

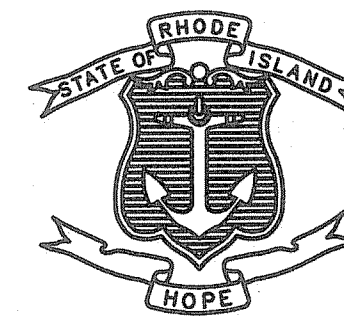
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			1	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 1 OF 54

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# STATE OF RHODE ISLAND



## DEPARTMENT OF TRANSPORTATION

### PLAN, PROFILE AND SECTIONS OF PROPOSED

# NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY

## CONTRACT 4

PROJECT LIMITS STA. 6+80 KING PHILIP ROAD TO STA. 126+00 MERINO PARK

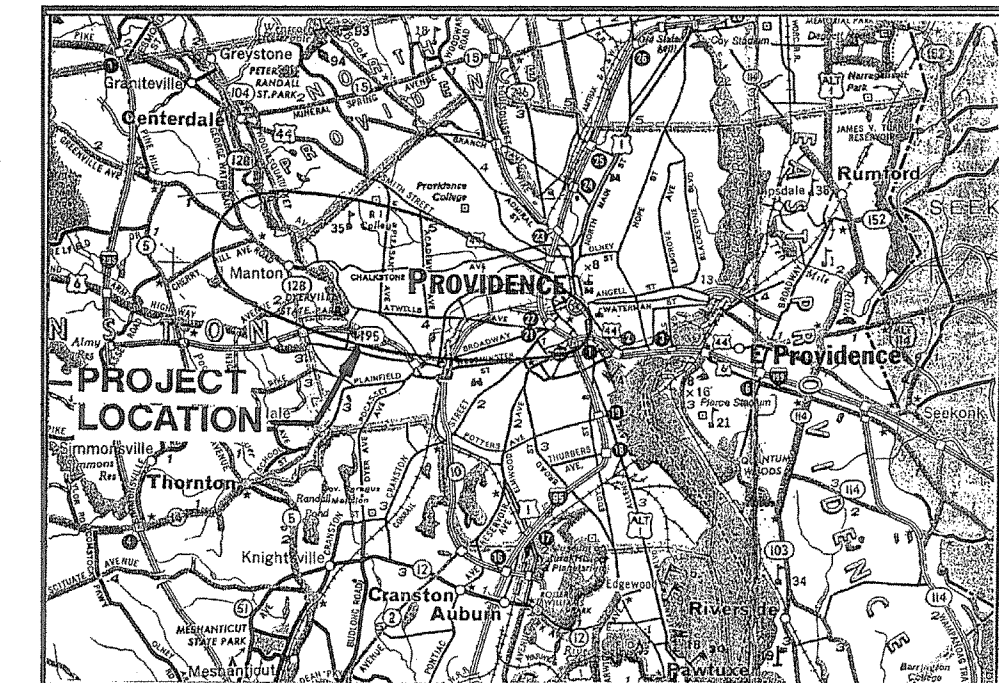
CITY PROVIDENCE  
COUNTY OF PROVIDENCE

R.I. CONTRACT NO. F.A. PROJECT NO.

### PAVEMENT STRUCTURE

2" BITUMINOUS CONCRETE SURFACE COURSE  
2" BITUMINOUS CONCRETE BASE COURSE  
12" GRAVEL BORROW SUBBASE COURSE

0.8 MILES



LOCATION MAP  
SCALE: 1"= 1.67 MILES

#### 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, 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.



BEGIN CONTRACT NO. 4  
F.A. PROJECT NO. HPP-XXXX(XXX)  
R.I. CONTRACT NO. 2010-CH-XXX  
STA. 6+80

END CONTRACT NO. 4  
F.A. PROJECT NO. HPP-XXXX(XXX)  
R.I. CONTRACT NO. 2010-CH-XXX  
STA. 126+00

LAYOUT PLAN  
SCALE: 1"=3000'

#### SCALES OF DRAWINGS

Plans	1 inch = 20 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  
NGVD 29

PRIME CONSULTANT:  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS

BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*J. Joseph Casey*

Contract Number 4

Number of Sheet 1

Total Sheets 54

AUGUST 1, 2011  
DEM PLAN SET

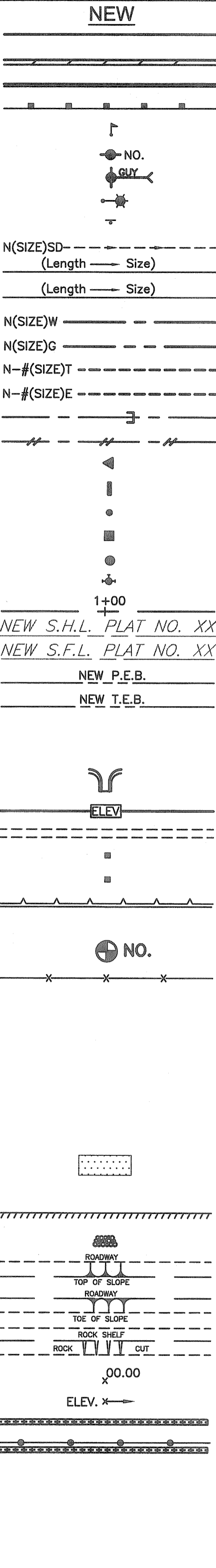
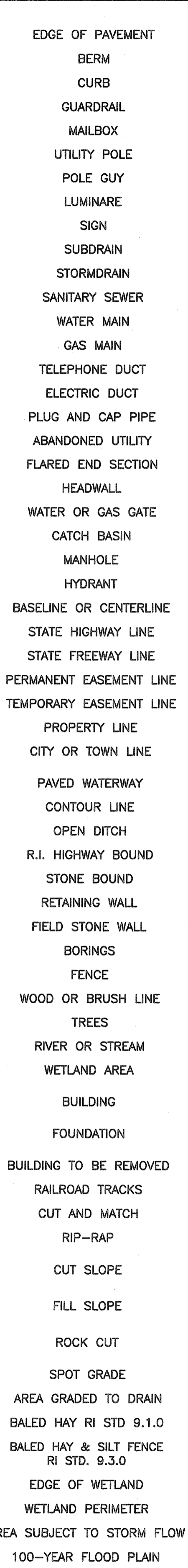
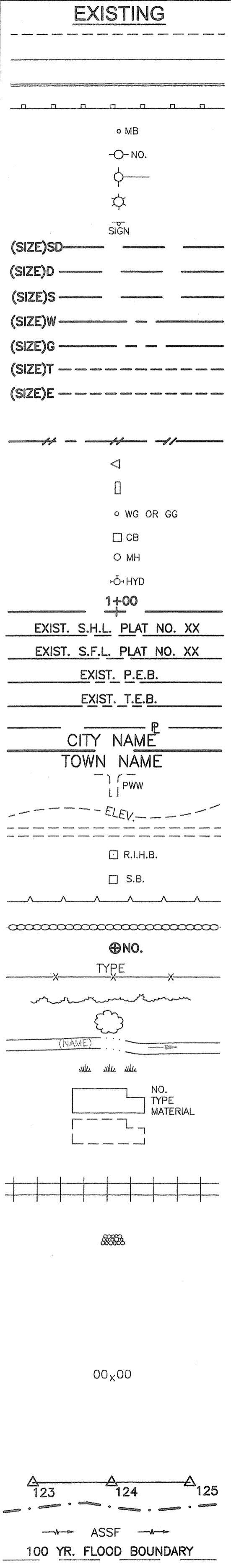
R.I. DEPARTMENT OF TRANSPORTATION	
APPROVED	DATE
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DEPUTY CHIEF ENGINEER	DATE
APPROVED	
CHIEF ENGINEER	DATE
APPROVED	
DIRECTOR	DATE
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	DATE
DIVISION ADMINISTRATOR	
	DATE

WILLIAM J. REED  
No. 3280  
*William J. Reed*  
REGISTERED PROFESSIONAL ENGINEER

T:\PR-007.PRJ\Cont4\Contract 4\CADD\Civil\01-title.dwg 06/17/09 14:11 [69.72] By puliaf\_j

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			2	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 2 OF 54



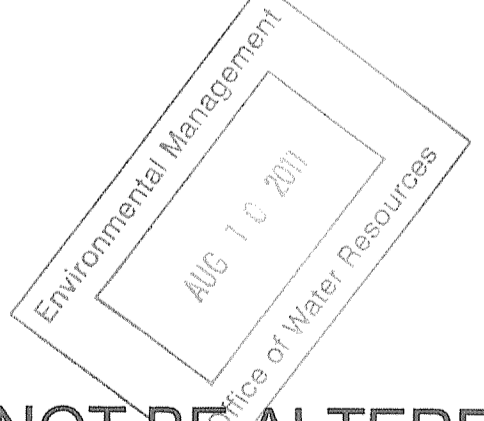
- 1.1.0 UNDERDRAIN
- 1.3.0 CONCRETE CONNECTING COLLAR
- 2.1.0 CONCRETE HEADWALLS FOR PIPE CULVERTS
- 2.2.0 STANDARD HEADWALLS FOR MULTIPLE 3'-6" TO 7'-0" PIPE CULVERTS
- 2.3.0 (DIA.) PRECAST CONCRETE FLARED END SECTION
- 3.2.0 BRICK/SOLID BLOCK 4'-0" ROUND MANHOLE
- 3.2.1 (DIA.) BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND MANHOLE
- 3.3.0 BRICK/SOLID BLOCK TYPE "D" SQUARE CATCH BASIN
- 3.3.2 BRICK/SOLID BLOCK TYPE "F" SQUARE CATCH BASIN
- 3.3.3 SOLID BLOCK FLUSH SQUARE CATCH BASIN
- 3.4.0 BRICK/SOLID BLOCK TYPE "D" ROUND CATCH BASIN
- 3.4.1 BRICK/SOLID BLOCK ROUND CATCH BASIN WITH GUTTER INLET
- 3.4.2 BRICK/SOLID BLOCK TYPE "F" ROUND CATCH BASIN
- 3.4.3 BRICK/SOLID BLOCK TYPE "R" CATCH BASIN
- 3.4.4 SOLID BLOCK FLUSH ROUND CATCH BASIN
- 3.4.5 (DIA.) BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND CATCH BASIN
- 3.5.0 SOLID BLOCK SHALLOW TYPE "F" SQUARE CATCH BASIN
- 3.5.1 (SIZE) SOLID BLOCK SHALLOW 5'-0" OR 6'-0" SQUARE CATCH BASIN
- 3.6.0 BRICK/SOLID BLOCK DROP INLET
- 3.7.0 (DIA.) BRICK/SOLID BLOCK ROUND MANHOLE OR CATCH BASIN GREATER THAN 12'-0"
- 4.2.0 PRECAST 4'-0" ROUND MANHOLE
- 4.2.1 PRECAST 5'-0" ROUND MANHOLE
- 4.2.2 PRECAST 6'-0" ROUND MANHOLE
- 4.3.0 (SIZE) PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN
- 4.4.0 (DIA.) PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN
- 4.5.0 PRECAST CONCRETE DROP INLET
- 4.5.1 PRECAST CONCRETE DROP INLET LATERAL OUTLET
- 4.5.2 PRECAST CONCRETE DROP INLET LONGITUDINAL OUTLET
- 5.3.0 CATCH BASIN AND MANHOLE STEP
- 5.4.0 CONCRETE COLLARS
- 6.1.0 LIGHT-DUTY SQUARE FRAME AND ROUND COVER
- 6.1.1 HEAVY DUTY SQUARE FRAME AND ROUND COVER
- 6.2.0 LIGHT-DUTY ROUND FRAME AND COVER
- 6.2.1 HEAVY-DUTY ROUND FRAME AND COVER
- 6.3.0 SQUARE FRAME AND GRATE
- 6.3.1 SQUARE FRAME AND GRATE
- 6.3.2 SQUARE FRAME AND GRATE (BICYCLE SAFE)
- 6.3.3 HIGH CAPACITY FRAME AND GRATE
- 6.3.4 HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)
- 6.4.0 ROUND FRAME AND GRATE
- 7.1.0S PRECAST CONCRETE CURB (STRAIGHT)
- 7.1.0C PRECAST CONCRETE CURB (CIRCULAR)
- 7.1.1 3'-0' PRECAST CONCRETE TRANSITION CURB
- 7.1.2 6'-0' PRECAST CONCRETE TRANSITION CURB
- 7.1.4 PRECAST 2'-0" RADIUS CORNER
- 7.1.5 PRECAST CONCRETE INLET STONE (FOR SQUARE CATCH BASIN)
- 7.1.6 PRECAST CONCRETE INLET STONE (FOR ROUND CATCH BASIN)
- 7.1.7 PRECAST CONCRETE APRON STONE (FOR SQUARE CATCH BASIN)
- 7.1.8 PRECAST CONCRETE APRON STONE (FOR ROUND CATCH BASIN)
- 7.2.0S PRECAST CONCRETE SLOPED FACE CURB (STRAIGHT)
- 7.2.0C PRECAST CONCRETE SLOPED FACE CURB (CIRCULAR)
- 7.2.1 PRECAST CONCRETE SLOPED FACE TRANSITION CURB
- 7.2.2 PRECAST CONCRETE TRANSITION CURB (VERTICAL FACE TO SLOPED FACE)
- 7.3.0S GRANITE CURB (STRAIGHT)
- 7.3.0C GRANITE CURB (CIRCULAR)
- 7.3.1 3'-0" GRANITE TRANSITION CURB
- 7.3.2 6'-0" GRANITE TRANSITION CURB
- 7.3.3 GRANITE WHEELCHAIR RAMP TRANSITION CURB
- 7.3.4 GRANITE 2'-0" RADIUS CORNER
- 7.3.5 GRANITE INLET STONE (FOR SQUARE CATCH BASIN)
- 7.3.6 GRANITE INLET STONE (FOR ROUND CATCH BASIN)
- 7.3.7 GRANITE APRON STONE (FOR SQUARE CATCH BASIN)
- 7.3.8 GRANITE APRON STONE (FOR ROUND CATCH BASIN)
- 7.4.0 GRANITE SLOPED FACE CURB
- 7.4.1 GRANITE SLOPED FACE TRANSITION CURB

- 7.4.2 GRANITE TRANSITION CURB (VERTICAL FACE TO SLOPE FACE)
- 7.5.0 BITUMINOUS CONCRETE LIP CURB
- 7.5.1A BITUMINOUS BERM (CONSTRUCTION METHOD A)
- 7.5.1B BITUMINOUS BERM (CONSTRUCTION METHOD B)
- 7.6.0 CURB SETTING DETAIL
- 8.2.0 BITUMINOUS CONCRETE DITCH
- 8.3.0 RIP-RAP DITCH
- 8.4.0 PAVED WATERWAY
- 9.1.0 BALED HAY EROSION CHECK
- 9.2.0 SILT FENCE DETAIL
- 9.3.0 BALED HAY DITCH EROSION CHECK AND SILT FENCE COMBINED
- 9.4.0 BALED HAY DITCH AND SWALE EROSION CHECK
- 9.5.0 LOG AND HAY CHECK DAM
- 9.7.0 DEWATERING BASIN
- 9.8.0 BALED HAY CATCH BASIN INLET PROTECTION
- 9.9.0 CONSTRUCTION ACCESS
- 10.1.0 WET STONE MASONRY RETAINING WALL
- 10.2.0 RUBBLE MASONRY WALL
- 10.3.0 CONCRETE RETAINING WALL
- 10.4.0 STONE MASONRY STEPS
- 14.1.0 CONCRETE HIGHWAY BOUND
- 15.1.0 POST AND MOUNTINGS FOR RURAL MAILBOX
- 15.2.0 (NO.) POST AND MULTIPLE MOUNTINGS FOR RURAL MAILBOXES
- 18.2.0 PRECAST TYPE "A" HANDHOLE
- 18.2.2 HEAVY DUTY TYPE "H" HANDHOLE
- 18.3.0 ALUMINUM LIGHTING STANDARDS
- 20.2.0 BI-DIRECTIONAL CONTROL DEVICE
- 24.6.1 STREET SIGN MOUNTING DETAIL
- 26.2.0 POLYETHYLENE DRUM WITH MARKINGS
- 26.3.0 PVC PLASTIC PIPE TYPE III BARRICADE
- 31.1.0 CHAIN LINK FENCE 3'-0" TO 4'-0"
- 31.2.0 CHAIN LINK FENCE 5'-0" TO 6'-0"
- 31.2.1 CHAIN LINK FENCE 5'-0" TO 6'-0" INTERMEDIATE POST
- 31.3.0 WOVEN WIRE RIGHT-OF-WAY FENCE (STEEL POST)
- 34.1.0 TYPICAL GUARDRAIL INSTALLATION
- 34.2.0 STEEL BEAM GUARDRAIL
- 34.2.1 STEEL BEAM GUARDRAIL DETAILS
- 34.2.2 STEEL BEAM GUARDRAIL DOUBLE FACED ASSEMBLY
- 34.2.3 STEEL BEAM GUARDRAIL FIXTURES
- 34.2.5 STEEL BEAM GUARDRAIL REFLECTORIZED TRIANGULAR DELINEATOR
- 34.3.1 GUARDRAIL END SECTION
- 34.3.2 TERMINAL END SECTION (SINGLE FACE)
- 34.3.3 ANCHORAGE DETAILS APPROACH END SECTION
- 34.3.4 ANCHORAGE DETAILS TRAILING END SECTION
- 34.4.0 STEEL BACKED TIMBER GUARDRAIL
- 34.4.1 STEEL BACKED TIMBER GUARDRAIL TERMINAL SECTION-TYPE 1
- 40.1.0 DOUBLE-FACED PRECAST MEDIAN BARRIER
- 40.2.0 SINGLE-FACED PRECAST MEDIAN BARRIER
- 40.2.1 SINGLE-FACED PRECAST MEDIAN BARRIER
- 40.3.0 PRECAST MEDIAN BARRIER TRANSITION UNIT
- 40.5.0 PRECAST MEDIAN BARRIER FOR TEMPORARY TRAFFIC CONTROL
- 43.1.0 CEMENT CONCRETE SIDEWALK
- 43.2.0 BITUMINOUS CONCRETE SIDEWALK
- 43.3.0 WHEELCHAIR RAMP
- 43.3.1 WHEELCHAIR RAMP FOR LIMITED RIGHT-OF-WAY AREAS
- 43.4.0 DRIVEWAY DEVELOPMENT FOR 3'-0" TRANSITION CURB
- 43.4.1 DRIVEWAY DEVELOPMENT FOR 6'-0" TRANSITION CURB
- 43.5.0 CEMENT CONCRETE DRIVEWAYS
- 48.1.0 DETECTABLE WARNING SYSTEM
- 51.1.0 TREE PROTECTION DEVICE
- 51.1.1 DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES
- 51.2.0 SHRUB PROTECTION DEVICE
- 51.3.0 TREE WELL
- 51.4.0 TREE WALL

- AB ADJUST CATCH BASIN TO GRADE
- ABM ADJUST CATCH BASIN TO MANHOLE
- AC ADJUST CURB STOP TO GRADE
- AD ADJUST DRAINAGE MANHOLE TO GRADE
- AE ADJUST ELECTRIC MANHOLE TO GRADE
- AFC ADJUST FRAME AND COVER TO GRADE
- AFG ADJUST FRAME AND GRATE TO GRADE
- AG ADJUST GAS GATE BOX TO GRADE
- AHH ADJUST HANDHOLE TO GRADE
- AS ADJUST SANITARY SEWER MANHOLE TO GRADE
- AT ADJUST TELEPHONE MANHOLE TO GRADE
- AW ADJUST WATER GATE BOX TO GRADE
- BCD BITUMINOUS CONCRETE DRIVEWAY
- CCB CLEAN CATCH BASIN
- CCP CUT AND CAP PIPE WITH RESTRAINT (ALL SIZES)
- CFP CLEAN AND FLUSH PIPE
- CG CLEARING AND GRUBBING
- CMH CLEAN MANHOLE
- CP (DEPTH) COLD PLANE
- CPP CUT AND PLUG PIPE (ALL TYPES, ALL SIZES)
- DB REMOVE AND DISPOSE BITUMINOUS CURB
- DC REMOVE AND DISPOSE CONCRETE CURB
- DCB REMOVE AND DISPOSE CATCH BASIN
- DDI REMOVE AND DISPOSE DROP INLET
- DF REMOVE AND DISPOSE FENCE
- DFC REMOVE AND DISPOSE FRAME AND COVER
- DFE REMOVE AND DISPOSE FLARED END SECTION
- DFG REMOVE AND DISPOSE FRAME AND GRATE
- DFH REMOVE AND DISPOSE FIRE HYDRANT
- DFP REMOVE AND DISPOSE FLEXIBLE PAVEMENT
- DG REMOVE AND DISPOSE GUARDRAIL
- DH REMOVE AND DISPOSE HEADWALL
- DHB REMOVE AND DISPOSE HIGHWAY BOUND
- DHH REMOVE AND DISPOSE HANDHOLE
- DL REMOVE AND DISPOSE LIGHT AND FOUNDATION
- DMB REMOVE AND DISPOSE MEDIAN BARRIER
- DMH REMOVE AND DISPOSE MANHOLE
- DMM REMOVE AND DISPOSE MEDIAN MARKER
- DOW REMOVE AND DISPOSE OBSERVATION WELL
- DP REMOVE AND DISPOSE PIPE
- DPB REMOVE AND DISPOSE PAVEMENT AND RIGID BASE
- DRB REMOVE AND DISPOSE RIGID BASE
- DS REMOVE AND DISPOSE SIGN
- DSS REMOVE AND DISPOSE TRAFFIC SIGNAL SYSTEM
- DSW REMOVE AND DISPOSE SIDEWALK
- DTD REMOVE AND DISPOSE TELEPHONE DUCT BANKS
- DUP REMOVE AND DISPOSE UTILITY POLE
- DWW REMOVE AND DISPOSE PAVED WATERWAY
- FF FILTER FABRIC RIPRAP FLARED END UNDERLAYMENT
- GET FLARED GUARDRAIL END TREATMENT
- IA IMPACT ATTENUATOR
- IDL IMPERVIOUS DITCH LINER
- LOR LIMIT OF DISTURBANCE
- LS LIMIT OF REGRADING

- NFH NEW FIRE HYDRANT WITH GATE VALVE
- NIC NOT IN THIS CONSTRUCTION CONTRACT
- NWB FURNISH AND INSTALL NEW WATER GATE VALVE BOX
- NWVB FURNISH AND INSTALL NEW WATER GATE VALVE AND BOX
- NWCB FURNISH AND INSTALL NEW WATER CURB STOP BOX
- NWSB FURNISH AND INSTALL NEW WATER CURB STOP AND BOX
- PCD PERMANENT CHECK DAM
- PS 4" PLANTABLE SOIL AND SEED
- RCB RECONSTRUCT TYPE "D" CATCH BASIN, TO CATCH BASIN WITH GUTTER INLET
- RCM R.I.D.O.T. COMMUNICATIONS MANHOLE
- RHH REMOVE, HANDLE, HAUL, TRIM, RESET CURB EDGING, STRAIGHT, CIRCULAR (ALL TYPES)
- RLP RELOCATE LAMP POST
- RMB RELOCATE MAILBOX (BY OTHERS)
- RPM REMOVE PAVEMENT MARKINGS
- RRP RIP-RAP PAD (SEE DETAIL)
- RRS REMOVE AND RELOCATE SIGN
- RUP RELOCATE UTILITY POLE (BY OTHERS)
- SB STONE BAFFLE
- SBAE STEEL BEAM BRIDGE CONNECTION APPROACH END (W/O NESTED RAIL)
- SBTE STEEL BEAM BRIDGE CONNECTION TRAILING END (W/NESTED RAIL)
- SD- STRUCTURAL DISPOSITION - SEE CS PAGES OF SPECIFICATION
- SF REMOVE AND STOCKPILE FENCE
- SGA SPECIAL GRADED AGGREGATE
- SGC REMOVE AND STOCKPILE GRANITE CURB
- SGR REMOVE AND STOCKPILE GUARDRAIL
- SH REMOVE AND STOCKPILE HYDRANT
- SS REMOVE AND STOCKPILE SIGN
- STS REMOVE AND STOCKPILE TRAFFIC SIGNAL SYSTEM
- TB CONCRETE THRUST BLOCK
- TEP TIE EXISTING PIPE INTO NEW STRUCTURE
- TNP TIE NEW PIPE INTO EXISTING STRUCTURE
- TBT THRIE BEAM TRANSITION
- TBBC THRIE BEAM BRIDGE CONNECTION
- TT TREE TRIMMING
- WCM 4" WOOD CHIP MULCH
- 4DY 4" EPOXY RESIN PAVEMENT MARKINGS - DOUBLE YELLOW
- 6W 6" EPOXY RESIN PAVEMENT MARKINGS - WHITE
- 12W 12" EPOXY RESIN PAVEMENT MARKINGS - WHITE
- 6WT 6" PREFORMED PATTERNED MARKING (HIGH PERFORMANCE TAPE)
- 4Y 4" EPOXY RESIN PAVEMENT MARKINGS - YELLOW
- 6Y 6" EPOXY RESIN PAVEMENT MARKINGS - YELLOW
- P.G.L. PROFILE GRADE LINE

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



THIS PLAN SHALL NOT BE ALTERED

LIMIT OF REGRADING  
4" LOAM AND SEED  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Casey*

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY
1	6/07	TRB

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

STANDARD PLAN SYMBOLS &  
STANDARD LEGEND

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE \_\_\_\_\_

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			3	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 3 OF 54

**GENERAL NOTES:**

- 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 106.06 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING HIM TO CONSTRUCT THE PROJECT IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. THE RESIDENT ENGINEER WILL NOT AUTHORIZE CONSTRUCTION ACTIVITIES TO BEGIN UNTIL HE IS SATISFIED THAT ALL GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.
- ALL R.I. STD. 9.9.0 CONSTRUCTION ACCESS ROADS SHALL BE CONSTRUCTED PRIOR TO ANY ROADWAY ACCEPTING CONSTRUCTION TRAFFIC.
- THE FREQUENCY AND APPLICATION RATES FOR THE DUST CONTROL ITEMS WILL BE AS DIRECTED BY THE ENGINEER.
- ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE ENGINEER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS. ALL APPLICATIONS ON BOTH HORIZONTAL AND VERTICAL SURFACES SHALL BE PAID FOR UNDER THE CONTRACT UNIT BID PRICE FOR CODE 403.0300 "ASPHALT EMULSION TACK COAT."
- THE 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 PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED WITH THE PERMISSION OF THE ENGINEER.
- UNDER NO CIRCUMSTANCE WILL THE CONTRACTOR BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS.
- CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER.
- PRIOR TO INSTALLATION, ALL SIGNS, MOUNTINGS AND LOCATIONS SHALL BE APPROVED OR MODIFIED BY THE ENGINEER.
- THE COORDINATE SYSTEM IS THE R.I. STANDARD GRID SYSTEM, NAD 83. THE VERTICAL CONTROL IS NGVD 29.
- PAVEMENT OPERATIONS FOR CURBED SECTIONS: IN AREAS WHERE CURBING IS SET TO FINISH LINE AND GRADE, THE CONTRACTOR WILL NOT BE REQUIRED TO UTILIZE THE SENSOR AND SKY-TYPE DEVICE FOR AUTOMATIC GRADE CONTROL, BUT WILL BE ALLOWED TO MANUALLY ADJUST THE BITUMINOUS PAYER FOR CONTROLLING GRADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.
- NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO PAVING AND COLD PLANING OPERATIONS.
- ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. ALSO, 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 DIVERSIONARY ROUTE, AS DESIGNATED ON THE COVERSHEET, 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 (RIDEM), AND/OR THE ARMY CORPS OF ENGINEERS (ACOE), 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).
- FOR ALL PROJECTS INVOLVING KNOWN SITE REMEDIATION ISSUES, THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE CONSTRUCTION RELATED PROVISIONS, CONDITIONS, AND STIPULATIONS OF ANY REMEDIAL PLANS DEVELOPED FOR THE PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE DOCUMENTS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- NO UNPROTECTED CONSTRUCTED FEATURE MAY PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. HEADWALL, DRAINAGE INLET, ETC.
- THE REMAINING SECTION OR STUB OF A BREAKAWAY BASE MAY NOT PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. SIGN POSTS, LIGHT POLES, FIRE HYDRANTS, ETC.

**DRAINAGE AND EROSION CONTROL NOTES:**

- 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 RIPDES 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 CS PAGES OF THE CONTRACT DOCUMENTS. 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).
- NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL 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 RESTABILIZED 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 BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEED AND RINGED WITH R.I. STD. 9.1.0 TO STABILIZE.
- IF THE PLANS INCLUDE SPECIFIC AREAS FOR PLACEMENT OF CONSTRUCTION DEWATERING BASINS AND/OR EQUIPMENT AND MATERIALS STORAGE AND STOCKPILING, AND IF THE CONTRACTOR ELECTS TO UTILIZE ANY OTHER AREAS FOR THESE PURPOSES, THIS SHALL BE APPROVED BY THE ENGINEER ONLY AFTER OBTAINING ANY NECESSARY PERMITS AND/OR PERMIT MODIFICATIONS FROM THE APPROPRIATE REGULATORY AUTHORITY(IES). ANY PERMITTING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED AT NO COST TO THE STATE. THE ENGINEER WILL COORDINATE SUBMISSION OF ANY REQUIRED PERMIT APPLICATION MATERIALS WITH THE R.I.D.O.T. OFFICE OF ENVIRONMENTAL PROGRAMS.
- JUTE MESH 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. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.
- SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.
  - SEEDING TYPE I.
  - ADHESIVE MULCH STABILIZER
- UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.
- 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. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION. WORK CAN COMMENCE ONLY UPON THE ENGINEER'S AUTHORIZATION.
- ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED ROADWAY SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT PRIOR TO THE WINTER SHUTDOWN.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.
- CATCH BASIN RIM GRADES NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE ENGINEER.
- PROVISIONS FOR CLEARING TO ACCESS OUTFALLS DURING THE CLEANING AND FLUSHING OF THE CLOSED DRAINAGE SYSTEM SHALL BE KEPT TO A MINIMUM.
  - ANY VEGETATIVE CLEARING SHALL BE LIMITED TO BRUSH AND TREES LESS THAN 3" DIAMETER.
  - NO HEAVY EQUIPMENT MAY ENCRONCH UPON VEGETATED PERIMETER OR RIVERBANK WETLANDS AS WELL AS BIOLOGICAL WETLANDS.
- THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL DEVICES FOR OUTLET PROTECTION PRIOR TO CLEANING AND FLUSHING STORM WATER DRAINAGE. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL FLUSHED SEDIMENTS ARE REMOVED. AT ALL OUTFALL LOCATIONS WHERE PIPES ARE TO BE CLEANED AND FLUSHED, OUTLET PROTECTION (R.I. STD. 9.1.0 OR 9.3.0) SHALL BE INSTALLED TO TRAP SEDIMENTS. THESE SEDIMENTS SHALL THEN BE REMOVED AND DISPOSED OF LEGALLY BEFORE THE OUTLET PROTECTION DEVICES ARE REMOVED. IF OUTLET PROTECTION AT THE OUTFALL IS NOT FEASIBLE, THEN THE OUTLET PIPE OF THE LAST DRAINAGE STRUCTURE TO BE CLEANED SHALL BE PLUGGED TO CAPTURE ALL MATERIALS FLUSHED FROM PIPES. AFTER THE MATERIALS ARE REMOVED FROM THE DRAINAGE STRUCTURE, THE OUTLET SHALL BE UNPLUGGED TO RESUME NORMAL FUNCTIONING.
- R.I. STD. 9.8.0 BALED HAY INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.
- WHERE BALED HAY INLET PROTECTION AND SILT FENCES ARE USED AT CATCH BASINS, THEY SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE ENGINEER IN ORDER TO PREVENT CLOGGING OF THE INLET.

**DRAINAGE AND EROSION CONTROL NOTES (CONTINUED):**

- DETENTION AND RETENTION BASINS MAY BE ROUGH GRADED AND STABILIZED WITH VEGETATION AND/OR OTHER EROSION CONTROL MEASURES AS REQUIRED BY THE ENGINEER PRIOR TO USE AS TEMPORARY SEDIMENTATION BASINS DURING PROJECT CONSTRUCTION. FINAL BASIN CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL SOURCES OF SEDIMENT HAVE BEEN ELIMINATED, FINAL ROADSIDE VEGETATION IS ESTABLISHED AND USE OF TEMPORARY BASINS IS NO LONGER REQUIRED AS DIRECTED BY THE ENGINEER. ANY ISSUES RELATING TO EROSION AND/OR SEDIMENT TRANSPORT INTO WETLAND AREAS RESULTING FROM SUCH USE OF SEDIMENTATION BASINS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY CORRECTIVE ACTION REQUIRED TO RESOLVE SUCH ISSUES SHALL BE COMPLETED BY THE CONTRACTOR.
- 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 CONTROLS 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 STATE.
- THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L.02.03 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.

**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 CHAPTER 39-1.2 OF THE R.I. GENERAL LAWS ENTITLED "EXCAVATION NEAR UNDERGROUND UTILITY FACILITIES", WITH AMENDMENTS EFFECTIVE AS OF NOVEMBER 1, 2009 AND, WHEN NECESSARY, 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 EXISTING UTILITIES TO BE ABANDONED SHALL BE CAPPED.
- EXISTING WATER SERVICES SHALL BE RECONNECTED TO THE NEW WATER MAINS.
- UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES TO REMAIN.
- FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT WRITTEN AUTHORIZATION FROM THE FIRE DEPARTMENT OR THE WATER AUTHORITY.
- ALL NEW WATER LINES SHALL BE DISINFECTED TO THE SATISFACTION OF THE WATER AUTHORITY IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL UTILITY POLE RELATED WORK SHALL BE BY OTHERS.

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Casey*

Environmental Management  
Aug 1 10 2011  
Office of Water Resources

**THIS PLAN SHALL NOT BE ALTERED**

REVISIONS			RHODE ISLAND	
NO	DATE	BY	DEPARTMENT OF TRANSPORTATION	
1	4/07	TRB	BIKE TRAIL NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY PROVIDENCE, RHODE ISLAND	
2	3/10	RBH		
			STANDARD NOTES - 1	
			CHECKED BY _____ DATE _____ SCALE _____	

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

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FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			4	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 4 OF 54

**LANDSCAPE NOTES:**

- ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (A RECOGNIZED GROWER OF PLANT MATERIAL) IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION. ALL PLANT MATERIAL MUST BE NURSERY GROWN; NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
- ALL PLANT SUBSTITUTIONS AND/OR CHANGES IN PLANT LOCATION MUST BE APPROVED IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- ALL PLANT MATERIAL IS TO BE FIELD LOCATED BY A REPRESENTATIVE FROM THE R.I.D.O.T. LANDSCAPE ARCHITECTURE UNIT.
- A R.I.D.O.T. LANDSCAPE REPRESENTATIVE MUST BE ON SITE TO APPROVE ALL TRIMMING AND CLEARING NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.
- ANY TOPSOIL USED AS PLANTABLE SOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS, AND SHALL CONFORM TO SECTION M.18 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
- PROVIDE A MINIMUM 6'-8" BRANCHING STANDARD ON ALL TREES INSTALLED ADJACENT TO SIDEWALKS AND/OR PEDESTRIAN ACCESS AREAS.

**STRUCTURAL NOTES FOR HIGHWAY SIGNS,  
LUMINAIRES AND TRAFFIC SIGNALS:**

**GENERAL**

- ALL SUPPORT DESIGNS AND ASSOCIATED SHOP DRAWING REVIEWS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION, OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (THE "SPECIFICATIONS"), INCLUDING THE LATEST INTERIM SPECIFICATIONS, EXCEPT AS MODIFIED HEREIN.

**CONSTRUCTION DRAWINGS AND DETAILS**

- THE FOLLOWING NOTES SHALL BE INCLUDED ON ALL PLANS AND/OR SHOP DRAWINGS IN REFERENCE TO ANCHOR BOLTS:
  - "PRETENSIONING OF ALL ANCHOR NUTS IS REQUIRED, AND SHALL BE ACCOMPLISHED BY TIGHTENING TO 1/6TH TURN BEYOND THE SNUG-TIGHT POSITION."
  - "THE MAXIMUM CLEARANCE BETWEEN THE BOTTOM OF THE LEVELING NUTS AND THE TOP OF THE CONCRETE IS CRITICAL AND SHALL NOT EXCEED THE AMOUNT SPECIFIED ON THIS DRAWING."
- THE USE OF GROUT UNDER BASE PLATES SHALL GENERALLY NOT BE PERMITTED. IF SPECIFIC CONDITIONS WARRANT ITS USE, THE GROUT SHALL NOT BE CONSIDERED LOAD CARRYING; LOADS SHALL BE DIRECTLY SUPPORTED BY THE ANCHOR BOLTS. ADEQUATE DRAINAGE SHALL BE PROVIDED.
- THE DAMPENING EFFECTS OF VIBRATION MITIGATION DEVICES SHALL NOT BE CONSIDERED IN THE DESIGN OF STRUCTURAL SUPPORTS FOR SIGNS AND TRAFFIC SIGNALS. IF THE CONTRACTOR CHOOSES TO USE THESE DEVICES FOR WARRANTY PURPOSES, THE TYPE OF DEVICES PROPOSED SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO FABRICATION OF SUPPORTS.

**TRAFFIC SIGNAL NOTES:**

- ALL SALVAGED TRAFFIC SIGNAL EQUIPMENT SHALL BE DELIVERED TO THE R.I.D.O.T. MAINTENANCE HEADQUARTERS, 360 LINCOLN AVENUE, WARWICK, RHODE ISLAND, 02888.
- BACK PLATES SHALL BE INSTALLED ON ALL TRAFFIC SIGNAL HEADS.
- THE CONTRACTOR SHALL SUPPLY AND INSTALL ON THE UPPER LEFT HAND CORNER OF THE BACK OF THE CONTROLLER CABINET DOOR A LAMINATED INTERSECTION GRAPHIC AND TABLE DEPICTING THE TRAFFIC DETECTOR RELAY CHANNEL ASSIGNMENTS. THE DIAGRAM SHALL BE A GRAPHIC OF THE INDIVIDUAL INTERSECTION ORIENTED SIMILAR TO THE PLANS SHOWING THE LOCATIONS OF EACH OF THE LOOP DETECTORS. THE DIAGRAM SHALL, AT A MINIMUM, INCLUDE DETECTOR NUMBERS, STREET NAME LABELS, NORTH ARROW, AND CONTROLLER CABINET LOCATION. THE ASSIGNMENT INFORMATION SHALL BE INCLUDED IN A TABLE WHICH SHALL INCLUDE, AT A MINIMUM, THE APPROACH NAME, DETECTOR NUMBER, TERMINAL NUMBER, DETECTOR RACK SLOT NUMBER, RELAY NUMBER, RELAY CHANNEL NUMBER, AND PHASE ASSOCIATED WITH EACH DETECTOR.
- TRAFFIC CONTROLLER CABINETS, UNLESS OTHERWISE NOTED, SHALL BE NEMA TS2 TYPE 1 CABINET SIZE 6 ("P" TYPE) WITH NOMINAL DIMENSIONS OF 52"Hx44"Wx24"D.
- ALL DELAY AND EXTENSION TIMES, AS CALLED FOR ON THE PLANS, FOR PROPOSED LOOP DETECTORS SHALL BE PROGRAMMED IN THE TRAFFIC SIGNAL CONTROLLER AND NOT THE DETECTOR RELAY.
- A BARE GROUND WIRE SHALL BE PLACED IN ALL PVC CONDUITS AND SHALL BE BONDED TO GROUND RODS IN ACCORDANCE WITH SECTION T.03 OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- THE FINAL POSITION OF SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, DETECTORS, AND STOP LINE AND CROSSWALK PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD ACCORDING TO ACTUAL INTERSECTION CHARACTERISTICS.
- A 2' MINIMUM BUFFER SHALL BE PROVIDED BETWEEN THE CURB AND ALL LATERAL OBSTRUCTIONS (INCLUDING ALL SIGNAL POLES AND TRAFFIC/PEDESTRIAN SIGNAL HEADS) TO PROVIDE ADEQUATE CLEARANCE FOR TURNING VEHICLES.
- ALL FOUNDATIONS MUST HAVE CONES OR BARRELS BOLTED TO FOUNDATION BASES UNTIL ACTUAL POLE IS INSTALLED.
- WHEN PLACING TRAFFIC SIGNAL HANDHOLES OR CONDUIT IN EXISTING PORTLAND CEMENT CONCRETE SIDEWALKS, THE ENTIRE SIDEWALK SQUARE OF CONCRETE SHALL BE REPLACED IN ACCORDANCE WITH R.I. STD. 43.1.0. NO PATCHES WILL BE ALLOWED.
- ALL PEDESTRIAN PUSHBUTTONS SHALL BE COMPLIANT WITH "THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES" (ADAAG) AND SHALL INCLUDE A PRESSURE-ACTIVATED (NON-MOVING) BUTTON. SIGNS APPLICABLE TO PUSHBUTTON ACTUATION SHALL BE INSTALLED SUCH THAT THE CROSSING ASSIGNED TO EACH BUTTON IS CLEARLY INDICATED. IF SITE CONDITIONS DO NOT ALLOW PEDESTRIAN PUSHBUTTONS TO BE INSTALLED WHERE CALLED FOR ON THE PLANS, THE R.I.D.O.T. TRAFFIC ENGINEERING UNIT SHALL BE CONSULTED WITH THROUGH AN R.F.I. PRIOR TO INSTALLING THE PUSHBUTTONS. THE FINAL PLACEMENT OF ALL PEDESTRIAN PUSHBUTTONS SHALL BE IN ACCORDANCE WITH ADAAG AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- ALL LOOP DETECTORS SHALL BE CENTERED WITHIN EACH LANE AS DELINEATED, UNLESS OTHERWISE DIMENSIONED ON PLANS.
- ALL LOOP DETECTORS SHALL BE CUT INTO THE FINAL PAVEMENT SURFACE COURSE.
- TRAFFIC SIGNAL CONTROLLERS SHALL BE WIRED SO THAT ANY FIRE PRE-EMPTION SHALL OVERRIDE MANUAL (PUSH BUTTON) OPERATION.
- THE CONTRACTOR SHALL WORK CONTINUOUSLY TO RESTORE TRAFFIC SIGNAL OPERATION TO ITS INTENDED PURPOSE WHEN REPLACING THE TRAFFIC SIGNAL EQUIPMENT. A POLICE DETAIL IS REQUIRED TO DIRECT TRAFFIC AT THE INTERSECTION AT ALL TIMES WHEN THE TRAFFIC SIGNAL IS INOPERATIVE. AT NO TIME SHALL THE CONTRACTOR LEAVE THE SITE BEFORE RESTORING FULL TRAFFIC OPERATIONS.

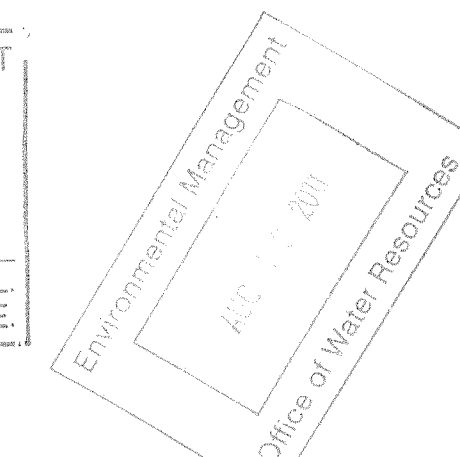
**MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:**

- 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.
- POLICE OFFICERS (AND NOT FLAGPERSONS) SHALL BE UTILIZED WHEN WORK WILL IMPACT SIGNALIZED INTERSECTIONS AND LIMITED ACCESS HIGHWAYS.
- 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.
- ARROW PANELS SHALL BE SET IN THE FLASHING FOUR CORNERS CAUTION MODE UNLESS UTILIZED FOR A MERGING TAPER. ARROW PANELS SET IN THE FLASHING ARROW MODE SHALL NOT BE UTILIZED FOR LANE SHIFTS.
- TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND / OR RELOCATED UNDER THE PAY ITEM FOR "MAINTENANCE AND MOVEMENT TRAFFIC PROTECTION."
- THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED WITHIN THE STATE RIGHT-OF-WAY ONLY IN AREAS 30' BEYOND THE OUTSIDE EDGE OF THE TRAVEL LANES AND/OR IN AREAS APPROVED BY THE ENGINEER.
- 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. WATERBORNE PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON ALL COLD-PLANNED AND NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*



**THIS PLAN SHALL NOT BE ALTERED**

REVISIONS		
NO	DATE	BY
1	4/07	TRB
2	11/07	TRB
3	3/10	RBH

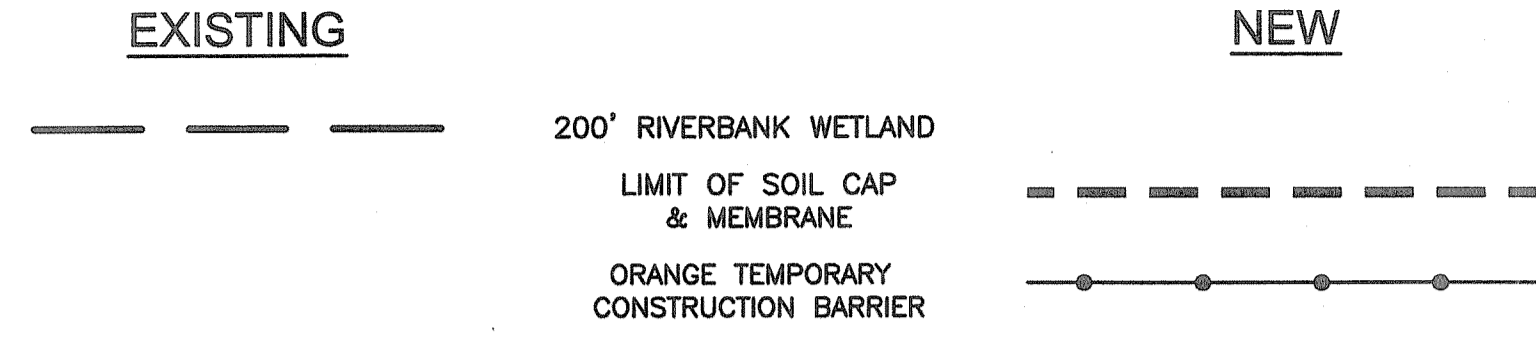
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

**STANDARD NOTES - 2**

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE \_\_\_\_\_

**JOB SPECIFIC PLAN SYMBOLS**



**JOB SPECIFIC LEGEND**

- (ACG) ACCESS CONTROL GATE
- (BM) BIKE PATH SIGN MOUNTING
- (BOL) BOLLARD
- (CCM) CEMENT CONCRETE MEDIAN
- (DBO) REMOVE AND DISPOSE BOLLARD
- (DGC) REMOVE AND DISPOSE GRANITE CURB
- (DWB) DEWATERING BASIN
- (FSC) FULL DEPTH SAW CUT
- (GLS) GRASS LINED SWALE
- (PM) PAVEMENT MARKING
- (RMW) REINFORCED MODULAR WALL
- (RBC) REMOVE AND REPLACE BITUMINOUS CONCRETE PAVEMENT  
3" BITUMINOUS CONCRETE TYPE 1-2  
8" GRAVEL BORROW SUBBASE COURSE
- (RDB) REMOVE AND DISPOSE PIPE BOLLARD
- (RDW) REMOVE AND DISPOSE CONCRETE RETAINING WALL
- (SC) SAW CUT 2" FOR COLD PLANE JOINT
- (SLSK) SILT SACK
- (SJB) REMOVE AND STOCKPILE JERSEY BARRIER
- (SPB) STEEL PIPE BOLLARD
- (WRF) WOOD RAIL FENCE
- (4W) 4" EPOXY RESIN PAVEMENT MARKINGS - WHITE
- (4YB) 4" EPOXY RESIN PAVEMENT MARKINGS - YELLOW BROKEN (3' LINE/9' GAP)

**NOTES:**

1. THE CONTRACTOR SHALL RETAIN TREES >6" DIAMETER WITHIN CONTRACTOR LAYDOWN AREA. THE CONTRACTOR SHALL LOAM AND SEED ANY DESTURBED AREAS WITHIN THE LAY DOWN AREAS. NO SEPERATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THE WORK ASSOCIATED WITH ESTABLISHMENT, MAINTENANCE, AND RESTORATION OF THE CONTRACTOR LAY DOWN AREAS. THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT. SEE KEY PLAN FOR LAY DOWN AREA LOCATIONS.
2. THE CONTRACTOR SHALL CONSTRUCT AN ORANGE TEMPORARY CONSTRUCTION BARRIER IN THE DONIGIAN PARK AREA. THE FENCE SHALL DELINATE THE CONSTRUCTION AREA WITHIN THE PARK. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE FENCE TO INSURE THE LIMITS OF THE WORK ZONE ARE CLEARLY DELINIATED TO THE PUBLIC.
3. CONTACT LISA AURECCHIA AT THE WOONASQUATUCKET RIVER WATERSHED COUNCIL FOR STOCKPILING LOCATIONS FOR CONCRETE JERSEY BARRIERS.  
LISA AURECCHIA, PROGRAM DIRECTOR  
EMAIL: LISA@WOONASQUATUCKET.ORG  
PHONE: (401) 861-9046  
ADDRESS: 27 SIMS AVENUE, PROVIDENCE, RI 02909
4. DELIVER REMOVED CONCRETE CURB TO THE CITY AS DIRECTED BY THE ENGINEER.
5. GRANITE CURB SHALL BE CITY OF PROVIDENCE STANDARD 7" WIDE WITH 7" REVEAL.
6. THE CONTRACTOR SHALL LOAM AND SEED ALL DISTURBED AREAS.

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Environmental Management  
AUG 1 2011  
Office of Water Resources

*W. Joseph Conroy*

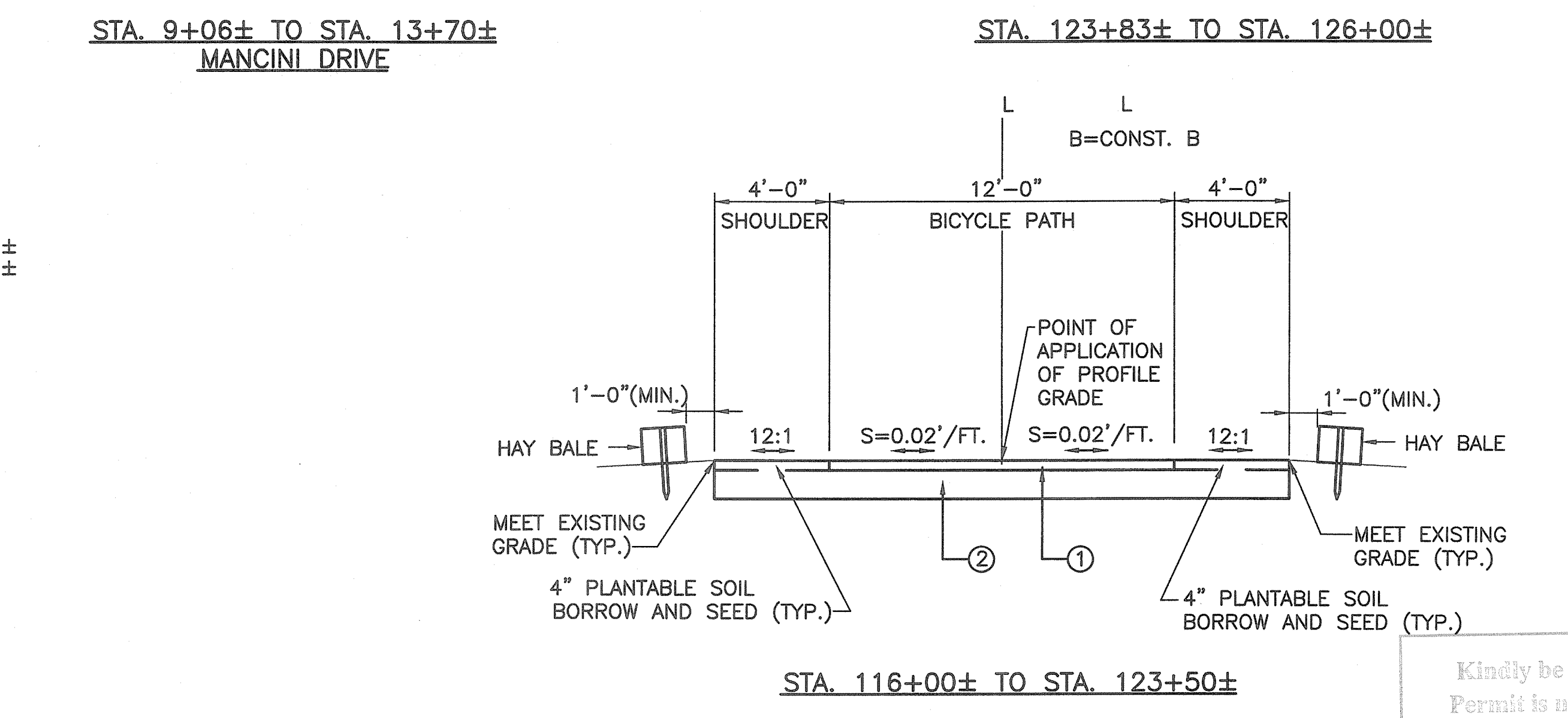
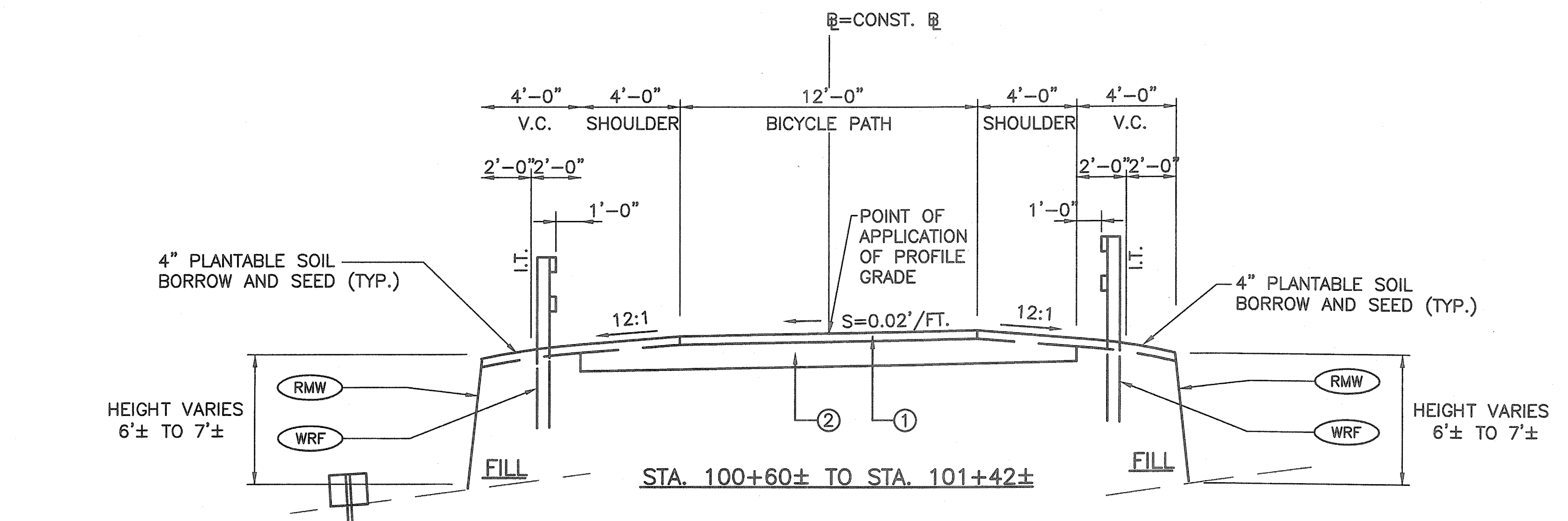
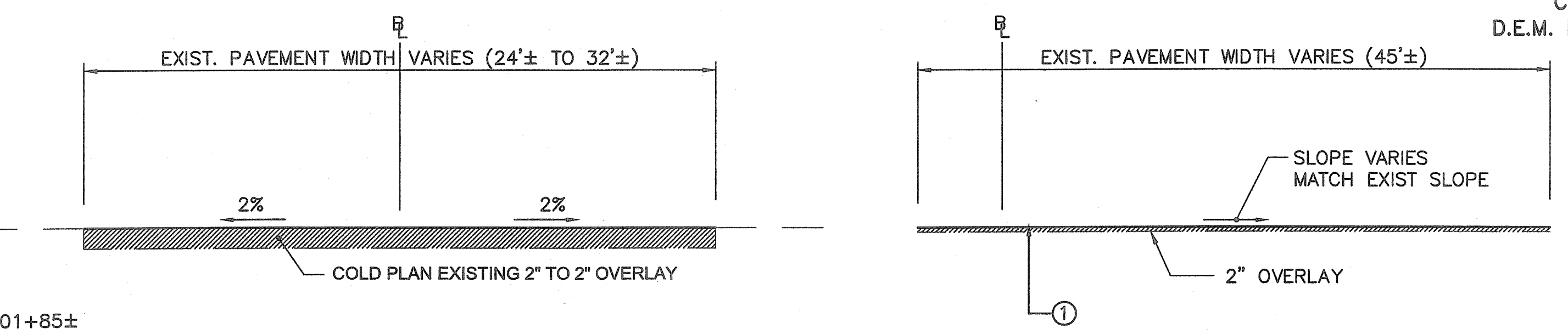
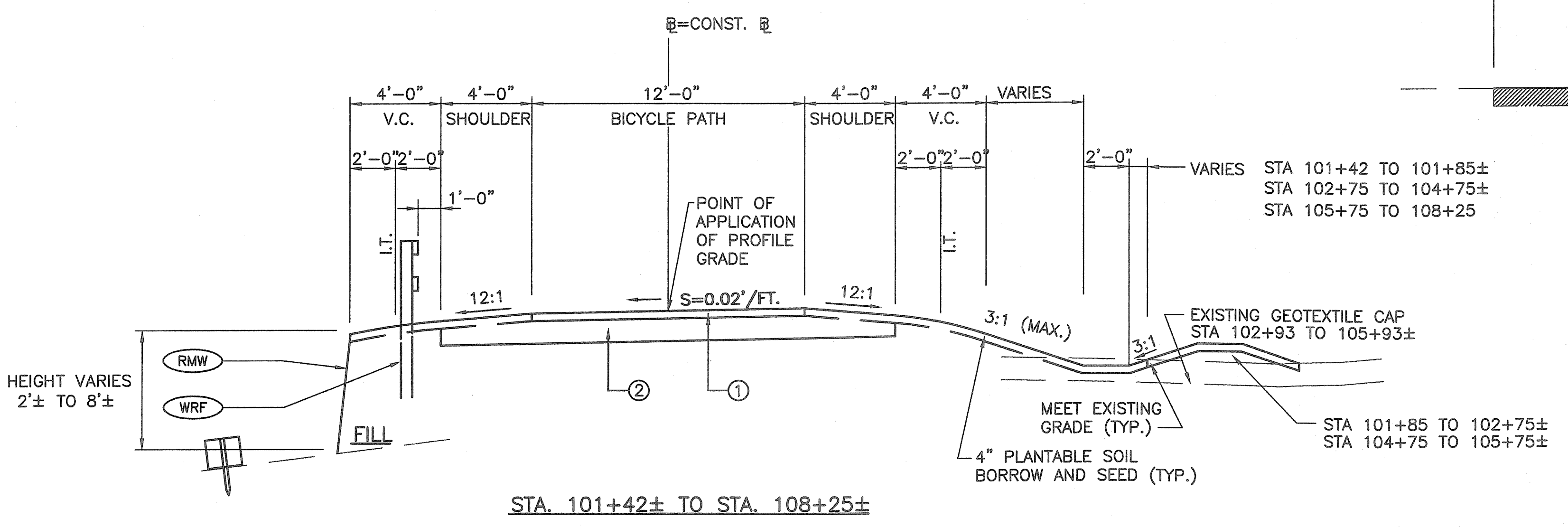
REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

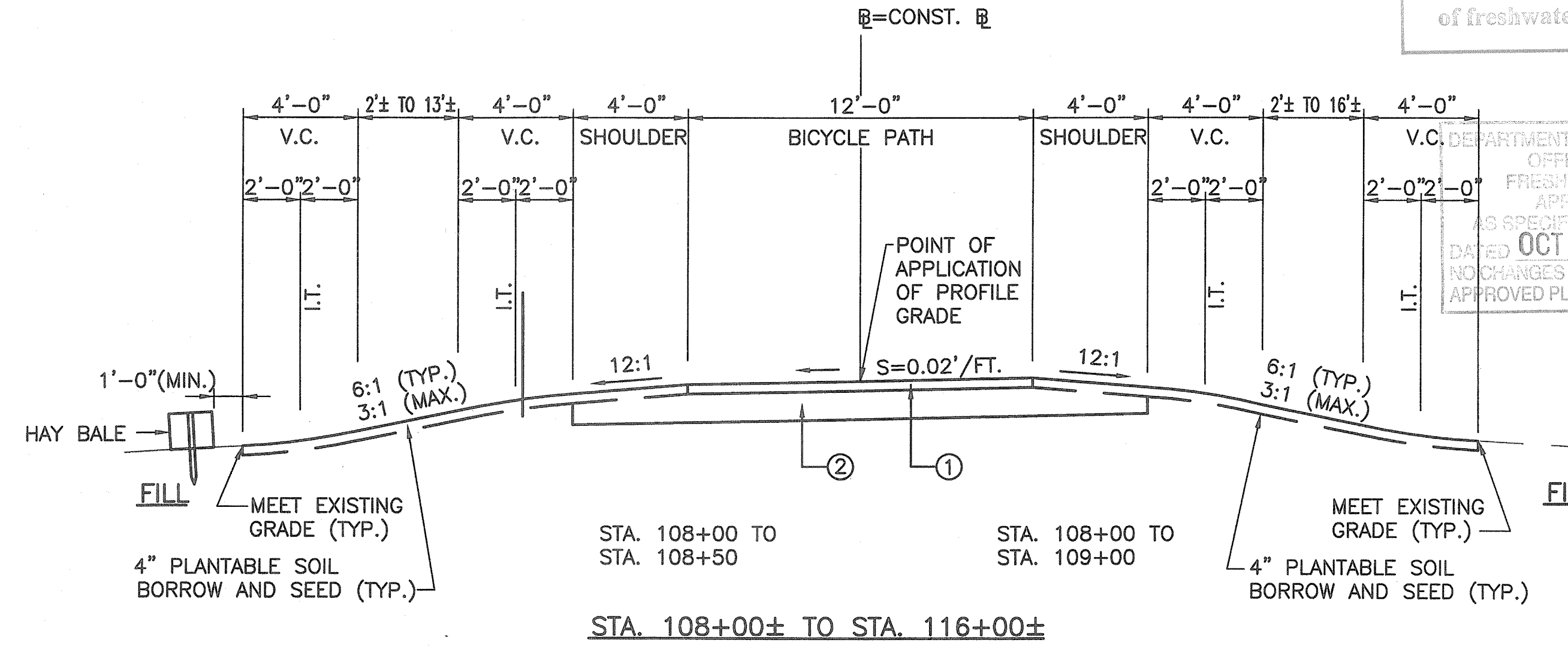
JOB SPECIFIC PLAN SYMBOLS  
LEGEND & NOTES

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

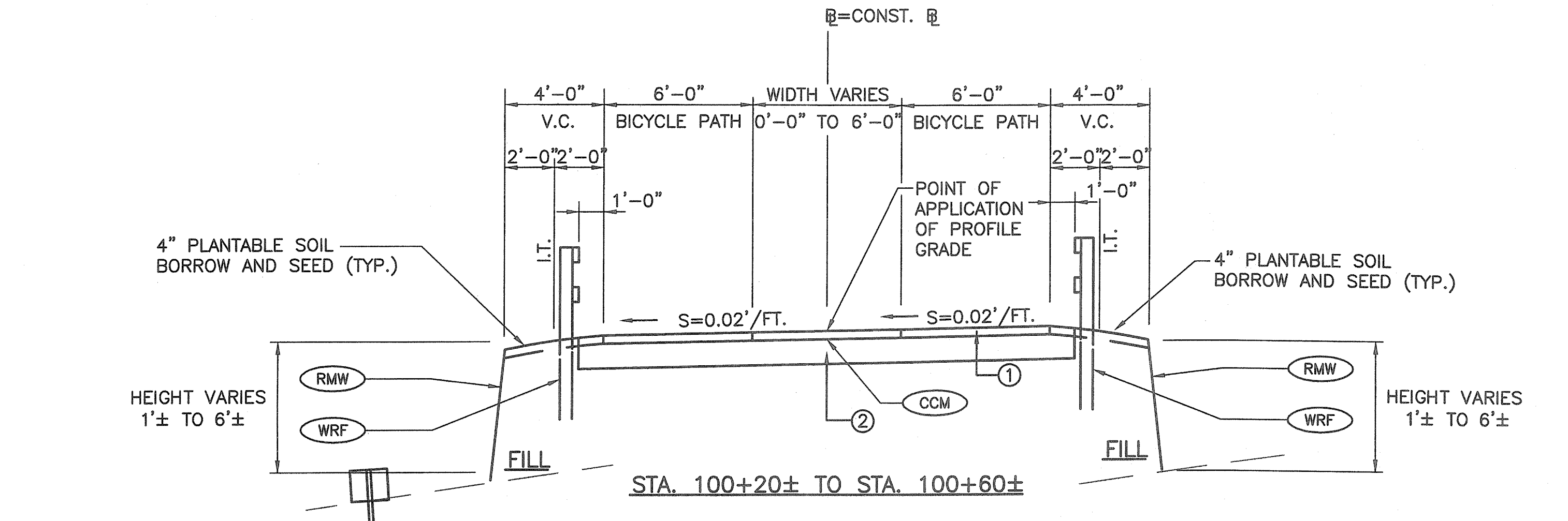
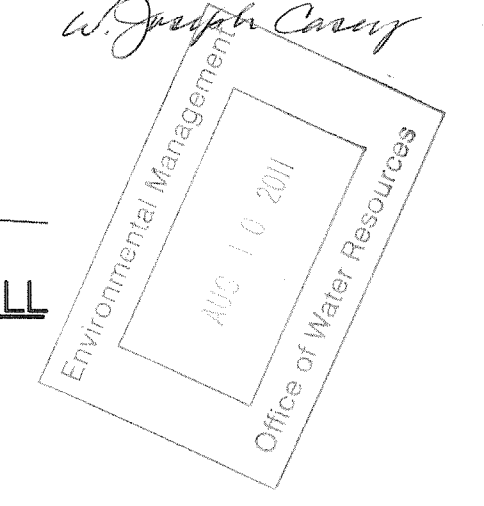
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Kindly be advised that this Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.



- ① 2" BITUMINOUS SURFACE COURSE TYPE 1-2
- 2" BITUMINOUS BASE COURSE
- ② 12" GRAVEL BORROW SUBBASE

REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

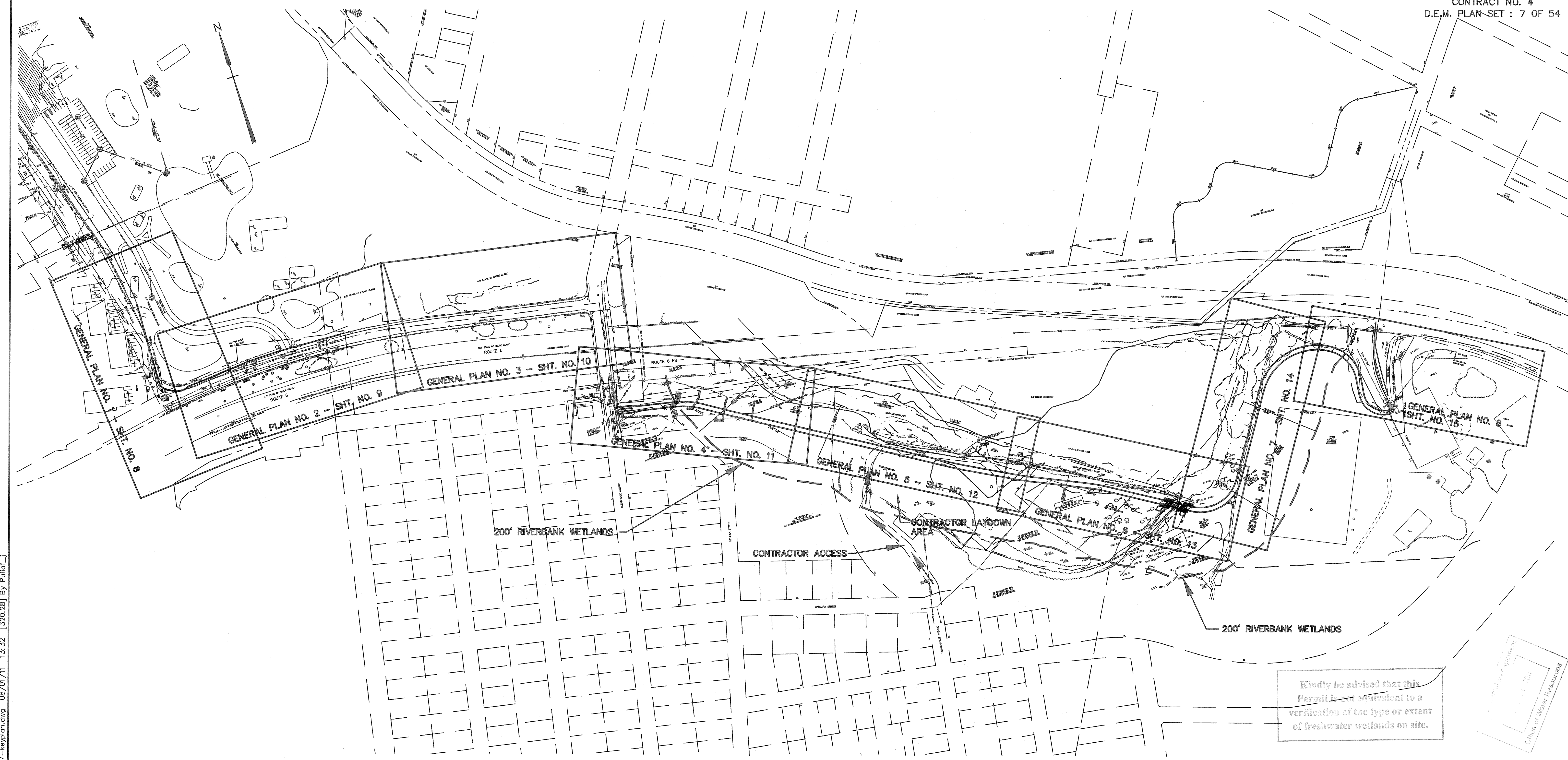
TYPICAL SECTIONS

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

T:\PR-007.PRJ\Contract 4\CADD\Civil\06-Typsect1.DWG 08/01/11 13:30 [98.28] By Puliaf\_]

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			7	54

CONTRACT NO. 4  
D.E.M. PLAN-SET : 7 OF 54



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

Office of Water Resources  
2011

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Casey*

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

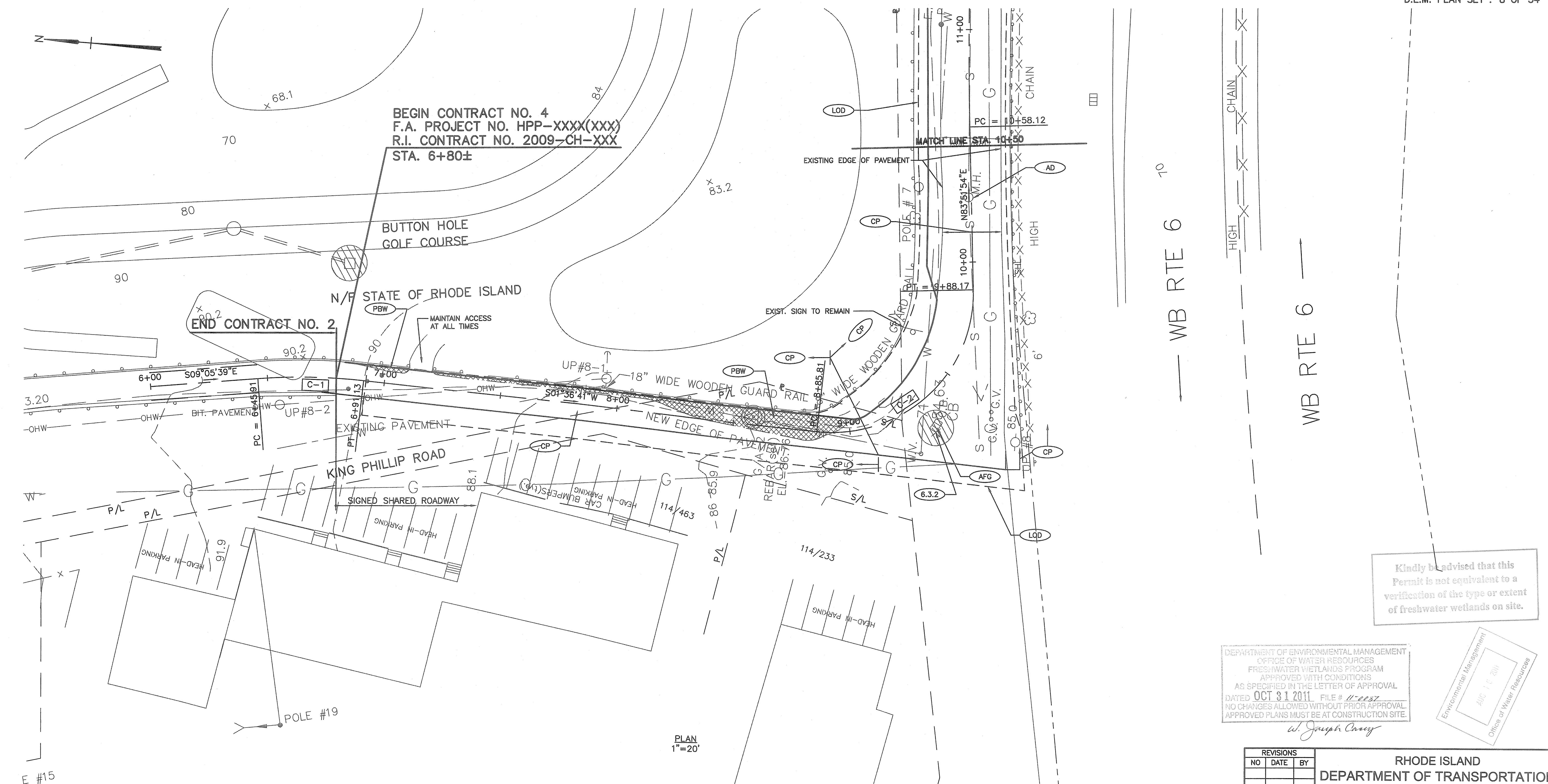
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

KEY PLAN

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE \_\_\_\_\_ NTS \_\_\_\_\_

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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 OCT 31 2011. FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Chazy*

Environmental Management  
AUG 1 2011  
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.

¢ COORDINATES			
NO.	STATION	NORTH	EAST
C-1	PC STA. 6+45.91	269,947.48	337,741.83
	PI	269,925.09	337,745.41
	PT STA. 6+91.13	269,902.43	337,744.77
C-2	PC STA. 8+85.81	269,707.82	337,739.30
	PI	269,639.14	337,737.37
	PT STA. 9+88.17	269,646.48	337,805.69

¢ CURVE DATA				
NO.	Δ	RADIUS	LENGTH	TANGENT
C-1	10°42'20"	242.00'	45.22'	22.67'
C-2	97°44'47"	60.00'	102.36'	68.71'

REVISIONS		
NO.	DATE	BY

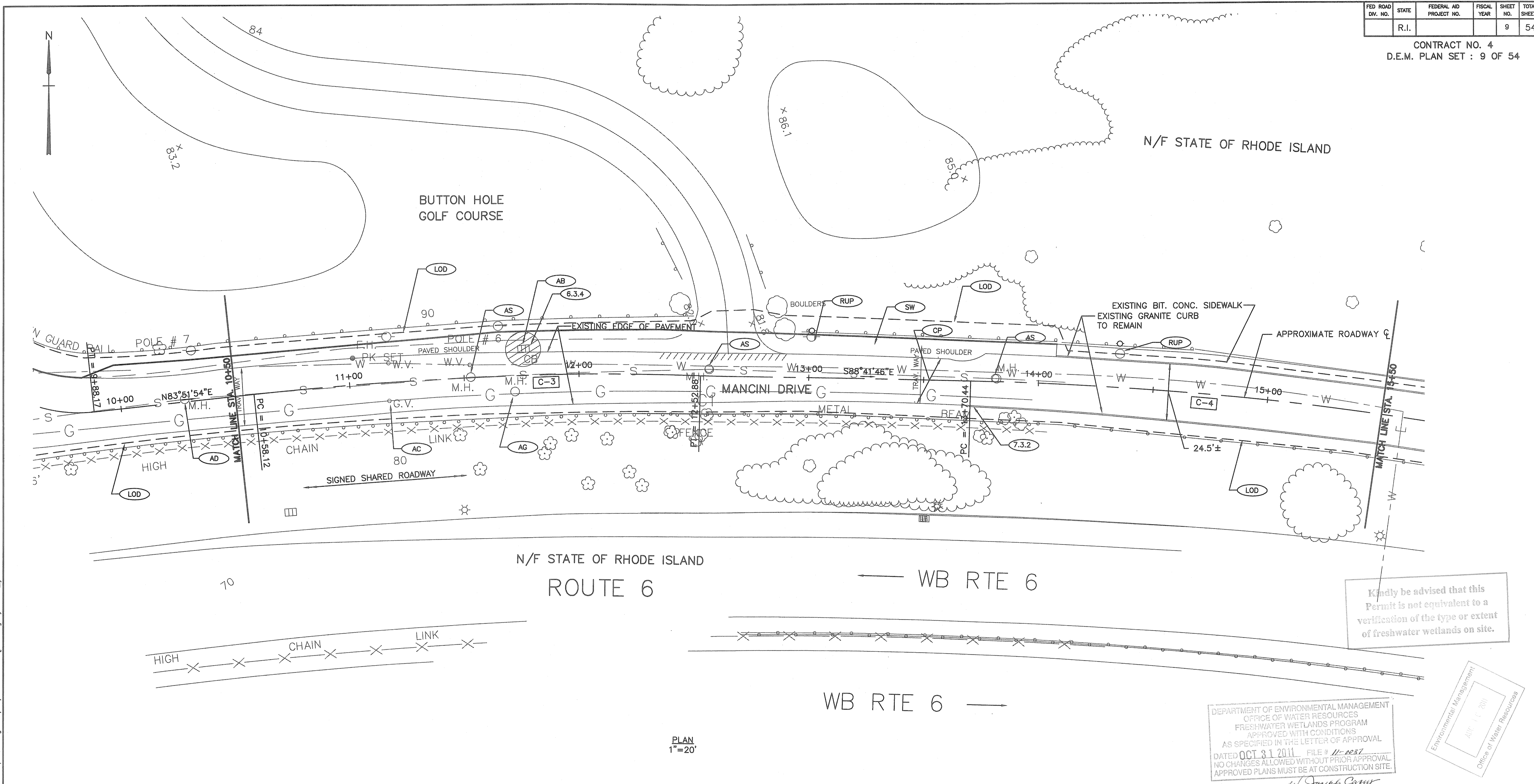
<b>RHODE ISLAND DEPARTMENT OF TRANSPORTATION</b>		
<b>BIKE TRAIL NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY PROVIDENCE, RHODE ISLAND</b>		
<b>GENERAL PLAN NO. 1</b>		
CHECKED BY _____	DATE _____	SCALE 1"=20'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			9	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 9 OF 54



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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*

Environmental Management  
A/E/P 11/2011  
Office of Water Resources

C COORDINATES			
NO.	STATION	NORTH	EAST
C-3	PC STA. 10+58.12	269,653.96	337,875.25
	PI	269,647.75	337,817.46
	PT STA. 12+52.88	269,662.16	338,069.69
C-4	PC STA. 13+70.44	269,659.48	338,187.23
	PT STA. 16+14.19	269,634.21	338,429.39

C CURVE DATA				
NO.	Δ	RADIUS	LENGTH	TANGENT
C-3	07°26'20"	1500.00'	194.75'	97.51'
C-4	09°18'38"	1500.00'	243.75'	122.14'

REVISIONS		
NO	DATE	BY

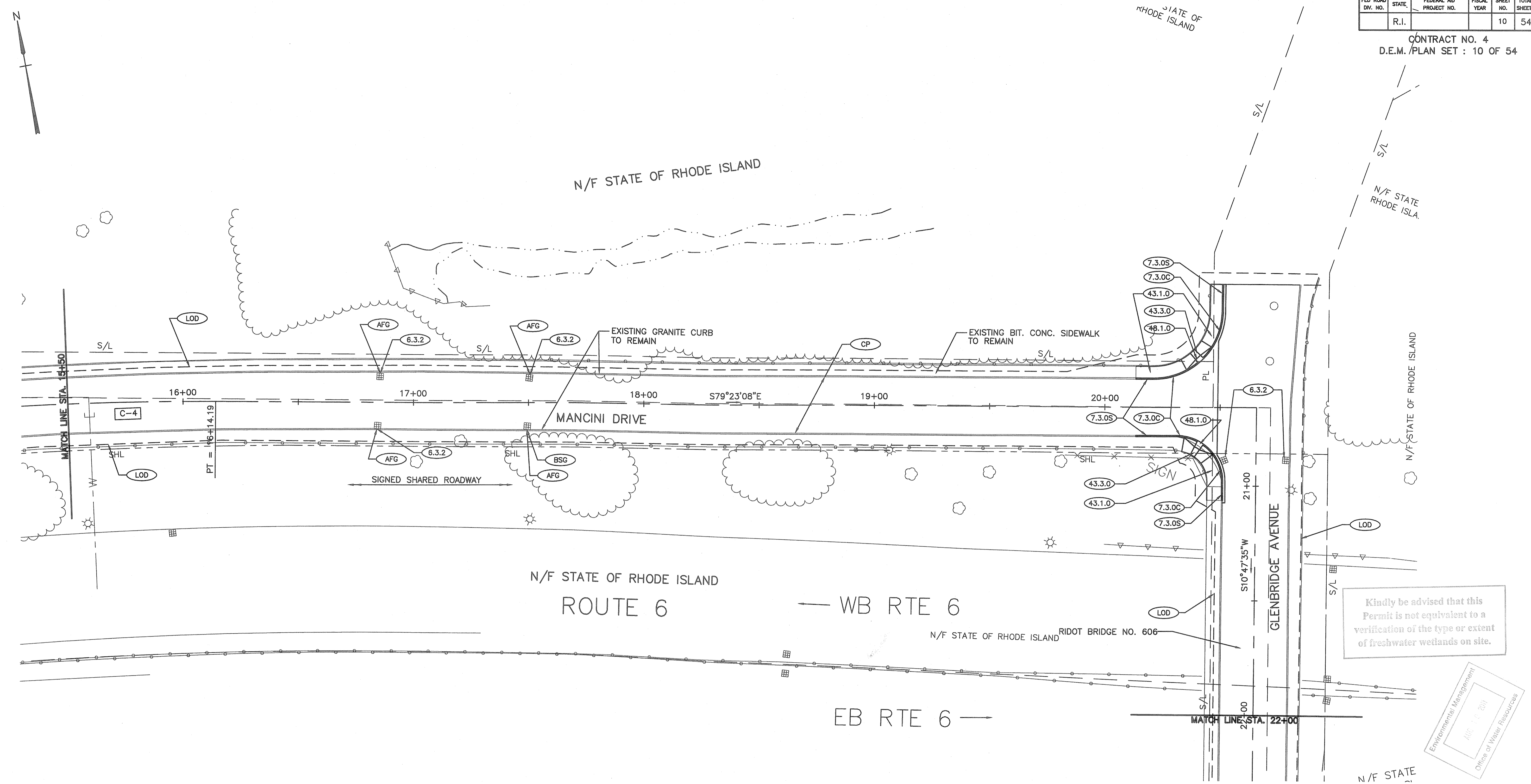
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

GENERAL PLAN NO. 2

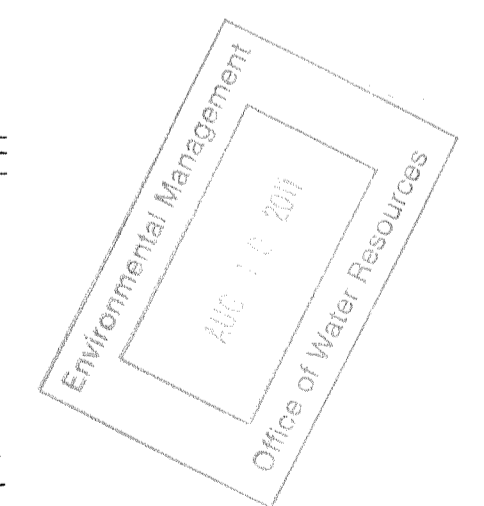
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

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



C COORDINATES			
NO.	STATION	NORTH	EAST
C-4	PC STA. 13+70.44	269,659.48	338,187.23
	PI	269,656.71	338,309.34
	PT STA. 16+14.19	269,634.21	338,429.39

C CURVE DATA				
NO.	Δ	RADIUS	LENGTH	TANGENT
C-4	09°18'38"	1500.00'	243.75'	122.14'

PLAN  
1"=20'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED 01/31/2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Curry*

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

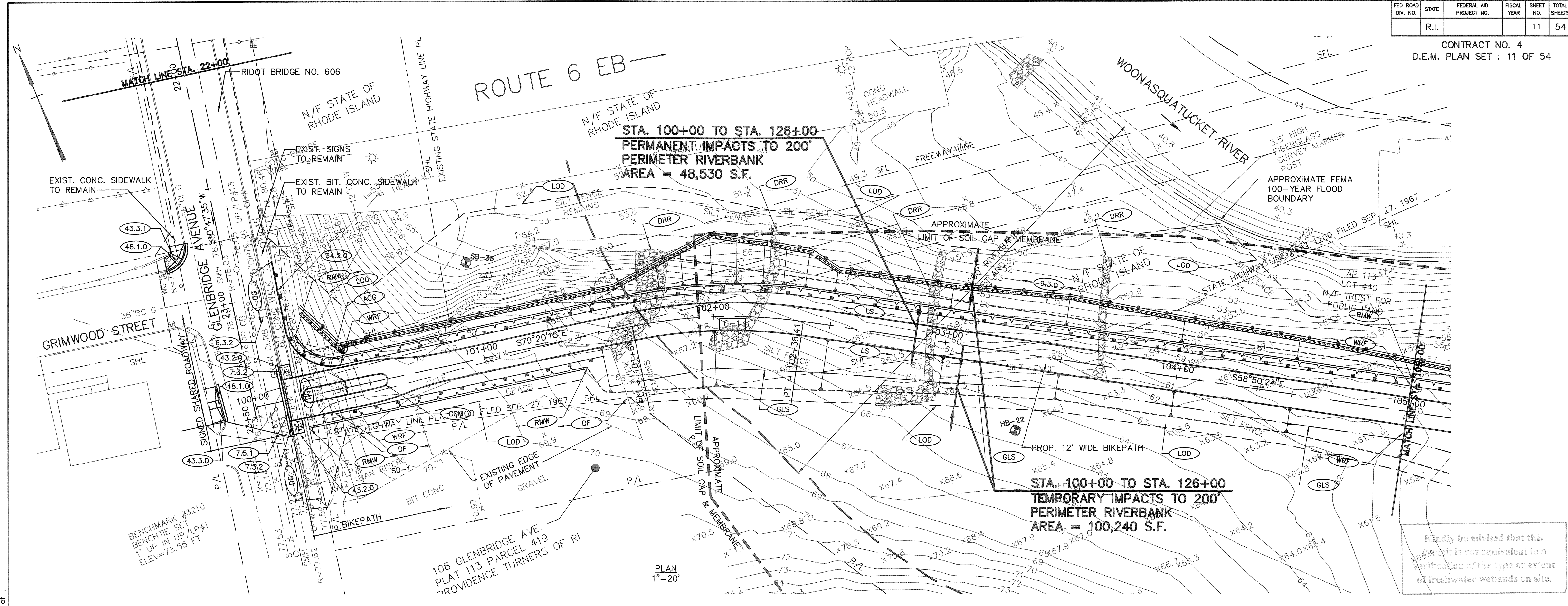
REVISIONS		
NO.	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

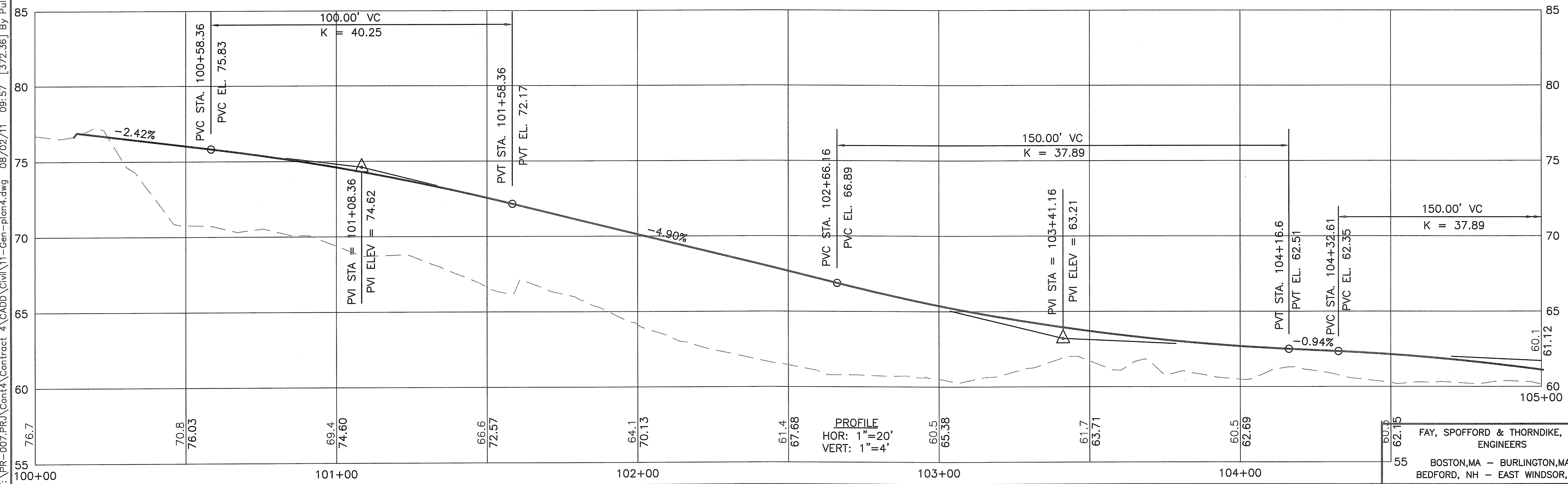
GENERAL PLAN NO. 3

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

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



NO.	STATION	NORTH	EAST
C-1	PC STA. 101+64.71	269,245.51	338,983.50
	PI	269,238.62	339,020.11
	PT STA. 102+38.41	269,219.35	339,051.98

NO.	NO. OF ENVIRONMENTAL RECORDS	RADIUS	LENGTH	TANGENT
C-1	20	206.00'	73.70'	37.25'

APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL DATED OCT 31 2011 FILE # 11-0037 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL. APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*Joseph Carney*

REVISIONS

NO.	DATE	BY

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL**

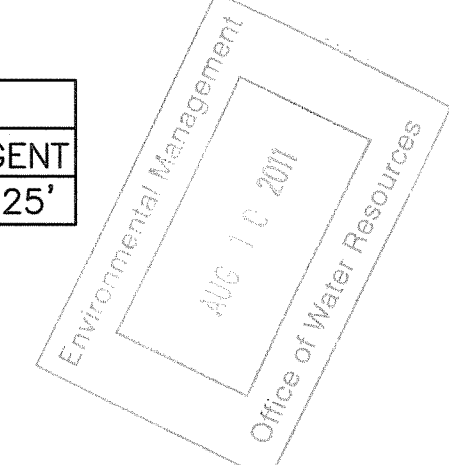
**NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

**GENERAL PLAN NO. 4**

FAY, SPOFFORD & THORNDIKE, INC. ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'



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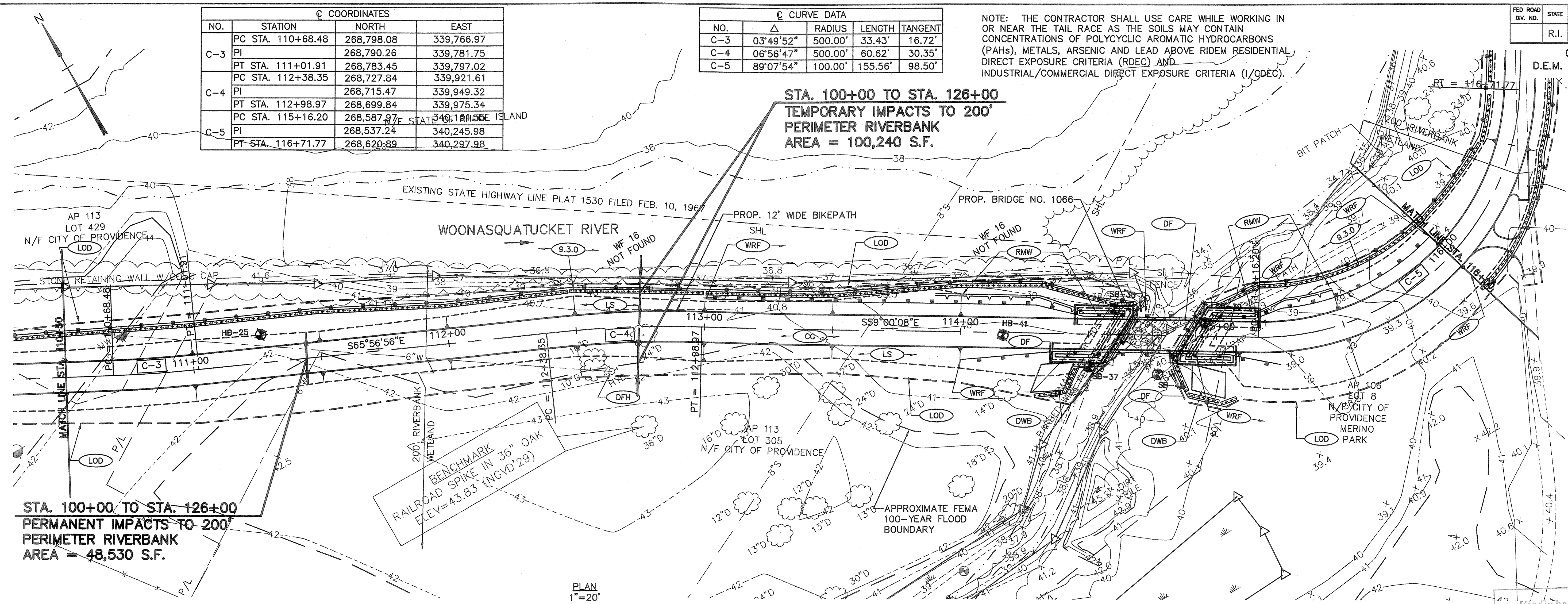
COORDINATES			
NO.	STATION	NORTH	EAST
C-3	PC STA. 110+68.48	268,798.08	339,766.97
	PI	268,790.26	339,781.75
	PT STA. 111+01.91	268,783.45	339,797.02
C-4	PC STA. 112+38.35	268,727.84	339,921.61
	PI	268,715.47	339,949.32
	PT STA. 112+98.97	268,699.84	339,975.34
C-5	PC STA. 115+16.20	268,587.97	340,184.05
	PI	268,537.24	340,245.98
	PT STA. 116+71.77	268,620.89	340,297.98

CURVE DATA				
NO.	Δ	RADIUS	LENGTH	TANGENT
C-3	03°49'52"	500.00'	33.43'	16.72'
C-4	06°56'47"	500.00'	60.62'	30.35'
C-5	89°07'54"	100.00'	155.56'	98.50'

NOTE: THE CONTRACTOR SHALL USE CARE WHILE WORKING IN OR NEAR THE TAIL RACE AS THE SOILS MAY CONTAIN CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), METALS, ARSENIC AND LEAD ABOVE RIDEM RESIDENTIAL DIRECT EXPOSURE CRITERIA (RDEC) AND INDUSTRIAL/COMMERCIAL DIRECT EXPOSURE CRITERIA (I/CDEC).

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			13	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 13 OF 54



STA. 100+00 TO STA. 126+00  
PERMANENT IMPACTS TO 200'  
PERIMETER RIVERBANK  
AREA = 48,530 S.F.

STA. 100+00 TO STA. 126+00  
TEMPORARY IMPACTS TO 200'  
PERIMETER RIVERBANK  
AREA = 100,240 S.F.

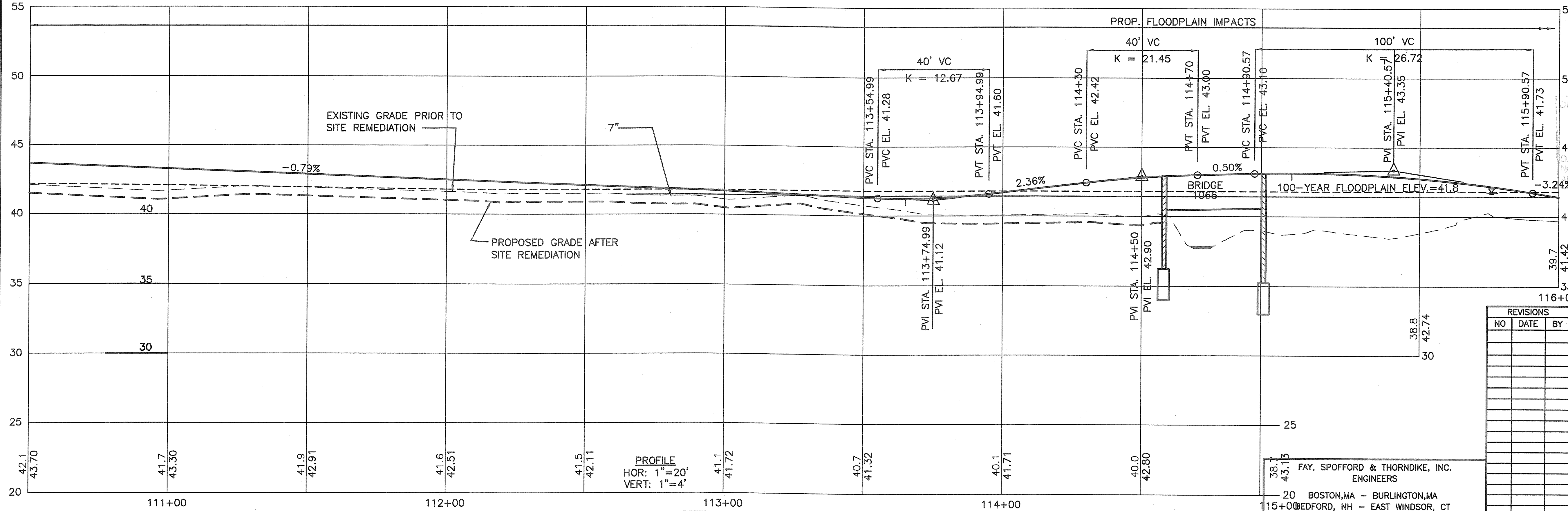
PLAN  
1"=20'

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 OCT 31 2011 FILE # 11-0087  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*W. Joseph Caray*

Environmental Manager  
AUC: 1/1/2011  
Office of Water Resources



PROFILE  
HOR: 1"=20'  
VERT: 1"=4'

38.7  
43.15  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
20 BOSTON, MA - BURLINGTON, MA  
115+0@BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO.	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

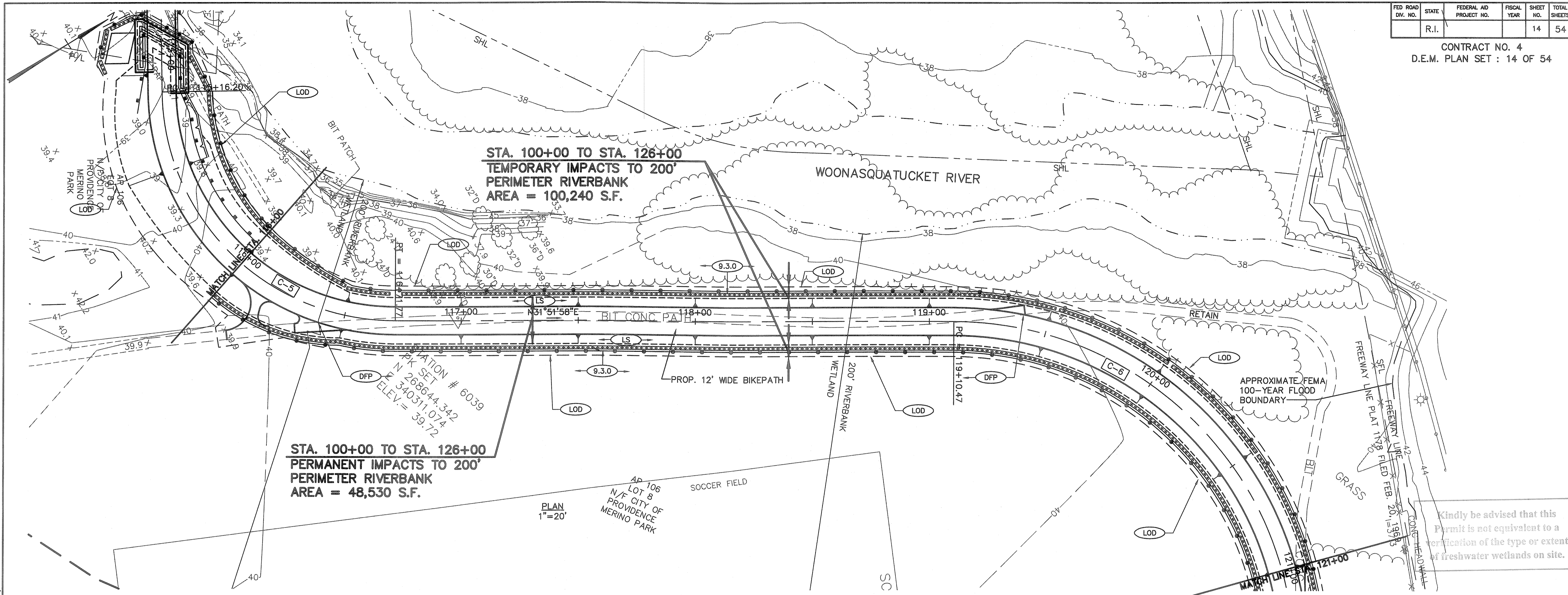
GENERAL PLAN NO. 6

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

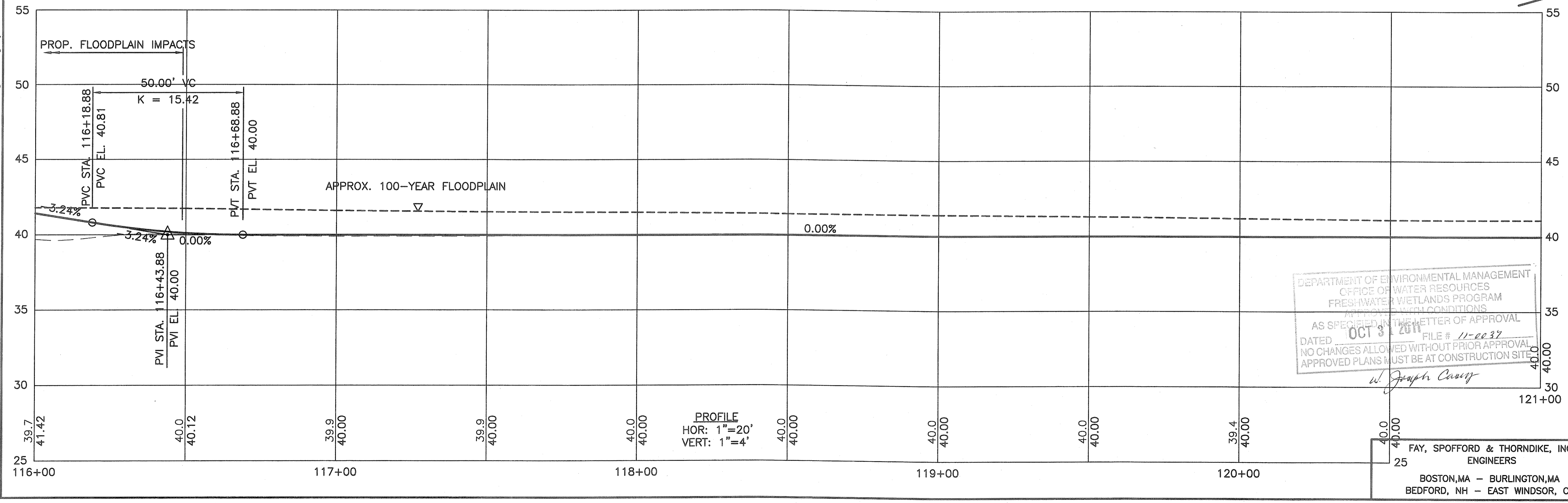
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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			14	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 14 OF 54



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



C COORDINATES			
NO.	STATION	NORTH	EAST
C-5	PC STA. 115+16.20	268,587.97	340,161.55
	PI	268,537.24	340,245.98
	PT STA. 116+71.77	268,620.89	340,297.98
C-6	PC STA. 119+10.47	268,823.62	340,424.00
	PI	268,947.19	340,500.81
	PT STA. 121+39.31	268,870.80	340,624.65

C CURVE DATA				
NO.	$\Delta$	RADIUS	LENGTH	TANGENT
C-5	89°07'54"	100.00'	155.56'	98.50'
C-6	89°48'14"	146.00'	228.84'	145.50'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 3 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE  
*W. Joseph Conway*

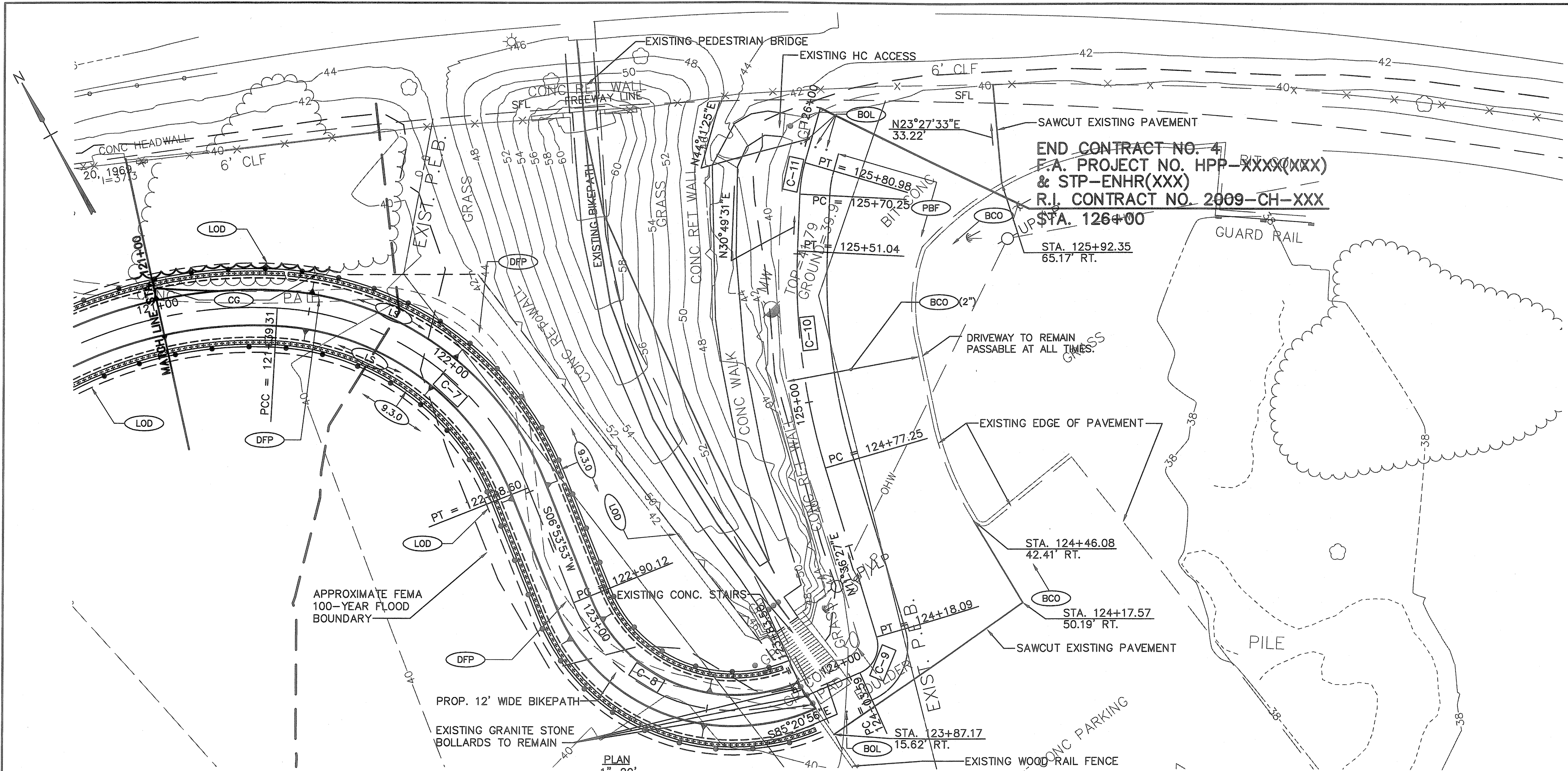
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

GENERAL PLAN NO. 7

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

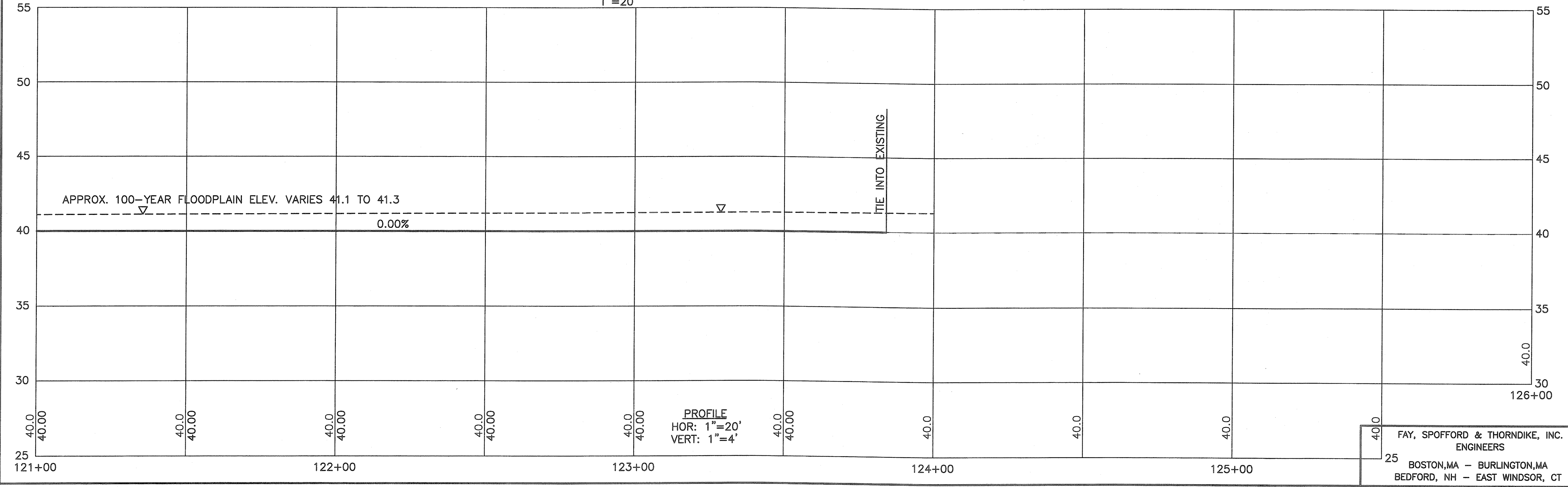
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

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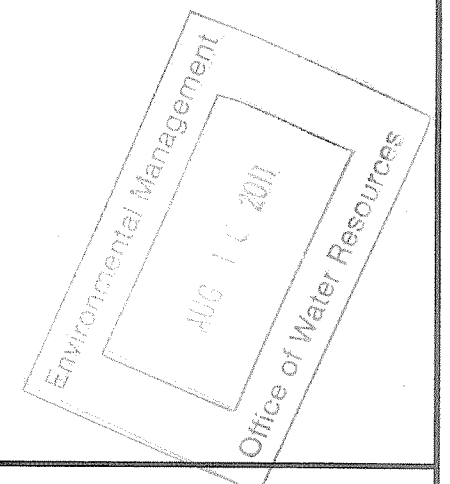
NO.	STATION	NORTH	EAST
C-6	PC STA. 119+10.47	268,823.62	340,424.00
	PI	268,947.19	340,500.81
C-7	PT STA. 121+39.31	268,870.80	340,624.65
	PC STA. 121+39.31	268,870.80	340,624.65
C-8	PI	268,838.55	340,676.93
	PT STA. 122+48.60	268,777.57	340,669.55
C-9	PC STA. 122+90.12	268,736.35	340,664.56
	PI	268,676.46	340,657.32
C-10	PT STA. 123+83.50	268,671.57	340,717.44
	PC STA. 124+03.59	268,669.94	340,737.47
C-11	PI	268,669.22	340,746.29
	PT STA. 124+18.09	268,677.90	340,748.07
C-10	PC STA. 124+77.25	268,735.85	340,759.98
	PI	268,772.33	340,767.47
C-11	PT STA. 125+51.04	268,804.31	340,786.56
	PC STA. 125+70.25	268,820.81	340,796.40
C-11	PI	268,825.44	340,799.16
	PT STA. 125+80.98	268,829.30	340,802.92

NO.	Δ	RADIUS	LENGTH	TANGENT
C-6	89°48'14"	146.00'	228.84'	145.50'
C-7	65°13'41"	96.00'	109.29'	61.43'
C-8	92°14'49"	58.00'	93.38'	60.32'
C-9	83°02'37"	10.00'	14.49'	8.85'
C-10	19°13'04"	220.00'	73.79'	37.25'
C-11	13°21'54"	46.00'	10.73'	5.39'



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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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
*W. Joseph Conroy*



REVISIONS		
NO.	DATE	BY

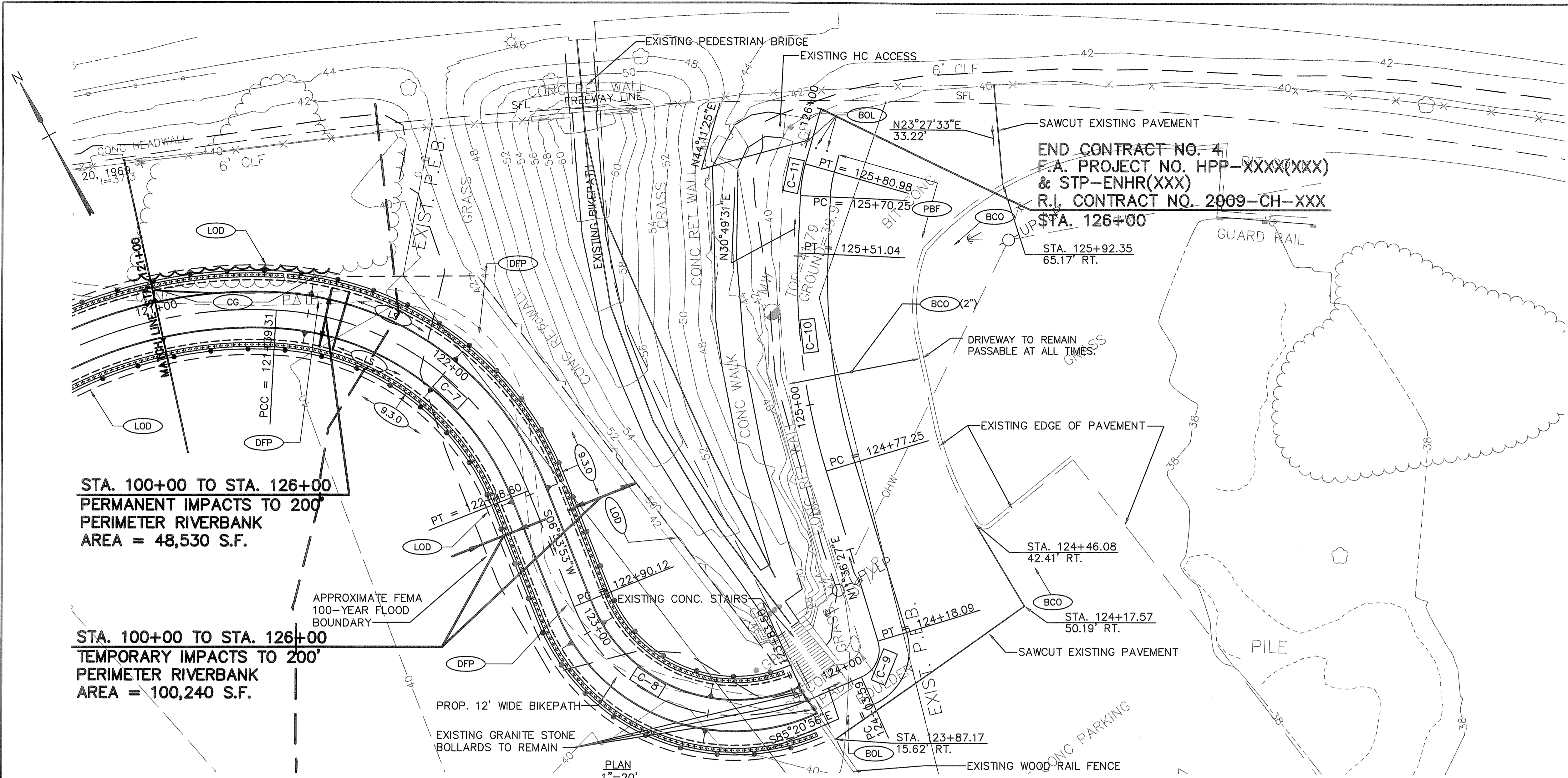
**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND

**GENERAL PLAN NO. 8**

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
25 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT



STA. 100+00 TO STA. 126+00  
PERMANENT IMPACTS TO 200'  
PERIMETER RIVERBANK  
AREA = 48,530 S.F.

STA. 100+00 TO STA. 126+00  
TEMPORARY IMPACTS TO 200'  
PERIMETER RIVERBANK  
AREA = 100,240 S.F.

APPROXIMATE FEMA  
100-YEAR FLOOD  
BOUNDARY

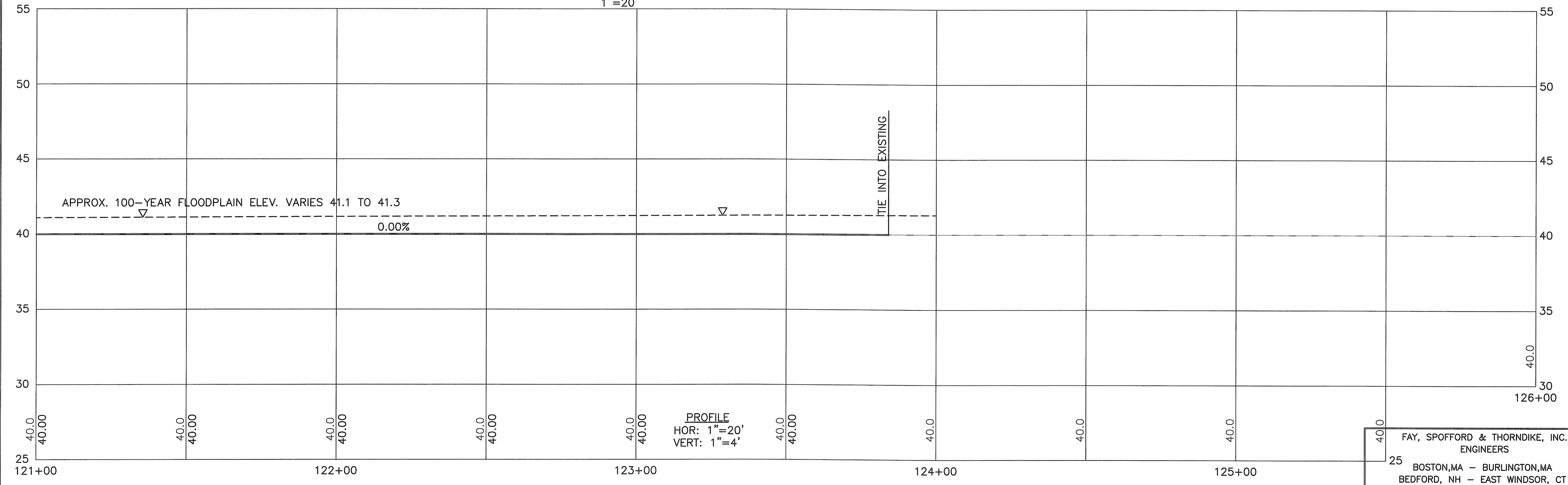
PROP. 12' WIDE BIKEPATH  
EXISTING GRANITE STONE  
BOLLARDS TO REMAIN

PLAN  
1"=20'

END CONTRACT NO. 4  
F.A. PROJECT NO. HPP-XXXX(XXX)  
& STP-ENHR(XXX)  
R.I. CONTRACT NO. 2009-CH-XXX  
STA. 126+00

C COORDINATES			
NO.	STATION	NORTH	EAST
C-6	PC STA. 119+10.47	268,823.62	340,424.00
	PI	268,947.19	340,500.81
	PT STA. 121+39.31	268,870.80	340,624.65
C-7	PC STA. 121+39.31	268,870.80	340,624.65
	PI	268,838.55	340,676.93
	PT STA. 122+48.60	268,777.57	340,669.55
C-8	PC STA. 122+90.12	268,736.35	340,664.56
	PI	268,676.46	340,657.32
	PT STA. 123+83.50	268,671.57	340,717.44
C-9	PC STA. 124+03.59	268,669.94	340,737.47
	PI	268,669.22	340,746.29
	PT STA. 124+18.09	268,677.90	340,748.07
C-10	PC STA. 124+77.25	268,735.85	340,759.98
	PI	268,772.33	340,767.47
	PT STA. 125+51.04	268,804.31	340,786.56
C-11	PC STA. 125+70.25	268,820.81	340,796.40
	PI	268,825.44	340,799.16
	PT STA. 125+80.98	268,829.30	340,802.92

C CURVE DATA				
NO.	$\Delta$	RADIUS	LENGTH	TANGENT
C-6	89°48'14"	146.00'	228.84'	145.50'
C-7	65°13'41"	96.00'	109.29'	61.43'
C-8	92°14'49"	58.00'	93.38'	60.32'
C-9	83°02'37"	10.00'	14.49'	8.85'
C-10	19°13'04"	220.00'	73.79'	37.25'
C-11	13°21'54"	46.00'	10.73'	5.39'



PROFILE  
HOR: 1"=20'  
VERT: 1"=4'

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
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DATED OCT 31 2011 FILE # 11-0037  
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Environmental Management  
AUG 11 2011  
Office of Water Resources

*W. Joseph Carney*

REVISIONS		
NO.	DATE	BY

**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND**

**GENERAL PLAN NO. 8**

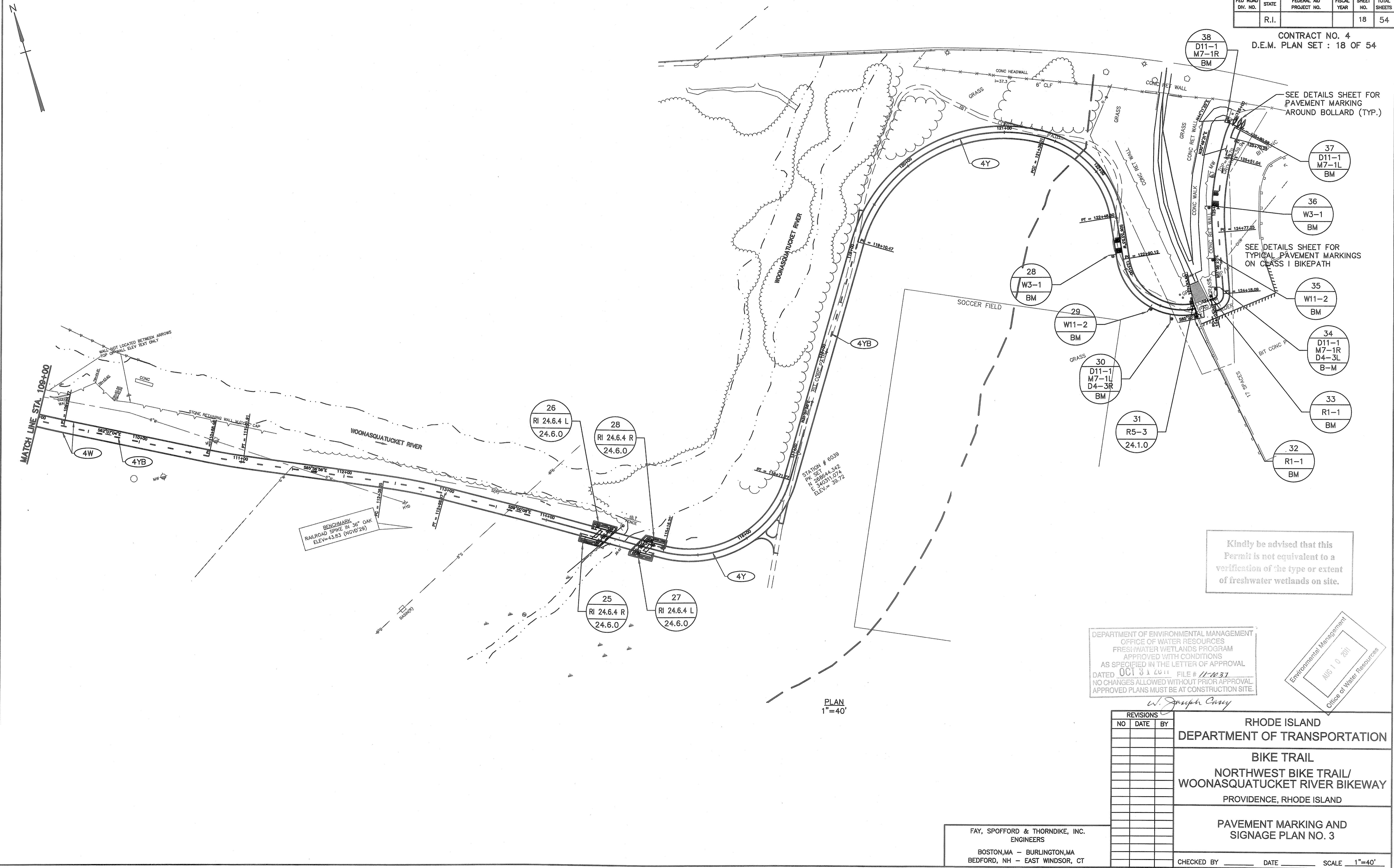
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
25 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

T:\PR-007.PRJ\Cont4\Contract 4\CADD\Civil\15-Gen-plan8.dwg 08/02/11 10:03 [355.51] By Puliaf...







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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 3 1 2011 FILE # 11-1037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Environmental Management  
AUG 1 0 2011  
Office of Water Resources

REVISIONS		
NO	DATE	BY

**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL**

**NORTHWEST BIKE TRAIL/  
WOONASQUATTUCK RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

**PAVEMENT MARKING AND  
SIGNAGE PLAN NO. 3**

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS

BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

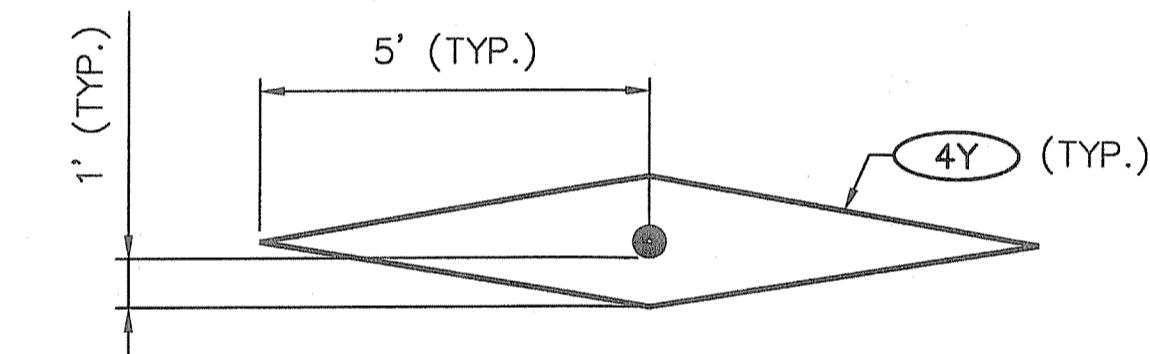
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=40'

WARNING SIGNS									
SIGN NUMBER	W3-1	W7-5	W11-1	W11-2	W16-1	W16-7pL	W16-9p	RI 24.6.4 (L/R)	
LEGEND									
COLOR	BACKGROUND	YELLOW	YELLOW	YELLOW	YELLOW	YELLOW	YELLOW	YELLOW	YELLOW
	COPY	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK	BLACK
SIGN DIMENSION	WIDTH, IN.	18	18	30	30	18	24	24	12
	HEIGHT, IN.	18	18	30	30	18	24	12	36
MOUNTING *	BM	BM	24.2.0	24.2.0	BM	24.2.0	24.2.0	24.2.0	24.6.0

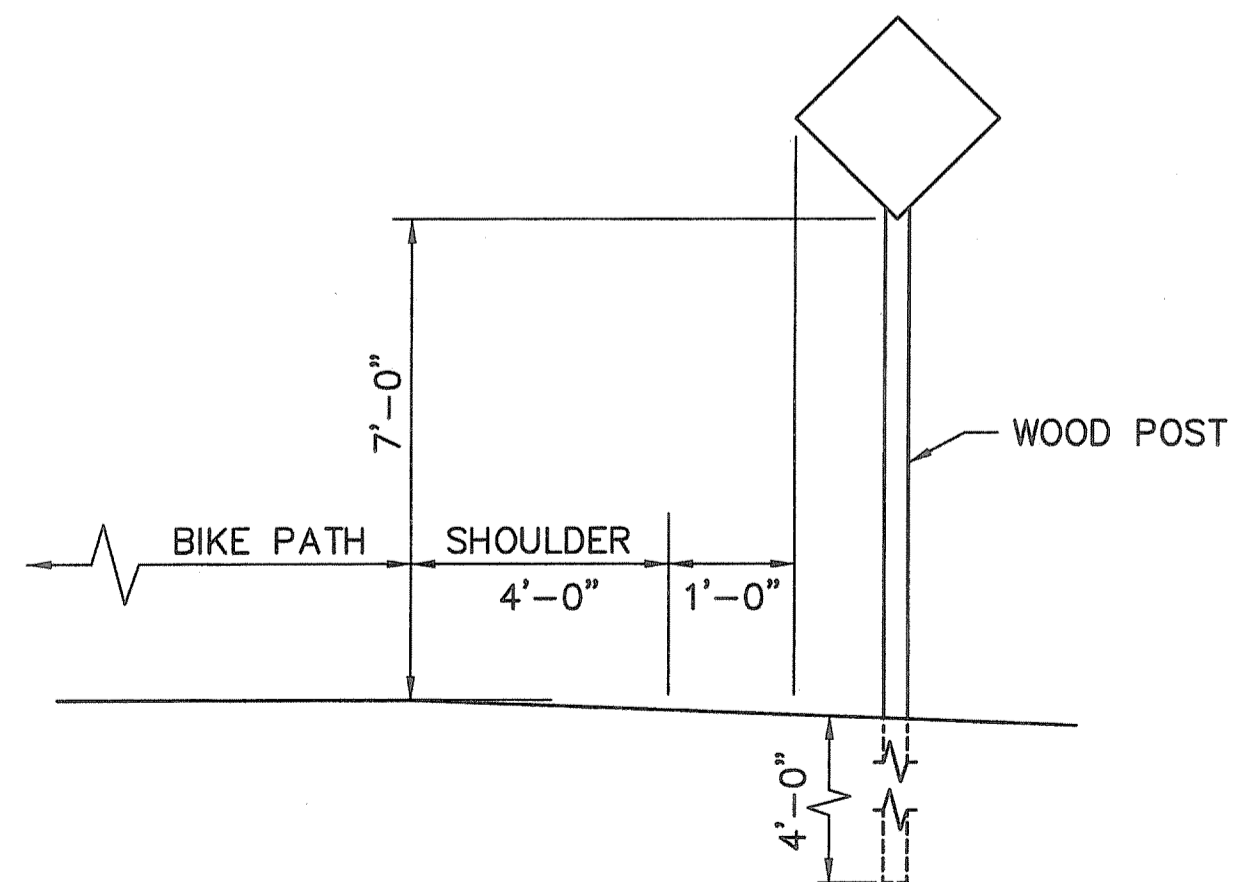
GUIDE SIGNS									
SIGN NUMBER	D4-3(L/R)	D11-1	M7-1(L/R)	M7-2	M7-6	D-3a	D-3b	D-3c	
LEGEND									
COLOR	BACKGROUND	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN	GREEN
	COPY	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE	WHITE
SIGN DIMENSION	WIDTH, IN.	12	24	12	12	12	54	24	51
	HEIGHT, IN.	18	18	9	9	9	12	12	12
MOUNTING *	BM	24.1.0	BM	24.1.0	BM	24.1.0	BM	24.1.0	24.1.0

\* MOUNTING SERIES 24.0 SEE R.I. STD. DETAILS  
BM SERIES SEE DETAILS THIS SHEET.

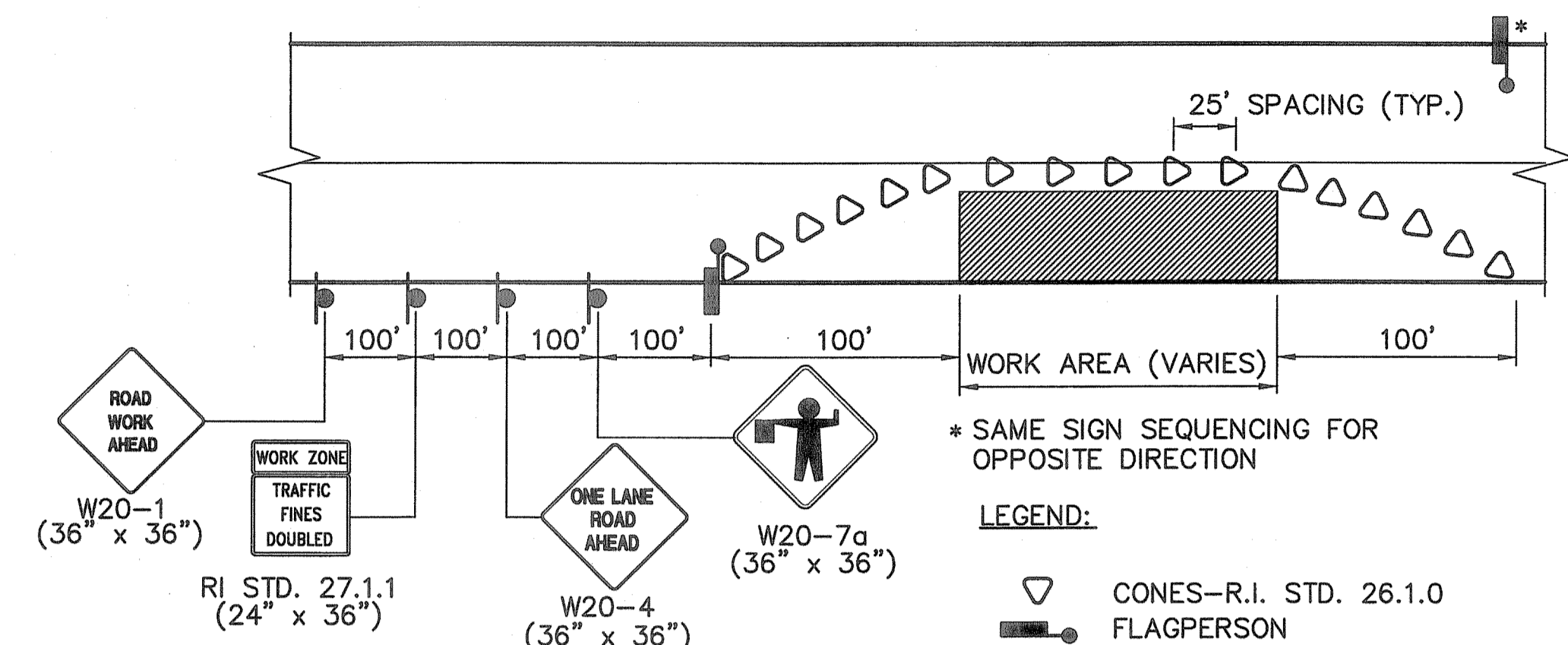
REGULATORY SIGNS		
SIGN NUMBER	R1-1	R5-3
LEGEND		
COLOR	BACKGROUND	RED
	COPY	WHITE
SIGN DIMENSION	WIDTH, IN.	18
	HEIGHT, IN.	18
MOUNTING *	BM	24.1.0



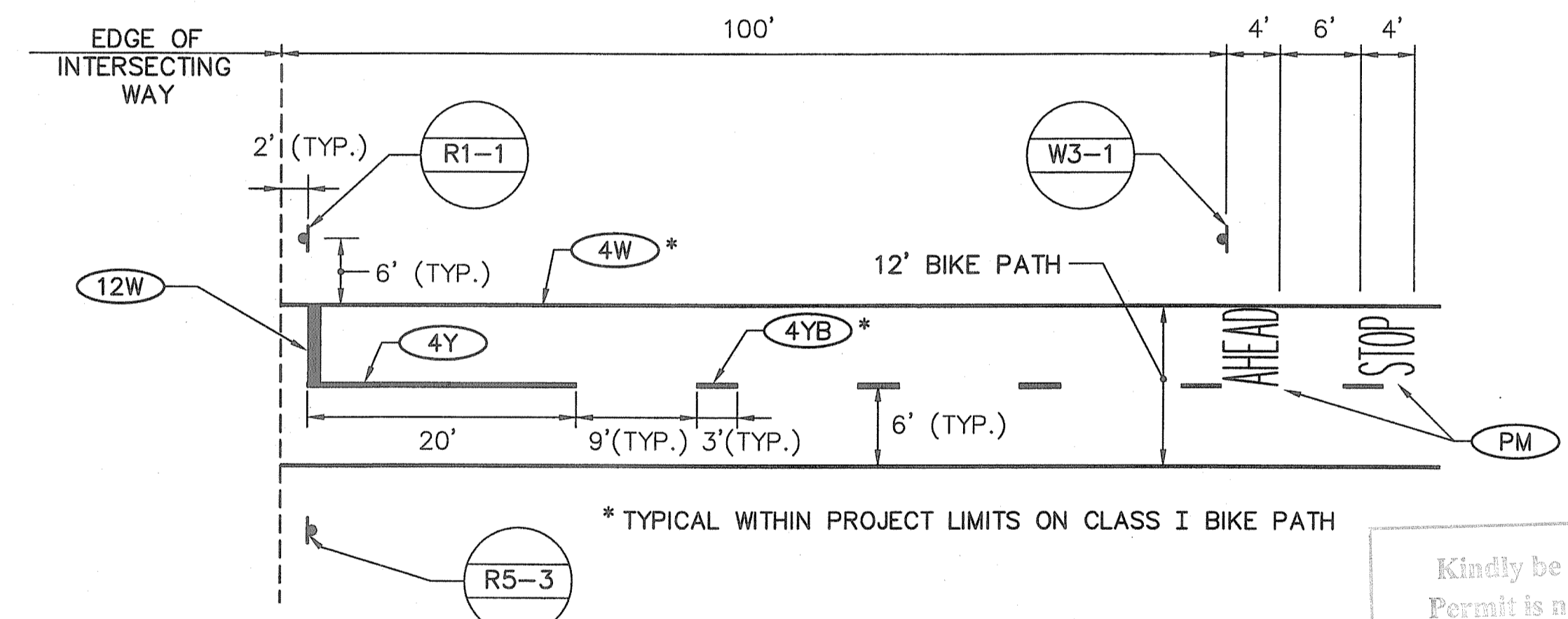
TYPICAL PAVEMENT MARKING AROUND BOLLARD  
NOT TO SCALE



BIKE PATH SIGN MOUNTING BM  
NOT TO SCALE



TYPICAL ONE LANE OPERATION  
NOT TO SCALE



TYPICAL PAVEMENT MARKINGS ON CLASS I BIKEPATH  
NOT TO SCALE

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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DATED OCT 31 2011 FILE # 11-0037  
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Environmental Management  
August 10, 2011  
Office of Water Resources

**NOTES:**

1. THE CONTRACTOR SHALL VERIFY THAT NO BASEMENTS OR UTILITY VAULTS EXIST BELOW THE SIDEWALK PRIOR TO EXCAVATION AT PROPOSED SIGN LOCATIONS.
2. PAYMENT FOR SIGN POST INSTALLATION, INCLUDING CONCRETE AND SIDEWALK RESTORATION SHALL BE INCLUDED IN THE COST FOR THE RESPECTIVE SIGN.

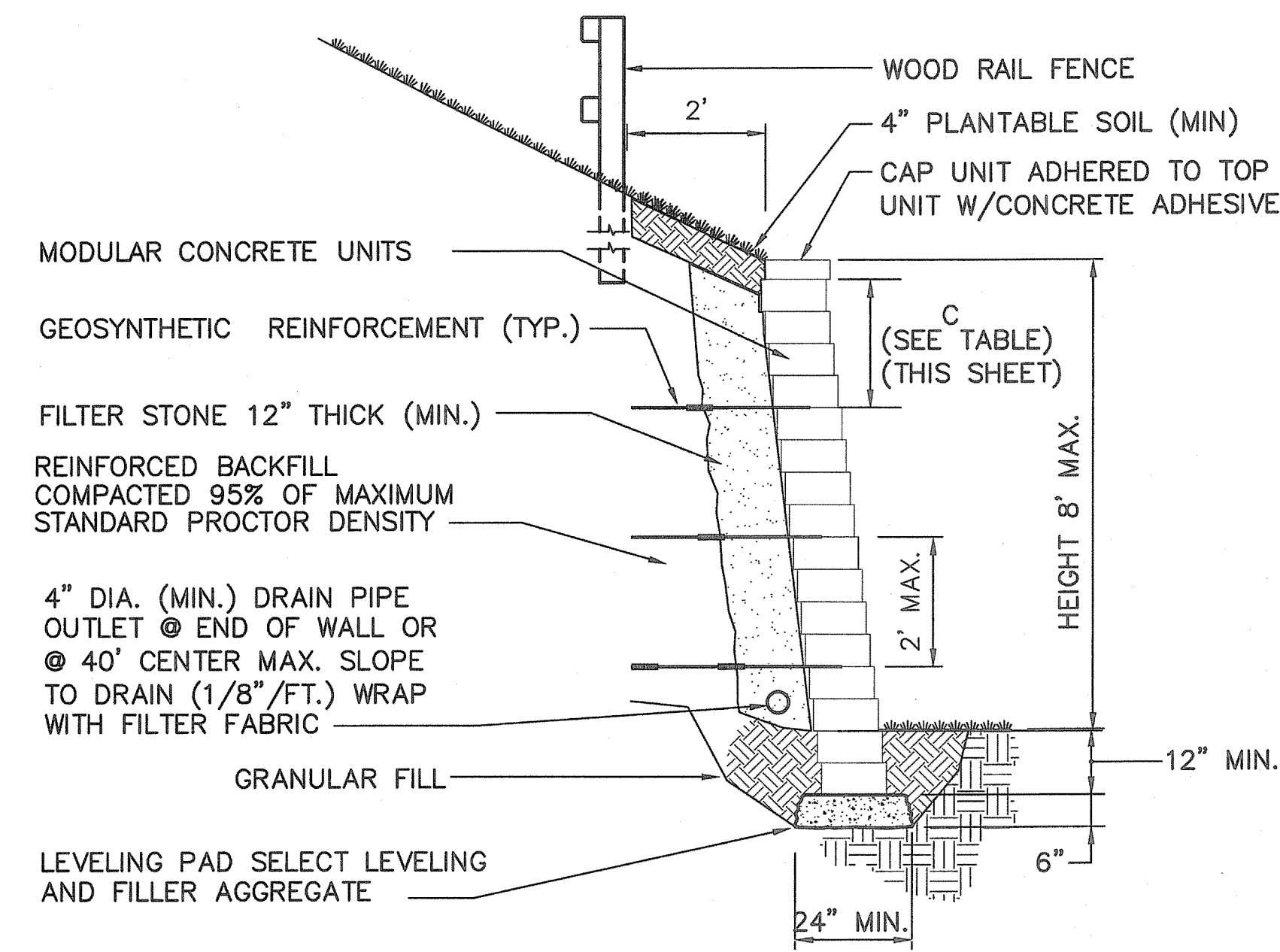
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS			NO	DATE	BY

RHODE ISLAND DEPARTMENT OF TRANSPORTATION					
BIKE TRAIL NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY PROVIDENCE, RHODE ISLAND					
SIGN AND PAVEMENT MARKING DETAILS					
CHECKED BY _____			DATE _____		SCALE N.T.S.



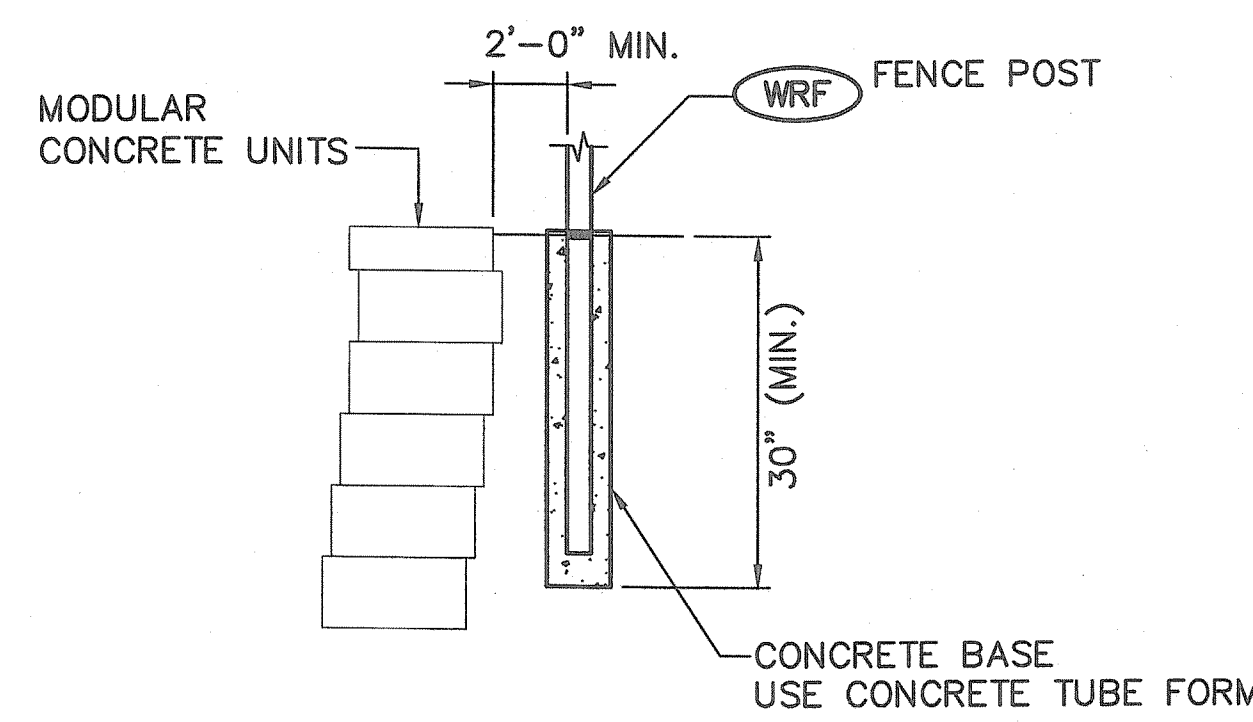
WALL HT.	# OF LAYERS	C
2'		
3'		
4'		
5'	1	3'
6'	2	2.5'
8'	3	2'
10'	3	2.5'
12'	4	2'



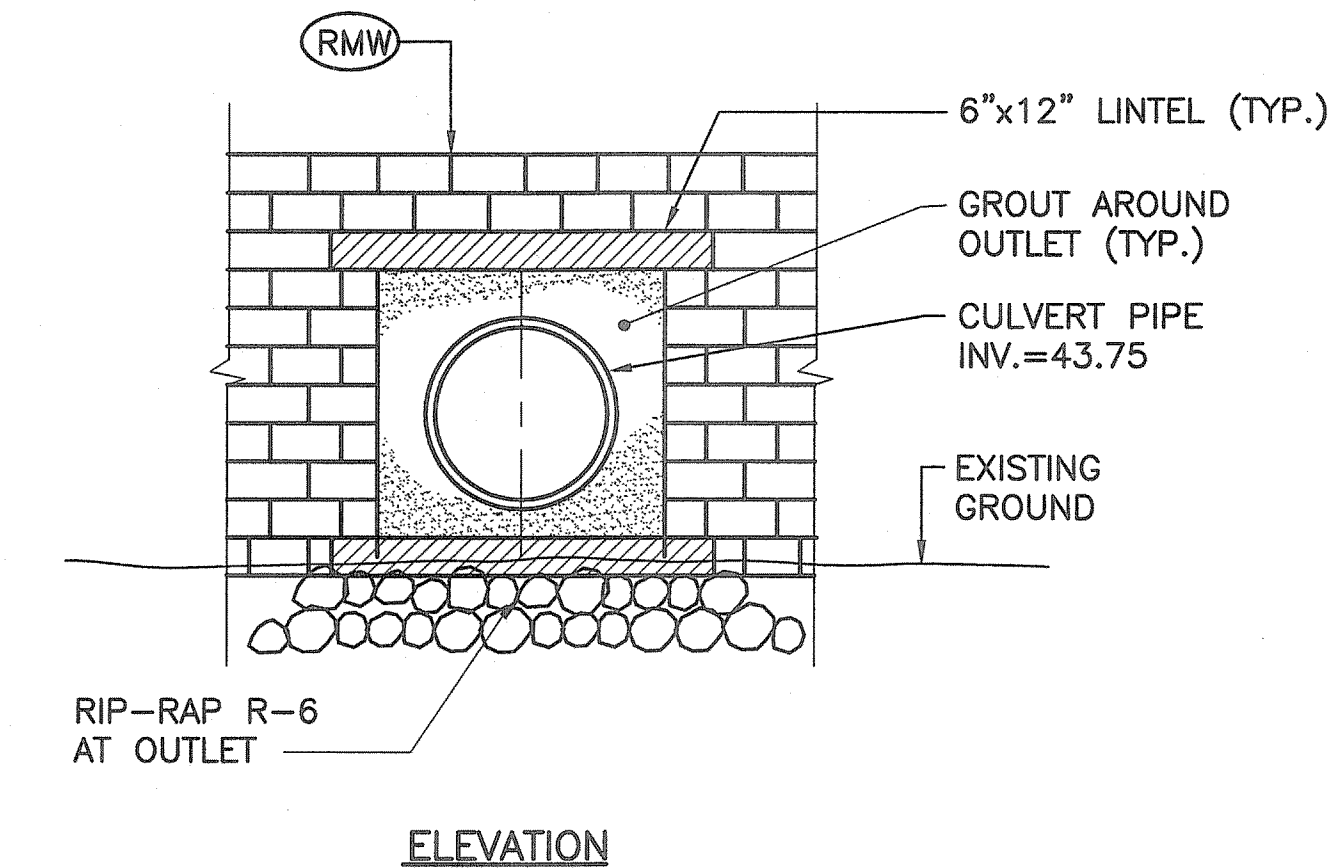
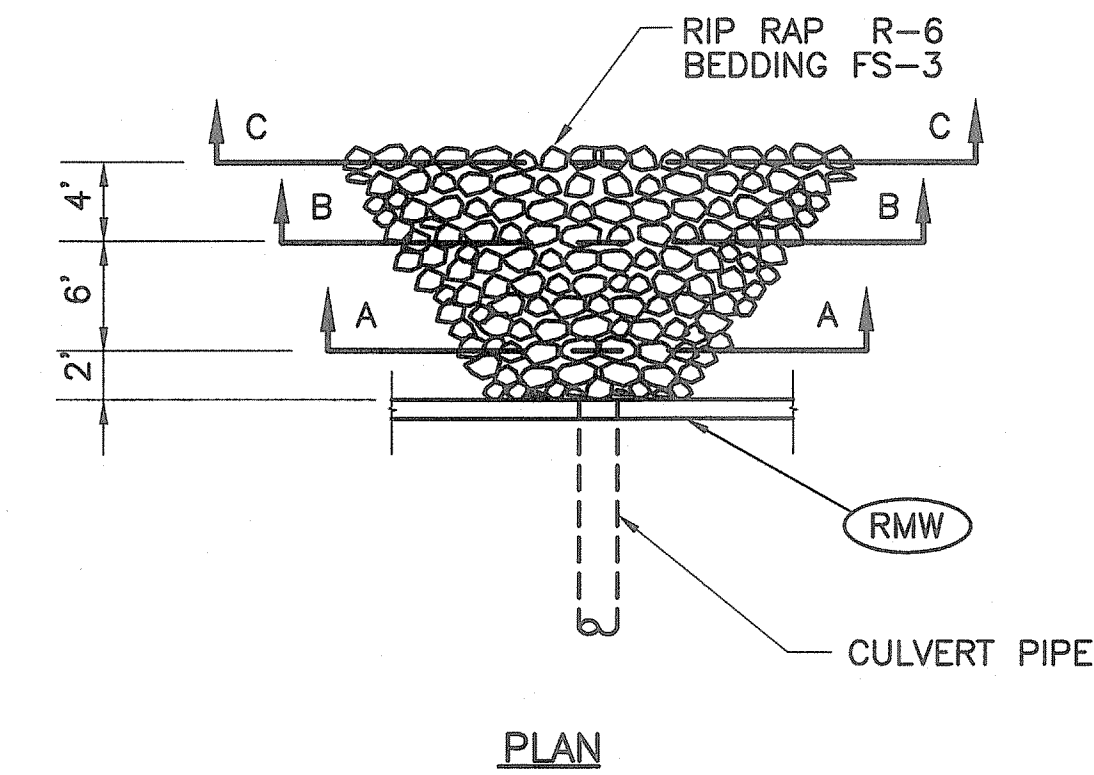
**TYPICAL SECTION-REINFORCED MODULAR RETAINING WALL (RMW)**

DETAILS AS SPECIFIED BY MANUFACTURER  
NOT TO SCALE

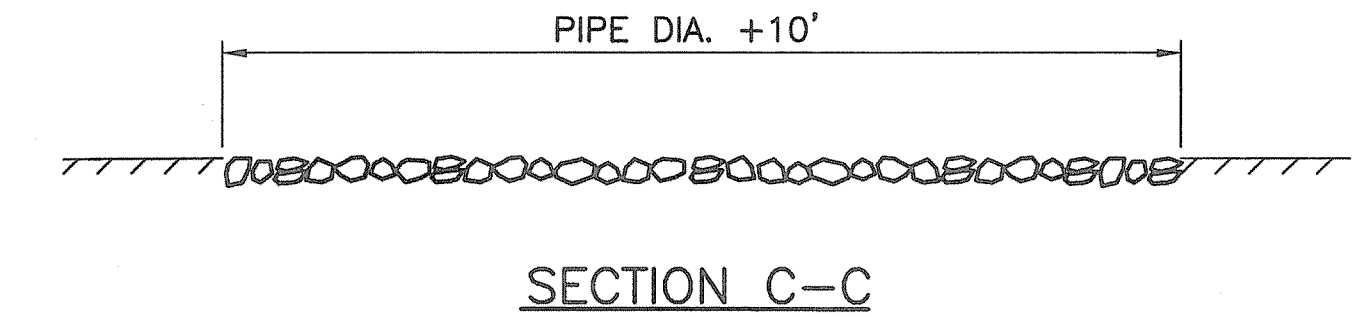
1. THE CONTRACTOR SHALL PROVIDE FINAL DESIGN/SHOP DRAWINGS OF THE REINFORCED MODULAR WALL. THE DESIGN SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF RHODE ISLAND
2. PERMANENT STEEL SHEETING SHALL CONFORM TO ASTM A328 AND HAVE A MINIMUM SECTION MODULUS OF 5.0 in<sup>3</sup> PER FOOT.



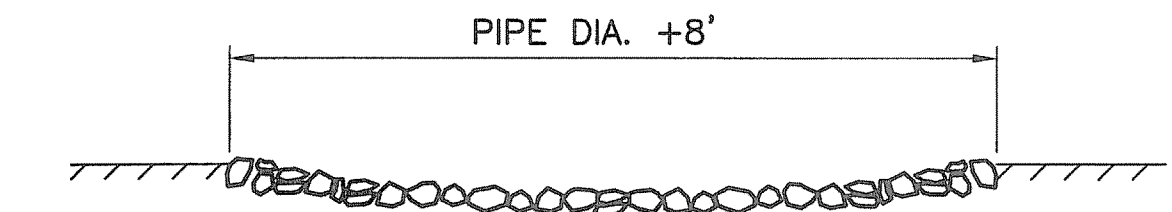
**MODULAR RETAINING WALL  
TYPICAL FENCE POST DETAIL**  
NOT TO SCALE



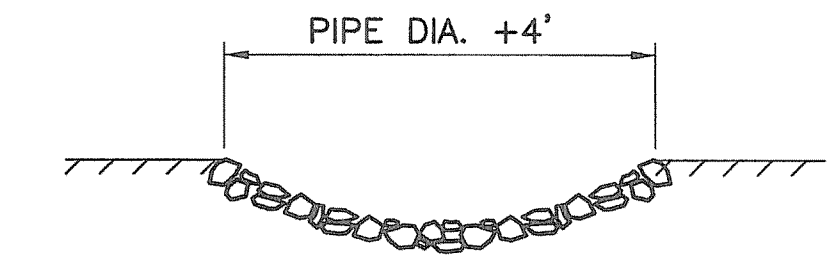
**PIPE OUTLET AT RETAINING WALL**  
NOT TO SCALE



**SECTION C-C**



**SECTION B-B**



**SECTION A-A**

**NOTES:**

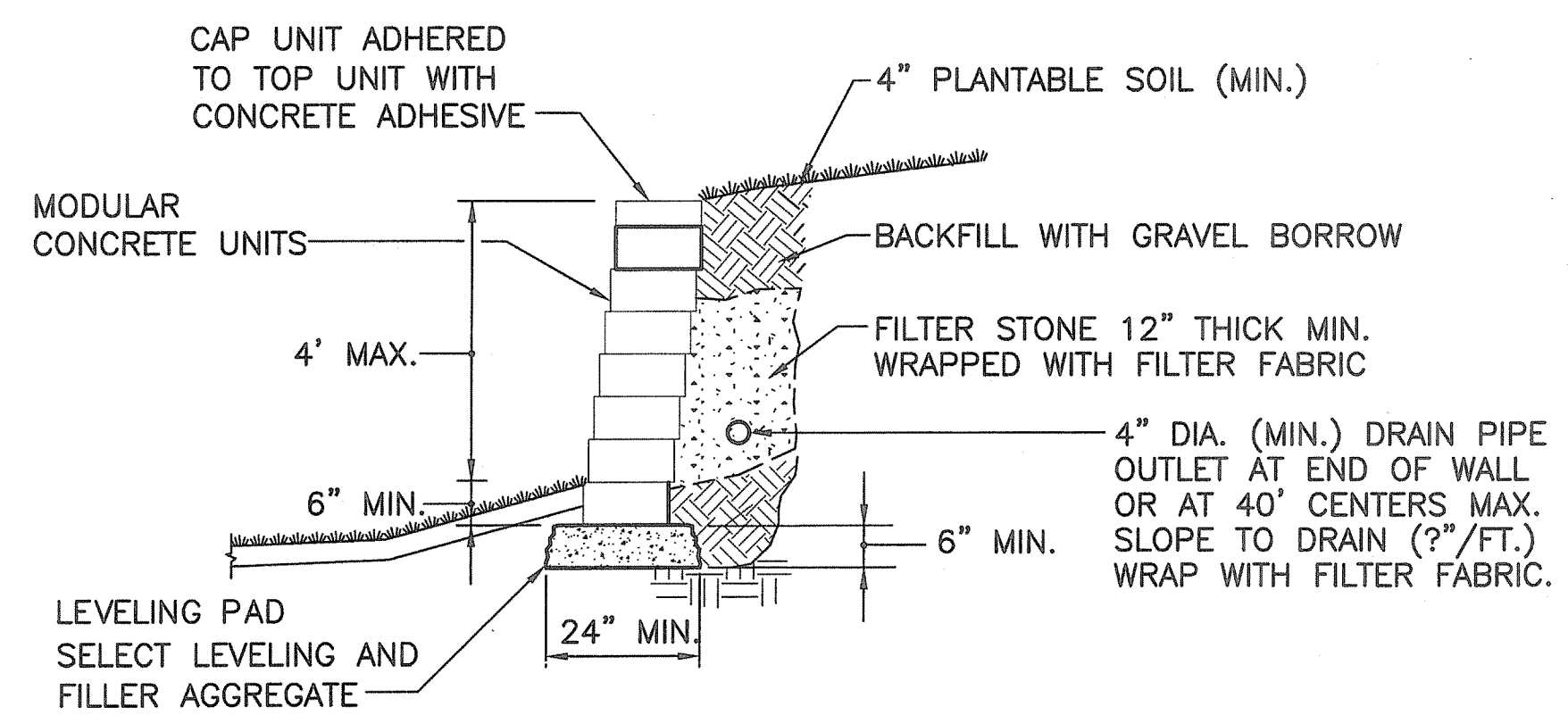
1. CLASS OF RIP-RAP AND BEDDING AS NOTED
2. DIMENSIONS MAY BE MODIFIED BY ENGINEER TO MEET FIELD CONDITIONS.
3. UNLESS OTHERWISE SPECIFIED, DUMPED RIP-RAP SHALL BE USED.

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
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DATED **OCT 31 2011** FILE # **11-0037**  
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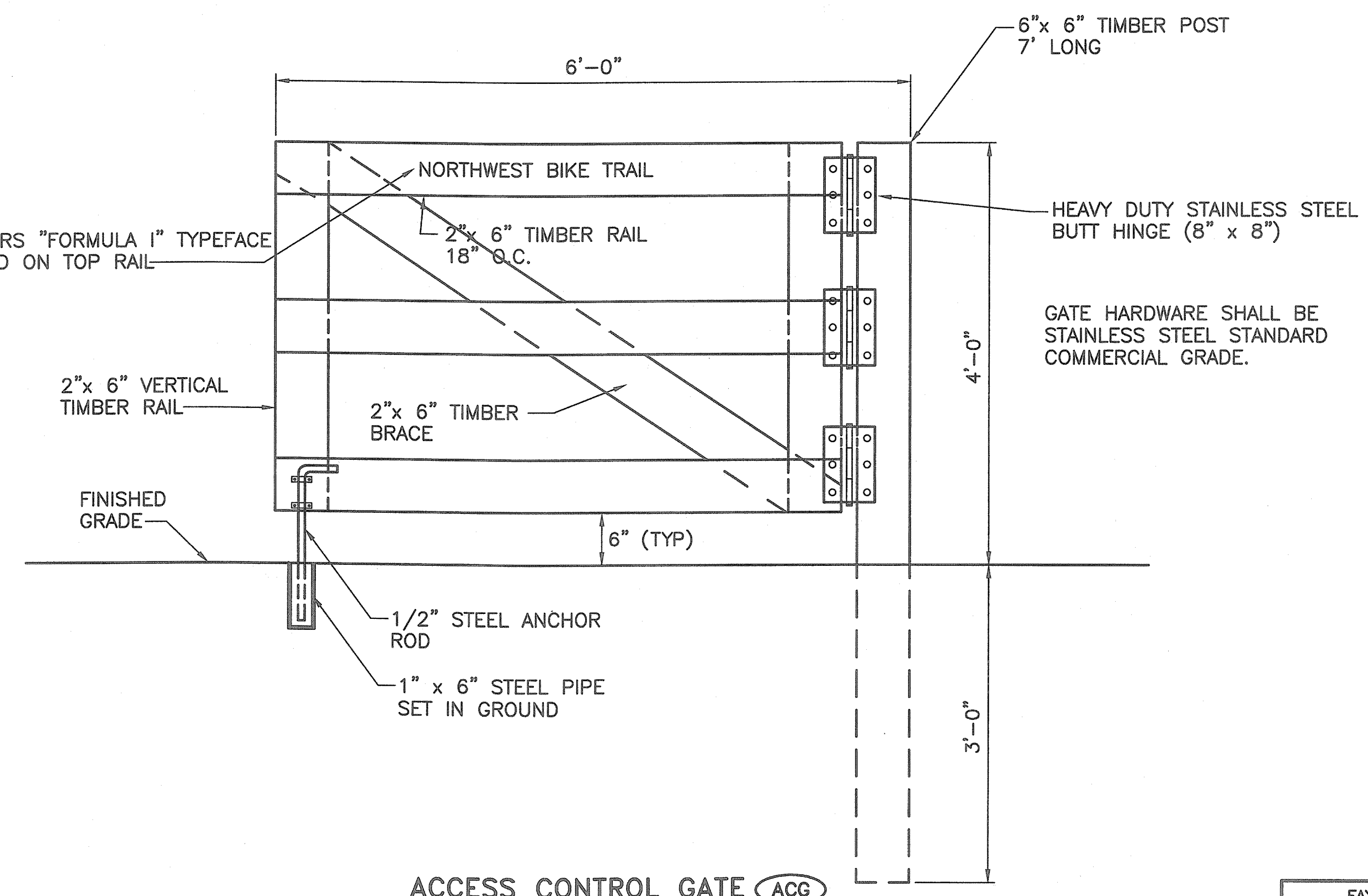
*W. Joseph Curry*

Environmental Management  
Aug 10 2011  
Office of Water Resources



**TYPICAL SECTION-UNREINFORCED MODULAR RETAINING WALL (MRW)**

DETAILS AS SPECIFIED BY MANUFACTURER  
NOT TO SCALE



**ACCESS CONTROL GATE (ACG)**  
NOT TO SCALE

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

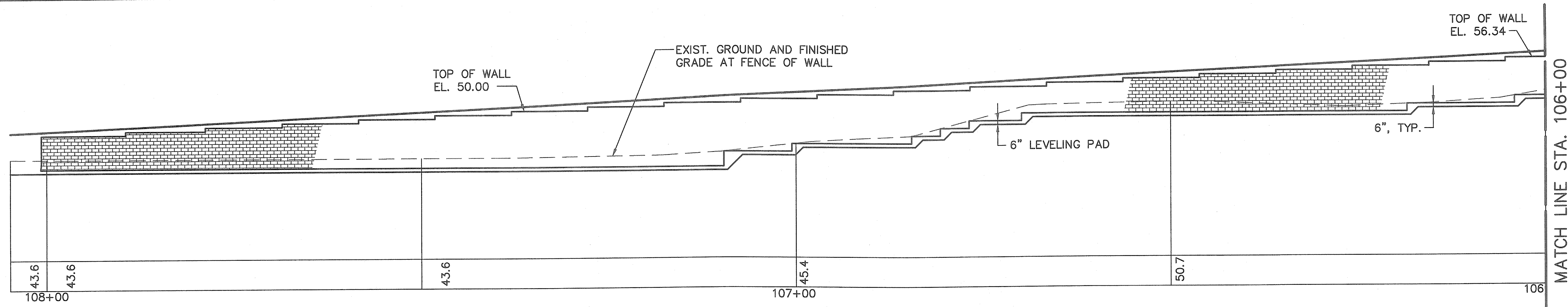
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

DETAILS PART 2

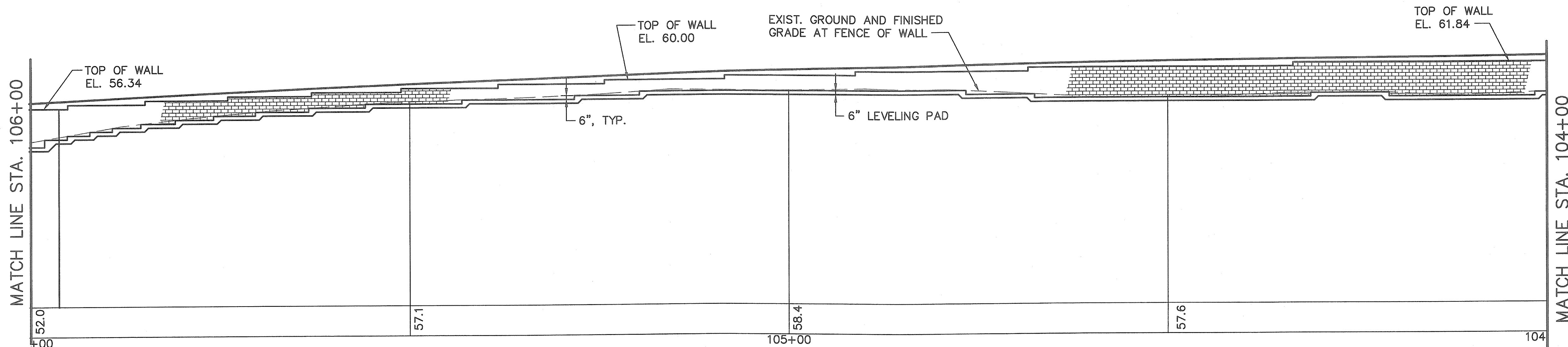
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE N.T.S.

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			22	54

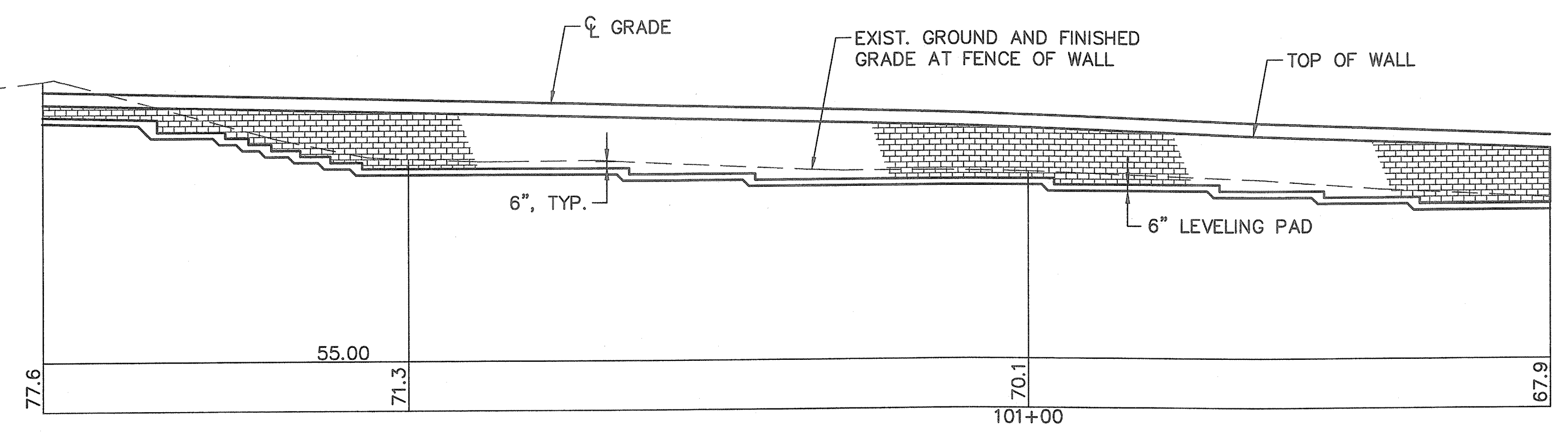
CONTRACT NO. 4  
D.E.M. PLAN SET : 22 OF 54



**NORTH WALL ELEVATION**  
STA. 106+00 TO STA. 108+07±  
SCALE: 1/8"=1'-0"



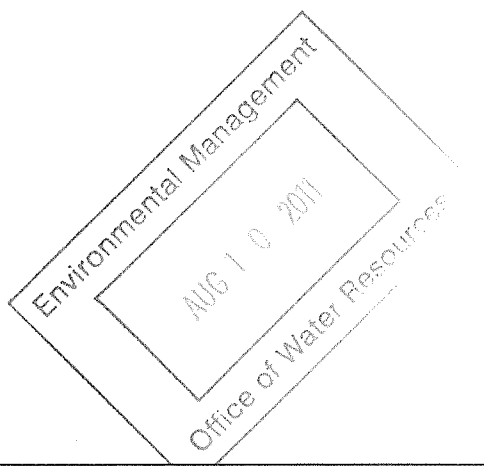
**NORTH WALL ELEVATION**  
STA. 104+00 TO STA. 106+00  
SCALE: 1/8"=1'-0"



**SOUTH WALL ELEVATION**  
STA. 101+00 TO STA. 101+42  
SCALE: 1/8"=1'-0"

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*W. Joseph Carey*



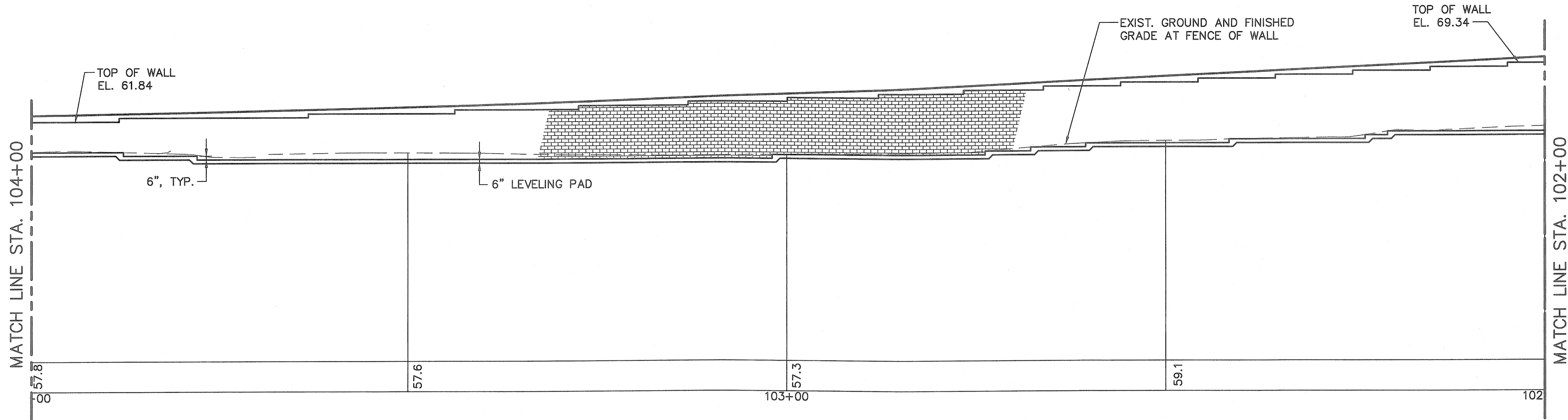
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

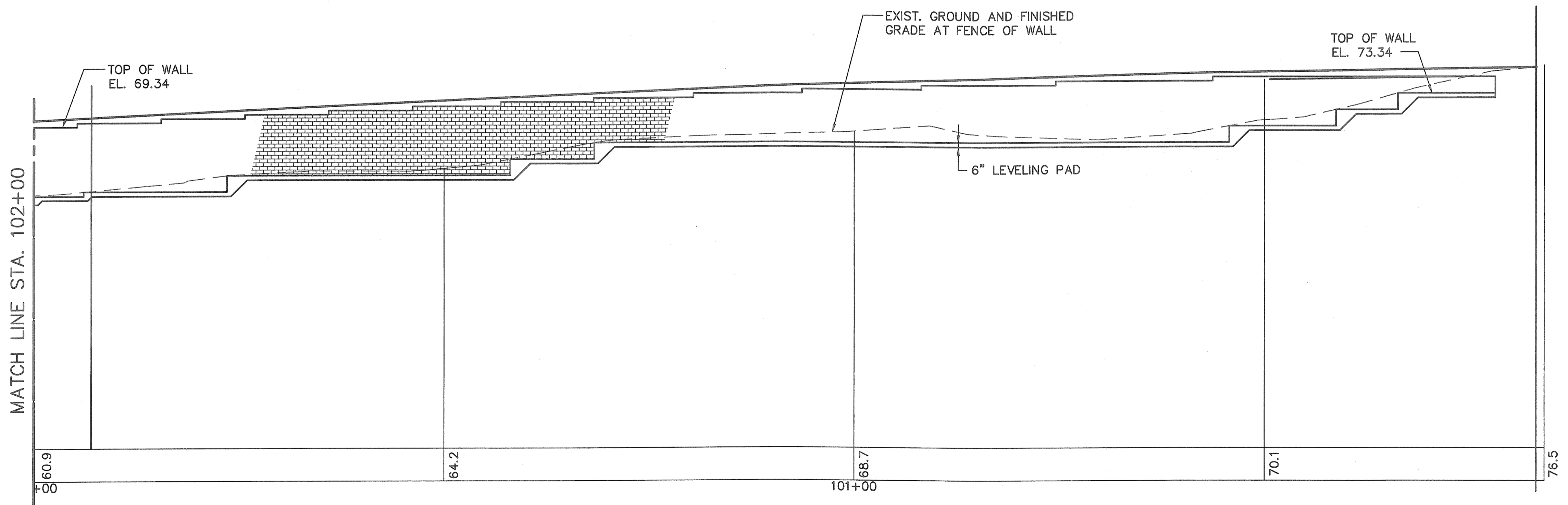
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
MODULAR RETAINING WALL ELEVATIONS  
PLAN NO. 1  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			23	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 23 OF 54



**NORTH WALL ELEVATION**  
**STA. 102+00 TO STA. 104+00**  
SCALE: 1/8"=1'-0"



**NORTH WALL ELEVATION**  
**STA. 100+22± TO STA. 102+00**  
SCALE: 1/8"=1'-0"

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Environmental Management  
Aug 10 2011  
Office of Water Resources

*W. Joseph Curry*

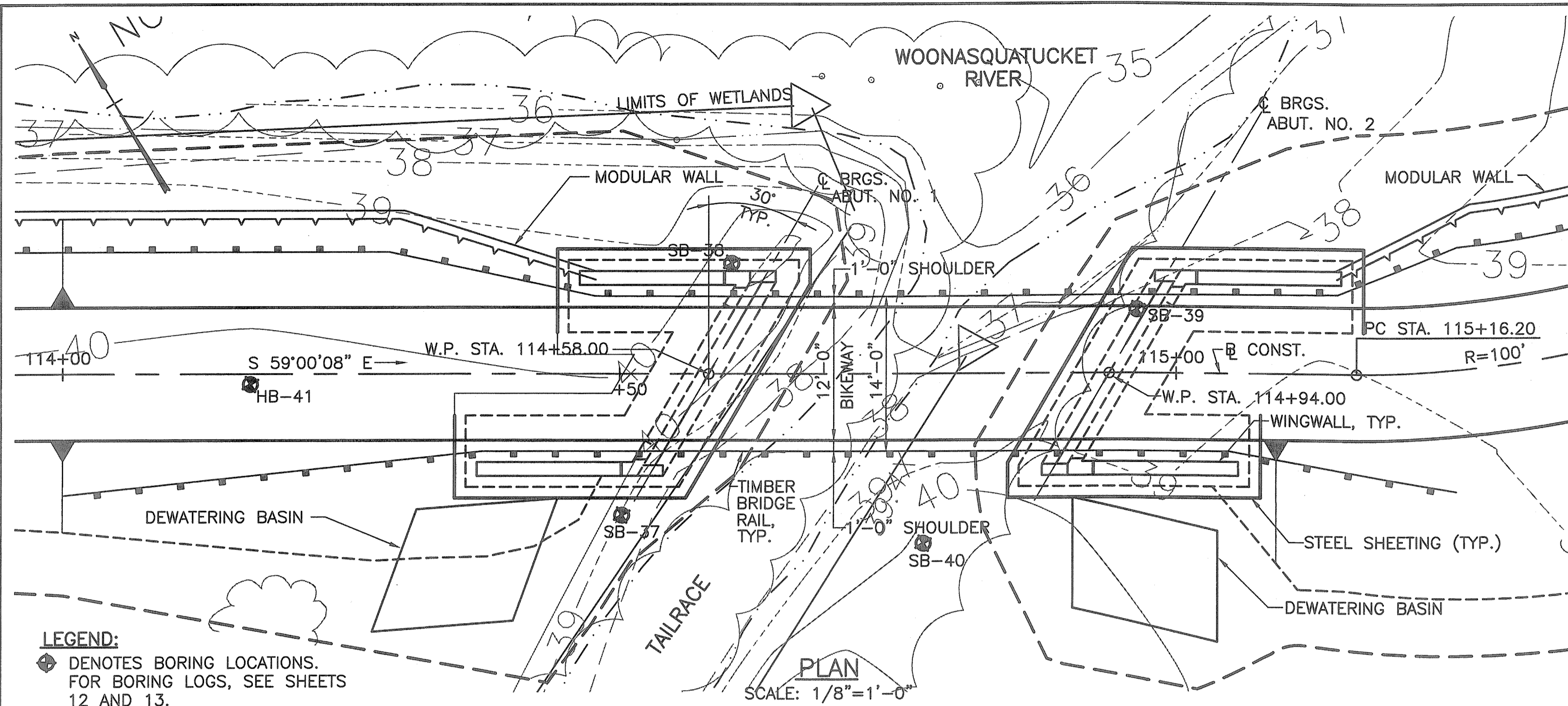
REVISIONS		
NO	DATE	BY

**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**  
  
**BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND**

**MODULAR RETAINING WALL ELEVATIONS  
PLAN NO. 2**

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

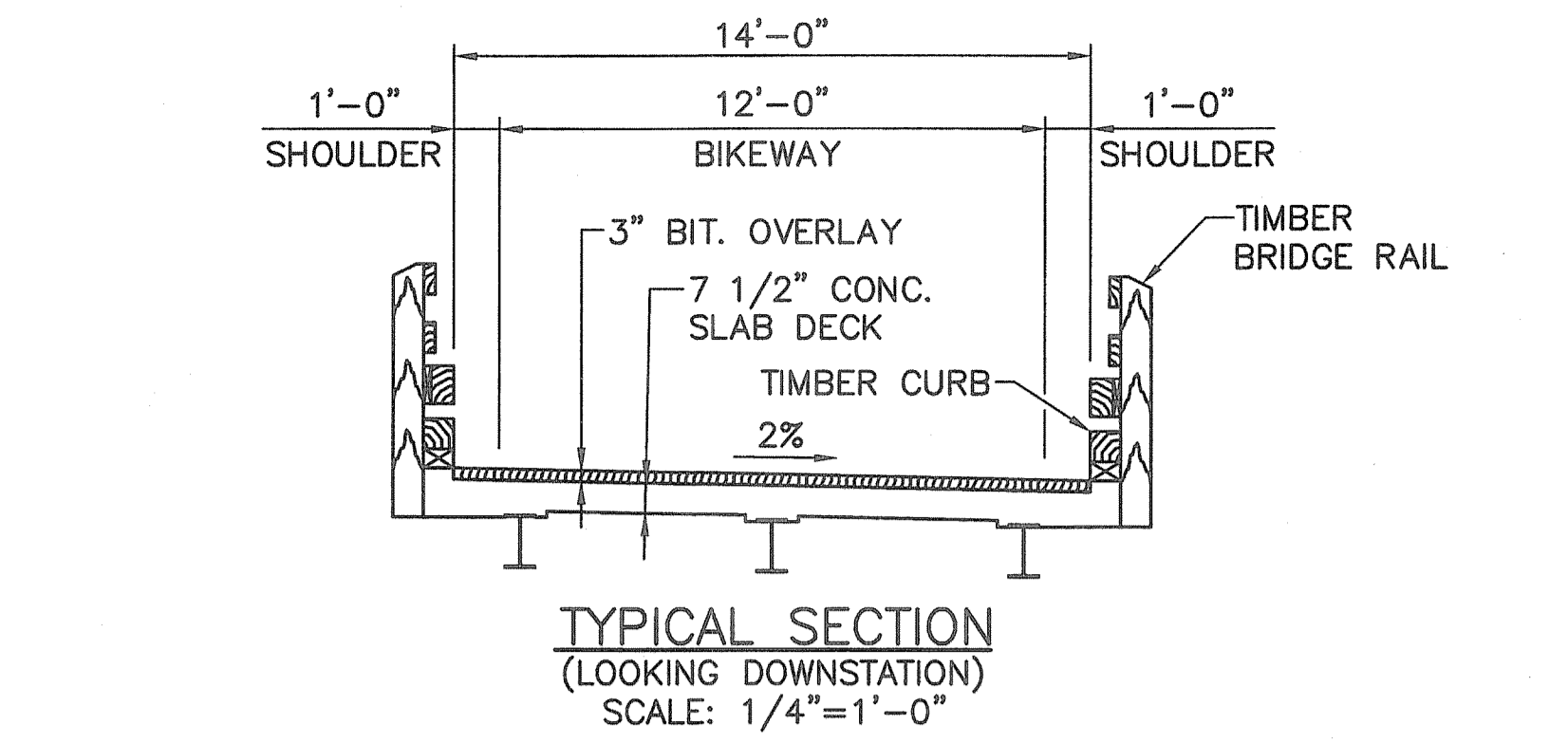
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED



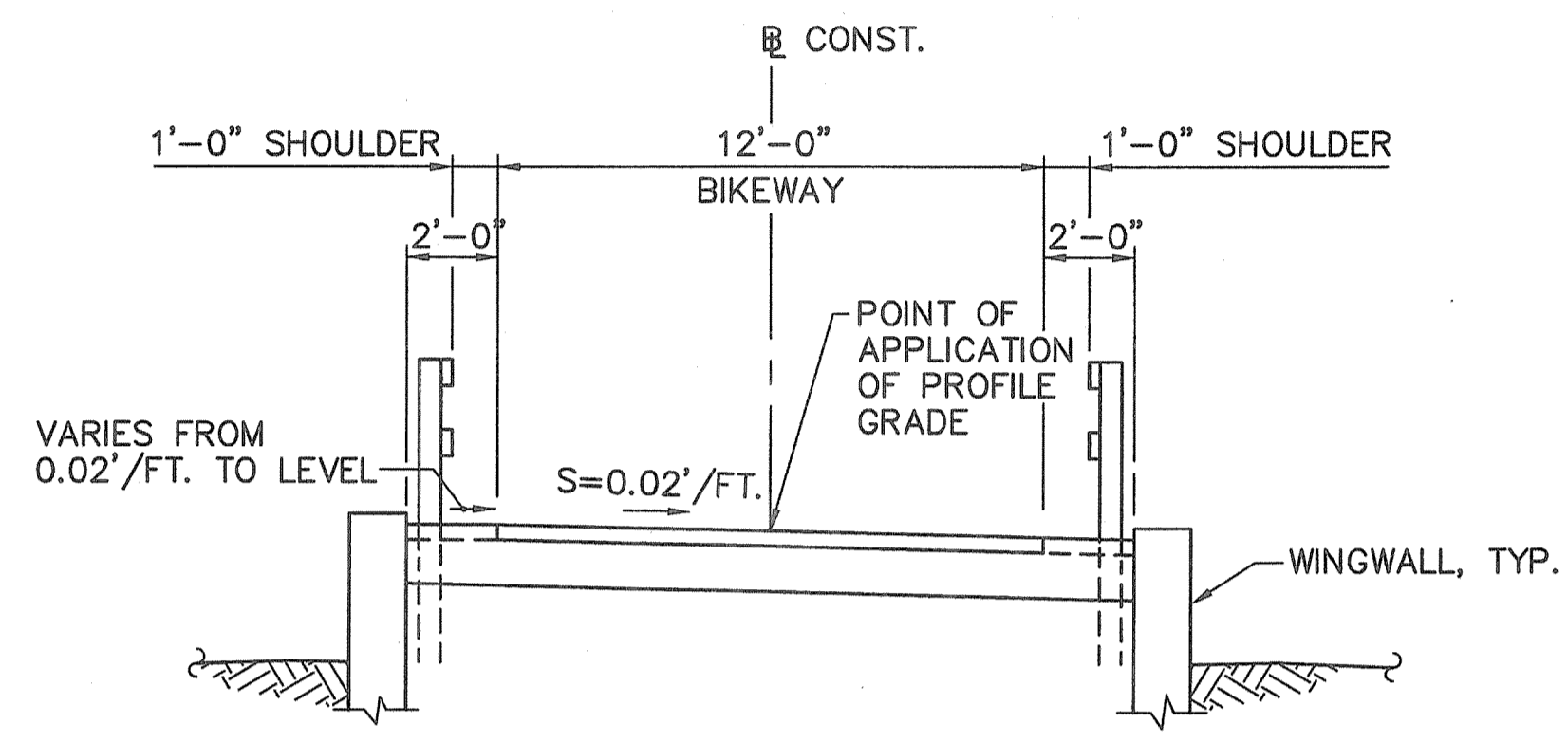
**LEGEND:**  
 ◆ DENOTES BORING LOCATIONS. FOR BORING LOGS, SEE SHEETS 12 AND 13.

**NOTES:**  
 1. FOR EROSION CONTROL, SEE BIKE TRAIL DRAWINGS.  
 2. FOR DETAILS OF TYPICAL MODULAR WALL, SEE BIKE TRAIL DRAWINGS.

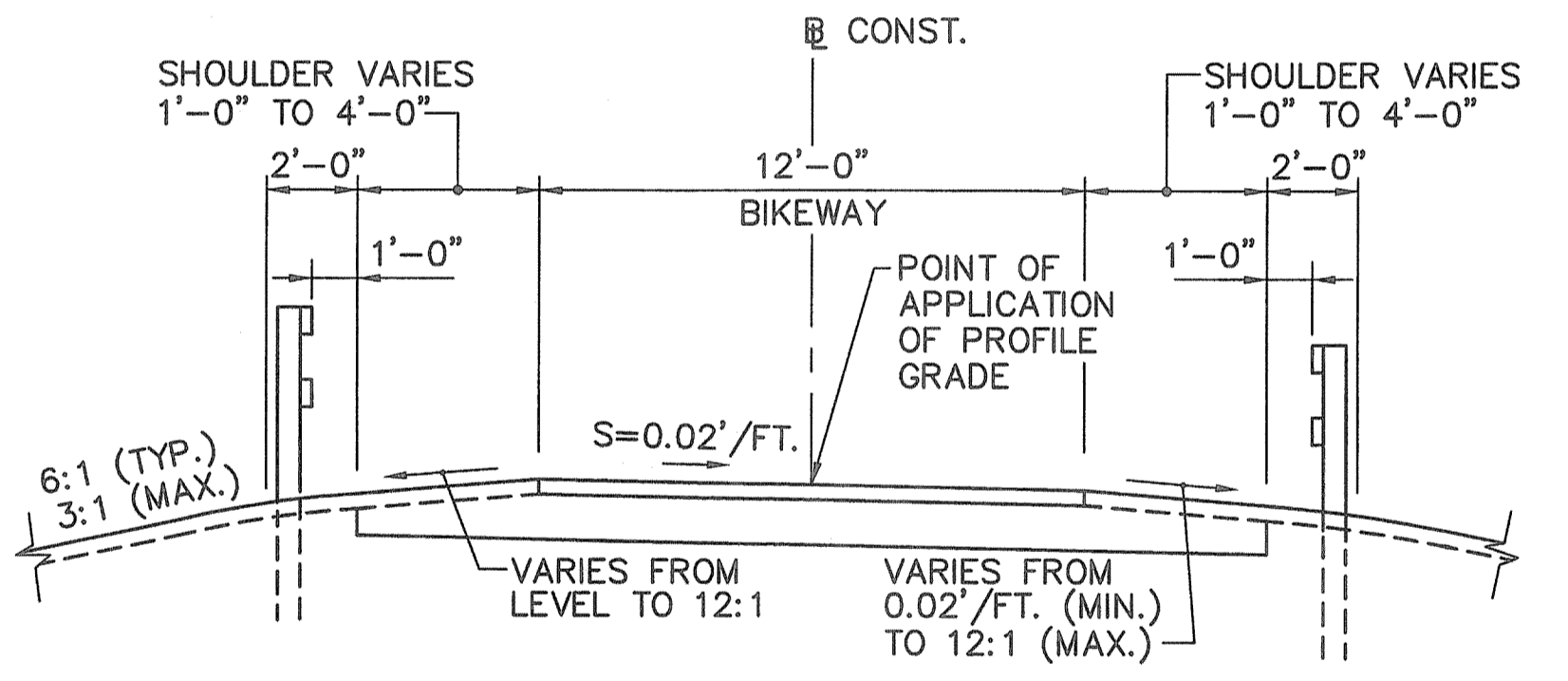
SCALE: 1/8"=1'-0"



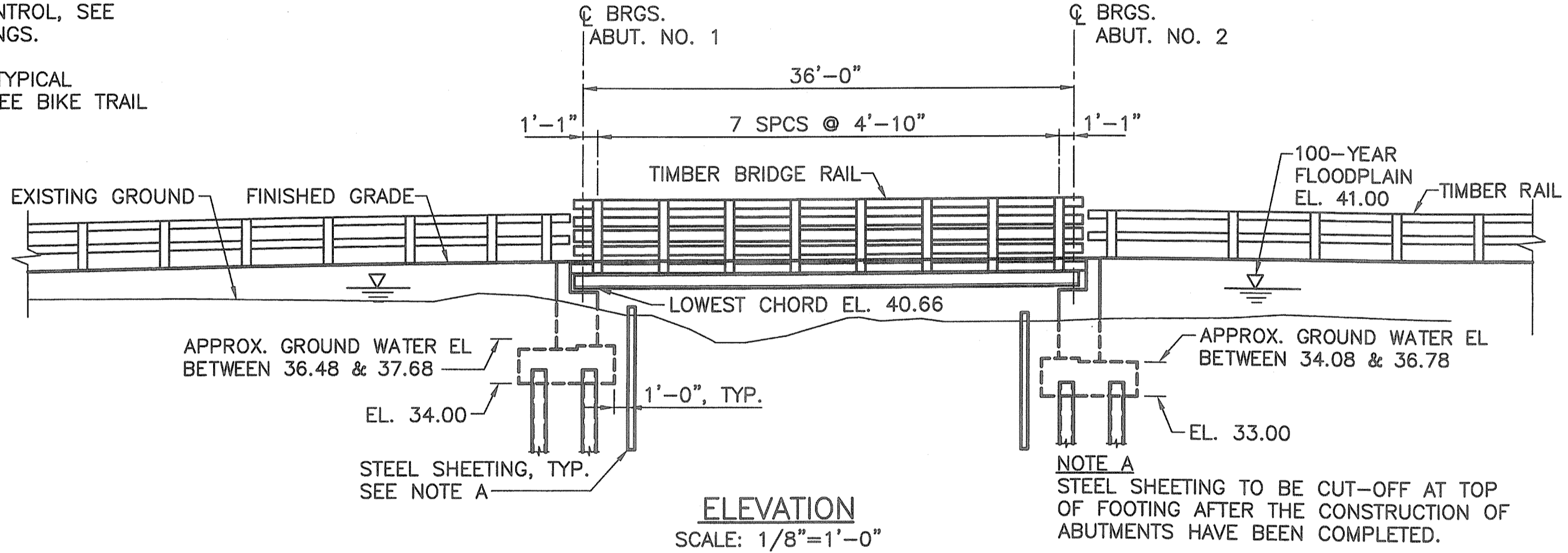
TYPICAL SECTION  
(LOOKING DOWNSTATION)  
SCALE: 1/4"=1'-0"



TYPICAL APPROACH SECTION  
AT WINGWALL  
(LOOKING DOWNSTATION)  
SCALE: 1/4"=1'-0"

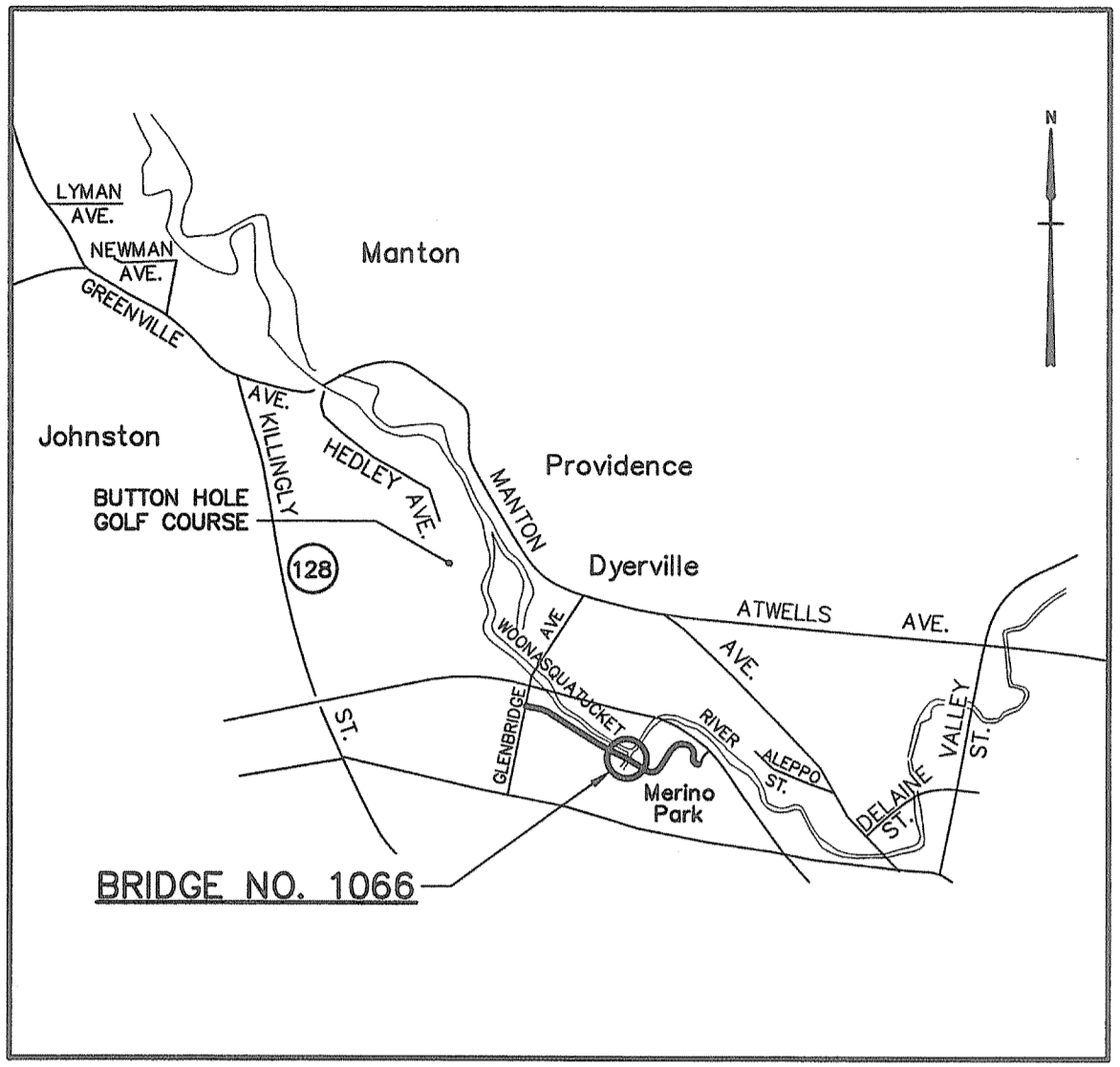


TYPICAL APPROACH SECTION  
BEFORE AND AFTER WINGWALL  
(LOOKING DOWNSTATION)  
SCALE: 1/4"=1'-0"



ELEVATION  
SCALE: 1/8"=1'-0"

NOTE A  
STEEL SHEETING TO BE CUT-OFF AT TOP OF FOOTING AFTER THE CONSTRUCTION OF ABUTMENTS HAVE BEEN COMPLETED.



LOCATION PLAN  
SCALE: 1"=2000'

INDEX OF DRAWINGS	
GENERAL PLAN, ELEVATION, TYPICAL SECTION AND PROFILE	1
GENERAL NOTES - 1	2
GENERAL NOTES - 2	3
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FOUNDATION PLAN	5
ABUTMENT PLANS AND ELEVATIONS	6
ABUTMENT SECTION & DETAILS	7
WINGWALL SECTION & DETAILS	8
STEEL DETAILS	9
BEARING AND DECK DETAILS	10
BRIDGE RAIL DETAILS	11
BORING LOGS - PART 1	12
BORING LOGS - PART 2	13

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

Environmental Management  
AUG 10 2011  
Office of Water Resources

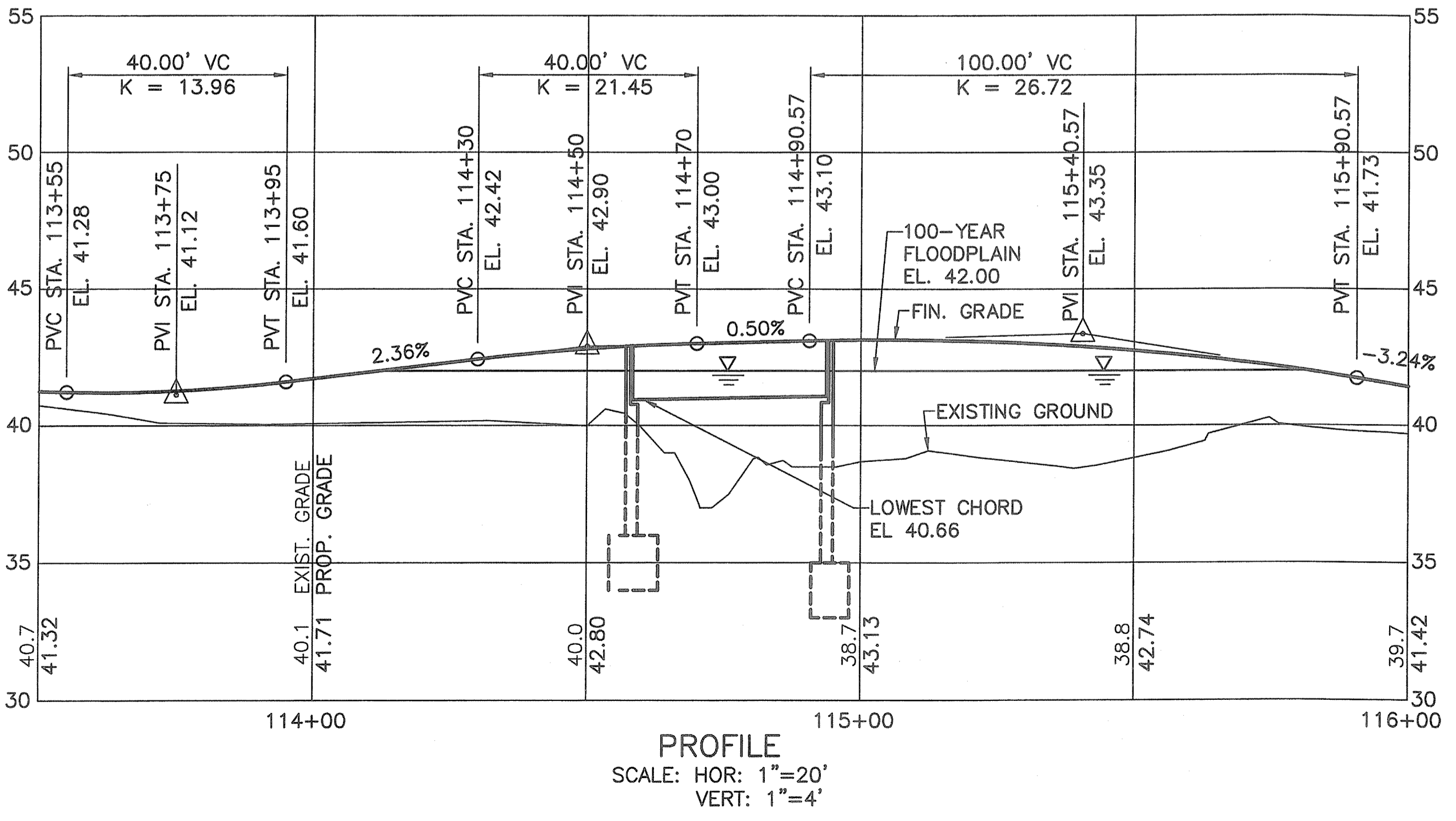
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0234  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Casady*

REVISIONS		
NO	DATE	BY

BRIDGE SHT. 1 OF 13  
 FAY, SPOFFORD & THORNDIKE, INC.  
 ENGINEERS  
 BOSTON, MA - BURLINGTON, MA  
 BEDFORD, NH - EAST WINDSOR, CT

RHODE ISLAND  
 DEPARTMENT OF TRANSPORTATION  
 BIKE TRAIL  
 NORTHWEST BIKE TRAIL/  
 WOONASQUATUCKET RIVER BIKEWAY  
 PROVIDENCE, RHODE ISLAND  
 LINCOLN LACE TAILRACE BRIDGE  
 BRIDGE NO. 1066  
 GENERAL PLAN  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED



PROFILE  
SCALE: HOR: 1"=20'  
VERT: 1"=4'

CONTRACT NO. 4  
D.E.M. PLAN SET : 25 OF 54

GENERAL NOTES

- ALL CONSTRUCTION INDICATED ON THESE PLANS SHALL BE IN ACCORDANCE WITH:
  - \* THE 2004 EDITION OF AND SUPPLEMENTS TO THE STATE OF RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (RI STANDARD SPECIFICATIONS).
  - \* THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 4TH EDITION, 2007, INCLUDING THE LATEST INTERIM REVISIONS.
  - \* THE SPECIFICATIONS ACCOMPANYING THESE PLANS.
- DIMENSIONS, STATIONS, AND ELEVATIONS ARE SHOWN TO THE NEAREST ONE-HUNDREDTH OF A FOOT OR ONE-EIGHTH OF AN INCH, EXCEPT STRUCTURAL STEEL DIMENSIONS WHICH ARE TO BE THE NEAREST ONE-SIXTEENTH OF AN INCH.
- ALL ELEVATIONS ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).
- COORDINATES USED ON THESE PLANS ARE BASED ON THE STATEWIDE COORDINATE SYSTEM, THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
- TOPOGRAPHIC CONDITIONS WERE OBTAINED FROM AERIAL PHOTOGRAMMETRY. ACCURACY OF VERTICAL TOPOGRAPHY IS WITHIN ONE-HALF OF A FOOT.
- FOR BENCH MARKS AND TIES, SEE HIGHWAY LOCATION PLANS.
- ANGLES ARE SHOWN TO THE NEAREST SECOND.
- ALL FOOTINGS SHALL BE APPROVED BY THE ENGINEER AS TO DIMENSIONS, ELEVATIONS, AND SUITABILITY OF FOUNDATION MATERIAL BEFORE THE PLACING OF CONCRETE.
- ALL WORKING POINTS ARE SHOWN AT THE CENTERLINES OF BEARINGS OF ABUTMENTS, UNLESS OTHERWISE NOTED.
- ALL ABUTMENTS AND WALLS ARE DRAWN LOOKING AT THE EXPOSED FACES.
- THE EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND WERE LOCATED USING THE BEST AVAILABLE INFORMATION. NO BUILDING SERVICE CONNECTIONS (ELECTRIC, TELEPHONE, GAS, WATER, SANITARY AND OTHERS) ARE SHOWN. THE CONTRACTOR IS TO ASSUME THAT SERVICES TO ALL BUILDINGS ARE PRESENT.
- BOTH FEDERAL AND STATE LAW (RI. GENERAL LAW 39-1.2) REQUIRE NOTIFICATION OF APPROPRIATE UTILITY COMPANIES BEFORE DIGGING, TRENCHING, BLASTING, DEMOLISHING, BORING, BACK FILLING, GRADING, LANDSCAPING, OR OTHER EARTH MOVING OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES (INCLUDING THROUGH THE "DIG SAFE" PROGRAM) TO ENSURE THAT ALL UTILITIES, BOTH UNDERGROUND AND OVERHEAD, HAVE BEEN MARKED BEFORE COMMENCEMENT OF SUCH WORK. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE "DIG SAFE" PROGRAM. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANIES, SHALL BE REPAIRED OR REPLACED (AS DEEMED APPROPRIATE BY THE STATE AND/OR THE IMPACTED UTILITY COMPANY) AT NO ADDITIONAL COST TO THE STATE.

DESIGN DATA

1. DESIGN SPECIFICATIONS

- \* THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 4TH EDITION, 2007 INCLUDING ALL INTERIM REVISIONS TO DATE.
- \* THE RHODE ISLAND LRFD BRIDGE MANUAL 2009 EDITION INCLUDING ALL REVISIONS TO DATE.
- \* ALL OTHER APPLICABLE DESIGN SPECIFICATIONS ARE REFERENCED IN SECTION 1 OF THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL DATED 2009.
- \* THE LATEST REVISION OF AND SUPPLEMENTS TO THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. (RI STANDARD SPECIFICATIONS)
- \* IN CASE OF CONFLICT, THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL SHALL GOVERN.

2. LOAD MODIFIERS

THE LOAD MODIFIERS FOR THIS PROJECT ARE AS FOLLOWS:--

- \* THE LOAD MODIFIER FOR DUCTILITY SHALL BE TAKEN AS 1.0 FOR ALL LIMIT STATES.
- \* THE LOAD MODIFIER FOR REDUNDANCY SHALL BE TAKEN AS 1.0.
- \* THE LOAD MODIFIER FOR OPERATIONAL IMPORTANCE SHALL BE TAKEN AS 1.0.

3. LOAD FACTORS

- ALL LOAD FACTORS SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EXCEPT AS MODIFIED IN THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL.
- \* THE LOAD FACTOR FOR TEMPERATURE GRADIENT SHALL BE TAKEN AS 1.2.
  - \* THE LOAD FACTOR FOR LIVE LOAD FOR THE EXTREME EVENT I SHALL BE TAKEN AS ZERO.
  - \* THE LOAD FACTOR FOR DEAD LOAD FOR THE EXTREME EVENT I AND EXTREME EVENT II SHALL BE TAKEN AS 1.0
  - \* THE LOAD FACTOR FOR SETTLEMENT FOR ALL LIMIT STATES SHALL BE TAKEN AS 1.0

4. LIVE LOADS

- \* THE DESIGN VEHICULAR LIVE LOAD SHALL BE THE H-20 DESIGNATION.
- \* THE DESIGN PEDESTRIAN LIVE LOAD SHALL BE 85 PSF.

5. FOUNDATION DESIGN DATA

DEEP FOUNDATIONS:

THE FACTORED AXIAL AND UPLIFT RESISTANCES FOR THE VARIOUS DEEP FOUNDATION TYPES ARE AS FOLLOWS:

LOCATION	TYPE	FACTORED AXIAL RESISTANCE (KIPS)			
		GEOTECHNICAL		STRUCTURAL	
		STRENGTH LIMIT STATES	EXTREME LIMIT STATES	STRENGTH LIMIT STATES	EXTREME LIMIT STATES
NORTH ABUTMENT	STEEL H PILE	90	200	285	570
SOUTH ABUTMENT	STEEL H PILE	90	200	285	570

LOCATION	TYPE	FACTORED UPLIFT RESISTANCE (KIPS)	
		STRENGTH LIMIT STATES	EXTREME LIMIT STATES
		STRENGTH LIMIT STATES	EXTREME LIMIT STATES
NORTH ABUTMENT	STEEL H PILE	72	165
SOUTH ABUTMENT	STEEL H PILE	72	165

(\*DESIGNER TO COMPLETE TABLE\*)

- \* THE FACTORED DESIGN AXIAL RESISTANCE AT EACH LOCATION IS THE LESSER VALUE OF THE FACTORED GEOTECHNICAL AND THE FACTORED STRUCTURAL RESISTANCES INDICATED.
- \* THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE STRENGTH LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING (\*DESIGNER TO SPECIFY METHOD\*) AND A RESISTANCE FACTOR OF (\*DESIGNER TO SPECIFY RESISTANCE FACTOR\*).
- \* THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE EXTREME LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING (\*DESIGNER TO SPECIFY METHOD\*) AND A RESISTANCE FACTOR OF (\*DESIGNER TO SPECIFY RESISTANCE FACTOR\*).
- \* THE FACTORED GEOTECHNICAL UPLIFT RESISTANCE FOR THE STRENGTH LIMIT STATE IS BASED ON THE NOMINAL UPLIFT RESISTANCE AS DETERMINED USING (\*DESIGNER TO SPECIFY METHOD\*) AND A RESISTANCE FACTOR OF (\*DESIGNER TO SPECIFY RESISTANCE FACTOR\*).

7. HYDRAULIC DATA

SEE HYDRAULIC ANALYSIS REPORT FOR THIS SITE PREPARED BY FST DATED DECEMBER, 2009.

8. THERMAL DESIGN FORCE DATA

UNIFORM TEMPERATURE EFFECTS HAVE BEEN TAKEN INTO CONSIDERATION IN ACCORDANCE WITH THE PROCEDURE B OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE MINIMUM DESIGN TEMPERATURE SHALL BE -10 DEGREES F. AND THE MAXIMUM TEMPERATURE SHALL BE 105 DEGREES F.

9. SEISMIC DESIGN DATA

- \* THE SEISMIC ANALYSIS AND DESIGN SHALL BE IN ACCORDANCE WITH THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL
- \* THE COMBINATION OF SEISMIC FORCE EFFECTS IS IN ACCORDANCE WITH THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL
- \* THIS BRIDGE HAS BEEN CLASSIFIED AS NON-CRITICAL.
- \* THE SITE HAS BEEN CLASSIFIED AS SITE CLASS D FOR THIS BRIDGE.
- \* SEISMIC ANALYSIS IS NOT REQUIRED FOR THIS SINGLE SPAN BRIDGE.

MATERIALS

STRUCTURAL STEEL:

- AASHTO DESIGNATION M 270, GRADE 36
- AASHTO DESIGNATION M 270, GRADE 50

REINFORCING STEEL:

- AASHTO DESIGNATION M 31, GRADE 60

CONCRETE STRENGTHS:

- CLASS HP 3/4" f<sub>c</sub>=5,000 PSI BRIDGE DECK, ABUTMENT STEMS, BACKWALLS, WALL STEMS AND BRIDGE SEATS
- CLASS XX 3/4" f<sub>c</sub>=4,000 PSI REINFORCED FOOTINGS

FOUNDATIONS

SEE GEOTECHNICAL REPORT PREPARED BY FST FOR THIS PROJECT DATED NOVEMBER 2010.

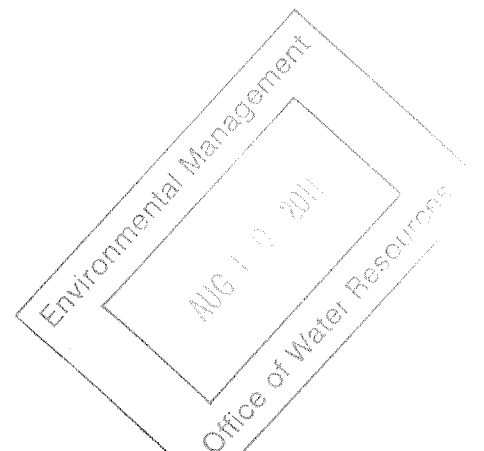
CONCRETE NOTES

- CLASSES OF CONCRETE SHALL BE HIGH PERFORMANCE CLASS HP AND CLASS XX, AS DESCRIBED IN THE RI STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS OF THE SPECIFICATIONS. REFER TO THE "MATERIAL" NOTES FOR CLASSES OF CONCRETE SPECIFIED FOR VARIOUS COMPONENTS.
- ALL CLASSES OF CONCRETE ARE TO BE MODIFIED THROUGH THE ADDITION OF CALCIUM NITRITE-BASED CORROSION INHIBITOR IN ACCORDANCE WITH SECTION 605 OF THE RI STANDARD SPECIFICATIONS. IN ADDITION, HP CONCRETE USED FOR DECKS ONLY SHALL ALSO BE MODIFIED WITH ADDITION OF SYNTHETIC FIBERS IN ACCORDANCE WITH SECTION 604 OF THE RI STANDARD SPECIFICATIONS.
- THE CONTRACTOR MAY, AT THE APPROVAL OF THE ENGINEER, PROPOSE THE USE OF SELF-CONSOLIDATING CONCRETE FOR ANY CLASS OF CONCRETE ON THIS PROJECT. SECTION 606 "SELF CONSOLIDATING CONCRETE (SCC)", CONTAINS THE REQUIREMENTS FOR MODIFYING ALL CLASSES OF CONCRETE MIX DESIGN FOR SELF-CONSOLIDATING APPLICATIONS.
- ALL PORTLAND CEMENT CONCRETE SHALL BE AIR-ENTRAINED.
- EXCEPT FOR FOOTINGS CAST BELOW GRADE, ALL REINFORCING STEEL SHALL BE EPOXY COATED. ALL WIRE TIES AND MISCELLANEOUS HARDWARE USED FOR PLACEMENT OF EPOXY COATED REINFORCING SHALL ALSO BE EPOXY COATED. EPOXY COATING FOR REINFORCING STEEL SHALL CONFORM TO AASHTO DESIGNATION M 284.
- ALL CRITICAL LAP SPLICES SHALL BE AS SHOWN ON THE PLANS. ALL SPLICES NOT SHOWN ON THE PLANS SHALL BE LAPPED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR CLASS C LAP SPLICES.
- THE TOP BARS IN THE DECK SLABS SHALL BE SPLICED AT THE CENTER OF SPANS BETWEEN GIRDERS. THE BOTTOM BARS SHALL BE SPLICED OVER THE GIRDERS.
- UNLESS OTHERWISE INDICATED ON THE PLANS, ALL MAIN REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM COVER:

CONCRETE CAST AGAINST OR PERMANENTLY EXPOSED TO EARTH (FOOTINGS, ABUTMENT AND WALL FACES, BACKWALLS)		3"
CONCRETE DIRECTLY EXPOSED TO SALT WATER		4"
DECK SLABS (WITH WEARING SURFACE)	TOP	2" (+1/4", -0")
	BOTTOM	1" (+1/8", -0")
BOTTOM OF DECK SLAB OVER SALT OR BRACKISH WATER	BOTTOM	1.5" (+1/8", -0")
ALL OTHER BARS		2"

COVER TO TIES AND STIRRUPS MAY BE 0.5 INCH LESS THAN THE ABOVE VALUES SPECIFIED FOR MAIN REINFORCING, BUT IN NO CASE LESS THAN 1.5 INCHES.

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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 001 31 2011 FILE # 11-0297  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
*W. Joseph Caray*

REVISIONS		
NO	DATE	BY

BRIDGE SHT. 2 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
GENERAL NOTES - 1  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

**CONCRETE NOTES (CONTINUED)**

- ALL ANCHOR BOLTS SHALL BE ASTM DESIGNATION A 307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO DESIGNATION M 232 OR METALIZED IN ACCORDANCE WITH SECTION M.05.
- ALL ANCHOR BOLTS SHALL BE SET PRIOR TO PLACEMENT OF CONCRETE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
- HORIZONTAL CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON PLANS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST BY THE CONTRACTOR AND PRIOR AUTHORIZATION BY THE ENGINEER.
- UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CONCRETE SURFACES VISIBLE IN ELEVATION TO ONE FOOT BELOW FINAL GROUND LINE (AND THE UNDERSIDE OF ALL CONCRETE DECK SLABS OUTSIDE OF THE FASCIA BEAMS), SHALL RECEIVE A CONCRETE SURFACE RUBBED FINISH IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS.
- THE ENTIRE TOPSIDE SURFACES OF ABUTMENT BEAM SEAT, AS WELL AS VERTICAL FACES OF BACKWALLS, SHALL BE PROVIDED WITH A FILM-FORMING SEALER (M12.03.1) CONCRETE SURFACE TREATMENT-PROTECTIVE COATING IN ACCORDANCE WITH SECTION 820 OF THE RI STANDARD SPECIFICATIONS.
- ALL EXPOSED EDGES AND REENTRANT CORNERS NOT OTHERWISE DETAILED ON THE PLANS SHALL HAVE A MINIMUM 3/4" CHAMFER.
- ALL JOINT SEALANT SHALL BE POLYURETHANE, POLYURETHANE ELASTOMERIC, OR SILICONE SEALANT AS DESIGNATED ON THE PLANS. THE COLOR OF THE JOINT SEALANT, WHERE EXPOSED, SHALL BE NEUTRAL (LIGHT GRAY OR TAN). THE COLOR OF THE SEALANT, WHERE NOT EXPOSED, WILL BE AT THE DISCRETION OF THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATIONS DURING CONSTRUCTION UNTIL SUCH TIME WHEN THE SURFACES ARE APPROVED AND ACCEPTED. ANY CONCRETE STAINS OR DISCOLORATIONS OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.
- UNLESS OTHERWISE NOTED ON THE PLANS, JOINT FILLER IS TO BE A PREFORMED, NON-EXPANSIVE, NON-EXTRUDING TYPE IN ACCORDANCE WITH SECTION M.02.11.1 OF THE RI STANDARD SPECIFICATIONS.
- PLACEMENT, FINISHING AND CURING OF BRIDGE DECK CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 814 OF THE RI STANDARD SPECIFICATIONS.
- UNLESS OTHERWISE INDICATED ON THE PLANS, ALL DECK FORMS SHALL BE OF THE REMOVABLE TYPE THAT WILL PRODUCE THE DIMENSIONS SHOWN ON THE PLANS.
- EMBEDMENT LENGTHS FOR DRILLED AND GROUTED DOWELS SHALL BE IN ACCORDANCE WITH SECTION 819 OF THE RI STANDARD SPECIFICATIONS.
- IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS, ALL METAL TIES OR ANCHORAGES WHICH ARE REQUIRED FOR CONCRETE FORMWORK SHALL BE SO CONSTRUCTED THAT THEY CAN BE REMOVED TO AT LEAST TWO INCHES BELOW THE EXPOSED SURFACE OF THE CONCRETE WITHOUT CAUSING DAMAGE TO THE CONCRETE SURFACE. SNAP TIES MAY BE USED ONLY IF APPROVED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO USE THEM, A CATALOG CUT AND OTHER NECESSARY INFORMATION MUST BE SUBMITTED TO THE ENGINEER TO DEMONSTRATE THAT THE TIES WILL SNAP-OFF FAR ENOUGH INTO THE CONCRETE TO ALLOW FOR PROPER PATCHING. SNAP TIES MUST PROVIDE ADEQUATE STRENGTH TO SUPPORT THE FORMS. ALL CAVITIES SHALL BE FILLED WITH AN APPROVED CEMENT MORTAR MEETING THE REQUIREMENTS OF ASTM C 928.
- WATER STOPS ARE REQUIRED FOR HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ABUTMENTS AND WALLS WHEN EXPOSED TO BACKFILL EARTH MATERIAL. WATER STOPS SHALL BE INSTALLED AT THE LOCATIONS DETAILED ON THE PLANS, AT THE LOCATIONS AS SPECIFIED ABOVE AND AT ALL LOCATIONS AS DIRECTED BY THE ENGINEER, ALL IN ACCORDANCE WITH SECTION 812 OF THE RI STANDARD SPECIFICATIONS.

**STRUCTURAL STEEL NOTES**

- FRAMING DIMENSIONS ARE GIVEN ALONG CENTERLINES OF GIRDERS AND ALONG CENTERLINES OF BEARINGS ON ABUTMENTS. THE FABRICATOR IS RESPONSIBLE FOR INCORPORATING THE CAMBER, CROSS SLOPE, AND OTHER EFFECTS THAT MAY IMPACT THE OVERALL GIRDER LENGTHS, DIMENSIONS AND/OR THE DETAILING.
- THE SHOPS FABRICATING THE STRUCTURAL STEEL (EXCEPT FOR RAILINGS AND BEARINGS), MUST BE CERTIFIED FOR "MAJOR STEEL BRIDGES (CBR)" IN ACCORDANCE WITH THE AISC QUALITY CERTIFICATION PROGRAM OR EQUIVALENT. SHOPS FABRICATING THE RAILINGS AND BEARINGS, AT A MINIMUM, BE CERTIFIED FOR "SIMPLE STEEL BRIDGE STRUCTURES (SBR)".  
  
THE SHOPS SHALL ALSO BE CERTIFIED UNDER THE AISC "SOPHISTICATED PAINT ENDORSEMENT (SPE)" QUALITY PROGRAM OR THE SSPC-QP3 PAINT CERTIFICATION PROGRAM.  
  
THE FABRICATOR MUST SUBMIT PROOF OF CURRENT CERTIFICATION AS SPECIFIED.
- THE STEEL ERECTOR/CONTRACTOR FOR THIS PROJECT SHALL BE CERTIFIED FOR "ADVANCED CERTIFIED STEEL ERECTOR (ASCE)" IN ACCORDANCE WITH THE AISC QUALITY CERTIFICATION PROGRAM. THE ERECTOR/CONTRACTOR OF THE STRUCTURAL STEEL SHALL BE REQUIRED TO SUBMIT PROOF OF CURRENT CERTIFICATION AS SPECIFIED.
- SHOP DRAWINGS FOR ALL FABRICATED STEEL INCLUDING BEARINGS, RAILINGS AND FALSEWORK SHALL BE SUBMITTED TO THE ENGINEER IN SUFFICIENT TIME TO PERMIT CAREFUL CHECKING PRIOR TO FABRICATION.

- INSPECTION OF WELDS INCLUDING RADIOGRAPHIC TESTING (RT) AND MAGNETIC PARTICLE TESTING (MT) SHALL BE IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS AND THE AASHTO/AWS BRIDGE WELDING CODE, EXCEPT THAT THE REMAINING PERCENTAGE OF ALL GROOVE WELDS NOT RT TESTED SHALL BE MT OR DYE-PENETRANT TESTED.
- STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO THE LATEST PROVISIONS OF AASHTO DESIGNATION M 270 GRADE 36 AND GRADE 50 AS DESIGNATED ON THE PLANS.
- ALL AASHTO M 270 STRUCTURAL STEEL USED IN GIRDERS (INCLUDING CONNECTION PLATES AND STIFFENERS), SHALL MEET THE ZONE 2 CHARPY V-NOTCH FRACTURE TOUGHNESS TEST REQUIREMENTS AS SPECIFIED IN TABLE 6.6.2-2 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR "NONFRACTURE-CRITICAL" COMPONENT. THE ZONE 2 FRACTURE TOUGHNESS REQUIREMENTS ARE AS FOLLOWS:

**NONFRACTURE-CRITICAL**

GRADE 36	15 FT-LBS @ 40°F (UP TO 4 INCHES THICK)
GRADE 50	15 FT-LBS @ 40°F (UP TO AND INCLUDING 2 INCHES THICK)

SAMPLING AND TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO T 243. THE FREQUENCY OF TESTING SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE CHARPY V-NOTCH FRACTURE TOUGHNESS TEST REQUIREMENT IS NOT MANDATORY FOR THE FOLLOWING STEEL COMPONENTS:

- BEARING SOLE PLATES
- RAILINGS
- SUPPORT OF EXCAVATION COMPONENTS

- WELDING SHALL BE IN ACCORDANCE WITH THE LATEST STRUCTURAL WELDING CODE AASHTO/AWS D1.5 (INCLUDING ALL INTERIMS TO DATE) AND APPLICABLE SUPPLEMENTAL AWS PUBLICATIONS.
- ALL HIGH STRENGTH BOLTS SHALL CONFORM TO AASHTO DESIGNATION M 164, AND THEY SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 824 OF THE RI STANDARD SPECIFICATIONS.
- WASHERS MEETING AASHTO DESIGNATION M 293 ARE TO BE USED OVER ALL HOLES THAT ARE MORE THAN 1/16" IN DIAMETER GREATER THAN THE BOLT DIAMETER AND UNDER ALL PARTS TURNED DURING ASSEMBLY.
- WELDING ELECTRODES SHALL HAVE THE SAME CORROSION RESISTANCE AS THE BASE METAL AND SHALL BE FREE OF MOISTURE AT THE TIME OF USE.
- STRUCTURAL STEEL SHALL BE PREPARED AND PAINTED IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS.
- UNLESS OTHERWISE SPECIFIED, THE UPPER SURFACES OF GIRDER TOP FLANGES SHALL BE FREE OF PAINT, OIL OR OTHER IMPURITIES THAT WOULD IN ANY WAY REDUCE THE BOND OF CONCRETE TO STEEL.
- PRIOR TO FABRICATION, ALL MATERIALS SHALL BE BLAST-CLEANED TO AT LEAST SSPC-SP6 TO REMOVE ALL OIL, DIRT, GREASE, MILL SCALE AND OTHER DELETERIOUS MATERIALS FROM THE SURFACES OF THE STEEL TO BE FABRICATED.
- PRIOR TO SHOP COATING AS SPECIFIED IN SECTION 825 OF THE RI STANDARD SPECIFICATIONS, ALL CORNERS AND EDGES OF STEEL WHICH HAVE BEEN FLAME CUT OR OTHERWISE HARDENED SHALL BE SOFTENED BY GRINDING OR BLAST-CLEANING TO PROVIDE A SURFACE SUITABLE FOR APPLICATION OF THE SPECIFIED PAINT SYSTEM.
- WELDING OF ATTACHMENTS TO GIRDER FLANGES OR WEBS FOR CONSTRUCTION PURPOSES IS NOT PERMITTED EXCEPT WHEN APPROVED BY THE ENGINEER.
- THE ENDS OF ALL GIRDERS SHALL BE VERTICAL AFTER ALL DEAD LOADS HAVE BEEN PLACED.
- CONNECTION PLATES SHALL BE SET PERPENDICULAR TO THE FLANGES OF THE GIRDERS.
- BOLTED CONNECTIONS SHALL BE DESIGNED AS SLIP-CRITICAL CONNECTIONS. THE FINISHING SURFACES SHALL SATISFY CLASS B SURFACE CONDITION AS DEFINED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THE GIRDERS SHALL BE CAMBERED TO THE AMOUNTS SHOWN ON THE PLANS, AND AT THE TIME AND PLACE OF ERECTION THEY SHALL HAVE THE REQUIRED AMOUNT OF CAMBER.
- ALL SHOP CONNECTIONS SHALL BE WELDED. WELDING PROCEDURES AND TECHNIQUES TO BE USED IN FABRICATION AND ERECTION OF THE GIRDERS SHALL BE AS SHOWN ON THE SHOP DRAWINGS AND SHALL INCORPORATE THE FOLLOWING:
- NO SHOP FILLET WELD SHALL BE LESS THAN 1/4".
- ALL SHEAR STUD CONNECTORS SHALL BE WELDED BY THE AUTOMATIC TIMED ELECTRIC ARC PROCESS. SHEAR STUDS SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH SECTION 824 OF THE RI STANDARD SPECIFICATIONS.
- WHEN STEEL DIE STAMPS ARE USED TO IDENTIFY PIECES AND MEMBERS, FABRICATORS SHALL UTILIZE LOW STRESS STAMPS.
- FOR SIZE AND LOCATION OF ANCHOR BOLTS, SEE ABUTMENT, AND BEARING DRAWINGS.

**GENERAL NOTES REGARDING TEMPORARY CONSTRUCTION CONDITIONS:**

- DESIGN WIND PRESSURES FOR CONSTRUCTION:  
  
MINIMUM WIND PRESSURES TO BE USED BY THE CONTRACTOR FOR DESIGN DURING THE CONSTRUCTION CONTRACT (WITH THE EXCEPTION OF SIGNS) SHALL BE FROM THE FOLLOWING TABLE:

HEIGHT ABOVE GROUND	WIND PRESSURE (PSF)
UP TO 17'	33
OVER 17' AND UP TO 33'	37
OVER 33' AND UP TO 50'	41
OVER 50' AND UP TO 75'	44
OVER 75' AND UP TO 100'	47

**TABLE NOTES:**

- A. APPLICATION OF THE TABULAR PRESSURE:
  - BRIDGE COMPONENTS DURING CONSTRUCTION, PRIOR TO THE INSTALLATION OF THE PERMANENT BRACING SYSTEMS, NOT INCLUDING CRANE LIFTING.
  - FALSE WORK, SHORING, AND SCAFFOLDING AS DEFINED IN FHWA "GUIDE DESIGN SPECIFICATION FOR BRIDGE TEMPORARY WORKS", EXCLUDING 3-DIMENSIONAL LATTICED OR TRUSSED FRAMES OR TOWERS;
  - TEMPORARY SHEILDING.

WIND PRESSURES FOR ALL OTHER STRUCTURES SHALL BE CALCULATED BASED ON ASCE "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION", SEI/ASCE 37-02 (ALL REFERENCES TO THE ASCE 7 IN THE SEI/ASCE 37-02 PUBLICATION, SHALL BE THE LATEST REVISION OF ASCE 7). THE EXPOSURE CATEGORY SHALL BE C.

- ERECTION OF BRIDGE COMPONENTS:  
  
FOR THE ERECTION OF STRUCTURES, THE FOLLOWING SHALL APPLY:
    - THE CONTRACTOR SHALL SUBMIT AN ERECTION PLAN THAT PROVIDES COMPLETE DETAILS OF THE PROCESS INCLUDING, BUT NOT LIMITED TO, TEMPORARY SUPPORTS, SCHEDULING AND OPERATION SEQUENCING, CRANE PLACEMENT, AND ASSUMED LOADS AND CALCULATED STRESSES DURING VARYING STAGES OF LIFTING. THIS APPLIES TO STRUCTURES OF ANY KIND. THE CAPACITY OF THE CRANE AND ALL LIFTING AND CONNECTING DEVICES SHALL BE ADEQUATE FOR 125 PERCENT OF THE TOTAL PICK LOAD INCLUDING SPREADERS AND OTHER MATERIALS. THIS FACTOR OF SAFETY SHALL BE IN ADDITION TO ALL MANUFACTURERS' PUBLISHED FACTORS OF SAFETY.
    - A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF RHODE ISLAND, WILL BE REQUIRED TO STAMP THE CONTRACTOR'S ERECTION PLAN.
    - THE CONTRACTOR'S PROFESSIONAL ENGINEER WILL BE REQUIRED TO INSPECT AND PROVIDE WRITTEN APPROVAL OF EACH PHASE OF A GIRDER INSTALLATION, PRIOR TO ALLOWING VEHICLES OR PEDESTRIANS ON OR BELOW THE STRUCTURE. THE PROFESSIONAL ENGINEER MUST ALSO STAMP ALL CHANGES TO THE CONTRACTOR'S ERECTION PLAN. ADDITIONALLY, ALL PROPOSED CHANGES MUST BE SUBMITTED TO RIDOT FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.
    - A MANDATORY PRE-ERECTION CONFERENCE WILL BE HELD AT LEAST TWO WEEKS PRIOR TO THE START OF THE GIRDER INSTALLATION TO DISCUSS THE PLAN AND PROCEDURES, WORK SCHEDULES, CONTINGENCY PLANS, SAFETY REQUIREMENTS AND TRAFFIC CONTROL. THE CONTRACTOR'S PROFESSIONAL ENGINEER AND ERECTION SUBCONTRACTOR WILL BE REQUIRED TO ATTEND THIS MEETING, AS WILL THE RIDOT RESIDENT ENGINEER, THE DESIGN PROJECT ENGINEER AND THE DESIGN CONSULTANT. BASED UPON DISCUSSIONS AT THIS MEETING AND A REVIEW OF THE CONTRACTOR'S ERECTION PLAN, RIDOT MAY ORDER THE CONTRACTOR TO MODIFY AND RESUBMIT THE ERECTION PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.
- THE CONTRACTOR WILL BE REQUIRED TO PERFORM DAILY INSPECTIONS OF THE ERECTED GIRDERS UNTIL THE BRIDGE DECK IS COMPLETELY POURED.
- THE COST OF PREPARING AND STAMPING THE ERECTION PLAN, COMPUTATIONS, AND REPORTS, RESPONDING TO RIDOT'S COMMENTS AND MAKING THE NECESSARY REVISIONS, AND ATTENDANCE AT MEETINGS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE SUPERSTRUCTURE PAY ITEM, BE IT CONCRETE, STEEL OR TIMBER.

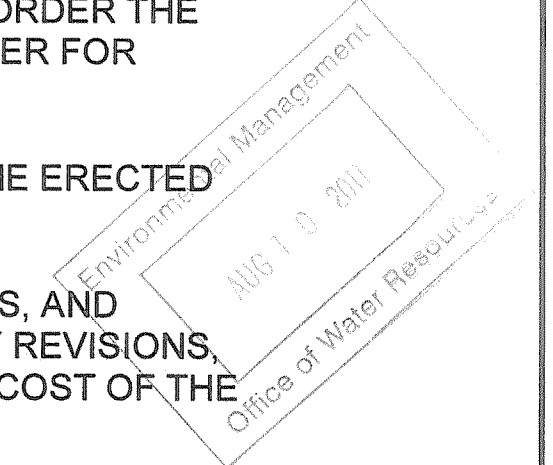
Permit is not equivalent to a verification of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0137  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*  
BRIDGE SHT. 3 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
GENERAL NOTES - 2  
  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED



### LIST OF ABBREVIATIONS

**A**  
 ABUTMENT = ABUT.  
 ALTERNATE = ALT.  
 ANCHOR BOLT = A.B.  
 APPROVED = APPD.  
 APPROXIMATE = APPROX.  
 AVERAGE = AVG.

**B**  
 BEAM = BM.  
 BACK TO BACK = B TO B  
 BETWEEN = BTWN  
 BEARING = BRG.  
 BITUMINOUS = BIT.  
 BUILDING = BLDG.  
 BUILDING LINE = B.L.  
 BOLT CIRCLE = B.C.  
 BOTTOM = BOT.

**C**  
 CENTER TO CENTER = C TO C  
 CENTERLINE = C  
 CIRCLE = CIR.  
 CLEARANCE = CL.  
 COLUMN = COL.  
 CONCRETE = CONC.  
 CONDUIT = COND.  
 CONNECTION = CONN.  
 CONSTRUCTION = CONST.  
 CONTRACTION = CONTR.  
 COUNTERSINK = CSK.  
 COUPLING = CPLG.  
 CLASS I CONTROLLED LOW STRENGTH MATERIAL = CLMS

**D**  
 DETAIL = DET.  
 DIAGONAL = DIAG.  
 DIAPHRAGM = DIAPHM.  
 DIAMETER = DIA.  
 DIMENSION = DIM.  
 DRAWING = DWG.  
 DRAIN = DR.

**E**  
 EACH = EA.  
 EACH FACE = E.F.  
 ELEVATION = EL.  
 EXISTING = EXIST.  
 EXPANSION = EXP.

**F**  
 FAR FACE = F.F.  
 FAR SIDE = F.S.  
 FABRICATE = FAB.  
 FACE TO FACE = F TO F  
 FLANGE = FLG.  
 FLAT HEAD = F.H.  
 FOOTING = FTG.  
 FOUNDATION = FDN.  
 FURNISH, FABRICATE & ERECT = F.F. & E.

**G**  
 GAGE = GA.  
 GALVANIZE = GALV.  
 GRADE = GR.  
 GRATING = GRTG.  
 GROUND = GND.

**H**  
 HEIGHT = HGT.  
 HEXAGON = HEX.  
 HORIZONTAL = HORIZ.

**I**  
 INCH = IN.  
 INFORMATION = INFO.  
 INSIDE DIAMETER = I.D.  
 INVERT = INV.

**J**  
 JOINT = JT.

**L**  
 LENGTH = LGTH.  
 LIGHTING = LTG.  
 LONG = LG.  
 LOAD & RESISTANCE FACTOR DESIGN = LRFD

**M**  
 MATERIAL = MATL.  
 MAXIMUM = MAX.  
 MEAN HIGH WATER = M.H.W.  
 MEAN SEA LEVEL = M.S.L.  
 MINIMUM = MIN.  
 MISCELLANEOUS = MISC.

**N**  
 NEAR FACE = N.F.  
 NEAR SIDE = N.S.  
 NOT TO SCALE = N.T.S.  
 NUMBER = NO.

**O**  
 ON CENTER = O.C.  
 OPENING = OPNG.  
 OUTSIDE DIAMETER = O.D.  
 OPTIONAL = OPT.

**P**  
 PLATE = PL.  
 POINT OF VERTICAL CURVATURE = P.V.C.  
 POINT OF VERTICAL TANGENCY = P.V.T.  
 POLYVINYL CHLORIDE = PVC  
 POINT OF TANGENCY = P.T.  
 POUNDS PER SQUARE INCH = P.S.I.  
 POUNDS PER SQUARE FOOT = P.S.F.

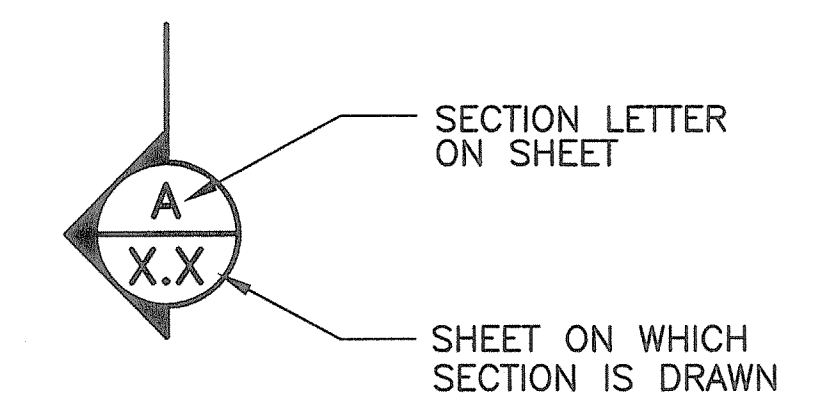
**R**  
 RADIUS = RAD.  
 RAILROAD = RR  
 REQUIRED = REQD.  
 REINFORCING = REINF.  
 REHABILITATION = REHAB.  
 REMOVE & DISPOSE = R & D

**S**  
 SECTION = SECT.  
 SCHEDULE = SCH.  
 SCHEMATIC = SCHEM.  
 SHEET = SH.  
 SPACES = SP.  
 STATION = STA.  
 SYMMETRICAL = SYM.  
 STAY IN PLACE = S.I.P.

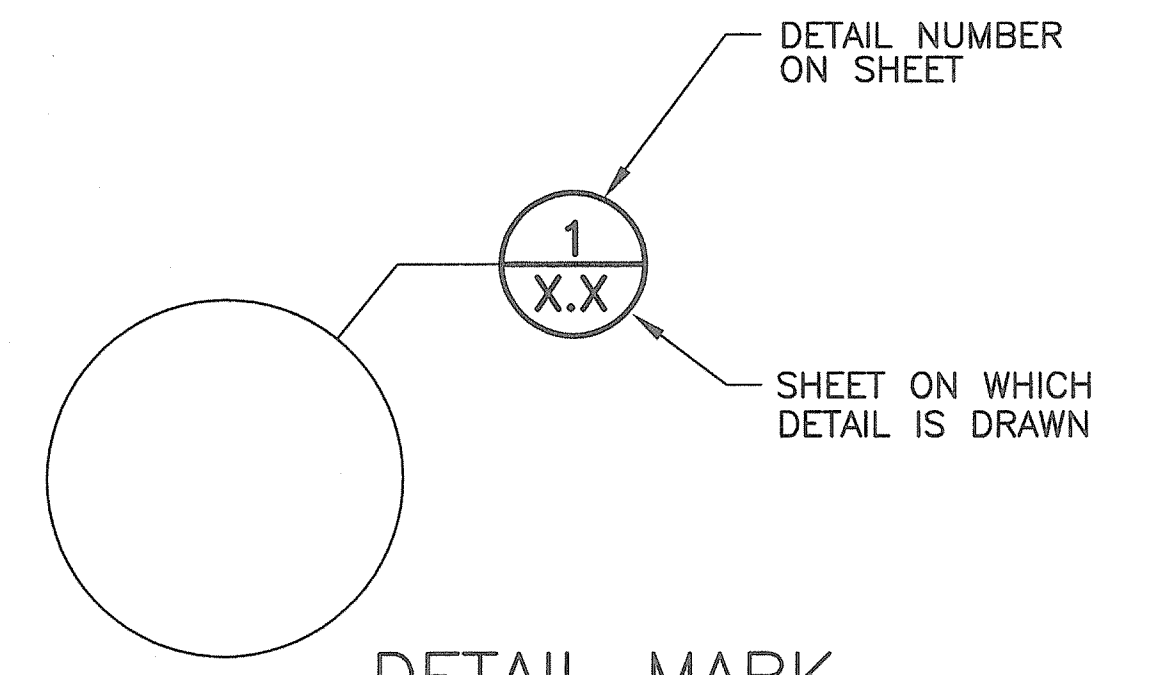
**T**  
 TOP = T  
 TYPICAL = TYP.

**V**  
 VARIES = VAR.  
 VERTICAL CURVE = V.C.  
 VERTICAL = VERT.

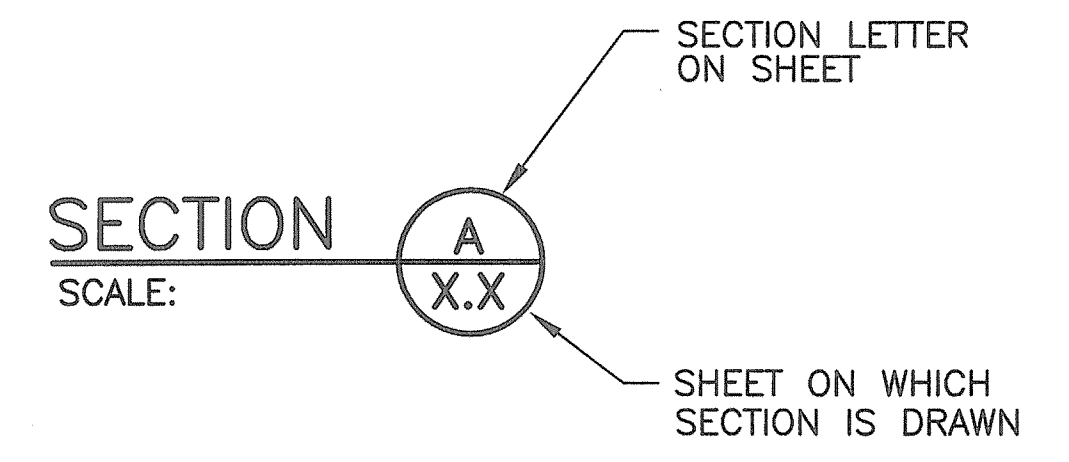
**W**  
 WELDED WIRE FABRIC WITH WIDE FLANGE WORKING POINT = W.W.F.  
 = W/  
 = W  
 = W.P.



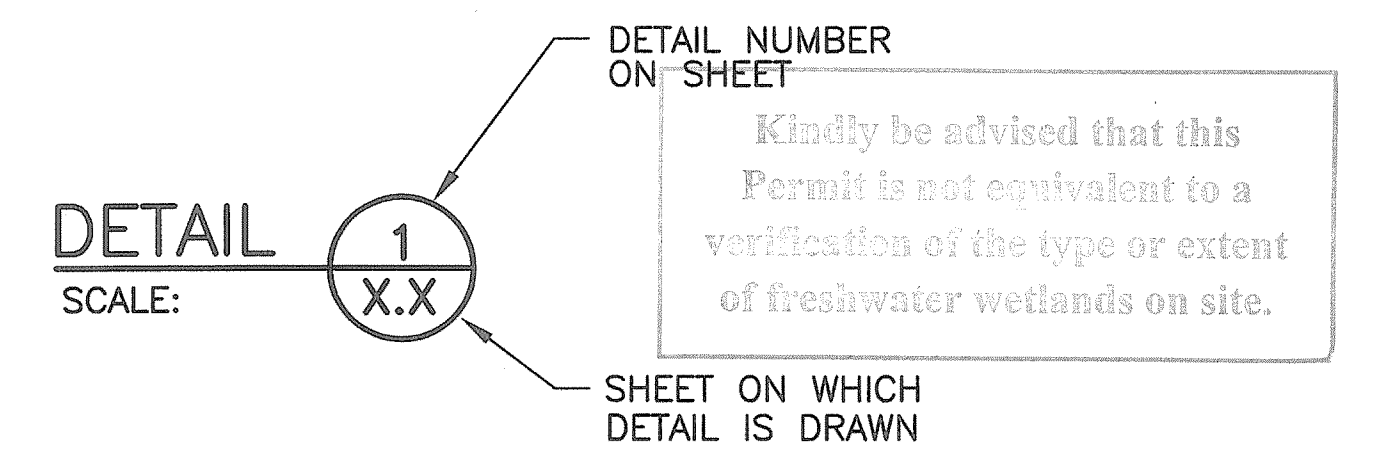
**SECTION MARK**



**DETAIL MARK**



**SECTION TITLE**



**DETAIL TITLE**

### SECTION & DETAIL DESIGNATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
 OFFICE OF WATER RESOURCES  
 FRESHWATER WETLANDS PROGRAM  
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 DATED OCT 31 2011 FILE # 11-0037  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*

BRIDGE SHT. 4 OF 13

FAY, SPOFFORD & THORNDIKE, INC.  
 ENGINEERS

BOSTON, MA - BURLINGTON, MA  
 BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

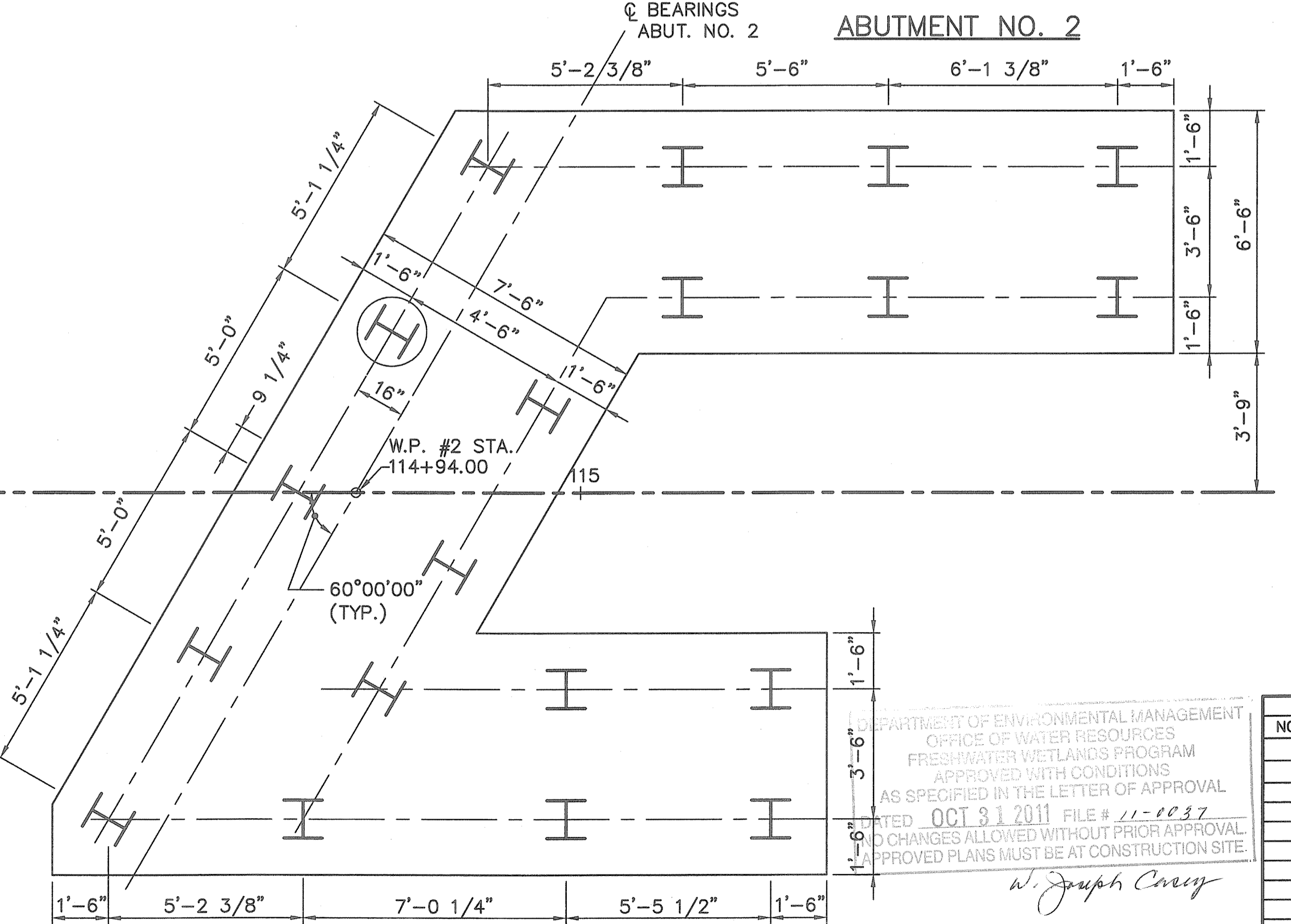
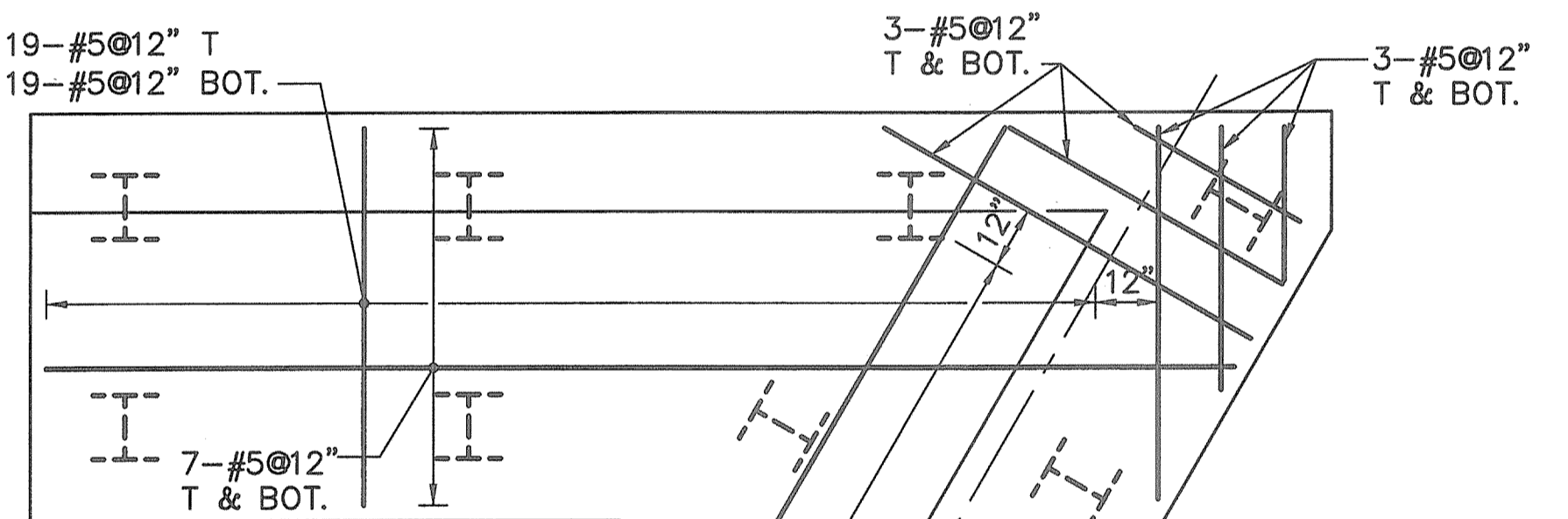
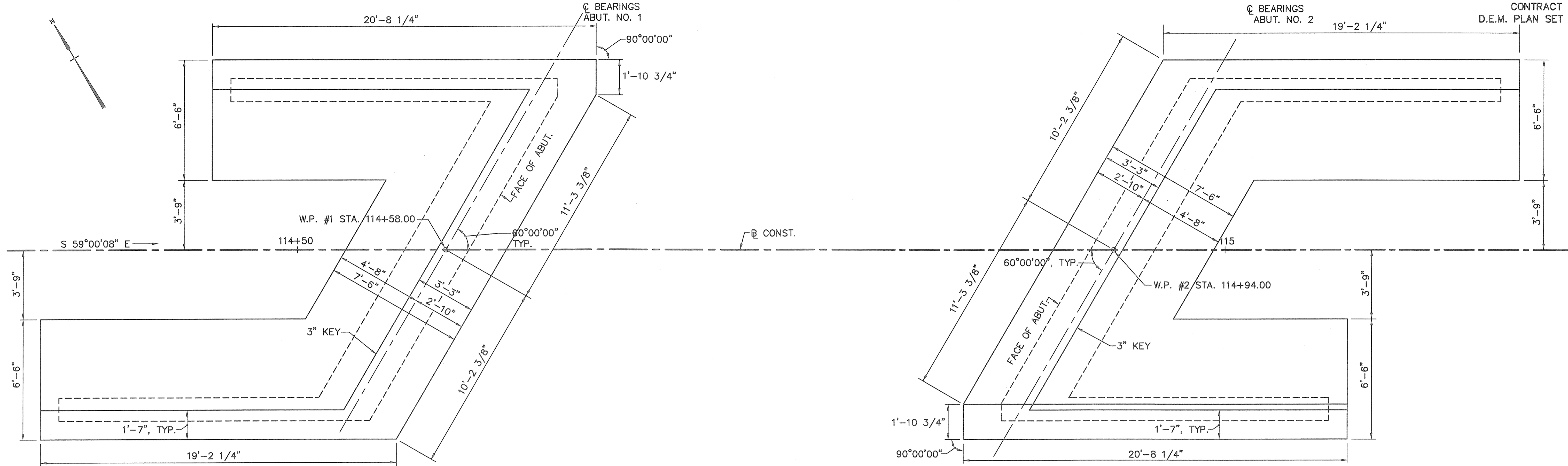
**RHODE ISLAND  
 DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL  
 NORTHWEST BIKE TRAIL/  
 WOONASQUATUCKET RIVER BIKEWAY  
 PROVIDENCE, RHODE ISLAND**

LINCOLN LACE TAILRACE BRIDGE  
 BRIDGE NO. 1066  
**LIST OF ABBREVIATIONS**

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE NONE





**TYPICAL FOOTING REINFORCEMENT**  
(ABUT. NO. 1 SHOWN, ABUT. NO. 2 SIMILAR)  
SCALE: 3/8"=1'-0"

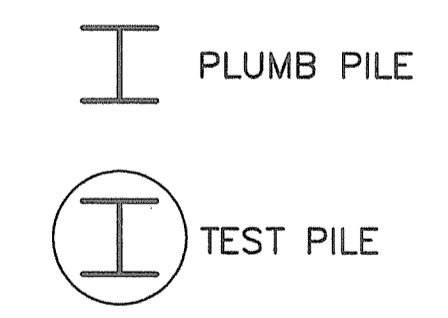
**PILE LAYOUT**  
(ABUT. NO. 2 SHOWN, ABUT. NO. 1 SIMILAR)  
SCALE: 3/8"=1'-0"

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**NOTES**

- ALL PILES SHALL BE HP12x84 (GRADE 50) STEEL PILES

**LEGEND:**



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
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DATED **OCT 31 2011** FILE # **11-0037**  
AND CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Conroy*

BRIDGE SHT. 5 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

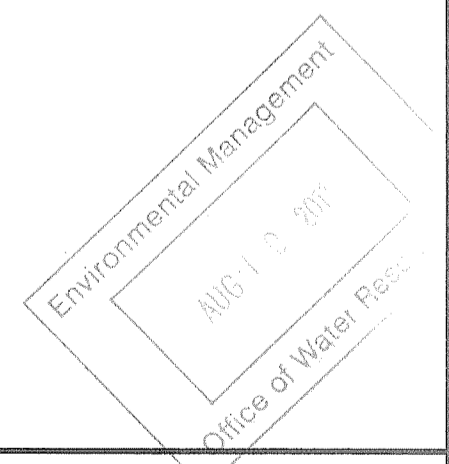
REVISIONS		
NO	DATE	BY

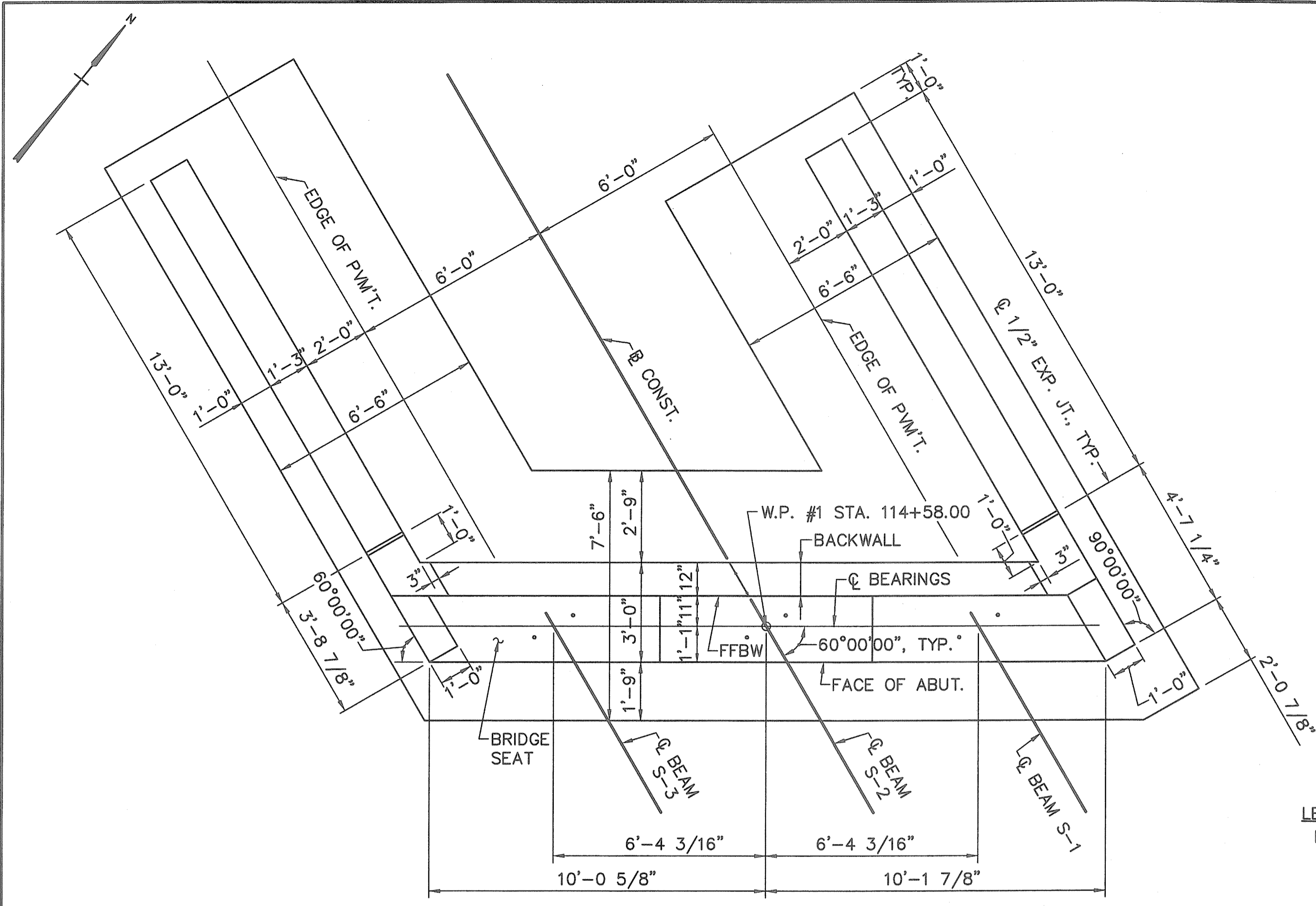
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

**BIKE TRAIL**  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
FOUNDATION PLAN

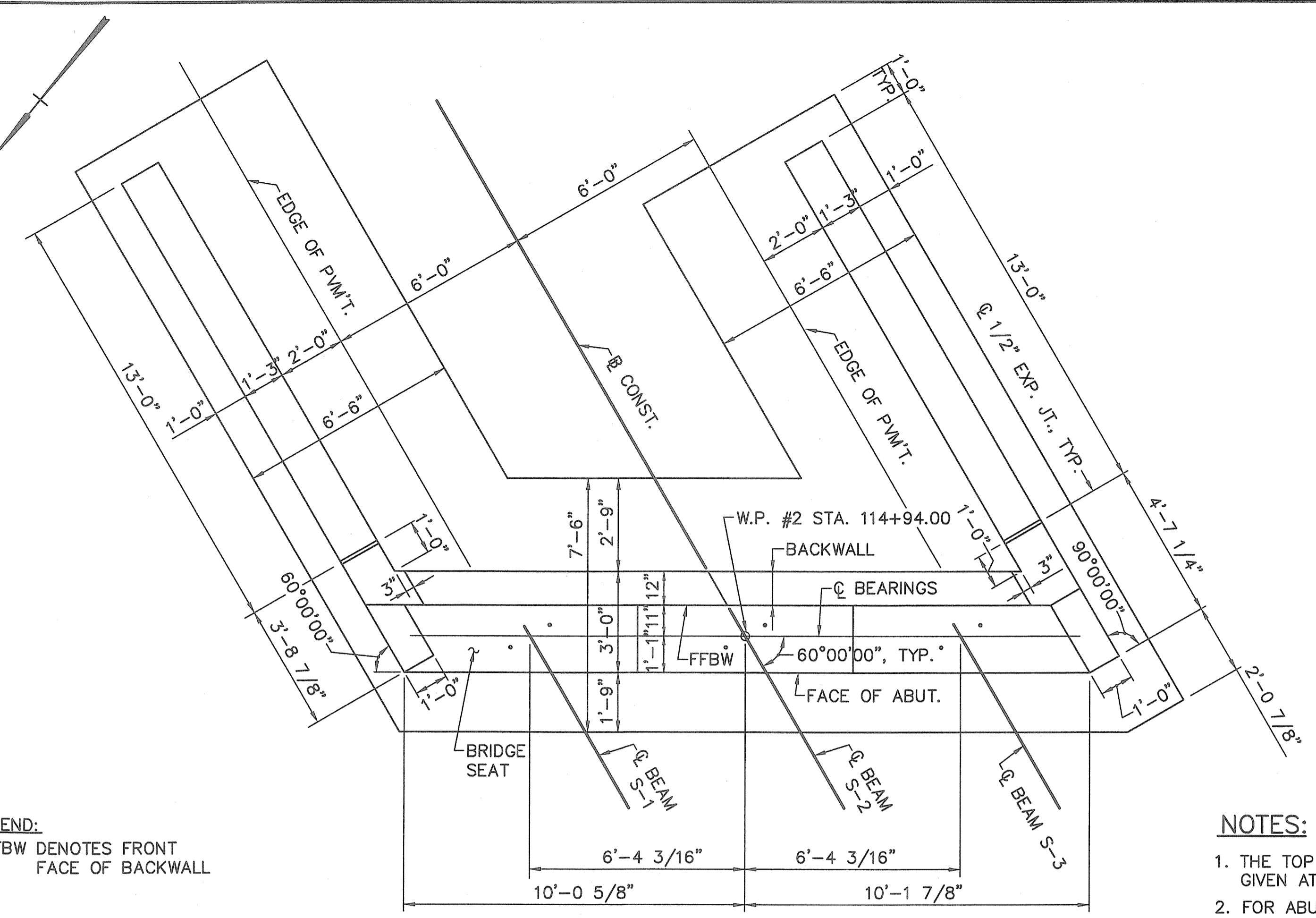
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED





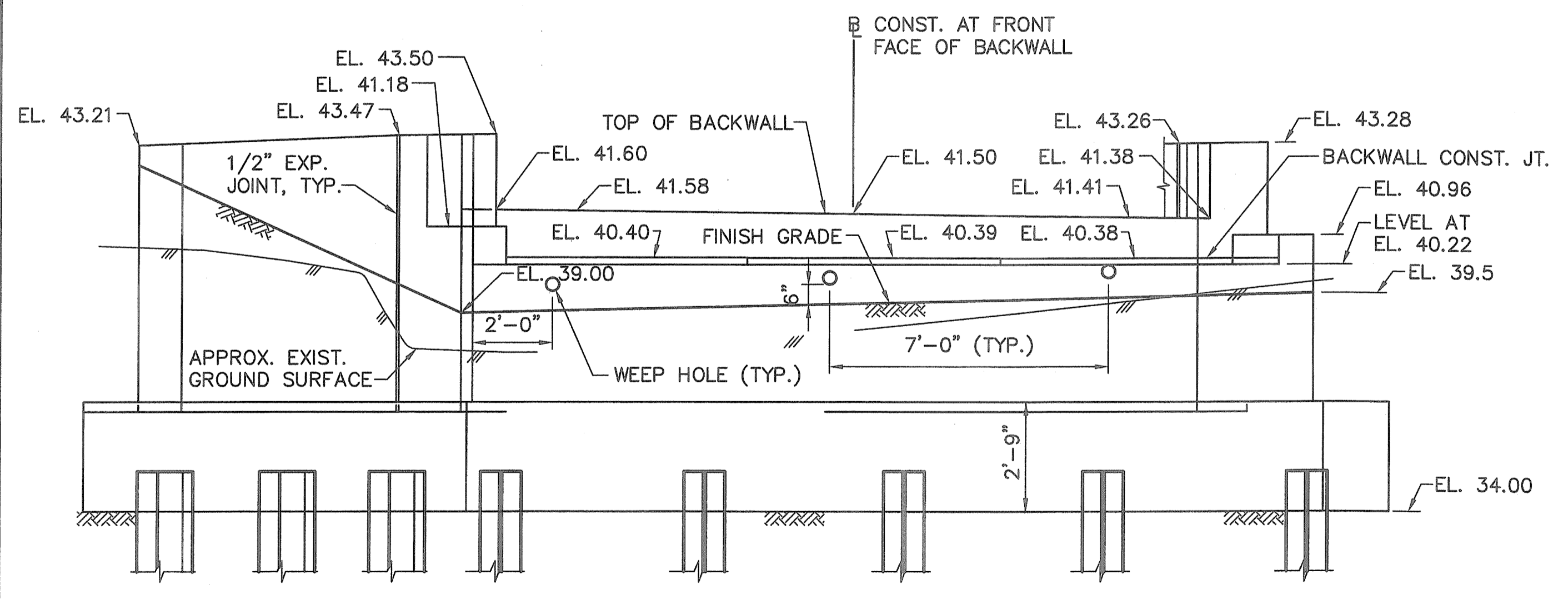
**PLAN**  
SCALE: 3/8"=1'-0"

**LEGEND:**  
FFBW DENOTES FRONT FACE OF BACKWALL

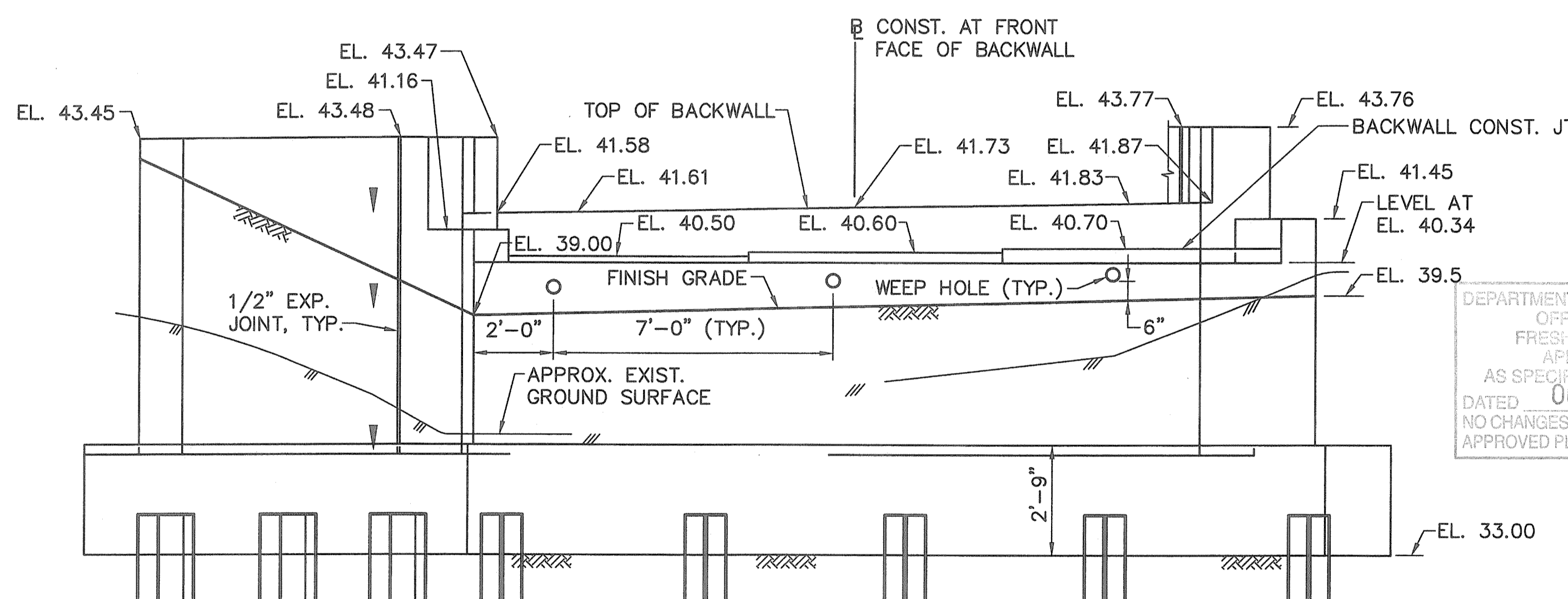


**PLAN**  
SCALE: 3/8"=1'-0"

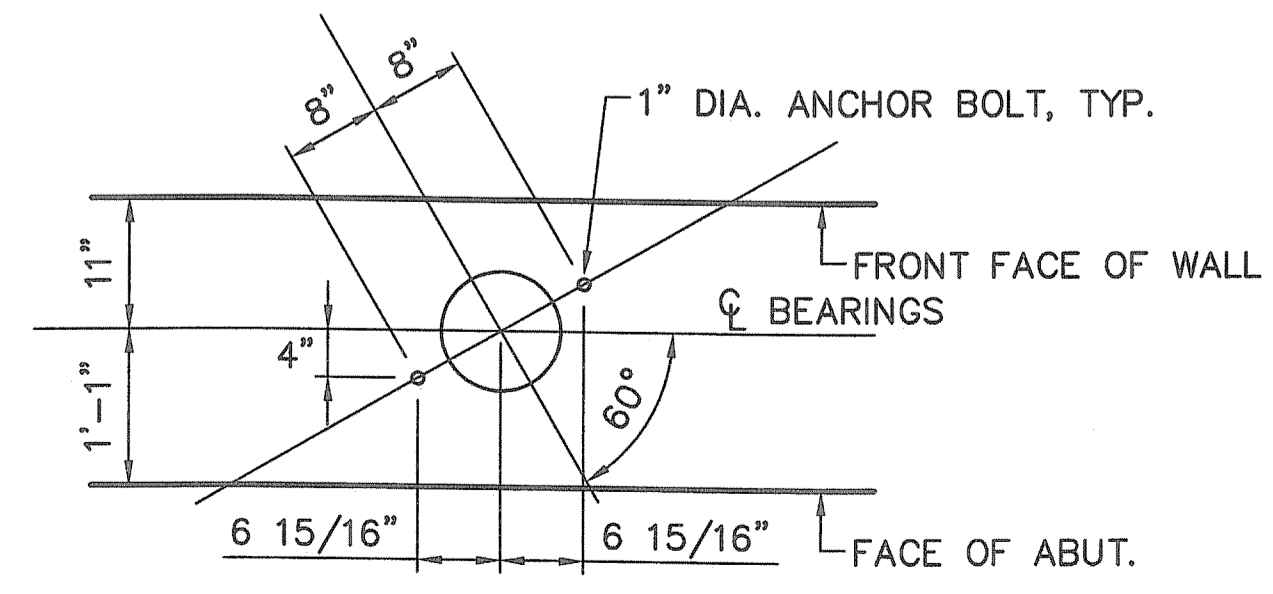
- NOTES:**
1. THE TOP OF BACKWALL ELEVATIONS ARE GIVEN AT FRONT FACE OF BACKWALL.
  2. FOR ABUTMENT SECTION, SEE SHEET 7.
  3. FOR WINGWALL SECTION AND ELEVATIONS, SEE SHEET 8.
  4. FOR SECTIONS A-A, B-B, C-C, SEE SHEET 7.



**ELEVATION**  
SCALE: 3/8"=1'-0"  
**ABUTMENT NO. 1**



**ELEVATION**  
SCALE: 3/8"=1'-0"  
**ABUTMENT NO. 2**



**ANCHOR BOLT LAYOUT PLAN**  
SCALE: 3/8"=1'-0"

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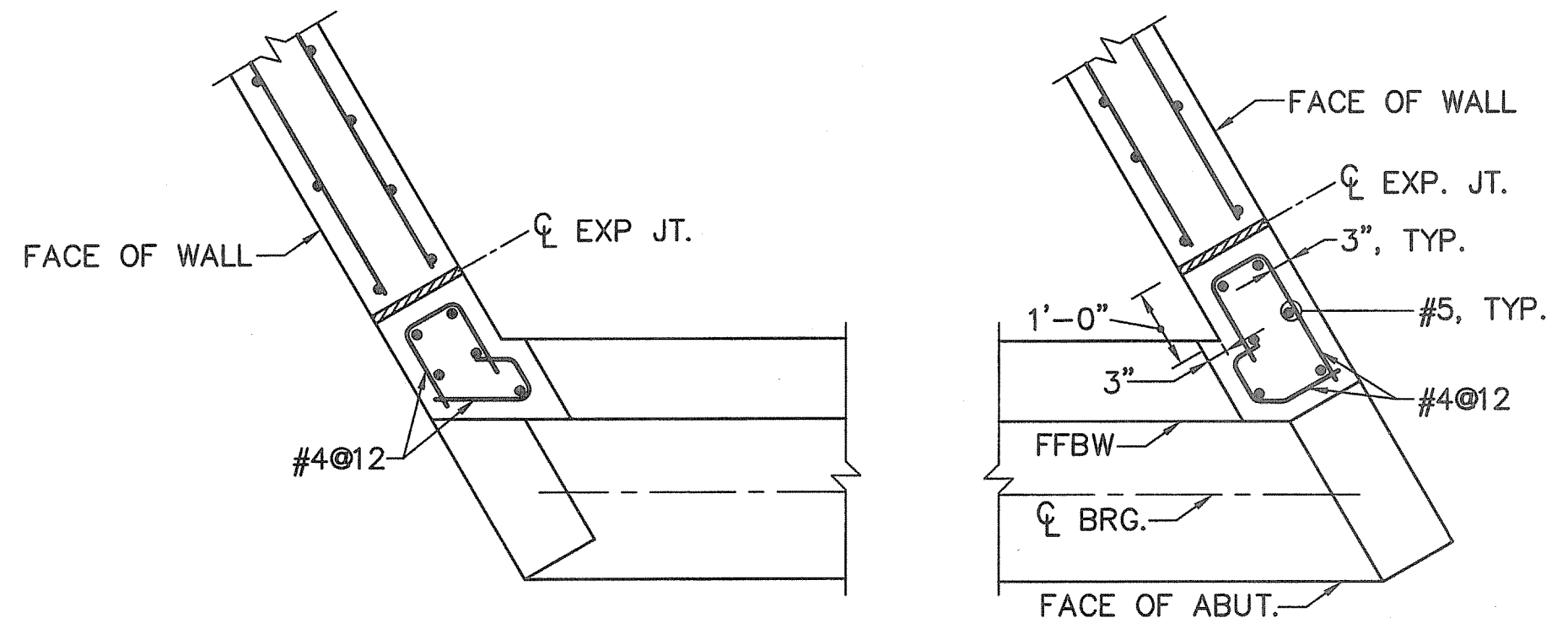
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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*W. Joseph Casey*  
Environmental Management  
Aug 10 2011  
Office of Water Resources

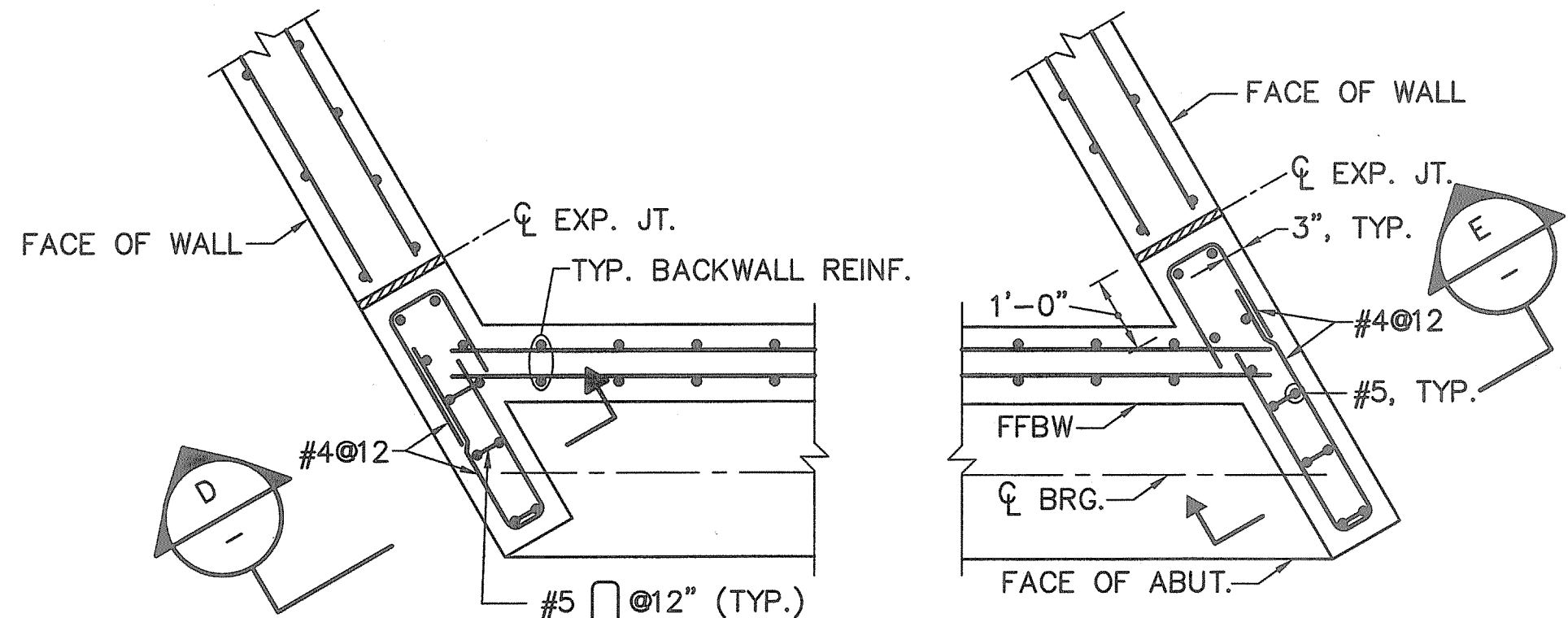
REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
ABUTMENT PLANS AND DETAILS  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

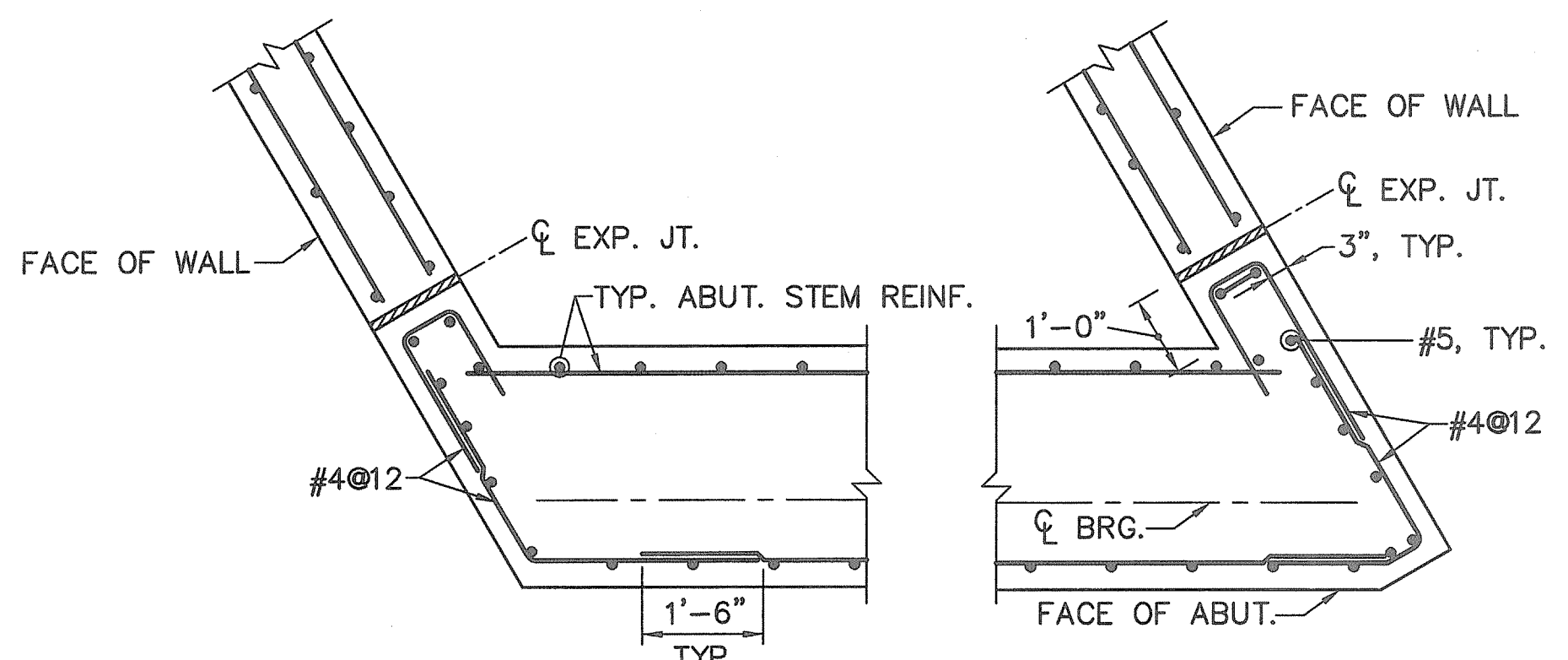
BRIDGE SHT. 6 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT



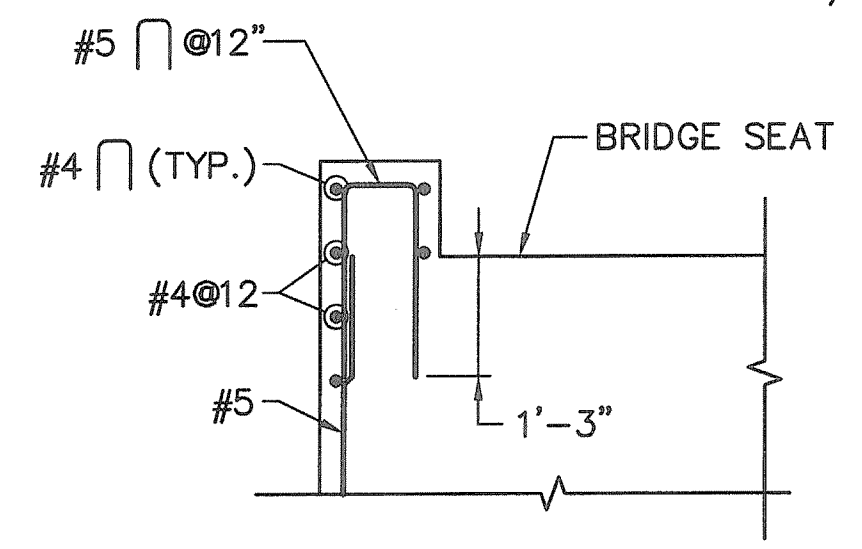
SECTION A  
SCALE: 1/2"=1'-0"



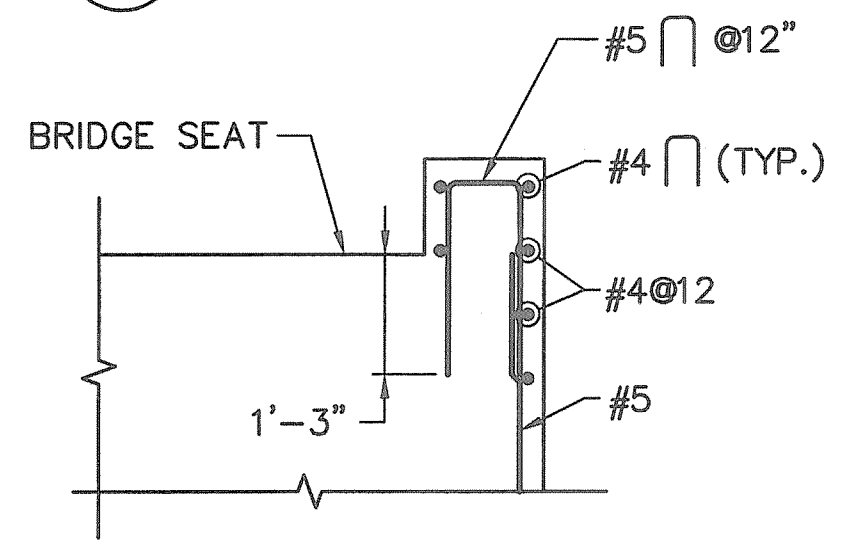
SECTION B  
SCALE: 1/2"=1'-0"



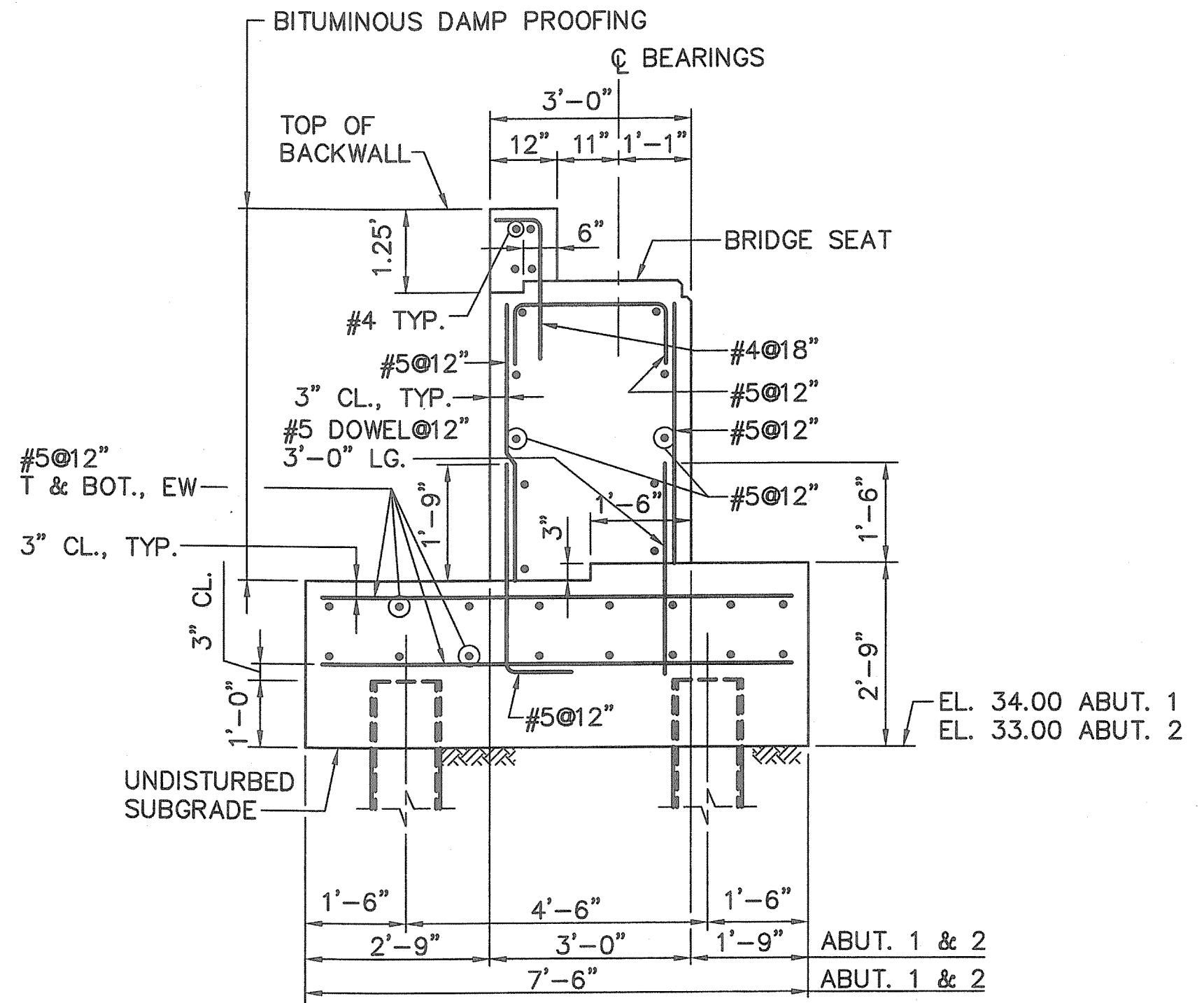
SECTION C  
SCALE: 1/2"=1'-0"



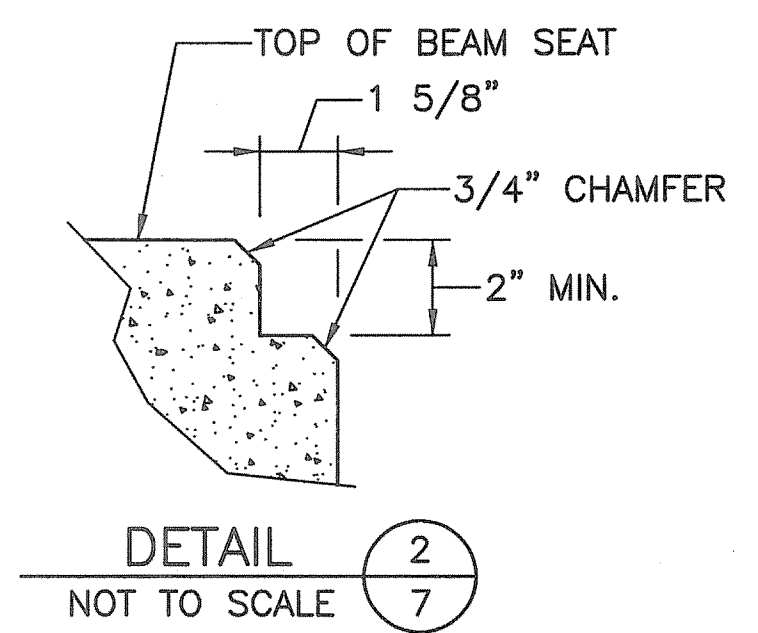
SECTION D  
SCALE: 1/2"=1'-0"



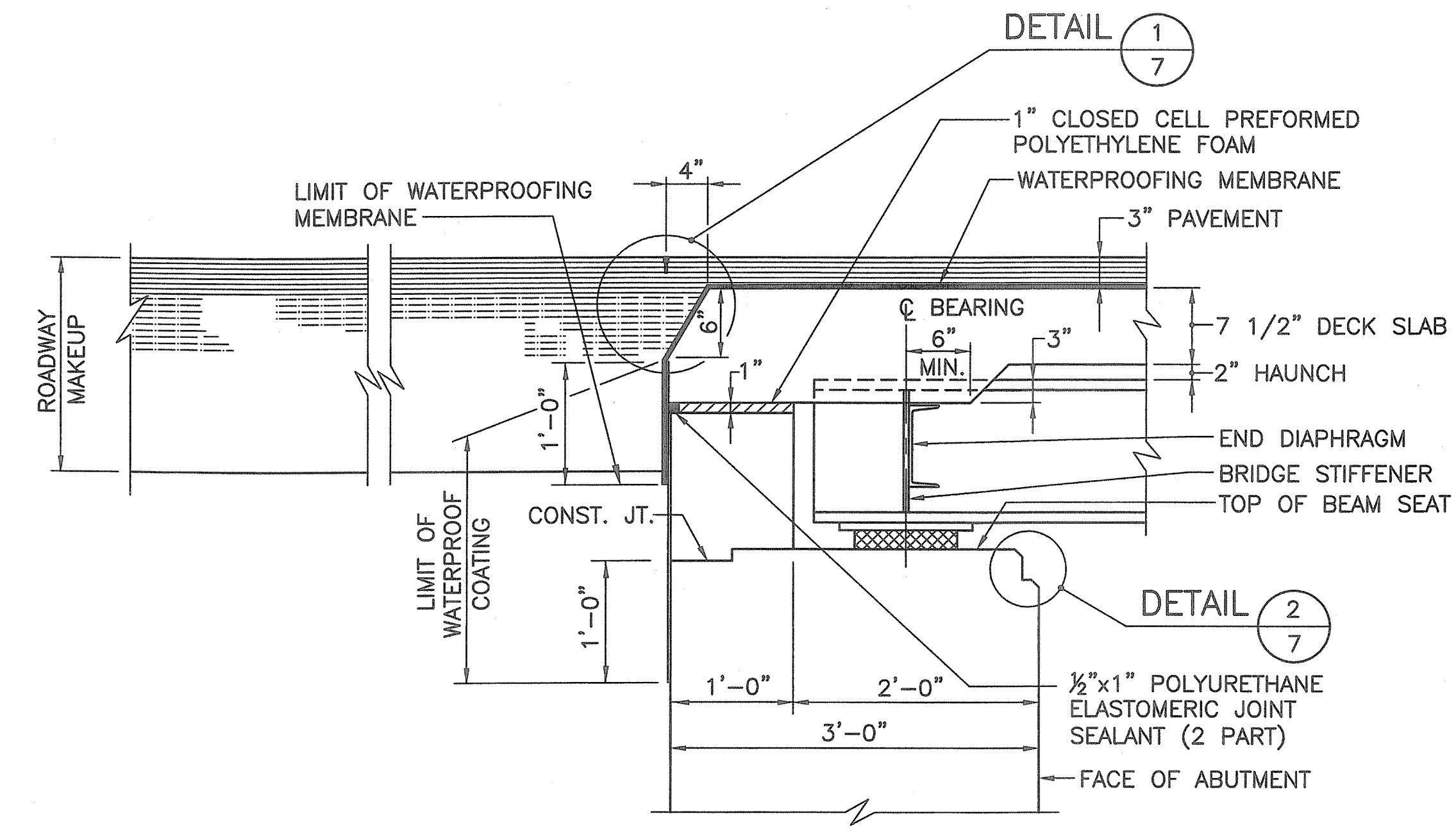
SECTION E  
SCALE: 1/2"=1'-0"



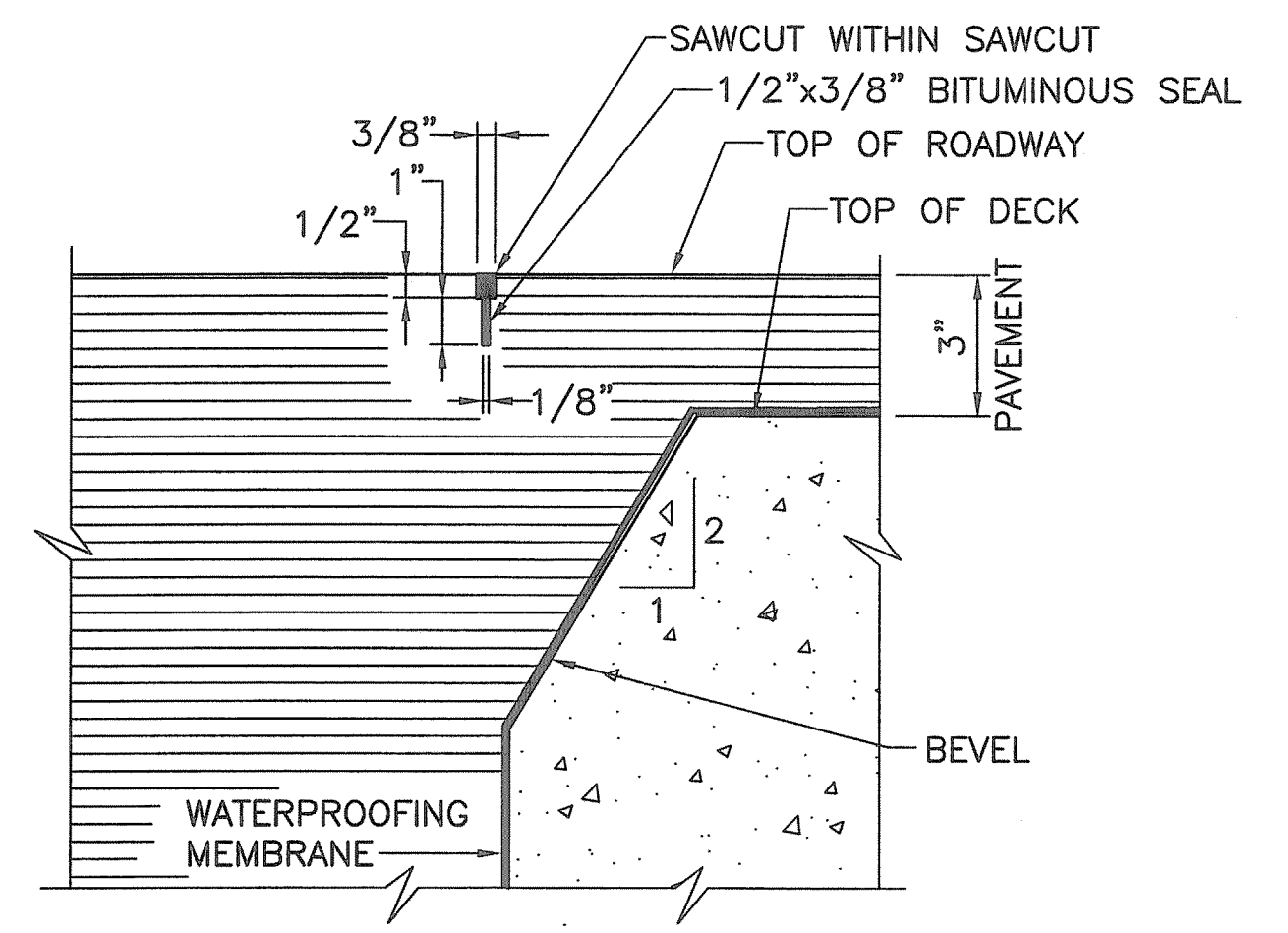
TYPICAL ABUTMENT SECTION  
SCALE: 1/2"=1'-0"



DETAIL 2  
NOT TO SCALE



ABUTMENT BACKWALL DETAIL  
SCALE: 1"=1'-0"



DETAIL 1  
SCALE: 3"=1'-0"

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Environmental Management  
MFC 1-9-2011  
Office of Water Resources

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
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W. Joseph Carey

REVISIONS		
NO.	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

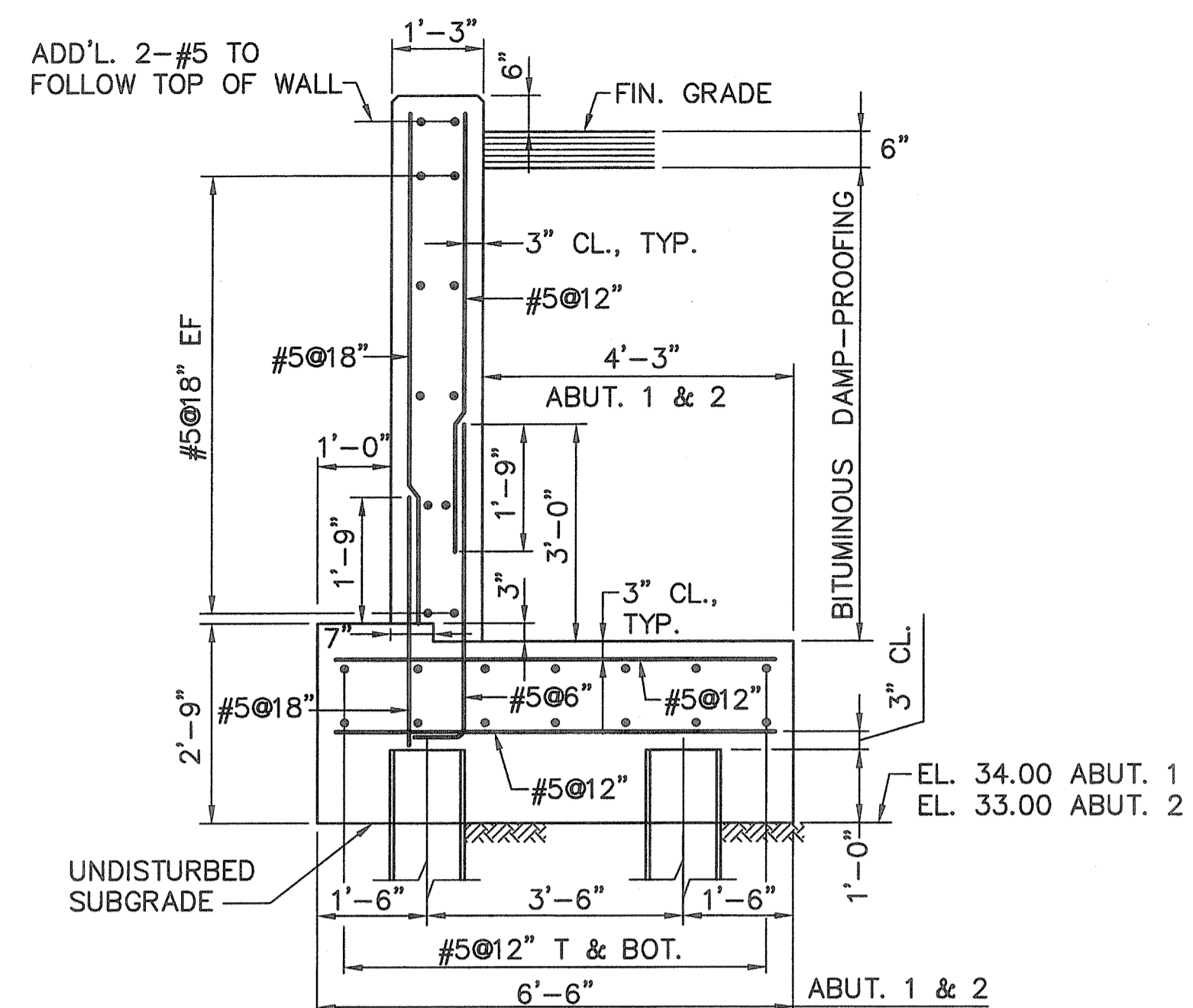
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
ABUTMENT SECTION AND DETAILS

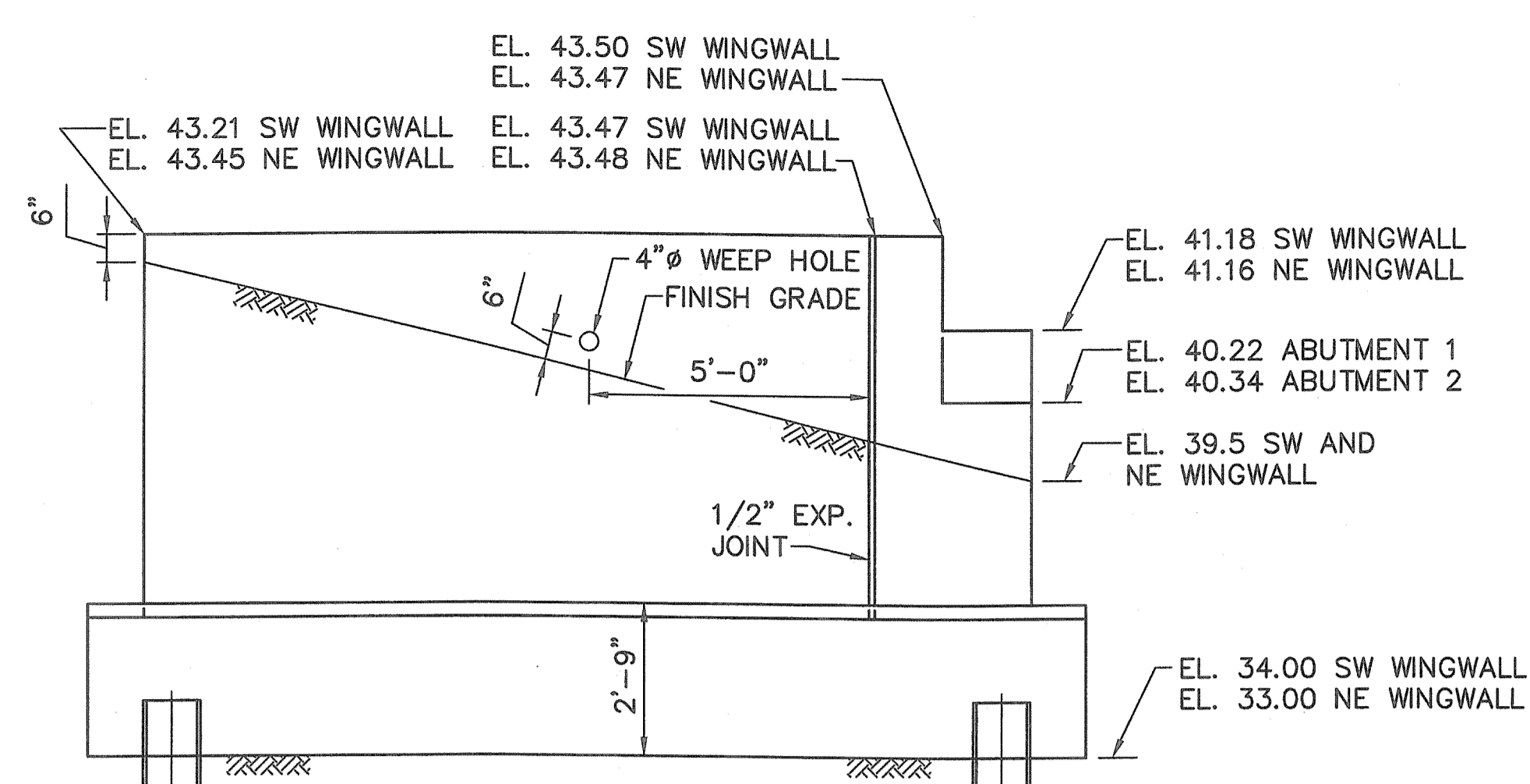
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

BRIDGE SHT. 7 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

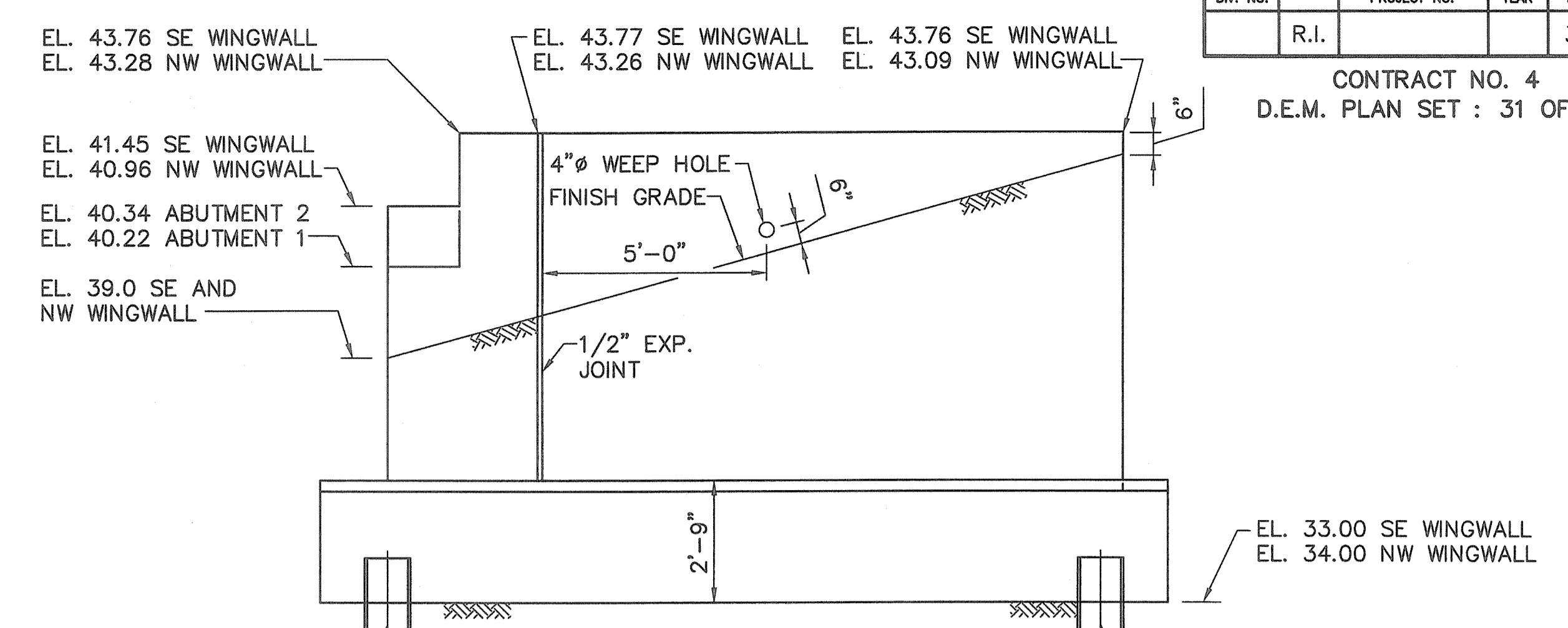
CONTRACT NO. 4  
D.E.M. PLAN SET : 31 OF 54



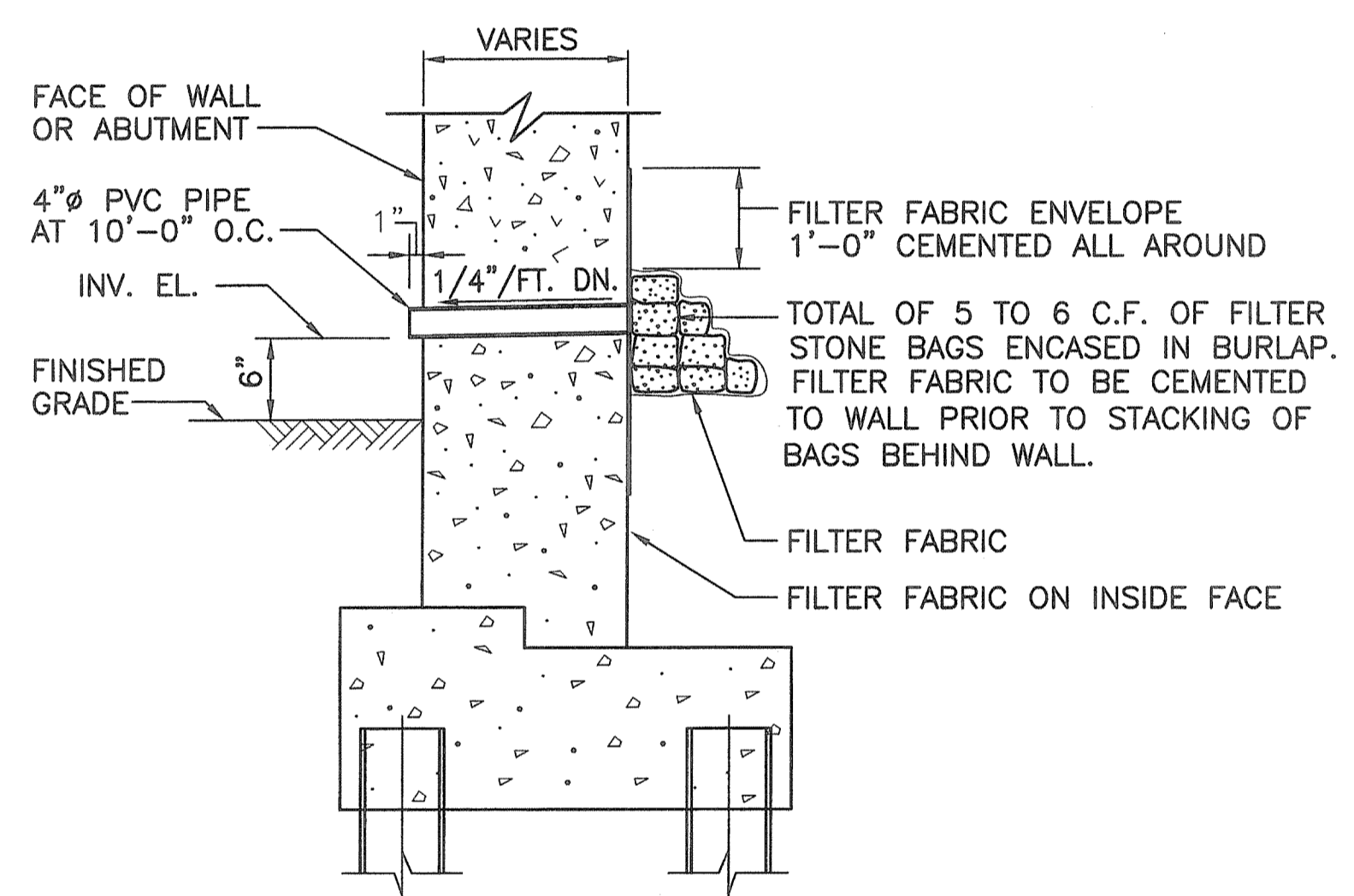
**TYPICAL WINGWALL SECTION**  
SCALE: 1/2"=1'-0"



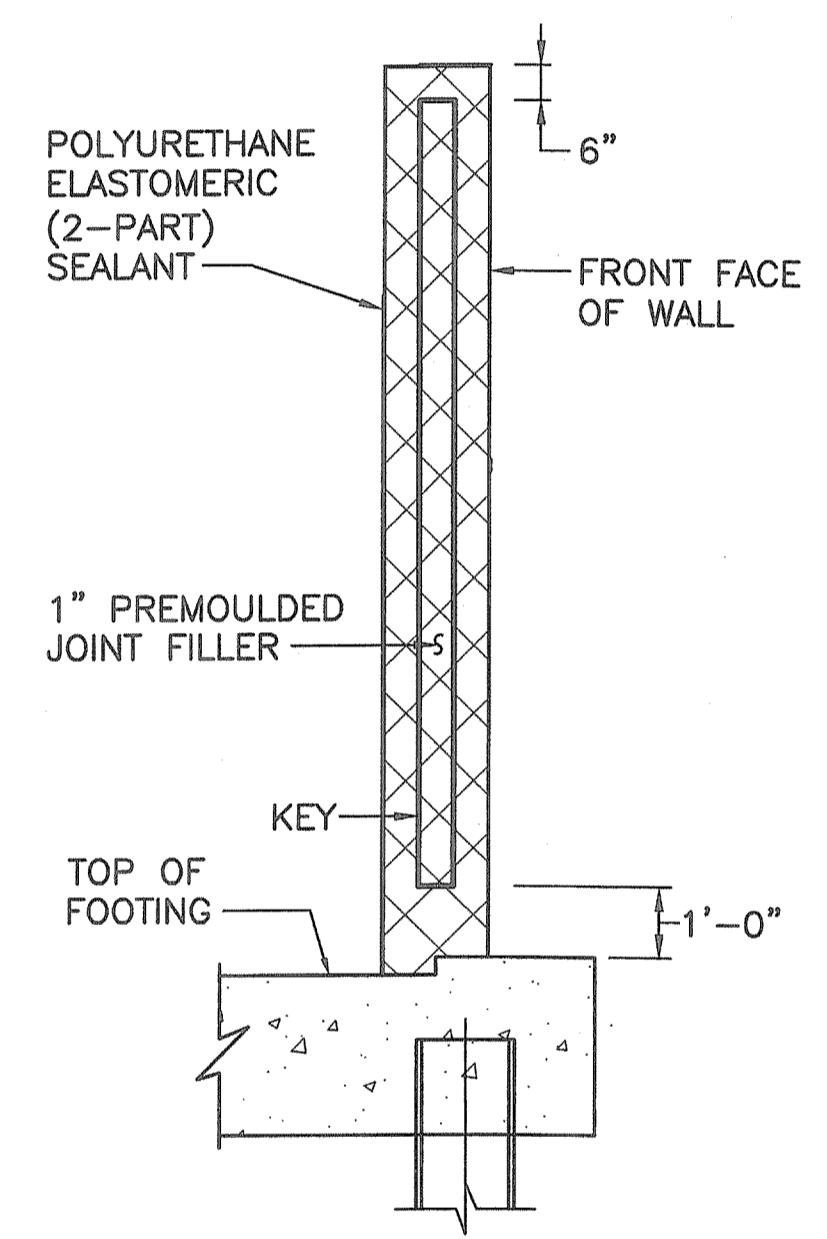
**SW AND NE WINGWALL ELEVATION**  
SCALE: 3/8"=1'-0"



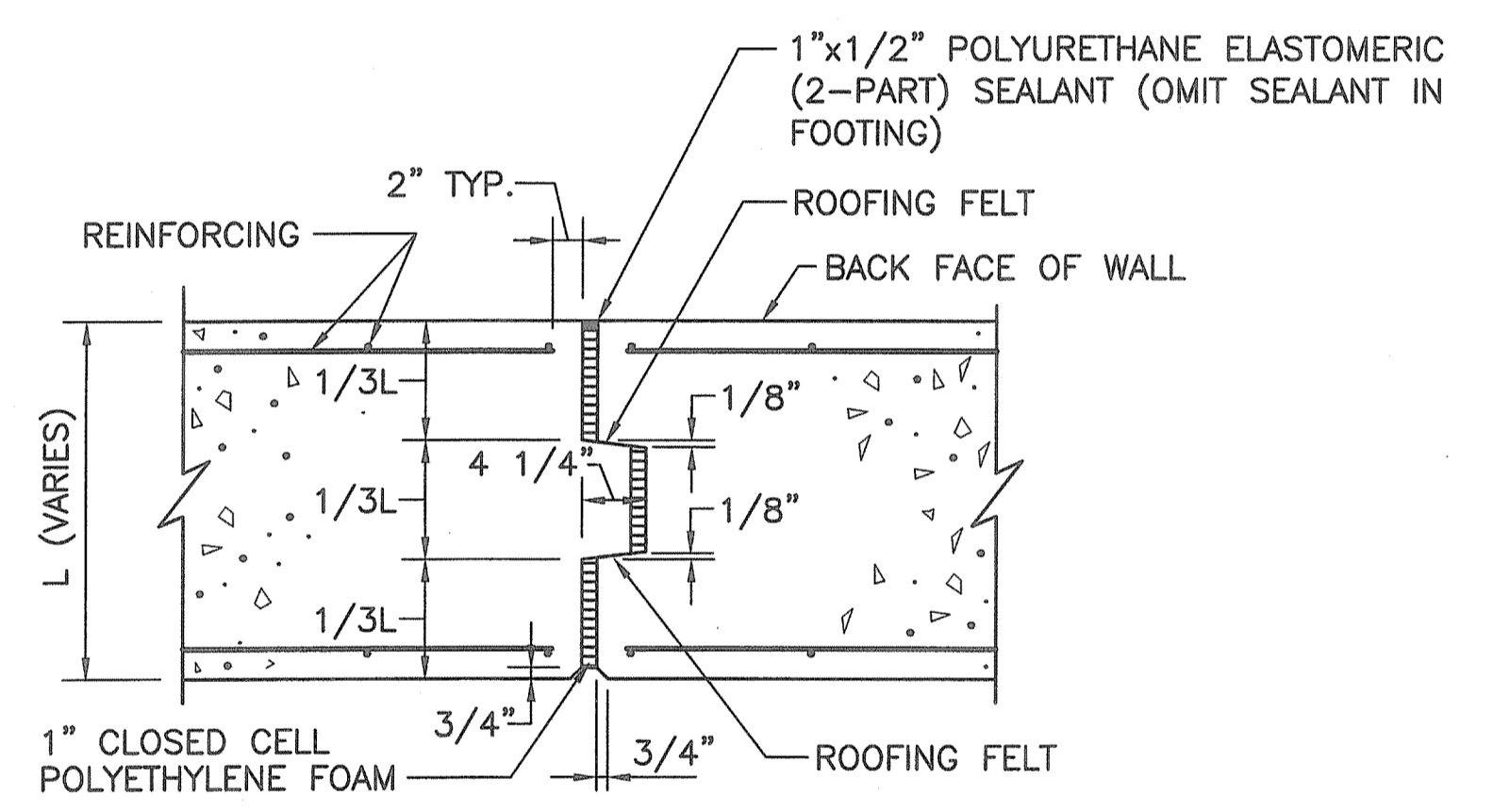
**SE AND NW WINGWALL ELEVATION**  
SCALE: 3/8"=1'-0"



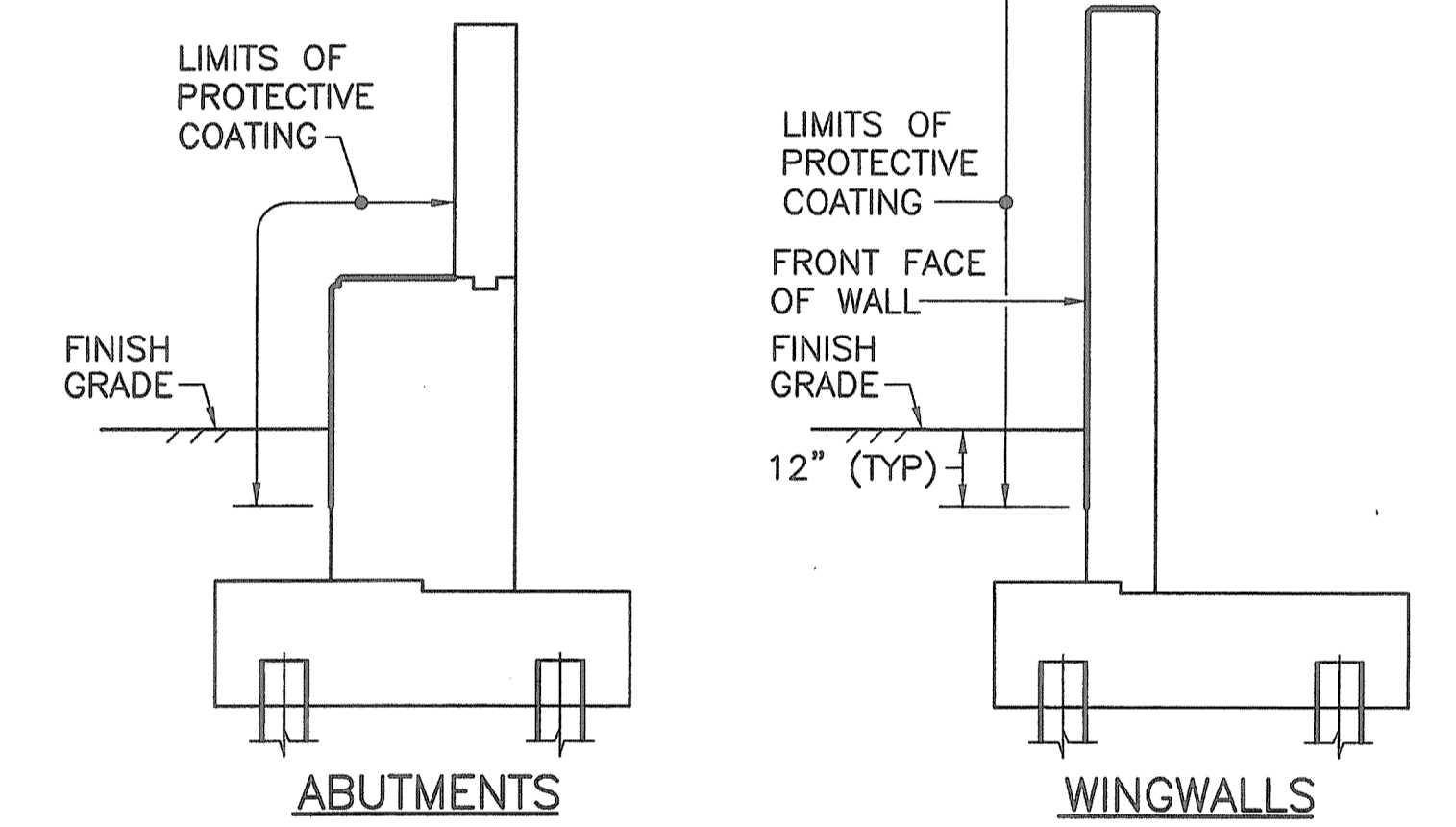
**WEEP DRAIN**  
NOT TO SCALE



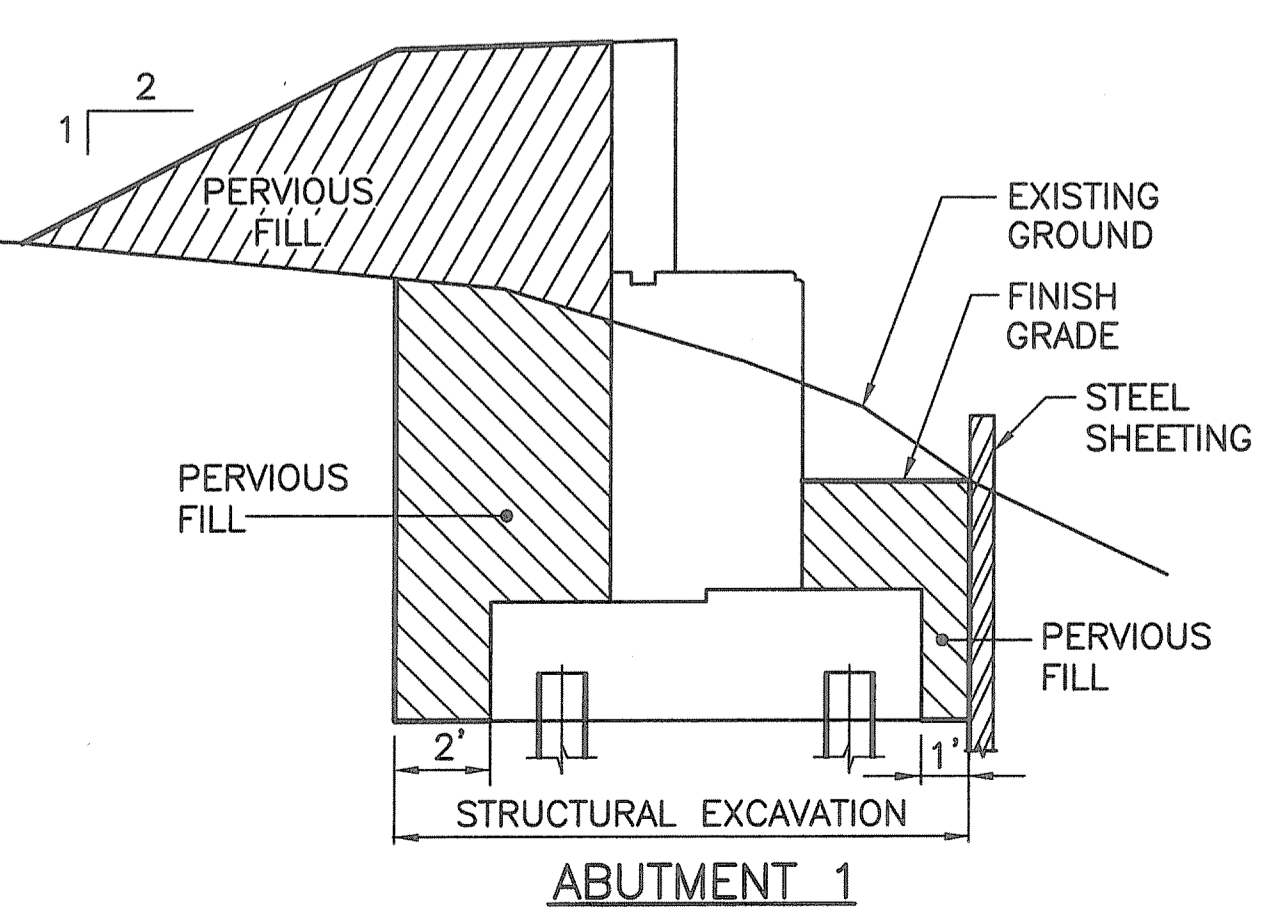
**TYPICAL SECTIONS THROUGH WALL EXPANSION JOINTS**  
NOT TO SCALE



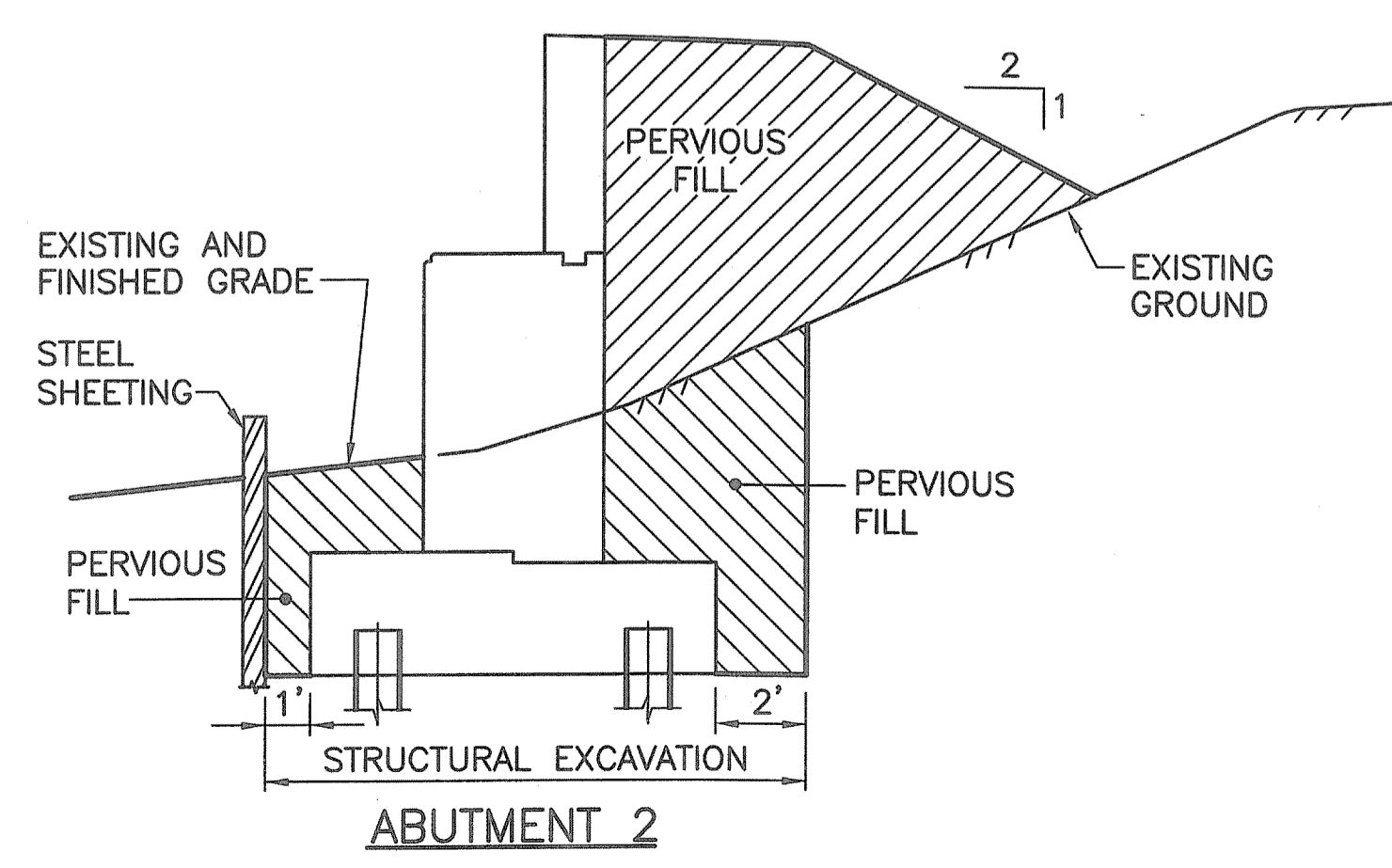
**EXPANSION JOINT IN WALLS**  
NOT TO SCALE



**CONCRETE SURFACE TREATMENT PROTECTIVE COATING**  
NOT TO SCALE

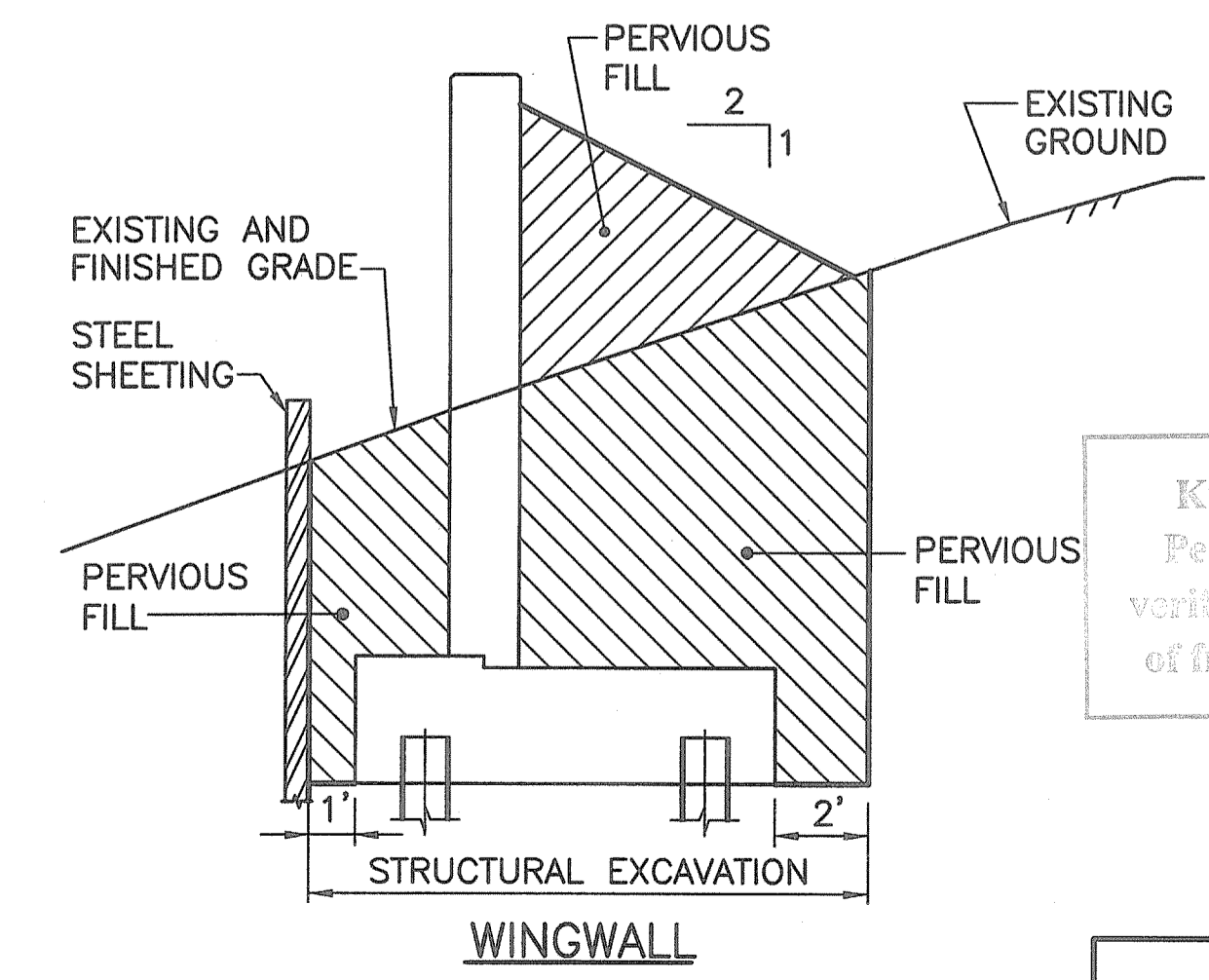


**ABUTMENT 1**



**ABUTMENT 2**

**LIMITS OF PERVIOUS FILL**  
NOT TO SCALE



**WINGWALL**

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
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DATED OCT 31 2011 FILE # 11-0037  
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
*W. Joseph Conroy*

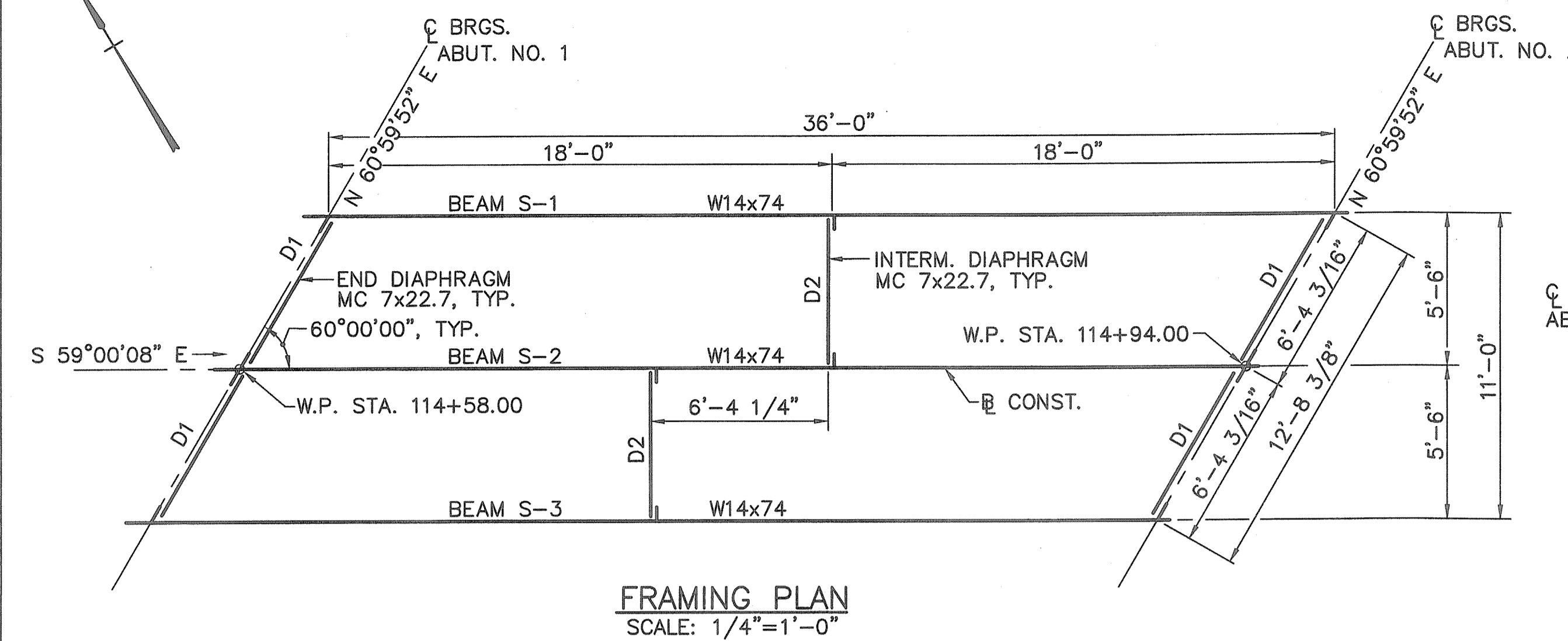
Environmental Management  
AUG 10 2011  
Office of Water Resources

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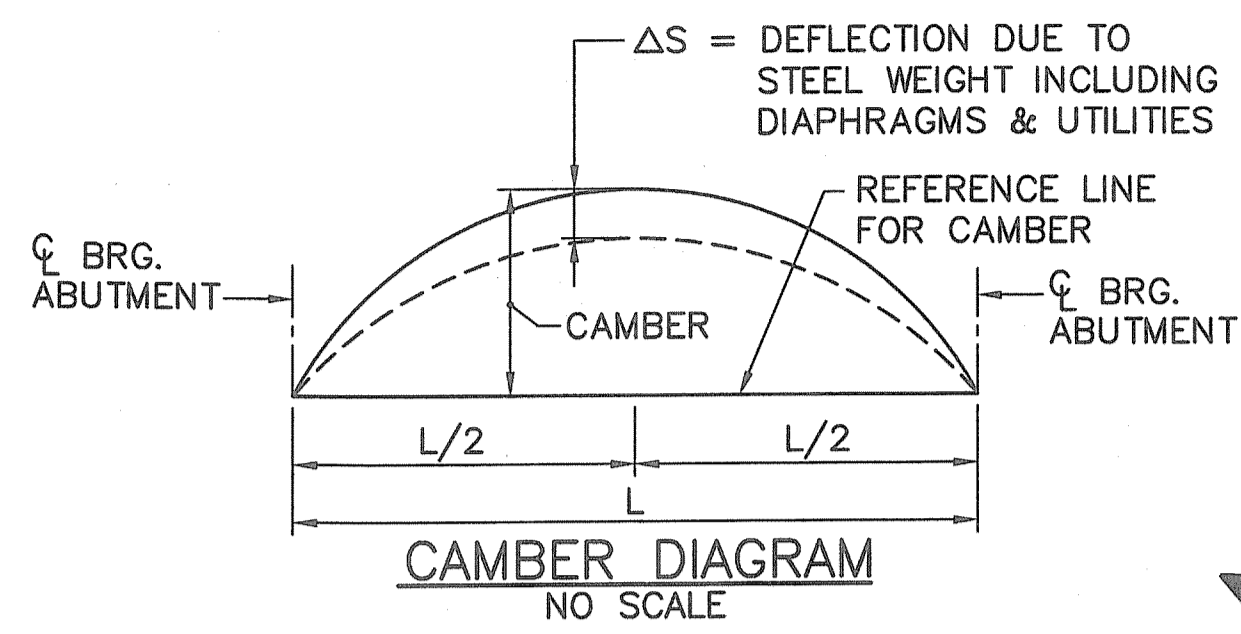
BRIDGE SHT. 8 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

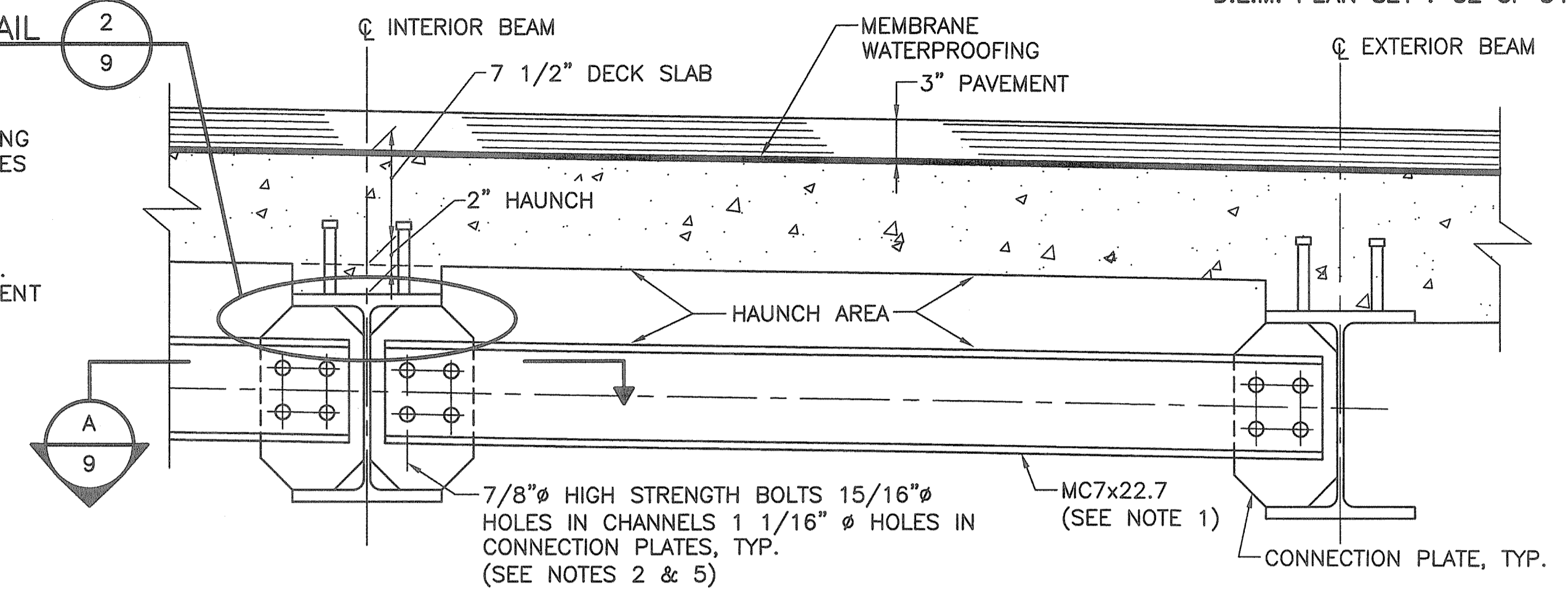
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
**BIKE TRAIL**  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
**WINGWALL SECTION AND DETAILS**  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED



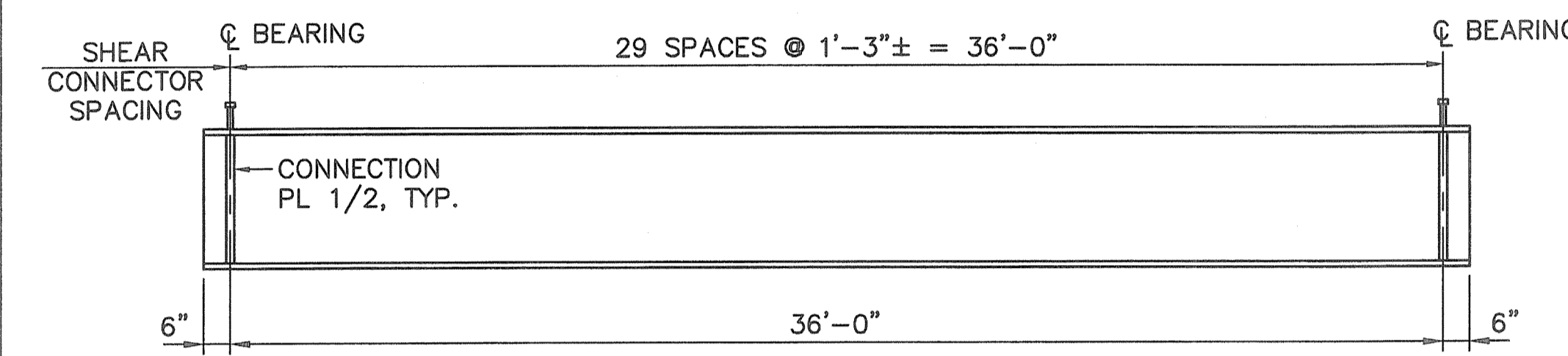
**FRAMING PLAN**  
SCALE: 1/4"=1'-0"



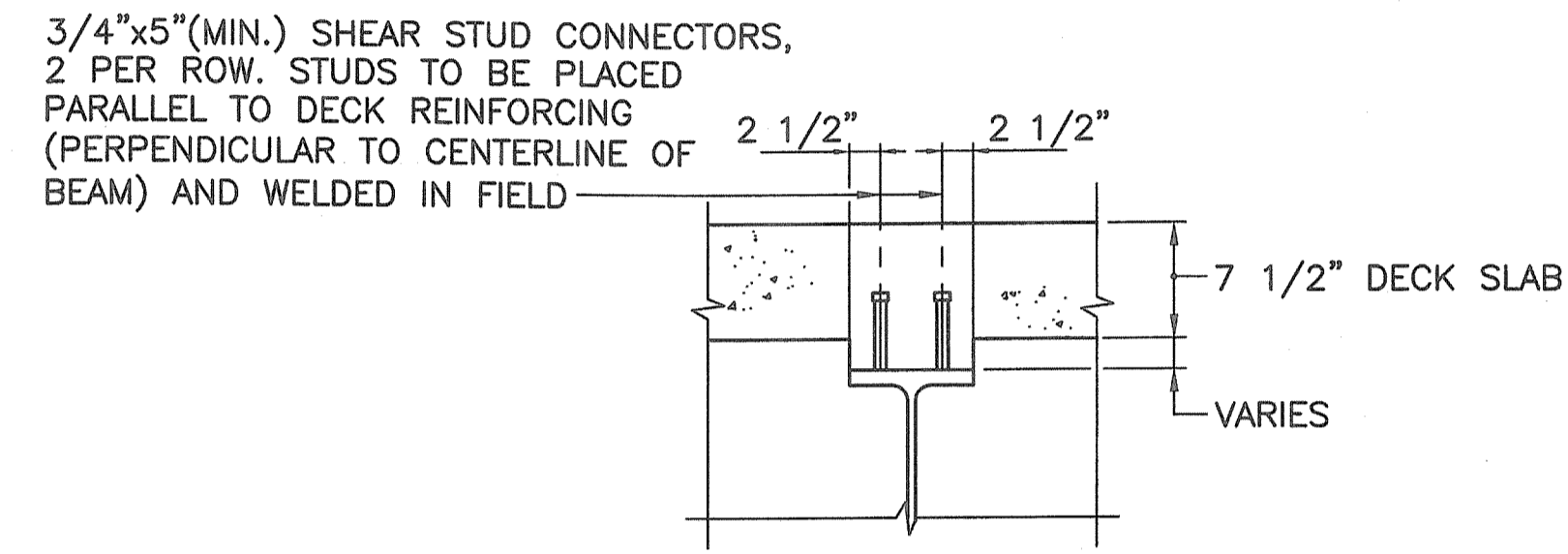
**CAMBER DIAGRAM**  
NO SCALE



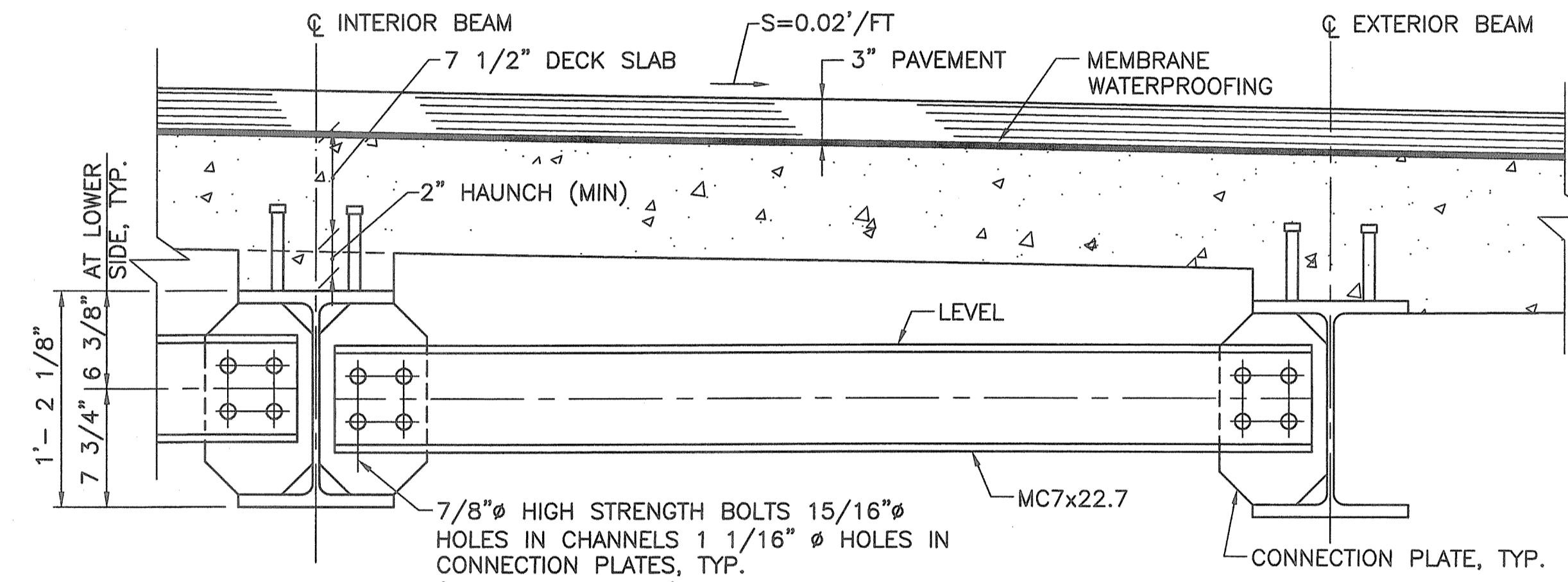
**END DIAPHRAGM D1**  
SCALE: 1 1/2"=1'-0"



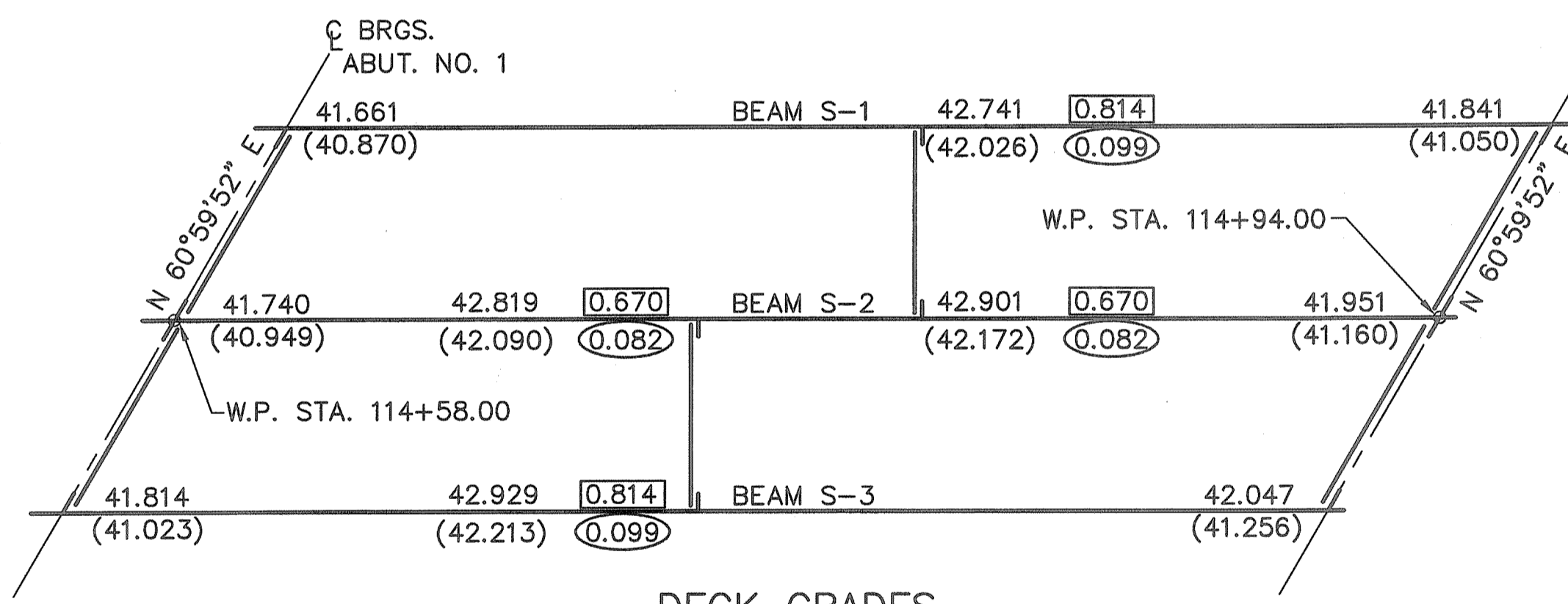
**BEAM ELEVATION**  
NOT TO SCALE



**SHEAR CONNECTOR DETAIL**  
SCALE: 1"=1'-0"



**INTERMEDIATE DIAPHRAGM D2**  
SCALE: 1 1/2"=1'-0"



**DECK GRADES**  
SCALE: 1/4"=1'-0"

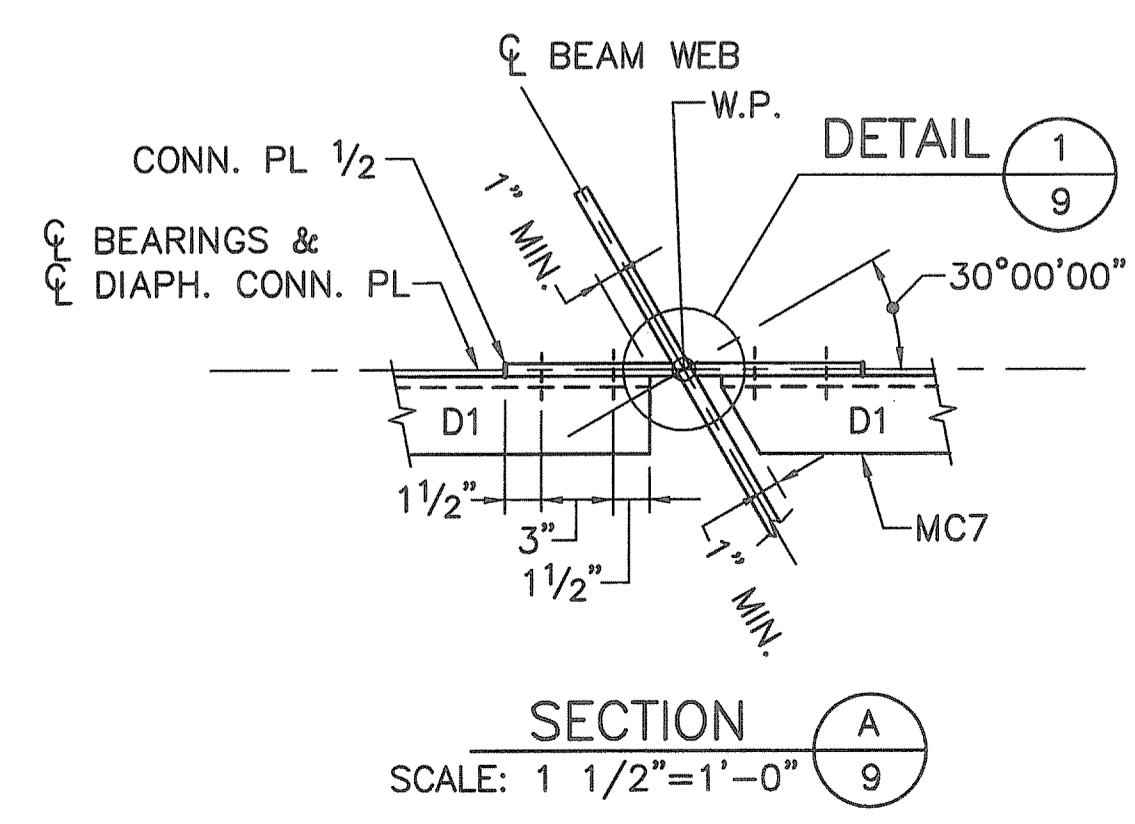
**DECK GRADE NOTES:**

- ELEVATIONS OF BEAMS ARE GIVEN AT THE CENTERLINE OF BEARING OF EACH BEAM AND AT THE MID POINTS OF THE SPAN EXCEPT FOR BEAM S-2. INTERMEDIATE ELEVATIONS OF BEAM S-2 ARE AT THE INTERSECTIONS BETWEEN INTERMEDIATE DIAPHRAGM AND CENTERLINE OF BEAM.
- 00.000 ELEVATIONS GIVEN ARE THEORETICAL FINAL GRADES ON TOP OF CONCRETE DECK AT CENTERLINE OF BEAM.
- (00.000) ELEVATIONS GIVEN IN PARENTHESES ARE THEORETICAL GRADES ON TOP OF BEAMS BEFORE PLACING CONCRETE.
- 0.000 FIGURES IN RECTANGLES ARE DEAD LOAD DEFLECTIONS IN INCHES CAUSED BY THE WEIGHT OF THE CONCRETE DECK.
- 0.000 FIGURES ARE DEFLECTIONS IN INCHES CAUSED BY SUPERIMPOSED DEAD LOADS (WEIGHT OF RAILINGS AND WEARING SURFACE).

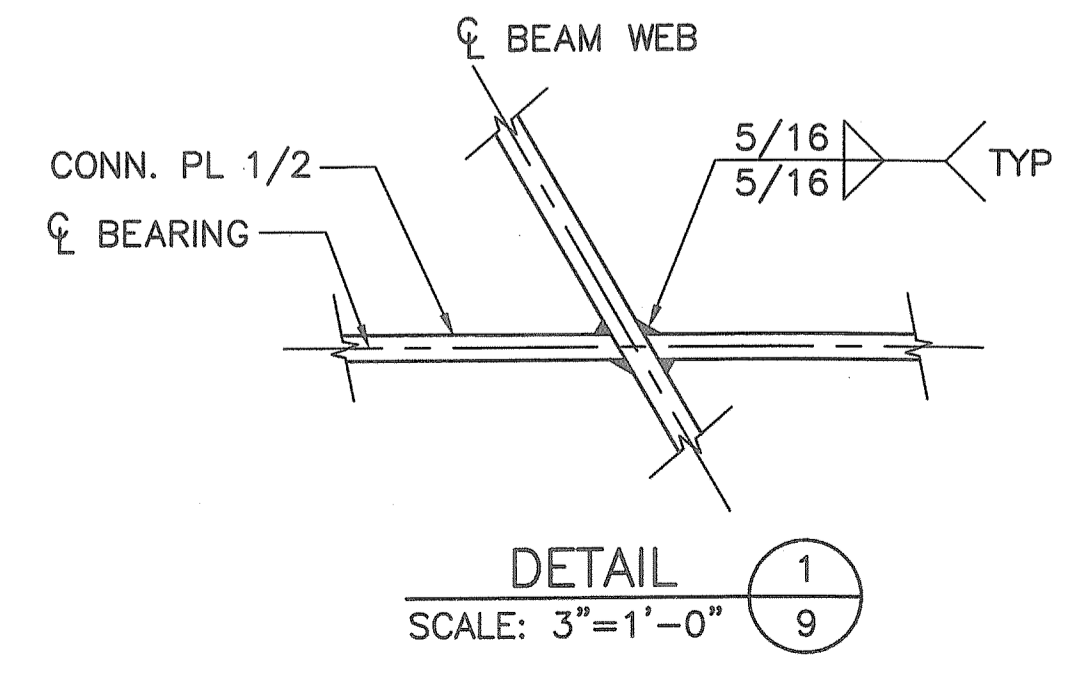
Kindly be advised that this Permit is not equivalent to a certification of the type or extent of freshwater wetlands on site.

**NOTES:**

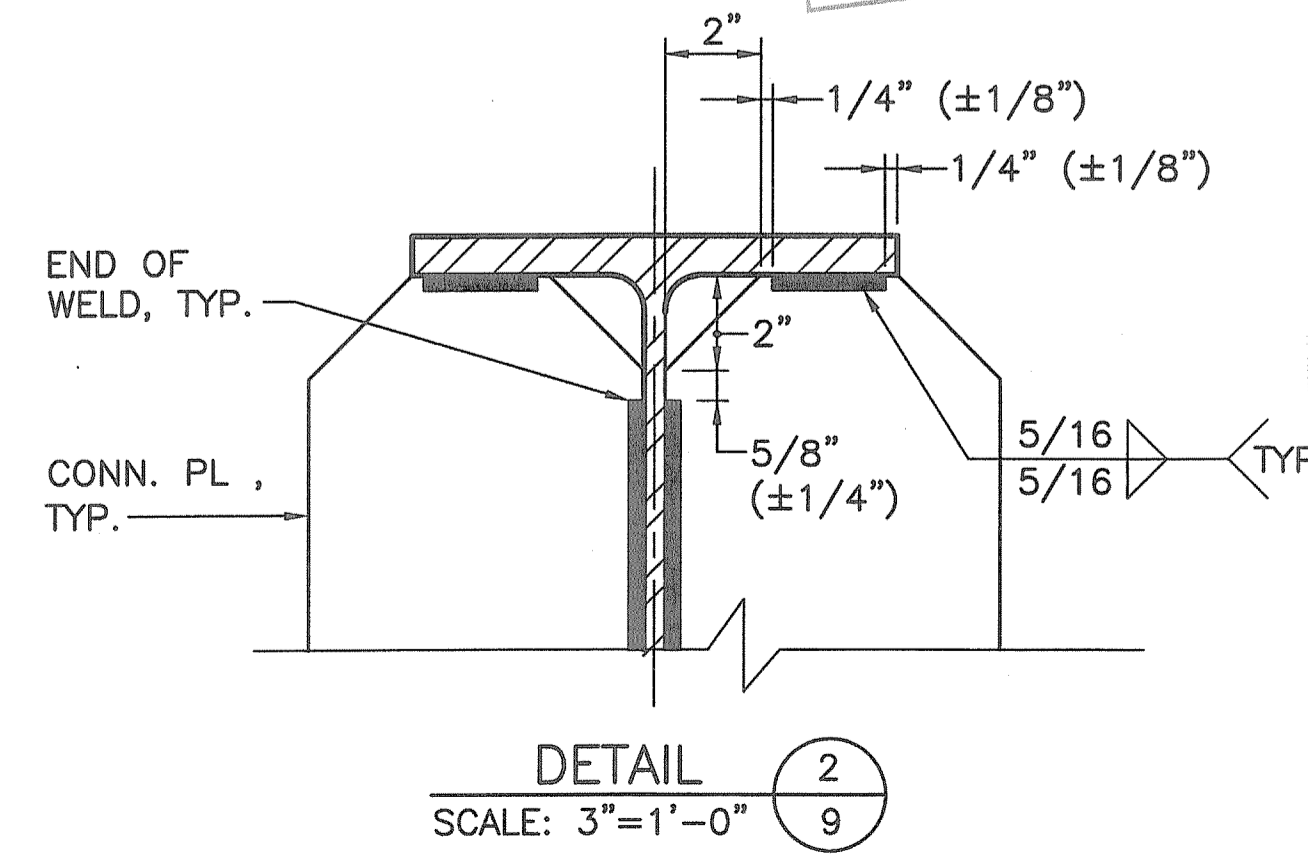
- THE END DIAPHRAGMS ARE TO FOLLOW THE CROSS PITCH OF THE ROADWAY.
- LOCATIONS OF HOLES IN CONNECTION PLATES SHALL BE DETERMINED BY THE FABRICATOR.
- ALL BOLTS ARE AASHTO SLIP-CRITICAL DESIGN, CLASS 'A'
- HIGH STRENGTH 7/8" DIA. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325
- HOLES SHALL BE 15/16" DIA. IN END DIAPHRAGMS AND INTERMEDIATE DIAPHRAGM. GUSSET PLATES HOLES SHALL BE 1 1/16" DIA. IN CONNECTION PLATES.
- AASHTO STANDARD HARDENED WASHERS SHALL BE PLACED UNDER ALL PARTS TURNED DURING ASSEMBLY.



**SECTION A/9**  
SCALE: 1 1/2"=1'-0"



**DETAIL 1/9**  
SCALE: 3"=1'-0"



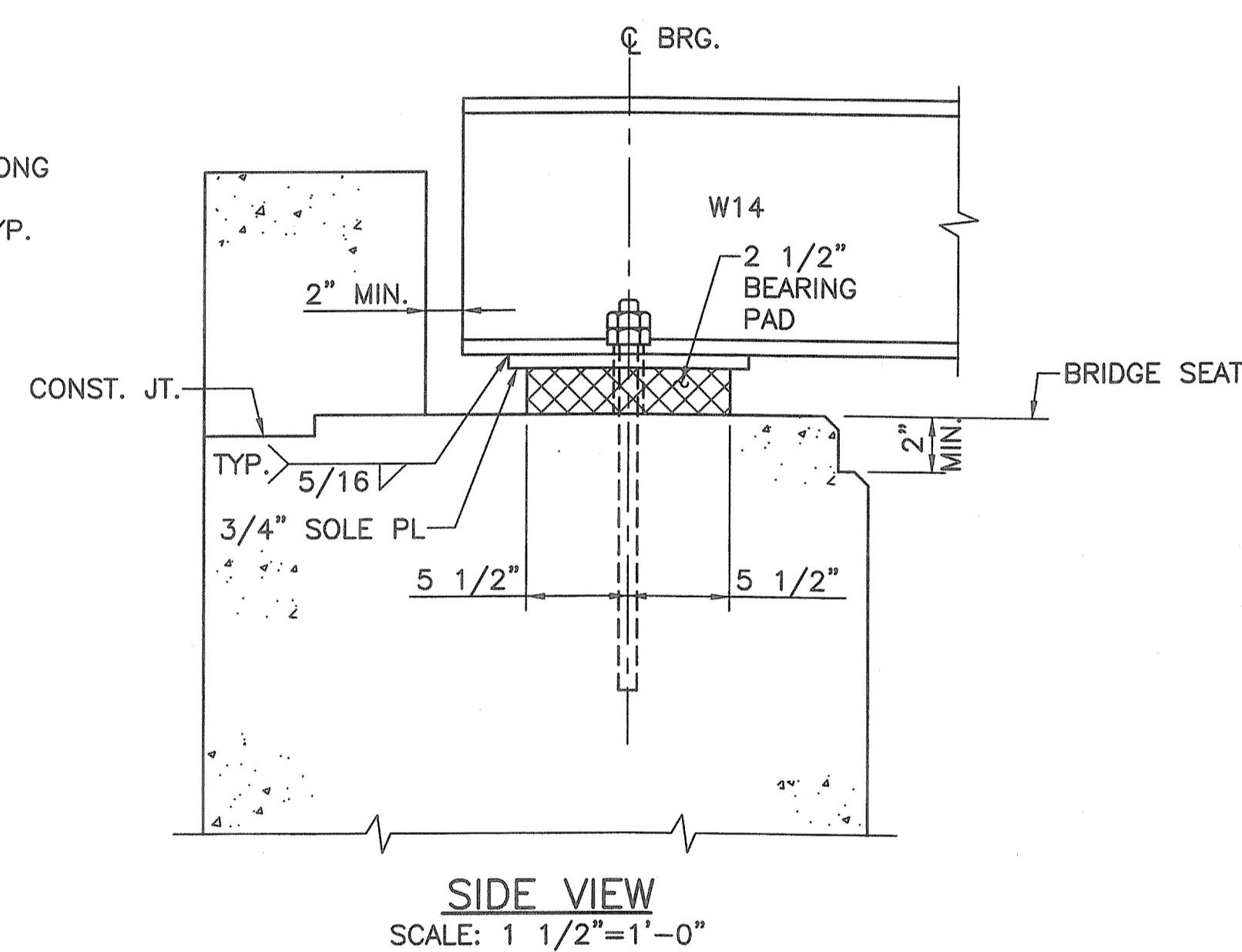
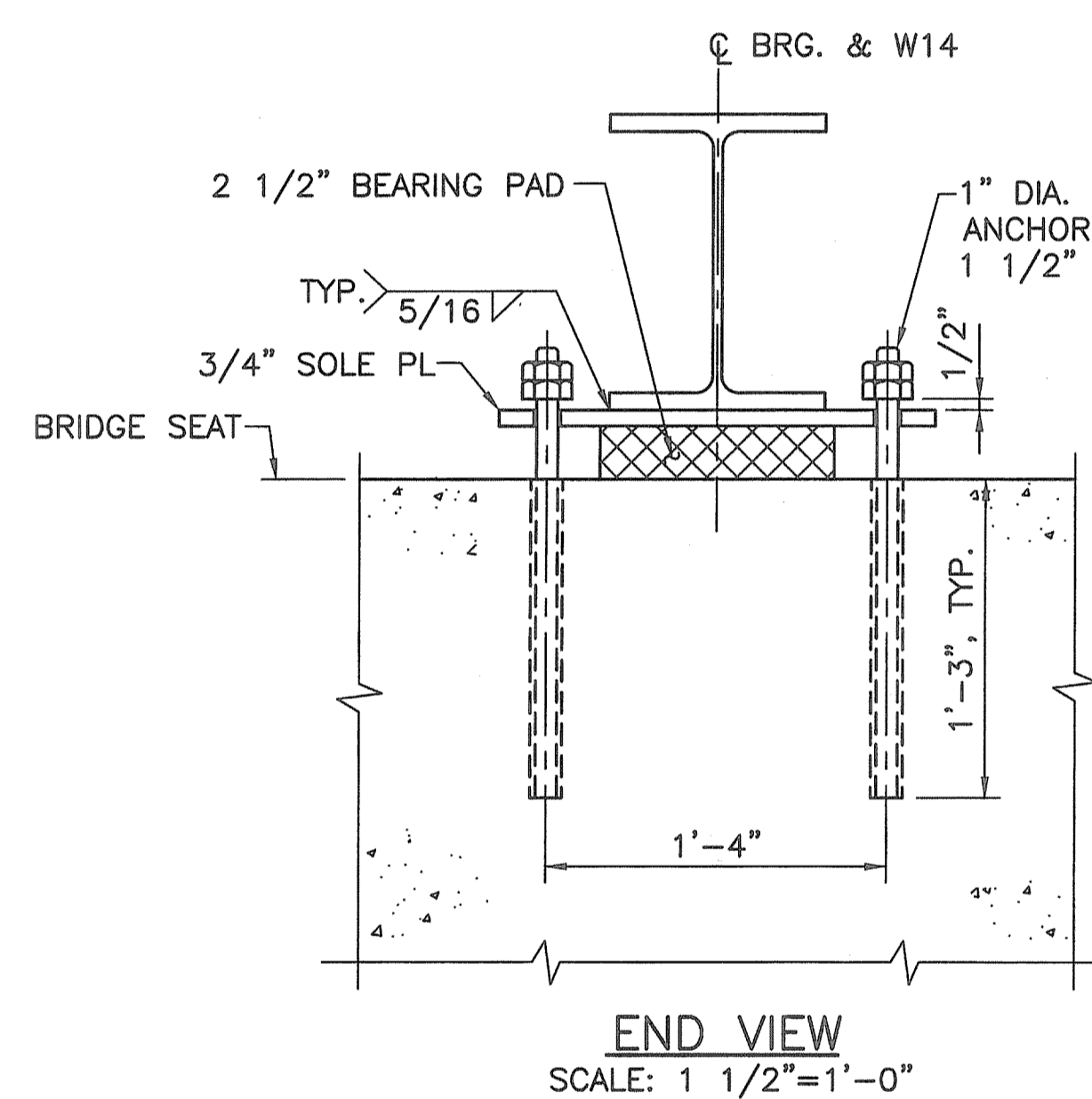
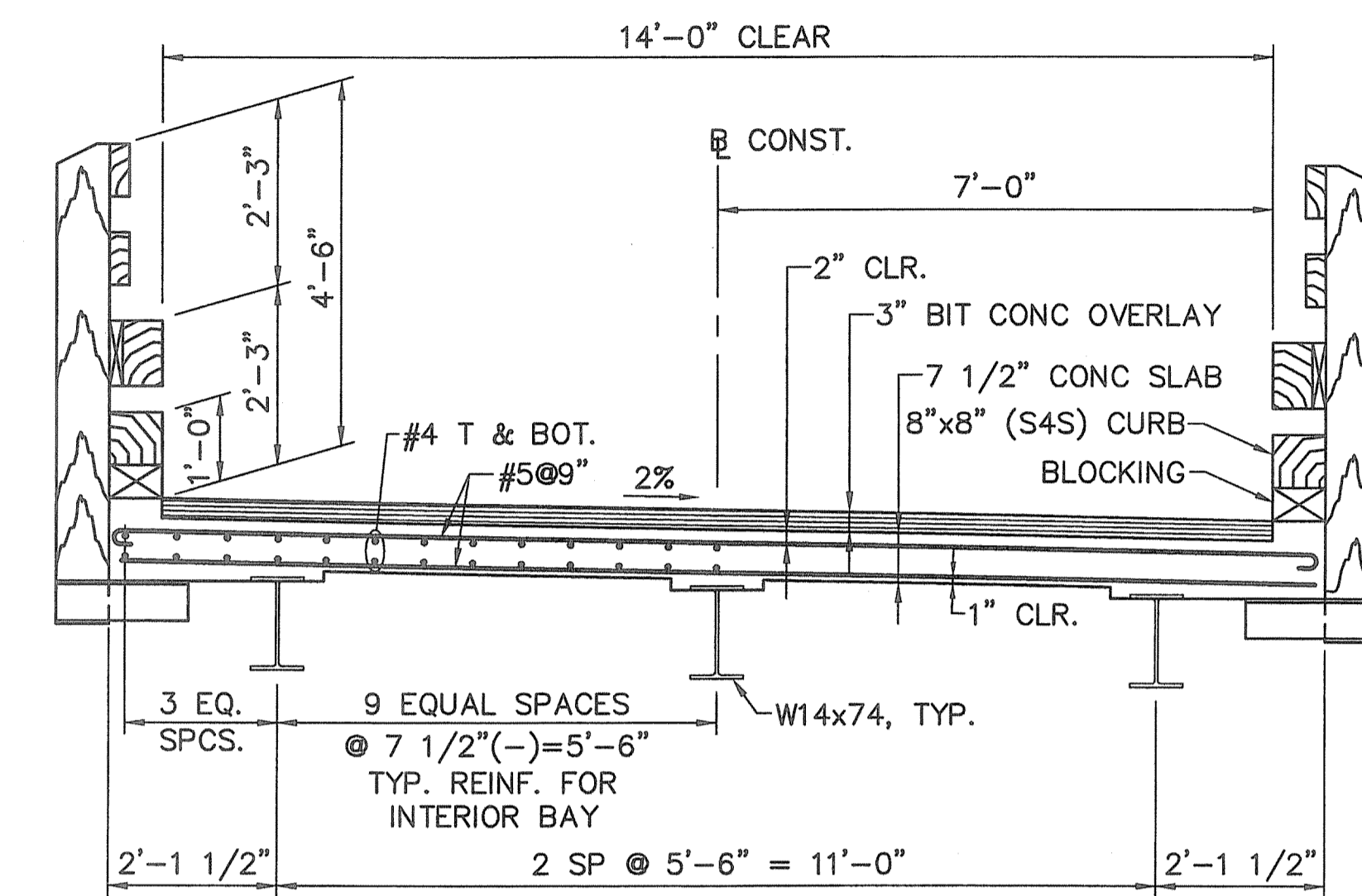
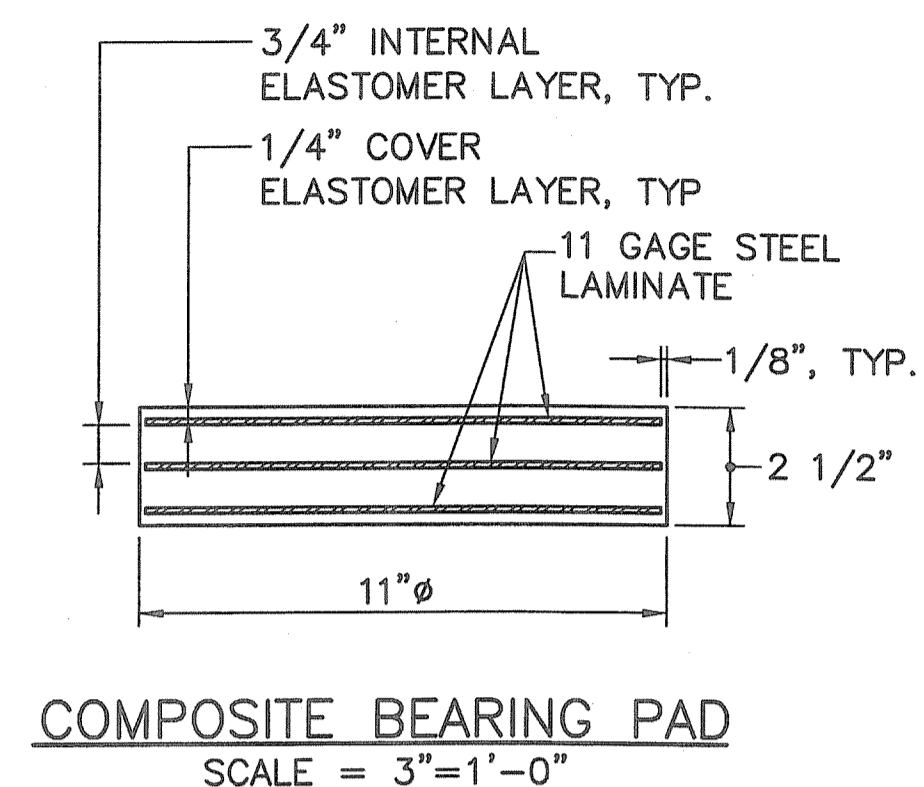
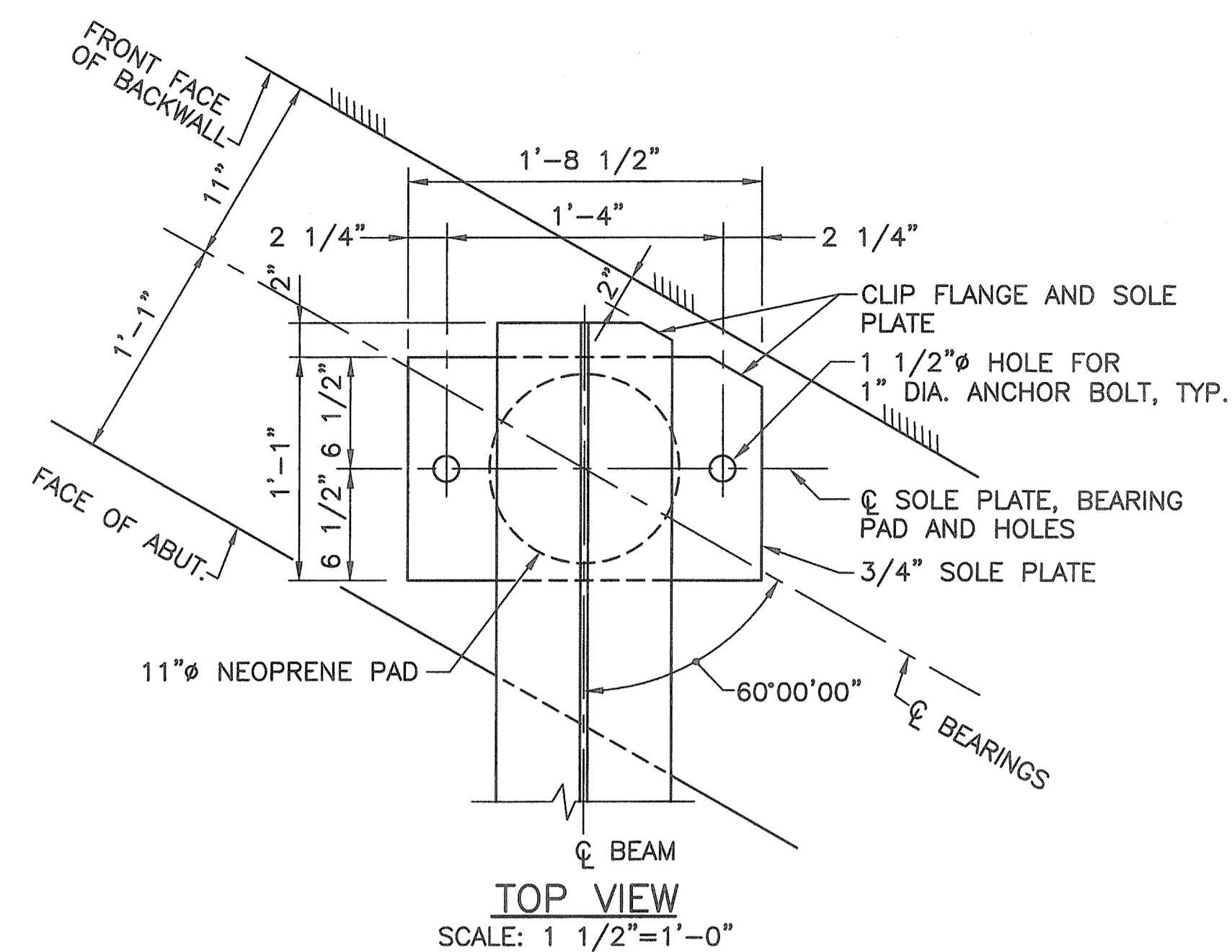
**DETAIL 2/9**  
SCALE: 3"=1'-0"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
*W. Joseph Carney*

BRIDGE SHT. 9 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO.	DATE	BY

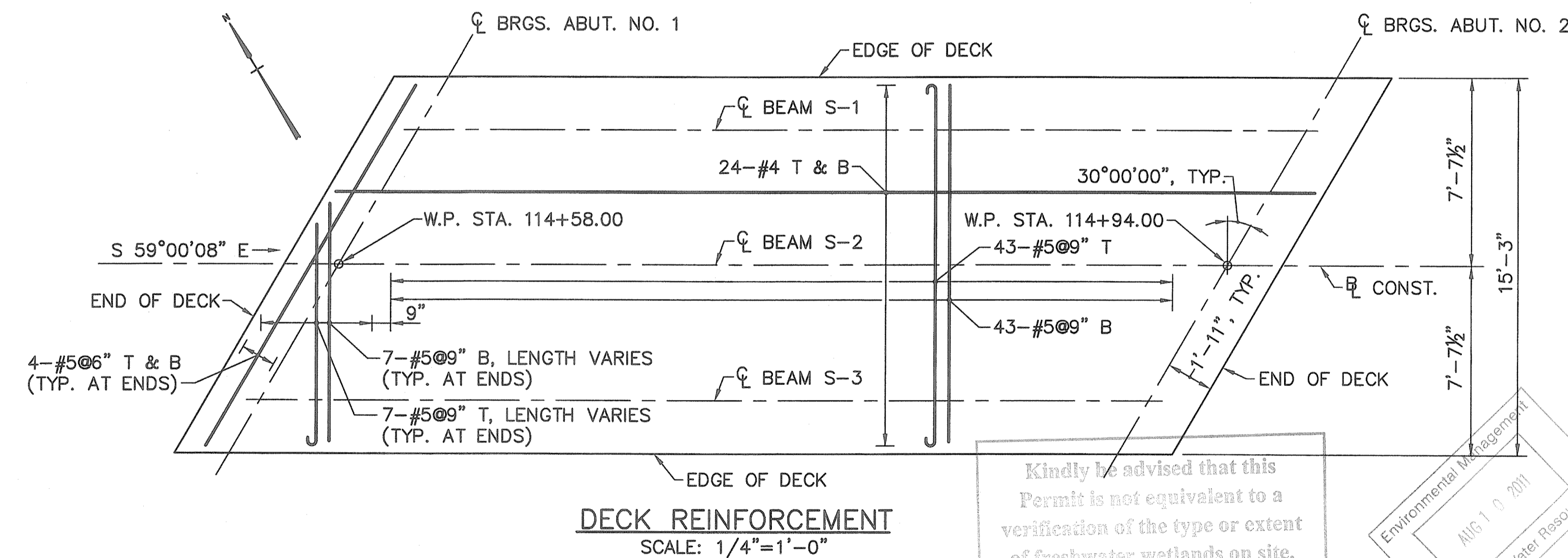
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
**BIKE TRAIL**  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
STEEL DETAILS  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED



**BEARING DETAILS**

**BEARING NOTES:**

- ELASTOMER SHALL HAVE A HARDNESS OF 60 DUROMETER.
- STEEL LAMINATES SHALL CONFORM TO A 1011 GRADE 36.
- TAPERED INTERNAL LOAD PLATE SHALL CONFORM TO AASHTO M 270 GRADE 36.
- ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION OF THE BRIDGE. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER BEARING IS INSTALLED.



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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Corcoran*

BRIDGE SHT. 10 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO.	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

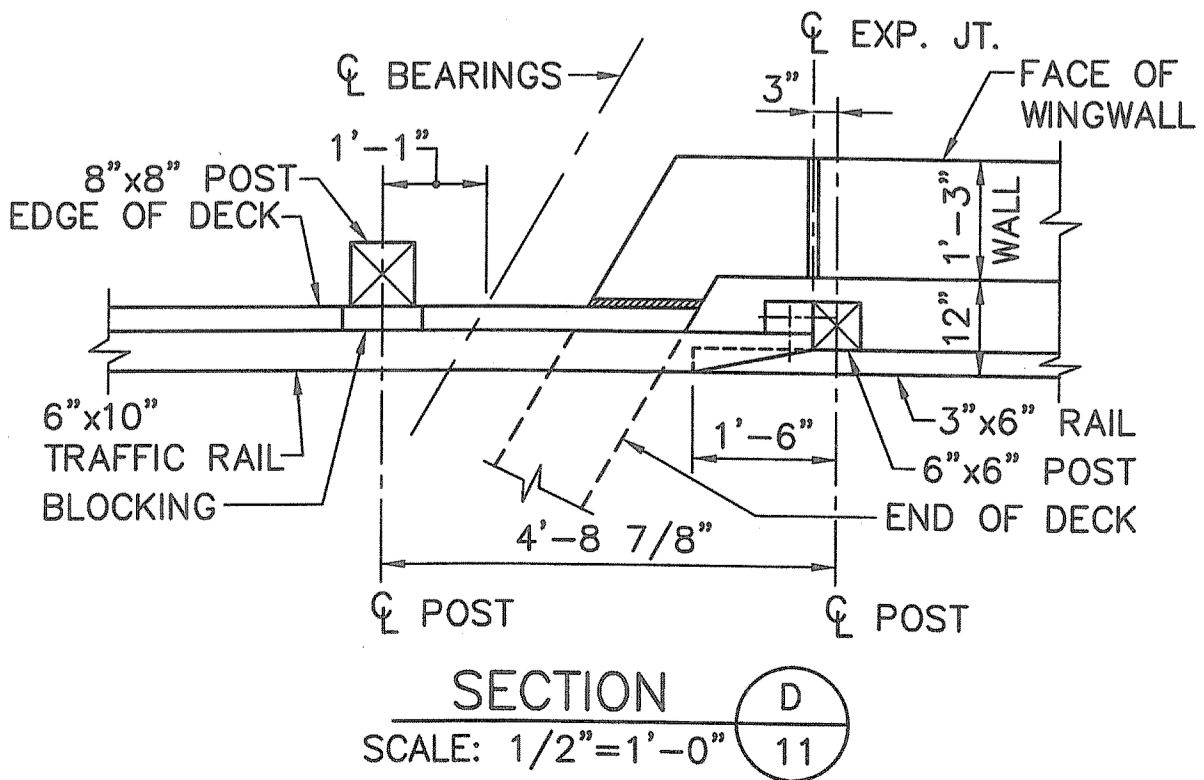
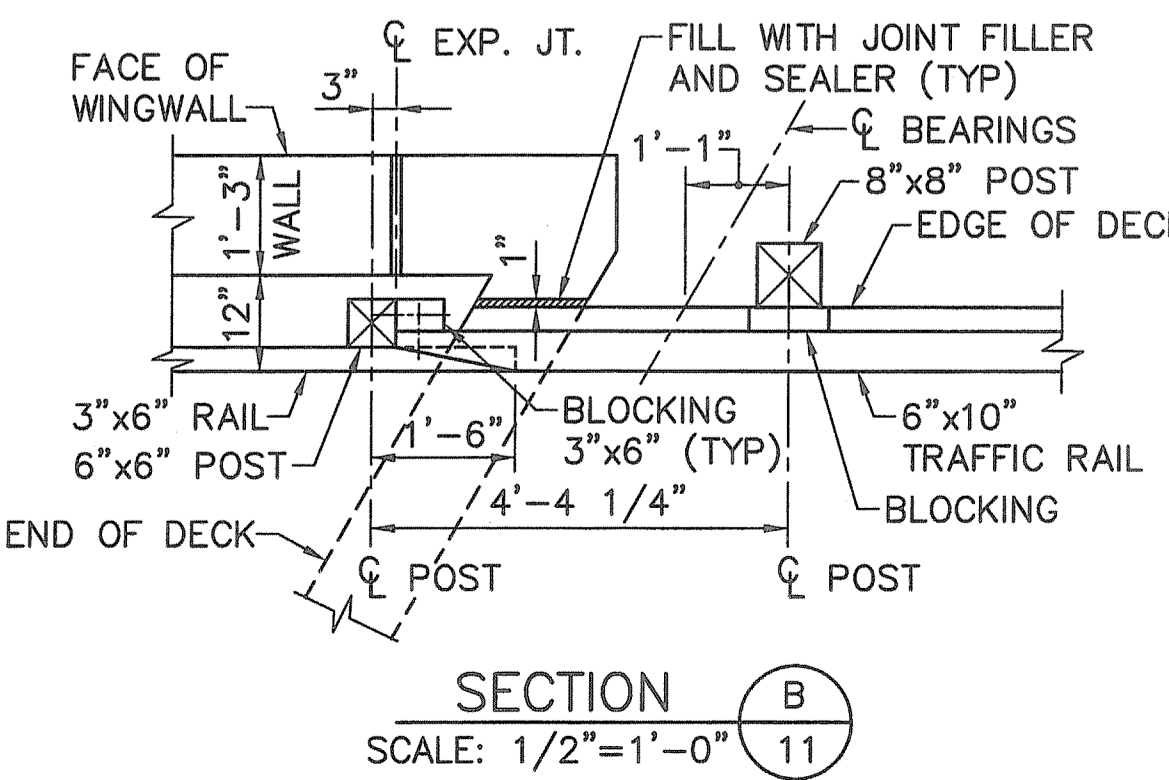
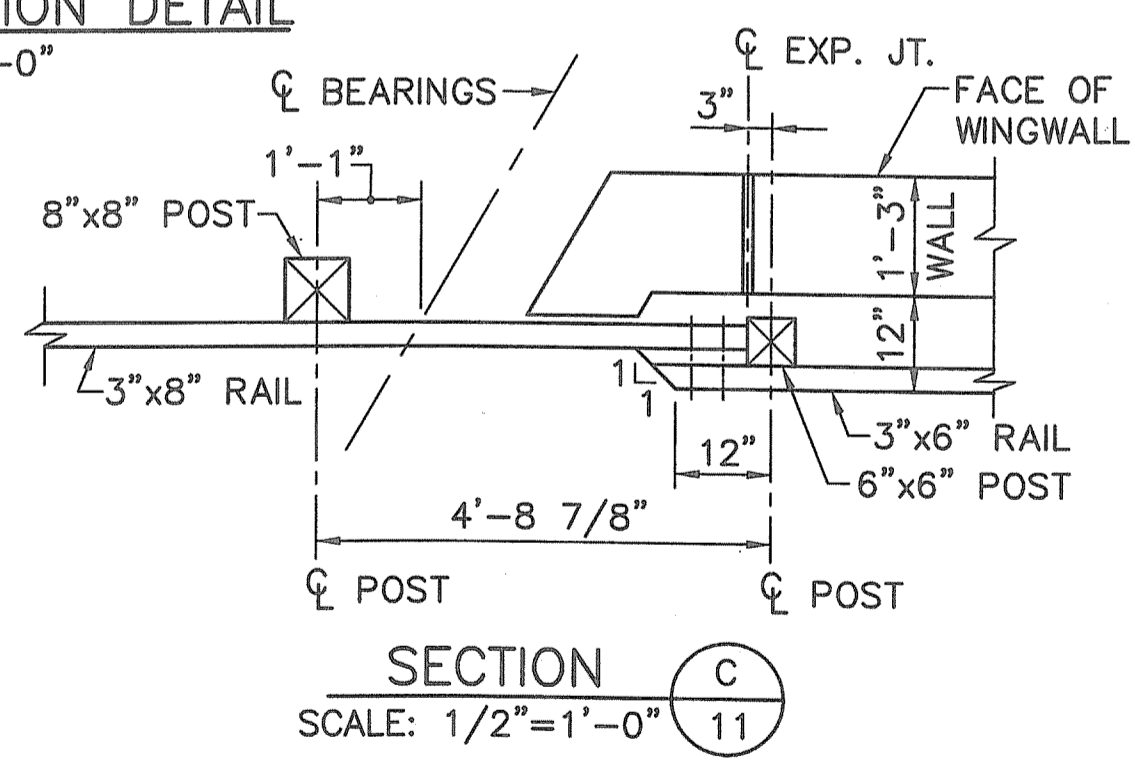
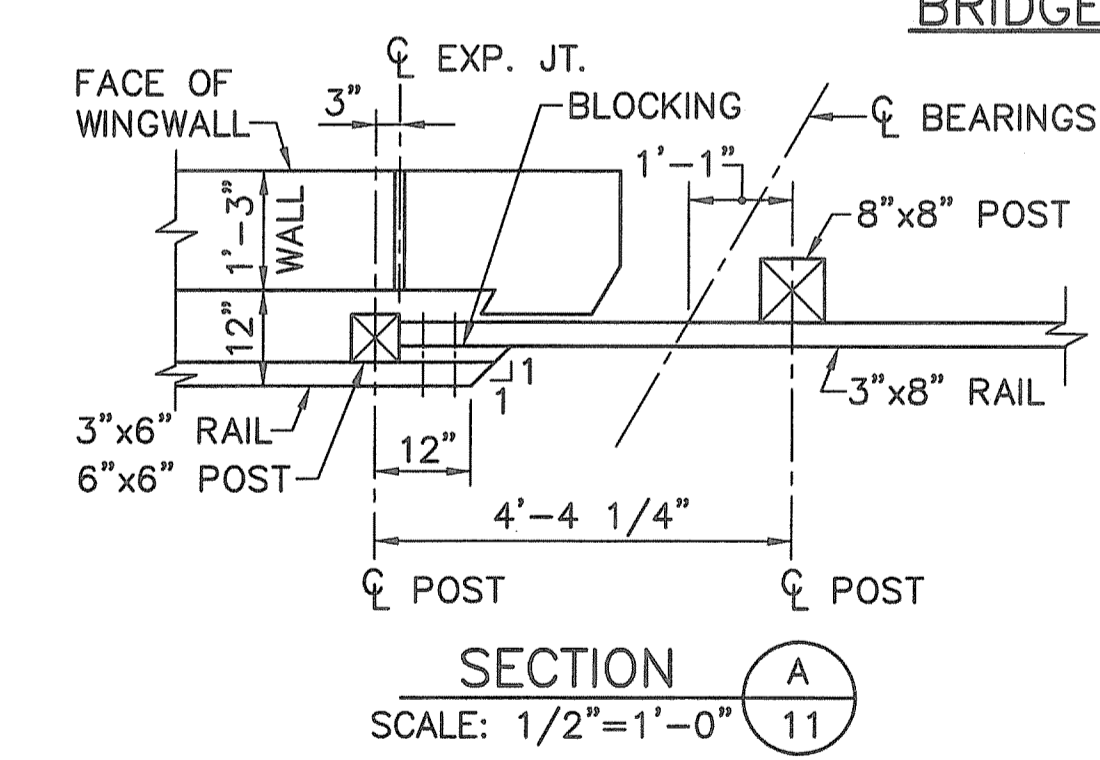
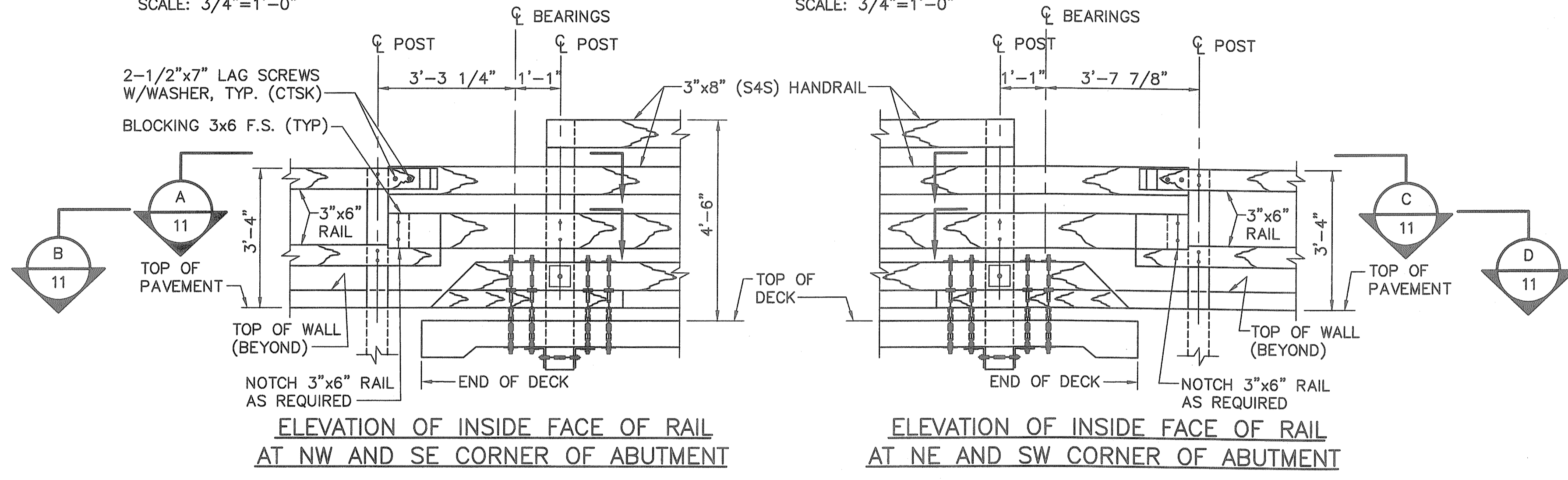
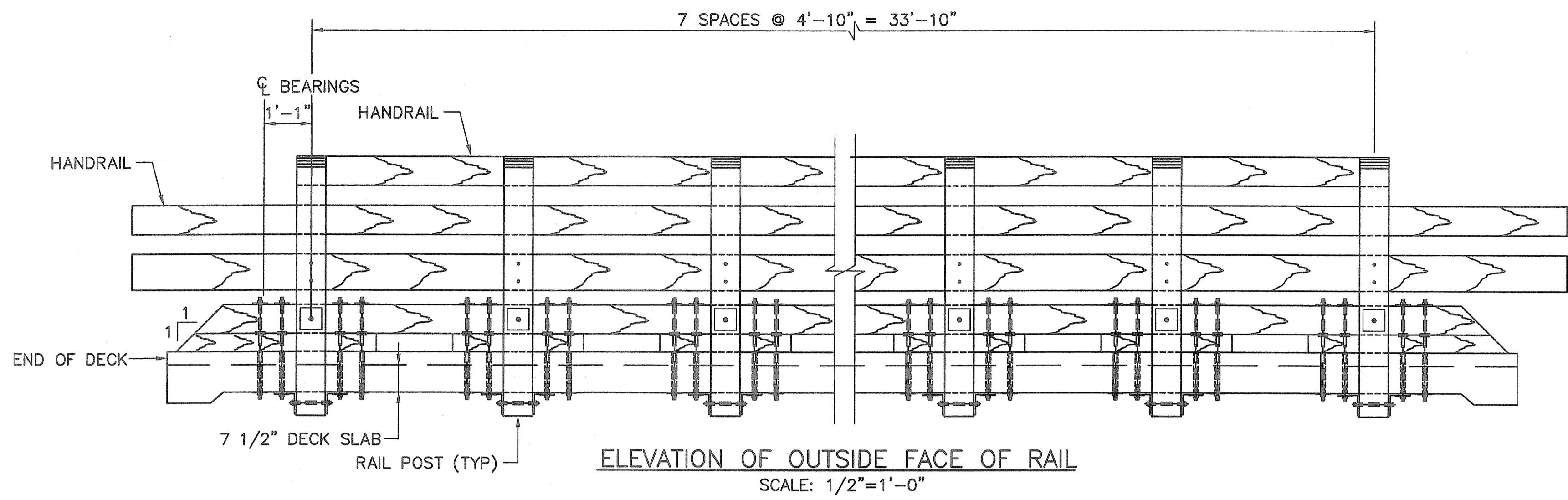
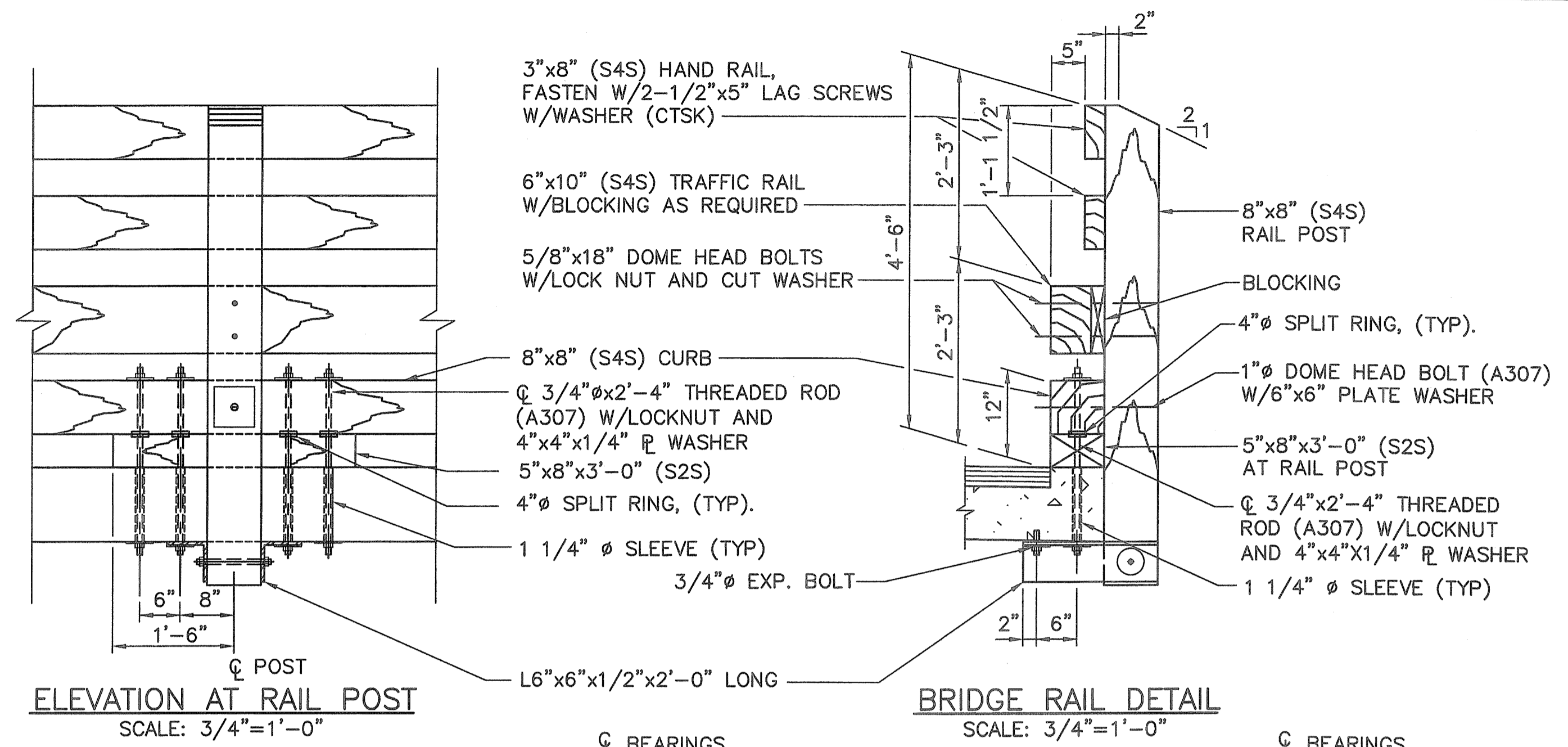
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
BEARING AND DECK DETAILS

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			34	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 34 OF 54



**TIMBER CONSTRUCTION NOTES:**

- ALL TIMBER SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR TIMBER BRIDGE SUPERSTRUCTURE AND WITH AASHTO SPEC. M133. SAWN TIMBER DECK LAMINATIONS, TRAFFIC RAIL, SOLID SAWN RAIL POSTS, CURB, DECK PLANKS, HANDRAILS AND ANY MISCELLANEOUS TIMBER COMPONENTS SHALL BE PRESSURE TREATED USING A FULL-CELL PROCESS WITH CCA CONFORMING TO AWPA STANDARD P5 TO A NET RETENTION OF 0.6 LBS/CU FT. DETERMINED BY ASSAY, IN ACCORDANCE WITH AWPA STANDARD C14. ALL TIMBER IS TO BE CUT TO EXACT LENGTH BEFORE TREATMENT. ALL DECKING CURBS AND RAIL POSTS SHALL BE PRE-DRILLED PRIOR TO TREATMENT. THE TIMBER FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER PRIOR TO TREATMENT OF MATERIALS.
- ALL TIMBER IS TO BE GRADED AS PER THE LATEST EDITION OF ANSI/AF&PA NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
- TIMBER SHALL BE AS FOLLOWS:
  - CURB: SOUTHERN PINE, 5"X 5" AND LARGER, NO. 1, Fb = 1350 PSI, Fc = 375 PSI, E = 1,500,000 PSI.
  - TRAFFIC RAIL: SOUTHERN PINE, 5"X 5" AND LARGER, DENSE SELECT STRUCTURAL, Fb = 1750 PSI, Fv = 110 PSI, E = 1,600,000 PSI.
  - HANDRAIL: SOUTHERN PINE, 2"-4" THICK X 8" WIDE, NO. 2 OR BETTER, Fb = 1200 PSI, Fcl = 565 PSI, E = 1,600,000 PSI.
- ALL TIMBER CUT OR DRILLED IN THE FIELD SHALL BE TREATED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- ALL MATERIAL FOR BOLTS, LAG SCREWS, SPIKES AND THREADED RODS SHALL CONFORM TO ASTM A307. MATERIAL FOR ANGLES AND WASHER PLATES SHALL CONFORM TO ASTM A709, GRADE 36. SPLIT RINGS SHALL BE MANUFACTURED FROM MATERIAL CONFORMING WITH SAE 1010. ALL HARDWARE IS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
- ALL BOLTS AND NUTS SHOULD BE TIGHTENED "SNUG TIGHT" AND SHALL HAVE ADEQUATE LOCKING DEVICES.

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 OCT 31 2011 FILE # 11-0027  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Conroy*

**BRIDGE SHT. 11 OF 13**  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO.	DATE	BY

**RHODE ISLAND**  
**DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
BRIDGE RAIL DETAILS

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

**BORING NO. SB-37**

**BORING NO. SB-38**

**BORING NO. HB-41**

CONTRACT NO. 4  
D.E.M. PLAN SET : 35 OF 54

GZA DRILLING, INC.			PROJECT			REPORT OF BORING No.		
1215 W. CHESTNUT ST., BROCKTON, MA 02301 (A DIVISION OF GZA GEOTECHNICAL, INC.)			Providence Bike Path Providence, Rhode Island			SB-37 SHEET 1 of 2 FILE No. 41711B CHKD. BY		
FOREMAN: DON DUNKLEE CLASSIFIED BY: JOHN O'MARA INSPECTOR:			BORING LOCATION GROUND SURFACE ELEVATION 38.68 DATE START 9/5/02			DATUM DATE END 9/6/02		
SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.			GROUNDWATER READINGS					
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.			DATE			TIME		
CASING SIZE: NW OTHER			9/5/02			1:2		
DEPTH (ft)	PEN/REC	DEPTH (ft)	BLOWS/6"	SAMPLE DESCRIPTION		STRATUM DESCRIPTION		
				BURMISTER CLASSIFICATION	DESCRIPTION	BURMISTER CLASSIFICATION	DESCRIPTION	
0-1	24/2	0-2	7-12 15-12	Medium dense, brown, fine to coarse SAND, little SILT, trace Gravel		0'	SAND	
2-4	24/1	4-6	18-18 14-15	Medium dense, brown SILT, some fine to medium Sand, trace Gravel		4'		
8-11	24/0	8-11	14-16 20-17	No sample		8'		
14-16	24/14	14-16	4-7 6-8	Medium dense, brown SILT		14'	SILT	
19-21	24/12	19-21	3-2 2-4	Very loose, gray SILT		19'		
24-26	24/20	24-26	1-2 2-5	Very loose, gray SILT		24'		
29-30	24/20	29-30	16-11 12-12	Medium dense, gray SILT		29'		
34-36	24/24	34-36	4-5 7-12	Medium dense, gray SILT.		34'		
39-40	24/24	39-40	1-1 3-5	Very loose, gray SILT.		39'		
44-45	24/24	44-45	2-2 2-4	Very loose, gray SILT.		44'		
49-51	24/24	49-51	9-13 22-39	Dense, gray SILT.		49'	SILT	
54-56	24/20	54-56	7-17 24-36	Dense, gray SILT.		54'		
59-61	24/16	59-61	12-16 24-29	Dense, gray SILT.		59'		
64-66	24/22	64-66	10-19 39-50	Very dense, gray SILT.		64'		
69-71	24/20	69-71	11-21 35-46	Very dense, gray SILT.		69'		
73-75	24/14	73-75	7-14 29-39	Dense, gray SILT.		73'		

Bottom of Boring at 75'

GRANULAR SOILS		COHESIVE SOILS	
BloWS/ Ft Density		BloWS/ Ft Density	
0-4 V. LOOSE < 2	V. SOFT	0-4 V. LOOSE < 2	V. SOFT
4-10 LOOSE 2-4	SOFT	4-10 LOOSE 2-4	SOFT
10-30 M. DENSE 4-8	M. STIFF	10-30 M. DENSE 4-8	M. STIFF
30-50 DENSE 8-15	STIFF	30-50 DENSE 8-15	STIFF
> 50 V. DENSE 15-30	V. STIFF	> 50 V. DENSE 15-30	V. STIFF
	HARD		HARD

REMARKS:  
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

GZA BORING No. SB-37

GZA DRILLING, INC.			PROJECT			REPORT OF BORING No.		
1215 W. CHESTNUT ST., BROCKTON, MA 02301 (A DIVISION OF GZA GEOTECHNICAL, INC.)			Providence Bike Path Providence, Rhode Island			SB-38 SHEET 1 of 2 FILE No. 41711B CHKD. BY		
FOREMAN: PAUL WORDELL CLASSIFIED BY: JOHN O'MARA INSPECTOR:			BORING LOCATION GROUND SURFACE ELEVATION 39.48 DATE START 9/6/02			DATUM DATE END 9/6/02		
SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.			GROUNDWATER READINGS					
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.			DATE			TIME		
CASING SIZE: NW OTHER			9/6/02			3		
DEPTH (ft)	PEN/REC	DEPTH (ft)	BLOWS/6"	SAMPLE DESCRIPTION		STRATUM DESCRIPTION		
				BURMISTER CLASSIFICATION	DESCRIPTION	BURMISTER CLASSIFICATION	DESCRIPTION	
0-2	24/20	0-2	3-7 12-14	Medium dense, dark brown, some GRAVEL, little SILT, little Sand		0'	GRAVEL	
5-7	24/16	5-7	7-9 10-10	Medium dense, brown SILT, some Sand		5'	SILT	
10-12	24/20	10-12	10-13 15-15	Medium dense, brown, fine to coarse SAND, little Gravel, some SILT		10'	SAND	
15-17	24/24	15-17	8-9 9-12	Medium dense, brown SILT, trace fine Sand		15'	SILT	
20-22	24/16	20-22	7-8 8-9	Medium dense, brown SILT, trace fine Sand		20'		
25-27	24/24	25-27	3-4 5-6	Loose, gray SILT, trace Sand		25'	SILT	
30-32	24/20	30-32	6-8 8-10	Medium dense, gray SILT, trace Sand		30'		
35-37	24/24	35-37	4-7 9-9	Medium dense, gray, fine SAND, some SILT		35'	SAND	
40-42	24/21	40-42	6-11 13-15	Medium dense, gray, fine SAND, some SILT		40'		
45-47	24/24	45-47	2-2 5-7	Loose, gray SILT, trace Sand		45'		
50-52	24/16	50-52	3-5 7-11	Medium dense, gray SILT, trace Sand		50'		
55-57	24/24	55-57	2-3 4-7	Loose, gray SILT, trace Sand		55'	SILT	
60-62	24/21	60-62	4-3 4-9	Loose, gray SILT, trace Sand		60'		
65-67	24/24	65-67	9-11 12-12	Medium dense, gray SILT, trace Sand		65'		
70-72	24/24	70-72	1-1 5-9	Loose, gray SILT, trace Sand		70'		
73-75	24/16	73-75	1-1 4-12	Loose, gray SILT, trace Sand		73'		

Bottom of Boring at 75'

GRANULAR SOILS		COHESIVE SOILS	
BloWS/ Ft Density		BloWS/ Ft Density	
0-4 V. LOOSE < 2	V. SOFT	0-4 V. LOOSE < 2	V. SOFT
4-10 LOOSE 2-4	SOFT	4-10 LOOSE 2-4	SOFT
10-30 M. DENSE 4-8	M. STIFF	10-30 M. DENSE 4-8	M. STIFF
30-50 DENSE 8-15	STIFF	30-50 DENSE 8-15	STIFF
> 50 V. DENSE 15-30	V. STIFF	> 50 V. DENSE 15-30	V. STIFF
	HARD		HARD

REMARKS:  
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

GZA BORING No. SB-38

GZA DRILLING, INC.			PROJECT			REPORT OF BORING No.		
1215 W. CHESTNUT ST., BROCKTON, MA 02301 (A DIVISION OF GZA GEOTECHNICAL, INC.)			Providence Bike Path Providence, Rhode Island			HB41 SHEET 1 OF 1 FILE No. 41711B CHKD. BY		
FOREMAN: PAUL WORDELL CLASSIFIED BY: JOHN O'MARA INSPECTOR:			BORING LOCATION GROUND SURFACE ELEVATION 39.48 DATE START 9/6/02			DATUM DATE END 9/6/02		
SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.			GROUNDWATER READINGS					
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.			DATE			TIME		
CASING SIZE: OTHER H.S.A.			9/6/02			4:2		
DEPTH (ft)	PEN/REC	DEPTH (ft)	BLOWS/6"	SAMPLE DESCRIPTION		STRATUM DESCRIPTION		
				BURMISTER CLASSIFICATION	DESCRIPTION	BURMISTER CLASSIFICATION	DESCRIPTION	
0-2	24/21	0-2	3-8 10-10	Medium dense, brown SILT, some fine Sand, little Gravel, trace Fibers		0'		
5-7	24/14	5-7	1-1 3-4	Very loose, brown SILT, trace fine Sand		5'	PEAT	
8-10	24/6	8-10	13-16 16-21	Dense, brown SAND and GRAVEL, trace SILT		8'	SAND AND GRAVEL	
Bottom of Boring at 10'								

GRANULAR SOILS		COHESIVE SOILS	
BloWS/ Ft Density		BloWS/ Ft Density	
0-4 V. LOOSE < 2	V. SOFT	0-4 V. LOOSE < 2	V. SOFT
4-10 LOOSE 2-4	SOFT	4-10 LOOSE 2-4	SOFT
10-30 M. DENSE 4-8	M. STIFF	10-30 M. DENSE 4-8	M. STIFF
30-50 DENSE 8-15	STIFF	30-50 DENSE 8-15	STIFF
> 50 V. DENSE 15-30	V. STIFF	> 50 V. DENSE 15-30	V. STIFF
	HARD		HARD

REMARKS:  
1. 4' to 7' Peat.

GZA BORING No. HB41

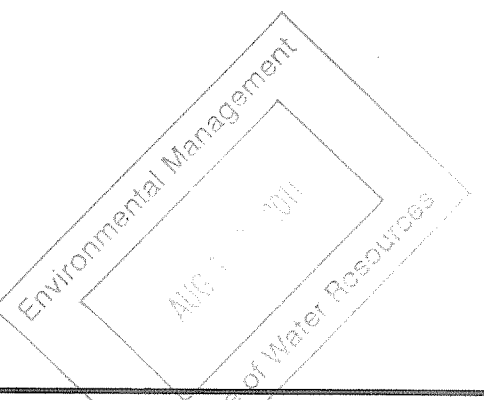
ABUT. NO. 1  
BOTT. OF FTG.  
EL. 34.00

ABUT. NO. 1  
BOTT. OF FTG.  
EL. 34.00

**NOTES:**

- LOCATION OF BORINGS SHOWN ON THE PLAN ON BRIDGE SHEET 1 THUS: SB-1
- BORINGS ARE TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY. BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- FIGURES IN COLUMNS (BLOWS PER 6 INCHES) INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 2 INCH O.D. SPLIT SPOON SAMPLER 6 INCHES WITH A 140 POUND MASS FREE-FALLING 30 INCHES.
- ALL BORINGS WERE MADE IN SEPTEMBER 2002.
- BORINGS WERE MADE BY:  
GZA DRILLING, INC.  
1215 W. CHESTNUT STREET  
BROCKTON, MA 02301
- THE NORTH AMERICAN VERICAL DAUM (NAVD) OF 1988 IS USED THROUGHOUT.

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 OCT 31 2011 FILE # 11-2037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Curry*

REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION

BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY

PROVIDENCE, RHODE ISLAND

LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
BORING LOGS - PART 1

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

BRIDGE SHT. 12 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

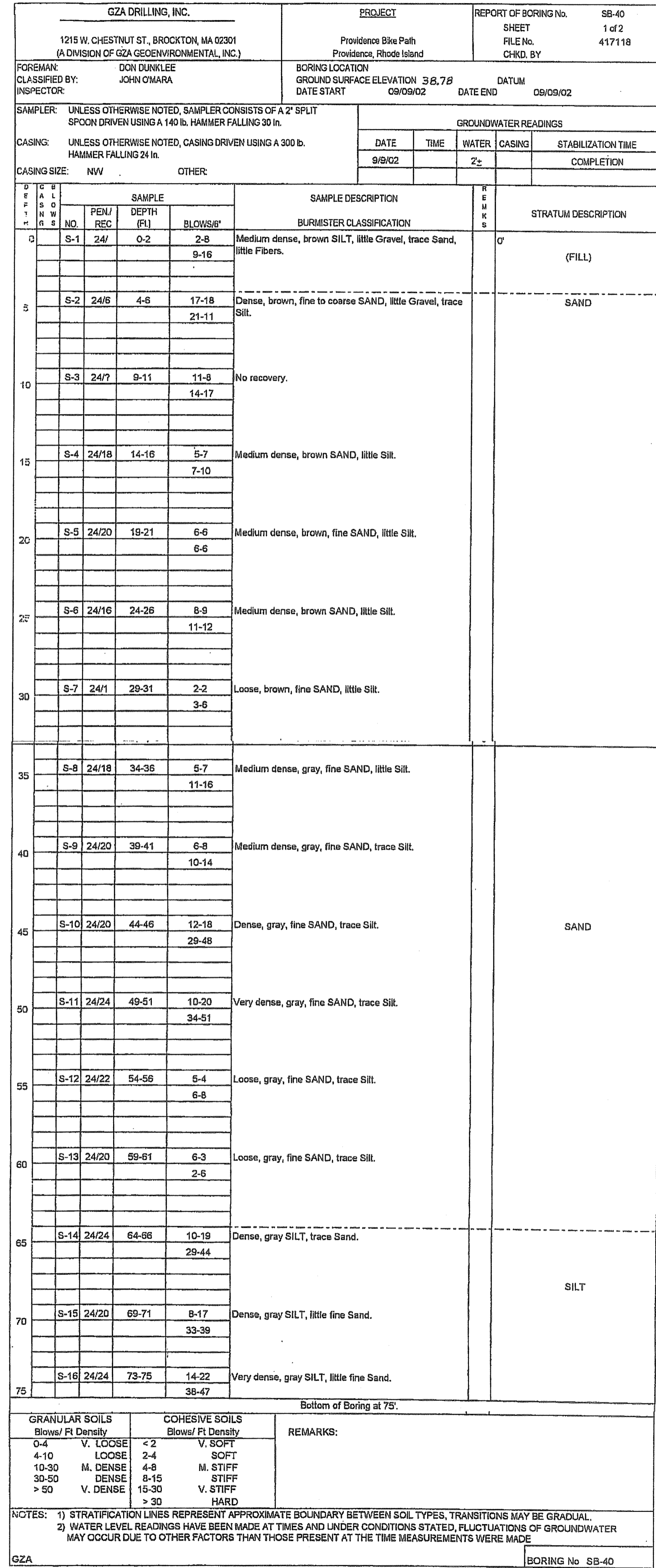
SCALE: 3/16" = 1'-0"

**BORING NO. SB-40**

**BORING NO. SB-39**

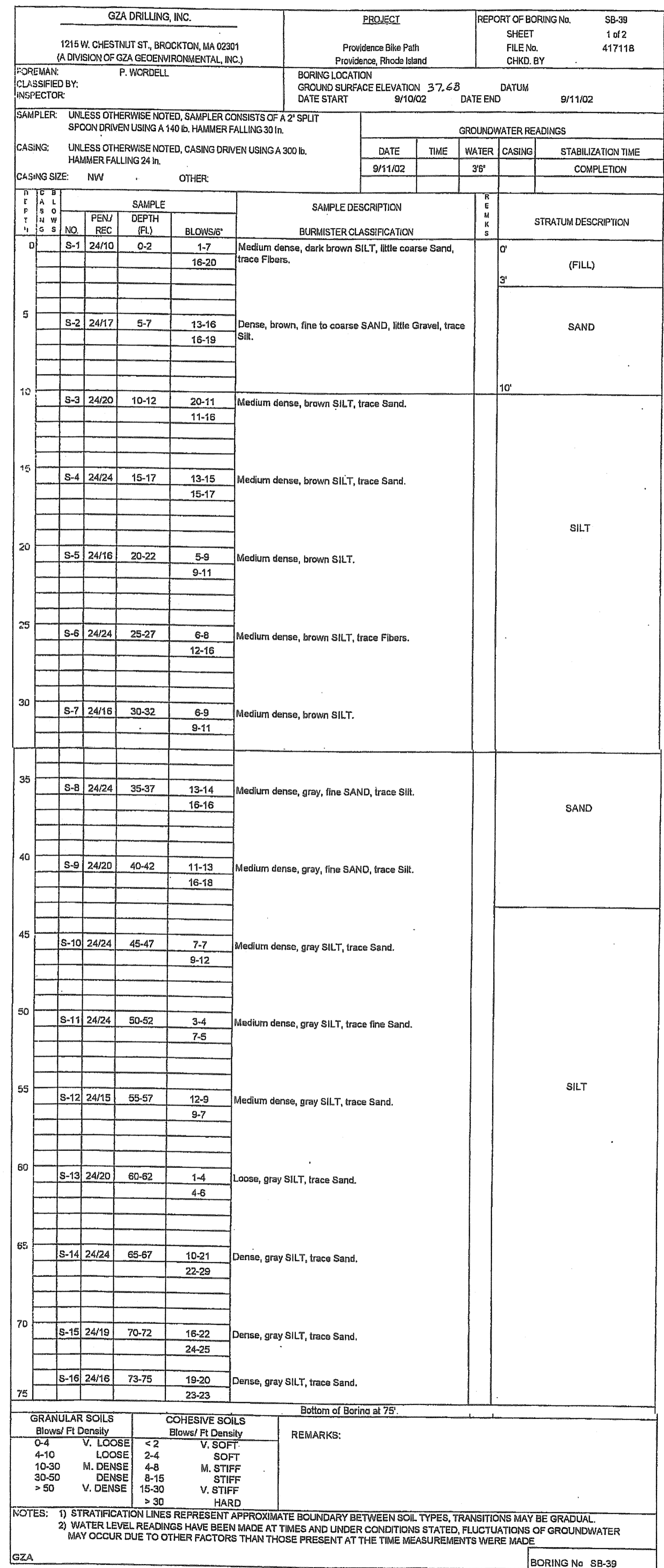
FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			36	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 36 OF 54



ABUT. NO. 2  
BOTT. OF FTG.  
EL. 33.00

SCALE: 3/16" = 1'-0"



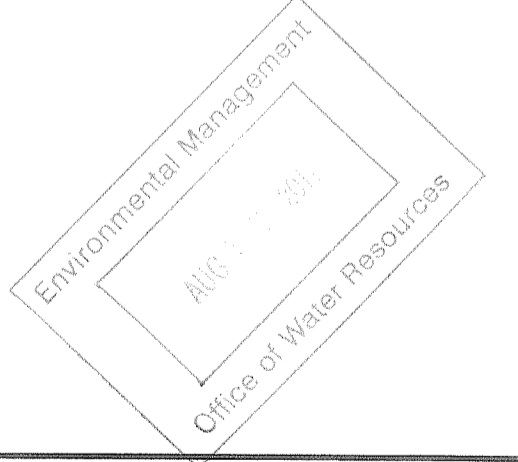
ABUT. NO. 2  
BOTT. OF FTG.  
EL. 33.00

SCALE: 3/16" = 1'-0"

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*Joseph Carney*



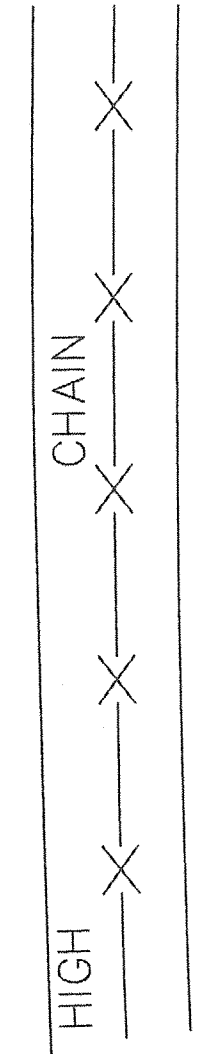
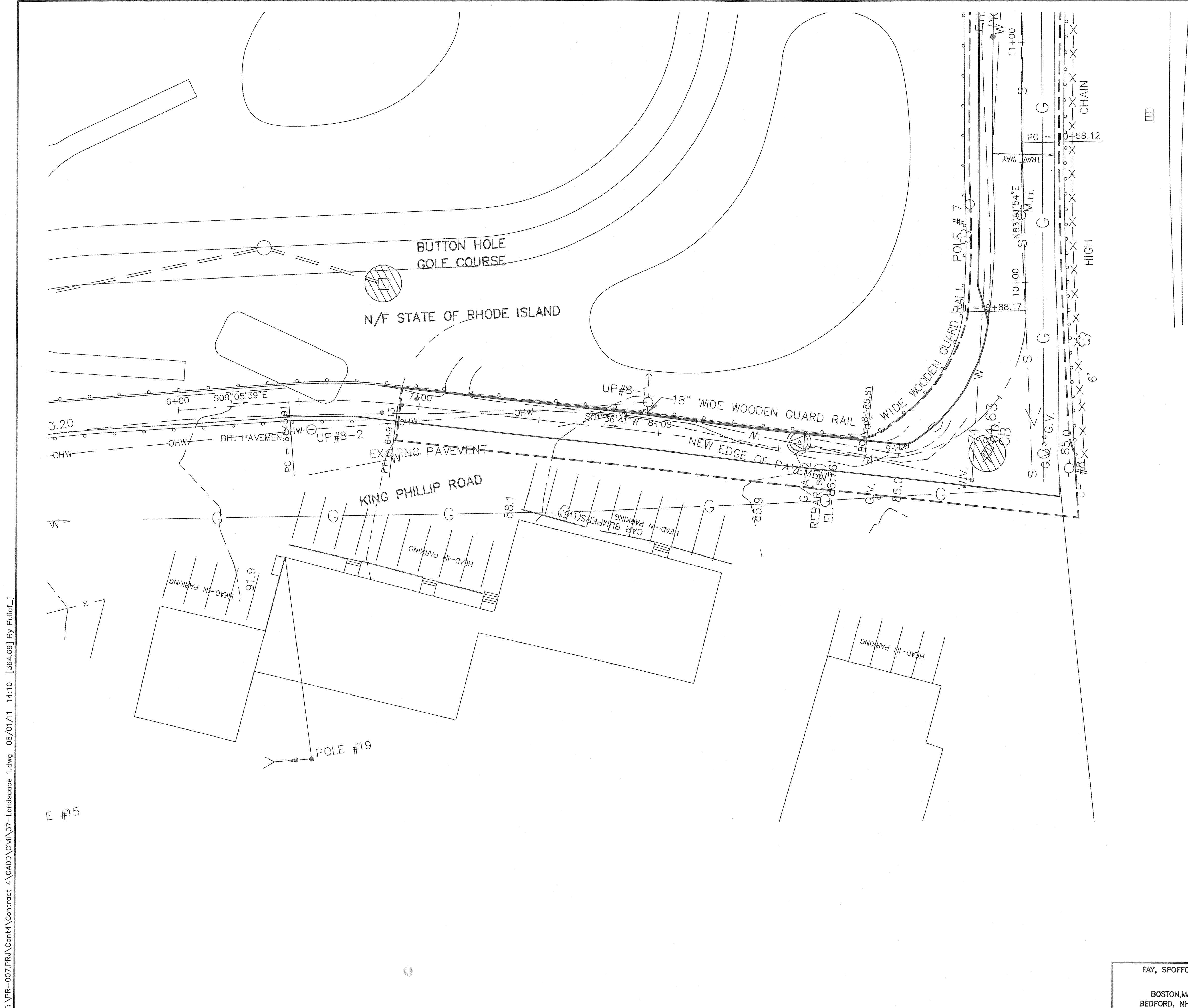
REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND  
  
LINCOLN LACE TAILRACE BRIDGE  
BRIDGE NO. 1066  
BORING LOGS - PART 2  
  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE AS NOTED

BRIDGE SHT. 13 OF 13  
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			37	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 37 OF 54



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

**NO PLANTING THIS SHEET**

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED **OCT 31 2011** FILE # **11-0057**  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Environmental Management  
11/6/11 1:31  
Office of Water Resources

REVISIONS		
NO	DATE	BY

**RHODE ISLAND**  
**DEPARTMENT OF TRANSPORTATION**  
  
**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND

**LANDSCAPE PLAN NO. 1**

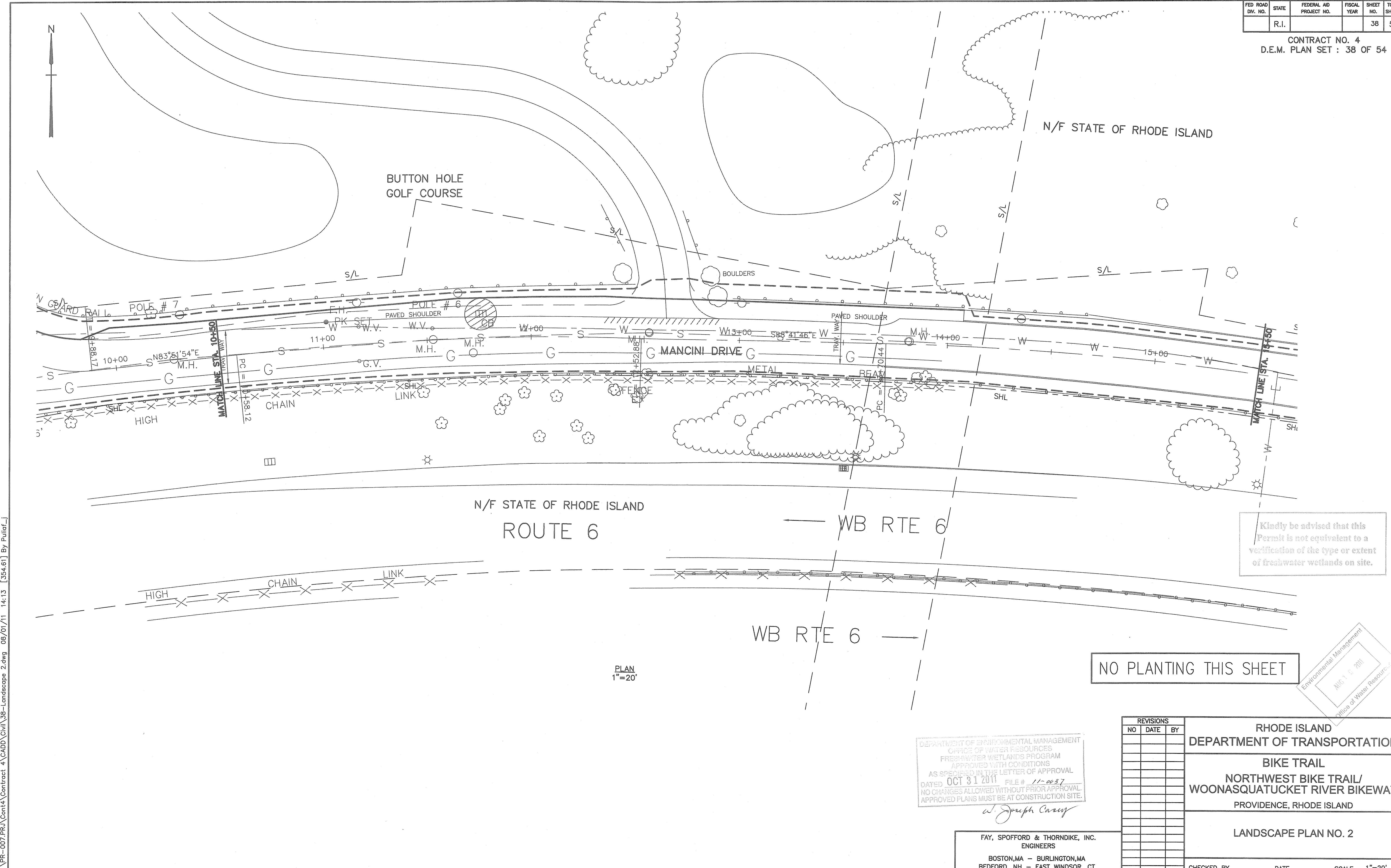
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

T:\PR-007.PRJ\Contract 4\CADD\Civil\37-Landscape 1.dwg 08/01/11 14:10 [364.69] By Puliaf\_j

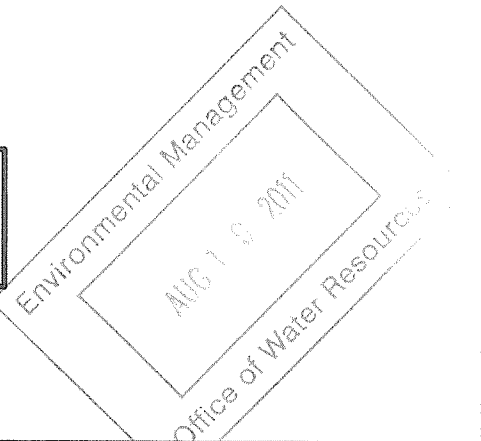
FED ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			38	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 38 OF 54



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

**NO PLANTING THIS SHEET**



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*Joseph Caray*

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

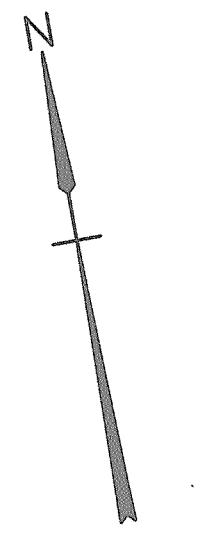
REVISIONS		
NO	DATE	BY

RHODE ISLAND DEPARTMENT OF TRANSPORTATION		
BIKE TRAIL NORTHWEST BIKE TRAIL/ WOONASQUATUCKET RIVER BIKEWAY PROVIDENCE, RHODE ISLAND		
LANDSCAPE PLAN NO. 2		
CHECKED BY _____	DATE _____	SCALE 1"=20'

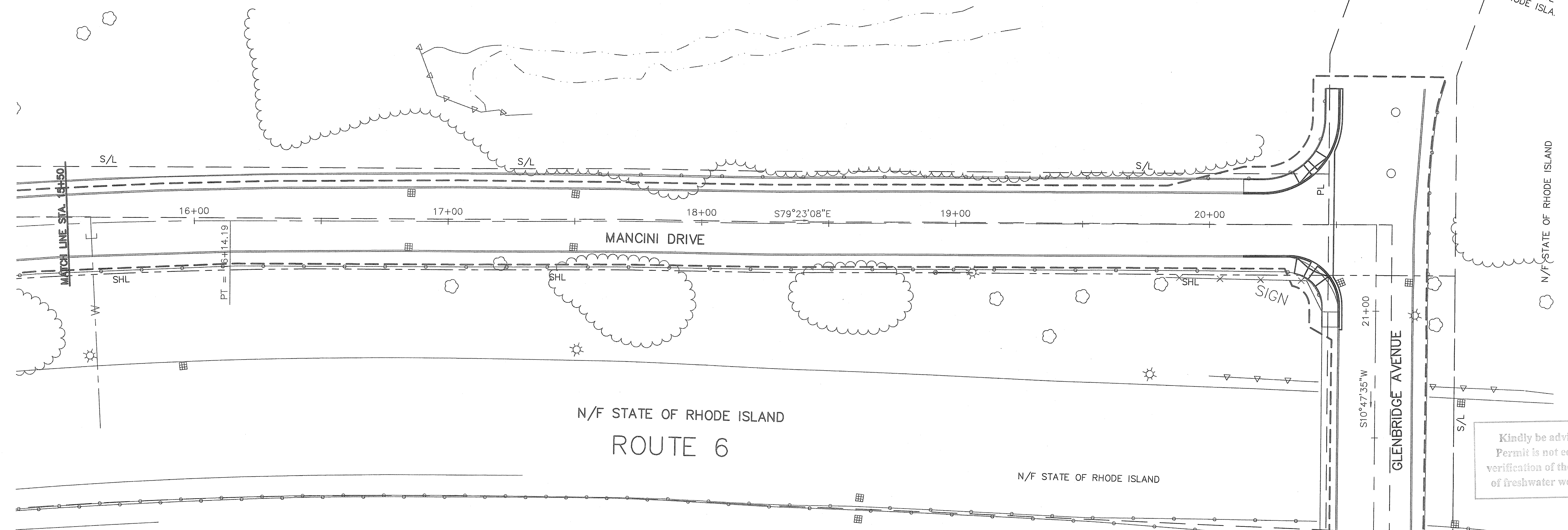
I:\PR-007.PRJ\Cont4\Contract 4\CADD\Civil\38-Landscape 2.dwg 08/01/11 14:13 [354.61] By Puliaf\_j

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			39	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 39 OF 54



N/F STATE OF RHODE ISLAND



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

NO PLANTING THIS SHEET

PLAN  
1"=20'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Curry*

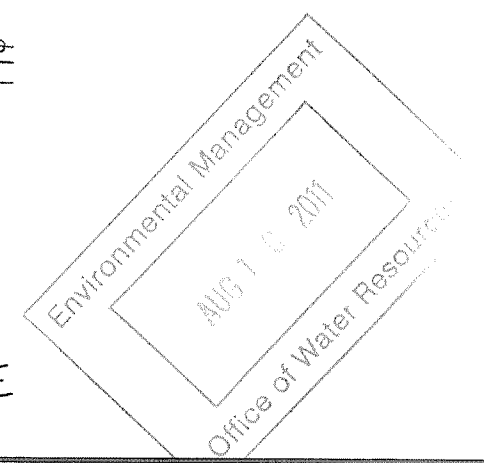
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

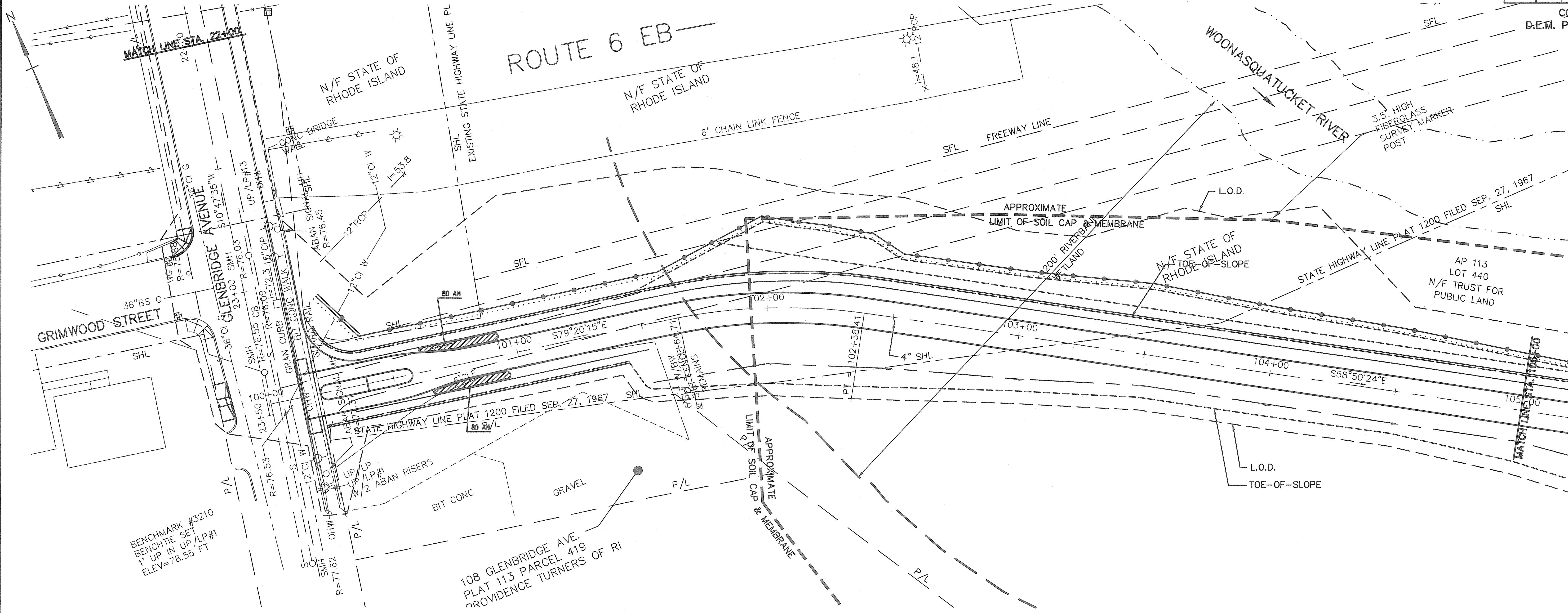
RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LANDSCAPE PLAN NO. 3

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'



T:\PR-007.PRJ\Contract 4\CADD\Civil\39-Landscape 3.dwg 08/01/11 14:16 [347.26] By Puliaf, J



BENCHMARK #3210  
BENCHTIE SET  
1' UP IN UP/LP#1  
ELEV=78.55 FT

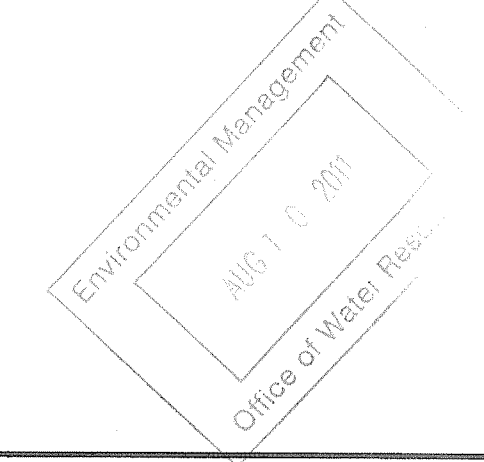
108 GLENBRIDGE AVE.  
PLAT 113 PARCEL 419  
PROVIDENCE TURNERS OF RI

PLAN  
1"=20'

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Caray*



**PLANT LIST**

QTY. SYM.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
160 AN	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	#1 CONTAINER	CONTAINER	12" O.C.

**LANDSCAPE NOTES:**

1. ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (RECOGNIZED LICENSED GROWER OF THE PLANT MATERIAL) IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS. ALL PLANT MATERIAL MUST BE NURSERY GROWN AND NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
2. ALL PLANT MATERIAL SUBSTITUTIONS AND/OR CHANGES IN PLANT LOCATIONS MUST BE APPROVED IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
3. ALL PLANT MATERIAL SHALL BE FIELD LOCATED IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
4. ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
5. ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
6. SEE LANDSCAPE PLAN SEE SHEET 45 FOR TOTAL PLANT LIST.

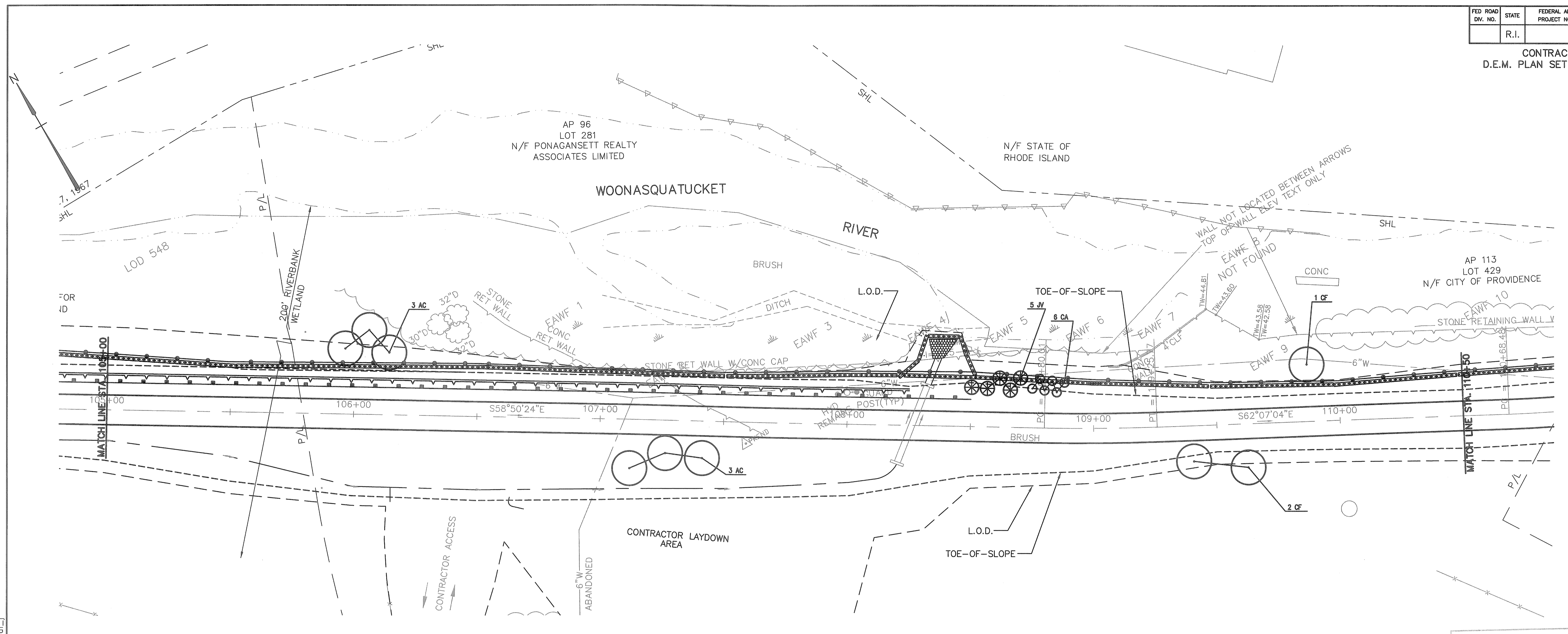
REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATTUCK RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LANDSCAPE PLAN NO. 4

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

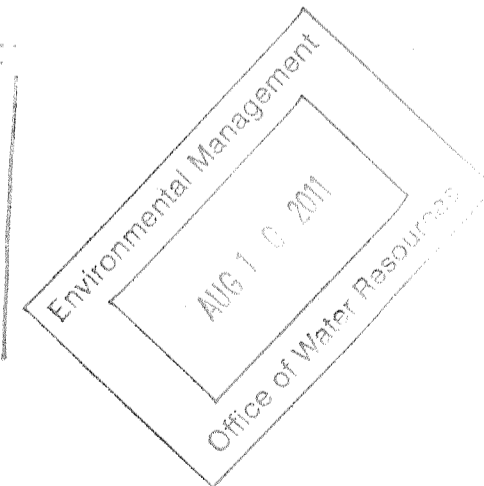


PLAN  
1"=20'

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 OCT 31 2011 FILE # 11-0087  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Jonathan Carey*



**PLANT LIST**

QTY.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
TREES						
6	AC	AMALANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	6-7'	B&B	AS SHOWN
3	CF	CORNUS FLORIDA "CHEROKEE PRINCESS"	CHEROKEE PRINCESS FLOWERING DOGWOOD	1 1/2-2" CAL.	B&B	AS SHOWN
5	JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	5-6'	B&B	AS SHOWN
SHRUBS						
6	CA	CLETHRA ALNIFOLIA	AMERICAN SYCAMORE	3-3 1/2'	CONTAINER	5' O.C.

**LANDSCAPE NOTES:**

- ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (RECOGNIZED LICENSED GROWER OF THE PLANT MATERIAL) IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS. ALL PLANT MATERIAL MUST BE NURSERY GROWN AND NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
- ALL PLANT MATERIAL SUBSTITUTIONS AND/OR CHANGES IN PLANT LOCATIONS MUST BE APPROVED IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
- ALL PLANT MATERIAL SHALL BE FIELD LOCATED IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
- ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
- ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
- SEE LANDSCAPE PLAN SEE SHEET 45 FOR TOTAL PLANT LIST.

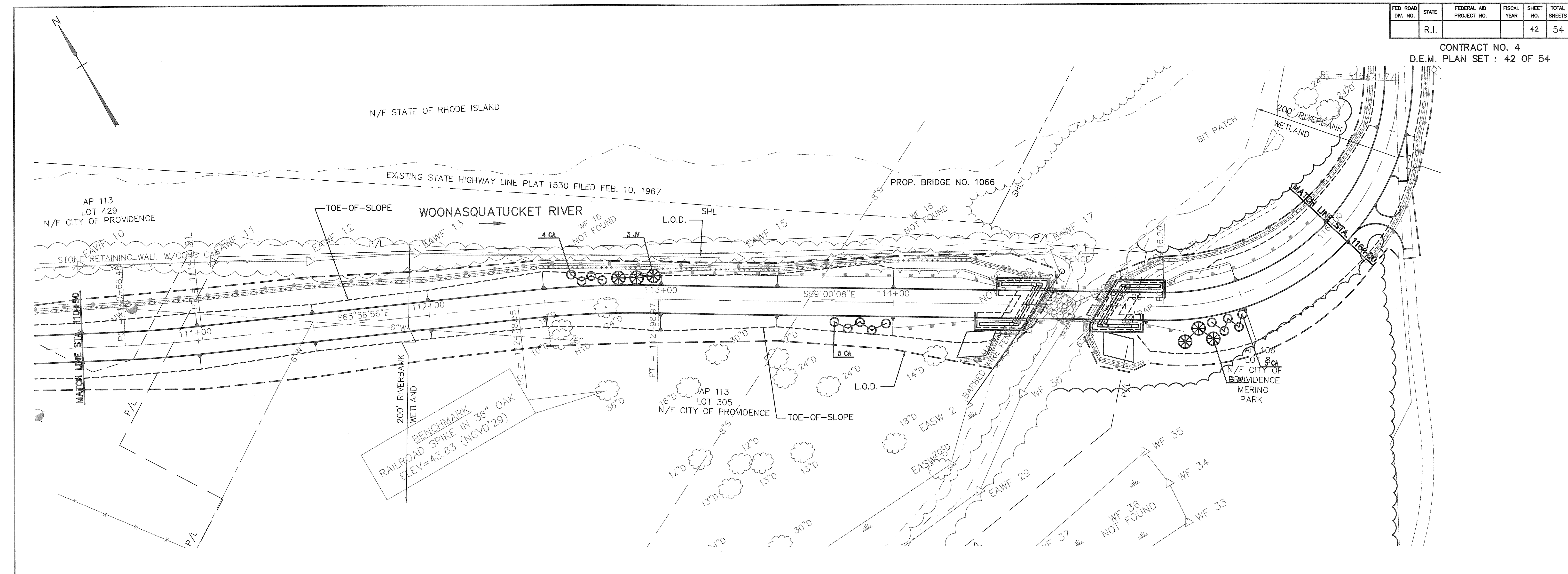
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
**BIKE TRAIL**  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LANDSCAPE PLAN NO. 5

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'



PLAN  
1"=20'

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

Environmental Management  
Aug 1 10 2011  
Office of Water Resources

**PLANT LIST**

QTY.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
<b>TREES</b>						
6	JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	5-6'	B&B	AS SHOWN
<b>SHRUBS</b>						
14	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	3-3 1/2'	CONTAINER	5' O.C.

**LANDSCAPE NOTES:**

- ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (RECOGNIZED LICENSED GROWER OF THE PLANT MATERIAL) IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS. ALL PLANT MATERIAL MUST BE NURSERY GROWN AND NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
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- ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
- SEE LANDSCAPE PLAN SEE SHEET 45 FOR TOTAL PLANT LIST.

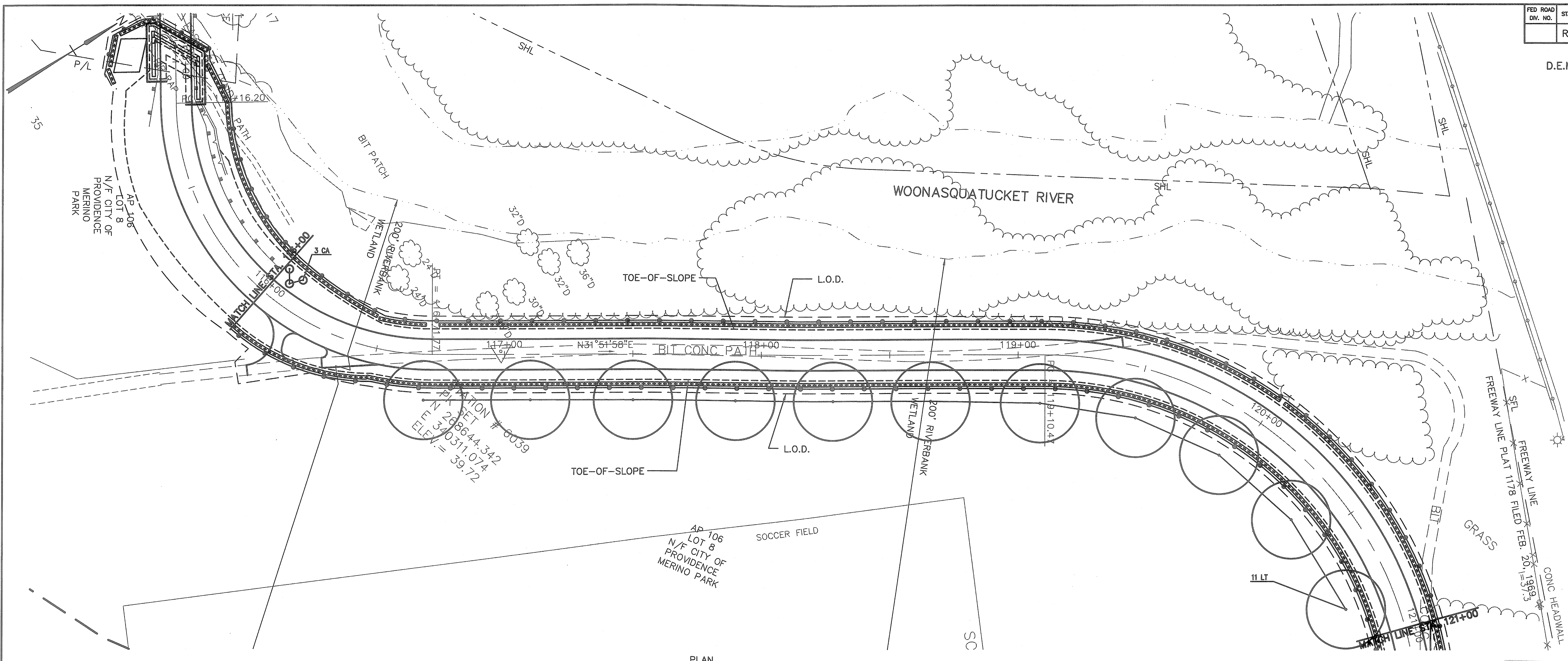
REVISIONS		
NO	DATE	BY

RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION  
BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATTUCKET RIVER BIKEWAY  
PROVIDENCE, RHODE ISLAND

LANDSCAPE PLAN NO. 6  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

T:\PR-007.PRJ\Cont4\Contract 4\CADD\Civil\42-Landscape 6.dwg 08/02/11 10:08 [356.73] By Puliaf\_j

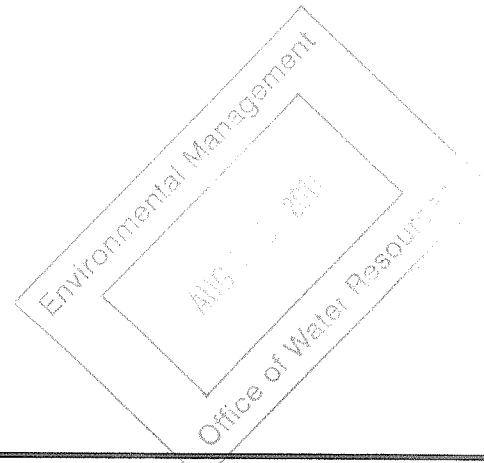


PLAN  
1"=20'

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 OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*



**PLANT LIST**

QTY.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING
<b>TREES</b>						
11	LT	LIRIODENDRON TULPIFERA	TULIP TREE	2 1/2 - 3"	B&B	AS SHOWN
<b>SHRUBS</b>						
3	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	3 - 3 1/2'	CONTAINER	5' O.C.

**LANDSCAPE NOTES:**

1. ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (RECOGNIZED LICENSED GROWER OF THE PLANT MATERIAL) IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS. ALL PLANT MATERIAL MUST BE NURSERY GROWN AND NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
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3. ALL PLANT MATERIAL SHALL BE FIELD LOCATED IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
4. ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH RI STANDARD SPECIFICATIONS.
5. ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
6. SEE LANDSCAPE PLAN SEE SHEET 45 FOR TOTAL PLANT LIST.

REVISIONS		
NO	DATE	BY

**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL**

**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

LANDSCAPE PLAN NO. 7

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS

BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=20'

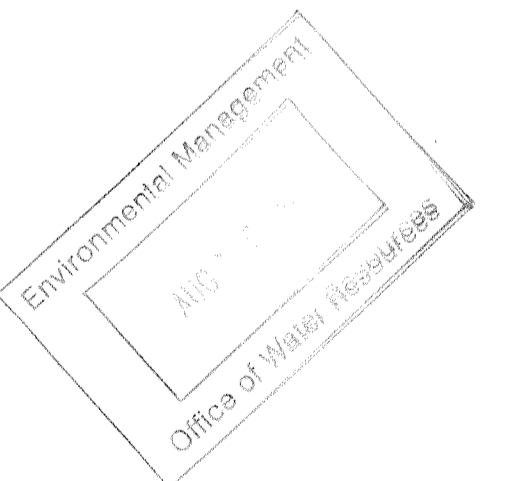


### PLANTING MATERIAL QUANTITIES

QTY.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION	SPACING
TREES						
6	AC	Amalanchier Canadensis	Shadblow Serviceberry	6-7'	B&B	As Shown
18	LT	Liriodendron Tulipifera	Tulip Tree	2 1/2-3" Cal.	B&B	As Shown
3	CF	Cornus Florida "Cherokee Princess"	Cherokee Princess Flowering Dogwood	1 1/2-2" Cal.	B&B	As Shown
11	JV	Juniperus Virginiana	Eastern Red Cedar	5-6'	B&B	As Shown
SHRUBS						
160	AN	Aster novae-angliae	New England Aster	#1 Container	Container	12" O.C.
23	CA	Clethra Alnifolia	American Sycamore	3-3 1/2'	Container	5' O.C.

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 **Oct 31 2011** FILE # **11-0037**  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.



*J. Joseph Casey*

REVISIONS		
NO	DATE	BY

**RHODE ISLAND  
DEPARTMENT OF TRANSPORTATION**

**BIKE TRAIL  
NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

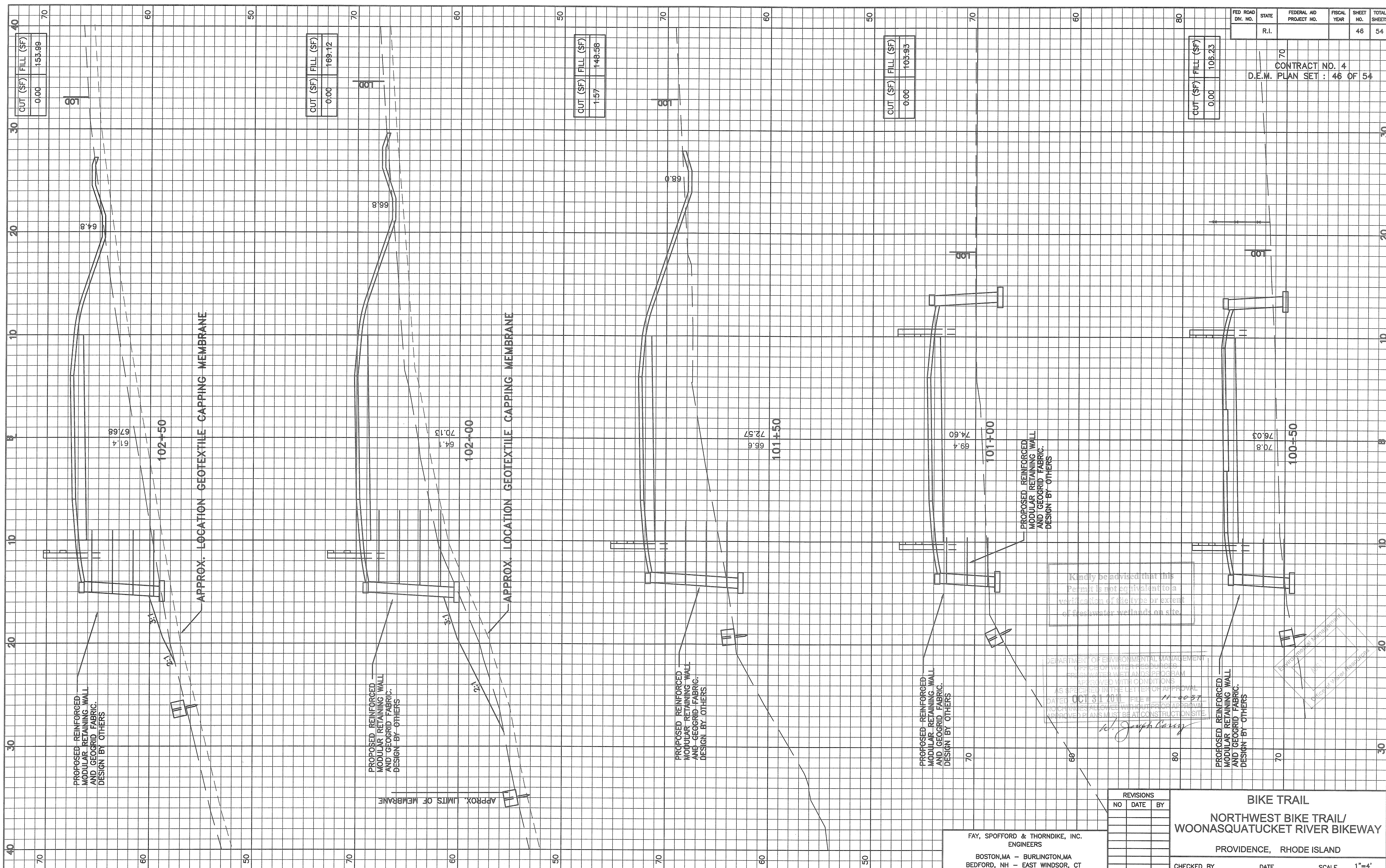
FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

**PLANT LIST**

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE \_\_\_\_\_

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			46	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 46 OF 54



CUT (\$F)	FILL (\$F)
0.00	153.90

CUT (\$F)	FILL (\$F)
0.00	169.12

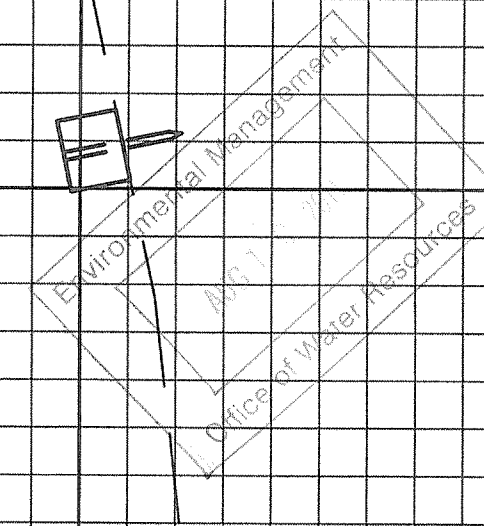
CUT (\$F)	FILL (\$F)
1.57	148.38

CUT (\$F)	FILL (\$F)
0.00	105.93

CUT (\$F)	FILL (\$F)
0.00	106.23

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 REGULATION  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
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DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
*W. Joseph Curry*



NO	DATE	BY

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

44  
 R.I.  
 22  
 BORING

CUT (SF)	FILL (SF)
0.00	115.74

Kindly be advised that this borings are 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 REQUIRED IN THE LETTER OF APPROVAL  
 DATED OCT 31 2011 FILE # 11-0037  
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE

*W. Joseph Conroy*

REVISIONS		
NO	DATE	BY

**BIKE TRAIL**

**NORTHWEST BIKE TRAIL/  
 WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

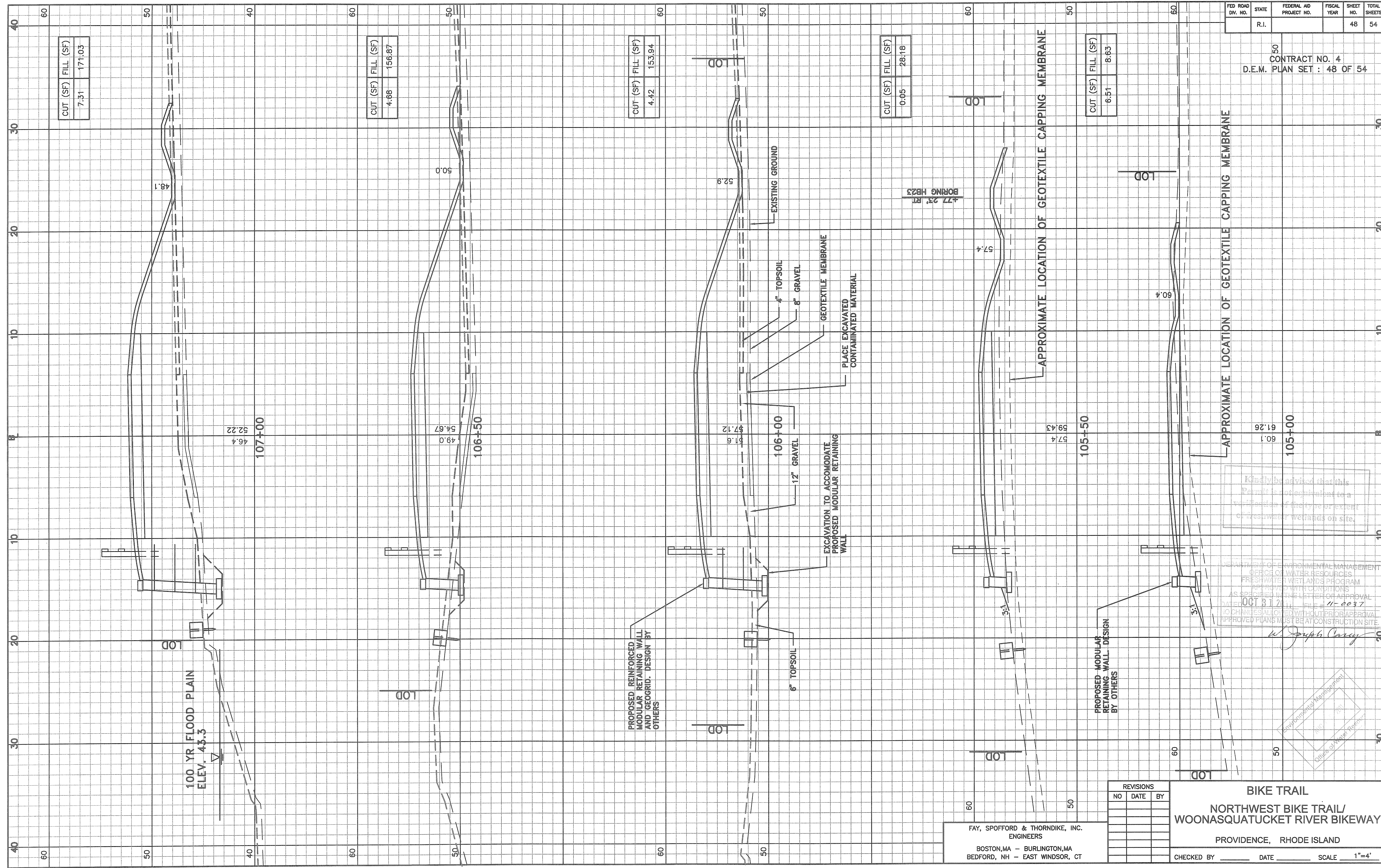
FAY, SPOFFORD & THORNDIKE, INC.  
 ENGINEERS  
 BOSTON, MA - BURLINGTON, MA  
 BEDFORD, NH - EAST WINDSOR, CT



CUT (SF)	FILL (SF)
0.35	34.02

CUT (SF)	FILL (SF)
0.16	41.17

CUT (SF)	FILL (SF)
0.33	49.87



CUT (SF)	FILL (SF)
7.31	171.03

CUT (SF)	FILL (SF)
4.98	156.87

CUT (SF)	FILL (SF)
4.42	153.94

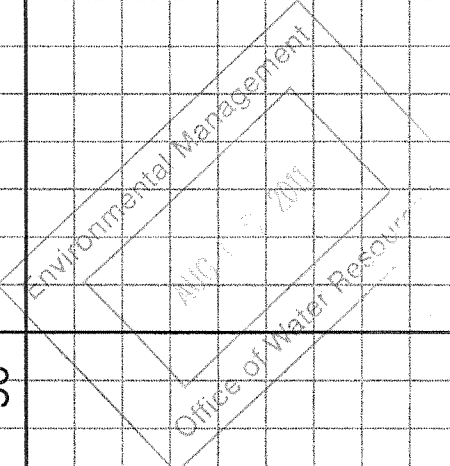
CUT (SF)	FILL (SF)
0.05	28.18

CUT (SF)	FILL (SF)
6.51	8.53

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 WITH LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carey*



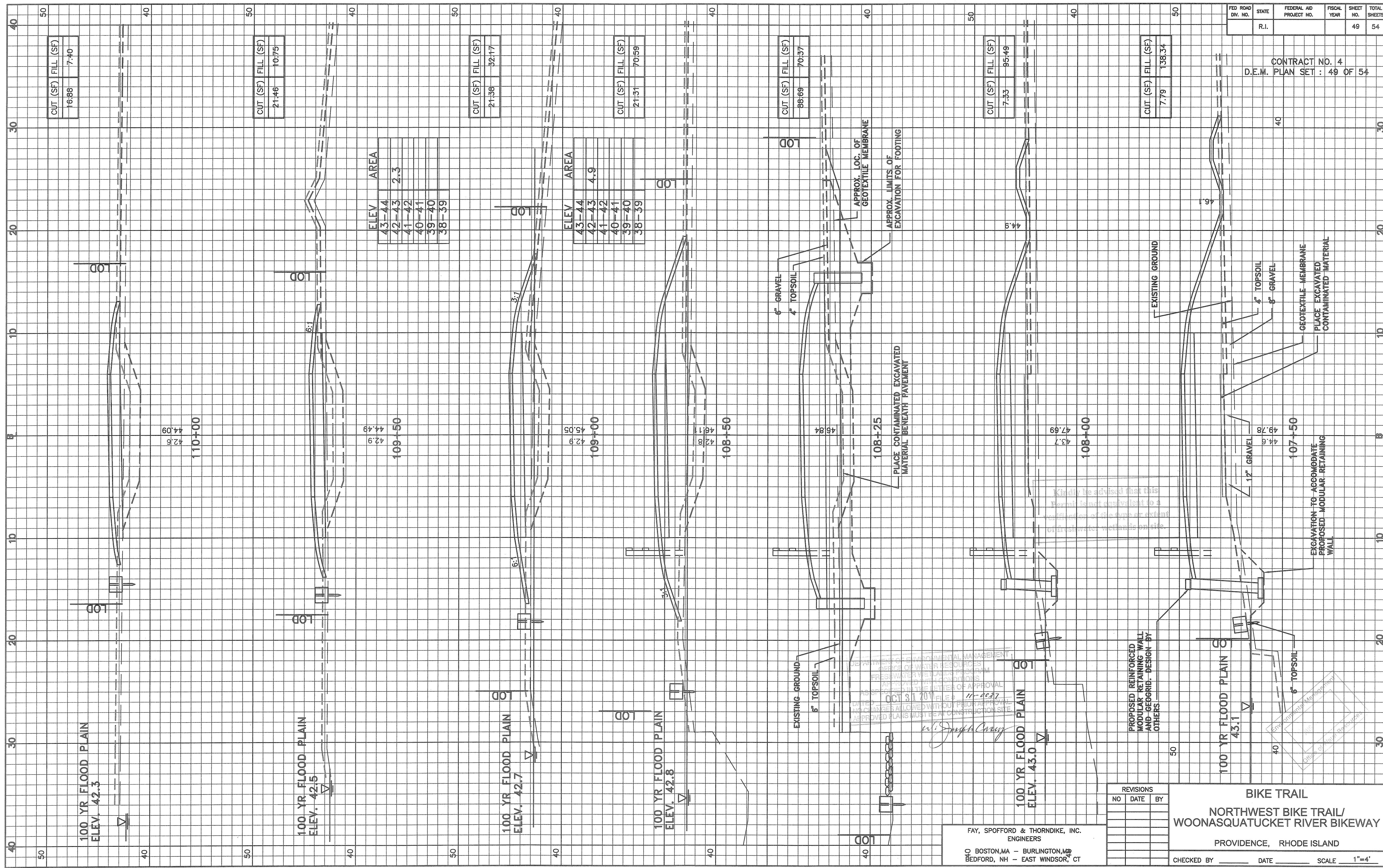
**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/**  
**WOONASQUATUCKET RIVER BIKEWAY**

PROVIDENCE, RHODE ISLAND

CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY



CUT (SF)	FILL (SF)
16.88	7.40

CUT (SF)	FILL (SF)
21.46	10.75

CUT (SF)	FILL (SF)
21.38	32.17

CUT (SF)	FILL (SF)
21.31	70.58

CUT (SF)	FILL (SF)
88.69	70.37

CUT (SF)	FILL (SF)
7.33	95.48

CUT (SF)	FILL (SF)
7.79	138.34

ELEV	AREA
43-44	
42-43	2.3
41-42	
40-41	
39-40	
38-39	

ELEV	AREA
43-44	
42-43	4.9
41-42	
40-41	
39-40	
38-39	

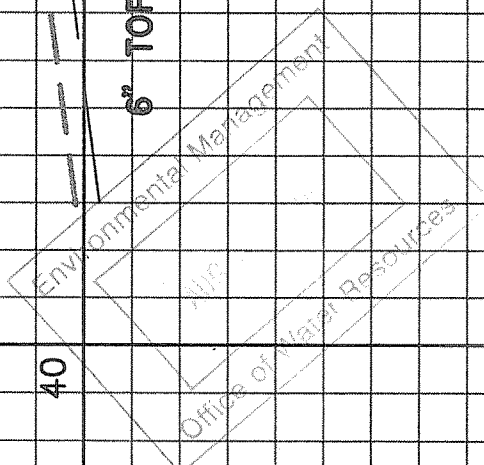
REVISIONS		
NO	DATE	BY

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

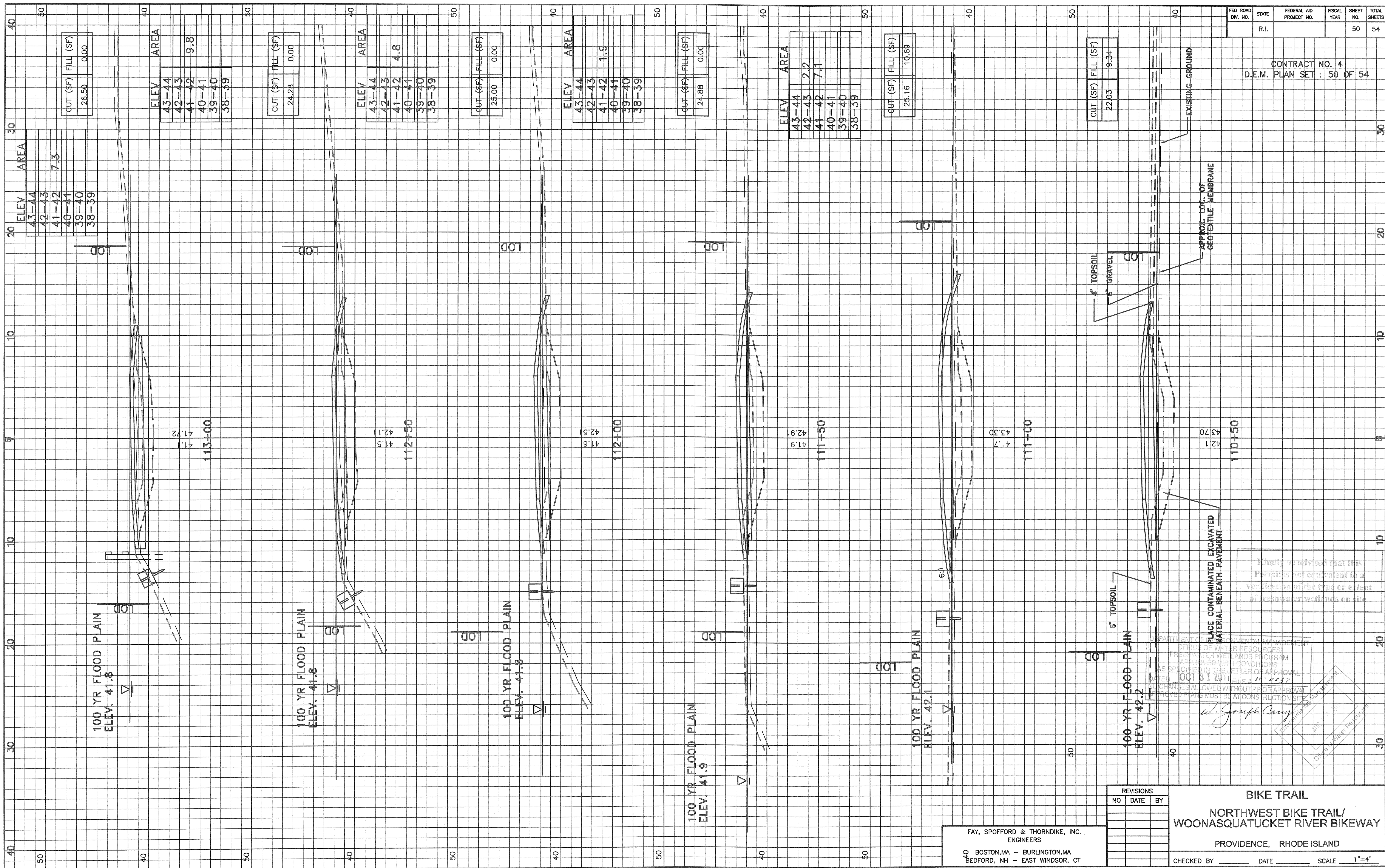
Kindly be advised that this permit is not equivalent to a permit of the type or extent of freshwater wetlands on site.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
FRESHWATER WETLAND RESOURCES  
AS PER 46 CFR 1.2011 ELEV. 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.  
11-0037  
11-0037  
11-0037



FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			50	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 50 OF 54



CUT (\$F)	FILL (\$F)
26.50	0.00

ELEV	AREA
43-44	
42-43	
41-42	9.8
40-41	
39-40	
38-39	

CUT (\$F)	FILL (\$F)
24.28	0.00

ELEV	AREA
43-44	
42-43	
41-42	4.8
40-41	
39-40	
38-39	

CUT (\$F)	FILL (\$F)
25.00	0.00

ELEV	AREA
43-44	
42-43	
41-42	1.9
40-41	
39-40	
38-39	

CUT (\$F)	FILL (\$F)
24.88	0.00

ELEV	AREA
43-44	
42-43	2.2
41-42	7.1
40-41	
39-40	
38-39	

CUT (\$F)	FILL (\$F)
25.16	10.69

CUT (\$F)	FILL (\$F)
22.03	9.34

APPROX. LOC. OF GEOTEXTILE MEMBRANE

PLACE CONTAMINATED EXCAVATED MATERIAL BENEATH PAVEMENT

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

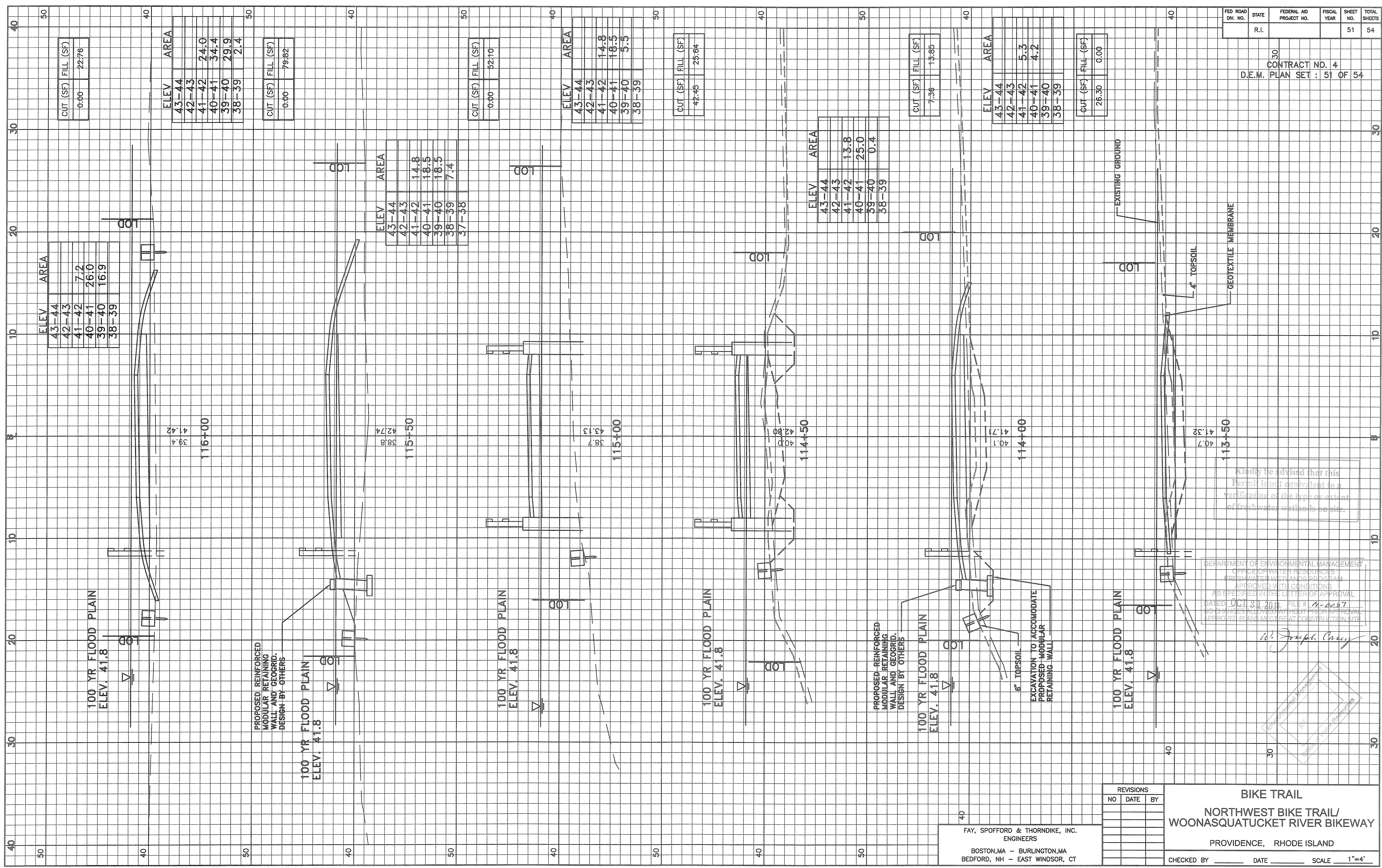
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
ACCEPTANCE OF CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
FILE # 11-0037  
CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
REVISED PLANS MUST BE AT CONSTRUCTION SITE

*W. Joseph Chaffin*  
Division of Water Resources

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
40 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

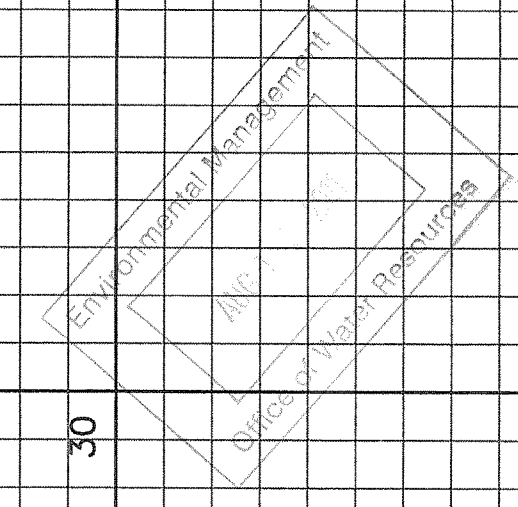
**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'



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  
FRESH WATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 31 2017 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL  
APPROVAL PLANS MUST BE AT CONSTRUCTION SITE

*W. Joseph Conroy*



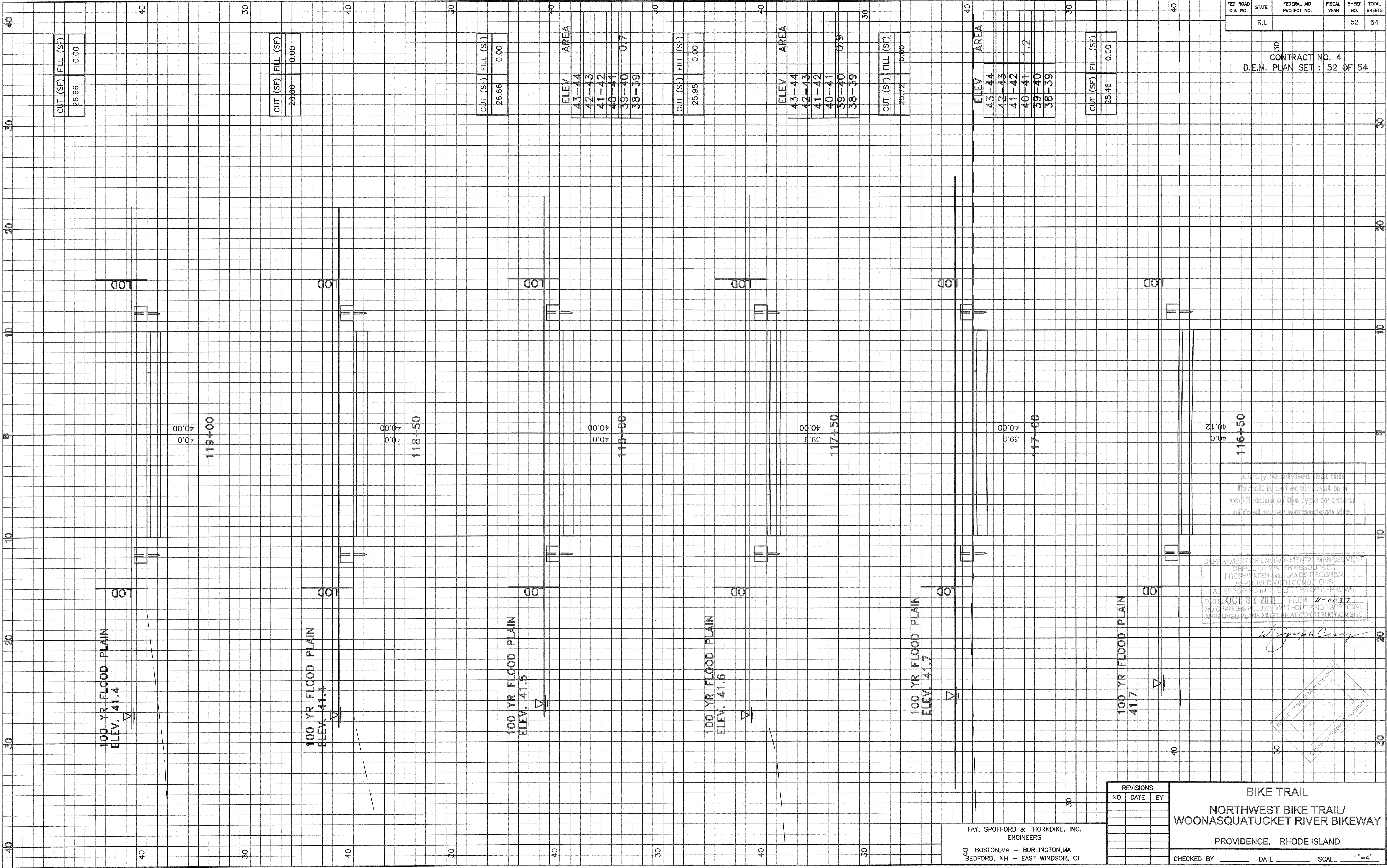
NO	DATE	BY

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			52	54

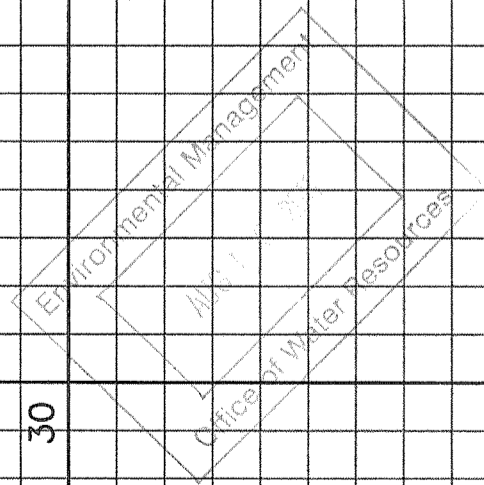
CONTRACT NO. 4  
D.E.M. PLAN SET : 52 OF 54



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 OCT 31 2011 FILE# 11-0037  
NO CHANGES ALLOWED WITHOUT PRE-APPROVAL  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*Joseph Carey*

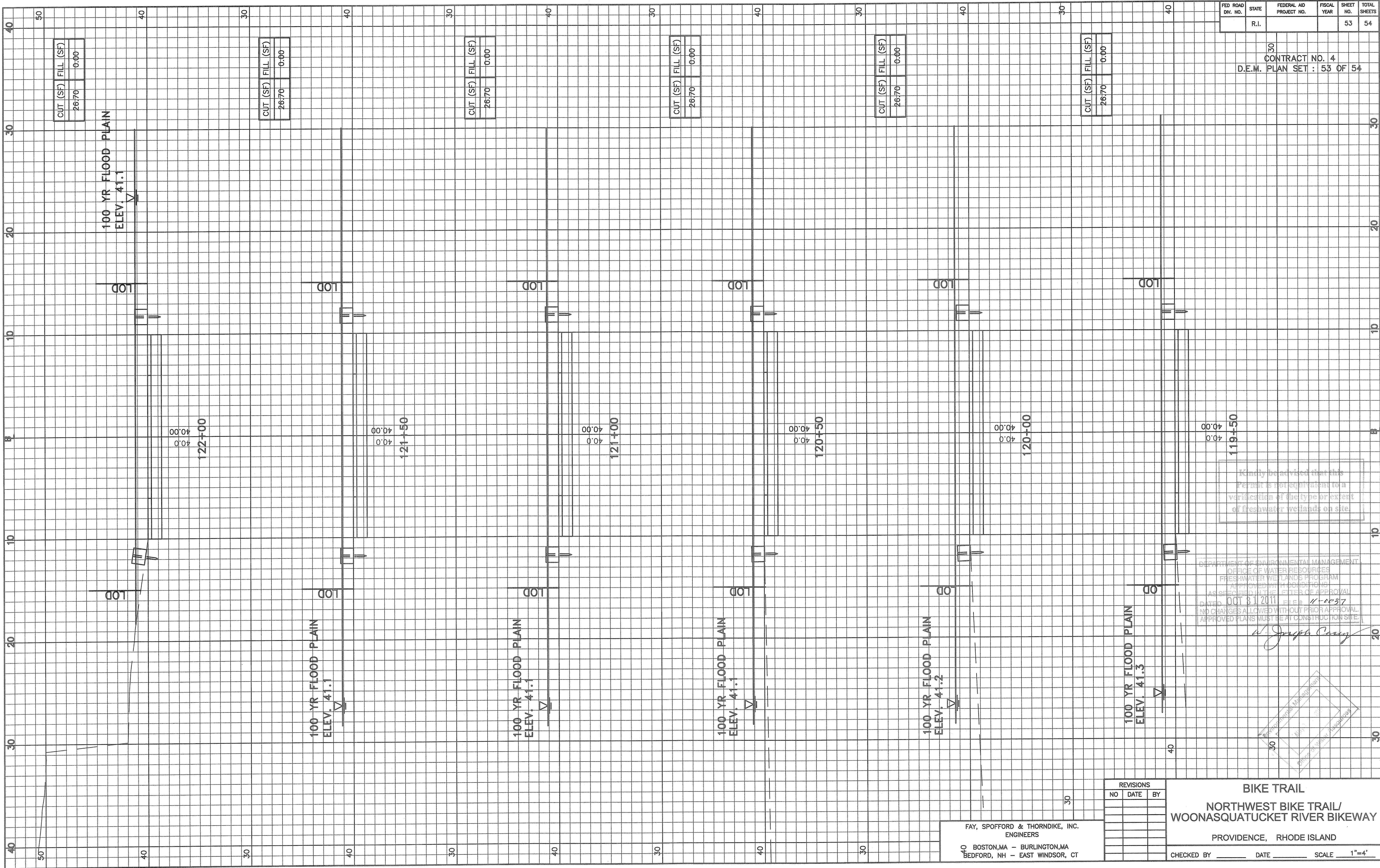


FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
90 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

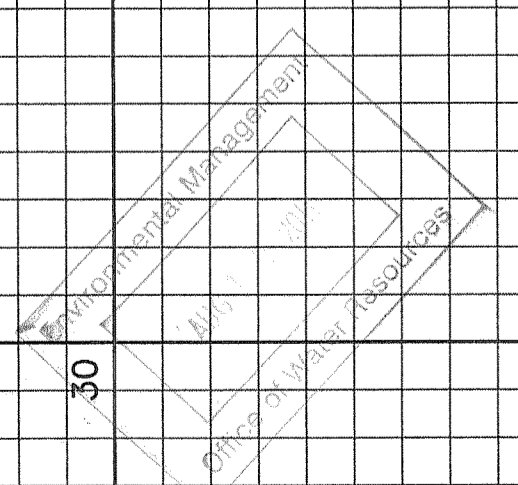
CONTRACT NO. 4  
D.E.M. PLAN SET : 53 OF 54



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  
STATE OF RHODE ISLAND, DIVISION 110-06  
AS SHOWN FIELD IN THE LETTER OF APPROVAL  
DATED OCT 31 2011 FILE # 11-0037  
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL.  
APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*W. Joseph Carney*



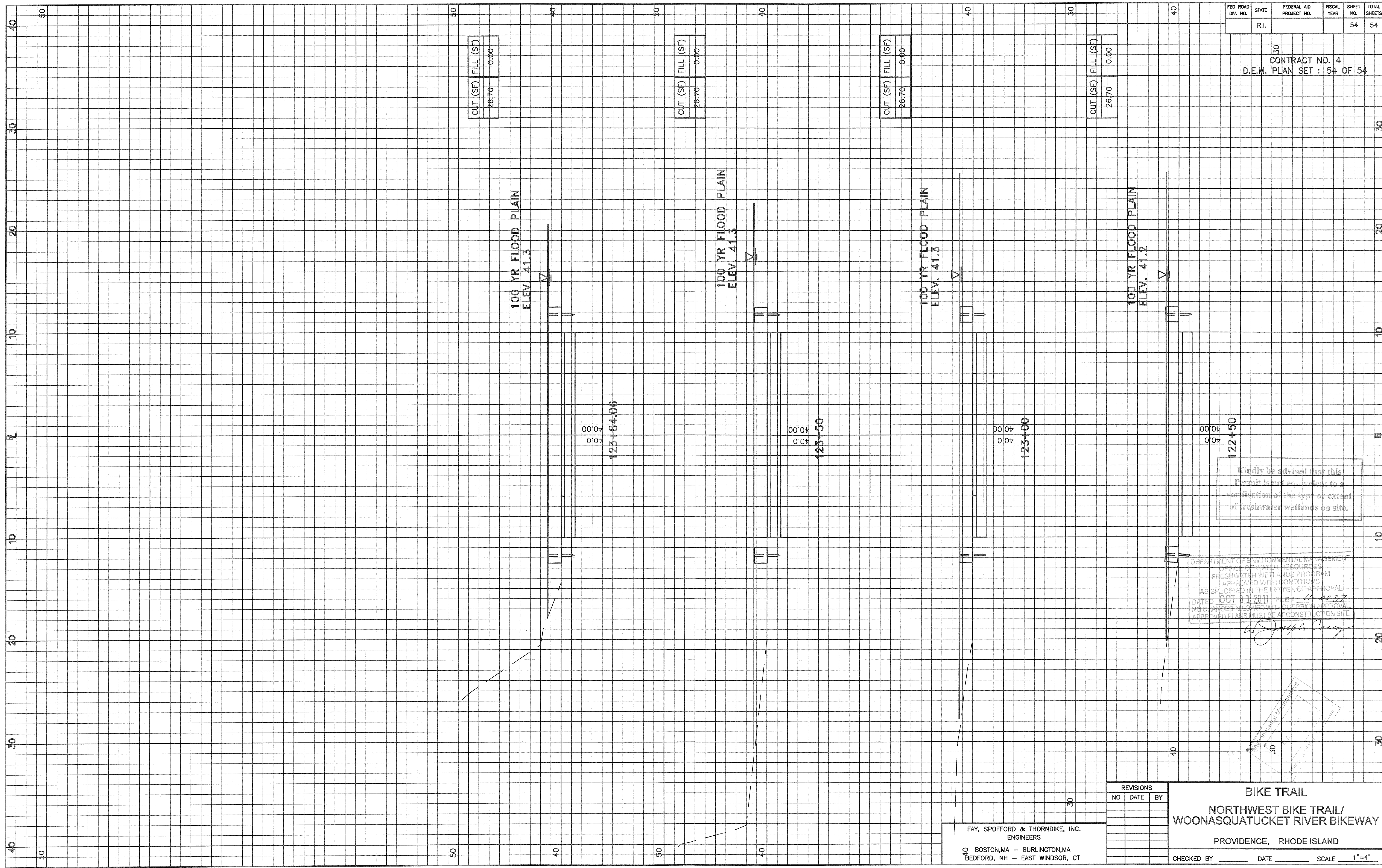
**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'

FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
40 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS	NO	DATE	BY

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	R.I.			54	54

CONTRACT NO. 4  
D.E.M. PLAN SET : 54 OF 54



CUT (SF)	FILL (SF)
26.70	0.00

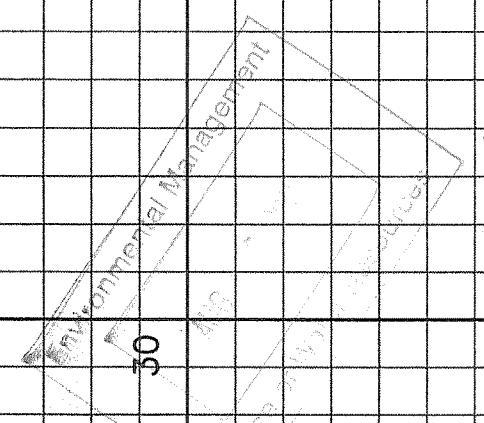
CUT (SF)	FILL (SF)
26.70	0.00

CUT (SF)	FILL (SF)
26.70	0.00

CUT (SF)	FILL (SF)
26.70	0.00

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF WATER RESOURCES  
FRESHWATER WETLANDS PROGRAM  
APPROVED WITH CONDITIONS  
AS SPECIFIED IN THE LETTER OF APPROVAL  
DATED OCT 01 2011 FILE # 11-0037  
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APPROVED PLANS MUST BE AT CONSTRUCTION SITE.

*Joseph Curcio*



FAY, SPOFFORD & THORNDIKE, INC.  
ENGINEERS  
10 BOSTON, MA - BURLINGTON, MA  
BEDFORD, NH - EAST WINDSOR, CT

REVISIONS		
NO	DATE	BY

**BIKE TRAIL**  
**NORTHWEST BIKE TRAIL/  
WOONASQUATUCKET RIVER BIKEWAY**  
PROVIDENCE, RHODE ISLAND  
CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_ SCALE 1"=4'