



Howard County
Health Department

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:

556123
6/3/15

ON-SITE SEWAGE DISPOSAL SYSTEM

P

APPROVAL DATE:

8/14/15 SEC

PERMIT:

CONSTRUCTION

A

PROPERTY ADDRESS: 18342 Chelsea Knolls Drive

SUBDIVISION: Chelsea Knolls

LOT: 13

TAX ID: 04-594327

CONTRACTOR: Hatfield's Equipment

EMAIL: ken@hatfieldsequipment.com

CONTRACTOR ADDRESS: P.O. Box 519 Annapolis Junction, MD 20701

PHONE: 301-490-4289

CONTRACTOR CERTIFIED FOR BAT INSTALLATION:



MDE



MANUFACTURER:

PROPERTY OWNER: Ryan Homes

EMAIL: dsnyder@nvrinc.com

OWNER ADDRESS: 9720 Patuxent Woods Drive

PHONE: 410-796-0980

BAT UNIT MODEL: Norweco TNTLP-500

PUMP SIZE: 0.5

PUMP TANK CAPACITY: 1500 GAL

OPERATION & MAINTENANCE AGREEMENT

DATE SIGNED: 5/1/14

DATE RECORDED: 5/1/14

DISTRIBUTION SYSTEM: ☒ GRAVITY



PRESSURE DOSED

BEDROOMS: 4

APPLICATION RATE: 1.2

| | | | | |
|-----------|---|-----|---------------------------------|-----|
| TRENCHES: | LINEAR FEET REQUIRED: | 120 | INLET DEPTH: | 4 |
| | TRENCH WIDTH: | 3 | MAXIMUM BOTTOM DEPTH: | 5.5 |
| | MINIMUM SPACE BETWEEN TRENCHES: | 10 | EFFECTIVE AREA BEGINNING DEPTH: | 4 |
| | | | | |
| LOCATION: | PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION. | | | |
| NOTES: | Control Panel must be outside residence with and accessible. Alarm Alarms must be circuits separate from pump and controls. Pump is (Meyers) ME45, 0.5HP or equivalent. <i>*Make sure laterals are staked @ time of layout.</i> <i>OK (KMD)</i> | | | |

ISSUED BY: Robert Bricker

ISSUE DATE:

6/3/15

EXPIRATION DATE:

NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION

NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING

NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.

NOTE: WATERTIGHT SEPTIC TANKS REQUIRED

NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL

NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM



ELECTRICAL PERMIT ISSUED

E 15002829

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.

HO-95-2108

NOT TO SCALE

TRENCH/DRAINFIELD DATA

WIDTH INLET BOTTOM

NUMBER OF TRENCHES _____
 TOTAL LENGTH _____
 ABSORPTION AREA (see plan)
 DISTRIBUTION BOX LEVEL _____
 DISTRIBUTION BOX BAFFLE _____
 DISTRIBUTION BOX PORT _____

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL Yes
 MANUFACTURER Norweco
 CAPACITY 1300 GAL
 SEAM LOC Top
 TANK LID DEPTH 0.5'
 BAFFLES No
 BAFFLE FILTER No
 MANHOLE LOC Front, Middle, Rear
 6" PORT LOC None
 WATERTIGHT TEST _____
 SLOTTED N/A
 DATE ON LID 5/11/2015
 SEPTIC TANK 2 LEVEL Yes
 MANUFACTURER Babylon
 CAPACITY 1500 GAL
 SEAM LOC Top
 TANK LID DEPTH _____
 BAFFLES Front
 BAFFLE FILTER No
 MANHOLE LOC Front
 6" PORT LOC None
 WATERTIGHT TEST _____
 SLOTTED No
 DATE ON LID Dry
 PUMP: 1/2 HP

ROAD NAME

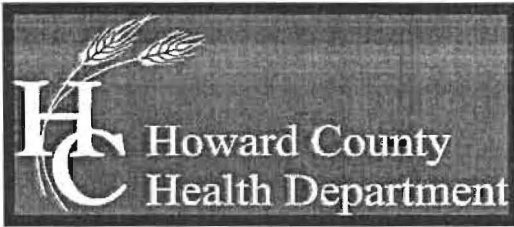
PRE-CONSTRUCTION:

7/1/2015 Trenches laid out on contour. Keep tanks shallow. Tanks are located in depression. Depression must be filled with dirt. (BB)

INSTALLATION: 7/6/2015

7/7/15 Well line OK. Trenches installed upon arrival. Soil very chunky/shale, OK to over. Need p/A test of system + BAT start-up (Kau) 8/13/15 Pump + alarm with Ken Sr. from Hatfield's. Alarm sounds on separate circuit from pump. Closed ball valve '1s and measured head at laterals: #1 = 44", #2 = 45", #3 = 49", #4 = 48". Closed valve '14 and measured 21" at #4. 1/2 HP pump installed. (SC) 8/14/15 BAT startup certification received. (SC)

FINAL INSPECTOR Sarah CollinsDATE OF APPROVAL 8/14/15



Bureau of Environmental Health

7178 Columbia Gateway Drive, Columbia, MD 21046-2147

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Twitter: HowardCoHealthDep

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

Lot 13

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

THIS AGREEMENT is made this 1st day of May 2014, among Chelsea Knolls, LC, 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 18342 Chelsea Knolls Drive, Mt Airy, Maryland 21771, in the 4th 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 8717 Folio 579.

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.

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.

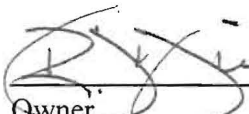
G. This agreement may be voided at any time at the discretion of the County.

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.

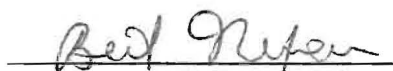
J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

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

 4/25/14
Owner Date
Chelsea Knolls, L.C., Russell Dickens, Manager

Owner

Date

 5/1/2014
Howard County Health Department

13038-3001

Clerk of the Circuit Court for
Howard County
Land Records/Licensing
14 BAT AGREEMENTS
The Thomas Dorsey Building
9250 Bendix Road
Columbia, MD 21045
410-313-5850

~~FOR CHECK~~
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 82

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 83

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 84

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 85

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 86

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 87

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 88

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 89

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 90

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC

1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 88

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 89

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 90

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 91

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 92

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 93

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 94

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: 95

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee

** VOID **
1x -20.00

LR - Agreement Surcharge
** VOID **
1x -40.00

LR - Agreement Recording Fee
1x 20.00 20.00

Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 95

LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 840.00
Total: 840.00
=====

REV-Check-80A 840.00
Number : 3616

05/01/2014 14:01 CC13-JE
#2738771 /494/109
Thank you for visiting us today~

Back River Pre-Cast, LLC

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

Letter of Certification

This is to certify that the Norweco Singulair TNT 600 GPD Septic Tank installed at 18342 Chelsea Knolls Dr., Mt. Airy, MD 21771 was installed on July 6, 2015 according to the manufacture's specifications.

Installer: Jeff Reiter

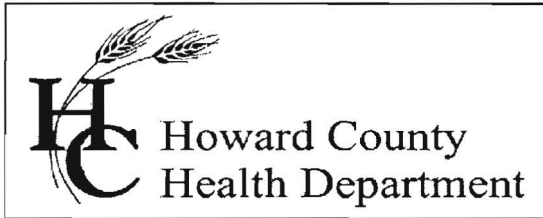
Property Owner: NVR, Inc.

Permit #



MATTHEW GECKLE

Vice-President



Bureau of Environmental Health

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

April 21, 2015

To: Stephanie Tuitte, Fisher, Collins & Carter, Inc..
Stephanie@fcc-eng.com

From: Robert Bricker, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program

RE: 18342 Chelsea Knolls Drive, BAT Plan comment

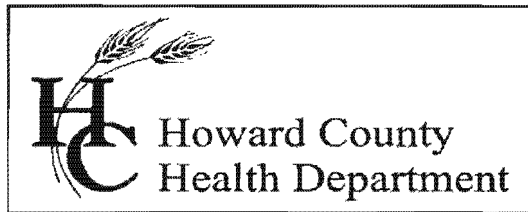
Additional information is needed.

1. The pump is oversized for this application. This may be observed by the 'potential height' of the distal head (i.e., the design head) at the end of the lateral approaching 7 feet . (As indicated in the pump curves, the 0.5 HP pump you selected will push the water column to a potential height of about five feet above the distal head of 2 feet.) The increase in water pressure increases velocity which increases discharge volume through the perforations. As a result of greater velocity, there is greater friction in the pipe, etc. etc., etc.. There are two possible ways to resolve the issue:
 - a. Run several iterations of flow analyses, and on the BAT Plan report the values you obtain for lateral discharge, total discharge, friction head, distal head, total dynamic head, pump run time, etc., OR
 - b. You may select a pump more closely matched with the system needs and the design (re: distal) head of 2 feet. (Please know that it is OK for the turn-up to extend to a height of 3 feet. That will make it easier for the inspector to evaluate the distal head during a pressure test.)
 - c. Add a line under DYAMIC HEAD stating the APPROXIMATE DISTAL HEAD FOR (pump model, horsepower).
2. You illustrate in the Pump Tank design (on Sheet 2) a dose of approx. 147.5 gallons. Under MINIMUM DOSE on Sheet 1, you state that the dose will be 177 gallons. These values need to be reconciled.

3. Also, in the PUMP TANK DESIGN DETAIL, there are two (2) dose volumes illustrated. One value is in agreement with the values given for PUMP ON to PUMP OFF height, the other value is twice as much. Delete the volume that is not recommended for this proposed design.
4. Add a note in a prominent location near Plan View stating that "A Watertight Test IS REQUIRED FOR BOTH THE BAT TANK AND THE PUMP TANK." This is due to their proposed location.

RB

Copy: Daren Snyder, Ryan Homes
file



Bureau of Environmental Health

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Twitter: HowardCoHealthDep

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

March 24, 2015

To: Stephanie Tuitte, Fisher, Collins & Carter, Inc..
Stephanie@fcc-eng.com

From: Robert Bricker, REHS/R.S., L.E.H.S.
Environmental Sanitarian II
Well and Septic Program

RE: 18342 Chelsea Knolls Drive, BAT Plan comment

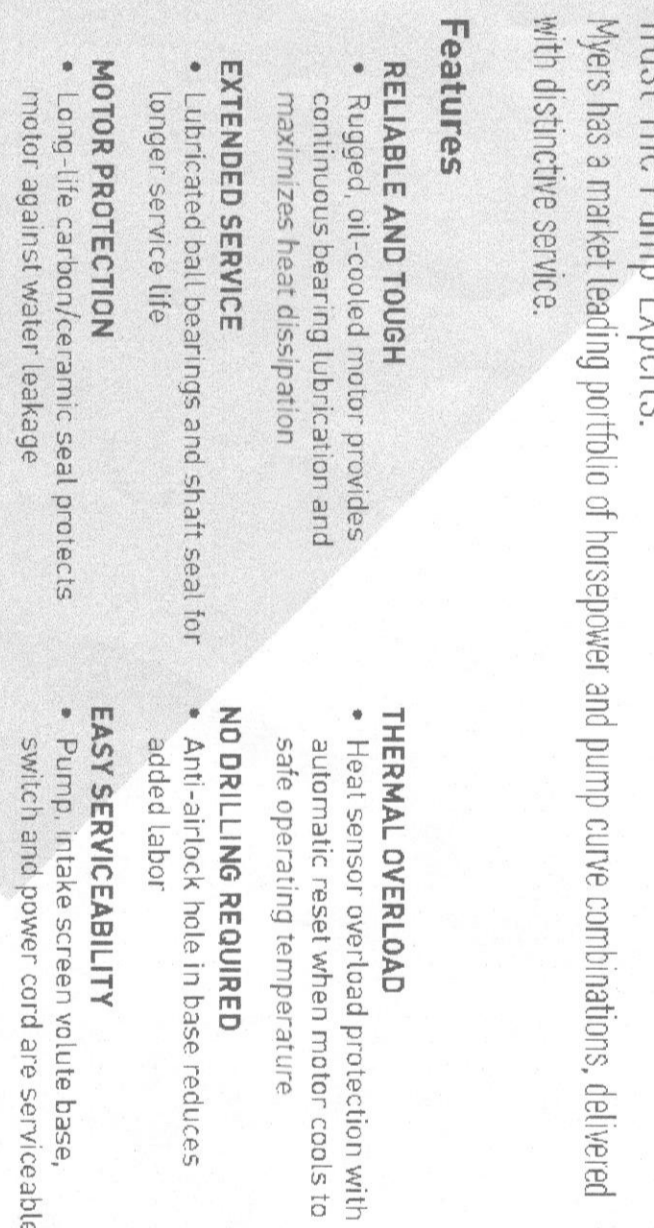
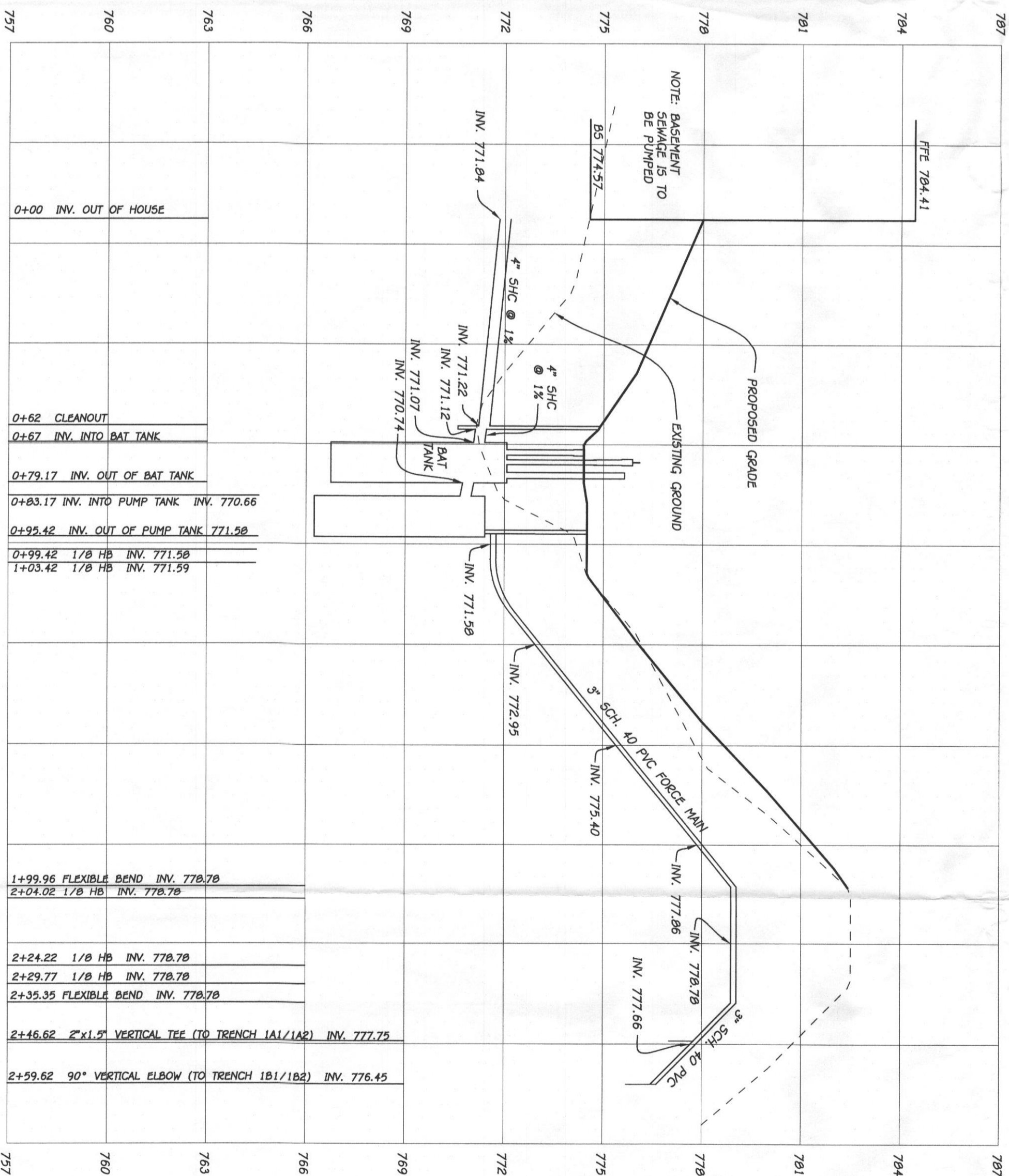
Edits are needed in the submitted BAT Plan for the subject property. See the ten (10) comments listed below.

1. The trenches in the Plan View (Sheet 1) should be depicted as 60-ft trenches with the manifold located so as to bisect each trench at its centerpoint.
2. In table for Low-Pressure Dosing System:
 - a. Correct the lateral pipe lengths. (Suggest you draw a sketch and label it so that you know how the length may be calculated.)
 - b. The (variable) Head for laterals '1B1' and '1B2' should be equal as the trench will be laid out on contour.
 - c. Similarly, the Trench Flow Rate for laterals '1B1' and '1B2' will be equal.
3. The diameter of the Force Main-Manifold is too small. Increase diameter, and
 - a. Recalculate Force Main and Manifold volume and total volume.
 - b. Recalculate Friction Loss and Total Dynamic Head.
4. The calculation for the Static Head is likely incorrect.
 - a. Present the calculation for Static Head in the list of calculations for Total Dynamic Head.
 - b. The Static Head is calculated as the difference between PUMP OFF elevation and the highest elevation in the distribution network which, in this design, occurs in the Force Main. (The highest elevation you have illustrated in the Septic System Profile is 778.78'.)

5. In Septic System Profile, the Force Main is mis-labeled as "Manifold".
6. Specify the type of pipe (e.g., 'SDR26' or 'SCH 40') that you are designating for use as the Force Main/Manifold, and for the Laterals ('SCH 40?'), respectively.
7. On Sheet 1, you are stating "PUMP HORSEPOWER ESTIMATED AT 0.9 – USE 0.5 HP (ME50 PUMP)". This statement makes no sense. Please correct or offer an explanation of the contradiction on the plan.
8. In diagram for CENTER FEED LAYOUT, label the 1/2" perforation spacing at the beginning of each lateral.
9. In PERFORATED PVC LATERAL PIPE BLOWUP DETAIL, increase the font size for the labels so that they are clearly legible.
10. In TRENCH DETAIL, the statement concerning where observation pipes are placed conflicts with the Note further up on the page (which is correctly stated).
11. The Pump Tank is at a depth greater than 3 feet from Grade elevation to Top of Tank elevation. Indicate in a Note the depth of the Pump Tank and that at a Load-Bearing design will be required as it is deeper than 3 feet.

RB

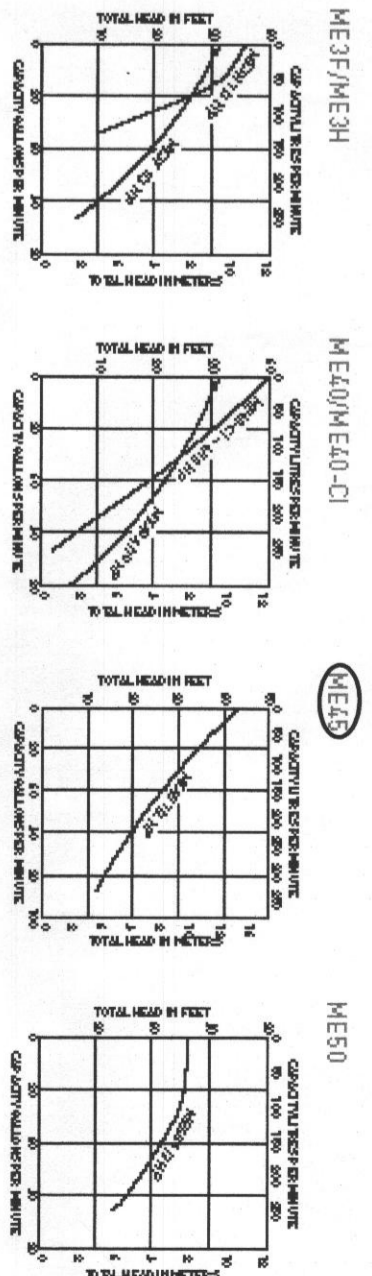
Copy: Daren Snyder, Ryan Homes
file



ME SERIES

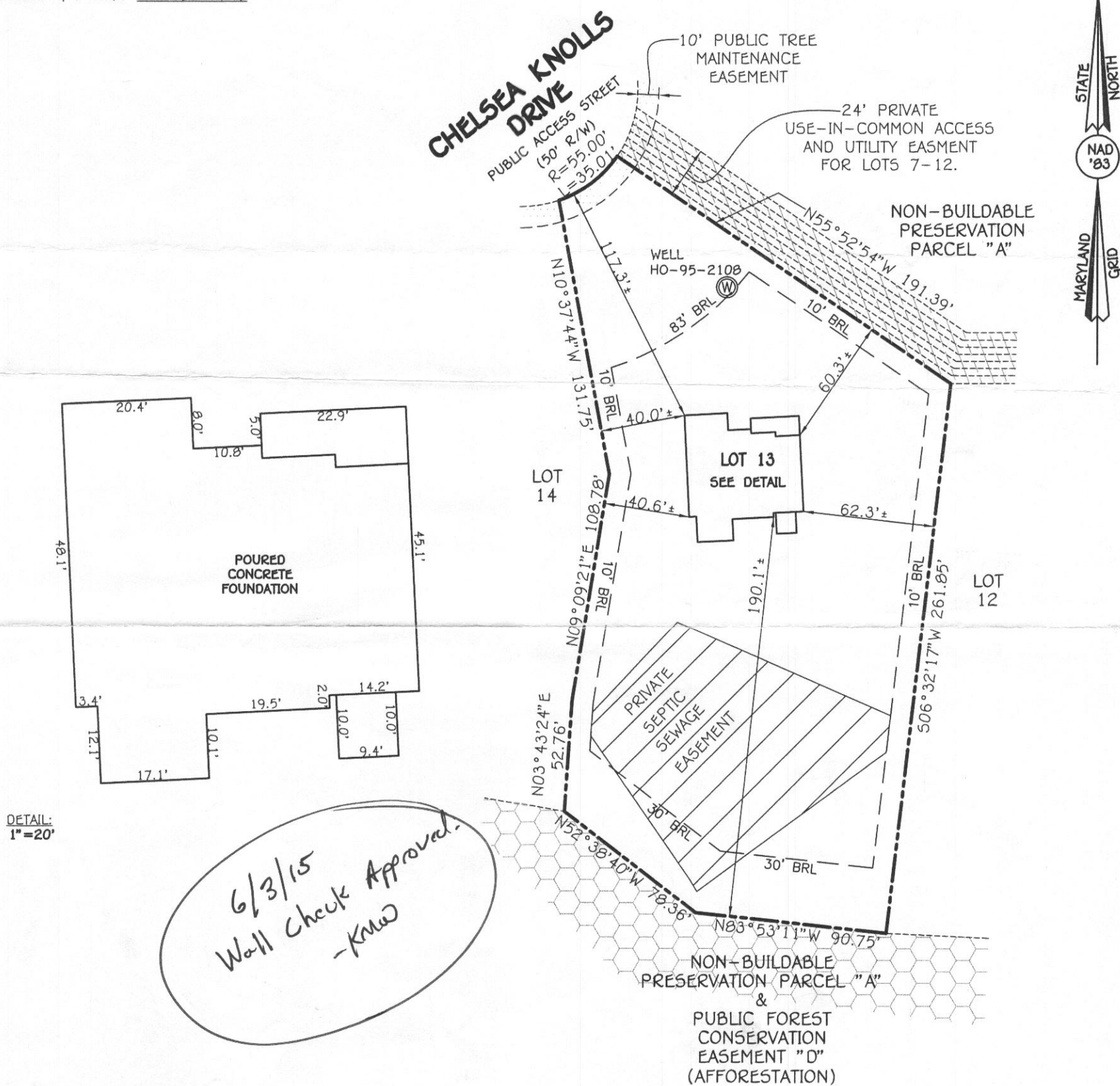
Specifications

| Options | ME-H/MECH | ME-CO | ME-CO-X1 | ME-CO | ME-B/BS |
|-----------------------|---|---|---|---|---|
| Options | ME-H1, 3x GPM ME-CO, 6x GPM ME-CO-X1 ME-B1, 20 GPM | 90 GPM, 120 LPM | 60 GPM, 120 LPM | 97 GPM, 120 LPM | 120 GPM, 150 LPM |
| Stroke & Head | ME-H1 27 in. ME-CO 27 in. ME-CO-X1 27 in. ME-B1 27 in. | 32" (81 cm) | 42" (107 cm) | 42" (107 cm) | 95" (241 cm) |
| Operation | Automatic or manual | Automatic or manual | Automatic or manual | Automatic or manual | Automatic or manual |
| Installed Head | 36" (91 cm) | 34" (86 cm) | 36" (91 cm) | 36" (91 cm) | 34" (86 cm) |
| Leaked Building | Down to 100 ft up to 100 ft | Down to 100 ft up to 100 ft | Down to 100 ft up to 100 ft | Down to 100 ft up to 100 ft | Down to 100 ft up to 100 ft |
| Leaked Temp | down to 100 ft up to 100 ft | down to 100 ft up to 100 ft | down to 100 ft up to 100 ft | down to 100 ft up to 100 ft | down to 100 ft up to 100 ft |
| Water Electrical Data | 1/2 HP, 120 V, 60 Hz 1150, 125, 16, 60 Hz 220V, 24, 16, 60 Hz | 1/2 HP, 120 V, 60 Hz 1150, 125, 16, 60 Hz 220V, 24, 16, 60 Hz | 1/2 HP, 120 V, 60 Hz 1150, 125, 16, 60 Hz 220V, 24, 16, 60 Hz | 1/2 HP, 120 V, 60 Hz 1150, 125, 16, 60 Hz 220V, 24, 16, 60 Hz | 1/2 HP, 120 V, 60 Hz 1150, 125, 16, 60 Hz 220V, 24, 16, 60 Hz |
| Material | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron |
| Weight | 110 lb (50 kg) | 110 lb (50 kg) | 110 lb (50 kg) | 110 lb (50 kg) | 110 lb (50 kg) |
| Warranty | 1 year | 1 year | 1 year | 1 year | 1 year |



GENERAL NOTES:

- 1) THIS LOCATION DRAWING IS PREPARED FOR THE BENEFIT OF THE CLIENT SIGNING THE HOUSE LOCATION SURVEY APPROVAL FORM INsofar AS IT IS REQUIRED BY A LENDER OR TITLE INSURANCE COMPANY OR ITS AGENTS IN CONNECTION WITH THE CONTEMPLATED TRANSFER, FINANCING OR REFINANCING OF THE PROPERTY SHOWN HEREON. UNLESS INDICATED AS BEING A BOUNDARY SURVEY, THIS LOCATION DRAWING IS NOT INTENDED FOR USE IN THE ESTABLISHMENT OF PROPERTY LINES AND IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OR LOCATIONS OF FENCES, GARAGES, BUILDINGS OR OTHER EXISTING OR FUTURE IMPROVEMENTS. AS A RESULT, THIS LOCATION DRAWING DOES NOT PROVIDE FOR ACCURATE IDENTIFICATION OF PROPERTY LINES, BUT SUCH IDENTIFICATION MAY NOT BE REQUIRED FOR THE TRANSFER OF TITLE OR SECURING FINANCING FOR RE-FINANCING.
- 2) SUBJECT PROPERTY IS SHOWN IN ZONE X ON THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP OF HOWARD COUNTY, MARYLAND, COMMUNITY PANEL No. 24027C00100 EFFECTIVE 11/06/2013
- 3) THE OFFSETS FROM BUILDING LINE TO PROPERTY LINE AS SHOWN ON THE PLAT HEREON ARE TO AN ACCURACY OF PLUS OR MINUS 1.0.'
- 4) NO TITLE REPORT FURNISHED. SUBJECT TO ALL EASEMENTS, RIGHTS OF WAY AND CONDITIONS OF RECORD.
- 5) THE EXISTING WELL(S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2108) HAS BEEN FIELD LOCATED BY FISHER, COLLINS AND CARTER, INC. PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.
- 6) PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 339, EXPIRATION DATE 10/04/2016.
- 7) BUILDING PERMIT #B-15000745



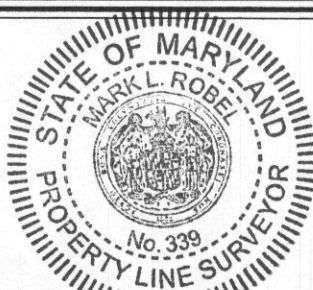
B15000745

#10342 CHELSEA KNOLLS DRIVE
B.R.L. = BUILDING RESTRICTION LINE
TOP OF FOUNDATION ELEVATION = 783.4'±

LOT 13
CHELSEA KNOLLS
LOTS 1 THRU 14,
NON-BUILDABLE PRESERVATION
PARCELS 'A' & 'B' AND
NON-BUILDABLE BULK PARCEL 'C'
PLAT NOS. 22016 THRU 22019
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 461 - 2855

Drawing Name:



Mark L. Robel
PROPERTY LINE SURVEYOR
REG. #339

5/20/15
DATE

HOUSE LOCATION DRAWING

FOUNDATION LOCATION: 5/19/15
FINAL LOCATION: _____
BOUNDARY SURVEY: _____

SCALE: 1"=60'
DATE: 5/20/15
DRAWN BY: GAD
CHECKED BY: MLR
PROJECT No.: 13030-3001

CLINICAL TRIAL

Myers has a market leading portfolio of horsepower and pump curve combinations, delivered with distinctive service.

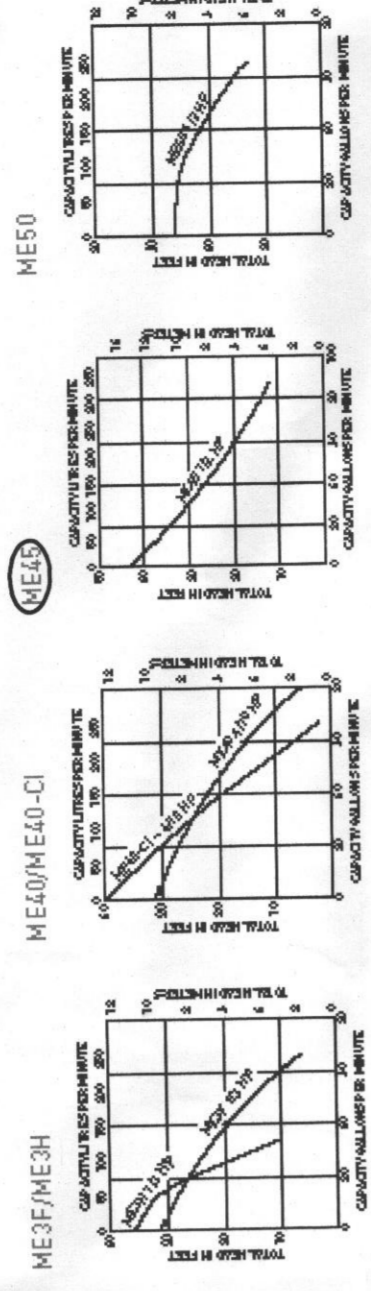
- RELIABLE AND TOUGH**
 - Rugged, air-cooled motor provides continuous bearing lubrication and maximizes heat dissipation
- EXTENDED SERVICE**
 - Lubricated ball bearings and shaft seal for longer service life
- MOTOR PROTECTION**
 - Long-life carbon/graphic seal protects motor against water leakage
- THERMAL OVERLOAD**
 - Heat sensor over-lead protection with automatic reset when motor cools to safe operating temperature
- NO DRILLING REQUIRED**
 - Anti-airlock hole in base reduces added labor
- EASY SERVICEABILITY**
 - Pump, intake screen, volute base, switch and power cord are serviceable

- Rugged, oil-cooled motor provides continuous bearing lubrication and maximizes heat dissipation

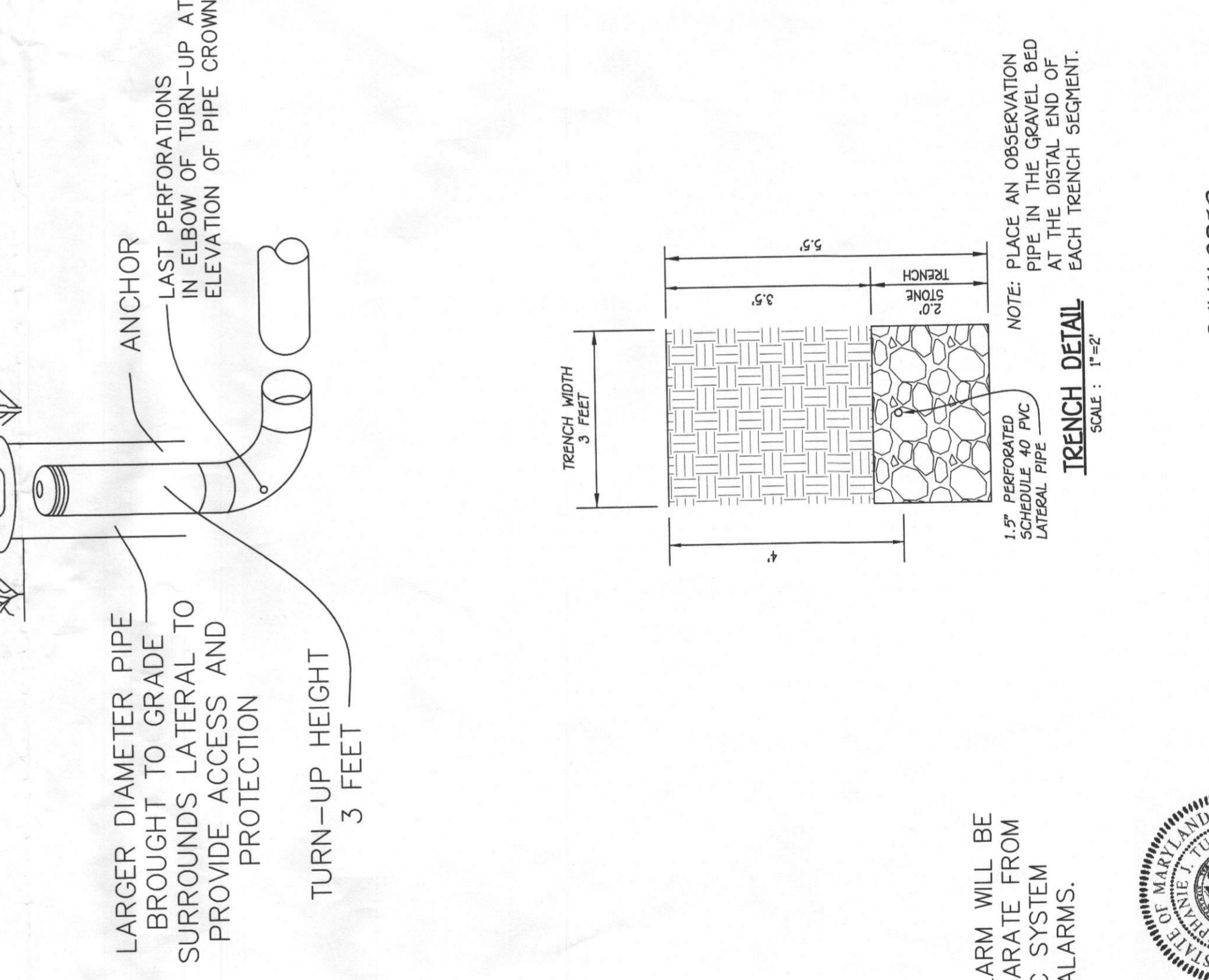
- Lubricated ball bearings and shaft seal for longer service life

- Long-life carbon/ceramic seal protects motor against water leakage

switch and power con



10



| OWNER | DEVELOPER |
|--|---|
| THELSEA KNOLLS, LC BEVERLY RD. SUITE 240 CLEAN, VIRGINIA 22101 (703) 734-9730 (703) 720-3021 | RYAN HOMES, INC. ATTN: KEVIN BOWSER 9720 PATTUNG WOODS DRIVE COLUMBIA, MARYLAND 2104 410-796-0980 |

OWNER
CHELSEA KNOLLS, LC
1355 BEVERLY RD. SUITE 2
MCLEAN, VIRGINIA 22101
(703) 734-9730
(301) 720-3021

A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE
MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/1/2018

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
BALTIMORE, MD 21206

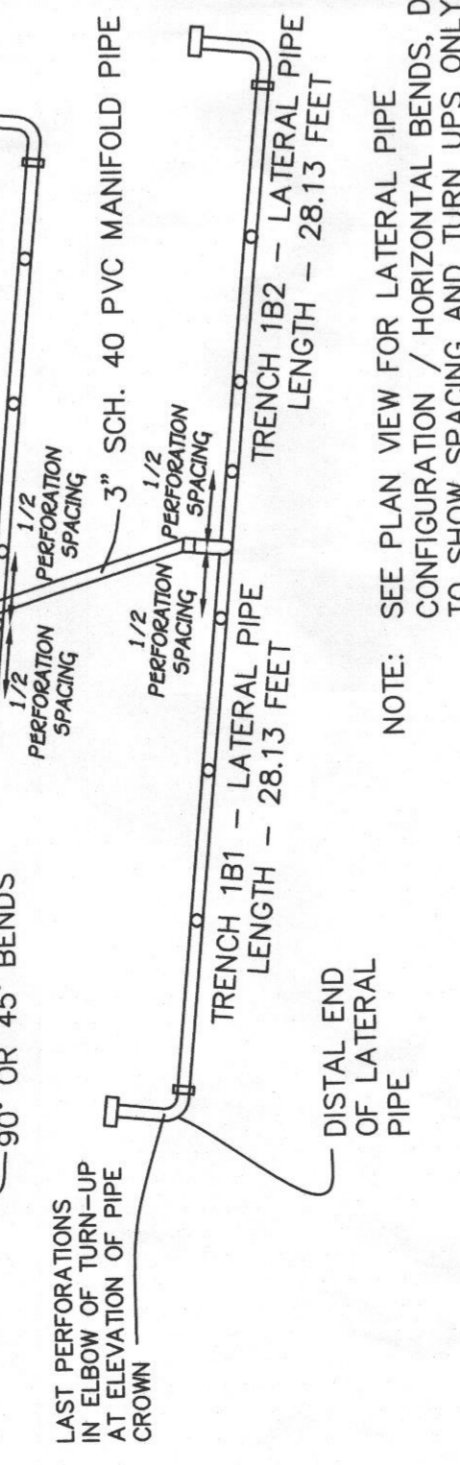
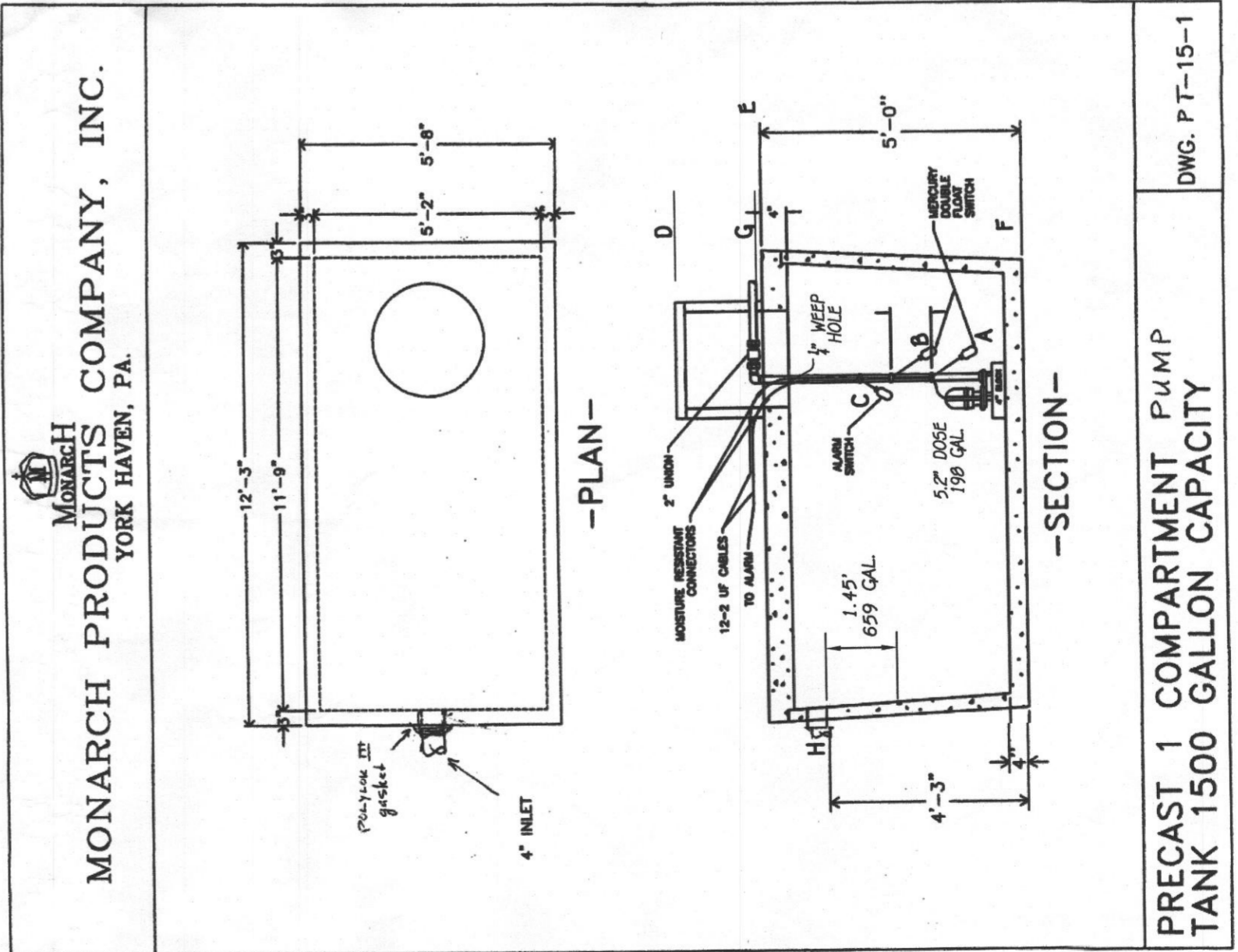


FIGURE 4.1 CENTER FEED MANIFOLD DISTRIBUTION NETWORK



NOTE: SEPTIC SYSTEM ALARM WILL BE ON A CIRCUIT SEPARATE FROM ANY OTHER SEPTIC SYSTEM COMPONENTS OR ALARMS.

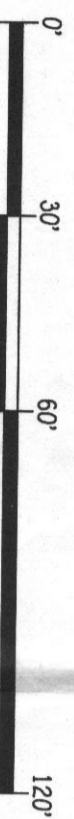
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 39386. EXPIRATION DATE: 01/12/2016.

THE STATE OF MINNESOTA, COUNTY OF _____
 I, _____, Clerk of said Court, do hereby certify that the foregoing is a true and correct copy of the original as the same appears from the records of said Court.

 CLERK OF DISTRICT COURT
 DATE _____
 5/4/15
 Supreme Court

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10342 CHELSEA KNOLLS DRIVE
COLUMBIANA, MISSISSIPPI 39232
(601) 724-9120
FAX: (601) 724-9120



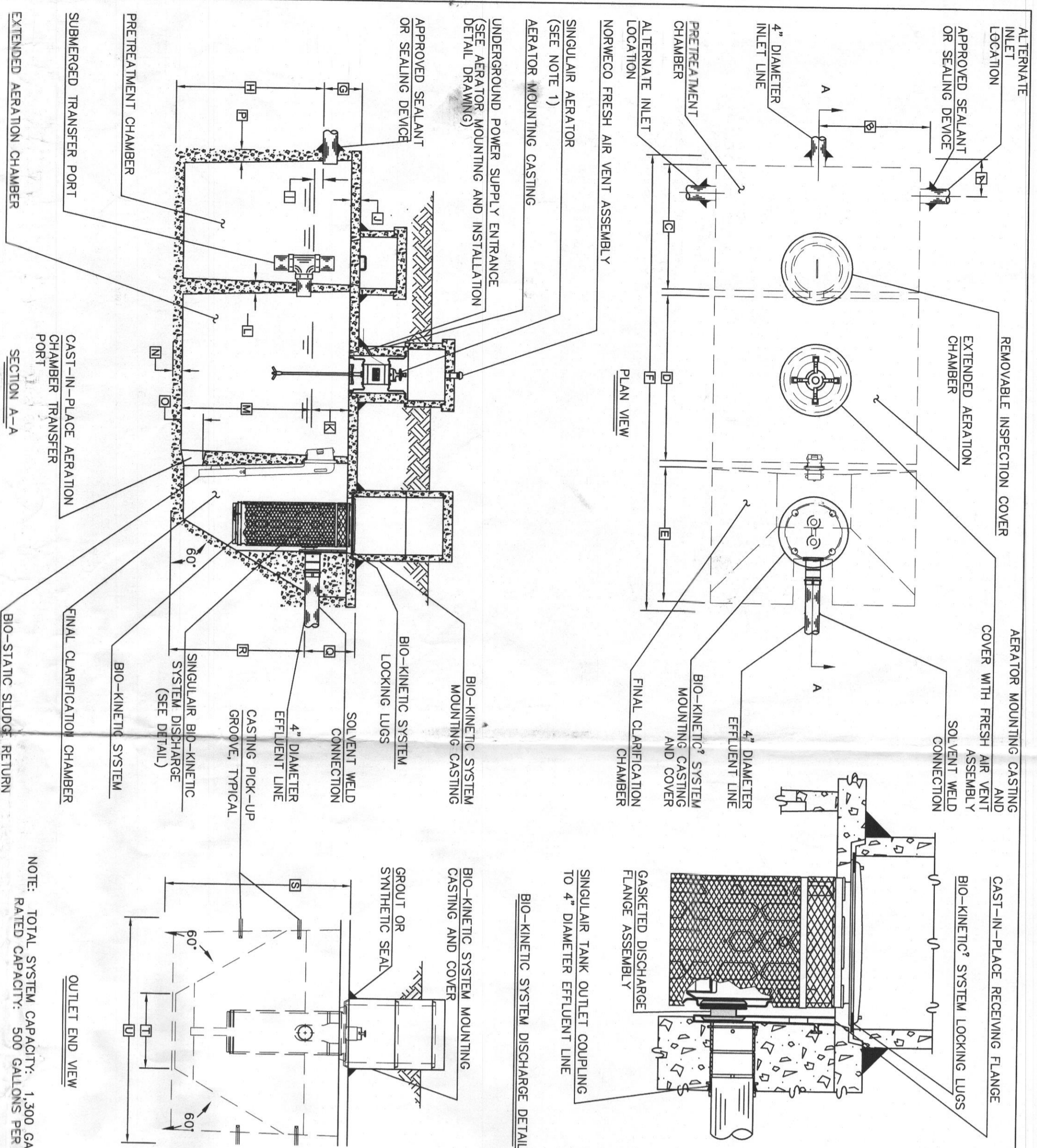
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME
THE STATE OF MISSISSIPPI, LICENSE NO. 20850, EXPIRATION DATE 01/31/2016.
Stephen J. Carter 4/29/15
Signature of Professional Engineer
DATE



| TRENCH DESIGN | | | | | | | | | |
|---------------|--------------|---|----------------------------|-----------------------|--|-----------------------------|---|---|---|
| TRENCH NO. | GROUND ELEV. | PIPE INVERT DEPTH TO STONE DEPTH OF TRENCH (FT) | STONE DEPTH OF TRENCH (FT) | BOTTOM OF TRENCH (FT) | EFFECTIVE DEPTH (D) TRENCHES (W) SPACING | WIDTH OF TRENCH (W) SPACING | LENGTH OF TRENCH (L) TRENCHES (W) SPACING | AREA OF TRENCH (A) TRENCHES (W) SPACING | VOLUME OF TRENCH (V) TRENCHES (W) SPACING |
| 1A1 | 781.0 | 777.5 | 777.0 | 775.5 | 4' | 1.5 | 3.0' | 10' | 10' |
| 1A2 | 781.0 | 777.5 | 777.0 | 775.5 | 4' | 1.5 | 3.0' | 10' | 10' |
| 1B1 | 779.7 | 776.2 | 775.7 | 774.2 | 4' | 1.5 | 3.0' | 10' | 10' |
| 1B2 | 779.7 | 776.2 | 775.7 | 774.2 | 4' | 1.5 | 3.0' | 10' | 10' |

| LOW PRESSURE DOSING SYSTEM - INITIAL INSTALLATION | | | | | | | | | |
|---|--------------|---|----------------------------|-----------------------|--|-----------------------------|---|---|---|
| TRENCH NO. | GROUND ELEV. | PIPE INVERT DEPTH TO STONE DEPTH OF TRENCH (FT) | STONE DEPTH OF TRENCH (FT) | BOTTOM OF TRENCH (FT) | EFFECTIVE DEPTH (D) TRENCHES (W) SPACING | WIDTH OF TRENCH (W) SPACING | LENGTH OF TRENCH (L) TRENCHES (W) SPACING | AREA OF TRENCH (A) TRENCHES (W) SPACING | VOLUME OF TRENCH (V) TRENCHES (W) SPACING |
| 1A1 | 781.0 | 777.0 | 777.0 | 775.0 | 2 | 1.5 | 3.00 | 10' | 16.3 |
| 1A2 | 781.0 | 777.0 | 777.0 | 775.0 | 2 | 1.5 | 3.00 | 10' | 16.3 |
| 1B1 | 779.7 | 775.7 | 775.7 | 773.7 | 2 | 1.5 | 3.75 | 10' | 16.7 |
| 1B2 | 779.7 | 775.7 | 775.7 | 773.7 | 2 | 1.5 | 3.75 | 10' | 16.7 |
| TOTAL TRENCH VOLUME | | | | | | | | | 66.0 |

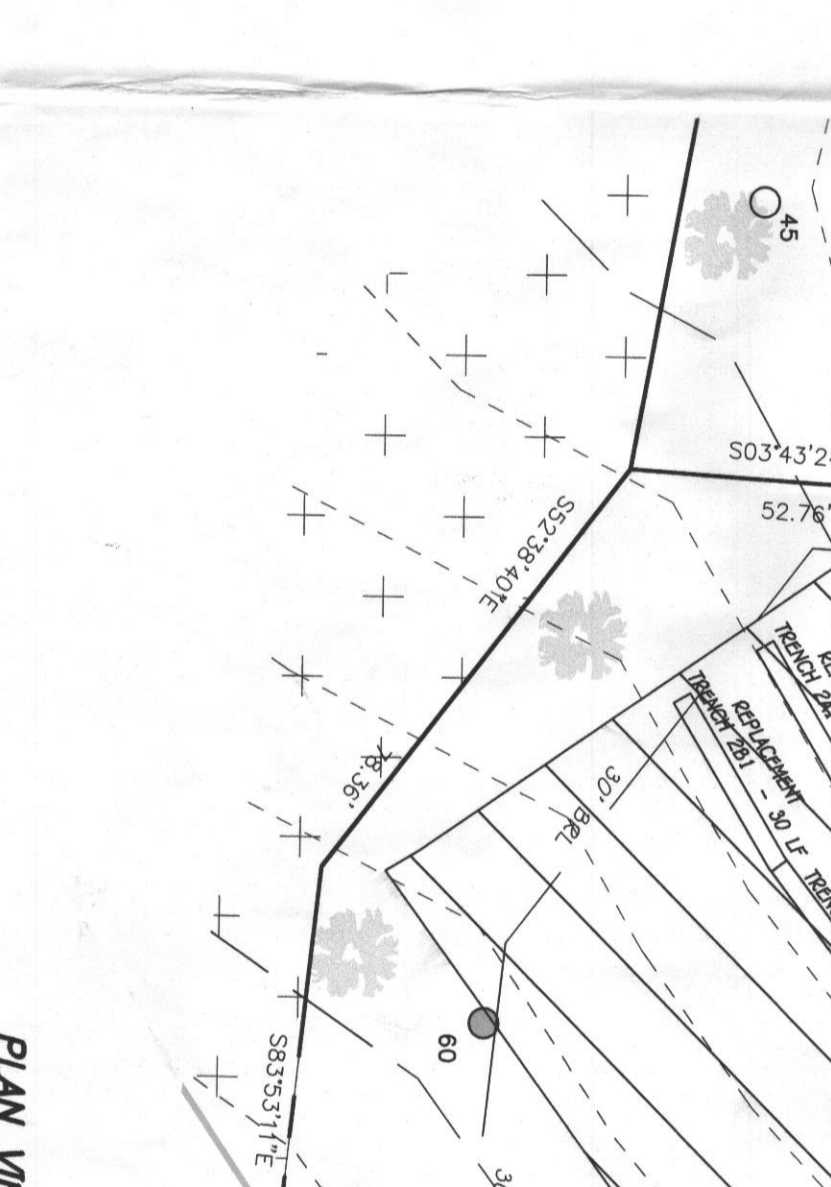
- BAT NOTES**
- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE SITE PLAN MAY BE REQUIRED COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MUST BE SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO INSTALLATION.
 - THE MAXIMUM COVER OVER THE BAT SHALL BE 3 FEET.
 - THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A PERSON INSTALLED BY THE SYSTEM.
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| GENERAL NOTES | | | | | | | | | | | |
|---------------|--|---|---|---|--|---|------------------------------|---|--|---|---|
| 1 | SINGULAR AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF. | 2 | FALL THROUGH SINGULAR PLANT FROM INLET INVERT TO OUTLET INVERT IS TWELVE INCHES BELOW TANK TOP. | 3 | ON DEEPER INSTALLATIONS, USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC SYSTEM MOUNTING CASTING TO GRADE. | 4 | TANK, REINFORCED PER A4 STD. | 5 | 3/8" O.D. COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS. | 6 | CONTACT THE LOCAL, LICENSED SINGULAR DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS. |

| PROJECT ENGINEER'S APPROVAL: | | | | | | | | | |
|--|-------|---|-------|---|-------|---|-------|---|-------|
| I HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS. | | | | | | | | | |
| DATE: _____ | | | | | | | | | |
| NAME: _____ | | | | | | | | | |
| CONTRACTOR'S CERTIFICATION: | | | | | | | | | |
| I HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS. | | | | | | | | | |
| DATE: _____ | | | | | | | | | |
| NAME: _____ | | | | | | | | | |
| CRITICAL DIMENSIONS | | | | | | | | | |
| A | 1'-0" | N | 0'-3" | B | 3'-0" | P | 0'-3" | C | 3'-4" |
| D | 3'-4" | R | 0'-3" | E | 3'-4" | S | 1'-4" | F | 3'-0" |
| G | 3'-0" | T | 3'-0" | H | 3'-0" | U | 3'-0" | V | 3'-0" |
| I | 3'-0" | W | 3'-0" | J | 3'-0" | X | 3'-0" | Y | 3'-0" |
| Z | 3'-0" | | | | | | | | 3'-0" |

SEPTIC SYSTEM DESIGN
DESIGN FLOW: 123 GPD
DESIGN FLOW: 123 GPD
DESIGN FLOW: 123 GPD
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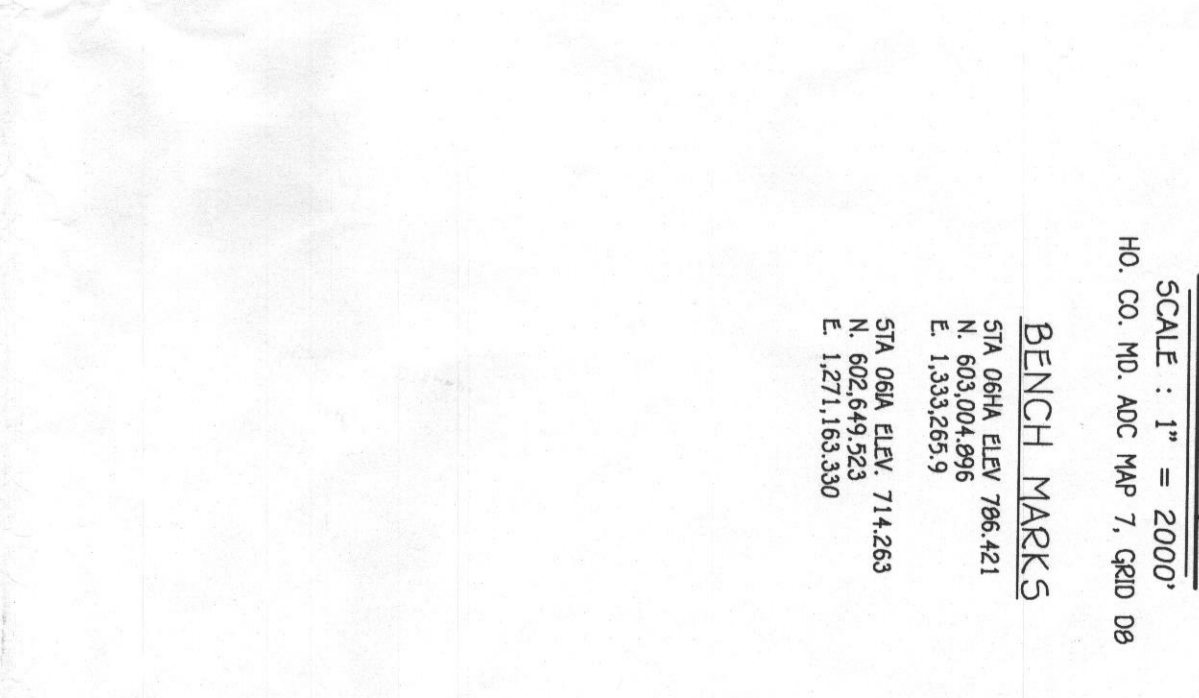
PLAN VIEW
SCALE 1" = 30'

APPROVED SEPTIC SYSTEM PLAN
Howard County Health Department
NORWECO TITLIP-600
1500 gal Pump Tank, 65 HP pump to 170

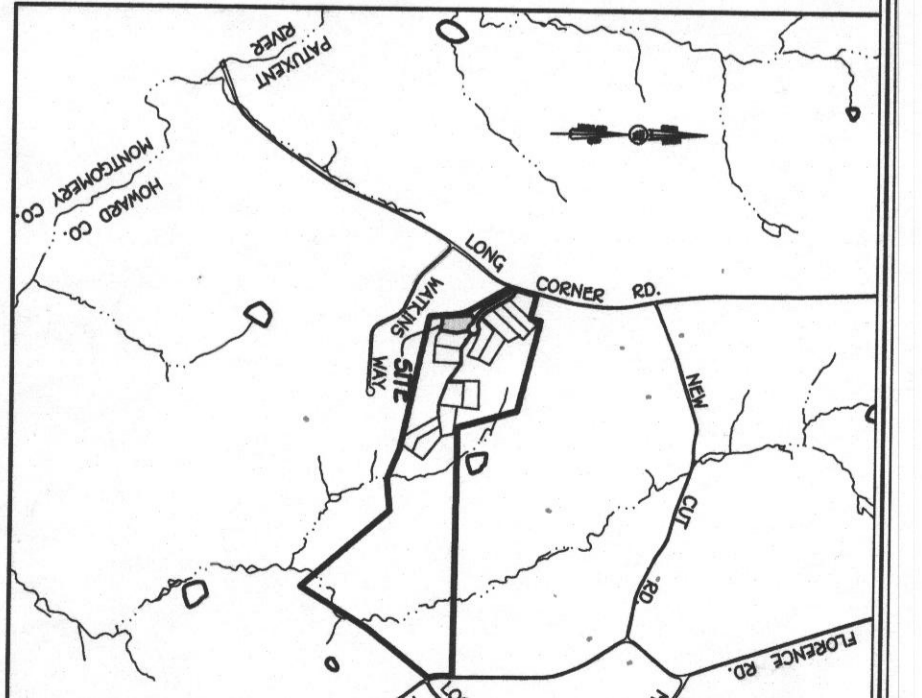
| SOILS LEGEND | | | | | | | | | |
|--------------|------|-------|------|------|------|------|------|------|------|
| SOIL | NAME | CLASS | TYPE | TYPE | TYPE | TYPE | TYPE | TYPE | TYPE |
| 1 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 2 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 3 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 4 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 5 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 6 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 7 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 8 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 9 | MR | MR | MR | MR | MR | MR | MR | MR | MR |
| 10 | MR | MR | MR | MR | MR | MR | MR | MR | MR |

NOTE
THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO-95-2108 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACQUAINTANCE SHOWN.

- GENERAL NOTES**
- SUBJECT PROPERTY ZONED: RC-600
 - SEPTIC SYSTEM DESIGN: 123 GPD, OR 1.13 AC.
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 - SEPTIC SYSTEM DESIGN: 123 GPD, OR 1.13 AC.
 - SEPTIC SYSTEM DESIGN: 123 GPD, OR 1.13 AC.



VICINITY MAP
SCALE: 1" = 2000'
HO. CO. NO. ADC MAP 7, GRID 08



LEGEND
SYMBOL DESCRIPTION
EXISTING CONTING 2' INTERVAL
PROPOSED CONTING 2' INTERVAL
EXISTING WELL
EXISTING STREET TIES FROM F-12-072
EXISTING PROPERTY TIES FROM F-12-072