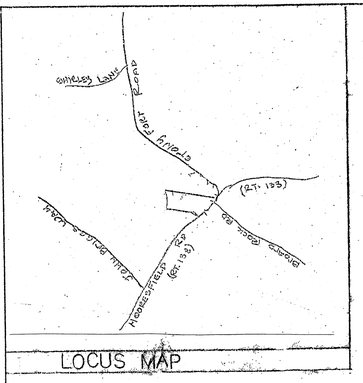
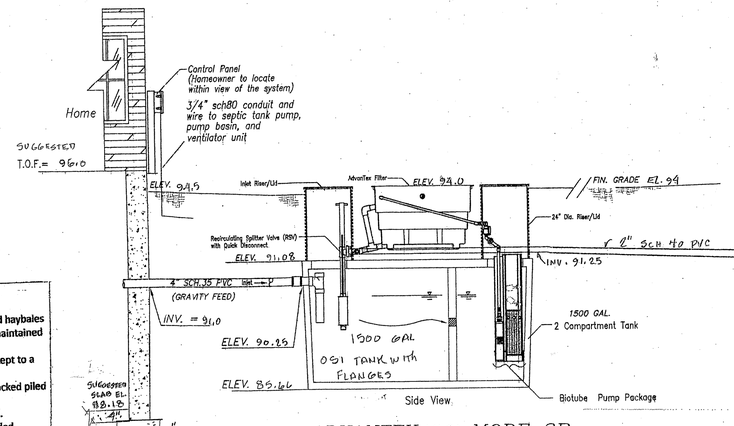


ELEVATION SCHEDULE

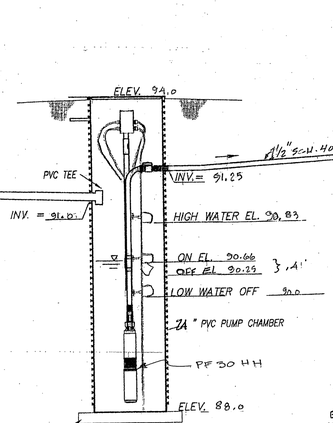
1.) SEWER LINE AT FOUNDATION	91.0
2.) ADVANTEX TANK INLET	90.25
3.) ADVANTEX TANK OUTLET From BAFFLER	91.25
4. PUMP CHAMBER INLET	91.0
5.) PUMP CHAMBER OUTLET	91.25
6. SAND FILTER INLET	93.5
7. BOTTOM OF SAND FILTER	91.5
7. GROUND WATER ELEVATION	88.0
ADVANTEX SEPTIC TANK	
1. HIGH WATER ALARM/OVERIDE TIMER	90.25
2. NORMAL LOW LEVEL	89.91
3. LOW WATER ALARM/REDUNDANT OFF	89.08

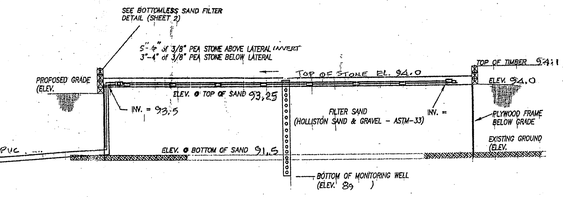
EROSION CONTROL NOTES

(1) Prior to any construction or earthwork activity, a line of staked haybales and/or silt fencing shall be placed as shown on the plan and maintained throughout the construction process.
(2) All disturbance is to be limited to the areas shown, and is be kept to a minimum.
(3) All excavated materials (soil) to be used as backfill shall be stocked piled and shall be surrounded by silt fencing.
(4) All excess unwanted materials shall be removed from the site.
(5) All disturbed areas and final grading shall be loamed and seeded
(6) All slopes shall be stabilized with straw mulch
(7) All silt fence and mulch shall remain until grass has properly rooted.



ADVANTEX AX-20 MODE 3B
(SEE DETAIL SHT.2)





STRIP TO ELEV. 89.25 AND MIX 3" OF FILTER SAND AND EXISTING SUBSOIL BELOW FILTER SAND
SEE BOTTOMLESS SAND FILTER DETAIL SHEET 2

GW 89.0 ▽ BOTTOMLESS SAND FILTER
NOT TO SCALE

TYPICAL CROSS-SECTION
NOT TO SCALE

GENERAL NOTES

(1) The contractor shall verify the location of all utilities and contact DIG-SAFE prior to construction. All permits shall be responsibility of the owner. The contractor shall contact the utility companies, if necessary, to make alterations or relocations of the utilities.
(2) The contractor shall be responsible for maintenance of the integrety of all exisiting utilities, structures, etc. for abutting properties.
(3) All unwanted materials shall be removed from the site by the contractor.
(4) Refer to the ISDS notes for other information.

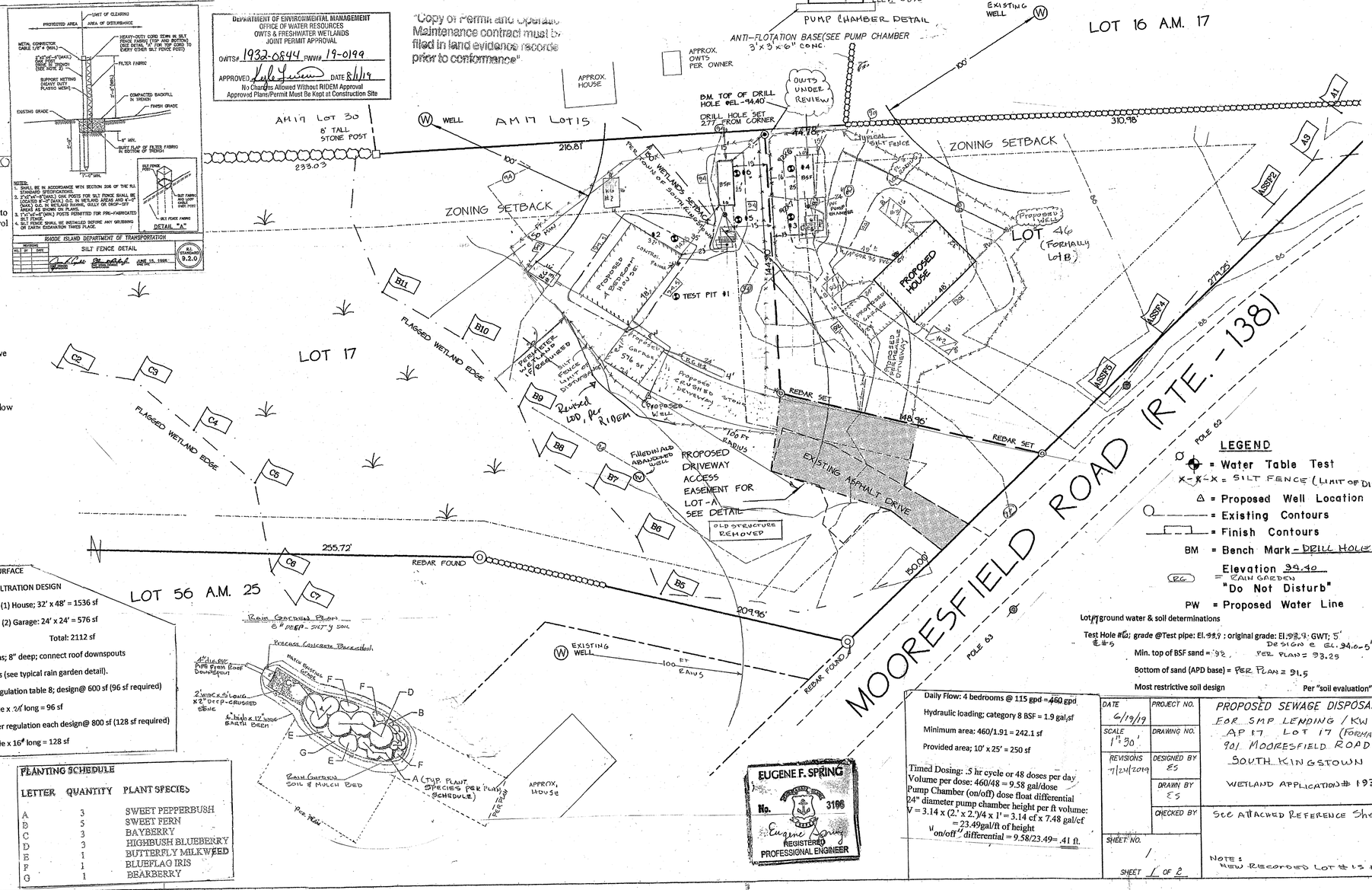
ISDS NOTES

(1) The proposed system shall consist of a leaktight, two-compartment 1500 gallon septic tank from Jolly Precast and houses an ORENCO AdvanTex - AX Treatment System (Mode 3B). The second compartment shall have an Orenco recirculating pump with biotube filter as shown on the profile. The installation shall be in accordance with the manufacturers instructions. The complete system shall be equipped with an hour meter and audible and visual alarms to indicate power interruption or loss. This alarm system is to be mounted on a NEMA approved cabinet on the exterior of the building. A 24" diameter ORENCO pump chamber will pump the AdvanTex discharge liquid to a ORENCO bottomless intermittent sand filter of the size shown on the plans. Control is by demand float arrangement.
(2) The owner shall assure that proper electrical capacity is available for the system requirements.
(3) The contractor shall install the components under the supervision of the designer, and the manufacturer's representatives. The contractor shall maintain documentation verifying the minimum dimensions of the tank as well as its structural integrety.
(4) All installation shall be performed by a licensed DEM installer.
(5) All system testing shall be conducted and verified by the designer and ORENCO Representative(s). Final system acceptance shall be based on the testing results and/or corrected operation as verified by the vendors and the engineer.
(6) All system components shall be verified to be correct by the ORENCO representative prior to installation.
(7) There are 5WW existing or proposed wells within 200 ft. of the proposed ISDS There are no ✓ public wells within 400 ft. of the proposed ISDS.
(8) There shall be no traffic allowed on the system; grades to be maintenained are shown on the plan. Filter to be installed when ground water conditions are deemed low enough. There are no drains within 25 ft. of the system.
(9) The bottomless sand filter shall be installed in accordance with all notes; to the specified elevations on the plan and shall require DEM inspection and designer inspection prior as required by the DEM approval.
(10) The owner shall be required to sign a maintenance contract agreements with the Orenco maintenance vendor. The contract will be for system maintenance by an approved service company for a minimum of two years. The documents shall be recorded in the Town hall land evidence records and a copy submitted to DEM prior to system conformance. Maintenance will be performed for the life of the system. See other notes for the installation and maintenance of the systems.
(11) All warranties of the components are as presented by the companies involved.
(12) No garbage disposal is allowed.
(13) All items required by DEM for inspection are circled on the application sheet (Installer take note)
(14) Low water volume fixtures shall be used in the house.
(15) Contractor adhere to the DEM regulations pertaining to the designer requirements for submittals and DEM inspections. No work to be performed during high water table levels.
(16) The lot is not in a salt pond critical resource area.
(17) Contractor to give at least 48 hr. notice to the designer prior to start of construction.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
OWTS & FRESHWATER WETLANDS
JOINT PERMIT APPROVAL

OWTS# 1932-0844 FWW# 19-0199
APPROVED Luke Lucien DATE 8/1/19
No Changes Allowed Without RIDEM Approval
Approved Plans/Permit Must Be Kept at Construction Site

"Copy of permit and operation & Maintenance contract must be filed in land evidence records prior to conformance"


AM 17 LOT 30
8' TALL STONE POST
233.03'
AM 17 LOT 15
216.81'
WELL
100'
APPROX. HOUSE
APPROX. OWTS PER OWNER
P.M. TOP OF DRILL HOLE EL=94.40
DRILL HOLE SET 2.77' FROM CORNER
OWTS UNDER REVIEW
EXISTING WELL
ANTI-FLOTATION BASE(SEE PUMP CHAMBER 3'x3'x6" conc.
LOT 16 A.M. 17
310.98'
ZONING SETBACK
PERENNIAL WETLANDS SEPARATION
TYPICAL SILT FENCE
PROPOSED WELL
LOT 46 (FORMALLY LOT 8)
PROPOSED HOUSE
TEST PIT #1
PROPOSED A BEDROOM SYSTEM
PROPOSED CRUSHED STONE DRIVEWAY
PROPOSED DRIVEWAY CULVERT
PROPOSED DRIVEWAY
Proposed Crushed Stone Driveway
Proposed Culvert
Proposed Silt Fence
576 sf
Proposed Well
Proposed Limit of Disturbance
Proposed Silt Fence
Proposed Limit of Disturbance
Proposed Crushed Stone Driveway
Proposed Culvert
Proposed Driveway Culvert
Proposed Driveway

BOTTOMLESS SAND FILTER GENERAL NOTES

1. *THE BOTTOMLESS SAND FILTER (BSF)SHALL BE INSTALLED BY A* QUALIFIED LICENSED INSTALLER. THE INSTALLER SHALL BE FAMILIAR WITH THE REQUIREMENTS AND INFORMATION OF THE "GUIDELINES FOR THE DESIGN AND USE OF THE BSF REFERRED TO AS THE "SAND FILTER GUIDANCE DOCUMENT ISSUED BY THE DEPT. OF ENVIRONMENTAL MANAGEMENT (RIDEM) AND AS MODIFIED.

2. THE DESIGNER SHALL BE GIVEN ADEQUATE NOTIFICATION FROM THE INSTALLER TO PROVIDE PROPER INSPECTION OF THE BSF STRUCTURAL SUPPORT SYSTEM, LINER,ASTMC33 SAND MEDIA MATERIALS, SYSTEM PIPING AND PEASTONE MEDIA,ETC.

3. PRIOR TO DELIVERY OF SAND MEDIA AND PEASTONEMEDIA MATERIALS, THE INSTALLER SHALL PROVIDE THE DESIGNER WITH INFORMATION OF THE MATERIAL, SOURCE AND SEIVE ANALYSIS TO ASSURE THAT THE MATERIALS MEET THE REQUIRED GRADATION SPECIFICATIONS SHOWN ON THE PLAN AND AS SPECIFIED IN THE SAND FILTER DOCUMENT.ALL MEDIA *WITHIN THE STRUCTURAL ENCLOSURE AND BELOW THE PEASTONE MUST* MEET THE REQUIREMENTS OF THE ASTM-C33 SAND WITH AN EFFECTIVE SIZE (D-10)OF .3MM AND UNIFORMITY COEFFICIENT (D60/D10) OF 3 TO 4. THE MAXIMUM ALLOWABLE FINES PASSING THROUGH A #200 SIEVE ANALYSIS PERFORMED SHALL BE 1%. THE DESIGNER AND OR PROPERTY OWNER SHALL HAVE THE RIGHT TO REQUEST SIEVE TESTING. ONLY AUTHORIZED VENDORS SUPPLYING THE MATERIALS WILL BE ALLOWED TO DO SUCH.

4. THE BSF MUST BE USED IN CONJUNCTION WITH THE APPROVED PRETREATMENT SYSTEM SHOWN ON THE PLANS AND DETAILS.

5. THE PREPARED BOTTOM OF THE EXCAVATION SHALL BE INSPECTED BY THE DESIGNER AND /OR DEM PRIOR AND APPROVED TO CONSTRUCTION OF THE STRUCTURAL SUPPORT ENCLOSURE AND PLACEMENT OF ANY MEDIA.

6.THE BSF AREA LANDSCAPE IMMEDIATELY ADJACENT TO THE BSF SHALL BE PROTECTED FROM VEHICLE TRAFFIC OR HEAVY LOADS.

7. *THE FINISH GRADE OF ANY BSF SHALL BE AS SHOWN ON THE REGRADING* DETAIL.

8.THE DESIGNER WILL AID IN THE STAKEOUT OF THE BSF AND REGRADING AREA PRIOR TO CONSTRUCTION.

9.A MINIMUM OF 10 FT SHOULD BE MAINTAINED AROUND THE BSF AND ALL SHRUBS AND TREES. AT LOCATIONS WHER IT IS NOT POSSIBLE, THEN A ROOT BARRIER SYSTEM SHALL BE PLACED BETWEEN THE ROOTS AND BSF.

10. THE PUMP SYSTEM DESIGNED TO DOSE THE BSF IS INCLUDED ON THE PLANS. NO SUBSTITUTE OF THE REQUIRED PUMP WILL BE ALLOWED UNLESS THE PUMP PROVIDE THE REQUIRED DOSING AND DISTEL HEAD MINIMUM (2 FT). PRIOR APPROVEL IS REQUIRED FROM THE MAINTENANCE VENDOR, DEM AND THE DESIGNER.

11. THE EFFLUENT TRANSPORT LINE FROM THE PUMP TO THE BSF MUST BE PROVIDED WITH A BACKSLOPE TO THE PUMP CHAMBER . NO CHECK. VALVES ARE ALLOWED.THE PIPE SHALL BE BURIED AT LEAST 2 FT. AND COVER WITH A 2 FT. WIDE BY 2' THICK INSULATION BOARD BELOW THE BACKFILL.

12.ALL PENETRATION THROUGH THE 30 MIL LINER SHALL BE SEALED WITH THE APPROVED BOOT. THE BOOT SHALL BE INSPECTED BY THE DESIGNER AND /OR DEM PRIOR TO COVERING. ALL CONCRETE ANTIFLOATATION AROUND THE PUMP CHAMBER OR TANKAGE SHALL BE PERFORMED AFTER PROPER DEWATERING HAS BEEN ACCOMPLISHED BY THE INSTALLER AND VERIFIED BY THE DESIGNER.ALL TANKS AND CHAMBERS IN HIGH GROUND WATER AREAS SHALL BE FILLED WITH CLEAN WATER IMMEDIATELY AFTER INSTALLATION.

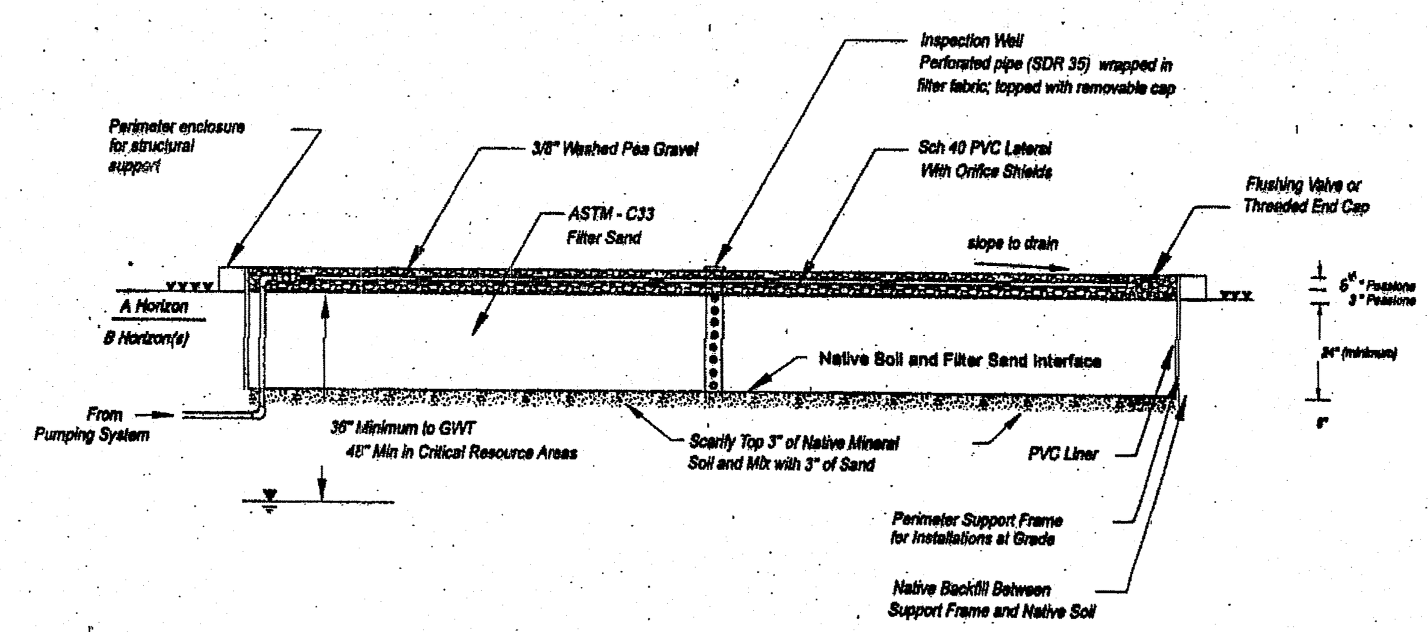
13. THE DISTRIBUTION MANIFOLD *PIPING AND DISTRIBUTION PIPING* SHALL CONFORM TO THE PLAN. THE ORIFICE SHIELDS SHALL BE PLACED AS SHOWN. NOTE THE COLD WEATHER ORIFICE SHIELD LOCATION AND POSITIONING. NOTE THE INSTALLATION OF THE INSPECTION PIPE WRAPPED WITH FILTER FABRIC.

14. NOTE THE STRIP REQUIREMENT (IF SHOWN) AND THE SOIL INTERFACE SCARIFICATION AND MEDIA MIXING WITH THE REQUIRED SOIL (3") BELOW THE SAND FILTER BOTTOM ELEVATION.

15.THE INSTALLATION OF THE SAND MEDIA SHALL BE AS DESCRIBED IN THE SAND FILTER DOCUMENT, PLACED CAREFULLY AND IN 8" LIFTS, RAKED AND LEVELED. AVOID STRATIFICATION. DO NOT INSTALL IF RAIN IS FORECASTED. THE DESIGNER MUST INSPECT PRIOR TO ADDING THE PEASTONE MEDIA.

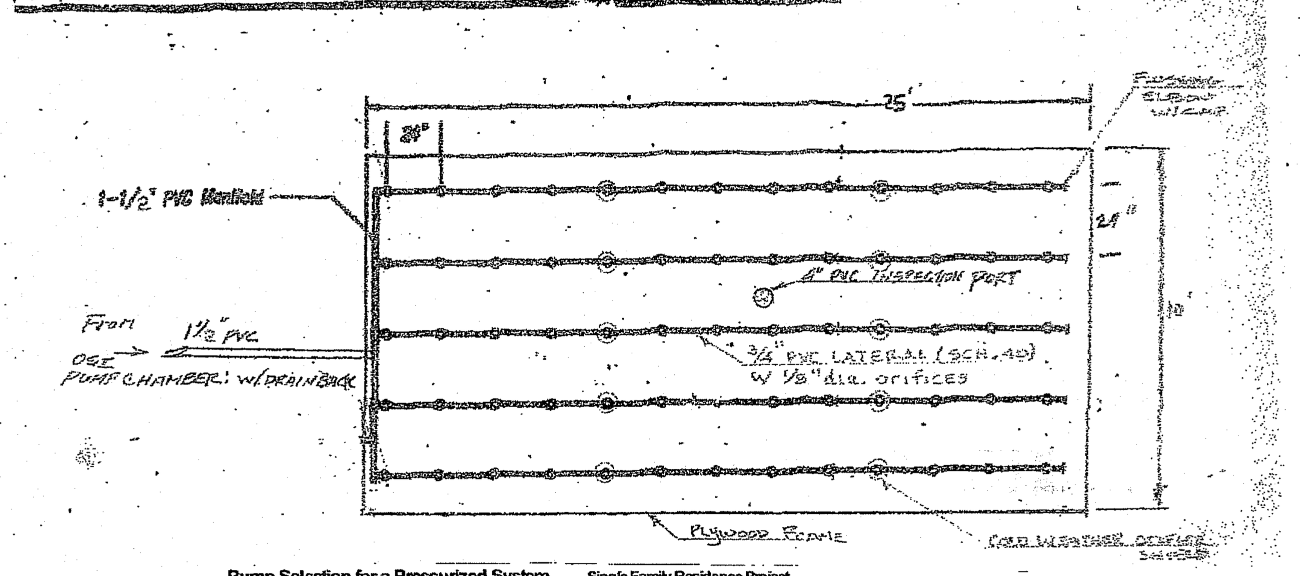
16. THE INSTALLER SHALL COORDINATE THE ELECTRICAL WORK. NO TESTING SHALL BE MADE PRIOR TO HAVING THE MAINTENANCE VENDOR PRESENT AND COORDINATING THE STARTUP OF THE SYSTEM WITH THE VENDOR AND THE DESIGNER.

17. AFTER PROPER OPERATION HAS BEEN ESTABLISHED. THE MAINTENANCE VENDOR SHALL PROVIDE ALL OF THE PROPER SIT VISITS TO TAKE THE REQUIRED MEASUREMENTS FROM THE CONTROL PANEL (EVENT COUNTS, WATER METER COUNTS, ON/OFF TIMES, ETC. BSF DISTAL END HEAD MEASUREMENTS, ETC. THE VENDOR SHALL NOTIFY THE ENGINEER WITH ANY CHANGES OR DEVIATIONS NEEDING TO BE CHANGED OR CORRECTED.



Bottomless Sand Filter
Installed At Grade (Cross Section)

10x25' Intermittent Sand Filter Bottomless Style



Pump Selection for a Pressurized System -Single Family Residence Project
lot 17, Mooresfield rd.

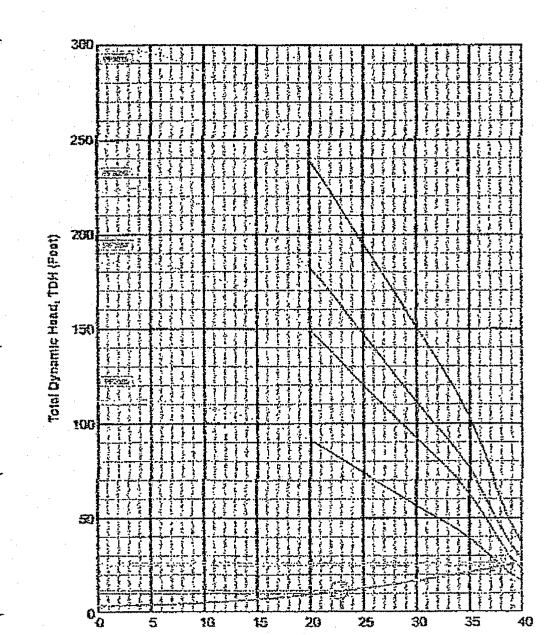
Parameters		
Discharge Assembly Size	1.50	inches
Transport Length	10	feet
Transport Pipe Class	40	
Transport Line Size	1.50	inches
Distributing Valve Model	None	
Max Elevation Lift	4	feet
Manifold Length	8	feet
Manifold Pipe Class	40	
Manifold Pipe Size	1.50	inches
Number of Laterals per Cell	4	
Lateral Length	24	feet
Lateral Pipe Class	40	
Lateral Pipe Size	0.75	inches
Orifice Size	1/8	inches
Orifice Spacing	2	feet
Residual Head	5	feet
Flow Meter	None	inches
'Add-on' Friction Losses	0	feet

Calculations		
Minimum Flow Rate per Orifice	0.45	gpm
Number of Orifices per Zone	52	
Total Flow Rate per Zone	22.8	gpm
Number of Laterals per Zone	4	
% Flow Differential 1st/Last Orifice	4.9	%
Transport Velocity	3.5	fps

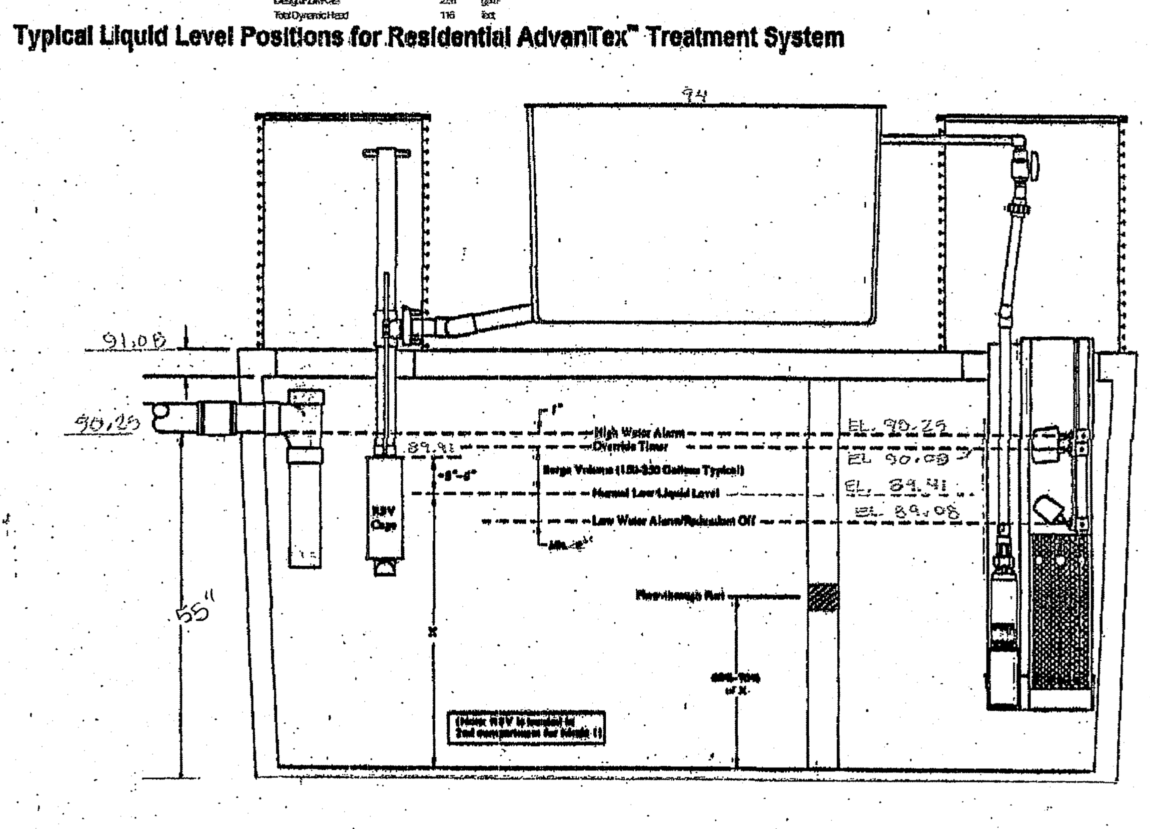
Frictional Head Losses		
Loss through Discharge	1.5	feet
Loss in Transport	0.3	feet
Loss through Valve	0.5	feet
Loss in Manifold	0.1	feet
Loss in Laterals	0.6	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	0.0	feet

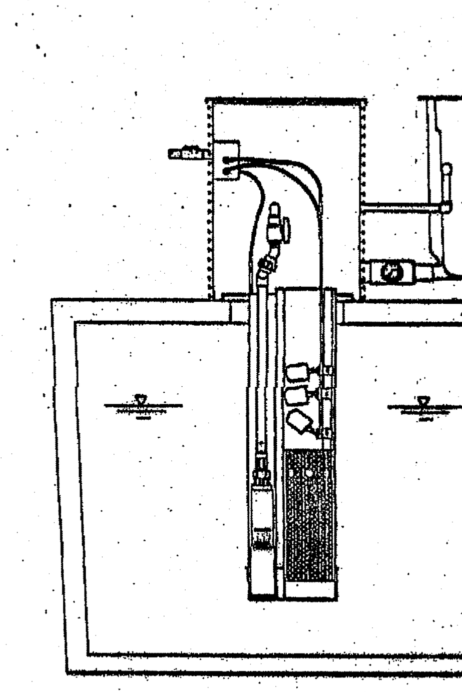
Pipe Volumes		
Vol of Transport Line	1.1	gals
Vol of Manifold	0.8	gals
Vol of Laterals per Zone	2.7	gals
Total Volume	4.6	gals

Minimum Pump Requirements		
Design Flow Rate	22.8	gpm
Total Dynamic Head	11.6	feet

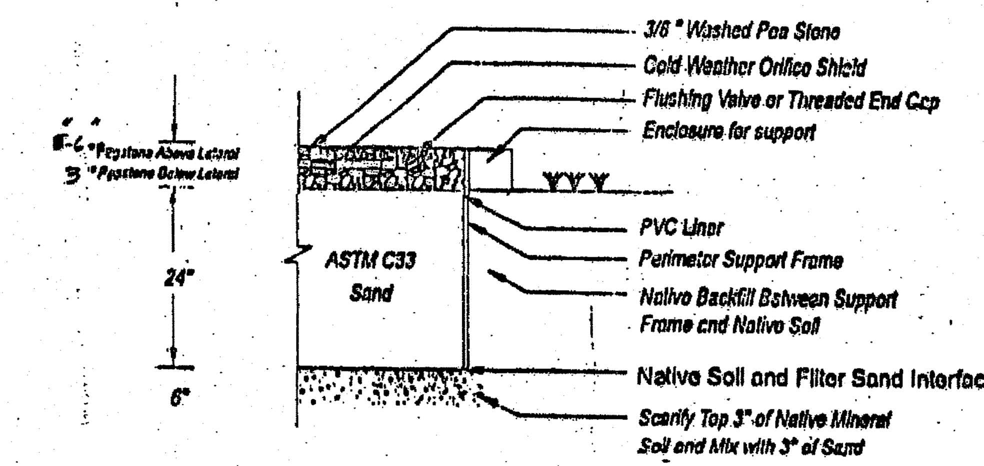


Typical Liquid Level Positions for Residential AdvanTex™ Treatment System

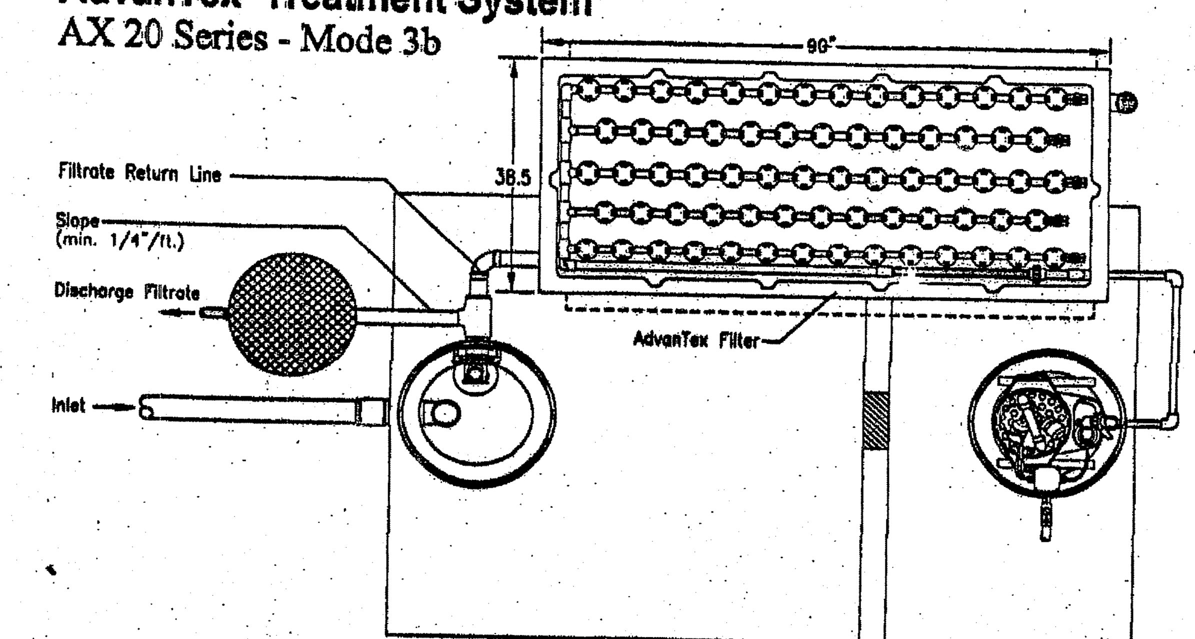




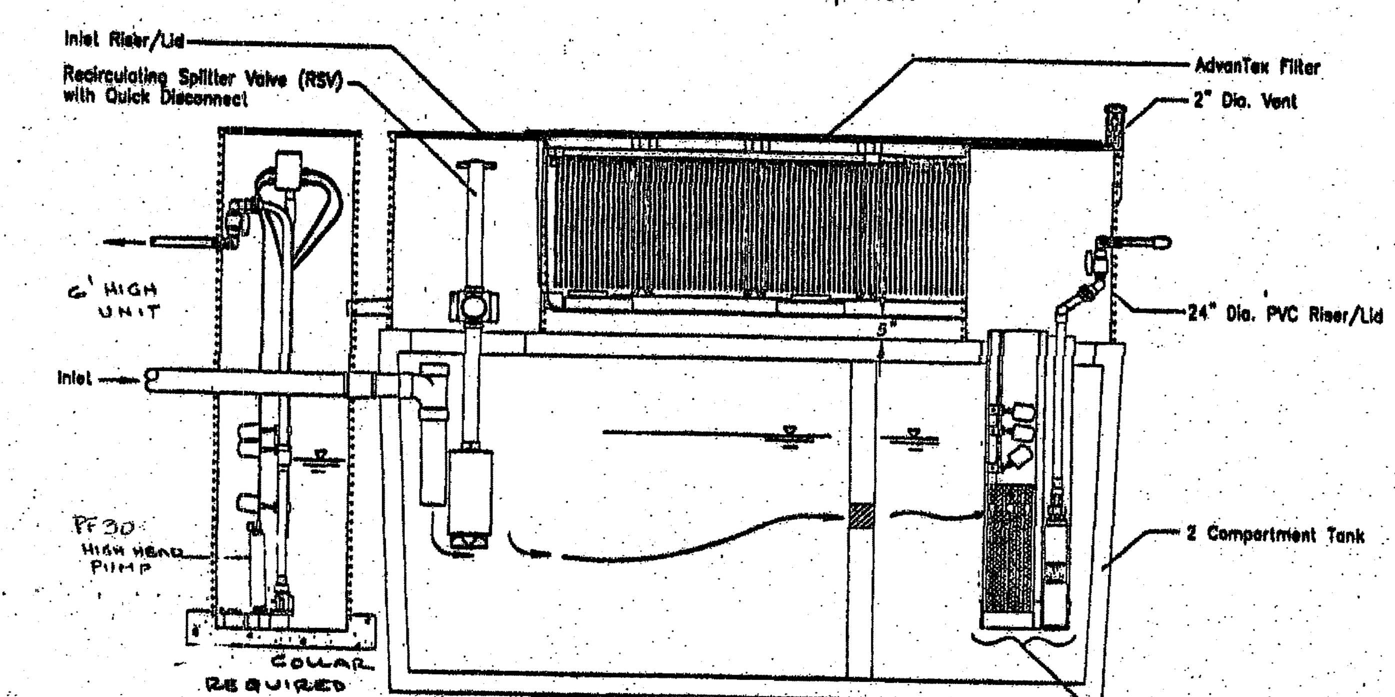
End View



AdvanTex™ Treatment System
AX 20 Series - Mode 3b



Top View



Side View

ADVANTEX TREATMENT SYSTEM GENERAL NOTES

1. VENDOR INFORMATION:
   ATLANTIC SOLUTIONS, C/O MR. BOB JOHNSON
   2417 EAST MAIN ROAD, PORTSMOUTH, RI 02871, TEL: 401-291-0176

2. THE ADVANTEX AX-20 UNIT MEETS THE RIDEM APPROVAL AS DESCRIBED IN THE APPROVAL CERTIFICATION.

3. THE SEPTIC TANKS AND PUMP CHAMBERS PROVIDED SHALL BE WATER TIGHT TESTED BY THE SUPPLY VENDOR PRIOR TO INSTALLATION.

4. ALL CONNECTIONS SHALL BE WATER TIGHT AND HAVE THE PROPER PIPE SCHEDULE.

5. A LICENSED ELECTRICIAN SHALL INSTALL ALL ELECTRICAL COMPONENTS, INCLUDING, BUT NOT LIMITED TO, CIRCUITS, WIRING, ALARM AND CONTROL PANELS, CONTACTS, ETC. NO POWER SHALL BE TURNED PRIOR TO THE MAINTENANCE VENDOR STARTUP. THE VENDOR, ELECTRICIAN AND DESIGNER SHALL BE PRESENT FOR STARTUP.

6. THE AUTHORIZED ORENCO VENDOR AND SERVICE PROVIDER SHALL INSTALL THE RSV, PUMP FLOATS AND SET ALL TIMERS, COUNTERS, ETC. PRIOR TO STARTUP.

7.THE VENDOR SHALL SUPPLY THE OWNER WITH THE STARTUP INFORMATION, MANUALS, INSTRUCTIONS, MAINTENANCE REQUIRED AND WARRANTIES UPON SATISFACTORY COMPLETION OF THE SYSTEM.

8. THE VENDOR SHALL PERFORM ALL OPERATING AND MAINTENANCE AS REQUIRED BY THE DEM AGREEMENT AND SHALL GIVE PROPER NOTICE TO THE OWNER REGARDING THE COST AND FREQUENCY OF THE WORK.

BOTTOMLESS SAND FILTER (BSF)OPERATION AND MAINTENANCE REQUIREMENTS

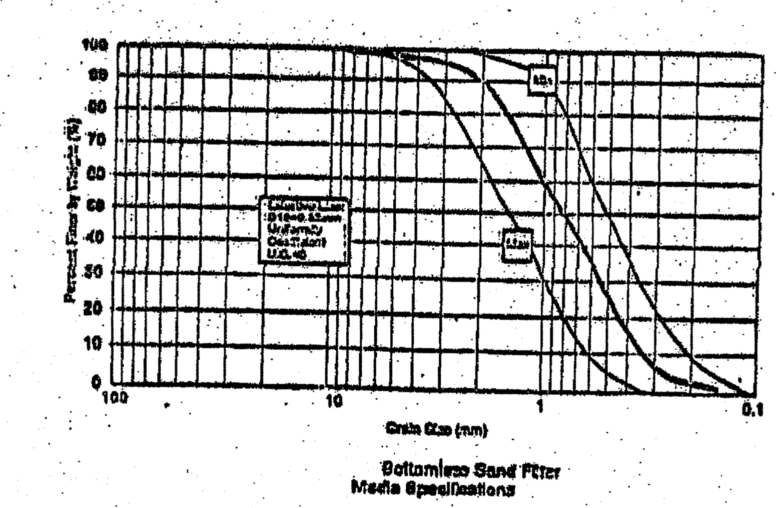
1. WARNING-BEFORE DOING ANY WORK ON EITHER THE WIRING TO THE LEVEL CONTROL FLOATS AND PUMPS IN THE VAULT, TANKS, OR ON THE CONTROL PANEL, PULL THE FUSE AND OR SWITCH ALL THE CIRCUIT BREAKERS SERVING THE UNIT TO THE OFF POSITION. DO NOT ENTER A CONFINED SPACE WITHOUT USING PROPER EQUIPMENT AND FOLLOWING STANDARD CONFINED SPACE SAFETY PRECAUTIONS.

2. TO REMOVE ACCUMULATED SOLIDS IN LATERALS, FIRST OPEN THE LATERAL END BALL VALVE OR THREADED END CAP. ENGAGE THE PUMP AND FLUSH OUT ANY SOLIDS. A BOTTLE BRUSH ATTATCHED TO A PLUMBERS SNAKE IS THEN PUSHED DOWN EACH LATERAL TO UNPLUG THE ORIFICES. WITH THE BOTTLE BRUSH REMOVED, THE PUMP SHOULD AGAIN BE STARTED AND EACH LATERAL FLUSHED OUT. CLEANING MAY BE REQUIRED MORE THAN ONCE A YEAR.

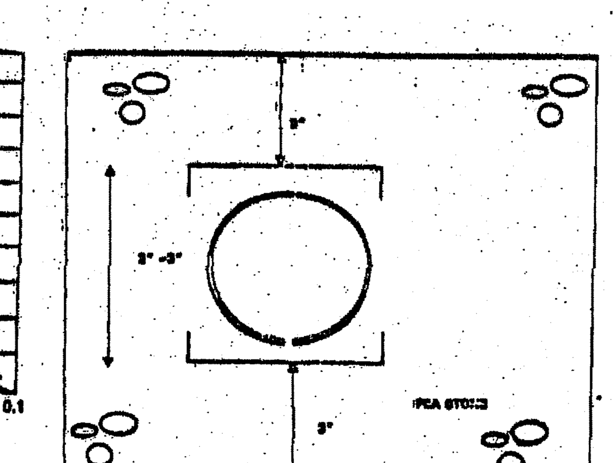
3. THE PEA STONE SURFACE SHALL BE KEPT FREE OF DEBRIS, WEEDS, AND GRASSES. THE SURFACE SHALL BE LIGHTLY RAKED TO REMOVE ANY LEAVES. WEEDS AND GRASSES SHALL BE REMOVED BY HAND WHEN THEY FIRST APPEAR.

4. ONCE A YEAR ALL ELECTRICAL COMPONENTS SHOULD BE CHECKED FOR FUNCTION. ALL FLOAT SWITCHES SHOULD BE ACTIVATED AND TIMERS SHOULD BE CHECKED AGAINST THEIR DESIRED SETTINGS. ALL FLOAT SWITCHES SHOULD BE HOSED DOWN TO PREVENT SCUM ACCUMULATION. ALL WIRING SHALL BE NEATLY BUNDLED AND PLACED OUT OF THE OPERATING PATH OF THE FLOAT SWITCHES.

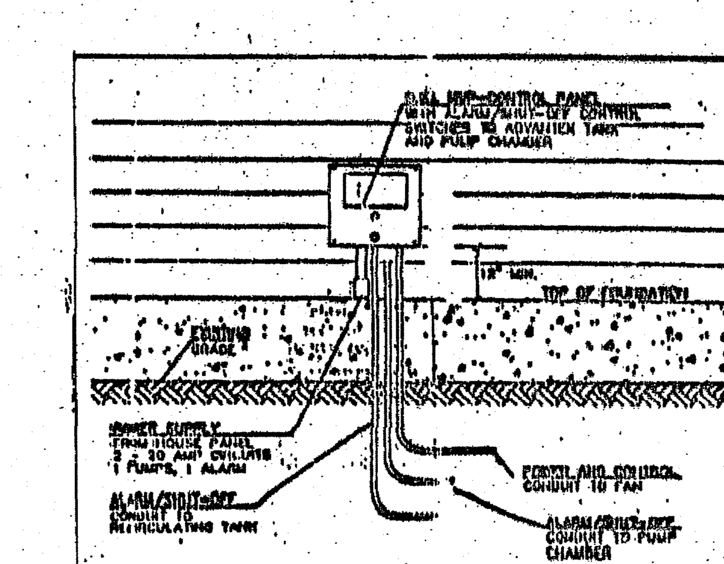
5. ALL WORK SHALL BE PERFORMED BY THE AUTHORIZED ORENCO VENDOR AND THE OWNER SHALL BE PROVIDED WITH COST AND FREQUENCY OF MAINTENANCE.



Bottomless Sand Filter
Media Specifications

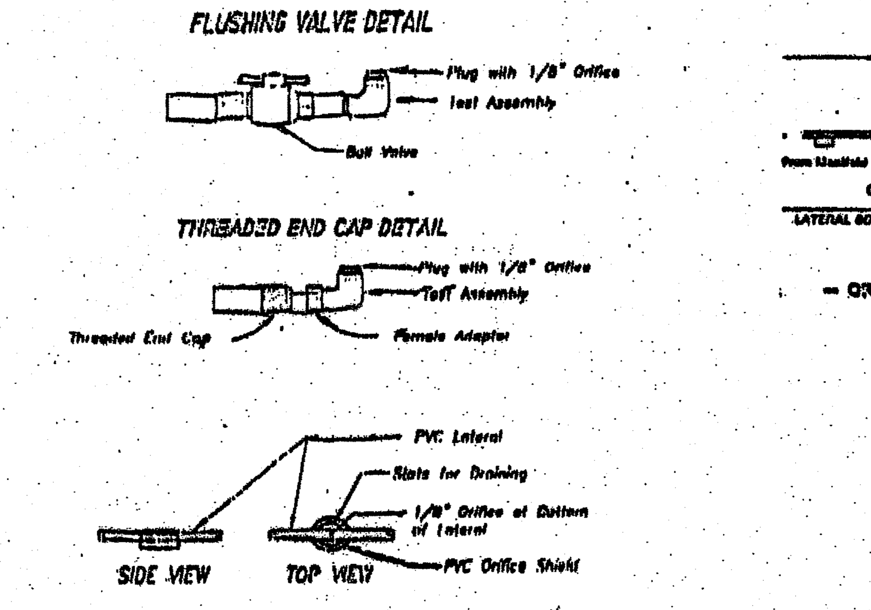


SECTION VIEW

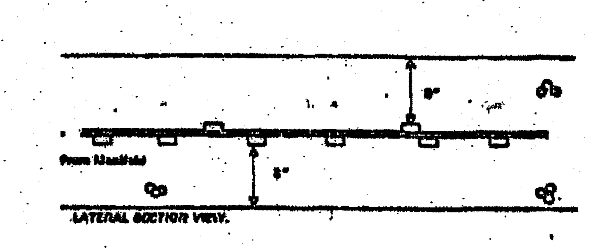


Electrical Control Panel N.T.S.

FLUSHING VALVE DETAIL



COLD WEATHER ORIFICE SHIELD DETAIL -(EVERY FIFTH ORIFICE)
SCALE: NOT TO SCALE



— ORIFICE SHIELD & LATERAL DETAILS

EUGENE F. SPRING
No. 3166
REGISTERED PROFESSIONAL ENGINEER

"DETAIL SHEET FOR PROPOSED ISDS FOR
OWNER: SMP HOLDING
SITE: 901 MOORESFIELD ROAD
AP 17 LOT 17 (FORMALLY)
TOWN: SOUTH KINGSTOWN
DATE: 7/24/2019
SCALE: NONE

SHEET 2 OF 2