

**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: 6-19-2015 **ONSITE SEWAGE DISPOSAL SYSTEM** P 556495

APPROVAL DATE: 1-7-16 **PERMIT: CONSTRUCTION** A \_\_\_\_\_

PROPERTY ADDRESS: 4803 Rivercrossing Court

SUBDIVISION: Homewood Crossing LOT: 70 TAX ID: 5-443369

CONTRACTOR: Fogle's Septic Clean, INC. EMAIL: kevin@foglesinc.com

CONTRACTOR ADDRESS: 580 Obrecht Road, Sykesville, MD 21784 PHONE: 410-795-5670

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:  MDE  MANUFACTURER: Hoot Systems

PROPERTY OWNER: Toll MD III LP EMAIL: \_\_\_\_\_

OWNER ADDRESS: 14590 Edgewoods Way, Glenelg, MD 21041 PHONE: 410-489-2275

BAT UNIT MODEL: Hoot H-600 BNR PUMP SIZE: EP04 PUMP TANK CAPACITY: 750g

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 10-22-2015 DATE RECORDED: 10-22-2015

DISTRIBUTION SYSTEM:  GRAVITY  PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 0.8

TRENCHES:	LINEAR FEET REQUIRED: <u>206</u>	INLET DEPTH: <u>4</u>
	TRENCH WIDTH: <u>2</u>	MAXIMUM BOTTOM DEPTH: <u>9</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>9</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>6</u>

LOCATION: **PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.**

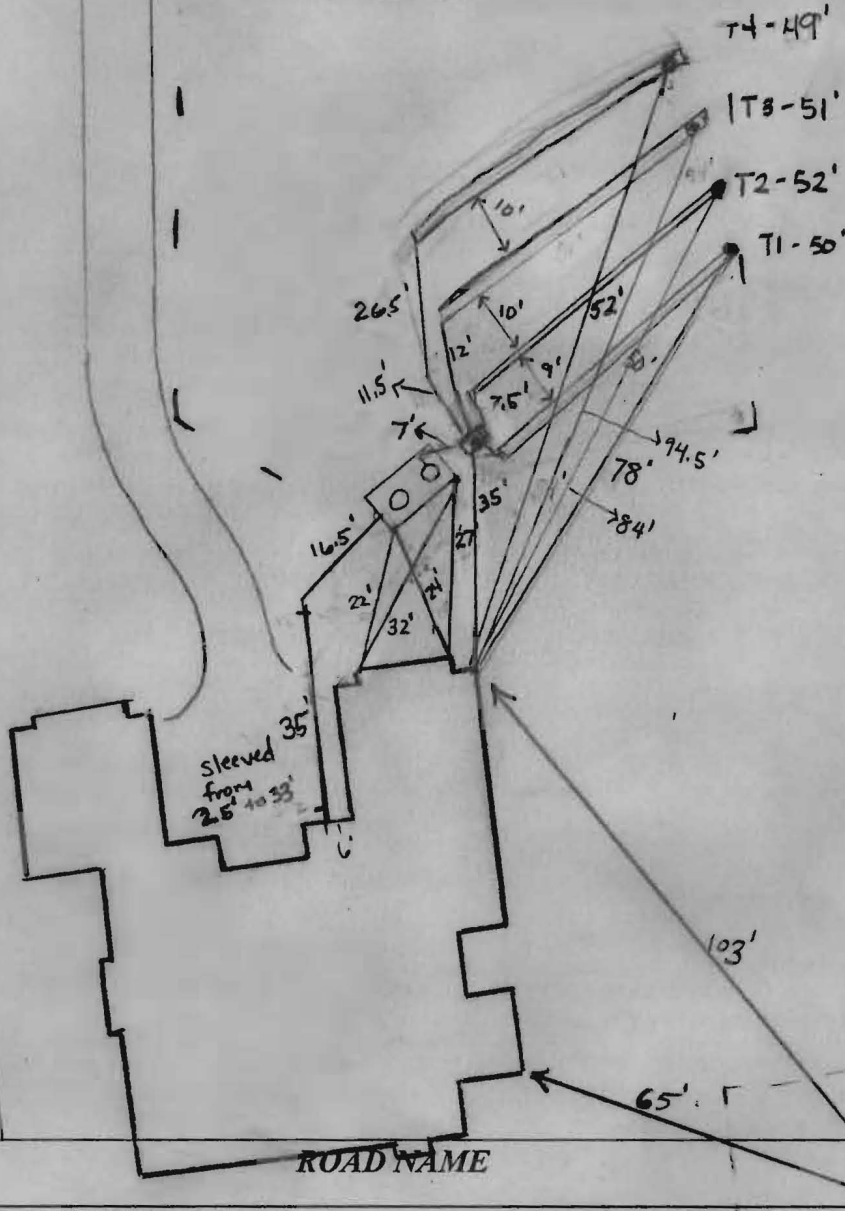
NOTES: Contractor to install 4x51' trenches on contour as best laid out in field. Sever grading/cut in and around upper and lower portions of SRA compromised. Spec's adjusted to accommodate changes. Engineer to revise BAT site plan to relocate BAT location up closer to house.  
**5BR = 750gpd ÷ 0.8gpd/ft² = 938ft² ÷ 2ft = 468.75ft (.44) = 206LF ft²**

ISSUED BY: K. Wolf ISSUE DATE: 10-29-2015 EXPIRATION DATE: 10-29-2016

- 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 DOWNGRADE FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM  
 ELECTRICAL PERMIT ISSUED E 15004240
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.  
PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.  
CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE



**TRENCH/DRAINFIELD DATA**

WIDTH	INLET	BOTTOM
2'	4'	9'
NUMBER OF TRENCHES		4
TOTAL LENGTH		202'
ABSORPTION AREA		
DISTRIBUTION BOX LEVEL		Yes
DISTRIBUTION BOX BAFFLE		-
DISTRIBUTION BOX PORT		-

**SEPTIC TANK DATA**

SEPTIC TANK 1 LEVEL	
MANUFACTURER	Hoot
CAPACITY	H600 GAL
SEAM LOC	TOP
TANK LID DEPTH	2'
BAFFLES	Front
BAFFLE FILTER	
MANHOLE LOC	Front/Rear
6" PORT LOC	
WATERTIGHT TEST	
SLOTTED	Yes
DATE ON LID	

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

**PRE-CONSTRUCTION:**

11/2/15 SRA + BAT location staked. Extension 'cut' of upper and lower portion of SRA present. Altered specs greatly per perc notes to accompany draught changes. Install 4x5' trenches on contour running north @ upper high corner of SRA. Contractor to hold elevations @ trench ends (KMW)

**INSTALLATION:** 11/3/15 Per inspection onsite. Contractor had SRA cleared (lines) where trenches are to be installed. Tank loc. dug, leveled. New location approved. No final until Revised BAT plan is received (KMW)

11/4/15 - site visit contractor onsite. tank in place. SHG not made yet. line from house to tank partially sleeved w/drainway. first two trenches complete and last two to be completed and require inspection. Stone looks good. septic design being completed as spec'd out on permit. @ 11/5/15 - site visit contractor on site, all trenches complete, looks good. Stone in place, ok to back fill all. SHG not complete, which will require inspection. BAT start up required - RR 11/9/15 House connection made. (SC)

1/7/16 - BAT start up ok - (RA)

FINAL INSPECTOR

Ryan Rappaport

DATE OF APPROVAL

1/7/16



**MAYER BROS., INC.**

*Precast Concrete Products*

6264 Race Rd. Elkridge, MD 21075

## Letter of Satisfaction Hoot System Installation

Address of Property: 4803 RIVER CROSSING CT.  
ELLCOTT CITY MD

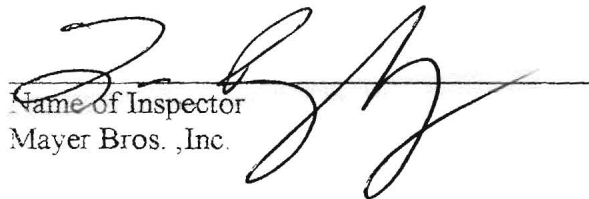
Date of Final Inspection: 1-6-16 1-7-16 KPD

Installer: TOYLE SEPTIC

Hoot Technician/Inspector: LEE PUMPHREY

I hereby certify that the Hoot system installed at the property listed above has been installed according to proper Hoot installation practices. I have also verified the startup of the system and it is in proper working order.

Sincerely,

  
Name of Inspector  
Mayer Bros., Inc.

PH: 410-796-1434

FX: 410-796-1438

**WBE**  
**NPCA Certified Plant**

mayerbro@connext.net  
www.mayerbrosprecast.com

Grease Interceptors, Grease Solutions, Aerobic Treatment Units, Septic Tanks, Holding Tanks, Storm Water Structures, Hydroceptors,  
Bench Barrier, Water Meter Vaults, Sectional Valve Vaults, Top Slabs, Curb Heads, Curb Bumpers, PermaEntry Basement Entries,  
Scapewel Window Wells, Custom Precast Products

# 4803 River Crossing

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: erat  
Reference/Control #: 81

LR - Agreement Surcharge  
1x 40.00 40.00

=====  
SubTotal: 60.00  
Total: 60.00

=====  
REV-Check-BOA 60.00  
Number : 9642792

10/22/2015 11:51 CC13-MH  
#5043471 / 496/109

~ Thank you for visiting us today ~



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Twitter: HówardCoHealthDep

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 20<sup>th</sup> day of October 2015, among Toll Brothers Inc, 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 4803 River Crossing Ct, in the 5<sup>th</sup> 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 988 Folio 201.

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 NORWECO Singulair TNT600

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 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 to develop accurate and thorough test results.

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.

Burt Rifon 10/22/2015  
Howard County Health Department

[Signature] 10/22/15  
Owner #1 Signature Date

David Erat  
Owner #1 Print Name

\_\_\_\_\_  
Buyer #1 Signature Date

\_\_\_\_\_  
Buyer #1 Print Name

[Signature] 10-22-15  
Owner #2 Signature Date

David Khalil  
Owner #2 Print Name

\_\_\_\_\_  
Buyer #2 Signature Date

\_\_\_\_\_  
Buyer #2 Print Name

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/17.

LEGEND:

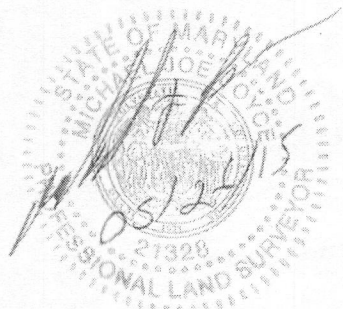
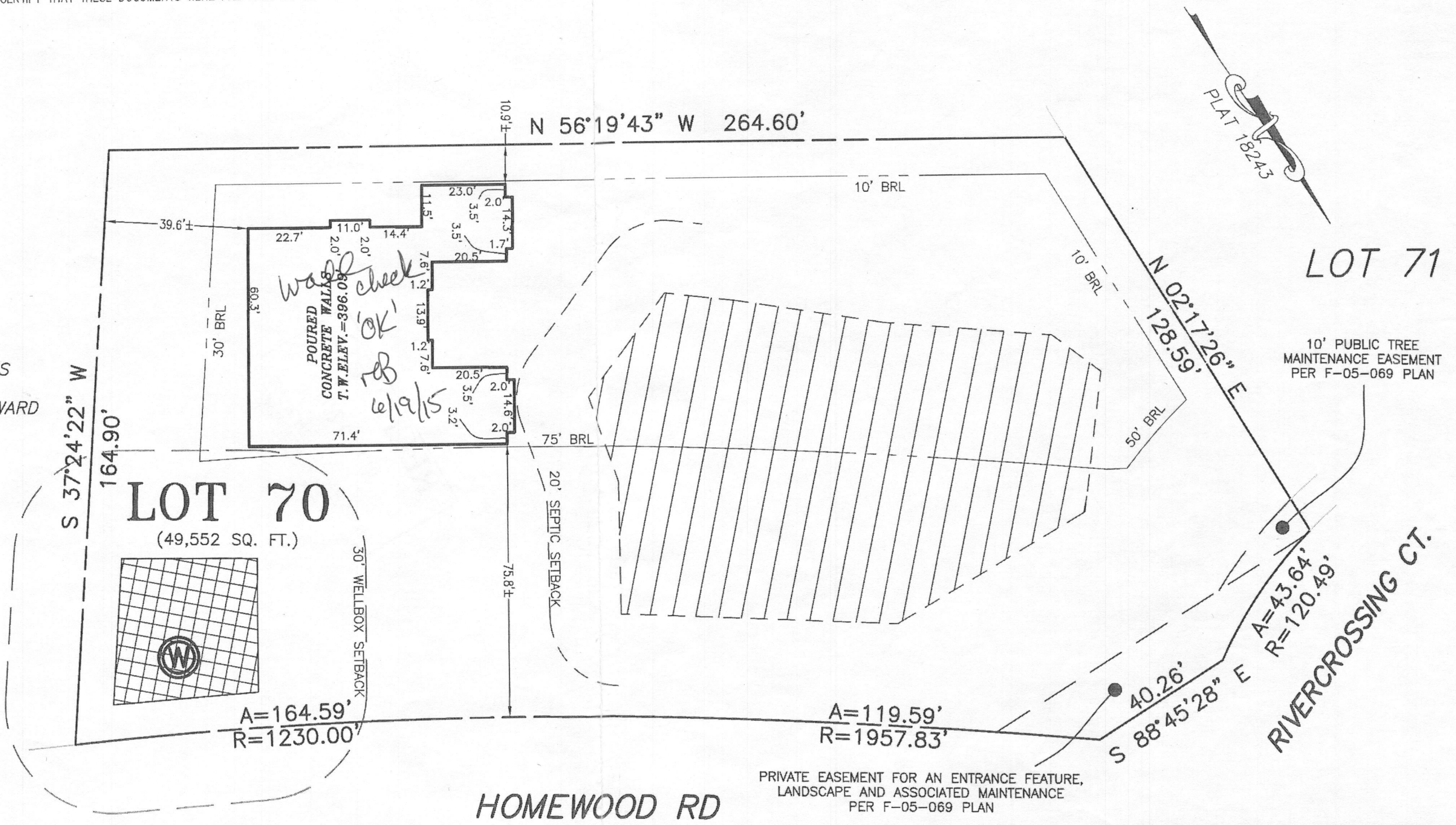
BRL BUILDING RESTRICTION LINE  
 T.W. TOP OF WALL  
 ELEV. ELEVATION  
 (W) WELL

[Hatched Box] = SEPTIC RESERVE AREA  
 [Grid Box] = WELLBOX

**NON-BUILDABLE PRESERVATION PARCEL K**  
 OWNER: HOMEOWNER'S ASSOCIATION  
 EASEMENT HOLDER: HOWARD COUNTY, MARYLAND

ADDRESS: 4803 RIVERCROSSING COURT  
 ELLICOTT CITY, MD 21042

BUILDING SETBACKS (B.R.L.'s) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.



**SURVEYOR'S CERTIFICATE**  
 THIS WALLCHECK WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT. THIS PROPERTY IS SUBJECT TO ANY AND ALL EASEMENTS, RIGHT-OF-WAYS, COVENANTS, AND RESTRICTIONS, ETC. OF RECORD, SOME OR ALL OF WHICH MAY OR MAY NOT BE SHOWN AND/OR REFERENCED HEREON. BEARINGS AND DISTANCES OF THE PROPERTY BOUNDARY LINES SHOWN HEREON ARE PER AVAILABLE RECORDS AND HAVE NOT BEEN FIELD VERIFIED. THIS IS NOT A "LOCATION DRAWING" AND IS NOT TO BE USED FOR SETTLEMENT PURPOSES.

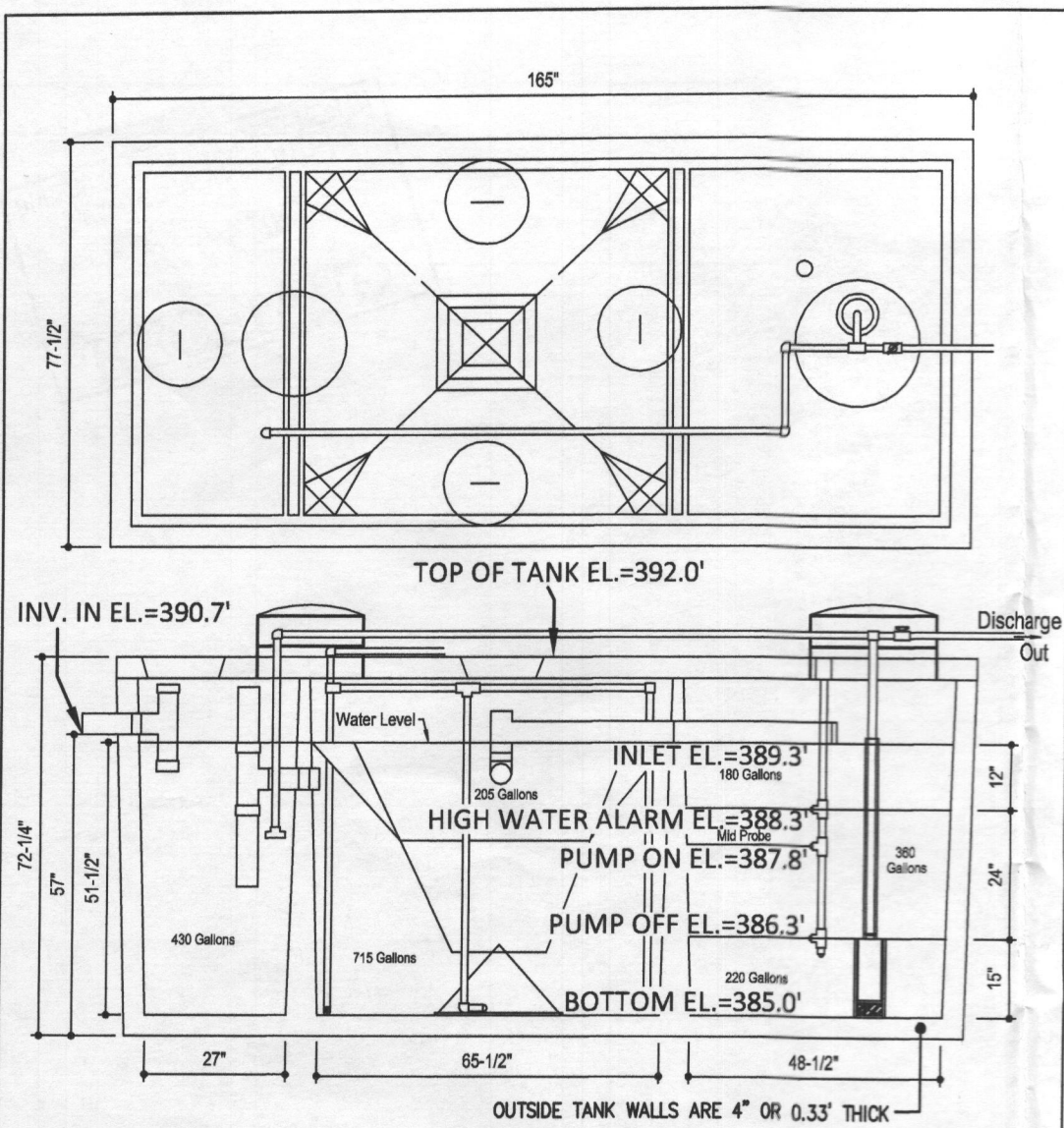
SIGNATURE: MICHAEL JOE BOYCE  
 MD. LIC NO. 21328  
 DATE 05/28/15

WALL CHECK  
 LOT 70  
**HOMWOOD CROSSING**  
 LIBER 9808, FOLIO 204  
 PLAT NO. 18243  
 ELECTION DISTRICT No. 5  
 HOWARD COUNTY, MARYLAND

**ESE** Land Planning  
 Engineering  
 Land Surveying

ESE Consultants, Inc.  
 7164 Columbia Gateway Dr.  
 Suite 230  
 Columbia, MD 21046  
 Tel: 410-872-9105  
 Fax: 410-872-4870

DATE: 05/26/15  
 CHK'D: M.J.B.  
 SCALE: 1"=30'  
 JOB NO: 1214  
 FILE: WC LOT 70  
 DRAWN: V.X.P.



**DESIGN DATA & GENERAL NOTES**

- Concrete strength  $f_c=4000$  p.s.i. @ 28 days. Density = 150 pcf.
- Cement - Portland Type III per ASTM C 150-92.
- Admixtures & plasticizers per ASTM C 330-98 & C 494-92.
- Reinforcing per ASTM A165. Min. 1-1/2" cover.

**Mayer Brothers, Inc.**  
 6264 Race Road  
 Ellicott City, Maryland 21075  
 Tel. 410.796.1434  
 Fax. 410.796.1438  
 www.mayerbroscorp.com

**600 GPD BNR SYSTEM  
 H-600 ABNR  
 with 750 GALLON PUMP CHAMBER**

Dwg. No. Hoot Form #1 No Scale March 19, 2009

**PUMPING SYSTEM DATA:**

LENGTH OF FORCE MAIN: 5.00' @ 2" DIA. PIPE  
 STATIC HEAD = 6.40'  
 FRICTION HEAD = 0.037'  
 DYNAMIC HEAD = 6.44'  
 FLOW = 28 GPM  
 TIMED DOSE = 56 GALLONS @ 2 MINUTE INTERVALS  
 PUMP TYPE PER PUMP CURVE CHART = 20EB05, 1/2 H.P.

**DOSE CALCULATIONS:**

PER HOWARD COUNTY HEALTH DEPARTMENT SPECIFICATIONS, A DOSE AROUND 50 GALLONS IS PREFERRED WHEN PUMPING TO A DISTRIBUTION BOX. MINIMUM DOSING FOR A 5 BEDROOM HOUSE IS 750 GPD AT 15 EVENTS PER DAY.  
 (750 GPD ÷ 15 EVENTS PER DAY) = 50 GALLON DOSE (MINIMUM)  
 PUMP MAXIMUM = 28 GPM X 2MIN. (DOSE TIME SELECTED) = 56 GALLON DOSE  
 56 GALLON DOSE MEETS MINIMUM REQUIREMENTS.

**FRICTION HEAD CALCULATIONS:**

LENGTH OF PIPE FROM SEPTIC TANK TO DISTRIBUTION BOX = 5.00'  
 0 (45°) BENDS IN 2" PVC = (ADD 4' PER BEND) = (0 X 4) = 0'  
 (LENGTH OF FORCE MAIN + LENGTH OF PIPE FOR FRICTION LOSS PER BENDS)  
 5.00' + 0' = 5.00' TOTAL PIPE PER FRICTION LOSS  
 (20 GPM OF 2" PVC = 0.74 PER 100' OF PIPE)  
 0.74 ÷ 100 = 0.0074 X 5.00' (PIPE) = 0.037'  
 FRICTION HEAD = 0.037'

**DYNAMIC HEAD CALCULATIONS:**

INV. IN @ DISTRIBUTION BOX = 392.7'  
 INV. @ TANK PUMP OFF FLOAT = 386.3'  
 (INV. IN AT DISTRIBUTION BOX (-) ELEV. OF PUMP OFF SWITCH)  
 STATIC HEAD = 6.40'  
 FRICTION HEAD LOSS IN 2" DIA. PIPE = 0.037'  
 (STATIC HEAD + FRICTION HEAD)  
 TOTAL DYNAMIC HEAD = 6.44'

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/17.

**FLOW CALCULATIONS:**

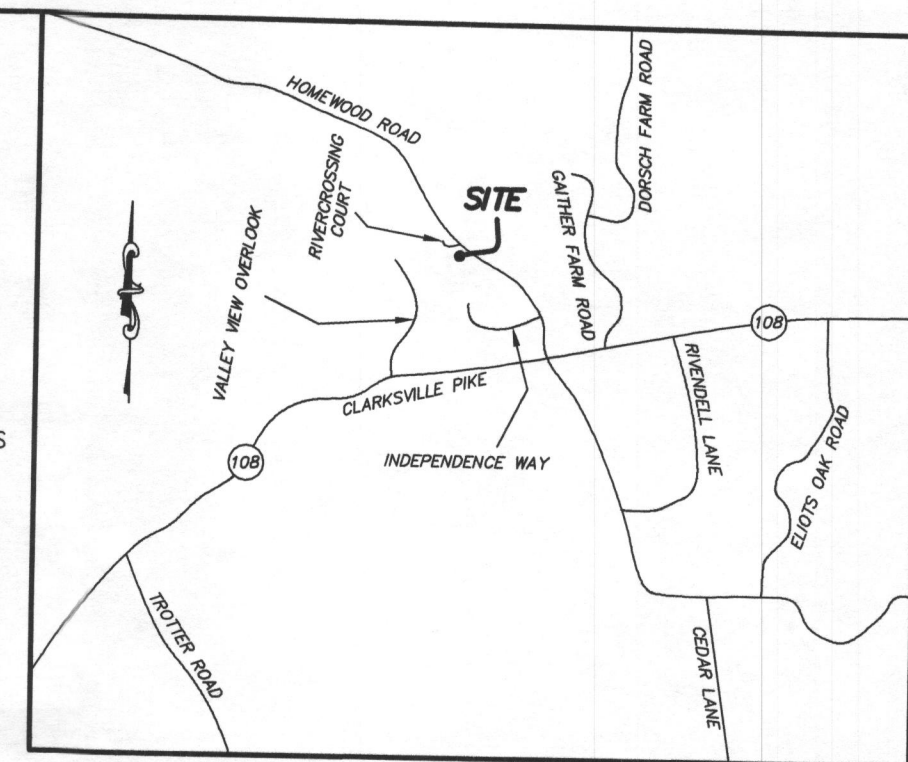
STANDARD HOOT 600BNR "BLASTER EB20" PUMP:  
 THE SPECIFICATIONS SHOW IT PUMPS 28 GPM (MAXIMUM) AT A HEAD OF 100'.  
 (2 MINUTE PUMP RUN TIME X 28 GPM = 56 GALLON DOSE)  
 (56 GALLON DOSE X 15 EVENTS PER DAY = 840 GALLONS)  
 840 GALLONS MEETS MINIMUM DAILY REQUIREMENTS.

**PUMP HORSEPOWER CALCULATIONS:**

FLOW X TOTAL DYNAMIC HEAD X SPECIFIC GRAVITY ÷ 3960 X EFFICIENCY  
 (SPECIFIC GRAVITY H<sub>2</sub>O @ 68°F IS 1)  
 (USE 0.4 FOR EFFICIENCY, AS THIS IS COMMON FOR EFFLUENT PUMPS)  
 28 X 6.44 X 1 ÷ 3960 X 0.4 = 180.32 ÷ 1,584.0 = 0.1138  
 USE PUMP CHART - PUMP = ME50, 1/2 H.P.

**LEGEND:**

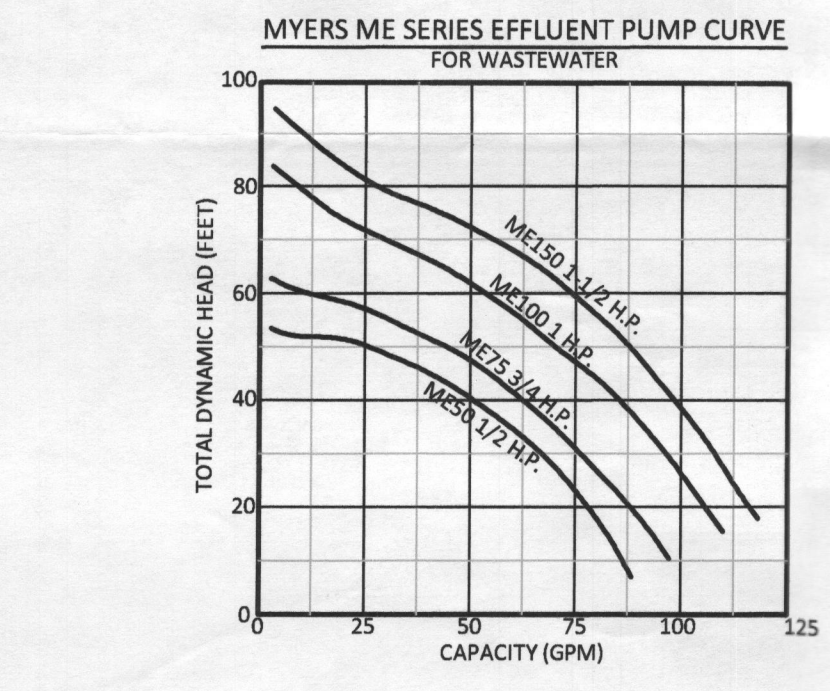
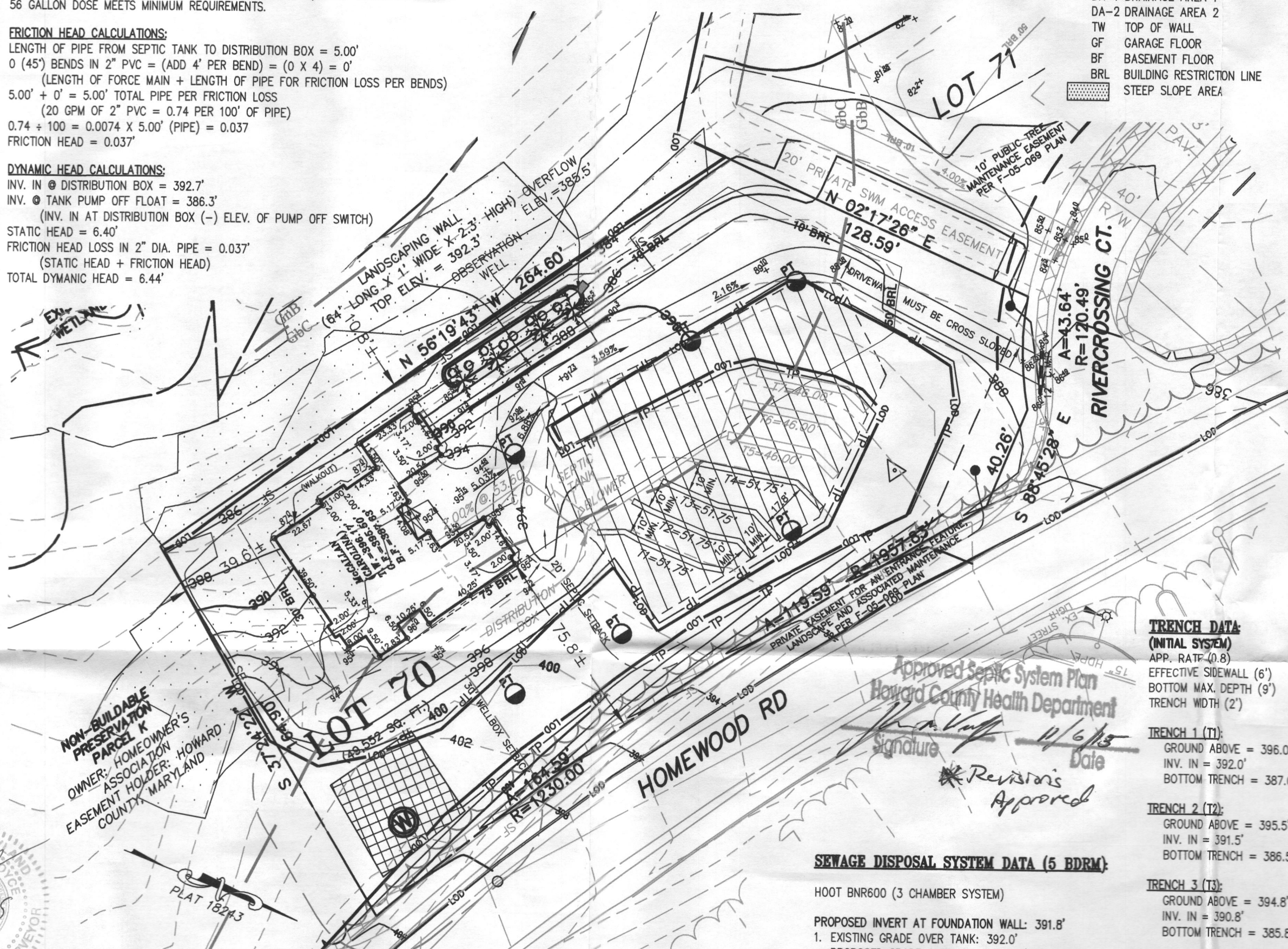
- PERC TEST LOCATION
- FAILED PERC TEST LOCATION
- WELL LOCATION
- LIMITS OF DISTURBANCE
- SILT FENCE
- TREE PROTECTION FENCE
- DRAINAGE AREA LIMITS
- SOIL TYPE LINE
- GbB GLADSTONE LOAM, 3% TO 8% SLOPES
- GbC GLADSTONE LOAM, 8% TO 15% SLOPES
- DA-1 DRAINAGE AREA 1
- DA-2 DRAINAGE AREA 2
- TW TOP OF WALL
- GF GARAGE FLOOR
- BF BASEMENT FLOOR
- BRL BUILDING RESTRICTION LINE
- STEEP SLOPE AREA



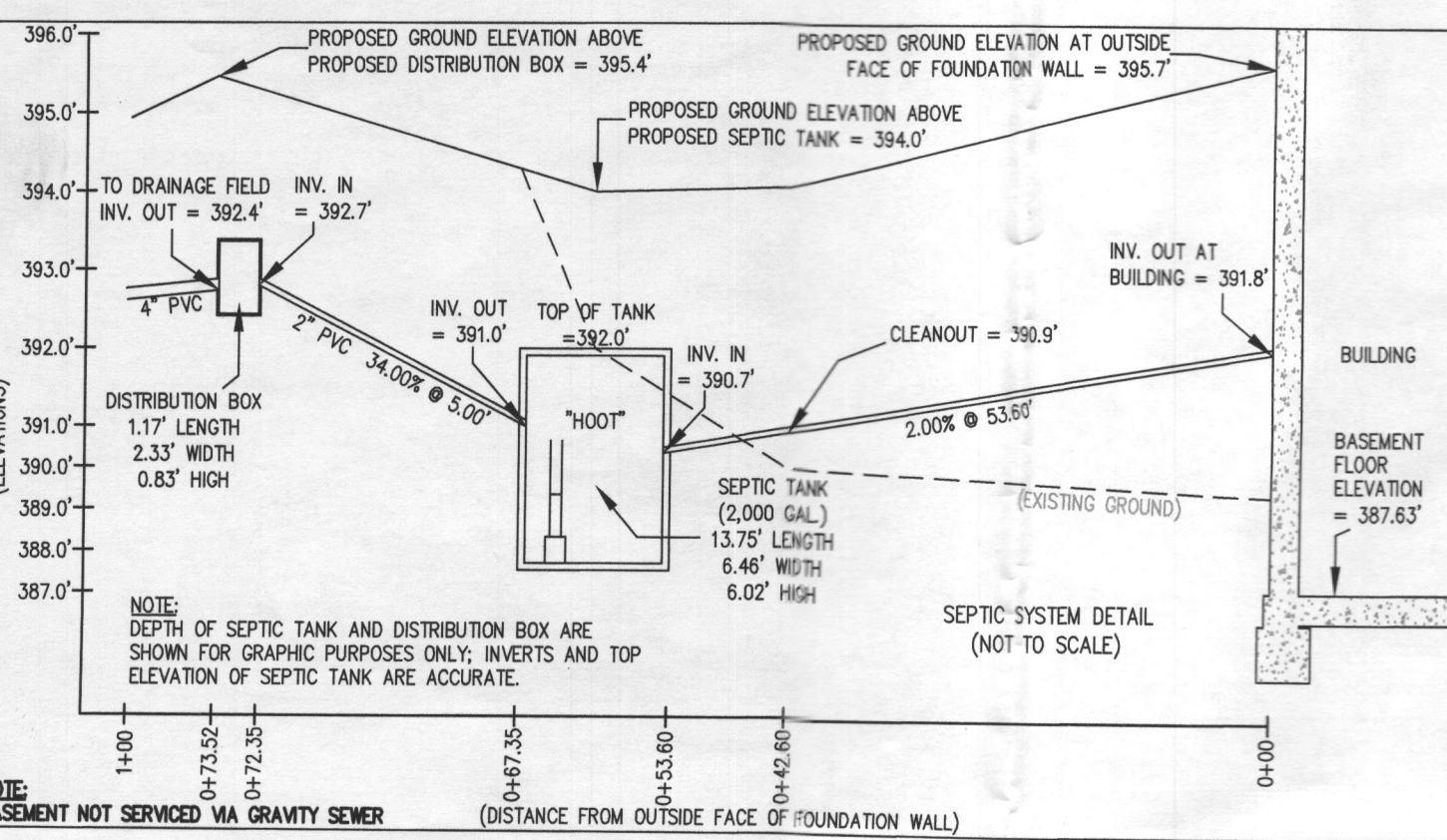
**VICINITY MAP**

1" = 1000'

- GENERAL NOTES:**
- THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/28/06.
  - PLAT REFERENCE: PLAT No. 18243.
  - THE EXISTING TOPOGRAPHY WITHIN THE AREA OF PROPOSED WORK IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY ESE DATED 5/10/11.
  - SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE ESE CONSULTANTS INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
  - THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410-313-1881) AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
  - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
  - TOTAL LIMIT OF DISTURBANCE: 39,299 SQ. FT. / 0.90 AC.±
  - STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED BY PREVIOUSLY APPROVED PLAN F-05-069 AND ENVIRONMENTAL SITE DESIGN AS SHOWN HEREON.
  - ANY DAMAGE TO PUBLIC "RIGHT-OF-WAYS" OR PAVED PUBLIC ROADS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
  - DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (ESE) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
  - THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
  - THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
  - THESE AREAS DESIGNATE A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS UNTO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
  - EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
  - ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
  - UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS FOR ALL PROPOSED STRUCTURES AND/OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
  - THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-05-069 AND ENVIRONMENTAL SITE DESIGN AS SHOWN.
  - A STANDARD SEDIMENT CONTROL PLAN MAY BE USED FOR DEVELOPMENT OF THIS LOT. REFERENCE GRADING PLAN GP-14-034 DATED 10/30/13.
  - THE EXISTING WELL(S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2463 HAS BEEN FIELD LOCATED BY ESE CONSULTANTS - PROFESSIONAL LAND SURVEYOR(S), AND IS ACCURATELY SHOWN.
  - BUILDING SETBACKS (B.R.L.'S) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS "±" HAVE AN ACCURACY OF ±0.1' FOOT.
  - CULVERT FOR DRIVEWAY PER F-05-069.
  - THIS PLAN HAS BEEN REVISED ACCORDING TO THE HOWARD COUNTY HEALTH DEPARTMENT'S RECOMMENDATIONS. THE FIRST TRENCH SYSTEM IS A 2' WIDE TRENCH WITH 10' SPACING WHILE THE FIRST REPLACEMENT IS A 3' WIDE TRENCH WITH 10' SPACING BETWEEN TRENCH EDGES.



**HOUSE OPTIONS:**  
 TYPE: McCallan (CAROLINA)  
 WALK-OUT BASEMENT  
 OPTION No. 017



**SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:**

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET COVER.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 100 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE), IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE 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.

APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
DIRECTOR	DATE
PROFESSIONAL ENGINEER	DATE

**SEWAGE DISPOSAL SYSTEM DATA (5 BDRM):**

HOOT BNR600 (3 CHAMBER SYSTEM)

PROPOSED INVERT AT FOUNDATION WALL: 391.8'

- EXISTING GRADE OVER TANK: 392.0'  
 PROPOSED GRADE OVER TANK: 394.0'  
 INVERT IN: 390.7' INVERT OUT: 391.0'
- DISTRIBUTION BOX:  
 EXISTING GRADE OVER BOX: 395.4'  
 PROPOSED GRADE OVER BOX: 395.4'  
 INVERT IN: 392.8' INVERT OUT: 392.5'
- TRENCH DESIGN, INITIAL SYSTEM:  
 (5 BDRM x 150 GPD/BDRM = 750 GPD)  
 750 GPD ÷ 0.8 APP. RATE = 937.50 SF  
 USE 2' WIDE TRENCH WITH 60" GRAVEL BELOW PIPE  
 10' MIN. SPACING BETWEEN TRENCH EDGES  
 937.50 SF ÷ 2' WIDTH = 468.75 LF X 0.44 = 206.25 LF MIN. TRENCH  
 USE 4 51.75' LONG TRENCHES = 207 LF
- TRENCH DESIGN, FIRST REPLACEMENT:  
 (5 BDRM x 150 GPD/BDRM = 750 GPD)  
 750 GPD ÷ 0.8 APP. RATE = 937.50 SF  
 USE 3' WIDE TRENCH WITH 60" GRAVEL BELOW PIPE  
 10' MIN. SPACING BETWEEN TRENCH EDGES  
 937.50 SF ÷ 3' WIDTH = 312.50 LF X 0.44 = 137.50 LF MIN. TRENCH  
 USE 3 46' LONG TRENCHES = 138 LF  
 BASEMENT NOT SERVICED VIA GRAVITY SEWER

**TRENCH DATA (INITIAL SYSTEM)**  
 APP. RATE (0.8)  
 EFFECTIVE SIDEWALL (6')  
 BOTTOM MAX. DEPTH (9')  
 TRENCH WIDTH (2')

**TRENCH 1 (T1):**  
 GROUND ABOVE = 396.0'  
 INV. IN = 392.0'  
 BOTTOM TRENCH = 387.0'

**TRENCH 2 (T2):**  
 GROUND ABOVE = 395.5'  
 INV. IN = 391.5'  
 BOTTOM TRENCH = 386.5'

**TRENCH 3 (T3):**  
 GROUND ABOVE = 394.8'  
 INV. IN = 390.8'  
 BOTTOM TRENCH = 385.8'

**TRENCH 4 (T4):**  
 GROUND ABOVE = 394.1'  
 INV. IN = 390.1'  
 BOTTOM TRENCH = 385.1'

**(FIRST REPLACEMENT)**  
 APP. RATE (0.8)  
 EFFECTIVE SIDEWALL (6')  
 BOTTOM MAX. DEPTH (9')  
 TRENCH WIDTH (3')

**BACKUP TRENCH 5 (T5):**  
 GROUND ABOVE = 393.3'  
 INV. IN = 389.3'  
 BOTTOM TRENCH = 384.3'

**BACKUP TRENCH 6 (T6):**  
 GROUND ABOVE = 392.5'  
 INV. IN = 388.5'  
 BOTTOM TRENCH = 383.5'

**BACKUP TRENCH 7 (T7):**  
 GROUND ABOVE = 391.6'  
 INV. IN = 387.6'  
 BOTTOM TRENCH = 382.6'

SITE PLAN FOR BAT INSTALLATION  
 LOT 70  
**HOMWOOD CROSSING**  
 LIBER 9808, FOLIO 204  
 PLAT No. 18243  
 TAX No. 05-443369  
 FIFTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 4803 RIVERCROSSING COURT  
 ELLICOTT CITY, MARYLAND

**ESE** Land Planning  
 Engineering  
 Land Surveying

ESE Consultants Inc.  
 7164 Columbia Gateway Dr.  
 Suite 230  
 Columbia, MD 21046  
 TEL: 410-872-9105  
 FAX: 410-872-4870

DATE: 11/04/15 SCALE: 1"=40' FILE: BAT LOT 70\_rev2  
 CHK'D: M.J.B. JOB NO.: 1214 DRAWN: R.C.K.

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21328, EXPIRATION DATE 1/8/17.

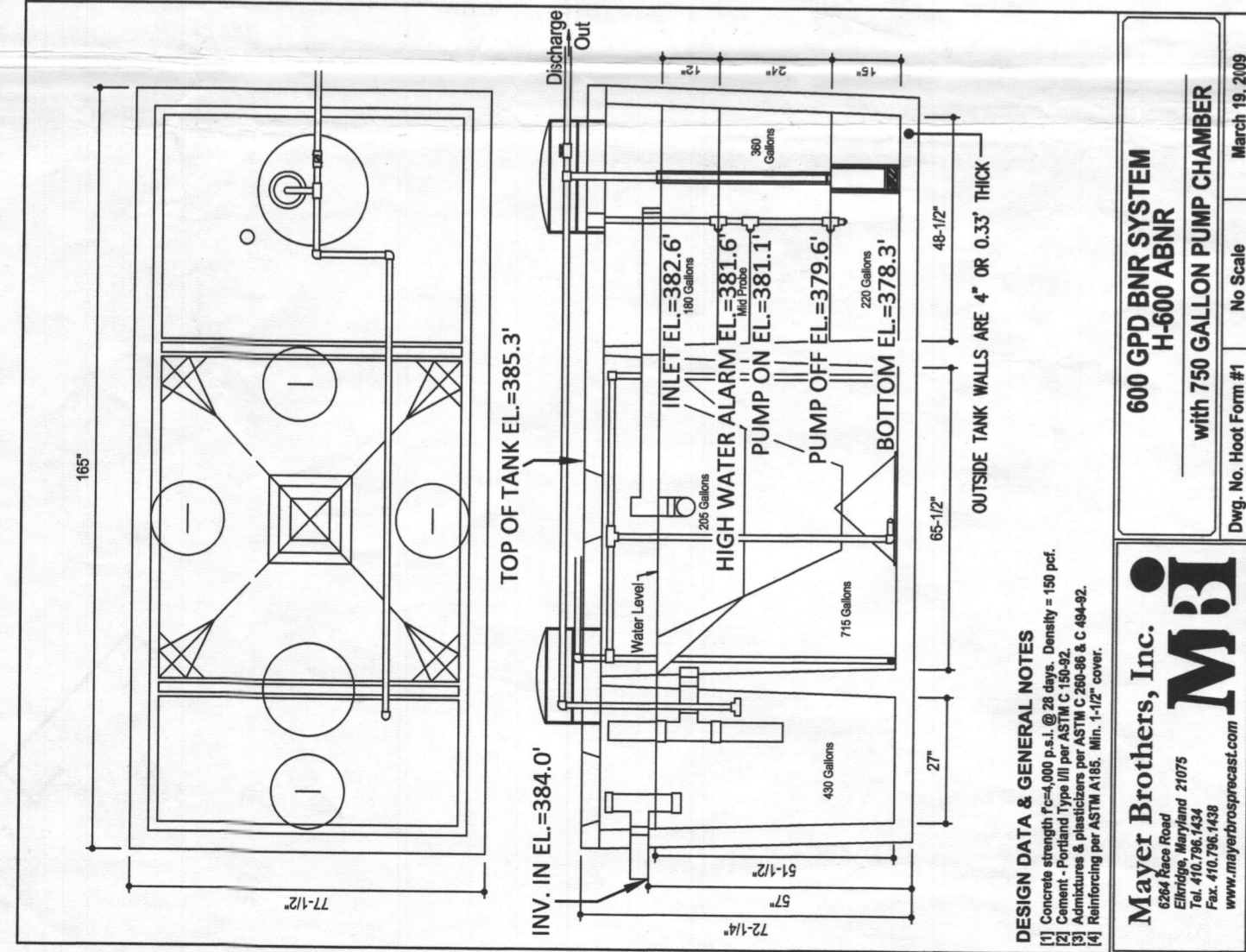
**PUMPING SYSTEM DATA:**

LENGTH OF FORCE MAIN: 196.75' @ 2" DIA. PIPE  
 STATIC HEAD = 12.90'  
 FRICTION HEAD = 1.69'  
 DYNAMIC HEAD = 14.59'  
 FLOW = 28 GPM  
 TIME DOSE = 56 GALLONS @ 2 MINUTE INTERVALS  
 PUMP TYPE PER PUMP CURVE CHART = 20EB05, 1/2 H.P.

**DOSE CALCULATIONS:**  
 PER HOWARD COUNTY HEALTH DEPARTMENT SPECIFICATIONS, A DOSE AROUND 50 GALLONS IS PREFERRED WHEN PUMPING TO A DISTRIBUTION BOX. MINIMUM DOSING FOR A 5 BEDROOM HOUSE IS 750 GPD AT 15 EVENTS PER DAY.  
 PUMP MAXIMUM = 28 GPM X 2 MIN. (DOSE TIME SELECTED) = 56 GALLON DOSE  
 56 GALLON DOSE MEETS MINIMUM REQUIREMENTS.

**FRICTION HEAD CALCULATIONS:**  
 LENGTH OF PIPE FROM SEPTIC TANK TO DISTRIBUTION BOX = 196.75'  
 8 (45') BENDS IN 2" PVC = (ADD 4' PER BEND) = (8 X 4) = 32'  
 (LENGTH OF FORCE MAIN + LENGTH OF PIPE FOR FRICTION LOSS PER BENDS)  
 196.75' + 32' = 228.75' TOTAL PIPE PER FRICTION LOSS  
 (20 GPM OF 2" PVC = 0.74 PER 100' OF PIPE)  
 0.74 x 100 = 0.0074 X 228.75 (LEFT OVER PIPE) = 0.2128 (28.75' OF PIPE PRORATED)  
 FRICTION HEAD = 1.69'

**DYNAMIC HEAD CALCULATIONS:**  
 INV. IN @ DISTRIBUTION BOX = 392.5'  
 INV. @ TANK PUMP OFF FLOAT = 379.6'  
 (INV. IN AT DISTRIBUTION BOX (-) ELEV. OF PUMP OFF SWITCH)  
 STATIC HEAD = 12.90'  
 FRICTION HEAD LOSS IN 2" DIA. PIPE = 1.69'  
 TOTAL DYNAMIC HEAD = 14.59'

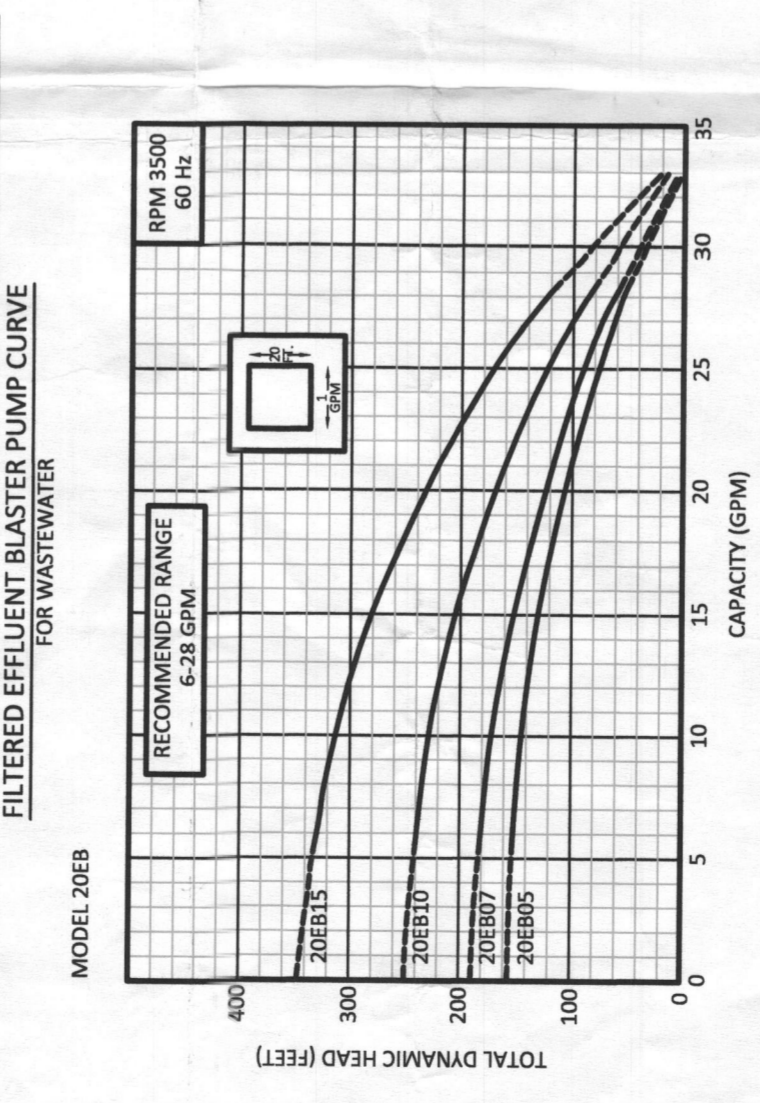


**DESIGN DATA & GENERAL NOTES**

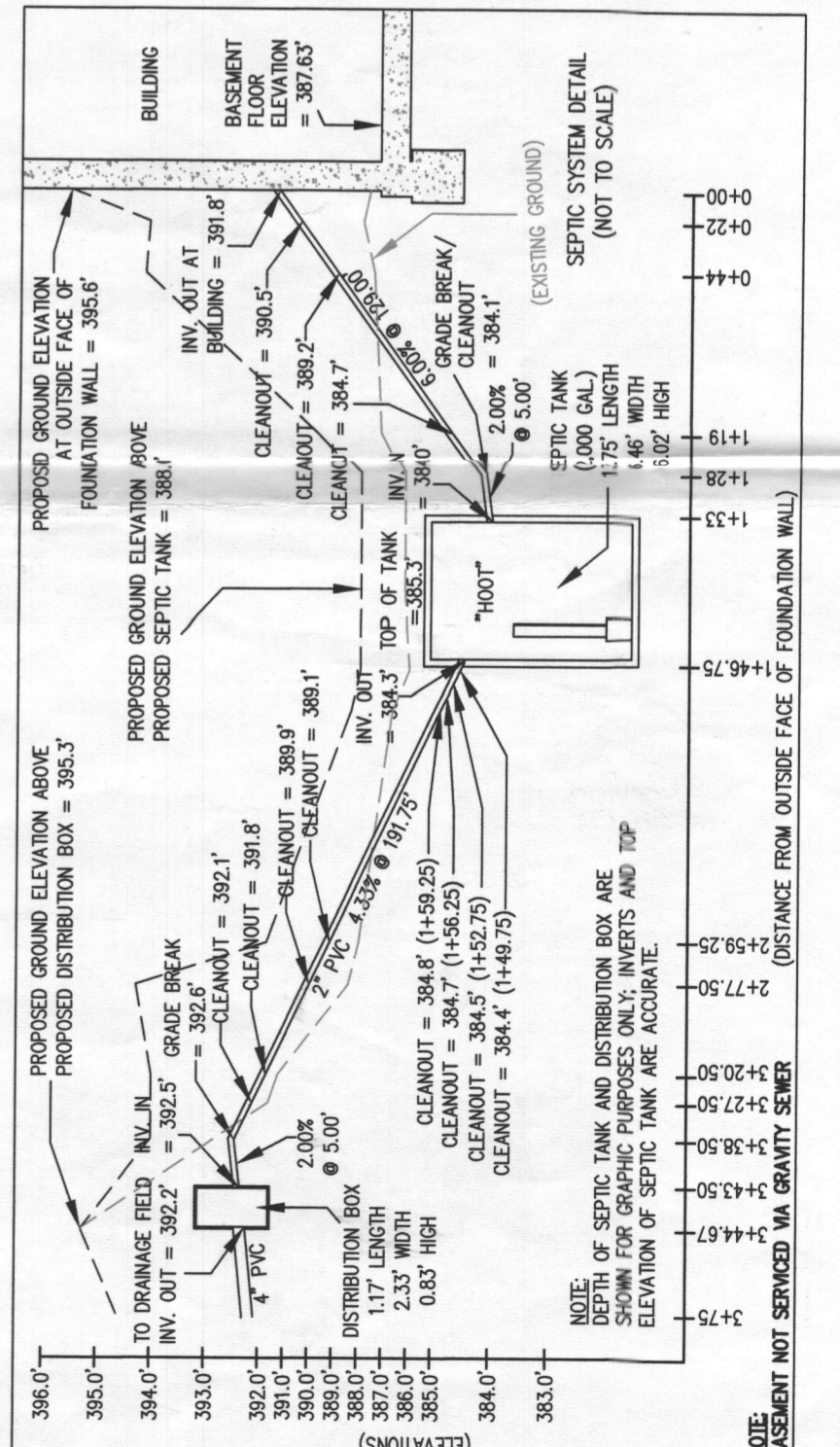
- Concrete strength Fc=4000 psi, Fy=60,000 psi, density = 150 pcf.
- Concrete - Portland Type III per ASTM C 150-92.
- Reinforcing steel - A615, Grade 60, per ASTM A 615.
- Dimensions per ASHRAE 90.1, Min. 1/2\"/>

**Mayer Brothers, Inc.**  
 21075  
 Ellicott City, MD 21034  
 Tel: 410-796-1424  
 Fax: 410-796-1428  
 www.mayerbrothers.com

**600 GPD BNR SYSTEM H-6000 ABNR with 750 GALLON PUMP CHAMBER**  
 Dwg. No. Hoot Form #1 No Scale March 19, 2009



**HOUSE OPTIONS:**  
 TYPE: MCGALLAN (CAROLINA) WALK-OUT BASEMENT  
 OPTION No. 017



**SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:**

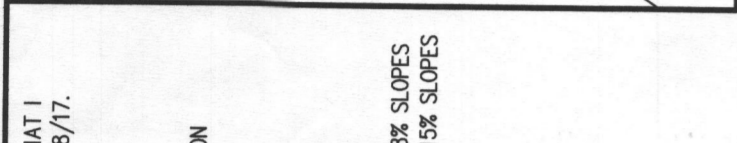
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET COVER.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 100 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE), IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE 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.

APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

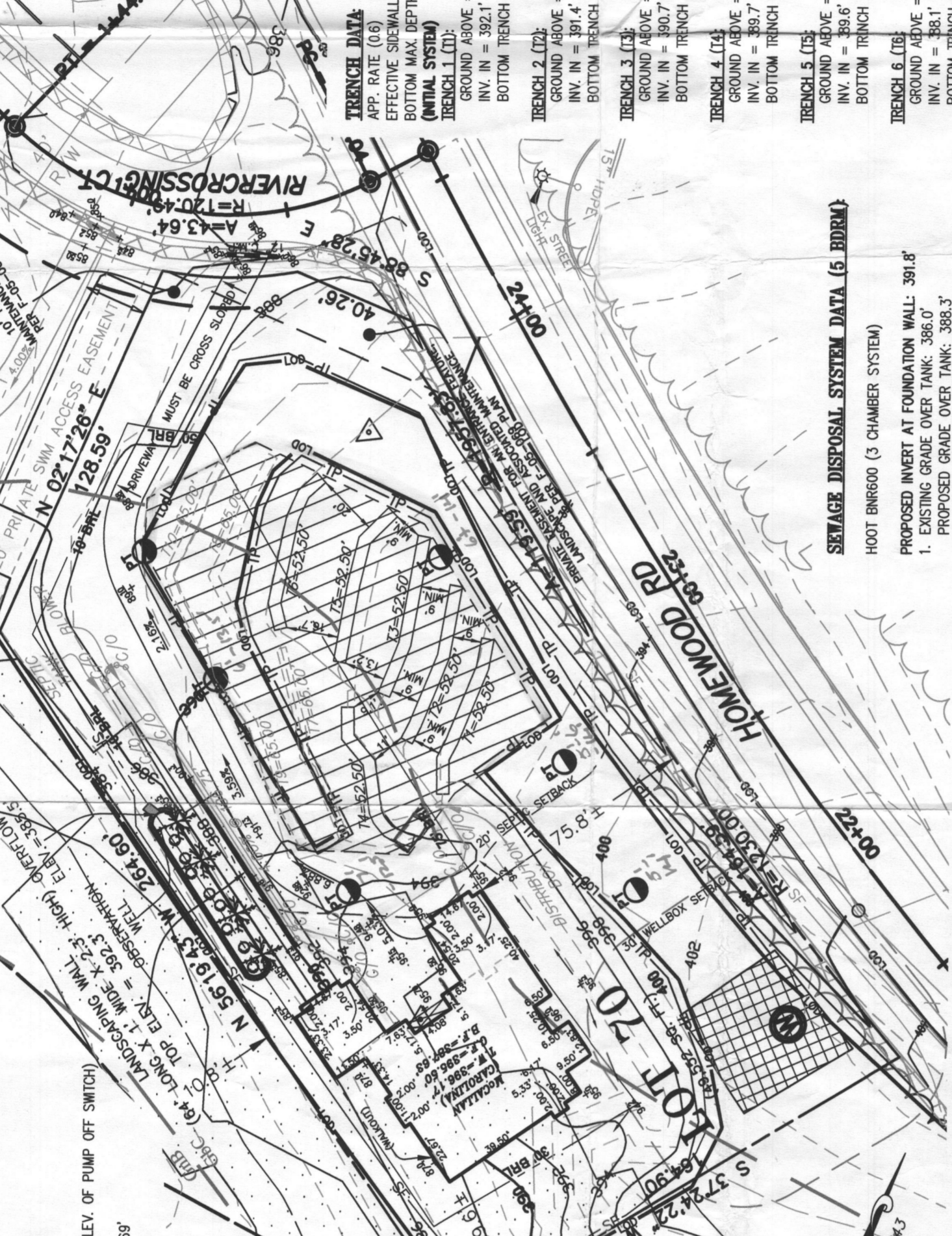
DIRECTOR  
 DATE

PROFESSIONAL ENGINEER  
 DATE



**GENERAL NOTES:**

- THE SUBJECT PROPERTY IS ZONED RC-DEO PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND PER COMP-LITE ZONING REGULATIONS DATED 7/28/06.
- PLAT REFERENCE: PLAT No. 18243.
- THE EXISTING TOPOGRAPHY WITHIN THE AREA OF PROPOSED WORK IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY ESE.
- SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE ESE CONSULTANTS INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
- THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410-313-1881) AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MSS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TOTAL LIMIT OF DISTURBANCE: 39,299 SQ. FT. / 0.90 AC.±
- STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED BY PREVIOUSLY APPROVED PLAN F-05-069 AND ENVIRONMENTAL SITE DESIGN AS SHOWN HEREON.
- ANY DAMAGE TO PUBLIC "RIGHT-OF-WAYS" OR PAVED PUBLIC ROADS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE IN ACCORDANCE WITH THE HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
- DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (ESE) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
- THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
- THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- THESE AREAS DESIGNATE A PRIVATE SEWAGE EASEMENT OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THE EASEMENT RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE EASEMENTS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICES SHALL HAVE THE AUTHORITY TO GRANT VARIANCES FOR ENCROACHMENTS INTO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A MODIFIED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
- EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWN GRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN.
- ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
- UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS FOR ALL PROPOSED STRUCTURES AND/OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
- THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-05-069 AND ENVIRONMENTAL SITE DESIGN AS SHOWN.
- A STANDARD SEDIMENT CONTROL PLAN MAY BE USED FOR DEVELOPMENT OF THIS LOT. REFERENCE GRADING PLAN GP-14-034 DATED 10/30/13.
- THE EXISTING WELLS (S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2463) HAS BEEN FIELD LOCATED BY ESE CONSULTANTS - PROFESSIONAL LAND SURVEYORS(S), AND IS ACCURATELY SHOWN.
- BUILDING SETBACKS (B.S.) SHOWN HEREON PER SITE DEVELOPMENT PLAN SETBACK DISTANCES SHOWN HEREON AS ± HAVE AN ACCURACY OF ±0.1 FOOT.
- CULVERT FOR DRIVEWAY PER F-05-069.
- THE INITIAL TRENCH SYSTEM IS NOT A STANDARD SYSTEM AND HAS BEEN REVIEWED BETWEEN TRENCH EDGES, THE REPLACEMENT TRENCHES ARE YOUR STANDARD 3 FEET WIDE WITH 10 FEET SPACING BETWEEN TRENCH EDGES.



**SEWAGE DISPOSAL SYSTEM DATA (5 BEDRM)**

HOOT BNR600 (3 CHAMBER SYSTEM)

PROPOSED INVERT AT FOUNDATION WALL: 391.8'  
 EXISTING GRADE OVER TANK: 386.0'  
 PROPOSED GRADE OVER TANK: 388.3'  
 INVERT IN: 384.0' INVERT OUT: 384.3'

**DISTRIBUTION BOX:**  
 EXISTING GRADE OVER BOX: 395.3'  
 PROPOSED GRADE OVER BOX: 395.3'  
 INVERT IN: 392.5' INVERT OUT: 392.2'

**TRENCH DESIGN, INITIAL SYSTEM AND FIRST REPLACEMENT:**  
 (5 BDRM x 150 GPD/BDRM = 750 GPD)  
 750 GPD x 0.6 APP. RATE = 1,250 SF  
 USE 4" WIDE TRENCH WITH 48" GRAVEL BELOW PIPE  
 9" MIN. SPACING BETWEEN TRENCH EDGES  
 312.50 LF MIN. TRENCH  
 USE 6 52.50' LONG TRENCHES = 315 LF

**TRENCH DESIGN, SECOND REPLACEMENT:**  
 (5 BDRM x 150 GPD/BDRM = 750 GPD)  
 750 GPD x 0.8 APP. RATE = 937.50 SF  
 USE 3" WIDE TRENCH WITH 48" GRAVEL BELOW PIPE  
 10' MIN. SPACING BETWEEN TRENCH EDGES  
 937.50 SF ÷ 3" WIDTH = 312.50 LF x 0.83 = 259.38 LF MIN. TRENCH  
 USE 4 65' LONG TRENCHES = 260 LF  
 BASEMENT NOT SERVED VIA GRAVITY SEWER

**SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:**

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APPROVED: FOR HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE

DIRECTOR  
 DATE

PROFESSIONAL ENGINEER  
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**ESE** Land Planning Engineering Land Surveying

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DATE: 04/17/15  
 SCALE: 1"=40'  
 JOB NO.: 1214  
 CHK'D: M.J.B.  
 FILE: BAT LOT 70.rvt  
 DRAWN: R.C.K.

**HOMWOOD CROSSING**  
 LOT 70

SITE PLAN FOR BAT INSTALLATION

LIBER 9808, FOLIO 204  
 PLAT No. 18243  
 TAX No. 05-443369  
 FIFTH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND  
 ADDRESS: 4803 RIVERCROSSING COURT  
 ELLICOTT CITY, MARYLAND