

MA05002B

#76 FRANKLIN

EXISTING BRIDGE #76
2 SPAN BRIDGE OF TOTAL LENGTH = 80'-0"
CLEAR ROADWAY = 20' WITH TIMBER ON
STEEL I BEAMS, TREATED WOOD ABUTMENTS,
TREATED WOOD BENTS.
EXISTING BRIDGE TO BE REMOVED.

HORIZONTAL CURVE DATA

PI Sta 9+21.50
Δ = 1° 02' 14.9" (RT)
D = 2° 12' 07.2"
L = 47.11'
T = 23.56'
R = 2,601.99'

CLASS II RIPRAP
TO ELEV 101.4
STA 9+10

BEGIN GRADE & LIMITS
OF CONSTRUCTION
-L- STA. 8+50
EL = 103.23

EXISTING RW
29.937
40.000

PCSta. 8+97.94

TO NC 56
GUARDRAIL LENGTH = 75'-0"

SHOULDER BERM
GUTTER

GUARDRAIL LENGTH = 75'-0"

EXISTING RW
30.063
40.000

TBM-RR SPIKE IN 30" SWEET GUM
31.9544 RT STA 9+55
ASSUMED ELEV.=100.00

WETLANDS

CLASS 'B'
RIPRAP

WETLANDS

WETLANDS

WETLANDS

WETLANDS

WETLANDS

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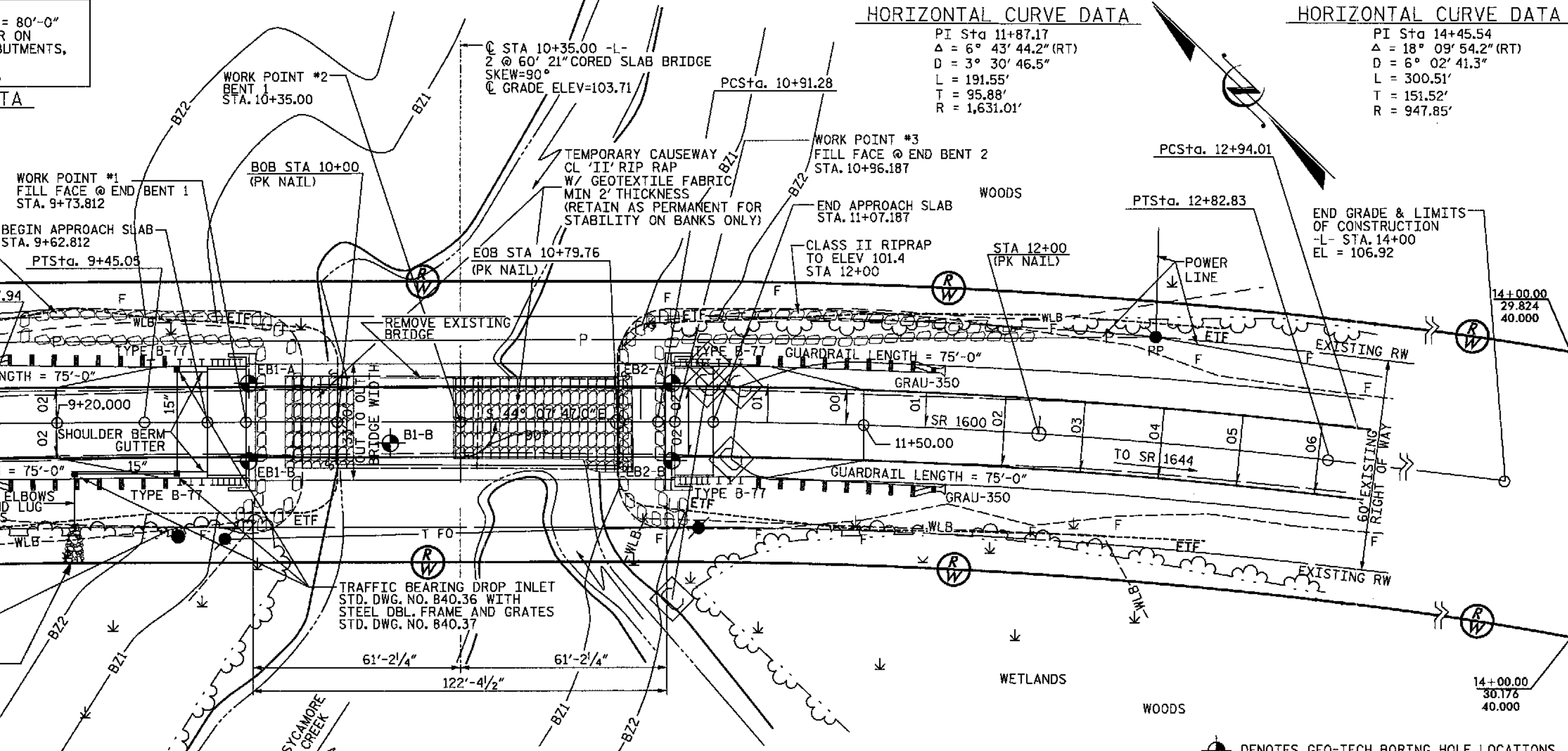
WETLANDS

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WETLANDS



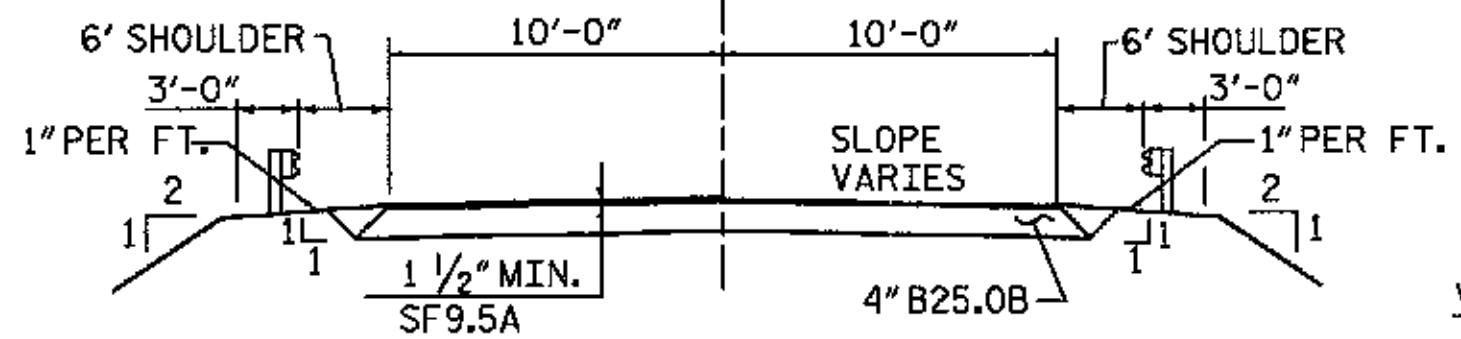
PLAN
SCALE 1" = 20'

HYDRAULIC DATA

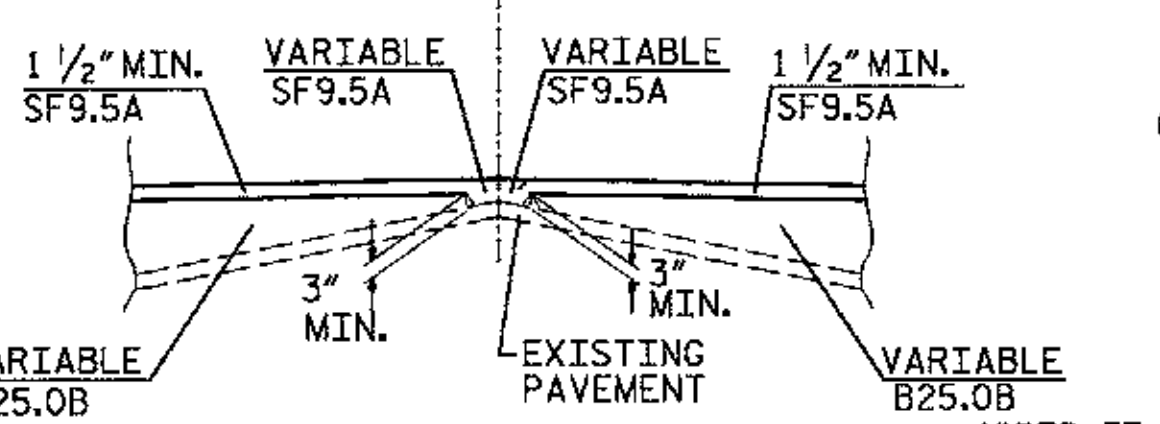
DESIGN DISCHARGE = 1950 CFS
FREQUENCY OF DESIGN FLOOD = 25 YR.
DESIGN HIGH WATER ELEVATION = 100.40
DRAINAGE AREA = 8.74 SQ. MI.
BASIC DISCHARGE (Q100) = 2900 CFS
BASIC HIGH WATER ELEVATION = 101.80

OVERTOPPING FLOOD DATA

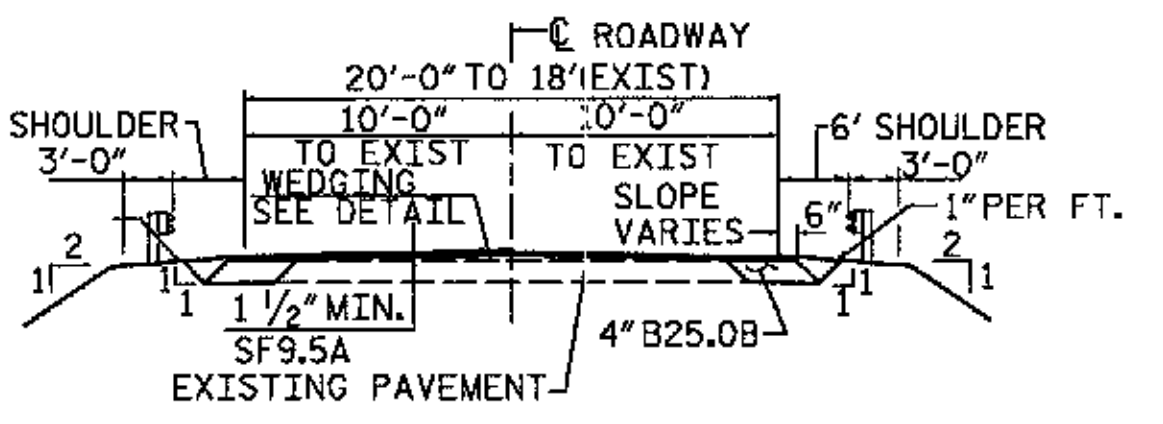
OVERTOPPING DISCHARGE = +4300 CFS
FREQUENCY OF OVERTOPPING FLOOD = 500 YR. +
OVERTOPPING FLOOD ELEVATION = 103.20



TYPICAL ROADWAY SECTION
WITHIN CONSTRUCTION LIMITS
NOT TO SCALE
STA. 9+20.00 TO STA. 9+73.917
STA. 10+96.083 TO STA. 11+50.00



DETAIL SHOWING METHOD OF WEDGING
NOT TO SCALE

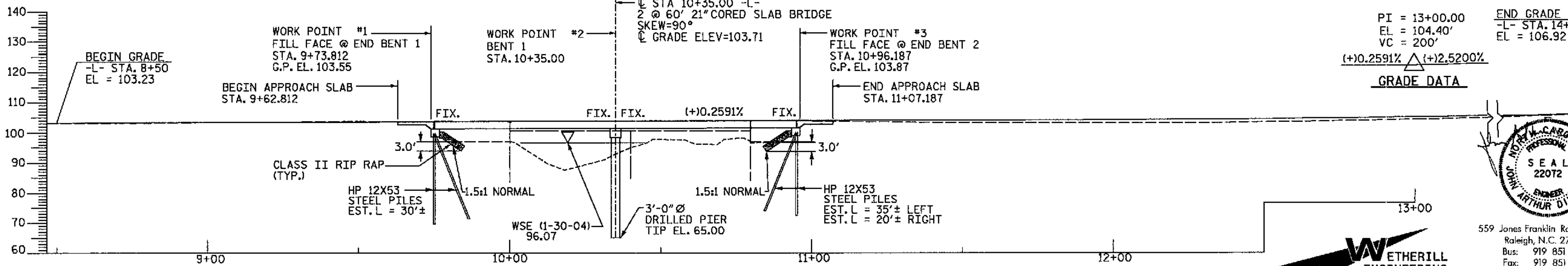


TYPICAL ROADWAY SECTION
WITHIN CONSTRUCTION LIMITS
NOT TO SCALE
STA. 8+50.00 TO STA. 9+20.00
STA. 11+50.00 TO STA. 14+00.00

GRADE DATA

PI = 13+00.00
EL = 104.40'
VC = 200'
(+0.2591% Δ +2.5200%)

GRADE DATA



PROFILE ALONG C SURVEY
SCALE 1" = 20'

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DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
CHECKED BY: J. DILWORTH DATE: 8/09



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Raleigh, N.C. 27606
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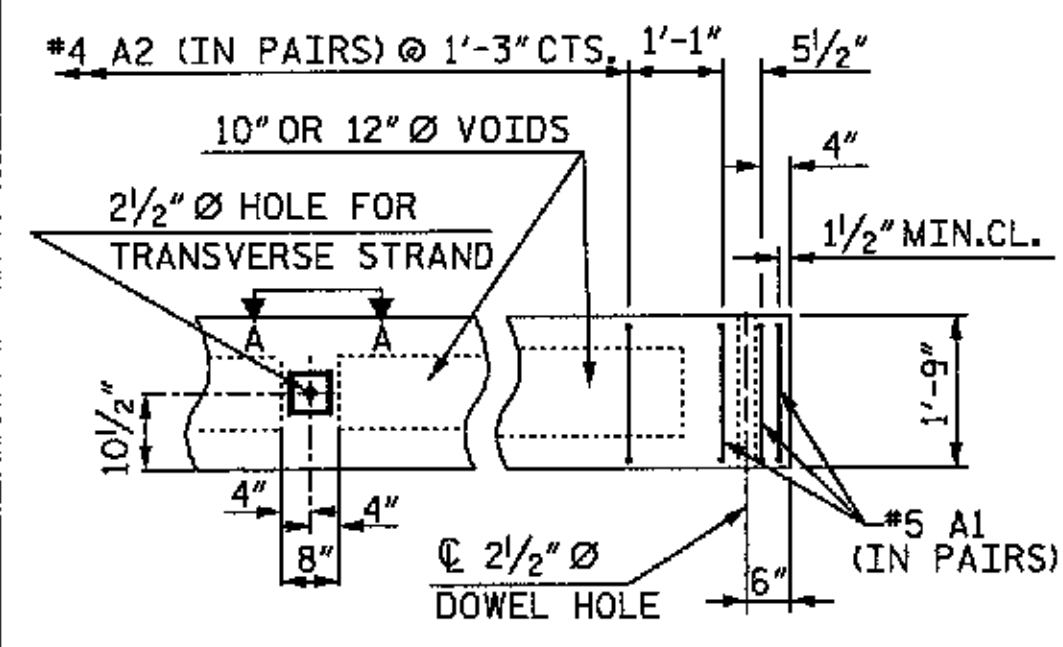


- NOTES**
- PILES AT END BENTS 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 45 TONS EACH.
 - WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.
 - FOR DRILLED PIERS, SEE SPECIAL PROVISIONS. DRILLED PIERS HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 450 KIPS EACH AT THE TIP OF THE PIER.
 - DRILLED PIERS HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 18 TSF. THE TIP BEARING CAPACITY SHALL BE VERIFIED.
 - DRILLED PIERS AT BENT 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 65.0 FEET AND SATISFY THE REQUIRED TIP BEARING CAPACITY WITH A MINIMUM PENETRATION OF 4 FEET INTO ROCK AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISIONS.
 - THE SCOUR CRITICAL ELEVATION (SCE) FOR BENT 1 IS 69.5 FEET. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF STRUCTURE.
 - SPT TESTING MAY BE REQUIRED AT BENT 1 IF ROCK, AS DEFINED BY THE DRILLED PIERS SPECIAL PROVISION, IS NOT ENCOUNTERED AT THE TIP BUT THE MINIMUM PENETRATION INTO ROCK HAS BEEN ACHIEVED PRIOR TO THE TIP ELEVATION. THE REQUIRED SPT N-VALUE IS 100 BLOWS PER FOOT.
 - CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.
 - SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.
 - SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS.
 - THE QUANTITY OF RIP RAP TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF TONS OF EACH CLASS OF RIP RAP WHICH HAS BEEN INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. THE RIP RAP WILL BE MEASURED BY BEING WEIGHED IN TRUCKS CERTIFIED WEIGHING DEVICES. THE QUANTITY OF RIP RAP TO BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON..
PLAIN RIP RAP CLASS II (2'-0" THICK) WITH FILTER FABRIC
END BENT NO. 1 = 240 TONS
END BENT NO. 2 = 320 TONS
TOTAL = 560 TONS
 - THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH FHWA'S TECHNICAL ADVISORY T5140.20 (SCOUR AT BRIDGES).
 - THE EXISTING BRIDGE SHALL BE REMOVED BY SAWING AND/OR NON SHATTERING METHODS SUCH THAT DEBRIS WILL NOT FALL INTO THE WATER.
 - ADT 3200 FOR YEAR 2010

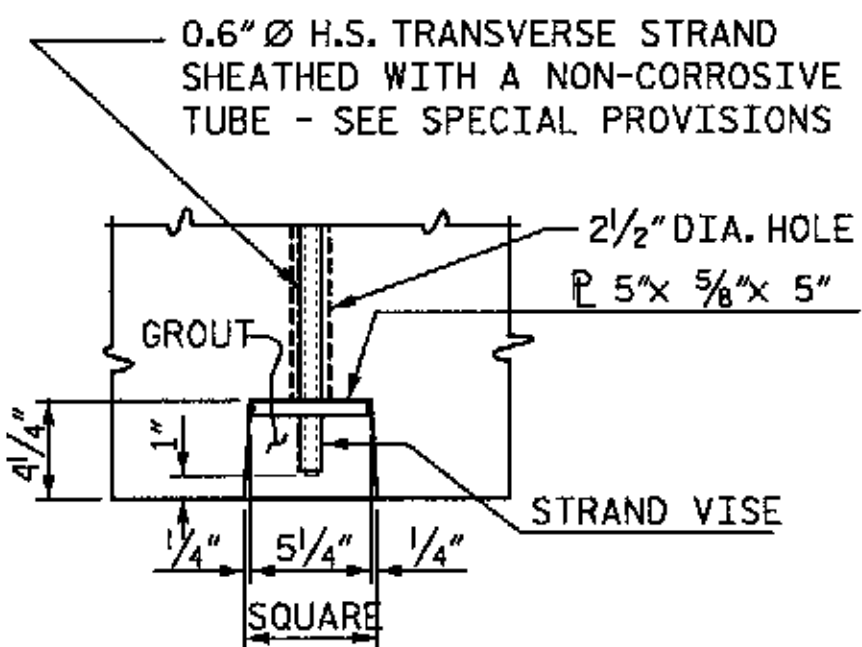
WBS NO. 37018
FRANKLIN COUNTY
STATION: 10+35.000
REPLACES BRIDGE NO. 76

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRG.# 76 ON SR 1600
OVER SYCAMORE CREEK

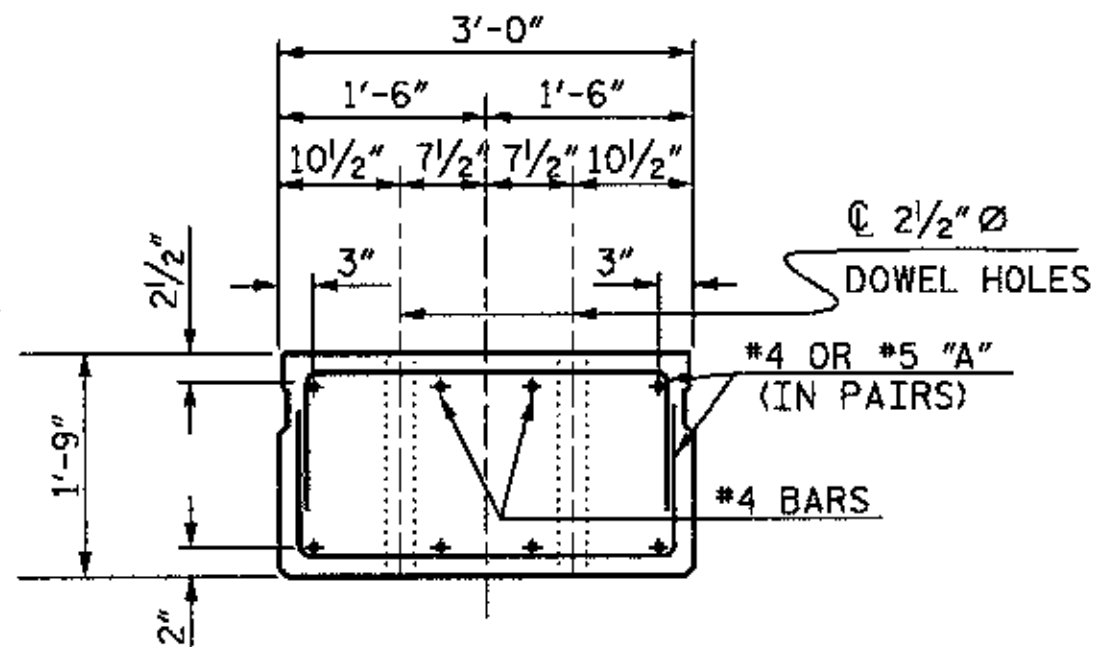
REVISIONS						SHEET NO. 1
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 20
2			4			



SLAB ELEVATION

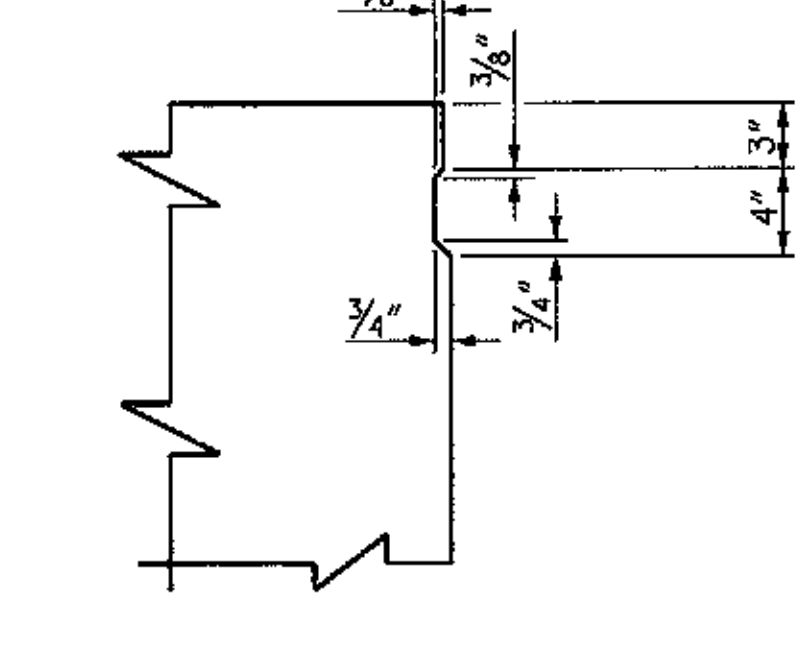


SECTION A-A

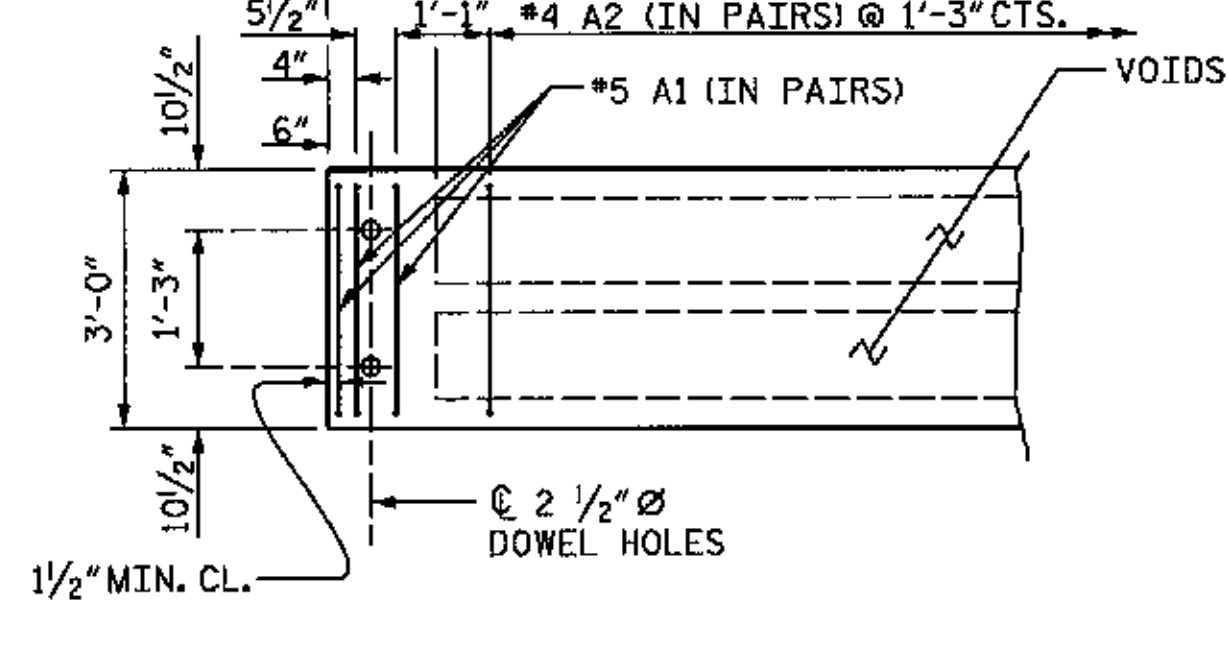


SLAB END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.)
 INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SIMILAR EXCEPT SHEAR KEY LOCATON.

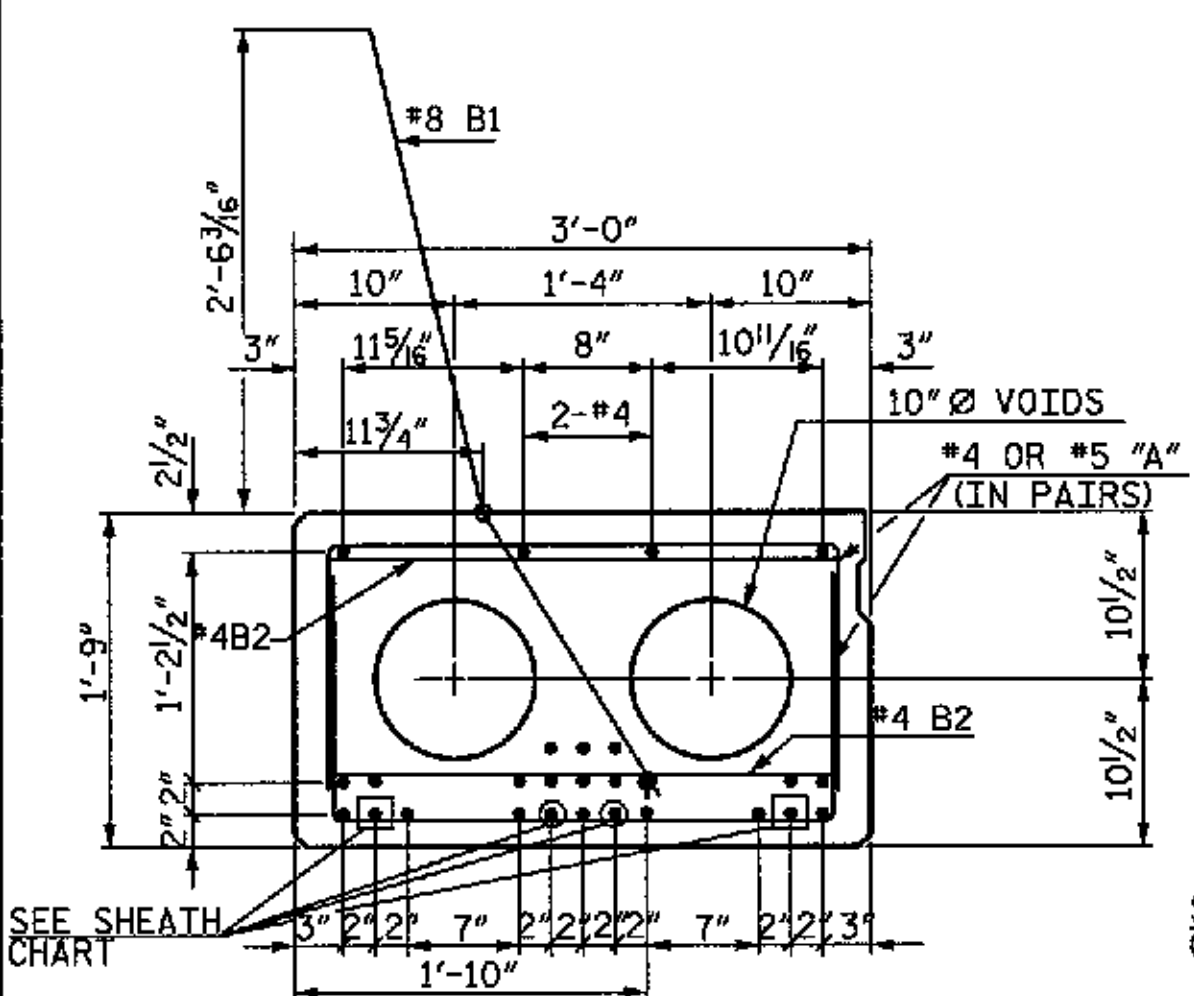


SHEAR KEY DETAIL



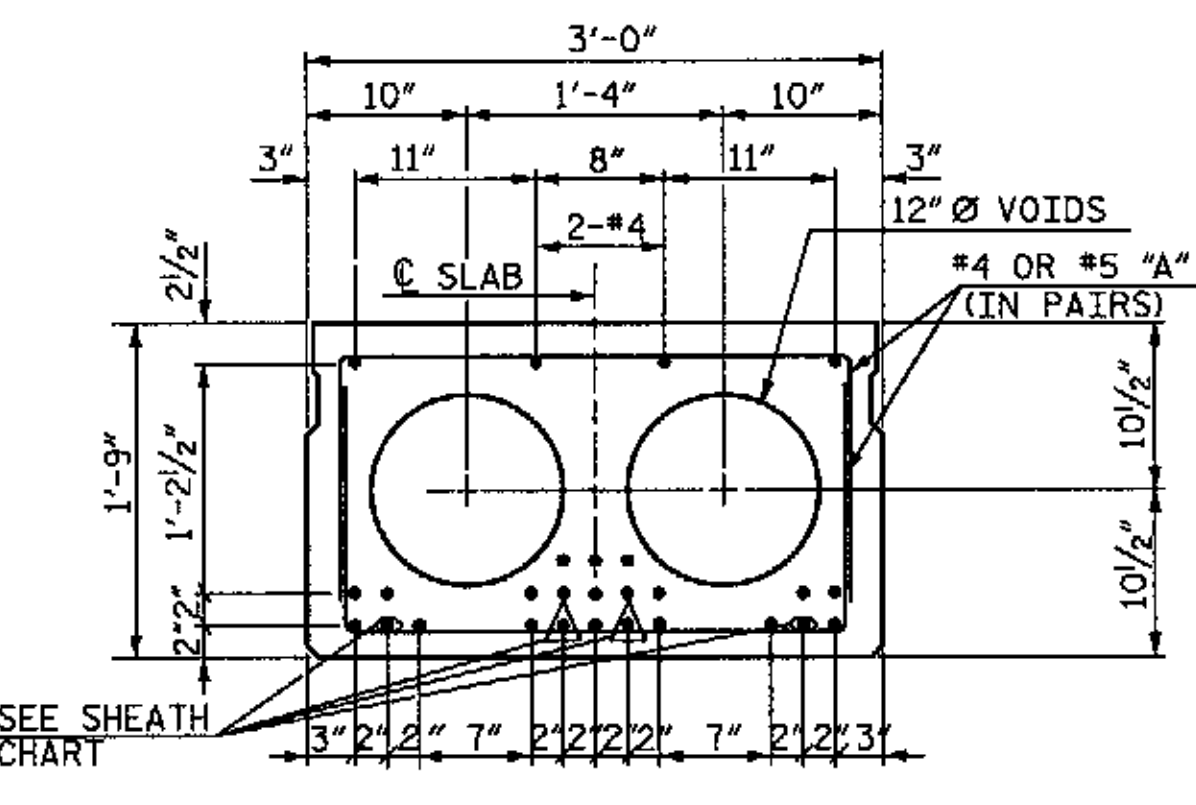
PART PLAN - SLAB SECTION

GENERAL NOTES
 ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING EXCEPT THAT THE BEAMS HAVE BEEN DESIGNED FOR HS 25.
 CONCRETE:
 60' SPAN
 f'c = 8000 psi MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS.
 f'ci = 6400 psi MINIMUM COMPRESSIVE STRENGTH @ TRANSFER OF STRESSING FORCE.
 ALL PRESTRESS STRANDS SHALL MEET THE REQUIREMENTS OF ASTM A416.
 ALL PRESTRESS STRANDS SHALL BE 7 WIRE, LOW RELAXATION, HIGH STRENGTH CABLES IN ACCORDANCE WITH THE SPECIFICATIONS.
 SIZE TYPE AREA ULTIMATE STR.
 6/10" Ø HIGH STR. 0.217 IN² 58,590*PER CABLE
 APPLIED FORCE 43,950*PER CABLE



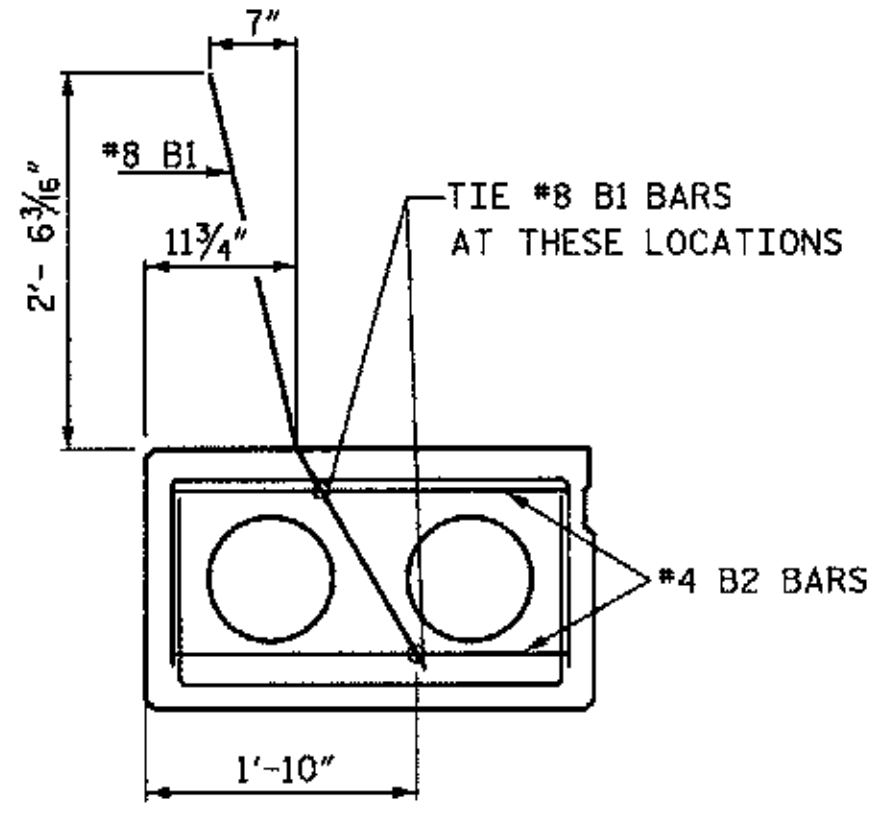
60' SPAN

25 - 0.6" Ø H.S. STRANDS
 EXTERIOR SLAB SECTIONS
 FINAL DEFLECTION 3.027" (UP)



60' SPAN

25 - 0.6" Ø H.S. STRANDS
 INTERIOR SLAB SECTIONS
 FINAL DEFLECTION 3.260" (UP)



TIE LOCATION FOR #8 B1

SHEATH CHART		
SPAN LENGTH	NUMBER OF SHEATHED STRANDS PER EXTERIOR SLAB SECTIONS	NUMBER OF SHEATHED STRANDS PER INTERIOR SLAB SECTIONS
60'	4	4

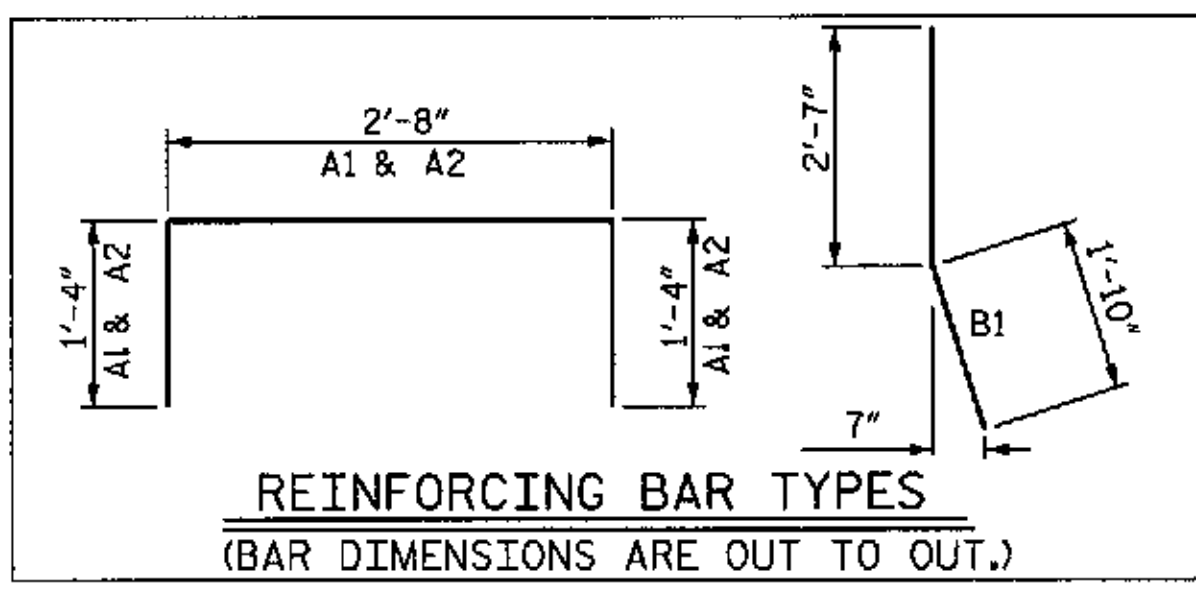
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4 FEET FROM END OF SLAB.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6 FEET FROM END OF SLAB.
- △ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 10 FEET FROM END OF SLAB.
- ◇ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12 FEET FROM END OF SLAB.

STRUCTURAL STEEL ITEMS SHALL BE OF A GRADE CONFORMING TO EITHER ASTM A36 OR A373, EXCEPT HIGH STRENGTH BOLTS. HIGH STRENGTH BOLTS SHALL BE ASTM A325. ALL STRUCTURAL STEEL SHALL BE GALVANIZED AS PER THE SPECIFICATIONS.

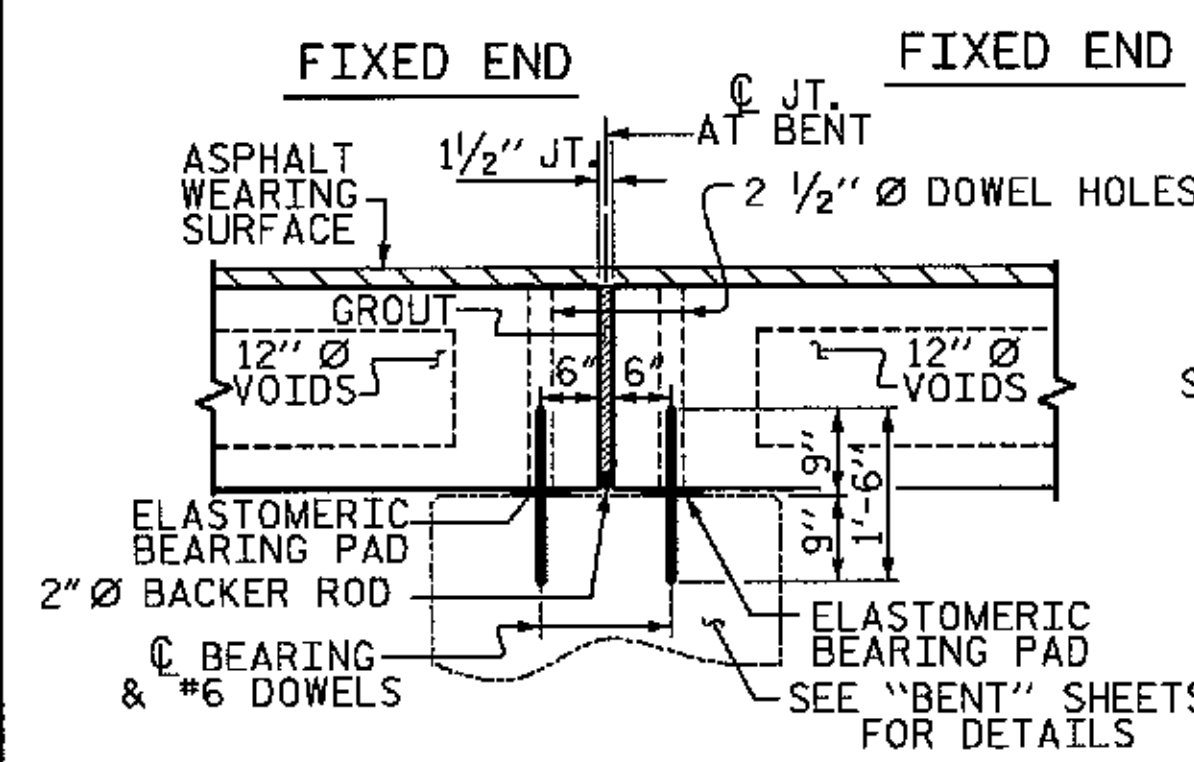
ALL MATERIAL AND WORKMANSHIP SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OF THE NC DEPARTMENT OF TRANSPORTATION DATED JULY 2006 AND WITH THE SPECIAL PROVISIONS.

A POSITIVE HOLD DOWN SYSTEM MUST BE EMPLOYED TO PREVENT VOIDS FROM RISING.

UNLESS OTHERWISE NOTED ON PLANS, ALL EXPOSED CORNERS ON STRUCTURE SHALL BE CHAMFERED 3/4".

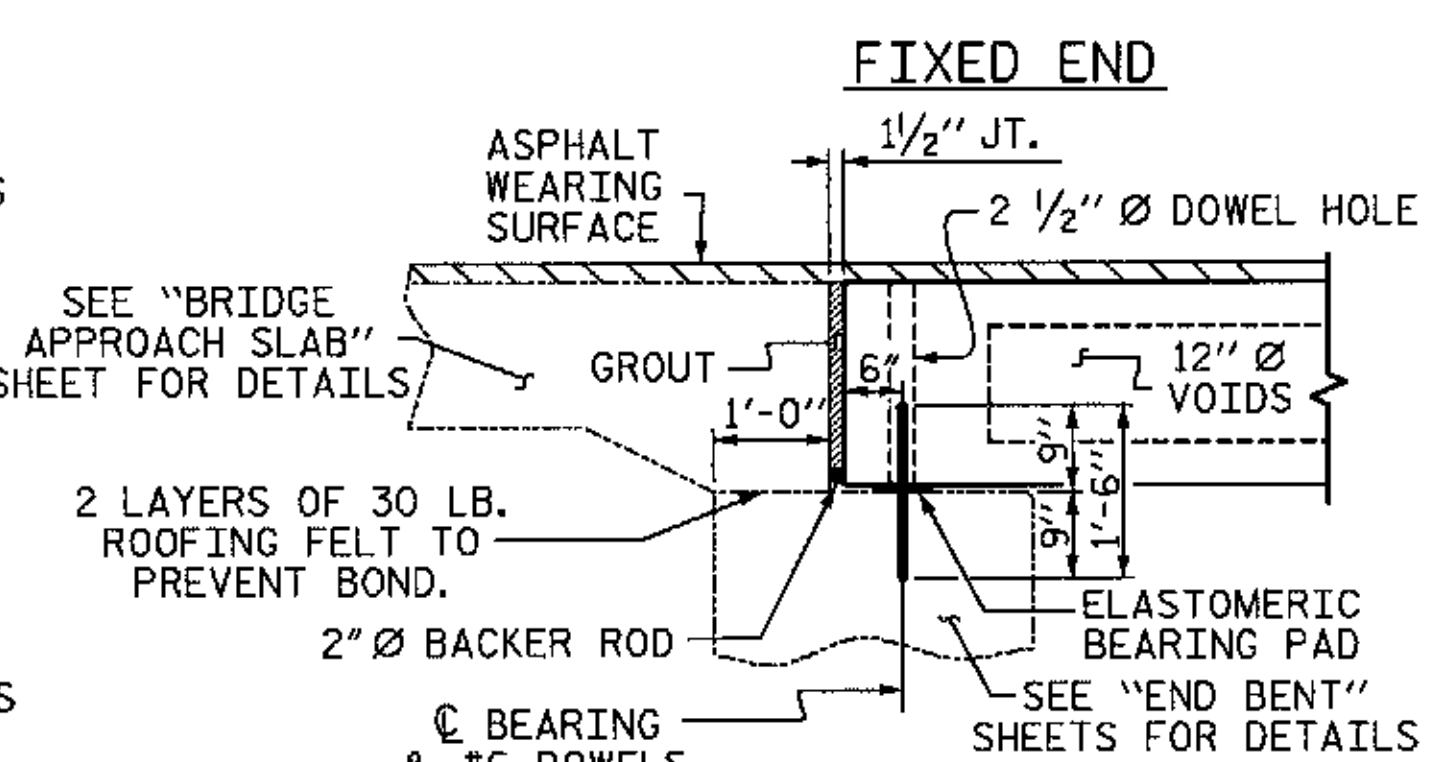


REINFORCING BAR TYPES
 (BAR DIMENSIONS ARE OUT TO OUT.)



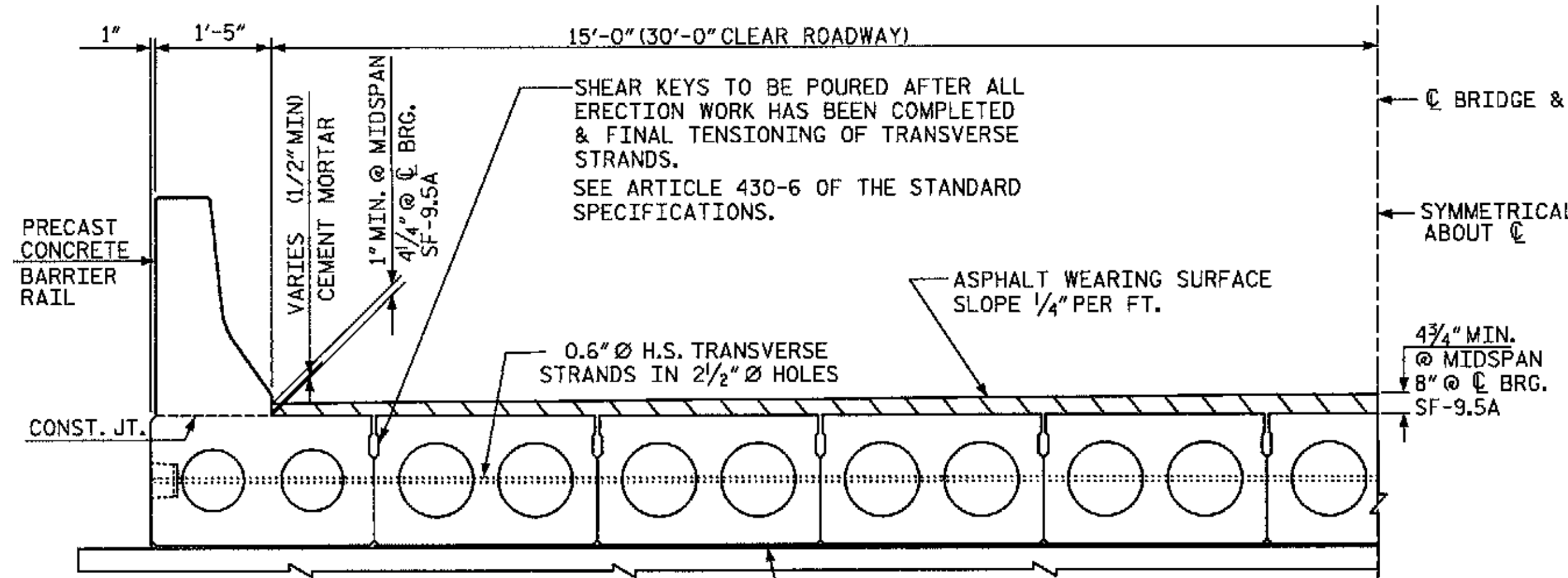
SECTION AT BENT

NOTE:
 ○ OF DOWELS SHALL MATCH ○ OF DOWEL HOLES IN CORED SLAB UNITS.



SECTION AT END BENT

NOTE:
 ○ OF DOWELS SHALL MATCH ○ OF DOWEL HOLES IN CORED SLAB UNITS.



TYPICAL HALF SECTION

SHEAR KEYS TO BE POURED AFTER ALL ERECTION WORK HAS BEEN COMPLETED & FINAL TENSIONING OF TRANSVERSE STRANDS.
 SEE ARTICLE 430-6 OF THE STANDARD SPECIFICATIONS.

WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD PRESTRESSED
 CORED SLAB 60' SPAN
 30' CLEAR ROADWAY, 90° SKEW

REVISIONS						SHEET NO. 2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

NOTE: NOT TO SCALE

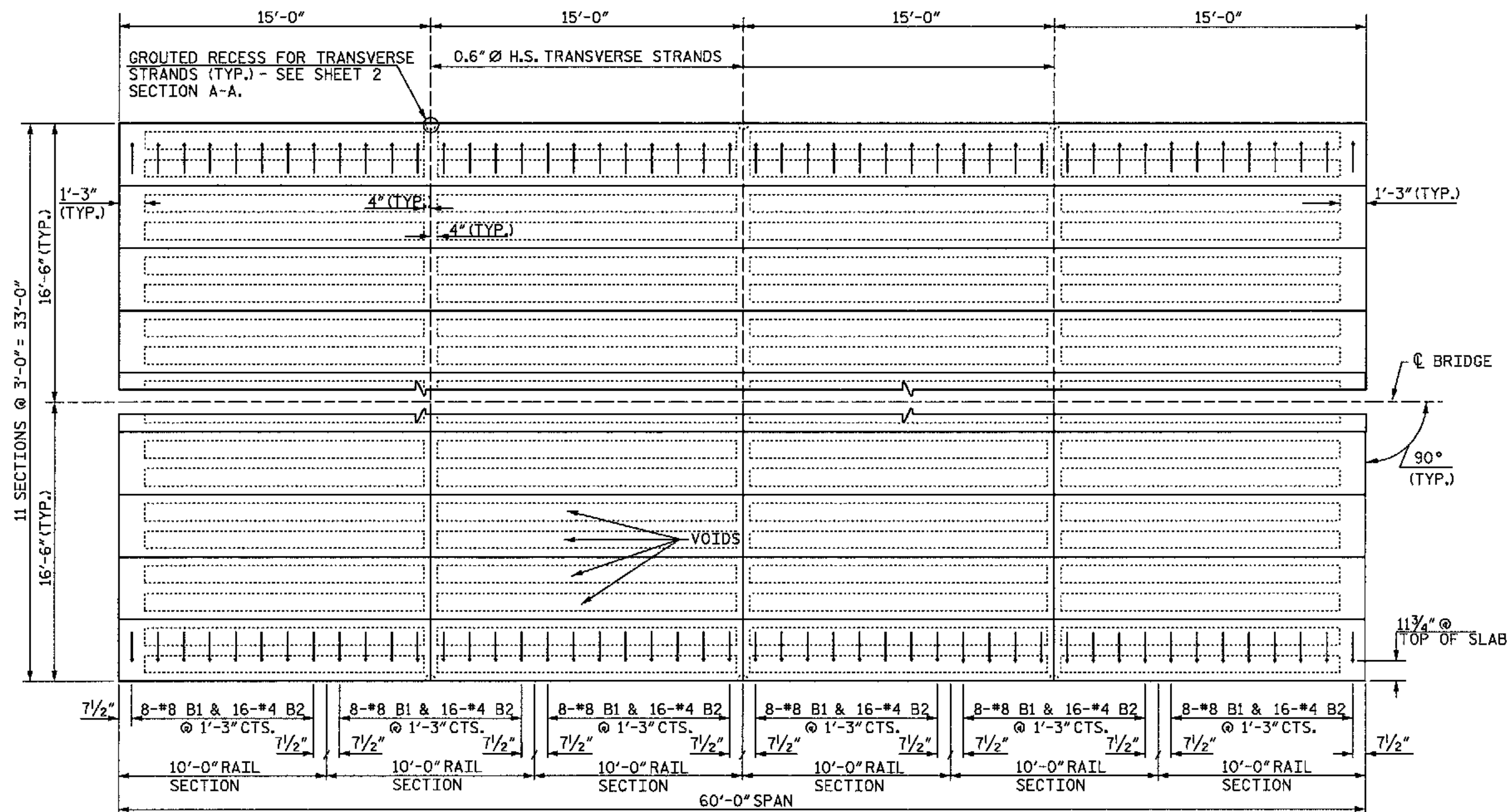
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



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DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
 CHECKED BY: J.A. DILWORTH DATE: 8/09



SUPERSTRUCTURE PLAN

NOTES:

EACH PRECAST RAIL UNIT SHALL BE CAST WITH CLASS AA CONCRETE.

RAIL TO BE FLUSH WITH CORED SLAB UNITS AT EACH END OF SPAN.

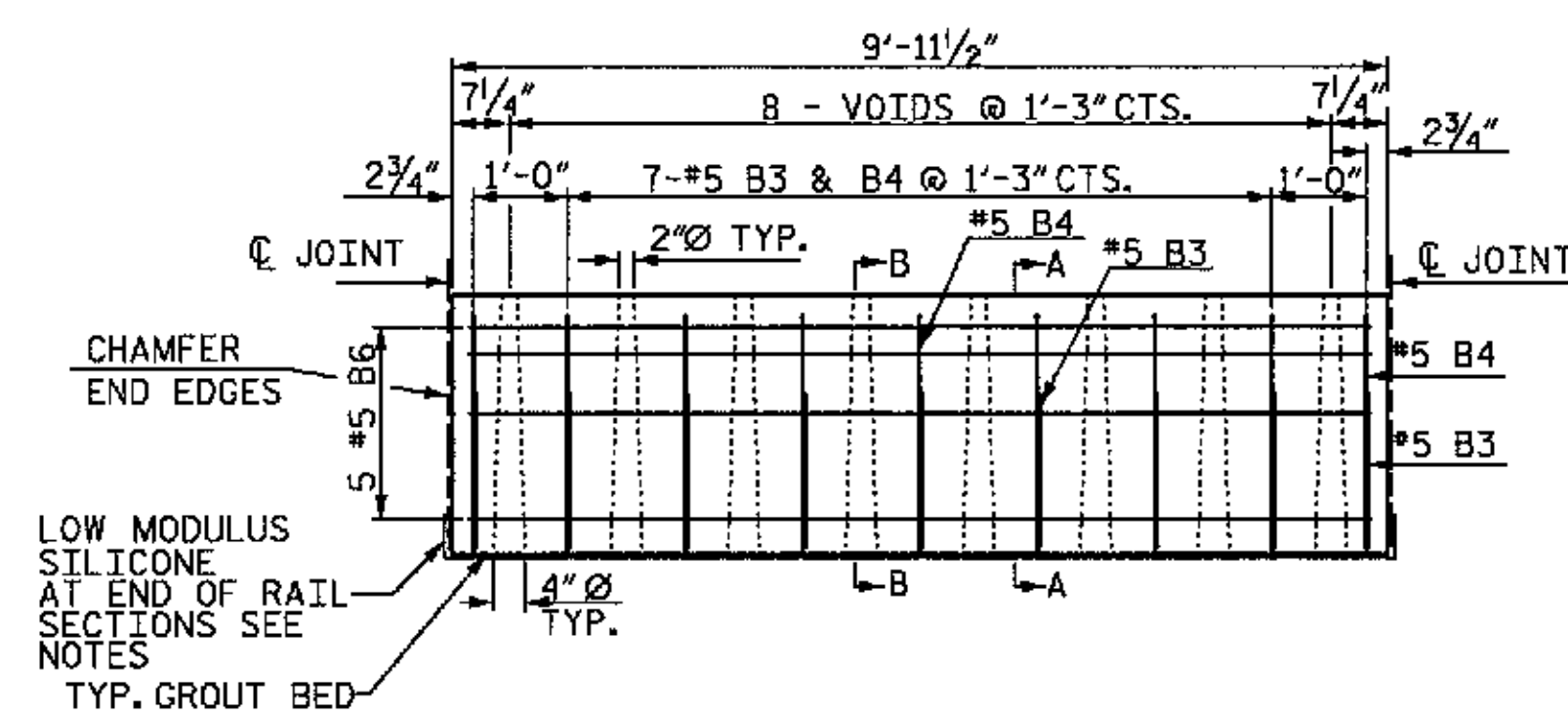
GROUT SHALL BE 5" ABOVE GUTTER LINE BETWEEN RAIL SECTIONS.

EACH PRECAST RAIL UNIT SHALL BE SUPPLIED WITH LIFTING DEVICE(S). NO CABLES ARE TO BE WRAPPED AROUND THE RAIL UNITS FOR LIFTING.

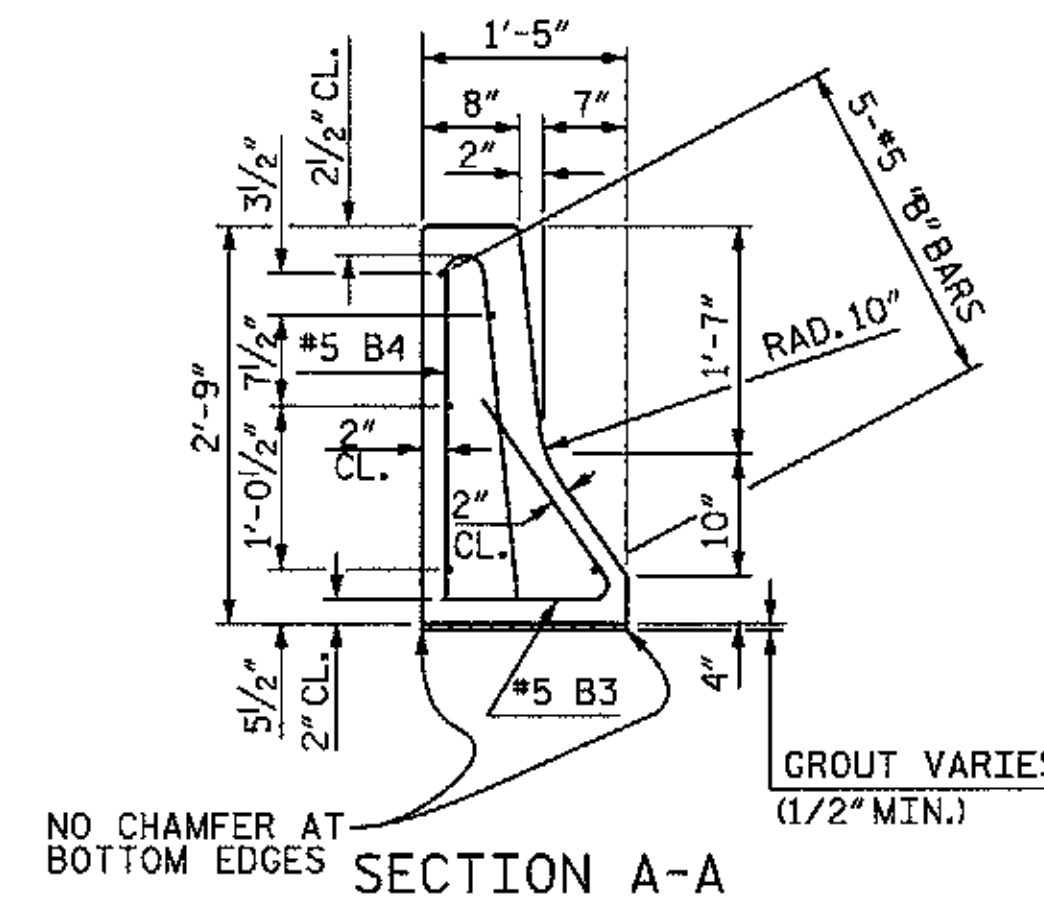
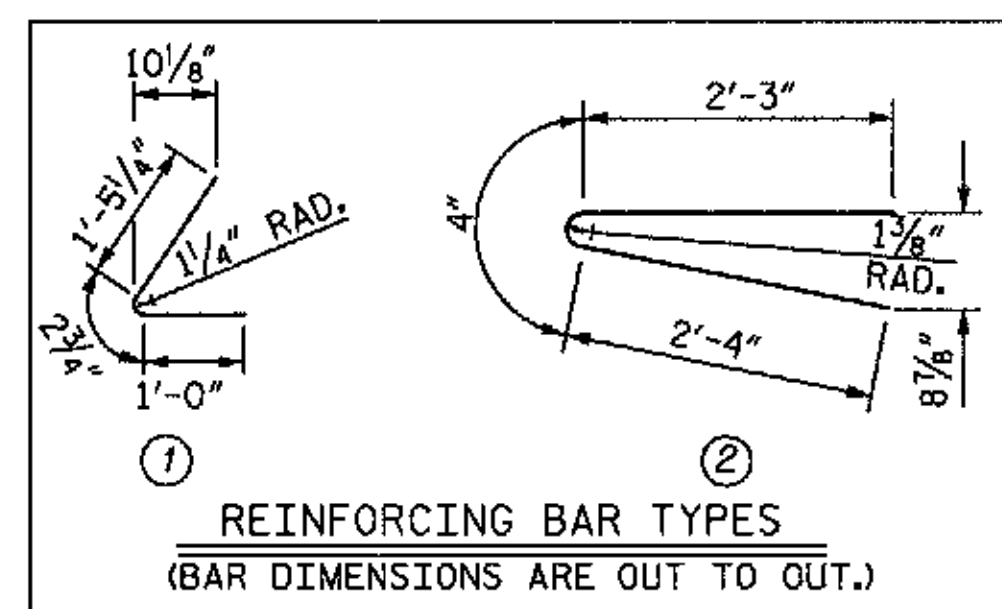
THE JOINT SEALER MATERIAL SHALL BE LOW MODULUS SILICONE SEALANT. SEE SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

THE 2 1/2" Ø DOWEL HOLES AT EACH END OF THE SLAB SECTIONS SHALL BE FILLED WITH GROUT, SEE STANDARD SPECIFICATIONS.

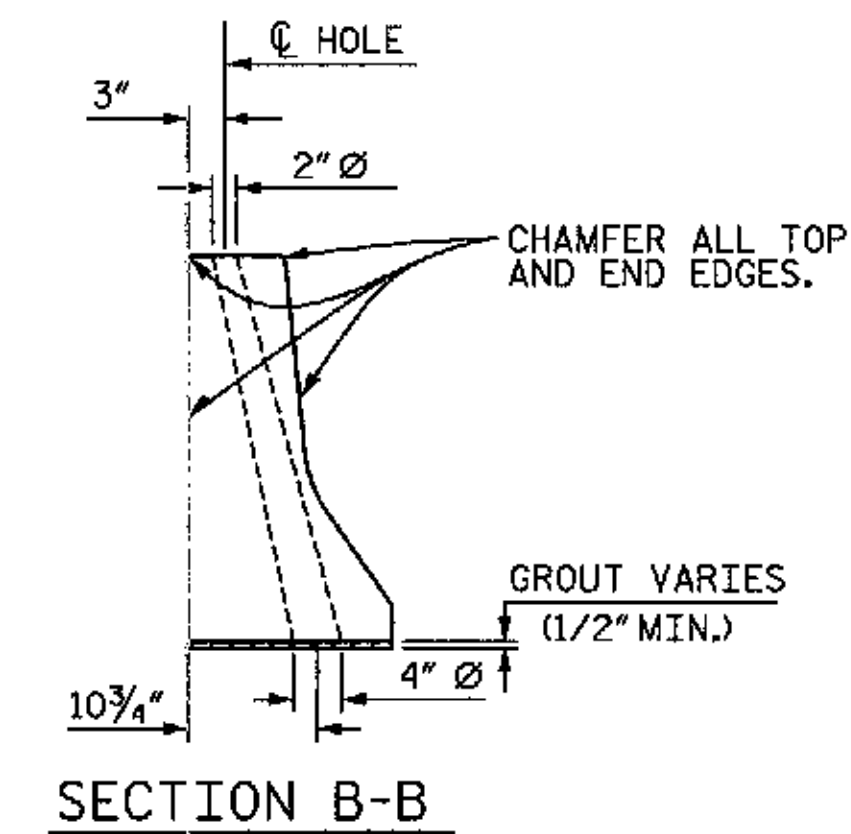
CONCRETE CHAMFERS:
UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" 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 SHOWN OTHERWISE ON PLANS.



TYPICAL 10'-0" PRECAST UNIT



SECTION A-A



SECTION B-B

BILL OF MATERIAL					
FOR ONE 10'-0" RAIL SECTION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	9	#5	1	2'-8"	25
B4	9	#5	2	4'-11"	46
B6	5	#5	STR	9'-7"	50
REINFORCING STEEL LBS. = 121					
CLASS AA CONCRETE CU. YDS. = 1.0					

WBS NO. 37018
FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD SUPERSTRUCTURE STANDARD PRECAST CONCRETE BARRIER RAIL SECTIONS 60' SPAN, 90° SKEW 30' CLEAR ROADWAY					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

NOTE: NOT TO SCALE

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

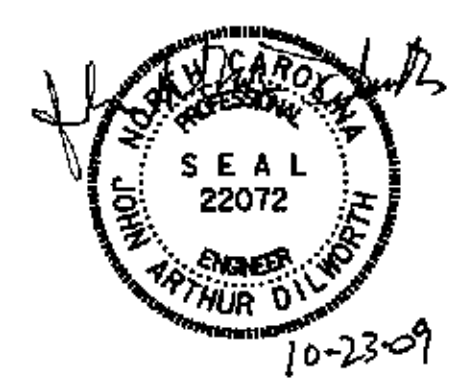
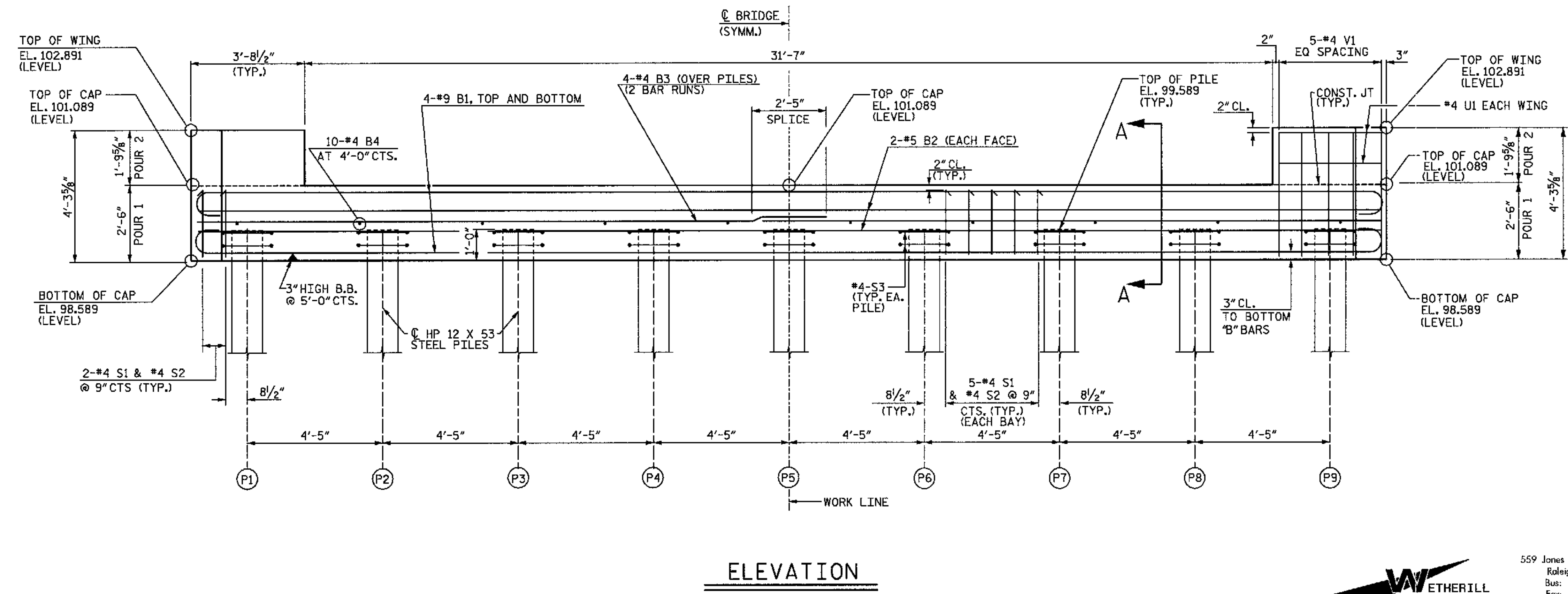
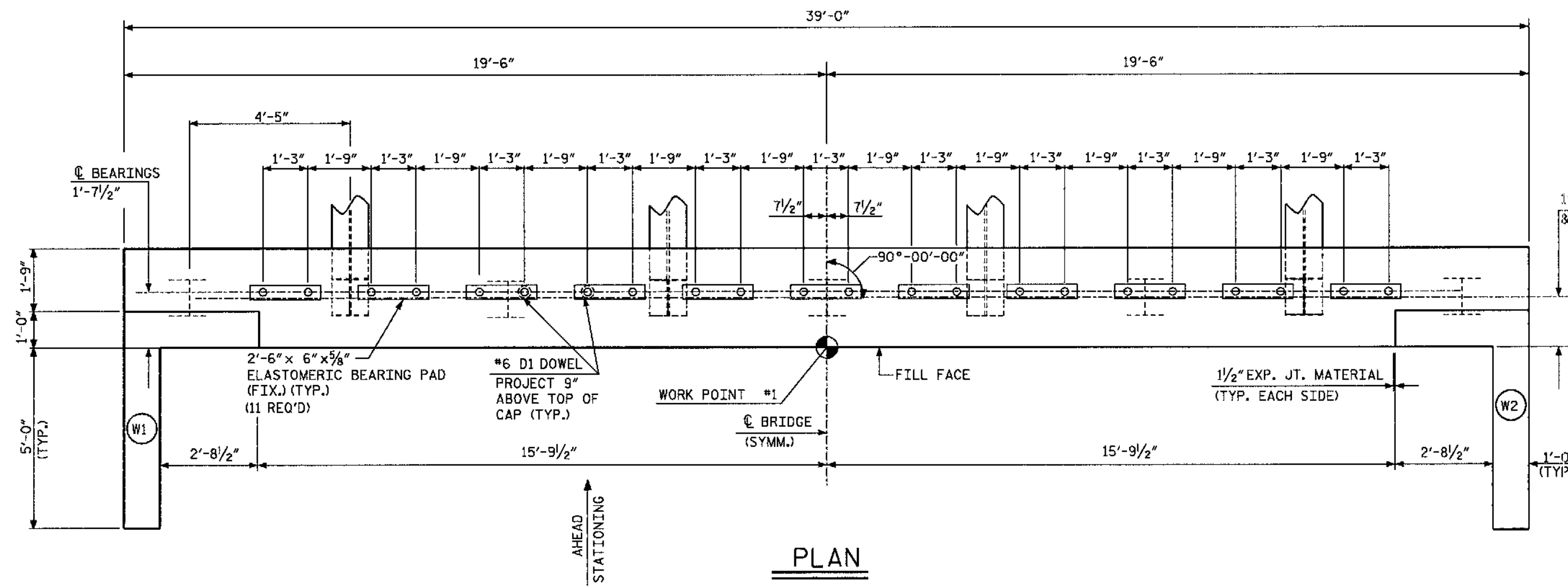
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DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
 CHECKED BY: J.A. DILWORTH DATE: 8/09

SHEET NO. 3
 TOTAL SHEETS 20

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 FOR SECTION A-A, SEE SHEET 2 OF 3.
 FOR MISC. DETAILS, SEE SHEET 2 OF 3.



WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

SHEET 1 OF 3

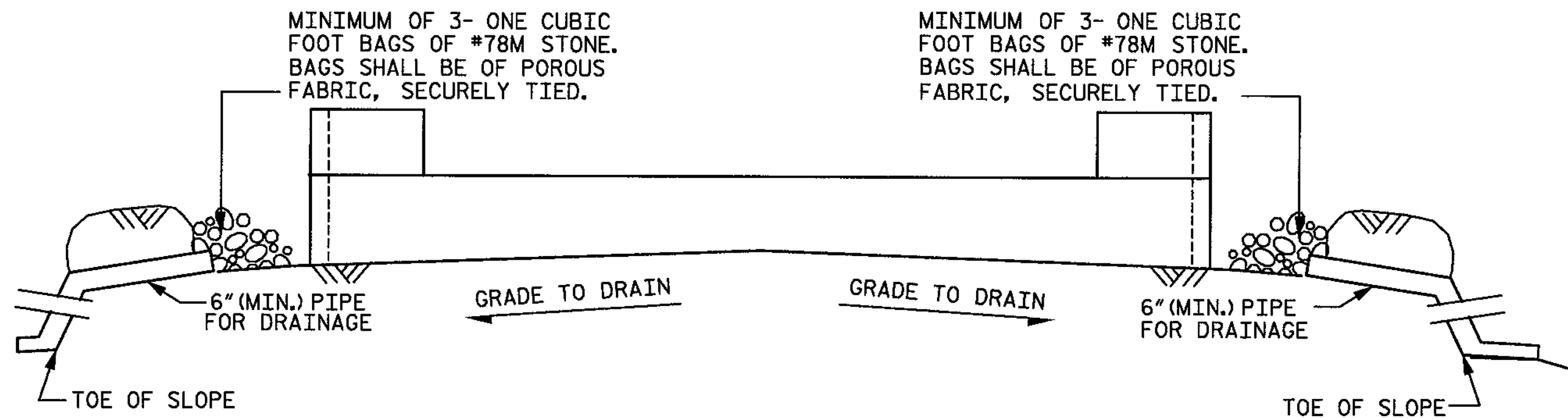
STATE OF NORTH CAROLINA		DEPARTMENT OF TRANSPORTATION		RALEIGH	
SUBSTRUCTURE END BENT 1					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					TOTAL SHEETS 20
					SHEET NO. 4

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NOTE: NOT TO SCALE TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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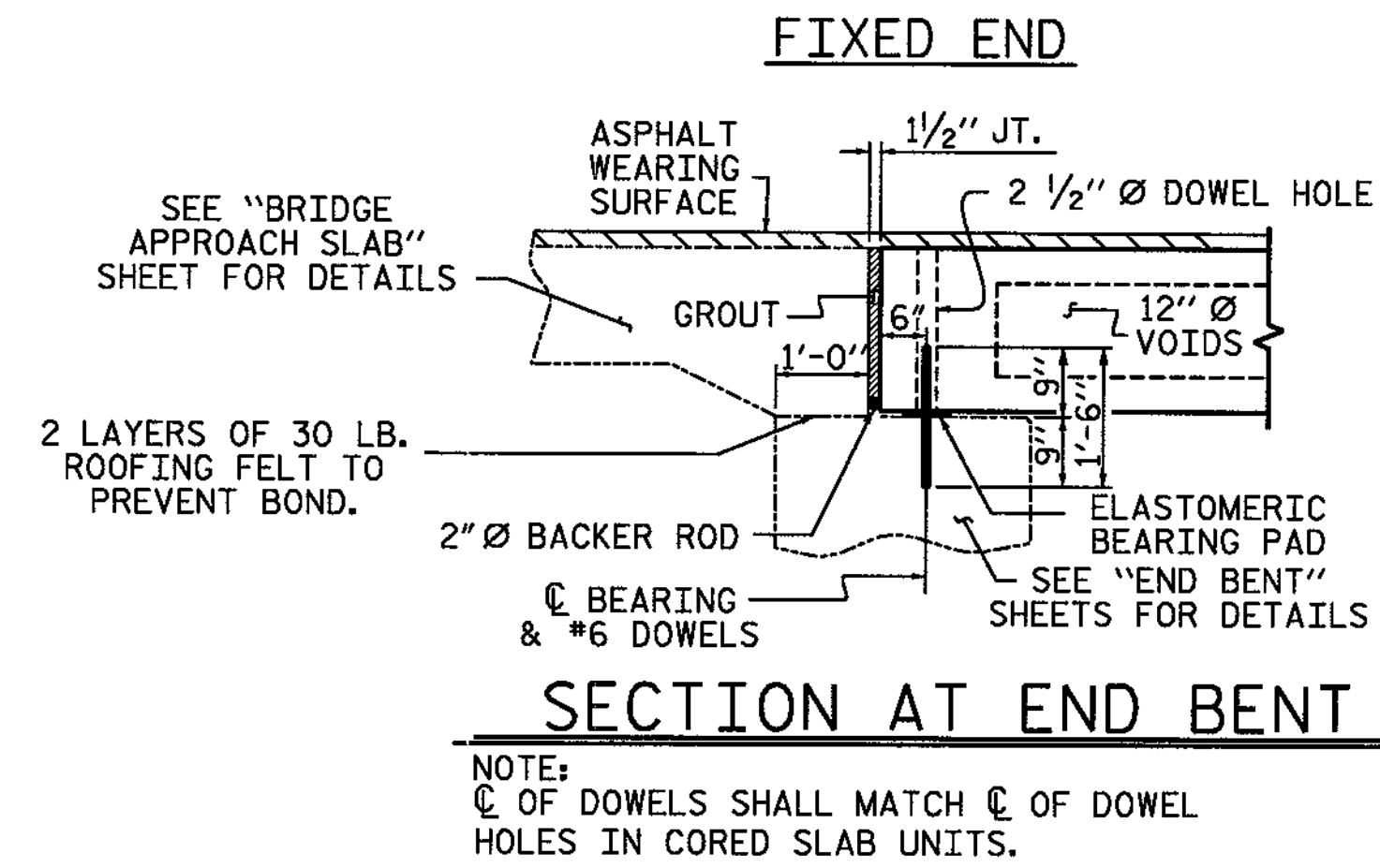


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

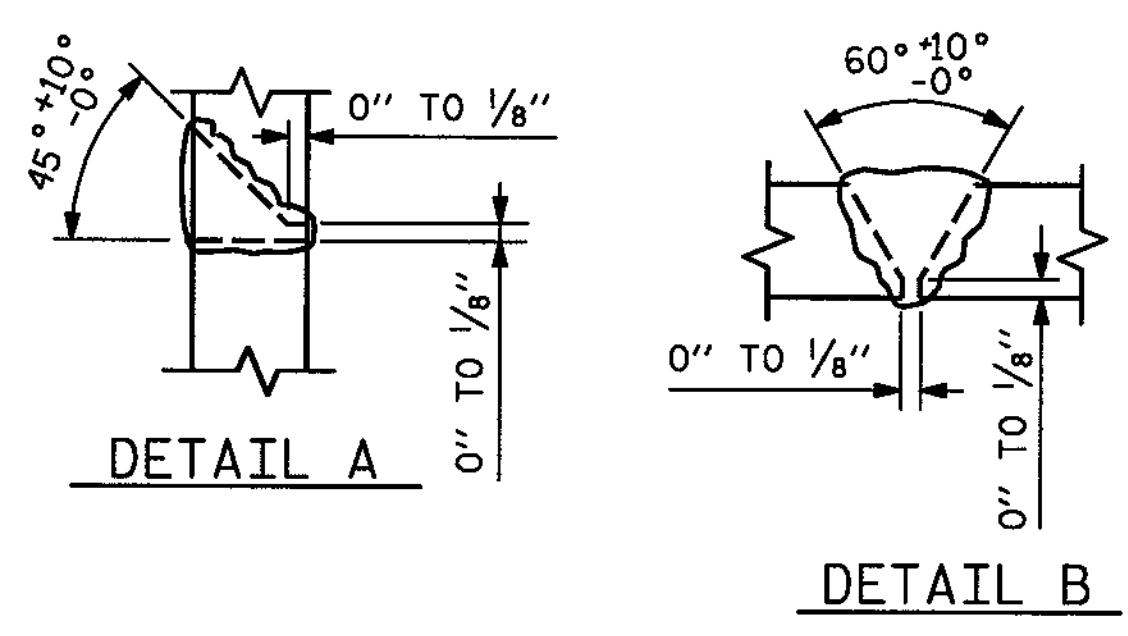
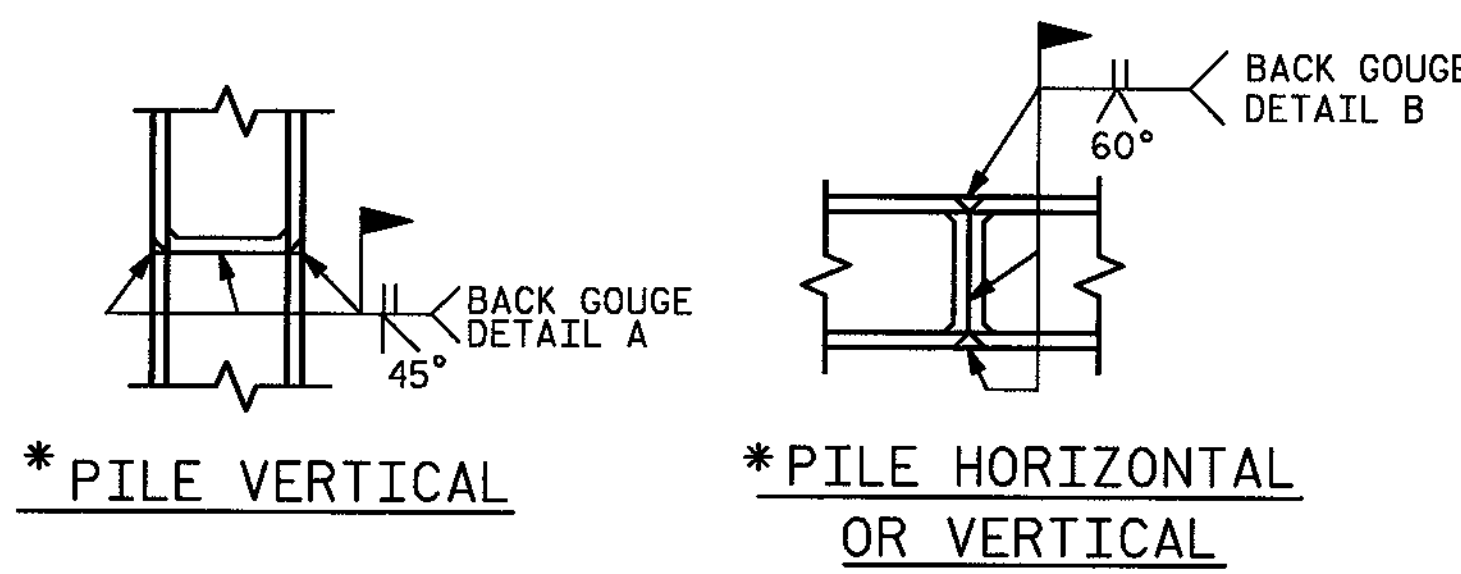
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

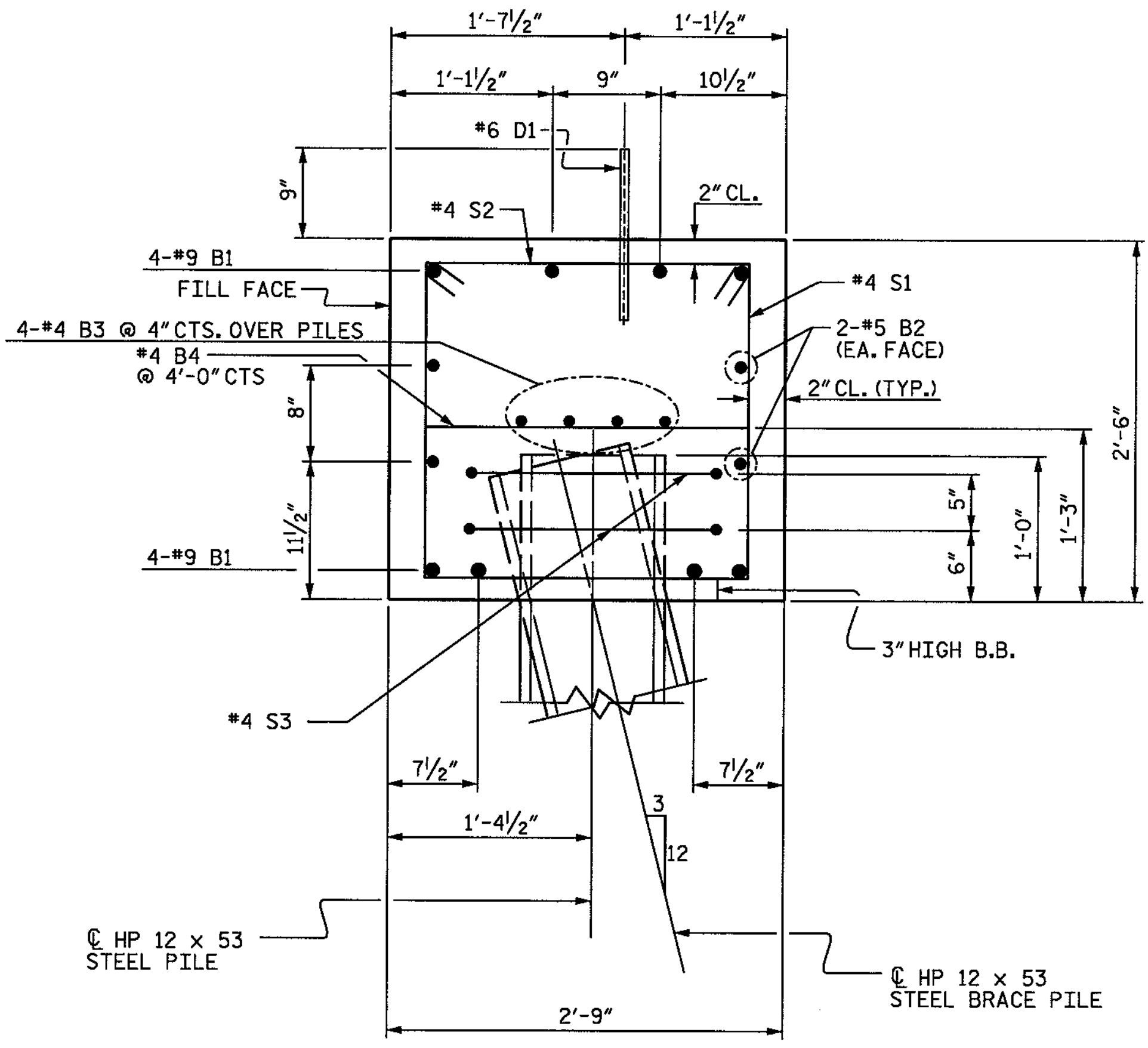
TEMPORARY DRAINAGE AT END BENT



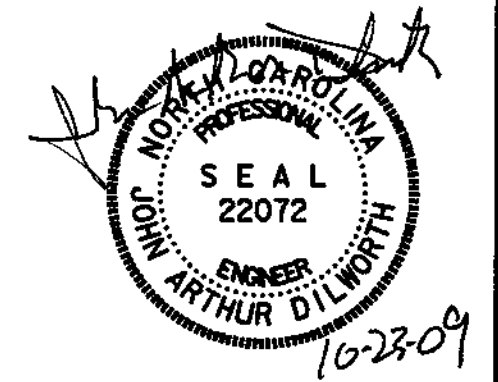
NOTE:
 ☉ OF DOWELS SHALL MATCH ☉ OF DOWEL HOLES IN CORED SLAB UNITS.



PILE SPLICE DETAILS
 * POSITION OF PILE DURING WELDING.



SECTION A-A



WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT 1**

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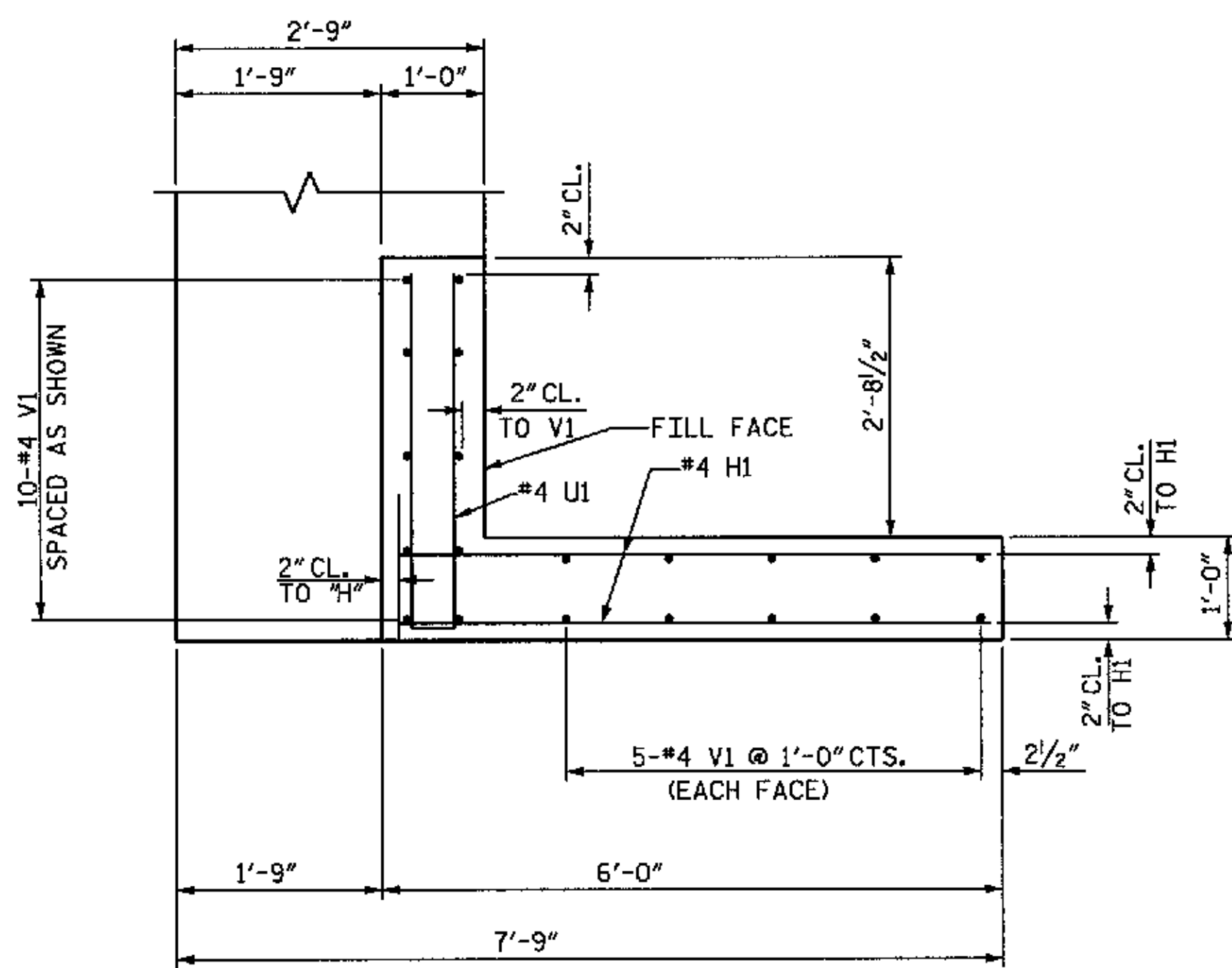
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
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NOTE: NOT TO SCALE

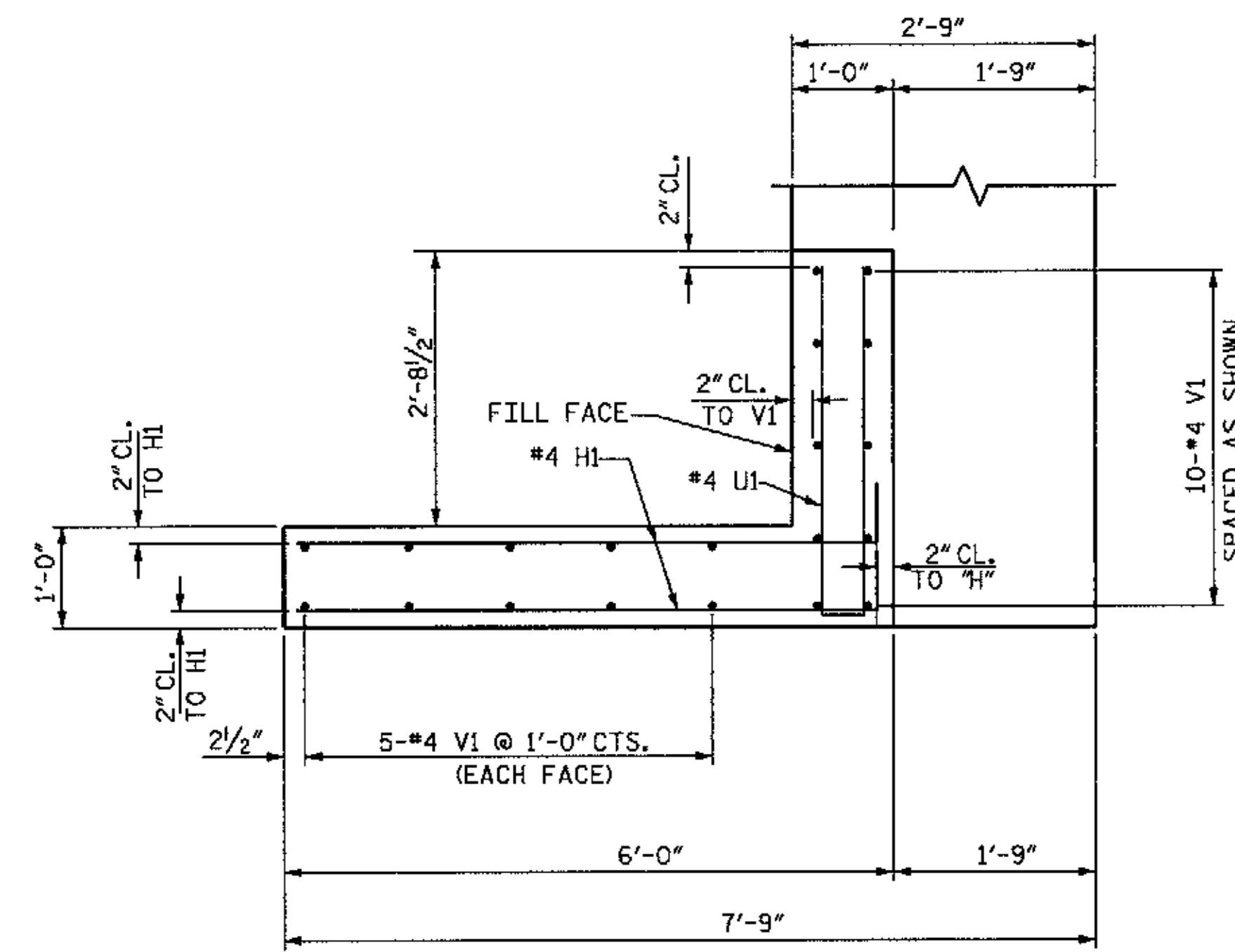
REVISIONS						SHEET NO. 5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

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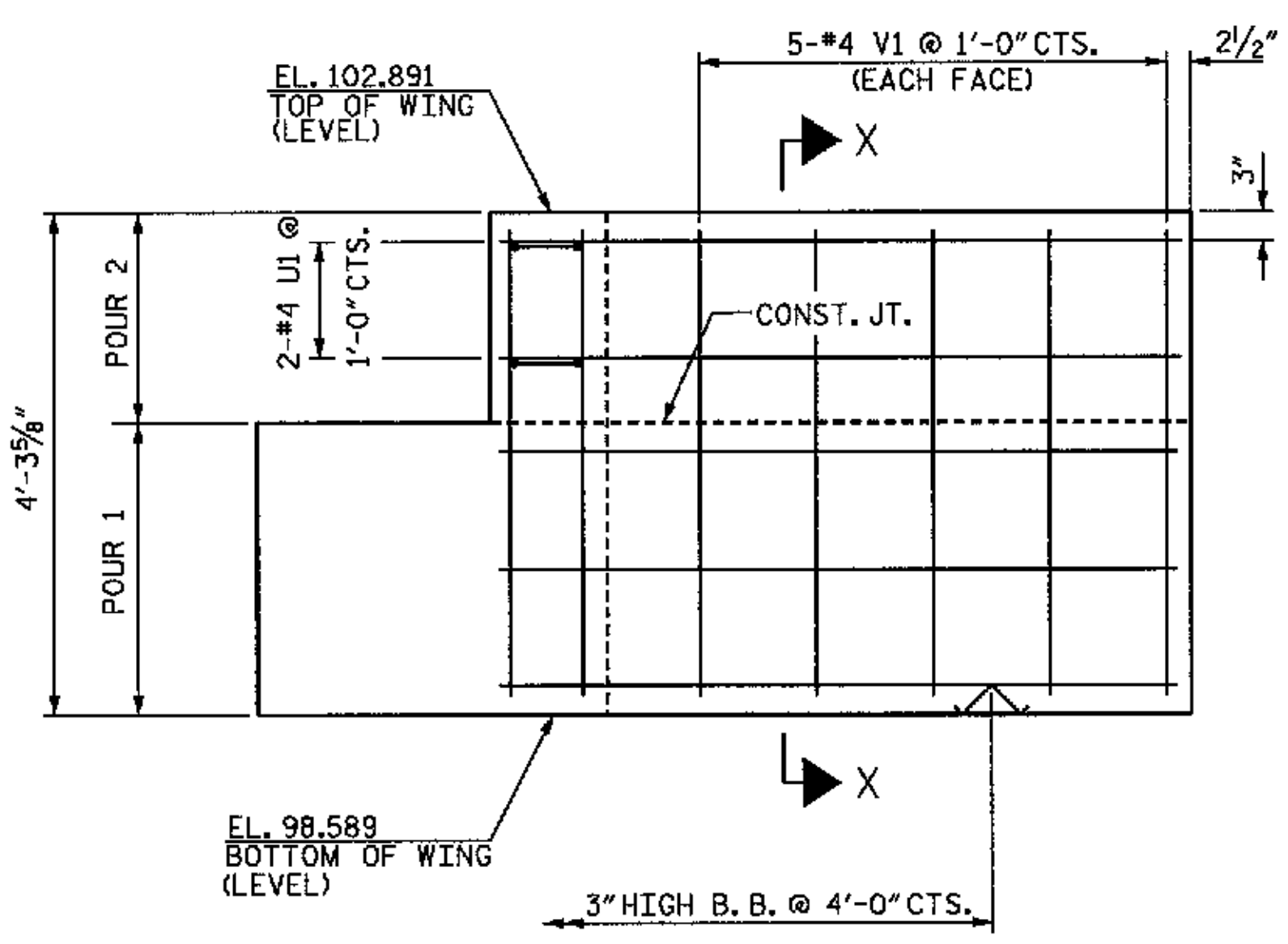
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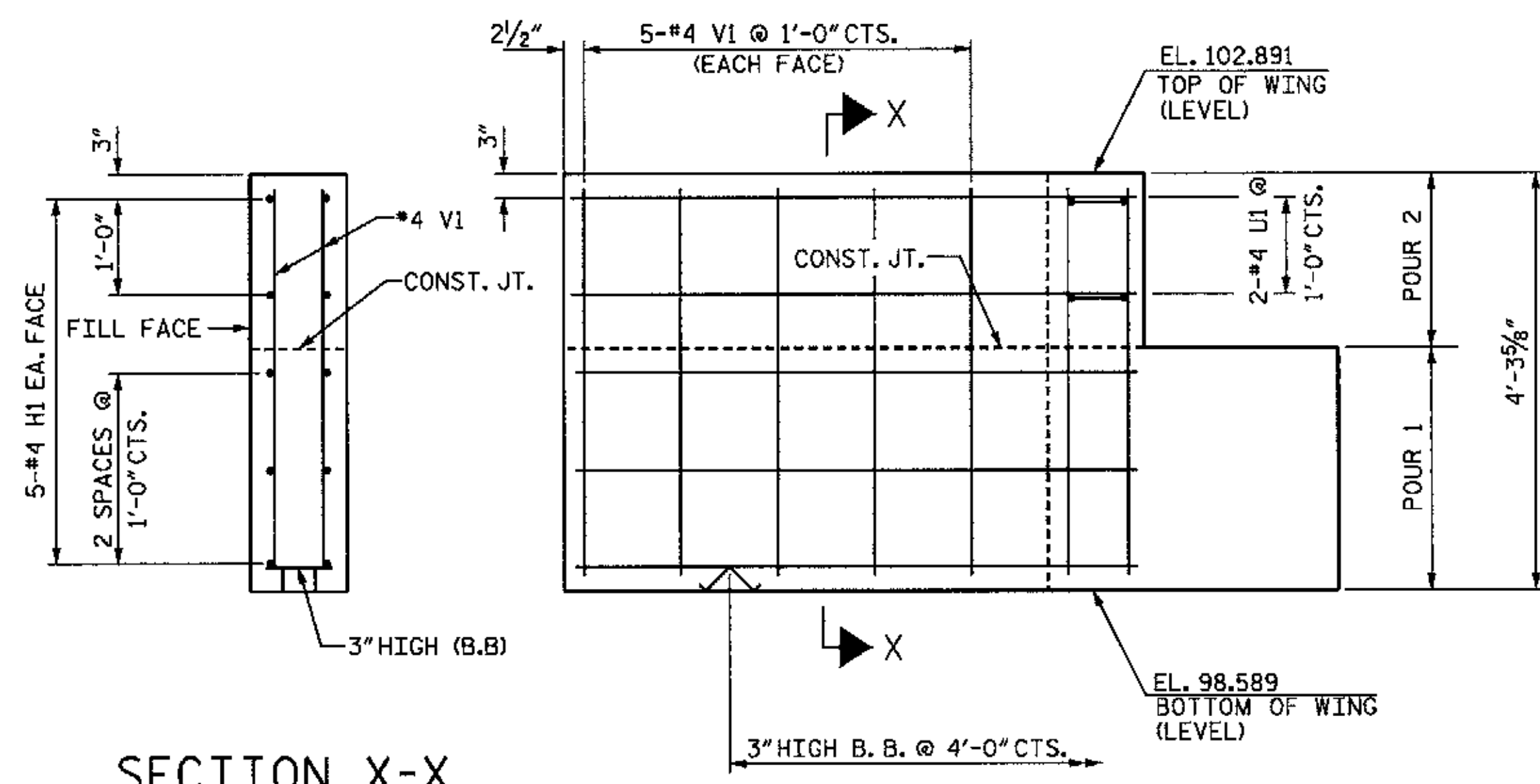
PLAN OF WING (W1)



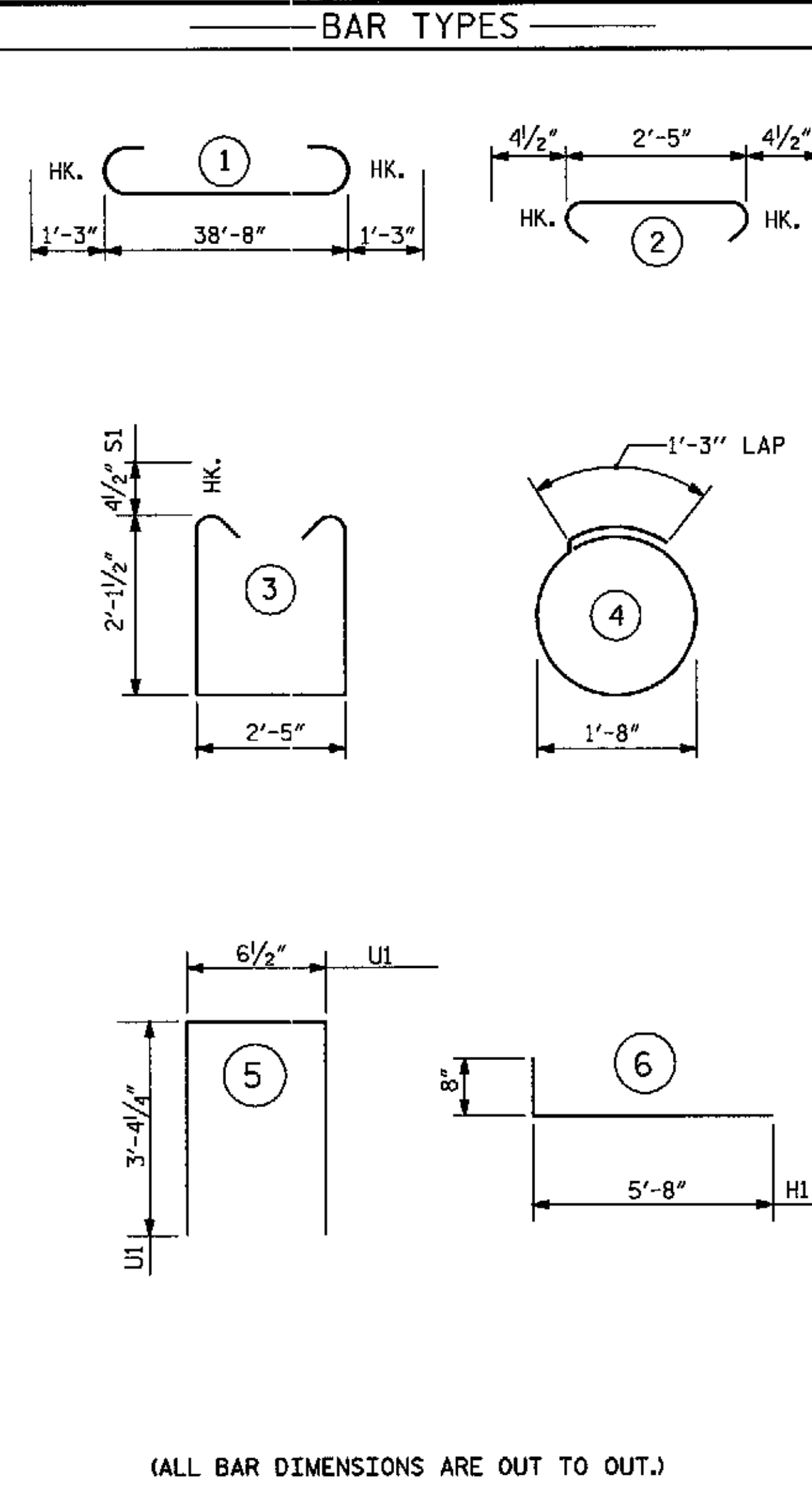
PLAN OF WING (W2)



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



(ALL BAR DIMENSIONS ARE OUT TO OUT.)

BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		41'-2"	1120
B2	4	#5	STR	38'-8"	161
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	20	#4		6'-4"	85
S1	44	#4		7'-5"	218
S2	44	#4		3'-2"	93
S3	18	#4		6'-6"	78
U1	4	#4		7'-3"	19
V1	40	#4	STR	3'-10"	102
REINFORCING STEEL				=	2052 LBS
CLASS A CONCRETE					
POUR 1				CAP & LOWER PART OF WINGS	C.Y. 10.9
POUR 2				UPPER PART OF WINGS	C.Y. 1.2
TOTAL					C.Y. 12.1
HP 12 X 53 STEEL PILES					274
				NO. 9 (LIN. FT.)	



WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	6
1			3			TOTAL SHEETS 20
2			4			

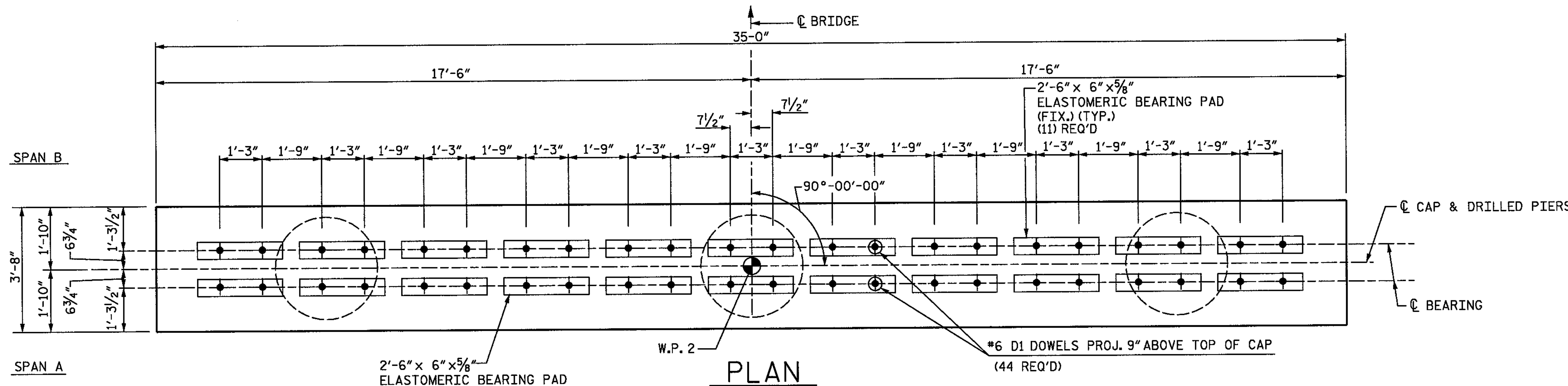
NOTE: NOT TO SCALE

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

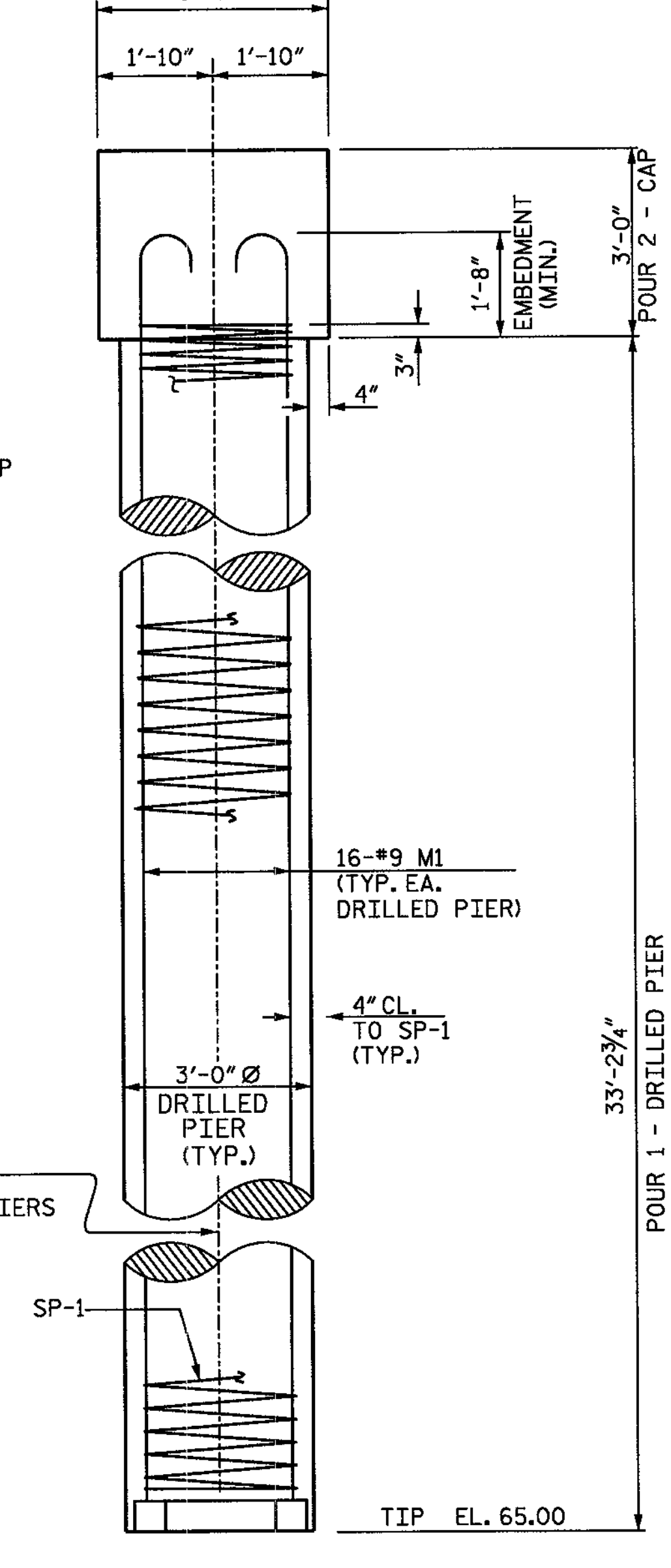
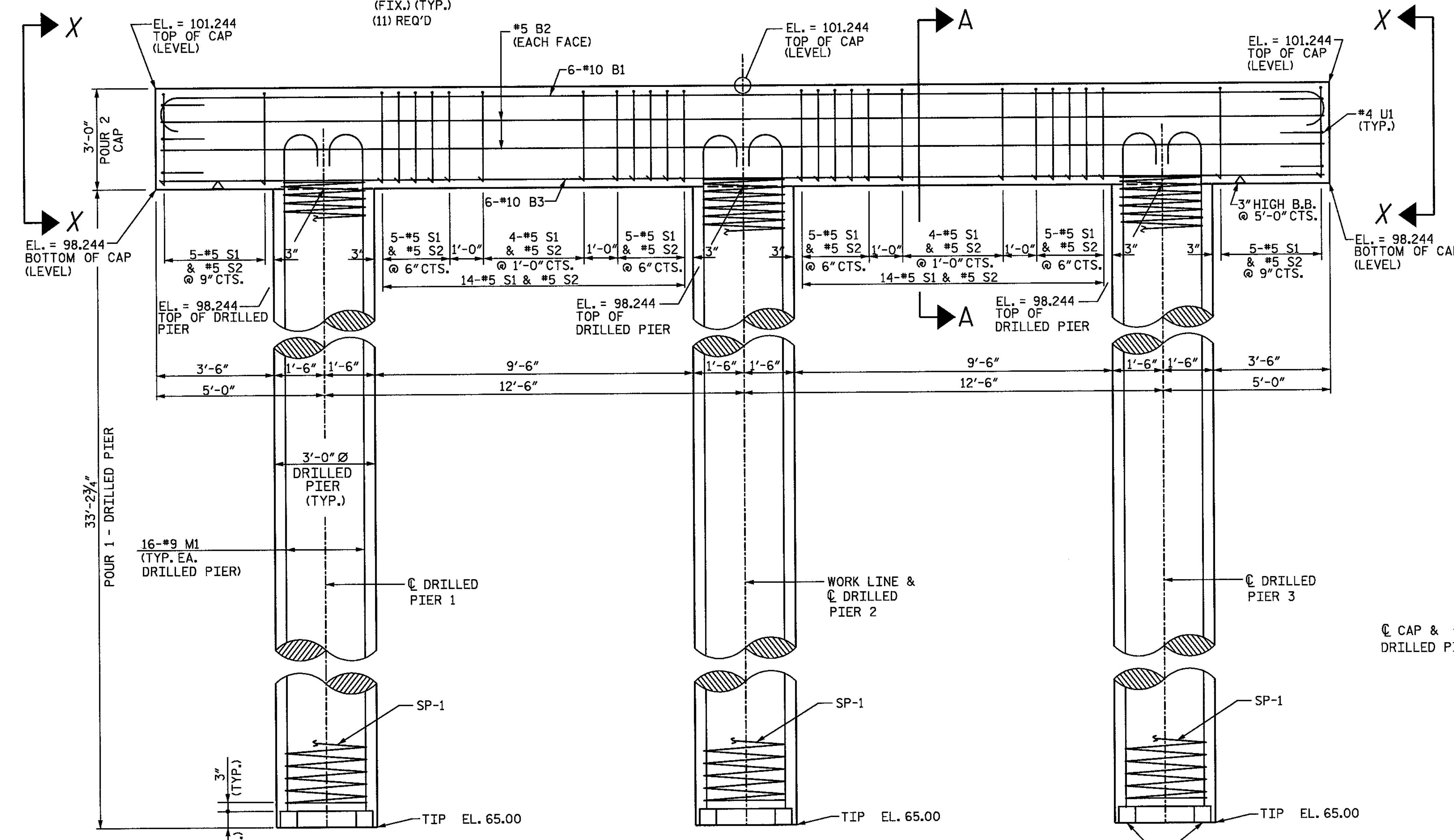
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DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
 CHECKED BY: J.A. DILWORTH DATE: 8/09



NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
 ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEM FOR "PLACEMENT OF SUBSTRUCTURE."
 FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

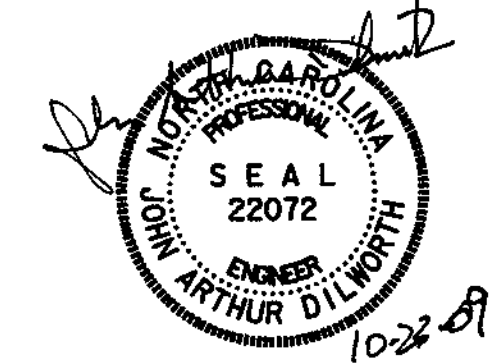


ELEVATION

REINFORCING STEEL AND DIMENSIONS TYPICAL FOR ALL DRILLED PIERS

END ELEVATION

6" x 4" CONCRETE BLOCK (TYP. UNDER EA. M1 BAR)



WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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SUBSTRUCTURE BENT 1

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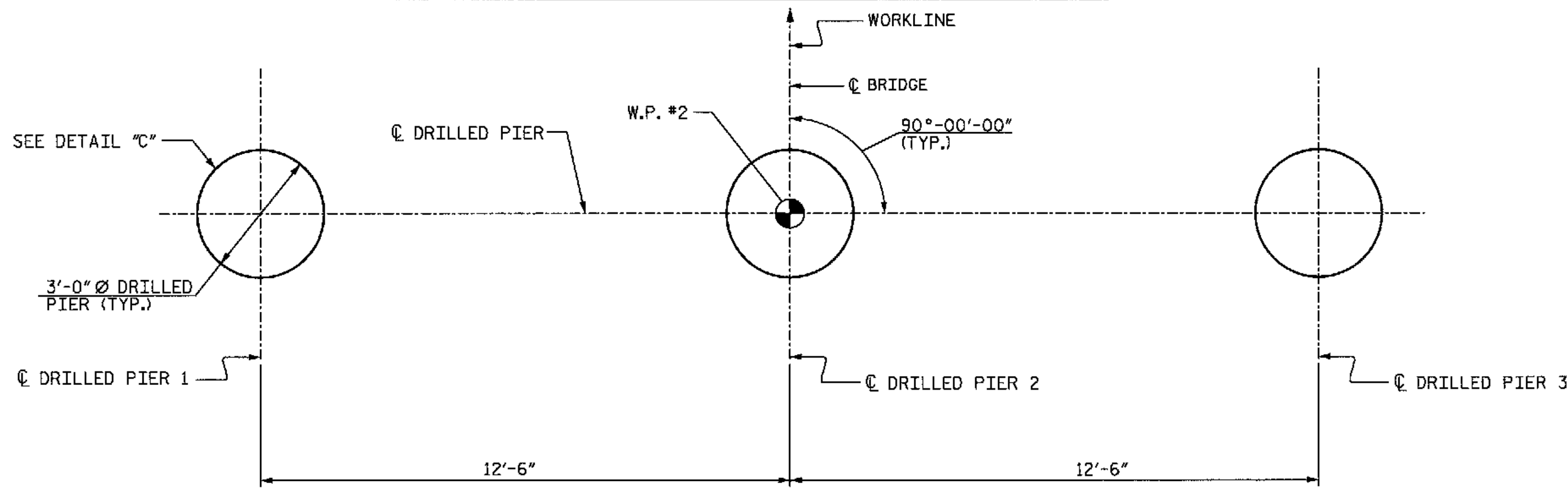
NOTE: NOT TO SCALE

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 CHECKED BY: J.A. DILWORTH DATE: 8/09

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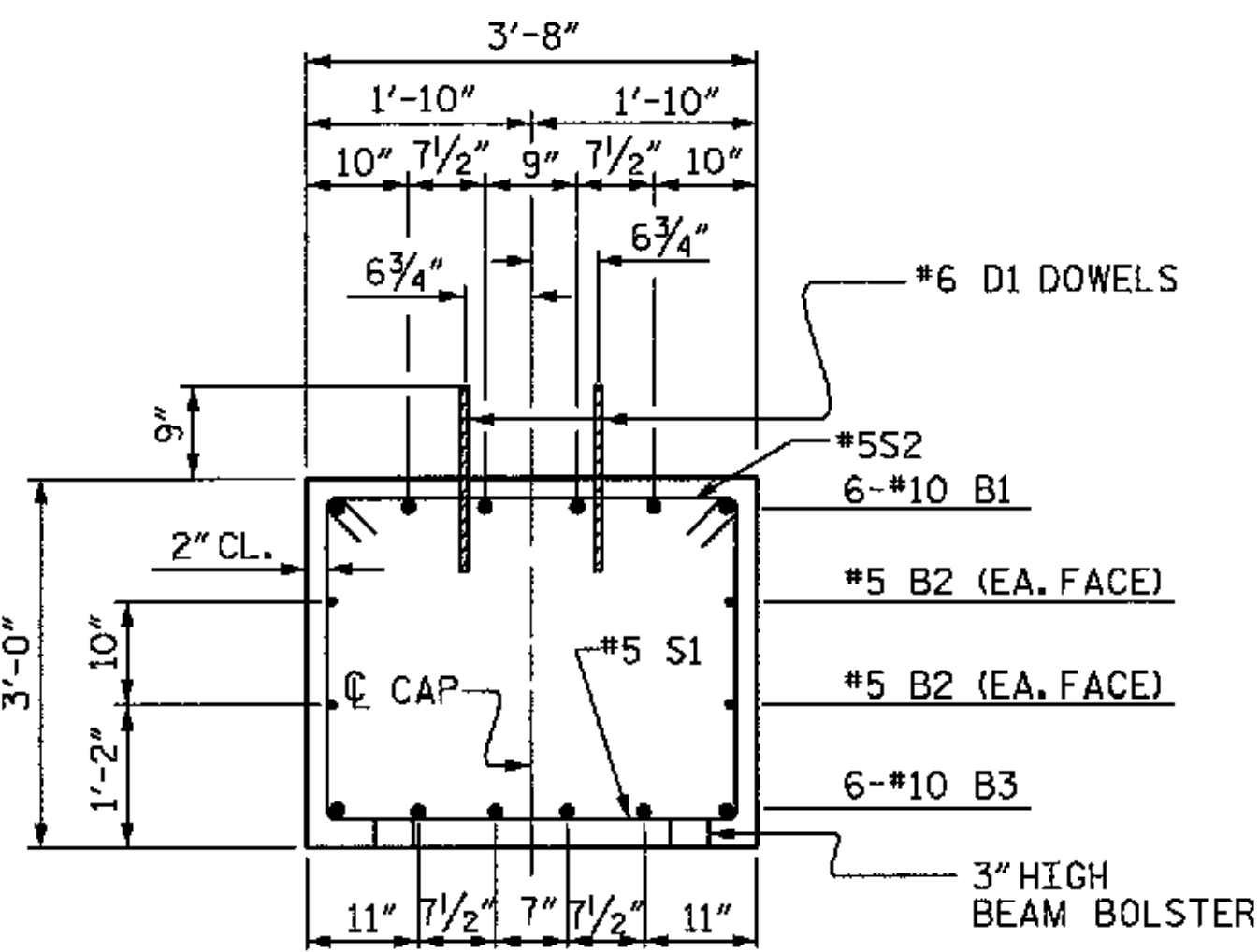
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

TOTAL SHEETS	20
7	

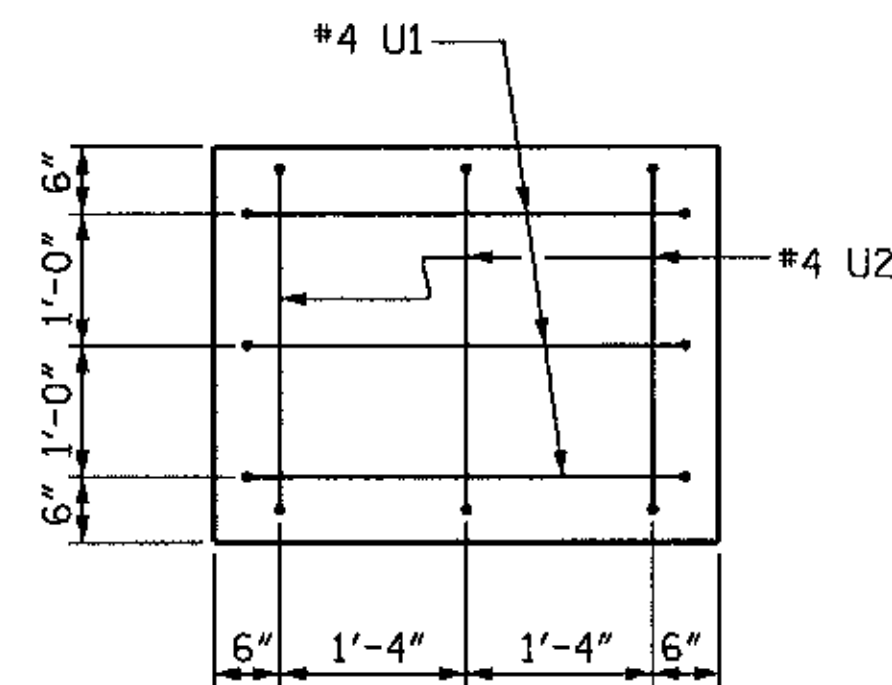


PLAN OF DRILLED PIERS

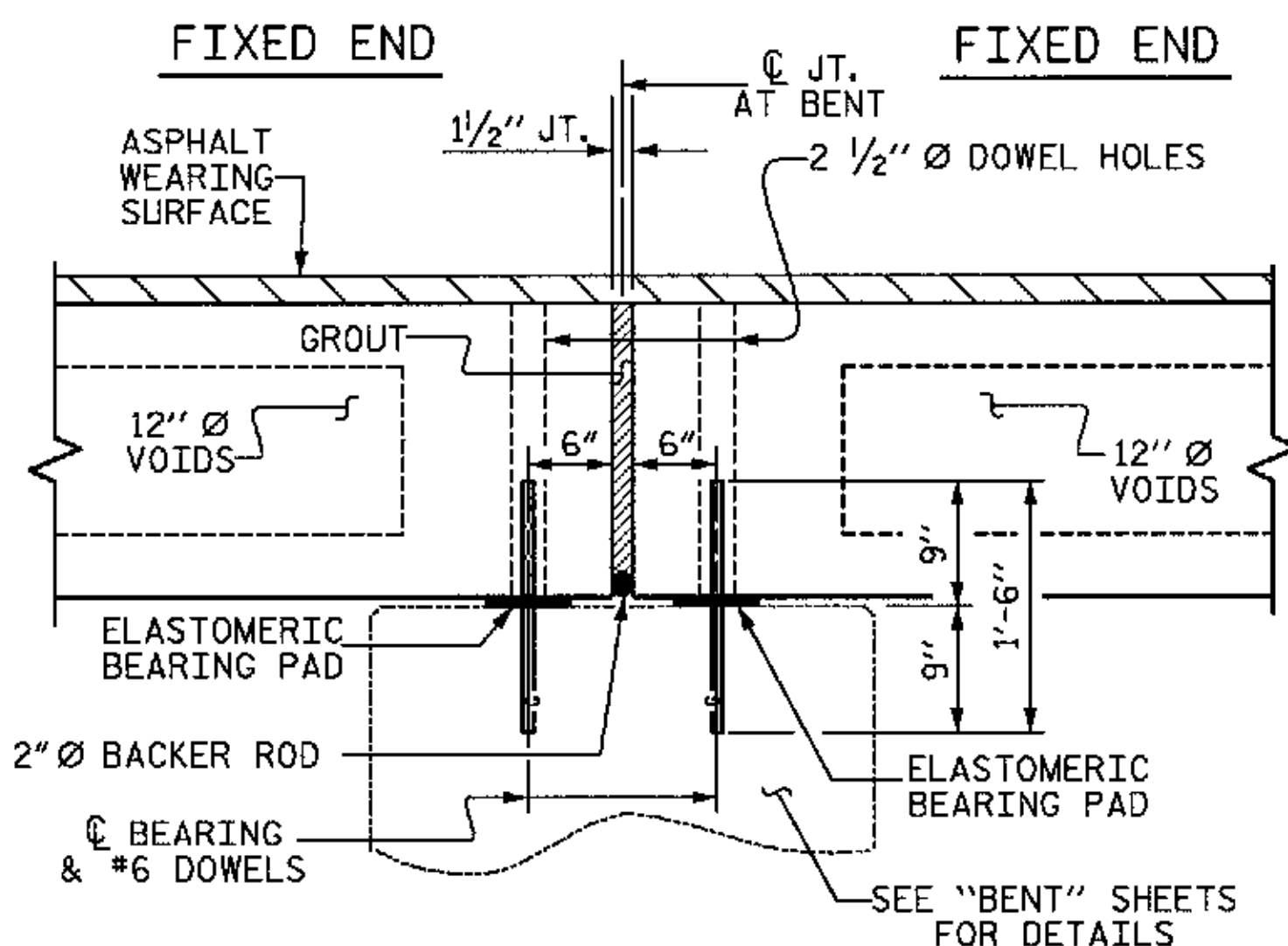
REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS



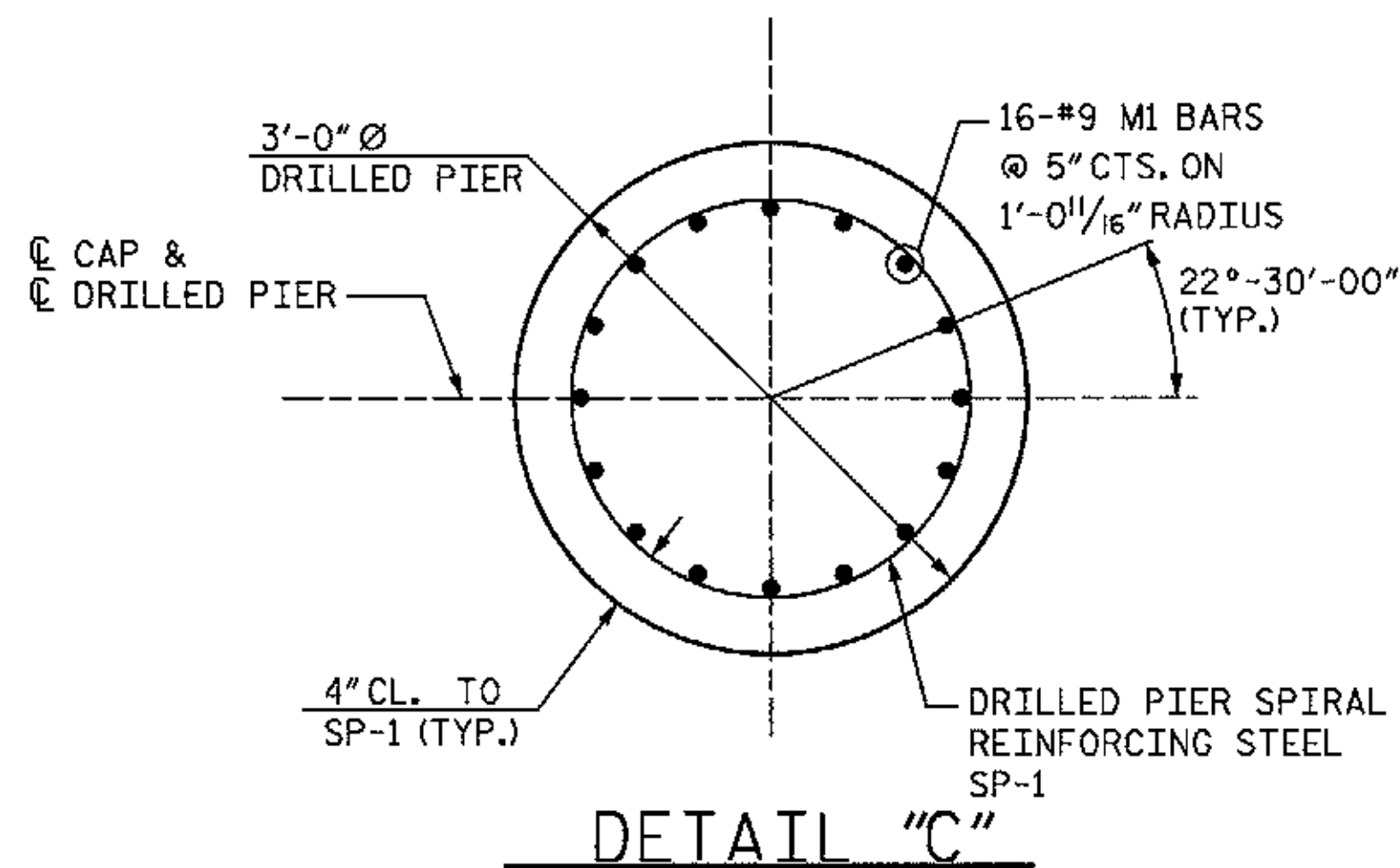
SECTION A-A



SECTION X-X

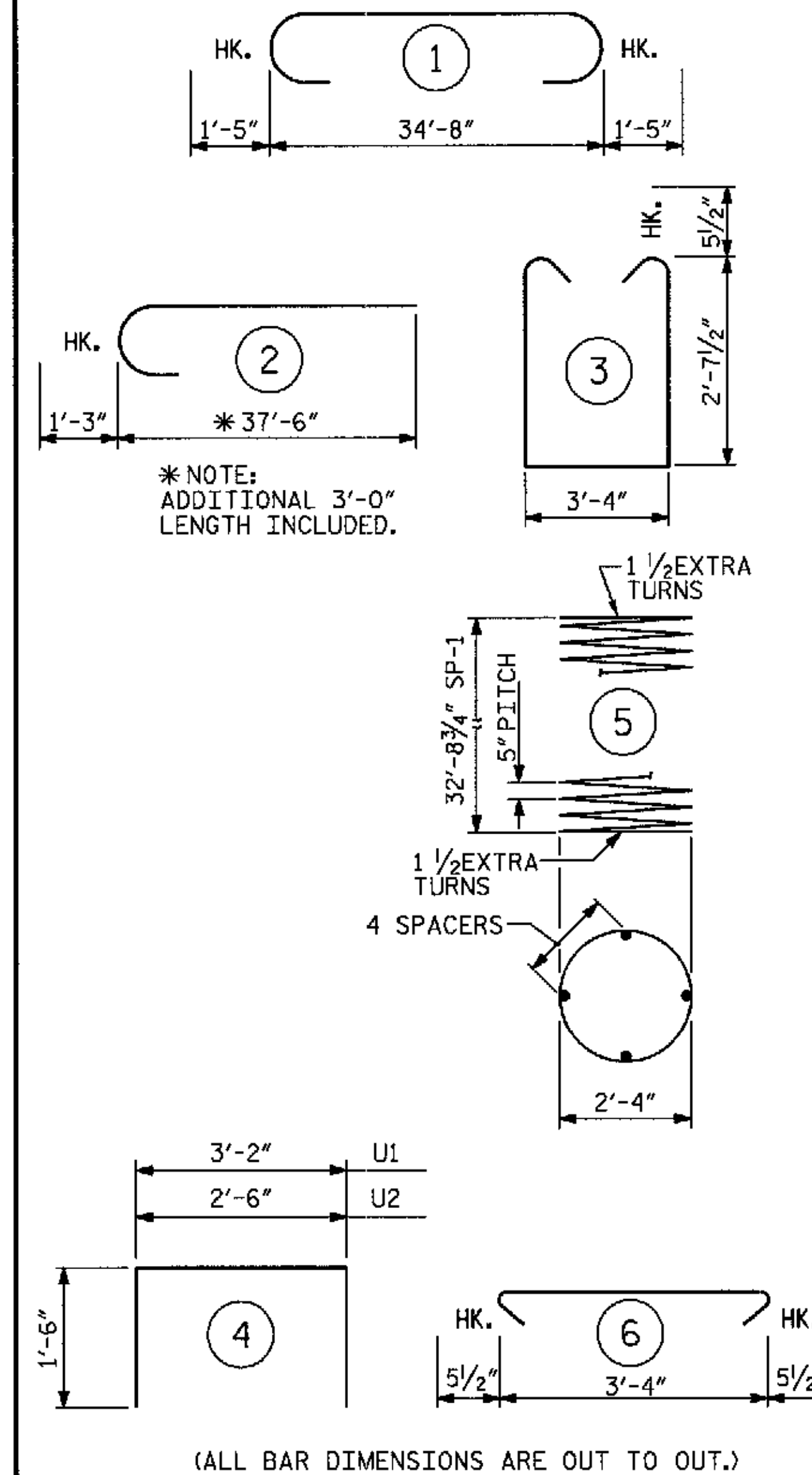


SECTION AT BENT



NOTE: NOT TO SCALE

BAR TYPES



* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

BILL OF MATERIAL

BENT 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	6	#10	1	37'-6"	968
B2	4	#5	STR	34'-8"	145
B3	6	#10	STR	34'-8"	895
D1	44	#6	STR	1'-6"	99
M1	48	#9	2	38'-9"	6324
S1	38	#5	3	9'-6"	377
S2	38	#5	6	4'-3"	168
U1	6	#4	4	6'-2"	25
U2	6	#4	4	5'-6"	22

REINFORCING STEEL 9023 lbs

SP-1	3	*	5	587'-3 ⁵ / ₁₆ "	1838
------	---	---	---	---------------------------------------	------

SPIRAL DRILLED PIER REINFORCING STEEL 1838 lbs

CLASS A CONCRETE BREAKDOWN

POUR 2 (CAP) 14.3 yd³

TOTAL CLASS A CONCRETE 14.3 yd³

3'-0" Ø DRILLED PIERS

DRILLED PIER CONCRETE

POUR 1 (DRILLED PIERS) 26.1 yd³

3'-0" Ø DRILLED PIERS IN SOIL : 81.7 LIN. FT.

3'-0" Ø DRILLED PIERS NOT IN SOIL : 18.0 LIN. FT.



WBS NO. 37018

FRANKLIN COUNTY

STATION: 10+35.000

REPLACES BRIDGE NO. 76

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 1

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. 8
TOTAL SHEETS 20

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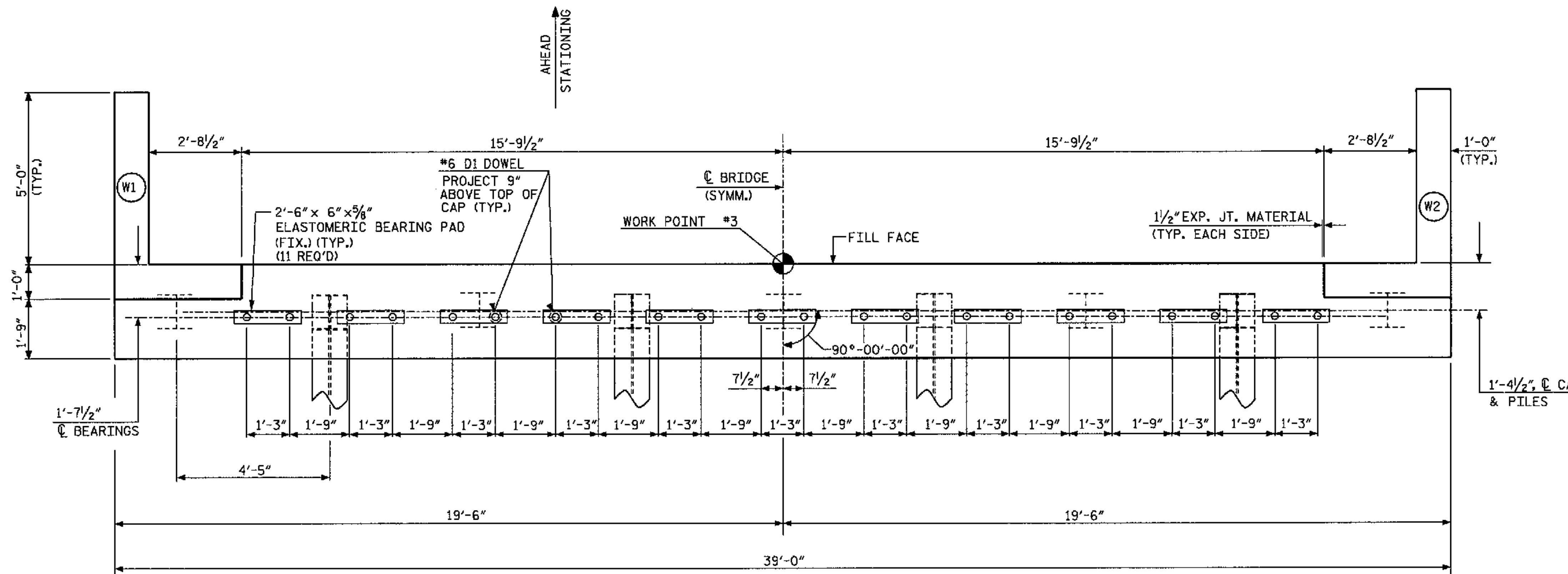
DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
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NOTES:

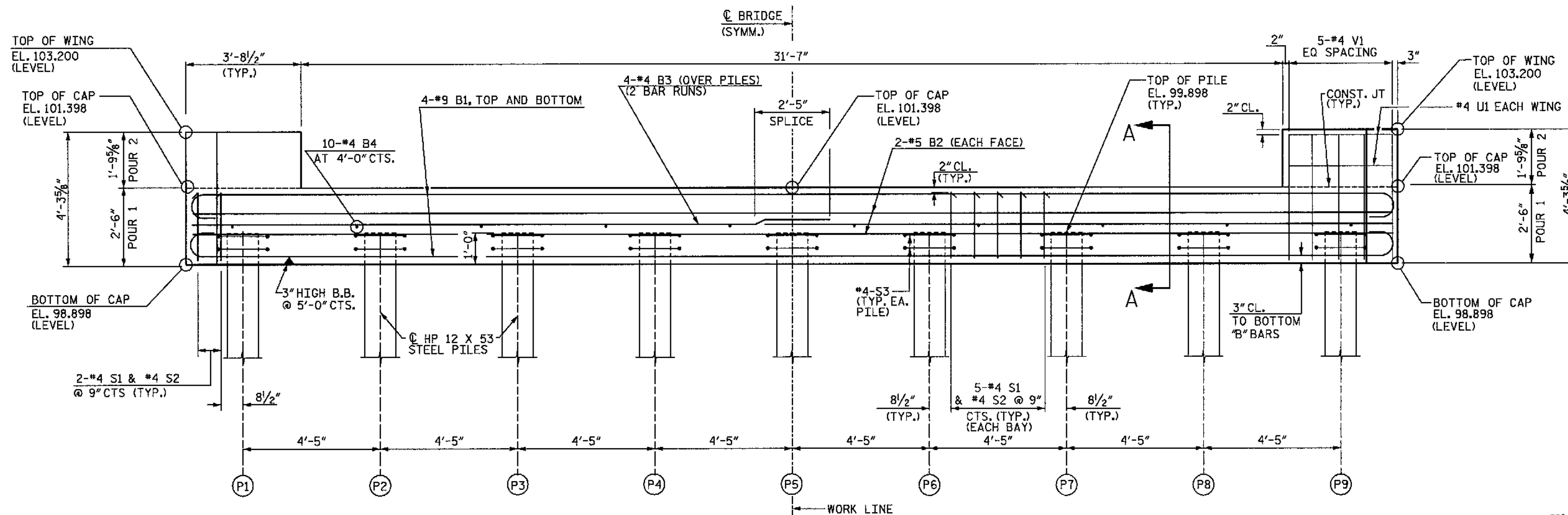
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

FOR SECTION A-A, SEE END BENT 1, SHEET 2 OF 3.

FOR MISC. DETAILS, SEE END BENT 1, SHEET 2 OF 3.



PLAN



ELEVATION



WBS NO. 37018
FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUBSTRUCTURE
 END BENT 2**

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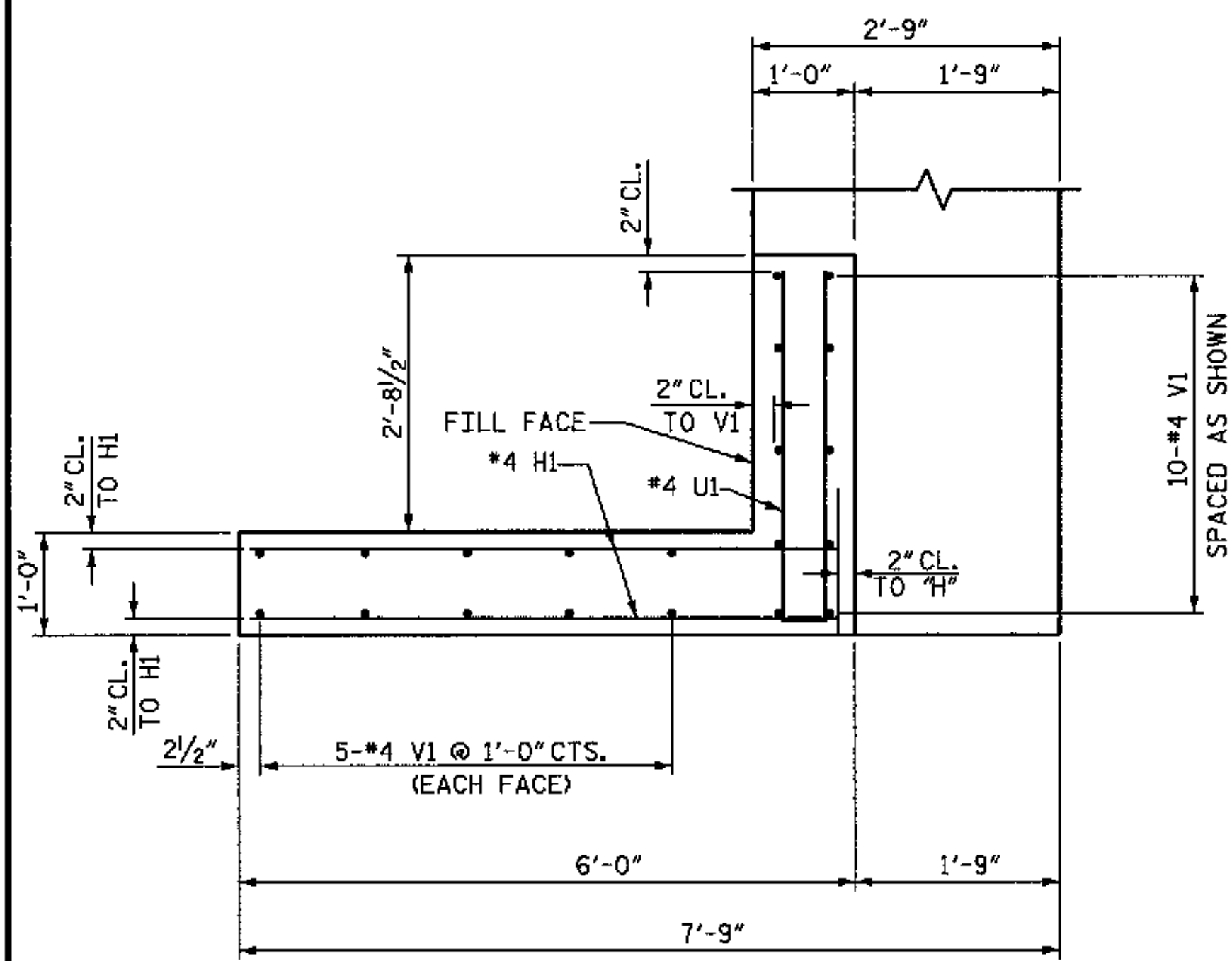
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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

NOTE: NOT TO SCALE

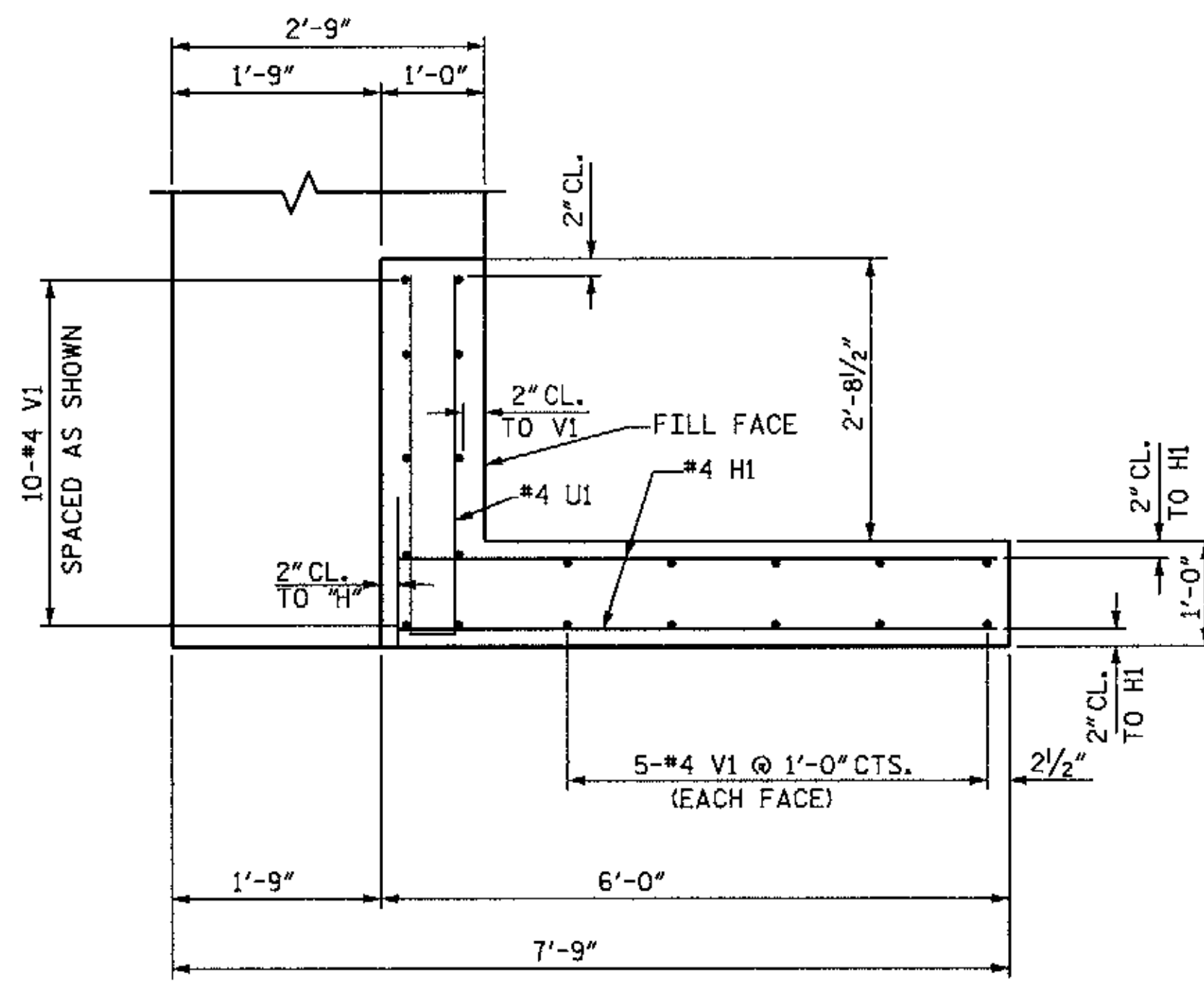
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS 20
2			4			

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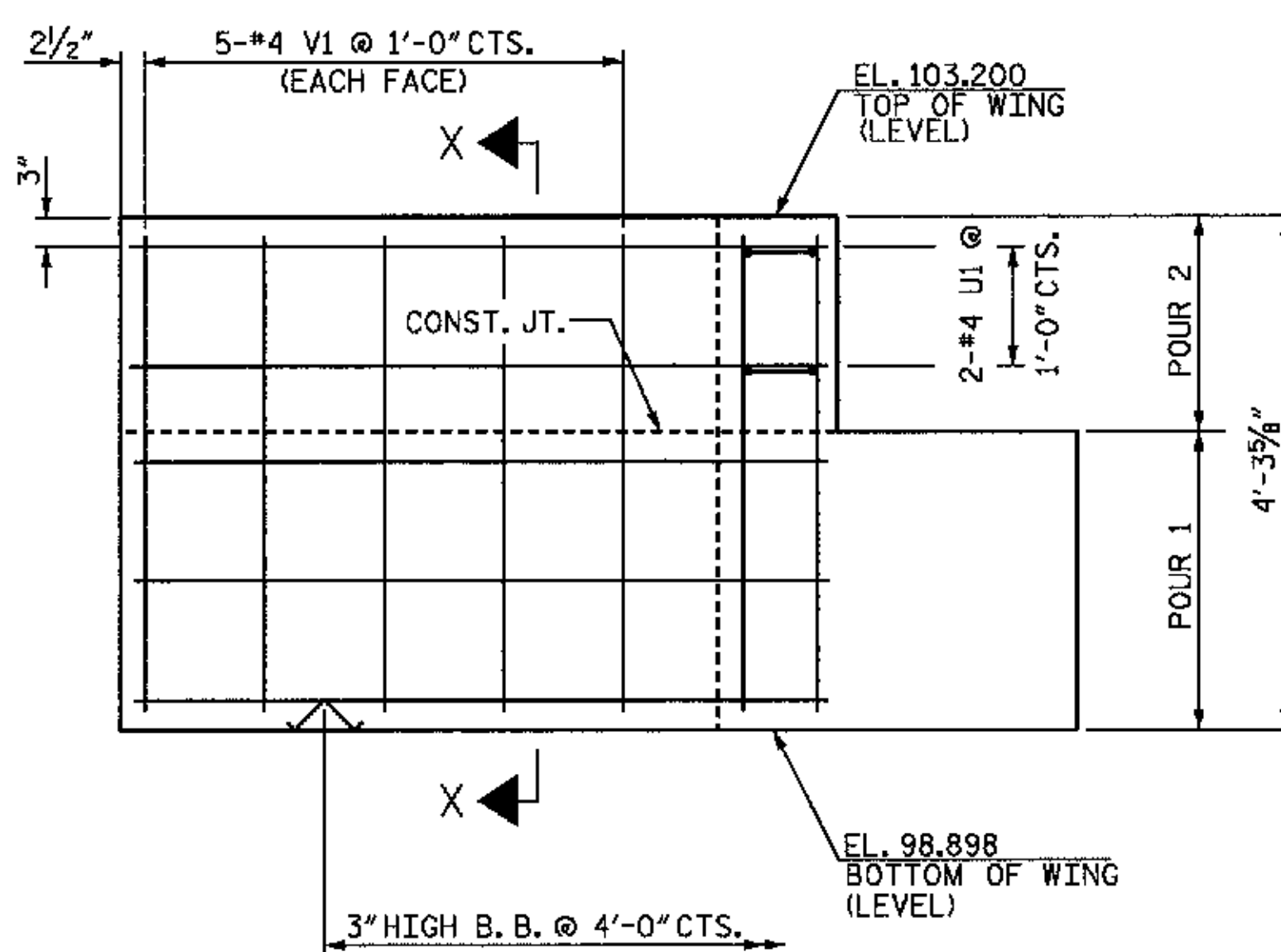
DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
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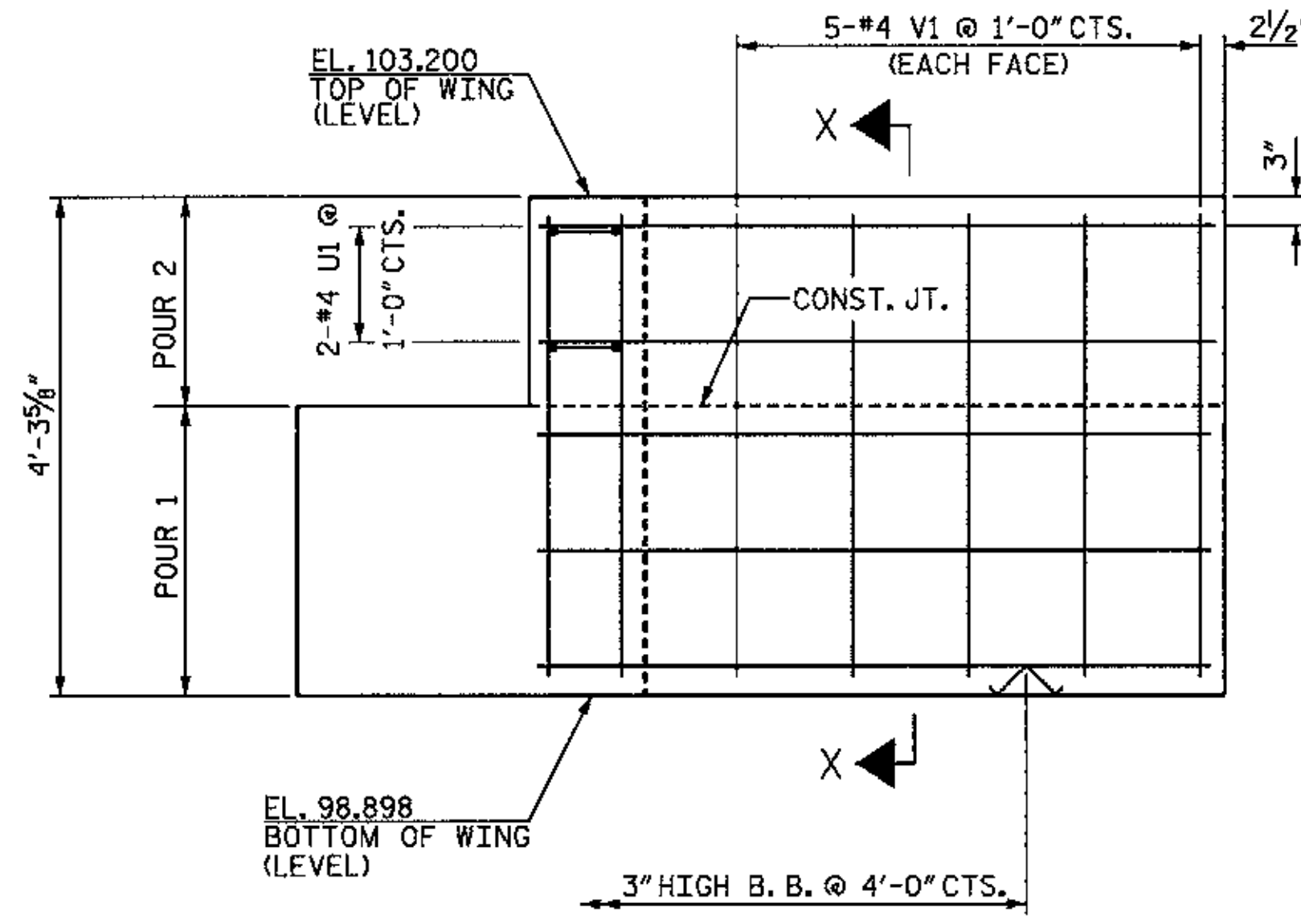
PLAN OF WING (W1)



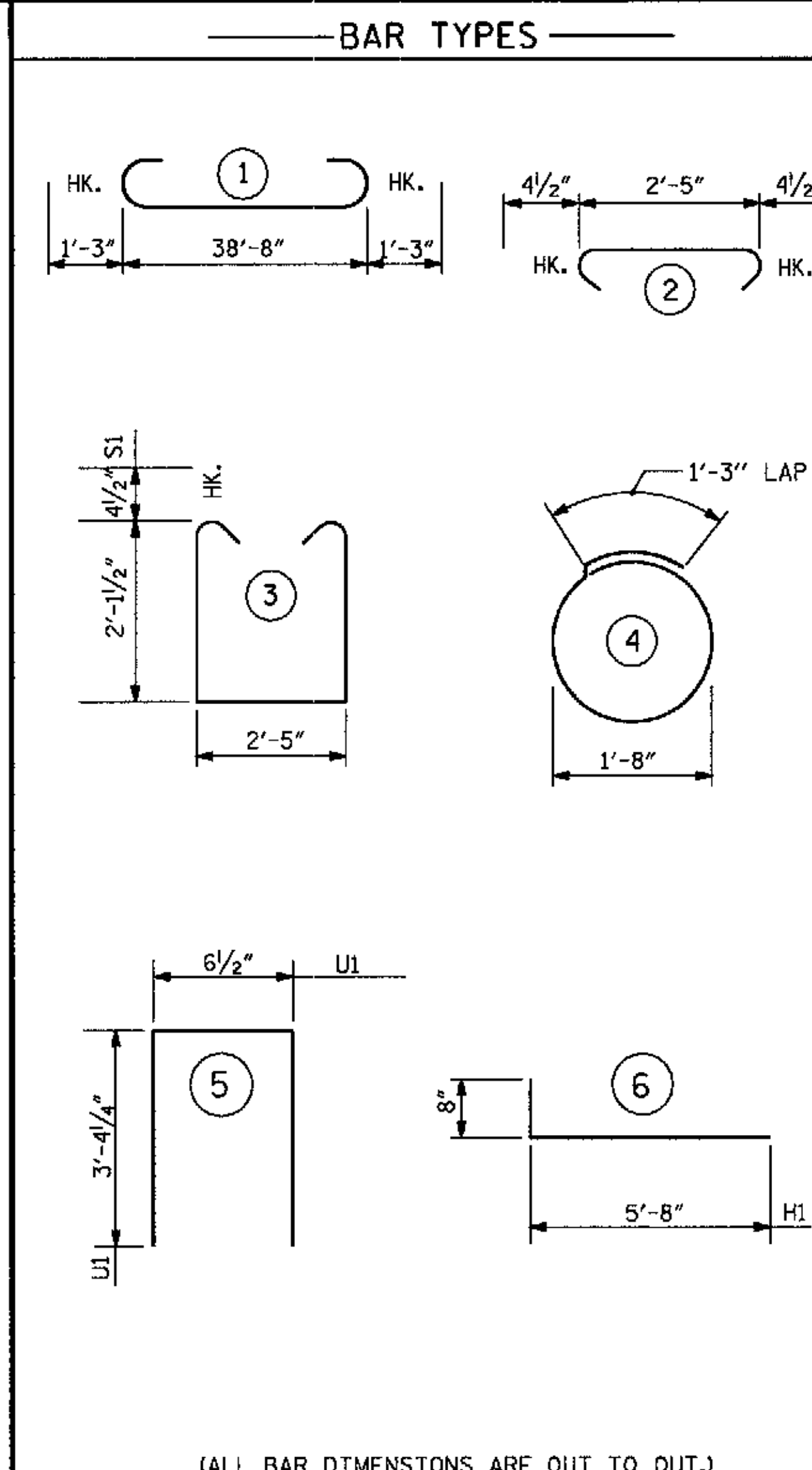
PLAN OF WING (W2)



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



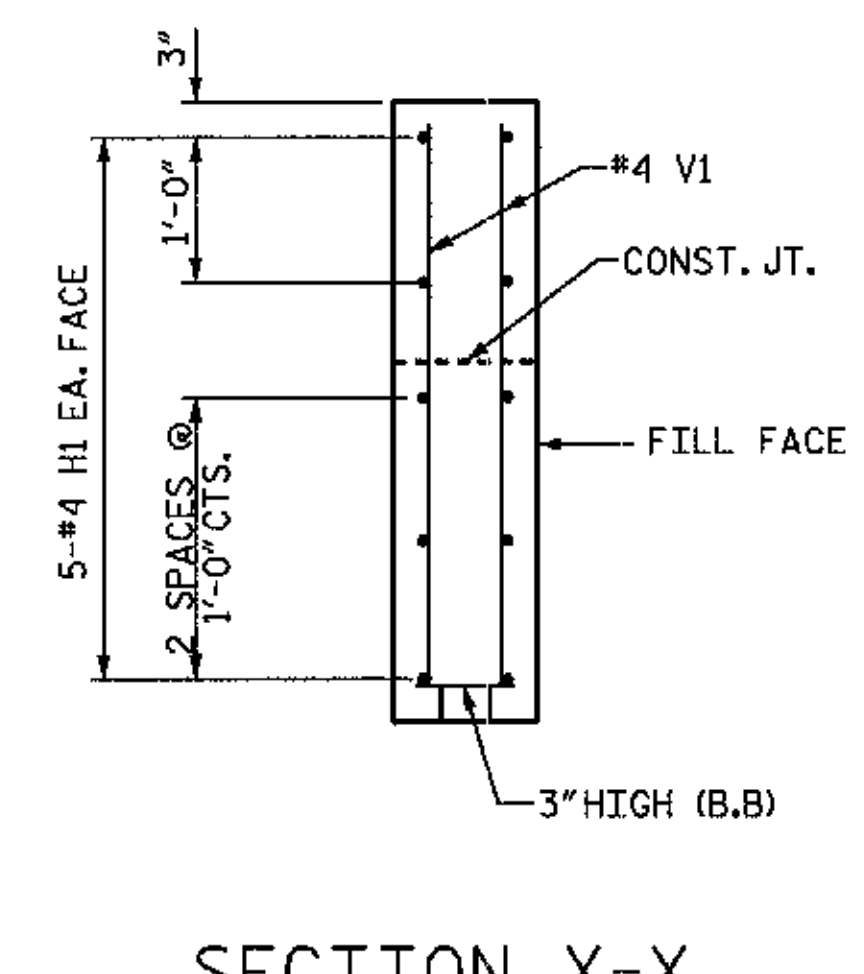
(ALL BAR DIMENSIONS ARE OUT TO OUT.)

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		41'-2"	1120
B2	4	#5	STR	38'-8"	161
B3	8	#4	STR	20'-7"	110
B4	10	#4	STR	2'-5"	16
D1	22	#6	STR	1'-6"	50
H1	20	#4		6'-4"	85
S1	44	#4		7'-5"	218
S2	44	#4		3'-2"	93
S3	18	#4		6'-6"	78
U1	4	#4		7'-3"	19
V1	40	#4	STR	3'-10"	102

REINFORCING STEEL = 2052 LBS
 CLASS A CONCRETE
 POUR 1 CAP & LOWER PART OF WINGS C.Y. 10.9
 POUR 2 UPPER PART OF WINGS C.Y. 1.2
 TOTAL C.Y. 12.1
 HP 12 X 53 STEEL PILES NO. 9 (LIN. FT.) 258



SECTION X-X



WBS NO. 37018
 FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76
 SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					10
					TOTAL SHEETS 20

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY STANDARDS 422.10.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED WITH 4" OF INTERMEDIATE OR SURFACE COURSE ASPHALT.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

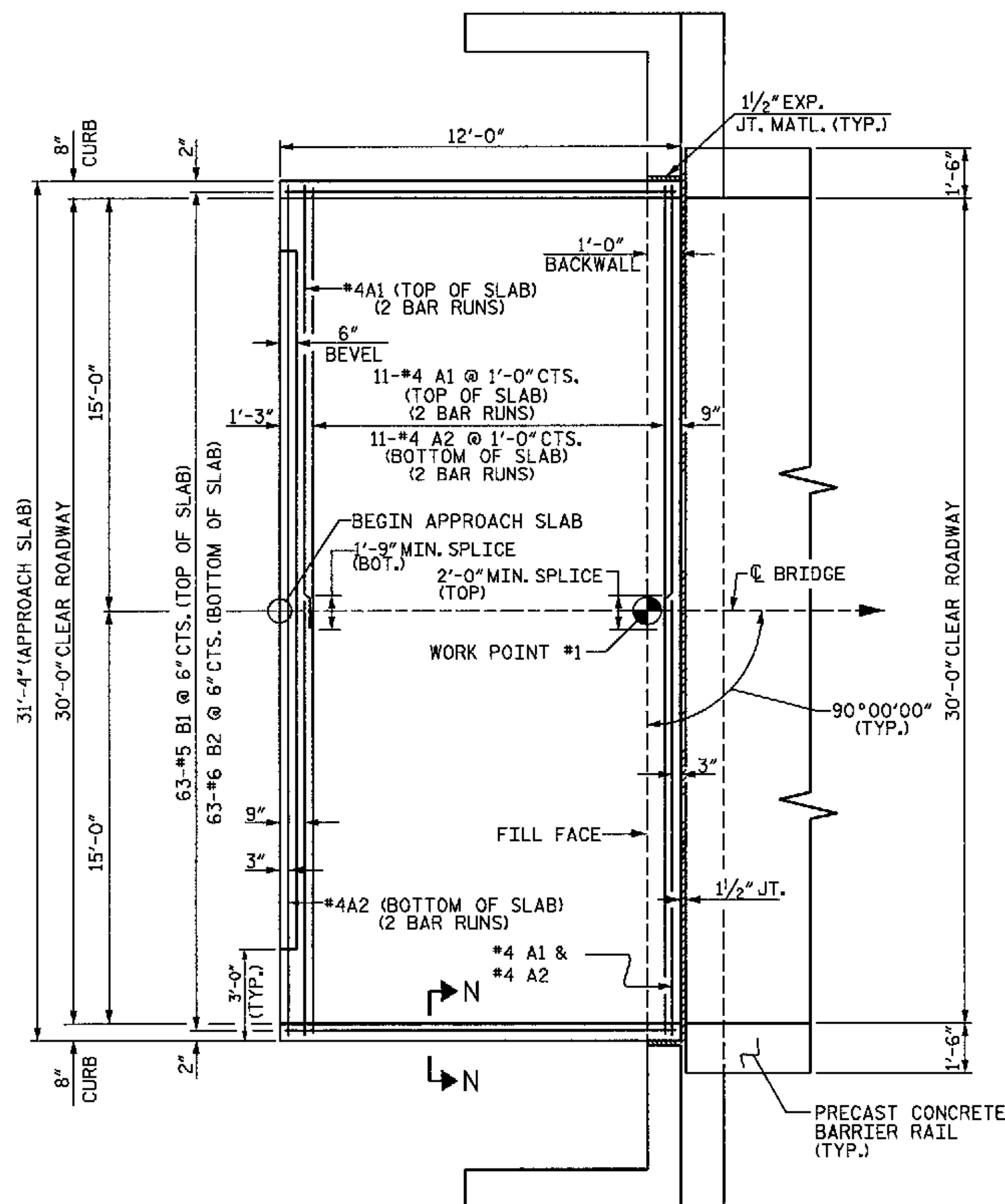
FOR JOINT DETAILS, SEE SHEET NO. 2.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

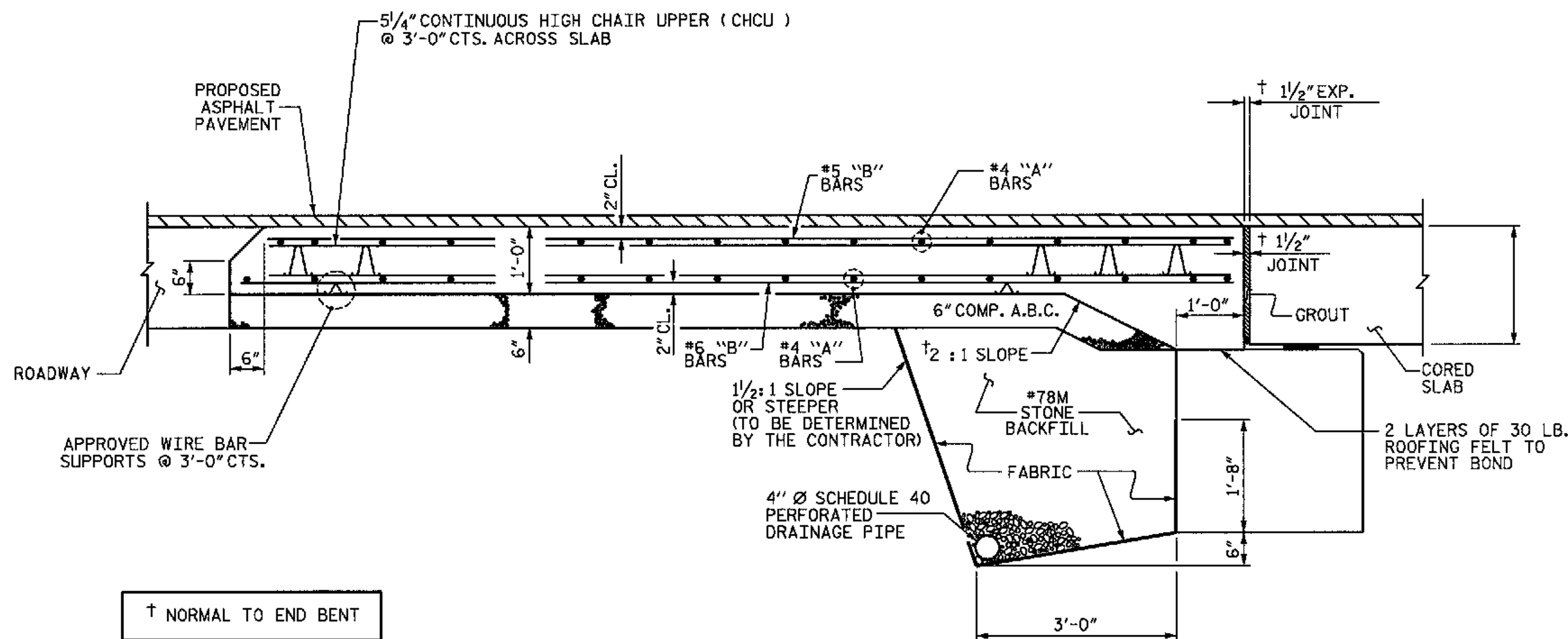
WORK SHOWN ON THIS DRAWING WILL BE PAID UNDER THE LUMP SUM PRICE FOR APPROACH SLABS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR APPROACH SLABS, SEE ROADWAY STANDARD 1622.01.

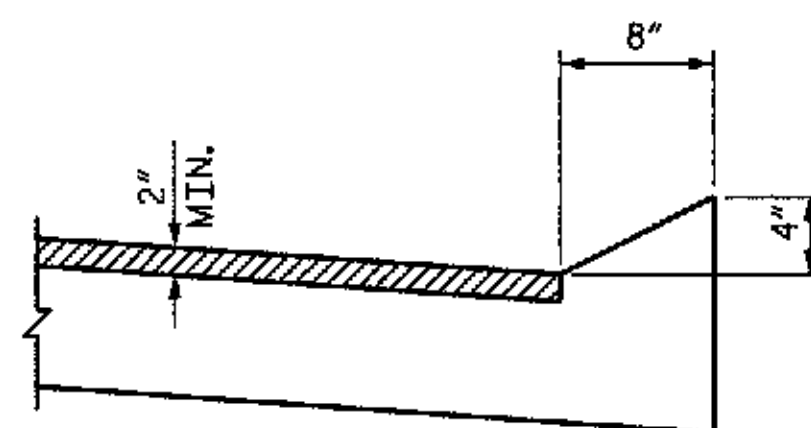


PLAN OF APPROACH SLAB @ END BENT 1

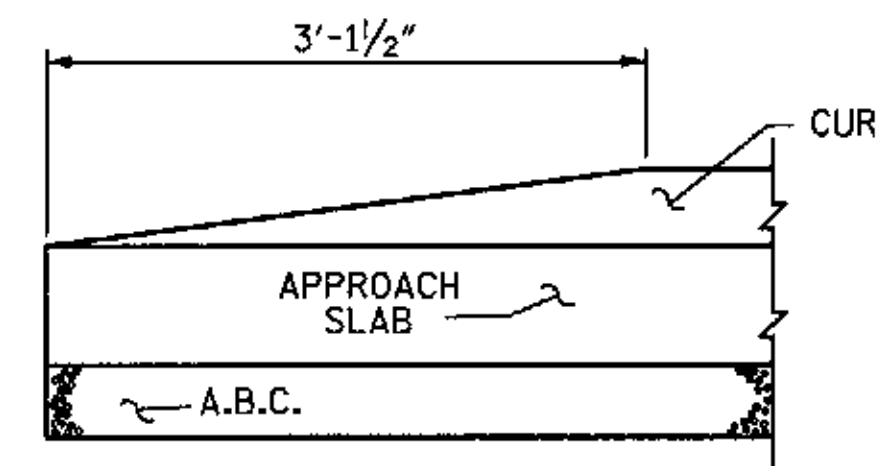
(END BENT 2 SIMILAR)



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	26	#4	STR	16'-6"	287
A2	26	#4	STR	16'-5"	285
* B1	63	#5	STR	11'-2"	734
B2	63	#6	STR	11'-8"	1104

REINFORCING STEEL LBS. 1389

*EPOXY COATED REINFORCING STEEL LBS. 1021

CLASS AA CONCRETE C.Y. 15.5



WBS NO. 37018
FRANKLIN COUNTY
STATION: 10+35.000
REPLACES BRIDGE NO. 76

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB
(SUB-REGIONAL TIER)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			11
2			4			20

NOTE: NOT TO SCALE

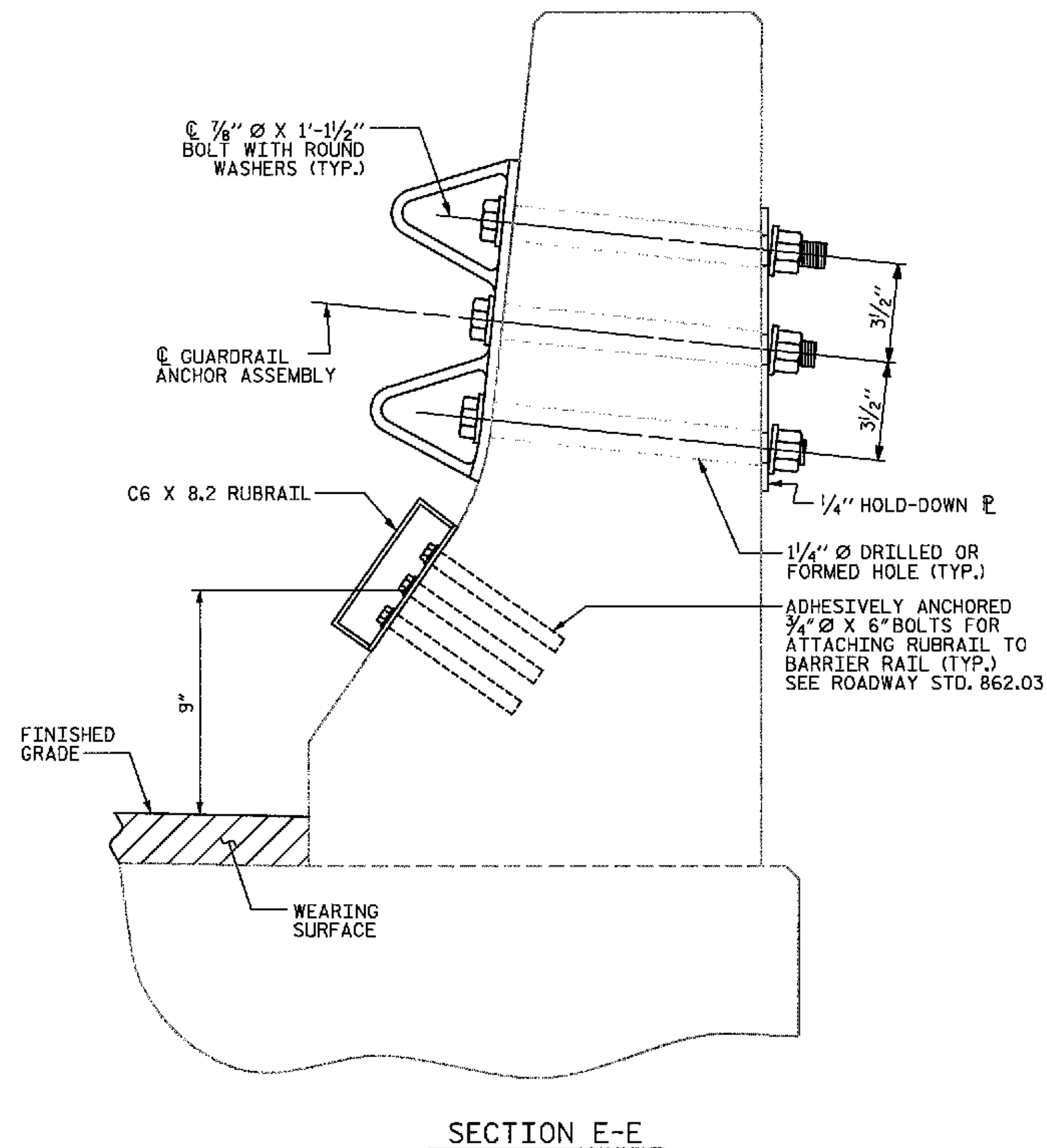
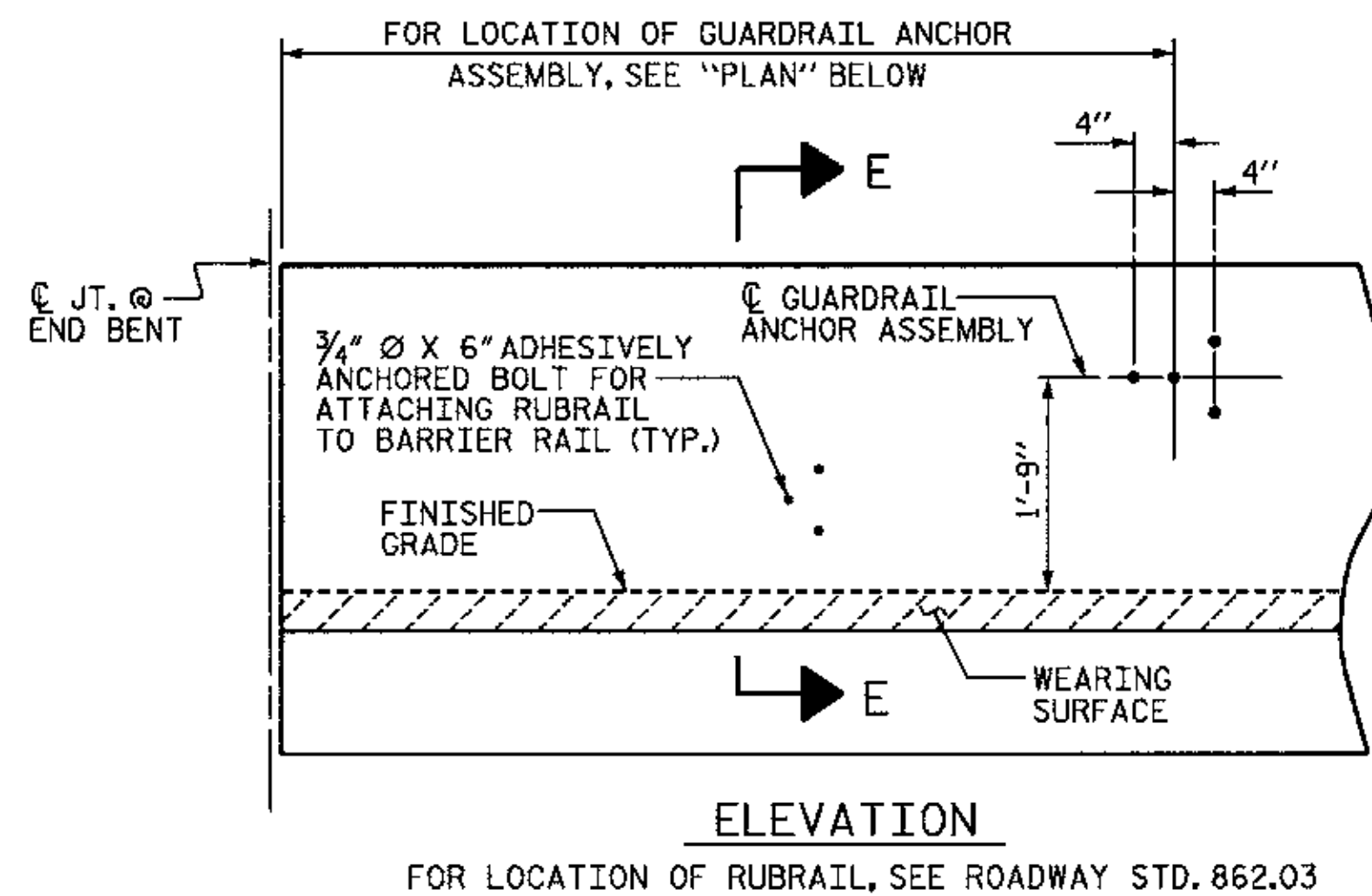
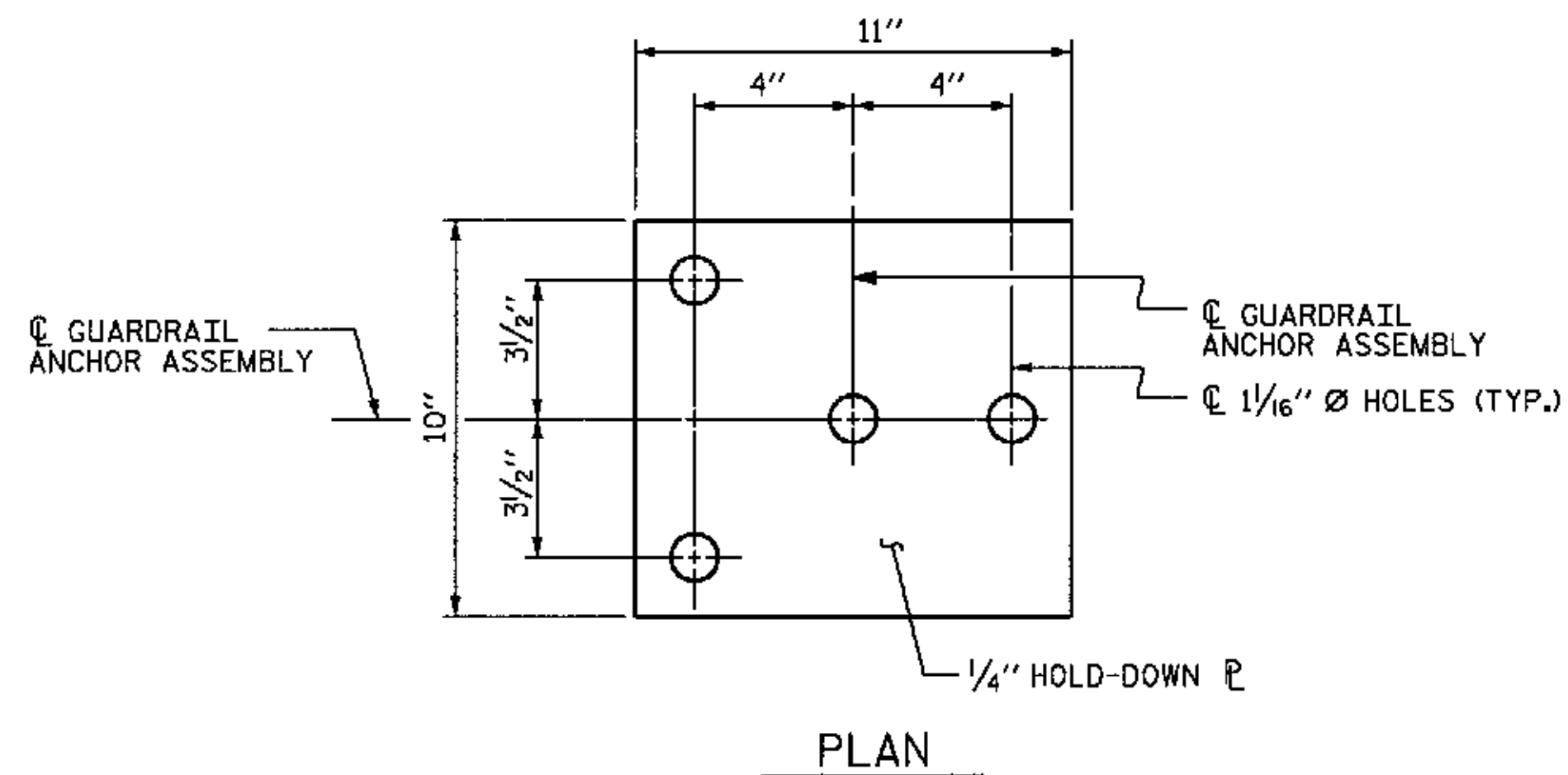
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



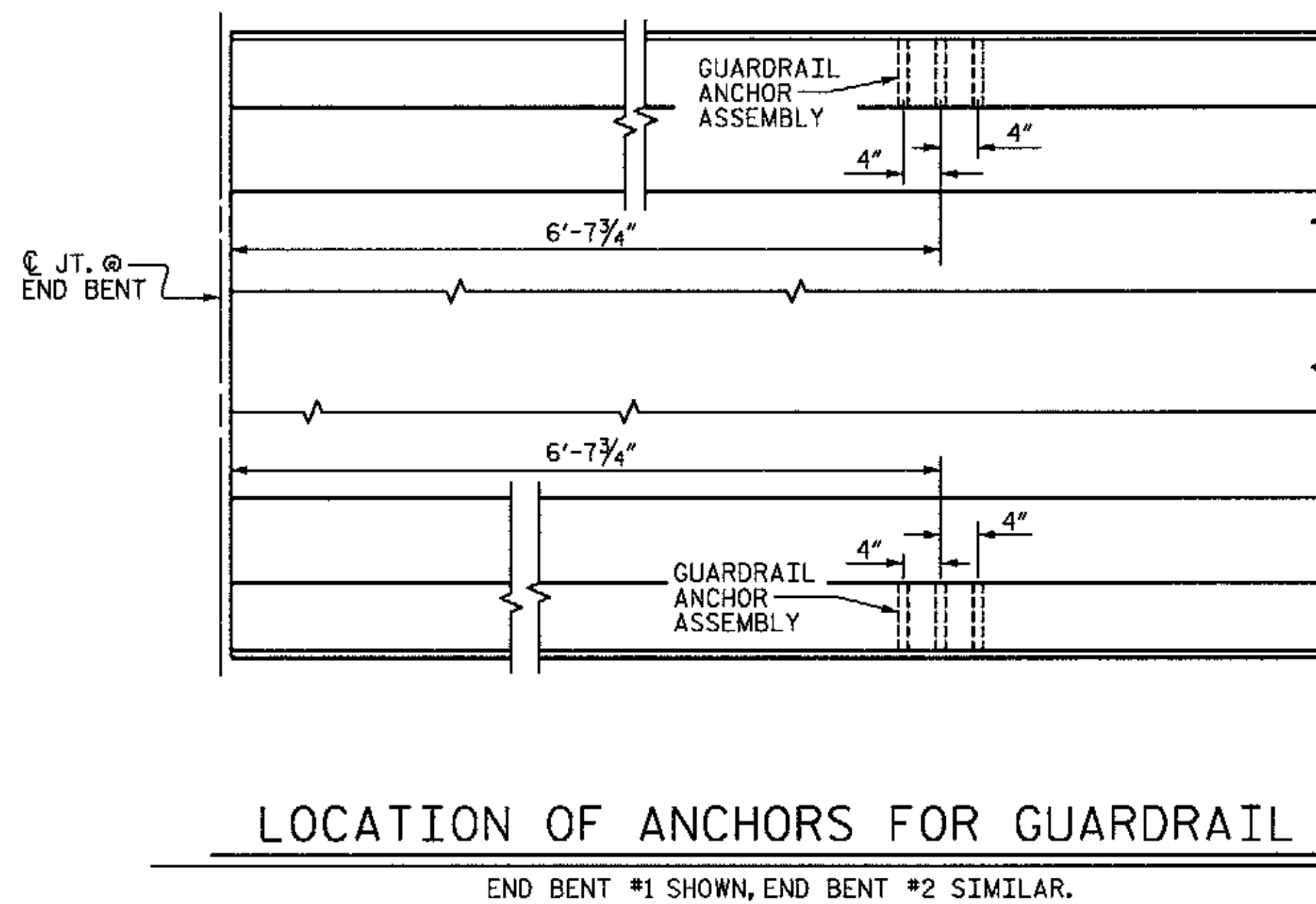
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CHECKED BY: J.A. DILWORTH DATE: 8/09



GUARDRAIL ANCHOR ASSEMBLY DETAILS



NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 4 - 1/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

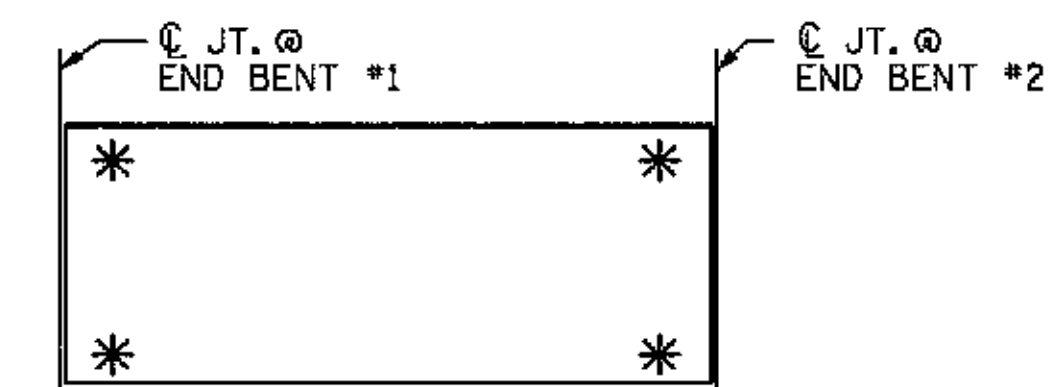
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY



WBS NO. 37018
FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					12
TOTAL SHEETS					20

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 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

EROSION CONTROL PLAN

HORIZONTAL CURVE DATA

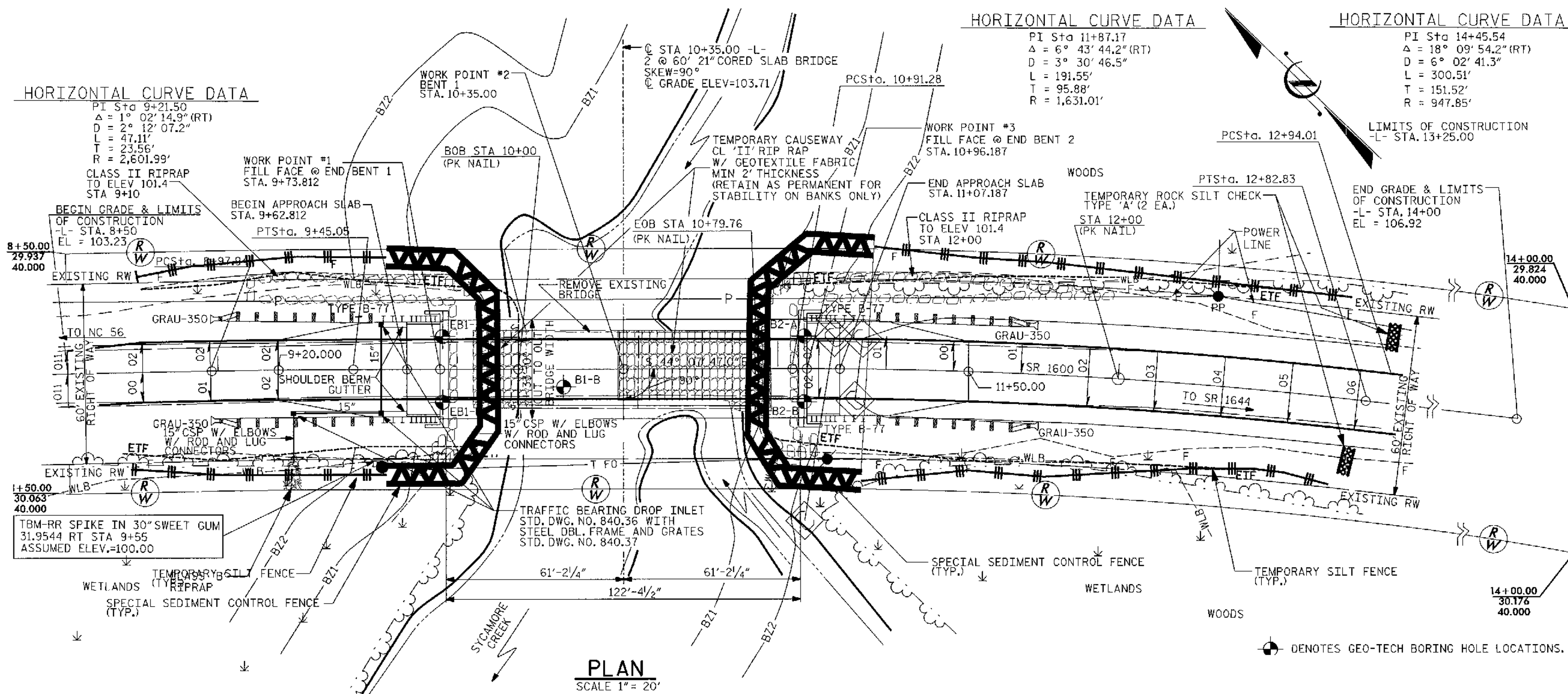
PI Sta 11+87.17
 $\Delta = 6^\circ 43' 44.2''$ (RT)
 $D = 3^\circ 30' 46.5''$
 $L = 191.55'$
 $T = 95.88'$
 $R = 1,631.01'$

HORIZONTAL CURVE DATA

PI Sta 14+45.54
 $\Delta = 18^\circ 09' 54.2''$ (RT)
 $D = 6^\circ 02' 41.3''$
 $L = 300.51'$
 $T = 151.52'$
 $R = 947.85'$

HORIZONTAL CURVE DATA

PI Sta 9+21.50
 $\Delta = 1^\circ 02' 14.9''$ (RT)
 $D = 2^\circ 12' 07.2''$
 $L = 47.11'$
 $T = 23.56'$
 $R = 2,601.99'$
 CLASS II RIPRAP
 TO ELEV 101.4
 STA 9+10



PLAN
 SCALE 1" = 20'

CONSTRUCTION SEQUENCE

1. ACCESS AND MOBILIZATION: STABILIZE BARE AREAS IMMEDIATELY WITH TEMPORARY VEGETATION AND/OR GRAVEL AS CONSTRUCTION TAKES PLACE.
2. INSTALL SILT FENCE. SILT FENCE SHALL BE INSTALLED UP TO THE EXISTING BRIDGE ABUTMENTS TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE. SILT FENCE SHALL BE INSTALLED AT THE PERIMETER OF DISTURBED AREAS.
3. PROCEED WITH CONSTRUCTION OF THE NEW BRIDGE. ADDITIONAL GRAVEL STABILIZATION OR SILT FENCE MAY BE REQUIRED BEHIND THE OLD ABUTMENTS WHEN THE OLD BRIDGE IS REMOVED AND BEFORE THE NEW BRIDGE IS INSTALLED.
4. MAINTENANCE INSPECTIONS SHALL BE PERFORMED WEEKLY AND AFTER PERIODS OF RAINFALL. REPAIRS SHALL BE MADE IMMEDIATELY.
5. ONCE THE SITE IS STABILIZED, REMOVE ALL EROSION CONTROL DEVICES.

NOTE: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.
 2006 STANDARD SPECIFICATIONS

WBS NO. 37018
FRANKLIN COUNTY
 STATION: 10+35.000
 REPLACES BRIDGE NO. 76

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	485 LF
1606.01	Special Sediment Control Fence	260 LF
1632.03	Rock Inlet Sediment Trap Type C	3
1633.01	Temporary Rock Silt Check Type A	2

NOTE: NOT TO SCALE

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



559 Jones Franklin Rd. Suite 164
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BRIDGE # 76 ON SR 1600
 OVER SYCAMORE CREEK**

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 20

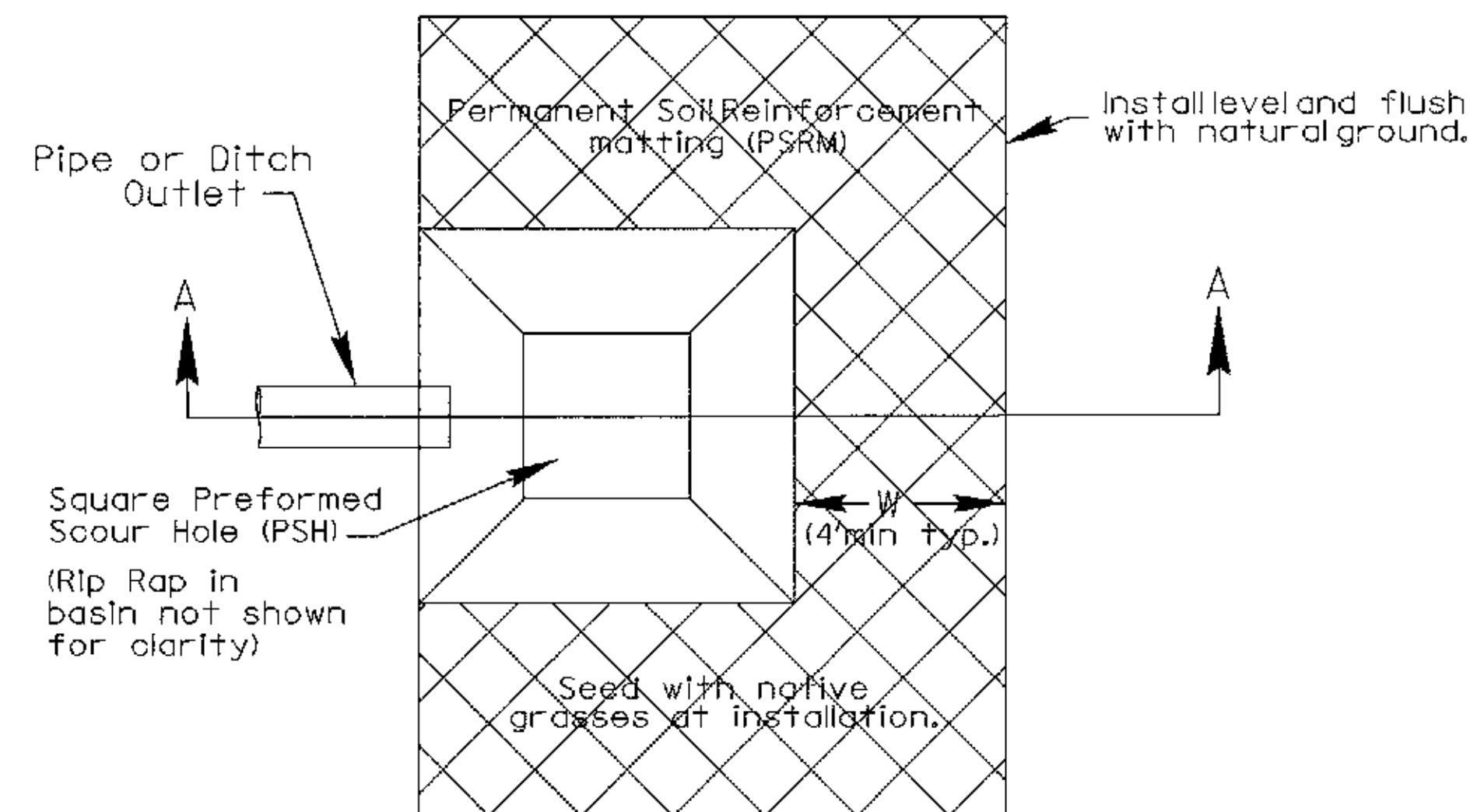
\$FILE\$ \$DATE\$ \$TIME\$

DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
 CHECKED BY: J.A. DILWORTH DATE: 8/09

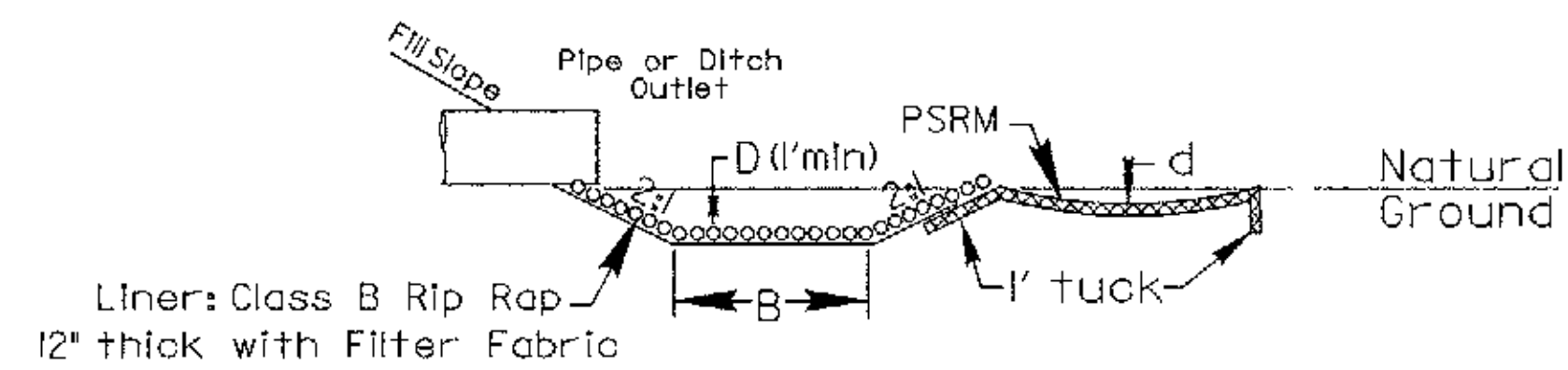
PREFORMED SCOUR HOLE

(Not to scale)

PLAN VIEW



SECTION A-A



NOTE: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
2006 STANDARD SPECIFICATIONS

STATION	B FT.	D FT.	W FT.	d FT.	CLASS 'B' RIP RAP TONS	PSRM SQ. FT.	FILTER FABRIC SQ. FT.
	4	1	4	1	3	12	8

WBS NO. 37018
FRANKLIN COUNTY
STATION: 10+35.000
REPLACES BRIDGE NO. 76

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE # 76 ON SR 1600
OVER SYCAMORE CREEK



559 Jones Franklin Rd. Suite 164
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NOTE: NOT TO SCALE

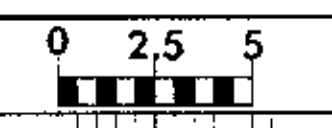
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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DRAWN BY: J.C. PENDERGRAFT DATE: 8/09
CHECKED BY: J.A. DILWORTH DATE: 8/09

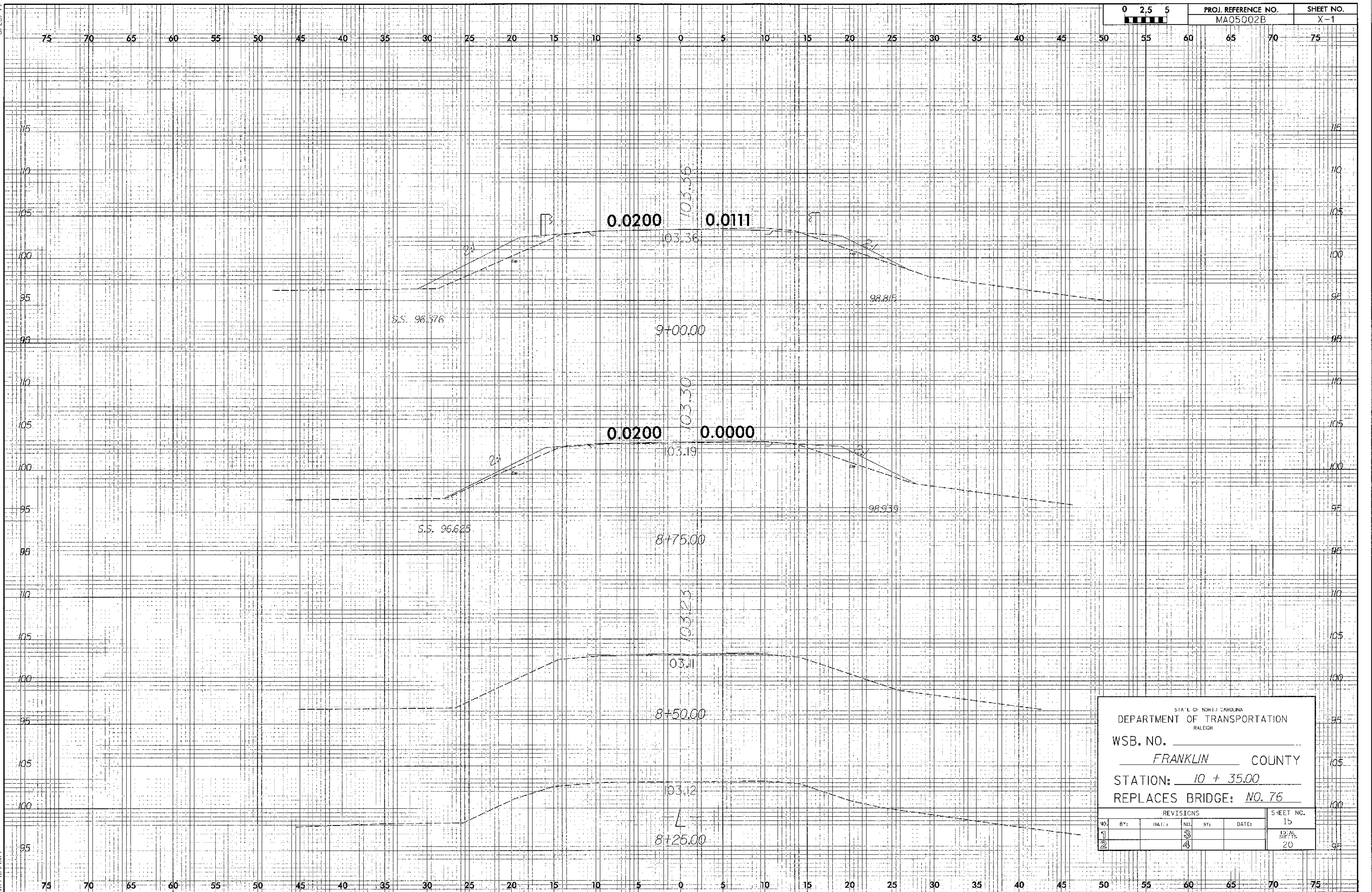
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8/23/99



PROJ. REFERENCE NO.
MA05002B

SHEET NO.
X-1



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

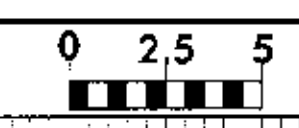
WSB. NO. _____
FRANKLIN COUNTY

STATION: 10 + 35.00
REPLACES BRIDGE: NO. 76

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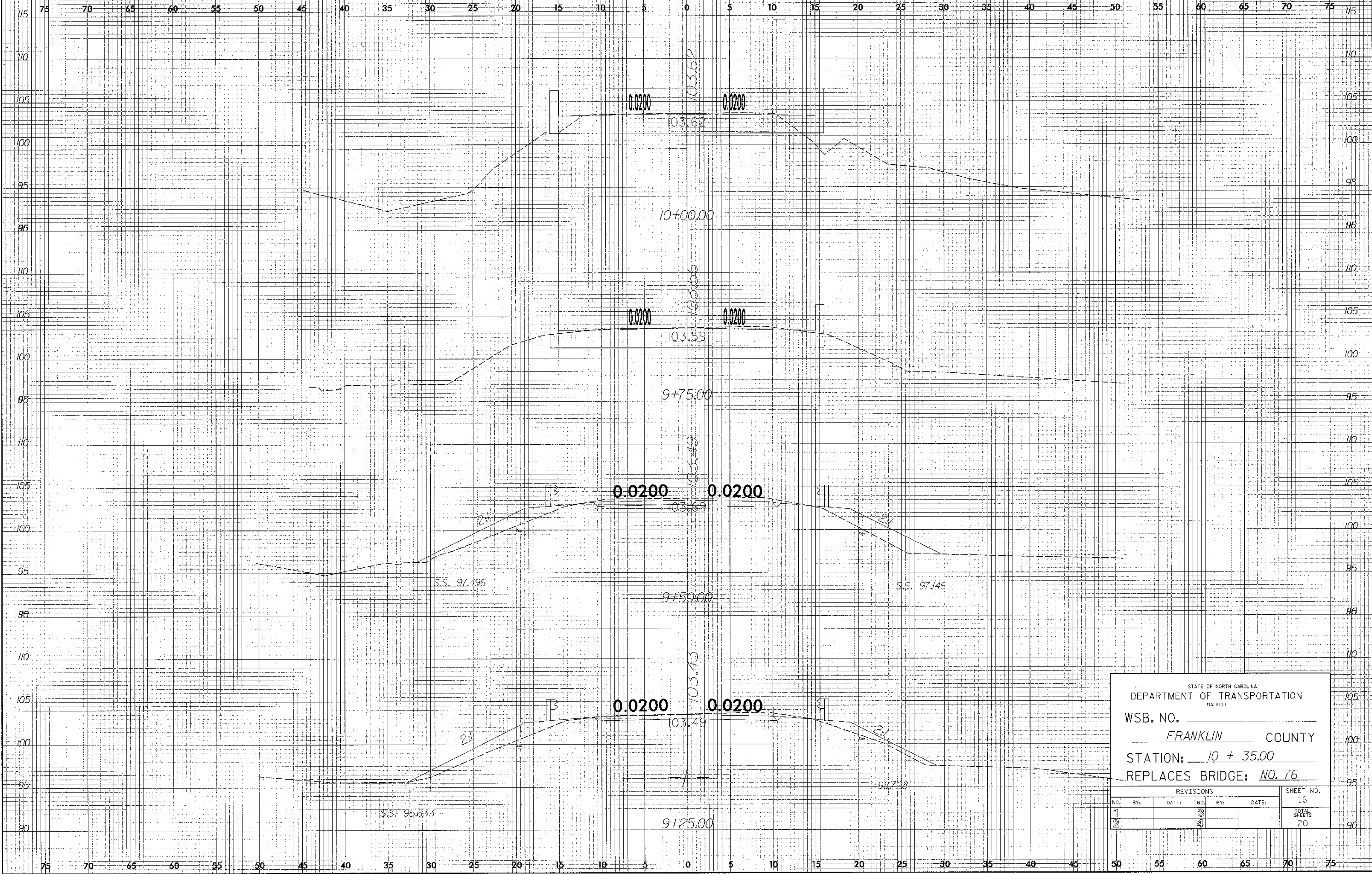
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S/23/90



PROJ. REFERENCE NO.
MA05002B

SHEET NO.
X-2



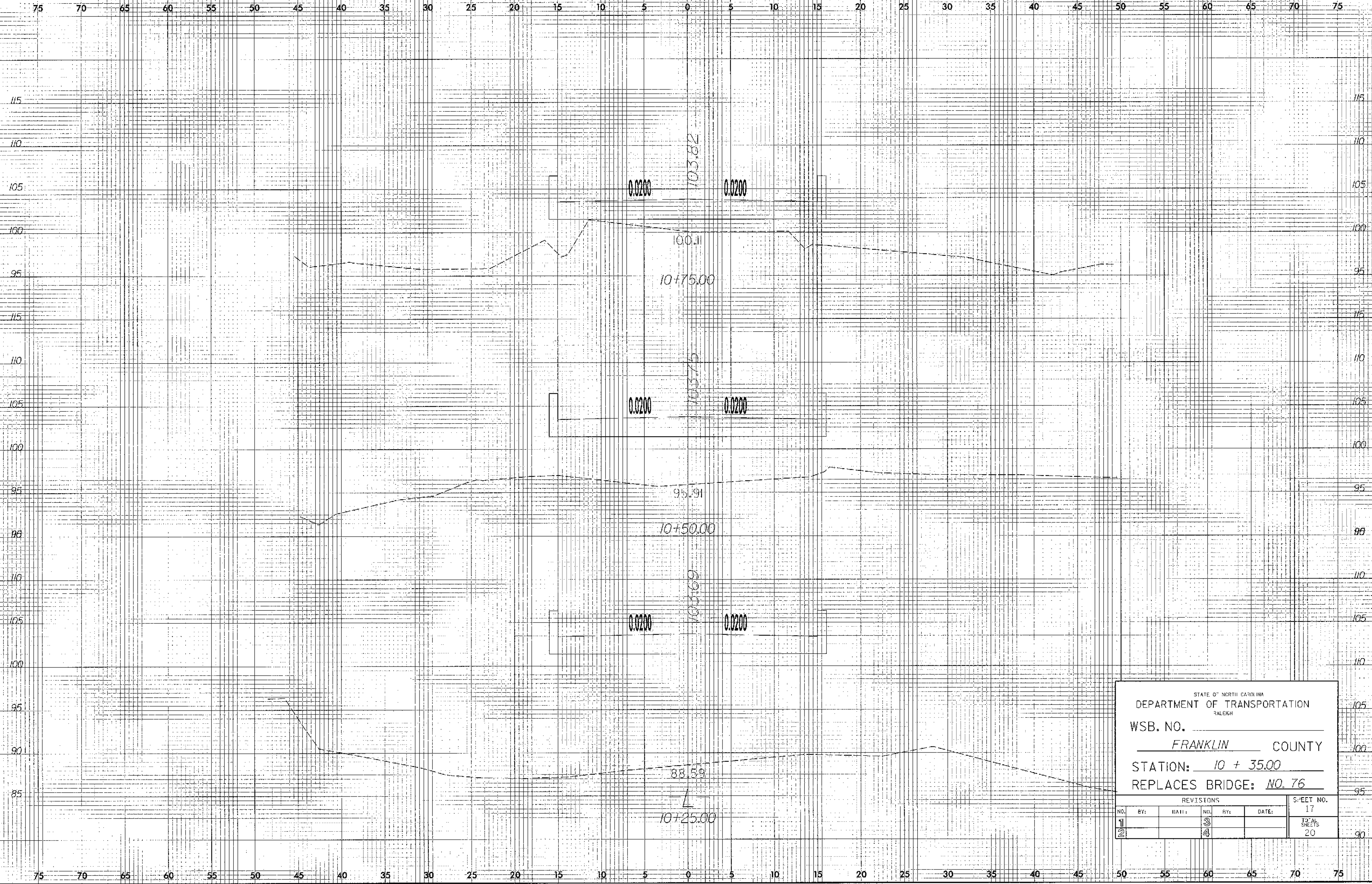
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
TRAFFIC

WSB. NO. _____
FRANKLIN COUNTY
STATION: 10 + 35.00
REPLACES BRIDGE: NO. 76

REVISIONS						SHEET NO.
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6/25/2009

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

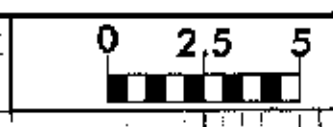
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FRANKLIN COUNTY

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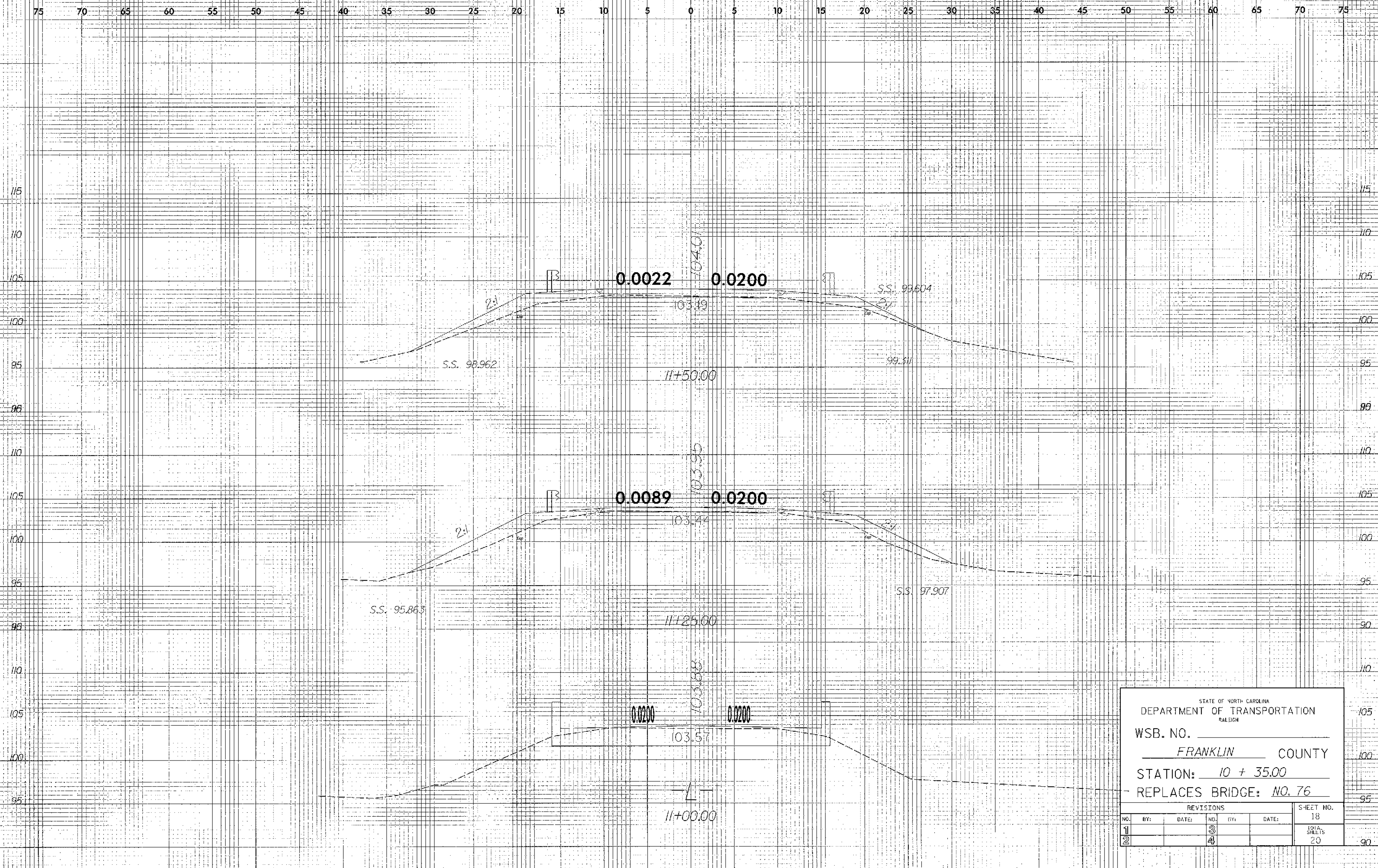
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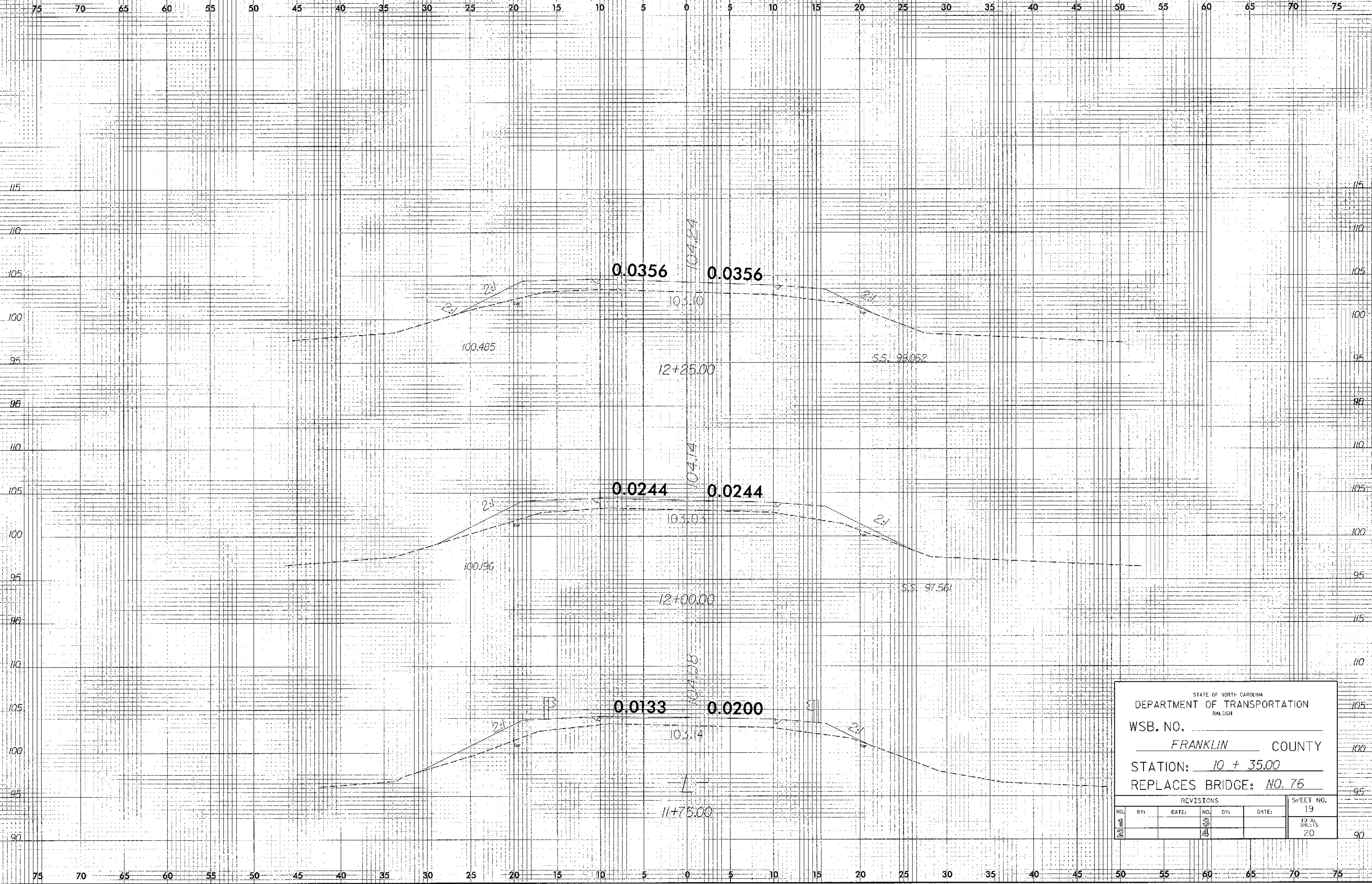
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. _____
FRANKLIN COUNTY
STATION: 10 + 35.00
REPLACES BRIDGE: NO. 76

REVISIONS						SHEET NO.
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WSB. NO. _____
FRANKLIN COUNTY

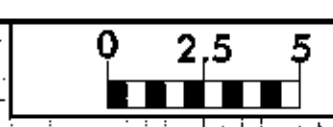
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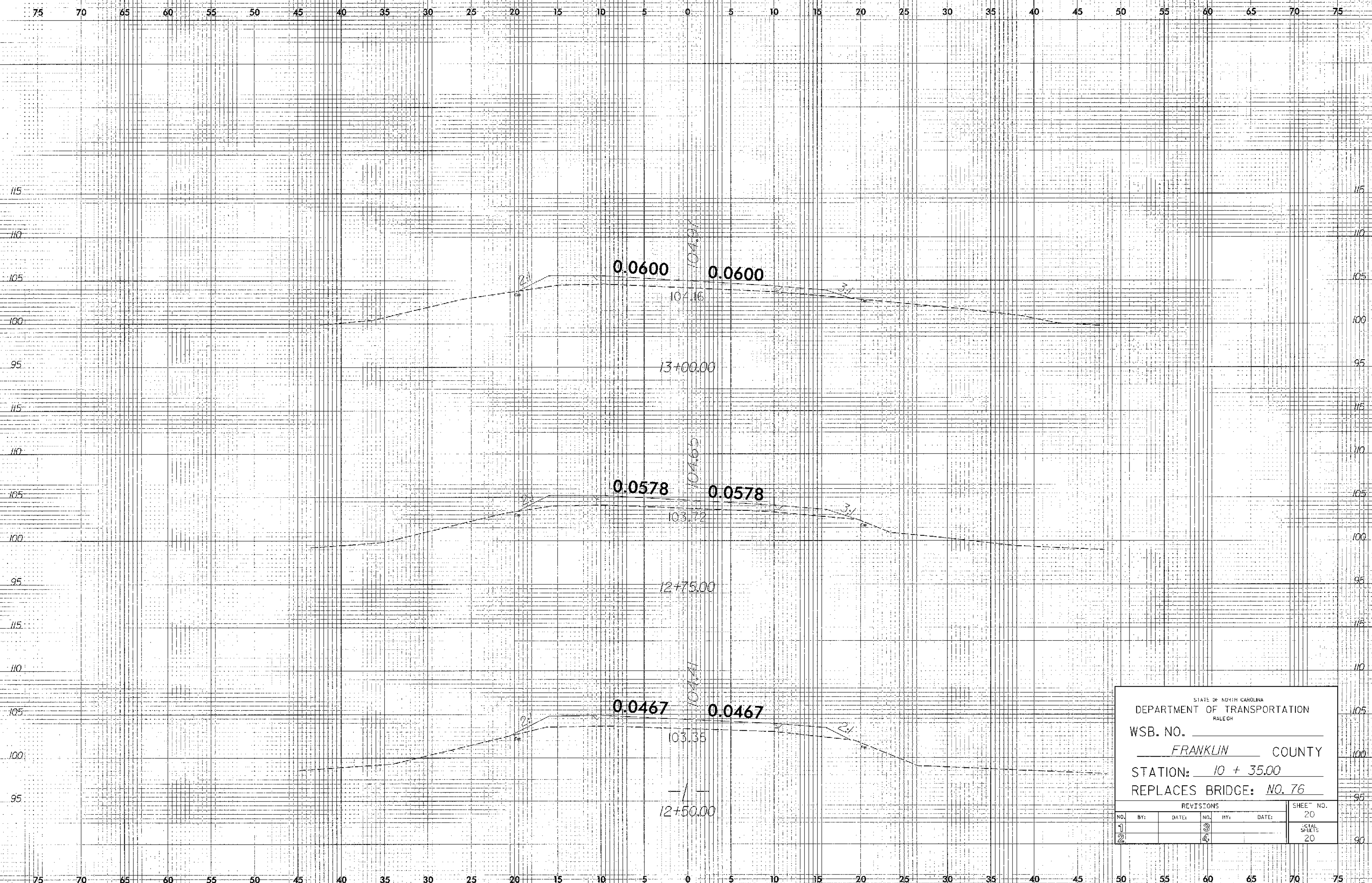
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8/23/95



PROJ. REFERENCE NO. MA05002B SHEET NO. X-6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

WSB. NO. _____
 FRANKLIN COUNTY
 STATION: 10 + 35.00
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			20

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