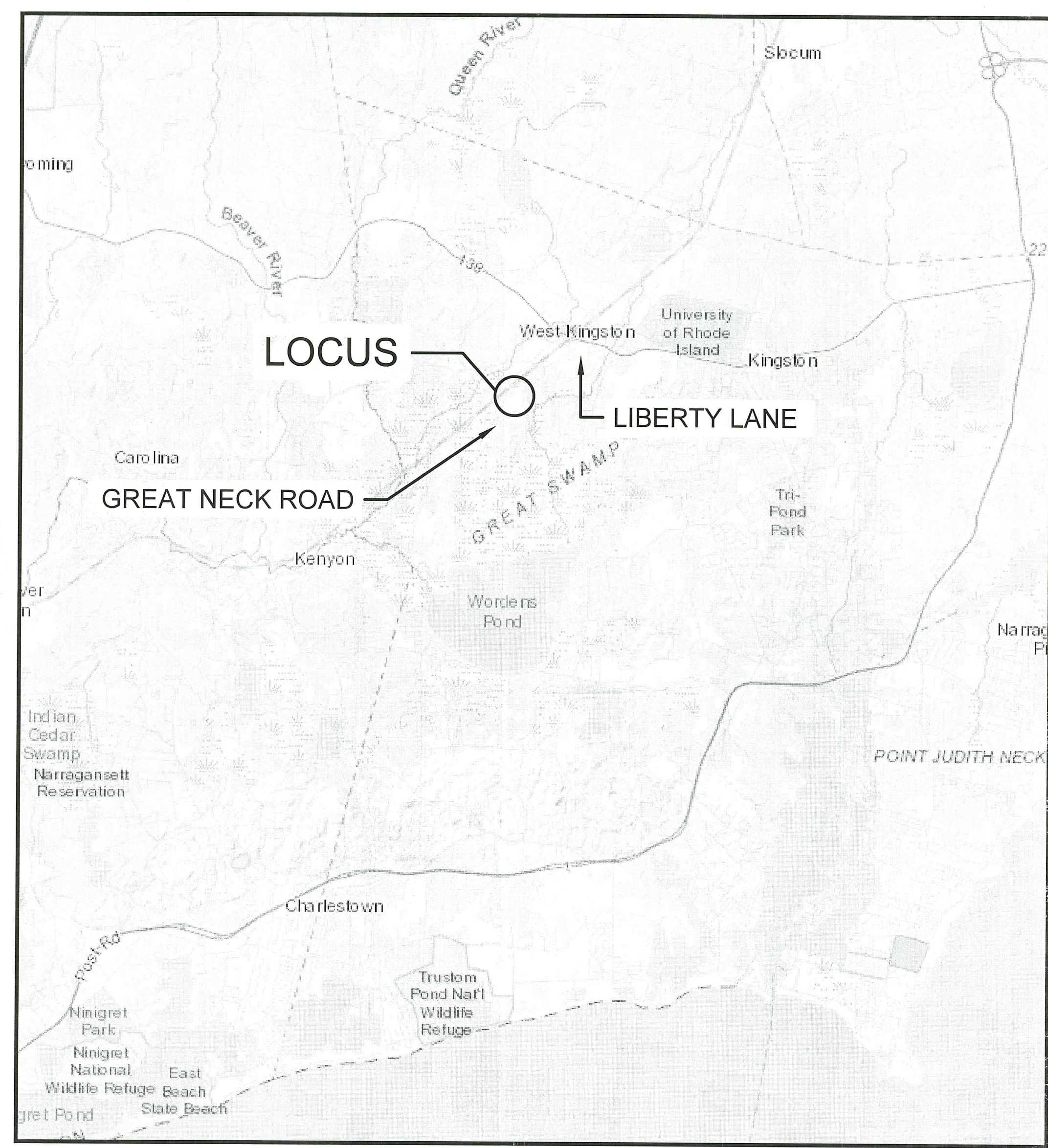
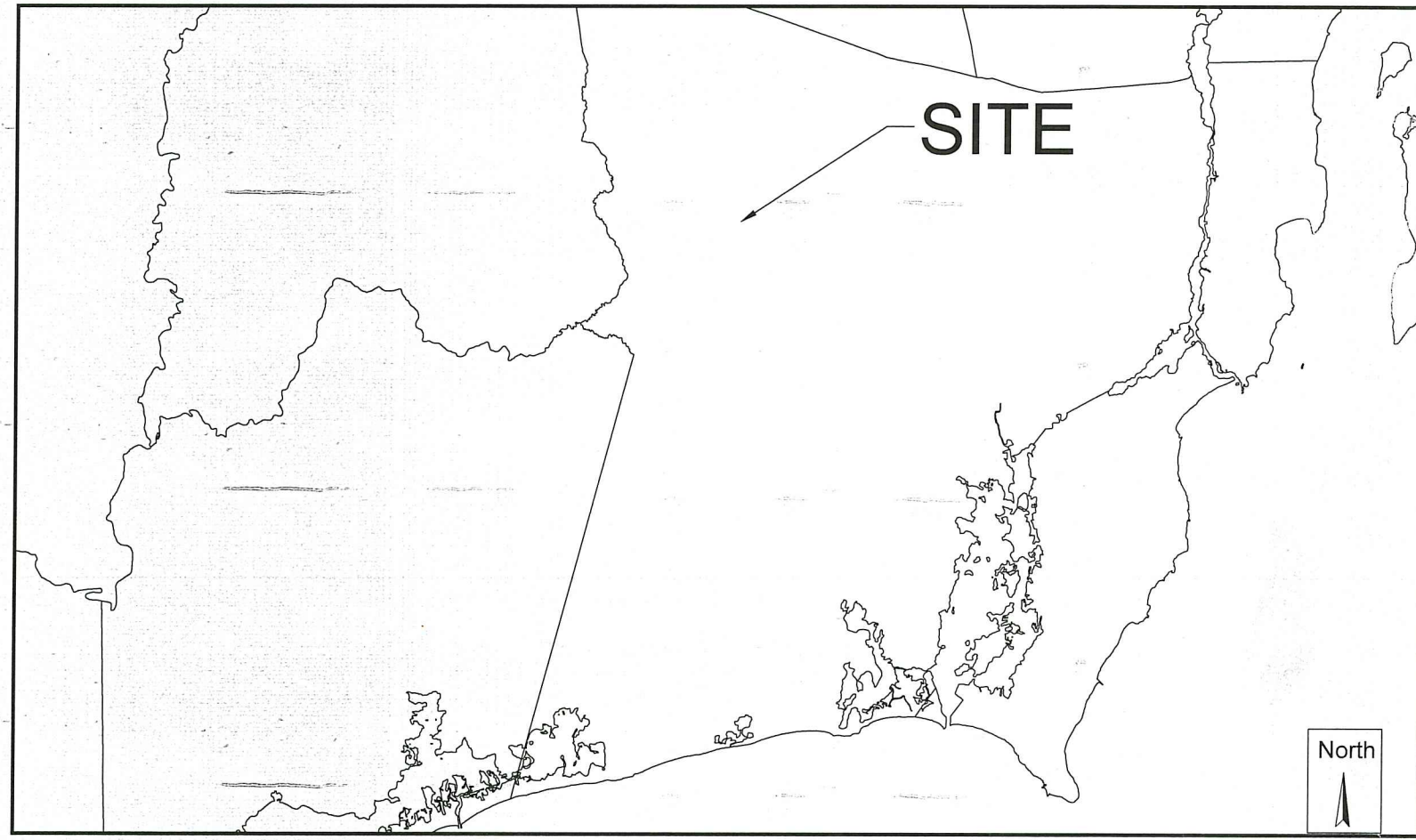
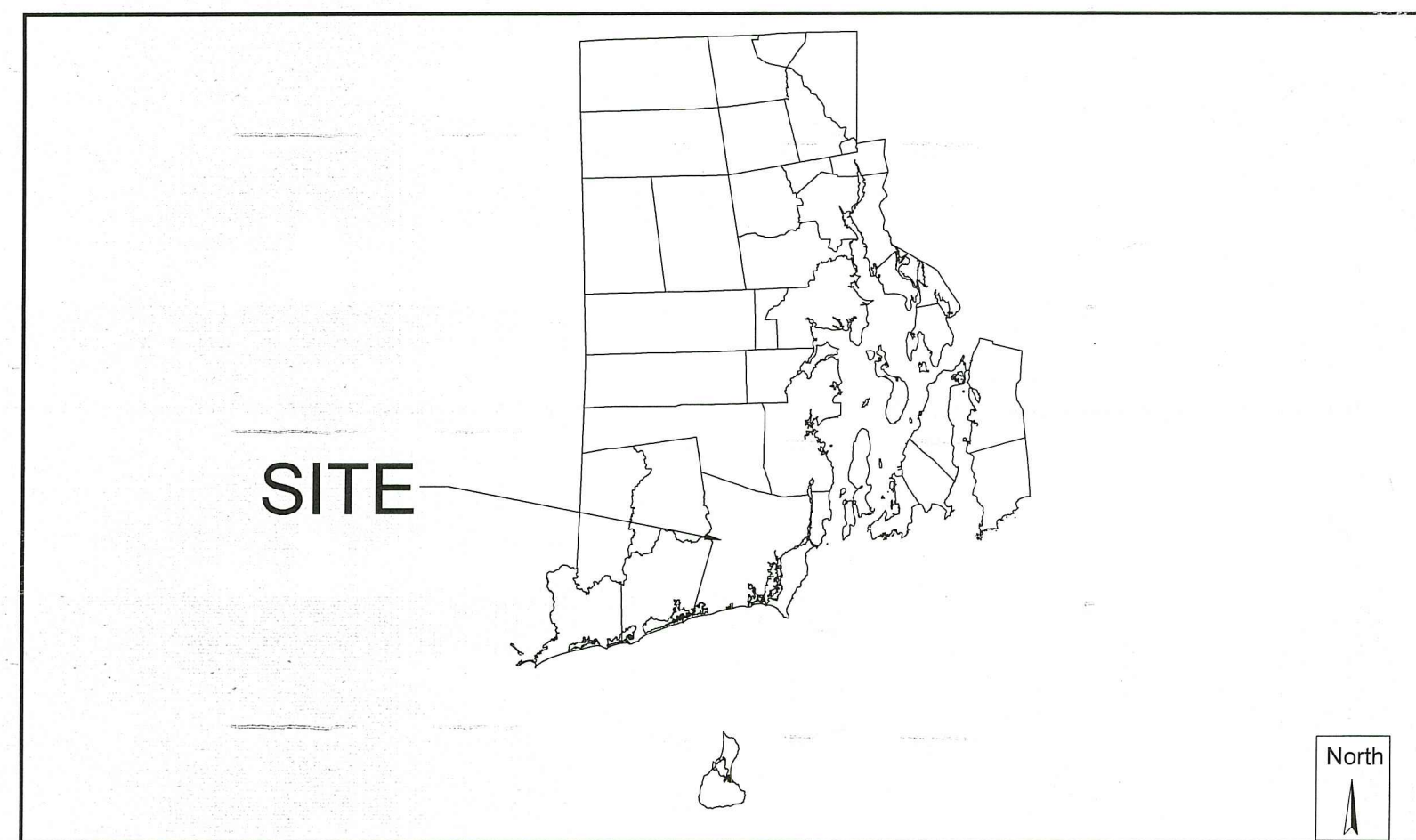


# GREAT SWAMP MAINTENANCE GARAGE 90% DESIGN DEVELOPMENT WEST KINGSTON, RI DECEMBER 2020

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED APR 29 2021 FILE # 21-0083  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*Only L. Freeman*

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Removed from Site Plan Set per R.I.D.E.M. FWW Program See-Cond. No. 14 of the permit letter



## GREAT SWAMP MAINTENANCE GARAGE 90% DESIGN DEVELOPMENT WEST KINGSTON, RI

Prepared For:  
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<p><b>MECHANICAL &amp; ELECTRICAL:</b></p> <p style="text-align: center;"><b>eds</b> ENGINEERING DESIGN SERVICES INCORPORATED</p>	<p><b>STRUCTURAL:</b></p> <p style="text-align: center;"><b>C. A. PRETZER ASSOCIATES INC.</b> STRUCTURAL ENGINEERS</p>	<p><b>ARCHITECT:</b></p> <p style="text-align: center;"><b>SACCOCIO &amp; ASSOCIATES, INC.</b></p>
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Date Issued: DECEMBER 2020	Registration:	Revisions	Project Number: 20007
Designed By: JK	<b>DRAFT NOT FOR CONSTRUCTION</b>	Sheet Number: 1 of 57	Drawing Number: C-1
Drawn By: JK			
Checked By: JH			
		Rev. Date By Appr. Description	

last modified: 02/02/21 printed: 02/02/21 by jh H:\Projects\2020\20007 RIDEW Maintenance Garage\Drawings\20007 CV.dwg

**SURVEY NOTES:**

- THE TOPOGRAPHY AND EXISTING CONDITIONS DEPICTED HEREON WERE OBTAINED FROM AN INSTRUMENT SURVEY CONDUCTED ON THE GROUND BY THE RIDGE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT IN NOVEMBER 2016 AND SUPPLEMENTED BY THE HORSLEY WITTEN GROUP, INC. IN MAY 2020.
- THIS PLAN DOES NOT SHOW ANY RECORDED OR UNRECORDED EASEMENTS WHICH MAY EXIST. HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
- ALL PROPERTY AND BOUNDARY LINES DEPICTED ARE APPROXIMATE ONLY.
- EXISTING CONTOUR INTERVALS ARE EQUAL TO ONE FOOT.
- THE ACCURACY OF MEASURED PIPE INVERTS AND PIPE SIZES IS SUBJECT TO FIELD CONDITIONS, THE ABILITY TO MAKE VISUAL OBSERVATIONS, CORRECT ACCESS TO THE VARIOUS ELEMENTS AND OTHER CONDITIONS.

**GENERAL CONSTRUCTION NOTES:**

- ALL SITE WORK TO COMPLETE THIS PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED.
- UTILIZE ALL PRECAUTIONS AND MEASURES TO ENSURE THE SAFETY OF THE PUBLIC, ALL PERSONNEL AND PROPERTY DURING CONSTRUCTION AND MAINTENANCE WITH DUE REGARD TO THE MAINTENANCE OF TEMPORARY TRAFFIC CONTROL, THE BARRICADES, SAFETY LIGHTING, CONES, POLICE DETAIL AND/OR FLAGMEN AS DETERMINED NECESSARY BY THE STATE. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF POLICE DETAIL AND FOR COORDINATING WITH THE LOCAL OR STATE POLICE DEPARTMENT FOR ALL REQUIRED POLICE DETAIL.
- MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES INCLUDING POLICE DETAILS AND POST ALL BONDS, IF NECESSARY, ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE OWNER AND THE ENGINEER.
- ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. PRIOR TO THE START OF CONSTRUCTION VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR DISCOVERED CONDITIONS. IF ANY CONDITIONS ARE DISCOVERED, NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLING ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
- THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITTING AUTHORITY IN THE TOWN AND DISTRICTS (1-800-344-7229) AT LEAST THREE BUSINESS DAYS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNLATERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR MUST RESOLVE ALL CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD-LOCATED UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR MUST MAINTAIN ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION OF THE AS-BUILT PLAN.
- COORDINATE AND MAKE ALL CONNECTION ARRANGEMENTS WITH UTILITY COMPANIES, AS REQUIRED.
- THE CONTRACTOR MUST MAINTAIN ALL EXISTING UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE ENTIRE DURATION OF THE PROJECT. REPAIR ANY UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS RELATED TO THE REPAIR OF UTILITIES. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES MUST BE DONE BY HAND.
- COORDINATE ALL TRENCH WORK WITH ROADWAYS WITH THE PROPER LOCAL AND STATE AGENCY. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRENCH SAFETY INCLUDING ANY LOCAL AND/OR STATE PERMITS REQUIRED FOR THE TRENCH WORK. IF THE WORK IS REQUIRED TO OCCUR OUTSIDE THE AGREED WORK HOURS OF OPERATION FOR THE FACILITY, THE CONTRACTOR MUST PLAN ACCORDINGLY.
- SAFECUT ALL TRENCH WORK WITH EXISTING PAVEMENT AS INDICATED ON THE DRAWINGS. BACKFILL AND COMPACT TRENCH WORK AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF SETTLEMENT OCCURS DUE TO INADEQUATE COMPACTOR, AS DETERMINED BY THE ENGINEER, WITHIN THE WARRANTY PERIOD, THE CONTRACTOR IS REQUIRED TO REMOVE, PATCH AND REPAIR AFFECTED AREAS WITHIN 15 MONTHS OF THE DATE OF COMPLETION OF THE PROJECT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH AND MAINTAIN ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. COORDINATE WITH THE ENGINEER THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS.
- IF A PROPOSED TRENCH OR EXCAVATION IS REQUIRED TO CROSS AN EXISTING UTILITY LINE, THE CONTRACTOR SHALL COORDINATE WITH THE SURVEYOR FOR ALL SITE SURVEY WORK.
- MAINTAIN ALL GRADE STAKES SET BY THE SURVEYOR. GRADE STAKES ARE TO REMAIN UNTIL A FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED. RE-STAKING OF PREVIOUSLY SURVEYED SITE FEATURES IS THE RESPONSIBILITY OF THE CONTRACTOR (INCLUDING COST) OF THE CONTRACTOR.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS, ALL SITE CONSTRUCTION MATERIALS AND METHODOLOGIES ARE TO CONFORM TO THE MOST RECENT EDITION OF THE RIDGE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- PROVIDE ALL CONSTRUCTION SERVICE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAMINANT, AND TRENCH WORK.
- COLLECT SOLID WASTES AND STORE IN A SECURED DUMPSTER. THE DUMPSTER MUST MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS.
- RESTORE ALL SURFACES EQUAL TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE PER SPECIFICATIONS. LEAVE ALL AREAS NOT DISTURBED BY CONSTRUCTION IN THEIR NATURAL STATE. TAKE CARE TO PREVENT DAMAGE TO SHRUBS, TREES, OTHER LANDSCAPE AND NATURAL FEATURES. WHEREAS THE PLANS DO NOT SHOW ALL LANDSCAPE FEATURES, EXISTING CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK.
- PROVIDE A UNIT PRICE COST IN CUBIC YARD MEASURE FOR LEDGE AND/OR BOLDER REMOVAL. LEDGE AND/OR BOLDERS LESS THAN 1 CUBIC YARD IN SIZE BASED ON THE AVERAGE DIMENSIONS WILL NOT BE CONSIDERED PAYABLE ROCK. PROVIDE UNIT PRICES FOR BOTH ON AND OFF SITE DISPOSAL. IF ADDITIONAL FILL MATERIAL IS REQUIRED INCLUDE THE COST OF ALL FILL MATERIAL.
- REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. PROMPTLY REMOVE ALL DEMOLITION DEBRIS FROM THE SITE TO AN APPROVED DUMP SITE.
- ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
- DO NOT WASH ANY CONCRETE TRUCKS ON-SITE. REMOVE BY HAND ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA.
- BURIAL OF ANY STUMPS, SOLID DEBRIS, AND/OR STONES/BOLDERS ON-SITE IS PROHIBITED. DO NOT USE ROAD SALT OR OTHER DE-ICING CHEMICALS ON THE ACCESS ROADWAY.
- AT THE END OF CONSTRUCTION, REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE AS INDICATED IN THE SPECIFICATIONS. PERFORM A THOROUGH INSPECTION OF THE WORK PERFORMED. COLLECT AND REMOVE ALL MATERIALS AND BLOWN OR WATER CARRIED DEBRIS FROM THE SITE.

**GENERAL DEMOLITION NOTES:**

- THIS PLAN SET DOES NOT INCLUDE DETAILS & SPECIFICATIONS FOR ALL DEMOLITION WORK REQUIRED WITHIN THE PROPOSED CONSTRUCTION LIMITS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNER, PROJECT ARCHITECT, MECHANICAL ENGINEERS AND OTHER PROJECT ENGINEERS INVOLVED WITH THE PROPOSED NEW CONSTRUCTION TO DEVELOP A SUITABLE DEMOLITION PLAN, WHICH WILL ALLOW THE FACILITIES TO REMAIN IN OPERATION DURING THE ENTIRETY OF CONSTRUCTION.
- UNLESS OTHERWISE NOTED, THE CONTRACTOR IS RESPONSIBLE FOR THE RELOCATION, DEMOLITION, REMOVAL AND DISPOSAL, BY A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL EXISTING SITE ELEMENTS AND STRUCTURES INCLUDING, BUT NOT LIMITED TO, BUILDINGS, ROADWAYS, PARKING AREAS, PARKING ISLANDS, BITUMINOUS CONCRETE, CEMENT CONCRETE, GRAVEL, CURBS, WALKWAYS, SIDEWALKS, BERMS, FENCES, BOLLARDS, POSTS, PLANTING BEDS, TREES, SHRUBS, UTILITIES, DRAINAGE STRUCTURES AND ALL OTHER STRUCTURES SHOWN AND NOT SHOWN WITHIN CONSTRUCTION LIMITS, AND WHERE NECESSARY TO ALLOW FOR NEW CONSTRUCTION. ALL FACILITIES TO BE REMOVED ARE TO BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER SPECIFICATIONS.
  - REMOVE ALL DEBRIS FROM THE SITE AND DISPOSE OF THE DEBRIS IN A PROPER AND LEGAL MANNER.
  - OBTAIN ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
  - COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. COORDINATE WITH THE UTILITY COMPANIES CONCERNING PORTIONS OF THE WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.
  - REFER TO MECHANICAL AND UTILITY PLANS AND SPECIFICATIONS FOR ALL WORK WHICH REQUIRES UTILITIES TO BE REMOVED, RELOCATE OR ABANDONED AND LEFT IN PLACE.
  - PROVIDE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL UTILITY LINES, AS REQUIRED, BEFORE PROCEEDING WITH THE WORK.
  - MAINTAIN CONTINUOUS ACCESS AND OPERATION FOR SURROUNDING FACILITIES, AS DEEMED BY THE OWNER, AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
  - PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.

**BASIC CONSTRUCTION SEQUENCE:**

THE FOLLOWING CONSTRUCTION SEQUENCE IS TO BE USED AS A GENERAL GUIDELINE. COORDINATE WITH THE OWNER, ENGINEER, AND LANDSCAPE ARCHITECT AND SUBMIT A PROPOSED CONSTRUCTION SEQUENCE FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

- SURVEY AND STAKE THE PROPOSED LIMIT OF DISTURBANCE AND LIMIT OF SEDIMENTATION BARRIERS.
- PLACE SEDIMENTATION BARRIERS AS INDICATED ON DRAWINGS AND STAKED OUT IN THE FIELD UNDER NO CIRCUMSTANCES IS THE LIMIT OF WORK TO EXTEND BEYOND THE SEDIMENTATION BARRIERS/LIMIT OF DISTURBANCE AS INDICATED ON DRAWINGS AS APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCES AT LOCATIONS INDICATED ON DRAWINGS. NO OTHER ENTRANCES ARE TO BE USED TO GAIN ACCESS TO THE SITE BY ANY CONSTRUCTION OR DELIVERY VEHICLES.
- BEGIN CLEARING THE SITE AS REQUIRED.
- SURVEY AND STAKE CENTERLINE OF THE PROPOSED SITE FEATURES.
- EXCAVATE AND ROUGH GRADE THE PROPOSED STORMWATER MANAGEMENT AREAS AND ANY ADDITIONAL TEMPORARY BASINS NECESSARY TO CONTROL SITE RUNOFF AND SEDIMENTS. TEMPORARILY STABILIZED PERMANENT STORMWATER MANAGEMENT AREAS AS NECESSARY TO REDUCE SOIL EROSION AND SEDIMENT ACCUMULATION.
- BEGIN CLEARING THE STORMWATER MANAGEMENT AREAS. TOPSOIL STOCKPILES MUST BE PROTECTED BY A SEDIMENT BARRIER.
- INSTALL TEMPORARY CONVEYANCE DEVICES (SWALES, CHECK DAMS, BIRPS, ETC.) AS NECESSARY TO CONVEY RUNOFF TO TREATMENT AREAS.
- BEGIN ROUGH GRADING AREAS FOR THE PROPOSED BUILDING, BRING ROUGH GRADING TO PROPER ELEVATIONS AS SOON AS PRACTICABLE. COORDINATE WITH THE OWNER AND ENGINEER.
- BEGIN UTILITY CONSTRUCTION. THE CONTRACTOR IS FREE TO INSTALL THE UTILITIES IN THE SEQUENCE HE/SHE CHOOSES. MAINTAIN, REPAIR, REPLACE AND STABILIZE ANY EROSION CONTROL DEVICES DISTURBED DURING THE UNDERGROUND UTILITY CONSTRUCTION. MODIFY TEMPORARY CONVEYANCE DEVICES, AS NECESSARY, TO CONVEY RUNOFF TO TREATMENT AREAS.
- INSTALL DRAINAGE PIPES, DRAINAGE MANHOLES, CATCH BASINS, AND UNDERGROUND DRAINAGE STRUCTURES. BEGIN WORK AT THE STORMWATER MANAGEMENT AREAS AND PROGRESS UP-GRADE. PROTECT DISCHARGE OUTLETS WITH RIP-RAP APRONS. THE STORMWATER MANAGEMENT AREAS AND DRAINAGE NETWORK ARE TO BE PROTECTED FROM SEDIMENTATION UNTIL ALL UNSTABILIZED AREAS ARE STABILIZED WITH STONE SURFACE OR VEGETATION. INSTALL SEDIMENT BARRIERS AT ALL PORTS OF ENTRY INTO THE DRAINAGE NETWORK. TAKE PARTICULAR CARE TO PROTECT THE UNDERGROUND STRUCTURES FROM SEDIMENT.
- PERMANENTLY SEED ALL DISTURBED AREAS OUTSIDE OF THE AREA TO BE PAVED.
- UPON COMPLETION OF UNDERGROUND UTILITIES INSTALLATION, PLACE COMPACTED GRAVEL FOUNDATION AND ROUGH GRADE THE DISTURBED ROADWAYS/PARKING AREAS IN ACCORDANCE WITH THE PLANS AND IN ACCORDANCE WITH APPLICABLE STATE REGULATIONS AS SOON AS POSSIBLE.
- FINISH PERMANENT STABILIZATION. COMPLETE PERMANENT STORMWATER MANAGEMENT AREA SEEDING AND PLANTING AFTER THE CONTRIBUTING AREA TO THE BASIN HAS REACHED A MINIMUM OF 80% STABILIZATION AND IS NO LONGER REQUIRED AS A CONSTRUCTION SEDIMENTATION BASIN.
- COMPLETE ALL REMAINING PLANTING AND SEEDING.
- REPAIR DRAINAGE OUTLETS AND BASINS AS REQUIRED. CLEAN AND FLUSH THE DRAINAGE STRUCTURES AND PIPES AT THE END OF CONSTRUCTION AND REMOVE ALL ACCUMULATED SEDIMENTS FROM THE STORMWATER MANAGEMENT AREAS. THE CONTRACTOR MUST INSPECT THE DRAINAGE NETWORK AND REPAIR ANY DAMAGE IMMEDIATELY.
- ENGINEER TO APPROVE THE REMOVAL OF ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES FOLLOWING VEGETATIVE ESTABLISHMENT OF ALL DISTURBED AREAS AND DETERMINE WHEN THE CONTRIBUTING AREA HAS REACHED A MINIMUM OF 80% STABILIZATION.

**GENERAL GRADING AND DRAINAGE NOTES:**

- ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
- EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
- PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
- ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
- PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS. IMMEDIATELY NOTIFY THE ENGINEER IF POSITIVE DRAINAGE CANNOT BE PROVIDED.
- UNLESS OTHERWISE NOTED OTHERWISE ON THE DRAWINGS OR IN DETAIL, A MINIMUM CONCRETE FOUNDATION REVEAL OF 8" TO BE PROVIDED AT ALL BUILDING CORNERS. NOTIFY THE ENGINEER AND ARCHITECT IF ANY DEVIATION OR ALTERATION OF FOUNDATION REVEAL IS REQUIRED.
- REFER TO ARCHITECTURAL PLAN AND SPECIFICATIONS FOR EARTHWORK AND COMPACTOR REQUIREMENTS FOR ALL SLABS AND BUILDING FOUNDATIONS.
- PROPOSED ELEVATIONS ARE SHOWN TO FINISH PAVEMENT OR GRADE UNLESS NOTED OTHERWISE.
- ALL EARTHWORK AND SITE PREPARATION MUST BE DONE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF ANY SUBSURFACE INVESTIGATION OR GEOTECHNICAL REPORTS PREPARED FOR THIS SITE.

**DEWATERING:**

- PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.
- IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER EROSION MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TRENCH STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS.

**STORMWATER FACILITY OPERATION & MAINTENANCE:**

THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER INSPECTION AND MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES AS OUTLINED BELOW DURING CONSTRUCTION AND UNTIL SUCH TIME THAT THE ROADWAYS AND ASSOCIATED UTILITIES ARE ACCEPTED BY THE OWNER AND THE ENGINEER.

- INSPECT AND RESTORE/REPLACE ALL FACILITIES (INLETS, MANHOLES, INFILTRATION BASINS, STORMWATER MANAGEMENT AREAS AS DESCRIBED BELOW) OF SEDIMENT AND DEBRIS PRIOR TO THE OWNER'S ACCEPTANCE.
- REMOVE AND DISPOSE ALL SEDIMENT AND DEBRIS TO A PRE-APPROVED LOCATION.
- AT A MINIMUM INSPECT MONTHLY AND AFTER STORM EVENTS GREATER THAN OR EQUAL TO 1" OF RAINFALL AS NECESSARY FOR THE ENTIRE DURATION OF THE CONSTRUCTION PERIOD AND THE FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE PROPER STABILIZATION.
- SPECIFIC MAINTENANCE REQUIRED DURING CONSTRUCTION:
  - DRAINAGE COLLECTIONS (INLETS, MANHOLES, CATCHBASINS, DIVERSION STRUCTURE, WATER QUALITY UNITS) MONITOR AND REGULARLY INSPECT ALL EXISTING AND PROPOSED DRAINAGE STRUCTURES FOR PROPER OPERATION. COLLECTION OF LITTER OR TRASH, AND STRUCTURAL DETERIORATION. CLEAN AND REMOVE SEDIMENT FROM THE STRUCTURES (INCLUDING SUMP) AS NECESSARY, AND REPAIR WHEN REQUIRED.
  - RIP-RAP SLOPE PROTECTION MONITOR, REGULARLY INSPECT AND REPAIR AS NECESSARY.
  - BIORETENTION SYSTEMS AND BARRICADES REGULARLY INSPECT TO ENSURE PROPER FUNCTION. MONITOR AND INSPECT STRUCTURAL COMPONENTS, INCLUDING WEIR WALLS, DRAINAGE INLETS, OUTLET STRUCTURES AND SPILLWAYS FOR PROPER FUNCTION. CLEAN AND REPAIR ANY CLOSED STRUCTURES DURING INSPECTIONS. PRIOR TO THE COMPLETION OF CONSTRUCTION, REMOVE AND REPLACE ALL ESTABLISHED, DEAD OR SEVERELY DISEASED PLANTS. REMOVE SEDIMENT BUILDUP AS NECESSARY, AND REPLACE SOIL WHEN NECESSARY. IF SEDIMENT OR ORGANIC DEBRIS BUILDUP LIMITS THE INFILTRATION CAPABILITIES, REMOVE THE TOP 8" OR GREATER AND SURFACE ROTI-LLED TO A DEPTH OF 12".
  - GRASS SWALES PERFORM A GENERAL INSPECTION OF THE SWALE AFTER STORM EVENTS GREATER THAN OR EQUAL TO 1" OF RAINFALL OR MORE FREQUENTLY AS NEEDED. MAINTENANCE CONSISTS OF REMOVAL OF ANY TRASH AND/OR DEBRIS FROM THE BOTTOM OF THE SWALE, REMOVAL OF SEDIMENT BUILDUP WITHIN THE SWALE, CORRECTING ANY EROSION GULLYING, AND RE-SEEDING, AS NECESSARY.
  - ROUTINE MAINTENANCE OTHER ROUTINE MAINTENANCE INCLUDES THE REMOVAL OF TRASH AND LITTER FROM PAVED AND PERMEABLE AREAS, AND STREET AND PARKING LOT SWEEPING UPON COMPLETION OF CONSTRUCTION TO AVOID EXCESSIVE ACCUMULATION OF SEDIMENT IN THE DRAINAGE SYSTEM. INSPECT THE PIPES AND STRUCTURES FOR SEDIMENT ACCUMULATION AND PROPER FLOW.

**WATER & SEWER INSTALLATION NOTES:**

INSTALL SEWER AND WATER MAINS ACCORDING TO THE FOLLOWING GUIDELINES TO PREVENT FREEZING OF THE MAIN OR SEWER.

UTILITY TYPE	MIN COVER TOP OF PIPE	MIN HORIZONTAL DISTANCE TO OASIS STRUCTURE
SANITARY FOREMAN	5'	3'
GRAVITY SEWER	4'	2'
WATER MAIN	5'	2'

- INSULATE SANITARY FORCE MAINS, WATER MAINS, HYDRANT PIPES AND DEAD END WATER LINES WHERE SOIL COVER OR HORIZONTAL SEPARATION TO PRECAST STRUCTURES IS LESS THAN THE DISTANCE SPECIFIED ABOVE. AND/OR WHERE SHOWN ON THE DRAWINGS.
- INSTALL 2" THICK POLYURETHANE INSULATION WITH PVC JACKED PLACED AROUND PIPE OR DESIGNER APPROVED EQUAL.
- WATER AND SEWER SEPARATION IS TYPICALLY 10 FEET MINIMUM HORIZONTAL AND 18 INCHES VERTICAL WITH SEWER MAINS BELOW THE WATER MAINS (SEE DETAIL). IF SITE CONDITIONS REQUIRE LESS, THEN INSTALL UTILITIES AS INDICATED ON DETAILS. ALL WATER AND SEWER CROSSINGS MUST COMPLY WITH DEWS SEWER/WATER LINE SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS AND SEWER UNDERLAYER SUPPLY WELL SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS.

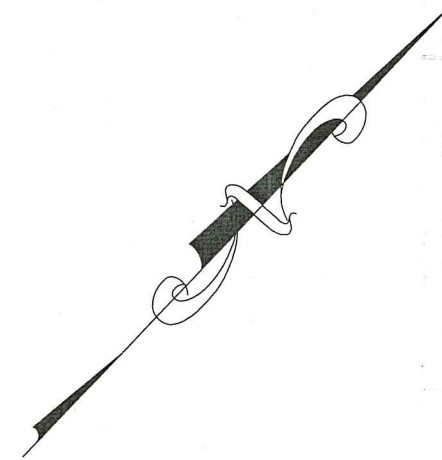
**EROSION & SEDIMENT CONTROL NOTES:**

- DESIGNATE THE SITE CONSTRUCTION FOREMAN AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.
- INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE OWNER AND ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSPECT, MAINTAIN REPAIR AND REPLACE EROSION CONTROL MEASURES AS NECESSARY DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROL AREAS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
- MAINTAIN A MINIMUM SURPLUS OF 100 FEET OF EROSION CONTROL BARRIER (SILT FENCE, STRAWBALE, &/OR SILT SOCK) ON-SITE AT ALL TIMES.
- PROTECT THE ADJACENT RESURFACE AREA FROM SEDIMENTATION DURING PROJECT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER.
- PROVIDE CONSTRUCTION EXITS AS INDICATED ON DRAWINGS TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. CLEAN AND/OR REPLACE THE CRUSHED STONE PAD, AS NECESSARY, TO MAINTAIN ITS EFFECTIVENESS.
- KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL. IF TREES ARE TO BE CUT ON THE ENTIRE SITE, CLEAR AND GRUB ONLY THOSE AREAS WHICH ARE ACTIVELY UNDER CONSTRUCTION. PROPERLY INSTALL THE SEDIMENTATION CONTROLS PRIOR TO BEGINNING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK.
- MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, USE BEST PROFESSIONAL JUDGEMENT AND GOOD CONSTRUCTION PRACTICES WHEN SCHEDULING CONSTRUCTION ACTIVITIES AND ENSURE THE NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY UNSTABILIZED WEATHER EVENTS.
- INSPECT EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZED SLOPES ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF .25 INCH OR GREATER. REPAIR IDENTIFIED PROBLEMS WITHIN 24 HOURS TO ENSURE EROSION AND SEDIMENT CONTROLS ARE IN GOOD WORKING ORDER. RESET OR REPLACE MATERIALS AS REQUIRED.
- SURROUND THE PERIMETER OF SOIL STOCKPILES WITH SILT SOCK, SILT FENCE, STRAWBALES, OR A COMBINATION OF SILT FENCE WITH STRAWBALE, AS DETERMINED NECESSARY.
- DISTURBED AREAS AND SLOPES MUST NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE, BUT NOT MORE THAN LEADS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED. REINFORCE TEMPORARY AREAS HAVING A SLOPE GREATER THAN 4:1 WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SLOPES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER.
- INSTALL A SILT SACK OR APPROVED EQUIVALENT IN EACH EXISTING CATCHBASIN RECEIVING RUNOFF FROM THE SITE. UPON THE INSTALLATION OF EACH CATCH BASIN, INSTALL A SILT SACK OR APPROVED EQUIVALENT. INSPECT SILT SACKS, AFTER EACH SIGNIFICANT STORM EVENT AND REMOVE AND EMPTY AS NEEDED FOR THE DURATION OF THE CONSTRUCTION PERIOD.
- SMALL SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE ENGINEER, TO SIZE AND LOCATE THESE BASINS IN APPROPRIATE LOCATIONS.
- CONTAIN ALL SEDIMENT ON-SITE. SWEEP ALL EXITS FROM THE SITE AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. SWEEP PAVED AREAS AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS ACCUMULATED DURING SITE CONSTRUCTION.
- REMOVE ACCUMULATED SEDIMENT FROM ALL TEMPORARY PRACTICES AND DISPOSE OF IN A PRE-APPROVED LOCATION.
- PROVIDE ON-SITE OR MAKE READILY AVAILABLE THE NECESSARY EQUIPMENT AND SITE PERSONNEL DURING CONSTRUCTION HOURS FOR THE DURATION OF THE PROJECT TO ENSURE ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE PROPERLY MAINTAINED AND REPAIRED IN A TIMELY AND RESPONSIBLE MANNER. IF SITE WORK IS SUSPENDED DURING THE WINTER MONTHS THE CONTRACTOR MUST CONTINUE TO PROVIDE PERSONNEL AND EQUIPMENT EITHER ON-SITE OR READILY AVAILABLE TO PROMPTLY MAINTAIN AND REPAIR ALL EROSION AND SEDIMENTATION CONTROL DEVICES IN A TIMELY AND RESPONSIBLE MANNER.
- PRIOR TO THE INSTALLATION OF FILTER FABRIC AND MEDIA WITHIN THE BIORETENTION AREAS, REMOVE AND PROPERLY DISPOSE OF SEDIMENT ACCUMULATED IN ANY PARTIALLY CONSTRUCTED OR TEMPORARY BIORETENTION/DRAINAGE AREA USED FOR SEDIMENT CONTROL DURING CONSTRUCTION. PROVIDE A SURFACE ELEVATION AT A MINIMUM 1 FOOT ABOVE THE BOTTOM OF MEDIA ELEVATION AS SHOWN IN THE BIORETENTION SCHEDULE FOR PARTIALLY CONSTRUCTED BIORETENTION AREAS. THIS ALLOW FOR AN OVER-DIG OF THE COLLECTED SEDIMENT FROM WITHIN THE BIORETENTION AREA PRIOR TO MEDIA/FABRIC INSTALLATION.
- CONTROL DUST BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE DURING CONSTRUCTION OF ALL STORMWATER FACILITIES INSTALLED OR AFFECTED BY THE PROJECT. REMOVE SEDIMENT OR DEBRIS COLLECTED WITHIN THESE FACILITIES FROM THE PROJECT WORK PRIOR TO THE OWNER'S ACCEPTANCE.

**LEGEND:**

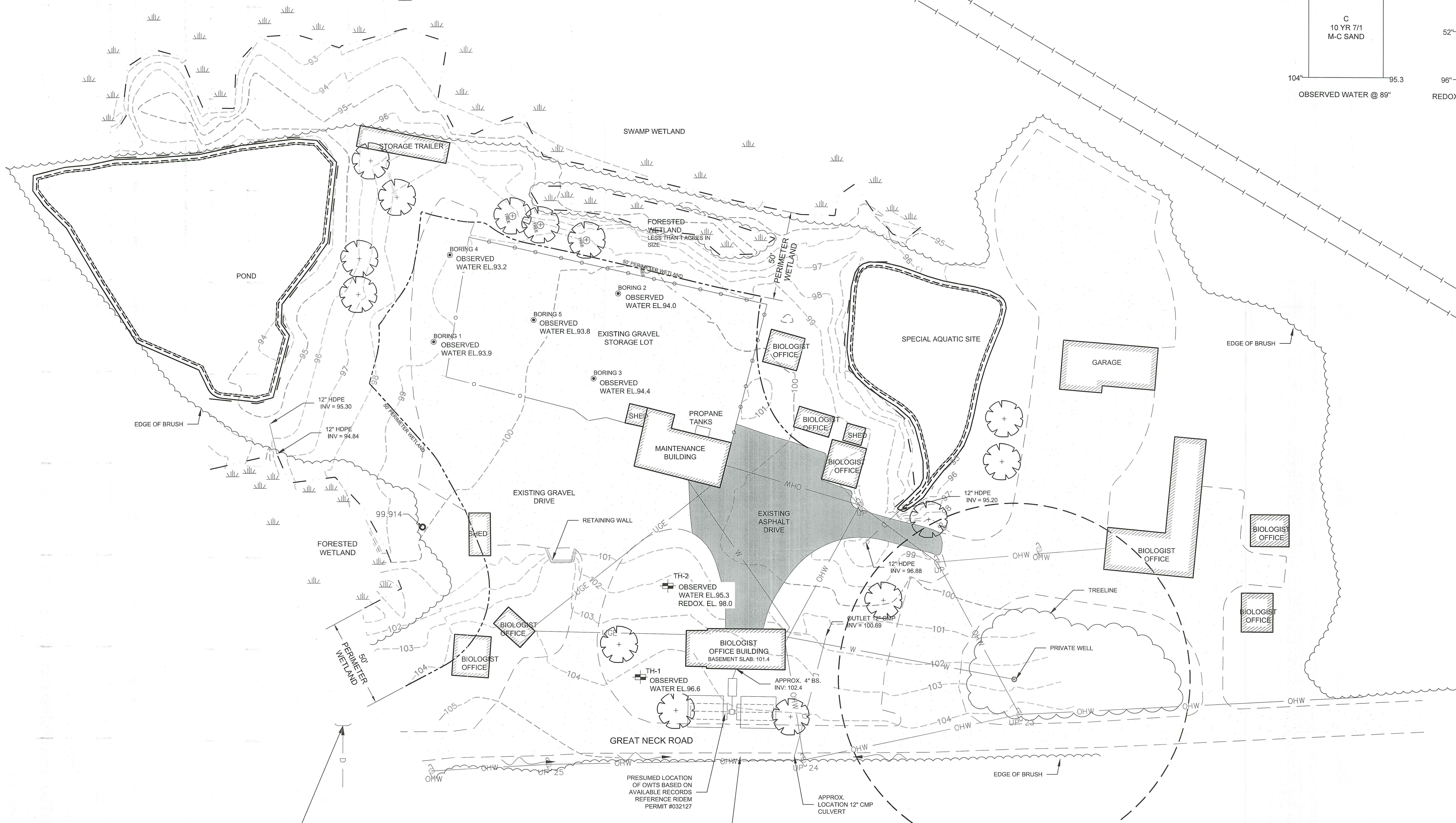
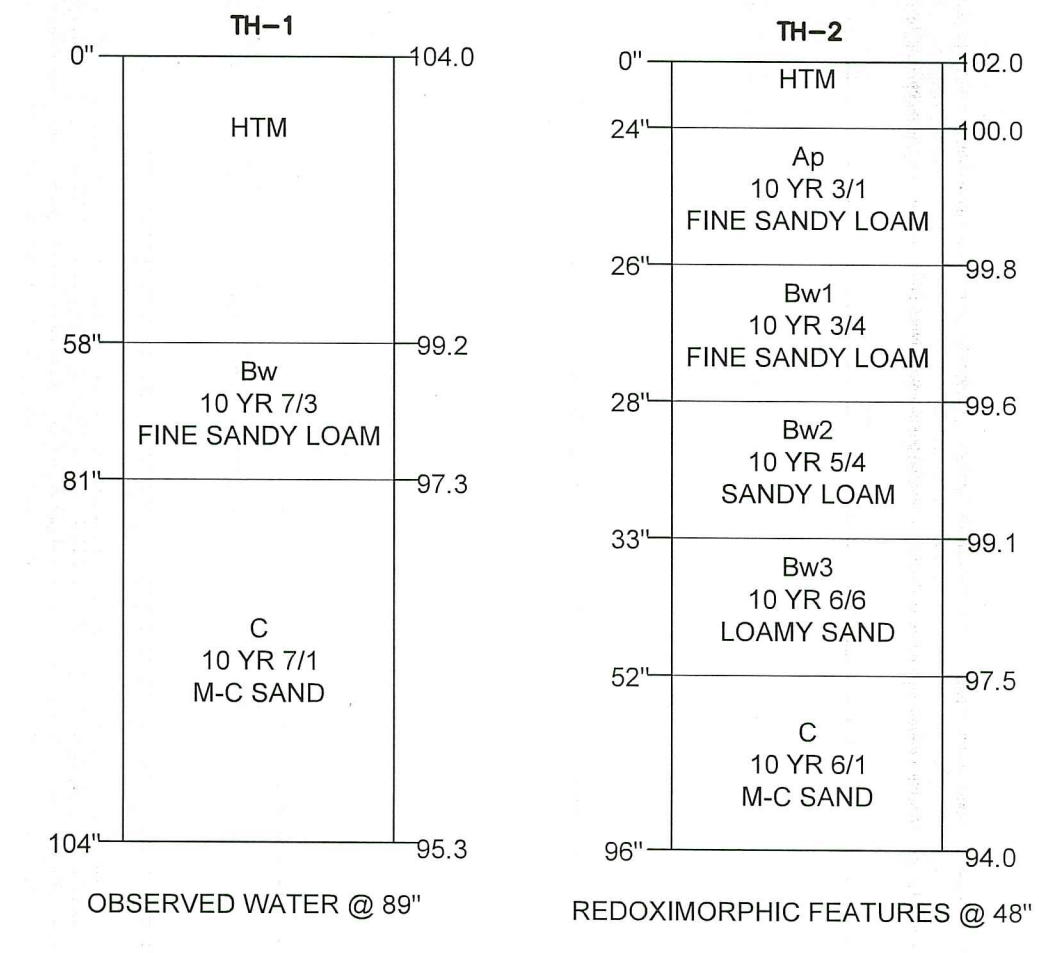
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EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED

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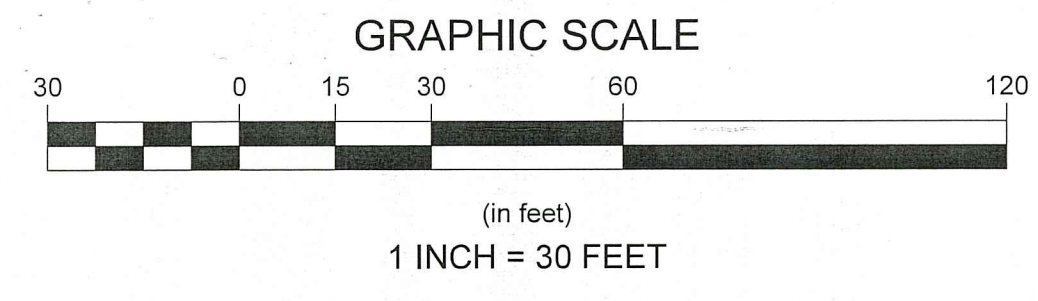


### SOIL TEST PIT DATA

PERFORMED BY: J. HENDERSON HORSLEY WITTEN GROUP, INC  
DATE: JULY 21, 2020.



Environmental Monitoring  
**MAR 3 1 2021**  
 Office of Water Resources



**ARCHITECT:** architects

**STRUCTURAL:** C.A. PRETZER ASSOCIATES INC. STRUCTURAL ENGINEERS  
 C. A. PRETZER ASSOCIATES INC. STRUCTURAL ENGINEERS  
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 Tel: 617-552-3000 Fax: 617-552-3001

**MECHANICAL & ELECTRICAL:** ENGINEERING DESIGN SERVICES INCORPORATED  
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 Tel: 617-552-3000 Fax: 617-552-3001

**CIVIL & SITE ENGINEER:** Horsley Witten Group, Inc.  
 Sustainable Environmental Solutions  
 www.horsleywitten.com  
 50 Route 6A, 02583  
 508-832-6800 voice  
 508-832-3150 fax  
 Date: DECEMBER 2020  
 Checked By: JH  
 Drawn By: JK  
 Designed By: JK

**Plan Set:** GREAT SWAMP MAINTENANCE GARAGE 90% DESIGN DEVELOPMENT WEST KINGSTON, RI  
**Plan Title:** EXISTING CONDITIONS PLAN

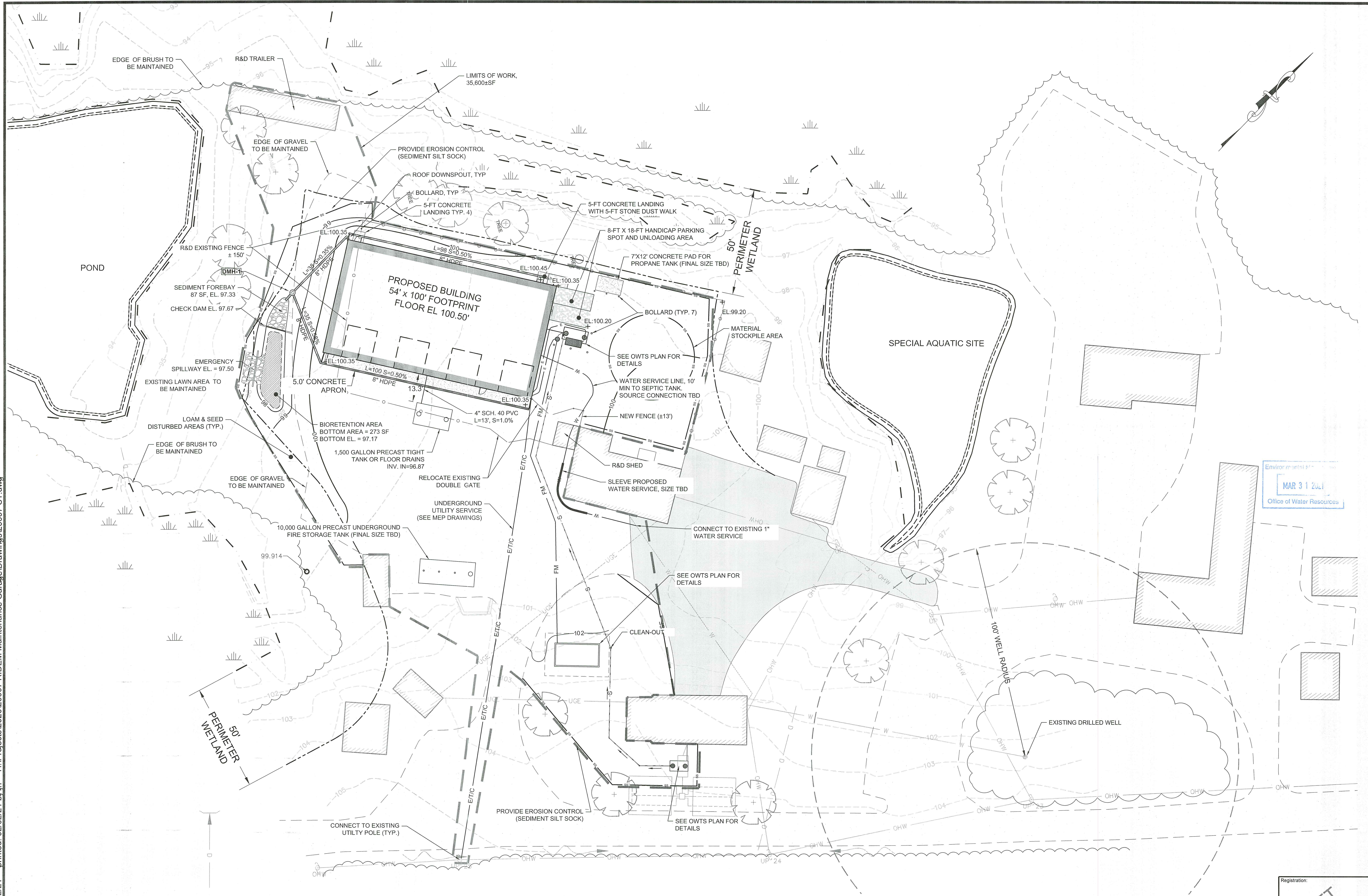
**Prepared For:** Rhode Island Department of Environmental Management  
 235 Promenade Street  
 Providence, RI  
 Phone: (401) 222-2776  
 Fax: ---

Revisions	Project Number:	Sheet:
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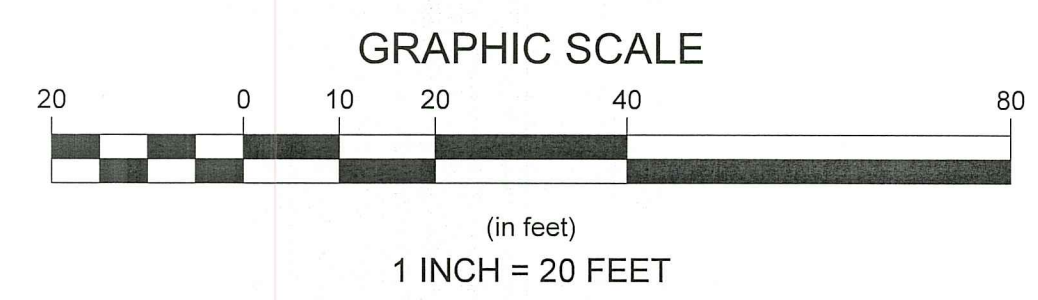
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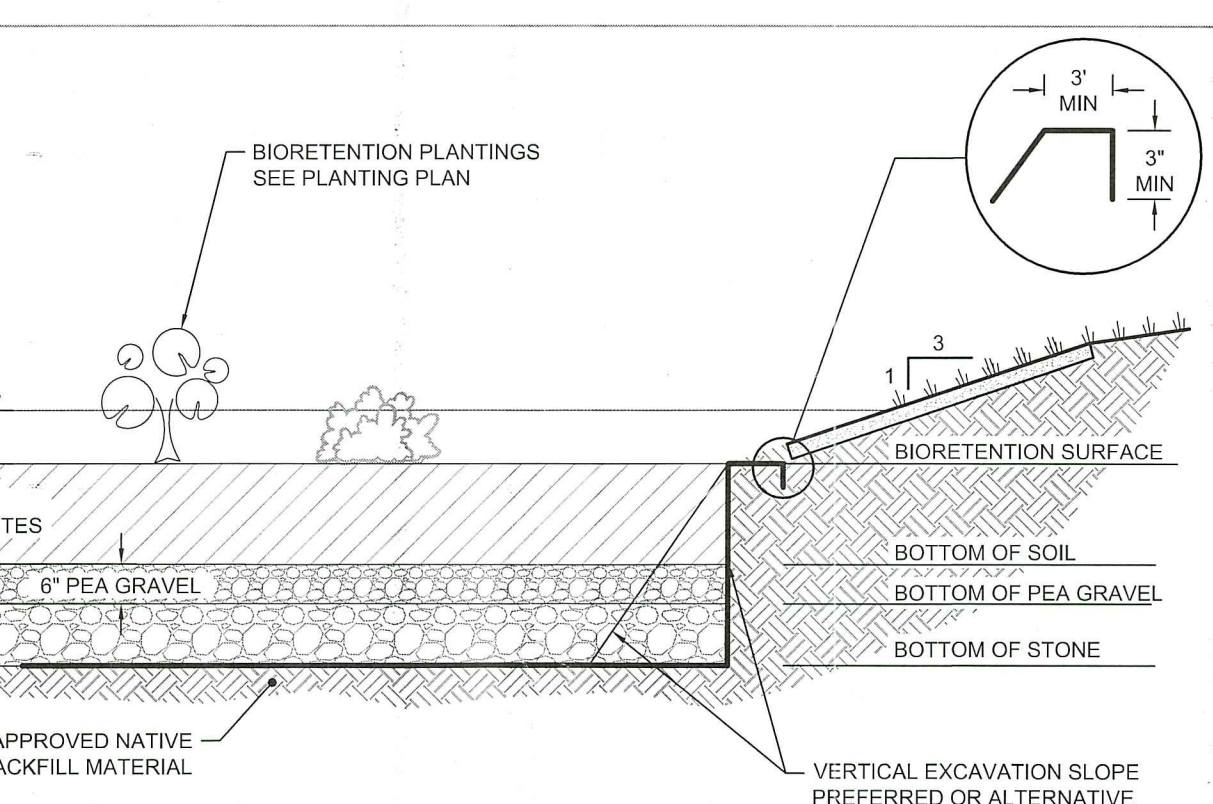
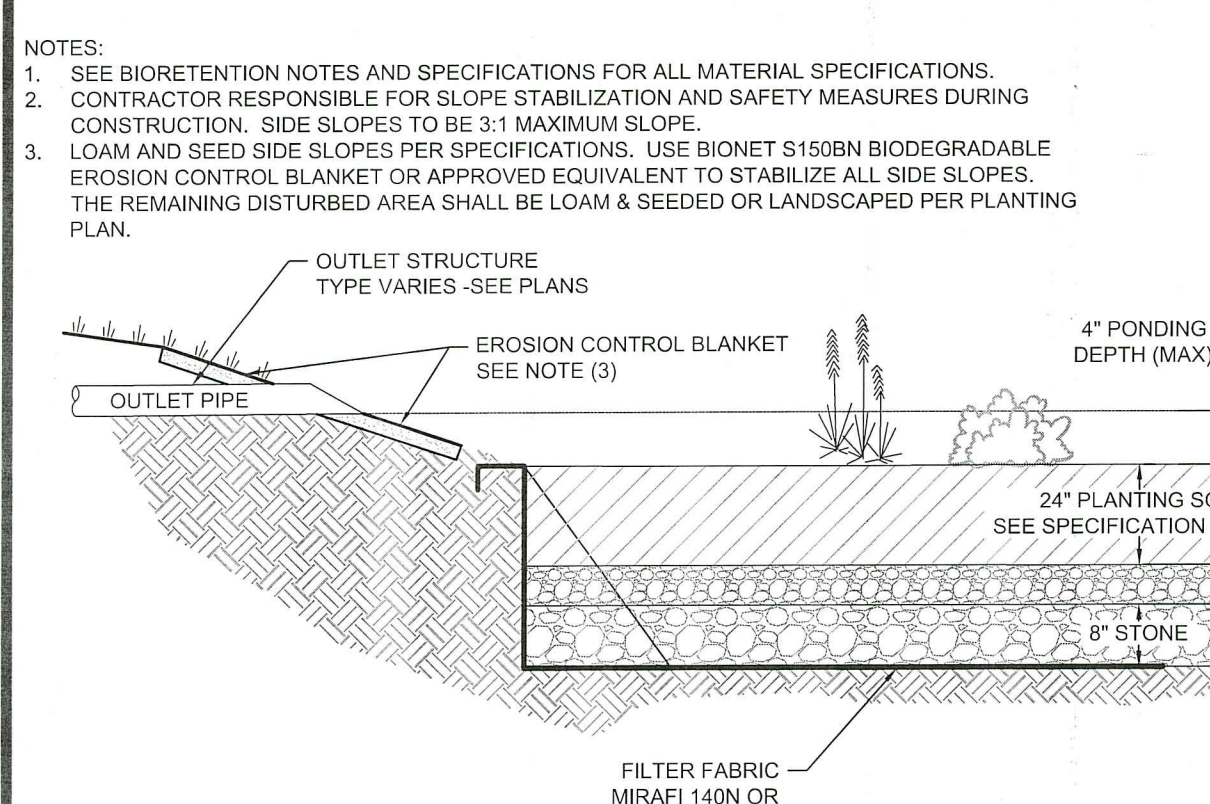
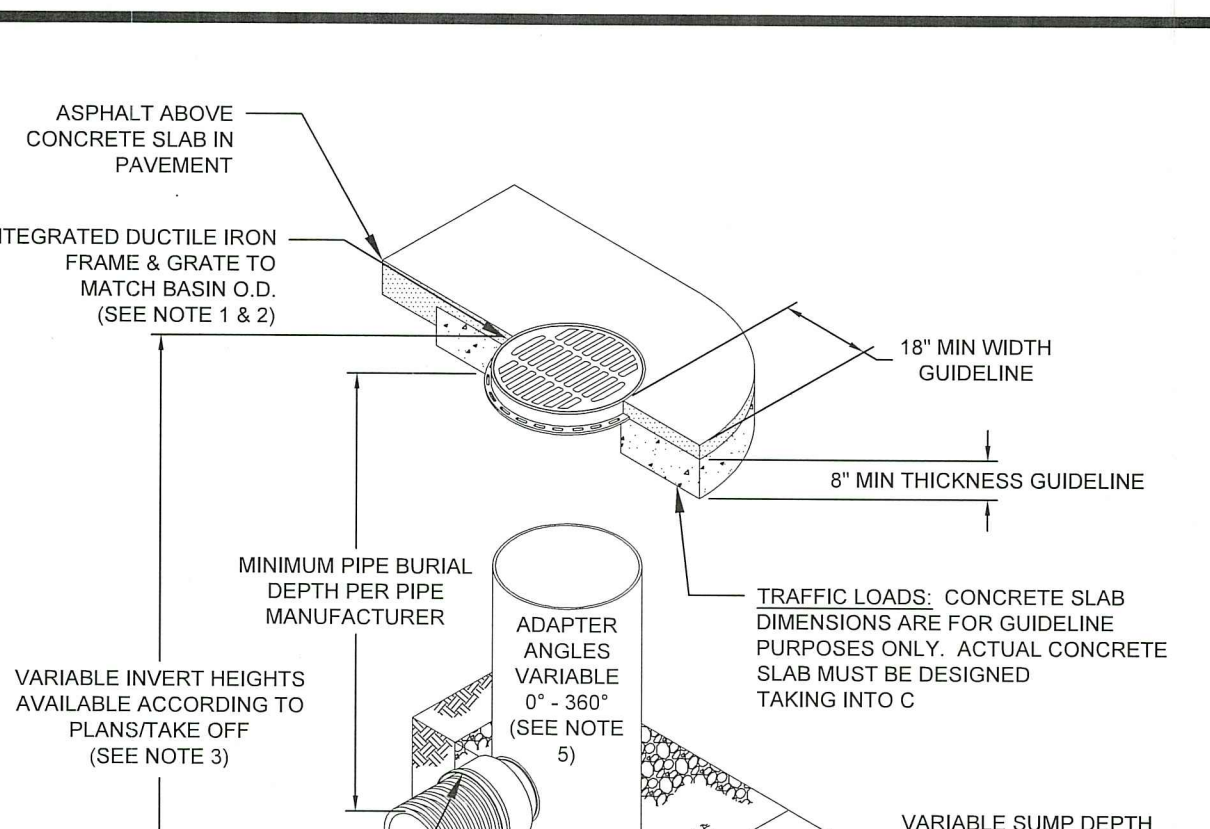
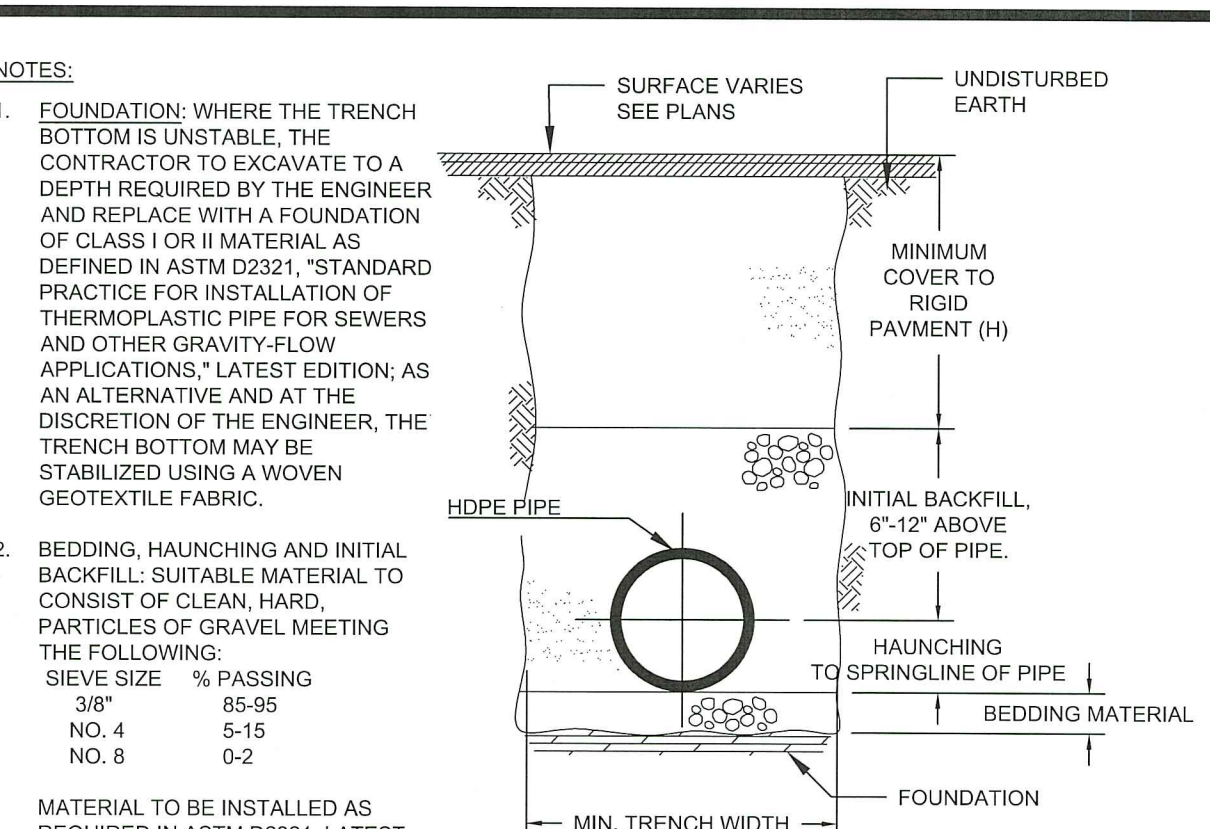
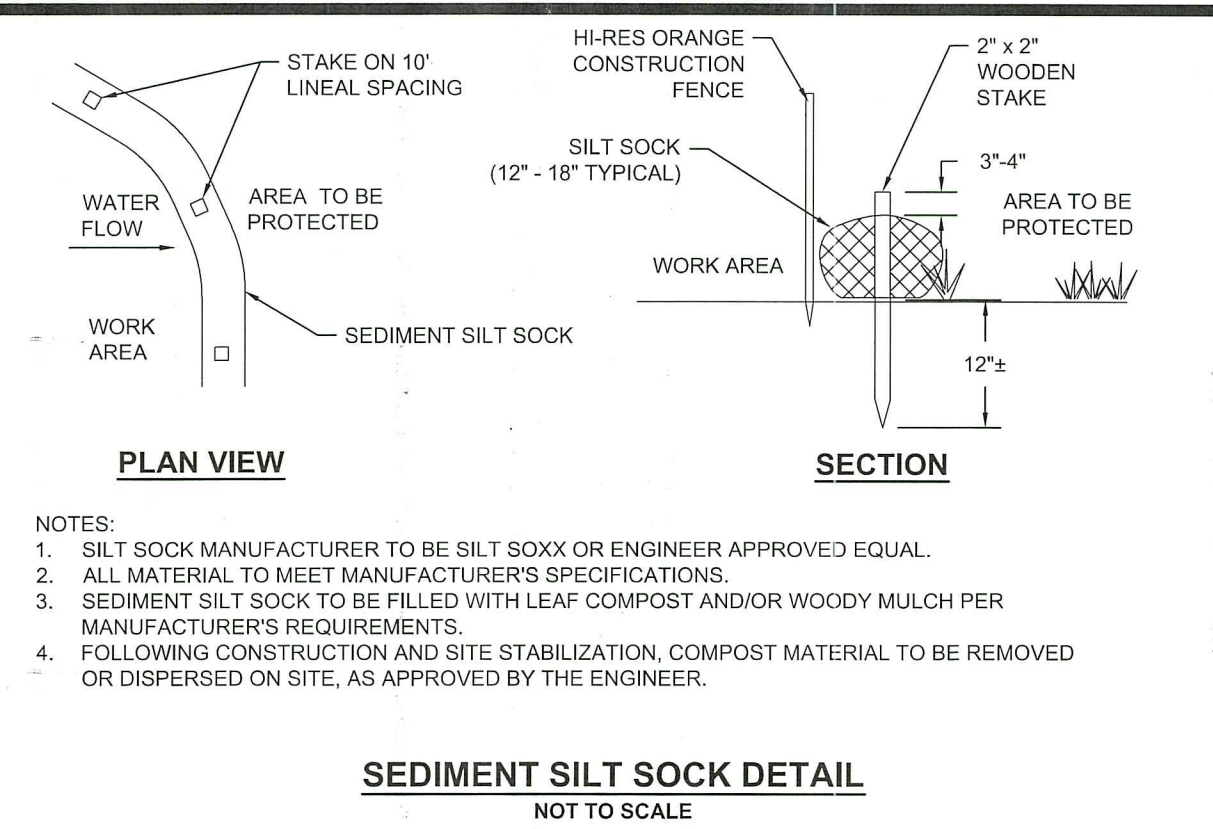
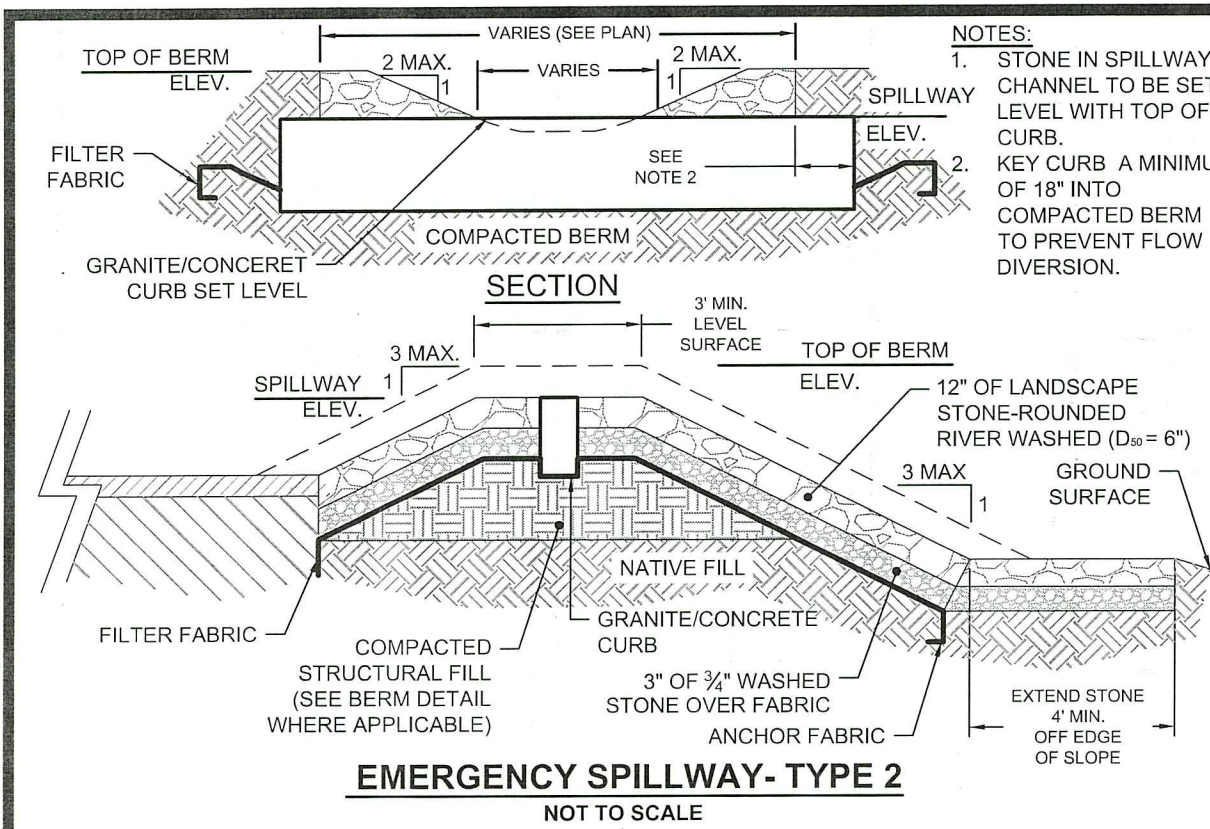
Environmental Solutions  
**MAR 31 2021**  
 Office of Water Resources



Registration:  
**DRAFT**  
 NOT FOR  
 CONSTRUCTION

<b>ARCHITECT:</b>  <b>S&amp;A architects</b> SACCOCCIO & ASSOCIATES, INC. 1008 Park Avenue 3rd 402, 0645, 7970 Canton, MA 01030 CONSULTANT												
<b>STRUCTURAL:</b>  <b>C.A. PRETZER ASSOCIATES, INC.</b> 50 Ferry Lane Shelton, CT 06484 TEL: 203-925-2020 FAX: 203-925-2020 DESIGN-CONSULTING-RESTORATION												
<b>MECHANICAL &amp; ELECTRICAL:</b>  <b>ENGINEERING DESIGN SERVICES INCORPORATED</b> 1000 Main Street Shelton, CT 06484 TEL: 203-925-2020 FAX: 203-925-2020												
<b>CIVIL &amp; SITE ENGINEER:</b> <b>Horsley Witten Group, Inc.</b> Sustainable Environmental Solutions www.horsleywitten.com 90 Route 6A Sandwich, MA 02563 508-833-6800 voice 508-833-3150 fax Date: DECEMBER 2020 Designed By: JK Drawn By: JK Checked By: JH												
<b>Pin Set:</b> <b>GREAT SWAMP MAINTENANCE GARAGE</b> <b>90% DESIGN DEVELOPMENT</b> <b>WEST KINGSTON, RI</b> Pin Title: <b>SITE PLAN</b>												
<b>Prepared For:</b> Rhode Island Department of Environmental Management 235 Promenade Street Providence, RI Phone: (401) 222-2776 Fax: ---												
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Revisions	Rev.	Date	By	Appr.	Description							
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NOTES:

- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR TO EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS II OR III MATERIAL AS DEFINED IN ASTM D2321. STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS, LATEST EDITION, AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
- BEDDING, HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL TO CONSIST OF CLEAN, HARD, PARTICLES OF GRAVEL MEETING THE FOLLOWING:
 

SIEVE SIZE	% PASSING
3/8"	85-95
NO. 4	5-15
NO. 8	0-2

MATERIAL TO BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

MINIMUM BEDDING THICKNESS TO BE 4" (100mm) FOR 4"-24" (100-600mm) AND 42" (1050-1200mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-36" (750-900mm) CPEP.

3. MINIMUM TRENCH WIDTHS TO BE AS FOLLOWS:

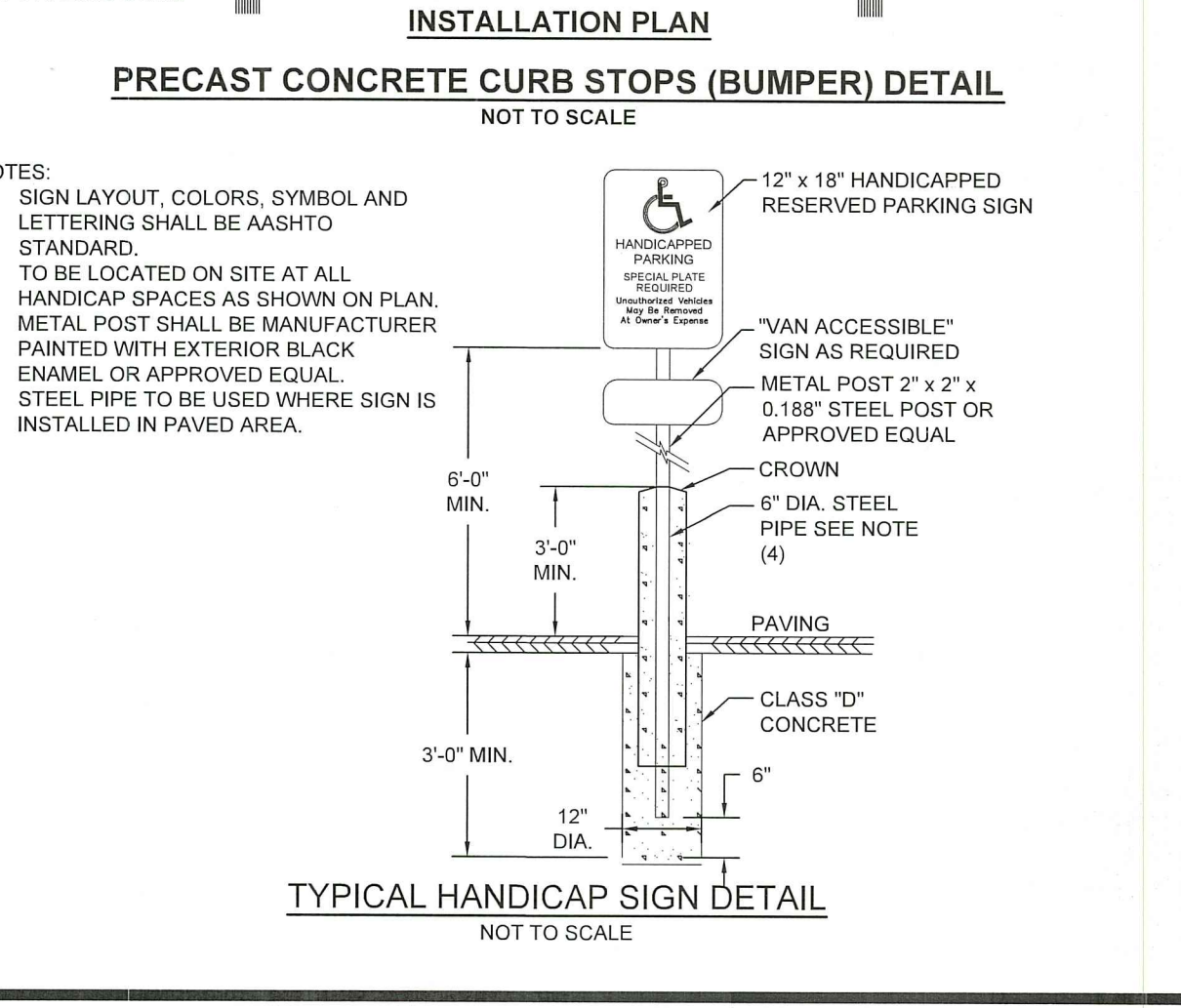
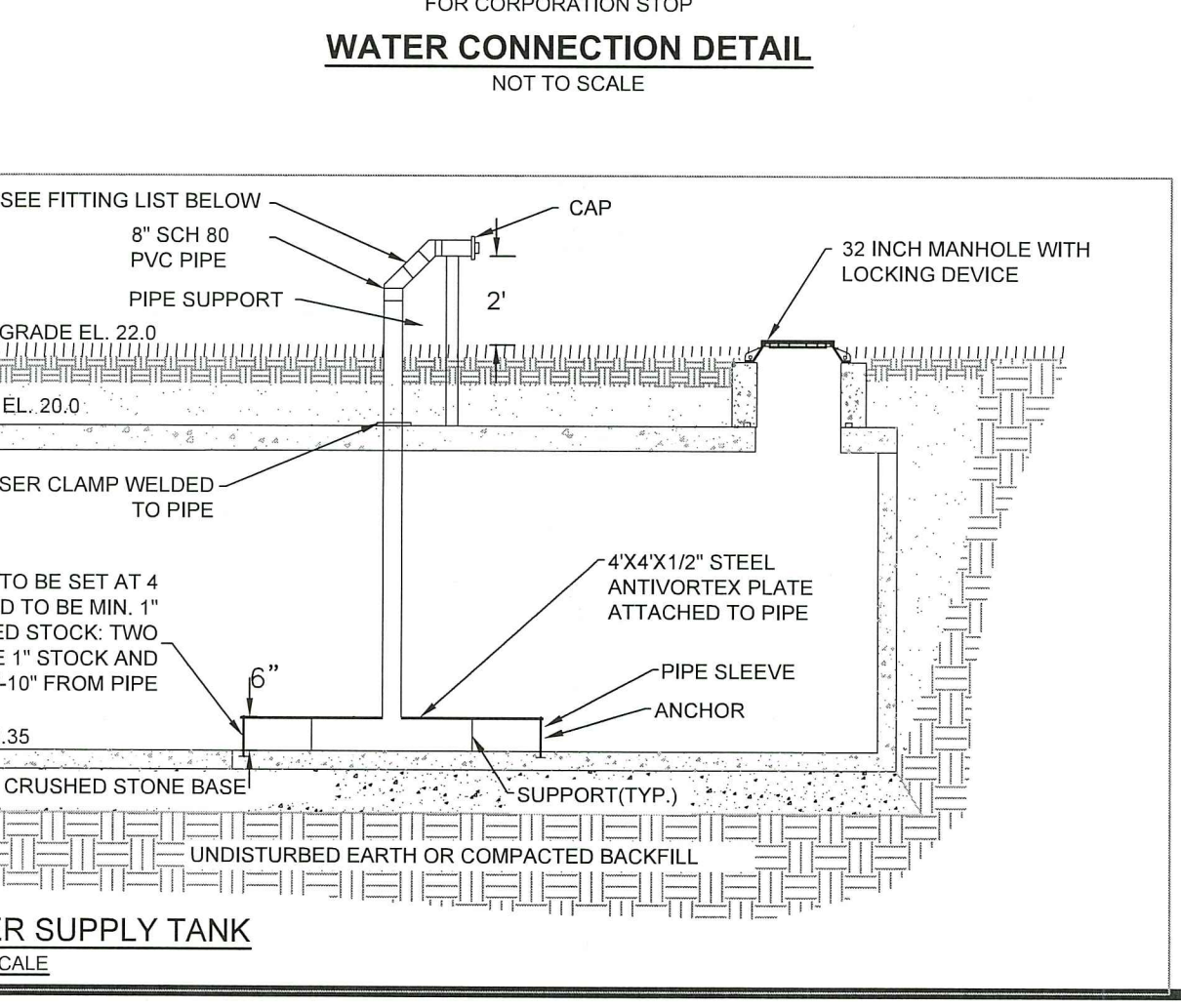
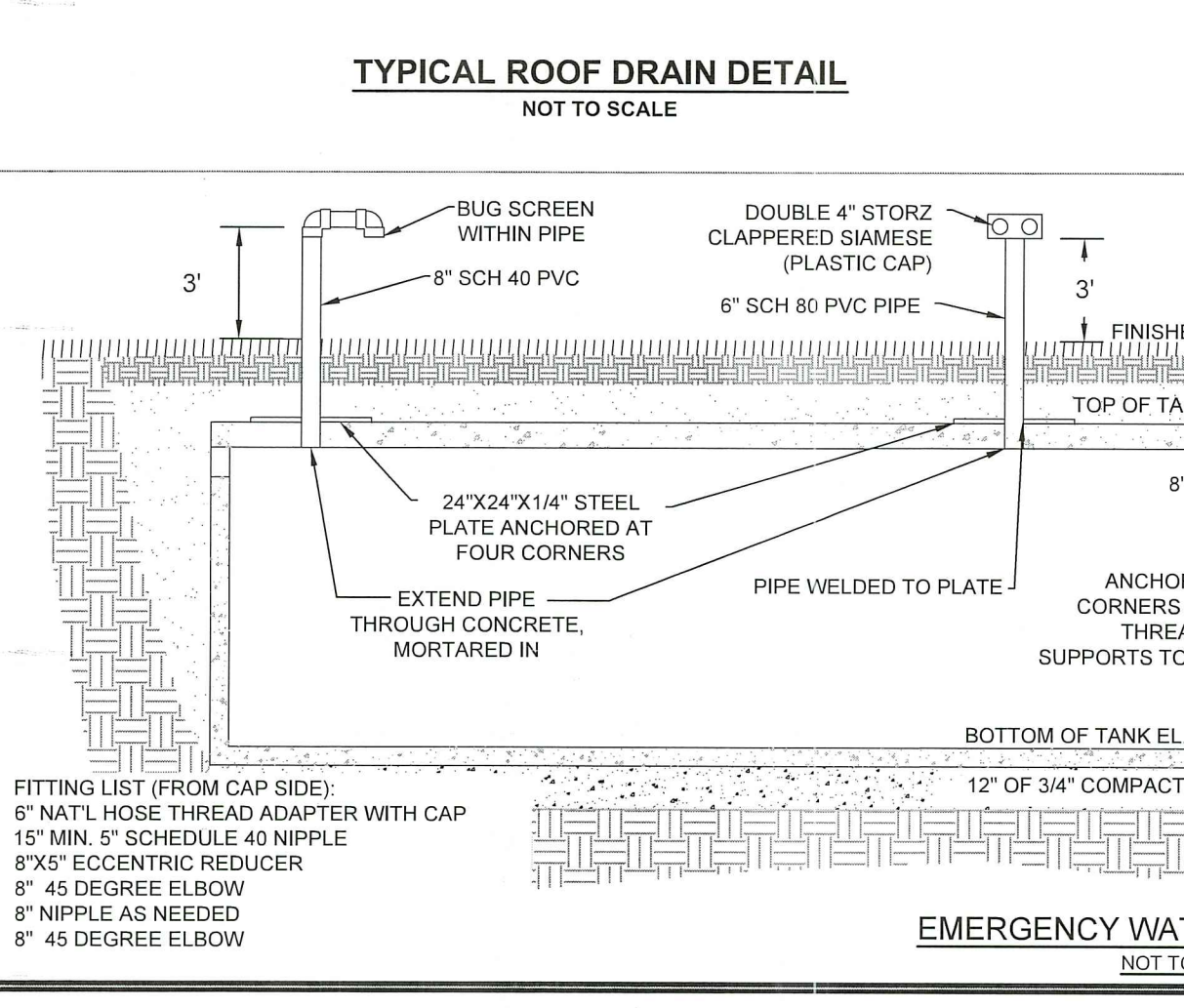
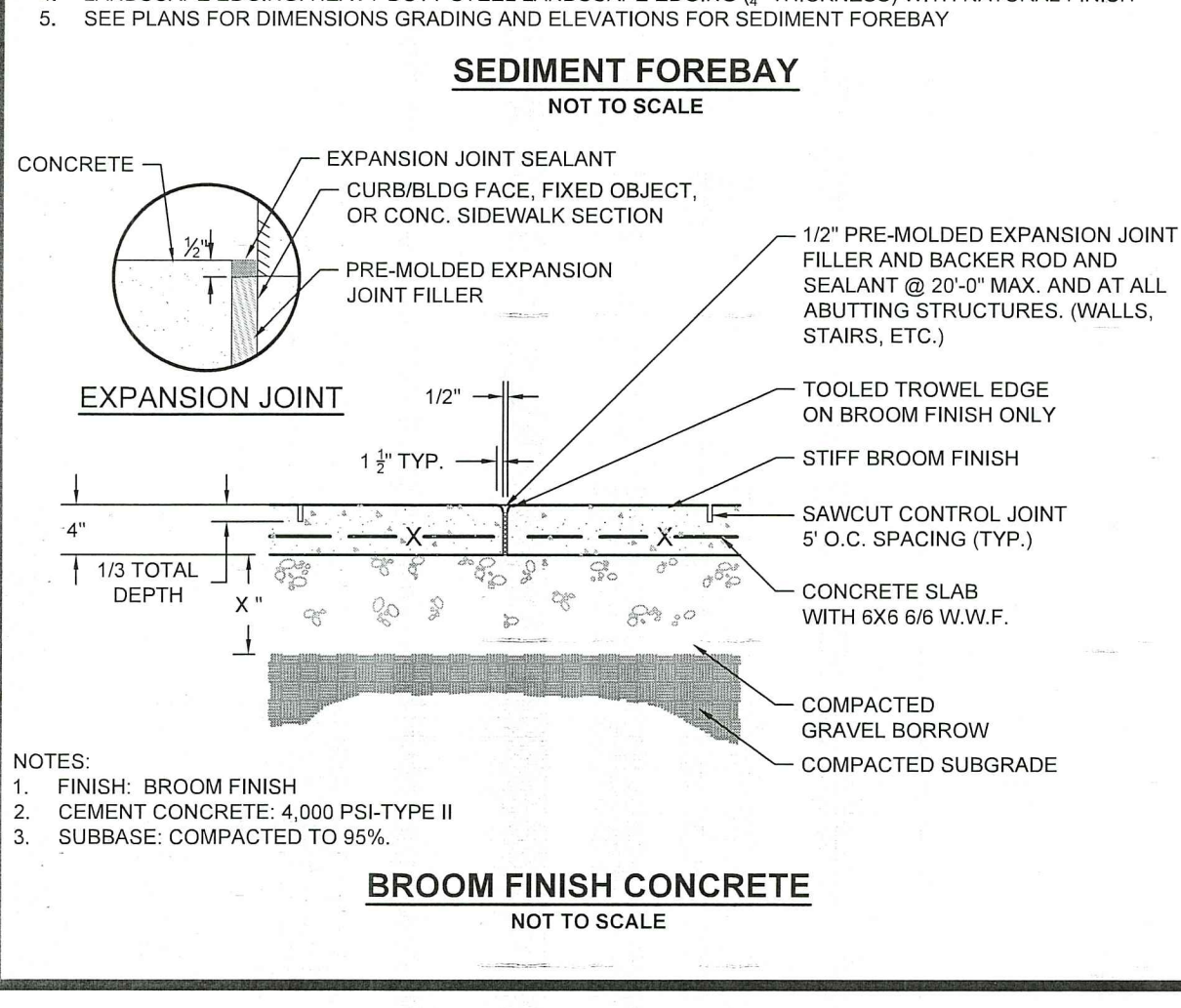
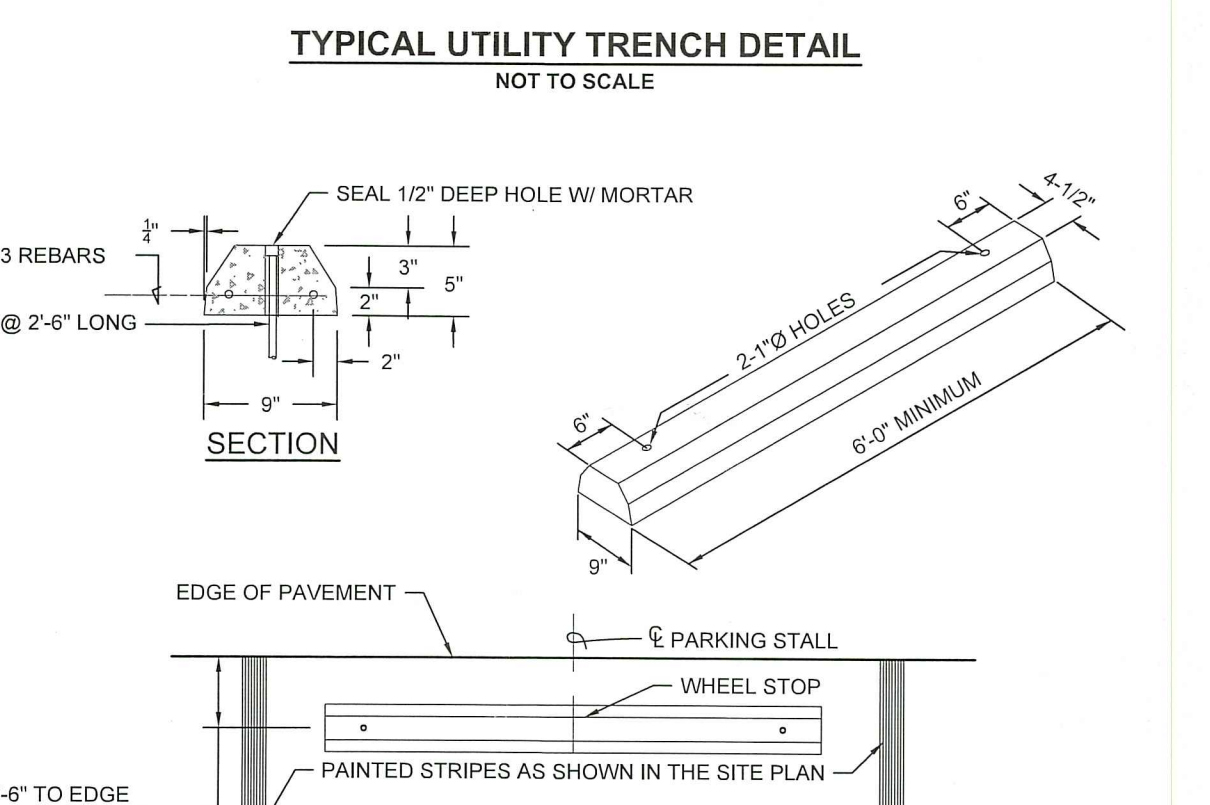
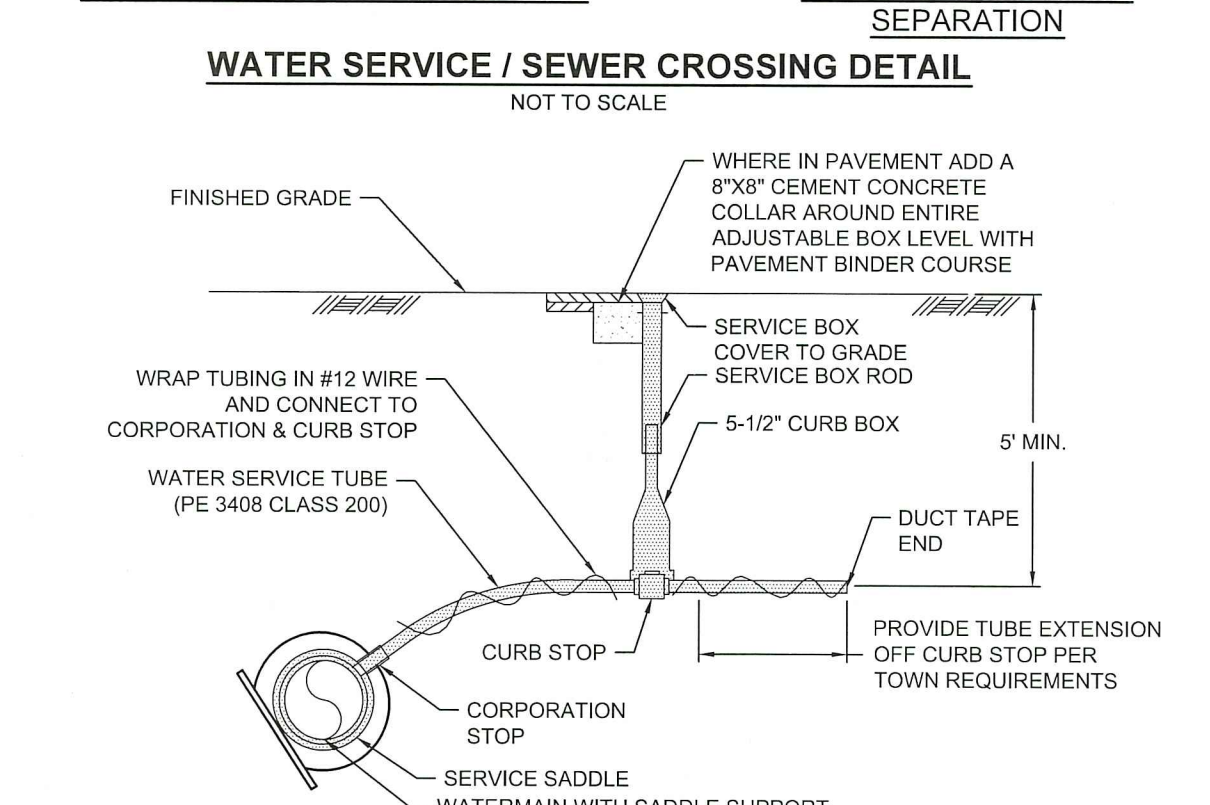
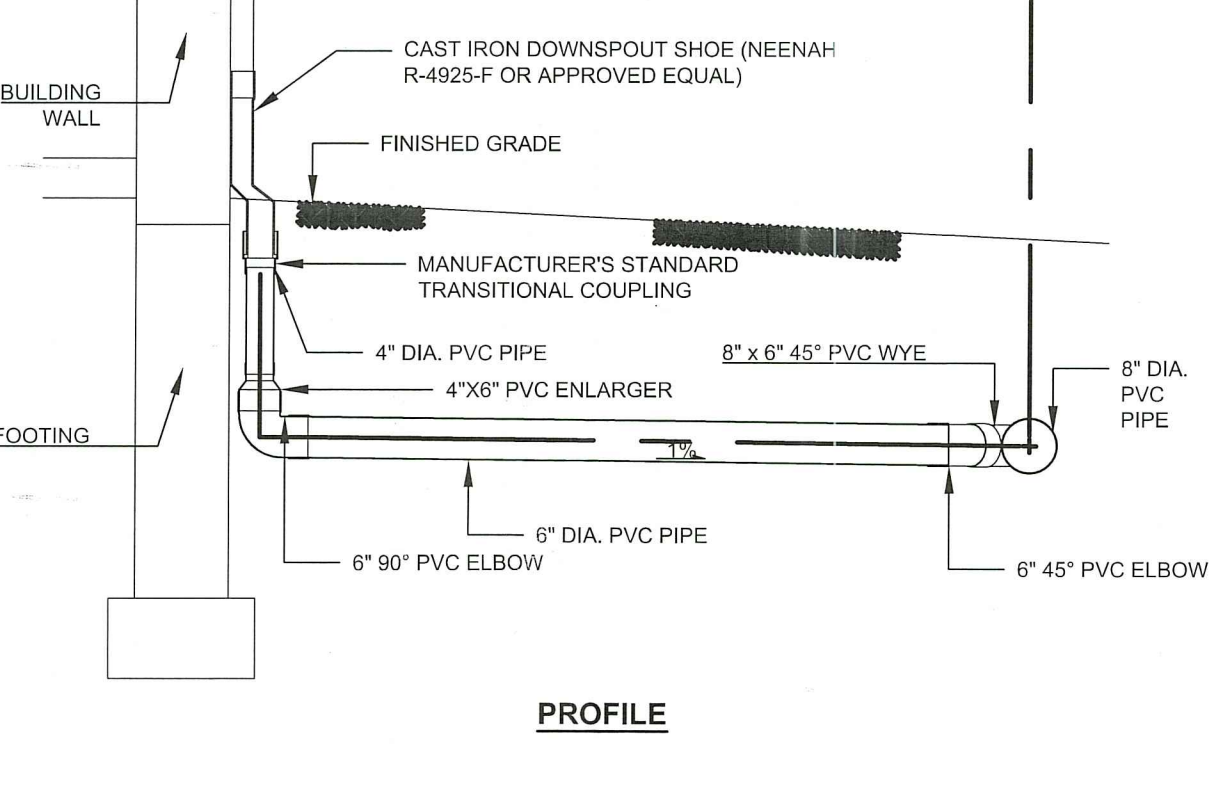
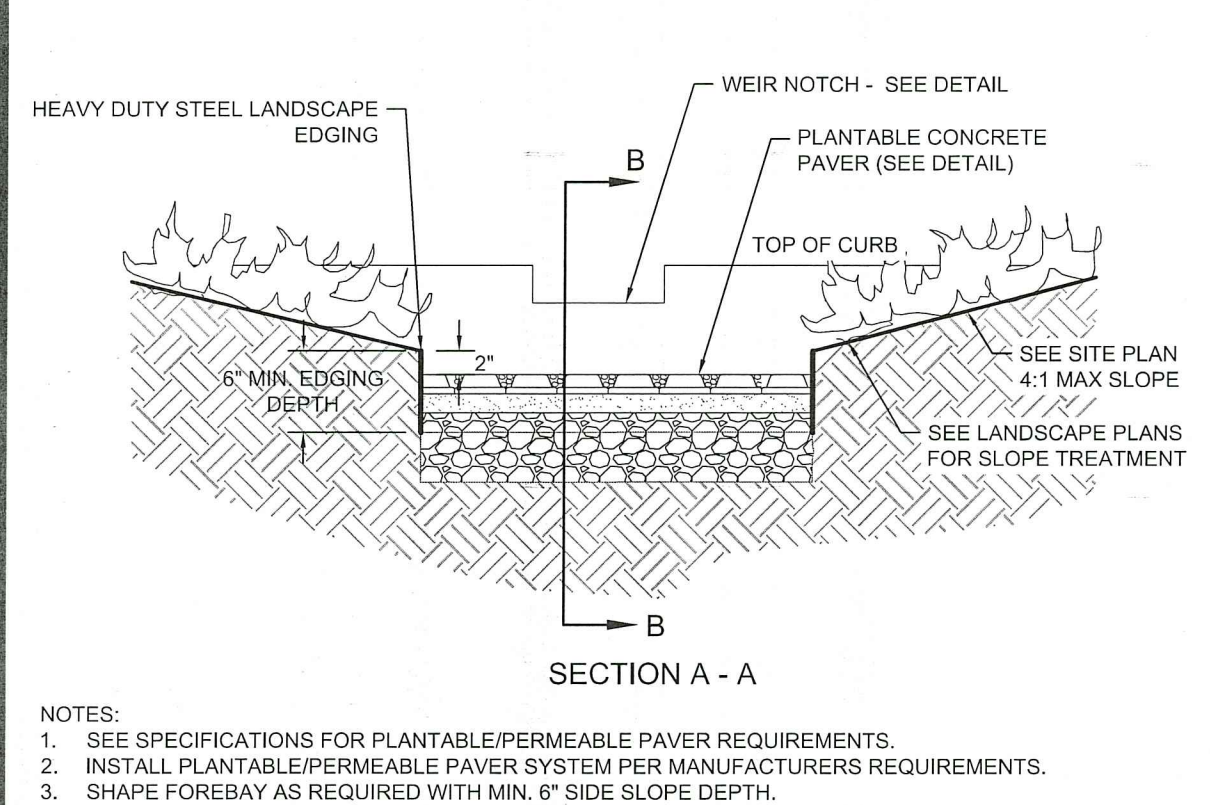
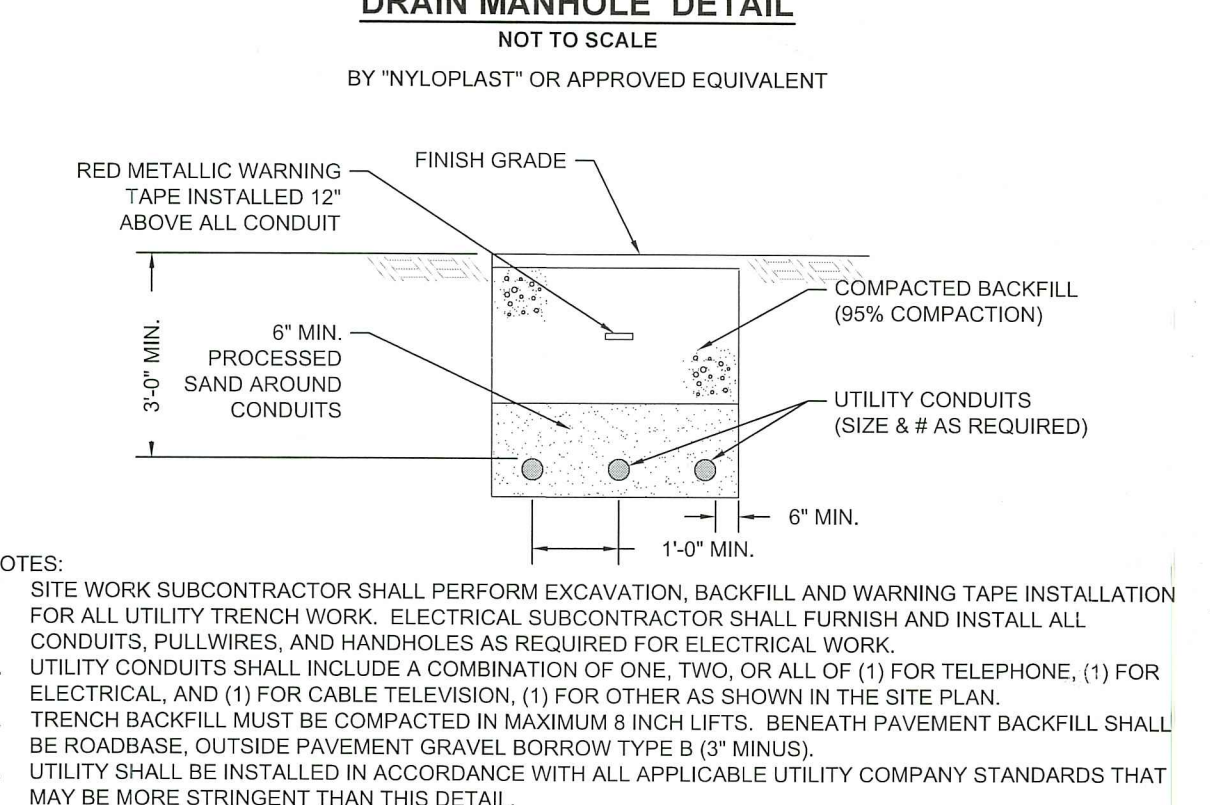
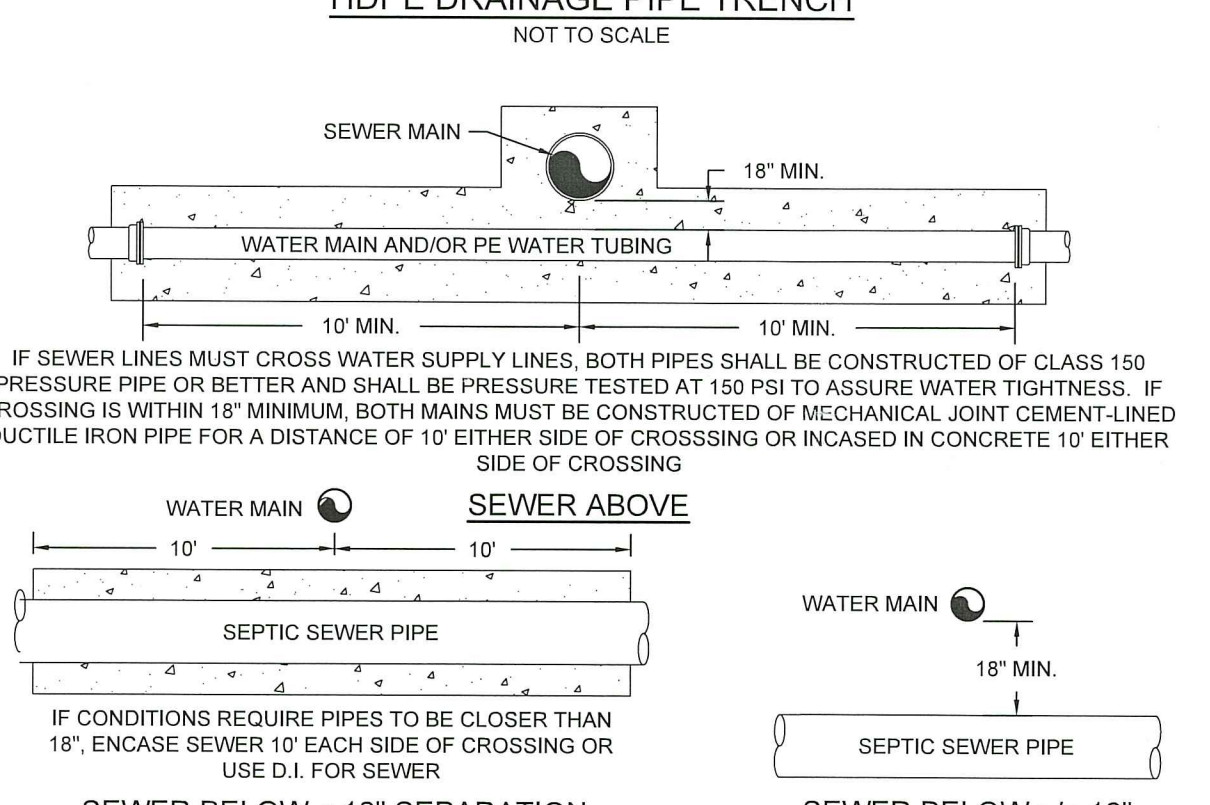
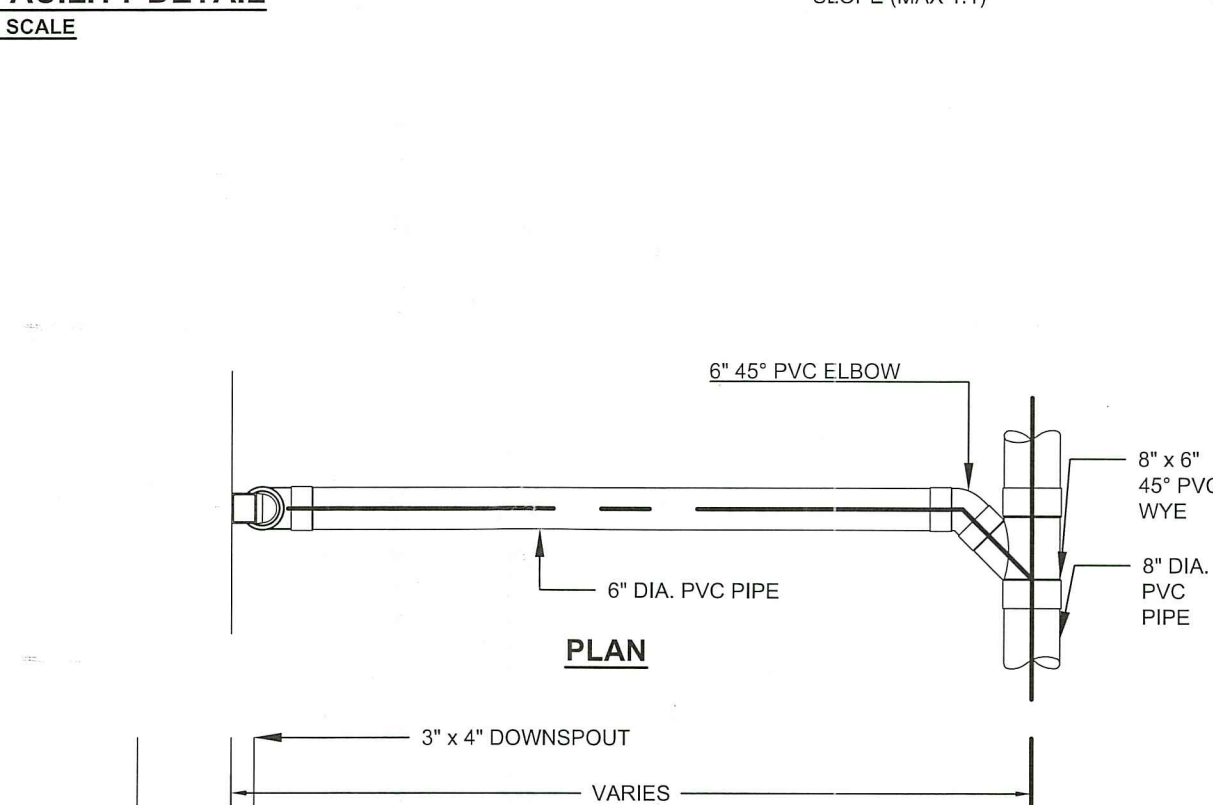
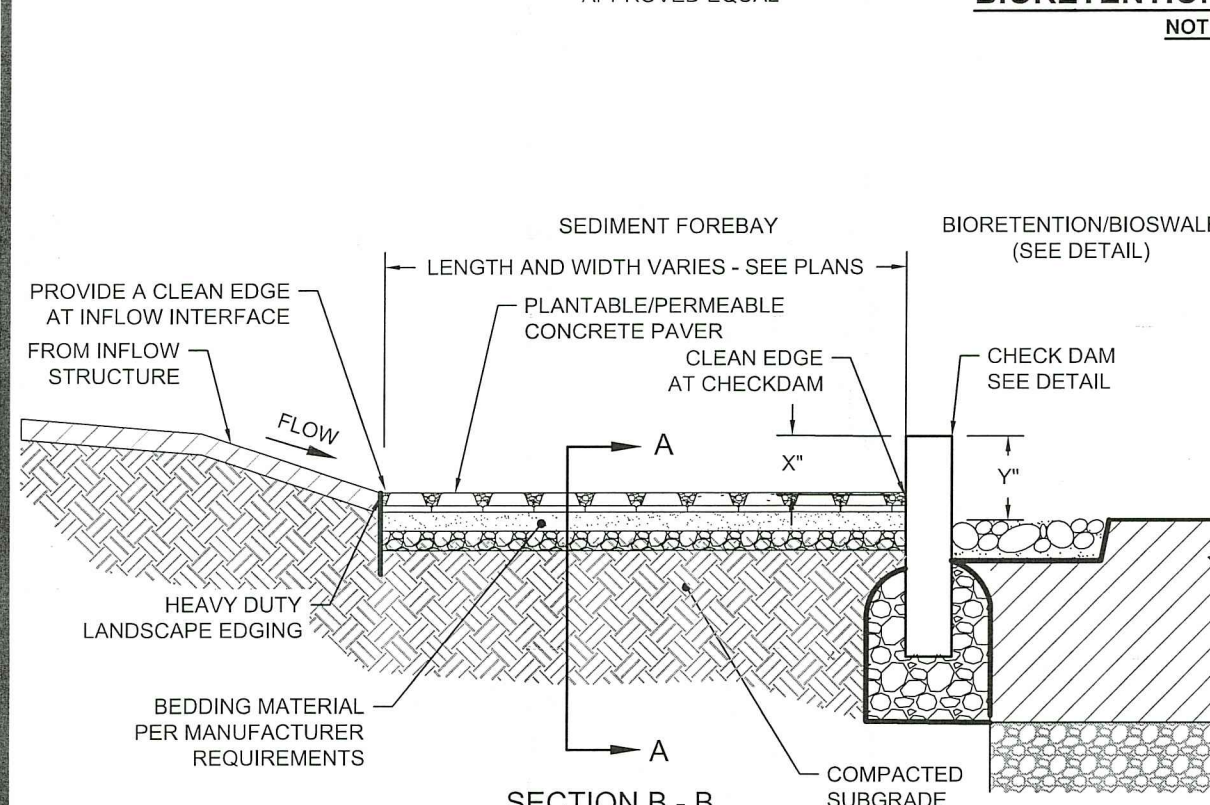
NOMINAL Ø in (mm)	TRENCH WIDTH, in (mm)
9 (230)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)

4. MINIMUM COVER: MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER, in (mm)
H25 (FLEXIBLE PAVEMENT)	12 (300)
H25 (RIGID PAVEMENT) E80	12 (300)
RAILWAY HEAVY CONSTRUCTION	24 (610)
48 (1220)	48 (1220)

\* TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT

THE MINIMUM COVER FOR A HDPE PIPE IS 1'-0" FOR H-20 TRAFFIC LOADS IF INSTALLED IN ACCORDANCE WITH AASHTO SECTION 90. THIS IS BASED ON EMPIRICAL CALCULATION OF LOAD RESPONSE, MANUFACTURER'S TESTING AND FIELD EXPERIENCE WITH THE PIPE. AASHTO SPECIFICATIONS SECTION 18.4.1.5 DEFINES THE MINIMUM COVER AS 10/8 BUT NOT LESS THAN 12 INCHES. THIS COVER IS MEASURED FROM THE PIPE OD TO THE TOP OF A RIGID (CONCRETE) PAVEMENT OR THE BOTTOM OF A FLEXIBLE (BITUMINOUS) PAVEMENT. BOTH AASHTO AND ASTM, AS WELL AS MOST MANUFACTURERS, REQUIRE ADDITIONAL (TEMPORARY) COVER, MOUNTED OVER THE PIPE AND REMOVED FOR FINAL GRADING AND PAVING. IS NECESSARY FOR LARGE CONSTRUCTION VEHICLE LOADS.



ARCHITECT: **architects**

STRUCTURAL: **ARCHITECTS INC.**

MECHANICAL & ELECTRICAL: **ENGINEERING & DESIGN SERVICES INCORPORATED**

CIVIL & SITE ENGINEER: **Horsley Witten Group, Inc.**  
Sustainable Environmental Solutions  
www.horsleywitten.com  
90 Route 6A  
Sandwich, MA 02563  
508-833-6600 voice  
508-833-3150 fax

DATE: DECEMBER 2020  
Checked By: JH  
Drawn By: JK  
Designed By: JK

GREAT SWAMP MAINTENANCE GARAGE  
90% DESIGN DEVELOPMENT  
WEST KINGSTON, RI

Plan Set:

Prepared For: Rhode Island Department of Environmental Management  
238 Promenade Street  
Providence, RI  
Phone: (401) 222-2776  
Fax: ---

Revisions:

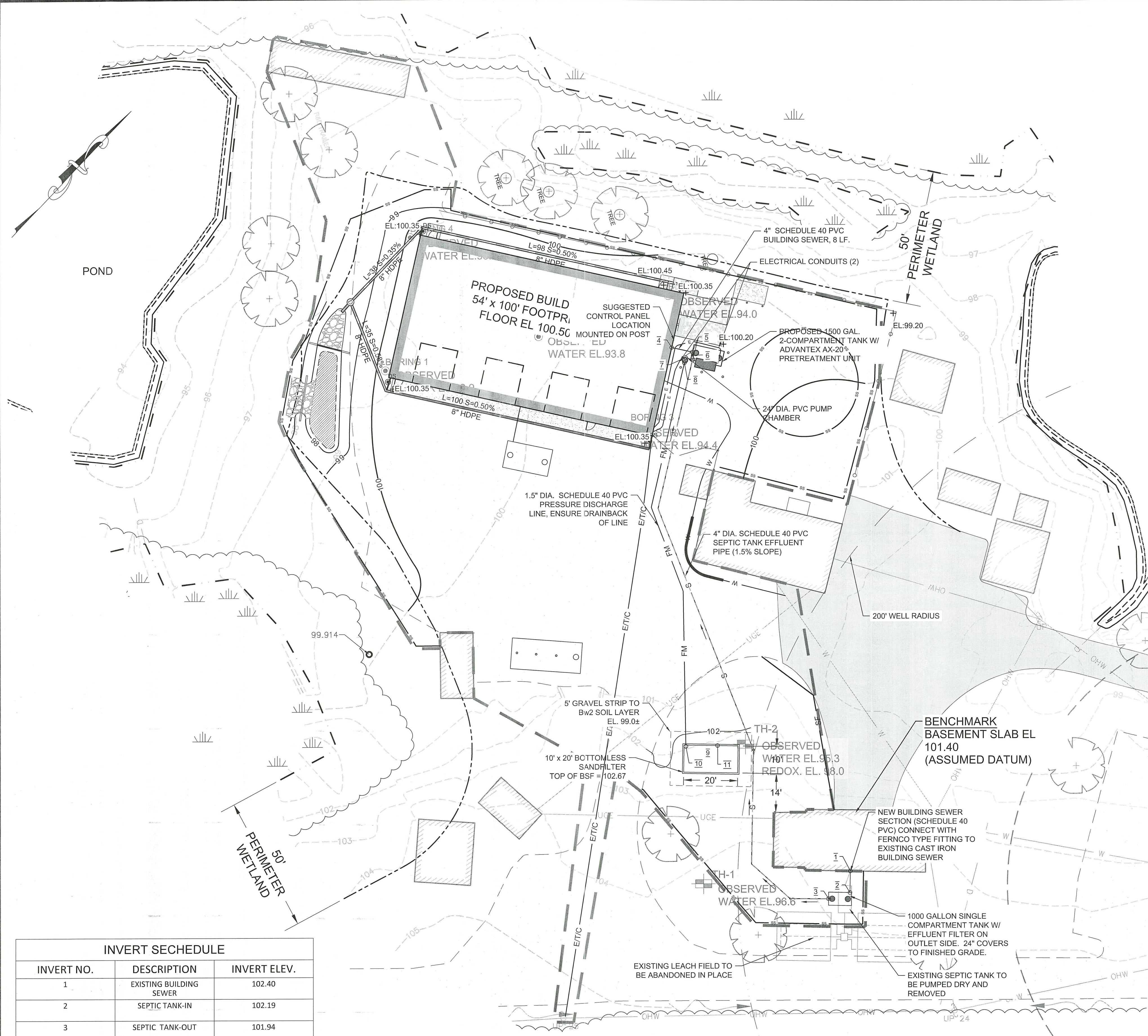
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Project Number: 20007  
Sheet: 5 of 57  
Sheet Number: C-5

Office of Water Resources  
MAR 3 2021

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INVERT NO.	DESCRIPTION	INVERT ELEV.
1	EXISTING BUILDING SEWER	102.40
2	SEPTIC TANK-IN	102.19
3	SEPTIC TANK-OUT	101.94
4	PROPOSED BUILDING SEWER	
5	SEPTIC / RECIRC. TANK-IN	96.16
6	RSV-OUT	97.17
7	PUMP CHAMBER-IN	97.00
8	PUMP CHAMBER-OUT	97.00
9	PEASTONE / SAND INTERFACE	102.00
10	BSF MANIFOLD	102.25
11	TOP OF BSF	102.67

**CALCULATION OF WATER TABLE ELEVATIONS**

GRADE AT TEST PIT "1" =	104.20 ft.
GROUND WATER DEPTH =	6.17 ft. 74 inches
<b>WATER TABLE ELEVATION =</b>	<b>98.03 ft.</b>
GRADE AT TEST PIT "2" =	102.10 ft.
GROUND WATER DEPTH =	4.08 ft. 49 inches
<b>WATER TABLE ELEVATION =</b>	<b>98.02 ft.</b>
AVERAGE GRADE AT BSF =	102.50 ft.
GROUND WATER DEPTH =	4.50 ft. 54 inches
<b>DESIGN WATER TABLE ELEVATION =</b>	<b>98.00 ft.</b>

**BOTTOMLESS SAND FILTER DESIGN:**

**GIVEN:**

SOIL CATEGORY:	1
LOADING RATE:	2.30 GAL/SF/DAY
STRUCTURE:	23 EMPLOYEES
DESIGN FLOW:	15 GAL/DAY/EMPLOYEE

**TOTAL DAILY FLOW:**

345 GAL/DAY = 150 SF (REQUIRED)

2.30 GAL/SF/DAY

**FILTER PROVIDED:**

20	LENGTH (feet)
x 10	WIDTH (feet)
200	SF

**BOTTOMLESS SAND FILTER AREA PROVIDED = 200 SF**

**GENERAL CONSTRUCTION NOTES**

- ALL SITE WORK TO COMPLETE THIS PROJECT AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- UTILIZE ALL PRECAUTIONS AND MEASURES TO ENSURE THE SAFETY OF THE PUBLIC, ALL PERSONNEL AND PROPERTY DURING CONSTRUCTION IN ACCORDANCE WITH OSHA STANDARDS, INCLUDING THE INSTALLATION OF TEMPORARY FENCING BARRICADES, SAFETY LIGHTING, CONES, POLICE DETAIL AND/OR FLAGMEN AS DETERMINED NECESSARY BY THE TOWN/CITY/LOCAL MUNICIPALITY. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF POLICE DETAIL AND FOR COORDINATING WITH THE LOCAL OR STATE POLICE DEPARTMENT FOR ALL REQUIRED POLICE DETAIL.
- MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES INCLUDING POLICE DETAILS AND POST ALL BONDS, IF NECESSARY, ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE OWNER AND THE ENGINEER.
- ALL EXISTING CONDITIONS SHOWN ARE APPROXIMATE AND ARE BASED ON THE BEST INFORMATION AVAILABLE. PRIOR TO THE START OF CONSTRUCTION VERIFY THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLING ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.
- THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS INDICATED ON THE DRAWINGS ARE BASED ON RECORDS OF VARIOUS UTILITY COMPANIES, AND WHEREVER POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY IN THE TOWN, AND "DIGGER" (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK IN PREVIOUSLY UNALTERED AREAS TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE CONTRACTOR MUST RESOLVE CONFLICTS BETWEEN THE PROPOSED UTILITIES AND FIELD-LOCATED UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED, INCOMPLETELY OR INACCURATELY SHOWN. THE CONTRACTOR MUST MAINTAIN ACCURATE RECORDS OF THE LOCATION AND ELEVATION OF ALL WORK INSTALLED AND EXISTING UTILITIES FOUND DURING CONSTRUCTION FOR THE PREPARATION OF THE AS-BUILT PLAN.
- COORDINATE AND MAKE ALL CONNECTION ARRANGEMENTS WITH UTILITY COMPANIES, AS REQUIRED.
- THE CONTRACTOR MUST MAINTAIN ALL EXISTING UTILITIES IN WORKING ORDER AND FREE FROM DAMAGE DURING THE ENTIRE DURATION OF THE PROJECT. REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ALL COST RELATED TO THE REPAIR OF UTILITIES. EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES MUST BE DONE BY HAND.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH AND MAINTAIN ALL CONTROL POINTS AND BENCHMARKS DURING CONSTRUCTION INCLUDING BENCHMARK LOCATIONS AND ELEVATIONS AT CRITICAL AREAS. COORDINATE WITH THE ENGINEER THE LOCATION OF ALL CONTROL POINTS AND BENCHMARKS.
- SITE LAYOUT SURVEY REQUIRED FOR CONSTRUCTION MUST BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A RHODE ISLAND REGISTERED PROFESSIONAL LAND SURVEYOR. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE SURVEYOR FOR ALL SITE SURVEY WORK.
- MAINTAIN ALL GRADE STAKES SET BY THE SURVEYOR. GRADE STAKES ARE TO REMAIN UNTIL A FINAL INSPECTION OF THE ITEM HAS BEEN COMPLETED BY THE ENGINEER. RE-STAKING OF PREVIOUSLY SURVEYED SITE FEATURES IS THE RESPONSIBILITY (INCLUDING COST) OF THE CONTRACTOR.
- PROVIDE ALL CONSTRUCTION SERVICE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS REGARDING NOISE, VIBRATION, DUST, SEDIMENTATION CONTAINMENT, AND TRENCH WORK.
- COLLECT SOLID WASTES AND STORE IN A SECURED DUMPSTER. THE DUMPSTER MUST MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS.
- RESTORE ALL SURFACES EQUAL TO THEIR ORIGINAL CONDITION AFTER CONSTRUCTION IS COMPLETE PER SPECIFICATIONS. LEAVE ALL AREAS NOT DISTURBED BY CONSTRUCTION IN THEIR NATURAL STATE. TAKE CARE TO PREVENT DAMAGE TO SHRUBS, TREES, OTHER LANDSCAPING AND/OR NATURAL FEATURES. WHEREAS THE PLANS DO NOT SHOW ALL LANDSCAPE FEATURES, EXISTING CONDITIONS MUST BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK.
- LEDGE OR BOULDER EXCAVATION IS NOT ANTICIPATED FOR THIS SITE. HOWEVER, PROVIDE A UNIT PRICE COST IN CUBIC YARD MEASURE FOR LEDGE AND/OR BOULDER REMOVAL. LEDGE AND/OR BOULDERS LESS THAN 1 CUBIC YARD IN SIZE BASED ON THE AVERAGE DIMENSIONS WILL NOT BE CONSIDERED PAYABLE ROCK. PROVIDE UNIT PRICES FOR BOTH ON AND OFF SITE DISPOSAL. IF ADDITIONAL FILL MATERIAL IS REQUIRED INCLUDE THE COST OF ALL FILL MATERIAL.
- REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. PROMPTLY REMOVE ALL DEMOLITION DEBRIS FROM THE SITE TO AN APPROVED DUMP SITE.
- ALL TRUCKS LEAVING THE SITE MUST BE COVERED.
- DO NOT WASH ANY CONCRETE TRUCKS ONSITE. REMOVE BY HAND ANY CEMENT OR CONCRETE DEBRIS LEFT IN THE DISTURBED AREA.
- BURIAL OF ANY STUMPS, SOLID DEBRIS, AND/OR STONES/BOULDERS ONSITE IS PROHIBITED. DO NOT USE ROAD SALT OR OTHER DEICING CHEMICALS ON THE ACCESS ROADWAY.
- IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED.
- AT THE END OF CONSTRUCTION, REMOVE ALL CONSTRUCTION DEBRIS AND SURPLUS MATERIALS FROM THE SITE. PERFORM A THOROUGH INSPECTION OF THE WORK PERIMETER. COLLECT AND REMOVE ALL MATERIALS AND BLOW OR WATER CARRIED DEBRIS FROM THE SITE.

**SYSTEM MAINTENANCE**

- ALL COMPONENTS OF THE SYSTEM SHALL BE INSPECTED AFTER THE FIRST MONTH OF OPERATION, AFTER SIX MONTHS OF OPERATION AND AFTER ONE YEAR OF OPERATION. THE SYSTEM SHALL BE INSPECTED YEARLY THEREAFTER UNLESS OPERATIONAL INSPECTIONS DETERMINE MORE FREQUENT INSPECTIONS ARE REQUIRED. THE OWNER SHOULD BE AWARE THAT THIS INDIVIDUAL SEWAGE DISPOSAL SYSTEM SHALL HAVE A PERMANENT ROUTINE MAINTENANCE AGREEMENT THAT SHALL BE RECORDED IN THE LAND EVIDENCE RECORDS OF THE TOWN.

**DEWATERING**

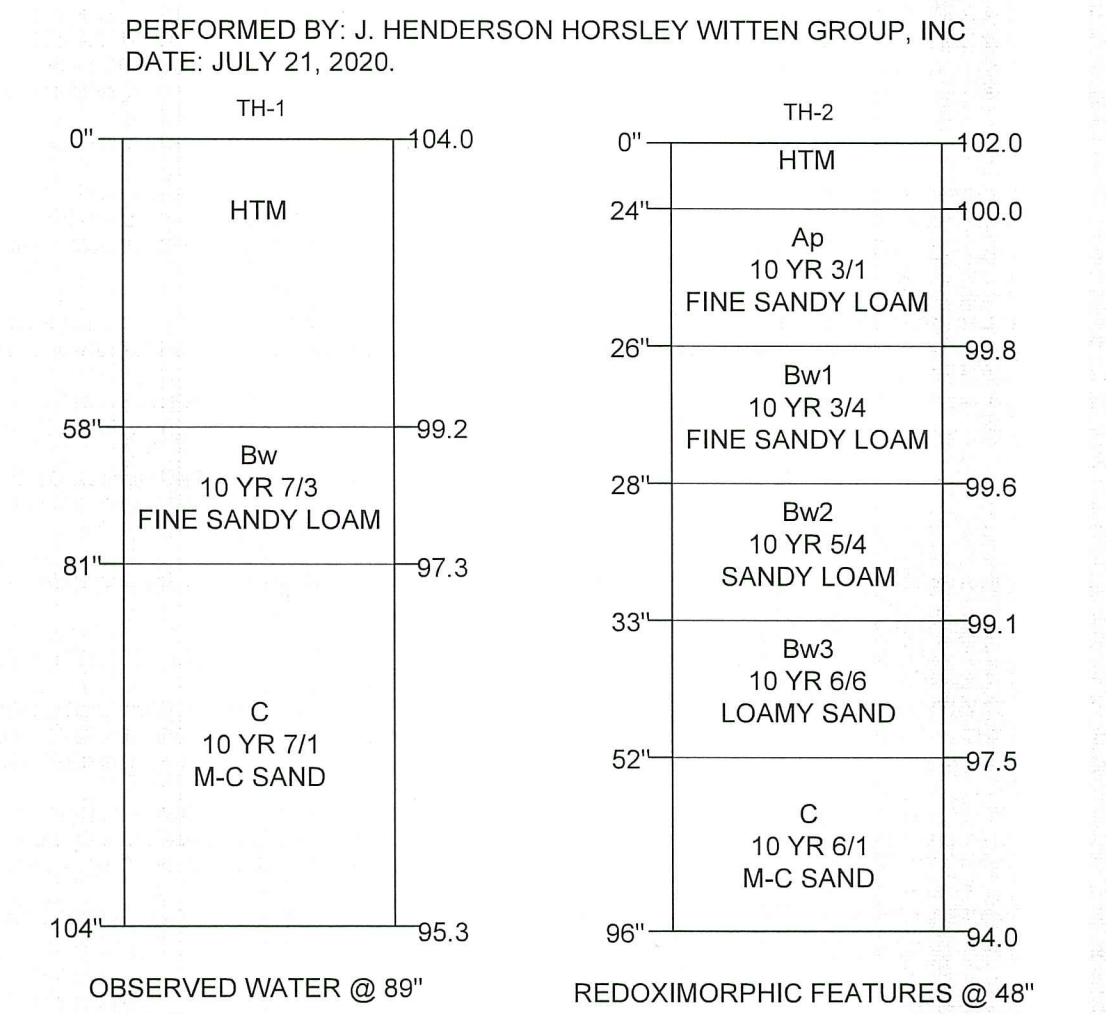
- PRIOR TO ANY DEWATERING, THE DEWATERING PLAN MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER.
- IF DEWATERING IS NECESSARY DURING CONSTRUCTION, IMPLEMENT THE PROPER ESC MEASURES ON SITE TO PREVENT EROSION OR SEDIMENT RUNOFF. THESE MEASURES CAN INCLUDE DEWATERING BAGS, TEMPORARY STRAWBALES, SILT FENCES, SILT SOCKS AND/OR OTHER APPROVED DEVICES AS INDICATED IN THE DETAILS.

**SCHEDULE OF INSPECTIONS:**

- 48 HOURS NOTICE SHALL BE GIVEN TO PRIOR TO CONSTRUCTION.
- ALL INSPECTIONS SHALL REQUIRE 24 HOURS NOTICE.

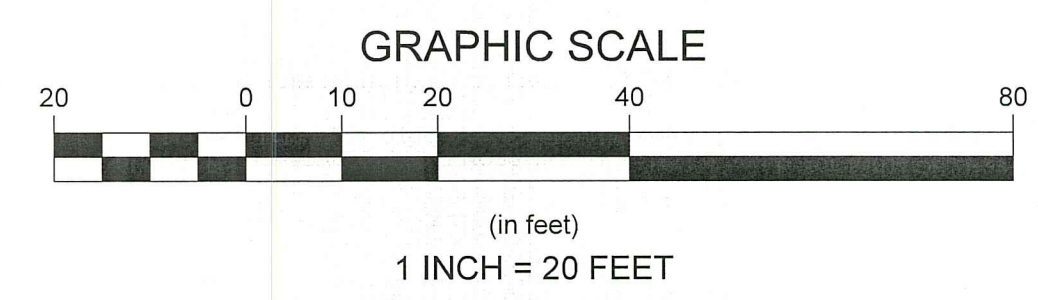
- THE FOLLOWING INSPECTIONS ARE REQUESTED BY THE ENGINEERING:
- PRE-CONSTRUCTION MEETING.
  - BOTTOM OF EXCAVATION FOR LEACH FIELD.
  - PRIOR TO COVERING ANY COMPONENT OR PIPING.
  - PRIOR TO COVERING THE WATERLINE FROM THE MUNICIPAL WATER SERVICE. THE LINE MUST BE COMPLETELY INSTALLED FROM.
  - FINAL GRADING AND 5' FILL PERIMETERS.
  - CHECKING OF PUMP DRAW DOWNS AND ALARM ELEVATIONS.

**SOIL TEST PIT DATA**



**GENERAL WASTEWATER NOTES**

- D.E.M. REQUIRES THE REMOVAL OF TREES AND BRUSH SHOULD EXTEND 10' BEYOND ALL SIDES OF THE LEACH FIELD.
- NO VEHICULAR TRAFFIC IS PERMITTED OVER THE PROPOSED LEACHING AREA.
- NO DRAINS, INCLUDING FOUNDATION DRAINS, SHALL BE WITHIN 25' OF THE PROPOSED LEACHING AREA.
- THERE WERE NO CEMETERIES, GRAVE SITES AND/OR BURIAL GROUNDS OBSERVED WITHIN THE LIMITS OF THE SURVEY.
- THERE IS NO SHORELINE WITHIN 200' OF THE PROPOSED OWTS COMPONENTS.
- THERE IS A WETLAND WITHIN 200' OF THE PROPOSED OWTS COMPONENTS.
- GARBAGE DISPOSALS ARE NOT PERMITTED.



**DRAFT**  
NOT FOR CONSTRUCTION

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**CIVIL & SITE ENGINEER:**  
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Date: DECEMBER 2020  
Checked By: JH  
Drawn By: JK  
Designed By: JK

**GREAT SWAMP MAINTENANCE GARAGE**  
**90% DESIGN DEVELOPMENT**  
**WEST KINGSTON, RI**

Prepared For:  
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Revisions:  
Project Number: 20007  
Sheet: 1 of 2  
Sheet Number: WW - 1

Plan Title: OWTS DESIGN PLAN

**EXTERNAL PUMP CHAMBER:**  
THE PUMP CHAMBER SHALL BE INSTALLED ACCORDING TO DETAILS PROVIDED AND TO MANUFACTURER'S SPECIFICATIONS. SEE TYPICAL PUMP CHAMBER DETAIL.

**CONTROL PANEL:**  
THE CONTROL PANEL SHALL BE MANUFACTURED BY ORENCO SYSTEMS, INC. MODEL VERICOMM AX2. THE PROGRAMMABLE TIMER FOR THE RECIRCULATING TANK PUMP SHALL BE SET TO THE DEFAULT SETTINGS AS SUPPLIED BY THE MANUFACTURER.

THE EXTERNAL PUMP CHAMBER SHALL BE DEMAND DOSED AND HAVE:  
THE FLOATS SET AS SHOWN IN THE PUMP CHAMBER DETAIL.  
THE HIGH AND/OR LOW LEVEL ALARMS SHALL BE IN THE CONTROL PANEL.

**WATER-TIGHTNESS:**  
CONTRACTOR SHALL TEST THE SEPTIC TANK(S) FOR WATER TIGHTNESS (IN THE PRESENCE OF FRISELLA ENGINEERING) PRIOR TO BACK FILLING THE EXCAVATION. TESTING MAY INCLUDE: FILLING THE TANK FULL OF WATER AND LET STAND FOR 24 HOURS. (SIDE OF TANK MUST BE EXPOSED), OR ON-SITE VACUUM TESTING, OR A CERTIFICATION OF WATER TIGHTNESS BY MANUFACTURER IS ACCEPTABLE WHEN VACUUM TESTED AS PER ASTM C 1227-93. ALL INLETS AND OUTLETS SHALL HAVE PRESS SEALS PRECASTED.

**ELECTRICAL:**  
ALL WIRING REQUIRED FOR PUMPS, ALARMS ETC. SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND MANUFACTURER'S INSTRUCTIONS. CONDUITS ENTERING THE PUMP CHAMBERS SHALL BE PROPERLY INSTALLED WITH CONDUIT SEALS TO PREVENT SEWAGE GASES FROM LEAVING THE BASIN. CONDUITS ENTERING THE FAN CHAMBER SHALL BE PROPERLY INSTALLED WITH CONDUIT SEALS TO PREVENT WATER FROM ACCESSING THE CHAMBER.

**CONFINED SPACE SIGNS:**  
PERMANENT DURABLE CORROSION RESISTANT SIGNS INDICATING "CONFINED SPACE - ENTRY BY PERMIT ONLY" SHALL BE PLACED AT EACH TANK AND PUMP CHAMBER SIDEWALL OF RISER. SIGNS SHALL MEET O.S.H.A. REQUIREMENTS FOR SIZE, MARKINGS AND LOCATION.

**ADVANTEK UNITS:**  
THE ADVANTEK UNIT SHALL BE A MODIFIED MODEL AX-20 (MODE 3B) BY ORENCO SYSTEMS, INC. TEL: 1-800-348-9843.

THE ADVANTEK UNIT SHALL BE ORDERED WITH 2" OF INSULATION ATTACHED TO THE BOTTOM OF THE LID.  
THE ADVANTEK UNIT PACKAGE COMES WITH THE PVC SPLICE BOXES, SIMPLE BIOTUBE PUMP VAULT, PVC PUMP BASIN, FLOAT SWITCH ASSEMBLIES, ORENCO PUMPS, VERICOMM RXB CONTROL PANEL, RECIRCULATING SPLITTER VALVE ASSEMBLY AND ADVANTEK AX-20 FILTER.

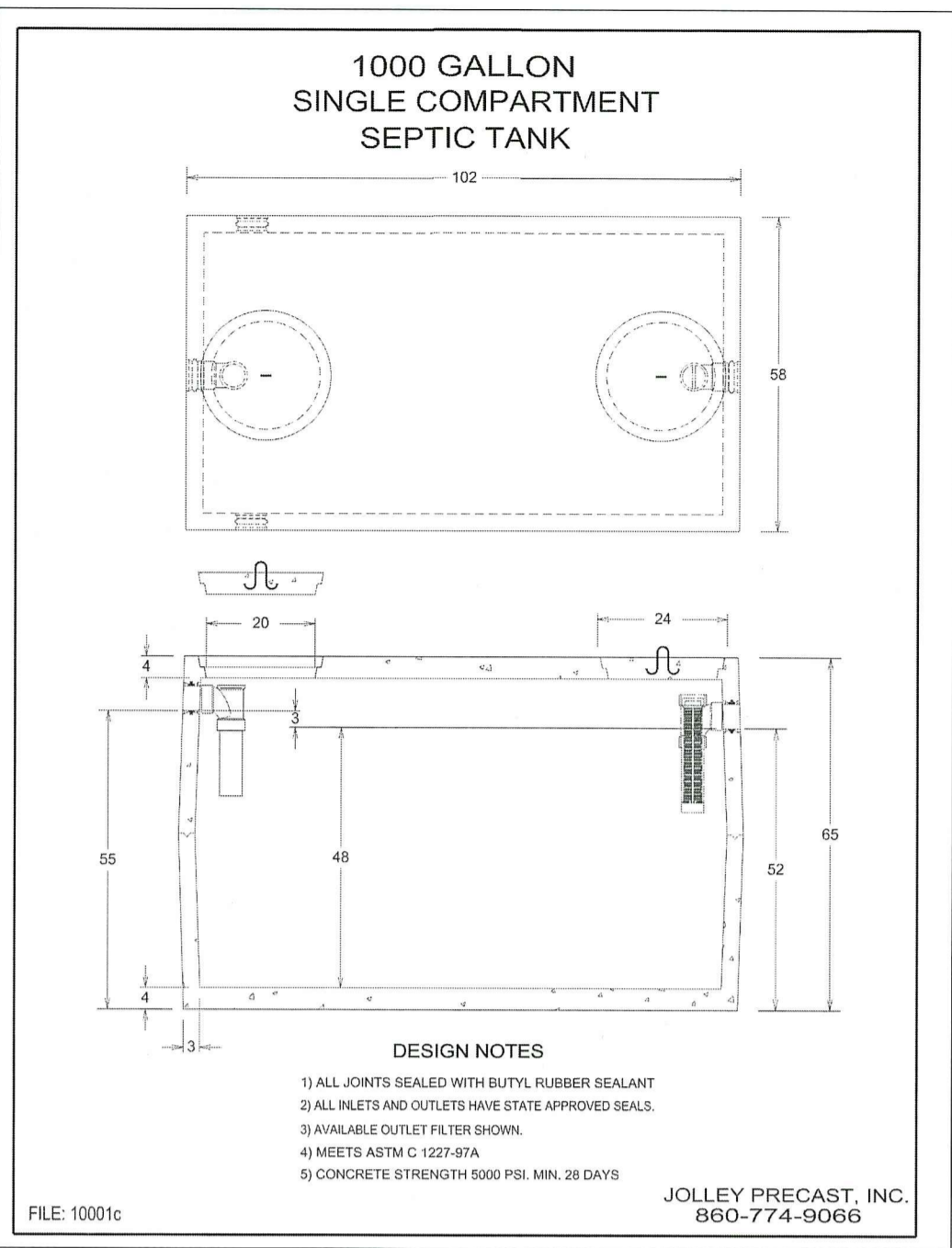
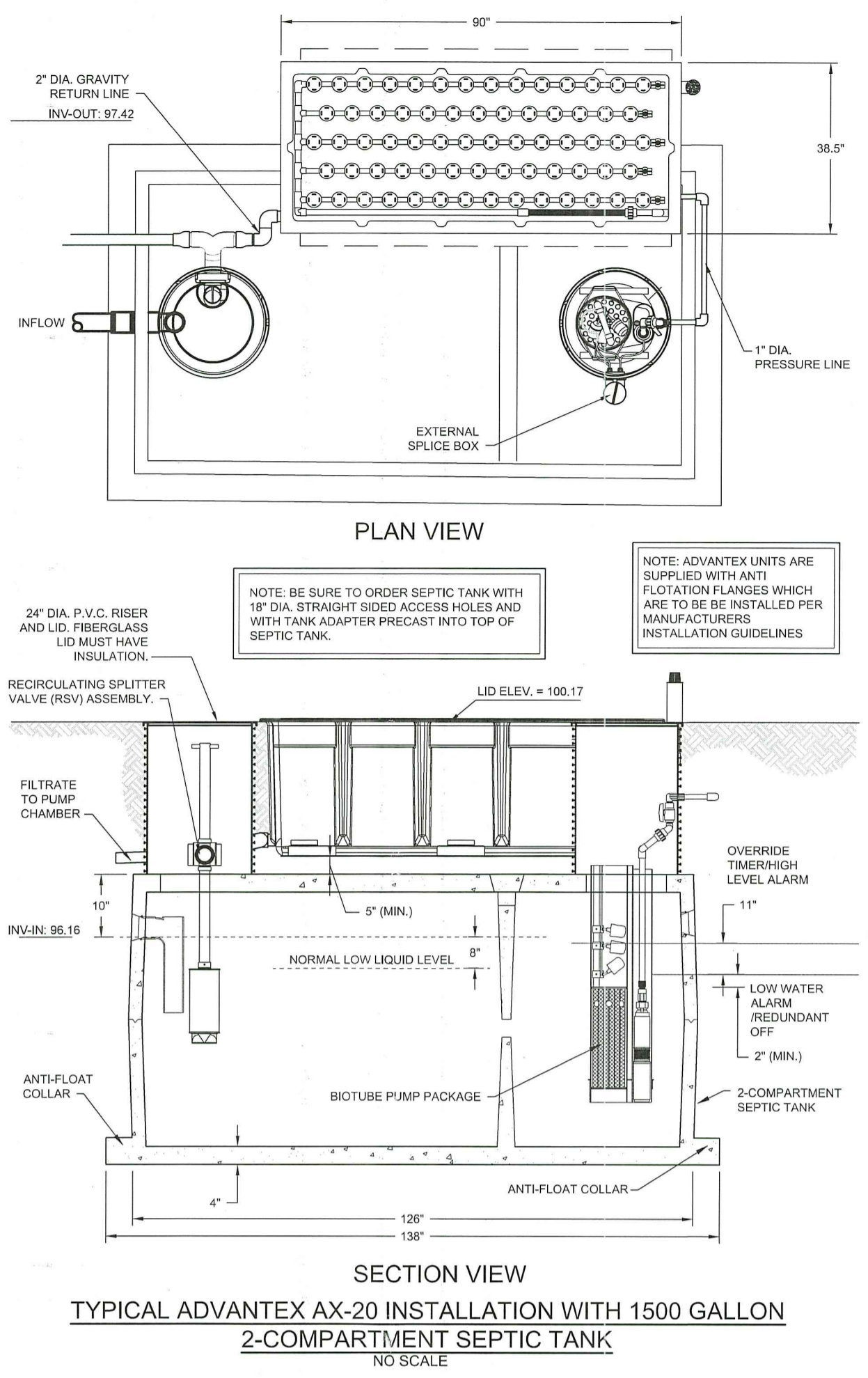
INSTALLATION SHALL FOLLOW THE LATEST "INSTALLATION GUIDE FOR ADVANTEK-AX TREATMENT SYSTEMS" PROVIDED BY ORENCO SYSTEMS, INC. TEL: 1-800-348-9843.

**ANTI-FLOATATION NOTE:**  
TO PREVENT THE POD FROM "FLOATING OUT" WHEN GROUNDWATER LEVELS RISE DUE TO STORM EVENTS, CONCRETE SHALL BE POURED OVER THE ENTIRE LENGTH OF THE ANTI-FLOATATION FLANGES. THE CONCRETE SHALL BE 8" DEEP AND EXTEND 12" AWAY FROM THE SIDE OF THE POD. 3.5 OF PER FLANGE, MINIMUM.

**BOTTOMLESS SAND FILTER:**  
1. A SERIES OF 1/8" DIAMETER HOLES (ORIFICES) SHALL BE DRILLED WITH A NEW SHARP 1/8" DRILL BIT TO MAKE CLEAN HOLES. FREE OF RESIDUAL DEBRIS OR OBSTRUCTIONS IN THE DISTRIBUTION LATERALS AND SPACED AS SHOWN ON DETAIL.  
2. EACH LATERAL SHALL BE INSTALLED WITH ALL ORIFICES POINTING DOWN (6 O'CLOCK POSITION) EXCEPT FOR 2 UP FACING ORIFICES (12 O'CLOCK - SPACED AT 1/3 AND 2/3 LENGTH).  
3. EACH ORIFICE SHALL HAVE ORIFICE SHIELDS WITH SLOTS OR HOLES TO PROVIDE FREE DRAINING (USUALLY REFERRED TO AS COLD WEATHER ORIFICE SHIELDS) SEE DETAILS.  
4. THE TRANSPORT LINE SHALL BE SLOPED (WITH NO SAGS OR DIPS) TO PROVIDE FREE-DRAINING OF THE EFFLUENT TO PREVENT FREEZING WITHIN THE LINE.  
5. INSTALLATION OF THE BOTTOMLESS SAND FILTER SHALL FOLLOW THE LATEST RIDEMISDS "GUIDELINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS"

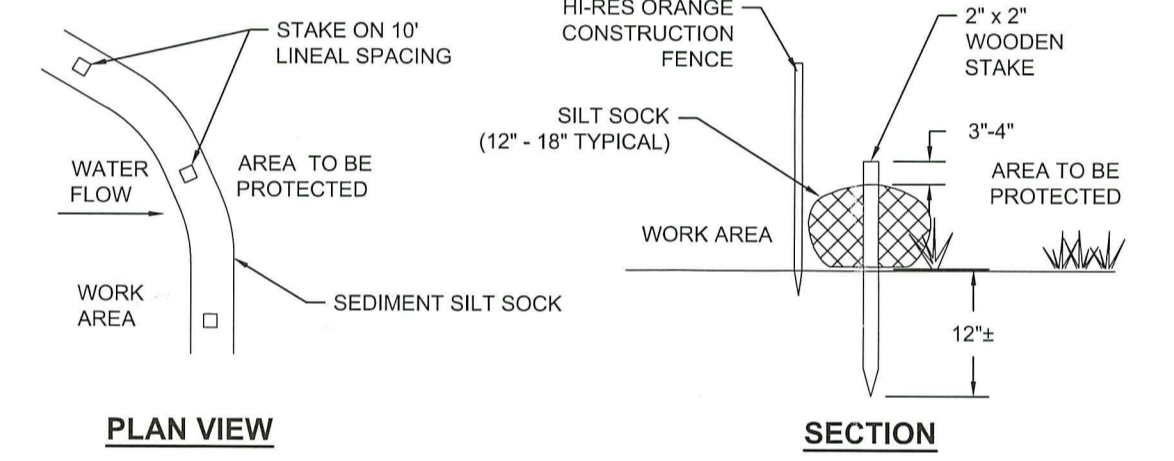
**SAND FILTER MEDIA:**  
1. BOTTOMLESS SAND FILTER MEDIA SHALL BE ASTM C33 SAND MEETING ALL OF THE FOLLOWING ADDITIONAL REQUIREMENTS:  
2. EFFECTIVE SIZE: D10 = 0.3MM.  
3. UNIFORMITY COEFFICIENT: 3.0 TO 4.0  
4. MAXIMUM ALLOWABLE FINES PASSING A #200 SIEVE SHALL BE 1% OR AS SPECIFIED ON FIGURE 9 OF THE MOST RECENTLY PUBLISHED R.I.D.E.M. GUIDELINES FOR THE DESIGN AND USE OF BOTTOMLESS SAND FILTERS.

**EROSION & SEDIMENT CONTROL NOTES:**  
1. DESIGNATE THE SITE CONSTRUCTION FOREMAN AS THE ON-SITE PERSONNEL RESPONSIBLE FOR THE DAILY INSPECTION AND MAINTENANCE OF ALL SEDIMENT AND EROSION CONTROLS AND IMPLEMENTATION OF ALL NECESSARY MEASURES TO CONTROL EROSION AND PREVENT SEDIMENT FROM LEAVING THE SITE.  
2. INSTALL ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES AS INDICATED ON DRAWINGS IN CONSULTATION WITH THE DEM, AND ENGINEER BEFORE ANY CONSTRUCTION ACTIVITIES BEGIN. INSPECT, MAINTAIN REPAIR AND REPLACE EROSION CONTROL MEASURES, AS NECESSARY, DURING THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. THE SITE PERIMETER EROSION CONTROLS ARE THE DESIGNATED LIMIT OF WORK. INFORM ALL PERSONNEL WORKING ON THE PROJECT SITE THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.  
3. MAINTAIN A MINIMUM SURPLUS OF 100 FEET OF EROSION CONTROL BARRIER (SILT FENCE, STRAWBALE, &/OR SILT SOCK) ONSITE AT ALL TIMES.  
4. PROTECT THE ADJACENT RESOURCE AREA FROM SEDIMENTATION DURING PROJECT CONSTRUCTION UNTIL ACCEPTANCE BY THE OWNER.  
5. PROVIDE CONSTRUCTION EXITS AS INDICATED ON DRAWINGS TO SHED DIRT FROM CONSTRUCTION VEHICLE TIRES. CLEAN AND/OR REPLACE THE CRUSHED STONE PAD, AS NECESSARY, TO MAINTAIN ITS EFFECTIVENESS.  
6. KEEP THE LIMIT OF CLEARING, GRADING AND DISTURBANCES TO A MINIMUM WITHIN THE PROPOSED AREA OF CONSTRUCTION. PHASE THE SITE WORK IN A MANNER TO MINIMIZE AREAS OF EXPOSED SOIL. IF TREES ARE TO BE CUT ON THE ENTIRE SITE, CLEAR AND GRUB ONLY THOSE AREAS WHICH ARE ACTIVELY UNDER CONSTRUCTION. PROPERLY INSTALL THE SEDIMENTATION CONTROLS PRIOR TO BEGINNING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK.  
7. MONITOR LOCAL WEATHER REPORTS DURING CONSTRUCTION AND PRIOR TO SCHEDULING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES WHICH LEAVE LARGE DISTURBED AREAS UNSTABILIZED. IF INCLEMENT WEATHER IS PREDICTED, USE BEST PROFESSIONAL JUDGEMENT AND GOOD CONSTRUCTION PRACTICES WHEN SCHEDULING CONSTRUCTION ACTIVITIES AND ENSURE THE NECESSARY EROSION CONTROL DEVICES ARE INSTALLED AND FUNCTIONING PROPERLY TO MINIMIZE EROSION FROM ANY IMPENDING WEATHER EVENTS.  
8. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AND STABILIZED SLOPES ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF 25 INCH OR GREATER. REPAIR IDENTIFIED PROBLEMS WITHIN 24 HOURS TO ENSURE EROSION AND SEDIMENT CONTROLS ARE IN GOOD WORKING ORDER. RESET OR REPLACE MATERIALS AS REQUIRED.  
9. SURROUND THE PERIMETER OF SOIL STOCKPILES WITH SILT SOCK, SILT FENCE, STRAWBALES, OR A COMBINATION OF SILT FENCE WITH STRAWBALE, AS DETERMINED NECESSARY.  
10. DISTURBED AREAS AND SLOPES MUST NOT BE LEFT UNATTENDED OR EXPOSED FOR EXCESSIVE PERIODS OF TIME SUCH AS THE INACTIVE WINTER SEASON. PROVIDE APPROPRIATE STABILIZATION PRACTICES ON ALL DISTURBED AREAS AS SOON AS POSSIBLE BUT NOT MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY OR PERMANENTLY CEASED. REINFORCE TEMPORARY AREAS HAVING A SLOPE GREATER THAN 4:1 WITH EROSION BLANKETS OR APPROVED EQUAL UNTIL THE SITE IS PROPERLY STABILIZED. TEMPORARY SWALES MAY ALSO BE REQUIRED IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER.  
11. INSTALL A SILT SACK OR APPROVED EQUIVALENT IN EACH EXISTING CATCHBASIN RECEIVING RUNOFF FROM THE SITE. UPON THE INSTALLATION OF EACH CATCH BASIN, INSTALL A SILT SACK OR APPROVED EQUIVALENT. INSPECT SILT SACKS, AFTER EACH SIGNIFICANT STORM EVENT AND REMOVE AND EMPTY AS NEEDED FOR THE DURATION OF THE CONSTRUCTION PERIOD.  
12. SMALL SEDIMENTATION BASINS MAY BE CONSTRUCTED ON AN AS-NEEDED BASIS DURING CONSTRUCTION TO AID IN THE CAPTURE OF SITE RUNOFF AND SEDIMENT. IT WILL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR, IN CONSULTATION WITH THE ENGINEER, TO SIZE AND CREATE THESE BASINS IN APPROPRIATE LOCATIONS.  
13. CONTAIN ALL SEDIMENT ONSITE. SWEET ALL EXITS FROM THE SITE AS NECESSARY INCLUDING ANY SEDIMENT TRACKING. SWEEP PAVED AREAS AS NEEDED TO REMOVE SEDIMENT AND POTENTIAL POLLUTANTS ACCUMULATED DURING SITE CONSTRUCTION.  
14. REMOVE ACCUMULATED SEDIMENT FROM ALL TEMPORARY PRACTICES AND DISPOSE OF IN A PRE-APPROVED LOCATION.  
15. PROVIDE ON SITE OR MAKE READILY AVAILABLE THE NECESSARY EQUIPMENT AND SITE PERSONNEL DURING CONSTRUCTION HOURS FOR THE DURATION OF THE PROJECT TO ENSURE ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE PROPERLY MAINTAINED AND REPAIRED IN A TIMELY AND RESPONSIBLE MANNER. IF SITE WORK IS SUSPENDED DURING THE WINTER MONTHS THE CONTRACTOR MUST CONTINUE TO PROVIDE PERSONNEL AND EQUIPMENT EITHER ON SITE OR READILY AVAILABLE TO PROPERLY MAINTAIN AND REPAIR ALL EROSION AND SEDIMENTATION CONTROL DEVICES IN A TIMELY AND RESPONSIBLE MANNER.  
16. PRIOR TO THE INSTALLATION OF FILTER FABRIC AND MEDIA WITHIN THE BIOTRETENTION AREAS, REMOVE AND PROPERLY DISPOSE OF SEDIMENT ACCUMULATED IN ANY PARTIALLY CONSTRUCTED OR TEMPORARY BIOTRETENTION/DRAINAGE AREA USED FOR SEDIMENT CONTROL DURING CONSTRUCTION. PROVIDE A SURFACE ELEVATION AT A MINIMUM 1-FOOT ABOVE THE BOTTOM OF MEDIA ELEVATION AS SHOWN IN THE BIOTRETENTION SCHEDULE FOR PARTIALLY CONSTRUCTED BIOTRETENTION AREAS. THIS ALLOWS FOR AN OVER-DIG OF THE COLLECTED SEDIMENT FROM WITHIN THE BIOTRETENTION AREA PRIOR TO MEDIA/FABRIC INSTALLATION.  
17. CONTROL DUST BY WATERING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE ENGINEER.  
18. THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE DURING CONSTRUCTION OF ALL STORMWATER FACILITIES INSTALLED OR AFFECTED BY THE PROJECT. REMOVE SEDIMENT OR DEBRIS COLLECTED WITHIN THESE FACILITIES FROM THE PROJECT WORK PRIOR TO THE OWNER'S ACCEPTANCE.

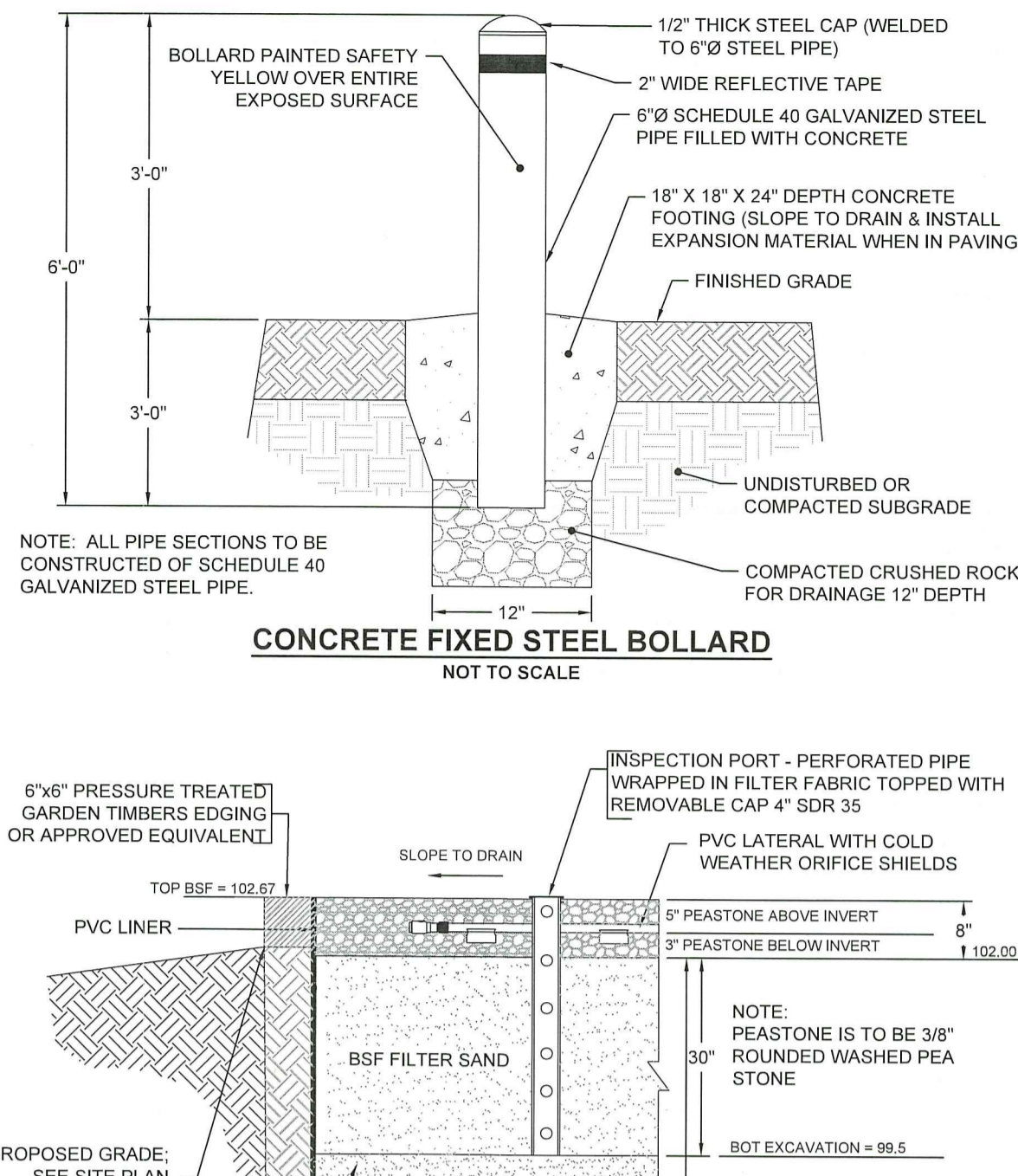


**1000 GALLON SINGLE COMPARTMENT SEPTIC TANK**  
NOT TO SCALE

**DESIGN NOTES:**  
1) ALL JOINTS SEALED WITH BUTYL RUBBER SEALANT  
2) ALL INLETS AND OUTLETS HAVE STATE APPROVED ISOLS  
3) AVAILABLE OUTLET FILTER SHOWN  
4) MEETS ASTM C 1227-93A  
5) CONCRETE STRENGTH 5000 PSI, MIN. 28 DAYS  
JOLLEY PRECAST, INC. 860-774-9066



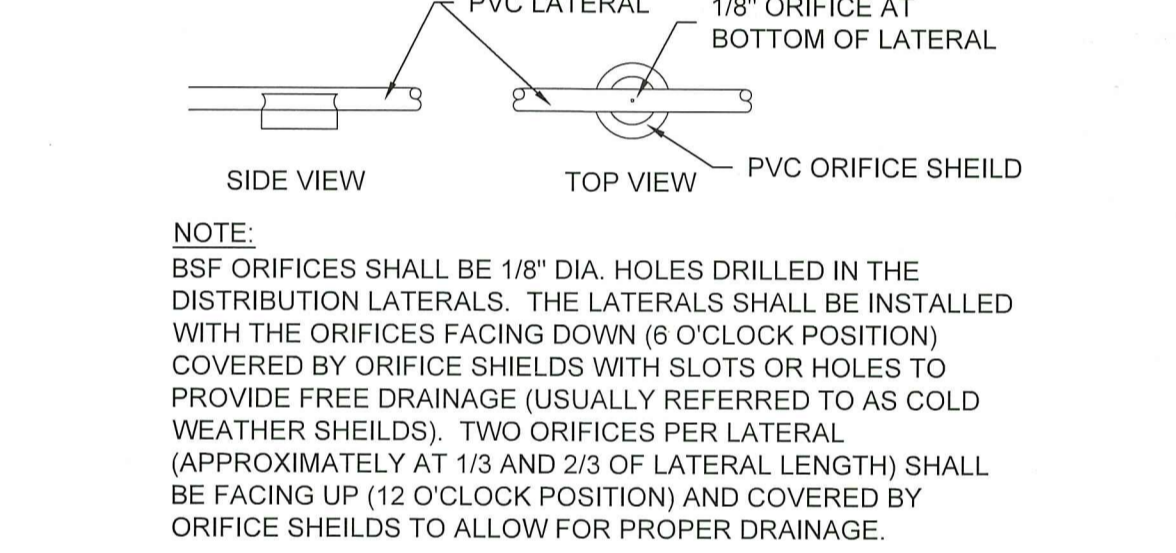
**SEDIMENT SILT SOCK DETAIL**  
NOT TO SCALE



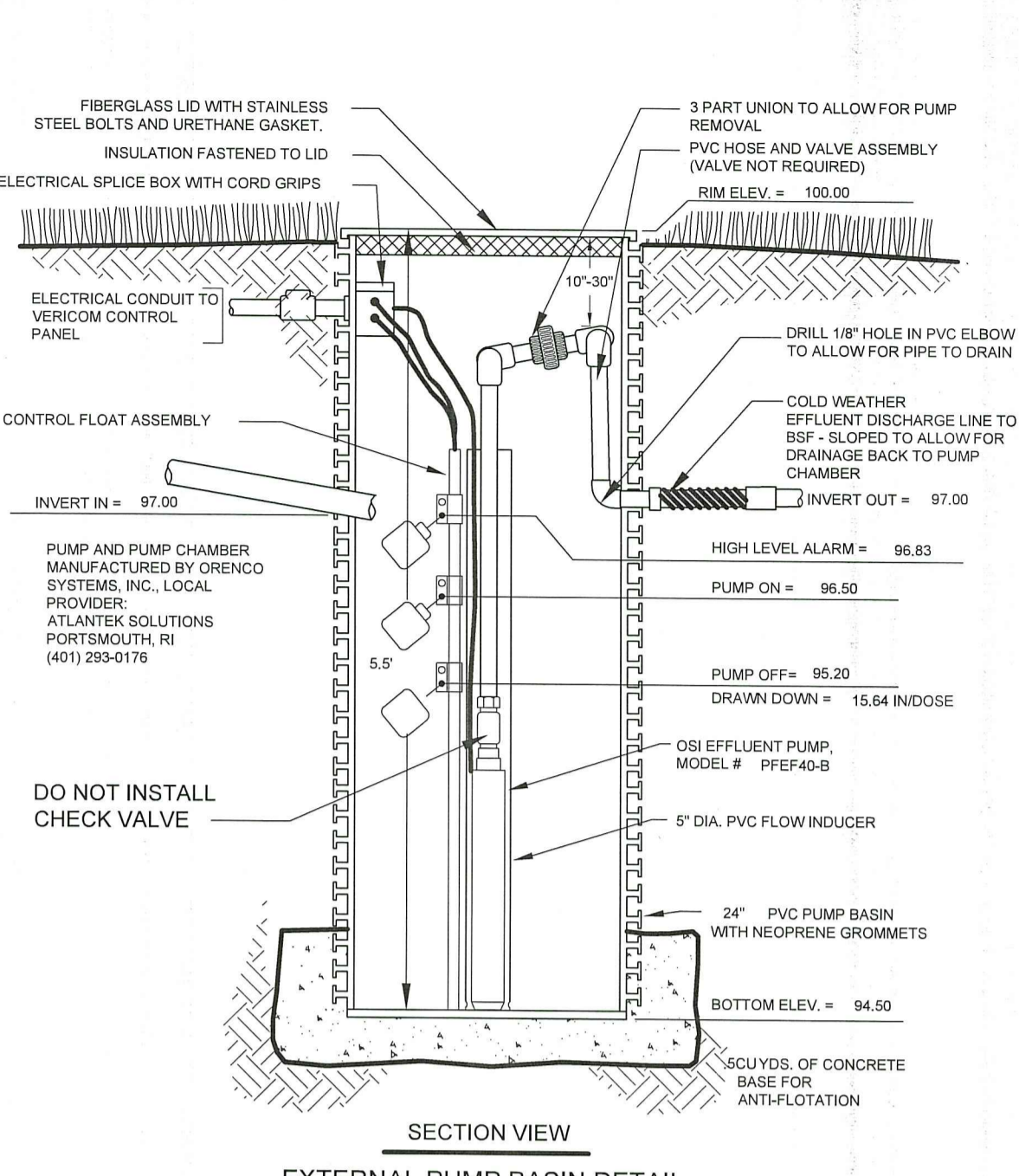
**CONCRETE FIXED STEEL BOLLARD**  
NOT TO SCALE



**BOTTOMLESS SAND FILTER CROSS SECTION**  
NOT TO SCALE



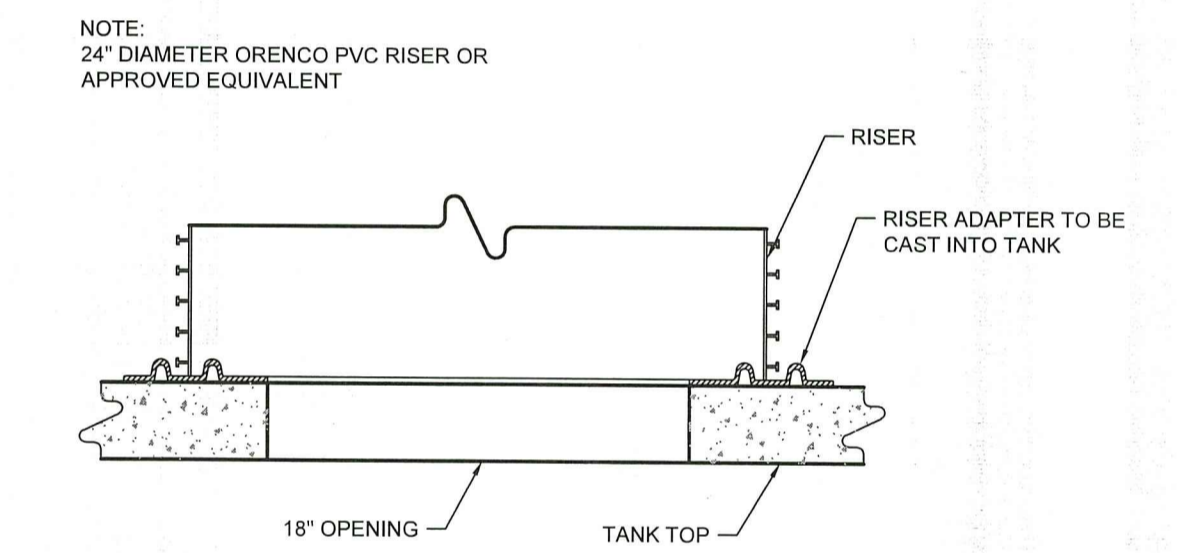
**COLD WEATHER ORIFICE DETAIL**  
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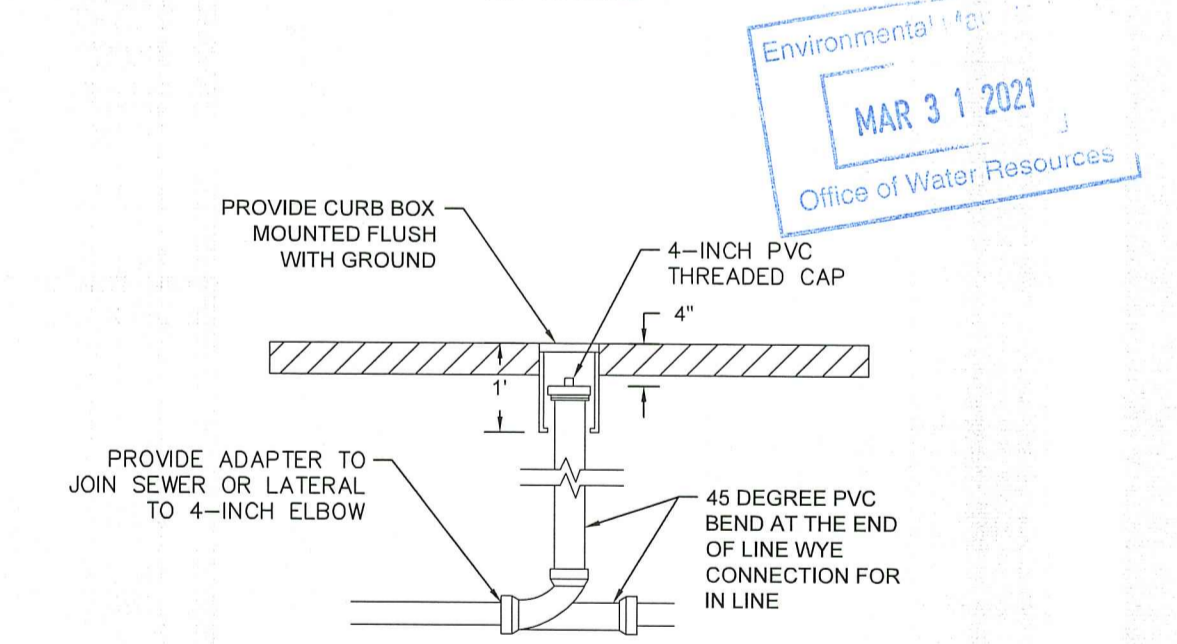
**EXTERNAL PUMP BASIN DETAIL**  
NO SCALE



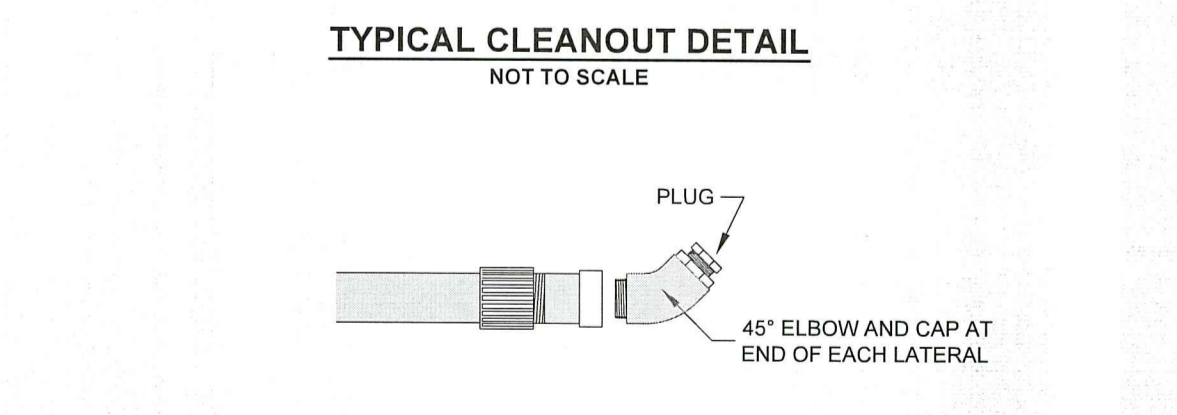
**BOTTOMLESS SAND FILTER CROSS SECTION**  
NOT TO SCALE



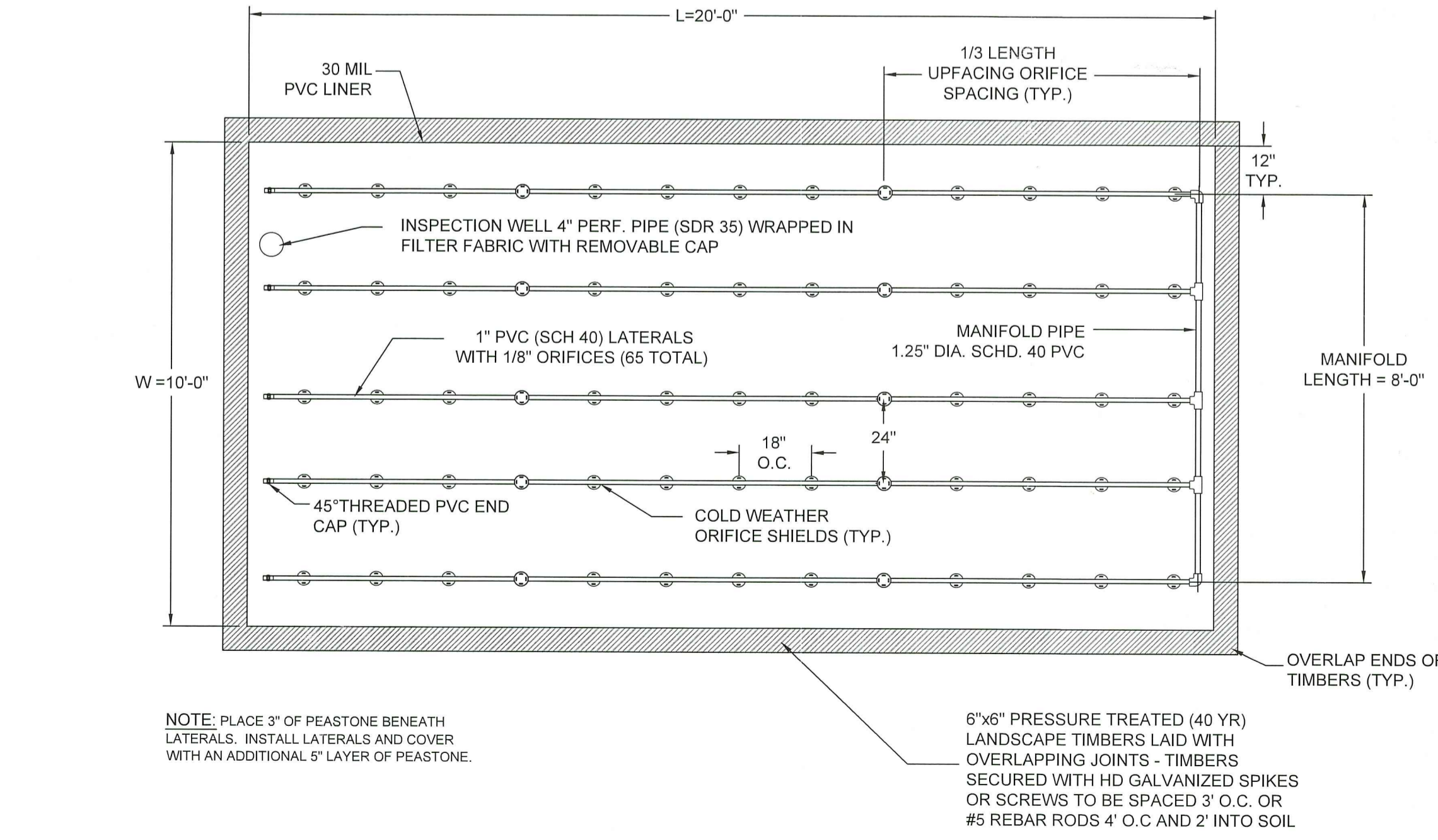
**24" RISER ATTACHMENT FOR CONCRETE TANK DETAIL**  
NOT TO SCALE



**TYPICAL CLEANOUT DETAIL**  
NOT TO SCALE



**THREADED END CAP DETAIL**  
NOT TO SCALE



**TOP VIEW OF BOTTOMLESS SAND FILTER, 10' x 20'**  
NOT TO SCALE

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**CIVIL & SITE ENGINEER:** Horsley Witten Group, Inc. 80 Route 6A, Sandwich, MA 02563

**DATE:** DECEMBER 2020

**DESIGNED BY:** JK

**DRAWN BY:** JK

**CHECKED BY:** JH

**PROJECT TITLE:** GREAT SWAMP MAINTENANCE GARAGE 90% DESIGN DEVELOPMENT WEST KINGSTON, RI

**PREPARED FOR:** Rhode Island Department of Environmental Management, 235 Promenade Street, Providence, RI

**PHONE:** (401) 222-2776

**FAX:** ...

**REVISIONS:**

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