

**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: 1/18/22 **ONSITE SEWAGE DISPOSAL SYSTEM** P 570910

APPROVAL DATE: 5/24/22 **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 6525 MARE COURT, DAYTON, MD 21036

SUBDIVISION: WILLOWSHIRE LOT: 8 TAX ID: 03-602996

CONTRACTOR: CHAVIS ENTERPRISES & SEPTIC SERVICES EMAIL: Ryan@chavisenterprisesllc.com

CONTRACTOR ADDRESS: 23 EAST ELLENDALE, BEL AIR, MD 21014 PHONE: (410)838-3007

PROPERTY OWNER: TOLL MID-ATLANTIC LP COMPANY, INC EMAIL: Sriley1@tollbrothers.com

OWNER ADDRESS: 250 GIBRALTER ROAD, HORSHAM, PA 19044 PHONE: (410)872-9165

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Back River Pre-Cast, LLC

PUMP MODEL: Ashland EPF30M1 PUMP SIZE 0.3 Hp PUMP TANK CAPACITY: 2000

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

TRENCHES:	LINEAR FEET REQUIRED: <u>82.5</u>	INLET DEPTH: <u>2.5</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>8.0</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>14</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>2.5</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:	INSTALL CLEANOUTS IN SHC AS ILLUSTRATED. SET DISTRIBUTION BOX AT BEGINNING OF UPPER TRENCH THE SYSTEM MUST PASS A PUMP AND ALARM TEST BEFORE FINAL APPROVAL IS GRANTED FOR THE INSTALLATION. INSTALLER MAY CHOOSE TO INSTALL FORCE MAIN AS 2-INCH PVC (SCH 40)	

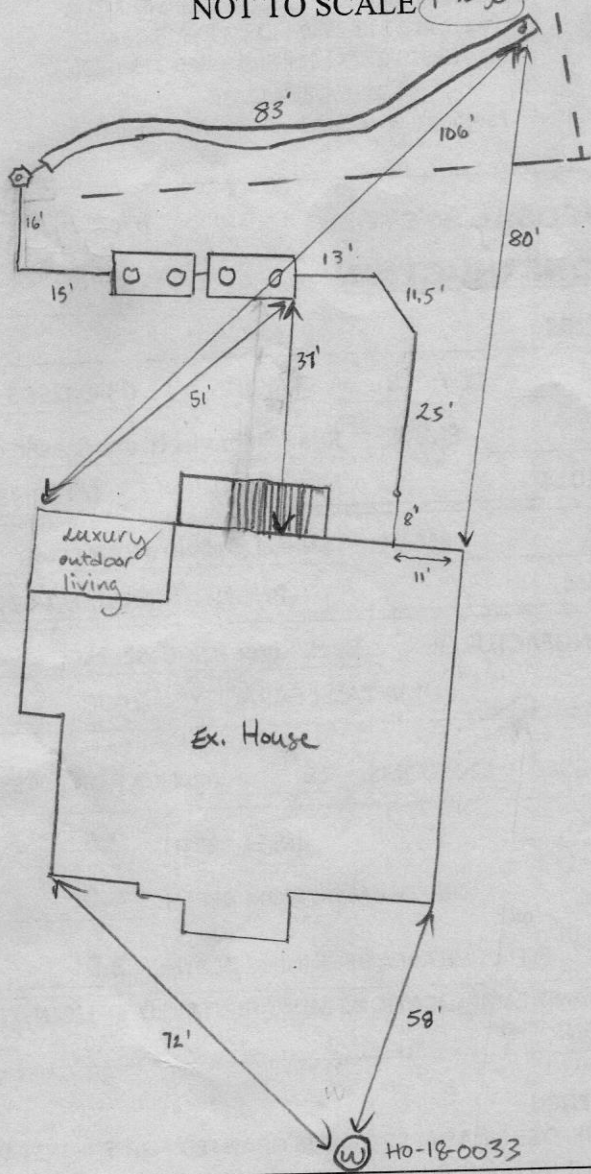
ISSUED BY: R BRICKER ISSUE DATE: 2/8/22 EXPIRATION DATE: 2/8/23

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADE FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM  
 ELECTRICAL PERMIT ISSUED E \_\_\_\_\_
- 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.

6525 Mare Ct

NOT TO SCALE 1" = 30'



ROAD NAME  
Mare Ct

**TRENCH/DRAINFIELD DATA**

WIDTH	INLET	BOTTOM
3'	2.5'	8'
NUMBER OF TRENCHES	1	
TOTAL LENGTH	83'	
ABSORPTION AREA	249 sq ft + sidewalk	
DISTRIBUTION BOX LEVEL	N/A	
DISTRIBUTION BOX BAFFLE	cement	
DISTRIBUTION BOX PORT	PVC	

**SEPTIC TANK DATA**

SEPTIC TANK 1 LEVEL	yes
MANUFACTURER	Backriver
CAPACITY	2000 GAL
SEAM LOC	top
TANK LID DEPTH	4'-2'
BAFFLES	inlet +
BAFFLE FILTER	-
MANHOLE LOC	inlet + outlet
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	yes
DATE ON LID	2-17-22
PUMP/SEPTIC TANK LEVEL	yes
MANUFACTURER	Backriver
CAPACITY	2000 GAL
SEAM LOC	top
TANK LID DEPTH	4'-2'
BAFFLES	-
BAFFLE FILTER	-
MANHOLE LOC	inlet + outlet
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	no
DATE ON LID	10-9-21

**PRE-CONSTRUCTION:**

2/17/22 1x83' trench staked out on contour according to plan. SHC moved 5' towards corner of house. Confirmed fall to tanks - grade will need to be cut down above tanks as shown on plan. (SD)

**INSTALLATION:** 3/3/22 SHC, SL installed. Tanks set, FM installed and d-box set, 1x83' trench installed. Reinsp for P+A. Check final grade around tanks or print email from Backriver that tanks are traffic bearing. (SD) 5/4/22 Alarm obs to function, alarm located in circuit box on outside wall of house. Pump and alarm observed to be on different circuits. Pump observed to function w/ water flowing in d-box. (SD)

FINAL INSPECTOR

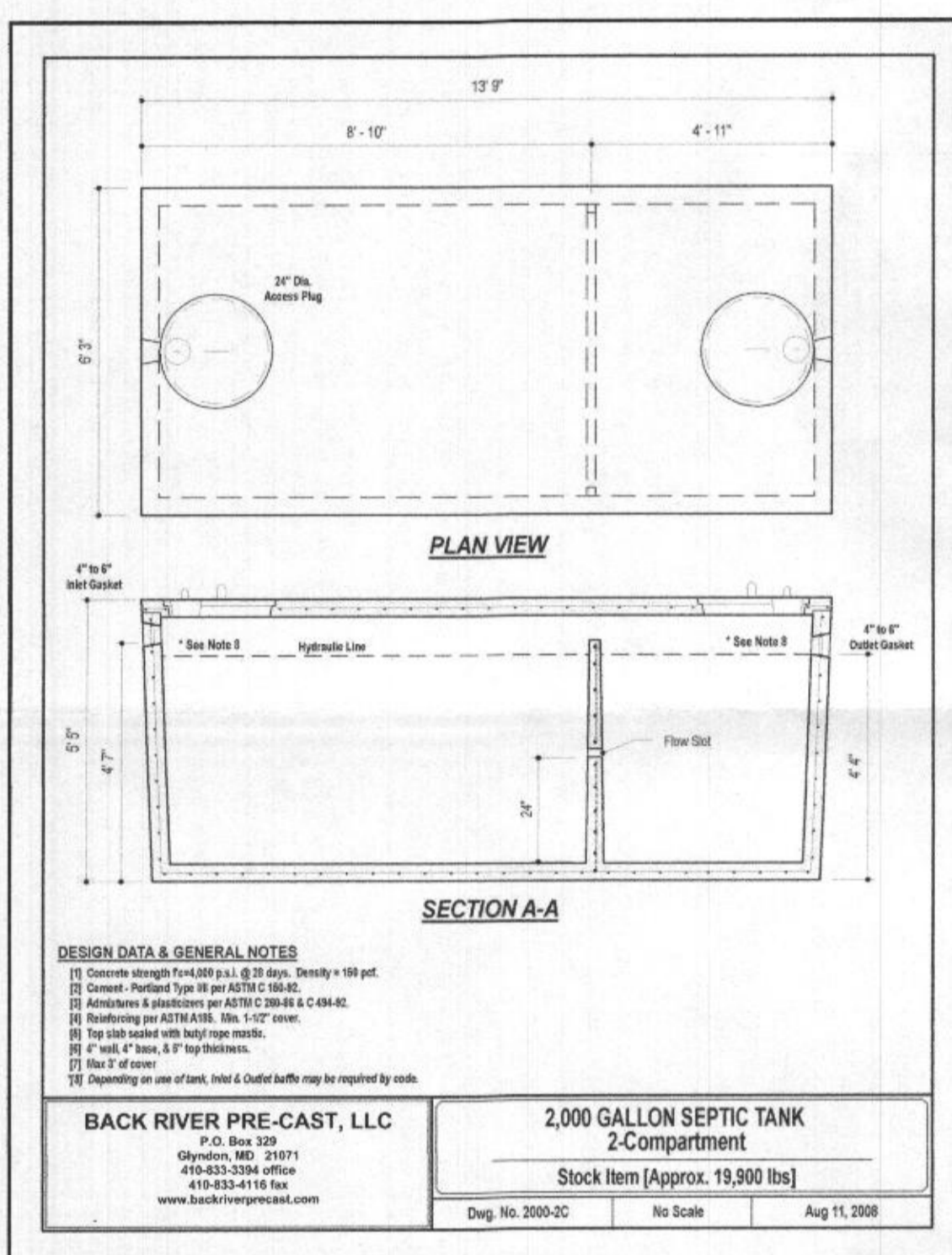
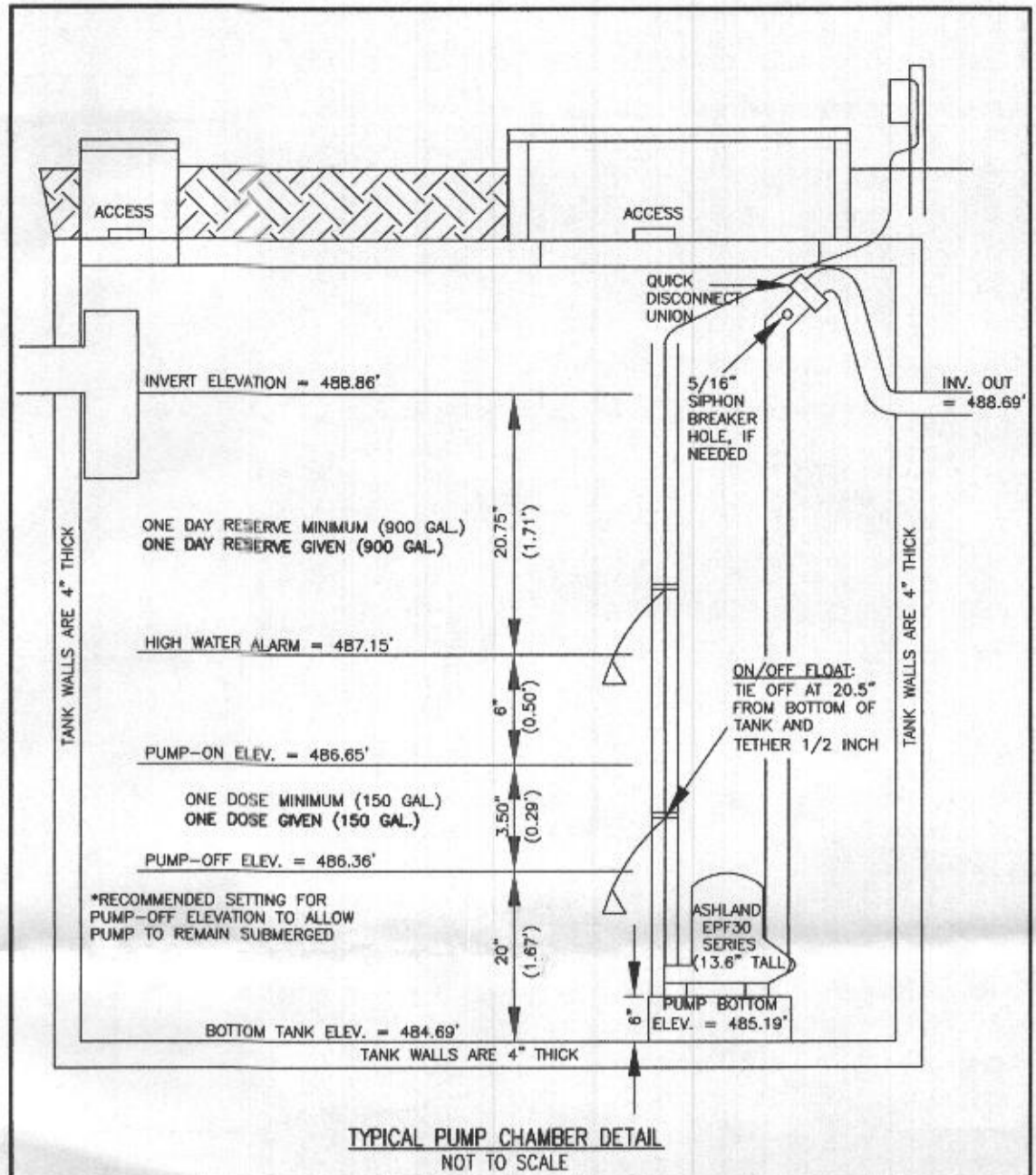
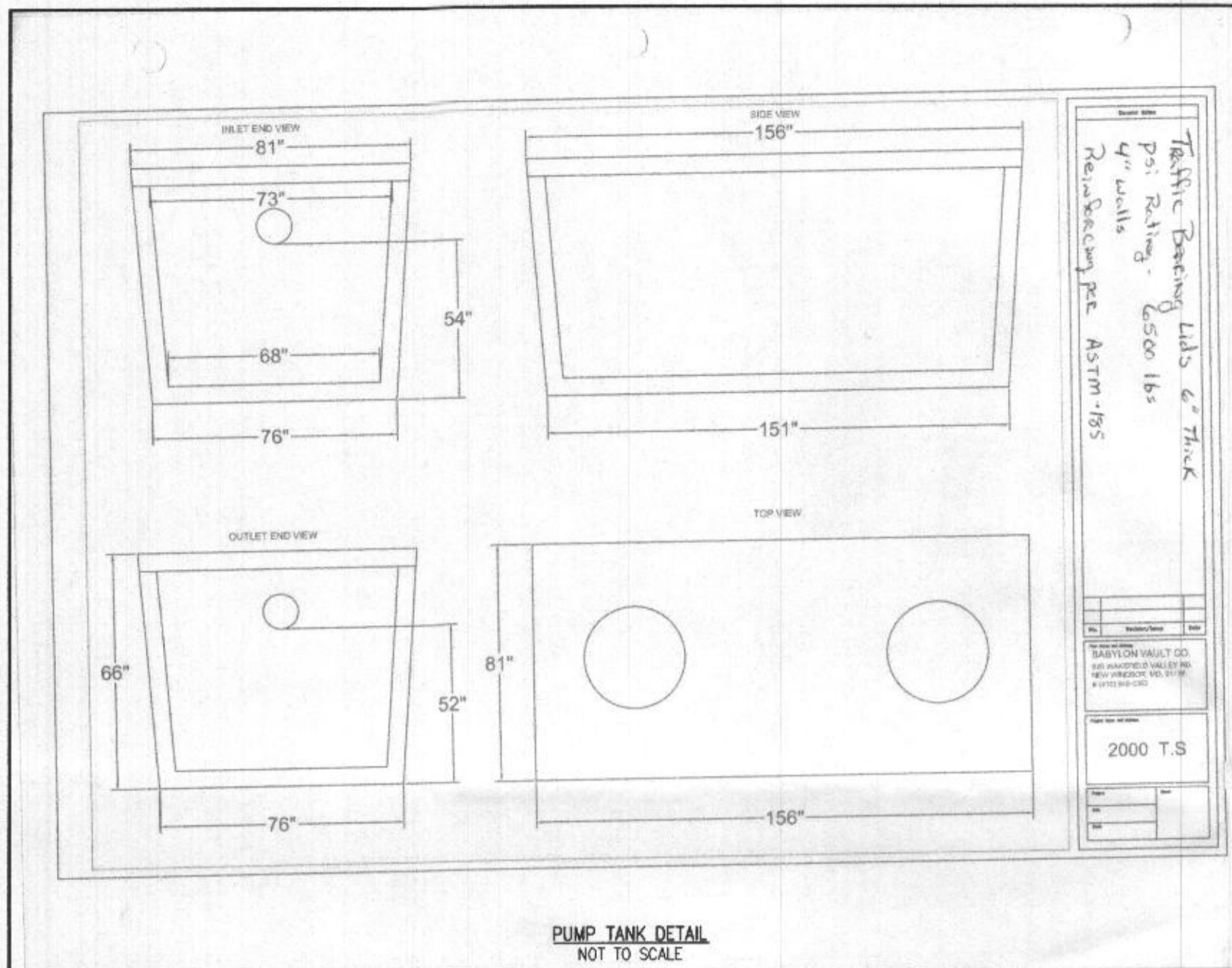
*Awan Thomas*

DATE OF APPROVAL

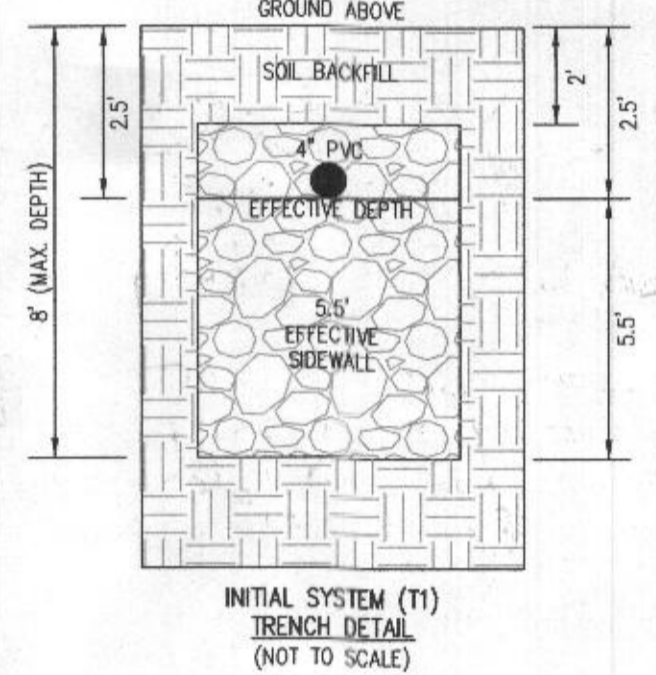
5/24/22







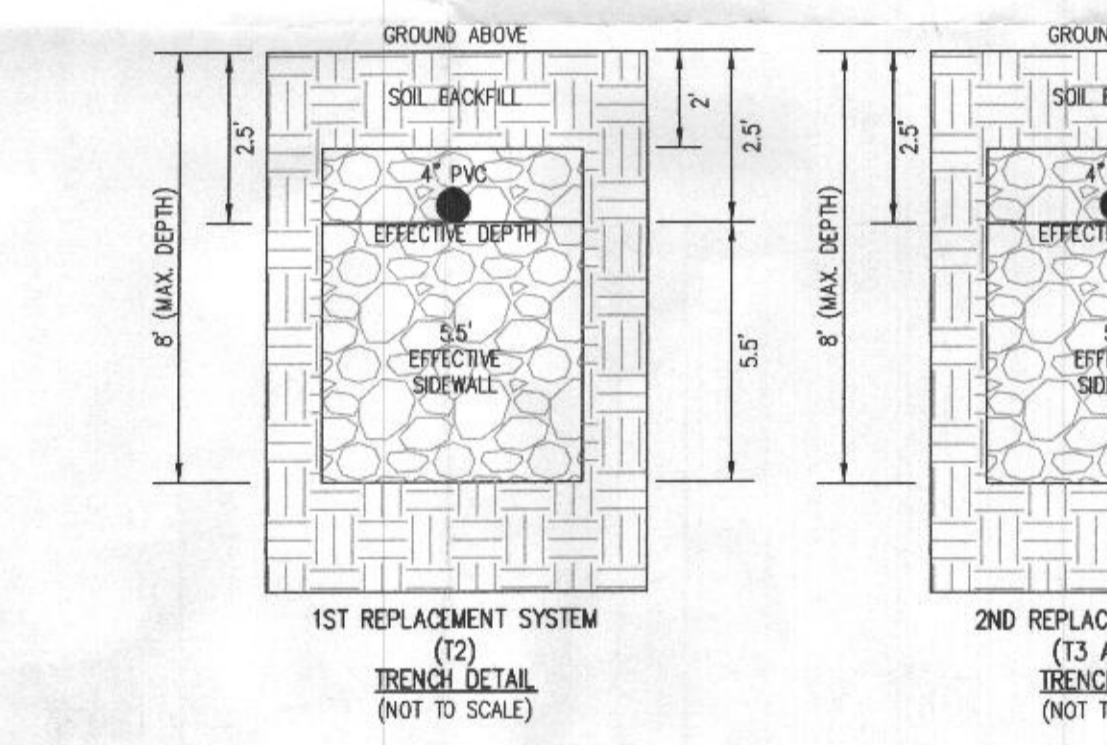
**INITIAL TRENCH DATA**  
 BOTTOM MAX. DEPTH (8')  
 TRENCH 1 (T1) 82.50 LF  
 GROUND ABOVE = 494.70'  
 INV. IN = 492.20'  
 BOTTOM TRENCH = 486.70'



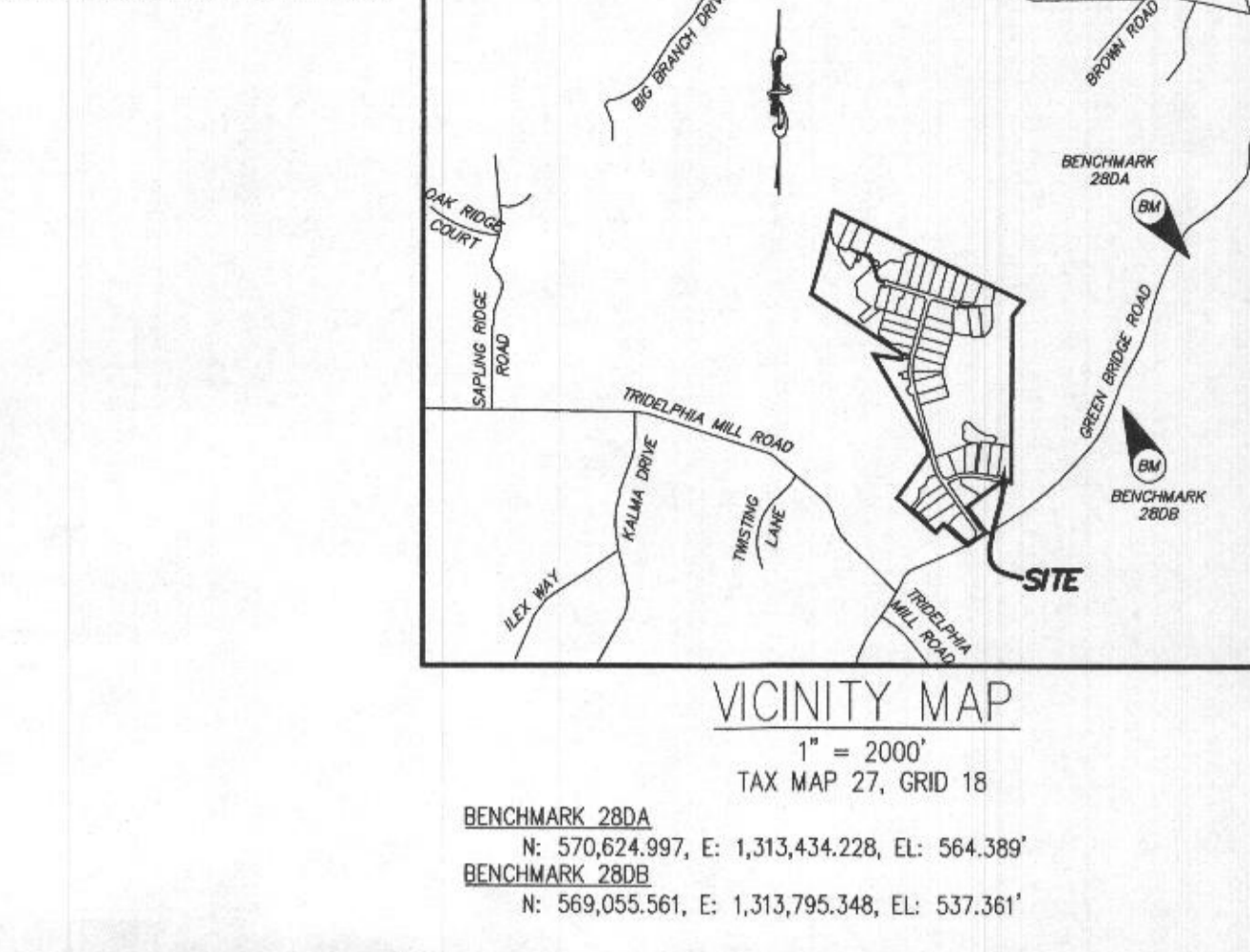
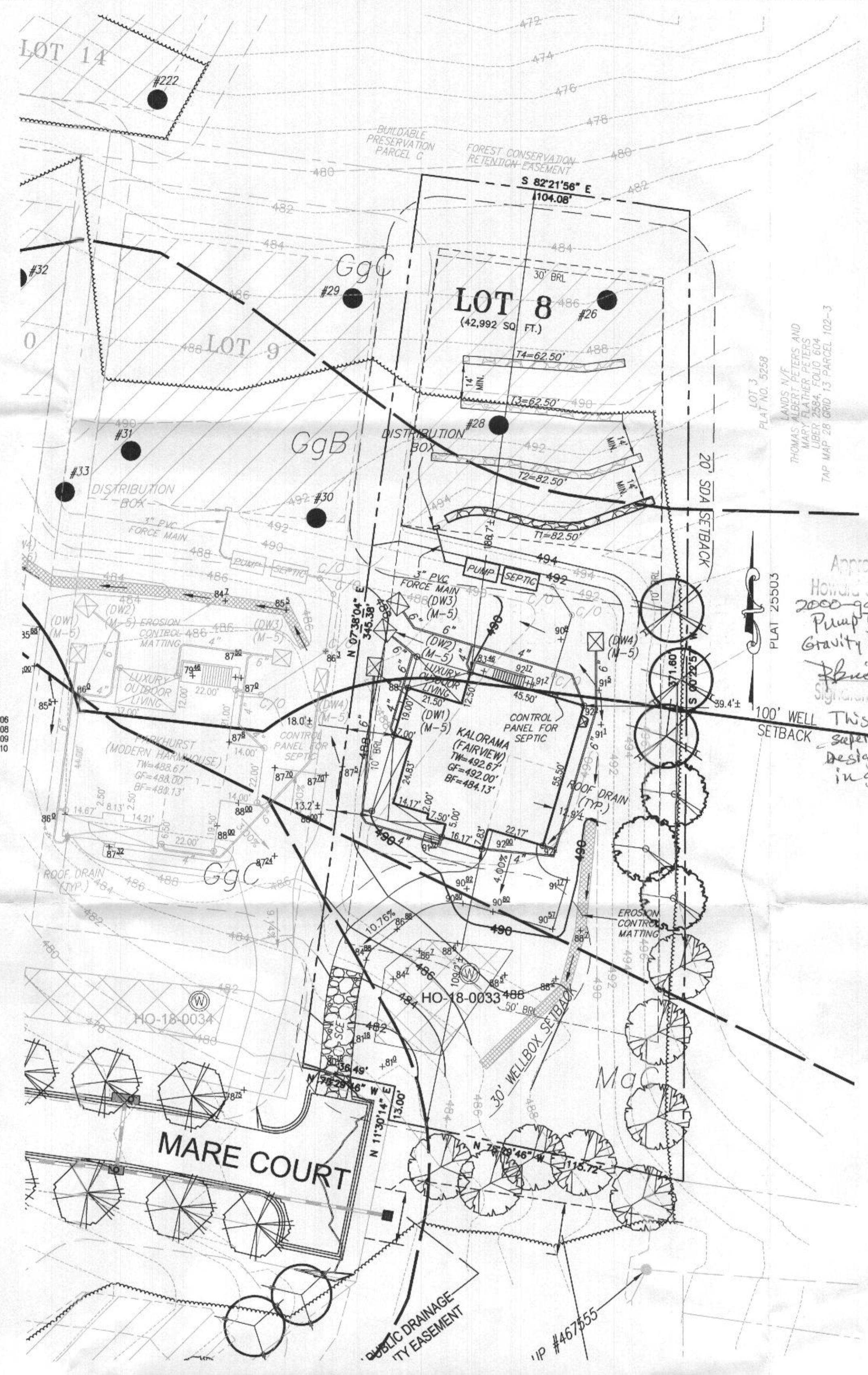
**HOUSE OPTIONS:**  
 HOUSE TYPE: KALORAMA (FAIRVIEW)  
 DAYLIGHT BASEMENT  
 EXPANDED CLOSET  
 PREP KITCHEN  
 LUXURY OUTDOOR LIVING  
 PLANNING CENTER  
 FINISHED THIRD FLOOR WALK-UP SPACE WITH HALF BATH  
 WELLED WINDOW FOR DAYLIGHT BASEMENT  
 WET-BAR ROUGH-IN IN BASEMENT FOR FUTURE BAR  
 4 HOPPER WINDOWS INCLUDED IN BASEMENT  
 DOUBLE WOOD TAIL FOR DRIVEWAY

OPTION NO. 018  
 OPTION NO. 28311  
 OPTION NO. 28315  
 OPTION NO. 28316  
 OPTION NO. 28317  
 OPTION NO. 28381  
 OPTION NO. 9008006  
 OPTION NO. 9008008  
 OPTION NO. 9008009  
 OPTION NO. 9008010

**DESIGN DATA & GENERAL NOTES**  
 1) Concrete strength 3000 psi @ 28 days. Density = 150 pcf.  
 2) Concrete - Portland Type III per ASTM C 150.4.  
 3) Reinforcing Steel - per ASTM A 618.30 & A 618.35.  
 4) Rebar - per ASTM A 618.30 & A 618.35.  
 5) Top Soil - 6" min. 4' top 12" max.  
 6) 2' min. 4' max. 8' top 12" max.  
 7) 12" min. 4' max.  
 8) Depending on use of tank, inlet & outlet baffles may be required by code.



**LEGEND:**  
 BRIL BUILDING RESTRICTION LINE  
 WEL WELL LOCATION  
 T.M. TOP OF WALL  
 C.F. GARAGE FLOOR  
 B.F. BASEMENT FLOOR  
 DW DRYWELL  
 P.P. PASSED PERC LOCATION  
 S.S. SEWAGE DISPOSAL AREA  
 W.B.A. WELL BOX AREA  
 T TREES  
 S.D. SOIL DELINEATION LINE



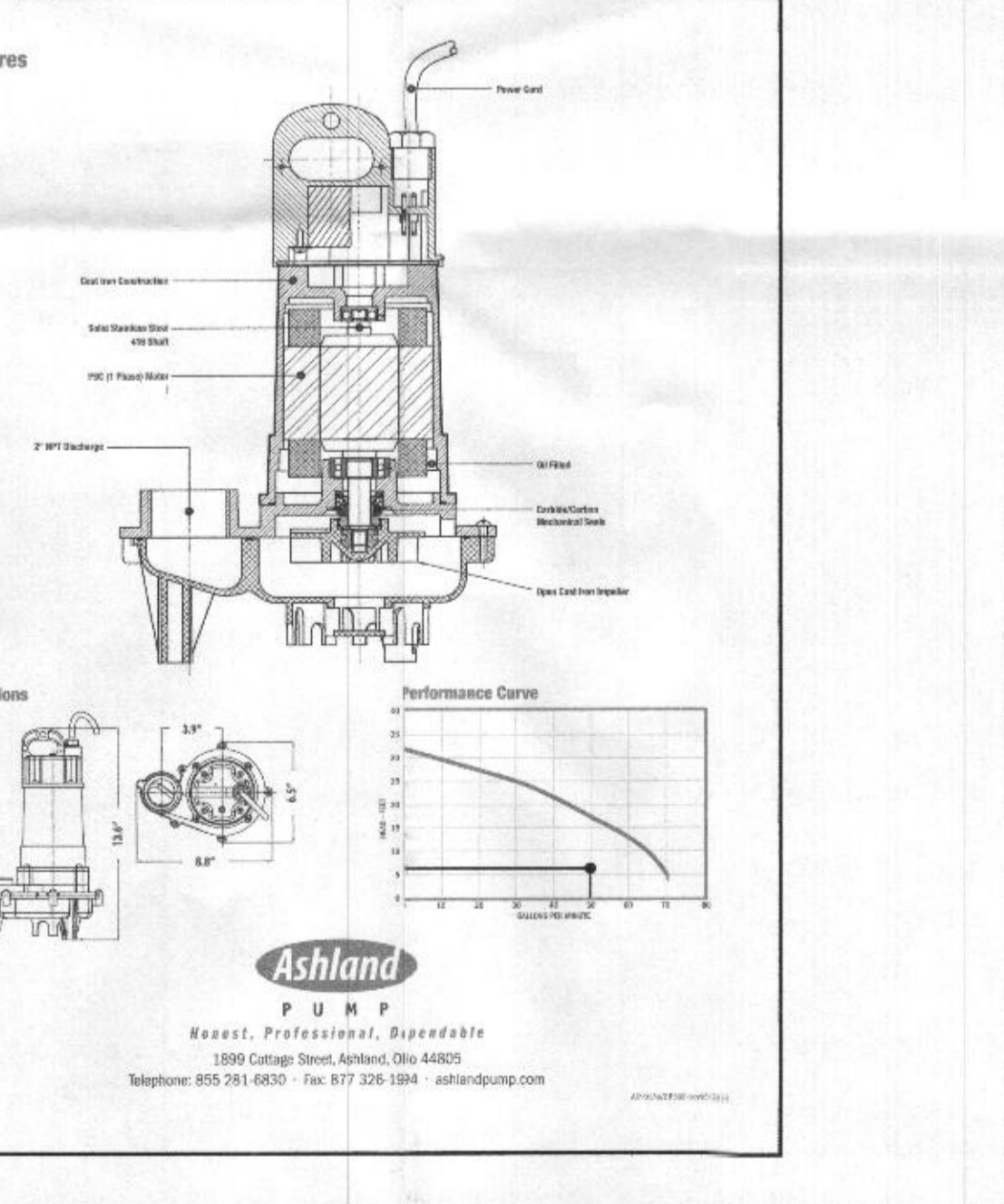
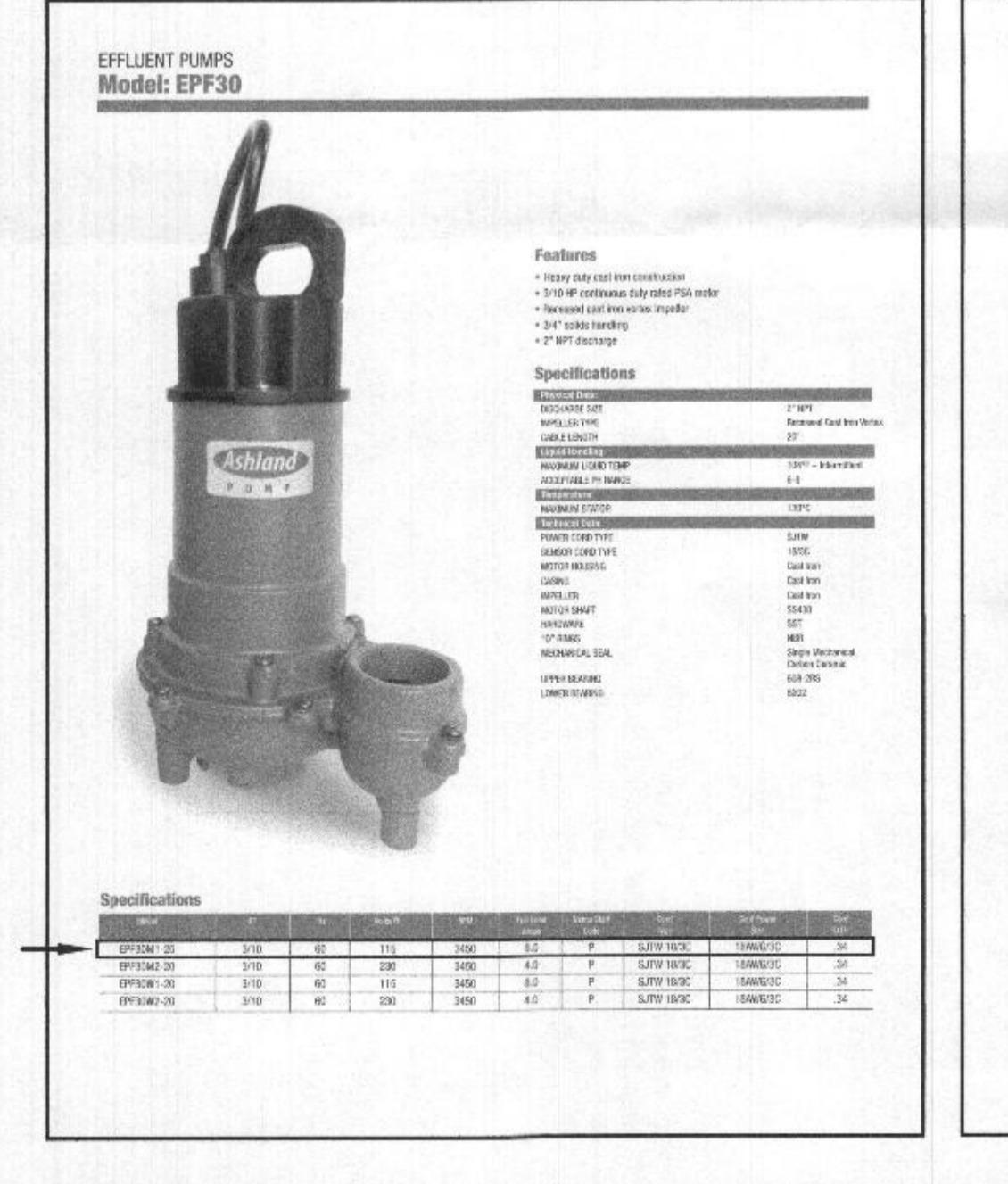
**GENERAL NOTES:**

- 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. RECODATION 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 "4" HAVE AN ACCURACY OF 4.01' 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 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.

*Approved Septic System Plan  
 Howard County Health Department  
 2000-gal Septic Tank w/ Ashland EPF30M pump  
 Gravity Drain Field for 6 Bedrooms  
 3/21/2022  
 Date  
 This OSDS Design Plan  
 supercedes previous OSDS  
 Design Plans due to changes  
 in grading. rcb*

**SOILS LEGEND**

SOIL	NAME	CLASS	Kw
GgB	GLENELG LOAM 3 TO 8 PERCENT SLOPES	B	28
GgC	GLENELG LOAM 8 TO 15 PERCENT SLOPES	B	28
MaC	MANOR LOAM 8 TO 15 PERCENT SLOPES	B	28



**LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS**

TRENCH 1 (T1) INV. ELEV. = 492.20' LENGTH = 82.50'

FORCEMAIN LENGTH = 21.00' TYPE-SCH40

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

DESIGN FLOW = 900 GPD  
 PUMP OFF ELEV. = 486.36'  
 INV. OUT PUMP TANK = 488.69'  
 PUMP BOTTOM ELEV. = 485.19'  
 PUMP SELECTED = 3/10 HP

MIN. APP. RATE = 1.225 SF  
 3" WIDE TRENCH WITH 66" GRAVEL BELOW PIPE = 82.50 LF MIN.  
 14" MIN. SPACING BETWEEN TRENCH EDGES = 82.50 LF MIN.

TYPE-SCH40 \*PUMPING FORCE MAIN 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  
 FRICTION LOSS (TABLE 4.4) = 0.58

LENGTH OF FM FROM PUMP TANK TO DISTRIBUTION BOX = 21.00'  
 LENGTH OF FM FROM DISTRIBUTION BOX TO TRENCHES = 61.50'  
 TOTAL LENGTHS = 82.50'

ADD 6' PER BEND = 6.00'  
 ADD 10' PER BEND = N/A  
 TOTAL ADD'L LENGTHS = 6.00'

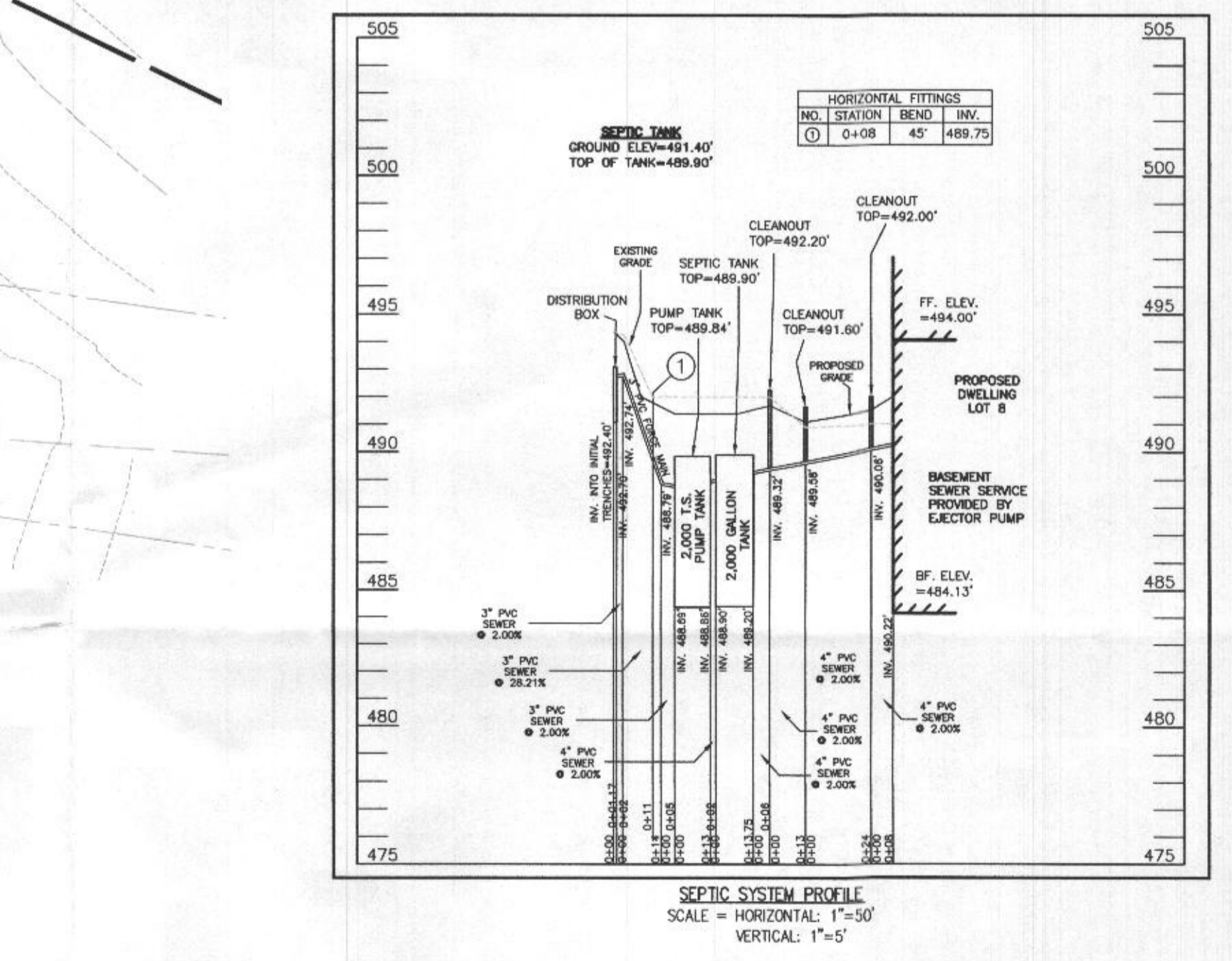
FRICTION HEAD = 0.16' FT. (PER ABOVE CALCULATION)  
 STATIC HEAD = 6.38' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOOR ELEVATION)  
 TOTAL DYNAMIC HEAD = 6.54' FT. (FRICTION HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 6.54' OF HEAD IS REQUIRED.  
 EPF30M1-20, 3/10 H.P. IS EFFICIENT

**SEWAGE DISPOSAL SYSTEM DATA (6 BDRM)**

PROPOSED INVERT AT FOUNDATION WALL: 490.22'

- EX. GRADE OVER TANK: 492.00'  
 PROPOSED GRADE OVER TANK: 491.40'  
 INVERT IN: 489.20' INVERT OUT: 488.90'
- DISTRIBUTION BOX  
 EXISTING GRADE OVER TANK: 494.40'  
 PROPOSED GRADE OVER TANK: 494.40'  
 INVERT IN: 492.70' INVERT OUT: 492.40'
- INITIAL TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)  
 900 GPD x 1.2 APP. RATE = 750 SF  
 USE 3" WIDE TRENCH WITH 66" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 750 SF x 3" WIDTH = 250 LF x 0.33 (SIDEWALL REDUCTION) = 82.50 LF MIN.  
 USE 1 82.50' LONG TRENCHES = 82.50 LF
- 1ST REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)  
 900 GPD x 1.2 APP. RATE = 750 SF  
 USE 3" WIDE TRENCH WITH 66" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 750 SF x 3" WIDTH = 250 LF x 0.33 (SIDEWALL REDUCTION) = 82.50 LF MIN.  
 USE 1 82.50' LONG TRENCHES = 82.50 LF
- 2ND REPLACEMENT TRENCH DESIGN (6 BDRM x 150 GPD/BDRM = 900 GPD)  
 900 GPD x 0.8 APP. RATE = 1,125 SF  
 USE 3" WIDE TRENCH WITH 66" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 1,125 SF x 3" WIDTH = 375 LF x 0.33 (SIDEWALL REDUCTION) = 123.75 LF MIN.  
 USE 2 82.50' LONG TRENCHES = 124 LF



**WELL LOCATION CERTIFICATION:**  
 THE EXISTING WELL SHOWN FOR LOT 8 (TAG NO. HO-18-0033) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

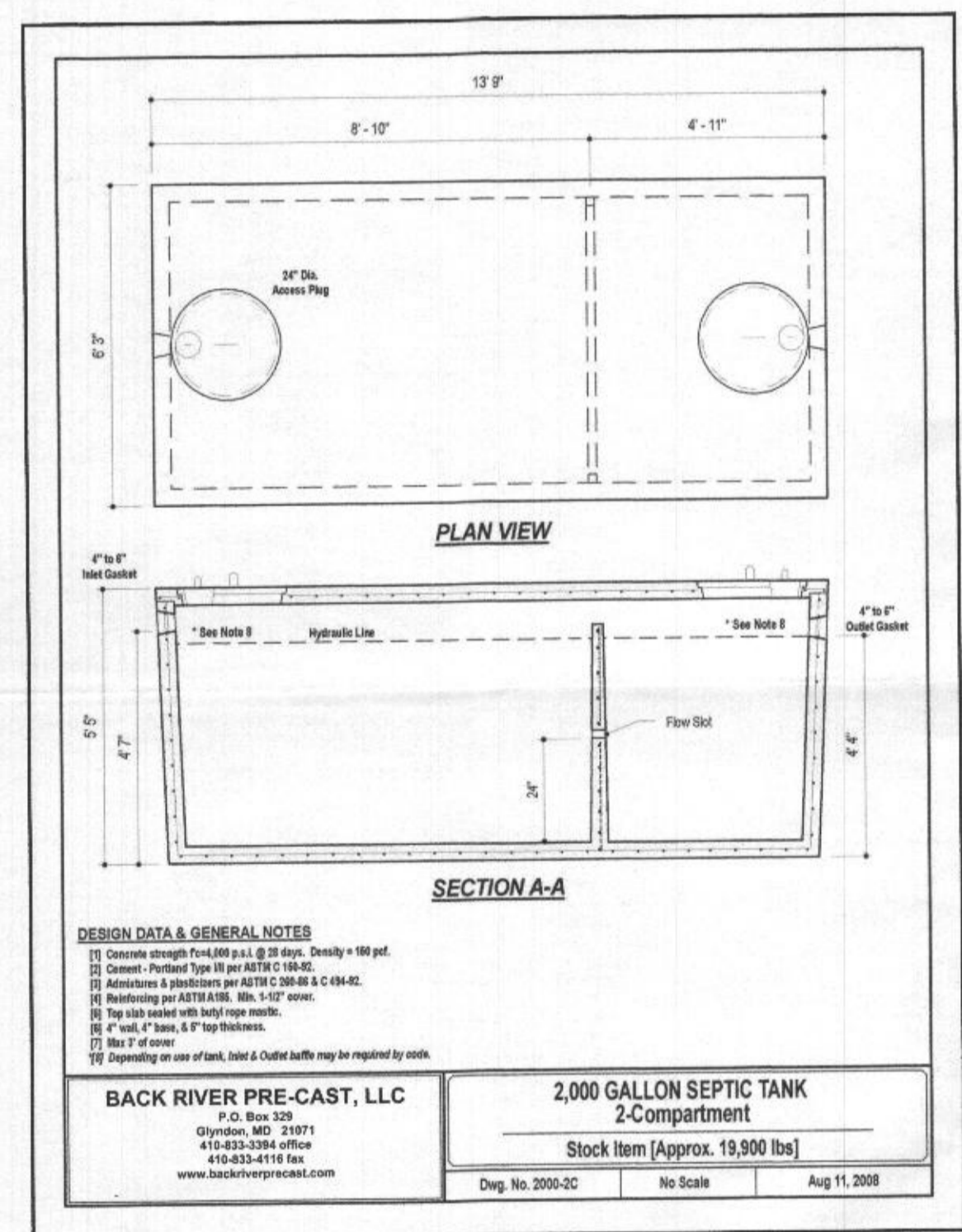
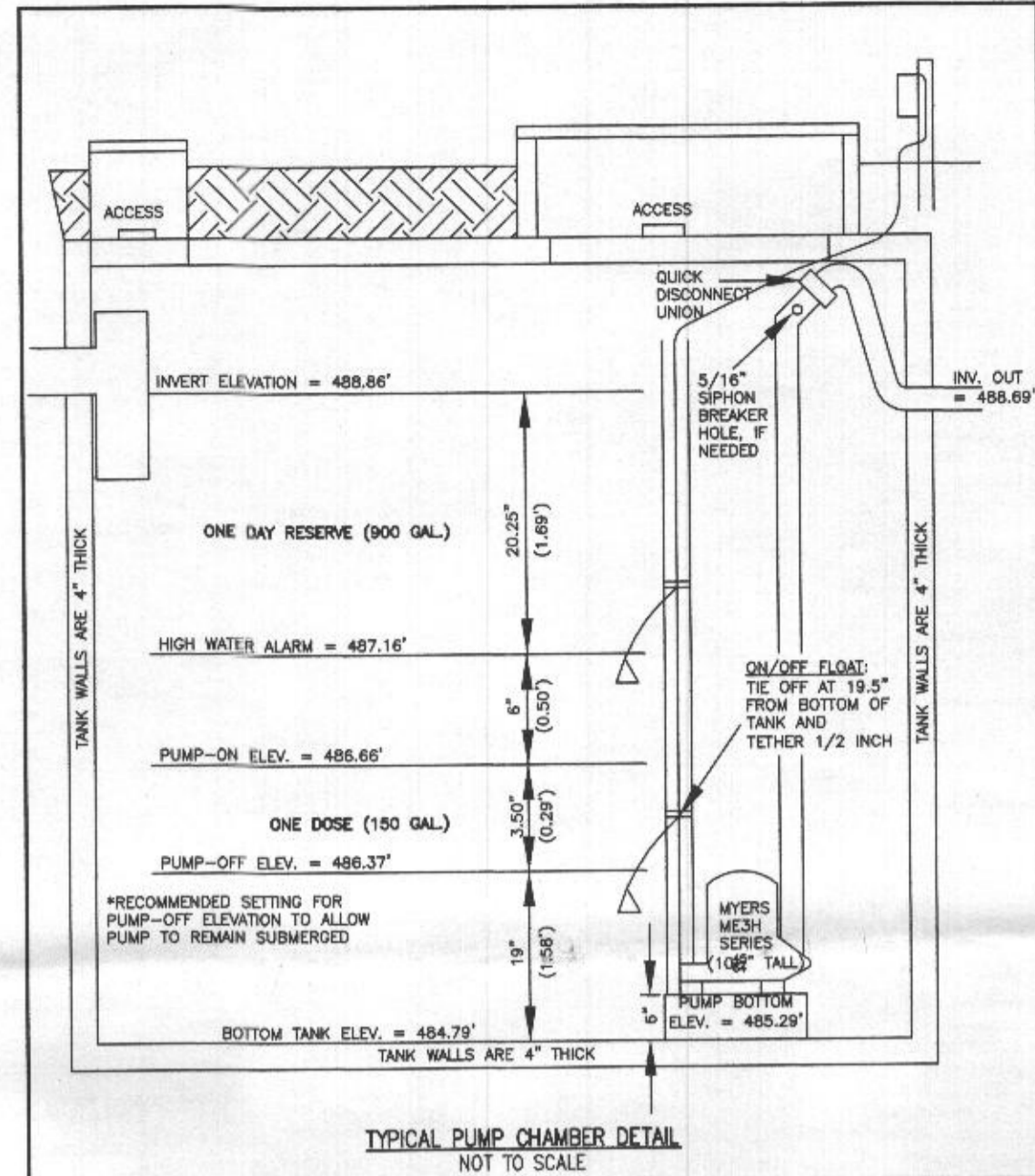
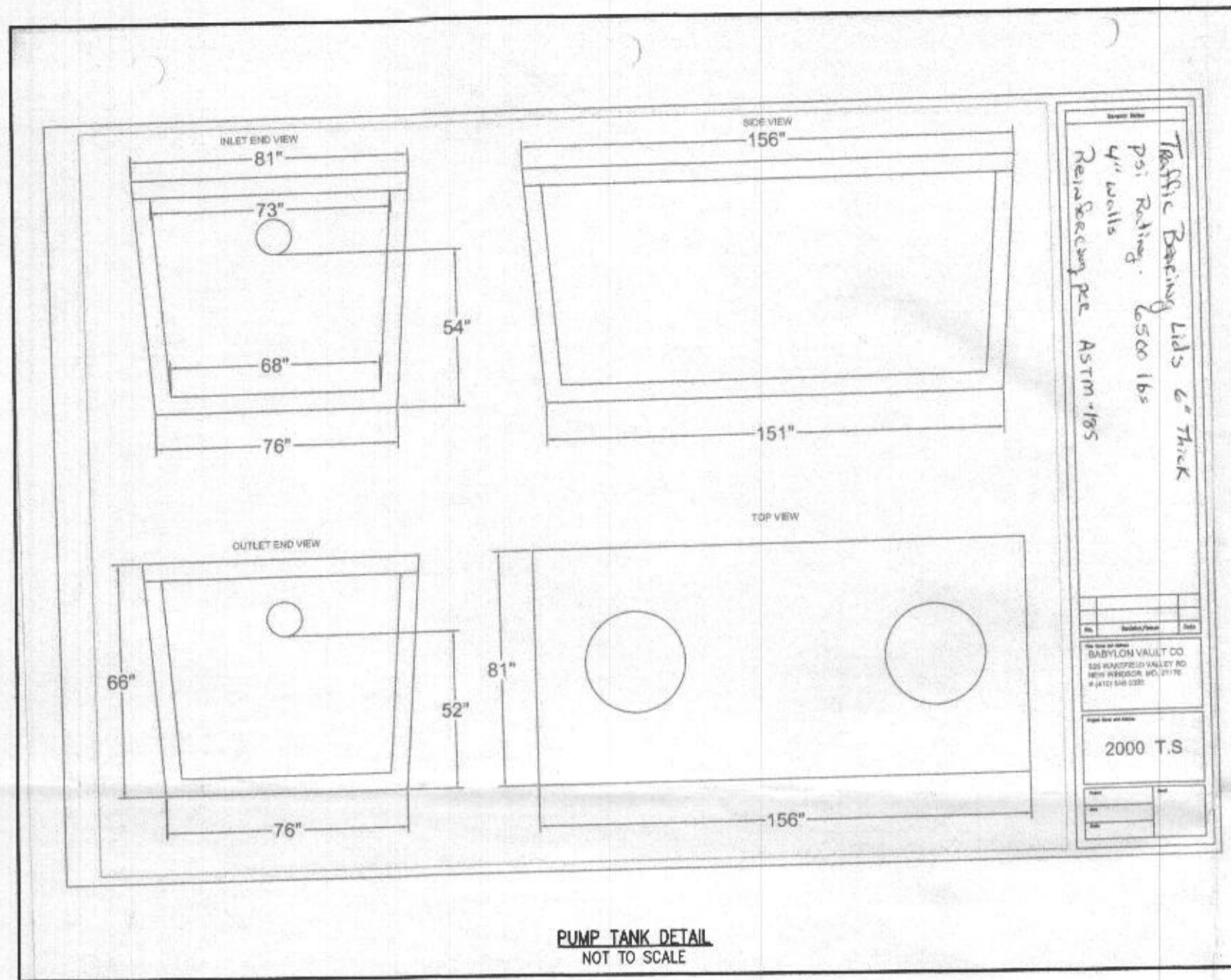
ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN  
**LOT 8 WILLOWSHIRE**  
 LIBER 18479, FOLIO 296  
 PLAT NO. 25503  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 6525 MARE COURT  
 DAYTON, MARYLAND 21036

**ESE CONSULTANTS**  
 ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

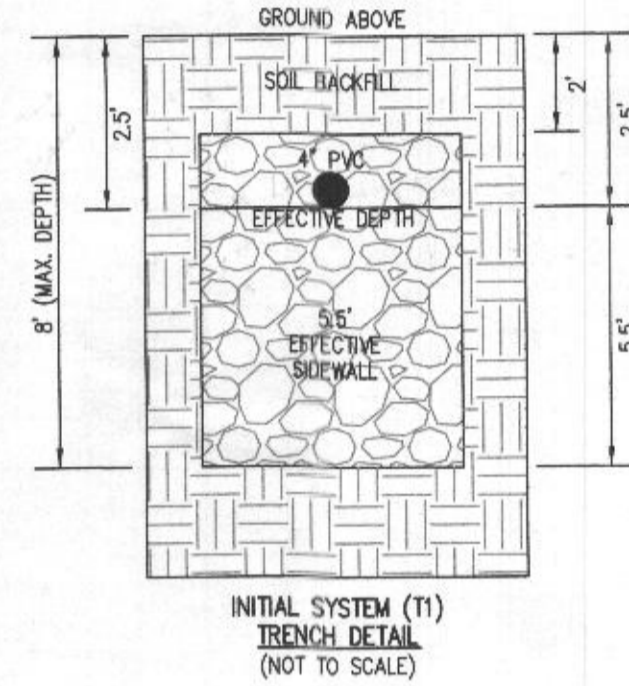
ESE Consultants, Inc.  
 6731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046  
 T: 410-872-9105

DATE: 02/08/2022 SCALE: 1"=50'  
 CHK'D: M.J.B. JOB NO: 4320 DRAWN: R.C.K.

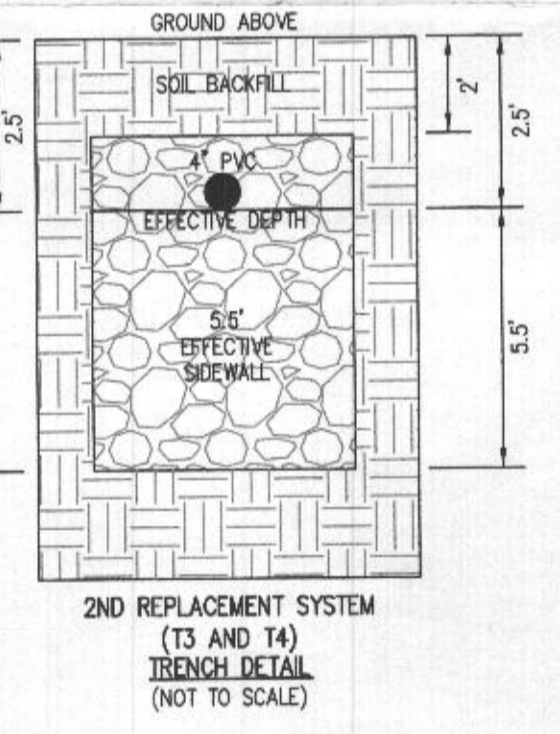
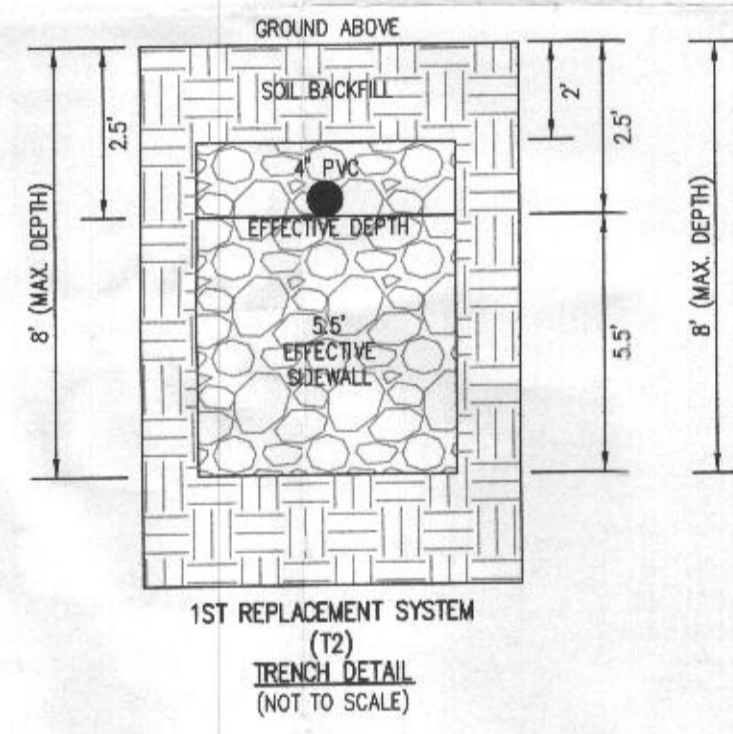




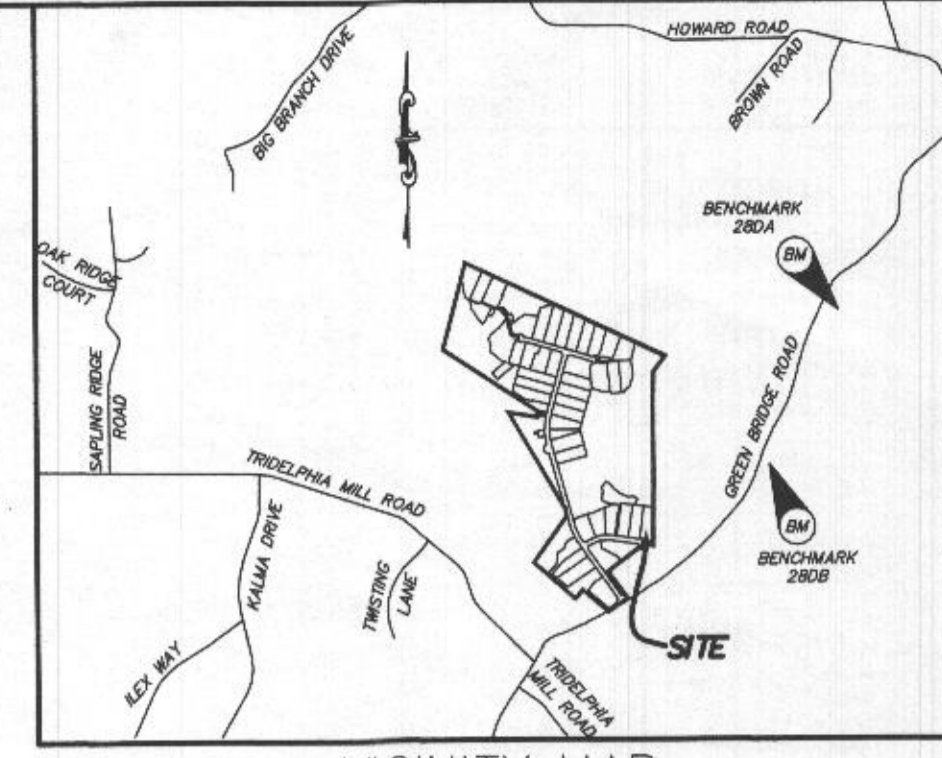
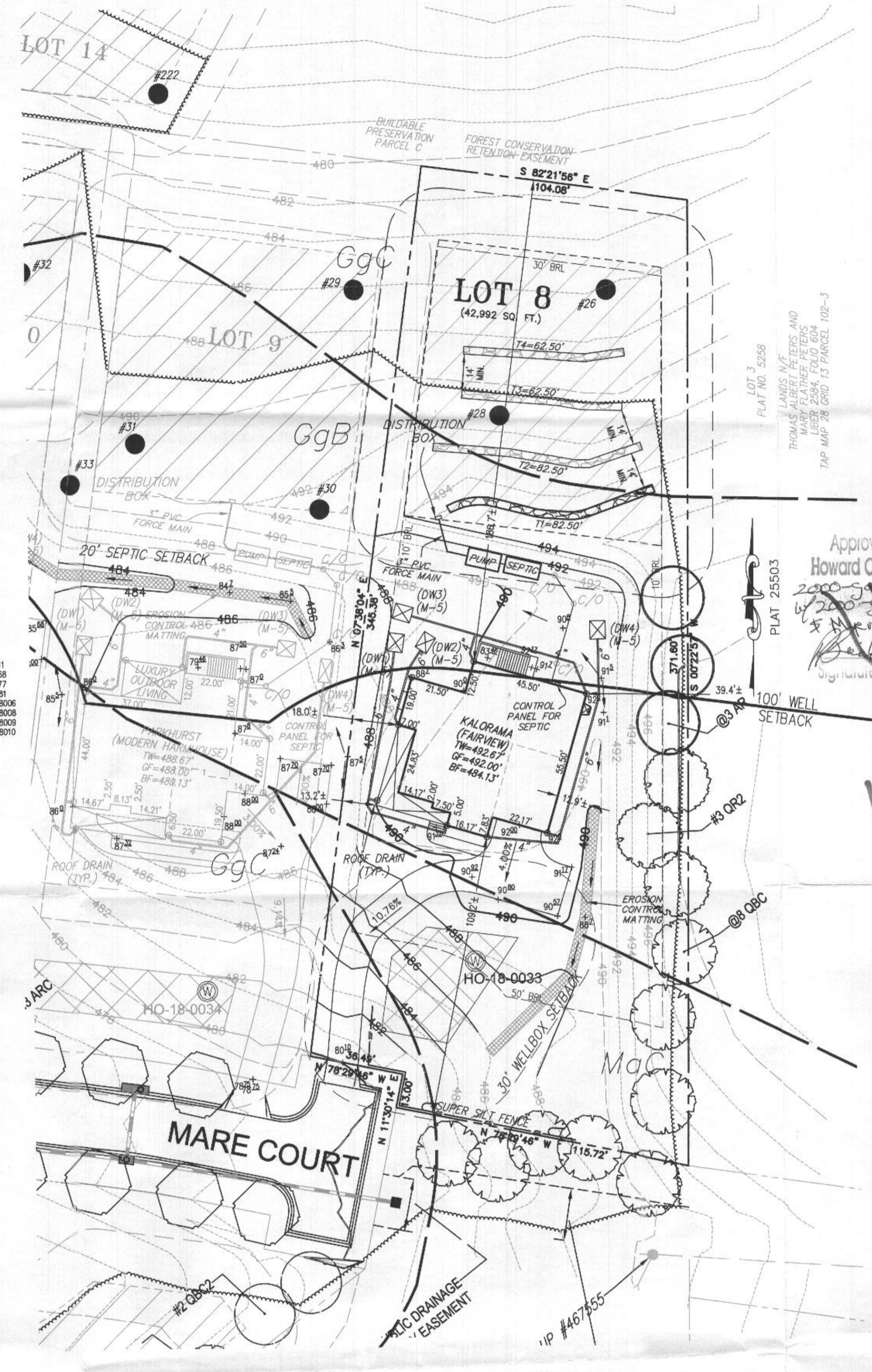
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 TRENCH 1 (T1) 82.50 LF  
 GROUND ABOVE = 494.70'  
 INV. IN = 492.20'  
 BOTTOM TRENCH = 486.70'



**HOUSE OPTIONS:**  
 HOUSE TYPE: KALORAMA (FAIRVIEW)  
 DAYLIGHT BASEMENT  
 EXPANDED CLOSET  
 PREP KITCHEN  
 PLANNING CENTER  
 FINISHED THIRD FLOOR WALK-UP SPACE WITH HALF BATH  
 WELLED WINDOW FOR DAYLIGHT BASEMENT  
 NET-BAR ROUGH-IN IN BASEMENT FOR FUTURE BAR  
 4 HOPPER WINDOWS INCLUDED IN BASEMENT  
 DOUBLE WIDE TAIL FOR DRIVEWAY



**LEGEND:**  
 ● PASSED PERC TEST LOCATION  
 ○ FAILED PERC TEST LOCATION  
 ○ EXISTING WELL LOCATION  
 ○ CLEANOUT  
 ○ TOP OF WALL  
 ○ GARAGE FLOOR  
 ○ BASEMENT FLOOR  
 ○ BRL BUILDING RESTRICTION LINE  
 ○ PRIVATE SEWAGE DISPOSAL AREA TO BE REMOVED  
 ○ PROPOSED TREE LOCATION  
 ○ EXISTING TREE LOCATION



**VICINITY MAP**  
 1" = 2000'  
 TAX MAP 27, GRID 18  
 BENCHMARK 280A  
 N: 570,624.997, E: 1,313,434.228, EL: 564.389'  
 BENCHMARK 280B  
 N: 569,055.561, E: 1,313,795.348, EL: 537.361'

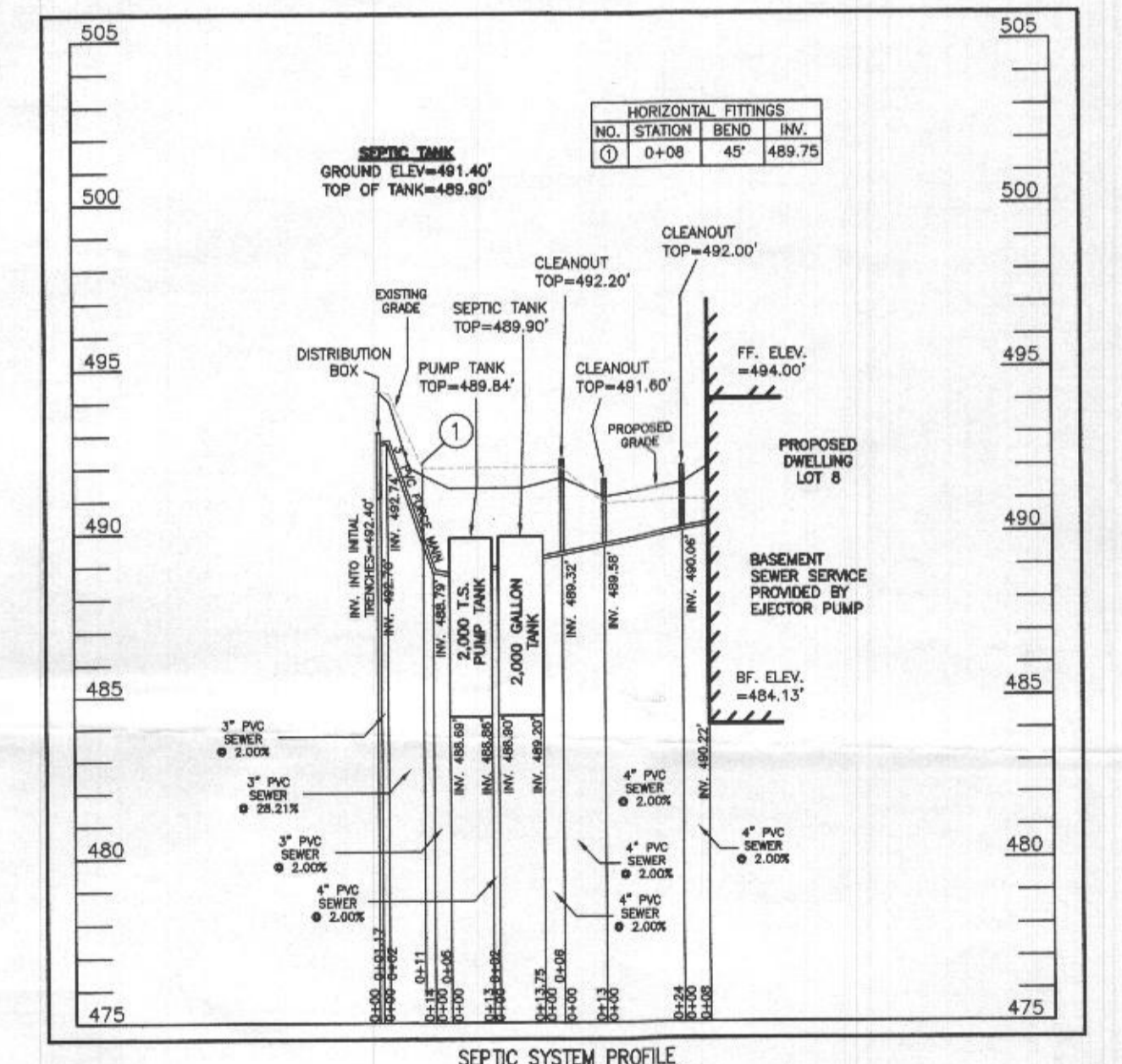
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  - EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
  - ANY CHANGES TO A PRIVATE SEWAGE 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 "2" 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 COMPLES 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 GS AND A TOPOGRAPHIC SURVEY PREPARED BY BOILER 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
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	28
MnC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	28

Approved septic system Plan  
 Howard County Health Department  
 2000 Gallon Tank  
 5' x 10' x 3' ME3  
 5/7/21

Revised luxury outdoor area



**WELL LOCATION CERTIFICATION:**  
 THE EXISTING WELL SHOWN FOR LOT 8 (TAG NO. HO-18-0033) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**  
 LOT 8  
 WILLOWSHIRE  
 LIBER 18479, FOLIO 296  
 PLAT NO. 25503  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 8525 MARE COURT  
 DAYTON, MARYLAND 21036

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 ESE Consultants, Inc.  
 7164 Columbia Gateway Drive • Suite 230 • Columbia, MD 21046  
 T: 410-872-9105

DATE: 05/06/2021 SCALE: 1"=30' FILE: OSDS LOT 8  
 CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.

**MYERS' ME3 SERIES**  
 The Myers' ME3 series submersible effluent pumps are constructed of the most durable combination of materials to withstand the harshest environments. The ME3 is available with a recessed impeller for high-head applications or an enclosed impeller for high-flow installations. Available in tethered automatic piggyback models or manual models for use with external controls.

**OPERATION:**  
 Effluent removal, pump drainage, water transfer, float control.

**FEATURES:**  
 The Powerful Pump: High head (MCH), high flow (MCH) Maximum Heat-handling: Durable, all-steel motor for continuous bearing lubrication and maximum heat dissipation. Powerful Start: High-torque, no starting switches or relay in motor coil. Thermal Protection: Heat sensor overload protection with automatic reset when motor cools to a safe operating temperature.

**OPERATIONS:**  
 Longer-Lasting Motor: Lower ball bearing eliminates sleeve bearing wear and reduces motor wear. Manual Operation: Tethered automatic models can be operated manually by unbolting piggyback switch and plugging pump directly into wall.

**OPERATIONS:**  
 Capacity (liters per minute) vs. Head (meters)

**MYERS' ME3 SERIES**

Model	HP	Flow (GPM)	Head (ft)	Discharge Size	Switch Type	Control	Approx. Wt. (lb)
ME3-10	1/2	100	10	1 1/2"	Manual	20	10
ME3-15	3/4	150	15	2"	Manual	30	15
ME3-20	1	200	20	2 1/2"	Manual	40	20
ME3-25	1 1/2	250	25	3"	Manual	50	25
ME3-30	2	300	30	3 1/2"	Manual	60	30
ME3-35	2 1/2	350	35	4"	Manual	70	35
ME3-40	3	400	40	4 1/2"	Manual	80	40
ME3-45	3 1/2	450	45	5"	Manual	90	45
ME3-50	4	500	50	5 1/2"	Manual	100	50

**OPERATIONS:**  
 Capacity (liters per minute) vs. Head (meters)



**LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS**

FLOW = 50 GPM  
 TIME DOSE = 50 GPM @ 3 MINUTE INTERVALS IS 150 GALLONS PER DOSE  
 TOTAL DOSE PER DAY = 150 GALLONS X 6 EVENTS PER DAY IS 900 GPD

TRENCH 1 (T1) INV. ELEV.=492.20' LENGTH=82.50'

FORCEMAIN LENGTH = 21.00' TYPE=SC340

MIN. SYSTEM DISCHARGE RATE = 50 GPM  
 MANIFOLD DIAMETER = 3" IN. VELOCITY = 2.17 FPS FRICTION LOSS (TABLE 4.4) = 0.58  
 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 TANK TO DISTRIBUTION BOX = 21.00' (ADD 6' PER BEND) = 6.00'  
 # OF (45°) BENDS IN FM = 1 (ADD 10' PER BEND) = 10.00' TOTAL PIPE/LENGTHS = 21.00' FRICTION LOSS = 27.00'  
 TOTAL ADD'L LENGTHS = 6.00' FRICTION LOSS = 0.58'  
 ((50 GPM OF 3" PVC = 0.58 PER 100' PIPE); 0.58 / 100' = 0.0058 X 27.00' = 0.16')

FRICTION HEAD = 0.16' FT. (PER ABOVE CALCULATION)  
 STATIC HEAD = 6.37' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLUAT ELEVATION)  
 TOTAL DYNAMIC HEAD = 6.53' FT. (FRICTION HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 50 GPM AGAINST 6.53' OF HEAD IS REQUIRED.  
 ME3H1P, 1/3 H.P. IS EFFICIENT

**SEWAGE DISPOSAL SYSTEM DATA (6 BORM)**

PROPOSED INVERT AT FOUNDATION WALL: 490.22'

1. EX. GRADE OVER TANK: 492.00'  
 PROPOSED GRADE OVER TANK: 491.40'  
 INVERT IN: 489.20' INVERT OUT: 488.90'

2. DISTRIBUTION BOX  
 EXISTING GRADE OVER TANK: 494.40'  
 PROPOSED GRADE OVER TANK: 494.40'  
 INVERT IN: 492.70' INVERT OUT: 492.40'

3. INITIAL TRENCH DESIGN (6 BORM X 150 GPD/BORM = 900 GPD)  
 900 GPD X 1.2 APP. RATE = 750 SF  
 USE 3" WIDE TRENCH WITH XX" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 750 SF X 3" WIDTH = 250 LF X 0.33 (SIDEWALL REDUCTION) = 82.50 LF MIN.  
 USE 1 82.50' LONG TRENCHES = 82.50 LF

4. 1ST REPLACEMENT TRENCH DESIGN (6 BORM X 150 GPD/BORM = 900 GPD)  
 900 GPD X 1.2 APP. RATE = 750 SF  
 USE 3" WIDE TRENCH WITH XX" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 750 SF X 3" WIDTH = 250 LF X 0.33 (SIDEWALL REDUCTION) = 82.50 LF MIN.  
 USE 1 82.50' LONG TRENCHES = 82.50 LF

5. 2ND REPLACEMENT TRENCH DESIGN (6 BORM X 150 GPD/BORM = 900 GPD)  
 900 GPD X 0.8 APP. RATE = 1,125 SF  
 USE 3" WIDE TRENCH WITH XX" GRAVEL BELOW PIPE  
 14" MIN. SPACING BETWEEN TRENCH EDGES  
 1,125 SF X 3" WIDTH = 375 LF X 0.33 (SIDEWALL REDUCTION) = 123.75 LF MIN.  
 USE 2 62' LONG TRENCHES = 124 LF