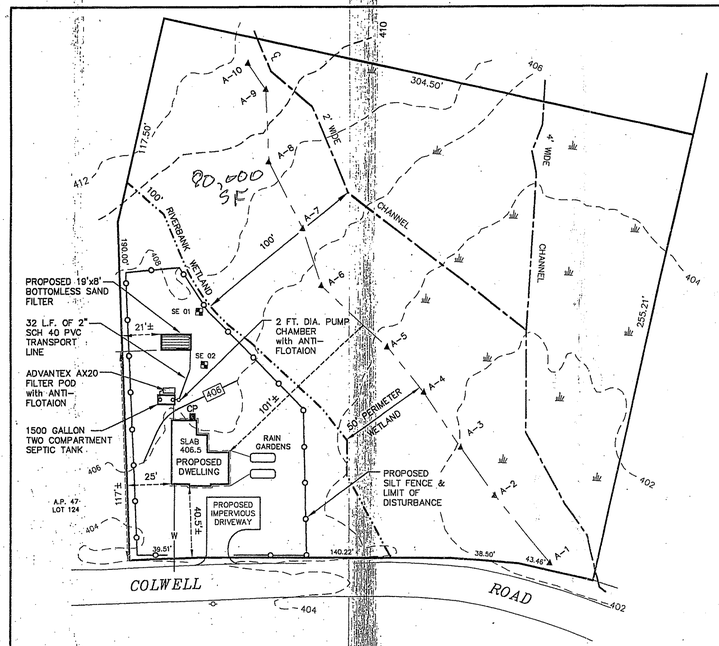


SITE PLAN

SCALE: 1"=40'

CERTIFICATION:

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON NOVEMBER 25, 2015, AS FOLLOWS:

TYPE OF BOUNDARY SURVEY:	NOT A BOUNDARY SURVEY
MEASUREMENT SPECIFICATION:	CLASS III
VERTICAL CONTROL STANDARD:	V-4
TOPOGRAPHIC SURVEY ACCURACY:	T-3

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:
THIS PLAN WAS PREPARED TO ACCOMPANY AND APPLICATION FOR A NEW ON-SITE WASTEWATER DISPOSAL SYSTEM, IN ACCORDANCE WITH RIDEM DESIGN STANDARDS.

BY: Anthony E. Muscatelli 12-11-17
ANTHONY E. MUSCATELLI, PLS #1718 COA #A368 DATE

ANTHONY E. MUSCATELLI
No. 1718
PROFESSIONAL LAND SURVEYOR

SOIL DATA

APPLICATION NO. 9708-0688
TEST HOLE EXCAVATED ON 02/10/16

SOIL EVALUATION 01
36" WATER TABLE

01	2"-0"								
A	0"-8"	a	w	10yr 3/2	sl	1gr	Vfr		
Bw1	0"-14"	c	w	10yr 5/6	g sl	1gr	Vfr		
Bw2	14"-30"	a	w	2.5yr 5/6	g sl	con	depl	c	2p gcbsl1gr Vfr
C	30"-56"	a	w	5y 6/2	gls	om	Vfr		
2C	56"-108"			5y 6/2	stls	om	fr	6	(CAT 6)

SOIL EVALUATION 02
36" WATER TABLE

O:	2"-0"								
A	0"-8"	a	w	10yr 3/2	sl	1gr	Vfr		
Bw1	8"-12"	c	w	10yr 5/6	g sl	1gr	Vfr		
Bw2	12"-28"	g	w	2.5yr 5/6		con	depl	c	2p gcbsl
C	28"-56"	a	w	5Y 6/2	gls	om	Vfr		
2C	56"-108"			5y 5/2	stls	om	Vr		(CAT 6)

RAIN GARDEN

PROPOSED RAIN GARDEN 8"
DEEP. BOTTOM AREA 48 S.F.
BOTTOM ELEVATION 404.3

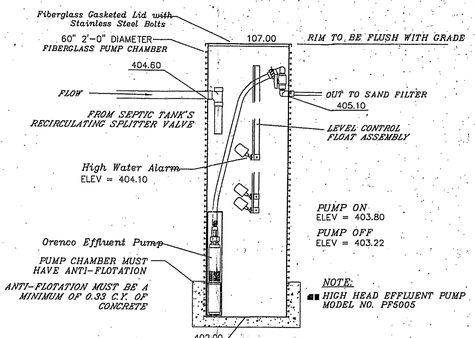
(5) IRIS VERSICOLOR 24" O.C.
(4) RUDBECKIA FULGIDA GOLDSTRUM 30" O.C.
(4) PANICUM VIRGATUM SWTCHGRASS 30" O.C.

LEGEND:

PROPOSED VERICOMM CONTROL PANEL	CP
EXISTING CONTOUR	400
PROPOSED CONTOUR	400
PROPOSED WATER LINE	W
PROPOSED SILT FENCE & LIMIT OF DISTURBANCE	
SOIL EVALUATION TEST HOLE	
WETLAND EDGE WITH FLAG	
CHANNEL	
50' PERIMETER WETLAND	
100' RIVERBANK WETAND	
EXISTING UTILITY POLE	

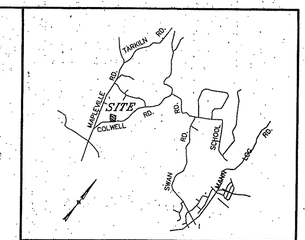
BOTTOMLESS SAND FILTER (BSF) CONSTRUCTION NOTES

1. THE PROPOSED BOTTOMLESS SAND FILTER (BSF) SHALL BE STAKED OUT AND PROTECTED PRIOR TO ANY SITE PREPARATION ACTIVITIES. OVER DIGGING THE SAND FILTER SHOULD BE AVOIDED; MINIMAL BACKFILLING ON BOTTOM AND SIDES PROVIDES A MORE STABLE ENCLOSURE.
2. SOD, VEGETATION AND DEAD OR DECAYING ORGANIC LITTER SHALL BE REMOVED FROM THE AREA PLANNED FOR THE BSF INSTALLATION. TWELVE (12) INCHES OF THE NATIVE SOIL SHALL BE SCARIFIED AND MIXED WITH 12 INCHES OF SAND MEDIA. PERIMETER STRIPPING AND EXCAVATION OF SOIL 12" BENEATH THE NATIVE SOIL/FILTER SAND INTERFACE IS PROHIBITED.
3. A PERIMETER SUPPORT FRAME OF PLYWOOD AND 2x4 CONSTRUCTION IS USED TO HOLD THE LINER IN PLACE DURING INSTALLATION. TREATED WOOD IS NOT NECESSARY. DURING CONSTRUCTION OF THE SAND FILTER, IT IS IMPORTANT THAT SAND BE PLACED BETWEEN THE EXCAVATED SOIL AND THE SUPPORT FRAME. ALL NAILS OR STAPLES USED MUST HAVE THEIR SHARP ENDS POINTED AWAY FROM THE LINER.
4. A PERMANENT TOP FRAME STRUCTURE (SUCH AS DECAY RESISTANT LANDSCAPE TIMBERS) MUST BE PROVIDED ON ANY PORTION OF A BSF THAT IS INSTALLED ABOVE GRADE. BELOW GRADE USE OF TIMBERS IS PROHIBITED TO PREVENT SOIL SLUMPING AFTER TIMBERS HAVE ROTTED.
5. MAINTAIN CONSTANT ELEVATION FOR 5 FEET MINIMUM PERIMETER AROUND BSF.
6. THE 30 MIL PVC LINER IS UNFOLDED FROM THE CENTER OF THE EXCAVATION AND DRAPED OVER THE TOP EDGES OF THE PERIMETER SUPPORT FRAME. CARE MUST BE TAKEN TO ENSURE THAT THE LINER IS IN FULL CONTACT WITH SIDES AND THAT NO BRIDGING OCCURS.
7. FILTER SAND IS PLACED AND COMPACTED WHILE IT IS DAMP. IF THE SAND IS NOT DAMP, IT WILL NOT COMPACT WELL AND SETTLEMENT MAY CAUSE DISLOCATION AND BREAKAGE OF THE DISTRIBUTION LATERALS. THE SAND SURFACE MUST BE FLAT. SEE THE APPROPRIATE SAND GRADATION CHART FOR SPECIFICATIONS.
8. THREE INCHES OF 3/8 INCH PEA STONE IS PLACED ON TOP OF THE COMPACTED SAND, DISTURBING THE SAND AS LITTLE AS POSSIBLE. SEE PEA STONE SPECS. AFTER THE LATERALS ARE INSTALLED AND PRESSURE TEST IS PERFORMED, PLACE PEA STONE OVER THE DISTRIBUTION LATERALS TO PROVIDE 3 INCHES DEPTH OF PEA STONE OVER ALL UPPER ORIFICE SHIELDS. NO FILTER FABRIC OF ANY KIND SHOULD BE PLACED BETWEEN THE SAND AND OVERLYING PEA STONE.
9. THE LINER'S PVC BOOT PERMITS A WATERTIGHT PENETRATION OF THE LINER FOR THE TRANSPORT PIPE DELIVERING EFFLUENT TO THE SAND FILTER'S DISTRIBUTION SYSTEM. IN THE EVENT THE GROUND WATER REACHES THAT ELEVATION, THE BOOT WILL PREVENT INFILTRATION. THE MANUFACTURER'S GUIDE MUST BE FOLLOWED EXACTLY WHEN INSTALLING THE PVC BOOTS.
10. THE 1/8 INCH DIAMETER ORIFICES SHOULD BE DRILLED WITH A DRILL PRESS OR DRILL GUIDE USING A NEW 1/8 INCH DRILL BIT AND SHOULD NOT HAVE ANY VISIBLE BURRS. ALL PVC JOINTS SHOULD BE GLUED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
11. ORIFICE SHIELDS ARE PLACED ON THE LATERALS TO PREVENT THE PEA GRAVEL FROM BLOCKING THE FLOW OUT OF THE ORIFICES AND TO OBTAIN BETTER EFFLUENT DISTRIBUTION OVER THE SAND. COLD WEATHER ORIFICE SHIELDS SHOULD BE USED IN COLD WEATHER CLIMATES TO PREVENT THE FREEZING OF THE LATERALS.
12. AS PART OF THE COLD WEATHER REQUIREMENT, TWO (2) OF THE ORIFICES IN EACH DISTRIBUTION LATERAL MUST BE DRILLED POINTING UPWARD AND THE REST ARE DRILLED POINTING DOWNWARD. UP-POINTING ORIFICES SHALL BE LOCATED AT POINTS APPROXIMATELY 1/3 AND 2/3 ALONG THE LENGTH OF EACH DISTRIBUTION LATERAL. INSTALL COLD WEATHER ORIFICE SHIELDS AT ALL ORIFICES (UPWARD AND DOWNWARD POINTING).
13. THE ELECTRICAL SPLICE BOX MUST BE UL OR CSA LISTED AND CORROSION-PROOF WITH THE PROPER NUMBER OF CORD GRIPS INSTALLED. HEAT SHRINK AND OR WATERTIGHT WIRE NUTS MUST BE USED ON THE INDIVIDUAL WIRE SPLICES. WITHIN THE BOX TO ENSURE THE INTEGRITY OF THE SPLICES IF THE BOX BECOMES FLOODED. SUFFICIENT LENGTH OF WIRES MUST BE PROVIDED IN THE BOX TO ALLOW FOR FUTURE REPAIRS.
14. THE CONDUIT SEAL MUST BE UL OR CSA LISTED AND MUST BE INSTALLED USING PROPER CONDUIT SEALANT AS RECOMMENDED BY THE MANUFACTURER. SILICONE IS NOT ALLOWED. THE SEAL PREVENTS WATER FROM DRAINING INTO THE SPLICE BOX AND CASES FROM ESCAPING THE TANK.
15. THE ELECTRICAL CONDUIT MUST BE UL OR CSA LISTED. THERE ARE ELECTRICAL CODE RULES RESTRICTING THE NUMBER OF BENDS BETWEEN PANELS AND JUNCTION BOXES. REFER TO NEC 1993 SECTION 347-14.
16. INSTALL LID INSULATION ON ALL LIDS TO PREVENT FREEZING.
17. THE CLASS 200 TRANSPORT PIPE SHALL BE ALLOWED TO DRAIN BACK COMPLETELY, TO PUMP CHAMBER, MAXIMIZE PITCH OF TRANSPORT PIPE TO ACHIEVE DRAINBACK AND PROVIDE FURTHER FREEZE PROTECTION AS CONDITIONS WARRANT.
18. IN AREAS WHERE THE BSF MAY BE ACCESSIBLE TO CHILDREN, THE PEA STONE SURFACE MAY BE COVERED WITH A BROAD WEAVE FILTER FABRIC AND AN ADDITIONAL LAYER OF PEA STONE OR LARGER WASHED STONE, NO GREATER THAN 2" IN THICKNESS. TO DISCOURAGE PHYSICAL DISTURBANCE TO OR CONTACT WITH THE TREATMENT ZONE.
19. PROVIDE A PERMANENT 10' MINIMUM BUFFER BETWEEN BSF AND ANY TREES OR SHRUBS.



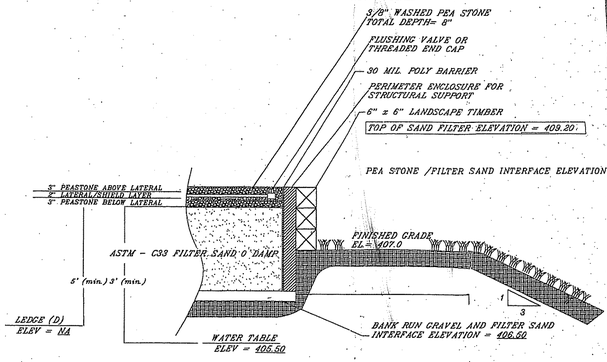
NOTE:
■■ HIGH HEAD EFFLUENT PUMP MODEL NO. PF5005

PUMP CHAMBER DETAIL - 24" DIA.
NOT TO SCALE



LOCUS MAP
(NOT TO SCALE)

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
OWTS & FRESHWATER WETLANDS
JOINT PERMIT APPROVAL
OWTS# 1731-0700 FRW# 17-0310
APPROVED [signature] DATE 3/14/18
No Changes Allowed Without RIDEM Approval
Permit Must Be Kept at Construction Site



"Copy of Permit and Operation/ Maintenance contract must be filed in land evidence records prior to conformance"

BOTTOMLESS SAND-FILTER DETAIL
NOT TO SCALE

DESIGN CRITERIA

- PEAK FLOW = 3 BEDROOMS @ 115 GALLONS PER DAY / BEDROOM = 345 GPD
- CATEGORY 6 SYSTEM USE 2.3 GAL/SF/DAY LOADING RATE
- SIZE A BOTTOMLESS SAND FILTER:
  - 345 GPD / 2.3 GAL/SF/DAY = 150 S.F.
  - USE A 19' X 8' BOTTOMLESS SAND FILTER

FEB 16 2018

INVERT SCHEDULE

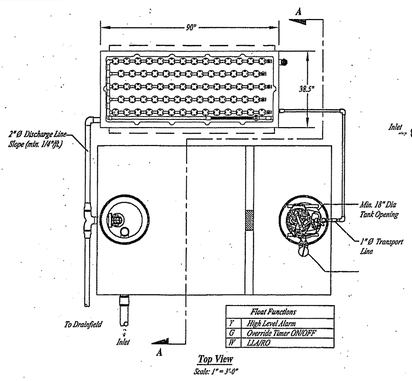
DESIGN G.W.T. BSF/TANK	EL. 405.50
OUT OF DWELLING	EL. 405.00
SEPTIC TANK IN	EL. 404.90
TOP OF SEPTIC TANK	EL. 405.74
R.S.V. TO PUMP CHAMBER	EL. 404.80
AX20 FILTER POD INLET	EL. 407.10
TOP OF ADVANTEX FILTER	EL. 407.50
PUMP CHAMBER INLET	EL. 404.60
PUMP CHAMBER OUT	EL. 405.10
BOTTOM OF SAND	EL. 406.50
BOTTOM OF PEA GRAVEL	EL. 408.50
FLUSHING VALVE	EL. 408.70
BSF MANIFOLD	EL. 408.70
TOP OF PEA GRAVEL	EL. 109.20

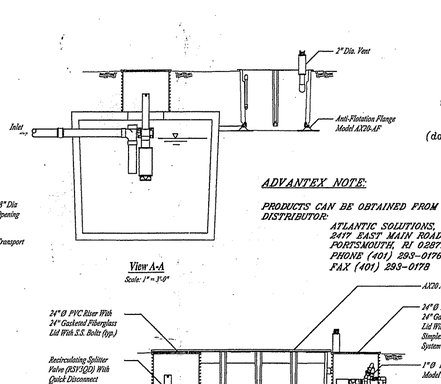
PUMP CHAMBER

BOTTOM OF CHAMBER	EL. 402.00
REDUNDANT OFF	EL. 403.22
PUMP ON	EL. 403.80
HIGH WATER ALARM	EL. 404.10

ADVANTEX AX20 SYSTEM FLOAT LEVELS

HIGH WATER ALARM	EL. 404.90
TOP OF RSV CAGE	EL. 404.80
NORMAL LOW LIQUID LEVEL	EL. 404.03
LOW WATER ALARM/REDUNDANT OFF	EL. 404.50

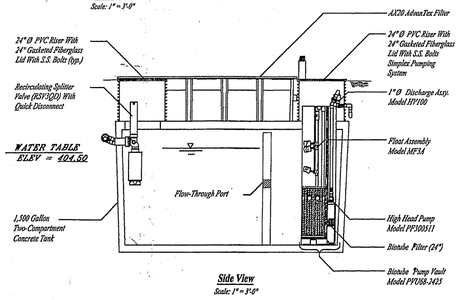




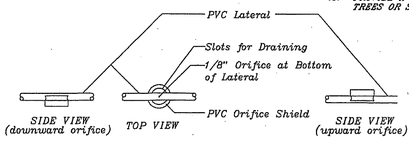
ADVANTEX NOTE:

PRODUCTS CAN BE OBTAINED FROM OSI PRODUCT DISTRIBUTOR:

ATLANTIC SOLUTIONS, LTD.
847 EAST MAIN ROAD
PORTSMOUTH, RI 02871
PHONE (401) 293-0176
FAX (401) 293-0178



ADVANTEX AX20 DETAILS (SHALLOW GWT)
NOT TO SCALE



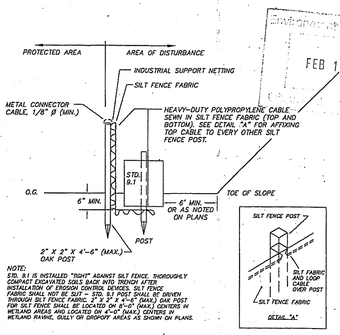
COLD WEATHER ORIFICE DETAIL
NOT TO SCALE

GENERAL NOTES

1. THE OWTS INSTALLER SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES DEPICTED ON THIS PLAN.
2. THE INSTALLER SHALL NOTIFY THIS DESIGNER 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
3. THE DESIGNER SHALL BE CONTACTED IF ANY DISCREPTANCIES ARE FOUND IN THE FIELD.
4. THE INSTALLER SHALL CONTACT THE DESIGNER AT LEAST 24 HOURS IN ADVANCE FOR BOTTOM AND COVER INSPECTIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING DURING EXCAVATION OF ALL COMPONENTS OF THE OWTS.

SITE CONTRACTOR NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONTACT DIG-SAFE AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
3. INSTALL ALL EROSION CONTROLS AS DEPICTED PRIOR TO CLEARING & GRUBBING.



R.I. STD. 9.1 WITH SILT FENCE
NOT TO SCALE

R.I. STANDARD 9.6

B.S.F. Demand Dosing

36 ORIFICE * 0.24 GAL PER ORIFICE = 8.64 GALLONS
32 LF 2" TRANSPORT LINE VOLUME = 5.2 GALLONS
TOTAL DOSED = 12.1 GALLONS PER DOSE

PUMP BASIN DRAWDOWN:
13.84 GAL PER DOSE / 2 GAL PER INCH = 6.92" = 0.58'

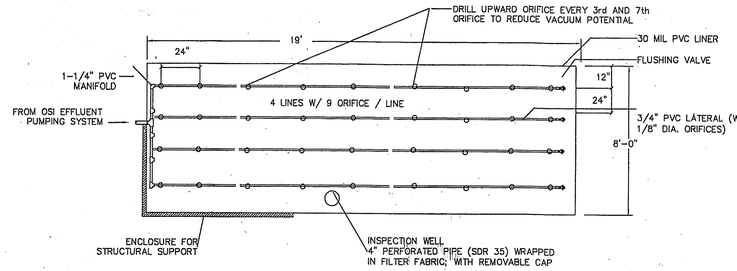
DESIGN CHECK:
345 GAL PER DAY / 13.84 GAL PER DOSE = 25 DOSE PER DAY

FEB 16 2018
Coast Resources Management Council

1" = 40'
0 20 40 80 160 240 feet
0 5 10 20 40 60 meters

OWTS NOTES

1. ALL DESIGN, CONSTRUCTION, AND MAINTENANCE REQUIREMENTS, WHETHER NOTED HEREON OR NOT, SHALL BE IN CONFORMANCE WITH RULES AND REGULATIONS ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS: JULY, 2010 AND ALL AMENDMENTS, BY THE RHODE ISLAND DEPT. OF ENVIRONMENTAL MANAGEMENT.
2. ALL TREES, STUMPS, AND BRUSH SHALL BE REMOVED WITHIN 10 FEET OF THE SYSTEM.
3. THERE ARE NO KNOWN PRIVATE WELLS OR DRAINS EXIST. OR PROPOSED LOCATED WITHIN 200 FEET OF THE OWTS EXCEPT AS SHOWN AND NO KNOWN PUBLIC WELLS (EXIST. & PROP.) LOCATED WITHIN 800 FEET OF THE PROPOSED OSDS.
4. THERE ARE NO KNOWN SUBSURFACE DRAINS, EXISTING OR PROPOSED, WITHIN 50 FEET OF THE PROPOSED OWTS.
5. NO VEHICULAR TRAFFIC IS ALLOWED OVER THE LEACHFIELD.



19' x 8' BOTTOMLESS SAND FILTER
PLAN VIEW

INTERNATIONAL MAPPING & SURVEYING CORP.
LAND SURVEYING | CIVIL ENGINEERING | PHOTOGRAMMETRIC MAPPING
19 INDUSTRIAL DRIVE, SMITHFIELD, R.I. 02917 (401) 232-2620

ON-SITE WASTEWATER TREATMENT SYSTEM DESIGN
for ANGELO CALCAGNI
on COLWELL ROAD
in SMITHFIELD, R.I.
A.P. 47 PORTION LOT 125

BOTTOMLESSS SAND FILTER - 3 BEDROOM DESIGN

REVISIONS	DATE	NO.
DRAWN BY	K.R.R.	
CKD. BY	N.J.P.	
APPRD. BY	A.E.M.	
DATE	12/01/17	
SCALE	1"=40'	
SHEET	1 OF 1	
DWG.NO.	050406-IS	