

8930 Stanford Boulevard, Columbia, MD 21045
 Main: 410-313-2640 | Fax: 410-313-2648
 TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
 Facebook: www.facebook.com/hocohealth

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

RECEIPT DATE: 3/23/23 **ONSITE SEWAGE DISPOSAL SYSTEM** P 574054
 APPROVAL DATE: 7/28/2023 **PERMIT: CONSTRUCTION** A _____
 PROPERTY ADDRESS: 7028 Colt Place
 SUBDIVISION: W. Illoshire LOT: 33 TAX ID: _____
 CONTRACTOR: Fogles Septic EMAIL: _____
 CONTRACTOR ADDRESS: _____ PHONE: _____
 PROPERTY OWNER: Toll Mid Atlantic EMAIL: _____
 OWNER ADDRESS: 250 Gibraltar Road Hersham PA PHONE: _____
 SEPTIC TANK SIZE (GALLONS): 2,000 TANK MANUFACTURER: Back River
 PUMP MODEL: EPF 30 M1 PUMP SIZE 1/3HP PUMP TANK CAPACITY: 2,000

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

TRENCHES:	LINEAR FEET REQUIRED: <u>125'</u>	INLET DEPTH: <u>2.5'</u>
	TRENCH WIDTH: <u>3'</u>	MAXIMUM BOTTOM DEPTH: <u>7'</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10'</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>4'</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: Hank Oswald ISSUE DATE: 3/28/23 EXPIRATION DATE: 3/28/24

- 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 B22003295
- 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 separate
sheet for
As-built

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
NUMBER OF TRENCHES <u>2</u>		
TOTAL LENGTH <u>128'</u>		
ABSORPTION AREA _____		
DISTRIBUTION BOX LEVEL <u>—</u>		
DISTRIBUTION BOX BAFFLE <u>—</u>		
DISTRIBUTION BOX PORT <u>yes</u>		

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL	<u>yes</u>
MANUFACTURER	<u>Belyon</u>
CAPACITY	<u>2000</u> GAL
SEAM LOC	<u>top</u>
TANK LID DEPTH	<u>2'-2.5'</u>
BAFFLES	<u>4" back & 6" front</u>
BAFFLE FILTER	<u>—</u>
MANHOLE LOC	<u>front & back</u>
6" PORT LOC	<u>—</u>
WATERTIGHT TEST	<u>—</u>
SLOTTED	<u>yes</u>
DATE ON LID	<u>3/1/2023</u>

PUMP/SEPTIC TANK LEVEL

SEPTIC TANK 2 LEVEL	<u>yes</u>
MANUFACTURER	<u>Belyon</u>
CAPACITY	<u>2000</u> GAL
SEAM LOC	<u>top</u>
TANK LID DEPTH	<u>2'-2.5'</u>
BAFFLES	<u>4" front</u>
BAFFLE FILTER	<u>—</u>
MANHOLE LOC	<u>front & back</u>
6" PORT LOC	<u>—</u>
WATERTIGHT TEST	<u>—</u>
SLOTTED	<u>—</u>
DATE ON LID	<u>3/8/2023</u>

PRE-CONSTRUCTION:

4/10/23 - Moved beginning of 1, so trench not in perc hole. Ends of trench 3"-2" off contour. Rest of trench on contour. SDA staked, FM staked, pump & septic tank staked, septic tank 25' from house (SP)

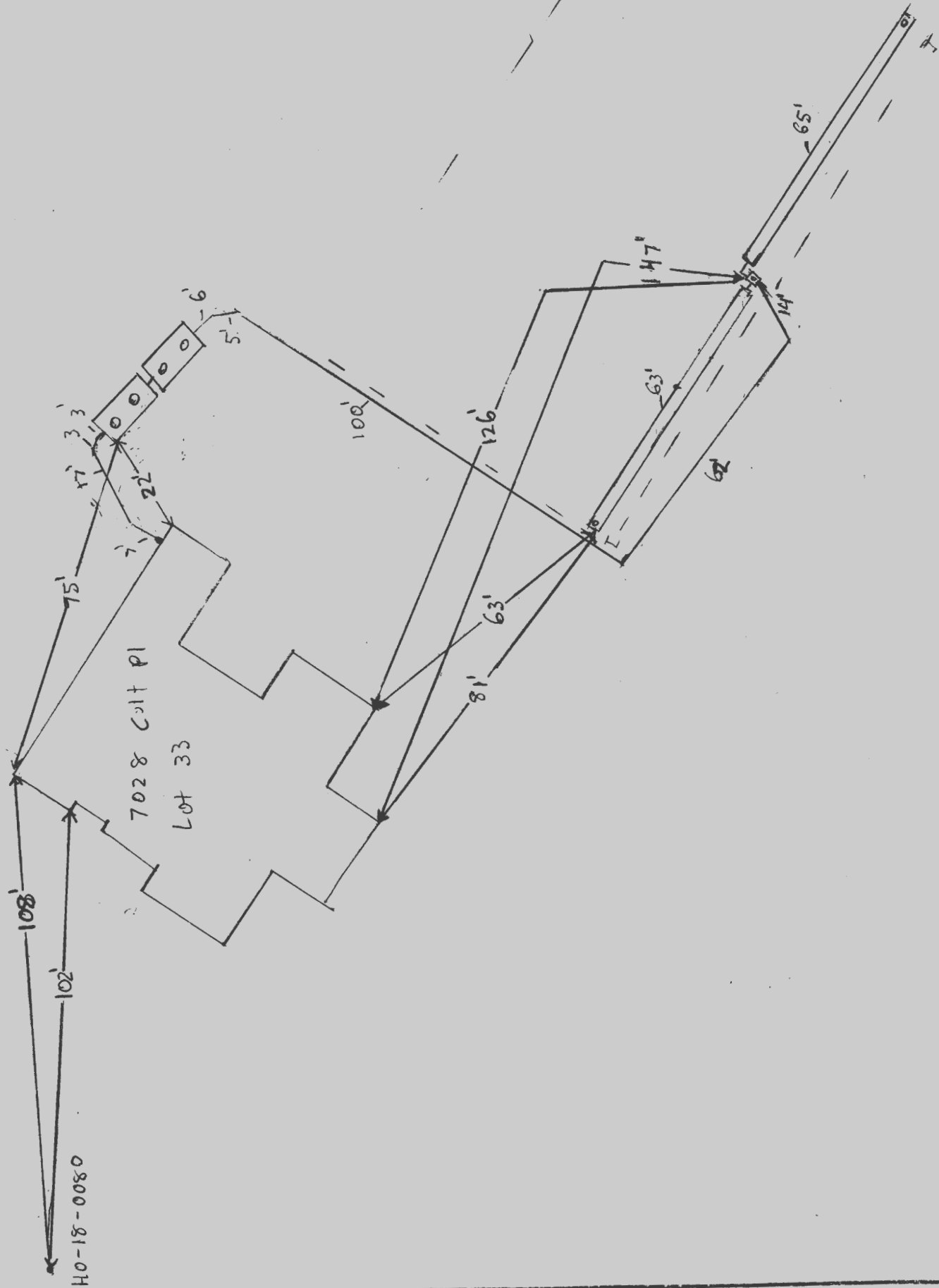
INSTALLATION: 4/12/2023 - Pump & tank set while onsite. Both tanks level. Saw 4" back baffle. Trench length @ 63' & 65'. FM SCHO 40 & 200 PSI, trench width & inlet per plan. Gave OK to backfill trenches & FM to 90° bend. Reinspect for house connection, front baffle, & rest of FM. (SP)

4/13/2023 - Saw 6" front baffle. Measured 111' of FM. pipe brought out from tank next to foundation, plumber will come out of house, reinspect for lid. P.A. (SP)

7/28/2023 - Saw 40 from house. Alarm outside house, audible & visual good. Floats inside tank seal. Pump successfully pumps to D-box. (SP)

FINAL INSPECTOR S. Page DATE OF APPROVAL 7/28/2023

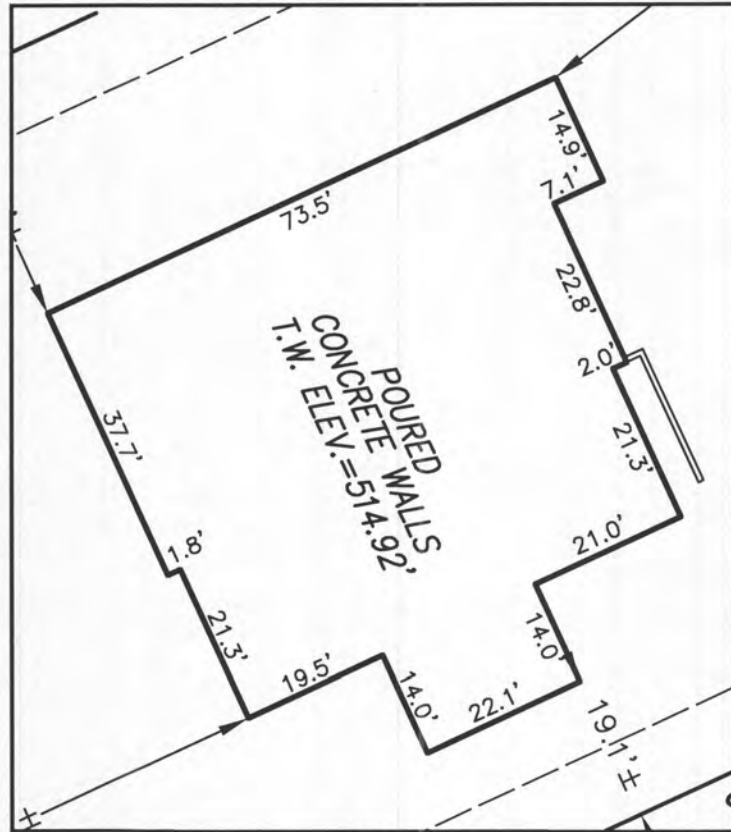
NOT TO SCALE 1" ≈ 30'



H0-18-0080

LEGEND:

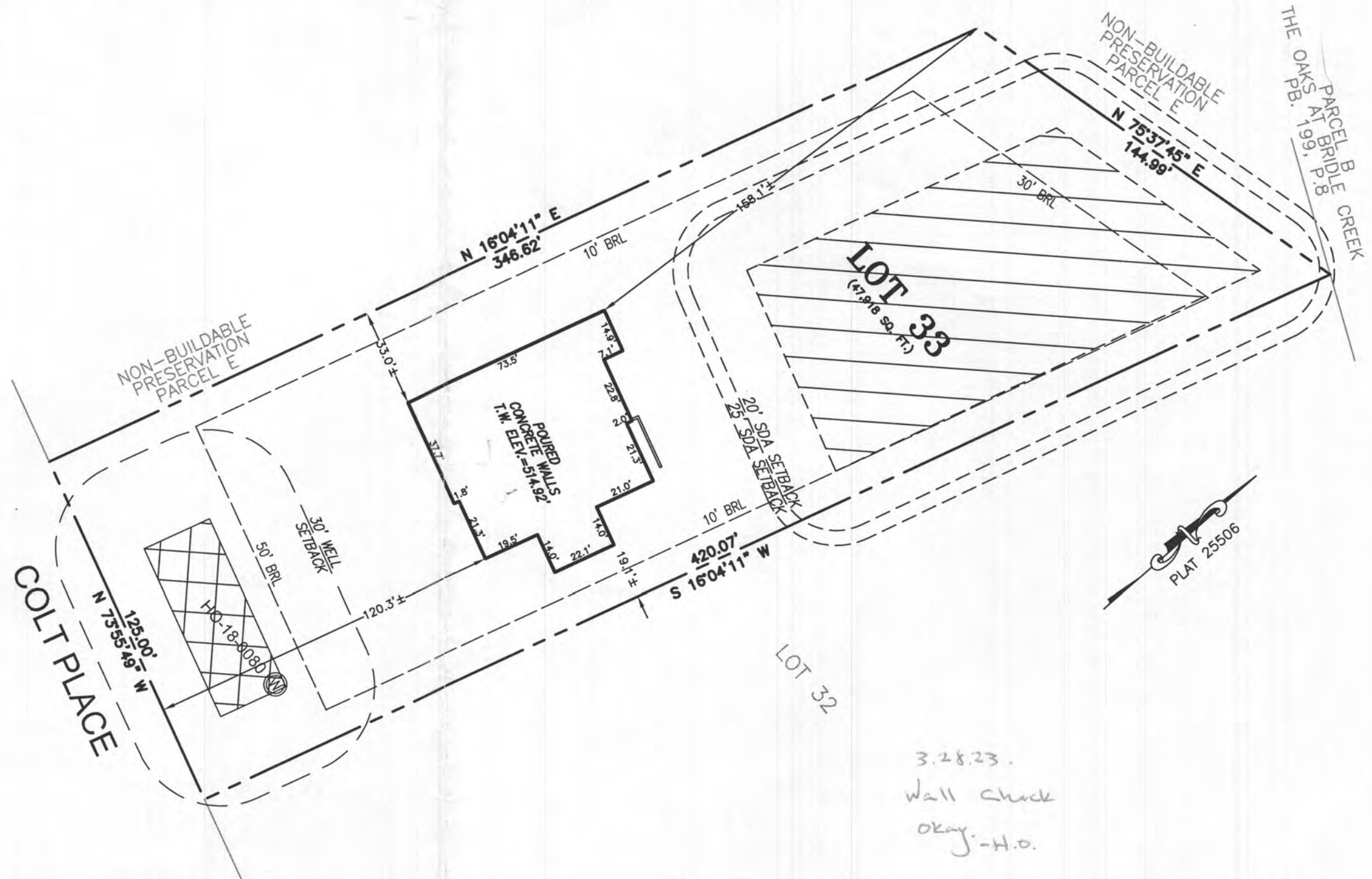
- BRL BUILDING RESTRICTION LINE
- ⊙ WELL LOCATION
- T.W. TOP OF WALL
- ELEV. ELEVATION
- ▨ SEWAGE DISPOSAL AREA
- ▩ WELL BOX AREA



HOUSE ENLARGEMENT
NOT TO SCALE

WELL NUMBER: HO-18-0080
 ADDRESS: 7028 COLT PLACE
 DAYTON, MD 21036
 PERMIT NO.: B22003295

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



3.28.23.
 Wall check
 okay. -H.O.

SURVEYOR'S CERTIFICATE

THIS WALLCHECK WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT. THIS PROPERTY IS SUBJECT TO ANY AND ALL EASEMENTS, RIGHT-OF-WAYS, COVENANTS, AND RESTRICTIONS, ETC. OF RECORD, SOME OR ALL OF WHICH MAY OR MAY NOT BE SHOWN AND/OR REFERENCED HEREON. BEARINGS AND DISTANCES OF THE PROPERTY BOUNDARY LINES SHOWN HEREON ARE PER AVAILABLE RECORDS AND HAVE NOT BEEN FIELD VERIFIED.
 THIS IS NOT A "LOCATION DRAWING" AND IS NOT TO BE USED FOR SETTLEMENT PURPOSES.

Michael Joe Boyce
 SIGNATURE: MICHAEL JOE BOYCE MD. LIC NO. 21328 DATE 03/16/23



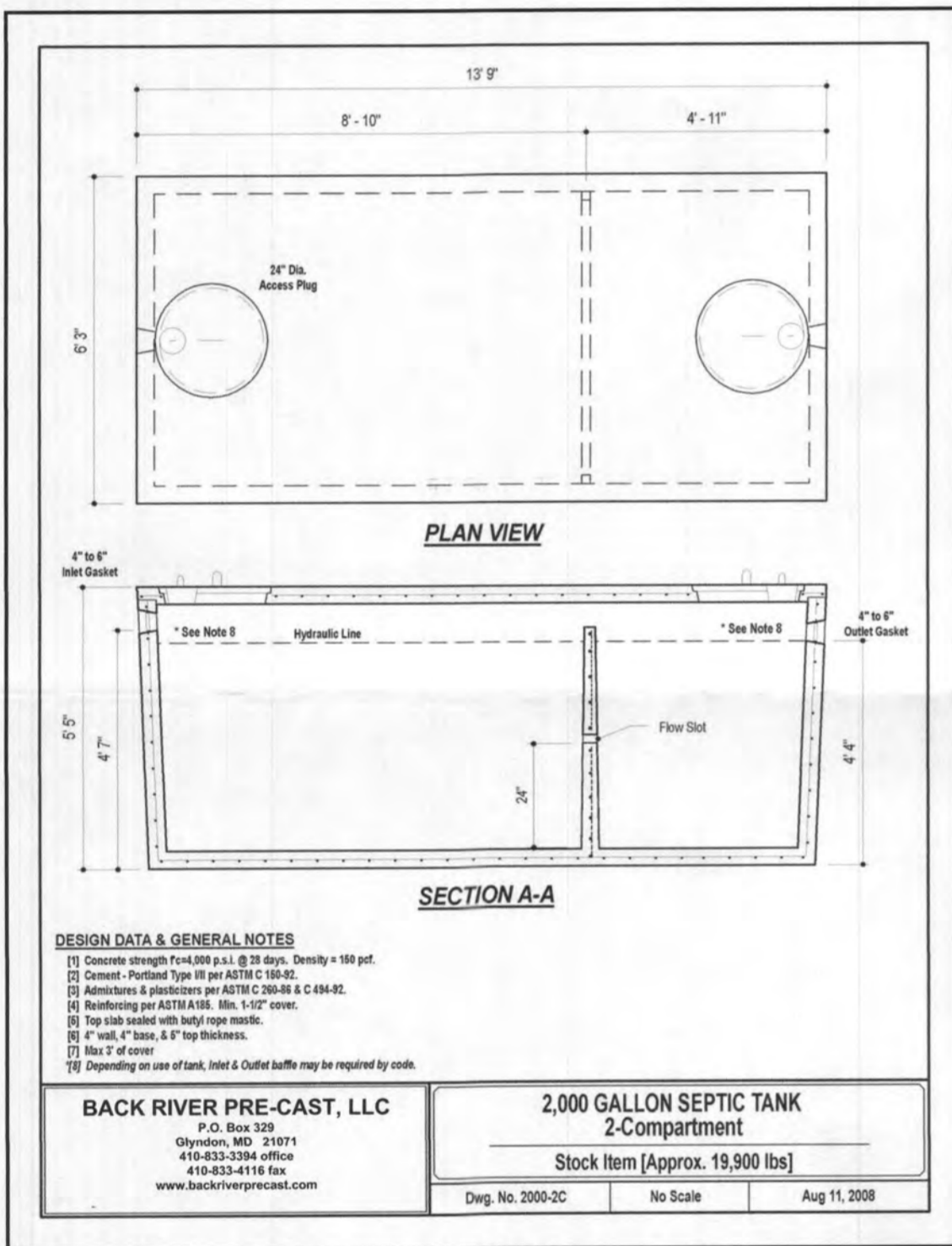
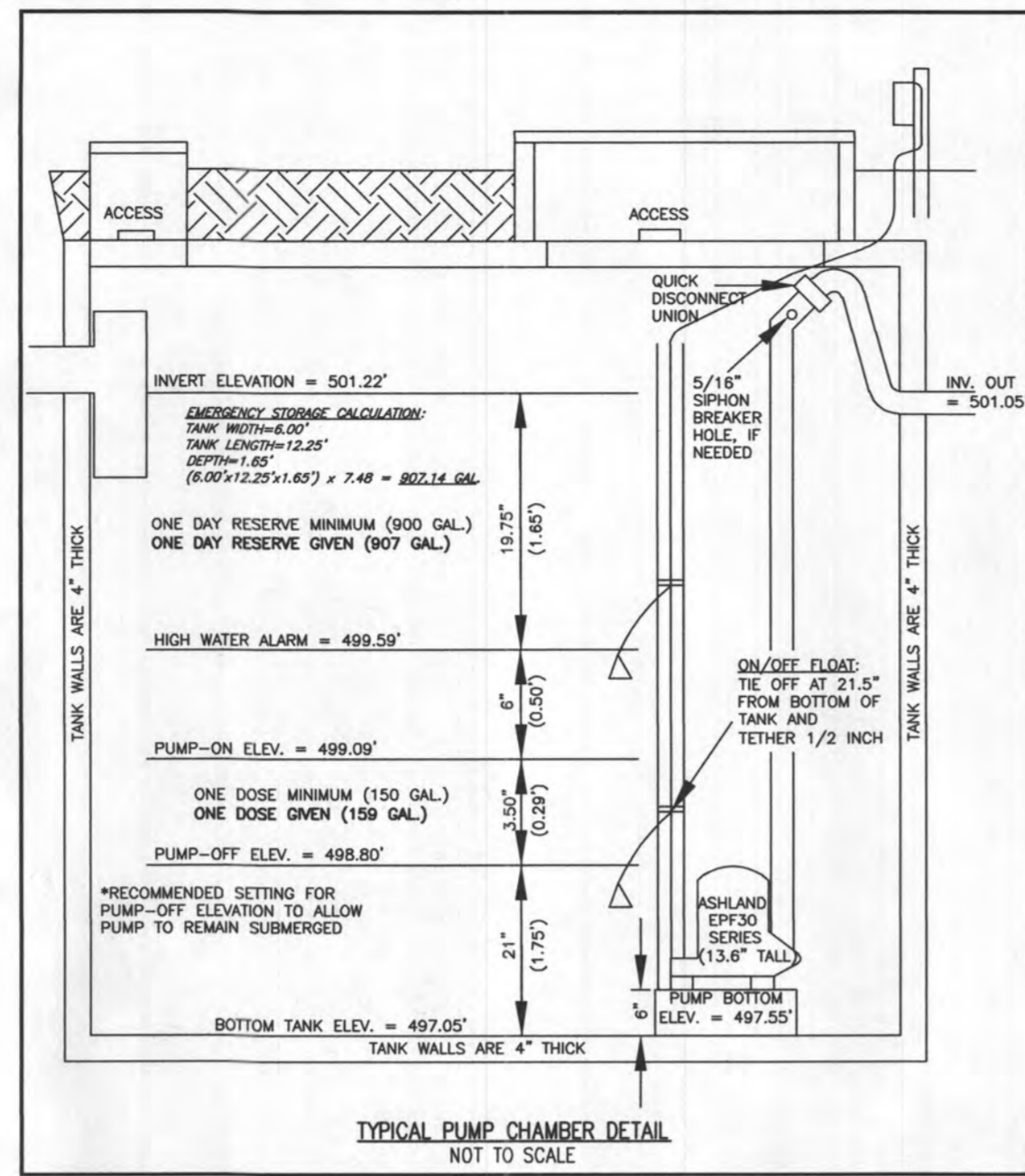
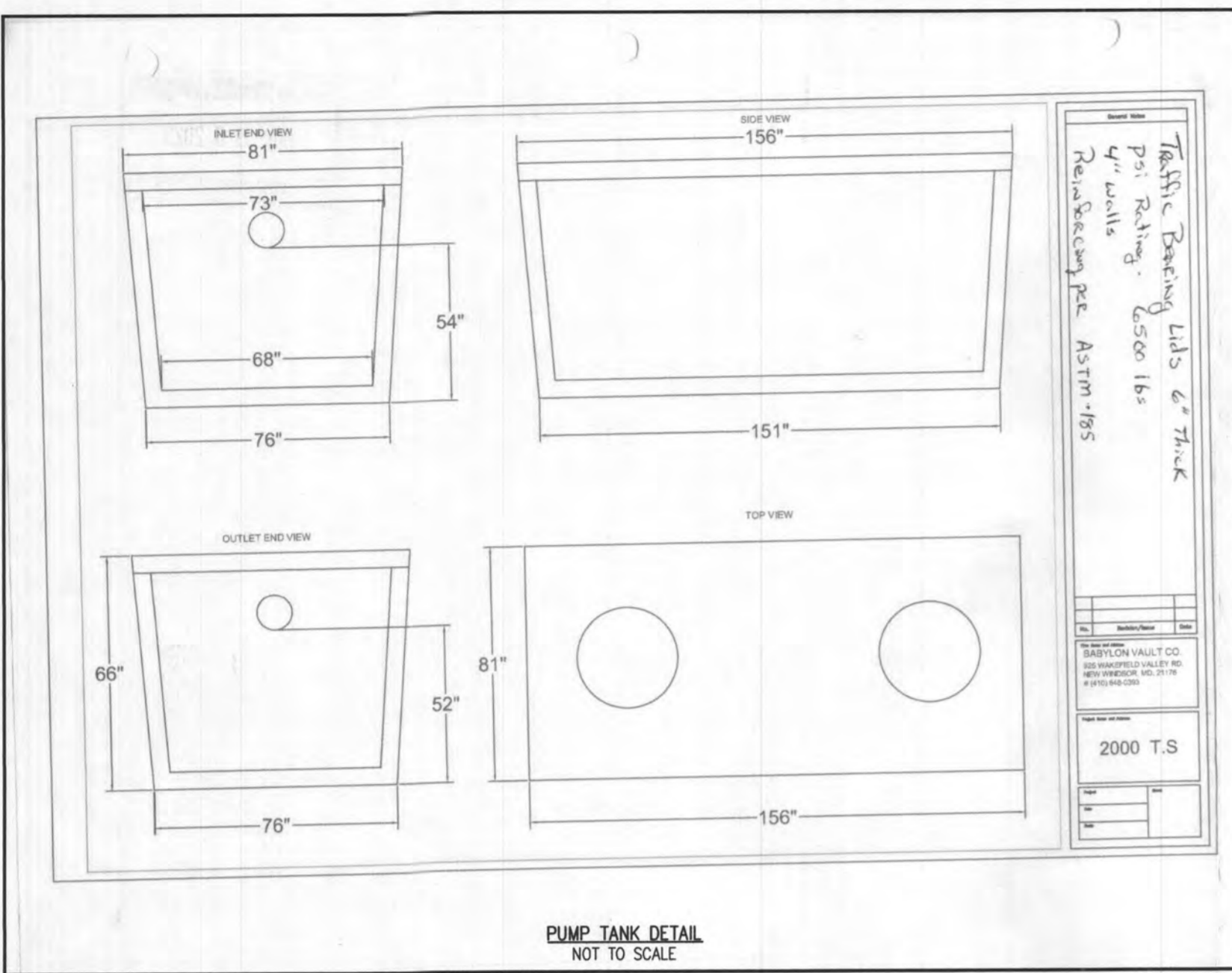
WALLCHECK
 LOT 33
 WILLOWSHIRE
 LIBER 18479, FOLIO 296
 PLAT NO. 25506
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

ESE CONSULTANTS

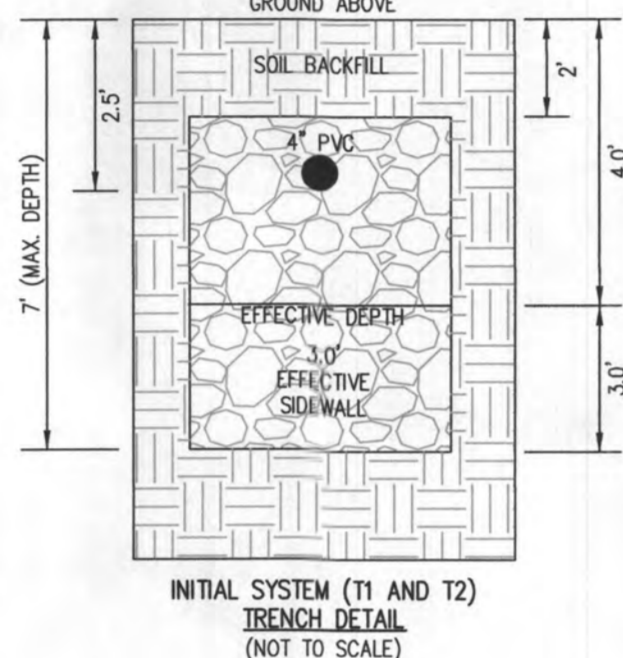
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

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

DATE: 03/16/2023 SCALE: 1"= 40' FILE: WC LOT 33
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.

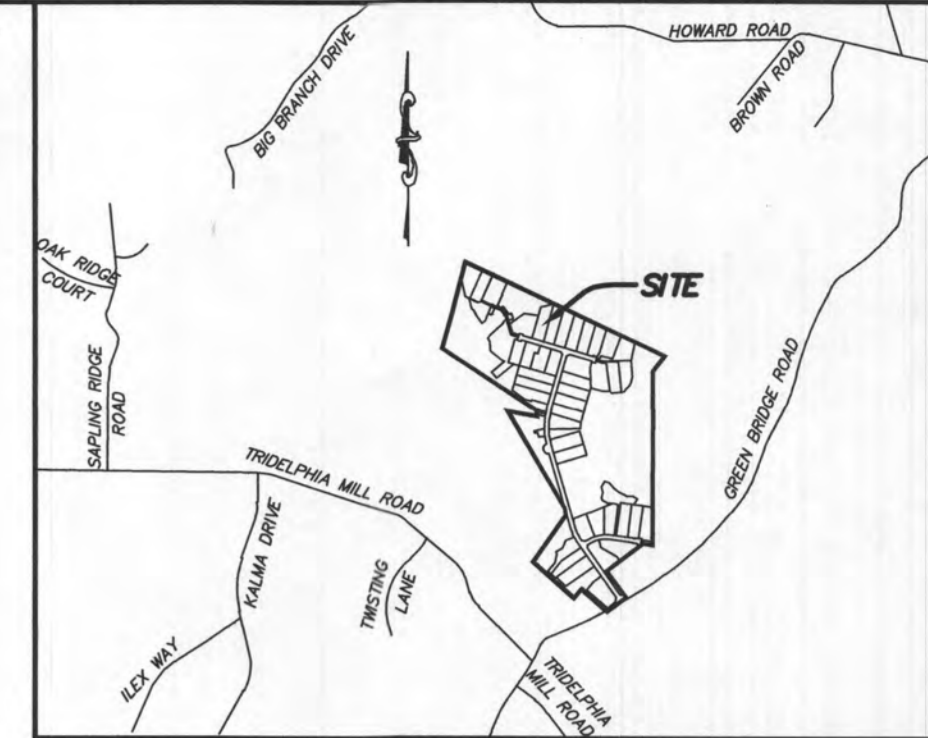
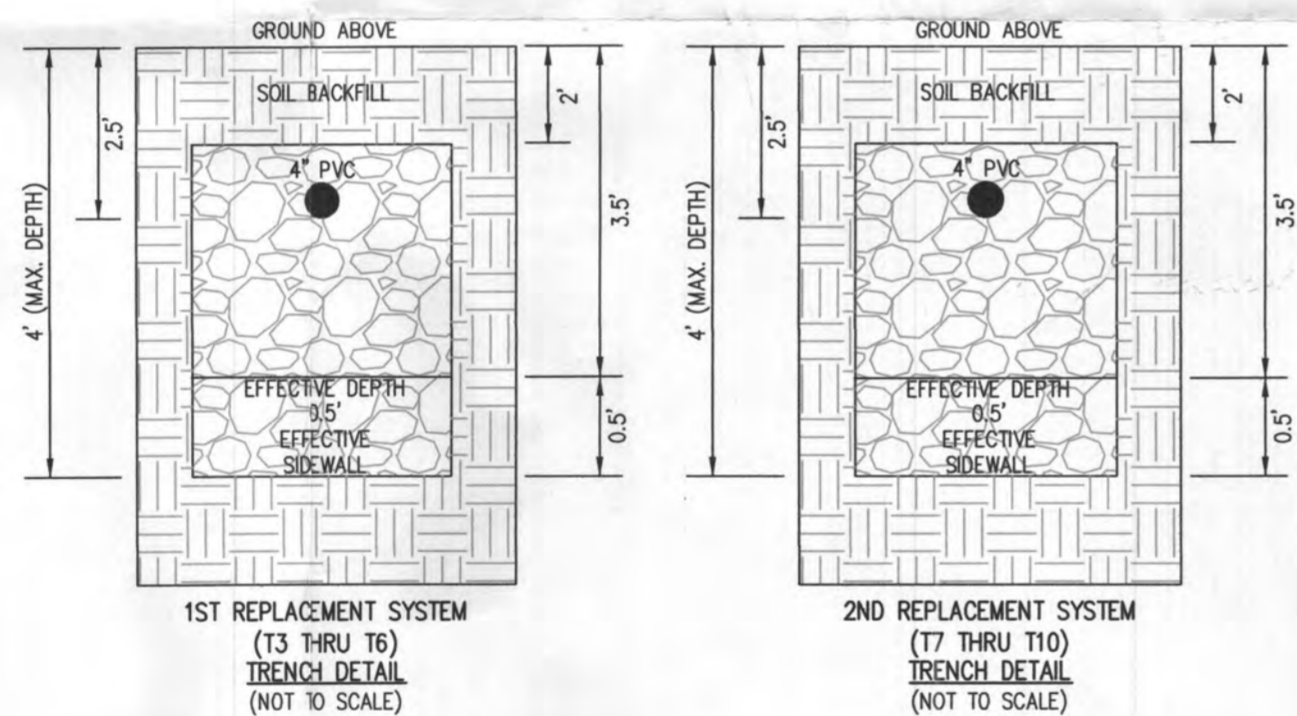


INITIAL TRENCH DATA
 BOTTOM MAX. DEPTH (7')
TRENCH 1 (T1): 62.50 LF
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'
TRENCH 2 (T2): 62.50 LF
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'



HOUSE OPTIONS:
 HOUSE TYPE: PARKHURST (CRAFTSMAN)
 TWO CAR SIDE ENTRY GARAGE
 FINISHED LOWER LEVEL
 DAYLIGHT BASEMENT
 LUXURIOUS PRIMARY BATH PACKAGE
 MULTI GENERATIONAL SUITE ADDITION
 ADDITIONAL 1 CAR FRONT ENTRY GARAGE (14')
 LUXURY OUTDOOR LIVING
 WET BAR ROUGH-IN - LOWER LEVEL
 DAYLIGHT WINDOW/WELL
 SINGLE WIDE DRIVEWAY TAIL

LEGEND:
 BRL (W) BUILDING RESTRICTION LINE
 W.L. WELL LOCATION
 T.W. TOP OF WALL
 G.F. GARAGE FLOOR
 B.F. BASEMENT FLOOR
 DRYWELL
 PASSED PERC LOCATION
 FAILED PERC LOCATION
 SEWAGE DISPOSAL AREA
 WELL BOX AREA
 PROPOSED TREE
 SOIL DELINEATION LINE

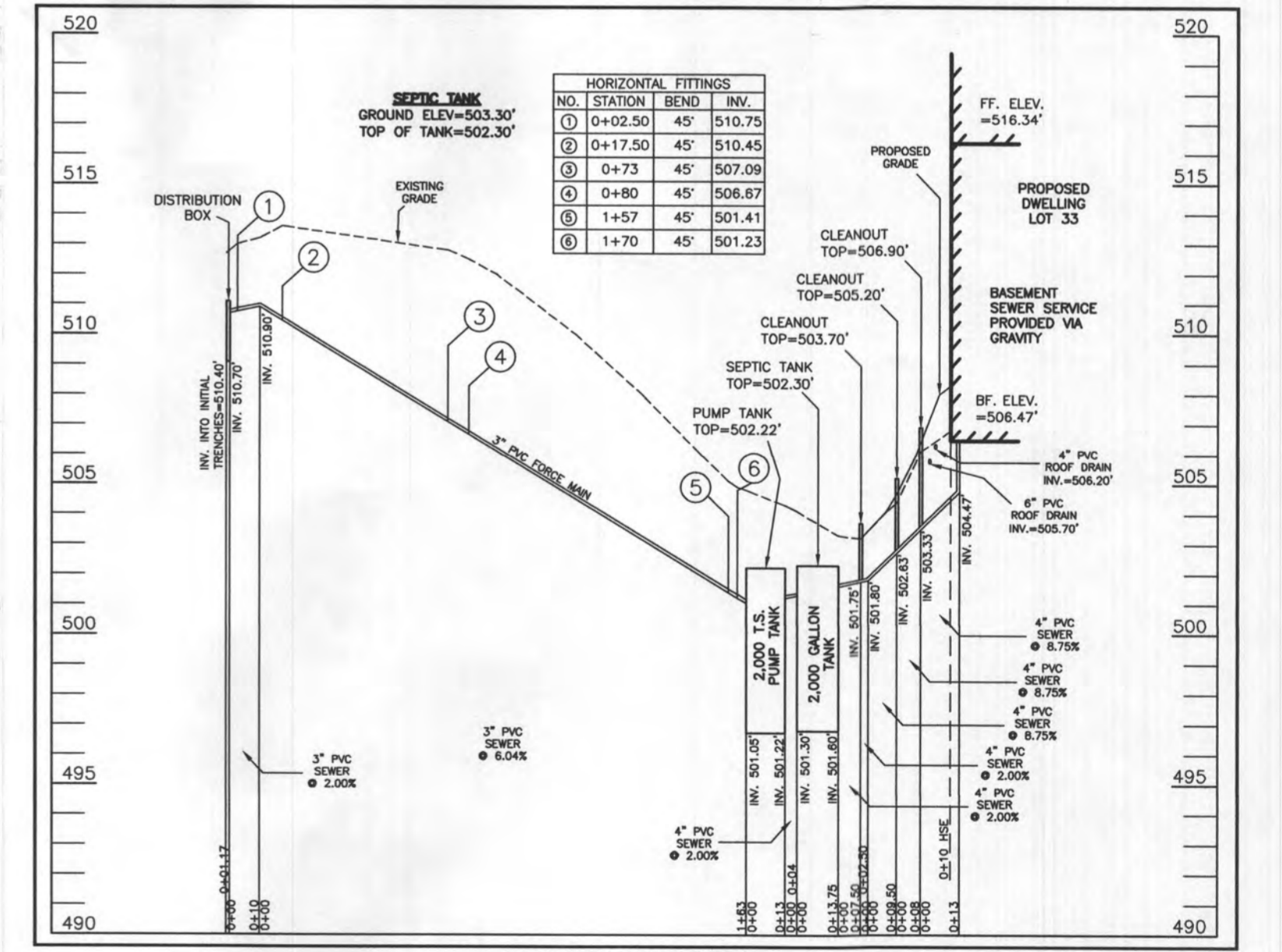


GENERAL NOTES:
 1. THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BE NULL AND 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. RECREATION 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.
 4. BUILDING SETBACKS (B.R.L.'S) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "2" HAVE AN ACCURACY OF ±0.1' FOOT.
 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 COMPLES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
 11. THE EXISTING TOPOGRAPHY SHOWN HEREON IS FROM HOWARD COUNTY GIS AND A TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING ON 08/25/15 AND REVISED ON 09/03/15.

SOILS LEGEND

SOIL	NAME	CLASS	Kw
GgB	GLENNELG LOAM 3 TO 8 PERCENT SLOPES	B	28
GmB	GLENNVILLE SILT LOAM 3 TO 8 PERCENT SLOPES	C	43
MaC	MANOR LOAM 8 TO 15 PERCENT SLOPES	B	28

Approved Septic System Plan
 Howard County Health Department
 Hank Oswald 5/17/23
 Signature Date



SEWAGE DISPOSAL SYSTEM DATA (6 BDRM)
 PROPOSED INVERT AT FOUNDATION WALL: 504.47'
 1. EX. GRADE OVER TANK: 503.30'
 PROPOSED GRADE OVER TANK: 503.30'
 INVERT IN: 501.60' INVERT OUT: 501.30'
 2. DISTRIBUTION BOX
 EXISTING GRADE OVER TANK: 512.70'
 PROPOSED GRADE OVER TANK: 512.70'
 INVERT IN: 510.70' INVERT OUT: 510.40'
 3. INITIAL TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3' WIDE TRENCH WITH 54" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3' WIDTH = 250 LF x 0.50 (SIDEWALL REDUCTION) = 125 LF MIN.
USE 2 62.50' LONG TRENCHES = 125 LF
 4. 1ST REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3' WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3' WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF
 5. 2ND REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3' WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3' WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF

LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS

TOTAL DOSE PER DAY = 150 GALLONS x 6 EVENTS PER DAY IS 900 GPD

TRENCH 1 (T1)	INV. ELEV.=512.70'	LENGTH=62.50'	DESIGN FLOW = 900 GPD
TRENCH 2 (T2)	INV. ELEV.=512.70'	LENGTH=62.50'	PUMP OFF ELEV. = 498.80'
			INV. OUT PUMP TANK = 501.05'
			PUMP BOTTOM ELEV. = 497.55'
			PUMP SELECTED = 3/10 HP

FORCEMAIN LENGTH = 173.00' TYPE=SCH40 *PUMPING FORCEMAIN TO A DISTRIBUTION BOX AND GRAVITY FLOW FROM DISTRIBUTION BOX TO TRENCHES, NO MANIFOLD AND TRENCH CALCULATIONS NEEDED

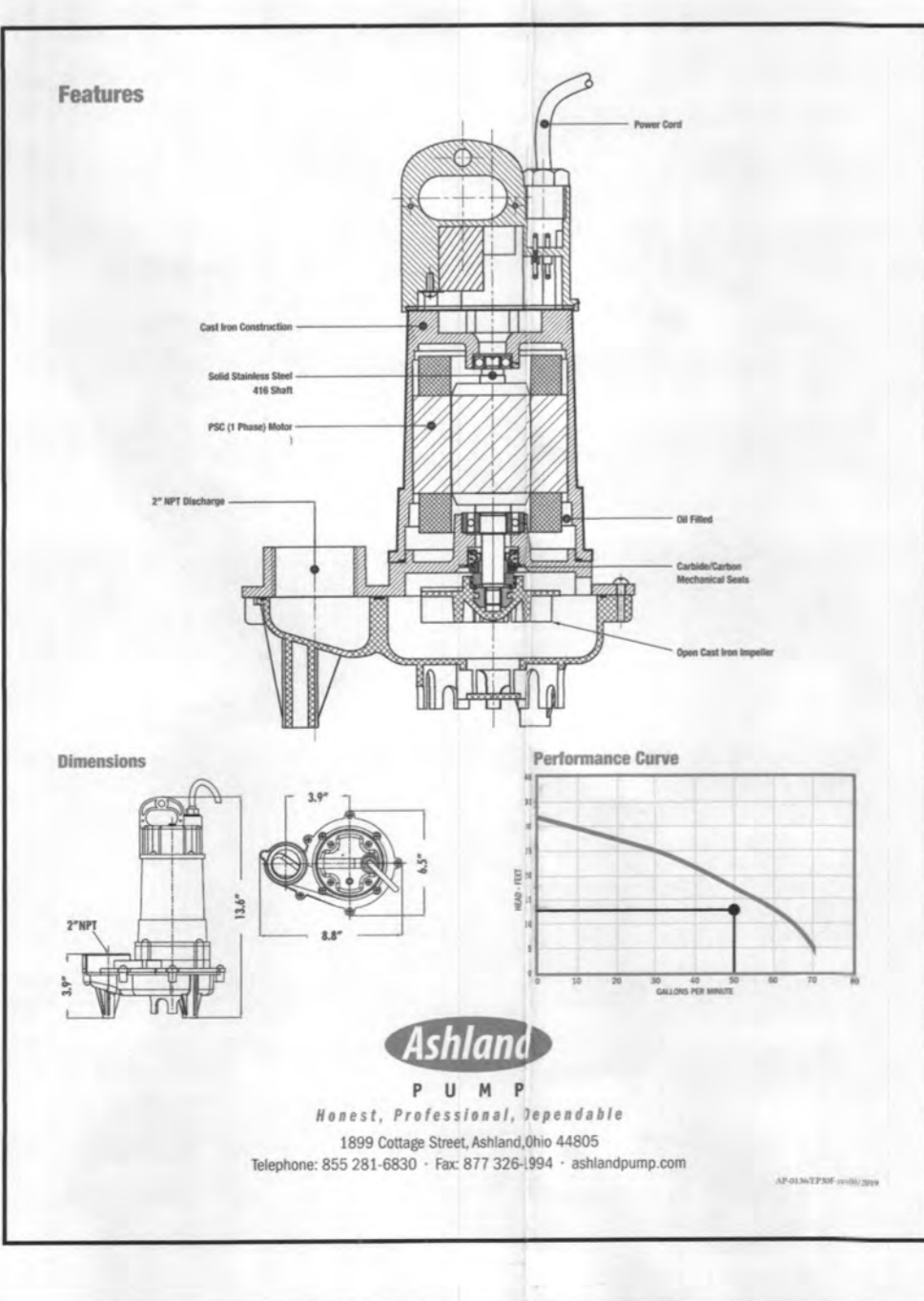
MIN. SYSTEM DISCHARGE RATE = 50 GPM	VELOCITY = 2.17 FPS	FRICITION LOSS (TABLE 4.4) = 0.58
FORCE MAIN DIAMETER = 3 IN.	VELOCITY = 2.17 FPS	FRICITION LOSS (TABLE 4.4) = 0.58
MINIMUM DOSE = 150 GAL.		

CALCULATE TOTAL DESIGN HEAD

LENGTH OF FM FROM PUMP TANK TO DISTRIBUTION BOX = 173.00'	(ADD 6' PER BEND) = 36.00'	TOTAL PIPE/FRICITION LOSS = 209.00'
# OF (45') BENDS IN FM = 6	(ADD 10' PER BEND) = N/A	
# OF (90') BENDS IN FM = N/A	TOTAL ADD'L LENGTHS = 36.00'	
TOTAL LENGTHS = 173.00'	(50 GPM OF 3" PVC = 0.58 PER 100' PIPE; 0.58 / 100' x 0.0068' x 209.00' = 1.212')	

FRICITION HEAD = 1.21' FT. (PER ABOVE CALCULATION)
 STATIC HEAD = 13.10' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOAT ELEVATION)
 TOTAL DYNAMIC HEAD = 13.31' FT. (FRICITION HEAD + STATIC HEAD)

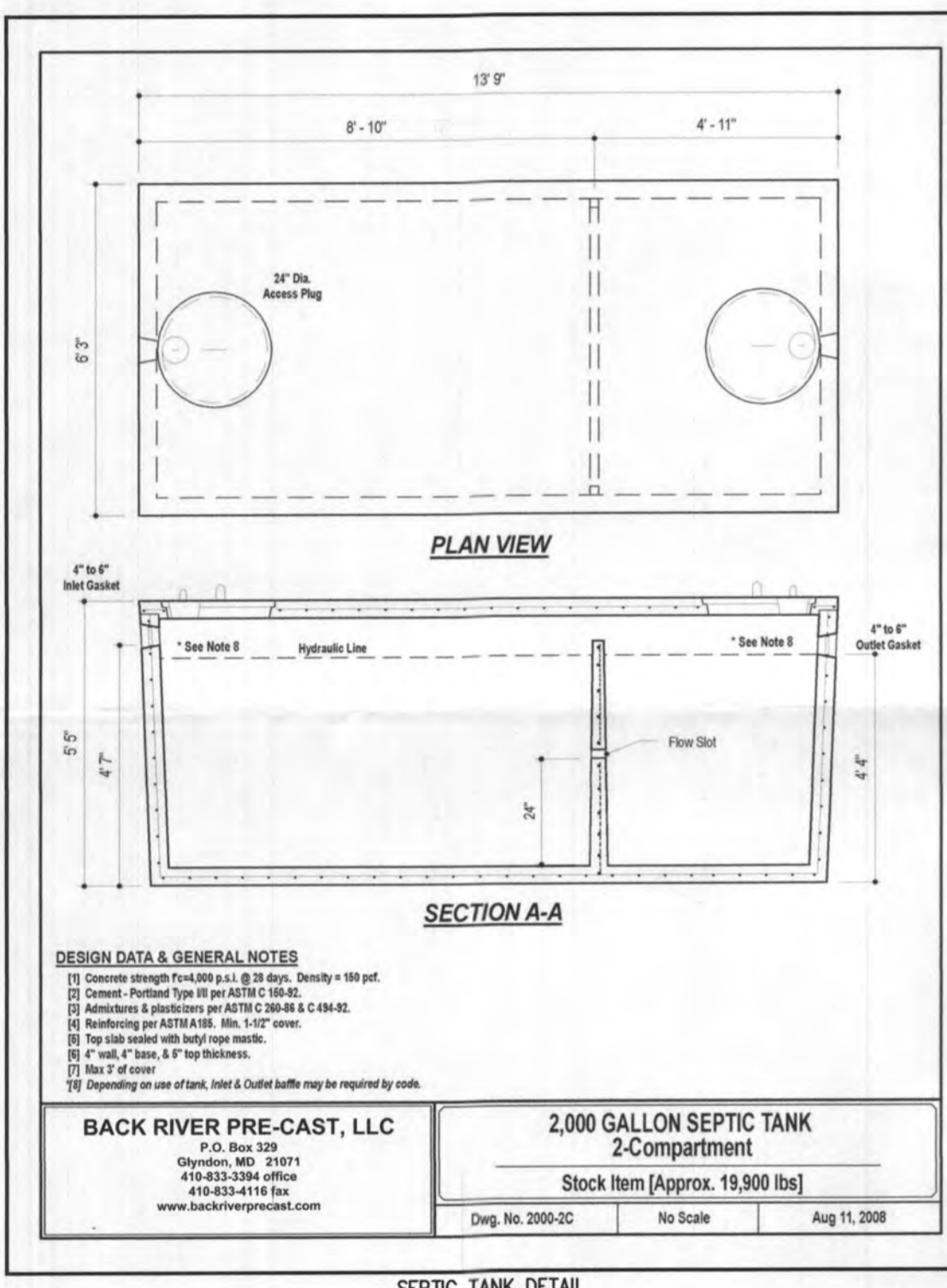
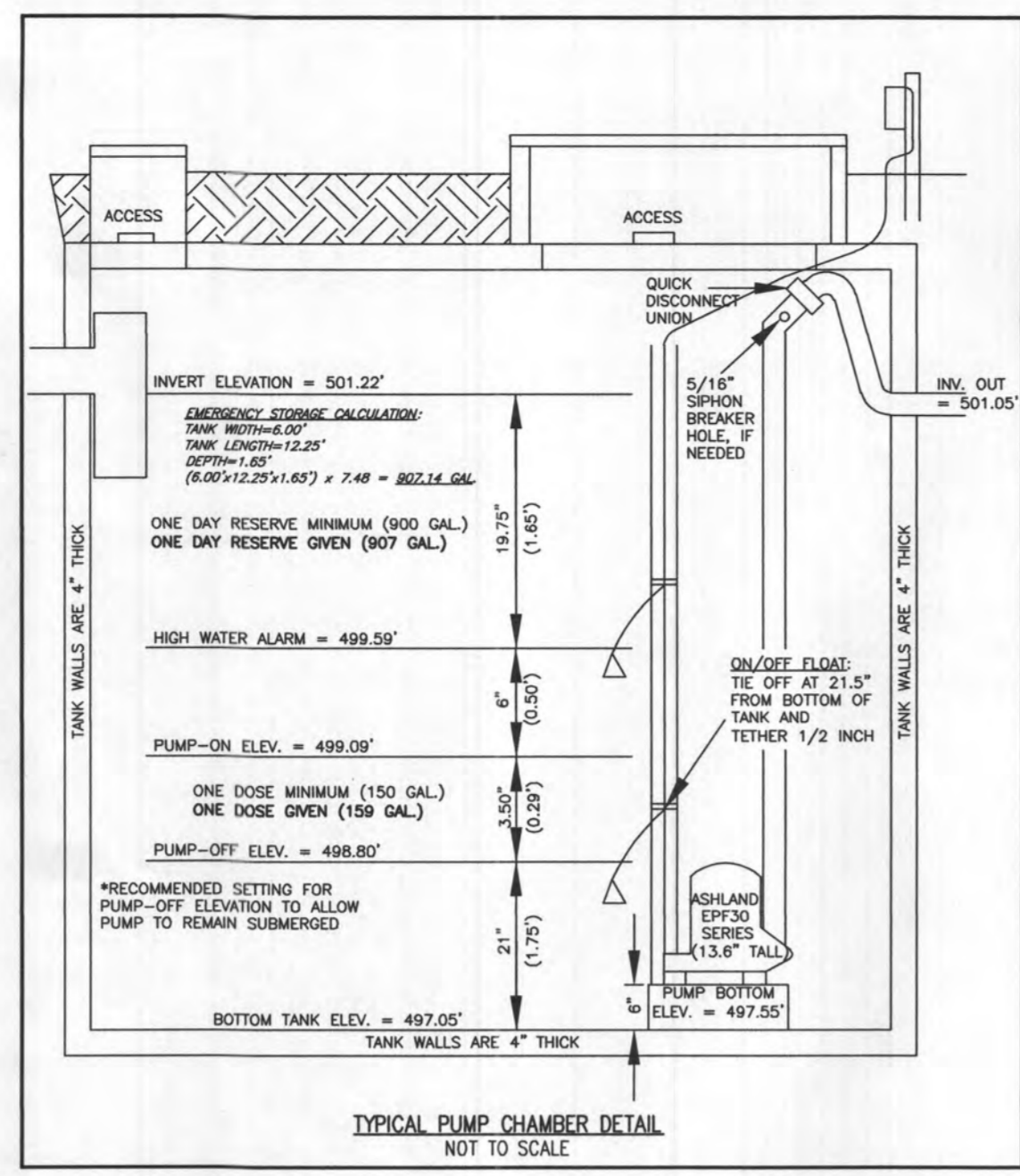
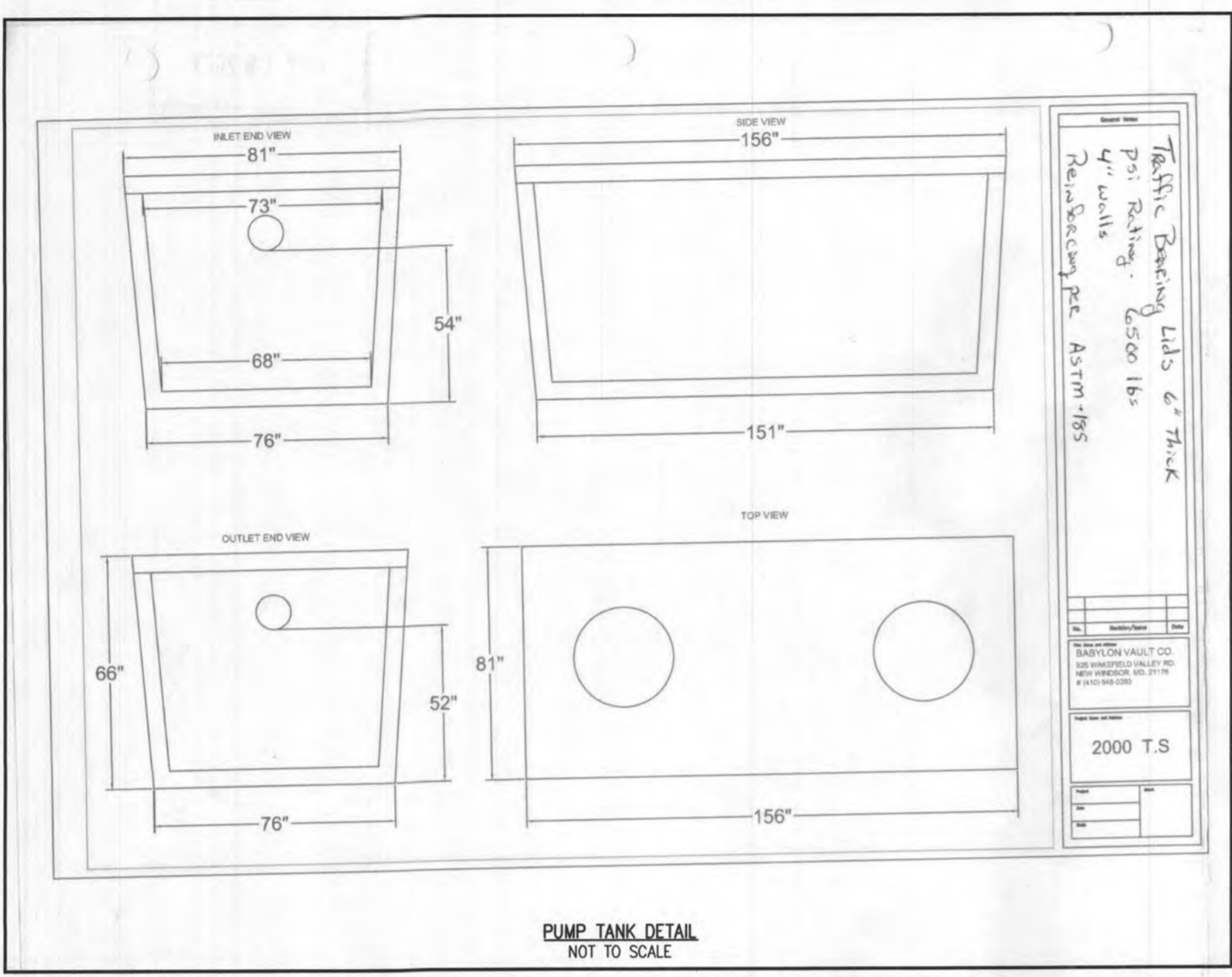
THEFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 13.31' OF HEAD IS REQUIRED.
 EPF30M-20, 3/10 HP, IS EFFICIENT



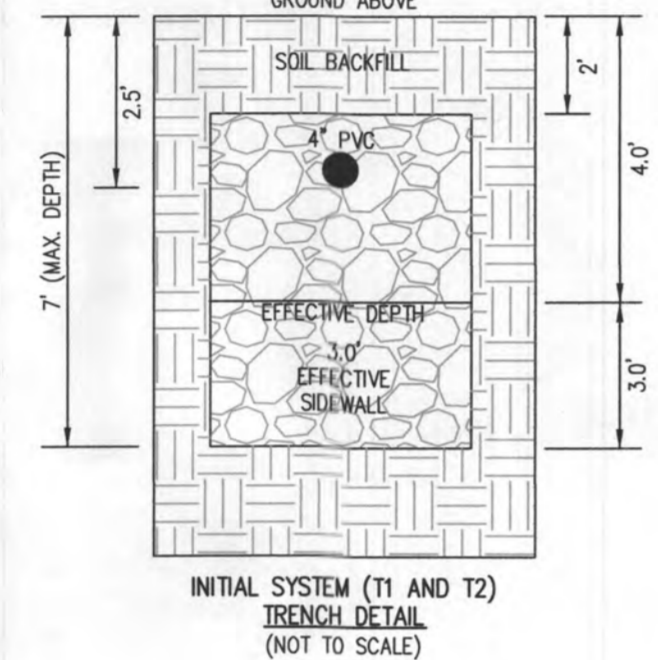
ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN
LOT 33
WILLOWSHIRE
 LIBER 18479, FOLIO 296
 PLAT NO. 25506
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND
 ADDRESS: 702B COLT PLACE
 DAYTON, MARYLAND 21036

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

DATE: 01/19/2023 SCALE: 1"=30' FILE: OSDS LOT 33_rev1
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.



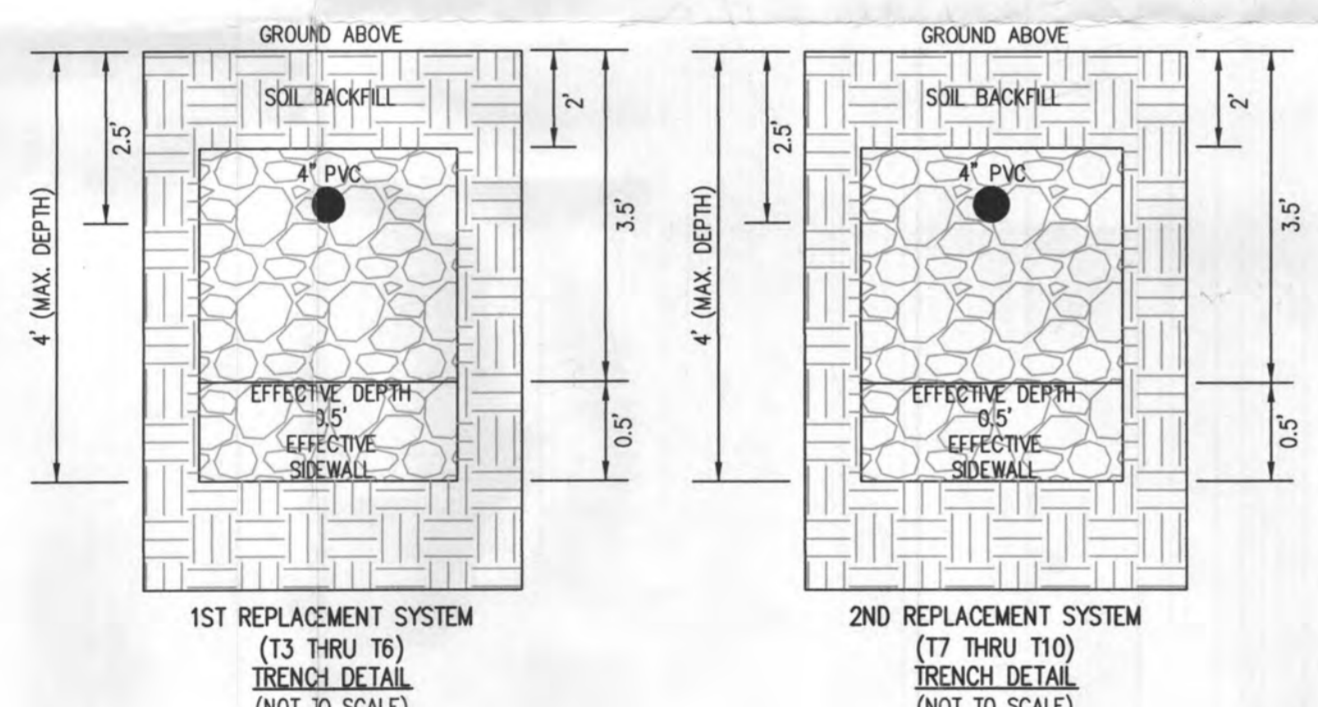
INITIAL TRENCH DATA
 BOTTOM MAX. DEPTH (7')
TRENCH 1 (T1): 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'
TRENCH 2 (T2): 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'



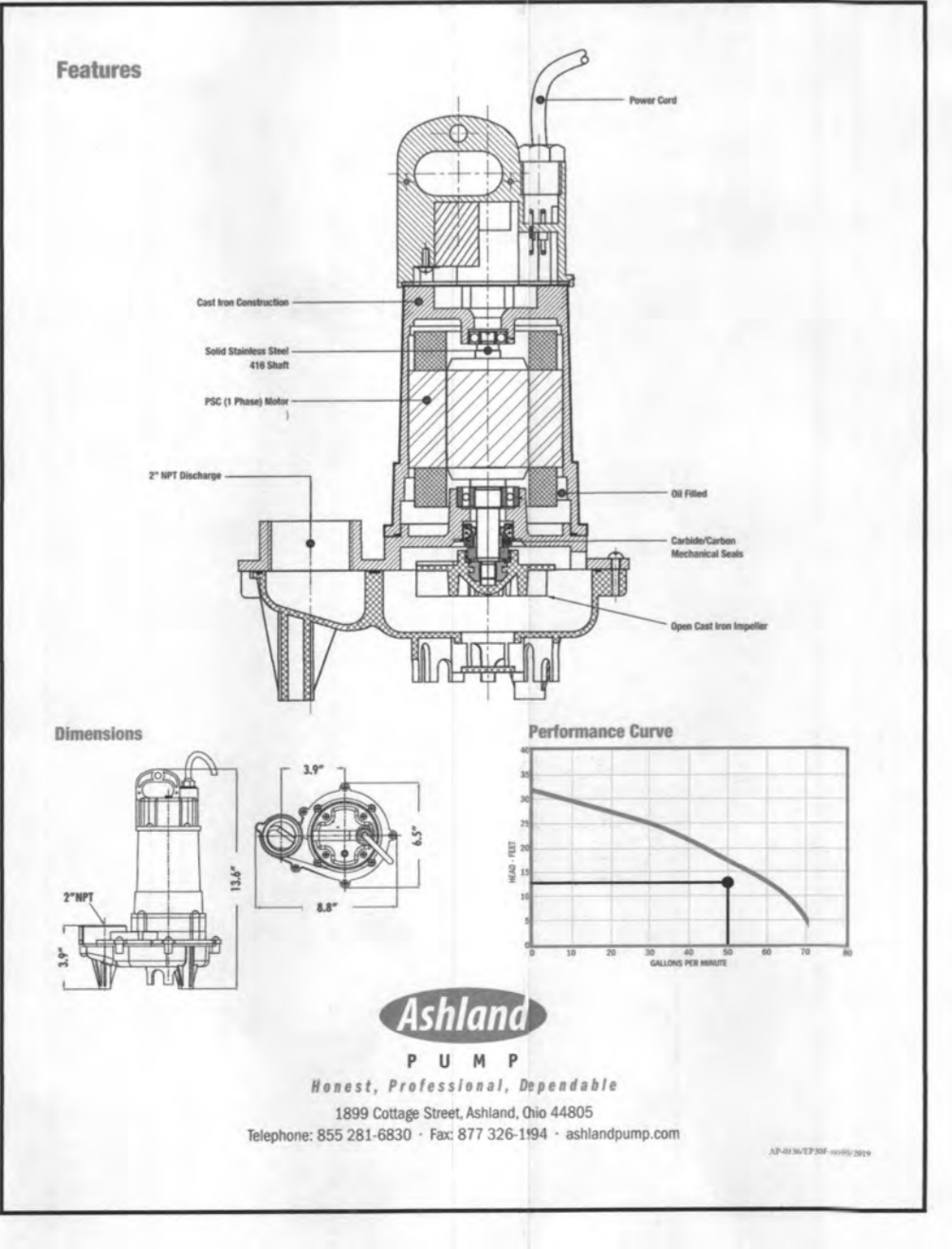
HOUSE OPTIONS:
 HOUSE TYPE: PARKHURST (CRAFTSMAN)
 TWO CAR SIDE ENTRY GARAGE
 FINISHED LOWER LEVEL
 DAYLIGHT BASEMENT
 LUXURIOUS PRIMARY BATH PACKAGE
 MULTI GENERATIONAL SUITE ADDITION
 ADDITIONAL 1 CAR FRONT ENTRY GARAGE (14')
 LUXURY OUTDOOR LIVING
 WET BAR ROUGH-IN - LOWER LEVEL
 DAYLIGHT WINDOW/WELL
 SINGLE WIDE DRIVEWAY TAIL

OPTION No. 012
 OPTION No. 013
 OPTION No. 018
 OPTION No. 055
 OPTION No. 263073
 OPTION No. 263102
 OPTION No. 263165
 OPTION No. 048246
 OPTION No. 543
 OPTION No. 852

LEGEND:
 BR/L (W) BUILDING RESTRICTION LINE
 W.L. WELL LOCATION
 T.W. TOP OF WALL
 F.L.C. GARAGE FLOOR
 B.F. BASEMENT FLOOR
 DRYWELL PASSED PERC LOCATION
 FAILED PERC LOCATION
 SEWAGE DISPOSAL AREA
 WELL BOX AREA
 PROPOSED TREE
 SOIL DELINEATION LINE



BACK RIVER PRE-CAST, LLC
 2,000 GALLON SEPTIC TANK
 2-Compartment
 Stock Item (Approx. 19,900 lbs)
 No Scale Aug 11, 2008



LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS

TOTAL DOSE PER DAY = 150 GALLONS x 6 EVENTS PER DAY IS 900 GPD

TRENCH 1 (T1) INV. ELEV.=512.70' LENGTH=62.50'
 TRENCH 2 (T2) INV. ELEV.=512.70' LENGTH=62.50'

FORCEMAIN LENGTH = 173.00' TYPE=SCH40

MIN. SYSTEM DISCHARGE RATE = 50 GPM
 MANIFOLD DIAMETER = 3 IN.
 FORCE MAIN DIAMETER = 3 IN.
 MINIMUM DOSE = 150 GAL.

DESIGN FLOW = 900 GPD
 PUMP OFF ELEV. = 498.80'
 INV. OUT PUMP TANK = 501.05'
 PUMP BOTTOM ELEV. = 497.55'
 PUMP SELECTED = 3/10 HP

LENGTH OF FM FROM PUMP TANK TO DISTRIBUTION BOX = 173.00'
 # OF (45') BENDS IN FM = 6
 # OF (90°) BENDS IN FM = 1/2
 TOTAL LENGTHS = 173.00'
 ((50 GPM OF 3" PVC = 0.58 PER 100' PIPE); 0.58 / 100' = 0.0058 x 208.00' = 1.212')

FRICITION HEAD = 1.21' FT. (PER ABOVE CALCULATION)
 STATIC HEAD = 12.30' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOOR ELEVATION)
 TOTAL DYNAMIC HEAD = 13.51' FT. (FRICITION HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 13.51' OF HEAD IS REQUIRED.
 EPF30M1-20, 3/10 H.P. IS EFFICIENT

SEWAGE DISPOSAL SYSTEM DATA (6 BDRM)

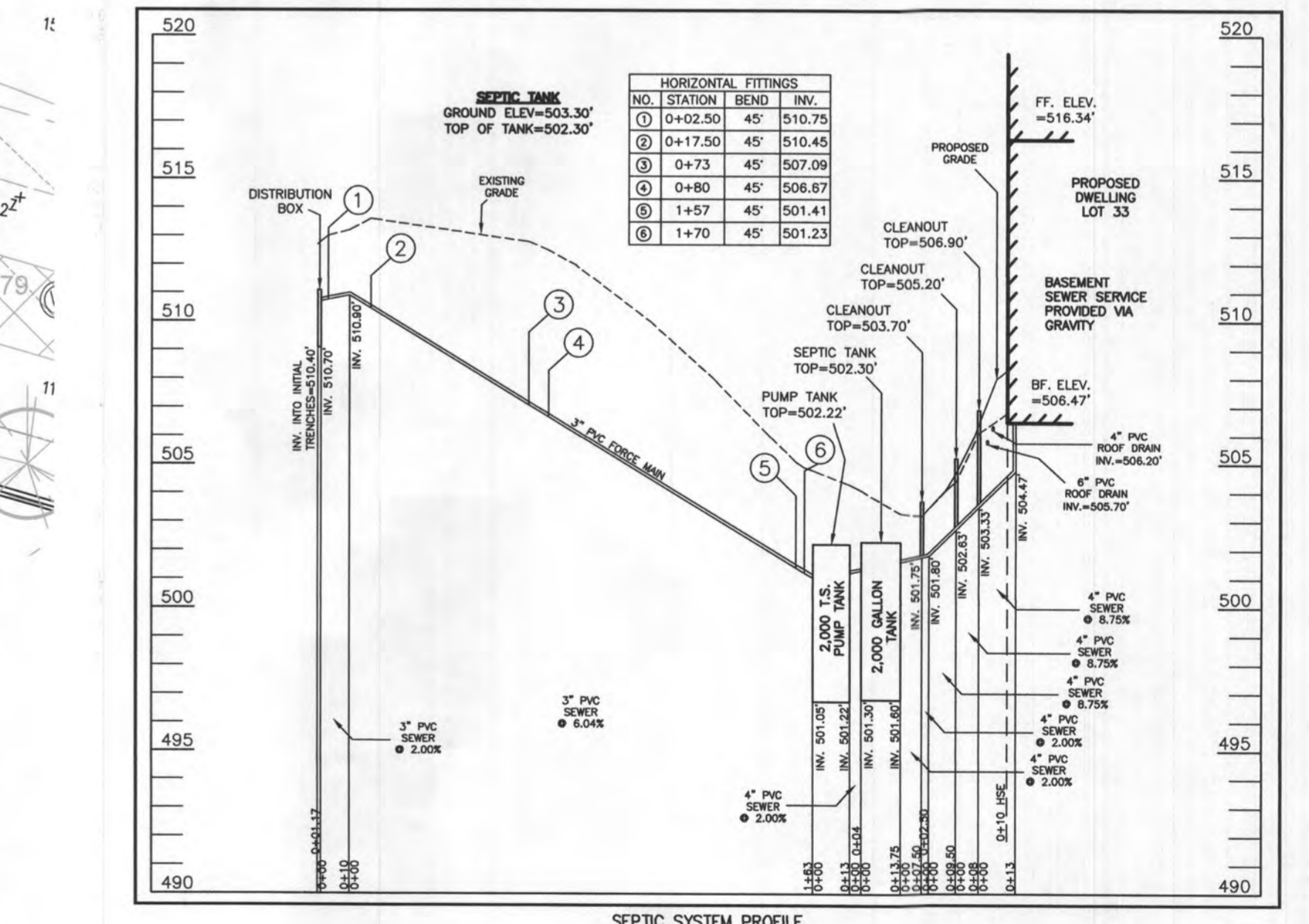
PROPOSED INVERT AT FOUNDATION WALL: 504.47'
 1. EX. GRADE OVER TANK: 503.30'
 PROPOSED GRADE OVER TANK: 503.30'
 INVERT IN: 501.60' INVERT OUT: 501.30'

2. DISTRIBUTION BOX
 EXISTING GRADE OVER TANK: 512.70'
 PROPOSED GRADE OVER TANK: 512.70'
 INVERT IN: 510.70' INVERT OUT: 510.40'

3. INITIAL TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 54" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF ÷ 3" WIDTH = 250 LF x 0.50 (SIDEWALL REDUCTION) = 125 LF MIN.
 USE 2 62.50' LONG TRENCHES = 125 LF

4. 1ST REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF ÷ 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
 USE 4 62.50' LONG TRENCHES = 250 LF

5. 2ND REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF ÷ 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
 USE 4 62.50' LONG TRENCHES = 250 LF

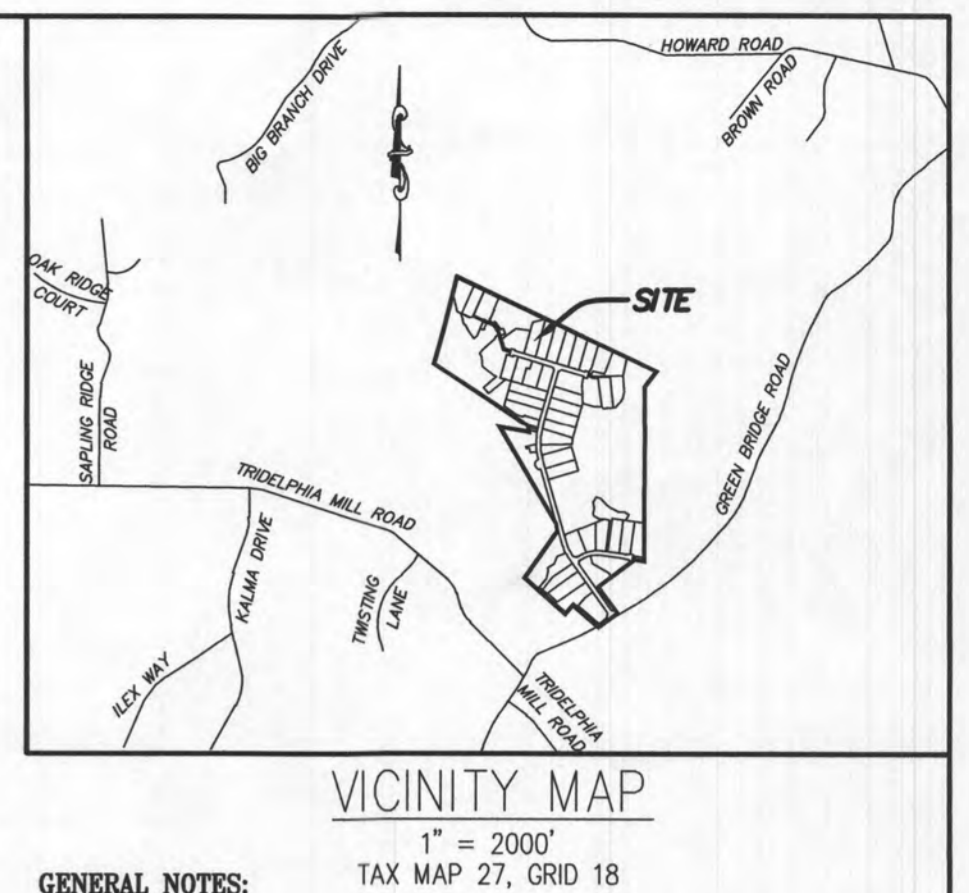
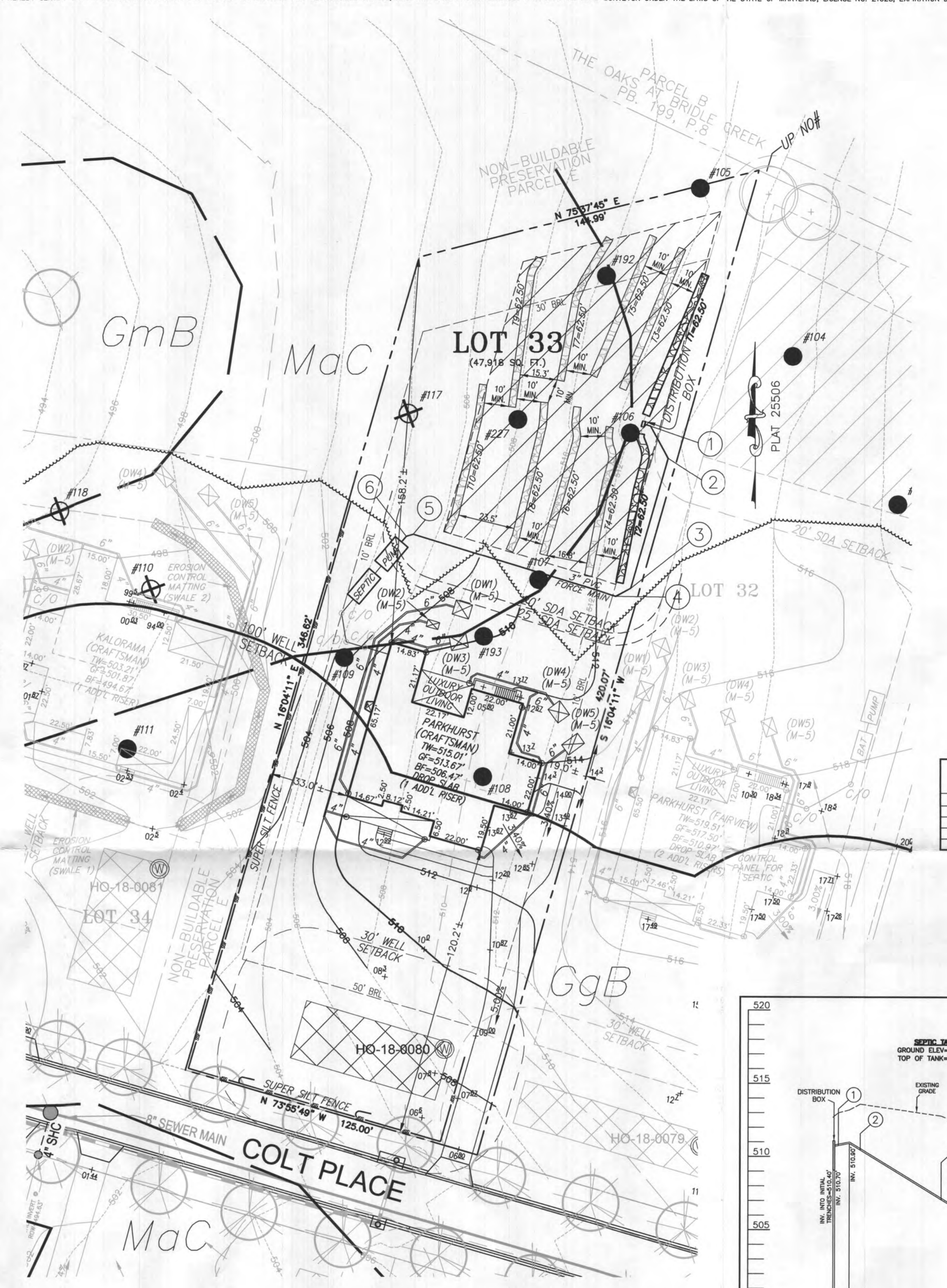


WELL LOCATION CERTIFICATION:
 THE EXISTING WELL SHOWN FOR LOT 33 (TAG NO. HO-18-0080) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN
 LOT 33
 WILLOWSHIRE
 LIBER 18479, FOLIO 296
 PLAT NO. 25506
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND
 ADDRESS: 7028 COLT PLACE
 DAYTON, MARYLAND 21036

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

DATE: 01/19/2023 SCALE: 1"=30' FILE: OSDS LOT 33_rev1
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.



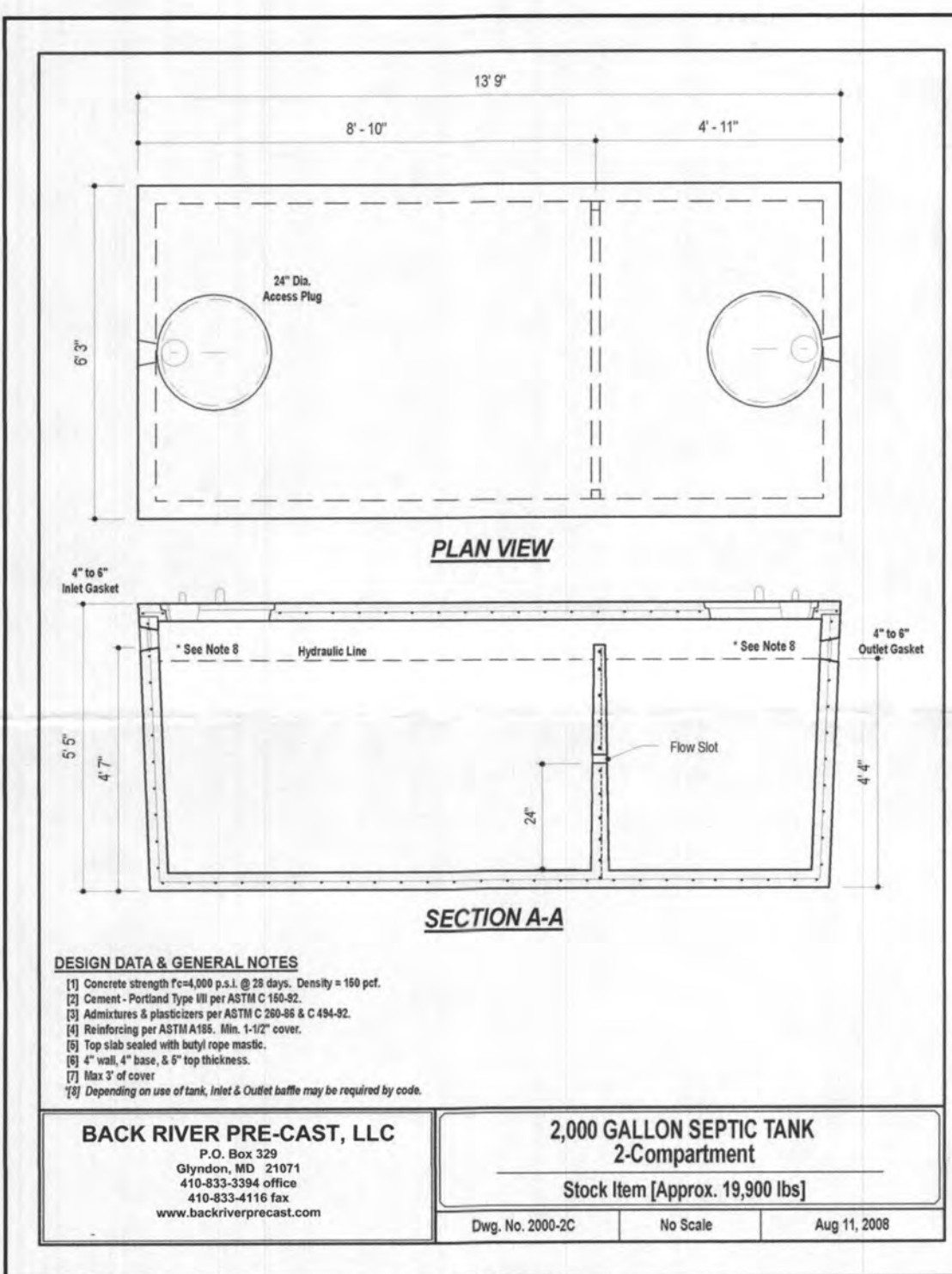
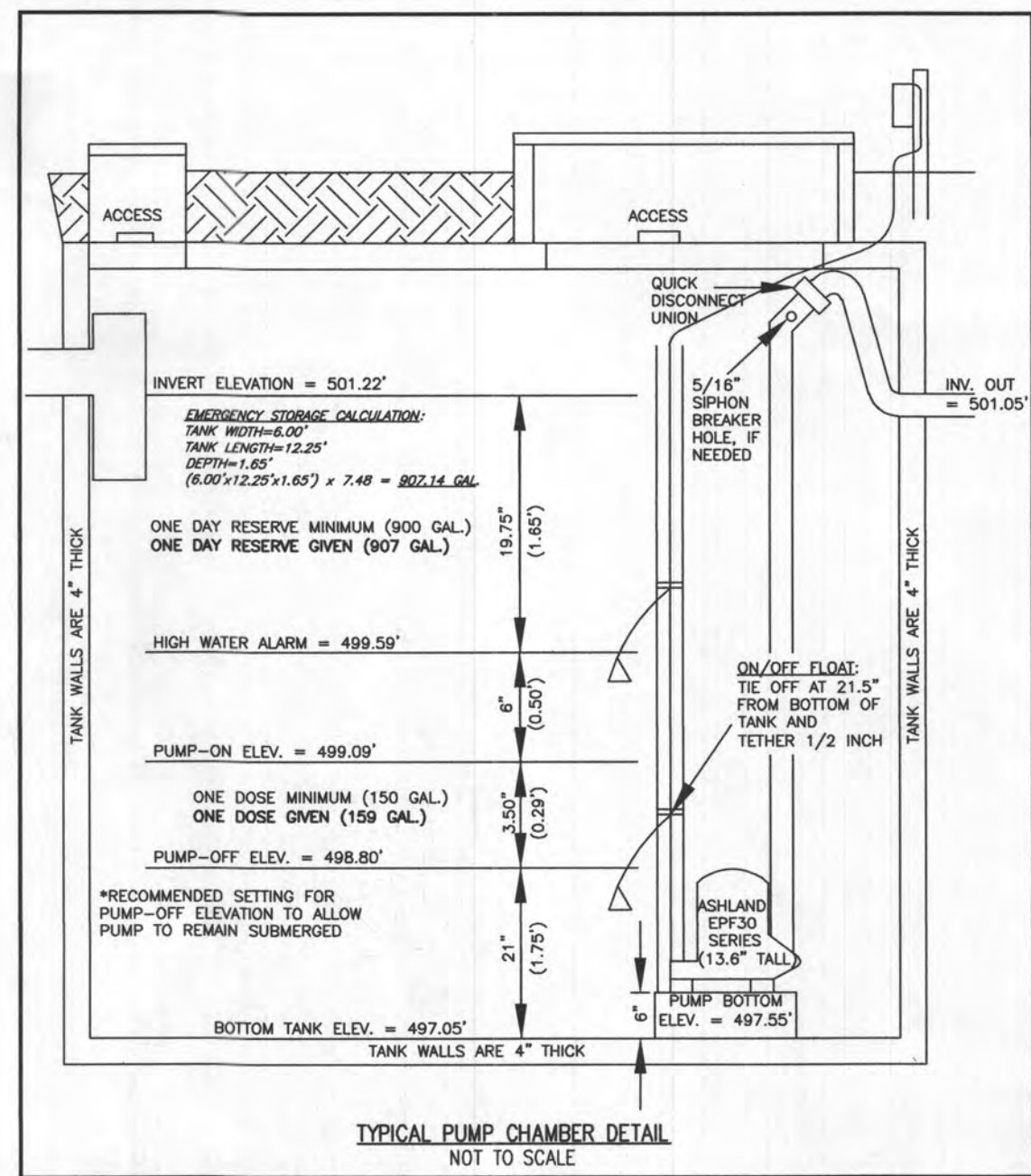
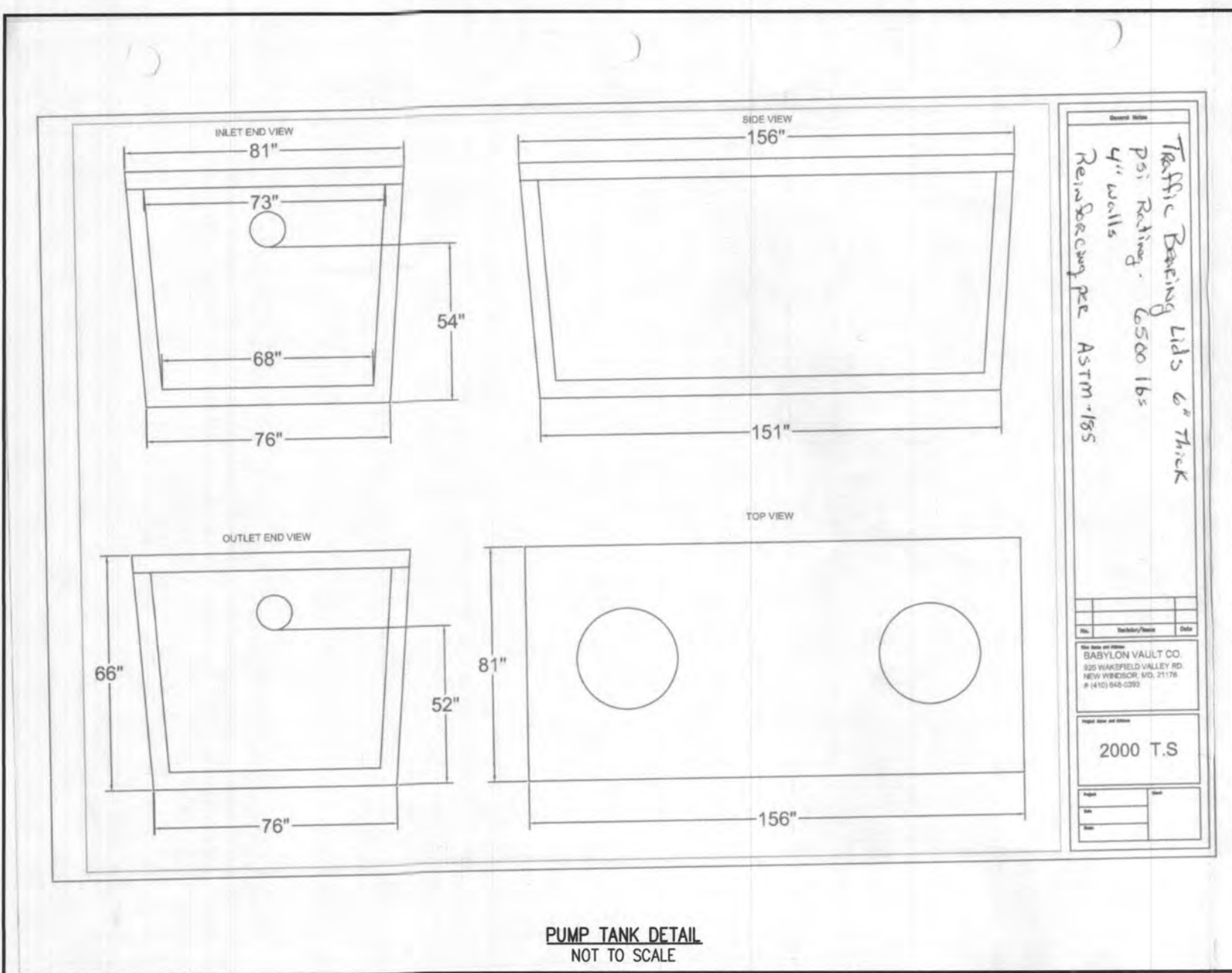
- GENERAL NOTES:** TAX MAP 27, GRID 18
- THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS 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. RECOUPMENT 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.) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "1" 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 SHOW HEREON COMPLEES 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 AND A TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING ON 08/25/15 AND REVISED ON 09/03/15.

SOILS LEGEND

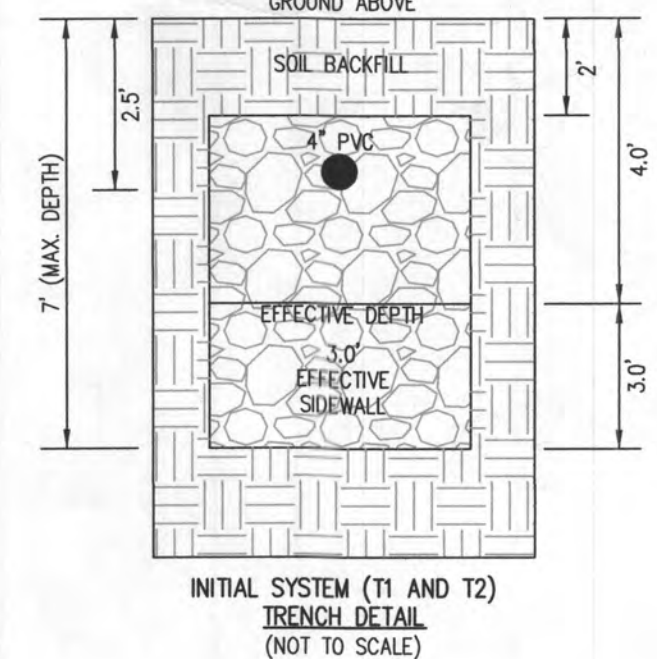
SOIL	NAME	CLASS	Kw
GgB	GLENELG LOAM 3 TO 8 PERCENT SLOPES	B	.28
GmB	GLENVILLE SILT LOAM 3 TO 8 PERCENT SLOPES	C	.43
MaC	MANOR LOAM 8 TO 15 PERCENT SLOPES	B	.28

Approved Septic System Plan
 Howard County Health Department
 Hank Oswald 5/17/23
 Signature Date





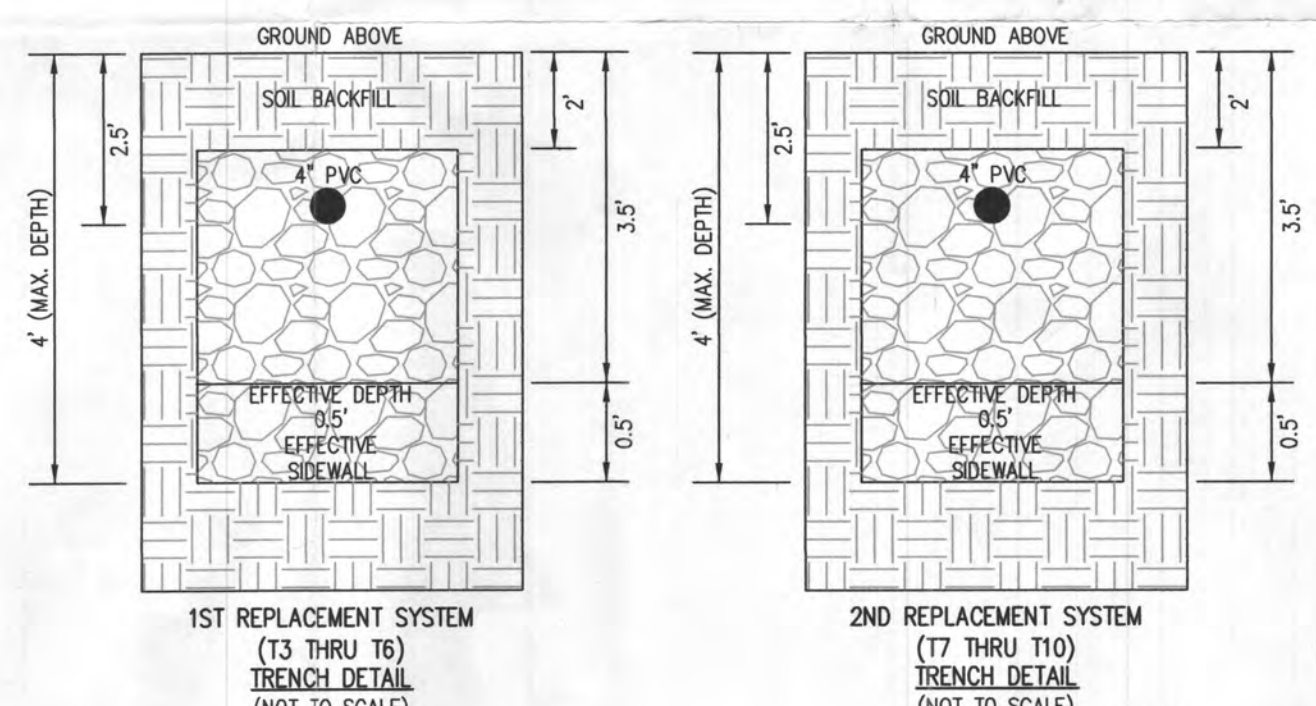
INITIAL TRENCH DATA
 BOTTOM MAX. DEPTH (7')
TRENCH 1 (T1) 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'
TRENCH 2 (T2) 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'



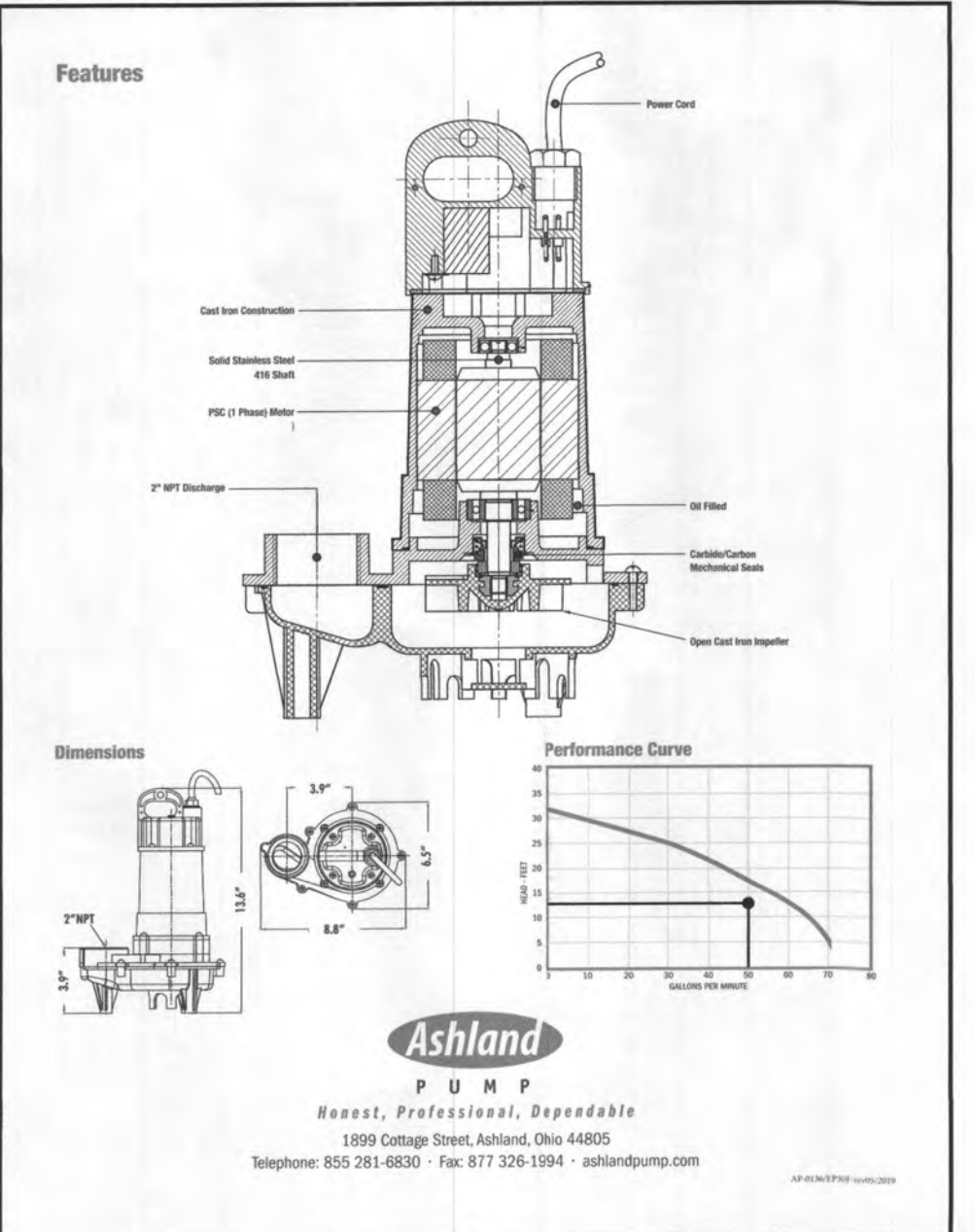
HOUSE OPTIONS:
 HOUSE TYPE: PARKHURST (CRAFTSMAN)
 TWO CAR SIDE ENTRY GARAGE
 FINISHED LOWER LEVEL
 DAYLIGHT BASEMENT
 LUXURIOUS PRIMARY BATH PACKAGE
 MULTI GENERATIONAL SUITE ADDITION
 ADDITIONAL 1 CAR FRONT ENTRY GARAGE (14')
 LUXURY OUTDOOR LIVING
 WET BAR ROUGH-IN - LOWER LEVEL
 DAYLIGHT WINDOW/WELL
 SINGLE WIDE DRIVEWAY TAIL

- OPTION No. 012
- OPTION No. 013
- OPTION No. 018
- OPTION No. 055
- OPTION No. 263073
- OPTION No. 263102
- OPTION No. 263165
- OPTION No. 048246
- OPTION No. 543
- OPTION No. 852

LEGEND:
 BR/L BUILDING RESTRICTION LINE
 W Well Location
 T.W. TOP OF WALL
 G.F. GARAGE FLOOR
 B.F. BASEMENT FLOOR
 D.W. DRYWELL
 P.P. PASSED PERC LOCATION
 F.P. FAILED PERC LOCATION
 S.D.A. SEWAGE DISPOSAL AREA
 W.B.A. WELL BOX AREA
 T Proposed Tree
 S.D.L. SOIL DELINEATION LINE



SEPTIC TANK DETAIL NOT TO SCALE
 BACK RIVER PRE-CAST, LLC
 2,000 GALLON SEPTIC TANK
 2-Compartment
 Stock Item (Approx. 19,900 lbs)
 No Scale Aug 11, 2008



LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS

TOTAL DOSE PER DAY = 150 GALLONS X 6 EVENTS PER DAY IS 900 GPD
 DESIGN FLOW = 900 GPD
 PUMP OFF ELEV. = 498.80'
 INV. OUT PUMP TANK = 501.05'
 PUMP BOTTOM ELEV. = 497.55'
 PUMP SELECTED = 3/70 HP

TRENCH 1 (T1) INV. ELEV.=512.70' LENGTH=62.50'
 TRENCH 2 (T2) INV. ELEV.=512.70' LENGTH=62.50'

FORCEMAIN LENGTH = 173.00' TYPE=SCH40

MIN. SYSTEM DISCHARGE RATE = 50 GPM
 MANIFOLD DIAMETER = 3 IN.
 FORCE MAIN DIAMETER = 3 IN.
 MINIMUM DOSE = 150 GAL.

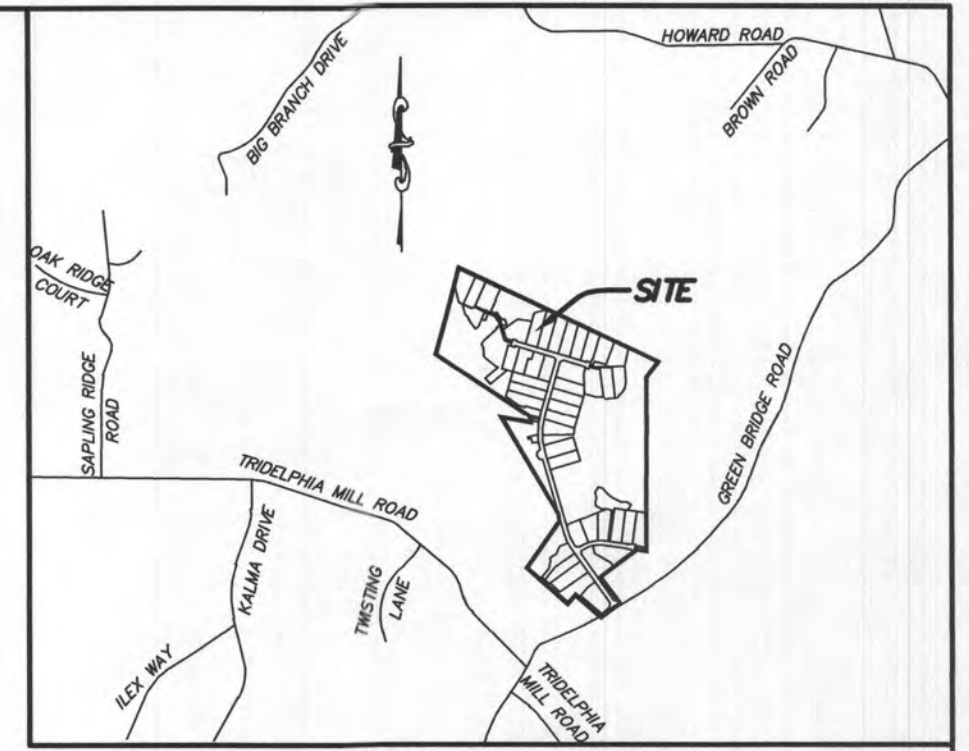
VELOCITY = 2.17 FPS
 VELOCITY = 2.17 FPS

FRICION LOSS (TABLE 4.4) = 0.58
 FRICION LOSS (TABLE 4.4) = 0.58

CALCULATE TOTAL DESIGN HEAD
 LENGTH OF FM FROM PUMP TANK TO DISTRIBUTION BOX = 173.00'
 # OF (45) BENDS IN FM = 6
 # OF (90) BENDS IN FM = 11/4
 TOTAL LENGTHS = 173.00'
 (50 GPM OF 3" PVC = 0.58 PER 100' PIPE); 0.58 / 100 = 0.0058 x 208.00' = 1.212'

FRICION HEAD = 1.21' FT. (PER ABOVE CALCULATION)
 STATIC HEAD = 13.10' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOAT ELEVATION)
 TOTAL DYNAMIC HEAD = 13.31' FT. (FRICION HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 13.31' OF HEAD IS REQUIRED.
 EPF30M1-20, 3/70 H.P. IS EFFICIENT

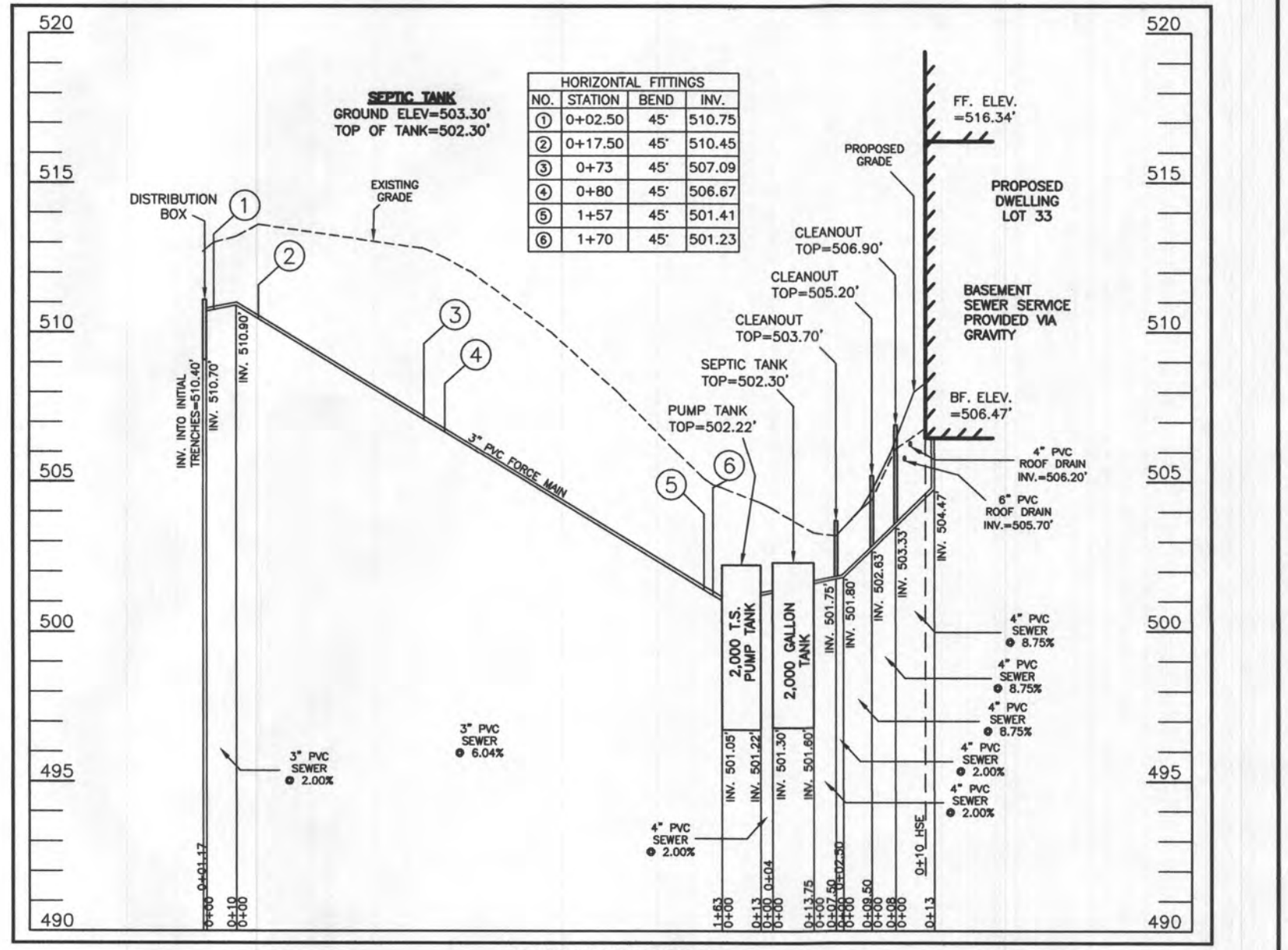


GENERAL NOTES:
 1. THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS UNTO THE PRIVATE SEWAGE AREA. RECDORATION 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.
 4. BUILDING SETBACKS (B.R.L.'S) SHOWN HEREON PER SITE DEVELOPMENT PLAN. SETBACK DISTANCES SHOWN HEREON AS "2" HAVE AN ACCURACY OF ±0.1' FOOT.
 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 SHOW HEREON COMPLES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
 11. THE EXISTING TOPOGRAPHY SHOWN HEREON IS FROM HOWARD COUNTY GIS AND A TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING ON 08/25/15 AND REVISED ON 09/03/15.

SOILS LEGEND

SOIL	NAME	CLASS	Kw
GgB	GLENNVILLE LOAM 3 TO 8 PERCENT SLOPES	B	28
GmB	GLENNVILLE SILT LOAM 3 TO 8 PERCENT SLOPES	C	43
MaC	MANOR LOAM 8 TO 15 PERCENT SLOPES	B	28

Approved Septic System Plan
 Howard County Health Department
 Mark Oswald 5/17/23
 Signature Date



SEWAGE DISPOSAL SYSTEM DATA (6 BDRM):
 PROPOSED INVERT AT FOUNDATION WALL: 504.47'
 1. EX. GRADE OVER TANK: 503.30'
 PROPOSED GRADE OVER TANK: 503.30'
 INVERT IN: 501.60' INVERT OUT: 501.30'

2. DISTRIBUTION BOX
 EXISTING GRADE OVER TANK: 512.70'
 PROPOSED GRADE OVER TANK: 512.70'
 INVERT IN: 510.70' INVERT OUT: 510.40'

3. INITIAL TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 54" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3" WIDTH = 250 LF x 0.50 (SIDEWALL REDUCTION) = 125 LF MIN.
USE 2 62.50' LONG TRENCHES = 125 LF

4. 1ST REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF

5. 2ND REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF x 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF

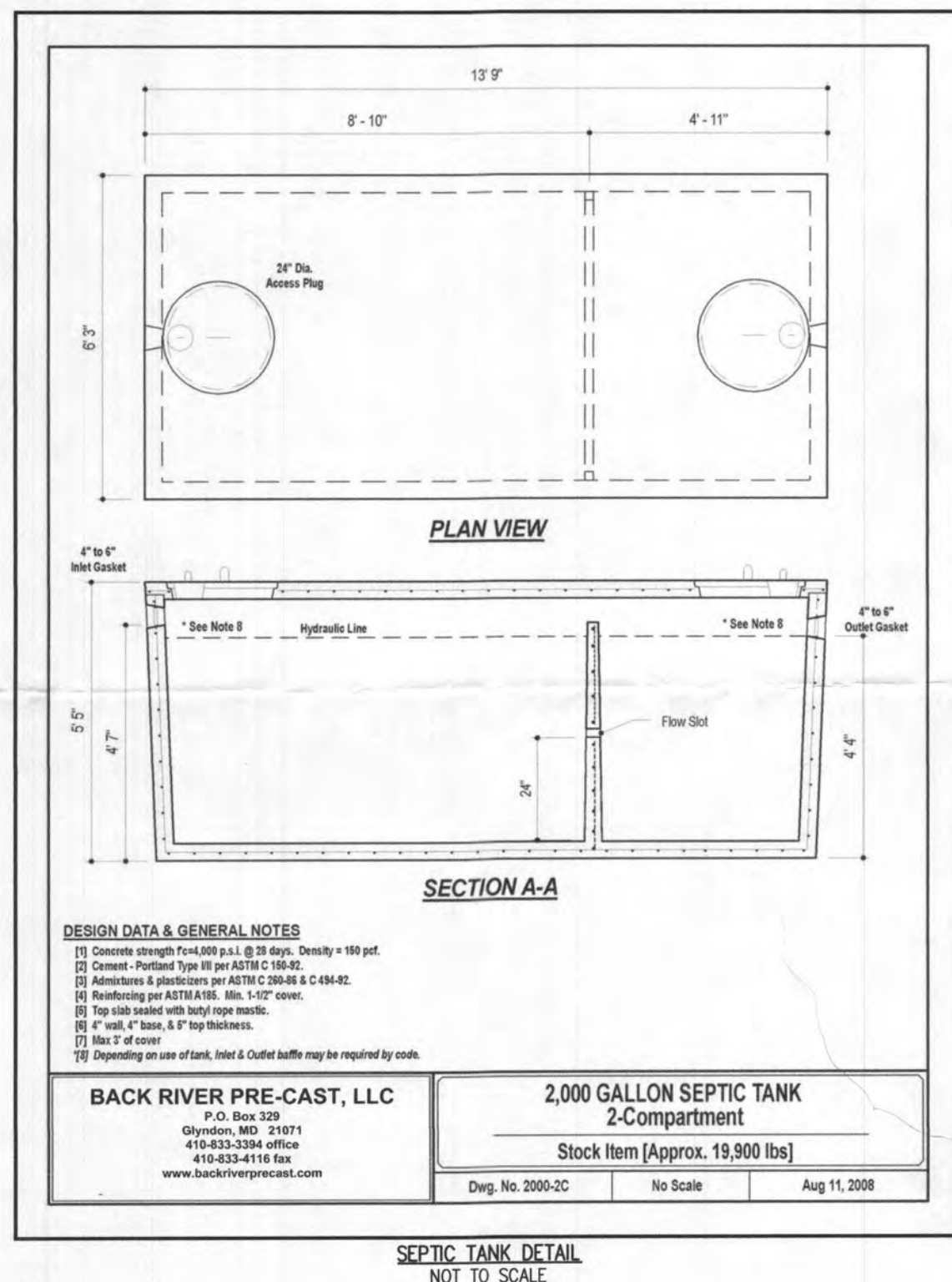
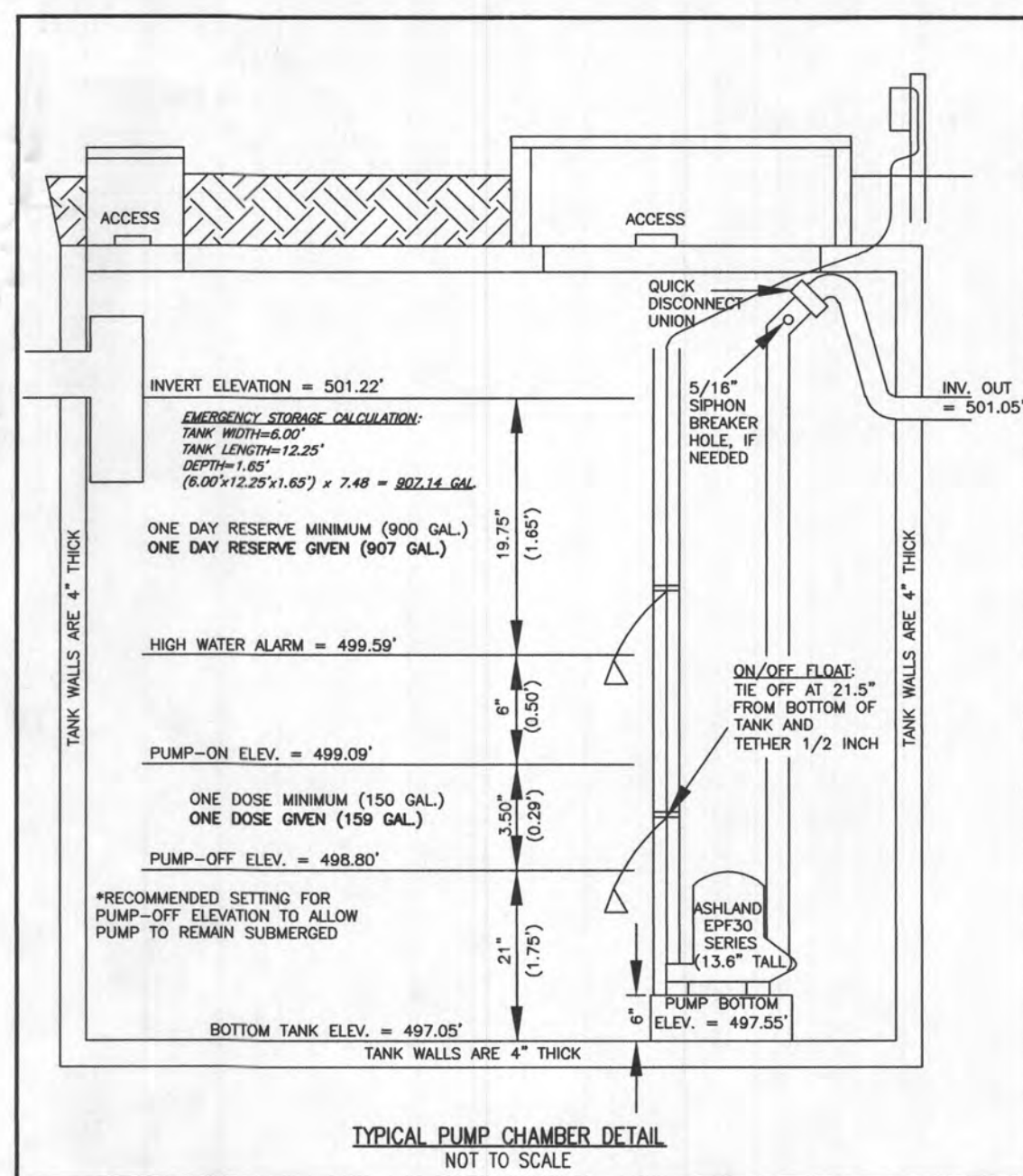
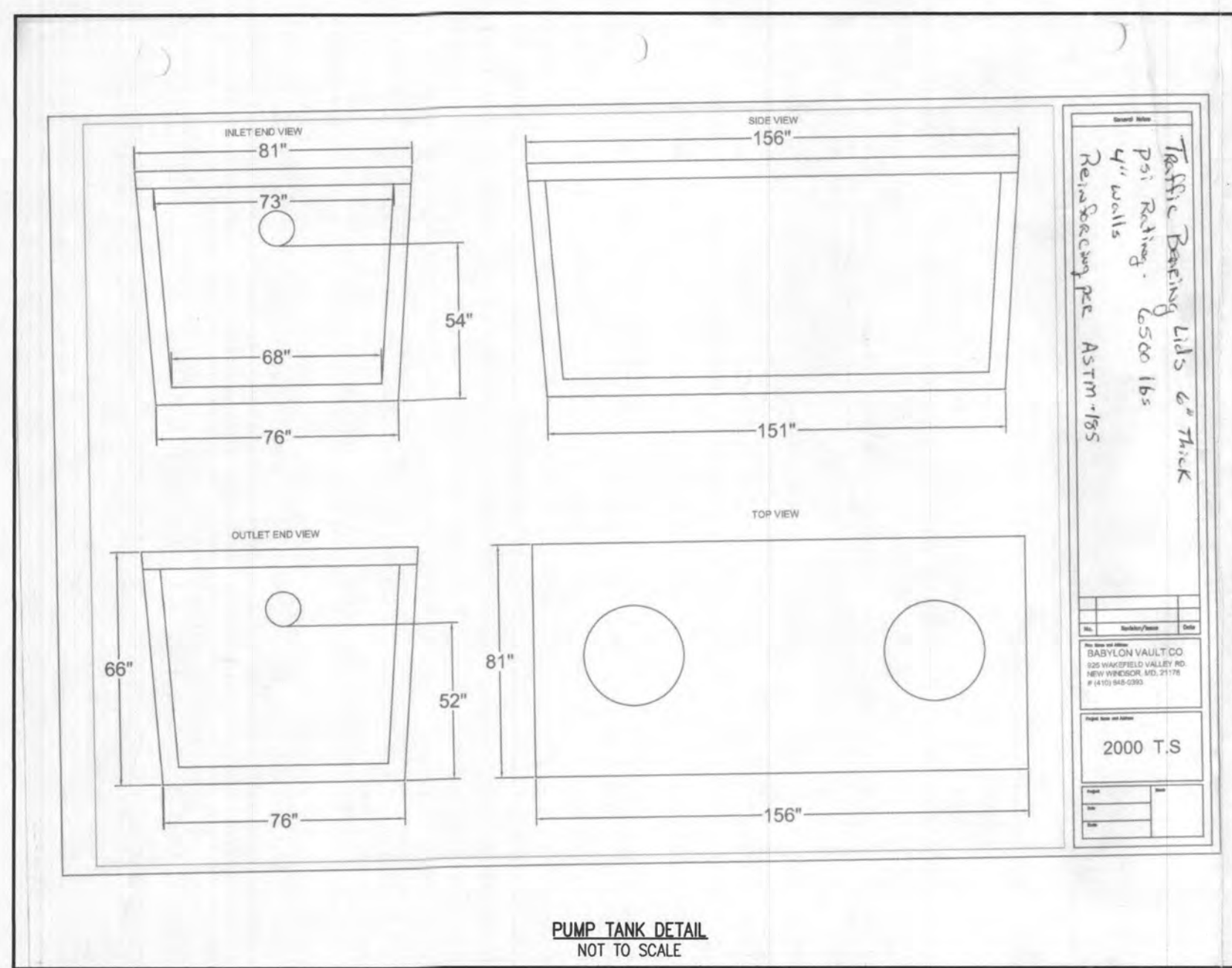
WELL LOCATION CERTIFICATION:
 THE EXISTING WELL SHOWN FOR LOT 33 (TAG NO. HO-18-0080) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN
LOT 33 WILLOWSHIRE
 LIBER 18479, FOLIO 296
 PLAT NO. 25506
 ELECTION DISTRICT NO. 5
 HOWARD COUNTY, MARYLAND
 ADDRESS: 7028 COLT PLACE
 DAYTON, MARYLAND 21036

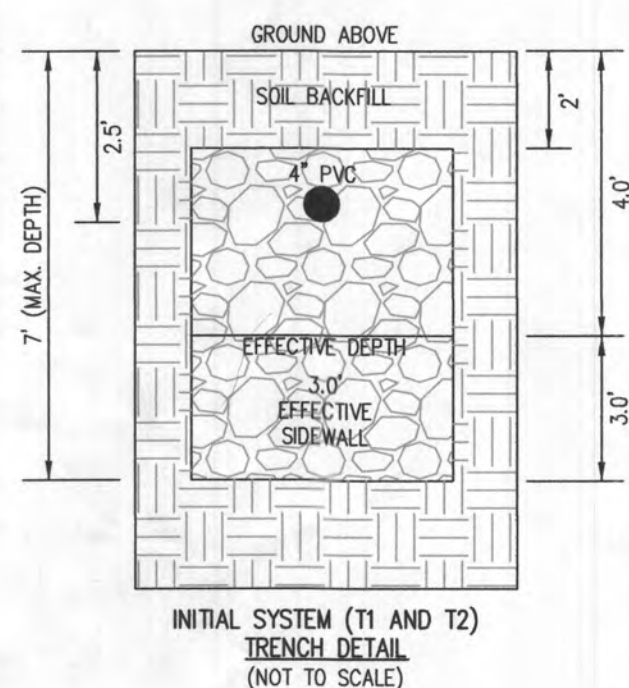
ESE CONSULTANTS
 ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

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

DATE: 01/19/2023 SCALE: 1"=30' FILE: OS05 LOT 33_rev1
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.



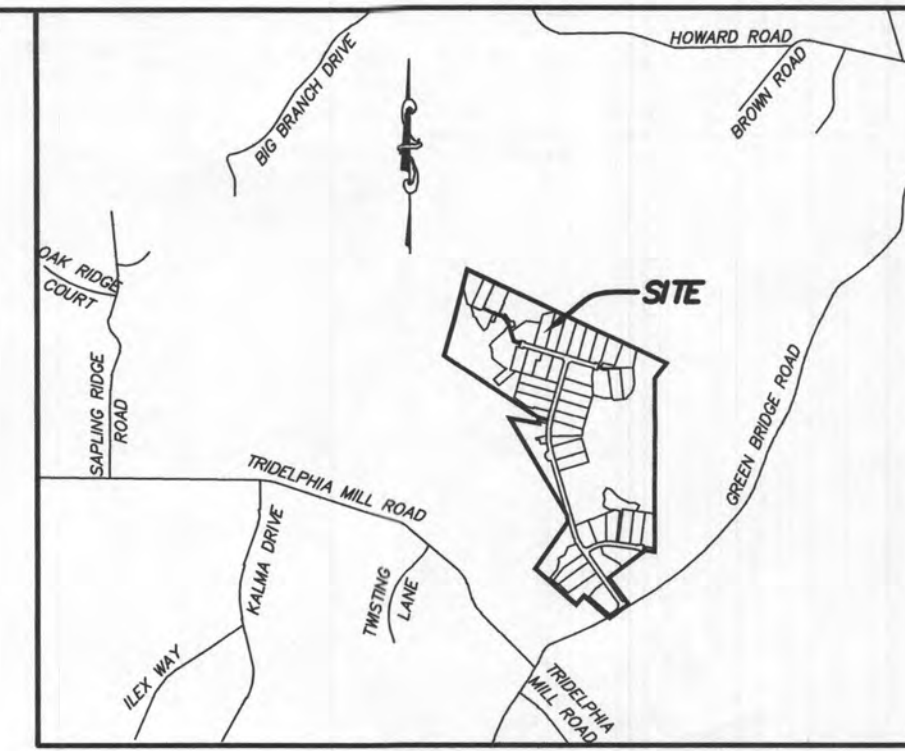
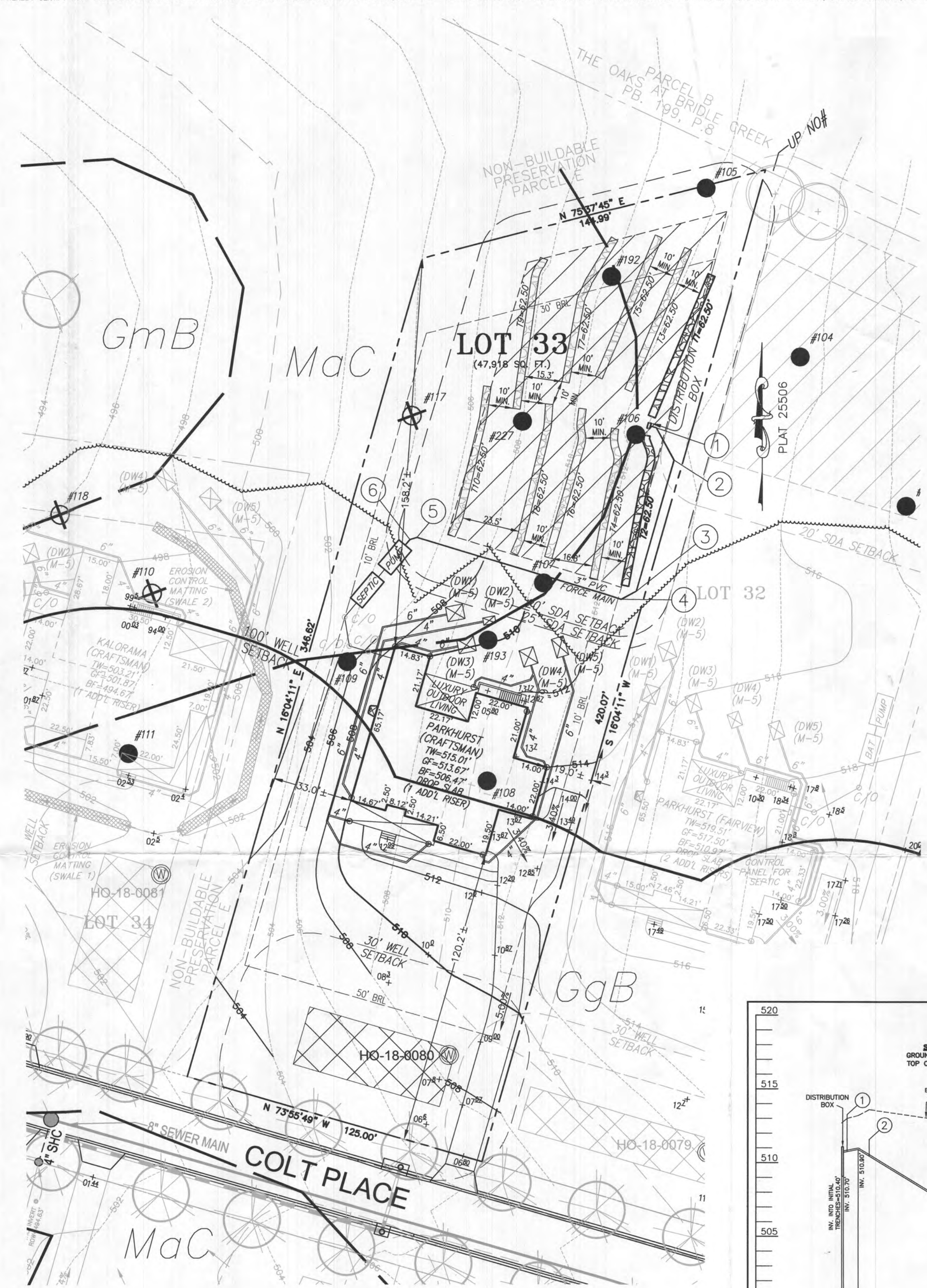
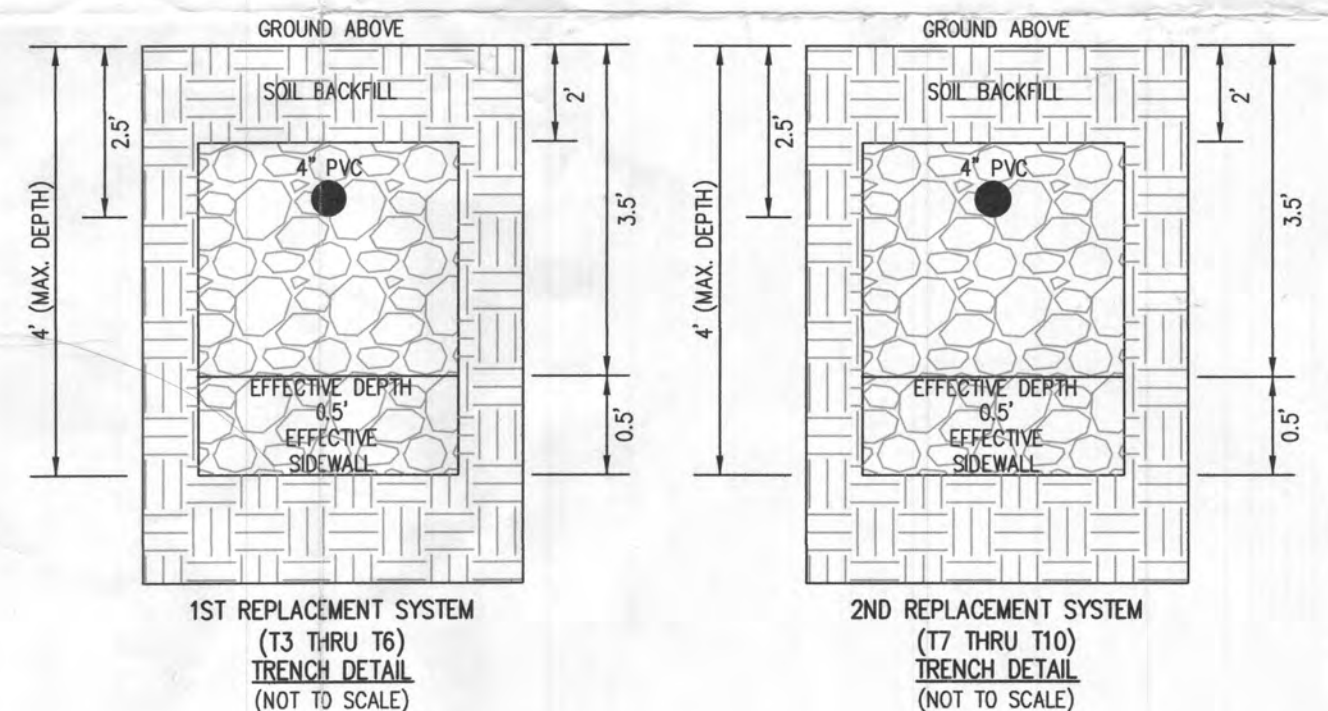
INITIAL TRENCH DATA:
 BOTTOM MAX. DEPTH (7')
TRENCH 1 (T1): 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'
TRENCH 2 (T2): 62.50 LF.
 GROUND ABOVE = 512.70'
 INV. IN = 510.20'
 BOTTOM TRENCH = 505.70'



HOUSE OPTIONS:
 HOUSE TYPE: PARKHURST (CRAFTSMAN)
 TWO CAR SIDE ENTRY GARAGE
 FINISHED LOWER LEVEL
 DAYLIGHT BASEMENT
 LUXURIOUS PRIMARY BATH PACKAGE
 MULTI GENERATIONAL SUITE ADDITION
 ADDITIONAL 1 CAR FRONT ENTRY GARAGE (14')
 LUXURY OUTDOOR LIVING
 WET BAR ROUGH-IN - LOWER LEVEL
 DAYLIGHT WINDOW/WELL
 SINGLE WIDE DRIVEWAY TAIL

OPTION No. 012
 OPTION No. 013
 OPTION No. 018
 OPTION No. 055
 OPTION No. 263073
 OPTION No. 263102
 OPTION No. 263165
 OPTION No. 048246
 OPTION No. 543
 OPTION No. 852

LEGEND:
 BRL BUILDING RESTRICTION LINE
 W WELL LOCATION
 T.W. TOP OF WALL
 G.F. GARAGE FLOOR
 B.F. BASEMENT FLOOR
 DW DRYWELL
 P.P. PASSED PERC. LOCATION
 F.P. FAILED PERC. LOCATION
 S.D.A. SEWAGE DISPOSAL AREA
 W.B.A. WELL BOX AREA
 P.T. PROPOSED TREE
 S.D.L. SOIL DELINEATION LINE

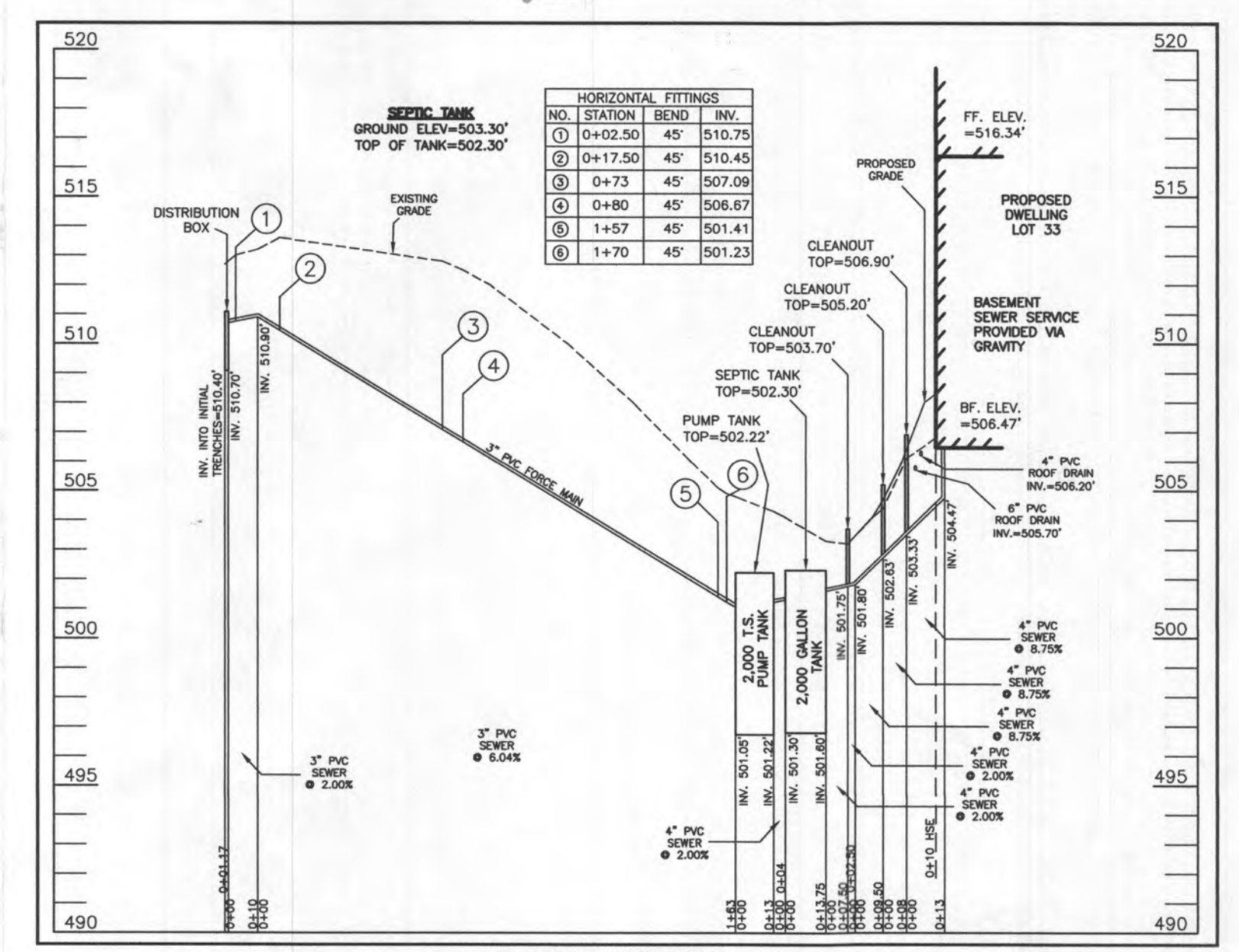


- GENERAL NOTES:**
- THESE AREAS DESIGNATE A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL 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. RECORDED 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 SHOW 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 AND A TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING ON 08/25/15 AND REVISED ON 09/03/15.

SOILS LEGEND

SOIL	NAME	CLASS	Kw
GmB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28
GmB	GLENEVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.43
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28

Approved Septic System Plan
 Howard County Health Department
 Signature: *Howard Oswald* Date: 10/25/22



WELL LOCATION CERTIFICATION:
 THE EXISTING WELL SHOWN FOR LOT 33 (TAG NO. HO-18-0080) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

SEWAGE DISPOSAL SYSTEM DATA (6 BDRM.)

- PROPOSED INVERT AT FOUNDATION WALL: 504.47'
 1. EX. GRADE OVER TANK: 503.30'
 PROPOSED GRADE OVER TANK: 503.30'
 INVERT IN: 501.60' INVERT OUT: 501.30'
2. DISTRIBUTION BOX
 EXISTING GRADE OVER TANK: 512.70'
 PROPOSED GRADE OVER TANK: 512.70'
 PUMP BOTTOM ELEV.: 497.55'
 PUMP SELECTED: 3/10 HP
3. INITIAL TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 54" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF + 3" WIDTH = 250 LF x 0.50 (SIDEWALL REDUCTION) = 125 LF MIN.
USE 2 62.50' LONG TRENCHES = 125 LF
4. 1ST REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF + 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF
5. 2ND REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)
 900 GPD + 1.2 APP. RATE = 750 SF
 USE 3" WIDE TRENCH WITH 18" GRAVEL BELOW PIPE
 10' MIN. SPACING BETWEEN TRENCH EDGES
 750 SF + 3" WIDTH = 250 LF x (NO SIDEWALL REDUCTION) = 250 LF MIN.
USE 4 62.50' LONG TRENCHES = 250 LF

LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS

TOTAL DOSE PER DAY = 150 GALLONS X 6 EVENTS PER DAY IS 900 GPD

TRENCH 1 (T1)	INV. ELEV.=512.70'	LENGTH=62.50'	DESIGN FLOW = 900 GPD
TRENCH 2 (T2)	INV. ELEV.=512.70'	LENGTH=62.50'	PUMP OFF ELEV. = 498.80'
			INV. OUT PUMP TANK = 501.05'
			PUMP BOTTOM ELEV. = 497.55'
			PUMP SELECTED = 3/10 HP

FORCEMAIN LENGTH = 173.00' TYPE=SCH40 *PUMPING FORCEMAIN TO A DISTRIBUTION BOX AND GRAVITY FLOW FROM DISTRIBUTION BOX TO TRENCHES, NO MANHOLE AND TRENCH CALCULATIONS NEEDED

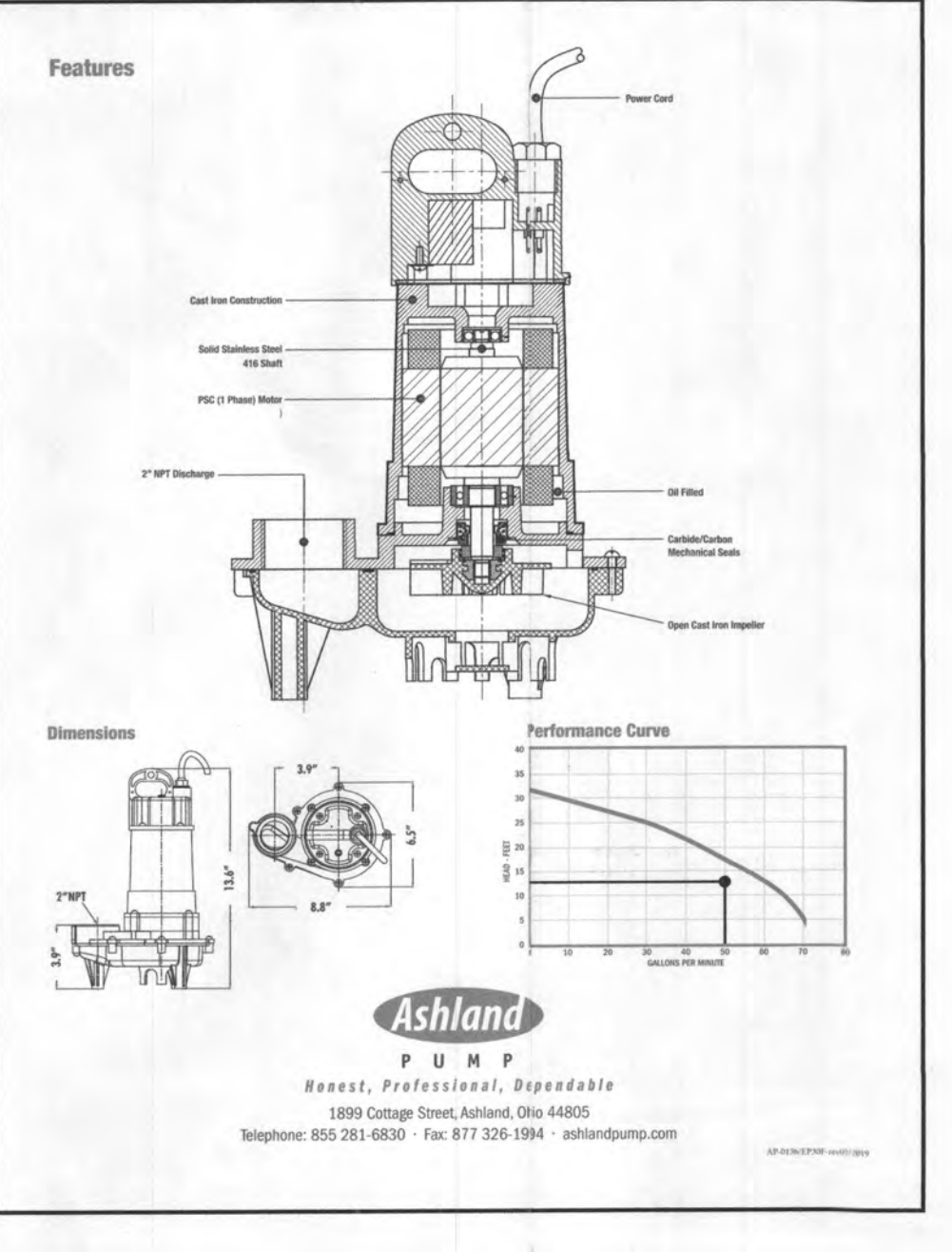
MIN. SYSTEM DISCHARGE RATE = 50 GPM	VELOCITY = 2.17 FPS	FRICION LOSS (TABLE 4.4) = 0.58
FORCE MAIN DIAMETER = 3 IN.	VELOCITY = 2.17 FPS	FRICION LOSS (TABLE 4.4) = 0.58
MINIMUM DOSE = 150 GAL		

CALCULATE TOTAL DESIGN HEAD

LENGTH OF FM FROM PUMP TANK TO DISTRIBUTION BOX = 173.00'	(ADD 6' PER BEND) = 36.00'	TOTAL PIPE /
# OF (45) BENDS IN FM = 6	(ADD 10' PER BEND) = 60.00'	TOTAL PIPE /
TOTAL LENGTHS = 173.00'	TOTAL ADD'L LENGTHS = 96.00'	FRICION LOSS = 209.00'
	(50 GPM OF 3" PVC = 0.58 PER 100' PIPE); 0.58 / 100' = 0.0058 x 209.00' = 1.212'	

FRICION HEAD = 1.21' FT. (PER ABOVE CALCULATION)
 STATIC HEAD = 13.30' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOOR ELEVATION)
 TOTAL DYNAMIC HEAD = 13.31' FT. (FRICION HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 13.31' OF HEAD IS REQUIRED.
 EPF30M-20, 3/10 H.P. IS EFFICIENT



ESE CONSULTANTS
 ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

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

DATE: 10/11/2022 SCALE: 1"=30' FILE: OS05 LOT 33
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.