

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

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

MEMORANDUM

TO: Fisher, Collins & Carter, Inc.
10272 Baltimore National Pike
Ellicott City, MD 21042

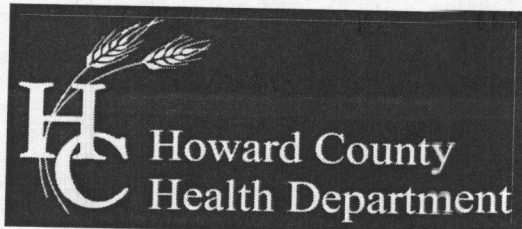
FROM: Robert Freemon *RIF*
Well & Septic Program

RE: Balakirsky Property, Lot 2
11811 Chapel Estates Drive
Clarksville, MD 21029

DATE: 5/3/2018

After review of the BAT plan here are my comments.

- All elevations listed on the 1st page must correspond with elevations on the 2nd page septic profile. Elevations for the top of the tanks, cover over tanks, and invert out of pump tank do not match up.
- The force main should not be directly feeding into trench 1A. The force main should be entering the manifold between 1A & 1B/C and turning up into 1A and down into 1A/B.



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10272 Baltimore National Pike
Ellicott City, MD 21042

FROM: Robert Freemon *RIF*
Well & Septic Program

RE: 11811 Chapel Estates Dr.
Clarksville, MD 21029

DATE: 4/19/18

After review of the septic plan here are my comments.

- Septic tanks and pump tanks cannot be within 100ft of a stream.
- The septic tank and pump tank cannot have more than 3ft of cover.
- Add the note: "The blower may not be located more than ____ feet from the tank based on the manufacturer's specifications."

- O + M Agreement
- Site Plan

Met With
Steve

4/23

Transmittal

Via: Fax Mail Messenger E-Mail To Be Picked Up
 Fax (original to follow via U.S. Mail)

To: Bureau of Environmental Health 8930 Stansfield Boulevard Columbia, MD 21046	Attn: Robert Freemon Fax: (410) 313-2648 Phone: (410) 313-2640
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From: Stephanie Tuite	CC:
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Re: 11811 Chapel Estates Dr- Permit B18000473	W.O.# 12060-6007
Date: April 12, 2018	Pages: Page(s) Including this cover

We are forwarding:	<input checked="" type="checkbox"/> Prints	<input type="checkbox"/> Copy of Letter	<input type="checkbox"/> Specifications	<input type="checkbox"/> Shop drawings	<input type="checkbox"/> Other
	<input type="checkbox"/> Urgent	<input type="checkbox"/> For your use	<input type="checkbox"/> As requested	<input type="checkbox"/> For Review & Comment	

Remarks:

Enclosed please find Three (3) prints of the revised BAT Site Plan (11811 Chapel Estates Dr - Balakirsky Property, Lot 2) - Building Permit # B18000473. Following is response to comments

1. Well box has been shown.
2. Tanks have been relocated.
3. Legend has been updated.
4. As discussed, traffic bearing tanks are being used with thicker slabs. Less than 5 foot of cover has been proposed.
5. Sleeve has been added.
6. A 2" pumped line is proposed. Labeling has been made consistent.

If we may be of any further assistance or you need any changes, please do not hesitate to call.

Very truly yours,

Stephanie Tuite, RLA, PE, LEED AP BD&C

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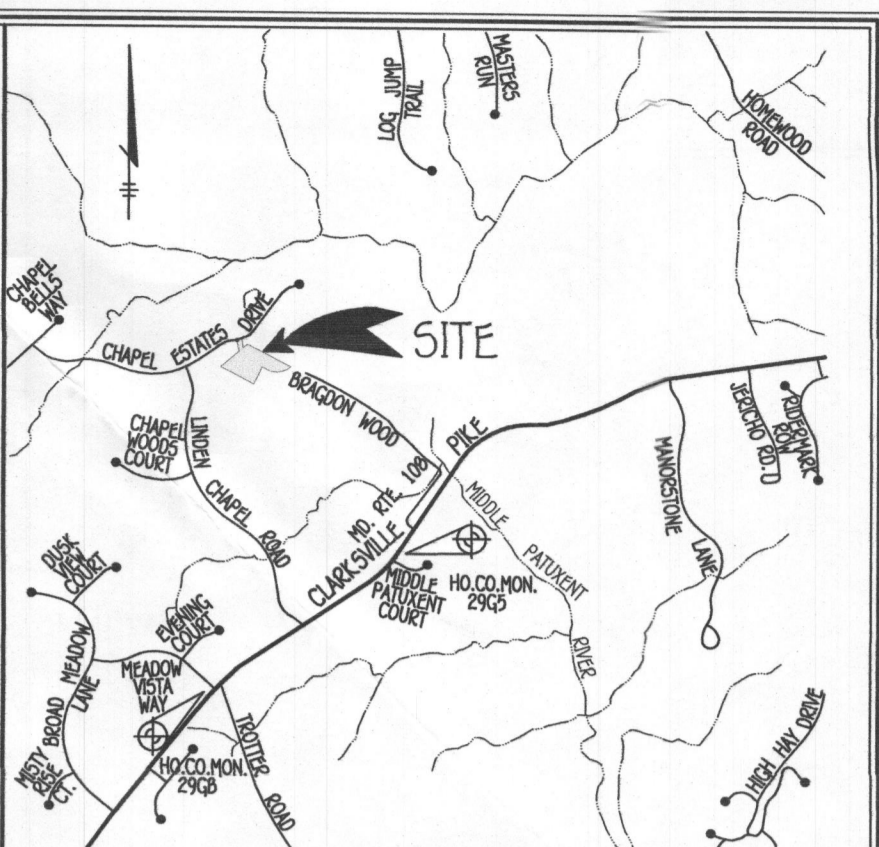
SOILS LEGEND

SOIL	NAME	CLASS
GbC	Gládestone loam, 0 to 15 percent slopes	B
GnB	Gentville-Báille silt loams, 0 to 8 percent slopes	C
MaD	Manor loam, 15 to 25 percent slopes	B

- ### GENERAL NOTES
- SUBJECT PROPERTY ZONED: RC-DEO
 - TOTAL AREA OF PROPERTY: 3.20 AC.
 - LIMIT OF DISTURBANCE: 64,227 SQ.FT. OR 1.47 ACRES.
 - CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
 - BOUNDARY OF LOT BASED ON PLAT #23207.
 - TOPOGRAPHY SHOWN HEREON BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY FISHER, COLLINS & CARTER, INC. IN JULY, 2017. TOPOGRAPHY IS SUPPLEMENTED BY HOWARD COUNTY 200 SCALE TOPOGRAPHY.
 - WETLANDS EXIST ON THIS LOT AND HAVE BEEN SHOWN BASED ON F-14-119.
 - PLAN SUBJECT TO VARIANCE APPROVED ON APRIL 2, 2013 TO ALLOW SEWAGE DISPOSAL SYSTEMS SERVING LOTS 1 & 2 TO BE LOCATED UPGRADIENT FROM THE PRIVATE WATER SUPPLY ON NEIGHBORING PARCELS OFF OF CHAPEL WOODS DRIVE.

LEGEND

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
X	EXISTING FENCE
---	EXISTING STORM DRAIN LINE
---	EXISTING WATER LINE
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
x 329.14	SPOT ELEVATION
---	PROPOSED PAVING
---	EXISTING TREELINE
---	PROPOSED TREELINE
---	BUILDING RESTRICTION LINE
---	PROPOSED SEPTIC LINE
---	PROPOSED RETAINING WALL
---	PROPOSED CONCRETE / PATIO
○ 217	PASSED PERC HOLE
○ 5	FAILED PERC HOLE
---	PROPOSED RIPRAP



VICINITY MAP
SCALE: 1" = 200'
HO. CO. MD. ADC MAP 4934, QBD C3

BENCH MARKS

T.P. 295B ELEV 456.00
N. 566.861.1
E. 1.333,265.9
LOC. SW CORNER OF MEADOW VISTA WAY & TROTTER RD. NEAR INTERSECTION OF RTE. 108 & MEADOW VISTA WAY

T.P. 295C ELEV. 387.40
N. 568.341.2
E. 1.335,392.5
LOC. SE SIDE OF ROUTE 108 & MIDDLE PATUXENT COURT

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 COVER OVER THE BAT SHALL BE 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
- ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- THE WELL (TAG # HO-14-0047) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.
- ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100 FEET OF THE PROPERTY BOUNDARIES AND 200 FEET DOWNGRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
- 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 MARSHAL 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.
- AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, LIBER 1088 FOLD 10.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 50 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.

SEPTIC SYSTEM ELEVATIONS

- FFE = 373.19
- BSE = 362.00
- INV. OUT OF HOUSE = 359.50
- PROP GROUND AT CLEANOUT = 370.5
- INVERT INTO CLEANOUT = 359.20
- INVERT OUT OF CLEANOUT = 359.10
- PROP GROUND AT CLEANOUT = 364.8
- INVERT INTO CLEANOUT = 358.47
- INVERT OUT OF CLEANOUT = 358.37
- PROP GROUND AT BAT TANK = 364.2
- TOP OF BAT TANK = 359.27
- COVER OVER BAT TANK = 4.3 FT
- INVERT INTO BAT TANK = 358.27
- INVERT OUT OF BAT TANK = 357.94
- PROP GROUND AT PUMP TANK = 364.03
- TOP OF PUMP TANK = 359.03
- COVER OVER PUMP TANK = 5 FEET
- INVERT INTO PUMP TANK = 357.86
- INVERT OUT OF PUMP TANK = 361.83

SEPTIC SYSTEM DESIGN

- 3 BEDROOM HOUSE
- LOADING RATE = 750 GPD
- APPLICATION RATE = 1.2
- EFFECTIVE SIDEWALL BEGINS AT 3.0 FEET
- TRENCH DEPTH = 6 FEET
- TRENCH WIDTH (W) = 3 FEET
- EFFECTIVE DEPTH (D) = 3 FEET
- SF OF DEANFIELD = 750 GPD / 1.2 = 625 SF
- COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2*3)) = 0.5
- TRENCH LENGTH = 625 SF x 0.5 / 3 = 104.17 FEET (USE 104 FEET)
- TRENCH SPACING = 2D+W = (2*3) + 3 = 9 USE 10'

TRENCH DESIGN

TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH TO STONE FROM GROUND	DEPTH OF STONE (FT)	EFFECTIVE DEPTH STARTS AT	EFFECTIVE DEPTH (D)	TRENCH DEPTH	TRENCH WIDTH (W)	TRENCH SPACING
1A	415.8	413.3	412.8	2.5 FT	3.5 FT	409.8	3 FT	3 FT	6 FT	3 FT
1B	413.8	411.3	410.8	2.5 FT	3.5 FT	407.8	3 FT	3 FT	6 FT	3 FT
1C	413.8	411.3	410.8	2.5 FT	3.5 FT	407.8	3 FT	3 FT	6 FT	3 FT

LOW PRESSURE DOSING SYSTEM - INITIAL INSTALLATION

TRENCH	GROUND ELEV.	PIPE INVERT ELEV.	TRENCH LENGTH (FT)	LATERAL PIPE LENGTH (FT)	PERFORATION DIAMETER (IN)	HEAD (FT)	PERFORATION FLOW RATE (GPM)	PERFORATION SPACING (FT)	NUMBER OF ORIFICES	TRENCH FLOW RATE (GPM)
1A	415.8	412.8	34.7	32.22	5/16	2	1.63	4.96	7	11.41
1B	413.8	410.8	34.7	31.23	5/16	4	2.30	6.94	5	11.50
1C	413.8	410.8	34.7	31.23	5/16	4	2.30	6.94	5	11.50
TOTAL TRENCH FLOW RATE										34.41

- FRICION LOSS IN 3" PIPE FITTINGS:
 - 1/8" HD x 4 FEET PER FITTING = 32 EQUIVALENT FEET OF PIPE
 - TEE/CROSS x 11 FEET PER FITTING = 11 EQUIVALENT FEET OF PIPE
 - UNION x 2 FEET PER FITTING = 2 EQUIVALENT FEET OF PIPE
 - ELBOWS x 9 FEET PER FITTING = 9 EQUIVALENT FEET OF PIPE
 - TOTAL EQUIVALENT FEET OF PIPE = 54 FT
- TOTAL LINEAR FEE OF 2" SCH. 40 PVC = 543 LF + 54 LF = 597 LF
- DYNAMIC HEAD
 - 597 LF X 2.50 FT PER 100 LF OF PIPE = 14.93 FT OF FRICTION HEAD
 - DISTAL HEAD = 2.00 FT
 - VERTICAL FROM PUMP OFF TO DISCHARGE = 6.95 FT OF STATIC HEAD
 - VERTICAL FROM DISCHARGE TO HIGHEST ELEV OF MAIN = 52.30 FT
 - TOTAL DYNAMIC HEAD = 75.78 FT
- PIPE VOLUMES
 - 543 LF (2" SCH. 40 PIPE) X 17.4 GALLONS PER 100 LF = 94.5 GALLONS
 - 94.7 LF (1.5" SCH. 40 PIPE) X 10.6 GALLONS PER 100 LF = 10.0 GALLONS
- MINIMUM DOSE
 - MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
 - = (5 X 10.0) + (95)
 - = 145 GALLONS
- 145 GALLONS IS MORE THAN 1/6 DESIGN FLOW (750/6=125)
- USE 172 GALLON DOSE (145 GALLON MINIMUM)
- (RUN TIME = 5 MIN (34.4 GPM X 5 = 172 GALLON DOSE))
- PUMP NEEDS TO HANDLE 34.4 GPM AT 75.8 FT OF HEAD
- USE 1.5 HP (HE150 PUMP)

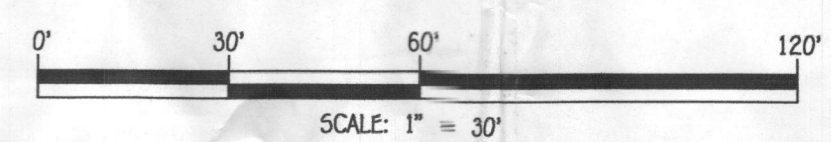
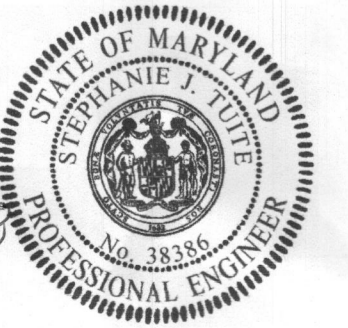
PLAN VIEW
SCALE: 1" = 30'

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CONTONAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PKE.
ELLETTT CITY, MARYLAND 21042
(410) 461 - 2895

THIS DEVELOPMENT IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: _____
HOWARD SOIL CONSERVATION DISTRICT DATE: _____

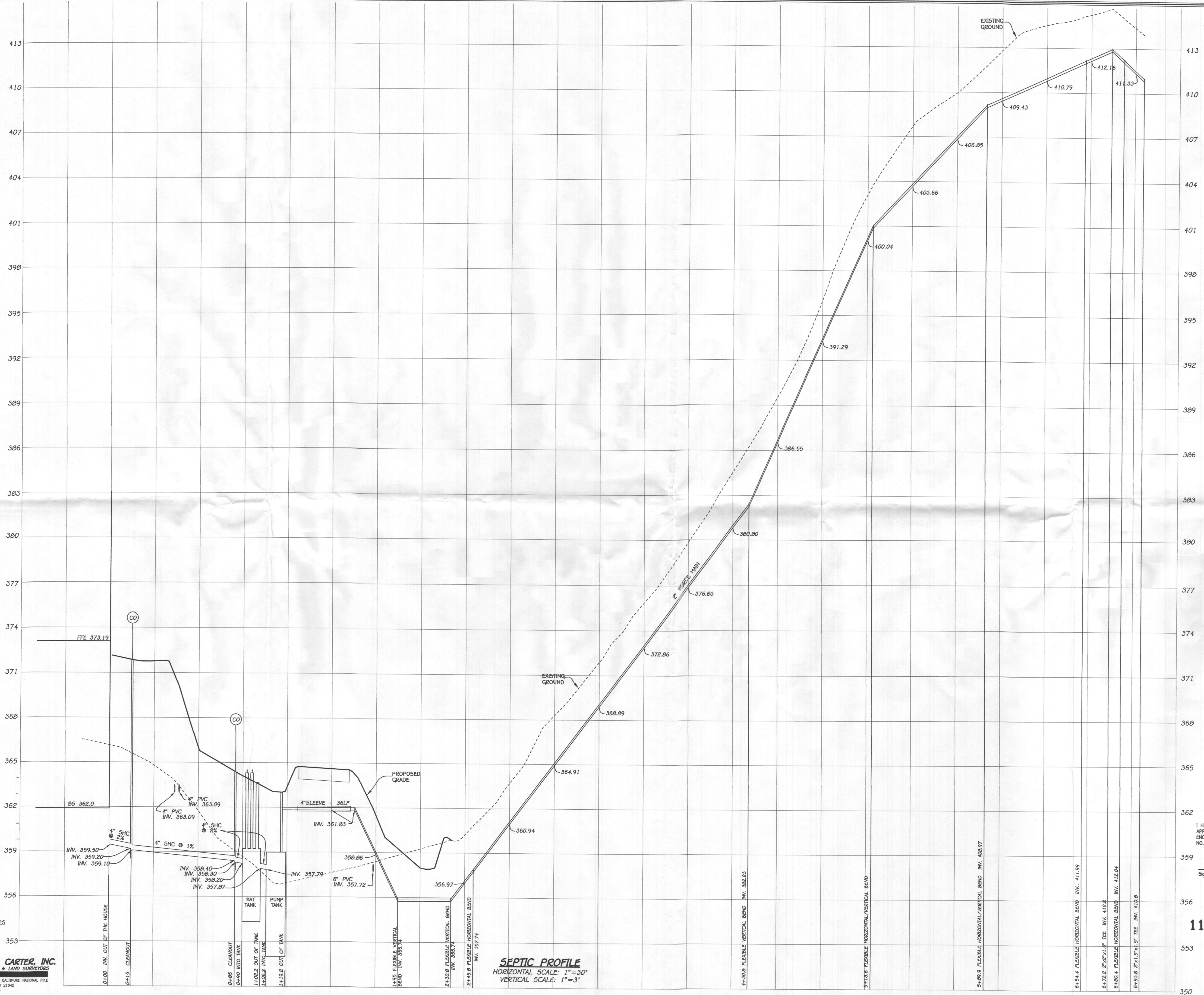
OWNER
NISHA PATEL
C/O GREENFIELD FAMILY HOMES
6420 AUTUMN SKY WAY
COLUMBIA, MD 21044
(443) 324-4732

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. 36386H, EXPIRATION DATE: 01/12/2020.
Stephen Lutz 4/24/18
Signature of Professional Engineer DATE



BAT SITE PLAN
11011 CHAPEL ESTATES DRIVE
BALAKIRSKY PROPERTY, LOT 2
PLAT #23207
ZONING: RC-DEO
TAX MAP No. 29 GRID No. 14 PARCEL No. 42
FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: APRIL 2018
SHEET 1 OF 3

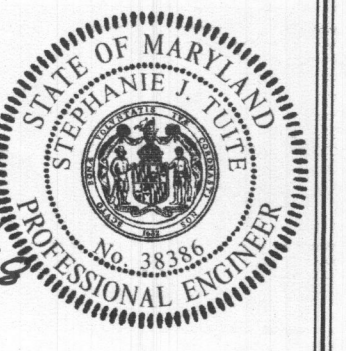
I:\2017\12069\dwg\12069-6007 BAT Plan 4/24/2018 11:54:38 AM, 1:1



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. 36386, EXPIRATION DATE: 01/12/2020.

Stephanie T. Fette
 Signature of Professional Engineer DATE



BAT PROFILE
11811 CHAPEL ESTATES DRIVE
BALAKIRSKY PROPERTY, LOT 2

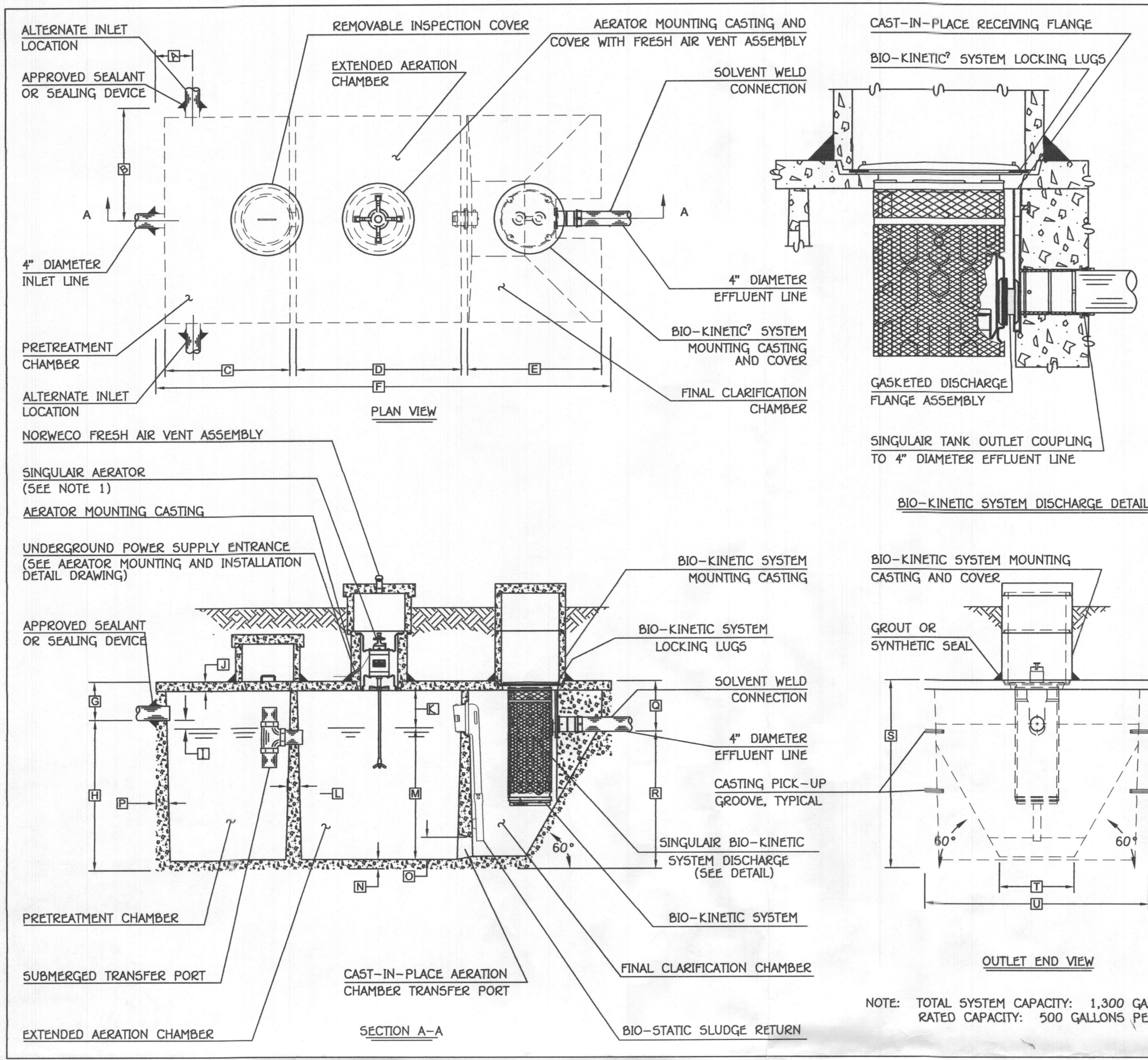
PLAT #23207
 ZONING: RC-DEO
 TAX MAP No. 29 GRID No. 14 PARCEL No. 42
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 2018
 SHEET 2 OF 3

OWNER
 NISHA PATEL
 C/O GREENFIELD FAMILY HOMES
 6420 AUTUMN SKY WAY
 COLUMBIA, MD 21044
 (443) 324-4732

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELKLOTT CITY, MARYLAND 21042
 (410) 461-2995

SEPTIC PROFILE
 HORIZONTAL SCALE: 1"=30'
 VERTICAL SCALE: 1"=3'

I:\2017\12060\DWG\12060-6007 BAT Plan.dwg Profile: 4/12/2018 9:56:01 AM 1:1



GENERAL NOTES:

- SINGULAR AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
- FALL THROUGH SINGULAR PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
- ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC SYSTEM MOUNTING CASTING TO GRADE.
- TANK REINFORCED PER ACI STD. 318-05.
- REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
- CONTACT THE LOCAL LICENSED SINGULAR DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

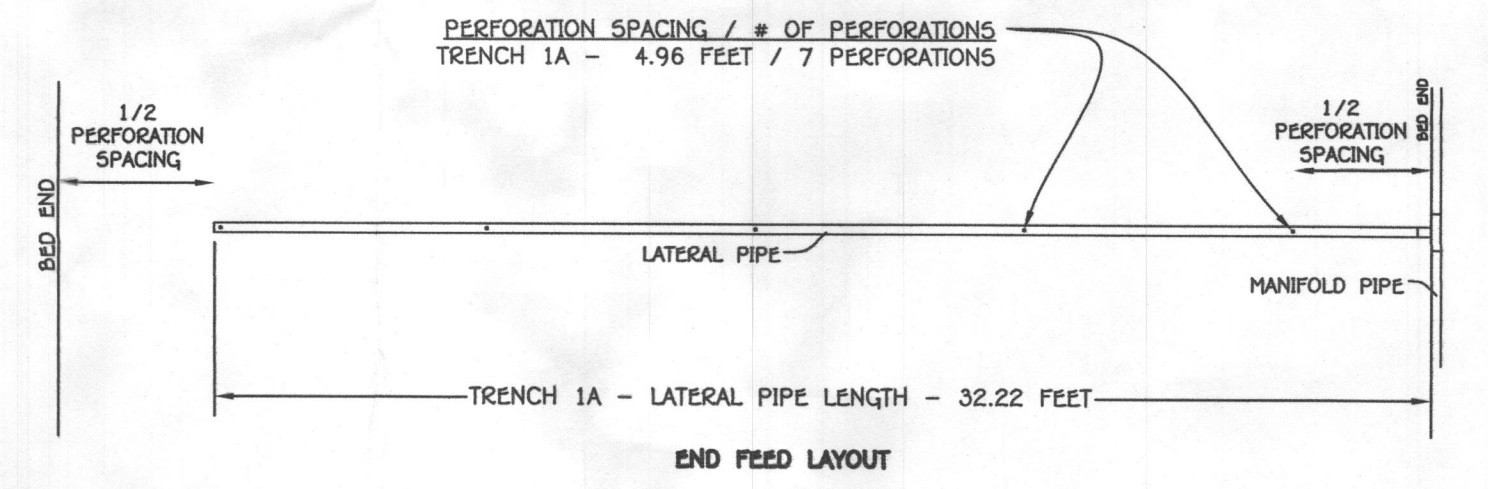
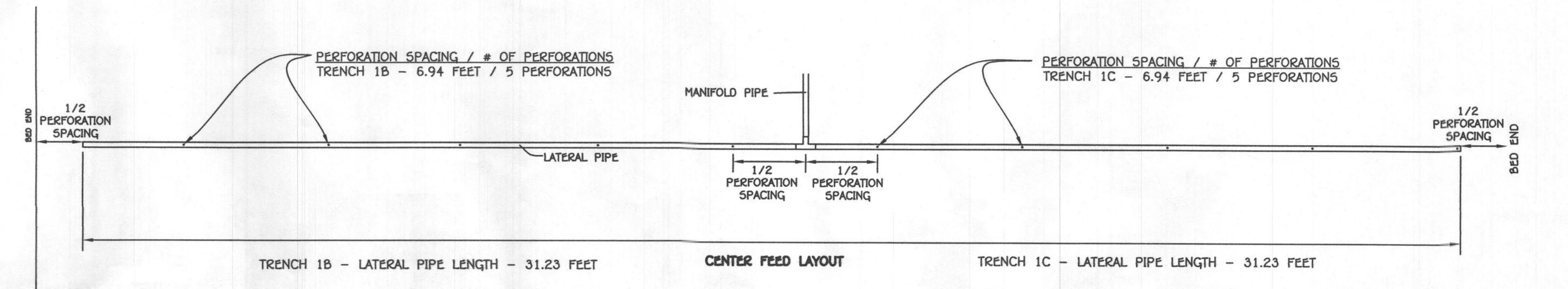
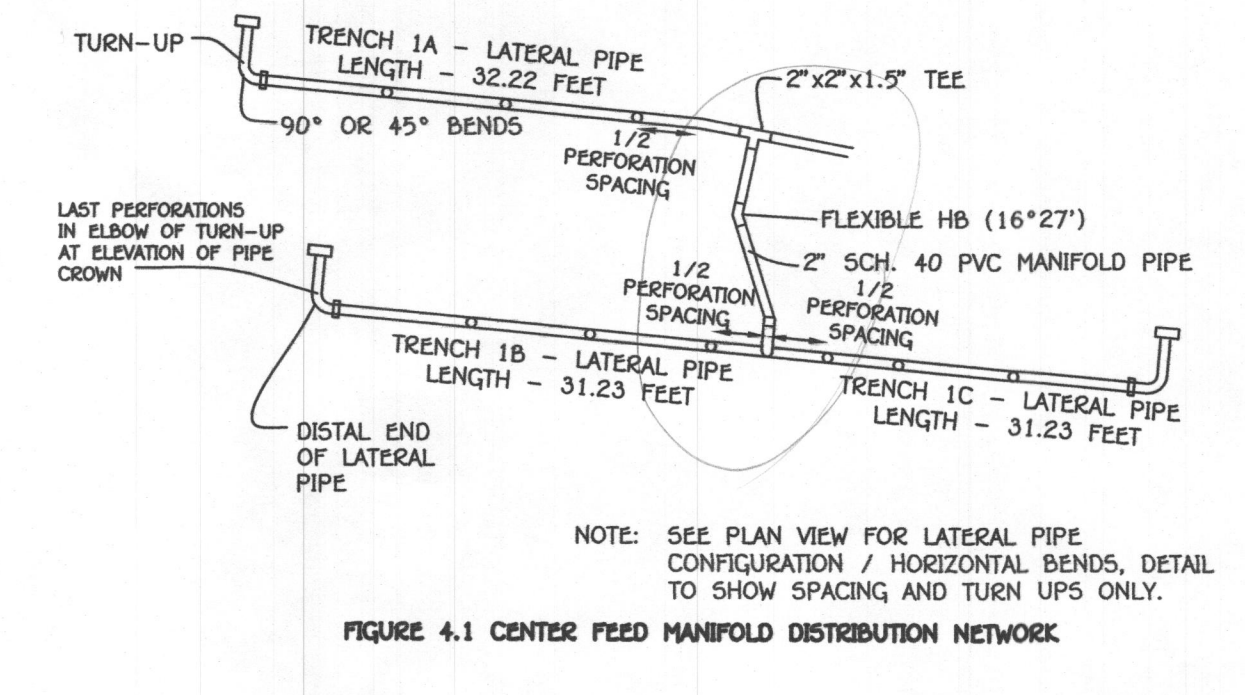
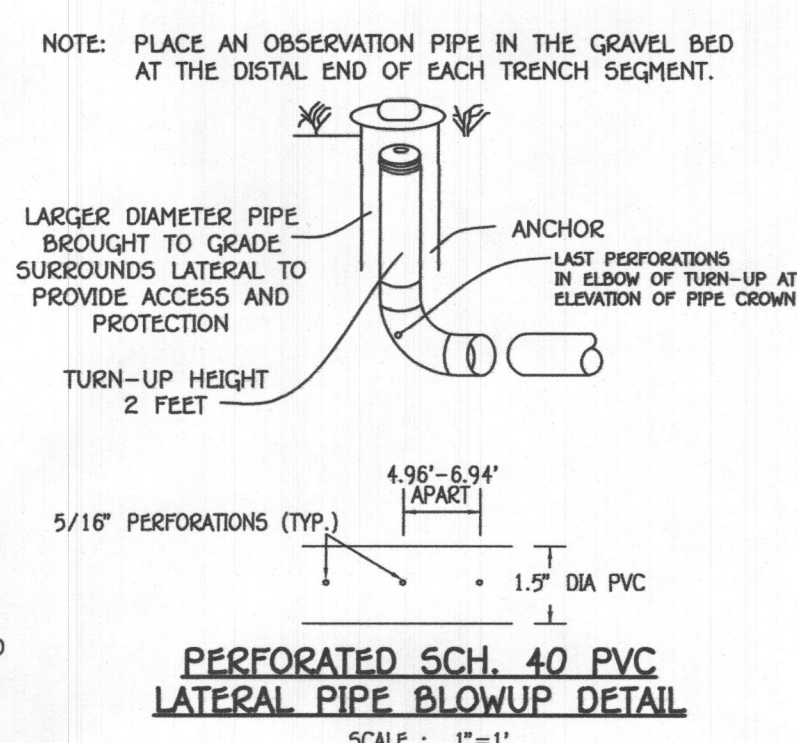
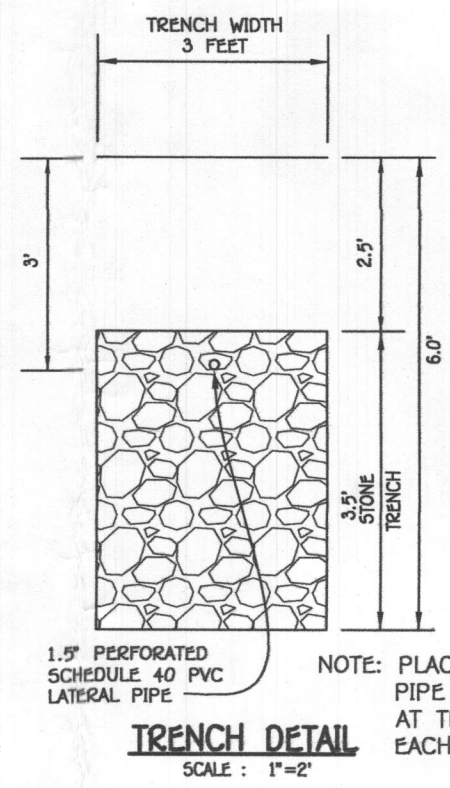
PROJECT ENGINEER'S APPROVAL:
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.
 DATE: _____
 NAME: _____

CONTRACTOR'S CERTIFICATION:
 I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.
 DATE: _____
 NAME: _____

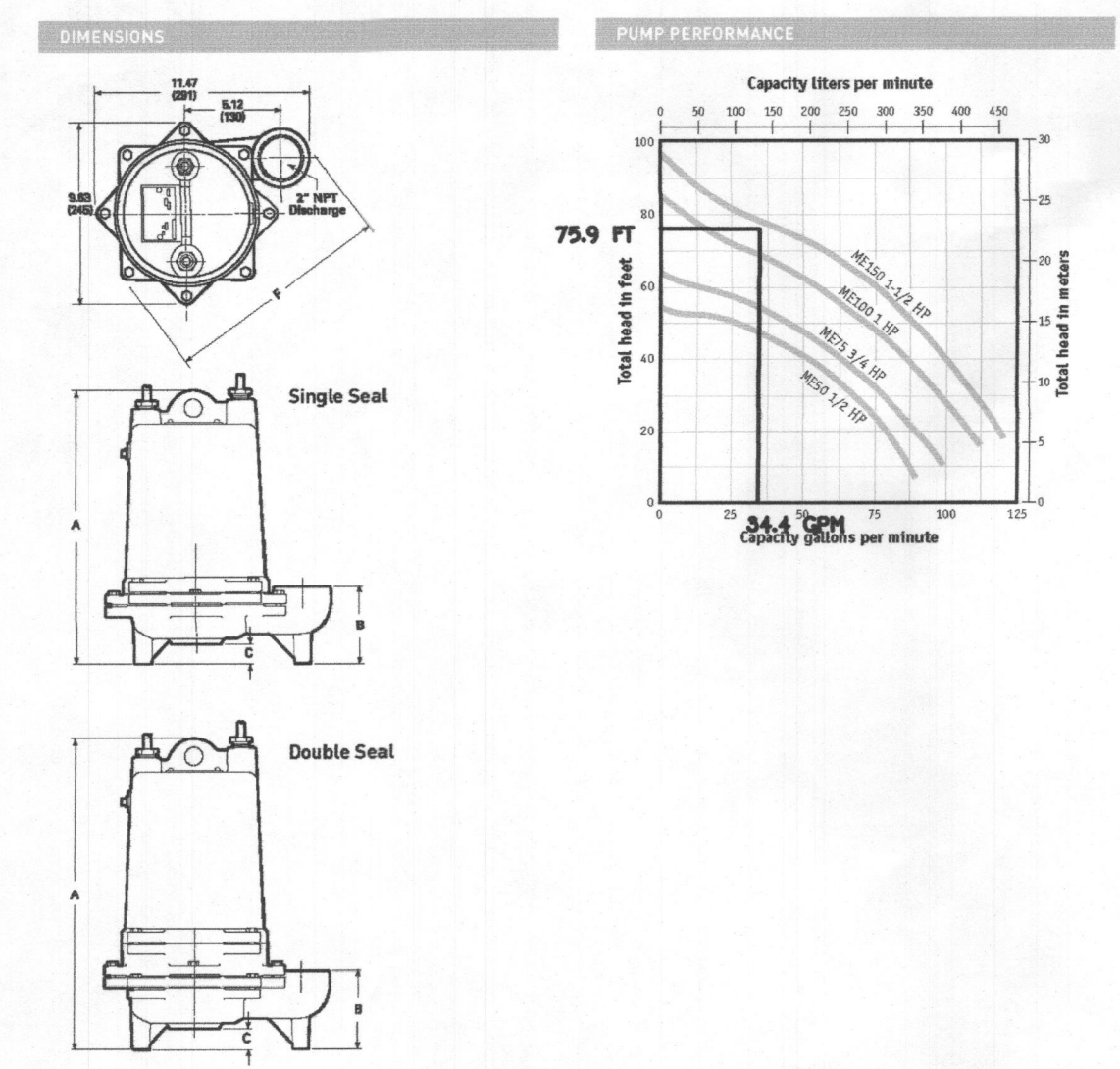
CRITICAL DIMENSIONS	
A	1'-0"
B	3'-0"
C	3'-4"
D	4'-5"
E	3'-7"
F	12'-2"
G	1'-0"
H	4'-0"
I	0'-3"
J	0'-3"
K	1'-0"
L	0'-2"
M	3'-6"
N	0'-3"
O	0'-6"
P	0'-3"
Q	1'-4"
R	3'-8"
S	5'-0"
T	2'-0"
U	6'-0"
V	1'-0"
W	1'-0"
X	1'-0"
Y	1'-0"
Z	1'-0"

norweco
 U.S. AND FOREIGN PATENTS PENDING
 LOW-PROFILE SINGULAR-BIO-KINETIC WASTEWATER TREATMENT SYSTEM
 MODEL: TNLFP-500 GPD
 PC-5-7081

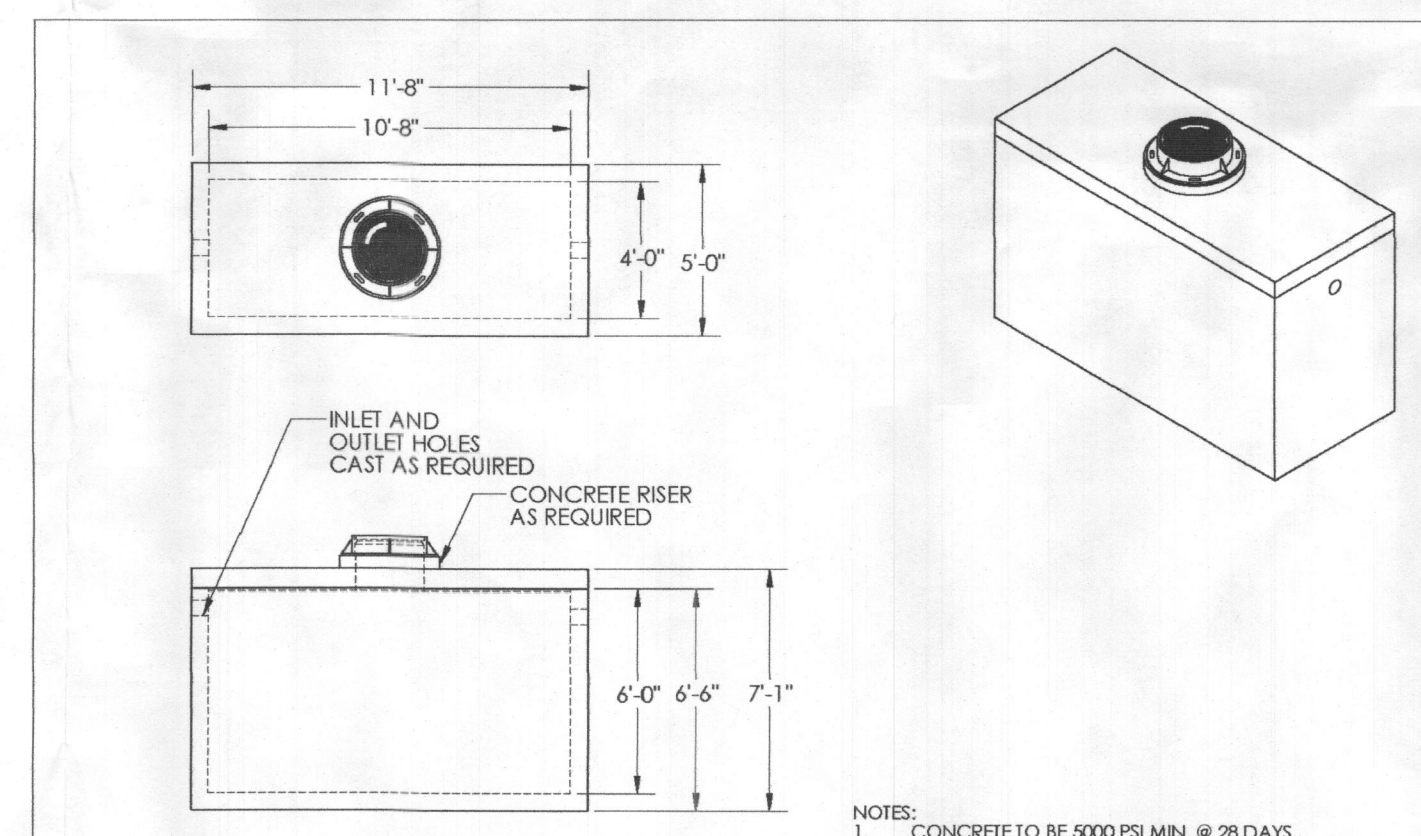
NOTE: TOTAL SYSTEM CAPACITY: 1,300 GALLONS
 RATED CAPACITY: 500 GALLONS PER DAY



EFFLUENT PUMPS
MYERS® ME SERIES

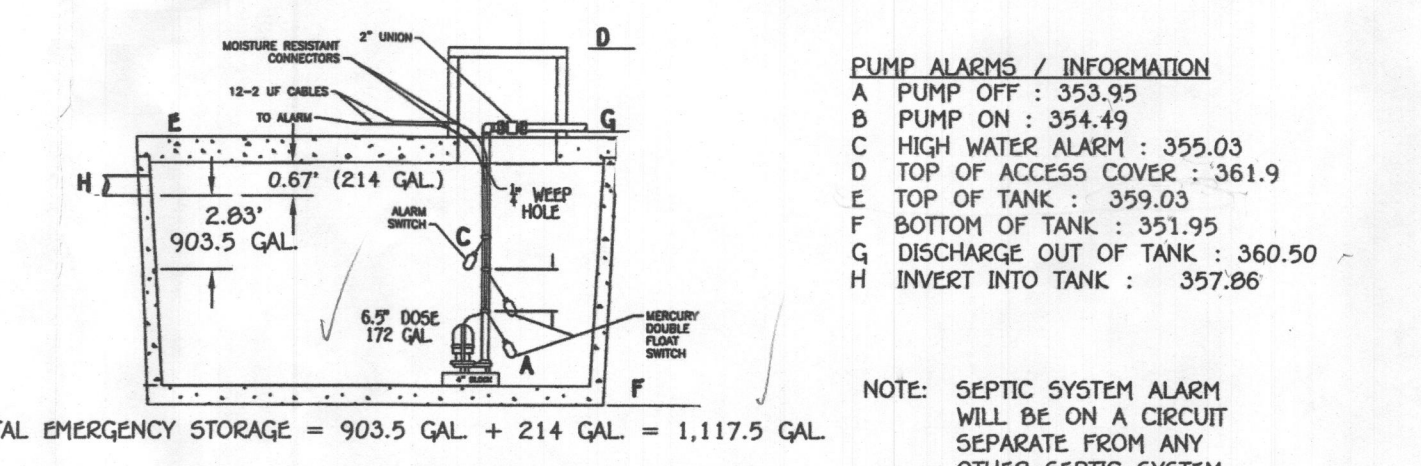


Catalog Number	Inches (Millimeters)			
	A	B	C	F
ME50S	16.9	4.89	1.03	12.13
ME50	16.9	4.89	1.03	12.13
ME100S	18.6	4.89	1.03	12.13
ME100	18.6	4.89	1.03	12.13
ME150S	18.6	4.0	1.06	12.5
ME150	18.6	4.0	1.06	12.5



MONARCH PRODUCTS COMPANY, INC.
 YORK HAVEN, PA.
 717-308-8300
 www.MonarchProducts.net

1500 GAL PUMP TANK
 TOTAL STRUCTURE WEIGHT: 24020 lbs



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

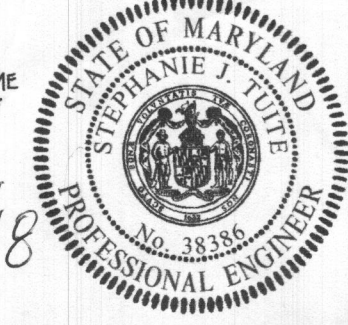
NOTE: USE A ME150 PUMP

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 10722 BALTIMORE NATIONAL PIKE
 ELKLOTT CITY, MARYLAND 21042
 (410) 461-2855

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 Signature of Professional Engineer: _____ DATE: 4/24/18



BAT DETAILS
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 TAX MAP No. 29 GRID No. 14 PARCEL No. 42
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: APRIL 2018
 SHEET 3 OF 3

I:\2012\12060\dwg\12060-6007 BAT Plan 04218.dwg, Details, 4/24/2018 11:53:15 AM, 1:1