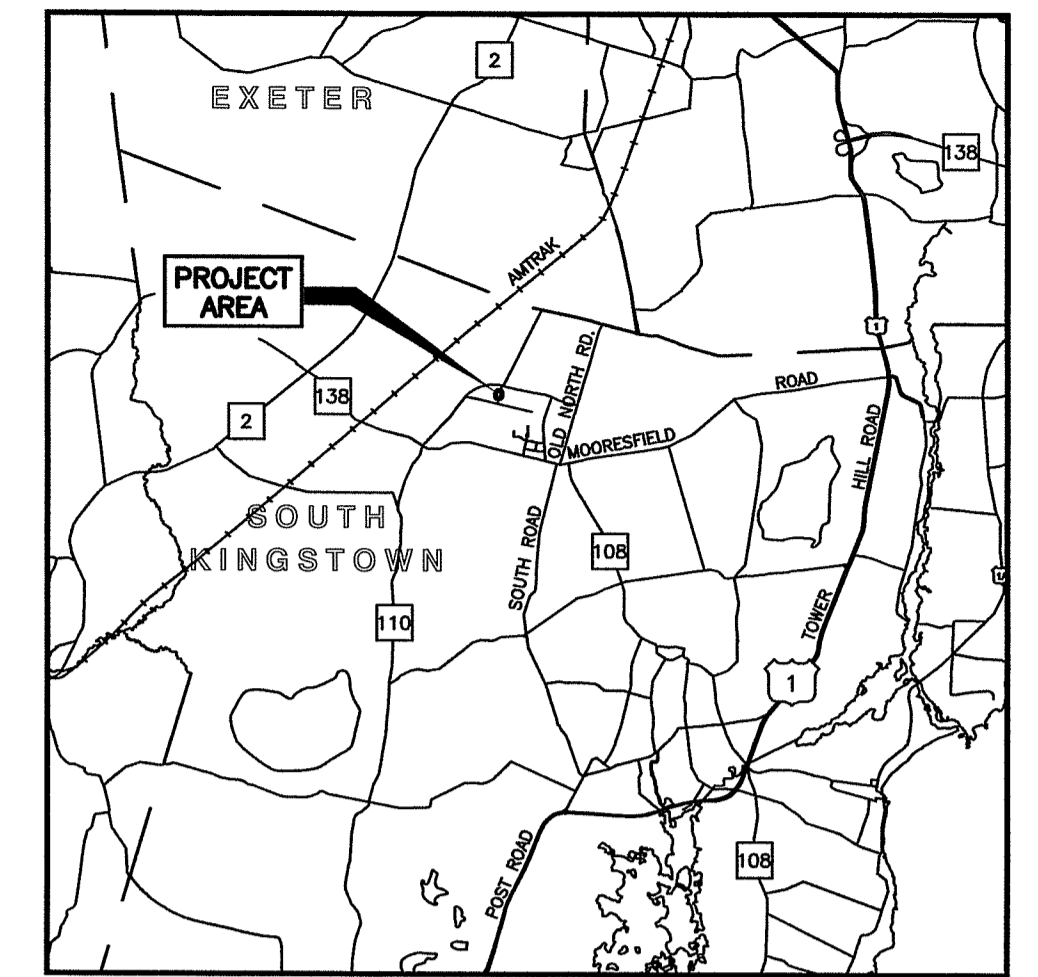


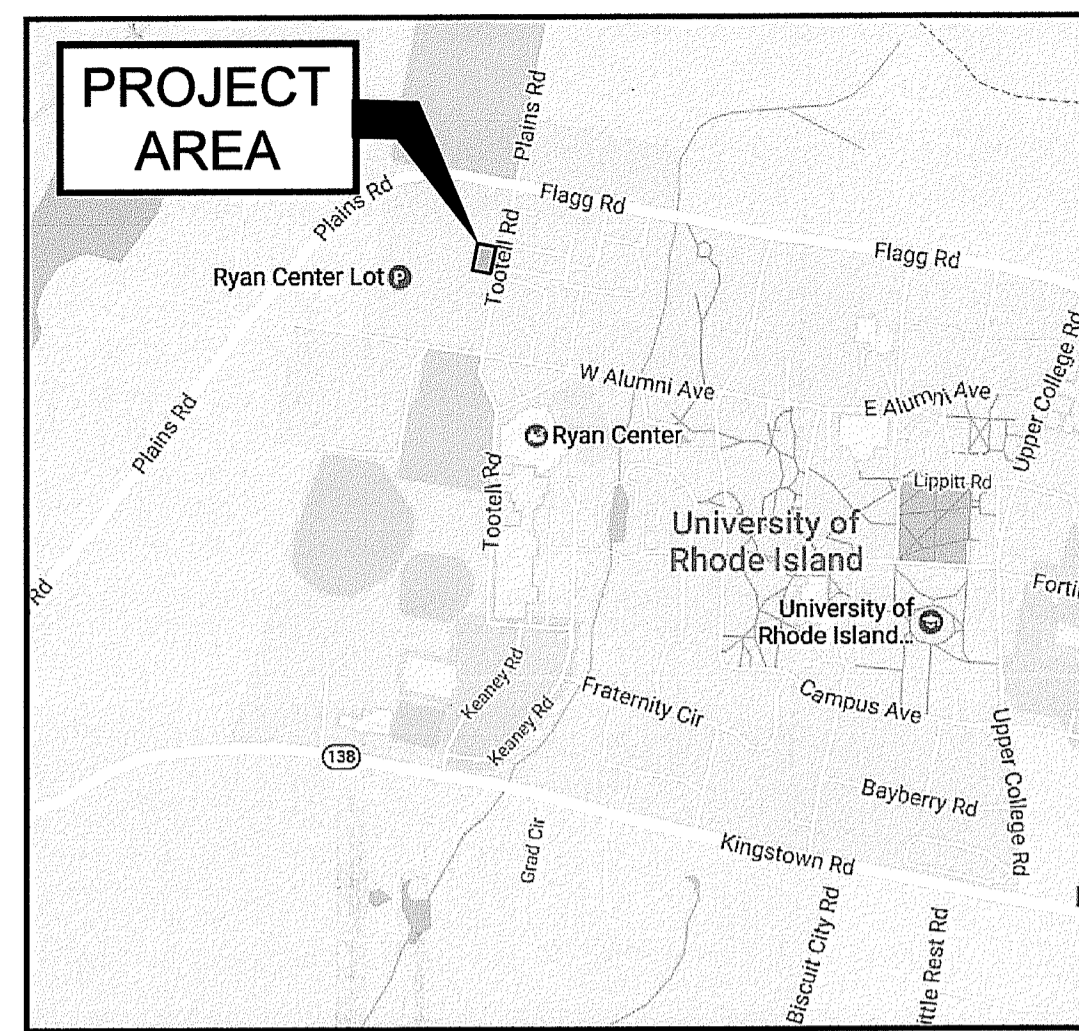
# UNIVERSITY OF RHODE ISLAND

## Office of Capital Projects

PLANS AND DETAILS OF THE  
TOOTELL ROAD FUEL DEPOT  
KINGSTON, RHODE ISLAND



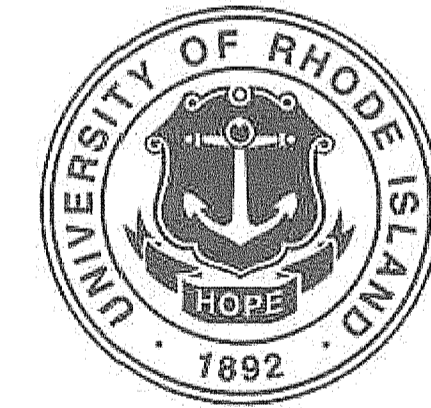
LOCATION MAP  
SCALE: 1" = 2 Miles



LOCATION MAP  
NOT TO SCALE

# THE UNIVERSITY OF RHODE ISLAND

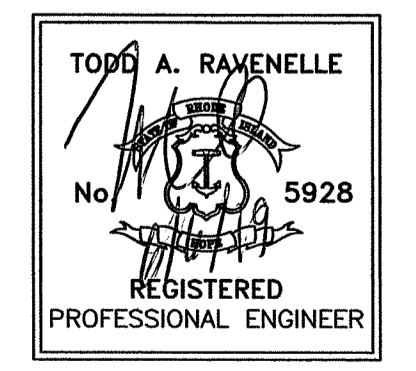
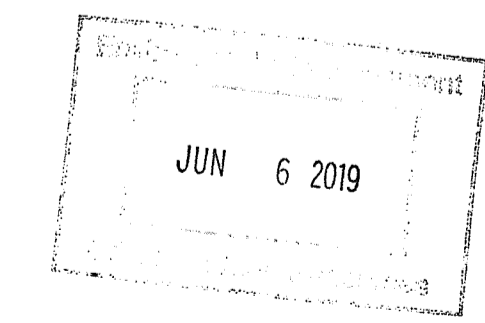
THINK BIG  WE DO<sup>SM</sup>



### INDEX

SHEET NO.	DESCRIPTION
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2	GENERAL NOTES & LEGEND
3	EROSION CONTROL & SITE PLAN
4	DRAINAGE & GRADING PLAN
5 & 6	DETAILS 1 & 2

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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MARCH 2019

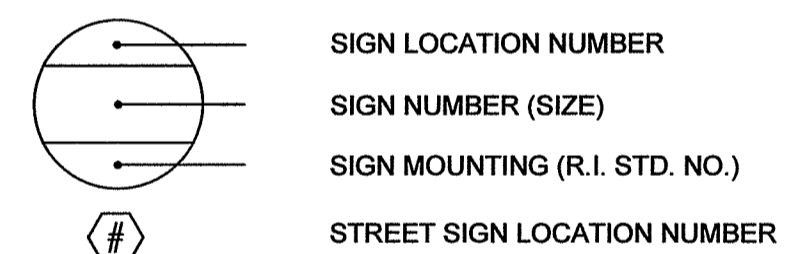
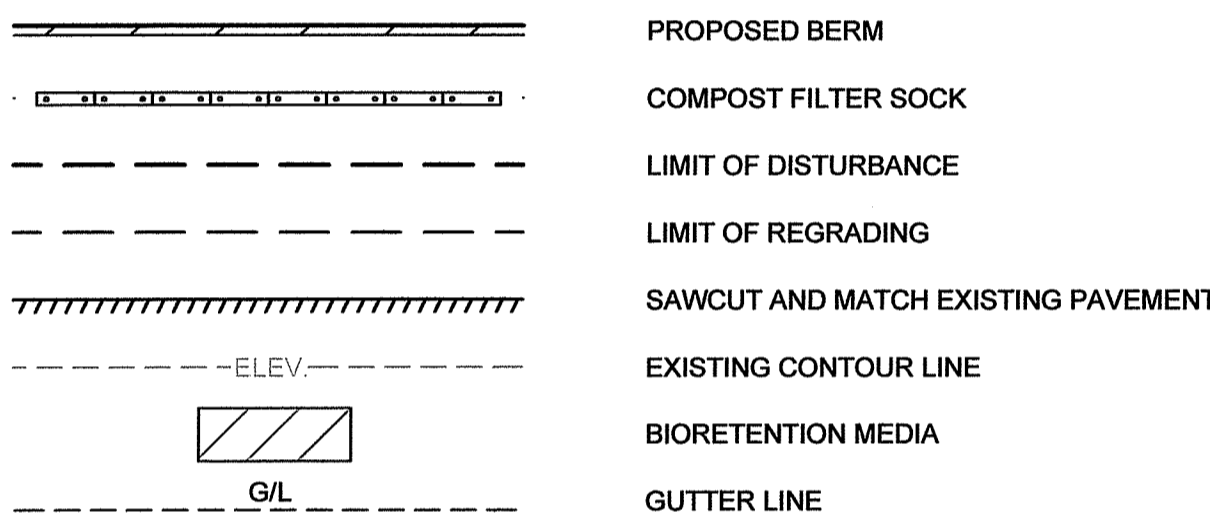
RIDEM PERMIT APPLICATION  
REVISED SUBMISSION JUNE 2019



Number of Sheet 1  
Total Sheets 6

**LEGEND**

- (2.3.0) FLARED END
- (4.2.0) PRECAST 4'-0" ROUND MANHOLE
- (4.4.0) (MOD.) PRECAST 4'-0" ROUND CATCH BASIN
- (6.2.1) HEAVY-DUTY ROUND FRAME AND COVER
- (6.3.4) HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)
- (7.5.1) BITUMINOUS BERM
- (47.1.1) TRANSVERSE PAVEMENT CUT & MATCH
- (51.1.0) TREE PROTECTION DEVICE
- (51.1.1) DRIP LINE TREE PROTECTION DEVICE
- (CBP) CATCH BASIN INLET PROTECTION
- (CFS) COMPOST FILTER SOCK
- (DC) REMOVE AND DISPOSE CURB
- (DS) REMOVE AND DISPOSE SIGN
- (DUP) REMOVE AND DISPOSE UTILITY POLE
- (ETR) EXISTING TO REMAIN (ITEM)
- (HOS) HIGH ORGANIC SOIL
- (LOD) LIMIT OF DISTURBANCE
- (LS) 4" LOAM AND SEED
- (NUP) NEW UTILITY POLE
- (RD) REMOVE AND DISPOSE (ITEM)
- (RDC) REMOVE AND DISPOSE CONCRETE WALK
- (RDT) REMOVE AND DISPOSE TREE
- (RRP) RIP RAP PAD
- (RUP) RELOCATE UTILITY POLE
- (RUW) RELOCATE UTILITY WIRES
- (TEP) TIE EXISTING PIPE INTO NEW STRUCTURE
- (TRM) TURF REINFORCEMENT MAT



**TYPICAL SIGN DESIGNATION SYMBOL**

**GENERAL NOTES**

1. REFERENCE IS MADE TO THE LATEST EDITIONS OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION (RIDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (AMENDED AUGUST 2013, INCLUDING ALL SUBSEQUENTLY ISSUED SUPPLEMENTS, REVISIONS, AND ADDENDA) AND THE "RHODE ISLAND STANDARD DETAILS" (1998, INCLUDING ALL SUBSEQUENT REVISIONS, ADDITIONS AND DELETIONS ISSUED BY THE RIDOT). ALL PROJECT SITE IMPROVEMENTS SHALL CONFORM TO THE APPLICABLE STANDARDS SET FORTH IN THESE DOCUMENTS (AND THE SUB-REFERENCES INCORPORATED THEREIN) UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
2. THE PROJECT LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR RESTORING (THROUGH PROVISION AND PLACEMENT OF LOAM AND SEED) ANY UNPAVED AREAS OUTSIDE OF THE PROJECT LIMITS OF DISTURBANCE IMPACTED BY CONSTRUCTION OPERATIONS. ANY REQUIRED RESTORATION OUTSIDE THE PROJECT LIMITS OF DISTURBANCE SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.
3. ANY DAMAGE CAUSED BY THE CONTRACTOR TO EXISTING CURBING, SIDEWALKS, PAVEMENTS, FENCES, OR OTHER SITE FEATURES TO REMAIN IN PLACE SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL EXCESS EXCAVATED PAVEMENTS, CURBING, SIDEWALKS, CURB STOPS, AND OTHER CONSTRUCTION WASTE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS.
5. THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATION IN A DRY CONDITION. NO SEPARATE PAYMENT OR ALLOWANCE SHALL BE MADE FOR DEWATERING.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING SEDIMENTS FROM DEWATERING OPERATION DISCHARGES THROUGH THE USE OF STILLING BASINS, FILTER FABRIC DEVICES, AND/OR OTHER SUITABLE MEANS AS APPROVED BY THE ENGINEER.
7. FILL REQUIRED FOR EMBANKMENTS SHALL CONFORM TO THE REQUIREMENTS FOR COMMON BORROW SET FORTH IN SECTION M.01.01 OF THE RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
8. THE CONTRACTOR SHALL PROVIDE CONTINUOUS DUST CONTROL (USING WATER AND/OR CALCIUM CHLORIDE OR OTHER APPROVED METHODS) FOR ALL EARTH STOCKPILES, EARTH PILED ALONG EXCAVATIONS AND SURFACES OF BACK FILLED TRENCHES, IN ACCORDANCE WITH THE RIDOT STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
9. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED NOTICES AND COMPLY WITH ALL PERMITS, LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN AND SPECIFIED IN THE CONTRACT DOCUMENTS.
10. EXISTING UTILITIES HAVE BEEN PLOTTED FROM BEST AVAILABLE DATA AND ARE APPROXIMATE ONLY. IN ACCORDANCE WITH CURRENT STATE "DIG SAFE" LAWS AND RULES, THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE SYSTEM ELEMENTS AND UTILITIES (BOTH UNDERGROUND AND OVERHEAD) BEFORE ANY EXCAVATION MAY COMMENCE. THE CONTRACTOR IS ADVISED THAT (A) NOT ALL UTILITY PROVIDERS SUBSCRIBE TO THE DIG SAFE PROGRAM, AND (B) IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL POTENTIALLY AFFECTED UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO THE COMMENCEMENT OF WORK. EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY MUNICIPAL, STATE OR FEDERAL AGENCY OR AUTHORITY HAVING JURISDICTION OVER THE WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD OR UNMARKED UTILITIES (AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY) SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
11. THE CONTRACTOR IS ADVISED THAT WORK UNDER EXISTING OVERHEAD UTILITIES IS REQUIRED, AND THAT MINIMUM CLEARANCES SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS. THIS MAY REQUIRE SPECIAL MEANS AND METHODS IN ORDER TO PROPERLY COMPLETE THE WORK. SHOULD THE CONTRACTOR ELECT TO RELOCATE EXISTING OVERHEAD UTILITIES, THEN THE CONTRACTOR SHALL CONDUCT ALL COORDINATION WITH THE AFFECTED UTILITY COMPANIES AND BEAR ALL COSTS ASSOCIATED WITH UTILITY RELOCATIONS NOT INCLUDED IN THE CONTRACT.
12. PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED OR REMOVED. ANY VARIATION FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, WHEREUPON WORK CAN COMMENCE ONLY UPON THE ENGINEER'S AUTHORIZATION.
13. ALL EXISTING PIPE, SUBSURFACE STRUCTURES, PAVEMENTS, EXCESS EXCAVATED MATERIALS AND MISCELLANEOUS MATERIALS REMOVED IN THE COURSE OF UTILITY WORK (INSTALLATION OF DRAINAGE, WATER AND SEWER PIPING, ETC.) SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR AT AN OFFSITE LOCATION.
14. WHERE UNDERGROUND UTILITY CROSSINGS ARE REQUIRED, AT LEAST TWO (2) TEST PITS SHALL BE DUG TO DETERMINE THE LOCATION/DEPTH AND MATERIAL OF THE EXISTING UTILITY.
15. UTILITY SERVICES TO EXISTING BUILDINGS AND FACILITIES SHALL BE MAINTAINED AT ALL TIMES FOR THE DURATION OF CONSTRUCTION.
16. THE CONTRACTOR SHALL ADJUST ALL UTILITY BOXES, FRAMES, AND COVERS AS REQUIRED TO MATCH FINISH GRADE.
17. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009, INCLUDING ALL REVISIONS.

**EROSION AND SEDIMENT CONTROL NOTES**

1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES TO BE EMPLOYED ON THE PROJECT ARE INDICATED ON THE PLANS. CONTROL MEASURES SHALL BE FURNISHED, INSTALLED, MAINTAINED FOR THE DURATION OF CONSTRUCTION, AND SUBSEQUENTLY REMOVED, ALL IN ACCORDANCE WITH THE RIDOT STANDARD SPECIFICATIONS, THE LATEST EDITION OF THE "RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK" (UPDATED 2016), AND ANY SITE-SPECIFIC EROSION AND SEDIMENT CONTROL / POLLUTION PREVENTION PLAN INCLUDED IN THE CONTRACT DOCUMENTS.
2. ALL CLEARING, GRADING AND EARTHWORK ACTIVITIES SHALL REMAIN STRICTLY WITHIN THE LIMITS OF DISTURBANCE (LOD) DEPICTED ON THE PLANS AND SHALL BE RESTRICTED TO ACTIVITIES NECESSARY FOR COMPLETION OF THE WORK. THE CONTRACTOR SHALL ENSURE THAT ALL AREAS OUTSIDE THE LIMITS OF DISTURBANCE REMAIN UNDISTURBED AND PROTECTED FROM CONSTRUCTION IMPACTS.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE RIDOT STANDARD SPECIFICATIONS, THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, AND THE APPLICABLE CONDITIONS OF ANY REGULATORY/ENVIRONMENTAL PERMITS ISSUED FOR THE PROJECT.
4. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT LOCATIONS AND AREAS SHOWN 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.
5. PERIMETER EROSION CONTROL BARRIERS (STAKED COMPOST FILTER SOCK, SILT FENCE, OR OTHER DEVICES AS INDICATED) SHALL BE INSTALLED IN CONTINUOUS UNINTERRUPTED RUNS AT THE LOCATIONS INDICATED ON THE PLANS AND MAINTAINED IN EFFECTIVE CONDITION UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED WITH VEGETATION. FOLLOWING SUCCESSFUL STABILIZATION OF DISTURBED AREAS, ALL PERIMETER EROSION CONTROL BARRIERS SHALL BE REMOVED. PRIOR TO REMOVAL OF THE DEVICES, ALL ACCUMULATED SEDIMENT AND DEBRIS TRAPPED BY THE BARRIERS SHALL BE REMOVED AND DISPOSED OF LEGALLY AT A SUITABLE OFFSITE LOCATION.
6. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST ONE (1) FOOT INSIDE OF ALL PERIMETER EROSION CONTROL BARRIERS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR (OR ANY AGENT OF THE CONTRACTOR) SHALL BE IMMEDIATELY REMOVED, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS SUBSEQUENTLY IMPLEMENTED AT NO COST TO THE OWNER.
7. UNTIL VEGETATIVE COVER IS ESTABLISHED AND DISTURBED AREAS ARE FULLY STABILIZED, TRAPPED SEDIMENTS SHALL BE PERIODICALLY REMOVED FROM PERIMETER EROSION CONTROL BARRIERS. AT A MINIMUM, MATERIAL SHALL BE REMOVED ONCE THE DEPTH OF ACCUMULATED SEDIMENT REACHES SIX (6) INCHES OR ONE-HALF THE BARRIER HEIGHT, WHICHEVER IS LESS. ALL REMOVED MATERIAL SHALL BE DISPOSED OF LEGALLY AT A SUITABLE OFFSITE LOCATION.
8. ALL MATERIAL STOCKPILES SHALL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE (LOD), AND SHALL BE REMOVED AT THE END OF EACH WORK DAY.
9. ALL EXISTING AND CONSTRUCTED DRAINAGE SYSTEM INLETS SHALL BE PROVIDED WITH INLET PROTECTION DEVICES (FILTER BAGS/SILT SACKS, SANDBAGS, WATTLES, ETC.) AS INDICATED ON THE PLANS. ALL INLET PROTECTION DEVICES SHALL BE INSTALLED, MAINTAINED, AND CLEANED FOR THE DURATION OF CONSTRUCTION AND UNTIL ALL STORMWATER CONTROLS ARE FULLY STABILIZED AND ONLINE, AT WHICH TIME THEY SHALL BE REMOVED.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL.
11. EROSION CONTROL DEVICES SHOULD BE INSPECTED WEEKLY AND AFTER RAINFALL EVENTS EXCEEDING ONE HALF INCH (1/2") IN ANY 24-HOUR PERIOD. WHERE AND WHEN REQUIRED, MAINTENANCE AND REPAIRS SHALL BE COMPLETED WITH 24 HOURS OF THE INSPECTION.
12. DENUDE/UNVEGETATED SLOPES SHALL NOT BE LEFT UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.
13. ALL DISTURBED SLOPES EITHER NEWLY CREATED OR EXPOSED PRIOR TO OCTOBER 15 SHALL BE SEEDED OR PROTECTED BY THAT DATE FOR ANY WORK COMPLETED DURING EACH CONSTRUCTION YEAR.
14. TEMPORARY SURFACE STABILIZATION TREATMENTS SHALL CONSIST OF A HAY, STRAW, OR FIBER MULCH OR PROTECTIVE COVERS SUCH AS FIBER MESH, EROSION CONTROL BLANKETS, OR OTHER MATTING. THEY SHALL BE INCORPORATED INTO THE WORK AS WARRANTED OR AS DIRECTED BY THE ENGINEER. HAY OR STRAW APPLICATIONS SHOULD BE IN THE AMOUNT OF 3,000-4,000 POUNDS PER ACRE (1.9-2.5 POUNDS PER SQUARE YARD). IF NEEDED, TEMPORARY SEEDING (PROVIDED IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS AND EROSION AND SEDIMENT CONTROL GUIDANCE) MAY BE EMPLOYED TO FURTHER MINIMIZE EROSION.
15. TOPSOIL SHALL HAVE A SANDY LOAM TEXTURE, FREE OF SUBSOIL, STONES, ROCKS, ROOTS, BRUSH, REFUSE, CONSTRUCTION DEBRIS AND OTHER DELETERIOUS MATERIALS AND SHALL CONFORM TO SUBSECTION M.18.01 OF THE RIDOT STANDARD SPECIFICATIONS.
16. THE SEEDED MIX SHALL BE INOCULATED WITHIN 24 HOURS, BEFORE MIXING AND PLANTING, WITH APPROPRIATE INOCULUM FOR EACH VARIETY.
17. THE DESIGN MIX SHALL BE COMPRISED OF THE FOLLOWING AND BE APPLIED AT A SEEDING RATE OF 100 POUNDS PER ACRE:
 

COMPONENT	% BY WEIGHT
RED FESCUE	70
KENTUCKY BLUEGRASS	15
COLONIAL BENTGRASS	5
PERENNIAL RYEGRASS	10
18. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE APRIL 1 - JUNE 1 AND AUGUST 15 - OCTOBER 15.
19. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 14 DAYS OF FINAL GRADING. PLANTING OF GRASS SHALL BE ACCOMPLISHED BY THE CONTRACTOR AS EARLY AS POSSIBLE UPON COMPLETION OF GRADING AND CONSTRUCTION.
20. THE CONTRACTOR MUST REPAIR AND OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE (1) CALENDAR YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE OWNER.

**STORMWATER MAINTENANCE NOTES**

1. ALL MAINTENANCE (INCLUDING CLEANING) REQUIRED DURING CONSTRUCTION PHASE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL INCLUDE:
  - MEASURES NEEDED TO ENSURE THE PROPER OPERATION OF CONSTRUCTED STORMWATER MANAGEMENT FACILITIES INCLUDING ALL NECESSARY INSPECTION, CLEANING AND REPAIRS TO FACILITY ELEMENTS INCLUDING ALL PIPING, STRUCTURES, FITTINGS AND OTHER APPURTENANCES.
  - INSPECTION OF ALL SLOPES, BERMS, AND OTHER CONTROL STRUCTURES FOR STRUCTURAL INTEGRITY/STABILITY AND EVIDENCE OF SOIL EROSION PROCESSES, AND MAINTENANCE OF THESE STRUCTURES IF NECESSARY. INSPECTIONS SHALL BE PERFORMED FOLLOWING ALL RAIN EVENTS OF 1/2 INCH RAINFALL OR MORE IN A 24-HOUR PERIOD, OR BI-MONTHLY IF NO RAINFALL EVENT OCCURS.
2. UPON COMPLETION OF PROJECT CONSTRUCTION, AND PRIOR TO VACATING THE SITE, THE CONTRACTOR SHALL CONDUCT A FINAL INSPECTION AND CLEANING OF THE DRAINAGE SYSTEM AND ALL ASSOCIATED STRUCTURES.
3. AFTER THE COMPLETION OF THE ENTIRE PROJECT TO THE SATISFACTION OF THE ENGINEER, ALL MAINTENANCE OF THE DRAINAGE SYSTEM SHALL THEN BE THE RESPONSIBILITY OF THE UNIVERSITY OF RHODE ISLAND OR THEIR APPOINTED AGENTS.
4. ALL GRASSED AREAS SHALL BE MOWED AT LEAST ONCE PER GROWING SYSTEM, WITH GRASS VEGETATION CUT TO A HEIGHT NO SHORTER THAN FOUR (4) INCHES.
5. THE URI OFFICE OF CAPITAL PROJECTS SHALL BE RESPONSIBLE FOR ALL REPAIRS, REPLACEMENTS, AND OTHER WORK NECESSARY TO MAINTAIN THE PROPER FUNCTIONING OF STORMWATER MANAGEMENT FACILITIES. ANY REQUIRED REPAIR AND/OR REPLACEMENT OF DRAINAGE STRUCTURES OR FACILITIES SHALL BE PERFORMED PROMPTLY TO ENSURE PROPER FUNCTIONING OF THE SYSTEM. IN THE EVENT OF A SIGNIFICANT LOSS IN INFILTRATION CAPACITY (BELOW THE ORIGINAL DESIGN CAPACITY) OF SYSTEMS (DUE TO CLOGGING, BLINDING, AND/OR OTHER ISSUES), THE PERTINENT SYSTEMS ELEMENTS SHALL BE REPAIRED OR REPLACED SO AS TO RE-ESTABLISH ORIGINAL DESIGN INFILTRATION RATES.

**BIORETENTION NOTES:**

1. THE USDA TEXTURAL CLASSIFICATION OF THE PLANTING SOIL FOR THE BIORETENTION SOIL MIXTURE (BSM) SHALL BE LOAMY SAND OR SANDY LOAM. THE PLANTING SOIL SHALL BE SALVAGED OR FURNISHED. ADDITIONALLY, THE PLANTING SOIL SHALL BE TESTED AND MEET THE FOLLOWING CRITERIA:
 

ITEM	PERCENT BY WEIGHT	TEST METHOD
SAND (2.0 - 0.050 MM)	85 - 88%	AASHTO T88
SILT (0.050 - 0.002 MM)	8 - 12%	AASHTO T88
CLAY (LESS THAN 0.002 MM)	0 - 2%	AASHTO T88
ORGANIC MATTER	3 - 5%	AASHTO T194

THE TEXTURAL ANALYSIS FOR THE PLANTING SOIL SHALL BE AS FOLLOWS:

ASTM E11 SIEVE SIZE	MINIMUM % PASSING BY WEIGHT
2 IN.	100
NO. 4	90
NO. 10	80

2. AT LEAST 45 DAYS PRIOR TO THE START OF CONSTRUCTION OF BIORETENTION FACILITIES, THE CONTRACTOR SHALL SUBMIT THE SOURCE OF THE PLANTING SOIL FOR THE BSM TO THE ENGINEER FOR APPROVAL. NO TIME EXTENSIONS WILL BE GRANTED SHOULD THE PROPOSED PLANTING SOIL FAIL TO MEET THE MINIMUM REQUIREMENTS STATED ABOVE. ONCE A STOCKPILE OF THE PLANTING SOIL HAS BEEN SAMPLED, NO MATERIAL SHALL BE ADDED TO THE STOCKPILE.
3. THE BIORETENTION SOIL MIXTURE (BSM) SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES EXCLUDING MULCH. NO OTHER MATERIALS OR SUBSTANCES SHALL 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.
4. THE BIORETENTION SOIL MIXTURE SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 

ITEM	CRITERIA
CORRECTED PH	5.5 - 7.5
MAGNESIUM MINIMUM	32 PPM
PHOSPHORUS (PHOSPHATE - P2O5)	NOT TO EXCEED 69 PPM
POTASSIUM (K2O)	MINIMUM 78 PPM
SOLUBLE SALTS	NOT TO EXCEED 500 PPM

5. SHOULD THE PH FALL OUTSIDE OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED WITH LIME (TO RAISE) OR IRON SULFATE PLUS SULFUR (TO LOWER). THE LIME OR IRON SULFATE MUST BE MIXED UNIFORMLY INTO THE BSM PRIOR TO USE IN BIORETENTION FACILITIES. SHOULD THE BSM NOT MEET THE MINIMUM REQUIREMENT FOR MAGNESIUM, IT MAY BE MODIFIED WITH MAGNESIUM SULFATE. LIKEWISE, SHOULD THE BSM NOT MEET THE MINIMUM REQUIREMENT FOR POTASSIUM, IT MAY BE MODIFIED WITH POTASH. MAGNESIUM SULFATE AND POTASH MUST BE MIXED UNIFORMLY INTO THE BSM PRIOR TO USE IN BIORETENTION FACILITIES.
6. PLANTING SOIL AND/OR BSM THAT FAILS TO MEET THE MINIMUM REQUIREMENTS SHALL BE REPLACED AT NO ADDITIONAL COST. MIXING OF THE CORRECTIVE ADDITIVES TO THE BSM IS INCIDENTAL AND SHALL BE AT NO ADDITIONAL COST.
7. MIXING OF THE BSM TO A HOMOGENEOUS CONSISTENCY SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER.
8. THE MULCH LAYER SHALL BE SHREDDED HARDWOOD MULCH THAT IS WELL AGED (STOCKPILED OR STORED FOR AT LEAST SIX (6) MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS SUCH AS WEED SEEDS, SOIL, ROOTS, ECT. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
 APPROVED WITH CONDITIONS  
 AS SPECIFIED IN THE LETTER OF APPROVAL  
 DATED JUN 24 2019 FILE # 19-0077  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PROJECT

FUEL DEPOT

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CLIENT

UNIVERSITY OF RHODE ISLAND

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DRAWING TITLE

LEGEND & NOTES

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PROJECT NO.:

1835

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DATE:

MARCH 2019

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SCALE:

NONE

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DRAWN BY:

J.L.H.

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CHECKED BY:

T.A.R.

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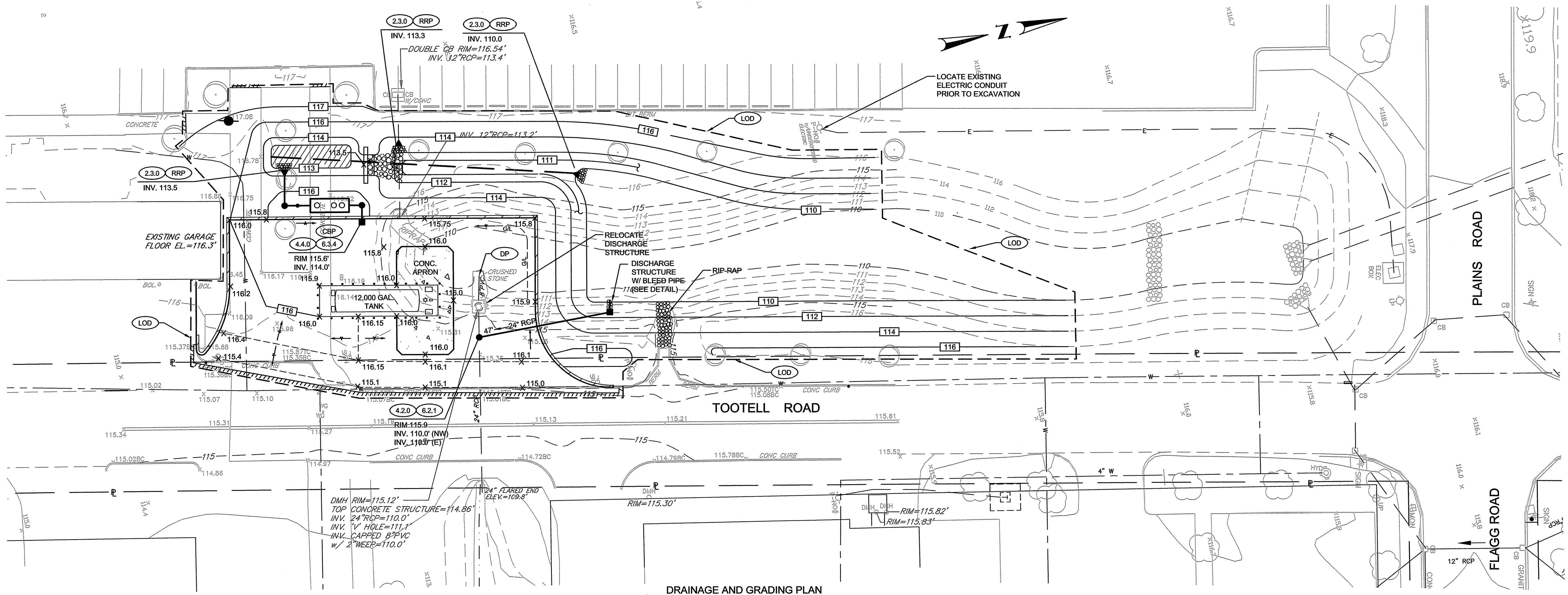
DRAWING NUMBER

2

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SHEET 2 OF 6





**DRAINAGE AND GRADING PLAN**  
SCALE: 1" = 20'

**OIL/WATER SEPARATOR TANK GENERAL SPECIFICATIONS:**

THE CONTRACTOR IS DIRECTED TO THE HIGHLAND TANK CO. WEB SITE: WWW.HIGHLANDTANK.COM FOR SPECIFIC DETAILS.

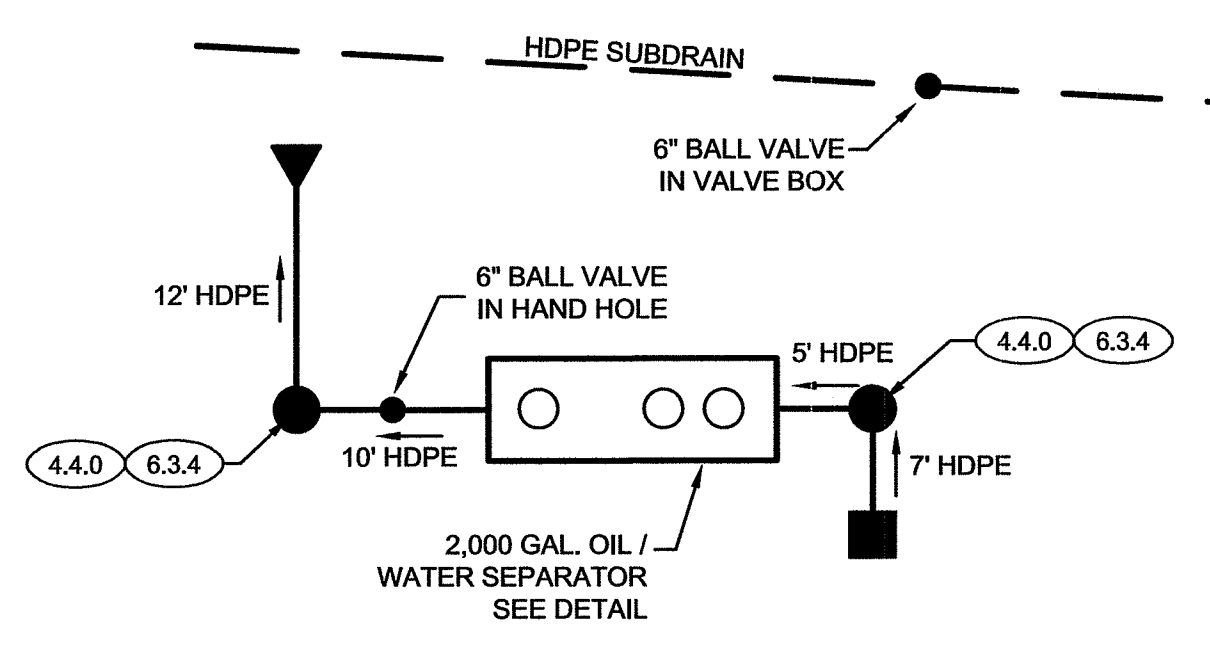
**HIGHLAND TANK MANUFACTURING COMPANY**  
TYPE: HTC, HIGHGUARD, SINGLE WALL, "G" SERIES OR APPROVED EQUAL  
CAPACITY: 2000 GALLON  
MATERIAL: MILD CARBON STEEL  
FLOW RATE: 200 GPM GAUGE:  
SHELL - 7 GA.  
HEADS - 7 GA.

SURFACE PREP: SP-6 BLAST ALL EXTERIOR SURFACES

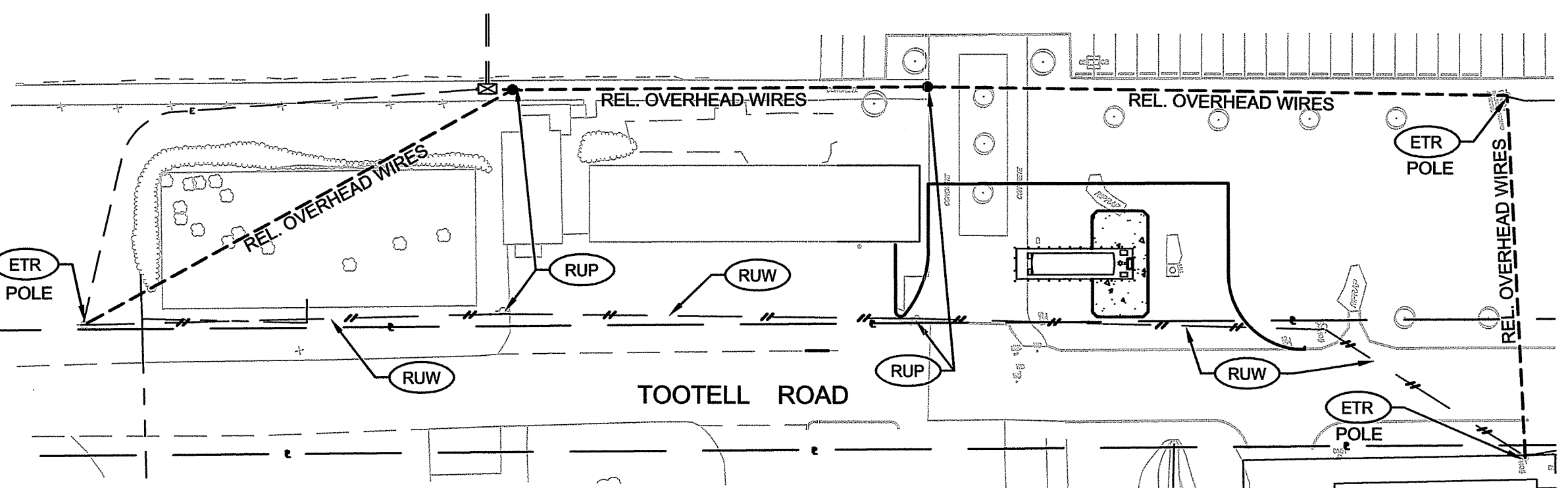
COATING: MATERIAL THICKNESS  
EXTERIOR - HIGHGUARD 75 MILS  
INTERIOR - NONE

CONSTRUCTION: LAP FIT & WELD ALL EXTERIOR SEAMS

OPERATING PRESSURE: ATMOSPHERIC

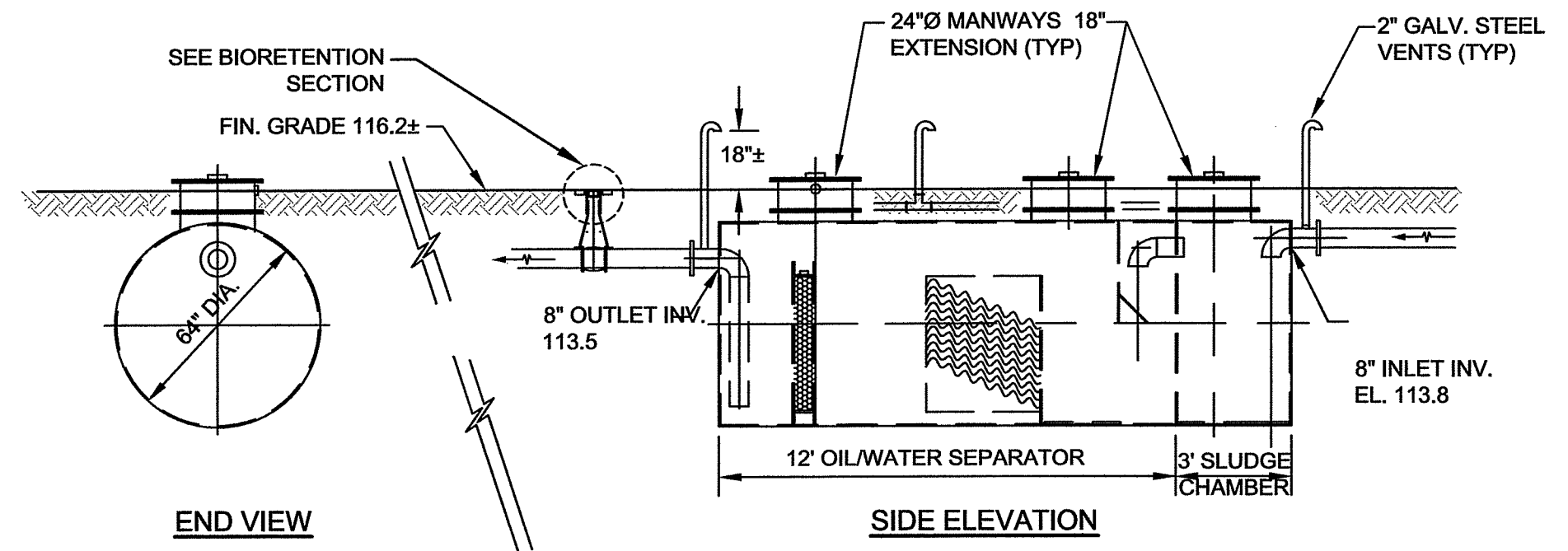


**OIL / WATER SEPARATOR PLAN**  
NOT TO SCALE

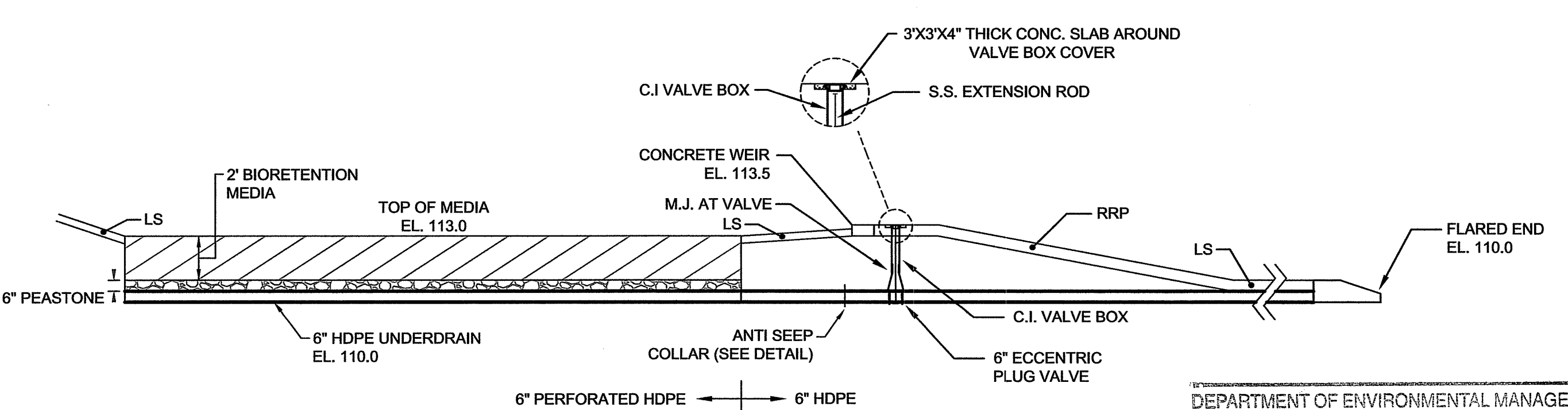


**UTILITY POLE RELOCATION PLAN**  
SCALE: 1" = 50'

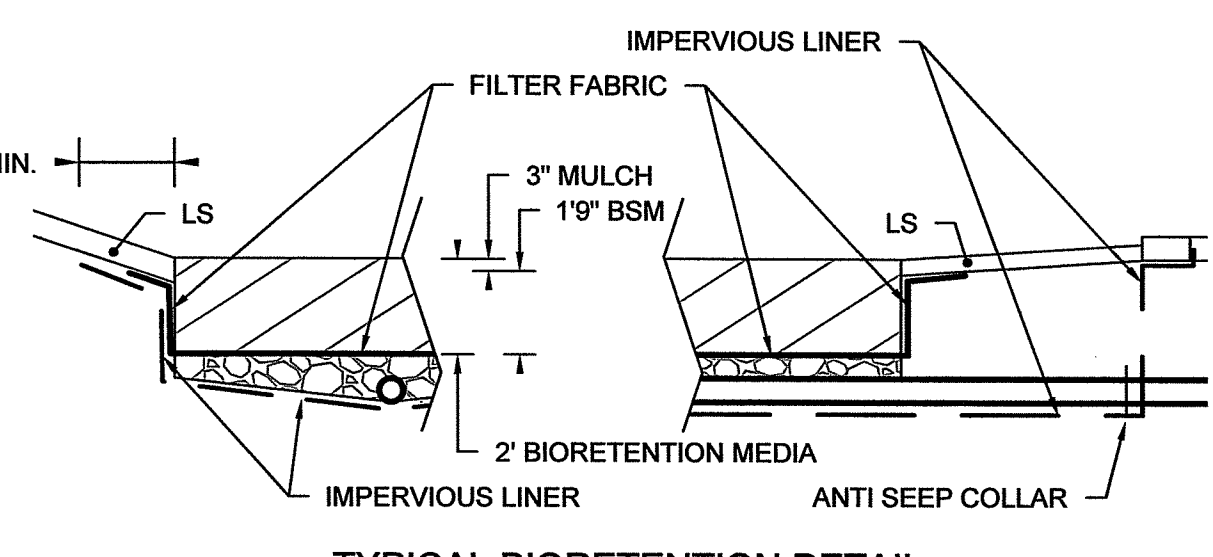
- NOTE:
1. IMPERVIOUS LINER SHALL BE 20-MIL POLYETHYLENE SHEETING OR APPROVED EQUAL.
  2. FILTER FABRIC SHALL BE MIRAFI 140N GEOTEXTILE FABRIC OR APPROVED EQUAL.
  3. THE BIORETENTION MEDIA SHALL CONSIST OF 1' 9" OF BIORETENTION SOIL MIXTURE (BSM) AND A 3" SURFACE MULCH LAYER. BOTH MEDIA'S ARE SPECIFIED ON SHEET NO. 2.



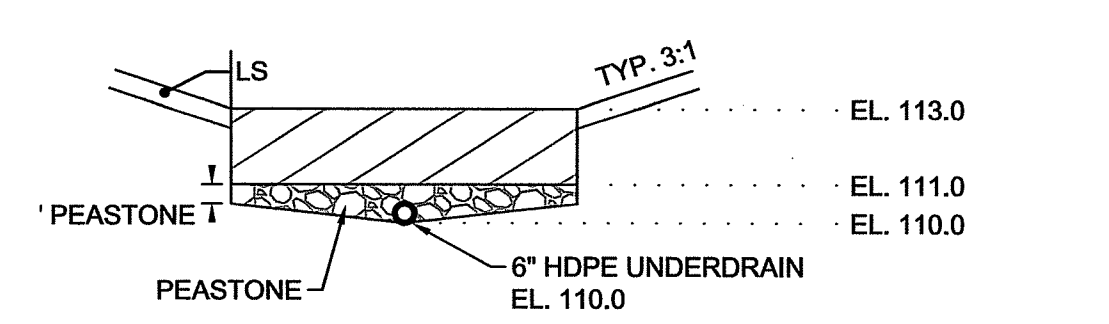
**OIL / WATER SEPARATOR DETAIL**  
NOT TO SCALE



**BIORETENTION BASIN SECTION**  
SCALE: 1" = 5'



**TYPICAL BIORETENTION DETAIL**  
SCALE: 1" = 4'



**BIORETENTION BASIN SECTION 2**  
SCALE: 1" = 5'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED JUN 24 2019 FILE # 19-0077  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

PROJECT: **FUEL DEPOT**

CLIENT: **UNIVERSITY OF RHODE ISLAND**

DRAWING TITLE: **GRADING & DRAINAGE PLAN**

PROJECT NO.: 1836

DATE: MARCH 2019

SCALE: AS SHOWN

DRAWN BY: J.L.H.

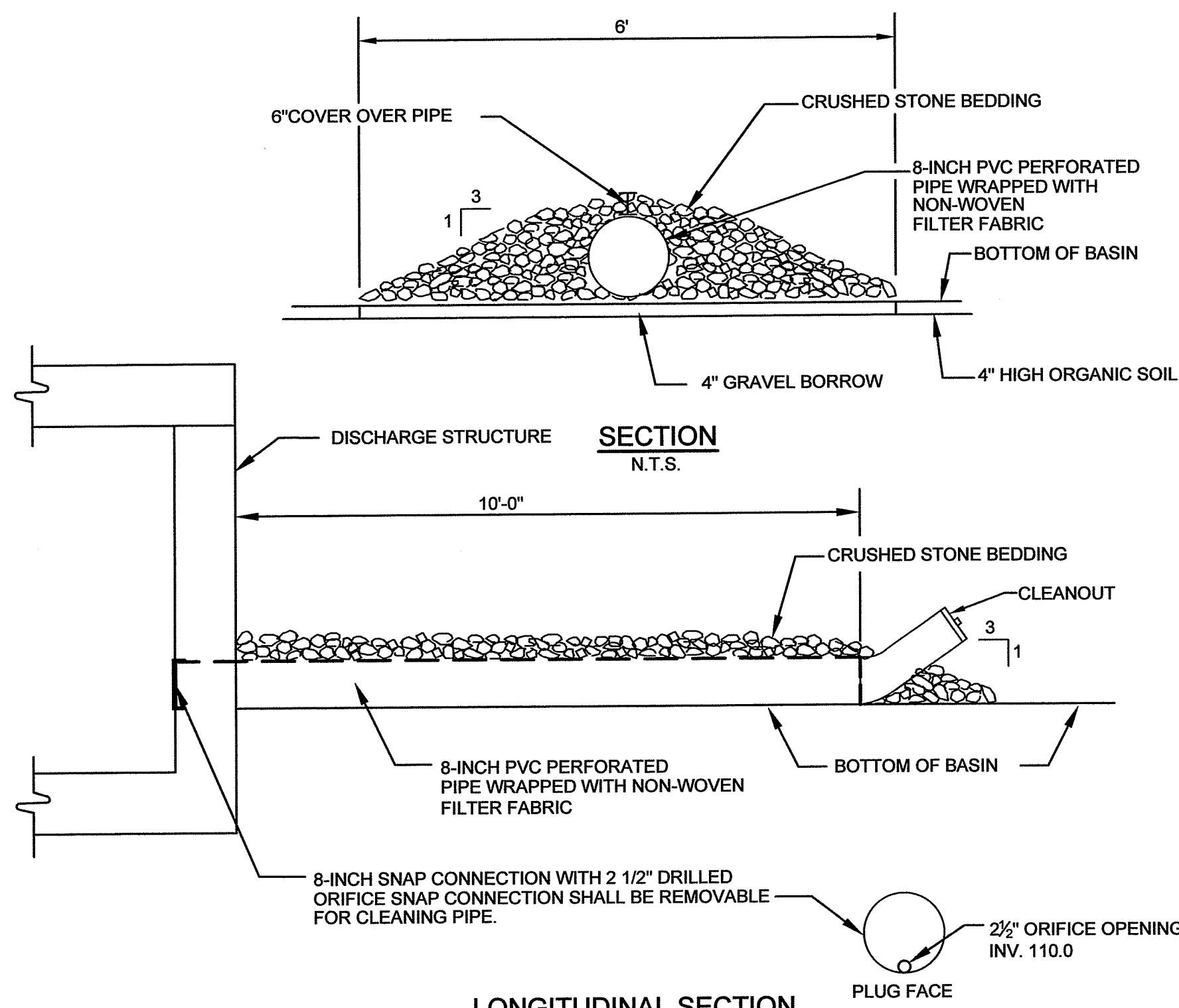
CHECKED BY: T.A.R.

DRAWING NUMBER: **4**

SHEET 4 OF 6

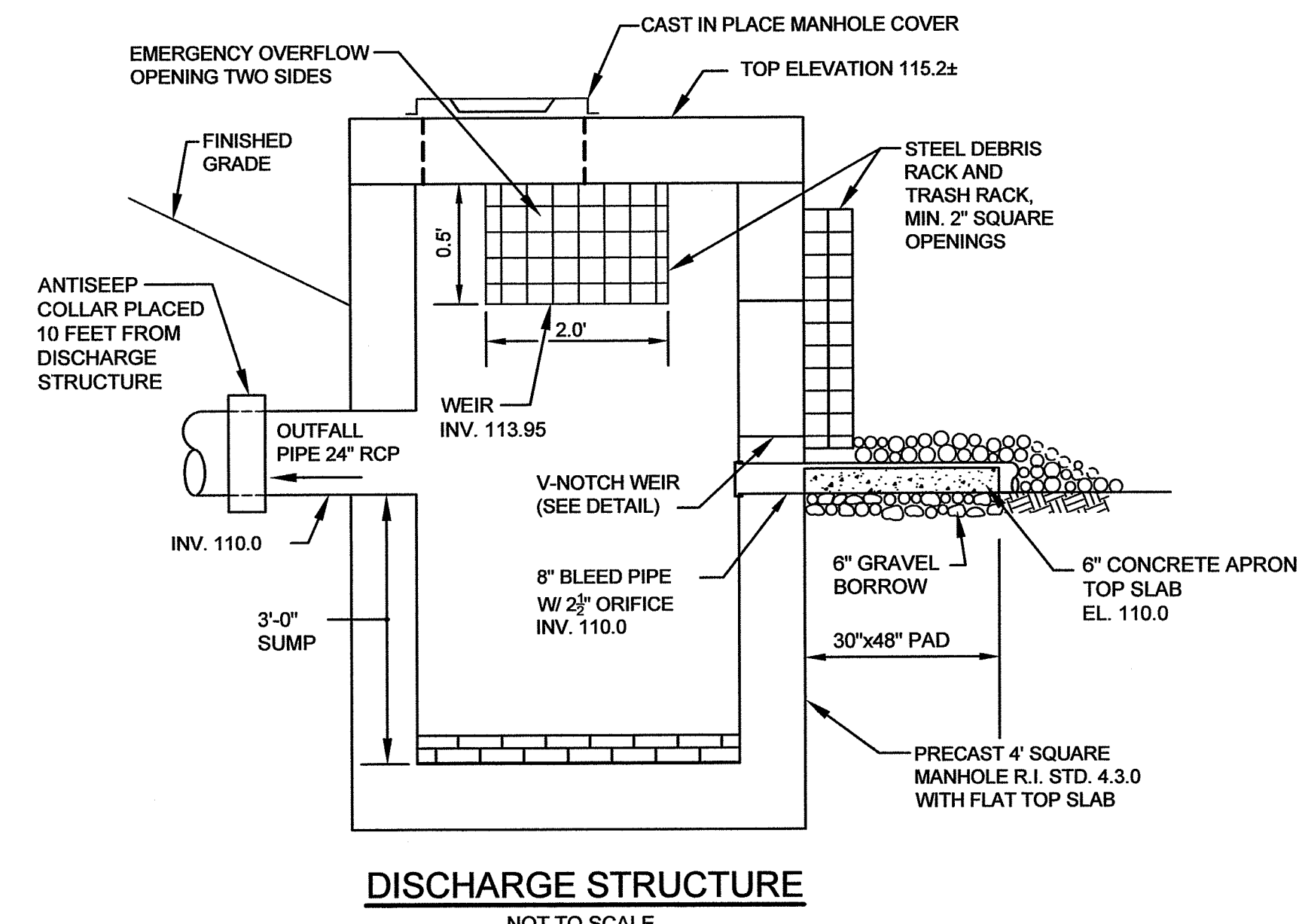
PROFESSIONAL ENGINEER: TODD J. ARVENELLE, No. 5928

Gordon R. Archibald, Inc. Civil and Environmental Engineers Pawtucket, Rhode Island



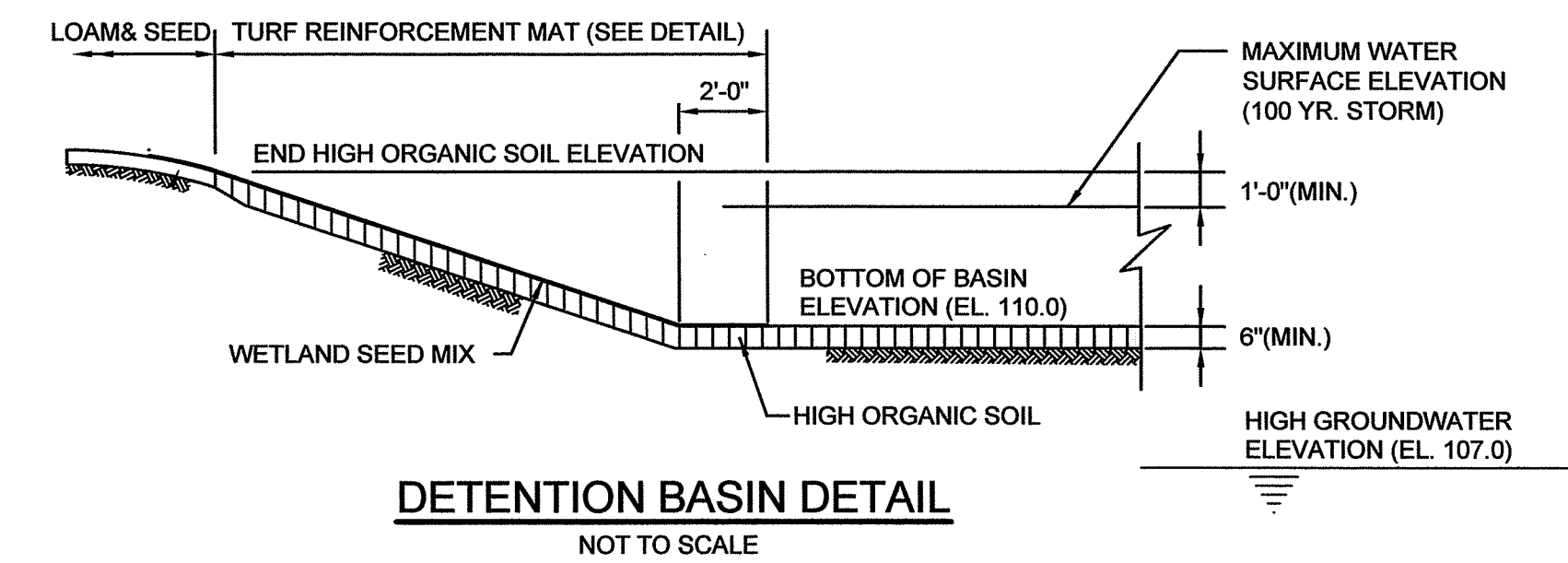
**LONGITUDINAL SECTION**  
NOT TO SCALE

**BLEED PIPE DETAILS**  
NOT TO SCALE

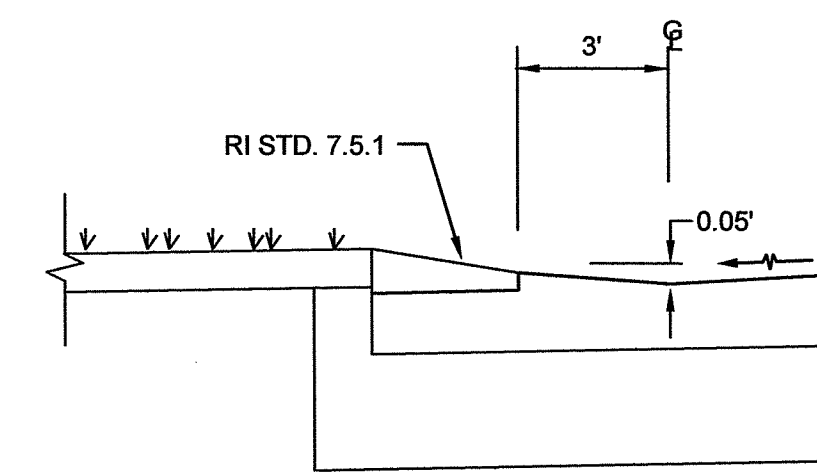


**DISCHARGE STRUCTURE**  
NOT TO SCALE

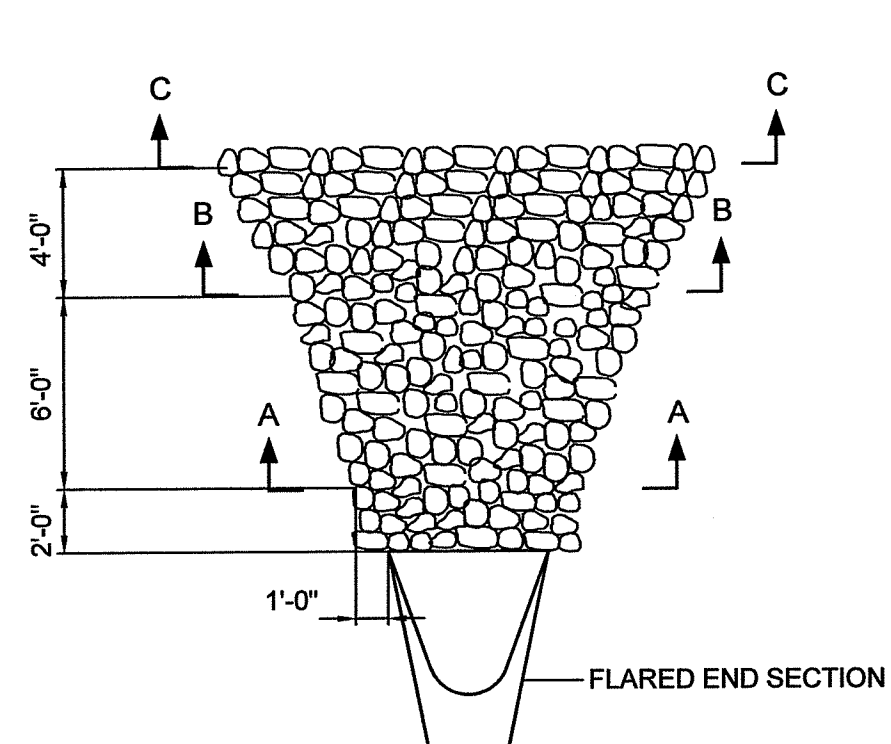
**ELEVATION WEIR DETAIL**  
NOT TO SCALE



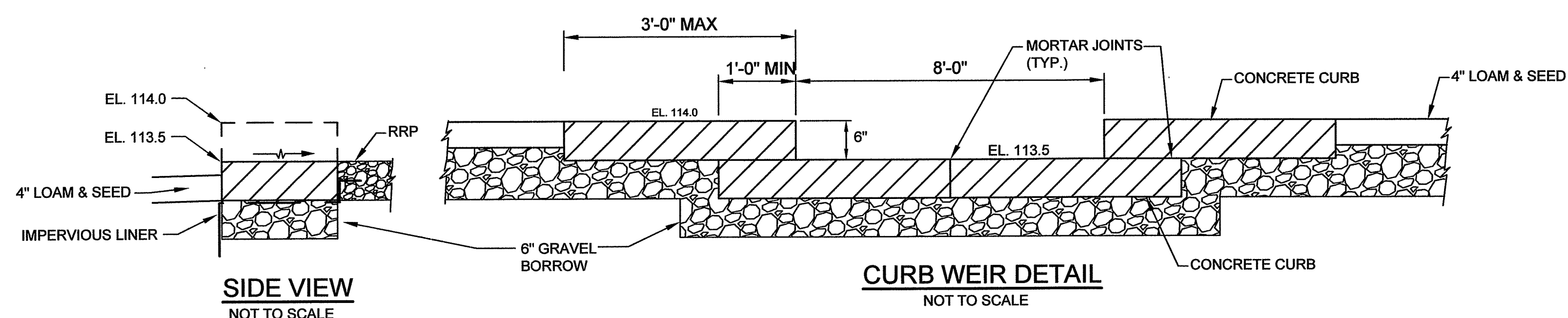
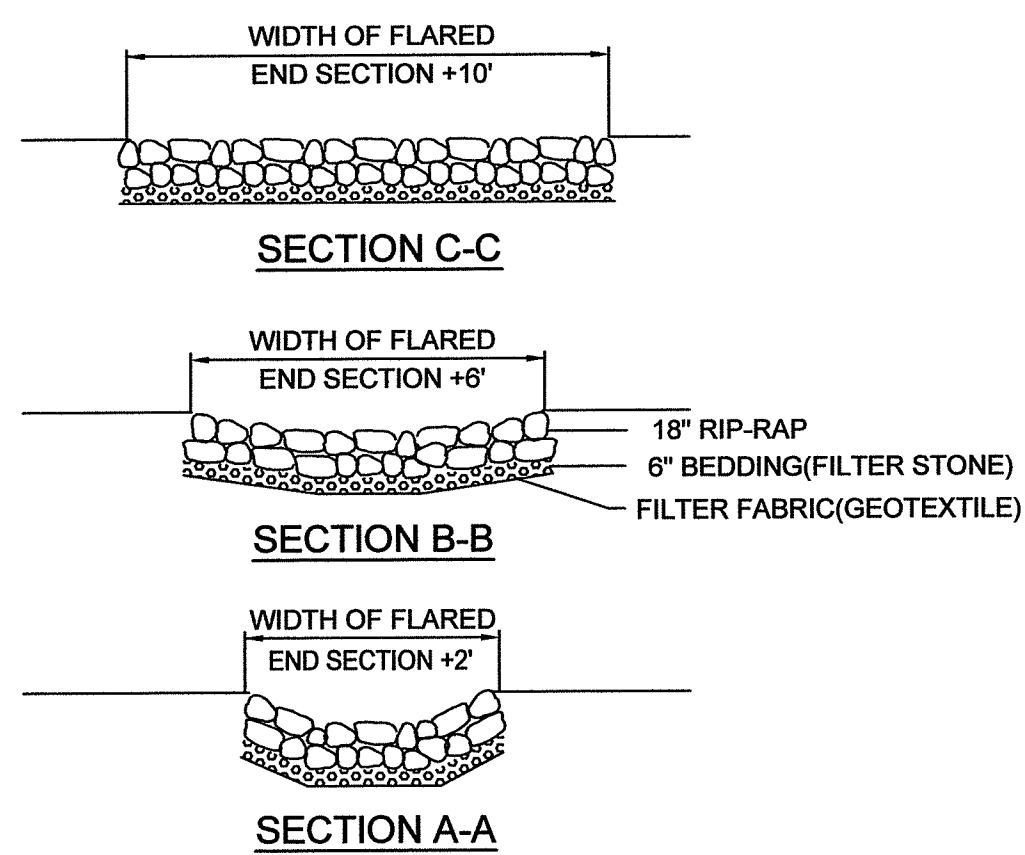
**DETENTION BASIN DETAIL**  
NOT TO SCALE



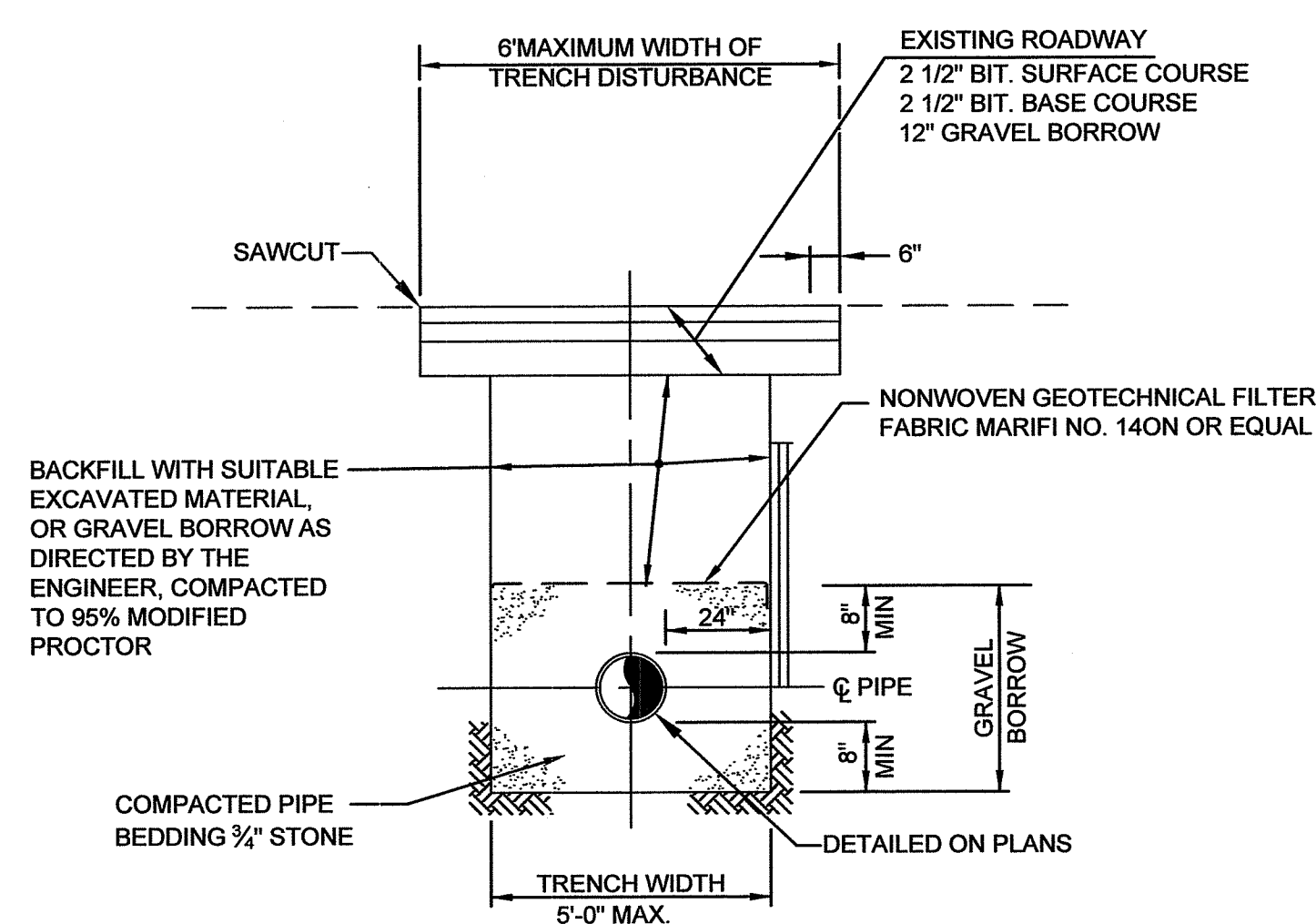
**TYPICAL GUTTER LINE DETAIL**  
NOT TO SCALE



**RIP-RAP PAD DETAIL** (RRP)

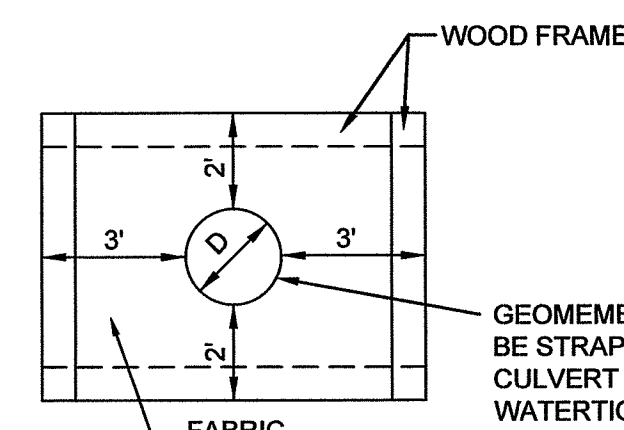


**CURB WEIR DETAIL**  
NOT TO SCALE



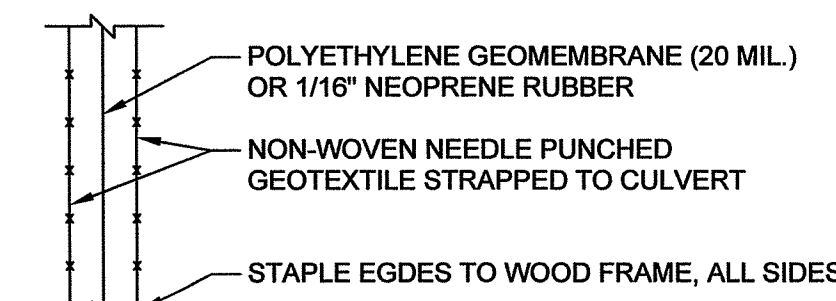
**TYPICAL TRENCH DETAIL FOR DRAINAGE PIPES**  
NOT TO SCALE

**NOTE:**  
CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE AND IS RESPONSIBLE FOR REPAIR OF ALL UTILITIES DAMAGED OUTSIDE THE LIMIT OF DISTURBANCE.



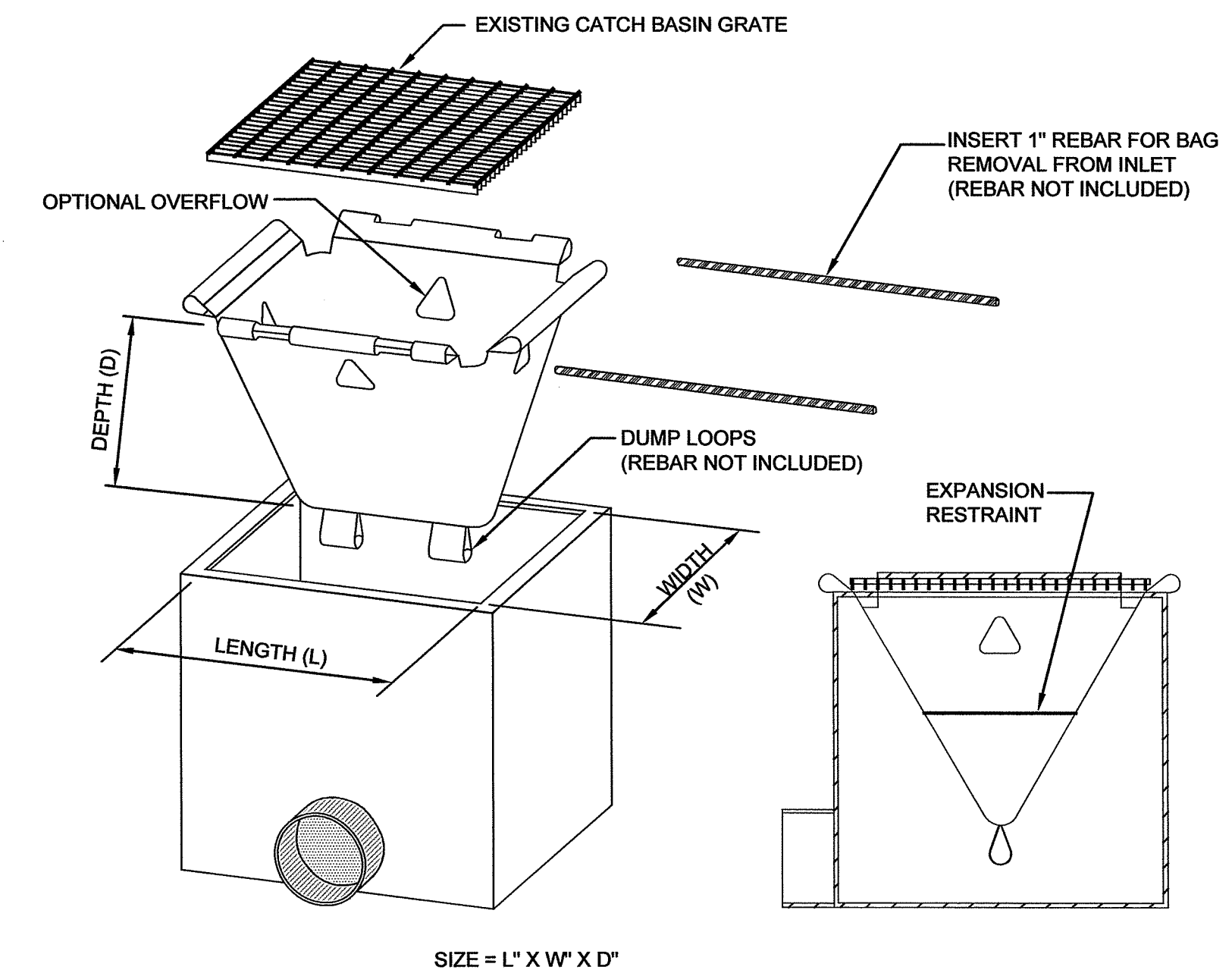
**ANTI-SEEP COLLAR DETAILS**  
N.T.S.

**NOTE:**  
1. THE STRAP SHALL BE SUBJECT TO ENGINEERS APPROVAL. THE STRAP MAY BE A POLYPROPYLENE CORD WITH A TENSILE STRENGTH OF 200 POUNDS AND SHALL PROVIDE A PERMANENT NON-SLIP, TIE.

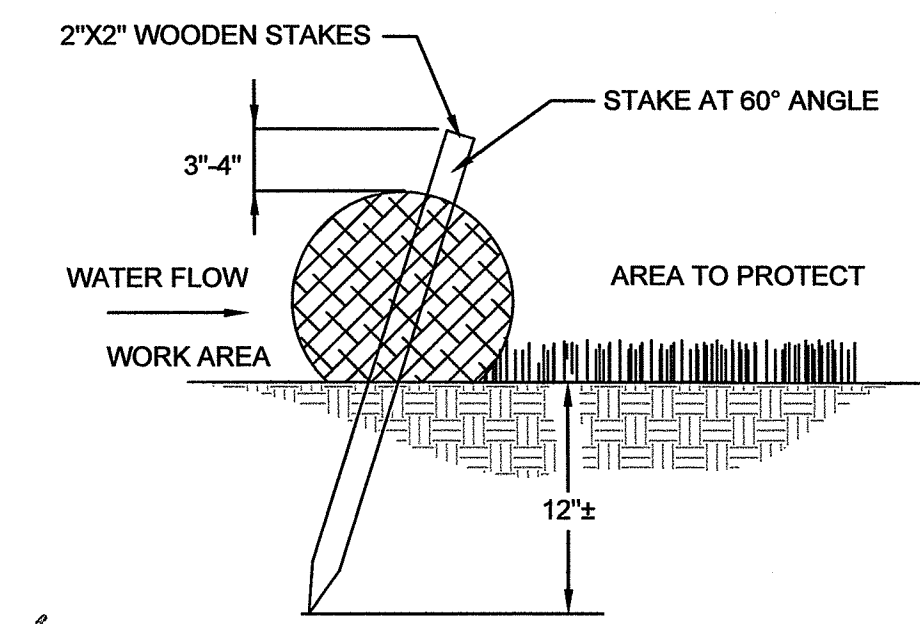


**FABRIC DETAIL**

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FRESHWATER WETLANDS PROGRAM  
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**CATCH BASIN INLET PROTECTION** (CBP)  
NOT TO SCALE



**8-INCH COMPOST FILTER SOCK** (CFP)  
NOT TO SCALE

**PROJECT**  
FUEL DEPOT

**CLIENT**  
UNIVERSITY OF RHODE ISLAND

**CONTRACTOR**  
Gordon R. Archibald, Inc.  
Civil and Environmental Engineers  
Pawtucket, Rhode Island

**DRAWING TITLE**  
DETAILS - 1

NO.	DATE	REVISIONS	BY

**PROJECT NO.:** 1835  
**DATE:** MARCH 2019  
**SCALE:** 1"=20'  
**DRAWN BY:** J.L.H.  
**CHECKED BY:** T.A.R.

**DRAWING NUMBER**  
5  
SHEET 5 OF 6

