

**MINIMUM LEACHFIELD AREA**

- DESIGN FLOW (RULE 21): 4 BEDROOM X 115 GPD/BEDROOM= 460 GPD
- LOADING RATE (RULE 32.2.1): MIN. 10 MPI, 0.70 GAL/SF/DAY
- MIN. LEACHING AREA: 460 GPD / 0.70 GAL/SF/DAY= 657.14 SF

**DISPERSAL TRENCH DESIGN**

- 1.5' STONE BELOW INVERT, 36" WIDE TRENCH: AREA (SF) PER LF= 4.2
- LINEAR FEET REQUIRED: 657.14 SF / 4.2 SF/LF= 156.46 LF
- TRENCH LENGTH: W/ 5' SEPARATION & 3 TRENCHES: 156.46 LF-10 LF= 146.46 LF  
146.46 LF / 3 TRENCHES= 48.8' PER TRENCH
- SYSTEM WIDTH: 3 TRENCHES X 3' WIDE + 5' + 5'= 19' WIDE
- EFFECTIVE LEACHING AREA PROVIDED: 49' X 4.2 SF/LF X 3= 617.4 SF  
617.4 SF + 10' X 4.2 SF/LF= 659.4 SF > 657.14 SF

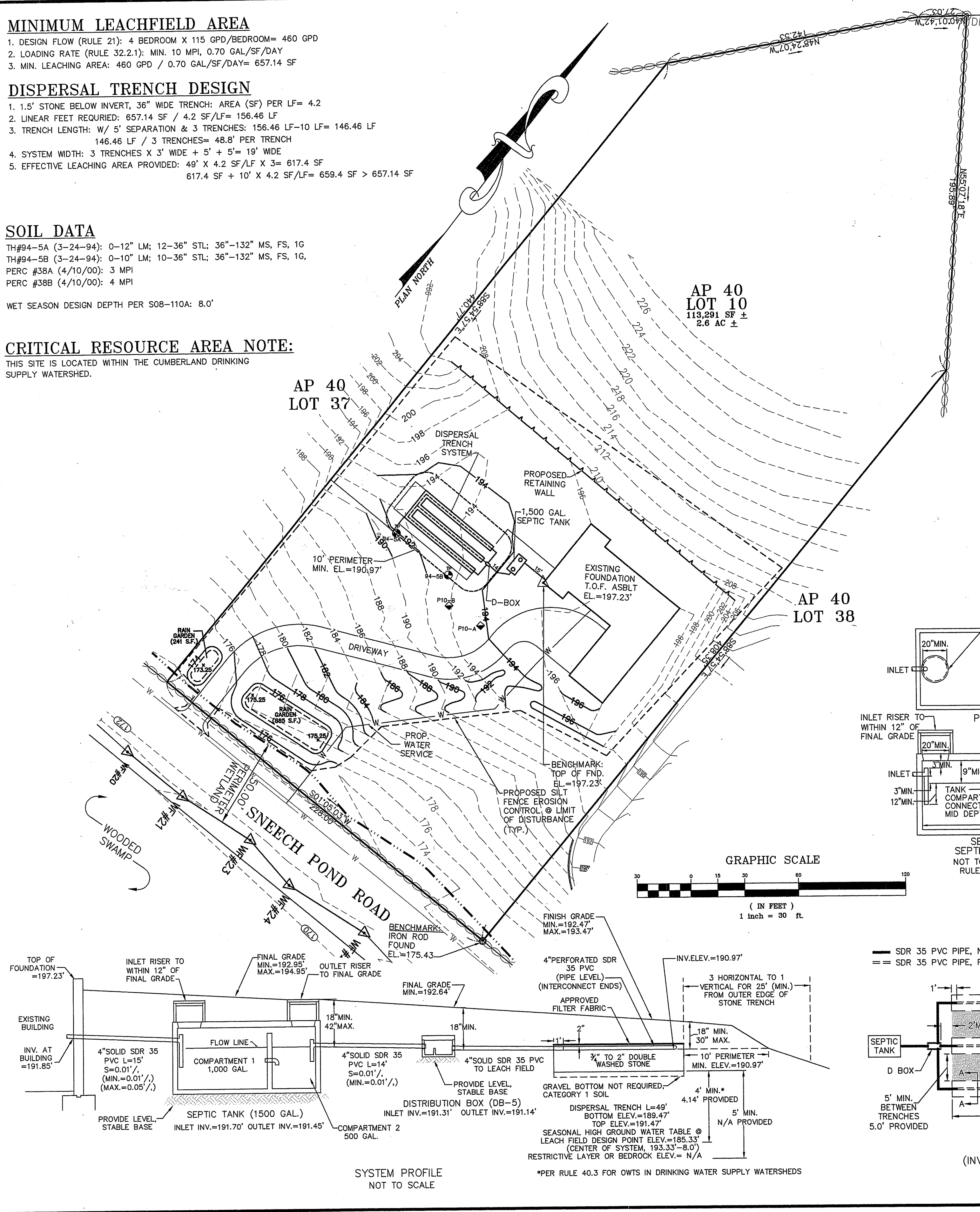
**SOIL DATA**

TH#94-5A (3-24-94): 0-12" LM; 12-36" STL; 36"-132" MS, FS, 1G  
 TH#94-5B (3-24-94): 0-10" LM; 10-36" STL; 36"-132" MS, FS, 1G,  
 PERC #38A (4/10/00): 3 MPI  
 PERC #38B (4/10/00): 4 MPI

WET SEASON DESIGN DEPTH PER S08-110A: 8.0'

**CRITICAL RESOURCE AREA NOTE:**

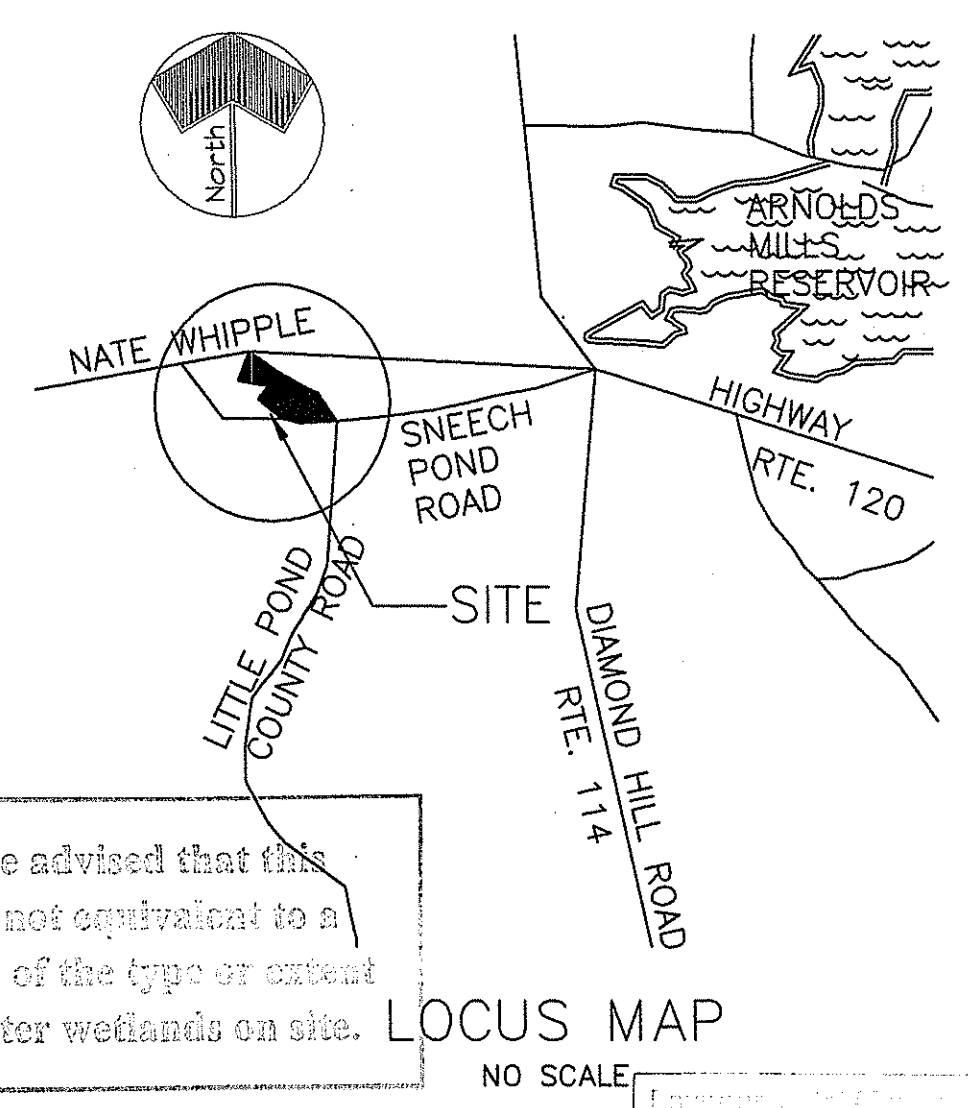
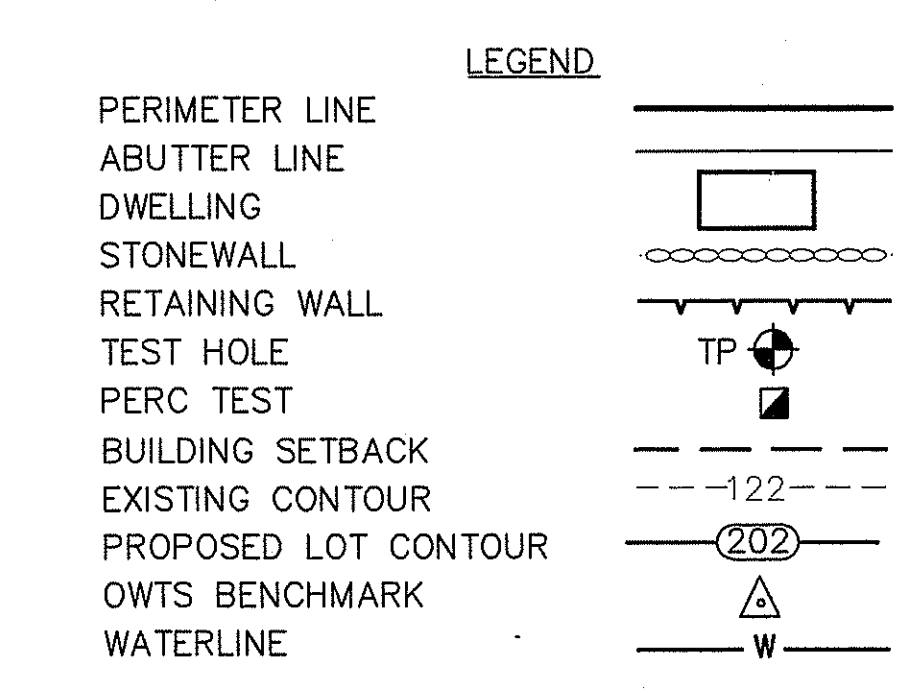
THIS SITE IS LOCATED WITHIN THE CUMBERLAND DRINKING SUPPLY WATERSHED.



AP 40  
LOT 7

AP 40  
LOT 10  
113,291 SF ±  
2.6 AC ±

AP 40  
LOT 38



Kindly be advised that this Permit is not equivalent to a certification of the type or extent of freshwater wetlands on site.

LOCUS MAP  
NO SCALE

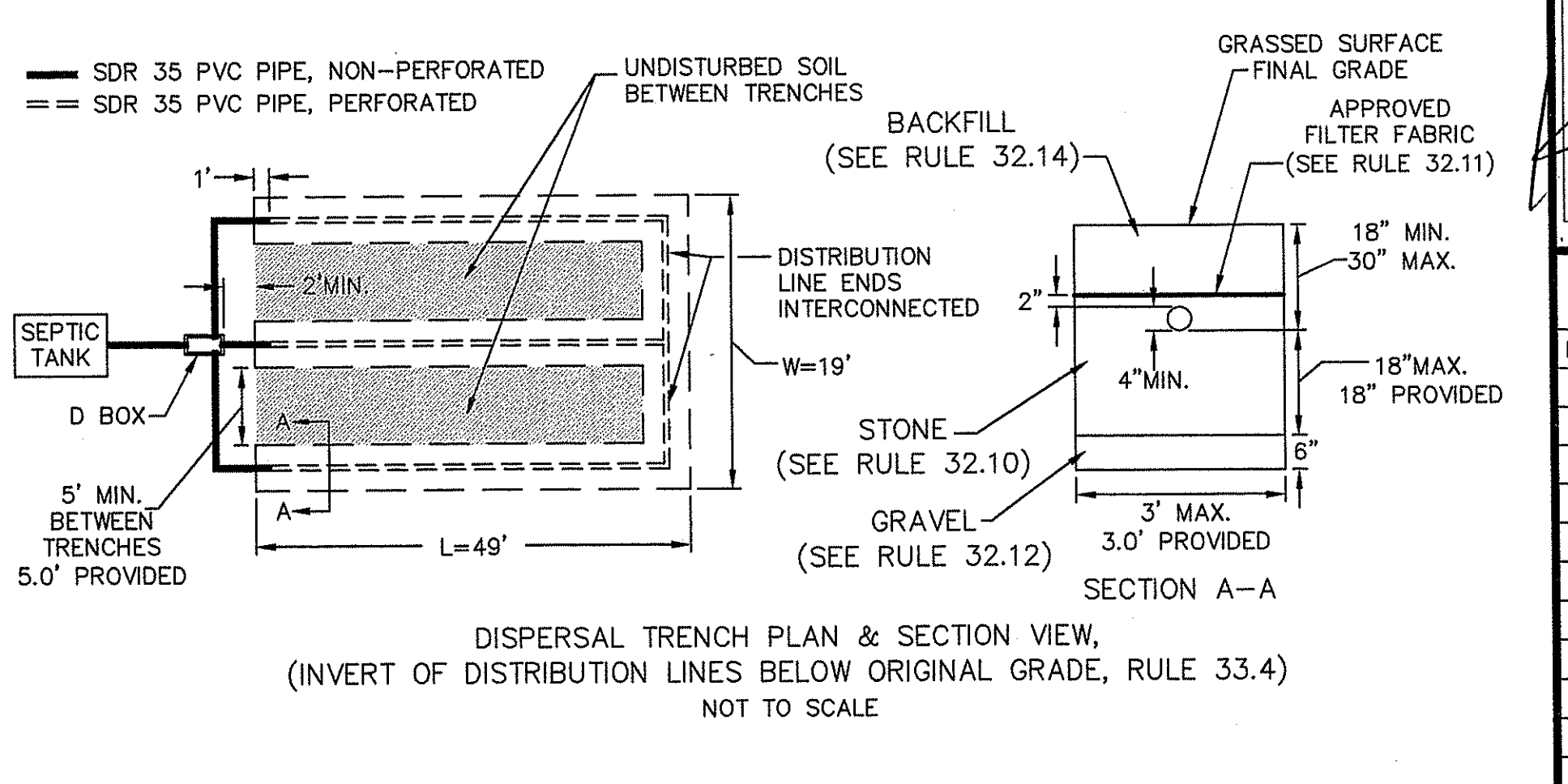
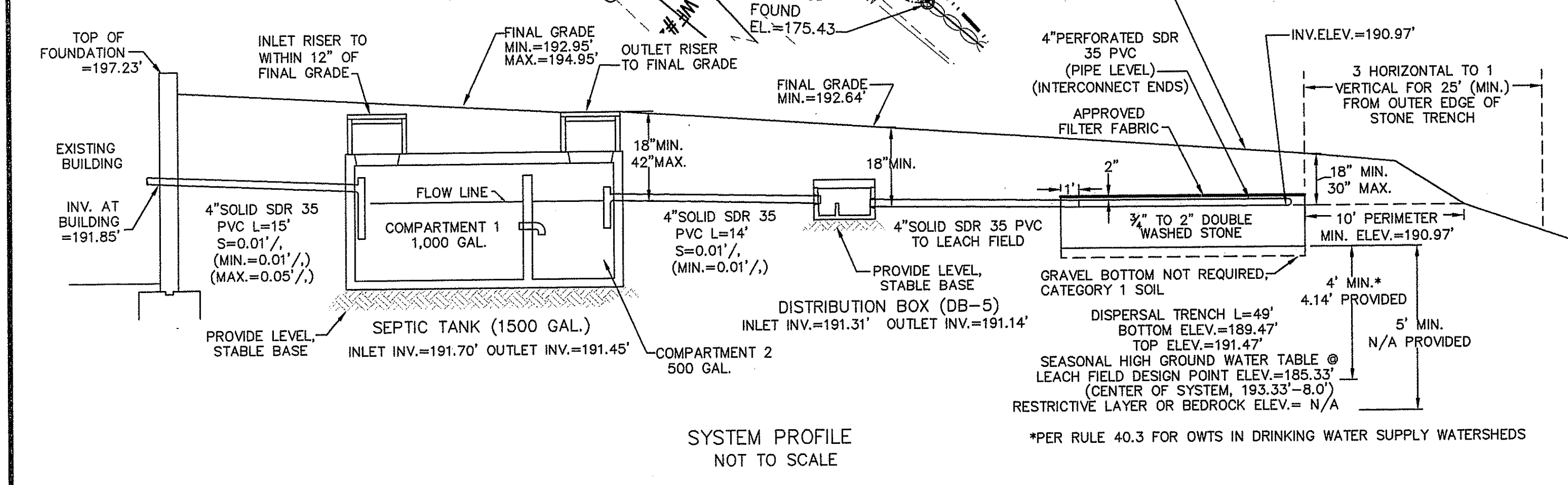
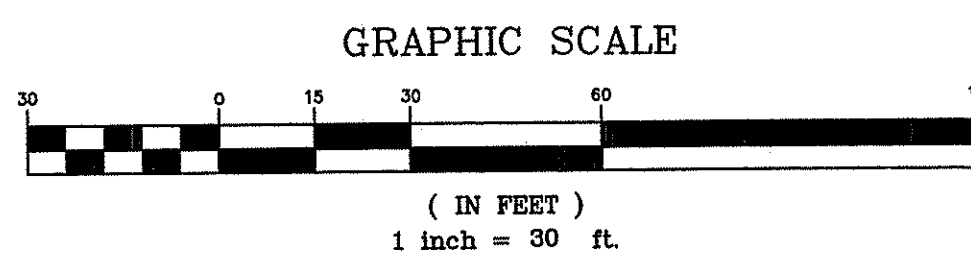
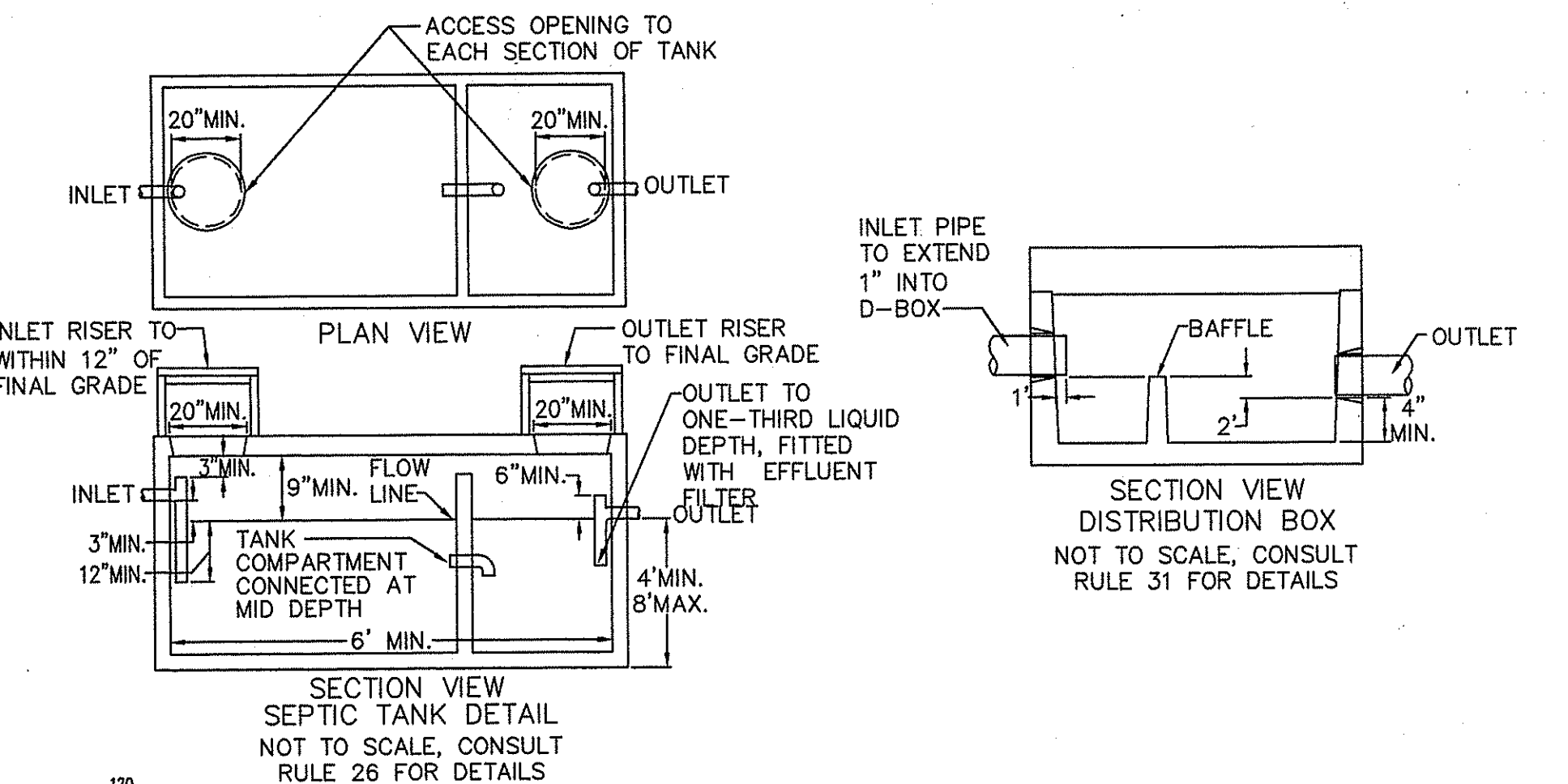
NOV 15 2013

**DESIGN NOTES**

- UNLESS SPECIFICALLY NOTED, THE PROPOSED OWTS IS NOT WITHIN A WATERSHED OF A PUBLIC WATER SUPPLY OR OTHER CRITICAL RESOURCE AREA.
- UNLESS OTHERWISE NOTED, THERE ARE NO DRINKING WATER LINES, EXISTING OR PROPOSED WITHIN 50 FEET OF THE PROPOSED OWTS.
- UNLESS OTHERWISE NOTED, THERE ARE NO NON-POTABLE WATER WELLS, EXISTING OR PROPOSED WITHIN 100 FEET OF THE PROPOSED OWTS.
- UNLESS OTHERWISE NOTED, THERE ARE NO EXISTING OR PROPOSED PUBLIC DRINKING WATER SUPPLY WELLS WITHIN 500 FEET OF THE PROPOSED OWTS.
- UNLESS INDICATED, THERE ARE NO WATERCOURSES, WETLANDS AND/OR DRAINS (STORM OR SUBSURFACE) WITHIN 200 FEET OF THE PROPOSED OWTS.
- THE SEPTIC TANK WILL BE PROVIDED WITH AN OUTLET TEE, INLET TEE AND RISERS TO GRADE.
- DISTRIBUTION BOX TO HAVE A MINIMUM BOTTOM AREA OF 3 SQ. FT.
- WITHIN TEN (10) FEET OF THE SYSTEM, FINISH GROUND WILL BE GREATER THAN THE INVERT ELEVATION.
- LEACH FIELD CONSTRUCTION SHALL CONFORM TO RULE 33 OF THE SPECIFICATIONS.

**SPECIFICATIONS**

- THE SYSTEM FOR SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ON-SITE WASTEWATER TREATMENT SYSTEMS" RULE 1 THROUGH RULE 55.
  - THE PIPE FROM THE BUILDING TO THE SEPTIC TANK SHALL BE SDR-35 PVC PIPE OR EQUIVALENT. SDR-40 PVC OR EQUIVALENT TO BE USED FOR ALL PORTIONS SUBJECT TO VEHICULAR TRAFFIC.
  - SOLID WALL PIPE AND FITTINGS SHALL BE SCHEDULE 35 PVC (POLYVINYL CHLORIDE) MANUFACTURED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF ASTM D 3034. JOINTS SHALL BE SOLVENT WELDED TYPE.
  - THE SEPTIC TANK MUST HAVE TWO COMPARTMENTS WITH THE FIRST COMPARTMENT HAVING A LIQUID VOLUME THAT IS TWO THIRDS THE REQUIRED VOLUME OF THE ENTIRE TANK. THE SEPTIC TANK SHALL BE WATER TIGHT, AND CONSTRUCTED OF PRECAST REINFORCED CONCRETE, FIBERGLASS, POLYETHYLENE OR OTHER MATERIALS APPROVED BY THE RIDEM. OUTLET TEES MUST BE EQUIPPED WITH AN EFFLUENT SCREEN. THE INLET AND OUTLET TEES MUST HAVE A MINIMUM OF 20 INCH ACCESS OPENINGS. THE OUTLET TEE RISER MUST BE AT FINISH GRADE, AND THE INLET TEE RISER WITHIN 12 INCHES OF FINISH GRADE.
  - THE DISTRIBUTION BOX SHALL BE A WATERTIGHT PRECAST CONCRETE STRUCTURE OR OTHER DURABLE MATERIAL MEETING THE REQUIREMENTS OF THE SPECIFICATIONS WITH A BAFFLE AND SUITABLE PIPE PENETRATION KNOCKOUTS.
  - WASHED STONE AND OTHER SOIL MATERIALS SHALL BE IN CONFORMANCE WITH THE STATE RULES AND REGULATIONS, RULE 32.0.
  - WHENEVER THE SYSTEM IS TO BE CONSTRUCTED WHOLLY OR PARTIALLY IN FILL, THE PROCEDURE AS DEFINED IN RULE 33.5 OF THE STATE RULES AND REGULATIONS SHALL APPLY.
  - THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. THE SYSTEM OPERATION IS DEPENDENT ON PROPER USAGE, AND IT'S OPERATION IS NOT GUARANTEED BY THIS PLAN.
- NOTE:  
CONTRACTOR TO VERIFY BENCHMARK & EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND DESIGN DATA SHOWN HEREON TO BE REPORTED TO THE ENGINEER



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED DEC 02 2013 FILE # 13-0189  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSULTING ENGINEER'S OFFICE

OWNER/APPLICANT  
 ANTHONY SILVA  
 50 DAVID STREET  
 CUMBERLAND, RI 02864

Kambiz Karbassi  
 No. 4737  
 REGISTERED PROFESSIONAL ENGINEER

**COMMONWEALTH**  
 ENGINEERS & CONSULTANTS, INC.  
 400 SMITH STREET  
 PROVIDENCE, RHODE ISLAND 02908  
 401-273-8600

**REVISIONS**

No.	DATE	DRWN	CHKD
1	11/15/13	JP	JAR

**FRESHWATER WETLANDS SUBMISSION**

for  
**AP 40, LOT 10**  
**SNEECH POND ROAD**  
 in  
 CUMBERLAND, RHODE ISLAND

SCALE: 1"=30' SHEET NO: 1 of 2  
 DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: KK  
 DATE: 11/08/13 PROJECT NO.: 04049.00

P:\04000\04049.00 Sneeche Pond, Lot 10, Drawings\Site\Current\_Drawings\DWTS 3-24-10\04049.00-49.ap.dwg 10-10-13 10:08:13 AM

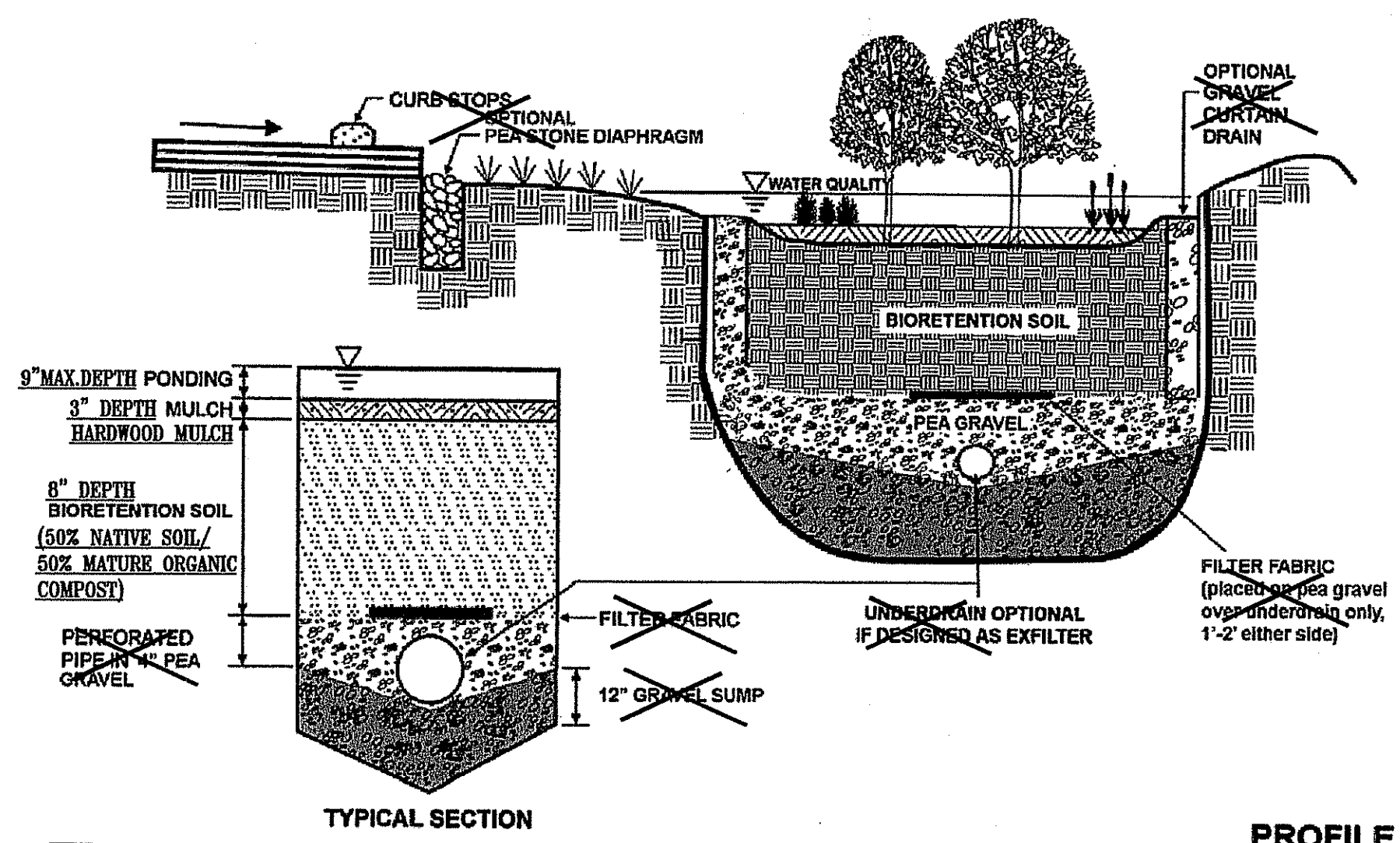
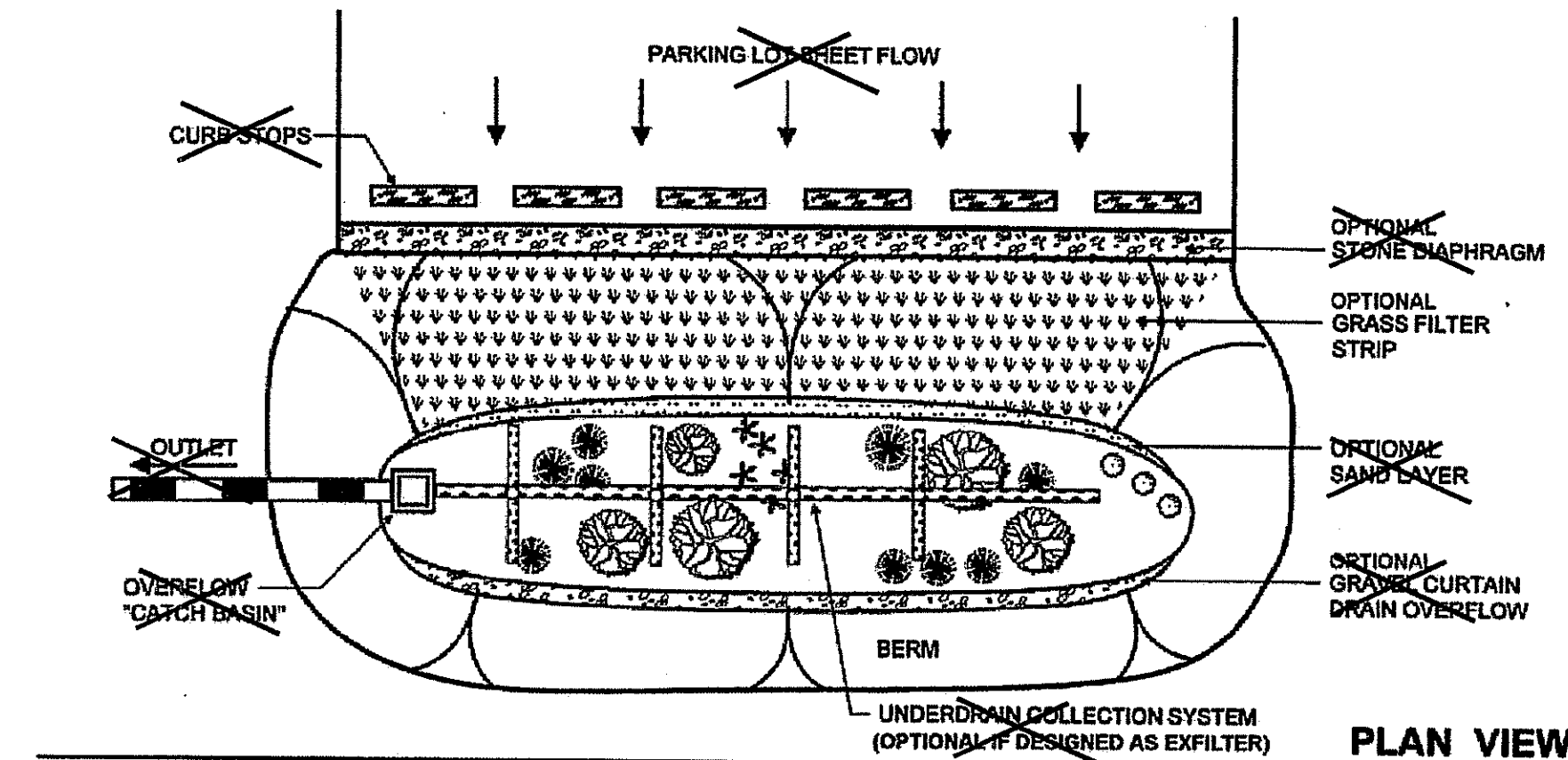
**EROSION CONTROL & SOIL STABILIZATION PROGRAM**

- DENUDED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON.
- ALL DISTURBED SLOPES, EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15, SHALL BE SEEDED OR PROTECTED BY THAT DATE, FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
- THE TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH R.I. STD SPECIFICATION M 20.
- THE SEED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
- THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING PERMANENT SEEDING MIXTURES:
  - A. MOVED AREA (ALL FLATS OR SLOPES LESS THAN 3:1)
 

MIXTURE:	% BY WEIGHT:	SEEDING DATES:
RED FESCUE	75	APRIL 1 - JUNE 15
KENTUCKY BLUEGRASS	15	AUGUST 15 - OCTOBER 15
COLONIAL BENTGRASS	5	
PERENNIAL RYEGRASS	5	
<b>TOTAL:</b>	<b>100 lbs/Ac.</b>	
  - B. UNMOVED AREA OR INFREQUENTLY MOVED (SLOPES GREATER THAN 3:1)
 

MIXTURE:	% BY WEIGHT:	SEEDING DATES:
RED FESCUE	75	APRIL 1 - JUNE 15
COLONIAL BENTGRASS	5	AUGUST 15 - OCTOBER 15
PERENNIAL RYEGRASS	5	
BIRDFOOT TREFOIL	15	
<b>TOTAL:</b>	<b>100 lbs/Ac.</b>	
- TEMPORARY TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS A MAT OR FIBER LINING (BURLAP, JUTE, FIBERGLASS NETTING, EXCELSIOR BLANKETS) THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS ORDERED BY THE ENGINEER.
- HAY OR STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3,000 - 4,000 lbs/Ac.
- ALL HAYBALES OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS OR APPROVED GROUND COVER IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP MINIMIZE THE EROSION. A TEMPORARY SEEDING GUIDE MUST BE INCLUDED AS A REFERENCE. THE FOLLOWING SPECIES ARE RECOMMENDED:
 

MIXTURE:	lbs./1,000 S.F.	lbs./Ac.	SEEDING DATES:
ANNUAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
PERENNIAL RYEGRASS	1.0 - 1.5	40 - 60	3/1 - 6/1
SUDAN GRASS	0.7 - 1.0	30 - 40	5/15 - 8/15
MILLET	0.7 - 1.0	30 - 40	5/15 - 8/15
WINTER RYE	3.0	120	4/15 - 6/15
OATS	0.5 - 5.0	86 - 120	3/1 - 6/15
WEEPING COVERGRASS	0.5 - 5.0	5 - 20	5/1 - 7/1
- THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOPE WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE.
- ALL FILL SHALL BE THOROUGHLY COMPACTED UPON PLACEMENT IN STRICT CONFORMANCE WITH THE R.I.D.P.W. STD SPECIFICATIONS SECTION 202.
- STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 15 DAYS OF FINAL GRADING.
- STOCKPILES OF TOPSOIL SHALL NOT BE LOCATED NEAR WATERWAYS, THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES SHALL ALSO BE SEEDED AND/OR STABILIZED.
- ON BOTH STEEP AND LONG SLOPES CONSIDERATION SHALL BE GIVEN TO "CRIMPING" OR "TRACKING" TO TACK DOWN MULCH APPLICATIONS.
- REFERENCE THE SEDIMENTATION CONTROL PROGRAM AND ORDER OF PROCEDURE FOR PROPER COORDINATION.
- THE DRAINAGE SYSTEM SHALL RECEIVE ONE FINAL CLEANING PRIOR TO ACCEPTANCE TO THE OVERALL PROJECT BY THE OWNER. SEDIMENTS SHALL BE DISPOSED OF IN A PROPER MANNER.



**RAINGARDEN/BIORETENTION DETAIL**

**SEDIMENTATION CONTROL PROGRAM:**

- EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL ENTERING THE WETLANDS.
- ALL DISTURBED AREAS SUBJECT TO EROSION TENDENCIES WHETHER THEY BE NEWLY FILLED OR EXCAVATED SHALL BE SEEDED AND PROTECTED WITH A FIBER MULCH.
- DURING CONSTRUCTION, THE CONTRACTOR AND/OR DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
- SEDIMENTATION CONTROL DEVICES SHALL BE INSPECTED CLOSELY AND MAINTAINED PROMPTLY AFTER EACH RAINFALL.
- CARE SHOULD BE TAKEN SO AS NOT TO PLACE "REMOVED SEDIMENTS" WITHIN THE PATH OF EXISTING, NEWLY CREATED (BOTH TEMPORARY AND PERMANENT) OR PROPOSED WATERCOURSES OR THOSE AREAS SUBJECT TO STORM WATER FLOW.
- ADDITIONAL HAYBALES OR SANDBAGS SHALL BE LOCATED AS CONDITIONS WARRANT.
- ALL SEDIMENTS SHALL BE REMOVED FROM THE DRAINAGE AND DETENTION FACILITIES AS SCHEDULED FOR EACH FACILITY (SEE RAINGARDEN/BIORETENTION MAINTENANCE, THIS SHEET).
- REFERENCE THE "R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" PREPARED BY THE U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE, LATEST REVISION, AS A GUIDE.

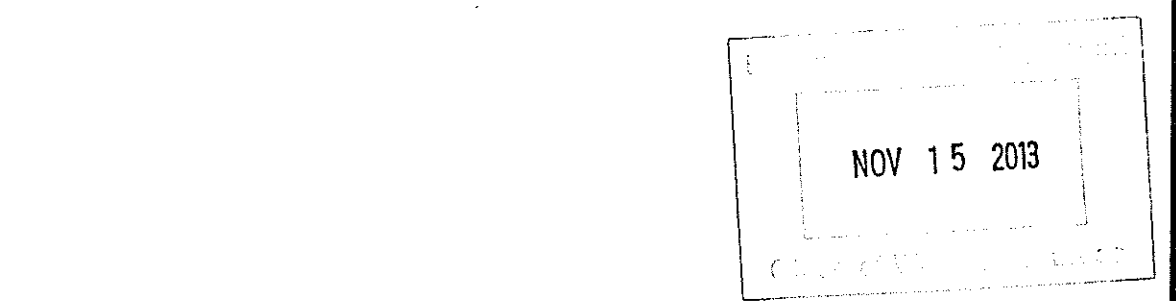
**RAINGARDEN/BIORETENTION MAINTENANCE:**

- Rain gardens shall be inspected following at least the first two precipitation events of at least 1.0 inch to ensure that the system is functioning properly. Thereafter, the rain garden shall be monitored and maintained to assure proper functioning, plant growth and survival. Plants shall be replaced on an as-needed basis during the growing season.
- Silt/sediment shall be removed from the rain garden when the accumulation exceeds one inch, or when water ponds on the surface of the rain garden for more than 48 hours. The top few inches of material shall be removed and shall be replaced with fresh soil mixture and mulch.
- Pruning or replacement of woody vegetation shall occur when dead or dying vegetation is observed.
- Soil erosion gullies shall be repaired when they occur.
- Fertilizer or pesticides shall not be applied to plants within rain gardens.
- Perennial plants and ground covers shall be replaced as necessary to maintain an adequate vegetated ground cover.
- The party responsible for maintenance of the raingarden is the individual property owner.

**PLANT LIST - Bioretention Seed Mix: 2,862 sf**

BOTANICAL NAME	COMMON NAME	QTY.
<b>PERENNIALS</b>		
<i>Asclepias tuberosa</i>	Butterfly Milkweed	0.02 lb
<i>Baptisia australis</i>	Blue False Indigo	0.04 lb
<i>Echinacea purpurea</i>	Purple Cone Flower	0.10 lb
<i>Eupatoriadelphus maculatus</i>	Spotted Joe Pye Weed	0.01 lb
<i>Eupatorium perfoliatum</i>	Boneset	0.01 lb
<i>Eupatorium purpureum</i>	Purple Joe Pye Weed	0.01 lb
<i>Rudbeckia fulgida 'Goldstrum'</i>	Orange Coneflower	0.03 lb
<i>Senna hebecarpa</i>	American Senna	0.03 lb
<i>Symphotichum novae-angliae</i>	New England Aster	0.03 lb
<i>Solidago sempervirens</i>	Seaside Goldenrod	0.02 lb
<b>GRASSES</b>		
<i>Andropogon gerardii</i>	Big Bluestem	0.10 lb
<i>Carex stricta</i>	Tussock Sedge	0.01 lb
<i>Panicum virgatum</i>	Switchgrass	0.10 lb
<i>Schizachyrium scoparium</i>	Little Bluestem	0.49 lb

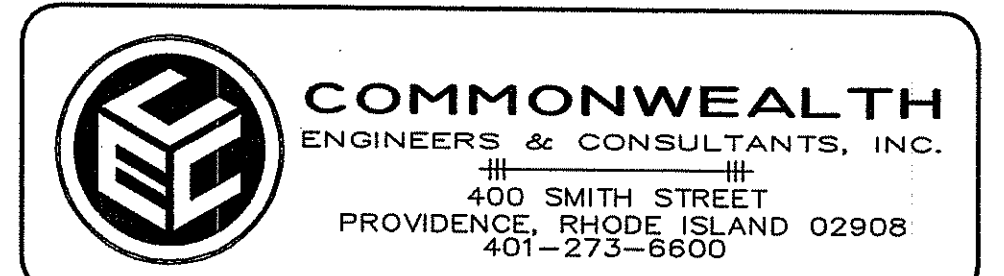
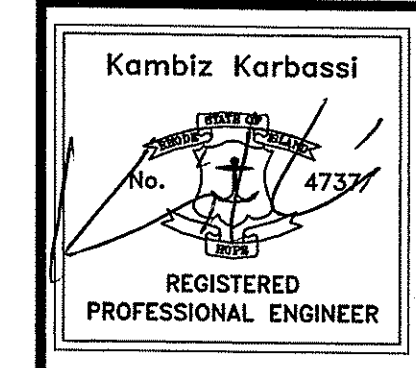
**SEEDING NOTE:**  
 Mix shall be applied at 20 lbs./acre or 0.5 lbs/1000 square feet.  
 A cover crop of 30 lbs/acre or 0.7 lbs/1000 square feet of grain oats if seeding is done in the spring.



Kindly be advised that this Permit is not equivalent to a verification of the type or amount of fresh water available.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED 12/02/2013 FILE # 13-0189  
 NO CHANGES ALLOWED WITHOUT PREVIOUS APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

OWNER/APPLICANT  
 ANTHONY SILVA  
 50 DAVID STREET  
 CUMBERLAND, RI 02864



**FRESHWATER WETLANDS SUBMISSION**  
 for  
**AP 40, LOT 10 SNEECH POND ROAD**  
 in  
 CUMBERLAND, RHODE ISLAND

**REVISIONS**

No.	DATE	DRWN	CHKD
1	11/15/13	JP	JAR

SCALE: 1"=30' SHEET NO: 2 of 2  
 DRAWN BY: JAR DESIGN BY: JAR CHECKED BY: KK  
 DATE: 11/08/13 PROJECT NO.: 04049.00