

# AQUIDNECK ISLAND WATER PROJECT - PHASE I

CARRIAGE DRIVE · PORTSMOUTH · RHODE ISLAND  
CARRIAGE DRIVE STORMWATER BMPs

JUNE 2018

PREPARED FOR  
**AQUIDNECK ISLAND  
PLANNING COMMISSION**  
55 JOHN CLARKE ROAD  
MIDDLETOWN, RHODE ISLAND



PREPARED BY  
**FUSS & O'NEILL**

317 IRON HORSE WAY, SUITE 204  
PROVIDENCE, RI 02908  
401.861.3070  
www.fando.com

### OWNERS

A.P. 61, LOT 5  
AQUIDNECK ISLAND LAND TRUST  
790 AQUIDNECK AVENUE  
MIDDLETOWN, RI 02842-7271

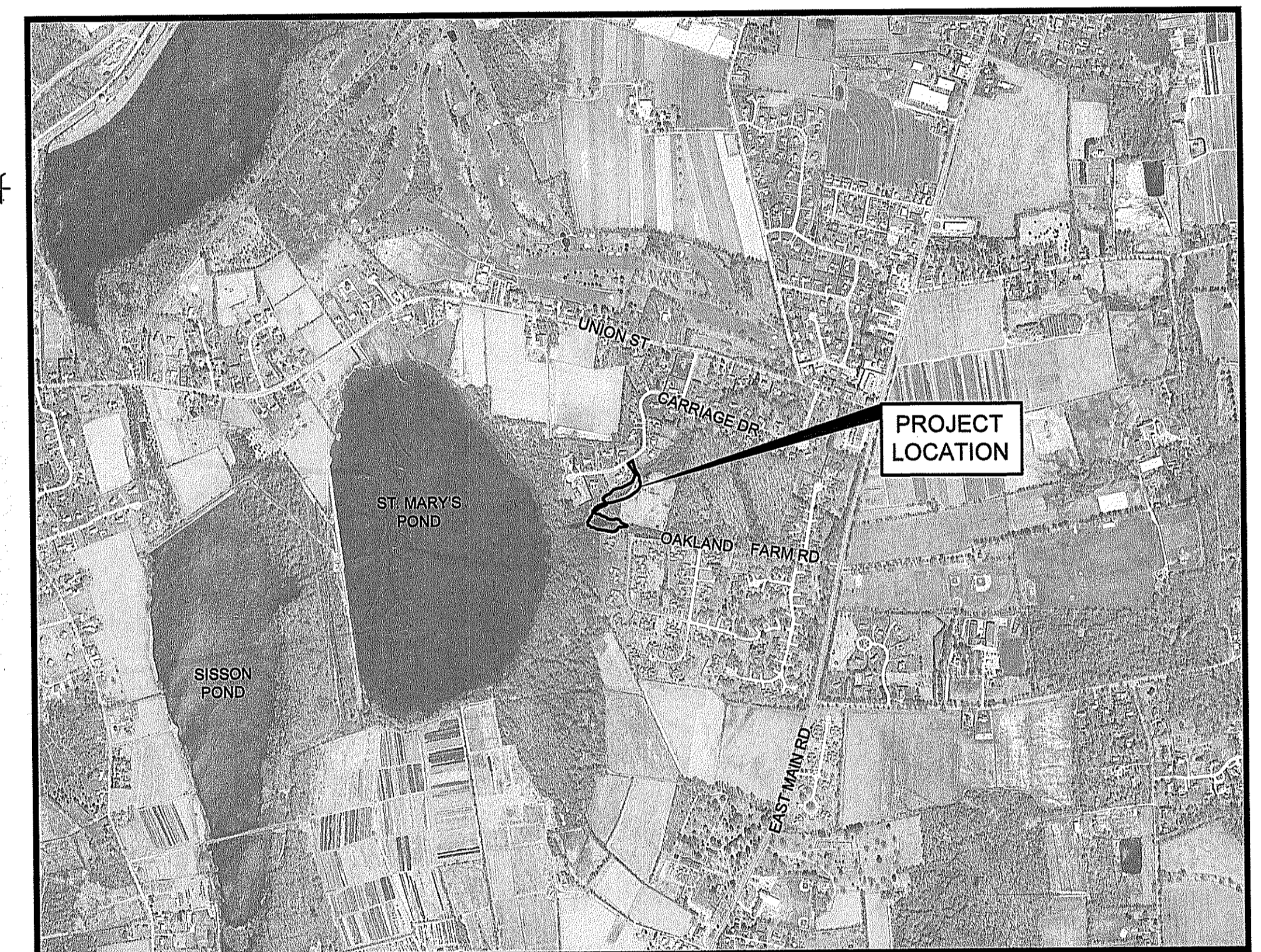
A.P. 61, LOT 5 - EASEMENT  
NEWPORT WATER DEPARTMENT  
CITY OF NEWPORT  
43 BROADWAY  
NEWPORT, RI 02840

### PROJECT PARTNERS

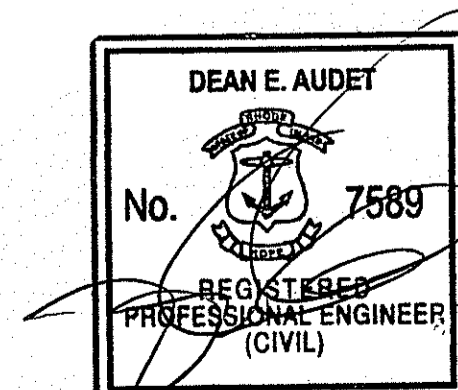
TOWN OF PORTSMOUTH  
2200 E. MAIN ROAD  
PORTSMOUTH, RI 02871

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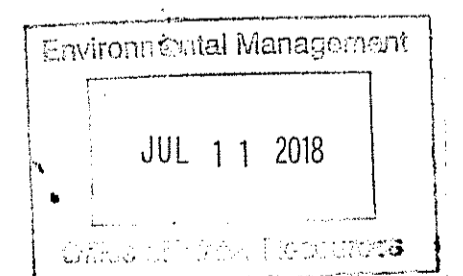


LOCATION MAP  
SCALE: 1" = 1000'



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
SEP 19 2018 FILE # 18-0189  
DATED  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*Charles A. Huber*



PROJ. No.: 20151157.A10  
DATE: MAY 2018

GI-001

**LEGEND**

		PROPERTY LINE/ STATE HIGHWAY LINE	EXISTING CONTOUR
		LIMIT OF DISTURBANCE/ CLEARING	PROPOSED CONTOUR (MINOR)
		GRAVEL ROAD	PROPOSED CONTOUR (MAJOR)
		EDGE OF PAVEMENT	FLAGGED WETLAND
		BITUMINOUS CURB	50' PERIMETER WETLAND
		CONSTRUCTION ROAD	PROPOSED PERFORATED UNDERDRAIN PIPE
		GUARD RAIL	PROPOSED DRAIN PIPE
		STOCKADE FENCE	PROPOSED STONE RIPRAP
		WIRE FENCE	PROPOSED TURF REINFORCEMENT MATTING
		CHAIN LINK FENCE	EXISTING CART PATH
		TREE LINE	
		SHRUB LINE	
		STONE WALL	
		RETAINING WALL	
		OVERHEAD WIRES	
		WATER MANHOLE	
		WATER GATE	
		GATE VALVE	
		GAS GATE	
		GAS METER	
		SIGN	
		WETLAND	
		UTILITY POLE	
		APPROX ELEV	APPROXIMATE ELEVATION
		EXIST	EXISTING
		MAX	MAXIMUM
		MIN	MINIMUM
		NTS	NOT TO SCALE
		TYP	TYPICAL
		HOPE	HOPE
		HDPE	HIGH DENSITY POLYETHYLENE PIPE
		INVT	INVERT ELEVATION
		PVC	POLYVINYL CHLORIDE PIPE
		UP	UTILITY POLE
		DRAINAGE LINE	
		HAYBALES	
		HAYBALE CHECK DAMS	
		SPOT ELEVATION	
		MONITORING WELL	
		TEST PIT LOCATION	
		STATE HIGHWAY PERMANENT DRAINAGE BOUNDARIES	

**ABBREVIATIONS**

APPROX ELEV	APPROXIMATE ELEVATION
EXIST	EXISTING
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
TYP	TYPICAL
HOPE	HOPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
INVT	INVERT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
UP	UTILITY POLE

**GENERAL NOTES AND REFERENCES**

- EXISTING CONDITIONS INFORMATION:
  - EXISTING FEATURE AND TOPOGRAPHIC SURVEY WITHIN IMMEDIATE PROJECT AREA WORK LIMITS: EXISTING FEATURES AND TOPOGRAPHIC INFORMATION SHOWN THAT ARE WITHIN THE IMMEDIATE PROJECT AREA LIMITS WAS OBTAINED FROM ON-GROUND SURVEY PERFORMED BY NATIONAL LAND SURVEYORS INC. IN APRIL 2018.
  - TOPOGRAPHIC INFORMATION FOR AREAS OUTSIDE OF IMMEDIATE PROJECT WORK LIMITS: TWO-FOOT CONTOURING SHOWN WITHIN AREAS OF THE PROJECT SITE WHERE WORK IS BEING PROPOSED WAS OBTAINED FROM A FIELD SURVEY PERFORMED BY NATIONAL LAND SURVEYORS, INC. IN APRIL 2018. TWO-FOOT CONTOURING LOCATED OUTSIDE OF PROPOSED WORK AREAS ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES. ADDITIONALLY, BATHYMETRY ASSOCIATED WITH THE WET BASIN LOCATED UPSTREAM OF BOBBY'S POND WAS APPROXIMATED FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019.
  - PROPERTY BOUNDARIES: PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF MIDDLETOWN'S AND PORTSMOUTH'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES IN ADDITION TO PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019. THIS PLAN IS SUBSTANTIALLY CORRECT IN ACCORDANCE WITH A CLASS IV STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS PLAN IS NOT TO BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY AND IS SUBJECT TO SUCH CHANGES AS AN ACCURATE BOUNDARY SURVEY MAY DISCLOSE. ALL PROPERTIES WHERE WORK WILL BE PROPOSED OR ACCESS REQUIRED MUST BE VERIFIED.
  - WETLAND FLAGGING WITHIN IMMEDIATE PROJECT AREA WORK LIMITS: WETLAND FLAGGING WITHIN AREAS OF THE PROJECT SITE WHERE WORK IS BEING PROPOSED WAS FLAGGED BY FUSS & O'NEILL AND FIELD LOCATED BY NATIONAL LAND SURVEYORS, INC. (IN APRIL 2018) AS REFLECTED IN THE TABLE BELOW. WETLANDS LOCATED OUTSIDE OF THE IMMEDIATE WORK AREAS ARE APPROXIMATE ONLY AND WERE OBTAINED FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019. ADJUSTMENTS/CORRECTIONS TO THOSE APPROXIMATE WETLAND RESOURCE BOUNDARIES WITHIN THE VICINITY OF THE IMMEDIATE PROJECT AREA WERE THEN MADE BY FUSS & O'NEILL, INC.
  - UTILITIES: THE LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND HAVE NOT YET BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT "DIGSAFE" AT 1-888-344-7233, 72-HOURS PRIOR TO ANY EXCAVATION PERFORMED ON SITE.
  - SPECIAL FLOOD HAZARD AND NATURAL HERITAGE AREAS INFORMATION: THIS PROJECT SITE IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA), BOND, ETC. AND OTHER APPROVATION RELATED ITEMS WITH THE TOWN OF PORTSMOUTH AND/OR RIDOT, NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.

**GENERAL CONSTRUCTION REQUIREMENTS**

- THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. THE CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
- METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION AND THE PROJECTS CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVATION RELATED ITEMS WITH THE TOWN OF PORTSMOUTH AND/OR RIDOT. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
- DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER/OWNER.
- THE CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE ANY EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. THE EXISTING AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT AND THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS/HER EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS TO CONTACT "DIGSAFE" AT 1-888-344-7233, 72-HOURS PRIOR TO ANY EXCAVATION PERFORMED ON SITE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING, WITH MATCHING MATERIALS, ANY PAVEMENT, WALKS, CURBS, ETC. THAT MUST BE CUT OR THAT ARE DAMAGED DURING CONSTRUCTION.
- AN APPROVED SET OF CONTRACT DOCUMENTS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
- THE CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB AND SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER."
- THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2004 EDITION, REVISION AND ALL CURRENT ADDENDA, AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.
- EXISTING DISCHARGE FLOW RATES FROM THE CULVERTS DISCHARGING TO THE SITE SHALL BE MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION.

**SPILL PREVENTION AND RESPONSE PROCEDURE**

- ANY INADVERTENT OR DELIBERATE DISCHARGE OF WASTE OIL OR ANY OTHER POLLUTANT TO THE STORMWATER DISPOSAL SYSTEM REQUIRES IMMEDIATE NOTIFICATION TO THE RIDEM OIL POLLUTION CONTROL PROGRAM AT 401-277-2284, AS PER THE OIL POLLUTION CONTROL REGULATIONS. DURING NON-WORKING HOURS, NOTIFICATION OF SPILLS CAN BE MADE TO THE RIDEM DIVISION OF ENFORCEMENT AT 401-277-3070 (THE 24-HOUR EMERGENCY RESPONSE PHONE NUMBER).
- ANY INCIDENT OF GROUNDWATER CONTAMINATION RESULTING FROM THE IMPROPER DISCHARGE OF POLLUTANTS TO THE STORMWATER DISPOSAL SYSTEM SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AS WELL AS ANY OTHER PARTIES THAT THE RIDEM DETERMINES TO BE RESPONSIBLE FOR THE CONTAMINATION. PURSUANT TO STATE LAWS AND REGULATIONS, THE RIDEM MAY REQUIRE THE PROPERTY OWNER AND OTHER RESPONSIBLE PARTIES TO REMEDIATE ANY INCIDENTS THAT MAY ADVERSELY IMPACT GROUNDWATER QUALITY.
- UPON COMPLETION OF CONSTRUCTION THE OWNER SHALL BE INFORMED AS TO THE LEGAL RESPONSIBILITIES ASSOCIATED WITH MAINTENANCE AND DISPOSAL REQUIREMENTS.
- THE OWNER WILL CREATE A MAINTENANCE LOG, SHOWING THE DATE, TIME, NAME OF INSPECTOR, INSPECTION COMMENTS, AND ANY ACTIONS TAKEN BASED ON THE ABOVE REFERENCE SCHEDULE.
- THE PROPERTY OWNER SHALL BE RESPONSIBLE TO REMEDIATE INCIDENTS THAT ADVERSELY IMPACT GROUNDWATER QUALITY.

**EROSION CONTROL**

- DISTURBANCE OF SOIL SURFACES IS REGULATED BY STATE LAW AND LOCAL ORDINANCE. ALL WORK SHALL COMPLY WITH THE FOLLOWING CRITERIA TO PREVENT OR MINIMIZE SOIL EROSION.
- THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL DEVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLAN, OR AS DIRECTED BY THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND THE ENGINEER.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- THE CONTRACTOR SHALL USE THE LATEST EDITION OF THE "STATE OF RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" IN CONSTRUCTING THE EROSION AND SEDIMENT CONTROLS INDICATED ON THE PLANS. ALL EROSION AND SEDIMENT CONTROL MEASURES OR WORKS OR REHABILITATION MEASURES MUST CONFORM TO OR EXCEED THE SPECIFICATIONS OR STANDARDS SET OUT IN THIS HANDBOOK.
- THE CONTRACTOR IS RESPONSIBLE FOR THE TIMELY INSTALLATION, INSPECTION, MAINTENANCE, AND/OR REPLACEMENT OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES TO ENSURE PROPER OPERATION THROUGHOUT THE LIFE OF THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF PERMANENT MEASURES UNTIL CONSTRUCTION OF THE PROJECT IS COMPLETED OR UNTIL IT IS ACCEPTED BY THE OWNER. THE OWNER IS RESPONSIBLE THEREAFTER.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF SEDIMENT ONTO PAVED ROADWAYS FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVED AREAS AS MAY BE REQUIRED. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO, WATER AND/OR CRUSHED STONE OR COARSE GRAVEL, SUBJECT TO THE APPROVAL OF THE ENGINEER. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE SURROUNDING ROADWAYS MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR VIA SWEEPING, DUST, SEDIMENT, AND MUD CONTROL EFFORTS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL INSTALL PERIMETER SEDIMENT CONTROL BARRIERS AS SHOWN ON THE SITE PLANS OR AS MAY BE REQUIRED TO PREVENT SEDIMENT FROM THE SITE. COIR ROLLS SHALL ALSO BE INSTALLED AROUND ANY SOIL STOCKPILE AREAS UTILIZED BY THE CONTRACTOR DURING CONSTRUCTION. COIR ROLLS SHALL ALSO BE INSTALLED AROUND THE UP-GRADE PERIMETERS OF WYTS AREAS IMMEDIATELY FOLLOWING CONSTRUCTION. CLEANOUT OF ACCUMULATED SEDIMENT BEHIND PERIMETER SEDIMENT CONTROL BARRIERS IS NECESSARY IF 1/3 THE ORIGINAL HEIGHT OF THE BARRIER BECOMES FILLED WITH SEDIMENT. REPLACE BARRIERS IMMEDIATELY IF BARRIER DECOMPOSED OR BECOMES INEFFECTIVE. SUCH MEASURES SHALL NOT BE REMOVED UNTIL VEGETATION HAS BEEN SATISFACTORILY STABILIZED.
- THE PROPOSED CONSTRUCTION ENTRANCES SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS AND DETAILS. ALL VEHICLE TRAFFIC ENTERING OR EXITING THE SITE SHALL PASS OVER A CONSTRUCTION ENTRANCE TO REDUCE THE TRACKING OR FLOWING OF SEDIMENT ONTO THE SURROUNDING ROADWAYS. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION THAT TRACKING OR FLOWING OF SEDIMENT ONTO THE SURROUNDING ROADWAYS. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONTINUOUS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT IS NECESSARY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TACKED ONTO THE SURROUNDING ROADWAYS MUST BE REMOVED IMMEDIATELY.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER. IF SITE INSPECTIONS IDENTIFY CONTROLS THAT ARE DAMAGED OR ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE AND BEFORE THE NEXT STORM EVENT.
- THE CONTRACTOR SHALL IDENTIFY TREES TO BE REMOVED PRIOR TO CONSTRUCTION AND MARK THEM WITH CONSTRUCTION TAPE FOR REVIEW BY THE OWNER AND ENGINEER. CONTRACTOR SHALL NOT REMOVE TREES UNTIL REVIEWED AND APPROVED BY THE OWNER.
- THE CONTRACTOR SHALL RESTORE DISTURBED AREAS TO ORIGINAL CONDITION. AREAS DAMAGED DURING CONSTRUCTION SHALL BE RESEDED, RESEED OR OTHERWISE RESTORED TO THEIR ORIGINAL STATE. TREES AND OTHER EXISTING VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE.
- TEMPORARY VEGETATIVE COVER SHALL BE APPLIED TO ANY DISTURBED AREAS (INCLUDING SOIL STOCKPILE AREAS) THAT HAVE NOT YET REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED, EXCEPT:
  - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS
  - STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE; OR
  - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
- TEMPORARY VEGETATIVE COVER SHALL BE APPLIED ANYTIME BETWEEN MARCH 15 THROUGH NOVEMBER 15. TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 80% OF PERENNIAL AND 40% ANNUAL RYEGRASS OR 100% OF WINTER RYE. ANNUAL OR PERENNIAL RYEGRASS SHALL BE PLANTED AT A RATE OF 1.5 POUNDS PER 1,000 SQUARE FEET AND WINTER RYE SHALL BE PLANTED AT A RATE OF 2.5 POUNDS PER 1,000 SQUARE FEET.
- PERMANENT VEGETATIVE COVER SHALL BE APPLIED TO ALL DISTRIBUTED AREAS THAT HAVE REACHED FINISHED GRADE AS SOON AS POSSIBLE, BUT NOT MORE THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED. THE RECOMMENDED PERMANENT SEEDING DATES ARE APRIL 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH OCTOBER 15. DEPENDING ON THE WEATHER AND TEMPERATURES, THE RECOMMENDED FINAL SEEDING DATE MAY BE EXTENDED 15 DAYS. REFER TO THE GRADING AND LAYOUT PLAN FOR PERMANENT SEED MIXES AND RATES OF APPLICATION. LIMESTONE AND A SLOW RELEASE PHOSPHORUS-FREE FERTILIZER SHALL BE APPLIED ACCORDING TO SOIL TEST RECOMMENDATIONS OFFERED BY THE UNIVERSITY OF MASSACHUSETTS SOIL TESTING LABORATORY. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, THE RATE OF 10-10-10 OR EQUIVALENT, APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AS FOLLOWS: 2 TONS PER ACRE (OR 90 POUNDS PER 1,000 SQUARE FEET). USE OF PHOSPHORUS-FREE FERTILIZER WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICAL TO SUPPORT GROW OF VEGETATION.
- ALL AREAS WHICH ARE TO RECEIVE PERMANENT MULCHING IN ADDITION TO AREAS WHICH CANNOT BE SEEDING WITHIN THE RECOMMENDED SEEDING DATES AND ANY SOIL STOCKPILE AREAS, SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. TEMPORARY MULCHING SHOULD BE PERFORMED AS SOON AS POSSIBLE, BUT NOT MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS TEMPORARILY CEASED UNLESS THE ACTIVITY IS TO RESUME WITHIN TWENTY-ONE (21) DAYS.
  - ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. WHERE EROSION IS OBSERVED, ADDITIONAL MULCH MUST BE APPLIED. I
  - STRAW OR HAY MULCH IS RECOMMENDED. STRAW OR HAY MULCH SHOULD BE APPLIED AT A RATE OF 2 TONS PER ACRE. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER SPREADING TO PREVENT WINDBLOWING. MULCH ANCHORING SHOULD ALSO BE USED ON SLOPES GREATER THAN THREE (3) PERCENT AND CONCENTRATED FLOW AREAS SUCH AS DIVERSION AND WATERWAY CHANNELS.
- IF SEEDING CANNOT BE COMPLETED IMMEDIATELY OR WITHIN THE RECOMMENDED SEEDING DATES, USE THE TEMPORARY MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
- SEEDING AREAS MUST BE INSPECTED EVERY 7 CALENDAR DAYS DURING CONSTRUCTION AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/4-INCHES OR MORE OF PRECIPITATION. CONTRACTOR SHALL SUPPLY TEMPORARY AND PERMANENT SEEDING WITH ADEQUATE MOISTURE AND SHALL SUPPLY WATER AS NEEDED, ESPECIALLY IN ABNORMALLY HOT OR DRY WEATHER OR ON ADVERSE SITES. THE RATE OF WATER APPLIED MUST BE IN A CONTROLLED MANNER TO PREVENT RUNOFF FROM BEING DISCHARGED ONTO ADJACENT ROADWAY AREAS. RE-SEED AREAS WHERE THE PLANTS DO NOT GROW QUICK ENOUGH, THICK ENOUGH, OR ADEQUATELY ENOUGH TO PREVENT EROSION SHOULD BE RE-SEED.
- ALL EXCESS EXCAVATED MATERIALS, EXCESS FILL, EXCESS CONSTRUCTION MATERIALS, AND DEBRIS SHALL BE REMOVED FROM THE SITE AND SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS.
- WASTE DISPOSAL: MATERIALS WHICH COULD BE A POTENTIAL SOURCE OF STORMWATER POLLUTION SUCH AS GASOLINE, DIESEL FUEL, HYDRAULIC OIL, ETC., SHALL BE STORED AT THE END OF EACH DAY IN A STORAGE TRAILER OR COVERED LOCATION AND TAKEN OFF-SITE AND PROPERLY DISPOSED OF. ALL TYPES OF WASTE GENERATED AT THIS SITE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH STATE LAW AND/OR REGULATIONS.
- SPILL PROTECTION AND RESPONSE: THE CONTRACTOR SHALL FUEL VEHICLES AND EQUIPMENT AWAY FROM INFILTRATION TRENCHES, POROUS ASPHALT, ADJACENT DRAINAGE INLETS, AND PRIVATE PROPERTY. BOOMS AND OTHER CONTAINMENT DEVICES SHALL BE PROVIDED BY THE CONTRACTOR AND USED IN THE EVENT OF A SPILL. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND RIDEM IF SPILL OCCURS.
- GOOD HOUSEKEEPING: THE PROJECT SITE SHALL PROVIDE FOR THE MINIMIZATION OF EXPOSURE OF CONSTRUCTION DEBRIS TO PRECIPITATION BY MEANS OF DISPOSAL AND/OR PROPER SHELTER OR COVER. CONSTRUCTION WASTE MUST BE PROPERLY DISPOSED OF IN ORDER TO AVOID EXPOSURE TO PRECIPITATION AT THE END OF EACH WORKING DAY.

**STORMWATER MAINTENANCE PROGRAM**

THE AQUIDNECK ISLAND LAND TRUST WILL BE RESPONSIBLE FOR LONG-TERM MAINTENANCE OF THE CONSTRUCTED WETLAND VEGETATED TREATMENT SYSTEMS AND THEIR ASSOCIATED CONTROLS ONCE ACCEPTED FROM THE CONTRACTOR. THE OAKLAND FARM HOMEOWNERS ASSOCIATION WILL BE RESPONSIBLE FOR THE LONG-TERM MAINTENANCE OF THE PROPRIETARY PRETREATMENT SYSTEMS CONSTRUCTED FOR THE PRETREATMENT OF RUNOFF GENERATED FROM THE OAKLAND FARM SUBDIVISION. THE CONTRACTOR SHALL BE RESPONSIBLE UNTIL SUBSTANTIAL COMPLETION OF CONSTRUCTION.

MAINTENANCE OF ALL BEST MANAGEMENT PRACTICES SHALL BE PERFORMED AS FOLLOWS:  
 WETLAND VEGETATED TREATMENT SYSTEMS (WYTS) AND ASSOCIATED CONTROLS  
 WETLAND VEGETATED TREATMENT SYSTEMS (WYTS) SHALL BE MAINTAINED IMMEDIATELY FOLLOWING CONSTRUCTION. WYTS SHALL BE INSPECTED AFTER EVERY STORM EVENT LARGER THAN ONE-INCH. THEREAFTER, INSPECTION SHALL OCCUR AT LEAST SEMI-ANNUALLY AND AFTER EVERY STORM EVENT GREATER THAN 2.7 INCHES OVER A 24-HOUR PERIOD. INSPECTIONS SHALL INCLUDE CHECKING FOR STANDING WATER OR OTHER EVIDENCE OF CLOGGING BY ACCUMULATED SEDIMENTS, CHECKING INLETS AND OUTLETS FOR SIGNS OF EROSION AND DAMAGE, CHECKING THE OVERFLOW STRUCTURES FOR BLOCKAGE AND STRUCTURAL INTEGRITY.

- AREAS WITH A PERMANENT POOL SHOULD BE INSPECTED ON A SEMI-ANNUAL BASIS. THE SLOPES OF THE WYTS SHALL BE INSPECTED FOR EROSION AND GULLING. REINFORCE EXISTING RIPRAP OR TURF REINFORCEMENT MATTING (TRM) IF RIPRAP OR TRM IS FOUND TO BE DEFICIENT, EROSION IS PRESENT AT THE OUTFALLS OF ANY CONTROL STRUCTURES, OR THE EXISTING RIPRAP OR TRM HAS BEEN COMPROMISED.
- ALL STRUCTURAL COMPONENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, PIPES, VOW RISER STRUCTURES, AND SPILLWAY STRUCTURES, SHOULD BE INSPECTED AND ANY DEFICIENCIES SHALL BE REPORTED AND REPAIRED IMMEDIATELY. THIS INCLUDES A VISUAL INSPECTION OF ALL STORMWATER CONTROL STRUCTURES FOR DAMAGE AND/OR ACCUMULATION OF SEDIMENT.
- SEDIMENT SHALL BE REMOVED FROM SEDIMENT FOREBAY AREAS WHEN FOREBAY DESIGN DEPTHS HAVE BEEN REDUCED BY 50%. DISPOSE OF SEDIMENT OFF-SITE IN ACCORDANCE WITH ALL FEDERAL AND LOCAL REGULATIONS. THE MATERIAL SHALL BE REMOVED WITH RAKES WHERE POSSIBLE RATHER THAN HEAVY EQUIPMENT TO AVOID COMPACTING. REPLACED MATERIAL SHALL BE OF THE SAME COMPOSITION AS ORIGINALLY INSTALLED.
- REMOVE ALL TRASH AND/OR DEBRIS FROM ALL AREAS WITHIN THE EXTENTS OF THE WYTS.
- SEPARATE AREAS WITHIN THE WYTS THAT EXHIBIT EROSION OR GULLING. THESE AREAS SHALL BE REPAIRED WITH THE ORIGINAL DESIGN MATERIALS AND RE-VEGETATED ACCORDING TO DESIGN DRAWINGS. SLOPE PROTECTION MATERIAL SHALL BE PLACED IN AREAS PRONE TO EROSION. EMBANKMENT STABILITY SHOULD BE INSPECTED FOR SEEPAGE AND BURROWING ANIMALS.
- MOW THE GRASS AROUND THE PERIMETER OF THE BASIN QUARTERLY INCLUDING EMBANKMENT AND MAINTENANCE/ACCESS AREAS.
- PRUNE ALL DEAD OR DYING VEGETATION WITHIN THE EXTENTS OF THE BASIN OR WYTS. REMOVE ALL HERBACEOUS VEGETATION ROOT STOCK WHEN OVERCROWDING THE MAINTENANCE ACCESS TO THE FACILITY. REMOVE ANY VEGETATION THAT HAS A NEGATIVE IMPACT ON STORMWATER FLOW THROUGH THE FACILITY, AND TRIM ANY OVERGROWN VEGETATION WITHIN THE BASIN.
- ANY INVASIVE VEGETATION ENCRACING UPON THE PERIMETER OF THE FACILITY SHALL BE PRUNED OR REMOVED IF IT IS PROHIBITING ACCESS TO THE FACILITY, COMPROMISING SIGHT VISIBILITY AND/OR COMPROMISING ORIGINAL DESIGN VEGETATION.
- REPLACE ANY/ALL ORIGINAL VEGETATION THAT HAS DIED OFF OR HAS NOT FULLY ESTABLISHED, AS DETERMINED AT THE TIME OF THE INSPECTION. WYTS VEGETATION SHOULD BE REINFORCED TO ITS ORIGINAL DESIGN STANDARDS IF LESS THAN 50% OF THE ORIGINAL VEGETATION IS ESTABLISHED AFTER TWO YEARS.
- MAINTENANCE ACCESS ROADS SHALL BE TRIMMED AS NECESSARY TO PROVIDE ADEQUATE ACCESS TO THE WET VEGETATED TREATMENT SYSTEMS.

SEDIMENT FOREBAY (FOR WYTS No. 2)  
 PRO THE FIRST SIX MONTHS IMMEDIATELY FOLLOWING CONSTRUCTION, THE SEDIMENT FOREBAY SHALL BE INSPECTED AFTER EVERY STORM EVENT LARGER THAN ONE-INCH. THEREAFTER, INSPECTION SHALL OCCUR AT LEAST ANNUALLY AND AFTER EVERY STORM EVENT LARGER THAN 2.7 INCHES OVER A 24-HOUR PERIOD.

- REMOVE SEDIMENT AND DEBRIS FROM THE PRETREATMENT FOREBAY ANNUALLY (AT MINIMUM). DISPOSE OF SEDIMENT AND DEBRIS FROM THE PRETREATMENT FOREBAY ANNUALLY (AT MINIMUM) AND FEDERAL GUIDELINES AND REGULATIONS.
- IF ANNUAL INSPECTIONS CONSISTENTLY DEMONSTRATE THAT 50% OR MORE OF THE TOTAL FOREBAY VOLUME IS BEING LOST TO ACCUMULATED SEDIMENT, CONDUCT INSPECTIONS MORE FREQUENTLY (E.G. SEMI-ANNUALLY OR QUARTERLY).

**PROPRIETARY PRETREATMENT SYSTEMS**

THE PROPRIETARY TREATMENT SYSTEMS, CONSISTING OF VORTEX HYDRODYNAMIC SEPARATORS, REMOVE POLLUTANTS INCLUDING SUSPENDED SOLIDS, DEBRIS, FLOATABLES, AND FREE-FLOATING OIL FROM STORMWATER RUNOFF. THESE POLLUTANTS MUST BE REMOVED PERIODICALLY TO ENSURE THE LONG-TERM FUNCTIONALITY OF THE PRETREATMENT SYSTEMS. THE PROPRIETARY TREATMENT SYSTEMS SHALL THEN BE CLEANED AT THE END OF CONSTRUCTION REGARDLESS OF WHETHER FULL SEDIMENT CAPACITY OR OIL STORAGE HAS BEEN ACHIEVED. DURING THE FIRST YEAR FOLLOWING CONSTRUCTION, THE SYSTEMS SHOULD BE INSPECTED EVERY THREE MONTHS (QUARTERLY) AND CLEANED AS NEEDED DEPENDING ON SITE CONDITIONS. THEREAFTER, THE PRETREATMENT SYSTEMS SHALL BE INSPECTED AND CLEANED ANNUALLY (ONCE PER YEAR) AT MINIMUM. INSPECTION SHALL INCLUDE OBSERVING FLOATING MATERIALS AND MEASURING THE ACCUMULATED SEDIMENT AT THE BASE OF THE SWIRL CHAMBER. THE ULTIMATE INSPECTION AND MAINTENANCE FREQUENCY WILL BE DETERMINED BY SITE-SPECIFIC RUNOFF CONDITIONS OBSERVED DURING THE FIRST YEAR OF QUARTERLY INSPECTIONS. IF QUARTERLY INSPECTIONS CONDUCTED DURING THE FIRST YEAR FOLLOWING CONSTRUCTION INDICATE THE NEED FOR MORE FREQUENT INSPECTIONS AND MAINTENANCE, THE INSPECTION/MAINTENANCE FREQUENCY SHALL BE ADJUSTED ACCORDINGLY.

- REMOVE SEDIMENT AND DEBRIS FROM THE PRETREATMENT SYSTEMS WHEN THE SEDIMENT DEPTH REACHES TO WITHIN 34 INCHES OF THE WATER SURFACE (WHICH REPRESENTS APPROXIMATELY 50% OF SUMP STORAGE CAPACITY). DISPOSE OF SEDIMENT AND DEBRIS IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL GUIDELINES AND REGULATIONS.
- IF QUARTERLY INSPECTIONS CONDUCTED DURING THE FIRST YEAR FOLLOWING CONSTRUCTION DEMONSTRATE THE NEED FOR MORE FREQUENT INSPECTIONS/MAINTENANCE, CONDUCT INSPECTIONS MORE FREQUENTLY (E.G. SEMI-ANNUALLY OR QUARTERLY).
- REMOVE FLOATABLE DEBRIS WITH BASKET OR NET IF ANY PRESENT.

**CONSTRUCTION SEQUENCE**

CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT ARE EXPECTED TO COMMENCE IN LATE SUMMER/EARLY FALL OF 2018. IT IS ANTICIPATED THAT CONSTRUCTION WILL BE COMPLETED BY LATE FALL/EARLY WINTER 2018. THE GENERAL SEQUENCE FOR CONSTRUCTION IS AS FOLLOWS:

- INSTALL PERIMETER SEDIMENT CONTROL BARRIERS AND PROPOSED CONSTRUCTION ENTRANCE, AS SHOWN ON THE CONSTRUCTION PLANS. EROSION CONTROL MEASURES WILL BE MAINTAINED OR REPLACED AS REQUIRED THROUGHOUT CONSTRUCTION. ANY TEMPORARY SOIL STOCKPILE AREAS DURING CONSTRUCTION WILL ALSO BE ENCOMPASSED BY SILT FENCE.
- CONDUCT SITE CLEARING AND SOIL STOCKPILING; INSTALL MAINTENANCE ACCESS ROUTE.
- INSTALL TEMPORARY DIVERSION PIPING AS SHOWN ON THE EROSION AND SEDIMENTATION CONTROL PLAN TO DIVERT FLOW FROM ADJACENT CULVERTS AND INTERMITTENT STREAMS AND/OR ASSFS AROUND THE PROJECT WORK AREAS.
- CONDUCT EXCAVATION NECESSARY TO INSTALL SITE IMPROVEMENTS INCLUDING THE WETLAND VEGETATION TREATMENT SYSTEMS AND ASSOCIATED STORMWATER BEST MANAGEMENT PRACTICES. PERFORM ROUGH GRADING.
- INSTALL STORMWATER BMP IMPROVEMENTS AND INSTALL SLOPE PROTECTION AND STABILIZATION MEASURES AS SHOWN ON DRAWINGS.
- INSTALL VEGETATION & SEED AND RESTORE PROJECT WORK AREAS AS INDICATED ON THE GRADING AND LAYOUT PLANS.
- ONCE THE WETLAND VEGETATED TREATMENT SYSTEMS HAVE BEEN ADEQUATELY STABILIZED, REMOVE TEMPORARY DIVERSION PIPING AND BERMS AND RESTORE LOCATIONS TO GRADES INDICATED ON THE PLANS.
- REMOVE TEMPORARY EROSION CONTROLS MEASURES ONCE PERMANENT VEGETATION COVER HAS BEEN ESTABLISHED AND THE SITE IS STABILIZED, INSPECTED, AND APPROVED BY THE OWNER.

APPROVED BY: [Signature]  
 AS SHOWN IN THE LETTER OF APPROVAL  
 DATED: SEP 19 2018 FILE # 18-019  
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 JUL 11 2018  
 Office of Water Resources

File Path: J:\DWG\20181157\1571A10\_CARRIAGE\Phase 1\201811571A10\_GEN01\_CARRIAGE.dwg Layout: CN-001 Plotted: Tue, July 10, 2018 2:04 PM User: saurind  
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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

SEAL  
 DEAN E. AUDEY  
 No. 7589  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

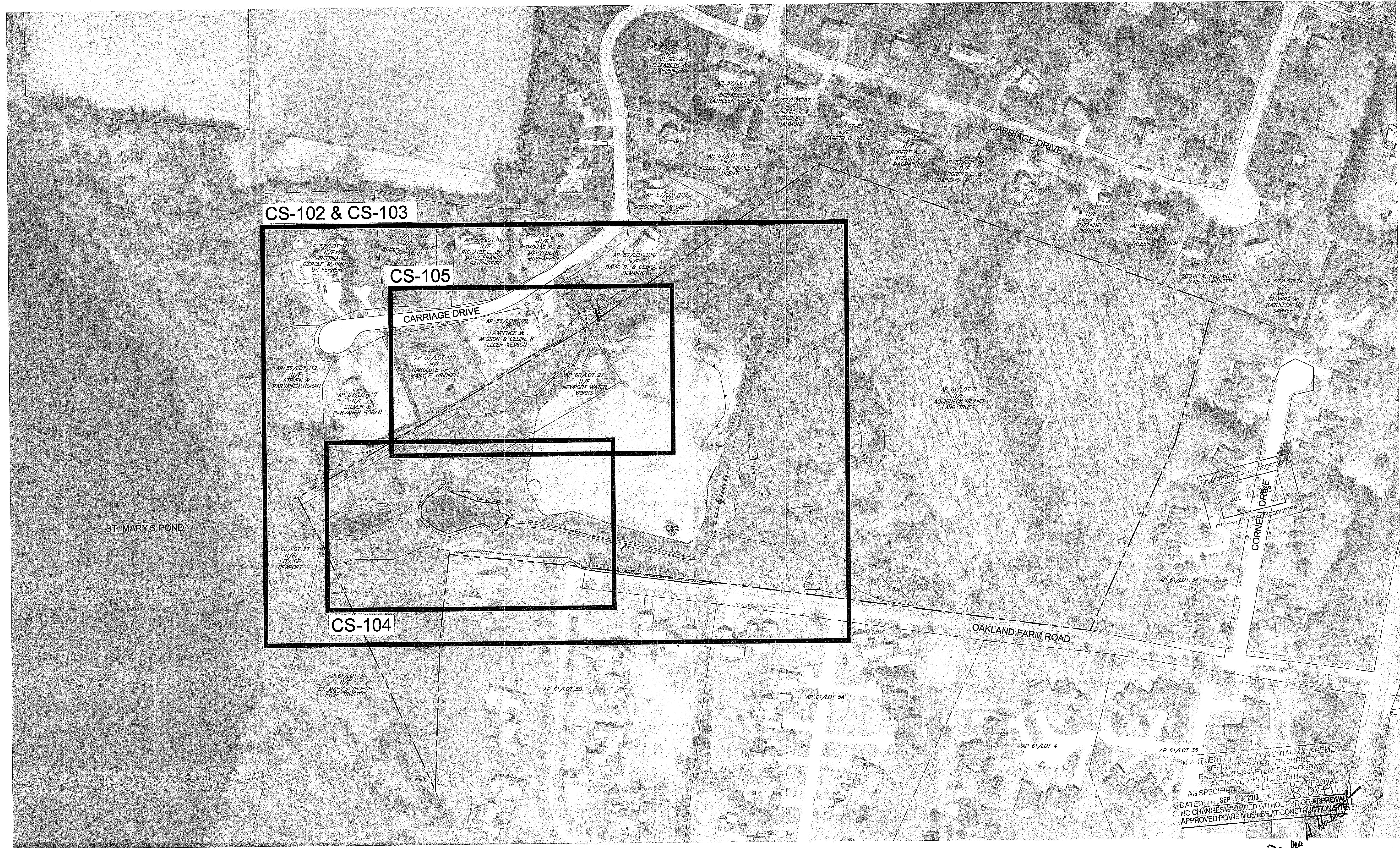
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**FUSS & O'NEILL**  
 317 IRON HORSE WAY, SUITE 204  
 PROVIDENCE, RI 02908  
 401.861.3070  
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AQUIDNECK ISLAND PLANNING COMMISSION  
 GENERAL NOTES & LEGEND  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20151157A10  
 DATE: JUNE 2018  
 CN-001

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

DEAN BAUDET  
 No. 7588  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

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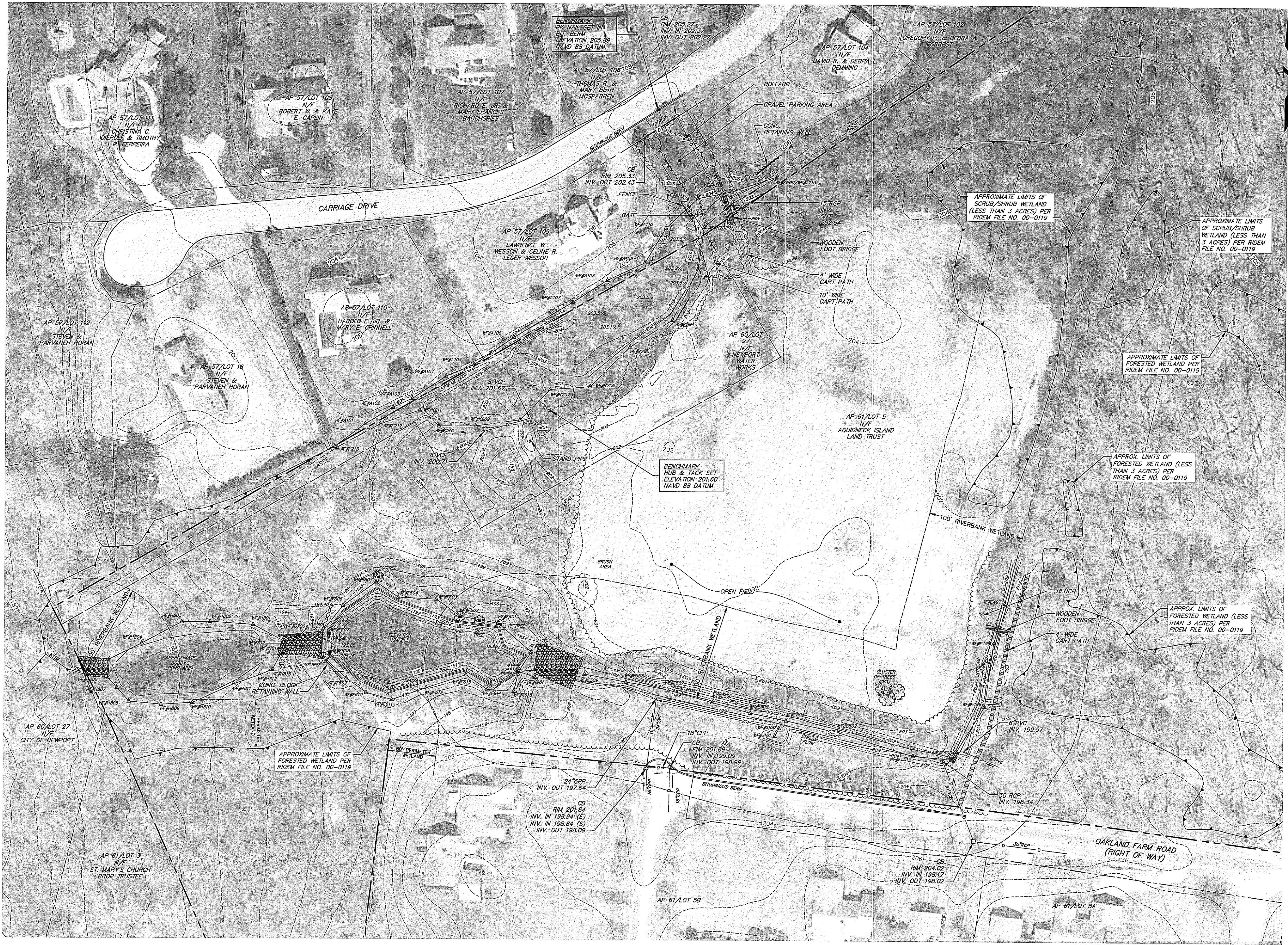
**f** **FUSS & O'NEILL**  
 317 IRON HORSE WAY, SUITE 204  
 PROVIDENCE, RI 02908  
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AQUIDNECK ISLAND PLANNING COMMISSION  
 INDEX PLAN  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20151157.A10  
 DATE: JUNE 2018  
**CS-101**

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED SEP 19 2018 FILE # 18-0199  
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**NOTES:**

1. WETLAND FLAGGING WITHIN AREAS OF THE PROJECT SITE WHERE WORK IS BEING PROPOSED WAS FLAGGED BY FUSS & O'NEILL AND FIELD LOCATED BY NATIONAL LAND SURVEYORS, INC. AS REFLECTED IN THE TABLE BELOW. WETLANDS LOCATED OUTSIDE OF THE IMMEDIATE WORK AREAS ARE APPROXIMATE ONLY AND WERE OBTAINED FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019. ADJUSTMENTS/CORRECTIONS TO THOSE APPROXIMATE WETLAND RESOURCE BOUNDARIES WITHIN THE VICINITY OF THE IMMEDIATE PROJECT AREA WERE THEN MADE BY FUSS & O'NEILL, INC.

FLAG SERIES	RIDEM CLASSIFICATION	REGULATORY SETBACK
WF#A100-A113	SCRUB-SHRUB WETLAND	NONE
WF#E497-E510	INTERMITTENT STREAM (<10')	100-FOOT RIVERBANK
WF#E600-E616	POND (SEE NOTE BELOW)	NONE (SEE NOTE BELOW)
WF#G700-G702	ASSF	NONE
WF#H800-H814	POND (SEE NOTE BELOW)	NONE (SEE NOTE BELOW)
WF#I900-I901	ASSF	NONE
WF#J100-J101	ASSF	NONE
WF#K200-K213	ASSF	NONE
WF#L100-L101	ASSF	NONE

**NOTE:**  
 PER RIDEM RECOMMENDATIONS MADE AT THE PROJECT'S WATER QUALITY RESTORATION TEAM (WRT) MEETING HELD ON APRIL 17, 2018, THIS WETLAND FEATURE WAS CONSIDERED TO BE A MANMADE FEATURE AND SHALL NOT BE CLASSIFIED AS A WETLAND.

**NOTE:**  
 TWO-FOOT CONTOURING SHOWN WITHIN AREAS OF THE PROJECT SITE WHERE WORK IS BEING PROPOSED WAS OBTAINED FROM A FIELD SURVEY PERFORMED BY NATIONAL LAND SURVEYORS, INC. IN APRIL OF 2018. TWO-FOOT CONTOURING LOCATED OUTSIDE OF PROPOSED WORK AREAS ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES.

**NOTE:**  
 BATHYMETRY ASSOCIATED WITH THE WET BASIN LOCATED UPSTREAM OF BOBBY'S POND WAS APPROXIMATED FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019.

**NOTE:**  
 THIS SITE IS LOCATED WITHIN A NATURAL HERITAGE AREA (NHA 134 / REFERENCE ID#137) AND ON STATE CONSERVATION LAND (OAKLAND FOREST). THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, STRUCTURAL USE, OR FARMLAND CONSERVATION AREAS.

**NOTE:**  
 PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF MIDDLETOWN'S AND PORTSMOUTH'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES IN ADDITION TO PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019. THIS PLAN IS SUBSTANTIALLY CORRECT IN ACCORDANCE WITH A CLASS IV STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS PLAN IS NOT TO BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY AND IS SUBJECT TO SUCH CHANGES AS AN ACCURATE BOUNDARY SURVEY MAY DISCLOSE. ALL PROPERTIES WHERE WORK WILL BE PROPOSED OR ACCESS REQUIRED MUST BE VERIFIED.

**NOTE:**  
 THIS PROJECT SITE IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA).

Environmental Management  
 JUL 11 2018  
 Office of Water Resources

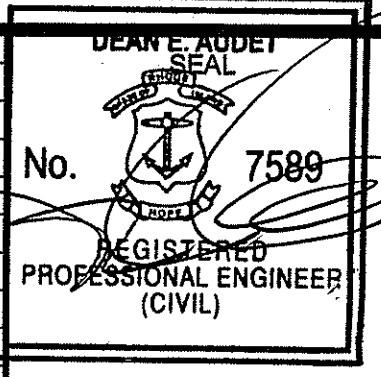
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3. BATHYMETRY ASSOCIATED WITH THE WET BASIN LOCATED UPSTREAM OF BOBBY'S POND WAS APPROXIMATED FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019.
4. THIS SITE IS LOCATED WITHIN A NATURAL HERITAGE AREA (NHA 134 / REFERENCE ID#137) AND ON STATE CONSERVATION LAND (OAKLAND FOREST). THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, STRUCTURAL USE, OR FARMLAND CONSERVATION AREAS.
5. PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF MIDDLETOWN'S AND PORTSMOUTH'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES IN ADDITION TO PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019. THIS PLAN IS SUBSTANTIALLY CORRECT IN ACCORDANCE WITH A CLASS IV STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS PLAN IS NOT TO BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY AND IS SUBJECT TO SUCH CHANGES AS AN ACCURATE BOUNDARY SURVEY MAY DISCLOSE. ALL PROPERTIES WHERE WORK WILL BE PROPOSED OR ACCESS REQUIRED MUST BE VERIFIED.
6. THIS PROJECT SITE IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA).

**LEGEND**

- 50' PERIMETER OR 100' RIVERBANK WETLAND (AS NOTED)
- TREE LINE
- WETLAND FLAGGED BY FUSS & O'NEILL, INC. AND FIELD SURVEYED/LOCATED
- APPROXIMATE WETLAND BOUNDARY FROM PLANS PREPARED BY ATS SURVEY, INC. (LAST REVISED ON 3/30/00) PER RIDEM FILE NO. 00-019

Environmental Management  
 OFFICE OF WATER RESOURCES  
 FROM THE WETLANDS PROGRAM  
 AS SPECIFIED BY THE LETTER OF APPROVAL  
 DATED SEP 19 2018 FILE # 18-0199  
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 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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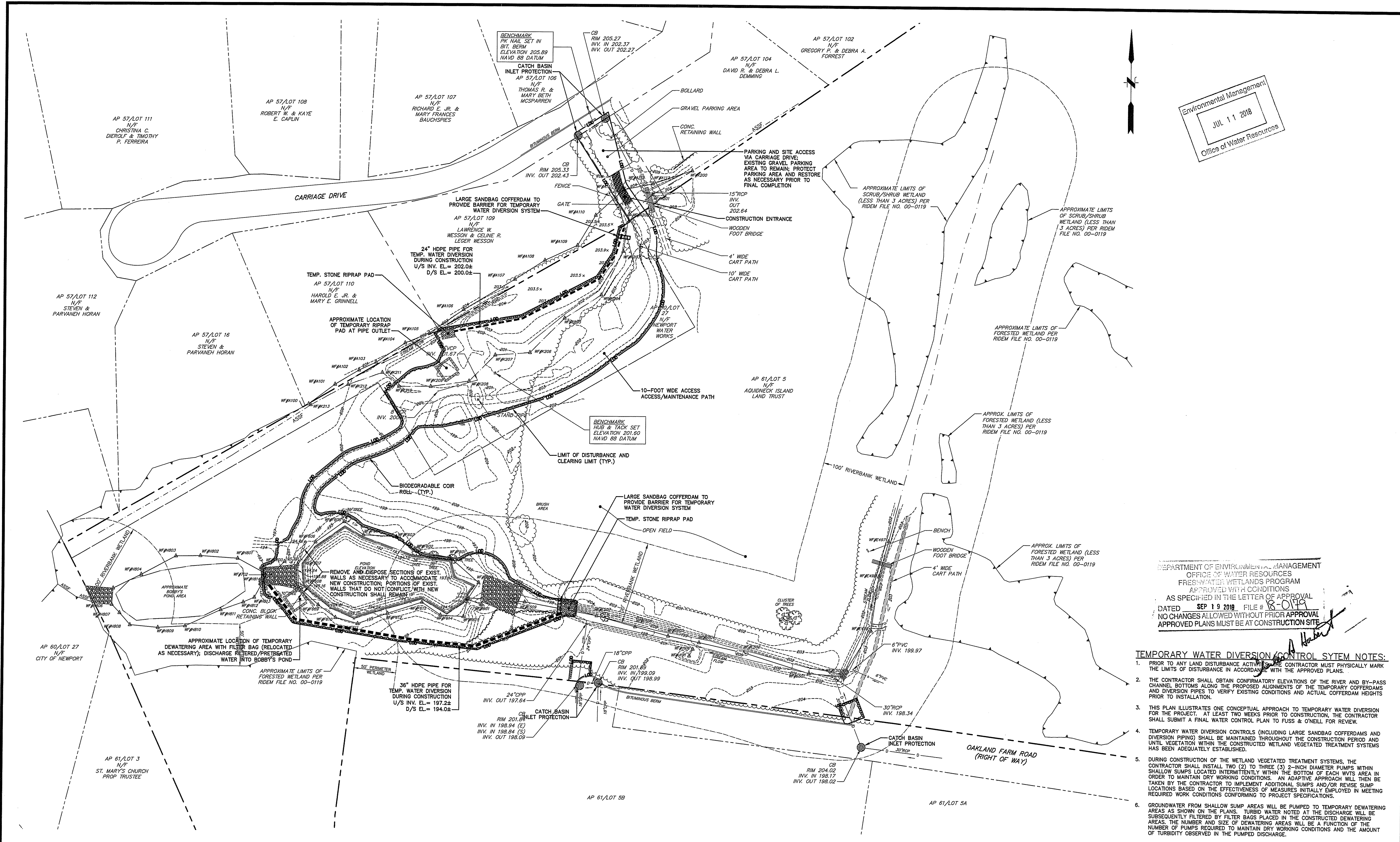
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**f FUSS & O'NEILL**  
 317 IRON HORSE WAY, SUITE 204  
 PROVIDENCE, RI 02908  
 401.861.3070  
 www.fando.com

AQUIDNECK ISLAND PLANNING COMMISSION  
 EXISTING CONDITIONS PLAN  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20161157.A10  
 DATE: JUNE 2018  
**CS-102**

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Environmental Management  
 JUL 11 2018  
 Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED SEP 19 2018 FILE # 18-0119  
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**TEMPORARY WATER DIVERSION CONTROL SYSTEM NOTES:**

1. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES, THE CONTRACTOR MUST PHYSICALLY MARK THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH THE APPROVED PLANS.
2. THE CONTRACTOR SHALL OBTAIN CONFIRMATORY ELEVATIONS OF THE RIVER AND BY-PASS CHANNEL BOTTOMS ALONG THE PROPOSED ALIGNMENTS OF THE TEMPORARY COFFERDAMS PRIOR TO INSTALLATION.
3. THIS PLAN ILLUSTRATES ONE CONCEPTUAL APPROACH TO TEMPORARY WATER DIVERSION FOR THE PROJECT. AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A FINAL WATER CONTROL PLAN TO FUSS & O'NEILL FOR REVIEW.
4. TEMPORARY WATER DIVERSION CONTROLS (INCLUDING LARGE SANDBAG COFFERDAMS AND DIVERSION PIPING) SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL VEGETATION WITHIN THE CONSTRUCTED WETLAND VEGETATED TREATMENT SYSTEMS HAS BEEN ADEQUATELY ESTABLISHED.
5. DURING CONSTRUCTION OF THE WETLAND VEGETATED TREATMENT SYSTEMS, THE CONTRACTOR SHALL INSTALL TWO (2) TO THREE (3) 2-INCH DIAMETER PUMPS WITHIN SHALLOW SUMPS LOCATED INTERMITTENTLY WITHIN THE BOTTOM OF EACH WETS AREA IN ORDER TO MAINTAIN DRY WORKING CONDITIONS. AN ADAPTIVE APPROACH WILL THEN BE TAKEN BY THE CONTRACTOR TO IMPLEMENT ADDITIONAL SUMPS AND/OR REVISE SUMP LOCATIONS BASED ON THE EFFECTIVENESS OF MEASURES INITIALLY EMPLOYED IN MEETING REQUIRED WORK CONDITIONS CONFORMING TO PROJECT SPECIFICATIONS.
6. GROUNDWATER FROM SHALLOW SUMP AREAS WILL BE PUMPED TO TEMPORARY DEWATERING AREAS AS SHOWN ON THE PLANS. TURBID WATER NOTED AT THE DISCHARGE WILL BE SUBSEQUENTLY FILTERED BY FILTER BAGS PLACED IN THE CONSTRUCTED DEWATERING AREAS. THE NUMBER AND SIZE OF DEWATERING AREAS WILL BE A FUNCTION OF THE NUMBER OF PUMPS REQUIRED TO MAINTAIN DRY WORKING CONDITIONS AND THE AMOUNT OF TURBIDITY OBSERVED IN THE PUMPED DISCHARGE.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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DEAN & AUDET  
 No. 7589  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:  
 HORIZ.: 1"= 50'  
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 GRAPHIC SCALE

**FUSS & O'NEILL**  
 317 IRON HORSE WAY, SUITE 204  
 PROVIDENCE, RI 02908  
 401.861.3070  
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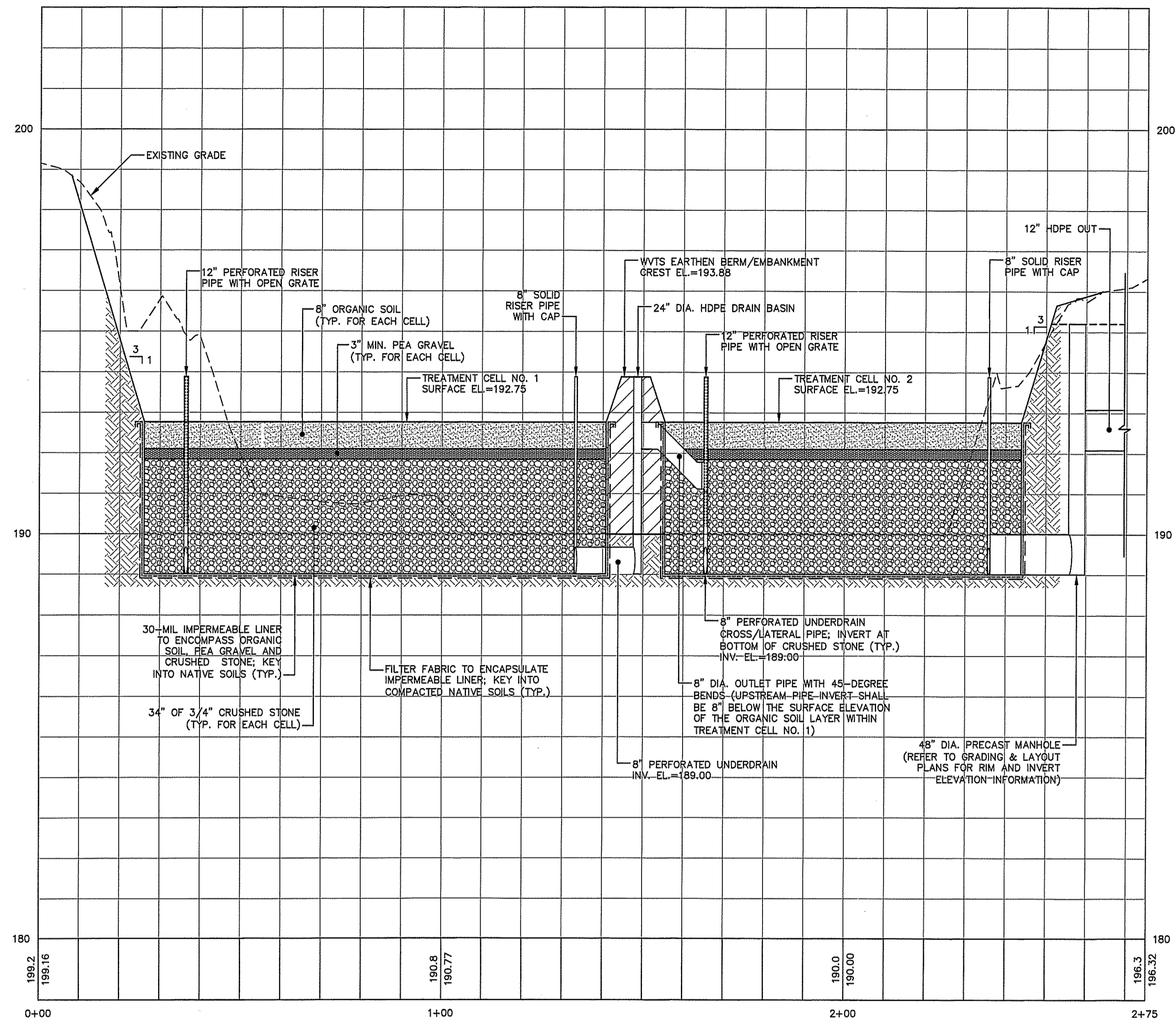
AQUIDNECK ISLAND PLANNING COMMISSION  
 EROSION AND SEDIMENTATION CONTROL PLAN  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20151157\_A10  
 DATE: JUNE 2018  
**CS-103**

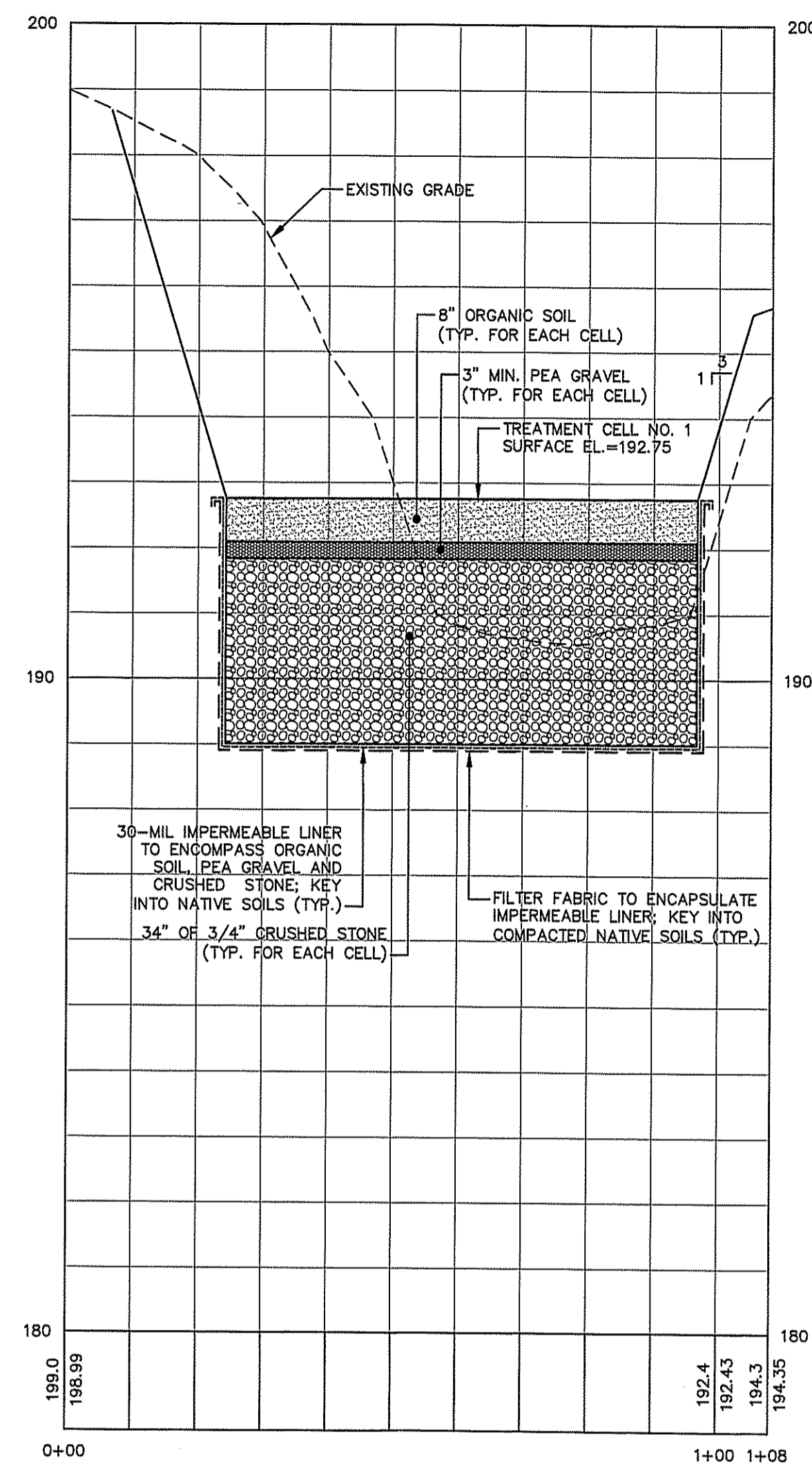




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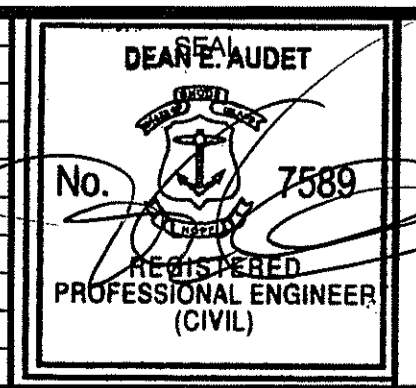


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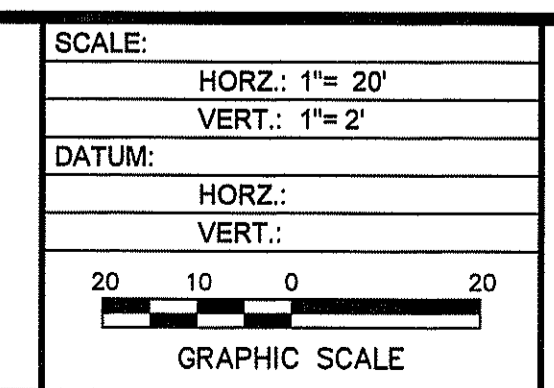
Environmental Management  
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
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 SEP 19 2018 FILE # 18-0119  
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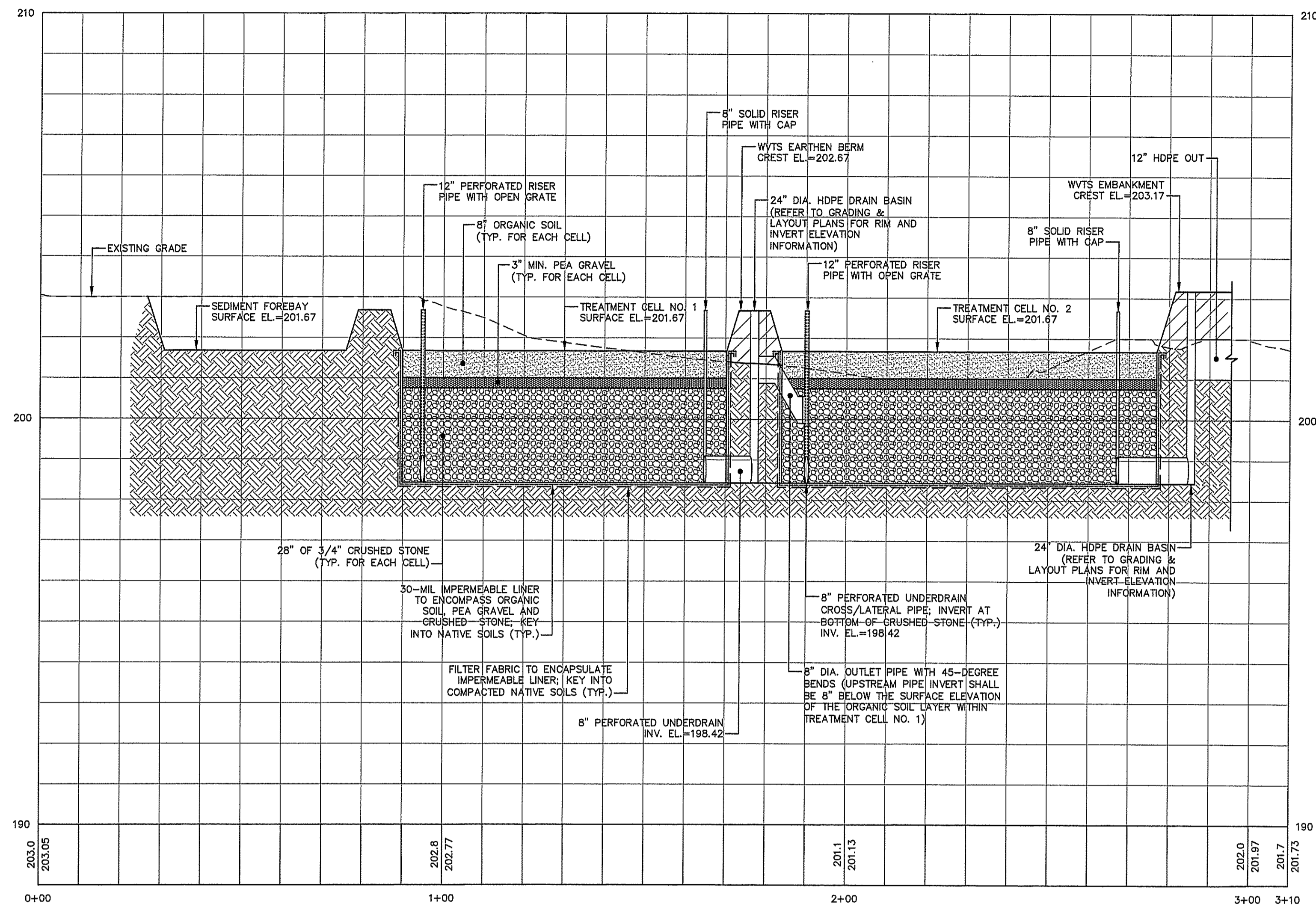


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 PROVIDENCE, RI 02908  
 401.861.3070  
 www.fundo.com

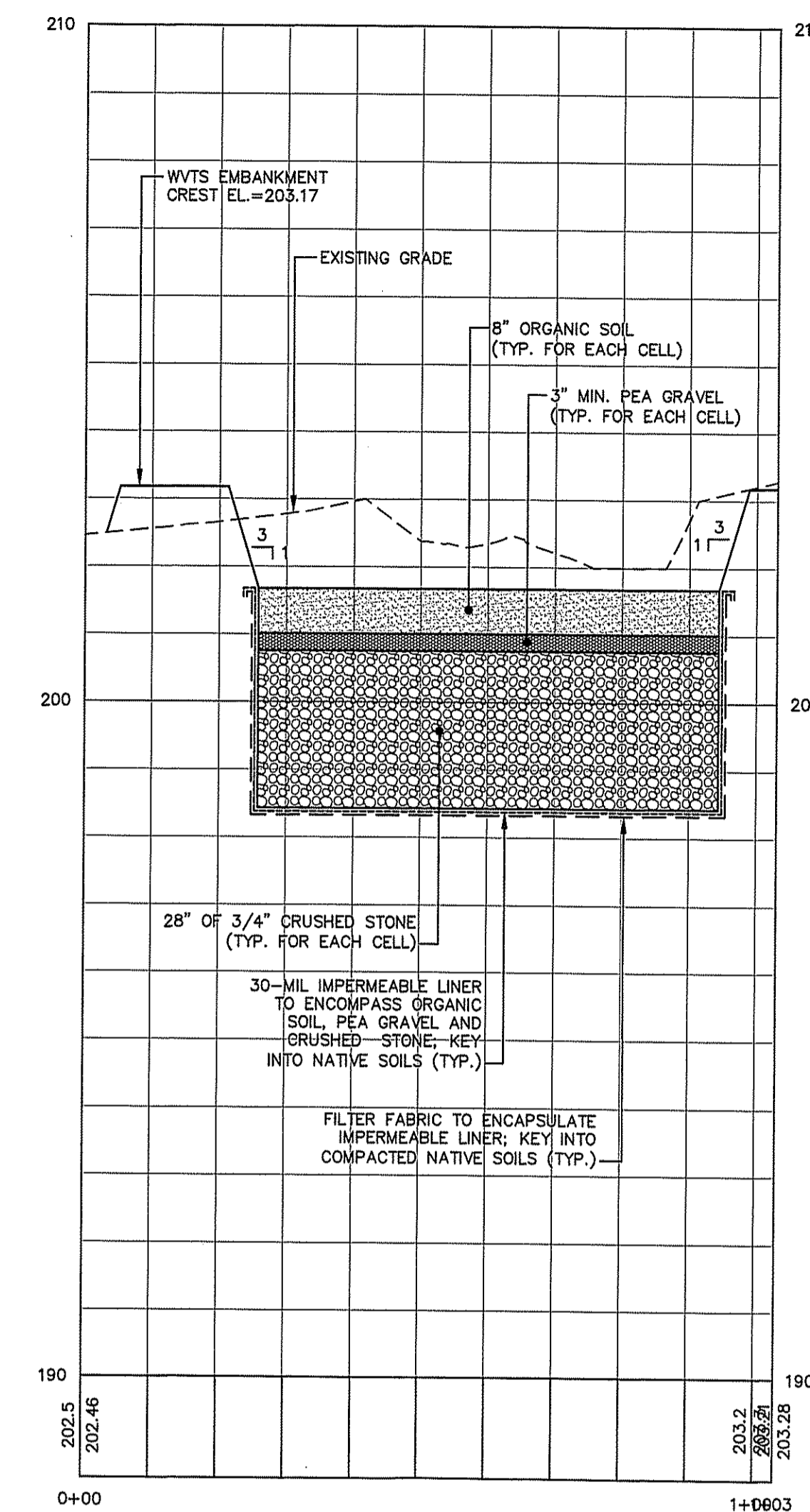
AQUIDNECK ISLAND PLANNING COMMISSION  
 WVTS 1 - CROSS SECTION & PROFILE PLAN  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20151157.A10  
 DATE: JUNE 2018  
**CX-301**

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Environmental Management  
 JUL 11 2018  
 Office of Water Resources

APPROVED  
 DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED SEP 19 2018 FILE # 18-0154  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
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DEAN SAUDET  
 No. 7589  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

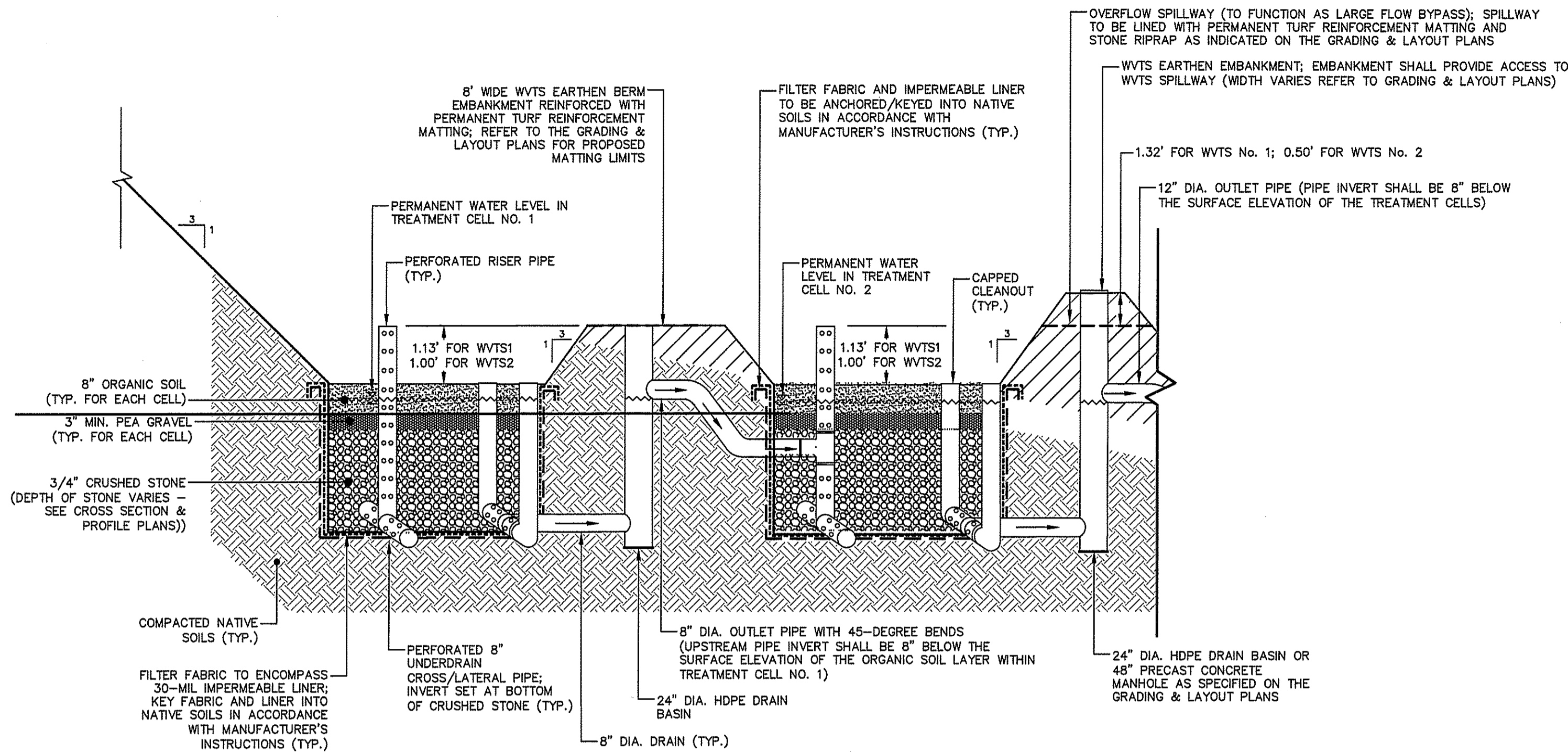
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 GRAPHIC SCALE

**f** **FUSS & O'NEILL**  
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AQUIDNECK ISLAND PLANNING COMMISSION  
 WWTs 2 - CROSS SECTION & PROFILE PLAN  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

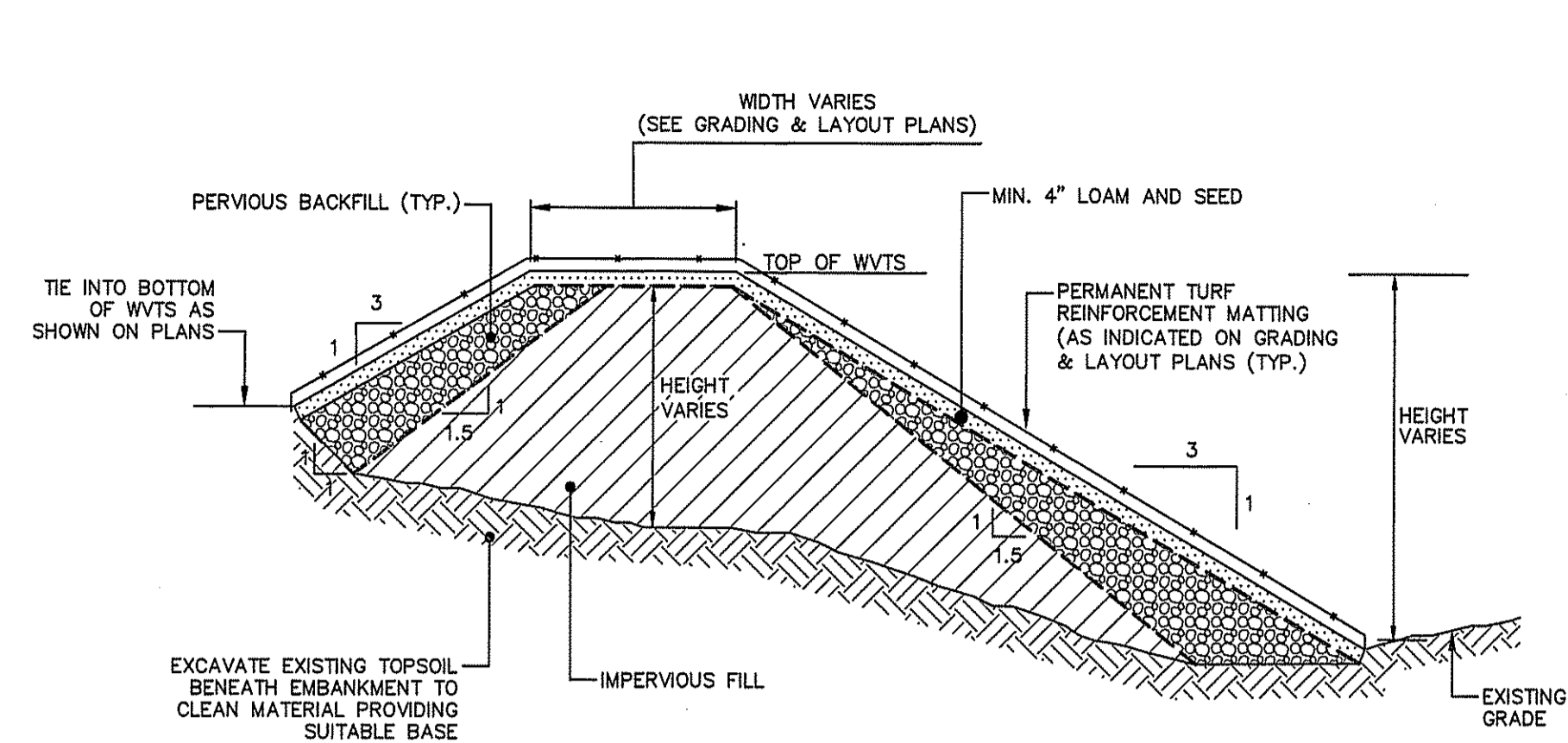
PROJ. No.: 20151157.A10  
 DATE: JUNE 2018  
**CX-302**

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**TYPICAL WET VEGETATED TREATMENT SYSTEM (WVTS) DETAIL**

NOT TO SCALE



NOTE:

- IMPERVIOUS MATERIAL FOR USE IN BASIN EMBANKMENT AREAS AND WHERE SHOWN ON THE PLANS SHALL BE COMPOSED OF CLAYS, SILTY CLAYS, OR CLAYEY SILTS. THE SOIL SHALL BE FREE OF RUBBISH, ICE, VEGETATIVE MATTER, LOAM, OR OTHER DEBRIS AND HAVE THE FOLLOWING GRADATION AS DEFINED BY A STANDARD SEIVE TEST (ASTM D422):

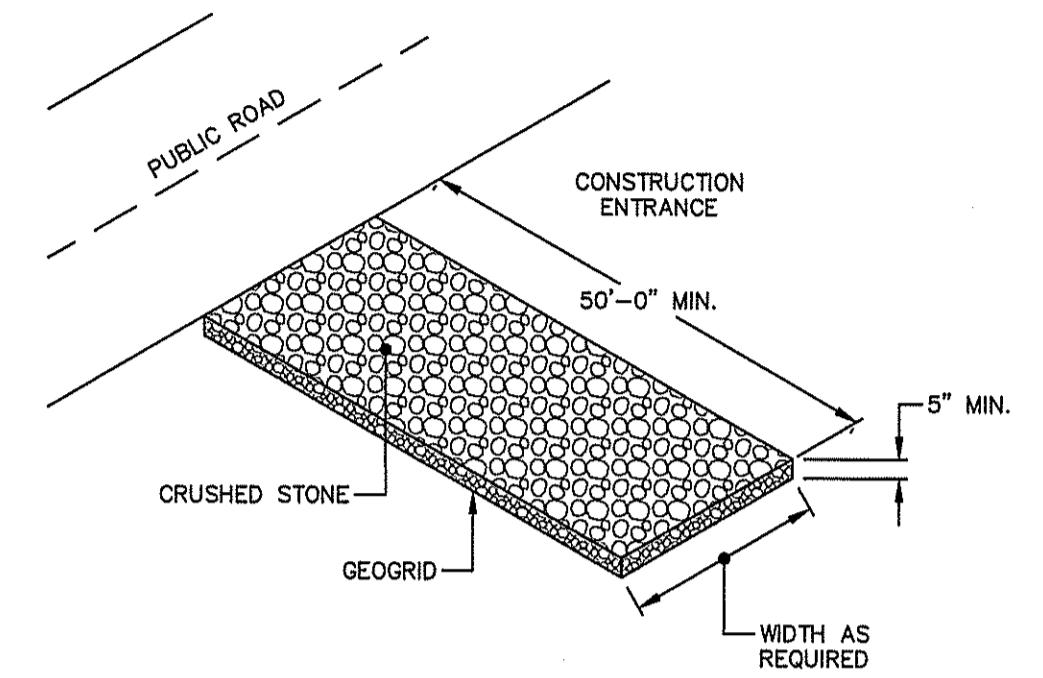
MIN. PERCENT PASSING (BY WT.)	SEIVE SIZE
100	3.5"
80-100	3/4"
40-90	No. 4
30-85	No. 40
25-75	No. 200

- PERVIOUS BACKFILL MATERIAL FOR USE IN FILL AREAS ASSOCIATED WITH BASIN EMBANKMENTS SHALL BE COMPOSED OF SATISFACTORY ON-SITE MATERIAL OR BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS. SATISFACTORY ON-SITE MATERIAL SHALL HAVE SOIL CLASSIFICATION GROUPS OF GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS AND SHALL BE FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES (75 MM) IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER.

**TYPICAL WVTS EMBANKMENT DETAIL**

NOT TO SCALE

Environmental Management  
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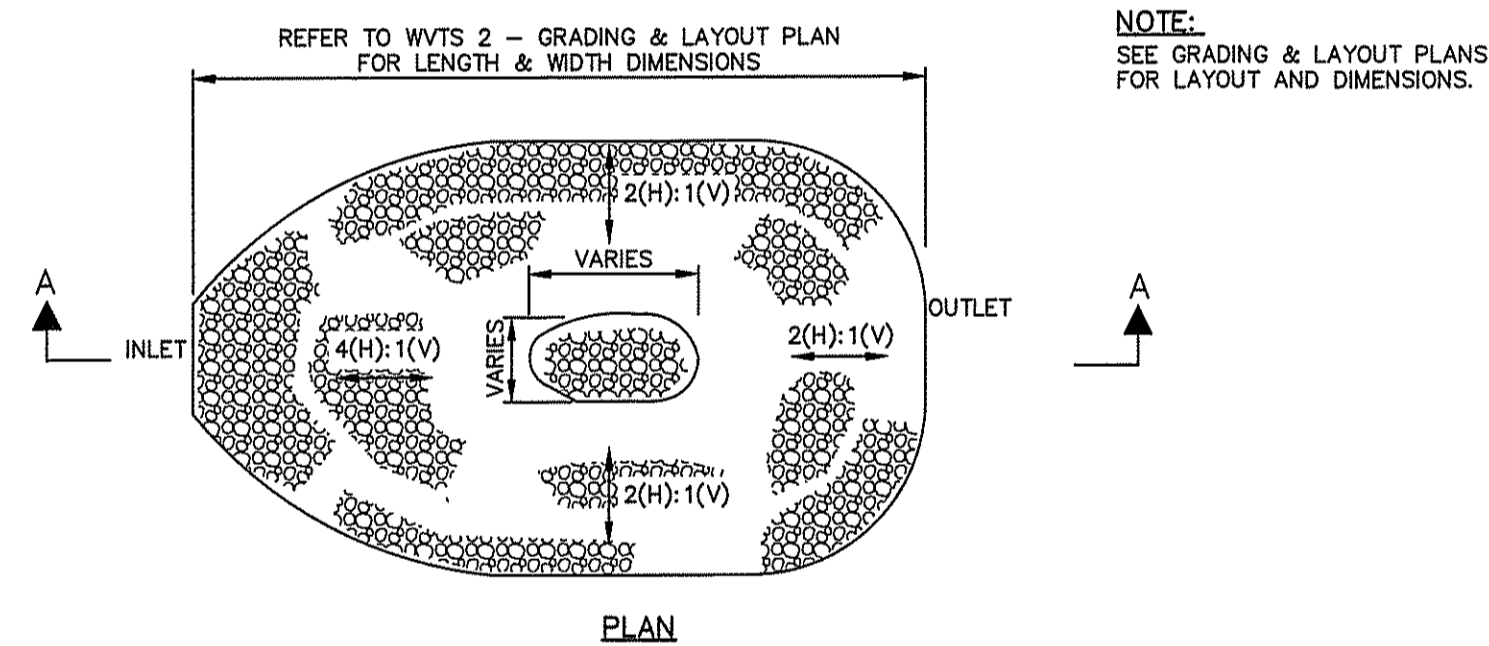


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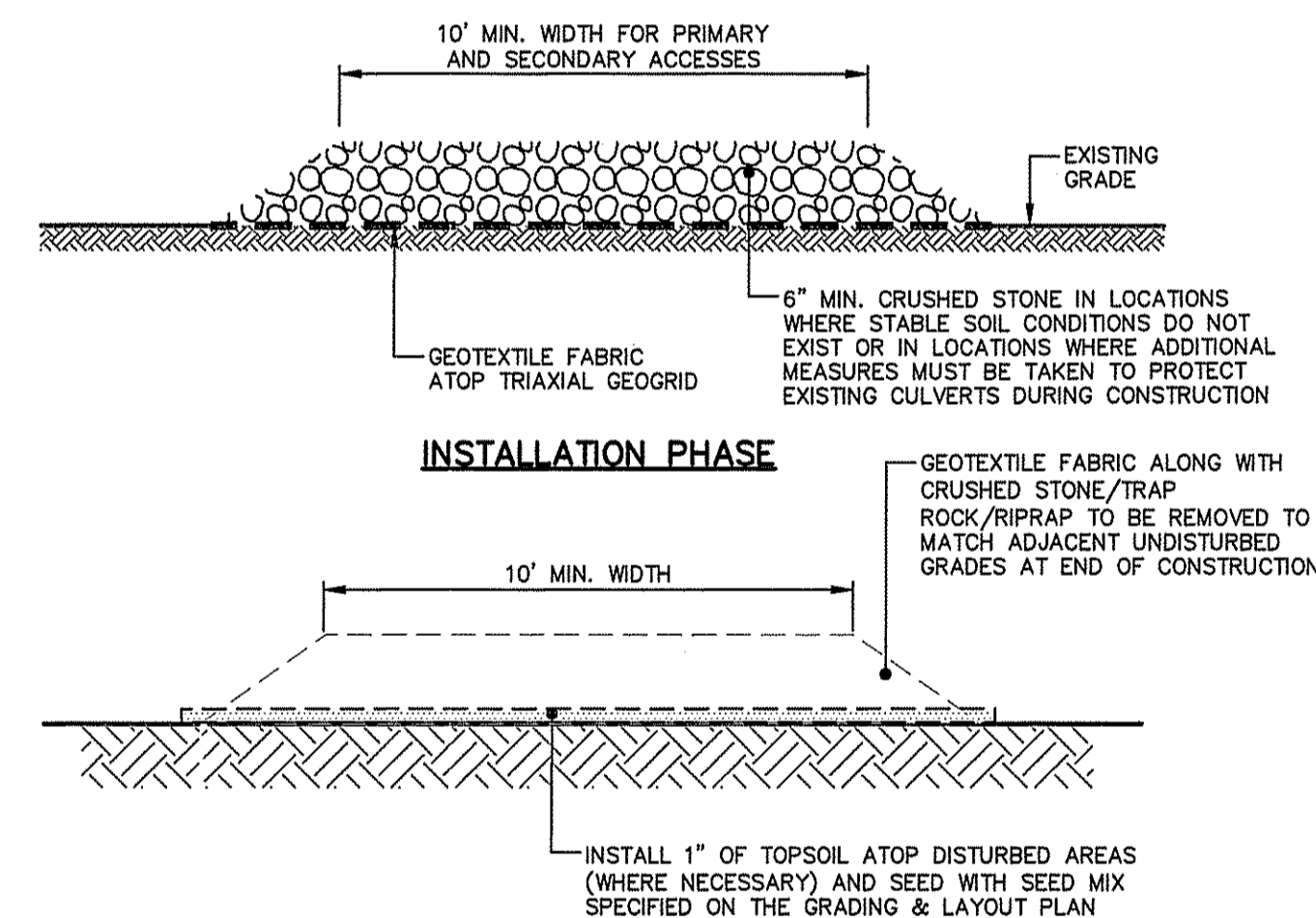
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

**CONSTRUCTION ACCESS (R.I. STD. 9.9.0)**

NOT TO SCALE



NOTE:  
SEE GRADING & LAYOUT PLANS FOR LAYOUT AND DIMENSIONS.



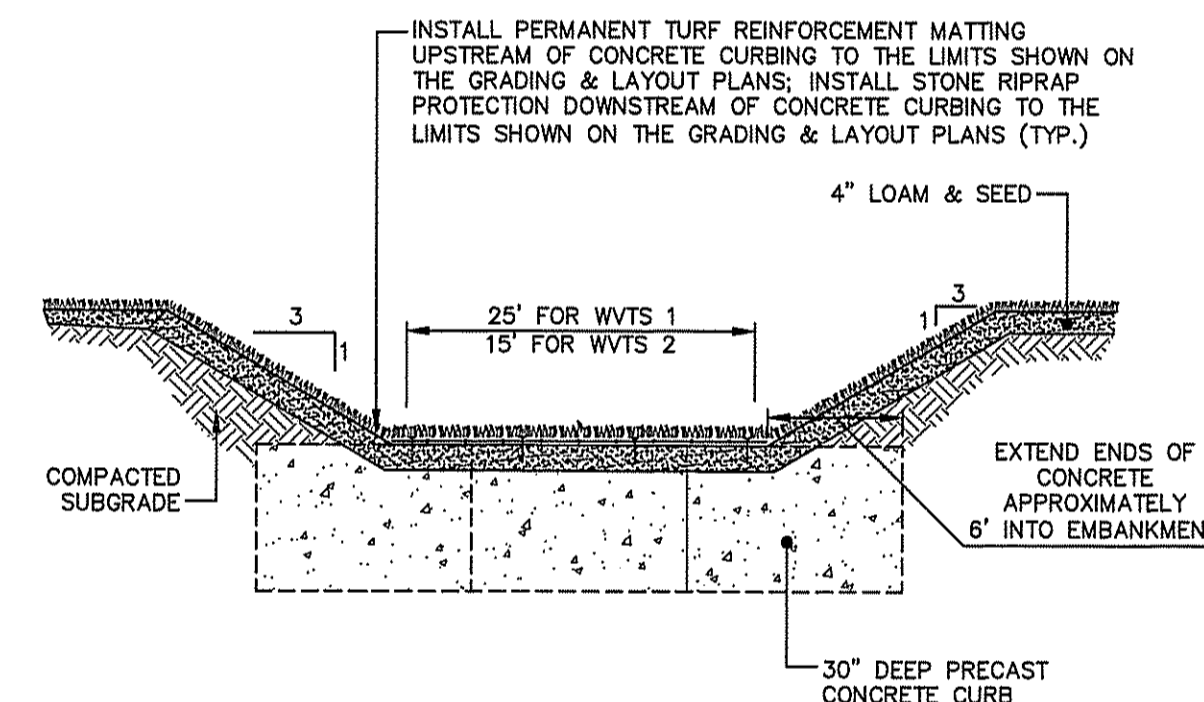
**RESTORATION PHASE**

NOTES:

- PLACE ADDITIONAL CRUSHED STONE AS REQUIRED THROUGHOUT CONSTRUCTION TO MAINTAIN STABLE ACCESS IN LOCATIONS ALONG ACCESSES WHERE STABLE SOILS DO NOT EXIST OR IN LOCATIONS WHERE ADDITIONAL MEASURES MUST BE TAKEN TO PROTECT EXISTING CULVERTS DURING CONSTRUCTION.
- FOR WET AREAS, CONTRACTOR SHALL FURNISH AND PLACE ADDITIONAL MEASURES (E.G., SWAMP MATS, GEOTEXTILE FABRIC, TRAP ROCK/RIPRAP, ADDITIONAL STONE, ETC.) AS REQUIRED TO MAINTAIN STABLE ACCESS FOR CONSTRUCTION EQUIPMENT AND VEHICLES REQUIRED TO COMPLETE WORK.
- IN SUCH LOCATIONS WHERE ADDITIONAL CRUSHED STONE, TRAP ROCK/RIPRAP, ETC., IS REQUIRED, INSTALL MATERIALS ATOP GEOTEXTILE FILTER FABRIC TO FACILITATE THE REMOVAL OF THIS MATERIAL PRIOR TO RESTORATION ACTIVITIES.
- AT END OF CONSTRUCTION AND PRIOR TO RESTORATION, REMOVE ALL GEOTEXTILE FILTER FABRIC AND STONE (I.E. THAT ABOVE ADJACENT EXISTING GROUND ELEVATION), TOP DRESS AREA WITH TOPSOIL (AS REQUIRED) AND SEED IN ACCORDANCE WITH THE INSTREAM & RIPARIAN HABITAT RESTORATION PLAN IN ORDER TO ESTABLISH GRASS VEGETATION.
- CONTRACTOR SHALL PREPARE AND SUBMIT A DETAILED CONSTRUCTION ACCESS AND MAINTENANCE PLAN INDICATING PHASING, VEHICLES/EQUIPMENT, LOCATIONS AND TYPES OF MATERIALS TO BE EMPLOYED TO CREATE AND MAINTAIN STABLE ACCESS THROUGHOUT CONSTRUCTION WHILE AVOIDING IMPACTS TO ADJACENT WETLAND AND FORESTED RESOURCES.

**TEMPORARY CONSTRUCTION AND PERMANENT ACCESS ROUTE**

NOT TO SCALE

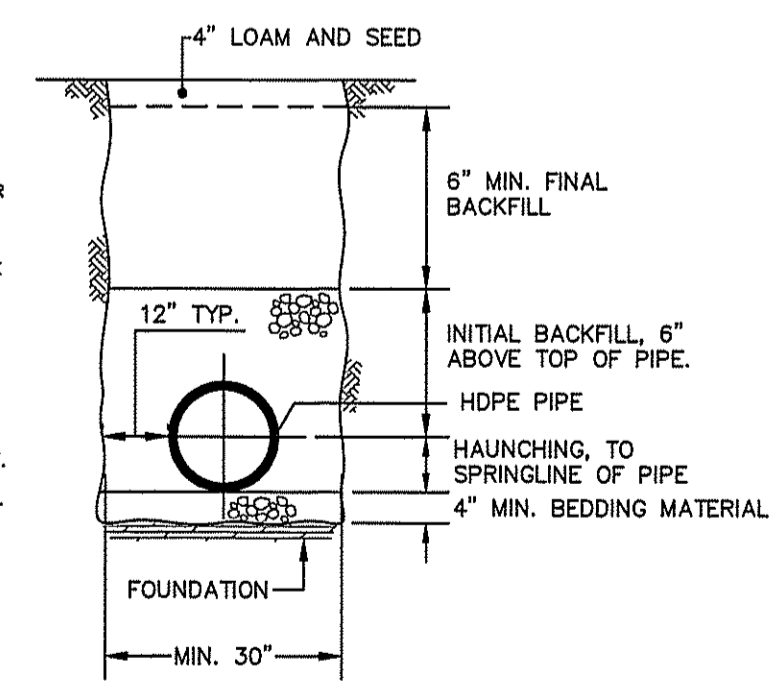


**WVTS SPILLWAY TYPICAL DETAIL**

NOT TO SCALE

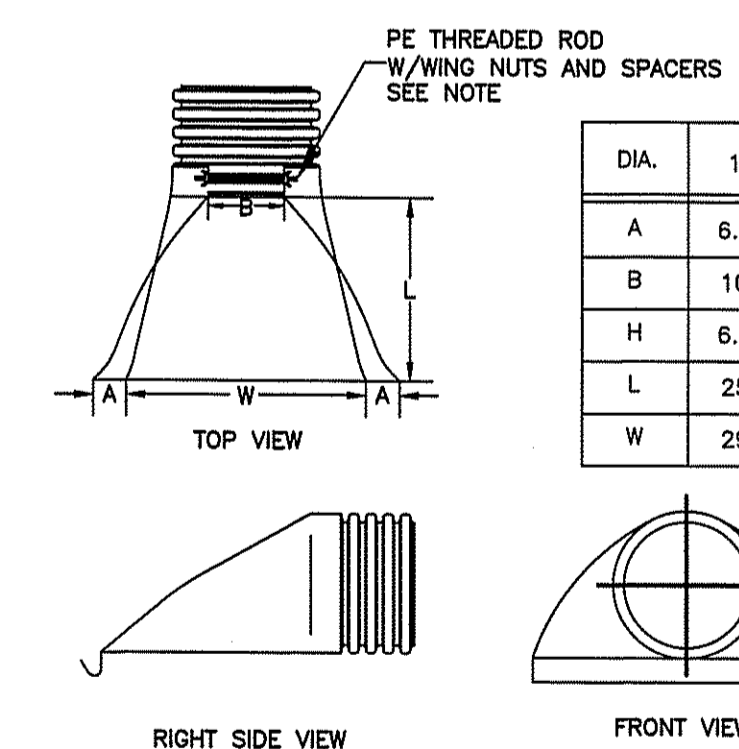
NOTE:

- EQUIPMENT WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS II OR II MATERIAL AS DEFINED IN ASTM D3321, "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: SUITABLE MATERIAL SHALL BE CLASS II AND INSTALLED AS REQUIRED IN ASTM D3321, LATEST EDITION.
- HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS II AND INSTALLED AS REQUIRED IN ASTM D3321, LATEST EDITION.
- THE MINIMUM TRENCH WIDTH FOR 12" HDPE PIPING SHALL BE 31".
- BEDDING MATERIAL AND INITIAL BACKFILL: ALL BEDDING MATERIAL AND INITIAL BACKFILL SHALL BE CLEAN, FREE OF DEBRIS AND RUBBLE, AND FREE OF MATERIALS WHICH MAY CAUSE POLLUTION OF SURFACE WATERS AND GROUNDWATER.



**STORM DRAIN TRENCH FOR HDPE PIPE**

NOT TO SCALE



NOTES:

- SHALL BE MANUFACTURED WITH POLYETHYLENE RESINS AS DESCRIBED AND DEFINED IN ASTM D3350. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.
- INSTALL TRASH GUARD/RODENT SCREENS AT ALL WVTS OUTLET PIPE LOCATIONS.

**HDPE FLARED END SECTION AND TRASH GUARD/RODENT SCREEN**

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
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 DATED SEP 19 2018 FILE # 18-0179  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

**STONE ENERGY DISSIPATOR AND STONE-LINED SEDIMENT FOREBAY**

NOT TO SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.	XX/XX/XX			

SEAL  
 DEAN E. AUDEY  
 No. 7589  
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SCALE:

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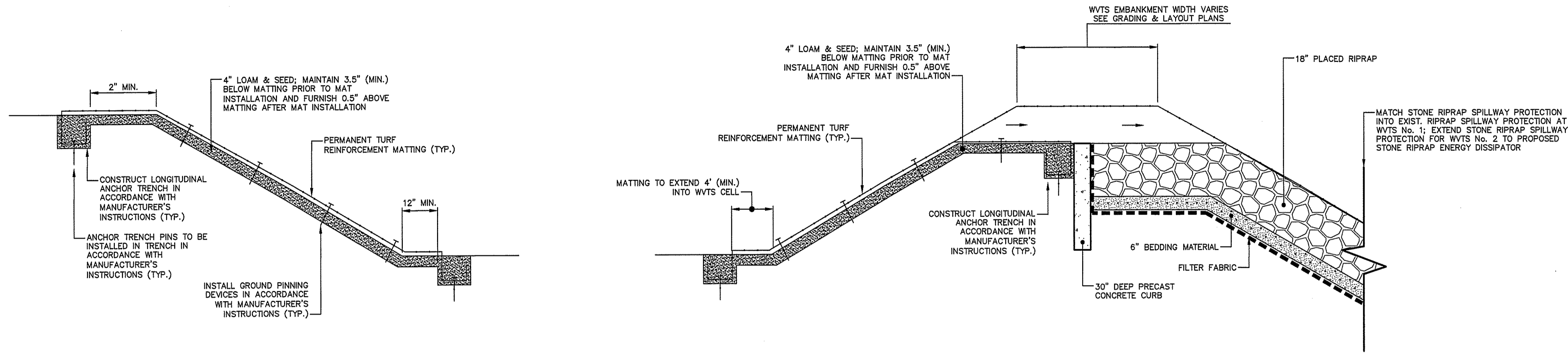
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AQUIDNECK ISLAND PLANNING COMMISSION  
**DETAILS**  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20161157.A10  
 DATE: JUNE 2018  
CD-501

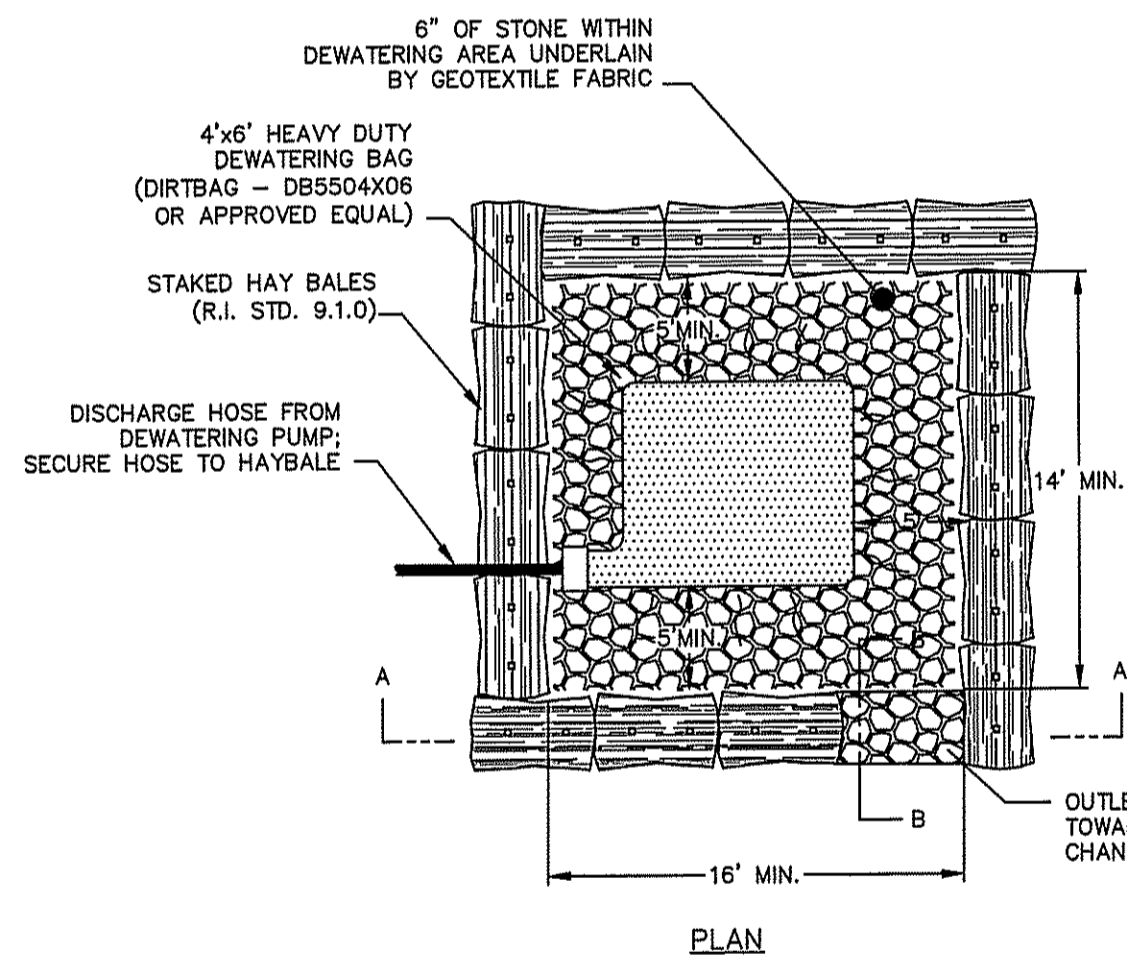
Environmental Management  
 JUL 11 2018  
 Office of Water Resources



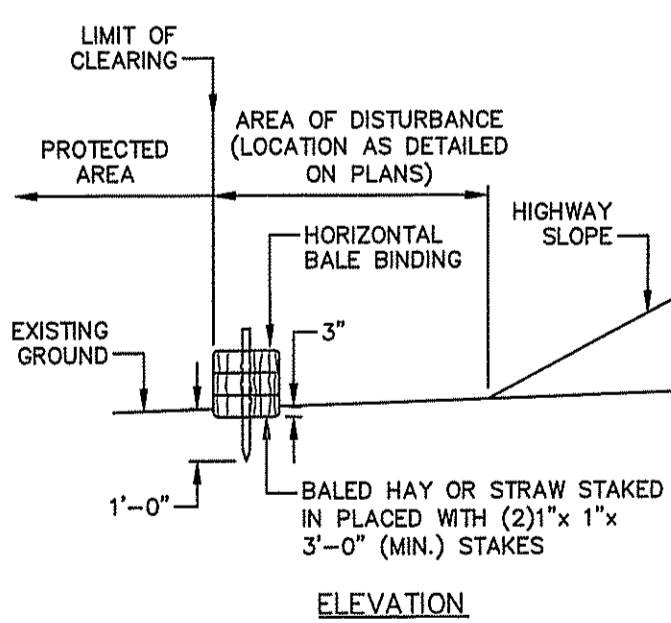
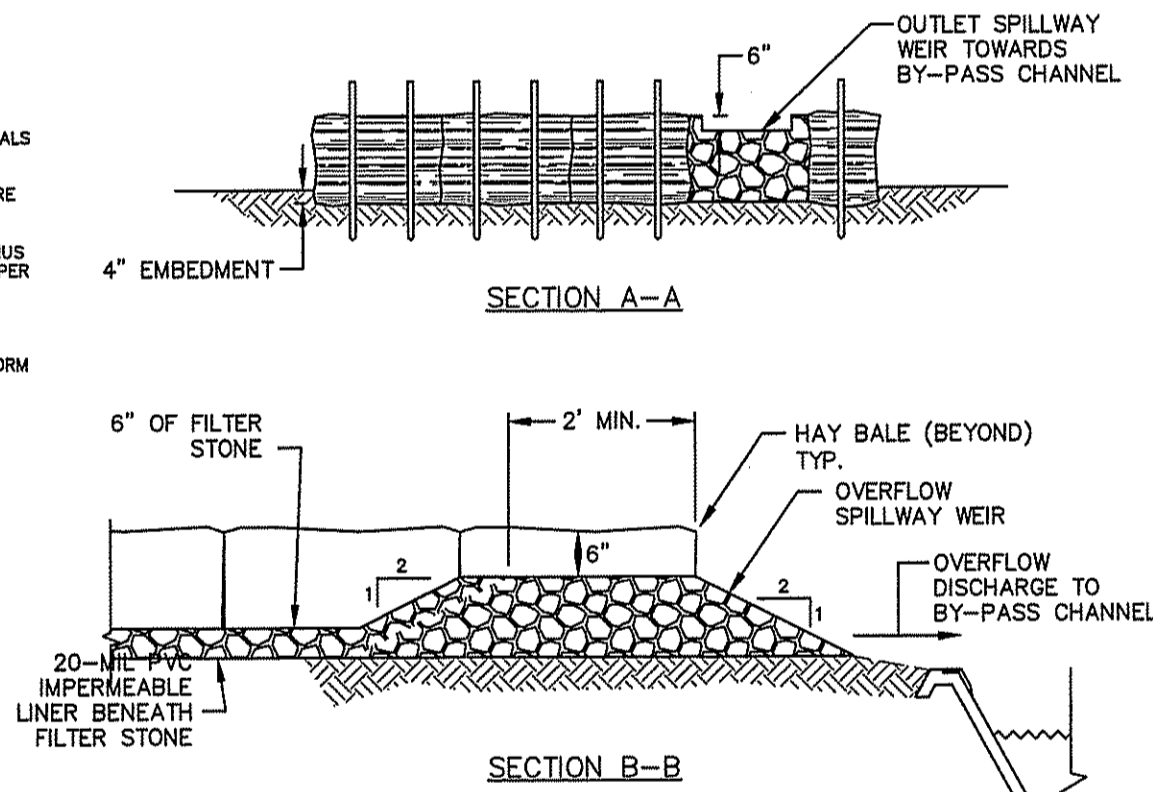
**TURF REINFORCEMENT MAT SLOPE PROTECTION**  
 NOT TO SCALE

**TYPICAL WVTS SPILLWAY**  
 NOT TO SCALE

**NOTE:**  
 1. NATIONAL STONE ASSOCIATION (NSA) NO. "R-4" RIP-RAP, AS SPECIFIED BY RIDOT M.10.03.2, TO BE USED.

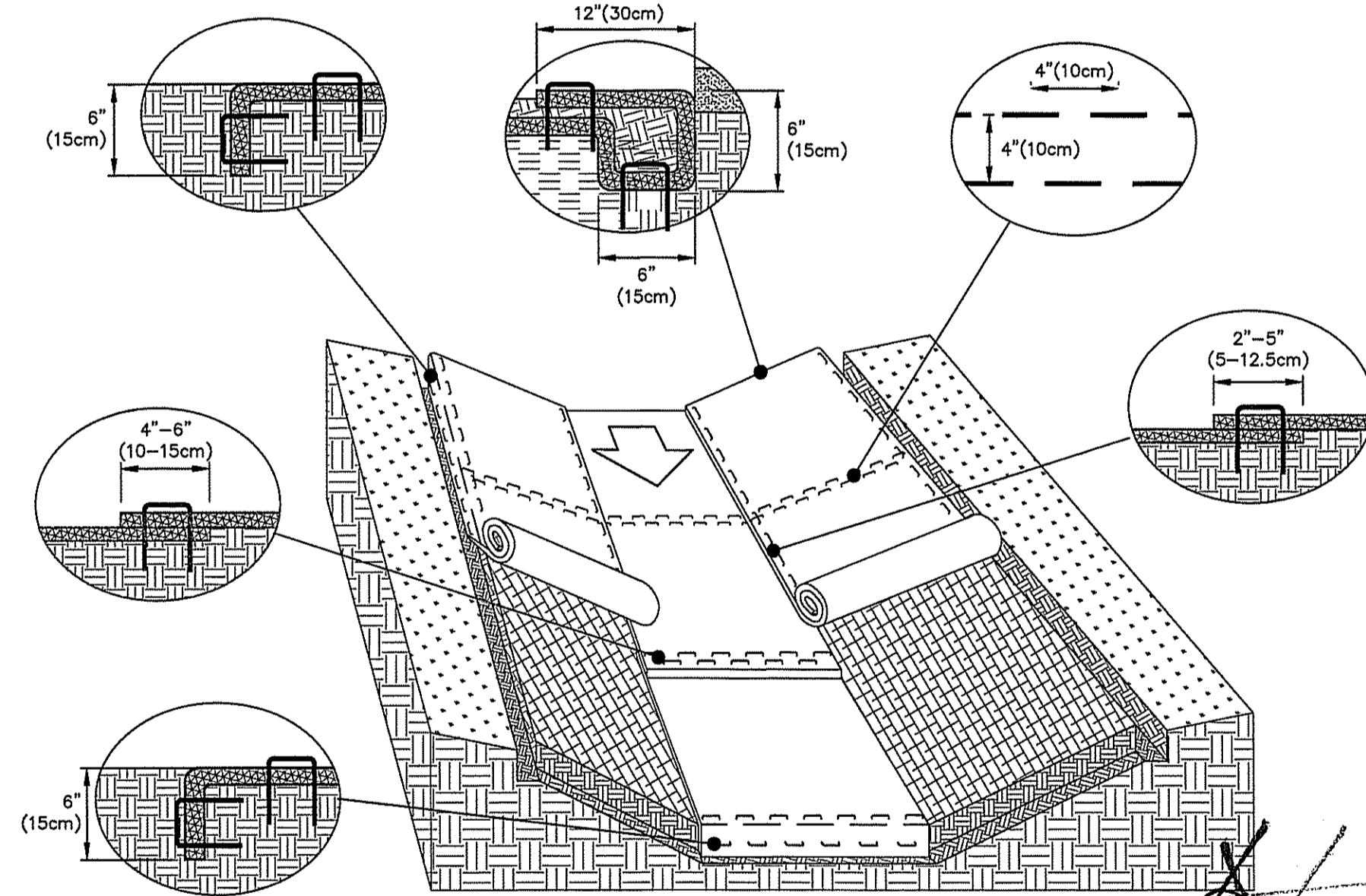


**NOTES:**  
 1. HAY BALES FOR EROSION CONTROL SHALL CONFORM TO SECTION 206 OF THE RIDOT STANDARD SPECIFICATIONS INCLUDING MATERIALS AND CONSTRUCTION METHODS.  
 2. BALES OF HAY SHALL BE FASTENED WITH WIRE AND HAVE A MINIMUM SIZE OF 1'x1.5'x3'.  
 3. FILTER STONE SHALL CONSIST OF 2 INCH MINUS STONE CONFORMING TO F-2 FILTER STONE PER SUBSECTION M10.03.1 OF THE STANDARD SPECIFICATIONS.  
 4. FILTER FABRIC SHALL BE A NON-WOVEN GEOTEXTILE FILTER FABRIC AND SHALL CONFORM TO SECTION 206.02.2 OF THE STANDARD SPECIFICATIONS.



**NOTES:**  
 1. THE DEWATERING BAG, DIRTBAG® DB55 OR APPROVED EQUAL, SHALL BE HEAVY DUTY AND CONSIST OF A NONWOVEN BAG SEWN WITH A DOUBLE NEEDLE MATCHING USING A HIGH STRENGTH THREAD.  
 2. EACH DEWATERING BAG SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE A 4-INCH DISCHARGE HOSE. THE BAG SHALL BE PROVIDED WITH STRAPS TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.  
 3. MAINTAIN DEWATERING BAG(S) AS NECESSARY TO EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE. USE OF EXCESSIVE FLOW RATES OR OVERTILLING DIRTBAG® WITH SEDIMENT WILL CAUSE RUPTURES OF THE BAGS OR FAILURE OF THE HOSE ATTACHMENT STRAPS.  
 4. DISPOSE OF DEWATERING BAG AND CONTENTS AT OFF-SITE DISPOSAL FACILITY IN ACCORDANCE WITH THE APPROVED SOIL MANAGEMENT PLAN OR AS DIRECTED BY ENGINEER.  
 5. INSTALL DEWATERING BAG AND CRUSHED STONE BEDDING WITH A SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG WITHOUT CREATING MORE EROSION. STRAP THE NECK OF DEWATERING BAG TIGHTLY TO THE DISCHARGE HOSE.

**TEMPORARY DEWATERING BASIN WITH FILTER BAG**  
 NOT TO SCALE



**NOTES:**  
 1. HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.  
 2. IN LOOSE SOIL CONDITIONS, STAPLES OR STAKES LONGER THAN 6" WILL BE REQUIRED TO PROPERLY SECURE THE TURF REINFORCEMENT MAT.

**WVTS TURF REINFORCEMENT MAT SPILLWAY PROTECTION**  
 NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
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 DATED **SEP 19 2018** FILE # **18-0159**  
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SEAL  
 DEAN E. AUDET  
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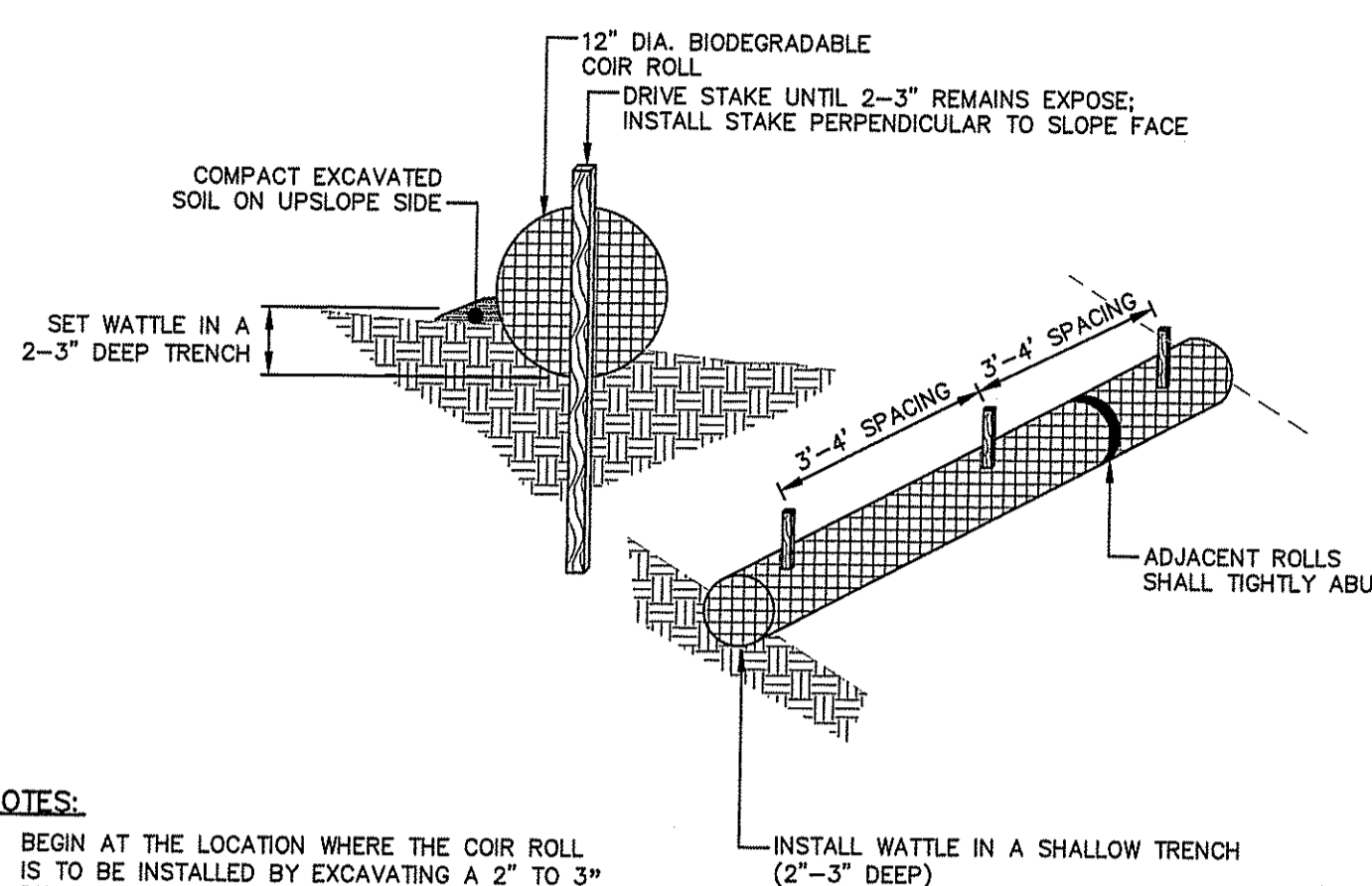
**f** **FUSS & O'NEILL**  
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AQUIDNECK ISLAND PLANNING COMMISSION  
 DETAILS  
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I  
 CARRIAGE DRIVE STORMWATER BMPs  
 PORTSMOUTH RHODE ISLAND

PROJ. No.: 20151157.A10  
 DATE: JUNE 2018  
**CD-502**

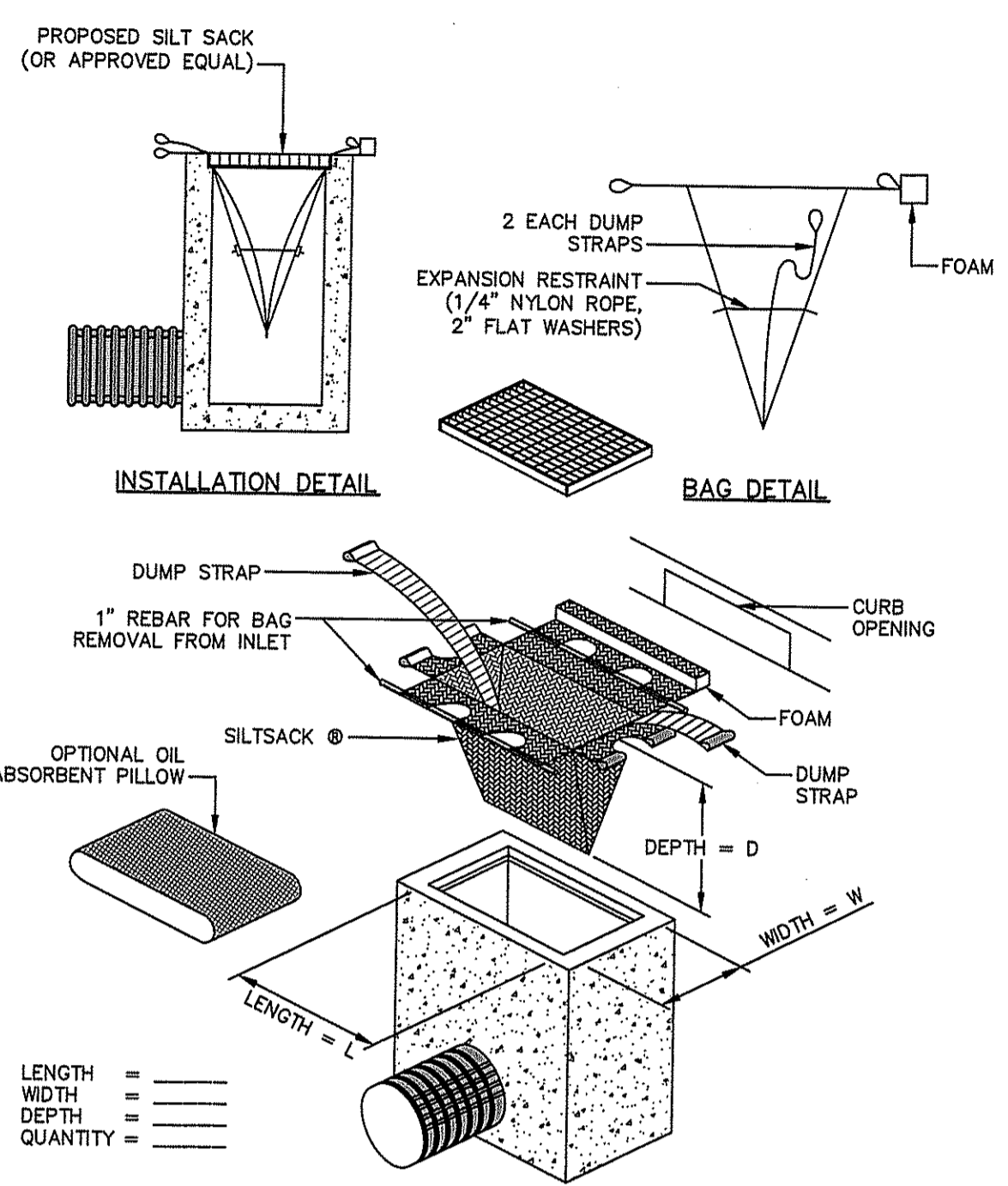


Environmental Management  
 JUL 11 2018  
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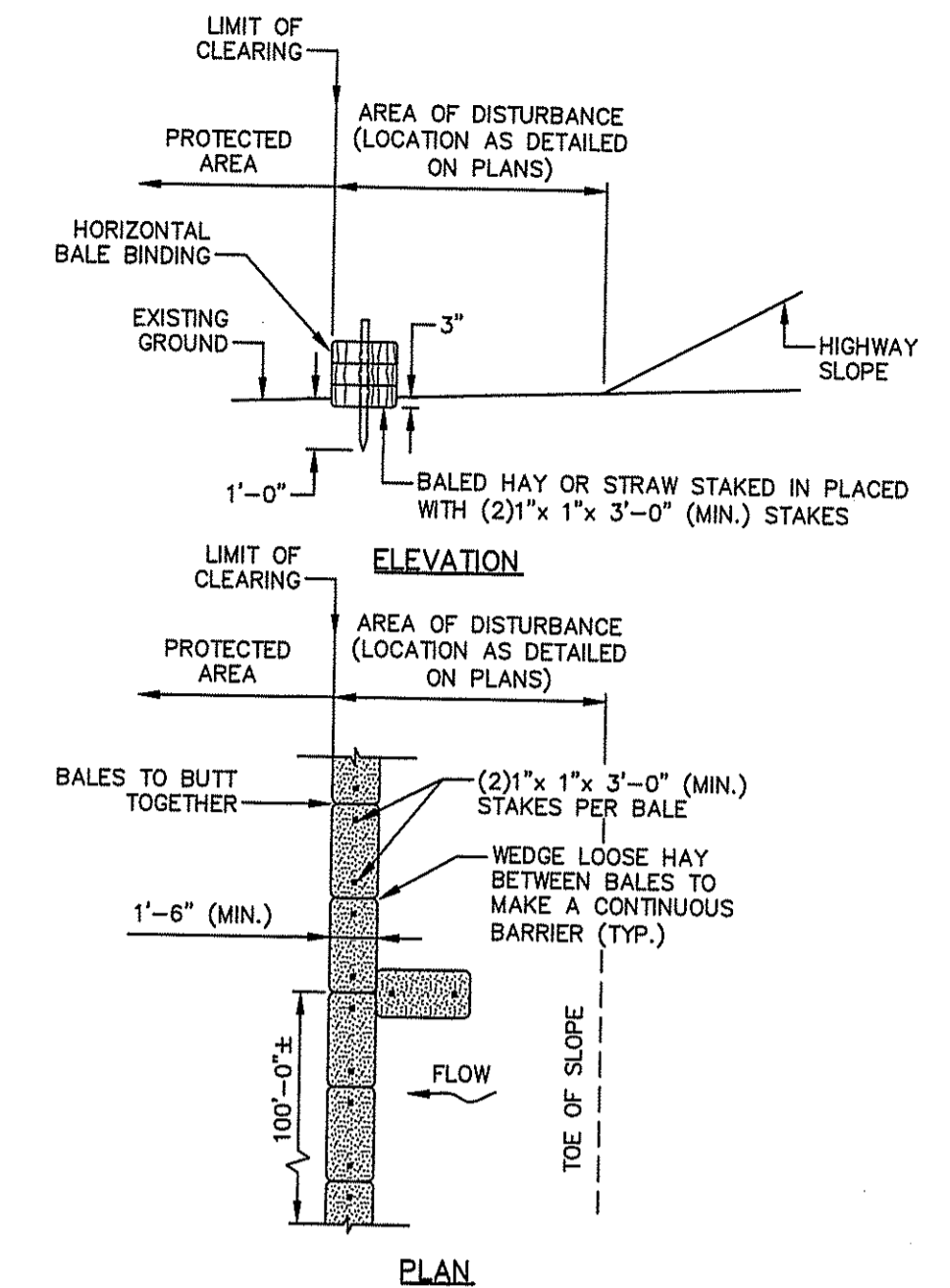


**NOTES:**

- BEGIN AT THE LOCATION WHERE THE COIR ROLL IS TO BE INSTALLED BY EXCAVATING A 2" TO 3" DEEP BY 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP-SLOPE FROM THE ANCHOR TRENCH.
- PLACE THE COIR ROLL IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT COIR ROLLS SHALL TIGHTLY ABUT.
- SECURE THE COIR ROLL WITH 3/8" LONG (2"x2") STAKES SPACED EVERY 3' TO 4' ON CENTER AND WITH A STAKE ON EACH END. STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE COIR ROLL LEAVING AT LEAST 2" TO 3" OF STAKE EXTENDING ABOVE THE COIR ROLL. STAKES SHALL BE DRIVEN PERPENDICULAR TO THE SLOPE FACE.



**CATCH BASIN INLET PROTECTION**  
 NOT TO SCALE

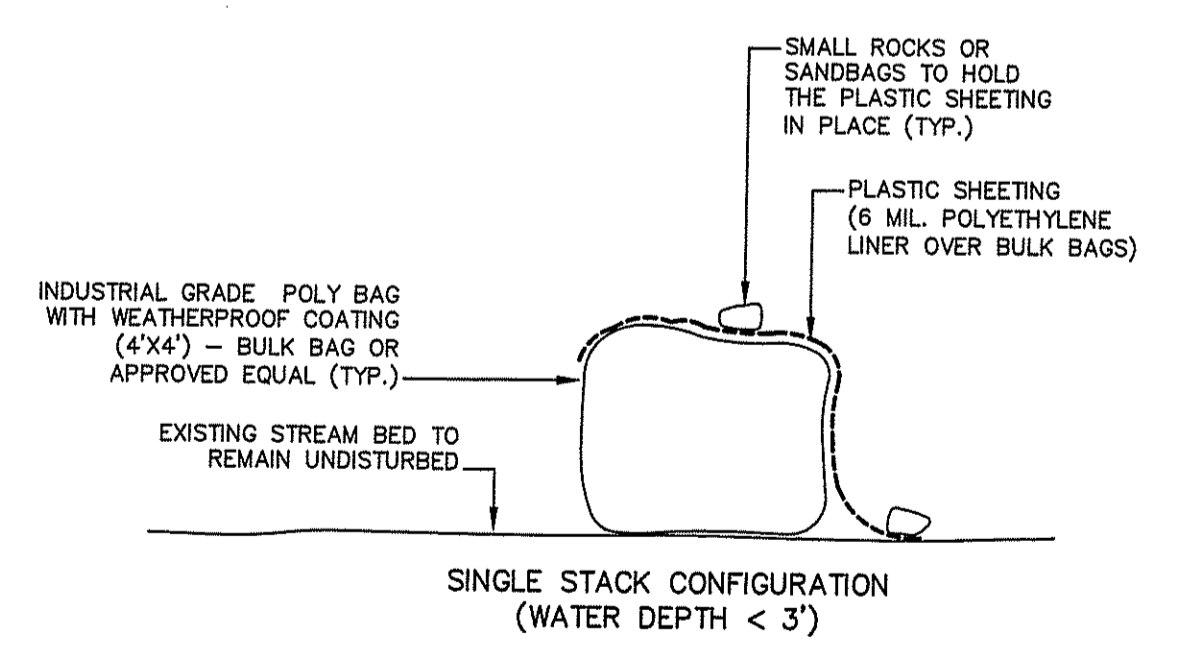
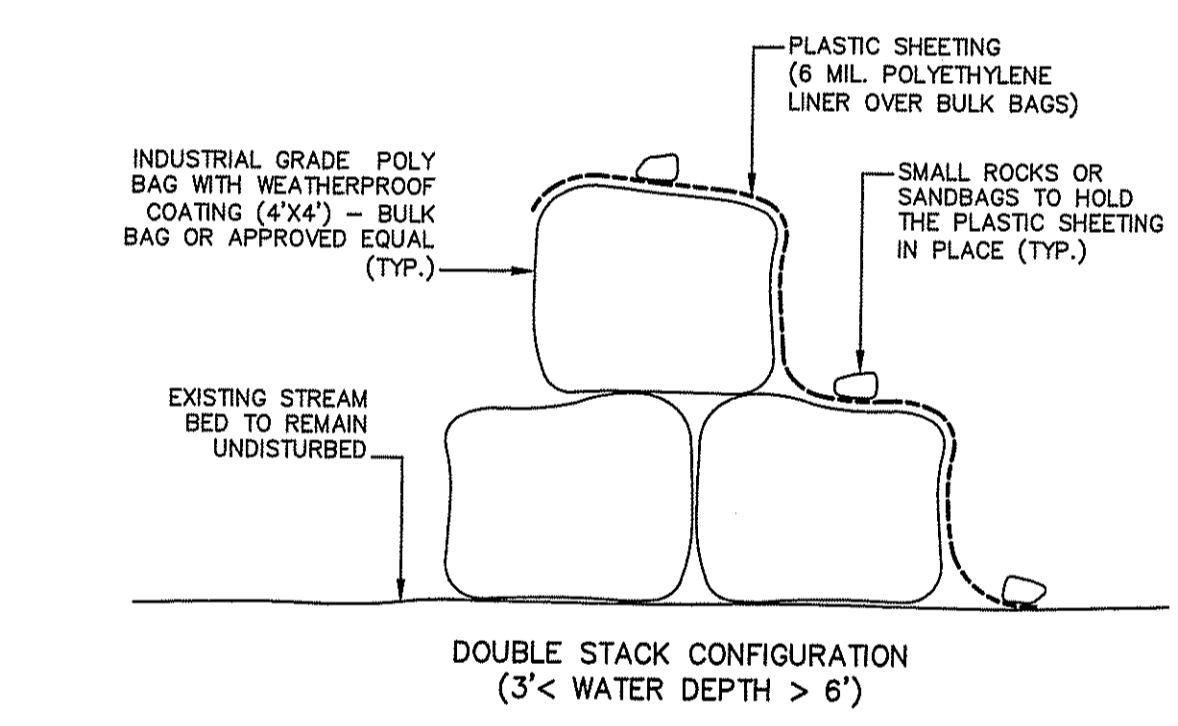


**NOTES:**

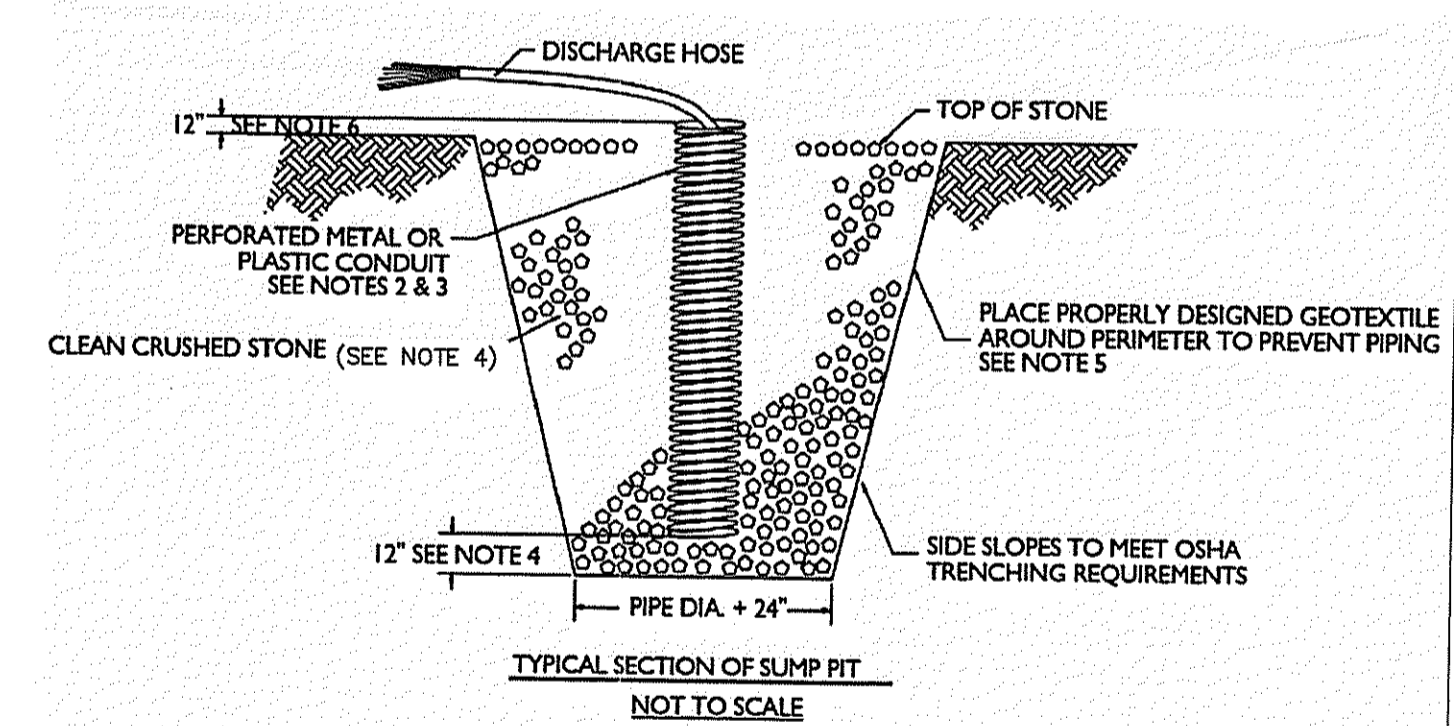
- SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
- TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT AS CALLED FOR ON PLANS.
- AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BE BUTT PERPENDICULARLY.

**BALED HAY EROSION CHECK (R.I. STD. 9.1.0)**  
 NOT TO SCALE

**BIODEGRADABLE COIR ROLLS**  
 NOT TO SCALE



**TEMPORARY LARGE SANDBAGS COFFERDAMS (BULK BAGS OR APPROVED EQUAL)**  
 NOT TO SCALE



- OVERALL SUMP PIT DIMENSIONS SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.
- THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
- PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED 1/2" IN DIAMETER.
- CRUSHED STONE SHALL CONFORM TO THE GRADATION LISTED FOR CRUSHED STONE IN COLUMN II, TABLE 1 OF M.O.T. 09 OF THE RIDOT STANDARD SPECIFICATIONS. CRUSHED STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.
- IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS IS ANTICIPATED, A PROPERLY DESIGNED GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.
- THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

**CRUSHED STONE SUMP DETAIL**  
 NOT TO SCALE

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAN SEAUDET  
 No. 7589  
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**CD-504**