

**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: 12/13/18 **ONSITE SEWAGE DISPOSAL SYSTEM** P 564095

APPROVAL DATE: 3/5/19 SEC **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 13619 Curtis Vista Way

SUBDIVISION: Brighton Mill II LOT: 5 TAX ID: 05-600586

CONTRACTOR: South Carroll Backhoe EMAIL: scbackhoe@comcast.net

CONTRACTOR ADDRESS: 4410 Salem Bottom Road, Westminster, MD 21157 PHONE: 410-596-3618

PROPERTY OWNER: Highland Development Corporation EMAIL: \_\_\_\_\_

OWNER ADDRESS: P.O. Box 228, Clarksville, MD 21029 PHONE: \_\_\_\_\_

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Mayer Bros

PUMP MODEL: Gould's WESCAM PUMP SIZE: 1/3 hp PUMP TANK CAPACITY: 2000

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 6 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>156</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>7</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:		

ISSUED BY: Dana Bernard ISSUE DATE: 12/13/18 EXPIRATION DATE: 12/13/19

- 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 E18005279
- 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

See attached sheet for  
as-built drawing

TRENCH RAINFIELD DATA		
DEPTH	INLET	BOTTOM
3'	4'	7'
NUMBER OF TRENCHES		2
LENGTH		155
DISTRIBUTION AREA		465' + SIDEWALL
DISTRIBUTION BOX LEVEL		YES
DISTRIBUTION BOX BAFFLE		YES
DISTRIBUTION BOX PORT		YES

SEPTIC TANK DATA	
CONCRETE LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	2000 GAL
INSTALLATION	TOP
MINIMUM DEPTH	2.5-3'
FLUSH	YES
FLUSH FILTER	NO
INLET LOC	FRONT + REAR
REPORT LOC	NONE
WATER TIGHT TEST	NO
TEST DATE	YES
TEST DATE	11-6-18
CONCRETE LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	2000 GAL
INSTALLATION	TOP
MINIMUM DEPTH	2-2.5'
FLUSH	NO
FLUSH FILTER	NO
INLET LOC	REAR
REPORT LOC	NONE
WATER TIGHT TEST	NO
TEST DATE	YES
TEST DATE	11-5-18

\* test. Alarm sounds, pump pumps effluent to D-box. Ran water in the house, runs to tank clear. (SC)

ROAD NAME

Pump: Gould's WED311M (1/2 hp)

PRE-CONSTRUCTION:

1/3/19 Met S. Carroll on site for layout. Tanks + SDA corners staked. Spot elevations at house and tank and sewer line will make tank with 1% fall BUT final grading/swale is not yet complete. S. Carroll will talk to builder a/b getting that done before installing tanks + sewer line. SDA has 1" of fill in upper area - remove prior to laying out trenches. (SC) 1/7/19 S. Carroll removed fill in parts of SDA - 5" total in spots. Shot contour + laid out 2 x 78' trenches. (SC)

INSTALLATION: 1/9/19 T1 complete + left open for inspection - 3' wide and 3.5' to stone. S. Carroll digging T2 3' wide and 7' bottom. Using laser to check depths. (SC) 1/10/19 T2 complete + left open for inspection - 3' wide + 3.5' to stone. Septic tank set on site while pump tank was set and no obvious cracks on bottom or sides. Pump + float valve installed, > 1-day storage above alarm float. (SC) 1/9/19 D-box set, connected to pump tank + trenches. (SC) 1/16/19 S. Carroll installing sewer line. 1% fall, line bedded with #57 stone. Line to be sleeved under driveway turn around. Run water in house prior to ICOP + verify flow at tank - biopond + LP tank to be installed and machinery will drive over line. (SC) 1/22/19 House connection made. Need to verify flow from house to tank. (SC) 3/5/19 Met S. Carroll for pump + alarm. (SC)

FINAL INSPECTOR

Sarah Collins

DATE OF INSPECTION

3/5/19

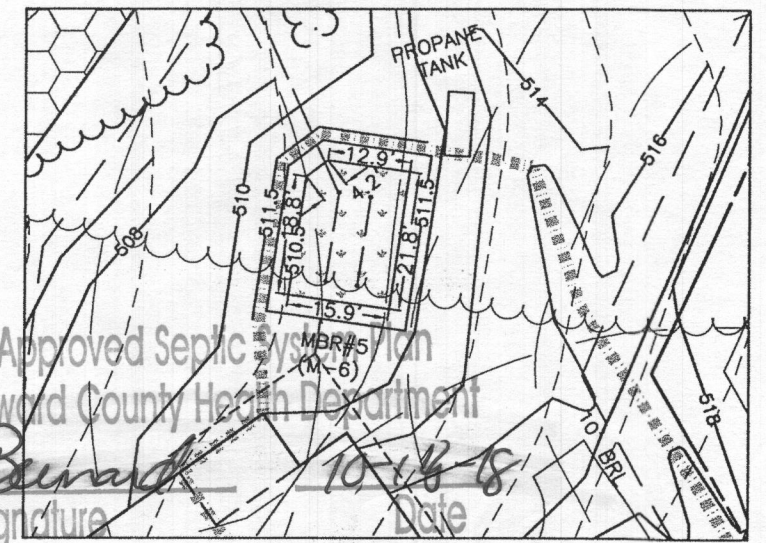


**LEGEND**

- SOILS CLASSIFICATION GgC
- SOILS DELINEATION ———
- PROPOSED CONTOURS ——— 480  
——— 478
- EXISTING CONTOURS ——— 480  
——— 478
- LIMIT OF WETLANDS ———
- EXISTING WOODS LINE ———
- PROPOSED WOODS LINE ———
- EXISTING STRUCTURE ———
- EXISTING WELL ⊙
- EXISTING WELL BOX □
- EXISTING SEWAGE DISPOSAL AREA ———
- EXISTING PRIVATE PIPE LINE EASEMENT AREA ———
- SWM DRAINAGE AREA ———

**BUILDING PERMIT PLAN NOTES:**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR BRIGHTON MILL II, PLAT Nos. 24469-24474. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY F-17-054, ON OR ABOUT MAY, 2017.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO-17-0151, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO-BIORETENTION FACILITY (M-6).
10. MICRO-BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF-TOP AREA.
11. THE SEPTIC TANK WILL HAVE A 2000 GALLON 2 COMPARTMENT TANK.
12. FOR DEVELOPMENT LANDSCAPING SEE ROAD CONSTRUCTION PLAN F-17-054.



Approved Septic System  
 Howard County Health Department  
*Signature* 10-18-18  
 Date

*MBR-5 (M-6) DETAIL*  
*Septic System may have to be*

GRID NORTH

PLAN VIEW  
 1" = 50'

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: 06-08-2020.



**BUILDER:**  
 NV HOMES, INC.  
 9720 PATUXENT WOODS DRIVE  
 SUITE 100  
 COLUMBIA, MD 21046  
 410-379-5956

**OWNER:**  
 HIGHLAND DEVELOPMENT CORP  
 P.O. BOX 228  
 CLARKSVILLE, MARYLAND 21029  
 410-365-0414

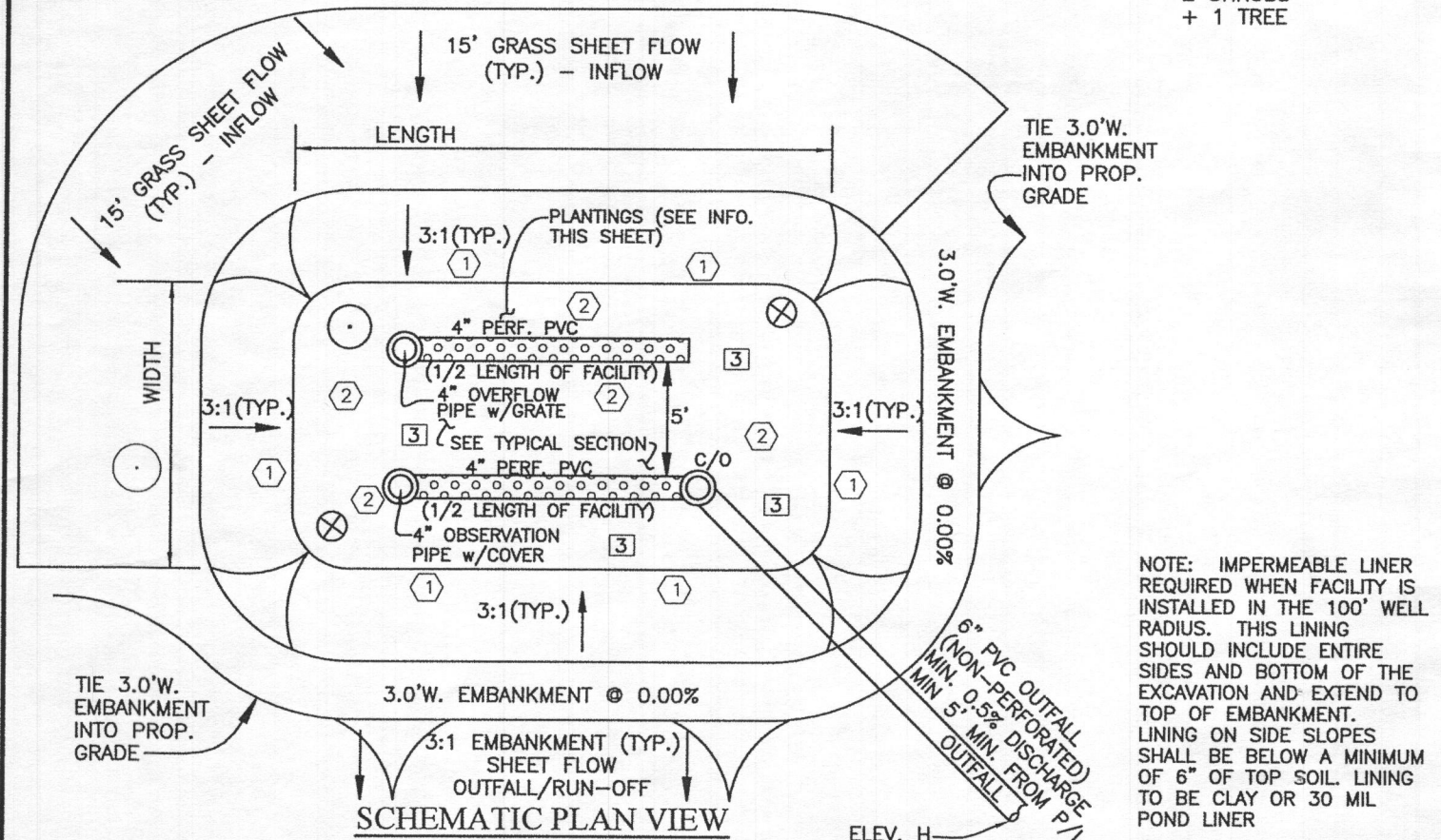
**BENCHMARK**  
 ENGINEERS LAND SURVEYORS PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BEI-CMLENGINEERING.COM

PROJECT: BRIGHTON MILL II LOT 5	
LOCATION: TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO 13619 CURTIS VISTA WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586	
TITLE: BUILDING PERMIT PLAN	
HOUSE TYPE: CLIFTON PARK - ELEVATION A	
DATE: AUGUST, 2018	PROJECT NO. 2627
SCALE: AS SHOWN	DRAWING 1 OF 2

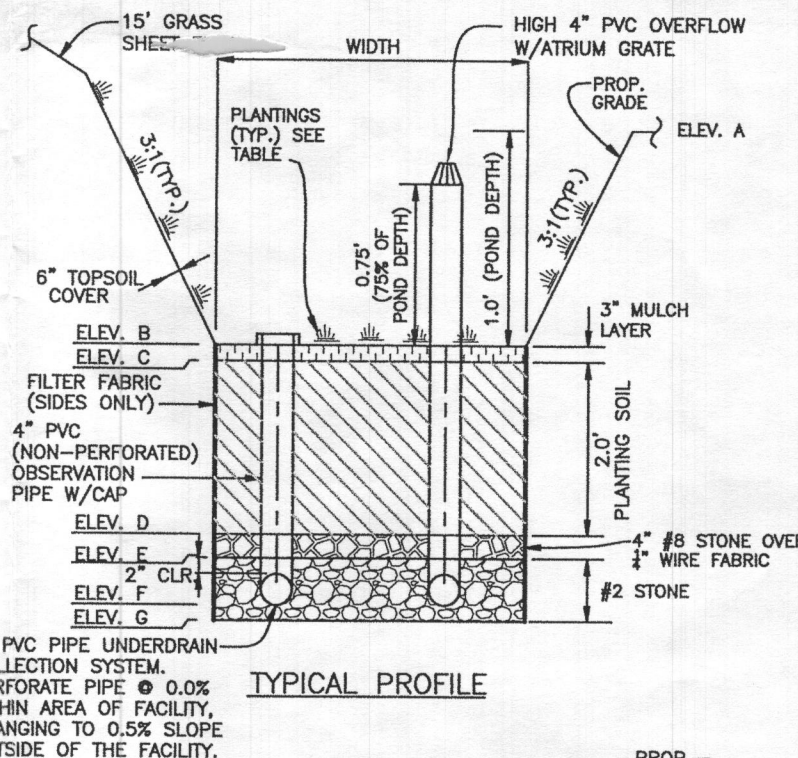
ON-LOT BIORETENTION DIMENSIONS

FACILITY	A	B	C	D	E	F	G	H	LENGTH	WIDTH	FILTER (A <sub>f</sub> )	PLANTINGS			LINER
												1	2	3	
MBR-5	511.50	510.50	510.25	508.25	507.75	507.25	505.85	507.00	21.8	15.9	342	76	76	38	NO

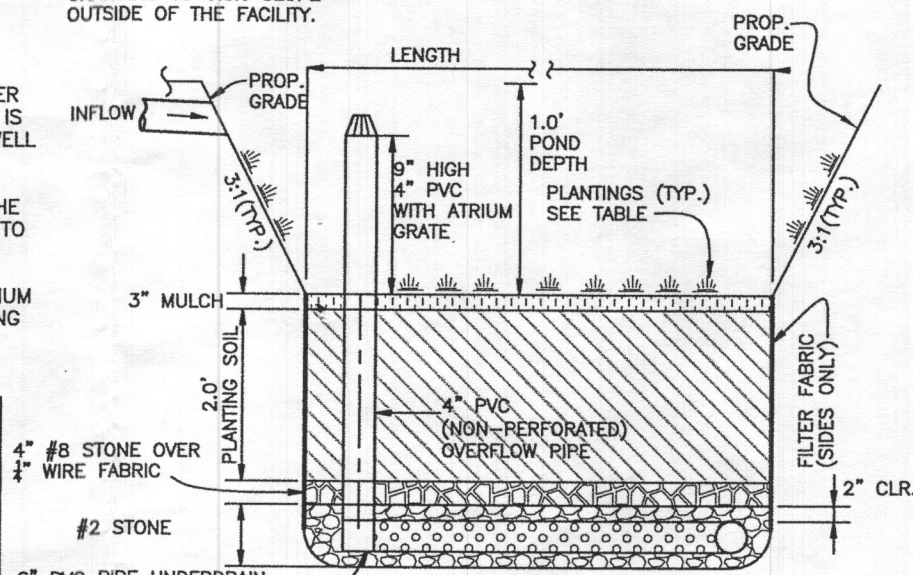
ADDITIONAL  
2 SHRUBS  
+ 1 TREE



NOTE: IMPERMEABLE LINER REQUIRED WHEN FACILITY IS INSTALLED IN THE 100' WELL RADIUS. THIS LINING SHOULD INCLUDE ENTIRE SIDES AND BOTTOM OF THE EXCAVATION AND EXTEND TO TOP OF EMBANKMENT. LINING ON SIDE SLOPES SHALL BE BELOW A MINIMUM OF 6" OF TOP SOIL. LINING TO BE CLAY OR 30 MIL POND LINER



TYPICAL PROFILE



TYPICAL SECTION  
MICRO-BIORETENTION DETAILS  
NOT TO SCALE

MATERIALS & SPECIFICATIONS FOR MICRO-BIORETENTION

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT ASTM D 2974		
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS "C")		N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES. PIPE SHALL BE WRAPPED WITH 1/4-INCH GALVANIZED HARDWARE CLOTH
IMPERVIOUS LINER	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB., ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB./IN) ASTM-D-471 (WATER ADSORPTION: +8 TO -2% MASS)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT. A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4632 (TENSILE STRENGTH 300 LB.)		

MICROBIORETENTION PLANTING SCHEDULE

(PLANTING SPECIES AND DENSITY CAN BE CHANGED OR SUBSTITUTED BY A LANDSCAPE ARCHITECT OR QUALIFIED DESIGNER)

- 1 IRIS FULVA (COPPER IRIS)
- 2 LOBELIA CARDINALIS (CARDINAL FLOWER)
- 3 RUDBECKIA SUBTOMENTOSA (SWEET CONEFLOWER)
- ⊗ CALLUNA VULGARIS (HEATHER) (1 PER FACILITY)
- ACER GINNALA (ARMUR MAPLE) (1 PER FACILITY)

MICROBIORETENTION PLANTING DATA

1. PLANTINGS WITHIN THE PONDING AREA OF THE FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

FOR THE OPERATION AND MAINTENANCE OBLIGATIONS AND SCHEDULE, REFER TO THE DECLARATION OF COVENANTS RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY MARYLAND FOR THIS LOT.

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, 06-08-2020.



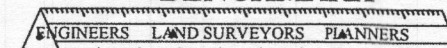
BUILDER:

NV HOMES, INC.  
9720 PATUXENT WOODS DRIVE  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

OWNER:

HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

BENCHMARK



ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644

WWW.BEI-CMLENGINEERING.COM

PROJECT:	BRIGHTON MILL II LOT 5	
LOCATION:	TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO 13619 CURTIS VISTA WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586	
TITLE:	BUILDING PERMIT PLAN	
HOUSE TYPE:	CLIFTON PARK - ELEVATION A	
DATE:	AUGUST, 2018	PROJECT NO. 2627
SCALE:	AS SHOWN	DRAWING 2 OF 2

**LEGEND**

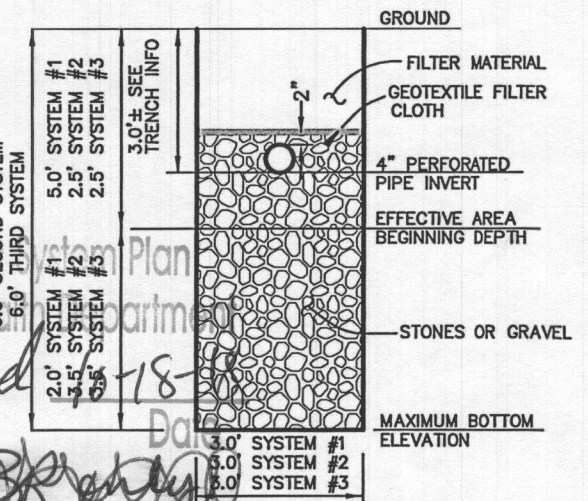
- SOILS CLASSIFICATION *Ggc*
- SOILS DELINEATION
- PROPOSED CONTOURS
- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- EXISTING WELL
- EXISTING WELL BOX
- EXISTING SEWAGE DISPOSAL AREA

**ONSITE SEWAGE DISPOSAL PLAN NOTES:**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR BRIGHTON MILL II, PLAT Nos. 24469-24474. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY F-17-054, ON OR ABOUT MAY, 2017.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO-17-0151, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO-BIORETENTION FACILITY (M-6).
10. MICRO-BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF-TOP AREA.
11. THE SEPTIC TANK WILL HAVE A 2000 GALLON 2 COMPARTMENT TANK.
12. FOR DEVELOPMENT LANDSCAPING SEE ROAD CONSTRUCTION PLAN F-17-054.



**LOT 5**

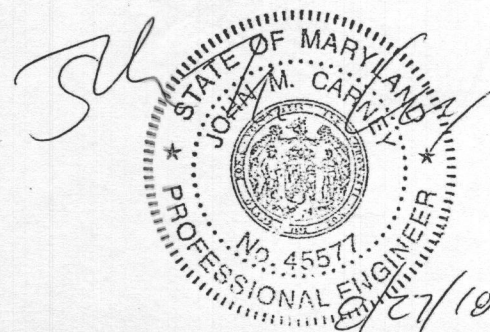


**TYPICAL TRENCH DETAIL**

*\* Calculations are correct system however fall may have to be adjusted in field*

**PLAN VIEW**  
1" = 50'

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: 06-08-2020.



**BUILDER:**  
NV HOMES, INC.  
9720 PATUXENT WOODS DRIVE  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

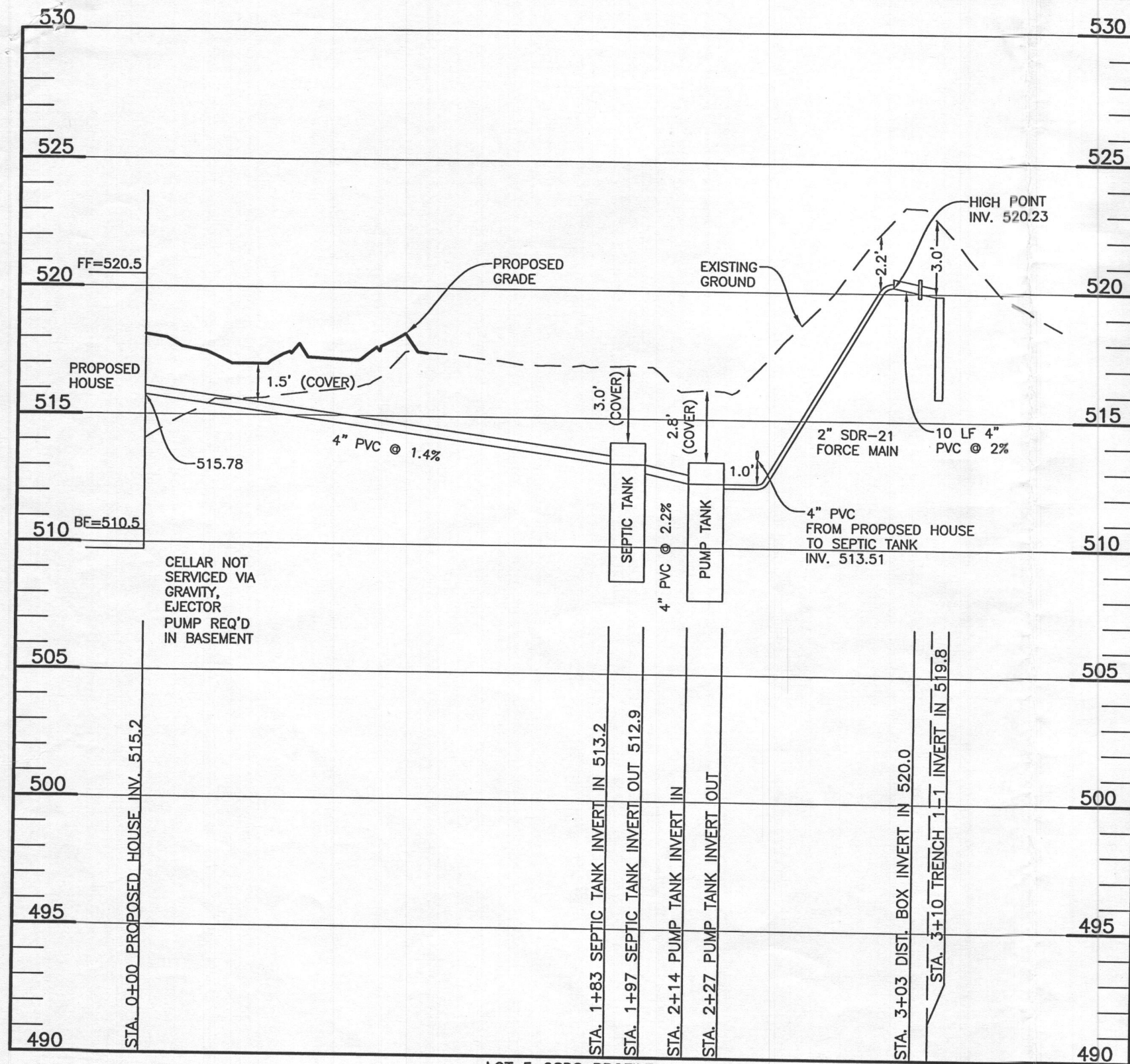
**OWNER:**  
HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

**BENCHMARK**  
ENGINEERS LAND SURVEYORS PLANNERS  
**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-465-6105 A (F) 410-465-6644  
WWW.BEI-CMLENGINEERING.COM

**PROJECT:** BRIGHTON MILL II *Or revised in field*  
**LOT 5**

**LOCATION:** TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO  
13619 CURTIS VISTA WAY  
CLARKSVILLE, MD 21029  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586

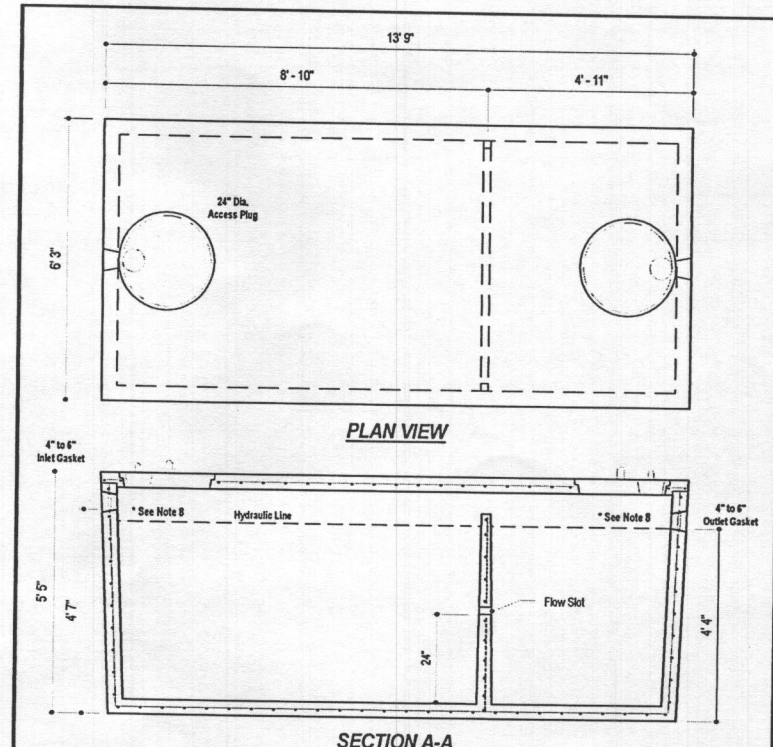
<b>TITLE:</b> ONSITE SEPTIC DESIGN SYSTEM PLAN	
<b>HOUSE TYPE:</b> CLIFTON PARK - ELEVATION A	
<b>DATE:</b> AUGUST, 2018	<b>PROJECT NO.</b> 2627
<b>SCALE:</b> AS SHOWN	<b>DRAWING</b> 1 <b>OF</b> 3



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

System	Application Rate	Effective Depth	Bottom Depth
Initial	1.2	5.0	7.0
1st Replacement	1.2	2.5	6.0
2nd Replacement	1.2	2.5	6.0

Note: BAT Unit. Pump to Dist. Req. Low pressure dist. recommended.



- DESIGN DATA & GENERAL NOTES**
- Concrete strength  $f_c=4000$  p.s.i. @ 28 days. Density = 150 pcf.
  - Cement - Portland Type III per ASTM C 150-92.
  - Admixtures & plasticizers per ASTM C 260-88 & C 494-82.
  - Reinforcing per ASTM A618. Min. 1-1/2" cover.
  - Top slab sealed with butyl rope mastic.
  - 4" wall, 4" base, & 6" top thickness.
  - Max 2" of cover.
  - 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]

Mayer Bros., Inc. 6754 Race Road, Ellicott City, Maryland 21075  
Tel: 410.736.1434 Fax: 410.736.1438 www.mayerbroscast.com

Dwg. No. 2000-2C No Scale Aug 11, 2008

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

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.5	ft
Bottom Max Depth	6.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.45	
Trench width	3	ft
Effective Area Depth	3.5	ft
Trench Spacing	10	ft
Linear Length of trench Required	114	lf

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.5	ft
Bottom Max Depth	6.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.45	
Trench width	3	ft
Effective Area Depth	3.5	ft
Trench Spacing	10	ft
Linear Length of trench Required	114	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: 06-08-2020.



THIS PLAN IS FOR SEPTIC DESIGN ONLY

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

**BUILDER:**  
NV HOMES, INC.  
9720 PATUXENT WOODS DR.  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

**OWNER:**  
HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

**BENCHMARK ENGINEERS LAND SURVEYORS PLANNERS**  
**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE A SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BEI-CVLENGINEERING.COM

**PROJECT:** BRIGHTON MILL II LOT 5

**LOCATION:** TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO  
13619 CURTIS VISTA WAY  
CLARKSVILLE, MD 21029  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586

**TITLE:** ONSITE SEPTIC DESIGN SYSTEM PLAN

**HOUSE TYPE:** CLIFTON PARK - ELEVATION A

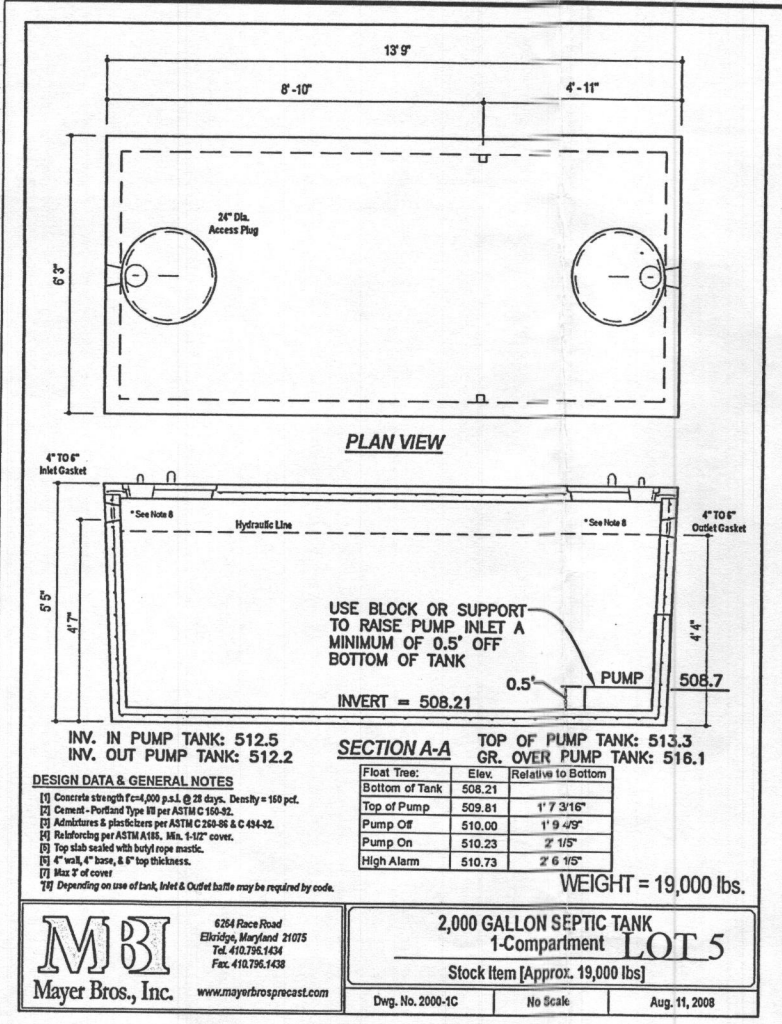
**DATE:** AUGUST, 2018 **PROJECT NO.:** 2627

**SCALE:** AS SHOWN **DRAWING** 2 **OF** 3

INITIAL SYSTEM	FIRST REPLACEMENT	SECOND REPLACEMENT
<b>TRENCH 1-1</b>	<b>TRENCH 2-1</b>	<b>TRENCH 3-1</b>
LENGTH 78.2 ft	LENGTH 56.9 ft	LENGTH 56.9 ft
GROUND ELEVATION 522.8	GROUND ELEVATION 519.7	GROUND ELEVATION 517.1
INVERT ELEVATION 519.8	INVERT ELEVATION 517.2	INVERT ELEVATION 514.6
MAX BOTTOM ELEVATION 515.8	MAX BOTTOM ELEVATION 513.7	MAX BOTTOM ELEVATION 511.1
<b>TRENCH 1-2</b>	<b>TRENCH 2-2</b>	<b>TRENCH 3-2</b>
LENGTH 78.2 ft	LENGTH 56.9 ft	LENGTH 56.9 ft
GROUND ELEVATION 521.3	GROUND ELEVATION 518.5	GROUND ELEVATION 515.6
INVERT ELEVATION 518.3	INVERT ELEVATION 516.0	INVERT ELEVATION 513.1
MAX BOTTOM ELEVATION 514.3	MAX BOTTOM ELEVATION 512.5	MAX BOTTOM ELEVATION 509.6

INV @ HOUSE	515.8	INV IN PUMP TANK	512.5
GROUND @ HOUSE	518.1	INV OUT PUMP TANK	512.2
		TOP OF PUMP TANK	513.3
INV IN SEPTIC TANK	513.2	GROUND OVER PUMP TANK	516.1
INV OUT SEPTIC	512.9		
TOP OF SEPTIC TANK	514.1	INV IN DIST BOX	520.0
GROUND OVER SEPTIC TANK	517.1	INV OUT DIST BOX	519.9
		GROUND AT DIST BOX	523.3

Pumping Station			
Diameter of Force Main and Manifold =	2 of SDR 21 pipe		
Length of Force Main =	66 feet	SDR 21 gallons/100 feet =	18.8 Table 4.2
Volume of Main =	12.4 gallons	ID =	2.149
		length =	100 gallon/sq ft 7.480519
Total Volume =	12.4 gallons	volume =	18.84222 gal/100 lf
Minimum Dose must be greater than 1/6 of the design flow	150 gallons		
Minimum Dose must be greater than the volume of the main	12 gallons		
Use minimum dose of	125 gallons not okay	Doses per Day =	7.2
Size Pump Chamber			
Pump chamber must be able to hold one dose and one days design flow			
One day Capacity =	900 gallons		
Dose =	125 gallons		
Totals =	1025 gallons		
Use 2,000 gallon pump tank			
Tank Dimensions:	Exterior	Interior	
Length:	13.75 feet	Length:	13.08 feet
Width:	6.25 feet	Width:	5.58 feet
Height:	5.42 feet	Height:	4.67 feet
		Area:	73.05 sf
		Volume:	341.14 cf
		Walls:	0.33 feet
		Bottom:	0.33 feet
		Top:	0.42 feet
		Bottom to Inlet:	4.58 feet
Sizing the Pump			
Flow:	runtime =	5 minutes	
	rate =	25.00 gallons/minute	
Design Head:			
Design Head = Static Head + Friction Head			
Static Head = highest elevation of main - pump off elevation			
Highest component of system =	520.20	Main HP	
Pump off elevation =	510.00		
Static Head =	10.20	feet	
Friction Head = Head loss due to pipe friction			
2.0" pipe =	66 feet		
45° bends	2 loss for bend	8 feet	per table 4.3
Gate Valve	0 loss for tee	0 feet	per table 4.3
Friction loss per table 4.4 =	1.1	(ft/100 ft)	
Equivalent Length =	74		
Friction loss	0.81		
Total Friction Head =	0.81		
Design Head =	11.01	feet	
Pump Requirements:			
Performance =	25.00	gpm	
Head of Water =	11.01	feet of head	
Pump Selection:			
Zoeller Pump Company Mighty-mate Series, Model 57/59			
1/3 horse power			
Design Pump Chamber			
Ground over Tank =	516.10	Cover	2.8 ft
Top of Tank =	513.30		
Invert of Tank =	508.21		
6" Riser =	0.50	feet	
Pump Height =	1.10	feet	
Min. Pump off =	509.81		
Selected Pump off =	510.00		
Dose =	16.7	cf	
Area of Pit =	73.05	sf	
Pump on dist. =	0.23		
Pump on Elev. =	510.23		
Distance between Pump on and Highwater Alarm =	0.5	feet	
Highwater Alarm Elevation =	510.73		
Dist. for a dose above alarm =	1.65		
Minimum Inlet Elev. =	512.38		
Tank Inlet =	512.46	Okay	
Dist. Alarm to Inlet =	1.73	Okay	



**SECTION A-A**

Point	Elev.	Relative to Bottom
Float Tank	508.21	
Bottom of Tank	508.21	
Top of Pump	509.81	1' 7 3/16"
Pump Off	510.00	1' 9 4/9"
Pump On	510.23	2' 1/8"
High Alarm	510.73	2' 6 1/8"

**DESIGN DATA & GENERAL NOTES**

- Concrete strength  $f'c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.
- Concrete - Portland Type III per ASTM C 150-92.
- Admixtures & plasticizers per ASTM C 266-96 & C 494-92.
- Rebar spacing per ASTM A185, Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, 4" base, & 6" top thickness.
- Max. 2" of cover.
- Depending on use of tank, Inlet & Outlet baffles may be required by code.

**WEIGHT = 19,000 lbs.**

**2,000 GALLON SEPTIC TANK**  
1-Compartment **LOT 5**  
Stock Item [Approx. 19,000 lbs]

Dwg. No. 2000-1C No Scale Aug. 11, 2008

**ZOELLER PUMP COMPANY**  
Zoeller Family of Water Solutions

**TECHNICAL DATA SHEET MIGHTY-MATE SERIES**  
Cast Iron Models 53, 57 and Bronze Models 55, 59  
Submersible Effluent / Dewatering Pumps

PRODUCT SPECIFICATIONS	
<b>MOTOR</b>	Horse Power: 3/10
	Voltage: 115 or 230
	Phase: 1 Ph
	Hertz: 60 Hz
	RPM: 1550
	Type: Shaded pole
	Insulation: Class B
	Operation: Automatic or nonautomatic
	Auto On/Off Points: 3-1/4" (18.4 cm) / 3" (12.8 cm)
	Discharge Size: 1-1/2" NPT
	Solids Handling: 1/2" (12 mm) spherical solids
	Cord Length: 9' (3 m) automatic, 15' (5 m) nonautomatic
	Cord Type: UL listed, 3-wire, grounded plug
	Max. Head: 19.25' (5.9 m)
	Max. Flow Rate: 43 GPM (163 LPM)
	Max. Operating Temp.: 130° F (54° C)
	Cooling: Oil filled
	Motor Protection: Auto reset thermal overload
	Cap: Cast iron or bronze
	Motor Housing: Cast iron or bronze
	Pump Housing: Cast iron or bronze
	Base: Cast iron, bronze or engineered thermoplastic
	Upper Bearing: Sleeve bearing
	Lower Bearing: Sleeve bearing
	Mechanical Seal: Carbon and ceramic
	Impeller Type: Non-clogging vortex
	Impeller: Plastic, cast iron or bronze
	Hardware: Stainless steel
	Motor Shaft: AISI 1215 cold rolled steel
	Gasket: Neoprene

NOTE: See model comparison chart for specific details.

**TOTAL DYNAMIC HEAD FLOW PER MINUTE**

MODEL	Feet	Meters	Gal.	Liters
5	1.5	43	163	
10	3.0	34	129	
15	4.6	19	72	
Shut-off Head:	19.25 ft (5.9m)			

**USE BN57. CONTRACTOR MAY USE EQUIVALENT PUMP**

**PUMP PERFORMANCE CURVE MODELS 53/55/57/59**

**MODEL COMPARISON**

Model	Seal	Mode	Volts	Ph	Amps	HP	H <sub>z</sub>	Lbs	Kg	Simplex	Duplex
M53/M55	Single	Auto	115	1	9.7	3/10	60	23	10	1	—
M57/M59	Single	Non	115	1	9.7	3/10	60	23	10	2	3 & 4
* BN53	Single	Auto	115	1	9.7	3/10	60	25	11	*	*
* BE53/BE57	Single	Auto	230	1	4.8	3/10	60	24/30	11/13	*	*
D53	Single	Auto	230	1	4.8	3/10	60	23	10	1	—
ES53/ES55	Single	Non	230	1	4.8	3/10	60	22	10	2	3 & 4
M57/M59	Single	Auto	115	1	9.7	3/10	60	29/33	13/15	1	—
N57/N59	Single	Non	115	1	9.7	3/10	60	28/29	12/13	2	3 & 4
* BN57	Single	Auto	115	1	9.7	3/10	60	30	13	*	*
D57/D59	Single	Auto	230	1	4.8	3/10	60	30/33	13/15	1	—
ES7/ES9	Single	Non	230	1	4.8	3/10	60	28/29	12/13	2	3 & 4
E59	Single	Non	230	1	4.8	3/10	60	29	13	2	3 & 4

\* Single piggyback switch included.

**SPECIAL MODEL FEATURES**

Additional cord lengths are available in 15' (5 m), 25' (8 m) and 35' (11 m). 50' (15 m) cord lengths available for 230V units only. BE and BN models include a piggyback variable level pump switch. Model 53: cast iron switch case, motor and pump housing, a plastic impeller and base. Model 57: all cast iron construction with a cast iron impeller. Model 55: bronze switch case, motor and pump housing, a plastic impeller and base. Model 59: bronze construction with a bronze impeller. Optional pump stand (PIN 10-2421).

**SELECTION GUIDE**

- Integral float-operated mechanical switch, no external control required.
- Single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0472.
- See FM0712 for correct model of Electrical Alternator.
- Variable level control switch 10-0743 used as a control activator with electrical alternator (3) or (4) float system.

**OPTIONAL PUMP STAND P/N 10-2421**

- Reduces potential clogging by debris
- Replaces roots 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).

© Copyright 2015 Zoeller® Co. All rights reserved.  
502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | www.zoeller.com

**SEPTIC INVERT CHART - LOT 5**

INV @ HOUSE	515.8	INV IN PUMP TANK	512.5
GROUND @ HOUSE	518.1	INV OUT PUMP TANK	512.2
		TOP OF PUMP TANK	513.3
INV IN SEPTIC TANK	513.2	GROUND OVER PUMP TANK	516.1
INV OUT SEPTIC	512.9		
TOP OF SEPTIC TANK	514.1	INV IN DIST BOX	520.0
GROUND OVER SEPTIC TANK	517.1	INV OUT DIST BOX	519.9
		GROUND AT DIST BOX	523.3

**THIS PLAN IS FOR SEPTIC DESIGN ONLY**

SEE MANUFACTURES SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

**BUILDER:**  
NV HOMES, INC.  
9720 PATUXENT WOODS DR.  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

**OWNER:**  
HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

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

**PROJECT:** BRIGHTON MILL II LOT 5

**LOCATION:** TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO  
13619 CURTIS VISTA WAY  
CLARKSVILLE, MD 21029  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586

**TITLE:** ONSITE SEPTIC DESIGN SYSTEM PLAN

**HOUSE TYPE:** CLIFTON PARK - ELEVATION A

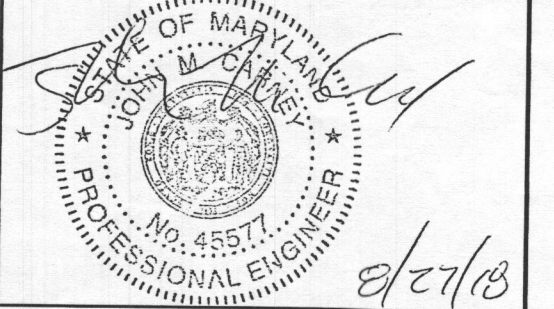
**DATE:** AUGUST, 2018

**PROJECT NO.:** 2627

**SCALE:** AS SHOWN

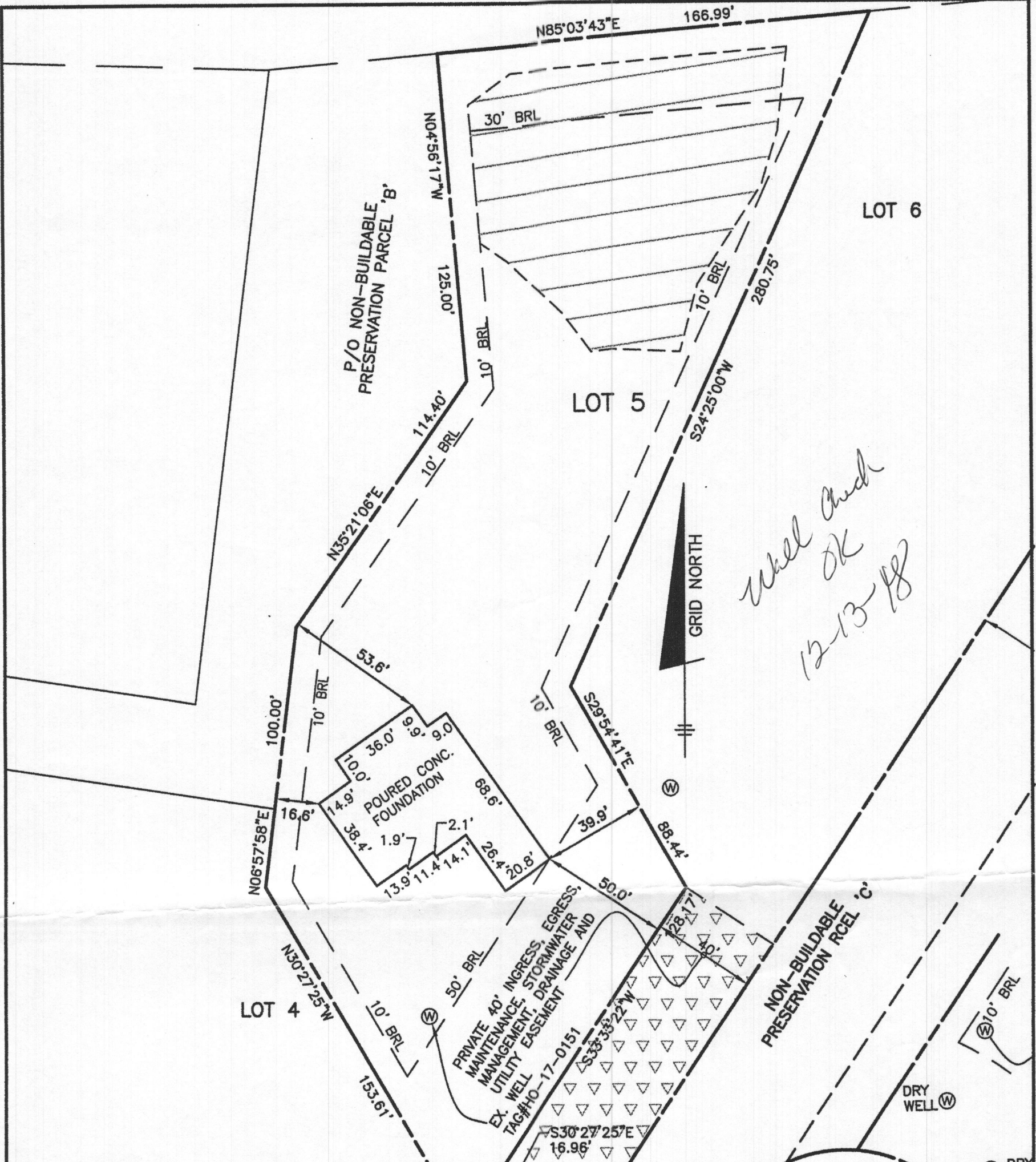
**DRAWING 3 OF 3**

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: 06-08-2020.



**BENCHMARK ENGINEERS, LAND SURVEYORS & PLANNERS**

**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE & SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BEI-CMLENGINEERING.COM



**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 1-7-2021 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 11/30/18.

STATE OF MARYLAND  
 DONALD ALAN MASON  
 DONALD A. MASON  
 PROFESSIONAL LAND SURVEYOR  
 MARYLAND REG. No. 21320  
 FEMA FIRM No: 1402761500  
 ZONE: X  
 DATED: 11/6/2013

**BENCHMARK**  
 ENGINEERS LAND SURVEYORS PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644

TOP OF FOUNDATION WALL = 519.3  
 OFFSET DIMENSIONS TO PROPERTY LINES ARE ± 0.1'

**WALL CHECK**  
**BRIGHTON MILL II**  
**PLAT No. 24471**  
**LOT No. 5**

13619 CURTIS VISTA WAY  
 5TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

FIELD OBS. BY AS  
 COMP. BY DAM  
 DRAWN BY DAM  
 SCALE: 1" = 50' DATE: 12/3/2018

**LEGEND**

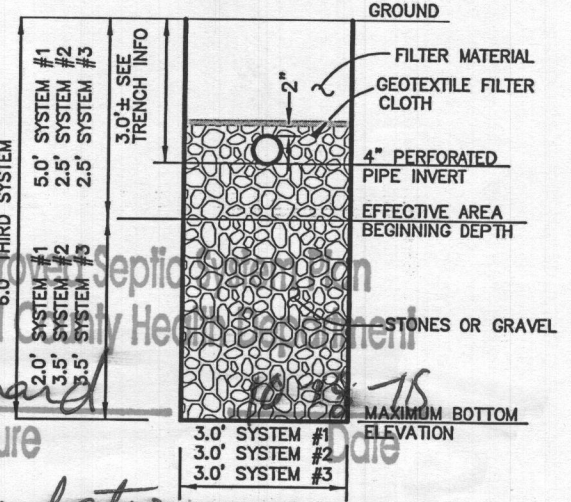
- SOILS CLASSIFICATION *GgC*
- SOILS DELINEATION
- PROPOSED CONTOURS
- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- EXISTING WELL
- EXISTING WELL BOX
- EXISTING SEWAGE DISPOSAL AREA



**ONSITE SEWAGE DISPOSAL PLAN NOTES:**

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR BRIGHTON MILL II, PLAT Nos. 24469-24474. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY F-17-054, ON OR ABOUT MAY, 2017.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO-17-0151, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO-BIORETENTION FACILITY (M-6).
10. MICRO-BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF-TOP AREA.
11. THE SEPTIC TANK WILL HAVE A 2000 GALLON 2 COMPARTMENT TANK.
12. FOR DEVELOPMENT LANDSCAPING SEE ROAD CONSTRUCTION PLAN F-17-054.

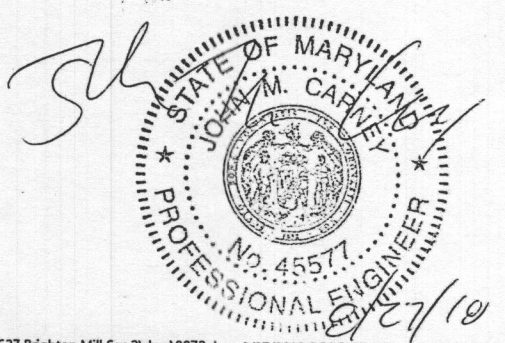
**LOT 5**



*Howard County Health Department*  
*Signature*  
*Calculations are correct however fall and system may have to be adjusted or reversed in field*

**PLAN VIEW**  
 1" = 50'

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: 06-08-2020.

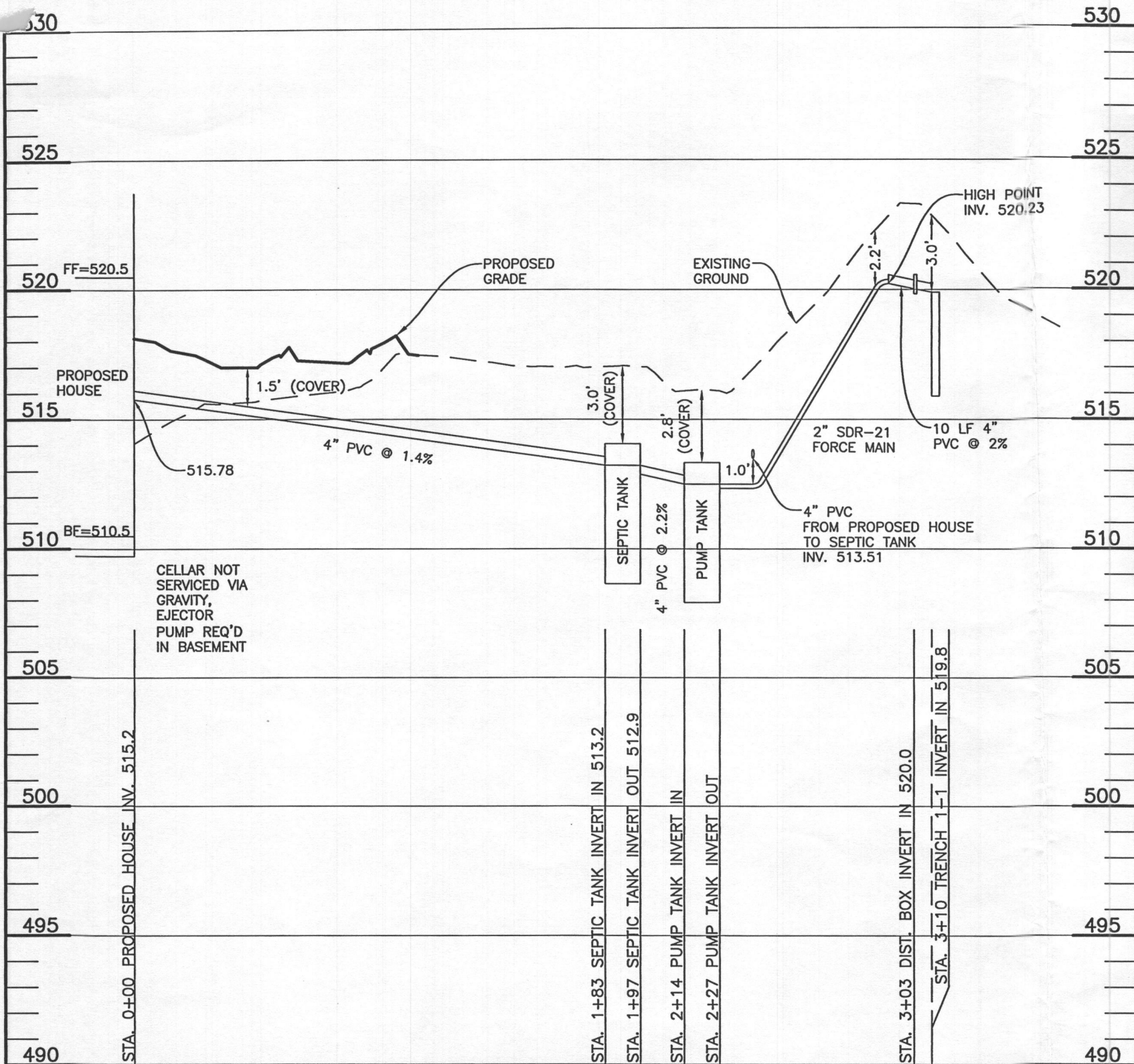


**BUILDER:**  
 NV HOMES, INC.  
 9720 PATUXENT WOODS DRIVE  
 SUITE 100  
 COLUMBIA, MD 21046  
 410-379-5956

**OWNER:**  
 HIGHLAND DEVELOPMENT CORP  
 P.O. BOX 228  
 CLARKSVILLE, MARYLAND 21029  
 410-365-0414

**BENCHMARK**  
 ENGINEERS LAND SURVEYORS PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 WWW.BEI-CIVILENGINEERING.COM

PROJECT: <b>BRIGHTON MILL II</b>	
LOCATION: TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO 13619 CURTIS VISTA WAY CLARKSVILLE, MD 21029 FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586	
TITLE: <b>ONSITE SEPTIC DESIGN SYSTEM PLAN</b>	
HOUSE TYPE: <b>CLIFTON PARK - ELEVATION A</b>	
DATE: <b>AUGUST, 2018</b>	PROJECT NO. <b>2627</b>
SCALE: <b>AS SHOWN</b>	DRAWING <b>1</b> OF <b>3</b>



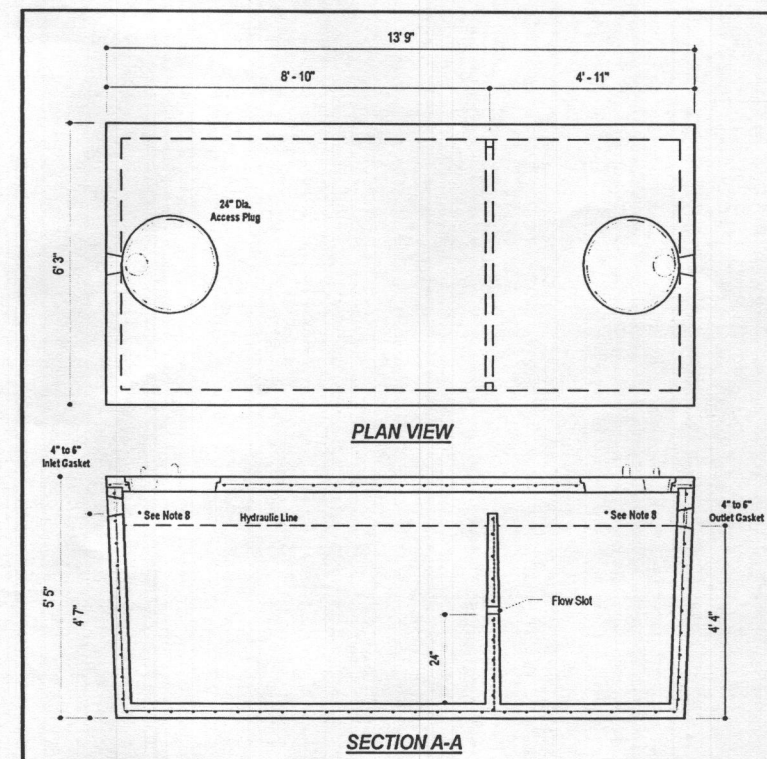
LOT 5 OSDS PROFILE  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

TRENCH DATA - LOT 5					
INITIAL SYSTEM	FIRST REPLACEMENT		SECOND REPLACEMENT		
TRENCH 1-1	TRENCH 2-1		TRENCH 3-1		
LENGTH	78.2 ft	LENGTH	56.9 ft	LENGTH	56.9 ft
GROUND ELEVATION	522.8	GROUND ELEVATION	519.7	GROUND ELEVATION	517.1
INVERT ELEVATION	519.8	INVERT ELEVATION	517.2	INVERT ELEVATION	514.6
MAX BOTTOM ELEVATION	515.8	MAX BOTTOM ELEVATION	513.7	MAX BOTTOM ELEVATION	511.1
TRENCH 1-2	TRENCH 2-2		TRENCH 3-2		
LENGTH	78.2 ft	LENGTH	56.9 ft	LENGTH	56.9 ft
GROUND ELEVATION	521.3	GROUND ELEVATION	518.5	GROUND ELEVATION	515.6
INVERT ELEVATION	518.3	INVERT ELEVATION	516.0	INVERT ELEVATION	513.1
MAX BOTTOM ELEVATION	514.3	MAX BOTTOM ELEVATION	512.5	MAX BOTTOM ELEVATION	509.6

SEPTIC INVERT CHART - LOT 5			
INV @ HOUSE	515.8	INV IN PUMP TANK	512.5
GROUND @ HOUSE	518.1	INV OUT PUMP TANK	512.2
		TOP OF PUMP TANK	513.3
INV IN SEPTIC TANK	513.2	GROUND OVER PUMP TANK	516.1
INV OUT SEPTIC	512.9		
TOP OF SEPTIC TANK	514.1	INV IN DIST BOX	520.0
GROUND OVER SEPTIC TANK	517.1	INV OUT DIST BOX	519.9
		GROUND AT DIST BOX	523.3

Health Department Spec Sheet information			
System	Application Rate	Effective Depth	Bottom Depth
Initial	1.2	5.0	7.0
1st Replacement	1.2	2.5	6.0
2nd Replacement	1.2	2.5	6.0

Note: BAT Unit. Pump to Dist. Req. Low pressure dist. recommended.



- DESIGN DATA & GENERAL NOTES
- [1] Concrete strength  $f_c=4000$  p.s.i. @ 28 days. Density = 150 pcf.
  - [2] Cement-Portland Type III per ASTM C-150-82.
  - [3] Admixtures & plasticizers per ASTM C-209-88 & C-494-82.
  - [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
  - [5] Top slab sealed with butyl rope mastic.
  - [6] 4" wall, 4" base, & 6" top thickness.
  - [7] Max 2" of cover.
  - [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

**MBI** Mayer Bros., Inc. 6364 Race Road, Elkridge, Maryland 21075, Tel: 410.796.1434, Fax: 410.796.1438, www.mayerbrosprecast.com

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

Dwg. No. 2000-2C No Scale Aug 11, 2008

INITIAL SYSTEM - LOT 5		
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

1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.5	ft
Bottom Max Depth	6.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.45	
Trench width	3	ft
Effective Area Depth	3.5	ft
Trench Spacing	10	ft
Linear Length of trench Required	114	lf

2nd REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	2.5	ft
Bottom Max Depth	6.0	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall Reduction Credit	0.45	
Trench width	3	ft
Effective Area Depth	3.5	ft
Trench Spacing	10	ft
Linear Length of trench Required	114	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: 06-08-2020.

**JOHN M. CARNEY**  
PROFESSIONAL ENGINEER  
No. 45577  
8/27/19

THIS PLAN IS FOR SEPTIC DESIGN ONLY

**BUILDER:**  
NV HOMES, INC.  
9720 PATUXENT WOODS DR.  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

**OWNER:**  
HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

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

**PROJECT:** BRIGHTON MILL II LOT 5

**LOCATION:** TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO  
13619 CURTIS VISTA WAY  
CLARKSVILLE, MD 21029  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586

**TITLE:** ONSITE SEPTIC DESIGN SYSTEM PLAN

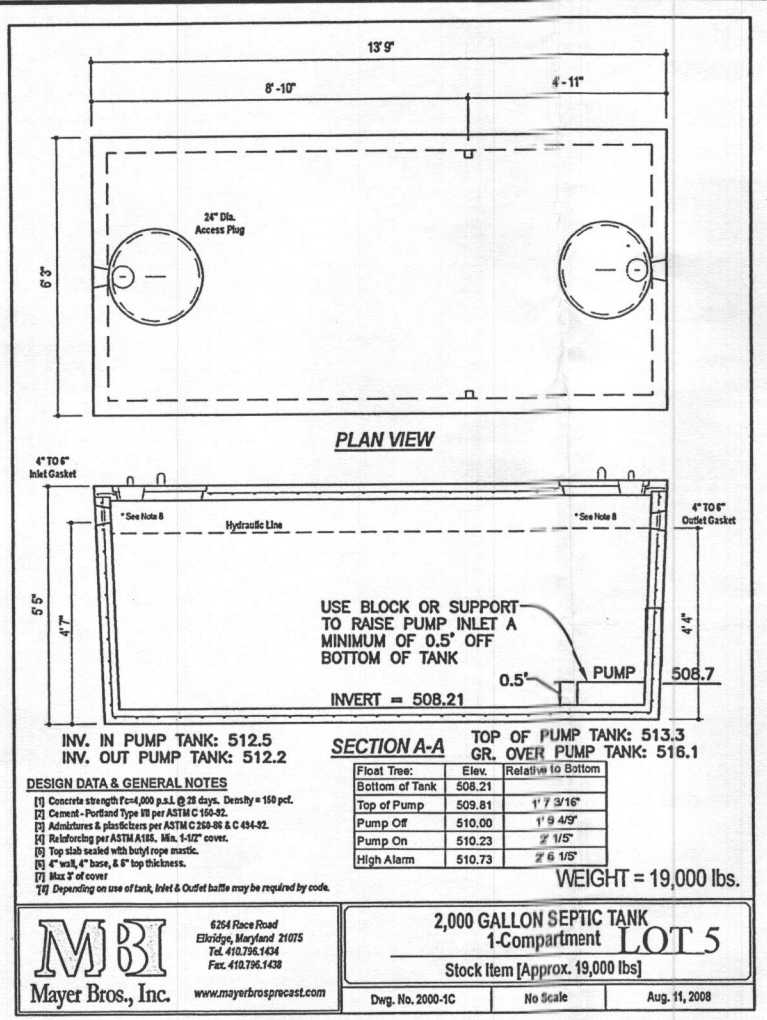
**HOUSE TYPE:** CLIFTON PARK - ELEVATION A

**DATE:** AUGUST, 2018 **PROJECT NO.:** 2627

**SCALE:** AS SHOWN **DRAWING** 2 **OF** 3

**BENCHMARK**  
ENGINEERS LAND SURVEYORS PLANNERS  
**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BEI-CIVILENGINEERING.COM

<b>Pumping Station</b>	
Number of Force Main and Manifold =	2 of SDR 21 pipe
Length of Force Main =	66 feet SDR 21 gallons/100 feet = 18.8 Table 4.2
Volume of Main =	12.4 gallons ID = 2.149 length = 100 gallon/sq ft 7.480519
Total Volume =	12.4 gallons volume = 18.84222 gal/100 lf
Minimum Dose must be greater than 1/6 of the design flow	150 gallons
Minimum Dose must be greater than the volume of the main	12 gallons
Use minimum dose of	125 gallons not okay Doses per Day = 7.2
<b>Size Pump Chamber</b>	
Pump chamber must be able to hold one dose and one days design flow	
One day Capacity =	900 gallons
Dose =	125 gallons
Totals =	1025 gallons
Use 2,000 gallon pump tank	
Tank Dimensions:	Exterior Length: 13.75 feet Interior Length: 13.08 feet Walls: 0.33 feet Width: 6.25 feet Interior Width: 5.58 feet Bottom: 0.33 feet Height: 5.42 feet Interior Height: 4.67 feet Top: 0.42 feet Area: 73.05 sf Bottom to Inlet: 4.58 feet Volume: 341.14 cf
<b>Sizing the Pump</b>	
Flow:	runtime = 5 minutes rate = 25.00 gallons/minute
<b>Design Head:</b>	
Design Head = Static Head + Friction Head	
Static Head = highest elevation of main - pump off elevation	
Highest component of system = 520.20 Main HP	
Pump off elevation = 510.00	
Static Head = 10.20 feet	
Friction Head = Head loss due to pipe friction	
2.0" pipe = 66 feet	
45° bends = 2 loss for bend	
Gate Valve = 0 loss for tee	
8 feet per table 4.3	
0 feet per table 4.3	
Friction loss per table 4.4 = 1.1 (ft/100 ft)	
Equivalent Length = 74 Friction loss 0.81 feet	
Total Friction Head = 0.81	
Design Head = 11.01 feet	
<b>Pump Requirements:</b>	
Performance =	25.00 gpm
Head of Water =	11.01 feet of head
<b>Pump Selection:</b> Zoeller Pump Company Mighty-mate Series, Model 57/59 1/3 horse power	
Pump Flow Rate =	32.00 gallons/minute per rating curve 3.91 Minutes TDH analysis 11.49 ft Between design and curve? Yes
<b>Design Pump Chamber</b>	
Ground over Tank =	516.10 Cover 2.8 ft
Top of Tank =	513.30
Invert of Tank =	508.21
6" Riser =	0.50 feet
Pump Height =	1.10 feet
Min. Pump off =	509.81
Selected Pump off =	510.00
Dose =	16.7 cf
Area of Pit =	73.05 sf
Pump on dist. =	0.23
Pump on Elev. =	510.23
Distance between Pump on and Highwater Alarm =	0.5 feet
Highwater Alarm Elevation =	510.73
Dist. for a dose above alarm =	1.65
Minimum Inlet Elev. =	512.38
Tank Inlet =	512.46 Okay
Dist. Alarm to Inlet =	1.73 Okay



**ZOELLER PUMP COMPANY**  
Zoeller Family of Water Solutions

**TECHNICAL DATA SHEET MIGHTY-MATE SERIES**  
Cast Iron Models 53, 57 and Bronze Models 55, 59  
Submersible Effluent / Dewatering Pumps

**PRODUCT SPECIFICATIONS**

<b>MOTOR</b>	Horse Power: 3/10 Voltage: 115 or 230 Phase: 1 Ph Hertz: 60 Hz RPM: 1550 Type: Shaded pole Insulation: Class B Amps: 4.8 - 9.7
<b>PUMP</b>	Operation: Automatic or nonautomatic Auto On/Off Points: 7-1/4" (18.4 cm) / 3" (7.6 cm) Discharge Size: 1-1/2" NPT Solids Handling: 1/2" (12 mm) spherical solids Cord Length: 8' (3 m) automatic, 15' (5 m) nonautomatic Cord Type: UL listed, 3-wire, grounded plug Max. Head: 15.25' (5.9 m) Max. Flow Rate: 43 GPM (163 LPM) Max. Operating Temp.: 130° F (54° C) Cooling: Oil filled Motor Protection: Auto reset thermal overload Cap: Cast iron or bronze Motor Housing: Cast iron or bronze Pump Housing: Cast iron or bronze Base: Cast iron, bronze or engineered thermoplastic Upper Bearing: Sleeve bearing Lower Bearing: Sleeve bearing Mechanical Seals: Carbon and ceramic Impeller Type: Non-clogging vortex Impeller: Plastic, cast iron or bronze Hardware: Stainless steel Motor Shaft: AISI 1215 cold rolled steel Gasket: Neoprene

NOTE: See model comparison chart for specific details.

**TOTAL DYNAMIC HEAD FLOW PER MINUTE**

MODEL	53/55/57/59	
Feet	Meters	Gal. Liters
5	1.5	43 163
10	3.0	34 129
15	4.6	19 72
Shut-off Head: 19.25 ft (5.9m)		

**USE BN57. CONTRACTOR MAY USE EQUIVALENT PUMP**

**MODEL COMPARISON**

Model	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
MS3/MS5	Single	Auto	115	1	9.7	3/10	60	23	10	1	---
NS3/NS5	Single	Non	115	1	9.7	3/10	60	23	10	2	3 & 4
* BN53	Single	Auto	115	1	9.7	3/10	60	25	11	*	---
* BES3/BES7	Single	Auto	230	1	4.8	3/10	60	24/30	11/13	*	---
D53	Single	Auto	230	1	4.8	3/10	60	23	10	1	---
ES3/ES5	Single	Non	230	1	4.8	3/10	60	22	10	2	3 & 4
MS7/MS9	Single	Auto	115	1	9.7	3/10	60	29/33	13/15	1	---
NS7/NS9	Single	Non	115	1	9.7	3/10	60	28/29	12/13	2	3 & 4
* BN57	Single	Auto	115	1	9.7	3/10	60	30	13	*	---
D57/D59	Single	Auto	230	1	4.8	3/10	60	30/33	13/15	1	---
ES7/ES9	Single	Non	230	1	4.8	3/10	60	28/29	12/13	2	3 & 4
E59	Single	Non	230	1	4.8	3/10	60	29	13	2	3 & 4

\* Single piggyback switch included.

**SPECIAL MODEL FEATURES**

Additional cord lengths are available in 15' (5 m), 25' (8 m) and 35' (11 m). 50' (15 m) cord lengths available for 230 V units only.  
BE and BN models include a piggyback variable level float switch or double piggyback variable level float switch.  
Model 53: cast iron switch case, motor and pump housing, a plastic impeller and base. Model 57: all cast iron construction with a cast iron impeller.  
Model 55: bronze switch case, motor and pump housing, a plastic impeller and base. Model 59: bronze construction with a bronze impeller.  
Optional pump stand (P/N 10-2421).

**SELECTION GUIDE**

- Integral float-operated mechanical switch, no external control required.
- Single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM0712 for correct model of Electrical Alternator.
- Variable level control switch 10-0743 used as a control activator with electrical alternator (3) or (4) float system.

**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).

© Copyright 2015 Zoeller® Co. All rights reserved.  
502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | www.zoeller.com

**SEPTIC INVERT CHART - LOT 5**

INV @ HOUSE	515.8	INV IN PUMP TANK	512.5
GROUND @ HOUSE	518.1	INV OUT PUMP TANK	512.2
		TOP OF PUMP TANK	513.3
INV IN SEPTIC TANK	513.2	GROUND OVER PUMP TANK	516.1
INV OUT SEPTIC	512.9		
TOP OF SEPTIC TANK	514.1	INV IN DIST BOX	520.0
GROUND OVER SEPTIC TANK	517.1	INV OUT DIST BOX	519.9
		GROUND AT DIST BOX	523.3

**THIS PLAN IS FOR SEPTIC DESIGN ONLY**

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

**BUILDER:**  
NV HOMES, INC.  
9720 PATUXENT WOODS DR.  
SUITE 100  
COLUMBIA, MD 21046  
410-379-5956

**OWNER:**  
HIGHLAND DEVELOPMENT CORP  
P.O. BOX 228  
CLARKSVILLE, MARYLAND 21029  
410-365-0414

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

**PROJECT:** BRIGHTON MILL II LOT 5

**LOCATION:** TAX MAP: 34, GRID: 2, PARCEL: 16 ZONED: RR-DEO  
13619 CURTIS VISTA WAY  
CLARKSVILLE, MD 21029  
FIFTH ELECTION DISTRICT, HOWARD COUNTY, MD, TAX ID #05-600586

**TITLE:** ONSITE SEPTIC DESIGN SYSTEM PLAN

**HOUSE TYPE:** CLIFTON PARK - ELEVATION A

**DATE:** AUGUST, 2018 **PROJECT NO.:** 2627

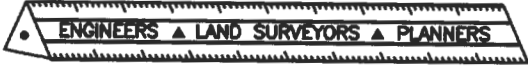
**SCALE:** AS SHOWN **DRAWING 3 OF 3**

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: 06-08-2020.

**STATE OF MARYLAND**  
**JOHN M. CATNEY**  
**PROFESSIONAL ENGINEER**  
No. 45577  
8/27/18

**BENCHMARK ENGINEERS, LAND SURVEYORS, PLANNERS, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 315  
ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
WWW.BEI-CMLENGINEERING.COM

# BENCHMARK



## ENGINEERING, INC.

8480 Baltimore National Pike • Suite 315 • Ellicott City, Maryland 21043  
 410-465-6105 410-465-6644 (Fax)

### LETTER OF TRANSMITTAL

DATE	8/27/18	PROJECT No.	2627
ATTENTION	Dana Bernard		
RE:	Brighton Mill Lot 5		
	13619 Curtis Vista Way		

TO: Health Dept

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following items

- |   |                                   |                                       |                                      |
|---|-----------------------------------|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> Photocopies    | <input type="checkbox"/> Prints   | <input type="checkbox"/> Originals    | <input type="checkbox"/> Samples     |
| <input type="checkbox"/> Specifications | <input type="checkbox"/> Invoices | <input type="checkbox"/> Change Order | <input type="checkbox"/> Other _____ |

COPIES of	No. of SHEETS	DESCRIPTION
3	3	OSDS Permit Plan
1	-	Architectural Plans

THESE ARE TRANSMITTED as checked below

- |   |                                       |   |
|---|---------------------------------------|---|
| <input checked="" type="checkbox"/> For Comment | <input type="checkbox"/> For your use | <input type="checkbox"/> For Approval                   |
| <input checked="" type="checkbox"/> For Review  | <input type="checkbox"/> As requested | <input checked="" type="checkbox"/> Other <u>Permit</u> |

REMARKS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

COPY TO: \_\_\_\_\_

RECEIVED BY: James King

SIGNED: John Carney

If enclosures are not as noted, kindly notify us at once.

## Williams, Jeffrey

---

**From:** John Boris -MDE- <[john.boris@maryland.gov](mailto:john.boris@maryland.gov)>  
**Sent:** Tuesday, August 29, 2017 1:18 PM  
**To:** Williams, Jeffrey  
**Cc:** Naomi Howell -MDE- ([naomi.howell@maryland.gov](mailto:naomi.howell@maryland.gov)); Wolf, Kevin; Davis, Michael J  
**Subject:** Re: Well variance not fully met

Jeff,

I had an opportunity to discuss this matter with Nony. With the addition of BAT & LPD we're ok with the construction of this well. If you have any further questions regarding this matter please feel free to contact me.

John A. Boris, Jr., LEHS  
Geologist Program Consultant  
Maryland Dept. of the Environment  
Onsite Systems Division  
Office: (410) 537-3678  
Cell: (443) 992-6195  
Fax: (410) 537-3163

On Tue, Aug 29, 2017 at 9:26 AM, Williams, Jeffrey <[jewilliams@howardcountymd.gov](mailto:jewilliams@howardcountymd.gov)> wrote:

Sorry I forgot the attachments.

---

**From:** Williams, Jeffrey  
**Sent:** Tuesday, August 29, 2017 9:11 AM  
**To:** Naomi Howell -MDE- ([naomi.howell@maryland.gov](mailto:naomi.howell@maryland.gov))  
**Cc:** Wolf, Kevin; Davis, Michael J; John Boris -MDE- ([john.boris@maryland.gov](mailto:john.boris@maryland.gov))  
**Subject:** Well variance not fully met

Hi Nony. I have a question for you that would normally go to our regional. I'm sorry to bug you, but this is ultimately MDE's decision on what to do as we have a well driller that didn't fully comply with an MDE variance. I copied John in case he wants to chime in on this well issue.

We have a lot in a proposed subdivision with a variance approved by Steve for the well to be downgrade of an SDA on a neighboring proposed lot. The variance condition was his standard one: steel casing to 50' or 10' into bedrock, whichever is greater. We noted the condition on the well permit and spoke directly to the driller (Joe Mayne) onsite about the condition before drilling started. We were onsite and confirmed the steel casing. When we got the completion report back it noted the casing to 53' with sand to 48' and "mica rock" from 48'-520'. The cement grout went to 52'. The completion report is attached along with a site plan. The driller did go past

50' on the neighboring lot with the same variance condition, but the bedrock started shallower there. I think he remembered the 50' part but forgot about the 10' into bedrock part.

Some additional information to guide a decision about what to do: the well area for this lot is 300' from the upgrade SDA at its closest. The well was drilled in the back part of the area and the initial sewage disposal system will be in the upper part of the SDA, so the initial separation will be more like 350'+. They had 1 dry hole and this well got only 1.5 gpm. The variance includes a condition on the upgrade lot to require a BAT unit and LDP drainfield.

We'd be fine with tweaking the variance condition to allow this well, but I felt that it wasn't our call to make unilaterally. Thanks

Jeff Williams

Program Supervisor, Well & Septic Program

Bureau of Environmental Health

Howard County Health Dept.

410-313-4261

[jewilliams@howardcountymd.gov](mailto:jewilliams@howardcountymd.gov)

#### **CONFIDENTIALITY NOTICE**

**This message and the accompanying documents are intended only for the use of the individual or entity to which they are addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable law. If the reader of this email is not the intended recipient, you are hereby notified that you are strictly prohibited from reading, disseminating, distributing, or copying this communication. If you have received this email in error, please notify the sender immediately and destroy the original transmission.**

[Click here](#) to complete a three question customer experience survey.