		CLARKSVILLE CROSSING PARCEL D	
LOCATION:		TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605089 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND	
TITLE:		ONSITE SEWAGE DISPOSAL SYSTEM PLAN	
HOUSE TYPE:		WELLINGTON	
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	2 OF 4

**BUILDER:**  
WILLIAMSBURG HOMES  
5485 HARPERS FARM ROAD  
COLUMBIA, MARYLAND 21044  
410-997-8800

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PRESERVATION PARCEL 'D'  
BULDABLE PRESERVATION  
PARCEL PRIVATELY OWNERS  
WITH EASEMENT HELD BY  
HOWARD COUNTY, MARYLAND  
AND THE HOA  
KOANDAH GARDENS ESTATES  
85,080 SF OR 1.96 ACRES  
LOT 7  
PLAT # 8009  
RR-DEO

EXISTING PRIVATE VARYING WIDTH  
USE-IN-COMMON ACCESS, DRAINAGE,  
STORMWATER MANAGEMENT,  
MAINTENANCE & UTILITY EASEMENT.  
FOR THE BENEFIT OF LOTS 1-4 248  
PLAT # 25135 BOOK 18836 PG 248  
TO BE REVISED TO PROVIDE BENEFIT  
TO LOTS 1, 2, 4, 11 AND  
PRESERVATION PARCEL 'D'



**DESIGN DATA & GENERAL NOTES**

- [1] Concrete strength  $f_c=4,000$  p.s.i. @ 28 days. Density = 160 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-98 & C 484-92.
- [4] Reinforcing per ASTM A196. 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.



**2,000 GALLON SEPTIC TANK  
2-Compartment**  
Stock Item [Approx. 19,900 lbs]

**INITIAL SYSTEM - PARCEL D**

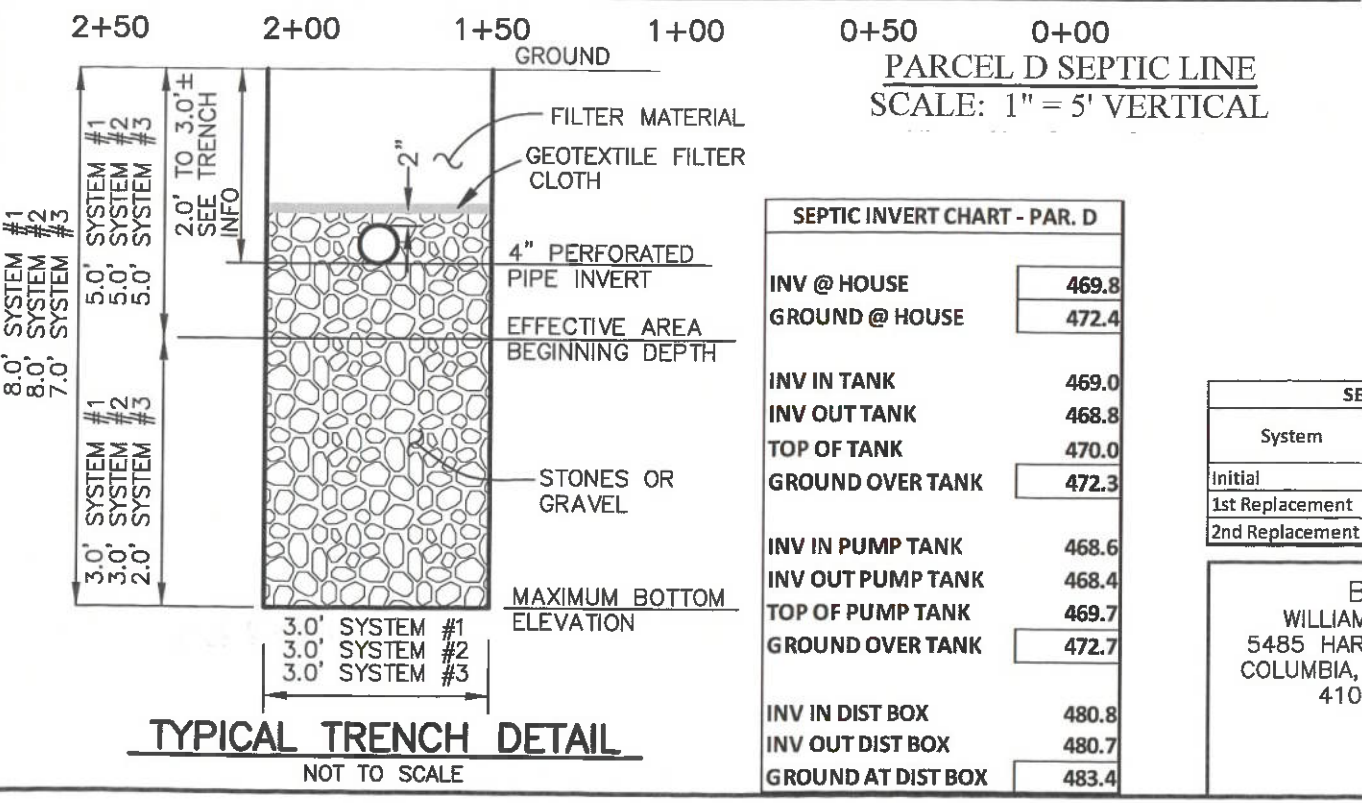
Number of Bedrooms	6	
Application Rate	0.6	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1500	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	250	lf

**1st REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	0.8	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1125	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	188	lf

**2nd REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	7.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.63	
Trench width	3	ft
Effective Area Depth	2	ft
Trench Spacing	10	ft
Linear Length of trench Required	156	lf



**SEPTIC DESIGN INFORMATION - PARCEL D**

System	Application Rate	Effective Depth	Bottom Depth
Initial	0.6	5.0	8.0
1st Replacement	0.8	5.0	8.0
2nd Replacement	1.2	5.0	7.0

**BUILDER:**  
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1/22/25

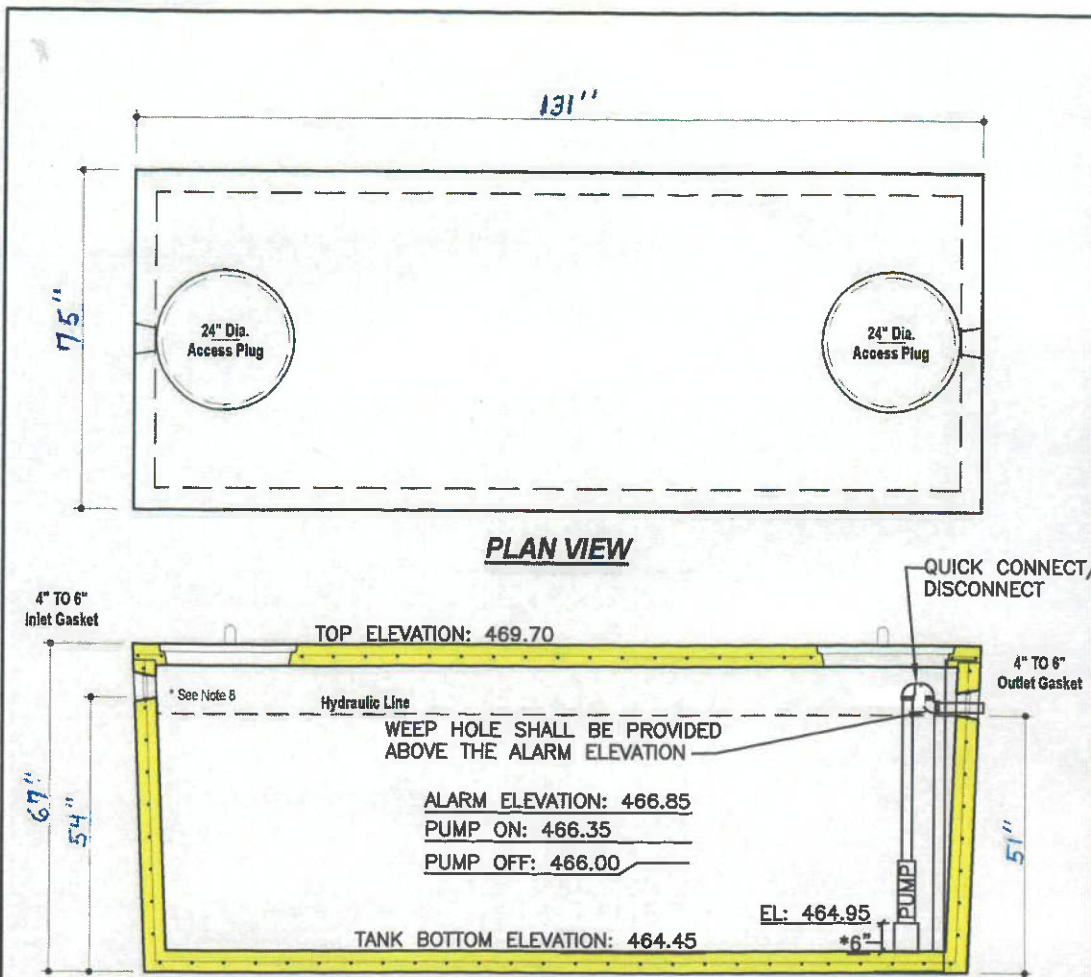
**PROJECT:** CLARKSVILLE CROSSING  
PARCEL D

**LOCATION:** TAX MAP: 34 - GRID: 23 - PARCEL: 301  
6513 OLD HILLTOP CT. - TAX ID: 05-605089  
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

**TITLE:** ONSITE SEWAGE DISPOSAL SYSTEM PLAN

**HOUSE TYPE:** WELLINGTON

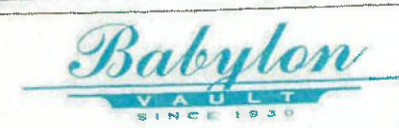
<b>DATE:</b>	NOVEMBER, 2024	<b>PROJECT NO.</b>	2525
<b>SCALE:</b>	AS SHOWN	<b>DRAWING</b>	3 OF 4



**DESIGN DATA & GENERAL NOTES**

- [1] Concrete strength  $f_c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type I/II per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.
- [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3' of cover
- [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

Float Tree:	Elev.	Relative to Bottom
Bottom of Tank	464.45	
Top of Pump	465.95	1' 6"
Pump Off	466.00	1' 6 1/2"
Pump On	466.35	1' 10 3/4"
High Alarm	466.85	2' 4 3/4"



**1,500 GALLON SEPTIC/PUMP TANK**  
**1-Compartment**  
**NON-TRAFFIC MAX 3 ft. OF COVER**

Trusted. Tested. Tough.™

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.



SECTION: 2.15.080  
 FM2764  
 1017  
 Supersedes  
 0315

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

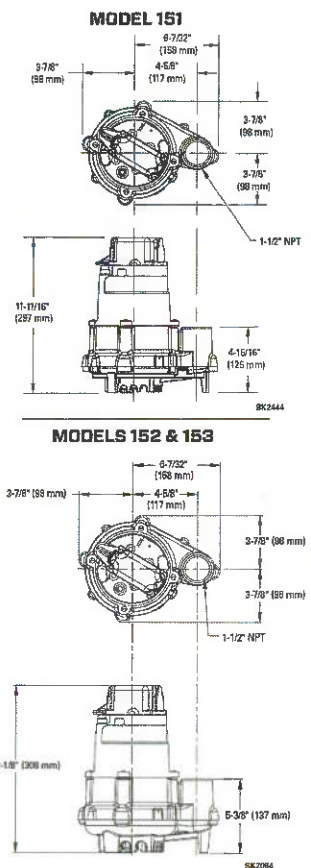
**PRODUCT SPECIFICATIONS**

	MODEL 151
<b>MOTOR</b>	
Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
Voltage	115 or 230
Phase	1 Ph
Hertz	60 Hz
RPM	3450
Type	Permanent split capacitor
Insulation	Class B
Amps	3.0 - 10.5
<b>PUMP</b>	
Operation	Automatic or nonautomatic
Discharge Size	1-1/2" NPT
Solids Handling	1/2" (12 mm), 24" (19 mm) spherical solids
Cord Length	20' (6 m)
Cord Type	UL listed power cord
Max. Head	44' (13.4 m)
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
<b>MATERIALS</b>	

NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.  
 NOTE: See model comparison chart for specific details.

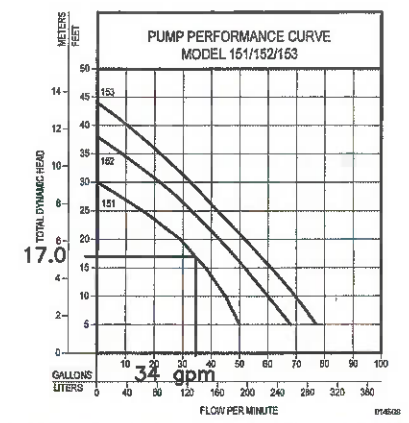


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**TOTAL DYNAMIC HEAD**  
**FLOW PER MINUTE**

MODEL	151	152	153
Feet	5	10	15
Meters	1.5	3.0	4.5
Gal.	50	100	150
Liters	189	378	567
Gal.	201	402	603
Liters	77	154	231
Gal.	61	122	183
Liters	231	462	693
Gal.	21	42	63
Liters	81	162	243
Gal.	22	44	66
Liters	85	170	255
Gal.	22	44	66
Liters	85	170	255
Gal.	22	44	66
Liters	85	170	255
Shutoff Head:	30 ft. (9.1m)	36 ft. (11.0m)	44 ft. (13.4m)



**MODEL COMPARISON**

Model	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	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). 60' (18 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 rocks 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 sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.

**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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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. 45577, Expiration Date: 06/08/2026

John M. Carney  
 1/22/25

**BUILDER:**  
 WILLIAMSBURG HOMES  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044  
 410-997-8800

**BENCHMARK**  
 ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
**ENGINEERING, INC.**  
 3300 NORTH RIDGE ROAD ▲ SUITE 140  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 ▲ (F) 410-465-8644  
 WWW.BEI-CIVILENGINEERING.COM

PROJECT:	CLARKSVILLE CROSSING PARCEL D		
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605089 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND		
TITLE:	ONSITE SEWAGE DISPOSAL SYSTEM PLAN		
HOUSE TYPE:	WELLINGTON		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	4 OF 4

**Pumping Station**

Diameter of Force Main and Manifold = 2" PVC SCH. 40  
 Length of Force Main = 74.4 feet SCH.40 gallons/100 feet = 17.4 Table 4.2  
 Volume of Main = 12.9 gallons  
 Total Volume = 12.9 gallons  
 Minimum Dose must be greater than 1/6 of the design flow 125 gallons  
 Minimum Dose must be greater than the volume of the main 13 gallons  
 Use minimum dose of 150 gallons okay Doses per Day = 5.00

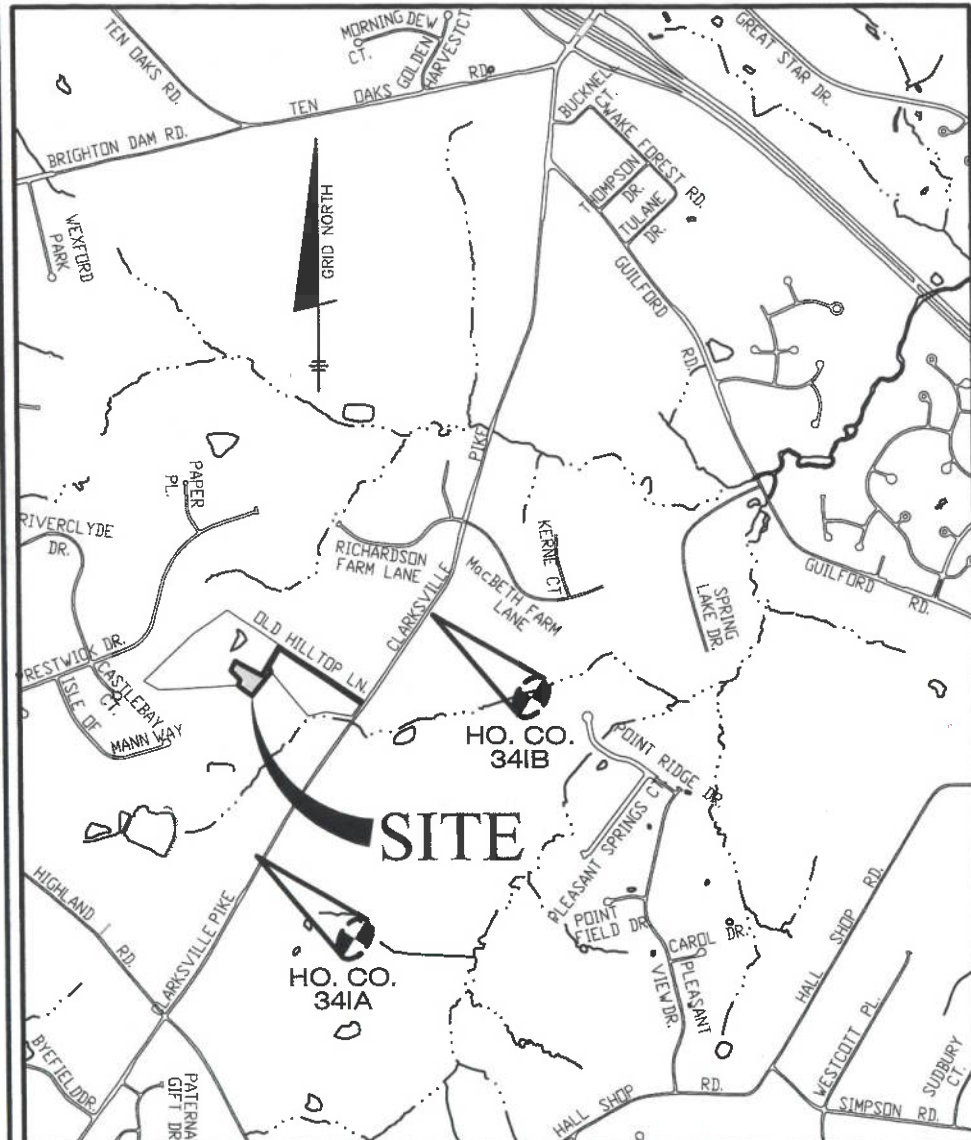
**Size Pump Chamber**

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

One day Capacity = 750 gallons  
 Dose = 150 gallons  
 Totals = 900 gallons

Use 1,500 gallon pump tank

Tank Dimensions:		Exterior	Interior	Walls:	
Length:	10.92 feet	Length:	10.25 feet	Bottom:	0.33 feet
Width:	6.25 feet	Width:	5.58 feet	Top:	0.33 feet
Height:	5.58 feet	Height:	4.92 feet	Bottom to Inlet:	4.5 feet
		Area:	57.23 sf		
		Volume:	281.38 cf		



SCALE: 1" = 2000'  
 ADC MAP 31; GRID C4

**Sizing the Pump**

Flow: runtime = 5.000 minutes  
 rate = 30.00 gallons/minute

Design Head: Design Head = Static Head + Friction Head  
 Static Head = highest elevation of main - pump off elevation  
 Highest component of system = 481.1 Main HP  
 Pump off elevation = 466.00  
 Static Head = 15.10 feet  
 Friction Head = Head loss due to pipe friction  
 2.0" pipe = 83.6 feet  
 45° bends 3 loss for bend 12 feet per table 4.3  
 90° bends 3 loss for bend 15 feet per table 4.3  
 Gate Valve 0 loss for tee 0 feet per table 4.3  
 Friction loss per table 4.4 = 1.54 (ft/100 ft)  
 Equivalent Length = 110.6 Friction loss 1.70 feet  
 Total Friction Head = 1.70  
 Design Head = 16.80 feet

**Pump Requirements:**

Performance = 30.00 gpm  
 Head of Water = 16.80 feet of head

Pump Selection: Zoeller Pump Company, Model 151  
 0.3 horse power

Pump Flow Rate = 34.00 gallons/minute per rating curve. Run time: 4.41 Minutes  
 TDH analysis 17.26 ft  
 Between design and curve? Yes

**Design Pump Chamber**

Ground over Tank = 472.70 Cover = 3.00 ft  
 Top of Tank = 469.70  
 Invert of Tank = 464.45  
 6" Riser = 0.50 feet  
 Pump Height = 1.00 feet

Min. Pump off = 465.95  
 Selected Pump off = 466.00

Dose = 20.1 cf  
 Area of Pit = 57.23 sf

Pump on dist. = 0.35  
 Pump on Elev. = 466.35

Distance between Pump on and Highwater Alarm = 0.5 feet  
 Highwater Alarm Elevation = 466.85

Dist. for day stored above alarm 1.75  
 Minimum Inlet Elev. = 468.60  
 Tank Inlet = 468.62 Okay  
 Dist. Alarm to Inlet = 1.77 Okay

**GENERAL NOTES**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR CLARKSVILLE CROSSING, PLAT NUMBER 26640-26643 REFER TO THE PLAT FOR LOT DIMENSIONS, LOT AREA, ALL EASEMENTS AND CONDITIONS.
2. THE EXISTING WELL SHOWN ON THIS PLAN (HO-17-0382) HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC. AND IS ACCURATELY SHOWN.
3. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
4. TOPOGRAPHY SHOWN WAS PREPARED BY BENCHMARK ENGINEERING, INC. DATED AUGUST, 2013, AND INCLUDES PROPOSED GRADING AS SHOWN ON THE MASS GRADING PLAN FOR LOTS 1-4 AS EXISTING CONDITIONS.
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6. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED BUILDING PERMIT AND CUSTOM GRADING PLANS.
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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 SHALL BE A 1,500 GALLON SINGLE COMPARTMENT TANK.
11. THE MAXIMUM EARTH COVER OVER A 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.
13. ANY FUTURE WELLS SHALL BE 10' FROM DRIVEWAY.
14. DRY WELL FACILITIES ARE NOT ALLOWED CLOSER THAN 100' TO A WELL SITE OR WELL BOX.

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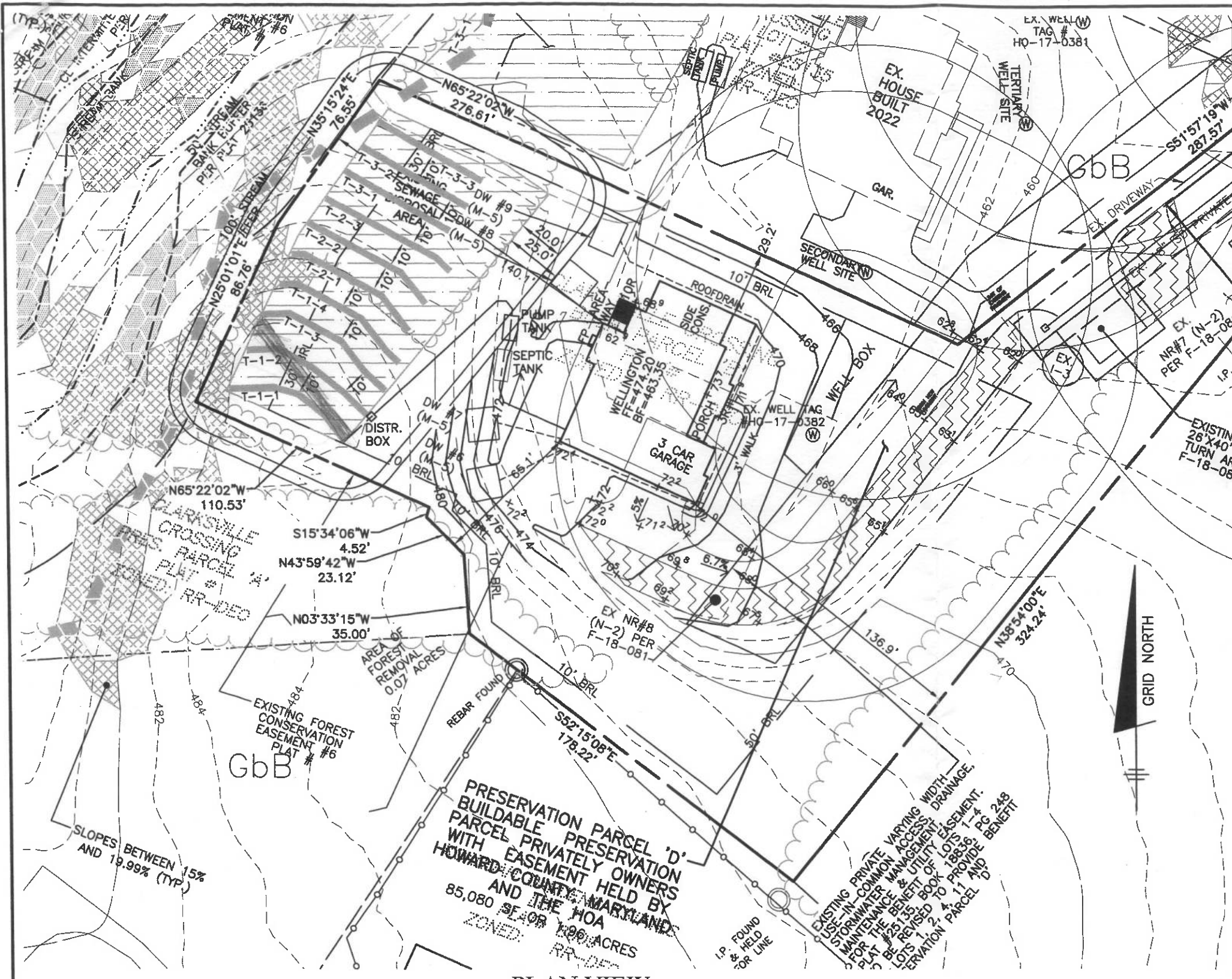
Approved Septic System Plan  
 Howard County Health Department

*D. Bernard* 2-10-25  
 Signature Date  
 Approved for BR only

PROJECT:	CLARKSVILLE CROSSING PARCEL D		
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605088 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND		
TITLE:	ONSITE SEWAGE DISPOSAL SYSTEM PLAN		
HOUSE TYPE:	WELLINGTON		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	1 OF 4

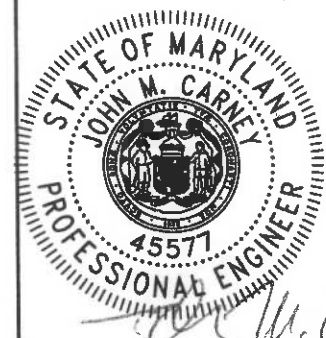
**BUILDER:**  
 WILLIAMSBURG HOMES  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044  
 410-997-8800

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TRENCH DATA - PARCEL D					
INITIAL SYSTEM		FIRST REPLACEMENT		SECOND REPLACEMENT	
TRENCH 1-1	LENGTH	59.3 ft	TRENCH 2-1	LENGTH	62.5 ft
	GROUND ELEVATION	484.0		GROUND ELEVATION	479.9
	INVERT ELEVATION	480.7		INVERT ELEVATION	477.9
	MAX BOTTOM ELEVATION	476.0		MAX BOTTOM ELEVATION	471.9
TRENCH 1-2	LENGTH	61.9 ft	TRENCH 2-2	LENGTH	62.5 ft
	GROUND ELEVATION	484.0		GROUND ELEVATION	478.3
	INVERT ELEVATION	480.7		INVERT ELEVATION	476.3
	MAX BOTTOM ELEVATION	476.0		MAX BOTTOM ELEVATION	470.3
TRENCH 1-3	LENGTH	65.5 ft	TRENCH 2-3	LENGTH	62.5 ft
	GROUND ELEVATION	482.7		GROUND ELEVATION	476.5
	INVERT ELEVATION	480.2		INVERT ELEVATION	474.5
	MAX BOTTOM ELEVATION	474.7		MAX BOTTOM ELEVATION	468.5
TRENCH 1-4	LENGTH	64.3 ft			
	GROUND ELEVATION	481.4			
	INVERT ELEVATION	479.4			
	MAX BOTTOM ELEVATION	473.4			

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*Handwritten signature and date: J.M. Carney 11/12/24*

**PLAN VIEW**  
1" = 50'

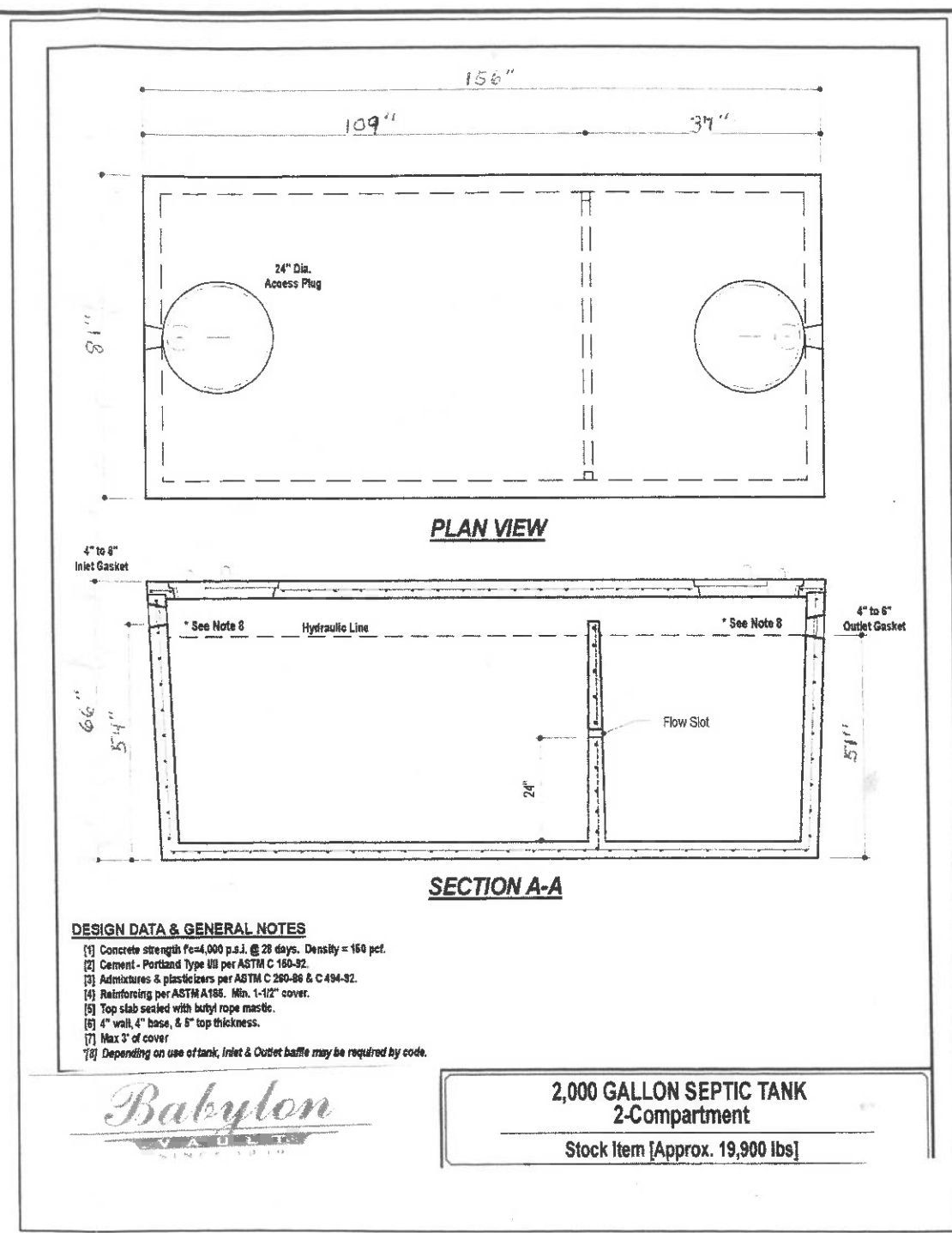
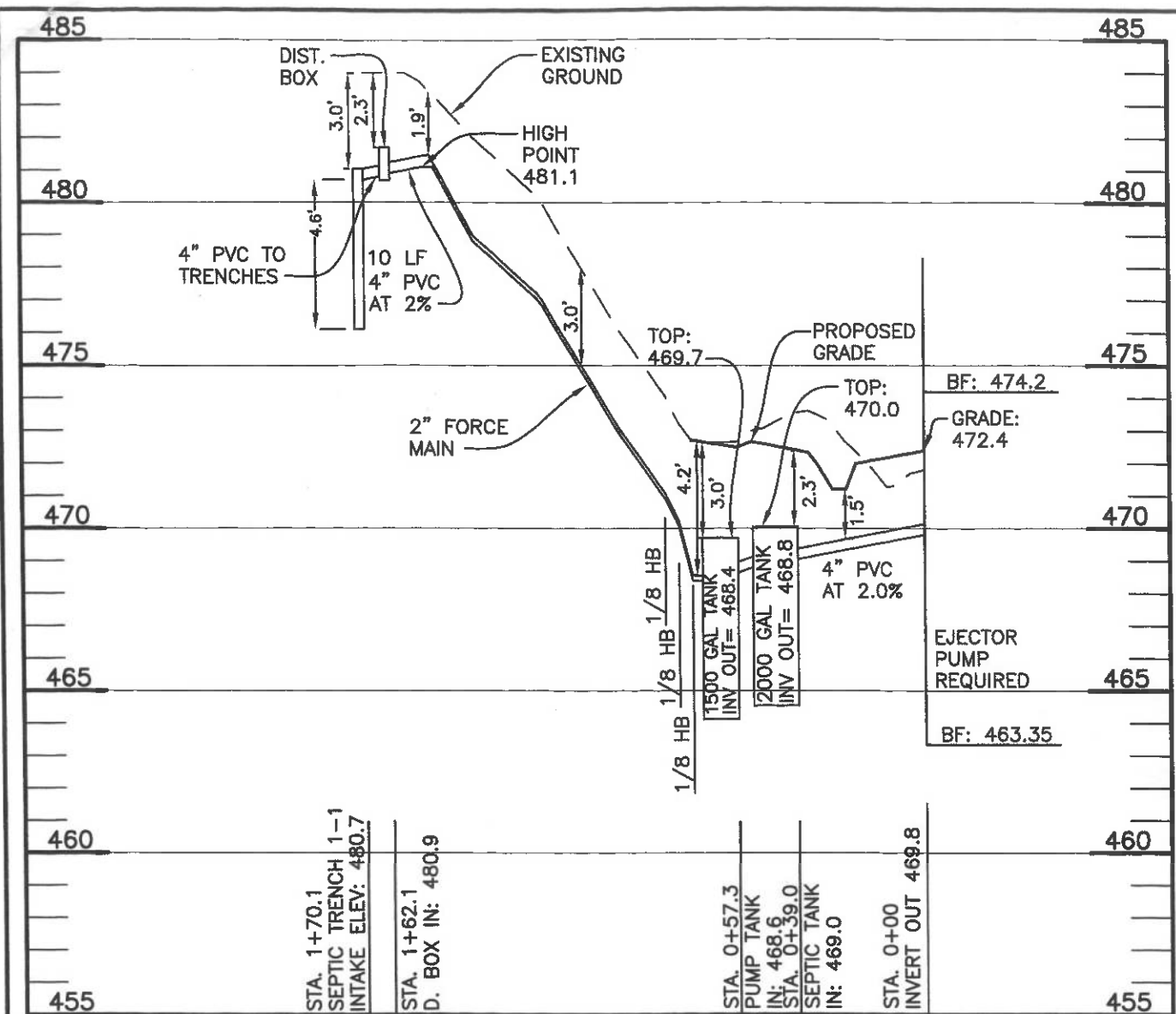


(IN FEET)  
1 inch = 50 ft.

**BUILDER:**  
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PROJECT:	CLARKSVILLE CROSSING PARCEL D		
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605088 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND		
TITLE:	ONSITE SEWAGE DISPOSAL SYSTEM PLAN		
HOUSE TYPE:	WELLINGTON		
DATE:	NOVEMBER, 2024	PROJECT NO.	2525
SCALE:	AS SHOWN	DRAWING	2 OF 4



INITIAL SYSTEM - PARCEL D		
Number of Bedrooms	6	
Application Rate	0.6	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1500	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	250	lf

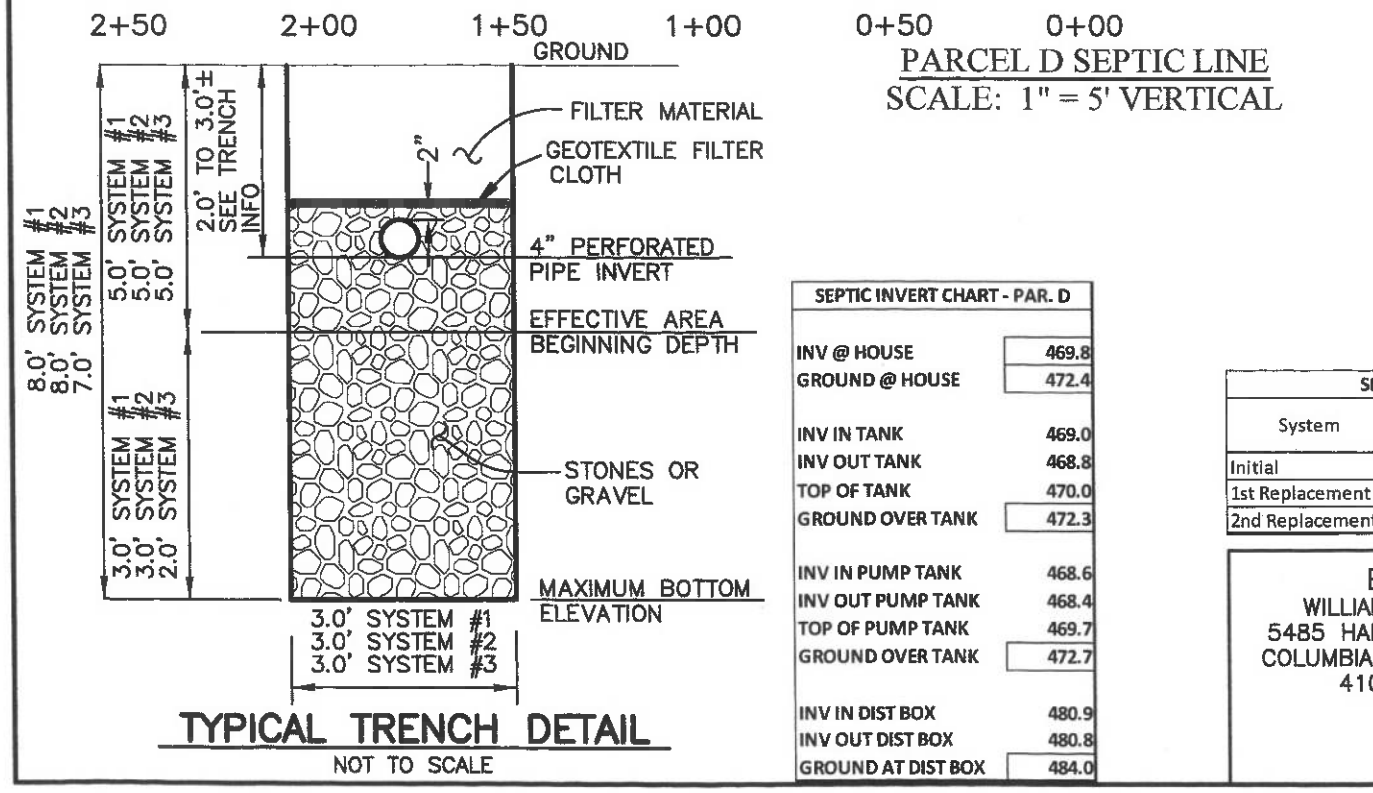
1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	0.8	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	8.0	ft
Design Flow	900	gpd
Drainage Field square footage	1125	sf
Sidewall Reduction Credit	0.50	
Trench width	3	ft
Effective Area Depth	3	ft
Trench Spacing	10	ft
Linear Length of trench Required	188	lf

2nd REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	5.0	ft
Bottom Max Depth	7.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.63	
Trench width	3	ft
Effective Area Depth	2	ft
Trench Spacing	10	ft
Linear Length of trench Required	156	lf

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11/18/24  
J.M. Carney



SEPTIC INVERT CHART - PAR. D	
INV @ HOUSE	469.8
GROUND @ HOUSE	472.4
INV IN TANK	469.0
INV OUT TANK	468.8
TOP OF TANK	470.0
GROUND OVER TANK	472.3
INV IN PUMP TANK	468.6
INV OUT PUMP TANK	468.4
TOP OF PUMP TANK	469.7
GROUND OVER TANK	472.7
INV IN DIST BOX	480.9
INV OUT DIST BOX	480.8
GROUND AT DIST BOX	484.0

SEPTIC DESIGN INFORMATION - PARCEL D			
System	Application Rate	Effective Depth	Bottom Depth
Initial	0.6	5.0	8.0
1st Replacement	0.8	5.0	8.0
2nd Replacement	1.2	5.0	7.0

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LOCATION: TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605088 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND	
TITLE: ONSITE SEWAGE DISPOSAL SYSTEM PLAN	
HOUSE TYPE: WELLINGTON	
DATE: NOVEMBER, 2024	PROJECT NO. 2525
SCALE: AS SHOWN	DRAWING 3 OF 4

**Pumping Station**

Diameter of Force Main and Manifold = 2" PVC SCH. 40  
 Length of Force Main = 82.2 feet SCH.40 gallons/100 feet = 17.4 Table 4.2

Volume of Main = 14.3 gallons

Total Volume = 14.3 gallons

Minimum Dose must be greater than 1/6 of the design flow 125 gallons

Minimum Dose must be greater than the volume of the main 14 gallons

Use minimum dose of 150 gallons okay Doses per Day = 5.00

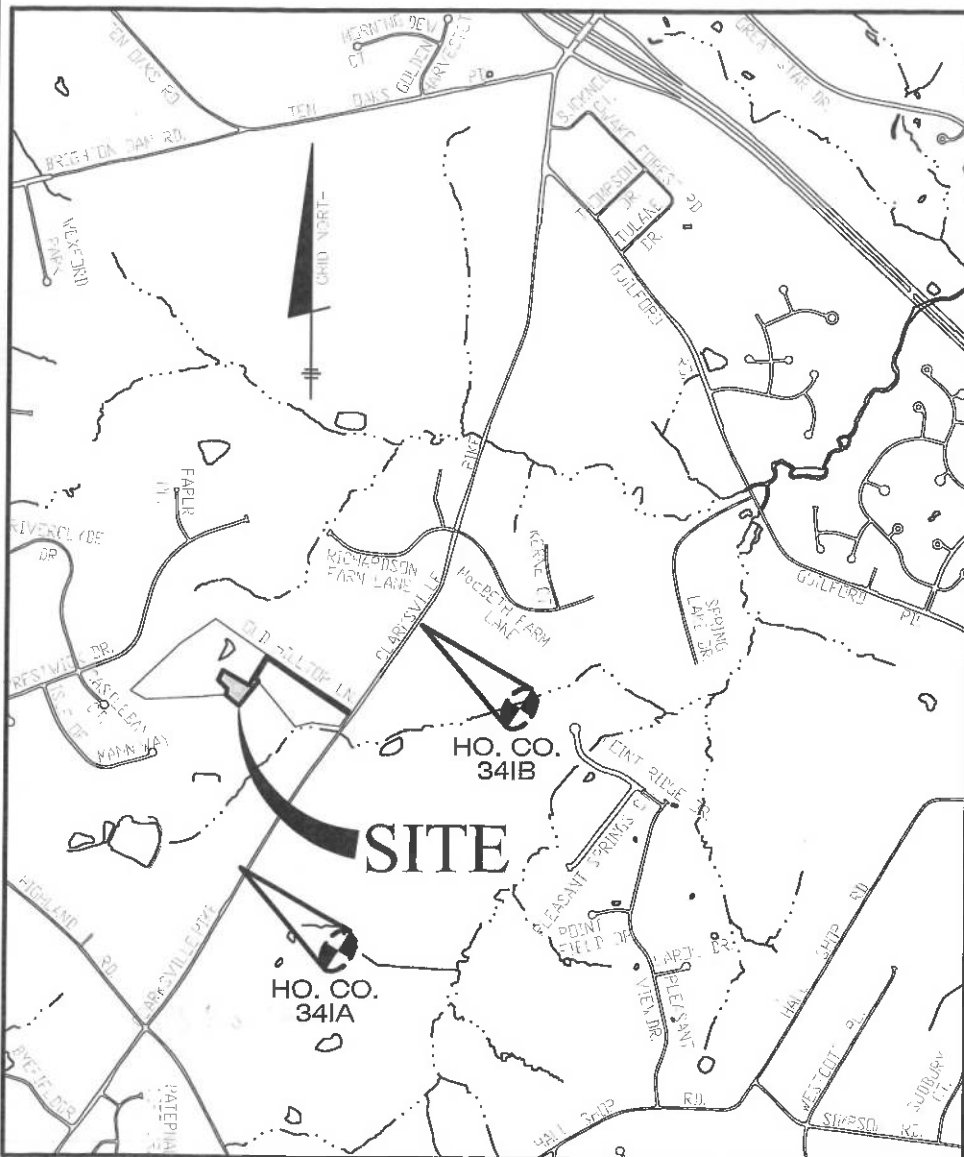
**Size Pump Chamber**

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

One day Capacity = 750 gallons  
 Dose = 150 gallons  
 Totals = 900 gallons

Use 1,500 gallon pump tank

Tank Dimensions:		Exterior	Interior	Walls:	
Length:	10.92 feet	Length:	10.25 feet	0.33 feet	
Width:	6.25 feet	Width:	5.58 feet	0.33 feet	
Height:	5.58 feet	Height:	4.92 feet	Top:	0.33 feet
		Area:	57.23 sf	Bottom to Inlet:	4.5 feet
		Volume:	281.38 cf		



SCALE: 1" = 2000'  
 ADC MAP 31; GRID C4

**Sizing the Pump**

Flow: runtime = 5.000 minutes  
 rate = 30.00 gallons/minute

**Design Head:**

Design Head = Static Head + Friction Head  
 Static Head = highest elevation of main - pump off elevation  
 Highest component of system = 480.9 Main HP  
 Pump off elevation = 466.00  
 Static Head = 14.90 feet  
 Friction Head = Head loss due to pipe friction  
 2.0" pipe = 82.2 feet  
 45° bends 3 loss for bend 12 feet per table 4.3  
 90° bends 3 loss for bend 15 feet per table 4.3  
 Gate Valve 0 loss for tee 0 feet per table 4.3  
 Friction loss per table 4.4 = 1.54 (ft/100 ft)  
 Equivalent Length = 109.2 Friction loss 1.68 feet  
 Total Friction Head = 1.68

Design Head = 16.58 feet

**Pump Requirements:**

Performance = 30.00 gpm  
 Head of Water = 16.58 feet of head

Pump Selection: Zoeller Pump Company, Model 151  
 0.3 horse power

Pump Flow Rate = 34.00 gallons/minute  
 per rating curve. Run time: 4.41 Minutes  
 TDH analysis 17.03 ft  
 Between design and curve? Yes

**Design Pump Chamber**

Ground over Tank = 472.70 Cover 3.00 ft  
 Top of Tank = 469.70  
 Invert of Tank = 464.45  
 6" Riser = 0.50 feet  
 Pump Height = 1.00 feet

Min. Pump off = 465.95  
 Selected Pump off = 466.00

Dose = 20.1 cf  
 Area of Pit = 57.23 sf

Pump on dist. = 0.35  
 Pump on Elev. = 466.35

Distance between Pump on and Highwater Alarm = 0.5 feet  
 Highwater Alarm Elevation = 466.85

Dist. for day stored above alarm 1.75  
 Minimum Inlet Elev. = 468.60  
 Tank Inlet = 468.62 Okay  
 Dist. Alarm to Inlet = 1.77 Okay

**GENERAL NOTES**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR CLARKSVILLE CROSSING, PLAT NUMBER 26640-26643 REFER TO THE PLAT FOR LOT DIMENSIONS, LOT AREA, ALL EASEMENTS AND CONDITIONS.
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14. DRY WELL FACILITIES ARE NOT ALLOWED CLOSER THAN 100' TO A WELL SITE OR WELL BOX.

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John M. Carney  
 1/22/25

PROJECT: CLARKSVILLE CROSSING  
 PARCEL D

LOCATION: TAX MAP: 34 - GRID: 23 - PARCEL: 301  
 6513 OLD HILLTOP CT. - TAX ID: 05-605089  
 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

TITLE: ONSITE SEWAGE DISPOSAL SYSTEM PLAN

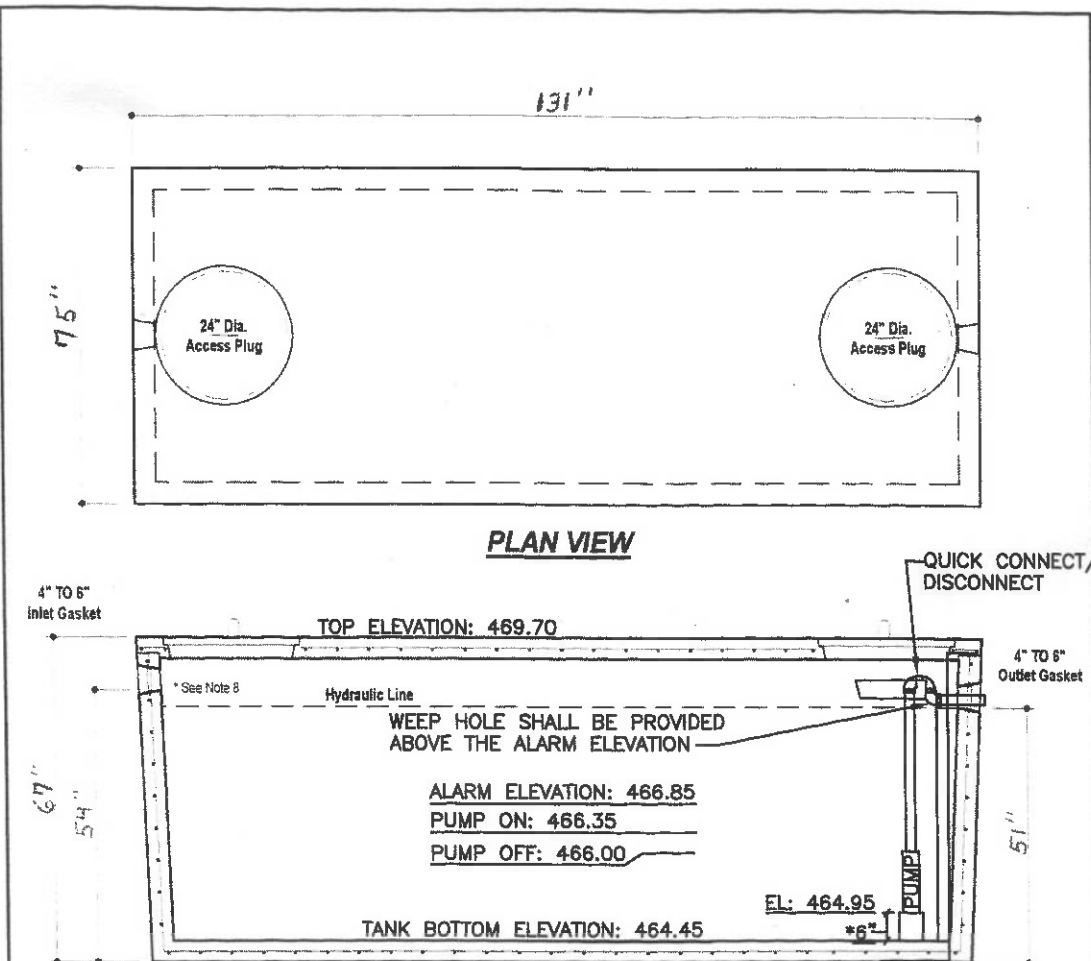
HOUSE TYPE: WELLINGTON

DATE: NOVEMBER, 2024 PROJECT NO. 2525

SCALE: AS SHOWN DRAWING 1 OF 4

BUILDER:  
 WILLIAMSBURG HOMES  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044  
 410-997-8800

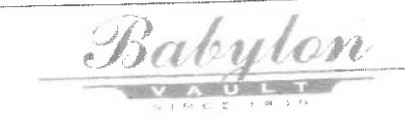
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**DESIGN DATA & GENERAL NOTES**

- [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 A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3" of cover
- [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

Float Tree:	Elev.	Relative to Bottom
Bottom of Tank	464.45	
Top of Pump	465.95	1' 6"
Pump Off	466.00	1' 6 1/2"
Pump On	466.35	1' 10 3/4"
High Alarm	466.85	2' 4 3/4"



**1,500 GALLON SEPTIC/PUMP TANK**  
**1-Compartment**  
 NON-TRAFFIC MAX 3 ft. OF COVER

Trusted. Tested. Tough.™

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

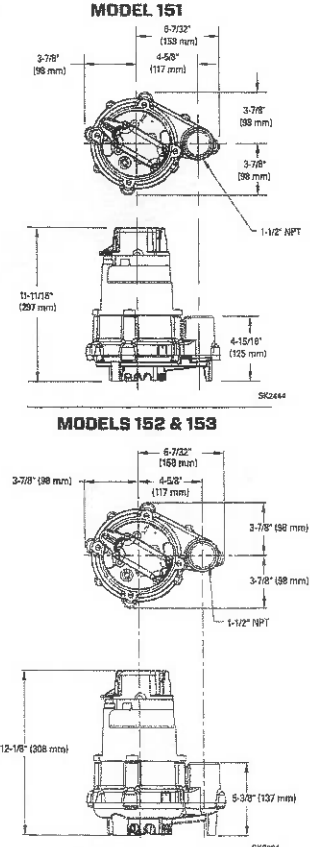


SECTION: 2.15.080  
 FM2784  
 1017  
 Supersedes  
 0315

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

**PRODUCT SPECIFICATIONS**

	MODEL 151
<b>MOTOR</b>	
Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
Voltage	115 or 230
Phase	1 Ph
Hertz	60 Hz
RPM	3450
Type	Permanent split capacitor
Insulation	Class B
Amps	3.0 - 10.5
<b>PUMP</b>	
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)
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
<b>MATERIALS</b>	
Base	Plastic or cast iron
Upper Bearing	Sleeve bearing
Lower Bearing	Belt bearing
Mechanical Seals	Carbon end ceramic
Impeller Type	Non-clogging vortex
Impeller	Engineered thermoplastic
Hardware	Stainless steel
Motor Shaft	AISI 1215 steel
Gasket	Neoprene



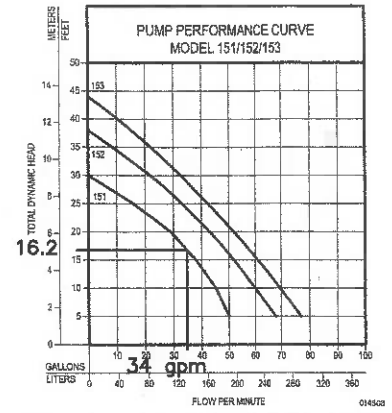
NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.  
 NOTE: See model comparison chart for specific details.



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**TOTAL DYNAMIC HEAD**  
**FLOW PER MINUTE**

Feet	Meters	151		152		153	
		Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	179	61	231	70	265
15	4.5	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	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:		39 ft. (9.1m)		36 ft. (11.0m)		44 ft. (13.4m)	



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	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	38	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17	1	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	Non	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 rocks 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 sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.

**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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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. 45577, Expiration Date: 06/08/2026



11/18/24  
*John M. Carney*

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 410-997-8800

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PROJECT:	<b>CLARKSVILLE CROSSING PARCEL D</b>	
LOCATION:	TAX MAP: 34 - GRID: 23 - PARCEL: 301 6513 OLD HILLTOP CT. - TAX ID: 05-605088 ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND	
TITLE:	<b>ONSITE SEWAGE DISPOSAL SYSTEM PLAN</b>	
HOUSE TYPE:	<b>WELLINGTON</b>	
DATE:	NOVEMBER, 2024	PROJECT NO. 2525
SCALE:	AS SHOWN	DRAWING <u>4</u> OF <u>4</u>