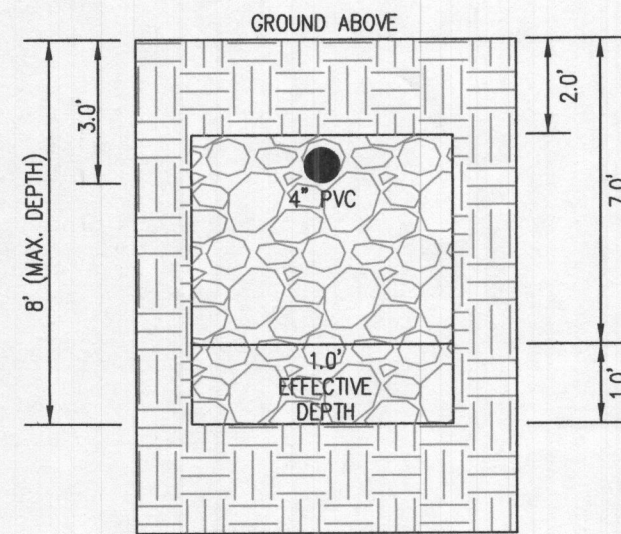
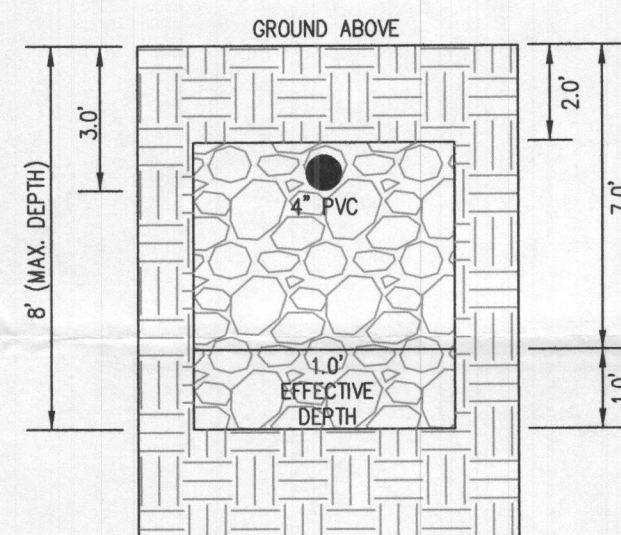


INITIAL SYSTEM
TRENCH DETAIL (T1 THRU T3)
(NOT TO SCALE)



1ST REPLACEMENT SYSTEM
TRENCH DETAIL (T4 THRU T6)
(NOT TO SCALE)



2ND REPLACEMENT SYSTEM
TRENCH DETAIL (T7 THRU T11)
(NOT TO SCALE)

INITIAL TRENCH DATA:

BOTTOM MAX. DEPTH (8')

TRENCH 1 (T1): 92.22 LF

GROUND ABOVE = 423.00'
INV. IN = 420.00'
BOTTOM TRENCH = 415.00'

TRENCH 2 (T2): 92.22 LF

GROUND ABOVE = 422.00'
INV. IN = 419.00'
BOTTOM TRENCH = 414.00'

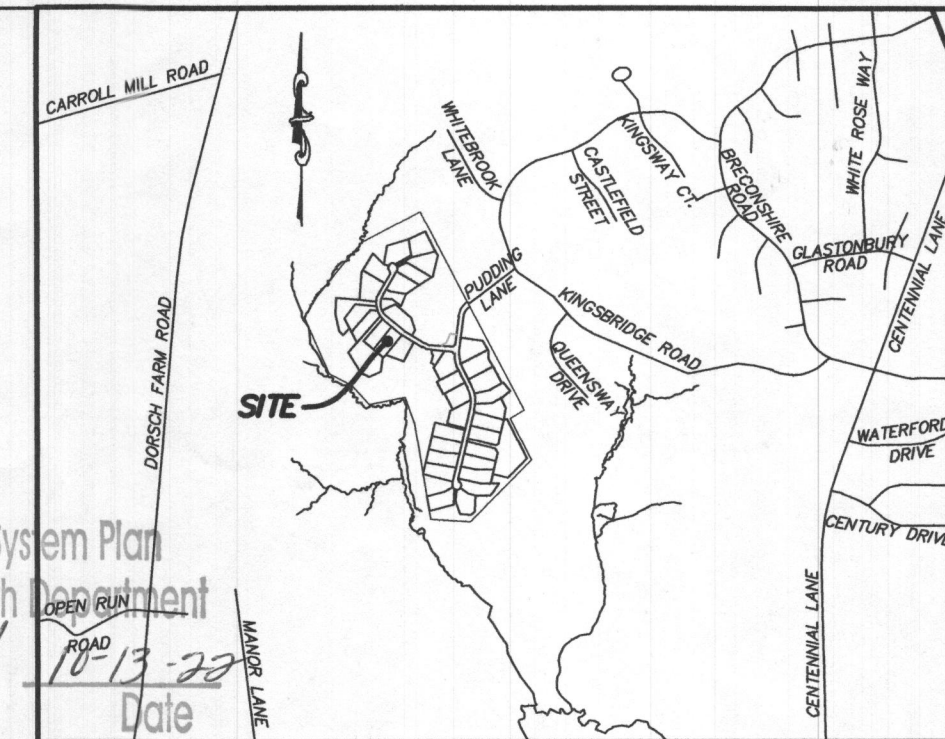
TRENCH 3 (T3): 92.22 LF

GROUND ABOVE = 420.90'
INV. IN = 417.90'
BOTTOM TRENCH = 412.90'

LEGEND:

- BRL
- T.W.
- G.F.
- B.F.
- SEWAGE DISPOSAL AREA
- WELL BOX AREA
- PROPOSED TREE
- PROPOSED TREE

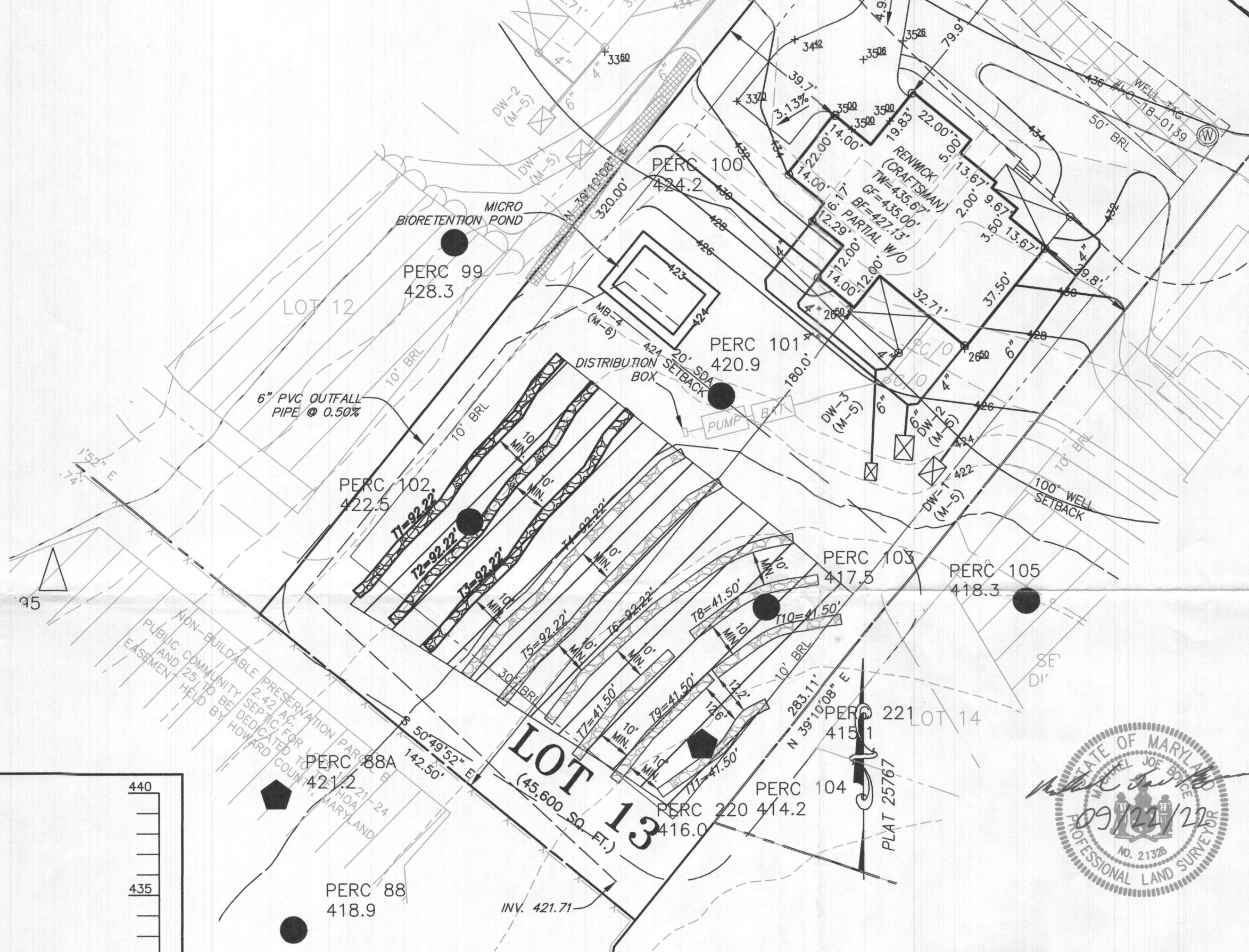
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/23.



VICINITY MAP
1" = 1000'

GENERAL NOTES:

- THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
- EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.
- 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.
- THE MAXIMUM EARTH COVER OVER THE TANK IS THREE (3) FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
- THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS FROM HOWARD COUNTY GIS, 2' CONTOUR INTERVAL AND FIELD VERIFIED BY BENCHMARK ENGINEERING, INC., IN FEBRUARY 2014.



HOUSE TYPE: RENWICK (MODERN FARMHOUSE)

TWO CAR SIDE ENTRY GARAGE
FINISHED LOWER LEVEL
WALK-OUT BASEMENT
LUXURIOUS PRIMARY BATH PACKAGE
SOFFIT IN PRIMARY BEDROOM
ADDITIONAL BATH
OPTIONAL POWDER ROOM
WET BAR ROUGH-IN
MEDIA ROOM - FINISHED LOWER LEVEL
ADDITIONAL ONE CAR FRONT ENTRY GARAGE - 14'
OPTIONAL DROP ZONE
ALTERNATE KITCHEN ISLAND DESIGN
BEDROOM - FINISHED LOWER LEVEL
WALK-OUT LUXURY COVERED DECK
DOUBLE WIDE DRIVEWAY TAIL

- OPTION No. 012
- OPTION No. 013
- OPTION No. 017
- OPTION No. 055
- OPTION No. 036008
- OPTION No. 367
- OPTION No. 377
- OPTION No. 048246
- OPTION No. 562
- OPTION No. 263102
- OPTION No. 263081
- OPTION No. 263149
- OPTION No. 263216
- OPTION No. 263169
- OPTION No. 851

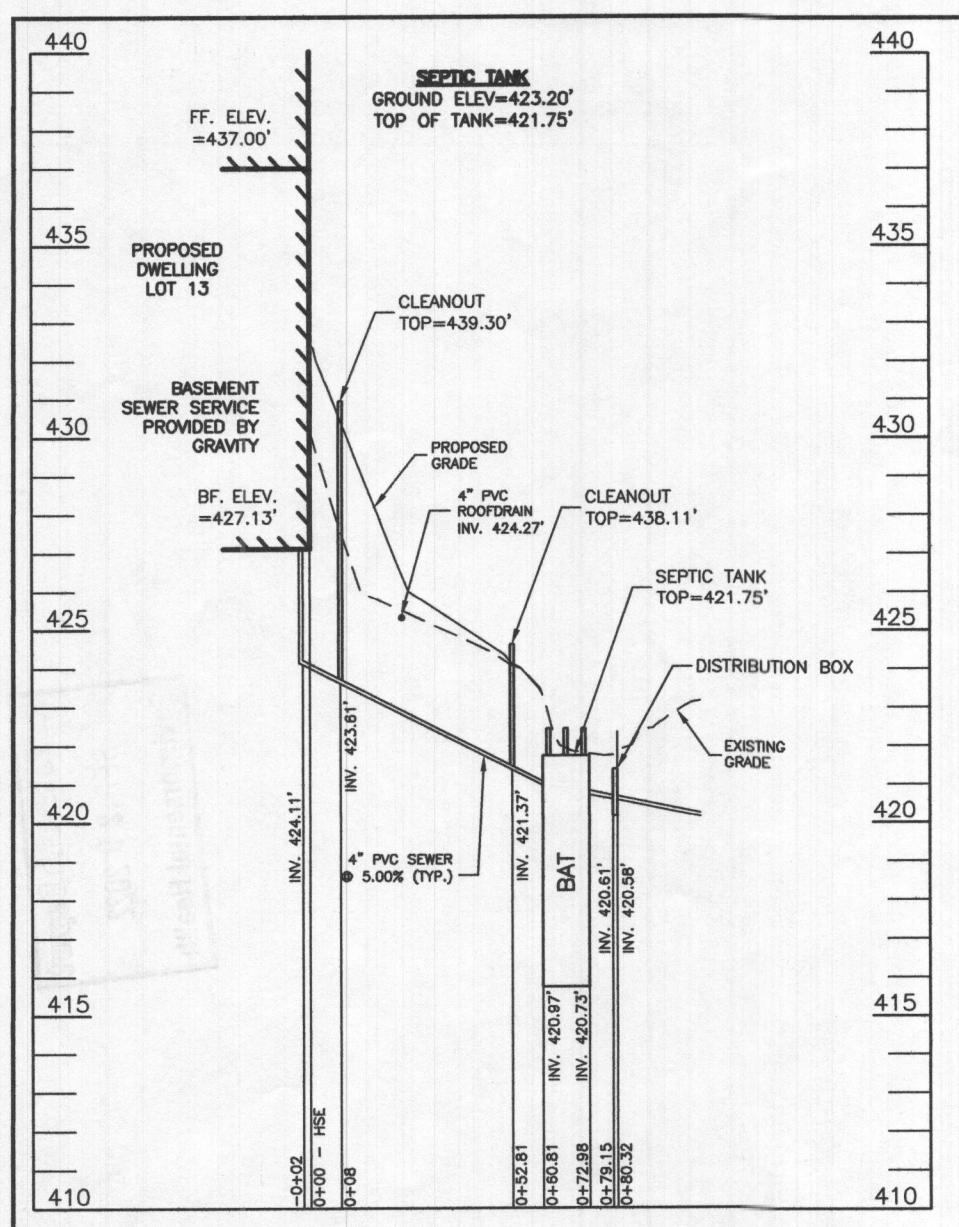
WELL LOCATION CERTIFICATION:

THE EXISTING WELL SHOWN FOR LOT 13 (TAG NO. H0-18-0139) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

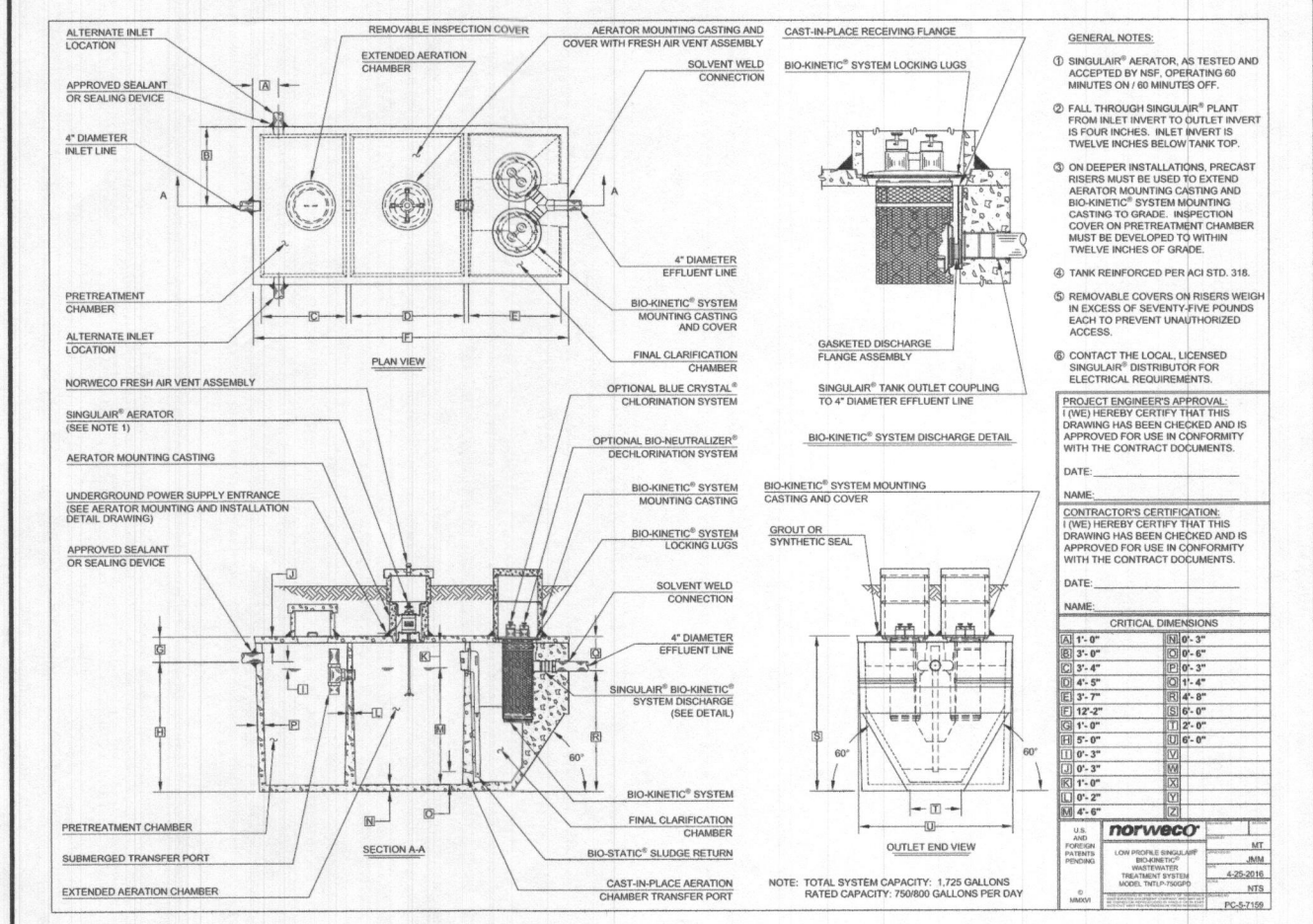
SEWAGE DISPOSAL SYSTEM DATA (4 BDRM)

PROPOSED INVERT AT FOUNDATION WALL: 424.11'

- EX. GRADE OVER TANK: 421.75'
PROPOSED GRADE OVER TANK: N/A
INVERT IN: 420.97' INVERT OUT: 420.73'
- DISTRIBUTION BOX
EXISTING GRADE OVER TANK: 421.83'
PROPOSED GRADE OVER TANK: N/A
INVERT IN: 420.61' INVERT OUT: 420.58'
- INITIAL TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD ÷ 0.6 APP. RATE = 1,000 SF
USE 3" WIDE TRENCH WITH 60" GRAVEL BELOW PIPE
10' MIN. SPACING BETWEEN TRENCH EDGES
1,000 SF ÷ 3' WIDTH = 333.33 LF x 0.83 (SIDEWALL REDUCTION) = 276.67 LF MIN.
USE 3 92.22' LONG TRENCHES = 276.67 LF
- 1ST REPLACEMENT TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD ÷ 0.6 APP. RATE = 1,000 SF
USE 3" WIDE TRENCH WITH 60" GRAVEL BELOW PIPE
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USE 3 92.22' LONG TRENCHES = 276.67 LF
- 2ND REPLACEMENT TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD ÷ 0.8 APP. RATE = 750 SF
USE 3" WIDE TRENCH WITH 60" GRAVEL BELOW PIPE
10' MIN. SPACING BETWEEN TRENCH EDGES
750 SF ÷ 3' WIDTH = 250.00 LF x 0.83 (SIDEWALL REDUCTION) = 207.50 LF MIN.
USE 5 41.50' LONG TRENCHES = 207.50 LF



SEPTIC SYSTEM PROFILE
SCALE = HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

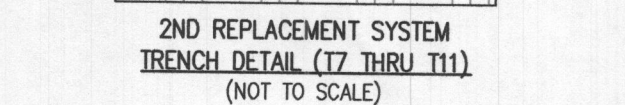


SITE PLAN FOR BAT INSTALLATION
LOT 13
KINGS FOREST
LIBER 20039, FOLIO 212
PLAT NO. 25767
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
ADDRESS: 10605 REYNOLDS COURT
ELLICOTT CITY, MARYLAND 21042







ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

ESE Consultants, Inc.
6731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046
T: 410-872-9105

DATE: 08/30/2022 SCALE: 1"= 30' FILE: LOT 12 OSDS
CHK'D: M.J.B. JOB NO: 3502 DRAWN: V.X.P.

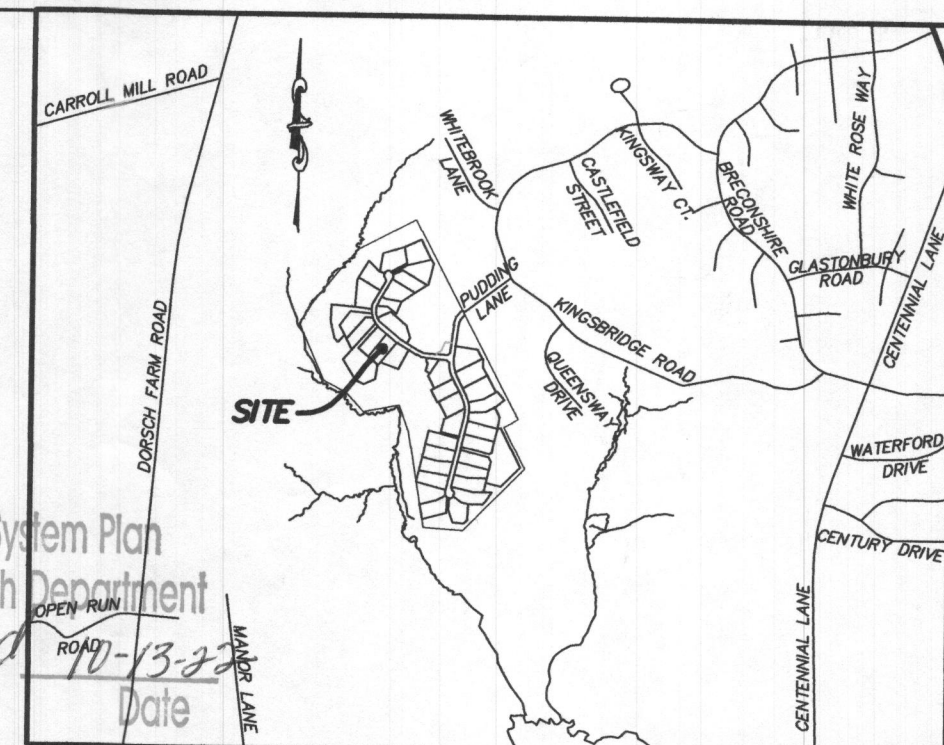


TRENCH 3 (T3): 92.22 LF.
GROUND ABOVE = 420.90'
INV. IN = 417.90'
BOTTOM TRENCH = 412.90'

BRL	BUILDING RESTRICTION LINE
W	WELL LOCATION
T.W.	TOP OF WALL
G.F.	GARAGE FLOOR
B.F.	BASEMENT FLOOR
	PASSED PERC LOCATION
	FAILED PERC LOCATION
	SEWAGE DISPOSAL AREA
	WELL BOX AREA
	PROPOSED TREE
	PROPOSED TREE

REYNOLDS COURT
ACCESS PLACE
50' PUBLIC R/W

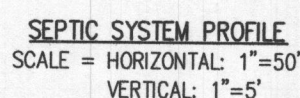
Approved Septic System Plan
Howard County Health Department
Dore Burard Signature
OPEN RUN ROAD 70-13-2 Date



VICINITY MAP

1" = 1000'

1. ~~THESE AREAS~~ THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWAGE AREA. RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
2. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
3. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
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5. 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.
6. THE MAXIMUM EARTH COVER OVER THE TANK IS THREE (3) FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
7. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
8. THE EXISTING TOPOGRAPHY SHOWN HEREON IS FROM HOWARD COUNTY GIS, 2' CONTOUR INTERVAL AND FIELD VERIFIED BY BENCHMARK ENGINEERING, INC., IN FEBRUARY 2014.

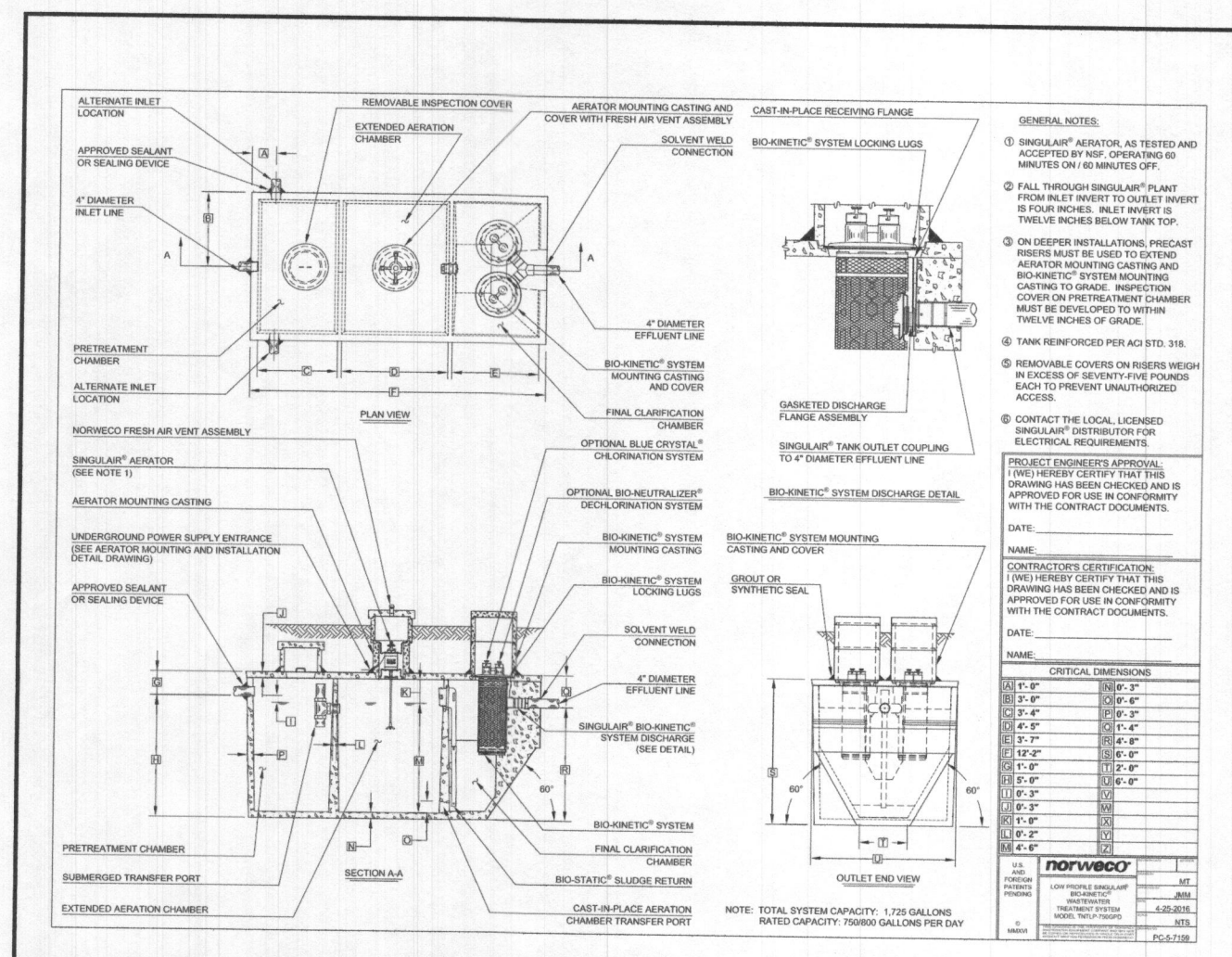


PROPOSED INVERT AT FOUNDATION WALL: 424.11

1. EX. GRADE OVER TANK: 421.75'
PROPOSED GRADE OVER TANK: N/A
INVERT IN: 420.97' INVERT OUT: 420.73'
2. DISTRIBUTION BOX
EXISTING GRADE OVER TANK: 421.83'
PROPOSED GRADE OVER TANK: N/A
INVERT IN: 420.61' INVERT OUT: 420.58'
3. INITIAL TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD ÷ 0.6 APP. RATE = 1,000 SF
USE 3' WIDE TRENCH WITH 60" GRAVEL BELOW PIPE
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4. 1ST REPLACEMENT TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD ÷ 0.6 APP. RATE = 1,000 SF
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5. 2ND REPLACEMENT TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
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USE 3' WIDE TRENCH WITH 60" GRAVEL BELOW PIPE
10' MIN. SPACING BETWEEN TRENCH EDGES
750 SF ÷ 3' WIDTH = 250.00 LF x 0.83 (SIDEWALL REDUCTION) = 207.50 LF MIN.
USE 5 41.50' LONG TRENCHES = 207.50 LF

OPTION No. 012
OPTION No. 013
OPTION No. 017
OPTION No. 055
OPTION No. 036008
OPTION No. 367
OPTION No. 377
OPTION No. 048246
OPTION No. 562
OPTION No. 263102
OPTION No. 263081
OPTION No. 263149
OPTION No. 263216
OPTION No. 263169
OPTION No. 851

THE EXISTING WELL SHOWN FOR LOT 13 (TAG NO. HO-18-0139)
HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON



SITE PLAN FOR BAT INSTALLATION
LOT 13
KINGS FOREST
LIBER 20039, FOLIO 212
PLAT NO. 25767
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
ADDRESS: 10605 REYNOLDS COURT
ELLCOTT CITY, MARYLAND 21042

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ESE Consultants, Inc.
6731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046
T: 410-872-9105

DATE: 08/30/2022
CHK'D: M.J.B

SCALE: 1" = 30'

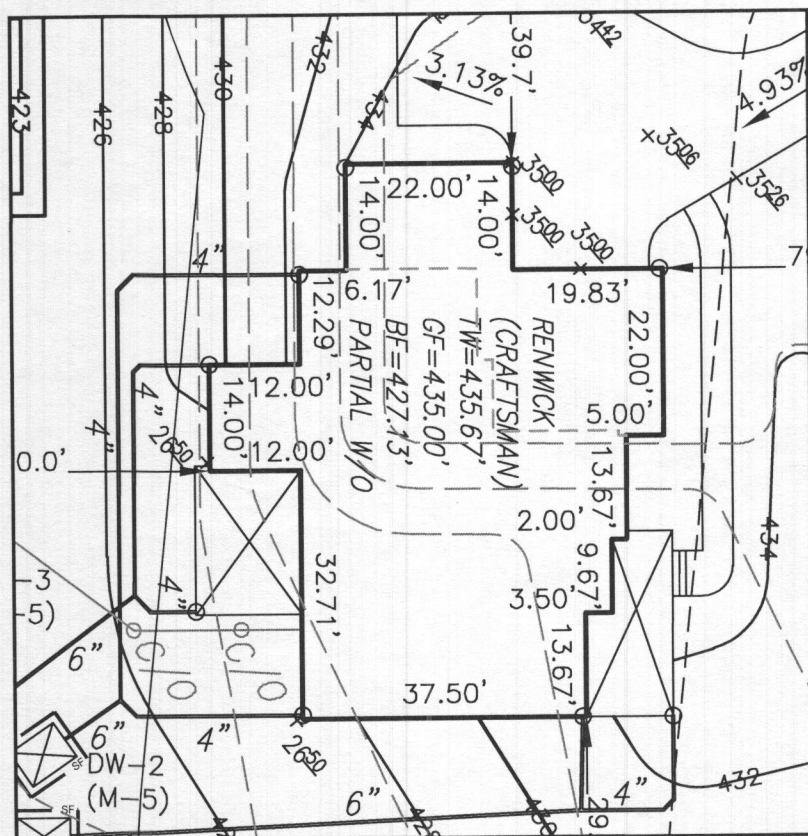
JOB NO: 3502

FILE: LOT 12 OSDS
DRAWN: V.X.P.

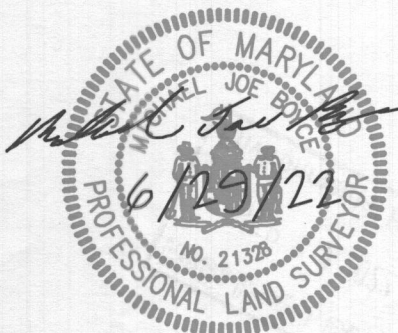
LEGEND:

- BRL BUILDING RESTRICTION LINE
W WELL LOCATION
T.W. TOP OF WALL
G.F. GARAGE FLOOR
B.F. BASEMENT FLOOR
PASSED PERC LOCATION
FAILED PERC LOCATION
SEPTIC DISPOSAL AREA
WELL BOX AREA
PROPOSED TREE
PROPOSED TREE
PROPOSED TREE

NOTE:
TOTAL LIMITS OF DISTURBANCE (LOD) = 33,119 SQ. FT.



BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPEMENT PLAN
SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.



WELL NUMBER: HO-18-0139 ADDRESS: 10605 REYNOLDS COURT
HOUSE TYPE: RENWICK (MODERN FARMHOUSE) ELLICOTT CITY, MD 21042

TWO CAR SIDE ENTRY GARAGE
FINISHED LOWER LEVEL
WALK-OUT BASEMENT
LUXURIOUS PRIMARY BATH PACKAGE
SOFFIT IN PRIMARY BEDROOM
ADDITIONAL BATH
OPTIONAL POWDER ROOM
WET BAR ROUGH-IN
MEDIA ROOM - FINISHED LOWER LEVEL
ADDITIONAL ONE CAR FRONT ENTRY GARAGE - 14'
OPTIONAL DROP ZONE
ALTERNATE KITCHEN ISLAND DESIGN
BEDROOM - FINISHED LOWER LEVEL
WALK-OUT LUXURY COVERED DECK
DOUBLE WIDE DRIVEWAY TAIL

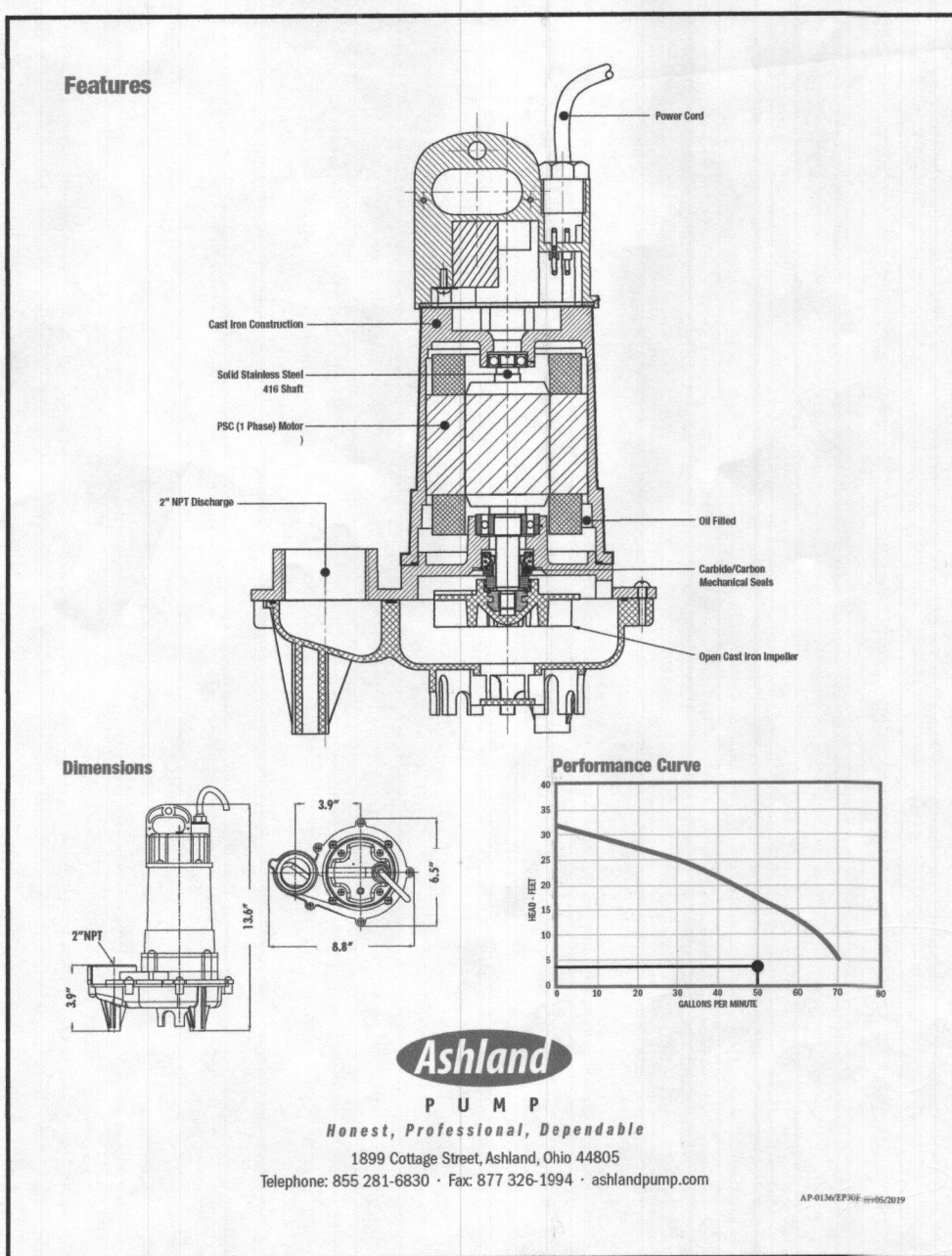
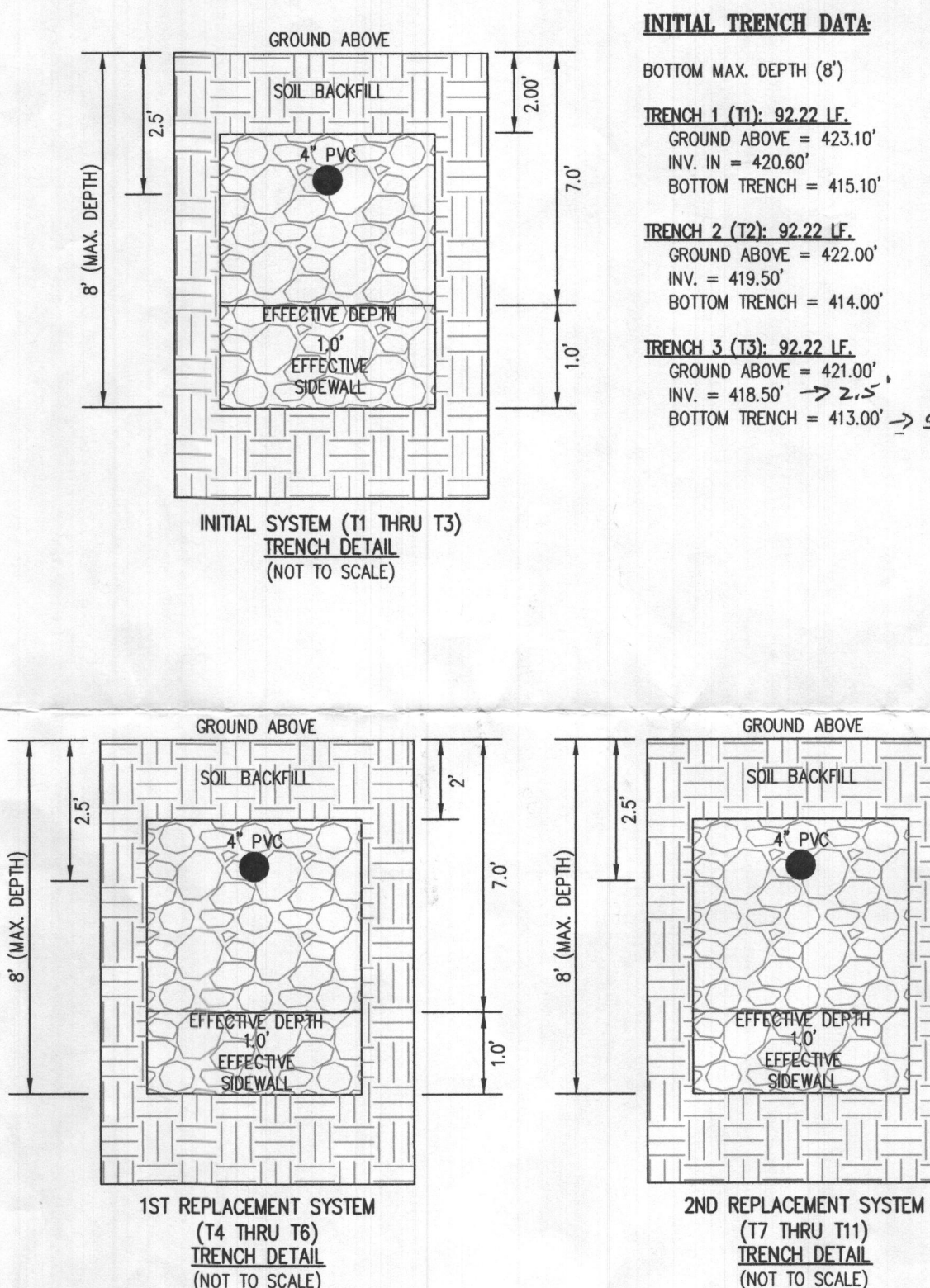
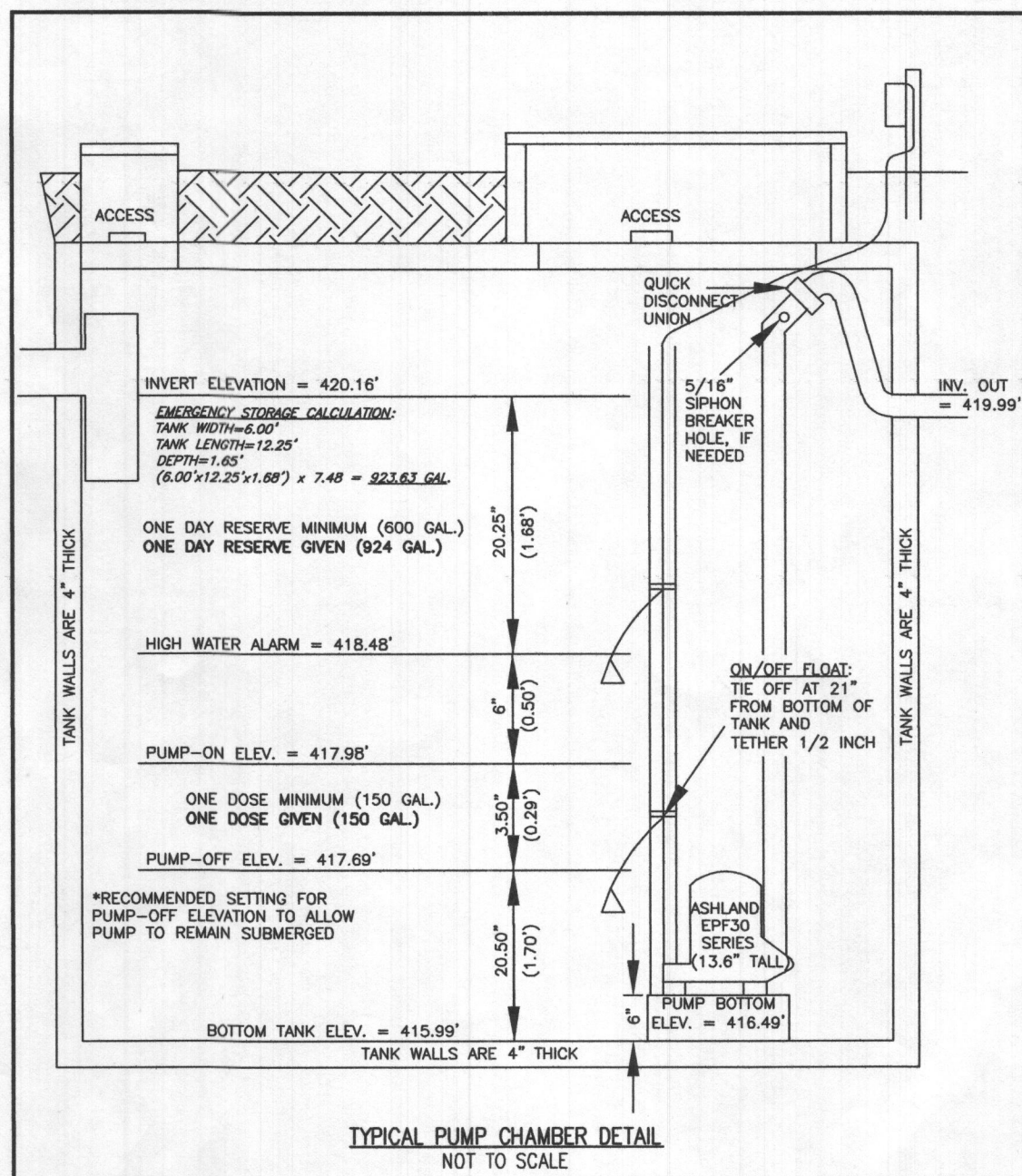
OPTION No. 012
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PLOT PLAN EXHIBIT
LOT 13
KINGS FOREST
LIBER 20039, FOLIO 212
PLAT NO. 25767
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

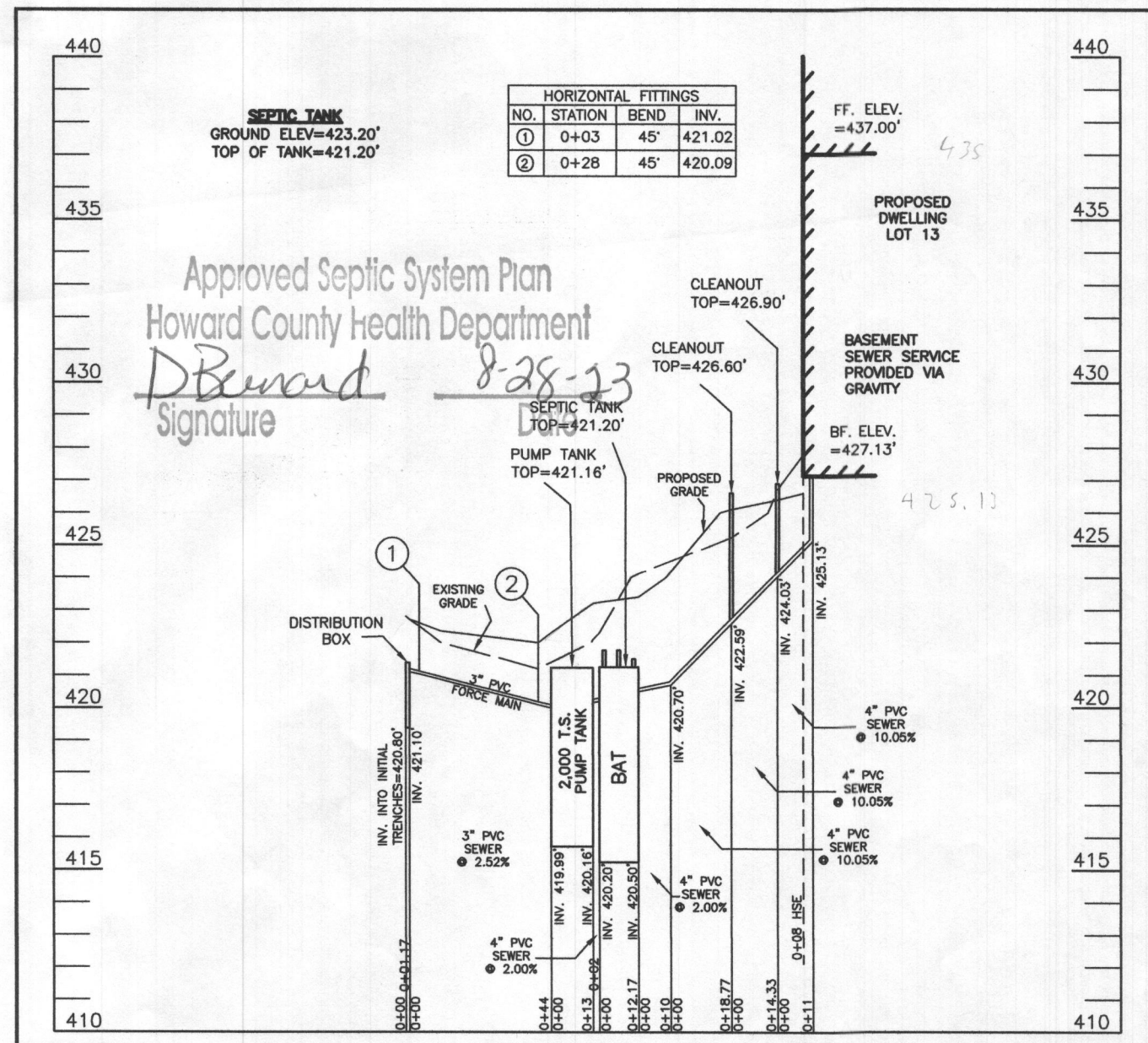
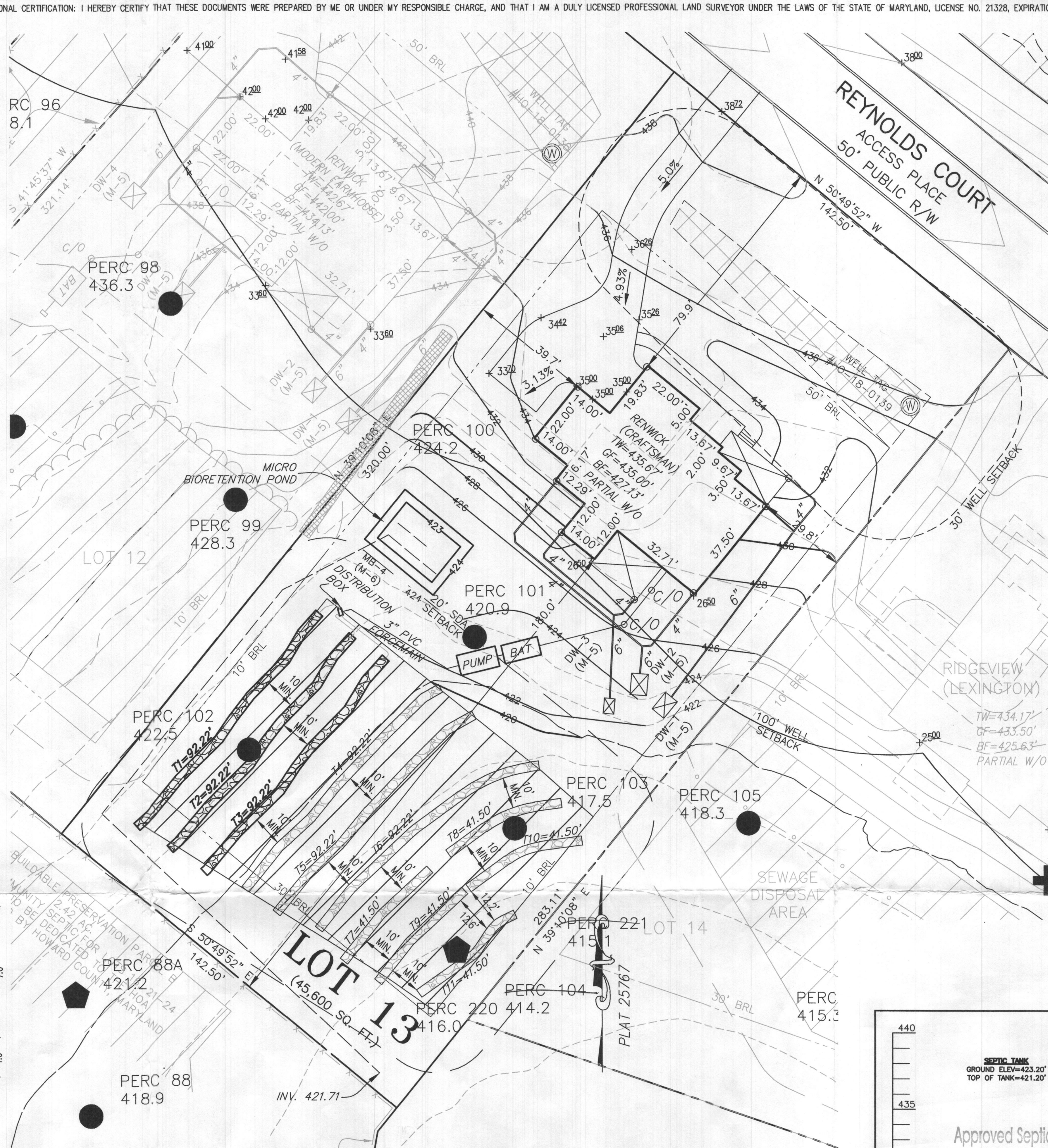
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ESE Consultants, Inc.
6731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046
T: 410-872-9105

DATE: 06/20/2022 SCALE: 1" = 40' FILE: 3502 KW Lot 13 Renwick Craft.
CHK'D: GVS JOB NO: 3502 DRAWN: R.P.S.



PUMP SYSTEM CALCULATIONS				
TOTAL DISE PER DAY = 150 GALLONS X 4 EVENTS PER DAY IS 600 GPD			DESIGN FLOW = 600 GPD	
TRENCH 1 (T1)	INV. ELEV.=420.6'	LENGTH=92.2'	PUMP OFF FLOW	= 417.6'
TRENCH 2 (T2)	INV. ELEV.=419.5'	LENGTH=92.2'	INV. OUT PUMP TANK	= 419.5'
TRENCH 3 (T3)	INV. ELEV.=418.5'	LENGTH=92.2'	PUMP BOTTOM ELEV.	= 416.4'
			PUMP SELECTED	= 3/10 HP
FORCEMAIN LENGTH = 44.00'			TYPE=SCH40	
<p style="text-align: center;">**PUMPING FORCEMAIN TO A DISTRIBUTION BOX AND GRAVITY FLOW FROM DISTRIBUTION BOX TO TRENCHES, NO MANHOLE AND TRENCH CALCULATIONS NEEDED.</p>				
MIN. SYSTEM DISCHARGE RATE = 50 GPM				
MANHOLE DIAMETER = 3 IN.		VELOCITY = _____ FPS	FRICTION LOSS (TABLE 4.4) = _____	
FORCE MAIN DIAMETER = 3 IN.		VELOCITY = 2.17 FPS	FRICTION LOSS (TABLE 4.4) = 0.58	
MINIMUM DOSE = 150 GAL.				
CALCULATE TOTAL DESIGN HEAD				
LENGTH OF FM FROM PUMP TO DISTRIBUTION BOX = 44.00'				
# OF (45') BENDS IN FM = $\frac{2}{1}$		(ADD 6' P/R BEND) = 12.00'		
# OF (90') BENDS IN FM = $\frac{N/A}{1}$		(ADD 10' P/R BEND) = $\frac{N/A}{1}$		
TOTAL LENGTHS = 44.00'		TOTAL ADD. LENGTHS = 12.00'		TOTAL PIPE/ = _____
(50 GPM OF 3" PVC = 0.58 PER 100' PIPE)		0.58 / 100' = 0.0058 X 56.00' = 0.325'		FRICTION LOSS = 0.605'
FRICTION HEAD = 0.33' FT.		(PER ABOVE CALCULATION)		
STATIC HEAD = 3.41' FT.		(HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLUAT ELEVATION)		
TOTAL DYNAMIC HEAD = 3.74' FT.		(FRICTION HEAD + STATIC HEAD)		
<p style="text-align: center;">THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 3.74' OF HEAD IS REQUIRED.</p> <p style="text-align: center;">EPF30M1-20, 3/10 H.P. IS EFFICIENT</p>				



WELL LOCATION CERTIFICATION:

THE EXISTING WELL SHOWN FOR LOT 13 (TAG NO. HO-18-0139)
HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

SITE PLAN FOR BAT INSTALLATION
LOT 13
KINGS FOREST
LIBER 20039, FOLIO 212
PLAT NO. 25767
ELECTION DISTRICT No. 2
HOWARD COUNTY, MARYLAND
ADDRESS: 10605 REYNOLDS COURT
ELLCOTT CITY, MARYLAND 21042

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ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

ESE Consultants, Inc.
6731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046
T: 410-872-9105

DATE: 06/14/2023 SCALE: 1"=30' FILE: BAT LOT 13_rev1
CHK'D: M.J.B JOB NO: 3502 DRAWN: R.C.K

