

**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: 3/23/17 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 5200580

APPROVAL DATE: 7/25/17 **PERMIT: CONSTRUCTION**

A \_\_\_\_\_

PROPERTY ADDRESS: 2037 Drovers Lane

SUBDIVISION: Vista Ridge LOT: 17 TAX ID: 04-595482

CONTRACTOR: Fogel's EMAIL: \_\_\_\_\_

CONTRACTOR ADDRESS: 580 Obrecht Road PHONE: \_\_\_\_\_

PROPERTY OWNER: DR Horton, Inc. EMAIL: \_\_\_\_\_

OWNER ADDRESS: 1356 Beverly Road, Suite 300 PHONE: 800-551-5015

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Mayer Bros, Inc

PUMP MODEL: \_\_\_\_\_ PUMP SIZE \_\_\_\_\_ PUMP TANK CAPACITY: \_\_\_\_\_

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

TRENCHES:	LINEAR FEET REQUIRED: <u>208</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>7.5</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>6.5</u>
LOCATION:	PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:		

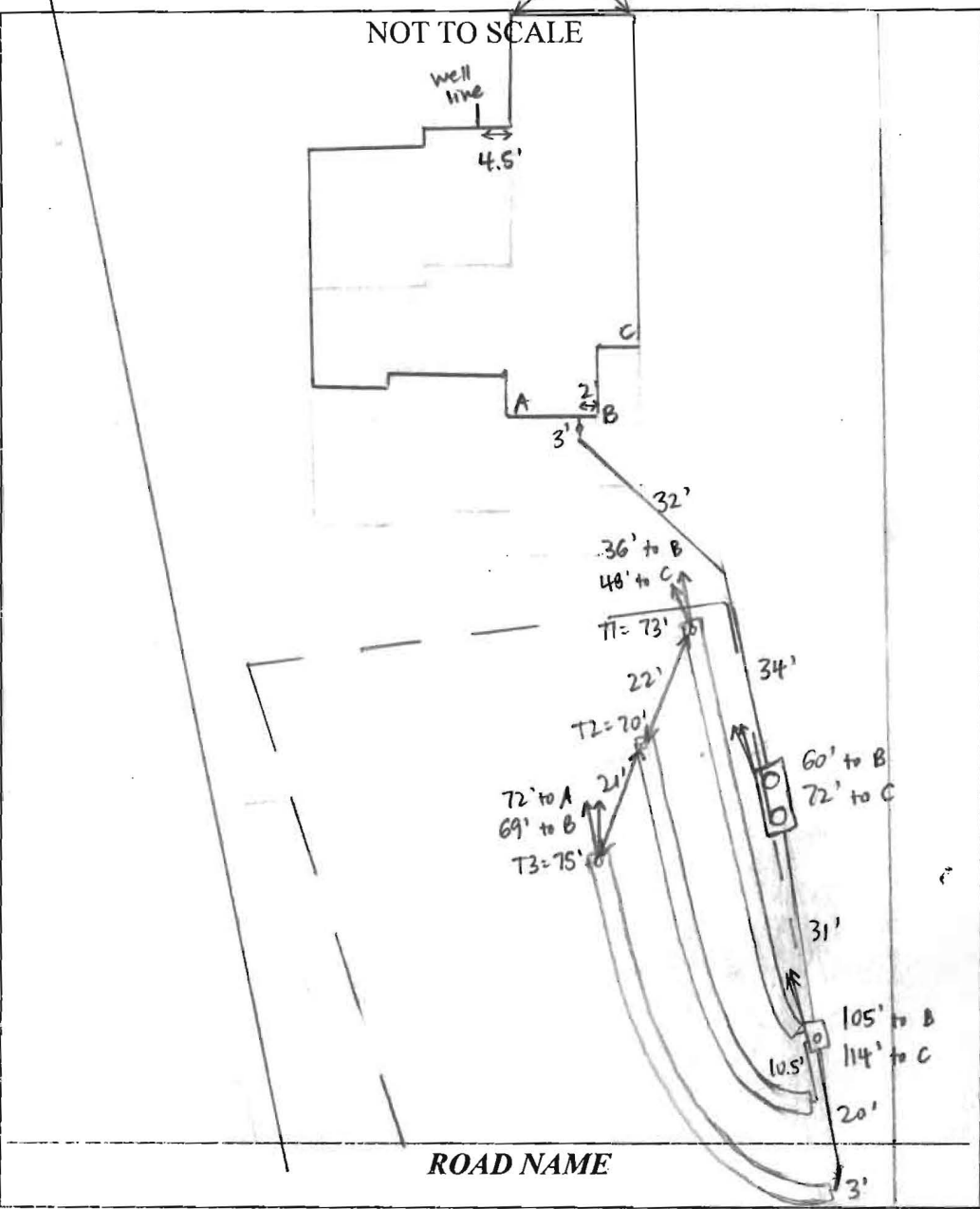
ISSUED BY: Hank Oswald ISSUE DATE: 3/23/17 EXPIRATION DATE: 3/23/18

- 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 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 \_\_\_\_\_
- 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.**

H0-95-2392

NOT TO SCALE



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
3'	4'	7.5'
NUMBER OF TRENCHES	3	
TOTAL LENGTH	218'	
ABSORPTION AREA	654' + SIDEWALL	
DISTRIBUTION BOX LEVEL	YES	
DISTRIBUTION BOX BAFFLE	YES	
DISTRIBUTION BOX PORT	YES	

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	BABYLON
CAPACITY	2000 GAL
SEAM LOC	TOP
TANK LID DEPTH	2-2.5'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT - REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	YES
DATE ON LID	6-7-17
<del>PUMP/SEPTIC TANK LEVEL</del>	
MANUFACTURER	
CAPACITY	GAL
SEAM LOC	
TANK LID DEPTH	
BAFFLES	
BAFFLE FILTER	
MANHOLE LOC	
6" PORT LOC	
WATERTIGHT TEST	
SLOTTED	
DATE ON LID	

PRE-CONSTRUCTION:

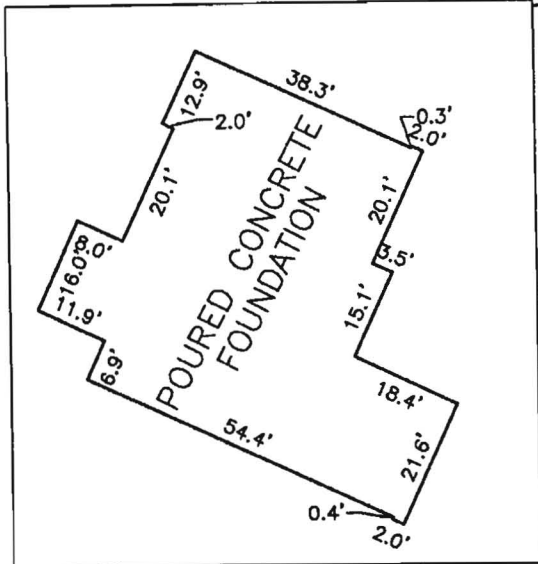
3/28/17 Met Fogle's on site for layout. All SDA corner stakes present. Shot contour + laid out 3-70' trenches. Sewer line comes out under footer - will not make fall to tank with  $\leq 3'$  cover. Builder will have sewer line hung in basement. Also spoke with builder about moving tank outside SE corner of SDA - okay to move. Fogle's may install trenches but no tank install until sewer line is hung. (S) 7/12/17 on site for tank layout. SDA + area around overgrown - must clear before layout. Plumbing in basement now hung sewer. May

INSTALLATION:

need to re-layout trenches if some flags are missing. (S) 7/13/17 Area cleared + flags from 3/28 trench layout still present. Fogle's will set tank in area shown on plan, somewhat in upper SDA to save trees. Shift trenches down a few feet to keep 5' from edge of tank to trench. (S) 7/14/17 Tank set, line run from house to tank but house connection not made. T1 installed + left open @ ends, T2 finished + left open for inspection. Starts of trenches not as laid out + per plan - Fogle's says they shot contour + beginning of trenches wrapped around. Not using laser to dig, no laser on site. Used transit to check contour @ start + 15' in - within 2", depths 8', 7.5', respectively. [See pg. 2]

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 7/25/17

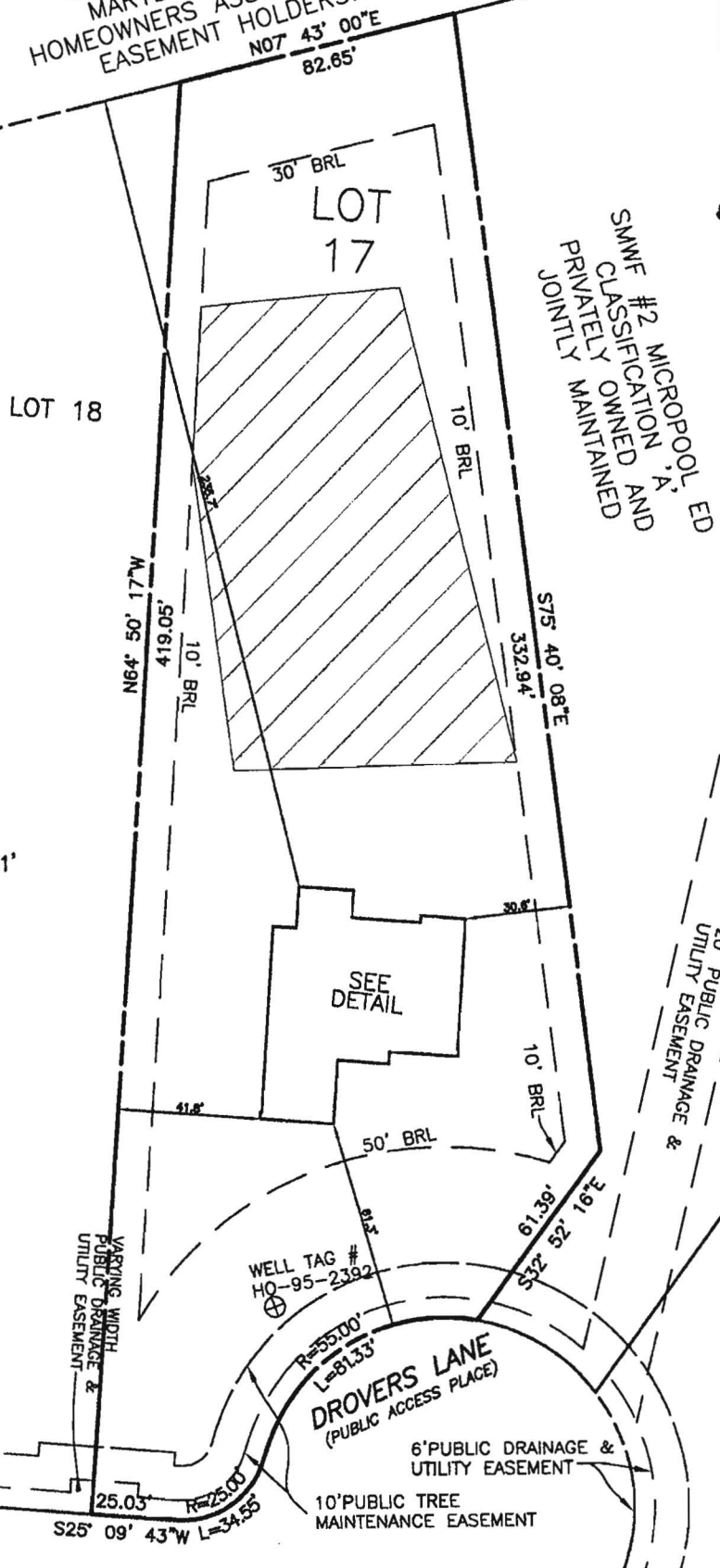
PART OF PRESERVATION  
 PARCEL 'C' RESIDENTIAL USES  
 ENVIRONMENTAL PRESERVATION  
 EASEMENT, PRIVATELY OWNED  
 WITH HOWARD COUNTY,  
 MARYLAND AND THE  
 HOMEOWNERS ASSOCIATION AS  
 EASEMENT HOLDERS.



FOUNDATION DETAIL  
 SCALE: 1" = 30'

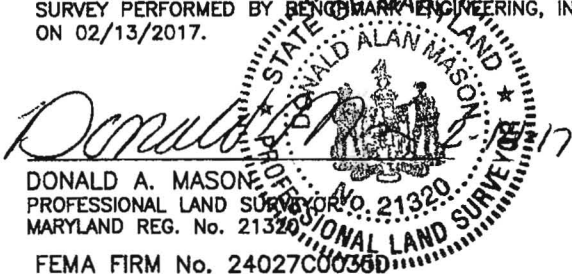
TOP OF FOUNDATION WALL = 630.5'  
 OFFSET DIMENSIONS TO PROPERTY LINES ARE ± 0.1'

3/23/17 - wall  
 check okay  
 H.O.



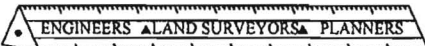
**SURVEYOR'S CERTIFICATE**

I HEREBY CERTIFY THAT THESE DOCUMENTS, WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21320, EXPIRATION DATE 1-7-2019 AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION AND BELIEF, THAT THE DIMENSIONS OF THE BUILDING WALLS SHOWN HEREON ARE CORRECT; THAT THEY ARE BASED ON A FIELD RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON 02/13/2017.



DONALD A. MASON  
 PROFESSIONAL LAND SURVEYOR NO. 21320  
 MARYLAND REG. No. 21320  
 FEMA FIRM No. 24027C0036D  
 ZONE: X  
 DATED: 11/06/2013

**BENCHMARK**



ENGINEERING, INC.

8480 BALTIMORE NATIONAL PIKE & SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 (P) 410-465-6105 & (F) 410-465-6644

WWW.BEI-CIVILENGINEERING.COM

**WALL CHECK**

VISTA RIDGE  
 A RESUBDIVISION OF LOTS 1-4,  
 CREATING LOTS 5 THRU 21, AND  
 PRESERVATION PARCELS "A"  
 THROUGH "D"  
 PLAT No. 22434  
 LOT No. 17

2038 DROVERS LANE

4TH ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

FIELD OBS. BY DAM  
 COMP. BY DAM  
 DRAWN BY EWF SCALE: 1" = 50' DATE: 02/13/2017

**Freemon, Robert**

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**From:** John Carney <jcarney@bei-civilengineering.com>  
**Sent:** Wednesday, January 04, 2017 3:17 PM  
**To:** Freemon, Robert  
**Subject:** RE: Vista Ridge Lots 11,13,17

Robert, That note sounds fine. Thanks, John

**From:** Freemon, Robert [<mailto:rfreemon@howardcountymd.gov>]  
**Sent:** Wednesday, January 04, 2017 3:12 PM  
**To:** John Carney <jcarney@bei-civilengineering.com>  
**Subject:** Vista Ridge Lots 11,13,17

Hey John,

On the OSDS plans for Vista Ridge Lots 11, 13 & 17 (2038, 2046, 2037 Drovers Lane) I would like to red line the note: "The maximum earth cover over the tank is 3 feet. Greater earth cover will require a heavy load bearing tank". Would you be ok with this?

**Robert Freemon**

**Howard County Health Department**

**8930 Stanford Blvd. Columbia, MD 21045**

**Well and Septic Program**

**Bureau of Environmental Health**

**Phone: 410-313-6357**

**Email: [rfreemon@howardcountymd.gov](mailto:rfreemon@howardcountymd.gov)**

**<https://www.howardcountymd.gov/Departments/Health/Environmental-Health/Well-and-Septic>**

## Oswald, Hank

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**From:** Oswald, Hank  
**Sent:** Thursday, November 17, 2016 9:42 AM  
**To:** John Carney (jcarney@bei-civilengineering.com)  
**Subject:** BAT Plan\_Vista Ridge Lot 17\_2037 Drovers Lane

Hi John:

The BAT Plan for 2037 Drovers Lane has been approved.

As you may know, there will be an amendment to the septic regulations requiring the use of best available nitrogen removal technology (BAT) for septic systems . BAT units may no longer be required on most lots in non-critical areas. These changes will be going into effect on 11/24/16. With that said, should the owner decide to eliminate the BAT unit and go with a traditional tank for this 6 bedroom house, a revised septic plan will be required detailing this change prior to septic permit issuance.

Should you have any questions about this, please don't hesitate to ask.

Respectfully,

Hank

Hank Oswald, L.E.H.S.  
Howard County Health Department  
Bureau of Environmental Health  
Well & Septic Program  
8930 Stanford Boulevard  
Columbia, MD 21045  
410.313.1786 (Office)  
410.313.2648 (Fax)

## John Carney

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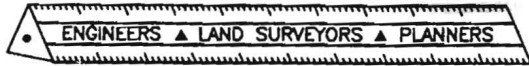
**From:** Michael A. Hickey <MAHickey@drhorton.com>  
**Sent:** Monday, December 19, 2016 9:08 AM  
**To:** jcarney@bei-civilengineering.com  
**Cc:** mdbldgpermits  
**Subject:** Septic systems

After talking to fogels we want to do standard systems on lots 11,13,17.

John can you call me 5714240863  
Sent from my Windows 10 phone



# BENCHMARK



## ENGINEERING, INC.

8480 Baltimore National Pike • Suite 315 • Ellicott City, Maryland 21043  
 410-465-6105 410-465-6644 (Fax)

### LETTER OF TRANSMITTAL

TO: Health Dept

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DATE	<u>12/21/16</u>	PROJECT No.	<u>1635</u>
ATTENTION	<u>Robert Freeman</u>		
RE:	<u>Vista Ridge</u>		

WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following item

Photocopies       Prints       Originals       Samples  
 Specifications       Invoices       Change Order       Other \_\_\_\_\_

COPIES of	No. of SHEETS	DESCRIPTION
<u>3</u>	<u>2</u>	<u>Revised Septic Plan Lot 11</u>
<u>3</u>	<u>2</u>	<u>Revised Septic Plan Lot 13</u>
<u>3</u>	<u>2</u>	<u>Revised Septic Plan Lot 17</u>
<u>1</u>	<u>1</u>	<u>letter from carrier requesting change to standard Septic</u>

THESE ARE TRANSMITTED as checked below

- For Comment       For your use       For Approval  
 For Review       As requested       Other \_\_\_\_\_

REMARKS:

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COPY TO: \_\_\_\_\_  
 RECEIVED BY: [Signature]

SIGNED: [Signature]

If enclosures are not as noted, kindly notify us at once.

# BENCHMARK



## ENGINEERING, INC.

8480 Baltimore National Pike • Suite 315 • Ellicott City, Maryland 21043  
 410-465-6105 410-465-6644 (Fax)

### LETTER OF TRANSMITTAL

TO: Heath

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE	<u>11/2/16</u>	PROJECT No.	<u>1635</u>
ATTENTION			
RE: <u>Vista Ridge Lot 17</u>			
<u>2037 Drovers Ln</u>			

WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following items

Photocopies     Prints     Originals     Samples  
 Specifications     Invoices     Change Order     Other \_\_\_\_\_

COPIES of	No. of SHEETS	DESCRIPTION
<u>3</u>	<u>2</u>	<u>BAT Site Plan</u>
<u>1</u>	<u>1</u>	<u>Architectural Plans</u>

THESE ARE TRANSMITTED as checked below

For Comment     For your use     For Approval  
 For Review     As requested     Other \_\_\_\_\_

REMARKS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

COPY TO: \_\_\_\_\_

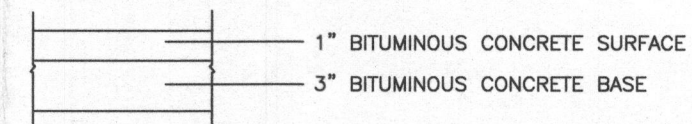
RECEIVED BY: AK

If enclosures are not as noted, kindly notify us at once.

SIGNED: John Carney

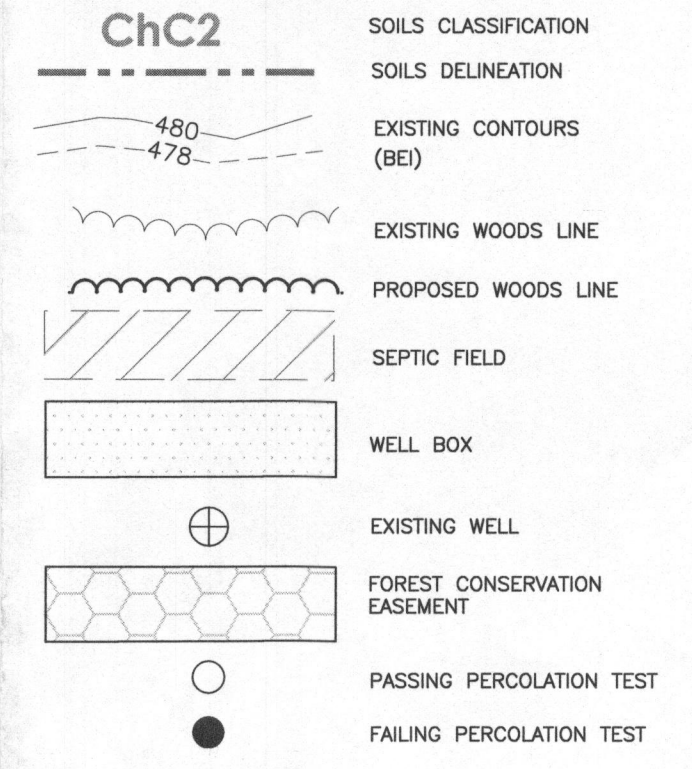
SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GnB2	C	GLENVILLE, SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
-	-	-

\* INDICATES HYDRIC SOILS  
TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 33



**PAVING SECTION**  
NOT TO SCALE

**LEGEND**



Approved Septic System Plan  
Howard County Health Department  
*[Signature]* 1/5/2017  
Signature Date  
(Approved for 6BR as per Floor Plan)



- BUILDING PERMIT PLAN NOTES:**
- THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR VISTA RIDGE, PLAT Nos. 22430-22435. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
  - SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
  - TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY ACCUBID, INC., ON OR ABOUT JUNE 27, 2013.
  - ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
  - ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
  - THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
  - ANY CHANGES TO A PRIVATE SEWAGE EASEMENT OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  - STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED TO BE PROVIDED BY BOTH POND #1, A POCKET POND, AND IN POND #2, A MICROPOOL ED POND.
  - THE EXISTING WELL SHOWN ON THIS PLAN, HO-95-2392, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
  - EXACT LENGTH OF SEPTIC TRENCHES ARE TO BE DETERMINED BY THE HEALTH DEPARTMENT AT THE TIME OF TRENCH LAYOUT AND INSPECTION.
  - SPOIL FROM THE TRENCHING OF THE SEPTIC AREA IS TO BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION FOR EACH INDIVIDUAL LOT.
  - THE SEPTIC DISPOSAL SYSTEM FOR THIS LOT REQUIRES A SEPTIC TANK IN ACCORDANCE WITH COMAR REGULATIONS. TANK IS TO BE 2000 GALLON TWO COMPARTMENT TANK.

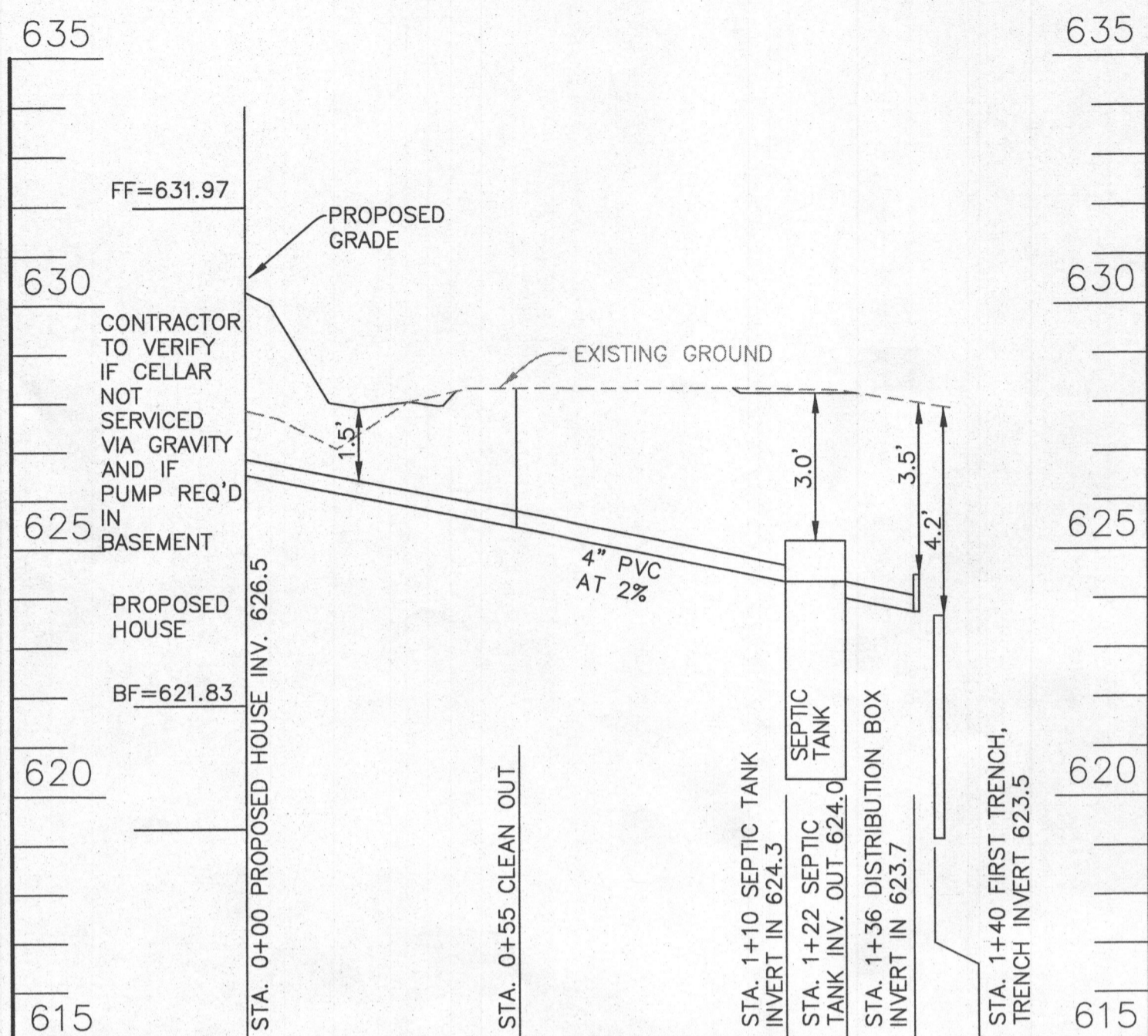
*13. The maximum earth cover over the tank is 8ft. Greater earth cover will require a heavy load bearing tank.*

- INV. OUT OF HOUSE
- INV. IN TANK
- INV. OUT SEPTIC TANK
- TOP OF SEPTIC TANK
- GROUND OVER SEPTIC TANK
- INV. IN PUMP TANK
- INV. OUT PUMP TANK
- TOP OF PUMP TANK
- GROUND OVER PUMP TANK
- INV. INTO BOX
- INV. OUT OF BOX
- GROUND AT BOX

**PLAN VIEW**  
1" = 30'

THIS PLAN IS FOR SEPTIC DESIGN ONLY

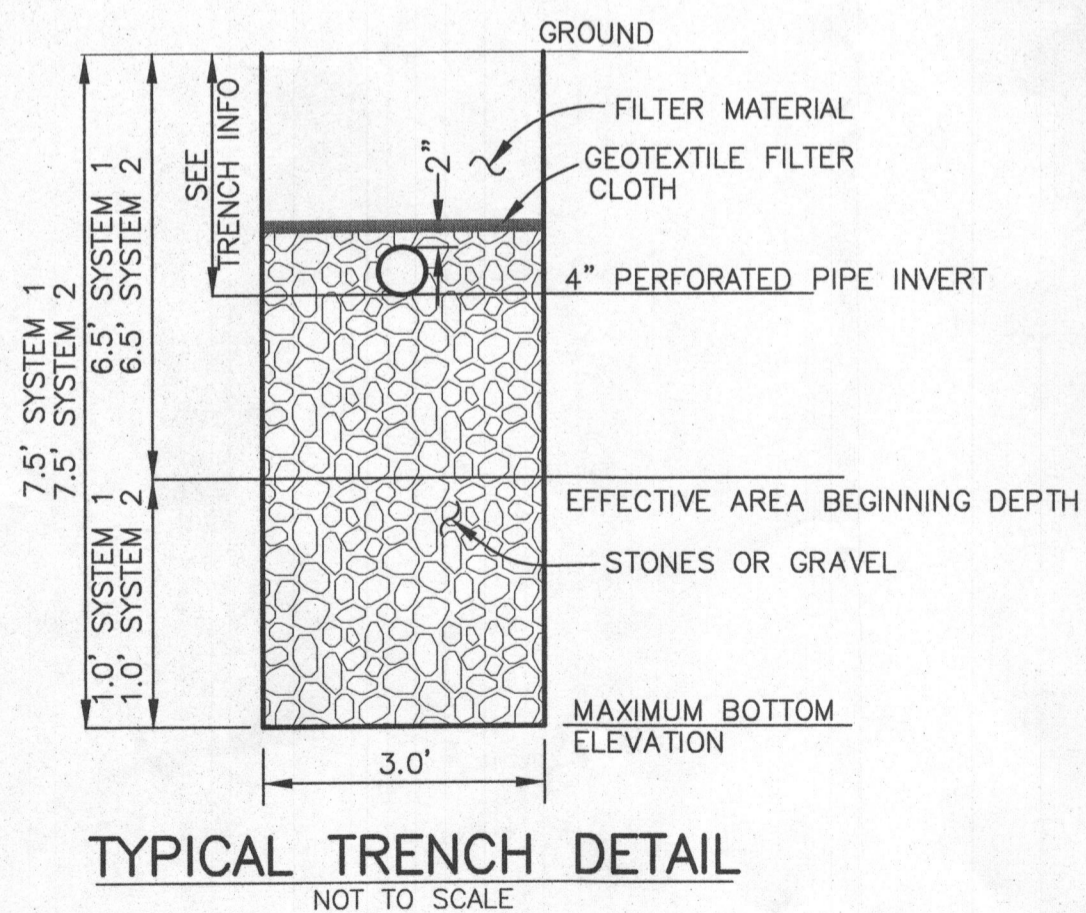
<p align="center"><b>BENCHMARK</b> ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS <b>ENGINEERING, INC.</b></p> <p align="center">8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 ▲ FAX: 410-465-6644 BEI@BEI-CIVILENGINEERING.COM</p>		<p>Professional Certification. I hereby 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. 45577, Expiration Date: 06-08-2018.</p>	
		<p>OWNER/BUILDER: DR HORTON, INC. 1356 BEVERLY ROAD SUITE 300 MCLEAN, VA 22101 PHONE: 571-723-0813 FAX: 800-551-5015</p>	<p>PROJECT: <b>VISTA RIDGE LOT 17</b></p>
<p>LOCATION: 2037 DROVERS LANE COOKSVILLE, MD 21723 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND TAX ID NUMBER 04-595482</p>		<p>TITLE: SEPTIC SITE PLAN</p>	
<p>HOUSE TYPE: GLEN ABBY</p>		<p>DATE: OCTOBER, 2016 DECEMBER 20, 2016</p>	
<p>DESIGN: JMC</p>		<p>PROJECT NO. 1635</p>	
<p>DRAFT: JMC</p>		<p>SCALE: 1" = 30'</p>	
<p>GRID NORTH</p>		<p>DRAWING 1 OF 2</p>	



SEWER PROFILE - LOT 17  
SCALE: VERTICAL 1"=3', HORIZONTAL 1"=30'

**TRENCH INFORMATION**

TRENCH	LENGTH	GROUND ELEVATION	INVERT ELEVATION	MAX. BOTTOM ELEV.
TRENCH 1-1	70 LF	627.9	623.5	620.4
TRENCH 1-2	70 LF	627.2	623.3	619.7
TRENCH 1-3	70 LF	626.6	623.1	619.1
TRENCH 2-1	70 LF	625.8	622.8	618.3
TRENCH 2-2	70 LF	625.1	622.1	617.6
TRENCH 2-3	70 LF	624.4	621.4	616.9



TYPICAL TRENCH DETAIL  
NOT TO SCALE

INITIAL SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
Linear Length of trench Required	208	lf

1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
Linear Length of trench Required	208	lf

Approved Septic System Plan  
Howard County Health Department  
*[Signature]*  
Date: 1/5/17

**DESIGN DATA & GENERAL NOTES**

- Concrete strength  $f_c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.
- Concrete - Portland Type III per ASTM C 150-92.
- Admixtures & plasticizers per ASTM C 260-98 & C 494-92.
- Reinforcing per ASTM A185. Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, 4" base, & 6" top thickness.
- Max 3" of cover.
- Depending on use of tank, Inlet & Outlet baffle may be required by code.

**Mayer Bros., Inc.**  
6264 Race Road, Elkridge, Maryland 21075  
Tel. 410.796.1434 Fax. 410.796.1438  
www.mayerbrosprecast.com

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

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

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS.  
WWW.MAYERPRECAST.COM  
EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER.

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. 45577, Expiration Date: 06-08-2018.

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
BEI@BEI-CIVILENGINEERING.COM

**OWNER/BUILDER:**  
DR HORTON, INC.  
1356 BEVERLY ROAD  
SUITE 300  
McLEAN, VA 22101  
PHONE: 571-723-0813  
FAX: 800-551-5015

**PROJECT:**  
**VISTA RIDGE**  
LOT 17

**LOCATION:**  
2037 DROVERS LANE  
COOKSVILLE, MD 21723  
TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176  
4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
TAX ID NUMBER 04-595482

**TITLE:** SEPTIC PLAN

**HOUSE TYPE:** GLEN ABBEY

**DATE:** OCTOBER, 2016  
DECEMBER 20, 2016

**PROJECT NO.:** 1635

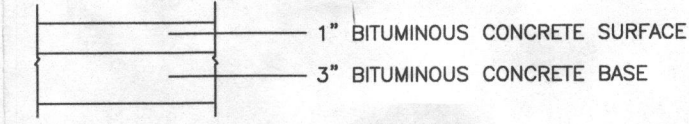
**SCALE:** 1" = 30'

**DRAWING:** 2 OF 2

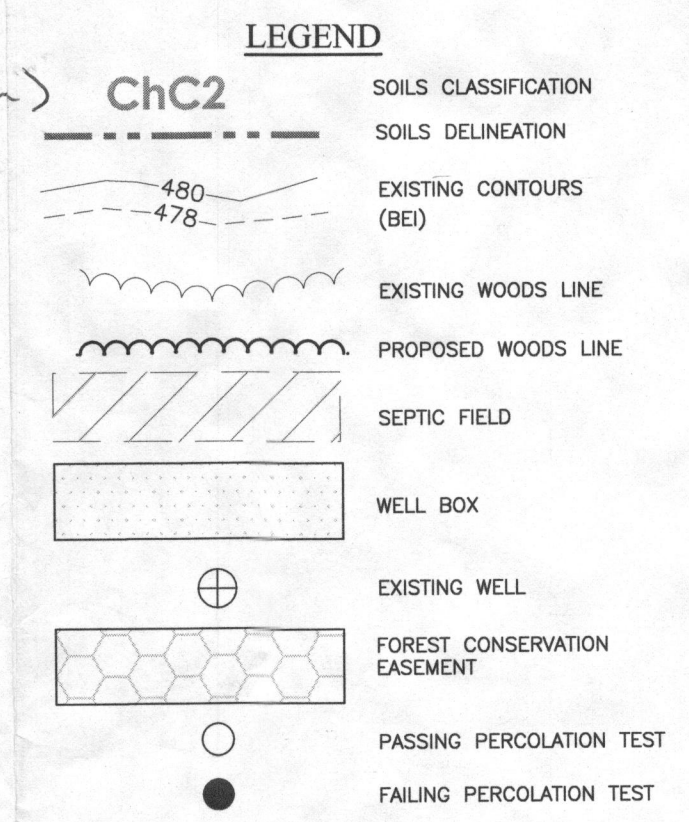
THIS PLAN IS FOR SEPTIC DESIGN ONLY

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GnB2	C	GLENVILLE, SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
-	-	-

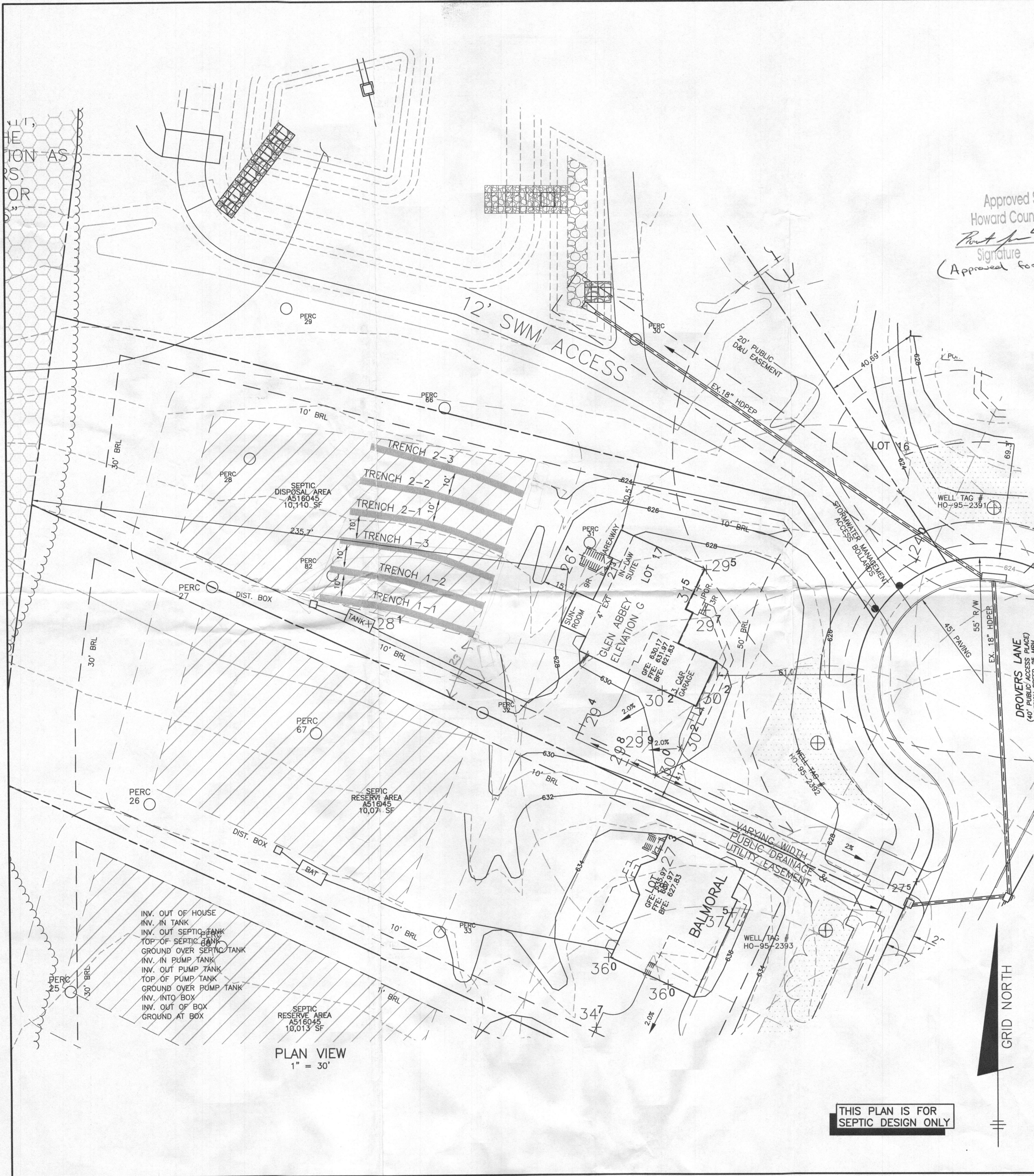
\* INDICATES HYDRIC SOILS  
 TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 33



FULL DEPTH BITUMINOUS CONCRETE  
**PAVING SECTION**  
 NOT TO SCALE



Approved Septic System Plan  
 Howard County Health Department  
*Paul J. ...* 1/5/2017  
 Signature Date  
 (Approved for 12' SWM ACCESS per Floor Plan)



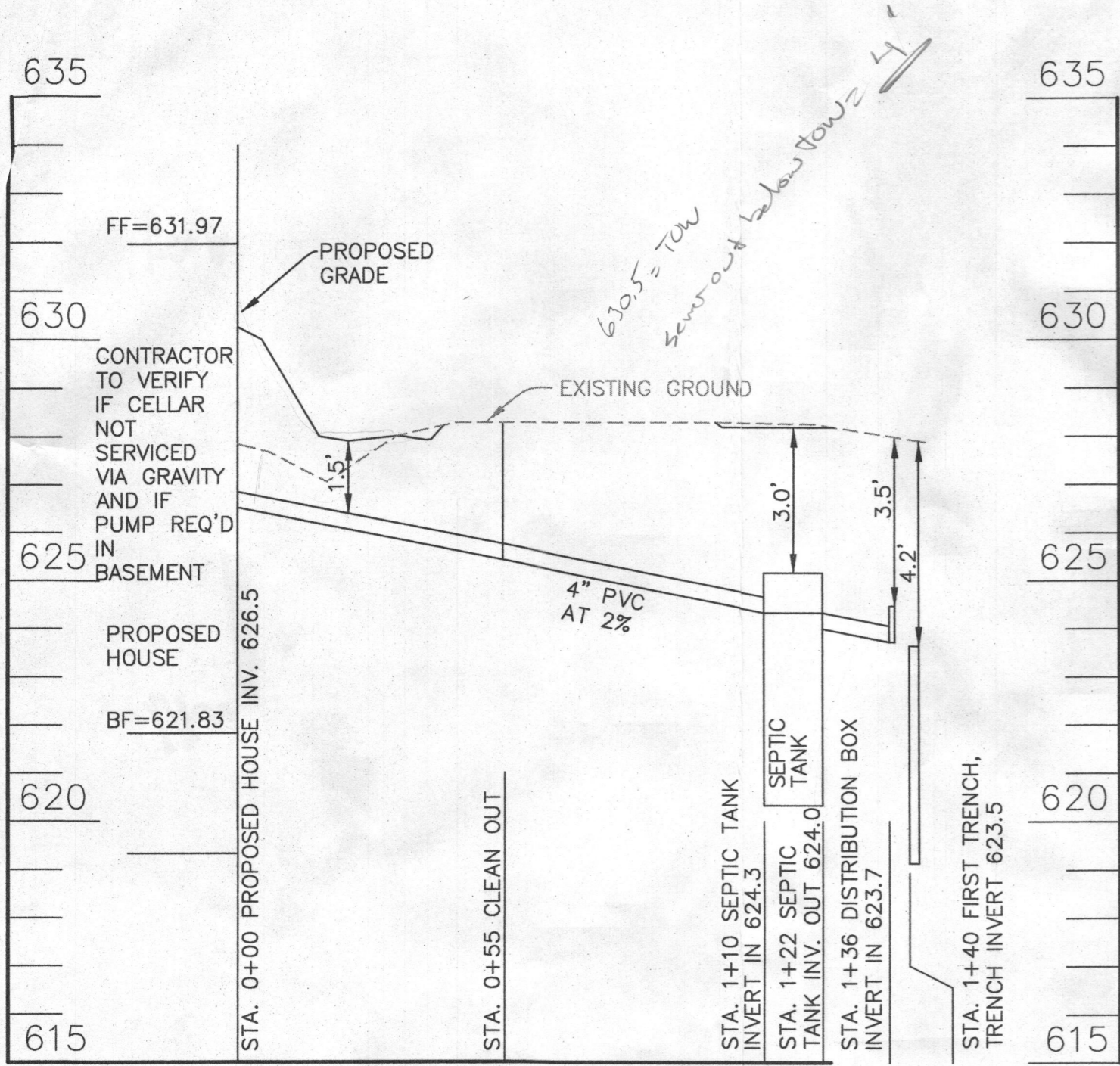
- BUILDING PERMIT PLAN NOTES:**
1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR VISTA RIDGE, PLAT Nos. 22430-22435. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
  2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
  3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY ACCUBID, INC., ON OR ABOUT JUNE 27, 2013.
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  5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
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  7. ANY CHANGES TO A PRIVATE SEWAGE EASEMENT OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  8. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED TO BE PROVIDED BY BOTH POND #1, A POCKET POND, AND IN POND #2, A MICROPOOL ED POND.
  9. THE EXISTING WELL SHOWN ON THIS PLAN, HO-95-2392, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
  10. EXACT LENGTH OF SEPTIC TRENCHES ARE TO BE DETERMINED BY THE HEALTH DEPARTMENT AT THE TIME OF TRENCH LAYOUT AND INSPECTION.
  11. SPOIL FROM THE TRENCHING OF THE SEPTIC AREA IS TO BE PLACED ON THE UPHILL SIDE OF THE EXCAVATION FOR EACH INDIVIDUAL LOT.
  12. THE SEPTIC DISPOSAL SYSTEM FOR THIS LOT REQUIRES A SEPTIC TANK IN ACCORDANCE WITH COMAR REGULATIONS. TANK IS TO BE 2000 GALLON TWO COMPARTMENT TANK.
- 15. The maximum earth cover over the tank is 3ft. Greater earth cover will require a heavy load bearing tank.*

**BENCHMARK**  
 ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
 BEI@BEI-CIVILENGINEERING.COM

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. 45577, Expiration Date: 06-08-2018.

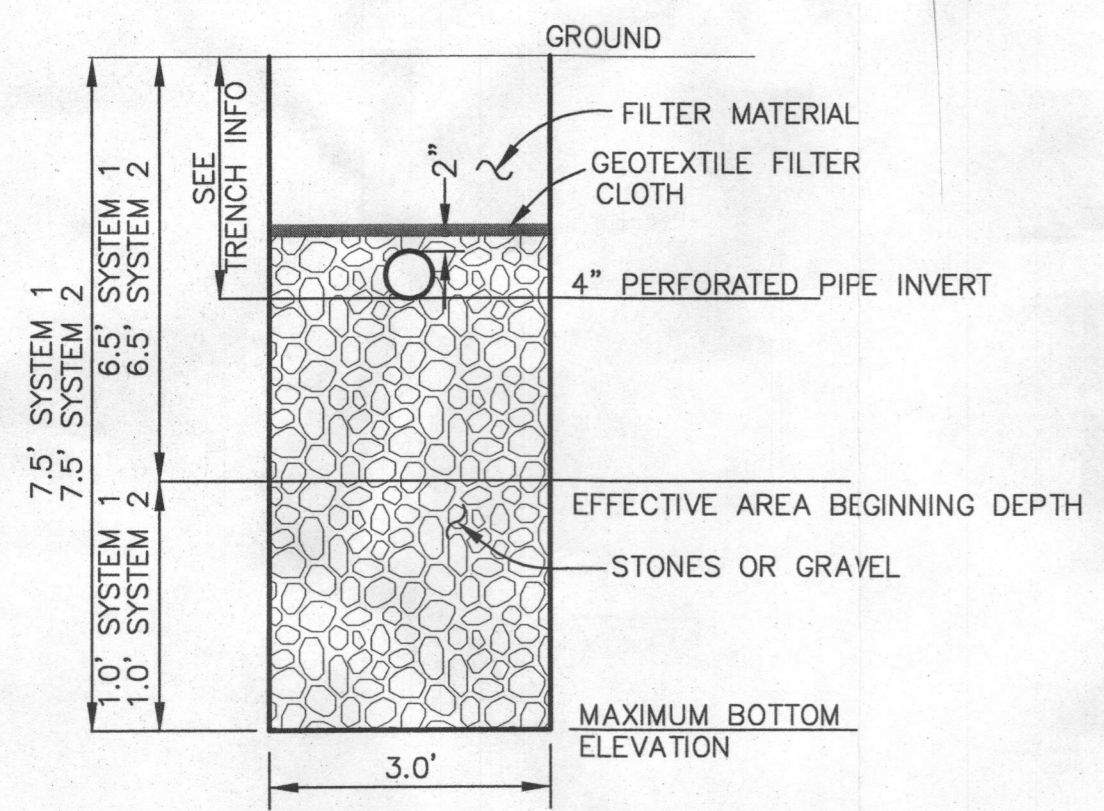
OWNER/BUILDER: DR HORTON, INC. 1356 BEVERLY ROAD SUITE 300 McLEAN, VA 22101 PHONE: 571-723-0813 FAX: 800-551-5015		PROJECT: <b>VISTA RIDGE LOT 17</b>	
LOCATION: 2037 DROVERS LANE COOKSVILLE, MD 21723 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND TAX ID NUMBER 04-595482		TITLE: SEPTIC SITE PLAN	
HOUSE TYPE: GLEN ABBY		DATE: OCTOBER, 2016 DECEMBER 20, 2016	
DESIGN: JMC		PROJECT NO. 1635	
DRAFT: JMC		SCALE: 1" = 30'	
		DRAWING 1 OF 2	



SEWER PROFILE - LOT 17  
SCALE: VERTICAL 1"=3', HORIZONTAL 1"=30'

**TRENCH INFORMATION**

TRENCH	LENGTH	GROUND ELEVATION	INVERT ELEVATION	MAX. BOTTOM ELEV.
TRENCH 1-1	70 LF	627.9	623.5	620.4
TRENCH 1-2	70 LF	627.2	623.3	619.7
TRENCH 1-3	70 LF	626.6	623.1	619.1
TRENCH 2-1	70 LF	625.8	622.3	618.3
TRENCH 2-2	70 LF	625.1	622.1	617.6
TRENCH 2-3	70 LF	624.4	621.4	616.9



TYPICAL TRENCH DETAIL  
NOT TO SCALE

**INITIAL SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
Linear Length of trench Required	208	lf

**1st REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
Linear Length of trench Required	208	lf

Approved Septic System Plan  
Howard County Health Department  
*Paul J. ...*  
Signature Date 1/5/17

**DESIGN DATA & GENERAL NOTES**

- Concrete strength  $f_c=4,000$  p.s.i. @ 28 days. Density = 150 pcf.
- Cement - Portland Type III per ASTM C 150-92.
- Admixtures & plasticizers per ASTM C 250-98 & C 484-92.
- Reinforcing per ASTM A198. Min. 1-1/2" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, 4" base, & 6" top thickness.
- Max 3' of cover
- Depending on use of tank, Inlet & Outlet baffles may be required by code.

**Mayer Bros., Inc.**  
6264 Race Road  
Elkridge, Maryland 21075  
Tel. 410.796.1434  
Fax. 410.796.1438  
www.mayerbrosprecast.com

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

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

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS.  
WWW.MAYERPRECAST.COM  
EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER.

**BENCHMARK ENGINEERS, INC.**  
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
BEI@BEI-CIVILENGINEERING.COM

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**OWNER/BUILDER:**  
DR HORTON, INC.  
1356 BEVERLY ROAD  
SUITE 300  
McLEAN, VA 22101  
PHONE: 571-723-0813  
FAX: 800-551-5015

**PROJECT:**  
VISTA RIDGE  
LOT 17

**LOCATION:**  
2037 DROVERS LANE  
COOKSVILLE, MD 21723  
TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176  
4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
TAX ID NUMBER 04-595482

**TITLE:** SEPTIC PLAN

**HOUSE TYPE:** GLEN ABBEY

**DATE:** OCTOBER, 2016  
DECEMBER 20, 2016

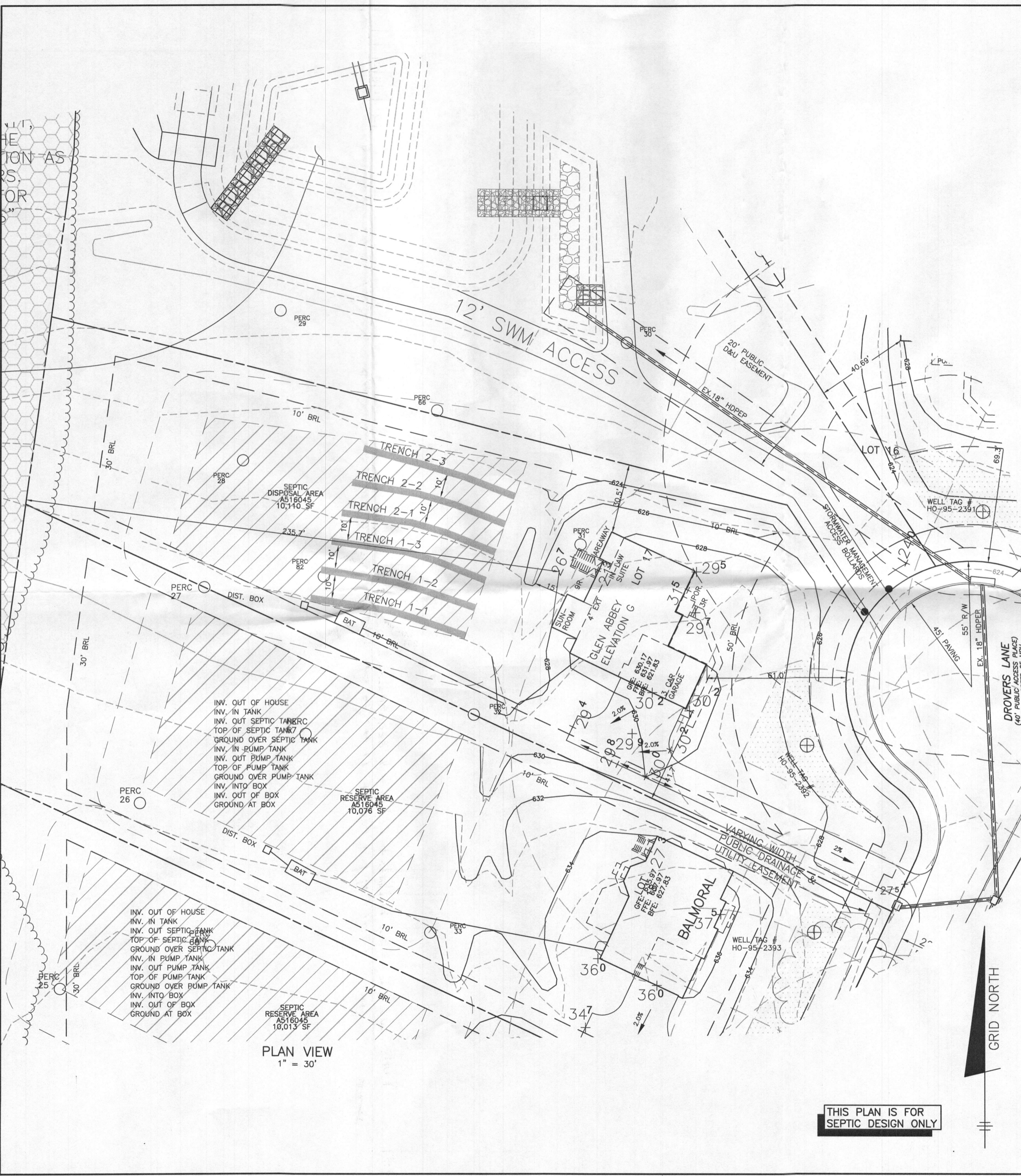
**PROJECT NO.:** 1635

**SCALE:** 1" = 30'

**DRAWING** 2 **OF** 2

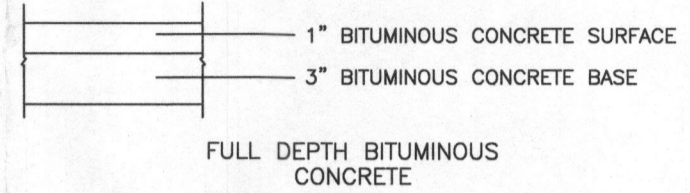
DESIGN: JMC DRAFT: JMC

THIS PLAN IS FOR SEPTIC DESIGN ONLY



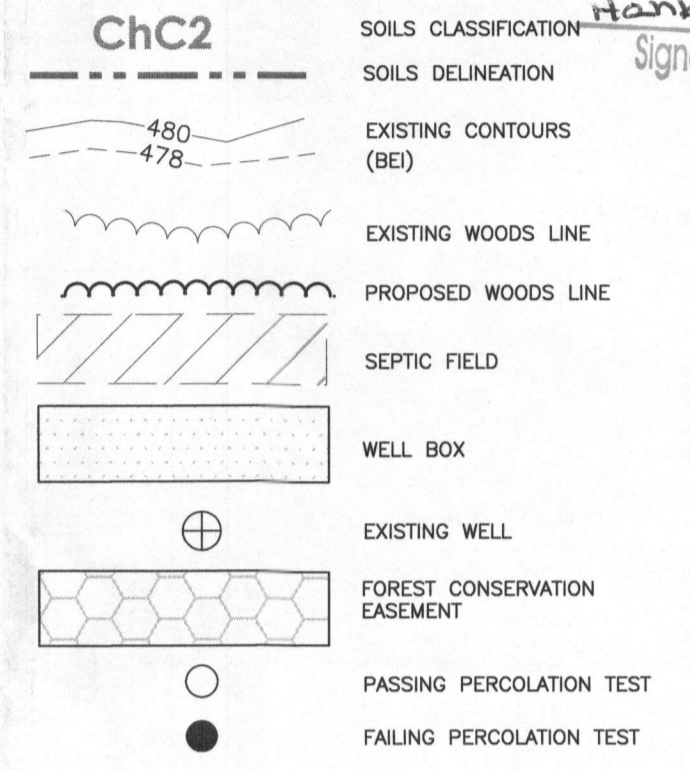
SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GnB2	C	GLENVILLE, SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
-	-	-

\* INDICATES HYDRIC SOILS  
 TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 33



**PAVING SECTION**  
 NOT TO SCALE

**LEGEND**



Approved Septic System Plan  
 Howard County Health Department  
 Hank Oswald  
 Signature  
 11/17/16  
 Date

**BUILDING PERMIT PLAN NOTES:**

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INV. OUT OF HOUSE  
 INV. IN TANK  
 INV. OUT SEPTIC TANK  
 TOP OF SEPTIC TANK  
 GROUND OVER SEPTIC TANK  
 INV. IN PUMP TANK  
 INV. OUT PUMP TANK  
 TOP OF PUMP TANK  
 GROUND OVER PUMP TANK  
 INV. INTO BOX  
 INV. OUT OF BOX  
 GROUND AT BOX

INV. OUT OF HOUSE  
 INV. IN TANK  
 INV. OUT SEPTIC TANK  
 TOP OF SEPTIC TANK  
 GROUND OVER SEPTIC TANK  
 INV. IN PUMP TANK  
 INV. OUT PUMP TANK  
 TOP OF PUMP TANK  
 GROUND OVER PUMP TANK  
 INV. INTO BOX  
 INV. OUT OF BOX  
 GROUND AT BOX

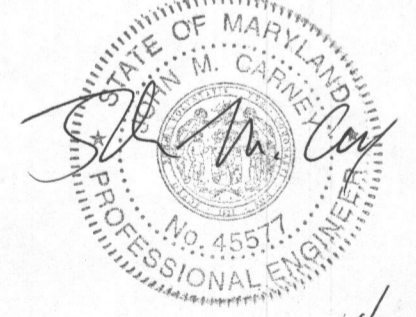
PLAN VIEW  
 1" = 30'

THIS PLAN IS FOR  
 SEPTIC DESIGN ONLY

**BENCHMARK**  
 ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
 BEI@BEI-CIVILENGINEERING.COM

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. 45577, Expiration Date: 06-08-2018.



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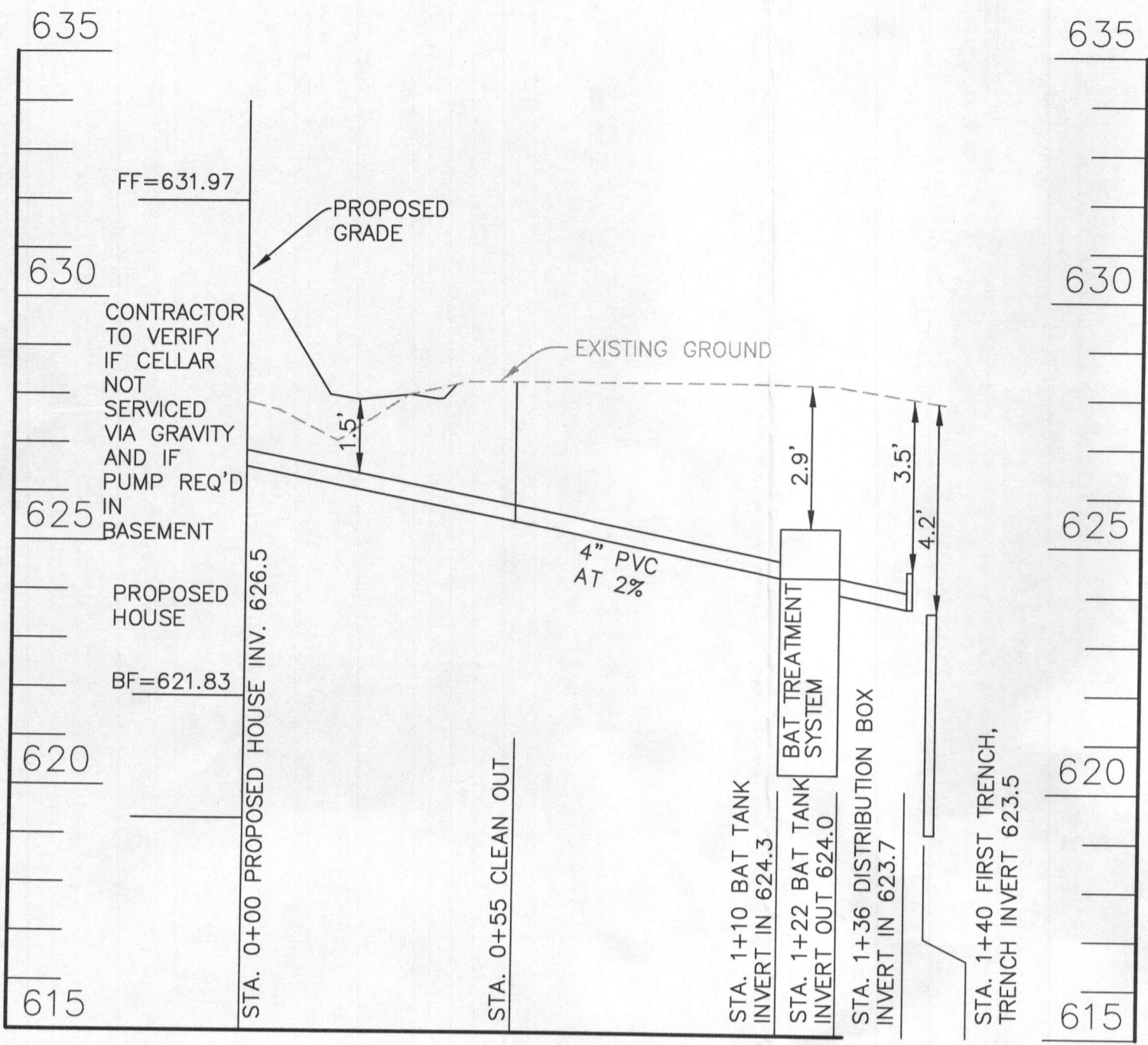
PROJECT:  
**VISTA RIDGE  
 LOT 17**

LOCATION:  
 2037 DROVERS LANE  
 COOKSVILLE, MD 21723  
 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176  
 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 TAX ID NUMBER 04-595482

TITLE:  
**BAT SITE PLAN**

HOUSE TYPE:  
**GLEN ABBY**

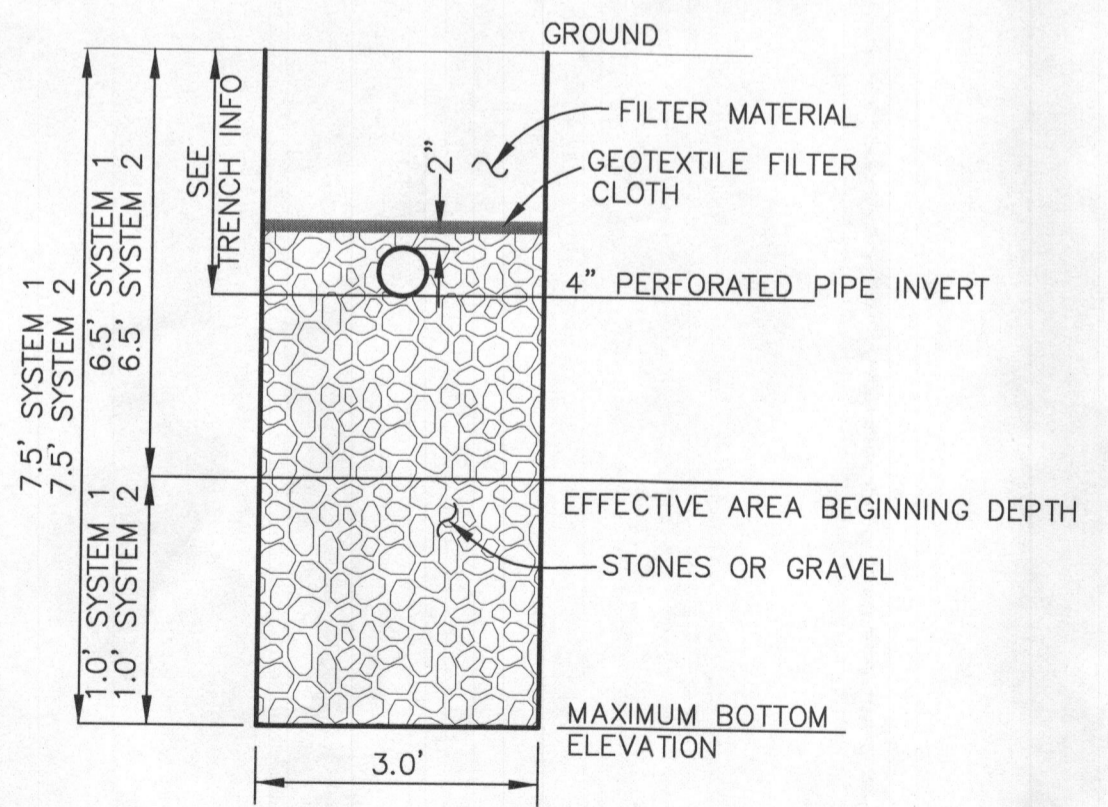
DESIGN:	JMC	DRAFT:	JMC	SCALE:	1" = 30'	PROJECT NO.	1635
						DRAWING	1 OF 2



SEWER PROFILE - LOT 17  
SCALE: VERTICAL 1"=3', HORIZONTAL 1"=30'

**TRENCH INFORMATION**

TRENCH	LENGTH	GROUND ELEVATION	INVERT ELEVATION	MAX. BOTTOM ELEV.
TRENCH 1-1	70 LF	627.9	623.5	620.4
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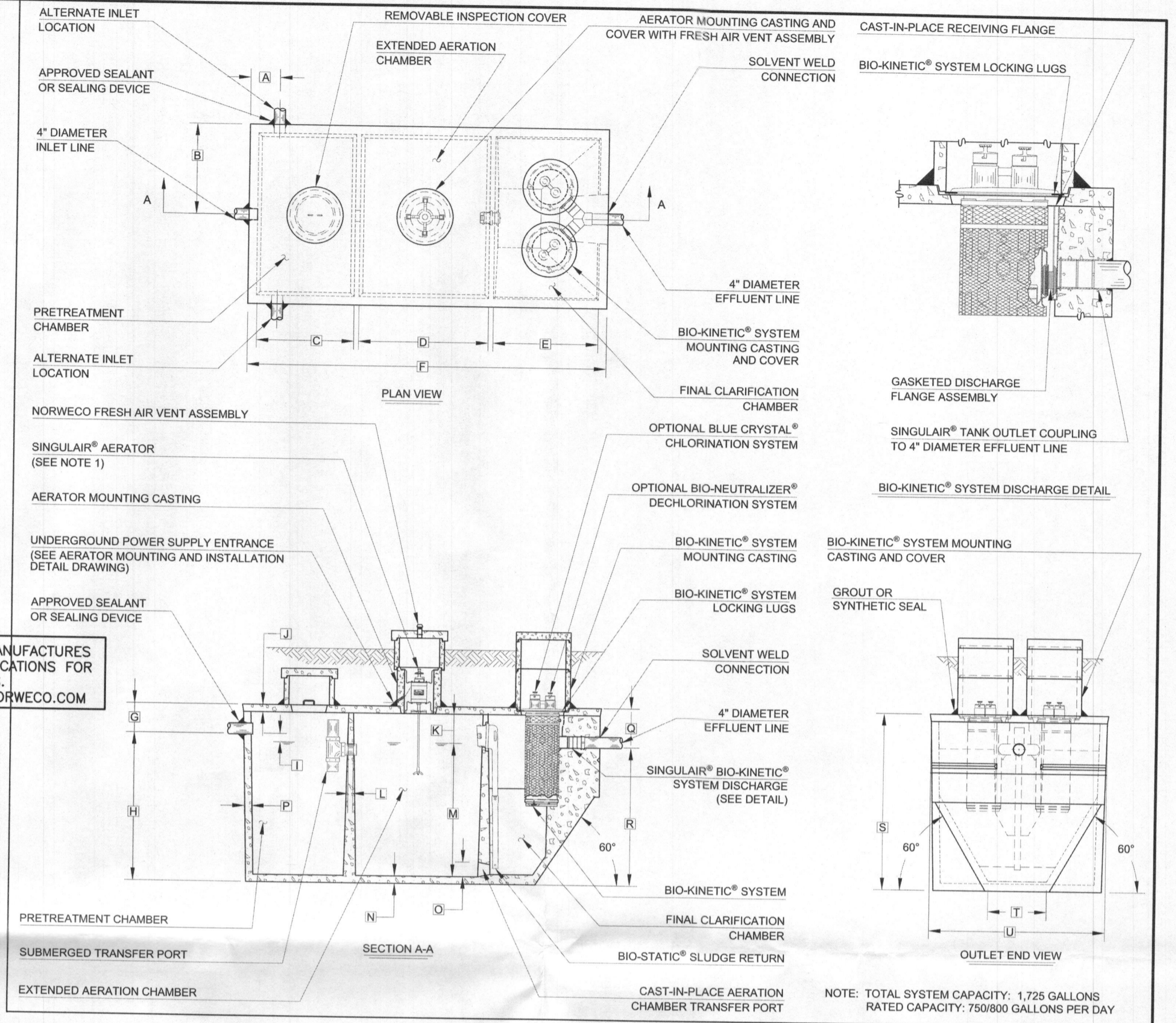
TYPICAL TRENCH DETAIL  
NOT TO SCALE

**INITIAL SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
Linear Length of trench Required	208	lf

**1st REPLACEMENT SYSTEM**

Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
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Sidewall reduction credit	0.83	
Trench width	3	
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Linear Length of trench Required	208	lf



SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS.  
WWW.NORWECO.COM

**CRITICAL DIMENSIONS**

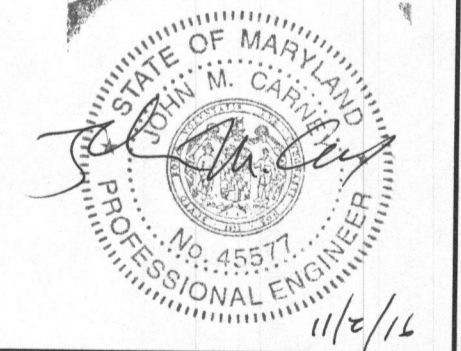
A	1'-0"	N	0'-3"
B	3'-0"	O	0'-6"
C	3'-4"	P	0'-3"
D	4'-5"	Q	1'-4"
E	3'-7"	R	4'-8"
F	12'-2"	S	6'-0"
G	1'-0"	T	2'-0"
H	5'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	
M	4'-6"	Z	

- GENERAL NOTES:**
- SINGULAIR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
  - FALL THROUGH SINGULAIR® 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 PRE-TREATMENT 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 SINGULAIR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, BAT TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:

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. 45577, Expiration Date: 06-08-2018.



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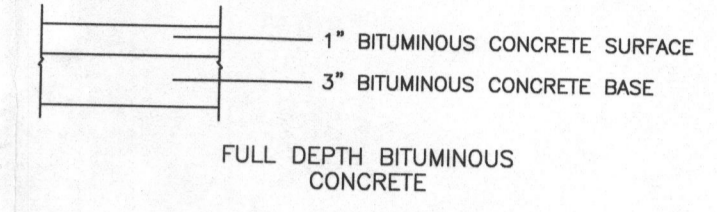
**Required BAT Site Plan Notes**

- 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 sit plan may be required.
- The maximum depth of the BAT shall be per the manufacturer's specification, 3.0'.
- The blower, if necessary, may not be located further from the tank than the manufacturer's specifications, 75'.
- 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.

OWNER/BUILDER:	DR HORTON, INC. 1356 BEVERLY ROAD SUITE 300 McLEAN, VA 22101 PHONE: 571-723-0813 FAX: 800-551-5015	PROJECT:	VISTA RIDGE LOT 17
DESIGN:	JMC	LOCATION:	2037 DROVERS LANE COOKSVILLE, MD 21723 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND TAX ID NUMBER 04-595482
DRAFT:	JMC	TITLE:	BAT PLAN
DATE:	OCTOBER, 2016	HOUSE TYPE:	GLEN ABBEY
SCALE:	1" = 30'	PROJECT NO.:	1635
		DRAWING	2 OF 2

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GnB2	C	GLENVILLE, SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
-	-	-

\* INDICATES HYDRIC SOILS  
TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 33



**PAVING SECTION**  
NOT TO SCALE

**LEGEND**

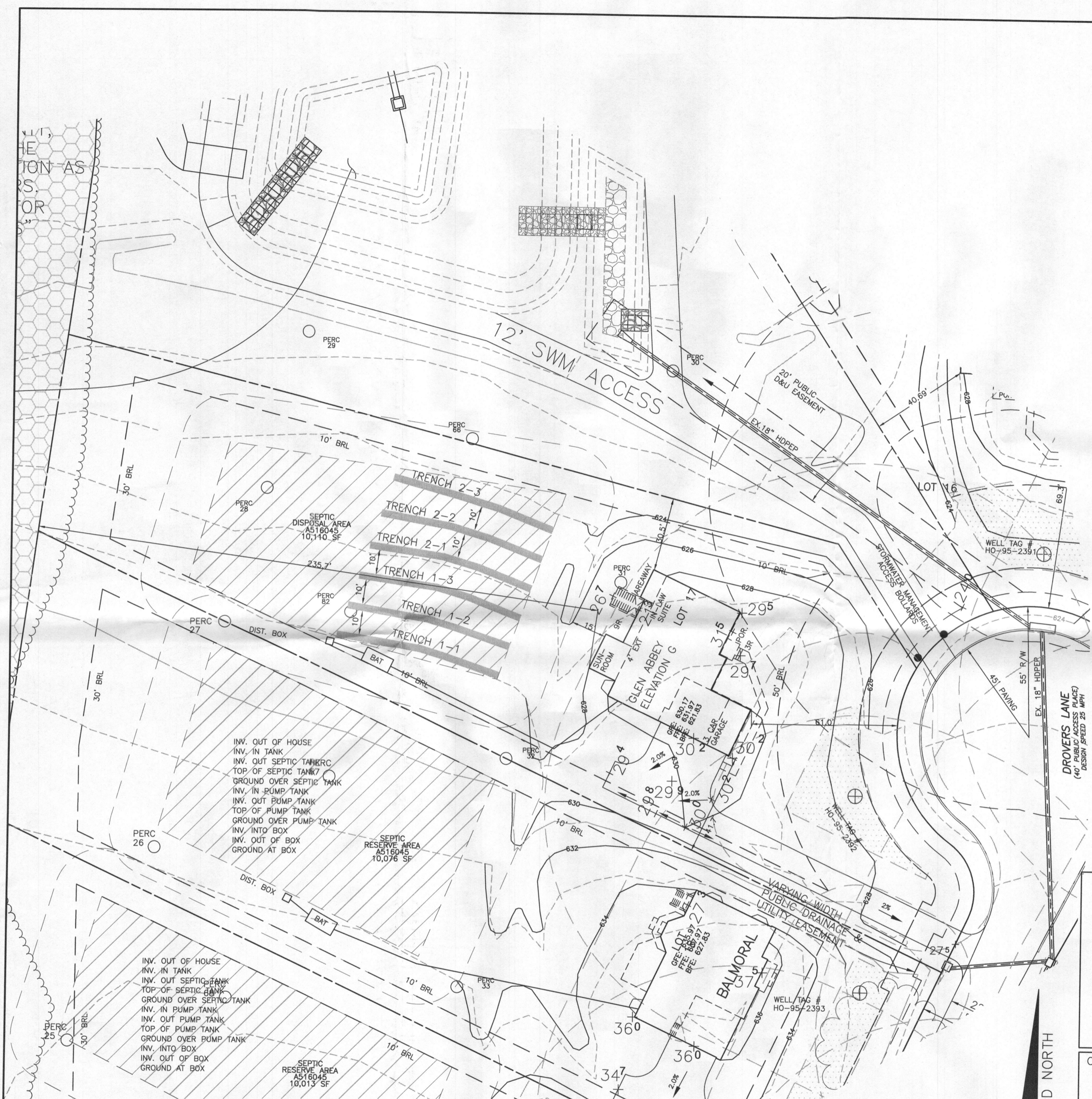
- ChC2** SOILS CLASSIFICATION
- SOILS DELINEATION
- 480 EXISTING CONTOURS (BEI)
- 478
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- SEPTIC FIELD
- WELL BOX
- ⊕ EXISTING WELL
- FOREST CONSERVATION EASEMENT
- PASSING PERCOLATION TEST
- FAILING PERCOLATION TEST

Approved Septic System Plan  
Howard County Health Department

*Hankoswald* 11/2/16  
Signature Date

**BUILDING PERMIT PLAN NOTES:**

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INV. OUT OF HOUSE  
INV. IN TANK  
INV. OUT SEPTIC TANK  
TOP OF SEPTIC TANK  
GROUND OVER SEPTIC TANK  
INV. IN PUMP TANK  
INV. OUT PUMP TANK  
TOP OF PUMP TANK  
GROUND OVER PUMP TANK  
INV. INTO BOX  
INV. OUT OF BOX  
GROUND AT BOX

INV. OUT OF HOUSE  
INV. IN TANK  
INV. OUT SEPTIC TANK  
TOP OF SEPTIC TANK  
GROUND OVER SEPTIC TANK  
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INV. OUT PUMP TANK  
TOP OF PUMP TANK  
GROUND OVER PUMP TANK  
INV. INTO BOX  
INV. OUT OF BOX  
GROUND AT BOX

PLAN VIEW  
1" = 30'

THIS PLAN IS FOR SEPTIC DESIGN ONLY

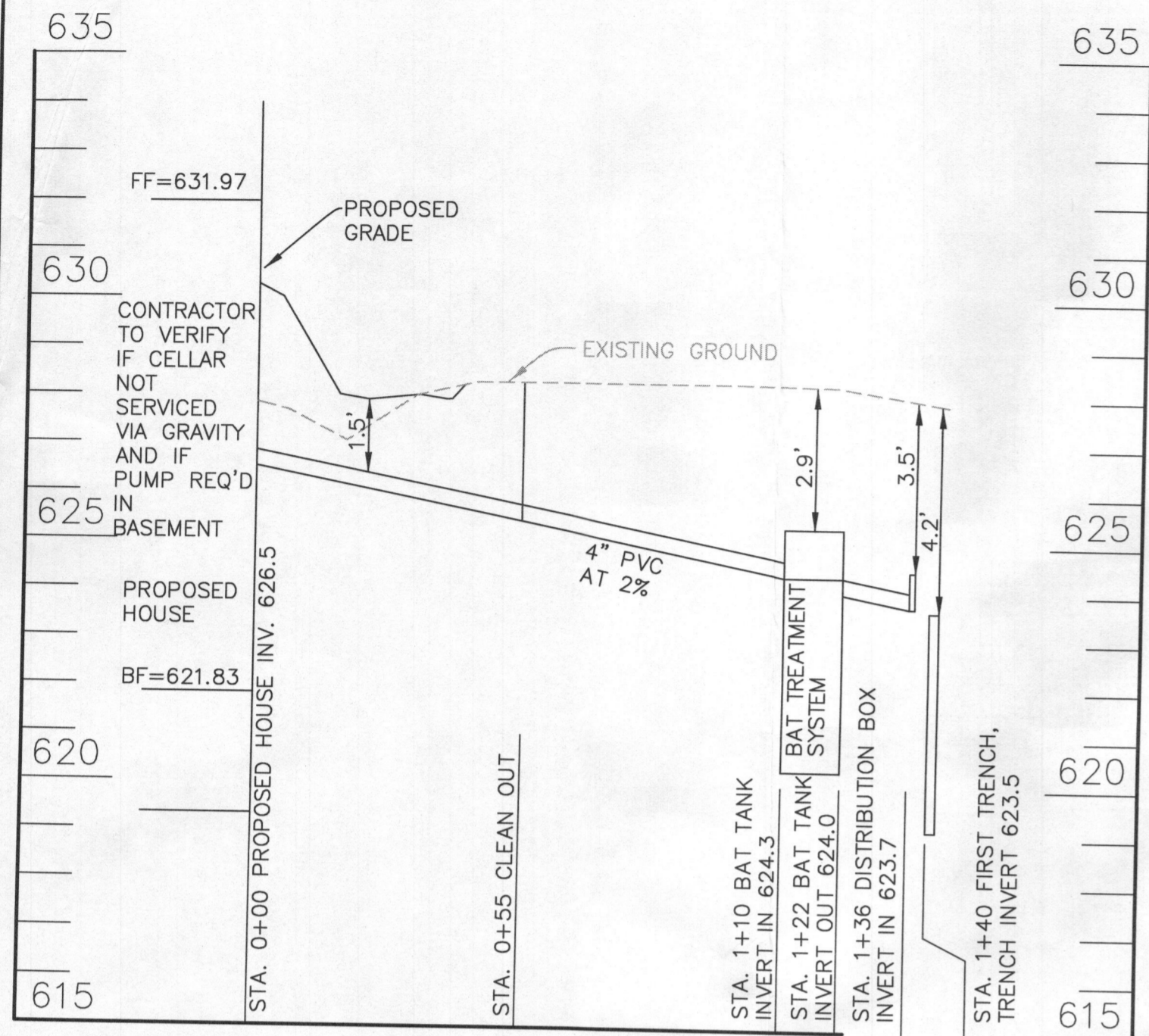
**BENCHMARK**  
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
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PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
BEI@BEI-CIVILENGINEERING.COM

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*William M. Carney*  
11/2/16

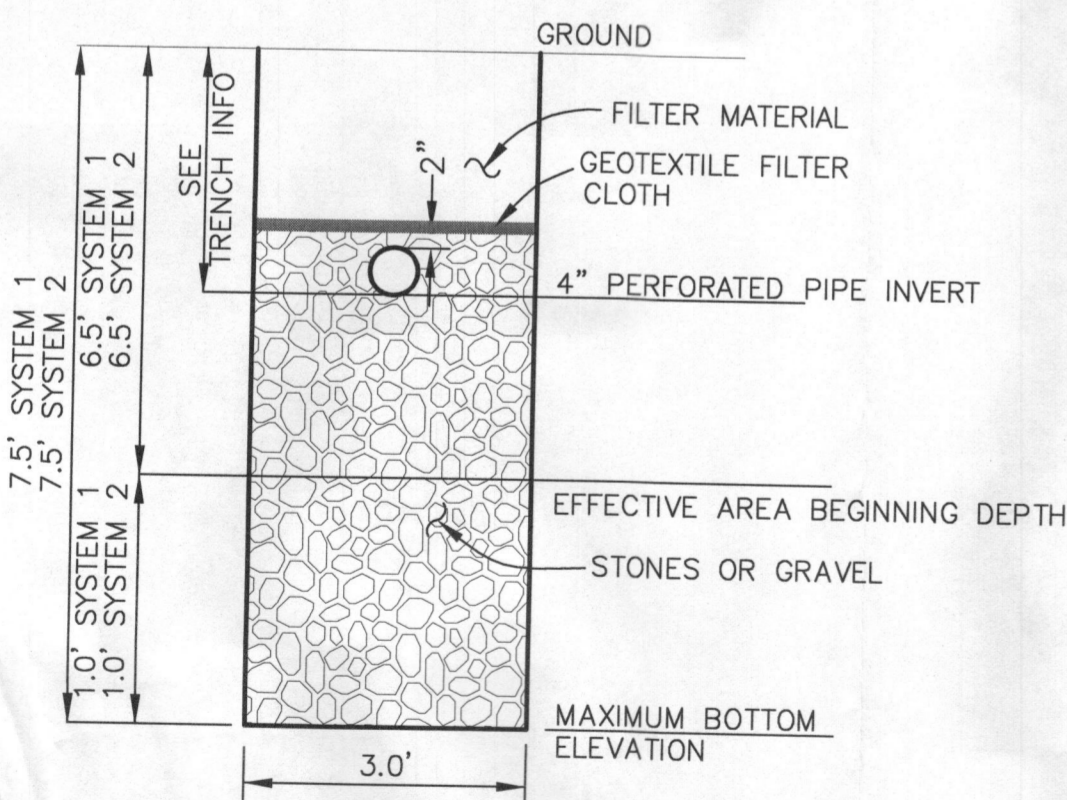
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HOUSE TYPE: <b>GLEN ABBY</b>	DATE: <b>OCTOBER, 2016</b>
DESIGN: JMC    DRAFT: JMC	PROJECT NO. <b>1635</b> SCALE: 1" = 30' DRAWING <b>1</b> OF <b>2</b>



SEWER PROFILE - LOT 17  
SCALE: VERTICAL 1"=3', HORIZONTAL 1"=30'

**TRENCH INFORMATION**

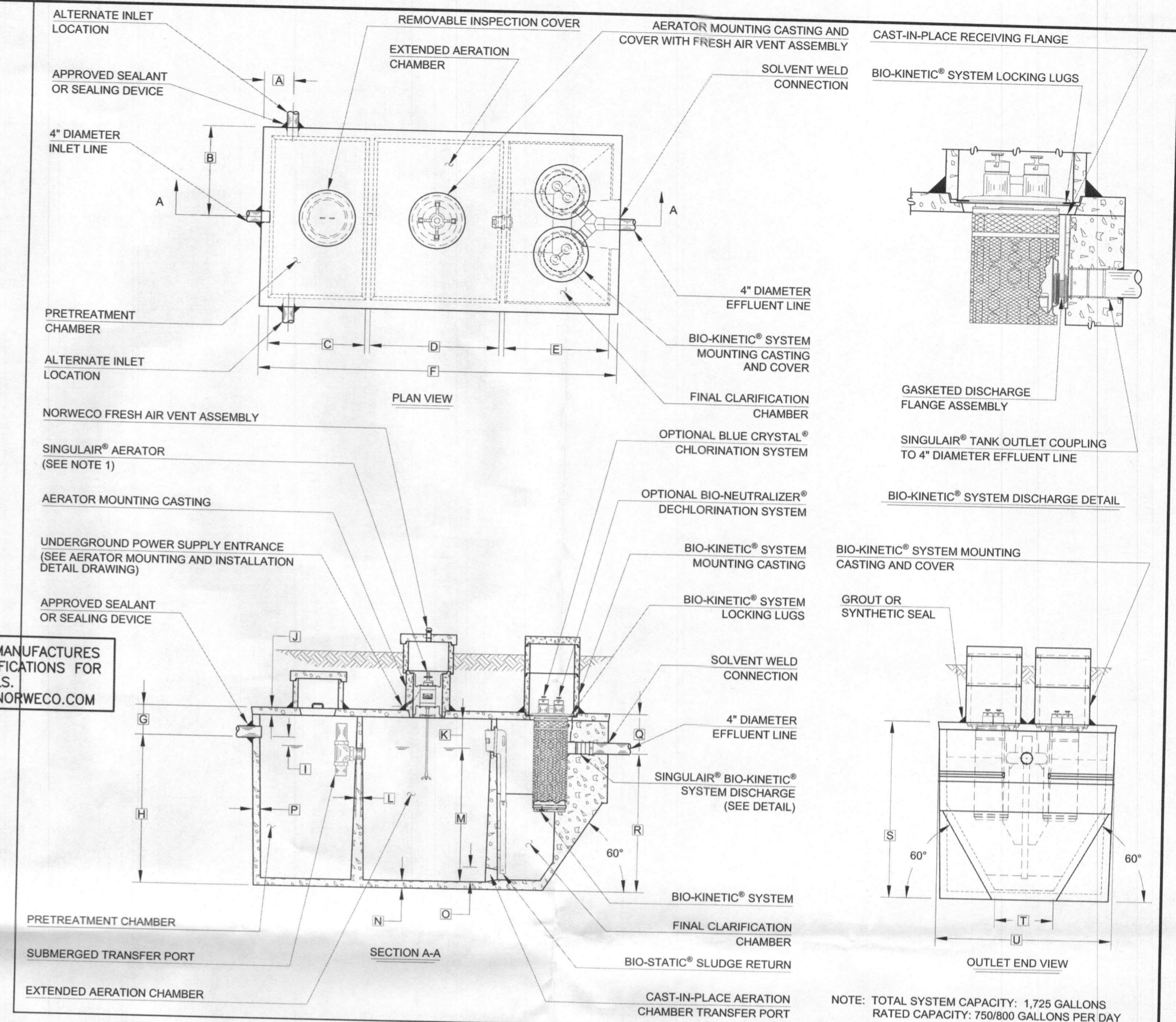
TRENCH 1-1	TRENCH 2-1
TRENCH LENGTH 70 LF	TRENCH LENGTH 70 LF
GROUND ELEVATION 627.9	GROUND ELEVATION 625.8
INVERT ELEVATION 623.5	INVERT ELEVATION 622.8
MAX. BOTTOM ELEV. 620.4	MAX. BOTTOM ELEV. 618.3
TRENCH 1-2	TRENCH 2-2
TRENCH LENGTH 70 LF	TRENCH LENGTH 70 LF
GROUND ELEVATION 627.2	GROUND ELEVATION 625.1
INVERT ELEVATION 623.3	INVERT ELEVATION 622.1
MAX. BOTTOM ELEV. 619.7	MAX. BOTTOM ELEV. 617.6
TRENCH 1-3	TRENCH 2-3
TRENCH LENGTH 70 LF	TRENCH LENGTH 70 LF
GROUND ELEVATION 626.6	GROUND ELEVATION 624.4
INVERT ELEVATION 623.1	INVERT ELEVATION 621.4
MAX. BOTTOM ELEV. 619.1	MAX. BOTTOM ELEV. 616.9



TYPICAL TRENCH DETAIL  
NOT TO SCALE

INITIAL SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
<b>Linear Length of trench Required</b>	<b>208</b>	<b>lf</b>

1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
<b>Linear Length of trench Required</b>	<b>208</b>	<b>lf</b>



SEE MANUFACTURER SPECIFICATIONS FOR DETAILS.  
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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 4'-8"		
F 12'-2"	S 6'-0"		
G 1'-0"	T 2'-0"		
H 5'-0"	U 6'-0"		
I 0'-3"	V		
J 0'-3"	W		
K 1'-0"	X		
L 0'-2"	Y		
M 4'-6"	Z		

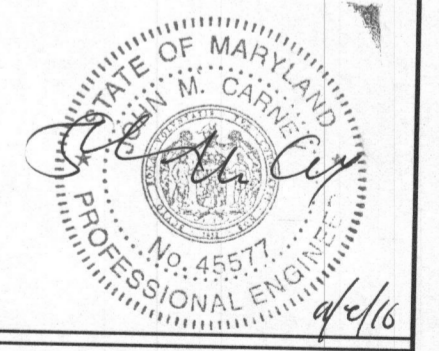
**GENERAL NOTES:**

- SINGULAIR® AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
- FALL THROUGH SINGULAIR® 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 SINGULAIR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

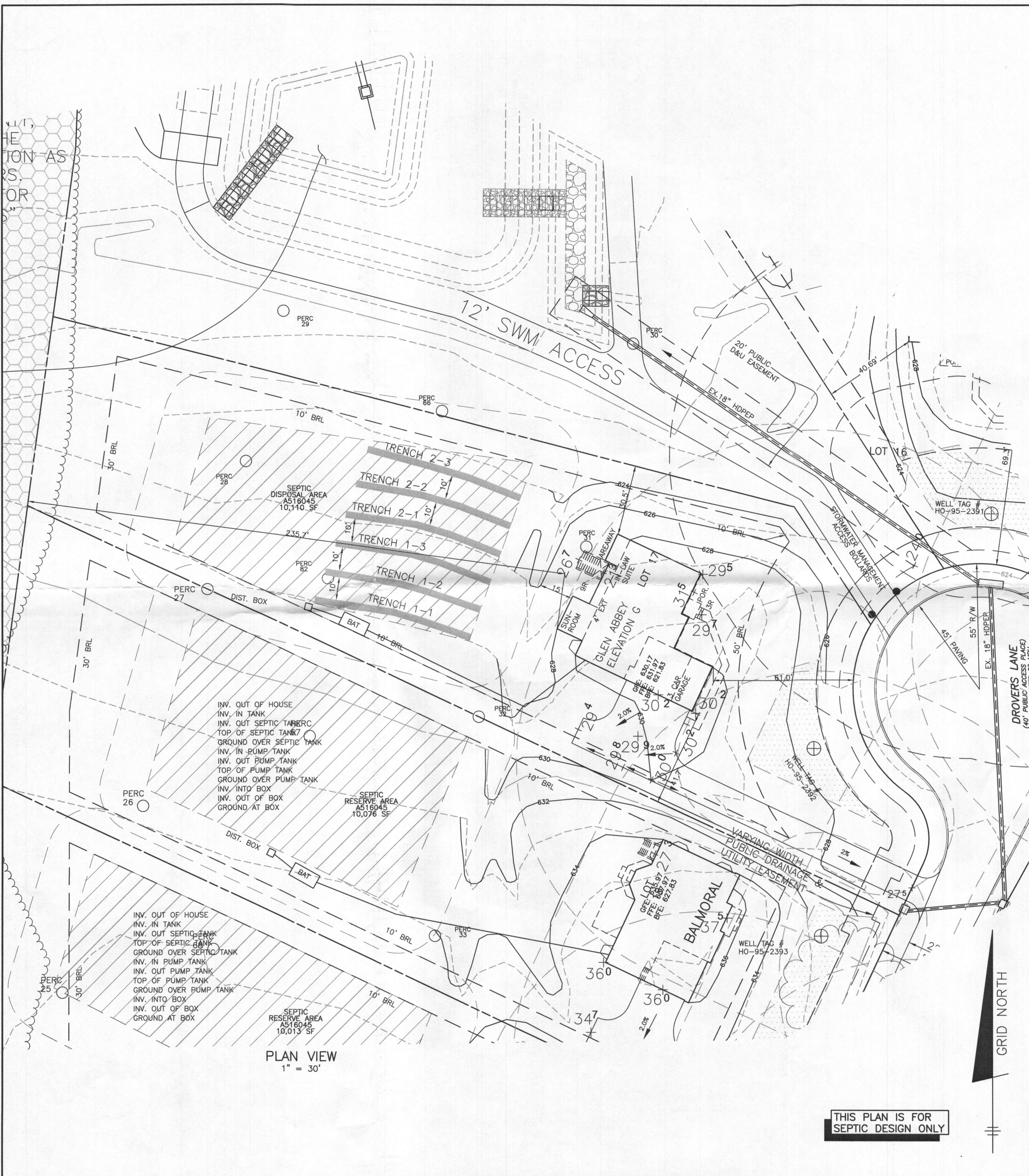
- Required BAT Site Plan Notes
- Any change to the locations or depths to any components must be approved by the engineer and the Howard County Health Department prior to installation. A revised sit plan may be required.
  - The maximum depth of the BAT shall be per the manufacturer's specification, 3.0'.
  - The blower, if necessary, may not be located further from the tank than the manufacturer's specifications, 75'.
  - 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.

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
BEI@BEI-CIVILENGINEERING.COM

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, BAT TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:  
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. 45577, Expiration Date: 06-08-2018.

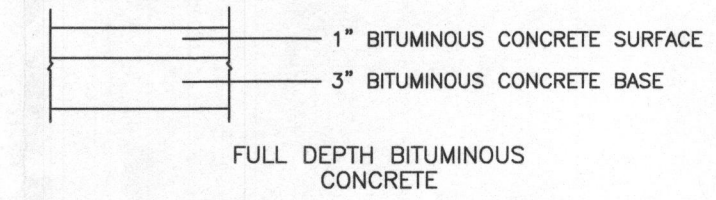


OWNER/BUILDER: DR HORTON, INC. 1356 BEVERLY ROAD SUITE 300 McLEAN, VA 22101 PHONE: 571-723-0813 FAX: 800-551-5015	PROJECT: <b>VISTA RIDGE</b> LOT 17 LOCATION: 2037 DROVERS LANE COOKSVILLE, MD 21723 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND TAX ID NUMBER 04-595482
DESIGN: JMC	DRAFT: JMC
DATE: OCTOBER, 2016	PROJECT NO. 1635
SCALE: 1" = 30'	DRAWING 2 OF 2



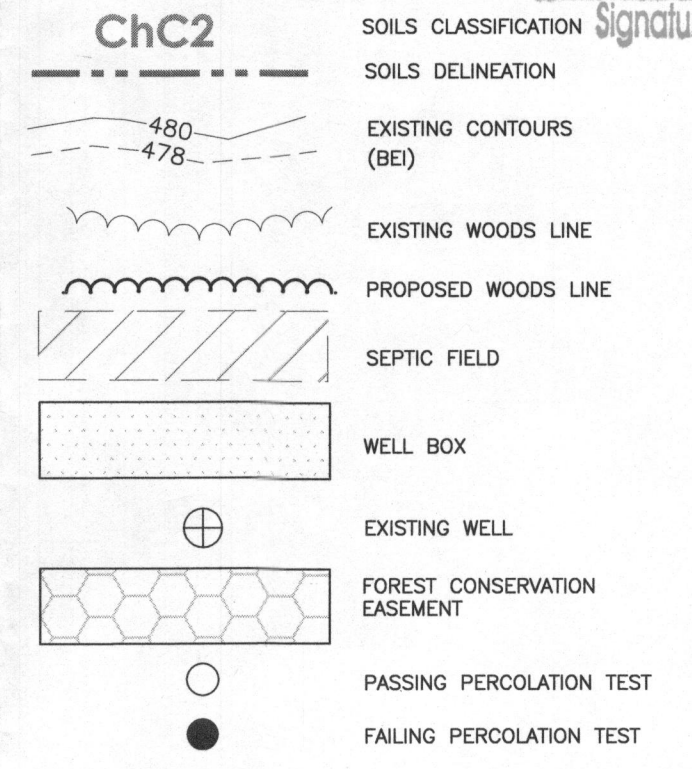
SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GnB2	C	GLENVILLE, SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
-	-	-

\* INDICATES HYDRIC SOILS  
 TAKEN FROM SOILS SURVEY, ISSUED JULY 1968, MAP NO. 33



**PAVING SECTION**  
 NOT TO SCALE

**LEGEND**



Approved Septic System Plan  
 Howard County Health Department  
 Hank Oswald 11/17/16  
 Signature Date

**BUILDING PERMIT PLAN NOTES:**

- THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR VISTA RIDGE, PLAT Nos. 22430-22435. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
- SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
- TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY ACCUBID, INC., ON OR ABOUT JUNE 27, 2013.
- ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
- THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
- ANY CHANGES TO A PRIVATE SEWAGE EASEMENT OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED TO BE PROVIDED BY BOTH POND #1, A POCKET POND, AND IN POND #2, A MICROPOL ED POND.
- THE EXISTING WELL SHOWN ON THIS PLAN, HO-95-2392, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.

INV. OUT OF HOUSE  
 INV. IN TANK  
 INV. OUT SEPTIC TANK  
 TOP OF SEPTIC TANK  
 GROUND OVER SEPTIC TANK  
 INV. IN PUMP TANK  
 INV. OUT PUMP TANK  
 TOP OF PUMP TANK  
 GROUND OVER PUMP TANK  
 INV. INTO BOX  
 INV. OUT OF BOX  
 GROUND AT BOX

INV. OUT OF HOUSE  
 INV. IN TANK  
 INV. OUT SEPTIC TANK  
 TOP OF SEPTIC TANK  
 GROUND OVER SEPTIC TANK  
 INV. IN PUMP TANK  
 INV. OUT PUMP TANK  
 TOP OF PUMP TANK  
 GROUND OVER PUMP TANK  
 INV. INTO BOX  
 INV. OUT OF BOX  
 GROUND AT BOX

**PLAN VIEW**  
 1" = 30'

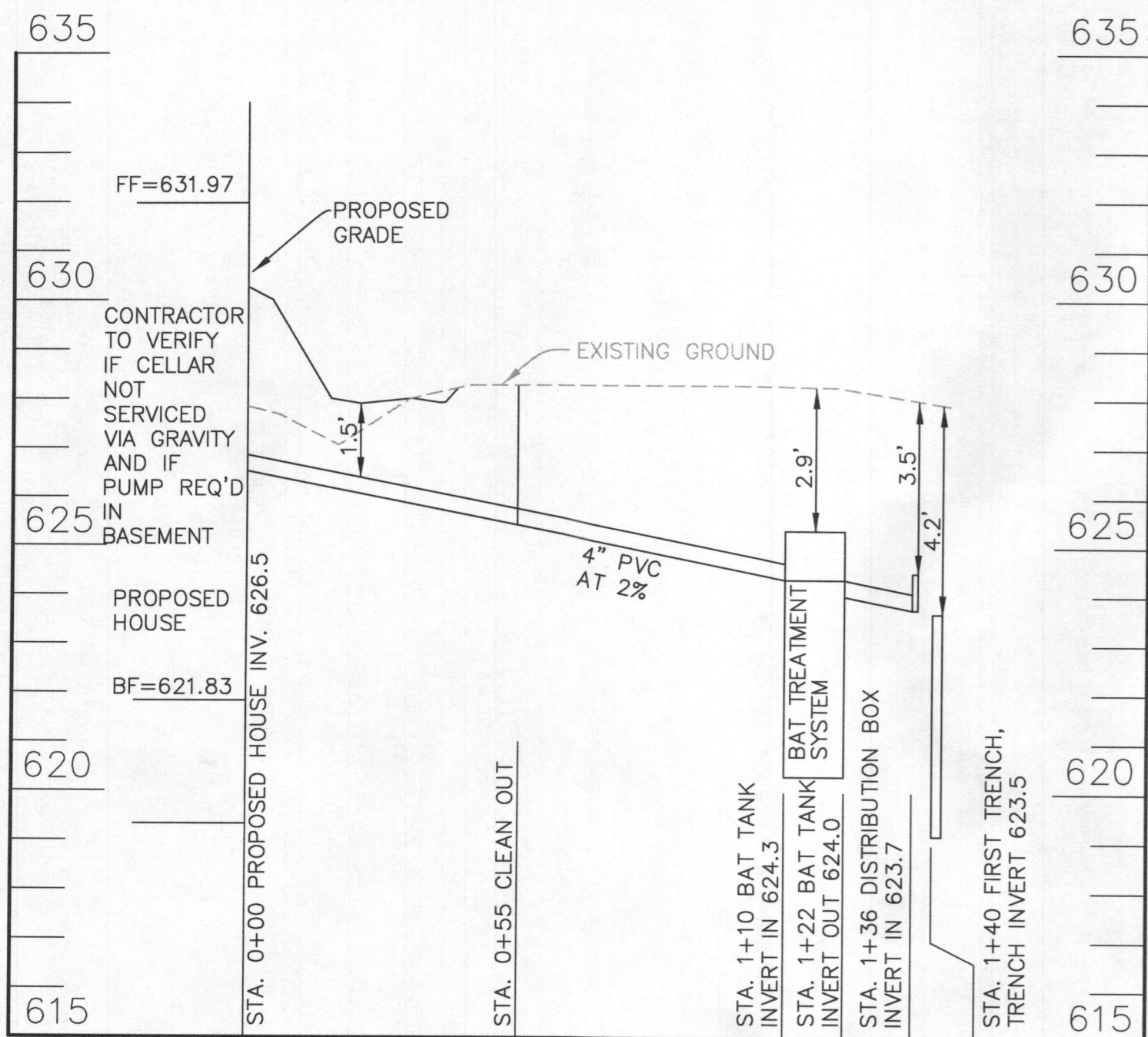
THIS PLAN IS FOR  
 SEPTIC DESIGN ONLY

**BENCHMARK**  
 ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS  
**ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 ▲ FAX: 410-465-6644  
 BEI@BEI-CIVILENGINEERING.COM

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. 45577, Expiration Date: 06-08-2018.

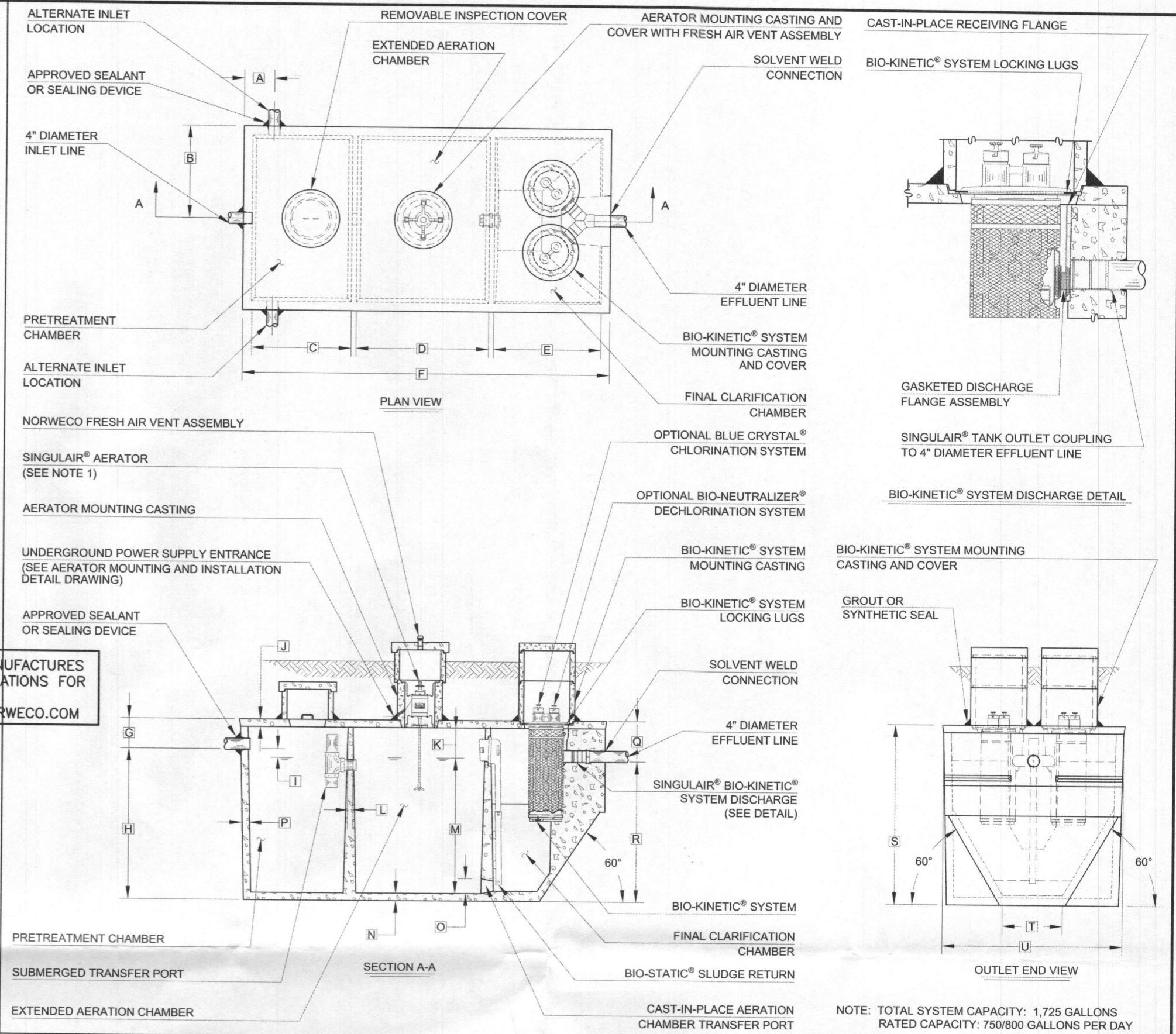
11/17/16

OWNER/BUILDER: DR HORTON, INC. 1356 BEVERLY ROAD SUITE 300 McLEAN, VA 22101 PHONE: 571-723-0813 FAX: 800-551-5015	PROJECT: <b>VISTA RIDGE LOT 17</b>
LOCATION: 2037 DROVERS LANE COOKSVILLE, MD 21723 TAX MAP No. 8 - BLOCK No. 23 - PARCEL No. 176 4TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND TAX ID NUMBER 04-595482	TITLE: BAT SITE PLAN
HOUSE TYPE: GLEN ABBY	DATE: OCTOBER, 2016
DESIGN: JMC	DRAFT: JMC
SCALE: 1" = 30'	PROJECT NO. 1635 DRAWING 1 OF 2



INITIAL SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	6.5	ft
Bottom Max Depth	7.5	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.83	
Trench width	3	
Effective Area Depth	1	
<b>Linear Length of trench Required</b>	<b>208</b>	<b>lf</b>

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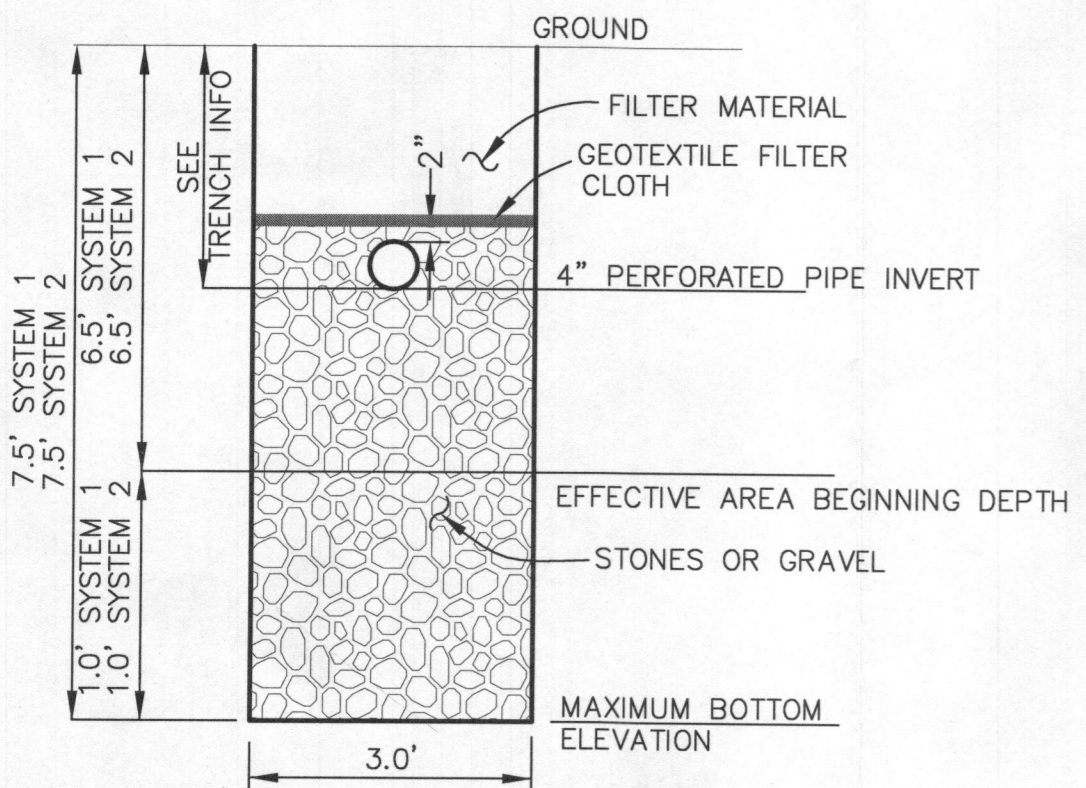
CRITICAL DIMENSIONS			
A	1'-0"	N	0'-3"
B	3'-0"	O	0'-6"
C	3'-4"	P	0'-3"
D	4'-5"	Q	1'-4"
E	3'-7"	R	4'-8"
F	12'-2"	S	6'-0"
G	1'-0"	T	2'-0"
H	5'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	
M	4'-6"	Z	

U.S. AND FOREIGN PATENTS PENDING.  
© MMXVI  
norweco  
LOW PROFILE SINGULAIR® BIO-KINETIC® WASTEWATER TREATMENT SYSTEM MODEL TNTLP-750GPD  
4-25-2016  
PC-S-7159

- GENERAL NOTES:
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  - CONTACT THE LOCAL LICENSED SINGULAIR® DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

TRENCH INFORMATION

TRENCH	TRENCH LENGTH	GROUND ELEVATION	INVERT ELEVATION	MAX. BOTTOM ELEV.
TRENCH 1-1	70 LF	627.9	623.5	620.4
TRENCH 1-2	70 LF	627.2	623.3	619.7
TRENCH 1-3	70 LF	626.6	623.1	619.1
TRENCH 2-1	70 LF	625.8	622.8	618.3
TRENCH 2-2	70 LF	625.1	622.1	617.6
TRENCH 2-3	70 LF	624.4	621.4	616.9



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JOHN M. CASPER  
No. 45577  
10/2/16

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HOUSE TYPE: GLEN ABBEY	DATE: OCTOBER, 2016 PROJECT NO. 1635
DESIGN: JMC DRAFT: JMC	SCALE: 1" = 30' DRAWING 2 OF 2