

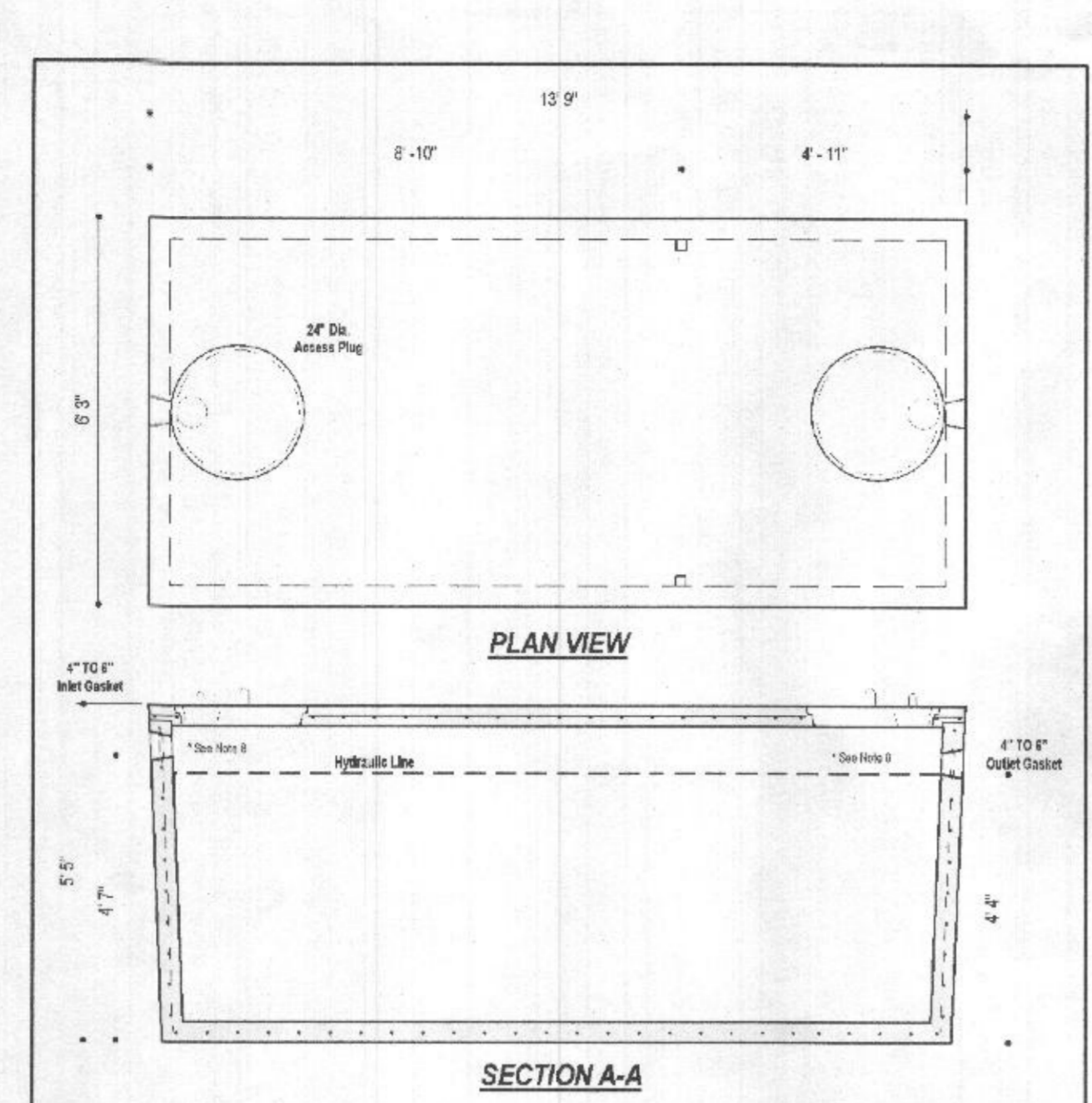
**DESIGN DATA & GENERAL NOTES**

- Concrete strength Fc=4,000 p.s.i., 28 days, Density = 150 pcf.
- Concrete - Portland Type III per ASTM C 150-02.
- Reinforcing per ASTM A618, 60,000 psi, 1/2" dia.
- Reinforcing per ASTM A618, 60,000 psi, 1/2" dia.
- Top slab sealed with butyl rope mortar.
- 4" wall, 4" base, 4" top thickness.
- Use 2" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

**2,000 GALLON SEPTIC TANK 2-Compartment**  
Stock Item (Approx. 19,900 lbs)

Mayer Bros, Inc. 6384 Race Road, Elkridge, Maryland 21075. Tel: 410.796.1428. Fax: 410.796.1428. www.mayerbrosgroup.com

Dwg. No. 2030-2C No Scale Aug 11, 2008



**DESIGN DATA & GENERAL NOTES**

- Concrete strength Fc=4,000 p.s.i., 28 days, Density = 150 pcf.
- Concrete - Portland Type III per ASTM C 150-02.
- Reinforcing per ASTM A618, 60,000 psi, 1/2" dia.
- Reinforcing per ASTM A618, 60,000 psi, 1/2" dia.
- Top slab sealed with butyl rope mortar.
- 4" wall, 4" base, 4" top thickness.
- Use 2" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

**2,000 GALLON SEPTIC TANK 1-Compartment**  
Stock Item (Approx. 19,900 lbs)

Mayer Bros, Inc. 6384 Race Road, Elkridge, Maryland 21075. Tel: 410.796.1428. Fax: 410.796.1428. www.mayerbrosgroup.com

Dwg. No. 2030-1C No Scale Aug 11, 2008

**Wastewater**

**AGENCY LISTINGS**

Tested to UL 778 and CSA 222.108 Standards By Canadian Standards Association #4 61258547

**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**

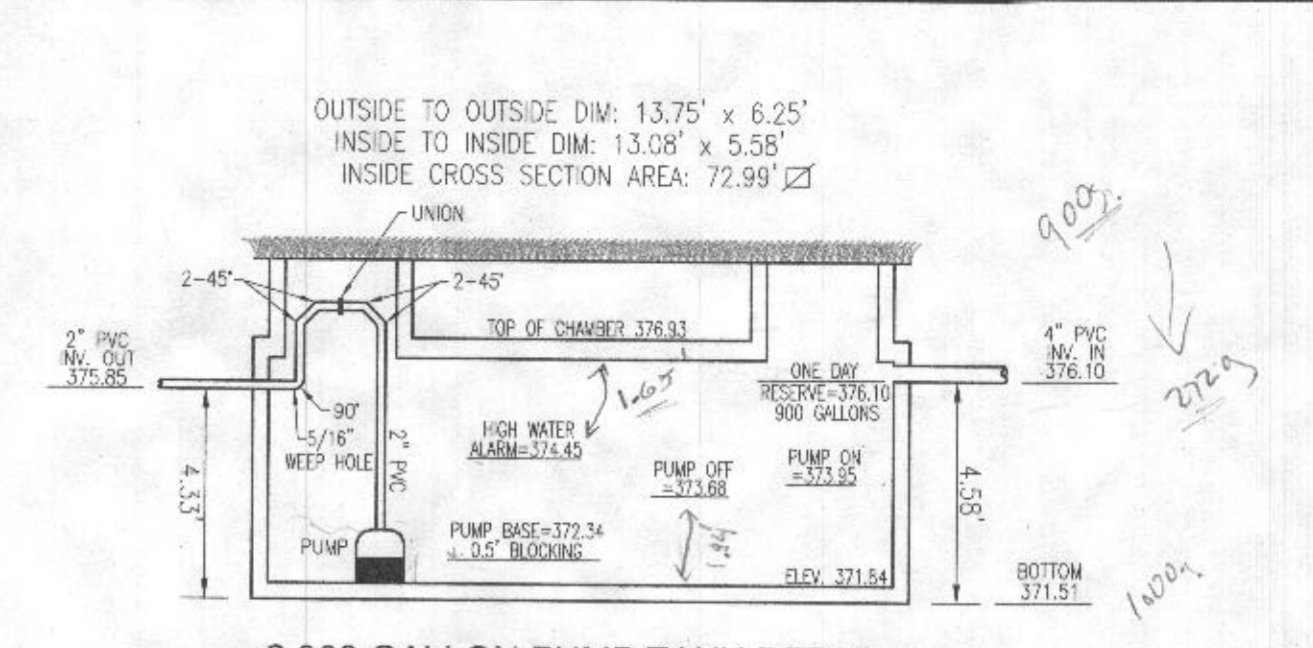
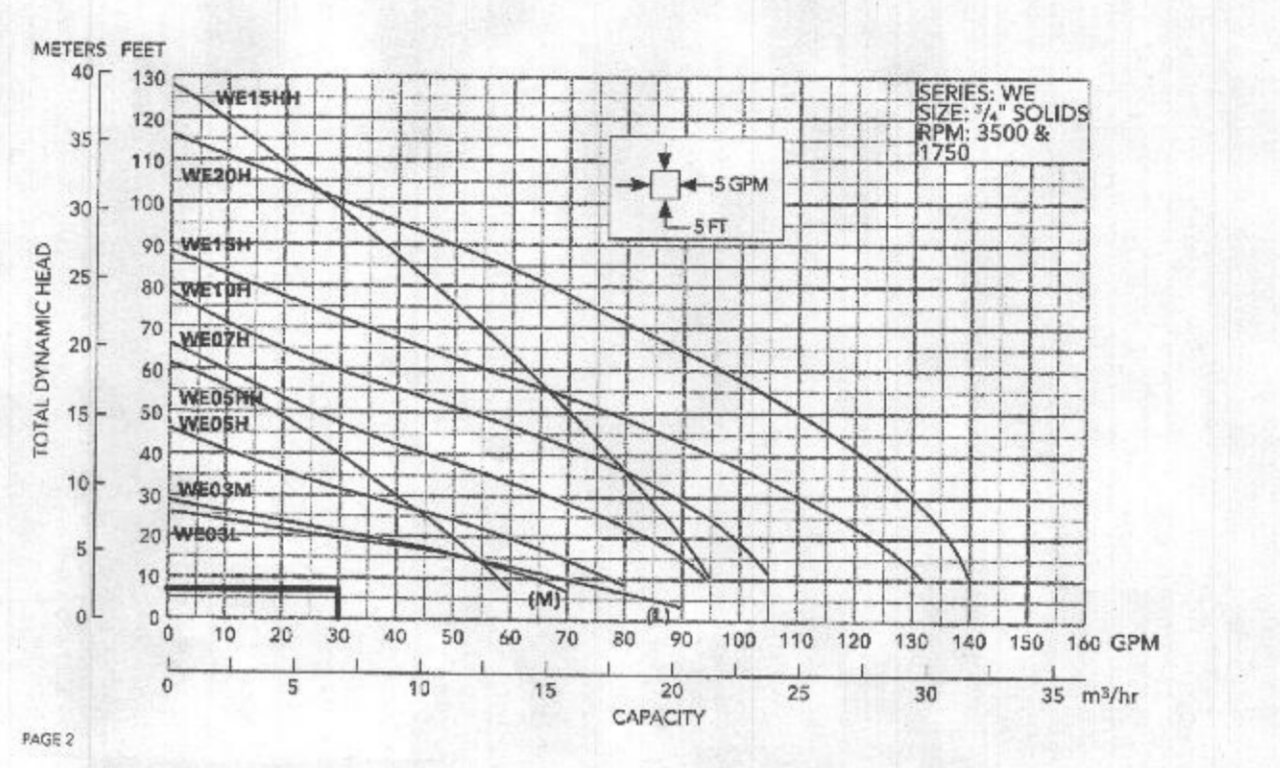
- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/2 HP models.
- Class F insulation on 2 HP models.

**Single phase (60 Hz):**

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

**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-ring: Assures positive sealing against contaminants and oil leakage.



**2,000 GALLON PUMP TANK DETAIL**  
SCALE: 1"=4'

OUTSIDE TO OUTSIDE DIM: 13.75' x 6.25'  
INSIDE TO INSIDE DIM: 13.08' x 5.58'  
INSIDE CROSS SECTION AREA: 72.99 SF

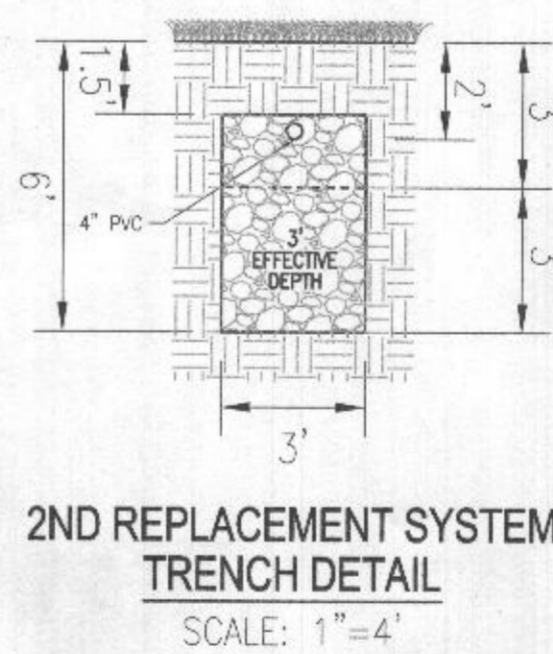
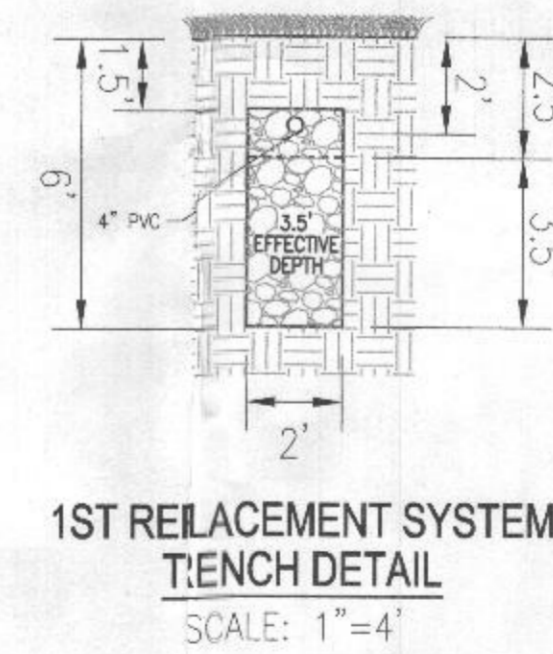
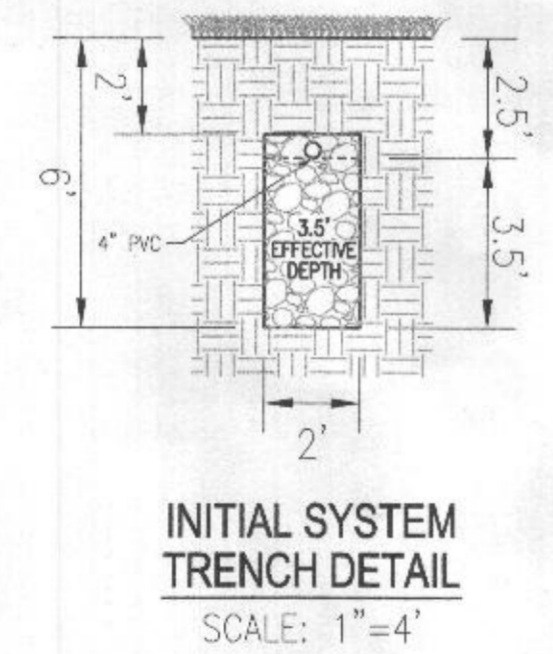
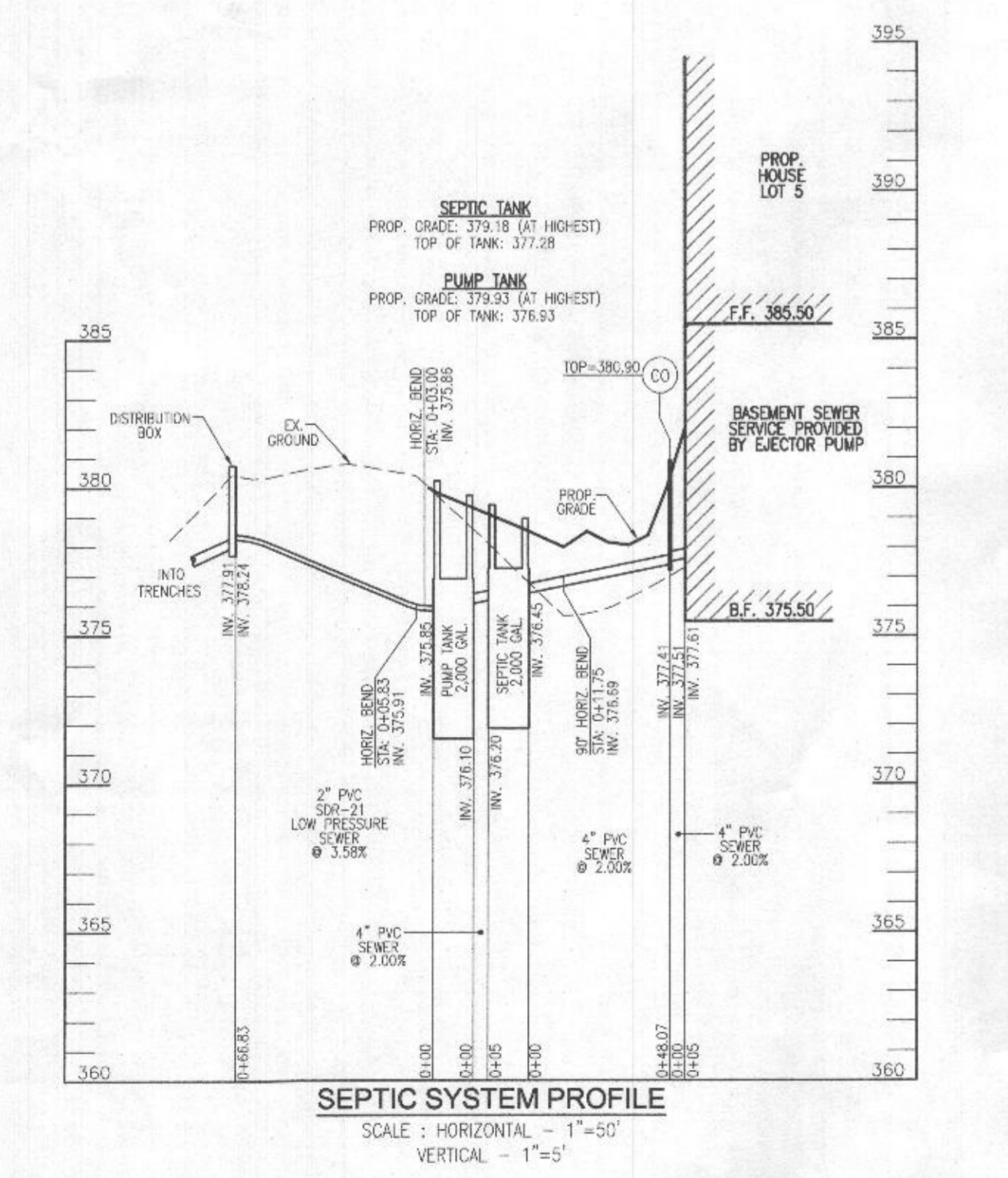
NO. BEDROOMS = 6  
DESIGN FLOW = 6(150 GPD) = 900 GPD  
DOSE: 1/8 DESIGN FLOW = 150 GPD  
150 GALLONS/7.48 FT³/GAL. = 20.05 FT³  
20.05 FT³/72.99 SF = 0.27'  
ONE DAY RESERVE: 900 GALLONS/7.48 FT³/GAL. = 120.32 FT³  
120.32 FT³/72.99 SF = 1.65 FT

TDH (FRICTION + STATIC)  
FRICTION FITTINGS: UNION: 1x2 = 2  
45° ELBOW (1+4): 5x8 = 48  
90° ELBOW: 1x7 = 7

FITTING EQ. LENGTH: 57.0 LF  
PIPE LENGTH: 66.8 LF  
TOTAL LENGTH: 123.8 LF

FRICTION LOSS (30 GPM): (1.54)(123.8)/100 = 1.91'  
STATIC: 378.24-373.58 (PUMP OFF) = 4.56'  
TDH: 4.56+1.91 = 6.47'

USE GOULDS WE03 (OR EQUIVALENT)



**OWNER**  
GRATA PLENA, LLC  
11140 HOMWOOD ROAD  
ELLCOTT CITY, MD 21042  
(410) 877-4612

**DEVELOPER**  
TRINITY HOMES MARY LAND, LLC  
3675 PARK AVENUE, SUITE 301  
ELLCOTT CITY, MD 21043  
(410) 450-3023

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**CUNNINGHAM PROPERTY - LOT 5**  
11908 CARITAS WAY  
ELLCOTT CITY, MD 21042

5TH ELECTION DISTRICT  
TAX MAP: 29 PARCEL: 25  
DPZ REF'S: HO-10-03E, EOP-16-03O,  
EOP-17-05O, GP-17-03B, SDP-18-004 & F-19-04O

BLOCK: 13  
ZONED: HO-BED  
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 FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2024

DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: R/V  
DATE: AUGUST 2023  
SCALE: AS SHOWN  
W.O. NO.: 14-62

ROBERT H. VOGEL, P.E. No. 16193

2 SHEET OF 2





**WELL LOCATION CERTIFICATION:**  
 THE EXISTING WELL SHOWN FOR LOT 5 (TAG #HO-20-0067) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN

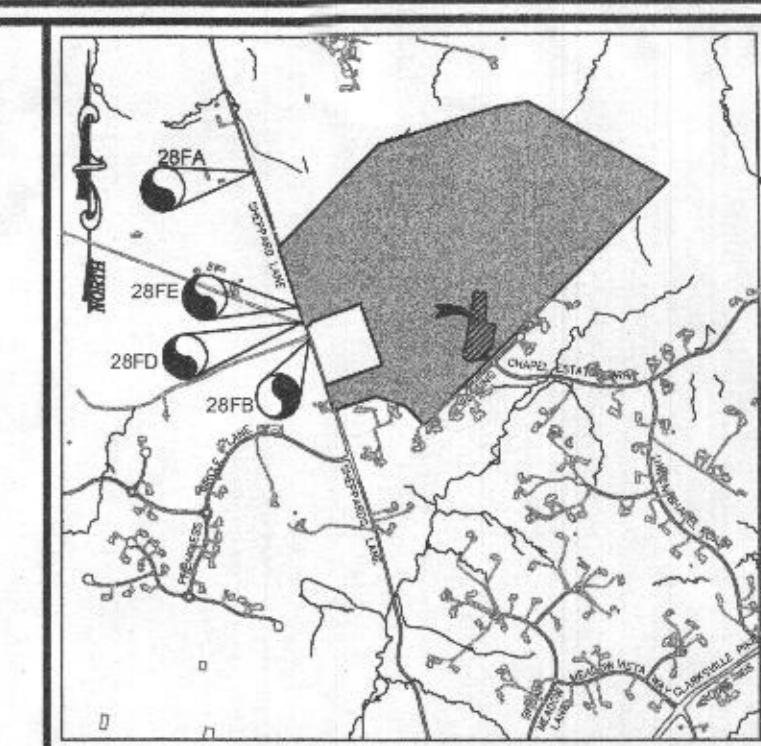
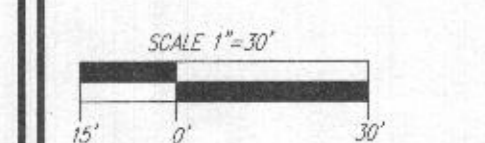
**INITIAL SYSTEM TRENCH INFO.**

TRENCH	TRENCH LENGTH	INCH BOTTOM OF TRENCH	EXISTING GROUND
1	50'	377.13	378.69
2	50'	377.72	380.22
3	50'	378.19	378.69

**SYSTEM CALCULATIONS:**  
**INITIAL & FIRST REPLACEMENT SYSTEMS:**  
 6 BEDROOMS AT 90gpd / 1.2 ABSORPTION RATE = 750 SQ. FT.  
 750 SQ. FT. / 2 (TRENCH WIDTH) x 40 (SIDEWALL REDUCTION) = 150 LINEAR FEET  
 150 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH EACH SYSTEM.  
 (3 TRENCHES OF 50 FEET IN LENGTH)

**SECOND REPLACEMENT SYSTEM:**  
 6 BEDROOMS AT 90gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.  
 1,125 SQ. FT. / 3 (TRENCH WIDTH) x 50 (SIDEWALL REDUCTION) = 186 LINEAR FEET  
 186 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.  
 (4 TRENCHES OF 47 FEET IN LENGTH)

**PLAN VIEW**  
 SCALE: 1"=30'



**VICINITY MAP**  
 SCALE: 1"=2000'  
 ADC MAP COORDINATES: 25-D5

**BENCHMARKS**

BENCHMARK	ELEVATION
HOWARD COUNTY BENCHMARK 28FA	348.21'
HOWARD COUNTY BENCHMARK 28FB	385.45'
HOWARD COUNTY BENCHMARK 28FD	381.91'
HOWARD COUNTY BENCHMARK 28FE	380.85'

**LEGEND:**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING TREELINE
- EXISTING TREE
- EXISTING WOOD FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- APPROVED SEWAGE DISPOSAL AREA (SDA)
- EXISTING WELL LOCATION
- ALTERNATE WELL LOCATION

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.

Approved Septic System Plan  
 Howard County Health Department  
 Hank Oswald  
 Signature Date 7/30/24

**OWNER:** GRATIA PLENA LLC  
 11145 HONORWOOD ROAD  
 ELLICOTT CITY, MD 21042  
 (410) 677-4612

**DEVELOPER:** TRINITY HOMES MARYLAND, LLC  
 3675 PARK AVENUE, SUITE 301  
 ELLICOTT CITY, MD 21043  
 (410) 480-0023

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**  
**CUNNINGHAM PROPERTY - LOT 5**  
 11908 CARITAS WAY  
 ELLICOTT CITY, MD 21042

5TH ELECTION DISTRICT  
 TAX MAP: 29 PARCEL: 25  
 OPZ REFS: HO-10-036, ECP-16-030, ECP-17-050, OP-17-038, SDP-18-004 & F-19-040

BLOCK: 13  
 ZONED: RC-DEO  
 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. 18183, EXPIRATION DATE: 09-27-2024

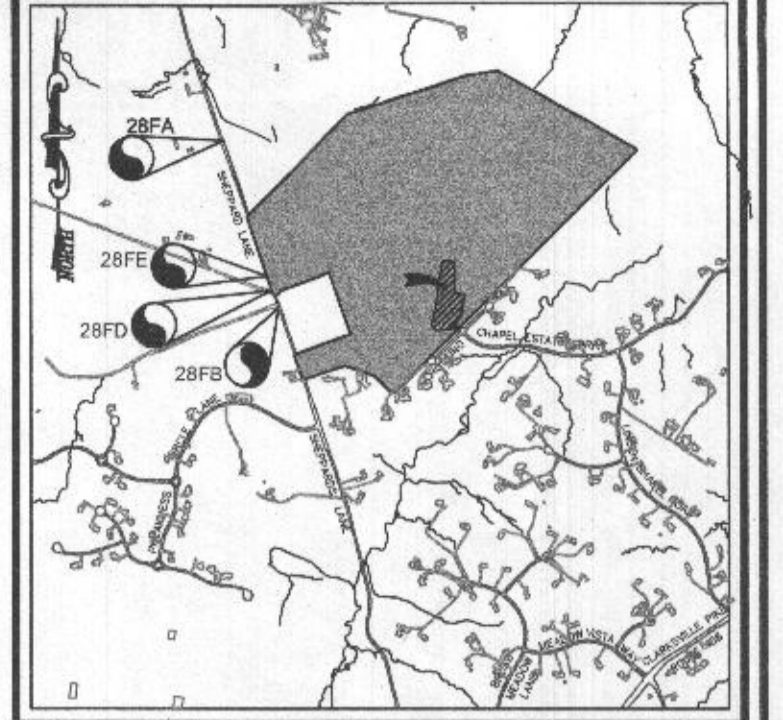
DESIGN BY: RHV  
 DRAWN BY: JMR  
 CHECKED BY: RHV  
 DATE: JULY 2024  
 SCALE: AS SHOWN  
 W.O. NO.: 14-62

ROBERT H. VOGEL, PE No.18183

1 SHEET OF 2

- 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-20-0067) 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 OS AND SUPPLEMENTED WITH FIELD RUN TOPOGRAPHICAL SURVEYS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2015.





VICINITY MAP  
SCALE: 1"=2000'  
ADC MAP COORDINATES: 25-05

**BENCHMARKS**

HOWARD COUNTY BENCHMARK 28FA N 572,456.68 E 1,328,957.64 HOWARD COUNTY MONUMENT	ELEV: 348.21'
HOWARD COUNTY BENCHMARK 28FB N 570,710.84 E 1,329,524.63 HOWARD COUNTY MONUMENT	ELEV: 385.45'
HOWARD COUNTY BENCHMARK 28FD N 570,895.88 E 1,329,461.33 HOWARD COUNTY MONUMENT	ELEV: 381.91'
HOWARD COUNTY BENCHMARK 28FE N 571,047.81 E 1,329,404.44 HOWARD COUNTY MONUMENT	ELEV: 380.85'

**LEGEND:**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING TREELINE
	EXISTING TREE
	EXISTING WOOD FENCE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
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	PROPOSED 2' CONTOUR
	APPROVED SEWAGE DISPOSAL AREA (SDA)
	EXISTING WELL LOCATION
	ALTERNATE WELL LOCATION

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 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 ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECONSTRUCTION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

Approved Septic System Plan  
Howard County Health Department  
Mark O'Connell 9/15/23  
Signature Date

**OWNER**  
GRATIA PLENA, LLC  
11140 HOLLOWOOD ROAD  
ELLICOTT CITY, MD 21042  
(443) 877-4612

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

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

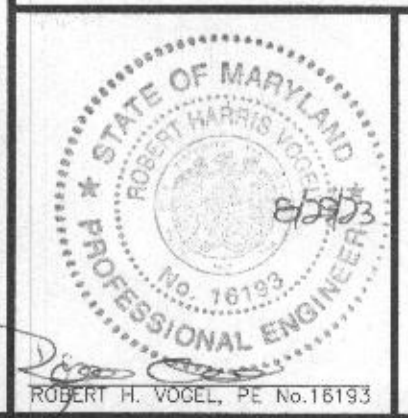
**CUNNINGHAM PROPERTY - LOT 5**  
11908 CARITAS WAY  
ELLICOTT CITY, MD 21042

5TH ELECTION DISTRICT  
TAX MAP: 29 PARCELS: 25  
DCP REF'S: HO-10-03E, ECP-16-03O,  
ECP-17-05O, GP-17-03E, SDP-16-004 & F-19-04O  
BLOCK: 13  
ZONED: RC-DEO  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**

**TIMMONS GROUP**

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**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. 16193, EXPIRATION DATE: 08-27-2024.

DESIGN BY:	RHV
DRAWN BY:	JMS
CHECKED BY:	RHV
DATE:	AUGUST 2023
SCALE:	AS SHOWN
W.O. NO.:	14-62

**WELL LOCATION CERTIFICATION:**  
THE EXISTING WELL SHOWN FOR LOT 5 (TAG #HO-20-0067) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.

**INITIAL SYSTEM TRENCH INFO.**

TRENCH LENGTH	TRENCH WIDTH	EXISTING TRENCH	EXISTING DEPTH
1	50	377.19	373.69
2	50	377.72	374.22
3	50	376.19	372.69

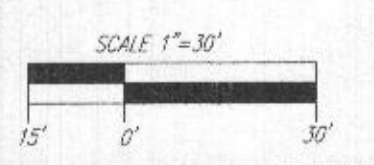
**SYSTEM CALCULATIONS:**

**INITIAL/FIRST REPLACEMENT SYSTEMS:**  
6 BEDROOMS AT 900gpd / 1.2 ABSORPTION RATE = 750 SQ. FT.  
750 SQ. FT. / 2 (TRENCH WIDTH) x 40 (SIDEWALL REDUCTION) = 150 LINEAR FEET  
150 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH EACH SYSTEM.  
(3 TRENCHES OF 50 FEET IN LENGTH)

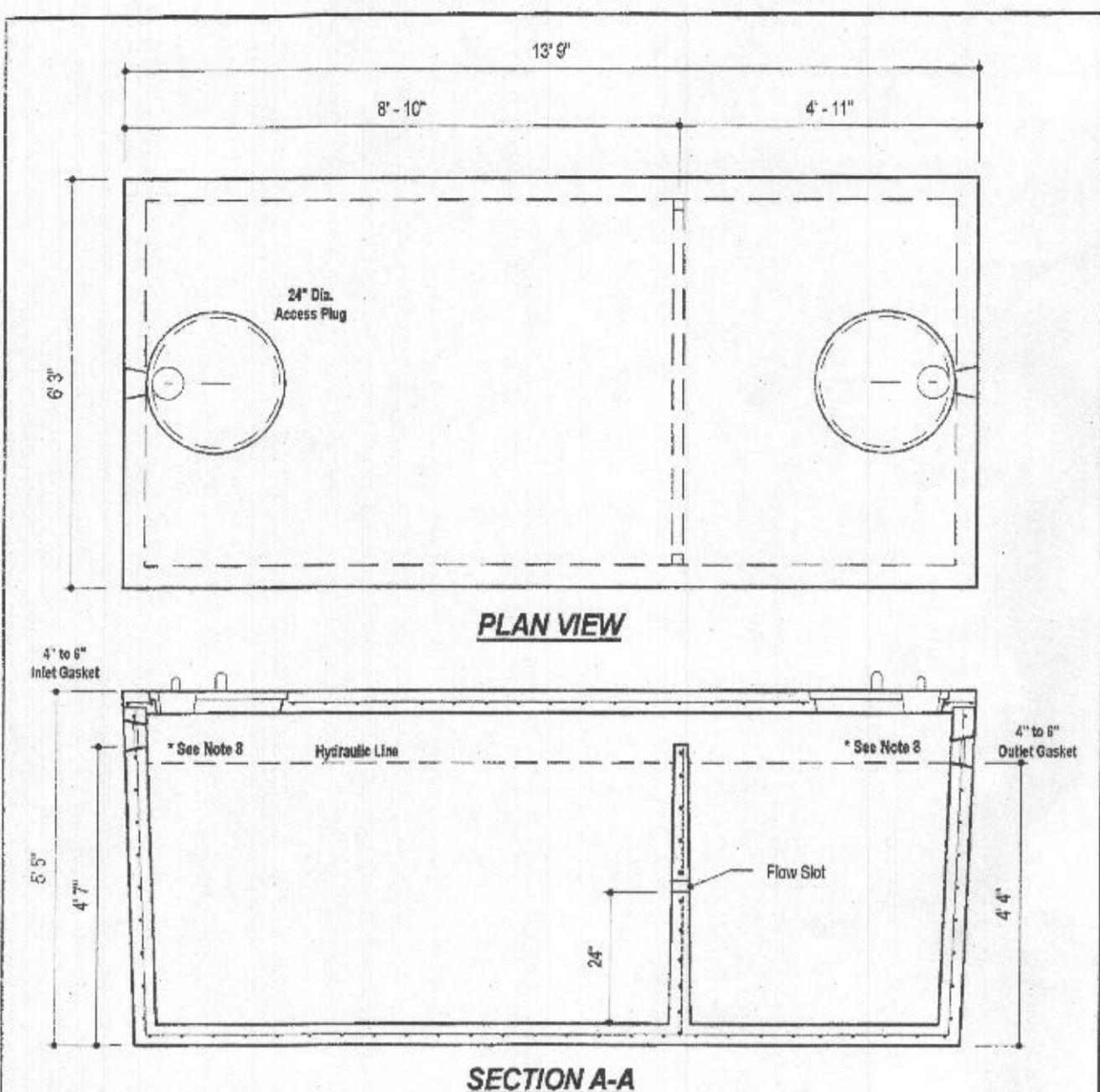
**SECOND REPLACEMENT SYSTEM:**  
6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.  
1,125 SQ. FT. / 3 (TRENCH WIDTH) x 50 (SIDEWALL REDUCTION) = 188 LINEAR FEET  
188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.  
(4 TRENCHES OF 47 FEET IN LENGTH)

**PLAN VIEW**  
SCALE: 1"=30'

- 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-20-0067) 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 RAIN TOPOGRAPHICAL SURVEYS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2015.





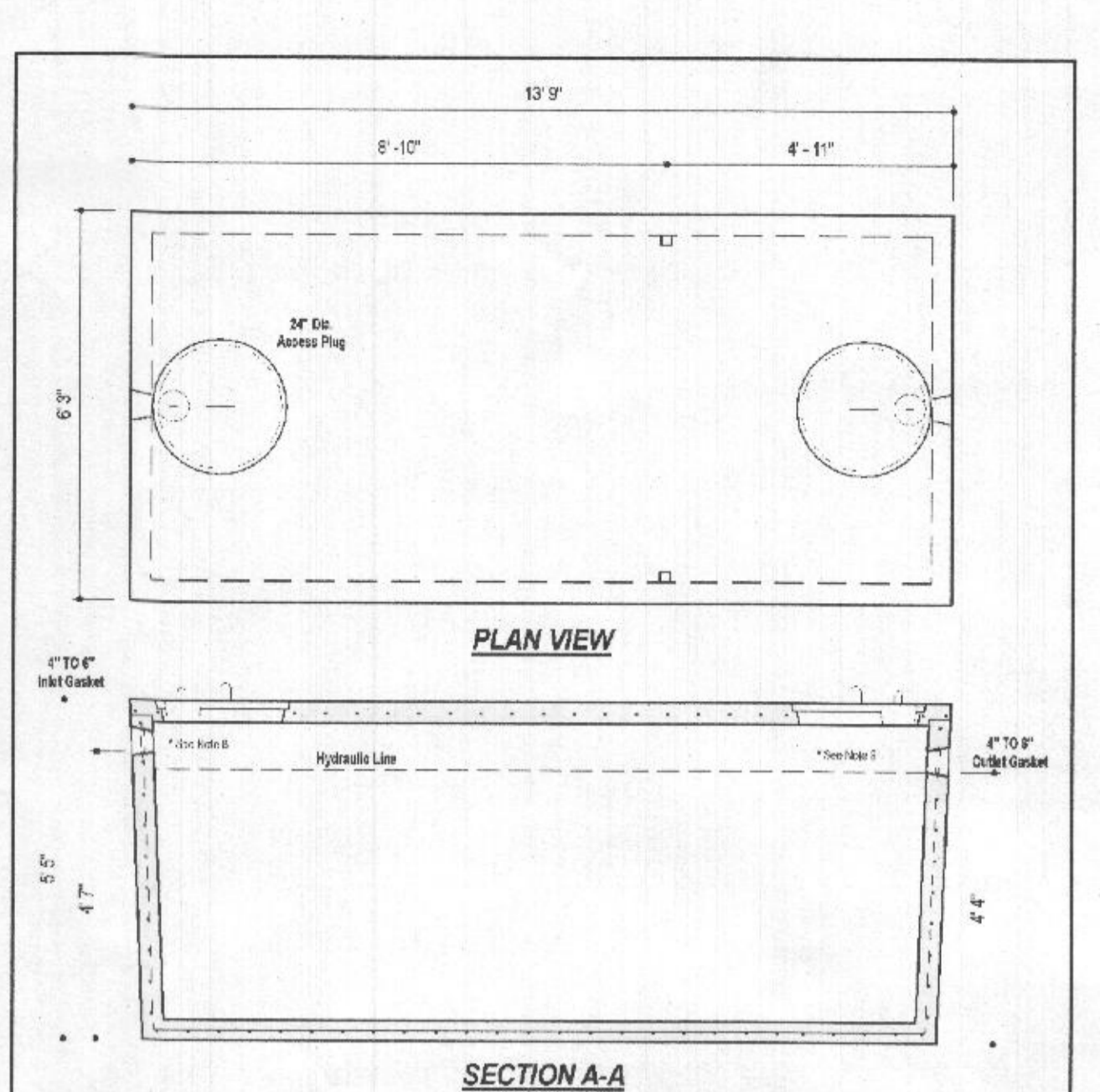


**DESIGN DATA & GENERAL NOTES**

- Concrete strength F<sub>cm</sub> 4000 p.s.i. @ 28 days. Density = 150 pcf.
- Concrete: Portland Type I or ASTM C 150-02.
- Reinforcing per ASTM A618, Min. 1/2" cover.
- Top slab sealed with butyl rope sealant.
- 8" wall, 4" base, 8" top thickness.
- Min. 2" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

**2,000 GALLON SEPTIC TANK 2-Compartment**  
Stock Item [Approx. 19,900 lbs]

Dwg. No. 2000-2C No Scale Aug. 11, 2008



**DESIGN DATA & GENERAL NOTES**

- Concrete strength F<sub>cm</sub> 4000 p.s.i. @ 28 days. Density = 150 pcf.
- Concrete: Portland Type I or ASTM C 150-02.
- Reinforcing per ASTM A618, Min. 1/2" cover.
- Top slab sealed with butyl rope sealant.
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- Min. 2" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

**2,000 GALLON SEPTIC TANK 1-Compartment**  
Stock Item [Approx. 19,900 lbs]

Dwg. No. 2000-1C No Scale Aug. 11, 2008

**Wastewater**

**AGENCY LISTINGS**

Tested to UL 778 and CSA 22.2 108 Standards By Canadian Standards Association File #LR58549

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

**SPECIFICATIONS**

**Pump**

- Solids handling capabilities: 1/2" maximum
- Discharge size: 2" NPT
- Capacity: 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**

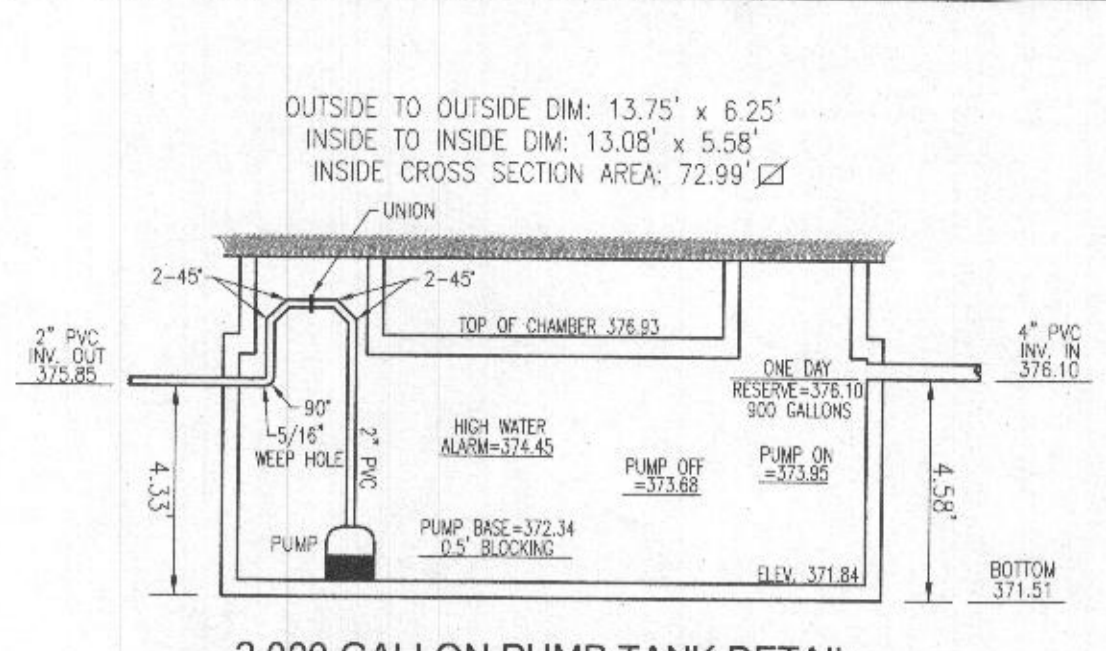
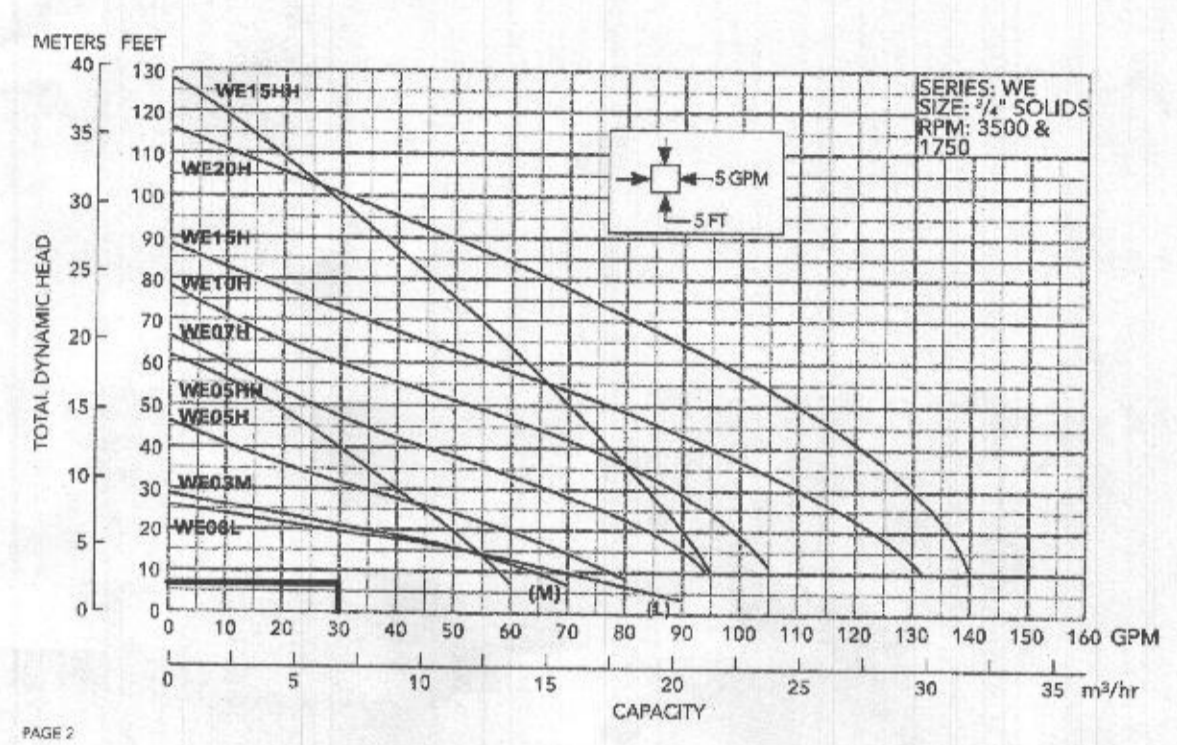
- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/2 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

**Single phase (60 Hz):**

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

**Three phase (60 Hz):**

- SJ/TOW 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.
- 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-ring: Assures positive sealing against contaminants and oil leakage.

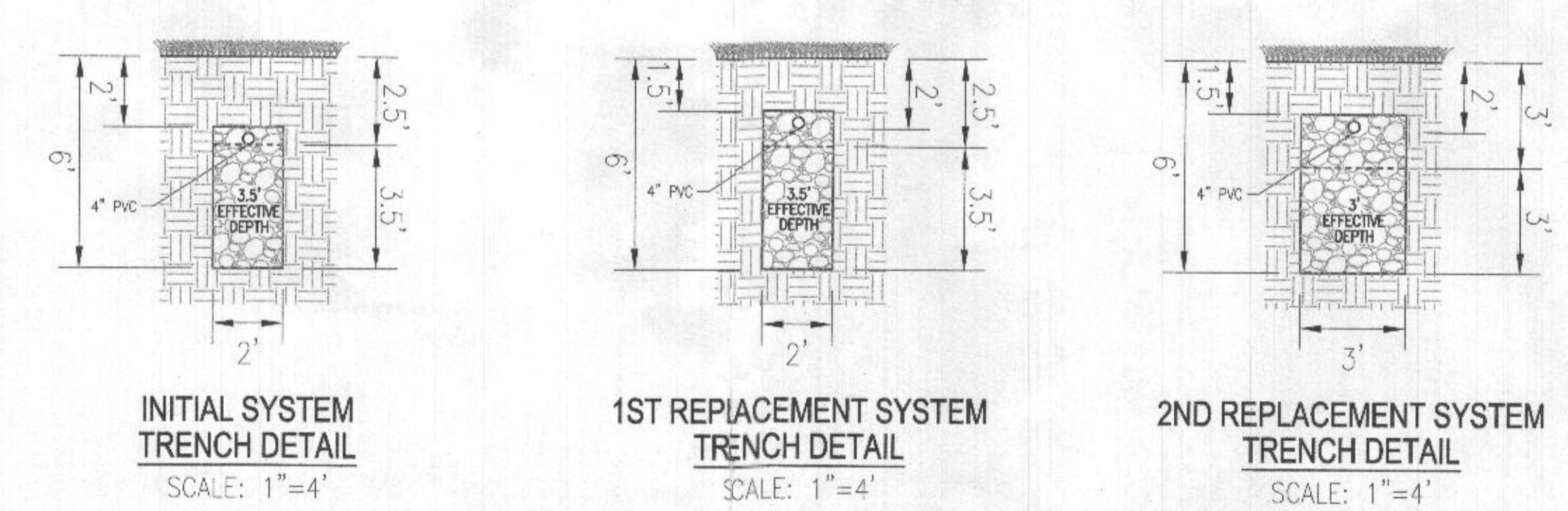
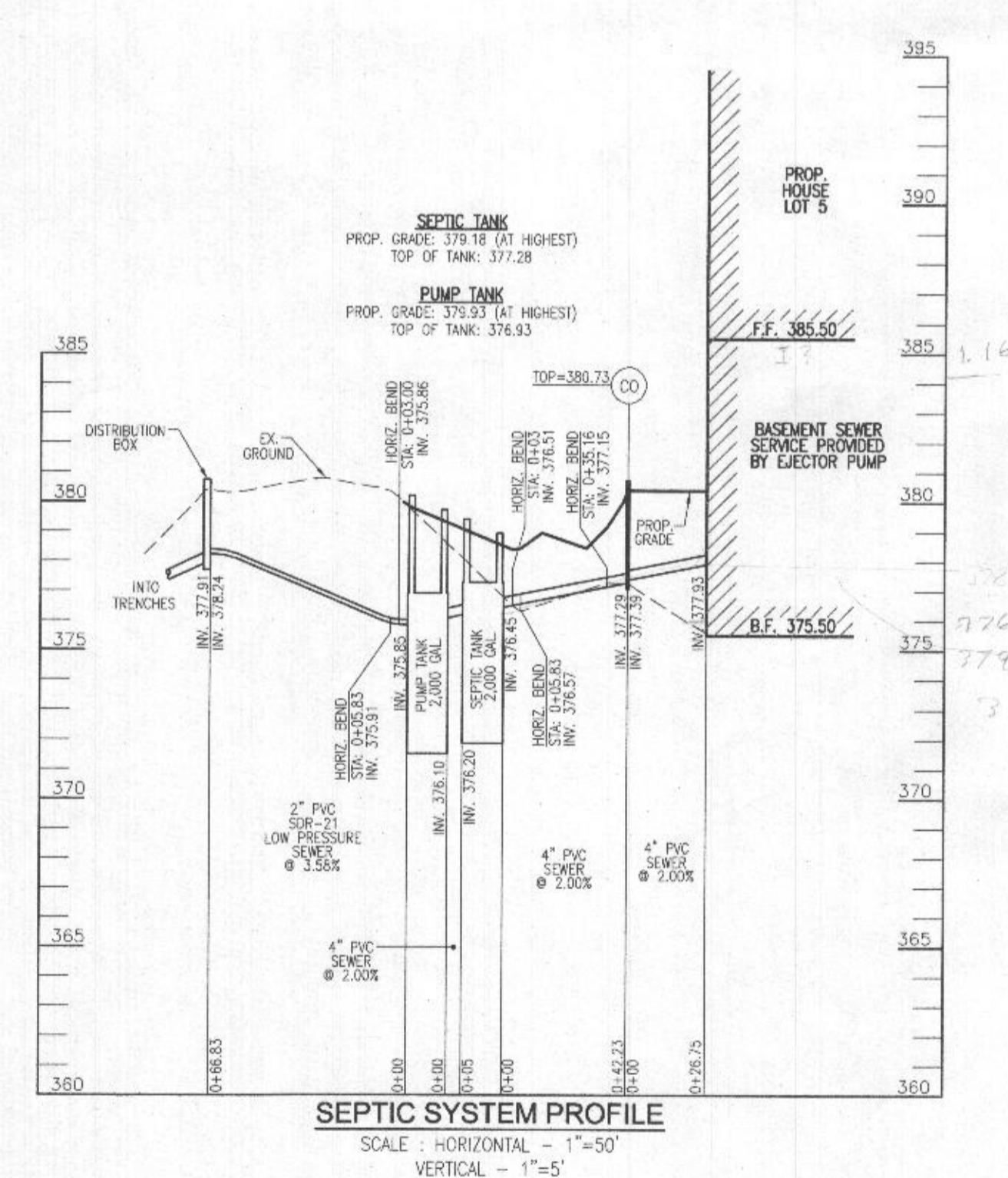


**2,000 GALLON PUMP TANK DETAIL**  
SCALE: 1"=4"

NO. BEDROOMS = 6  
DESIGN FLOW = 6(150 GPD) = 900 GPD  
DOSE: 1/8 DESIGN FLOW = 150 GPD  
150 GALLONS/7.48 FT<sup>3</sup>/GAL = 20.05 FT<sup>3</sup>  
20.05 FT<sup>3</sup>/72.99 SF = 0.27  
ONE DAY RESERVE: 900 GALLONS/7.48 FT<sup>3</sup>/GAL = 120.32 FT<sup>3</sup>  
120.32 FT<sup>3</sup>/72.99 SF = 1.65 FT

TDH (FRICTION + STATIC)  
FRICTION FITTINGS: UNION: 1x2 = 2  
45° ELBOW (H+V): 6x8 = 48  
90° ELBOW: 1x7 = 7  
FITTING ED. LENGTH: 57.0 LF  
PIPE LENGTH: 69.8 LF  
TOTAL LENGTH: 123.8 LF

FRICTION LOSS (30 GPM): (1.54)(123.8)/100 = 1.91'  
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TDH: 4.56+1.91 = 6.47'  
USE GOULDS WE33 (OR EQUIVALENT)



Approved Septic System Plan  
Howard County Health Department  
Signature: *Mark Oswald* Date: 9/5/23

**OWNER**  
GRATA PLENA, LLC  
11140 HOMEWOOD ROAD  
ELLICOTT CITY, MD 21042  
(443) 677-4812

**DEVELOPER**  
TRINITY HOMES MARYLAND, LLC  
3875 PARK AVENUE, SUITE 301  
ELLICOTT CITY, MD 21043  
(410) 490-9023

**ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN**

**CUNNINGHAM PROPERTY - LOT 5**  
11908 CARITAS WAY  
ELLICOTT CITY, MD 21042

5TH ELECTION DISTRICT  
TAX MAP: 29 PARCEL 25  
DPZ REF'S: NO-10-03E, ECP-16-03O,  
ECP-17-05O, GP-17-03B, SDP-18-004 & F-19-04O

BLOCK: 13  
ZONED: RC-DEO  
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 FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 06-27-2024.

DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: RHV  
DATE: AUGUST 2023  
SCALE: AS SHOWN  
W.O. NO.: 14-62

ROBERT H. VOGEL, PE No. 16193

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