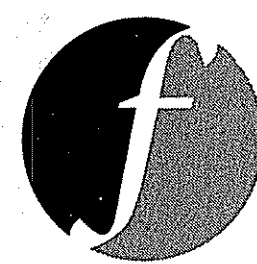


MAIDFORD RIVER STORMWATER BMPS

MIDDLETOWN · RHODE ISLAND
 MAIDFORD RIVER WATERSHED ASSESSMENT
 MARCH 2016

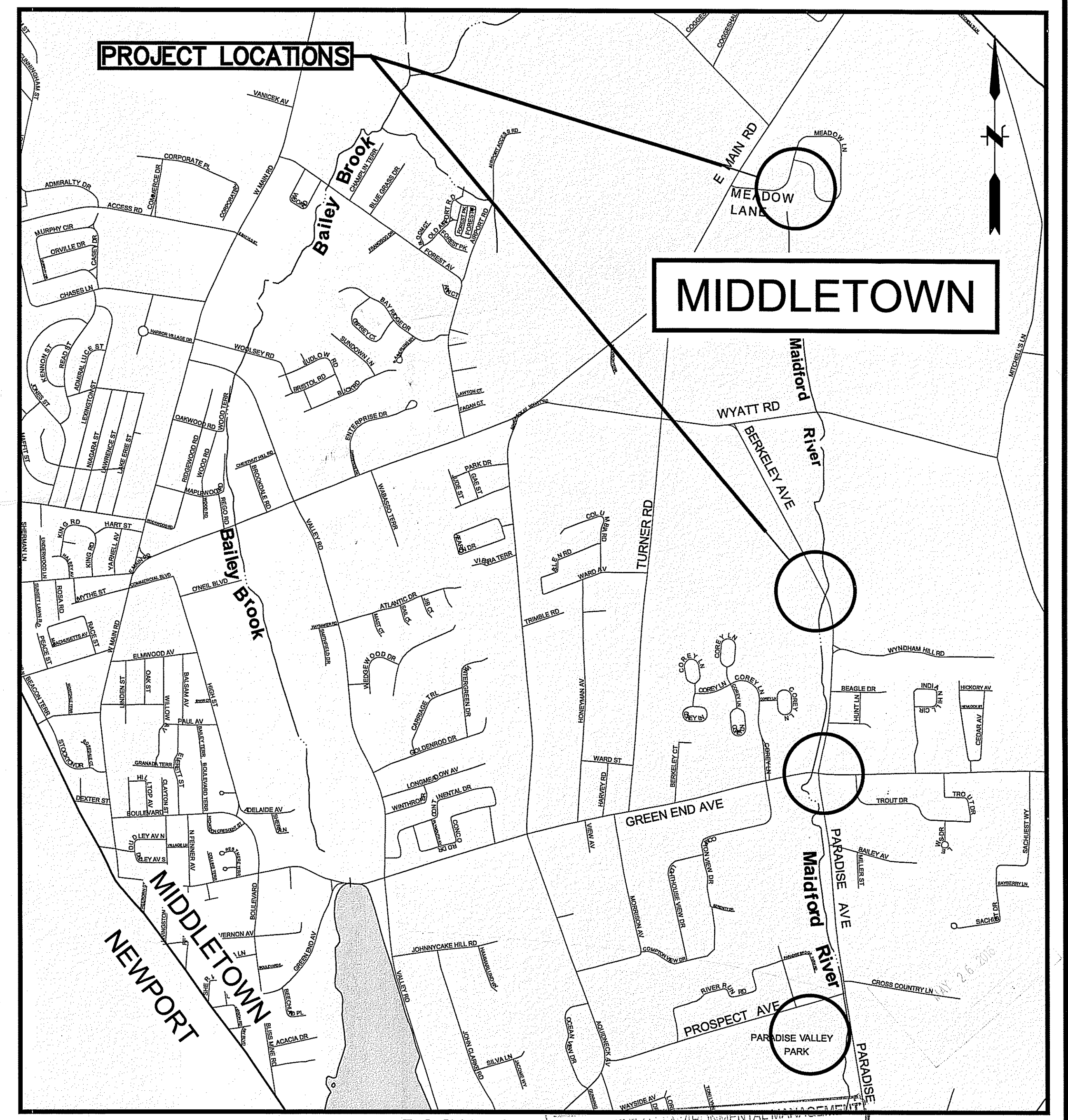
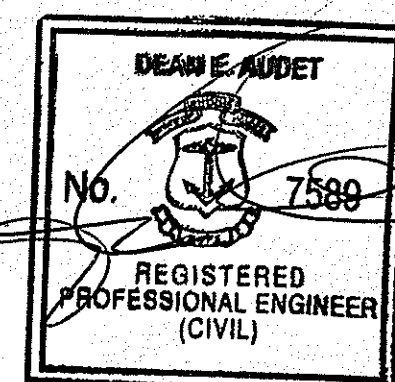
PREPARED FOR
TOWN OF MIDDLETOWN
 350 EAST MAIN ROAD
 MIDDLETOWN, RI 02842



PREPARED BY
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SHEET INDEX

SHEET No.	SHEET TITLE
GI-001	COVER SHEET
CN-001	GENERAL NOTES & LEGEND
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CD-501 - CD-504	CONSTRUCTION DETAILS



LOCATION MAP
 SCALE: 1" = 1000'
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-0137
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

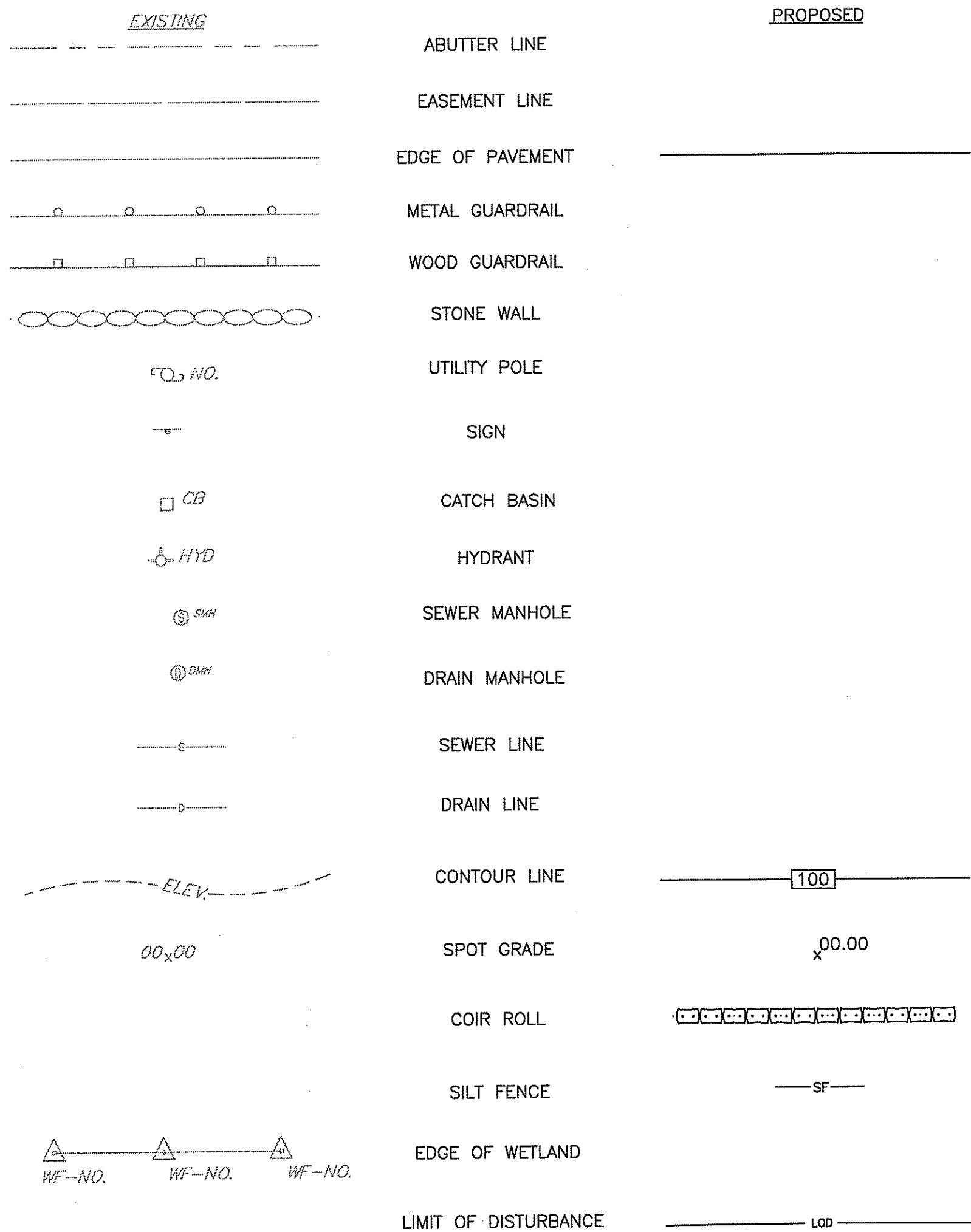
NOT FOR CONSTRUCTION

PROJ. No.: 20140870.A10
 DATE: MARCH 2016

GI-001

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LEGEND



GENERAL NOTES

- 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.
- THE OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, INSPECTIONS, BONDS, ETC. AND OTHER APPROVAL RELATED ITEMS WITH THE TOWN OF MIDDLETOWN. NO CONSTRUCTION SHALL COMMENCE UNTIL SUCH PERMITS HAVE BEEN SECURED.
- METHODS AND MATERIALS USED IN THE CONSTRUCTION OF IMPROVEMENTS FOR THIS PROJECT SHALL CONFORM TO THE CURRENT CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE TOWN OF MIDDLETOWN AND THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION.
- 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 EXISTENCE 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 NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR EXISTING AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS, PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION. ALL WATER, GAS, SEWER AND OTHER UTILITY SERVICES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- RELOCATION OF ANY UTILITIES SHALL BE AT THE OWNERS EXPENSE AND COMPLETED WITH THE UTILITY WORK. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATIONS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
- 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 PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE.
- THE CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB 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, 2010 EDITION, REVISIONS AND ALL CURRENT ADDENDA, AND THE RHODE ISLAND STANDARD DETAILS ARE MADE A PART HEREOF, AS IF ATTACHED HERETO.
- THE CONTRACTOR SHALL IDENTIFY TREES TO BE REMOVED PRIOR TO CONSTRUCTION AND MARK THEM WITH CONSTRUCTION TAPE FOR REVIEW BY THE OWNER AND ENGINEER. THE 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.
- 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.
- ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.
- THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 108.04 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- ASPHALT EMULSION TACK COAT SHALL BE ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS NOT BEEN OPEN TO TRAFFIC, AND SHALL BE APPLIED TO ALL EMBANKMENT CONSTRUCTION SHALL CONFORM TO SECTION 202.03.2 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- IF THIS PROJECT IS ON A HURRICANE EVACUATION AND DIVERSION ROUTE, AS DESIGNATED ON THE COVER SHEET, THE CONTRACTOR IS ADVISED THAT UPON 12 (TWELVE) HOURS NOTICE THE ROADWAY SHALL BE OPEN TO EVACUEES AND EMERGENCY PERSONNEL. ANY EXTRA WORK NECESSARY TO COMPLY WITH THIS REQUIREMENT WILL BE REIMBURSED UNDER FORCE ACCOUNT PROCEDURES.
- THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM), AND/OR THE ARMY CORPS OF ENGINEERS (ACEC), AND/OR THE COASTAL RESOURCES MANAGEMENT COUNCIL (CRMC). COPIES OF EACH OF THESE PERMITS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- BITUMINOUS PAVEMENTS SHALL MEET REQUIREMENTS OF PART 400 OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2004 EDITION, REVISIONS AND ALL CURRENT ADDENDA.
- STORM DRAIN PIPING SHALL BE SMOOTH LINED DOUBLE-WALL HIGH DENSITY POLYETHYLENE PIPE, (10-0112) WITH WATER TIGHT JOINTS UNLESS OTHERWISE NOTED. THE SIZES OF ALL PIPES ARE NOTED ON THE PLANS.
- ALL S/INFACED AREAS OR DISTURBED AREAS NOT SPECIFIED ON THE PLANS SHALL RECEIVE 4 INCHES OF TOPSOIL, SEED, MULCH, AND BE WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
- ANY TOPSOIL USED AS PLANTABLE SOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSTRATE MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS AND SHALL CONFORM WITH SECTION 118 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

EROSION CONTROL NOTES

- NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FLOOD OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESEED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION. IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
- STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR REGULATORY SETBACKS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODIBLE MATERIAL SHALL ALSO BE SEED AND RINGED WITH R.I. STD. 91.1.0 TO STABILIZE.
- EROSION CONTROL MATTING SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS EXCEEDING 3:1, EXCEPT WHERE THE PLANS CALL FOR TURF REINFORCEMENT MATTING.
- SEEDING ON ALL SLOPES 3:1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.
 - SEEDING TYPE 1
 - ADHESIVE MULCH STABILIZER
- UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGHOUT THE INACTIVE WINTER SEASON.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.
- THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
- INLET PROTECTION (SILT SACKS) SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ADJUTING GROUND SURFACES ARE STABILIZED.
- THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROL BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.
- PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.
- ALL HAY BALES, SILT FENCE OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.
- THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE CLIENT.
- THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L02.03 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- ADDITIONAL EROSION CONTROLS SHALL BE INSTALLED AS DIRECTED BY THE RESIDENT ENGINEER. THESE ADDITIONAL ITEMS WILL BE PAID AT THE UNIT PRICE FOR THAT BID ITEM.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

- ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY PARTICULAR STAGE OF THE CONTRACT.
- ADVANCE FLAGPERSON SIGNS (W20-7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.
- POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.
- THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED IN AREAS APPROVED BY THE ENGINEER.
- ROAD WORK AHEAD (W20-1) 36"x36" AND END ROAD WORK (G20-2) 36"x18" SIGNS SHALL BE MOUNTED AT ALL SIDE STREETS AND/OR RAMPS INTERSECTING THE ADVANCE WARNING AREAS, EVEN IF NOT SHOWN ON PLANS.
- TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.
- THE INTENDED VEHICLE PATHS THROUGH EACH WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES. TEMPORARY PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.

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) 222-3070 (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 ARE 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 TRANSFER OF THE PROPERTY, THE NEW OWNER SHALL BE INFORMED AS TO THE LEGAL RESPONSIBILITIES ASSOCIATED WITH DISPOSAL SYSTEM, AS INDICATED ABOVE.
- 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.

STORMWATER MAINTENANCE PROGRAM

- REPAIRS OR REPLACEMENT OF DRAINAGE STRUCTURES SHALL BE DONE WITHIN 30 DAYS OF DEFICIENCY REPORTS. IF AN EMERGENCY SITUATION IS IMMINENT THEN REPAIR/REPLACEMENT MUST BE DONE IMMEDIATELY TO AVERT FAILURE OR DANGER TO NEARBY RESIDENTS.
- THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM ONCE CONSTRUCTION IS COMPLETE.
- THE FOLLOWING MAINTENANCE IS REQUIRED FOR THE PROPOSED DETENTION BASINS AND SEDIMENT FOREBAYS:
 - SEDIMENTS SHOULD BE REMOVED FROM THE BASIN IMMEDIATELY FOLLOWING SITE STABILIZATION AND THEREAFTER WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN ONE HALF (1/2) THE DESIGN DEPTH, PER THE RHODE ISLAND STORMWATER STANDARDS AND INSTALLATION MANUAL. DURING THE FIRST YEAR OF OPERATION, IT MAY BE NECESSARY TO REMOVE ACCUMULATED SEDIMENTS MORE OFTEN. ROUTINE INSPECTIONS OF THE DETENTION BASINS ARE REQUIRED AFTER SITE STABILIZATION TO ENSURE PROPER FUNCTIONING. ACCUMULATED SEDIMENT MAY HAVE TO BE REMOVED MORE FREQUENTLY IF THE STORAGE CAPACITY OF THE SEDIMENT FOREBAY IS WITHIN THE LAST TEN (10) PERCENT OF ITS AVAILABLE STORAGE CAPACITY.
 - THE GRASSED AREAS OF THE BASIN SHOULD BE INSPECTED AT LEAST TWICE PER YEAR TO CHECK FOR EROSION PROBLEMS. PROBLEM AREAS MUST BE RESEDED IMMEDIATELY TO STABILIZE EXPOSED SOILS.
 - BASIN SIDE SLOPES AND EMBANKMENTS SHOULD BE MOWED AT LEAST ONCE FOUR TIMES ANNUALLY TO PREVENT UNWANTED WOODY GROWTH. MOWINGS CAN BE MORE FREQUENT IF A MORE GROOMED APPEARANCE IS DESIRED. PRUNING OR REPLACEMENT OF WOODY VEGETATION SHOULD OCCUR WHEN DEAD OR DYING VEGETATION IS OBSERVED, AND ALL HERBACEOUS ROOT STOCK SHOULD BE REMOVED WHEN OVERCROWDING THE MAINTENANCE ACCESS TO THE BASIN. ANY VEGETATION THAT HAS A NEGATIVE IMPACT ON STORMWATER FLOW THROUGH THE FACILITY SHOULD BE REMOVED. ANY INVASIVE VEGETATION ENCRUACHING UPON THE PERIMETER OF THE FACILITY SHOULD BE PRUNED OR REMOVED, ESPECIALLY IF IT IS PROHIBITING ACCESS TO THE BASIN, COMPROMISING SITE VISIBILITY, AND/OR COMPROMISING ORIGINAL DESIGN VEGETATION. ANY ORIGINAL VEGETATION THAT HAS DIED OFF OR HAS NOT FULLY ESTABLISHED SHOULD BE REPLACED.
 - ALL TRASH, LITTER, AND OTHER DEBRIS SHALL BE REMOVED FROM THE INLET AND OUTLET OF THE DETENTION BASIN. THIS SHALL OCCUR DURING MOWING OPERATIONS MUST BE ACCOMPLISHED AT LEAST TWICE PER YEAR, PREFERABLY IN THE SPRING AND FALL.
 - THE BASIN OUTLET SHALL BE INSPECTED ANNUALLY. INSPECTIONS SHALL BE ACCOMPLISHED SEVERAL TIMES DURING THE FIRST SIX MONTHS OF OPERATION, ESPECIALLY AFTER RAINFALL EVENTS TO CHECK FOR CLOGGING OR TOO RAPID OF A RELEASE. IF BLOCKAGE OF BASIN OUTLET STRUCTURE OCCURS, IT MAY BE NECESSARY TO DEWATER THE POND FOR ACCESS TO THE BLOCKAGE. THE DEWATERING FLOW MUST BE ADEQUATELY FILTERED PRIOR TO DISCHARGE INTO A RECEIVING WATER BODY OR DRAINAGE SYSTEM.
 - POOLS OF STAGNANT WATER WITHIN THE DETENTION BASIN MAY INDICATE FAILURE DUE TO EROSION AND SCOURING OF THE BASIN BOTTOM, PARTICULARLY NEAR AN INLET DEVICE OR FAILURE OF THE OUTLET DEVICE. THIS DEFICIENCY SHOULD BE CORRECTED IMMEDIATELY TO PREVENT A NUISANCE HABITAT FOR INSECTS, ESPECIALLY MOSQUITOES.
 - DISPOSAL OF THE ACCUMULATED SEDIMENT AND HYDROCARBONS MUST BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.
- THE FOLLOWING INSPECTION AND MAINTENANCE PROGRAM IS REQUIRED FOR BIORETENTION BASINS:
 - INSPECTION: THE BIORETENTION BASIN SHALL BE INSPECTED AT LEAST TWICE OR MORE FOLLOWING PRECIPITATION EVENTS OF AT LEAST ONE (1.0) INCH DURING THE FIRST SIX MONTHS AFTER CONSTRUCTION. THEREAFTER INSPECTIONS SHALL BE CONDUCTED ON ANNUAL BASIS AND AFTER STORM EVENTS OF GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR TYPE II PRECIPITATION EVENT. THE BIORETENTION BASIN SHALL BE INSPECTED SEMI-ANNUALLY THEREAFTER. INSPECTIONS SHALL FOCUS ON CHECKING THE BIORETENTION BASIN FOR STANDING WATER OR OTHER EVIDENCE OF CLOGGING SUCH AS DISCOLORED OR ACCUMULATED SEDIMENTS.
 - SEDIMENT REMOVAL: SEDIMENT SHALL BE REMOVED FROM THE BIORETENTION BASIN WHEN THE ACCUMULATION EXCEEDS ONE INCH OR WHEN THERE IS EVIDENCE THAT THE INFILTRATION CAPACITY OF THE BIORETENTION BASIN HAS BEEN SIGNIFICANTLY REDUCED. WHEN THE OBSERVED WATER LEVEL ABOVE THE FILTER EXCEEDS THE DESIGN LEVEL OR DRAW DOWN TIME EXCEEDS 48 HOURS, THE TOP SEVERAL INCHES OF THE BIORETENTION BASIN (TYPICALLY DISCOLORED MATERIAL) SHALL BE REMOVED AND REPLACED WITH FRESH MATERIAL. THE MATERIAL SHALL BE REMOVED WITH RAKES WHERE POSSIBLE RATHER THAN HEAVY EQUIPMENT TO AVOID COMPACTING. REMOVED SEDIMENTS SHALL BE DEWATERED (IF NECESSARY) AND DISPOSED OF IN A LAWFUL MANNER.
 - MULCHING: EVERY OTHER YEAR IN SPRING, AT MINIMUM. THE PREVIOUS MULCH LAYER SHOULD BE REMOVED AND PROPERLY DISPOSED OF, OR ROTO-TILLED INTO THE SOIL SURFACE.
 - MOWING: VEGETATION ALONG ACCESS ROADS SHOULD BE MOWED ANNUALLY.
 - WATERING: ONE (1) TIME EVERY TWO (2) TO THREE (3) DAYS FOR FIRST ONE (1) TO TWO (2) MONTHS, THEN AS NEEDED.
 - MISCELLANEOUS UPKEEP: SEMI-ANNUAL INSPECTIONS INCLUDING TRASH COLLECTION, SPOT WEEDING, REMOVING AND REPLACING DEAD VEGETATION, AND PRUNING.
 - AFTER ESTABLISHMENT: IF DROUGHTY, WATERING AFTER THE INITIAL YEAR MAY BE REQUIRED.
- THE FOLLOWING MAINTENANCE IS REQUIRED FOR RIPRAP:
 - ONCE RIPRAP HAS BEEN INSTALLED, IT SHOULD REQUIRE VERY LITTLE MAINTENANCE. RIPRAP SHALL BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSED SCOUR BENEATH THE RIPRAP OR DISLODGED ANY OF THE STONE. REPAIRS SHOULD BE ACCOMPLISHED IMMEDIATELY. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND INSPECTION UNTIL CONSTRUCTION IS COMPLETED OR UNTIL IT IS ACCEPTED BY THE OWNER. THE OWNER IS RESPONSIBLE THEREAFTER.
- THE FOLLOWING MAINTENANCE IS REQUIRED FOR ALL PROPOSED CATCH BASINS AND DIVERSION MANHOLES:
 - ONCE CONSTRUCTION IS COMPLETE AND HAS BEEN ACCEPTED BY THE OWNER, INSPECTIONS OF ALL CATCH BASINS ON-SITE BY THE OWNER SHOULD OCCUR AT LEAST QUARTERLY TO CHECK FOR DEBRIS REMOVAL (SEDIMENT AND HYDROCARBONS) AND STRUCTURAL INTEGRITY OR DAMAGE, AND CLEANED TWICE A YEAR, AT MINIMUM. SUCH DEFICIENCIES MUST BE CORRECTED IMMEDIATELY.
 - DISPOSAL OF THE ACCUMULATED SEDIMENT AND HYDROCARBONS MUST BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.

SURVEY NOTES

EXISTING CONDITIONS BASED ON SURVEYS THAT WERE SHOWN ON A PLANS ENTITLED "EXISTING CONDITIONS, MIDDLETOWN, RHODE ISLAND" BY NORBERT A. THERIEN, NO. 1739 PLS, LAND SURVEYOR, NATIONAL LAND SURVEYORS 42 HAMLET AVE., WOODSOCKET, R.I. (401) 769-7779

- THE LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE LATEST AVAILABLE INFORMATION. THE UTILITY LOCATIONS ARE APPROXIMATE AND MAY NOT BE ALL INCLUSIVE. THE CONTRACTOR SHALL CHECK AND VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES, BOTH OVERHEAD AND UNDERGROUND, AND "DIG-SAFE" MUST BE NOTIFIED PRIOR TO COMMENCING ANY CONSTRUCTION OPERATIONS. RESTORATION AND REPAIR OF DAMAGE TO EXISTING UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. NO EXCAVATION SHALL COMMENCE UNTIL ALL INVOLVED UTILITY COMPANIES AND/OR TOWN WHOSE FACILITIES MIGHT BE AFFECTED BY ANY WORK TO BE PERFORMED BY THE CONTRACTOR ARE NOTIFIED AT LEAST 72 HOURS IN ADVANCE.
- THE CONTOURS AND ELEVATIONS SHOWN BASED ON NAVD-88 VERTICAL DATUM.

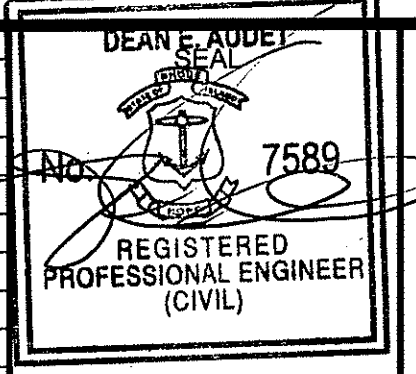
UTILITY NOTES

- EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. BUILDING SERVICE CONNECTIONS (ELECTRIC, GAS, TELEPHONE, WATER AND SANITARY) ARE NOT SHOWN. CONTRACTOR IS TO ASSUME SERVICES ARE PRESENT TO ALL BUILDINGS.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH THE "DIG SAFE LAW" ENACTED BY R.I. LEGISLATURE BILL NO. 795-291, WHICH BECAME EFFECTIVE JULY 1, 1979 AND BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE STATE.
- ALL UTILITY POLE RELATED WORK SHALL BE BY OTHERS.

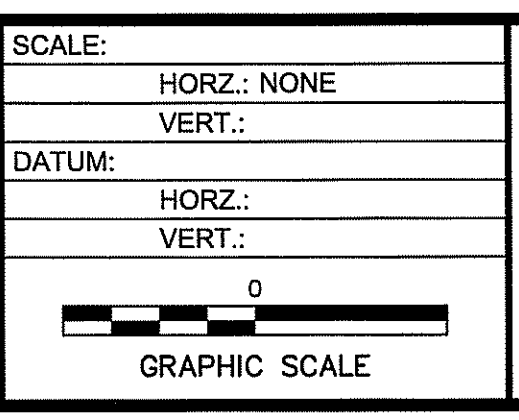


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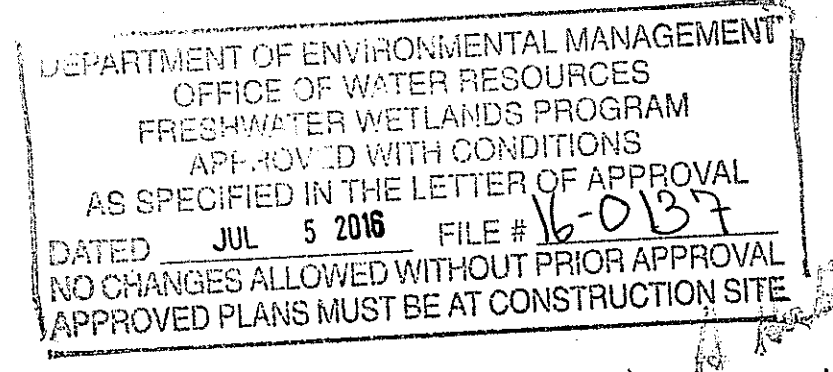
SEAL



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

TOWN OF MIDDLETOWN
 GENERAL NOTES & LEGEND
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CN-001

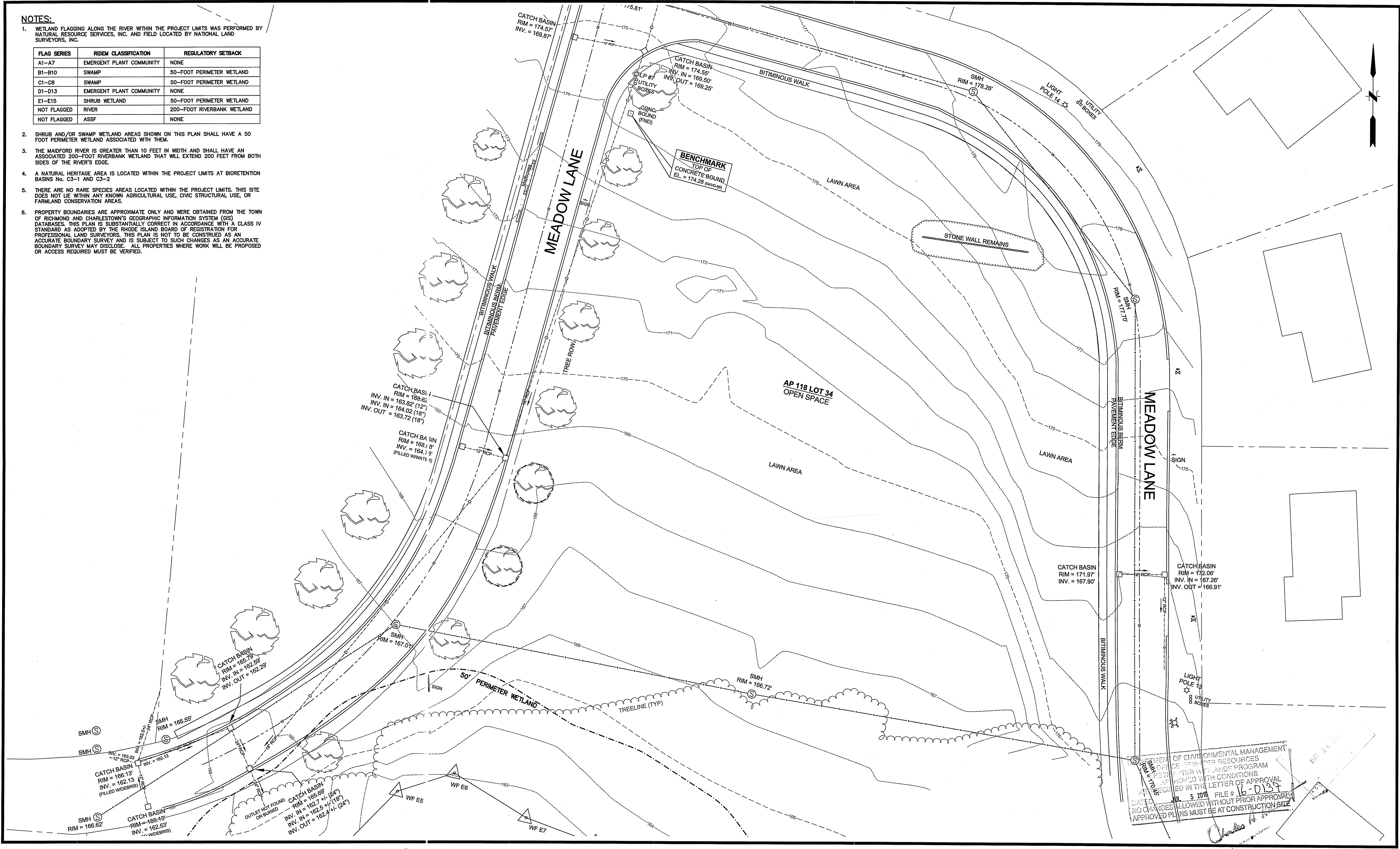


NOTES:

1. WETLAND FLAGGING ALONG THE RIVER WITHIN THE PROJECT LIMITS WAS PERFORMED BY NATURAL RESOURCE SERVICES, INC. AND FIELD LOCATED BY NATIONAL LAND SURVEYORS, INC.

FLAG SERIES	RIDEM CLASSIFICATION	REGULATORY SETBACK
A1-A7	EMERGENT PLANT COMMUNITY	NONE
B1-B10	SWAMP	50-FOOT PERIMETER WETLAND
C1-C8	SWAMP	50-FOOT PERIMETER WETLAND
D1-D13	EMERGENT PLANT COMMUNITY	NONE
E1-E15	SHRUB WETLAND	50-FOOT PERIMETER WETLAND
NOT FLAGGED	RIVER	200-FOOT RIVERBANK WETLAND
NOT FLAGGED	ASSF	NONE

- SHRUB AND/OR SWAMP WETLAND AREAS SHOWN ON THIS PLAN SHALL HAVE A 50 FOOT PERIMETER WETLAND ASSOCIATED WITH THEM.
- THE MAIDFORD RIVER IS GREATER THAN 10 FEET IN WIDTH AND SHALL HAVE AN ASSOCIATED 200-FOOT RIVERBANK WETLAND THAT WILL EXTEND 200 FEET FROM BOTH SIDES OF THE RIVER'S EDGE.
- A NATURAL HERITAGE AREA IS LOCATED WITHIN THE PROJECT LIMITS AT BIORETENTION BASINS No. C3-1 AND C3-2
- THERE ARE NO RARE SPECIES AREAS LOCATED WITHIN THE PROJECT LIMITS. THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, CIVIC STRUCTURAL USE, OR FARMLAND CONSERVATION AREAS.
- PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF RICHMOND AND CHARLESTOWN'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES. 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.



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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAN E. AUBET
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

DATUM:
 HORIZ.: NAD83
 VERT.: NAVD88

SCALE:
 HORIZ.: 1" = 20'
 VERT.:
 GRAPHIC SCALE

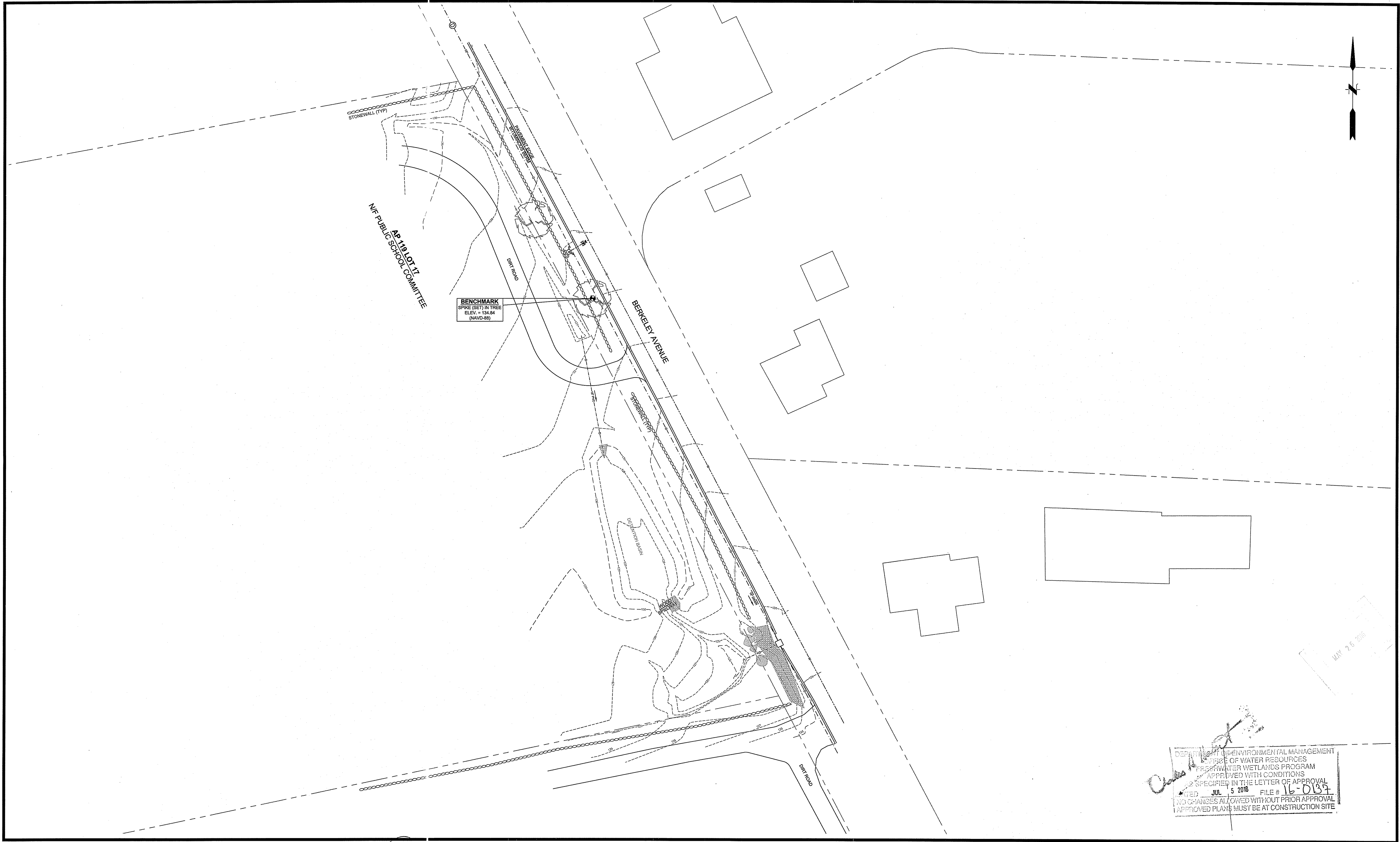
FUSS & O'NEILL
 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF MIDDLETOWN
 EXISTING CONDITIONS PLAN FOR BMP A1
 EAST MEADOWS
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
EC-101

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 WATER QUALITY CONTROL DIVISION
 APPROVED WITH CONDITIONS
 AS SHOWN IN THE LETTER OF APPROVAL
 FILE # 16-0137
 DATED JUL 5 2016
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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MAY 26 2016

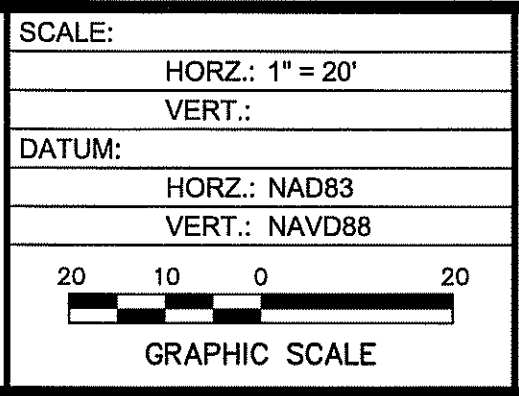
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-037
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAUMEDET
 No. 7589
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
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 VERT.:
 DATUM:
 HORZ.: NAD83
 VERT.: NAVD88

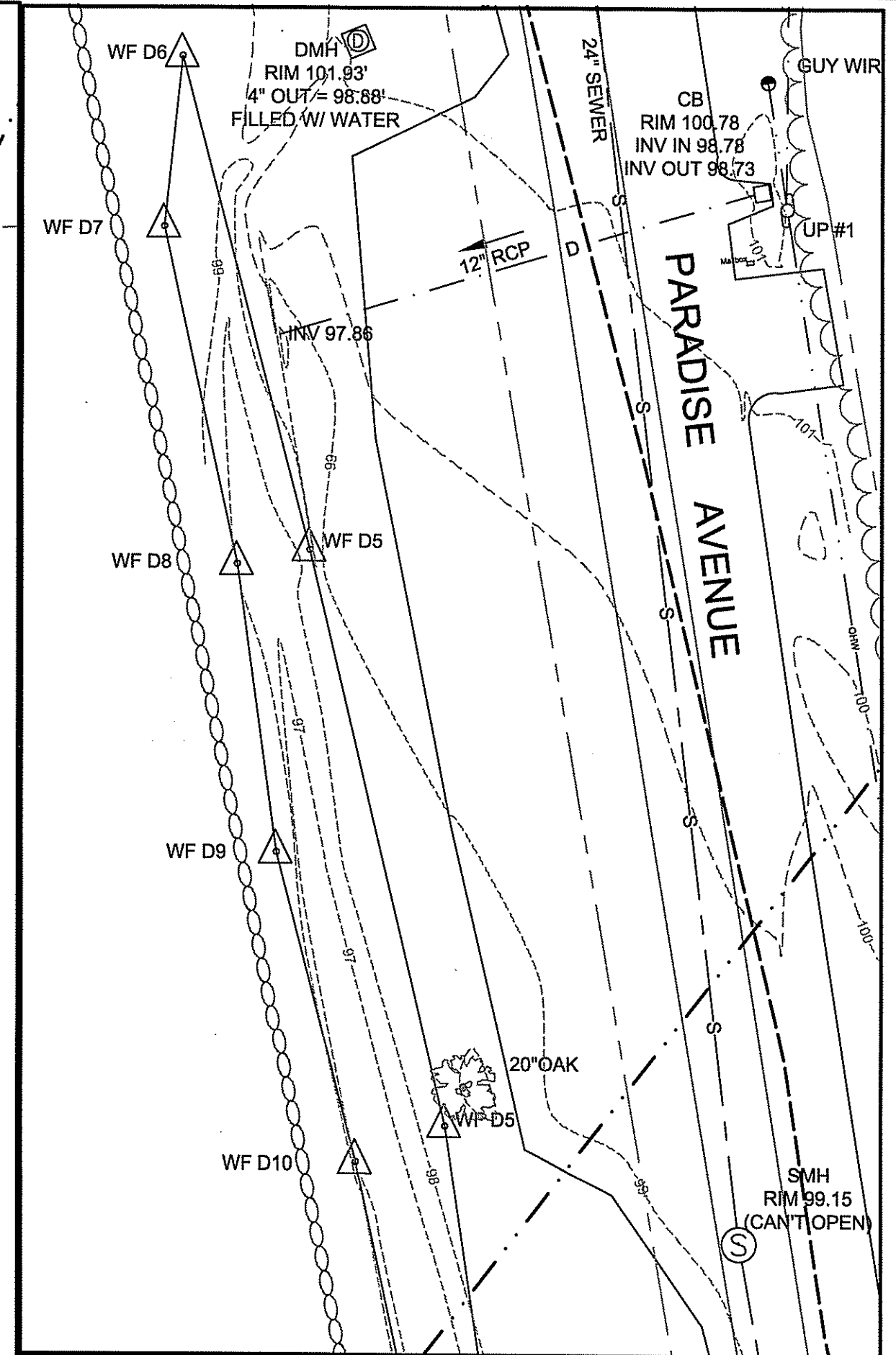


f **FUSS & O'NEILL**
 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
 401.861.3070
 www.fandco.com

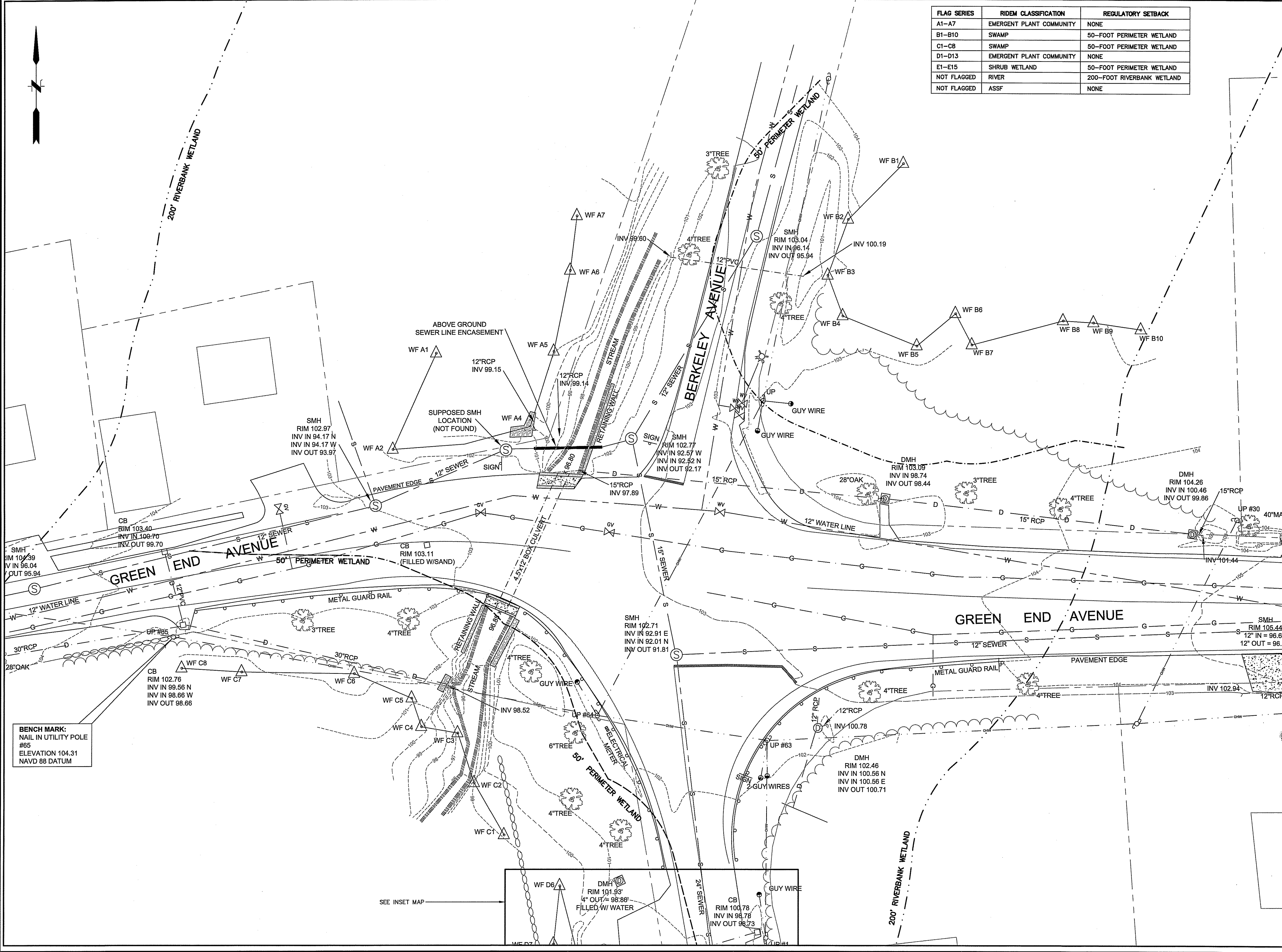
TOWN OF MIDDLETOWN
 EXISTING CONDITIONS PLAN FOR BMP A2
 HOOGENDORN NURSERY
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870A10
 DATE: MARCH 2016
EC-102

FLAG SERIES	RIDEM CLASSIFICATION	REGULATORY SETBACK
A1-A7	EMERGENT PLANT COMMUNITY	NONE
B1-B10	SWAMP	50-FOOT PERIMETER WETLAND
C1-C8	SWAMP	50-FOOT PERIMETER WETLAND
D1-D13	EMERGENT PLANT COMMUNITY	NONE
E1-E15	SHRUB WETLAND	50-FOOT PERIMETER WETLAND
NOT FLAGGED	RIVER	200-FOOT RIVERBANK WETLAND
NOT FLAGGED	ASSF	NONE



INSET PLAN
SCALE 1" = 20'



BENCH MARK:
NAIL IN UTILITY POLE #65
ELEVATION 104.31
NAVD 88 DATUM

NOTES:
1. THIS PLAN IS A PART OF THE ENVIRONMENTAL MANAGEMENT PROGRAM AS SPECIFIED IN THE LETTER OF APPROVAL DATED 03/15/2016 FILE # 16-0137.
2. NO CONSTRUCTION SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF APPROVED PLANS MUST BE AT CONSTRUCTION SITE.
3. WETLAND FLAGGING ALONG THE RIVER WITHIN THE PROJECT LIMITS WAS PERFORMED BY NATURAL RESOURCE SERVICES, INC. AND FIELD LOCATED BY NATIONAL LAND SURVEYORS, INC.

- SHRUB AND/OR SWAMP WETLAND AREAS SHOWN ON THIS PLAN SHALL HAVE A 50 FOOT PERIMETER WETLAND ASSOCIATED WITH THEM.
- THE MAIDFORD RIVER IS GREATER THAN 10 FEET IN WIDTH AND SHALL HAVE AN ASSOCIATED 200-FOOT RIVERBANK WETLAND THAT WILL EXTEND 200 FEET FROM BOTH SIDES OF THE RIVER'S EDGE.
- A NATURAL HERITAGE AREA IS LOCATED WITHIN THE PROJECT LIMITS AT BIOTENTION BASINS No. C3-1 AND C3-2.
- THERE ARE NO RARE SPECIES AREAS LOCATED WITHIN THE PROJECT LIMITS. THIS SITE DOES NOT LIE WITHIN ANY KNOWN AGRICULTURAL USE, CIVIC STRUCTURAL USE, OR FARMLAND CONSERVATION AREAS.
- PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF RICHMOND AND CHARLESTOWN'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASES. THIS PLAN IS SUBSTANTIALLY CORRECT IN ACCORDANCE WITH A CLASS II STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS PLAN IS NOT TO BE CONSIDERED 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.

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAN BAUDET
No. 7589
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
HORIZ.: 1" = 20'
VERT.:
DATUM:
HORIZ.: NAD83
VERT.: NAVD88

GRAPHIC SCALE

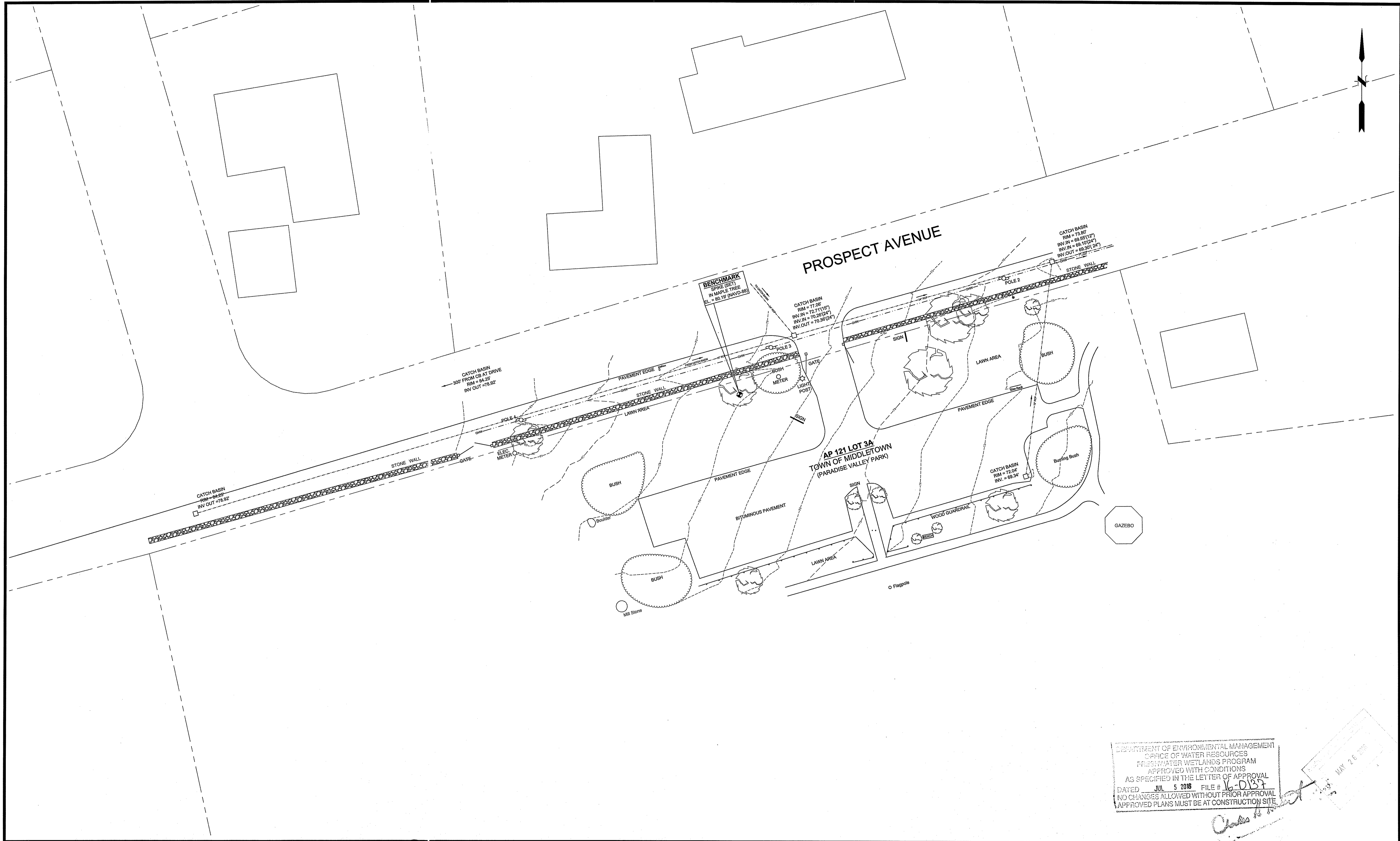
FUSS & O'NEILL
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF MIDDLETOWN
EXISTING CONDITIONS PLAN FOR BMPS C3-1/C3-2
GREEN END AVENUE
MAIDFORD RIVER STORMWATER BMPS
MIDDLETOWN
RHODE ISLAND

PROJ. No.: 20140870.A10
DATE: MARCH 2016

EC-103

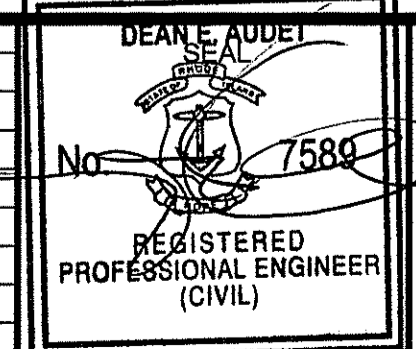
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # V-0137
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

MAY 26 2016

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



SEAL

SCALE:
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 VERT.:
 DATUM:
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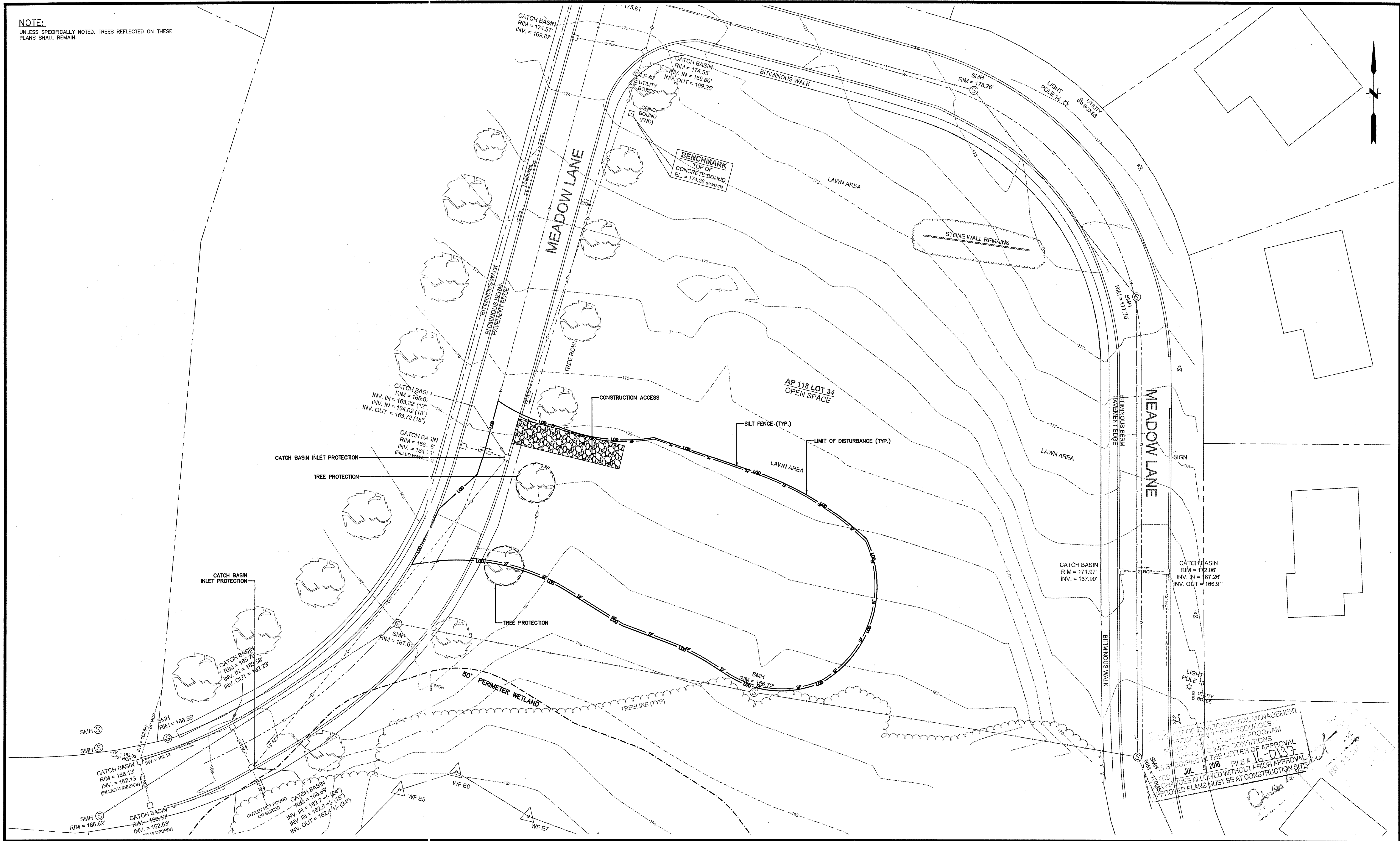
GRAPHIC SCALE

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

TOWN OF MIDDLETOWN
 EXISTING CONDITIONS PLAN FOR BMPS C5/C6
 PARADISE VALLEY PARK
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
EC-104

NOTE:
UNLESS SPECIFICALLY NOTED, TREES REFLECTED ON THESE PLANS SHALL REMAIN.



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LAYER STATE:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

DEANSEAUDET
No. 7589
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
HORIZ.: 1" = 20'
VERT.:
DATUM:
HORIZ.: NAD83
VERT.: NAVD88

GRAPHIC SCALE

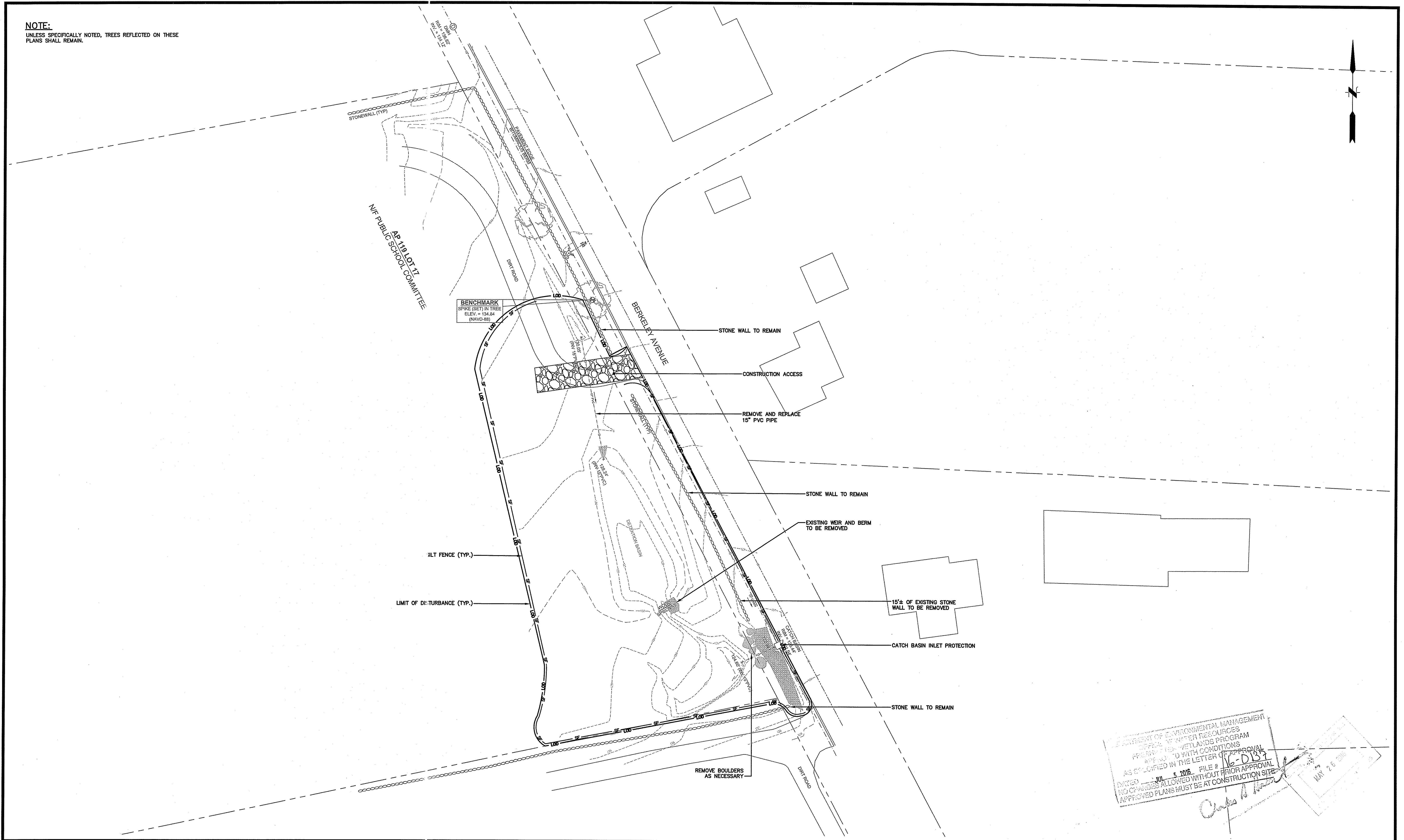
f **FUSS & O'NEILL**
317 IRON HORSE WAY, SUITE 204
PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF MIDDLETOWN
DEMOLITION AND EROSION CONTROL PLAN
FOR BMP A1 EAST MEADOWS
MAIDFORD RIVER STORMWATER BMPS
MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
DATE: MARCH 2016
ES-101

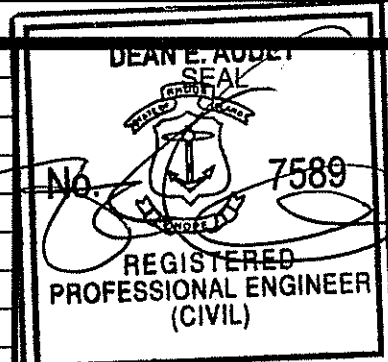
APPROVED FOR CONSTRUCTION
MAY 26 2016
FILE # 16-037
JUL 5 2016
CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

NOTE:
UNLESS SPECIFICALLY NOTED, TREES REFLECTED ON THESE PLANS SHALL REMAIN.



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LAYER STATE: MS VIEW:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



SEAL

SCALE:

HORIZ.:	1" = 20'
VERT.:	
DATUM:	
HORIZ.:	NAD83
VERT.:	NAVD88

GRAPHIC SCALE

f **FUSS & O'NEILL**
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PROVIDENCE, RI 02908
401.861.3070
www.fando.com

TOWN OF MIDDLETOWN
DEMOLITION AND EROSION CONTROL PLAN
FOR BMP A2 HOOGENDORN NURSERY
MAIDFORD RIVER STORMWATER BMPs
MIDDLETOWN RHODE ISLAND

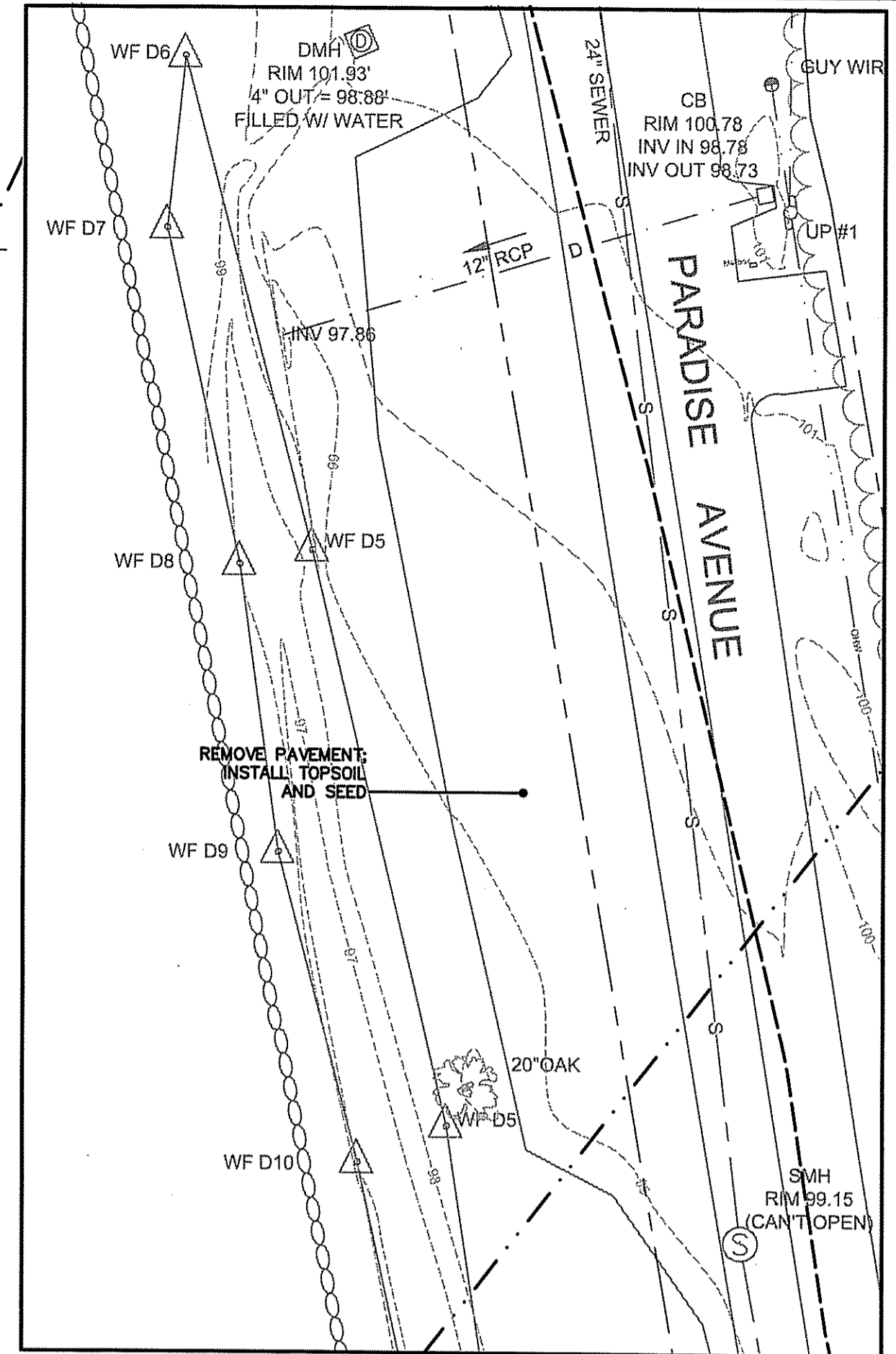
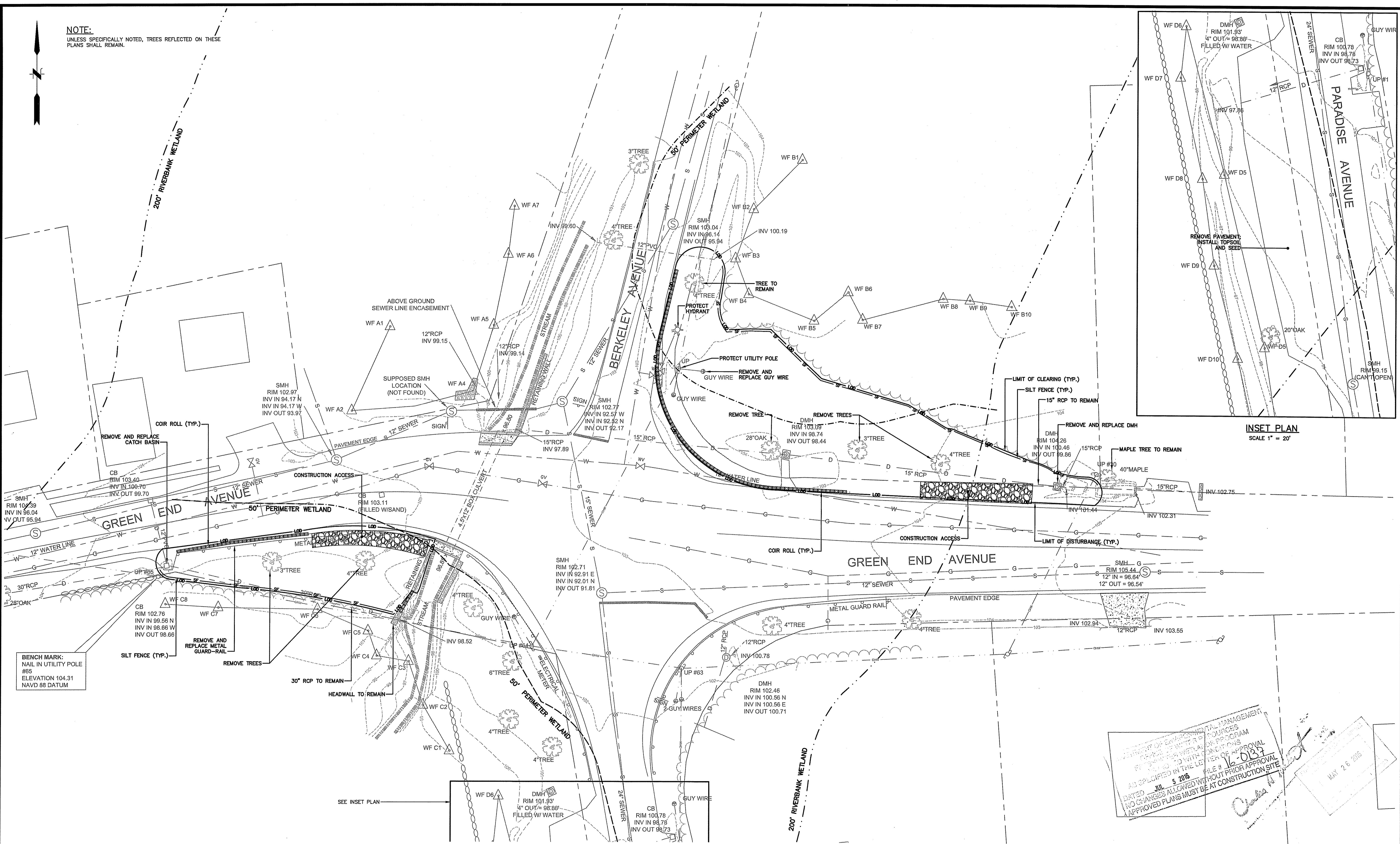
PROJ. No.: 20140870A10
DATE: MARCH 2016

ES-102

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WETLANDS RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH LETTER OF APPROVAL
AS SHOWN IN THE LETTER OF APPROVAL
DATED JUL 5 2016 FILE # 16-D137
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Chris A. [Signature]
MAY 26 2016

NOTE:
UNLESS SPECIFICALLY NOTED, TREES REFLECTED ON THESE PLANS SHALL REMAIN.



INSET PLAN
SCALE 1" = 20'

File Path: J:\DWG\20140870A10_STP010.dwg Layout: ES-103 Plotted: Wed, May 25, 2016 - 12:17 PM User: rweiler
 LAYER: STATE

BENCH MARK:
NAIL IN UTILITY POLE
#65
ELEVATION 104.31
NAVD 88 DATUM

APPROVED FOR ENVIRONMENTAL MANAGEMENT
 PROVIDED WITH THE 68 PROGRAM
 TO BE USED WITH THE APPROVAL
 AS SHOWN IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-DB3
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
 MAY 26 2016

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEANÉ LAUDET
 No. 7589
 REGISTERED
 PROFESSIONAL ENGINEER
 (CIVIL)

SEAL

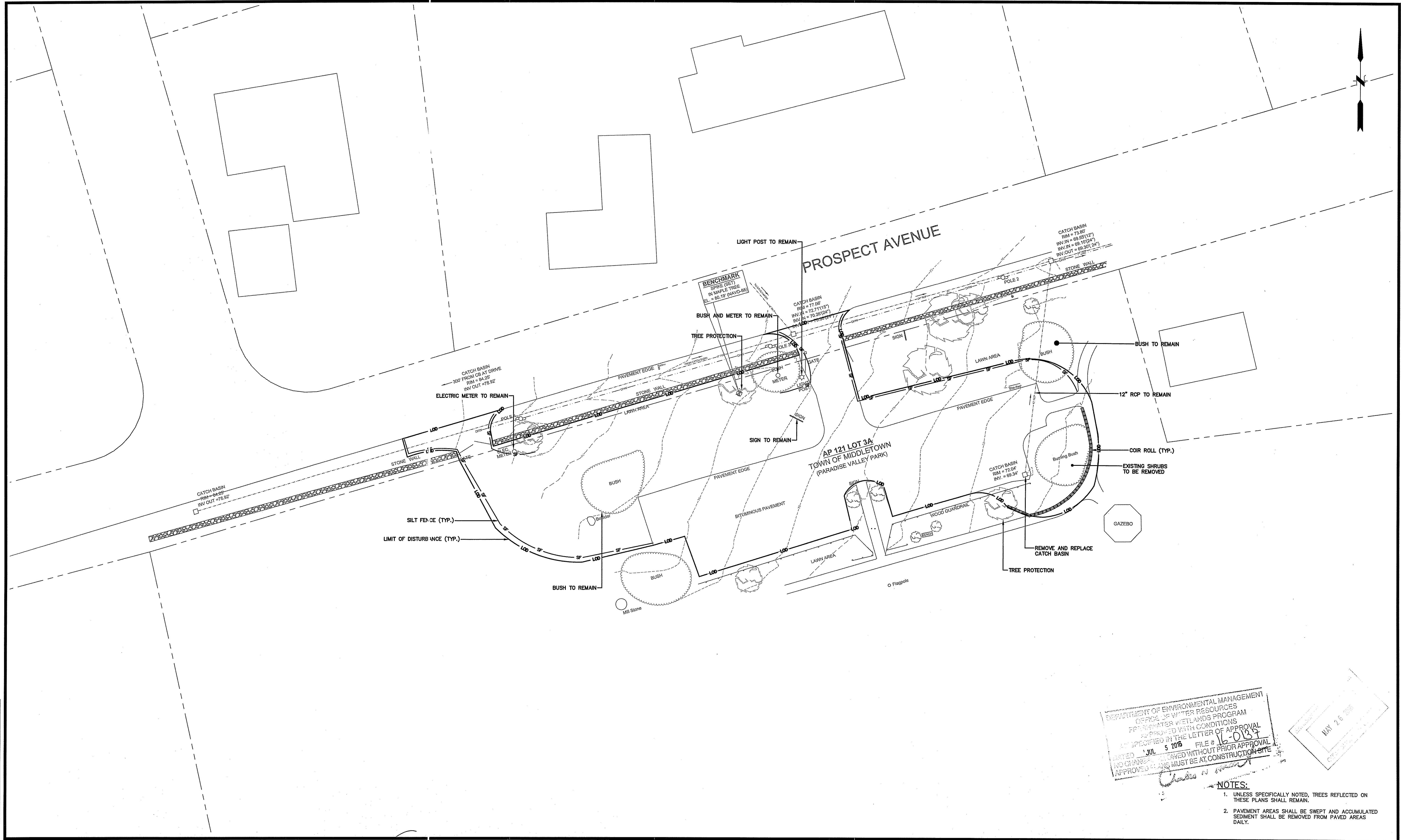
SCALE:
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 VERT.:
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 HORZ.: NAD83
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 GRAPHIC SCALE

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 PROVIDENCE, RI 02908
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 www.fando.com

TOWN OF MIDDLETOWN
DEMOLITION AND EROSION CONTROL PLAN
 FOR BMPS C3-1/C3-2 GREEN END AVENUE
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870A10
 DATE: MARCH 2016
ES-103

File Path: J:\DWG\2014\0870\A10_STP010.dwg Layout: ES-104 Plotted: Wed, May 11, 2016 - 9:59 AM User: rweiler
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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-0187
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

- NOTES:**
- UNLESS SPECIFICALLY NOTED, TREES REFLECTED ON THESE PLANS SHALL REMAIN.
 - PAVEMENT AREAS SHALL BE SWEEPED AND ACCUMULATED SEDIMENT SHALL BE REMOVED FROM PAVED AREAS DAILY.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

DEANE AUDET
 No. 7589
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
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 VERT.:
 DATUM:
 HORZ.:
 VERT.: NAD83

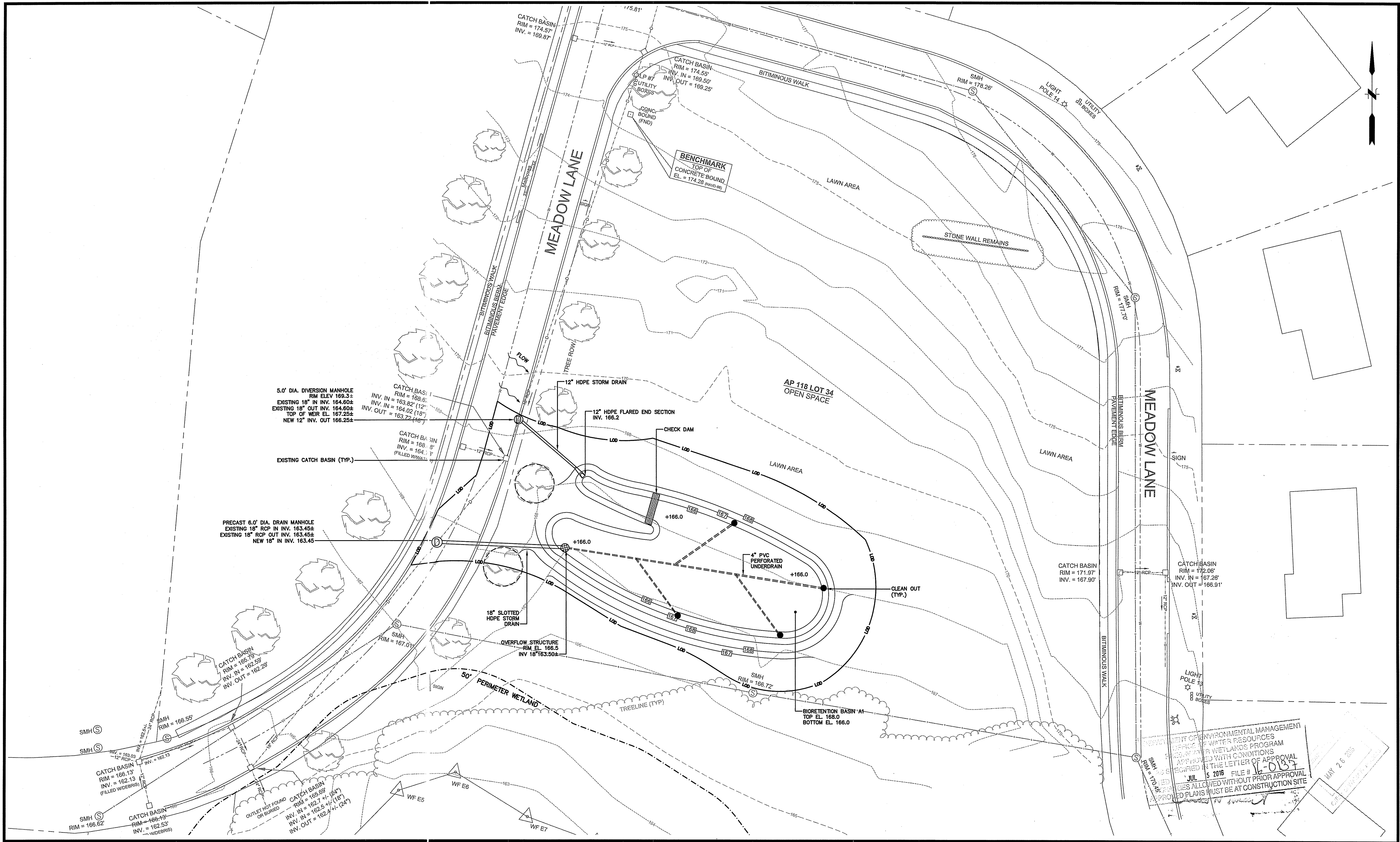
GRAPHIC SCALE

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 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF MIDDLETOWN
 DEMOLITION AND EROSION CONTROL PLAN
 FOR BMPS C5/C6 PARADISE VALLEY PARK
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
ES-104

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAN E. AUDET
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 7589
 SEAL

SCALE:
 HORIZ.: 1" = 20'
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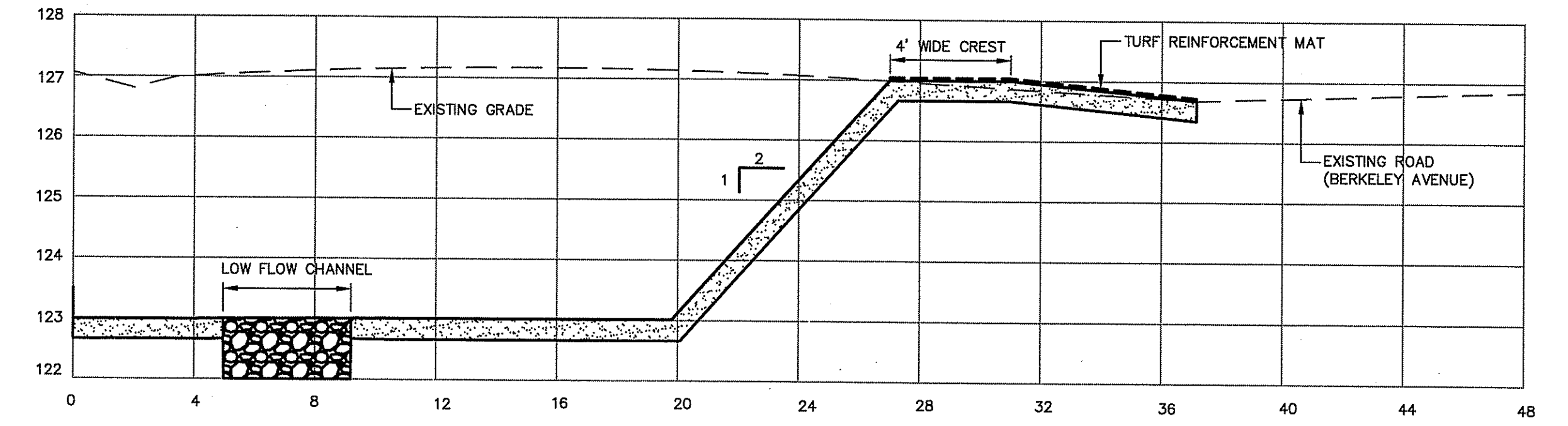
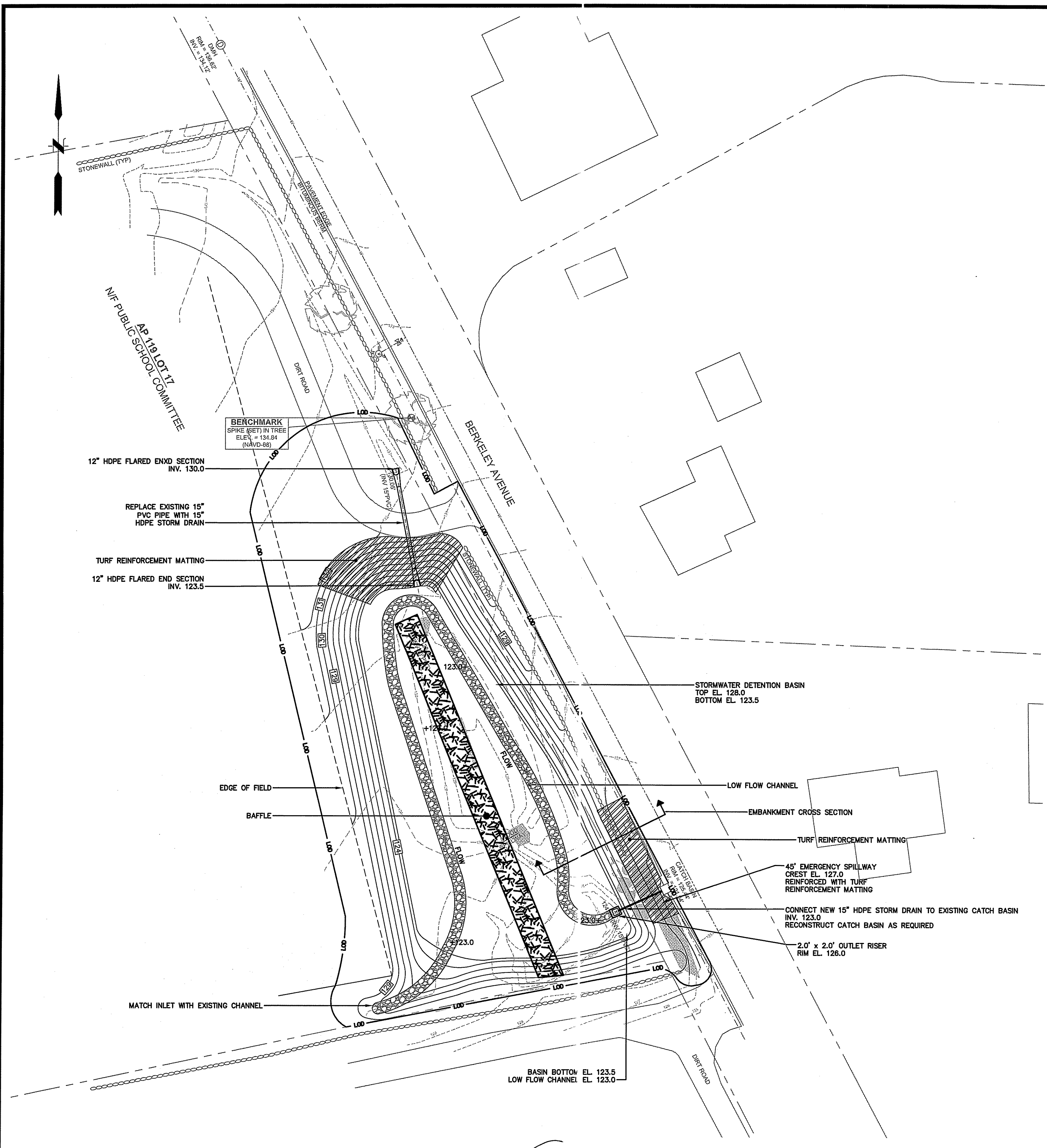
f **FUSS & O'NEILL**
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 PROVIDENCE, RI 02908
 401.861.3070
 www.fando.com

TOWN OF MIDDLETOWN
 GRADING & DRAINAGE PLAN FOR BMP A1
 EAST MEADOWS
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CG-101

PERMIT ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 MAIDFORD RIVER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 JUL 5 2016 FILE # 16-0137
 ANY CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

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 PLOTTER: DWG TO PDF.PCS CTB File: FO.STB
 LAYER STATE:



EMBankment CROSS SECTION

HORIZ SCALE 1" = 4'
 VERT SCALE 1" = 2'

SOUTHERN NEW HAMPSHIRE ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 PRESENTED FOR WETLANDS PROGRAM
 APPROVED WITH CONDITIONS OF APPROVAL
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-0137
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
 Charles H. [Signature]
 MAY 26 2016

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEAN E. AUBET
 No. 7589
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

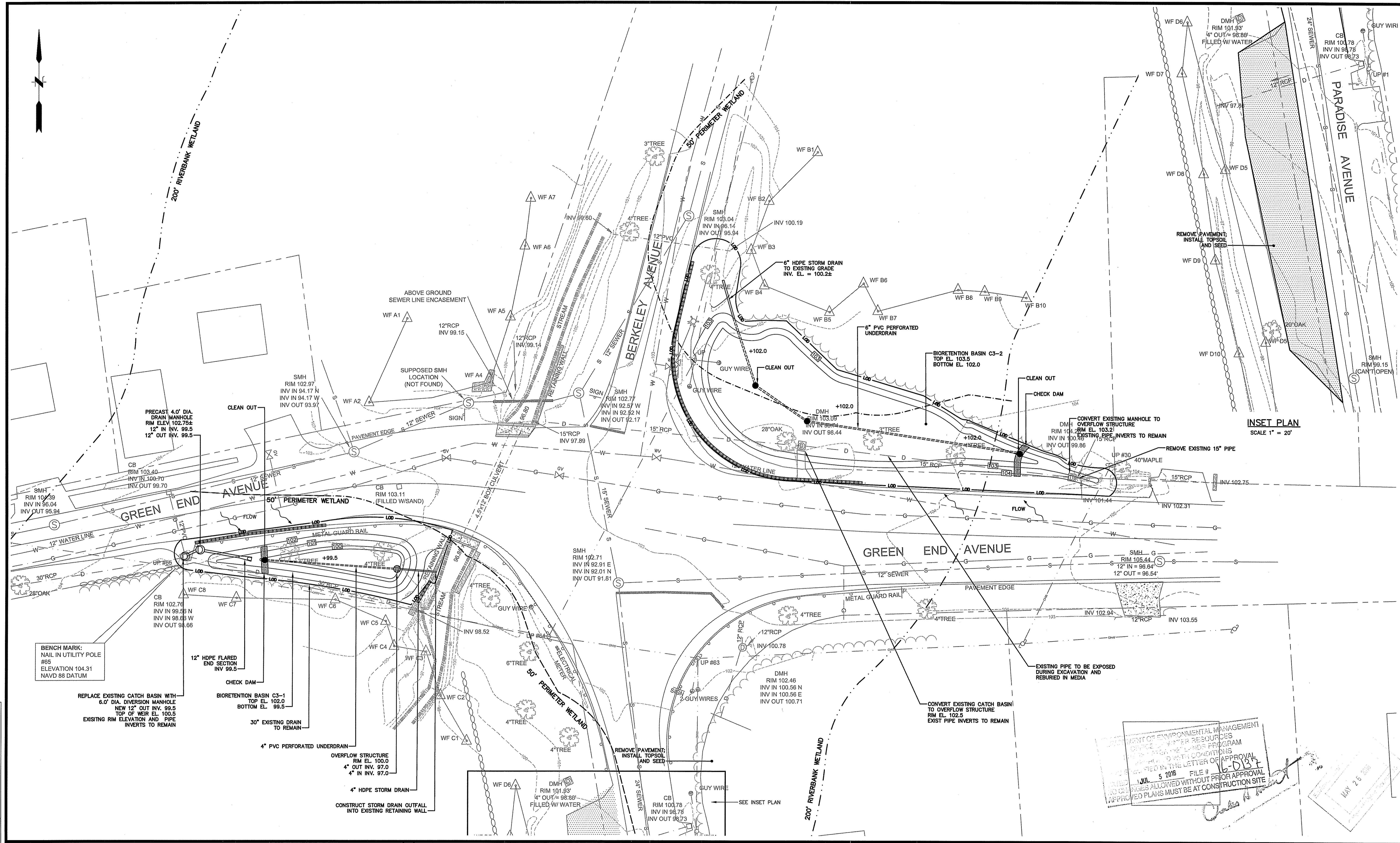
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 VERT.:
 DATUM:
 HORIZ.: NAD83
 VERT.: NAVD88
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 GRAPHIC SCALE

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

TOWN OF MIDDLETOWN
 GRADING & DRAINAGE PLAN FOR BMP A2
 HOOGENDORN NURSERY
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CG-102

File Path: J:\DWG\20140870\A10_STP010.dwg Plotted: Wed, May 25, 2016 - 12:18 PM User: rwteller
 MS VIEW: LAYER STATE: Plotter: DWG TO PDF.PC3 CTB File: FOSTB



INSET PLAN
SCALE 1" = 20'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 DIVISION OF WATER RESOURCES
 STATE OF RHODE ISLAND
 APPROVED FOR THE LANDS PROGRAM
 AS SHOWN IN THE LETTER OF APPROVAL
 FILE # 16-DB3
 DATE 5/20/16
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEANE LAUDET
 7589
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
 HORIZ.: 1" = 20'
 VERT.:
 DATUM:
 HORIZ.: NAD83
 VERT.: NAVD88

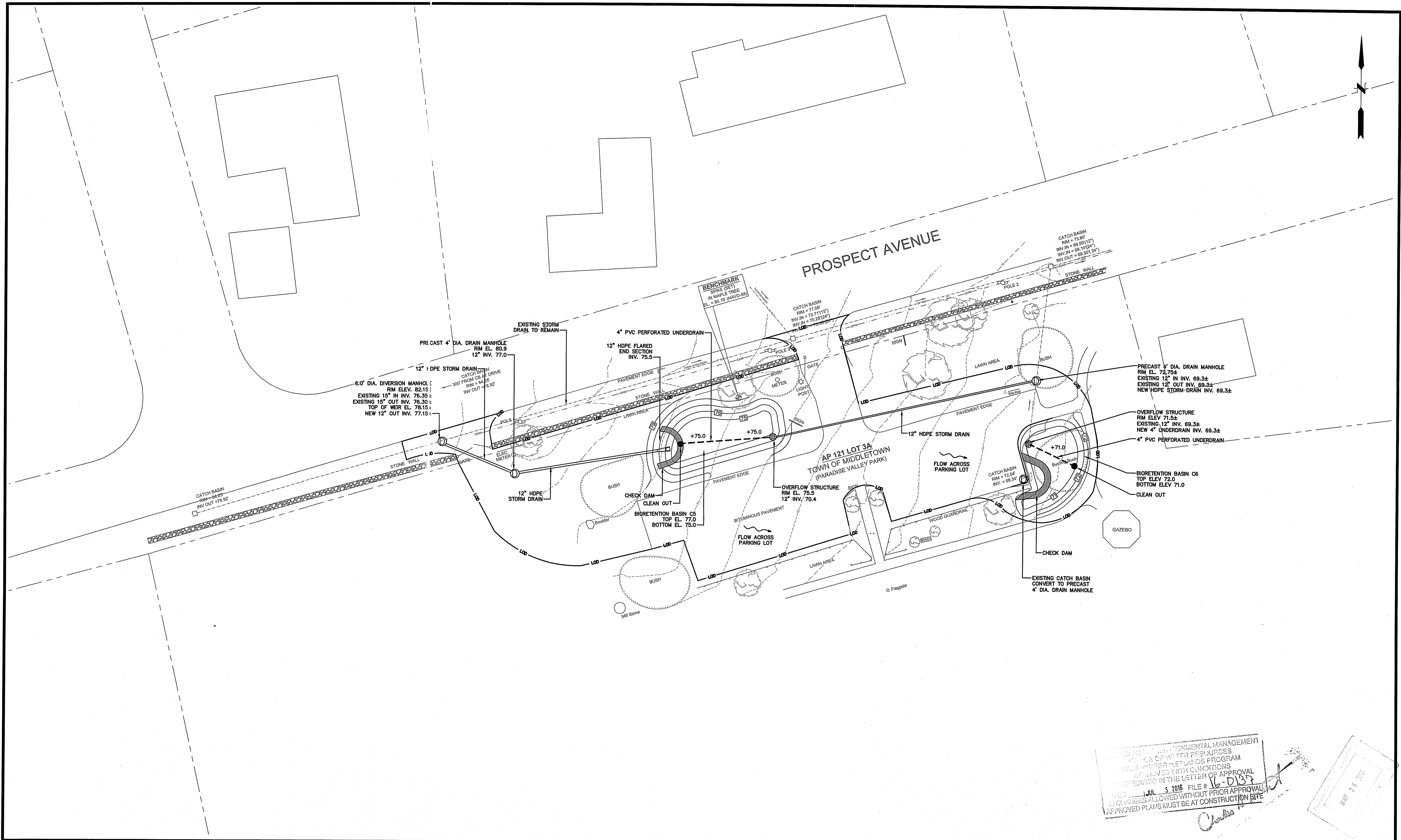
GRAPHIC SCALE

f **FUSS & O'NEILL**
 317 IRON HORSE WAY, SUITE 204
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TOWN OF MIDDLETOWN
 GRADING & DRAINAGE PLAN FOR BMPS C3-1/ C3-2
 GREEN END AVENUE
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CG-103

File Path: J:\DWG\2014\0870\A10_Civil\Plan\20140870A10_STP010.dwg Layout: CG-104 User: rweiler
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 LAYER STATE:



ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 PREEMPTIVE WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-DB5
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				

DEARF AUDET
 No. 9488
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
 HORZ.: 1" = 20'
 VERT.:
 DATUM:
 HORZ.: NAD83
 VERT.: NAVD88

GRAPHIC SCALE

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TOWN OF MIDDLETOWN
 GRADING & DRAINAGE PLAN FOR BMPS C5/C6
 PARADISE VALLEY PARK
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CG-104

PLANTING AND SEEDING NOTES

- SEE SHEET LA-101 FOR OVERALL PLANT LIST.
- IF A DISCREPANCY EXISTS BETWEEN PLANT QUANTITIES AS SHOWN ON THE DRAWING AND IN THE PLANT LIST, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING THE LARGER QUANTITY.
- ALL AREAS THAT ARE DISTURBED BY CONSTRUCTION ACTIVITIES AND NOT SCHEDULED TO RECEIVE PLANTINGS SHALL BE SEEDED WITH GENERAL LAWN SEED MIX.

PARTIAL PLANT LIST

KEY BOTANICAL NAME

COMMON NAME

QTY.

SIZE

TREES

AR	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	1	2 1/2-3" CAL.
OC	CERCIS CANADENSIS	EASTERN REDBUD	2	1 1/2-2" CAL.
CS	CORNUS X 'STELLAR PINK'	STELLAR PINK DOGWOOD	2	1 1/2-2" CAL.

SHRUBS

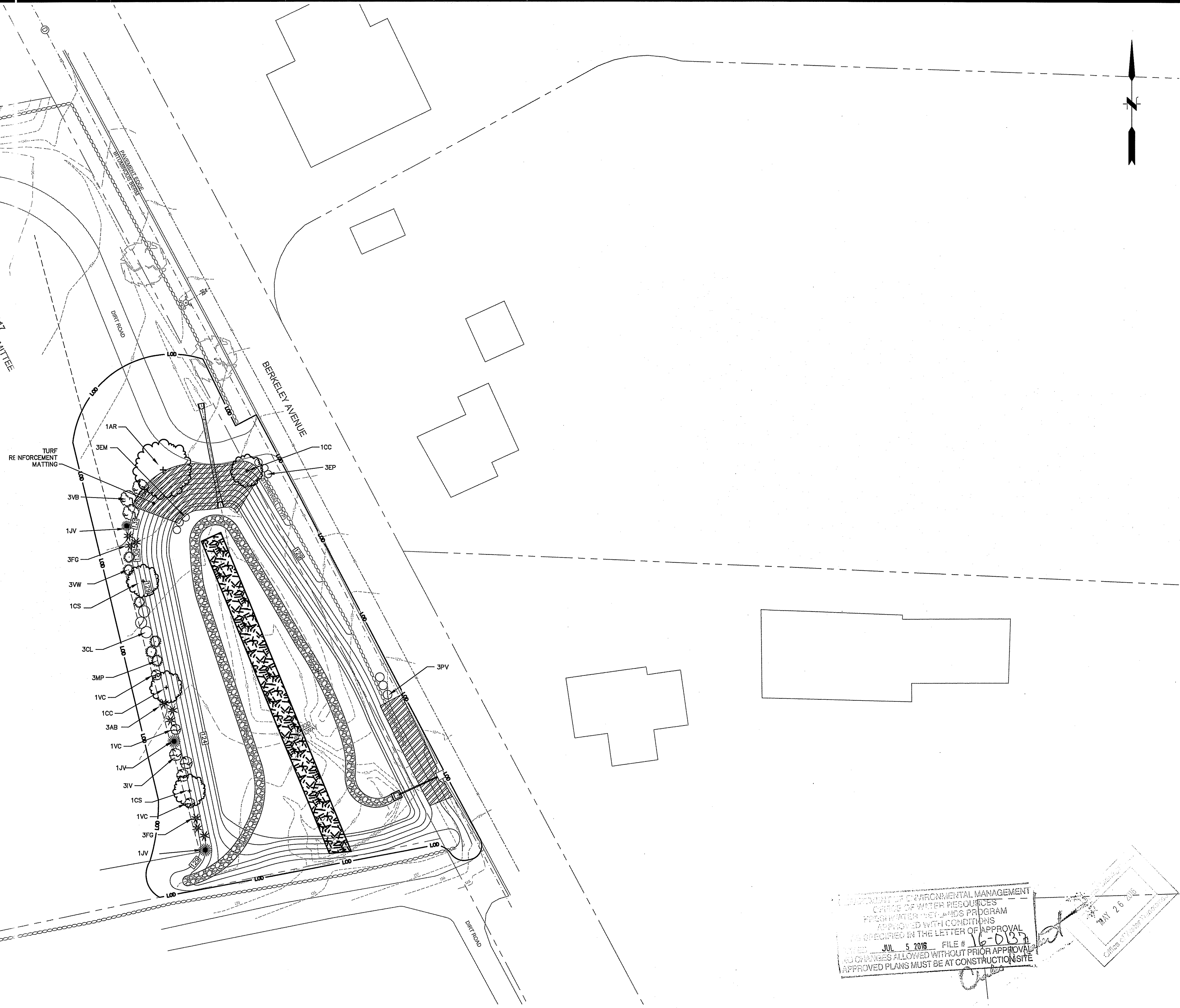
AB	ARONIA A. BRILLIANTISSIMA	BRILLIANT CHOKEBERRY	3	2 GAL.
CL	CLETHRA ALNIFOLIA	SUMMERSWEET	3	2 GAL.
FG	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	6	2 GAL.
IV	ILEX VERTICILLATA 'RED SPRITE' / 'JIM DANDY'	WINTERBERRY 80% FEMALE/20% MALE	3	2 GAL.
JV	JUNIPERUS VIRGINIANA SEEDLING	EASTERN RED CEDAR	3	2 GAL.
MP	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	3	2 GAL.
VB	VBURNUM D. 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD	3	2 GAL.
VV	VBURNUM TRILOBUM 'WENTWORTH'	WENTWORTH CRANBERRY BUSH	3	2 GAL.
VC	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	3	2 GAL.

PERENNIALS/GRASSES

EM	EUPATORIUM MACULATUM 'LITTLE JOE'	DWARF JOE PYE WEED	3	1 GAL.
EP	ECHINACEA PURPUREA 'BRIGHT STAR'	TALL PURPLE CONEFLOWER	3	1 GAL.
PV	PANICUM VIRGATUM 'HEAVY METAL'	BIG BLUE SWITCHGRASS	3	1 GAL.

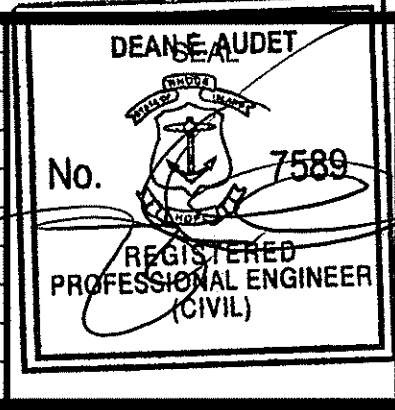
1. QUANTITIES SHOWN IN ABOVE LIST REFER TO PLANTS REQUIRED FOR THIS LOCATION ONLY.

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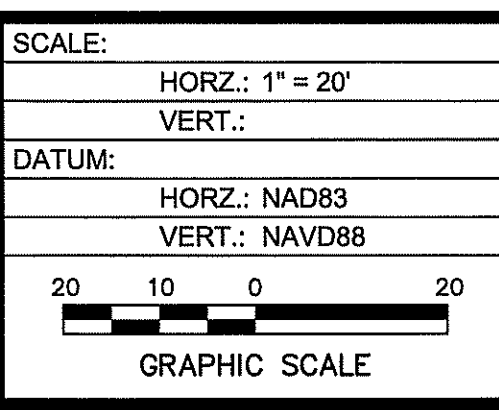


TOWN OF MIDDLETOWN
 OFFICE OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED JUL 5 2016 FILE # 16-037
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
 MAY 26 2016
 OFFICE OF WATER RESOURCES

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



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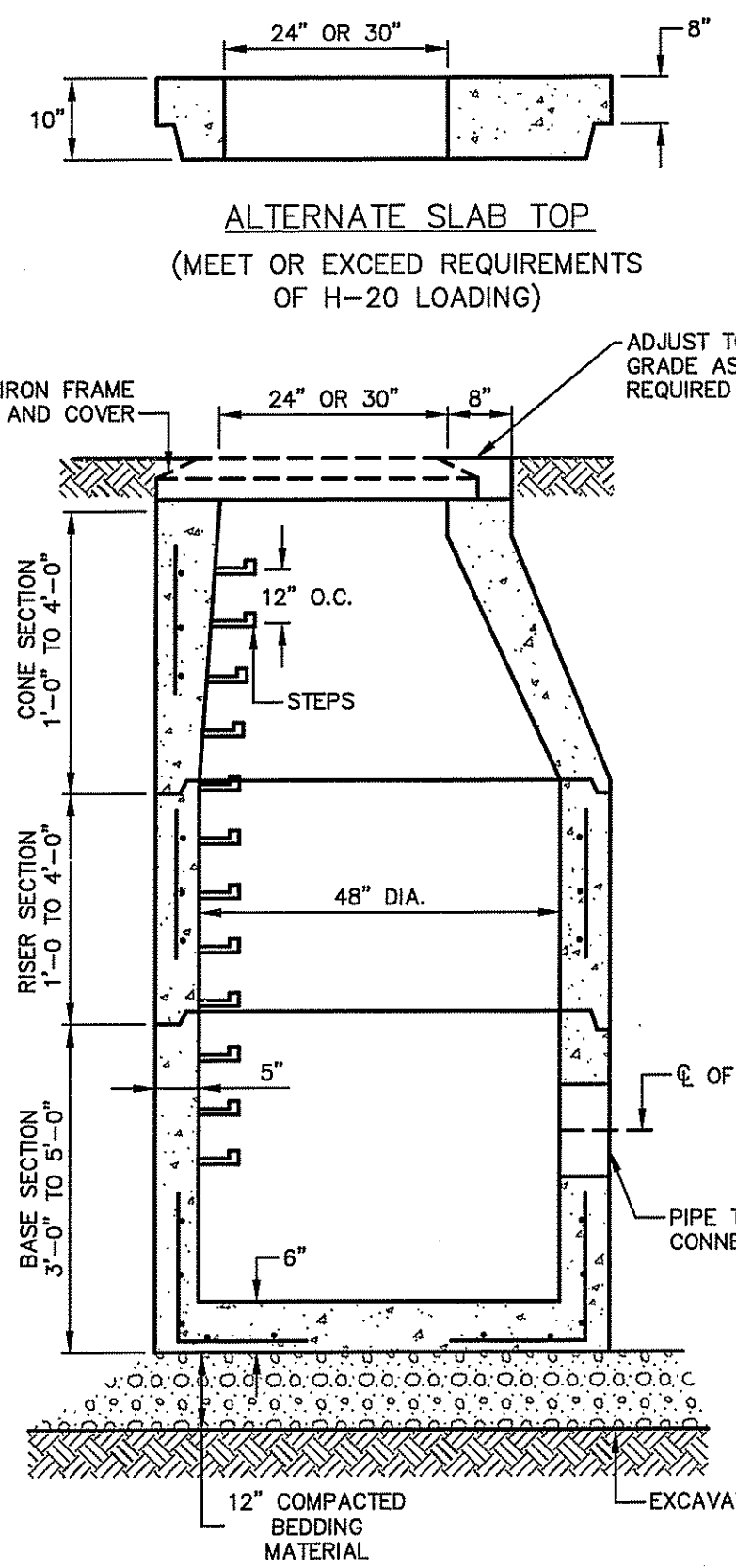


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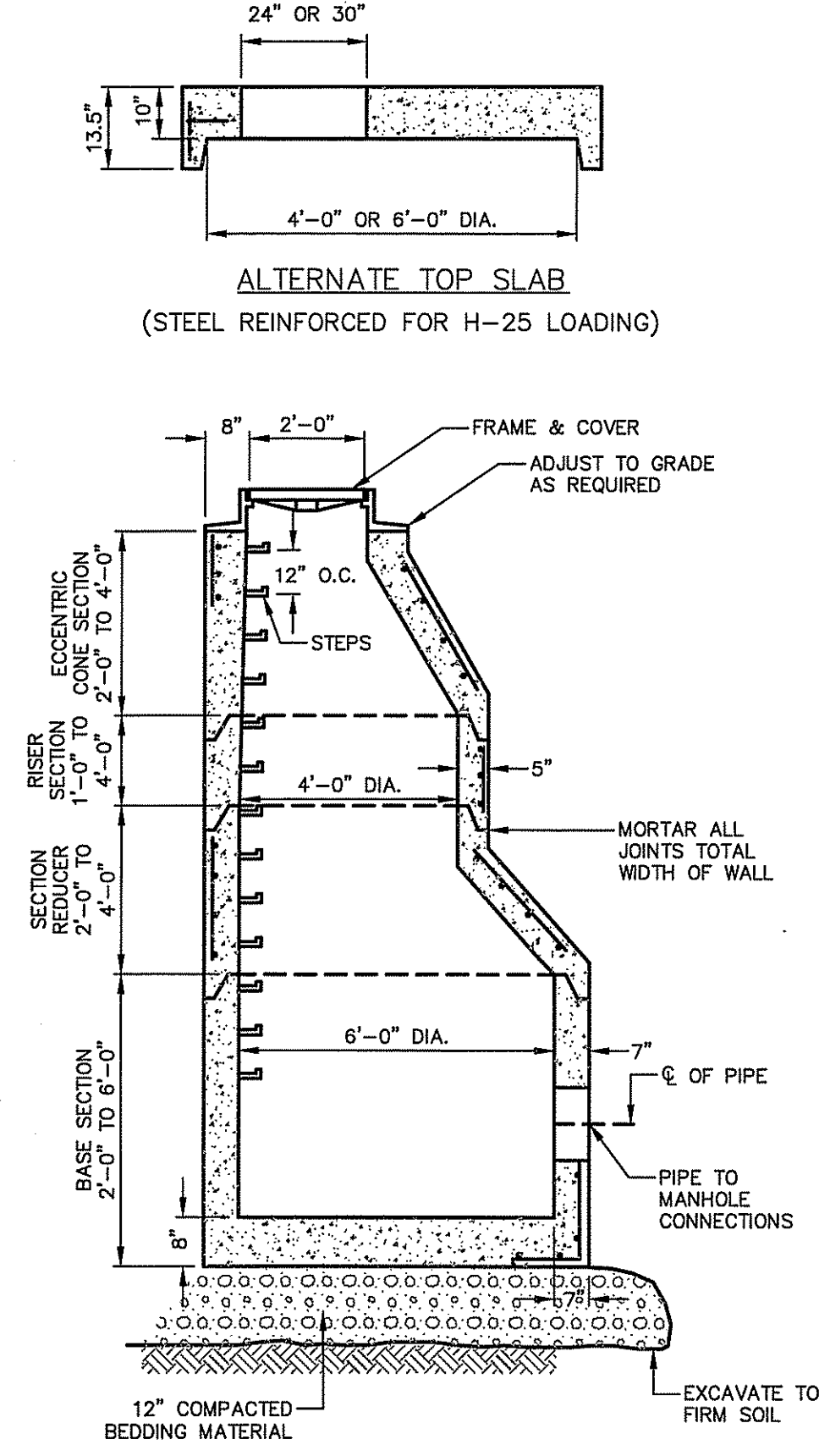
TOWN OF MIDDLETOWN
 LANDSCAPE PLAN FOR BMP A2
 HOOGENDORN NURSERY
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
LA-102



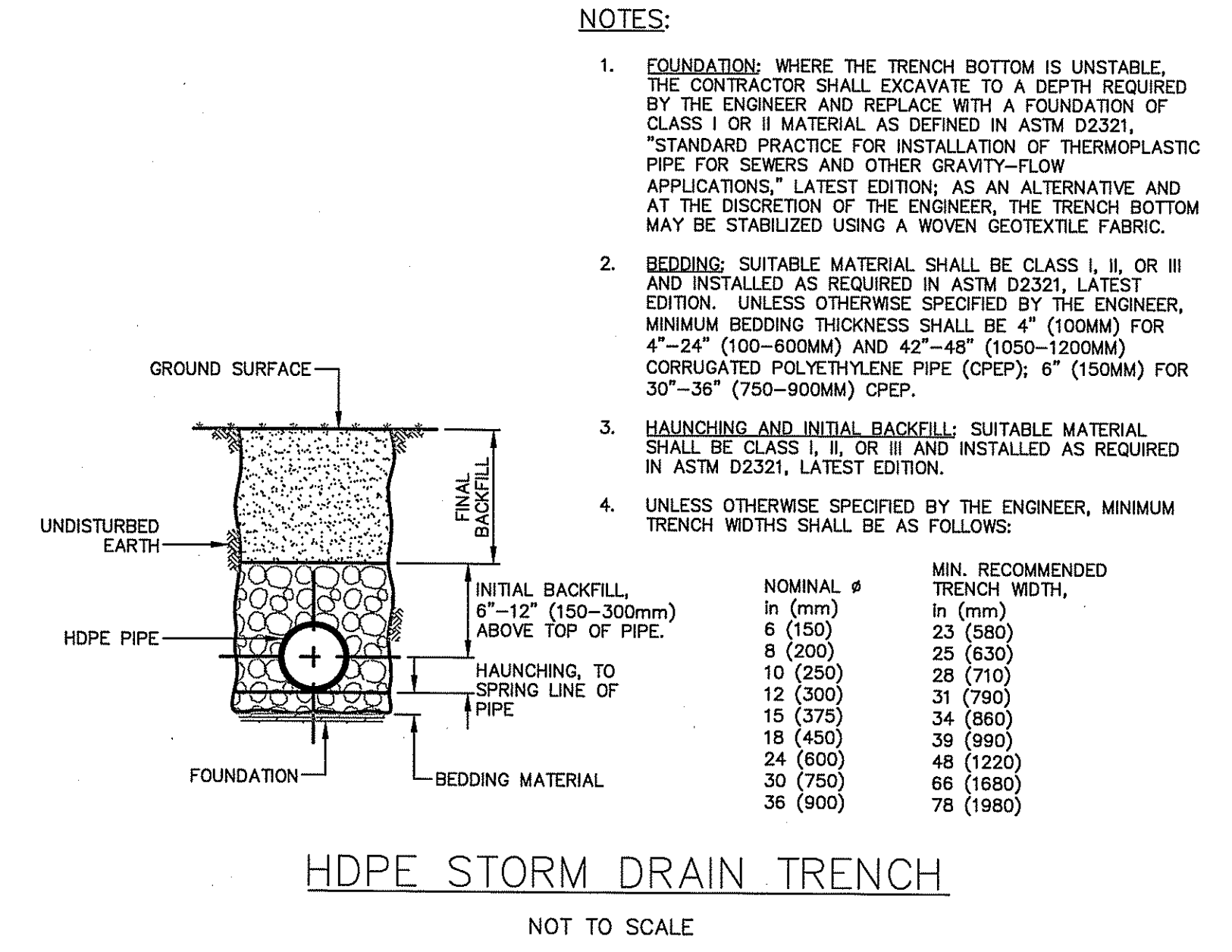
- NOTES:**
1. MANUFACTURED TO MEET OR EXCEED: ASTM C-478 & AASHTO M 199 SPECS.
 2. REINFORCED STEEL CONFORMS TO LATEST ASTM A 185 SPECS. 0.12 SQ. IN. / LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
 3. CONCRETE = 4000PSI MINIMUM. CEMENT PER ASTM C-478 (6.1).
 4. MANHOLE STEPS- POLYPROPYLENE COATED GRADE 60 REINFORCING BAR, PER ASTM C-478 & O.S.H.A. (STD 1-1.9).
 5. BUTYL RUBBER JOINT SEALANT PER ASTM C-990 & AASHTO M-198.
 6. WATER PROOFING PER CONTACT SPECS. AS REQUIRED.
 7. STEEL REINFORCEMENT TO MEET OR EXCEED H-20 LOADING
 8. FRAME AND COVER HEIGHT SHALL BE HEAVY DUTY AND SHALL NOT EXCEED 4 INCHES IN HEIGHT (NEENAH MODEL R-1556-A OR APPROVED EQUAL).

SECTION
PRECAST 4' DIA. DRAIN MANHOLE
NOT TO SCALE

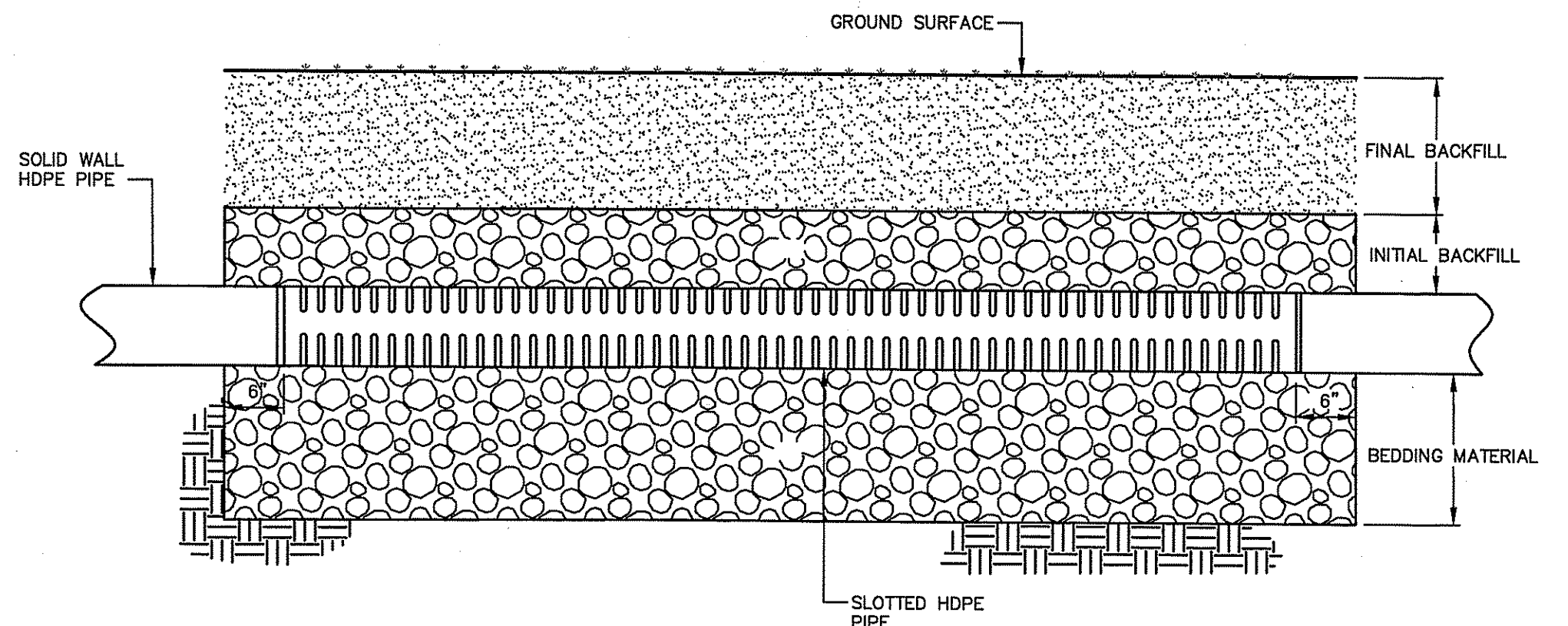


- NOTES:**
1. FRAME AND COVER TO BE LABARON LC-328 OR APPROVED EQUAL. LETTERING: "DRAIN"
 2. FRAMES SHALL BE SET IN FULL BED OF MORTAR.
 3. BASE SECTION SHALL BE MONOLITHIC WITH A 6'-0" DIAMETER.
 4. REINFORCING STEEL SHALL CONFORM TO ASTM A-185:
 - 0.12 SQ. IN./VERT. FT. (4'-0" DIA.)
 - 0.18 SQ. IN./VERT. FT. (5'-0" DIA.)
 - 0.18 SQ. IN./FT. (BOTH WAYS)
 5. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI TYPE II CEMENT.
 6. MANHOLE DESIGN SHALL CONFORM TO ASTM C-478 FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
 7. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
 8. BUTYL RUBBER JOINT SEALANT PER ASTM C-990 & AASHTO M-198.
 9. WATER PROOFING PER CONTRACT SPECS. AS REQUIRED.
 10. MANHOLE STEPS SHALL BE STEEL-REINFORCED COPOLYMER POLYPROPYLENE PLASTIC PER ASTM C-478, PARA. 11.
 11. INVERT CONSTRUCTED OF CEMENT CONCRETE, CLASS D.

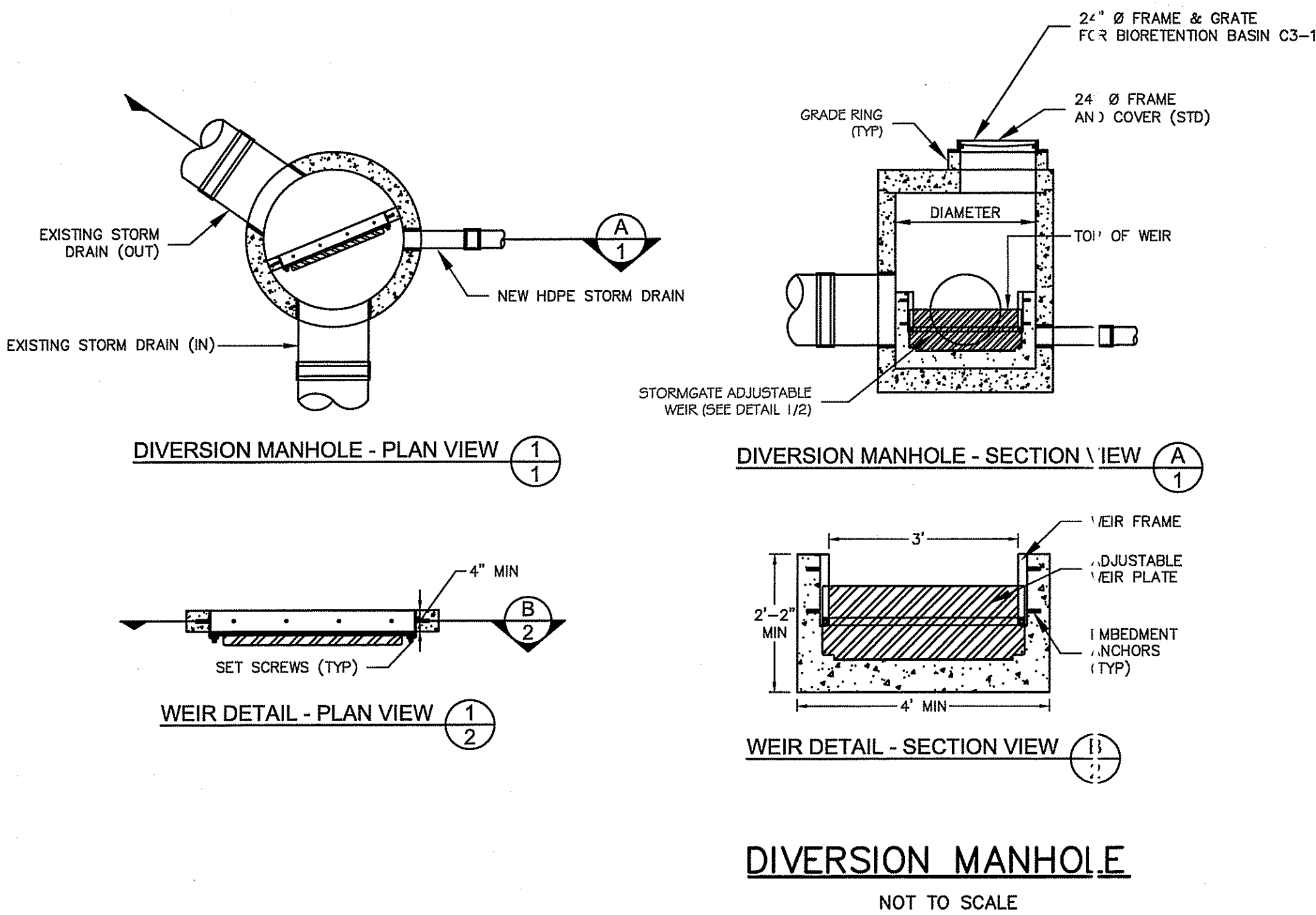
SECTION
PRECAST 6'-0" ROUND MANHOLE
NOT TO SCALE



HDPE STORM DRAIN TRENCH
NOT TO SCALE



SLOTTED HDPE STORM DRAIN
NOT TO SCALE



- NOTES:**
- 1) DIVERSION MANHOLE SHALL BE 'STORMGATE' TO BE MANUFACTURED BY CONTECH STORMWATER SOLUTIONS; SCARBOROUGH, ME (877) 907-8676; OR APPROVED EQUAL.
 - 2) PRECAST MANHOLE TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
 - 3) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
 - 4) INLET AND OUTLET PIPING TO BE PROVIDED BY CONTRACTOR. PRECAST MANHOLE EQUIPPED WITH EITHER CORED OPENINGS OR KNOCKOUTS AT INLET AND OUTLET LOCATIONS.
 - 5) CONTRACTOR TO ADJUST WEIR TO DESIGN ELEVATION SPECIFIED ON PLANS. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH RTV SILICONE SEALANT AFTER FINAL ADJUSTMENT.

DIVERSION MANHOLE
NOT TO SCALE

ENVIRONMENTAL MANAGEMENT
PROVIDENCE WATER RESOURCES
MIDDLE RIVER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
SPECIFIED IN THE LETTER OF APPROVAL
FILE # 16-037
JUL 5 2016
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
MAY 26 2016

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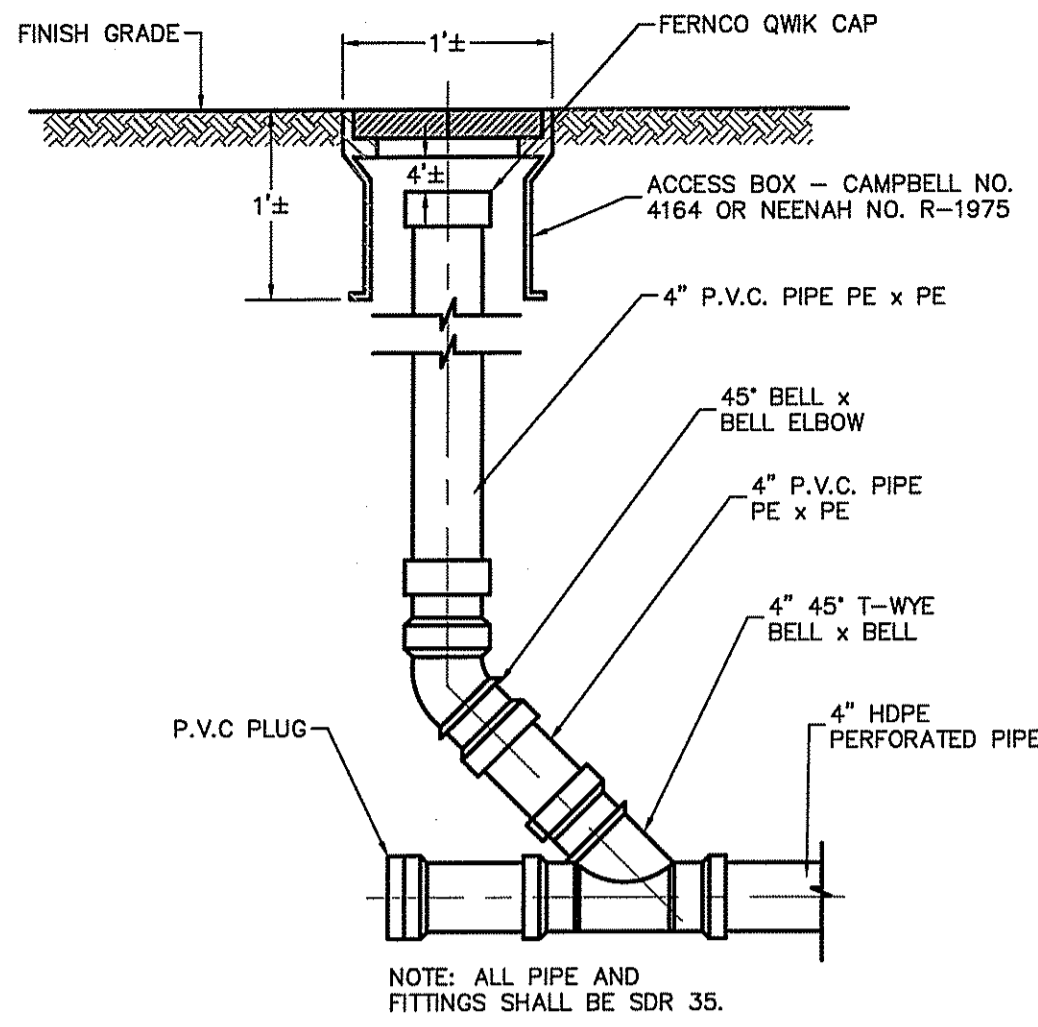
DEANE AUDET
No. 1588
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

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	VERT.:
DATUM:	HORIZ.:
	VERT.:
	GRAPHIC SCALE

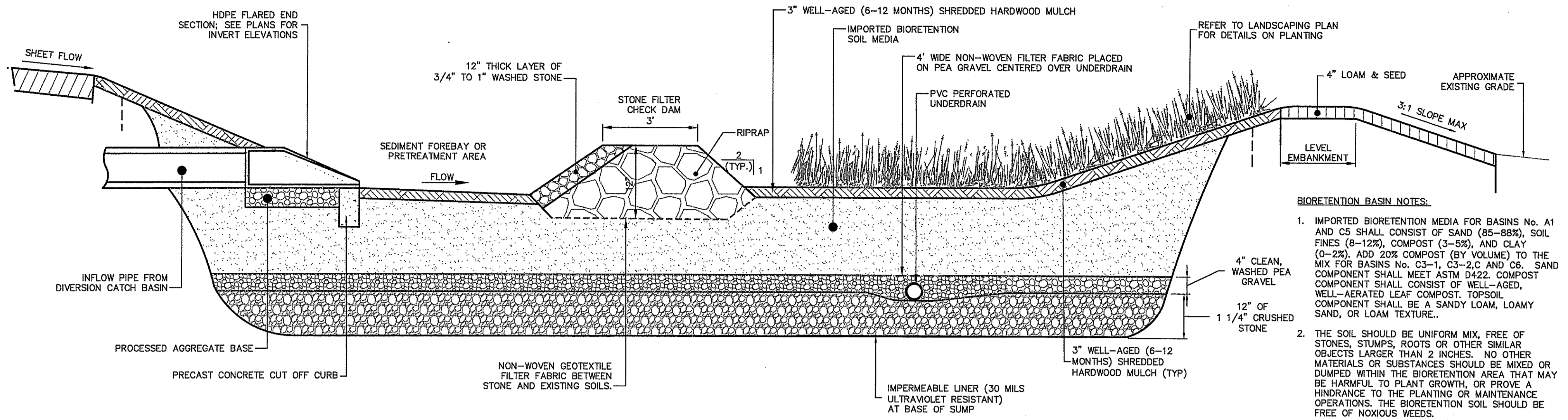
f **FUSS & O'NEILL**
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PROVIDENCE, RI 02908
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www.fando.com

TOWN OF MIDDLETOWN
CONSTRUCTION DETAILS
MAIDFORD RIVER STORMWATER BMPS
MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870A10
DATE: MARCH 2016
CD-501

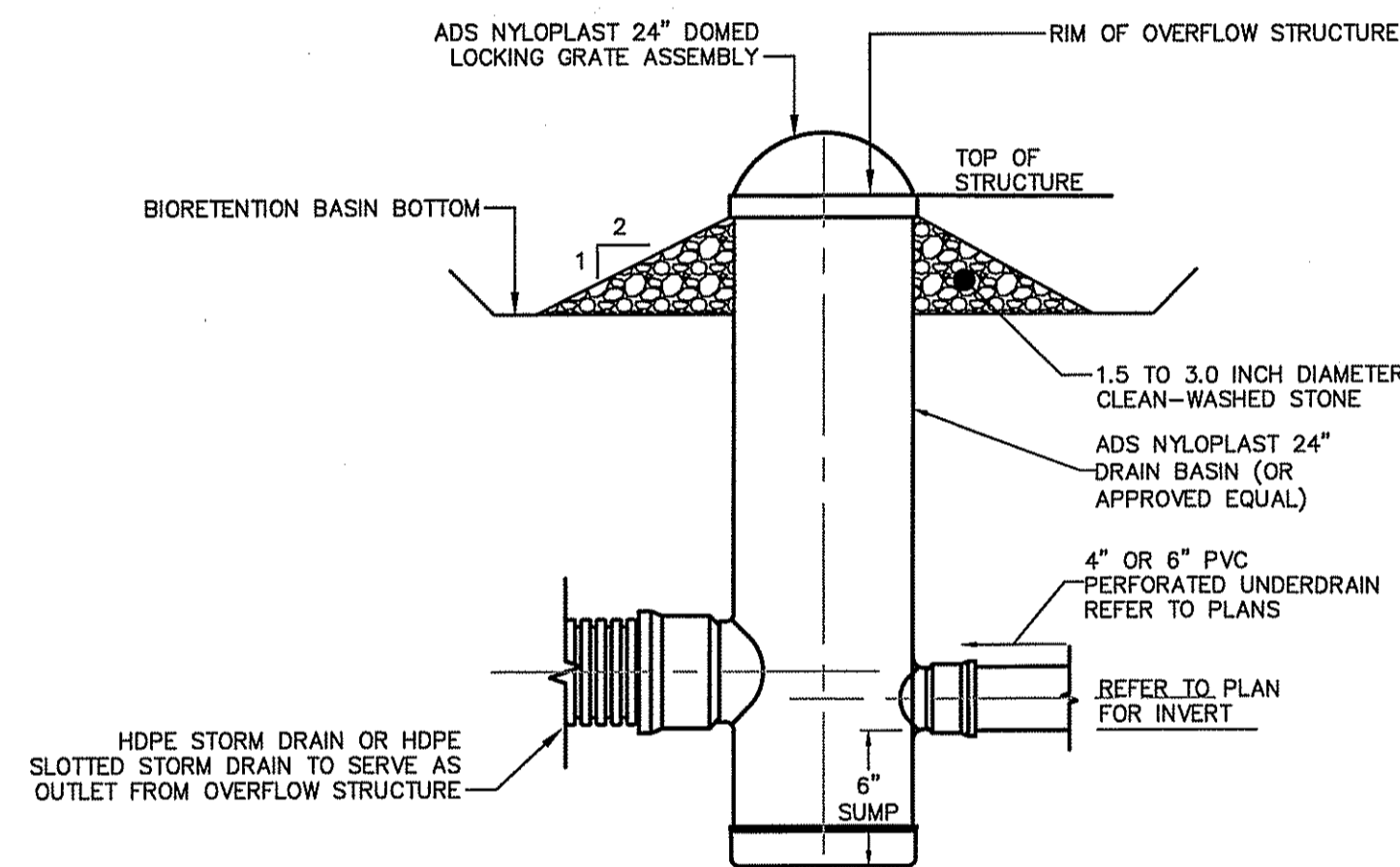


CLEAN OUT
NOT TO SCALE



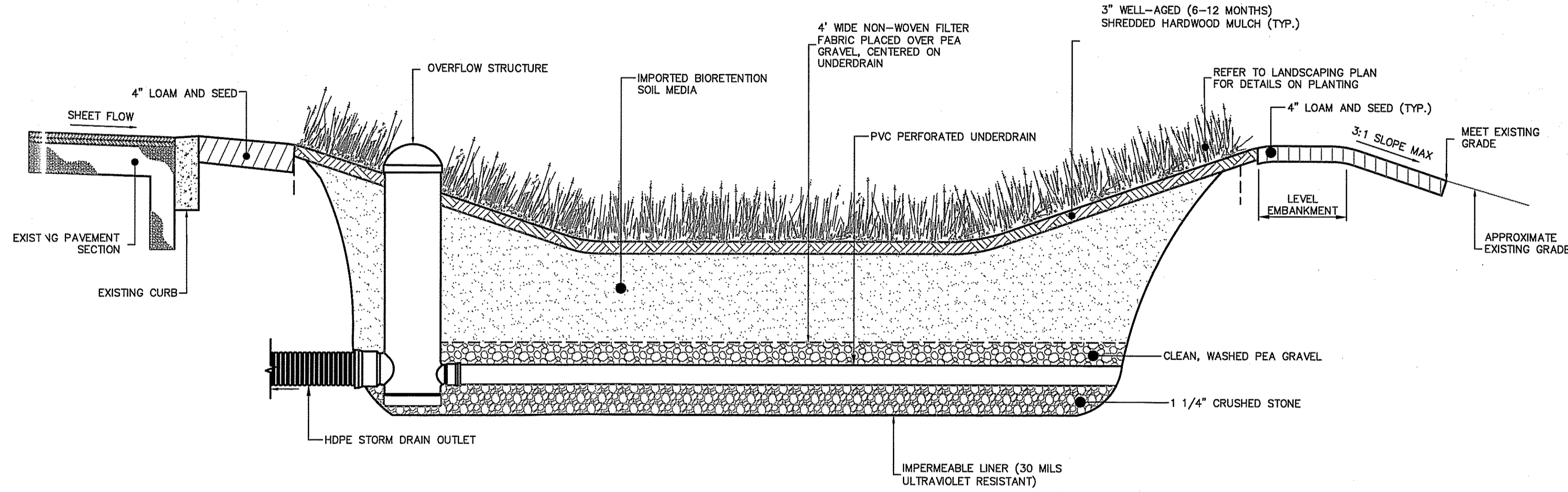
BIORETENTION BASIN - INFLOW
NOT TO SCALE

- BIORETENTION BASIN NOTES:**
- IMPORTED BIORETENTION MEDIA FOR BASINS No. A1 AND C5 SHALL CONSIST OF SAND (85-88%), SOIL FINES (8-12%), COMPOST (3-5%), AND CLAY (0-2%). ADD 20% COMPOST (BY VOLUME) TO THE MIX FOR BASINS No. C3-1, C3-2, C AND C5. SAND COMPONENT SHALL MEET ASTM D422. COMPOST COMPONENT SHALL CONSIST OF WELL-AGED, WELL-AERATED LEAF COMPOST. TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND, OR LOAM TEXTURE.
 - THE SOIL SHOULD BE UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. NO OTHER MATERIALS OR SUBSTANCES SHOULD BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE BIORETENTION SOIL SHOULD BE FREE OF NOXIOUS WEEDS.
 - WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12 INCHES OR GREATER. DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT "LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
 - THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
 - ALL UNDERDRAIN PIPE AND FITTINGS SHALL BE SDR 35

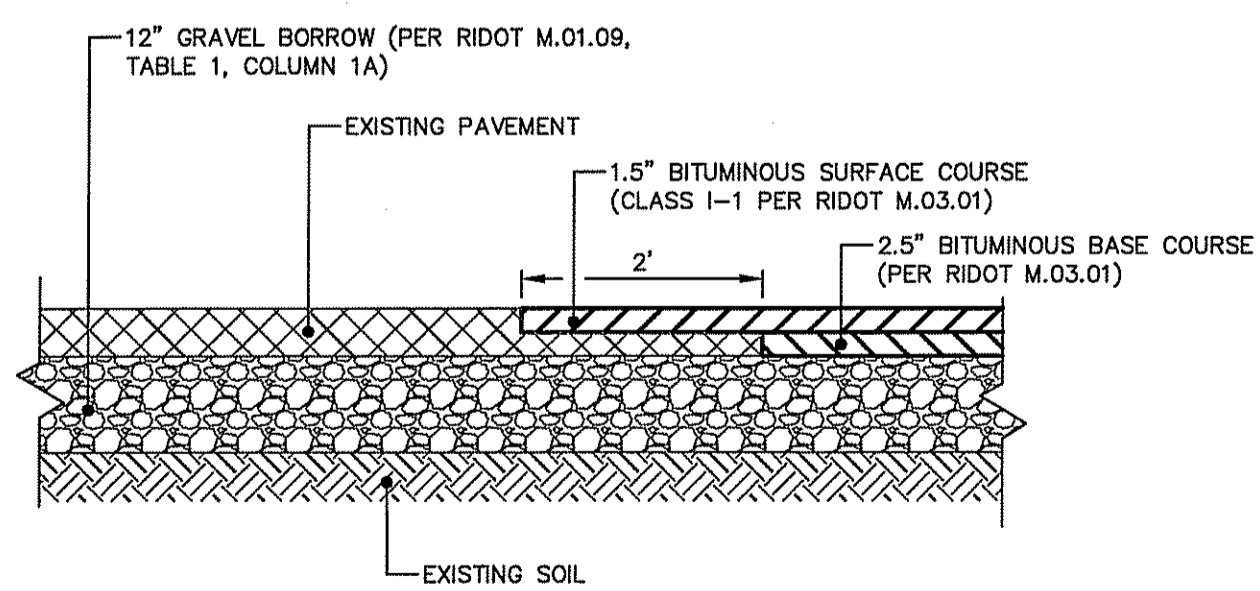


OVERFLOW STRUCTURE
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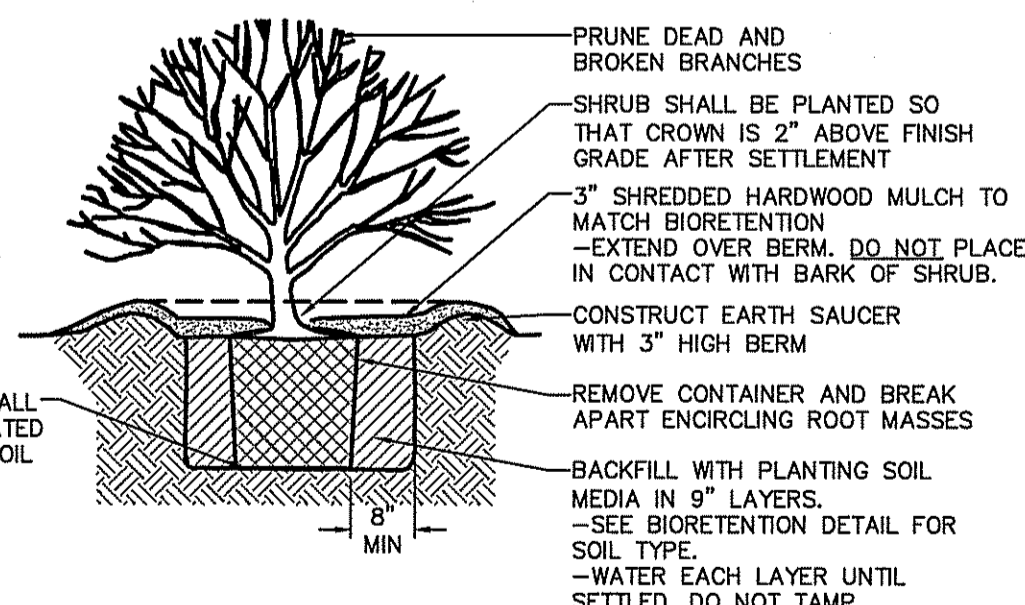
NOTE:
INSTALL OVERFLOW STRUCTURE PER MANUFACTURER'S REQUIREMENTS



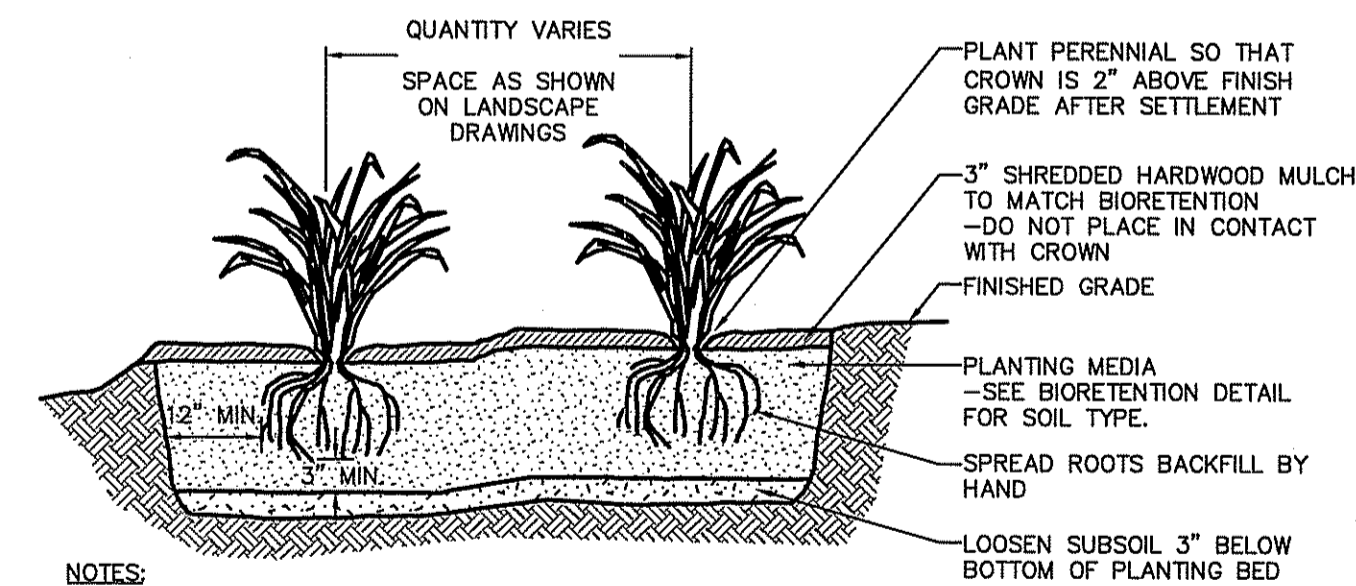
BIORETENTION BASIN - OUTFLOW
NOT TO SCALE



SAWCUT AND MATCH PAVEMENT
NOT TO SCALE

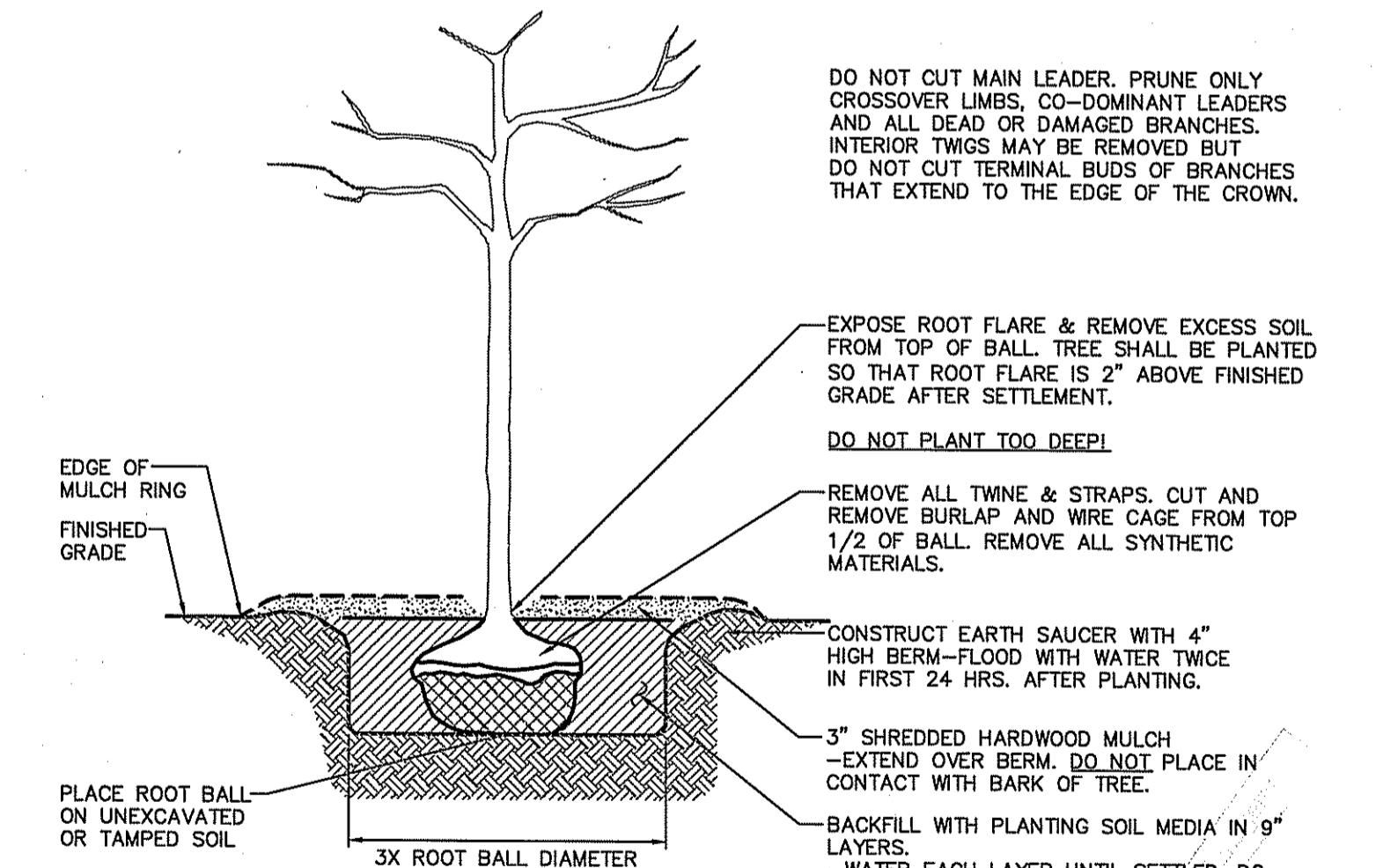


SHRUBS IN CONTAINER
NOT TO SCALE



- NOTES:**
- SPADED PLANTING SOIL MIX (3\"/>

PERENNIAL PLANT BED
NOT TO SCALE



PLANTING AND GUYING FOR TREES LESS THAN 3\"/>

- NOTES:**
- STAKES & GUYS SHALL NOT BE USED
 - SPRAY WITH ANTIDESICCANT IN ACCORDANCE WITH MFG'S INSTRUCTIONS IF FOLIAGE IS PRESENT.

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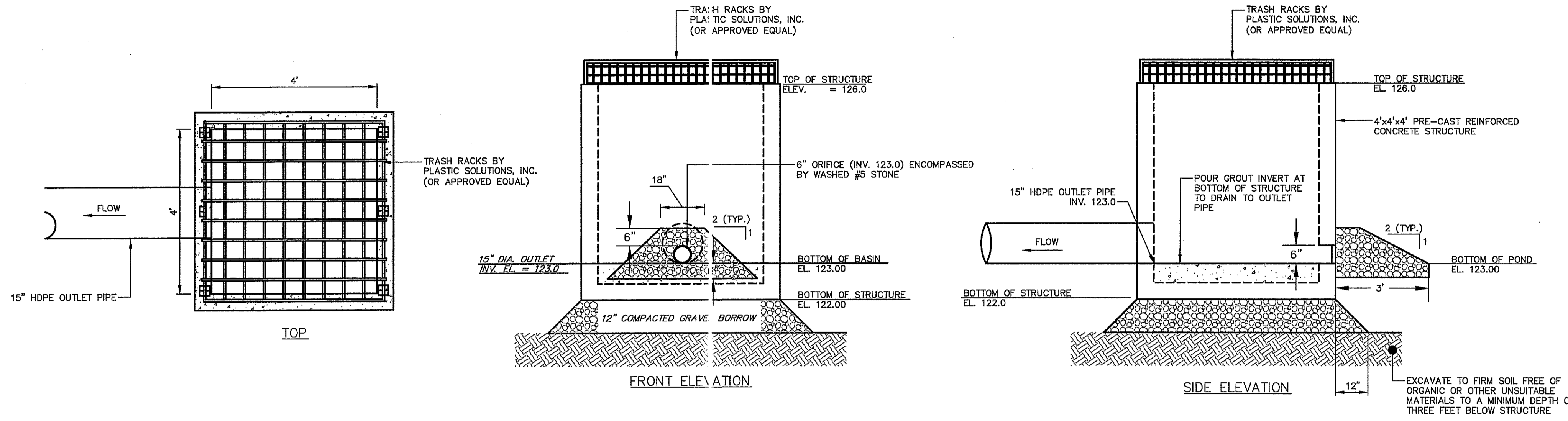
DEAN AUGET
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 No. 7589

SEAL
 SCALE:
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 VERT.:
 DATUM:
 HORIZ.:
 VERT.:
 GRAPHIC SCALE

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 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
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TOWN OF MIDDLETOWN
 CONSTRUCTION DETAILS
 MAIDFORD RIVER STORMWATER BMPs
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CD-502



GENERAL OVERFLOW STRUCTURE NOTES:

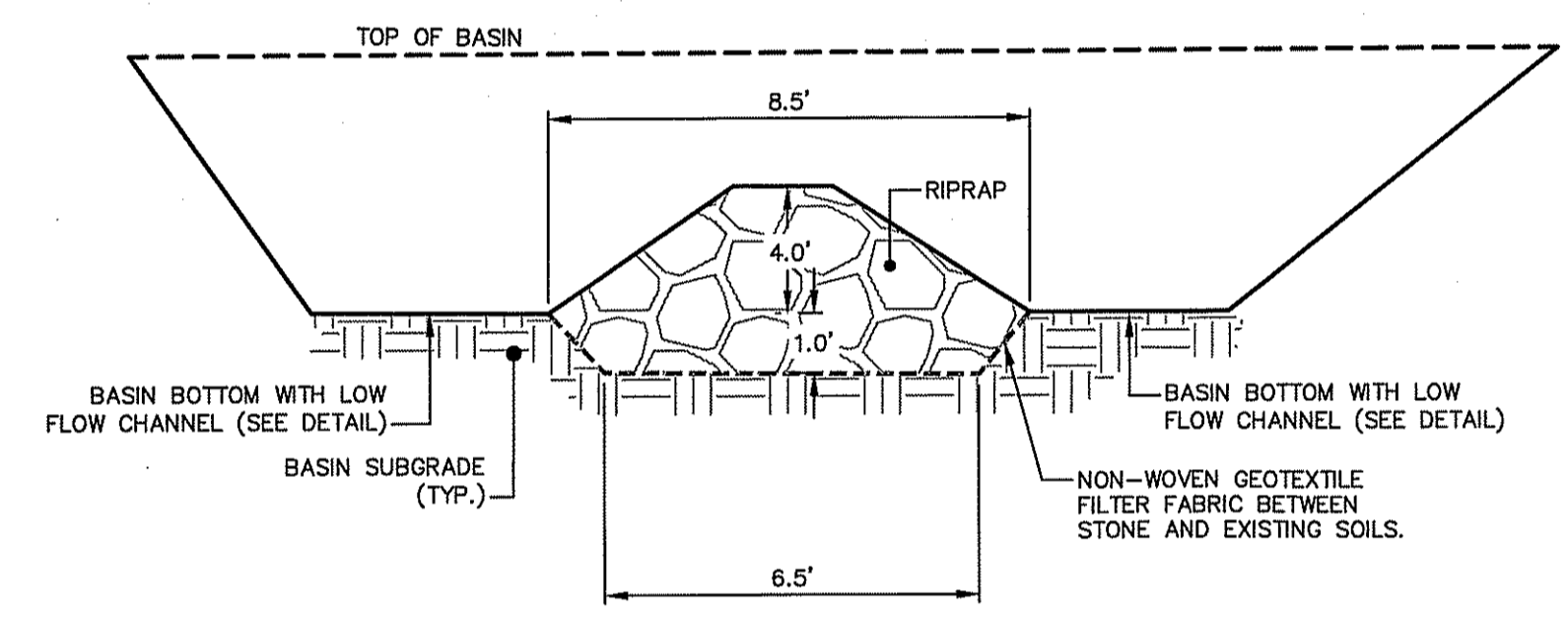
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ.IN./LIN.FT. (BOTH WAYS).
4. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI TYPE II CEMENT.
5. OVERFLOW STRUCTURE DESIGN SHALL CONFORM TO ASTM C-478 FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
6. PROVIDE "Y" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
7. ONE POUR MONOLITHIC BASE SECTION.
8. STRUCTURE STEPS SHALL BE STEEL-REINFORCED WITH A PLASTIC COATING CONFORMING TO ASTM D4101, COPOLYMER POLYPROPYLENE.
9. SECTION JOINTS SHALL BE BUTYL RUBBER PER ASTM C-443 AND FEDERAL SPECIFICATION SS-5-210A.
10. WATERTIGHT SEAL AT PIPE CONNECTIONS SHALL BE MADE WITH RUBBER MANHOLE BOOT.

OVERFLOW STRUCTURE SIZE	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0" x 4'-0"	5"	6"	.12 SQ.IN. / LIN.FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

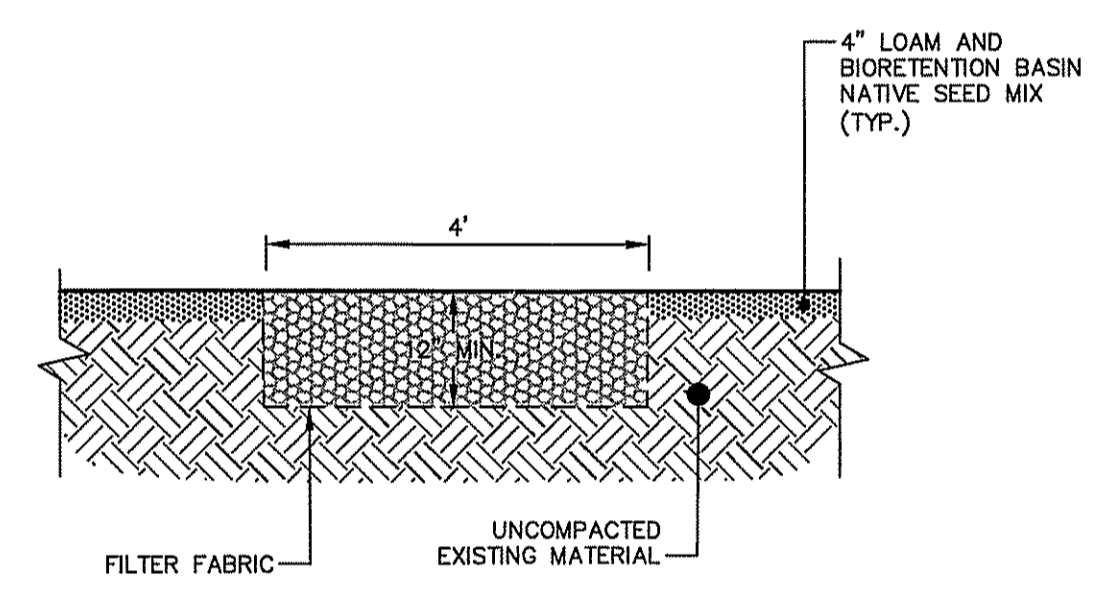
OUTLET STRUCTURE FOR DETENTION BASIN

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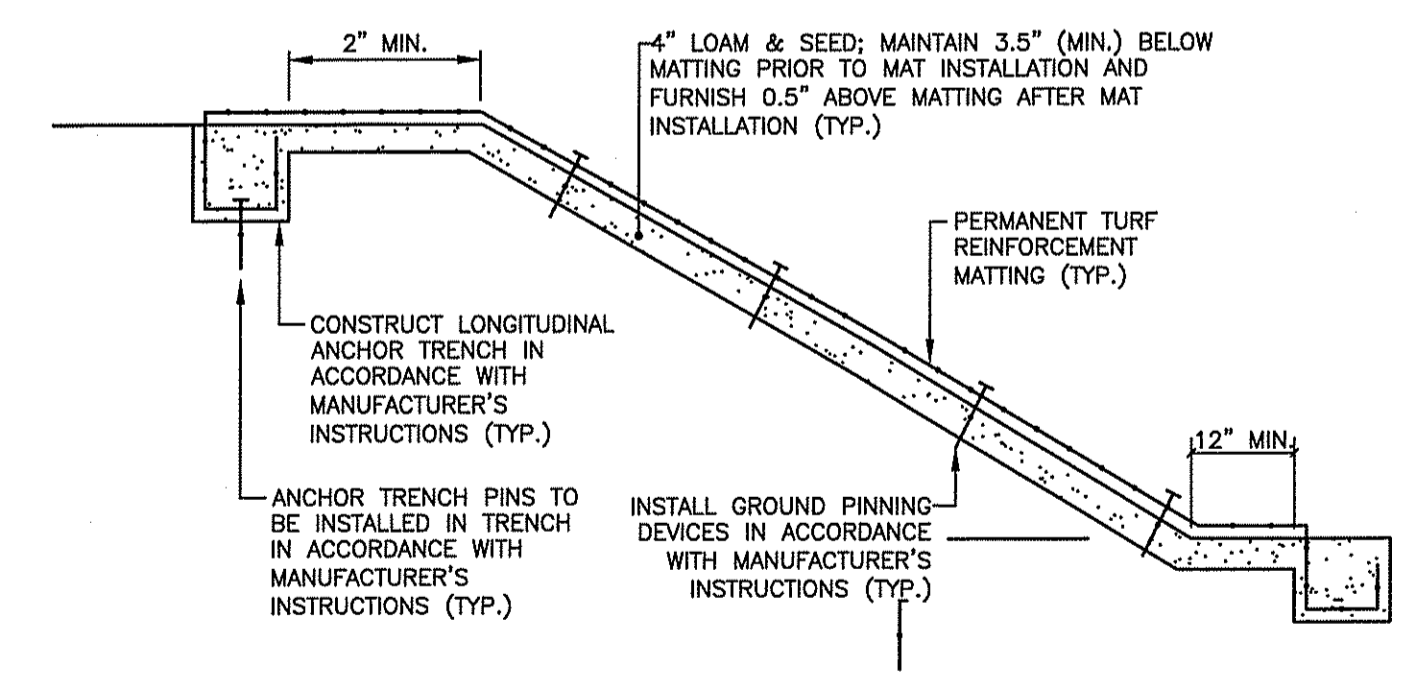
DETENTION BASIN BAFFLE

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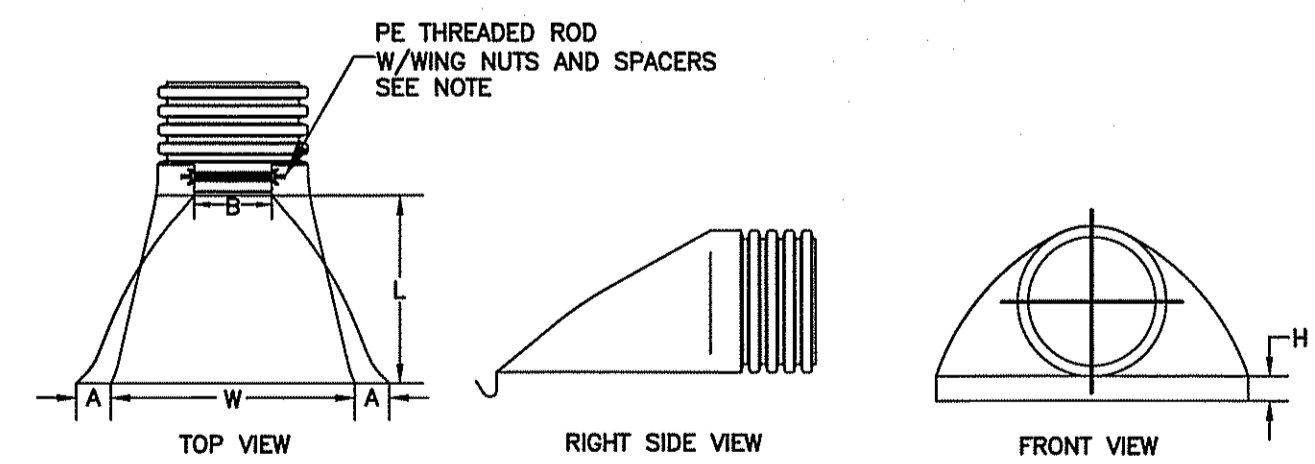
LOW FLOW CHANNEL

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TURF REINFORCEMENT MATTING

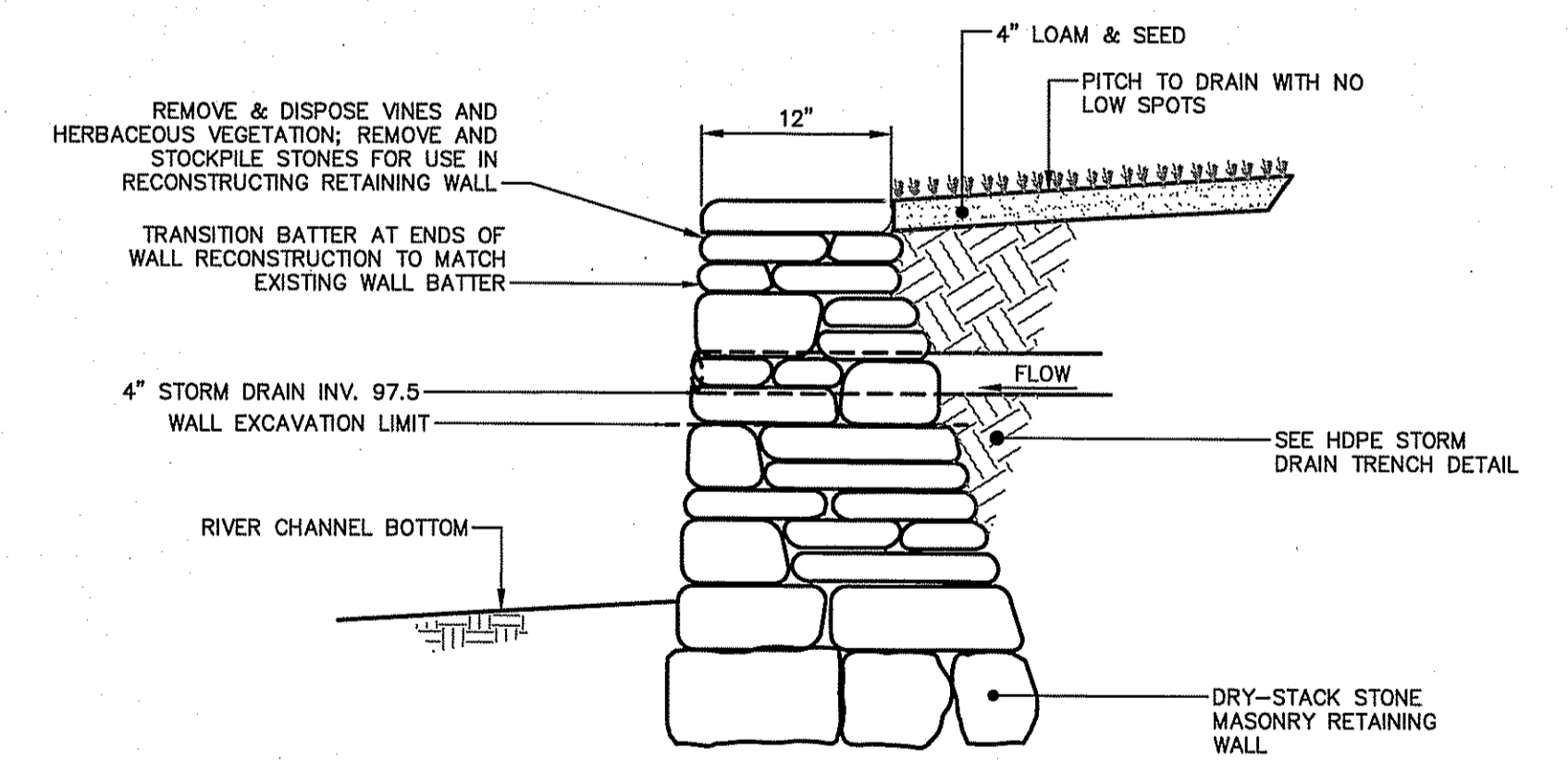
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NOTE:
SHALL BE MANUFACTURED WITH POLYETHYLENE RESINS AS DESCRIBED AND DEFINED IN ASTM D3350. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.

HDPE FLARED END SECTION

NOT TO SCALE



NOTES:

1. DECONSTRUCT EXISTING STONE RETAINING WALL AS REQUIRED FOR NEW WETLANDS MANAGEMENT.
2. JOINTS BETWEEN RESET STONES SHALL NOT EXCEED 1" IN WIDTH.

STORM DRAIN OUTFALL

NOT TO SCALE

APPROVED FOR CONSTRUCTION
 JUL 5 2016 FILE # 16-0157
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

File Path: J:\DWG\20140870A10\DET1010.dwg Layout: CD-503 Plotted: Wed, May 11, 2016 - 10:01 AM User: rweiller

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

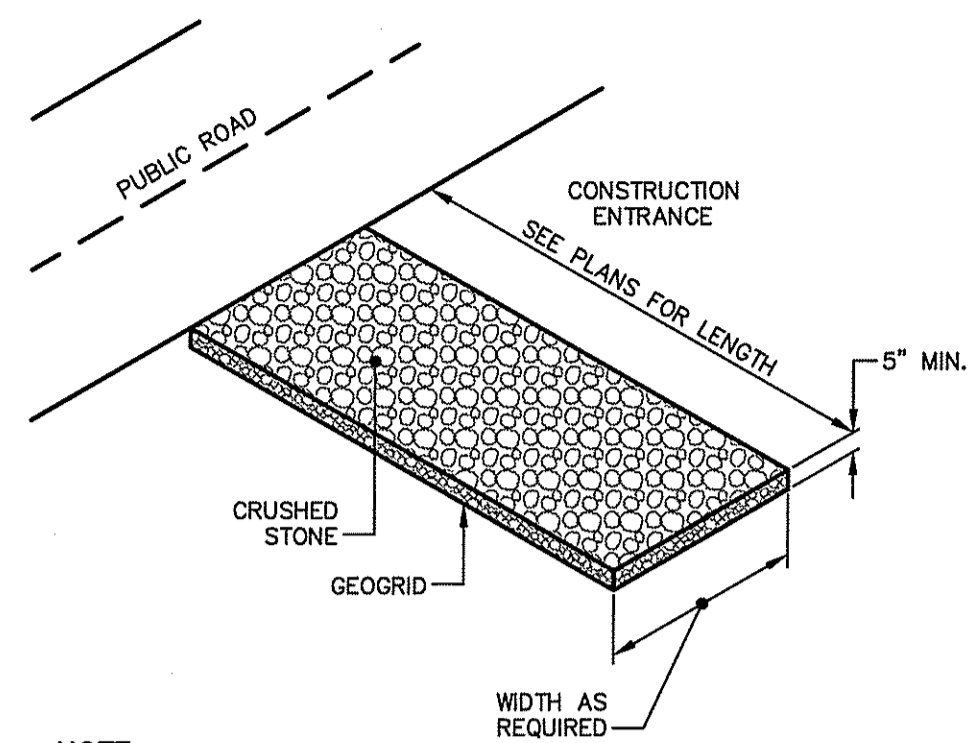
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SCALE:
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 VERT.: NONE
 GRAPHIC SCALE

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TOWN OF MIDDLETOWN
 CONSTRUCTION DETAILS
 MAIDFORD RIVER STORMWATER BMPS
 MIDDLETOWN RHODE ISLAND

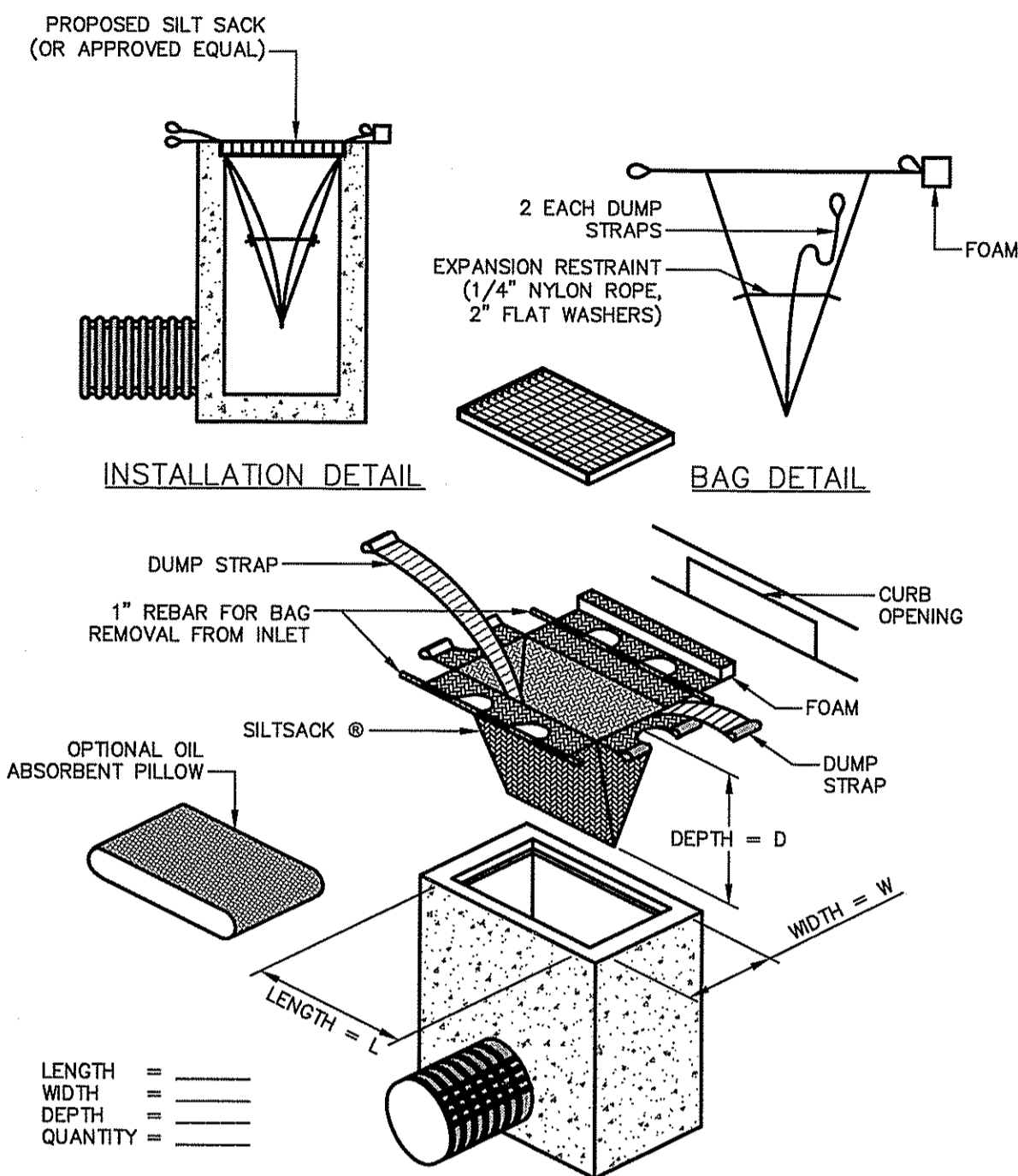
PROJ. No.: 20140870.A10
 DATE: MARCH 2016
CD-503



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

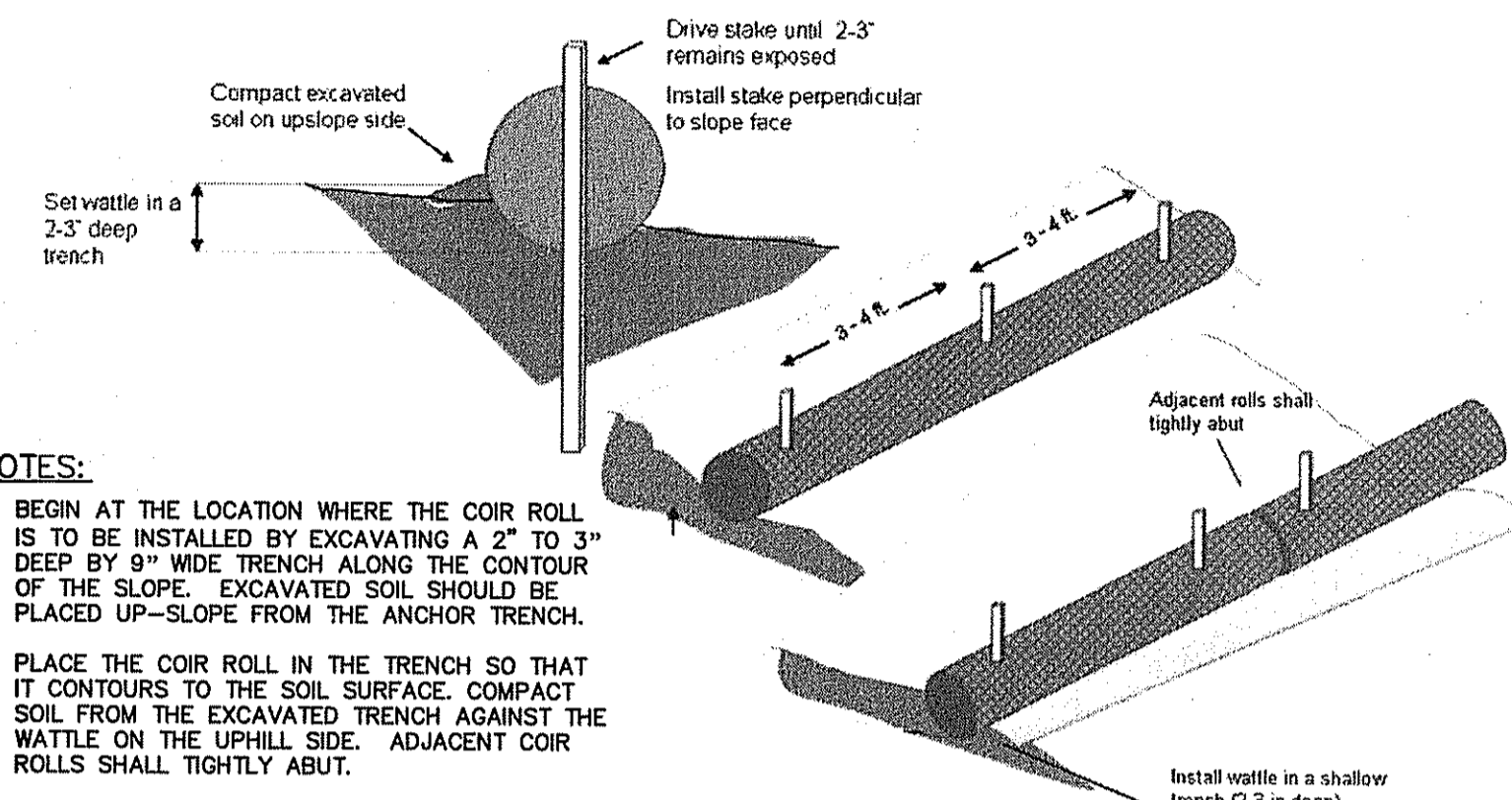
CONSTRUCTION ACCESS
(R.I. STD. 9.9.0)

NOT TO SCALE



CATCH BASIN INLET PROTECTION

NOT TO SCALE

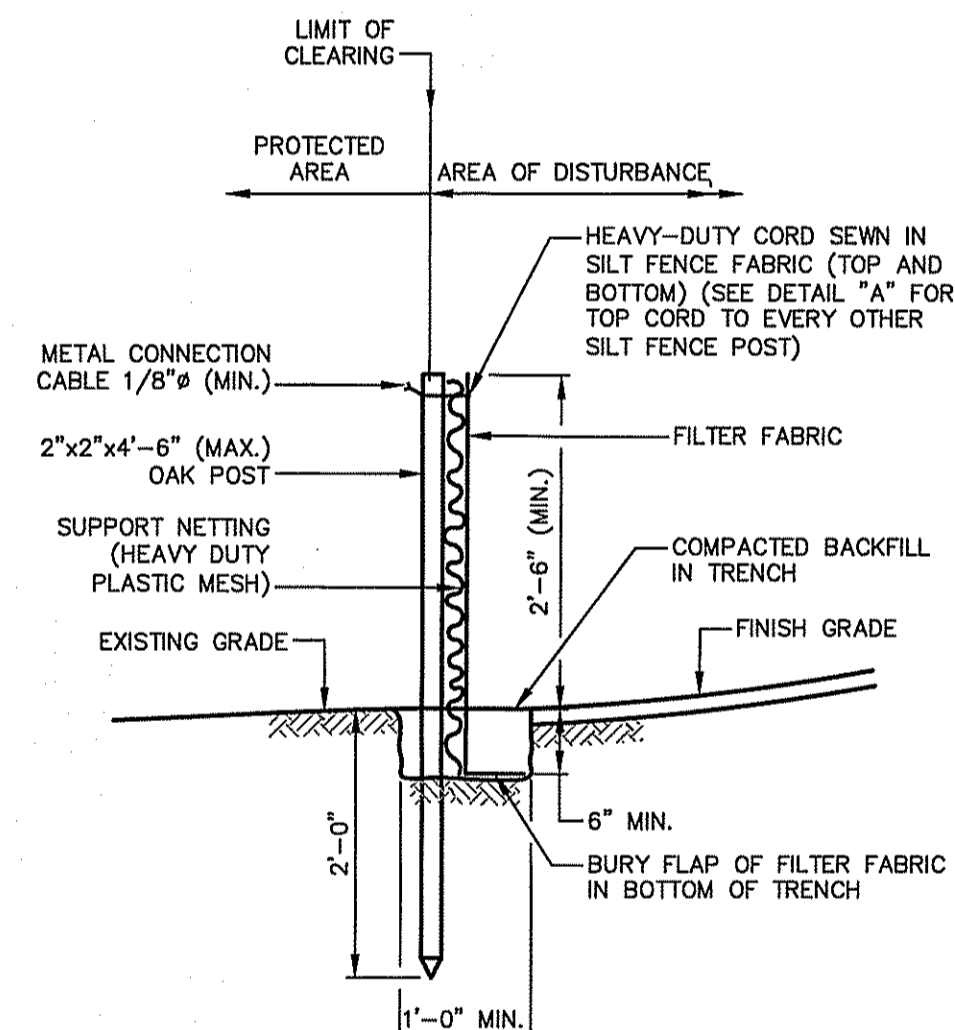


NOTES:

- 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 36" 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.

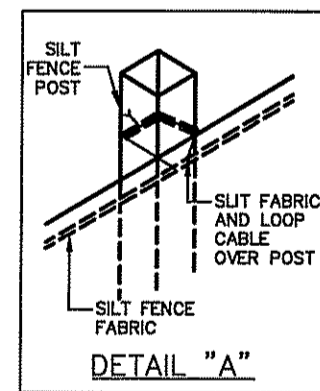
BIODEGRADABLE COIR ROLL

NOT TO SCALE



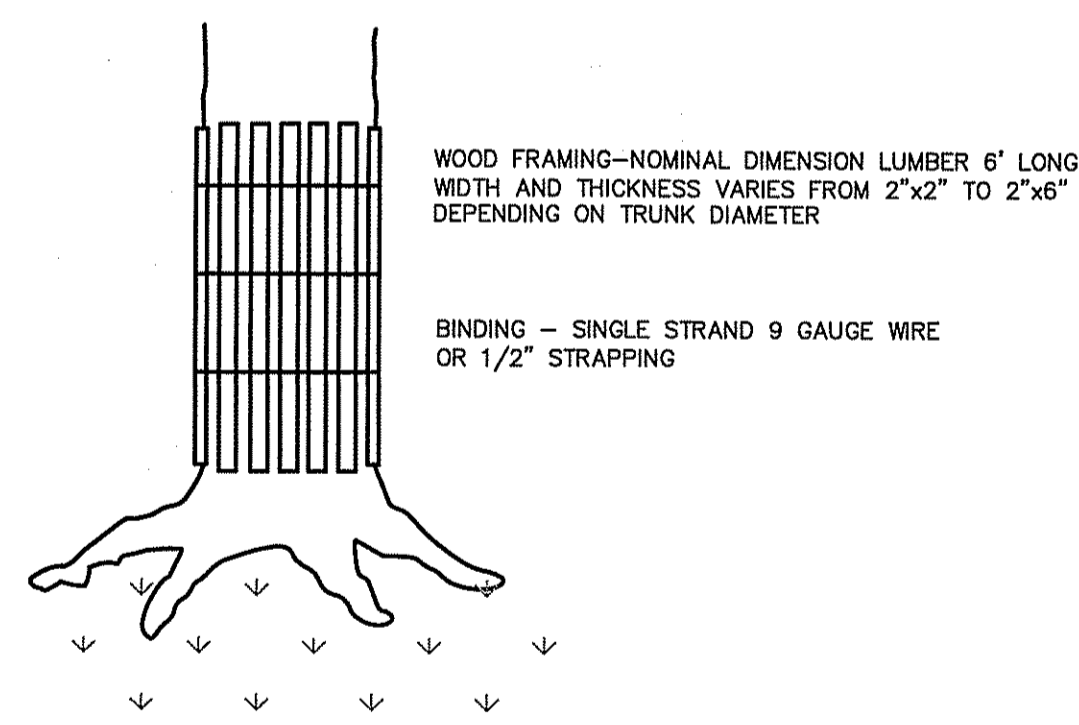
NOTES:

- SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
- 2"x2"x4'-6" (MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0" (MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
- 1"x1"x4'-6" (MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
- SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.



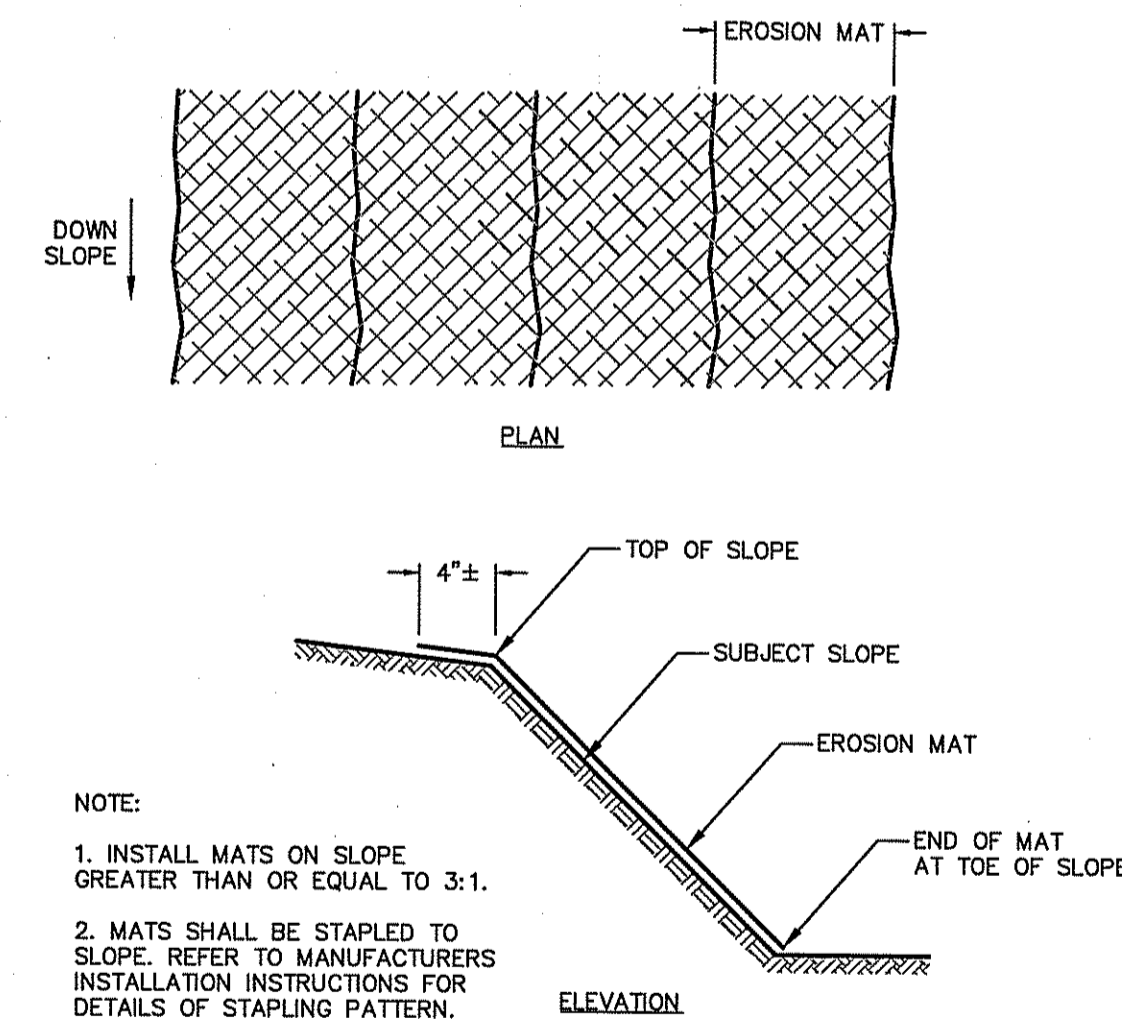
SILT FENCE DETAIL
(R.I. STD. 9.2.0)

NOT TO SCALE



TREE PROTECTION

NOT TO SCALE



NOTE:

- INSTALL MATS ON SLOPE GREATER THAN OR EQUAL TO 3:1.
- MATS SHALL BE STAPLED TO SLOPE. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR DETAILS OF STAPLING PATTERN.

BIODEGRADABLE EROSION CONTROL MATTING

NOT TO SCALE

APPROVED FOR ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESH WATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JUL 5 2016 FILE # 16-087
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
MAY 26 2016

File Path: J:\DWG\20140870A10\DWG\20140870A10_DET010.dwg Layout: CD-504 Plotted: Wed, May 11, 2016 - 10:01 AM User: nveller
LAYER STATE: PLOT

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				EM

DEANE VAUDET
No. 7589
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

SEAL

SCALE:
HORZ.: NONE
VERT.:
DATUM:
HORZ.:
VERT.:
0
GRAPHIC SCALE

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

TOWN OF MIDDLETOWN
CONSTRUCTION DETAILS
MAIDFORD RIVER STORMWATER BMPS
MIDDLETOWN RHODE ISLAND

PROJ. No.: 20140870.A10
DATE: MARCH 2016
CD-504