



**Howard County  
Health Department**

**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](https://www.facebook.com/hocohealth)

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

RECEIPT DATE: 12/7/18

**ONSITE SEWAGE DISPOSAL SYSTEM**

P

564092

APPROVAL DATE: 5/22/19

**PERMIT: CONSTRUCTION**

A

PROPERTY ADDRESS: 14885 Triadelphia Road

SUBDIVISION: Jeremy Station

LOT: 3

TAX ID: \_\_\_\_\_

CONTRACTOR: Freedom Septic

EMAIL: Kristina@freedomseptic.com

CONTRACTOR ADDRESS: 2809 Liberty Rd, Sykesville, MD 21781

PHONE: 410-952-2477

PROPERTY OWNER: Popi Mae Christiansen

EMAIL: \_\_\_\_\_

OWNER ADDRESS: 848 Pacific Street Unit 1, Santa Monica, CA 90405

PHONE: \_\_\_\_\_

SEPTIC TANK SIZE (GALLONS): 1500

TANK MANUFACTURER: Mayer Bros

PUMP MODEL: Goulds WE03M

PUMP SIZE: 1/3

PUMP TANK CAPACITY: 1500

DISTRIBUTION SYSTEM: ☒ GRAVITY ☐ PRESSURE DOSED

BEDROOMS: 5

APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>104</u>	INLET DEPTH: <u>3</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>3</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:		

ISSUED BY: Jeff Williams

ISSUE DATE: 12/7/18

EXPIRATION DATE: 12/7/19

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 18003492

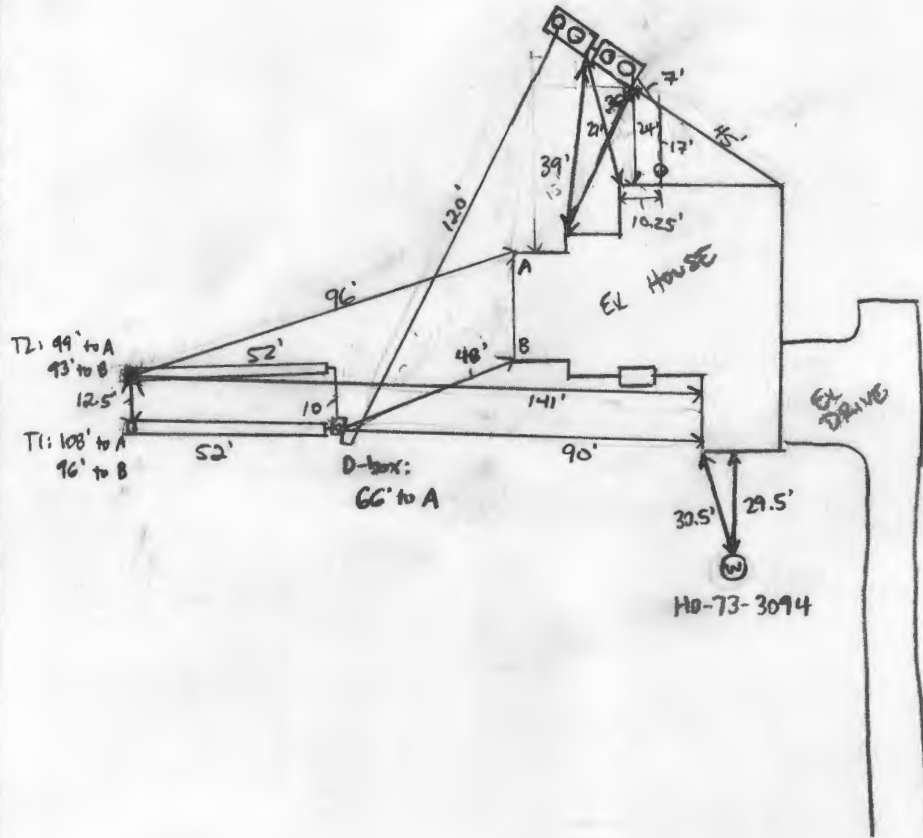
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**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



ROAD NAME  
TRIADDELPHIA ROAD

#### TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	3'	6'
NUMBER OF TRENCHES 2		
TOTAL LENGTH 104'		
ABSORPTION AREA 312 ft <sup>2</sup> + SIDE WALL		
DISTRIBUTION BOX LEVEL N/A		
DISTRIBUTION BOX BAFFLE DOWN		
DISTRIBUTION BOX PORT YES		

#### SEPTIC TANK DATA

SEPTIC TANK I LEVEL

MANUFACTURER BABYLON

CAPACITY 1500 GAL

SEAM LOC TOP

TANK LID DEPTH 2.5-3'

BAFFLES YES

BAFFLE FILTER NO

MANHOLE LOC FRONT/BACK

6" PORT LOC INLET

WATERTIGHT TEST N/A

SLOTTED YES

DATE ON LID 10/30/2018

#### PUMP/SEPTIC TANK LEVEL

MANUFACTURER BABYLON

CAPACITY 1500 GAL

SEAM LOC TOP

TANK LID DEPTH 2.5-3'

BAFFLES —

BAFFLE FILTER —

MANHOLE LOC FRONT/BACK

6" PORT LOC —

WATERTIGHT TEST —

SLOTTED —

DATE ON LID 10/30/2018

#### PRE-CONSTRUCTION:

12/13/18 TANKS C1 STAKED. OK. SDA STAKED. STRAIGHTENED TRENCHES. CONTOUR WAS SUPPORTED DECISION. (P)

INSTALLATION: 12/13/2018 TANKS SET. SAC INSTALLED FROM HOUSE TO SETTLING TANK INLET. (P) 12/18/2018 FORCE MAIN INSTALLED INTO D BOX.

NO BAFFLE, F.M. TURN DOWN IN D BOX. TRENCHES INSTALLED. OK TO BACKFILL REINSP. PUMP - ALARM. NEEDS E PERMIT. (P) 4/4/19 Met Freedom on site for pump - alarm test. Pump pumps effluent to D box, alarm sounds. Pile of dirt over trenches - must remove before approval of septic permit. (P) 5/22/19 Fill removed, confirmed from builder (P)

FINAL INSPECTOR

*K. Whiff*

DATE OF APPROVAL

5/22/19

## Cabahug, Joseph

---

**From:** Cabahug, Joseph  
**Sent:** Friday, December 21, 2018 10:27 AM  
**To:** 'FJMARINER@GMAIL.COM'; 'DavidKSadler@aol.com'  
**Cc:** Wolf, Kevin; Collins, Sarah; Rappaport, Ryan; Martin, Sharhonda  
**Subject:** 14885 Triadelphia Road - Septic Electrical Permit

Hello,

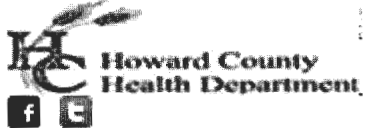
As of 12/21/2018, our records indicate that the listed property, 14885 Triadelphia Road, has an outstanding requirement for an Electrical Permit for the Septic Pump and Alarm and is outstanding in bringing the well to current construction standards.

This is a courtesy email to inform the builder that these requirements must be met prior to the issuance of an Interim Certificate of Potability pursuant to a Certificate of Potability.

Please call for inspection when the works have been completed.

Bests,

Joseph C. Cabahug - LEHS  
Environmental Health Specialist  
Howard County Health Department - Well & Septic Program  
Bureau of Environmental Health  
8930 Stanford Blvd.  
Columbia, MD 21045  
(o) 410-313-2643  
(f) 410-313-2648



[jcabahug@howardcountymd.gov](mailto:jcabahug@howardcountymd.gov)

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# VOGEL ENGINEERING + TIMMONS GROUP

8407 Main Street Ellicott City, MD 21043  
P 410.461.7666 F 410.461.8961 [www.timmons.com](http://www.timmons.com)

## LETTER OF TRANSMITTAL

**Date:** August 16, 2017  
**To:** Howard County Department of Health  
**Attn:** Dana Bernard  
**cc:**  
**Subject:** Jeremy Station – Lot 3  
**Project Number:** 17-14.00

### ATTACHED:

# Copies	Description
3	Onsite Sewage Disposal System Design Plan
3	Percolation Certification Plan

Remarks:



Transmitted by:

Received by:



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Remarks:



Transmitted by:

Received by:

SEPTIC TANK: 3 BEDROOM, 1000 GALLON *Triadelphia Rd* #14885

4 BEDROOM, 1250 GALLON

DRY WELL TO HAVE *72058* SQUARE FEET OF SIDEWALL AREA PER BEDROOM.

DRY WELL INLET TO BE MAX. *4* FEET BELOW ORIGINAL GRADE. *invert 3 1/2 - 3 3/4 ft.*

DRY WELL BOTTOM (MAXIMUM DEPTH) TO BE *8 1/2* FEET BELOW ORIGINAL GRADE.

*START THE TRENCH*  
PLACE THE DRY WELL *137* FEET FROM THE *FRONT* LOT LINE AND *137* FEET FROM THE

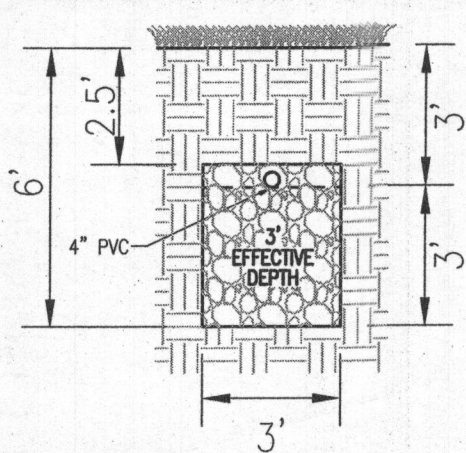
*RIGHT* LOT LINE AS SEEN WHEN FACING THE LOT FROM *TRIDELPHIA* ROAD. & run  
on level ground more or less toward left side of run

Address: 14885 Triadelphia Road

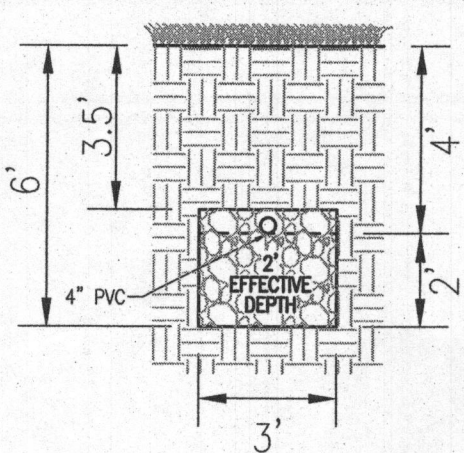
owner: John H. Walsh  
9906 Dedra Drive  
Silver Springs, Md.  
439-2837

Note of  
sample sent  
well info acid/chr  
Sent - Bagg  
1300 Gail St

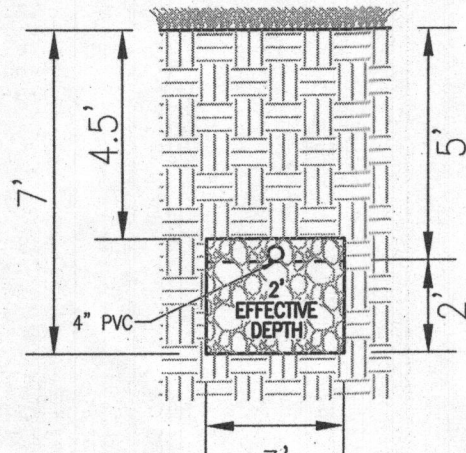




INITIAL SYSTEM  
TRENCH DETAIL  
NOT TO SCALE



1ST REPLACEMENT  
TRENCH DETAIL  
NOT TO SCALE



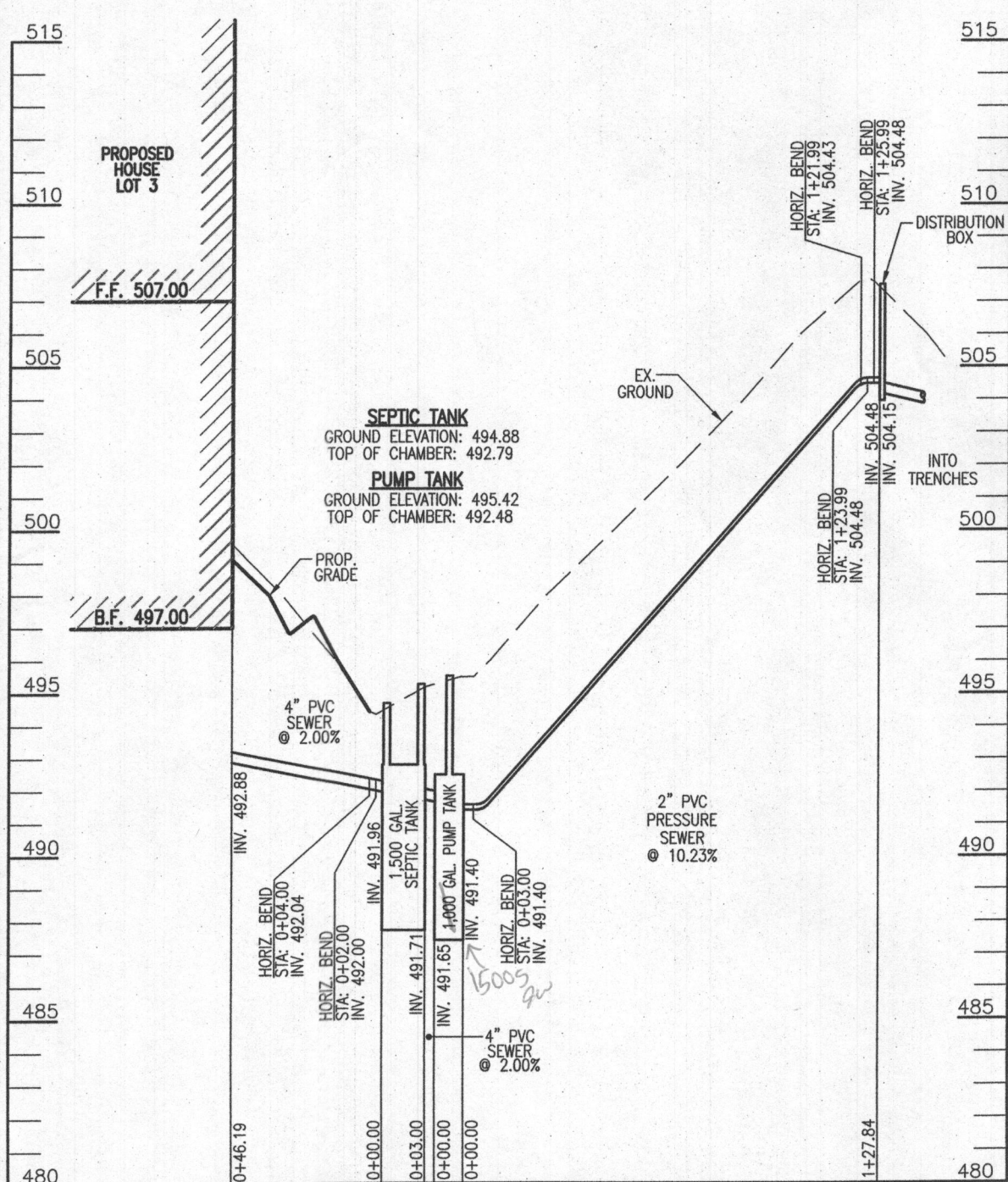
2ND REPLACEMENT  
TRENCH DETAIL  
NOT TO SCALE

INITIAL SYSTEM TRENCH INFO.				
TRENCH	LENGTH	WIDTH	DEPTH	GROUND
1	52	504.02	501.02	507.02
2	52	502.60	499.60	505.60

#### SYSTEM CALCULATIONS:

**INITIAL SYSTEM:**  
5 BEDROOMS AT 750gpd / 1.2 ABSORPTION RATE = 625 SQ. FT.  
625 SQ. FT. / 3 (TRENCH WIDTH) x .50 (SIDEWALL REDUCTION) = 104 LINEAR FEET  
104 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.  
(2 TRENCHES OF 52 FEET IN LENGTH)

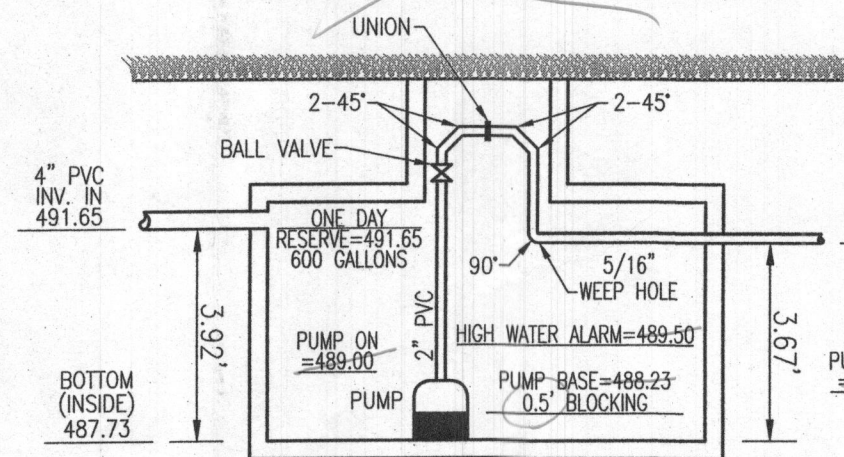
**FIRST AND SECOND REPLACEMENT SYSTEM:**  
5 BEDROOMS AT 750gpd / 1.2 ABSORPTION RATE = 625 SQ. FT.  
625 SQ. FT. / 3 (TRENCH WIDTH) x .63 (SIDEWALL REDUCTION) = 131 LINEAR FEET  
132 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.  
(2 TRENCHES OF 66 FEET IN LENGTH)  
132 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.  
(2 TRENCHES OF 66 FEET IN LENGTH)



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

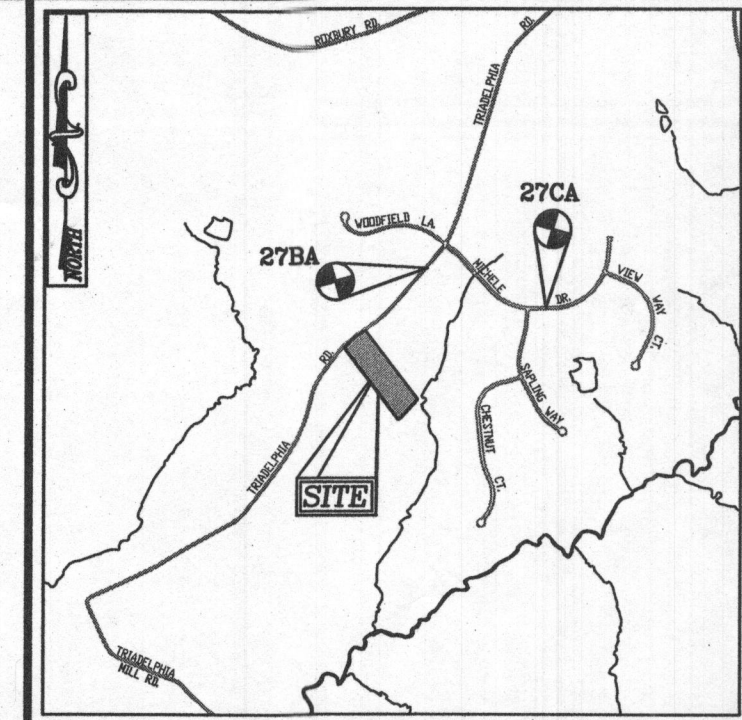
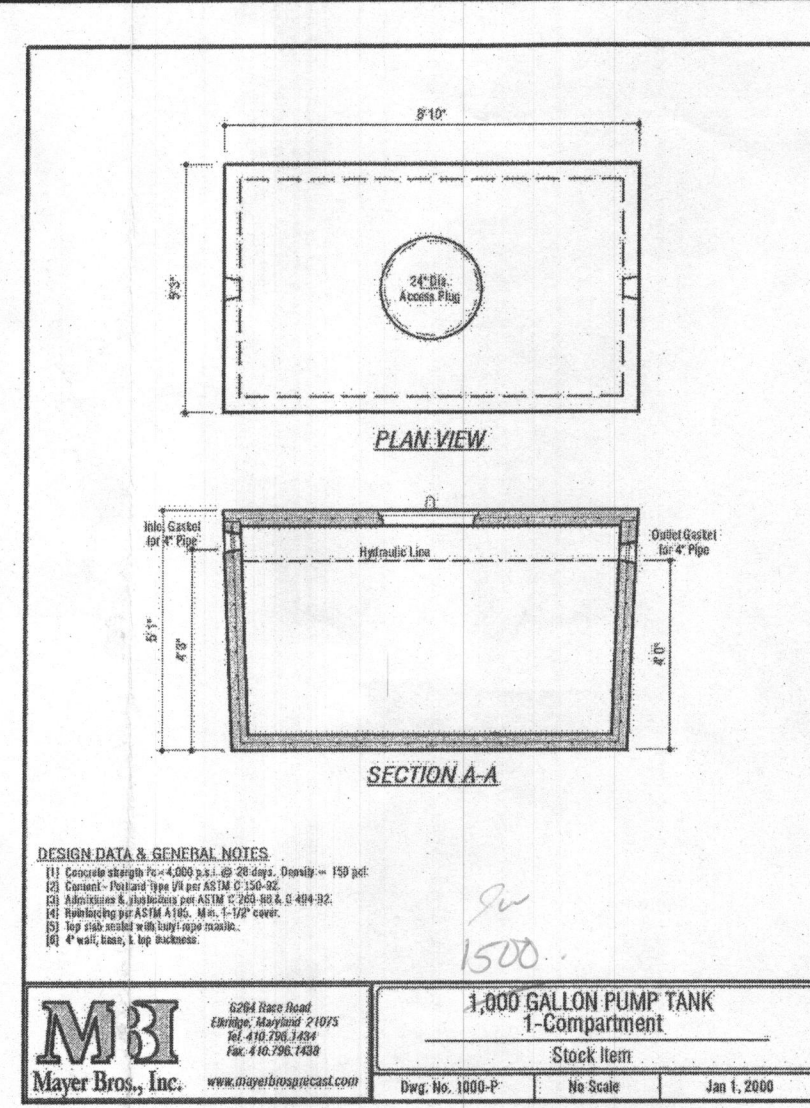
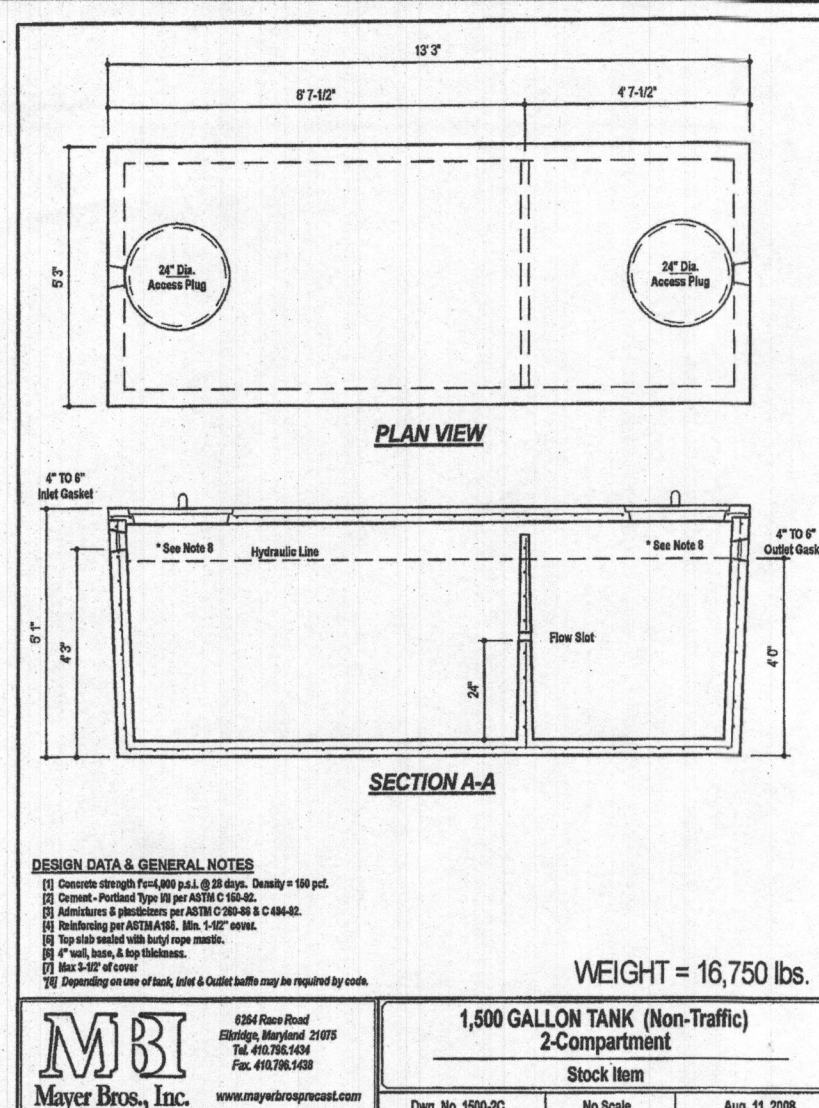
NO. BEDROOMS = 5  
DESIGN FLOW = 4(150 GPD) = 600 GPD  
DOSE: 1/6 DESIGN FLOW = 100 GPD  
100 GALLONS / 7.48 FT<sup>3</sup> / GAL = 13.37 FT<sup>3</sup>  
13.37 FT<sup>3</sup> / 32.32 FT<sup>3</sup> = 0.415  
ONE DAY RESERVE: 600 GALLONS / 7.48 FT<sup>3</sup> / GAL = 80.21 FT<sup>3</sup>  
80.21 FT<sup>3</sup> / 37.37 FT<sup>3</sup> = 2.15 FT  
TDH (FRICTION + STATIC)  
FRICTION FITTINGS: UNION: 2  
VALVE: 1.3  
45° ELBOW (H+V): 8x4 = 32  
90° ELBOW: 7x1 = 7  
FITTING EQ. LENGTH: 42.3 LF  
PIPE LENGTH: 120.0 LF  
TOTAL LENGTH: 162.3 LF  
FRICTION LOSS (40 GPM): (2.63)(162.30)/100 = 4.27  
STATIC: 504.48 - 488.64 (PUMP OFF) = 15.84  
TDH: 15.84 + 4.27 = 20.11  
USE GOULDS W603M

OUTSIDE TO OUTSIDE DIM: 8'3" x 5'25"  
INSIDE TO INSIDE DIM: 8'16" x 4'58"  
INSIDE CROSS SECTION AREA: 37.37 FT<sup>2</sup>



1,000 GALLON PUMP CHAMBER DETAIL  
NOT TO SCALE

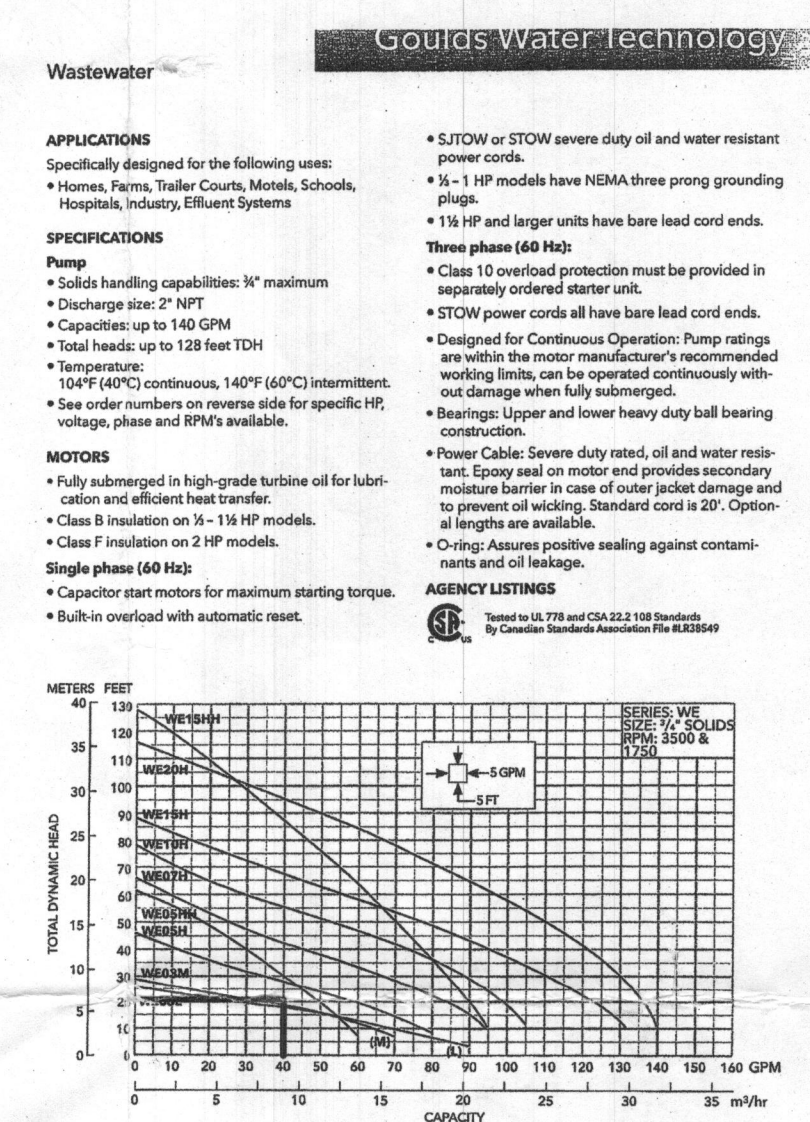
**WELL LOCATION CERTIFICATION:**  
THE EXISTING WELL SHOWN ON THIS PLAN (TAG #HO-73-3094)  
HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN



VICINITY MAP  
SCALE: 1"=2,000'  
ADC MAP COORDINATE:  
PAGE 23; GRID E3, F4, F3 & F4

#### LEGEND:

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- SOILS
- EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- EXISTING WELL LOCATION
- PASSED PERC. TEST
- EXISTING PRIVATE SDA
- PROPOSED PRIVATE SDA



Approved Septic System Plan  
Howard County Health Department

#### GENERAL NOTES:

- ANY CHANGE TO THE LOCATIONS OR DEPTHS OF 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-73-3094) 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.
- TOPOGRAPHY SHOWN IS AT TWO-FOOT CONTOUR INTERVALS AND IS BASED ON A FIELD RUN TOPOGRAPHICAL SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2ND, 2017.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWNGRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN USING ALL REASONABLE EFFORTS.
- THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.

**OWNER**  
POPI MAE CHRISTIANSEN  
848 PACIFIC ST., UNIT 1  
SANTA MONICA, CA 90405  
(301) 974-4899

**BUILDER**  
STIRLING HOMES AND DEVELOPMENT  
20301 NEW HAMPSHIRE AVE.  
BROOKVILLE, MD 20833  
(301) 974-4899

#### ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

JEREMY STATION - LOT 3  
14885 TRIADDELPHIA ROAD  
GLENELG, MD 21737

BUILDING PERMIT #

**ROBERT H. VOGEL ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET  
ELICOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961



DESIGN BY: RHV  
DRAWN BY: JMR  
CHECKED BY: RHV  
DATE: NOVEMBER 2017  
SCALE: AS SHOWN  
W.O. NO.: 17-14

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. 1619  
EXPIRATION DATE: 06-30-2018



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

BARRY F. RUDNICK  
LINDA C. RUDNICK  
TM: 27 PARCEL: 40  
LEISURE LIVING  
PLAT: 7225  
LOT: 1  
3.00 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

WILLIAM J. BOYKO  
ANN J. BOYKO  
TM: 27 PARCEL: 107  
L. 8163/F. 226  
5.72 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

ROBERT BOSWELL, JR.  
KIMBERLY D. BOSWELL  
TM: 27 PARCEL: 43  
TRIADDELPHIA ROAD PROP.  
PLAT: 13070  
L. 4256/F. 239  
LOT: PAR. A  
4.96 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

JOHN L. SCHWENDEMAN  
JEREMY STATION  
PLAT: 4071  
L. 16212/F. 374  
LOT: 4  
5.00 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

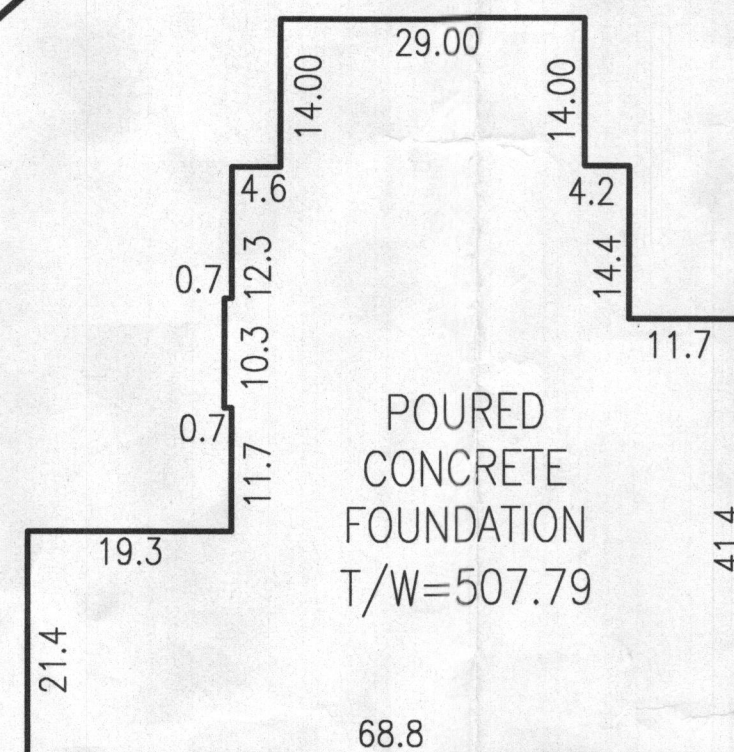
GOH TERRIAN TZENG  
TM: 27 PARCEL: 125  
JEREMY STATION  
LOT: 3  
PLAT: 4071  
L. 17169/F. 17  
5.01 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

RONALD J. KIRTINIS & WF  
TM: 27 PARCEL: 104  
L. 613/F. 261  
7.35 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

MICHAEL P. HARRIGAN  
KATHY A. HARRIGAN  
TM: 27 PARCEL: 151  
HECHT PROPERTY  
PLAT: 20740  
L. 13879/F. 391  
LOT: 3  
3.43 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO

EX. FOREST CONSERVATION  
EASEMENT #1  
1.61 AC. (RETENTION)  
(PLAT 20740)

ROBERT F. HECHT, JR.  
PATRICIA A. HECHT  
TM: 27 PARCEL: 151  
HECHT PROPERTY  
PLAT: 20740  
L. 10450/F. 176  
LOT: 2  
3.23 AC.  
USE: RESIDENTIAL  
ZONED: RC-DEO



DETAIL  
NOT TO SCALE



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

Edward J. Glawe DECEMBER 19, 2017  
EDWARD J. GLAWE, PROFESSIONAL LAND SURVEYOR #21391 DATE

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. 21391, EXPIRATION DATE  
JUNE 4, 2019.

**ROBERT H. VOGEL**  
**ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
9407 MAIN STREET TEL: 410.461.7666  
ELICOTT CITY, MD 21043 FAX: 410.461.8961

WALL CHECK DRAWING

JEREMY  
STATION  
5.006 ACRES

TAX MAP 27, PARCEL 125  
SE TRIADDELPHIA ROAD  
JEREMY STATION; LOT 3  
LIBER 17656, FOLIO 70

FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: 1" = 60' DECEMBER 19, 2017

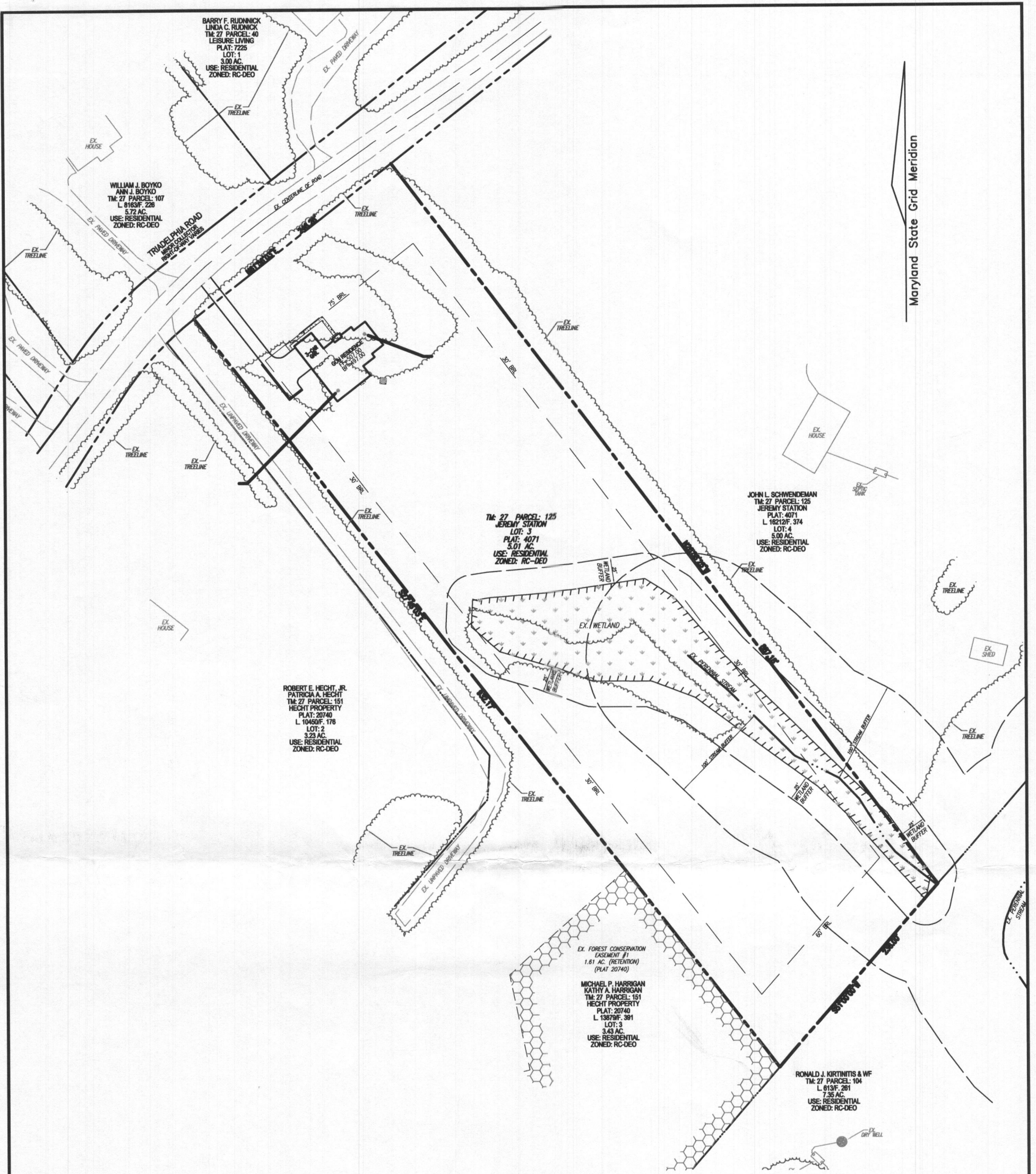
COMPIED BY: B.W.J.  
DRAWN BY: B.W.J.  
CHECKED BY: E.J.G.

W.O. NO.: 17-14

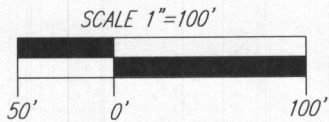
SHEET  
1 OF 1

17-14\SURVEY\DWG\WALL CHECK.DWG





OVERALL SITE  
SCALE: 1"=100'



**ROBERT H. VOGEL**  
**ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET TEL: 410.461.7666  
ELLICOTT CITY, MD 21043 FAX: 410.461.8961

**OWNER**  
TERRIAN TZENG GOH  
LINHUA TZENG GOH  
12551 FOREMAN BLVD.  
CLARKSVILLE, MD 20871  
(301) 974-4899

**BUILDER**  
STIRLING HOMES AND DEVELOPMENT  
20901 NEW HAMPSHIRE AVE.  
BROOKVILLE, MD 20833  
(301) 974-4899

SCALE AS SHOWN  
DRAWN BY JMR  
CHECKED BY RHV  
DATE AUGUST 2017  
W. O. # 17-14  
SHEET# 1 OF 5

5TH ELECTION DISTRICT  
TAX MAP: 27 GRID: 04

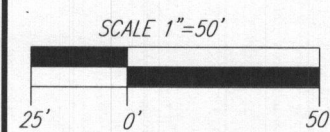
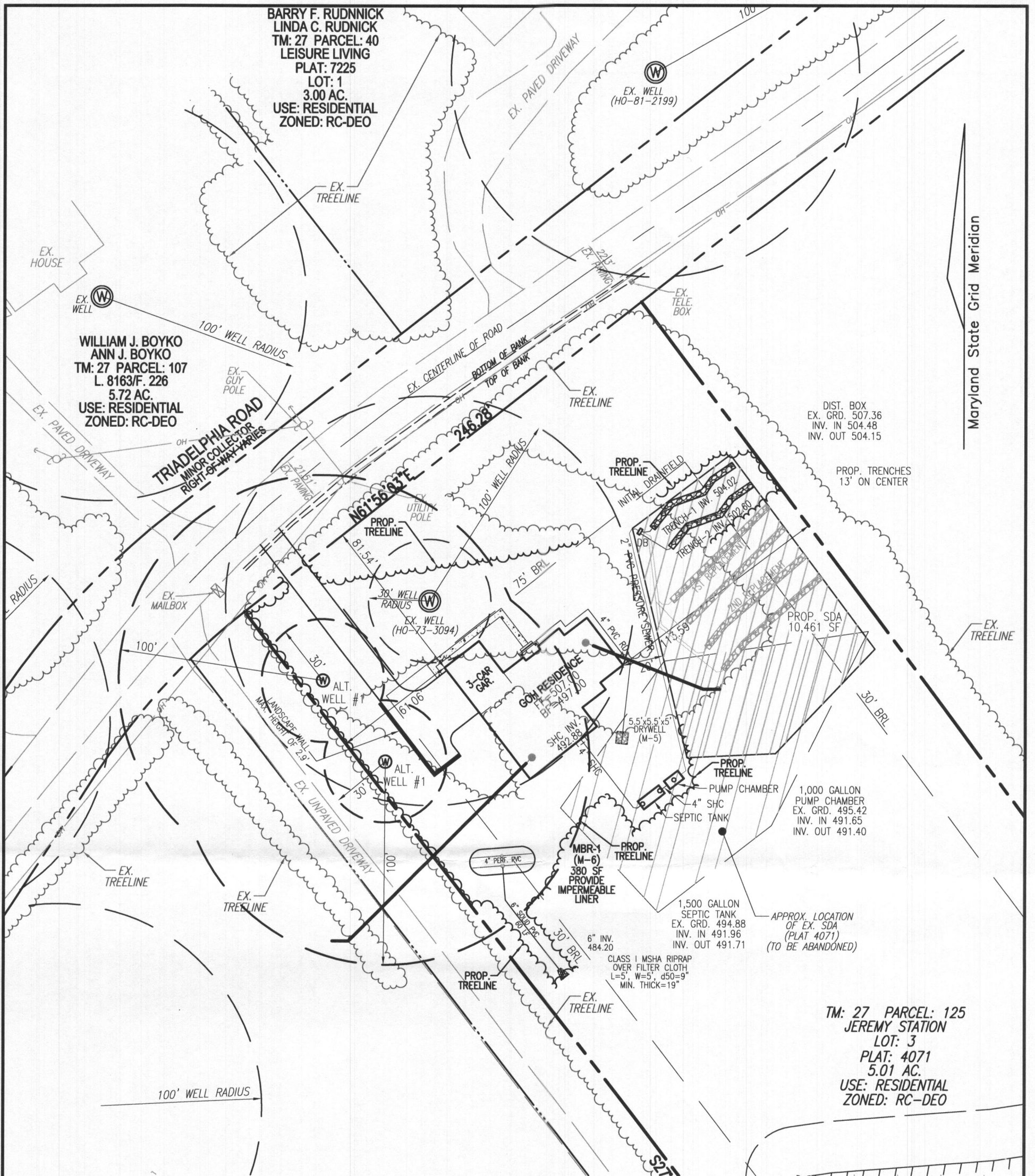
## PLOT PLAN JEREMY STATION - LOT 3

14885 TRIADELPHIA ROAD  
GLENELG, MD 21737  
(L. 17169 / F. 17)

REF: GP-17-101

PARCEL: 125  
ZONED: RC-DEO  
HOWARD COUNTY, MARYLAND





**LAYOUT PLAN**  
SCALE: 1"=50'

**ROBERT H. VOGEL  
ENGINEERING, INC.**  
ENGINEERS • SURVEYORS • PLANNERS  
8407 MAIN STREET  
ELLICOTT CITY, MD 21043  
TEL: 410.461.7666  
FAX: 410.461.8961

**OWNER**  
TERRIAN TZENG GOH  
LINHUA TZENG GOH  
12551 FOREMAN BLVD.  
CLARKSVILLE, MD 20871  
(301) 974-4899

**BUILDER**  
STIRLING HOMES AND DEVELOPMENT  
20901 NEW HAMPSHIRE AVE.  
BROOKVILLE, MD 20833  
(301) 974-4899

SCALE \_\_\_\_\_ AS SHOWN  
DRAWN BY \_\_\_\_\_ JMR  
CHECKED BY \_\_\_\_\_ RHV  
DATE \_\_\_\_\_ AUGUST 2017  
W. O. # \_\_\_\_\_ 17-14  
SHEET# \_\_\_\_\_ 2 OF 5

5TH ELECTION DISTRICT  
TAX MAP: 27 GRID: 04

**PLOT PLAN**  
**JEREMY STATION – LOT 3**  
14885 TRIADELPHIA ROAD  
GLENELG, MD 21737  
(L. 17169 / F. 17)  
REF: GP-17-101

PARCEL: 125  
ZONED: RC-DEO  
HOWARD COUNTY, MARYLAND

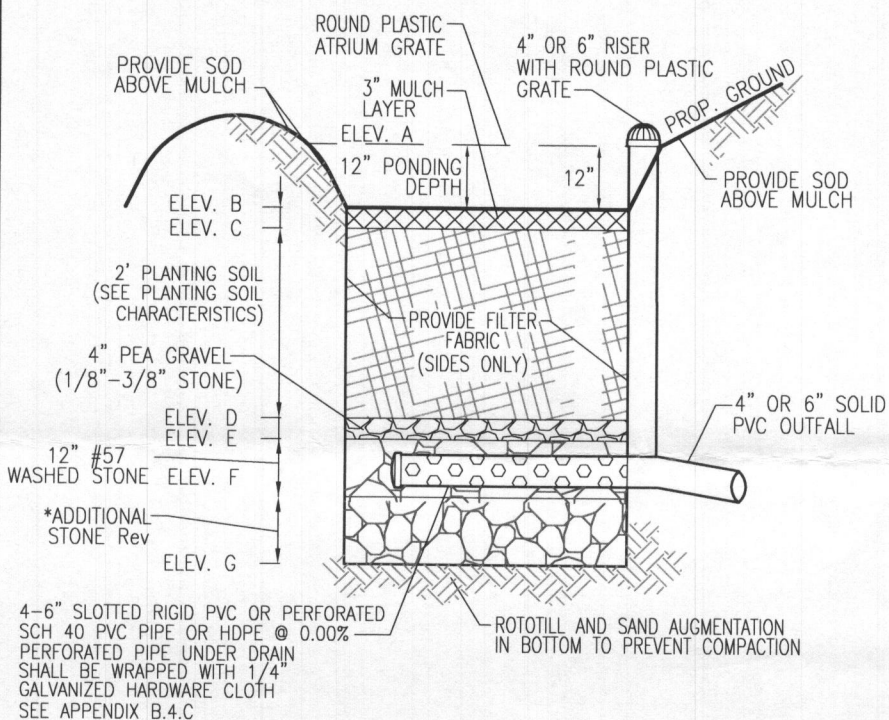
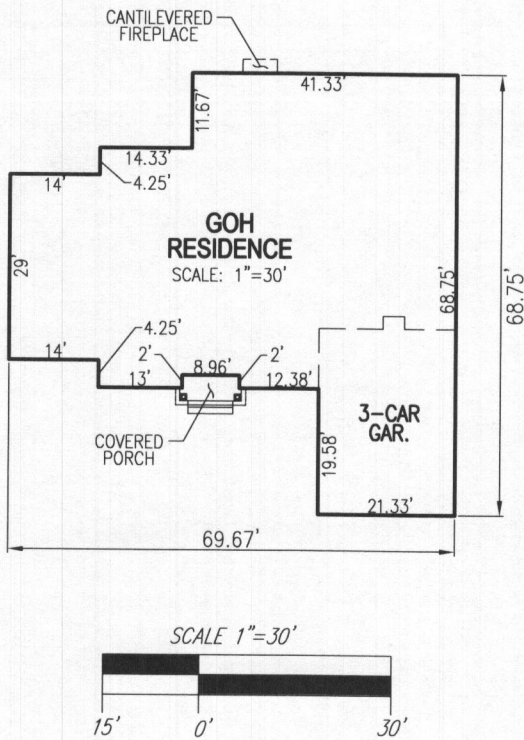






**Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-**

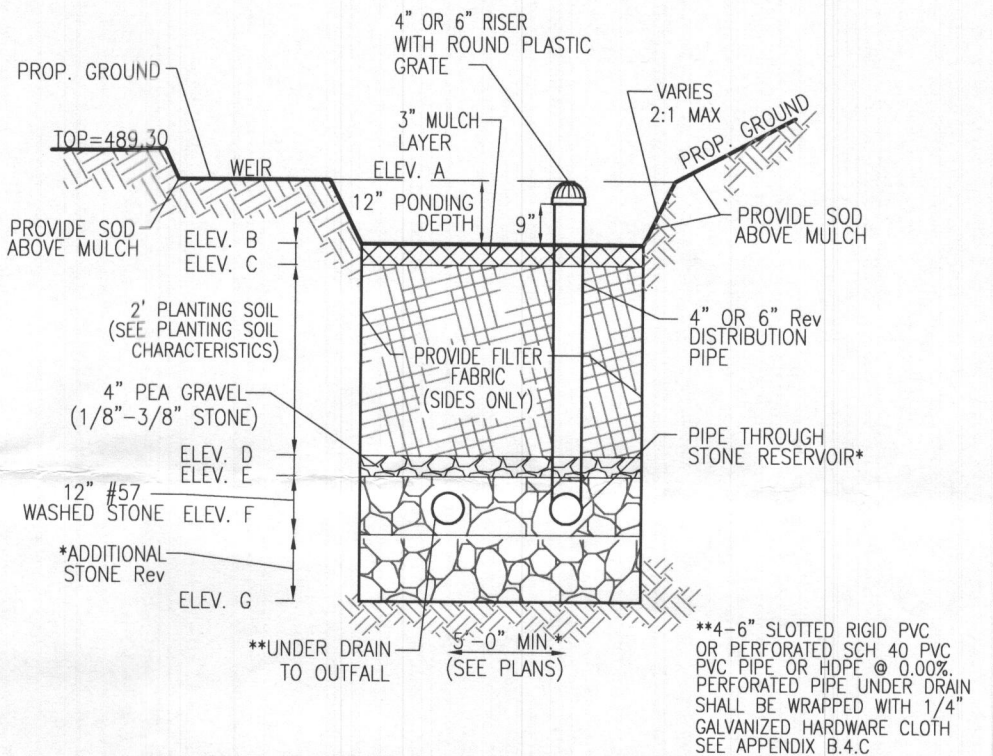
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobble	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; $f'_c = 3500$ psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) <i>not using previously approved State or local standards</i> requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



### MICRO BIORETENTION (UNDERDRAIN) (M-6)

NOT TO SCALE

\*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/Rev



### MICRO BIORETENTION (OVERFLOW) (M-6)

NOT TO SCALE

\*ADDITIONAL STONE PROVIDED FOR 10 YEAR ATTENUATION/Rev

MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)									
FACILITY	A	B	C	D	E	F	G	UNDERDRAIN INV. OUT	OUTFALL INV.
MBR-1 (M-6)	489.00	488.00	487.75	485.75	485.42	484.42	483.72	484.67	484.20
									380 SF

**ROBERT H. VOGEL ENGINEERING, INC.**  
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TEL: 410.461.7666  
FAX: 410.461.8961

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LINHUA TZENG GOH  
12551 FOREMAN BLVD.  
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**BUILDER**  
STIRLING HOMES AND DEVELOPMENT  
20901 NEW HAMPSHIRE AVE.  
BROOKVILLE, MD 20833  
(301) 974-4899

SCALE AS SHOWN  
DRAWN BY JMR  
CHECKED BY RHV  
DATE AUGUST 2017  
W. O. # 17-14  
SHEET# 4 OF 5

5TH ELECTION DISTRICT  
TAX MAP: 27 GRID: 04

## PLOT PLAN JEREMY STATION – LOT 3

14885 TRIADELPHIA ROAD  
GLENELG, MD 21737  
(L. 17169 / F. 17)

REF: GP-17-101

PARCEL: 125  
ZONED: RC-DEO  
HOWARD COUNTY, MARYLAND



1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

1. ONLY THE SIDES OF MICROBIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICROBIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
2. WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.
3. PROVIDE 5' MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFERATED PIPE THROUGH STONE RESIVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)

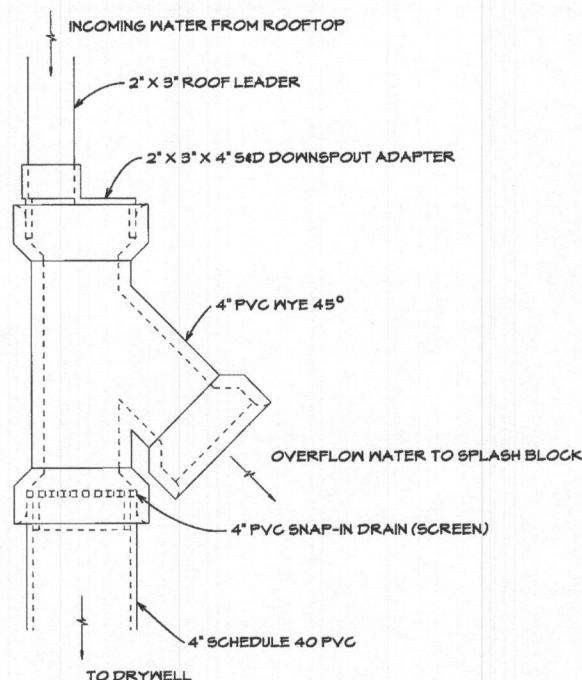
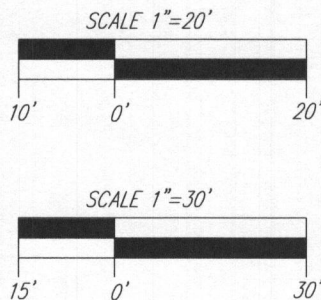
1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED

1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
3. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
5. MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDv SUMMARY.
6. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH



SCALE: 1"=20'



1. THE SNAP IN SCREEN IS REQUIRED TO PREVENT CLOGGING OF THE DRYWELL WITH DEBRIS.
2. SEE FIGURE 3a "LIST OF POTENTIAL SUPPLIERS TO ACCOMPANY FIGURE 3 STANDARD DRYWELL DOWNSPOUT FITTINGS" FOR INFORMATION ON SOME LOCAL RETAILERS THAT SUPPLY COMPONENTS FOR THIS SYSTEM.

Martin B. Covington III, PE  
 ORIGINALLY EFFECTIVE APRIL, 2006  
 REVISED MARCH 19, 2008  
 DISTRIBUTED AT C.C. SURVEYORS M



1. MANUFACTURED SAND IS NOT ACCEPTABLE IN DRYWELLS.
2. ALL PIPES SHOULD BE SCH 40 PVC 4" MIN
3. DRYWELLS MUST BE A MINIMUM OF
  - 10' FROM BUILDING FOUNDATION
  - 30' FROM SEPTIC FIELD
  - 100' FROM WELL LOCATION
 AND SHOULD BE LOCATED TO MINIMIZE ANY BASEMENT SEAPAGE.
4. MINIMUM NUMBER OF PERFORATIONS SHALL BE 5 TIMES PIPE AREA.
5. TRENCH MAY NOT BE INSTALLED IN FILL.

Revised	Howard County, Maryland Department of Public Works	Roof Drain Drywell Private	Detail
Revised 5/7/2007			D-9.01
Approved			



SCALE: 1"=30'

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