



**Bureau of Environmental Health**  
 8930 Stanford Boulevard, Columbia, MD 21045  
 Main: 410-313-2640 | Fax: 410-313-2648  
 TDD 410-313-2323 | Toll Free 1-866-313-6300  
[www.hchealth.org](http://www.hchealth.org)  
 Facebook: [www.facebook.com/hocohealth](http://www.facebook.com/hocohealth)

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

RECEIPT DATE: 2/21/17

**ONSITE SEWAGE DISPOSAL SYSTEM**

P 560545

APPROVAL DATE: 3/6/17 (SEC)

**PERMIT: CONSTRUCTION**

A

PROPERTY ADDRESS: 11040 Fuzzy Hollow Way

SUBDIVISION: Melchior Property

LOT: 5

TAX ID: 03-596009

CONTRACTOR:

EMAIL:

CONTRACTOR ADDRESS:

PHONE:

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER:

PROPERTY OWNER: Frank Sanders

EMAIL:

OWNER ADDRESS: 11317 Windsor Walk Court, Laurel, MD 20723

PHONE:

**SEPTIC TANK**

SIZE(GALLONS): 2000 Gal

Tank Manufacturer

Mayer Bros

PUMP TANK CAPACITY:

n/a

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED:

DATE RECORDED:

DISTRIBUTION SYSTEM:  GRAVITY

PRESSURE DOSED

BEDROOMS: 6

APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>105</u>	INLET DEPTH: <u>2</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>2</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:	OK to install inlet 3', bottom 7' if Hatfield's can't make fall with specs on to D-box permit.	

ISSUED BY: Robert Freemon

ISSUE DATE: 2/21/17

EXPIRATION DATE: 2/21/18

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 N/A

NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.

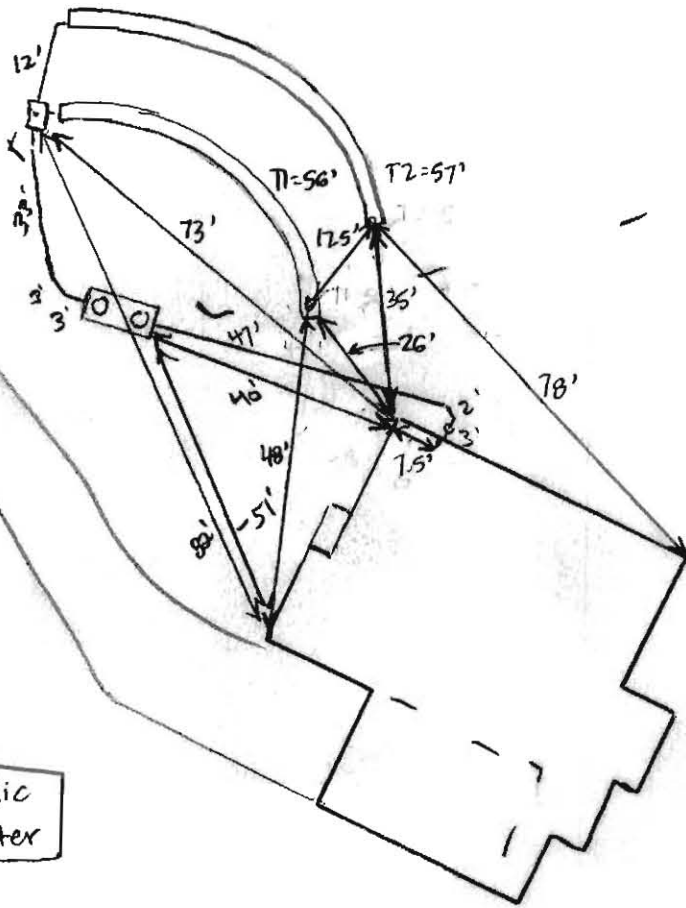
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**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



**TRENCH/DRAINFIELD DATA**

WIDTH	INLET	BOTTOM
3'	4' (T1) 3' (T2)	8' (T1) 7' (T2)
NUMBER OF TRENCHES	2	
TOTAL LENGTH	113'	
ABSORPTION AREA	339' + SIDEWALK	
DISTRIBUTION BOX LEVEL	YES	
DISTRIBUTION BOX BAFFLE	Yes	
DISTRIBUTION BOX PORT	Yes	

**SEPTIC TANK DATA**

SEPTIC TANK 1 LEVEL	Yes	
MANUFACTURER	Babylon	
CAPACITY	2000	GAL
SEAM LOC	TOP (L.B)	
TANK LID DEPTH	4'	
BAFFLES	Yes	
BAFFLE FILTER	-	
MANHOLE LOC	Front/Rear	
6" PORT LOC	none	
WATERTIGHT TEST	-	
SLOTTED	Yes	
DATE ON LID	1-21-17	

**PUMP/SEPTIC TANK LEVEL** N/A

MANUFACTURER		
CAPACITY		GAL
SEAM LOC		
TANK LID DEPTH		
BAFFLES		
BAFFLE FILTER		
MANHOLE LOC		
6" PORT LOC		
WATERTIGHT TEST		
SLOTTED		
DATE ON LID		

**PRE-CONSTRUCTION:**

2/28/17 Met Hatfield's on site for layout. SDA corners and tank location staked. Trenches also staked - shot contour and end stakes were > 1' different. Adjusted trench stakes to be within a few inches difference in elevation. Start of T2 ~ 6" shallower. OK to have inlet 3', bottom 7' if Hatfield's can't make fall at 2' inlet. **MUST USE LASER TRANSIT** while digging trenches - notified Hatfield's. (SC)

**INSTALLATION:**

3/3/17 Contractor installed s.t. (Load bearing) approx 4' corner. Contractor had to drill new hole in foundation for s.t. Plumber installed for gravity sewer. Top trench complete. OK to continue. (KMS) 3/6/17 T2 finished + left open. 2.5' to stone. Levelled speed levelers in D-box. (SC)

FINAL INSPECTOR Sarah Collins

DATE OF APPROVAL 3/6/17

# HOUSE DETAIL

SCALE: 1"=30'

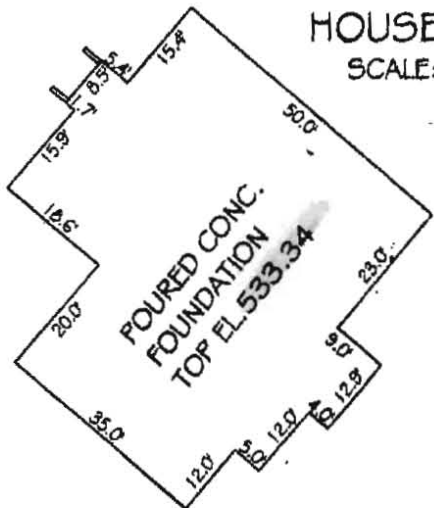
## NOTES:

1. ACCURACY OF BUILDING MEASUREMENTS: 0.1'
2. ACCURACY OF SETBACK DIMENSIONS: 0.3'
3. ACCURACY OF ELEVATIONS: 0.1'
4. THE PROPERTY SHOWN HEREON LIES IN ZONE "X" AS SHOWN ON FLOOD INSURANCE RATE MAP NO. 24027C0060D DATED: 11/06/2013.
5. BEARINGS AND DISTANCES SHOWN HEREON ARE FROM A SUBDIVISION PLAT ENTITLED "MELCHIOR PROPERTY, LOTS 3 THROUGH 6 AND NONBUILDABLE PRESERVATION PARCEL A" SHEETS 1-5 OF 5, RECORDED IN PLATS #22758-22762

WOODFORD DRIVE

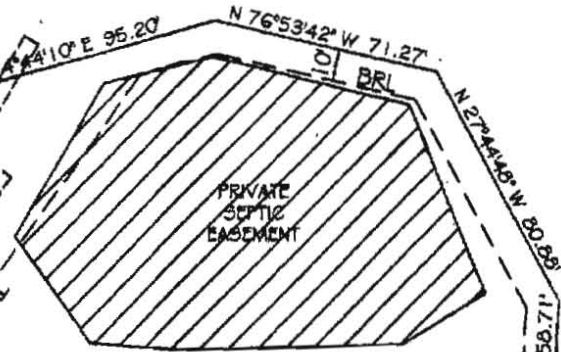
(PUBLIC - LOCAL)  
50' RAW

FUZZY HOLLOW WAY  
(PRIVATE STREET)  
VARIABLE WIDTH RAW



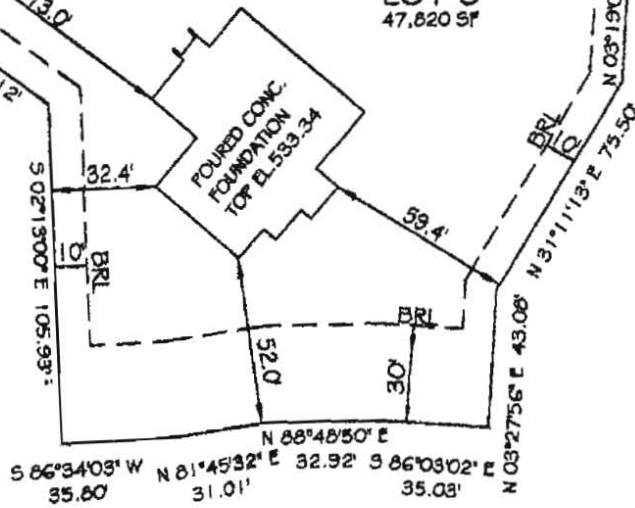
FOURED CONC.  
FOUNDATION  
TOP EL. 533.34

USE EX. PRIVATE  
ACCESS IN COMMON  
UTILITIES DRAINAGE  
UTILITY EASEMENT  
PLAT #22760



PRIVATE  
SEPTIC  
EASEMENT

LOT 5  
47,820 SF



2/21/17  
Wall check  
OK. -kww

THE INFORMATION SHOWN HAS BEEN ESTABLISHED BY CURRENT ACCEPTABLE SURVEY PROCEDURES AND FROM AVAILABLE RECORD INFORMATION. THIS DRAWING IS NOT TO BE USED FOR THE ESTABLISHMENT OF PROPERTY LINES, LOCATION OF EASEMENTS, GARAGES, BUILDINGS, OR OTHER FUTURE IMPROVEMENTS. IT WAS PREPARED UNDER MY DIRECT SUPERVISION AND REVIEW IN ACCORDANCE WITH SEC. 09-13.06.06 OF THE ANNOTATED CODE OF MD.

*G. Scott Shanaberger*  
G. SCOTT SHANABERGER PROFESSIONAL LAND SURVEYOR  
LICENSE EXPIRATION DATE 4/2/2018  
SHANABERGER & LANE  
8726 TOWN AND COUNTRY BLVD., SUITE 200  
ELICOTT CITY, MD. 21043  
(410)461-9563 FAX: (410)461-9693



FOUNDATION LOCATION DRAWING  
LOT 5 MELCHIOR PROPERTY  
PLAT # 22758-22762  
TAX MAP 10 GRID 13 PARCEL 184  
3rd ELECTION DISTRICT HOWARD COUNTY, MD.  
SCALE: 1"=60' DATE: 12/21/2016

**Oswald, Hank**

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**From:** Bob Corbett <BobCorbett@williamsburgllc.com>  
**Sent:** Tuesday, November 29, 2016 3:31 PM  
**To:** Oswald, Hank  
**Subject:** RE: BAT Approval

Negative.

*Bob Corbett*

Vice President  
Williamsburg Group LLC  
Cell # 410-977-3343

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**From:** Oswald, Hank [<mailto:hoswald@howardcountymd.gov>]  
**Sent:** Tuesday, November 29, 2016 3:30 PM  
**To:** Bob Corbett  
**Subject:** RE: BAT Approval

Is there an in law suite on the first floor?

---

**From:** Bob Corbett [<mailto:BobCorbett@williamsburgllc.com>]  
**Sent:** Tuesday, November 29, 2016 3:18 PM  
**To:** Oswald, Hank  
**Subject:** RE: BAT Approval

Here you go!

*Bob Corbett*

Vice President  
Williamsburg Group LLC  
Cell # 410-977-3343

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**From:** Oswald, Hank [<mailto:hoswald@howardcountymd.gov>]  
**Sent:** Tuesday, November 29, 2016 3:13 PM  
**To:** Bob Corbett  
**Subject:** RE: BAT Approval

Bob:

If you send the floor plans electronically, I can review them now. I just need to see the basement , first and second floor drawings.

Thanks,

Hank

---

**From:** Bob Corbett [<mailto:BobCorbett@williamsburgllc.com>]  
**Sent:** Tuesday, November 29, 2016 3:09 PM  
**To:** Oswald, Hank  
**Subject:** RE: BAT Approval

Hank,

I dropped off the floor plans the same day you requested them!!! The young lady who sits to the right of Sharhonda (looking from the front counter) took them in and now we have lost 2 weeks of review and approval. I am getting comments from both you and another person at Health whose name I don't recognize. Right now I just need to get this house started and am running out of time with the buyer. I even called Sharhonda and asked her to fix the miscommunication between the two Health persons so this could get moving. Can you please get to the bottom of this and move that permit forward.

As for the BAT, if that will delay the permit further, I think I will proceed with the BAT. However, I will consider changing now that there has been no progress on the review. I will talk to the engineer and see how fast he can turn around a non-BAT plan. If you check on the floor plans, I will check on the system design and get back to you tomorrow.

Thanks

*Bob Corbett*

Vice President  
Williamsburg Group LLC  
Cell # 410-977-3343

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**From:** Oswald, Hank [<mailto:hoswald@howardcountymd.gov>]  
**Sent:** Tuesday, November 29, 2016 3:03 PM  
**To:** Bob Corbett  
**Subject:** RE: BAT Approval

Hi Bob:

I made the request for floor plans on 11/14/16 but I never received them. Also, I didn't see a requirement on the Perc Cert Plan to have a BAT unit. Do you want to keep the BAT unit? If so, all I need are the floor plans. If you wish to change the BAT unit out for a traditional 2 compartment tank, please see attached Onsite Sewage Disposal System Plan requirements.

Thanks,

Hank

---

**From:** Bob Corbett [<mailto:BobCorbett@williamsburgllc.com>]  
**Sent:** Tuesday, November 29, 2016 1:54 PM  
**To:** Martin, Sharhonda; Oswald, Hank  
**Subject:** BAT Approval

Hank,

Can you give me an update on the approval of the BAT for B16004595 for 11040 Fuzzy Hollow Way. We are somewhat desperate to get this one moving since buyer is moving in from out of state.

Thanks

*Bob Corbett*

Vice President

Williamsburg Group LLC  
Cell # 410-977-3343

## Oswald, Hank

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**From:** Oswald, Hank  
**Sent:** Tuesday, November 29, 2016 3:02 PM  
**To:** 'Bob Corbett'  
**Subject:** RE: BAT Approval  
**Attachments:** OSDS design plan requirements 11.21.16.pdf; COMAR BAT revision memo.pdf

Hi Bob:

I made the request for floor plans on 11/14/16 but I never received them. Also, I didn't see a requirement on the Perc Cert Plan to have a BAT unit. Do you want to keep the BAT unit? If so, all I need are the floor plans. If you wish to change the BAT unit out for a traditional 2 compartment tank, please see attached Onsite Sewage Disposal System Plan requirements.

Thanks,

Hank

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**From:** Bob Corbett [<mailto:BobCorbett@williamsburqllc.com>]  
**Sent:** Tuesday, November 29, 2016 1:54 PM  
**To:** Martin, Sharhonda; Oswald, Hank  
**Subject:** BAT Approval

Hank,

Can you give me an update on the approval of the BAT for B16004595 for 11040 Fuzzy Hollow Way. We are somewhat desperate to get this one moving since buyer is moving in from out of state.

Thanks

*Bob Corbett*

Vice President  
Williamsburg Group LLC  
Cell # 410-977-3343

B16004595

ENTRANCE PERMIT

(410) 313-1810

HOWARD COUNTY  
DEPARTMENT OF INSPECTIONS, LICENSES & PERMITS

Permission is hereby granted by the Howard County Department of Inspections, Licenses & Permits for an entrance permit:

Owner Williamsburg Group LLC Phone 410-997-8800

Address 5485 Harpers Farm Rd #200, Columbia, MD 21044

New Building Address 11040 Fuzzy Hollow Way, Marriottsville, MD 21104

For what use: Entrance To Melchior Property

Name of Contractor or Builder Williamsburg Group LLC

Address 5485 Harpers Farm Rd #200, Columbia, MD 21044

The applicant hereby certifies and agrees as follows: (1) that he is the owner or the duly authorized agent of the owner to make this application; (2) that he has read all of the information set forth and that the same is correct; (3) that the permit, when issued, may be declared void should said information be incorrect; (4) that he will comply with all rules and regulations of Howard County Bureau of Highways; (5) that he will perform no work on the entrance not specifically described in this permit.

It must be noted that a use & occupancy permit will not be issued until entrance is completed to Bureau of Highways Standards & Specifications.

It is agreed and understood by the acceptance of this permit, the following conditions will be followed.

- A. The construction of the entrance or approach will, in no way, change the grade/and or alignment of any existing drainage ditches or structures. In the event same are damaged or destroyed, they shall be replaced to the satisfaction of the Howard County Department of Public Works representative.
- B. The right-of-way, affected by this permit, will be left in a neat and clean condition and no excess material will be permitted to remain on or adjacent to the right-of-way. Shoulders and flow-line areas disturbed shall be shaped up according to the Howard County Bureau of Highways Standards and Specifications. (For Driveway and Flow-line area.)

In consideration of the issuance of this permit, the applicant agrees that if he fails to comply with the above set-out standards and thereby causes damage to the Howard County Road System, that the applicant will be responsible to Howard County for such damage to its road system.

Sign Mal A. Morris  
(Name of applicant)

Address 5485 Harpers Farm Rd #200, Columbia, MD 21044

Date 10/20/16 Approved \_\_\_\_\_

ATTENTION: The permit, when issued, is valid for period not to exceed one year.

# RESIDENTIAL BUILDING PERMIT

## PERMIT FEE AND EXCISE TAX WORKSHEET

APPLICANT'S COPY

PERMIT NUMBER \_\_\_\_\_

OWNER Williamsburg ADDRESS Model B - Georgetown

CONSTRUCTION PHASE: New  Addition \_\_\_\_\_ Alteration \_\_\_\_\_ Temporary \_\_\_\_\_

IRC USE GROUP: R-3 DESCRIPTION OF WORK: \_\_\_\_\_

PRESCRIPTIVE METHOD \_\_\_\_\_ UA ALTERNATIVE  PERFORMANCE METHOD \_\_\_\_\_

BUILDING	FRONT	DEPTH	HEIGHT	AREA	AREA
1	60	64	10	2810	
2	60	64	10	2336	
B	60	64	10	2167	
				GSF = 7313	OGSF =

Footings <u>16" x 8"</u>	Foundation <u>8" Gravel</u>	Walls <u>60 ft x 18" / 8 ft x 18"</u>	Roof <u>Asph/Flt</u>	Other
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### Residential Fee Calculations:

Residential - A building which contains one or more dwelling unit, including boarding houses but not including transient accommodations such as hotels, country inns or bed and breakfast inns. Residential includes uses accessory to building units such as attached garages or home occupations, but does not include non-residential uses in mixed use structures.

BPF =  $\frac{7313}{\text{GSF}} \times \$1.8 = \$1316.34$  Permit Fee  $\times 10\% \text{ (Tech Fee)} = 131.63$

ET =  $\frac{7313}{\text{OGSF}} \times \$1.13 = \$8263.69$  Excise Tax  $\text{PSFS} = \frac{7313}{\text{OGSF}} \times \$1.24 = \$9068.12$

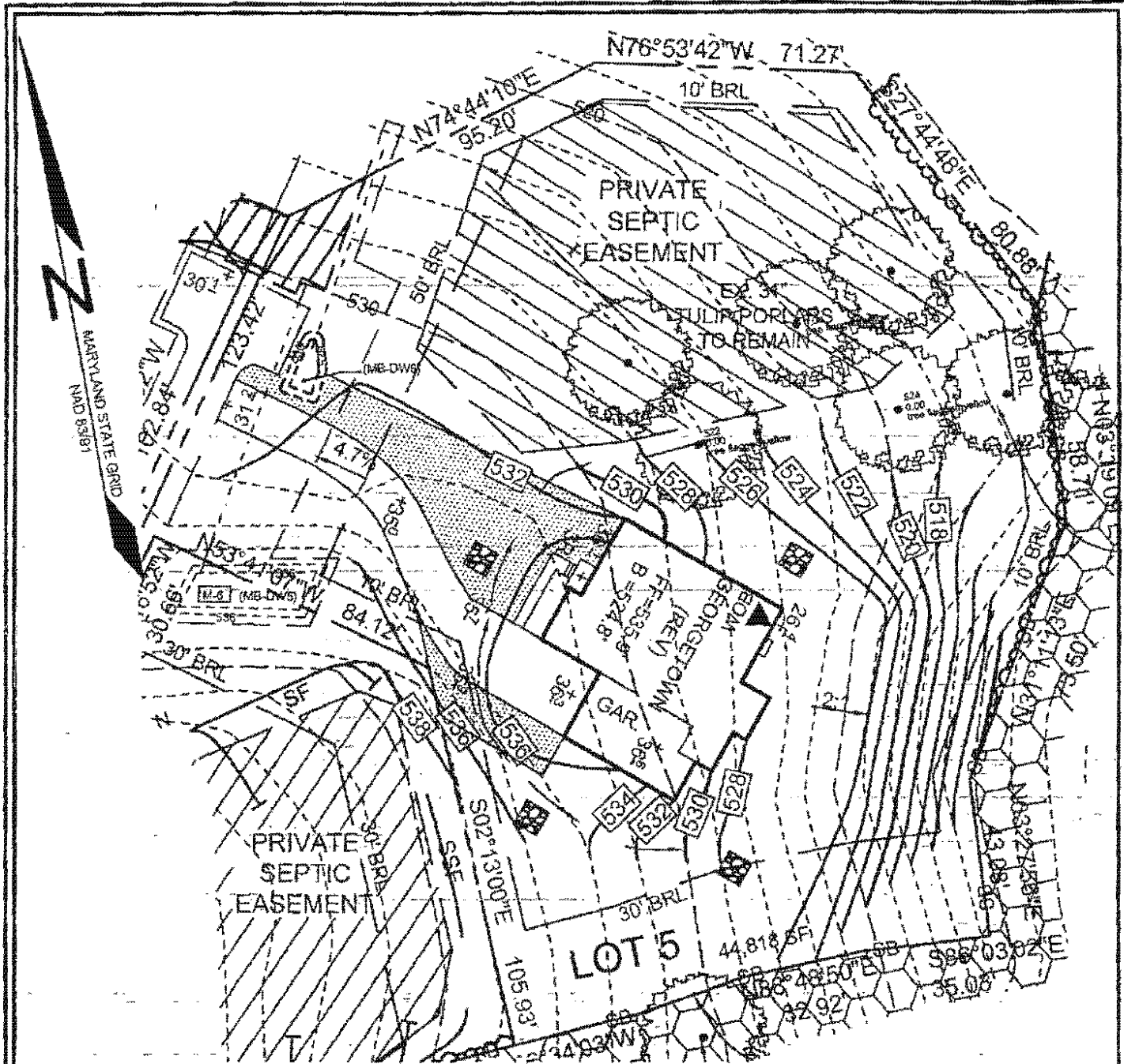
BPF = Building Permit Fee OGSF = Occupiable Gross Square Feet GSF = Gross Square Feet ET = Excise Tax PSFS = Public School Facilities Surcharge  
 Note: OGSF calculations may differ from GSF calculations when computing excise tax.

<p>①</p> <p>38'6" x 48'6" 1867</p> <p>8 x 11'6" 92</p> <p>11'6" x 9 103</p> <p>4'6" x 4'6" 20</p> <p>8 x 2 16</p> <p>14' x 3'6" 49</p> <p>10' x 2 20</p>	<p>①</p> <p>39 x 49 = 1911</p> <p>14'6" x 3'6" 51</p> <p>10 x 2 20</p> <p>12 x 9 = 108</p> <p>11'6" x 8 = 57</p> <p>19'6" x 34 = 663</p>	<p>②</p> <p style="text-align: right;"><u>LOFT</u></p> <p>39 x 49 = 1911    20 x 26 = 420</p> <p>14'6" x 3'6" 51    5' x 6 = 30</p> <p>10'6" x 2 21    100 3 x 5 = 15</p> <p>12 x 9 = 108    <u>227 / 14714</u></p> <p>9 x 4'6" 40</p> <p>20 x 11'6" 230</p> <p>6 x 10 = 60</p> <p style="text-align: right;"><u>007</u> 10 x 8'6" 85</p>
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PERMIT FEE, TECHNOLOGY FEE, SCHOOL SURCHARGE AND EXCISE TAX TOTAL: \$ \_\_\_\_\_

References: Chapter 285, Acts of the Maryland General Assembly of 1992; Howard County Code Sections 20.503; County Council Resolution 58-2008; 2004 Legislation House Bill 1445; 2006 International Residential Code for One and Two Family Dwellings

BY: [Signature] DATE: 12/13/2017 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



11130 Dovedale Court, Suite 200  
 Marriottsville, Maryland 21104  
 Phone: 443.325.5076  
 Fax: 410.696.2022  
 Email: info@sillengineering.com  
 Civil Engineering for Land Development



**SILL  
 ENGINEERING  
 GROUP, LLC**

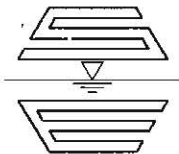
DESIGN BY: PS  
 DRAWN BY: RA  
 CHECKED BY: PS  
 SCALE: 1"=40'  
 DATE: OCTOBER 10, 2015  
 PROJECT #: 15-023  
 SHEET #: 1 OF 1

# HOUSE RESITE MELCHIOR PROPERTY

**LOT 5**

TAX MAP 10 GRID 13  
 3RD ELECTION DISTRICT

PARCEL 184  
 HOWARD COUNTY, MARYLAND



11130 Dovedale Court, Suite 200  
Marriottsville, MD 21104  
Website: [www.sillengineering.com](http://www.sillengineering.com)

Office: 443-325-5076  
Fax: 410-696-2022  
Email: [info@sillengineering.com](mailto:info@sillengineering.com)  
Civil Engineering for Land Development

## SILL ENGINEERING GROUP, LLC

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October 17, 2016

**Mr. Chad Edmondson, PE, Division Chief**  
**Development Engineering Division**  
**Howard County Department of**  
**Planning and Zoning**  
3430 Courthouse Drive  
Ellicott City, Maryland 21043

Attn: Mr. Chad Edmondson, PE

Re: Melchior Property  
F-13-074  
Proposed Lot 5 SWM Computations

Dear Mr. Edmondson:

In accordance with the 2000 Maryland Stormwater Design Manual, Volumes I & II, as amended by the Maryland Stormwater Management Act of 2007, this site was analyzed for its stormwater management obligations. A site  $P_e$  of 1.2" has been calculated.

The impervious surfaces on Lot 5 are treated as listed below:

- Rooftop runoff: Dry wells (M-5)
- Driveway and Sidewalk: Disconnection of Non-Rooftop Runoff (N-2)

Please see attached computations. The dry wells have been sized for the roof drainage coming to them. Per page 5.92 of the 2000 Maryland Stormwater Design Manual, Volumes I, Bullet Three, under Treatment, the recommended drainage area to each dry well is 500 square feet, although the drainage area to each dry well shall not exceed 1,000 square feet. The drainage area for the drywells has been split into four different areas, as shown on the Stormwater Management Plan, with drywell 'B' having a maximum area of 851.23 square feet.

To evaluate this site for the dry well practices, we have reviewed the approved Percolation Certification Plan, June 2013. Test holes 4A, 4B, 4C and 4D are the closest to our practices, and have passed the percolation test. The holes did not show any ground water or bedrock.

Our analysis shows that this site can achieve the maximum extent practicable by the use of four drywells and Disconnection of Non-Rooftop Runoff. The total required Environmental Site Design (ESD) volume required for this project is 588 cf. The dry wells provide 302 cf of treatment. The remaining treatment is provided by the disconnection of non-rooftop runoff. Treatment for the target  $P_e$  of 1.2" can be achieved to the maximum extent practicable by the methods laid out.

Melchoir Property  
Proposed Lot 5 SWM Computations  
F-13-074  
October 17, 2016

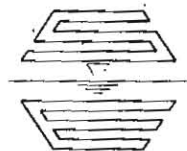
The erosion and sediment control practices for this development will be designed in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. The sediment control measures have been shown on this plan and will be refined at the final site development plan stage. The design incorporates silt fence and super silt fence around the limit of disturbance which is 29,441 square feet to eliminate the possibility of sediment laden runoff from leaving the site. The implementation of this Erosion and Sediment Control Plan will ensure the construction phase of this development has no negative effects on the adjacent parcels.

Thank you for your review of this submission. Should you have any questions or comments regarding this matter, please do not hesitate to contact this office.

Sincerely,  
**SILL ENGINEERING GROUP, LLC**



Paul M. Sill, PE, LEED AP



**SILL ENGINEERING GROUP, LLC**

**ENVIRONMENTAL SITE DESIGN: SITE REQUIREMENTS**

Gross Project Area = 1.0854 Acres  
 Net Project Area = 0.6759 Acres  
 Hydrologic Soil Groups = B  
 (see Pe Composite below)

A = 29,441 sf or 0.6759 Acres  
 Site Pe = 1.2 Inches  
 I = 5,049 sf or 0.1159 Acres or 17%  
 Rv = 0.20  
 Qe = 0.24  
 ESDv = 588 cf

**Rv Calculation:**

$$\begin{aligned} Rv &= 0.05 + 0.009 ( I ) \\ &= 0.05 + 0.009 ( 17 ) \\ &= 0.05 + 0.15 \\ &= 0.20 \end{aligned}$$

**Qe Calculation:**

$$\begin{aligned} Qe &= (Rv) (Pe) \\ &= ( 0.20 ) ( 1.2 ) \\ &= 0.24 \end{aligned}$$

**ESDv Calculation:**

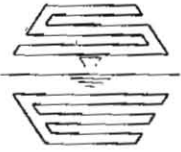
$$\begin{aligned} ESDv &= \frac{(Pe) (Rv) (A)}{12} \\ &= \frac{( 1.2 ) ( 0.20 ) ( 0.6759 )}{12} \\ &= \frac{0.1622}{12} \\ &= 0.0135 \text{ Ac-Ft} \\ &\text{or} \\ &588 \text{ cf} \end{aligned}$$

**Pe Calculation:**

Soil Type	Imp. Area	Imp. Percentage	Pe
'A' = 0.0000 Ac.	0.00 Ac.	0% use 0%	1.0 Inches
'B' = 0.6759 Ac.	0.12 Ac.	17% use 20%	1.2 Inches
'C' = 0.0000 Ac.	0.00 Ac.	0% use 0%	1.0 Inches
'D' = 0.0000 Ac.	0.0000 Ac.	0% use 0%	1.0 Inches

$$\begin{aligned} Pe &= \frac{( 0.00 ) ( 1.0 ) + ( 0.68 ) ( 1.2 ) + ( 0.00 ) ( 1.0 ) + ( 0.00 ) ( 1.0 )}{0.68} \\ &= \frac{0.00 + 0.81 + 0.00 + 0.00}{0.68} \end{aligned}$$

Pe = 1.2 Inches



**SILL ENGINEERING GROUP, LLC**

**ENVIRONMENTAL SITE DESIGN CALCULATIONS**

Lot : 5

Drywell : A

A = 798 sf or 0.0183 Acres

Pe = 1.2 Inches

l = 798 sf or 0.0183 Acres or 100%

Rv = 0.95

Req'd ESDv = 74 cf

Prov. ESDv = 84.0 cf

Rv Calculation:

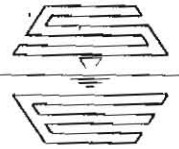
$$\begin{aligned} Rv &= 0.05 + 0.009 ( l ) \\ &= 0.05 + 0.009 ( 100 ) \\ &= 0.05 + 0.9 \\ &= 0.95 \end{aligned}$$

Dry Well Sizing (in feet):

$$\begin{aligned} \text{Size} &= 7.0 \text{ Long} \times 6.0 \text{ Wide} \times 5.0 \text{ Deep} \\ &= 210.0 \text{ cf} \\ &= 210.0 \text{ cf} \times 0.4 \\ &= 84.0 \text{ cf} \end{aligned}$$

ESDv Calculation:

$$\begin{aligned} \text{ESDv} &= \frac{(Pe)(Rv)(A)}{12} \\ &= \frac{(1.2)(0.95)(0.0183)}{12} \\ &= \frac{0.0209}{12} \\ &= 0.0017 \text{ Ac-Ft} \\ &\quad \text{or} \\ &\quad 74 \text{ cf} \end{aligned}$$



**SILL ENGINEERING GROUP, LLC**

**ENVIRONMENTAL SITE DESIGN CALCULATIONS**

Lot : 5

Drywell : B

A = 851 sf or 0.0195 Acres

Pe = 1.2 Inches

I = 851 sf or 0.0195 Acres or 100%

Rv = 0.95

Req'd ESDv = 83 cf

Prov. ESDv = 84.0 cf

Rv Calculation:

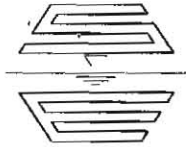
$$\begin{aligned} Rv &= 0.05 + 0.009 ( I ) \\ &= 0.05 + 0.009 ( 100 ) \\ &= 0.05 + 0.9 \\ &= 0.95 \end{aligned}$$

Dry Well Sizing (in feet):

$$\begin{aligned} \text{Size} &= 7.0 \text{ Long} \times 6.0 \text{ Wide} \times 5.0 \text{ Deep} \\ &= 210.0 \text{ cf} \\ &= 210.0 \text{ cf} \times 0.4 \\ &= 84.0 \text{ cf} \end{aligned}$$

ESDv Calculation:

$$\begin{aligned} \text{ESDv} &= \frac{(Pe)(Rv)(A)}{12} \\ &= \frac{(1.2)(0.95)(0.0195)}{12} \\ &= \frac{0.0222}{12} \\ &= 0.0019 \text{ Ac-Ft} \\ &\quad \text{or} \\ &\quad 83 \text{ cf} \end{aligned}$$



**SILL ENGINEERING GROUP, LLC**

**ENVIRONMENTAL SITE DESIGN CALCULATIONS**

Lot : 5

Drywell : C

A = 490 sf or 0.0113 Acres

Pe = 1.2 Inches\*

I = 490 sf or 0.0113 Acres or 100%

Rv = 0.95

Req'd ESDv = 48 cf

Prov. ESDv = 50.0 cf

Rv Calculation:

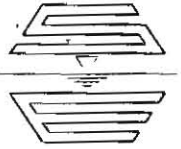
$$\begin{aligned} Rv &= 0.05 + 0.009 ( I ) \\ &= 0.05 + 0.009 ( 100 ) \\ &= 0.05 + 0.9 \\ &= 0.95 \end{aligned}$$

Dry Well Sizing (in feet):

$$\begin{aligned} \text{Size} &= 5.0 \text{ Long} \times 5.0 \text{ Wide} \times 5.0 \text{ Deep} \\ &= 125.0 \text{ cf} \\ &= 125.0 \text{ cf} \times 0.4 \\ &= 50.0 \text{ cf} \end{aligned}$$

ESDv Calculation:

$$\begin{aligned} \text{ESDv} &= \frac{(Pe)(Rv)(A)}{12} \\ &= \frac{(1.2)(0.95)(0.0113)}{12} \\ &= \frac{0.0129}{12} \\ &= 0.0011 \text{ Ac-Ft} \\ &\quad \text{or} \\ &\quad 48 \text{ cf} \end{aligned}$$



**SILL ENGINEERING GROUP, LLC**

**ENVIRONMENTAL SITE DESIGN CALCULATIONS**

Lot : 5

Drywell : D

A = 806 sf or 0.0185 Acres

Pe = 1.2 Inches\*

I = 806 sf or 0.0185 Acres or 100%

Rv = 0.95

Req'd ESDv = 78 cf

Prov. ESDv = 84.0 cf

Rv Calculation:

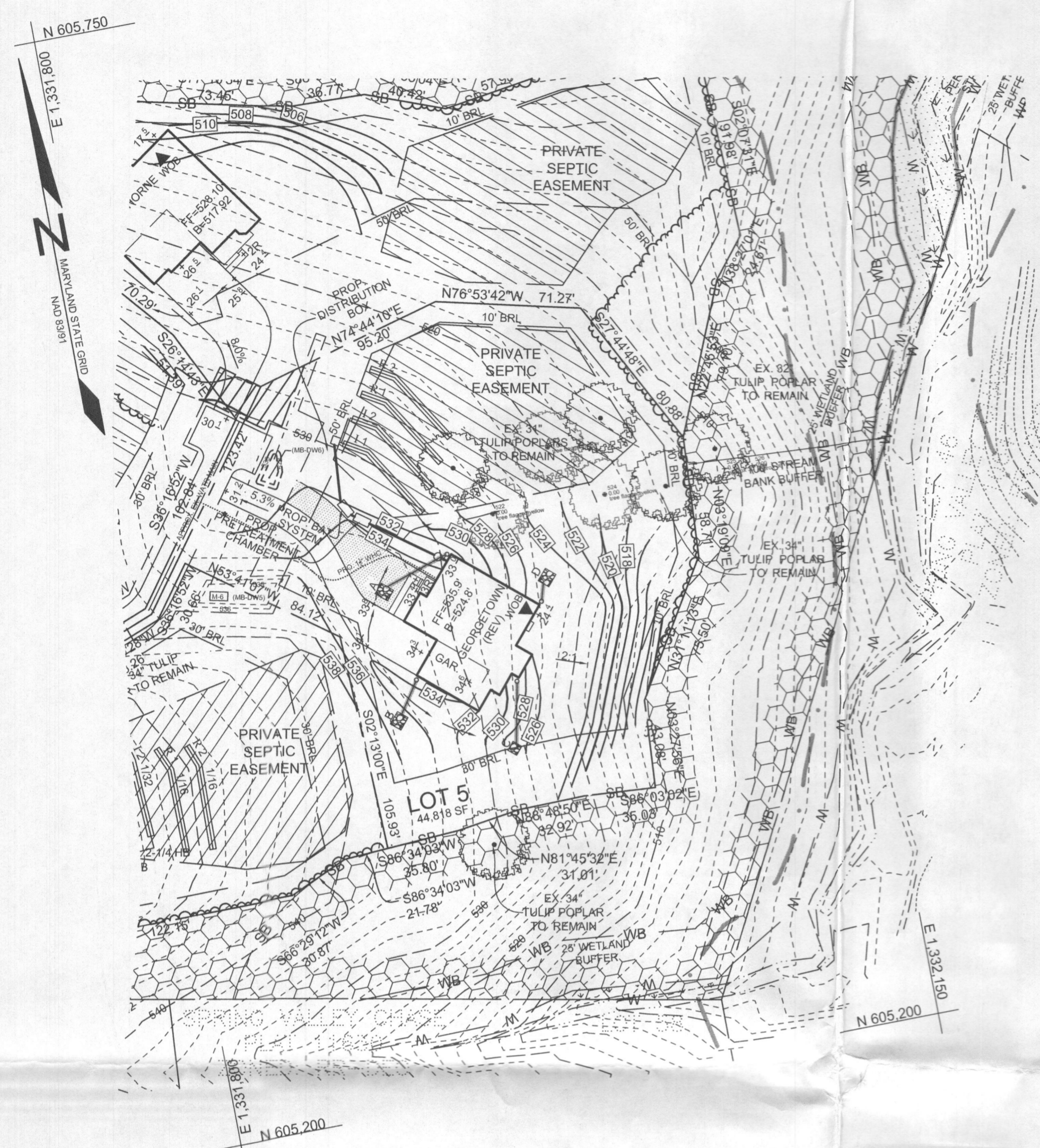
$$\begin{aligned} Rv &= 0.05 + 0.009 ( I ) \\ &= 0.05 + 0.009 ( 100 ) \\ &= 0.05 + 0.9 \\ &= 0.95 \end{aligned}$$

Dry Well Sizing (in feet):

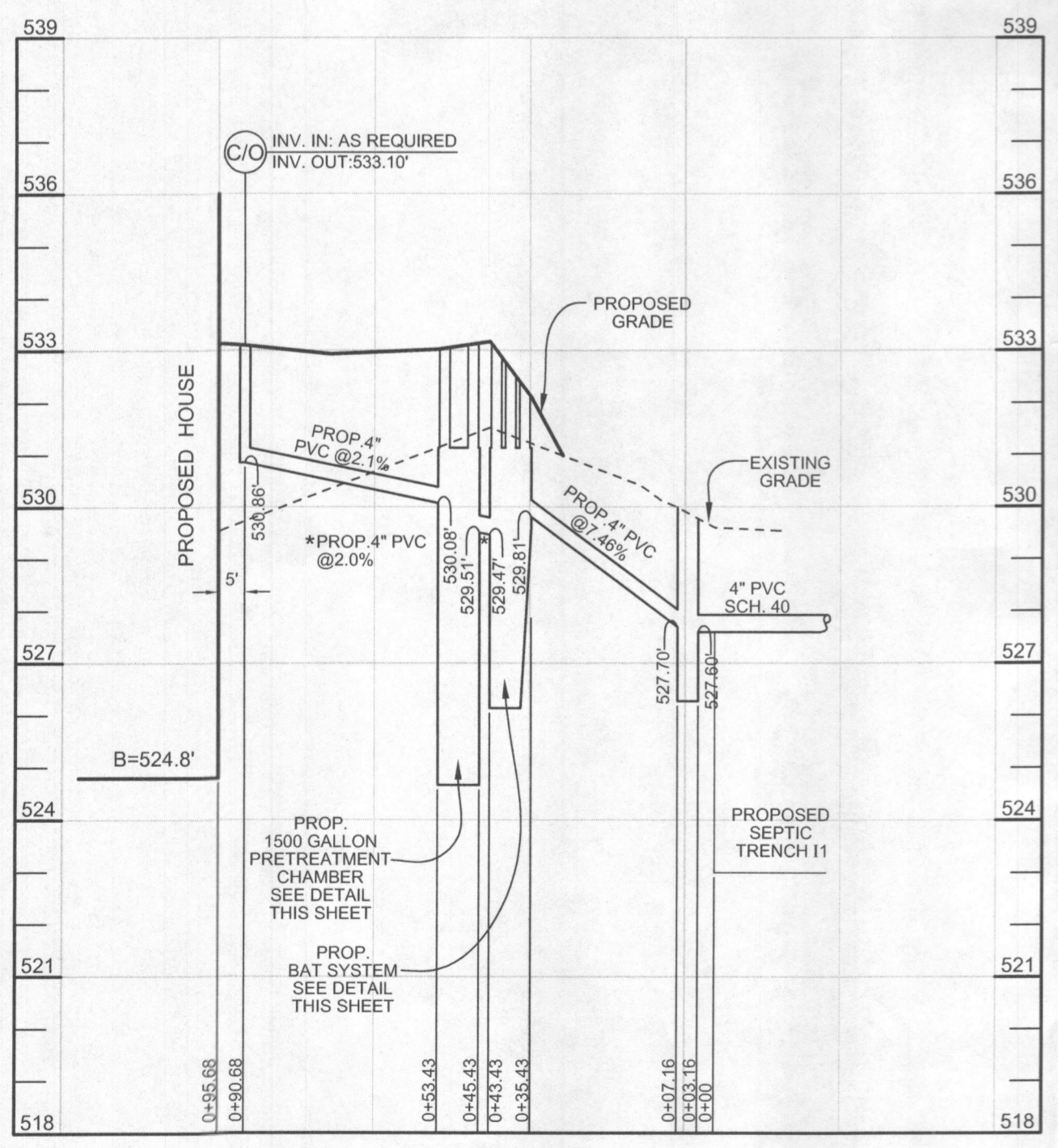
$$\begin{aligned} \text{Size} &= 7.0 \text{ Long} \times 6.0 \text{ Wide} \times 5.0 \text{ Deep} \\ &= 210.0 \text{ cf} \\ &= 210.0 \text{ cf} \times 0.4 \\ &= 84.0 \text{ cf} \end{aligned}$$

ESDv Calculation:

$$\begin{aligned} \text{ESDv} &= \frac{(Pe)(Rv)(A)}{12} \\ &= \frac{(1.2)(0.95)(0.0185)}{12} \\ &= \frac{0.0211}{12} \\ &= 0.0018 \text{ Ac-Ft} \\ &\quad \text{or} \\ &\quad 78 \text{ cf} \end{aligned}$$



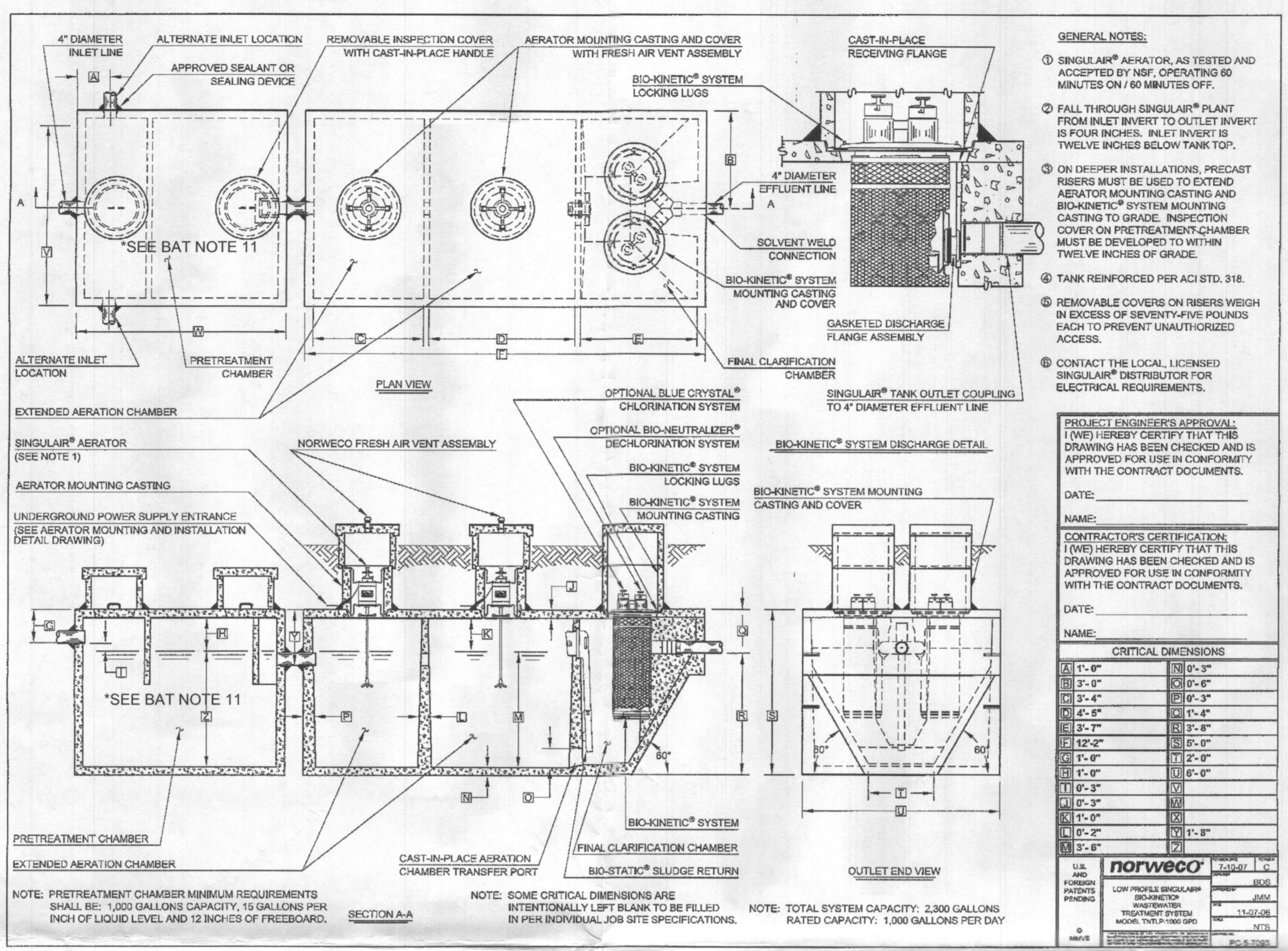
**PLAN VIEW**  
SCALE: 1"=50'



**BAT SYSTEM PROFILE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GgB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
MdD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24

- NOTES:
- 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE; NATURAL RESOURCES CONSERVATION SERVICE; WEB SOIL SURVEY.
  - 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



- GENERAL NOTES:
- 1) SINGULAR<sup>®</sup> AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
  - 2) FALL THROUGH SINGULAR<sup>®</sup> PLANT FROM INLET TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
  - 3) ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC<sup>®</sup> SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
  - 4) TANK REINFORCED PER ACI STD. 318.
  - 5) REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
  - 6) CONTACT THE LOCAL LICENSED SINGULAR<sup>®</sup> DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

PROJECT ENGINEER'S APPROVAL (I/WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

CONTRACTOR'S CERTIFICATION (I/WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: \_\_\_\_\_

NAME: \_\_\_\_\_

CRITICAL DIMENSIONS	
A1 1'-0"	A2 0'-0"
A3 3'-0"	A4 0'-0"
A5 3'-4"	A6 0'-3"
A7 4'-0"	A8 2'-4"
A9 2'-0"	A10 3'-0"
A11 12'-0"	A12 0'-0"
A13 1'-0"	A14 2'-0"
A15 0'-0"	A16 0'-0"
A17 0'-0"	A18 0'-0"
A19 0'-0"	A20 0'-0"
A21 0'-0"	A22 0'-0"
A23 0'-0"	A24 0'-0"
A25 0'-0"	A26 0'-0"
A27 0'-0"	A28 0'-0"
A29 0'-0"	A30 0'-0"
A31 0'-0"	A32 0'-0"
A33 0'-0"	A34 0'-0"
A35 0'-0"	A36 0'-0"
A37 0'-0"	A38 0'-0"
A39 0'-0"	A40 0'-0"
A41 0'-0"	A42 0'-0"
A43 0'-0"	A44 0'-0"
A45 0'-0"	A46 0'-0"
A47 0'-0"	A48 0'-0"
A49 0'-0"	A50 0'-0"
A51 0'-0"	A52 0'-0"
A53 0'-0"	A54 0'-0"
A55 0'-0"	A56 0'-0"
A57 0'-0"	A58 0'-0"
A59 0'-0"	A60 0'-0"
A61 0'-0"	A62 0'-0"
A63 0'-0"	A64 0'-0"
A65 0'-0"	A66 0'-0"
A67 0'-0"	A68 0'-0"
A69 0'-0"	A70 0'-0"
A71 0'-0"	A72 0'-0"
A73 0'-0"	A74 0'-0"
A75 0'-0"	A76 0'-0"
A77 0'-0"	A78 0'-0"
A79 0'-0"	A80 0'-0"
A81 0'-0"	A82 0'-0"
A83 0'-0"	A84 0'-0"
A85 0'-0"	A86 0'-0"
A87 0'-0"	A88 0'-0"
A89 0'-0"	A90 0'-0"
A91 0'-0"	A92 0'-0"
A93 0'-0"	A94 0'-0"
A95 0'-0"	A96 0'-0"
A97 0'-0"	A98 0'-0"
A99 0'-0"	A100 0'-0"

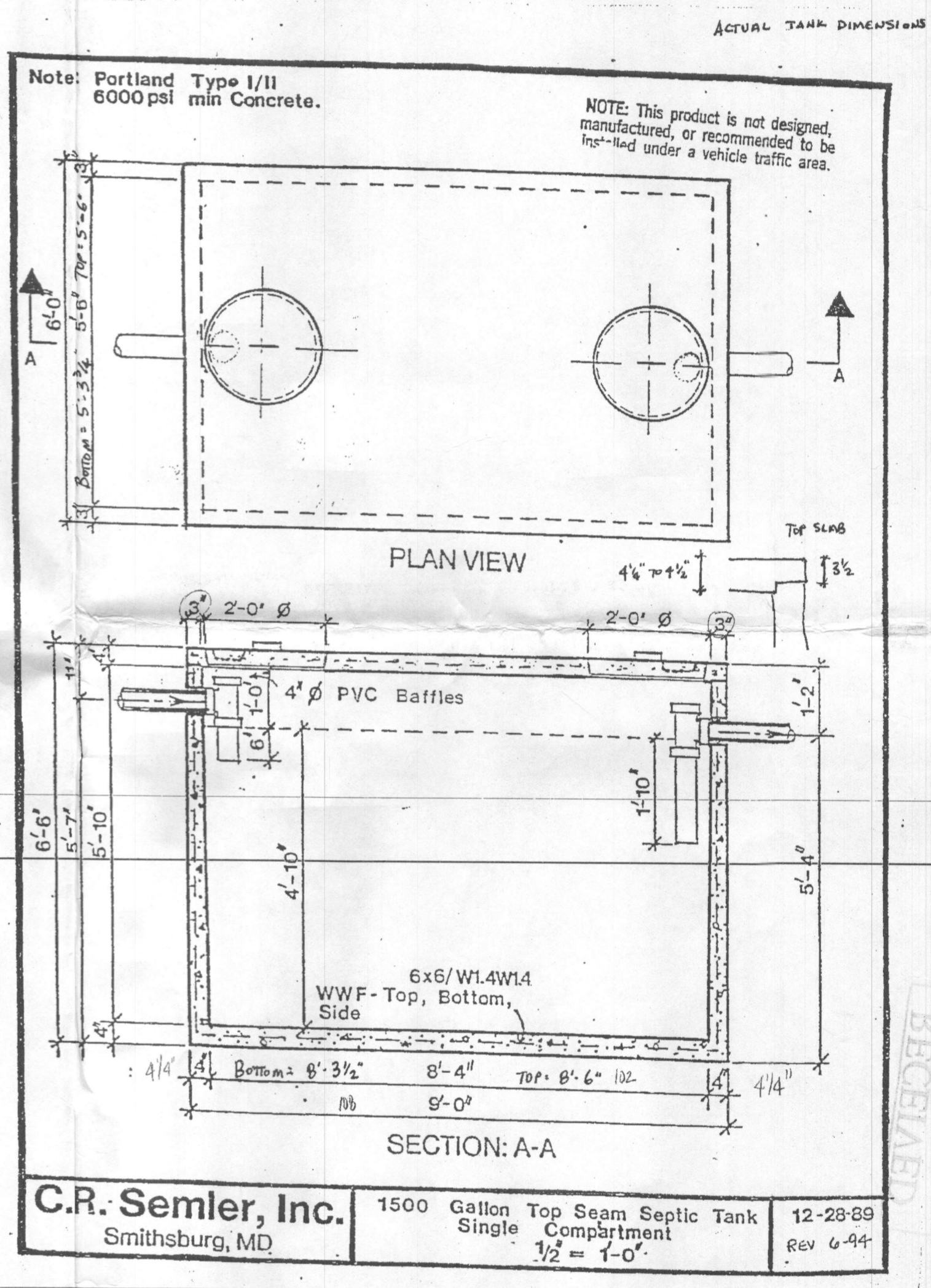
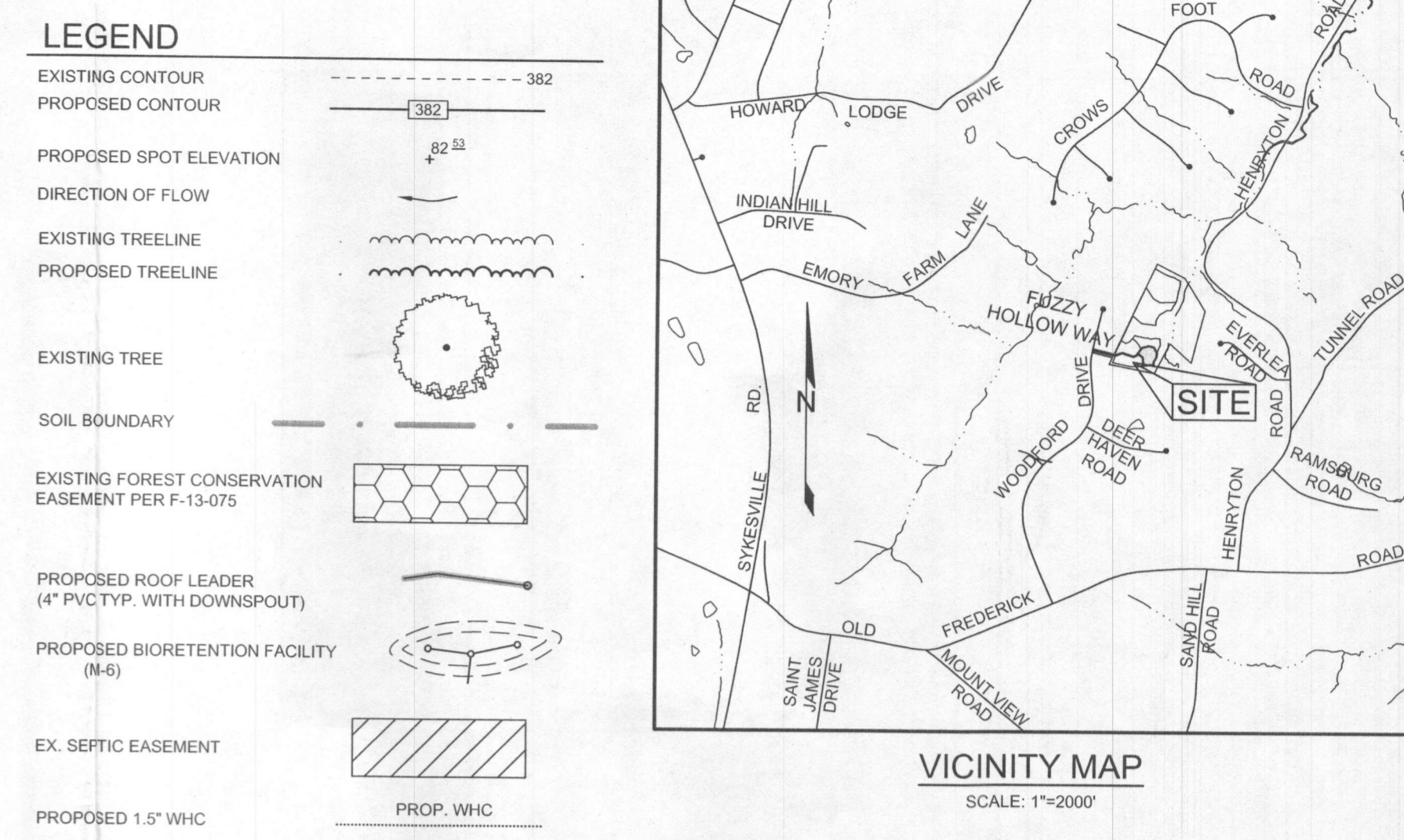
U.S. PATENT OFFICE REGISTERED TRADEMARK  
 NORWECO  
 LOW PROFILE SINGULAR<sup>®</sup> AERATOR  
 BIO-KINETIC<sup>®</sup> SYSTEM  
 MODEL: T100-1000 (90)  
 © 2004 NORWECO  
 MADE IN U.S.A.

**BAT NOTES**

1. 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.
2. THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 2 FEET.
3. THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
4. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
6. WITHIN ONE 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.
7. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
8. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
10. BAT SYSTEM TO BE A NORWECO SINGULAR MODEL T100-1000 OR EQUIVALENT.
11. PRETREATMENT CHAMBER IS TO BE THE C.R. SEMLER, INC. 1500 GALLON TOP SEAM SINGLE COMPARTMENT TANK MODIFIED AS SHOWN ON THE DETAIL THIS SHEET OR EQUIVALENT.

**SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS**

- INITIAL SYSTEM:
    - APPLICATION RATE: 1.2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
  - REPLACEMENT SYSTEM 1:
    - APPLICATION RATE: 1.2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
1. DESIGN FLOW:
    - 6 BEDROOMS AT 150 GPD
    - 6X150 GPD = 900 GPD
  2. SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:
    - DESIGN FLOW (900 GPD) / APPLICATION RATE (1.2) = 750 SF
  3. SIDEWALL REDUCTION CREDIT:
    - TRENCH WIDTH (W) = 3'
    - TRENCH EFFECTIVE DEPTH (D) = 4'
    - (W+2) / (W+1+2D) X 100 = 42%
  4. LINEAR LENGTH OF TRENCH REQUIRED:
    - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3) = 105'
  5. LINEAR LENGTH OF TRENCH PROVIDED = 105'
    - TWO TRENCHES 52.5 LF/EACH
  6. EXISTING GRADE: TRENCH 11: 529.6'  
 INVERT: TRENCH 11: 527.6'  
 EXISTING GRADE: TRENCH 12: 528.2'  
 INVERT: TRENCH 12: 526.2'



Approved Septic System Plan  
 Howard County Health Department  
 Hank O'Connell  
 Signature Date

OWNER/DEVELOPER  
 WILLIAMSBURG GROUP  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044

**SITE PLAN FOR BAT INSTALLATION**

MELCHIOR PROPERTY  
 LOT 5

TAX MAP 10 GRID 13  
 3RD ELECTION DISTRICT

PARCEL 184  
 HOWARD COUNTY, MARYLAND

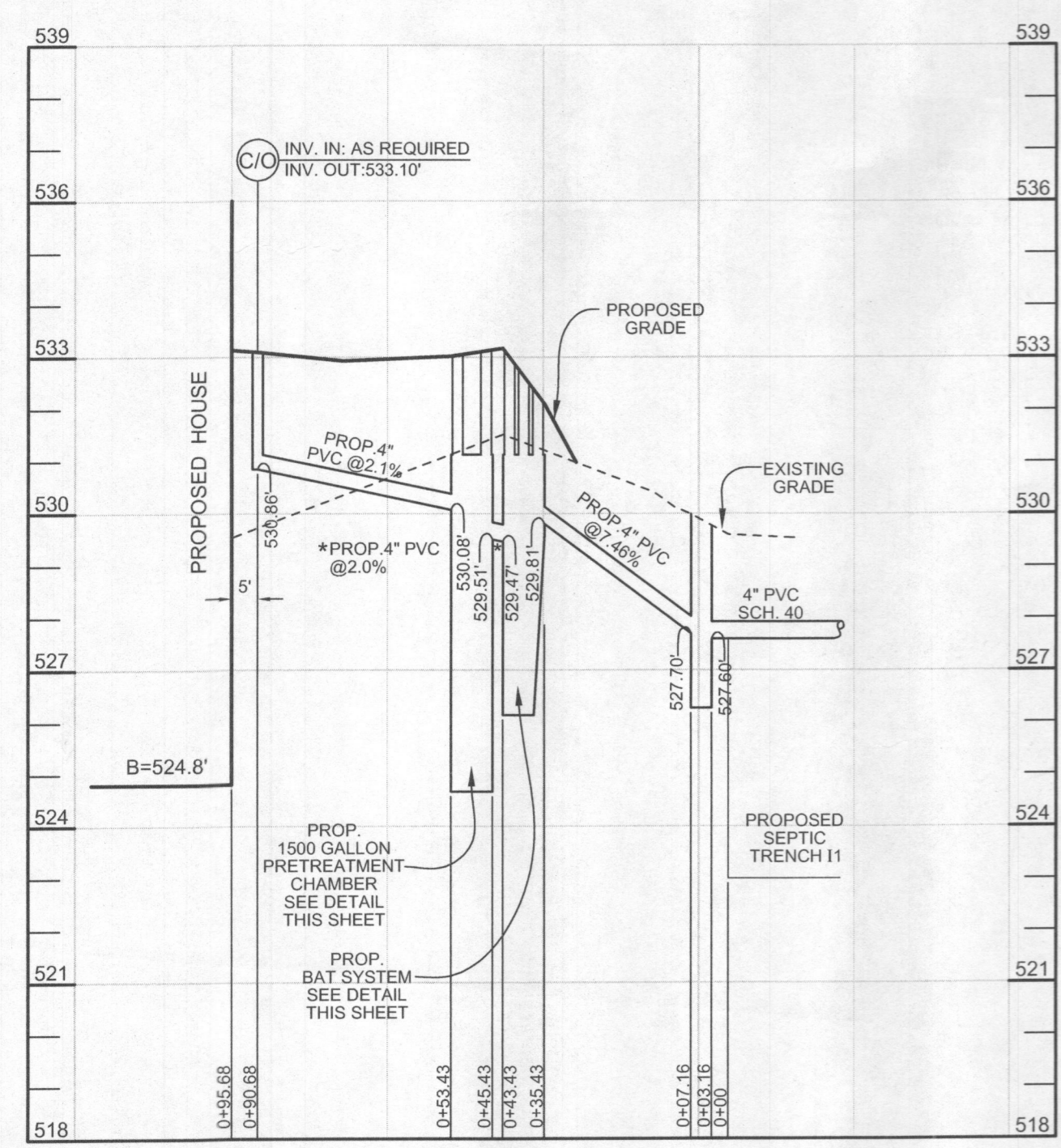
SILL ENGINEERING GROUP, LLC  
 11130 Dovedale Court, Suite 200  
 Marriottsville, Maryland 21044  
 Phone: 443.325.5076  
 Fax: 410.696.2022  
 Email: info@sillengineering.com  
 Civil Engineering for Land Development

DESIGN BY: PS  
 DRAWN BY: RA  
 CHECKED BY: PS  
 SCALE: AS SHOWN  
 DATE: NOVEMBER 3, 2016  
 PROJECT #: 15-023  
 SHEET #: 1 of 1

PROFESSIONAL CERTIFICATION: 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. 33025, EXPIRATION DATE: JUNE 26, 2017.



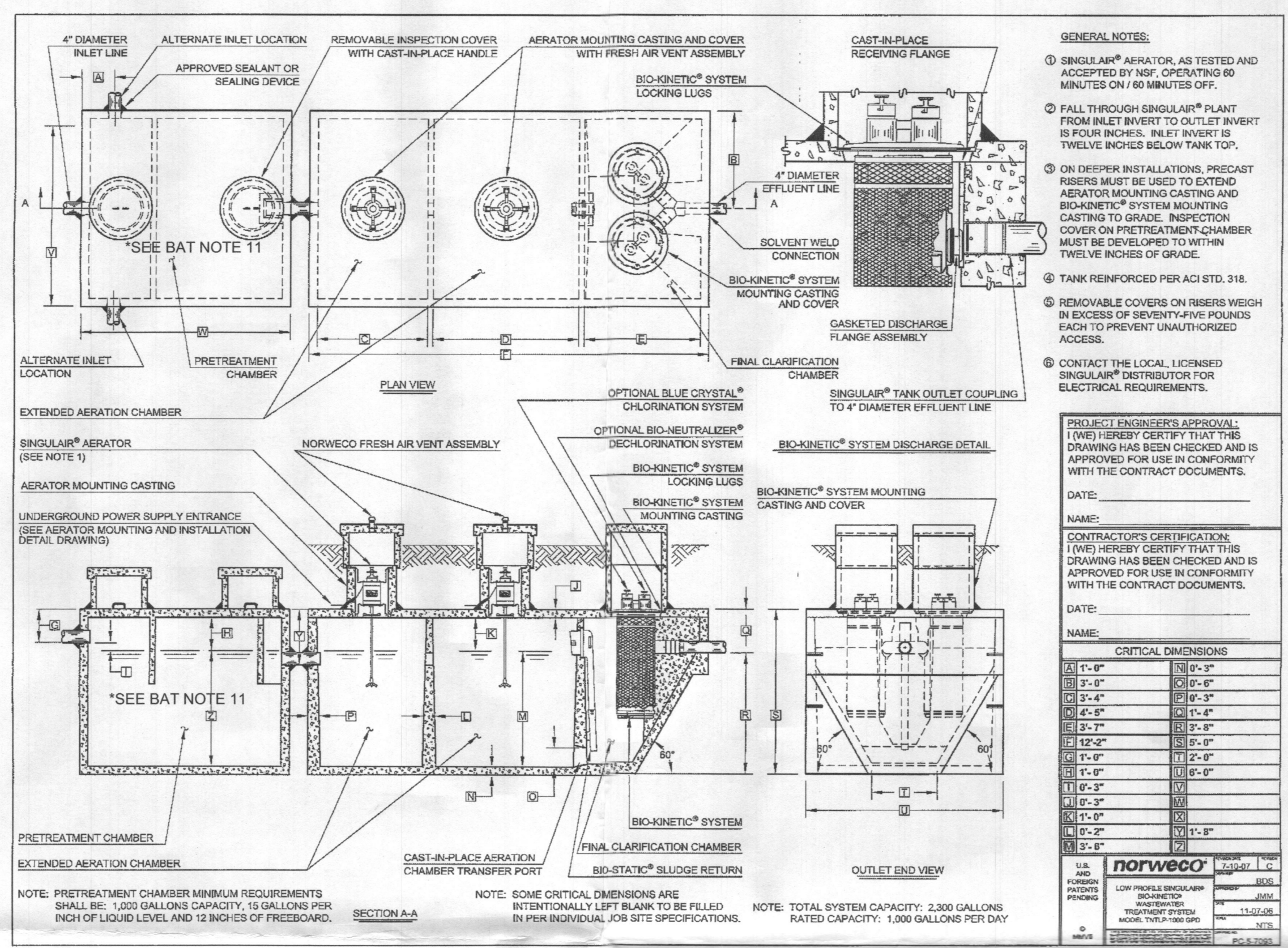
**PLAN VIEW**  
SCALE: 1"=50'



**BAT SYSTEM PROFILE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GgB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
MdD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24

NOTES:  
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE; NATURAL RESOURCES CONSERVATION SERVICE; WEB SOIL SURVEY.  
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



- GENERAL NOTES:**
- SINGULAR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
  - FALL THROUGH SINGULAR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
  - ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC® SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
  - TANK REINFORCED PER ACI STD. 318.
  - REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
  - CONTACT THE LOCAL, LICENSED SINGULAR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

**PROJECT ENGINEER'S APPROVAL:**  
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: \_\_\_\_\_  
 NAME: \_\_\_\_\_

CRITICAL DIMENSIONS	
1) 1'-0"	1) 1'-0"
2) 2'-0"	2) 2'-0"
3) 3'-0"	3) 3'-0"
4) 4'-0"	4) 4'-0"
5) 5'-0"	5) 5'-0"
6) 6'-0"	6) 6'-0"
7) 7'-0"	7) 7'-0"
8) 8'-0"	8) 8'-0"
9) 9'-0"	9) 9'-0"
10) 10'-0"	10) 10'-0"
11) 11'-0"	11) 11'-0"
12) 12'-0"	12) 12'-0"
13) 13'-0"	13) 13'-0"
14) 14'-0"	14) 14'-0"
15) 15'-0"	15) 15'-0"
16) 16'-0"	16) 16'-0"
17) 17'-0"	17) 17'-0"
18) 18'-0"	18) 18'-0"
19) 19'-0"	19) 19'-0"
20) 20'-0"	20) 20'-0"

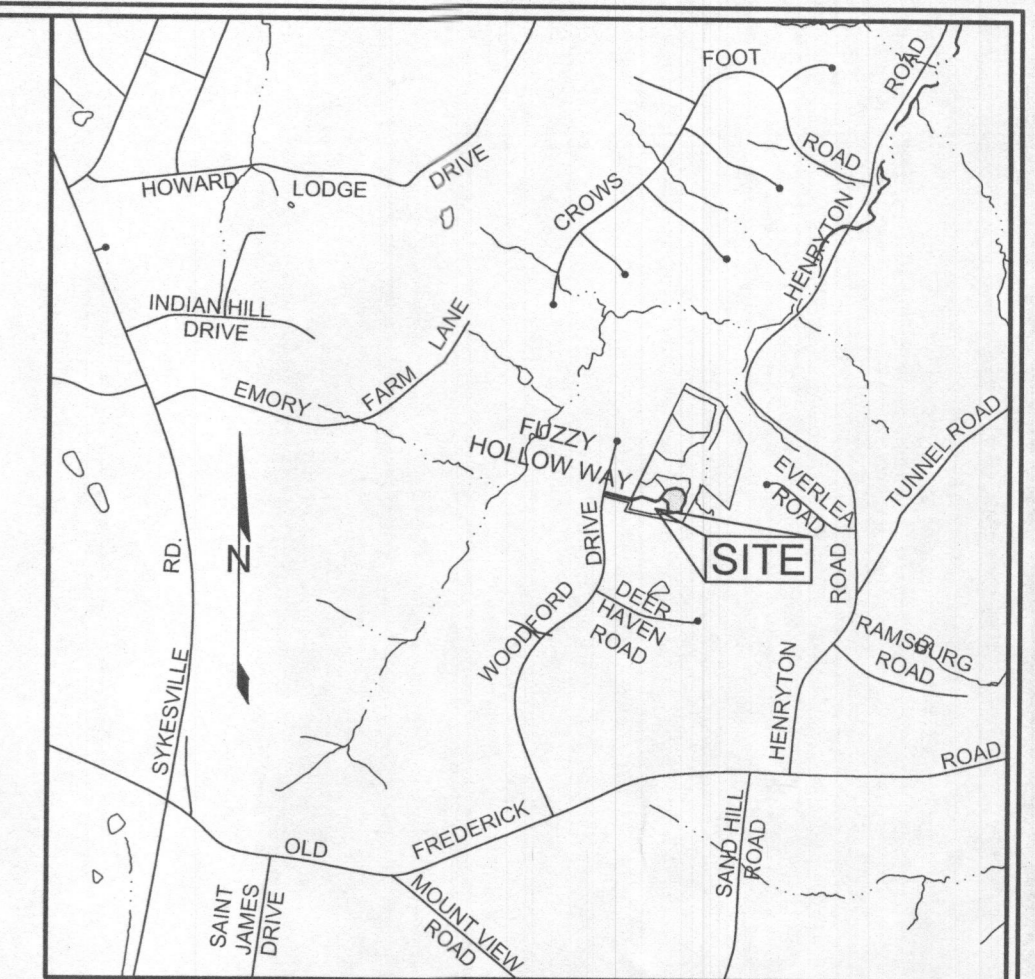
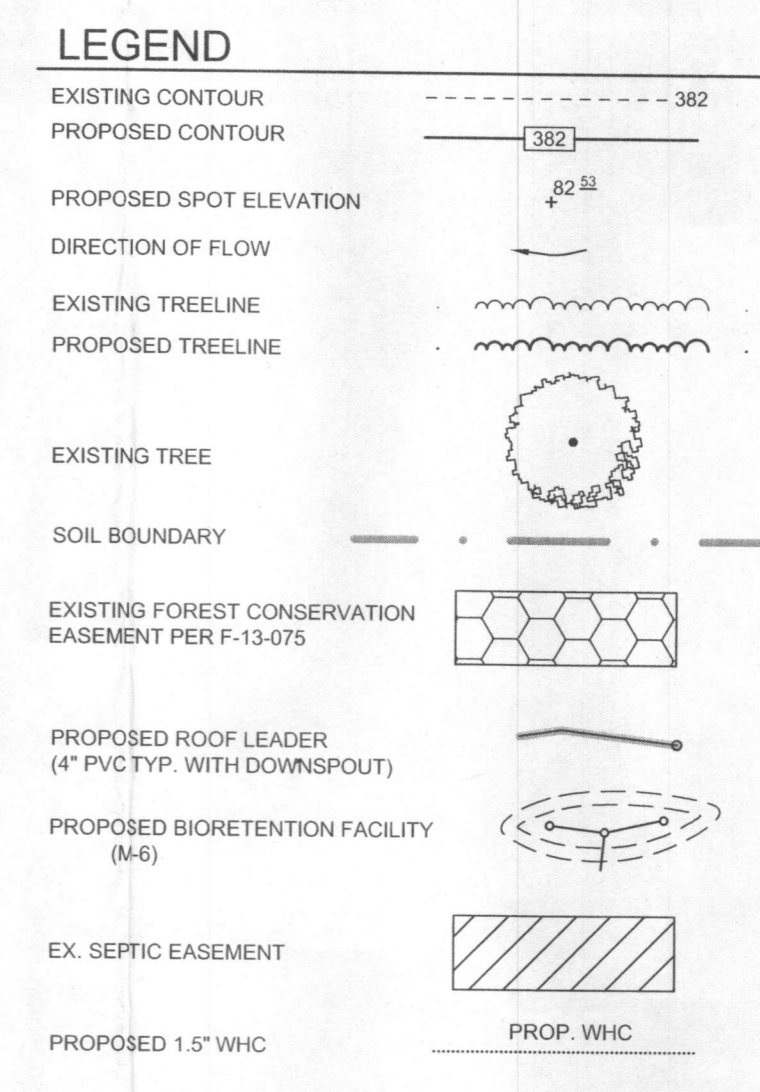
**norweco** TANKS  
 LOW PROFILE SINGULAR® BIO-KINETIC® SYSTEM  
 TRENCH SYSTEM  
 MODEL: TNL1P-1000 GPD  
 1500 GPD  
 12" DIA.  
 6'-0" HGT.

**BAT NOTES**

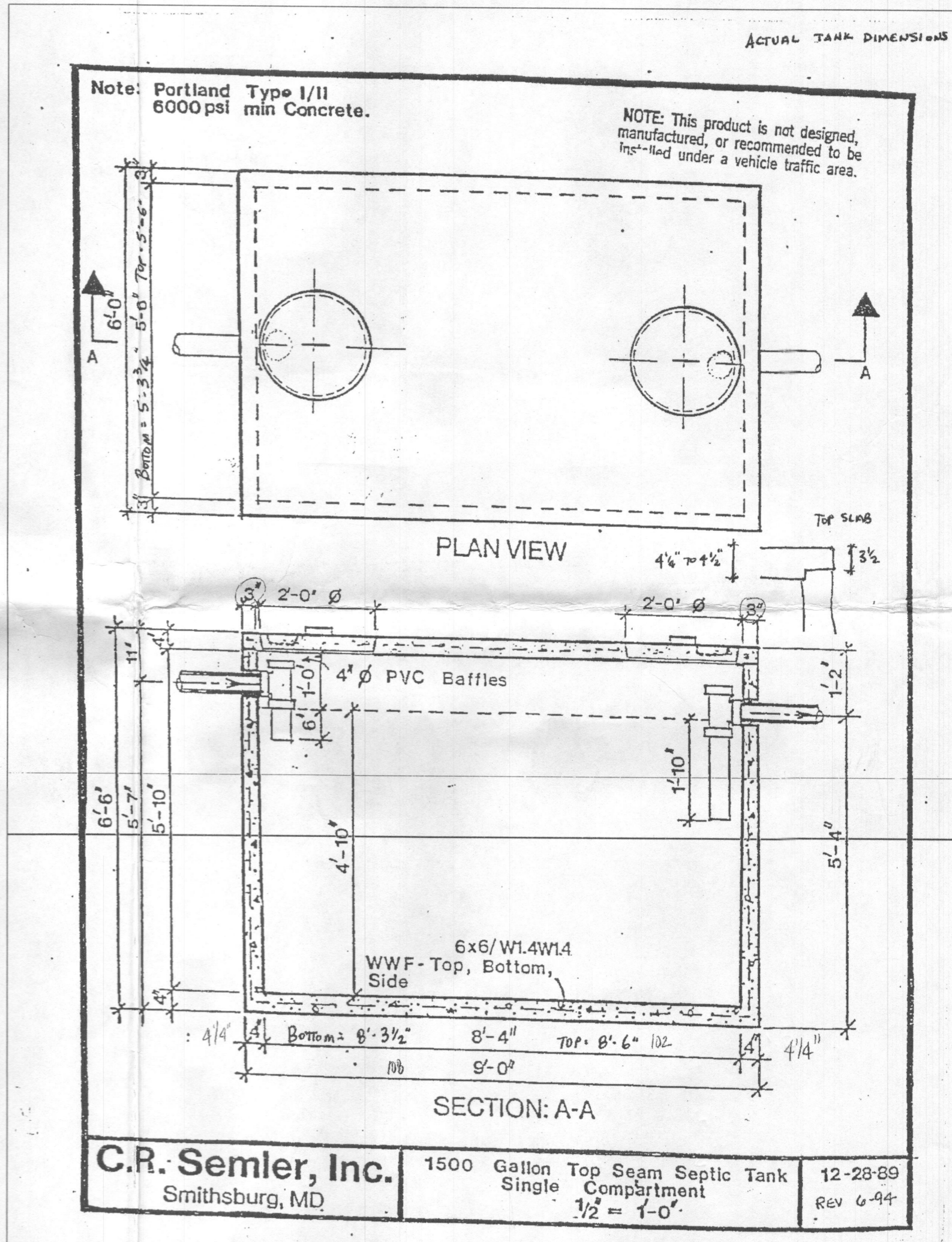
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 6 FEET. THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
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- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- BAT SYSTEM TO BE A NORWECO SINGULAR MODEL TNL1P-1000 OR EQUIVALENT.
- PRETREATMENT CHAMBER IS TO BE THE C.R. SEMLER, INC. 1500 GALLON TOP SEAM SINGLE COMPARTMENT TANK MODIFIED AS SHOWN ON THE DETAIL. THIS SHEET OR EQUIVALENT.

**SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS**

- INITIAL SYSTEM:**
    - APPLICATION RATE: 1.2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
  - DESIGN FLOW:**
    - 6 BEDROOMS AT 150 GPD
    - 6X150 GPD = 900 GPD
  - SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:**
    - DESIGN FLOW (900 GPD) / APPLICATION RATE (1.2) = 750 SF
  - SIDEWALL REDUCTION CREDIT:**
    - TRENCH WIDTH (W) = 3'
    - TRENCH EFFECTIVE DEPTH (D) = 4'
    - (W+2) / (W+1+2D) X 100 = 42%
  - LINEAR LENGTH OF TRENCH REQUIRED:**
    - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3) = 105'
  - LINEAR LENGTH OF TRENCH PROVIDED = 105'**
    - TWO TRENCHES 52.5 LF/EACH
  - EXISTING GRADE:** TRENCH I1: 529.6'  
 INVERT: TRENCH I1: 527.6'  
 EXISTING GRADE: TRENCH I2: 528.2'  
 INVERT: TRENCH I2: 527.2'
- REPLACEMENT SYSTEM 1:**
    - APPLICATION RATE: 1.2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
  - DESIGN FLOW:**
    - 6 BEDROOMS AT 150 GPD
    - 6X150 GPD = 900 GPD
  - SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:**
    - DESIGN FLOW (775G GPD) / APPLICATION RATE (1.2) = 750 SF
  - SIDEWALL REDUCTION CREDIT:**
    - TRENCH WIDTH (W) = 3'
    - TRENCH EFFECTIVE DEPTH (D) = 4'
    - (W+2) / (W+1+2D) X 100 = 42%
  - LINEAR LENGTH OF TRENCH REQUIRED:**
    - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3) = 105'
  - LINEAR LENGTH OF TRENCH PROVIDED = 105'**
    - TWO TRENCHES 52.5 LF/EACH
  - EXISTING GRADE:** TRENCH R1: 529.6'  
 INVERT: TRENCH R1: 527.6'  
 EXISTING GRADE: TRENCH R2: 528.2'  
 INVERT: TRENCH R2: 527.2'



**VICINITY MAP**  
SCALE: 1"=2000'



**C.R. Semler, Inc.** 1500 Gallon Top Seam Septic Tank  
 Smithsburg, MD Single Compartment  
 12-28-89  
 Rev 6-94

Approved Septic System Plan  
 Howard County Health Department  
 Hank Sewall  
 Signature Date

**OWNER/DEVELOPER**  
 WILLIAMSBURG GROUP  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044

**SITE PLAN FOR BAT INSTALLATION**  
 11040 Fuzzey Hollow Way  
**MELCHIOR PROPERTY**  
 LOT 5

TAX MAP 10 GRID 13 3RD ELECTION DISTRICT PARCEL 184 HOWARD COUNTY, MARYLAND

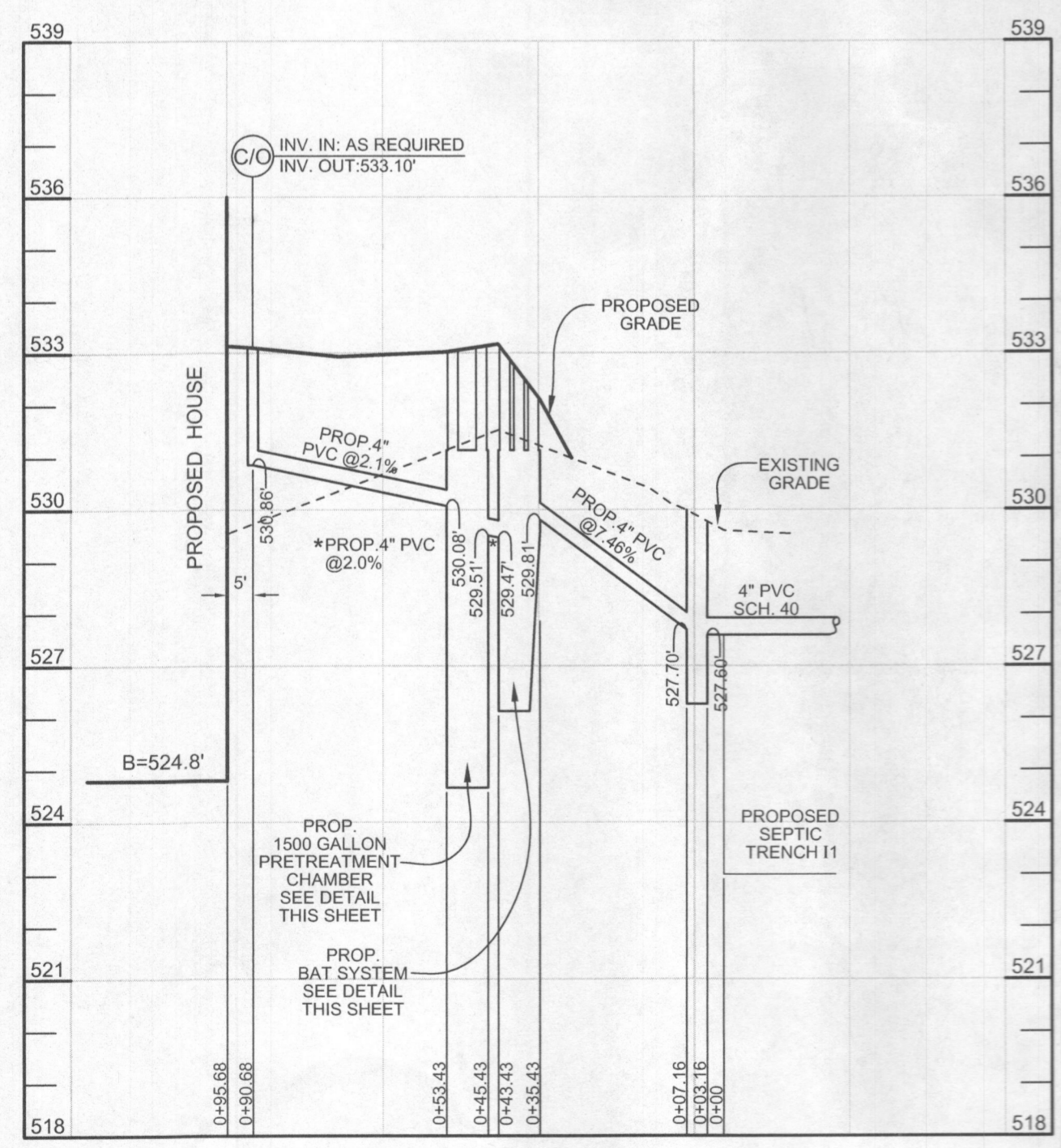
**SILL ENGINEERING GROUP, LLC**  
 11130 Dovedale Court, Suite 200  
 Marriottsville, Maryland 21104  
 Phone: 443.325.5076  
 Fax: 410.696.2022  
 Email: info@sillengineering.com  
 Civil Engineering for Land Development

DESIGN BY: PS  
 DRAWN BY: RA  
 CHECKED BY: PS  
 SCALE: AS SHOWN  
 DATE: NOVEMBER 3, 2016  
 PROJECT #: 15-023  
 SHEET #: 1 of 1

PROFESSIONAL CERTIFICATION: 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. 30205, EXPIRATION DATE: JUNE 26, 2017.



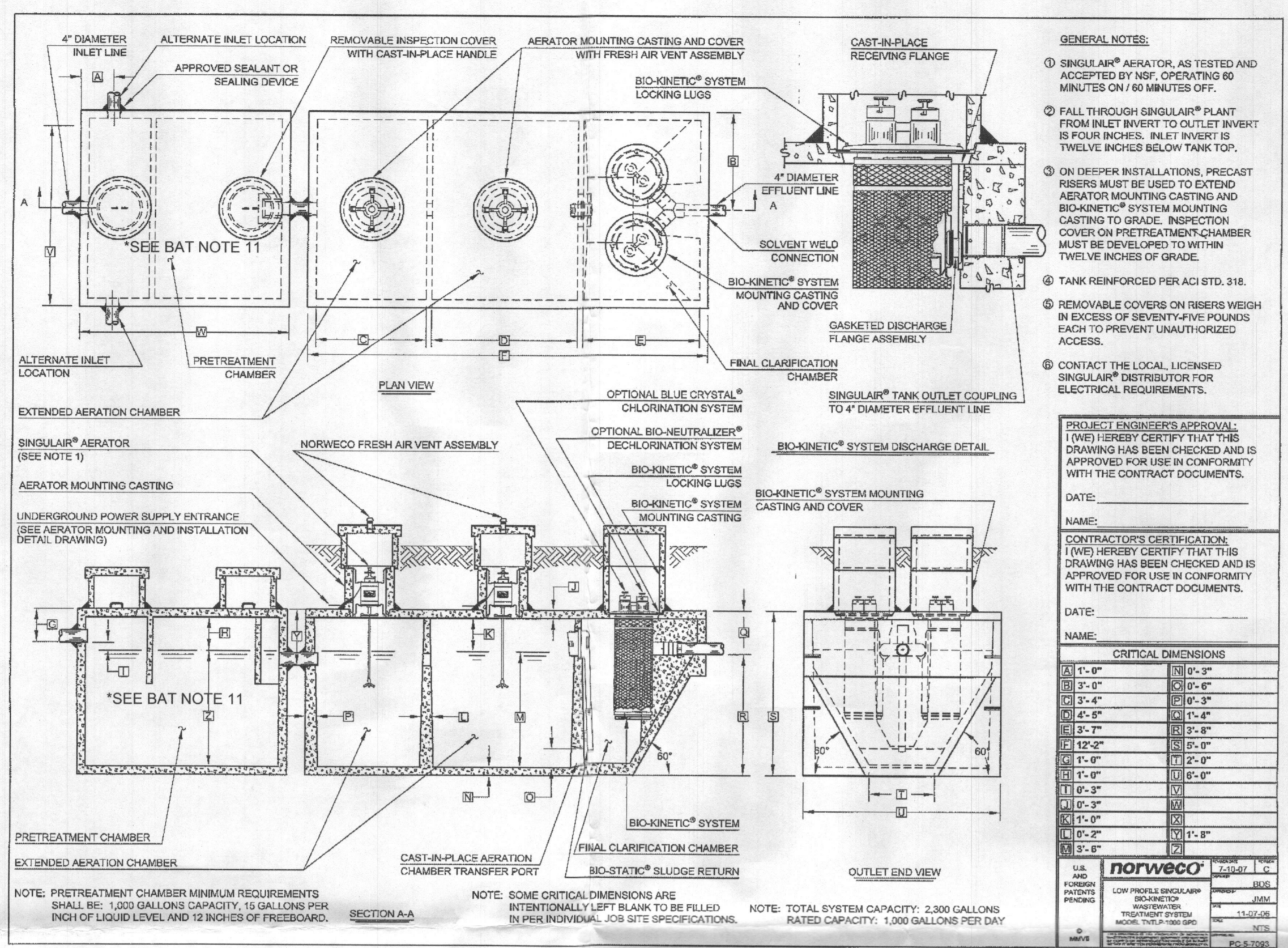
**PLAN VIEW**  
SCALE: 1"=50'



**BAT SYSTEM PROFILE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GgB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24

NOTES:  
1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.  
2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



**GENERAL NOTES:**  
1) SINGLE AIR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.  
2) FALL THROUGH SINGLE AIR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.  
3) ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC® SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.  
4) TANK REINFORCED PER ACI STD. 318.  
5) REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.  
6) CONTACT THE LOCAL, LICENSED SINGLE AIR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

**PROJECT ENGINEER'S APPROVAL:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
DATE: \_\_\_\_\_  
NAME: \_\_\_\_\_

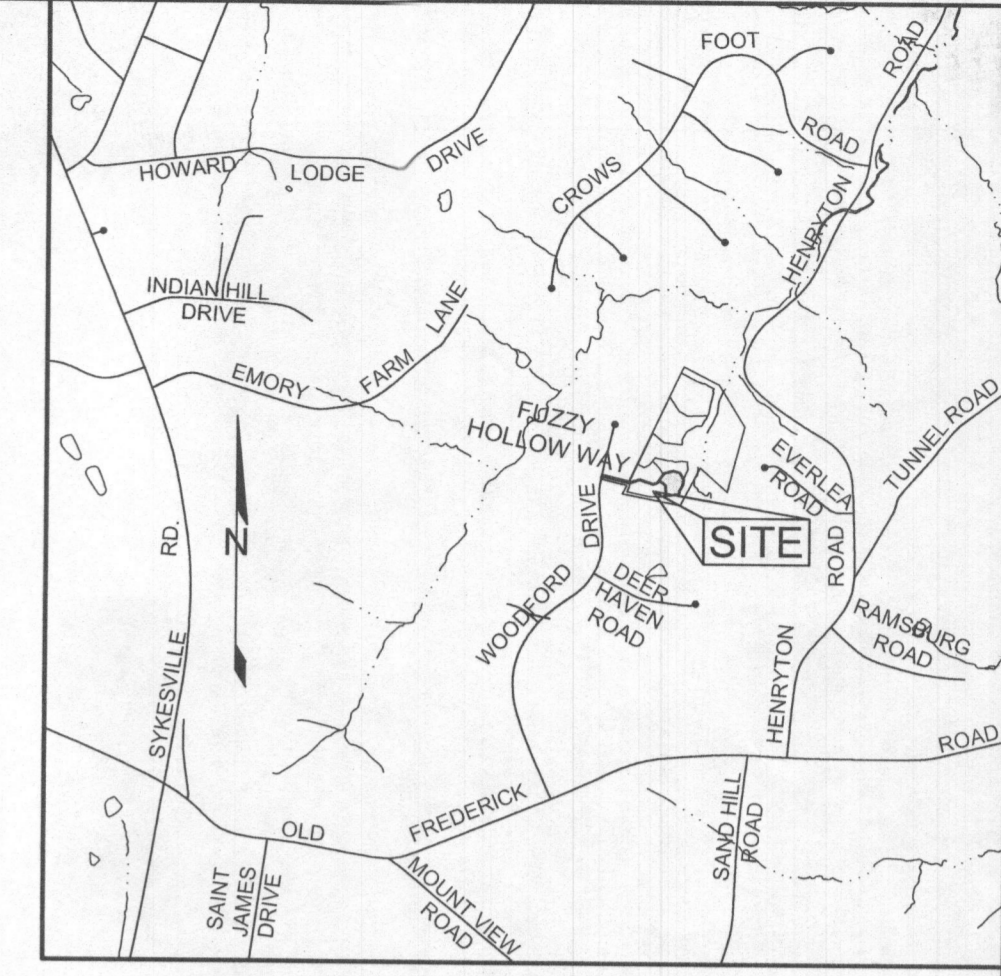
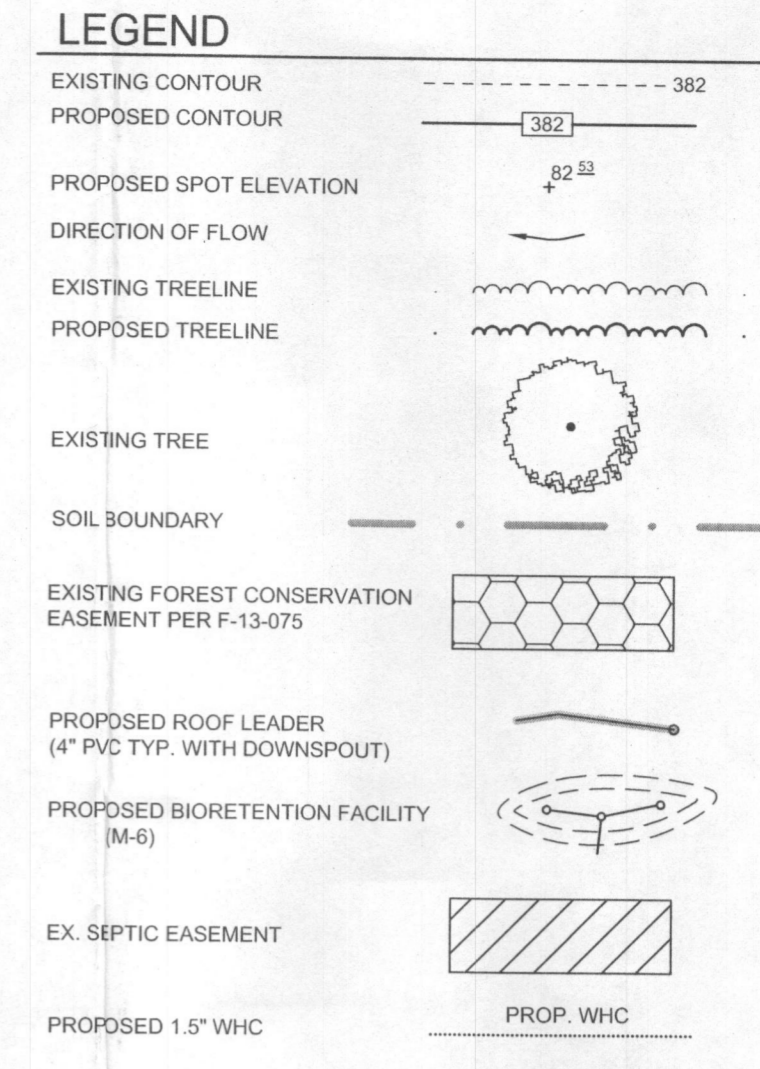
CRITICAL DIMENSIONS	
A1 11'-0"	N 9'-3"
A2 3'-2"	N 6'-0"
A3 3'-4"	N 6'-3"
A4 4'-5"	N 1'-4"
A5 2'-7"	N 3'-8"
A6 12'-0"	N 5'-0"
A7 1'-0"	N 2'-0"
A8 1'-0"	N 6'-0"
A9 2'-2"	N 0"
A10 2'-3"	N 0"
A11 1'-0"	N 0"
A12 2'-2"	N 1'-8"
A13 3'-0"	N 1'-8"

**BAT NOTES**

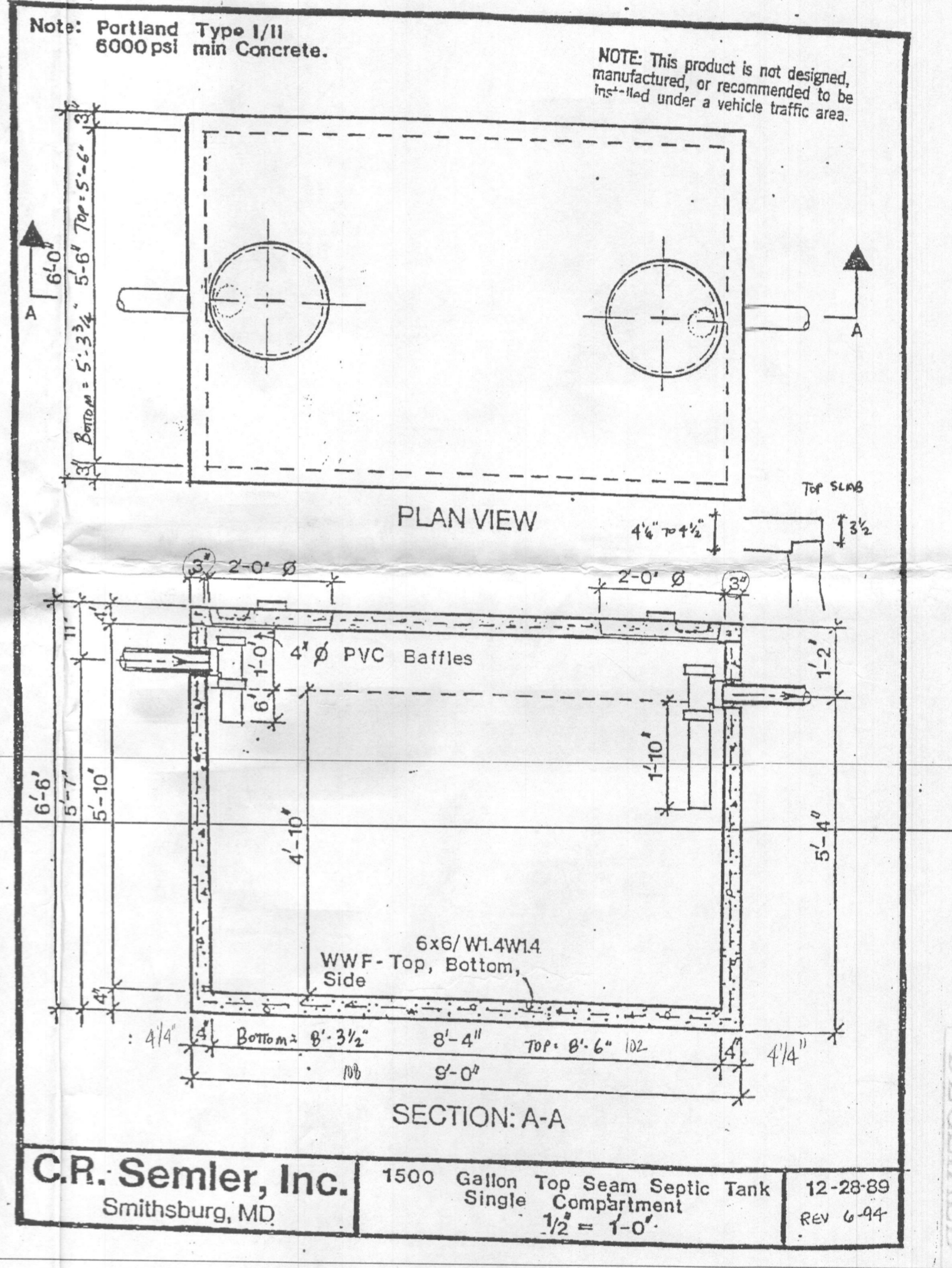
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 9 FEET.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE 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 LAND RECORDS OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- BAT SYSTEM TO BE A NORWECO SINGLE AIR MODEL TMTLP-1000 OR EQUIVALENT.
- PRETREATMENT CHAMBER IS TO BE THE C.R. SEMLER, INC. 1500 GALLON TOP SEAM SINGLE COMPARTMENT TANK MODIFIED AS SHOWN ON THE DETAIL THIS SHEET OR EQUIVALENT.

**SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS**

- INITIAL SYSTEM:**
    - APPLICATION RATE: 1:2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
  - REPLACEMENT SYSTEM 1:**
    - APPLICATION RATE: 1:2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
- DESIGN FLOW:
    - 6 BEDROOMS AT 150 GPD
    - 6X150 GPD = 900 GPD
  - SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:
    - DESIGN FLOW (900 GPD) / APPLICATION RATE (1.2) = 750 SF
  - SIDEWALL REDUCTION CREDIT:
    - TRENCH WIDTH (W) = 3'
    - TRENCH EFFECTIVE DEPTH (D) = 4'
    - (W+2) / (W+1+2D) X 100 = 42%
  - LINEAR LENGTH OF TRENCH REQUIRED:
    - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3') = 105'
  - LINEAR LENGTH OF TRENCH PROVIDED = 105'
    - TWO TRENCHES 52.5' EACH
  - EXISTING GRADE: TRENCH 1: 529.6'
  - INVERT: TRENCH 1: 527.6'
  - EXISTING GRADE: TRENCH 2: 528.2'
  - INVERT: TRENCH 2: 526.2'



**VICINITY MAP**  
SCALE: 1"=2000'



**C.R. Semler, Inc.** 1500 Gallon Top Seam Septic Tank Single Compartment 12-28-89 Rev 6-44  
Smithsburg, MD

Approved Septic System Plan  
Howard County Health Department  
*Signature* *Date*

**OWNER/DEVELOPER**  
WILLIAMSBURG GROUP  
5485 HARPERS FARM ROAD  
COLUMBIA, MARYLAND 21044

**SITE PLAN FOR BAT INSTALLATION**  
11040 Fuzzy Hollow Way  
**MELCHIOR PROPERTY**  
LOT 5

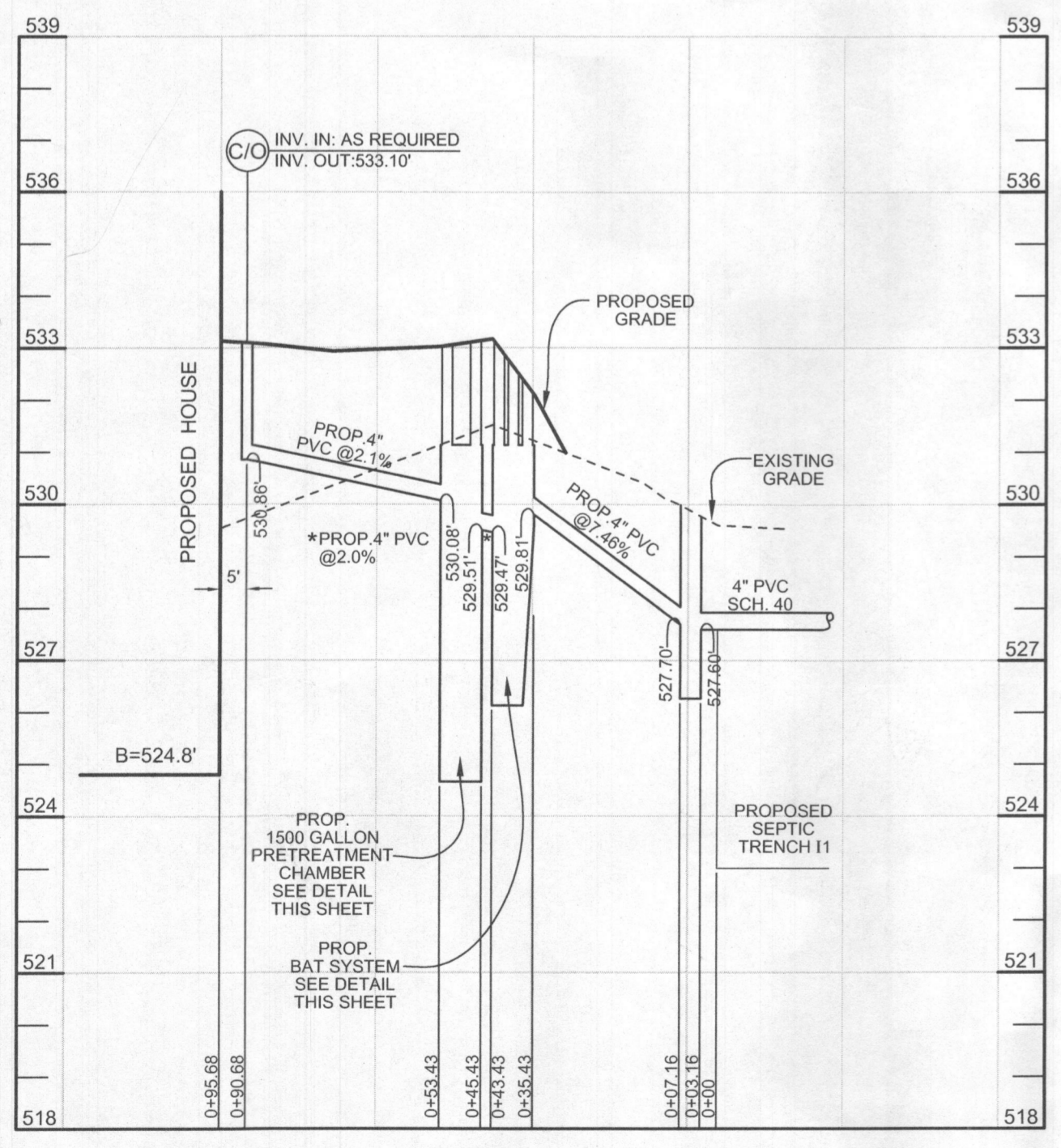
TAX MAP 10 GRID 13 3RD ELECTION DISTRICT PARCEL 184 HOWARD COUNTY, MARYLAND

**SILL ENGINEERING GROUP, LLC**  
11130 Dovedale Court, Suite 200  
Marrattsville, Maryland 21104  
Phone: 443.325.5076  
Fax: 410.696.2022  
Email: info@sillengineering.com  
Civil Engineering for Land Development

DESIGN BY: PS  
DRAWN BY: RA  
CHECKED BY: PS  
SCALE: AS SHOWN  
DATE: NOVEMBER 3, 2016  
PROJECT #: 15-023  
SHEET #: 1 of 1



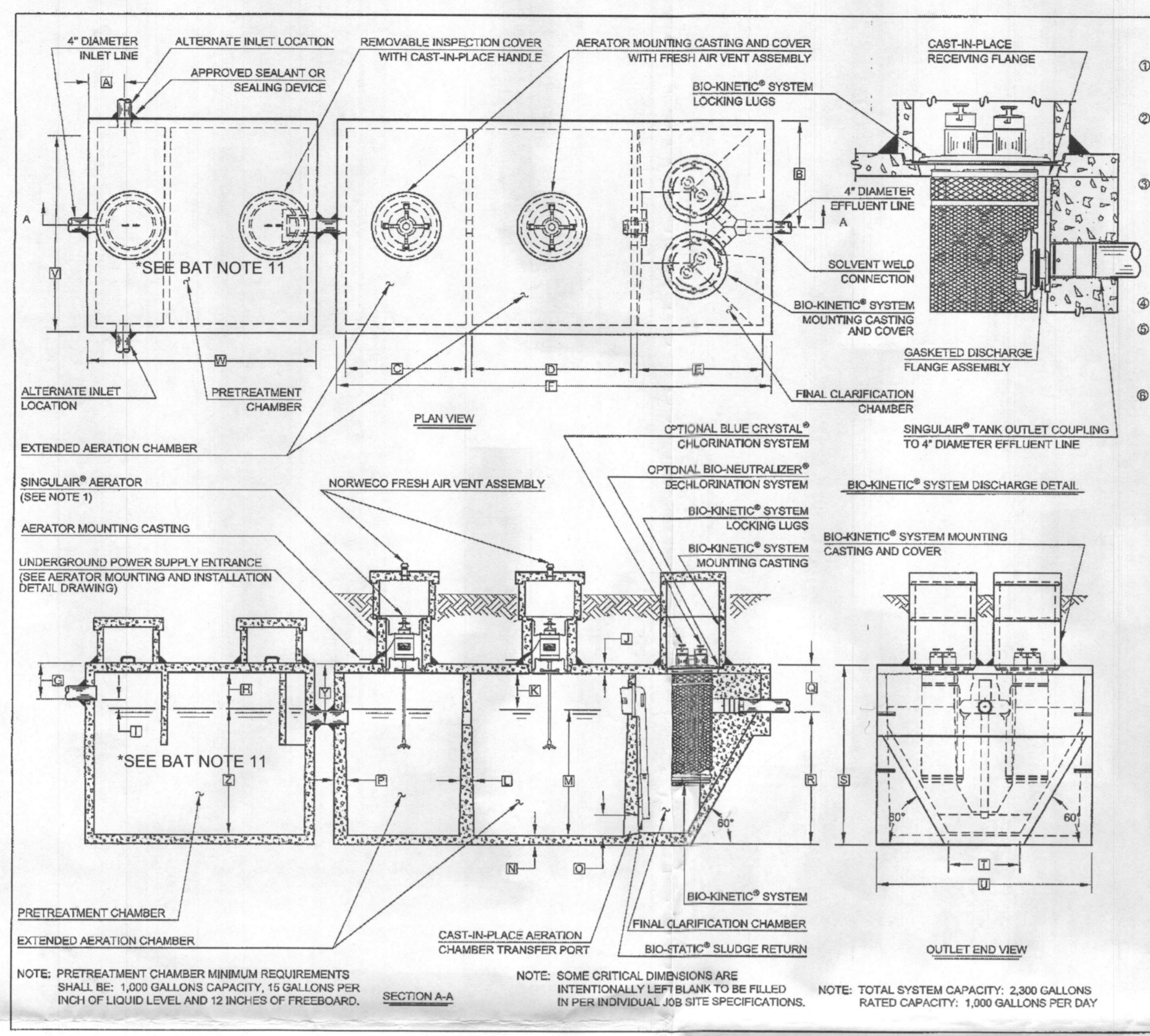
**PLAN VIEW**  
SCALE: 1"=50'



**BAT SYSTEM PROFILE**  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GgB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
MdD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24

NOTES:  
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE; NATURAL RESOURCES CONSERVATION SERVICE; WEB SOIL SURVEY  
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



**GENERAL NOTES:**  
 1) SINGULAR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.  
 2) FALL THROUGH SINGULAR® PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.  
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**PRODUCT ENGINEER'S APPROVAL:**  
 (I/WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION:**  
 (I/WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.  
 NAME: \_\_\_\_\_  
 DATE: \_\_\_\_\_

CRITICAL DIMENSIONS	
A1 11'-0"	A2 9'-0"
A3 3'-0"	A4 6'-0"
A5 3'-0"	A6 9'-0"
A7 2'-0"	A8 1'-0"
A9 1'-0"	A10 1'-0"
A11 1'-0"	A12 1'-0"
A13 1'-0"	A14 1'-0"
A15 1'-0"	A16 1'-0"
A17 1'-0"	A18 1'-0"
A19 1'-0"	A20 1'-0"
A21 1'-0"	A22 1'-0"
A23 1'-0"	A24 1'-0"
A25 1'-0"	A26 1'-0"
A27 1'-0"	A28 1'-0"
A29 1'-0"	A30 1'-0"
A31 1'-0"	A32 1'-0"
A33 1'-0"	A34 1'-0"
A35 1'-0"	A36 1'-0"
A37 1'-0"	A38 1'-0"
A39 1'-0"	A40 1'-0"
A41 1'-0"	A42 1'-0"
A43 1'-0"	A44 1'-0"
A45 1'-0"	A46 1'-0"
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A49 1'-0"	A50 1'-0"
A51 1'-0"	A52 1'-0"
A53 1'-0"	A54 1'-0"
A55 1'-0"	A56 1'-0"
A57 1'-0"	A58 1'-0"
A59 1'-0"	A60 1'-0"
A61 1'-0"	A62 1'-0"
A63 1'-0"	A64 1'-0"
A65 1'-0"	A66 1'-0"
A67 1'-0"	A68 1'-0"
A69 1'-0"	A70 1'-0"
A71 1'-0"	A72 1'-0"
A73 1'-0"	A74 1'-0"
A75 1'-0"	A76 1'-0"
A77 1'-0"	A78 1'-0"
A79 1'-0"	A80 1'-0"
A81 1'-0"	A82 1'-0"
A83 1'-0"	A84 1'-0"
A85 1'-0"	A86 1'-0"
A87 1'-0"	A88 1'-0"
A89 1'-0"	A90 1'-0"
A91 1'-0"	A92 1'-0"
A93 1'-0"	A94 1'-0"
A95 1'-0"	A96 1'-0"
A97 1'-0"	A98 1'-0"
A99 1'-0"	A100 1'-0"

**NOTE:** PRE-TREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 1,000 GALLONS CAPACITY, 15 GALLONS PER INCH OF LIQUID LEVEL AND 12 INCHES OF FREEBOARD.

**NOTE:** SOME CRITICAL DIMENSIONS ARE INTENTIONALLY LEFT BLANK TO BE FILLED IN PER INDIVIDUAL JOB SITE SPECIFICATIONS.

**NOTE:** TOTAL SYSTEM CAPACITY: 2,300 GALLONS RATED CAPACITY: 1,000 GALLONS PER DAY

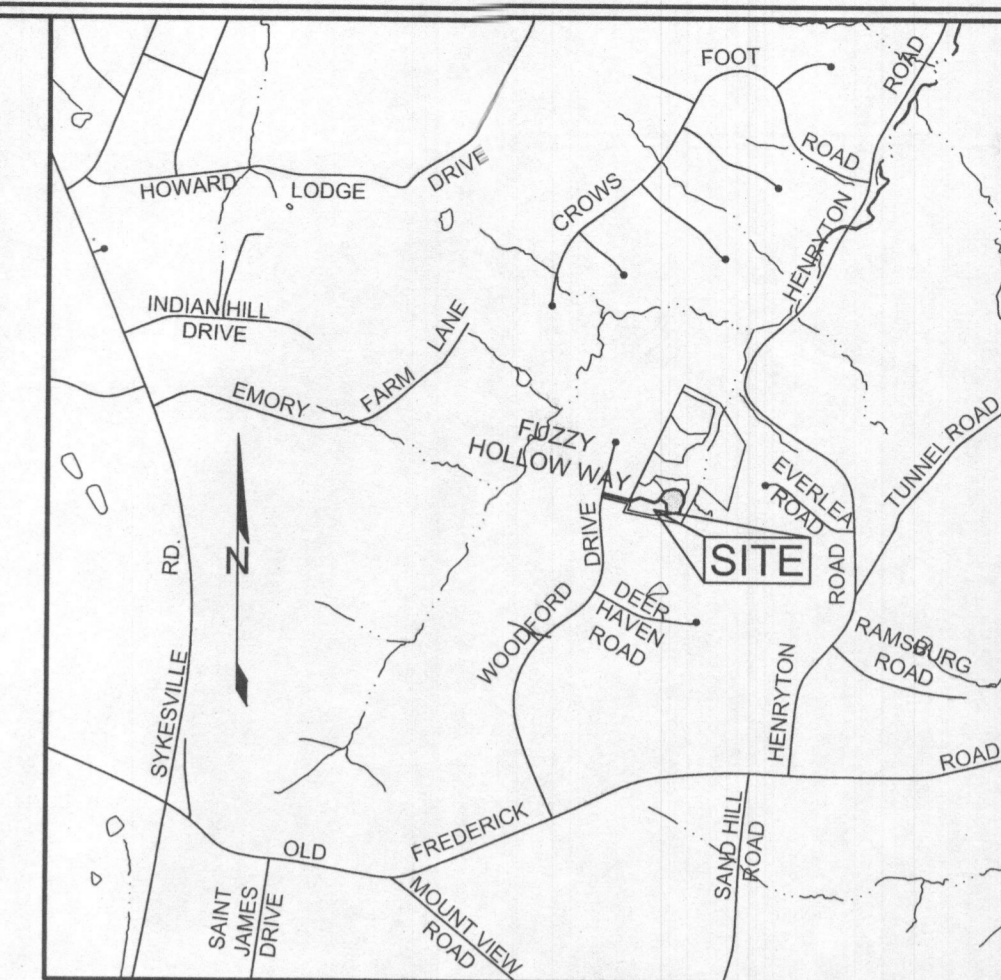
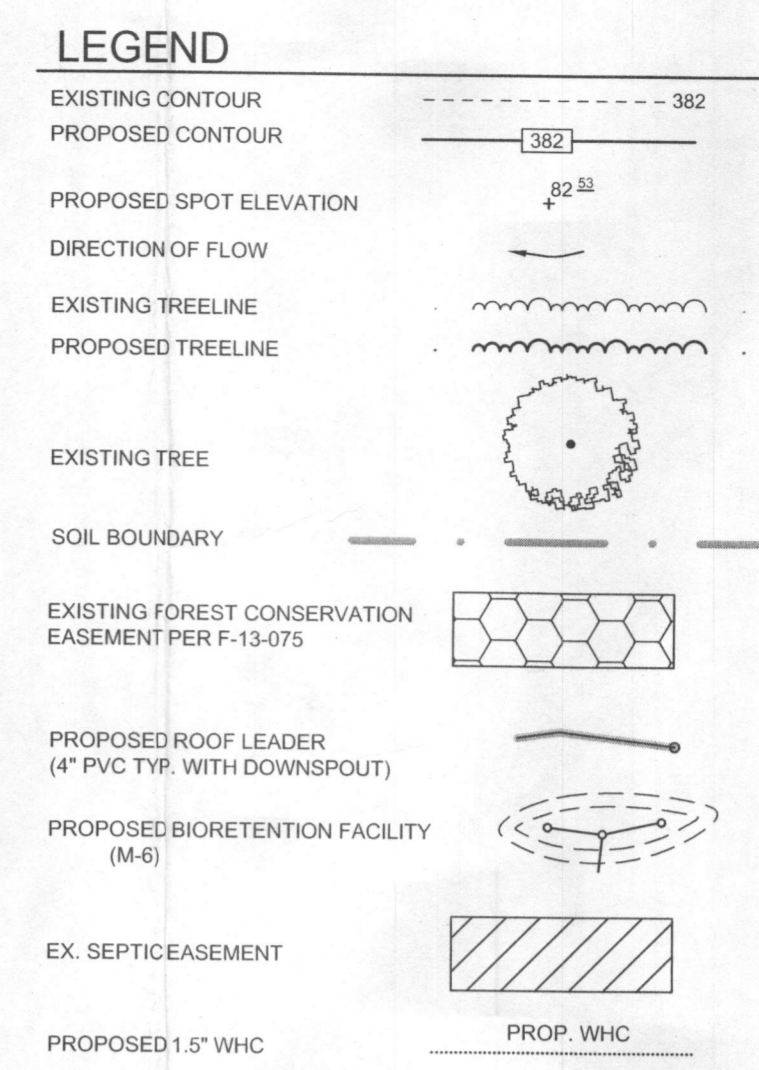
**norweco** LOW PROFILE BIOLOGICAL BIORETENTION SYSTEM MODEL TMTL-1000 (90)

**BAT NOTES**

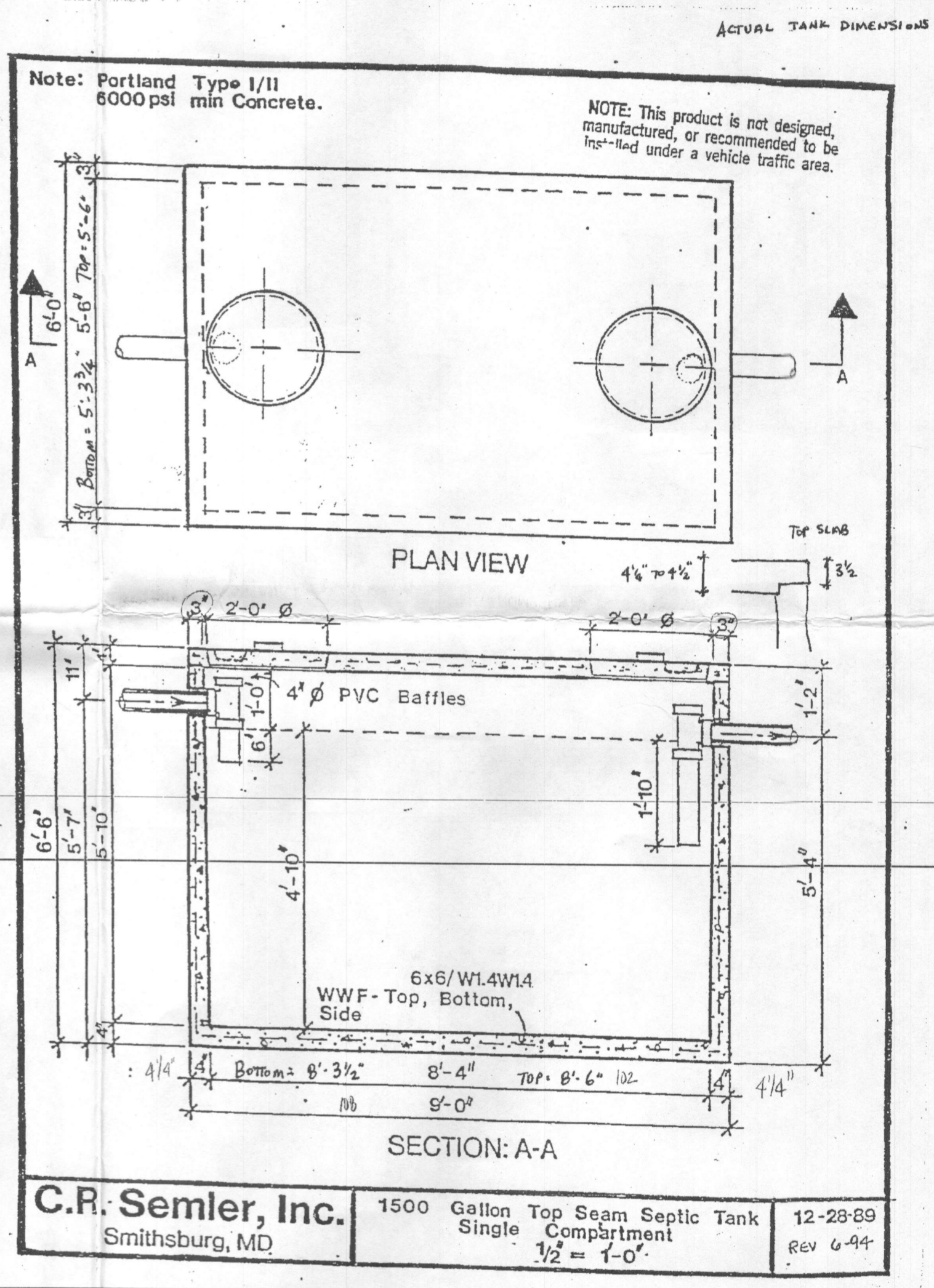
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2. THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 2 FEET.
3. THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
4. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
6. WITHIN ONE 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.
7. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
8. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
10. BAT SYSTEM TO BE A NORWECO SINGULAR MODEL TMTL-1000 OR EQUIVALENT.
11. PRE-TREATMENT CHAMBER IS TO BE THE C.R. SEMLER, INC. 1500 GALLON TOP SEAM SINGLE COMPARTMENT TANK MODIFIED AS SHOWN ON THE DETAIL THIS SHEET OR EQUIVALENT.

**SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS**

- INITIAL SYSTEM:
    - APPLICATION RATE: 1:2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
  - REPLACEMENT SYSTEM 1:
    - APPLICATION RATE: 1:2
    - EFFECTIVE AREA BEGINNING DEPTH: 2'
    - BOTTOM MAXIMUM DEPTH: 6'
1. DESIGN FLOW:
    - 6 BEDROOMS AT 150 GPD
    - 6X150 GPD = 900 GPD
  2. SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:
    - DESIGN FLOW (900 GPD) / APPLICATION RATE (1:2) = 750 SF
  3. SIDEWALL REDUCTION CREDIT:
    - TRENCH WIDTH (W) = 3'
    - TRENCH EFFECTIVE DEPTH (D) = 4'
    - (W+2) / (W+1+2D) X 100 = 42%
  4. LINEAR LENGTH OF TRENCH REQUIRED:
    - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3) = 105'
  5. LINEAR LENGTH OF TRENCH PROVIDED = 105'
    - TWO TRENCHES 52.5 LF/EACH
  6. EXISTING GRADE: TRENCH 11: 529.6'
  - INVERT: TRENCH 11: 527.6'
  - EXISTING GRADE: TRENCH 12: 528.2'
  - INVERT: TRENCH 12: 526.2'



**VICINITY MAP**  
SCALE: 1"=2000'



**C.R. Semler, Inc.** Smithsburg, MD  
 1500 Gallon Top Seam Septic Tank Single Compartment  
 12-23-89 Rev 4-94

**OWNER/DEVELOPER**

WILLIAMSBURG GROUP  
 5485 HARPERS FARM ROAD  
 COLUMBIA, MARYLAND 21044

**SITE PLAN FOR BAT INSTALLATION**  
 11040 Fuzzy Hollow Way  
**MELCHIOR PROPERTY**  
 LOT 5

TAX MAP 10 GRID 13  
 3RD ELECTION DISTRICT

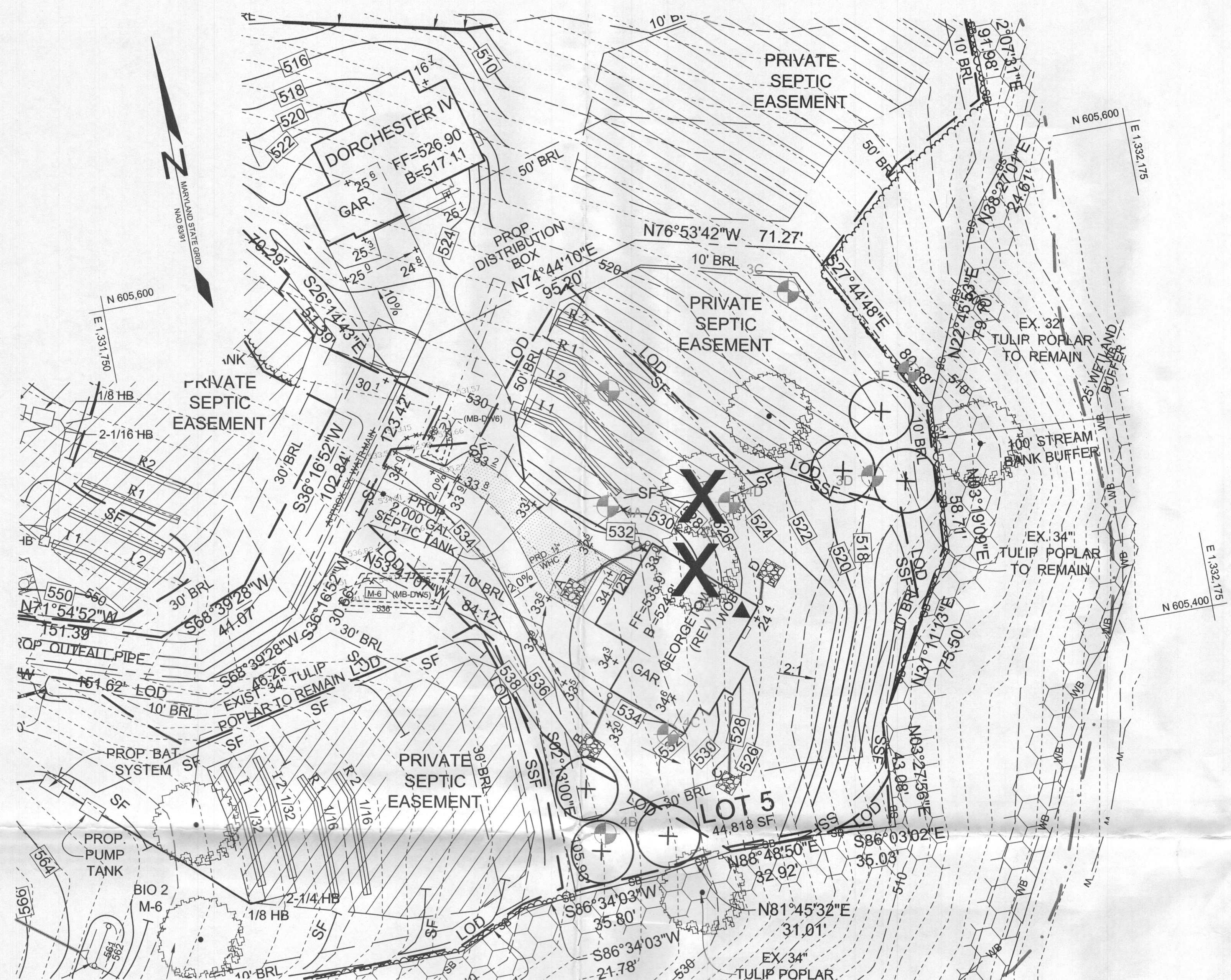
PARCEL 184  
 HOWARD COUNTY, MARYLAND

**SILL ENGINEERING GROUP, LLC**  
 31130 Dovedale Court, Suite 200  
 Marriottsville, Maryland 21104  
 Phone: 443.325.5076  
 Fax: 410.696.2022  
 Email: info@sillengineering.com  
 Civil Engineering for Land Development

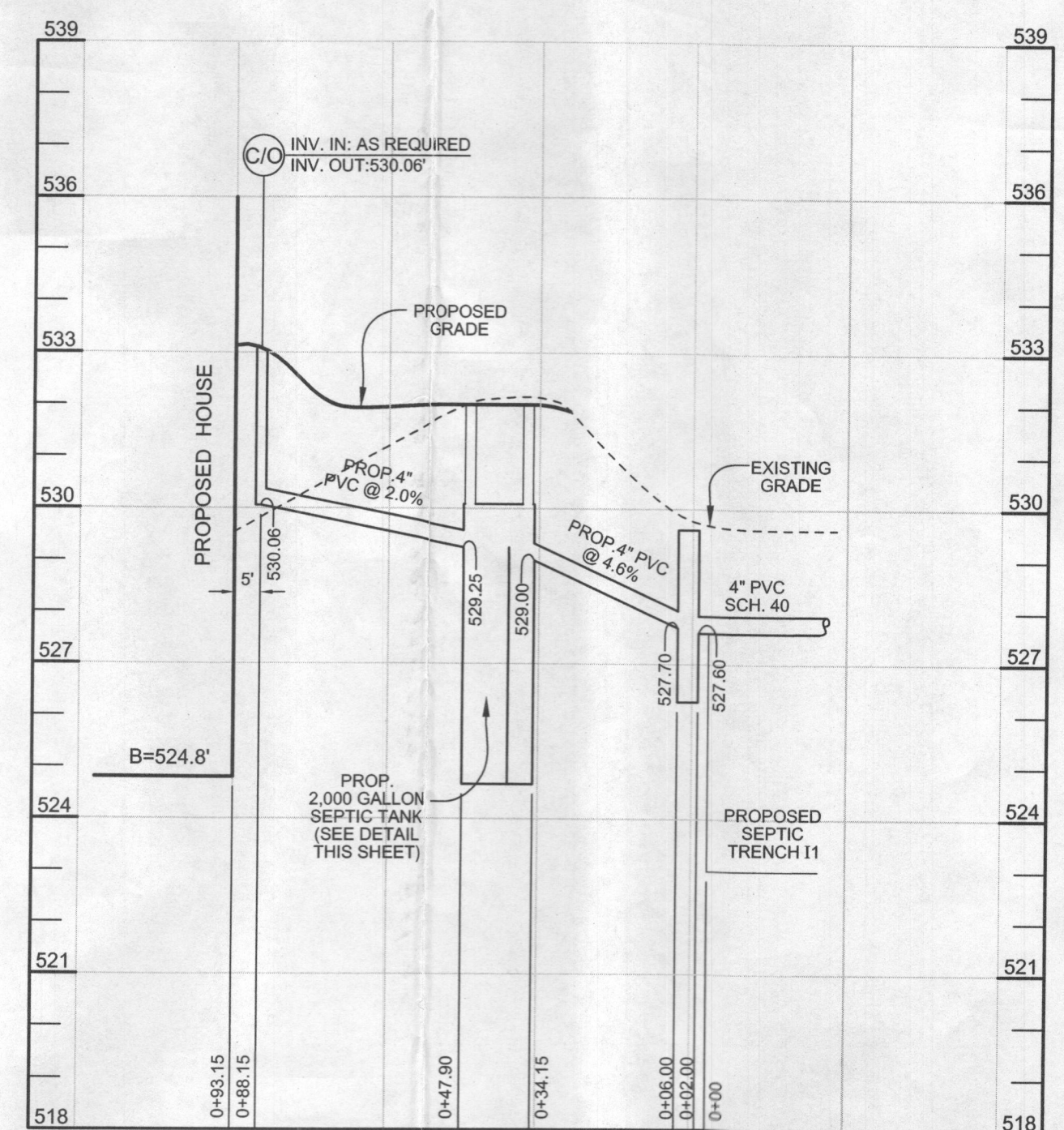
DESIGN BY: PS  
 DRAWN BY: RA  
 CHECKED BY: PS  
 SCALE: AS SHOWN  
 DATE: NOVEMBER 3, 2016  
 PROJECT #: 15-023  
 SHEET #: 1 of 1

PROFESSIONAL CERTIFICATION: 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. 30202, EXPIRATION DATE: JUNE 20, 2017.

B16004595



PLAN VIEW  
SCALE: 1"=30'



BAT SYSTEM PROFILE  
HORIZONTAL SCALE: 1"=30'  
VERTICAL SCALE: 1"=3'

Approved Septic System Plan  
Howard County Health Department  
*[Signature]*  
Date: 10/17

SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	K <sub>f</sub> FACTOR
GgB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24

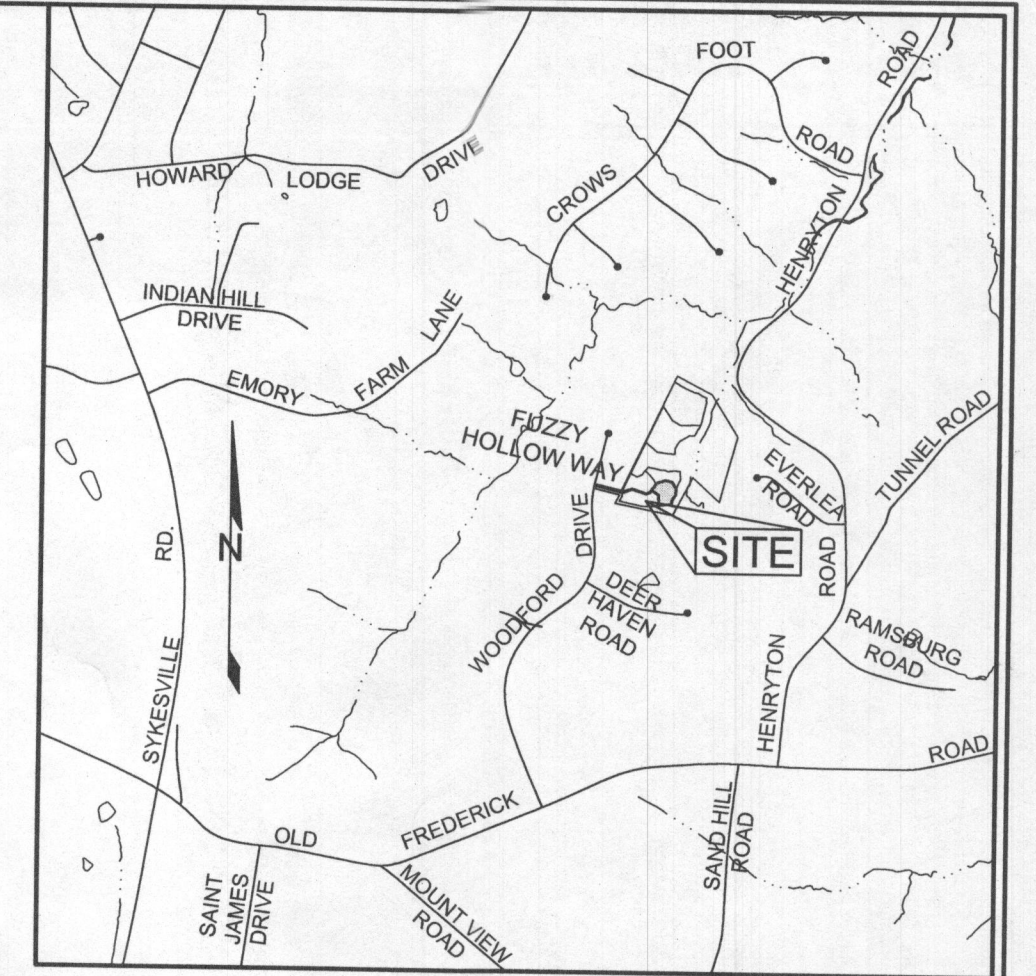
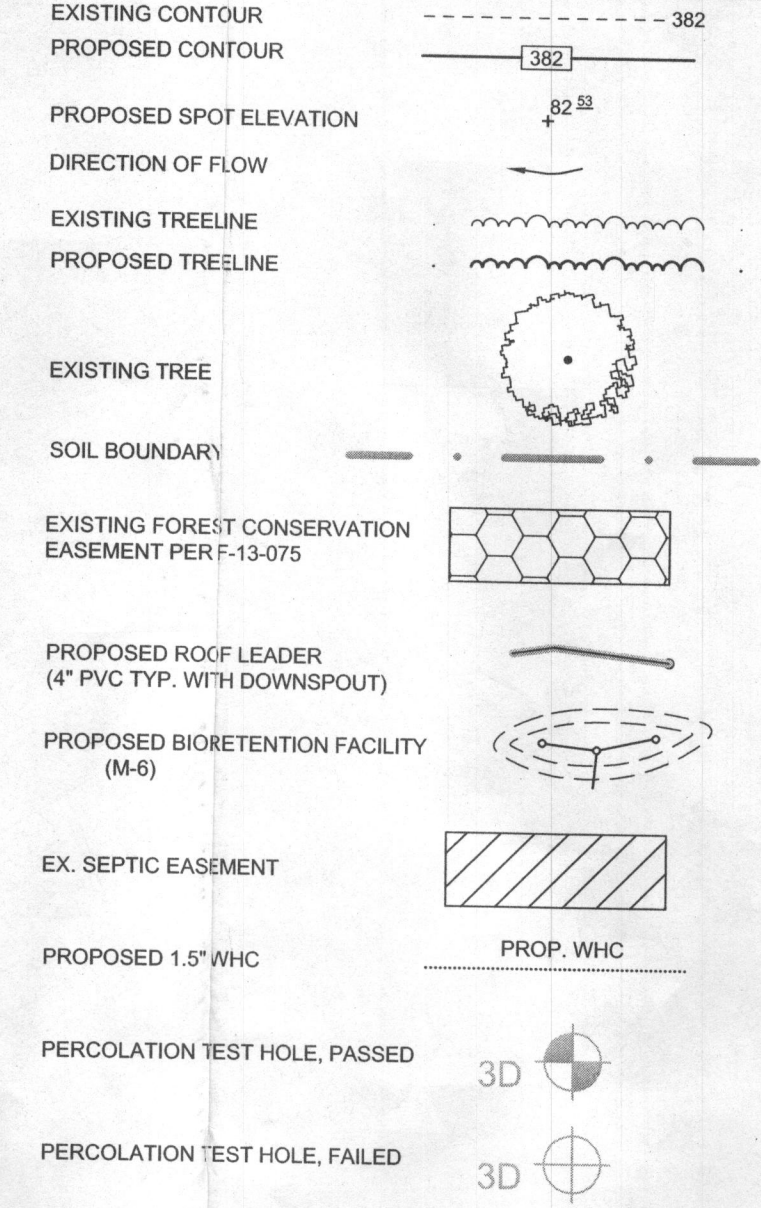
NOTES:  
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SEPTIC SYSTEM TRENCH DESIGN SPECIFICATIONS

- INITIAL SYSTEM:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 2'
  - BOTTOM MAXIMUM DEPTH: 6'
- DESIGN FLOW:
  - 6 BEDROOMS AT 150 GPD
  - 6X150 GPD = 900 GPD
- SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:
  - DESIGN FLOW (900 GPD) / APPLICATION RATE (1.2) = 750 SF
- SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 3'
  - TRENCH EFFECTIVE DEPTH (D) = 4'
  - (W+2) / (W+1+2D) X 100 = 42%
- LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3') = 105'
- LINEAR LENGTH OF TRENCH PROVIDED = 105'
- TWO TRENCHES 52.5 LF/EACH
- EXISTING GRADE: TRENCH I1: 528.6'
- TRENCH I1: 527.6'
- EXISTING GRADE: TRENCH I2: 528.2'
- TRENCH I2: 526.2'

- REPLACEMENT SYSTEM 1:
  - APPLICATION RATE: 1.2
  - EFFECTIVE AREA BEGINNING DEPTH: 2'
  - BOTTOM MAXIMUM DEPTH: 6'
- DESIGN FLOW:
  - 6 BEDROOMS AT 150 GPD
  - 6X150 GPD = 900 GPD
- SQUARE FOOTAGE OF DRAIN FIELD REQUIRED:
  - DESIGN FLOW (1,050 GPD) / APPLICATION RATE (1.2) = 750 SF
- SIDEWALL REDUCTION CREDIT:
  - TRENCH WIDTH (W) = 3'
  - TRENCH EFFECTIVE DEPTH (D) = 4'
  - (W+2) / (W+1+2D) X 100 = 42%
- LINEAR LENGTH OF TRENCH REQUIRED:
  - DRAIN FIELD SQUARE FOOTAGE (750) X SIDEWALL REDUCTION CREDIT (42%) / TRENCH WIDTH (3') = 105'
- LINEAR LENGTH OF TRENCH PROVIDED = 105'
- TWO TRENCHES 52.5 LF/EACH
- EXISTING GRADE: TRENCH R1: 526.6'
- TRENCH R1: 524.6'
- EXISTING GRADE: TRENCH R2: 524.7'
- TRENCH R2: 522.7'

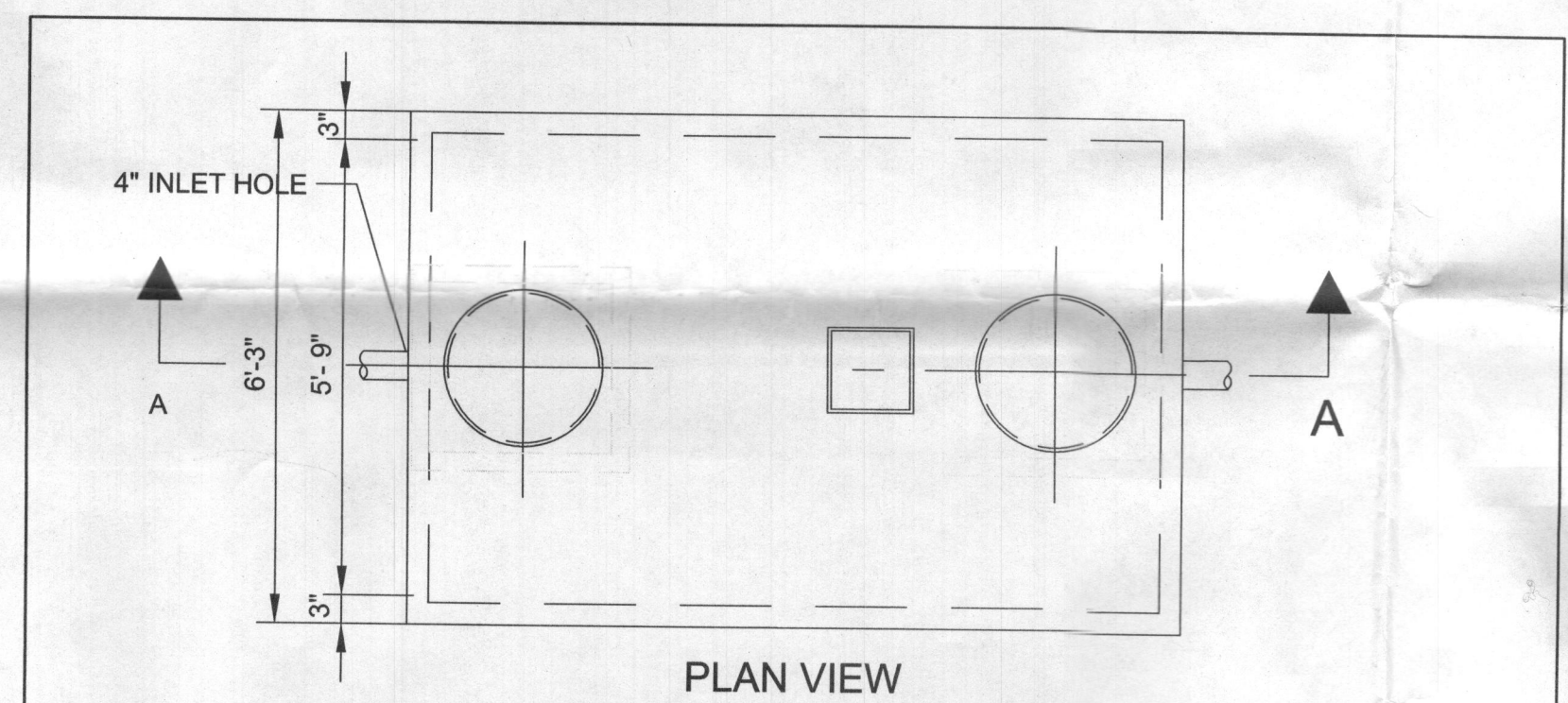
LEGEND



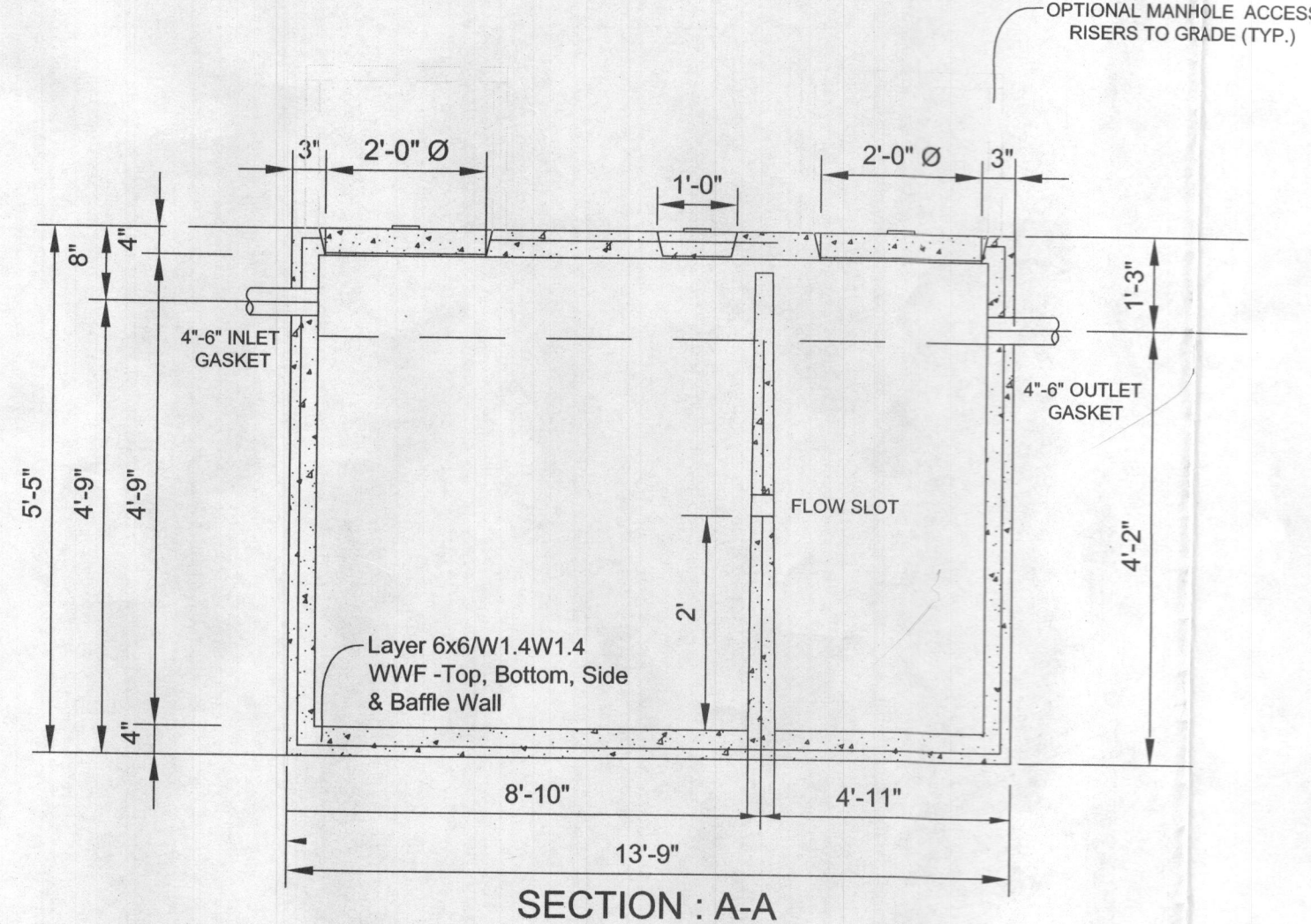
VICINITY MAP  
SCALE: 1"=2000'

GENERAL NOTES

- SUBJECT PROPERTY ZONED RR-DEO PER 1006/13 COMPREHENSIVE ZONING PLAN.
- TOTAL AREA OF LOT = 44,818 SF OR 1.0289 AC.±
- PUBLIC WATER AND PRIVATE SEWER WILL BE USED WITHIN THIS SITE.
- THIS AREA DESIGNATES A PRIVATE SEWAGE EASEMENT, OF AT LEAST 10,000 SF AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL (COMAR 26.04.03). IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE EASEMENTS 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 EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- WATER WILL BE PUBLIC (CONTRACT # 44-4791-D). WATER SERVICE TO THIS LOT WILL BE GRANTED UNDER PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE VIA CONNECTIONS TO EXISTING CONTRACT # W44-3478.
- ALL EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS WITHIN 100 FEET OF THE PROPERTY BOUNDARIES AND ALL EXISTING AND PROPOSED WELLS THAT ARE LOCATED WITHIN 200 FEET DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS AND SEWAGE DISPOSAL EASEMENTS HAVE BEEN FIELD LOCATED.
- THE BOUNDARY SHOWN HEREON IS BASED ON A FIELD RUN BOUNDARY SURVEY PREPARED BY MILDENBERG, BOENDER AND ASSOC. IN OCTOBER 2012.
- THE TOPOGRAPHY SHOWN HEREON HAS BEEN FIELD RUN BY CHRISTOPHER CONSULTANTS, INC. IN NOVEMBER 2004. THE EXISTING TOPOGRAPHY SHOWN OUTSIDE THE SITE IS BASED ON HOWARD COUNTY AERIAL TOPOGRAPHY FLOWN IN 2004.
- THE SOILS SHOWN HAVE BEEN TAKEN FROM THE NRCS WEB SOIL SURVEY WEBSITE: HOWARD COUNTY SOIL MAP GRID A, SOILS MAP - GRID 153.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS, NUMBERS 09H2 AND 10GB, WERE USED FOR THIS PROJECT.
- THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES WITHIN THE PROJECT BOUNDARY.
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP, WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.
- ALL DITCHES AND SWALES WILL HAVE SOIL STABILIZATION MATTING UNLESS SOD IS BEING UTILIZED.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS, UNLESS WAIVERS HAVE BEEN APPROVED.
- REFUSE COLLECTION, SNOW REMOVAL, AND ROAD MAINTENANCE FOR PIPESTEM LOTS ARE PROVIDED TO THE JUNCTION OF THE PUBLIC ROAD AND THE PIPESTEM DRIVEWAY. COUNTY TRASH AND RECYCLING COLLECTION WILL BE AT WOODFORD DRIVE WITHIN 5' OF THE COUNTY ROADWAY.
- DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING REQUIREMENTS:
  - WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE);
  - SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MINIMUM);
  - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND 45-FOOT TURNING RADIUS;
  - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25-LOADING);
  - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE;
  - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- LIMIT OF DISTURBANCE = 29,441 ± SQ. FT.
- 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.
- SEPTIC TANK TO BE THE MAYER BROTHERS 2,000 GALLON TWO COMPARTMENT SEPTIC TANK OR EQUIVALENT.



PLAN VIEW



SECTION : A-A

- DESIGN DATA & GENERAL NOTES
- CONCRETE STRENGTH FC=4,000 P.S.I. @ 28 DAYS. DENSITY= 150 PCF.
  - CEMENT: PORTLAND TYPE 1/11 PER ASTM C 150-92.
  - ADMIXTURES & PLASTICIZERS PER ASTM C 260-99 & C 494-92.
  - REINFORCING PER ASTM A185. MIN. 1-1/2" COVER.
  - TOP SLAB SEALED WITH BUTYL ROPE MASTIC.
  - 4" WALL, 4" BASE, & 5" TOP THICKNESS.
  - MAX 3" OF COVER
  - DEPENDING ON USE OF TANK, INLET & OUTLET BAFFLE MAY BE REQUIRED BY CODE.

MAYER BROTHERS, INC.  
6264 RACE ROAD  
ELK RIDGE, MARYLAND 21075  
TEL. 410.736.1434 FAX: 410.796.1438  
WWW.MAYERBROS.PRECAST.COM

2000 GALLON TOP SEAM SEPTIC TANK  
TWO COMPARTMENT

AUGUST 11, 2008

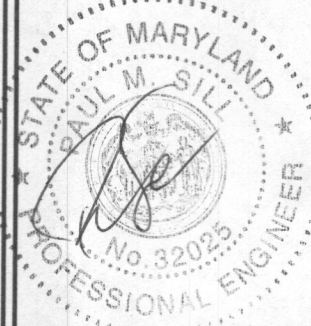
OWNER/DEVELOPER

FRANK SANDERS  
11317 WINDSOR WALK COURT  
LAUREL, MD 20723

ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

MELCHIOR PROPERTY  
LOT 5  
11040 FUZZY HOLLOW WAY

TAX MAP 10 GRID 13 PARCEL 184  
3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND



SILL ENGINEERING GROUP, LLC  
11130 Dovedale Court, Suite 200  
Marriottsville, Maryland 21104  
Phone: 443.325.5076  
Fax: 410.694.2022  
Email: info@sillengineering.com  
Civil Engineering for Land Development

DESIGN BY: PS  
DRAWN BY: AEA  
CHECKED BY: PS  
SCALE: AS SHOWN  
DATE: DECEMBER 30, 2016  
PROJECT #: 15-023  
SHEET #: 1 of 1

PROFESSIONAL CERTIFICATION: 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. 32025, EXPIRATION DATE: JUNE 30, 2017.