

Howard County Health Department

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

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

RECEIPT DATE: 2-3-22 ONSITE SEWAGE DISPOSAL SYSTEM

P 570942

APPROVAL DATE: 08/03/2022 PERMIT: CONSTRUCTION

A

PROPERTY ADDRESS: 13617 NOBLE WAY, HIGHLAND, MD 20777

SUBDIVISION: THE ESTATES AT RIVER HILL LOT: 5 TAX ID:

CONTRACTOR: Freedom Septic EMAIL:

CONTRACTOR ADDRESS: 2809 Liberty Road, Sykesville MD 21784 PHONE: 410-755-2947

PROPERTY OWNER: ESTATES AT RIVER HILL LLC EMAIL: tkeane@trinityhomes.com

OWNER ADDRESS: 3675 PARK AVE., SUITE 301, ELLICOTT CITY, MD 21043 PHONE: (443)324-9806

SEPTIC TANK SIZE (GALLONS): 1500 TANK MANUFACTURER: MAYER BROS., INC.

PUMP MODEL: GOULDS PUMP SIZE 0.3 HP PUMP TANK CAPACITY: 1500

DISTRIBUTION SYSTEM: [X] GRAVITY [ ] PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 1.2

Table with 2 columns: Field Name (TRENCHES, LOCATION, NOTES) and Field Value (Linear feet required: 80, Inlet depth: 2.5, etc.)

ISSUED BY: R BRICKER ISSUE DATE: 2-3-22 EXPIRATION DATE: 2-3-23

- 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 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 22000115
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.

13017 N. Hwy  
NOT TO SCALE

\* see attached

ROAD NAME

**TRENCH/DRAINFIELD DATA**

WIDTH 3' INLET 2.5' BOTTOM 6.5'  
NUMBER OF TRENCHES 2  
TOTAL LENGTH 80'  
ABSORPTION AREA 240 sq ft + sidewalk  
DISTRIBUTION BOX LEVEL PUMP  
DISTRIBUTION BOX BAFFLE 90° Down  
DISTRIBUTION BOX PORT PVC

**SEPTIC TANK DATA**

SEPTIC TANK I LEVEL yes  
MANUFACTURER Babylon  
CAPACITY 1500 GAL  
SEAM LOC top  
TANK LID DEPTH 2.5'  
BAFFLES -  
BAFFLE FILTER -  
MANHOLE LOC inlet + outlet  
6" PORT LOC -  
WATERTIGHT TEST -  
SLOTTED YES  
DATE ON LID 1-3-22

**PUMP/SEPTIC TANK LEVEL**

yes  
MANUFACTURER Babylon  
CAPACITY 1500 GAL  
SEAM LOC top  
TANK LID DEPTH 2.5'  
BAFFLES -  
BAFFLE FILTER -  
MANHOLE LOC inlet + outlet  
6" PORT LOC -  
WATERTIGHT TEST -  
SLOTTED no  
DATE ON LID 1-2-22

**PRE-CONSTRUCTION:**

2/8/22 2x40' trenches were staked out on contour according to plan. Confirmed SHC will be coming out in planned location. Approved moving D-box to start of trenches.

**INSTALLATION:**

2/10/22 Tanks set and SH constructed. 2/11/22 2x40' trenches installed, D-box set. Most of FM constructed. 2/14/22 FM completed. Reinsp for baffles and SHC. 08/03/2022 P/A ON SVB PANEL, SEP. BREAKER. Pump 663 Flow @ Dbox. Alarm functions.

FINAL INSPECTOR

DATE OF APPROVAL

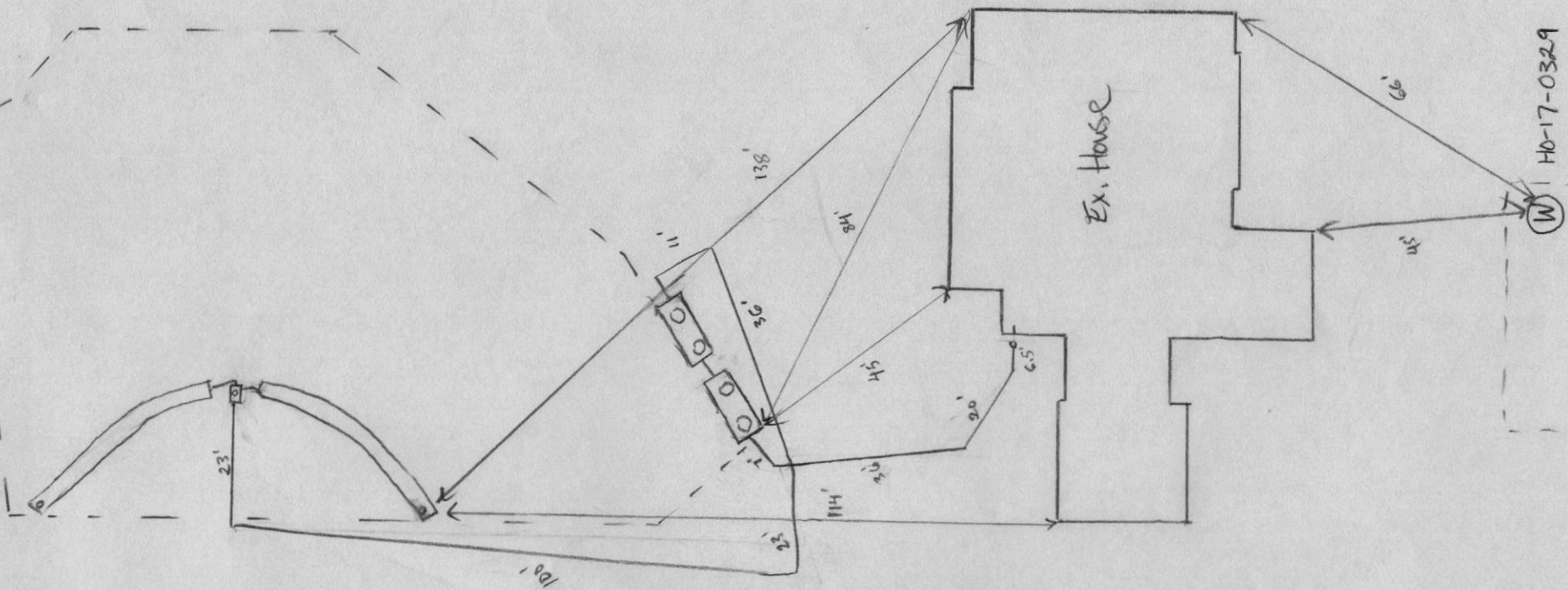
08/03/2022

NOT TO SCALE

1" = 30'

15617 Noble Way

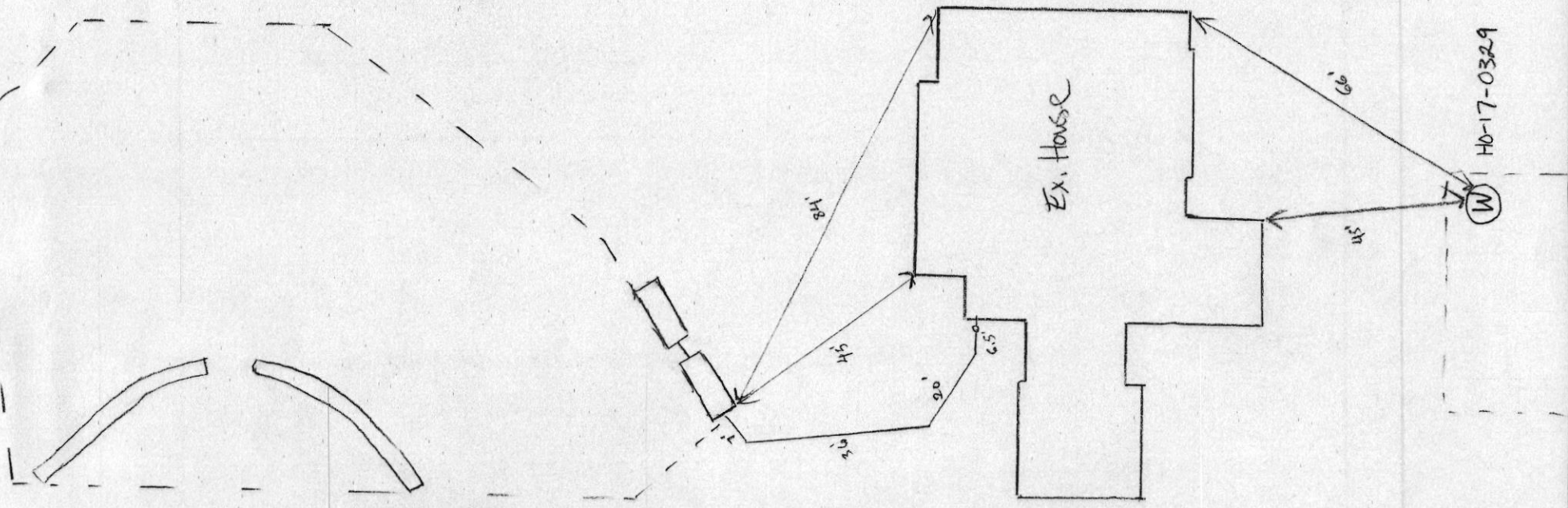
Noble Way



NOT TO SCALE

1" = 30'

15017 Noble Hwy



15017 Noble Hwy



Wastewater

APPLICATIONS

- Specifically designed for the following uses:
  - Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

- Pump**
  - Solids handling capabilities: 3/4" maximum
  - Discharge size: 2" NPT
  - Capacities: up to 140 GPM
  - Total heads: up to 128 feet TDH
  - Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
  - See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/2 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

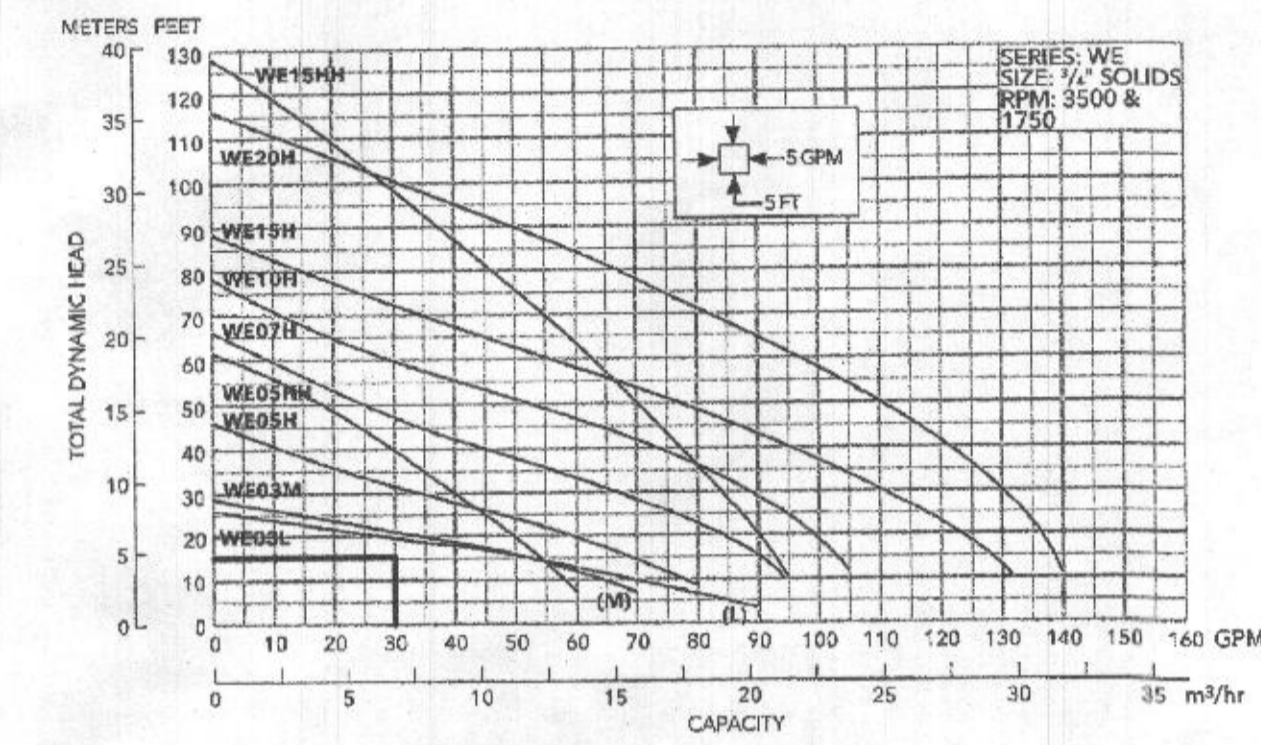
Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

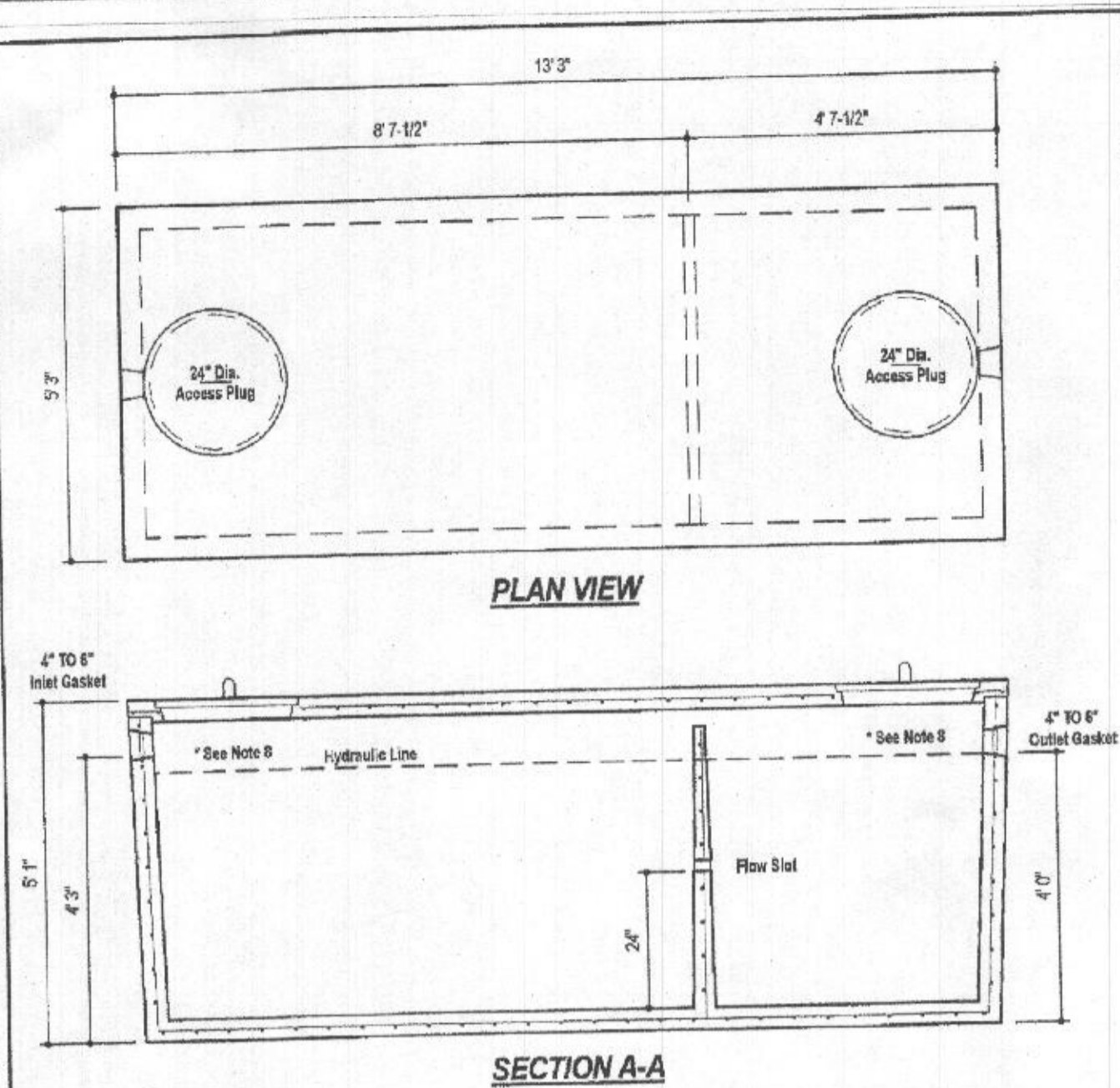
- SJTOW or STOW severe duty oil and water resistant power cords.
  - 1/2 - 1 HP models have NEMA three prong grounding plugs.
  - 1 1/2 HP and larger units have bare lead cord ends.
- Three phase (60 Hz):**
- Class 10 overload protection must be provided in separately ordered starter unit.
  - STOW power cords all have bare lead cord ends.
  - Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
  - Bearings: Upper and lower heavy duty ball bearing construction.
  - Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
  - O-rings: Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards  
By Canadian Standards Association File #428549



FLOW: 30 GPM  
H=15.04'  
USE GOULDS WEDS (OR EQUIVALENT)

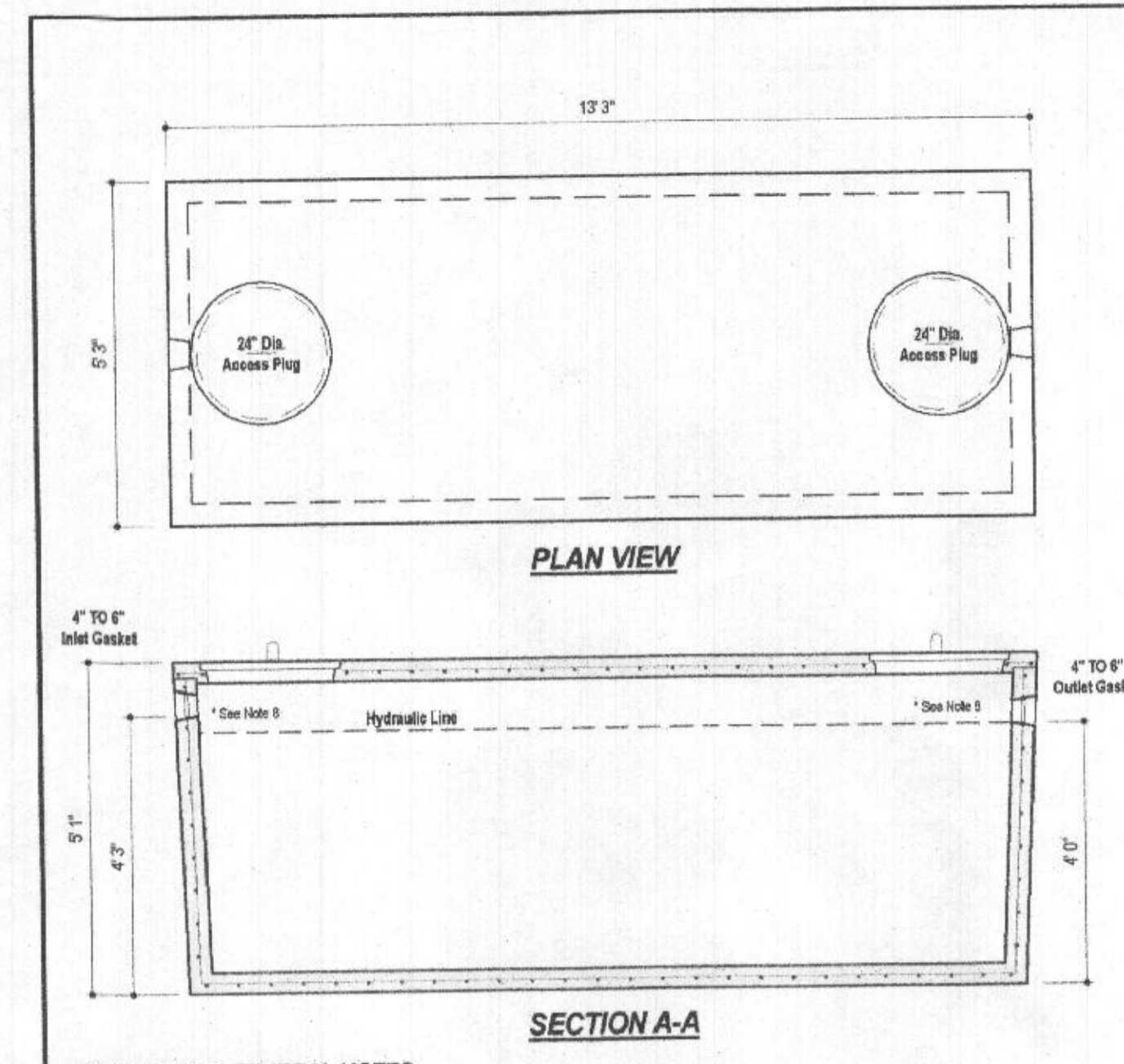


**DESIGN DATA & GENERAL NOTES**

- Concrete strength Fc=4,000 p.s.i. @ 28 days. Density = 150 pcf.
- Cement - Portland Type III per ASTM C 150-92.
- Aggregates & plasticizers per ASTM C 292-98 & C 494-92.
- Reinforcing per ASTM A195. Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, base, & top thickness.
- Max 5-1/2" of cover.
- Depending on use of tank, Inlet & Outlet baffles may be required by code.

WEIGHT = 16,750 lbs.

<p>Mayer Bros., Inc. www.mayerbrosprecast.com</p>	<p>1,500 GALLON TANK (Non-Traffic) 2-Compartment Stock Item</p>
	<p>Dwg. No. 1500-2C No Scale Aug. 11, 2008</p>

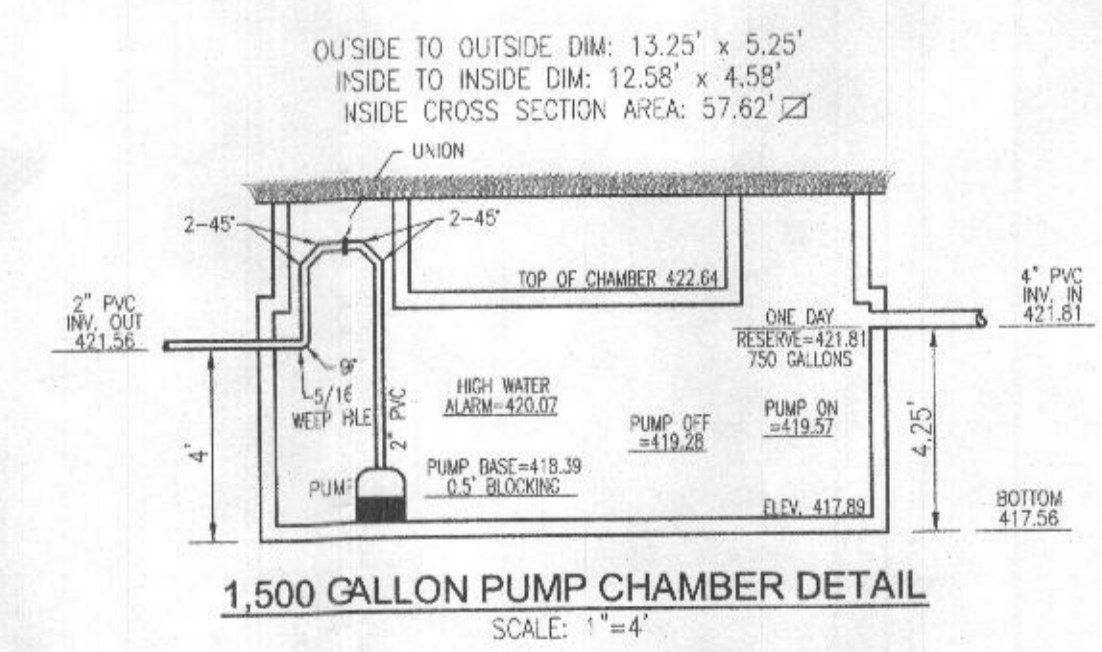
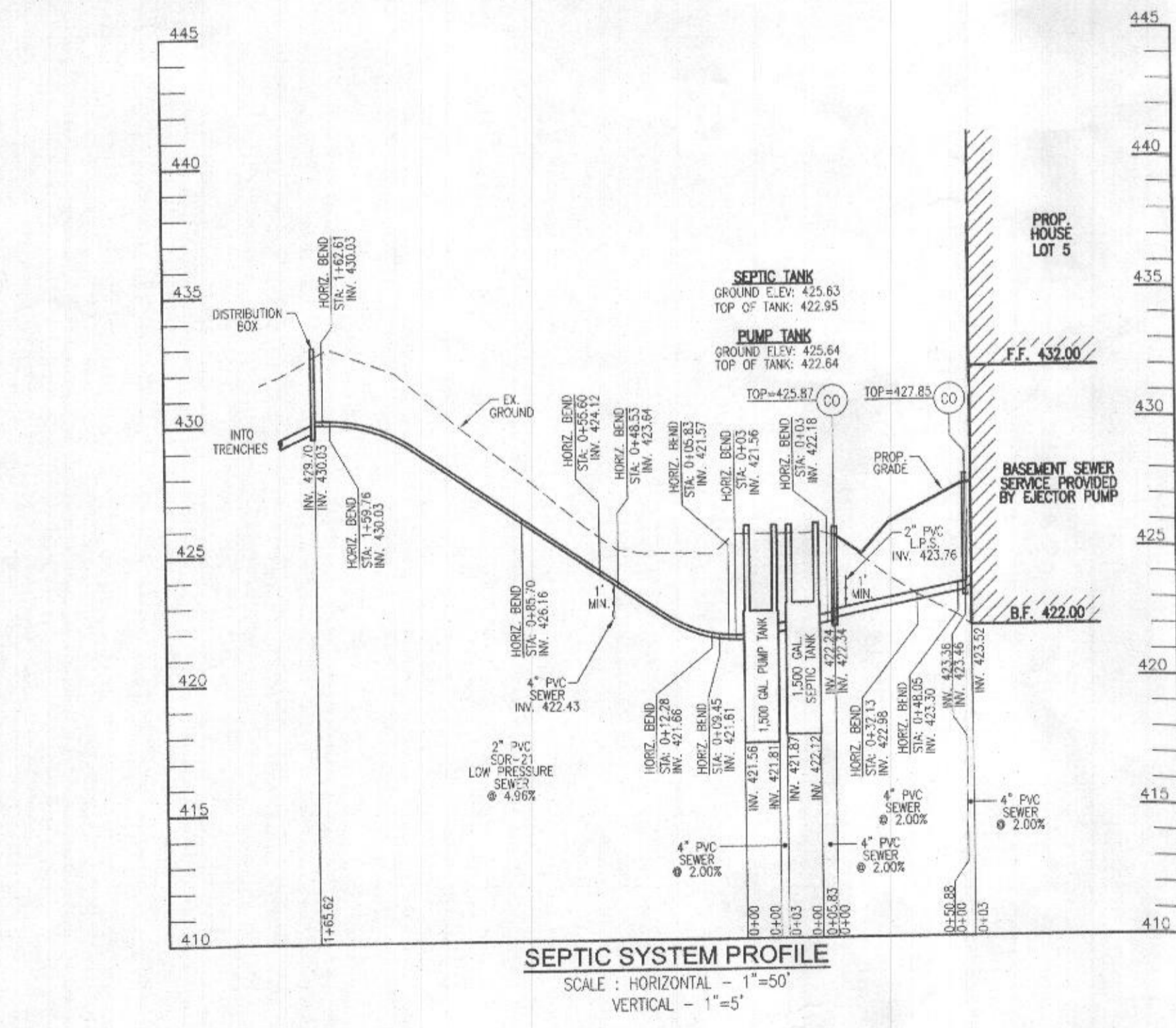


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- Reinforcing per ASTM A195. Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, base, & top thickness.
- Max 5" of cover.
- Depending on use of tank, Inlet & Outlet baffles may be required by code.

WEIGHT = 16,000 lbs.

<p>Mayer Bros., Inc. www.mayerbrosprecast.com</p>	<p>1,500 GALLON SEPTIC/PUMP TANK 1-Compartment NON-TRAFFIC MAX 3 ft. OF COVER</p>
	<p>Dwg. No. 1500-1C No Scale Aug. 11, 2008</p>



NO. BEDROOMS = 5  
DESIGN FLOW = 5(150 GPD) = 750 GPD  
DESIGN 1 1/2" DESIGN FLOW = 125 GPD  
125 GALLONS/7.48 FT³/GAL = 16.71 FT³  
16.71 FT³/57.62 SF = 0.29'  
ONE DAY RESERVE: 750 GALLONS/7.48 FT³/GAL = 100.27 FT³  
100.27 FT³/57.62 SF = 1.74 FT

TDH (FRICTION + STATIC)  
FRICTION FITTINGS: UNION: 1x2 = 2  
45° ELBOW (H+V): 1.5x8 = 104  
90° ELBOW: 1x7 = 7

FITTING EQ. LENGTH: 113.0 LF  
PIPE LENGTH: 185.6 LF  
TOTAL LENGTH: 298.6 LF

FRICTION LOSS (30 GPM): (1.54)(298.6)/100 = 4.29'  
STATIC: 430.03-419.28 (PUMP OFF) = 10.75'  
TDH: 10.75+4.29 = 15.04'  
USE GOULDS WEDS (OR EQUIVALENT)

**OWNER**  
ESTATES AT RIVER HILL, LLC  
MICHAEL P. PAUL, MEMBER  
3675 PARK AVE., SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

**DEVELOPER**  
TRINITY HOMES MARYLAND, LLC  
3675 PARK AVE., SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**THE ESTATES AT RIVER HILL - LOT 5**  
13617 NOBLE WAY  
HIGHLAND, MD 20777

PARCEL: 389  
TAX MAP: 34 GRID: 23  
5TH ELECTION DISTRICT

ZONED: RR-DEO  
L 18457 / F. 285  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
TIMMONS GROUP

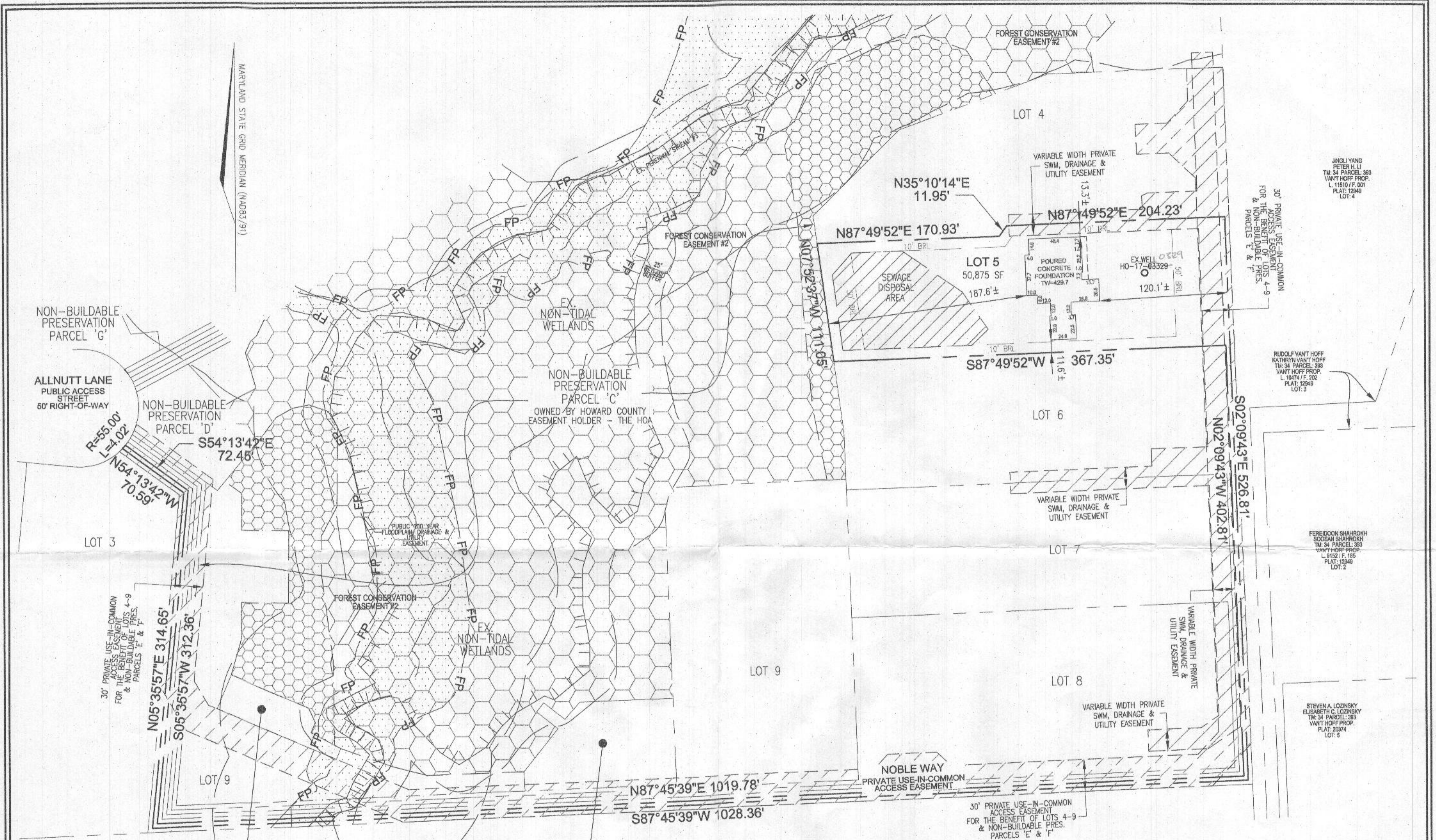
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193, EXPIRATION DATE: 09-27-2022.

DESIGN BY: RHY  
DRAWN BY: JNR  
CHECKED BY: RHY  
DATE: APRIL 2021  
SCALE: AS SHOWN  
W.D. NO.: 15-39

2 SHEET OF 2



JINGLI YANG  
PETER H. LI  
TM: 34 PARCEL 383  
VANT HOFF PROP.  
L. 11510 / F. 001  
PLAT: 12949  
LOT: 4

30' PRIVATE USE-IN-COMMON  
ACCESS EASEMENT  
FOR THE BENEFIT OF LOTS 4-9  
& NON-BUILDABLE PRES.  
PARCELS E & F

RUDOLF VANT HOFF  
KATHRYN VANT HOFF  
TM: 34 PARCEL 383  
VANT HOFF PROP.  
L. 10874 / F. 302  
PLAT: 12949  
LOT: 3

FEREDOON SHAHRUKH  
SOOBAN SHAHRUKH  
TM: 34 PARCEL 383  
VANT HOFF PROP.  
L. 10874 / F. 302  
PLAT: 12949  
LOT: 2

STEVEN A. LOZINSKY  
ELISABETH C. LOZINSKY  
TM: 34 PARCEL 383  
VANT HOFF PROP.  
PLAT: 20074  
LOT: 5

G. WARREN MILES  
MARIE L. MILES  
TM: 34 PARCEL 282  
L. 1265 / F. 363

*Wall Check  
OK  
RAC 2/7/22*

**WALL CHECK DRAWING**  
**THE ESTATES AT RIVER HILL**  
**LOT 5**  
 13617 NOBLE WAY  
 HIGHLAND, MD 20777

PLAT NO. 25085-25094  
 FIFTH ELECTION DISTRICT    HOWARD COUNTY, MARYLAND  
 SCALE: 1" = 60'    SEPTEMBER 13, 2021

GRAPHIC SCALE  
 120    60    30    0    30    60    120  
 1 INCH = 60 FEET

COMPILED BY:	W.O. NO.: 15-39	<b>SHEET</b>	<b>1</b> of <b>1</b>
DRAWN BY: E.D.A.			
CHECKED BY: E.D.S.			

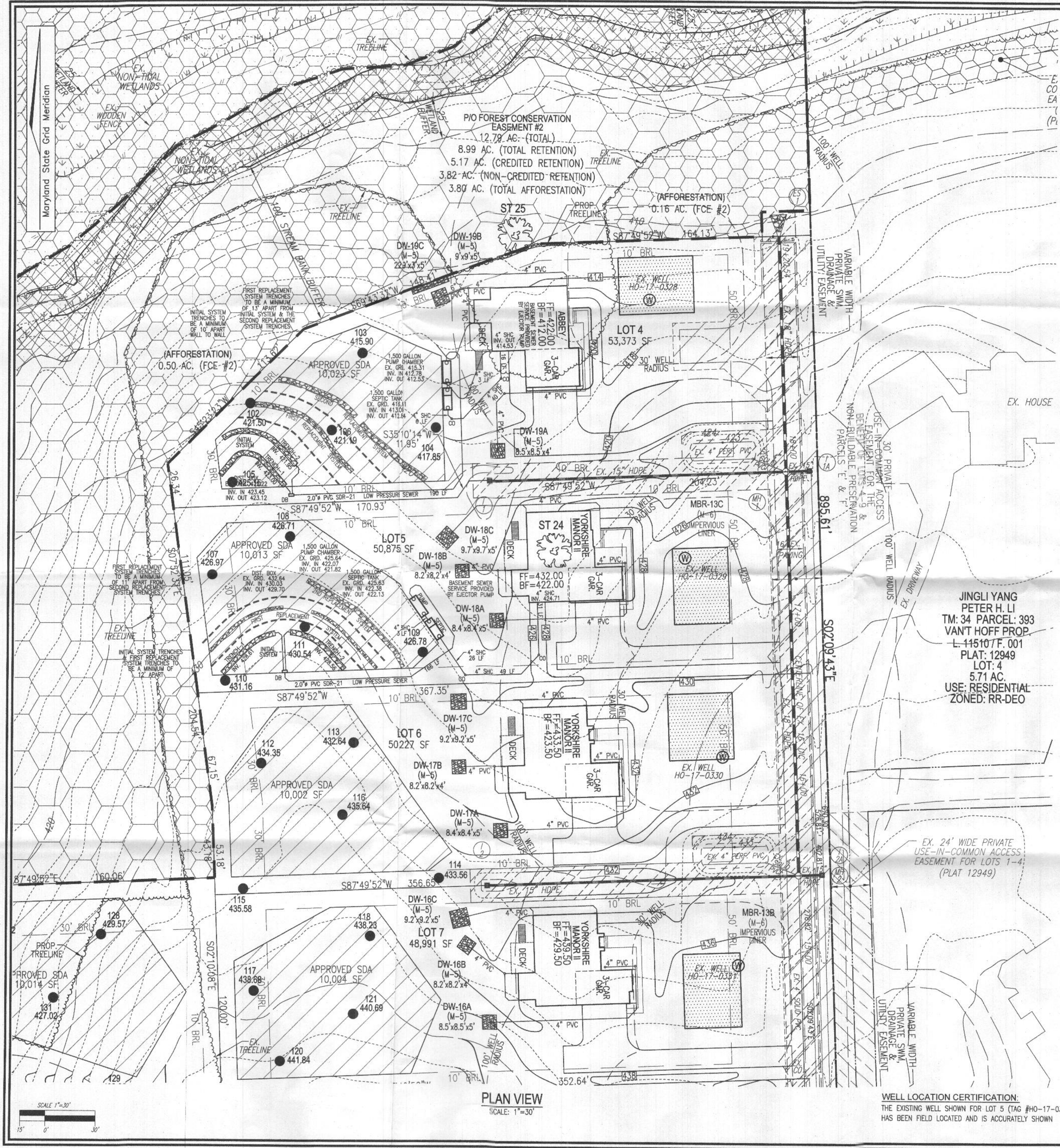
**VOGEL ENGINEERING**  
  
**TIMMONS GROUP**  
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

THIS WALL CHECK DRAWING CONTAINS A HORIZONTAL TOLERANCE IN ACCURACY OF 0.1' AND A VERTICAL TOLERANCE IN ACCURACY OF 0.2'



I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THAT THE IMPROVEMENTS ARE LOCATED AS SHOWN AND THAT THERE ARE NO ENCROACHMENTS EXCEPT AS SHOWN; THAT THIS DOCUMENT WAS 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.

*Michael L. Loveland*    2/7/22  
 MICHAEL L. LOVELAND    DATE  
 PROFESSIONAL LAND SURVEYOR  
 LICENSE NO. 21746  
 EXP. DATE: DECEMBER 11, 2023



THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECONSTRUCTION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

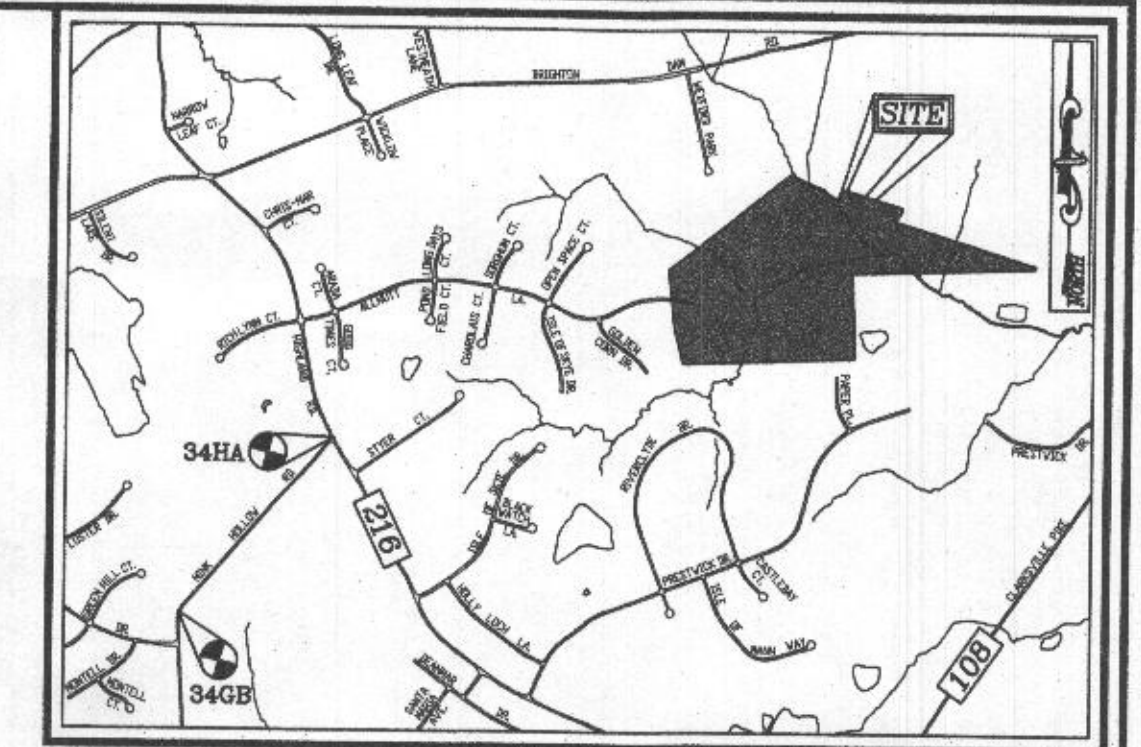
TRENCH	LENGTH	INVERT	INFO BOTTOM OF TRENCH	EXISTING GROUND
1	40	428.61	424.11	431.11
2	40	428.58	424.06	431.06

**SYSTEM CALCULATIONS:**

**INITIAL SYSTEM:**  
5 BEDROOMS AT 750gpd / 1.2 ABSORPTION RATE = 625 SQ. FT.  
625 SQ. FT. / 3 (TRENCH WIDTH) x .38 (SIDEWALL REDUCTION) = 79 LINEAR FEET  
80 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.  
(2 TRENCHES OF 40 FEET IN LENGTH)

**FIRST REPLACEMENT SYSTEM:**  
5 BEDROOMS AT 750gpd / 1.2 ABSORPTION RATE = 625 SQ. FT.  
625 SQ. FT. / 2 (TRENCH WIDTH) x .33 (SIDEWALL REDUCTION) = 103 LINEAR FEET  
104 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.  
(2 TRENCHES OF 52 FEET IN LENGTH)

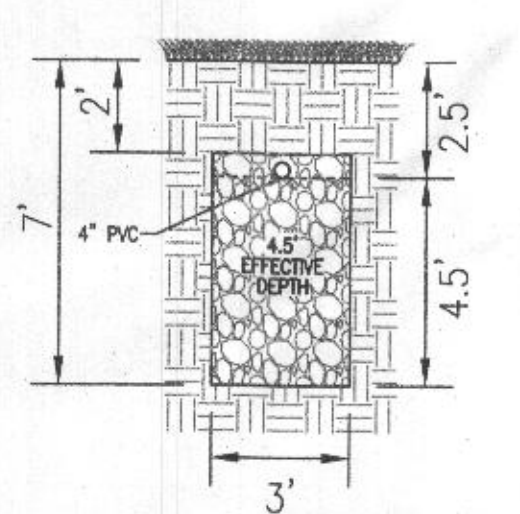
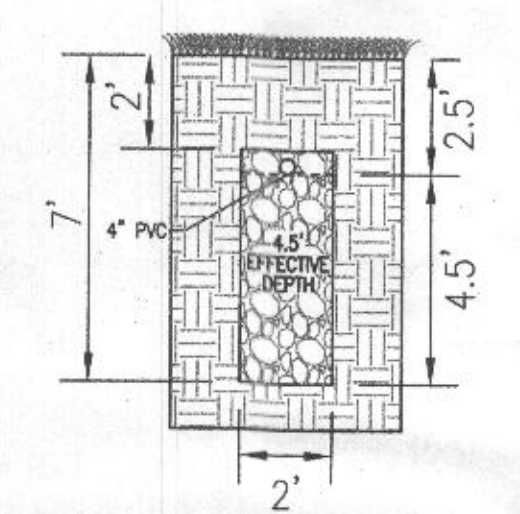
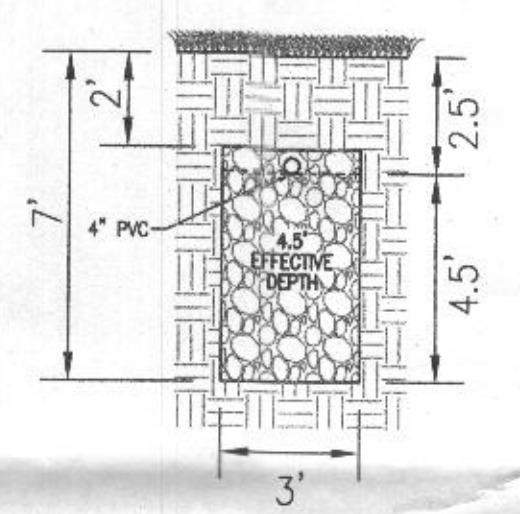
**SECOND REPLACEMENT SYSTEM:**  
5 BEDROOMS AT 750gpd / 1.2 ABSORPTION RATE = 625 SQ. FT.  
625 SQ. FT. / 3 (TRENCH WIDTH) x .38 (SIDEWALL REDUCTION) = 79 LINEAR FEET  
79 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.



**BENCHMARKS**  
HOWARD COUNTY BENCHMARK 346B (CONC. MON.)  
N 553096.73 E 1317752.53 ELEV. 506.18  
LOCATION: MINK HOLLOW RD. 0.45 MI. SW OF  
HIGHLAND RD.  
HOWARD COUNTY BENCHMARK 344A (CONC. MON.)  
N 555780.15 E 1319355.57 ELEV. 536.23  
LOCATION: CORNER OF HIGHLAND RD. & MINK  
HOLLOW RD.

**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING SPECIMEN TREES
- EXISTING WOOD FENCE
- EX. PUBLIC 100-YEAR FLOOD PLAN
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. PRIVATE SWM DRAINAGE & UTILITY EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- APPROVED SEWAGE DISPOSAL AREA (SDA)
- APPROVED WELL AREA
- EXISTING WELL
- APPROVED ALTERNATE WELL LOCATION
- PASSED PERC. TEST
- FAILED PERC. TEST



JINGLI YANG  
PETER H. LI  
TM: 34 PARCEL: 393  
VANT HOFF PROP.  
L: 115107.F.001  
PLAT: 12949  
LOT: 4  
5.71 AC.  
USE: RESIDENTIAL  
ZONED: RR-DEO

Approved Septic System Plan  
Howard County Health Department  
1500 gal Septic Tank & 1500 gal Pump Tank  
w/ 500 lbs WEP & 3 pump or equiv.  
Risks  
Signature  
8/13/19

- GENERAL NOTES:**
- ANY CHANGE 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 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
  - ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
  - THE WELL (HO-17-0329) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.
  - ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
  - ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  - THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM HOWARD COUNTY GIS AND SUPPLEMENTED WITH FIELD RUN TOPOGRAPHICAL SURVEYS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH AND MAY OF 2016.

**OWNER**  
ESTATES AT RIVER HILL, LLC  
MICHAEL PFALL, MEMBER  
3675 PARK AVE., SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 480-0023

**DEVELOPER**  
TRINITY HOMES MARYLAND, LLC  
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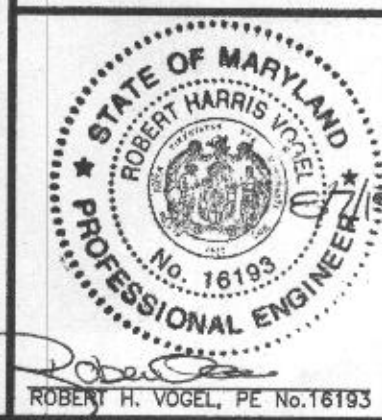
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5TH ELECTION DISTRICT

ZONED: RR-DEO  
L: 18487 / F: 262  
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
3300 N. RIDGE ROAD, SUITE 110  
ELLCOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961



**PROFESSIONAL CERTIFICATE**

DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: RHV  
DATE: AUGUST 2019  
SCALE: AS SHOWN  
W.O. NO.: 15-39

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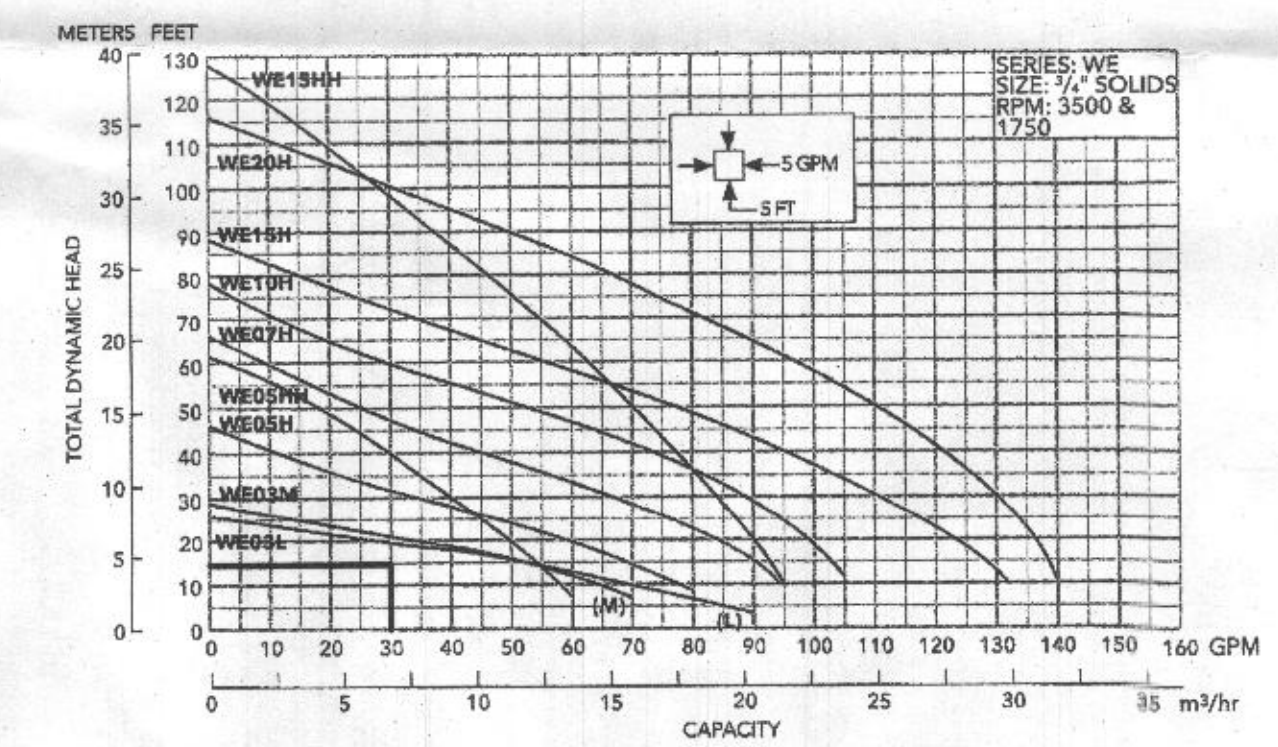
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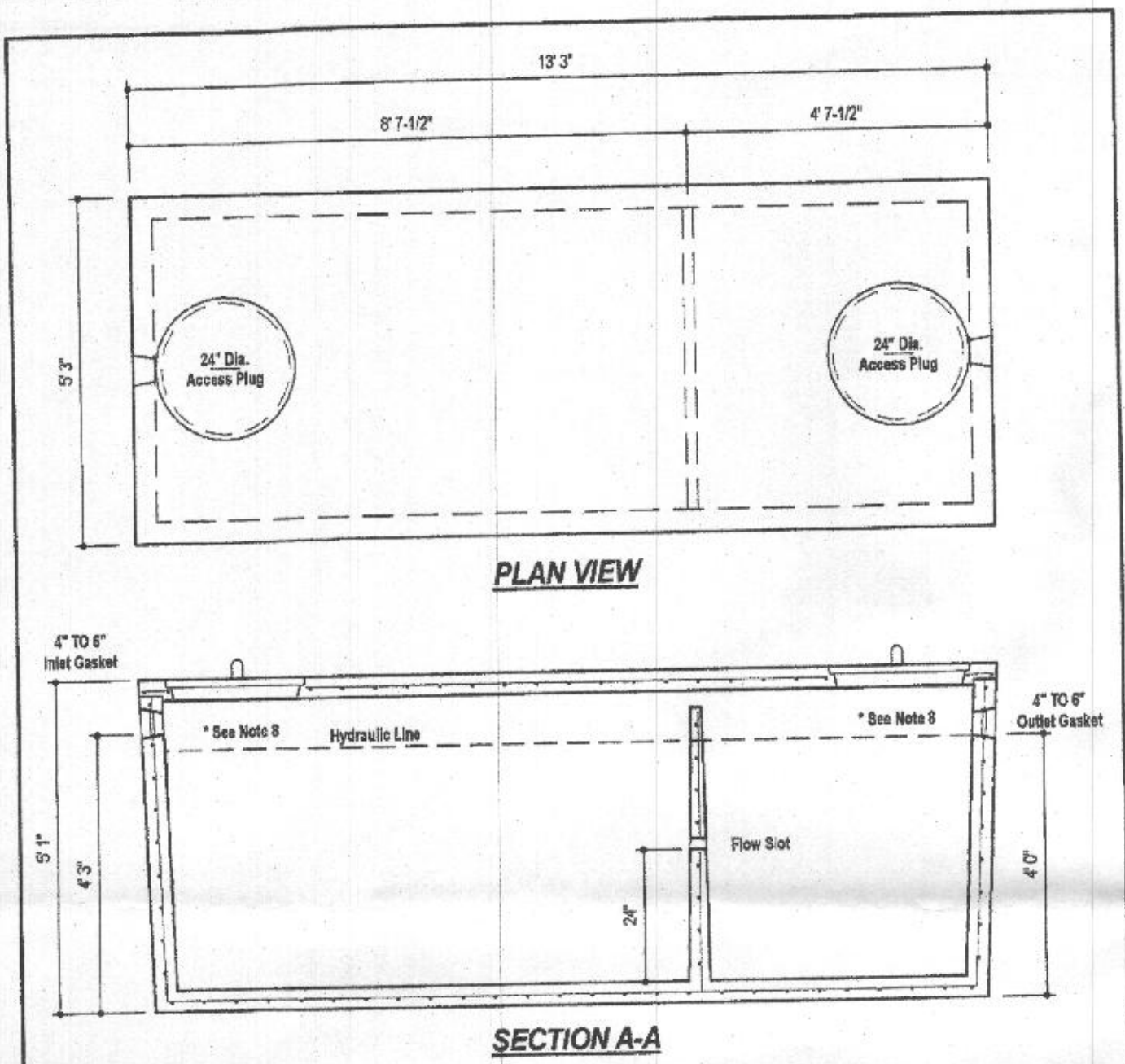
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AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards  
 By Canadian Standards Association File #R35549



FLOW: 30 GPM  
 H=14.78'  
 USE GOULDS WE03 (OR EQUIVALENT)

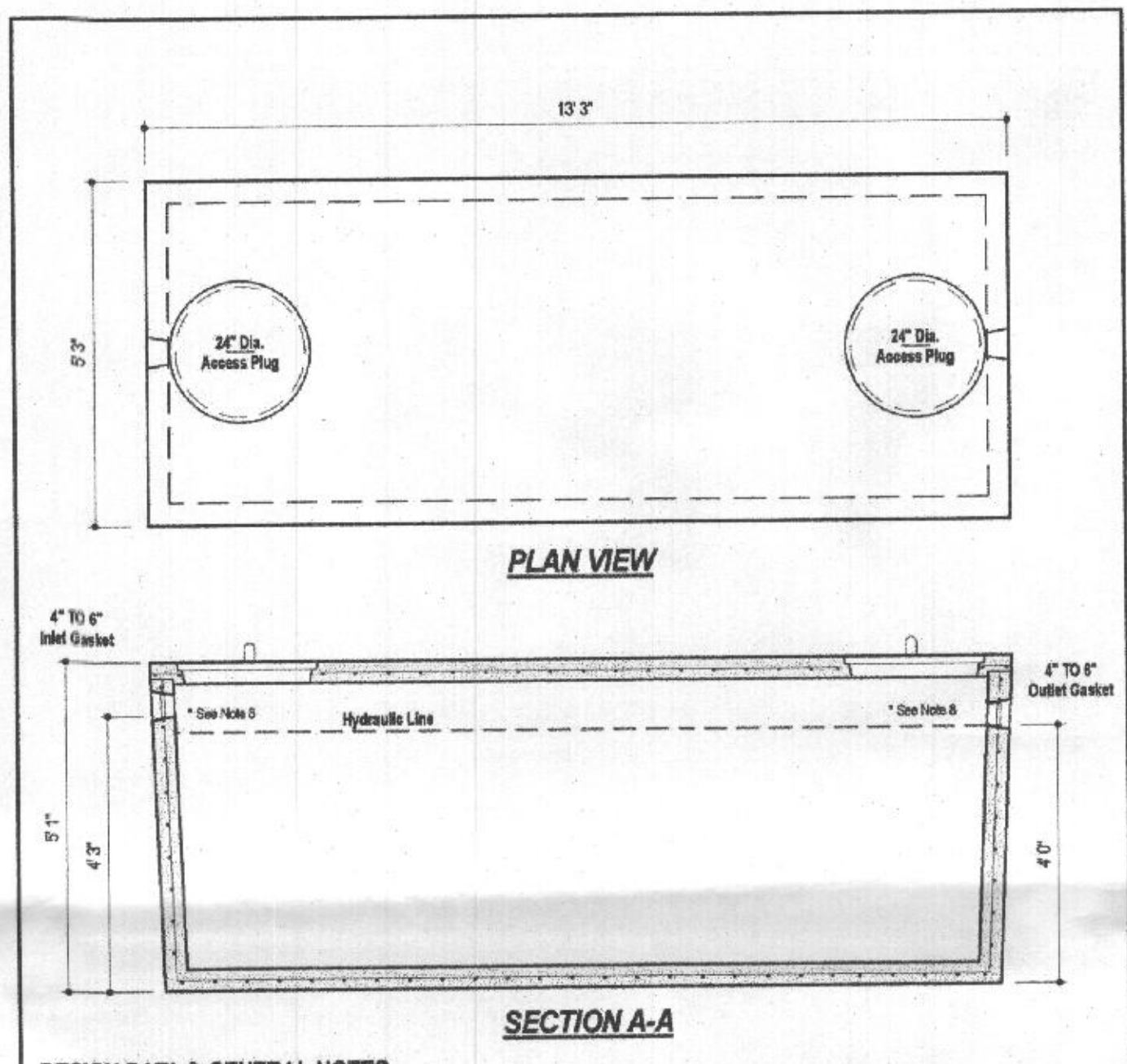


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- [2] Cement - Portland Type III per ASTM C 150-02.
- [3] Admixtures & plasticizers per ASTM C 390-06 & C 494-02.
- [4] Reinforcing per ASTM A198. Min. 5-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3-1/2" of cover.
- [8] Depending on use of tank, Inlet & Outlet baffles may be required by code.

WEIGHT = 16,750 lbs.

<p>Mayer Bros., Inc. www.mayerbrospump.com</p>	<b>1,500 GALLON TANK (Non-Traffic)</b> <b>2-Compartment</b> Stock Item	
	Dwg. No. 1500-2C	Aug. 11, 2008
	No Scale	No Scale



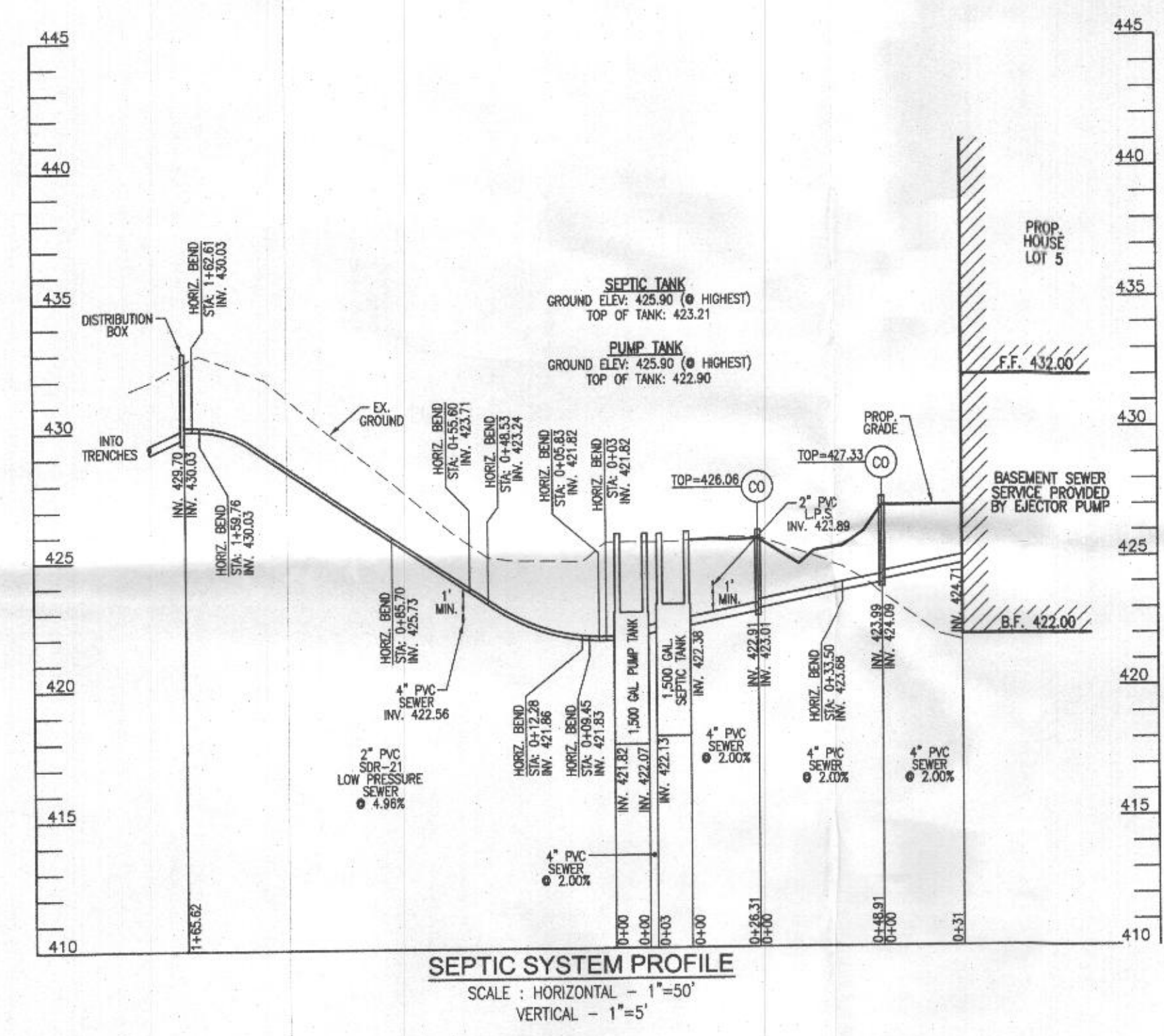
DESIGN DATA & GENERAL NOTES

- [1] Concrete strength Fc=4,000 p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type III per ASTM C 150-02.
- [3] Admixtures & plasticizers per ASTM C 390-06 & C 494-02.
- [4] Reinforcing per ASTM A198. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, base, & top thickness.
- [7] Max 3" of cover.
- [8] Depending on use of tank, Inlet & Outlet baffles may be required by code.

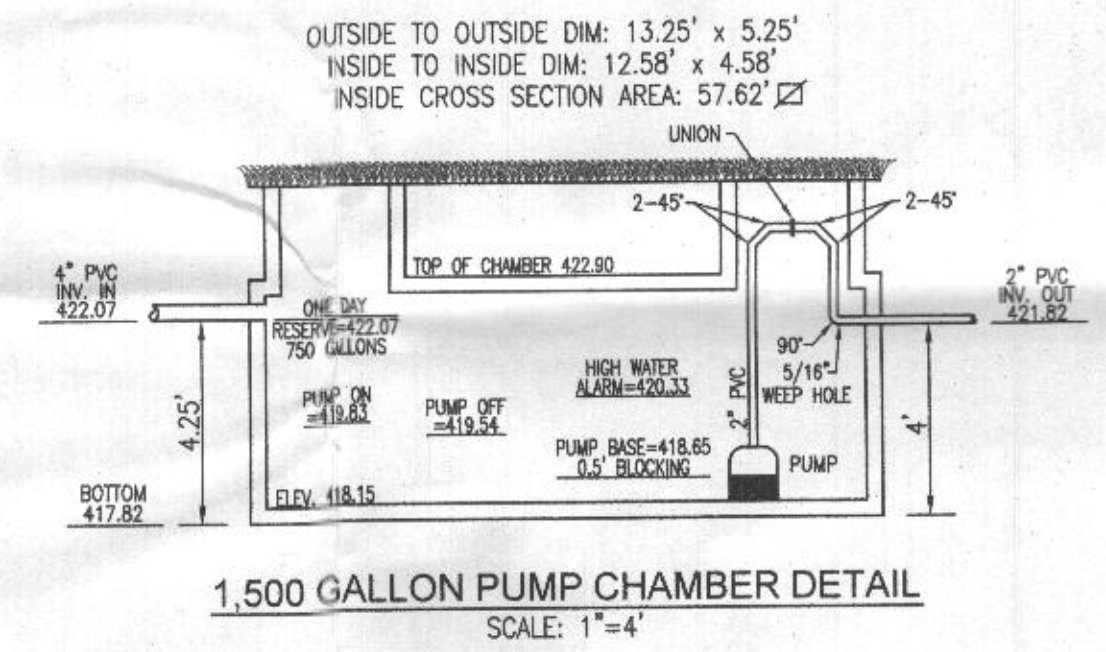
WEIGHT = 16,000 lbs.

<p>Mayer Bros., Inc. www.mayerbrospump.com</p>	<b>1,500 GALLON SEPTIC/PUMP TANK</b> <b>1-Compartment</b> NON-TRAFFIC MAX 3 FL. OF COVER	
	Dwg. No. 1500-1C	Aug. 11, 2008
	No Scale	No Scale

Approved Septic System Plan  
 Howard County Health Department  
 1500-gal Septic Tank & 1500-gal Pump Tank  
 w/ GOULDS WE03 pump or equiv.  
 Signature: *R. Beck* Date: 8/13/19



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



1,500 GALLON PUMP CHAMBER DETAIL  
 SCALE: 1"=4'

NO. BEDROOMS = 5  
 DESIGN FLOW = 5(150 GPD) = 750 GPD  
 DOSE: 1/8 DESIGN FLOW = 125 GPD  
 125 GALLONS/7.48 FT³/GAL = 16.71 FT³  
 16.71 FT³/57.62 SF = 0.29"  
 ONE DAY RESERVE: 750 GALLONS/7.48 FT³/GAL = 100.27 FT³  
 100.27 FT³/57.62 SF = 1.74 FT  
 TDH (FRICTION + STATIC)  
 FRICTION FITTINGS: UNION: 1x2 = 2  
 45° ELBOW (H+V): 13x8 = 104  
 90° ELBOW: 1x7 = 7  
 FITTING EQ. LENGTH: 113.0 LF  
 PIPE LENGTH: 163.6 LF  
 TOTAL LENGTH: 278.6 LF  
 FRICTION LOSS (30 GPM): (1.54)(278.6)/100 = 4.29'  
 STATIC: 430.03-419.54 (PUMP OFF) = 10.49'  
 TDH: 10.49+4.29 = 14.78'  
 USE GOULDS WE03 (OR EQUIVALENT)

OWNER ESTATES AT RIVER HILL, LLC MICHAEL PFALZ, MEMBER 3675 PARK AVE., SUITE 301 ELLICOTT CITY, MD 21043 (410) 480-0023		DEVELOPER TRINITY HOMES MARY LAND, LLC 3675 PARK AVE., SUITE 301 ELLICOTT CITY, MD 21043 (410) 480-0023	
ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN			
THE ESTATES AT RIVER HILL - LOT 5 13617 NOBLE WAY HIGHLAND, MD 20777			
PARCEL: 369 TAX MAP: 34 GRID: 23 5TH ELECTION DISTRICT		ZONED: RR-DEO L 18487 / F. 282 HOWARD COUNTY, MARYLAND	
ROBERT H. VOGEL ENGINEERS • SURVEYORS • PLANNERS 3300 N. RIDGE ROAD, SUITE 110 ELLICOTT CITY, MD 21043 TEL: 410.461.7656 FAX: 410.461.8961			
DESIGN BY: RHY DRAWN BY: JMR CHECKED BY: RHY DATE: AUGUST 2019 SCALE: AS SHOWN W.O. NO.: 15-39		PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2020	
		2 SHEET OF 2	