

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

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

RECEIPT DATE: 5/17/16 **ONSITE SEWAGE DISPOSAL SYSTEM** P 558718

APPROVAL DATE: 8-11-16 **PERMIT: CONSTRUCTION** A _____

PROPERTY ADDRESS: 3014 Kittleman Lane

SUBDIVISION: Kittleman Property LOT: 4 TAX ID: _____

CONTRACTOR: WTC III EMAIL: _____

CONTRACTOR ADDRESS: 1820 Gillis Falls Road, Woodbine, md 21797 PHONE: 410-489-4457

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: Samantha Reigel EMAIL: samreigel@live.com

OWNER ADDRESS: 3000 Kittleman Lane, West Friendship, MD 21794 PHONE: 443-603-7587

BAT UNIT MODEL: Norweco 1000 PUMP SIZE: 051/2 hp PUMP TANK CAPACITY: 2000 gal

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 2/2/16 DATE RECORDED: 2/4/16

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 6 APPLICATION RATE: 1.2

| | | |
|-----------|---|--|
| TRENCHES: | LINEAR FEET REQUIRED: <u>90 100'</u> | INLET DEPTH: <u>2.5'</u> |
| | TRENCH WIDTH: <u>3</u> | MAXIMUM BOTTOM DEPTH: <u>6.5'</u> |
| | MINIMUM SPACE BETWEEN TRENCHES: <u>13</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: Initial trench can be placed slightly uphill from design to achieve required minimum trench spacing.

ISSUED BY: Jeff Williams ISSUE DATE: 5/17/16 EXPIRATION DATE: 5/17/17

- 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
 V ELECTRICAL PERMIT ISSUED E 16002184
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.

PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.

CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE

See As-Built Drawing
On Separate Sheet

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH 3' INLET 2.5' BOTTOM 6.5'

NUMBER OF TRENCHES 1

TOTAL LENGTH 97'

ABSORPTION AREA 317' + SIDEWALL

DISTRIBUTION BOX LEVEL YES

DISTRIBUTION BOX BAFFLE YES

DISTRIBUTION BOX PORT YES

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL YES

MANUFACTURER BACKRIVER

CAPACITY 1000 GAL

SEAM LOC TDP

TANK LID DEPTH 1.5-3.5'

BAFFLES YES

BAFFLE FILTER NO

MANHOLE LOC FRONT + REAR

6" PORT LOC NONE

WATERTIGHT TEST NO

SLOTTED NO

DATE ON LID 2-7-16

³ PUMP/SEPTIC TANK LEVEL YES

MANUFACTURER BACKRIVER

CAPACITY 1500²/2000³ GAL

SEAM LOC TDP

TANK LID DEPTH 1.5-2.5'/2-3'³

BAFFLES NO

BAFFLE FILTER NO

MANHOLE LOC FRONT, MID, 2 REAR²

6" PORT LOC NONE

WATERTIGHT TEST NO

SLOTTED NO

DATE ON LID 7-24-15³

PRE-CONSTRUCTION:

5/18/2016 Keep septic tanks 20' from house.
O.K. to install one 100' trench on contour across
top of septic easement. (BB)

INSTALLATION: 5/20/16 Tanks set. House connection not yet made. First tank will have 3.5'
cover at inlet end. (SC) 5/24/16 BAT startup received. (SC) 6/9/15 Trench complete + left
open. 3' wide, 2' to stone. D-box installed and 2" force main run from tank.
Observation port 13' from trench end. Need pump + alarm. (SC) 8/9/16 On site for
pump + Alarm. Alarm sounds, pump pumps effluent to D-box Norweco alarms
sound + both aerators run. Observation pipe cracked + settling around pump
tank - Bill will fix pipe in next couple of days + settling within ~ a week. (SC)

FINAL INSPECTOR



DATE OF APPROVAL

8-11-16

58 HO-95-1785

~240'

~222'

4" PVC

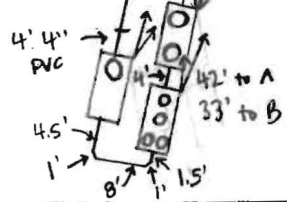
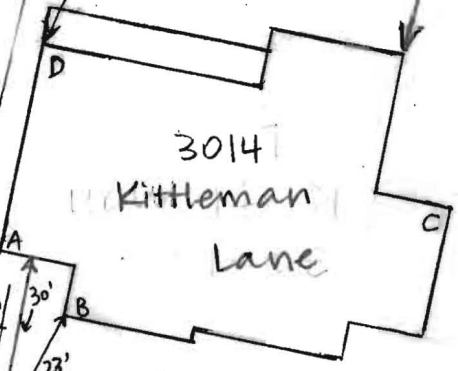
117' to D
144' to C

7

TI=97'

150' to D

129' to C



2" from

7' step

4' 4" PVC

45'

1'

8'

1'

1.5'

42' to A
33' to B

Back River Pre-Cast, LLC

PO BOX 329
Glyndon, MD 21071
Phone # 410-833-3394
Fax # 410-833-4116

Letter of Certification

This is to certify that the Norweco Singlair TNT 1000 GPD Septic Tank installed at 3014 Kittleman Ln., MD 21794 on May 19, 2016 was installed according to the manufacture's specifications.

Installer: Kelly Cumberland

Property Owner: Samantha Reigel

Permit #

THIS CERTIFICATION IS FOR INSTALLATION ONLY. THE 5-YEAR OPERATIONS & MAINTENANCE AGREEMENT FROM DATE OF INSTALLATION WILL ONLY GO INTO EFFECT AFTER BACK RIVER PRE-CAST, LLC RECEIVES FINAL AND FULL PAYMENT FOR THE SYSTEM.



MATTHEW GECKLE

Vice-President



Bureau of Environmental Health
7178 Columbia Gateway Drive, Columbia MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

April 23, 2009

Tom & Laura Yeatts
3106 Fox Valley Drive
West Friendship, MD 21794

RE: **Variance Approval**
Kittleman Property
Lots 1, 2, 3, 4, & 5

Dear Sir and Madam:

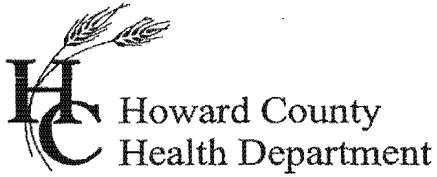
The Department of Health has received your variance request dated April 15, 2009 to allow the Sewage Disposal Area (SDA) on lot 3 & 4 to be located five feet from the property and to allow the home on lot 3 to be less than twenty feet to the SDA. This agency grants **approval** of the variance in order to increase the available area on existing lot 1 for future replacement well locations. Please note that sleeved well lines will need to run between the property lines and the SDA. Any deviation from the Perc Certification Plan signed by this Department on April 23, 2008 will require review by this Department.

Any questions regarding this decision may be directed to the Well and Septic Program of the Howard County Health Department.

Respectfully,

Michael J. Davis, R.S.
Assistant Director
Bureau of Environmental Health

cc: File



Bureau of Environmental Health
7178 Columbia Gateway Drive, Columbia MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

May 16, 2008

Laura Kittleman Yeatts
PO Box 1017
Poolesville, MD 20837

RE: **Variance Approval**
Kittleman Property lots 3, 4, & 5

Dear Madam:

The Department of Health has received your variance request dated April 19, 2008 to allow a Sewage Disposal Areas to be located five (5) feet from the property line. This agency grants **approval** of the variance. Any deviation from the perc certification plan signed on May 16, 2008 will require review by this Department.

Any questions regarding this decision may be directed to the Well and Septic Program of the Howard County Health Department.

Respectfully,

Michael J. Davis, R.S.
Assistant Director
Bureau of Environmental Health

c: File

To: Chuck Byers <cbyers@castlerockbuilders.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. They normally don't forward construction/Floorplans over to us. Can you email me a copy of just the Floorplans?
Thanks Jeff

-----Original Message-----

From: Chuck Byers [<mailto:cbyers@castlerockbuilders.com>]
Sent: Friday, January 08, 2016 11:41 AM
To: Williams, Jeffrey; drs@ramss.com; 'Shiple, John/CastleRockBuilders'
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Hi Jeff,

Building permit was submitted on Tuesday 1/5/16. All plans are with the building permit dept.

Thanks,
Chuck Byers

-----Original Message-----

From: Williams, Jeffrey [<mailto:jwilliams@castlerockbuilders.com>]
Sent: Thursday, January 07, 2016 3:00 PM
To: drs@ramss.com; Byers, Chuck/CastleRockBuilders <cbyers@castlerockbuilders.com>; Shipley,
John/CastleRockBuilders <jshiple@castlerockbuilders.com>; Green, Walter <WGreen@castlerockbuilders.com>; Green,
Samantha <samgreen@castlerockbuilders.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

The BAT plan looks acceptable. We will give final approval once we receive a building permit and plot plan with house location and number of bedrooms matching the BAT plan. Additionally, the attached operations and maintenance agreement must be signed by the owner, buyer, Health Dept, and recorded in Land Records prior to issuance of the septic permit. Thanks Jeff

-----Original Message-----

From: DRS [<mailto:drs@ramss.com>]
Sent: Wednesday, December 23, 2015 11:25 AM
To: Williams, Jeffrey; Byers, Chuck/CastleRockBuilders; Shipley, John/CastleRockBuilders; Green, Walter; Green, Samantha
Subject: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Attached is the data requested. Please contact us if you have any questions.

--
DRS & Associates
52 Winters St
Westminster, MD 21157
~~410-812-1260~~ * 410-878-0840

Williams, Jeffrey

From: Chuck Byers <cbyers@castlerockbuilders.com>
Sent: Thursday, January 14, 2016 3:59 PM
To: Williams, Jeffrey
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Jeff,

We are not sizing the system any larger. Any finishing of the basement, (I am not aware the customer has any interest in this), is for owner to deal with in the future. We have no contractual obligation for this and the owner's budget is exhausted on what is included in this house.

Chuck

-----Original Message-----

From: Williams, Jeffrey [mailto:jeffwilliams@castlerockbuilders.com]
Sent: Thursday, January 14, 2016 10:56 AM
To: Chuck Byers <cbyers@castlerockbuilders.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. We have the building permit. I see the BAT plan is designed for 6 bedrooms. The Floorplans indicate 4 bedrooms on the 2nd floor and 2 on the attic floor. Be advised that the full bathroom in the unfinished basement makes it very likely that any future finishing of the basement will result in a room meeting our definition of a bedroom. You may choose to try to size the system for 7 bedrooms now or we will place a note in the property file indicating that finishing the basement may result in a bedroom increase and that will not be permitted without the sewage disposal system first being upgraded to accommodate the additional bedroom at that time. Thanks Jeff

-----Original Message-----

From: Chuck Byers [mailto:cbyers@castlerockbuilders.com]
Sent: Friday, January 08, 2016 1:34 PM
To: Williams, Jeffrey
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Sure thing...see attached

-----Original Message-----

From: Williams, Jeffrey [mailto:jeffwilliams@castlerockbuilders.com]
Sent: Friday, January 08, 2016 1:18 PM
To: Chuck Byers <cbyers@castlerockbuilders.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. They normally don't forward construction/Floorplans over to us. Can you email me a copy of just the Floorplans?
Thanks Jeff

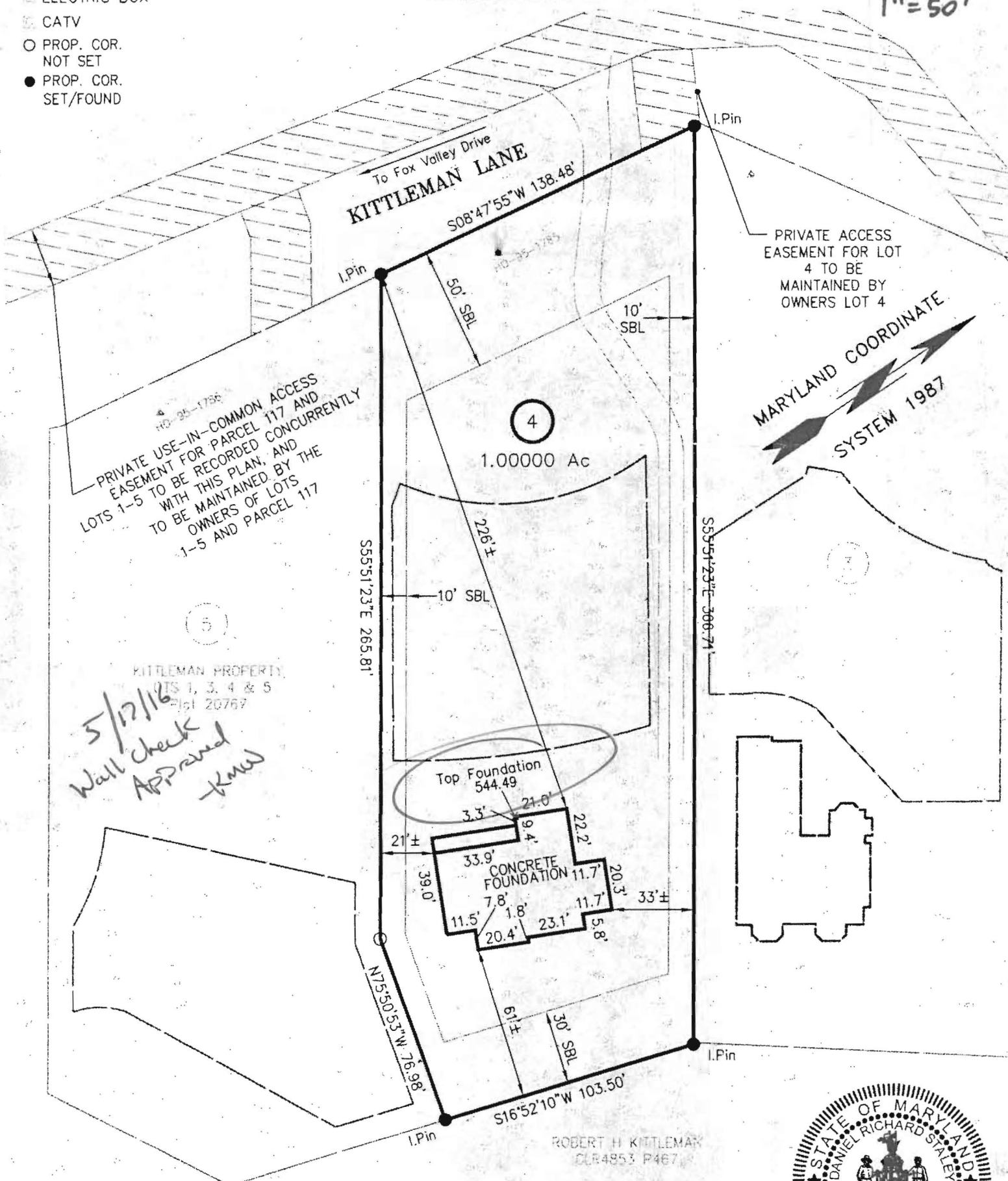
-----Original Message-----

From: Chuck Byers [mailto:cbyers@castlerockbuilders.com]
Sent: Friday, January 08, 2016 11:41 AM
To: Williams, Jeffrey; dr@rams.com; 'Shipley, John/CastleRockBuilders'
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

- ☐ WATER VALVE
- ☐ PHONE BOX
- ☐ ELECTRIC BOX
- ☐ CATV
- PROP. COR. NOT SET
- PROP. COR. SET/FOUND

DRS & ASSOCIATES
LAND DESIGN CONSULTANTS

Wall Check
1"=50'

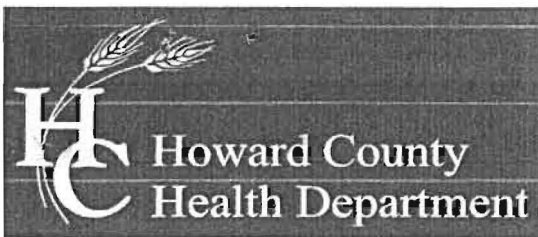


5/17/16
Wall Check
Approved
KMD

ROBERT H KITTLEMAN
CLR4853 P467

This is to certify that I have surveyed the property shown hereon, known as Lot 4, Kittleman Property, located at 3014 Kittleman Drive in the 3rd Election District of Howard County, Maryland for the purpose of locating the improvements only, and that the improvements are located (±) as shown hereon,





Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

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

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

THIS AGREEMENT is made this 2nd day of February, 2016 among Samantha Reigel, hereinafter collectively referred to as "Owner", and the Howard County Health Department hereinafter referred to as the "County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at 3014 Kittleman Ln. W.F., in the ___ Election District of Howard County, Maryland, and the deed to same is recorded or shall be recorded among the Land Records of Howard County, Maryland in Liber ___ Folio ___.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage disposal system with an advanced pre-treatment system, utilizing best available technology to perform nitrogen reduction, in accordance with the Code of Maryland Regulations 26.04.02.07, effective January 1, 2013. The pre-treatment device being installed is NORWEGO 1000.

NOW, THEREFORE, the parties hereto agree as follows:

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

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

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

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

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

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

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

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

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

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

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

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

Bill Nifon
Howard County Health Department

Samantha Reigel 2/2/16
Owner #1 Signature Date

Owner #2 Signature Date

Samantha Reigel
Owner #1 Print Name

Owner #2 Print Name

Buyer #1 Signature Date

Buyer #2 Signature Date

Buyer #1 Print Name

Buyer #2 Print Name

3014 Kittleman Ln. W. Friendship
21794

Clerk of the Circuit Court for
Howard County
Land Records/Licensing

The Thomas Dorsey Building
9250 Bendix Road
Columbia, MD 21045
410-313-5850

=====
LR - Agreement Recording Fee
1x 20.00 20.00

Grantor/Grantee Name: Howard County
Health

Reference/Control #: 288

LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 60.00
Total: 60.00

=====
CRD-Credit 60.00
Credit Card Confirmation : 320851

02/04/2016 15:09 CC13-SB
#5539467 /496/109

~ Thank you for visiting us today ~

From:
DRS & Associates
52 Winters Street
Westminster, MD 21157
410-848-4060 * 410-876-6040

Transmittal: 17733
Date: 2015-12-23
Project: 3217-97674
Title: Kittleman Property Lot 4, SRLF/CRB
Re: Submittal Site Plan for BAT
Delivery: Email/Mail/kbe

To:
Howard County Health Department
Bureau of Environmental Health
Jeff Williams, Program Supervisor , Well & Septic Program
8930 Stanford Boulevard
Columbia, MD 21045

3 Site Plan for BAT Installation (Rev 1) - Kittleman Property Lot 4

 /DRS

- c: "Williams, Jeffrey" <jewilliams@howardcountymd.gov>
 - c: "Byers, Chuck/CastleRockBuilders" <cbyers@castlerockbuilders.com>
 - c: "Shipley, John/CastleRockBuilders" <jshipley@castlerockbuilders.com>
 - c: "Green, Walter" <WGreen@greenslaw.com>
 - c: "Green, Samantha" <samreigel@live.com>
-

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Monday, November 16, 2015 1:40 PM
To: 'drs@ramss.com'
Subject: Kittleman Property lot 4 Health comments
Attachments: BAT plan-Kittleman lot 4 comments memo.pdf; BAT site plan requirements 9-19-13.pdf

Please see the attached documents regarding Health comments for the septic design plan at Kittleman Property lot 4.

Jeff Williams
Program Supervisor, Well & Septic Program
Bureau of Environmental Health
Howard County Health Dept.
410-313-4261
jewilliams@howardcountymd.gov

CONFIDENTIALITY NOTICE

This message and the accompanying documents are intended only for the use of the individual or entity to which they are addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable law. If the reader of this email is not the intended recipient, you are hereby notified that you are strictly prohibited from reading, disseminating, distributing, or copying this communication. If you have received this email in error, please notify the sender immediately and destroy the original transmission.



Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-2640 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: [HowardCoHealthDep](https://twitter.com/HowardCoHealthDep)

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

MEMORANDUM

TO: Daniel Staley
D.R.S. and Associates

FROM: Jeff Williams, Program Supervisor
Well & Septic Program

RE: Septic design plan, Kittleman Property lot 4

DATE: November 16, 2015

I have reviewed the septic design plan for Kittleman Property Lot 4 and have the following comments for revision:

1. The Onsite Sewage Disposal System Design Plan, or BAT Plan, must contain certain notes and other design features as indicated in the attached BAT plan guidance document. Please note that the design does not have to be a part of the ECP. A direct submittal of three paper copies of the BAT plan can be made to the Health Department.
2. The dose leading to a distribution box to gravity trenches does not have to be 1/6 design flow, as in pressure dosed systems. It is recommended to be less than 100 gallons to allow for smaller, more frequent doses to the trenches.
3. The pump curve shows the head and flow rate plotted on the wrong axis. Additionally, the chosen flow rate plots a point well below the curve for the chosen pump. A small reduction in the design flow rate will move the point to the curve for the 1/3 hp pump.
4. The pump tank cross-section diagram indicates 6.4" between pump on and off floats, but the design details indicate 0.326' between the two. Neither of them corresponds to the design dose based on the dimensions of the pump tank.
5. Please indicate the proposed location of the well line and note that it must be at least 10' separated from the sewage disposal area and all system components. Indicate the line to be sleeved in any area less than 10' separated and any section to be under the driveway.
6. All wells within 100' of the property boundaries and within 200' downgrade must be accurately shown on the plan with a note indicating such.
7. A hydraulic profile must be shown on the plan.
8. Remove all elements related to the ECP and incorporate the design details and calculations directly onto the BAT plan sheet(s).

Please directly submit revisions to the Health Department to my attention. You may contact me with any questions at jewilliams@howardcountymd.gov or 410-313-1771.

PRESSURE TO GRAVITY SEPTIC SYSTEM

VERSION 2.02

SHEET 1 OF 1

Project Name: Kittleman Property Lot 4
 File Number: 03217-97674

Date: 2015-10-23
 By: jfs

SEPTIC TANK DESIGN

| | |
|--|---------------|
| NUMBER OF BEDROOMS | 6.000 |
| DESIGN FLOW = (150 GAL X NUMBER OF BEDROOMS) | 900.000 GPD |
| MINIMUM SEPTIC TANK SIZE = (DESIGN FLOW X 1.5) | 1350.000 Gal. |
| SEPTIC TANK SIZE | Gal. |

DISTANCE & ELEVATION DATA

| | |
|--|-------------|
| INVERT ELEVATION DISTRIBUTION BOX | 547.370 Ft. |
| LENGTH OF FORCE MAIN BETWEEN TOP OF PUMP TO DISTRIBUTION BOX | 187.910 Ft. |
| INVERT ELEVATION IN OF PUMP TANK | 529.370 Ft. |

FORCE MAIN PIPE SPECIFICATION

| | |
|-----------------|---------------|
| SCHEDULE 40 PVC | 2.000 In. |
| INSIDE DIAMETER | 2.067 In. (S) |

DOSE VOLUME

| | |
|--|---------------|
| LENGTH OF FORCE MAIN | 187.910 Ft. |
| VOLUME OF FORCE MAIN = ($\pi \times [(D/2)/12]^2 \times \text{LENGTH OF FORCE MAIN} \times 7.48 / \text{C.Ft.}$) | 32.756 Gal. |
| DOSE VOLUME = (FORCE MAIN + 1/6 DESIGN FLOW OR 100 GAL) | 182.756 Gal. |
| DOSE VOLUME IN C.FT. = (DOSE VOLUME / 7.48) | 24.431 Cu.Ft. |

PUMP TANK SIZING

| | |
|--|------|
| PUMP TANK SIZING (AUTOMATIC SIZING CALCULATION IF BLANK) | Gal. |
|--|------|

PUMP TANK DESIGN USING 2000 GALLON TANK

PUMP TANK DESIGN

| | | |
|--|-------------|-----|
| BOTTOM OF PUMP TANK ELEVATION | 525.287 Ft. | (U) |
| 6" RISER BLOCK | 0.500 Ft. | |
| ELEVATION | 525.787 Ft. | |
| PUMP HEIGHT (FEET) | 1.250 Ft. | |
| PUMP OFF ELEVATION | 527.037 Ft. | (V) |
| DISTANCE BETWEEN PUMP ON & PUMP OFF ELEV. (DOSE / AREA OF PUMP TANK) | 0.326 Ft. | |
| PUMP ON ELEVATION | 527.363 Ft. | (W) |
| PER MDE PUMP ON TO HIGH WATER ALARM | 0.500 Ft. | |
| HIGH WATER ALARM ELEVATION | 527.863 Ft. | (X) |
| DIST. BETWEEN PUMP ON & PUMP TANK INLET (DESIGN FLOW / 7.48 / AREA OF PUMP TANK) | 1.604 Ft. | |
| DESIGN PUMP TANK INLET ELEVATION | 529.466 Ft. | |
| ACTUAL PUMP TANK INLET ELEVATION > DESIGN PUMP TANK INLET ELEVATION | 529.370 Ft. | |

PUMP DESIGN

| | | |
|-----------------------------------|-------------|------------|
| PEAK FLOWS | 25.000 GPM. | |
| LENGTH OF 2" FORCE MAIN | 189.160 Ft. | |
| INCREASERS (@ 2.0 FT. EACH) | 1 | 2.000 Ft. |
| 90 BEND (@ 7.0 FT. EACH) | 4 | 28.000 Ft. |
| 60 BEND (@ 6.0 FT. EACH) | 0 | 0.000 Ft. |
| 45 BEND (@ 4.0 FT. EACH) | 2 | 8.000 Ft. |
| 30 BEND (@ 3.0 FT. EACH) | 0 | 0.000 Ft. |
| 22 1/2 BEND (@ 2.0 FT. EACH) | 0 | 0.000 Ft. |
| 15 BEND (@ 2.0 FT. EACH) | 0 | 0.000 Ft. |
| 11 1/4 BEND (@ 1.0 FT. EACH) | 2 | 2.000 Ft. |
| TEE (@ 10 FT. EACH) | 0 | 0.000 Ft. |
| TOTAL LENGTH | 229.160 Ft. | |
| FRICITION LOSS PER 100 FEET | 1.115 Ft. | |
| PUMP OFF FLOAT ELEVATION | 527.037 Ft. | |
| INVERT ELEVATION DISTRIBUTION BOX | 547.370 Ft. | |
| HEAD LOSS | 20.333 Ft. | |
| TOTAL FRICTION LOSS | 2.555 Ft. | |
| DYNAMIC HEAD | 22.888 Ft. | |

Goulds Submersible Effluent Pump

| | | |
|--------|----------|-----|
| Model | WE0512H | (Z) |
| Phase | 1.000 | |
| H.P. | 1/2 | |
| Amp. | 7.300 | |
| Volt | 230.000 | |
| R.P.M. | 3500.000 | |

| REV | DATE | REVISION |
|-----|------|----------|
| | | |
| | | |

D.R.S. & ASSOCIATES

LAND DESIGN CONSULTANTS

52 WINTERS STREET
 WESTMINSTER, MARYLAND 21157
 410-848-4060 410-876-6040

COPYRIGHT©2013 BY D.R.S. & ASSOCIATES

SITE PLAN

Kittleman Property Lot 4

MAP 15 BLOCK 15 PARCEL 271 LOT 4

3Rd ELECTION DISTRICT HOWARD COUNTY MARYLAND

DATE: 2015-10-23

SCALE: NONE

DWG:

SHEET: 1 of 1

**DEVELOPMENT ENGINEERING DIVISION
CHECKLIST ENVIRONMENTAL CONCEPT PLAN**

To be completed by the applicant using resources from Section 5.1 of the Stormwater Design Manual and MDE Volumes I and II. It is to be signed by appropriate design profession with the initial document submittal. Subsequent checklist submittals will be at the discretion of the Development Engineering Division, and Land Development DP&Z.

I. Submission Documents

- A. Environmental Concept Plan
- B. Preliminary Stormwater Management Report
- C. Waiver Petitions and Design Manual Waiver requests submitted under separate cover with appropriate fees and justification
- D. Non-tidal Wetlands Report
- E. Preliminary Floodplain Report
- F. Forest Stand Delineation map and report
- G. Please contact Howard Soil Conservation District concerning separate submittal requirements

II. General Information

- A. Standard title and signature blocks (ALL SHEETS)
 1. Owner/Developer name, address, and phone number
 2. Design Professional name, address, phone number, seal, signature, date
 3. Project name, zoning, tax map, election district, street address, parcel number
 4. Provide a standard Howard County approval signature block for the DLD Division Chief and the DED Division Chief with a date
 5. All originals submitted for signature approval must be made of durable reproducible mylar material. No sepia or tracing paper and no stick-ons
- B. Vicinity map requirements (COVER SHEET)
 1. Scale 1" = 2000', north arrow shown
 2. ADC Map Coordinates
 3. Two (2) Howard County Geodetic Coordinates shown and labeled
 4. Site delineated
- C. Notes and information (COVER SHEET)
 1. Design narrative describing how natural areas will be preserved and how Environmental Site Design (ESD) may be achieved for meeting stormwater requirements
 2. Site Analysis Data Sheet (identifying area in acres of the site and environmental areas including: wetlands (buffer), floodplains (buffer), forests, and steep slopes 15% and greater, delineation of erodible soils), **include acreages for total** project area, LOD area, proposed site uses, green open area and impervious area
 3. Legend
 4. Sheet Index (if applicable)
 5. Include any applicable DPZ file references
 6. Document any waivers obtained for disturbance to environmental areas

Kittleman Property
Lot 4

2015-10-30

- D. General Sheet Information (ALL SHEETS)
 1. Plan Scale 1" = 10' to 1" = 50'
 2. Minimum three (3) grid ticks on plan sheets
 3. North Arrow
 4. Match lines labeled and referenced
 5. Design Professional's seal, signature and date
 6. Sheets numbered
 7. Plan sheet size to be 24" x 36" and folded to a size of 7-1/2" x 12"
- E. Topographic Information
 1. Onsite existing contours labeled (at no greater an interval than 2') (**Howard County GIS may be used**)
 2. Offsite topography shown within 200' of all property lines (**Howard County GIS may be used**)
 3. Existing features, trees, buildings, pavement, utilities, etc., within 200' shown and labeled where appropriate
- F. Base Information on Concept Plan
 1. Existing Conditions
 - (a) Streets-existing rights of way, property lines, all easements, pavement width, and street names shown and dimensioned
 - (b) Existing Utilities - water and sewer, contract numbers, existing storm drains with size

III. CONCEPT PLAN

- At a minimum the concept plan should include the following:**
- A. Onsite existing contours labeled (at no greater an interval than 2') (Howard County GIS may be used)
- B. Offsite topography shown within 200' of all property lines (Howard County GIS may be used within 200')
- N/A C. Location of all Natural Resources shown in Table 5.1 of Stormwater Management Design Manual, Volumes I & II
- N/A D. Field verification from the appropriate professional for the natural resources map
- E. Proposed limits of clearing and grading (L.O.D.)
- F. Conceptual erosion and sediment control features with approximate outfalls
- G. Location of proposed impervious areas (buildings, roadways, parking and sidewalks, etc.)
- H. Location of existing and proposed utilities
- I. Preliminary estimates of stormwater requirements. Provide a table on the plan identifying what practices are proposed to meet the stormwater requirements on a lot by lot or parcel breakdown.
- N/A J. Stable conveyance of stormwater at potential outfall locations
- N/A K. A narrative that supports the concept and describes how the design will achieve the following:
 1. Natural resource protection
 2. Maintenance of natural flow patterns
 3. Reduction of impervious areas through better site design, alternative surfaces and nonstructural practices
 4. Integration of erosion and sediment controls into the stormwater strategy
 5. Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)
 6. Request for Design Manual and Waiver Petition for environmental and stormwater design. Also, include any justification for a determination of essential or necessary disturbances per Section 16.116(c) of the Subdivision and Land Development Regulations
- L. Show existing property lines with bearings and distances
- N/A M. Delineation of limit of wetlands, streams, 100-year floodplain, steep slopes of 25% or greater and required 25', 50', 75' or 100' buffers
- N. Show and label the existing and proposed tree lines
- N/A O. Show proposed subdivision lot or parcel layout with lot numbers, including open space lots and proposed roads.

IV. STORMWATER MANAGEMENT (ESD to the MEP) REPORT

NOTE: OTHER AGENCIES RESERVE THE RIGHT TO ENFORCE MORE STRINGENT CRITERIA AND SHOULD THEREFORE BE CONSULTED AS TO THEIR ADDITIONAL REQUIREMENTS. THE MORE RESTRICTIVE CRITERIA SHALL GOVERN.

- N/A
- A. Hydrology Submission
1. Proposed Drainage Area Map
 - a. Location of ESD practices and corresponding outfalls
 - b. Conceptual grading to justify volume, surface area and outfall location
 - c. Location of structural practices and corresponding outfalls
 - d. Conceptual grading to justify volume, surface area and outfall location
 - e. Summary table with Preliminary estimates of stormwater requirements
 2. Hydrology Computations (ESD, Rev, TR-55 & TR 20 Methods Only)
 - a. Preliminary calculations determining rainfall target (Pe)
 - b. Reduced curve numbers if alternative surfaces are applied and runoff volume (ESDv) for each design point
- N/A
- B. Report Submission
1. Title Page
 - a. Job Name
 - b. Owner
 - c. Design Professional
 - d. Date Prepared
 - e. Seal and Signature
 2. Table of Contents
 - a. Sections Listed
 - b. Appendix Listed
 - c. Figures and Tables Listed
 3. Narrative
 - a. Introduction - gives overview of what is contained in report
 - b. General site information: (i.e., acreage, zoning, location, slopes, soils, vegetation, average conditions, variances, restrictions, etc.)
 - c. Impervious cover information
 - d. Site Specific Information:
 - (1) Justification for type of system used based ESD to the MEP
 - (2) Methodology/analysis used for design (reference assumptions)
 - e. Conclusions and recommendations
 - f. Appendix (contains all computations, design charts and relevant data references. Number all sheets and provide list of included computations in the table of contents
 4. Submission of environmental waiver or alternative compliances requests

Check the Help and Resources instructions accessible from the ProjectDox login screen for the appropriate locations to upload all documentation including this checklist. Once you have completed your uploads, remember to complete your ProjectDox task.

Save Form

From:
DRS & Associates
52 Winters Street
Westminster, MD 21157
410-848-4060 * 410-876-6040

Transmittal: 17540
Date: 2015-11-02
Project: D15
Title: DRS 2015
Re: Submittal Environmental Concept Plan
Delivery: Mail/kbe (03217-97674)

To:
Howard County Health Department
Bureau of Environmental Health / Well & Septic Program
8930 Stanford Boulevard
Columbia, MD 21045

-
- 3 Environmental Concept Plan / Site Plan - Kittleman Property Lot 4
 - 1 Pressure to Gravity Septic System Design Sheet
 - 1 Checklist Environmental Concept Plan / Development Engineering Division

Note:

Plans are being submitted to obtain septic permit.



/DRS

c: "Byers, Chuck/CastleRockBuilders" <cbyers@castlerockbuilders.com>

Hi Jeff,

Building permit was submitted on Tuesday 1/5/16. All plans are with the building permit dept.

Thanks,
Chuck Byers

-----Original Message-----

From: Williams, Jeffrey [mailto:jeff@williamsconstruction.com]
Sent: Thursday, January 07, 2016 3:00 PM
To: drc@castlerockbuilders.com; Byers, Chuck/CastleRockBuilders <chuck@castlerockbuilders.com>; Shipley, John/CastleRockBuilders <john@castlerockbuilders.com>; Green, Walter <WGreen@castlerockbuilders.com>; Green, Samantha <samantha@live.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

The BAT plan looks acceptable. We will give final approval once we receive a building permit and plot plan with house location and number of bedrooms matching the BAT plan. Additionally, the attached operations and maintenance agreement must be signed by the owner, buyer, Health Dept, and recorded in Land Records prior to issuance of the septic permit. Thanks Jeff

-----Original Message-----

From: DRS [mailto:drc@castlerockbuilders.com]
Sent: Wednesday, December 23, 2015 11:25 AM
To: Williams, Jeffrey; Byers, Chuck/CastleRockBuilders; Shipley, John/CastleRockBuilders; Green, Walter; Green, Samantha
Subject: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Attached is the data requested. Please contact us if you have any questions.

--

DRS & Associates
52 Winters St
Westminster, MD 21157
410-516-1060 * 717-870-0010

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Thursday, January 07, 2016 3:00 PM
To: 'drs@ramos.com'; Byers, Chuck/CastleRockBuilders; Shipley, John/CastleRockBuilders; Green, Walter; Green, Samantha
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1
Attachments: O&M agreement_revision 7.7.15.pdf

The BAT plan looks acceptable. We will give final approval once we receive a building permit and plot plan with house location and number of bedrooms matching the BAT plan. Additionally, the attached operations and maintenance agreement must be signed by the owner, buyer, Health Dept, and recorded in Land Records prior to issuance of the septic permit. Thanks Jeff

-----Original Message-----

From: DRS [mailto:drs@ramos.com]
Sent: Wednesday, December 23, 2015 11:25 AM
To: Williams, Jeffrey; Byers, Chuck/CastleRockBuilders; Shipley, John/CastleRockBuilders; Green, Walter; Green, Samantha
Subject: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Attached is the data requested. Please contact us if you have any questions.

--
DRS & Associates
52 Winters St
Westminster, MD 21157
~~410-870-1000~~ * ~~410-870-6000~~

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Friday, January 15, 2016 8:31 AM
To: 'Chuck Byers'
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Ok. That's fine. In cases like this, we just want it clear in the file that we had the discussion now. We've had several situations lately where homeowners try to finish a basement within a few years (or months) of building a house and are upset when we tell them their system needs to be upgraded to do so. We want to be able to show them that we had this discussion at the time of house construction. Please pass along to the homeowner that our code definition of a bedroom includes direct access to a full bathroom or a rough-in for a full bath, so even if they don't finish the full bath when finishing the basement, they are still in a situation where a room may very well be a bedroom down there.
Jeff

-----Original Message-----

From: Chuck Byers [mailto:chuckbyers@seattlebuilding.com]
Sent: Thursday, January 14, 2016 4:01 PM
To: Williams, Jeffrey
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

BTW, the bathroom in the basement is unfinished and is just a rough-in.
Just wanted to be clear on that.

Chuck

-----Original Message-----

From: Williams, Jeffrey [mailto:jwilliams@seattlebuilding.com]
Sent: Thursday, January 14, 2016 10:56 AM
To: Chuck Byers <chuckbyers@seattlebuilding.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. We have the building permit. I see the BAT plan is designed for 6 bedrooms. The Floorplans indicate 4 bedrooms on the 2nd floor and 2 on the attic floor. Be advised that the full bathroom in the unfinished basement makes it very likely that any future finishing of the basement will result in a room meeting our definition of a bedroom. You may choose to try to size the system for 7 bedrooms now or we will place a note in the property file indicating that finishing the basement may result in a bedroom increase and that will not be permitted without the sewage disposal system first being upgraded to accommodate the additional bedroom at that time. Thanks Jeff

-----Original Message-----

From: Chuck Byers [mailto:chuckbyers@seattlebuilding.com]
Sent: Friday, January 08, 2016 1:34 PM
To: Williams, Jeffrey
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Sure thing...see attached

-----Original Message-----

From: Williams, Jeffrey [mailto:jwilliams@seattlebuilding.com]
Sent: Friday, January 08, 2016 1:18 PM

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Thursday, January 14, 2016 10:56 AM
To: 'Chuck Byers'
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. We have the building permit. I see the BAT plan is designed for 6 bedrooms. The Floorplans indicate 4 bedrooms on the 2nd floor and 2 on the attic floor. Be advised that the full bathroom in the unfinished basement makes it very likely that any future finishing of the basement will result in a room meeting our definition of a bedroom. You may choose to try to size the system for 7 bedrooms now or we will place a note in the property file indicating that finishing the basement may result in a bedroom increase and that will not be permitted without the sewage disposal system first being upgraded to accommodate the additional bedroom at that time. Thanks Jeff

-----Original Message-----

From: Chuck Byers [mailto:chuckbyers@castlerockbuilders.com]
Sent: Friday, January 08, 2016 1:34 PM
To: Williams, Jeffrey
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Sure thing...see attached

-----Original Message-----

From: Williams, Jeffrey [mailto:jewilliams@howardcountymd.gov]
Sent: Friday, January 08, 2016 1:18 PM
To: Chuck Byers <chuckbyers@castlerockbuilders.com>
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Thanks. They normally don't forward construction/Floorplans over to us. Can you email me a copy of just the Floorplans?
Thanks Jeff

-----Original Message-----

From: Chuck Byers [mailto:chuckbyers@castlerockbuilders.com]
Sent: Friday, January 08, 2016 11:41 AM
To: Williams, Jeffrey; chuckbyers@castlerockbuilders.com; Shipley, John/CastleRockBuilders'
Subject: RE: (03217-97674) Kittleman Property Lot 4,SRLF - S, HCHD, ST, Rev1

Hi Jeff,

Building permit was submitted on Tuesday 1/5/16. All plans are with the building permit dept.

Thanks,
Chuck Byers

-----Original Message-----

From: Williams, Jeffrey [mailto:jewilliams@howardcountymd.gov]
Sent: Thursday, January 07, 2016 3:00 PM
To: jewilliams@howardcountymd.gov; Byers, Chuck/CastleRockBuilders <chuckbyers@castlerockbuilders.com>; Shipley, John/CastleRockBuilders <johnshipley@castlerockbuilders.com>; Green, Walter <wgreen@castlerockbuilders.com>; Green, Samantha <samanthagreen@castlerockbuilders.com>

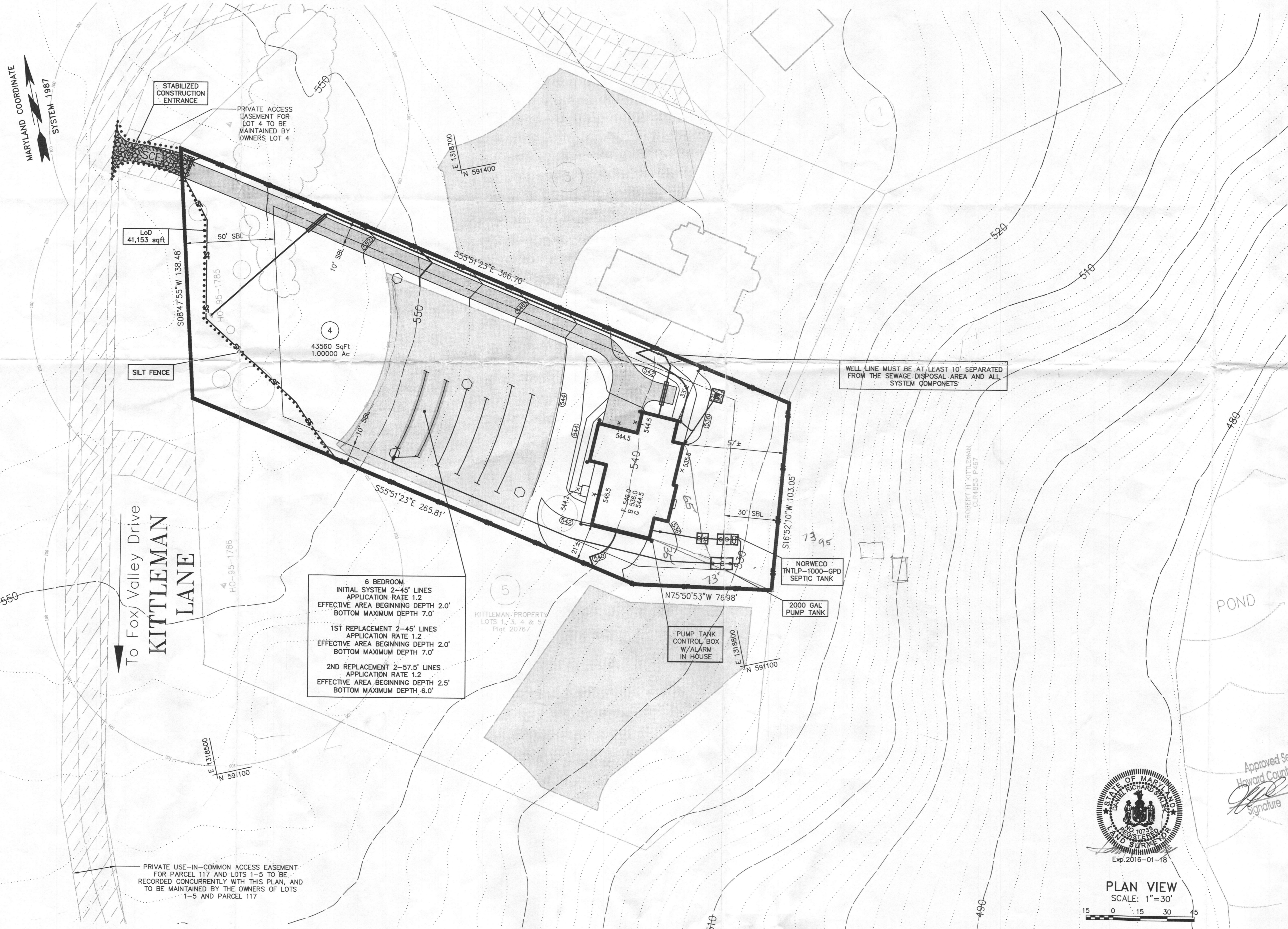
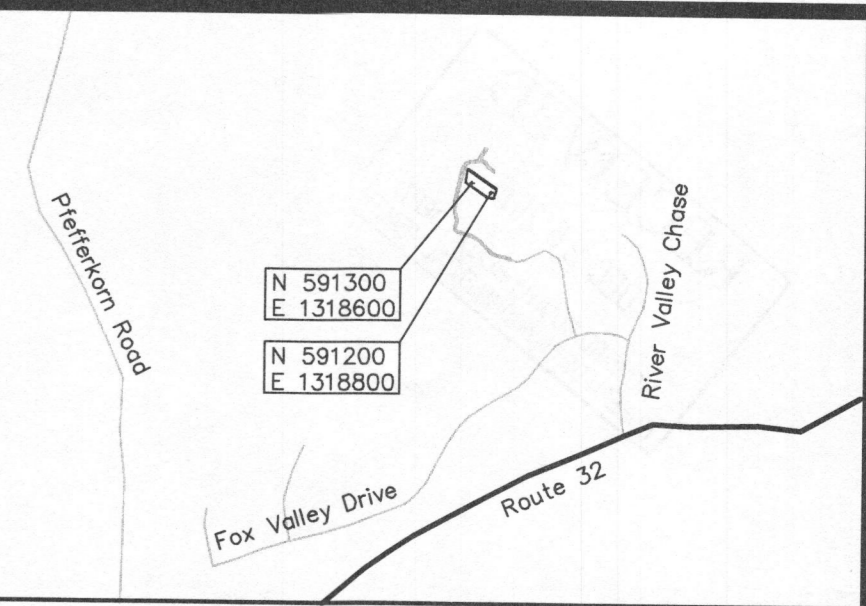
GENERAL NOTES

1. Subject Property Zoned: RC-DEO.
2. Total area of property: 43,560 sq. ft.
3. Septic easement subject to Howard County Health Department review.
4. Length of trench to be determined at time of septic permit issuance.
5. Contractor/Builder to verify elevation in the field before beginning any construction.
6. Topographic data by Howard County GIS.
7. No wetlands currently exist on the property.
8. For driveway entrance detail refer to Howard County Design Manual Volume IV Standard Detail R6.06.
9. This area designates a private sewerage easement at least 10,000 square feet as required by the Maryland State Department of the Environment for individual sewerage disposal. 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 sewerage easement. Recordation of a modified sewerage easement shall not be necessary.
10. The lot shown hereon complies with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
11. Existing wells and/or sewerage easements within 100 feet of the property have been shown from the best available information.
12. All house sites shown comply with minimum building restriction regulations.

13. "The existing well shown on this plan identified with the attached well tag number HO-95-1785 has been field located by DRS & Associates professional land surveyor and is accurately shown."
14. "Any changes to a private sewerage easement shall require a Revised Percolation Certification Plan."

BAT NOTES

1. Any changes to the locations or depths to any components must be approved by the engineer and the Howard County Health Department prior to installation. A revised site plan may be required.
2. The BAT system shall be maintained and operated for the life of the system.
3. The BAT shall be operated by and maintained by a certified service provider.
4. 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.
5. Electrical work for the BAT installation must be performed by a licensed electrician.
6. An agreement and Easement must be completed and signed by all applicable parties, and recorded in Land Records of Howard County.
7. The Health Department requires documentation for the start-up certification from the manufacturer prior to final approval of this installation.



LEGEND

| Existing | Proposed |
|-------------------------------------|-------------------------------------|
| Cable Line | Cable Line |
| Center Line Rd | Center Line Rd |
| Curb | Curb |
| Easement | Easement |
| Electric | Electric |
| Edge of Rd | Edge of Rd |
| Edge of Shoulder | Edge of Shoulder |
| Feature separation distance in feet | Feature separation distance in feet |
| Fence Line | Fence Line |
| IRM 100 Yr. Flood Boundary | Flood Boundary 500 Yr. |
| Flood Boundary 500 Yr. | Flood Boundary 100 Yr. |
| Flood Boundary 100 Yr. | Flood Boundary 100 Yr. |
| Floodway | Forest |
| Forest | Forest Cons. Emnt. |
| Forest Cons. Emnt. | Flow Line (Swale, Ditch, Waterway) |
| Flow Line (Swale, Ditch, Waterway) | Gas Line |
| Gas Line | Guardrail |
| Guardrail | Ind. Contours |
| Ind. Contours | Int. Contours |
| Int. Contours | Limits of Disturbance |
| Limits of Disturbance | Lot Line |
| Lot Line | Municipal Boundary |
| Municipal Boundary | Overhead Lines |
| Overhead Lines | Plat Outline |
| Plat Outline | Right-Of-Way Line |
| Right-Of-Way Line | Septic Area |
| Septic Area | Set Back Line |
| Set Back Line | Sewer |
| Sewer | Soil Type |
| Soil Type | Storm drain |
| Storm drain | Stream |
| Stream | Stream Buffer |
| Stream Buffer | Stream Buffer |
| Stream Buffer | Telephone |
| Telephone | Underground Cable |
| Underground Cable | Water Line |
| Water Line | Zoning Line |
| Zoning Line | Bit. Conc. Pav. |
| Bit. Conc. Pav. | Concrete |
| Concrete | Concrete |

ABBREVIATIONS

| | | | |
|--------|--|-------|---|
| 100FB | 100 year Flood Boundary | HDPE | High Density Polyethylene |
| 100FWB | 100 year Floodway Boundary | Hir | Horizontal |
| 500FB | 500 year Flood Boundary | Hip | High Point |
| AASHTO | American Association of State Highway & Transportation Officials | Hse | House |
| ADT | Average Daily Trip | IEE | Invert Elevation |
| ALCMP | Aluminum Corrugated Metal Pipe | IEE | Ingress & Egress Easement |
| App | Approved | Inv | Invert |
| B | Basement floor elevation or Book | IT | Infiltration Trench |
| BCCM | Bituminous Coated Corrugated Metal Pipe | L | Left or Lot |
| Beq | Begin | LoD | Linear Foot |
| BL | Break | LoP | Limits of Disturbance |
| BL | Break | LoP | Limits of Paving |
| BLDg | Building | LPG | Low Point |
| BL | Begin Linear Profile | LVC | Length of Vertical Curve |
| Bot | Bottom | M | Minutes |
| BoW | Bottom of Wall | MPH | Miles Per Hour |
| CL | Center Line or Class | NAD | North America Datum |
| CLR | County Land Record | NAVD | North America Vertical Datum |
| CMP | Corrugated Metal Pipe | NDC | Nose Down Curb |
| Co | Clean out/County | Not | Not in Contract |
| Dia | Diameter | Offet | Offset |
| Dn | Depth normal | P | Page |
| DND | Do Not Disturb | PB | Proposed Grade |
| DUE | Drainage Utility Easement | PG | Proposed Grade |
| Dwy | Driveway | PL | Property Line |
| EASE | Easement | PBK | Plot Book |
| EAS | Entrance elevation | Pr | Profile |
| EER | Elevation | PWA | Public Works Agreement |
| ELP | End Linear Profile | R | Right or Radius |
| ESC | Emergency Spillway Elevation | S | Sewer |
| Ex | Existing | SB | Set Back Line |
| ExGd | Existing Ground | SC | Sewer Connection |
| F | First floor elevation | SD | Storm Drain |
| FBM | Flood Boundary and Floodway Map | SD | Storm Drain |
| FCE | Forest Conservation Easement | SHA | State Highway Administration (Maryland) |
| FEMA | Federal Emergency Management Agency (Hec 2 Data) | Sh | Sheet |
| FG | Finished Grade | SS | State Roads Commission |
| FIRM | Flood Insurance Rate Map | SS | Sanitary Sewer |
| FoW | Face of Wall | STD | Standard |
| FPE | Flood Plain Easement | SWMF | StormWater Management Facility |
| FWPE | Forested Water Resource Protection Easement | TBR | To Be Removed |
| G | Garage floor elevation | TP | Typical |
| Gar | Garage | WO | Walkout |
| GR | Guard Rail | | |



Approved Septic System Plan
Howard County Health Department
Signature
Date

**SITE PLAN FOR BAT INSTALLATION
KITTLEMAN PROPERTY
LOT 4**

BUILDER
Castle Rock Builders
2159 White Street, Suite 3
York, PA 17404
717-395-9626

OWNER
Samantha Reigel
3000 Kittleman Lane
West Friendship MD 21794

MAP 15 BLOCK 15 PARCEL 271
ZONED RC-DEO PLAT NO. 20766 & 20767
3RD ELECTION DISTRICT 3014 KITTLEMAN DRIVE HOWARD COUNTY, MARYLAND

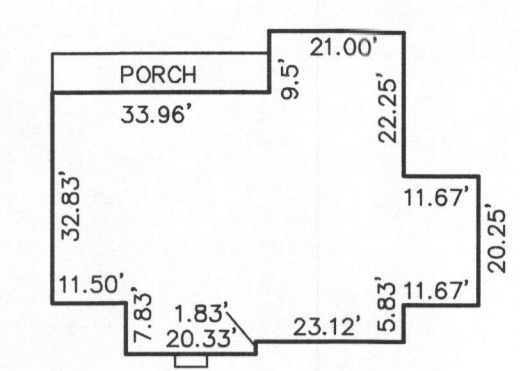
D.R.S. & ASSOCIATES
LAND DESIGN CONSULTANTS
52 WINTERS STREET WESTMINSTER, MARYLAND 21157
410-848-4060 410-876-6040 F. 410-848-8818

| REV. NO. | DATE | BY | DESCRIPTION | DATE: 2015-10-13 |
|----------|------------|---------|--|------------------|
| 1 | 2015-12-02 | DRS/jfs | PER HOWARD COUNTY HEALTH DEPARTMENT 2015-11-16 | SCALE: 1"=30' |
| | | | | SHT. NO.: 1 OF 2 |
| | | | | DWG.: WS01-01 |

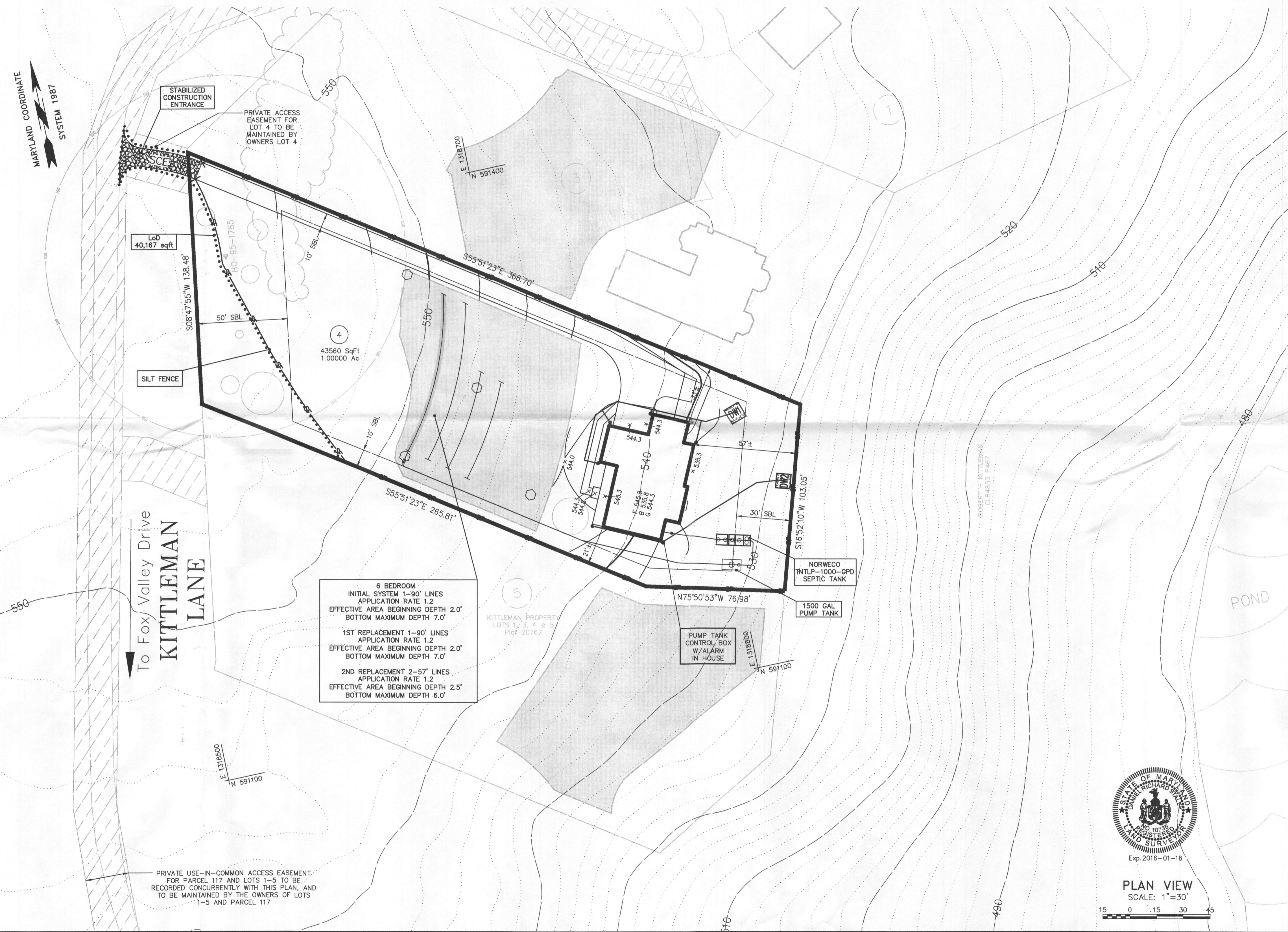
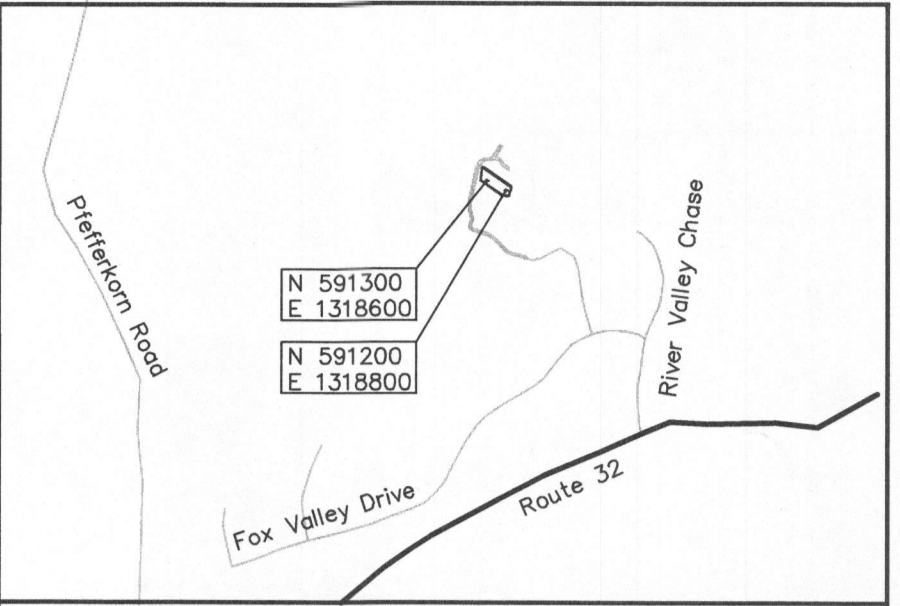
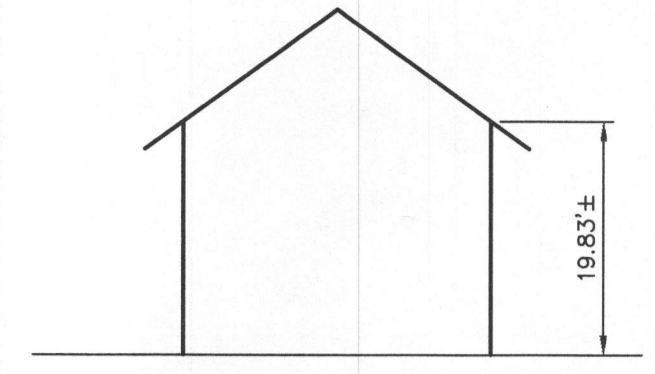
COPYRIGHT © 2015 BY D.R.S. & ASSOCIATES
This document is the work product of DRS & Associates and may not be copied, used, published or disseminated in whole or in part in any manner without the written permission of DRS & Associates, except by governmental agencies having jurisdiction, once executed and accepted.

- GENERAL NOTES**
- Subject Property Zoned: RC-DEO.
 - Total area of property: 43,560 sq. ft.
 - Septic easement subject to Howard County Health Department review.
 - Length of trench to be determined at time of septic permit issuance.
 - Contractor/Builder to verify elevation in the field before beginning any construction.
 - Topographic data by Howard County GIS.
 - No wetlands currently exist on the property.
 - For driveway entrance detail refer to Howard County Design Manual Volume IV Standard Detail R6.06.
 - This area designates a private sewerage easement at least 10,000 square feet as required by the Maryland State Department of the Environment for individual sewerage disposal. 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 sewerage easement. Recordation of a modified sewerage easement shall not be necessary.
 - The lot shown herein complies with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
 - Existing wells and/or sewerage easements within 100 feet of the property have been shown from the best available information.
 - All house sites shown comply with minimum building restriction regulations.

- "The existing well shown on this plan identified with the attached well tag number HO-95-1785 has been field located by DRS & Associates professional land surveyor and is accurately shown."
- "Any changes to a private sewerage easement shall require a Revised Percolation Certification Plan."



SCALE: 1"=30'



LEGEND

| Existing | Proposed |
|-------------------------------------|-------------------------------------|
| Cable Line | Cable Line |
| Center Line Rd | Center Line Rd |
| Curb | Curb |
| Easement | Easement |
| Electric | Electric |
| Edge of Rd | Edge of Rd |
| Edge of Shoulder | Edge of Shoulder |
| Feature separation distance in feet | Feature separation distance in feet |
| Fence Line | Fence Line |
| FIRM 100 Yr. Flood Boundary | FIRM 100 Yr. Flood Boundary |
| Flood Boundary 500 Yr. | Flood Boundary 500 Yr. |
| Flood Boundary 100 Yr. | Flood Boundary 100 Yr. |
| Floodway | Floodway |
| Forest | Forest |
| Forest Cons. Esmt. | Forest Cons. Esmt. |
| Flow Line (Swale, Ditch, Waterway) | Flow Line (Swale, Ditch, Waterway) |
| Gas Line | Gas Line |
| Guardrail | Guardrail |
| Int. Contours | Int. Contours |
| Limits of Disturbance | Limits of Disturbance |
| Lot Line | Lot Line |
| Municipal Boundary | Municipal Boundary |
| Overhead Lines | Overhead Lines |
| Plot Outline | Plot Outline |
| Right-Of-Way Line | Right-Of-Way Line |
| Septic Area | Septic Area |
| Set Back Line | Set Back Line |
| Sewer | Sewer |
| Soil Type | Soil Type |
| Storm Drain | Storm Drain |
| Stream | Stream |
| Stream Intermittent Soil Survey | Stream Intermittent Soil Survey |
| Stream Buffer | Stream Buffer |
| Telephone | Telephone |
| Underground Cable | Underground Cable |
| Water Line | Water Line |
| Zoning Line | Zoning Line |
| Bit. Conc. Pav. | Bit. Conc. Pav. |
| Concrete | Concrete |

ABBREVIATIONS

| | | | |
|--------|--|------|---|
| 100FB | 100 year Flood Boundary | HDPE | High Density Polyethylene |
| 100FWB | 100 year Floodway Boundary | Hor | Horizontal |
| 500FB | 500 year Flood Boundary | HP | High Point |
| AASHTO | American Association of State Highway & Transportation Officials | Hse | House |
| ADT | Average Daily Trip | IDE | Invert Ditch Elevation |
| ALCMP | Aluminum Corrugated Metal Pipe | IEE | Ingress & Egress Easement |
| App | Approved | Inv | Invert |
| B | Basement floor elevation or Book | IT | Infiltration Trench |
| BCCMP | Bituminous Coated Corrugated Metal Pipe | LF | Linear Feet |
| Beg | Begin | LoD | Limits of Disturbance |
| Bk | Break | LP | Low Point |
| BL | Baseline | LPG | Linear Profile Grade |
| BLP | Begin Linear Profile | LVC | Length of Vertical Curve |
| Bot | Bottom | M | Minutes |
| BotW | Bottom of Wall | MPH | Miles Per Hour |
| CL | Centerline or Class | NAD | North America Datum |
| CLR | County Land Record | NAVD | North America Vertical Datum |
| CMP | Corrugated Metal Pipe | NDC | Nose Down Curb |
| Co | Clean out/County | NIC | Not in Contract |
| Dia | Diameter | Os | Offset |
| Dn | Depth normal | P | Page |
| DND | Do Not Disturb | PB | Plot Book |
| DUE | Drainage Utility Easement | PD | Proposed Grade |
| Dwy | Driveway | PL | Property Line |
| E | Entrance elevation | PIBk | Plot Book |
| EASE | Easement | Pr | Profile |
| EL | Elevation | PWA | Public Works Agreement |
| EER | Elevation Ex Road | R | Right of Road |
| ELP | End Linear Profile | S | Sewer |
| ESE | Emergency Spillway Elevation | SBL | Set Back Line |
| EX | Existing | SC | Sewer Connection |
| EX-Gd | Existing Ground | SD | Storm Drain |
| F1M | First floor elevation | SgD | Subgrade Drain |
| FIRM | FIRM Flood Boundary and Floodway Map | SHA | State Highway Administration (Maryland) |
| FCE | Forest Conservation Easement | Sh | Sheet |
| FEMA | Federal Emergency Management Agency (Hec 2 Data) | SRC | State Roads Commission |
| FG | Finished Grade | SS | Sanitary Sewer |
| FIRM | FIRM Flood Insurance Rate Map | STD | Standard |
| FoW | Face of Wall | SWMF | Stormwater Management Facility |
| FPE | Flood Plain Easement | tBR | to be Removed |
| FWRPE | Forested Water Resource Protection Easement | T | Typical |
| G | Garage floor elevation | WO | Work |
| GR | Guard Rail | | |



PLAN VIEW
SCALE: 1"=30'

ENVIRONMENTAL CONCEPT PLAN/SITE PLAN
KITTLEMAN PROPERTY
 LOT 4

BUILDER/DEVELOPER
 Castle Rock Builders
 2159 White Street, Suite 3
 York, PA 17404
 717-395-9626

OWNER
 Samantha Reigel
 3000 Kittleman Lane
 West Friendship MD 21794

MAP 15 BLOCK 15 PARCEL 271
 ZONED RC-DEO PLAT NO. 20766 & 20767
 3RD ELECTION DISTRICT 3014 KITTLEMAN DRIVE HOWARD COUNTY, MARYLAND

D.R.S. & ASSOCIATES
 LAND DESIGN CONSULTANTS
 52 WINTERS STREET WESTMINSTER, MARYLAND 21157
 410-848-4060 410-876-6040 F. 410-848-8818

APPROVED: DEPARTMENT OF PLANNING AND ZONING

| | |
|---|------|
| Chief, Development Engineering Division | Date |
| Chief, Division of Land Development | Date |
| Director | Date |

"I certify that the information shown hereon is based on field work performed by me or under my direct supervision, and is correct, to the best of my knowledge and belief."

Daniel R. Staley Date

This Development is approved for soil erosion and sediment control Approved:

Howard Soil Conservation District Date

Reviewed for Howard County Soil Conservation District and meets technical requirements.

U.S.D.A. Natural Resources Conservation Service Date

DEVELOPER'S CERTIFICATION

I/we certify that all development and construction will be done according to this plan and that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District.

Signature of Developer Date

ENGINEER'S CERTIFICATE

"I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

ENGINEER Date

| REV. NO. | DATE | BY | DESCRIPTION | DATE: 2015-10-13 |
|----------|------|----|-------------|------------------|
| | | | | SCALE: 1"=30' |
| | | | | SHT. NO.: 1 OF 2 |
| | | | | DWG.: ST01-01 |

COPYRIGHT © 2015 BY D.R.S. & ASSOCIATES
 This document is work product of DRS & Associates and may not be copied, used, published or disseminated in whole or in part in any manner without the written permission of DRS & Associates, except by governmental agencies having jurisdiction, once executed and accepted.

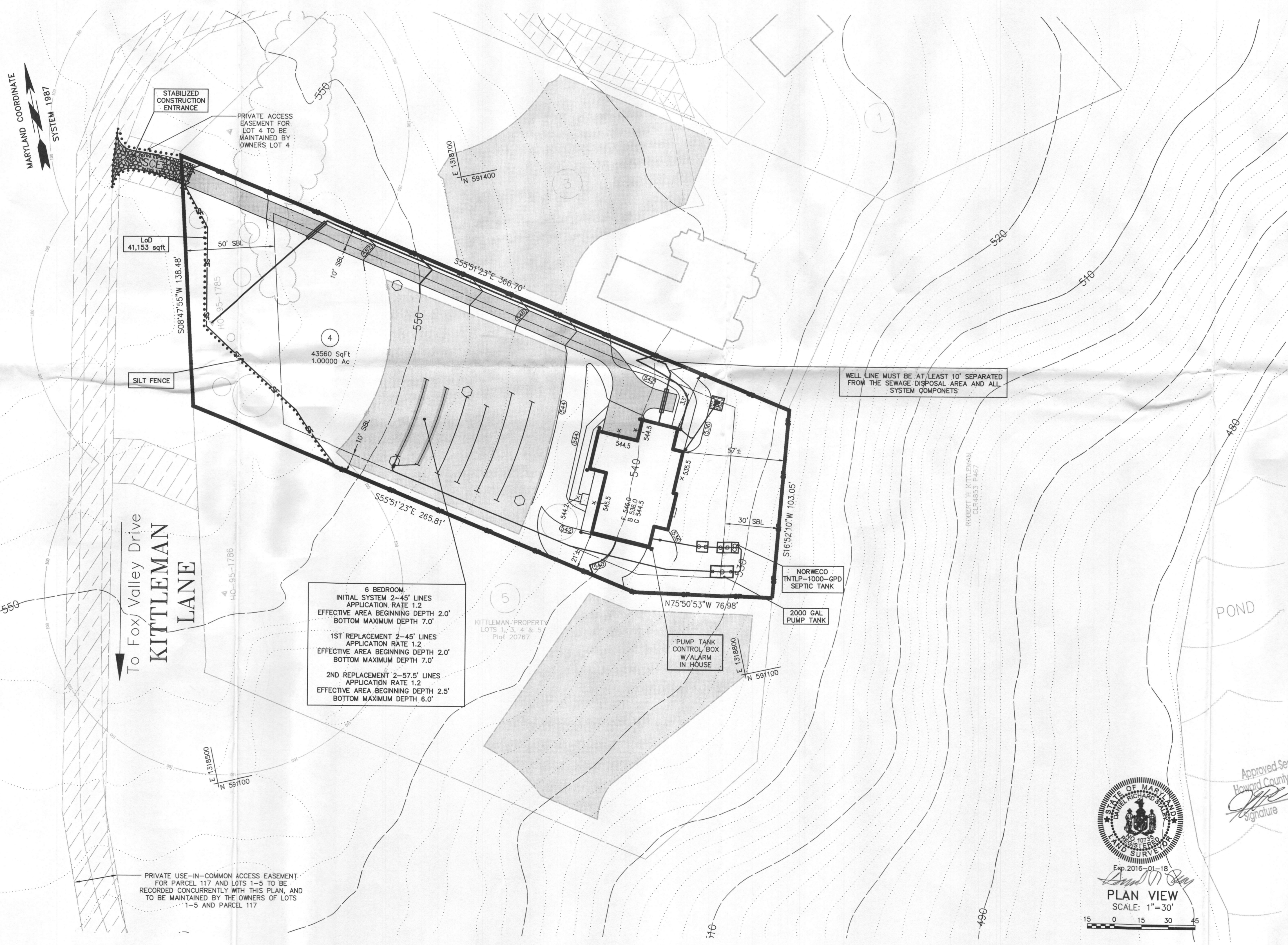
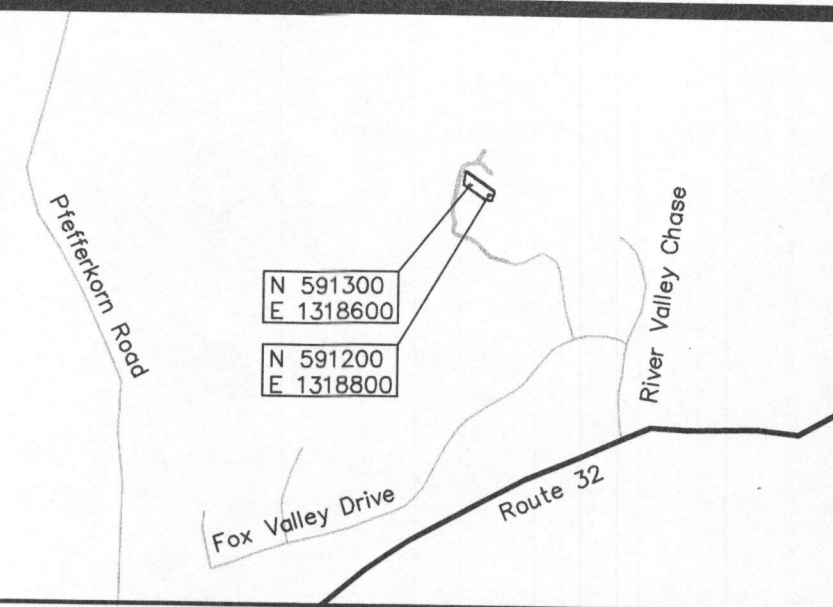
GENERAL NOTES

1. Subject Property Zoned: RC-DEO.
2. Total area of property: 43,560 sq. ft.
3. Septic easement subject to Howard County Health Department review.
4. Length of trench to be determined at time of septic permit issuance.
5. Contractor/Builder to verify elevation in the field before beginning any construction.
6. Topographic data by Howard County GIS.
7. No wetlands currently exist on the property.
8. For driveway entrance detail refer to Howard County Design Manual Volume IV Standard Detail R6.05.
9. This area designates a private sewerage easement at least 10,000 square feet as required by the Maryland State Department of the Environment for individual sewerage disposal. 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 sewerage easement. Recordation of a modified sewerage easement shall not be necessary.
10. The lot shown herein complies with the minimum ownership width and lot area as required by the Maryland State Department of the Environment.
11. Existing wells and/or sewerage easements within 100 feet of the property have been shown from the best available information.
12. All house sites shown comply with minimum building restriction regulations.

13. The existing well shown on this plan identified with the attached well tag number HO-95-1785 has been field located by DRS & Associates professional land surveyor and is accurately shown.
14. "Any changes to a private sewerage easement shall require a Revised Percolation Certification Plan."

BAT NOTES

1. Any changes to the locations or depths to any components must be approved by the engineer and the Howard County Health Department prior to installation. A revised site plan may be required.
2. The BAT system shall be maintained and operated for the life of the system.
3. The BAT shall be operated by and maintained by a certified service provider.
4. 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.
5. Electrical work for the BAT installation must be performed by a licensed electrician.
6. An agreement and Easement must be completed and signed by all applicable parties, and recorded in Land Records of Howard County.
7. The Health Department requires documentation for the start-up certification from the manufacturer prior to final approval of this installation.

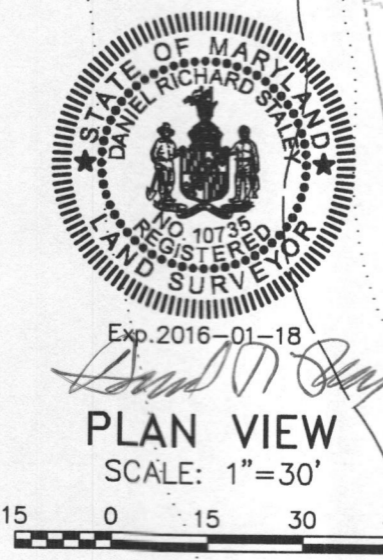


LEGEND

| Existing | Proposed |
|-------------------------------------|-------------------------------------|
| Cable Line | Cable Line |
| Center Line Rd | Center Line Rd |
| Curb | Curb |
| Easement | Easement |
| Electric | Electric |
| Edge of Rd | Edge of Rd |
| Edge of Shoulder | Edge of Shoulder |
| Feature separation distance in feet | Feature separation distance in feet |
| Fence Line | Fence Line |
| FRM 100 Yr. Flood Boundary | FRM 100 Yr. Flood Boundary |
| Flood Boundary 500 Yr. | Flood Boundary 500 Yr. |
| Flood Boundary 100 Yr. | Flood Boundary 100 Yr. |
| Floodway | Floodway |
| Forest | Forest |
| Forest Cons. Esmt. | Forest Cons. Esmt. |
| Flow Line (Swale, Ditch, Waterway) | Flow Line (Swale, Ditch, Waterway) |
| Gas Line | Gas Line |
| Guardrail | Guardrail |
| Ind. Contours | Ind. Contours |
| Int. Contours | Int. Contours |
| Limits of Disturbance | Limits of Disturbance |
| Municipal Boundary | Municipal Boundary |
| Overhead Lines | Overhead Lines |
| Plot Outline | Plot Outline |
| Right-Of-Way Line | Right-Of-Way Line |
| Septic Area | Septic Area |
| Set Back Line | Set Back Line |
| Sewer | Sewer |
| Soil Type | Soil Type |
| Storm drain | Storm Drain |
| Stream | Stream |
| Stream Intermittent Soil Survey | Stream Intermittent Soil Survey |
| Stream Buffer | Stream Buffer |
| Telephone | Telephone |
| Underground Cable | Underground Cable |
| Water Line | Water Line |
| Zoning Line | Zoning Line |
| Bit. Conc. Pav. | Bit. Conc. Pav. |
| Concrete | Concrete |

ABBREVIATIONS

| | | | |
|--------|--|------|---|
| 100FB | 100 year Flood Boundary | HDPE | High Density Polyethylene |
| 100FWB | 100 year Floodway Boundary | Hor | Horizontal |
| 500FB | 500 year Flood Boundary | Hip | High Point |
| AASHTO | American Association of State Highway & Transportation Officials | Hse | House Ditch Elevation |
| ADT | Average Daily Trip | IEE | Ingress & Egress Easement |
| ALCMP | Aluminum Corrugated Metal Pipe | Inv | Invert |
| App | Approved | IT | Infiltration Trench |
| B | Basement floor elevation or Book | L | Left or Lot |
| BOCMP | Bituminous Coated Corrugated Metal Pipe | LoD | Limits of Disturbance |
| Begin | Begin | LoP | Limits of Paving |
| BL | Base Line | LP | Low Point |
| Bldg | Building | LPG | Linear Profile Grade |
| BLP | Begin Linear Profile | LVC | Length of Vertical Curve |
| Bot | Bottom | M | Minutes |
| BoW | Bottom of Wall | MPH | Miles Per Hour |
| CL | Center Line or Class | NAD | North America Datum |
| CLR | County Land Record | NVD | North America Vertical Datum |
| CMP | Corrugated Metal Pipe | NDC | Nose Down Curb |
| Co | Clean out/County | NIC | Not in Contract |
| Dia | Diameter | Off | Offset |
| Dn | Depth normal | PB | Page |
| DND | Do Not Disturb | PB | Plot Book |
| DUE | Drainage Utility Easement | PG | Proposed Grade |
| Dwy | Driveway | PL | Property Line |
| E | Entrance elevation | PIBK | Plot Book |
| EASE | EASEMENT | Pr | Profile |
| ELEV | Elevation | PWA | Public Works Agreement |
| EER | Elevation Ex Road | R | Right of Road |
| ELP | End Linear Profile | SBL | Set Back Line |
| ESE | Emergency Spillway Elevation | SC | Sewer Connection |
| Ex | Existing | SD | Storm Drain |
| ExGd | Existing Ground | SD | Subgrade Drain |
| FBM | Flood Boundary and Floodway Map | SHA | State Highway Administration (Maryland) |
| FCE | Forest Conservation Easement | Sh | Sheet |
| FEMA | Federal Emergency Management Agency (Hec 2 Data) | Sh | Standard |
| FG | Finished Grade | SRC | State Roads Commission |
| FRM | Flood Insurance Rate Map | SS | Sanitary Sewer |
| FoW | Face of Wall | STD | Standard |
| FPE | Flood Plain Easement | SWMF | Stormwater Management Facility |
| FWPE | Forested Water Resource Protection Easement | TBR | To be Removed |
| Gar | Garage floor elevation | Typ | Typical |
| GR | Guard Rail | WO | Walkout |



Approved Septic System Plan
Howard County Health Department
[Signature]
Date: 1/16

SITE PLAN FOR BAT INSTALLATION
KITTLEMAN PROPERTY
LOT 4

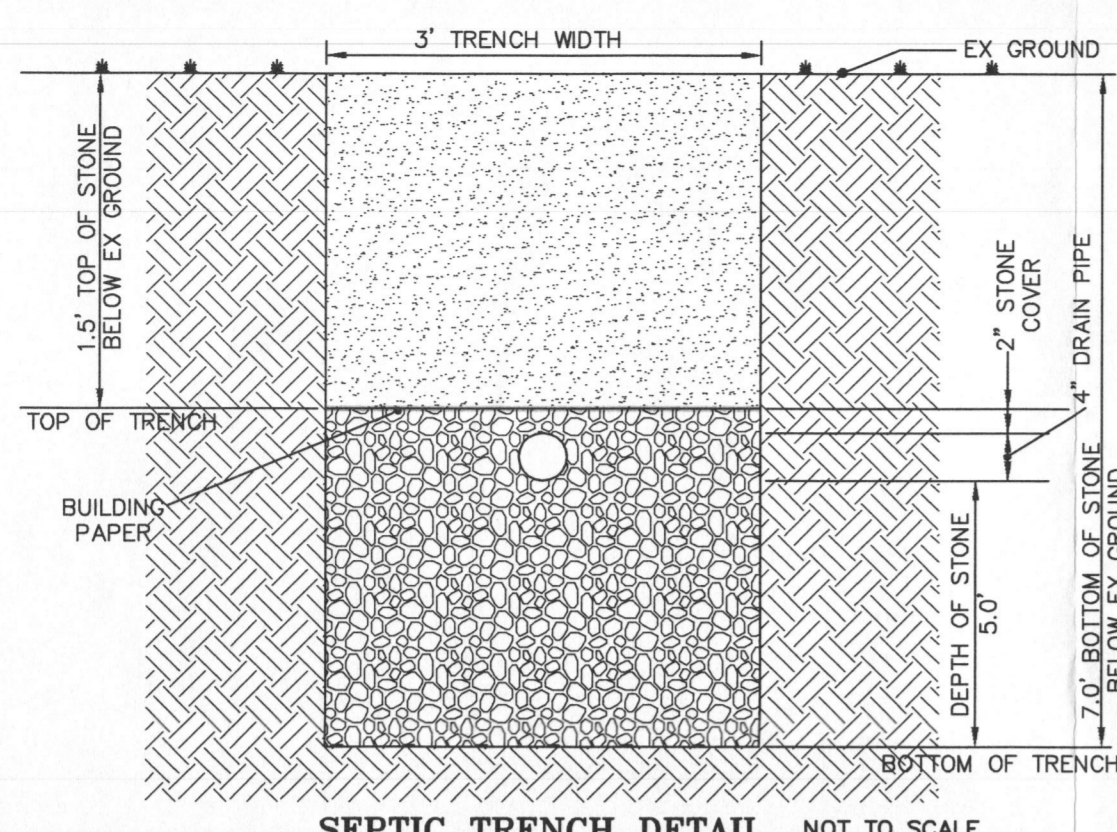
| | |
|--|--|
| BUILDER Castle Rock Builders 2159 White Street, Suite 3 York, PA 17404 717-395-9626 | OWNER Samantha Reigel 3000 Kittleman Lane West Friendship MD 21794 |
|--|--|

MAP 15 BLOCK 15 PARCEL 271
ZONED RC-DEO PLAT NO. 20766 & 20767
3RD ELECTION DISTRICT 3014 KITTLEMAN DRIVE HOWARD COUNTY, MARYLAND

D.R.S. & ASSOCIATES
LAND DESIGN CONSULTANTS
52 WINTERS STREET WESTMINSTER, MARYLAND 21157
410-848-4060 410-876-6040 F. 410-848-8818

| REV. NO. | DATE | BY | DESCRIPTION | DATE: 2015-10-13 |
|----------|------------|---------|--|-------------------|
| 1 | 2015-12-02 | DRS/jfs | PER HOWARD COUNTY HEALTH DEPARTMENT 2015-11-16 | SCALE: 1"=30' |
| | | | | SHT. NO. : 1 OF 2 |
| | | | | DWG.: WS01-01 |

COPYRIGHT © 2015 BY D.R.S. & ASSOCIATES
This document is the work product of DRS & Associates and may not be copied, used, published or disseminated in whole or in part in any manner without the written permission of DRS & Associates, except by governmental agencies having jurisdiction, once executed and accepted.



PRESSURE TO GRAVITY SEPTIC SYSTEM

Project Name: Kittelman Property Lot 4
 File Number: 03217-97674
 Date: 2015-10-23
 By: JIS

SEPTIC TANK DESIGN

NUMBER OF BEDROOMS: 6.000
 DESIGN FLOW = (150 GAL X NUMBER OF BEDROOMS): 900.000 GPD
 MINIMUM SEPTIC TANK SIZE = (DESIGN FLOW X 1.5): 1350.000 Gal.
 SEPTIC TANK SIZE: 2300.000 Gal.

DISTANCE & ELEVATION DATA

INVERT ELEVATION DISTRIBUTION BOX: 547.300 Ft.
 LENGTH OF FORCE MAIN BETWEEN TOP OF PUMP TO DISTRIBUTION BOX: 196.560 Ft.
 INVERT ELEVATION IN OF PUMP TANK: 527.220 Ft.

FORCE MAIN PIPE SPECIFICATION

SCHEDULE 40 PVC: 2.000 In.
 INSIDE DIAMETER: 2.067 In. (S)

DOSE VOLUME

LENGTH OF FORCE MAIN: 196.560 Ft.
 VOLUME OF FORCE MAIN = (π x (D/2)² X LENGTH OF FORCE MAIN X 7.48 / C.F.T.): 34.264 Gal.
 DOSE VOLUME = (FORCE MAIN X 90 GAL): 124.264 Gal.
 DOSE VOLUME IN C.F.T. = (DOSE VOLUME / 7.48): 16.612 Cu.Ft.

PUMP TANK SIZING

PUMP TANK SIZING (AUTOMATIC SIZING CALCULATION IF BLANK): Gal.

PUMP TANK DESIGN USING 2000 GALLON TANK

PUMP TANK DESIGN

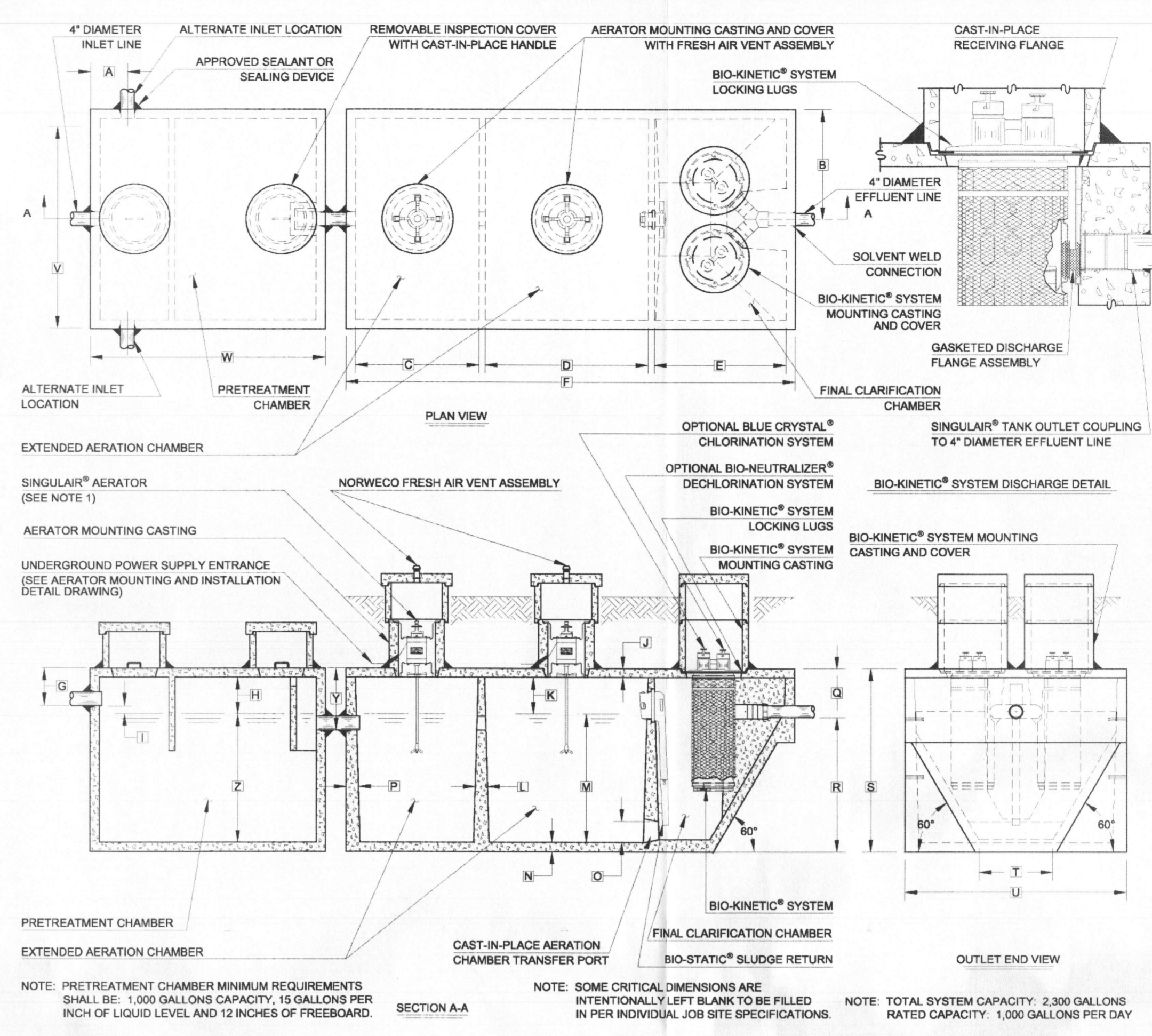
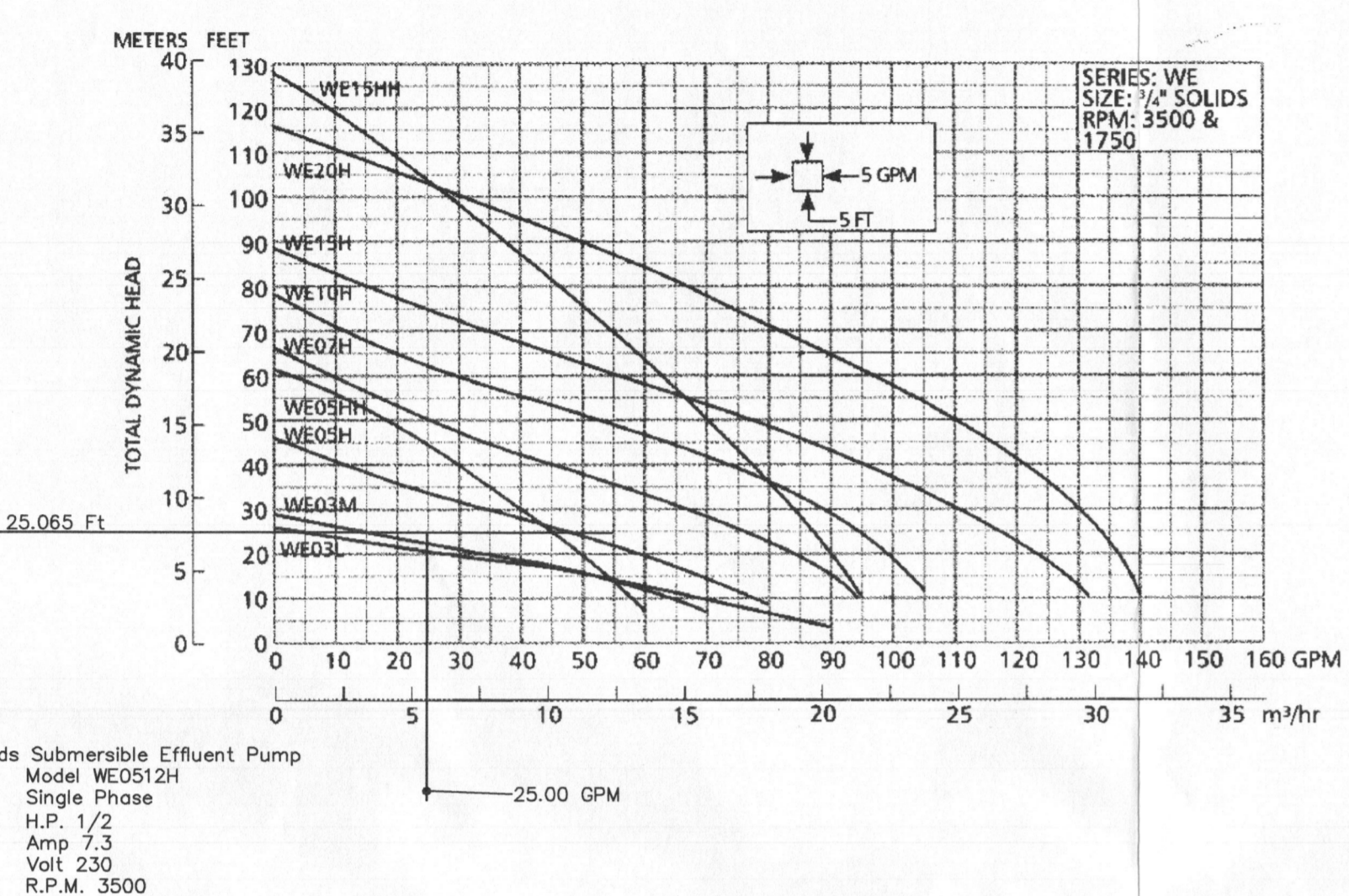
BOTTOM OF PUMP TANK ELEVATION: 523.137 Ft. (U)
 6" RISER BLOCK: 0.500 Ft.
 ELEVATION: 523.637 Ft.
 PUMP HEIGHT (FEET): 1.250 Ft.
 PUMP OFF ELEVATION: 524.887 Ft. (V)
 DISTANCE BETWEEN PUMP ON & PUMP OFF ELEV. (DOSE / AREA OF PUMP TANK): 0.221 Ft.
 PUMP ON ELEVATION: 525.108 Ft. (W)
 PER MIDE PUMP ON TO HIGH WATER ALARM: 0.500 Ft.
 HIGH WATER ALARM ELEVATION: 525.608 Ft. (X)
 DIST. BETWEEN PUMP ON & PUMP TANK INLET (DESIGN FLOW / 7.48 / AREA OF PUMP TANK): 1.804 Ft.
 DESIGN PUMP TANK INLET ELEVATION: 527.212 Ft.
 ACTUAL PUMP TANK INLET ELEVATION > DESIGN PUMP TANK INLET ELEVATION: 527.220 Ft.

PUMP DESIGN

PEAK FLOWS: 26.000 GPM
 LENGTH OF 2" FORCE MAIN: 197.810 Ft.
 INCREASES (@ 2.0 FT. EACH): 2.000 Ft.
 90 BEND (@ 7.0 FT. EACH): 0.000 Ft.
 90 BEND (@ 6.0 FT. EACH): 0.000 Ft.
 45 BEND (@ 4.0 FT. EACH): 8.000 Ft.
 30 BEND (@ 3.0 FT. EACH): 0.000 Ft.
 22 1/2 BEND (@ 2.0 FT. EACH): 0.000 Ft.
 15 BEND (@ 2.0 FT. EACH): 0.000 Ft.
 11 1/2 BEND (@ 1.0 FT. EACH): 2.000 Ft.
 TEE (@ 10 FT. EACH): 0.000 Ft.
 TOTAL LENGTH: 237.810 Ft.
 FRICTION LOSS PER 100 FEET: 1.115 Ft.
 PUMP OFF FLOOR ELEVATION: 524.887 Ft.
 INVERT ELEVATION DISTRIBUTION BOX: 547.300 Ft.
 HEAD LOSS: 22.413 Ft.
 TOTAL FRICTION LOSS: 2.652 Ft.
 DYNAMIC HEAD: 26.065 Ft.

Goolds Submersible Effluent Pump

Model: WE0512H (Z)
 Phase: 1.000
 H.P.: 1/2
 Amp.: 7.300
 Volt: 230.000
 R.P.M.: 3500.000



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.

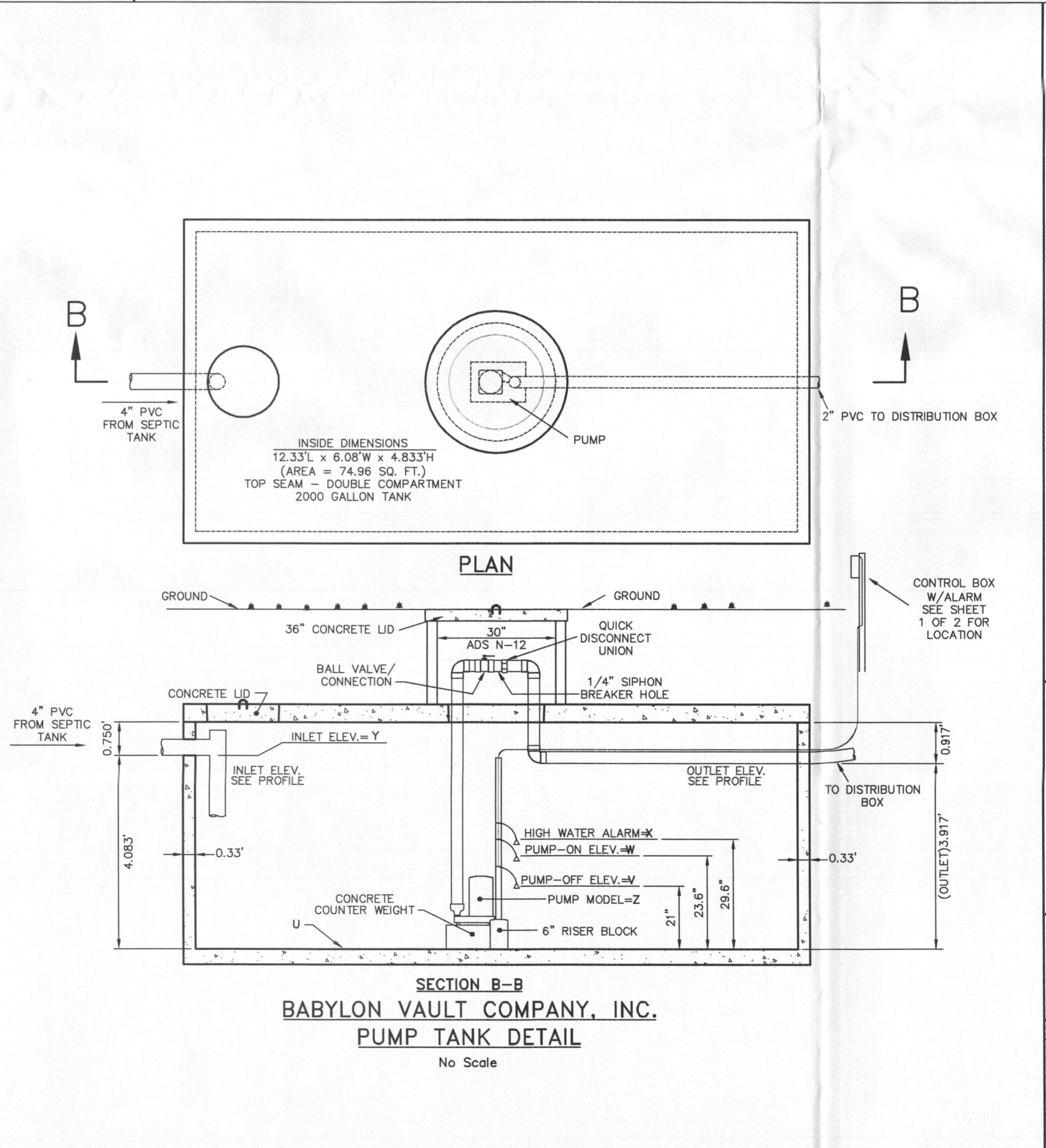
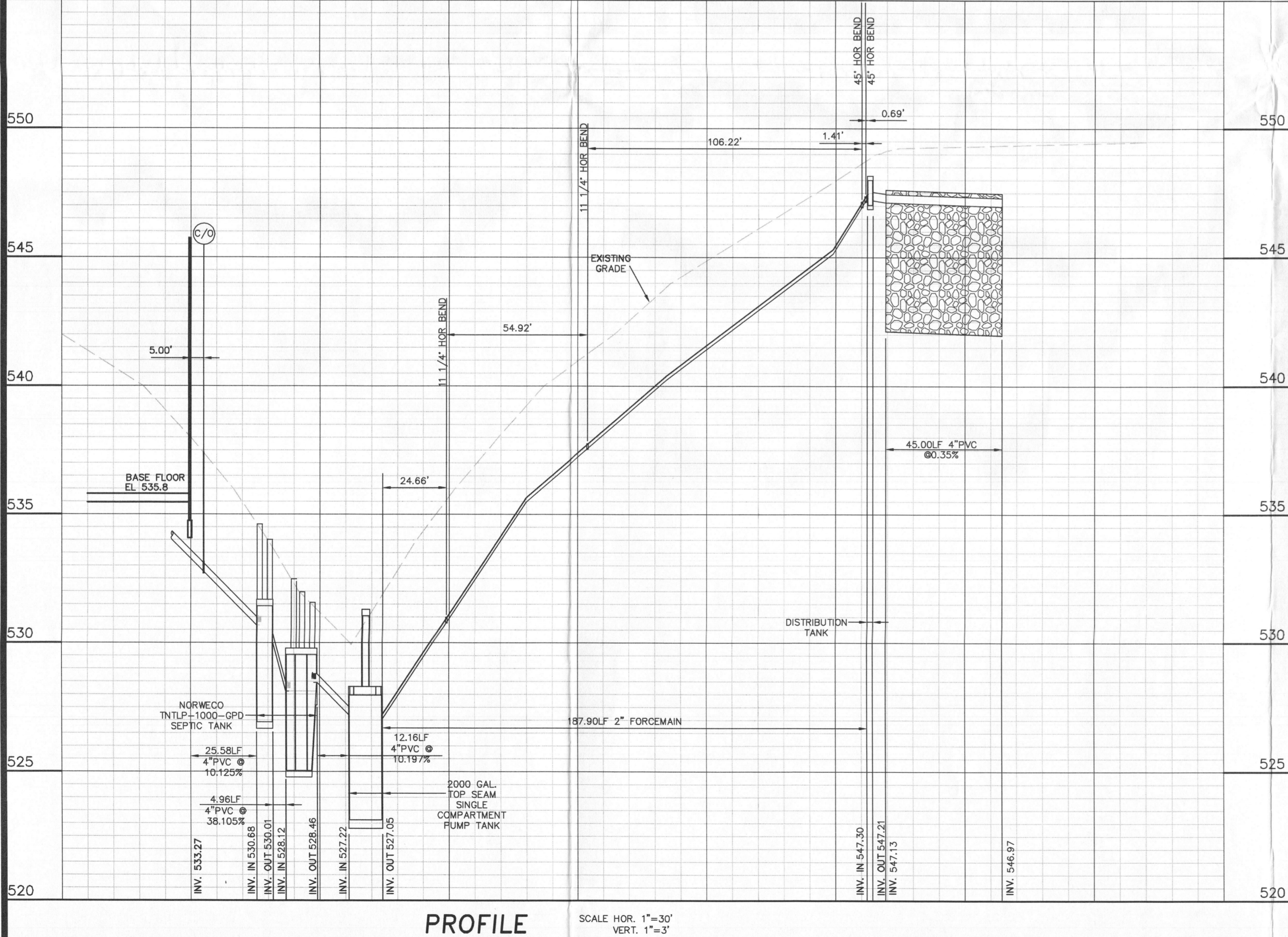
DATE: _____
 NAME: _____

CRITICAL DIMENSIONS

| | | | |
|---|--------|---|-------|
| A | 1'-0" | N | 0'-3" |
| B | 3'-0" | O | 0'-6" |
| C | 3'-4" | P | 0'-3" |
| D | 4'-5" | Q | 1'-4" |
| E | 3'-7" | R | 3'-8" |
| F | 12'-2" | S | 5'-0" |
| G | 1'-0" | T | 2'-0" |
| H | 1'-0" | U | 6'-0" |
| I | 0'-3" | V | |
| J | 0'-3" | W | |
| K | 1'-0" | X | |
| L | 0'-2" | Y | 1'-8" |
| M | 3'-6" | Z | |

U.S. AND FOREIGN PATENTS PENDING

norweco 7-10-01
 LOW PROFILE SINGULAR® BIO-KINETIC® WATER TREATMENT SYSTEM
 MODEL: TNLP-1000 GPD
 11-07-08
 NTS
 PC-6-7090



SITE PLAN FOR BAT INSTALLATION
KITTELMAN PROPERTY
 LOT 4

BUILDER: Castle Rock Builders, 2159 White Street, Suite 3, York, PA 17404, 717-395-8626
OWNER: Samantha Reigel, 3000 Kittelman Lane, West Friendship MD 21794

MAP 15 BLOCK 15 PARCEL 271
 ZONED RC-DEO PLAT NO. 20766 & 20767
 3RD ELECTION DISTRICT 3014 KITTELMAN DRIVE HOWARD COUNTY, MARYLAND

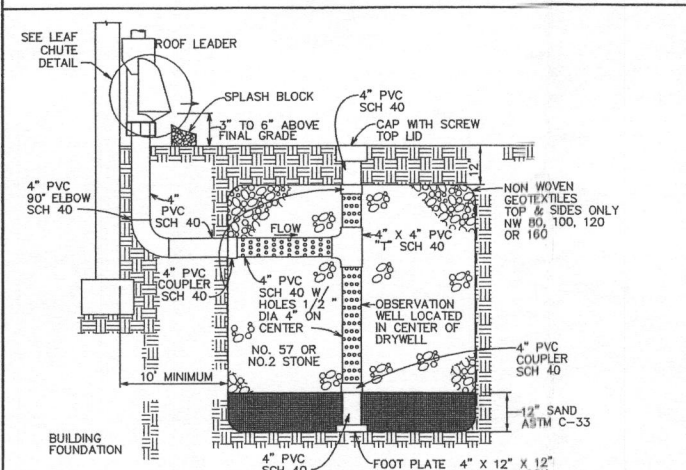
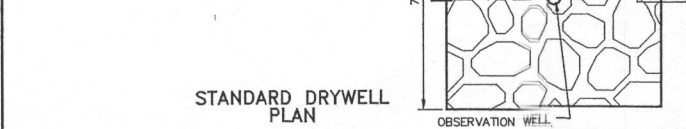
D.R.S. & ASSOCIATES
 LAND DESIGN CONSULTANTS
 52 WINTERS STREET WESTMINSTER, MARYLAND 21157
 410-848-4060 410-876-6040 F. 410-848-8818

| REV. NO. | DATE | BY | DESCRIPTION | DATE: 2015-10-13 |
|----------|------------|---------|--|------------------|
| 1 | 2015-12-02 | DRS/jfs | PER HOWARD COUNTY HEALTH DEPARTMENT 2015-11-16 | SCALE: N/A |
| | | | | SHT. NO.: 2 OF 2 |
| | | | | DWG.: WS01-01 |

COPYRIGHT 2015 BY D.R.S. & ASSOCIATES
 This document is work product of DRS & Associates and may not be copied, used, published or disseminated in whole or in part in any manner without the written permission of DRS & Associates, except by governmental agencies having jurisdiction, once received and accepted.

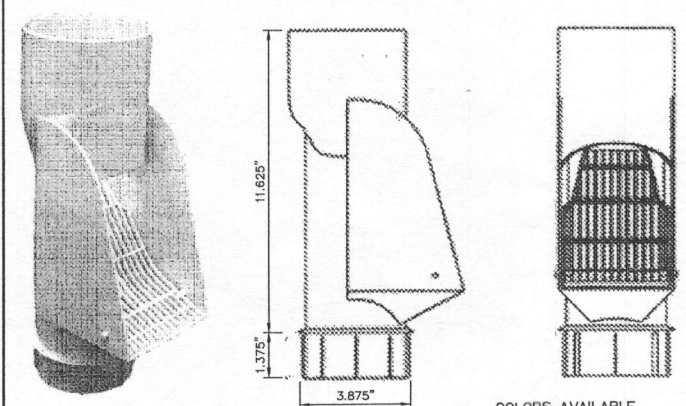
KBE - 03217-97674 - WS01-01-10004SH02Rev1.plt - 12-23-2015 - 11:08
 I:\CAD\0321797674\WS01-01.DWG, L0004SH02Rev1, 2015-12-23 9:03:28 AM, jfs

Volume Provide = 7x7.5 (0.40) = 98.00 ft.³



- Notes:
- If using one drywell for entire house, the standard drywell size is 10'x10'x8' with sand filling the bottom foot. This provides adequate stormwater control for 2000 square feet of rooftop.
 - Minimum Setbacks:
 - 100ft from wells
 - 25ft from septic areas
 - 10ft from buildings
 - All downspouts must drain to the drywell with at least 6" of cover.
 - The locations and size of all drywells are shown on plan view.
 - These geotextiles are available in Finksburg @ ES&G Distributors 2601 Emory Rd, Bldg 8, 866-744-5001, any equivalent geotextile is acceptable.

Leaf Chute is fitted at the bottom of the downspout directly above the ground pipe. Water flows straight through while leaves and debris are washed out onto the ground keeping your ground pipes flowing freely.



WORLD GUTTER SYSTEMS®
436 West 12th Street
Erie, PA 16501
Phone: (814)455-7430
Fax: (814)464-8388

| COLOR | PART NUMBER |
|----------------------|-------------|
| Antique White | WT3SCHUT |
| Anthractive Metallic | AM3SCHUT |
| Silver Metallic | SM3SCHUT |
| Dark Bronze | DB3SCHUT |
| Royal Brown | BN3SCHUT |

DRYWELL SEQUENCE OF CONSTRUCTION

- Once the individual house has been constructed and the final lot grading is complete contact the certify professional engineer/professional land surveyor DRS & Associates 410-848-4060. Once the certifying professional has given his/her approval proceed as follows.
- Construct drywell and connect to downspout per standard details under supervision of certifying professional.
- Submit as-built certification for bond release.

DRYWELL INSPECTION CHART

| STAGE | DEVELOPER'S/ENGINEER'S APPROVAL INITIALS | DATE |
|--------------------------------|--|------|
| 1. CHECK PROPER SIZE AND DEPTH | | |
| 2. CHECK SAND TYPE AND DEPTH | | |
| 3. CHECK GEOTEXTILE | | |
| 4. CHECK DOWNSPOUT CONNECTION | | |
| 5. CHECK OBSERVATION WELL | | |

DEVELOPER'S / LANDOWNER'S CERTIFICATION

I/We hereby certify that all proposed work shown in these construction drawing(s) will be conducted in strict accordance with these plans. I/We also understand that it is my/our responsibility to have the construction supervised and certified, including the submittal of "As-Built" plans certified by a registered Professional Engineer with in thirty (30) days of completion of work on the stormwater management facility/facilities. I/We also certify that this/these stormwater management facility/facilities will be inspected during construction by a Registered Professional Engineer. In accordance with Howard County Code.

Signed: _____ Date _____

ENGINEER'S DESIGN CERTIFICATION

I hereby certify that these plans have been designed according to Howard County Code and I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the State of Maryland.

Signed: _____ Date _____
License No. _____
Expiration Date _____

ENGINEER'S "AS-BUILT" CERTIFICATION

I/We hereby certify that the facility shown in these plan(s) was constructed as shown on the "As-Built" plans and meets the approved plans and specifications. I also certify that this/these facilities were inspected in accordance with Howard County and I hereby certify that these documents were prepared or approved by me, and I am duly licensed professional engineer under the laws of the State of Maryland.

Signed: _____ Date _____
License No. _____
Expiration Date _____

- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current Maryland Standards and Specifications for soil erosion and sediment control and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around the perimeter in accordance with Vol. 1, Chapter 12, of the Howard County Design Manual, Storm Drainage.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for Permanent Seeding (sec. 54), Temporary Seeding (Sec. 50), and Mulching (sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

| | |
|------------------------------------|---------------|
| Total Area of Site | 0.96527 Acres |
| Area Disturbed | 0.86217 Acres |
| Area to be roofed or paved | 0.11653 Acres |
| Area to be vegetatively stabilized | 0.74564 Acres |
| Total Cut | 556 Cu. Yards |
| Offsite Waste/Borrow Area Location | N/A |
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized within one working day, whichever is shorter.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation:
Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments:
Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.).

Seeding:
For the periods March 1 through April 30, and August 15 through November 15, seed with 1 1/2 bushels per acre of annual rye (3.2 lbs./1000 sq. ft.). For the period of May 1 thru August 14, seed with 3 lbs./acre of weeping lovegrass (0.7 lbs./1000 sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching:
Apply 1 1/2 to 2 tons per acre (70 to 90 lbs./1000 sq. ft.) of rotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq. ft.) for anchoring.

Refer to the 1988 Maryland Standards and Specification for Soil Erosion and Sediment Control for rate and methods not covered.

PERMANENT SEEDING NOTES

All disturbed areas shall be stabilized as follows:

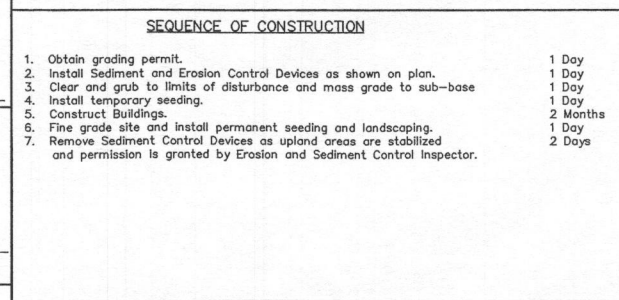
Seedbed Preparation:
Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

Soil Amendments:
Apply two tons per acre dolomitic limestone (92 lbs./1000 sq. ft.) and 600 lbs. per acre 0-20-20 fertilizer (14 lbs./1000 sq. ft.). Before seeding harrow or disc into upper 3 inches of soil. At time of seeding, apply 400 lbs. per acre 38-0-0 ureaform fertilizer (9 lbs./1000 sq. ft.) and 500 lbs. per acre (11.5 lbs./1000 sq. ft.) of 10-20-20 fertilizer.

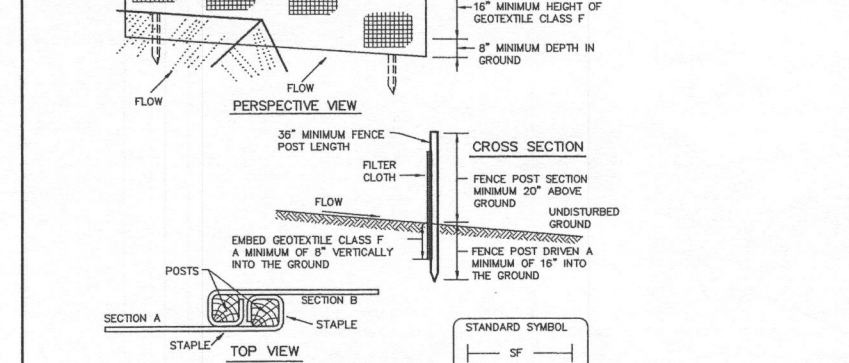
Seeding:
For the periods March 1 through April 30, and August 1 through October 15, seed with 100 lbs. per acre (2.3 lbs./1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period of May 1 thru July 31, seed with 60 lbs./acre (1.4 lbs./1000 sq. ft.) Kentucky 31 Tall Fescue and 2 lbs. per acre (0.05 lbs./1000 sq. ft.) of weeping lovegrass. During the period of October 16 thru February 28, protect site by:
Option 1) Applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring.
Option 2) Use sod.
Option 3) Seed with 100 lbs./acre Kentucky 31 Tall Fescue and mulch with two tons/acre well anchored straw. All slopes should be hydroseeded.

Mulching:
Apply 1 to 2 tons per acre (45 to 90 lbs./1000 sq. ft.) of rotted small grain straw immediately after seeding. Anchor mulch immediately after application using 200 gallons per acre (5 gal./1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal./1000 sq. ft.) for anchoring.

Maintenance:
Inspect all seeded areas and make needed repairs, replacements and reseedings.

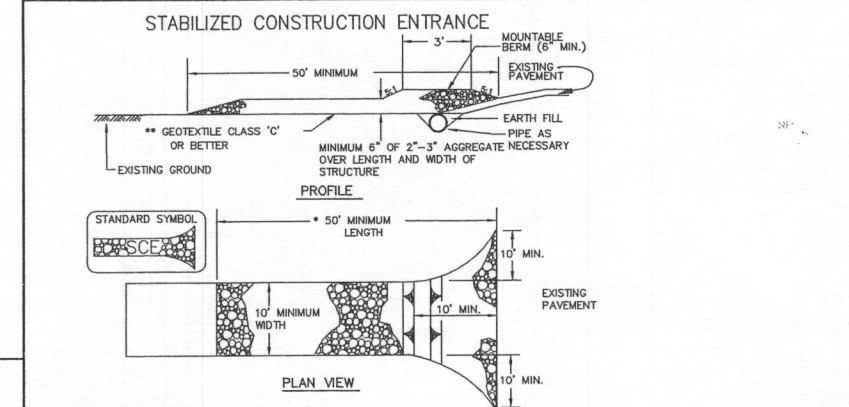


DRIVEWAY PAVING DETAIL
LOOKING USE-IN-COMMON DRIVEWAY TO HOUSE
NOT TO SCALE



- JOINING TWO ADJACENT SILT FENCE SECTIONS**
- Construction Specifications**
- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot.
 - Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

| | | |
|----------------------|----------------------------|----------------|
| Tensile Strength | 50 lbs/in (min.) | Test: MSMT 509 |
| Tensile Modulus | 20 lbs/in (min.) | Test: MSMT 509 |
| Flow Rate | 0.3 gal./ft./minute (max.) | Test: MSMT 322 |
| Filtering Efficiency | 75% (min.) | Test: MSMT 322 |
 - Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
 - Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.



- Construction Specification**
- Length - minimum of 50' (*30' for single residence lot).
 - Width - 10' minimum, should be flared at the existing road to provide a turning radius.
 - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
 - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 - Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

TOPSOIL SPECIFICATIONS

Soil to be used as topsoil must meet the following:
Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting texture subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash or other materials larger than 1 1/2" in diameter.

Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, johnsongrass, nutsedge, poison ivy, thistle or others as specified.

Where the topsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 lbs./1000 sq. ft.) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations.

ENVIRONMENTAL CONCEPT PLAN/SITE PLAN
KITTLEMAN PROPERTY
LOT 4

BUILDER
Castle Rock Builders
2159 White Street, Suite 3
York, PA 17404
717-395-9626

OWNER
Samantha Reigel
3000 Kittleman Lane
West Friendship MD 21794

MAP 15 BLOCK 15 PARCEL 271
ZONED RC-DEO PLAT NO. 20766 & 20767
3RD ELECTION DISTRICT 3014 KITTLEMAN DRIVE HOWARD COUNTY, MARYLAND

D.R.S. & ASSOCIATES
LAND DESIGN CONSULTANTS
52 WINTERS STREET WESTMINSTER, MARYLAND 21157
410-848-4060 410-876-6040 F. 410-848-8818

| REV.No. | DATE | BY | DESCRIPTION | DATE: 2015-10-13 |
|---------|------------|---------|----------------------|------------------|
| 2 | 2015-12-04 | DRS/jfs | PER HCERD 2015-12-01 | SCALE: N/A |
| | | | | SHT.NO. : 2 OF 2 |
| | | | | DWG.: ST01-01 |

COPYRIGHT©2015 BY D.R.S. & ASSOCIATES
This document is work product of DRS & Associates and may not be copied, used, published or disseminated in whole or in part in any manner without the written permission of DRS & Associates.