

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

Facebook: www.facebook.com/hocohealth

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

RECEIPT DATE: 11-3-22 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 572680

APPROVAL DATE: 3/6/2023 **PERMIT: CONSTRUCTION**

A

PROPERTY ADDRESS: 7016 Colt Place

SUBDIVISION: Willonshire LOT: 32 TAX ID:

CONTRACTOR: Rodgers Septic Clean Inc EMAIL: kimg@rodgersinc.com

CONTRACTOR ADDRESS: 580 Oberlin Rd, Sykesville, MD 21784 PHONE: 410-755-0678

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER: Norweco

PROPERTY OWNER: Toll Mid Atlantic EMAIL:

OWNER ADDRESS: 250 Gibraltar Rd Hersham PA PHONE: 410-872-9105

BAT UNIT MODEL: Norweco 750 PUMP SIZE: 0.5 HP PUMP TANK CAPACITY: 2,000

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 8.31.22 DATE RECORDED: 8.31.22

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 6 APPLICATION RATE: 0.8

TRENCHES:	LINEAR FEET REQUIRED:	142.50	INLET DEPTH:	2.5
	TRENCH WIDTH:	2	MAXIMUM BOTTOM DEPTH:	7
	MINIMUM SPACE BETWEEN TRENCHES:	12	EFFECTIVE AREA BEGINNING DEPTH:	2.5

LOCATION: PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.

NOTES: BAT = LPD Design

ISSUED BY: Hank Oswald ISSUE DATE: 9/1/2022 EXPIRATION DATE: 11-3-23

- 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 SEPTIC 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 22006295
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.  
 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.  
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE

see

Attached

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
2'	2.5'	
NUMBER OF TRENCHES 2 (CENTER FEED)		
TOTAL LENGTH 144 F		
ABSORPTION AREA 288 SF + 45'		
DISTRIBUTION BOX LEVEL MANIF.		
DISTRIBUTION BOX BAFFLE -		
DISTRIBUTION BOX PORT -		

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL	YES
MANUFACTURER	Backflow
CAPACITY	1110 GAL
SEAM LOC	TOP
TANK LID DEPTH	~2'
BAFFLES	BAT
BAFFLE FILTER	BAT
MANHOLE LOC	FRONT/MID/BACK
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	BAT
DATE ON LID	
PUMP/SEPTIC TANK LEVEL	YES
MANUFACTURER	BARBULON
CAPACITY	2000 GAL
SEAM LOC	TOP
TANK LID DEPTH	~2'
BAFFLES	-
BAFFLE FILTER	-
MANHOLE LOC	BACK
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	-
DATE ON LID	02/14/2022

NORWECO

PRE-CONSTRUCTION:

11/22/2022 - on site for inspection. SDA properly staked. Tank properly staked. FM properly staked. Trenches had to be slightly adjusted. SPUR

INSTALLATION:

11/23/2022 SHC INSTALLED, DL INSTALLED. BAT TANK SET UP  
11/28/2022 Trenches installed; forced main installed.

\* Initial pump tank had 2x crack 1x under inlet 1x under outlet AND a 6" drainage hole (5" from tank bottom) on the right side of tank. Gave contractor option of watertight test or replace tank. Contractor opted to replace tank.

3/3/2023 - Heard Alarm outside of House & saw light flash. Panels used were WASP. Distal head well above 2', 1 @ 3 + 1/2 @ 3 + 1/3 @ 4 + 1/4 @ 4 +. Respect for lateral covering

FINAL INSPECTOR

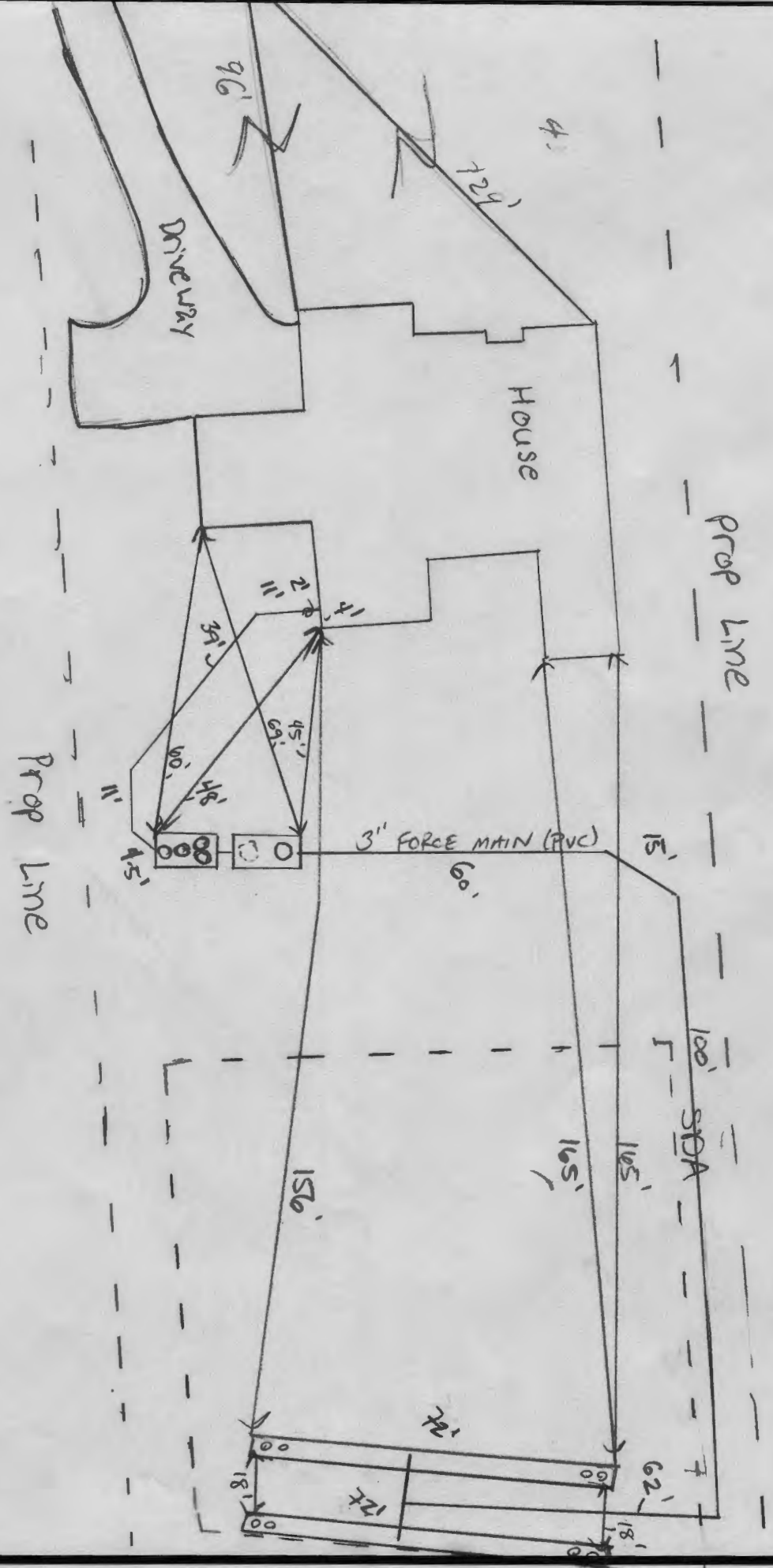
Shepsura Page

DATE OF APPROVAL

3/6/2023

3/6/2023 - saw covering on lateral.

COIT PLACE  
W HO-18-0077



NOT TO SCALE 1" ≈ 30'

## Oswald, Hank

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**From:** Oswald, Hank  
**Sent:** Monday, August 22, 2022 1:23 PM  
**To:** Ryan Ketner  
**Subject:** Bat Plan\_7016 Colt Place\_Lot 30

Hi Ryan:

The BAT Plan for 7016 Colt Place (Lot 30) has been reviewed with the following comments:

- 1.) Update chart to center feed design. The chart should show 4 trenches and 4 laterals.
- 2.) Label each trench in the layout with the trench # or whatever you decide to use in the chart.

Please let me know if you have any questions.

Thanks,

Hank

Hank Oswald, L.E.H.S.  
Howard County Health Department  
Well & Septic Program  
410.313.1786  
hoswald@howardcountymd.gov



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

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

**OPERATION AND MAINTENANCE AGREEMENT  
FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM  
HAVING AN ADVANCED PRE-TREATMENT SYSTEM**

THIS AGREEMENT is made this 29<sup>th</sup> day of Aug., among \_\_\_\_\_  
Ronak Patel, Shruti Patel, hereinafter collectively referred to as  
"Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at  
lot 30, 7016 Colt Pl. Dayton, MD 21036, in the 5<sup>th</sup> Election District of Howard  
County, Maryland, and the deed and subdivision plat of the property is recorded among the Land  
Records of Howard County, Maryland, Tax Map # 27, Block # 18, Parcel # 36, Deed  
Reference # 25500-09 and Tax Account # 603018 ("the Property").

WHEREAS, The Property is suitable for the installation of a conventional on-site sewage  
disposal system with an advanced pre-treatment system, utilizing best available technology to  
perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07,  
effective November 24, 2016. The pre-treatment device being installed is

Norweco Model TNTLP-750 GPD

NOW, THEREFORE, the parties hereto agree as follows:

A. Owner hereby grants to the County the right to enter upon the Property at any reasonable time  
with prior notice for access to the system to make periodic inspections and the Owner agrees to  
provide any information and data in Owner's possession reasonably requested and needed by the  
County.

B. Owner acknowledges and agrees that neither the County nor any of its agents or employees,  
either officially or individually, underwrites the operation of any system approved by them.

C. The Owner will devote reasonable care and effort to the operation and maintenance of the  
system in perpetuity or until a public sewer connection is made so that a system malfunction is  
not the result of poor maintenance, faulty operation, or neglect.

D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County  
with a private entity to operate and maintain on a regularly scheduled basis an approved  
advanced pre-treatment system. The owner shall supply a copy of the contract to the County  
when it is renewed or altered.

E. This agreement shall run with the land and upon Owner's taking title to the Property shall  
bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as long as

the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Property that the system shall require maintenance or other attention. Upon taking title to the Property, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

F. This agreement shall not be construed to limit any authority of the County to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

G. This agreement may be voided at any time at the discretion of the County.

H. This agreement contains the entire agreement and understanding between the County and the Owner. There are no additional terms other than as contained in this agreement. This agreement may not be modified, except in writing signed by each of the parties or by their authorized representatives.

I. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

IN WITNESS WHEREOF, the parties have signed this agreement on the date indicated above.

*[Signature]* 8/31/22  
Howard County Health Department

X Ronak Patel 8-29-22  
Owner #1 Signature Date

X *[Signature]* 8/29/22  
Owner #2 Signature Date

X Ronak Patel  
Owner #1 Print Name

X Shruti Patel  
Owner #2 Print Name

\_\_\_\_\_  
Buyer #1 Signature Date

\_\_\_\_\_  
Buyer #2 Signature Date

\_\_\_\_\_  
Buyer #1 Print Name

\_\_\_\_\_  
Buyer #2 Print Name

## Ryan Ketner

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**From:** Oswald, Hank <hoswald@howardcountymd.gov>  
**Sent:** Thursday, June 16, 2022 8:14 AM  
**To:** Michael Boyce; Ryan Ketner  
**Subject:** BAT Plan\_7016 Colt Place\_Willowshire Lot 30

Hello:

The BAT plan for 7016 Colt Place, Willowshire Lot 30 has been reviewed with the following comments:

1. Change to center feed design. (Trenches longer than 51 feet have a central manifold distribution system.) *DONE*
2. Provide separate chart for trench design. *DONE*
3. Provide emergency storage calculation. *DONE*
4. Show a manifold distribution network figure on plan for this design. *DONE*

Thanks,

Hank

Hank Oswald, L.E.H.S.  
Howard County Health Department  
Well & Septic Program  
410.313.1786  
hoswald@howardcountymd.gov

## Ryan Ketner

---

**From:** Oswald, Hank <hoswald@howardcountymd.gov>  
**Sent:** Wednesday, July 20, 2022 8:50 AM  
**To:** Ryan Ketner  
**Cc:** Silvast, Zackary  
**Subject:** RE: 4520 Willowshire Septic Plans Lots 27 and 29

Hi Ryan:

Can you make sure that the emergency storage calculation is on the next LPD design plan? I could have missed it. I just need to see how you arrived at the #. Also, Flow per LF of trench is calculated by taking the Trench Flow Rate/Length of Trench (not lateral length). *DONE*

Thanks,

Hank

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**From:** Nathan Brandenburg <NBRANDENBURG@tollbrothers.com>  
**Sent:** Tuesday, July 19, 2022 3:44 PM  
**To:** Oswald, Hank <hoswald@howardcountymd.gov>; Ryan Ketner <rketner@eseconsultants.com>; Silvast, Zackary <zsilvast@howardcountymd.gov>  
**Cc:** Michael Boyce <MBOYCE@eseconsultants.com>  
**Subject:** RE: 4520 Willowshire Septic Plans Lots 27 and 29

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Thanks for your assistance Hank!

**Nathan Brandenburg**  
**Director of Production & Quality, DC Metro Division**  
Toll Brothers  
12020 Sunrise Valley Drive, Suite 200, Reston, Virginia 20191



**Toll Brothers**

#1 HOME BUILDER  
**FORTUNE WORLD'S MOST  
ADMIRABLE COMPANIES  
2022**

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**From:** Oswald, Hank <hoswald@howardcountymd.gov>  
**Sent:** Tuesday, July 19, 2022 1:40 PM  
**To:** Ryan Ketner <rketner@eseconsultants.com>; Silvast, Zackary <zsilvast@howardcountymd.gov>

Clerk of the Circuit Court for  
Howard County

9250 Judicial Way,  
Ellicott City, MD 21043  
410-313-2111

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LR - Agreement Recording Fee  
1x 20.00 20.00

Name: Patel  
Ref: 46

LR - Agreement Surcharge  
1x 40.00 40.00  
LR - Agreement Recording Fee  
1x 20.00 20.00

Name: Nguyen  
Ref: 47

LR - Agreement Surcharge  
1x 40.00 40.00

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SubTotal: 120.00  
Total: 120.00

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CRD-Credit 120.00  
Credit Card Confirmation : 065491

08/31/2022 11:52  
#16567983/494/4

CC13-YW

Thank you for visiting us today~



BACK RIVER PRE-CAST, LLC  
 PO BOX 329  
 GLYNDON, MD 21071  
 PH# 410-833-3394

**NORWECO CERTIFICATION**

PROPERTY OWNER: TOLL MID-ATLANTIC	INSTALLATION COMPANY: FOGLES SEPTIC
ADDRESS: 7016 COLT PLACE	CERTIFIED INSTALLER: JAMIE DEAVERS
CITY, ZIPCODE & COUNTY: DAYTON, 21036, HOWARD	PERMIT#
SIZE OF SYSTEM INSTALLED:	DATE INSTALLED: 11-23-22
750 GPD CONCRETE	START-UP DATE: 02-16-23
NUMBER OF BEDROOMS:	DATE OF FINAL INSPECTION:
TYPE OF INSTALLATION: NEW	DATE OF ELECTRICAL INSPECTION:
ELECTRICAL WIRING PER ELECTRICAL INSTRUCTIONS: YES	TANK LEVEL: YES
HT. OF CONTROL PANEL ABOVE FINAL GRADE: 48"	BURIAL DEPTH OF TANK: 30"
SYSTEM WIRED ON A 15-AMP DEDICATED CIRCUIT WITH STD. BREAKER: YES	RISERS 4" - 6" ABOVE GRADE: YES
LENGTH(S) OF UF WIRE PAST LAST AERATION RISER(S): 30"	VENTED LID(S) ON AERATION CHAMBER(S): YES
FEMALE PLUG(S) WIRED TO UF WIRE: YES	ANY GROUND SETTLING AROUND TANK: NO
CONDUIT(S) ENTERING AERATION RISER MADE WITH A WATERTIGHT CONNECTION: YES	
ISTHE INSIDE OF THE CONDUIT ENTERING THE CONTROL PANEL(S) AND AERATION RISER(S) SEALED WITH DUCT SEAL: YES	

ON 2<sup>ND</sup> PAGE MAKE A ROUGH SKETCH OF THE HOUSE ,WHERE THE SYSTEM IS LOCATED, WHERE THE CONTROL PANEL IS LOCATED , WHERE THE FRONT OF THE IS AND DIRECTIONS TO THE PROPERTY.

DIRECTIONS CAN START A FEW STREETS AWAY

EXAMPLE: RT. X LEFT ONTO XX STREET RIGHT ONTO PRIVATE DRIVEWAY 5<sup>TH</sup> HOUSE OF THE LEFT.

I certify that the Norweco Singulair TNT Wastewater Treatment System was installed according to the manufacture's specifications.

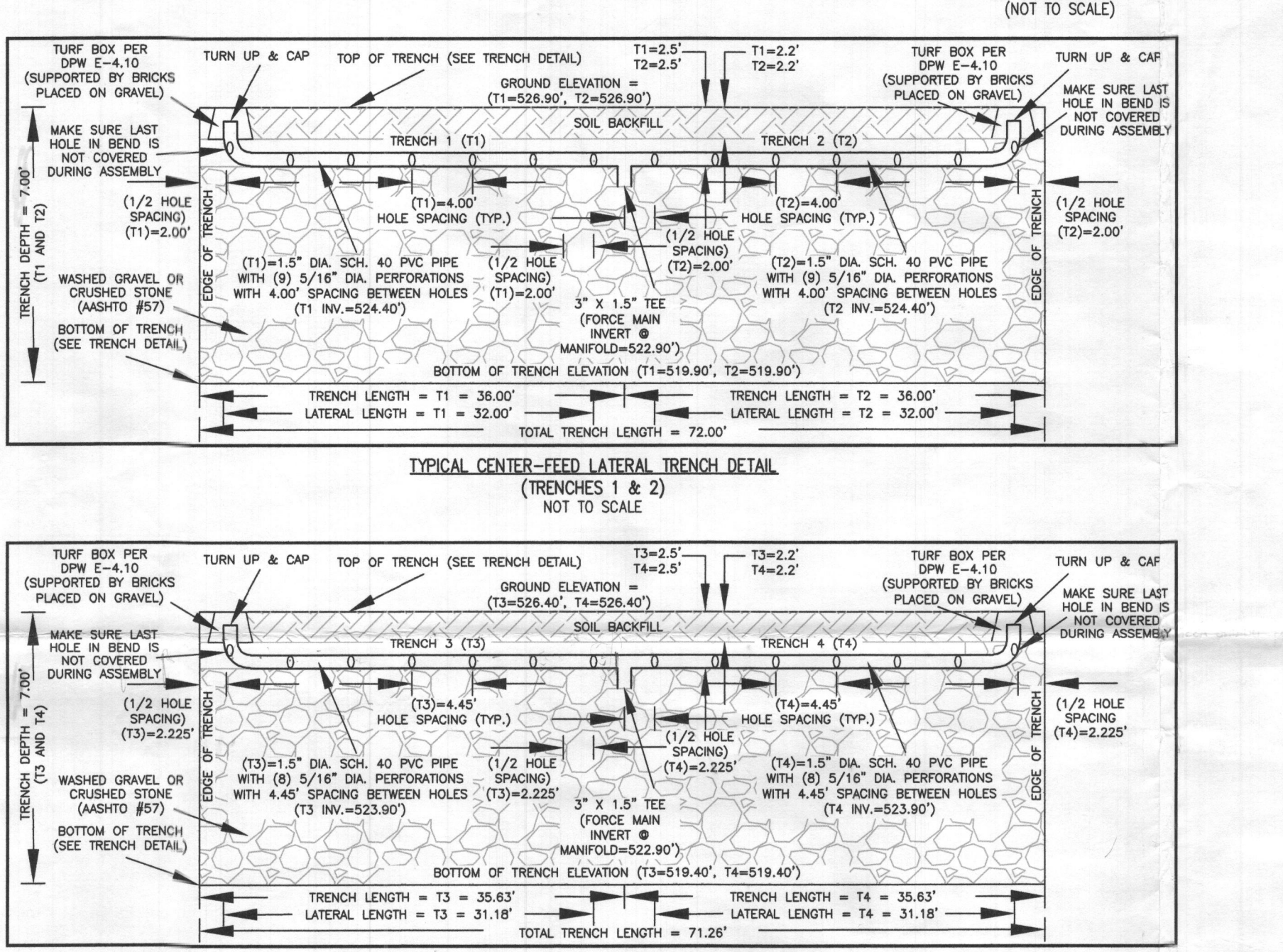
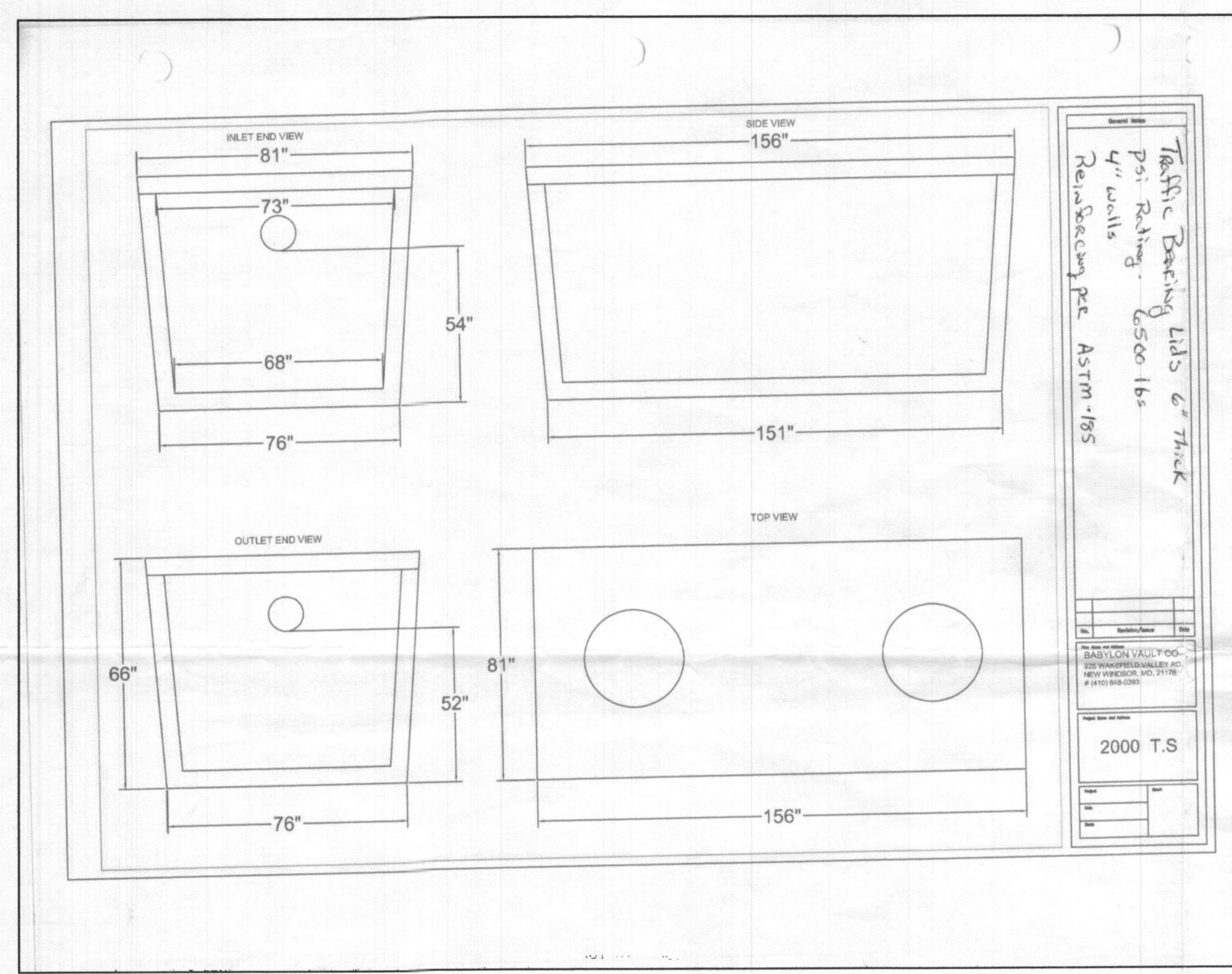
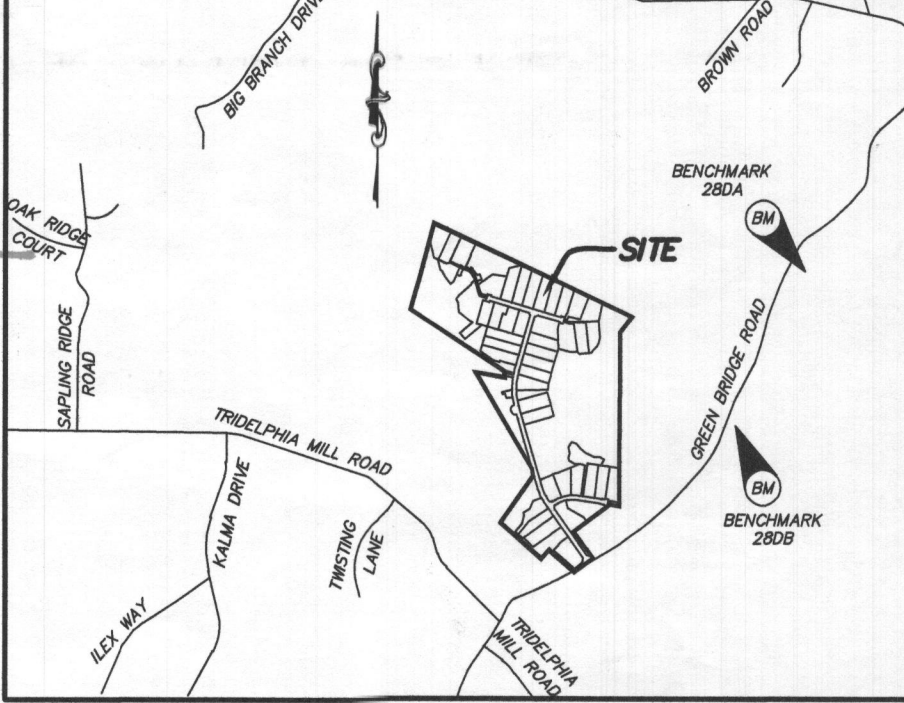
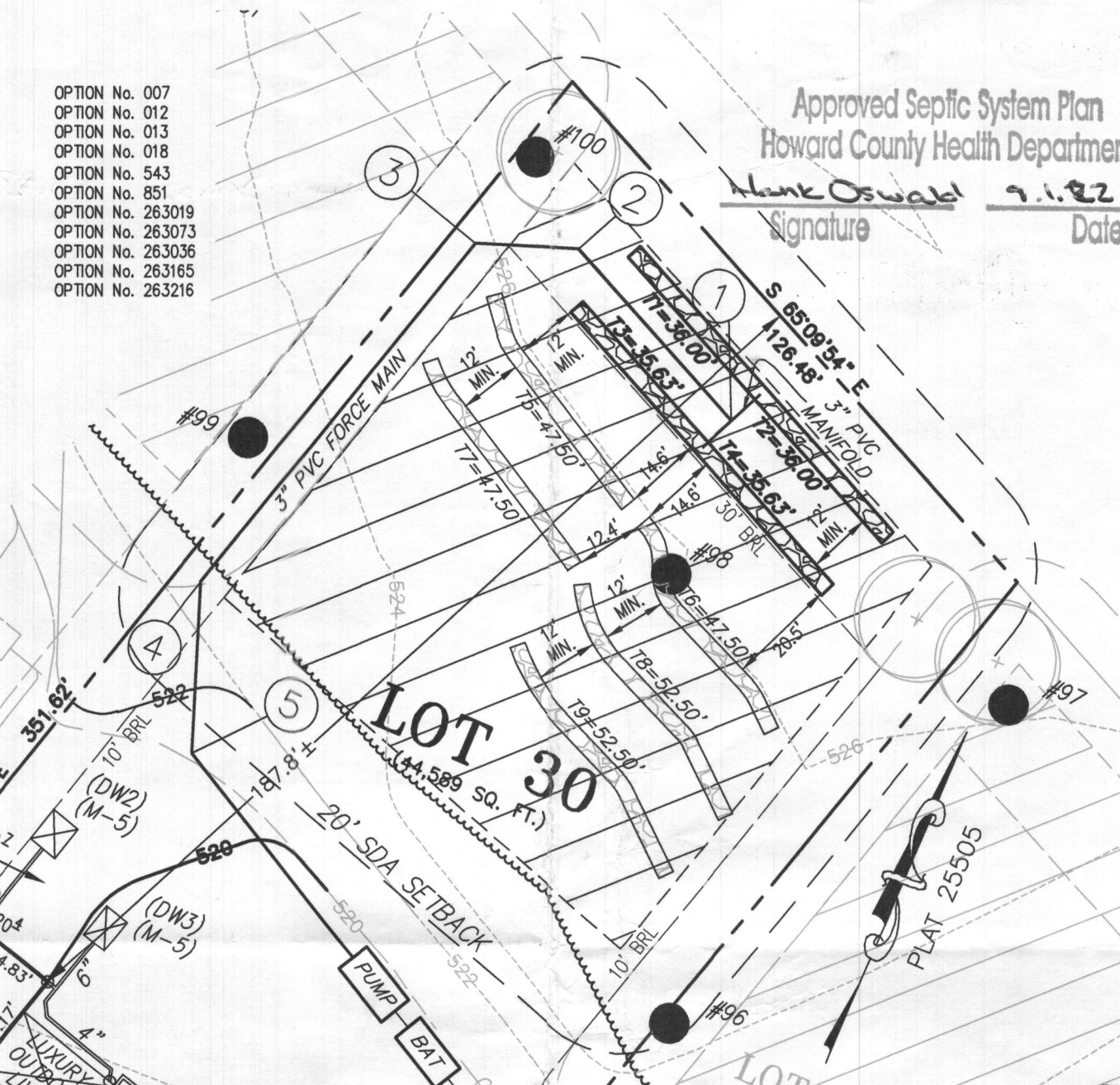
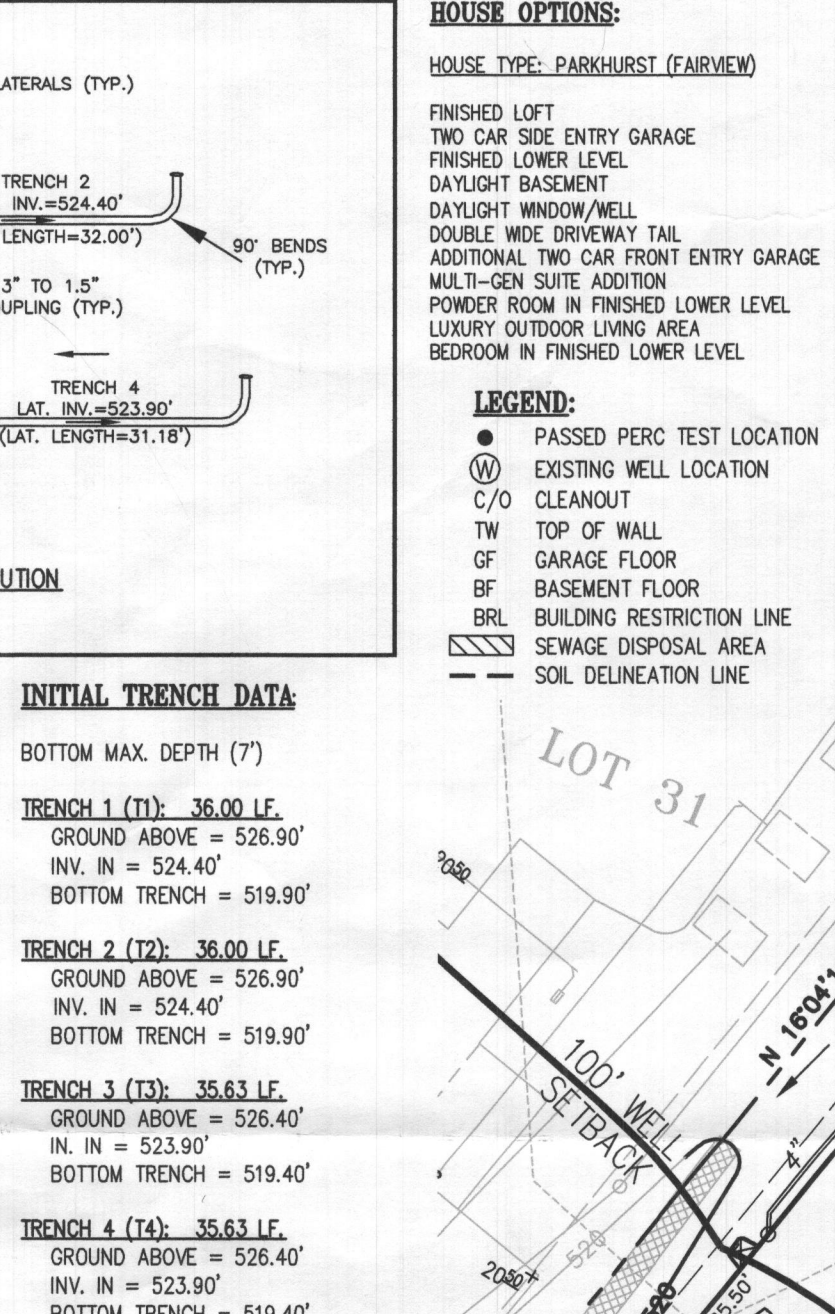
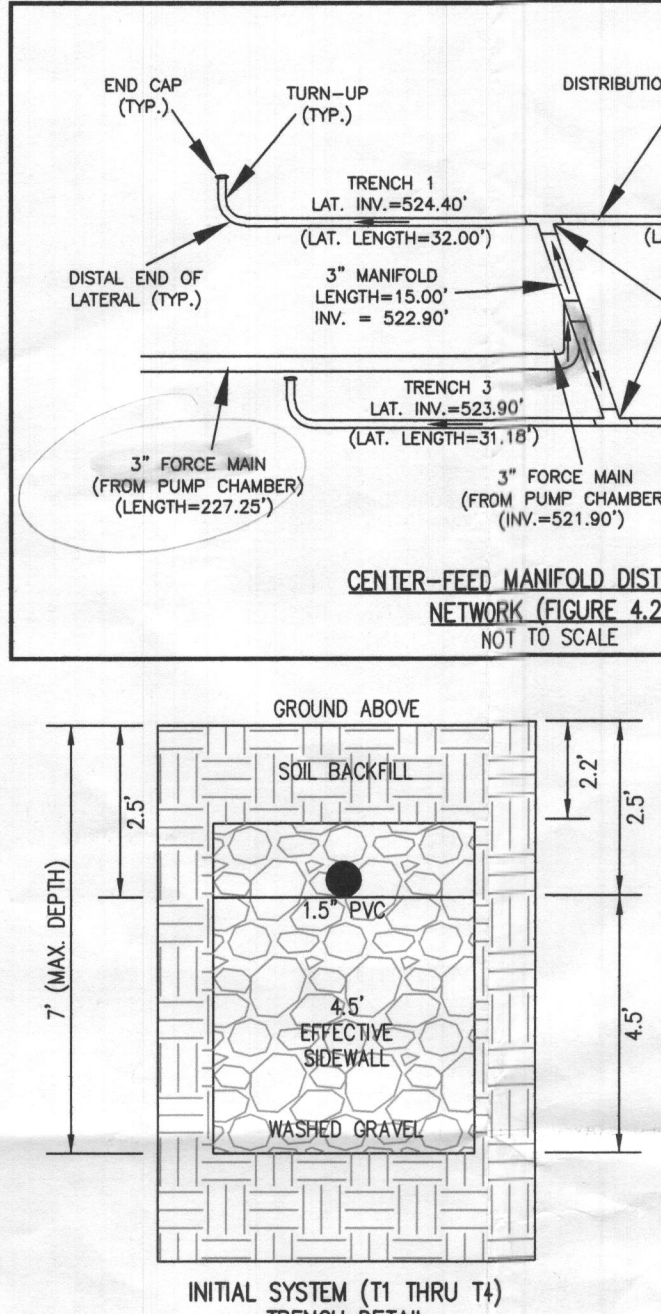
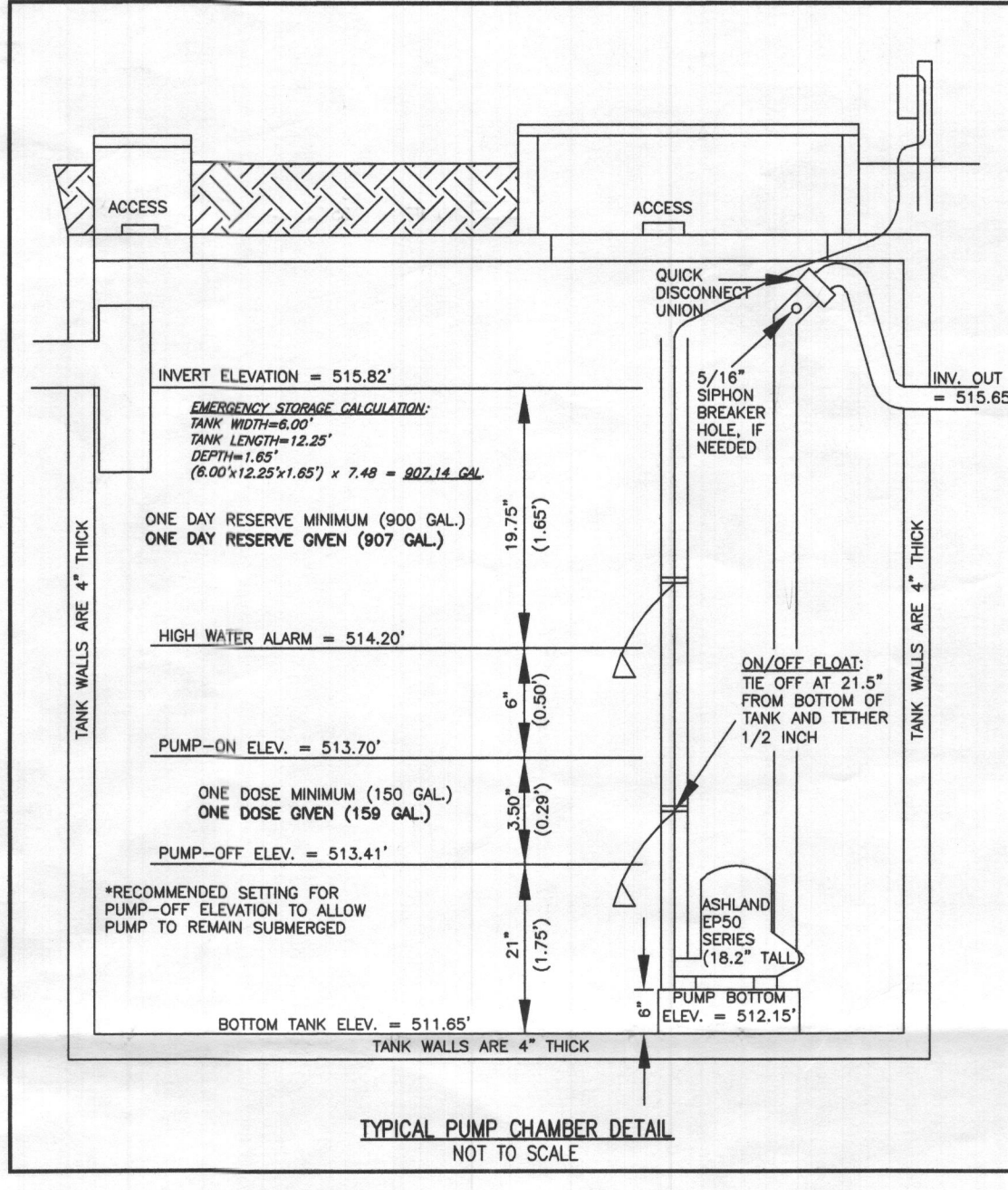
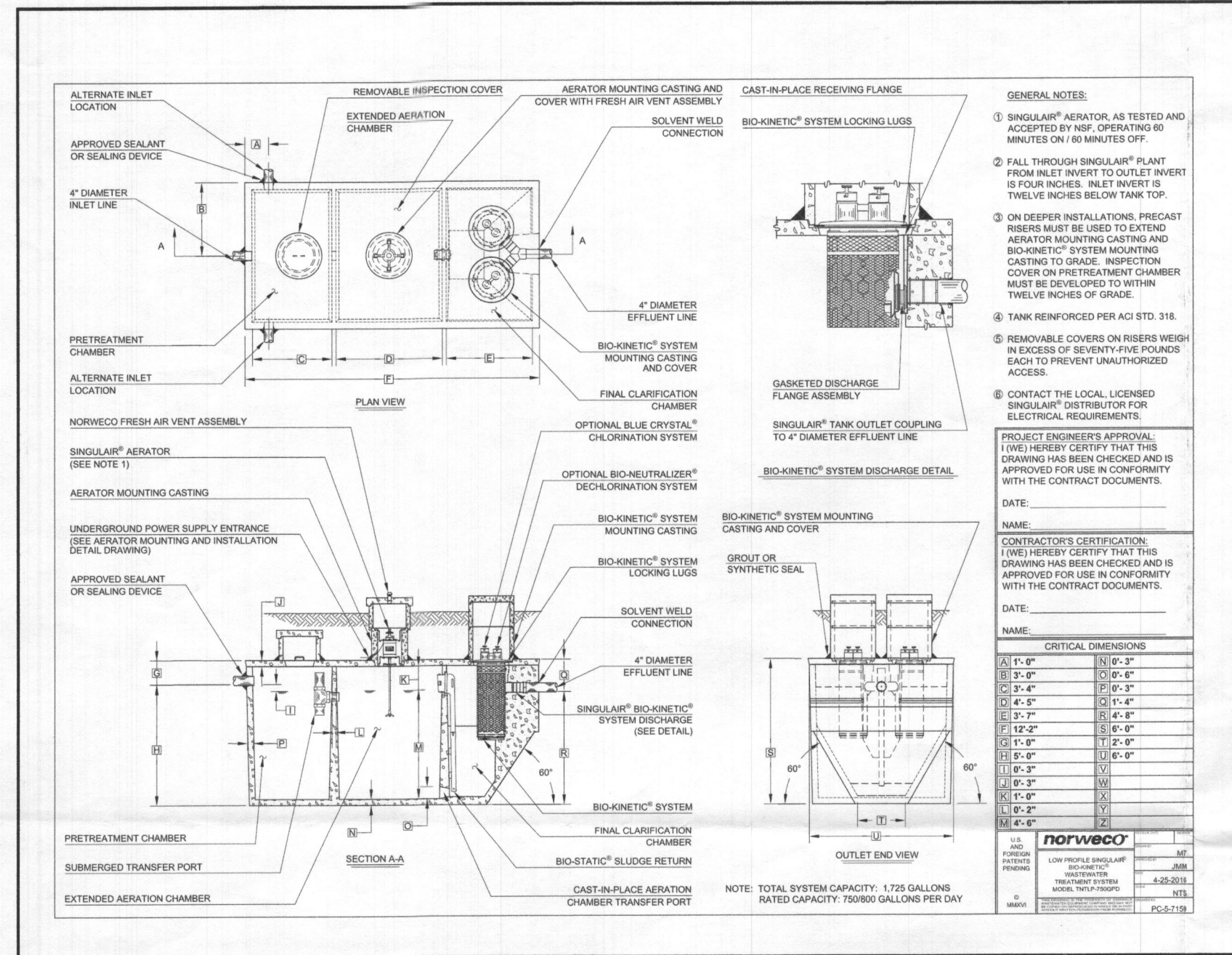
Matthew Geckle

February 16, 2023

Signature of BRP Representative

Vice-President

Date



**EFFLUENT PUMPS**  
Model: EP50

**Features:**

- Heavy duty cast iron construction
- 1/2 HP motor with 1/2\"/>

**Specifications:**

Model	Flow (GPM)	Head (FT)	Power (HP)
EP50-12	12	10	1/2
EP50-18	18	15	1/2
EP50-24	24	20	1/2
EP50-30	30	25	1/2
EP50-36	36	30	1/2
EP50-42	42	35	1/2
EP50-48	48	40	1/2
EP50-54	54	45	1/2
EP50-60	60	50	1/2
EP50-66	66	55	1/2
EP50-72	72	60	1/2
EP50-78	78	65	1/2
EP50-84	84	70	1/2
EP50-90	90	75	1/2
EP50-96	96	80	1/2
EP50-102	102	85	1/2
EP50-108	108	90	1/2
EP50-114	114	95	1/2
EP50-120	120	100	1/2
EP50-126	126	105	1/2
EP50-132	132	110	1/2
EP50-138	138	115	1/2
EP50-144	144	120	1/2
EP50-150	150	125	1/2
EP50-156	156	130	1/2
EP50-162	162	135	1/2
EP50-168	168	140	1/2
EP50-174	174	145	1/2
EP50-180	180	150	1/2
EP50-186	186	155	1/2
EP50-192	192	160	1/2
EP50-198	198	165	1/2
EP50-204	204	170	1/2
EP50-210	210	175	1/2
EP50-216	216	180	1/2
EP50-222	222	185	1/2
EP50-228	228	190	1/2
EP50-234	234	195	1/2
EP50-240	240	200	1/2
EP50-246	246	205	1/2
EP50-252	252	210	1/2
EP50-258	258	215	1/2
EP50-264	264	220	1/2
EP50-270	270	225	1/2
EP50-276	276	230	1/2
EP50-282	282	235	1/2
EP50-288	288	240	1/2
EP50-294	294	245	1/2
EP50-300	300	250	1/2

**Specifications:**

Model	Flow (GPM)	Head (FT)	Power (HP)
EP50-12	12	10	1/2
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EP50-24	24	20	1/2
EP50-30	30	25	1/2
EP50-36	36	30	1/2
EP50-42	42	35	1/2
EP50-48	48	40	1/2
EP50-54	54	45	1/2
EP50-60	60	50	1/2
EP50-66	66	55	1/2
EP50-72	72	60	1/2
EP50-78	78	65	1/2
EP50-84	84	70	1/2
EP50-90	90	75	1/2
EP50-96	96	80	1/2
EP50-102	102	85	1/2
EP50-108	108	90	1/2
EP50-114	114	95	1/2
EP50-120	120	100	1/2
EP50-126	126	105	1/2
EP50-132	132	110	1/2
EP50-138	138	115	1/2
EP50-144	144	120	1/2
EP50-150	150	125	1/2
EP50-156	156	130	1/2
EP50-162	162	135	1/2
EP50-168	168	140	1/2
EP50-174	174	145	1/2
EP50-180	180	150	1/2
EP50-186	186	155	1/2
EP50-192	192	160	1/2
EP50-198	198	165	1/2
EP50-204	204	170	1/2
EP50-210	210	175	1/2
EP50-216	216	180	1/2
EP50-222	222	185	1/2
EP50-228	228	190	1/2
EP50-234	234	195	1/2
EP50-240	240	200	1/2
EP50-246	246	205	1/2
EP50-252	252	210	1/2
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EP50-264	264	220	1/2
EP50-270	270	225	1/2
EP50-276	276	230	1/2
EP50-282	282	235	1/2
EP50-288	288	240	1/2
EP50-294	294	245	1/2
EP50-300	300	250	1/2

**Features:**

- 1/2 HP motor with 1/2\"/>

**Specifications:**

Model	Flow (GPM)	Head (FT)	Power (HP)
EP50-12	12	10	1/2
EP50-18	18	15	1/2
EP50-24	24	20	1/2
EP50-30	30	25	1/2
EP50-36	36	30	1/2
EP50-42	42	35	1/2
EP50-48	48	40	1/2
EP50-54	54	45	1/2
EP50-60	60	50	1/2
EP50-66	66	55	1/2
EP50-72	72	60	1/2
EP50-78	78	65	1/2
EP50-84	84	70	1/2
EP50-90	90	75	1/2
EP50-96	96	80	1/2
EP50-102	102	85	1/2
EP50-108	108	90	1/2
EP50-114	114	95	1/2
EP50-120	120	100	1/2
EP50-126	126	105	1/2
EP50-132	132	110	1/2
EP50-138	138	115	1/2
EP50-144	144	120	1/2
EP50-150	150	125	1/2
EP50-156	156	130	1/2
EP50-162	162	135	1/2
EP50-168	168	140	1/2
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EP50-180	180	150	1/2
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EP50-264	264	220	1/2
EP50-270	270	225	1/2
EP50-276	276	230	1/2
EP50-282	282	235	1/2
EP50-288	288	240	1/2
EP50-294	294	245	1/2
EP50-300	300	250	1/2

**Dimensions:**

**Performance Curve:**

**LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS**

NUMBER OF MANFOLDS = 1    MANFOLD TYPE = CENTER FEED

TRENCH 1 (T1)    ELEV = 528.90'    LENGTH = 36.00'    DESIGN FLOW = 900 GPD

TRENCH 2 (T2)    ELEV = 526.90'    LENGTH = 36.00'    PUMP OFF ELEV. = 513.41'

TRENCH 3 (T3)    ELEV = 526.40'    LENGTH = 35.63'    MANFOLD LENGTH = 15.00'    TYPE=SCH40    INV. OUT PUMP TANK = 515.65'

TRENCH 4 (T4)    ELEV = 526.40'    LENGTH = 35.63'    FORCEMAIN LENGTH = 227.25'    TYPE=SCH40    PUMP BOTTOM ELEV. = 512.15'

MANFOLD    TRENCH    FEED    PIPE INV. ELEV. (FT.)    HOLE DIA. (IN.)    HOLE FLOW RATE (GPM)    LATERAL FLOW RATE (GPM)    LATERAL DIA. (IN.)    TYPE

1	36.00'	CENTER	524.40	2	5/16	1.63	4.0	9	14.87	32.00	0.407	1.5	SCH40
2	36.00'	CENTER	524.40	2	5/16	1.63	4.0	9	14.87	32.00	0.407	1.5	SCH40
3	35.63'	CENTER	523.90	2.5	5/16	1.82	4.45	8	14.56	31.18	0.409	1.5	SCH40
4	35.63'	CENTER	523.90	2.5	5/16	1.82	4.45	8	14.56	31.18	0.409	1.5	SCH40

MIN. SYSTEM DISCHARGE RATE = 58.46 GPM

MANFOLD DIAMETER = 3 IN.    VELOCITY = 2.53 FPS    FRICTION LOSS (TABLE 4.1) = 0.81

FORCE MAIN DIAMETER = 3 IN.    VELOCITY = 2.53 FPS    FRICTION LOSS (TABLE 4.1) = 0.81

MINIMUM DOSE = 164.47 GAL.    (VOL. IN FM, MAN. 5.4 LATERAL=164.47 GAL > 1/6 DESIGN FLOW=900/6=150 GAL.)

**CALCULATE TOTAL DESIGN HEAD.**

LENGTH OF FM FROM PUMP TANK TO MANFOLD = 227.25'

# OF (45°) BENDS IN FM = 1    (ADD 6' PER BEND) = 24'

# OF (90°) BENDS IN FM = 1    (ADD 10' PER BEND) = 10'

LENGTH OF MANFOLD FROM TRENCHES = 15'

# OF (45°) BENDS IN MANFOLD = N/A    (ADD 6' PER BEND) = N/A

# OF (90°) BENDS IN MANFOLD = 2    (ADD 10' PER BEND) = 20'

# OF COUPLINGS (3" TO 1.5") = 2    (ADD 3' PER COUPLING) = 6'

TOTAL LENGTHS = 242.25'    TOTAL ADD. LENGTHS = 60'    TOTAL PIPE/FRIC LOSS = 302.25'

(58.46 GPM OF 3" PVC = 0.81 PER 100' PIPE) 0.81 / 100' = 0.0081 x 302.25' = 2.448'

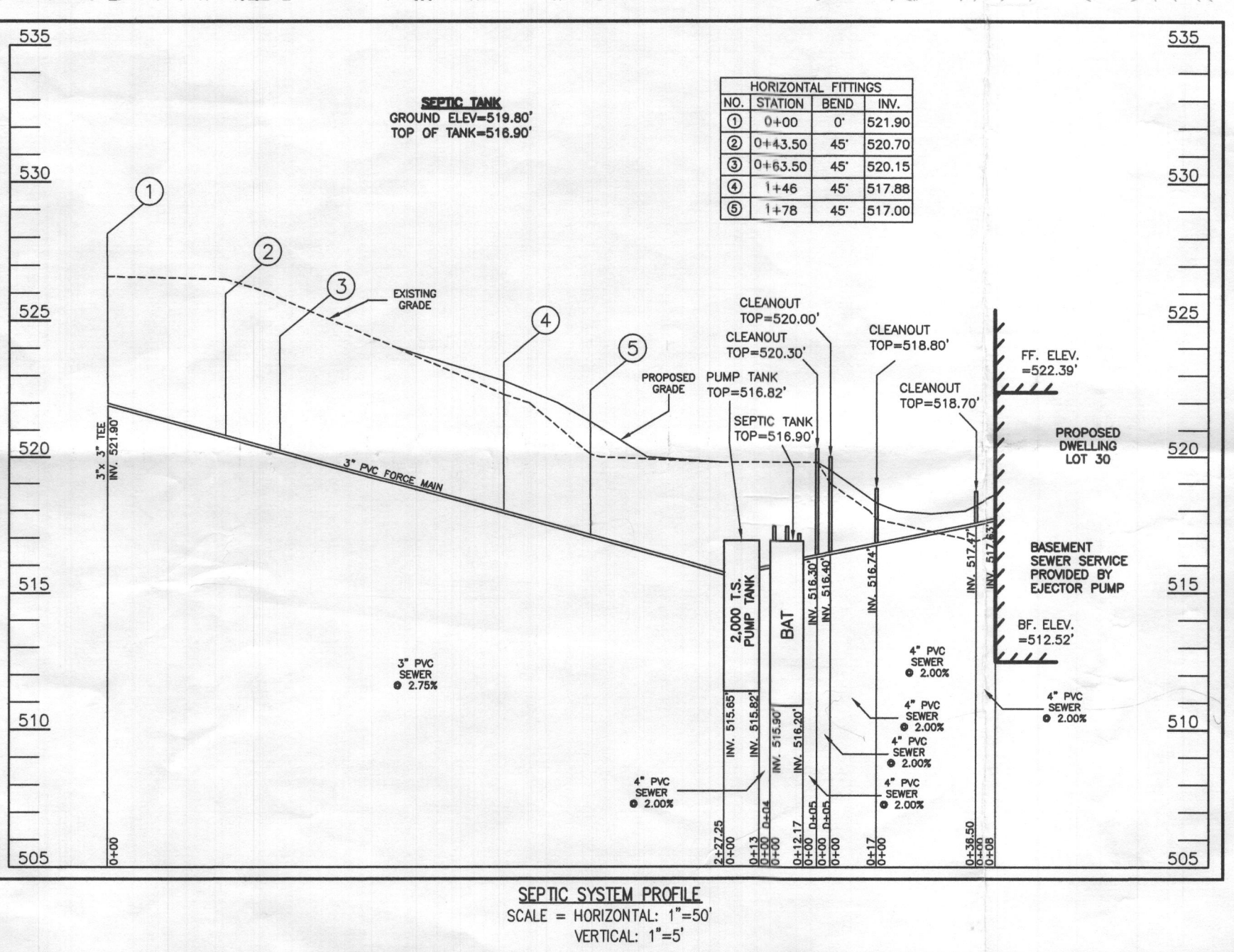
FRICTION HEAD = 2.45' FT.    (PER ABOVE CALCULATION)

OPERATING HEAD = 2.00' FT.    (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOAT ELEVATION)

STATIC HEAD = 10.99' FT.    (FRICTION HEAD + OPERATING HEAD + STATIC HEAD)

TOTAL DYNAMIC HEAD = 15.44' FT.

THEFORE A PUMP CAPABLE OF DELIVERING AT LEAST 58.46 GPM AGAINST 15.44' OF HEAD IS REQUIRED. EP50M1-20, 1/2 HP, IS EFFICIENT



**SOILS LEGEND**

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

**SEPTIC TRENCH SIZE CALCULATIONS**

SYSTEM INPUT INFORMATION	INITIAL SYSTEM	1ST REPLACEMENT SYSTEM	2ND REPLACEMENT SYSTEM
APPLICATION RATE (GPM)	0.8	0.8	1.2
EFFECTIVE AREA BEGINNING DEPTH (GVE)	2.5	2.5	3
BOTTOM MAXIMUM DEPTH (GVE)	7	7	7
NUMBER OF BEDROOMS	6	6	6
DESIGN FLOW (150 GAL/DAY/BEDROOM)	900	900	900
ABSORPTION TRENCH CALCULATIONS			
DRAINFIELD AREA REQUIRED (DESIGN FLOW/APP RATE)	1,125	1,125	750
EFFECTIVE SIDEWALL DEPTH "D"			
(DEPTH BETWEEN THE EFFECTIVE BEGINNING DEPTH OR PIPE DEPTH (WHICHEVER IS DEEPER) AND MAX. TRENCH BOTTOM)	4.5	4.5	4
TRENCH WIDTH "W" (2 OR 3 FEET)	3	3	3
SIDEWALL REDUCTION ((W+2)/(W+1+2D))	0.38	0.38	0.42
LINEAR FEET OF TRENCH REQUIRED (DRAINFIELD AREA X SIDEWALL REDUCTION)/W	142.50	142.50	105.00
TRENCH LAYOUT INFORMATION			
NUMBER OF TRENCHES USED	4	2	2
TOTAL LINEAR FEET USED	143.26	142.50	105.00
MINIMUM TRENCH SPACING	12	12	11

FOR TRENCHES WITH NO SIDEWALL CREDIT, THE SPACING IS 6' FOR A 2' WIDE TRENCH AND 9' FOR A 3' WIDE TRENCH (MEASURED EDGE TO EDGE). ALL TRENCHES UTILIZING SIDEWALL REDUCTION CREDIT MUST BE SPACED A MIN. OF 10' FOR EFFECTIVE SIDEWALL NOT OVER 4.5'. IF MORE THAN 3.5' THEN SPACING FORMULA IS (2D+W) UP TO A MAX. OF 18'

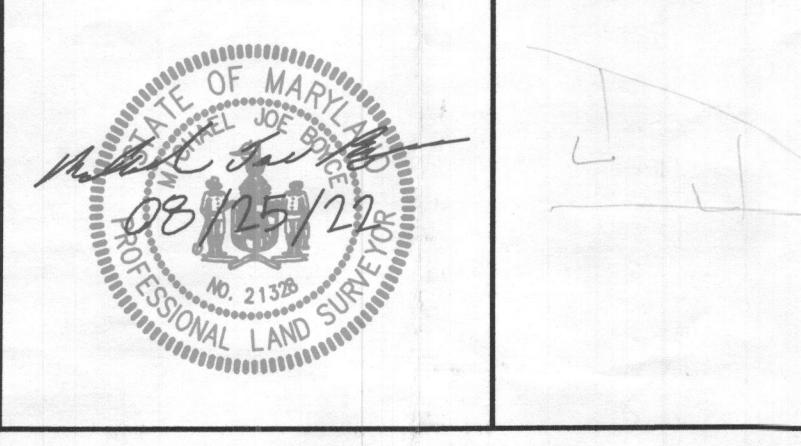
**PROFESSIONAL CERTIFICATION:**

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.

*Michael Joe Boyce*

08/25/22

DATE



DESIGNED BY: R.C.K.

DRAWN BY: R.C.K.

CHECKED BY: M.J.B.

DATE

REVISION

BY

APPROVED

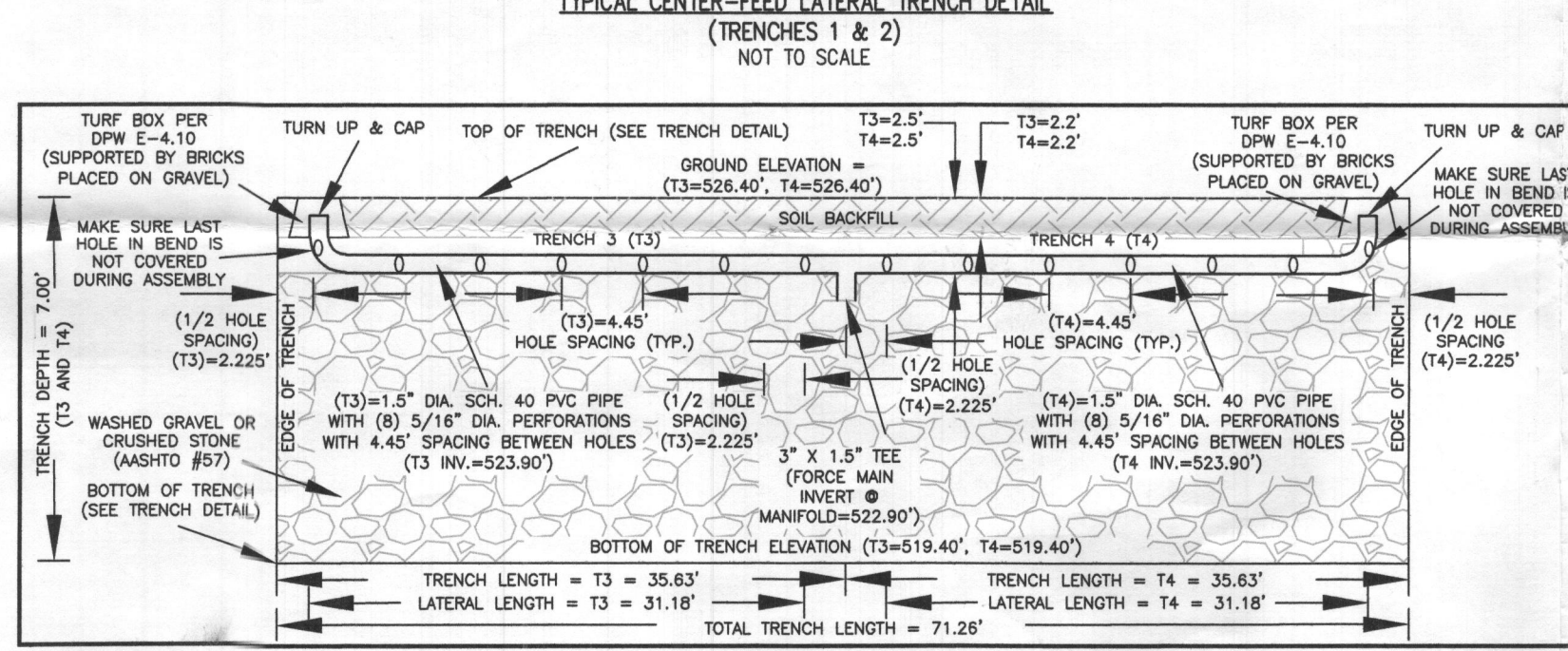
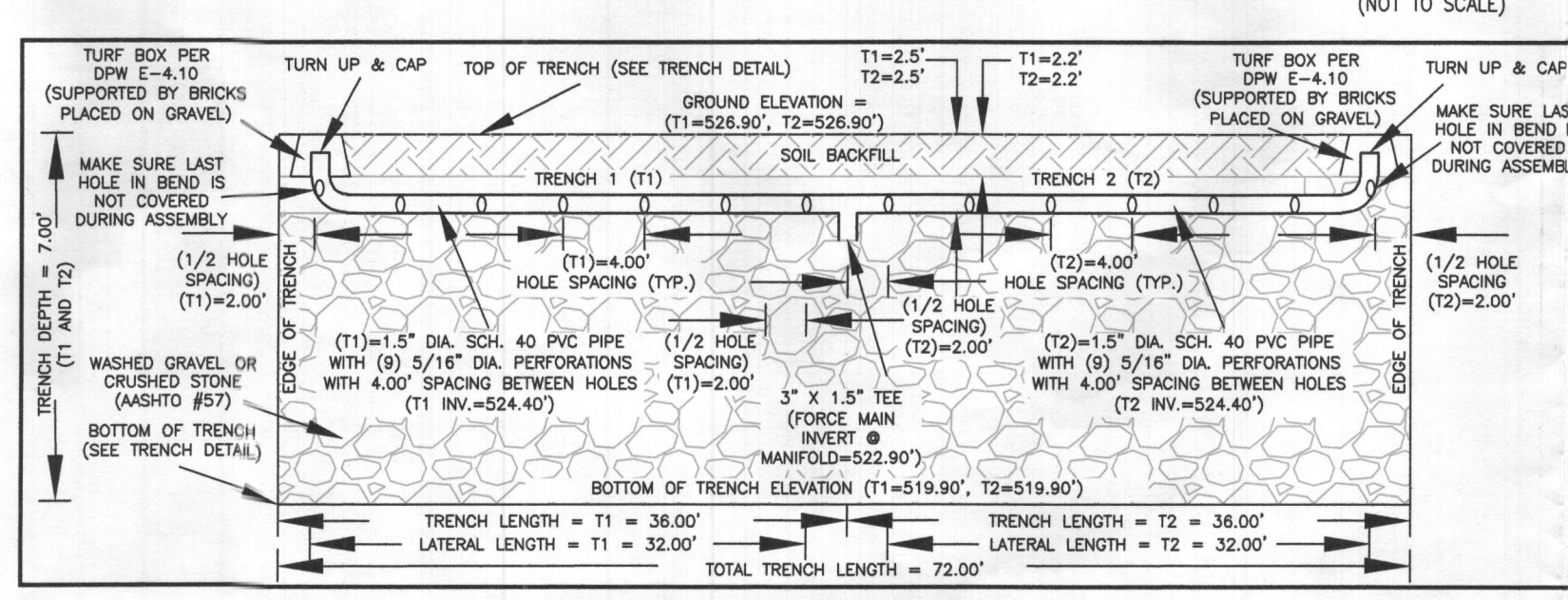
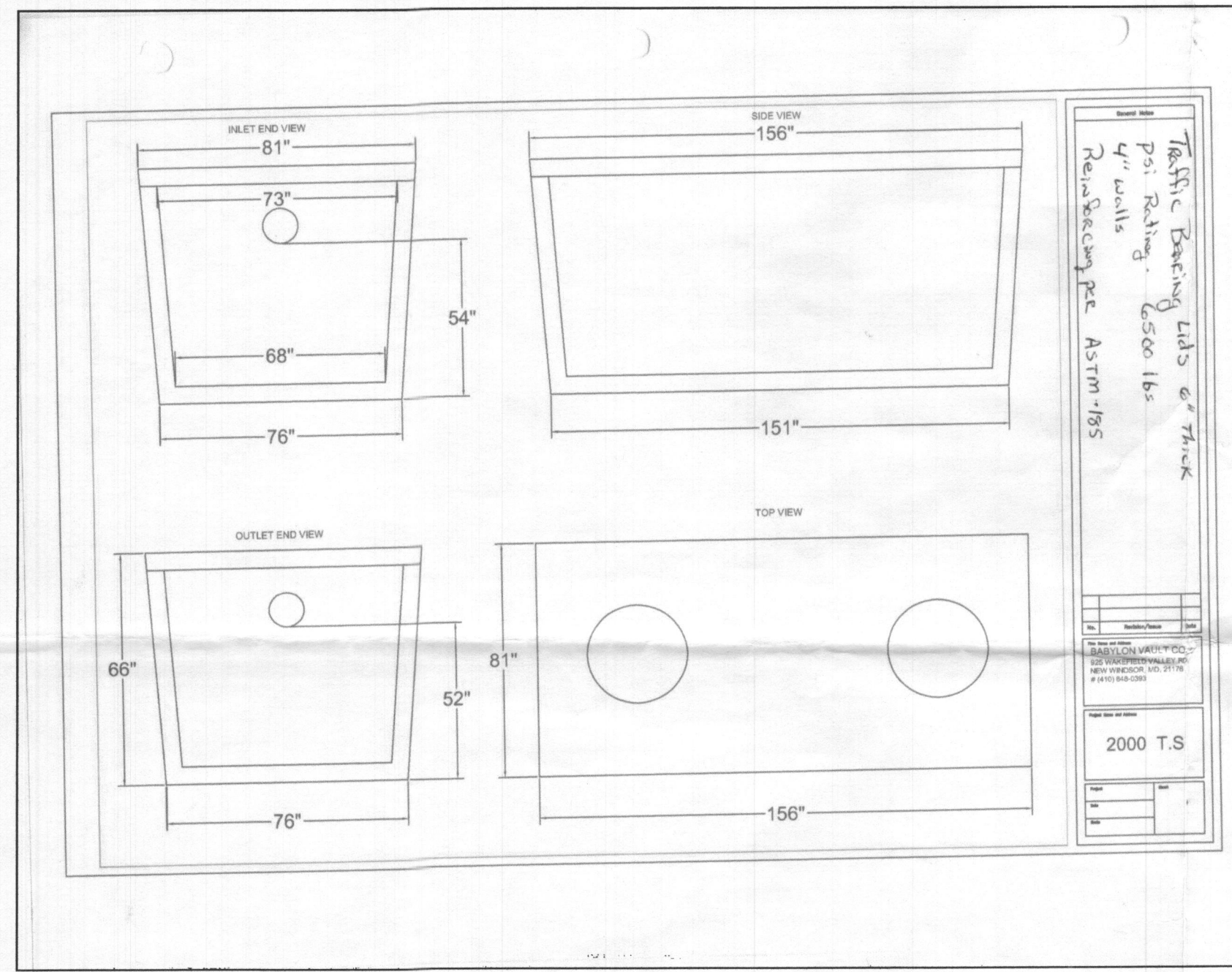
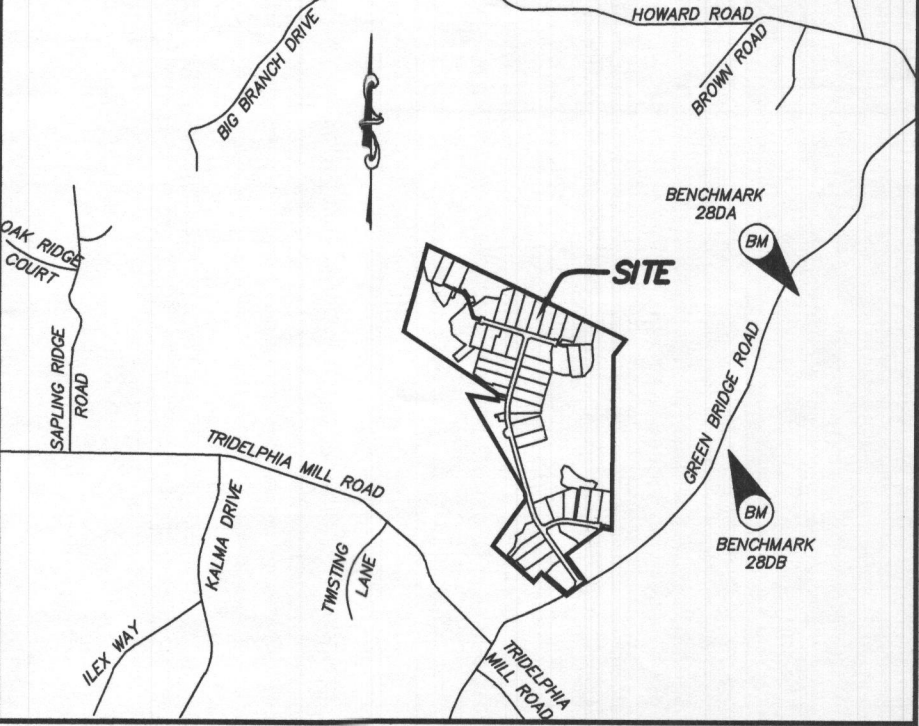
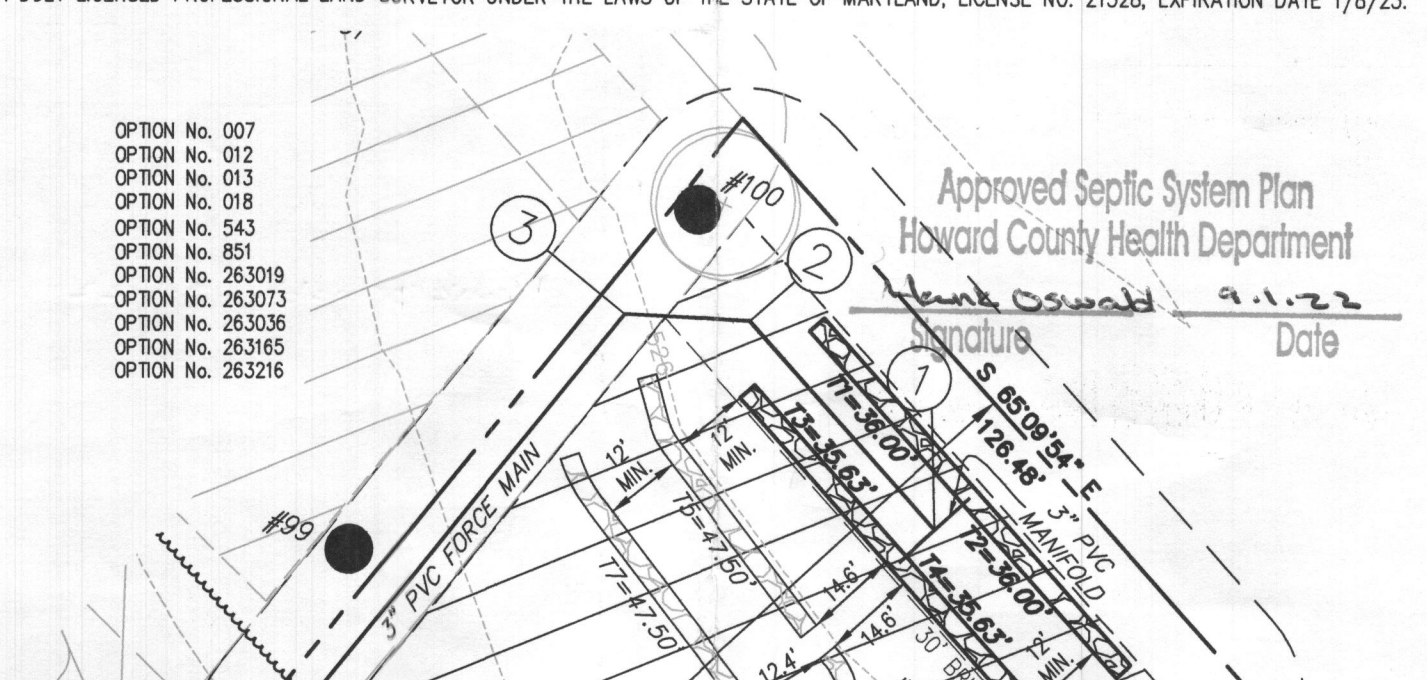
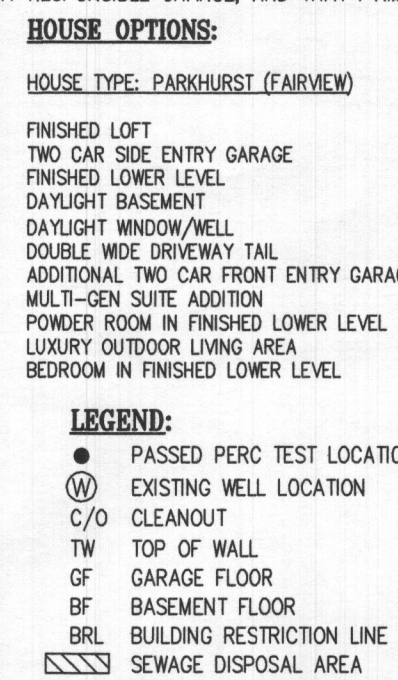
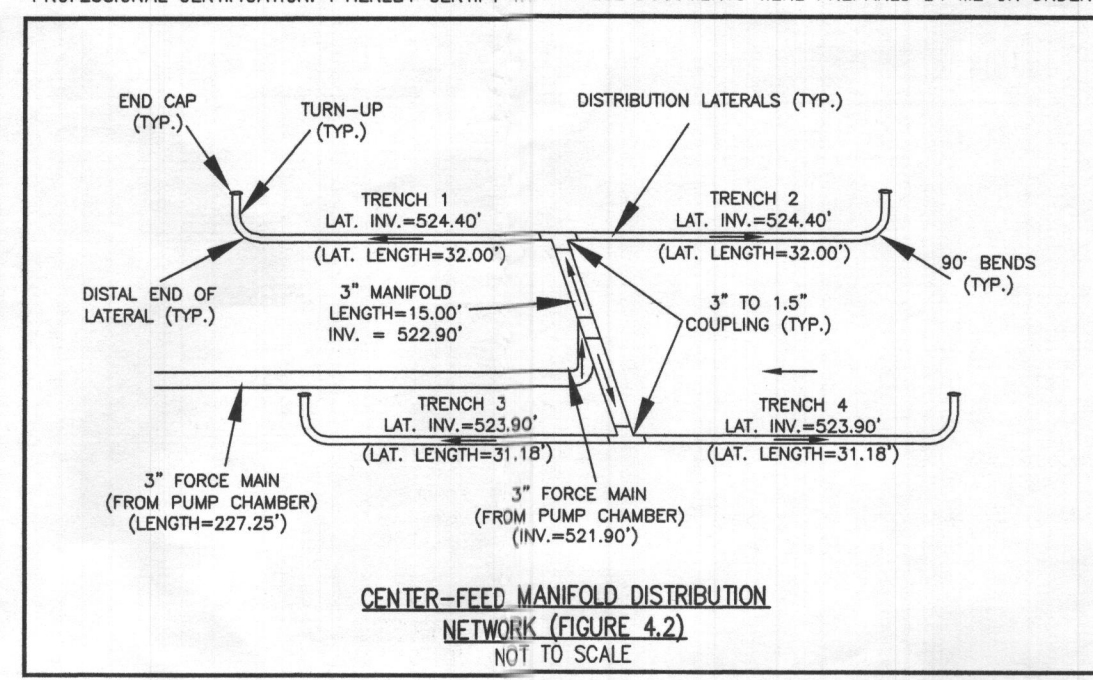
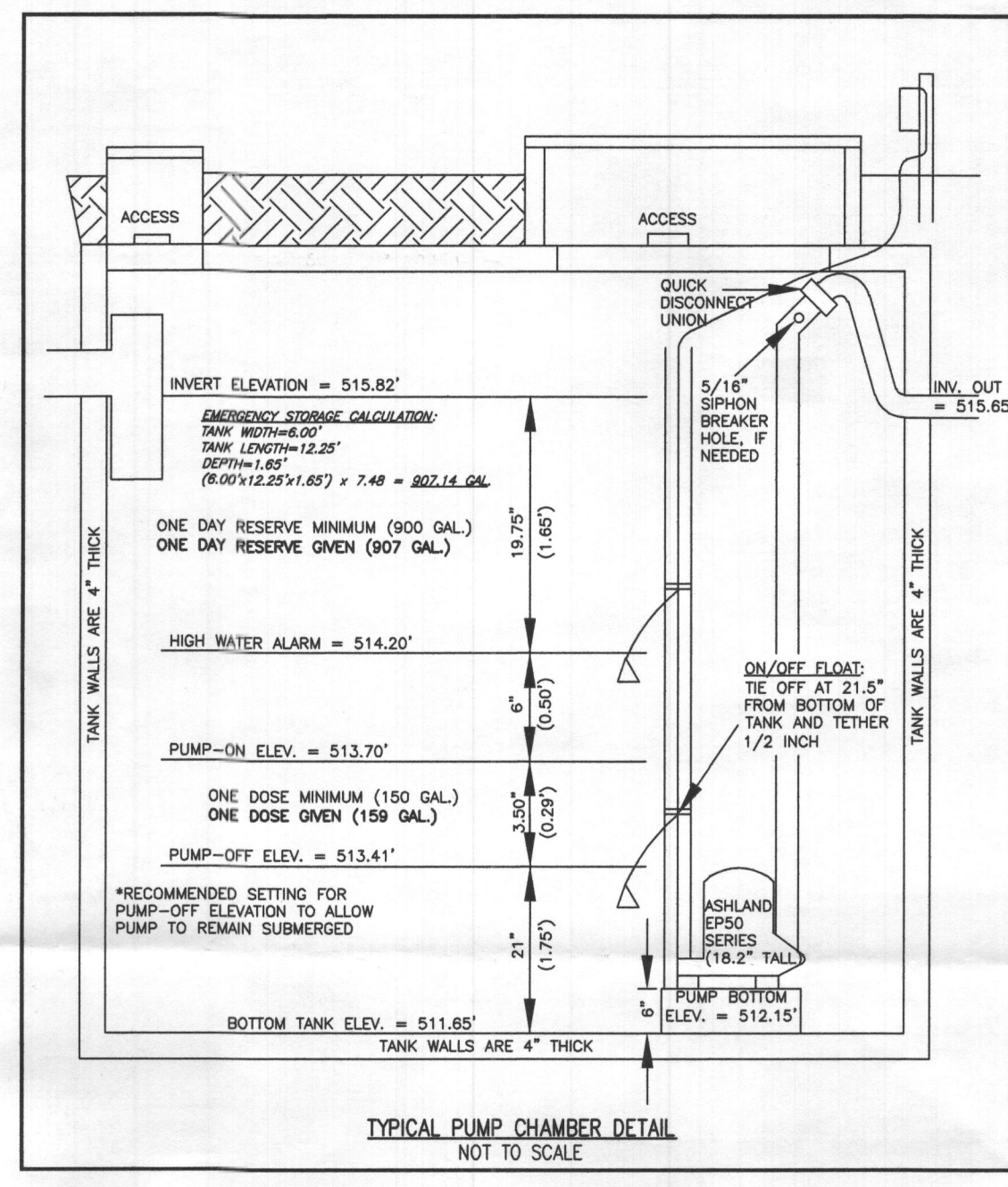
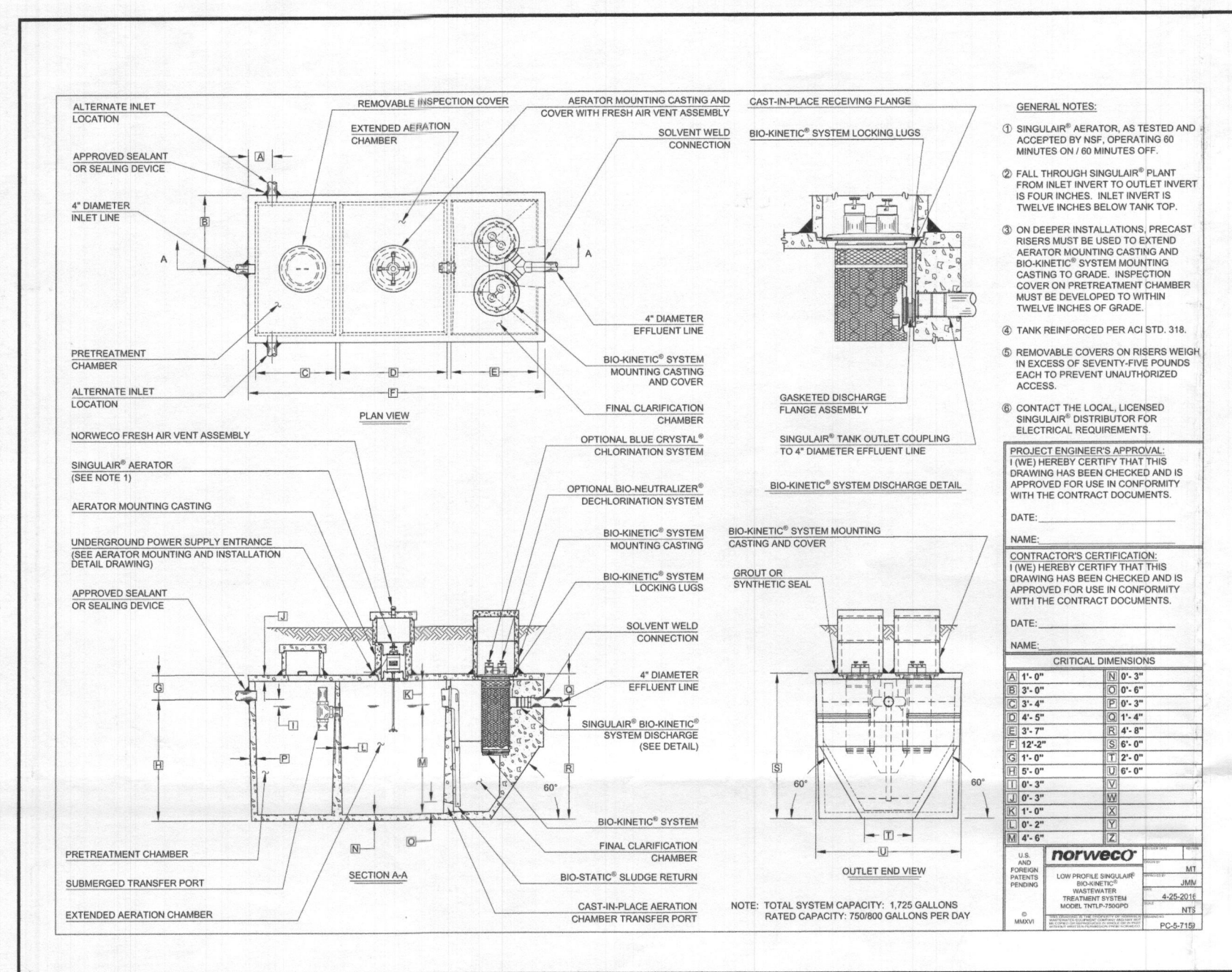
SITE PLAN FOR BAT INSTALLATION  
LOT 30  
**WILLOWSHIRE**  
LIBER 18479, FOLIO 296  
PLAT No. 25505  
TAX No. 05-603C18  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
ADDRESS: 7016 COLT PLACE  
DAYTON, MARYLAND 21036

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

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

DATE: 05/30/2022    SCALE: 1"=30'    FILE: BAT LOT 30\_rev2  
CHK'D: M.J.B.    JOB NO: 4320    DRAWN: R.C.K.

**SHEET 1 OF 1**



**VICINITY MAP**  
1" = 2000'  
TAX MAP 27, GRID 18  
BENCHMARK 28DA  
N: 570,624.997, E: 1,313,434.228, EL: 564.389'  
BENCHMARK 28DB  
N: 569,055.561, E: 1,313,795.348, EL: 537.361'

- 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 WELLS 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. RECONSTRUCTION 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 BASED ON A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY BOHLER ENGINEERING ON 9/03/15, AND HOWARD COUNTY GIS.
  - THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE BAT SYSTEM.
  - THE BAT SYSTEM SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
  - WITHIN ONE (1) MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
  - ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
  - AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
  - THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO THE FINAL APPROVAL OF THE BAT INSTALLATION.
  - AFTER PRESSURE TESTING THE DISTRIBUTION SYSTEM, THE PIPE TURN-UPS AT THE ENDS OF THE LATERALS ARE TO BE CUT BELOW GRADE AND CAPPED. THE TRUNCATED LATERAL TURN-UPS SHOULD BE PROTECTED BY TURF BOXES.
  - THE EXISTING WELL FOR LOT 30 (TAG NO. HO-18-0077) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN HEREON.

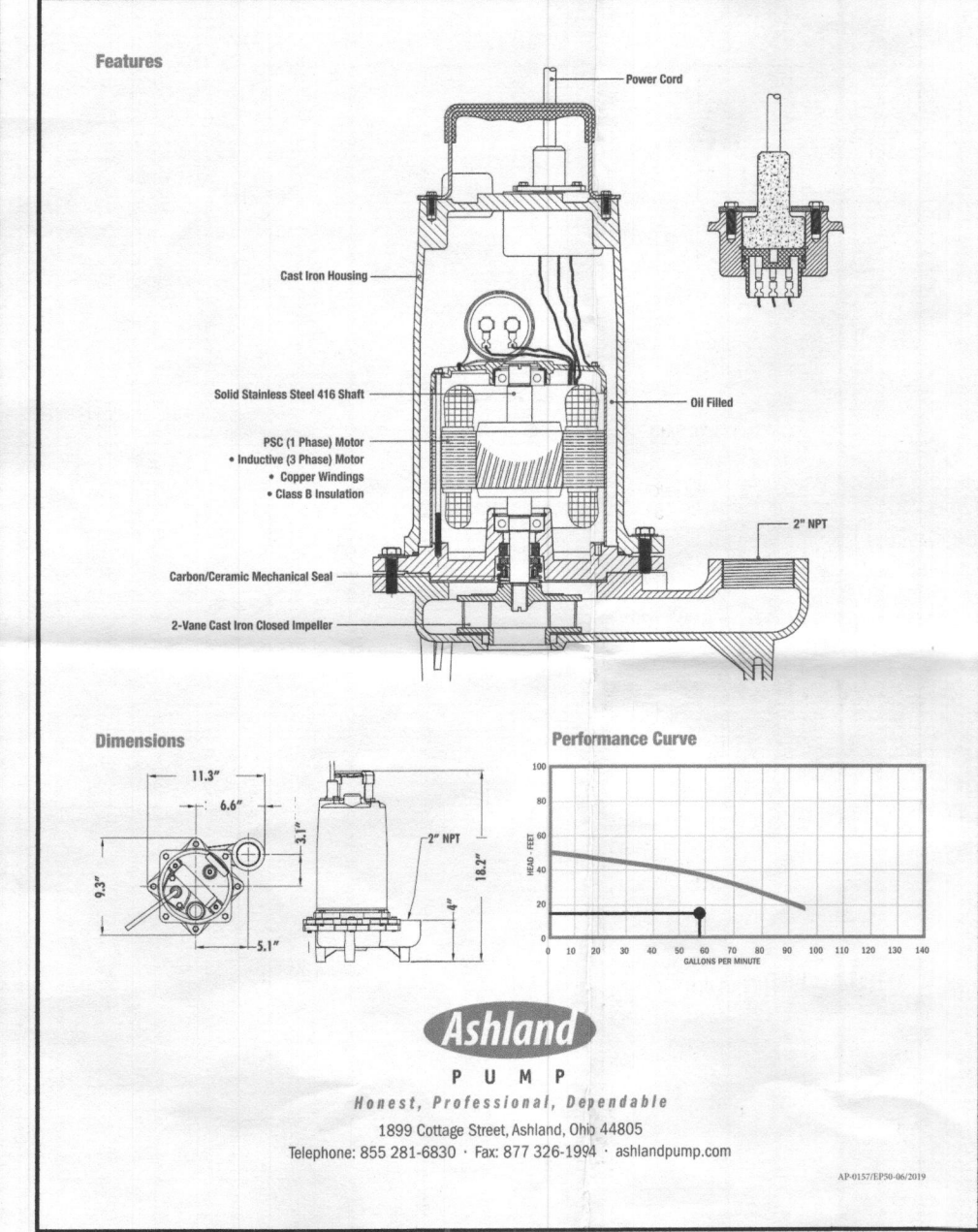
**EFFLUENT PUMPS Model: EP50**

**Features:**

- Heavy duty cast iron construction
- 3" inlet centrifugal cast iron PVC motor
- Advanced control cast iron housing
- 3" inlet and outlet cast iron piping
- 3" NPT discharge
- 3" NPT discharge

**Specifications:**

Model	Flow (GPM)	Head (FT)	Power (HP)
EP50-10	10	10	1/2
EP50-15	15	15	3/4
EP50-20	20	20	1
EP50-25	25	25	1 1/4
EP50-30	30	30	1 1/2
EP50-35	35	35	2
EP50-40	40	40	2 1/2
EP50-45	45	45	3
EP50-50	50	50	3 1/2
EP50-55	55	55	4
EP50-60	60	60	4 1/2
EP50-65	65	65	5
EP50-70	70	70	5 1/2
EP50-75	75	75	6
EP50-80	80	80	6 1/2
EP50-85	85	85	7
EP50-90	90	90	7 1/2
EP50-95	95	95	8
EP50-100	100	100	8 1/2



**LOW PRESSURE DISTRIBUTION SYSTEM CALCULATIONS**

NUMBER OF MANIFOLDS = 1 MANIFOLD TYPE = CENTER FEED DESIGN FLOW = 900 GPD  
PUMP OFF ELEV. = 513.41' INV. OUT PUMP TANK = 515.65' PUMP BOTTOM ELEV. = 512.15' PUMP SELECTED = 1/2 HP

TRENCH	TRENCH FEED	PIPE INV. (FT.)	HEAD (FT.)	HOLE DIA. (IN.)	HOLE FLOW RATE (GPM)	# HOLES	MANIFOLD LENGTH (FT.)	LATERAL LENGTH (FT.)	FLOW PER LF TRENCH (GPM)	FLOW PER OL PER LF TRENCH (GPM)	LATERAL DIA. (IN.)	TYPE
1	CENTER	524.40	2	5/16	1.63	4.0	9	14.67	32.00	0.407	1.5	SC40
2	CENTER	524.40	2	5/16	1.63	4.0	9	14.67	32.00	0.407	1.5	SC40
3	CENTER	523.90	2.5	5/16	1.82	4.45	8	14.56	31.18	-0.204	1.5	SC40
4	CENTER	523.90	2.5	5/16	1.82	4.45	8	14.56	31.18	-0.204	1.5	SC40

MIN. SYSTEM DISCHARGE RATE = 58.46 GPM  
MANIFOLD DIAMETER = 3 IN.  
FORCE MAIN DIAMETER = 3 IN.  
MINIMUM DOSE = 194.47 GAL

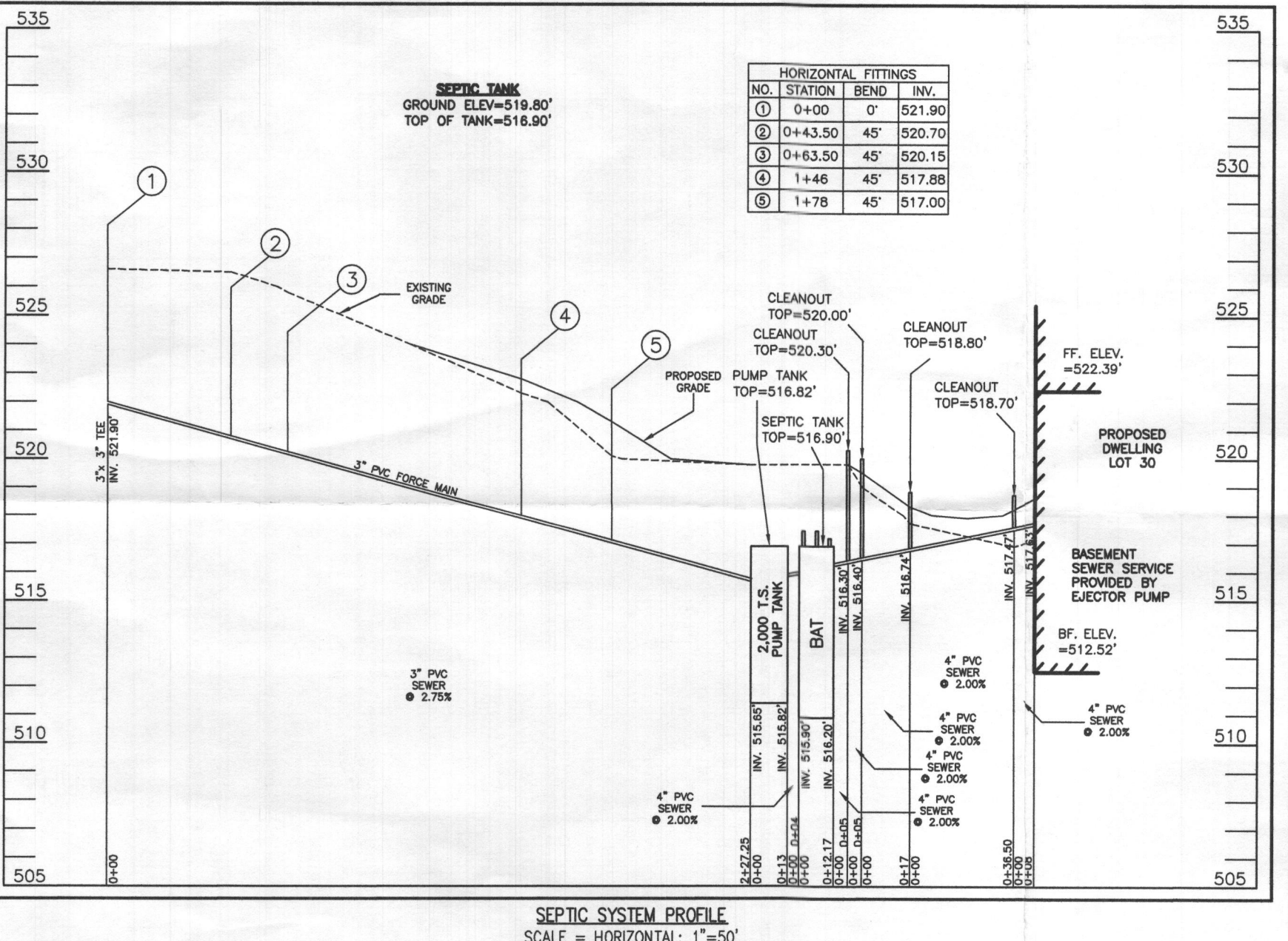
VELOCITY = 2.53 FPS  
VELOCITY = 2.53 FPS  
(VOL. IN FM, MAN. 5x LATERAL=164.47 GAL > 1/8 DESIGN FLOW=900/6150 GAL.)

**CALCULATE TOTAL DESIGN HEAD**

LENGTH OF FM FROM PUMP TANK TO MANIFOLD = 227.25'  
# OF (45°) BENDS IN FM = 4  
# OF (90°) BENDS IN FM = 15  
LENGTH OF MANIFOLD FROM FM TO TRENCHES = N/A  
# OF (45°) BENDS IN MANIFOLD = N/A  
# OF (90°) BENDS IN MANIFOLD = 2  
# OF COUPLINGS (3" TO 1.5") = 2  
TOTAL LENGTHS = 242.25'  
(58.46 GPM OF 3" PVC = 0.81 PER 100' PIPE); 0.81 / 100' = 0.0081 x 302.25' = 2.448'

FRICITION HEAD = 2.45' FT. (PER ABOVE CALCULATION)  
OPERATING HEAD = 2.60' FT.  
STATIC HEAD = 10.99' FT. (HIGHEST POINT IN DISTRIBUTION SYSTEM - PUMP OFF FLOAT ELEVATION)  
TOTAL DYNAMIC HEAD = 15.44' FT. (FRICITION HEAD + OPERATING HEAD + STATIC HEAD)

THEREFORE A PUMP CAPABLE OF DELIVERING AT LEAST 58.46 GPM AGAINST 15.44' OF HEAD IS REQUIRED.  
EP50M1-20, 1/2 H.P. IS EFFICIENT



**SOILS LEGEND**

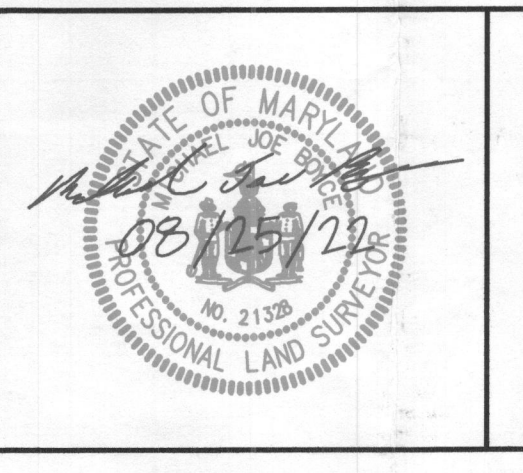
SOIL	NAME	CLASS	Kw
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28
McC	MANOR LOAM, 6 TO 15 PERCENT SLOPES	B	.28

**SEPTIC TRENCH SIZE CALCULATIONS**

SYSTEM INPUT INFORMATION	INITIAL SYSTEM	1ST REPLACEMENT SYSTEM	2ND REPLACEMENT SYSTEM
APPLICATION RATE (GPH)	0.8	0.8	1.2
EFFECTIVE AREA BEGINNING DEPTH (GWH)	2.5	2.5	3
BOTTOM MAXIMUM DEPTH (GWH)	7	7	7
NUMBER OF BEDROOMS	6	6	6
DESIGN FLOW (@ 150 GAL/DAY/BEDROOM)	900	900	900
ABSORPTION TRENCH CALCULATIONS			
DRAINFIELD AREA REQUIRED (DESIGN FLOW/APP RATE)	1,125	1,125	750
EFFECTIVE SIDEWALL DEPTH "D"			
(DEPTH BETWEEN THE EFFECTIVE BEGINNING DEPTH OR PIPE DEPTH (WHICHEVER IS DEEPER) AND MAX. TRENCH BOTTOM)	4.5	4.5	4
TRENCH WIDTH "W" (2 OR 3 FEET)	3	3	3
SIDEWALL REDUCTION (W+2)/(W+1+20)	0.38	0.38	0.42
LINEAR FEET OF TRENCH REQUIRED (DRAINFIELD AREA X SIDEWALL REDUCTION)/W	142.50	142.50	105.00
TRENCH LAYOUT INFORMATION			
NUMBER OF TRENCHES USED	4	2	2
TOTAL LINEAR FEET USED	143.26	142.50	105.00
MINIMUM TRENCH SPACING			
FOR TRENCHES WITH NO SIDEWALL CREDIT, THE SPACING IS 6' FOR A 2' WIDE TRENCH AND 9' FOR A 3' WIDE TRENCH (MEASURED EDGE TO EDGE). ALL TRENCHES UTILIZING SIDEWALL REDUCTION CREDIT MUST BE SPACED A MIN. OF 10' FOR EFFECTIVE SIDEWALL NOT OVER 3.5' IF MORE THAN 3.5' THEN SPACING FORMULA IS (20+W) UP TO A MAX. OF 16'	12	12	11

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.

08/25/22  
MICHAEL JOE BOYCE



DESIGNED BY: R.C.K.	CHECKED BY: M.J.B.	DATE	REVISION	BY	APPROVED

SITE PLAN FOR BAT INSTALLATION  
LOT 30  
WILLOWSHIRE  
LIBER 18479, FOLIO 296  
PLAT NO. 25505  
TAX NO. 05-603018  
FIFTH ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
ADDRESS: 7016 COLT PLACE  
DAYTON, MARYLAND 21036



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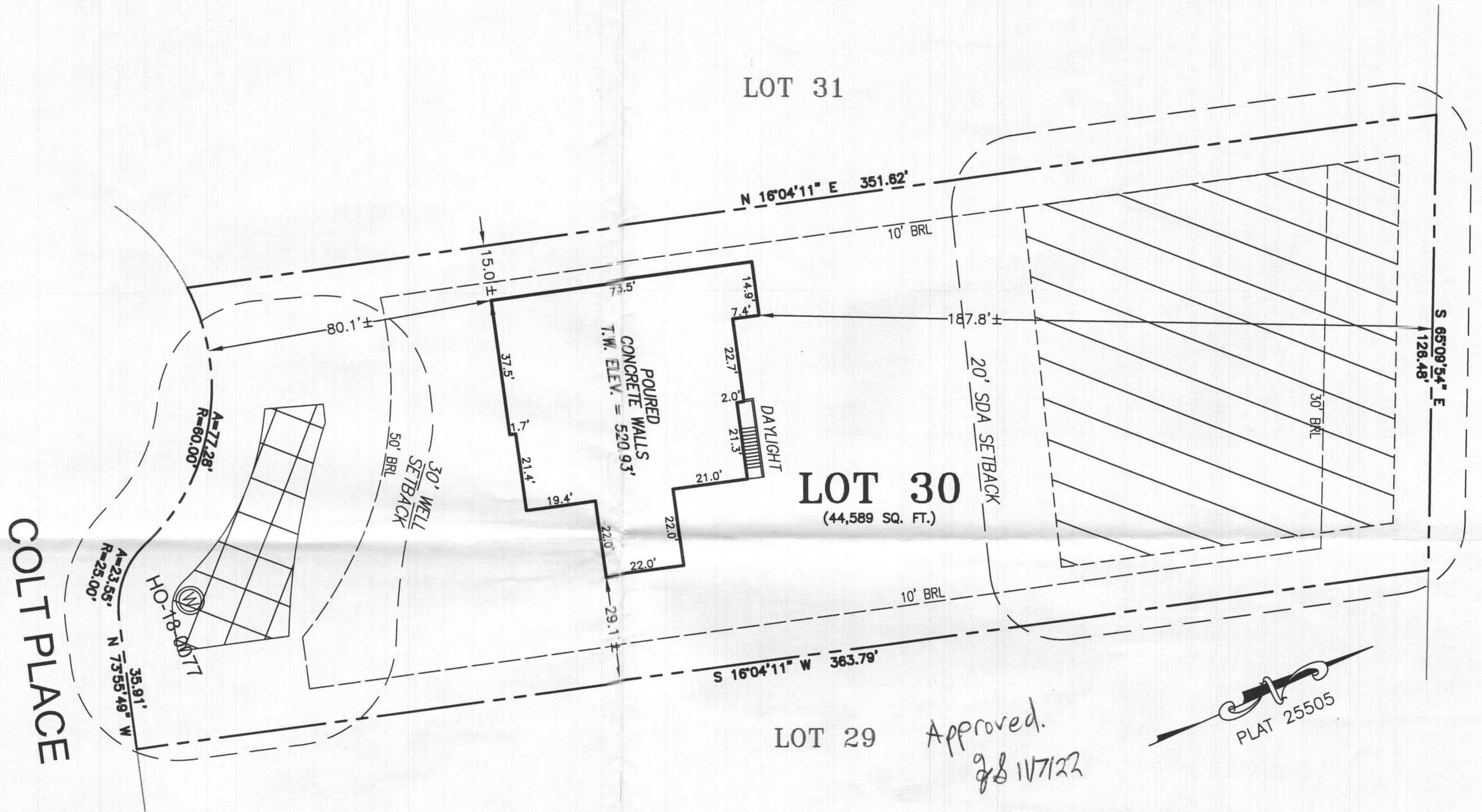
ESE Consultants, Inc.  
8731 Columbia Gateway Drive • Suite 120 • Columbia, MD 21046  
T: 410-872-9105

DATE: 05/30/2022 SCALE: 1"=30' FILE: BAT LOT 30\_rmv2  
CHK'D: M.J.B. JOB NO: 4520 DRAWN: R.C.K.

**SHEET 1 OF 1**

LEGEND:

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



WELL NUMBER: HO-18-0076  
 ADDRESS: 7016 COLT PLACE  
 DAYTON, MD 21036  
 PERMIT NO: B22001843

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

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 10/28/22

WALLCHECK  
 LOT 30  
**WILLOWSHIRE**  
 LIBER 18479, FOLIO 296  
 PLAT NO. 25505  
 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: 10/28/2022  
 CHK'D: M.J.B.

SCALE: 1" = 30'  
 JOB NO: 4520

FILE: WC LOT 30  
 DRAWN: R.C.K.



