

**ROOF RAIN GARDEN SIZING CALCULATIONS**

**DESIGN CALCULATION**

- 4 BEDROOMS X 115 GALLONS PER BEDR/DAY = 460 GALLONS PER DAY
- USE LOADING RATE SOIL CAT 5 = 0.52 GAL/SF/DAY
- 460 GPD / 0.52 GAL/SF/DAY = 885 S.F. LEACHING AREA REQUIRED
- 885 USE GST 6218 / 24.8 S.F. PER LINIER FT = 35.6 LE USE 36 LF 893 SF
- 2 STONE VOLUME = 13 CY
- C-33 SAND VOLUME = 17 CY

**ROOF RAIN GARDEN SIZING CALCULATIONS**

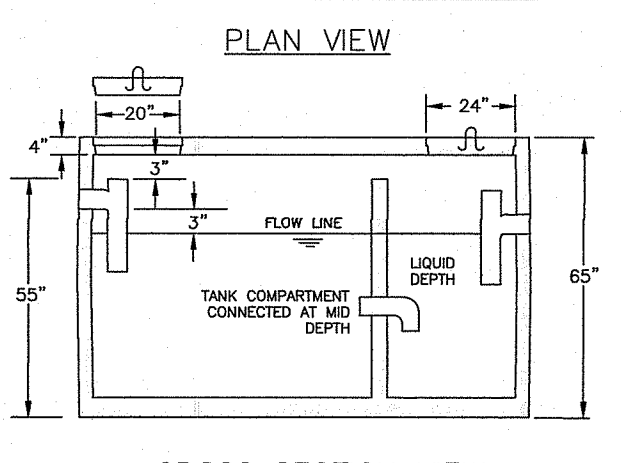
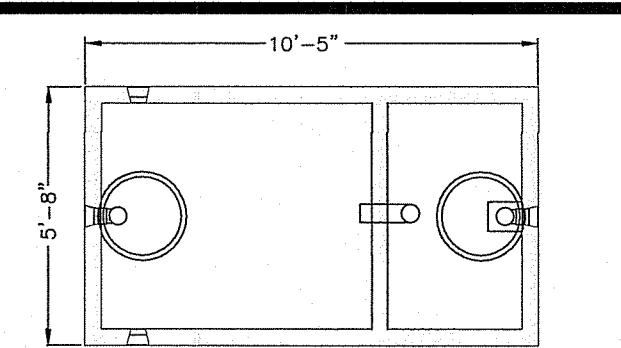
- Impervious Roof Area = 1,152 s.f.
- Soil type: Sand
- Design Coefficient of Permeability = 3.5 ft/day
- Intensity = 1-inch
- Water Quality Volume Needed: 1152 s.f. x 0.083 (1") = 96 c.f.
- Proposed Rain Garden Depth = 8-inches or 0.7-ft

**Surface Area at Bottom of the Garden:**

$$A(f) = (WQv)(dt) / [(k)(hf + dt)(t)]$$

Where:  
 A(f) = surface area of the filter bed (ft²)  
 dt = Filter bed depth (ft) = 1.5 ft  
 k = coefficient of permeability of the filter media (use 3.5 ft/day)  
 hf = Average height of water above the dry swale (ft) (use 0.7 ft)  
 t = design filter bed drain time (assume 1 day for design purposes)

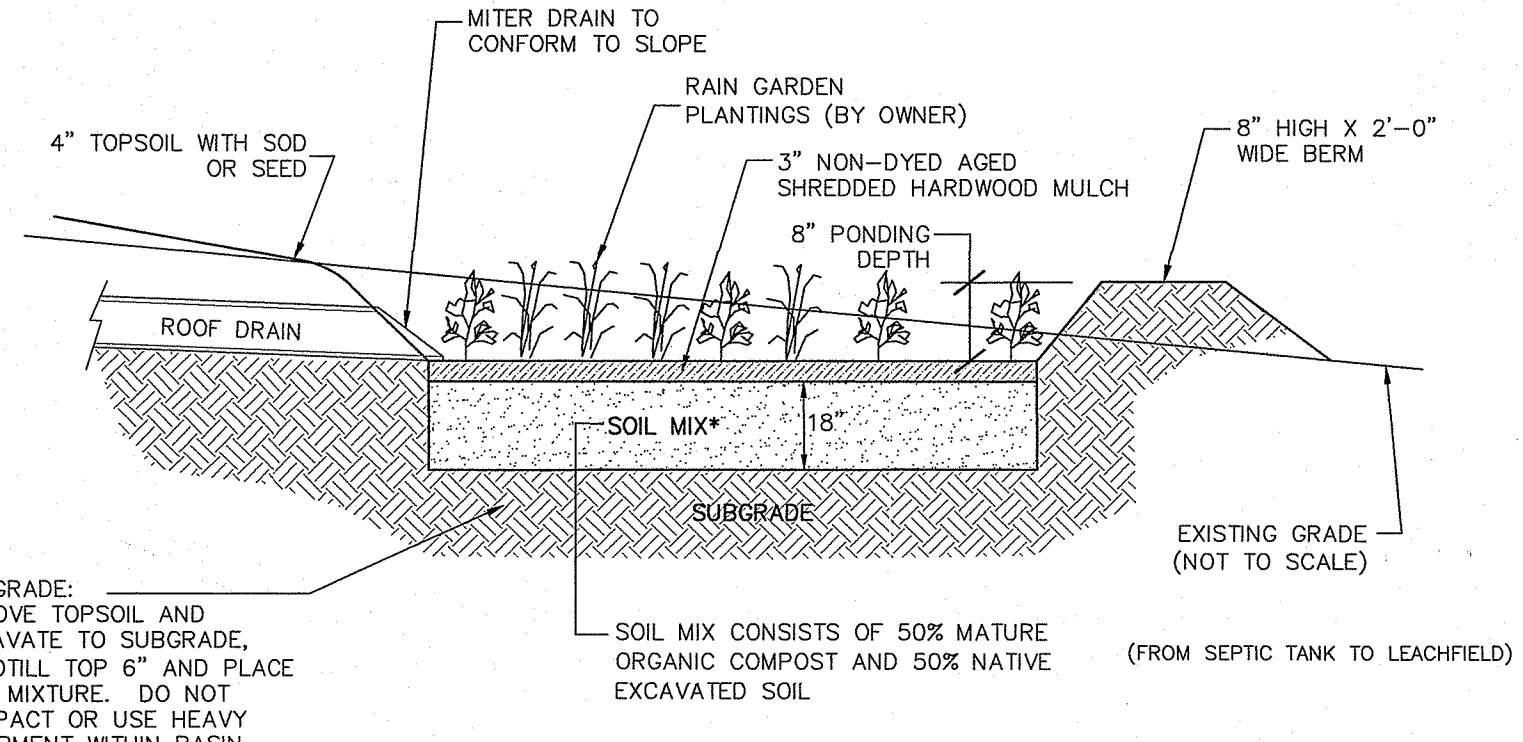
$$A(f) = (96)(1.5) / [(3.5)(0.7 + 1.0)(1.0)]$$

$$A(f) = 24.2 \text{ s.f. use } 55 \text{ s.f.}$$


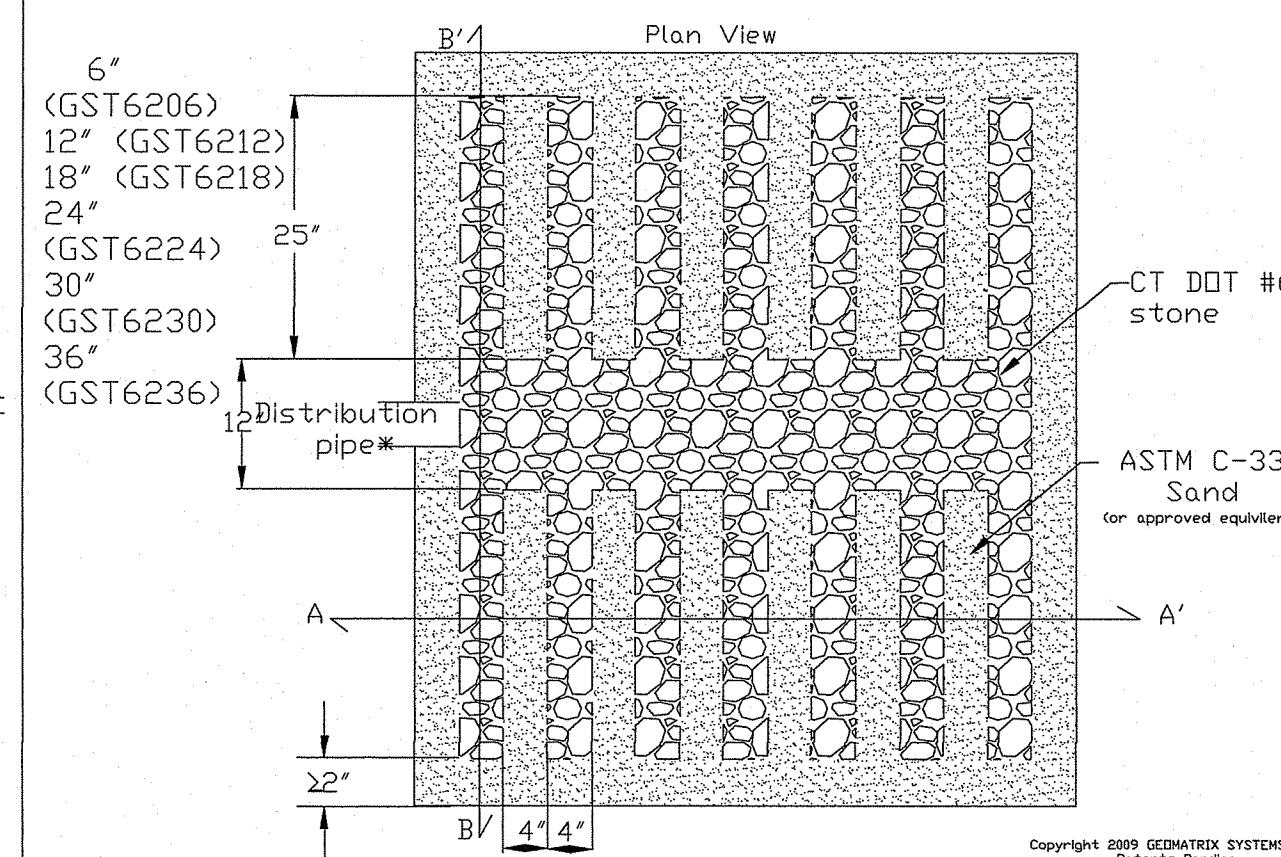
**STORMWATER TREATMENT PRACTICE**

IMPERVIOUS SURFACE	AREA	METHOD	AREA REQ'D	AREA PROVIDED
ROOF TOP	1,152 S.F.	RAIN GARDEN	28.5 S.F.	55 S.F.

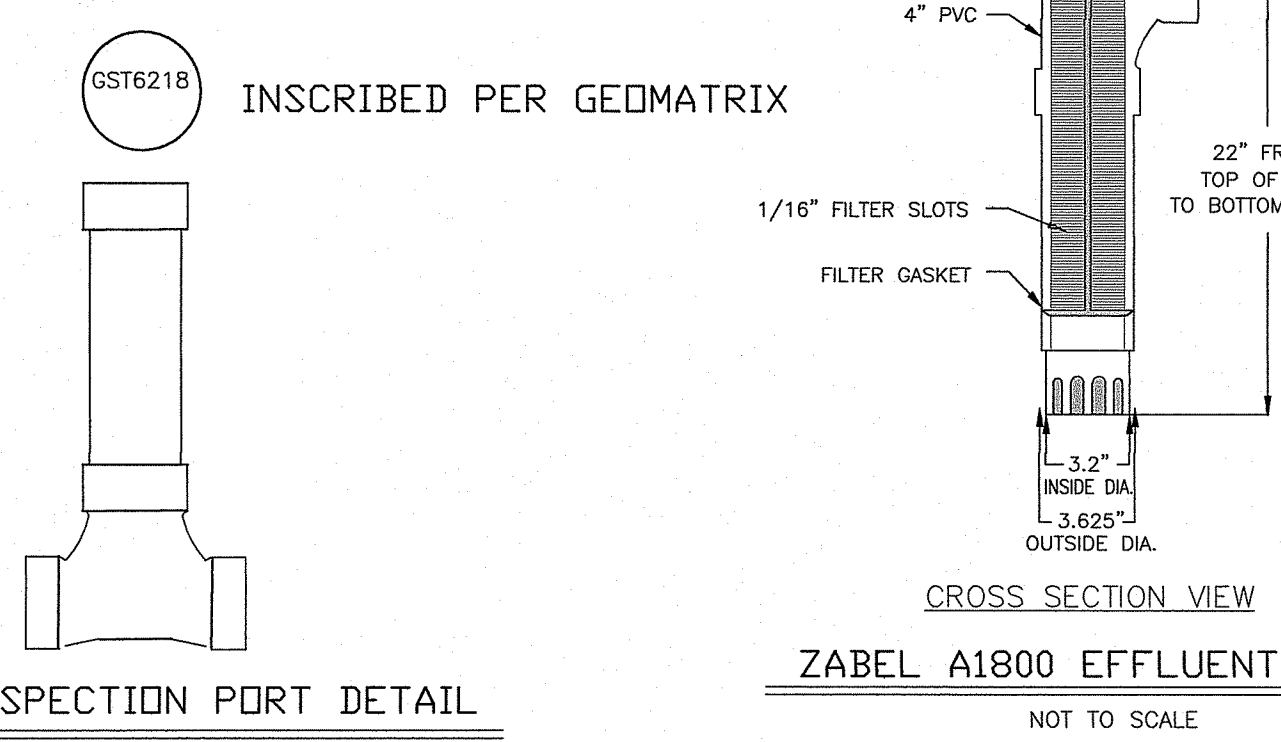
\* PER SOIL EVALS FSL



**GEMATRIX GST LEACHING SYSTEM**

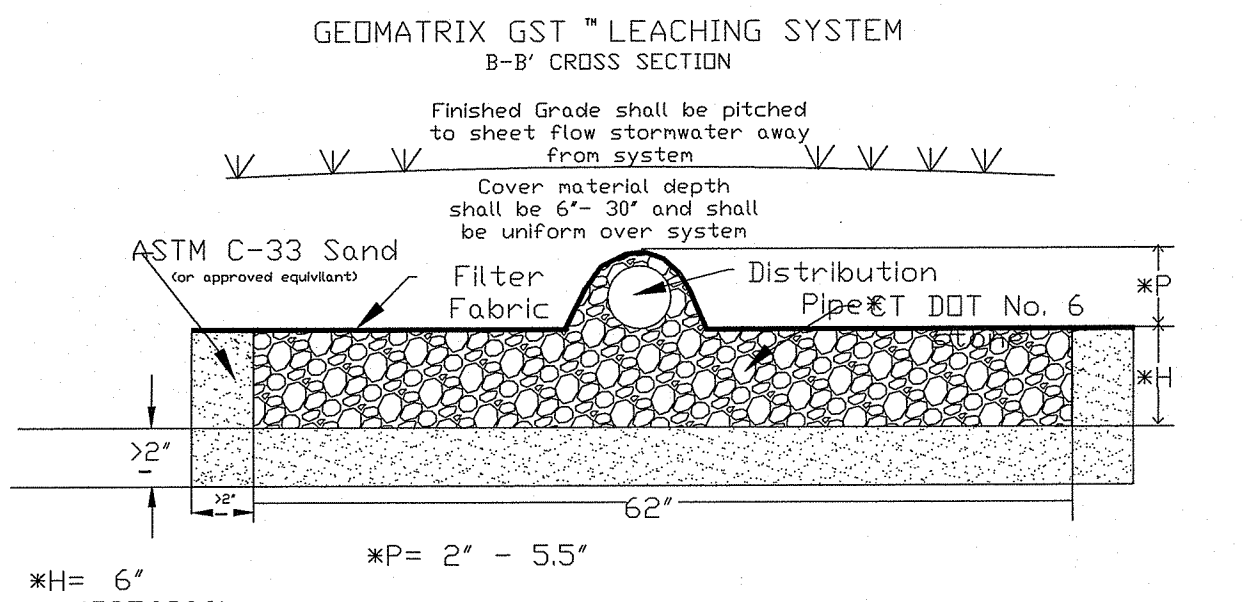
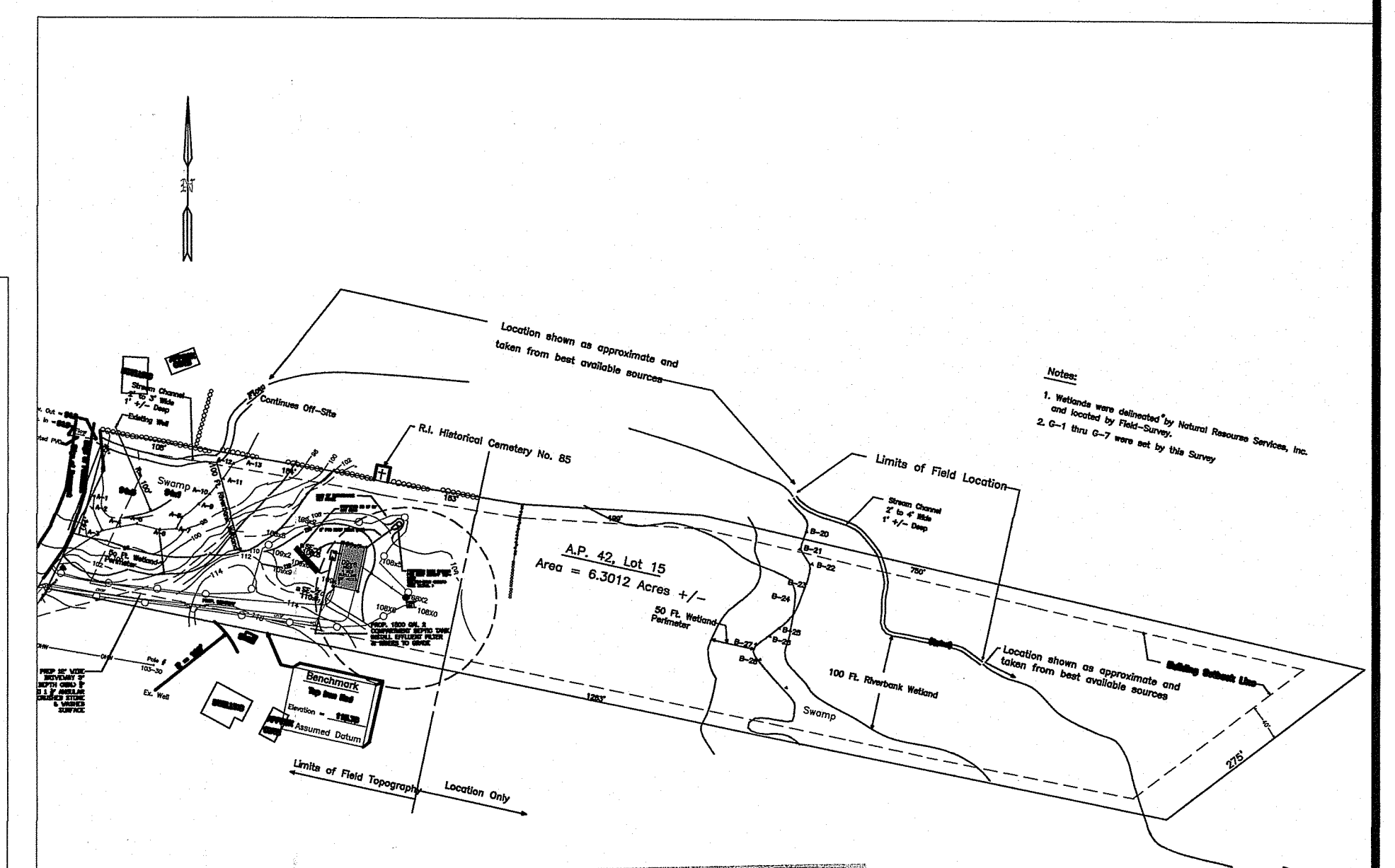
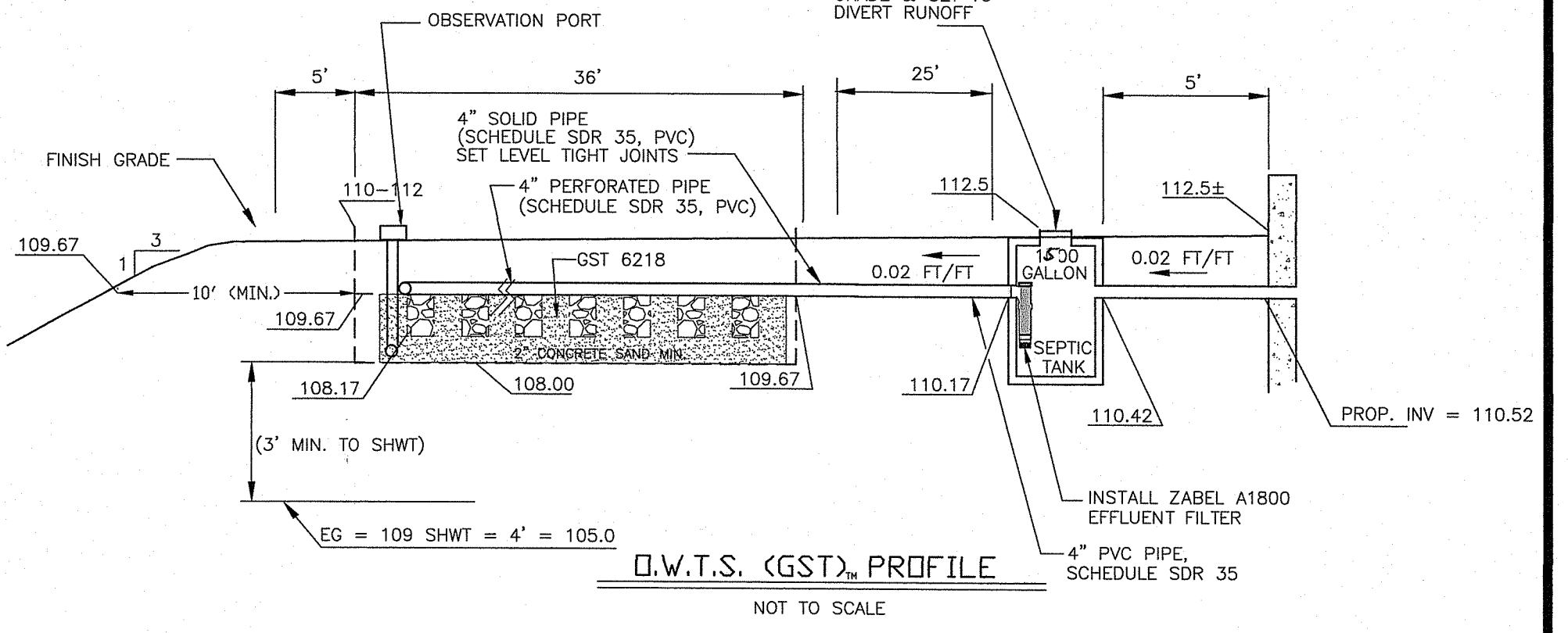
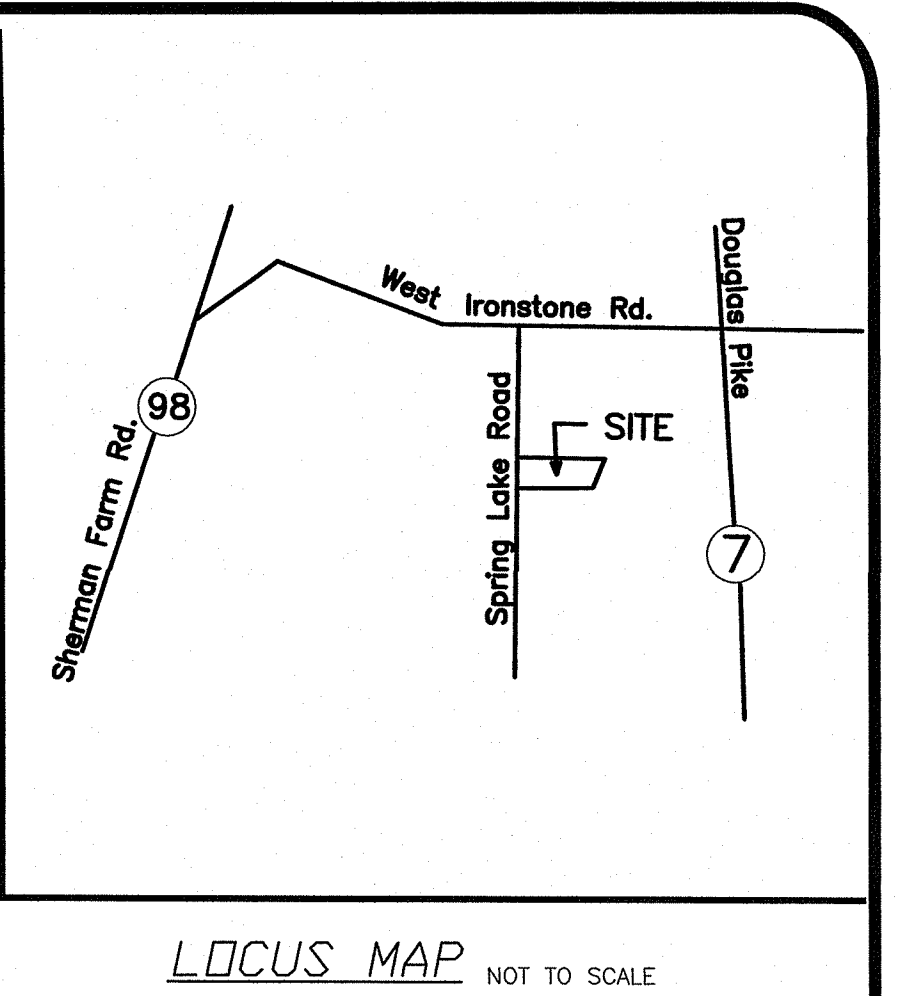


\*3" min. I.D., ASTM D-3034, SDR 35 pipe for gravity applications  
 0.75" min. I.D., ASTM D-2665, SCH 40 PVC pipe for pressure applications



**DWTS 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 ON-SITE WASTEWATER TREATMENT SYSTEMS, JANUARY 1, 2008 AND ALL AMENDMENTS, BY THE RHODE ISLAND DEPT. OF ENVIRONMENTAL MANAGEMENT.
2. STRIP LEACHING AREA OUT TO 0 FEET AROUND ENTIRE PERIMETER AND EXCAVATE DOWN TO ELEVATION 106.5, REMOVING ALL TREES, BRUSH, TOPSOIL, SUBSOIL, UNDESIRABLE MATERIAL AND SOIL CONTAINING FINES. REPLACE WITH GRAVEL IF REQUIRED AS SPECIFIED IN RIDEM REGULATIONS.
3. INSTALLER MUST ASSURE THAT BOTTOM AND SIDES OF EXCAVATION FOR THE LEACHFIELD ARE NOT COMPACTED OR SMEARED.
4. ALL TREES, STUMPS, AND BRUSH SHALL BE REMOVED WITHIN 10 FEET OF THE SYSTEM.
5. MAINTAIN INVERT ELEVATION OF 109.67 FOR 10 FEET AROUND SYSTEM.
6. THERE ARE NO KNOWN PRIVATE WELLS OR DRAINS EXIST, OR PROPOSED LOCATED WITHIN 200 FEET OF THE DWTS EXCEPT AS SHOWN AND NO KNOWN PUBLIC WELLS (EXIST. & PROP.) LOCATED WITHIN 500 FEET OF THE PROPOSED ISDS.
7. THERE ARE NO KNOWN SUBSURFACE DRAINS, EXISTING OR PROPOSED, WITHIN 50 FEET OF THE PROPOSED DWTS.
8. ALL PVC PIPE SHALL BE 4" DIA. SDR 35 OR EQUIVALENT, UNLESS NOTED OTHERWISE.
9. THE DISTRIBUTION BOX SHALL HAVE A MINIMUM BOTTOM AREA OF 3 SQUARE FEET.
10. NO VEHICULAR TRAFFIC IS ALLOWED OVER THE LEACHFIELD.



**ZONING INFORMATION**

ZONED..... F-5  
 Min. Lot Size.... 5 Acres  
 Min. Lot Width... 450 Ft.

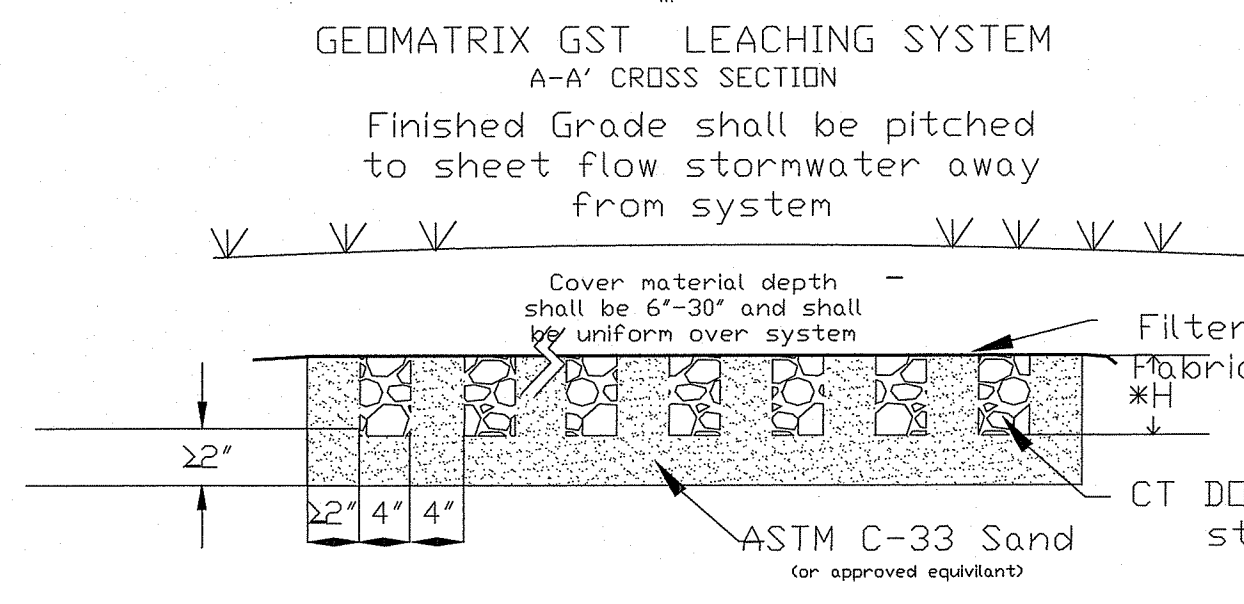
**Building Setback Requirements**

Front..... 40'  
 Rear..... 40'  
 Side..... 15'

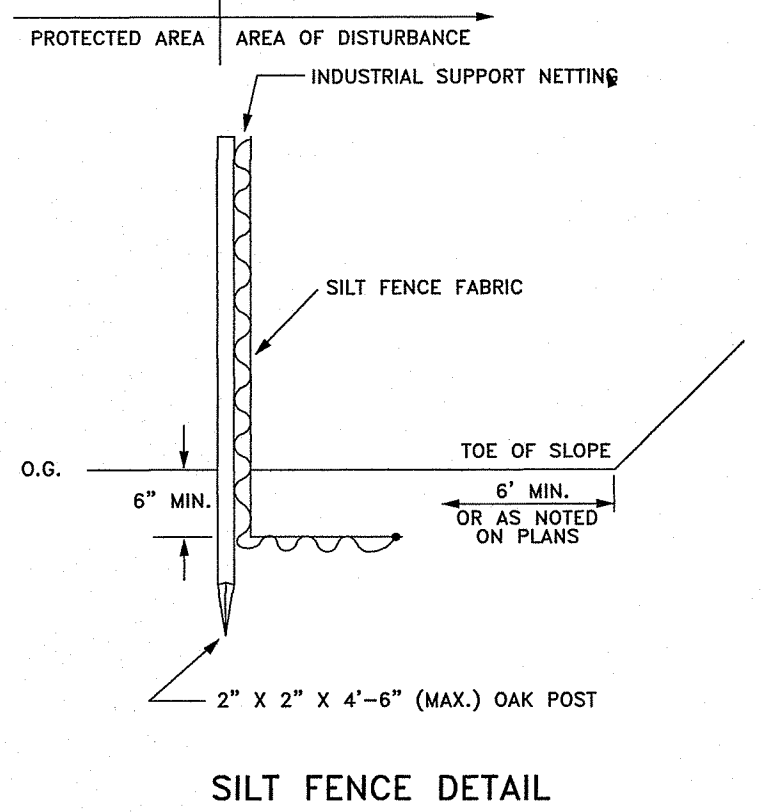
**LEGEND**

- 270 EX. CONTOUR
- ZONE SETBACK
- ABUTTER PROPERTY LINE
- OWNER PROPERTY LINE
- PROPOSED CONTOUR
- WET SEASON EVALUATION PERCOLATION TEST
- LEDGE PROBES
- WETLAND FLAG

THIS SITE IS LOCATED IN A ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS DESIGNATED ON THE "NATIONAL FLOOD INSURANCE PROGRAM, FIRM FLOOD INSURANCE RATE MAP PROVIDENCE COUNTY, RHODE ISLAND (ALL JURISDICTIONS) PANEL TOWN OF SCITUATE MAP NUMBER 44007C0045C EFFECTIVE DATE: MARCH 1, 2009. FEDERAL EMERGENCY MANAGEMENT AGENCY".



GEMATRIX ST LEACHING SYSTEM  
 A-A' Cross Section  
 Geomatrix Systems, LLC, Old Saybrook, CT 860-510-0730



**OWTS SITE PLAN & DETAILS**  
**OWTS DESIGN**  
 A.P. 42 LOT 15  
 SPRING LAKE ROAD BURRILLVILLE, RI

PREPARED FOR:  
 LEWIS PICKERING  
 13 FIVE ELMS CIRCLE #124 COVENTRY R 02816

**ADVANCED CIVIL DESIGN, INC.**  
 CIVIL ENGINEERS

88 PEEPTOAD ROAD  
 SCITUATE, RI 02857

**NICHOLAS J. PIAMPIANO**  
 No. 6512  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)  
 D 3059

DATE: JUNE 20, 2022  
 SCALE: AS NOTED  
 DESIGN/CHECK BY: BY: C.S.R.

SHEET NO. **1** OF 1