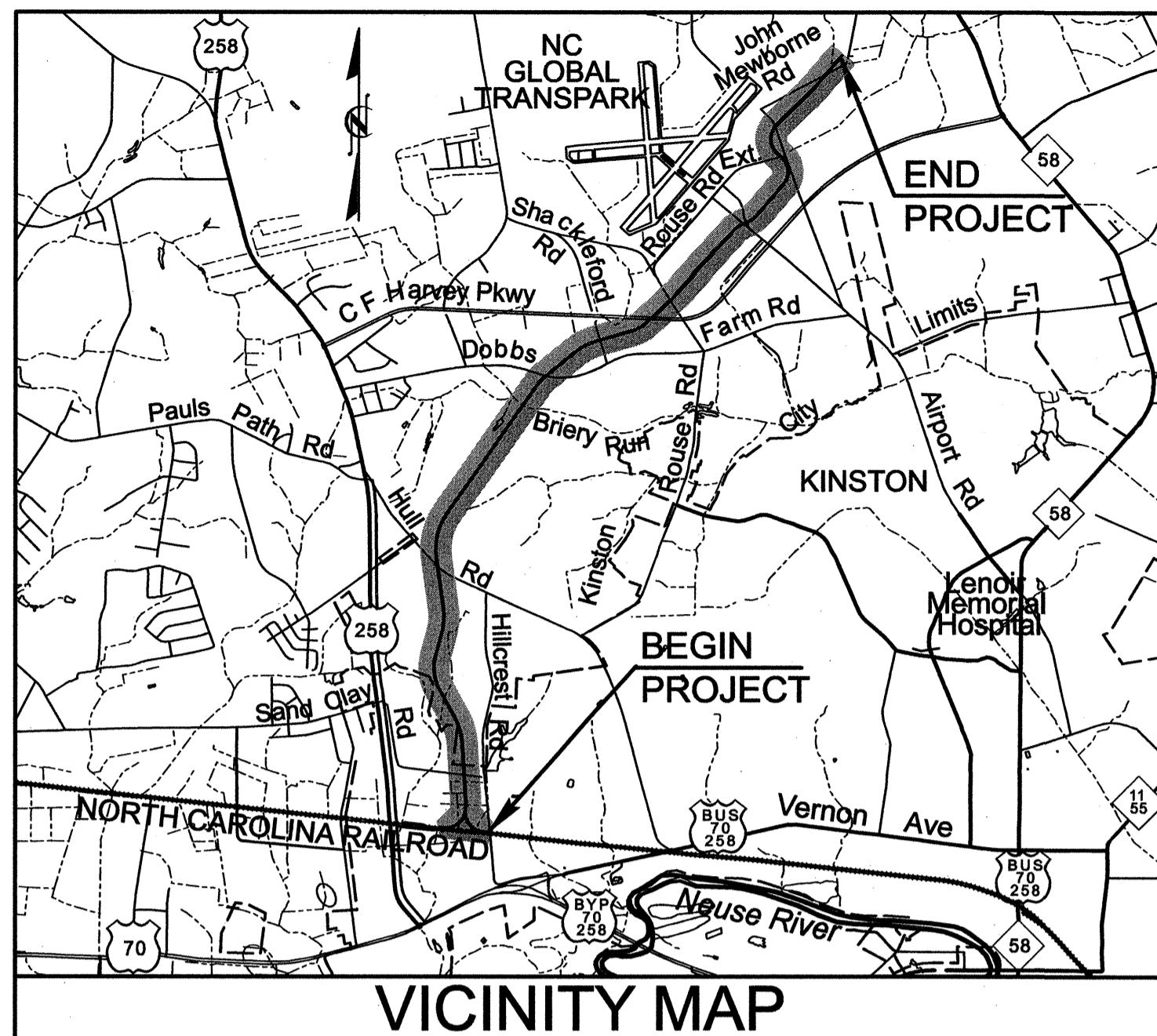


TIP PROJECT: U-2928B

CONTRACT: C202402

See Sheet GN-01 thru GN-09 for Index and Cross-Reference of Sheets



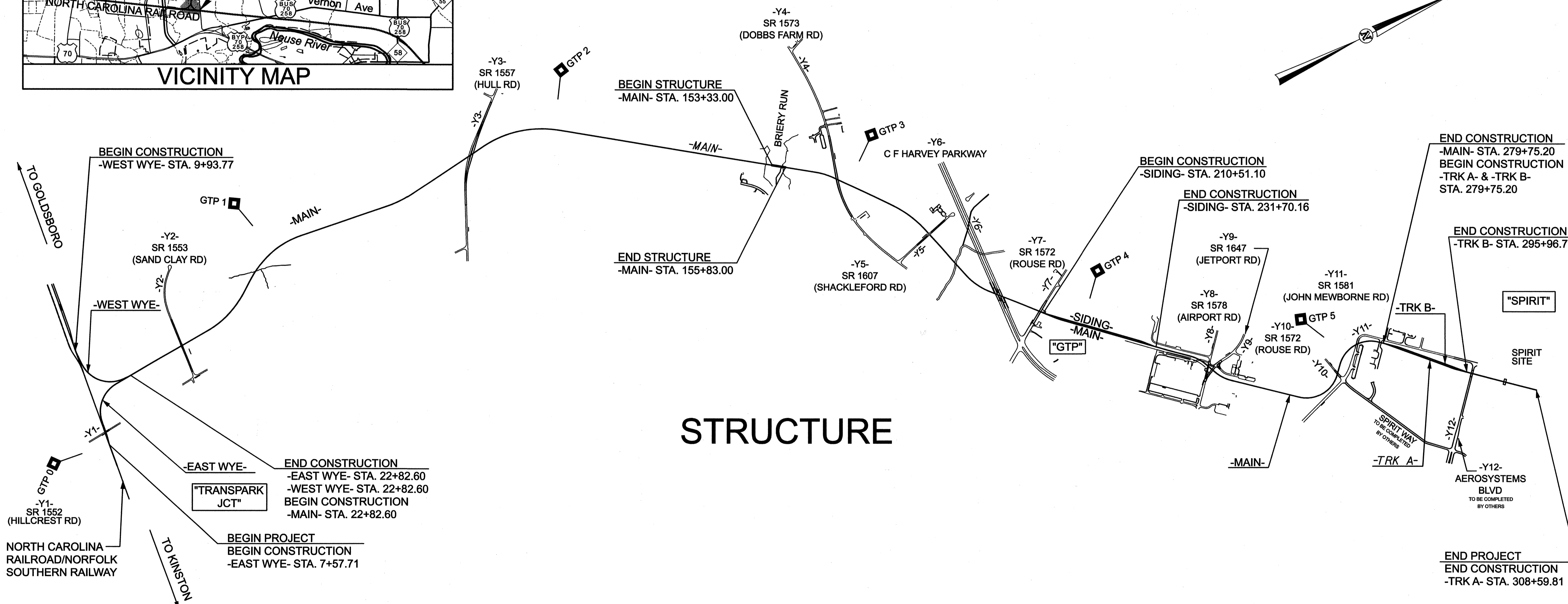
NCDOT
RAIL DIVISION

LENOIR COUNTY

LOCATION: NORTH CAROLINA GLOBAL TRANSPARK

TYPE OF WORK: BRIDGE ON GTP ACCESS OVER BRIERY RUN
 CULVERT AT STATION 14+52.00 -EAST WYE- ON GTP RAIL ACCESS OVER NEUSE RIVER TRIB 2
 CULVERT AT STATION 52+86.61 -MAIN- ON GTP RAIL ACCESS OVER UN-NAMED TRIBUTARY TO NEUSE RIVER
 CULVERT AT STATION 191+95.00 -MAIN- ON GTP RAIL ACCESS OVER UN-NAMED TRIBUTARY TO BRIERY RUN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2928B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38927.1.1		PE	
38927.2.1		ROW	
38927.3.1		CONST	



STRUCTURE

PROJECT LENGTH	
LENGTH OF RAIL TIP PROJECT U-2928B MAIN TRACK	5.70 mi.
OTHER THAN MAIN TRACK	0.95 mi.
LENGTH OF STRUCTURES TIP PROJECT U-2928B	0.05 mi.
LENGTH OF ROADWAY TIP PROJECT U-2928B	1.21 mi.

Prepared in the Office of:

HNTB
2006 STANDARD SPECIFICATIONS

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609

RIGHT OF WAY DATE:

LETTING DATE:
FEBRUARY 16, 2010

RAIL ENGINEER

James Karl Kessler P.E.

STRUCTURES DESIGN ENGINEER

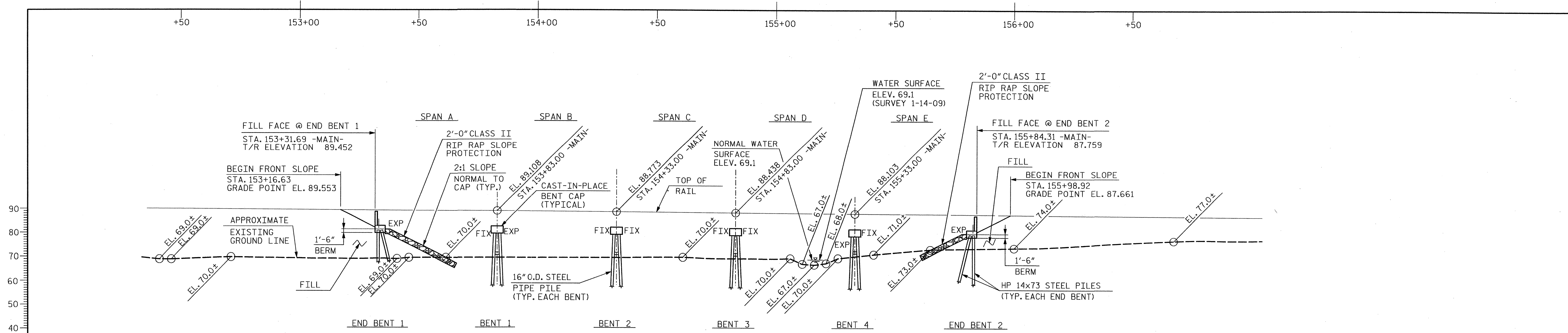
Paul J. Barber P.E.

Professional Engineer seals for James Kessler and Paul J. Barber are visible.

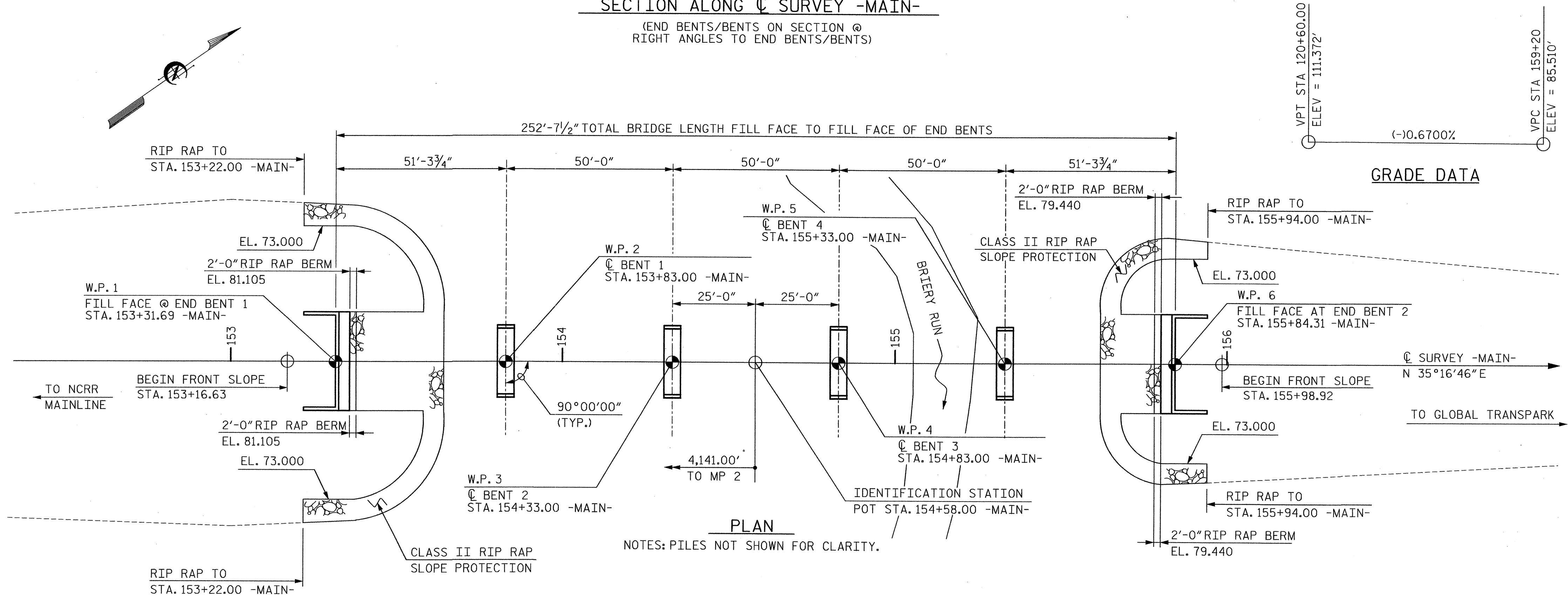


NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
106 MAIL SERVICE CENTER
RALEIGH, NC 27699-1066



SECTION ALONG C SURVEY -MAIN-
(END BENTS/BENTS ON SECTION @ RIGHT ANGLES TO END BENTS/BENTS)



GRADE DATA

PLAN
NOTES: PILES NOT SHOWN FOR CLARITY.

NOTES:
FOR GENERAL NOTES, SEE GENERAL NOTES SHEET.

HYDRAULIC DATA

DESIGN DISCHARGE	854 CFS
FREQUENCY OF DESIGN FLOOD	100 YRS.
DESIGN HIGH WATER ELEVATION	72.80
DRAINAGE AREA	2.80 SQ. MI.

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	N/A
FREQUENCY OF OVERTOPPING FLOOD	500+ YRS.
OVERTOPPING FLOOD ELEVATION	82.15

BRIDGE NO. _____
SHEET 1 OF 3

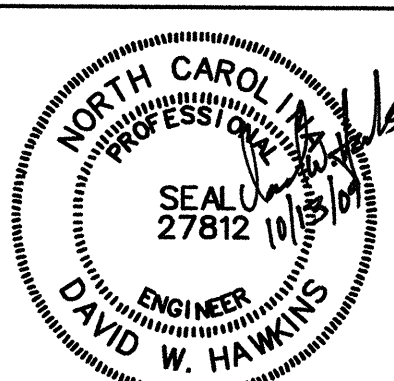
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH

DRAWN BY:
MEW

CHECKED BY:
DWH

DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

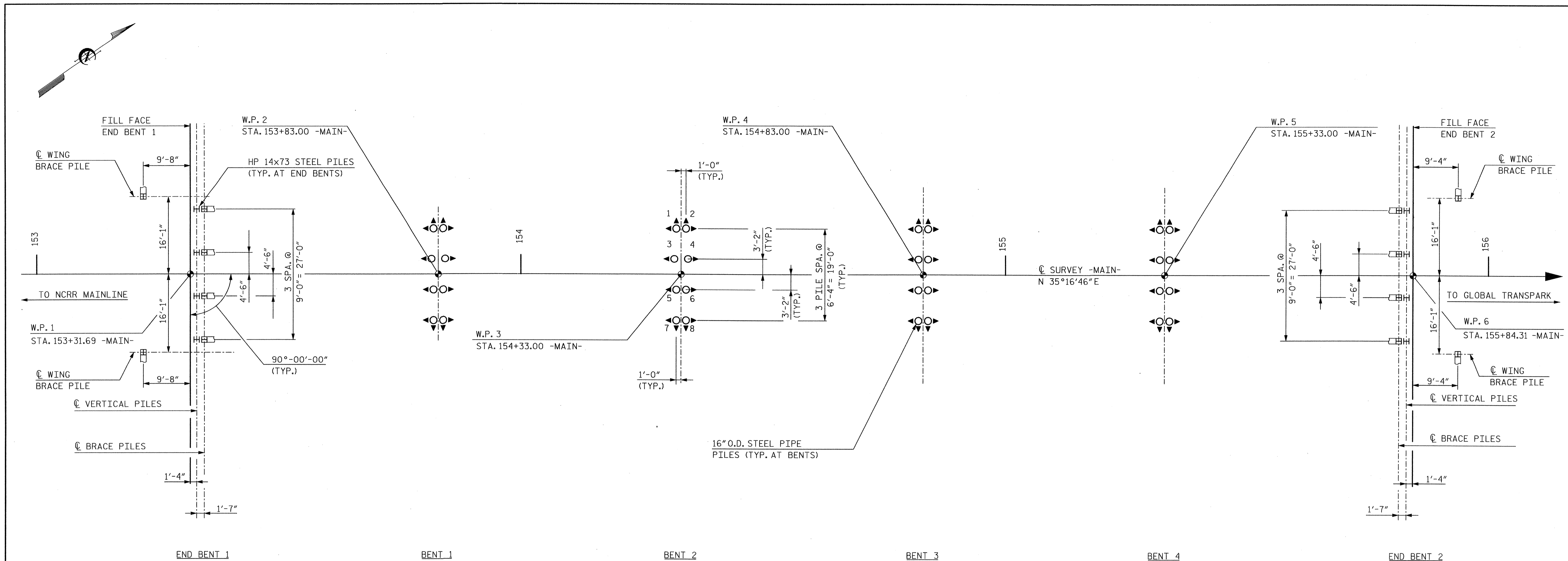
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



NCGTP RAIL ACCESS
GENERAL DRAWING FOR
BRIDGE ON GTP RAIL ACCESS
OVER BRIERY RUN BETWEEN
SR 1557 AND SR 1573
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-01
SCALE:	NO SCALE
SHEET NO:	



FOUNDATION LAYOUT

FOUNDATION NOTES:

END BENTS AND BENTS ARE PARALLEL.

ALL DIMENSIONS ARE PARALLEL OR NORMAL TO
 ☐ BENTS AND FILL FACES.

☐ INDICATES HP 14x73 PILE BATTER IN DIRECTION SHOWN.

◀○ INDICATES 16" O.D. STEEL PIPE PILE BATTER IN DIRECTION SHOWN.

BRACE PILES @ END BENTS ARE TO BE BATTERED @ 3:12.

BRACE PILES 1, 2, 7 & 8 @ BENTS ARE TO BE BATTERED @ 1/2:12
 LONGITUDINALLY AND 1 1/2:12 TRANSVERSELY.

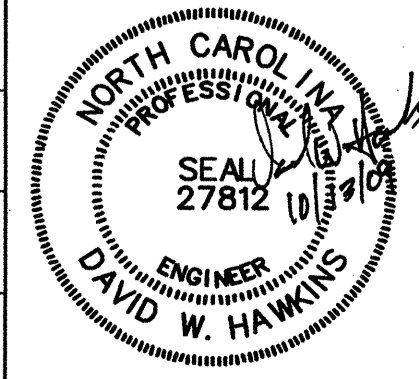
BRACE PILES 3, 4, 5 & 6 @ BENTS ARE TO BE BATTERED @ 1/2:12
 LONGITUDINALLY.

ALL PILE DIMENSIONS ARE TO CENTERS OF PILES AT
 BOTTOM OF END BENTS OR BENTS.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT
 AND END BENT DETAILS.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH
 DRAWN BY:
MEW
 CHECKED BY:
DWH
 DATE:
OCT 13, 2009



NC DEPARTMENT OF
 TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 164 MAIL SERVICE CENTER
 RALEIGH, NC 27609-1646

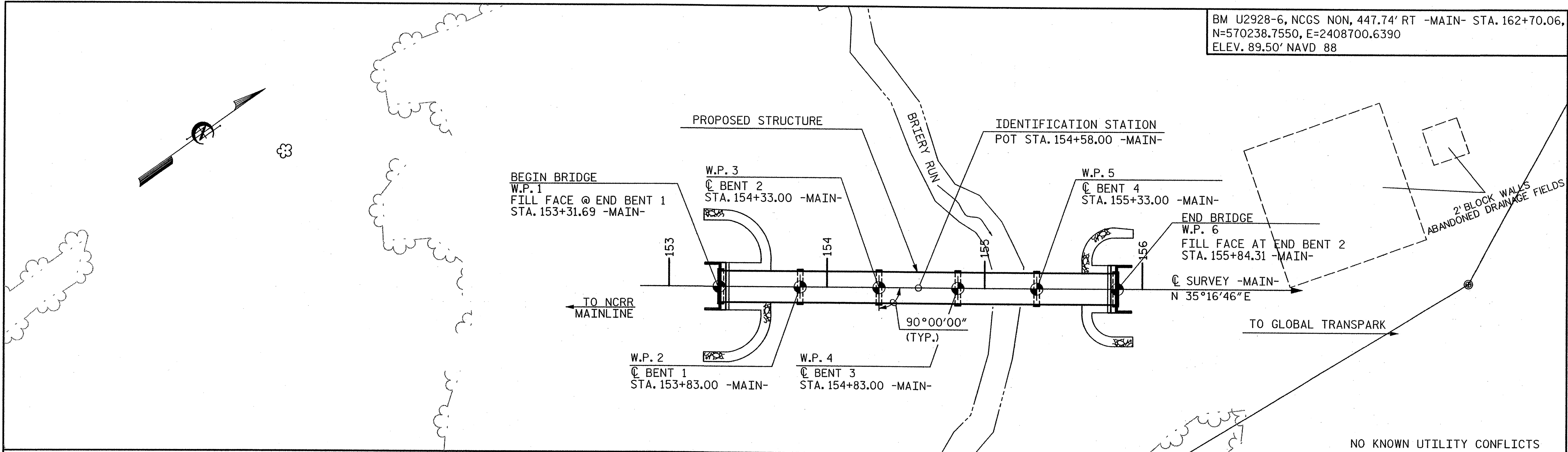
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609



NCGTP RAIL ACCESS
 GENERAL DRAWING
 FOUNDATION LAYOUT
 KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-02
SCALE:	NO SCALE
SHEET NO:	

BM U2928-6, NCGS NON, 447.74' RT -MAIN- STA. 162+70.06,
N=570238.7550, E=2408700.6390
ELEV. 89.50' NAVD 88



LOCATION SKETCH

GENERAL NOTES

ASSUMED LIVE LOAD = AREMA E80
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE STRUCTURE STANDARD NOTES SHEET.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF AREMA'S MANUAL FOR RAILWAY ENGINEERING, VOL. 2, STRUCTURES.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES', MAY, 2001.
 FOR STEEL HANDRAIL, SEE SPECIAL PROVISIONS.
 FOR PORTLAND CEMENT, SEE SPECIAL PROVISIONS.
 FOR FINE AND COURSE AGGREGATE, SEE SPECIAL PROVISIONS.
 STRUCTURE DRAINAGE SYSTEM: METAL DRAINS BEHIND ABUTMENTS SHALL BE AS SHOWN ON THE PLANS AND OUTLINED IN THE SPECIAL PROVISIONS. DETAILS OF THE DRAINAGE SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

TOTAL BILL OF MATERIAL

	CLASS .AA CONCRETE		REINFORCING STEEL		HP 14x73 STEEL PILES		16" O.D. GALVANIZED STEEL PIPE PILES		CONCRETE BALLAST CURB	PLAIN RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARING	4'-0"x4'-6" PRESTRESSED CONCRETE BOX GIRDER	STEEL HANDRAIL	STRUCTURE DRAINAGE SYSTEM	METHOD B DAMPROOFING	PDA TESTING	PDA ASSISTANCE
	CU. YDS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LIN. FT.	LUMP SUM	SQ. YDS.	EACH	EACH	
SUPERSTRUCTURE							498.8											
END BENT 1	35.6	5,653	10	600.0				177	196				25	1,246.9	500.0			
BENT 1	16.5	3,694			8	640.0												
BENT 2	16.5	3,694			8	640.0												
BENT 3	16.5	3,694			8	680.0												
BENT 4	16.5	3,694			8	600.0												
END BENT 2	35.3	5,625	10	550.0				117	130					42.0	LUMP SUM	55.0		
TOTAL	136.9	26,054	20	1,150.0	32	2,560.0	498.8	294	326	LUMP SUM	25	1,246.9	585.0	LUMP SUM	111.1	1	1	

DAMPROOFING: BACK OF BACKWALLS AND ABUTMENT SEATS AND BACK OF WINGS SHALL BE DAMPROOFED WITH METHOD "B" DAMPROOFING.

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", JULY 2006, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (HEREIN CALLED STANDARD SPECIFICATIONS), EXCEPT AS NOTED HEREIN, ELSEWHERE ON THE CONTRACT PLANS OR IN THE SPECIAL PROVISIONS.

ALL CAST-IN-PLACE CONCRETE SHALL BE 4,500 PSI CLASS AA CONCRETE WITH NO. 57 OR 67 COARSE AGGREGATE AND SHALL BE AIR-ENTRAINED. MINIMUM CEMENT CONTENT PER CUBIC YARD OF CONCRETE SHALL BE 6.5 BAGS. NO SUBSTITUTIONS OF FLYASH, BLAST FURNACE SLAG OR OTHER MATERIAL WILL BE PERMITTED IN MEETING THIS MINIMUM CEMENT REQUIREMENT. THE USE OF GROUND GRANULATED BLAST FURNACE SLAG IS NOT PERMITTED IN THIS STRUCTURE.

FOR BACKFILL BEHIND END BENTS AND OTHER BACKFILL AROUND THE STRUCTURE, SEE SPECIAL PROVISION "BACKFILLING AROUND STRUCTURES".

FOR TRACKWORK, SEE RAILROAD TRACKWORK PLANS.

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 150 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF 2.

DRIVE PILES AT BENTS 1 - 4 TO A REQUIRED BEARING CAPACITY OF 200 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF 2.

DRIVE PILES AT BENTS 1 - 4 TO A TIP ELEVATION NO HIGHER THAN 35 FEET.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING, RESTRIKING, OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PILE DRIVING ANALYZER, SEE SPECIAL PROVISION.

OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE EMBANKMENT TO WITHIN 2 FEET OF FINISHED GRADE BEFORE BEGINNING END BENT CONSTRUCTION AT END BENTS 1 AND 2.

THE SCOUR CRITICAL ELEVATION FOR BENTS 1 - 4 IS ELEVATION 60 FEET. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR HP 14x73 STEEL PILES, SEE SPECIAL PROVISION.

FOR 16" O.D. GALVANIZED STEEL PIPE PILES, SEE SPECIAL PROVISION.

FOR CONCRETE BALLAST CURB, SEE SPECIAL PROVISION.

FOR 4'-0" x 4'-6" PRESTRESSED CONCRETE BOX GIRDER, SEE SPECIAL PROVISION.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: MEW
 CHECKED BY: DWH
 DATE: OCT 13, 2009

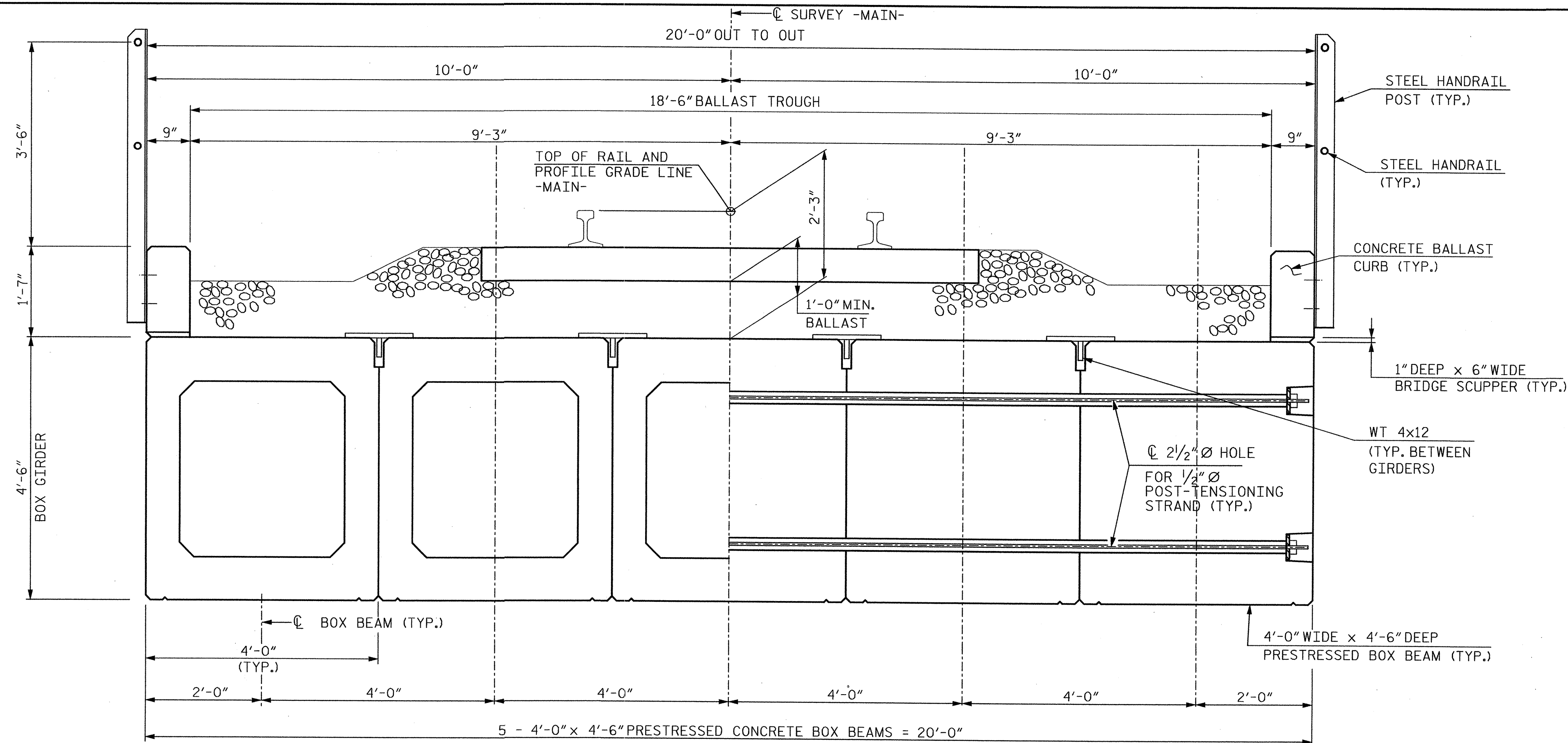
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 144 MAIL SERVICES CENTER
 RALEIGH, NC 27695-144

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 RALEIGH, NORTH CAROLINA 27609

**NCGTP RAIL ACCESS
 GENERAL DRAWING
 BILL OF MATERIAL,
 AND LOCATION SKETCH
 KINSTON, NC**

PROJECT NO: U-2928B
 DRAWING NO: ST-03
 SCALE: NO SCALE
 SHEET NO:



NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5,000 PSI.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

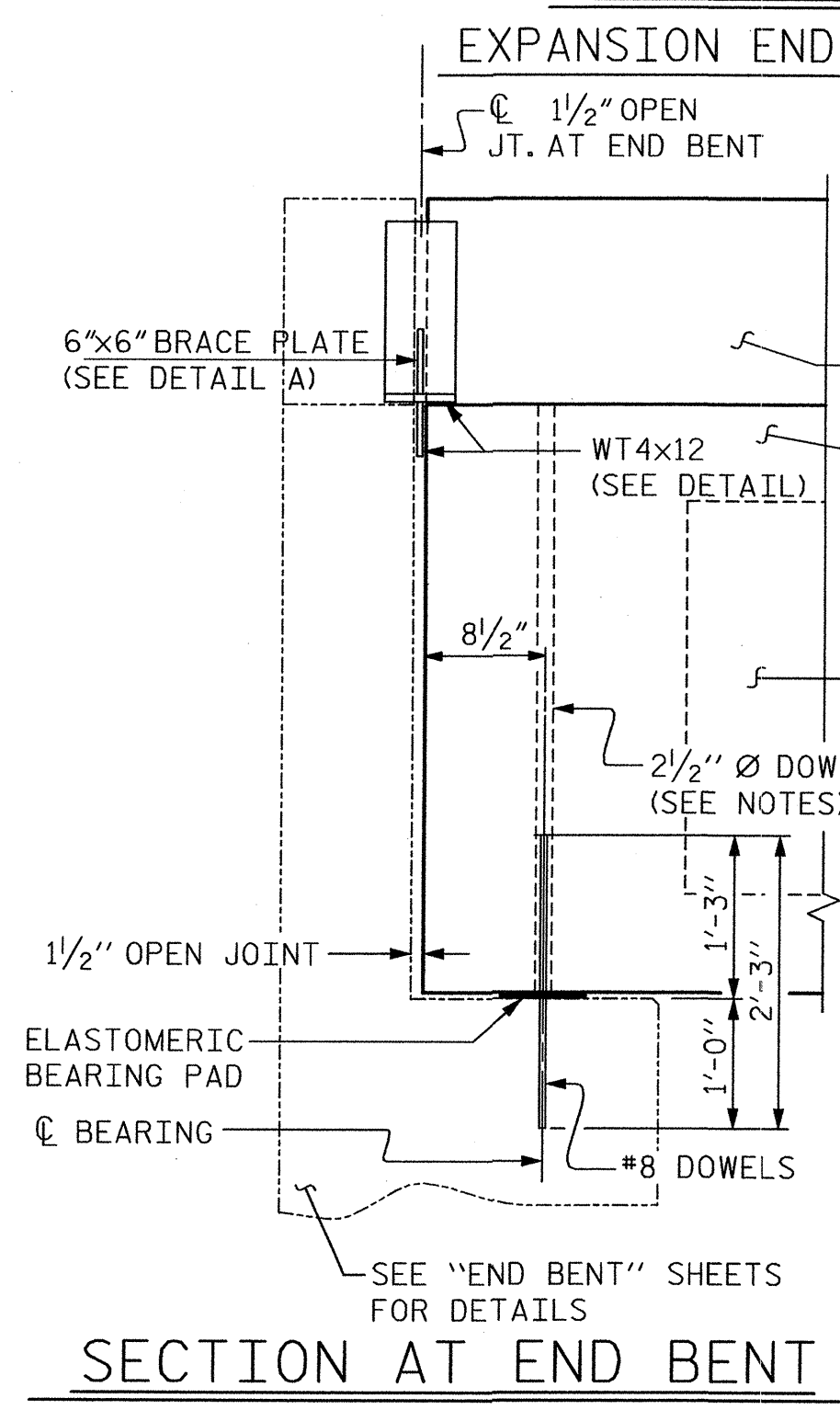
CURB CONCRETE SHALL BE CLASS AA.

CURBS ARE NOT TO BE CAST ON THE GIRDERS UNTIL AFTER RELEASE OF PRESTRESSING FORCE.

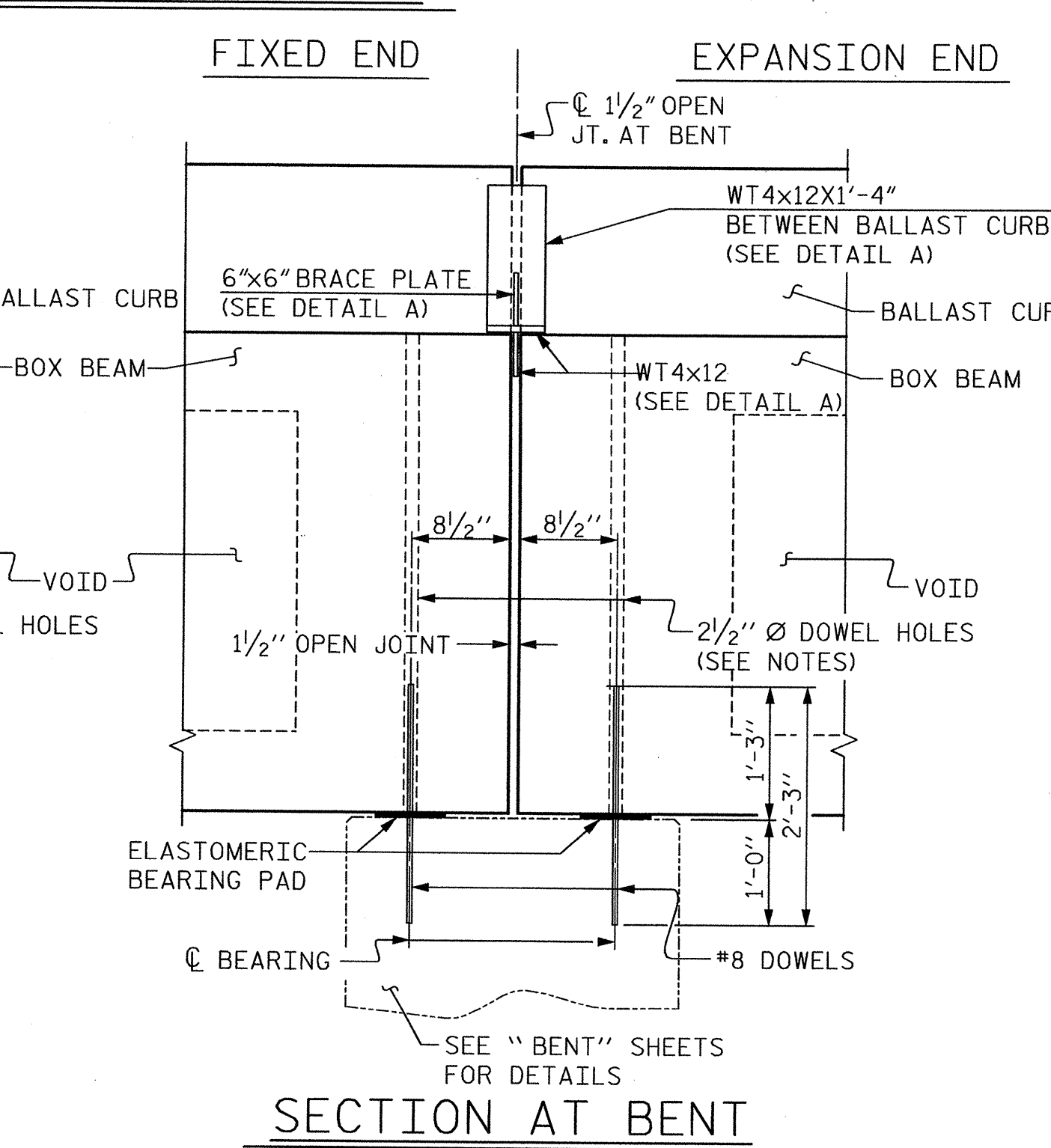
FOR HANDRAIL DETAILS, SEE BOX BEAM SUMMARY AND HANDRAIL DETAILS SHEET.

WT MEMBERS AND BRACE PLATE SHALL BE ASTM A36 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE WT MEMBER AND BRACE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

HALF SECTION AT VOID **TYPICAL SECTION** HALF SECTION AT DIAPHRAGM

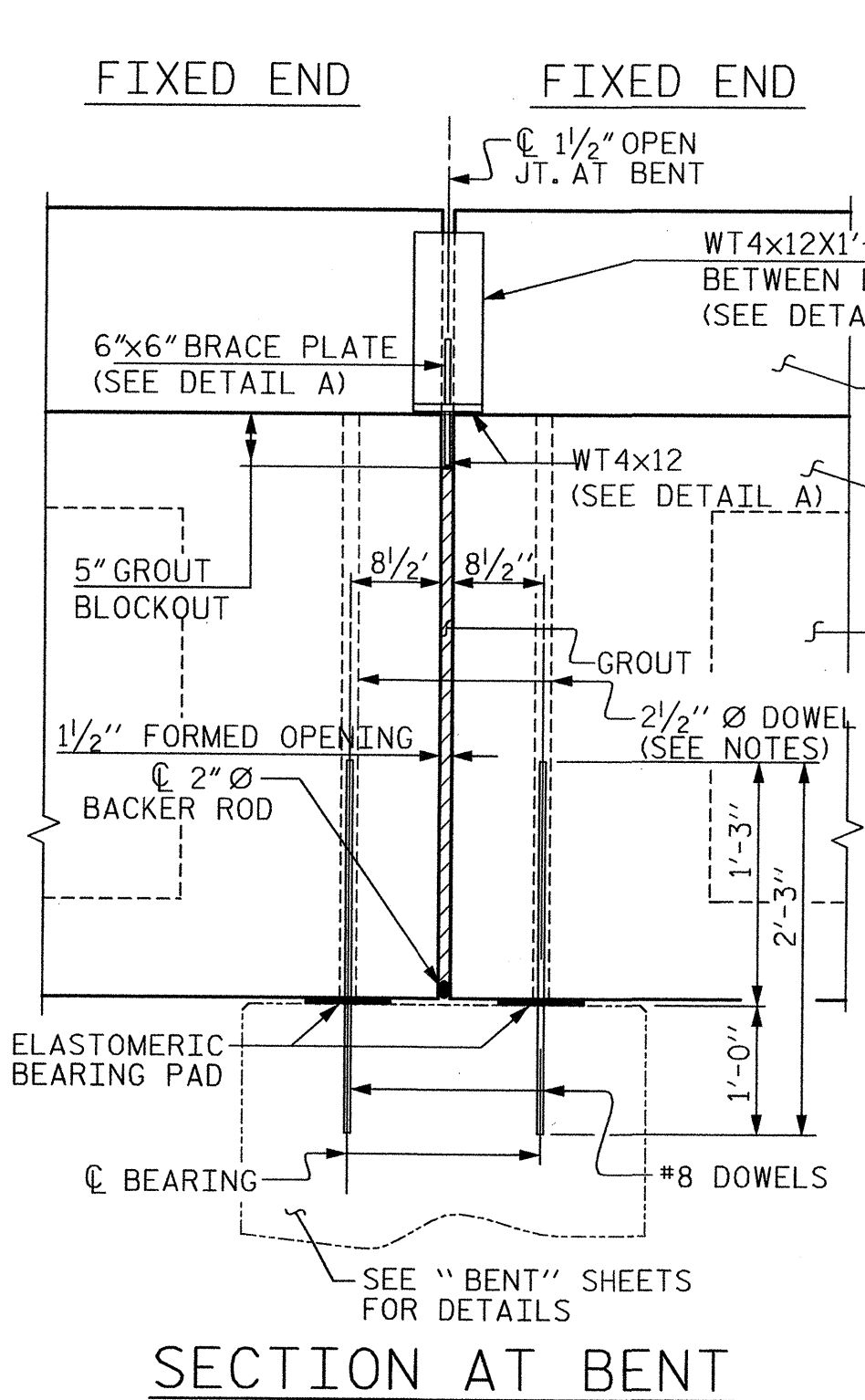


SECTION AT END BENT



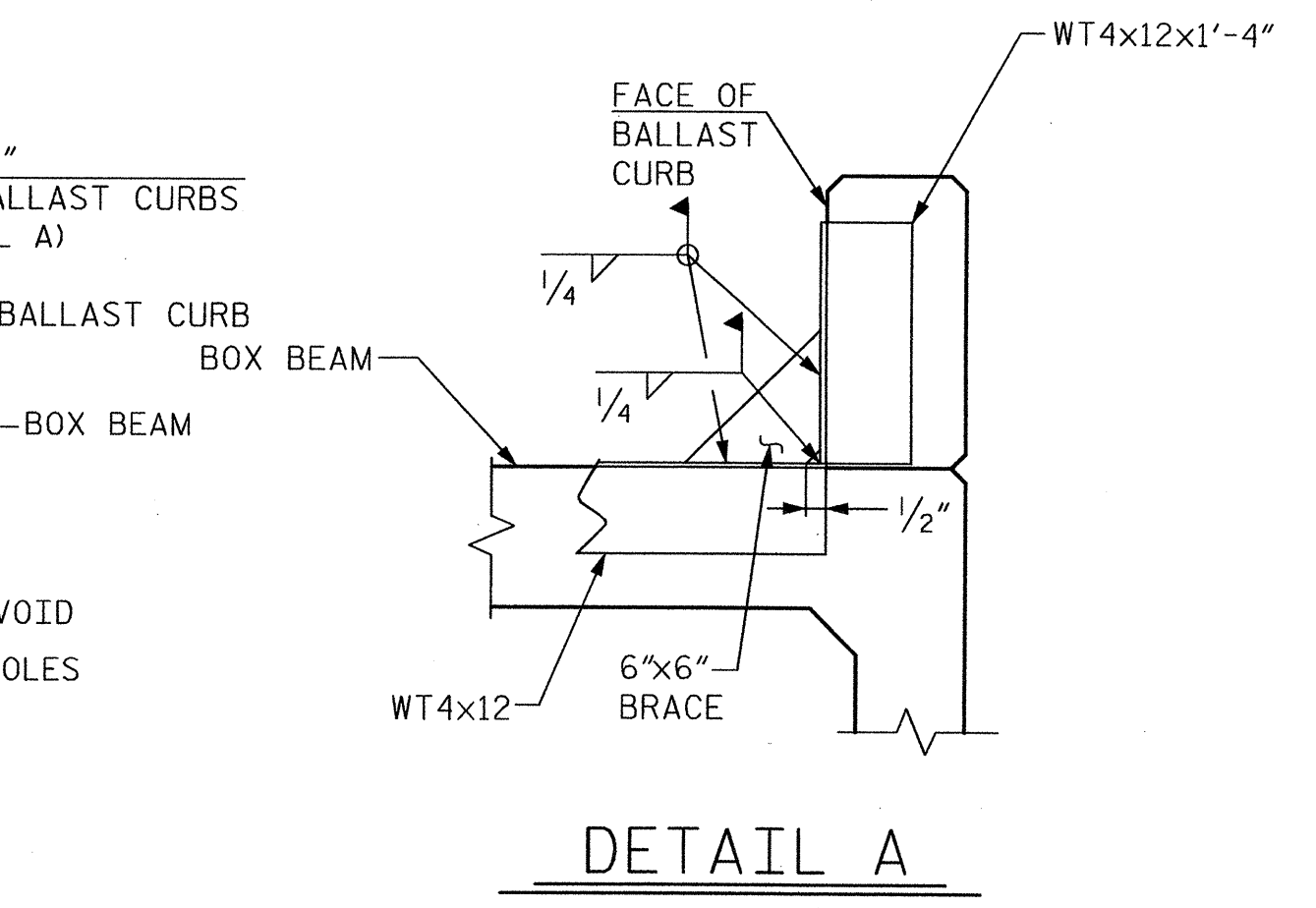
SECTION AT BENT

(BENT 1 SHOWN, BENT 4 OPPOSITE HAND)



SECTION AT BENT

(TYPICAL BENTS 2 AND 3)



DETAIL A

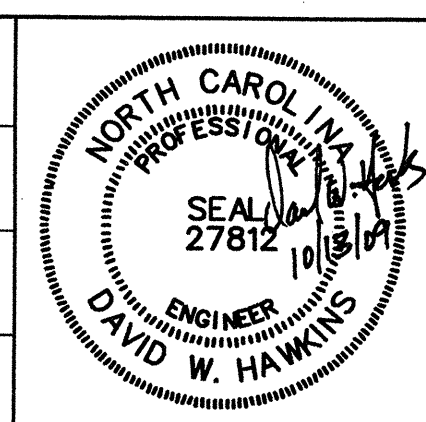
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH

DRAWN BY:
MEW

CHECKED BY:
DWH

DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1446 MAIL SERVICE CENTER
RALEIGH, NC 27609

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



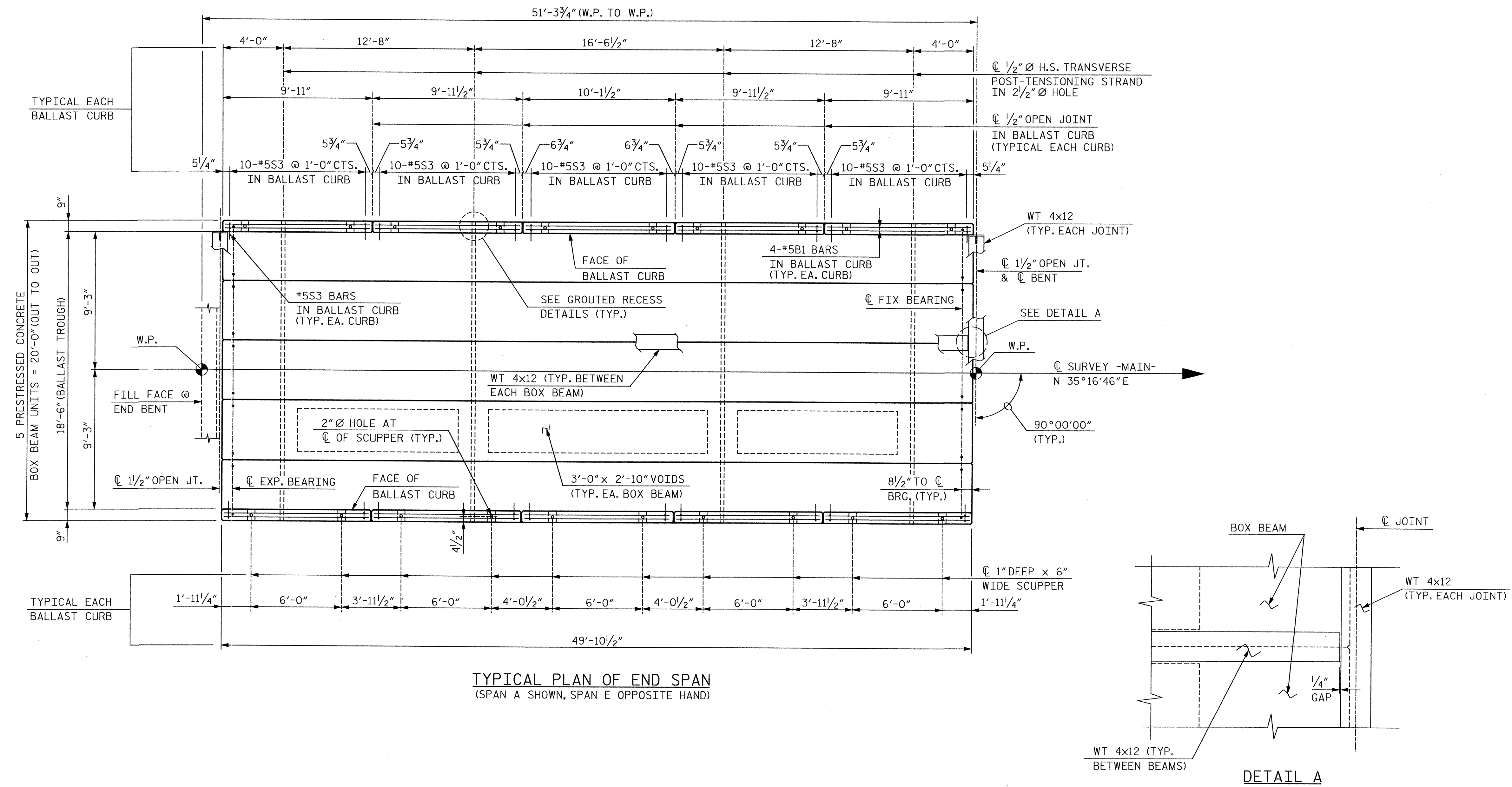
NCGTP RAIL ACCESS

SUPERSTRUCTURE
TYPICAL SECTION

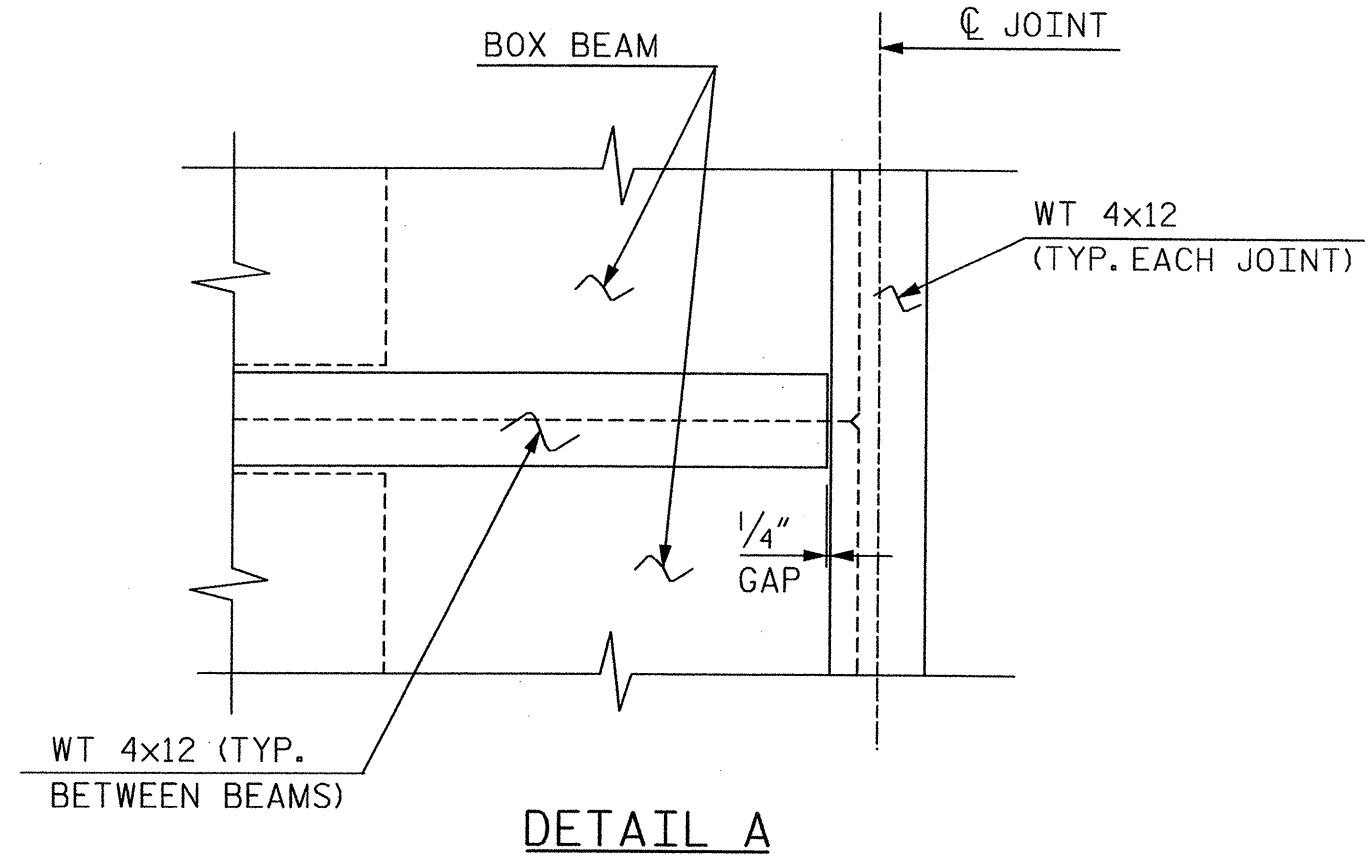
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-04
SCALE:	NO SCALE
SHEET NO:	

NOTES:
 FOR GROUTED RECESS DETAILS, SEE DIAPHRAGM DETAILS SHEET.
 FOR BALLAST CURB AND HANDRAIL DETAILS, SEE BOX BEAM SUMMARY AND HANDRAIL DETAILS SHEET.

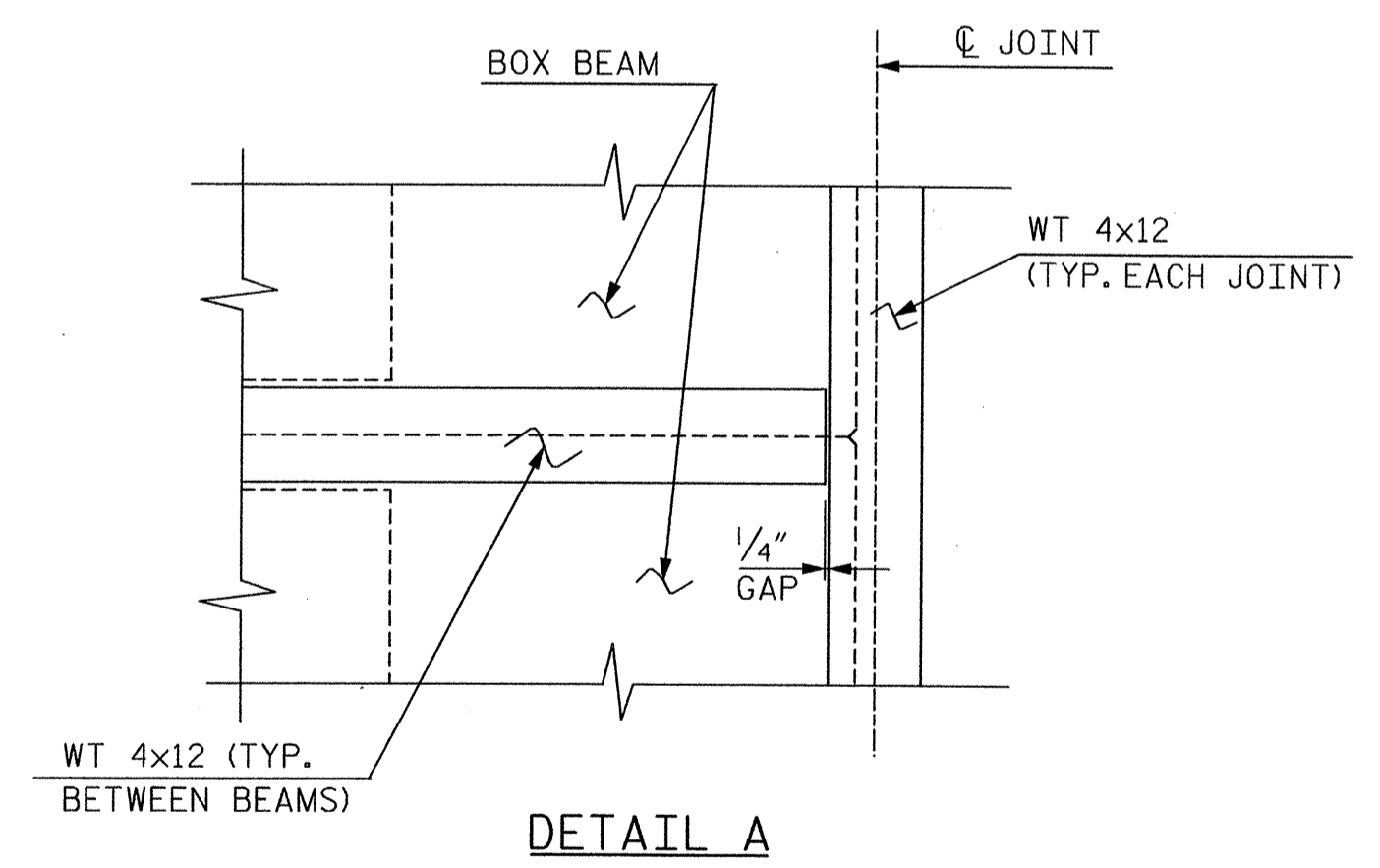
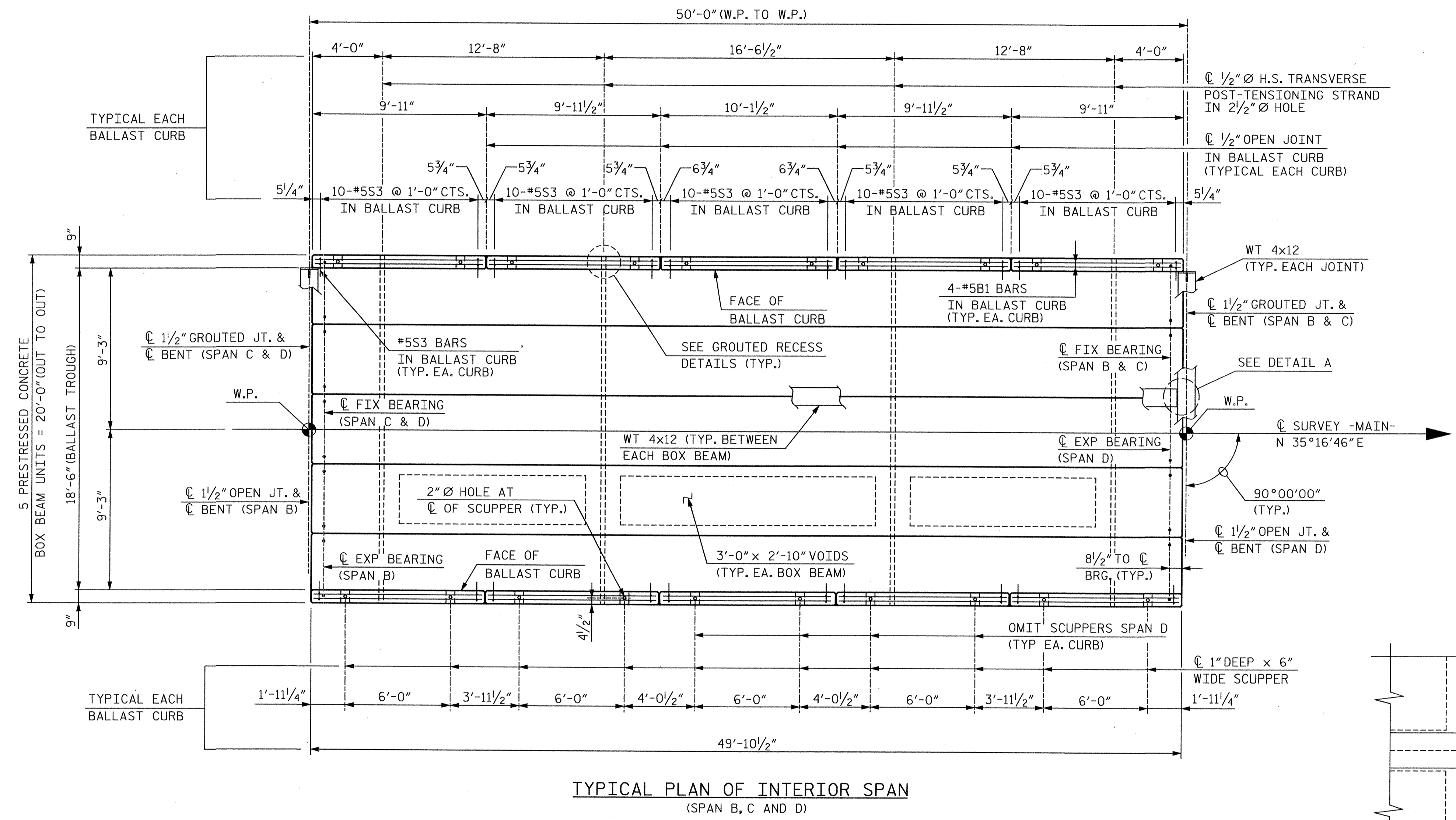


TYPICAL PLAN OF END SPAN
 (SPAN A SHOWN, SPAN E OPPOSITE HAND)



REV. NO.	DATE	BY	APP. BY	DESCRIPTION	DESIGNED BY:					<p>NCGTP RAIL ACCESS SUPERSTRUCTURE TYPICAL PLAN OF END SPAN SPANS A AND E KINSTON, NC</p>	PROJECT NO:
					DWH						U-2928B
					DRAWN BY: MEW						DRAWING NO: ST-05
					CHECKED BY: DWH						SCALE: NO SCALE
					DATE: OCT 13, 2009	SHEET NO:					

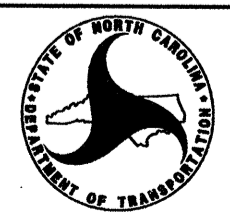
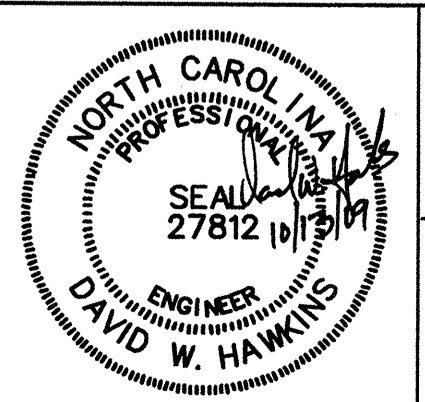
NOTES:
 FOR GROUTED RECESS DETAILS, SEE DIAPHRAGM DETAILS SHEET.
 FOR BALLAST CURB AND HANDRAIL DETAILS, SEE BOX BEAM SUMMARY AND HANDRAIL DETAILS SHEET.



TYPICAL PLAN OF INTERIOR SPAN
(SPAN B, C AND D)

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH
 DRAWN BY:
MEW
 CHECKED BY:
DWH
 DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 1654 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1556

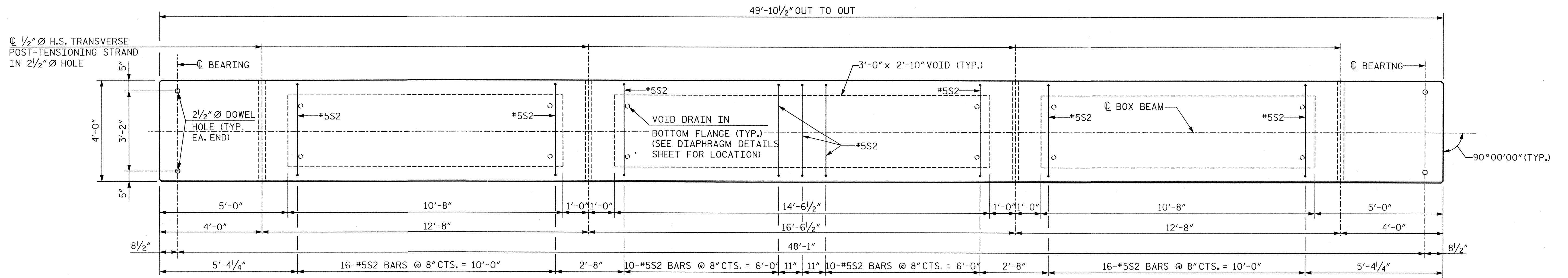
HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609



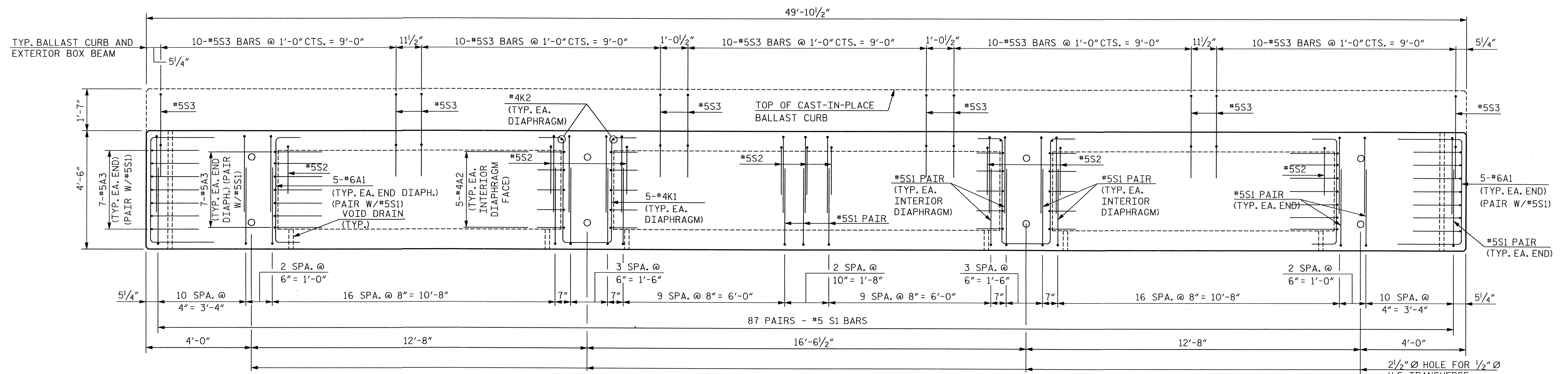
NCGTP RAIL ACCESS
 SUPERSTRUCTURE
 TYPICAL PLAN OF INTERIOR SPAN
 SPANS B, C AND D
 KINSTON, NC

SHEET 3 OF 7

PROJECT NO:	U-2928B
DRAWING NO:	ST-06
SCALE:	NO SCALE
SHEET NO:	



PLAN OF BOX BEAM



ELEVATION OF BOX BEAM

(EXTERIOR SECTION SHOWN, INTERIOR SECTION SIMILAR EXCEPT OMIT BALLAST CURB)

DESIGN LOADS

LIVE LOAD	E80
LL DISTRIBUTION	46%
IMPACT	32.1%
DEAD LOAD/BOX	2.7 KLF

GIRDER PROPERTIES

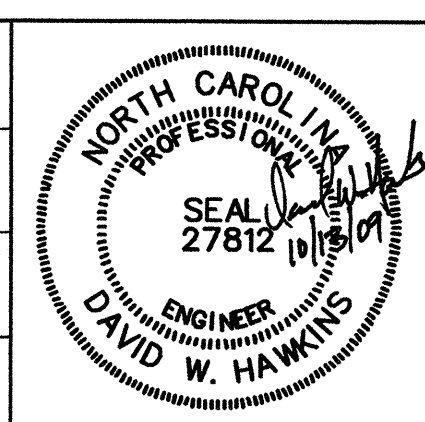
AREA	1,386 IN ²
SECTION MODULUS	18,625 IN ³
NO. OF STRANDS	58
ECC. AT C.L. SPAN	12.05 IN
ULTIMATE MOMENT PROVIDED	6,711 FT-K

NOTES:

- FOR DIAPHRAGM GEOMETRY AND REINFORCING DETAILS, SEE DIAPHRAGM DETAILS SHEET.
- FOR GROUDED RECESS DETAILS FOR EXTERIOR BOX BEAM, SEE DIAPHRAGM DETAILS SHEET.
- FOR BOX BEAM BILL OF MATERIAL AND REINFORCING SCHEDULE, SEE BOX BEAM DETAILS SHEET.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:	DWH
DRAWN BY:	MEW
CHECKED BY:	DWH
DATE:	OCT 13, 2009



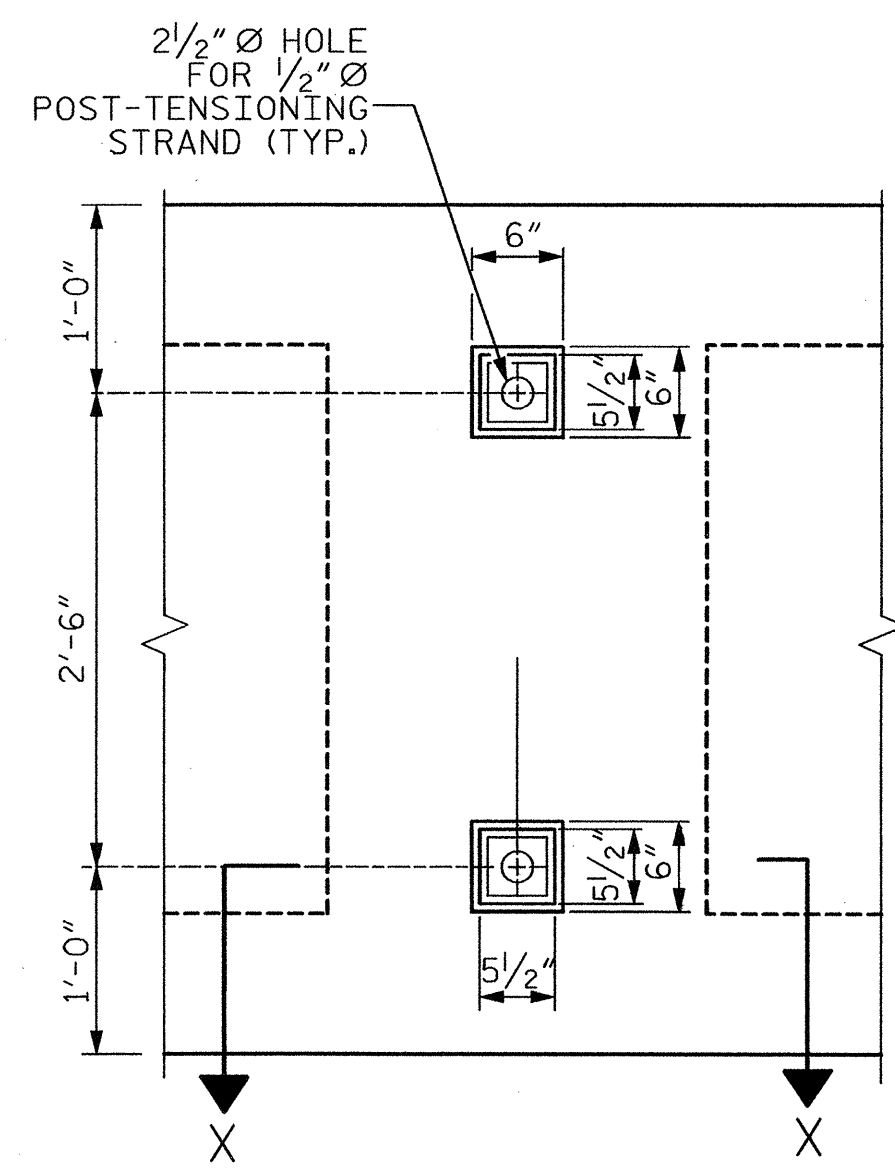
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 144 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1444

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

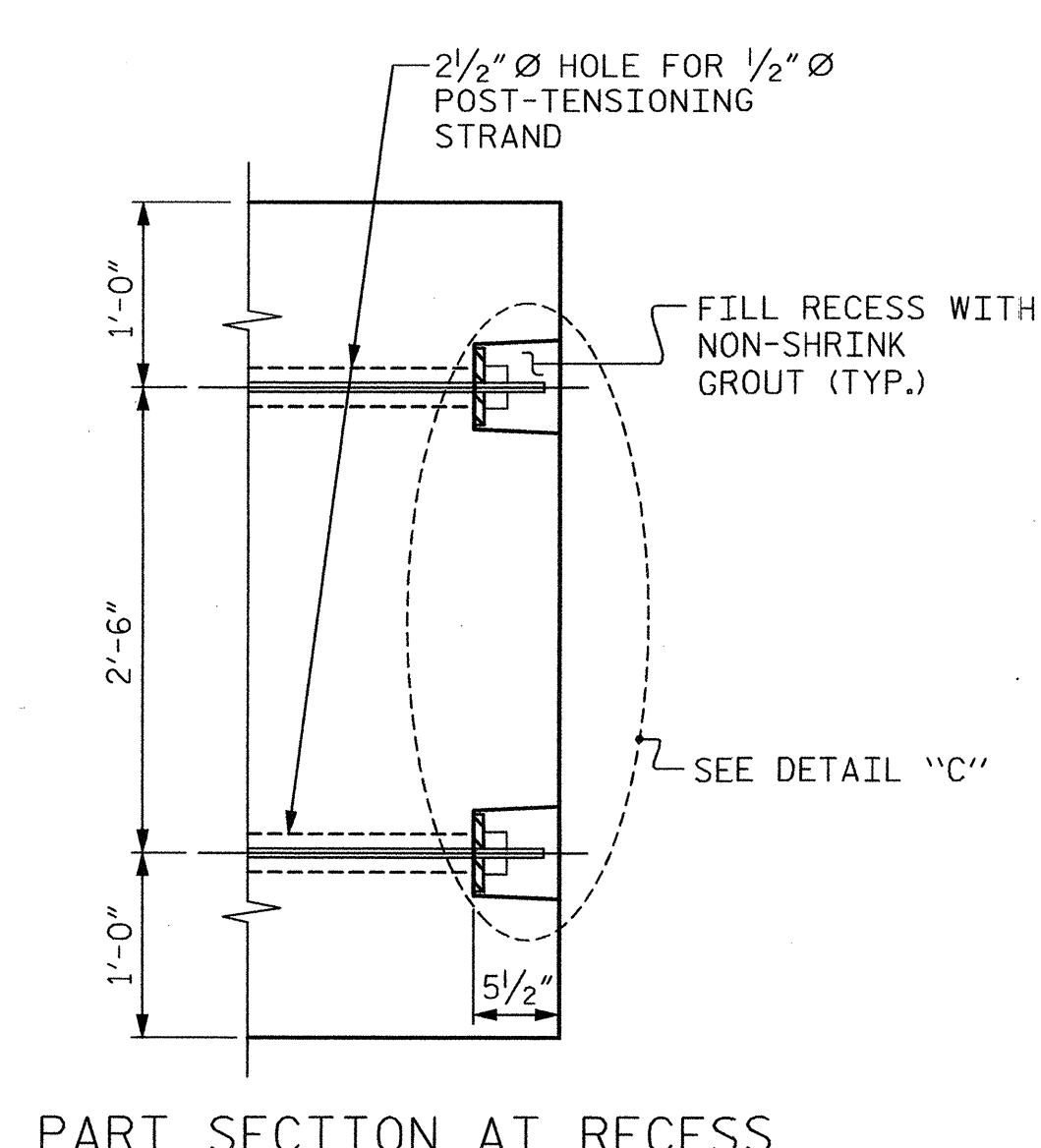


NCGTP RAIL ACCESS
 SUPERSTRUCTURE
 4'-0" x 4'-6" BOX BEAM
 PLAN VIEW AND
 ELEVATION VIEW
 KINSTON, NC

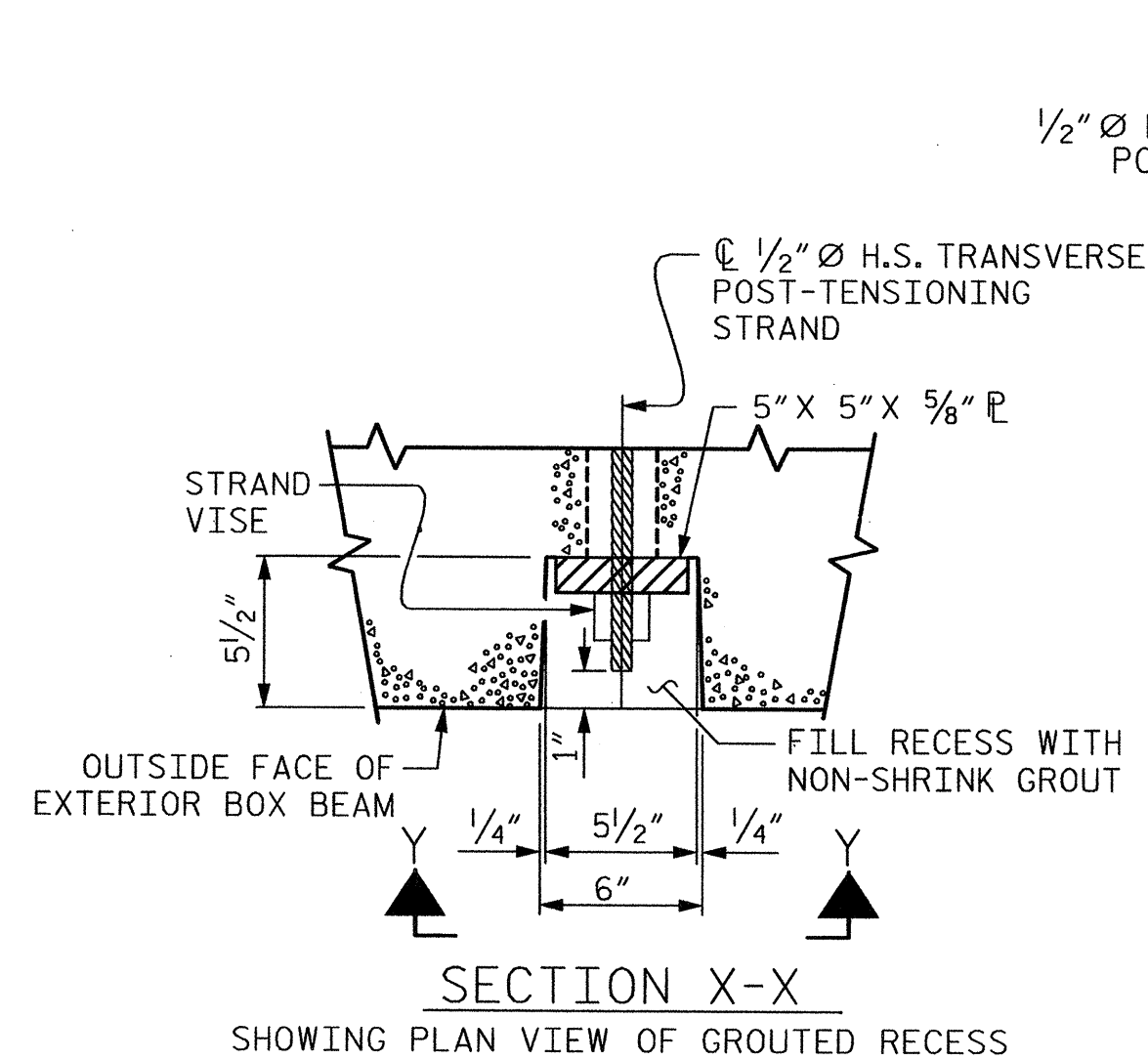
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DRAWING NO:	ST-07
SCALE:	NO SCALE
SHEET NO:	



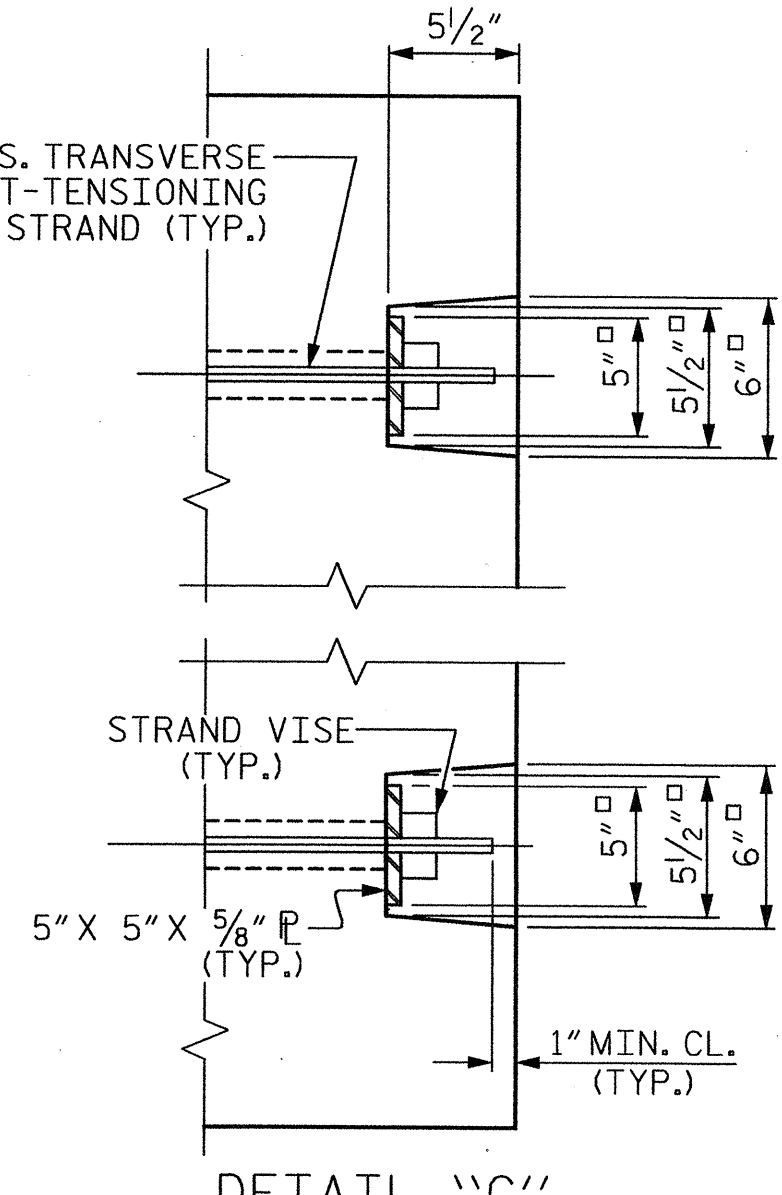
VIEW Y-Y
SHOWING ELEVATION VIEW OF
GROUTED RECESS



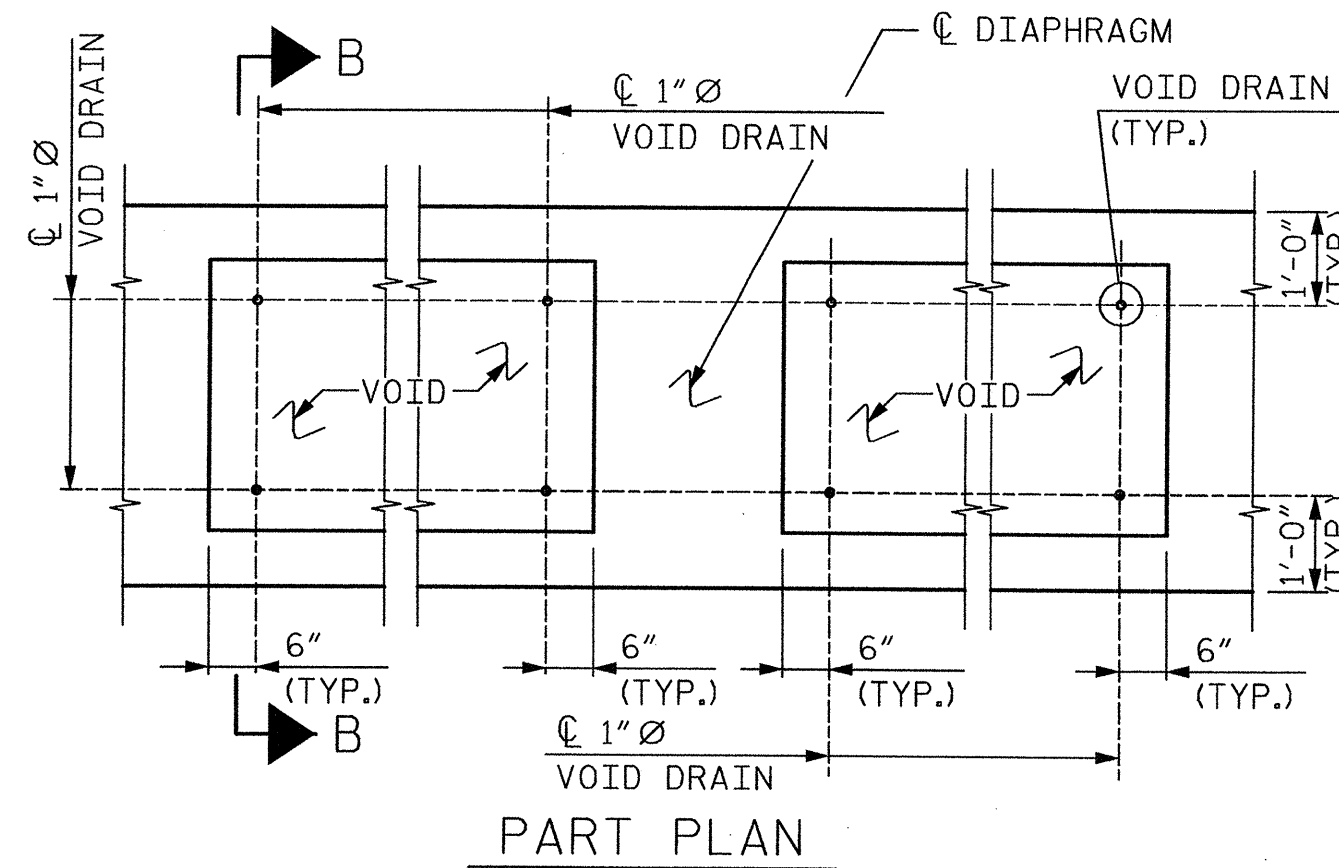
PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

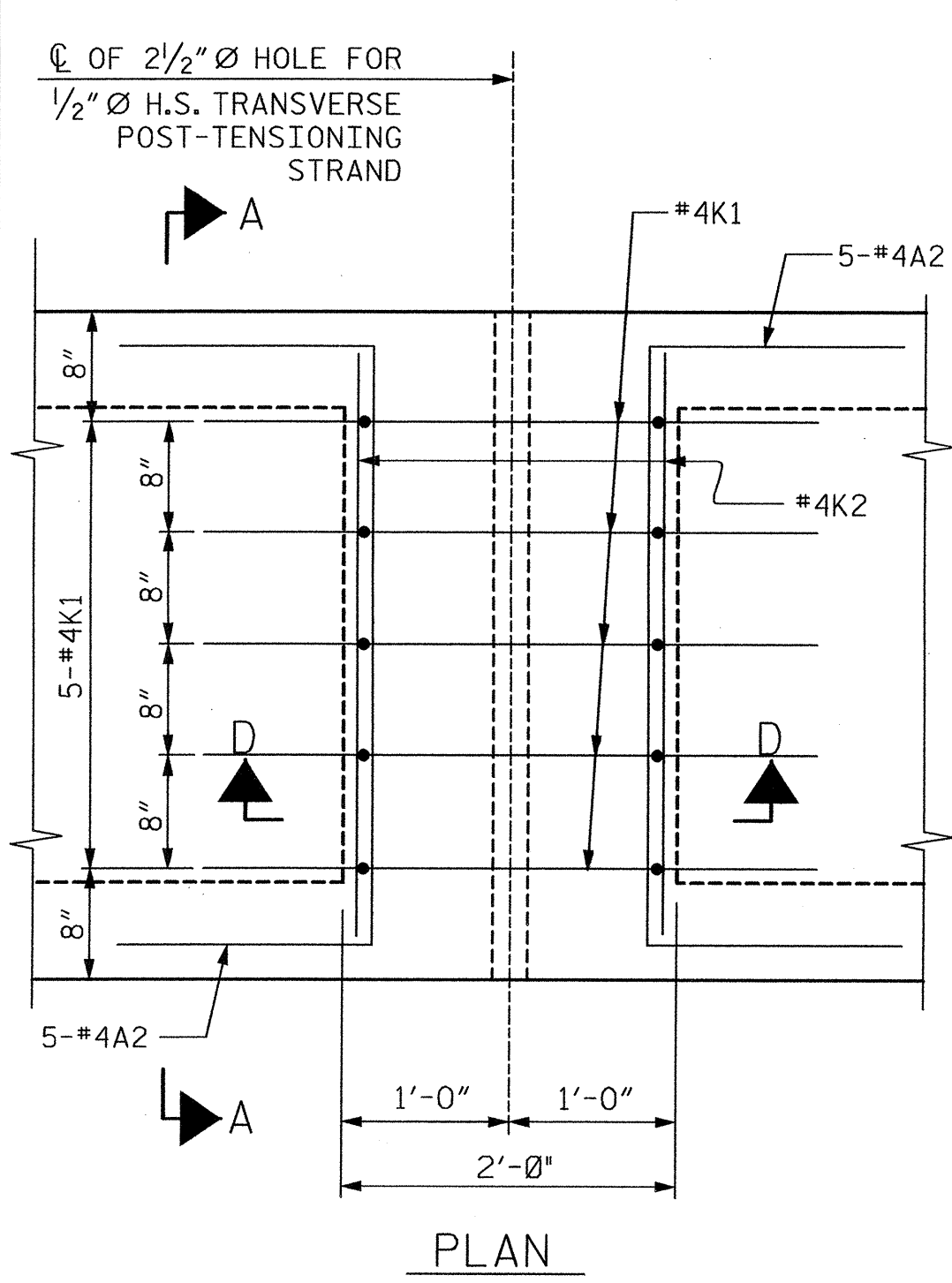


DETAIL "C"

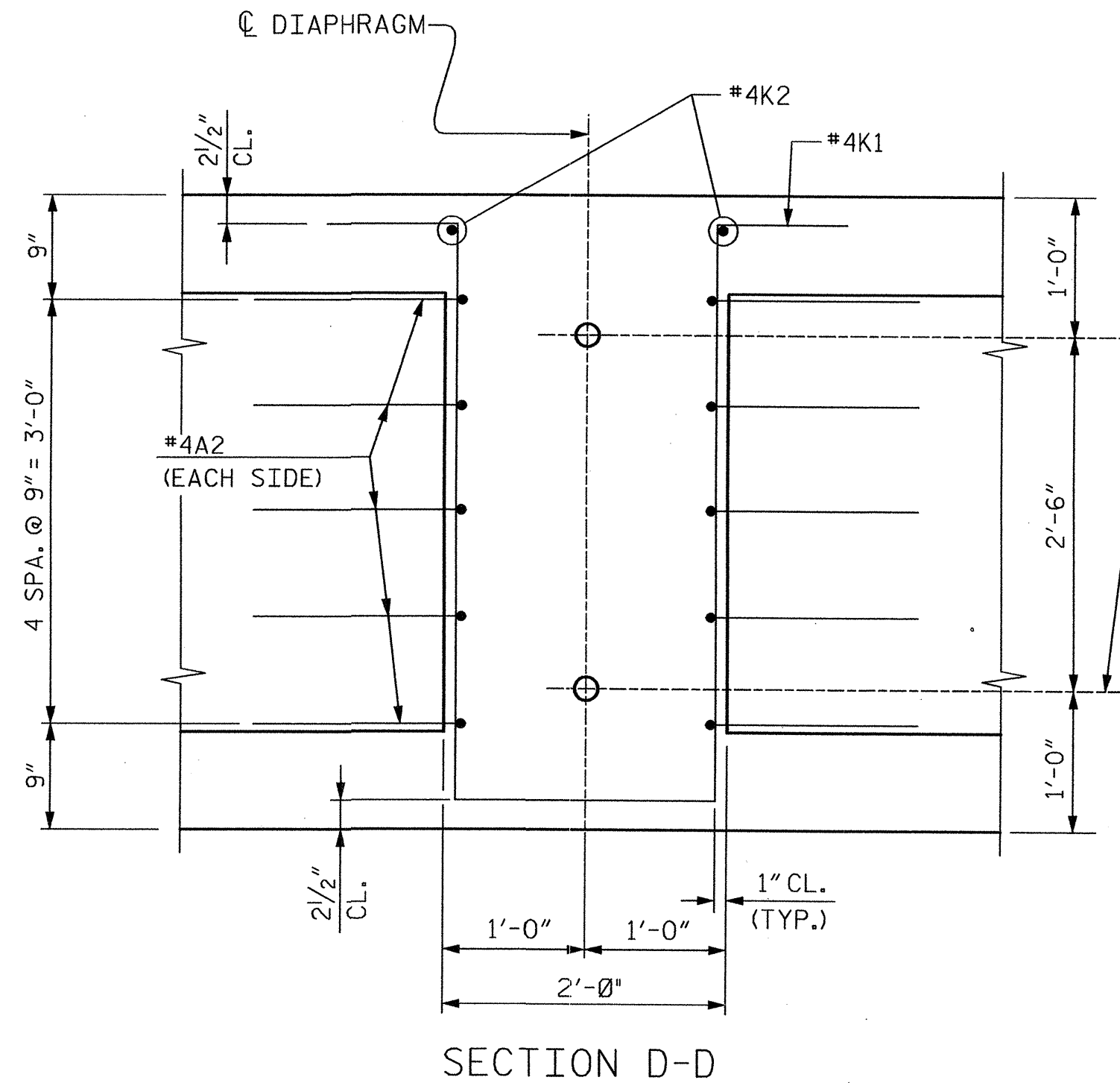


PART PLAN

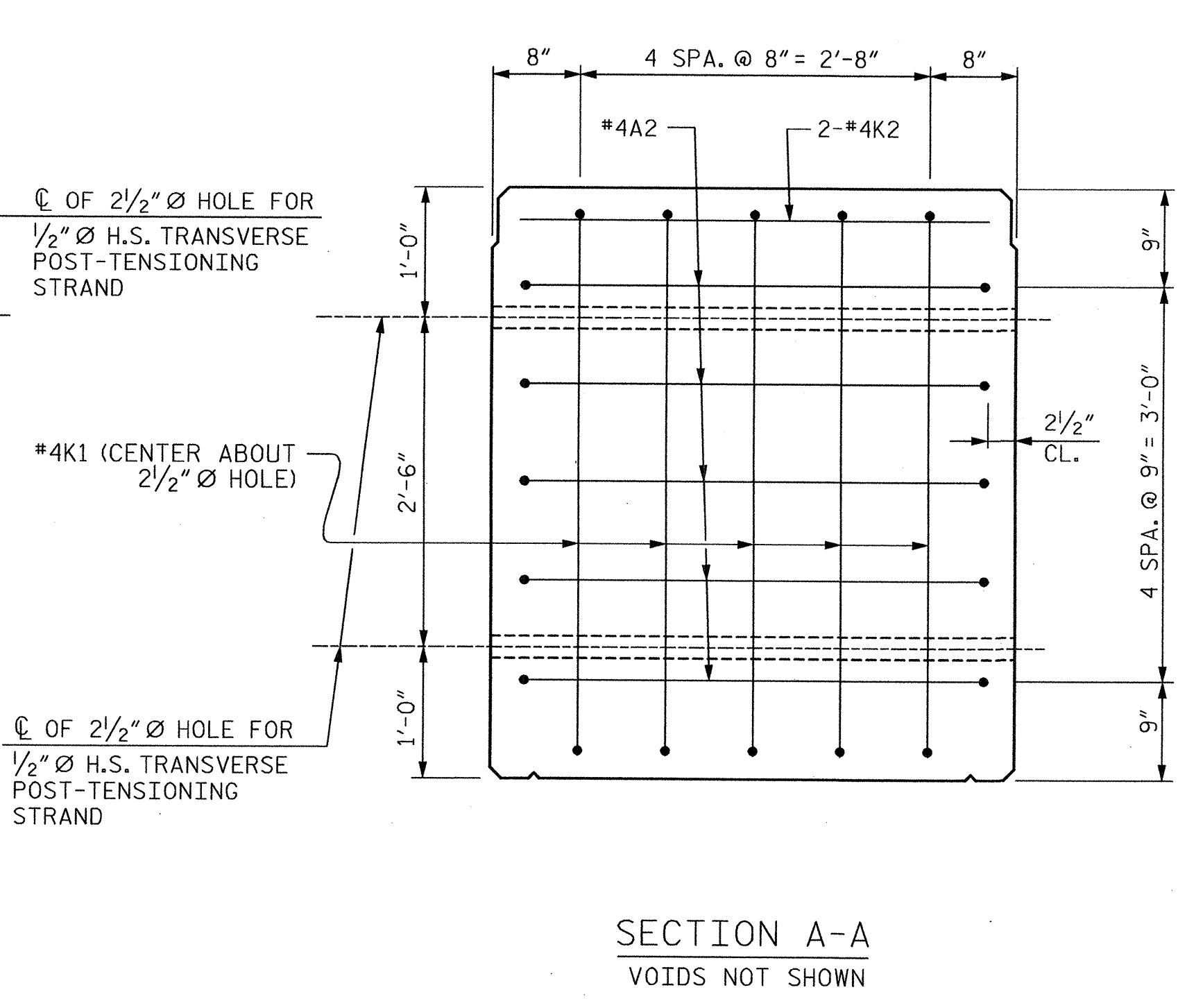
**GROUTED RECESS DETAIL AT
END OF POST-TENSIONED STRANDS
OF EXTERIOR BOX BEAM**



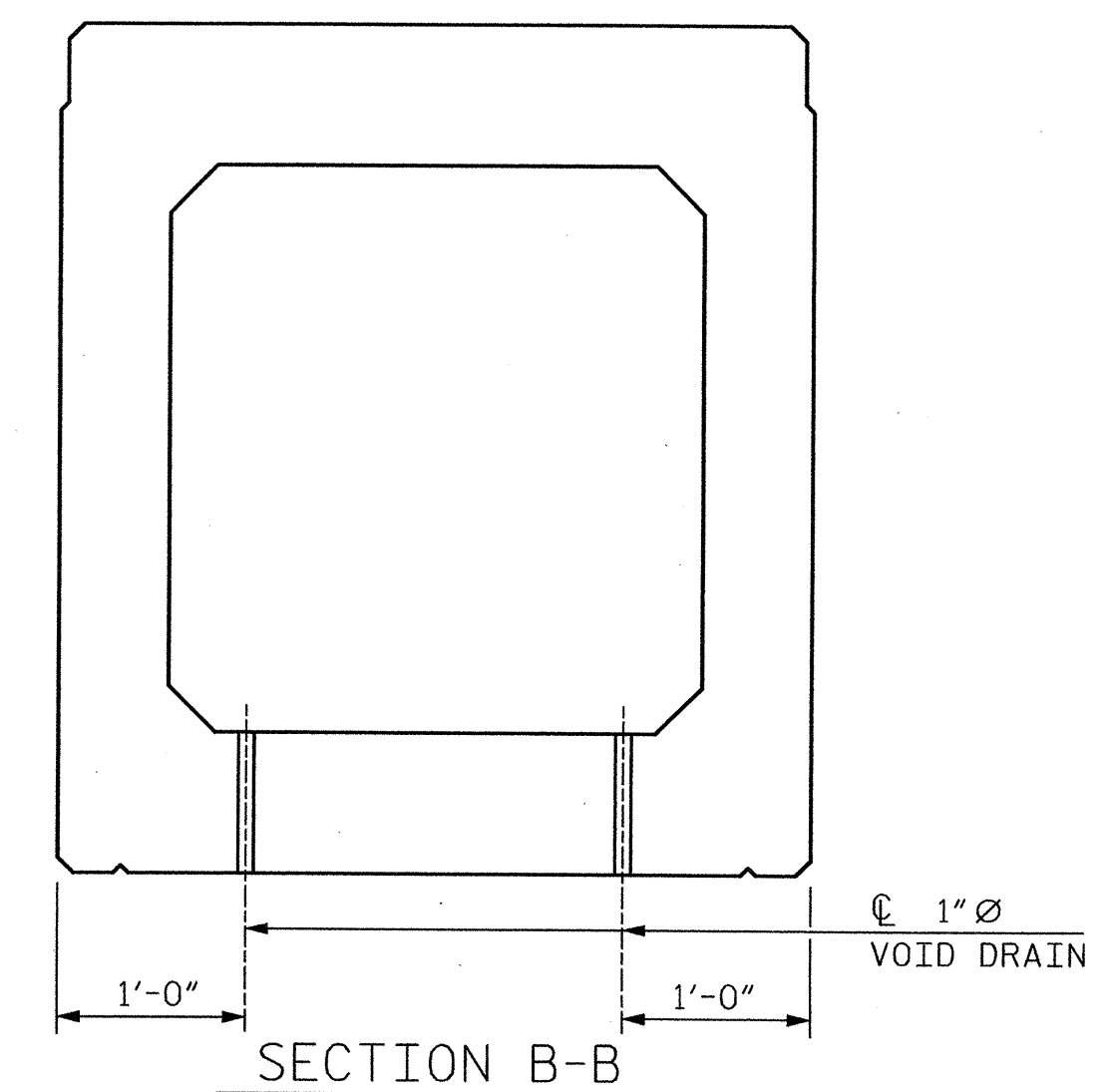
PLAN



SECTION D-D



SECTION A-A
VOIDS NOT SHOWN



SECTION B-B

VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DIAPHRAGM DETAILS
#5 "S" BARS NOT SHOWN. #5 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.

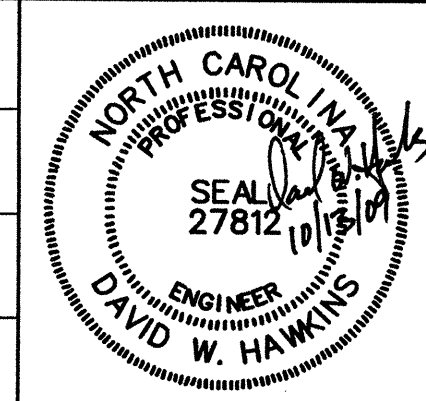
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH

DRAWN BY:
MEW

CHECKED BY:
DWH

DATE:
OCT 13, 2009



NC DEPARTMENT OF
TRANSPORTATION
RAIL DIVISION

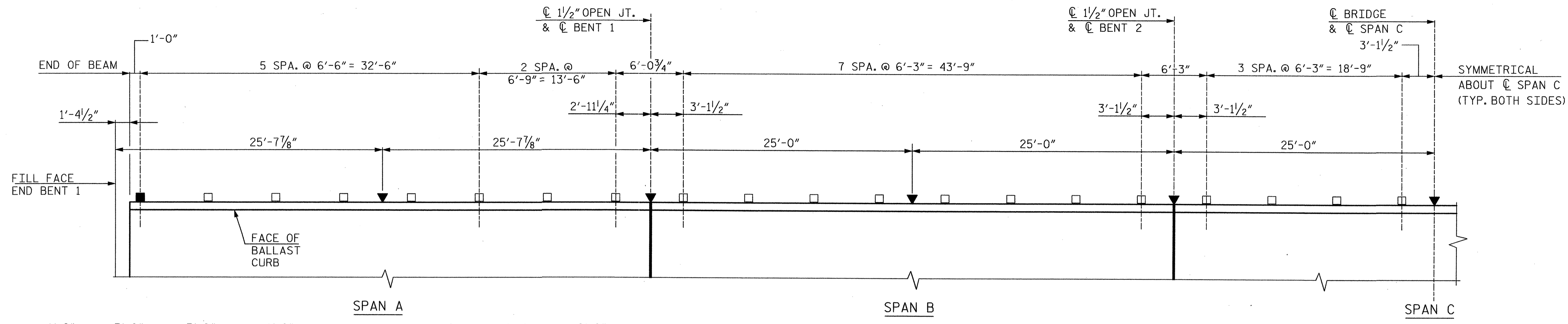
HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609

ENGINEERING AND SAFETY BRANCH
CAPITAL TAID
1666 MAIL SERVICE CENTER
RALEIGH, NC 27699-1666

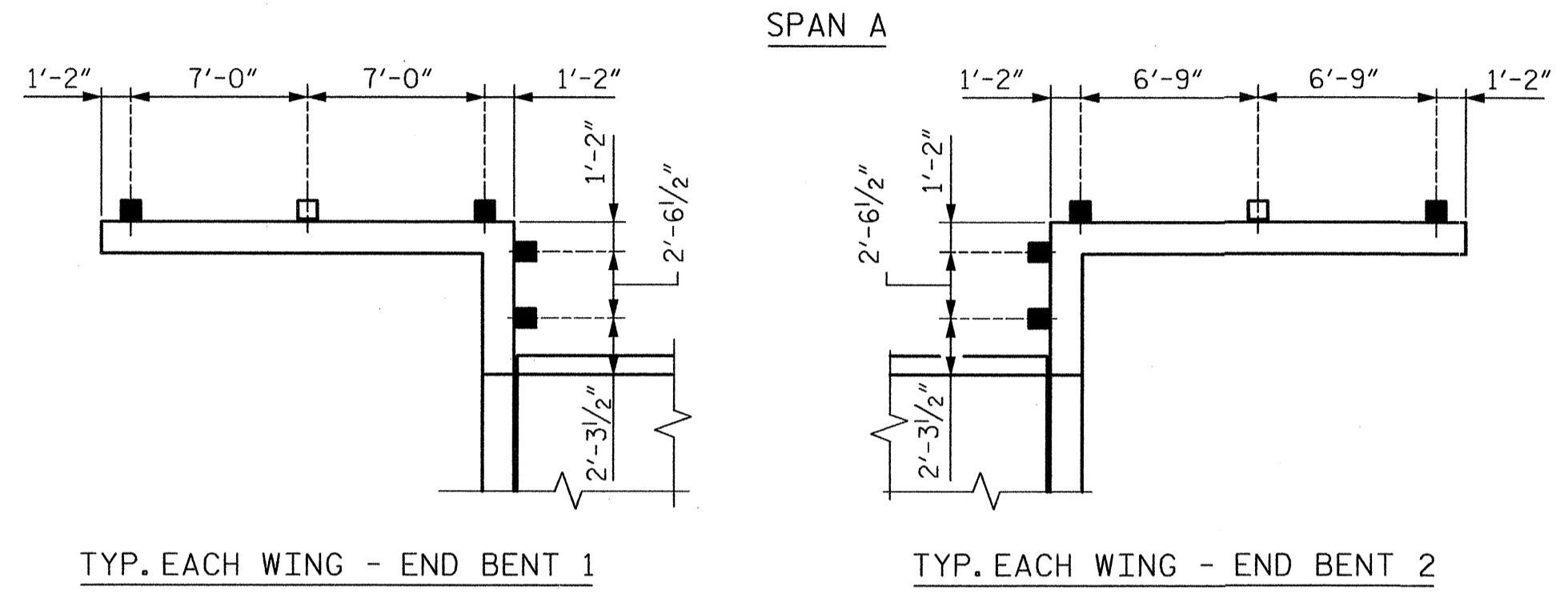


NCGTP RAIL ACCESS
**SUPERSTRUCTURE
DIAPHRAGM DETAILS**
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-09
SCALE:	NO SCALE
SHEET NO:	

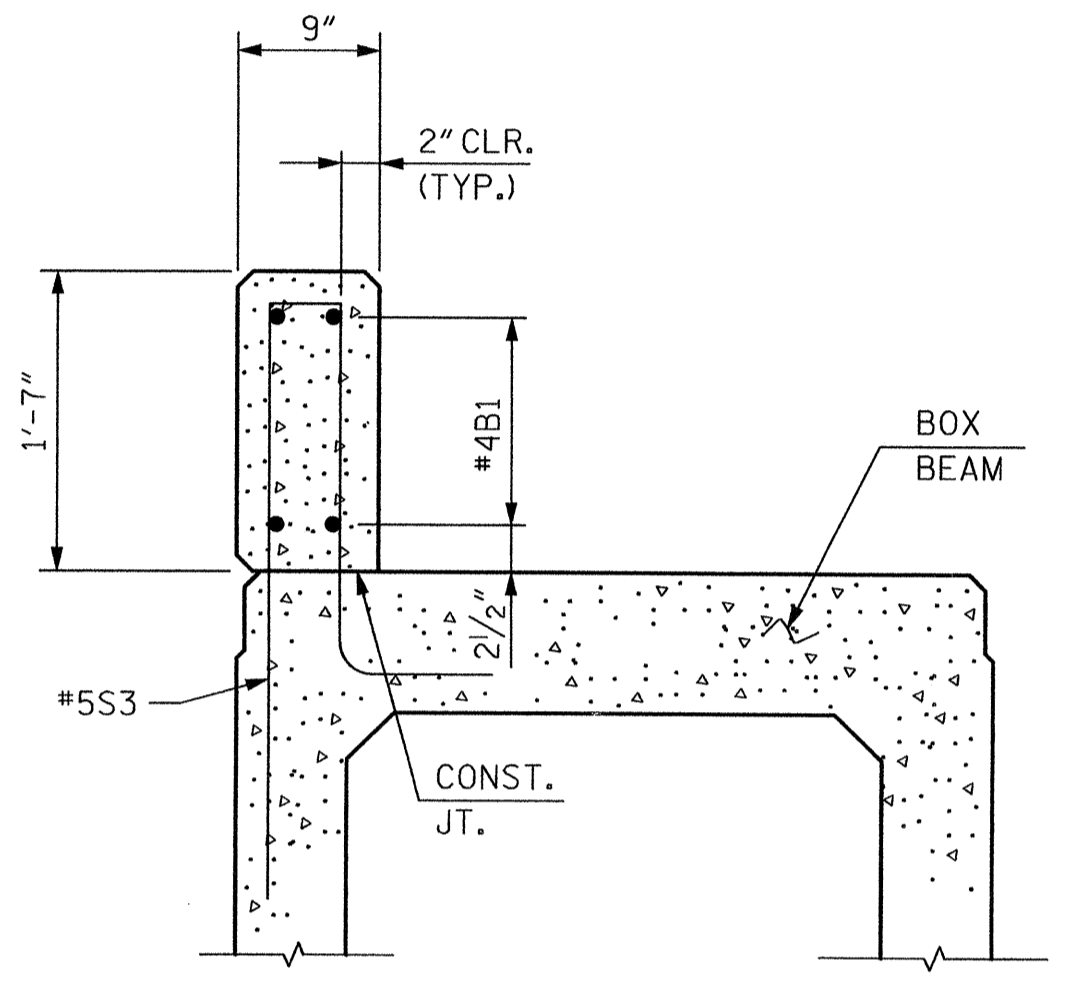


NOTES:
 HANDRAIL POST SHALL BE ASTM A36 STEEL.
 HANDRAIL PIPE SHALL BE ASTM A53 GRADE B STEEL.
 HANDRAIL ASSEMBLIES SHALL BE SHOP-PAINTED WITH AN INORGANIC ZINC-ACRYLIC SYSTEM IN ACCORDANCE WITH SYSTEM 1 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS. TOP COAT SHALL BE WHITE.
 ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.5, BRIDGE WELDING CODE, CURRENT EDITION.



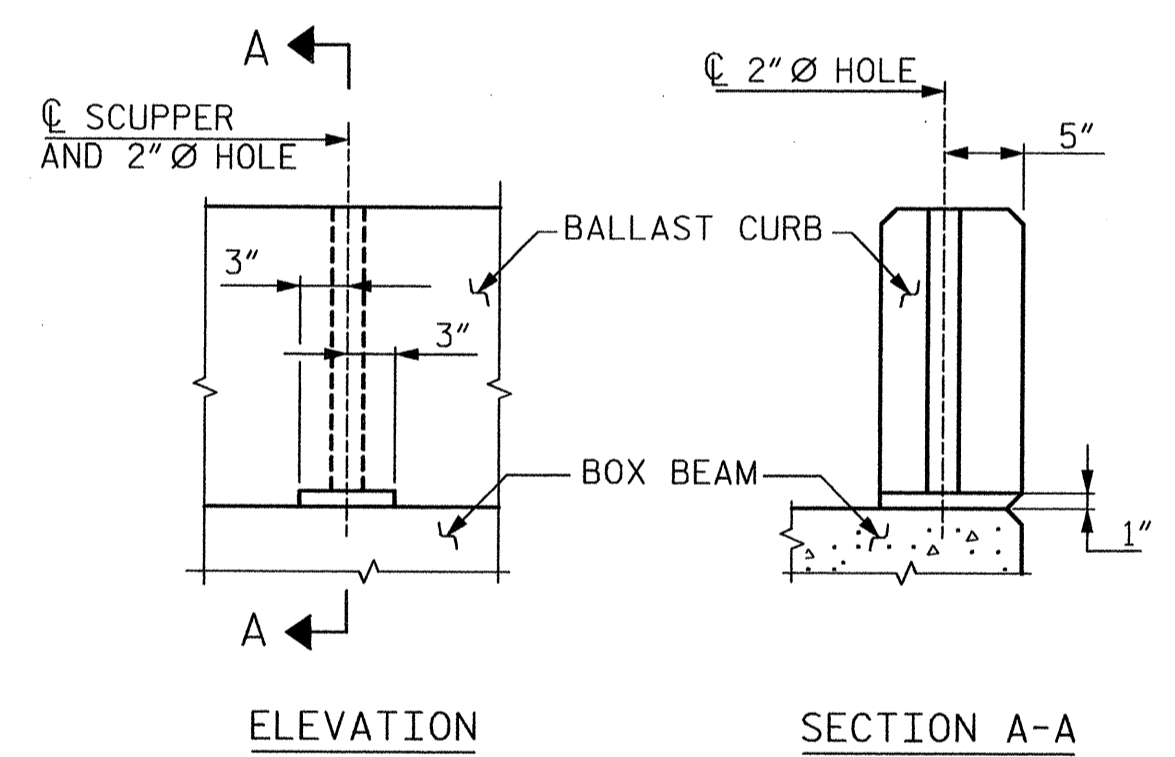
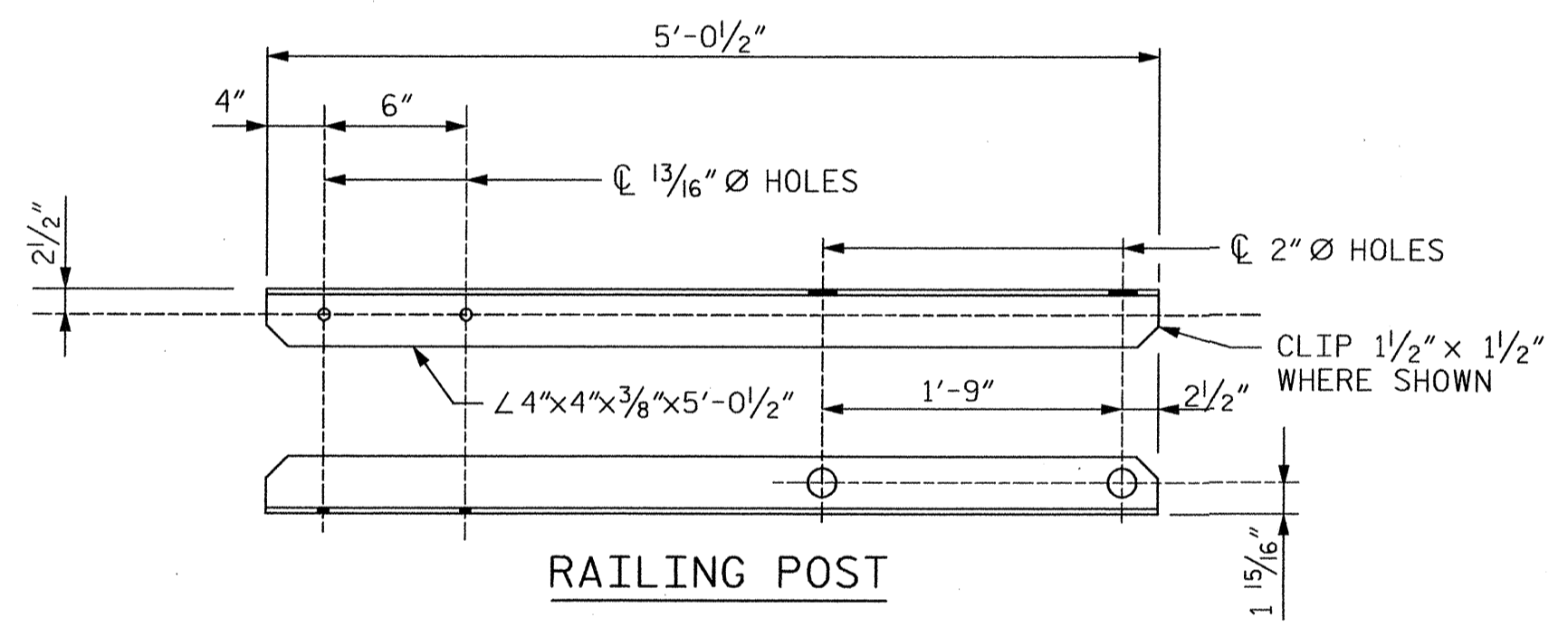
HANDRAIL POST SPACING - BRIDGE

- LEGEND**
- - INTERIOR POST
 - - END POST
 - ▼ - RAIL EXPANSION JOINT

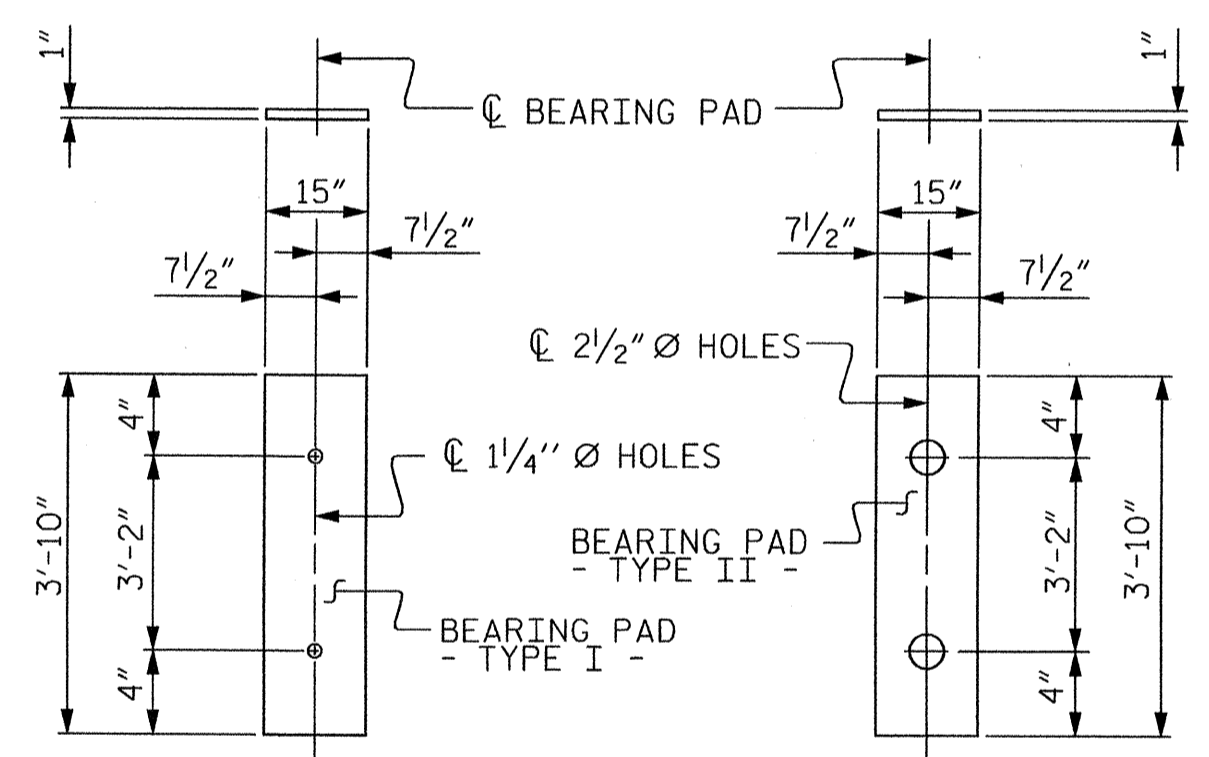


**SECTION THRU RAIL
 BALLAST CURB DETAILS**

HANDRAIL POST SPACING - WINGWALLS

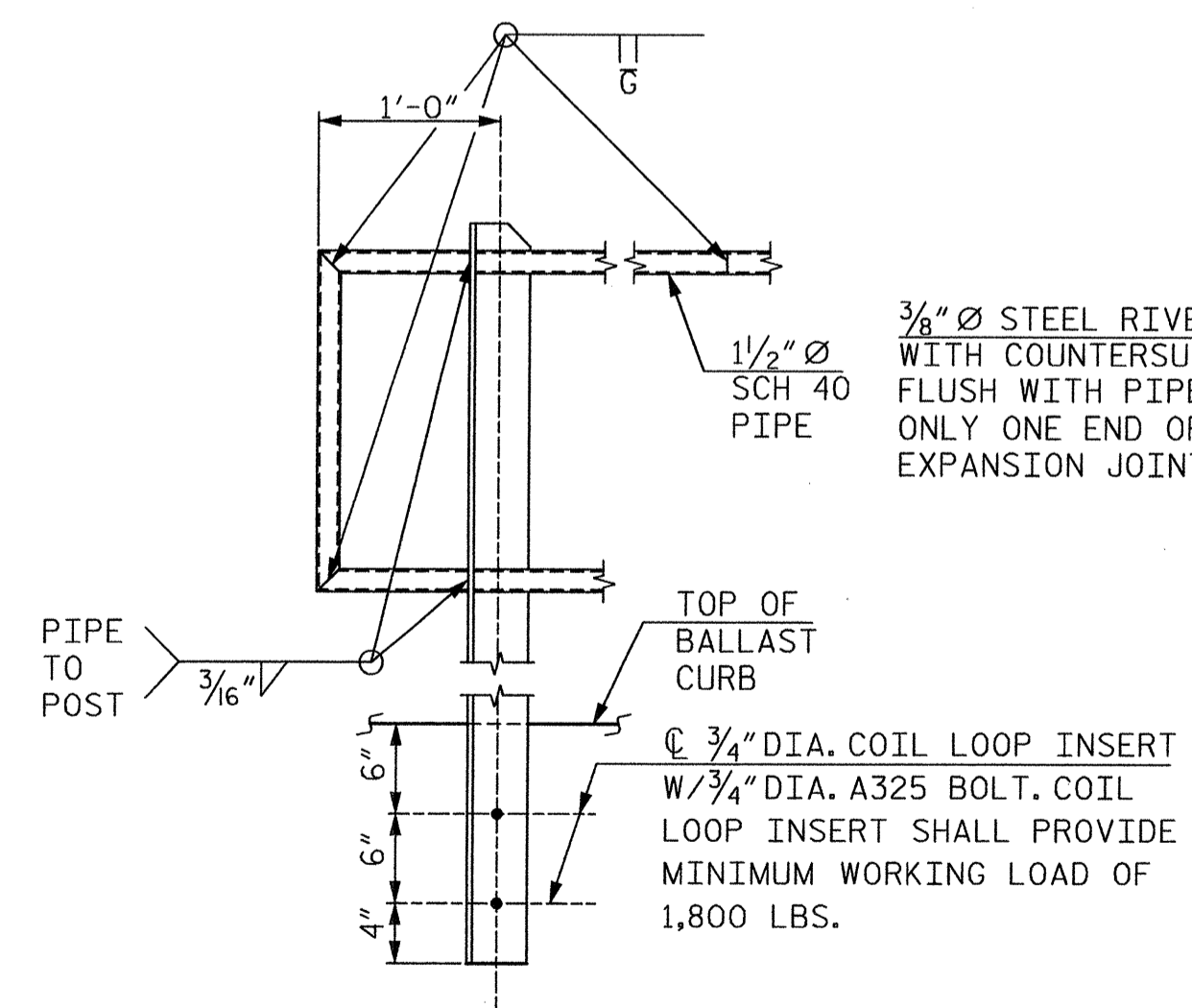


SCUPPER DETAILS
 (REINFORCING STEEL NOT SHOWN FOR CLARITY)

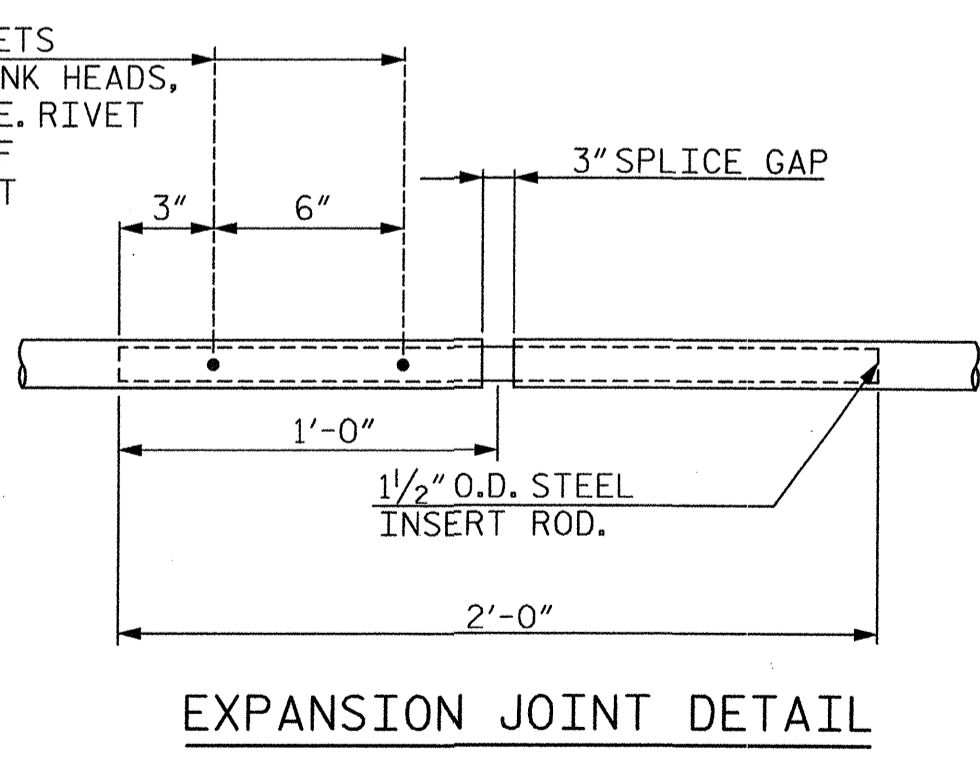


ELASTOMERIC BEARING DETAILS

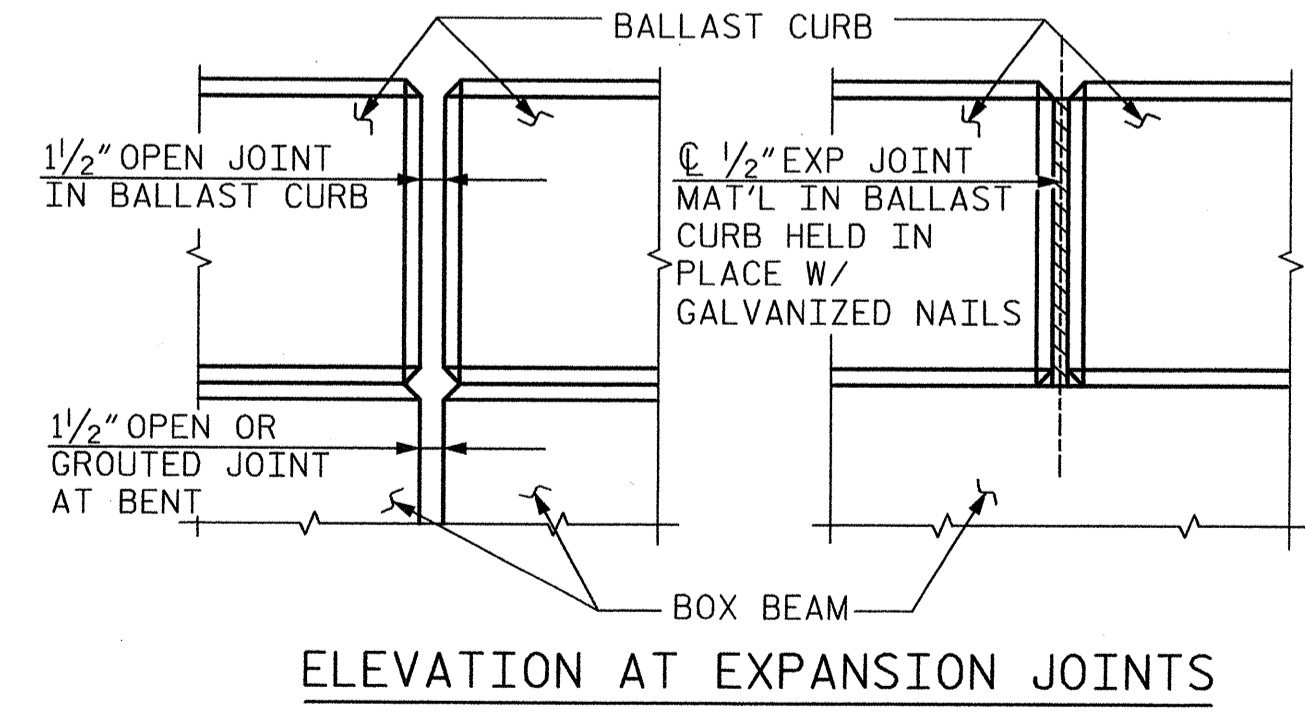
BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A	5	49'-10 1/2"	249'-4 1/2"
SPAN B	5	49'-10 1/2"	249'-4 1/2"
SPAN C	5	49'-10 1/2"	249'-4 1/2"
SPAN D	5	49'-10 1/2"	249'-4 1/2"
SPAN E	5	49'-10 1/2"	249'-4 1/2"
TOTAL			1,246'-10 1/2"



HANDRAIL DETAIL



EXPANSION JOINT DETAIL

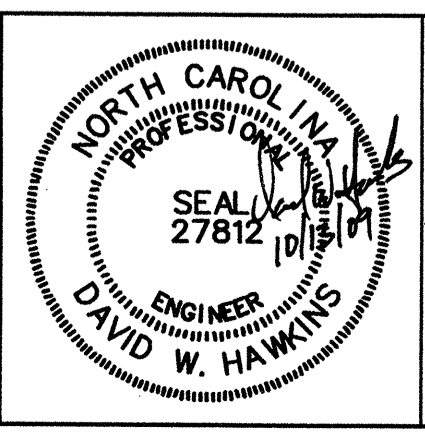


ELEVATION AT EXPANSION JOINTS

BILL OF MATERIAL FOR BALLAST CURB										
BAR	BARS PER SPAN					TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C	SPAN D	SPAN E					
B1	40	40	40	40	40	200	#4	STR	9'-7"	1,280
REINFORCING STEEL									LBS.	1,280
CLASS AA CONCRETE									CU.YDS.	21.9
TOTAL LIN.FT. OF CONCRETE BALLAST CURB									LTN.FT.	498.8

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: **DWH**
 DRAWN BY: **MEW**
 CHECKED BY: **DWH**
 DATE: **OCT 13, 2009**



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RAIL DIVISION
 ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 1504 MAIL SERVICE CENTER
 RALEIGH, NC 27609-1544

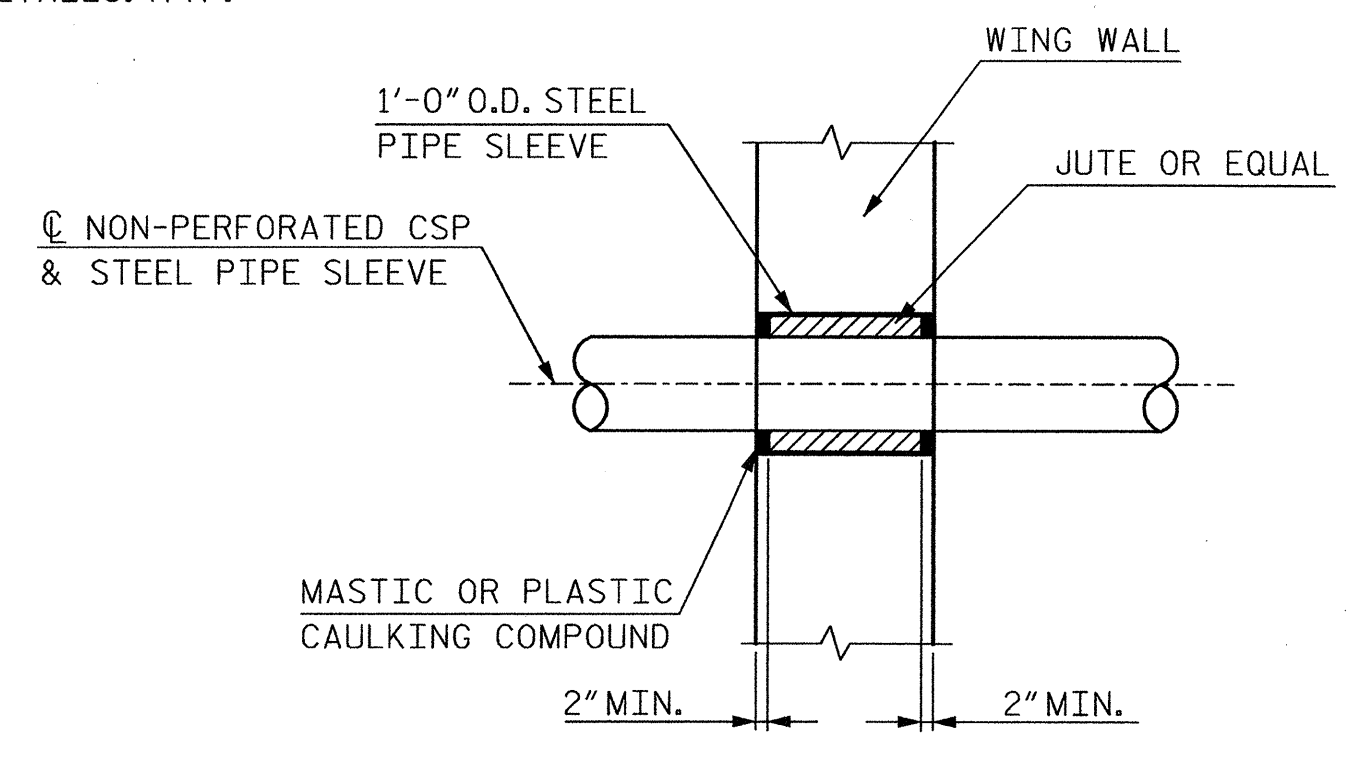
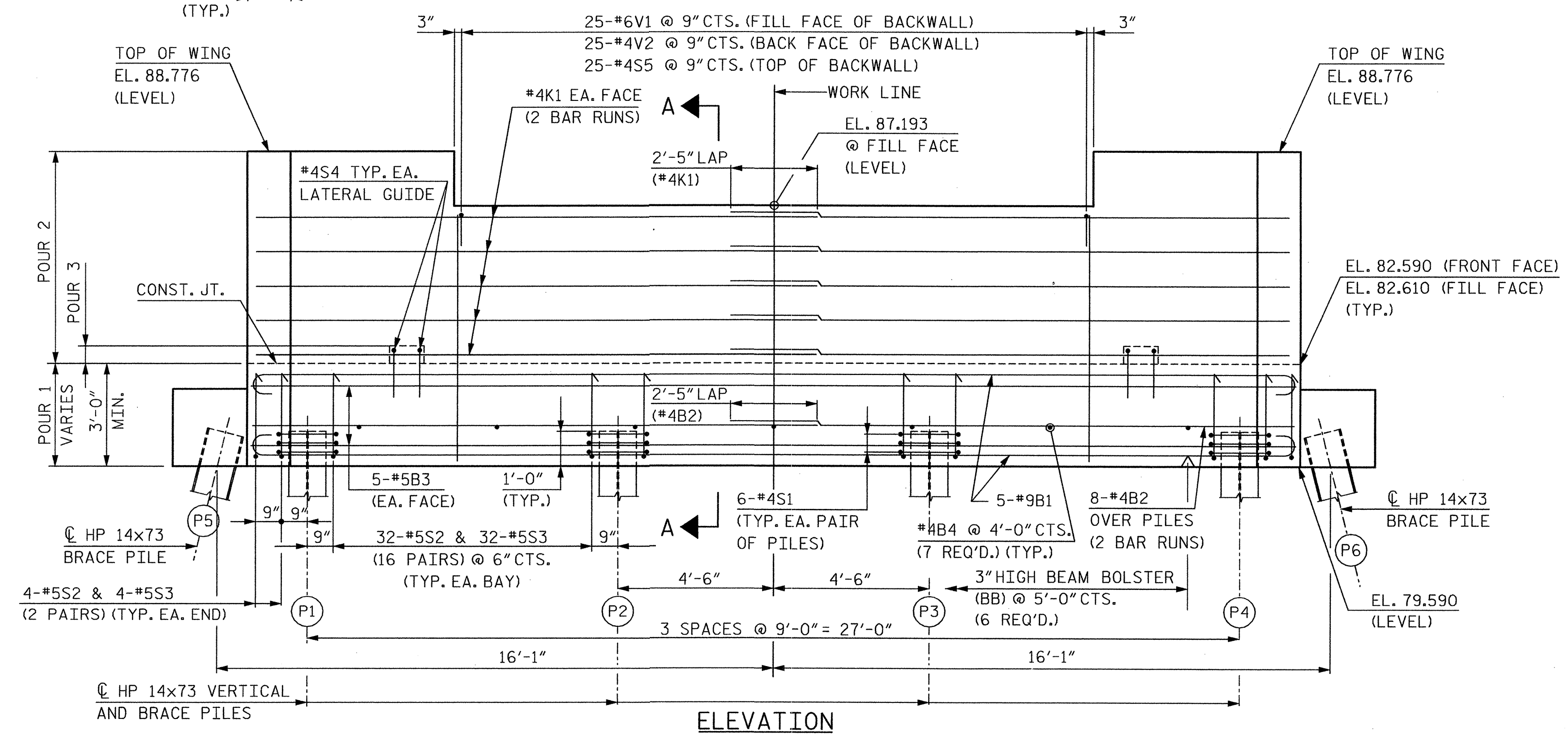
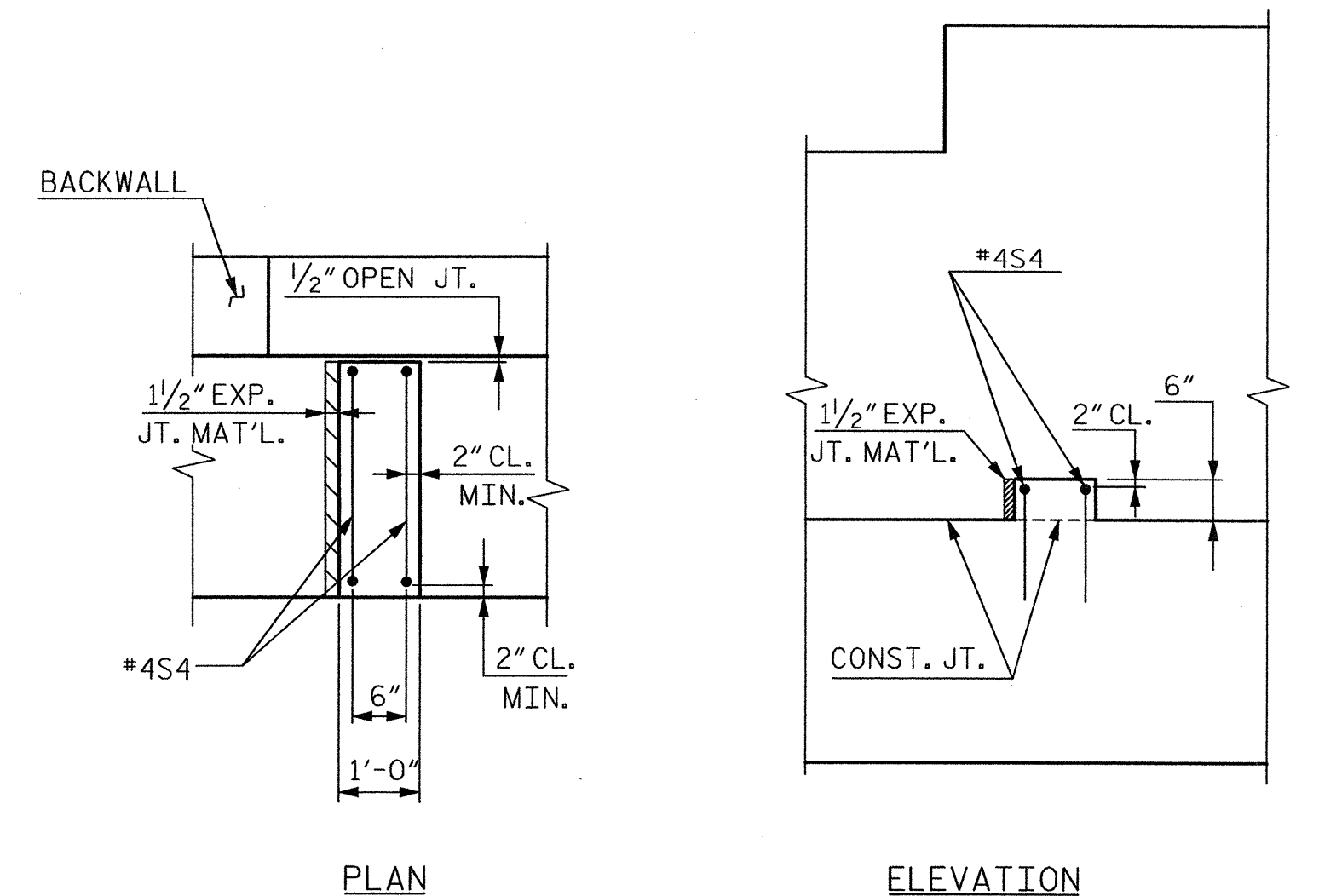
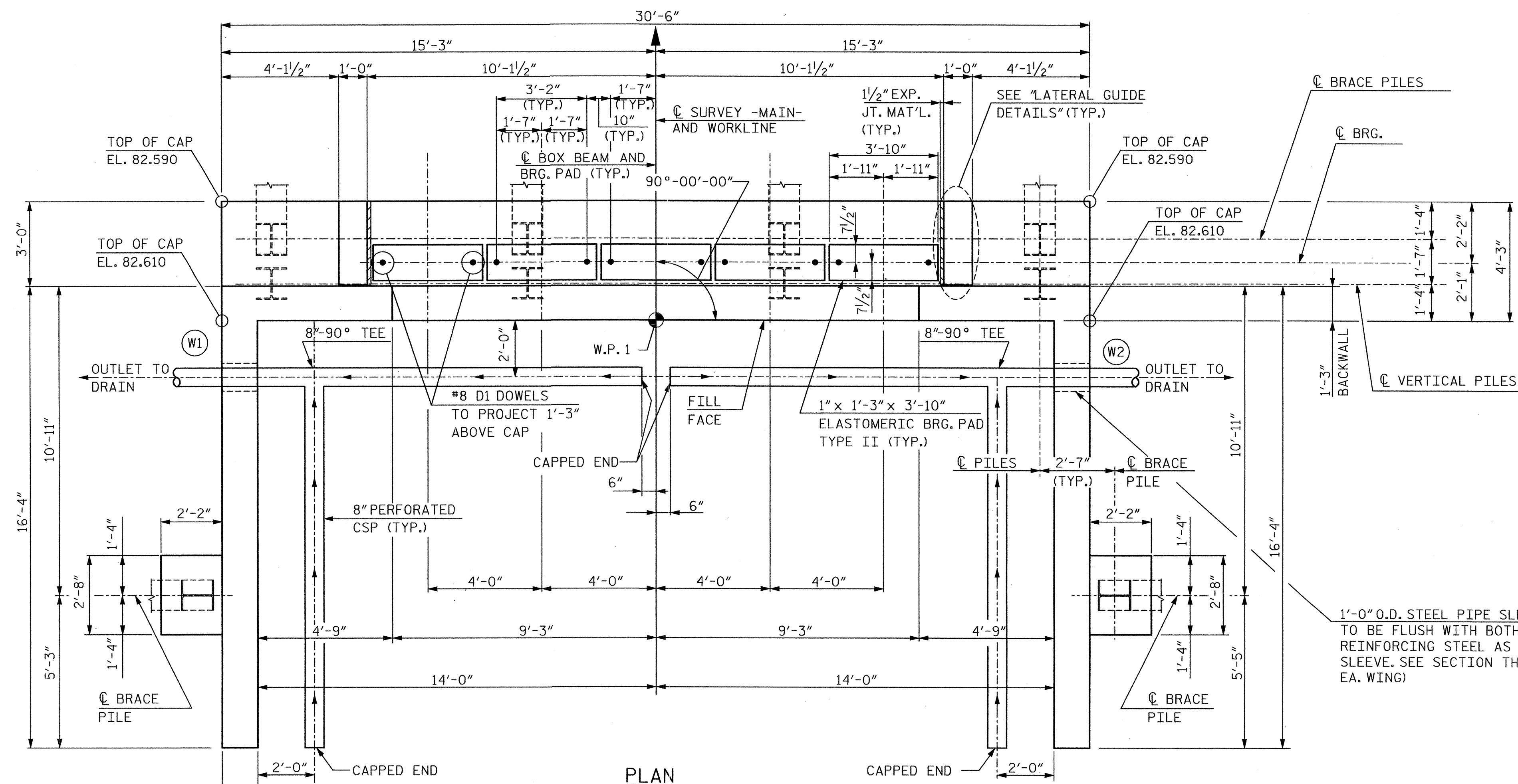
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 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609



**NCGTP RAIL ACCESS
 SUPERSTRUCTURE
 4'-0" x 4'-6"
 BOX BEAM SUMMARY
 AND HANDRAIL DETAILS
 KINSTON, NC**

SHEET 7 OF 7

PROJECT NO:	U-2928B
DRAWING NO:	ST-10
SCALE:	NO SCALE
SHEET NO:	



NOTES:

FOR WINGWALL DETAILS, SEE SHEET 2 OF 3.

FOR SECTION A-A, PILE SPLICE DETAILS, AND GENERAL NOTES, SEE SHEET 3 OF 3.

INDICATES 3:12 PILE BATTER IN DIRECTION SHOWN.

PAYMENT FOR PIPE SLEEVE INSERT SHALL BE CONSIDERED AS INCIDENTAL TO CONSTRUCTION OF END BENT.

CORRUGATED STEEL PIPE LOCATED IN DRAINAGE AREA BETWEEN THE WINGWALLS SHALL BE PERFORATED. ALL OTHER CSP SHALL BE NON-PERFORATED.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: JJB
 CHECKED BY: DWH
 DATE: OCT 13, 2009

NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 27812
 DAVID W. HAWKINS

NC DEPARTMENT OF TRANSPORTATION RAIL DIVISION

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 Raleigh, North Carolina 27609

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
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 RALEIGH, NC 27699-1444

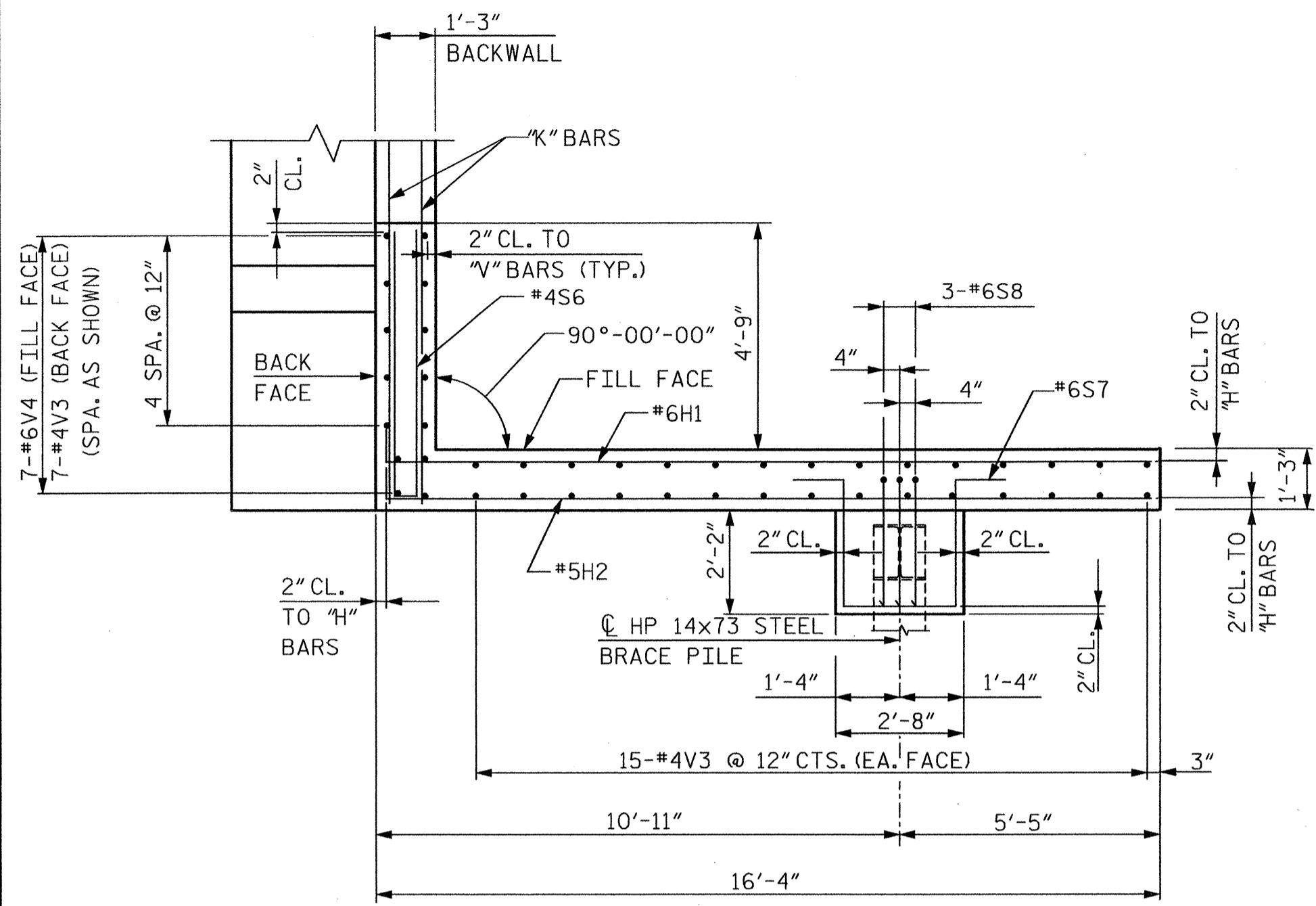
GTP Rail Access

NCGTP RAIL ACCESS

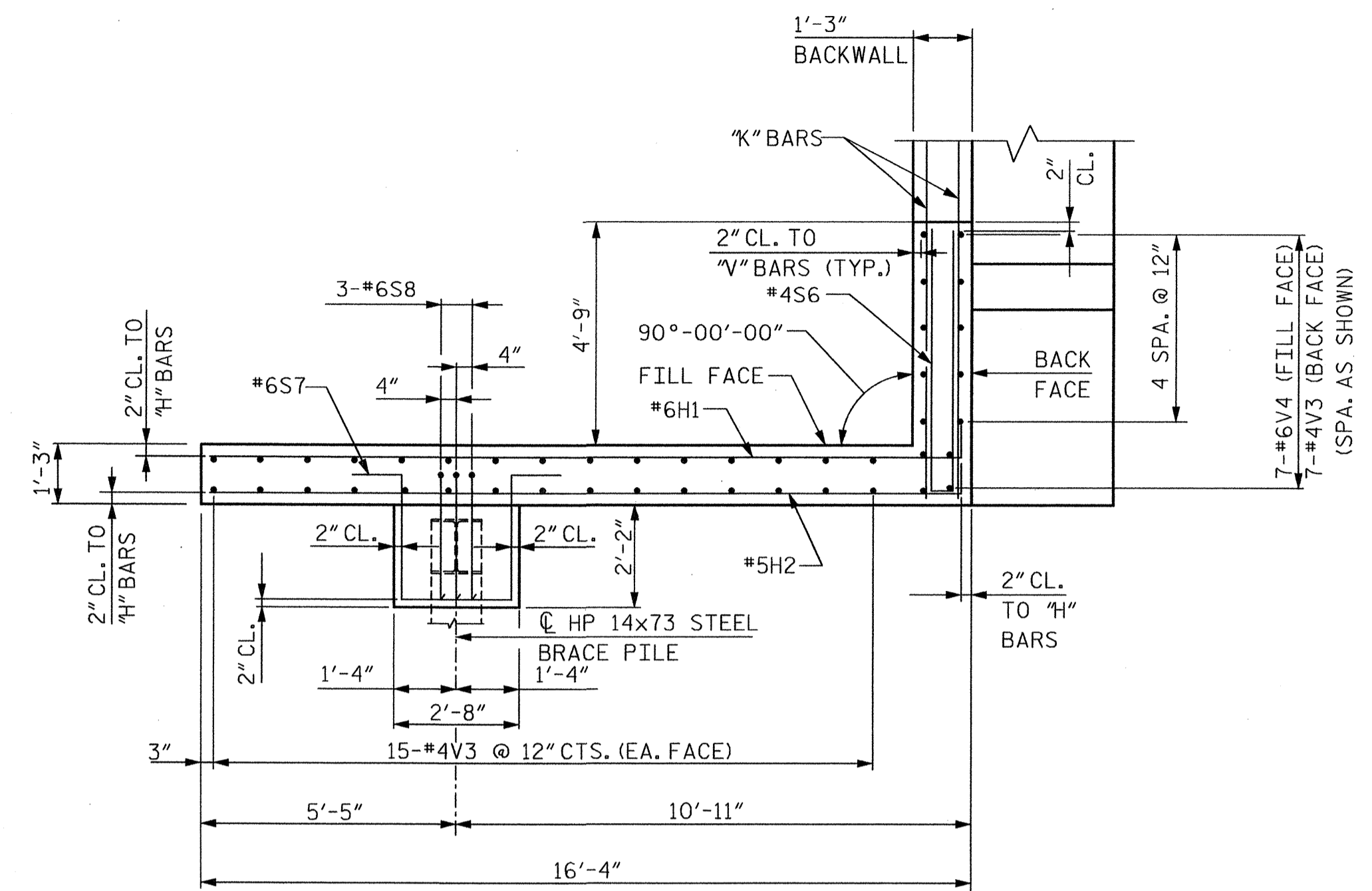
END BENT 1

KINSTON, NC

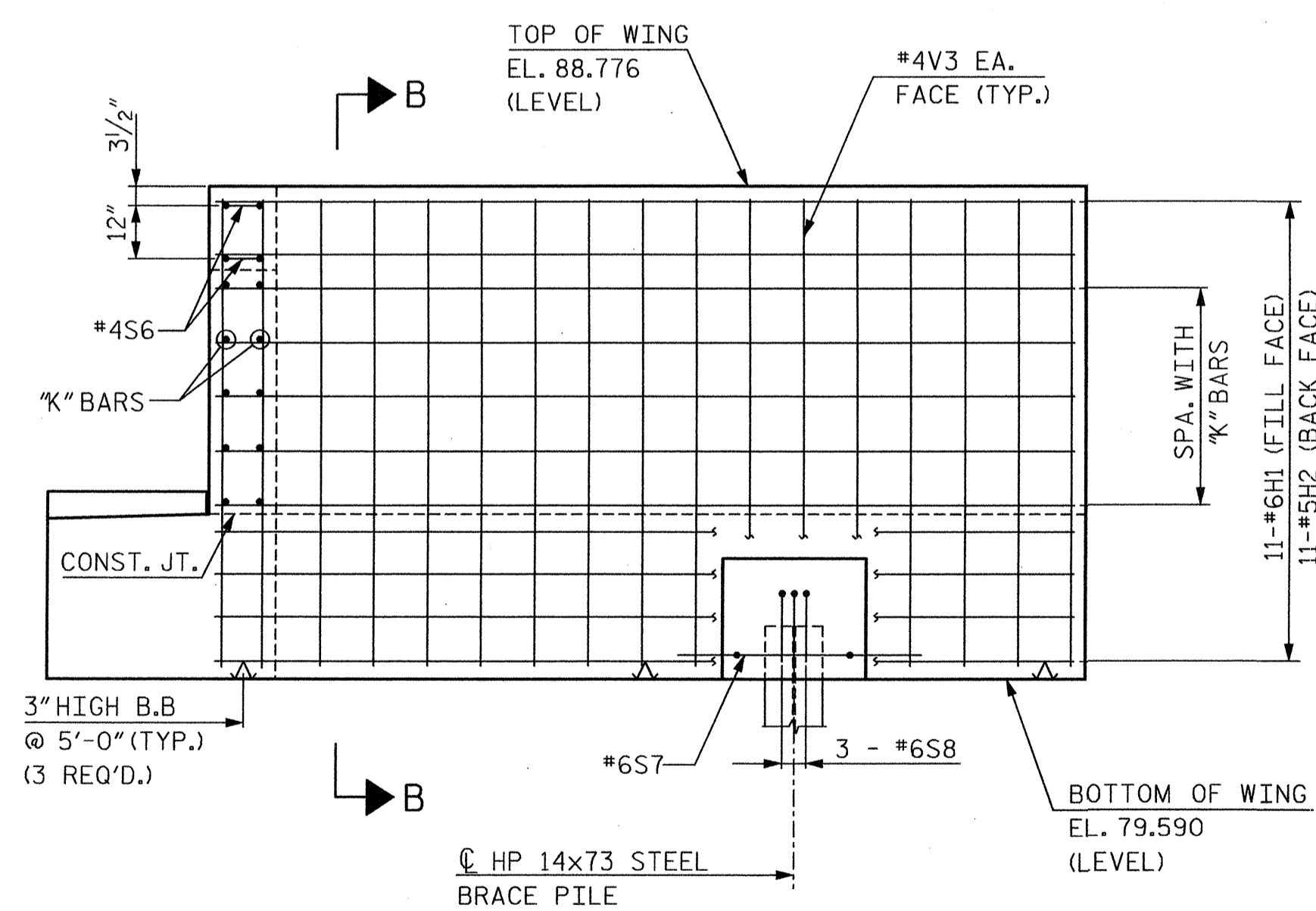
PROJECT NO: U-2928B
 DRAWING NO: ST-11
 SCALE: NO SCALE
 SHEET NO:



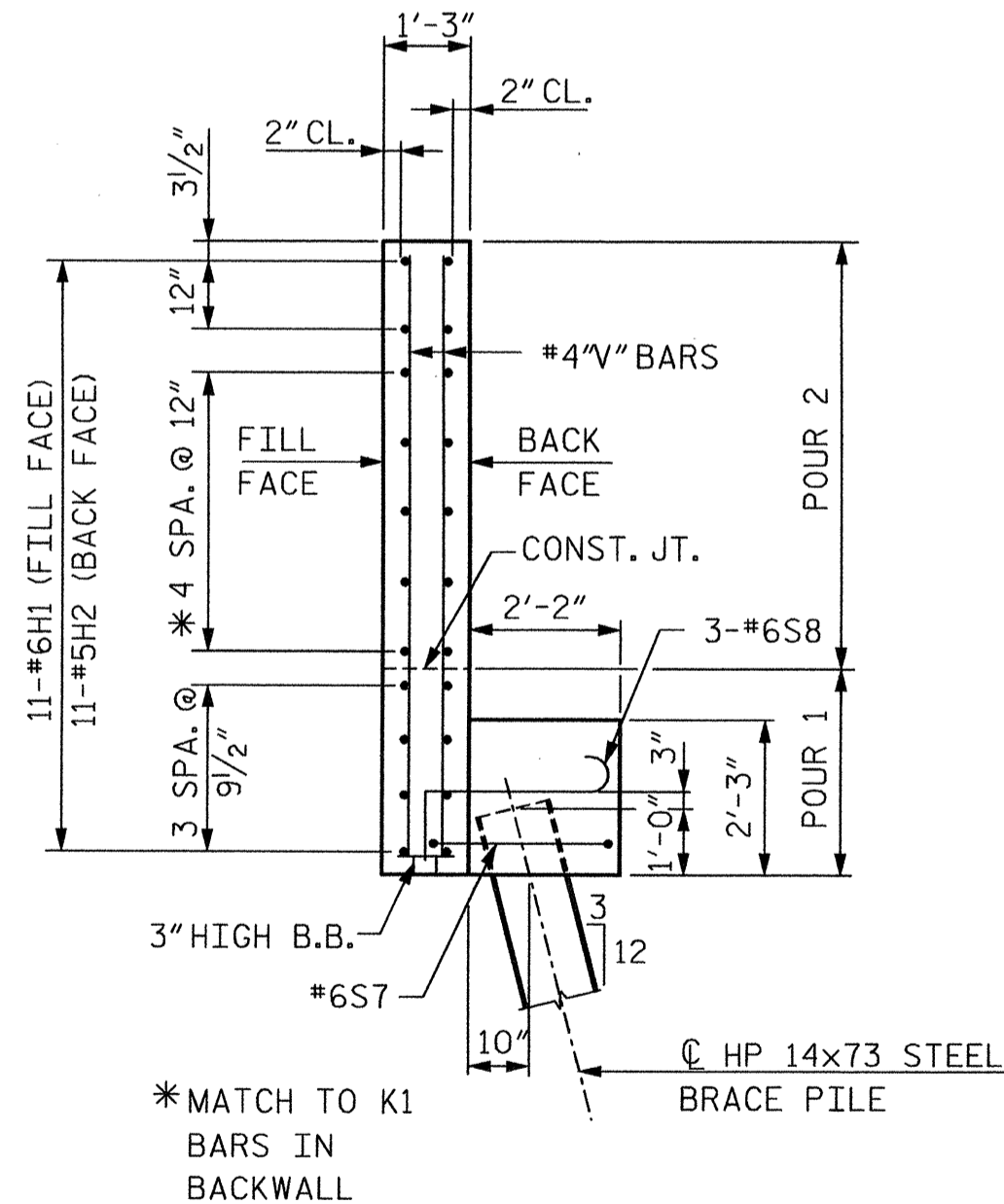
PLAN OF WING (W1)



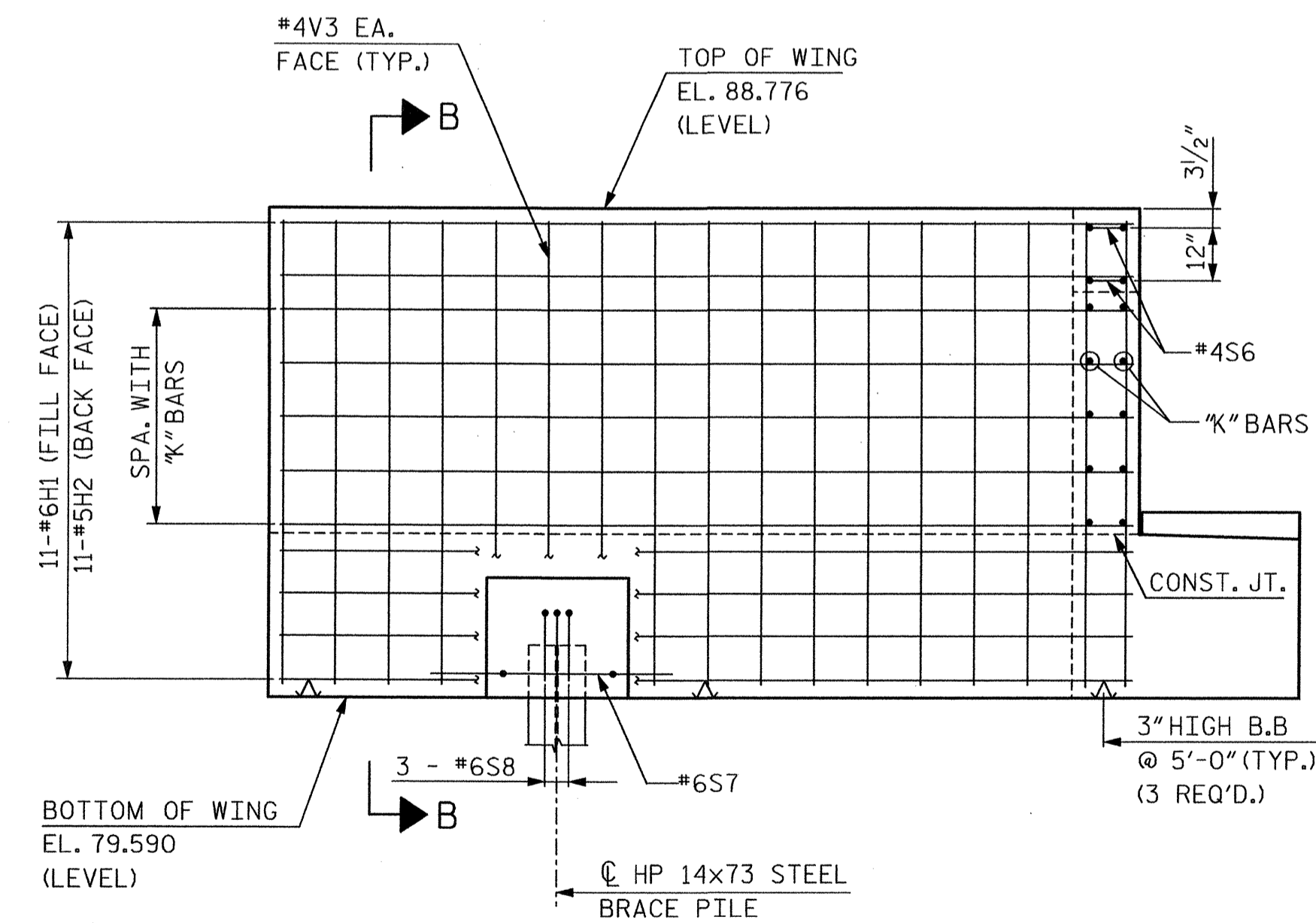
PLAN OF WING (W2)



ELEVATION OF WING (W1)



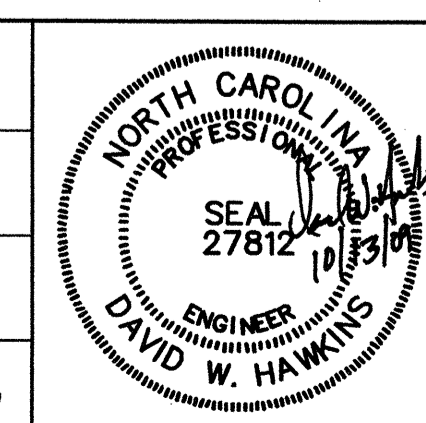
SECTION B-B



ELEVATION OF WING (W2)

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH
DRAWN BY:
JJB
CHECKED BY:
DWH
DATE:
OCT 13, 2009



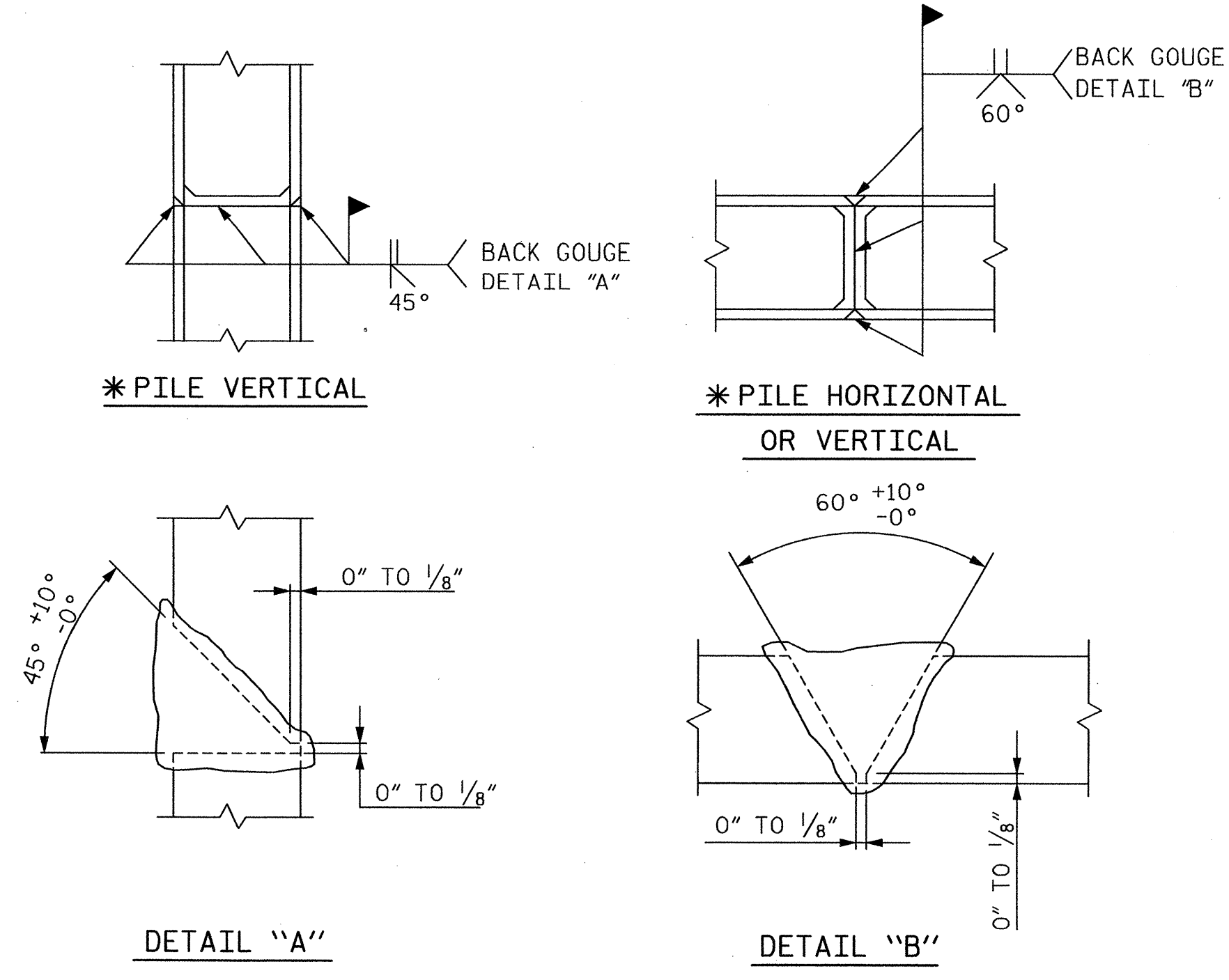
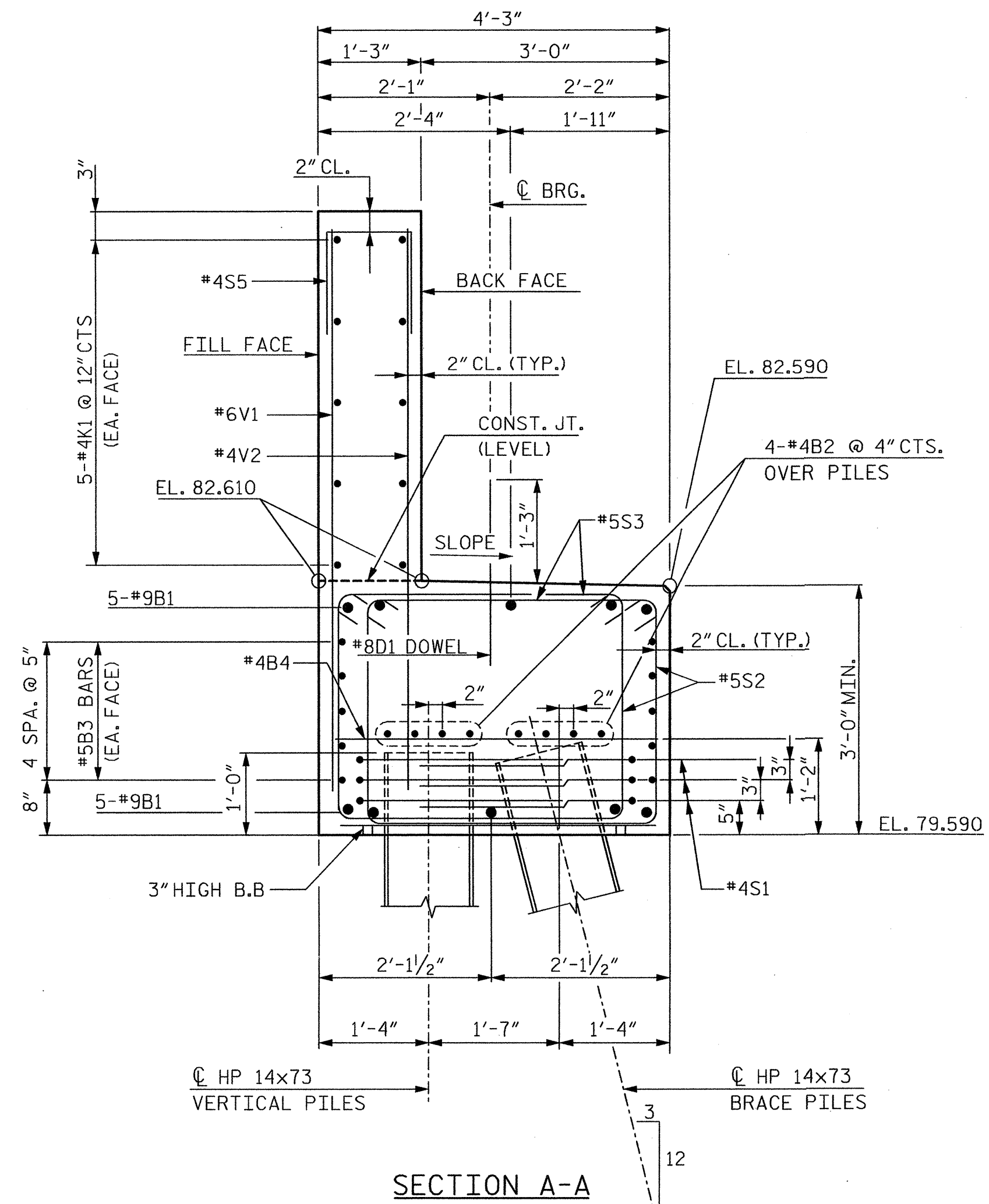
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
HNTB
HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
146 MAIL SERVICE CENTER
RALEIGH, NC 27609-1146

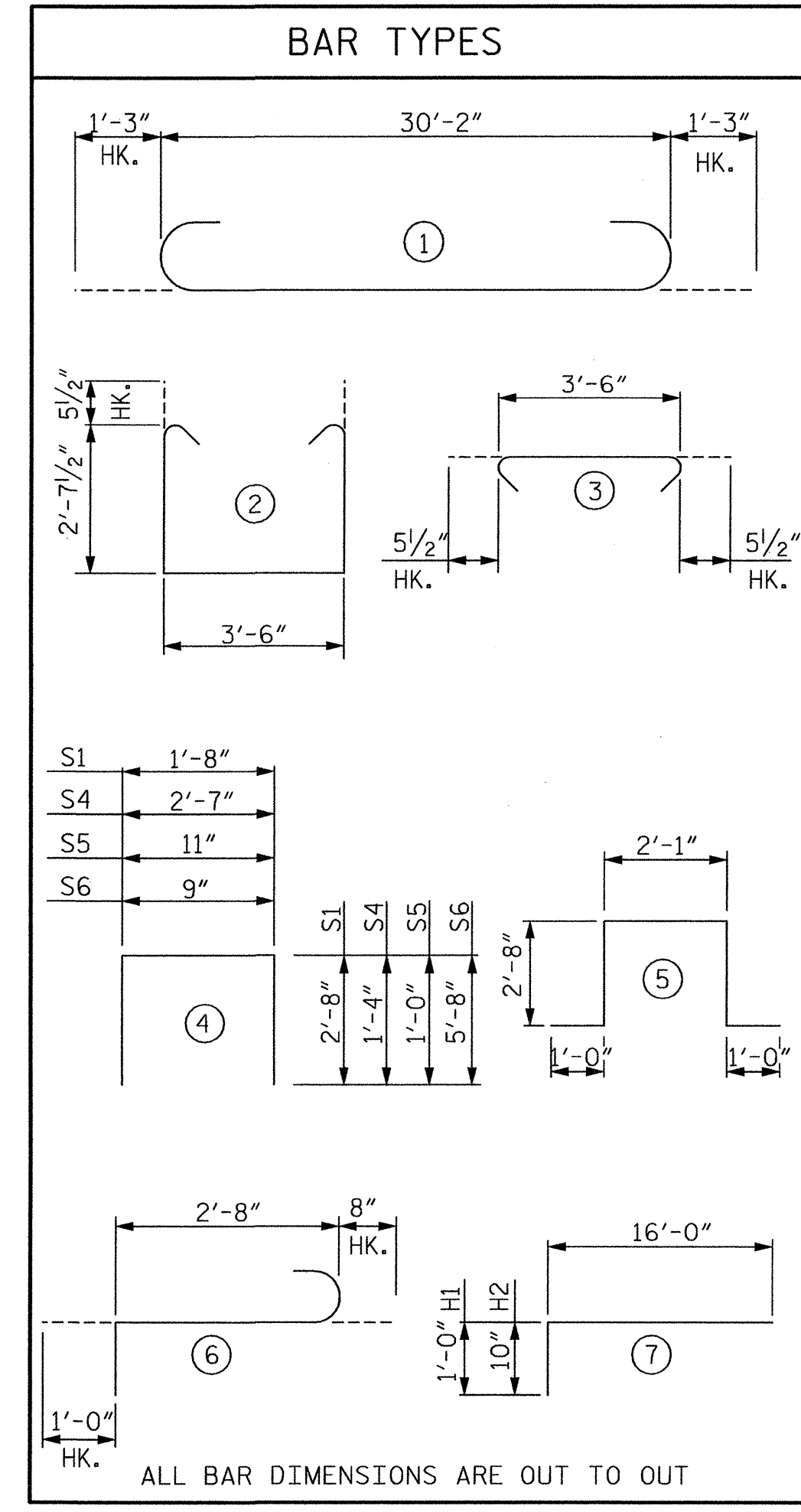
GTP Rail Access

NCGTP RAIL ACCESS
END BENT 1
KINSTON, NC

PROJECT NO: U-2928B
DRAWING NO: ST-12
SCALE: NO SCALE
SHEET NO:

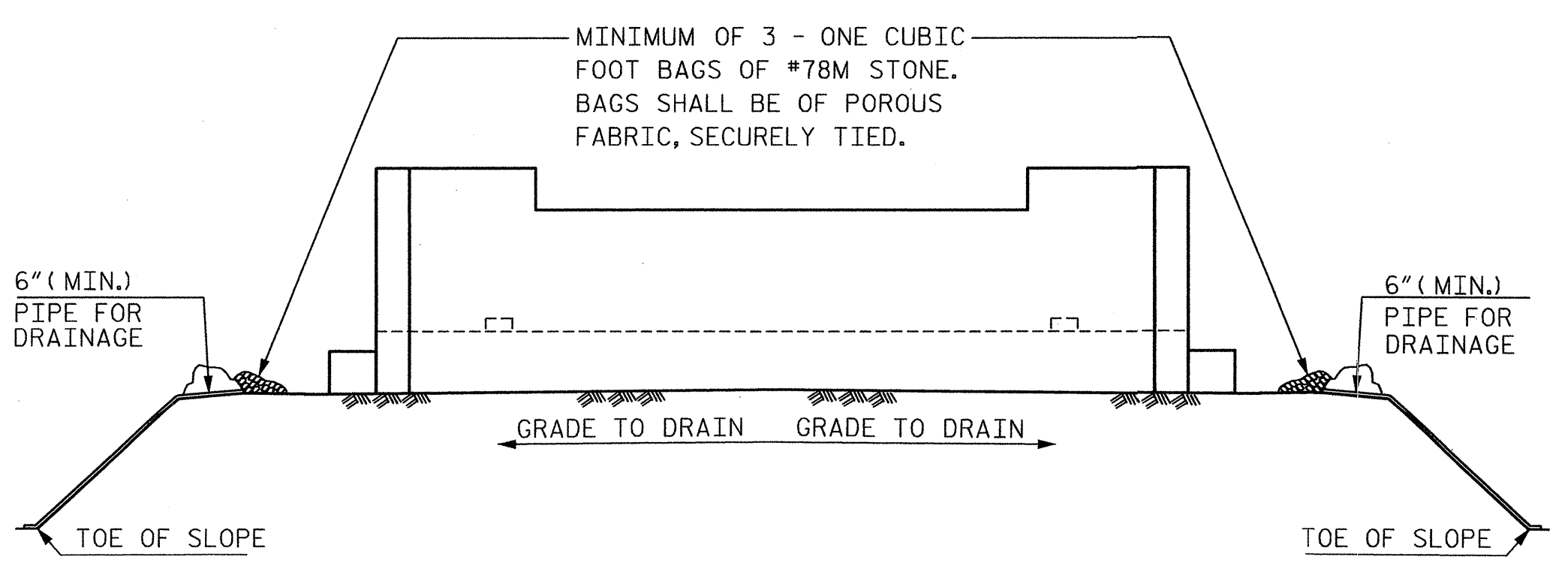


* POSITION OF PILE DURING WELDING
PILE SPLICE DETAILS



BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	WEIGHT (LBS.)	
B1	10	9	1	32'-8"	1,111
B2	16	4	STR	16'-4"	175
B3	10	5	STR	30'-2"	315
B4	7	4	STR	3'-11"	18
D1	10	8	STR	2'-3"	60
H1	22	6	7	17'-0"	562
H2	22	5	7	16'-10"	386
K1	20	4	STR	16'-4"	218
S1	24	4	4	7'-0"	112
S2	104	5	2	9'-8"	1,049
S3	104	5	3	4'-5"	479
S4	4	4	4	5'-3"	14
S5	25	4	4	2'-11"	49
S6	4	4	4	12'-1"	32
S7	2	6	5	9'-5"	28
S8	6	6	6	4'-4"	39
V1	25	6	STR	7'-2"	269
V2	25	4	STR	7'-2"	120
V3	74	4	STR	8'-9"	433
V4	14	6	STR	8'-9"	184

QUANTITIES		
REINFORCING STEEL	LBS.	5,653
CLASS AA CONCRETE BREAKDOWN		
POUR 1 - CAP & BOT. OF WINGS	CU. YARDS	19.6
POUR 2 - TOP OF WINGS & BACKWALL	CU. YARDS	15.9
POUR 3 - LATERAL GUIDES	CU. YARDS	0.1
TOTAL	CU. YARDS	35.6
HP 14x73 STEEL PILES	NO.	10
	LN. FT.	600

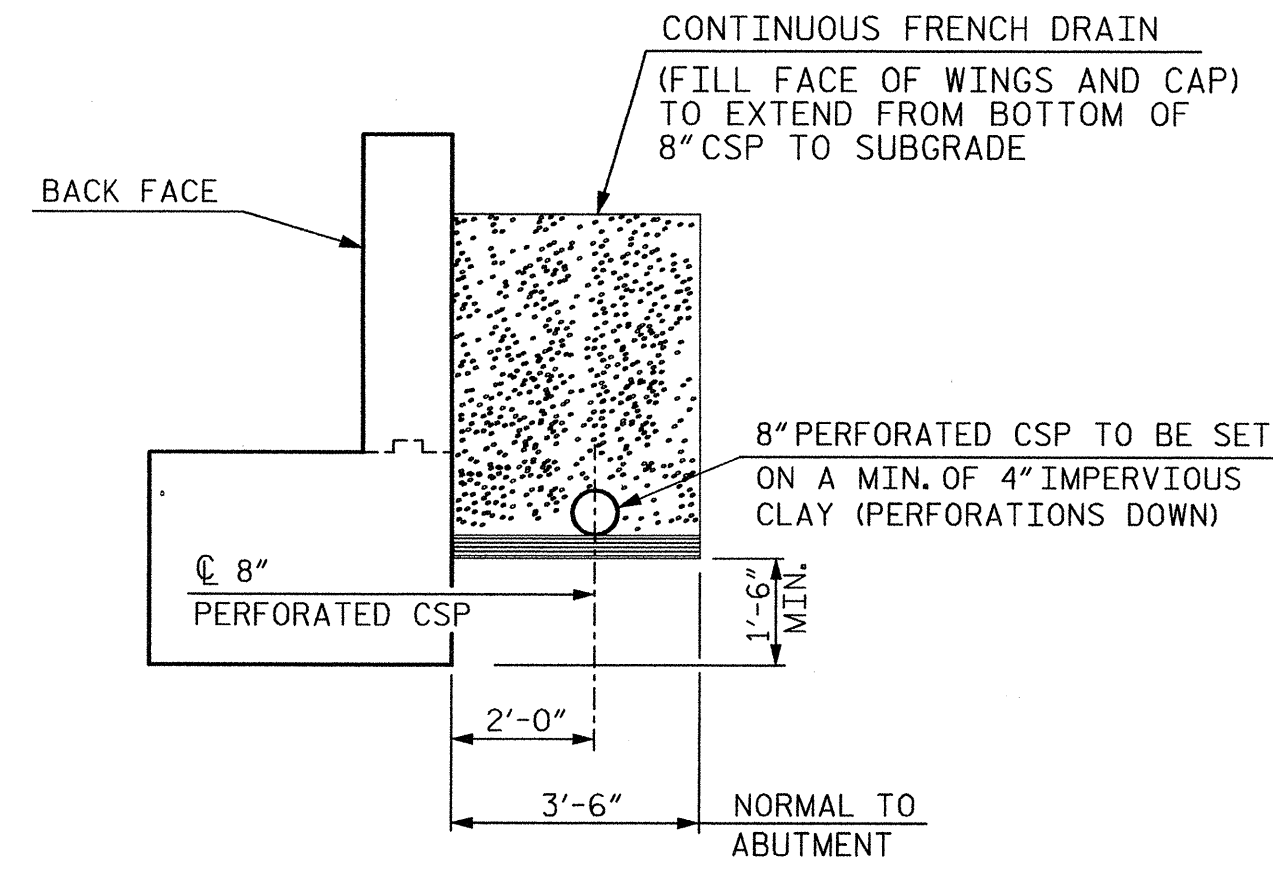


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF THE END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



CONTINUOUS FRENCH DRAIN DETAIL

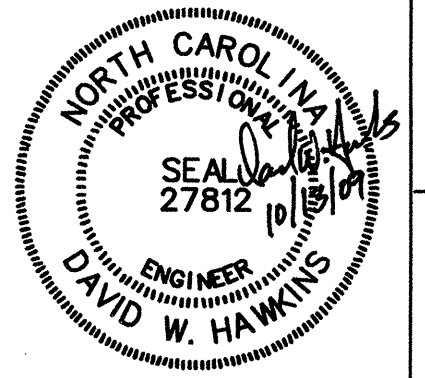
NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #8D1 DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL BOX BEAMS ARE IN PLACE.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: JJB
 CHECKED BY: DWH
 DATE: OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 104 MAIL SERVICE CENTER
 RALEIGH, NC 27609

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 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

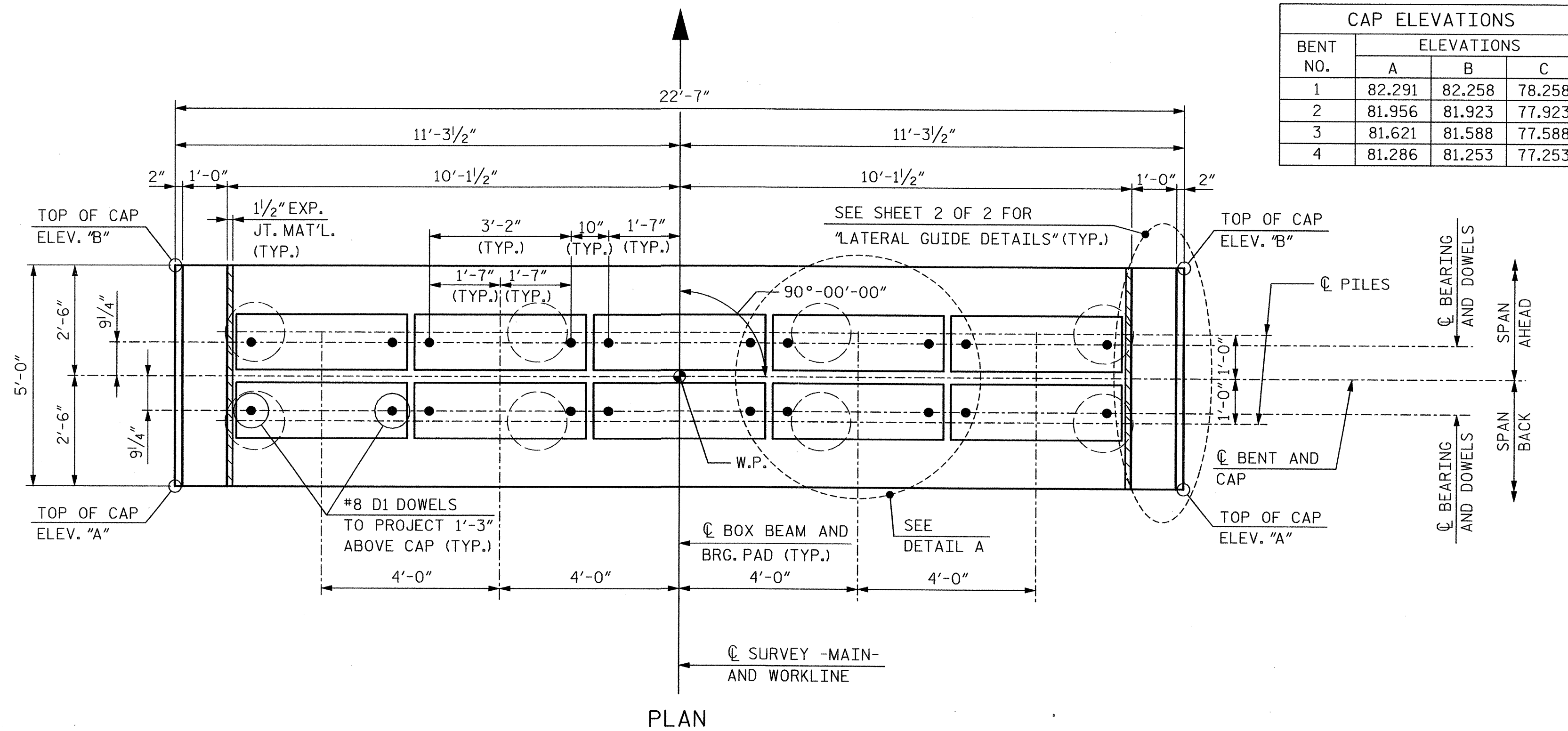
GTP Rail Access

NCGTP RAIL ACCESS

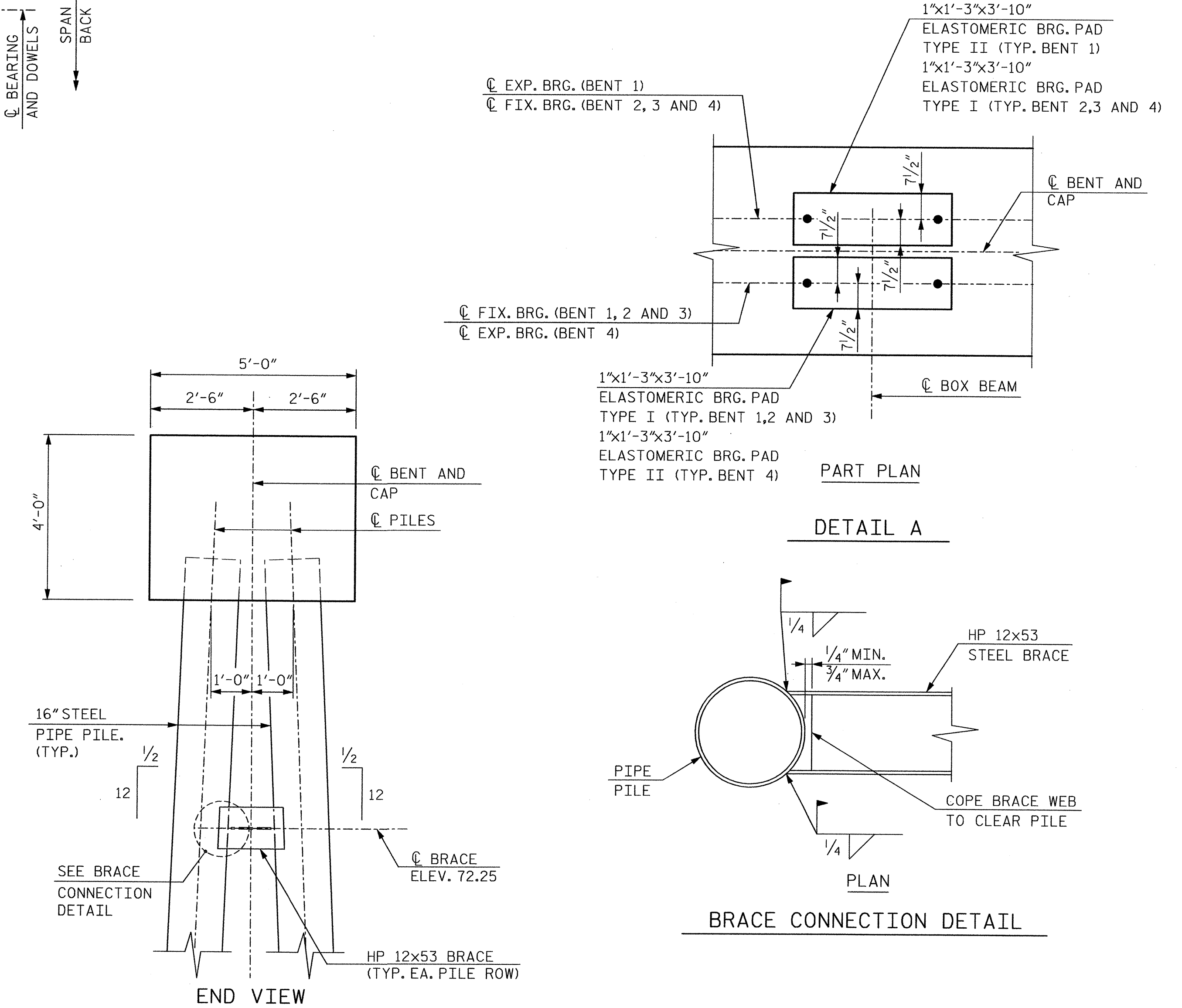
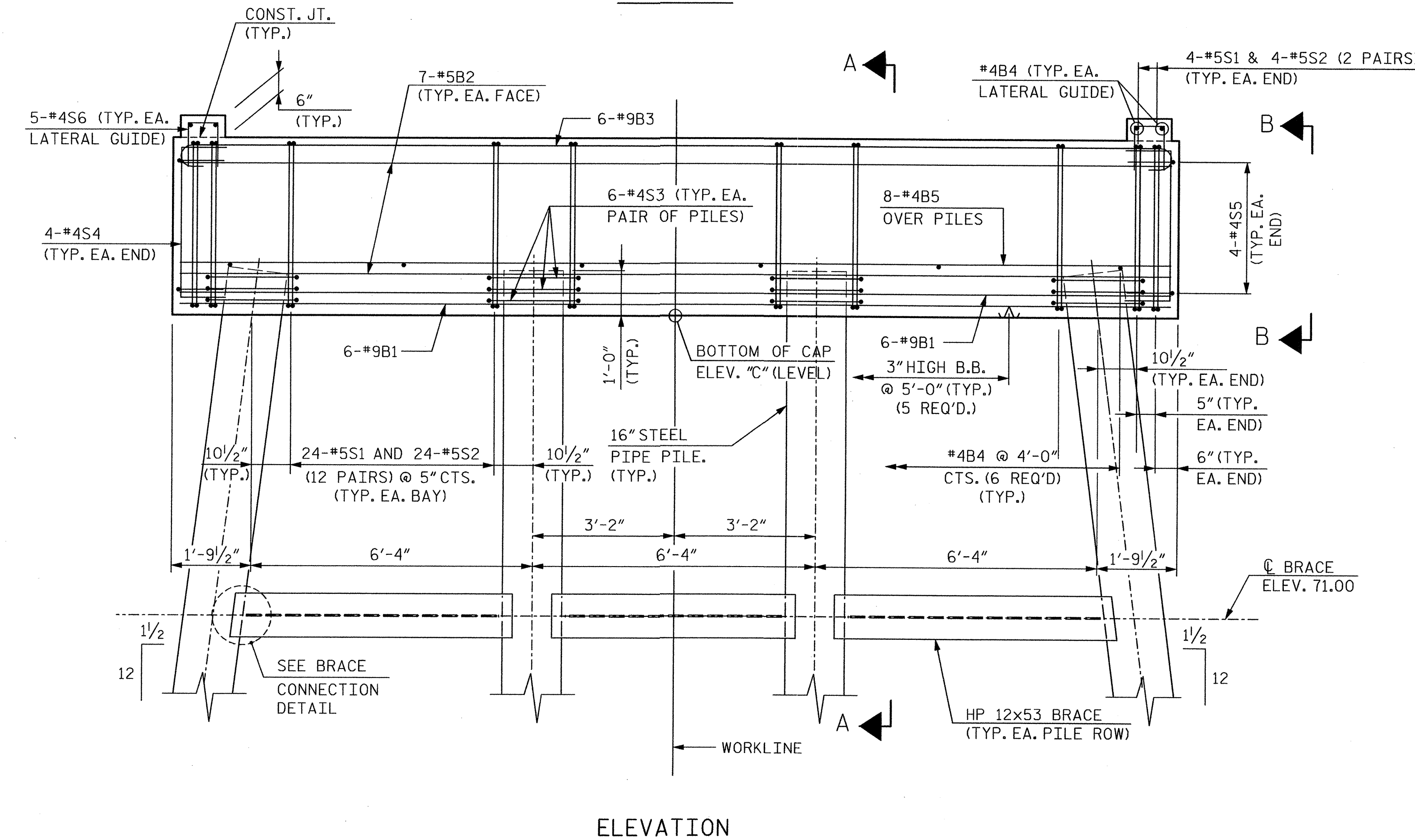
END BENT 1

KINSTON, NC

PROJECT NO: U-2928B
 DRAWING NO: ST-13
 SCALE: NO SCALE
 SHEET NO:

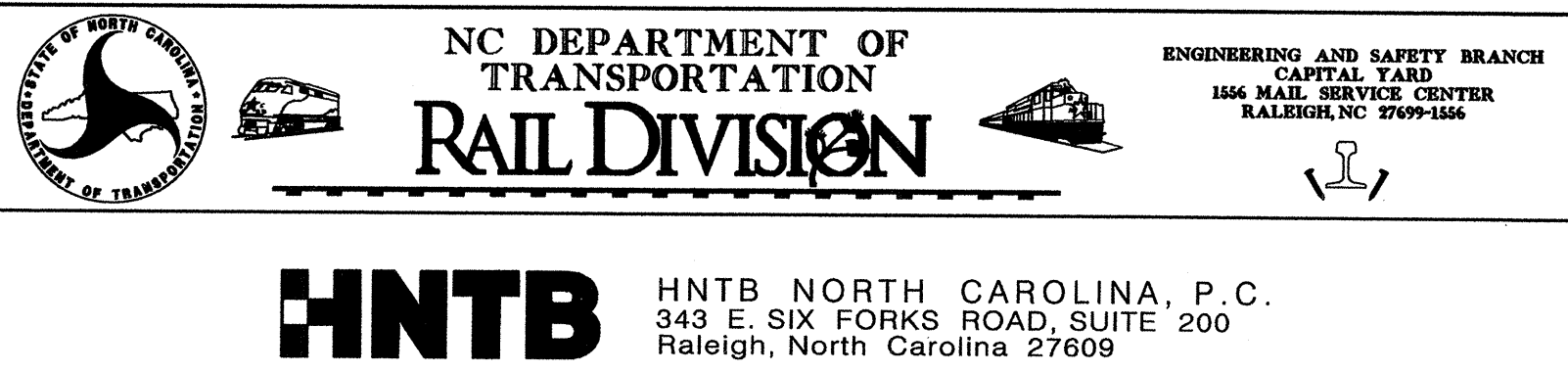
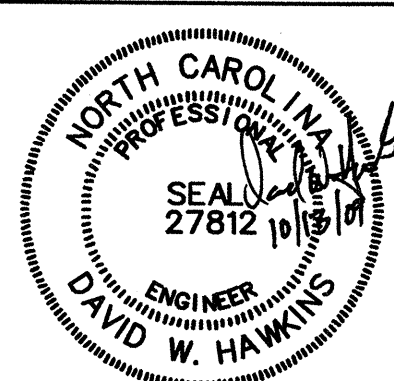


NOTES:
 STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #8D1 DOWELS.
 HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 LATERAL GUIDES ARE NOT TO BE POURED UNTIL AFTER THE BOX BEAMS ARE IN PLACE.
 FOR PIPE PILE DETAILS, SEE 16" STEEL PIPE PILES DETAIL SHEET.
 HP 12x53 STEEL BRACE SHALL BE ASTM A36 STEEL GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.
 WELDING SHALL BE IN ACCORDANCE WITH AWS D1.5, BRIDGE WELDING CODE, CURRENT EDITION.
 REPAIR GALVANIZED SURFACES THAT ARE ABRADED OR DAMAGED DURING WELDING WITH 2 COATS OF ORGANIC ZINC REPAIR PAINT IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



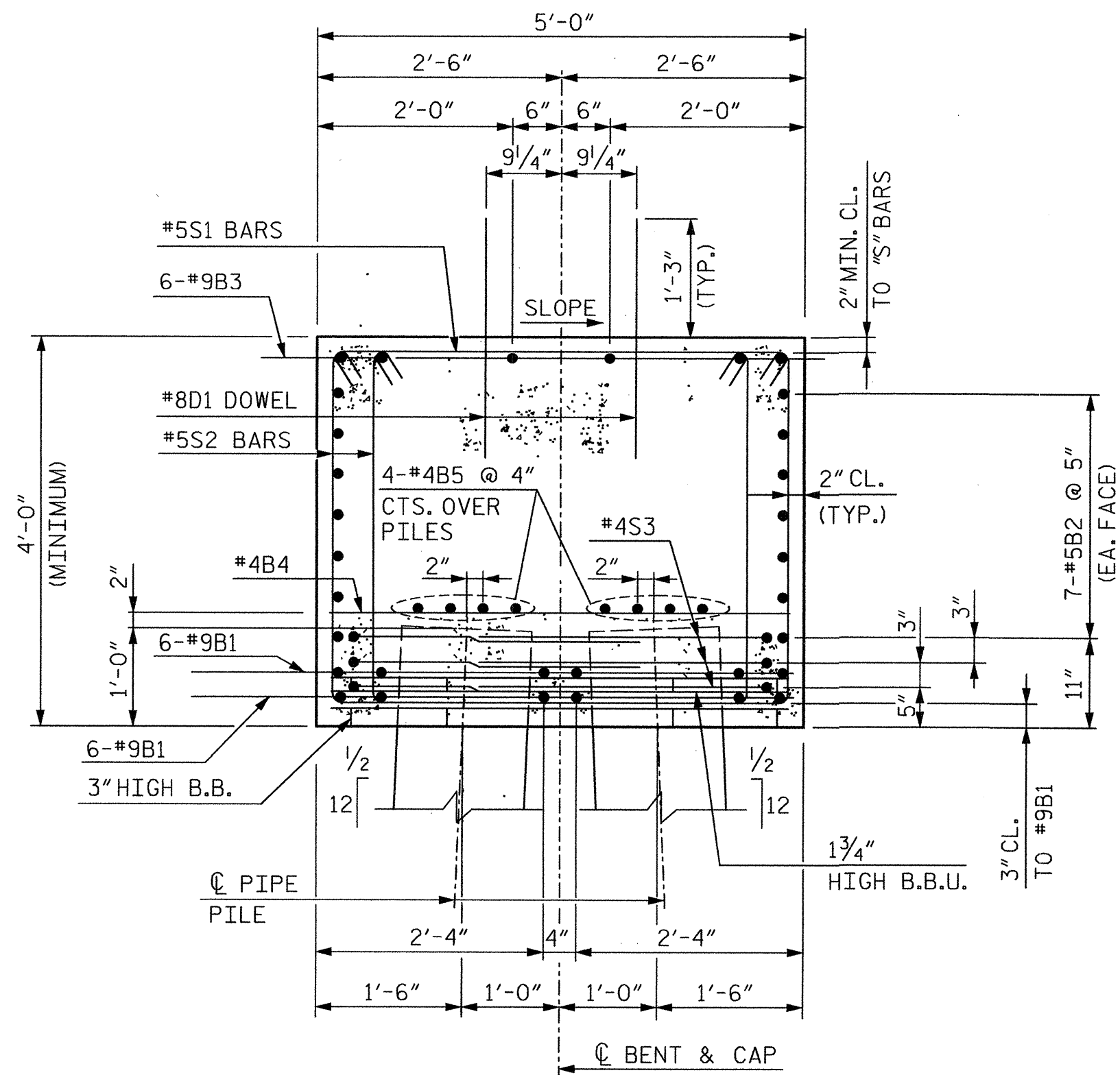
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: MEW
 CHECKED BY: DWH
 DATE: OCT 13, 2009

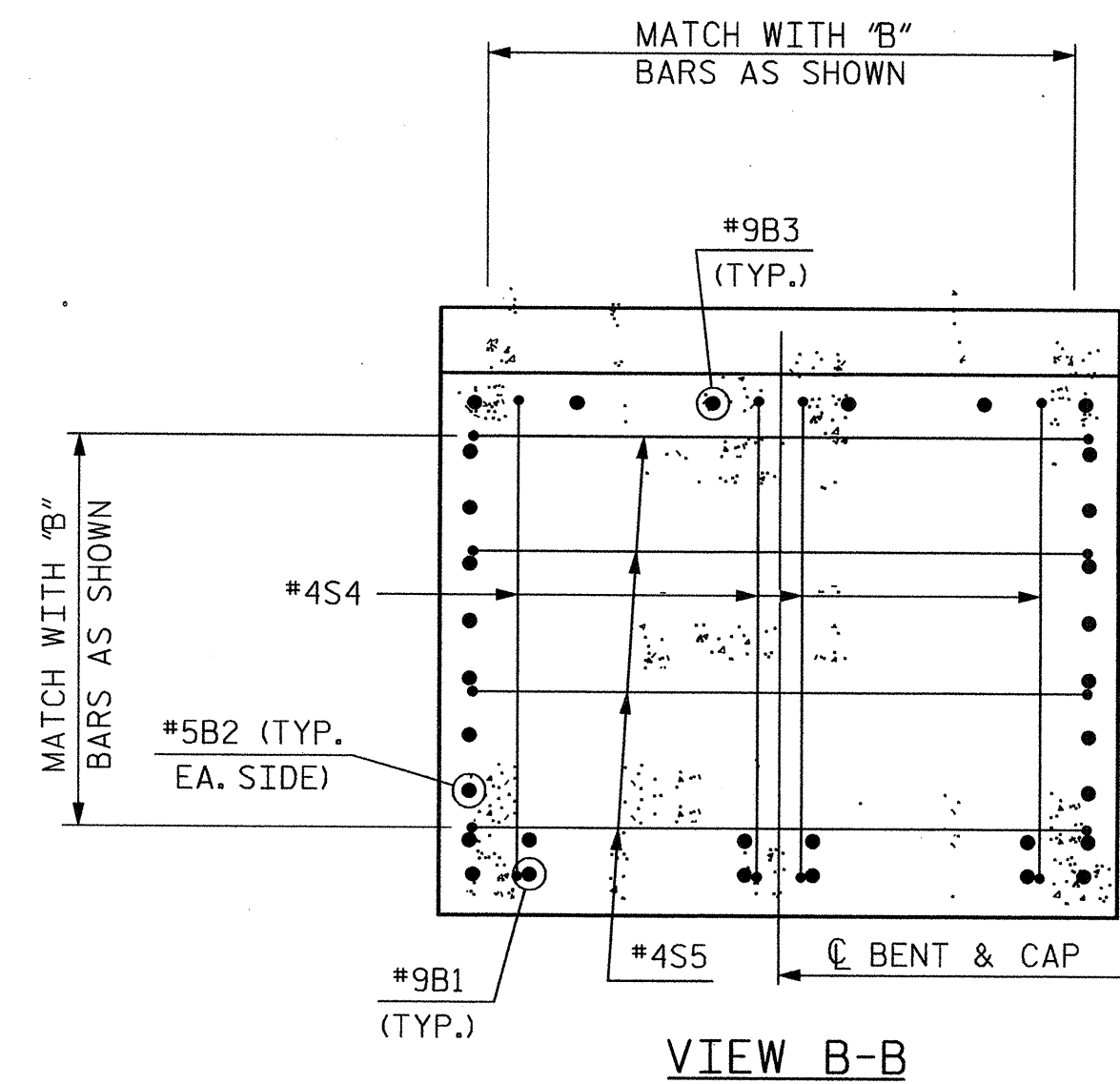


NCGTP RAIL ACCESS
 TYPICAL BENT
 KINSTON, NC

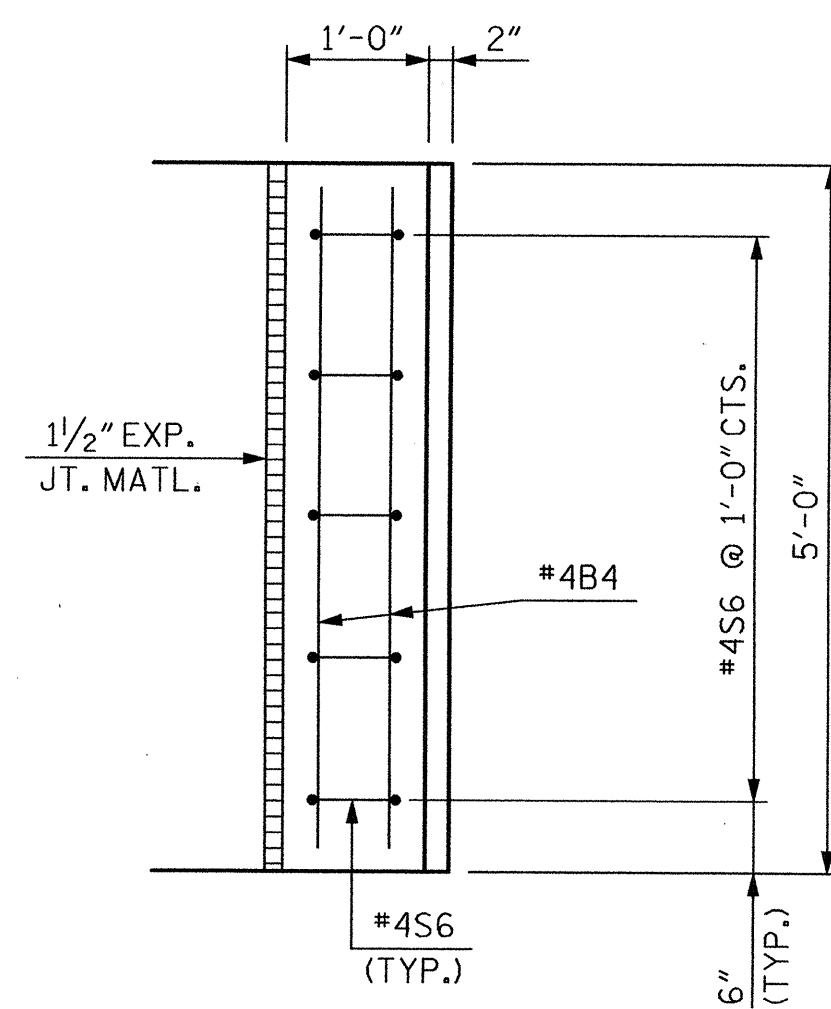
SHEET 1 OF 2
 PROJECT NO: U-2928B
 DRAWING NO: ST-14
 SCALE: NO SCALE
 SHEET NO:



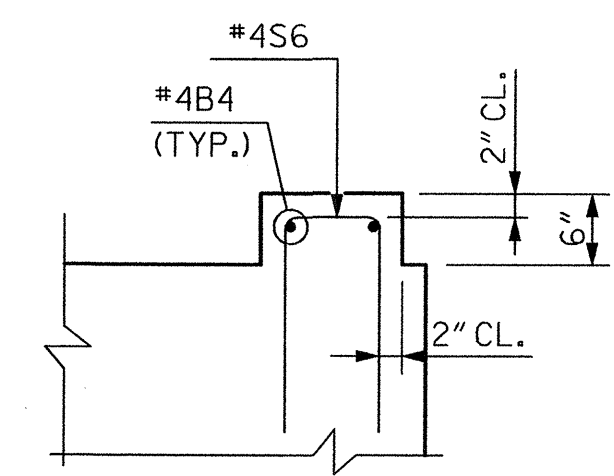
SECTION A-A



VIEW B-B

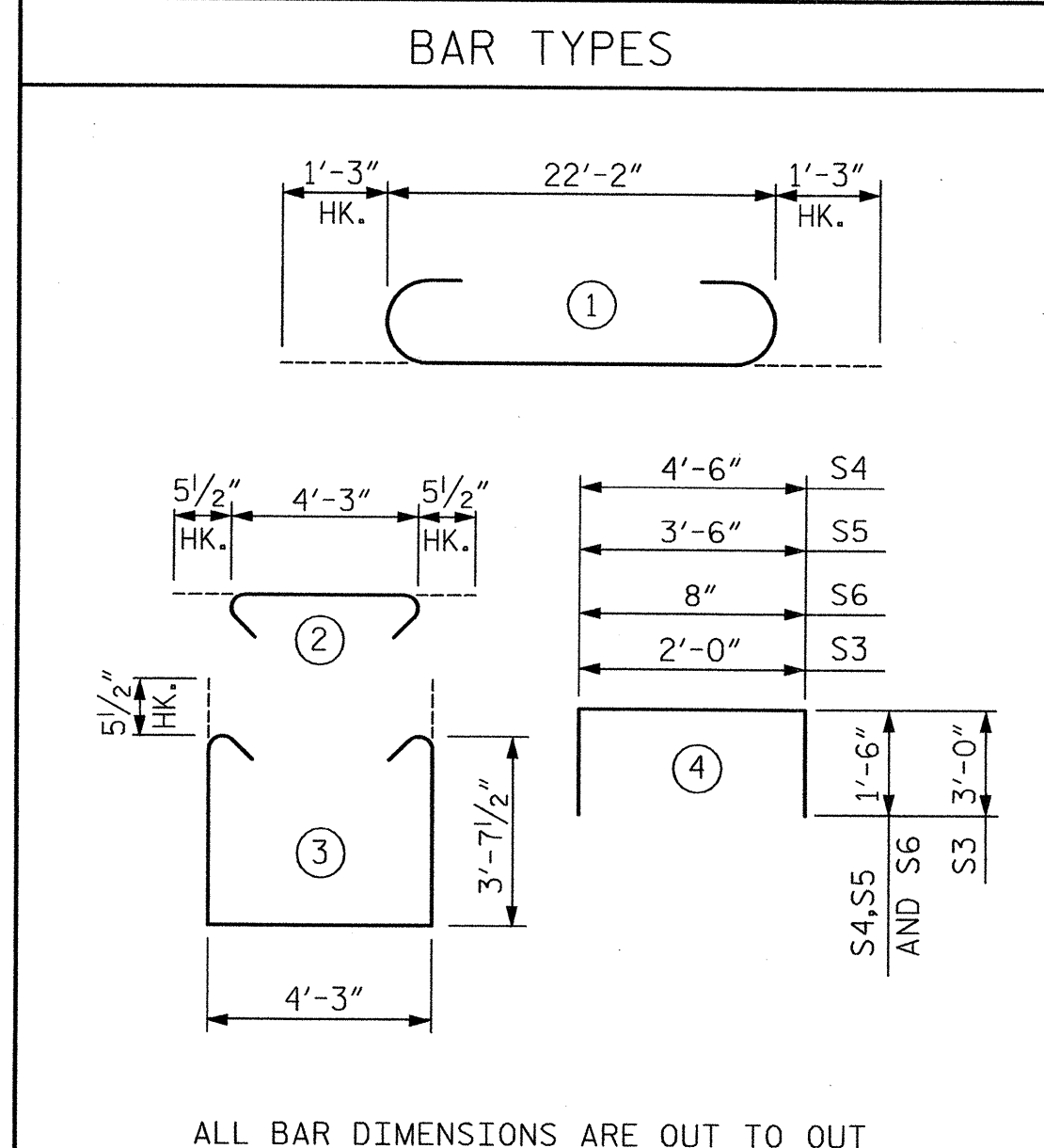


PLAN



ELEVATION

LATERAL GUIDE DETAILS
(TYP. EACH LATERAL GUIDE)



ALL BAR DIMENSIONS ARE OUT TO OUT

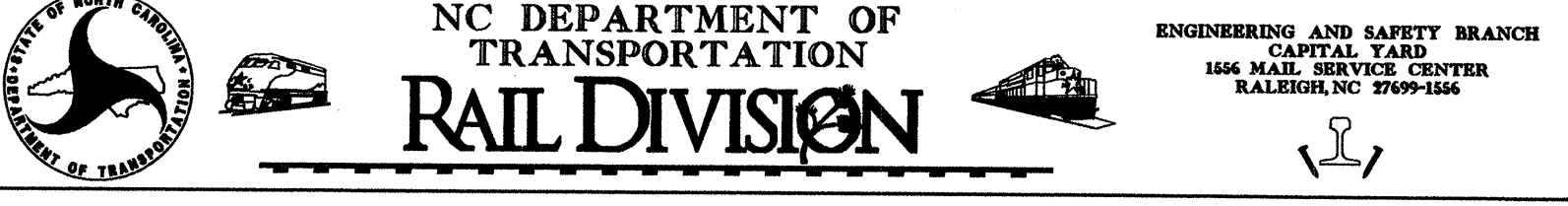
BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (FT)	WEIGHT (LB)
B1	12	9	STR.	22'-2"	904
B2	14	5	STR.	22'-2"	324
B3	6	9	1	24'-8"	503
B4	10	4	STR.	4'-8"	31
B5	8	4	STR.	22'-2"	118
D1	20	8	STR.	2'-3"	120
S1	80	5	2	5'-2"	431
S2	80	5	3	12'-5"	1,036
S3	24	4	4	8'-0"	128
S4	8	4	4	7'-6"	40
S5	8	4	4	6'-6"	35
S6	10	4	4	3'-8"	24

TYPICAL BENT QUANTITIES	
REINFORCING STEEL	Lbs. 3,694
CLASS AA CONCRETE	
CAP POUR 1	CU. YARDS 16.3
LATERAL GUIDE POUR 2	CU. YARDS 0.2
TOTAL	CU. YARDS 16.5

BENT PILE QUANTITIES				
16" STEEL PIPE PILES				
BENT 1	NO.	8	LIN. FT.	640.0
BENT 2	NO.	8	LIN. FT.	640.0
BENT 3	NO.	8	LIN. FT.	680.0
BENT 4	NO.	8	LIN. FT.	600.0

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: MEW
 CHECKED BY: DWH
 DATE: OCT 13, 2009

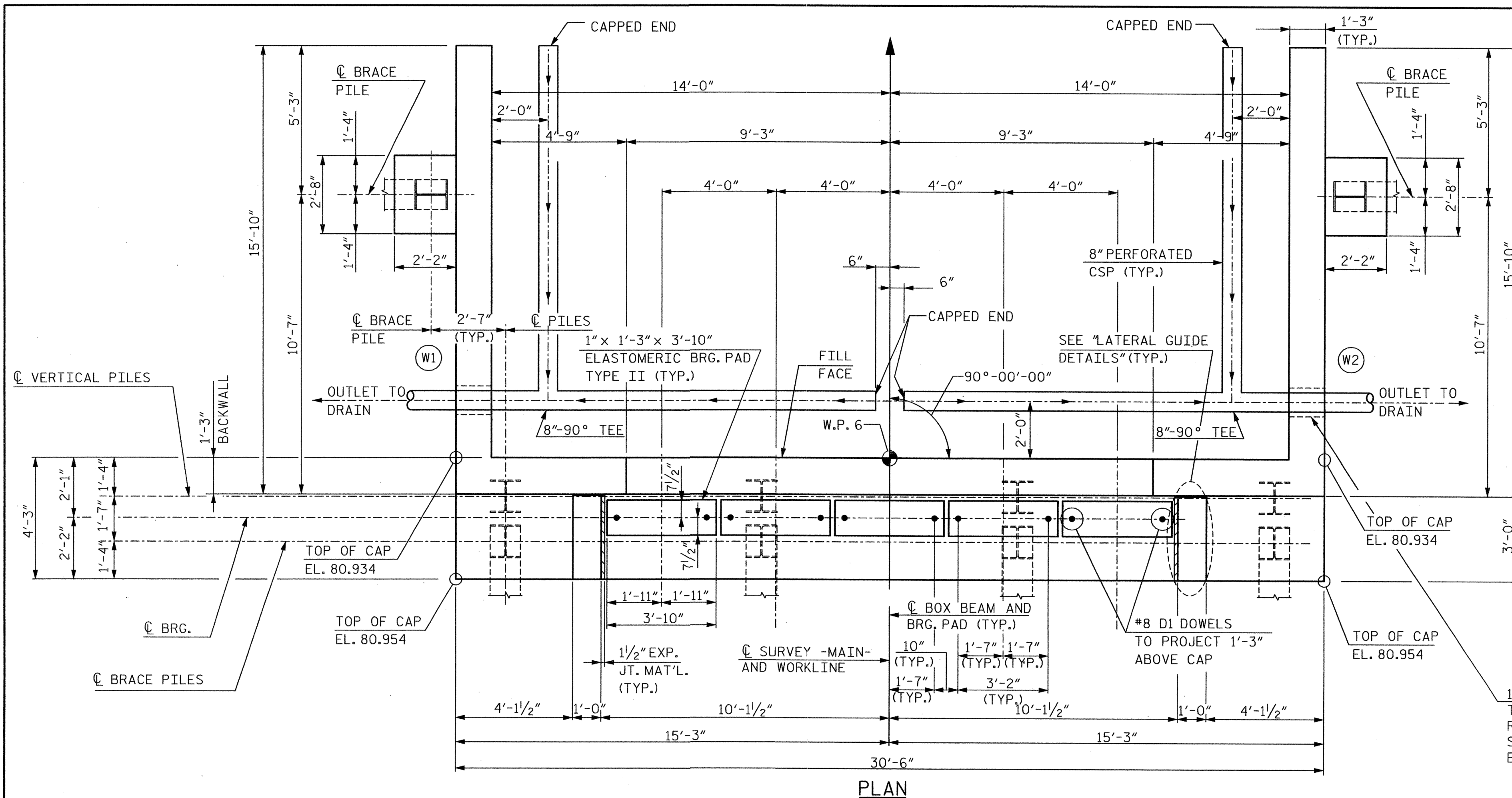


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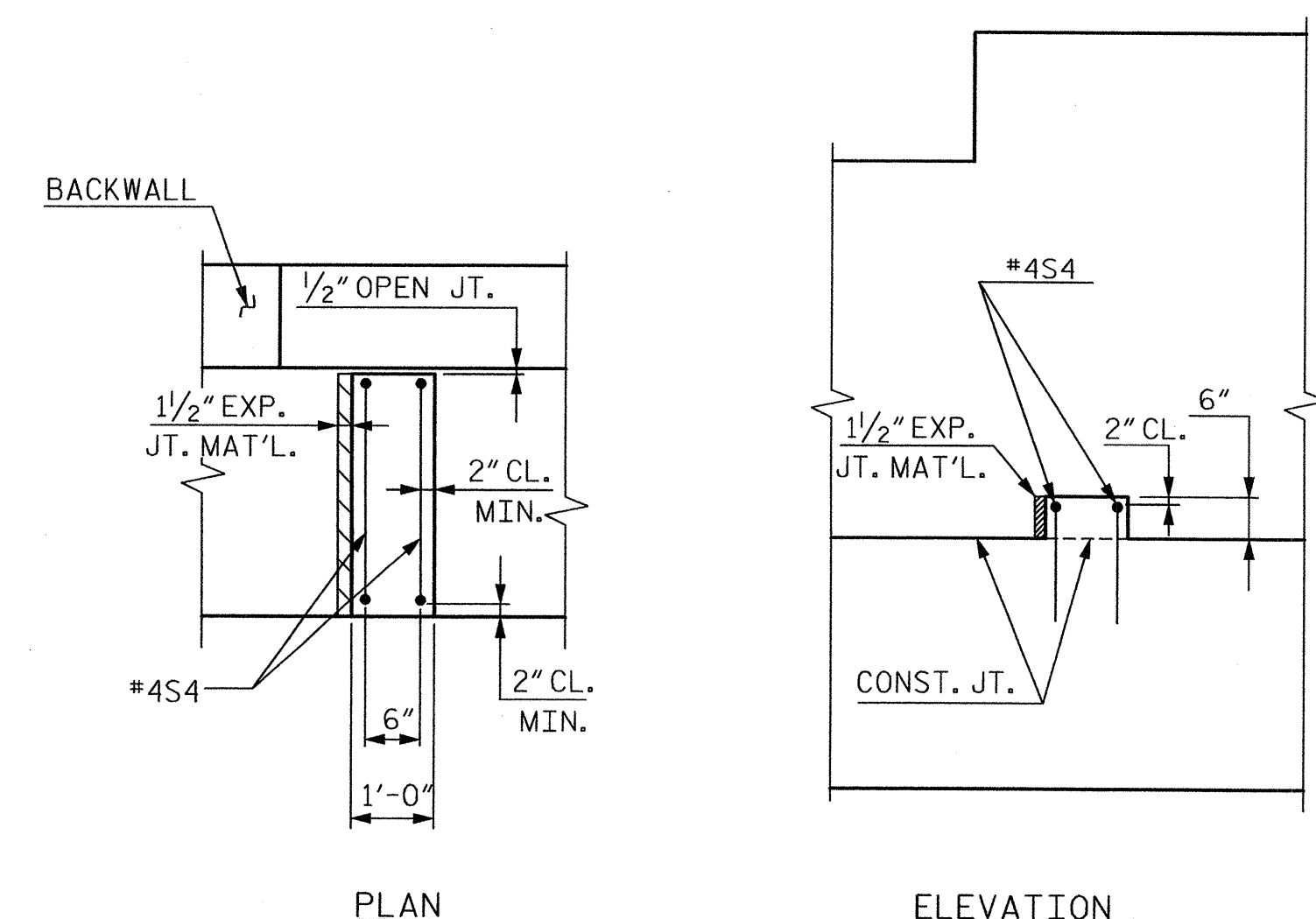


NCGTP RAIL ACCESS
 TYPICAL BENT
 KINSTON, NC

SHEET 2 OF 2
 PROJECT NO: U-2928B
 DRAWING NO: ST-15
 SCALE: NO SCALE
 SHEET NO:

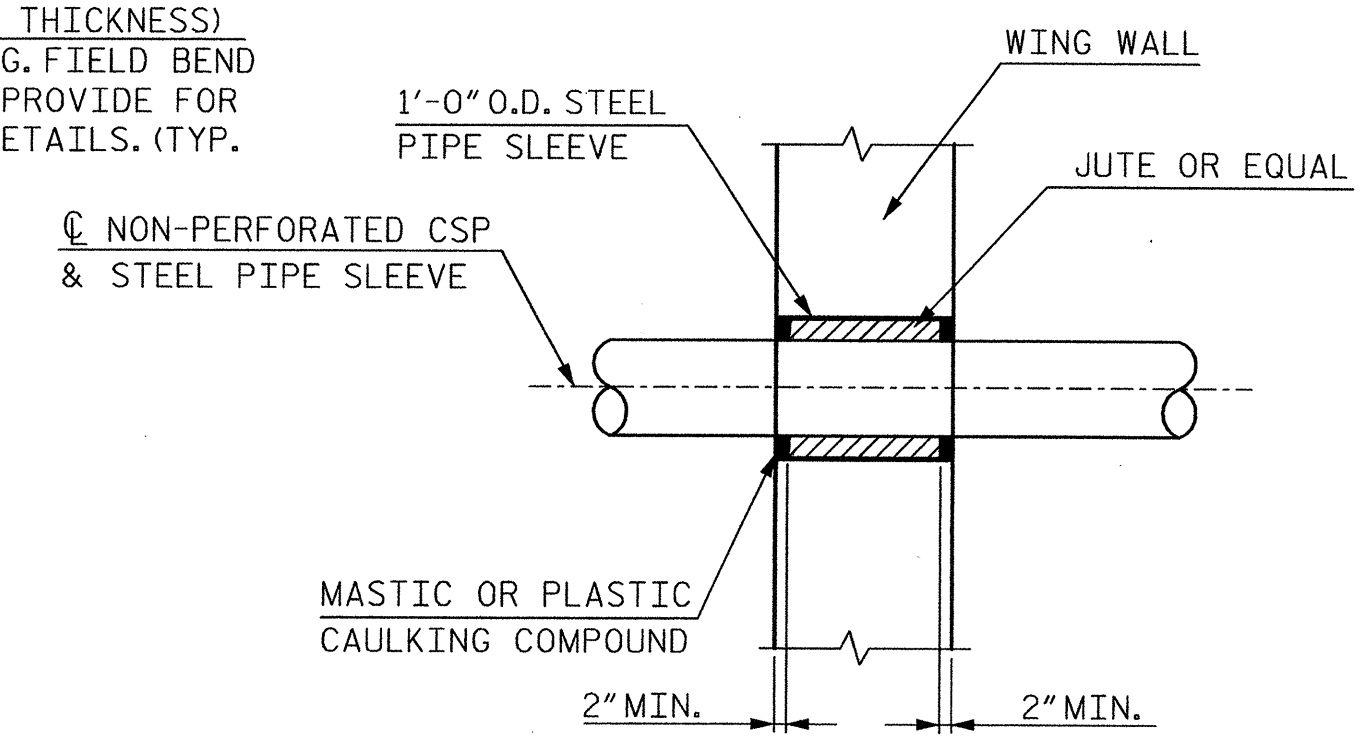


PLAN



LATERAL GUIDE DETAILS

1'-0" O.D. STEEL PIPE SLEEVE (3/8" WALL THICKNESS) TO BE FLUSH WITH BOTH FACES OF WING. FIELD BEND REINFORCING STEEL AS NECESSARY TO PROVIDE FOR SLEEVE. SEE SECTION THRU WING FOR DETAILS. (TYP. EA. WING)



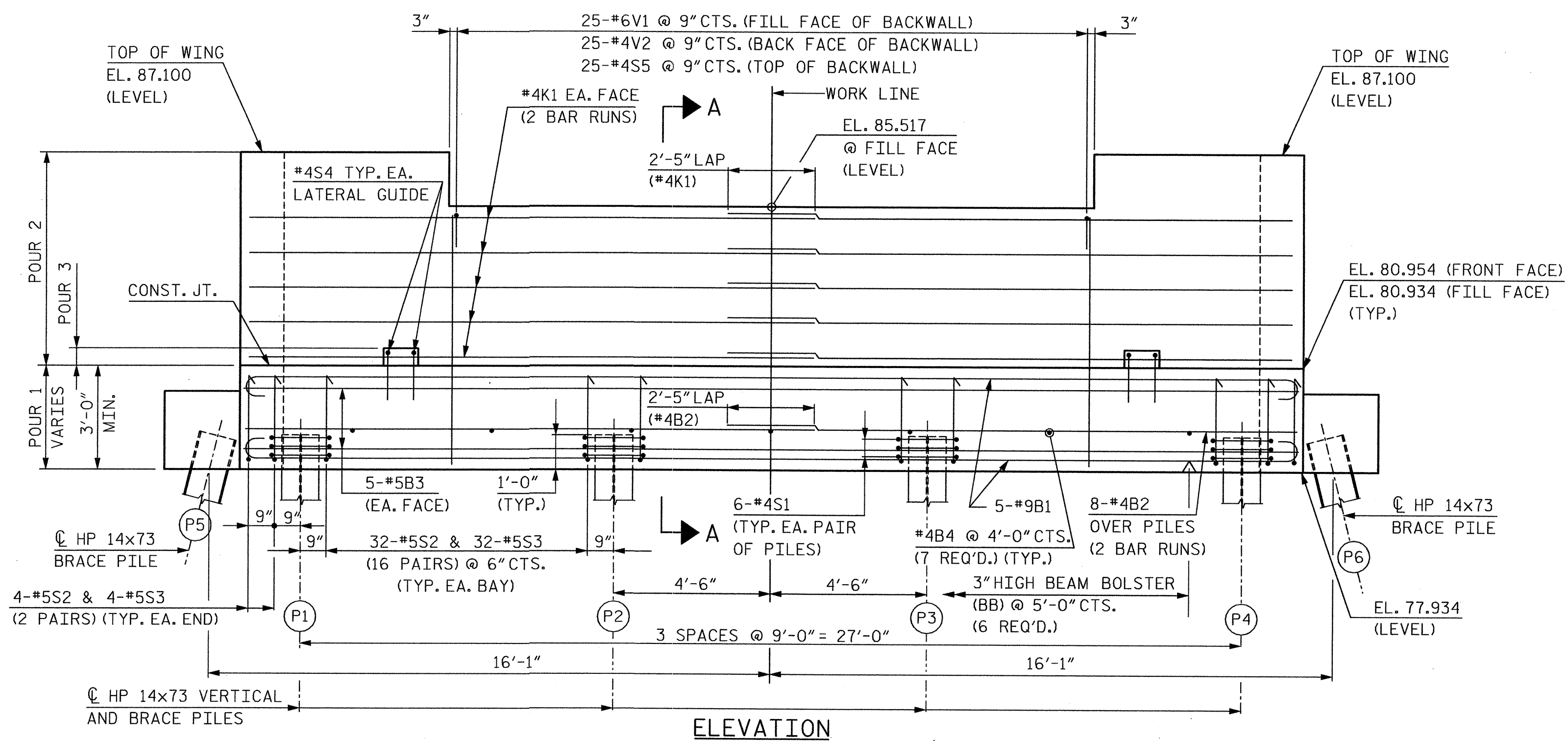
SECTION THRU WING

NOTES:
 FOR WINGWALL DETAILS, SEE SHEET 2 OF 3.
 FOR SECTION A-A, PILE SPLICE DETAILS, AND GENERAL NOTES, SEE SHEET 3 OF 3.

INDICATES 3:12 PILE BATTER IN DIRECTION SHOWN.

PAYMENT FOR PIPE SLEEVE INSERT SHALL BE CONSIDERED AS INCIDENTAL TO CONSTRUCTION OF END BENT.

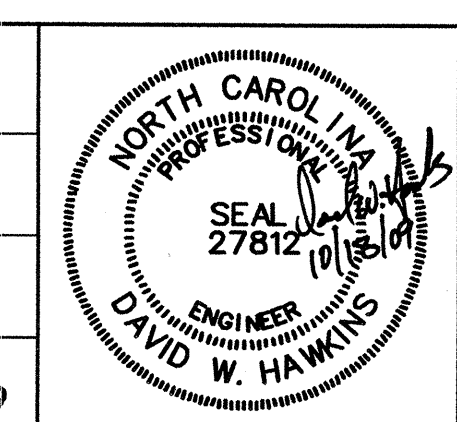
CORRUGATED STEEL PIPE LOCATED IN DRAINAGE AREA BETWEEN THE WINGWALLS SHALL BE PERFORATED. ALL OTHER CSP SHALL BE NON-PERFORATED.



ELEVATION

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH
 DRAWN BY:
JJB
 CHECKED BY:
DWH
 DATE:
OCT 13, 2009

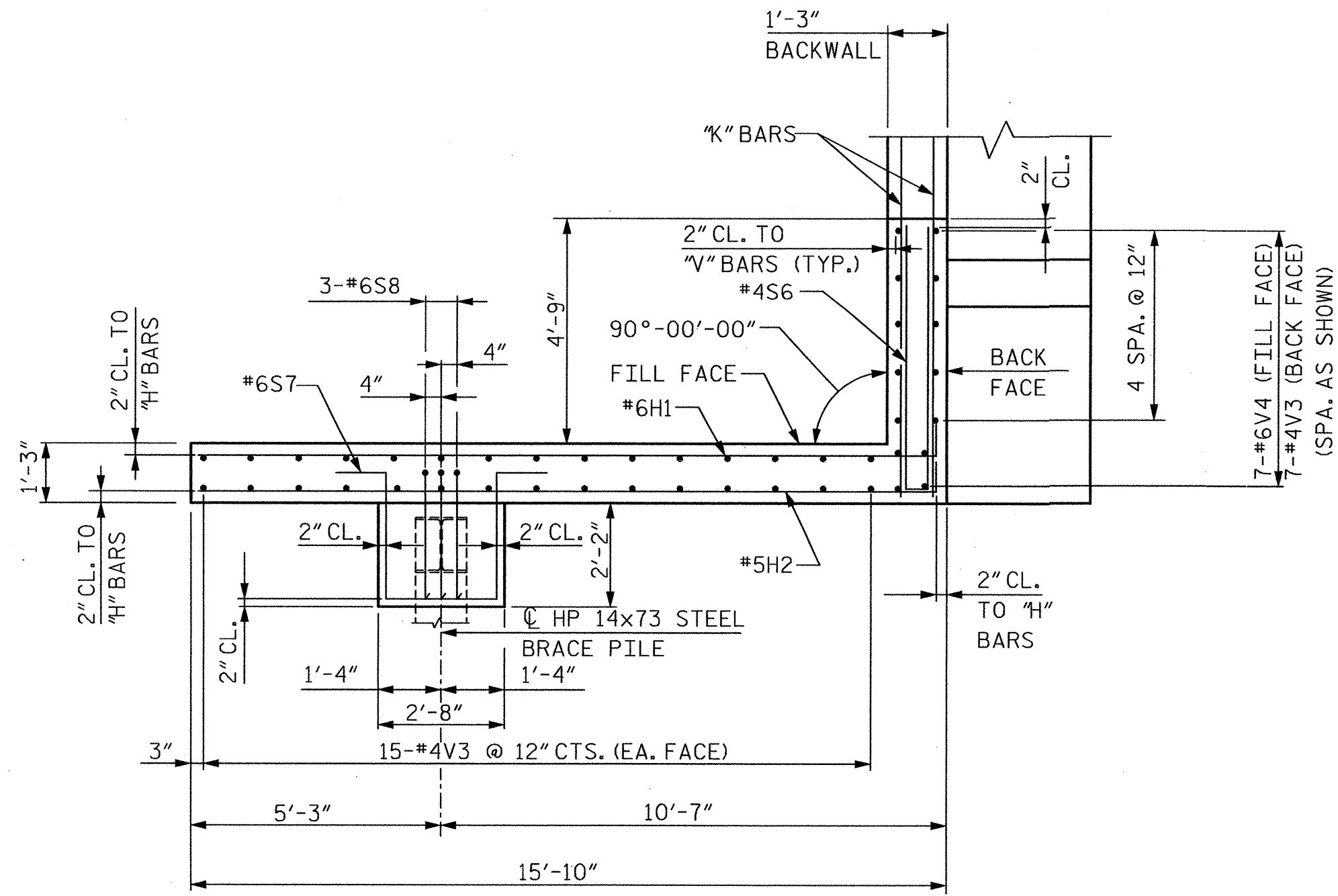


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RAIL DIVISION
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 Raleigh, North Carolina 27609

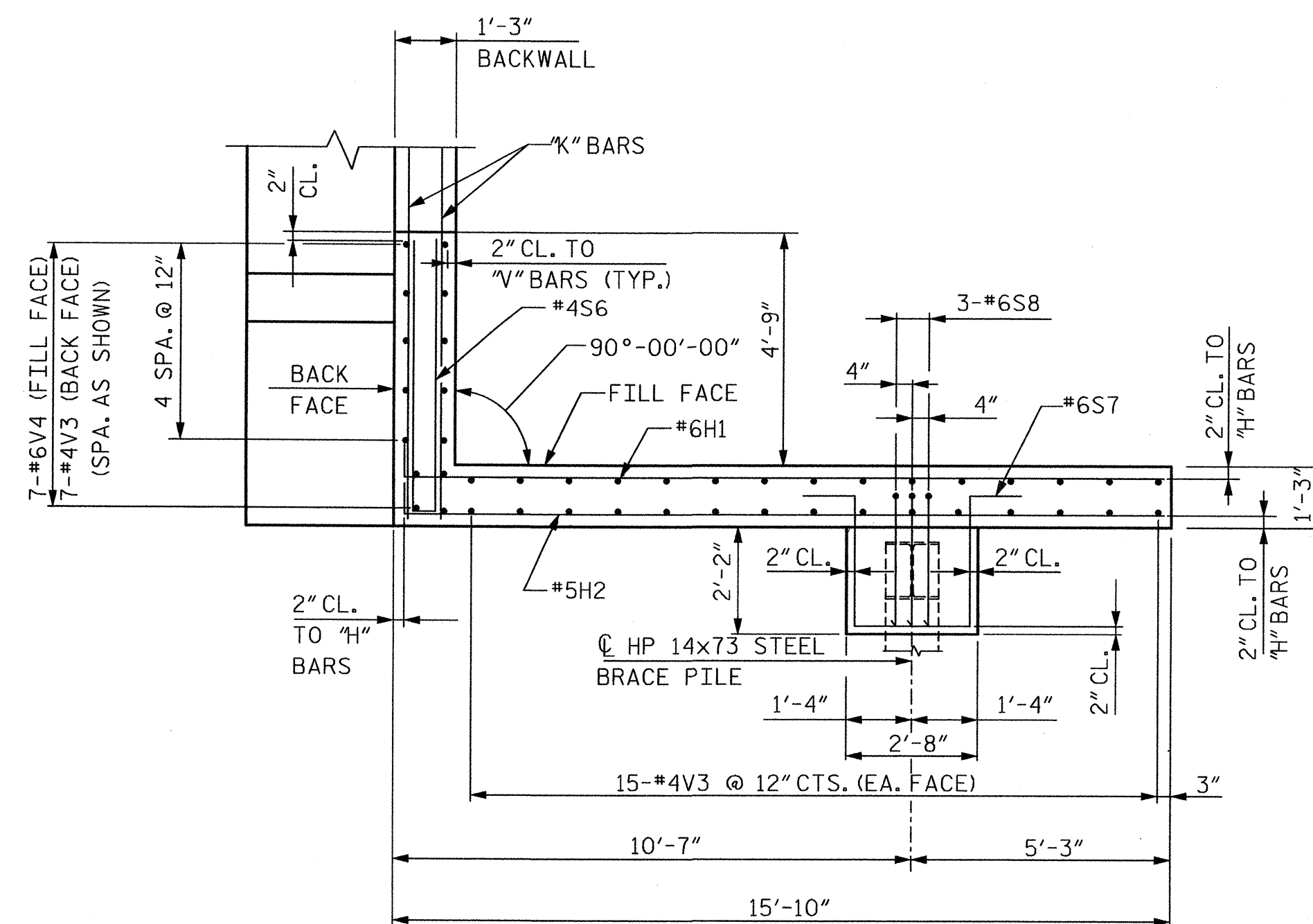


NCGTP RAIL ACCESS
 END BENT 2
 KINSTON, NC

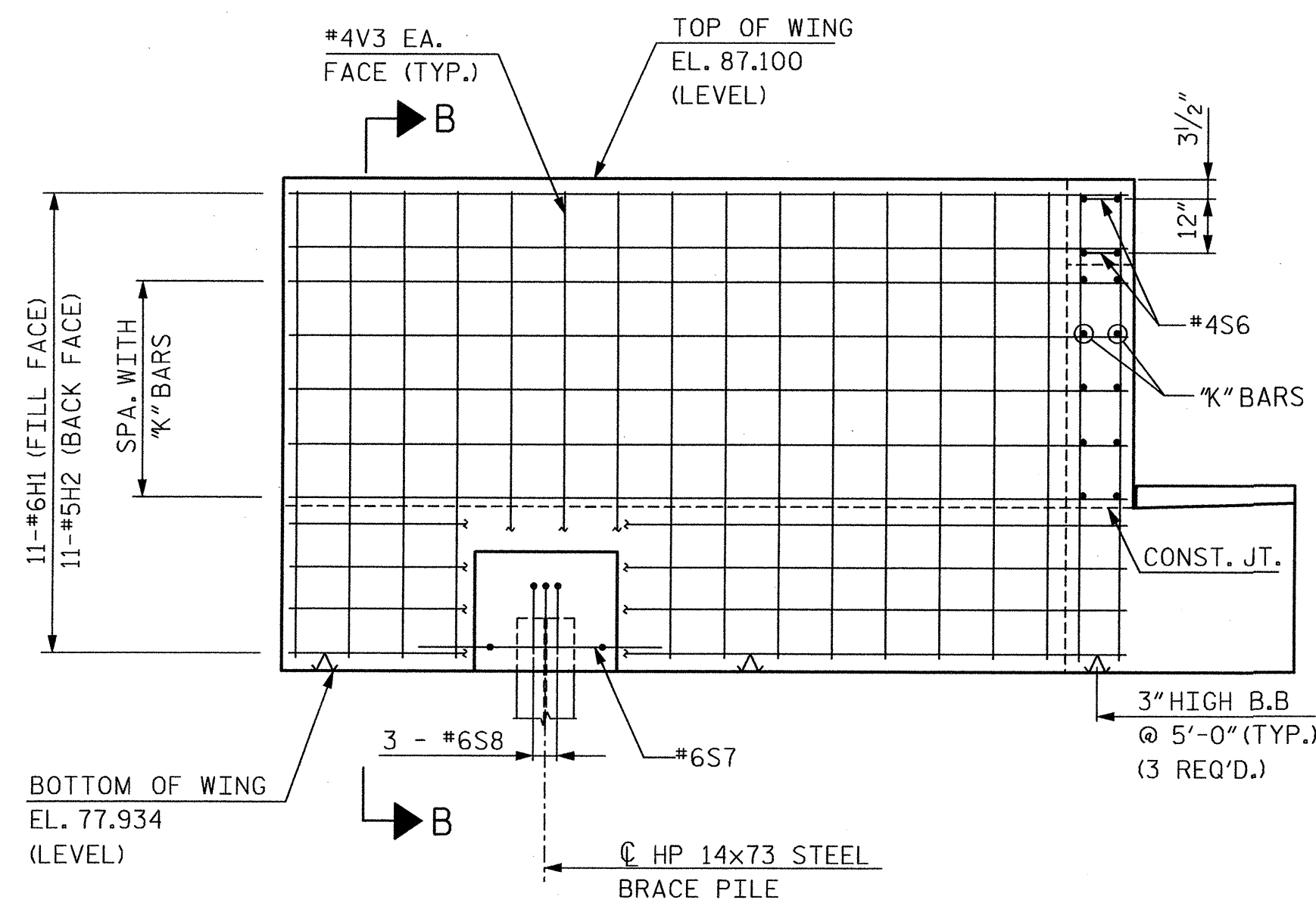
PROJECT NO:	U-2928B
DRAWING NO:	ST-16
SCALE:	NO SCALE
SHEET NO:	



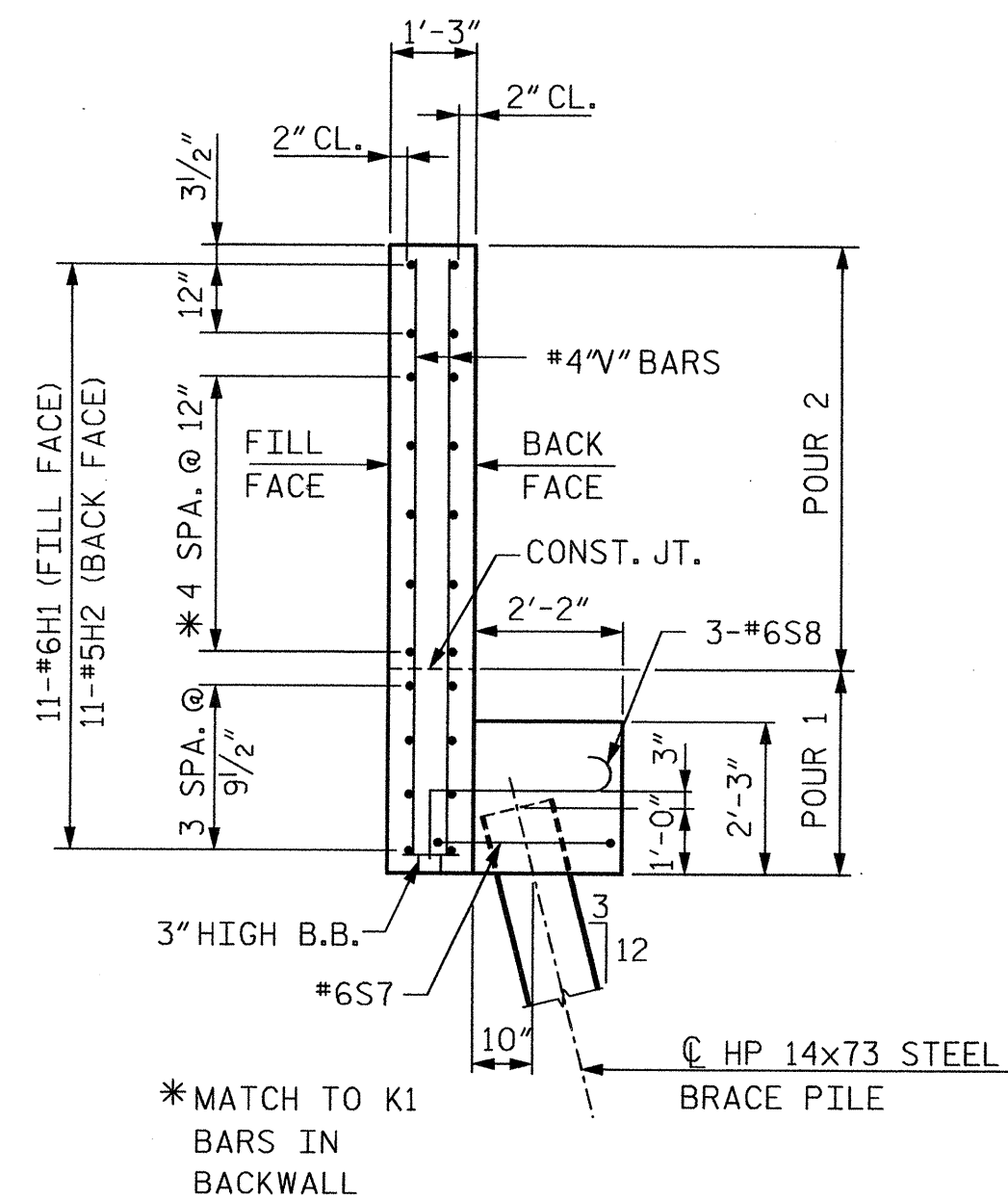
PLAN OF WING (W1)



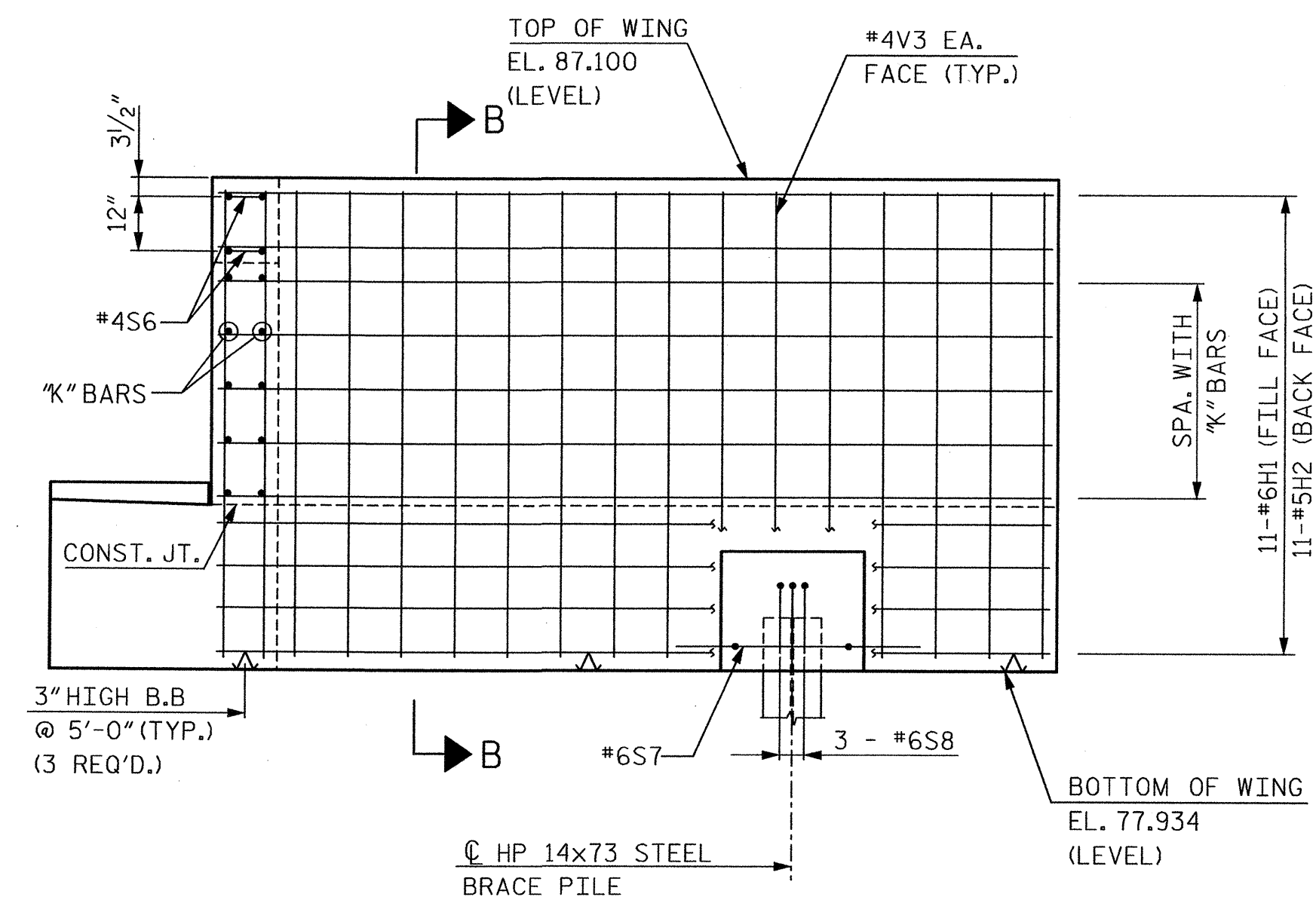
PLAN OF WING (W2)



ELEVATION OF WING (W1)



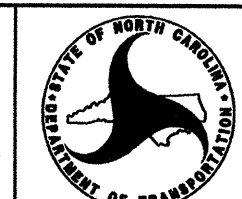
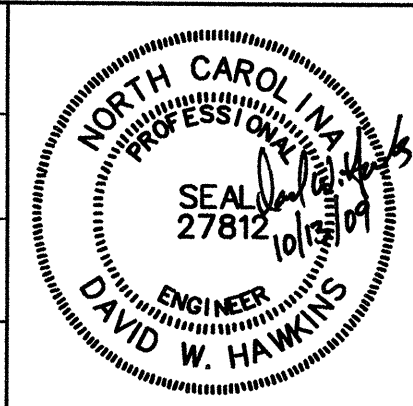
SECTION B-B



ELEVATION OF WING (W2)

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
DWH
DRAWN BY:
JJB
CHECKED BY:
DWH
DATE:
OCT 13, 2009



ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1666 MAIL SERVICE CENTER
RALEIGH, NC 27699-1666

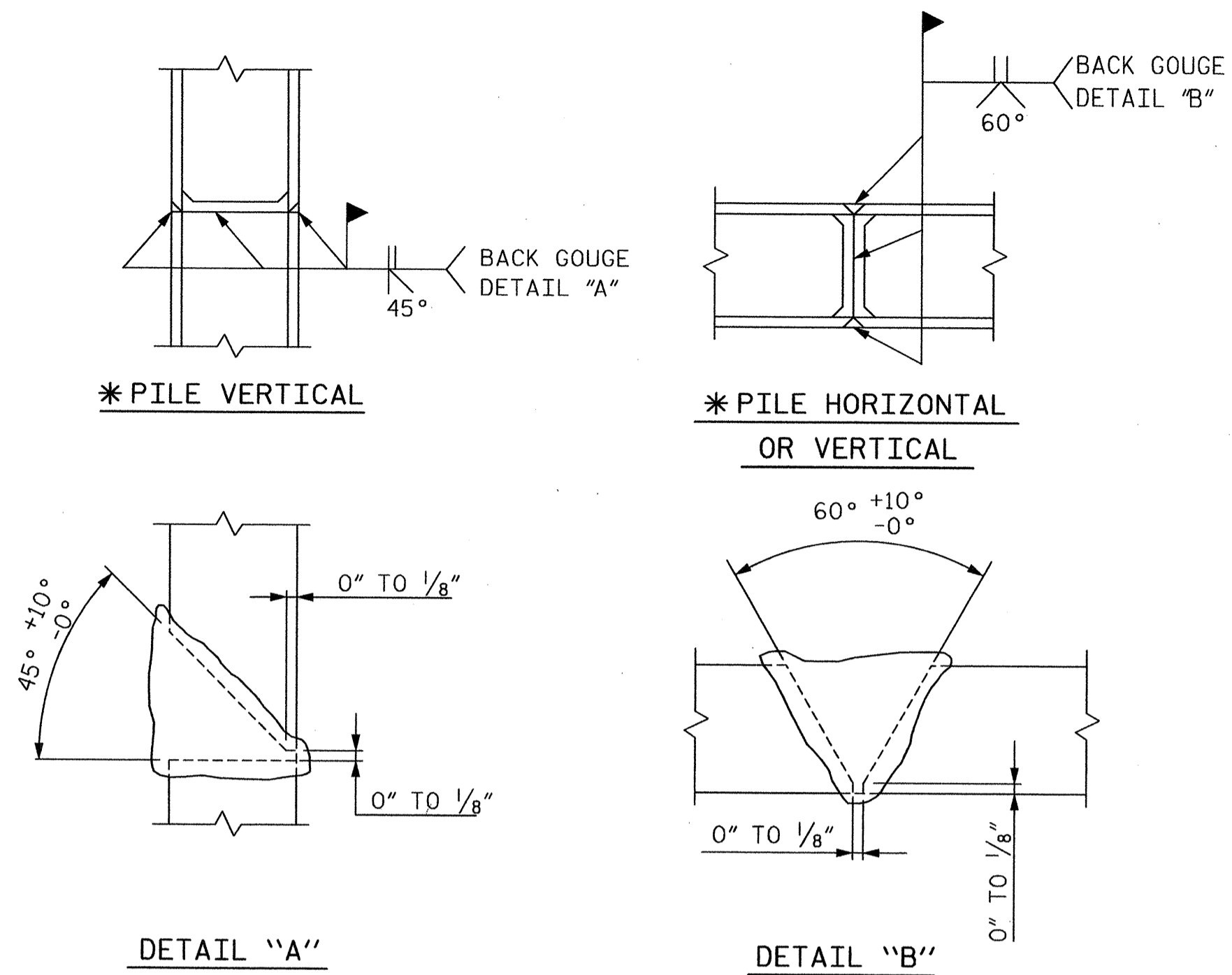
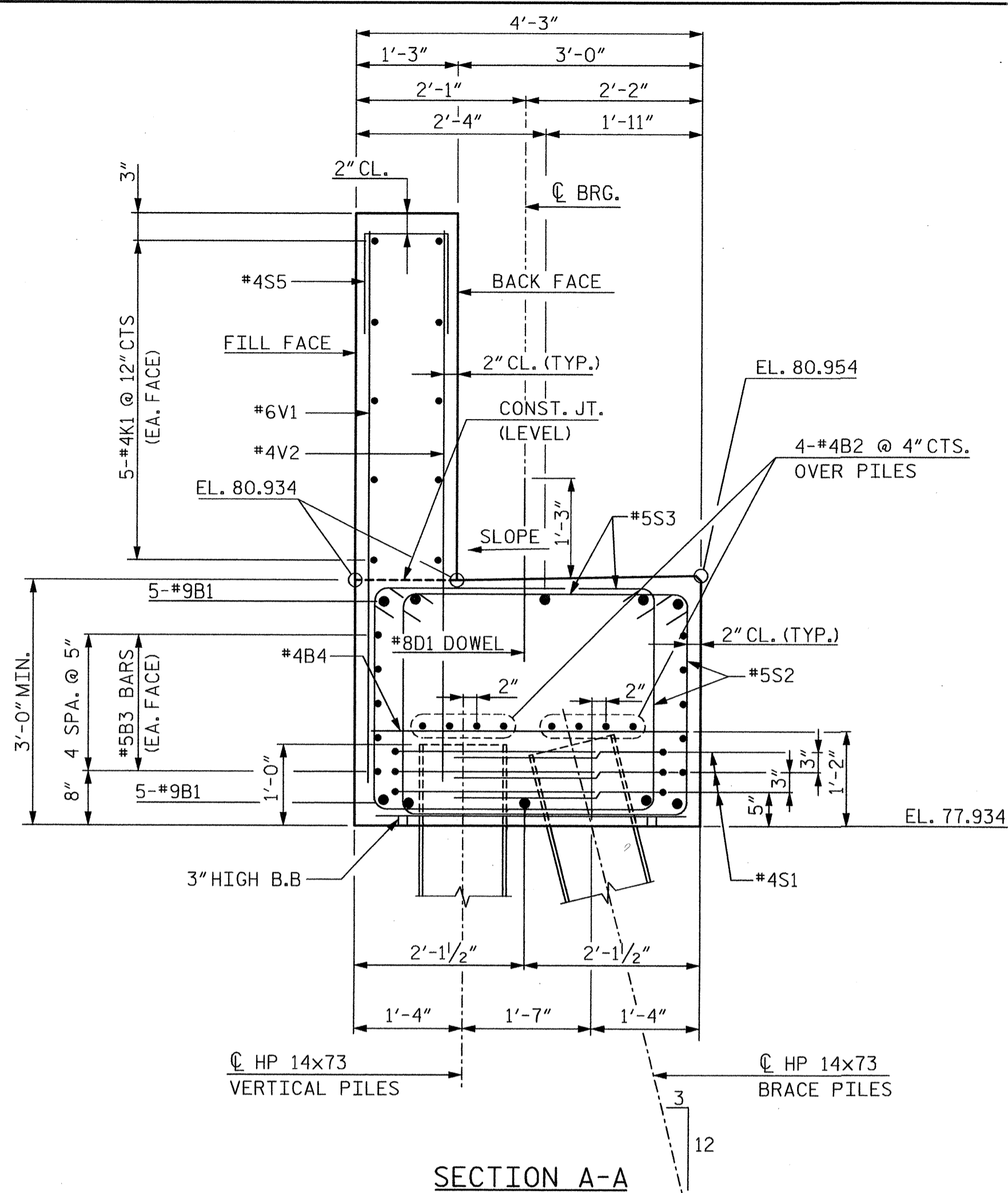
HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



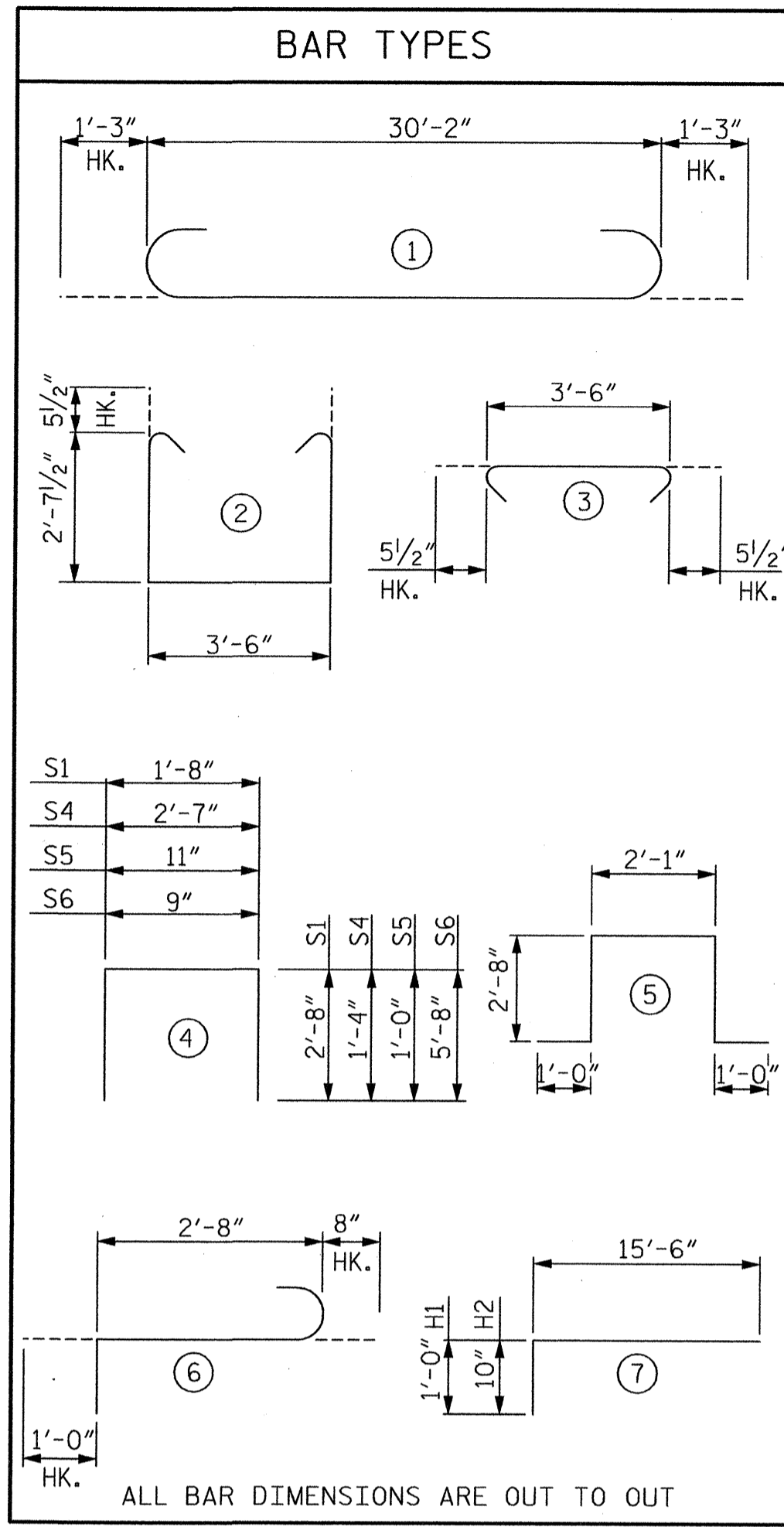
NCGTP RAIL ACCESS
END BENT 2
KINSTON, NC

SHEET 2 OF 3

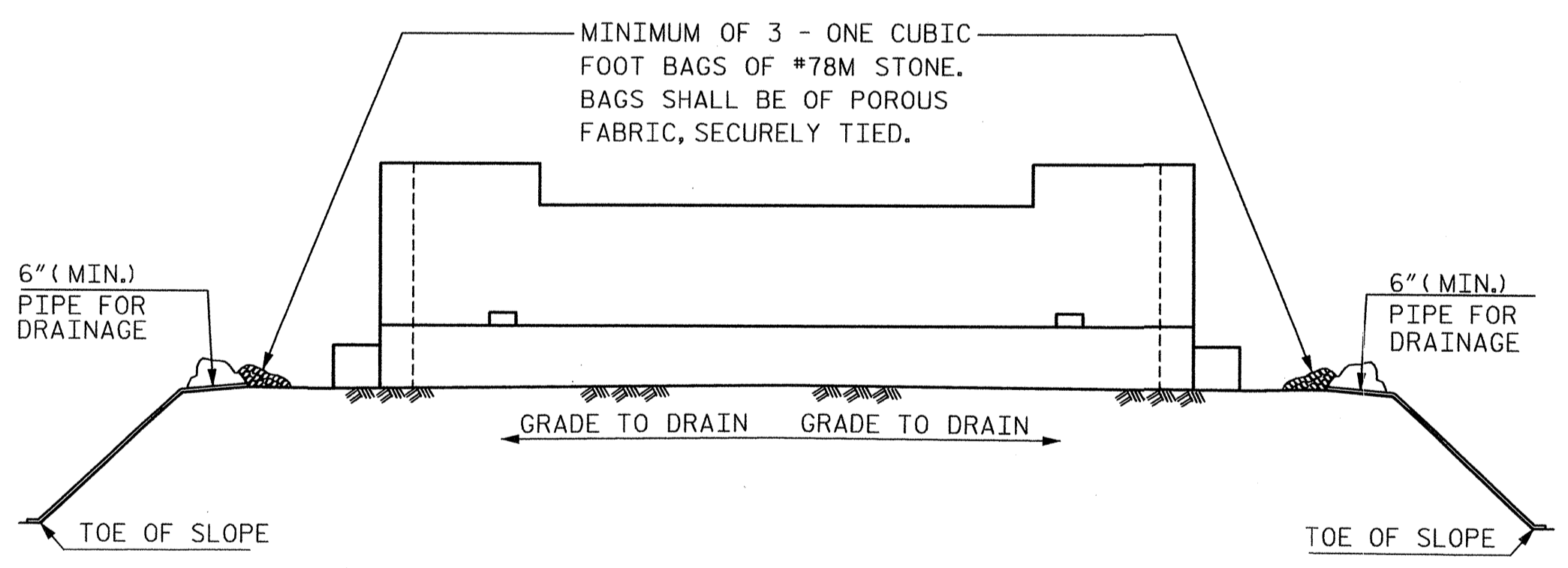
PROJECT NO:	U-2928B
DRAWING NO:	ST-17
SCALE:	NO SCALE
SHEET NO:	



* POSITION OF PILE DURING WELDING
PILE SPLICE DETAILS



BAR TYPES		BILL OF MATERIAL				
END BENT 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT (LBS.)	
B1	10	9	1	32'-8"	1,111	
B2	16	4	STR	16'-4"	175	
B3	10	5	STR	30'-2"	315	
B4	7	4	STR	3'-11"	18	
D1	10	8	STR	2'-3"	60	
H1	22	6	7	16'-6"	545	
H2	22	5	7	16'-4"	375	
K1	20	4	STR	16'-4"	218	
S1	24	4	4	7'-0"	112	
S2	104	5	2	9'-8"	1,049	
S3	104	5	3	4'-5"	479	
S4	4	4	4	5'-3"	14	
S5	25	4	4	2'-11"	49	
S6	4	4	4	12'-1"	32	
S7	2	6	5	9'-5"	28	
S8	6	6	6	4'-4"	39	
V1	25	6	STR	7'-2"	269	
V2	25	4	STR	7'-2"	120	
V3	74	4	STR	8'-9"	433	
V4	14	6	STR	8'-9"	184	
QUANTITIES						
REINFORCING STEEL					LBS.	5,625
CLASS AA CONCRETE BREAKDOWN						
POUR 1 - CAP & BOT. OF WINGS				CU. YARDS	19.5	
POUR 2 - TOP OF WINGS & BACKWALL				CU. YARDS	15.7	
POUR 3 - LATERAL GUIDES				CU. YARDS	0.1	
TOTAL				CU. YARDS	35.3	
HP 14x73 STEEL PILES					NO.	10
					LIN. FT.	550

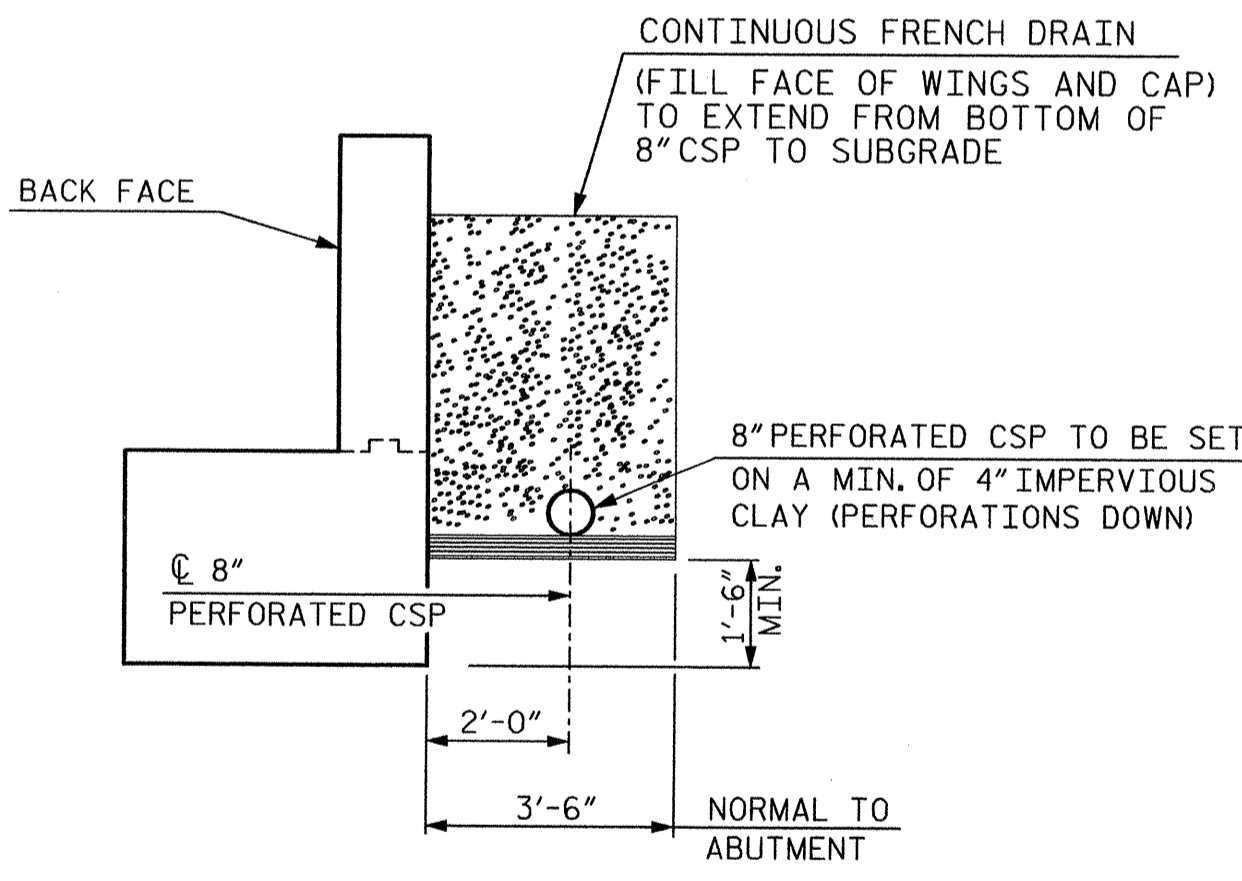


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF THE END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



CONTINUOUS FRENCH DRAIN DETAIL

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #8D1 DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL BOX BEAMS ARE IN PLACE.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
 DRAWN BY: JJB
 CHECKED BY: DWH
 DATE: OCT 13, 2009

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 114 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1144

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 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

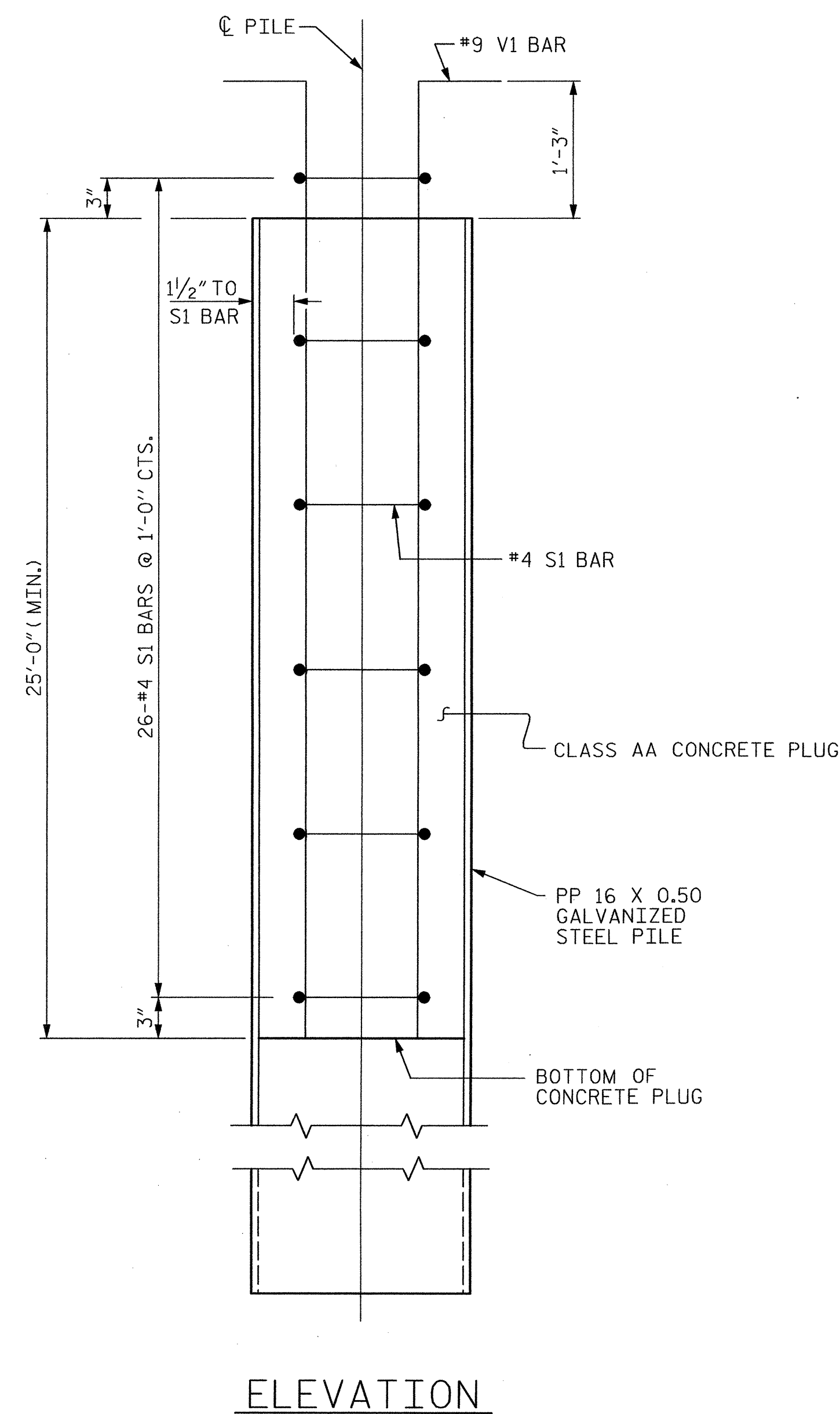
GTP Rail Access

NCGTP RAIL ACCESS

END BENT 2

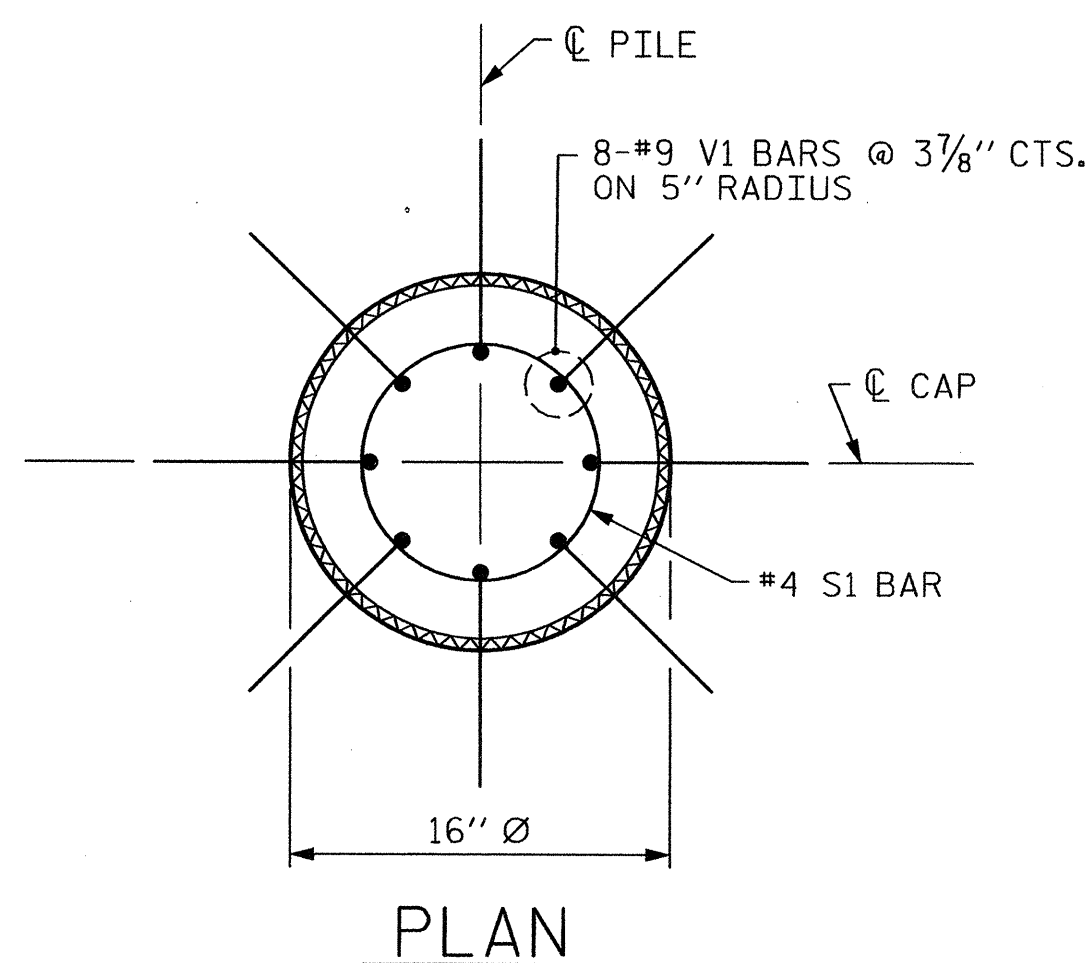
KINSTON, NC

PROJECT NO: U-2928B
 DRAWING NO: ST-18
 SCALE: NO SCALE
 SHEET NO:

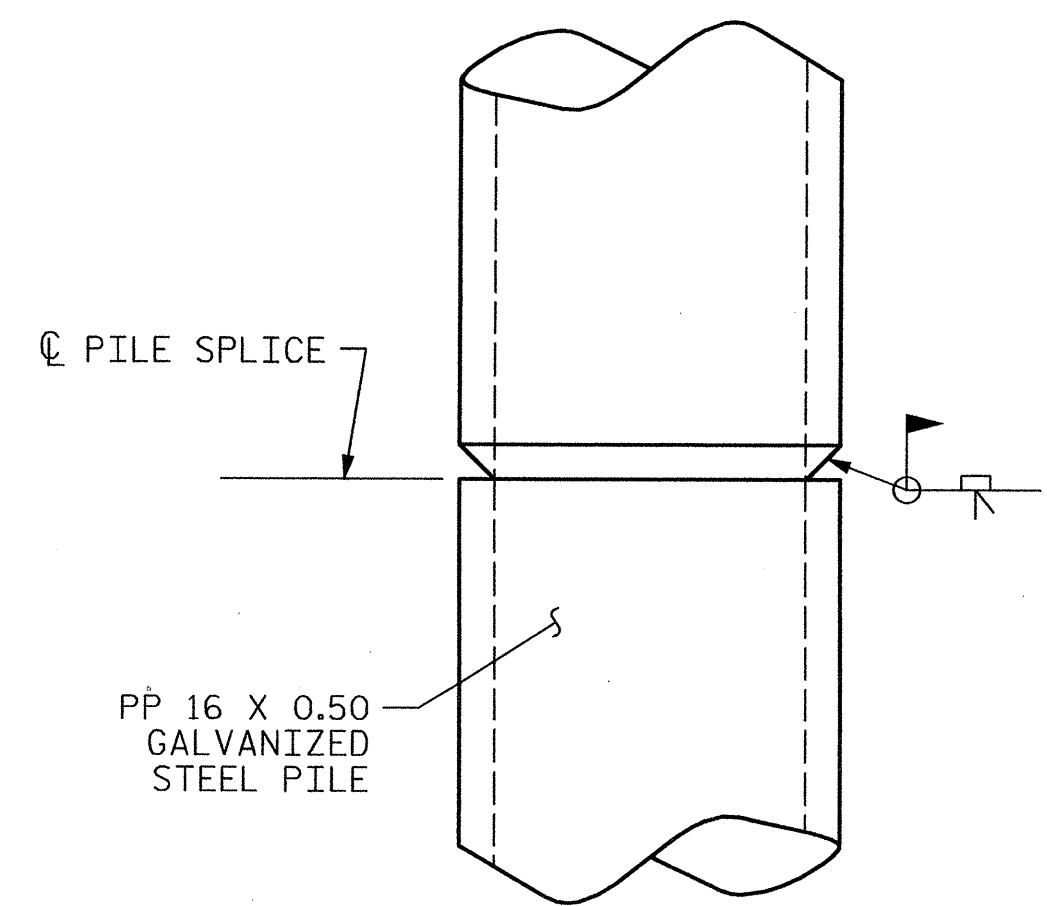


ELEVATION

PP 16 X 0.50 GALVANIZED STEEL PILE
(OPEN END)



PLAN



PIPE PILE SPLICE DETAIL

NOTES

PIPE PILES SHALL BE IN ACCORDANCE WITH SECTION 1084 OF THE STANDARD SPECIFICATIONS.

GALVANIZE STEEL PIPE PILES IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

REMOVE AND REPLACE OR REPAIR TO THE SATISFACTION OF THE ENGINEER PILES THAT ARE DAMAGED, DEFORMED OR COLLAPSED DURING INSTALLATION OR DRIVING.

PILE SPLICES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND AWS D1.1.

FOR OPEN END PIPE PILES, REMOVE ENOUGH SOIL AND WATER FROM INSIDE THE PILES TO CONSTRUCT THE CONCRETE PLUG WITHOUT FOULING THE CONCRETE.

FORM THE CONCRETE PLUG SUCH THAT THE REINFORCING STEEL OR CONCRETE DOES NOT MOVE AND THE CLEARANCE FROM THE REINFORCING STEEL TO THE INSIDE OF THE PILE IS MAINTAINED AFTER CONCRETE PLACEMENT. DO NOT PLACE CONCRETE IN THE BENT CAP UNTIL THE CONCRETE PLUG HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

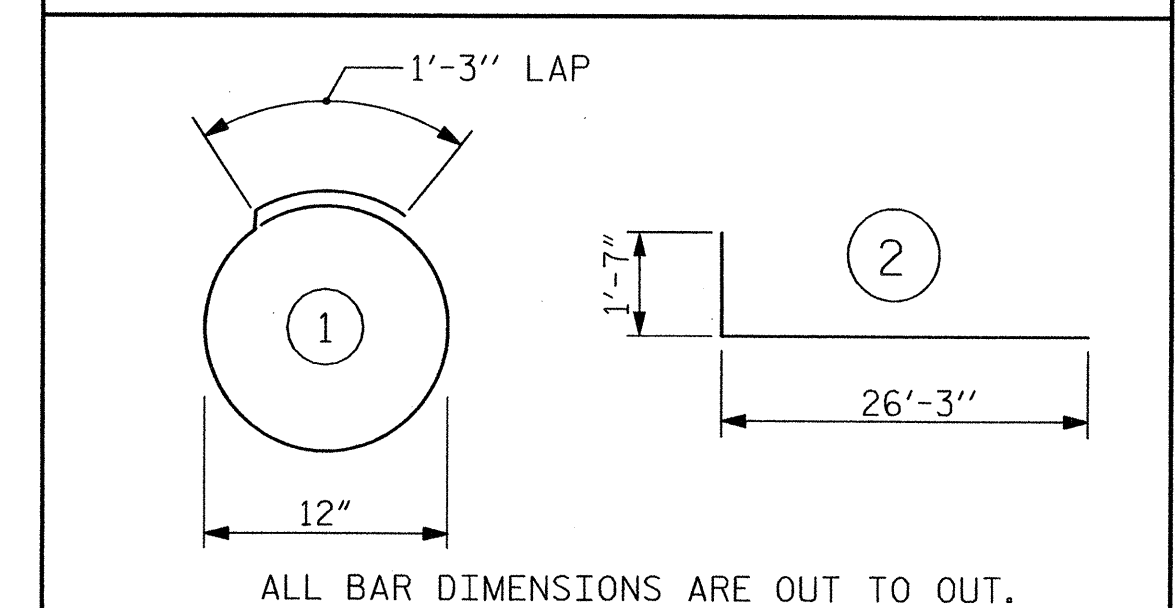
THE REINFORCING STEEL, CLASS A CONCRETE, AND GALVANIZING ARE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR PP 16 X 0.50 GALVANIZED STEEL PILES.

BILL OF MATERIAL FOR ONE
PP 16 X 0.50 GALVANIZED STEEL PILE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	26	#4	1	4'-3"	74
V1	8	#9	2	27'-10"	757
REINFORCING STEEL =					831 lbs

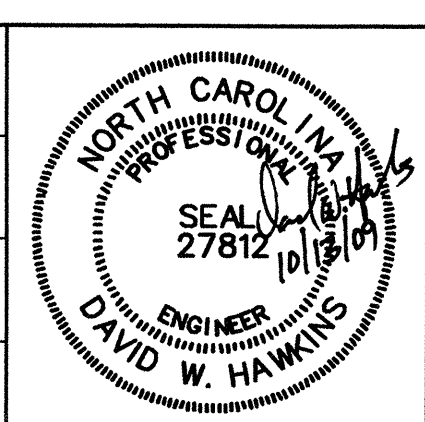
CLASS AA CONCRETE	
25'-0" MINIMUM PLUG	1.1 CY

BAR TYPES



REV. NO.	DATE	BY	APP. BY	DESCRIPTION

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DWH
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OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
156 MAIL SERVICE CENTER
RALEIGH, NC 27699-1166

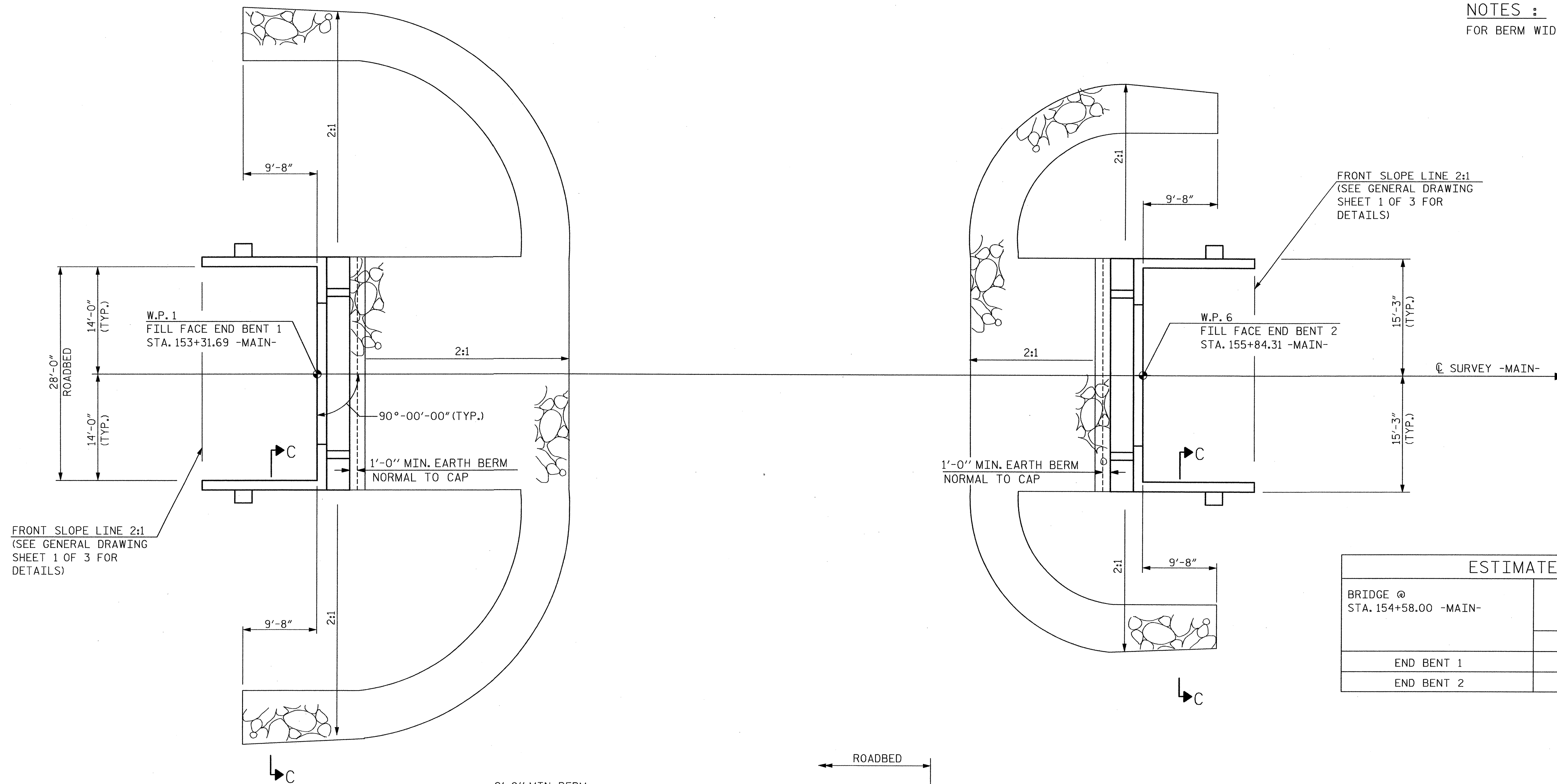
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Raleigh, North Carolina 27609



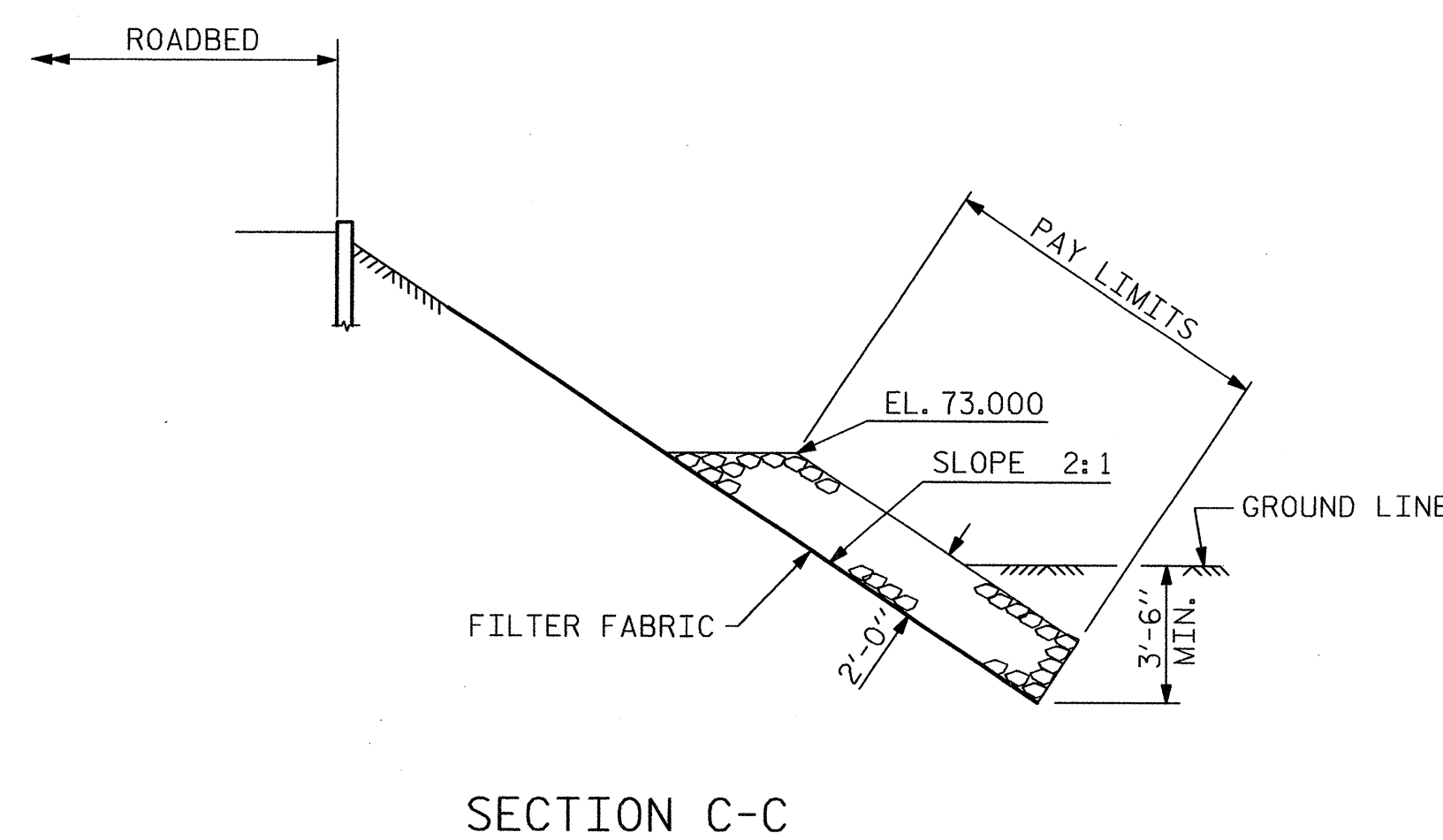
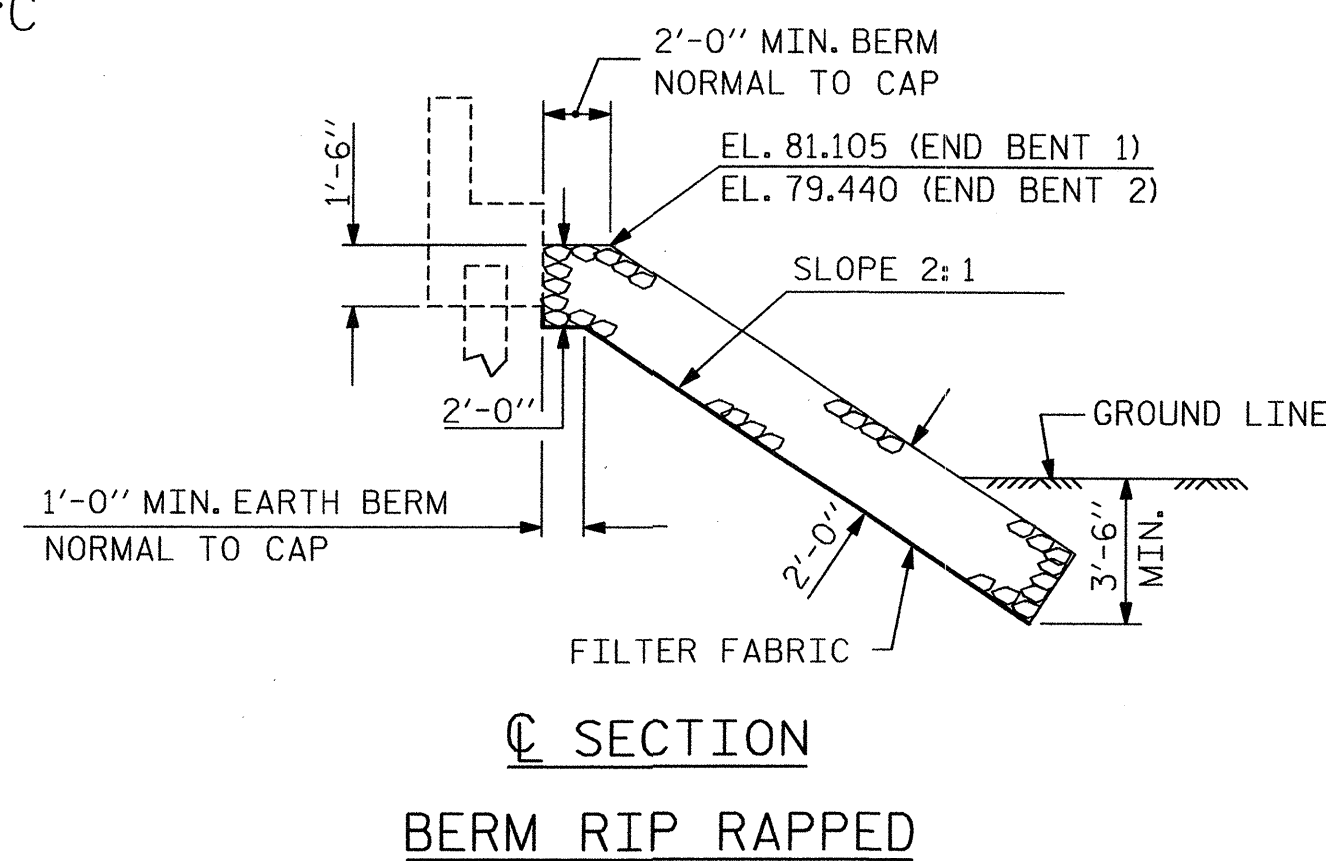
NCGTP RAIL ACCESS
16" STEEL PIPE PILE DETAILS
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-19
SCALE:	NO SCALE
SHEET NO:	

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

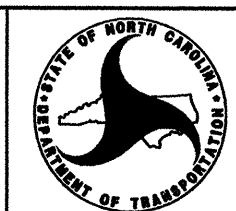


ESTIMATED QUANTITIES		
BRIDGE @ STA. 154+58.00 -MAIN-	PLAIN RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	177	196
END BENT 2	117	130



REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
DRAWN BY: MEW
CHECKED BY: DWH
DATE: OCT 13, 2009



NC DEPARTMENT OF
TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1546 MAIL SERVICE CENTER
RALEIGH, NC 27699-1546

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



NCGTP RAIL ACCESS
RIPRAP DETAILS
KINSTON, NC

PROJECT NO:
U-2928B

DRAWING NO:
ST-20

SCALE:
NO SCALE

SHEET NO:

STANDARD NOTES

DESIGN DATA (UNLESS NOTED OTHERWISE ON PLANS OR IN THE SPECIAL PROVISIONS):

SPECIFICATIONS	-----	AREMA (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE AREMA
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - A709 GRADE 36	-	20,000 LBS. PER SQ. IN.
- A709 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- A709 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE AREMA
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

STD. NO. SN

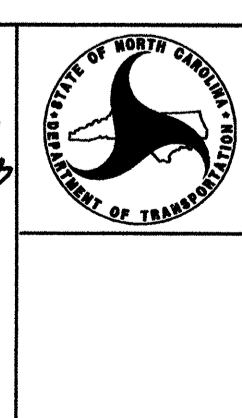
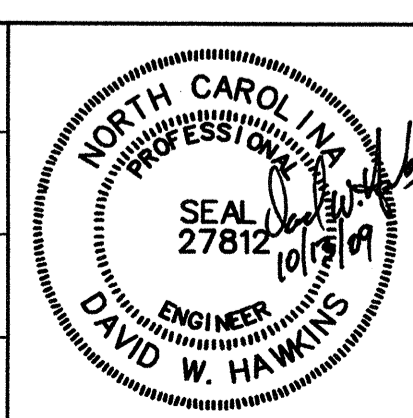
ENGLISH

JANUARY, 1990

REV. 6-16-95 EEM (RGW) REV. 5-7-03 RWW (JTE)
REV. 8-16-99 RWW (LES) REV. 5-1-06 TLA (GM)

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: DWH
DRAWN BY: JJB
CHECKED BY: DWH
DATE: OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

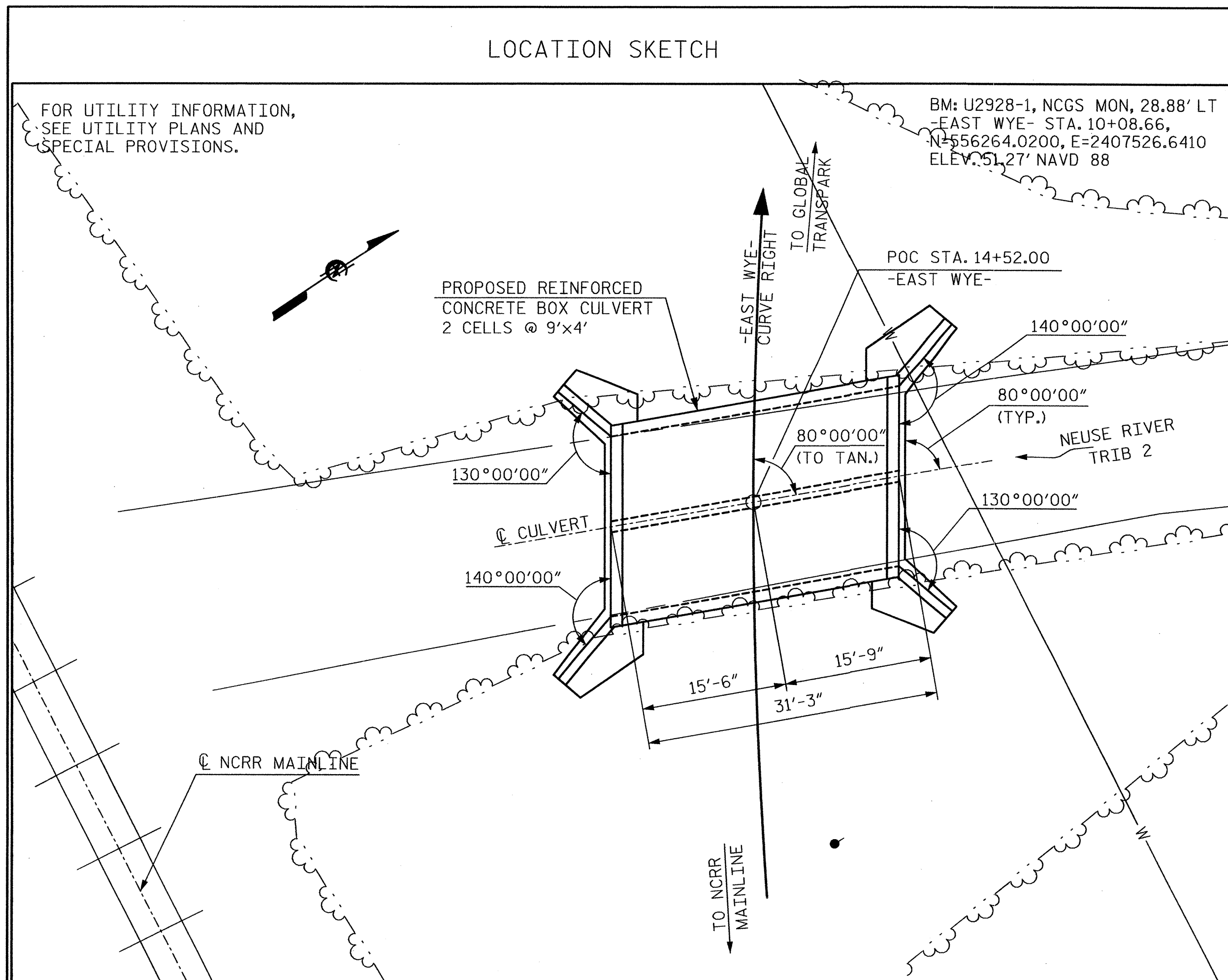


NCGTP RAIL ACCESS

STANDARD NOTES

KINSTON, NC

PROJECT NO: U-2928B
DRAWING NO: ST-21
SCALE: NO SCALE
SHEET NO:



HYDRAULIC DATA

DESIGN DISCHARGE	352 CFS
FREQUENCY OF DESIGN FLOOD	100 YR.
DESIGN HIGH WATER ELEV.	52.9
DRAINAGE AREA	0.5 SQ. MI.
BASIC DISCHARGE (Q100)	352 CFS
BASIC HIGH WATER ELEV.	52.9

GRADE DATA

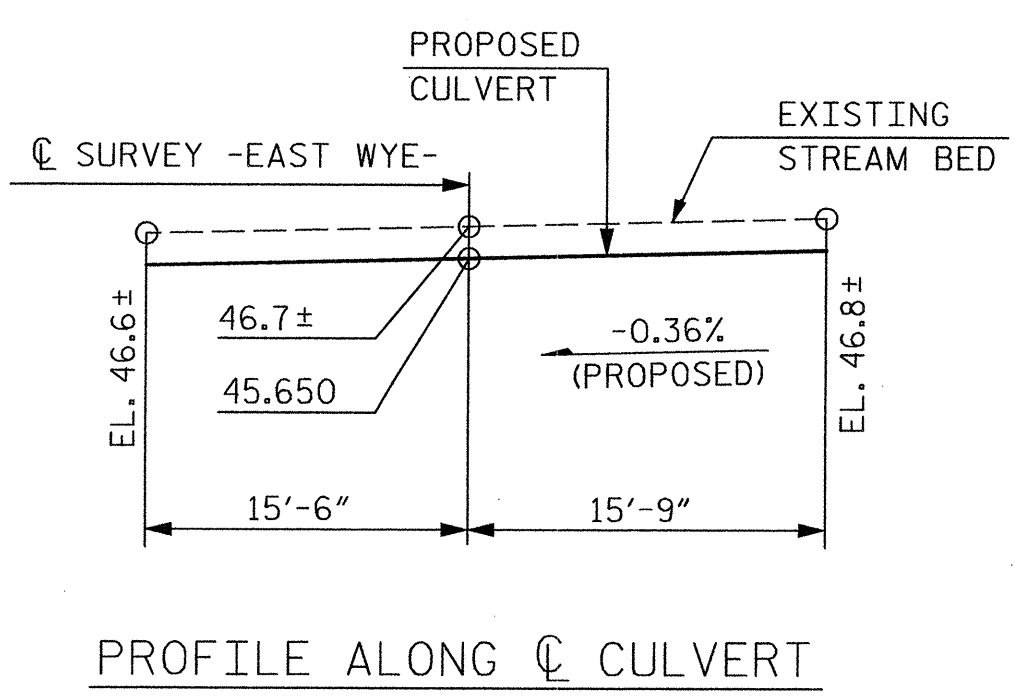
GRADE POINT ELEV. @ STA. 14+52.00	= 54.390
BED ELEVATION @ STA. 14+52.00	= 45.650
ROADBED SLOPES	2:1

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	500 CFS
FREQUENCY OF OVERTOPPING FLOOD	200 YR.
OVERTOPPING FLOOD ELEV.	53.0

TOTAL STRUCTURE QUANTITIES

CLASS AA CONCRETE		
BARREL @ 4.01	CY/FT	125.3 C.Y.
WING ETC.		17.4 C.Y.
TOTAL		142.7 C.Y.
REINFORCING STEEL		
BARREL	22,442	LBS.
WINGS ETC.	1,254	LBS.
TOTAL	23,696	LBS.
FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	47	TONS
CULVERT EXCAVATION LUMP SUM AT STATION 14+52.00 -EAST WYE-		



NOTES

ASSUMED LIVE LOAD = AREMA E80.

THIS CULVERT HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF AREMA'S MANUAL FOR RAILWAY ENGINEERING, VOL. 2, STRUCTURES.

DESIGN FILL - 2.0' (BASE OF RAIL TO TOP OF STRUCTURE).

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR OTHER DESIGN DATA AND NOTES SEE STRUCTURE STANDARD NOTES SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

CULVERT AND WINGS SHALL BE CONSTRUCTED USING CLASS AA CONCRETE WITH f'c = 4500 psi.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

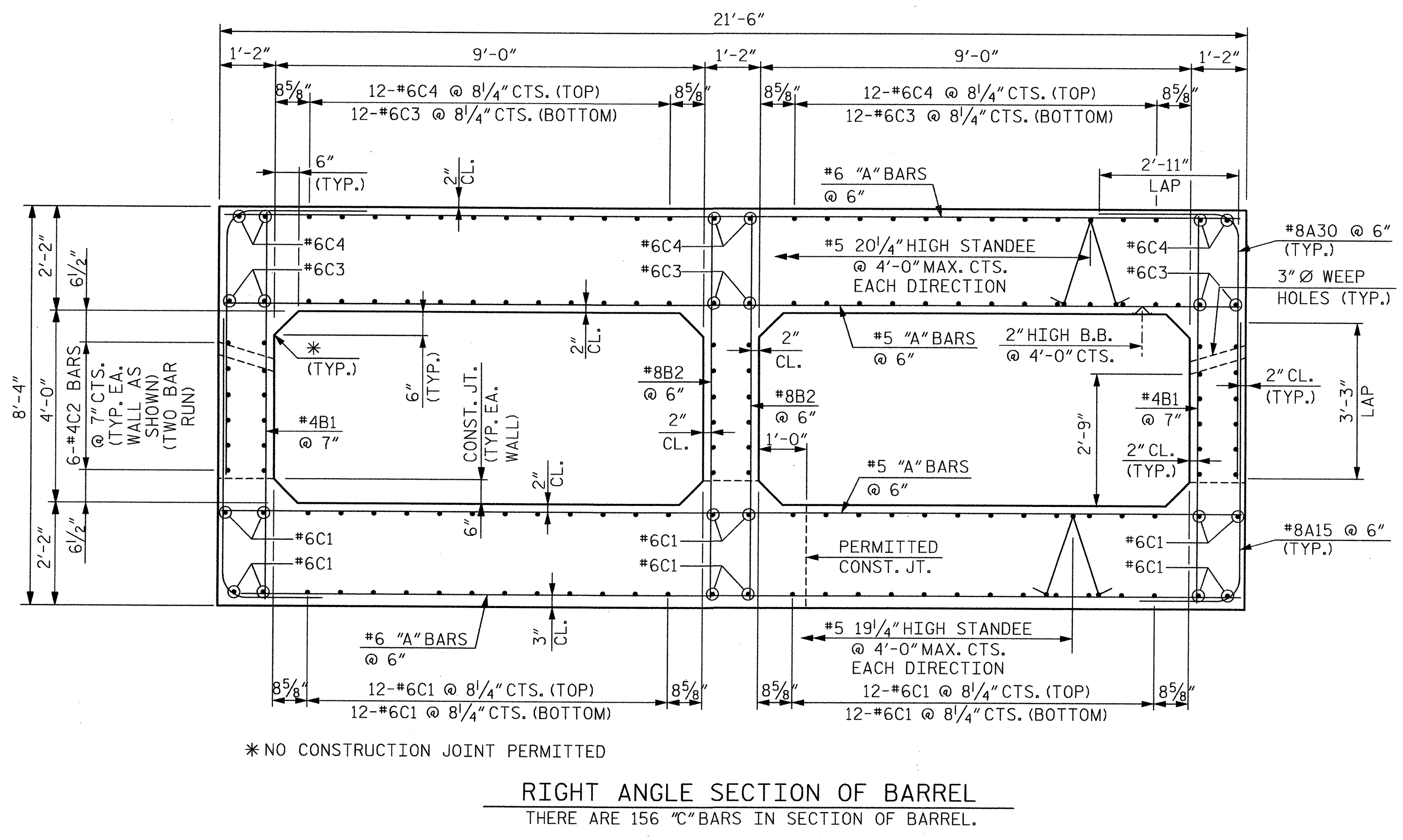
AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

NO BACKFILLING OF EXTERIOR WALLS SHALL BE PERMITTED UNTIL TOP SLAB HAS BEEN PLACED AND CURED. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY BRACING WALLS UNTIL TOP SLAB IS COMPLETED.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.

CONCRETE IN CULVERT TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 6" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT, FOLLOWED BY ROOF SLAB AND HEADWALLS.



REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: PJB
 DRAWN BY: MEW
 CHECKED BY: DWH
 DATE: OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

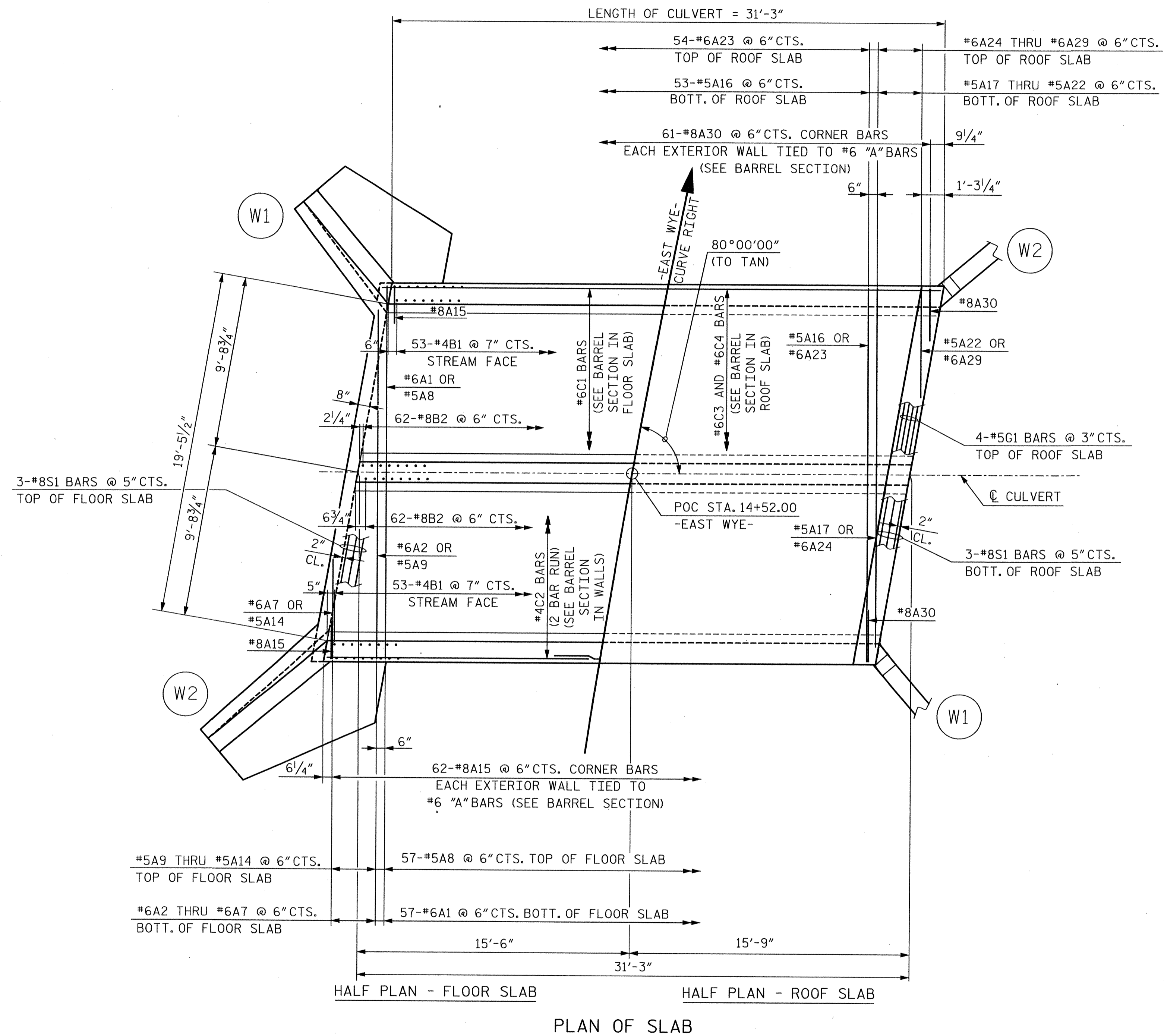
ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 1466 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1466

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

GTP Rail Access

NCGTP RAIL ACCESS
 LOCATION SKETCH/BARREL
 SECTION FOR 9 FT. X 4 FT.
 CONCRETE BOX CULVERT
 AT STA. 14+52.00 -EAST WYE-
 KINSTON, NC

BRIDGE NO. _____
 PROJECT NO: U-2928B
 DRAWING NO: ST-22
 SCALE: NO SCALE
 SHEET NO: _____



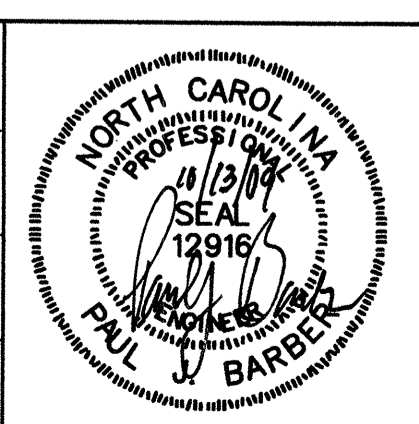
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB

DRAWN BY:
MEW

CHECKED BY:
DWH

DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

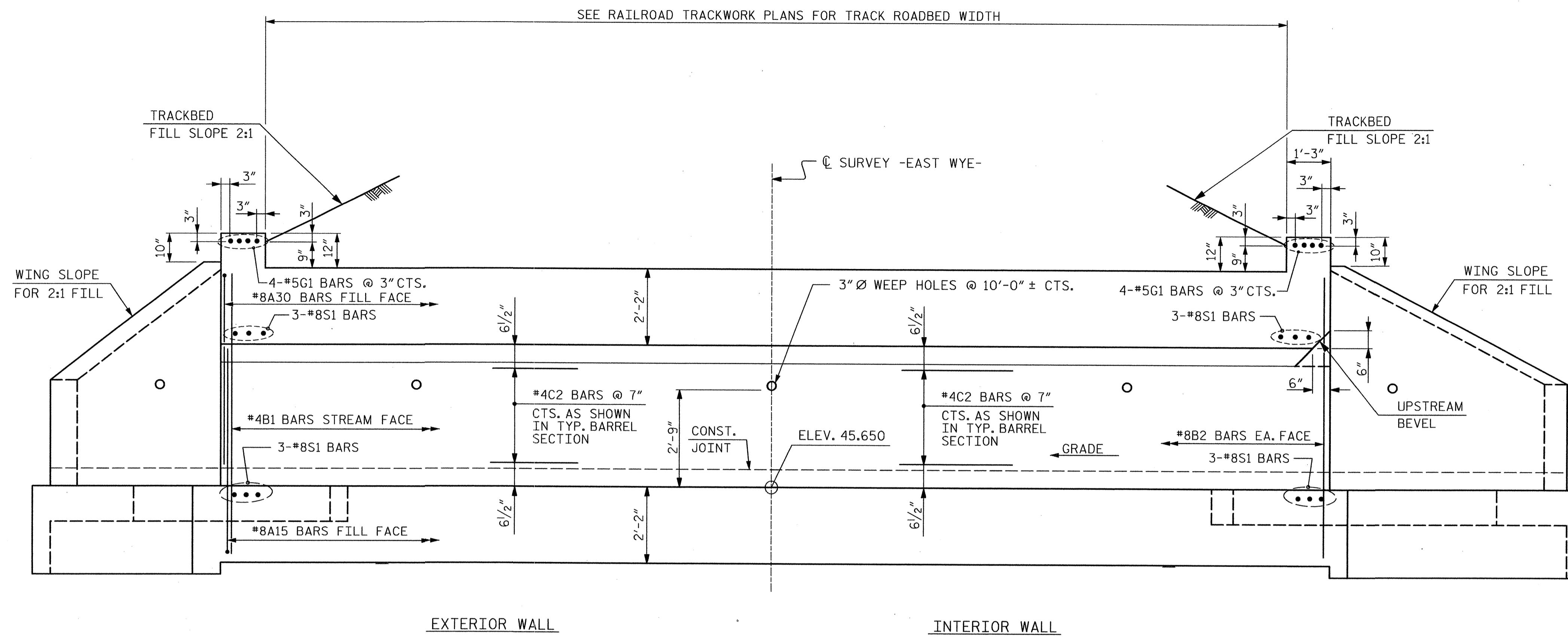
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
156 MAIL SERVICE CENTER
RALEIGH, NC 27699-1566

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609

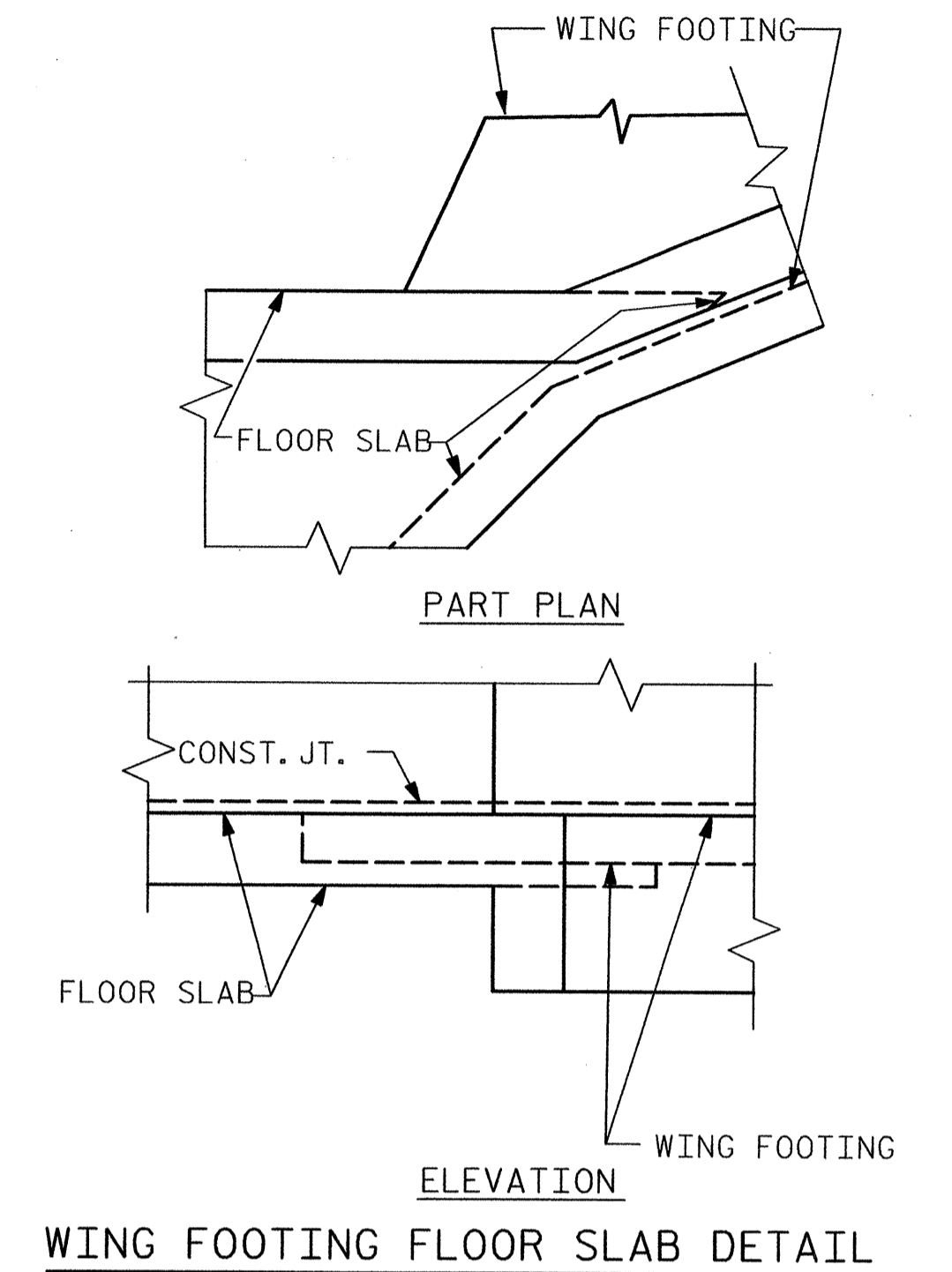
GTP Rail Access

NCGTP RAIL ACCESS
PLAN OF SLAB
FOR DOUBLE 9 FT. X 4 FT.
CONCRETE BOX CULVERT
AT STA. 14+52.00 -EAST WYE-
KINSTON, NC

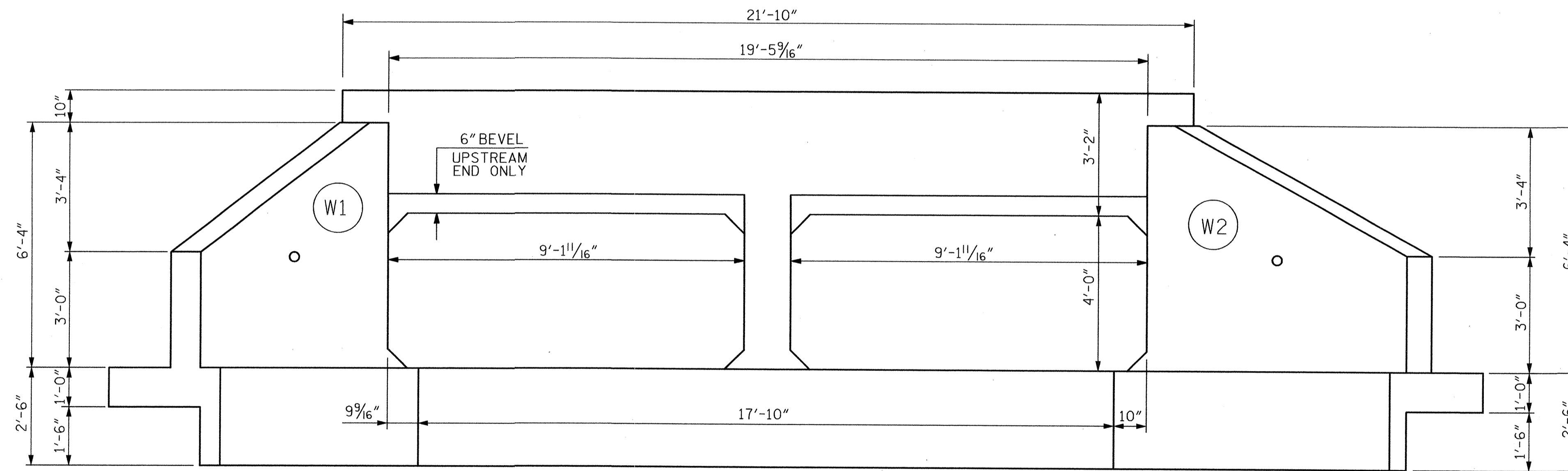
PROJECT NO: U-2928B
DRAWING NO: ST-23
SCALE: NO SCALE
SHEET NO:



EXTERIOR WALL INTERIOR WALL
CULVERT SECTION NORMAL TO ROADWAY



WING FOOTING FLOOR SLAB DETAIL



END ELEVATION NORMAL TO SKEW

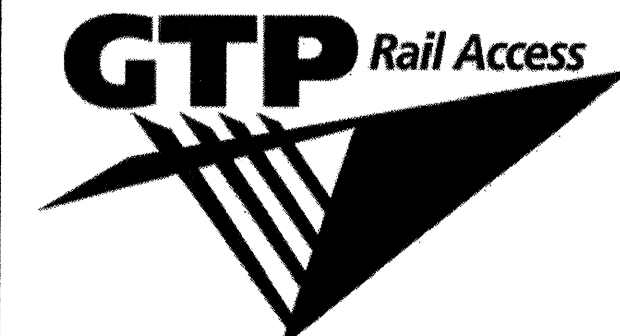
REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
 DRAWN BY:
MEW
 CHECKED BY:
DWH
 DATE:
OCT 13, 2009



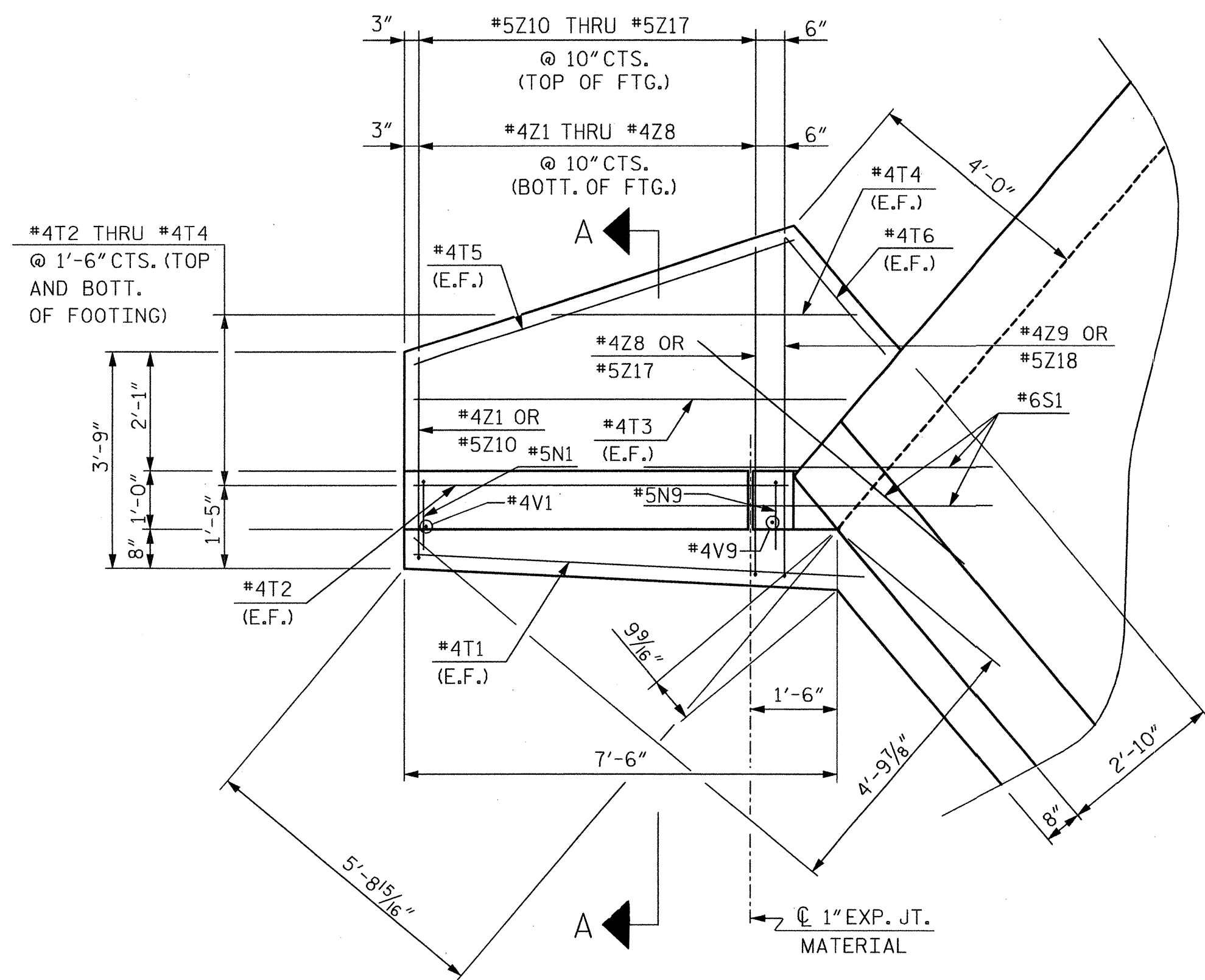
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 1446 MAIL SERVICE CENTER
 RALEIGH, NC 27699-1446

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 RALEIGH, NORTH CAROLINA 27609

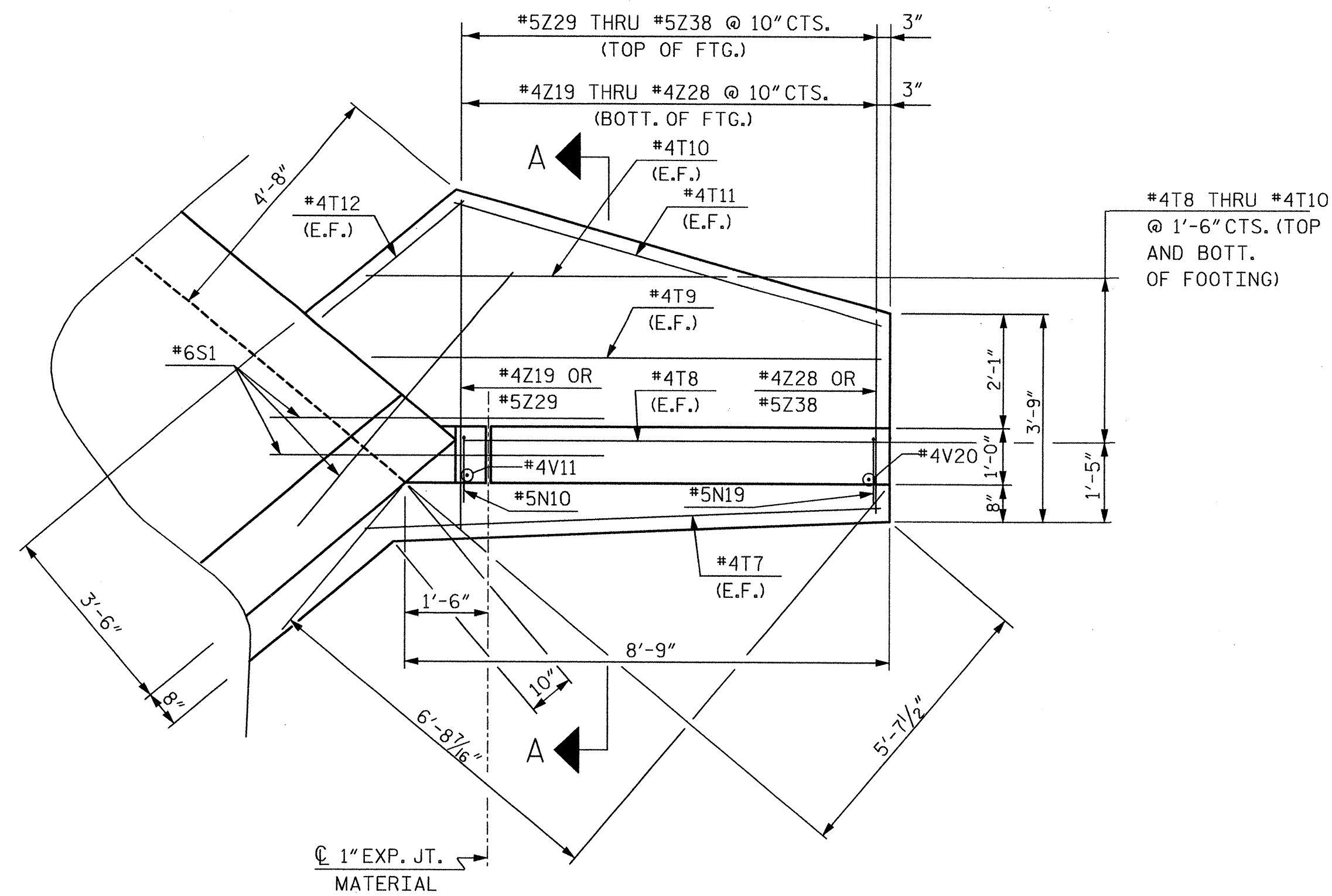


NCGTP RAIL ACCESS
 SECTION AND ELEVATION
 FOR DOUBLE 9 FT. X 4 FT.
 CONCRETE BOX CULVERT
 AT STA. 14+52.00 -EAST WYE-
 KINSTON, NC

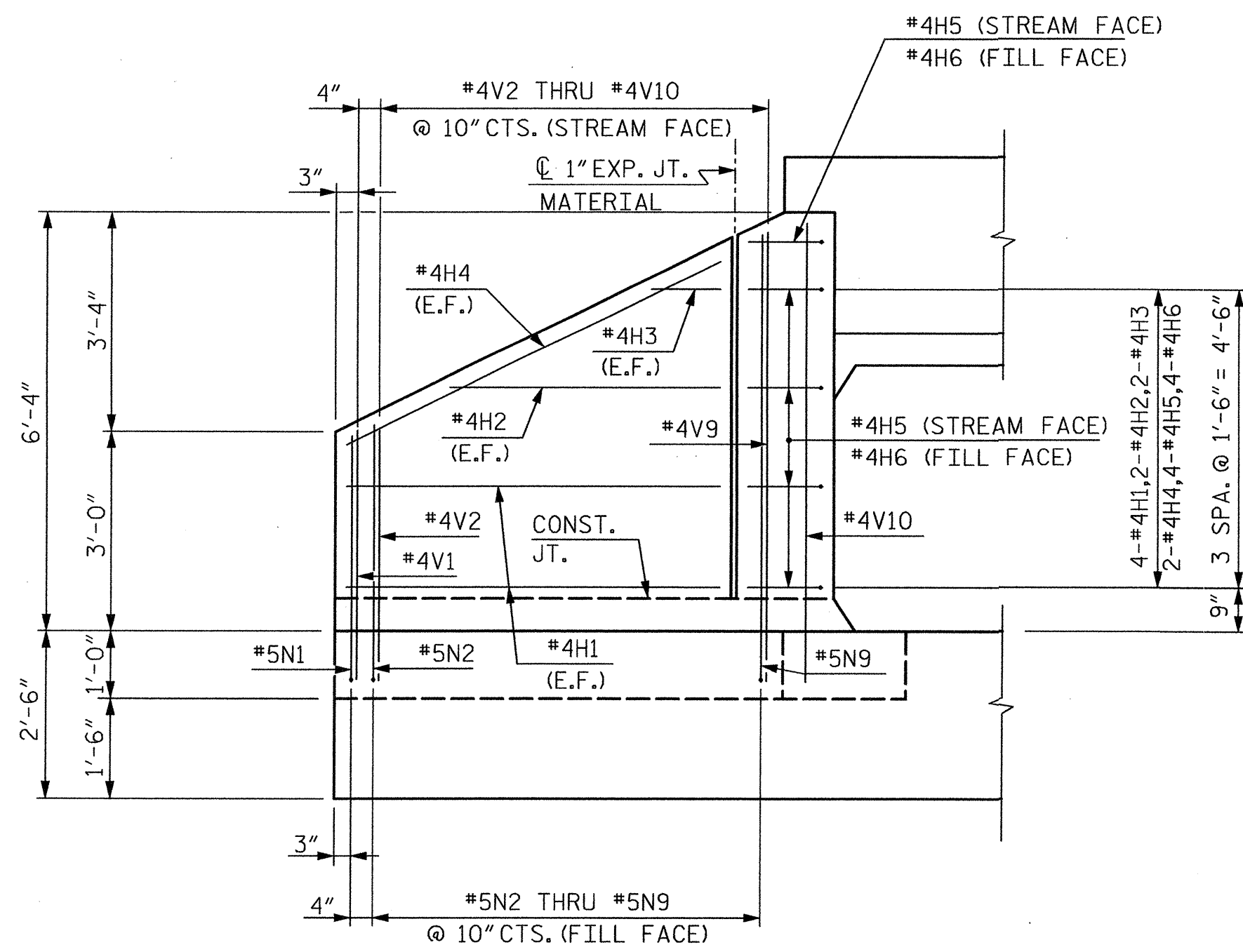
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DRAWING NO:	ST-24
SCALE:	NO SCALE
SHEET NO:	



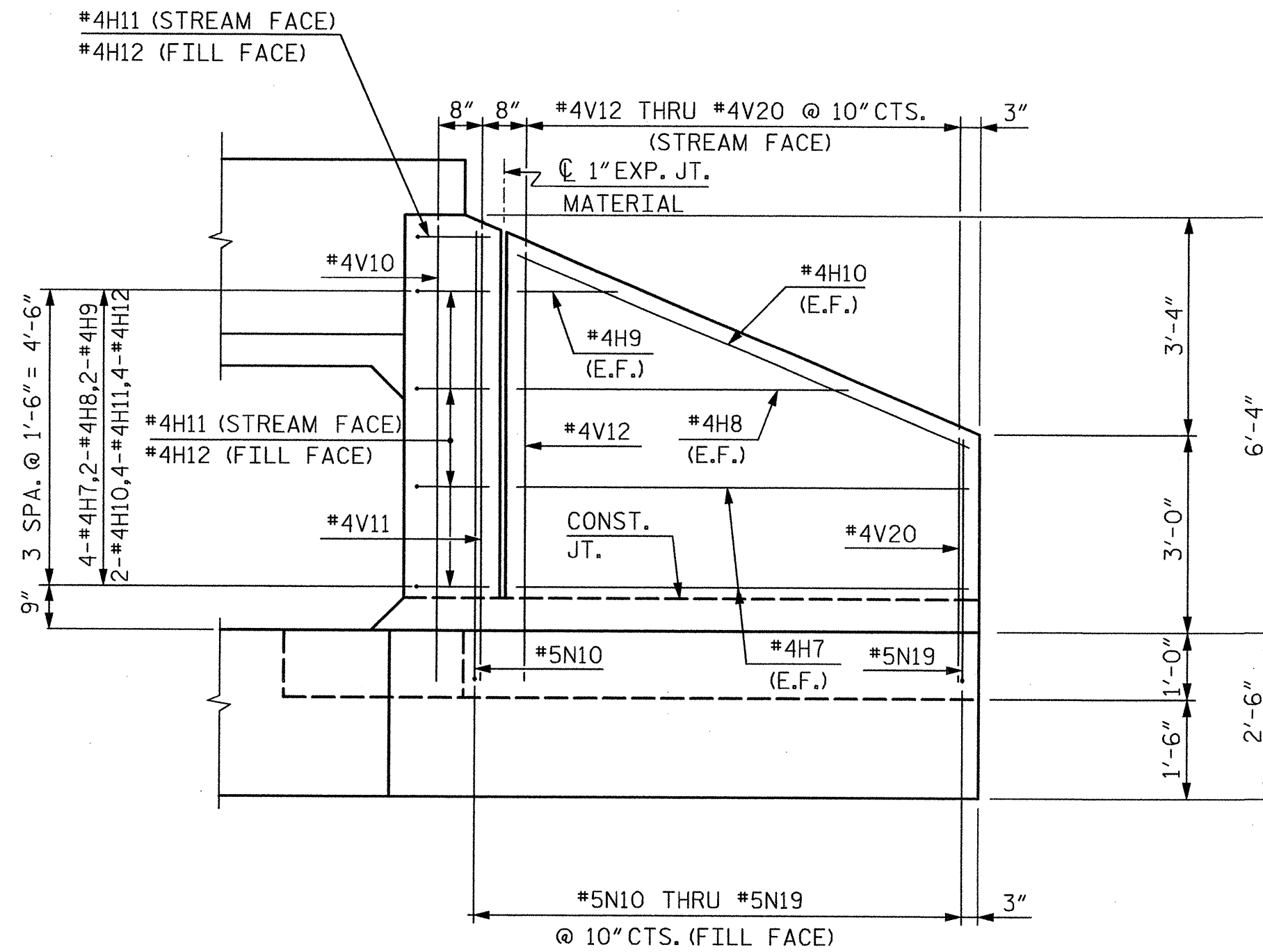
PLAN W1



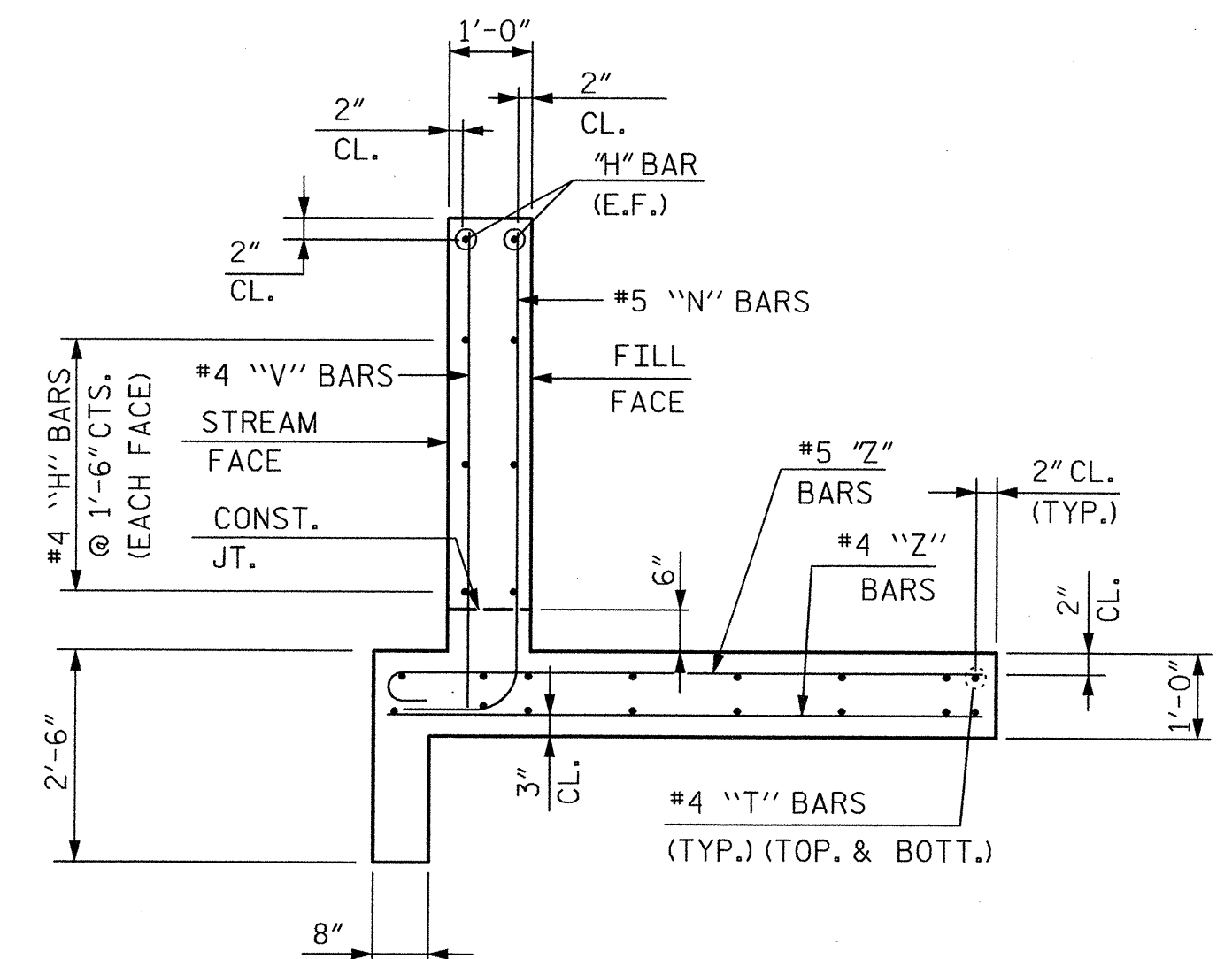
PLAN W2



ELEVATION W1



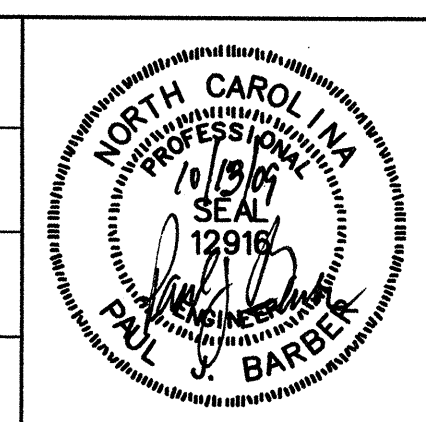
ELEVATION W2



SECTION A-A

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
DRAWN BY:
MEW
CHECKED BY:
DWH
DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1664 MAIL SERVICE CENTER
RALEIGH, NC 27609

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609



NCGTP RAIL ACCESS
WING DETAILS
FOR DOUBLE 9 FT. X 4 FT.
CONCRETE BOX CULVERT
AT STA. 14 + 52.00 - EAST WYE -
KINSTON, NC

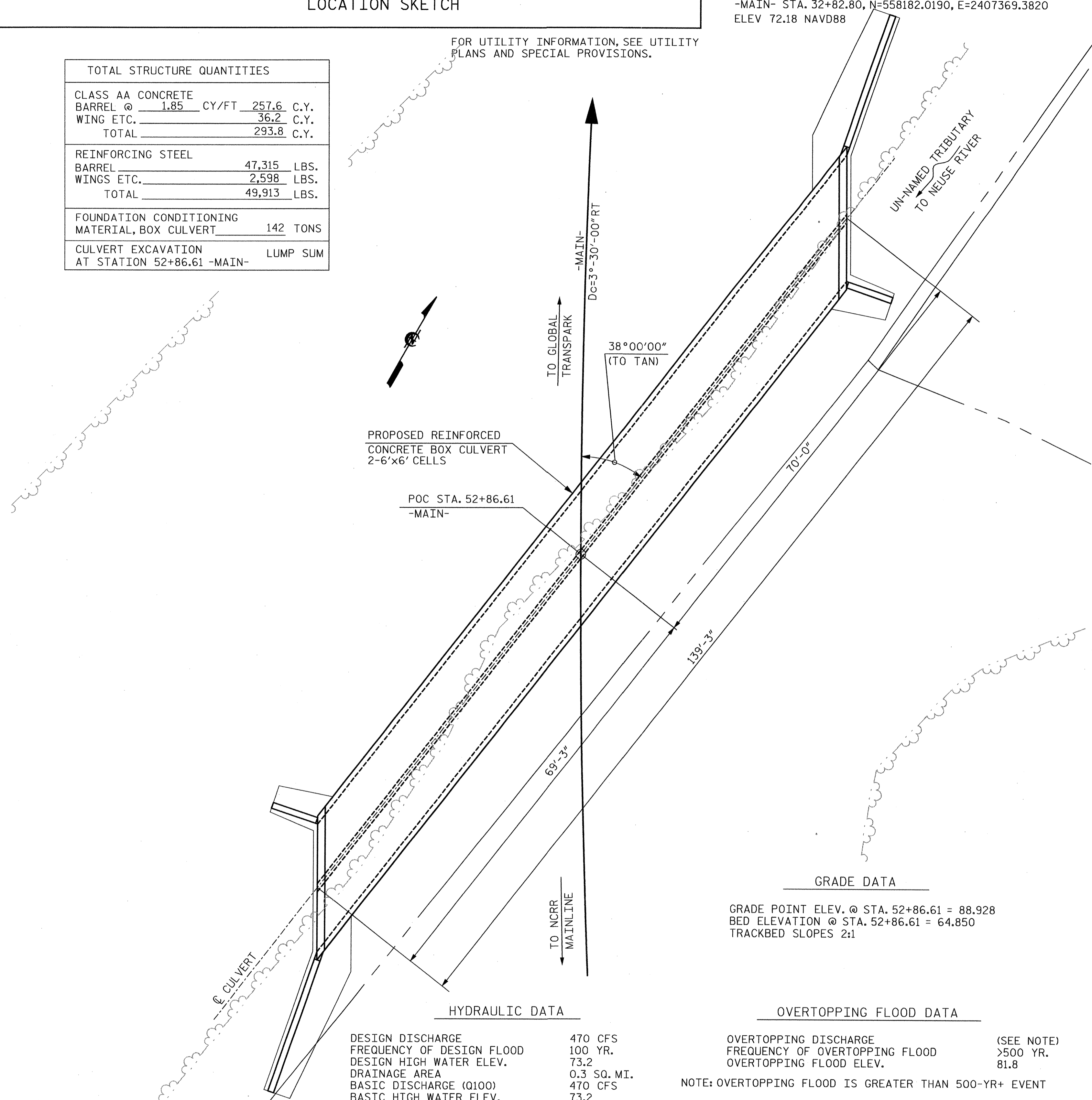
PROJECT NO:	U-2928B
DRAWING NO:	ST-26
SCALE:	NO SCALE
SHEET NO:	

LOCATION SKETCH

BM: GTP-1, NCGS MON, OFFSET 614.18' RT
 -MAIN- STA. 32+82.80, N=558182.0190, E=2407369.3820
 ELEV 72.18 NAVD88

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL STRUCTURE QUANTITIES			
CLASS AA CONCRETE			
BARREL @ 1.85	CY/FT	257.6	C.Y.
WING ETC.		36.2	C.Y.
TOTAL		293.8	C.Y.
REINFORCING STEEL			
BARREL		47,315	LBS.
WINGS ETC.		2,598	LBS.
TOTAL		49,913	LBS.
FOUNDATION CONDITIONING MATERIAL, BOX CULVERT		142	TONS
CULVERT EXCAVATION AT STATION 52+86.61 -MAIN-			LUMP SUM



PROPOSED REINFORCED CONCRETE BOX CULVERT 2-6'x6' CELLS

POC STA. 52+86.61 -MAIN-

GRADE DATA

GRADE POINT ELEV. @ STA. 52+86.61 = 88.928
 BED ELEVATION @ STA. 52+86.61 = 64.850
 TRACKBED SLOPES 2:1

HYDRAULIC DATA

DESIGN DISCHARGE 470 CFS
 FREQUENCY OF DESIGN FLOOD 100 YR.
 DESIGN HIGH WATER ELEV. 73.2
 DRAINAGE AREA 0.3 SQ. MI.
 BASIC DISCHARGE (Q100) 470 CFS
 BASIC HIGH WATER ELEV. 73.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE (SEE NOTE)
 FREQUENCY OF OVERTOPPING FLOOD >500 YR.
 OVERTOPPING FLOOD ELEV. 81.8
 NOTE: OVERTOPPING FLOOD IS GREATER THAN 500-YR+ EVENT

NOTES

ASSUMED LIVE LOAD = AREMA E80.

THIS CULVERT HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF AREMA'S MANUAL FOR RAILWAY ENGINEERING, VOL. 2, STRUCTURES.

DESIGN FILL - 16.26' (BASE OF RAIL TO TOP OF STRUCTURE).

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

FOR OTHER DESIGN DATA AND NOTES SEE STRUCTURE STANDARD NOTES SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES WILL BE PAID FOR BY THE CONTRACTOR.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. CONSTRUCTION JOINTS SHALL BE A MINIMUM OF 10' FROM THE END OF THE BARREL AND SHALL NOT BE LOCATED WITHIN 14' OF PROPOSED TRACK LOCATION.

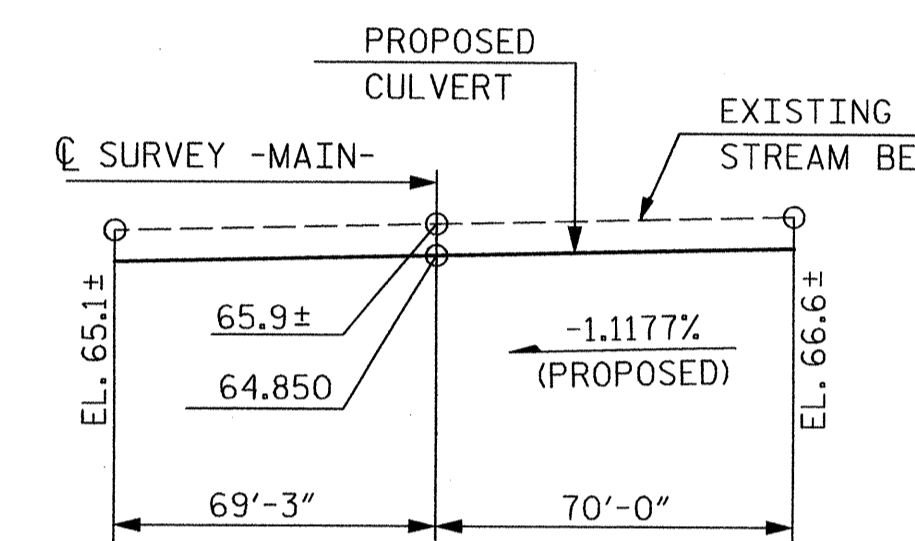
CULVERT AND WINGS SHALL BE CONSTRUCTED USING CLASS AA CONCRETE WITH f'c = 4500 psi.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

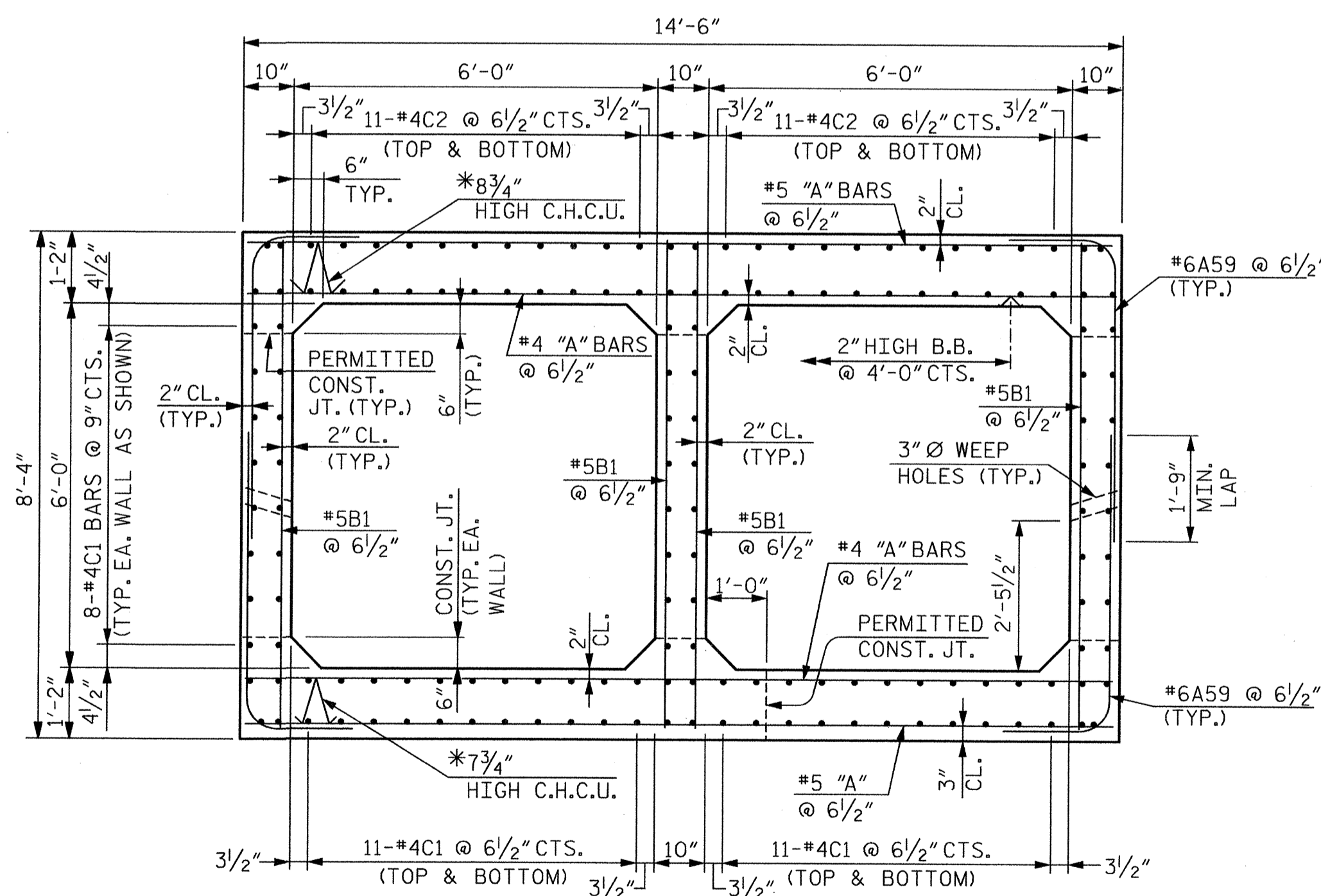
- 1) WING FOOTING AND FLOOR SLAB INCLUDING 6" OF ALL VERTICAL WALLS.
- 2) THE REMAINING PORTIONS OF WALL, AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

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PROFILE ALONG CULVERT



RIGHT ANGLE SECTION OF BARREL

THERE ARE 160 "C" BARS IN SECTION OF BARREL.

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

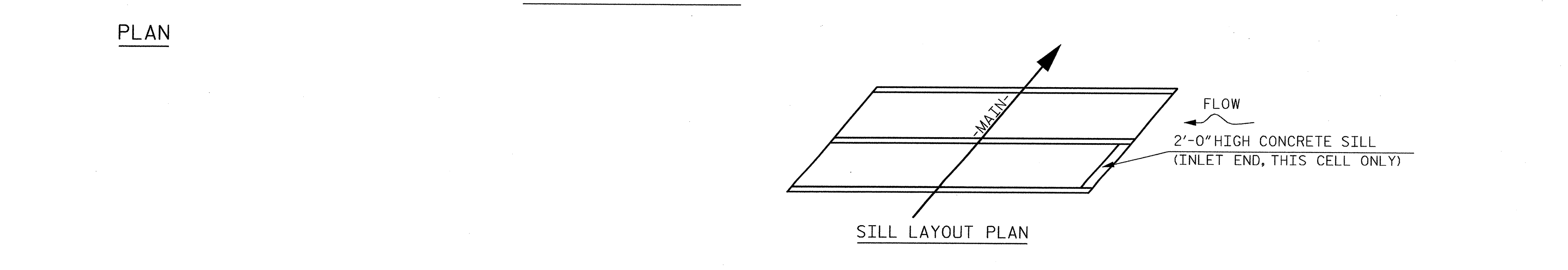
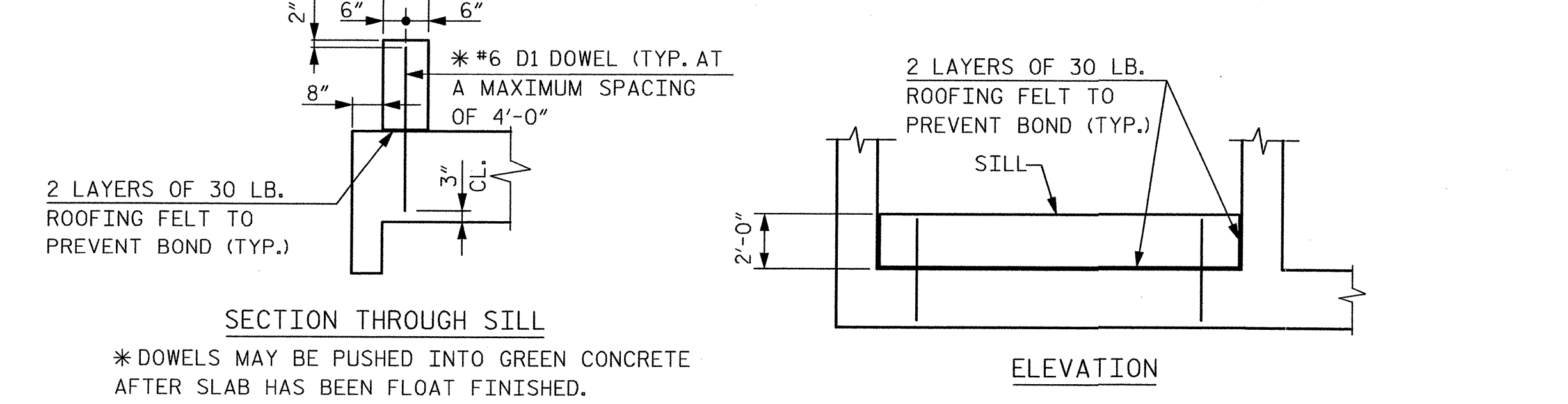
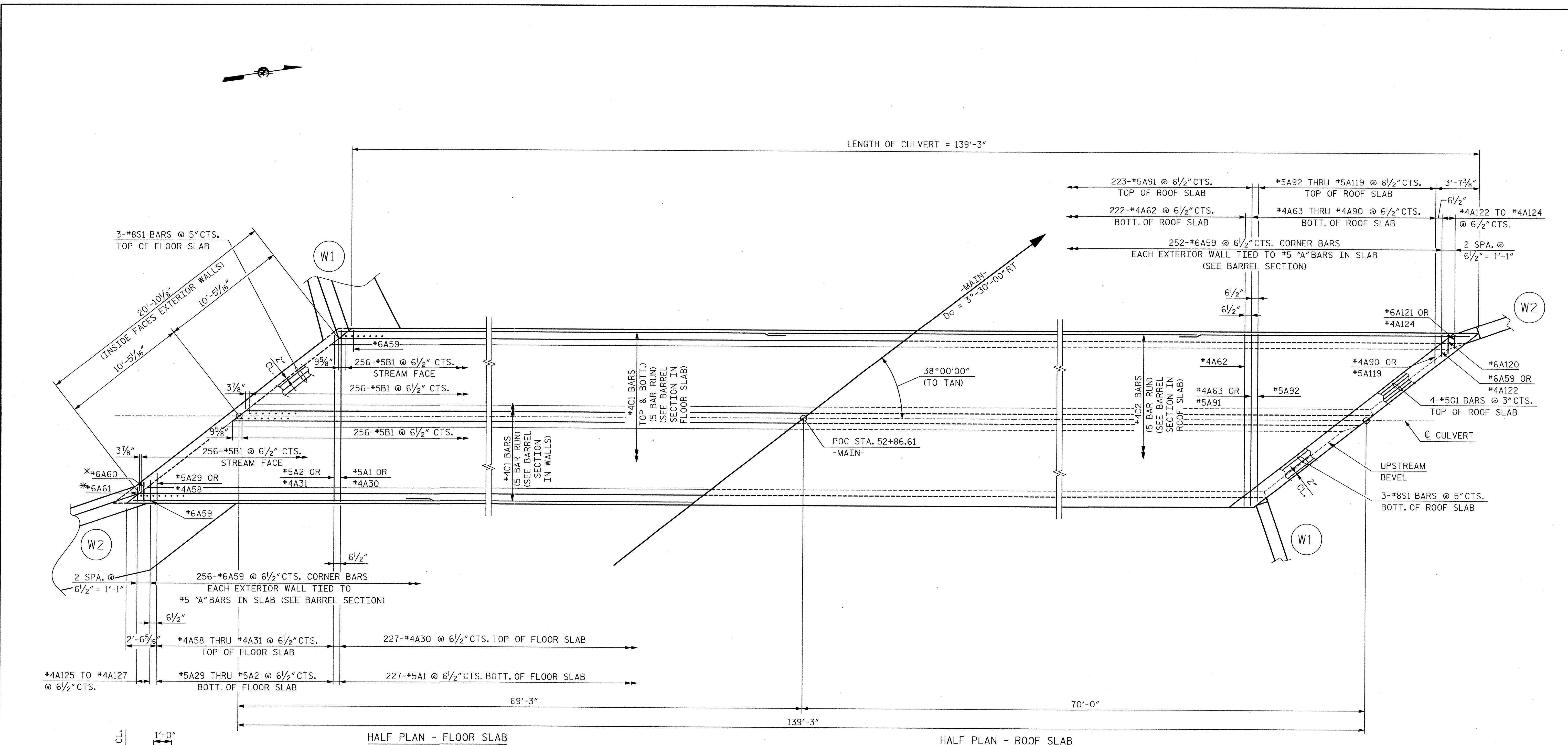
DESIGNED BY: PJB
 DRAWN BY: MEW
 CHECKED BY: PJB
 DATE: OCT 13, 2009



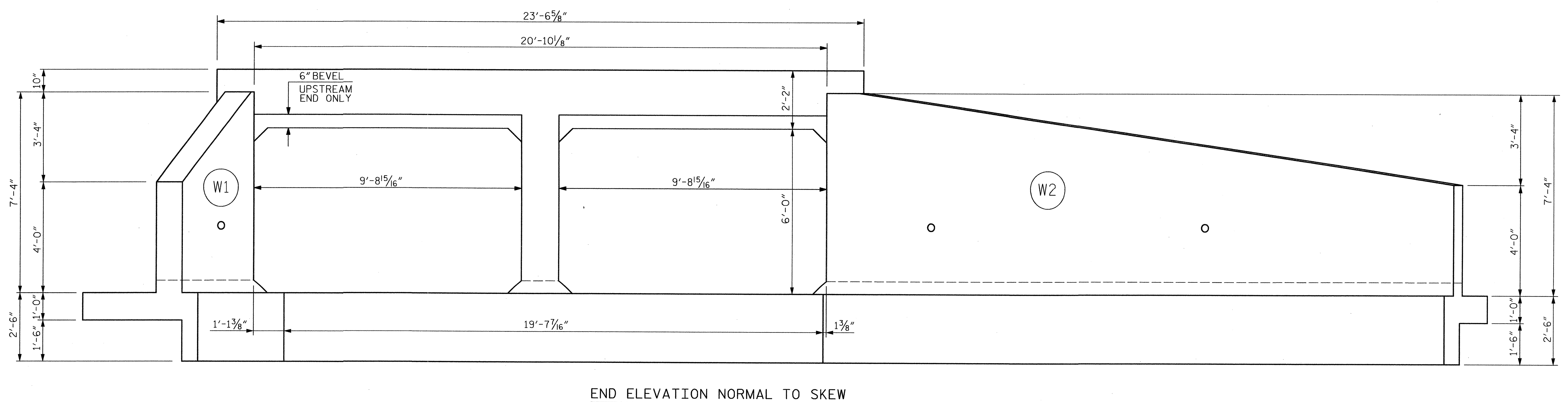
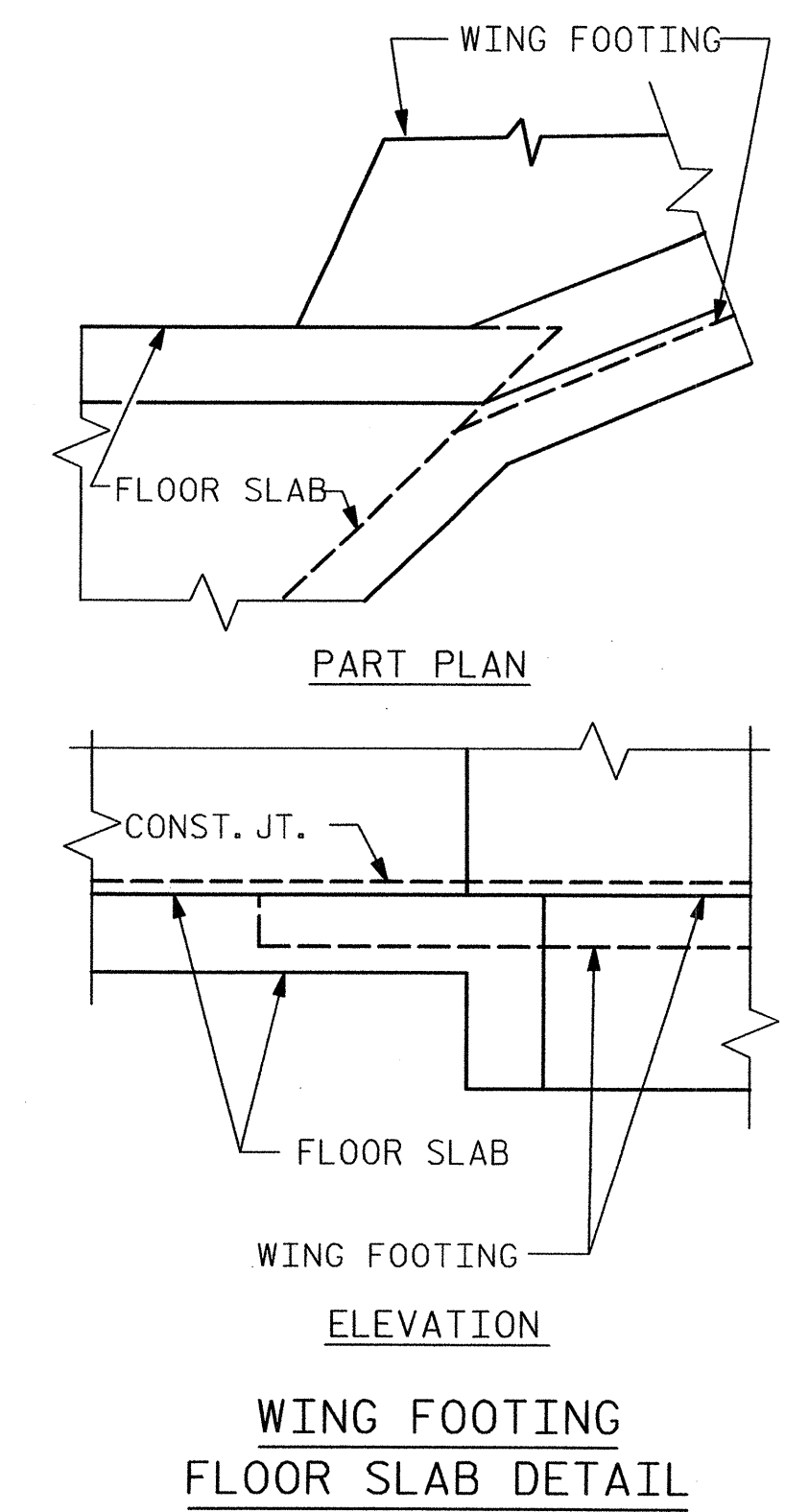
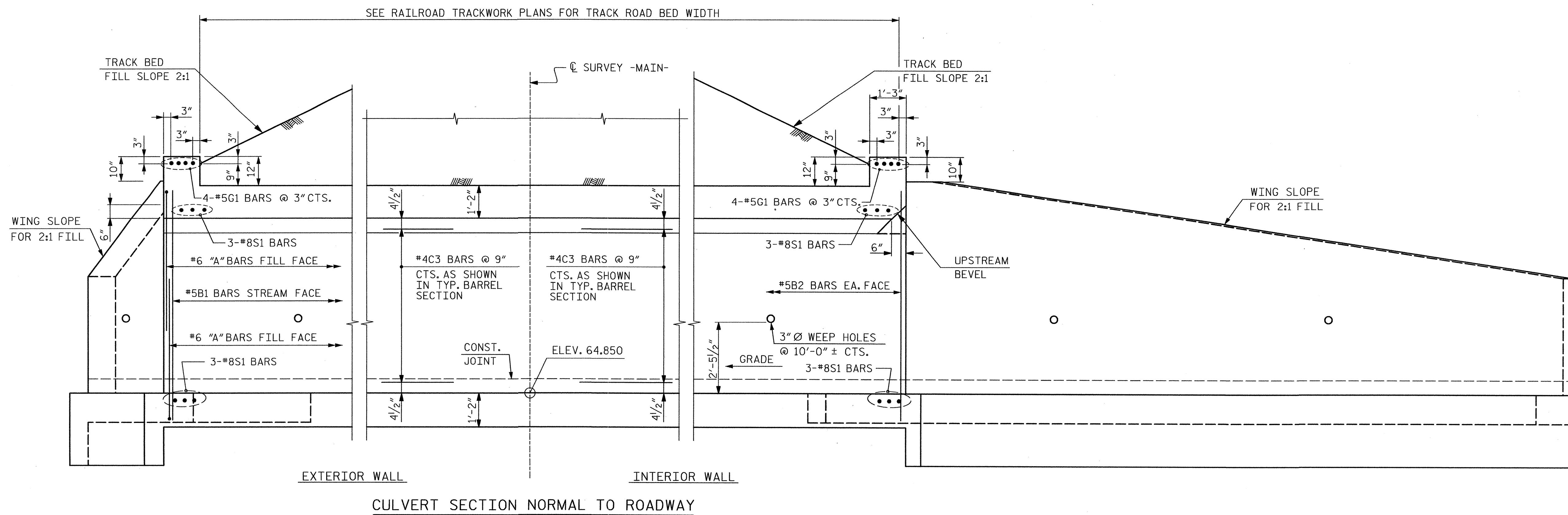
NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

GTP Rail Access
 NCGTP RAIL ACCESS
 LOCATION SKETCH/BARREL SECT.
 FOR DOUBLE 6 FT. X 6 FT.
 CONCRETE BOX CULVERT
 AT STA. 52 + 86.61 -MAIN-
 KINSTON, NC

PROJECT NO: U-2928B
 DRAWING NO: ST-27
 SCALE: NO SCALE
 SHEET NO:

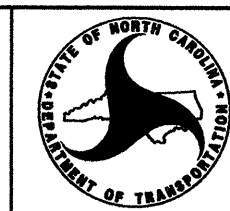
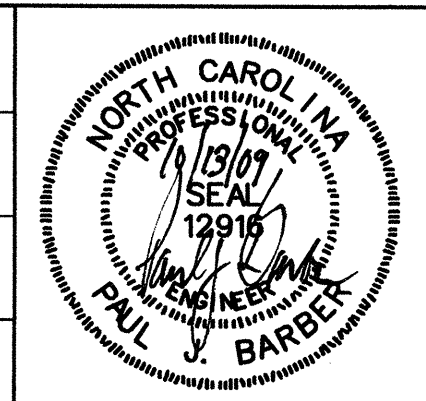


REV. NO.	DATE	BY	APP. BY	DESCRIPTION	DESIGNED BY:					NCGTP RAIL ACCESS PLAN FOR DOUBLE 6 FT. X 6 FT. CONCRETE BOX CULVERT AT STA. 52+86.61 -MAIN- KINSTON, NC	PROJECT NO:
					PJB						U-2928B
					MEW						DRAWING NO:
					PJB						ST-28
						SCALE:	NO SCALE				
						DATE:	SHEET NO:				
					OCT 13, 2009						



REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
DRAWN BY:
MEW
CHECKED BY:
PJB
DATE:
OCT 13, 2009



NC DEPARTMENT OF
TRANSPORTATION
RAIL DIVISION

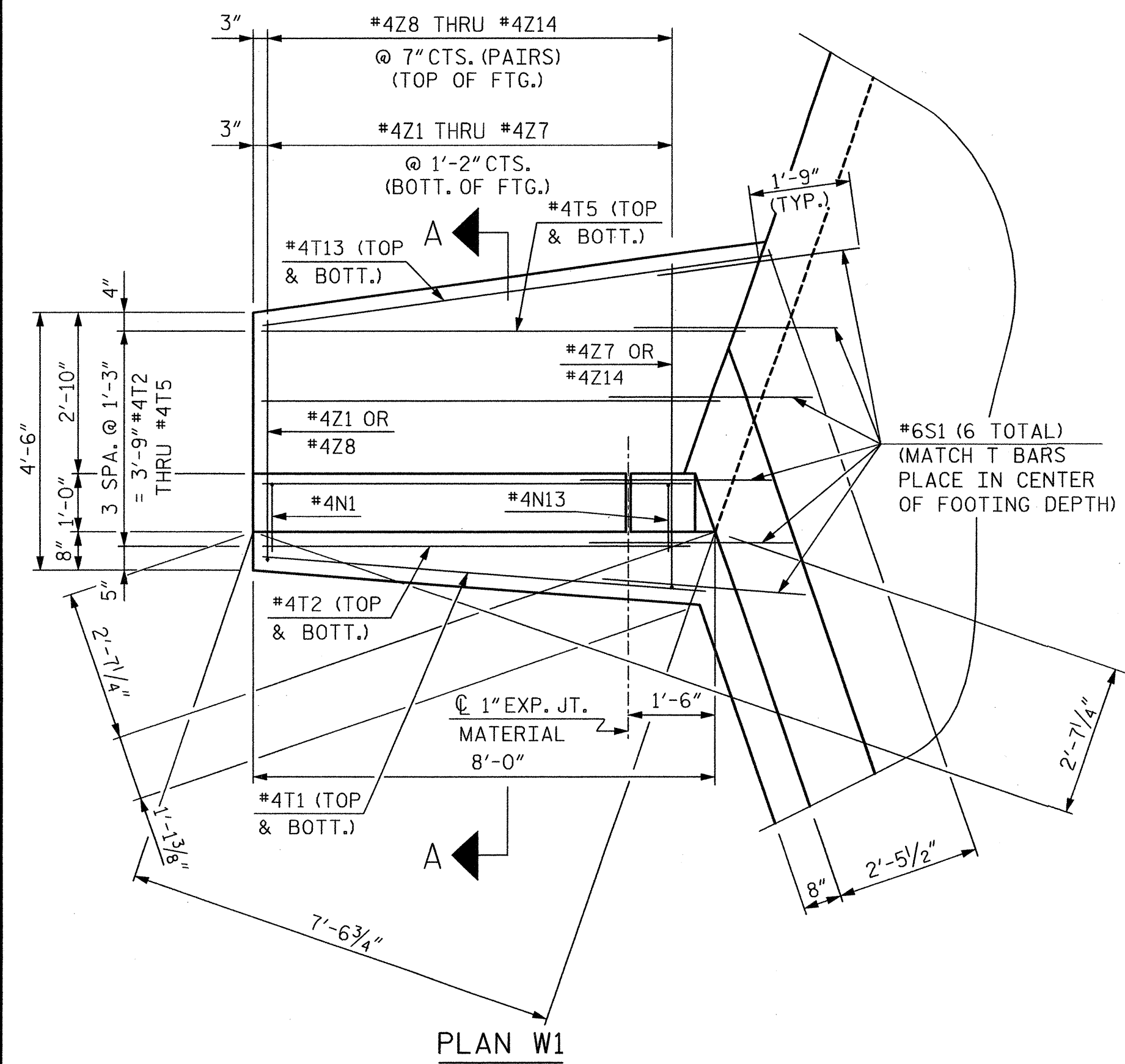
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
146 MAIL SERVICE CENTER
RALEIGH, NC 27699-146

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609

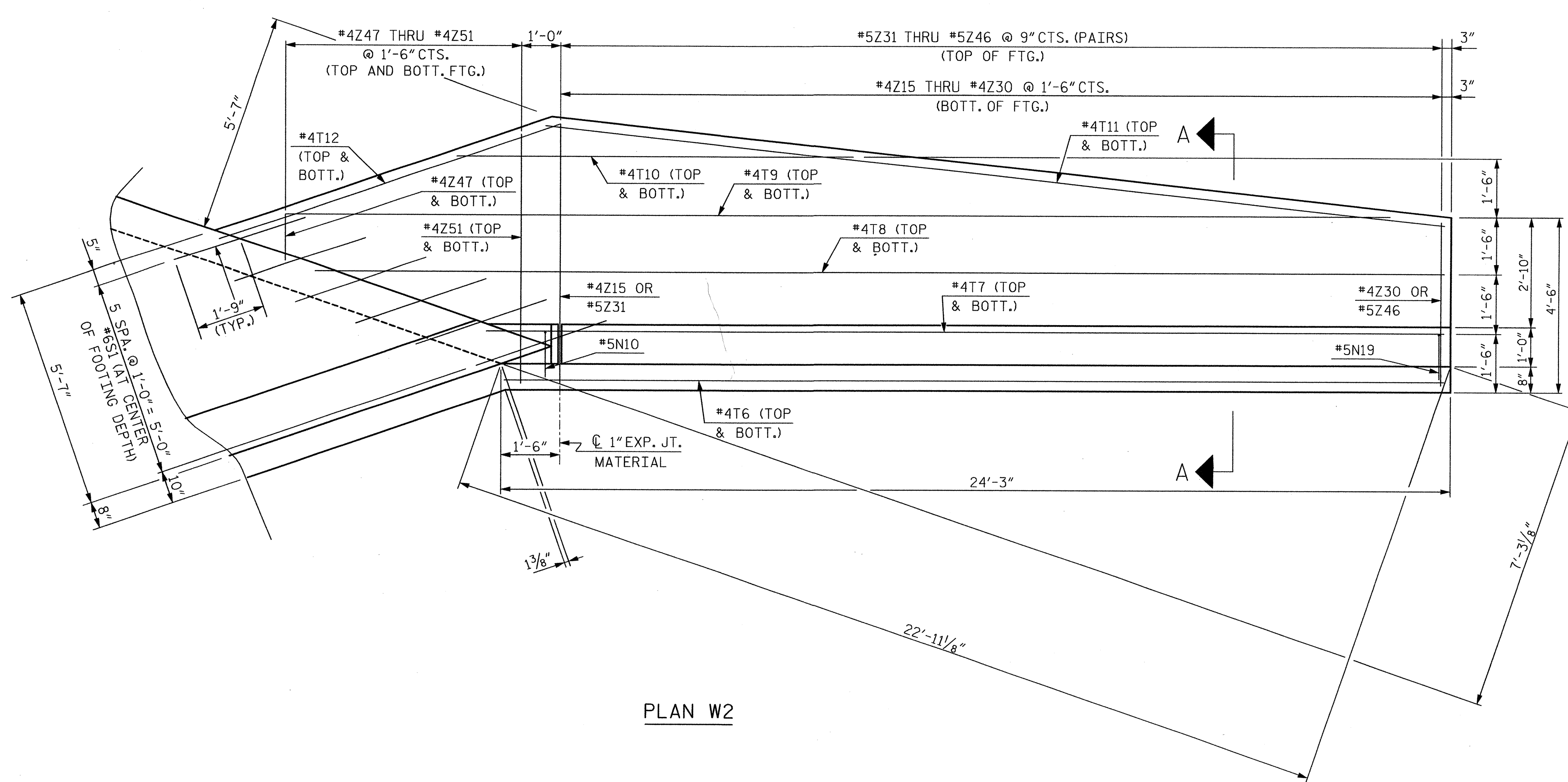


NCGTP RAIL ACCESS
SECTION AND ELEVATION
FOR DOUBLE 6 FT. X 6 FT.
CONCRETE BOX CULVERT
AT STA. 52 + 86.61 -MAIN-
KINSTON, NC

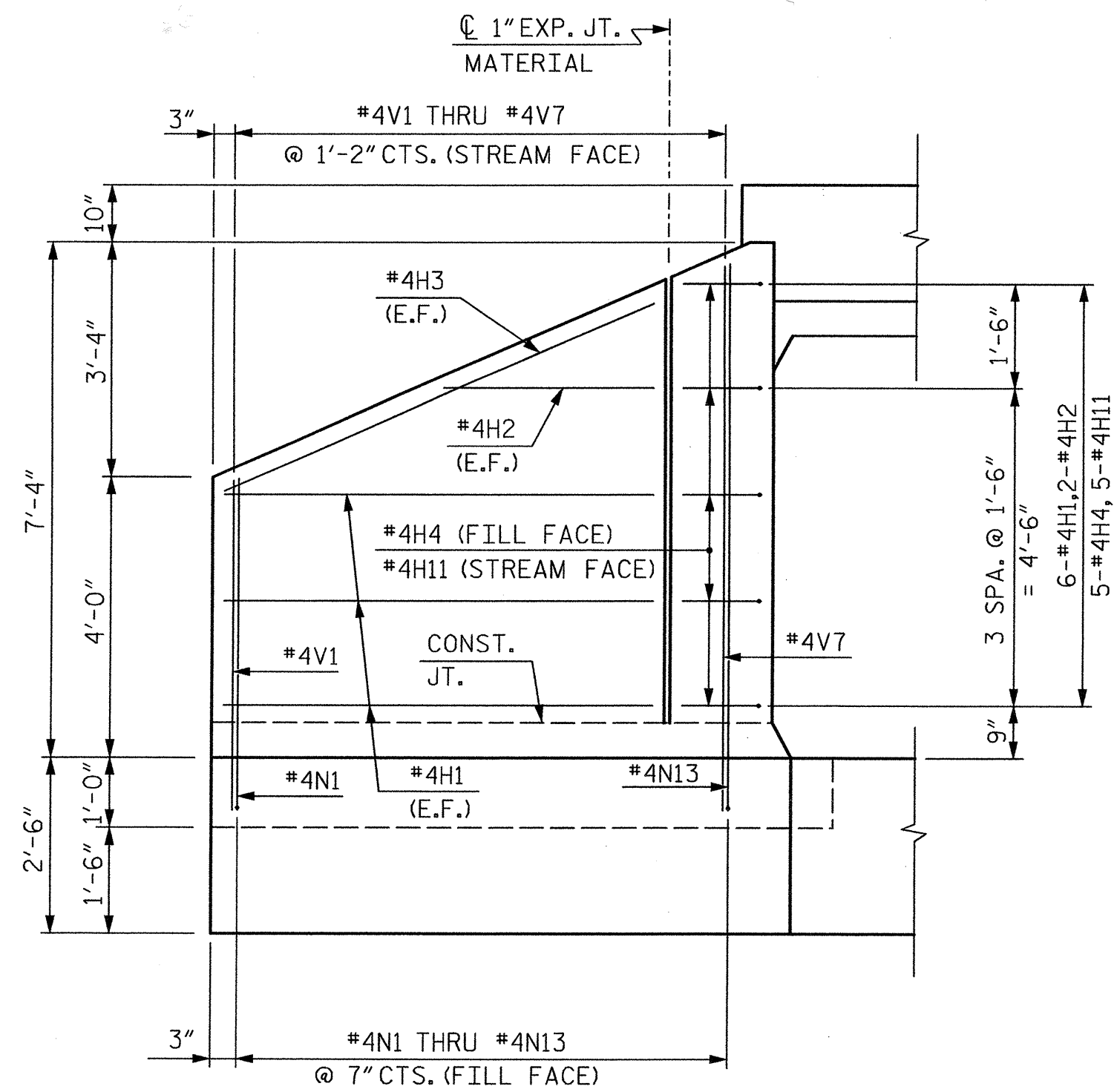
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U-2928B
DRAWING NO:
ST-29
SCALE:
NO SCALE
SHEET NO:



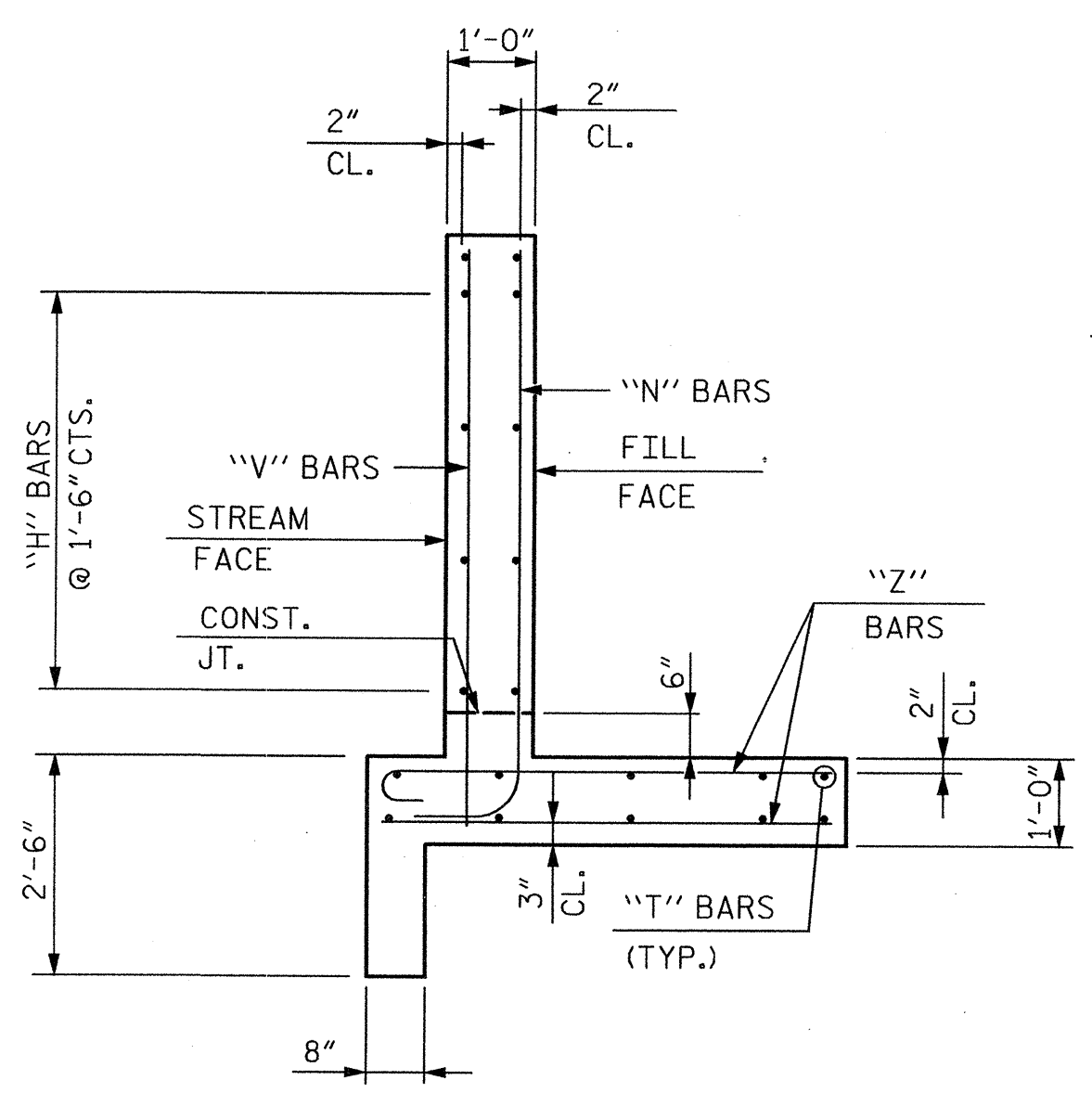
PLAN W1



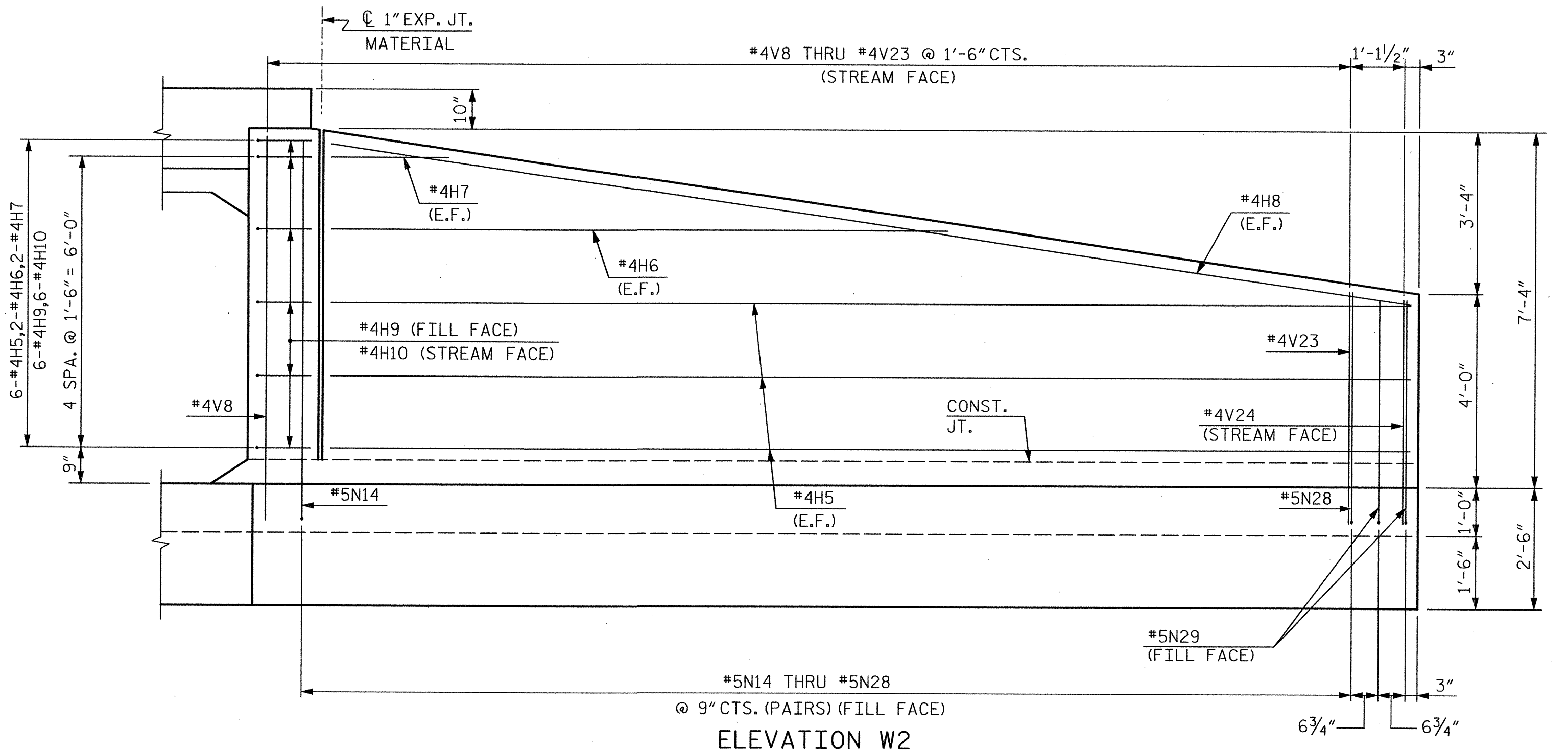
PLAN W2



ELEVATION W1



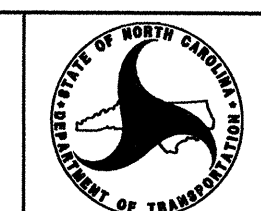
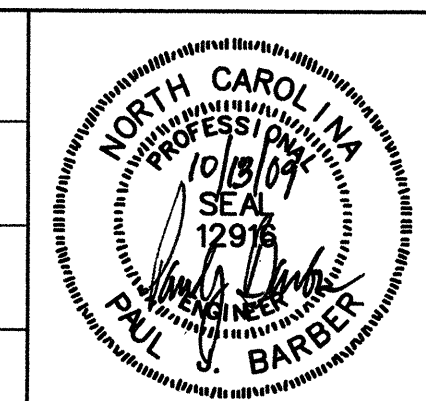
SECTION A-A



ELEVATION W2

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
DRAWN BY:
MEW
CHECKED BY:
PJB
DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1554 MAIL SERVICE CENTER
RALEIGH, NC 27699-1554

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609



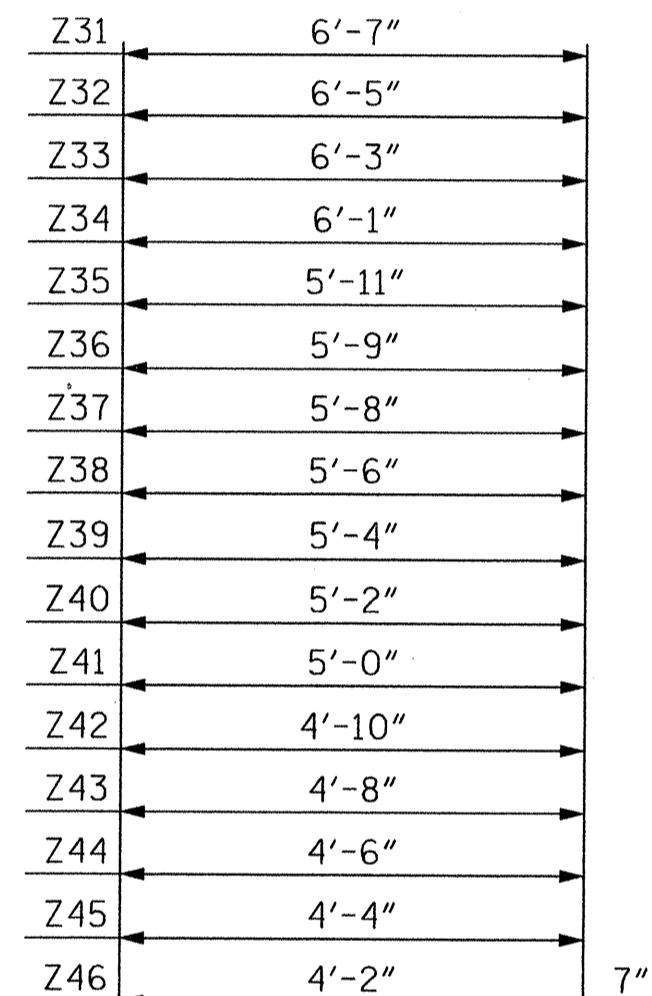
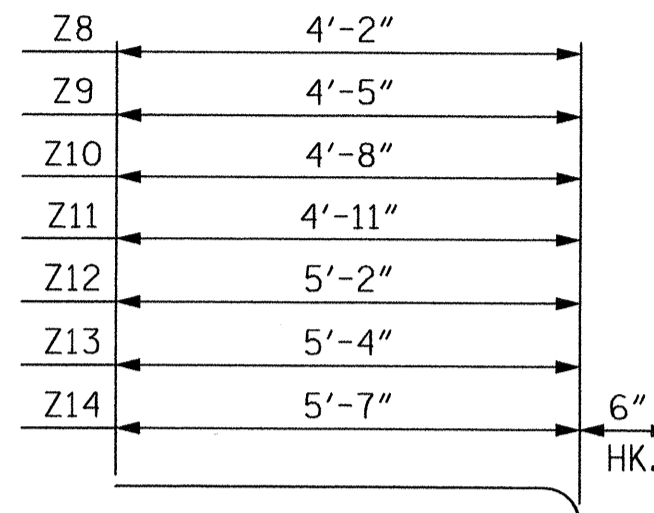
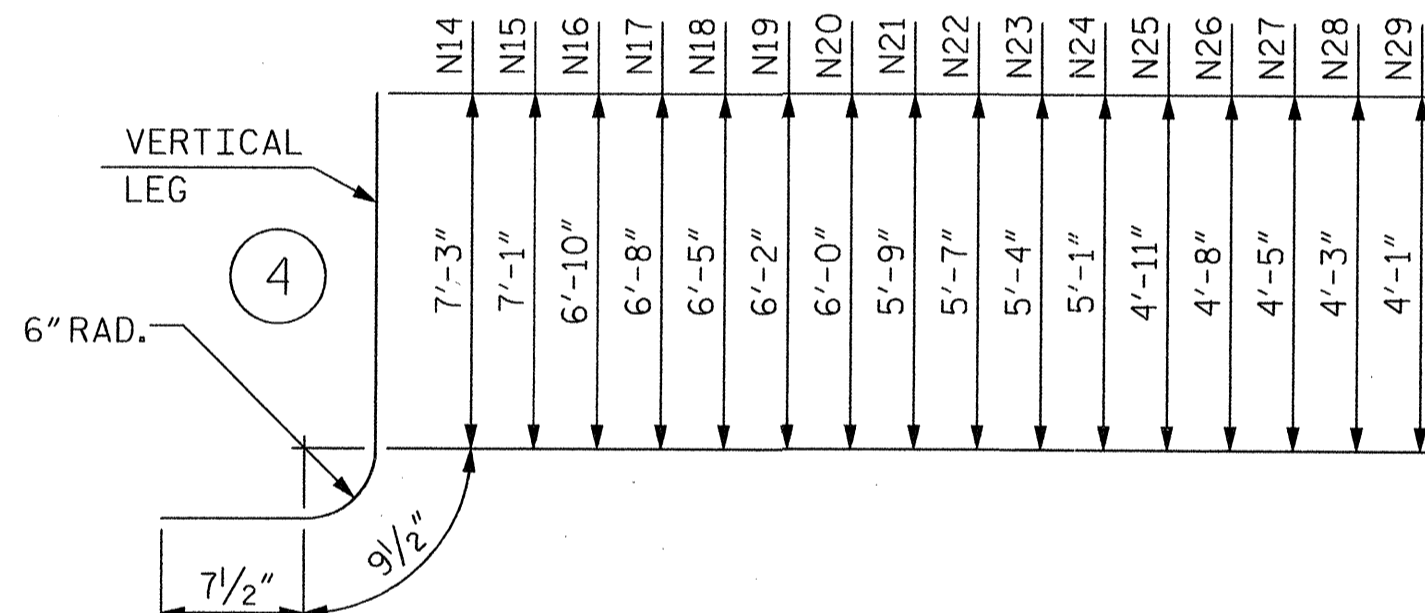
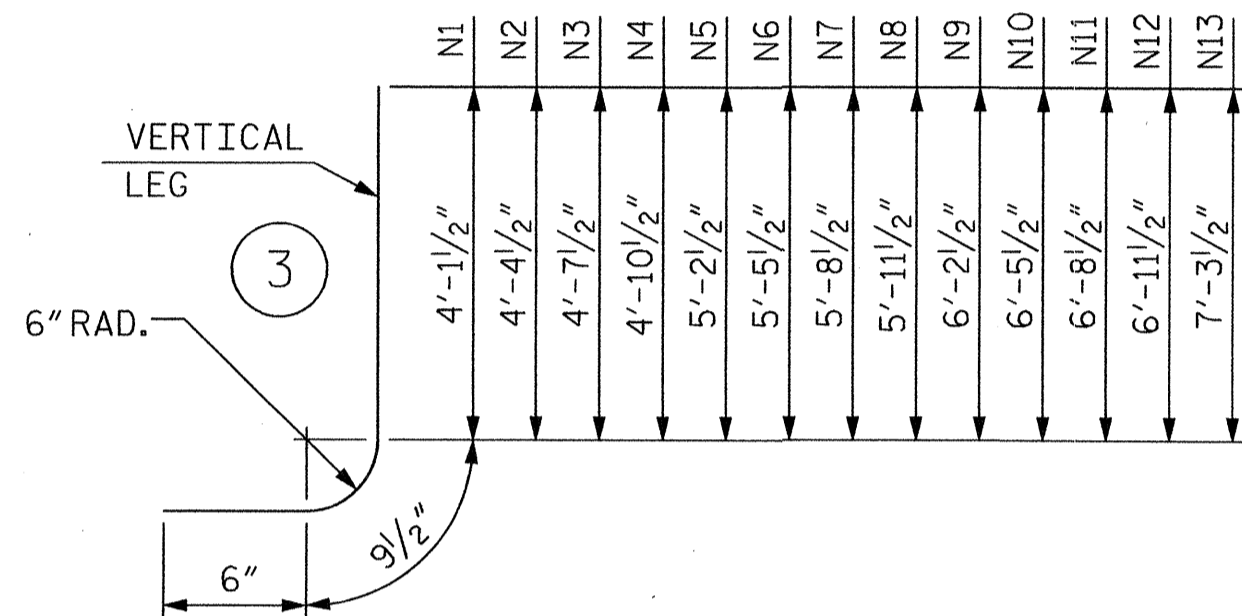
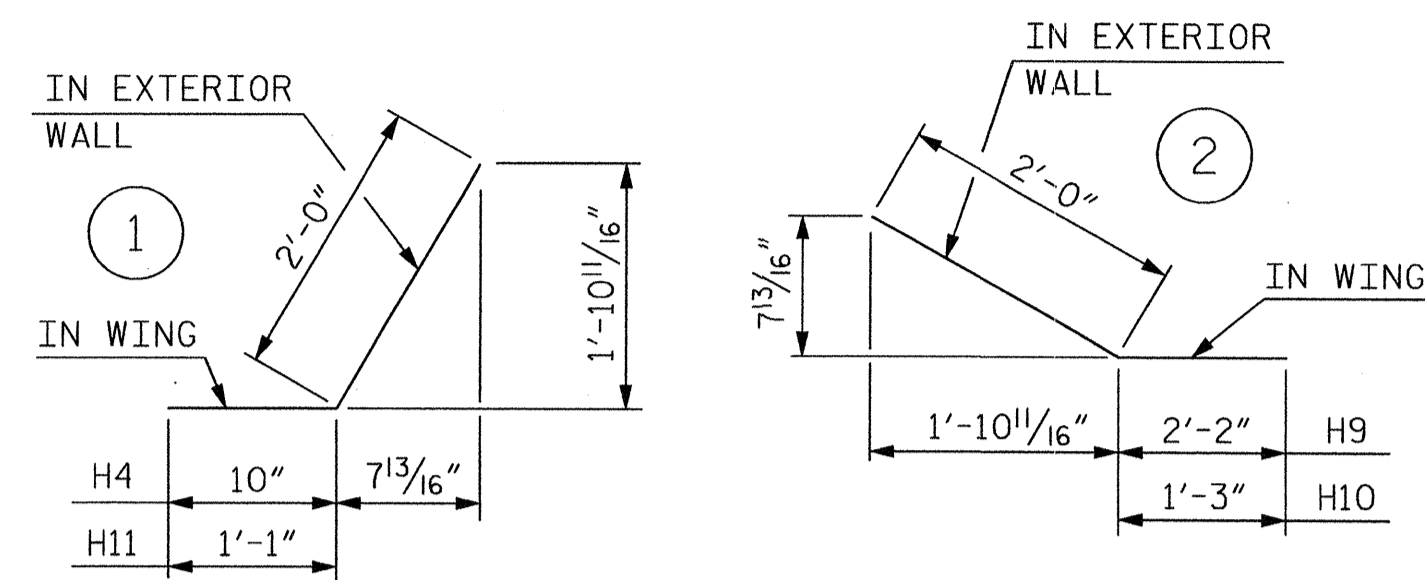
NCGTP RAIL ACCESS
WING DETAILS
FOR DOUBLE 6 FT. X 6 FT.
CONCRETE BOX CULVERT
AT STA. 52 + 86.61 - MAIN-
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-31
SCALE:	NO SCALE
SHEET NO:	

WING REINFORCING

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
H1	12	4	STR.	6'-1"	49	T11	4	4	STR.	22'-11"	61	Z26	2	4	STR.	4'-10"	6	
H2	4	4	STR.	2'-11"	8	T12	4	4	STR.	8'-11"	24	Z27	2	4	STR.	4'-8"	6	
H3	4	4	STR.	6'-7"	18	T13	4	4	STR.	8'-10"	24	Z28	2	4	STR.	4'-6"	6	
H4	10	4	1	2'-10"	19							Z29	2	4	STR.	4'-4"	6	
H5	12	4	STR.	22'-4"	179	V1	2	4	STR.	4'-8"	6	Z30	2	4	STR.	4'-2"	6	
H6	4	4	STR.	12'-7"	34	V2	2	4	STR.	5'-2"	7	Z31	4	5	6	7'-2"	30	
H7	4	4	STR.	2'-3"	6	V3	2	4	STR.	5'-8"	8	Z32	4	5	6	7'-0"	29	
H8	4	4	STR.	22'-7"	60	V4	2	4	STR.	6'-2"	8	Z33	4	5	6	6'-10"	29	
H9	12	4	2	4'-2"	33	V5	2	4	STR.	6'-9"	9	Z34	4	5	6	6'-8"	28	
H10	12	4	2	3'-3"	26	V6	2	4	STR.	7'-3"	10	Z35	4	5	6	6'-6"	27	
H11	10	4	1	3'-1"	21	V7	2	4	STR.	7'-9"	10	Z36	4	5	6	6'-4"	26	
						V8	2	4	STR.	7'-11"	11	Z37	4	5	6	6'-3"	26	
N1	2	4	3	5'-5"	7	V9	2	4	STR.	7'-9"	10	Z38	4	5	6	6'-1"	25	
N2	2	4	3	5'-8"	8	V10	2	4	STR.	7'-7"	10	Z39	4	5	6	5'-11"	25	
N3	2	4	3	5'-11"	8	V11	2	4	STR.	7'-4"	10	Z40	4	5	6	5'-9"	24	
N4	2	4	3	6'-2"	8	V12	2	4	STR.	7'-2"	10	Z41	4	5	6	5'-7"	23	
N5	2	4	3	6'-6"	9	V13	2	4	STR.	6'-11"	9	Z42	4	5	6	5'-5"	23	
N6	2	4	3	6'-9"	9	V14	2	4	STR.	6'-8"	9	Z43	4	5	6	5'-3"	22	
N7	2	4	3	7'-0"	9	V15	2	4	STR.	6'-6"	9	Z44	4	5	6	5'-1"	21	
N8	2	4	3	7'-3"	10	V16	2	4	STR.	6'-3"	8	Z45	4	5	6	4'-11"	21	
N9	2	4	3	7'-6"	10	V17	2	4	STR.	6'-1"	8	Z46	4	5	6	4'-9"	20	
N10	2	4	3	7'-9"	10	V18	2	4	STR.	5'-10"	8	Z47	4	4	STR.	1'-3"	3	
N11	2	4	3	8'-0"	11	V19	2	4	STR.	5'-7"	7	Z48	4	4	STR.	2'-3"	6	
N12	2	4	3	8'-3"	11	V20	2	4	STR.	5'-5"	7	Z49	4	4	STR.	3'-3"	9	
N13	2	4	3	8'-7"	11	V21	2	4	STR.	5'-2"	7	Z50	4	4	STR.	4'-4"	12	
N14	4	5	4	8'-8"	36	V22	2	4	STR.	4'-11"	7	Z51	4	4	STR.	6'-4"	17	
N15	4	5	4	8'-6"	35	V23	2	4	STR.	4'-9"	6							
N16	4	5	4	8'-3"	34	V24	2	4	STR.	4'-6"	6							
N17	4	5	4	8'-1"	34													
N18	4	5	4	7'-10"	33	Z1	2	4	STR.	4'-2"	6							
N19	4	5	4	7'-7"	32	Z2	2	4	STR.	4'-5"	6							
N20	4	5	4	7'-5"	31	Z3	2	4	STR.	4'-8"	6							
N21	4	5	4	7'-2"	30	Z4	2	4	STR.	4'-11"	7							
N22	4	5	4	7'-0"	29	Z5	2	4	STR.	5'-2"	7							
N23	4	5	4	6'-9"	28	Z6	2	4	STR.	5'-4"	7							
N24	4	5	4	6'-6"	27	Z7	2	4	STR.	5'-7"	7							
N25	4	5	4	6'-4"	26	Z8	4	4	5	4'-8"	12							
N26	4	5	4	6'-1"	25	Z9	4	4	5	4'-11"	13							
N27	4	5	4	5'-10"	24	Z10	4	4	5	5'-2"	14							
N28	4	5	4	5'-8"	24	Z11	4	4	5	5'-5"	14							
N29	4	5	4	5'-6"	23	Z12	4	4	5	5'-8"	15							
						Z13	4	4	5	5'-10"	16							
S1	24	6	STR.	3'-6"	126	Z14	4	4	5	6'-1"	16							
						Z15	2	4	STR.	6'-7"	9							
T1	4	4	STR.	7'-8"	20	Z16	2	4	STR.	6'-5"	9							
T2	4	4	STR.	7'-3"	19	Z17	2	4	STR.	6'-3"	8							
T3	4	4	STR.	7'-5"	20	Z18	2	4	STR.	6'-1"	8							
T4	4	4	STR.	7'-10"	21	Z19	2	4	STR.	5'-11"	8							
T5	4	4	STR.	8'-3"	22	Z20	2	4	STR.	5'-9"	8							
T6	4	4	STR.	24'-0"	64	Z21	2	4	STR.	5'-8"	8							
T7	4	4	STR.	24'-5"	65	Z22	2	4	STR.	5'-6"	7							
T8	4	4	STR.	28'-9"	77	Z23	2	4	STR.	5'-4"	7							
T9	4	4	STR.	28'-2"	75	Z24	2	4	STR.	5'-2"	7							
T10	4	4	STR.	10'-1"	27	Z25	2	4	STR.	5'-0"	7							

REINFORCING STEEL FOR 4 WINGS LBS. 2,598

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: PJB
 DRAWN BY: MEW
 CHECKED BY: PJB
 DATE: OCT 13, 2009

NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

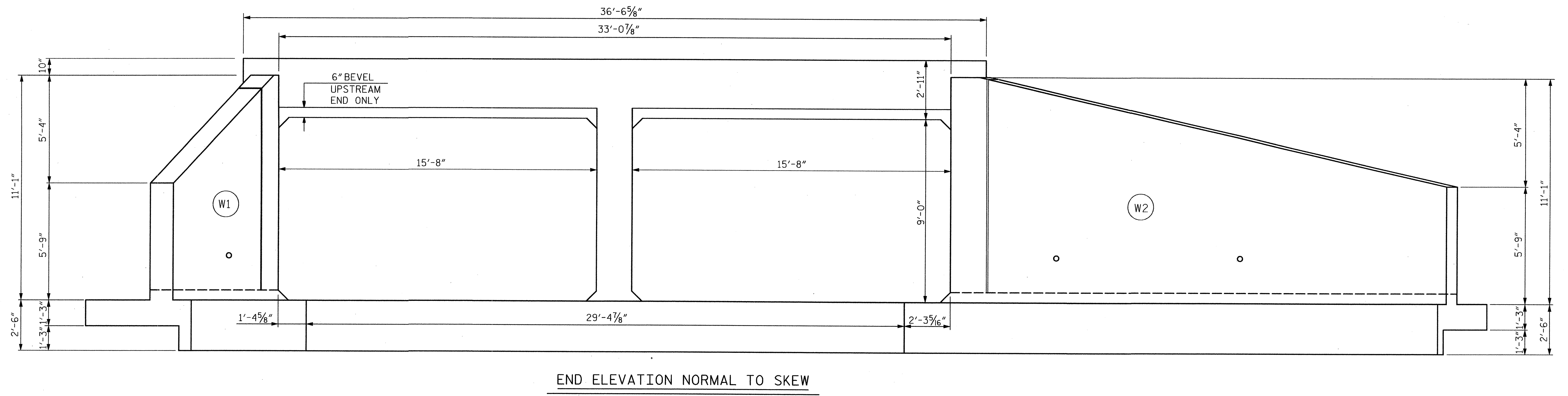
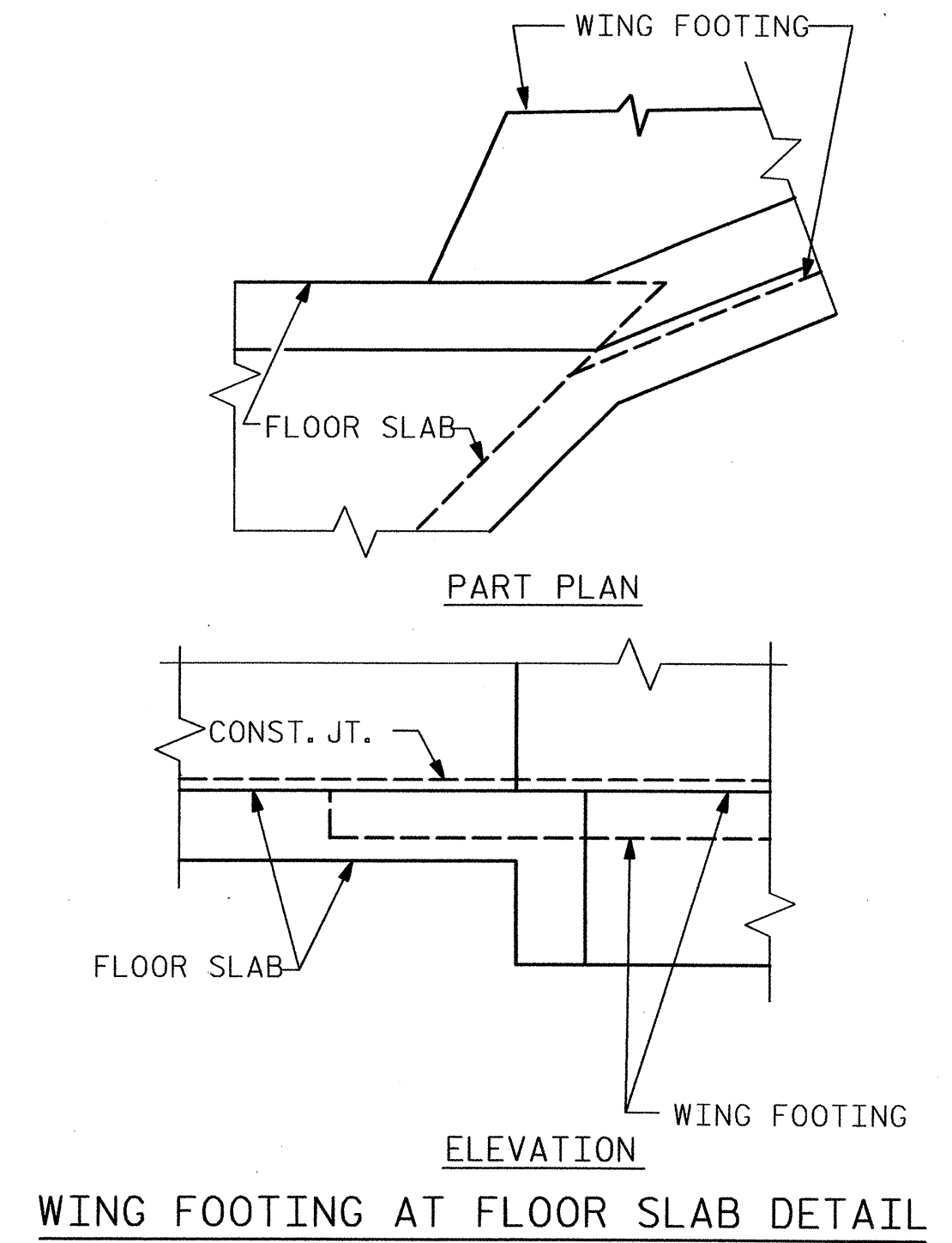
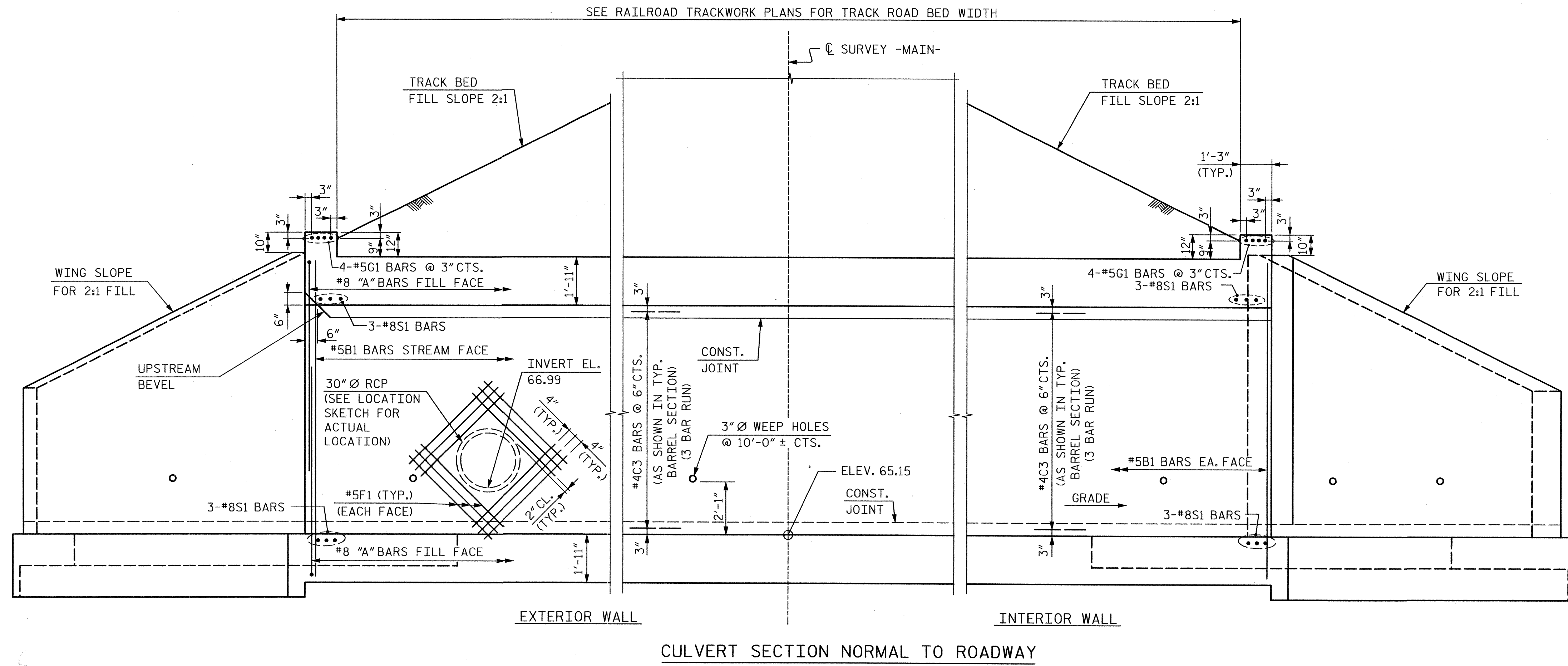
ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD SERVICE CENTER
 RALEIGH, NC 27699-1446

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 Raleigh, North Carolina 27609

GTP Rail Access

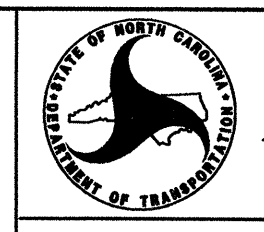
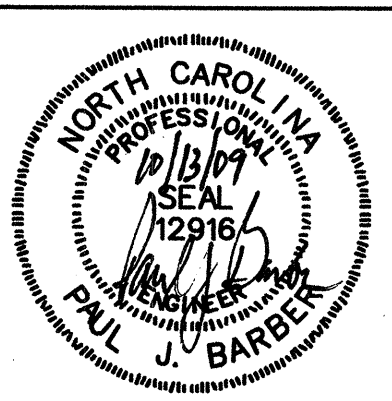
NCGTP RAIL ACCESS
 WING REINFORCING SCHEDULE
 FOR DOUBLE 6 FT. X 6 FT.
 CONCRETE BOX CULVERT
 AT STA. 52 + 86.61 -MAIN-
 KINSTON, NC

PROJECT NO: U-2928B
 DRAWING NO: ST-32
 SCALE: NO SCALE
 SHEET NO:



REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
DRAWN BY:
MEW
CHECKED BY:
PJB
DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1556 MAIL SERVICE CENTER
RALEIGH, NC 27699-1556

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



NCGTP RAIL ACCESS
SECTION AND ELEVATION
FOR DOUBLE 12 FT. X 9 FT.
CONCRETE BOX CULVERT
AT STA. 191+95.00 -MAIN-
KINSTON, NC

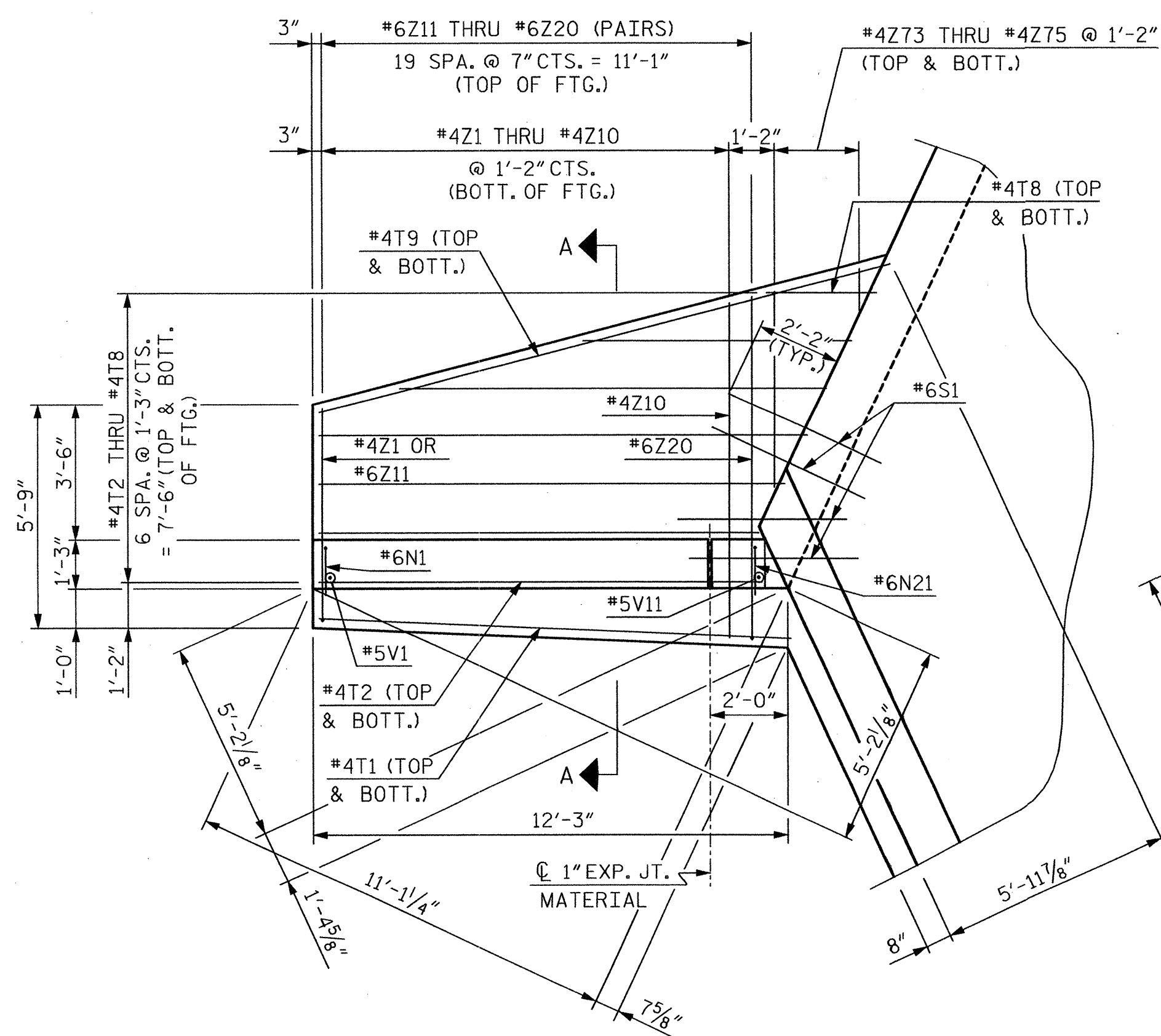
PROJECT NO:
U-2928B
DRAWING NO:
ST-35
SCALE:
NONE
SHEET NO:

BARREL REINFORCING

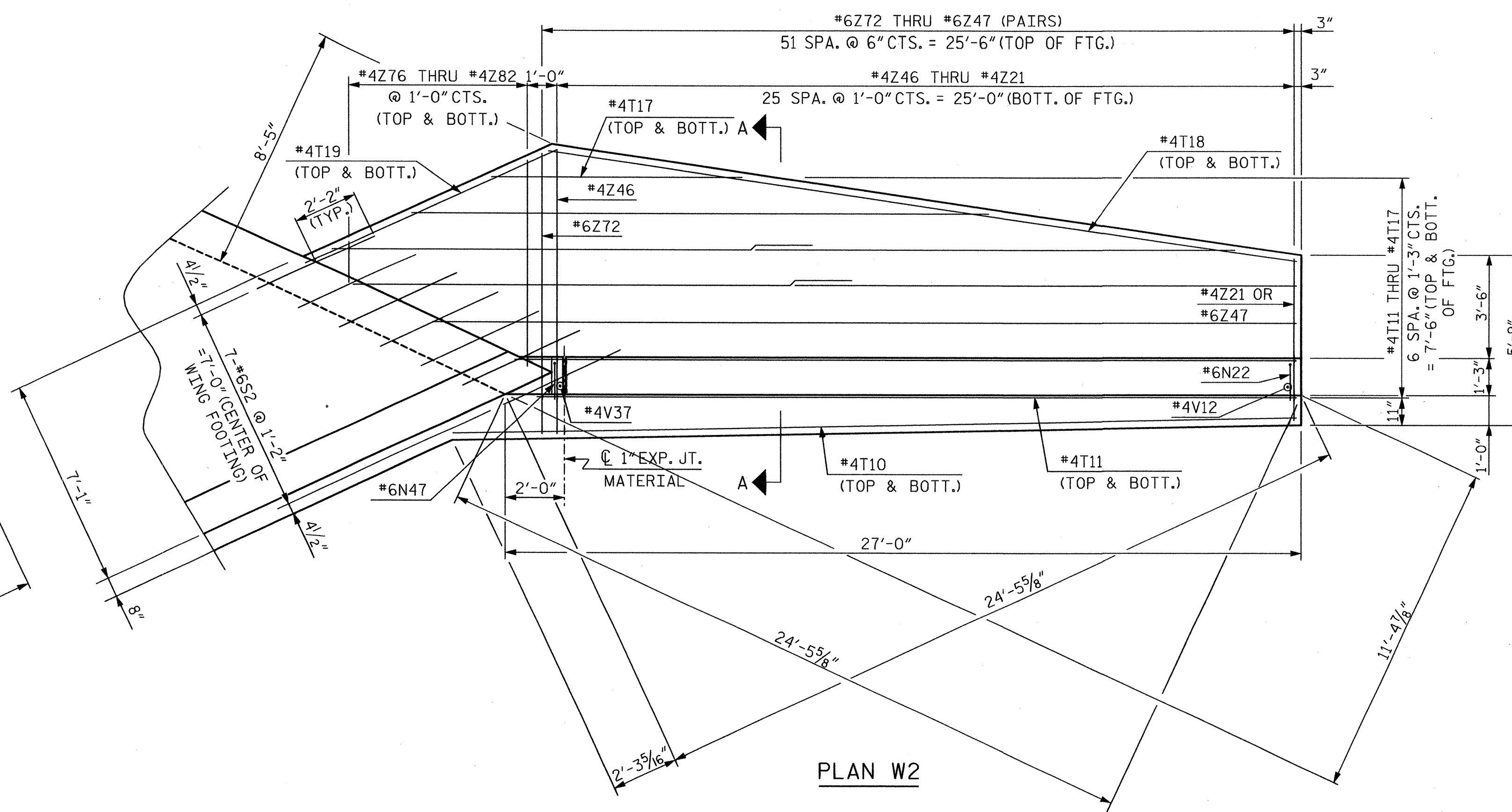
BAR TYPES		BILL OF MATERIAL																							
ALL BAR DIMENSIONS ARE OUT TO OUT.		BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
	A1	124	7	STR.	27'-8"	7,012	A53	2	5	STR.	23'-2"	48	A105	2	5	STR.	21'-9"	45	A157	2	6	STR.	17'-4"	52	
	A2	2	7	STR.	27'-0"	110	A54	2	5	STR.	22'-7"	47	A106	2	5	STR.	21'-2"	44	A158	2	6	STR.	16'-10"	51	
	A3	2	7	STR.	26'-5"	108	A55	2	5	STR.	22'-1"	46	A107	2	5	STR.	20'-8"	43	A159	2	6	STR.	16'-3"	49	
	A4	2	7	STR.	25'-11"	106	A56	2	5	STR.	21'-6"	45	A108	2	5	STR.	20'-1"	42	A160	2	6	STR.	15'-9"	47	
	A5	2	7	STR.	25'-4"	104	A57	2	5	STR.	21'-0"	44	A109	2	5	STR.	19'-7"	41	A161	2	6	STR.	15'-2"	46	
	A6	2	7	STR.	24'-9"	101	A58	2	5	STR.	20'-5"	43	A110	2	5	STR.	19'-0"	40	A162	2	6	STR.	14'-8"	44	
	A7	2	7	STR.	24'-3"	99	A59	2	5	STR.	19'-11"	42	A111	2	5	STR.	18'-6"	39	A163	2	6	STR.	14'-1"	42	
	A8	2	7	STR.	23'-8"	97	A60	2	5	STR.	19'-4"	40	A112	2	5	STR.	17'-11"	37	A164	2	6	STR.	13'-6"	41	
	A9	2	7	STR.	23'-2"	95	A61	2	5	STR.	18'-9"	39	A113	2	5	STR.	17'-4"	36	A165	2	6	STR.	13'-0"	39	
	A10	2	7	STR.	22'-7"	92	A62	2	5	STR.	18'-3"	38	A114	2	5	STR.	16'-10"	35	A166	2	6	STR.	12'-5"	37	
	A11	2	7	STR.	22'-1"	90	A63	2	5	STR.	17'-8"	37	A115	2	5	STR.	16'-3"	34	A167	2	6	STR.	11'-11"	36	
	A12	2	7	STR.	21'-6"	88	A64	2	5	STR.	17'-2"	36	A116	2	5	STR.	15'-9"	33	A168	2	6	STR.	11'-4"	34	
	A13	2	7	STR.	21'-0"	86	A65	2	5	STR.	16'-7"	35	A117	2	5	STR.	15'-2"	32	A169	2	6	STR.	10'-10"	33	
	A14	2	7	STR.	20'-5"	83	A66	2	5	STR.	16'-1"	34	A118	2	5	STR.	14'-8"	31	A170	2	6	STR.	10'-3"	31	
	A15	2	7	STR.	19'-11"	81	A67	2	5	STR.	15'-6"	32	A119	2	5	STR.	14'-1"	29	A171	2	6	STR.	9'-8"	29	
	A16	2	7	STR.	19'-4"	79	A68	2	5	STR.	15'-0"	31	A120	2	5	STR.	13'-6"	28	A172	2	6	STR.	9'-2"	28	
	A17	2	7	STR.	18'-9"	77	A69	2	5	STR.	14'-5"	30	A121	2	5	STR.	13'-0"	27	A173	2	6	STR.	8'-7"	26	
	A18	2	7	STR.	18'-3"	75	A70	2	5	STR.	13'-11"	29	A122	2	5	STR.	12'-5"	26	A174	2	6	STR.	8'-1"	24	
	A19	2	7	STR.	17'-8"	72	A71	2	5	STR.	13'-4"	28	A123	2	5	STR.	11'-11"	25	A175	2	6	STR.	7'-6"	23	
	A20	2	7	STR.	17'-2"	70	A72	2	5	STR.	12'-9"	27	A124	2	5	STR.	11'-4"	24	A176	2	6	STR.	7'-0"	21	
	A21	2	7	STR.	16'-7"	68	A73	2	5	STR.	12'-3"	26	A125	2	5	STR.	10'-10"	23	A177	2	6	STR.	6'-5"	19	
	A22	2	7	STR.	16'-1"	66	A74	2	5	STR.	11'-8"	24	A126	2	5	STR.	10'-3"	21	A178	2	6	STR.	5'-10"	18	
	A23	2	7	STR.	15'-6"	63	A75	2	5	STR.	11'-2"	23	A127	2	5	STR.	9'-8"	20	A179	2	6	STR.	5'-4"	16	
	A24	2	7	STR.	15'-0"	61	A76	2	5	STR.	10'-7"	22	A128	2	5	STR.	9'-2"	19	A180	2	6	STR.	4'-9"	14	
	A25	2	7	STR.	14'-5"	59	A77	2	5	STR.	10'-1"	21	A129	2	5	STR.	8'-7"	18	A181	2	6	STR.	4'-3"	13	
	A26	2	7	STR.	13'-11"	57	A78	2	5	STR.	9'-6"	20	A130	2	5	STR.	8'-1"	17	A182	328	8	1	11'-8"	10,217	
	A27	2	7	STR.	13'-4"	55	A79	2	5	STR.	9'-0"	19	A131	2	5	STR.	7'-6"	16	A183	2	8	1	11'-4"	61	
	A28	2	7	STR.	12'-9"	52	A80	2	5	STR.	8'-5"	18	A132	2	5	STR.	7'-0"	15	A184	2	8	1	10'-9"	57	
A29	2	7	STR.	12'-3"	50	A81	2	5	STR.	7'-10"	16	A133	2	5	STR.	6'-5"	13	A185	2	8	1	10'-3"	55		
A30	2	7	STR.	11'-8"	48	A82	2	5	STR.	7'-4"	15	A134	2	5	STR.	5'-10"	12	A186	2	8	1	9'-8"	52		
A31	2	7	STR.	11'-2"	46	A83	2	5	STR.	6'-9"	14	A135	2	5	STR.	5'-4"	11	A187	2	8	1	9'-1"	49		
A32	2	7	STR.	10'-7"	43	A84	2	5	STR.	6'-3"	13	A136	2	5	STR.	4'-9"	10	A188	2	5	STR.	3'-1"	6		
A33	2	7	STR.	10'-1"	41	A85	2	5	STR.	5'-8"	12	A137	2	5	STR.	4'-3"	9	A189	2	5	STR.	3'-0"	6		
A34	2	7	STR.	9'-6"	39	A86	2	5	STR.	5'-2"	11	A138	120	6	STR.	27'-8"	4,987	A190	2	5	STR.	2'-6"	5		
A35	2	7	STR.	9'-0"	37	A87	2	5	STR.	4'-7"	10	A139	2	6	STR.	27'-3"	82	A191	2	5	STR.	1'-11"	4		
A36	2	7	STR.	8'-5"	34	A88	2	5	STR.	4'-1"	9	A140	2	6	STR.	26'-8"	80	A192	2	5	STR.	1'-5"	3		
A37	2	7	STR.	7'-10"	32	A89	338	8	1	11'-2"	10,077	A141	2	6	STR.	26'-2"	79	A193	2	5	STR.	3'-8"	8		
A38	2	7	STR.	7'-4"	30	A90	2	8	1	11'-1"	59	A142	2	6	STR.	25'-7"	77	A194	2	5	STR.	3'-3"	7		
A39	2	7	STR.	6'-9"	28	A91	2	8	1	10'-7"	57	A143	2	6	STR.	25'-0"	75	A195	2	5	STR.	2'-8"	6		
A40	2	7	STR.	6'-3"	26	A92	2	8	1	10'-0"	53	A144	2	6	STR.	24'-6"	74	A196	2	5	STR.	2'-2"	5		
A41	2	7	STR.	5'-8"	23	A93	2	8	1	9'-6"	51	A145	2	6	STR.	23'-11"	72	A197	2	5	STR.	1'-7"	3		
A42	2	7	STR.	5'-2"	21	A94	119	5	STR.	27'-8"	3,434	A146	2	6	STR.	23'-5"	70	A198	2	5	STR.	1'-0"	2		
A43	2	7	STR.	4'-7"	19	A95	2	5	STR.	27'-3"	57	A147	2	6	STR.	22'-10"	69								
A44	2	7	STR.	4'-1"	17	A96	2	5	STR.	26'-8"	56	A148	2	6	STR.	22'-4"	67								
A45	124	5	STR.	27'-8"	3,578	A97	2	5	STR.	26'-2"	55	A149	2	6	STR.	21'-9"	65								
A46	2	5	STR.	27'-0"	56	A98	2	5	STR.	25'-7"	53	A150	2	6	STR.	21'-2"	64								
A47	2	5	STR.	26'-5"	55	A99	2	5	STR.	25'-0"	52	A151	2	6	STR.	20'-8"	62								
A48	2	5	STR.	25'-11"	54	A100	2	5	STR.	24'-6"	51	A152	2	6	STR.	20'-1"	60								
A49	2	5	STR.	25'-4"	53	A101	2	5	STR.	23'-11"	50	A153	2	6	STR.	19'-7"	59								
A50	2	5	STR.	24'-9"	52	A102	2	5	STR.	23'-5"	49	A154	2	6	STR.	19'-0"	57								
A51	2	5	STR.	24'-3"	51	A103	2	5	STR.	22'-10"	48	A155	2	6	STR.	18'-6"	56								
A52	2	5	STR.	23'-8"	49	A104	2	5	STR.	22'-4"	47	A156	2	6	STR.	17'-11"	54								

BAR	SIZE	SPLICE LENGTH
C1 BARS	#5	1'-9"
C2 BARS	#5	2'-5"
C3 BARS	#4	1'-11"
C4 BARS	#5	1'-9"
C5 BARS	#5	2'-5"

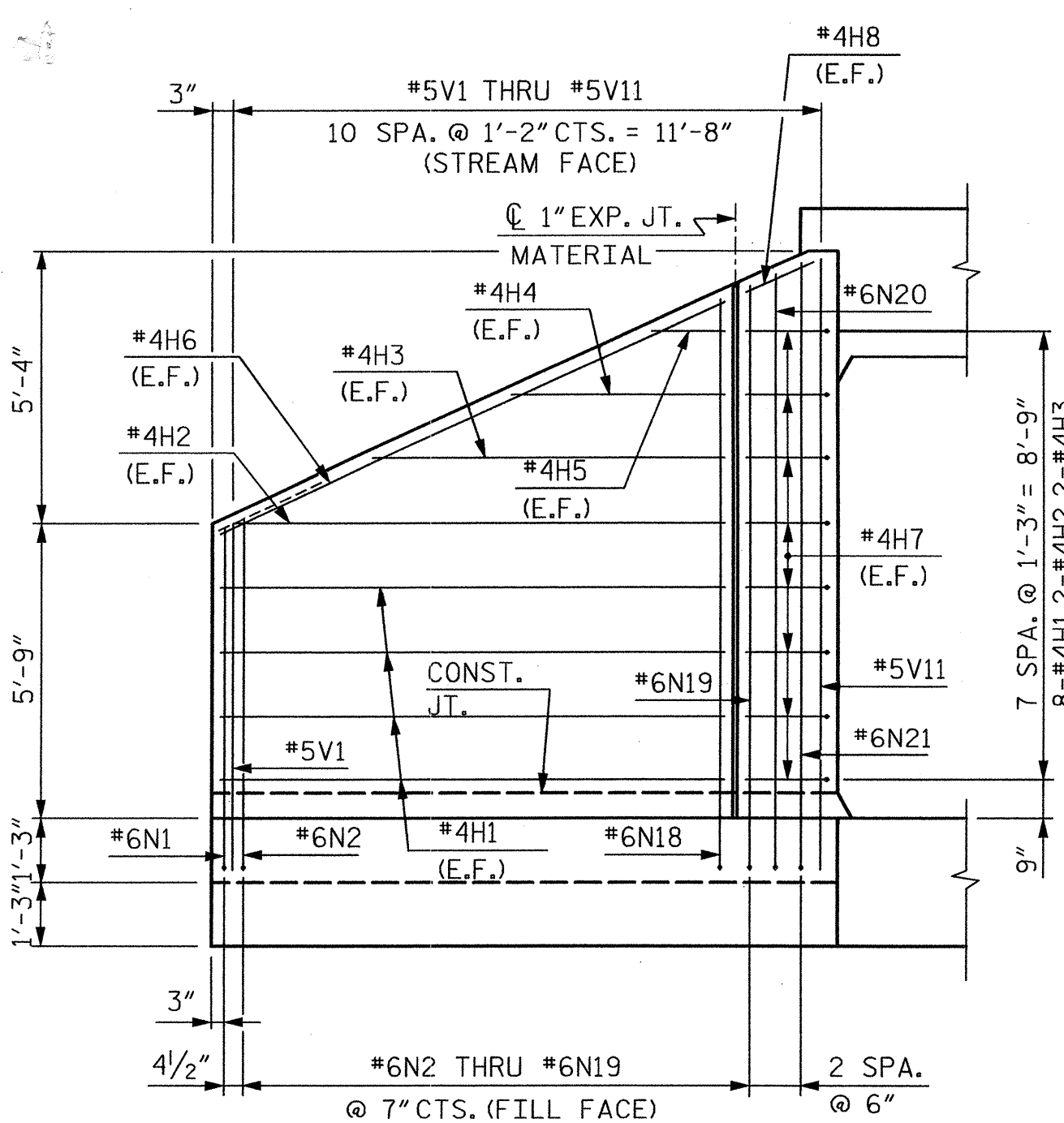
REV. NO.	DATE	BY	APP. BY	DESCRIPTION	DESIGNED BY: PJB				HNTB NORTH CAROLINA, P.C. 343 E. SIX FORKS ROAD, SUITE 200 RALEIGH, NORTH CAROLINA 27609		NCGTP RAIL ACCESS REINFORCING SCHEDULE FOR DOUBLE 12 FT. X 9 FT. CONCRETE BOX CULVERT AT STA. 191+95.00 -MAIN- KINSTON, NC	PROJECT NO: U-2928B
					DRAWN BY: MEW							DRAWING NO: ST-36
					CHECKED BY: PJB							SCALE: NONE
					DATE: OCT 13, 2009							SHEET NO:



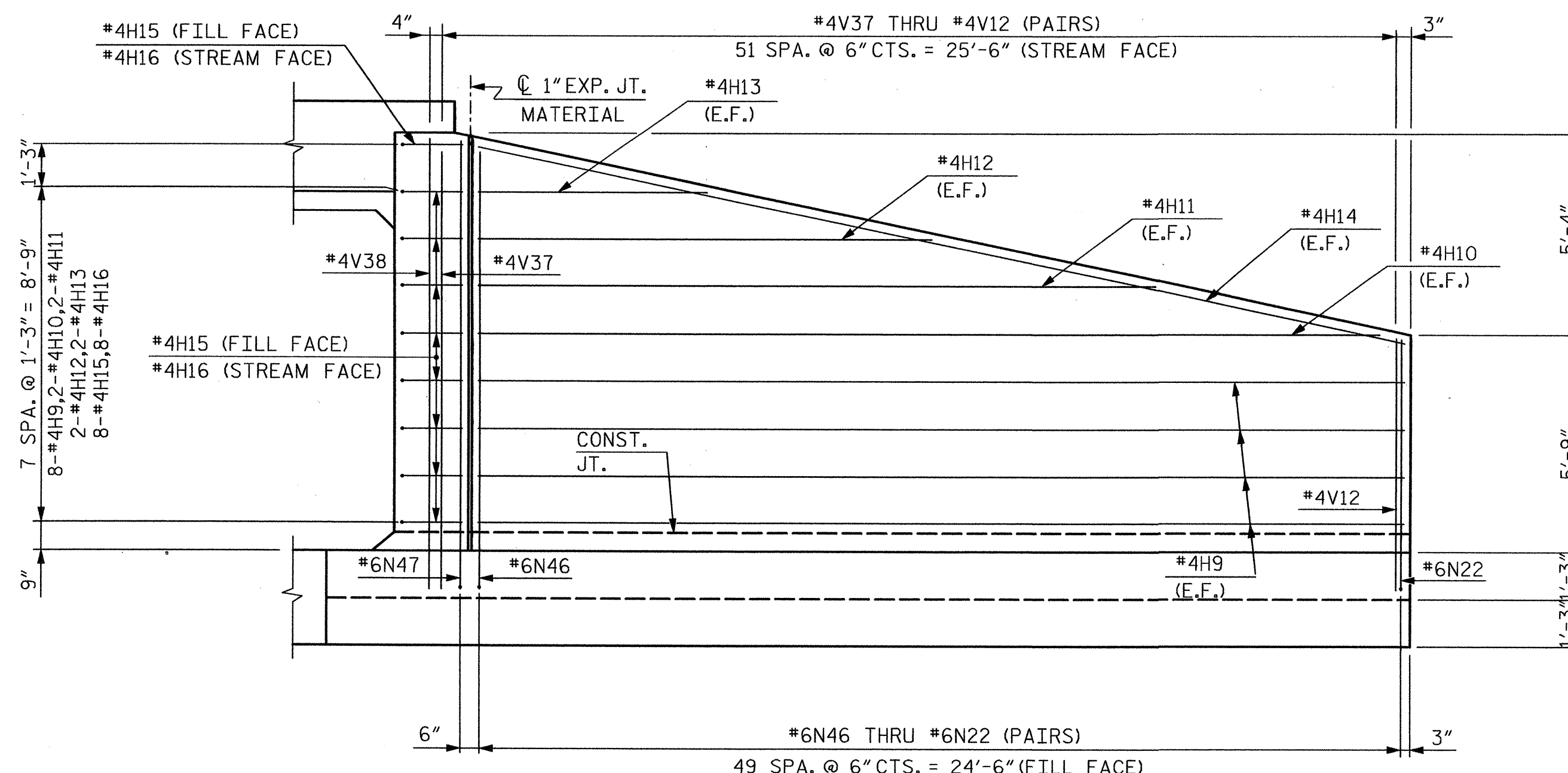
PLAN W1



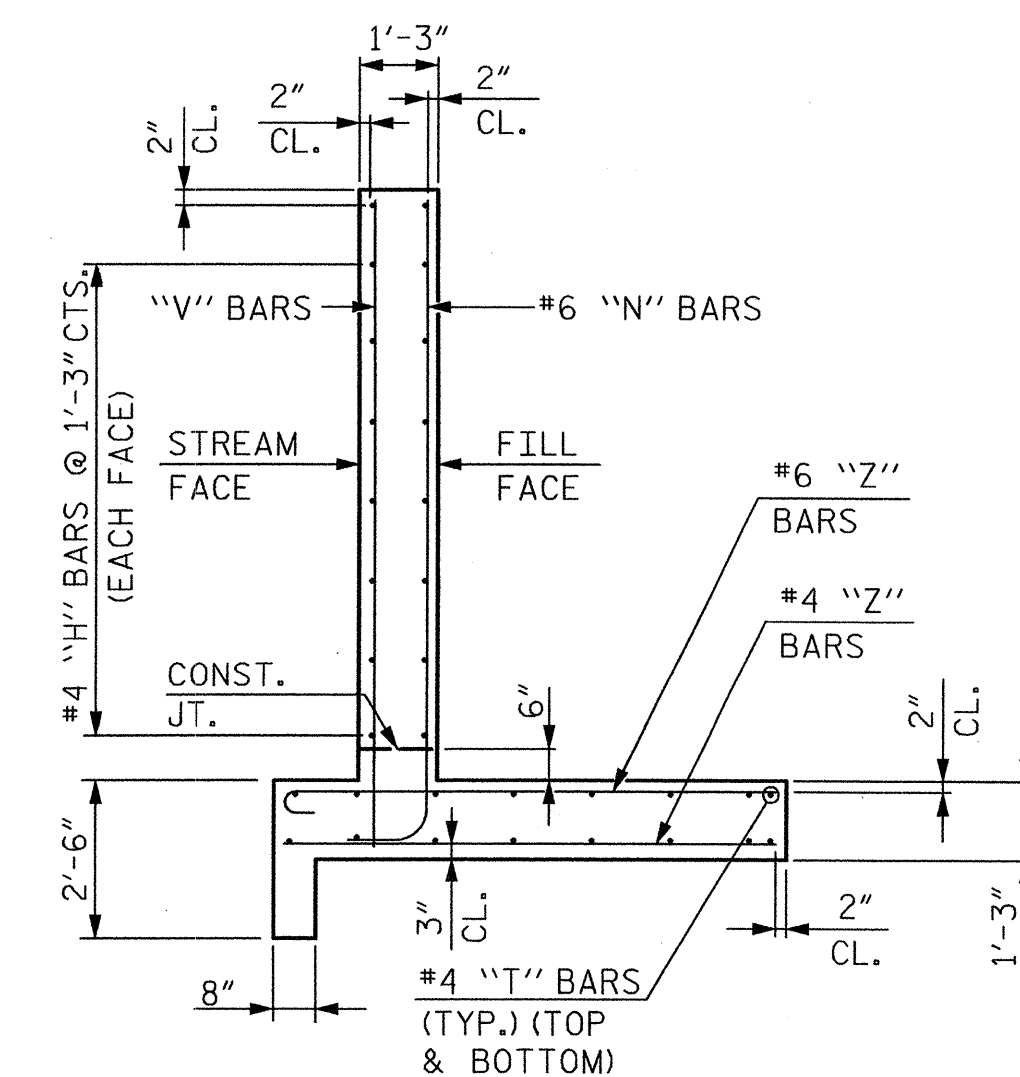
PLAN W2



ELEVATION W1



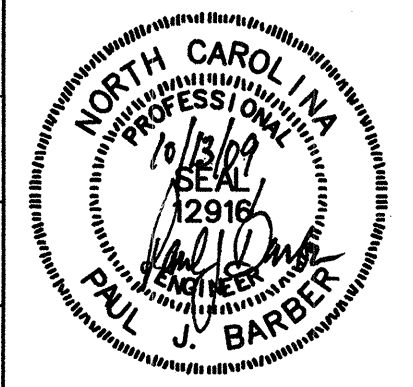
ELEVATION W2



SECTION A-A

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY:
PJB
DRAWN BY:
MEW
CHECKED BY:
PJB
DATE:
OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
ENGINEERING AND SAFETY BRANCH
CAPITAL YARD
1566 MAIL SERVICE CENTER
RALEIGH, NC 27609-1566

HNTB HNTB NORTH CAROLINA, P.C.
343 E. SIX FORKS ROAD, SUITE 200
Raleigh, North Carolina 27609



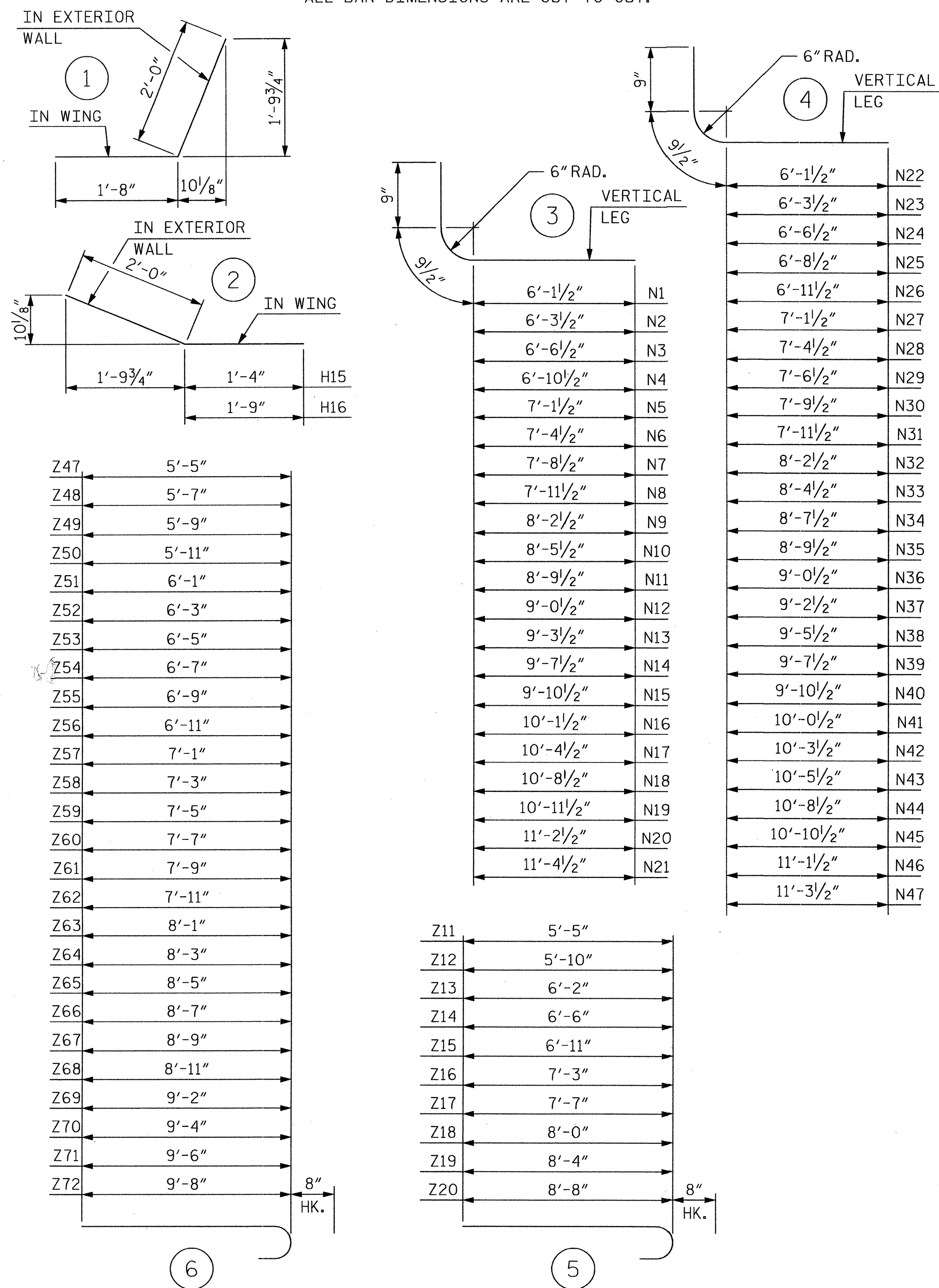
NGTTP RAIL ACCESS
WING DETAILS
FOR DOUBLE 12 FT. X 9 FT.
CONCRETE BOX CULVERT
AT STA. 191+95.00 -MAIN-
KINSTON, NC

PROJECT NO:	U-2928B
DRAWING NO:	ST-37
SCALE:	NONE
SHEET NO:	

WING REINFORCING

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	SIZE	TYPE	LENGTH	WEIGHT				
H1	16	4	STR.	9'-10"	105	N34	4	6	4	10'-2"	61	V15	4	4	STR.	7'-2"	19	Z28	2	4	STR.	6'-7"	9
H2	4	4	STR.	9'-9"	26	N35	4	6	4	10'-4"	62	V16	4	4	STR.	7'-4"	20	Z29	2	4	STR.	6'-9"	9
H3	4	4	STR.	6'-11"	18	N36	4	6	4	10'-7"	64	V17	4	4	STR.	7'-7"	20	Z30	2	4	STR.	6'-11"	9
H4	4	4	STR.	4'-2"	11	N37	4	6	4	10'-9"	65	V18	4	4	STR.	7'-10"	21	Z31	2	4	STR.	7'-1"	9
H5	4	4	STR.	1'-5"	4	N38	4	6	4	11'-0"	66	V19	4	4	STR.	8'-0"	21	Z32	2	4	STR.	7'-3"	10
H6	4	4	STR.	10'-7"	28	N39	4	6	4	11'-2"	67	V20	4	4	STR.	8'-3"	22	Z33	2	4	STR.	7'-5"	10
H7	32	4	1	3'-8"	78	N40	4	6	4	11'-5"	69	V21	4	4	STR.	8'-5"	22	Z34	2	4	STR.	7'-7"	10
H8	4	4	STR.	1'-5"	4	N41	4	6	4	11'-7"	70	V22	4	4	STR.	8'-8"	23	Z35	2	4	STR.	7'-9"	10
H9	16	4	STR.	24'-7"	263	N42	4	6	4	11'-10"	71	V23	4	4	STR.	8'-10"	24	Z36	2	4	STR.	7'-11"	11
H10	4	4	STR.	23'-11"	64	N43	4	6	4	12'-0"	72	V24	4	4	STR.	9'-1"	24	Z37	2	4	STR.	8'-1"	11
H11	4	4	STR.	18'-0"	48	N44	4	6	4	12'-3"	74	V25	4	4	STR.	9'-3"	25	Z38	2	4	STR.	8'-3"	11
H12	4	4	STR.	12'-0"	32	N45	4	6	4	12'-5"	75	V26	4	4	STR.	9'-6"	25	Z39	2	4	STR.	8'-5"	11
H13	4	4	STR.	6'-1"	16	N46	4	6	4	12'-8"	76	V27	4	4	STR.	9'-8"	26	Z40	2	4	STR.	8'-7"	11
H14	4	4	STR.	25'-1"	67	N47	2	6	4	12'-10"	39	V28	4	4	STR.	9'-11"	26	Z41	2	4	STR.	8'-9"	12
H15	18	4	2	3'-4"	40							V29	4	4	STR.	10'-1"	27	Z42	2	4	STR.	8'-11"	12
H16	18	4	2	3'-9"	45							V30	4	4	STR.	10'-4"	28	Z43	2	4	STR.	9'-2"	12
N1	2	6	3	7'-8"	23	S1	8	6	STR.	4'-4"	52	V31	4	4	STR.	10'-6"	28	Z44	2	4	STR.	9'-4"	12
N2	2	6	3	7'-10"	24	S2	14	6	STR.	4'-4"	91	V32	4	4	STR.	10'-9"	29	Z45	2	4	STR.	9'-6"	13
N3	2	6	3	8'-1"	24							V33	4	4	STR.	10'-11"	29	Z46	2	4	STR.	9'-8"	13
N4	2	6	3	8'-5"	25	T1	4	4	STR.	12'-2"	33	V34	4	4	STR.	11'-2"	30	Z47	4	6	6	6'-1"	37
N5	2	6	3	8'-8"	26	T2	4	4	STR.	11'-5"	31	V35	4	4	STR.	11'-4"	30	Z48	4	6	6	6'-3"	38
N6	2	6	3	8'-11"	27	T3	4	4	STR.	11'-4"	30	V36	4	4	STR.	11'-7"	31	Z49	4	6	6	6'-5"	39
N7	2	6	3	9'-3"	28	T4	4	4	STR.	12'-0"	32	V37	4	4	STR.	11'-9"	31	Z50	4	6	6	6'-7"	40
N8	2	6	3	9'-6"	29	T5	4	4	STR.	12'-7"	34	V38	2	4	STR.	11'-11"	16	Z51	4	6	6	6'-9"	41
N9	2	6	3	9'-9"	29	T6	4	4	STR.	11'-0"	29	Z1	2	4	STR.	5'-5"	7	Z52	4	6	6	6'-11"	42
N10	2	6	3	10'-0"	30	T7	4	4	STR.	6'-11"	18	Z2	2	4	STR.	5'-10"	8	Z53	4	6	6	7'-1"	43
N11	2	6	3	10'-4"	31	T8	4	4	STR.	2'-10"	8	Z3	2	4	STR.	6'-2"	8	Z54	4	6	6	7'-3"	44
N12	2	6	3	10'-7"	32	T9	4	4	STR.	15'-2"	41	Z4	2	4	STR.	6'-6"	9	Z55	4	6	6	7'-5"	45
N13	2	6	3	10'-10"	33	T10	4	4	STR.	28'-7"	76	Z5	2	4	STR.	6'-11"	9	Z56	4	6	6	7'-7"	46
N14	2	6	3	11'-2"	34	T11	4	4	STR.	25'-9"	69	Z6	2	4	STR.	7'-3"	10	Z57	4	6	6	7'-9"	47
N15	2	6	3	11'-5"	34	T12	4	4	STR.	26'-6"	71	Z7	2	4	STR.	7'-7"	10	Z58	4	6	6	7'-11"	48
N16	2	6	3	11'-8"	35	T13	4	4	STR.	29'-3"	78	Z8	2	4	STR.	7'-10"	11	Z59	4	6	6	8'-1"	49
N17	2	6	3	11'-11"	36	T14	8	4	STR.	17'-0"	91	Z9	2	4	STR.	8'-0"	11	Z60	4	6	6	8'-3"	50
N18	2	6	3	12'-3"	37	T15	8	4	STR.	16'-3"	87	Z10	2	4	STR.	8'-4"	11	Z61	4	6	6	8'-5"	51
N19	2	6	3	12'-6"	38	T16	4	4	STR.	19'-6"	52	Z11	4	6	5	6'-1"	37	Z62	4	6	6	8'-7"	52
N20	2	6	3	12'-9"	38	T17	4	4	STR.	8'-5"	22	Z12	4	6	5	6'-6"	39	Z63	4	6	6	8'-9"	53
N21	2	6	3	12'-11"	39	T18	4	4	STR.	25'-6"	68	Z13	4	6	5	6'-10"	41	Z64	4	6	6	8'-11"	54
N22	4	6	4	7'-8"	46	T19	4	4	STR.	9'-3"	25	Z14	4	6	5	7'-2"	43	Z65	4	6	6	9'-1"	55
N23	4	6	4	7'-10"	47	V1	2	5	STR.	6'-8"	14	Z15	4	6	5	7'-7"	46	Z66	4	6	6	9'-3"	56
N24	4	6	4	8'-1"	49	V2	2	5	STR.	7'-2"	15	Z16	4	6	5	7'-11"	48	Z67	4	6	6	9'-5"	57
N25	4	6	4	8'-3"	50	V3	2	5	STR.	7'-9"	16	Z17	4	6	5	8'-3"	50	Z68	4	6	6	9'-7"	58
N26	4	6	4	8'-6"	51	V4	2	5	STR.	8'-2"	17	Z18	4	6	5	8'-8"	52	Z69	4	6	6	9'-10"	59
N27	4	6	4	8'-8"	52	V5	2	5	STR.	8'-10"	18	Z19	4	6	5	8'-10"	54	Z70	4	6	6	10'-0"	60
N28	4	6	4	8'-11"	54	V6	2	5	STR.	9'-5"	20	Z20	4	6	5	9'-0"	54	Z71	4	6	6	10'-2"	61
N29	4	6	4	9'-1"	55	V7	2	5	STR.	9'-11"	21	Z21	2	4	STR.	5'-5"	7	Z72	4	4	STR.	10'-4"	62
N30	4	6	4	9'-4"	56	V8	2	5	STR.	10'-6"	22	Z22	2	4	STR.	5'-7"	7	Z73	4	4	STR.	5'-8"	15
N31	4	6	4	9'-6"	57	V9	2	5	STR.	11'-0"	23	Z23	2	4	STR.	5'-9"	8	Z74	4	4	STR.	3'-5"	9
N32	4	6	4	9'-9"	59	V10	2	5	STR.	11'-7"	24	Z24	2	4	STR.	5'-11"	8	Z75	4	4	STR.	1'-3"	3
N33	4	6	4	9'-11"	60	V11	2	5	STR.	11'-11"	25	Z25	2	4	STR.	6'-1"	8	Z76	4	4	STR.	1'-5"	4
						V12	4	4	STR.	6'-7"	18	Z26	2	4	STR.	6'-3"	8	Z77	4	4	STR.	2'-4"	6
						V13	4	4	STR.	6'-9"	18	Z27	2	4	STR.	6'-5"	9	Z78	4	4	STR.	3'-3"	9
						V14	4	4	STR.	7'-0"	19							Z79	4	4	STR.	4'-2"	11
																		Z80	4	4	STR.	5'-2"	14
																		Z81	4	4	STR.	6'-1"	16
																		Z82	4	4	STR.	7'-0"	19

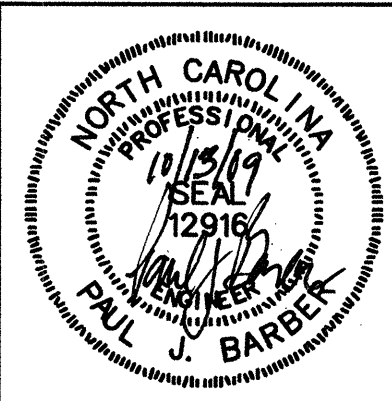
REINFORCING STEEL FOR 4 WINGS LBS. 7,187

SPLICE LENGTH CHART

BAR	SIZE	SPLICE LENGTH
T13	#4	1'-11"
T14	#4	1'-11"

REV. NO.	DATE	BY	APP. BY	DESCRIPTION

DESIGNED BY: PJB
 DRAWN BY: MEW
 CHECKED BY: PJB
 DATE: OCT 13, 2009



NC DEPARTMENT OF TRANSPORTATION
RAIL DIVISION

ENGINEERING AND SAFETY BRANCH
 CAPITAL YARD
 166 MAIL SERVICE CENTER
 RALEIGH, NC 27609-1666

HNTB HNTB NORTH CAROLINA, P.C.
 343 E. SIX FORKS ROAD, SUITE 200
 RALEIGH, NORTH CAROLINA 27609



NCGTP RAIL ACCESS
WING REINFORCING SCHEDULE FOR DOUBLE 12 FT. X 9 FT. CONCRETE BOX CULVERT AT STA. 191 + 95.00 -MAIN- KINSTON, NC

PROJECT NO: U-2928B
 DRAWING NO: ST-38
 SCALE: NONE
 SHEET NO:

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
	GRADE 60	-- 24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN, WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINISH AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN