

SOIL TEST PIT & PERCOLATION TEST DATA

Perc. Test **Observed Groundwater**

Test Date(s): **December 12, 2024 @ 9:00 am**
 Weather: **36°-Cold & Clear**
 Testing: **Eric Dickinson, RS (SE#13621) - CIVILIZED SOLUTIONS**
 Witness: **Raj Gupta, RS - Ashland BOH Director**

Test Pit #1	Test Pit #2
EL. 180.8	EL. 179.2
Fill Sand, Loam, Misc. existing trench at 48" roots to 48", damp at 48", weep at 52"	Ap Sandy Loam 10YR3/2
18"(177.7)	Bw Sandy Loam 10YR4/6 Roots to 36"
36"(176.2)	Redox@36" 7.5YR5/8 weep@48"
52"(176.5)	48"(175.2)
60"(175.8)	60"(174.2)
C Fine Sandy Loam 5Y5/2	C Silt Loam 5Y5/2
120"(170.8)	120"(169.2)

Class III Class III
 SCS Class Fine Sandy Loam SCS Class Silt Loam

Test Pit #3
EL. 179.8
Fill Sand, Loam, Misc.
24"(177.8)
Ab Sandy Loam 10YR3/3 Roots to 36"
36"(176.8)
Redox@36" 7.5YR5/8
Bw Sandy Loam 10YR4/6 weep@48"
48"(175.8)
C Fine Sandy Loam 5Y5/2 pockets of silt loam
112"(170.5)

WATERTIGHT REQUIREMENTS FOR GEOFLOW SYSTEMS

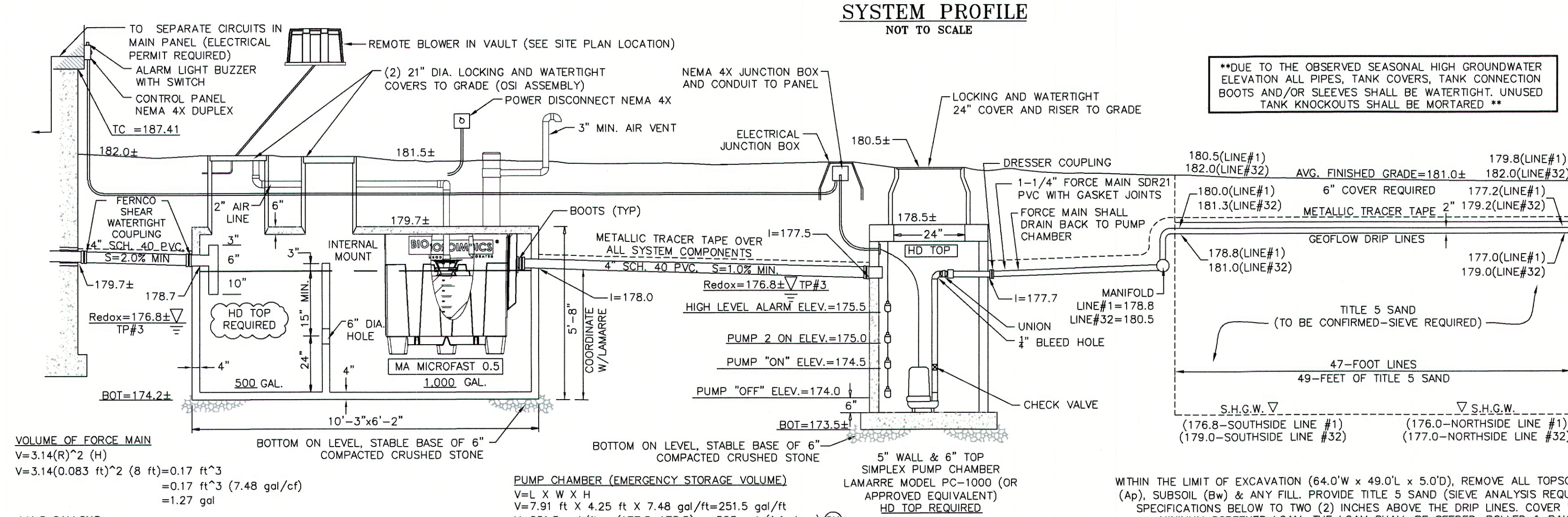
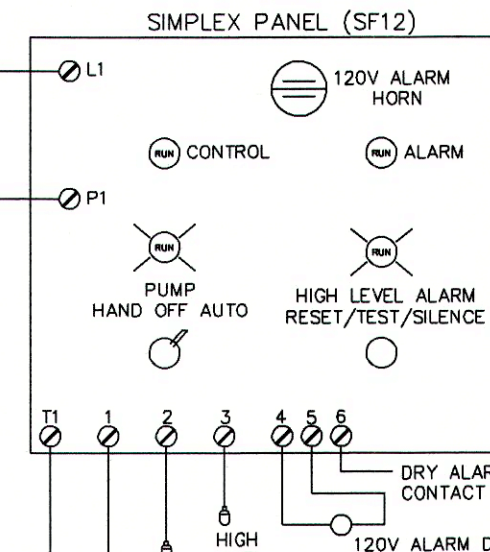
1. GEOFLOW DESIGN PLANS MUST REQUIRE WATERTIGHT TANKS
2. NO PLASTIC TANKS MAY BE USED; ONLY MONOLITHIC CONCRETE TANKS
3. RISERS ARE TO BE E-2 SET CAST IN PLACE POLYPROPYLENE RISERS, OR CONCRETE RISERS SEALED WITH HYDRAULIC CEMENT
4. NO POLYETHYLENE PLASTIC RISERS MAY BE USED
5. PLEASE INCLUDE THE FOLLOWING SEALANT REQUIREMENT ON JOB PLANS: CONTRACTOR SHALL SUPPLY PREFORMED BUTYL RUBBER PREFORMED FLEXIBLE GASKET IN ACCORDANCE WITH ASTM C-990. SUPPLY SUFFICIENT CROSS SECTION TO ACHIEVE AT LEAST 50% COMPRESSION OF THE GASKET IN THE COMPLETED JOINT. SUPPLY AT LEAST THREE TEST REPORTS FROM INDEPENDENT THIRD PARTY SOURCES TO SHOW COMPLIANCE WITH ASTM C-990 SECTION 6.2.1 (PHYSICAL REQUIREMENTS) AND SECTION 10.1 (PERFORMANCE REQUIREMENTS FOR JOINTS) (I.E. CON SEAL OR EZ-STICK).
6. INLET/OUTLET TO FIELD MUST ALSO BE WATERTIGHT
7. IF ENTERING THROUGH AN E-2 SET RISER, A BULKHEAD FITTING CAN BE USED
8. IF ENTERING THROUGH THE SIDE OF THE TANK, TWO HOLES CAN BE DRILLED (ONE FOR SUPPLY LINE, ONE FOR RETURN LINE) AND SEALED WITH HYDRAULIC CEMENT
9. PRESS SEAL BOOTS CAN BE CAST IN PLACE FOR THE INLET/OUTLET AND ARE THE PREFERRED METHOD OF SEALANT WHEN ENTERING THROUGH THE SIDE OF THE TANK

GEOFLOW INSTALLATION GUIDELINES

1. NO GEOFLOW INSTALLATIONS DECEMBER THRU MARCH
2. WHEN USING THE REMOVE/REPLACE METHOD, THE FIRST FEW INCHES OF TITLE V SAND SHOULD BE INTEGRATED WITH EXISTING SOILS
3. MINIMUM OF 6" OF HAY/STRAW SHOULD BE PLACED ON THE FIELD IF INSTALLED AFTER OCTOBER 1ST
4. CONTROL PANEL SHOULD BE MOUNTED IN AN ACCESSIBLE LOCATION, PREFERABLE OUTSIDE OR IN AN UNLOCKED BUILDING FOR EASE IN MAINTENANCE
5. ELECTRICAL JUNCTION BOXES SHOULD BE SEALED AND USE WATERTIGHT ELECTRICAL CONNECTIONS
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GEOFLOW'S WATERTIGHT REQUIREMENTS ARE MET
7. J&R WILL NOT BE HELD RESPONSIBLE FOR ISSUES CAUSED BY INFILTRATION OR ITEMS NOT SUPPLIED BY J&R
8. FIELD AND MANIFOLDS MUST REMAIN EXPOSED UNTIL STARTUP IS COMPLETED

NOTES:

FULL SIMPLEX PANEL SUPPLIED IN A NEMA 4X ENCLOSURE.
 RATED FOR 1PH 115 / 230 (0.25 HP)
 CIRCUIT BREAKER PROVIDED FOR PUMP DISCONNECT.
 PROVIDED WITH MANUAL PUMP CONTROL & PUMP RUN INDICATORS.
 SEPARATE FUSES FOR ALARM AND CONTROL CIRCUITS.
 SEPARATE CIRCUITS FOR ALARM & PUMPS.
 ALARMS MUST BE VISIBLE & AUDIBLE OR 2ND SET REQUIRED.



Buoyancy Check:
FAST Tank (HD TOP REQUIRED):
 Wgt. of Tank+Soil= 13,200+(10.25x6.15)(1.8)(100)=24,547#
 Wgt. of Water Displaced= (10.25x6.15)(2.6)(62.4)=10,227#
Pump Chamber (HD TOP REQUIRED):
 Wgt. of Tank+Soil= 11,180+(8.6x5.0)(2.0)(100)=15,480#
 Wgt. of Water Displaced= (8.6x5.0)(3.5)(62.4)=9,391#

LOCAL AND TITLE 5 VARIANCES:

- LOCAL BOARD OF HEALTH VARIANCES:**
- 1.) SECTION 303-11: LEACHING AREA: PROVISIONS FOR A GARBAGE DISPOSAL UNIT INCLUDED IN ALL CALCULATIONS, WHETHER OR NOT SUCH A GARBAGE DISPOSAL UNIT IS ACTUALLY INSTALLED. A DESIGN TO SATISFY A 50% INCREASE IN SIZE IS NOT FEASIBLE DUE TO THE SIZE OF THE LOT AND THE PROXIMITY TO THE WETLAND RESOURCE AREAS. A GARBAGE GRINDER IS PROHIBITED BY THE DESIGN.
 - 2.) SECTION 303-15: WETLANDS AND WATERBODIES: TO ALLOW THE MINIMUM DISTANCE BETWEEN THE WETLANDS AND WATERBODIES AND ALL COMPONENTS OF THE SUBSURFACE DISPOSAL SYSTEM TO BE 27.6- FEET VERSUS THE REQUIRED 75- FEET. DUE TO THE LOT SIZE CONSTRAINT AND THE PROXIMITY TO THE WETLAND RESOURCE AREAS, COMPLIANCE IS NOT FEASIBLE.
- TITLE 5 LOCAL UPGRADE APPROVAL:**
- 1.) SECTION 310 CMR 15.405 (1): TO ALLOW THE SAS TO BE DESIGNED ON THE BASIS OF A SIEVE ANALYSIS VERSUS A PERCOLATION TEST DUE TO THE PRESENCE OF GROUNDWATER DURING THE SOIL EVALUATION. THE SOIL WAS DETERMINED TO BE A SILT LOAM, CLASS III, UNCOMPACTED. NO INCREASE IN FLOW IS PROPOSED AND THE MOST CONSERVATIVE WASTEWATER APPLICATION RATE HAS BEEN USED TO SIZE THE SYSTEM IN ACCORDANCE WITH DEP POLICY BRP/DWM/PEP-POG-4.
 - 2.) SECTION 310 CMR 15.405 (1)(E): TO ALLOW THE SOIL ABSORPTION SYSTEM TO BE LOCATED 27.6- FEET VERSUS THE REQUIRED 50- FEET TO A BORDERING VEGETATED WETLAND SYSTEM. DUE TO THE LOT SIZE CONSTRAINT AND THE PROXIMITY TO THE WETLAND RESOURCE AREAS, COMPLIANCE IS NOT FEASIBLE.
 - 3.) SECTION 310 CMR 15.405 (1)(I): TO ALLOW A REDUCTION OF THE REQUIREMENT OF A TWELVE (12) INCH SEPARATION BETWEEN THE INLET AND OUTLET TEES TO HIGH GROUNDWATER, PROVIDED THAT ALL BOOTS OR PIPE JOINTS AREA SEALED WITH HYDRAULIC CEMENT OR INSTALLED WITH WATERTIGHT SLEEVES AND THE TANK IS PROVEN WATERTIGHT.

General Notes:

1. This plan is for the construction of the sewage disposal facility ONLY.
2. All pipes shall be SCH 40 PVC or equivalent, unless otherwise noted.
3. Contractor shall call for inspections and approvals from the Board of Health and the Engineer after:
 - a.) excavation
 - b.) installation of system components
 - c.) backfilling and final grading
4. Engineer shall certify installation and final grades on "As-built" plan. Contractor shall certify that installation conforms to approved As-built plan.
5. Prior to final backfill inspection, the contractor shall submit to B.O.H. a sketch with dimensions to system components from building corners and depth to access covers.
6. Contractor shall keep vehicles and materials off of the S.A.S. at all times.
7. No industrial wastes or categories are applicable.
8. Fill shall not be placed during rain or snow.
9. Excavation to be dry and scarified. Dewatering is required if fill is to be placed below groundwater.
10. No existing or proposed wells are within 200' of S.A.S., except as shown.
11. There are no known public wells or surface water supplies within 400 feet; private wells within 200 feet; inland banks or wetlands within 150-feet; no surface or subsurface drains of any kind except as shown, and no foundation drains. The work area is outside the regulatory floodway and the 100-year floodplain.
12. Area is not Nitrogen Sensitive.
13. All system components shall be marked with magnetic marking tape.

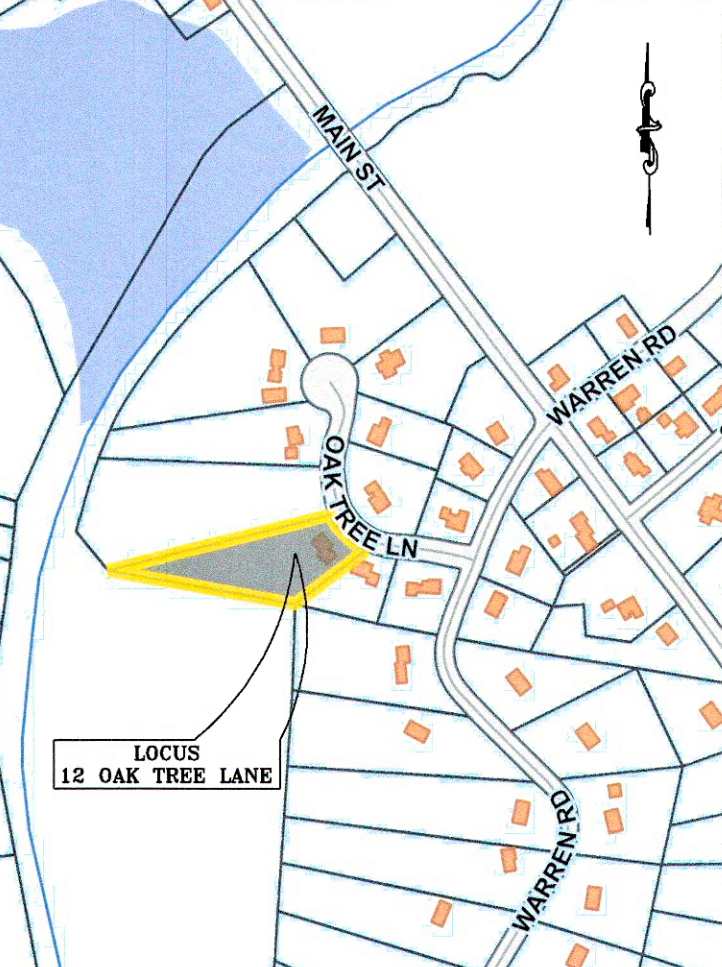
Construction Notes:

1. Within limit of excavation, remove the fill, topsoil (Ap), subsoil (Bw) and other impervious material.
2. All construction materials and methods shall conform to D.E.P., Title 5 and the local Board of Health Regulations.
3. Contractor shall be responsible for locating any and all underground utilities within the limits of construction. This includes securing and paying for the services of the local utility and private companies to mark all underground utilities on the property. The Engineer does not guarantee that ALL utilities and subsurface structures are shown.
4. The Existing Septic Tank shall be pumped dry, crushed and removed.
5. Sand shall be stockpiled at edge and pushed/cast inward over excavated area.
6. Contractor shall install and maintain flagging around the system until the Certificate of Compliance is issued.

Revision History
 DESIGNED: E. Dickinson, RS
 CHECKED: ED
 SCALE: 1"=20'
 DATE: January 29, 2025

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VICINITY MAP



LEGEND

- New Meets Existing (N.M.E.)
- L.O.E. Limit of Excavation
- N.I.C. Not In Contract
- Test Pit
- Perc Hole
- Section A-A
- Spot Elevation
- Existing Contour Elevation
- Proposed Contour Elevation
- Groundwater
- Seasonal High Groundwater
- Below Grade
- Tree to be removed

DESIGN CRITERIA

DESIGN FLOW: Single-Family Residence
 Existing 4-bedrooms / 8 total rooms
 4 Bedrooms @ 110 GPD/Br = 440 GPD
****A GARBAGE GRINDER IS PROHIBITED****
SEPTIC TANK:
 Required 440 x 3 = 1,320 Gal
 Provided: 1,500 Gal
 (Use a 2-Compartment, F.A.S.T. Tank)

LEACHING FACILITY:
 Design Perc Rate 60 Min./Inch
 Soil Class III
 Loading Rate 0.15 Gal/Day/SF
 Assume: Geoflow Drip @ 2 SF/LF
REQUIRED:
 440 GPD
 0.15 GPD/SF = 2,934 SF
PROVIDED: 32 ROWS/47 FEET LONG EACH
 32 x 47.0' x 2.0' = 3,008 SF (451.2 GPD) OK
SAND BED DIMENSIONS:
 49.0' LONG x 64.0' WIDE = 3,136 SF

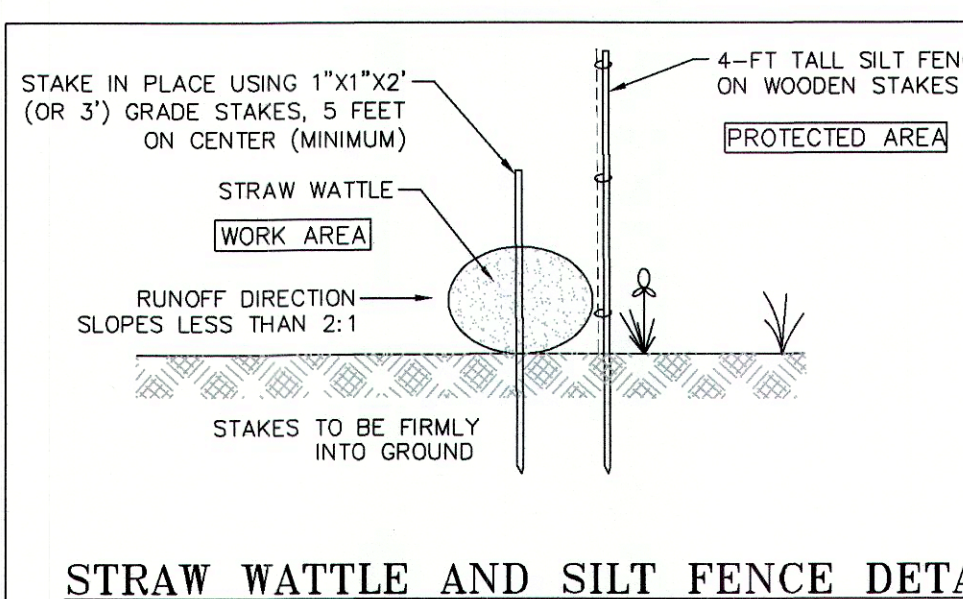
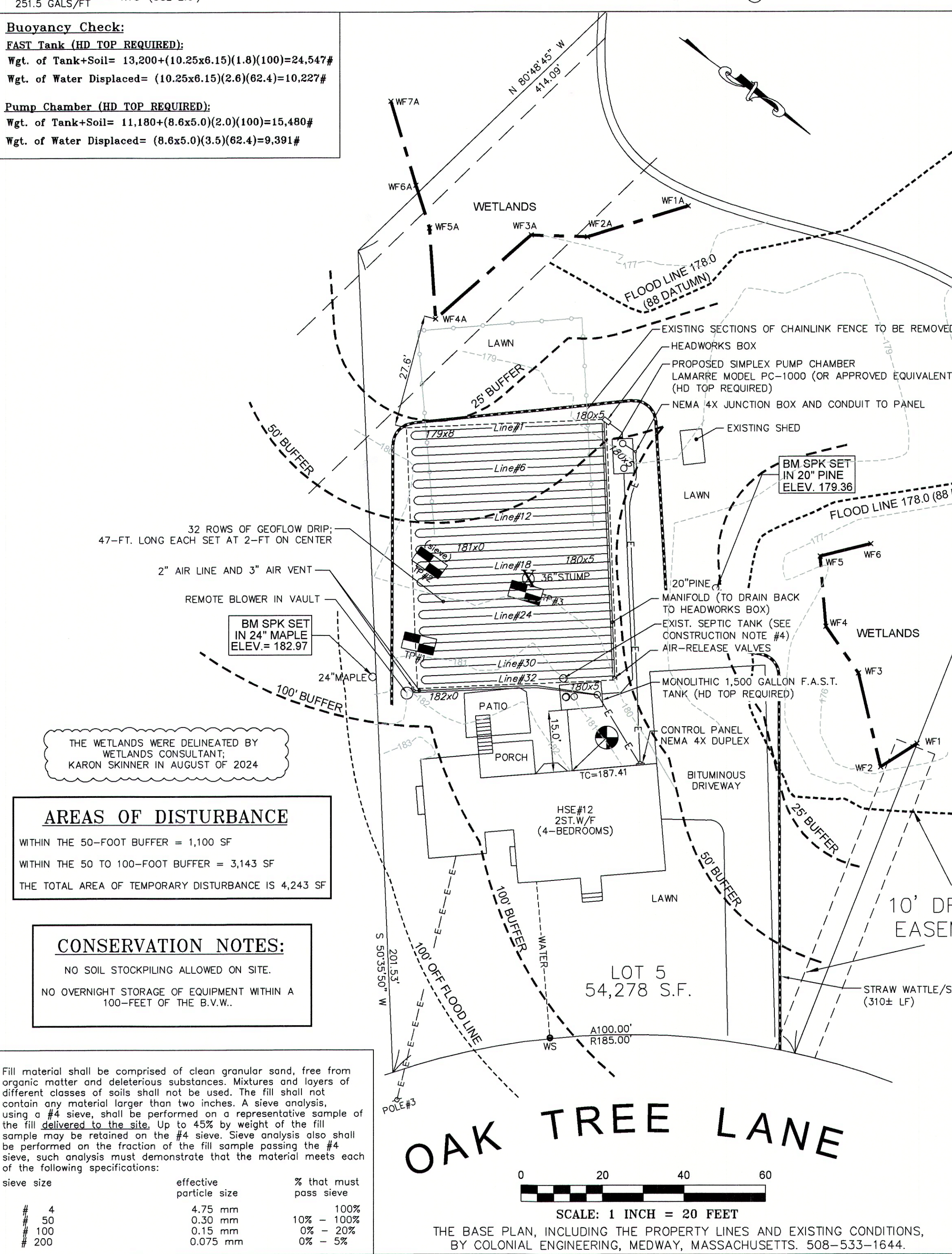
SCHEDULE OF INVERT ELEVATIONS:

4" F.A.S.T. Tank (IN)	179.7±
4" F.A.S.T. Tank (OUT)	178.7
4" Pump Chamber (IN)	178.8
1-1/4" Pump Chamber (OUT)	177.7
Manifold (IN)	181.5
Manifold (OUT)	178.2
Elev. at Bottom of Excavation	60" B.G.
Observed Groundwater Elev.	48" B.G.
High Groundwater Elev.	36" B.G.
Determination Method	Soil Morphology
B.O.H. Correction Factor	See Frimpter Note

Frimpter Note:
 THE AGENT AND THE SOIL EVALUATOR AGREED THAT THE OBSERVED REDOXIMORPHIC FEATURES OBSERVED IN ALL THREE PITS IS THE ELEVATION OF SEASONAL HIGH GROUNDWATER. THEREFORE, A FRIMPTER ADJUSTMENT IS NOT REQUIRED.

SEPTIC SYSTEM CONSTRUCTION

12 Oak Tree Lane
 Ashland, Massachusetts
 OWNER(S): Estate of Margaret O'Coin (c/o Steve Dillon)
 ASHLAND, MA 01721
 PHONE: 508-753-2062
 ASSESSOR(S): MAP 20.0
 LOT 250.0



NOTICE:

- DEED RESTRICTIONS REQUIRED:**
- 1.) A NOTICE OF AN ALTERNATIVE SYSTEM SUBJECT TO DEP'S "STANDARD CONDITIONS FOR SECONDARY TREATMENT UNITS APPROVED FOR REMEDIAL USE - DATED NOVEMBER 5, 2012". PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE.
 - 2.) A GARBAGE GRINDER IS PROHIBITED BY THE DESIGN.

NOTES:

- 1.) THE WATER SERVICE LOCATION SHOWN IS APPROXIMATE. IF ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER FOR RESOLUTION.
- 2.) ANY SUBSTITUTIONS OF MANUFACTURERS BY THE CONTRACTOR PRIOR TO THE REMOVAL OF ANY VEGETATION (TREES, SHRUBS, ETC).
- 3.) THE CONTRACTOR SHALL CONSULT WITH THE HOMEOWNER PRIOR TO THE REMOVAL OF ANY VEGETATION (TREES, SHRUBS, ETC).
- 4.) A GARBAGE GRINDER PROHIBITED BY DESIGN.
- 5.) ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE.

