

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: 4/27/15 **ONSITE SEWAGE DISPOSAL SYSTEM** P 555840

INSTALLATION APPROVAL DATE: 8/4/15 *(Krw)* **PERMIT CONSTRUCTION** A _____

PROPERTY ADDRESS: 15237 Sweetbay Street

SUBDIVISION: Belle Haven Estates LOT: 39 TAX ID: _____

CONTRACTOR: Ben Lew Plumbing EMAIL: _____

CONTRACTOR ADDRESS: 23407 Frederick Road, Clarksburg, MD 20871 PHONE: (301) 428-3900

PROPERTY OWNER: K Hovnanian Homes EMAIL: cwillet@khov.com

OWNER ADDRESS: 1802 Brightseat Road PHONE: 301-683-6268

BAT UNIT MODEL: Hoot 600 BNR PUMP SIZE: _____ PUMP TANK CAPACITY: 600GPD

DISTRIBUTION SYSTEM: GRAVITY LOW PRESSURE DOSED NUMBER OF BEDROOMS: 4

TRENCHES:	LINEAR FEET REQUIRED: <u>157' 60"</u>	INLET DEPTH: <u>4' 3"</u>
	TRENCH WIDTH: <u>3' 2"</u>	MAXIMUM BOTTOM DEPTH: <u>8' 7"</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10' 9"</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>8' 3.5"</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:	Use 2 79' trenches. <i>Electrical Permit: E15001537</i> <i>original stone: 118 tons</i> <i>new stone: 79 tons</i>	

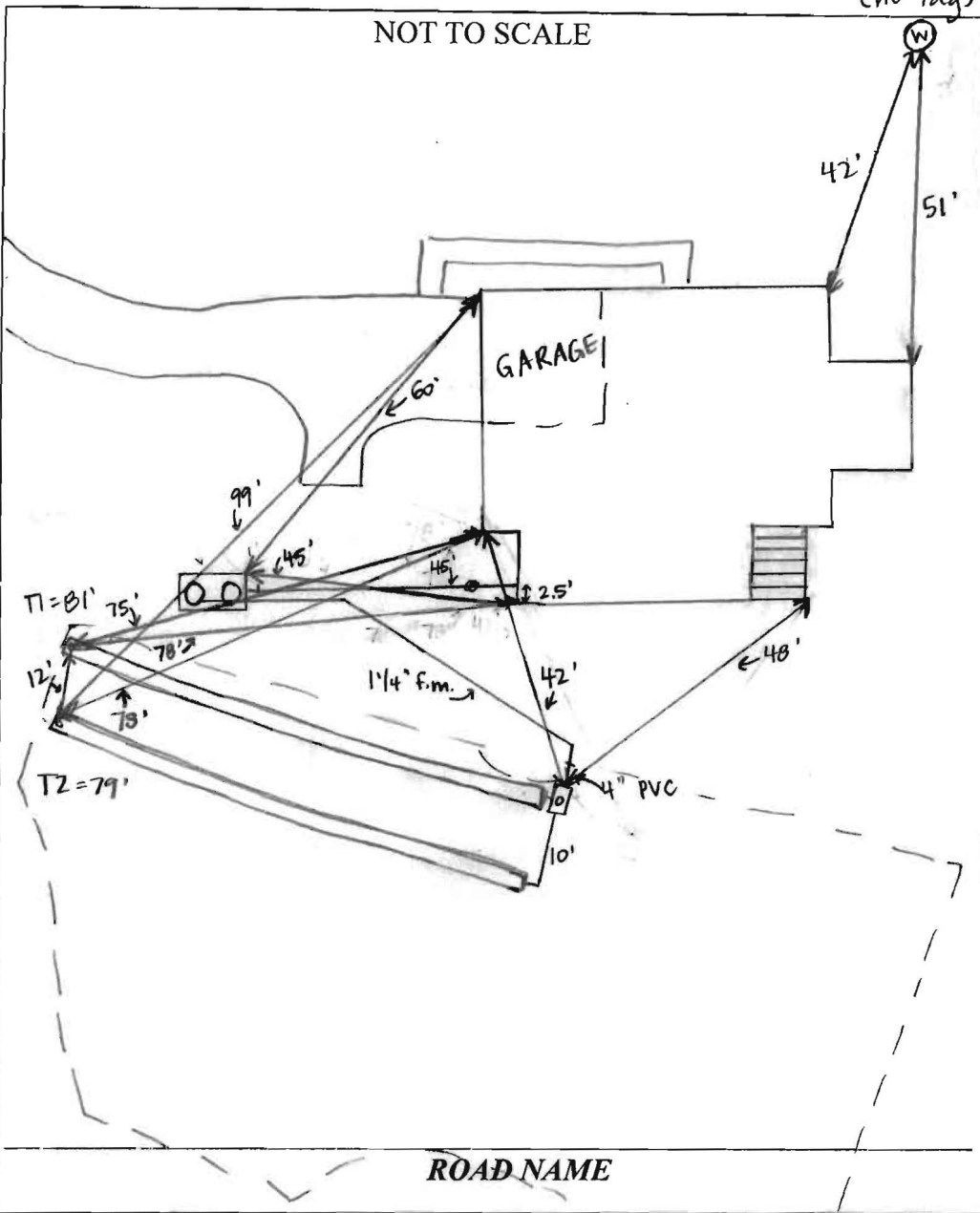
ISSUED BY: Hank Oswald ISSUE DATE: 5/12/15 EXPIRATION DATE: 5/12/16

- 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 DOWNGRAIDENT 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
- 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

(no tag)



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
2'	3'	7'
NUMBER OF TRENCHES		2
TOTAL LENGTH		160'
ABSORPTION AREA		320' + SIDEWALL
DISTRIBUTION BOX LEVEL		YES
DISTRIBUTION BOX BAFFLE		NO
DISTRIBUTION BOX PORT		YES

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	MAYER BROS.
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5-2'
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	FRONT + REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	NONE

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:

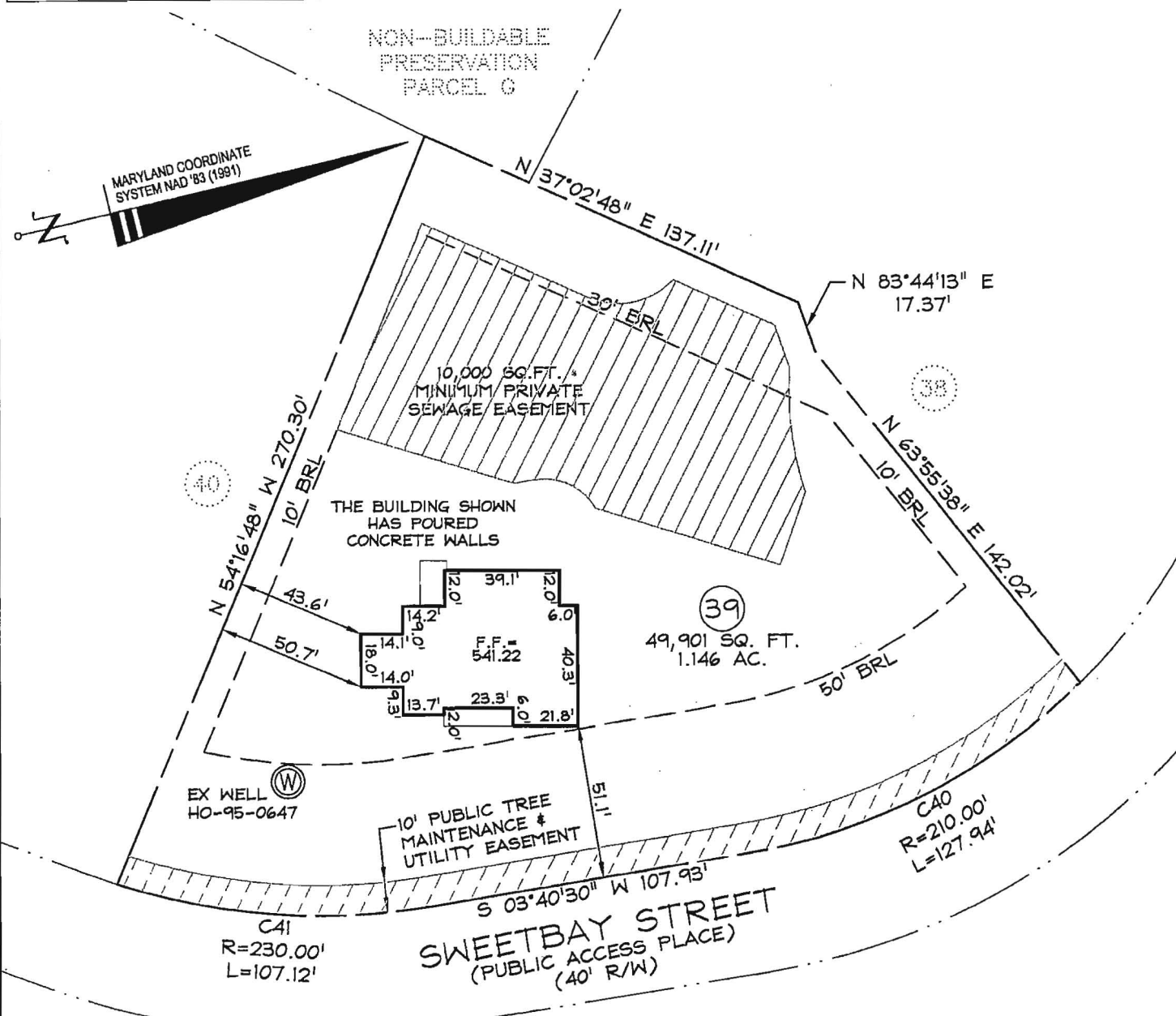
6/8/15 Met Andy from Ben Lewis on site for layout. Trenches will be in area of initial system on BAT plan. Tree removal from SDA left some uneven terrain. D-box will go in middle of SDA on edge closest to house to make easy access for future repairs. Hoot now using different pump than shown on BAT plan. SDA and tank staked according to plan. (SC)

INSTALLATION: 6/8/15 T2 dug, stone + pipe added, left open. 2' to stone, 2' wide. D-box installed and connected to T2. (SC) 6/9/15 T1 finished + left open. House connection made, pipe laid from house to tank location. force main laid from tank location to D-box + connection made w/ D-box. (SC) 6/10/15 Tank installed and all connections made. Pipe bedded from house to tank and at connection of 1 1/4" f.m. to 4" PVC before D-box. #57 stone used to bed pipe. 1' step in pipe just before tank. Pump used is model 20EB - 1/2 hp. Mounting in pump approved by Mike Sample with Hoot. Need BAT startup certification. (SC) 7/28/15 on site for Hoot startup with Mike

FINAL INSPECTOR K. Vay DATE OF APPROVAL 8/4/15

Sample Alarm works, pump pumps to D-box. (SC)

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TAN	CHD. BRG.	CHD. DIST.
C40	210.00'	127.94'	34°54'22"	66.02'	S 13°46'41" E	125.97'
C41	230.00'	107.12'	26°41'02"	54.55'	S 17°01'01" W	106.15'



4.29.15
Wall check okay
H.O.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I EITHER PERSONALLY PREPARED OR WAS IN RESPONSIBLE CHARGE OVER THE PREPARATION OF THIS DRAWING AND THE SURVEYING WORK REFLECTED IN IT, AND THAT IT IS IN COMPLIANCE WITH REQUIREMENTS SET FORTH IN REGULATION .12 OF CHAPTER 06, MINIMUM STANDARDS OF PRACTICE.

I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 239, EXPIRATION DATE 07/06/16.



LOCATION DRAWING / WALL CHECK
#15237 SWEETBAY STREET
LOT 39
BELLE HAVEN ESTATES
PLAT No. 19953
ELECTION DIST. No. 4 HOWARD COUNTY, MD

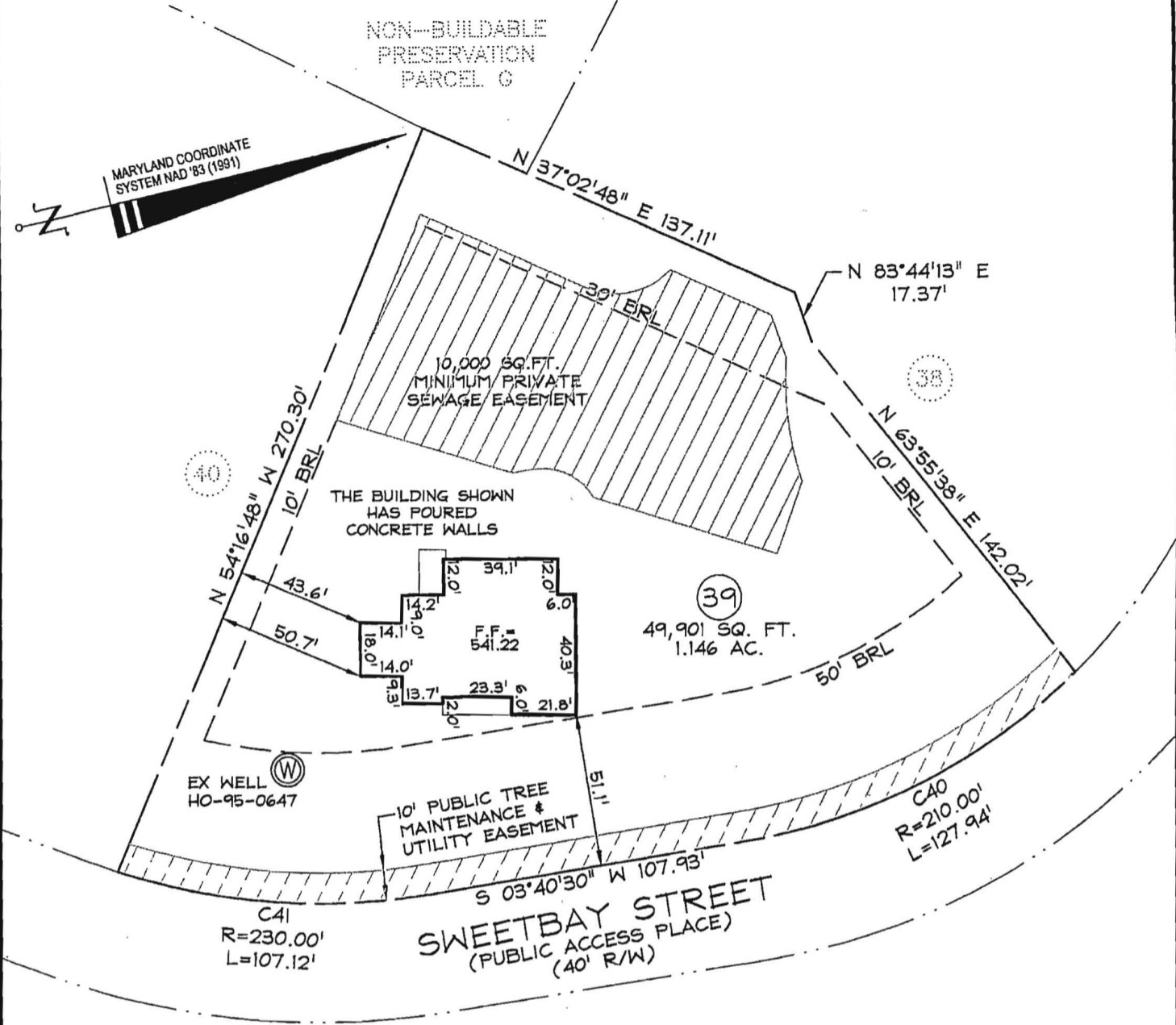
DDC JOB#: 06116.5
DATE: 04-21-2015
SCALE: 1"=50'
DRN. BY: RC
CHK. BY: RBS



Planners
Surveyors
Engineers
Landscape Architects
192 East Main Street
Westminster, MD 21157
410.386.0560
410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us

P555840

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 Surveyors
 Engineers
 Landscape Architects
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 Westminster, MD 21157
 410.386.0560
 410.386.0564 (Fax)
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LOCATION DRAWING / WALL CHECK
 #15237 SWEETBAY STREET
 LOT 39
 BELLE HAVEN ESTATES
 PLAT No. 19953
 ELECTION DIST. No. 4 HOWARD COUNTY, MD

DDC JOB#: 06116.5
 DATE: 04-21-2015
 SCALE: 1"=50'
 DRN. BY: RC
 CHK. BY: RBS



MAYER BROS., INC.

Precast Concrete Products

6264 Race Rd. Elkridge, MD 21075

Letter of Satisfaction Hoot System Installation

Address of Property: 15237 Sweetbay St.
Woodbine, MD. 21797

Date of Final Inspection: 7/28/15

Installer: Ben Lewis Plumbing

Hoot Technician/Inspector: Mike

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,

H. Michael Dage
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, PermEntry Basement Entries,
Scapewal Window Walls, Custom Precast Products



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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 27th day of April, among K. HOJMANIAN HOME OF MARYLAND I. LLC, 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 15237 SWEETBAY STREET WOODBINE 21797, 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 16108 Folio 0000. 04/374053

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 600 GPD BNR SYSTEM 4/750 GALLON PUMP CHAMBER.

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.

Michael J. Davis 4/27/15
Howard County Health Department

Steve Snyder 3-18-15
Owner #1 Signature Date
STEVE SNYDER V.P. CONSTRUCTION
STEVE SNYDER K. ROYANIAN HUNTER OF MARYANELLE
Owner #1 Print Name

Owner #2 Signature Date

Owner #2 Print Name

N/A AS OF 4/27/15
Buyer #1 Signature Date

Buyer #2 Signature Date

Buyer #1 Print Name

Buyer #2 Print Name

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: K Hovnanian Homes
Reference/Control #: 114

LR - Agreement Surcharge
1x 40.00 40.00

SubTotal: 60.00
Total: 60.00

REV-Check-BOA 60.00
Number : 22110

04/27/2015 14:00 CC13-VB
#4160959 /496/109
Thank you for visiting us today



HOWARD COUNTY HEALTH DEPARTMENT

558

DATE 4/12/15

PS

Received From

K Hovnanian Homes PHONE # 210 315

CASH
 CHECK
NO 000
22115

For Septic Permit / P237 Sewer
Street Lot 39

\$ 396.00

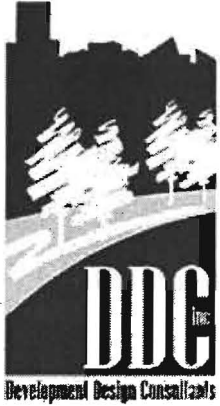
Three hundred ninety six

Received By J. Kemp

Oswald, Hank

From: Paul Cavanaugh <PCavanaugh@ddcinc.us>
Sent: Wednesday, February 04, 2015 3:28 PM
To: Oswald, Hank
Cc: Brian Collins
Subject: RE: BAT Plan_Belle Haven Estates , Lot 39

Thanks Hank, I will take a look at the alignments and have the plan re-submitted.



Paul G. Cavanaugh, PE
General Manager, Director of Engineering and Construction
pcavanaugh@DDCinc.us

Development Design Consultants, Inc.

Planners, Surveyors, Engineers, Landscape Architects

192 East Main Street office 410.386.0560
Westminster, MD 21157 cell 443.813.2302
www.DDCinc.us fax 410.386.0564



From: Oswald, Hank [<mailto:hoswald@howardcountymd.gov>]
Sent: Wednesday, February 04, 2015 3:24 PM
To: Paul Cavanaugh
Subject: BAT Plan_Belle Haven Estates , Lot 39

Mr. Cavanaugh:

This email is in response to the BAT Plan submitted for Belle Haven Estates , Lot 39. While the trench layout appears adequate, the trenches aren't completely on contour. Please revise the BAT Plan to show trenches more contour. Should you have any questions or concerns, please don't hesitate to contact me.

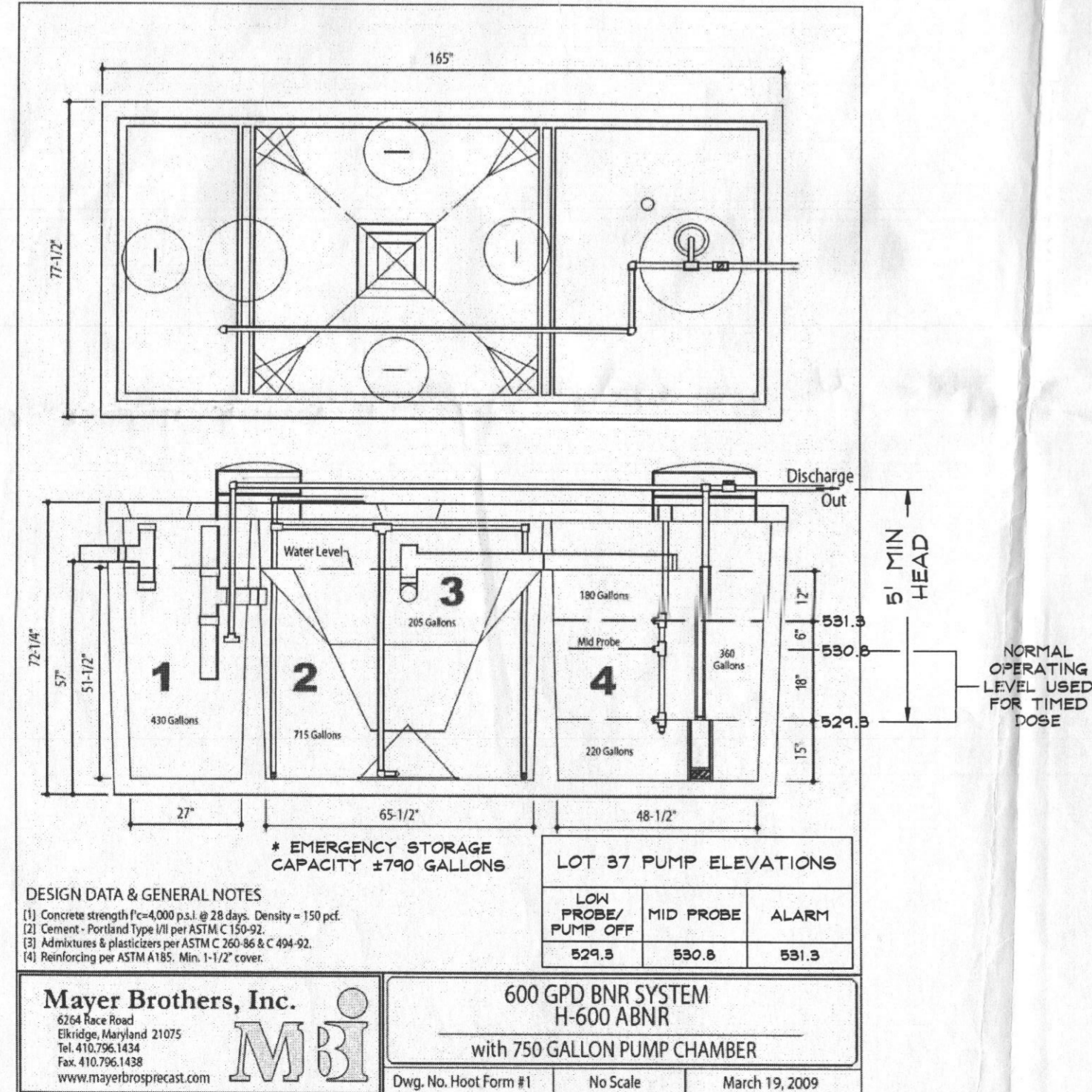
Regards,

Hank

Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
410.313.1786

- GENERAL NOTES**
1. BASE SQUARE FOOTAGE OF HOUSE: 3,554 SQ.FT.
NUMBER OF BEDROOMS: 4
 2. EJECTOR PUMP REQUIRED TO SEWER BASEMENT
 3. A DRIVEWAY CULVERT IS REQUIRED PER THE APPROVED ROAD DRAWINGS (F-07-38)
 4. 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.
 5. PLAT REFERENCE: #19948
 6. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DINA, AND DATED 06/25/07. EXISTING TOPOGRAPHY BASED ON GRADING PLAN PREPARED BY DEBARIANO DESIGN CONSULTANTS DATED 07/09/07 AND FIELD RUN TOPOGRAPHY PREPARED BY DDC INC IN JAN. 2012.
 7. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE DDC, INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
 8. 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.
 9. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 10. TOTAL LIMIT OF DISTURBANCE: 17,115 SQ. FT. / 0.28 AC.
 11. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-38).
 12. 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.
 13. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
 14. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
 15. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 16. THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQ.FT. AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
 16. 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.
 17. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 18. UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS OF ALL PROPOSED STRUCTURES AND OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
 19. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT WAS PREVIOUSLY APPROVED UNDER F-07-38.
 20. THE EXISTING WELL SHOWN (HO-095-0647) HAS BEEN FIELD LOCATED AND IS SHOWN ACCURATELY.
 21. AT ANY TIME IN THE FUTURE THAT A BUILDING PERMIT IS SUBMITTED TO FINISH THE AREA CURRENTLY IDENTIFIED AS OPTIONAL DEN, THEN A SEPTIC SYSTEM UPGRADE WILL BE REQUIRED AS FINISHING THE OPTIONAL DEN CREATES A FIFTH BEDROOM PER HOWARD COUNTY CODE 3.801(B).

- SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:**
1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
 2. THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET.
 3. THE BLOWER MAY NOT BE LOCATED MORE THAN 10 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
 4. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
 5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
 6. WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
 7. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
 8. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
 9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

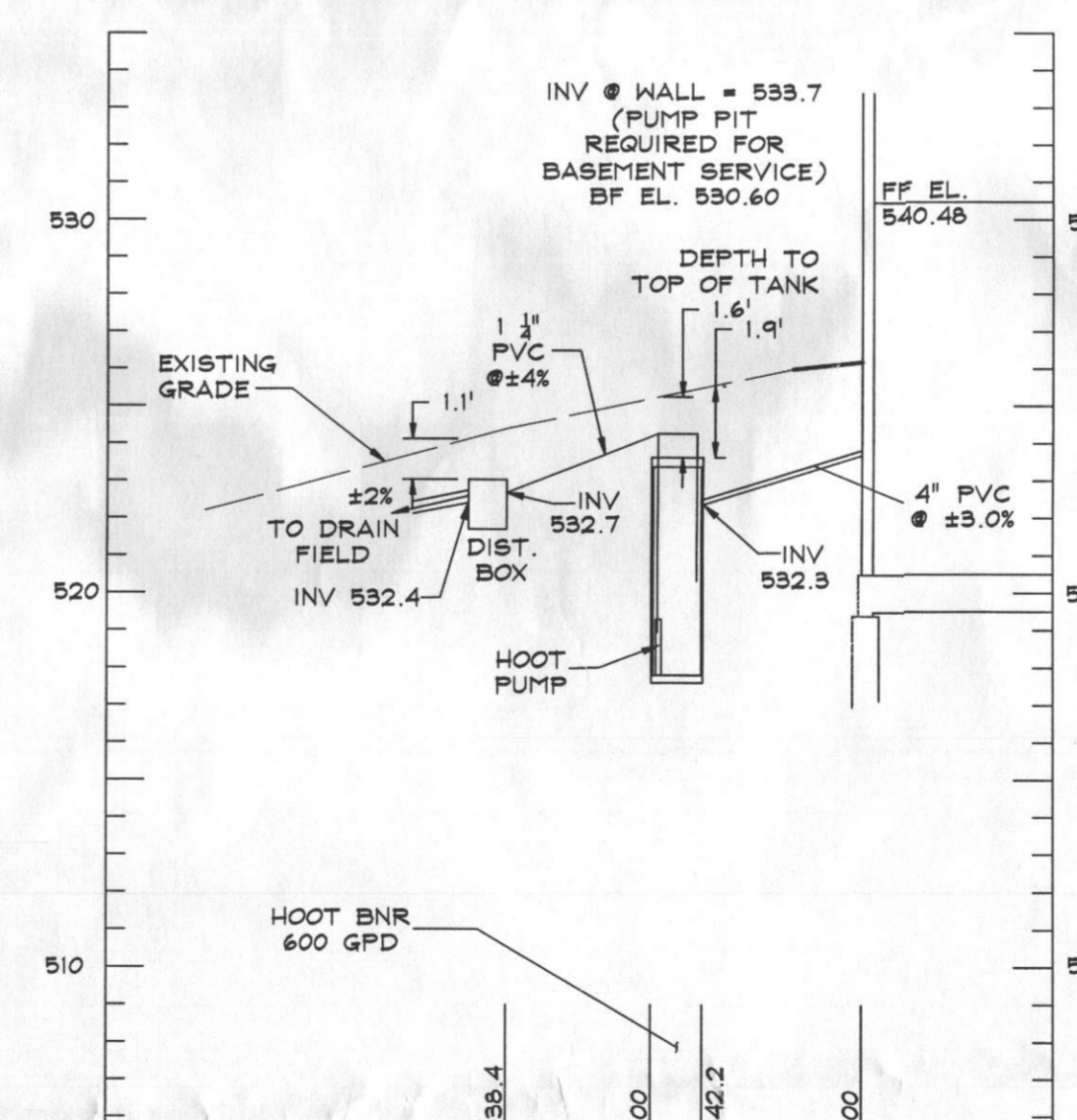
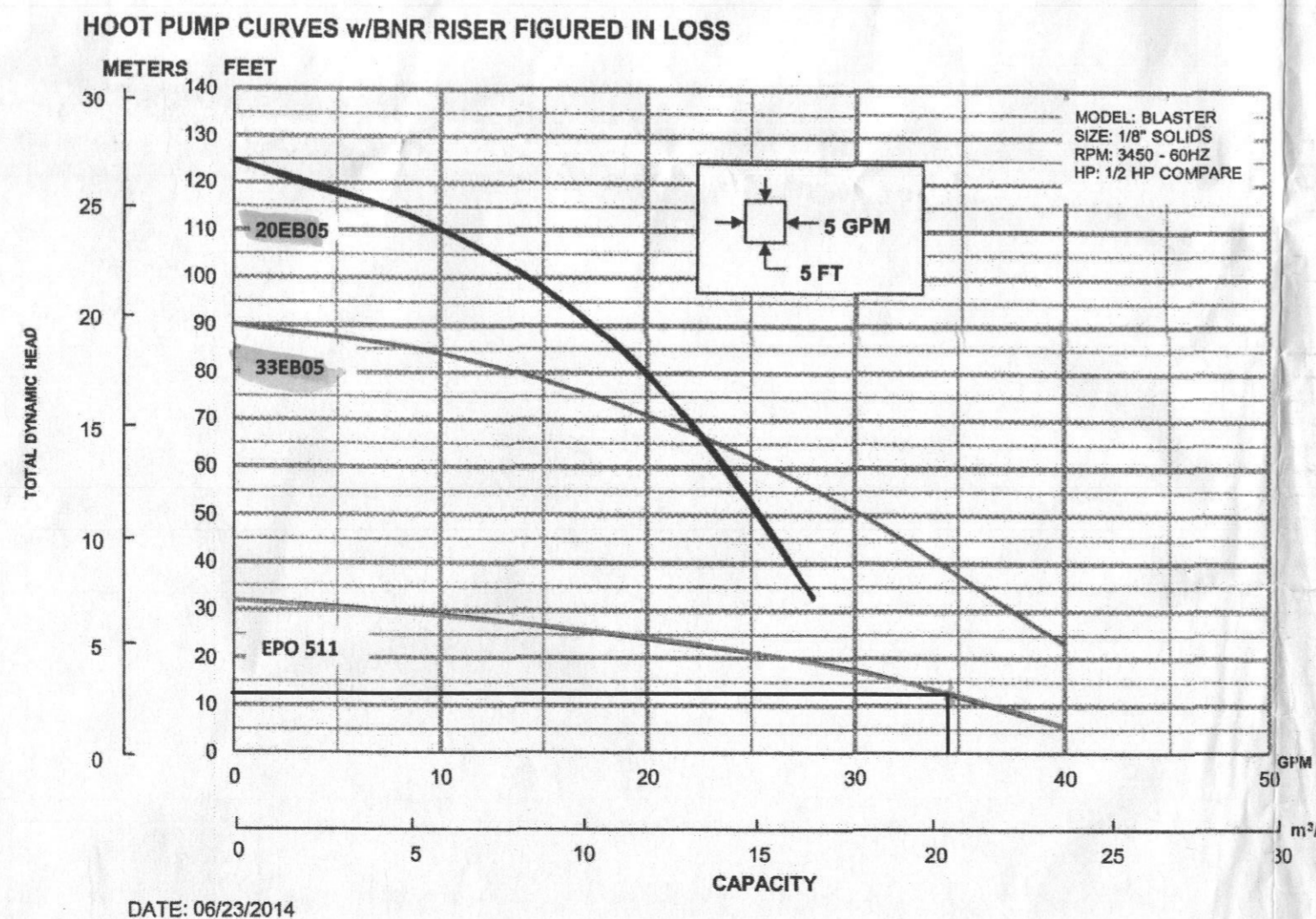


TOTAL DYNAMIC HEAD CALCULATIONS

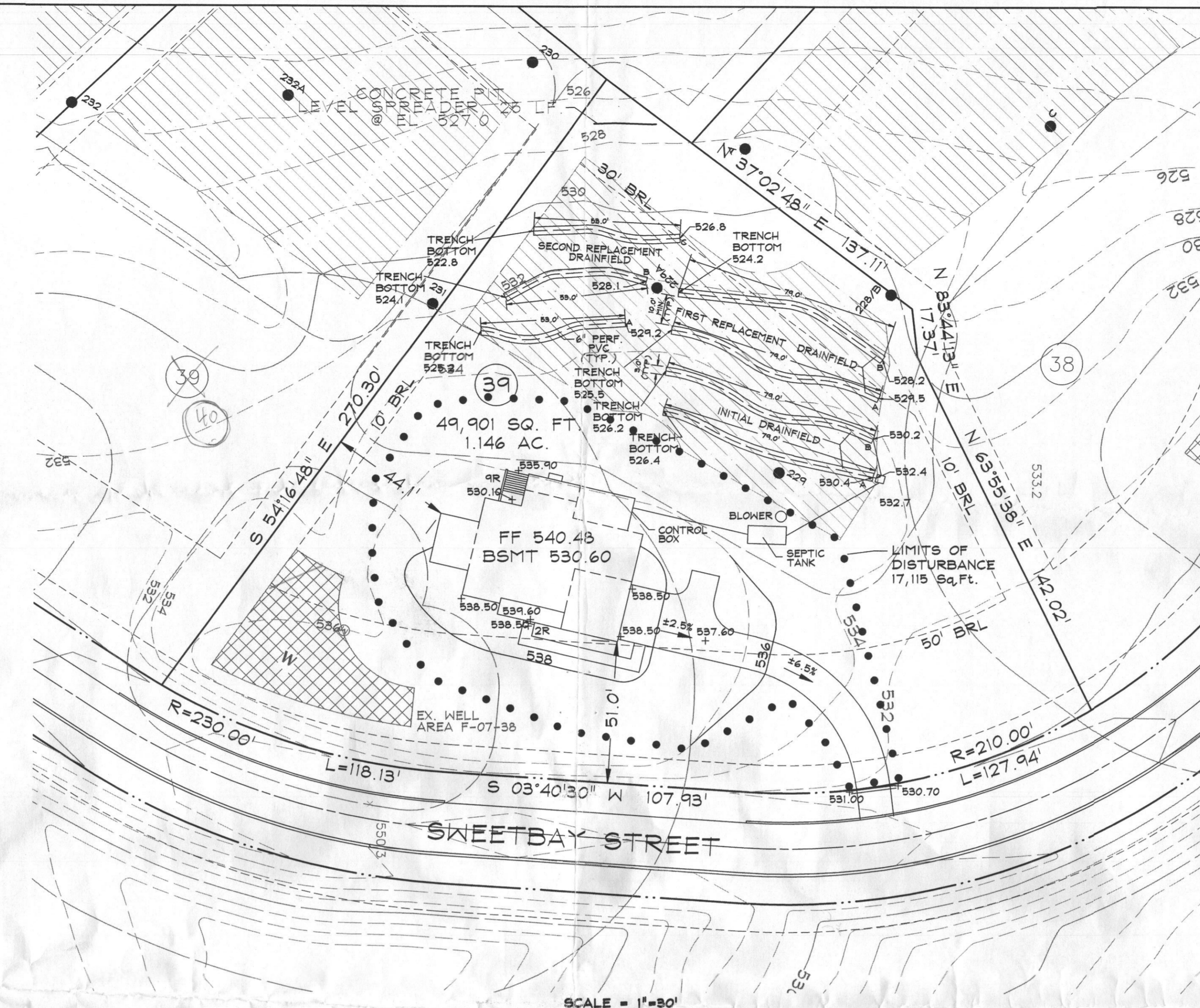
STATIC HEAD	5.0'
FRICITION HEAD	7.1'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	12.1'
GALLONS PER MINUTE	54.6 GPM
DOSE	69.2 GAL
PUMP RUN TIME	2.0 MIN

FRICITION HEAD	FITTINGS	LENGTH OF PVC PIPE	TOTAL LENGTH
		13.8'	
		+ 36.4'	
		52.2'	
52.2'/100 x 13.62 = 7.1' TOTAL FRICTION LOSS			

TOTAL HEAD	VERTICAL ELEVATION CHANGE	TOTAL FRICTION LOSS	SYSTEM PRESSURE REQUIREMENTS	TOTAL DYNAMIC HEAD
	5.0'	7.1'	0.0'	12.1'
			0.0'	12.1'



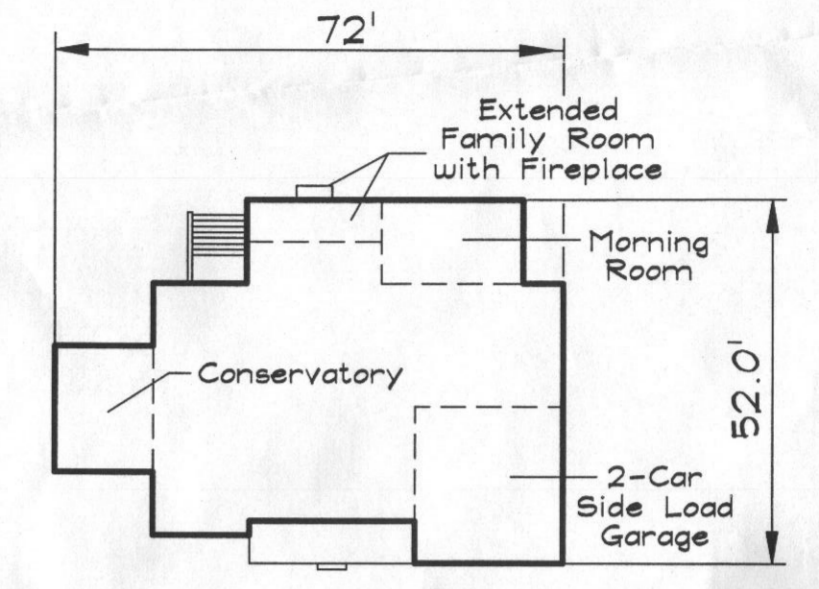
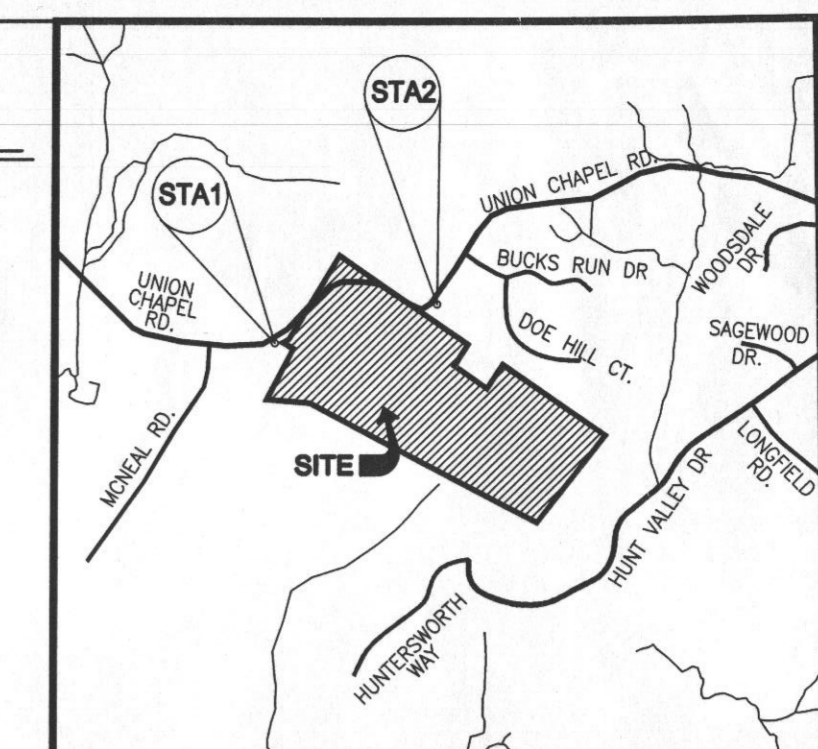
- SEWAGE DISPOSAL SYSTEM DATA (4 BEDROOM):**
1. INVERT @ FOUNDATION WALL: 533.7 (BASEMENT PUMP REQUIRED)
 2. 600 GPD BNR SYSTEM W/ 750 GALLON PUMP CHAMBER
EX. GRADE OVER TANK: 535.5 PROPOSED GRADE OVER TANK: 520.3
INVERT: 532.3
 3. DISTRIBUTION BOX
EX. PROPOSED GRADE OVER TANK: 534.4
INVERT: 532.7
 4. TRENCH DESIGN (4 BDRM x 150 GPD/BDRM = 600 GPD)
600 GPD / 0.8 GPD/SF (APP. RATE) = 750 SF
USE 3' WIDE TRENCH W/ 24" OF GRAVEL BELOW PIPE
10' MIN SPACING BETWEEN TRENCH EDGES
750 SF / 3' WIDTH = 250 LF x 0.625 = 157 LF MIN. TRENCH
USE 2 - 74' LONG TRENCH FOR INITIAL SYSTEM
USE 2 - 74' LONG TRENCH FOR FIRST REPLACEMENT SYSTEM
USE 3 - 53' LONG TRENCH FOR SECOND REPLACEMENT SYSTEM



BENCHMARK

GEODETIC SURVEY CONTROL #1	GEODETIC SURVEY CONTROL #2
N. 081480.42	N. 591658.58
E. 129781.25	E. 1289121.80
146A	S.M.
ELEV. 836.43	ELEV. 945.23

ADC MAP COORDINATES 481204



Approved Septic System Plan
Howard County Health Department
Hank Oswald 2/19/15
Signature Date

- DRAWING LEGEND**
- 500 PROPOSED GRADE
 - 502 PROPOSED LIMIT OF DISTURBANCE
 - + 665.5 PROP. SPOT ELEV./FLOW ARROW
 - PROPOSED 20' SEPTIC RESERVE BUFFER
 - EXISTING 30' WELL BUFFER
 - EXISTING 100' WELL BUFFER
 - BUILDING RESTRICTION LINE
 - SEPTIC RESERVE AREA
 - WELL AREA
 - 174 PASSED PERCOLATION TEST
 - 127 FAILED PERCOLATION TEST

LOT 39 SYSTEM TRENCH SPECIFICATIONS

TRENCH	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH A (74')	534.4	530.4	526.4
INITIAL SYSTEM TRENCH B (74')	534.2	530.2	526.2
FIRST REPLACEMENT TRENCH A (74')	533.5	529.5	525.5
FIRST REPLACEMENT TRENCH B (74')	532.2	528.2	524.2
SECOND REPLACEMENT TRENCH A (52')	533.2	529.2	525.2
SECOND REPLACEMENT TRENCH B (52')	532.1	528.1	524.1
SECOND REPLACEMENT TRENCH C (52')	530.8	526.8	522.8

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. 27026 EXPIRATION DATE: JANUARY 26, 2016

DATE: 2/9/2015

PAUL G. CAVANAUGH
PROFESSIONAL ENGINEER

DDC INC.
Development Design Consultants

Planners
Surveyors
Engineers
Landscape Architects

192 East Main Street
Westminster, MD 21157
410.386.0560
410.386.0564 (Fax)
DDC@DDCinc.us
www.DDCinc.us

BELLE HAVEN ESTATES LOT 39

SITE PLAN FOR BAT INSTALLATION

3rd ELECTION DISTRICT HOWARD COUNTY

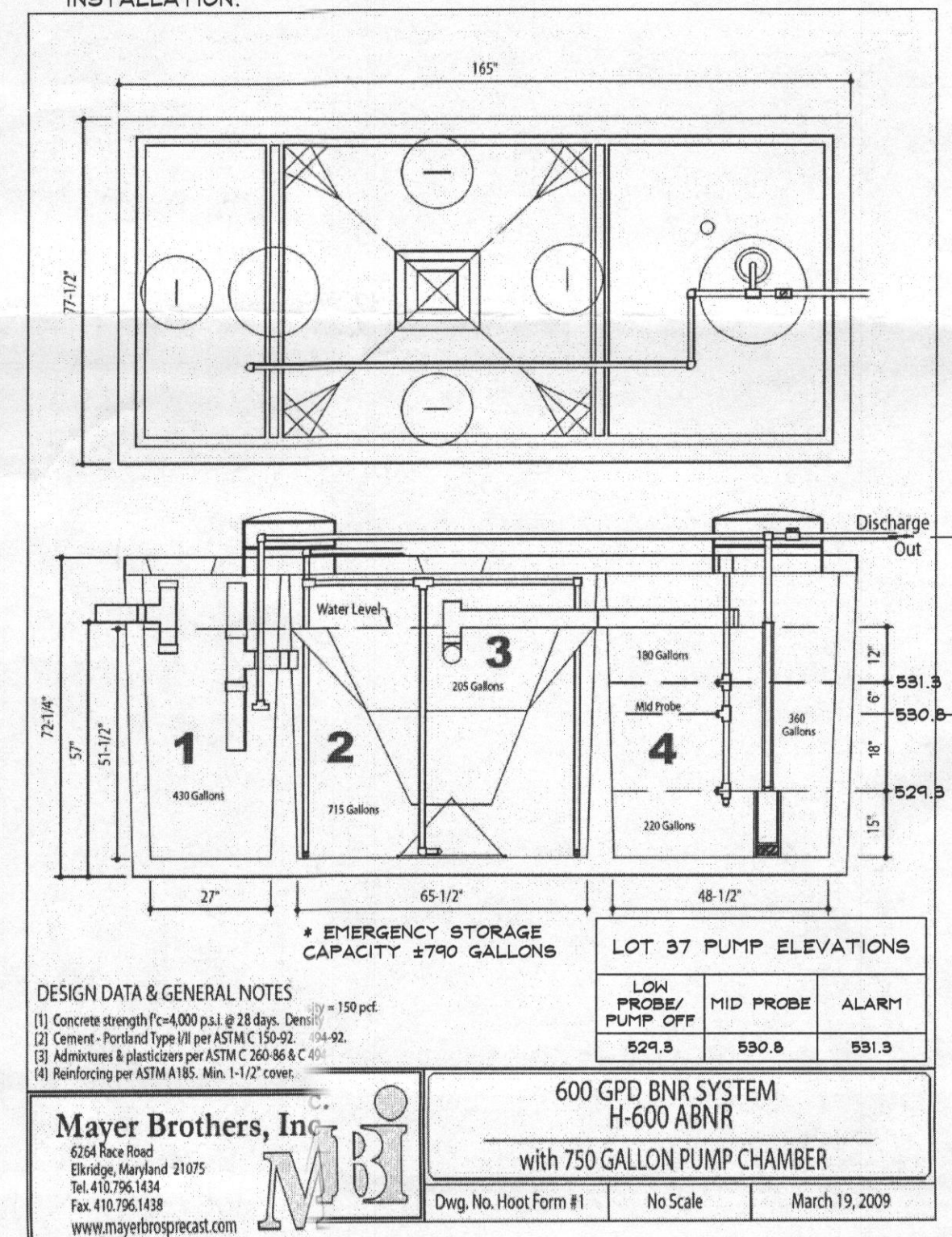
REVISIONS

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE

CO. FILE #:	DES. BY: BKC
TAX ACC. #:	DRN. BY: BKC
TAX MAP: 14	CHK. BY: PGC
BLOCK / GRID:	DATE: 2/9/15
PARCEL #: 68	DDC JOB #: 06116.5
ZONE / USE: RC-DEO	SHEET NUMBER:
DWG. SCALE: 1"=30'	1 of 1

- GENERAL NOTES**
1. BASE SQUARE FOOTAGE OF HOUSE: 3,554 SQ.FT. NUMBER OF BEDROOMS: 4
 2. EJECTOR PUMP REQUIRED TO SEWER BASEMENT
 3. A DRIVEWAY CULVERT IS REQUIRED PER THE APPROVED ROAD DRAWINGS, F-07-38.
 4. 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.
 5. PLAT REFERENCE: H19948
 6. BASE INFORMATION SHOWN ON THIS PLAN IS BASED ON PLANS PREPARED BY DMK, AND DATED 06/25/07. EXISTING TOPOGRAPHY BASED ON GRADING PLAN PREPARED BY DEMARIO DESIGN CONSULTANTS DATED 07/09/07 AND FIELD RUN TOPOGRAPHY PREPARED BY DDC INC IN JAN. 2012.
 7. SEE ARCHITECTURAL PLANS FOR BUILDING DIMENSIONS AND DESIGN DETAILS. PRIOR TO STAKEOUT FOR CONSTRUCTION, IT SHALL BE THE OWNER/BUILDERS RESPONSIBILITY TO PROVIDE DDC, INC. WITH THE MOST RECENT SET OF HOUSE PLANS.
 8. THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410)313-1891 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 9. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 10. TOTAL LIMIT OF DISTURBANCE: 17,115 SQ. FT. / 0.28 AC.
 11. STORMWATER MANAGEMENT FOR THIS LOT IS PROVIDED PER THE PREVIOUSLY APPROVED FINAL PLAN (F-07-38).
 12. 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.
 13. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL ENGINEER (DDC, INC.) MAY CAUSE THE WORK TO BE UNACCEPTABLE.
 14. THE DIMENSIONED DISTANCES SHALL GOVERN IF SCALED AND DIMENSIONED DISTANCES ON THIS PLAN ARE FOUND TO BE IN DISAGREEMENT.
 15. THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM LOT AREA AND OWNERSHIP WIDTH AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
 16. THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQ.FT. AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED. THIS SEWAGE DISPOSAL AREA SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE EASEMENT. RECORDATION OF A REVISED SEWAGE EASEMENT SHALL NOT BE NECESSARY.
 17. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 18. UPON BUILDING PERMIT REVIEW THE SEPTIC SYSTEMS OF ALL PROPOSED STRUCTURES AND OR EXISTING STRUCTURE EXPANSIONS SHALL BE RE-EVALUATED TO DETERMINE SUFFICIENT SYSTEM CAPACITY.
 19. THE DEVELOPMENT OF THIS LOT DOES NOT REQUIRE AN ENVIRONMENTAL CONCEPT PLAN SINCE STORMWATER MANAGEMENT HAS PREVIOUSLY APPROVED UNDER F-07-38.
 20. THE EXISTING WELL SHOWN (HO-095-0647) HAS BEEN FIELD LOCATED AND IS SHOWN ACCURATELY.
 21. AT ANY TIME IN THE FUTURE THAT A BUILDING PERMIT IS SUBMITTED TO FINISH THE AREA CURRENTLY IDENTIFIED AS OPTIONAL DEN, THEN A SEPTIC SYSTEM UPGRADE WILL BE REQUIRED AS FINISHING THE OPTIONAL DEN CREATES A FIFTH BEDROOM PER HOWARD COUNTY CODE 3.80(B).

- SEPTIC SYSTEM/BEST AVAILABLE TECHNOLOGY (BAT) NOTES:**
1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
 2. THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATION IS 3 FEET.
 3. THE BLOWER MAY NOT BE LOCATED MORE THAN 10 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
 4. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
 5. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
 6. WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
 7. ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
 8. AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN LAND RECORDS OF HOWARD COUNTY.
 9. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.



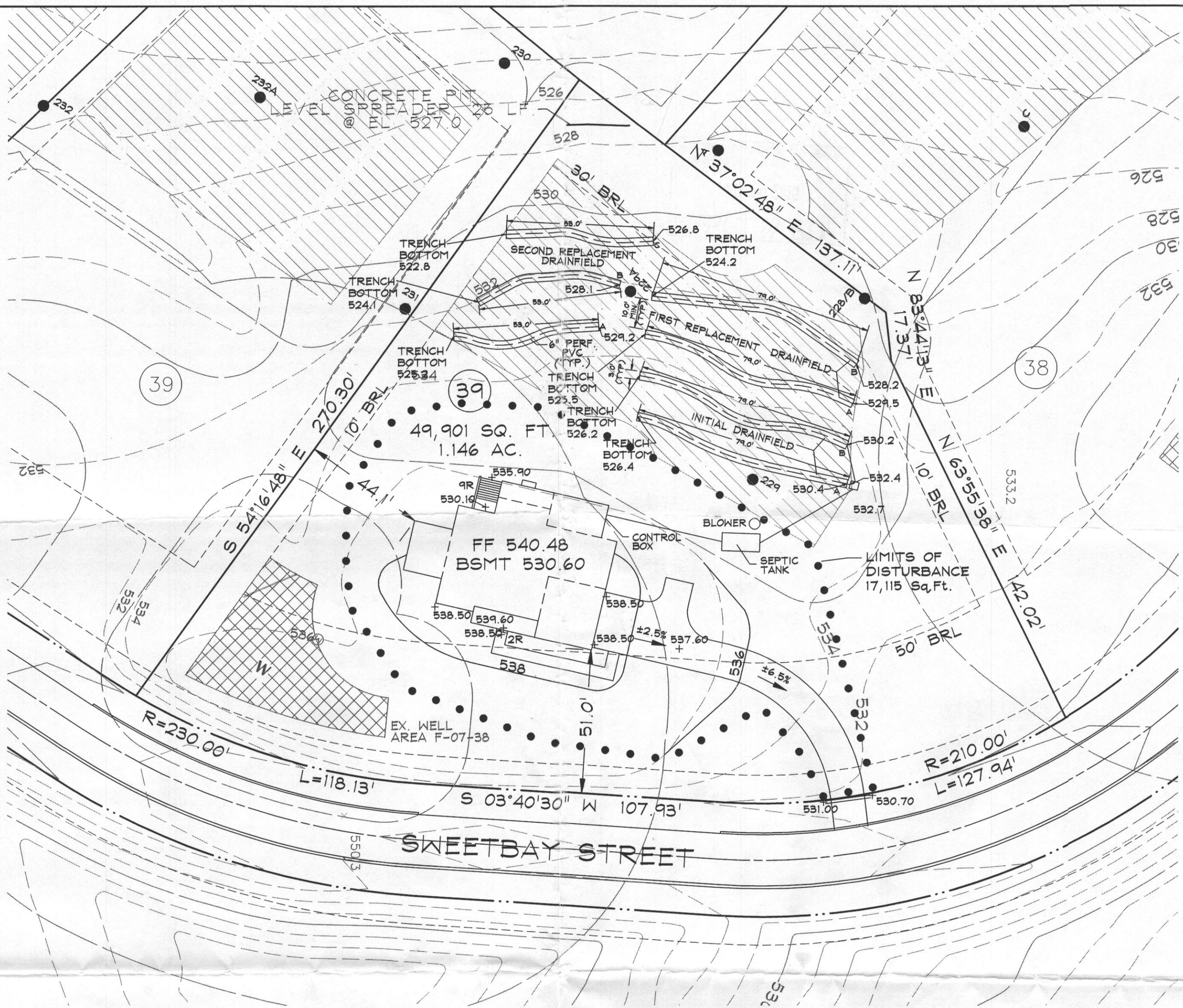
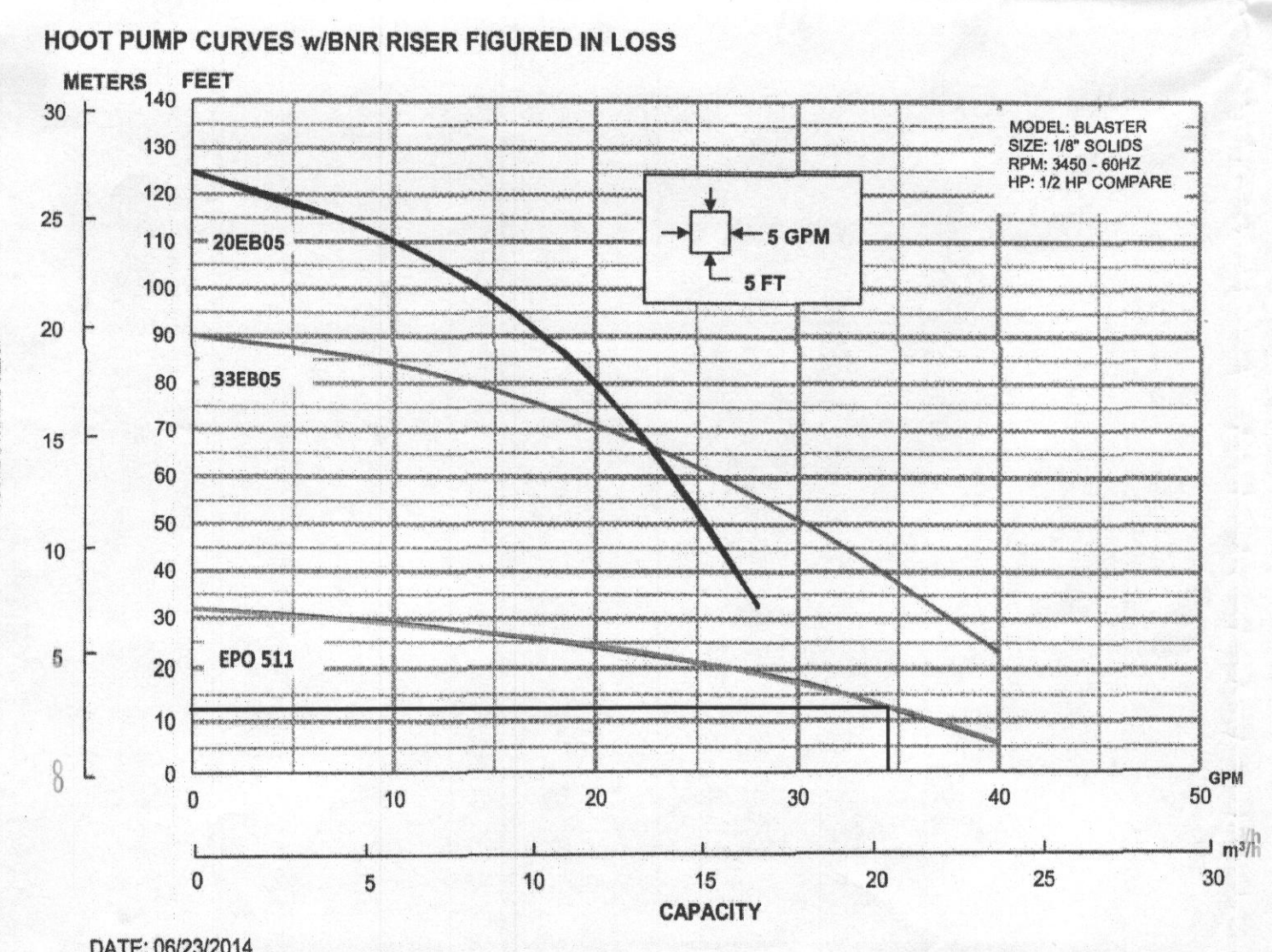
STATIC HEAD	5.0'
FRICITION HEAD	7.1'
DISTAL END HEAD	0'
TOTAL DYNAMIC HEAD	12.1'
GALLONS PER MINUTE	34.6 GPM
DOSE	69.2 GAL
PUMP RUN TIME	2.0 MIN

TOTAL DYNAMIC HEAD CALCULATIONS

STATIC HEAD
OFF FLOAT ELEVATION: 529.3'
HIGH POINT OF THE SYSTEM: + 534.3'
VERTICAL ELEVATION CHANGE: 5.0'

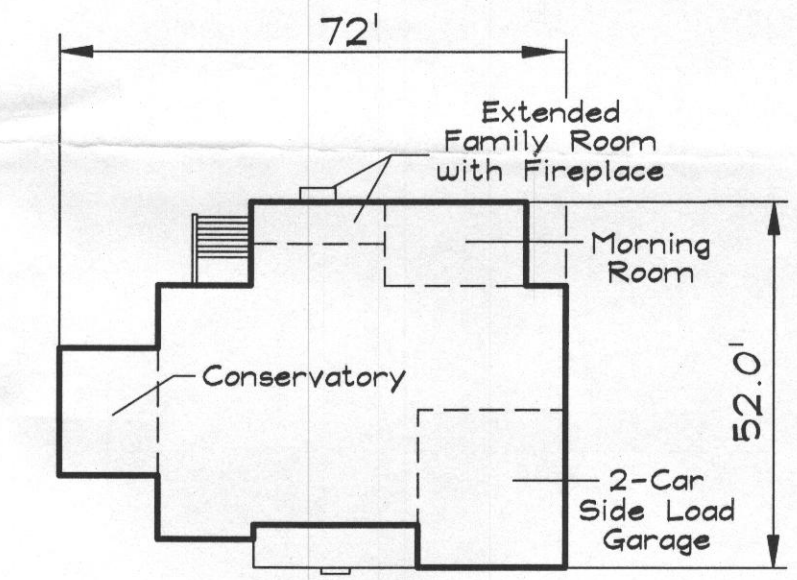
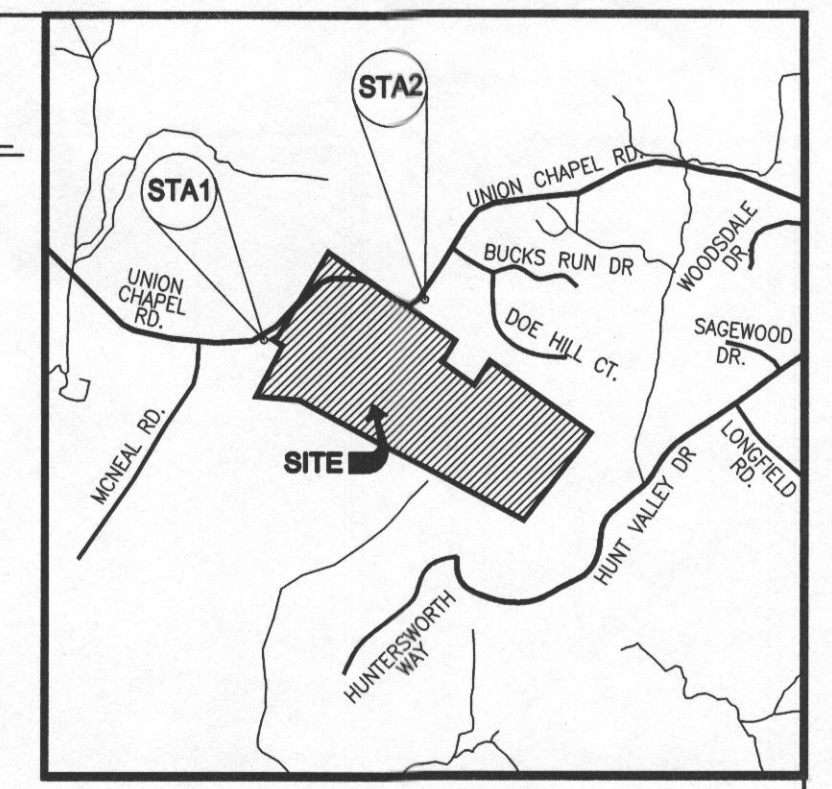
FRICITION HEAD
FITTINGS: 19.8'
LENGTH OF PVC PIPE: + 38.4'
TOTAL LENGTH: 52.2'
52.2'/100 x 19.62 = 7.1' TOTAL FRICTION LOSS

TOTAL HEAD
VERTICAL ELEVATION CHANGE: 5.0'
TOTAL FRICTION LOSS: 7.1'
SYSTEM PRESSURE REQUIREMENTS: + 0.0'
TOTAL DYNAMIC HEAD: 12.1'



BENCHMARK

GEODETTIC SURVEY CONTROL #1	
N.	581480.42
E.	120771.25
A.A. ELEV.	146A 638.43
GEODETTIC SURVEY CONTROL #2	
N.	581863.38
E.	1209121.80
B.M. ELEV.	146B 642.23
ADC MAP COORDINATES 481204	



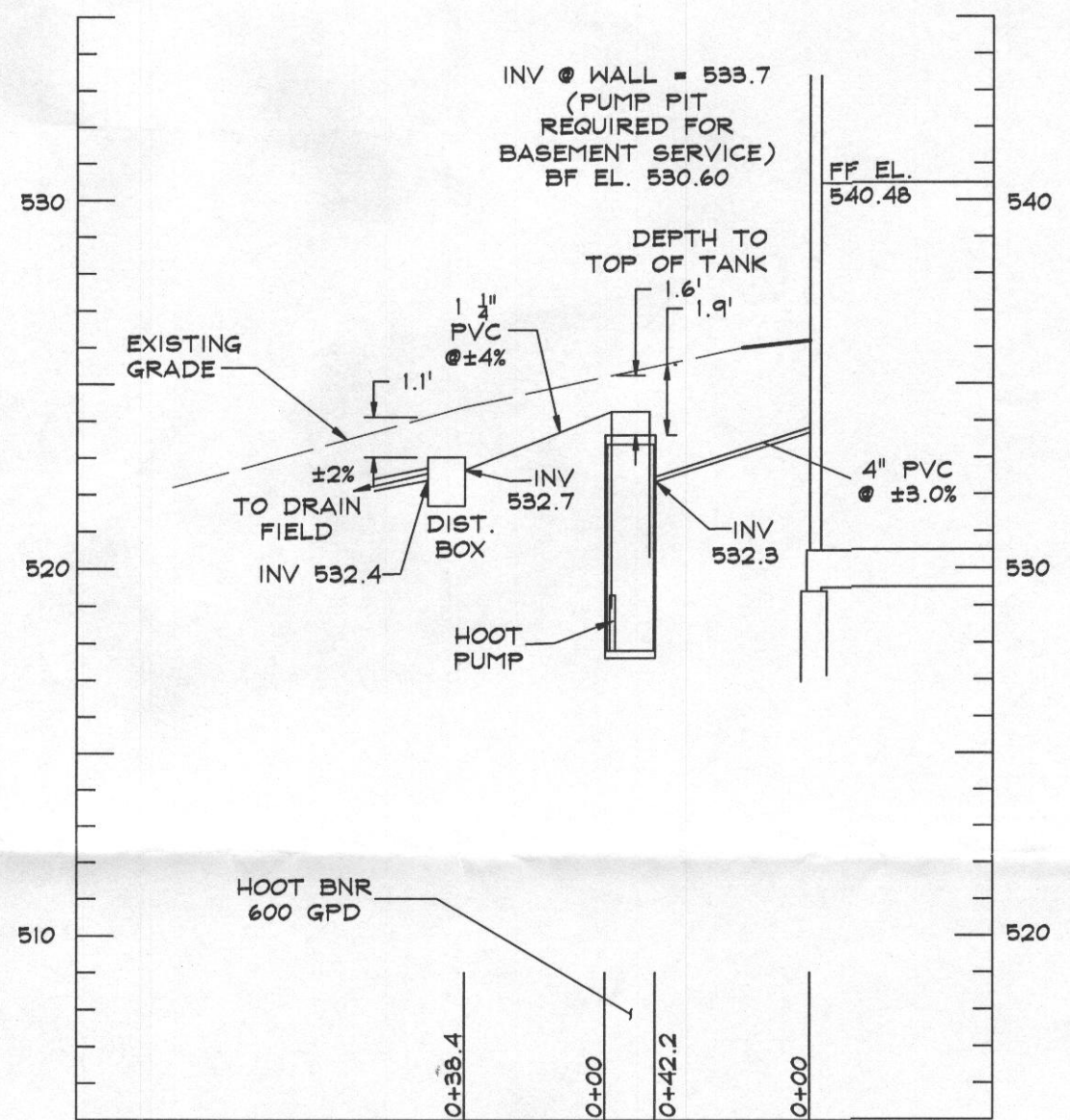
Approved Septic System Plan
Howard County Health Department
H. Oswald
Signature Date

DRAWING LEGEND

- 500 PROPOSED GRADE
- 502 PROPOSED LIMIT OF DISTURBANCE
- + 665.5 PROP. SPOT ELEV./FLOW ARROW
- BUFFERED 20' SEPTIC RESERVE
- EXISTING 30' WELL BUFFER
- EXISTING 100' WELL BUFFER
- BUILDING RESTRICTION LINE
- SEPTIC RESERVE AREA
- WELL AREA
- 174 PASSED PERCOLATION TEST
- 127 FAILED PERCOLATION TEST

LOT B5 SYSTEM TRENCH SPECIFICATIONS

	GROUND ELEVATION	INVERT ELEVATION	BOTTOM ELEVATION
INITIAL SYSTEM TRENCH A (79')	534.4	530.4	526.4
INITIAL SYSTEM TRENCH B (79')	534.2	530.2	526.2
FIRST REPLACEMENT TRENCH A (79')	533.5	529.5	525.5
FIRST REPLACEMENT TRENCH B (79')	532.2	528.2	524.2
SECOND REPLACEMENT TRENCH A (52')	533.2	529.2	525.2
SECOND REPLACEMENT TRENCH B (52')	532.1	528.1	524.1
SECOND REPLACEMENT TRENCH C (52')	530.8	526.8	522.8



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2/9/2015
DATE

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OWNER:
K. HOVHANNIAN HOMES
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Lanover, Maryland 20766
(301) 683-6288

DEVELOPER:

SITE ADDRESS:
LOT 39
1802 Brightwood Road
Woodbine, Maryland 21797

BELLE HAVEN ESTATES
LOT 39

SITE PLAN FOR
BAT INSTALLATION

3rd ELECTION DISTRICT HOWARD COUNTY

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