

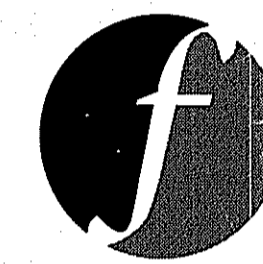
AQUIDNECK ISLAND WATER PROJECT - PHASE I

ISLAND DRIVE · MIDDLETOWN · RHODE ISLAND

ISLAND 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

OWNER

A.P.117, LOT 49
 ISLAND FARM HOMEOWNERS
 ASSOCIATION, INC.
 240 ISLAND DRIVE
 MIDDLETOWN, RI 02842

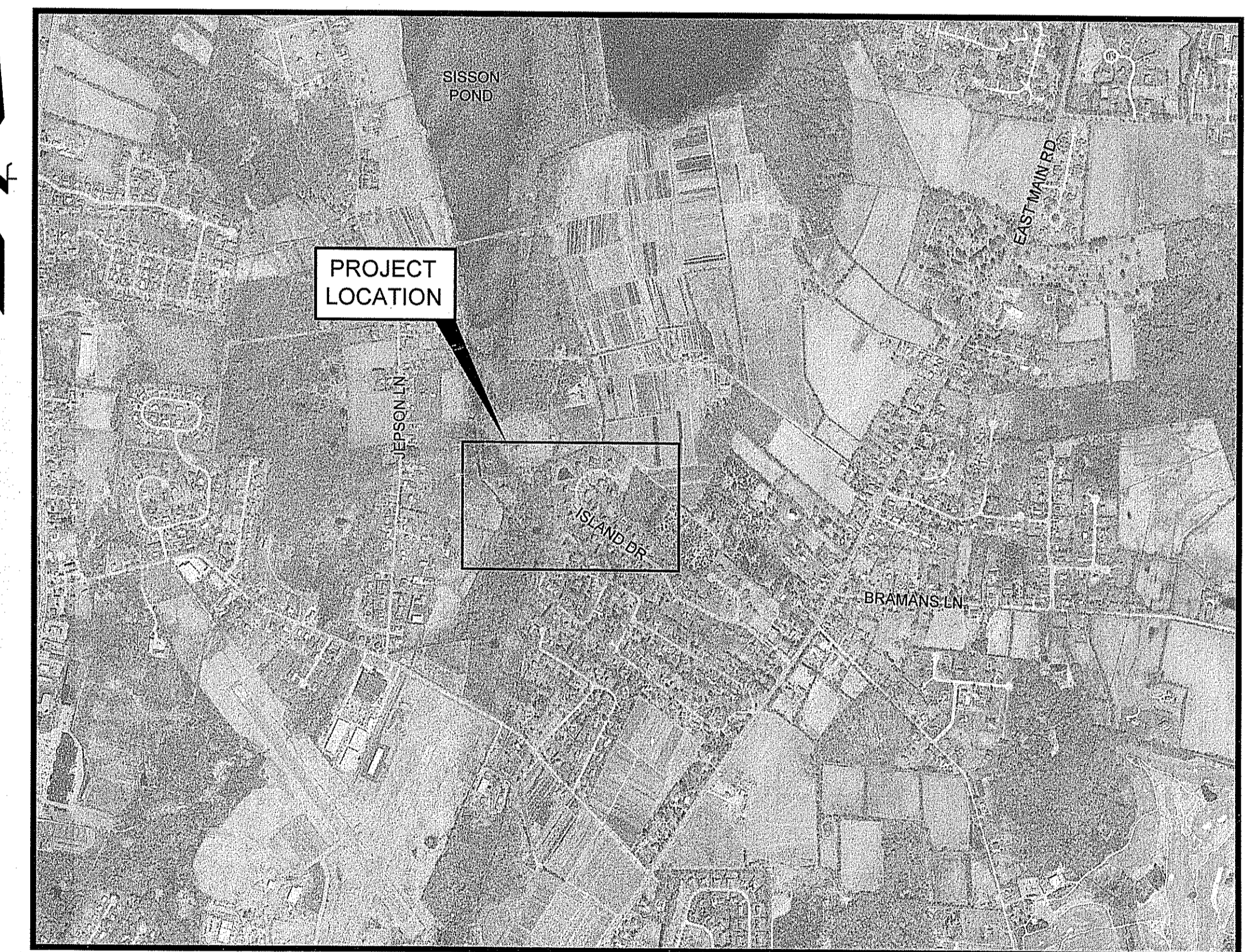
PROJECT PARTNERS

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

AQUIDNECK ISLAND LAND TRUST
 790 AQUIDNECK AVENUE
 MIDDLETOWN, RI 02842-7271

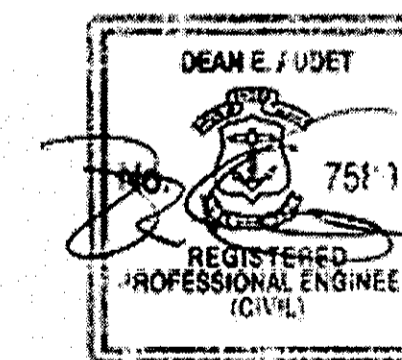
SHEET INDEX

SHEET No.	SHEET TITLE
GI-001	COVER SHEET
CN-001	GENERAL NOTES & LEGEND
CS-101	EXISTING CONDITIONS PLAN
CS-102	EROSION AND SEDIMENTATION CONTROL PLAN
CS-103	WVTS - GRADING & LAYOUT PLAN
CX-301	WVTS - CROSS SECTION & PROFILE
CD-501 - CD-504	DETAILS



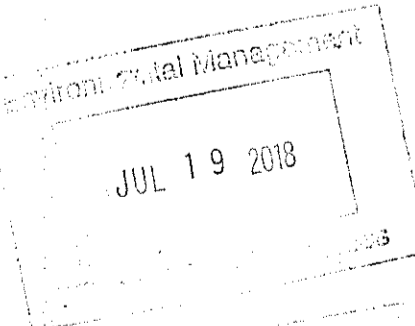
LOCATION MAP

SCALE: 1" = 1000'



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

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED SEP 5 2018 FILE # 18-0189
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Signature: D. Wronsek



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 Plotter: DWG TO PDF.PC3 CTB File: FO.STB



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 LIMIT OF DISTURBANCE ARE APPROXIMATE ONLY AND WERE APPROXIMATED FROM WETLAND INFORMATION PROVIDED BY RIGS. ADJUSTMENTS/CORRECTIONS TO THOSE APPROXIMATE WETLAND RESOURCE BOUNDARIES WERE THEN MADE BY FUSS & O'NEILL, INC. BASED ON A REVIEW OF AERIAL PHOTOGRAPHY.

FLAG SERIES	RIDEM CLASSIFICATION	REGULATORY SETBACK
WF#M400-M410	POND (SEE NOTE BELOW)	NONE (SEE NOTE BELOW)
WF#L300-L314	SCRUB-SHRUB WETLAND	NONE

WF#M400-M410 CLASSIFICATION NOTE:
 PER RIDEM RECOMMENDATIONS MADE AT THE PROJECT'S WATER QUALITY RESTORATION TEAM (WQRT) MEETING HELD ON APRIL 17, 2018, THIS WETLAND FEATURE WAS CONSIDERED TO BE A MANMADE FEATURE AND SHALL NOT BE CLASSIFIED AS A WETLAND.

2. PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND WERE OBTAINED FROM THE TOWN OF MIDDLETOWN'S GEOGRAPHIC INFORMATION SYSTEM (GIS) DATABASE. 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.
3. THIS PROJECT SITE IS NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD AREA (SFHA) OR NATURAL HERITAGE AREA (NHA).

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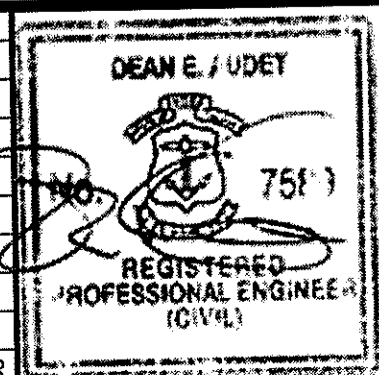
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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James P. D'Amico

LEGEND

	50' PERIMETER OR 100' RIVERBANK RIDEM WETLAND (AS NOTED)
	WETLAND FLAGGED BY FUSS & O'NEILL, INC. AND FIELD SURVEYED/LOCATED
	APPROXIMATE WETLAND BOUNDARY FROM RIGS

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



SEAL

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

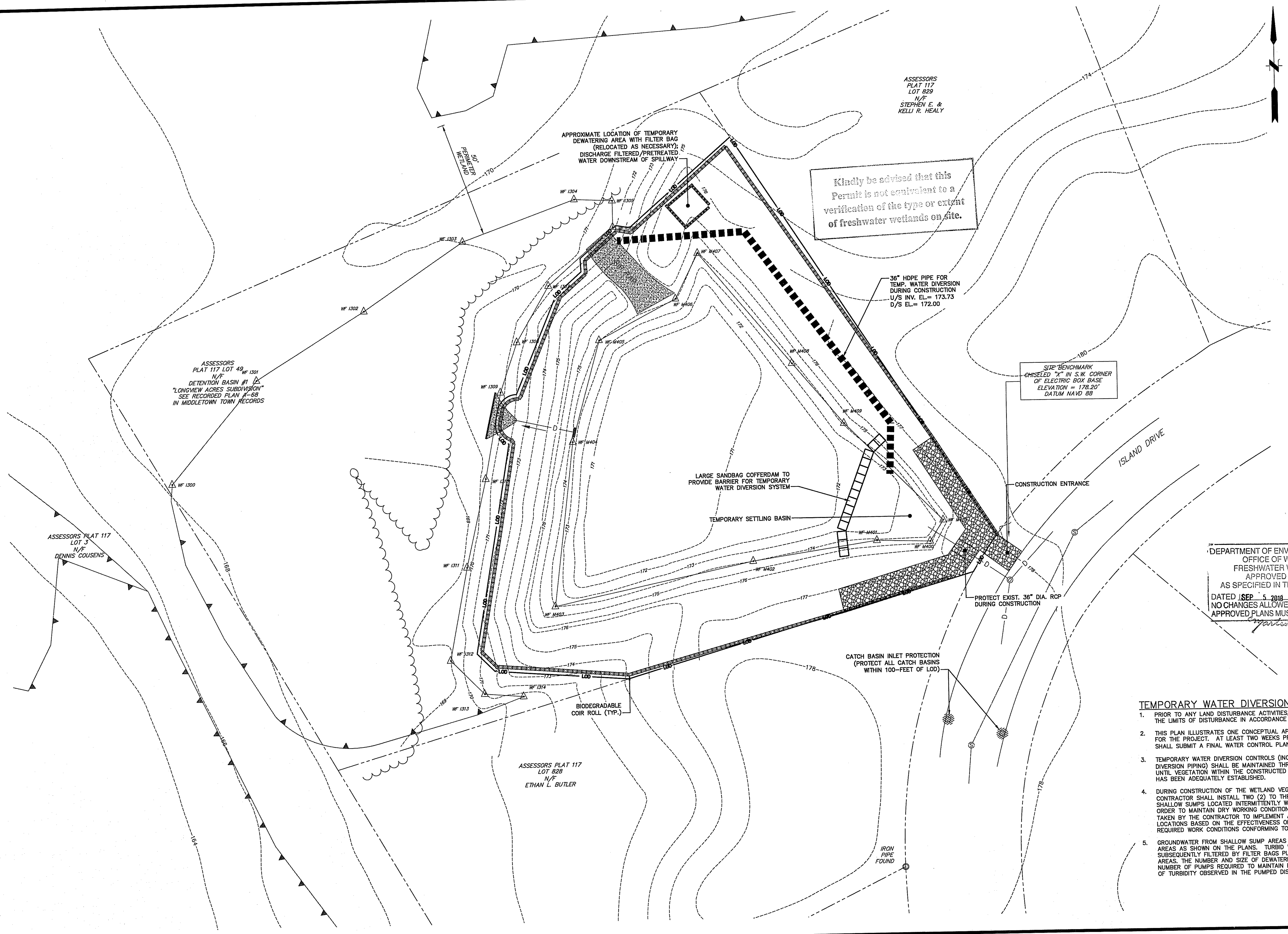
GRAPHIC SCALE

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

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

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

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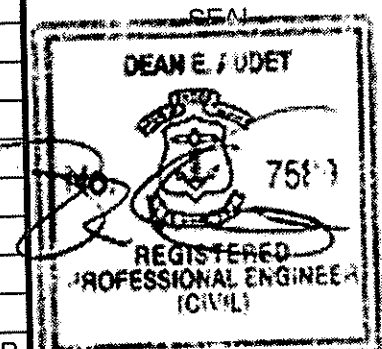
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SIZE BENCHMARK
 CHISELED 7/8" W S.W. CORNER
 OF ELECTRIC BOX BASE
 ELEVATION = 178.20'
 DATUM NAVD 88

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
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Signature: B. W. Wozniak

- TEMPORARY WATER DIVERSION/CONTROL SYSTEM NOTES:**
- PRIOR TO ANY LAND DISTURBANCE ACTIVITIES, THE CONTRACTOR MUST PHYSICALLY MARK THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH THE APPROVED PLANS.
 - 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.
 - 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.
 - 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 WWTs 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.
 - 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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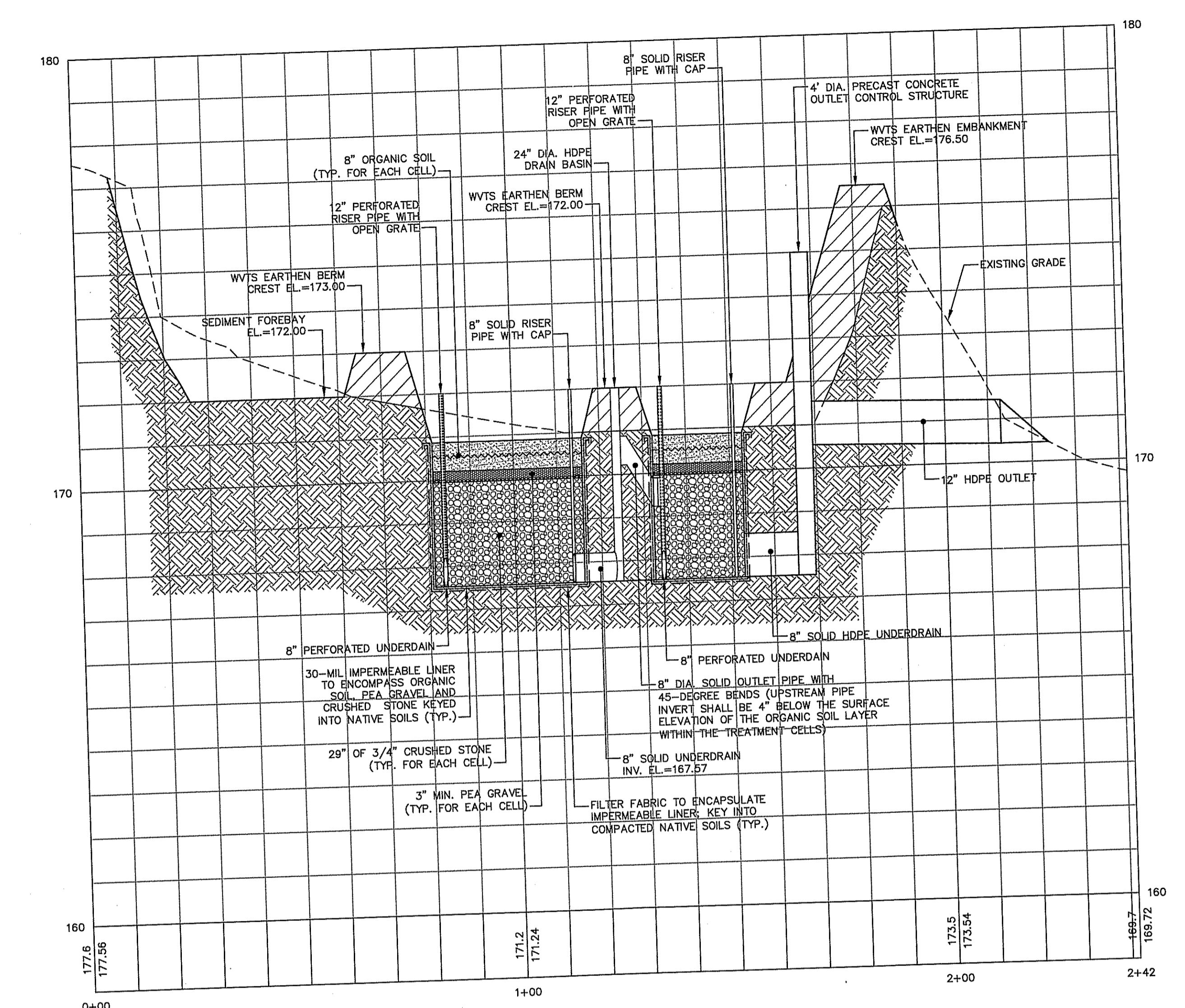
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 VERT.:
 DATUM:
 HORIZ.: NAD83
 VERT.: NAVD88
 GRAPHIC SCALE

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

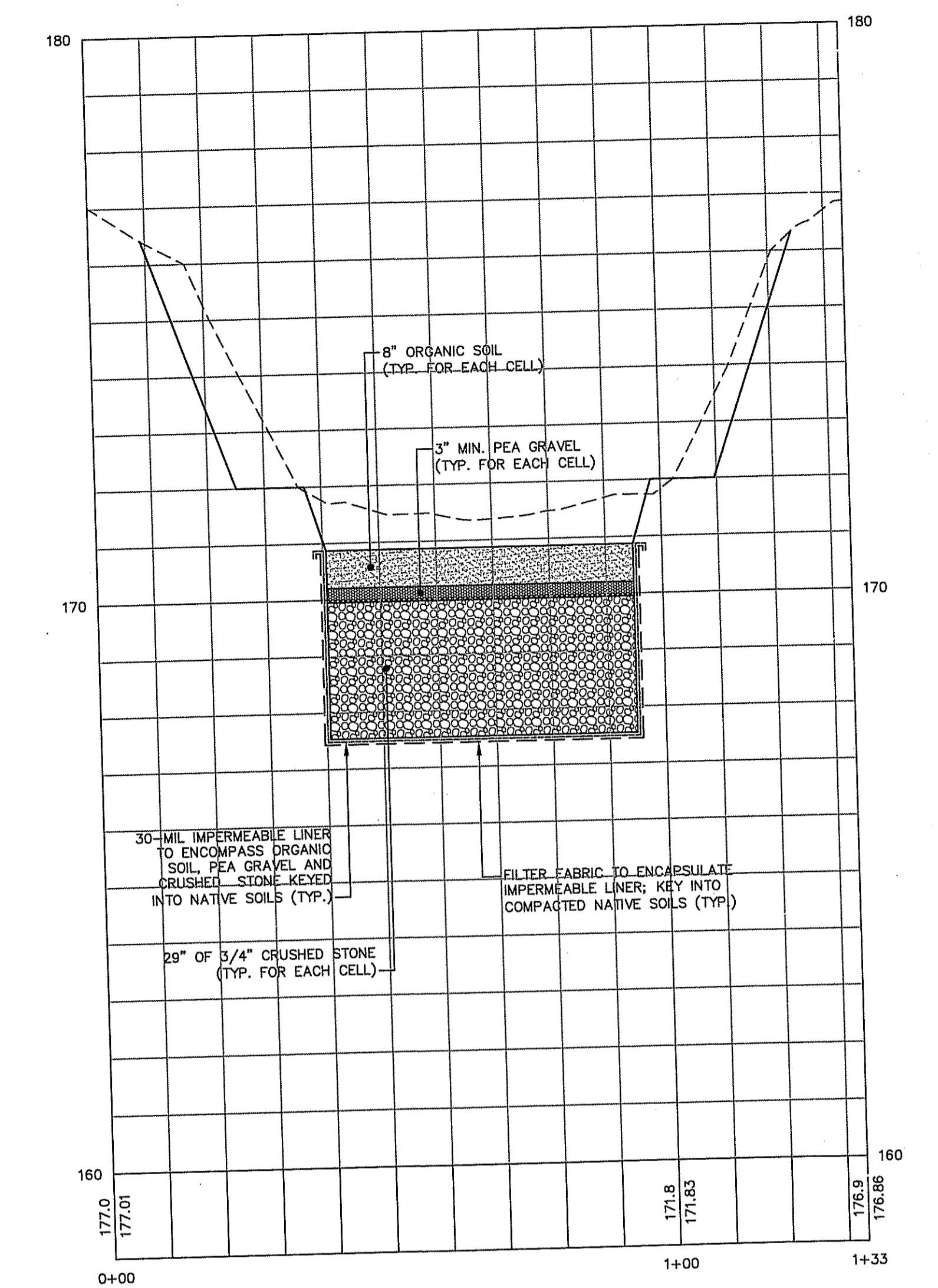
AQUIDNECK ISLAND PLANNING COMMISSION
EROSION AND SEDIMENTATION CONTROL PLAN
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I
 ISLAND DRIVE STORMWATER BMPs
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20151157.A10
 DATE: JUNE 2018
CS-102

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PROFILE STA 0+00 - 2+42
 SCALE: H: 1" = 20'
 V: 1" = 2'

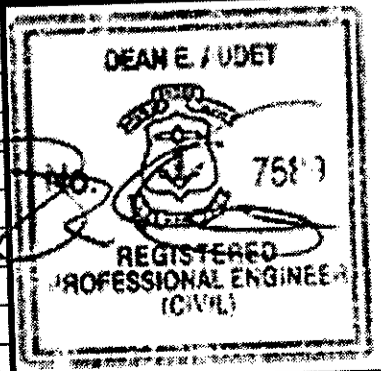


SECTION A
 HOR: 1" = 20', VER: 1" = 2'

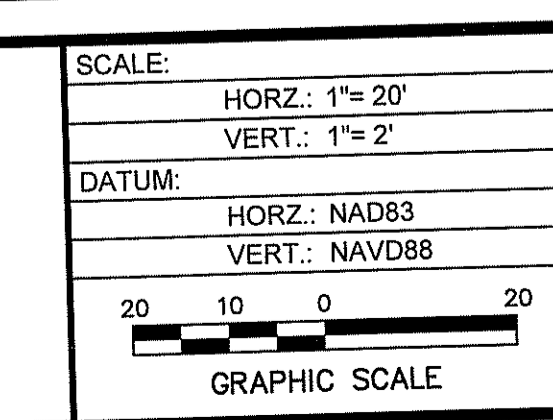
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED SEP 3 2018 FILE # 18-0189
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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Ernestine D. Wamsick

JUL 19 2018

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



SEAL

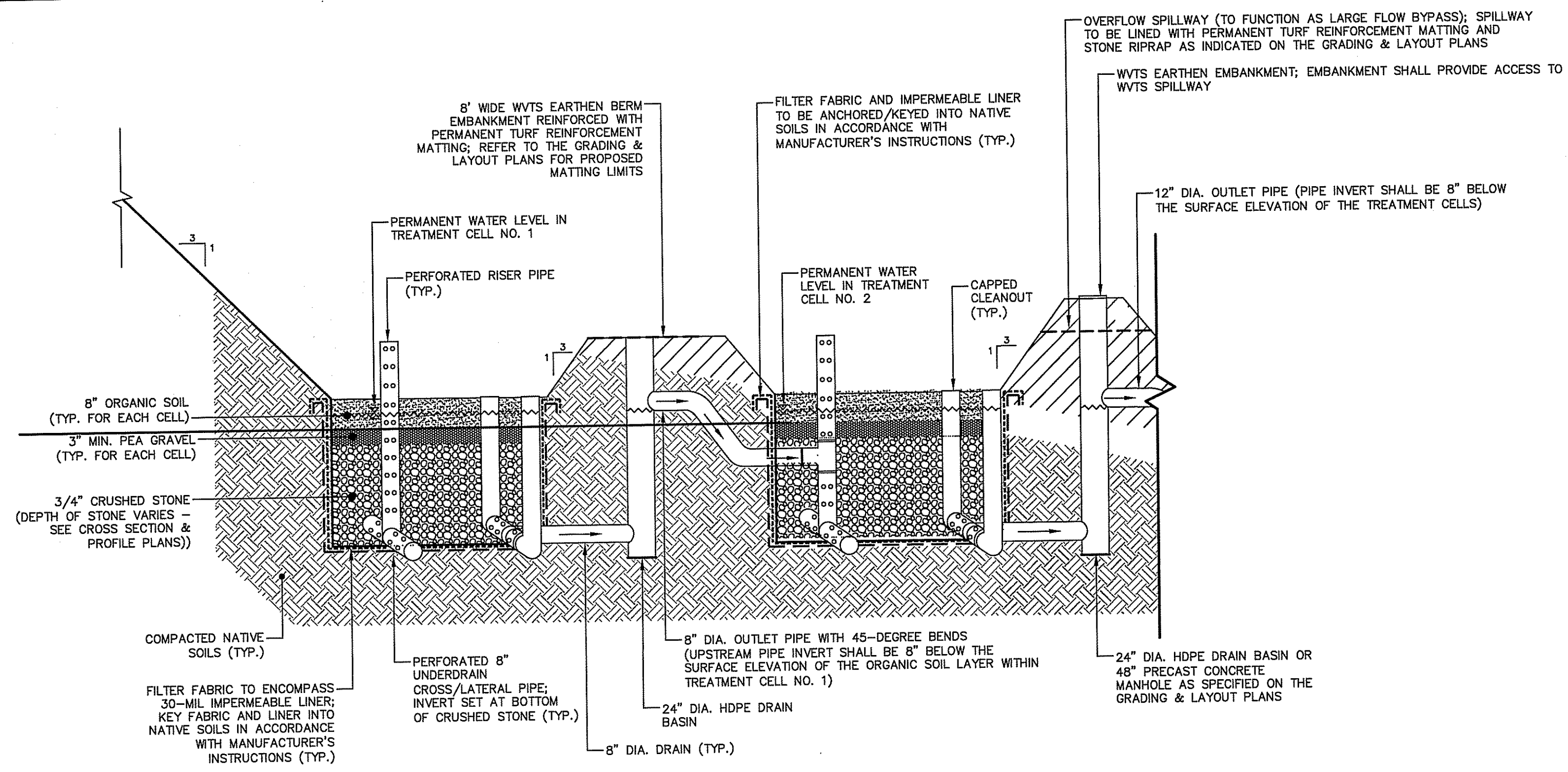


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AQUIDNECK ISLAND PLANNING COMMISSION
 CROSS SECTION & PROFILE PLAN
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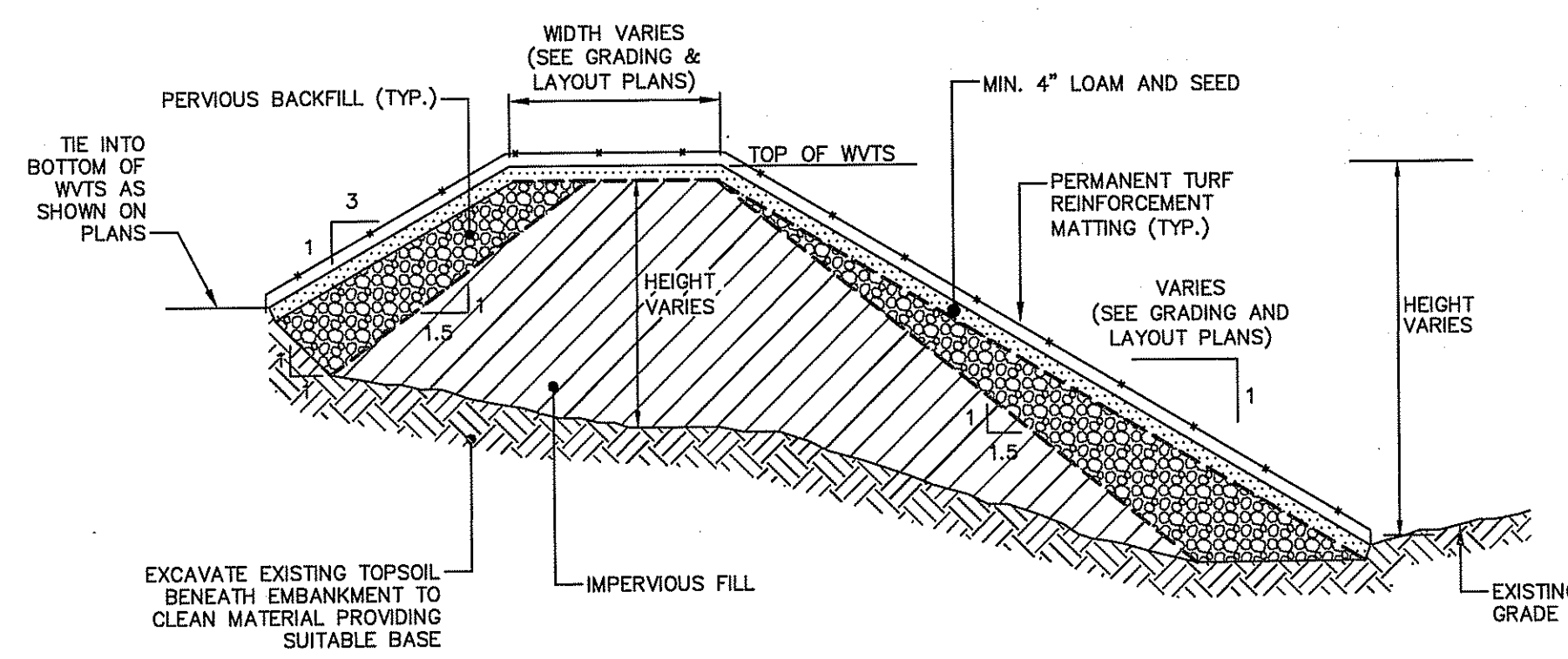
PROJ. No.: 20151157.A10
 DATE: JUNE 2018

CX-301



TYPICAL WET VEGETATED TREATMENT SYSTEM (WVTS) DETAIL

NOT TO SCALE



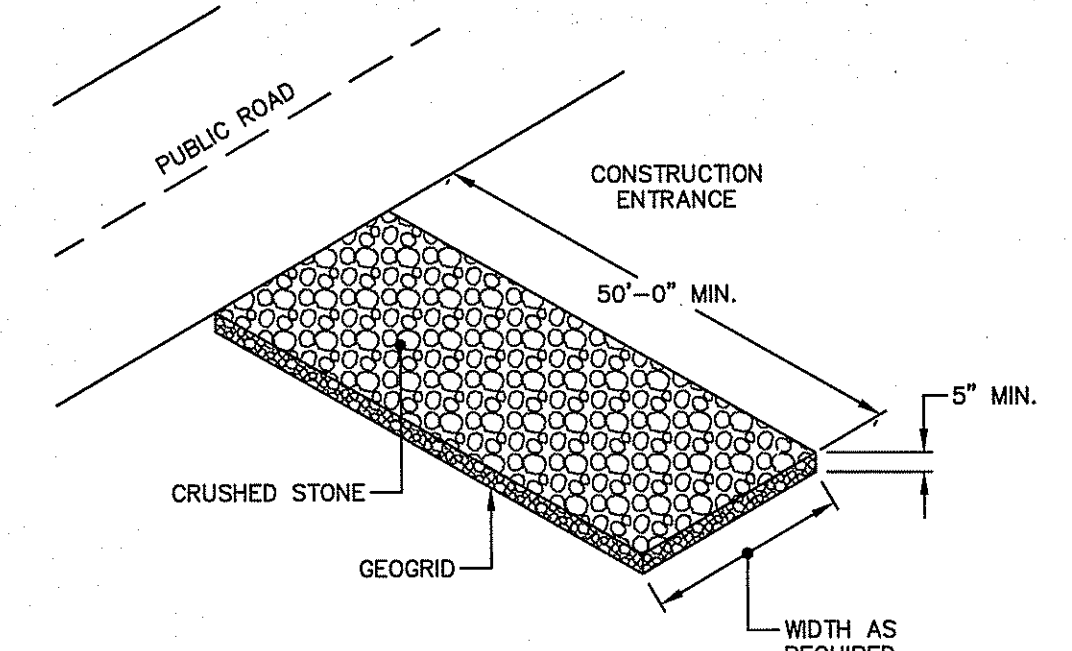
NOTE:
 1. IMPERVIOUS MATERIAL FOR USE IN BASIN EMBANKMENT AREAS AND WHERE SHOWN ON THE PLANS SHALL BE COMPOSED OF CLAYS, SILTY CLAYS, OR CLAYEY SILTS. THE SOIL SHALL BE FREE OF RUBBISH, ICE, VEGETATIVE MATTER, LOAM, OR OTHER DEBRIS AND HAVE THE FOLLOWING GRADATION AS DEFINED BY A STANDARD SEIVE TEST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

2. PVIOUS 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 OW, OY, OM, 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 EARTHEN EMBANKMENT/BERM DETAIL

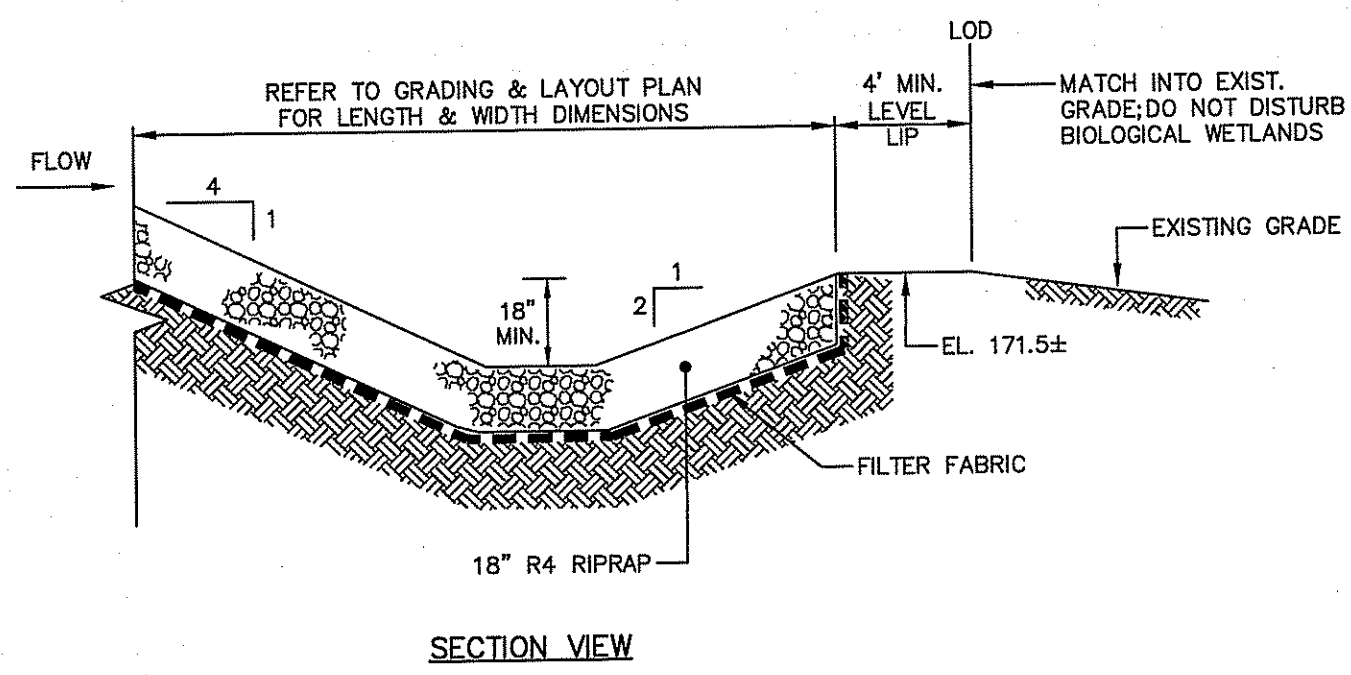
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NOTE:
 SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.

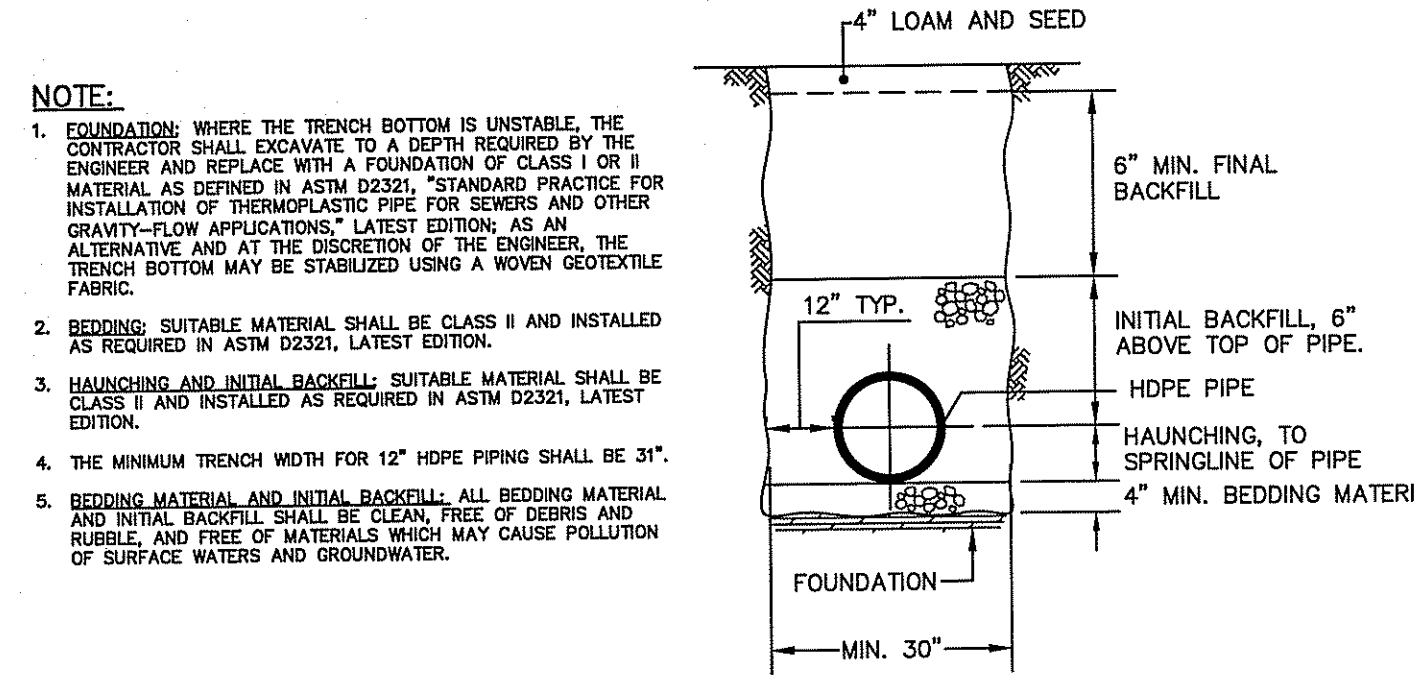
CONSTRUCTION ENTRANCE (R.I. STD. 9.9.0)

NOT TO SCALE



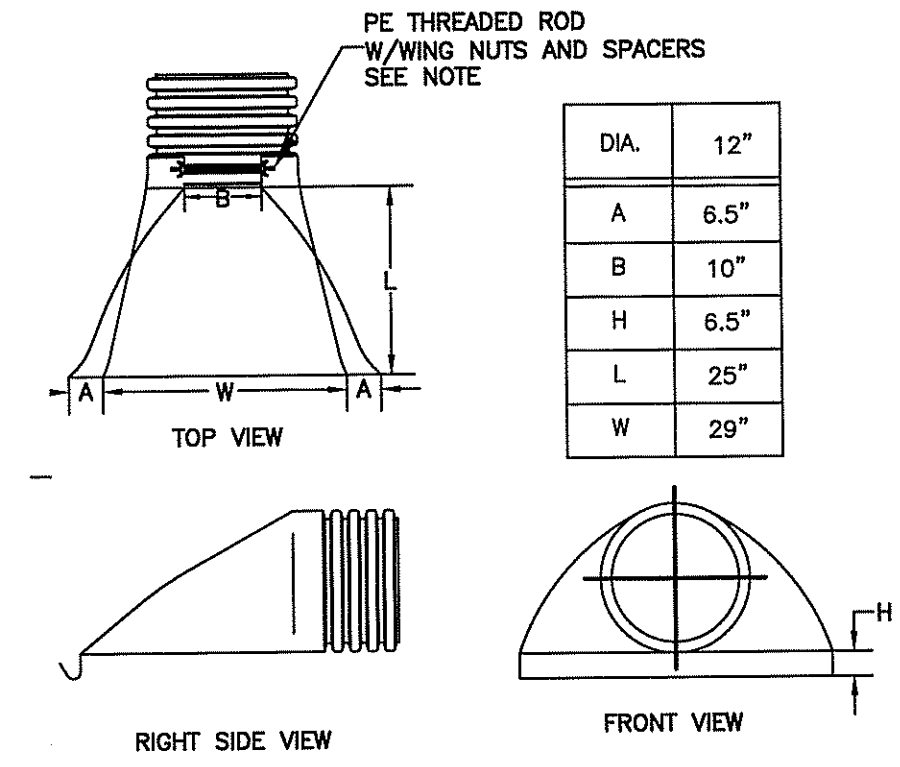
STONE ENERGY DISSIPATOR

NOT TO SCALE



STORM DRAIN TRENCH FOR HDPE PIPE

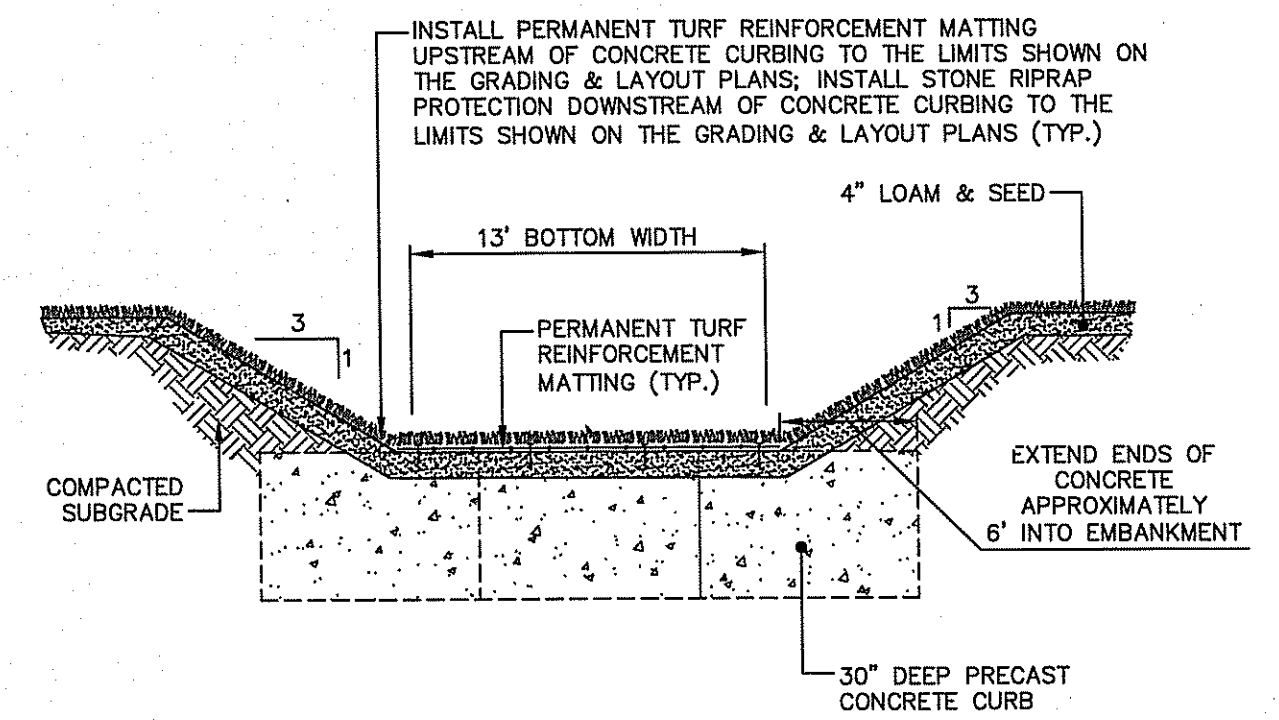
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NOTES:
 1. SHALL BE MANUFACTURED WITH POLYETHYLENE RESINS AS DESCRIBED AND DEFINED IN ASTM D3350. WHEN PROVIDED, THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.

HDPE FLARED END SECTION AND TRASH GUARD

NOT TO SCALE



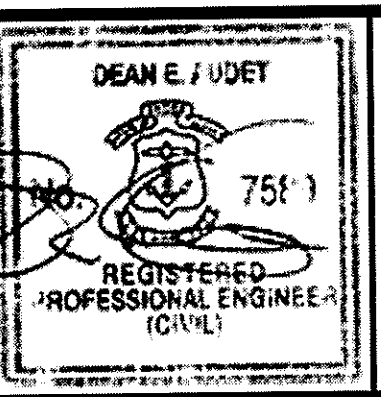
WVTS SPILLWAY TYPICAL DETAIL

NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
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 DATED SEP 5 2018 FILE # 18-0189
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 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Matthew D. Wamack

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 LAYER STATE:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



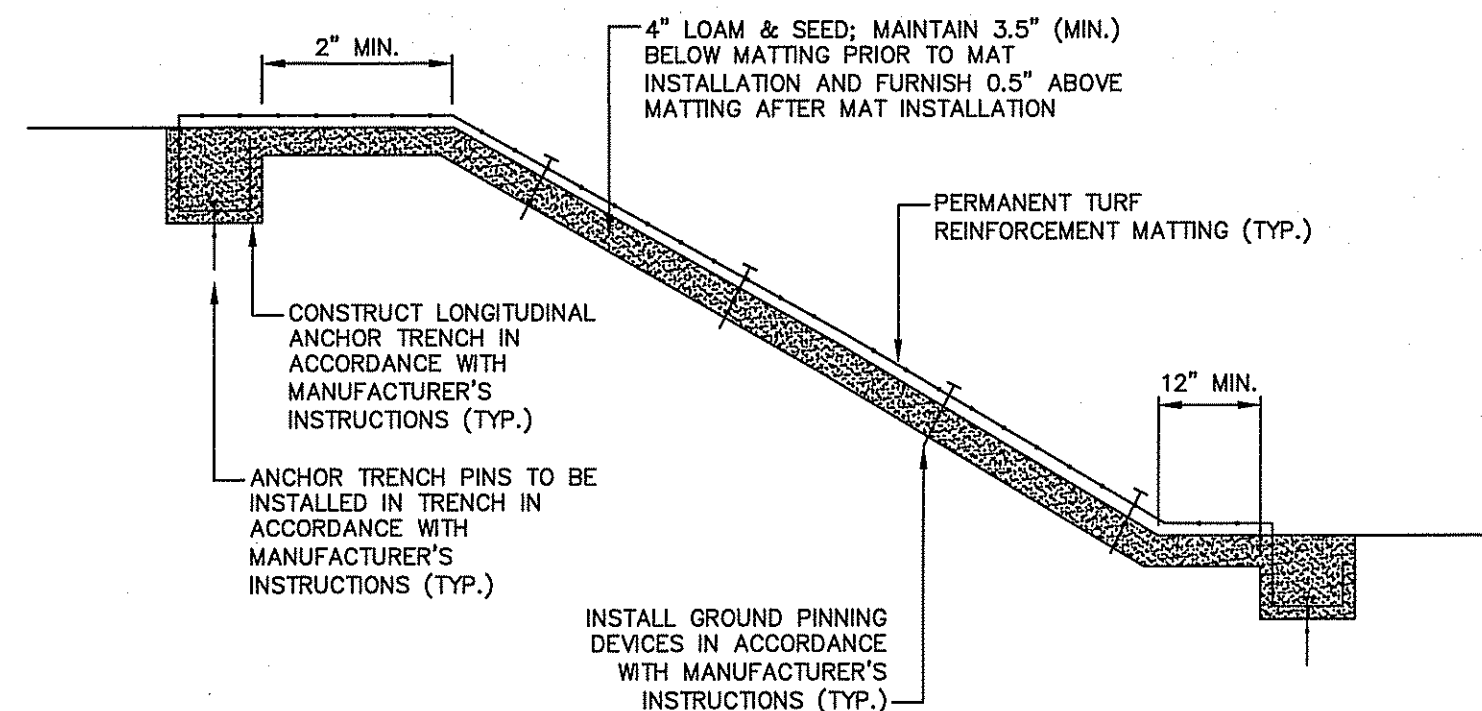
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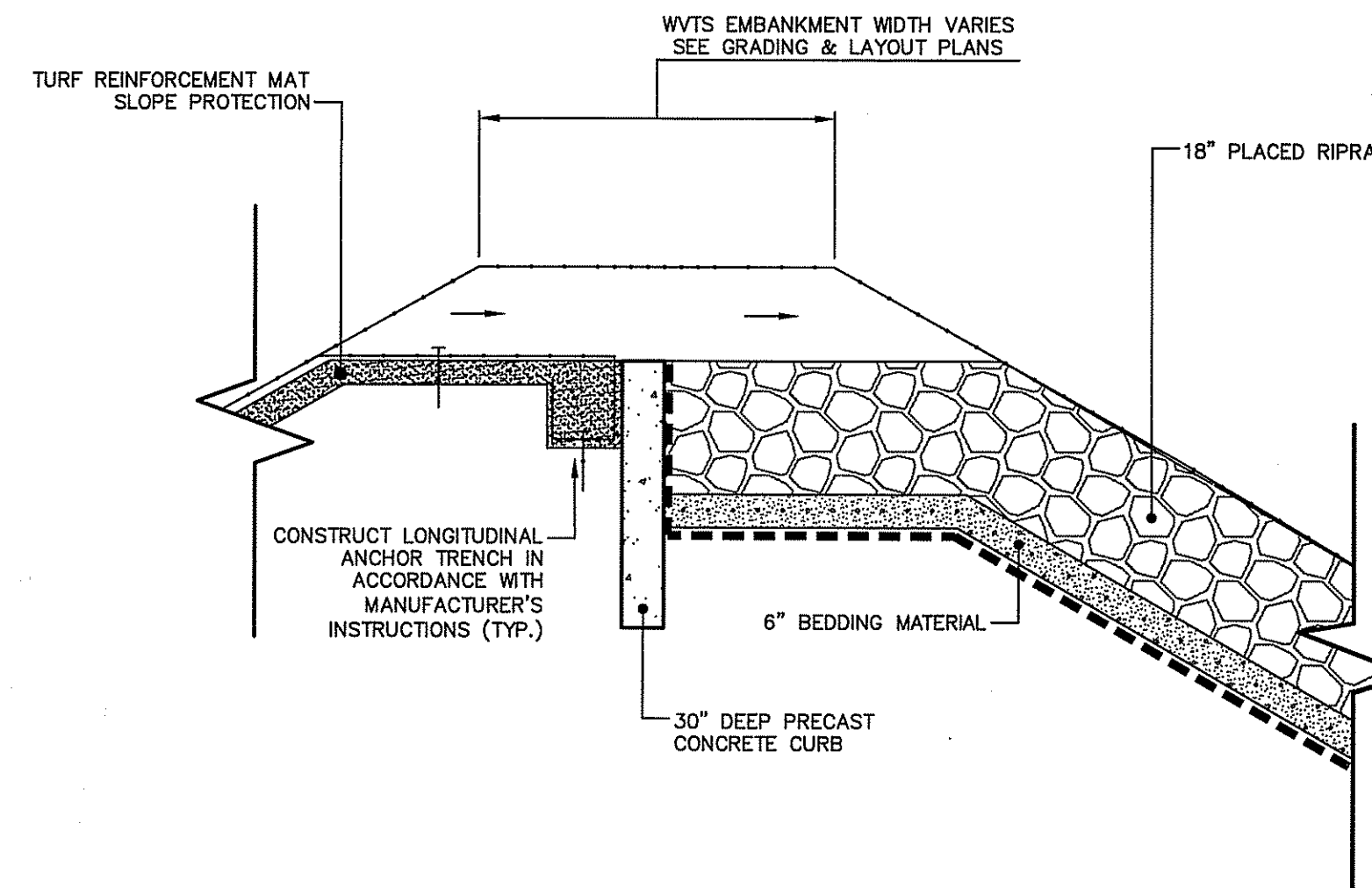
f **FUSS & O'NEILL**
 317 IRON HORSE WAY, SUITE 204
 PROVIDENCE, RI 02908
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AQUIDNECK ISLAND PLANNING COMMISSION
 DETAILS
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I
 ISLAND DRIVE STORMWATER BMPs
 MIDDLETOWN RHODE ISLAND

PROJ. No.: 20151157.A10
 DATE: JUNE 2018
CD-501

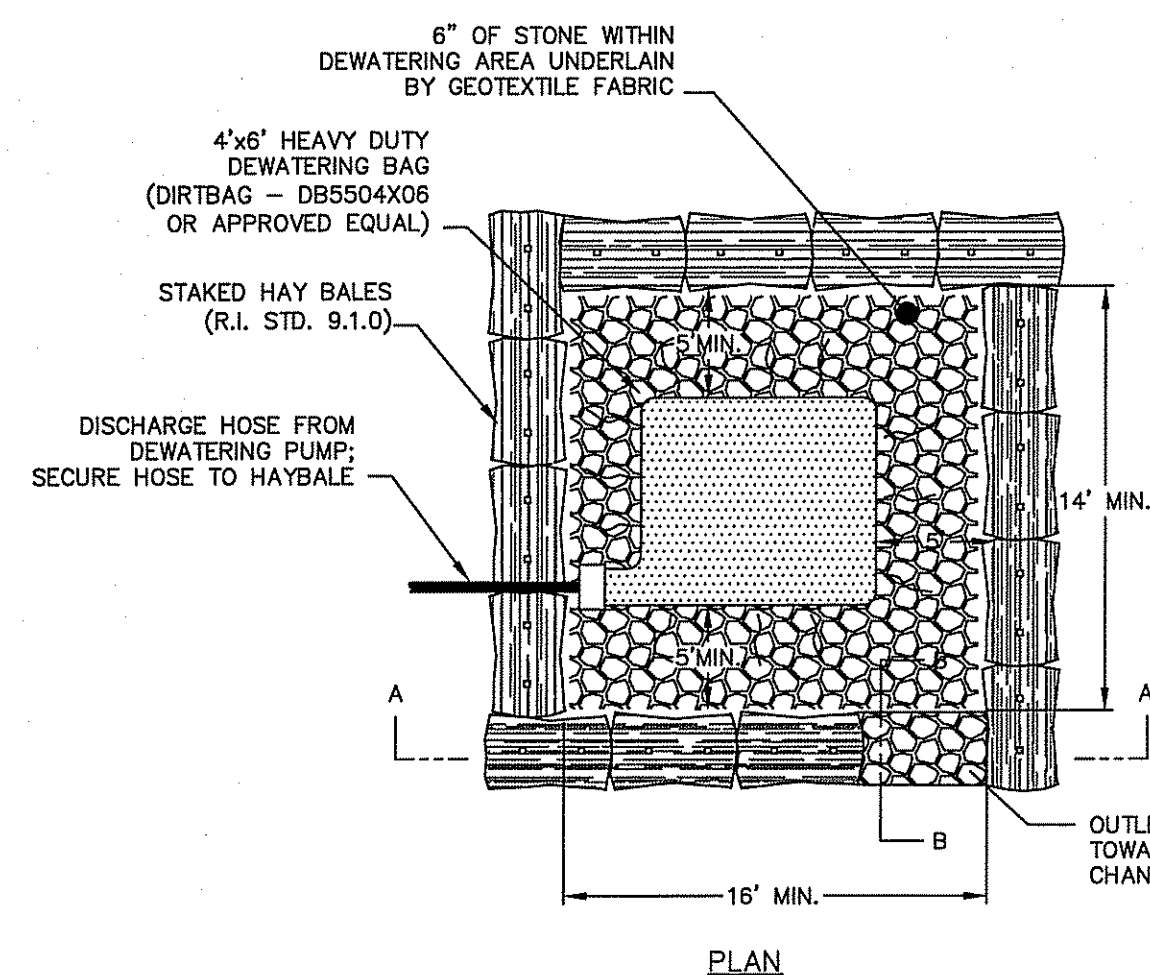


TURF REINFORCEMENT MAT SLOPE PROTECTION
NOT TO SCALE

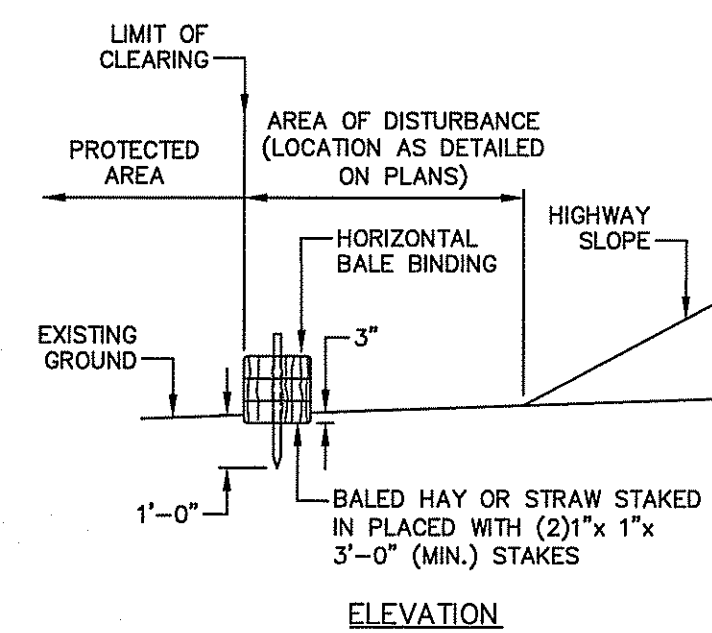
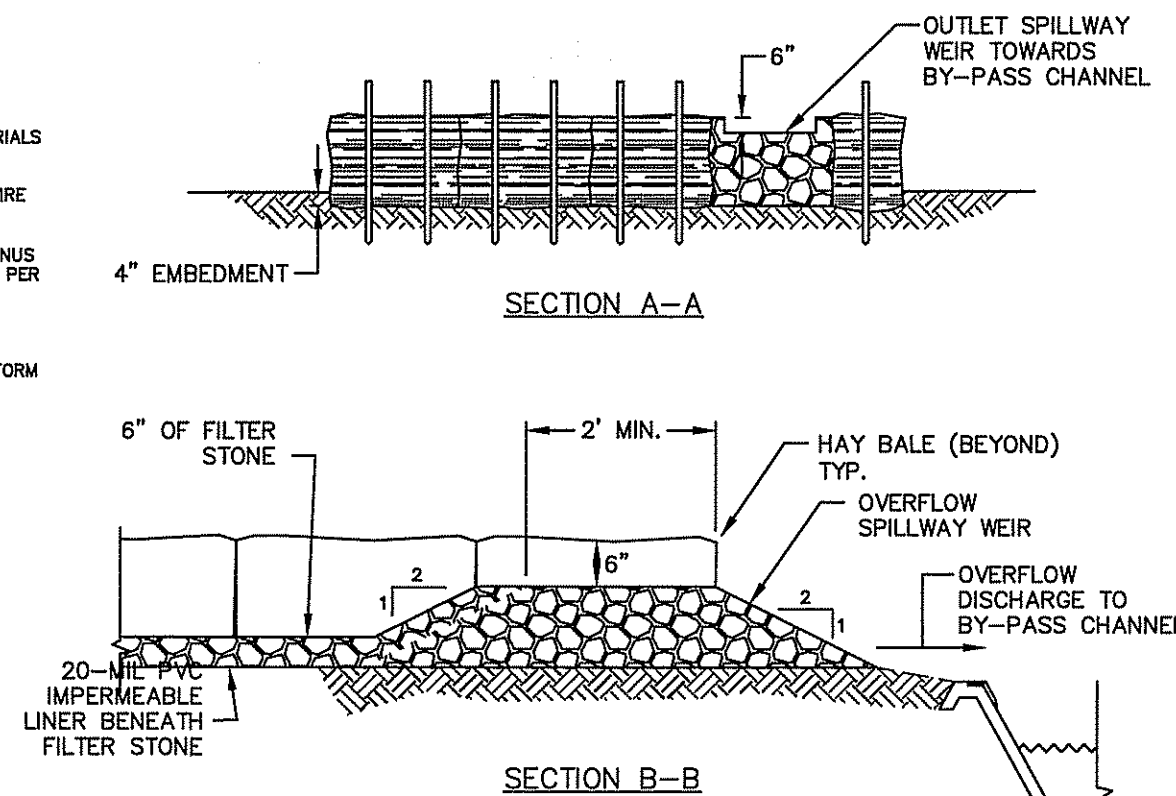


NOTE:
1. NATIONAL STONE ASSOCIATION (NSA) NO. "R-4" RIP-RAP, AS SPECIFIED BY RIDOT M.10.03.2, TO BE USED.

TYPICAL WVTS SPILLWAY
NOT TO SCALE



NOTES:
1. HAY BALES FOR EROSION CONTROL SHALL CONFORM TO SECTION 209 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 FS-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.



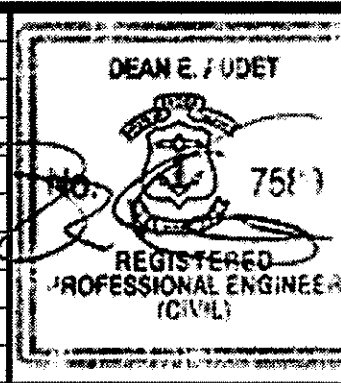
NOTES:
1. THE DEWATERING BAG, DIRTBAG® DB55 OR APPROVED EQUAL, SHALL BE HEAVY DUTY AND CONSIST OF A NONWOVEN BAG SEWN WITH A DOUBLE NEEDLE MATCHING USING A HIGH STRENGTH THREAD.
2. EACH DEWATERING BAG SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE A 4-INCH DISCHARGE HOSE. THE BAG SHALL BE PROVIDED 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 OVERFILLING 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

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Matthew D. Wenzel

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



SEAL	
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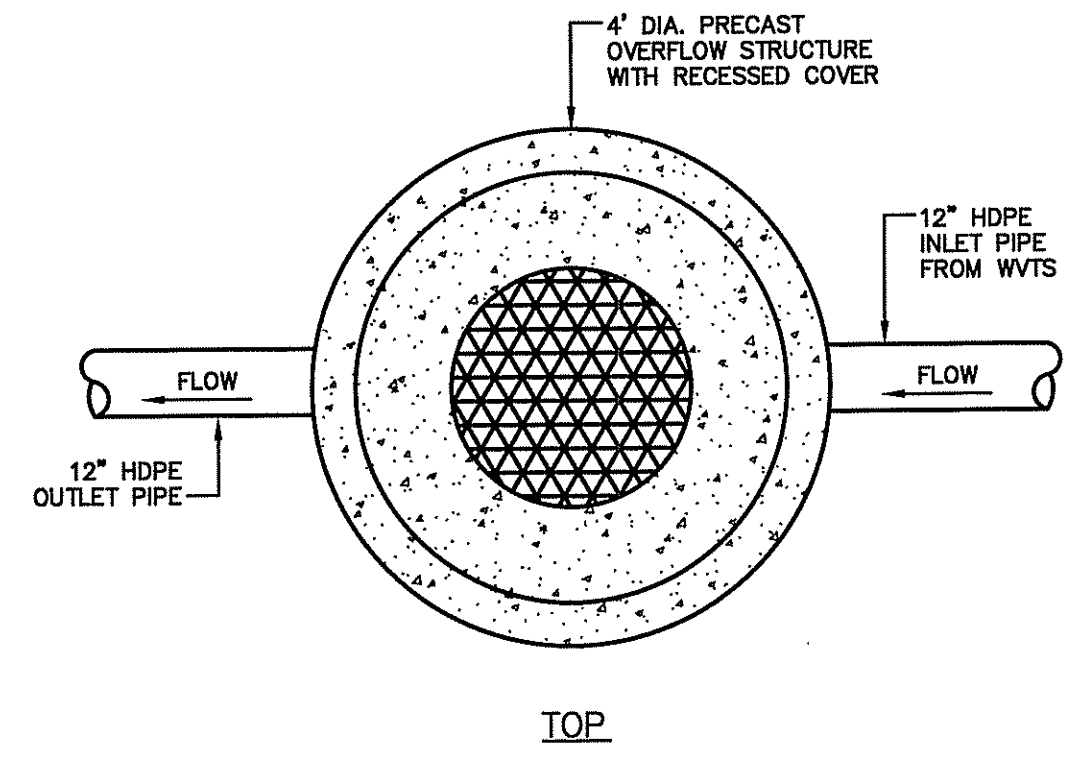
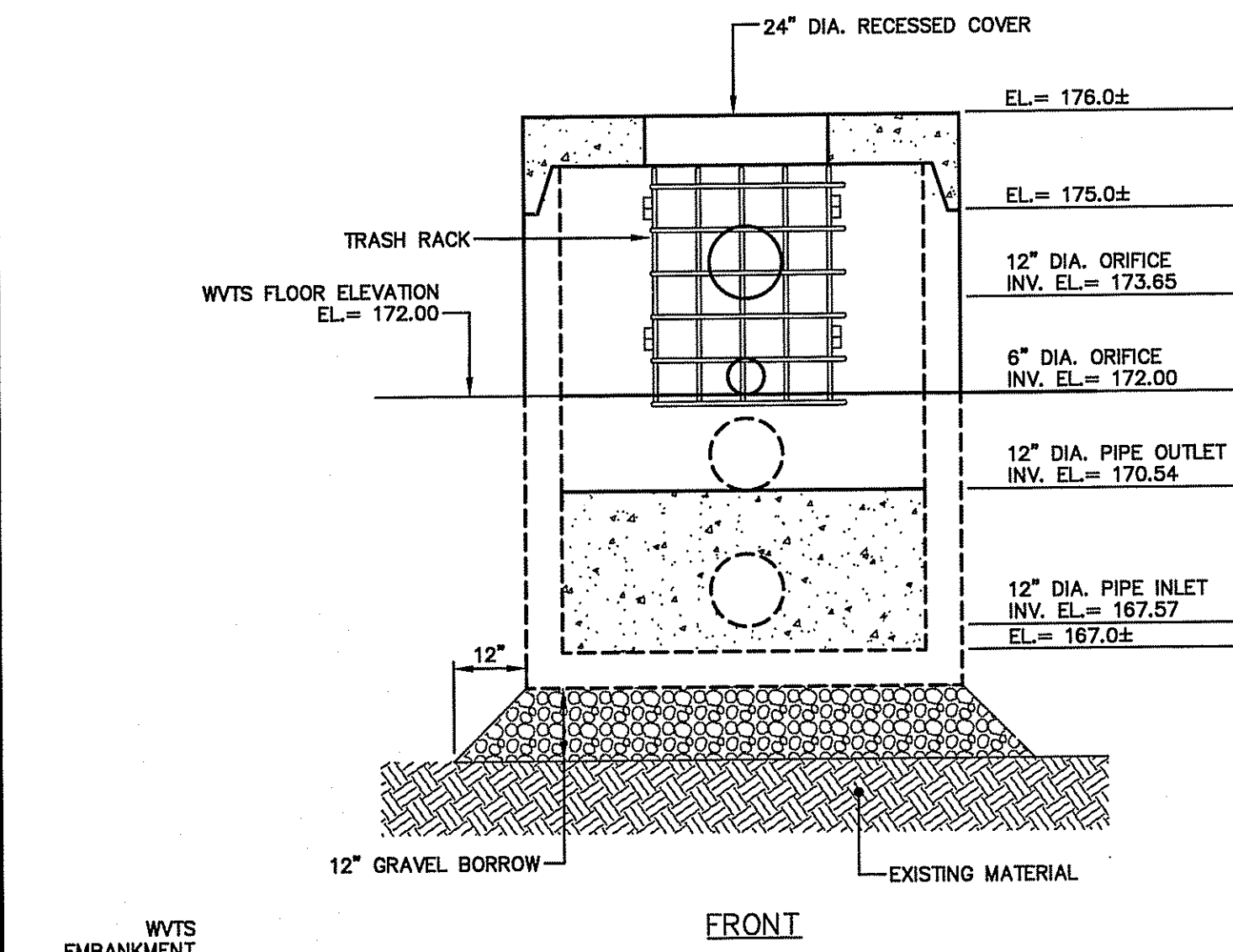
SCALE:	HORZ.: AS NOTED
	VERT.:
DATUM:	HORZ.: NAD83
	VERT.: NAVD88
GRAPHIC SCALE	

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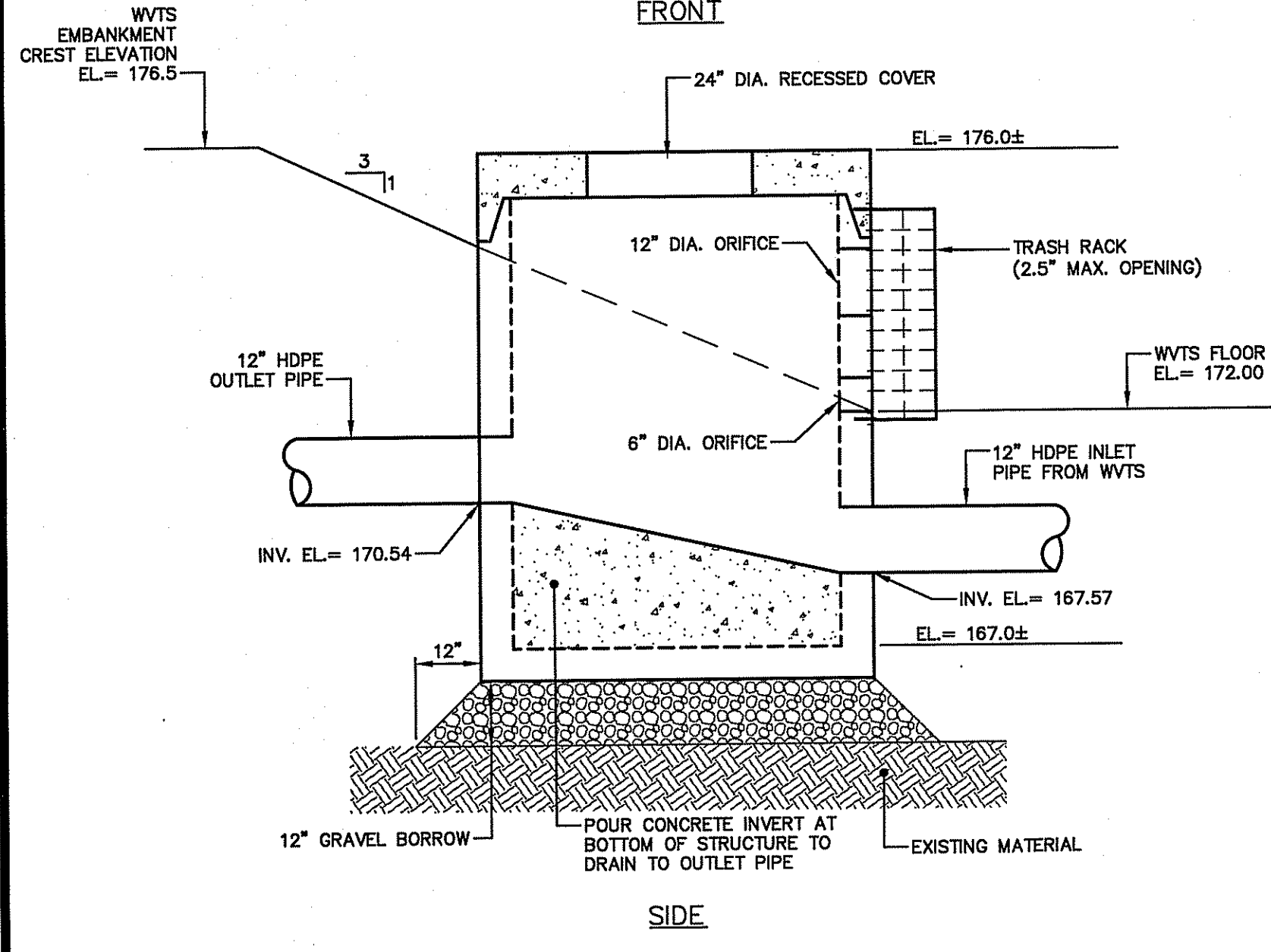
PROJ. No.: 20181517.A10
DATE: JUNE 2018
CD-502

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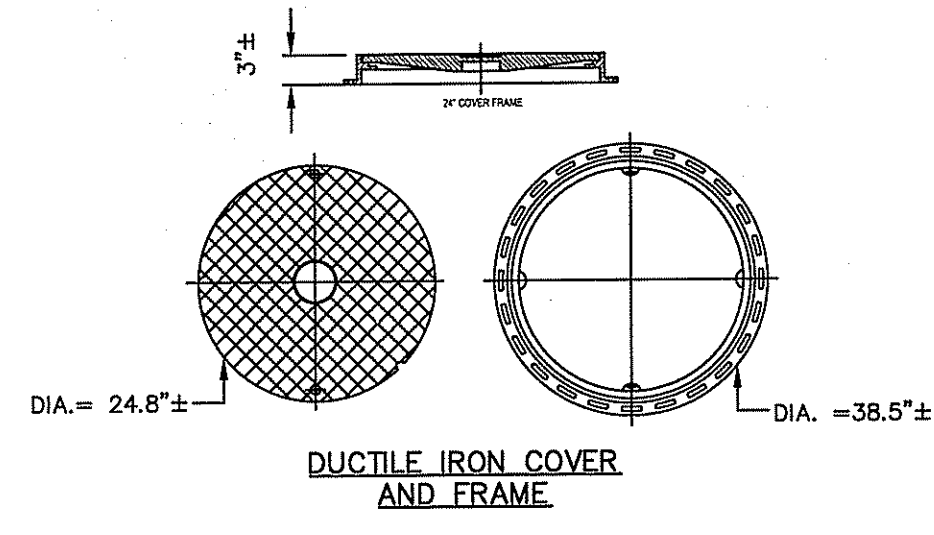
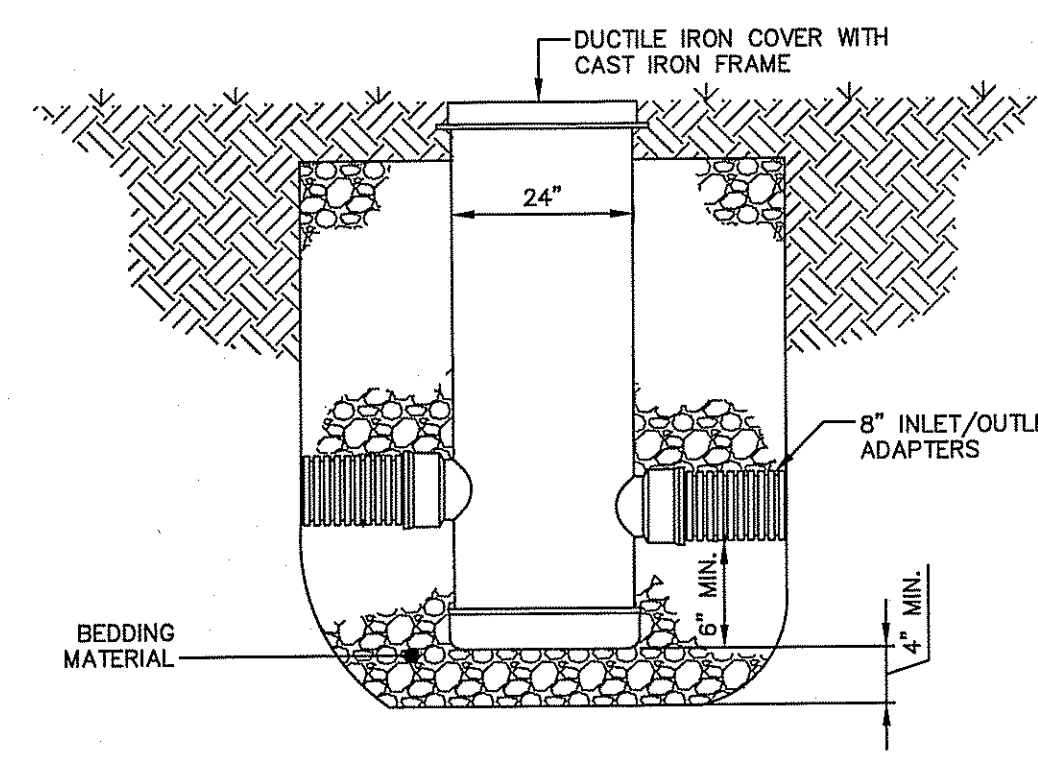


ALTERNATE TOP SLAB
(STEEL REINFORCED FOR HS-25 LOADING)

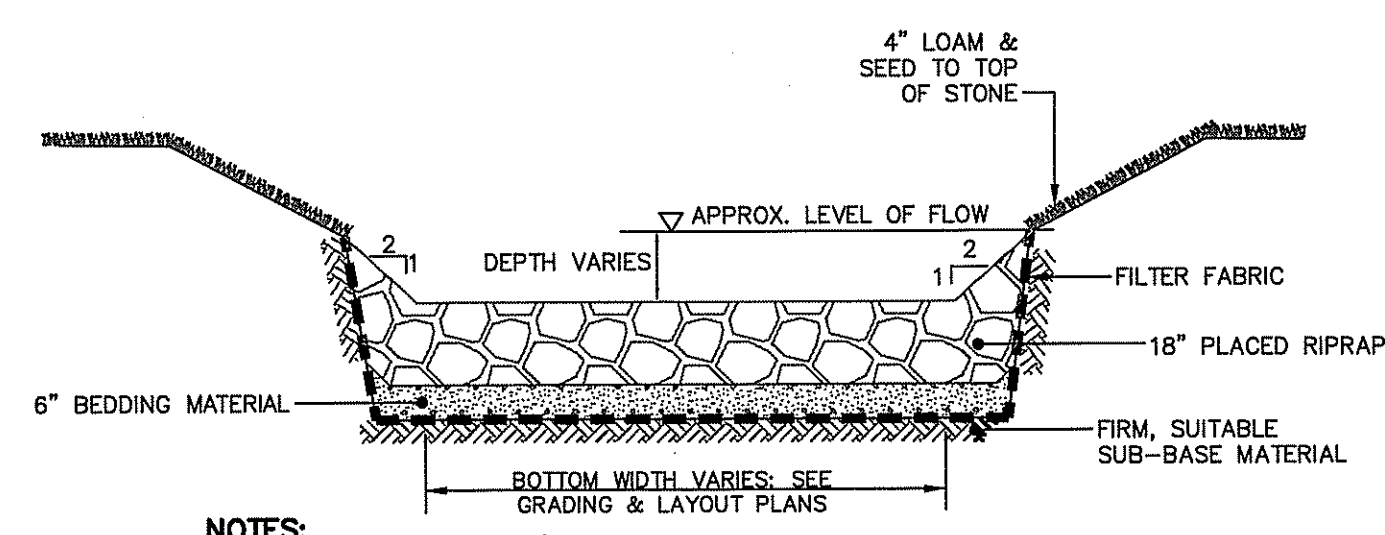
- NOTES:**
- COVER SHALL BE RECESSED IN TOP SLAB.
 - REINFORCING STEEL SHALL CONFORM TO ASTM A-185:
 - 0.12 SQ. IN./LIN. FT. CIRCUMFERENTIAL
 - 0.18 SQ. IN./FT. (BOTH WAYS)
 - BASE BOTTOM
 - CONCRETE SHALL BE COMPRESSIVE STRENGTH 4,000 PSI TYPE II CEMENT.
 - ONE POUR MONOLITHIC BASE SECTION.
 - WATERTIGHT SEAL AT PIPE CONNECTIONS SHALL BE MADE WITH RUBBER MANHOLE BOOT.
 - JOINT SEALANT SHALL BE PREFORMED BUTYL RUBBER MASTIC TYPE SEAL THAT COMPLIES WITH AASHTO M198 OR SYNTHETIC RUBBER GASKET THAT COMPLIES WITH ASTM C-443 OR C-361.
 - CATCH BASIN DESIGN SHALL CONFORM TO ASTM C-478 FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTION."
 - CATCH BASIN STEPS SHALL BE ASTM A 615/A615M, DEFORMED, 1/2-INCH STEEL REINFORCED RODS ENCASED IN ASTM D 4101, POLYPROPYLENE PLASTIC. THE CENTERLINE OF OPENING MUST BE WITHIN 2'-0" FROM STEPS.
 - ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
 - TRASH RACKS BY PLASTIC SOLUTIONS, INC. (OR APPROVED EQUAL).



WVTS OUTLET CONTROL STRUCTURE
NOT TO SCALE



24" HDPE DRAIN BASIN
NOT TO SCALE

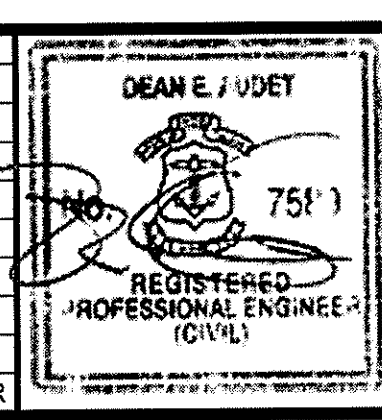


- NOTES:**
- NATIONAL STONE ASSOCIATION (NSA) NO. "R-4" RIP-RAP, AS SPECIFIED BY RIDOT M.10.03.2, TO BE USED.
 - UPPER BANKS OF STREAM AND SURROUNDING TOP OF BANK AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AND RESTORED.

STONE RIPRAP LINED CHANNEL
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS
 AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED SEP 5 2018 FILE # 18-0189
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Anthony D. Wancek

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.				



SEAL	

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

FUSS & O'NEILL
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AQUIDNECK ISLAND PLANNING COMMISSION
 DETAILS
 AQUIDNECK ISLAND WATERS PROJECT - PHASE I
 ISLAND DRIVE STORMWATER BMPs
 MIDDLETOWN RHODE ISLAND

PROJ. No. 20151157.A10
 DATE: JUNE 2018
CD-503

