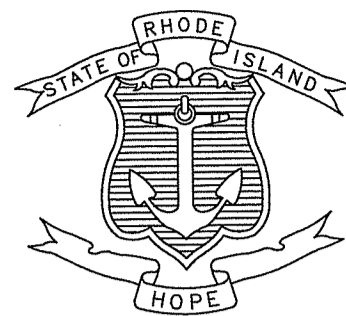


FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2020	1	21

INDEX OF DRAWINGS

SHEET No.	DESCRIPTION
1	COVER SHEET
2	STANDARD PLAN SYMBOLS & STANDARD LEGEND
3-4	STANDARD NOTES - 1 THRU 2
5	JOB SPECIFIC PLAN SYMBOLS, LEGEND AND NOTES
6	TYPICAL SECTIONS
7	GENERAL PLAN
8	DRAINAGE AND UTILITY PLAN
9	DRAINAGE DETAILS
10	LIST OF ABBREVIATIONS
11-14	BRIDGE GENERAL NOTES SHEET 1 THRU 4
15	BRIDGE GENERAL PLAN
16	PROFILES & ELEVATION
17	LONGITUDINAL & TRANSVERSE SECTIONS
18	DEMOLITION PLAN AND DETAILS SHEET 1
19	DEMOLITION PLAN AND DETAILS SHEET 2
20	TYPICAL ABUTMENT DETAILS SHEET 1
21	WINGWALL ELEVATIONS

STATE OF RHODE ISLAND

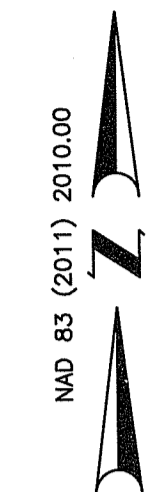
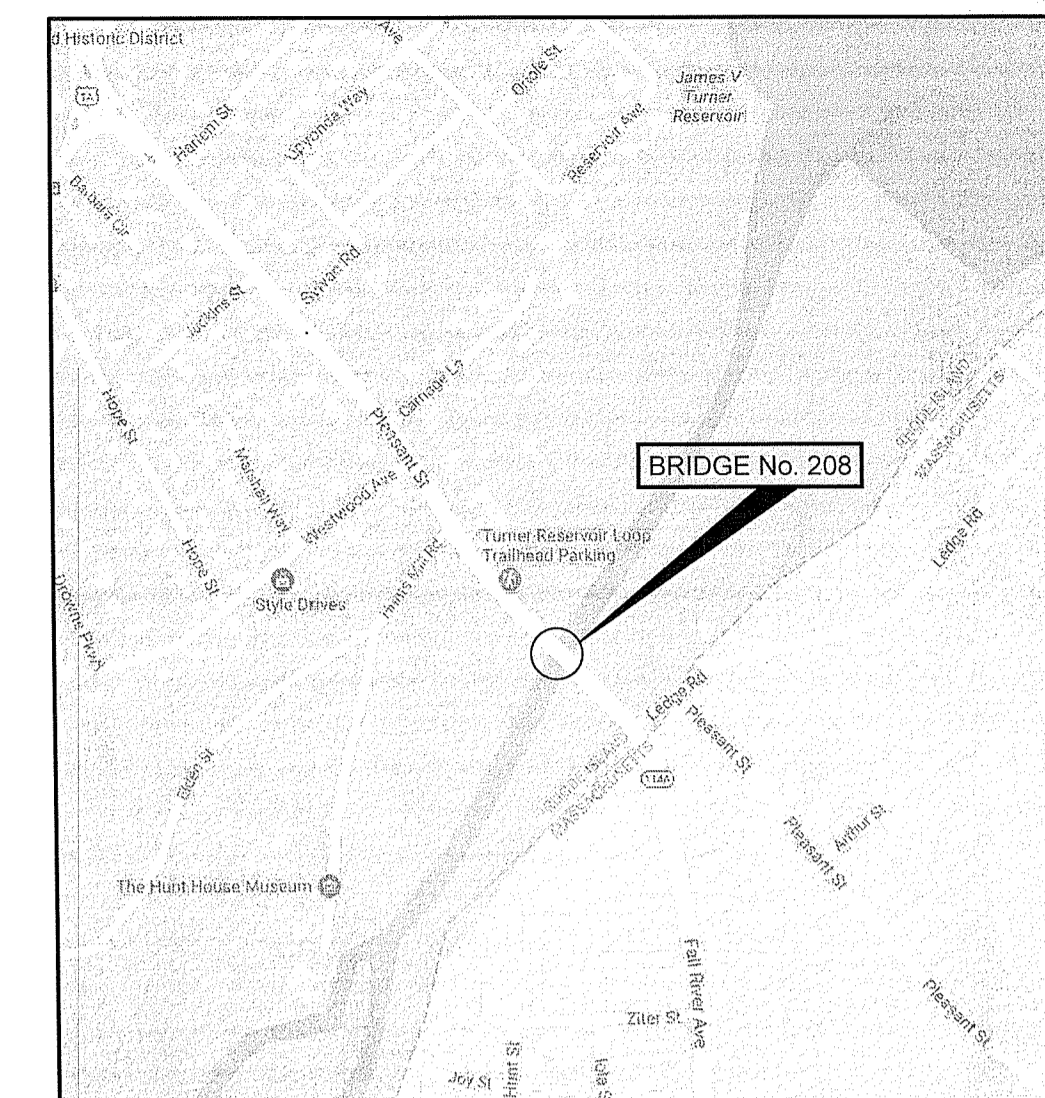


DEPARTMENT OF TRANSPORTATION

PLANS, PROFILES AND SECTIONS OF PROPOSED
BRIDGE REPLACEMENT
HUNTS MILLS BRIDGE No. 208 (69E)

CITY OF EAST PROVIDENCE
COUNTY OF PROVIDENCE

R.I. CONTRACT NO. 2019-CB-XXX F.A. PROJECT NO. BHO-XXXX (001)
PROJECT LENGTH = 0.1 MILES



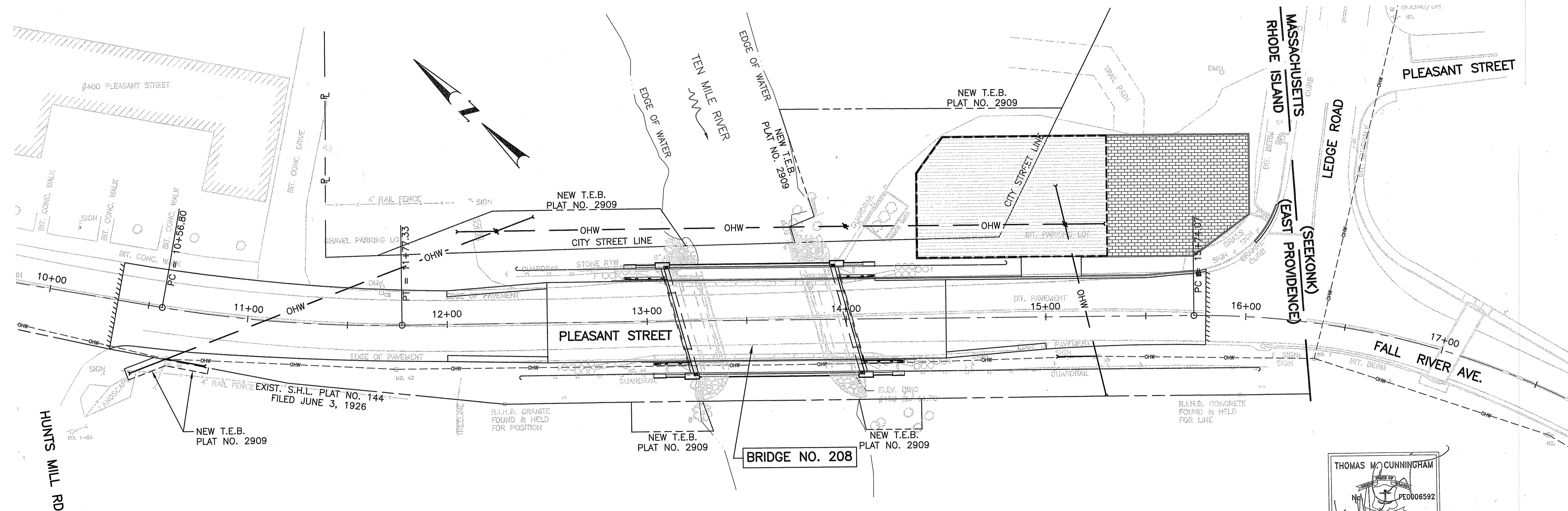
LOCUS MAP
NOT TO SCALE

DESIGN DESIGNATION

PLEASANT STREET
 2019 AADT = 11,420 V.P.D.
 2039 AADT = 17,000 V.P.D.
 2019 DHV = 1,120 V.P.H.
 2039 DHV = 1,620 V.P.H.
 D = 50% EB/50% WB
 K = 9.5%
 T = 4.1%
 V = 30 M.P.H.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
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NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Justin D. Wenczek

RIDEM SUBMISSION
AUGUST 19, 2020



LAYOUT PLAN
SCALE: 1"=30'

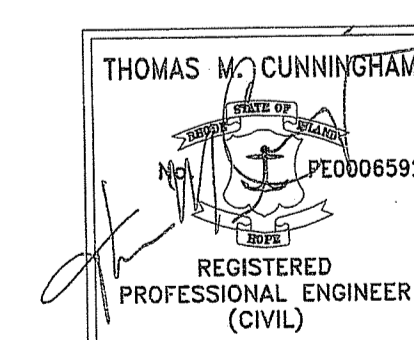
SCALES OF DRAWINGS

Plans	1 inch = 30 feet
Profiles	1 inch = 20 feet Horizontal
Profiles	1 inch = 4 feet Vertical
Cross Sections	1 inch = 4 feet Horizontal
Cross Sections	1 inch = 4 feet Vertical

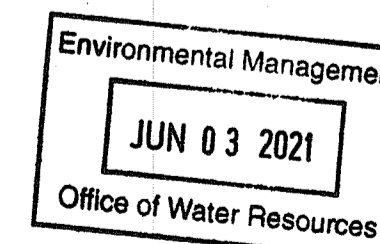
BASE OF LEVELS

NAVD 1988 VERTICAL
RISP COORDINATE SYSTEM
NAD 83(2011) EPOCH 2010.00

R.I. STANDARD SPECIFICATIONS AND STANDARD DETAILS
SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2004 EDITION (AMENDED MARCH 2018) WITH ALL REVISIONS, AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS. STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 1998 EDITION, WITH ALL REVISIONS.



COMMONWEALTH ENGINEERS & CONSULTANTS, INC.



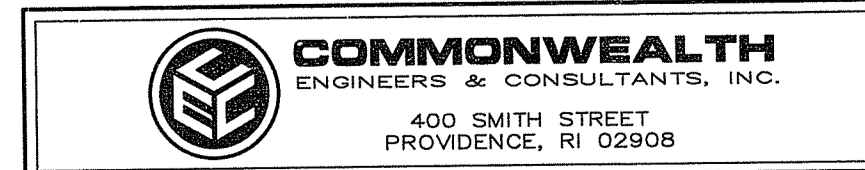
R.I. DEPARTMENT OF TRANSPORTATION	
APPROVED	
ADMINISTRATOR, PROJECT MANAGEMENT	DATE
APPROVED	
CHIEF ENGINEER OF INFRASTRUCTURE	DATE
APPROVED	
DIRECTOR	DATE
US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	
DIVISION ADMINISTRATOR	DATE

Contract Number 2019-CB-XXX

Volume Number 1

Number of Sheet 1

Total Sheets 21



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2020	5	21

JOB SPECIFIC LEGEND

- (4.4.0M) MODIFIED PRECAST 4'-0" ROUND CATCH BASIN WITH 4'-0" DEEP SUMP STD. 4.4.0M
- (26.1.0) FLUORESCENT TRAFFIC CONE
- (34.1.0M) GUARDRAIL STEEL BEAM SINGLE FACE EARTH AND ASPHALT MASH STD. 2'-7" HEIGHT
- (CFS) COMPOST FILTER SOCK 12 INCH DIAMETER
- (CW) TEMPORARY CROSSWALK 12" WHITE FAST DRYING WATERBORNE PAVEMENT MARKING PAINT RI STD. 20.3.0 (8' LINE/2' GAP)
- (DGC) REMOVE AND DISPOSE GRANITE CURB
- (GR-B) GUARDRAIL END TREATMENT (TEST LEVEL 2) 901.9903
- (GRCB) GUARDRAIL CONNECTION TO END POST APPROACH SECTION WITH NESTED RAIL (901.9901)
GUARDRAIL CONNECTION TO END POST TRAILING END SECTION WITHOUT NESTED RAIL (901.9902)
- (M) PLACEMENT OF MILLINGS BENEATH GUARDRAIL
- (P) 2" REMOVING BITUMINOUS PAVEMENT BY MICRO MILLING
2" MODIFIED CLASS 12.5 HMA SURFACE COURSE
- (P-1) 2" MODIFIED CLASS 12.5 HMA SURFACE COURSE
4" MINIMUM CLASS 19 HMA BASE COURSE (MATCH EXISTING DEPTH IF GREATER THAN 4")
12" GRAVEL BORROW SUBBASE COURSE
- (P-2) 3" MODIFIED CLASS 12.5 HMA SURFACE COURSE
8" GRAVEL BORROW SURFACE COURSE
- (PB) CONCRETE BLOCK PAVERS
- (PP) PERMEABLE PAVER SAND FILTER SYSTEM
- (R&D) REMOVE & DISPOSE
- (R&R) REMOVE & RESET
- (RS) REMOVE & STOCKPILE
- (S-1) CUTTING AND MATCHING ASPHALT
- (S-3) FULL DEPTH SAWCUT OF BITUMINOUS PAVEMENT
- (SCCB) SACK INSERT CATCH BASIN INLET PROTECTION
- (SCI) SEDIMENTATION CONTROL FOR CURB INLET STRUCTURES
- (SABM) SHOCK ABSORBING BARRIER MODULES
- (T4DY) 4" DOUBLE YELLOW FAST DRYING WATERBORNE PAVEMENT MARKING PAINT
- (T6W) 6" WHITE FAST DRYING WATERBORNE PAVEMENT MARKING PAINT
- (T12W) 12" WHITE FAST DRYING WATERBORNE PAVEMENT MARKING PAINT
- (TBL3) TEMPORARY BARRIER (TL-3)
- (TCLF) TEMPORARY CHAIN LINK FENCE (6' HIGH)

JOB SPECIFIC GENERAL NOTES:

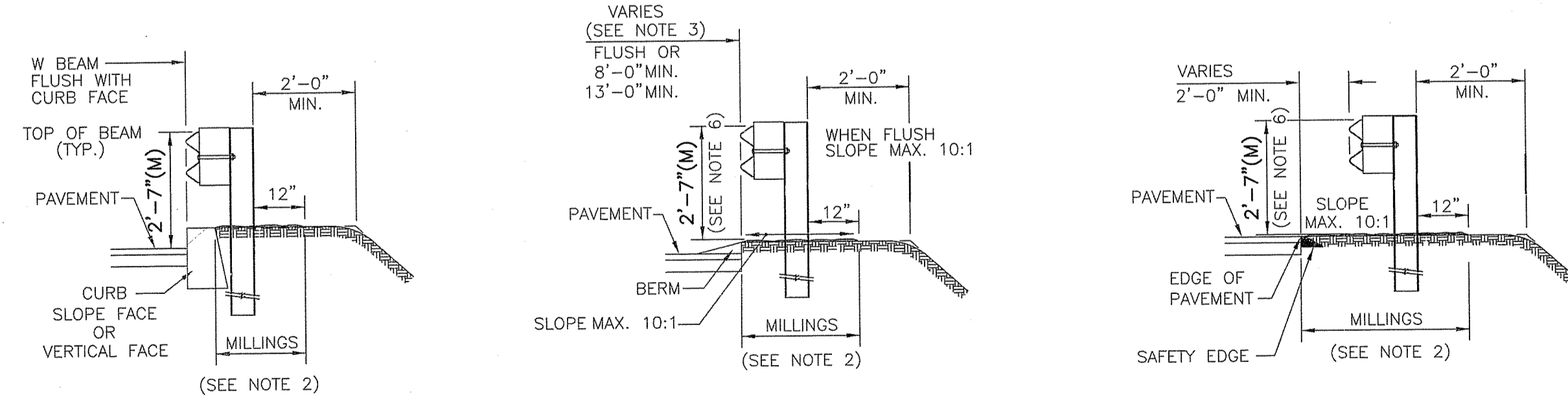
- THE BASE OF LEVELS FOR THIS PROJECT IS NAVD 1988. DELETE THE VERTICAL CONTROL REFERENCE IN GENERAL NOTE 12 OF THE STANDARD NOTES -1 SHEET.
- TOPOGRAPHIC CONDITIONS ARE OBTAINED FROM SURVEY. ACCURACY OF INFORMATION IS WITHIN ONE-HALF FOOT.
- THE CONTRACTOR SHALL RESTRICT THEIR STOCKPILE AREA ON STATE PROPERTY TO THE LOCATIONS DESIGNATED ON THE PLANS. RIDOT HIGHWAY AND MAINTENANCE SECTION TO ENSURE THAT NO CONTRACTOR CONFLICTS WITH THE MAINTENANCE DIVISION'S OPERATIONS OCCUR DURING THE PROJECT DURATION.
- ALL SURVEY FIELDBOOKS AND ELECTRONIC DATA SHALL BE SUBMITTED TO THE RIDOT SURVEY SECTION UPON COMPLETION OF PROJECT ALSO TO INCLUDE A LISTING OF ALL RI HIGHWAY BOUND DATA WITH STATIONS, OFFSETS AND COORDINATES.
- THE CONTRACTOR SHALL NOT REMOVE BRIDGE WEIGHT LIMIT SIGNS.
- VEGETATED AREAS OUTSIDE OF AREAS OF GRADING WHERE ALL VEGETATION WILL BE REMOVED OUT TO LIMITS OF DISTURBANCE SHALL BE PRESERVED TO MAXIMUM EXTENT POSSIBLE, AND TREES THEREIN SHALL NOT BE REMOVED WITHOUT THE APPROVAL OF THE RESIDENT ENGINEER (TYP. OF ALL 4 CORNERS OF BRIDGE).

JOB SPECIFIC DRAINAGE AND EROSION CONTROL NOTES:

- ALL DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE (RCP), CLASS III, WITH MORTAR JOINTS UNLESS OTHERWISE NOTED ON THE PLANS. ALL RCP 30" AND LARGER SHALL HAVE "O" RING GASKETS, AND THE JOINTS ON THE OUTSIDE OF THE PIPE SHALL BE MORTARED.
- ALL CATCH BASIN INLET GRATES SHALL HAVE 3-FLANGE FRAMES, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL R.I. STD. 4.4.0M CATCH BASINS SHALL HAVE A 4-FOOT DIAMETER, UNLESS OTHERWISE NOTED ON THE PLANS.
- CATCH BASIN AND MANHOLE RIM ELEVATIONS SHOWN ON THE PLANS MATCH PROPOSED FINAL PAVEMENT SURFACE ELEVATIONS. THE CONTRACTOR SHALL DEPRESS THE CATCH BASIN GRATE RIMS 0.1 FEET BELOW THE FINAL PAVEMENT SURFACE ONLY AT THOSE LOCATIONS WHERE THE GRATE IS AT LEAST 2 FEET OUTSIDE THE TRAVEL LANE EDGE STRIPE.
- ALL EXISTING DRAINAGE STRUCTURES TO REMAIN SHALL BE CLEANED AND INSPECTED AT THE BEGINNING OF THE WORK. ANY NECESSARY REPAIRS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. A SECOND CLEANING OF ALL DRAINAGE STRUCTURES SHALL BE DONE PRIOR TO THE PROJECT COMPLETION.
- THE DRAINAGE SYSTEM SHALL BE INSPECTED AND CLEANED, AS REQUIRED, PRIOR TO ACCEPTANCE OF THE OVERALL PROJECT. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK IN ACCORDANCE WITH SUBSECTION 104.11 OF THE STANDARD SPECIFICATIONS.
- IN ALL CLEAR AND GRUB SLOPE AREAS 2:1 OR STEEPER WHICH WILL REMAIN EXPOSED TO EROSION FOR MORE THAN 2 WEEKS, THE CONTRACTOR SHALL BE RESPONSIBLE TO COVER THESE AREAS WITH FILTER FABRIC AND (R-3) RIP-RAP AT NO ADDITIONAL COST TO THE STATE.
- FOR ALL PROJECTS WITH AT LEAST ONE(1) ACRE OF SOIL DISTURBANCE, R.I.D.O.T. IS REQUIRED TO DEVELOP AND ENFORCE A SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO REMAIN IN COMPLIANCE WITH THE RIDOT GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS OF THE GENERAL PERMIT AND THE SITE SPECIFIC SWPPP FOR THIS PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE PROJECT SUPPLEMENTAL DVD. ALL COSTS ASSOCIATED WITH ADHERENCE TO THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED RIM AND INVERT GRADES PRIOR TO ORDERING ANY PRECAST STRUCTURE UNITS.
- NO EQUIPMENT (SCAFFOLDING, ETC.) SHALL BE PLACED IN ANY WETLAND OR WATERWAY DURING CONSTRUCTION.

JOB SPECIFIC PAVEMENT MARKINGS NOTES:

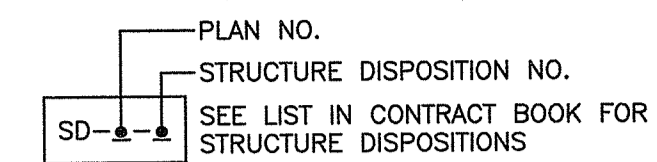
- ALL PAVEMENT MARKINGS ARE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- FINAL PAVEMENT MARKINGS SHALL BE WHITE AND YELLOW EPOXY RESIN.
- SEE THE GENERAL PROVISIONS - CONTRACT SPECIFIC DOCUMENTS FOR SPECIAL REQUIREMENTS FOR PAVEMENT MARKINGS.



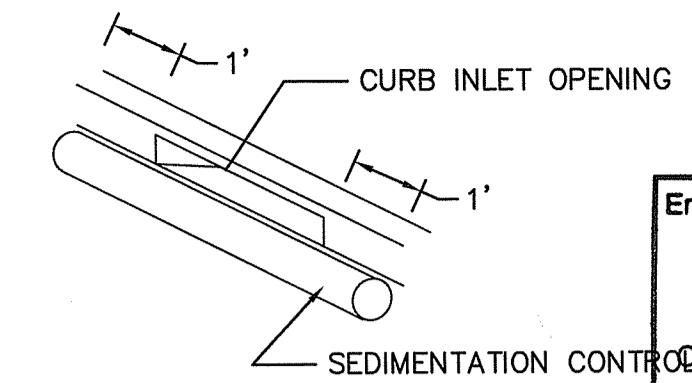
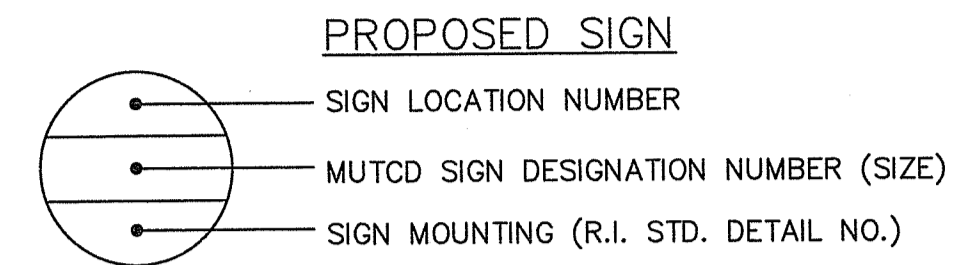
- NOTES:
- SHALL BE IN ACCORDANCE WITH SECTIONS 901, 902 OF THE RI STANDARD SPECIFICATIONS.
 - SHALL BE IN ACCORDANCE WITH SECTION 213 OF THE RI STANDARD SPECIFICATIONS.
 - SETBACK FROM CURB FACE OR BERM AS SPECIFIED ON PLANS, 8' LESS THAN 40 MPH; 13' LESS THAN 50 MPH.
 - W-BEAM POSTS W6X9 STANDARD 72 INCHES OR AS SPECIFIED ON PLANS.
 - THREE BEAM POSTS W6X9 STANDARD 81 INCHES OR AS SPECIFIED ON PLANS.
 - TOP OF RAIL HEIGHT MEASURED FROM 10:1 SURFACE.

(34.1.0M) ROADSIDE GUARDRAIL INSTALLATION (MODIFIED)
NOT TO SCALE

STRUCTURE DISPOSITIONS

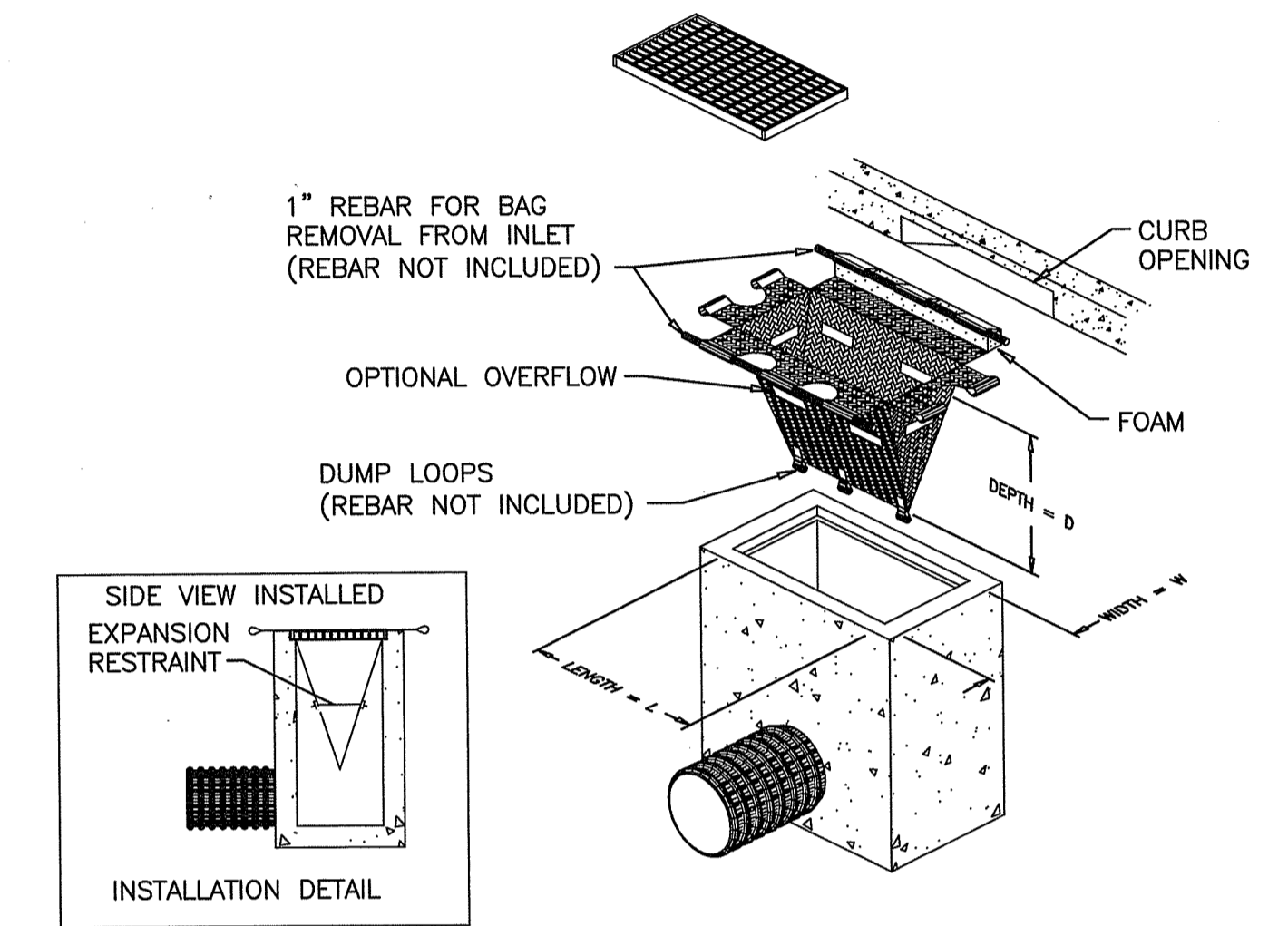


TYPICAL SIGN DESIGNATION SYMBOL

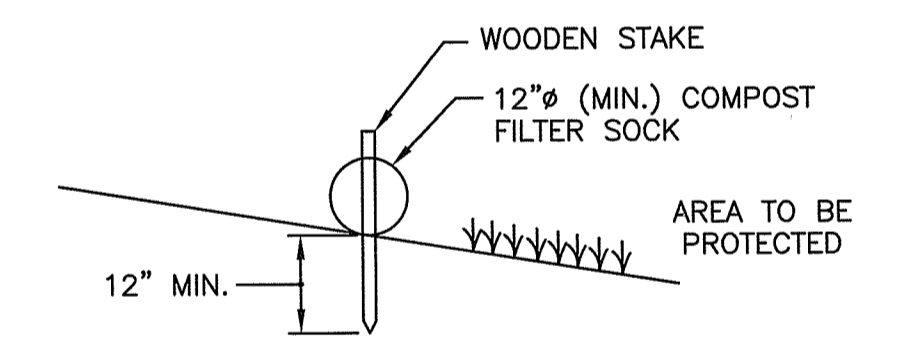


Environmental Management
JUN 03 2021
Office of Water Resources

(SCI) SEDIMENTATION CONTROL FOR CURB INLET STRUCTURES
NOT TO SCALE



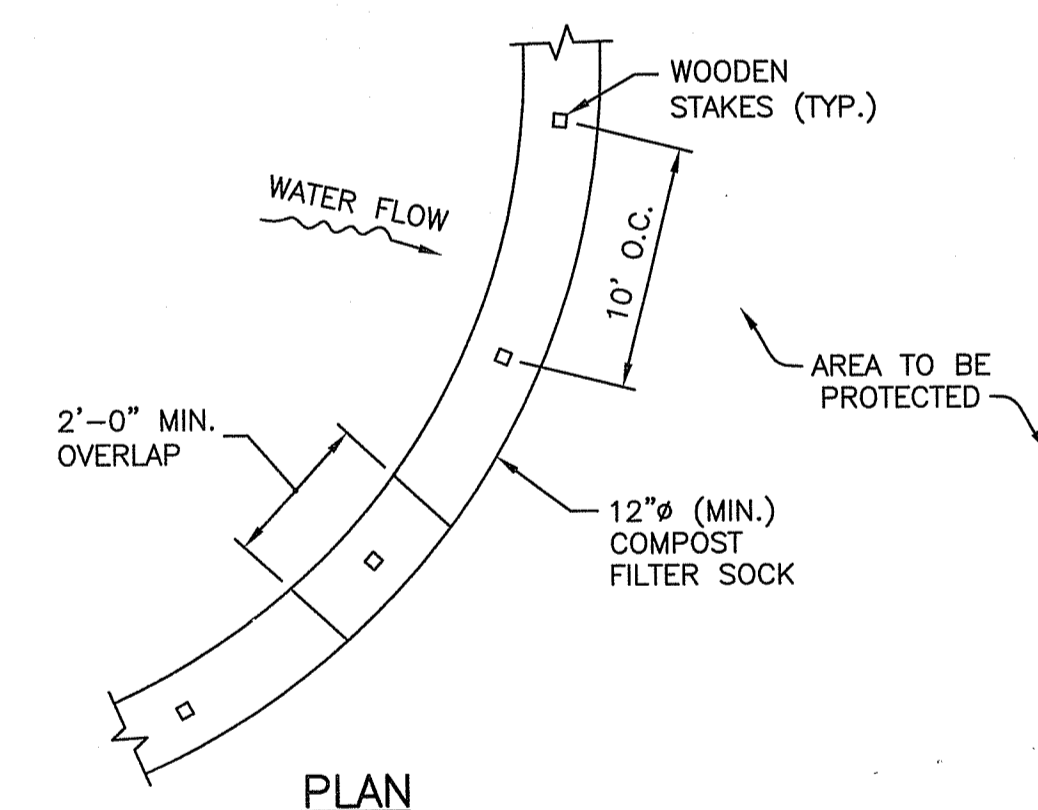
(SCCB) SACK INSERT CATCH BASIN INLET PROTECTION
NOT TO SCALE



SECTION

- NOTES:
- ALL MATERIAL TO MEET REQUIREMENTS OF SECTION 206 OF RI STANDARD SPECIFICATIONS.
 - COMPOST MATERIAL MUST BE ACCEPTED BY THE ENGINEER PRIOR TO PLACEMENT.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 16 2021 FILE # 20-0196
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Janet D. Wenczek



PLAN

(CFS) COMPOST FILTER SOCK
NOT TO SCALE

THOMAS M. CUNNINGHAM
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
PE0006592

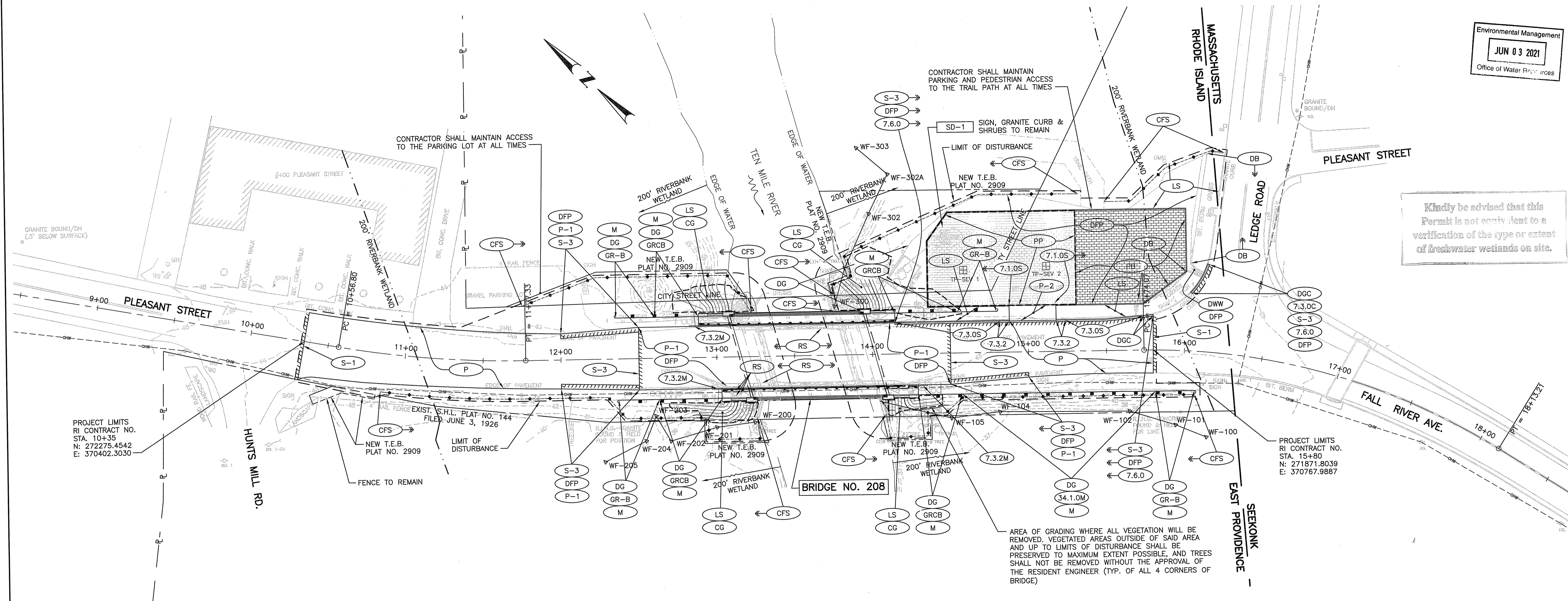
COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RI 02908

REVISIONS		
NO.	DATE	BY
1	4/15/21	MZ

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION
REPLACEMENT OF
HUNTS MILLS BRIDGE No. 208 (69E)
EAST PROVIDENCE, RHODE ISLAND
JOB SPECIFIC
PLAN SYMBOLS, LEGEND AND NOTES
CHECKED BY _____ DATE _____ SCALE NO SCALE

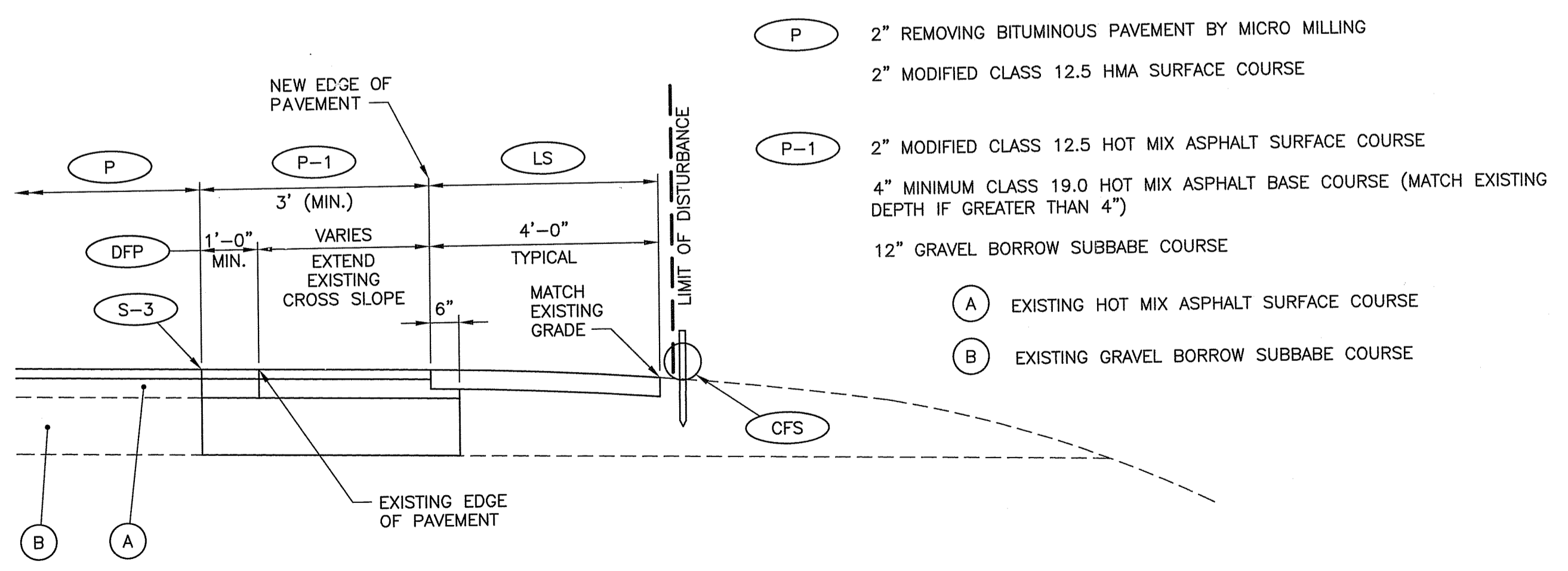
Environmental Management
JUN 03 2021
 Office of Water Resources

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



PROJECT LIMITS
 RI CONTRACT NO.
 STA. 10+35
 N: 272275.4542
 E: 370402.3030

PROJECT LIMITS
 RI CONTRACT NO.
 STA. 15+80
 N: 271871.8039
 E: 370767.9887



TYPICAL PAVEMENT WIDENING DETAIL
 SCALE: 1/2"=1'-0"

- (P) 2" REMOVING BITUMINOUS PAVEMENT BY MICRO MILLING
- 2" MODIFIED CLASS 12.5 HMA SURFACE COURSE
- (P-1) 2" MODIFIED CLASS 12.5 HOT MIX ASPHALT SURFACE COURSE
- 4" MINIMUM CLASS 19.0 HOT MIX ASPHALT BASE COURSE (MATCH EXISTING DEPTH IF GREATER THAN 4")
- 12" GRAVEL BORROW SUBBASE COURSE
- (A) EXISTING HOT MIX ASPHALT SURFACE COURSE
- (B) EXISTING GRAVEL BORROW SUBBASE COURSE

- LEGEND:**
- (RS) REMOVE AND STOCKPILE THE FOLLOWING RIDOT OWNED MATERIALS:
 - 290 LF TEMPORARY CONCRETE BARRIER
 - 4 GROUPS OF SHOCK ABSORBING BARRIER MODULES
 - 12 POLYETHYLENE DRUM BARRICADES
 - 4 TYPE III BARRICADES
 - 4 SIDEWALK CLOSED SIGNS
 - 4 OBJECT MARKER SIGNS
 - 2 PEDESTRIAN IN SHOULDER SIGNS
 - (7.3.2M) TRANSITION GRANITE CURB FROM 7" REVEAL ON BRIDGE TO 0" REVEAL ON PLEASANT STREET.

NOTE:
 1. THE WIDTH OF NEW PAVEMENT VARIES FROM 3'-0" (MINIMUM) TO 5'-0" OR AS DIRECTED BY THE ENGINEER. THE REHABILITATION PAVEMENT WIDTHS AND LOCATION LIMITS SHALL BE VERIFIED IN THE FIELD.

THOMAS M. CUNNINGHAM
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 PE0006592

COMMONWEALTH
 ENGINEERS & CONSULTANTS, INC.
 400 SMITH STREET
 PROVIDENCE, RI 02908

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
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 AS SPECIFIED IN THE LETTER OF APPROVAL
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REVISIONS		
NO.	DATE	BY
1	4/15/21	MZ

RHODE ISLAND
 DEPARTMENT OF TRANSPORTATION

REPLACEMENT OF
 HUNTS MILLS BRIDGE No. 208 (69E)

EAST PROVIDENCE, RHODE ISLAND

GENERAL PLAN

CHECKED BY _____ DATE _____ SCALE 1"=30'
 RIDEM SUBMISSION - AUGUST 19, 2020

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2020	9	21

PERMEABLE PAVER SECTION DESIGN NOTES
(PER RIDOT SECTION 2.3.4 - POROUS PAVEMENT WITH STORAGE):

- SITING:**
- LOW TO MODERATE VOLUME PARKING LOT OUTSIDE OF ROADWAY
 - WILL NOT RECEIVE STORMWATER RUNOFF FROM ADJACENT ROADWAYS
 - IMPERVIOUS RUN-ON IS LIMITED TO ADJACENT PORTION OF CONVENTIONAL PAVED PARKING LOT
 - PROPOSED PARKING LOT SLOPE < 5%
 - CONTRIBUTING DRAINAGE AREA ≈ 100% IMPERVIOUS
 - BOTTOM OF RESERVOIR COURSE WILL BE ABOVE THE ESTIMATED SEASONAL HIGH GROUNDWATER TABLE (ESHGWT)/BEDROCK, AND THE TOP OF THE FILTER COURSE WILL BE AT LEAST THREE (3) FEET ABOVE THE ESHGWT.
 - THE ONLY APPLICABLE MINIMUM HORIZONTAL SETBACK PER LSM TABLE 1.2.2 IS TO SURFACE WATER (50'); NO PORTION OF THE PERMEABLE PAVEMENT SYSTEM SHALL BE LOCATED WITHIN 50' OF TEN MILE RIVER.
 - SNOW SHALL NOT BE STORED OVER THE PERMEABLE PAVEMENT SYSTEM
 - SANDING SHALL NOT BE APPLIED TO ANY PORTION OF THE PARKING LOT (PERMEABLE PAVERS OR CONVENTIONAL PAVEMENT)

DESIGN STANDARDS:

- PRETREATMENT**
- NO PRETREATMENT IS PROPOSED

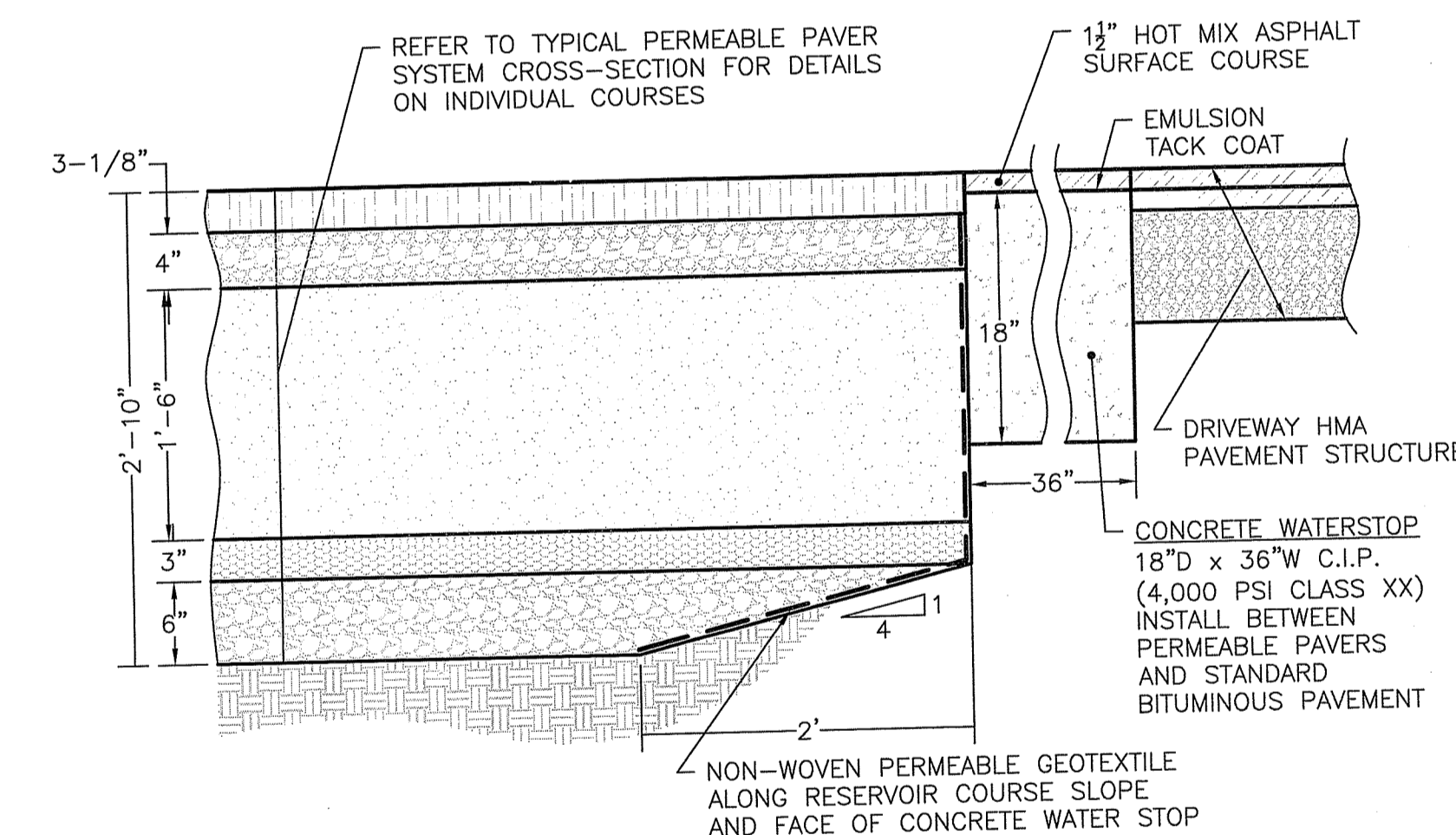
- INLET**
- NO INLET STRUCTURE IS PROPOSED
 - CONVEYANCE OF FLOW TO PERMEABLE PAVEMENT SYSTEM SHALL BE OVERLAND SHEET FLOW

- UNDERDRAIN**
- NO UNDERDRAINS ARE PROPOSED; THE SYSTEM SHALL BE AN UNLINED EXFILTRATING MEASURE, AND THE UNDERLYING SOILS ARE SANDS AND/OR FINE SANDS THAT TYPICALLY HAVE RELATIVELY HIGH PERMEABILITY

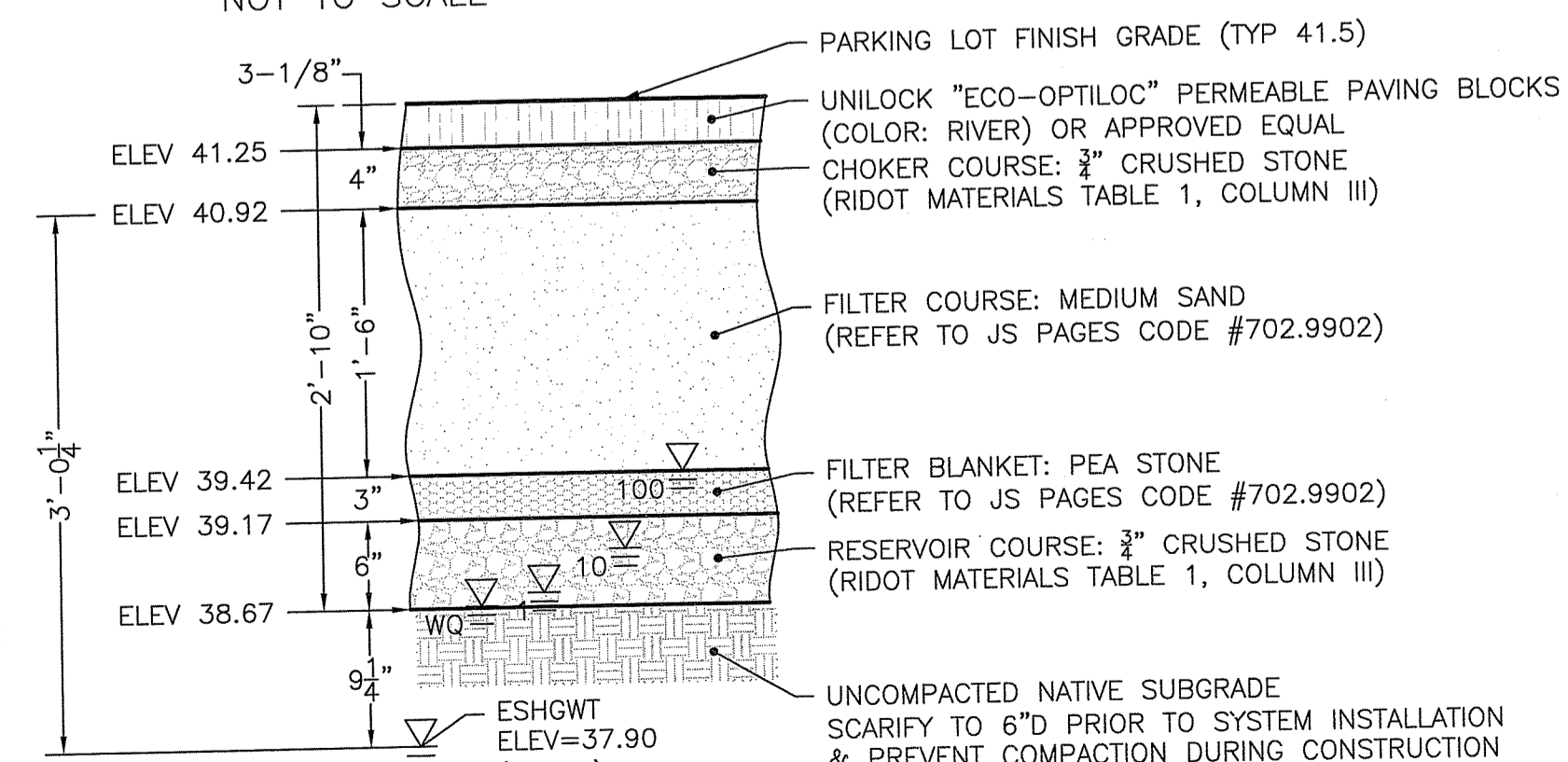
- DIMENSIONS**
- POROUS PAVEMENT HAS BEEN SIZED IN ACCORDANCE WITH RIDISMS SECTION 5.4.4 (SEE ADJACENT)
 - CONTRIBUTING DRAINAGE AREA SHALL BE LESS THAN 3X THE PERMEABLE PAVEMENT SURFACE AREA
 - RESERVOIR COURSE STORAGE VOLUME (33% VOIDS) SHALL BE GREATER THAN THE WQV (1.2") OVER THE ENTIRE PARKING LOT AREA (SEE BELOW)
 - REFER TO TYPICAL PERMEABLE PAVEMENT CROSS-SECTION (THIS SHEET) FOR THICKNESS OF EACH MATERIAL COURSE IN THE SYSTEM

- MATERIALS**
- MATERIALS SHALL BE AS SPECIFIED IN THE JOB-SPECIFIC SPECIFICATION FOR THE PERMEABLE PAVEMENT SYSTEM; NOTE THAT THE MATERIALS HAVE BEEN DEVELOPED TO CONFORM TO RIDOT STANDARD MATERIAL SPECIFICATIONS TO THE EXTENT POSSIBLE WHILE MEETING APPLICABLE DIMENSIONAL REQUIREMENTS FOR A GRANULAR MEDIA FILTER SYSTEM

- GROUNDWATER & BEDROCK SEPARATION**
- IN-SITU SOIL EVALUATIONS WERE PERFORMED ON NOVEMBER 6, 2019. THE SOIL EVALUATION LOGS HAVE BEEN REPRODUCED HEREON.
 - THE MINIMUM GROUNDWATER SEPARATION IS PROVIDED BY THE PROPOSED POROUS PAVEMENT SAND FILTER SYSTEM; SEE CALCULATIONS THIS SHEET.



PERMEABLE PAVER INTERFACE WITH DRIVEWAY HMA PAVEMENT DETAIL
NOT TO SCALE



TYPICAL PERMEABLE PAVER SAND FILTER SYSTEM CROSS-SECTION
NOT TO SCALE

PEAK W.S. ELEVATION SUMMARY:

WQ STORM:	38.68
1-YEAR STORM:	38.75
10-YEAR STORM:	38.99
100-YEAR STORM:	39.42

PERMEABLE PAVER SECTION DESIGN NOTES
(PER SMDIR SECTIONS 8.22 PERMEABLE PAVING, 8.23 FILTERING SYSTEMS AND RIDISMS SECTION 5.4 & APPENDIX F.4):

SECTION 8.22 PERMEABLE PAVING, PARAGRAPH D, FEASIBILITY, ITEM 7: "THE BOTTOM OF AN INFILTRATING PERMEABLE PAVEMENT PRACTICE SHALL BE SEPARATED BY AT LEAST 3 FEET VERTICALLY FROM THE SHGT OR BEDROCK LAYER (WHEN TREATING WQV), AS DOCUMENTED BY ON-SITE SOIL TESTING.

DESIGN IMPACT: THE MINIMUM THICKNESS OF A NON-TREATMENT POROUS PAVER SYSTEM IS 22":

- 3" PAVERS
- 4" CHOKER COURSE
- 8" "FILTER" COURSE (DOES NOT MEET SMDIR STANDARDS FOR FILTER COURSE)
- 3" FILTER BLANKET
- 4" RESERVOIR COURSE
- 22" TOTAL SYSTEM THICKNESS

ASSUMING A FINISH GRADE OF 41.50 FOR THE PAVERS, THE BOTTOM OF THE PRACTICE ELEVATION WOULD BE:
41.50 - (22"/12"/FT) = 39.67

THE SEPARATION FROM THE BOTTOM OF THE PRACTICE TO THE ESHGWT ELEVATION WOULD BE:
39.67 - 37.90 = 1.77 FT

THEREFORE, THE MINIMUM REQUIRED SEPARATION CANNOT BE MET WITH A NON-TREATMENT POROUS PAVER SYSTEM. THE SYSTEM MUST BE DESIGNED AS A SAND FILTER.

SECTION 8.23 FILTERING SYSTEMS, PARAGRAPH D, TREATMENT, ITEM 3: SAND AND ORGANIC FILTER BEDS SHALL HAVE A MINIMUM DEPTH OF 18 INCHES.

DESIGN IMPACT: THE MINIMUM THICKNESS OF A POROUS PAVER SAND FILTER SYSTEM MEETING THE 18" BED DEPTH REQUIREMENT IS 34":

- 3" PAVERS
- 4" CHOKER COURSE
- 18" FILTER COURSE (MEETING SMDIR STANDARDS FOR FILTER COURSE)
- 3" FILTER BLANKET
- 6" RESERVOIR COURSE (4" MINIMUM, SEE BELOW FOR RESERVOIR SIZING CALCULATION)
- 34" TOTAL SYSTEM THICKNESS

SECTION 8.23 FILTERING SYSTEMS, PARAGRAPH A, FEASIBILITY, ITEM 1: "THE BOTTOM OF FILTERING SYSTEMS SHALL BE LOCATED AT OR ABOVE THE SEASONAL HIGH GROUNDWATER TABLE. THE TOP OF FILTERING SYSTEMS SHALL BE LOCATED AT LEAST 3 FEET ABOVE THE SEASONAL HIGH GROUNDWATER TABLE.

DESIGN IMPACT: BASED ON A POROUS PAVER SAND FILTER SYSTEM THICKNESS OF 34" WITH A TOP OF SAND FILTER ELEVATION OF 40.92, THE FOLLOWING CLEARANCES SHALL BE PROVIDED:

CLEARANCE FROM TOP OF FILTER TO ESHGWT: $40.92 - 37.90 = 3.02$ FT
 CLEARANCE FROM BOTTOM OF PRACTICE TO ESHGWT: $38.67 - 37.90 = 0.77$ FT

THEREFORE, THE MINIMUM REQUIRED CLEARANCES TO ESHGWT SHALL BE MET BY A 34" DEEP SYSTEM.

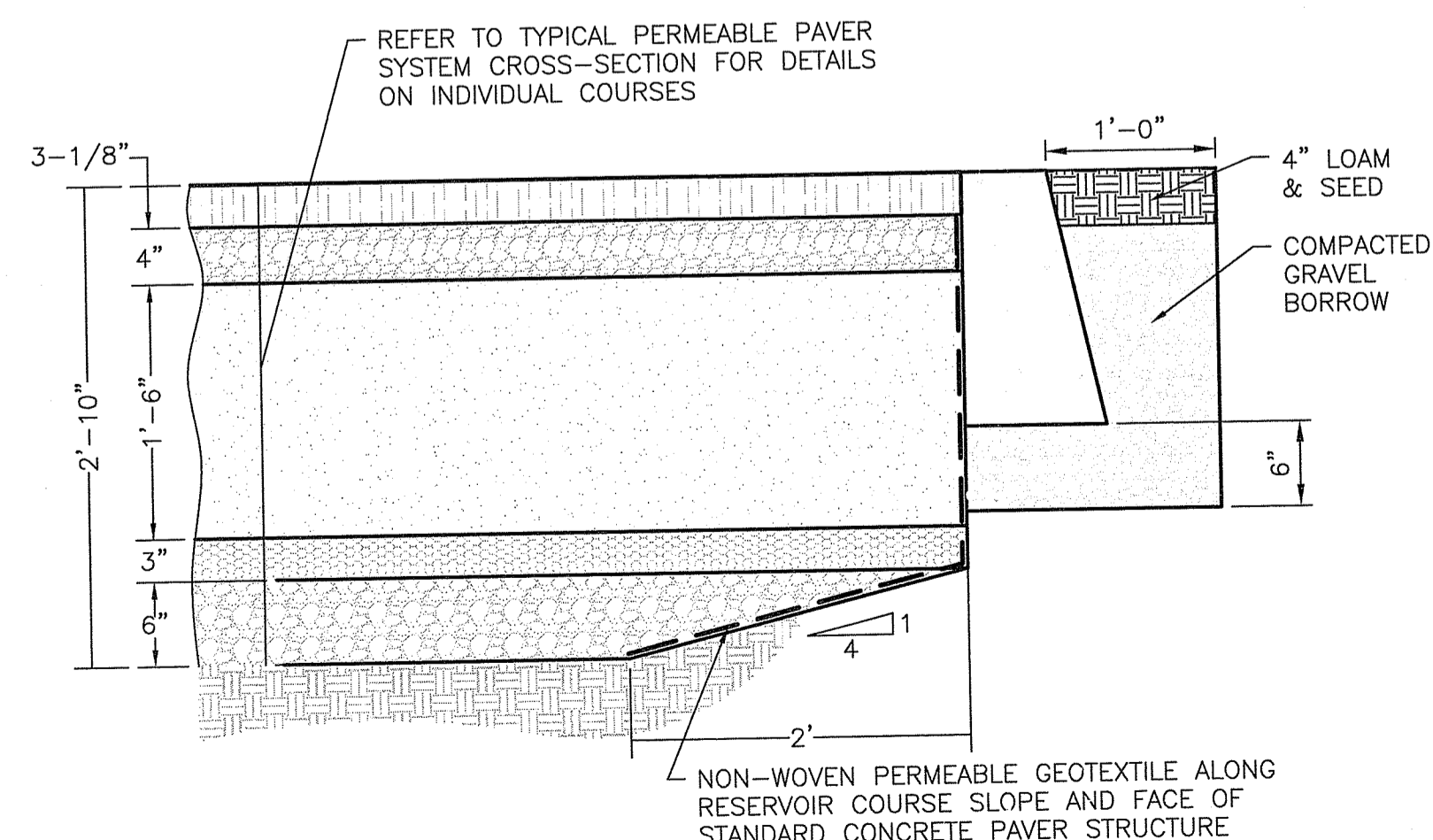
RIDISMS APPENDIX F SECTION 2.1.4.4.f: PAVEMENT SYSTEM AND SUBBASE THICKNESS ARE $\geq 0.65 \times$ DESIGN FROST DEPTH FOR AREA.

MINIMUM FROST DEPTH (EAST PROVIDENCE): 3'4" (40")
 MINIMUM PERMEABLE PAVEMENT SYSTEM THICKNESS: $0.65 \times$ FROST DEPTH = 2'-2" (26")
 PROPOSED PAVEMENT SYSTEM THICKNESS: 2'-10" (34"); SYSTEM THICKNESS OK

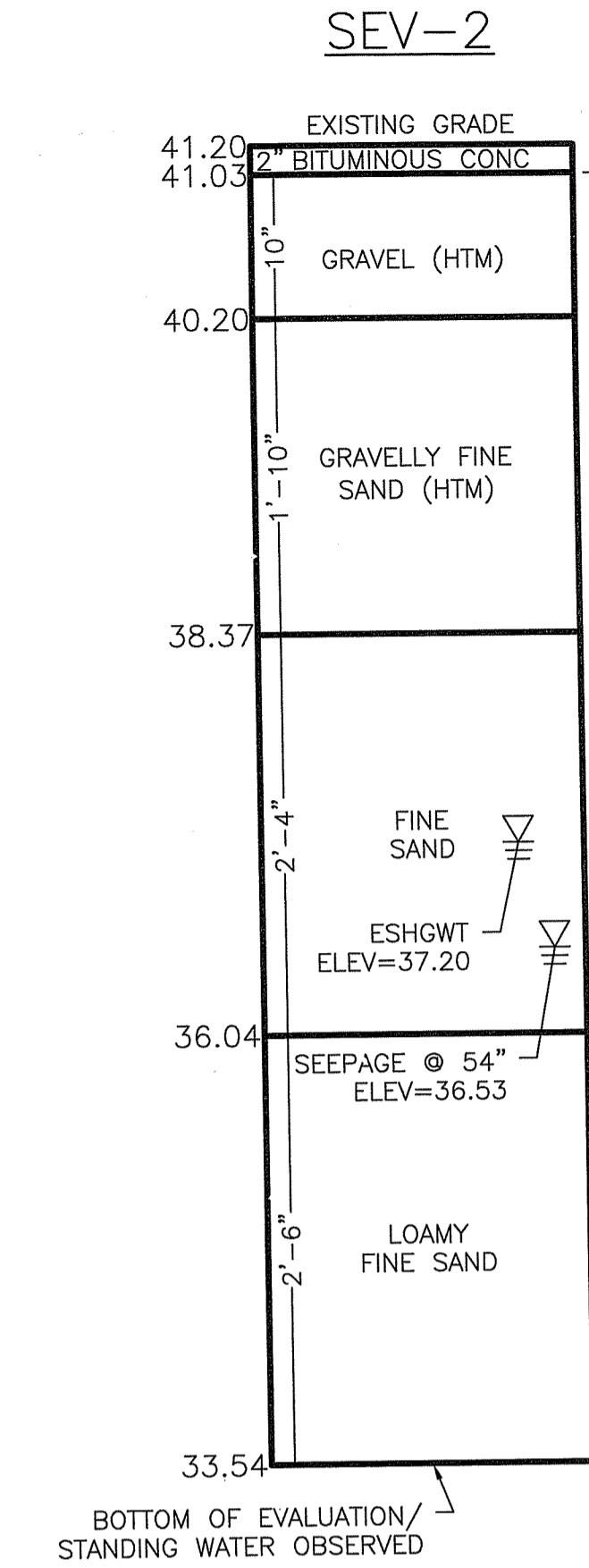
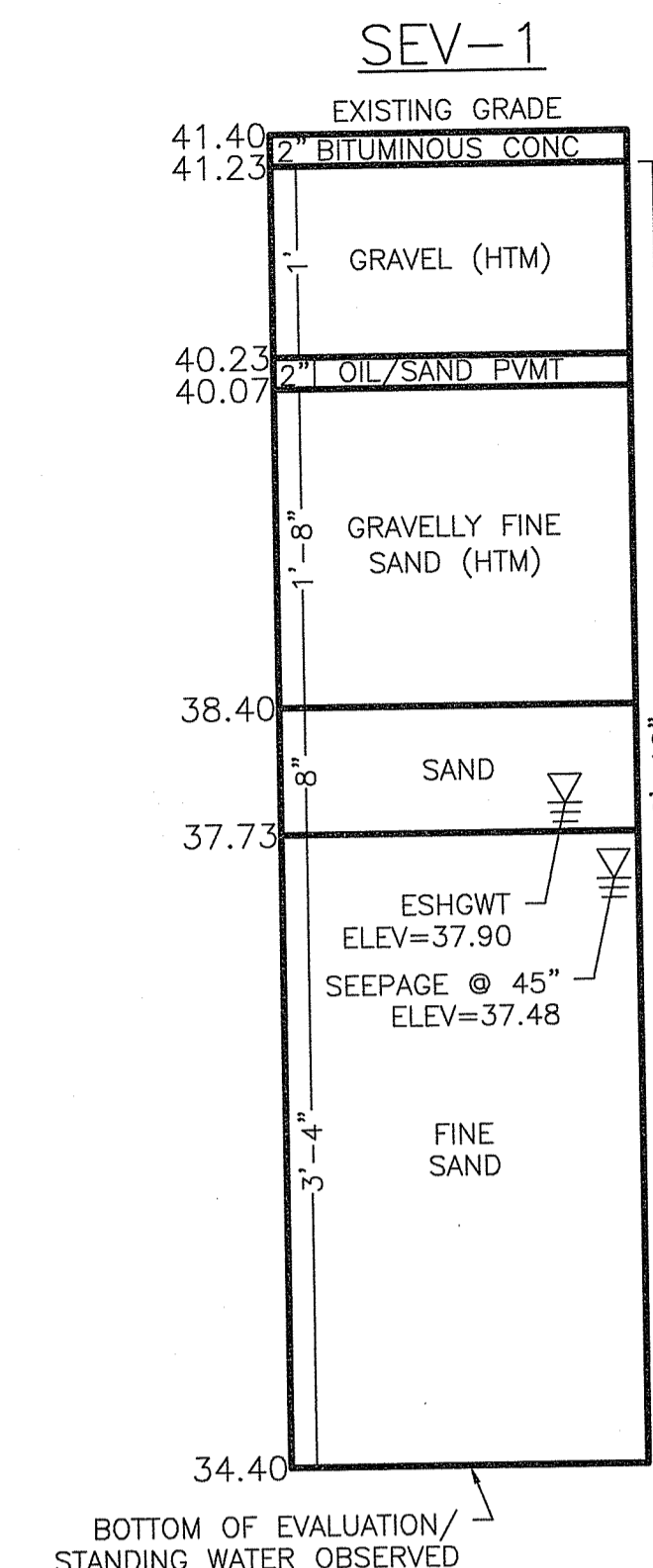
EXISTING 36" RCP DRAIN PIPE CLEARANCE CHECK

MAX INV 36" RCP DRAIN PIPE (@ CB IN LOT):	35.62
36" RCP DRAIN PIPE I.D.:	3.00
36" RCP DRAIN PIPE WALL THICKNESS:	0.33 (ASSUMED, TYP)
MAX TOP OF 36" RCP DRAIN PIPE:	38.95
DROP IN PIPE TO START OF PAVEMENT AREA:	0.08
MAX TOP OF 36" RCP DRAIN PIPE WITHIN PAVEMENT AREA:	38.87

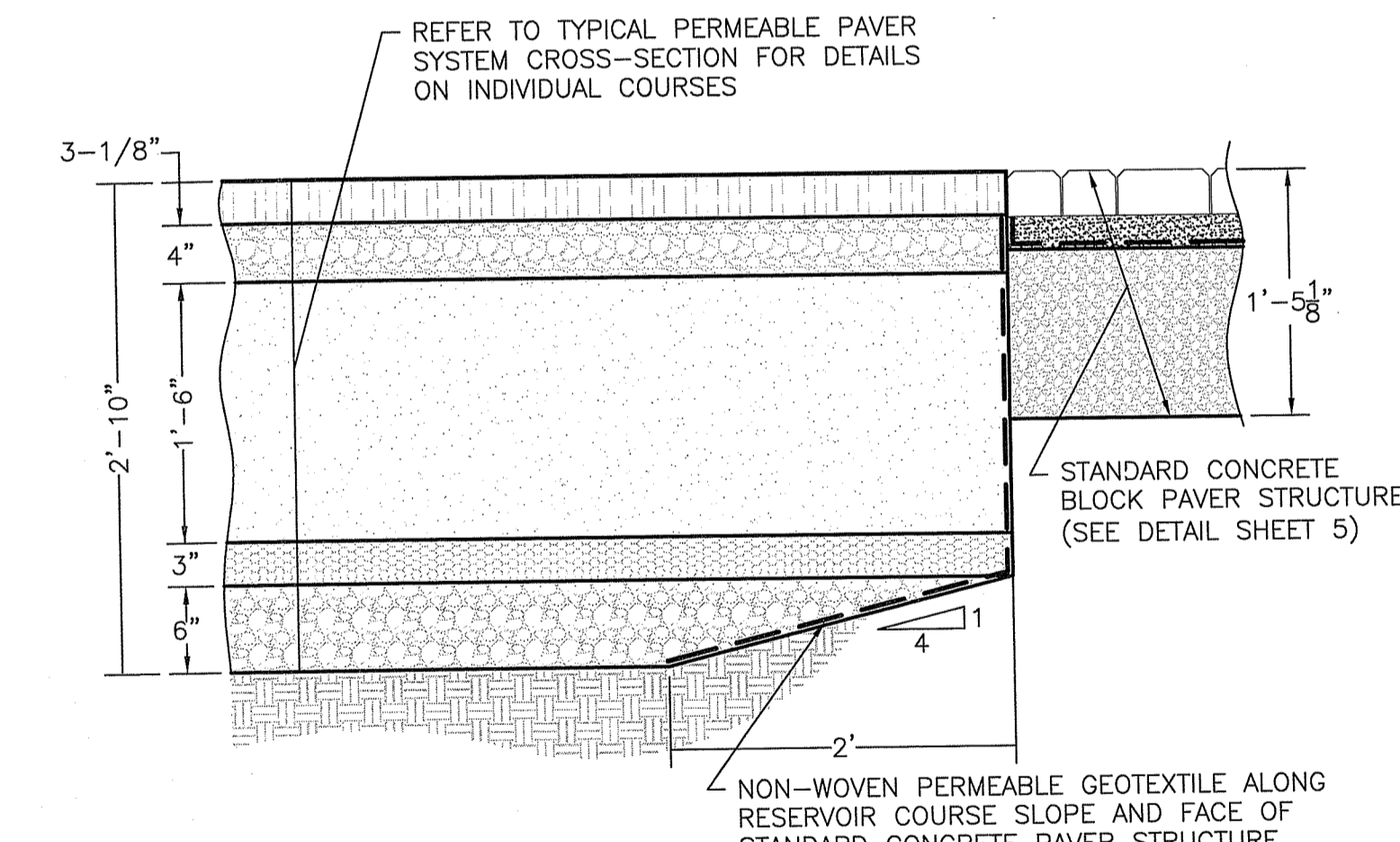
BOTTOM OF PAVEMENT SYSTEM RESERVOIR COURSE: ELEV 38.67
 $38.67 < 38.87$; THE TOP 0.2' OF THE 36" RCP SHALL BE WITHIN THE BOTTOM OF THE PERMEABLE PAVEMENT SYSTEM STONE RESERVOIR
 FOR APPROXIMATELY 70 FT (TO POINT WHERE TOP OF PIPE ELEV < 38.67). THIS WILL REDUCE THE RESERVOIR COURSE STORAGE VOLUME BY (70 LF \times 0.15 SF AVG TOP OF PIPE X-SECTION AREA) \approx 11 CF



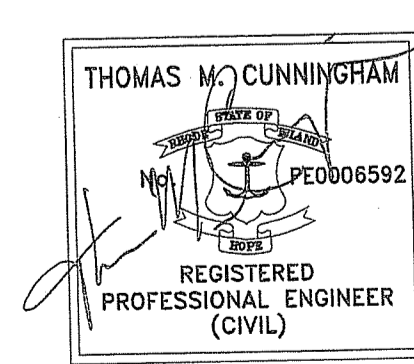
PERMEABLE PAVER INTERFACE WITH CONCRETE EDGE CURBING DETAIL
NOT TO SCALE



SOIL EVALUATION PROFILES
NOT TO SCALE



PERMEABLE PAVER INTERFACE WITH STANDARD CONCRETE BLOCK PAVER DETAIL
NOT TO SCALE



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NO.	DATE	BY

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REPLACEMENT OF HUNTS MILLS BRIDGE No. 208 (69E)

EAST PROVIDENCE, RHODE ISLAND

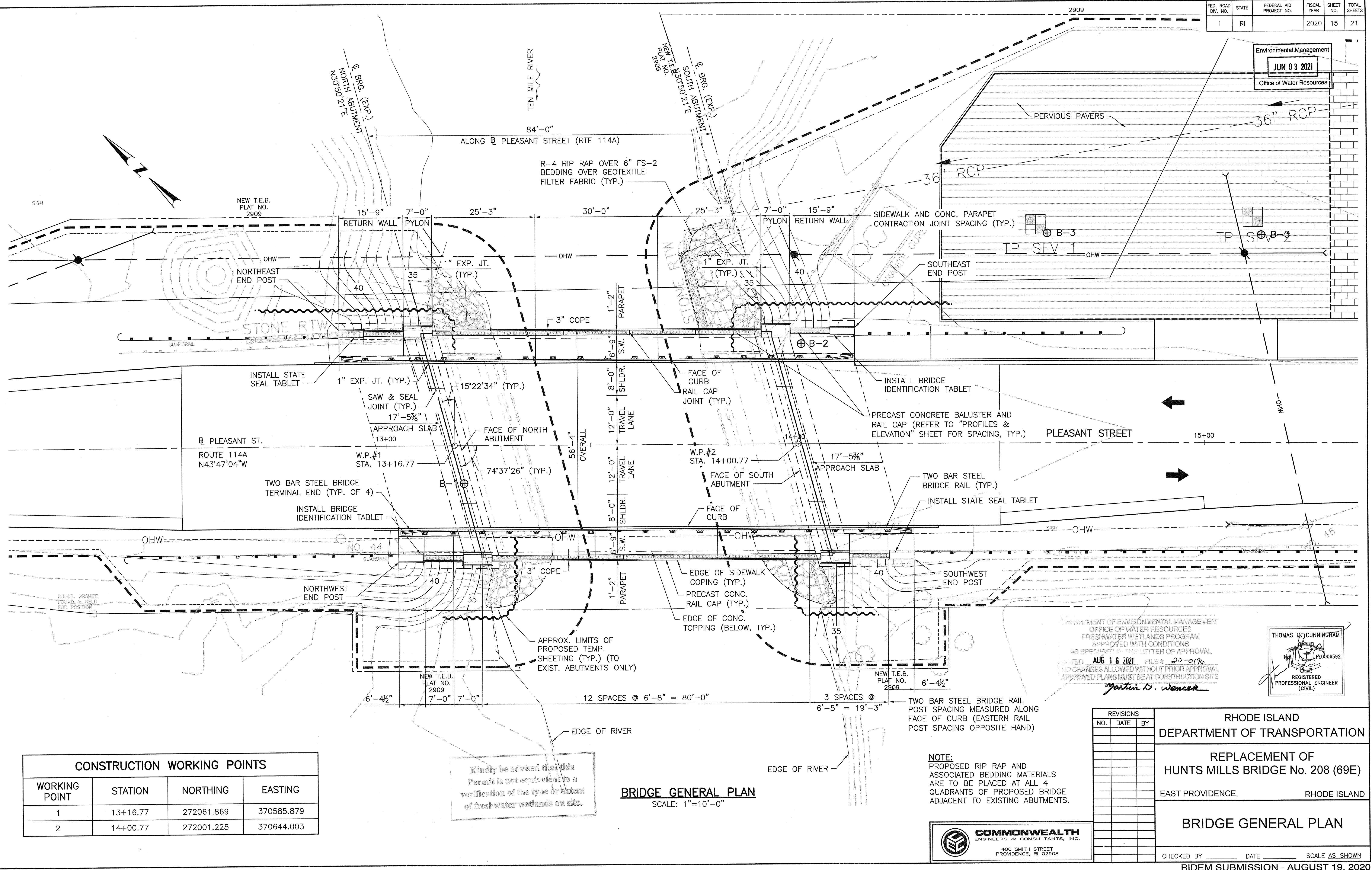
DRAINAGE DETAILS

CHECKED BY _____ DATE _____ SCALE AS SHOWN

Environmental Management
JUN 03 2021
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 16 2021 FILE # 20-0196
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Martin D. Wenczek

Environmental Management
JUN 03 2021
 Office of Water Resources



WORKING POINT	STATION	NORTHING	EASTING
1	13+16.77	272061.869	370585.879
2	14+00.77	272001.225	370644.003

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

BRIDGE GENERAL PLAN
 SCALE: 1"=10'-0"

NOTE:
 PROPOSED RIP RAP AND ASSOCIATED BEDDING MATERIALS ARE TO BE PLACED AT ALL 4 QUADRANTS OF PROPOSED BRIDGE ADJACENT TO EXISTING ABUTMENTS.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
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Martin D. Wenczek

THOMAS M. CUNNINGHAM
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 PE0006592

REVISIONS		
NO.	DATE	BY

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

REPLACEMENT OF HUNTS MILLS BRIDGE No. 208 (69E)

EAST PROVIDENCE, RHODE ISLAND

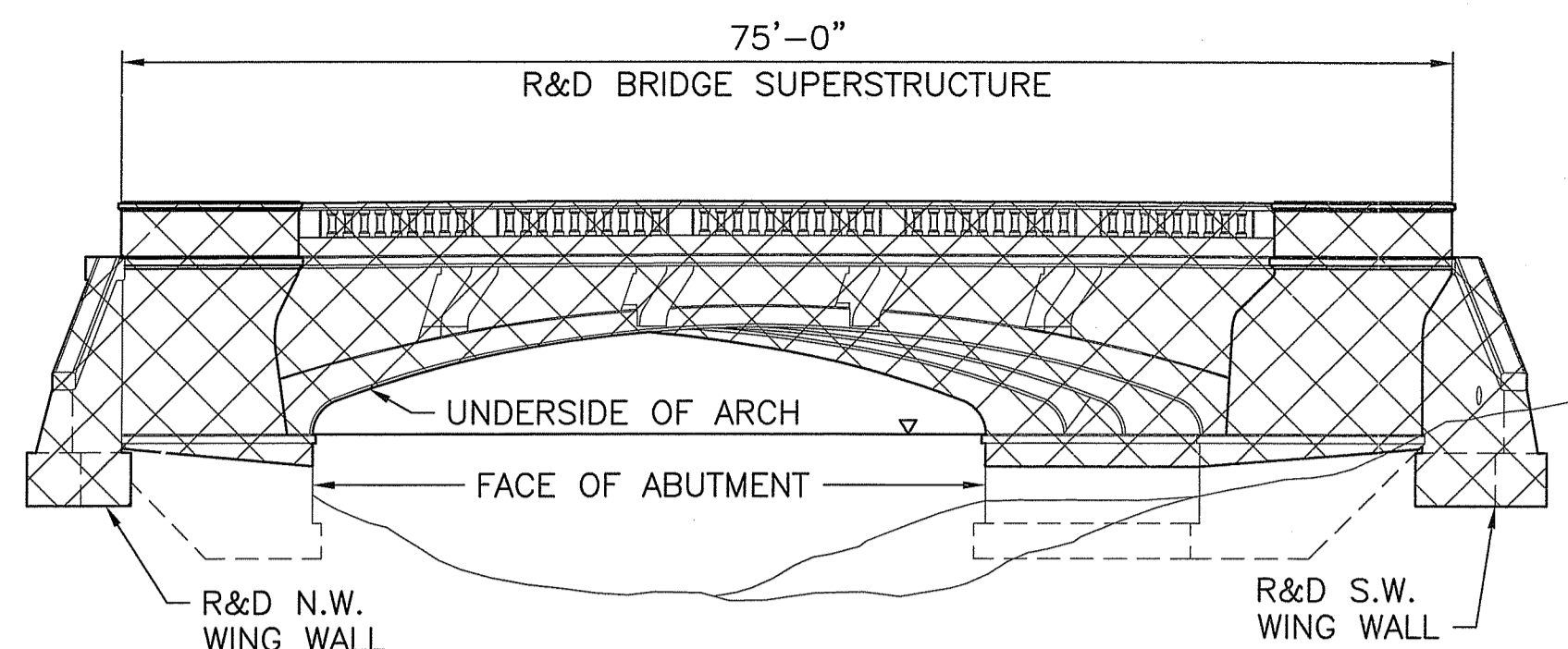
BRIDGE GENERAL PLAN

CHECKED BY _____ DATE _____ SCALE AS SHOWN
 RIDEM SUBMISSION - AUGUST 19, 2020

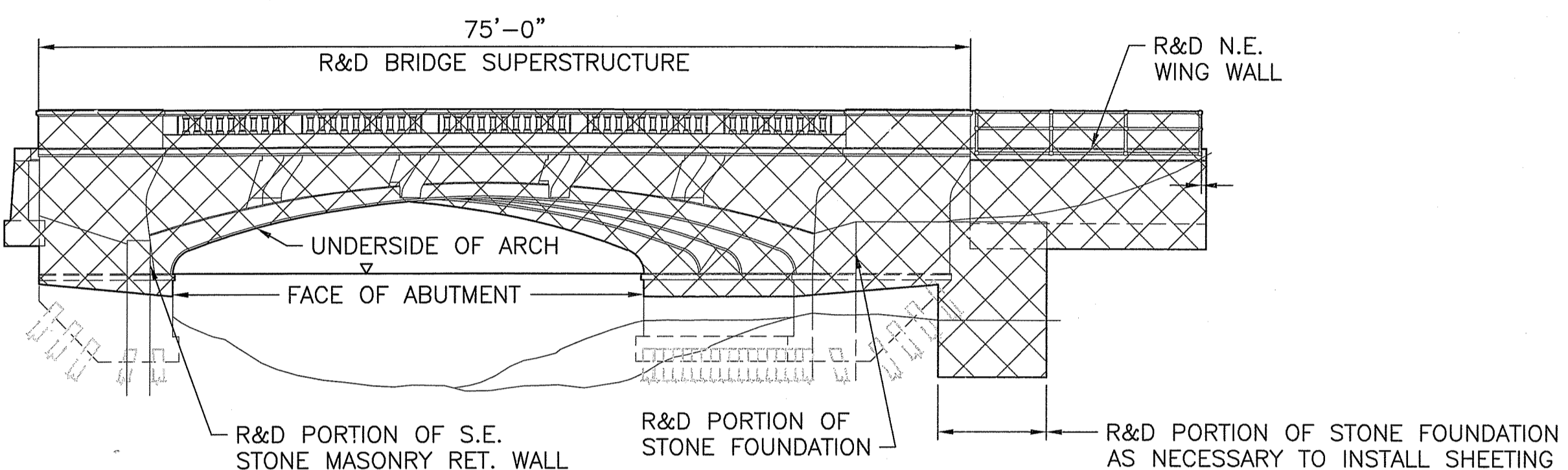


FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2020	19	21

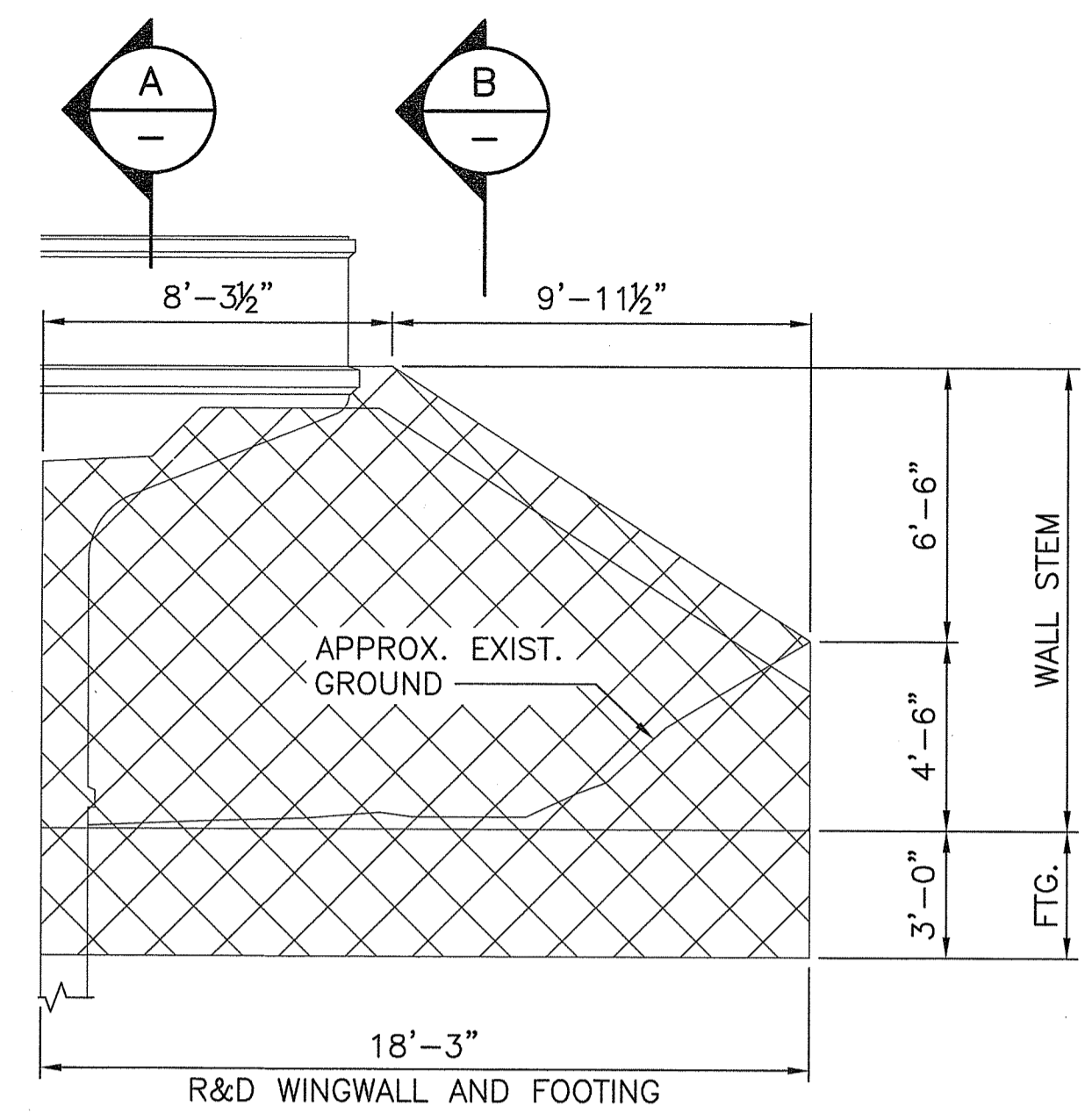
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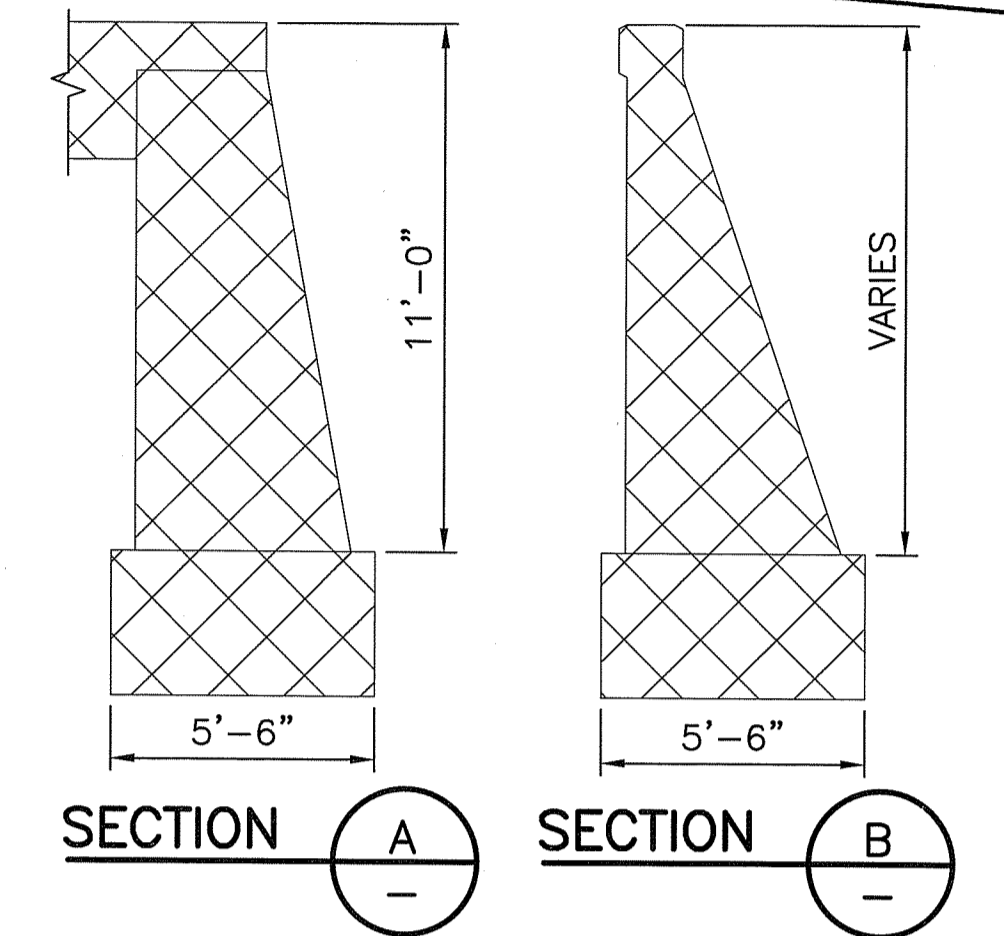
WEST ELEVATION
 SCALE: 1"=10'-0"



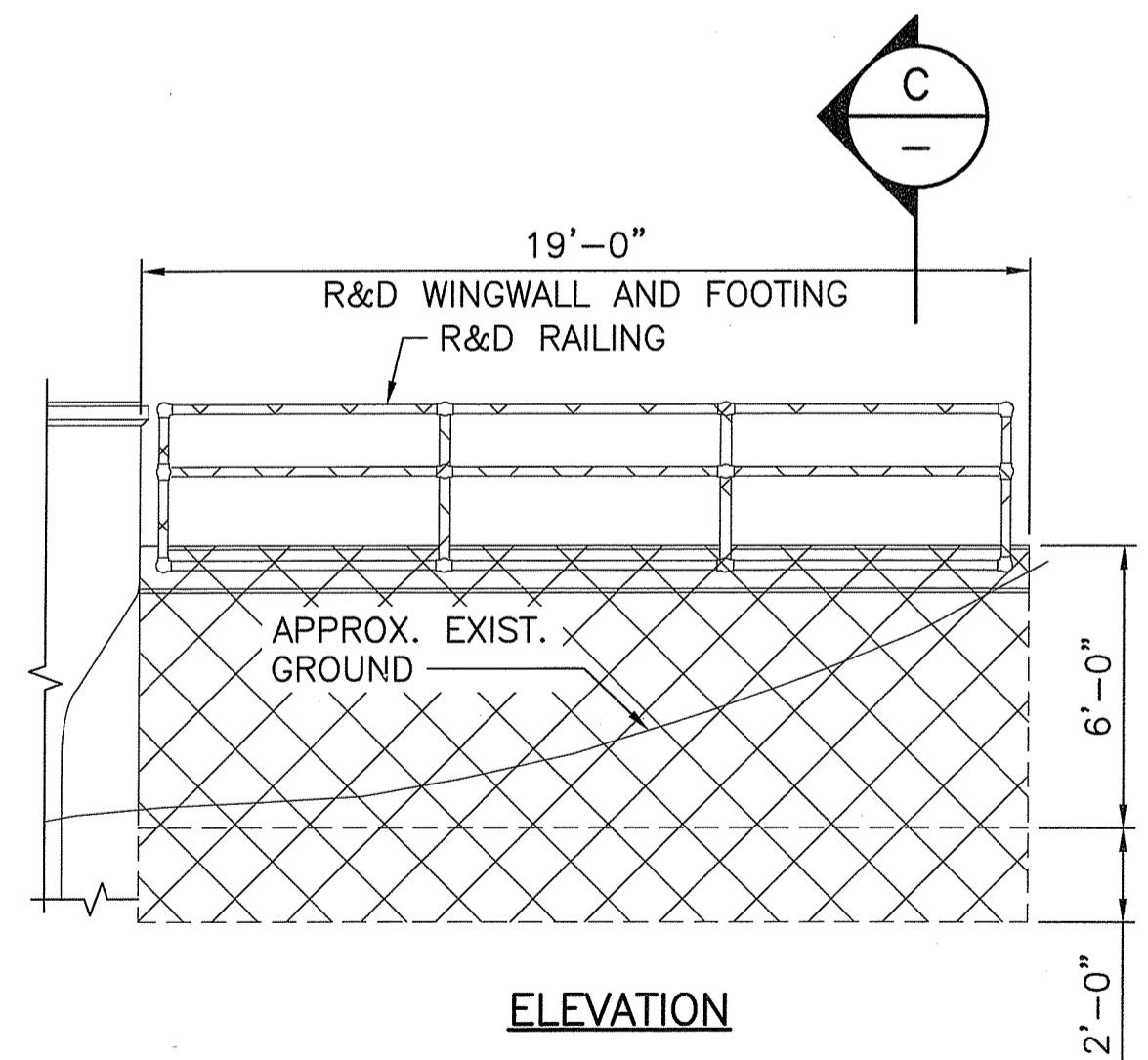
EAST ELEVATION
 SCALE: 1"=10'-0"



ELEVATION

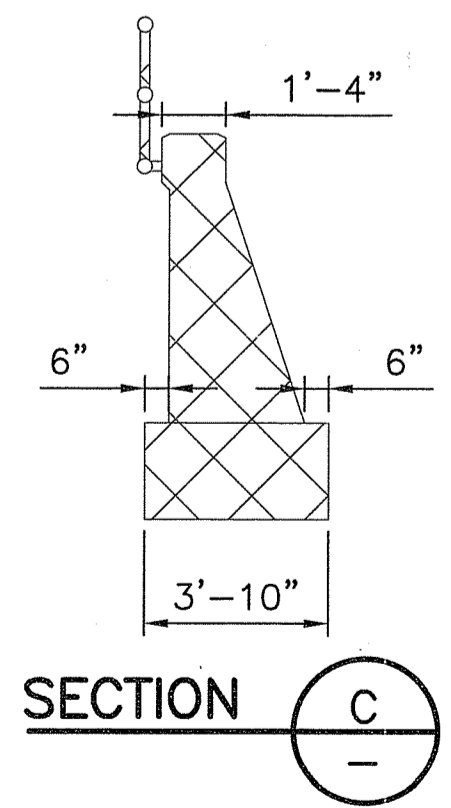


SOUTHWEST WINGWALL
 SCALE: 3/4"=1'-0"

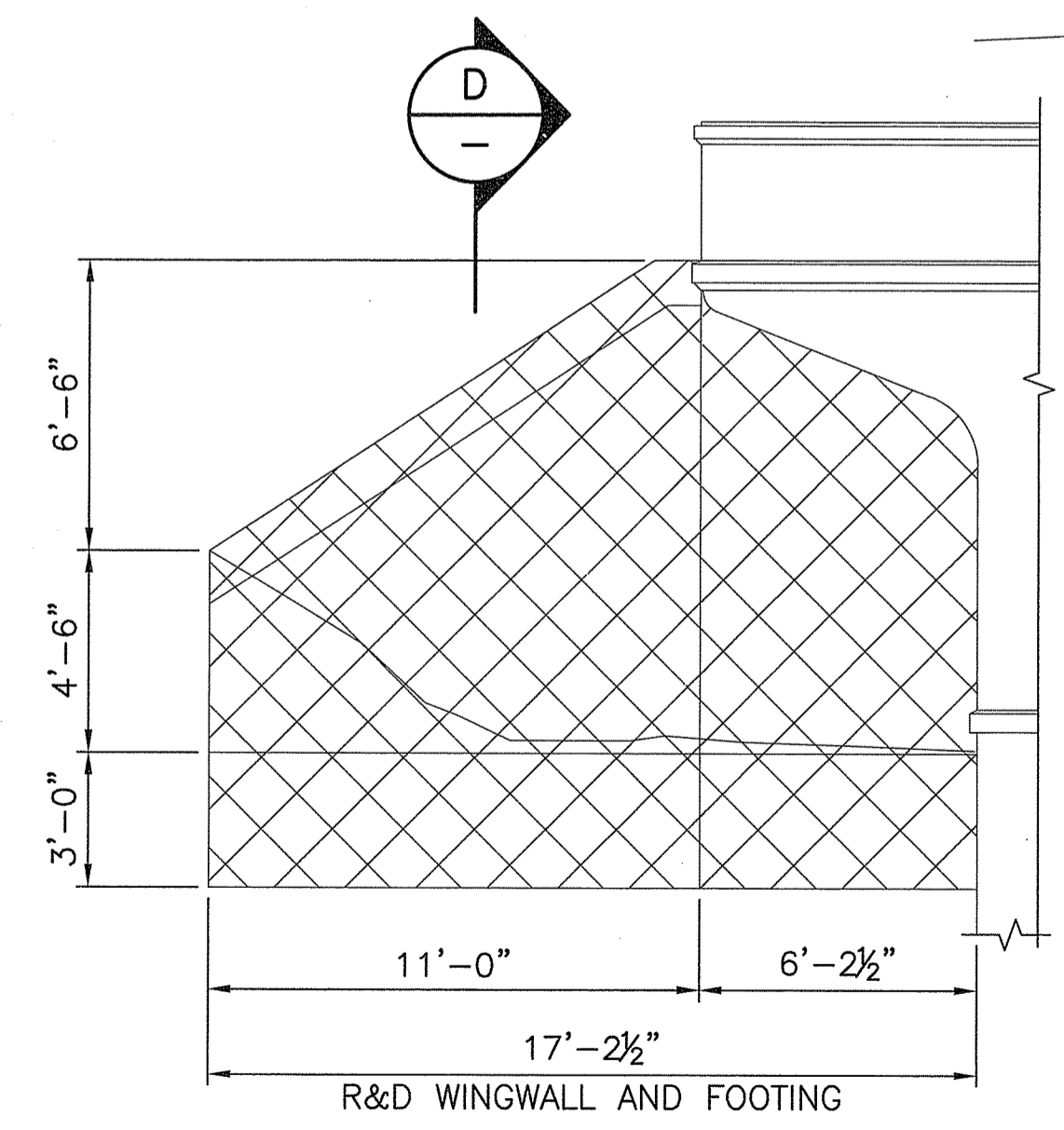


ELEVATION

NORTHEAST WINGWALL
 SCALE: 3/4"=1'-0"

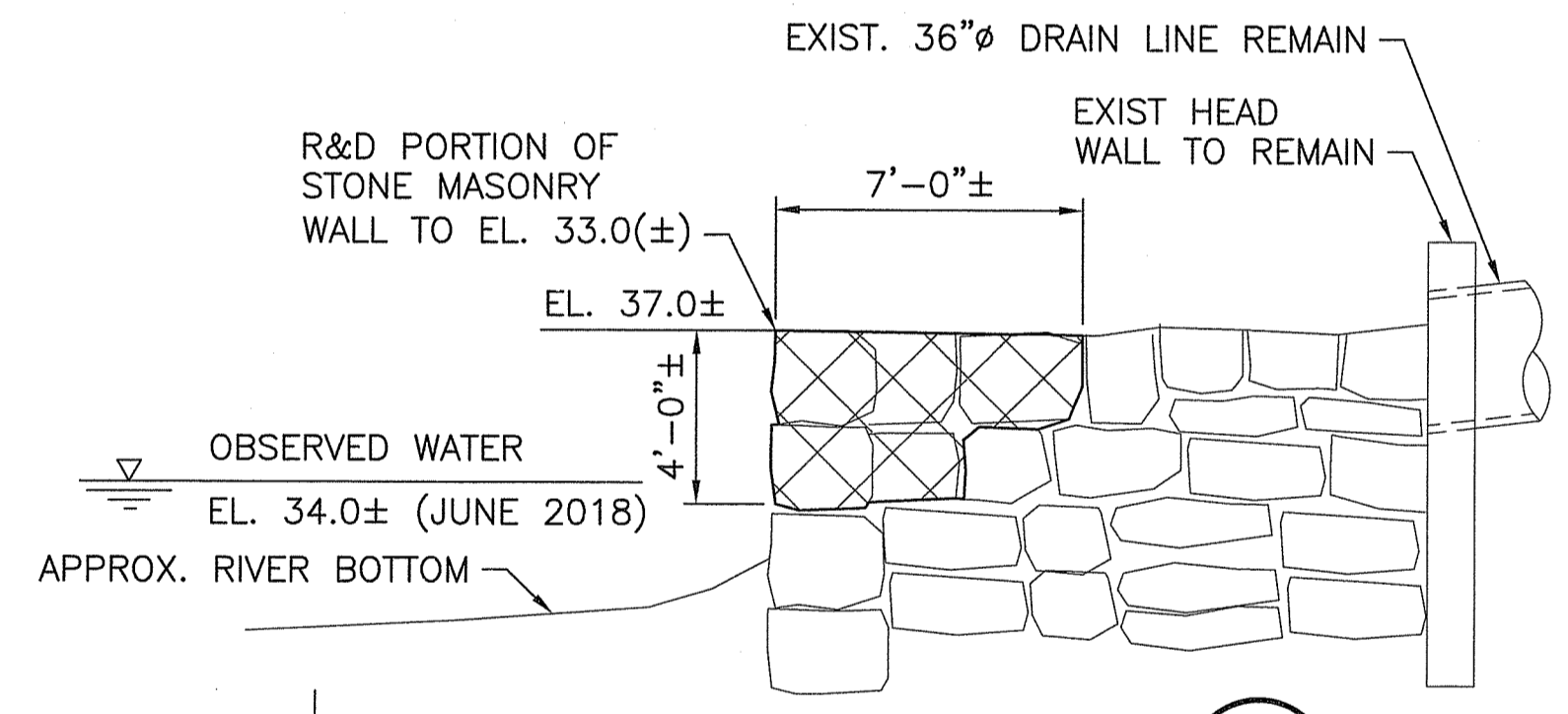


SECTION C



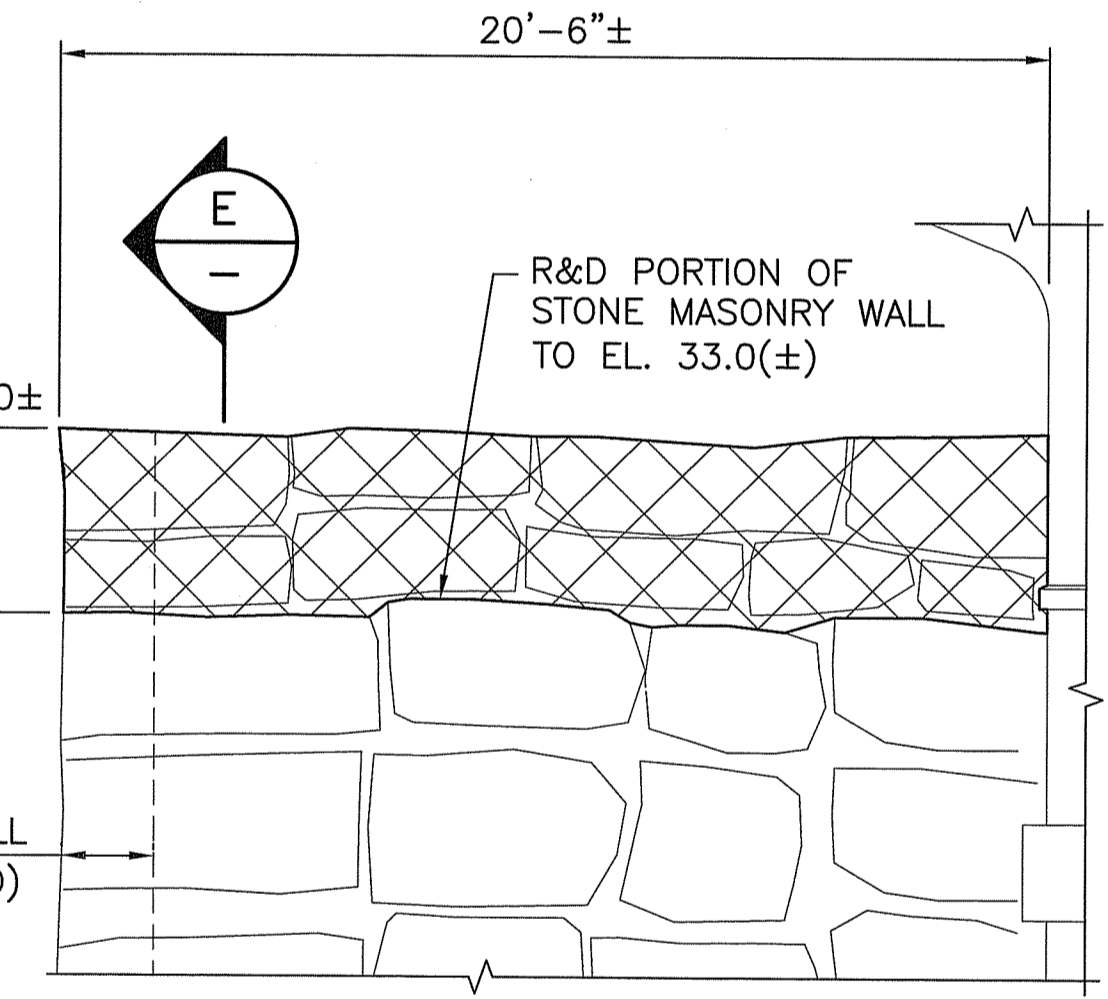
ELEVATION

NORTHWEST WINGWALL
 SCALE: 3/4"=1'-0"



SECTION E

SOUTHEAST RETAINING WALL
 SCALE: 3/4"=1'-0"



ELEVATION

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Martin D. Jensen

LEGEND

DENOTES MINIMUM AREAS OF R&D OF EXISTING BRIDGE

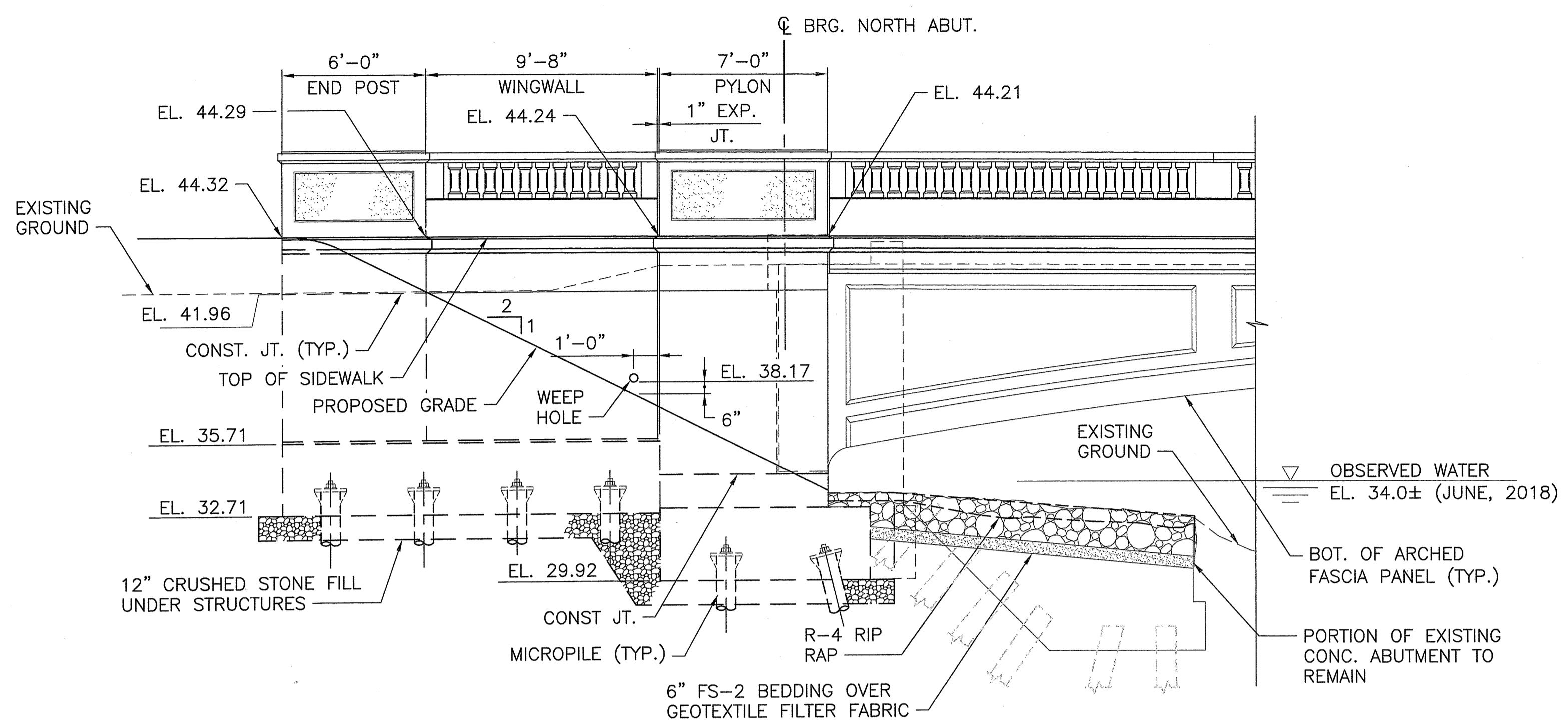
THOMAS W. CUNNINGHAM
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)
 PE0006592

COMMONWEALTH
 ENGINEERS & CONSULTANTS, INC.
 400 SMITH STREET
 PROVIDENCE, RI 02908

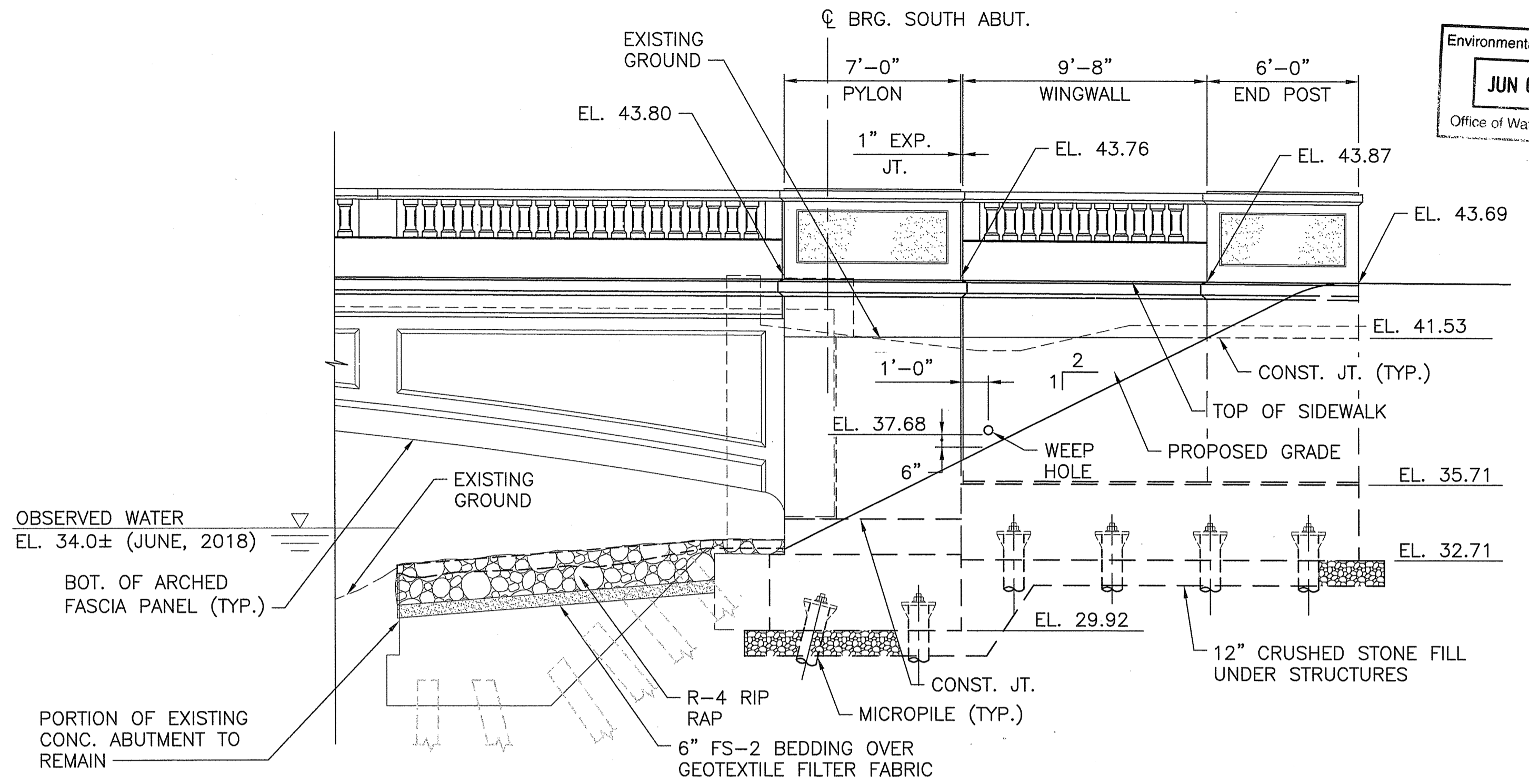
REVISIONS		
NO.	DATE	BY

RHODE ISLAND
 DEPARTMENT OF TRANSPORTATION
 REPLACEMENT OF
 HUNTS MILLS BRIDGE No. 208 (69E)
 EAST PROVIDENCE, RHODE ISLAND
**DEMOLITION PLAN AND
 DETAILS SHEET 2**
 CHECKED BY _____ DATE _____ SCALE AS SHOWN
 RIDEM SUBMISSION - AUGUST 19, 2020

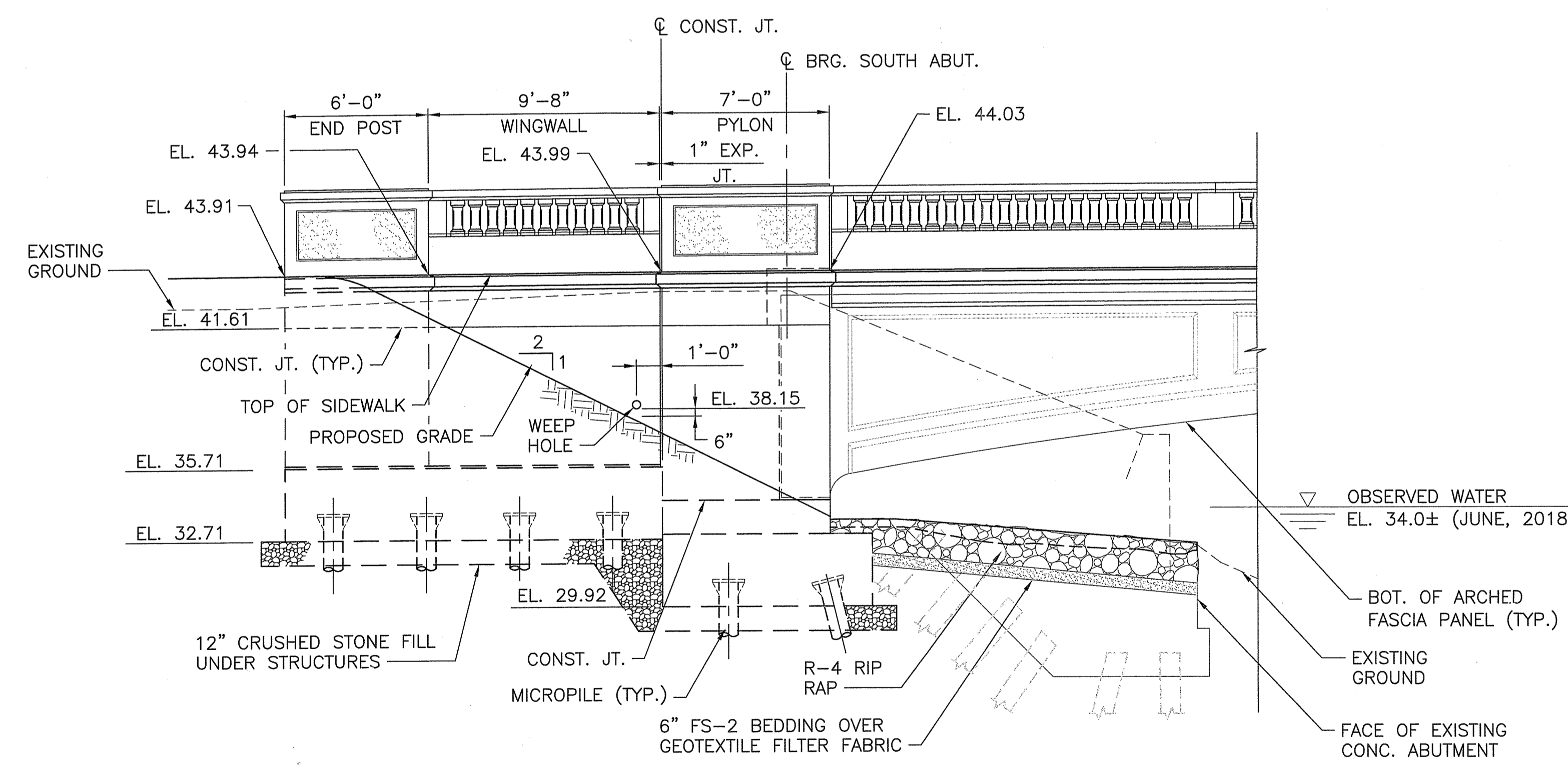
Environmental Management
JUN 03 2021
 Office of Water Resources



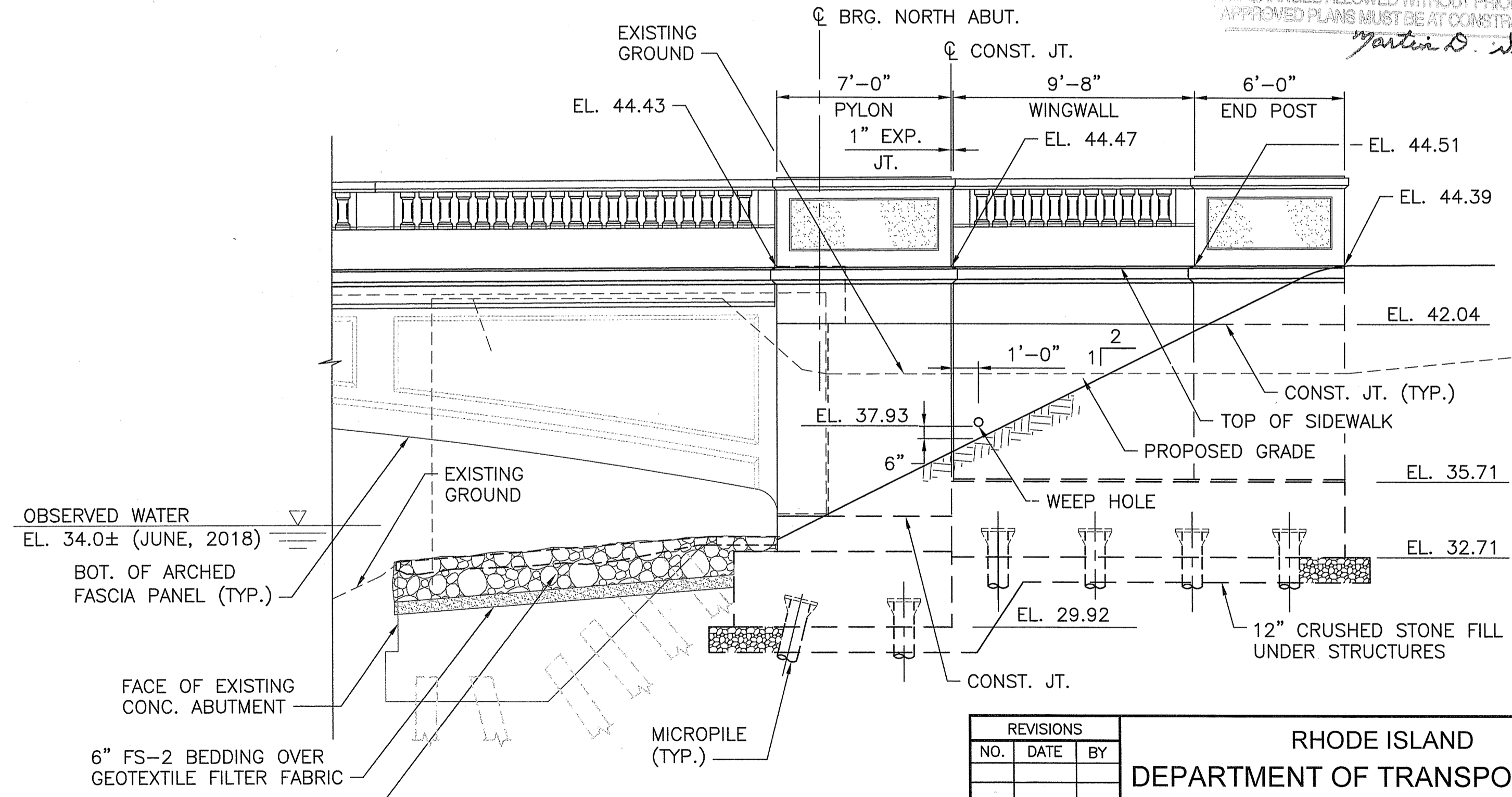
NORTHWEST ELEVATION
 SCALE: 1/4"=1'-0"



SOUTHWEST ELEVATION
 SCALE: 1/4"=1'-0"



SOUTHEAST ELEVATION
 SCALE: 1/4"=1'-0"



NORTHEAST ELEVATION
 SCALE: 1/4"=1'-0"

NOTE:
 RIP RAP AND ASSOCIATED SUBBASE MATERIALS ARE TO BE PLACED AT ALL 4 QUADRANTS OF BRIDGE ONLY UP TO EXISTING ABUTMENTS.

OFFICE OF WATER RESOURCES
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RHODE ISLAND
 DEPARTMENT OF TRANSPORTATION
 REPLACEMENT OF
 HUNTS MILLS BRIDGE No. 208 (69E)
 EAST PROVIDENCE, RHODE ISLAND
WINGWALL ELEVATIONS
 CHECKED BY _____ DATE _____ SCALE AS SHOWN