

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

SPAN B OF THE EXISTING STRUCTURE CONSISTING OF 55'-0" PRESTRESSED CONCRETE GIRDERS, 29'-0" CLEAR ROADWAY WIDTH, REINFORCED CONCRETE DECK SHALL BE REMOVED. BRIDGE IS PRESENTLY CLOSED.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH PROPOSED STRUCTURE, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'B'.

FOR FALSEWORK AND FORMS OVER OR ADJACENT TO TRAFFIC, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'B'.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'C'.

FOR FALSEWORK AND FORMWORK, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'D'.

SR1723 OVERPASS OF I-95
IN ROBESON COUNTY, LOCATED
±2.20 MILES SOUTH OF THE
ROBESON / CUMBERLAND
COUNTY LINE.

DISTRIBUTION LOG
(A COPIES ^{WERE} HAND DELIVERED TO MILES DRILL IN)
PRACIASIA BY PDI ON 2-8-05

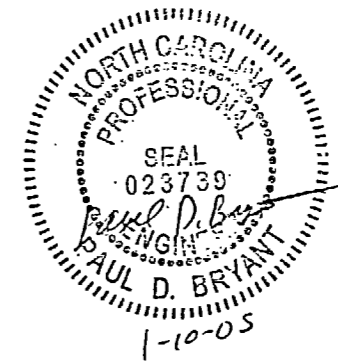
TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	CLASS A CONCRETE	REINFORCING STEEL	CONCRETE BRIDGE RAIL	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
	LUMP SUM	CU. YDS.	LBS.	LIN. FT.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE	LUMP SUM			109.54	LUMP SUM	492.94
BENT 1		3.5	791			
BENT 2		3.5	791			
TOTAL	LUMP SUM	7.0	1582	109.54	LUMP SUM	492.94

ATTACHMENT NO. 1 TO
REQUISITION NO. 10224002

#167

WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO: 167

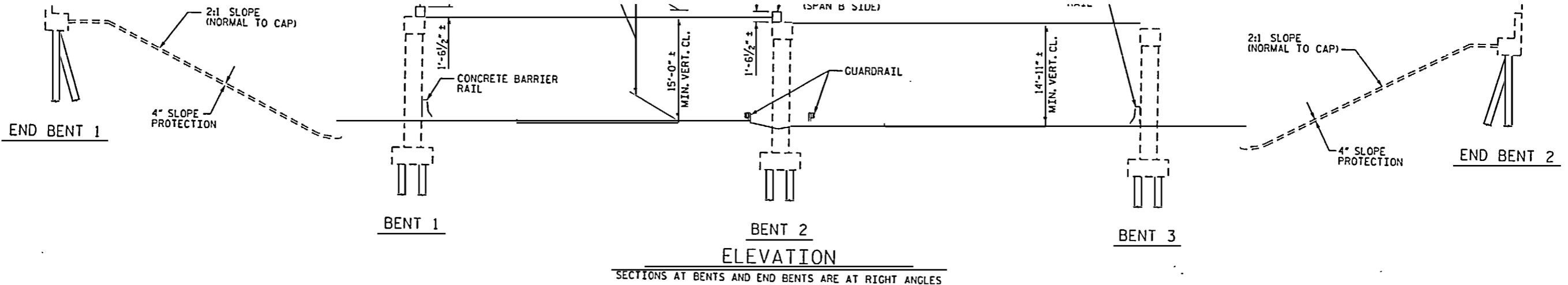


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

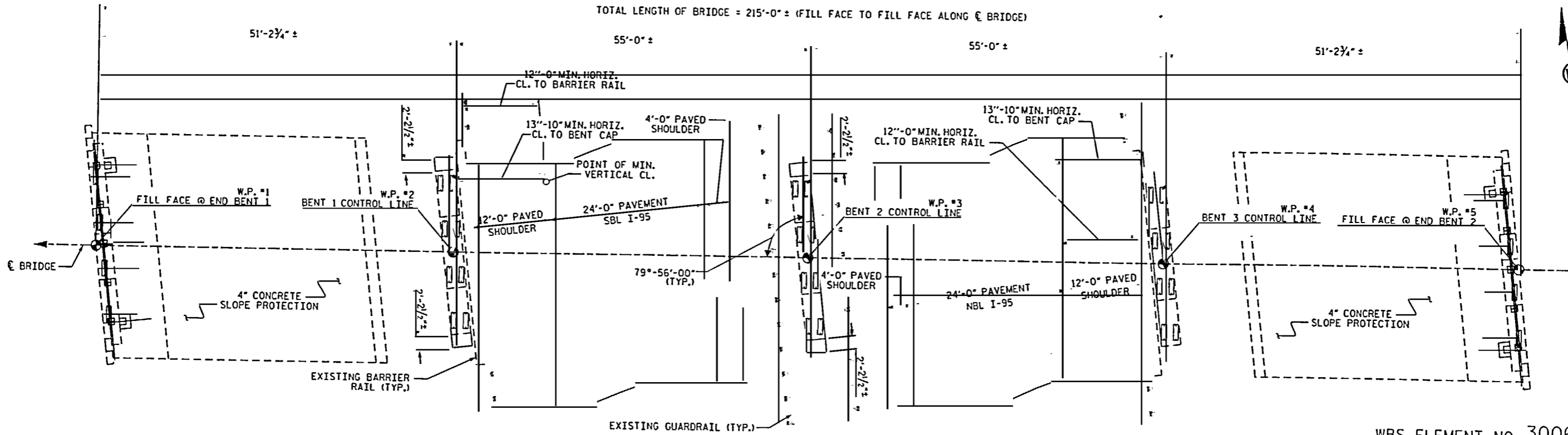
GENERAL DRAWING
BRIDGE OVER I-95
ON SR 1723

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	1
1			3			TOTAL SHEETS
2			4			12

DRAWN BY : T. A. HARRIS/ALM DATE : 8/8/03
CHECKED BY : D. R. CALHOUN DATE : 8/03
REVISED BY : R. BARRER DATE : 12/2004
CHECKED BY : P. BRYANT DATE : 01/2005

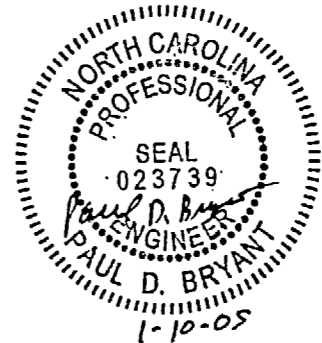


SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES



PLAN
PILES AND COLUMNS NOT SHOWN IN PLAN VIEW FOR CLARITY

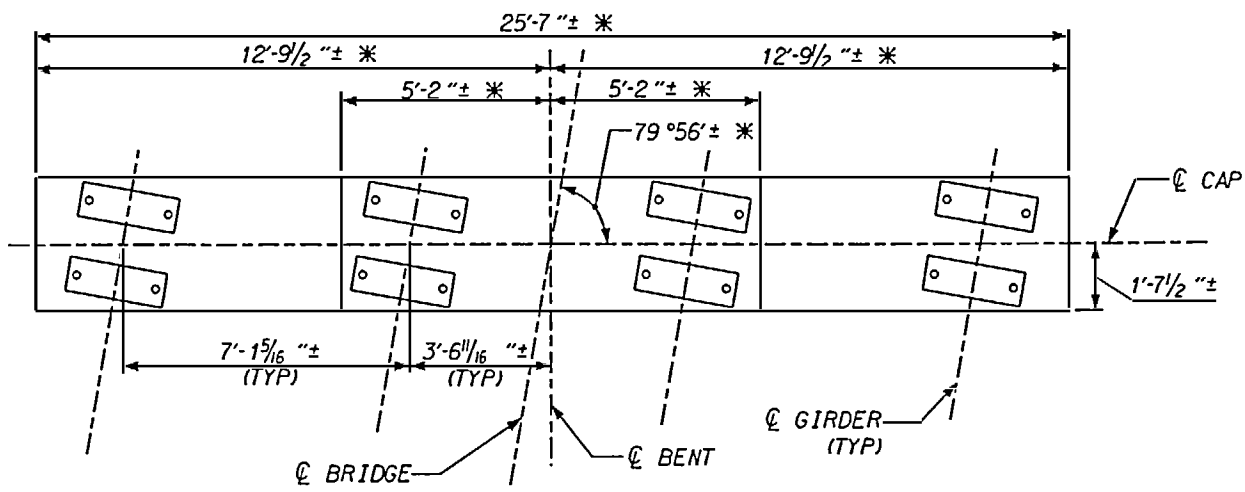
WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO. 167



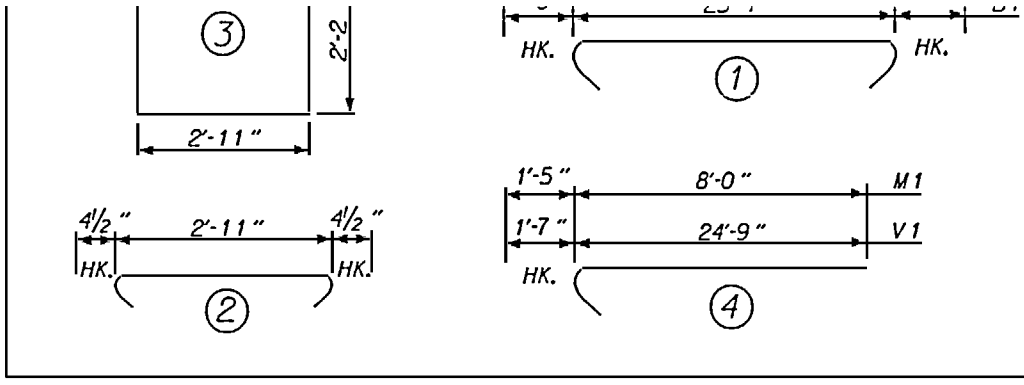
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE OVER I-95
ON SR 1723

DRAWN BY: T. A. HARRIS/ALM. DATE: 8/8/03. REVISED BY: R. BARBER. DATE: 12/2004.
CHECKED BY: D. B. CALHOUN. DATE: 8/03. CHECKED BY: P. BRYANT. DATE: 01/2005

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	TOTAL SHEETS
1			3		2
2			4		12

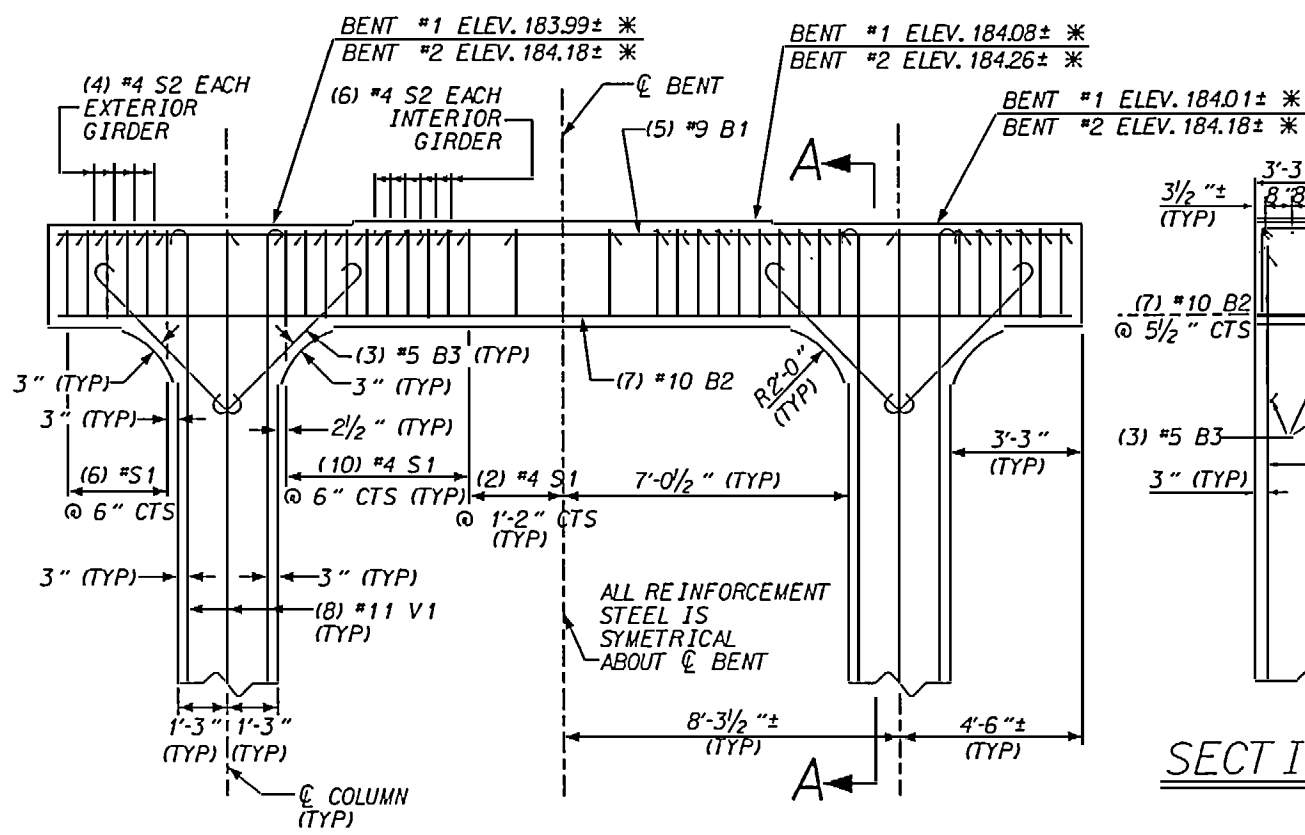


BENT PLAN

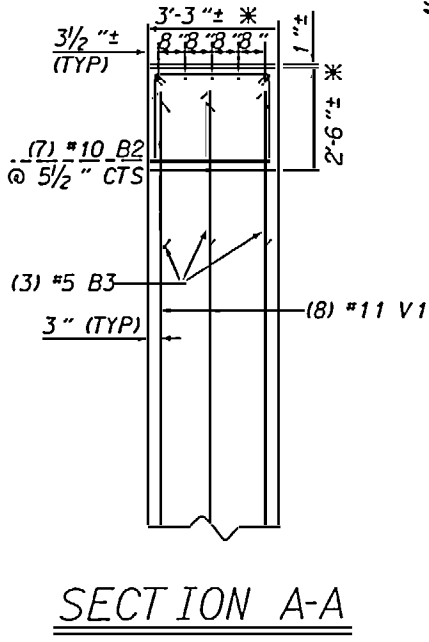


B2	7	#10	5M	25'-1"
B3	12	#5	1	6'-0"
S1	35	#4	3	8'-0"
S2	20	#4	2	3'-8"
M1	16	#11	4	9'-5"
V1	16	#11	4	26'-4"

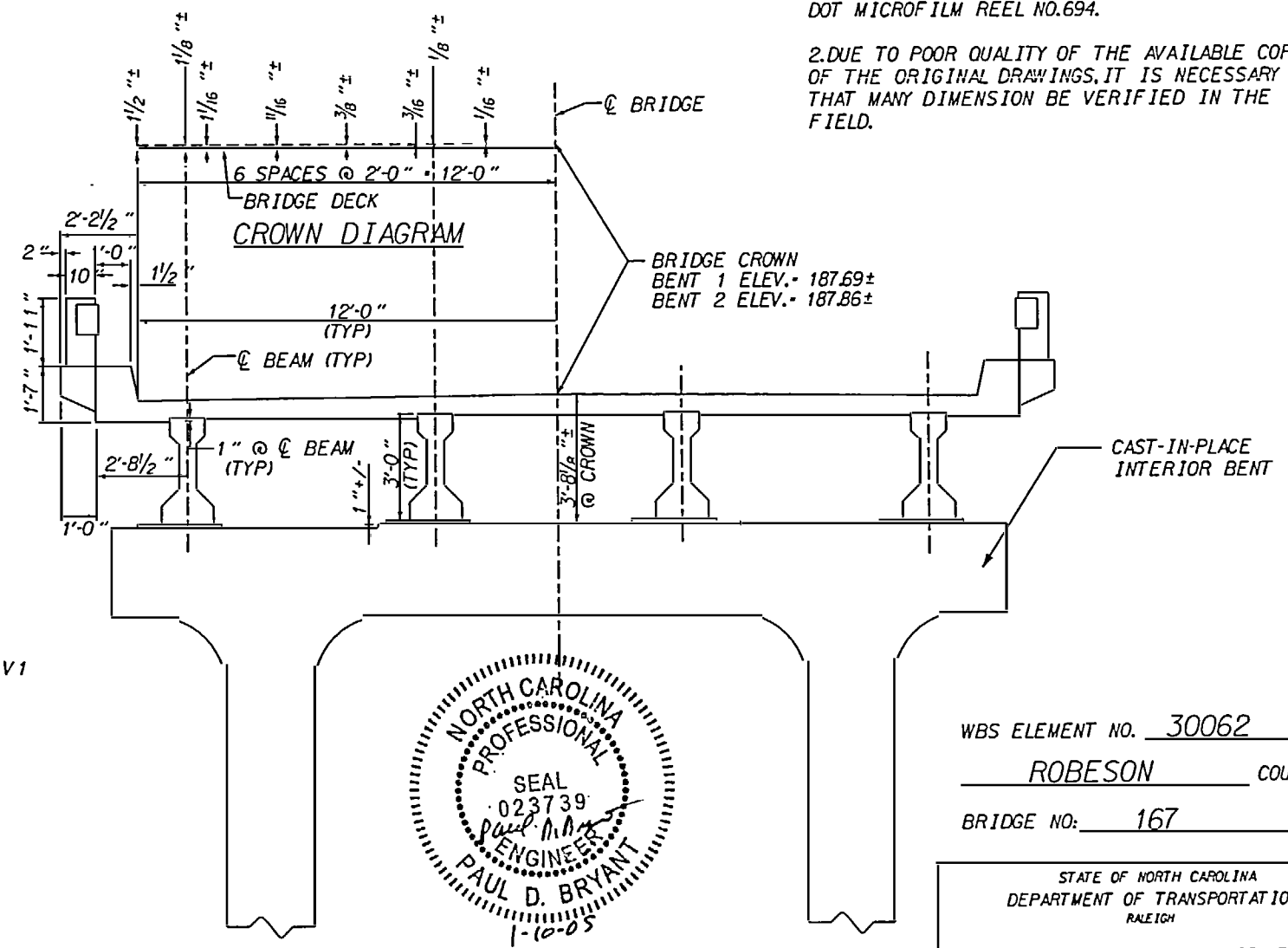
NOTES:
 1. ALL DIMENSIONS AND OTHER INFORMATION ARE PER THE ORIGINAL DRAWINGS AS FOUND ON NC DOT MICROFILM REEL NO.694.
 2. DUE TO POOR QUALITY OF THE AVAILABLE COPIES OF THE ORIGINAL DRAWINGS, IT IS NECESSARY THAT MANY DIMENSION BE VERIFIED IN THE FIELD.



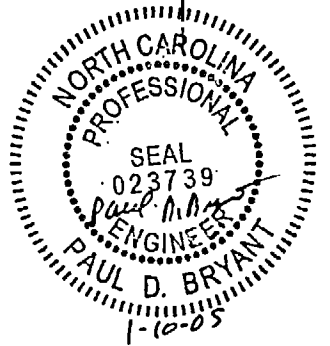
BENT ELEVATION



SECTION A-A



BRIDGE ELEVATION @ BENT



WBS ELEMENT NO. 30062
ROBESON COUNTY
 BRIDGE NO. 167

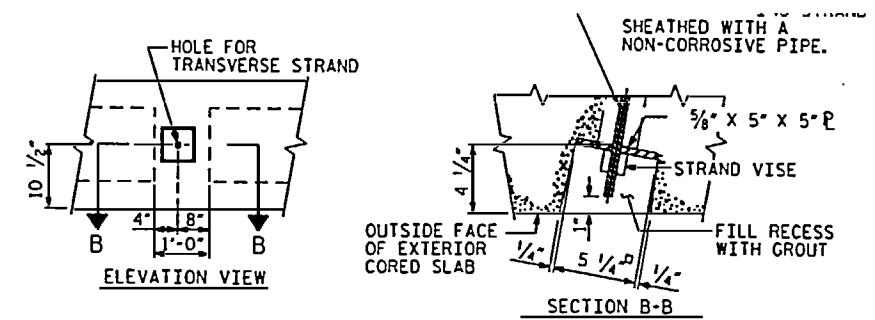
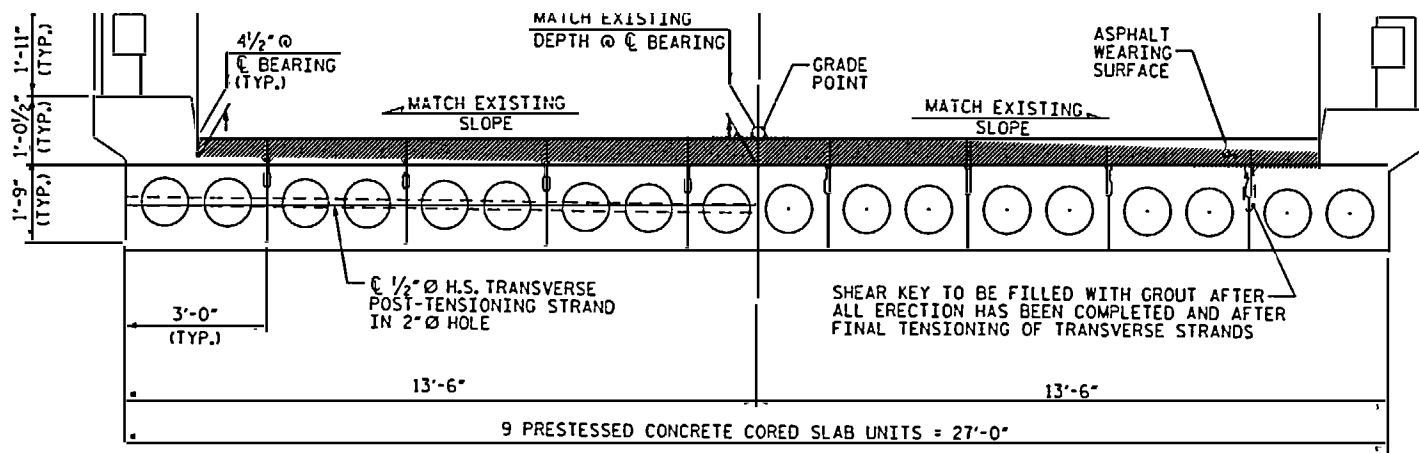
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

EXISTING STRUCTURE LAYOUT AND REINFORCEMENT

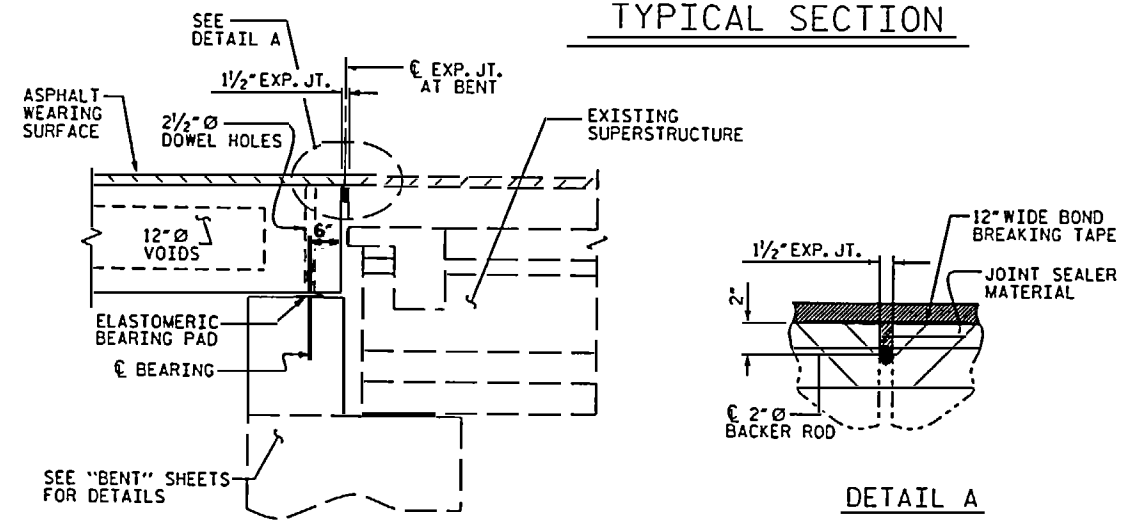
REVISIONS						SHEET NO. 3	TOTAL SHEETS 12
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

DRAWN BY: B. BARBER DATE: 12/2004
 CHECKED BY: P. BRYANT DATE: 01/2005

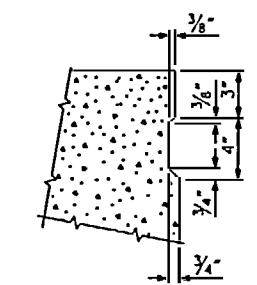
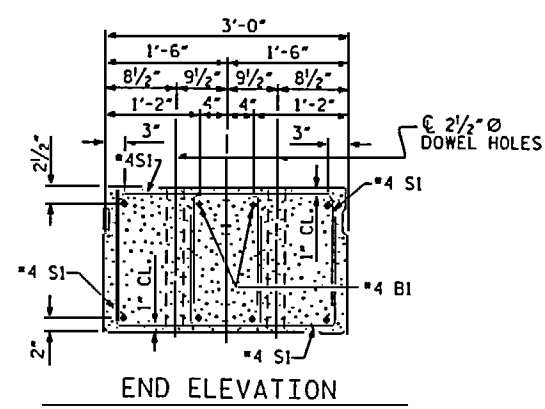
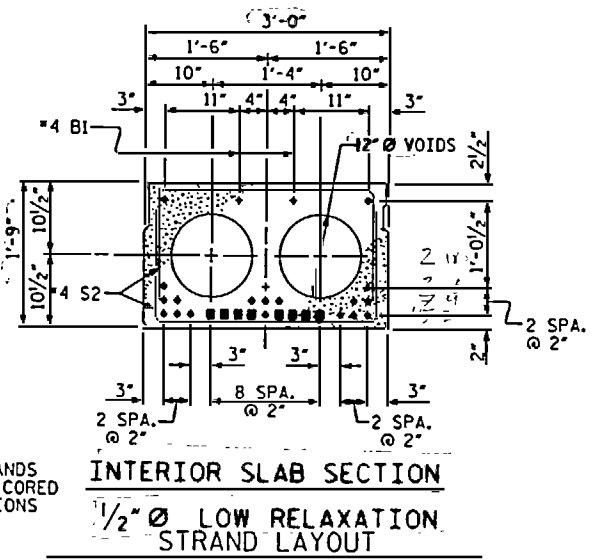
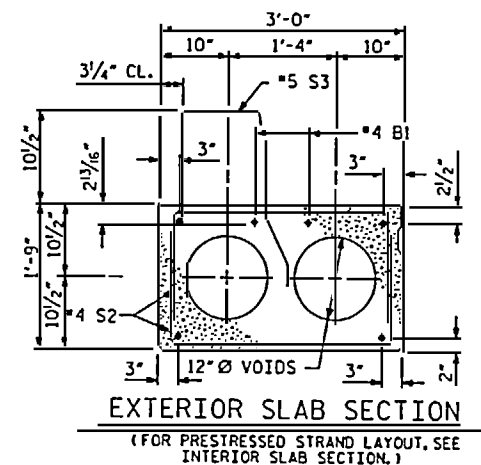
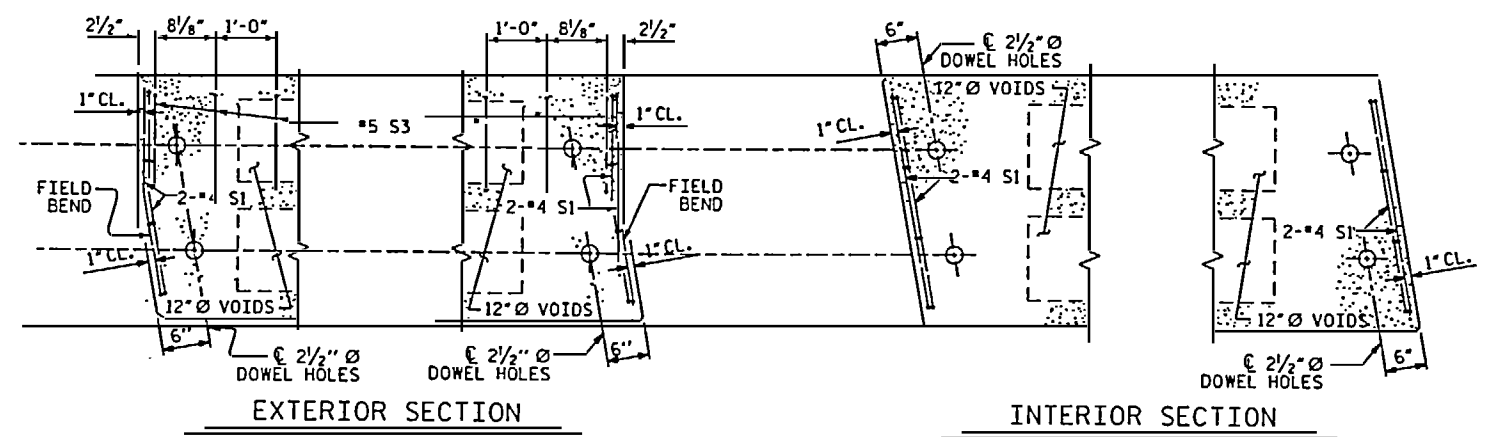
NOT TO SCALE



TYPICAL SECTION



SECTION AT BENT

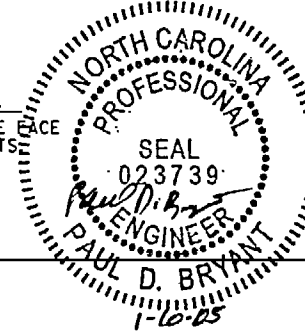


NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLAB UNITS

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

☑ BONDS SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 5'-6" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

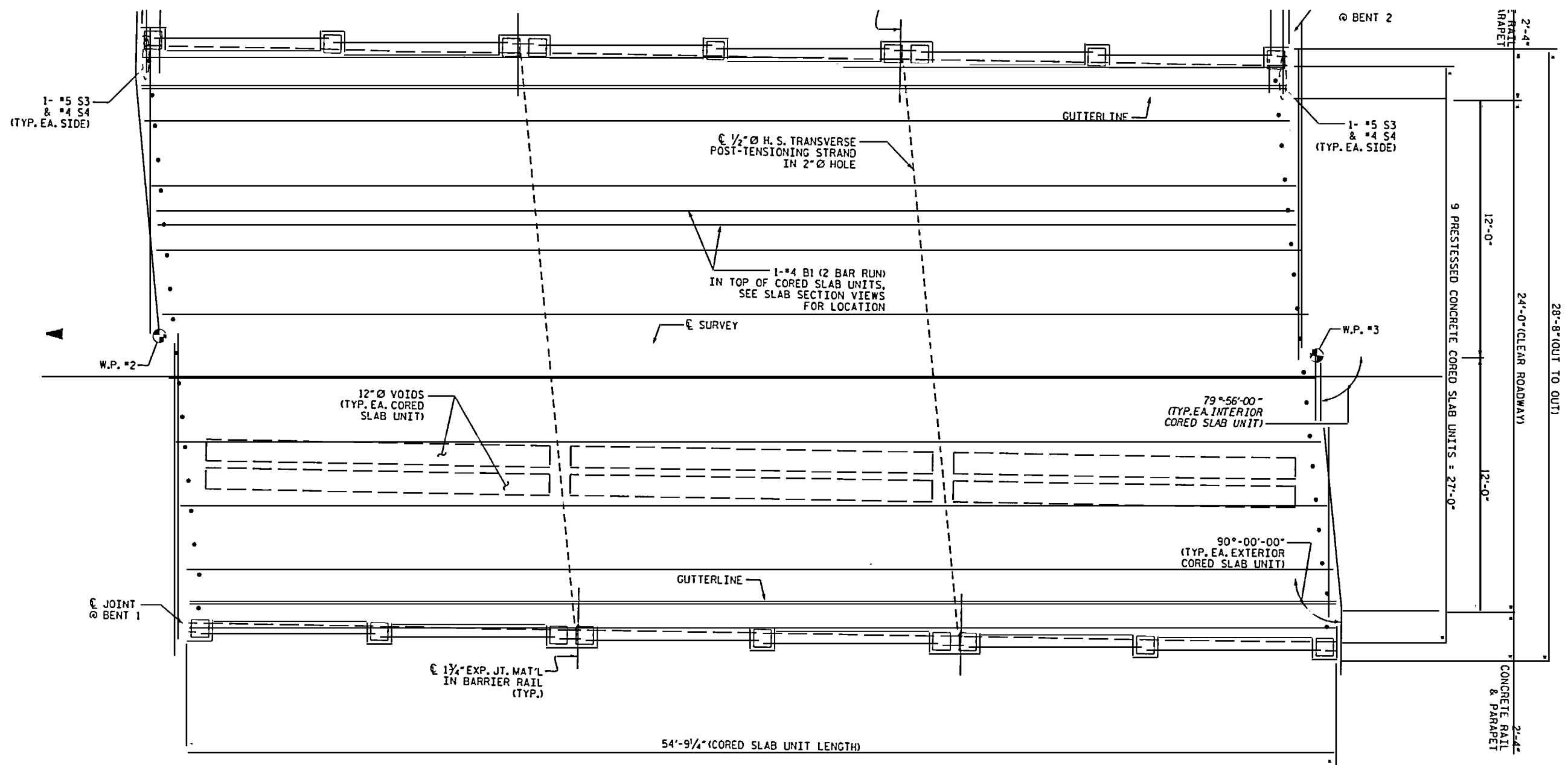
WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO: 167



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT

ASSEMBLED BY: R. McCAULEY/ALM	DATE: 8/7/03		
CHECKED BY: D. R. CALHOUN	DATE: 8/20/03		
DRAWN BY: WJH 4/89	REV. 8/16/99	RWW/LES	
CHECKED BY: FCJ 5/89	REV. 10/17/00	RWW/LES	
	REV. 7/10/04	RWW/LES	
REVISED BY: B. BARBER	DATE: 12/2004		
CHECKED BY: P. BRYANT	DATE: 01/2005		

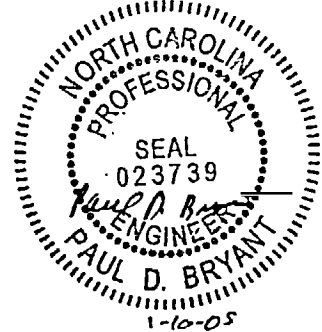
OCTOBER				1981			
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3			4	
2			4			TOTAL SHEETS	
						12	



PLAN OF SPAN B

FOR ADDITIONAL CONCRETE RAIL REINFORCING STEEL & DETAILS, SEE "CONCRETE BRIDGE RAIL" SHEET.

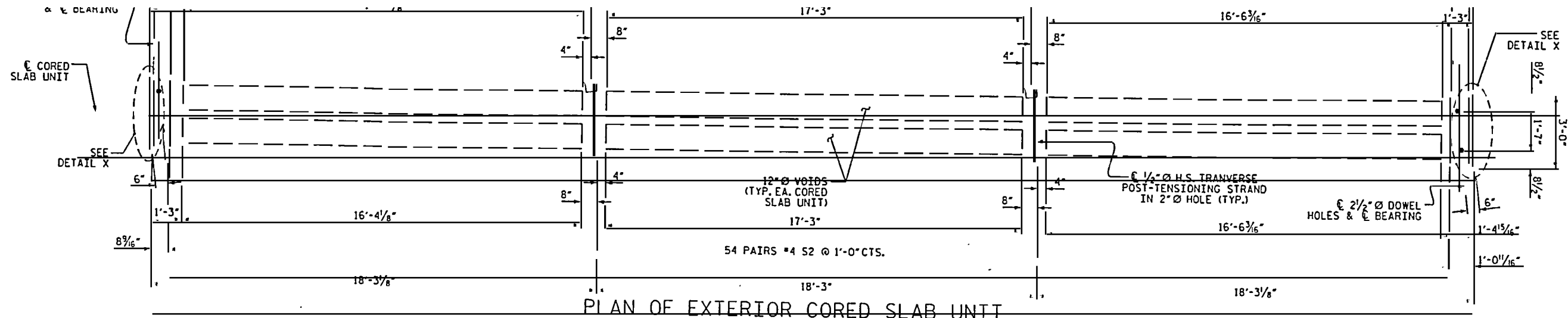
WBS ELEMENT NO. 30062
ROBESON COUNTY
 BRIDGE NO: 167



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN B

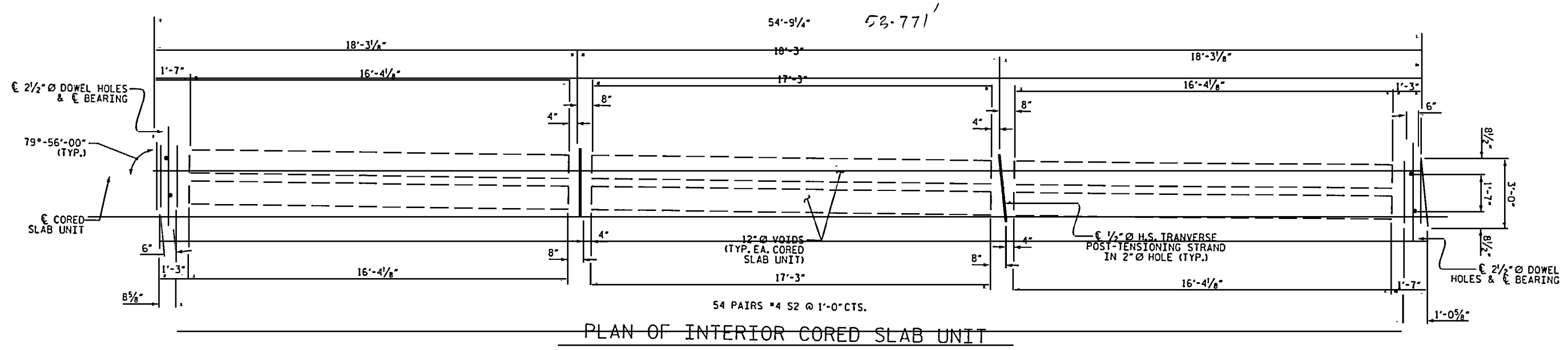
DRAWN BY: K. McCALLEY/ALM DATE: 8/8/03 REVISED BY: B. BARBER DATE: 12/2004
 CHECKED BY: D. R. CALHOUN DATE: 8/20/03 CHECKED BY: P. BRYANT DATE: 01/2005

REVISIONS						SHEET NO. 5	TOTAL SHEETS 12
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				



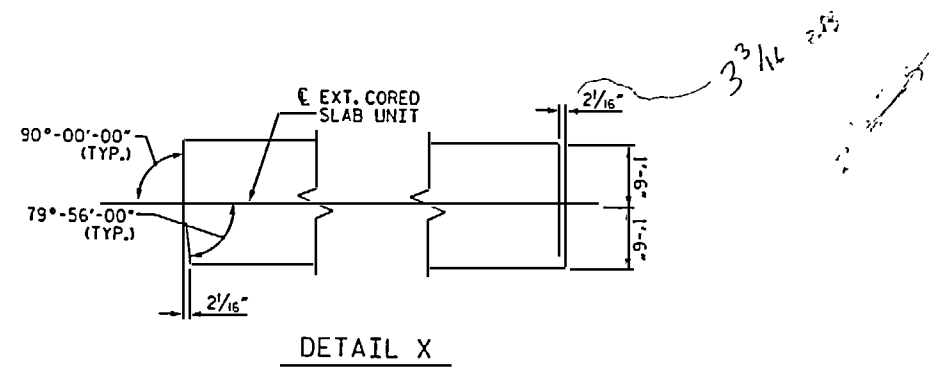
PLAN OF EXTERIOR CORED SLAB UNIT

FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLABS
SEE "PART-PLAN CORED SLAB UNITS", SHEET 4



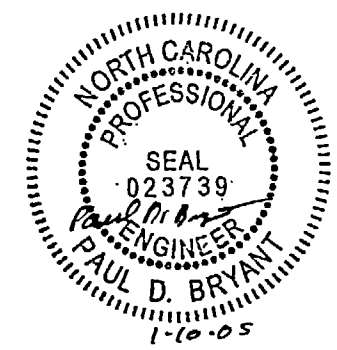
PLAN OF INTERIOR CORED SLAB UNIT

FOR LOCATION OF ADDITIONAL REINFORCING STEEL AT END OF SLABS
SEE "PART-PLAN CORED SLAB UNITS", SHEET 4



DETAIL X

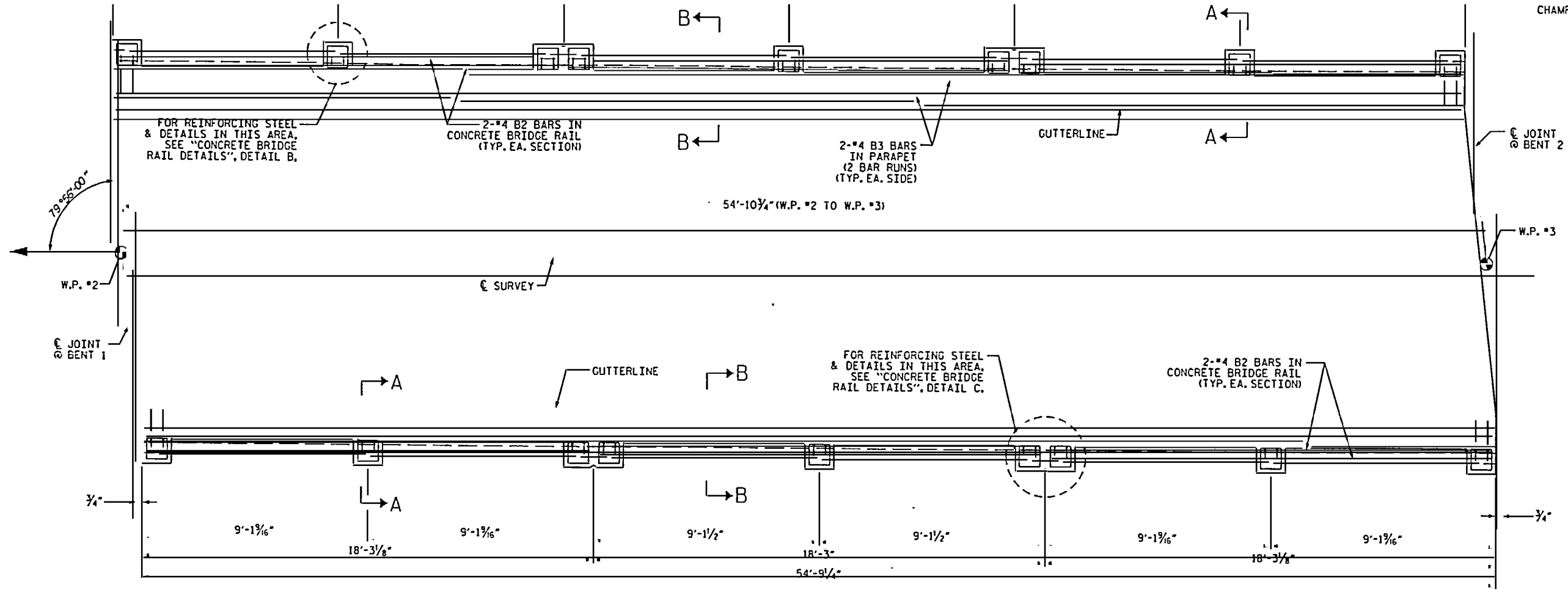
WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO. 167



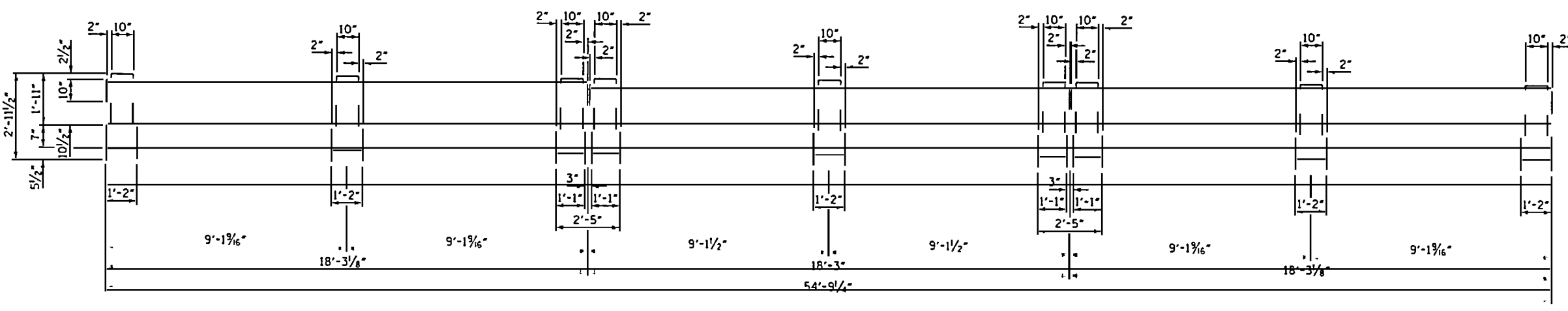
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN B					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. 6
					TOTAL SHEETS 12

DRAWN BY: K. McCAULEY/ALM DATE: 8/8/03
CHECKED BY: D. R. CALHOUN DATE: 8/20/03
REVISED BY: B. BARBER DATE: 12/2004
CHECKED BY: P. BRYANT DATE: 01/2005

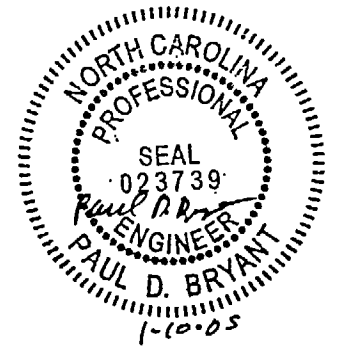
CHAMFERED TO MATCH EXISTING RAIL.



PLAN



ELEVATION



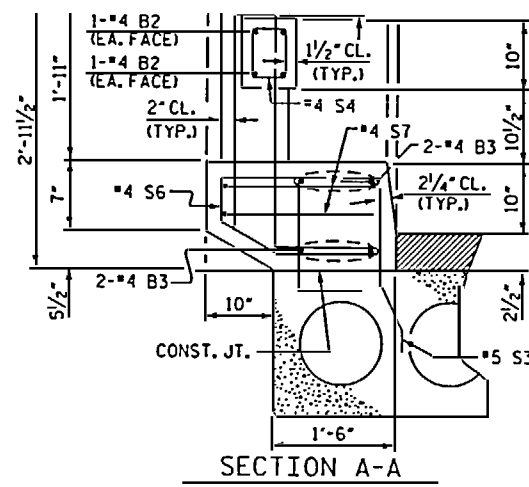
WBS ELEMENT NO. 30062
ROBESON COUNTY
 BRIDGE NO: 167

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**SUPERSTRUCTURE
 CONCRETE
 BRIDGE RAIL**

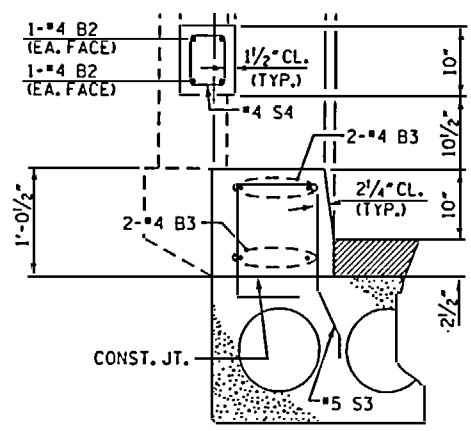
DRAWN BY: K. MCCAULEY/ALM DATE: 8/11/03 REVISD BY: B. BARBER DATE: 12/2004
 CHECKED BY: D. R. CALHOUN DATE: 8/20/03 CHECKED BY: P. BRYANT DATE: 01/2005

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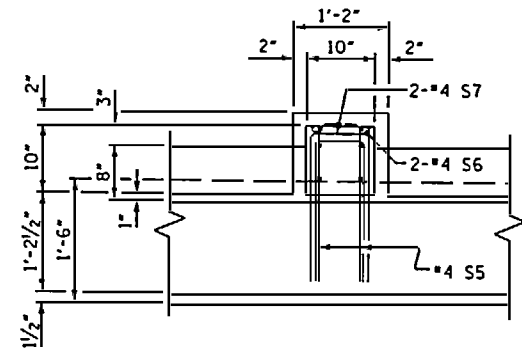
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	7	TOTAL SHEETS
1			3				12
2			4				



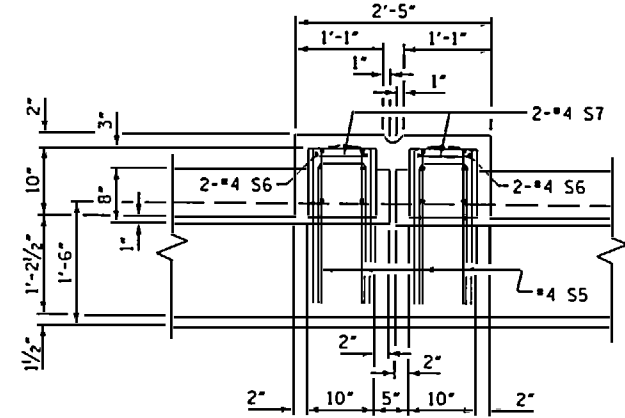
SECTION A-A



SECTION B-B

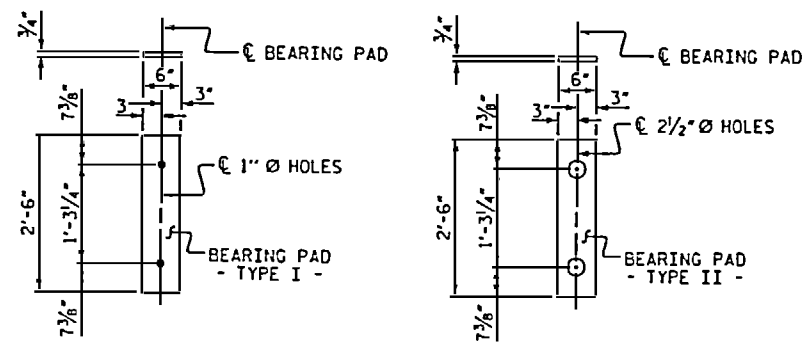


DETAIL B

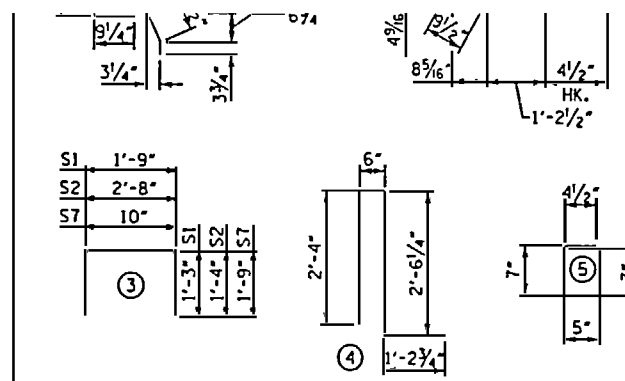


DETAIL C

CONCRETE BRIDGE RAIL DETAILS



FIXED END (TYPE I - 9 REQ'D @ BENT *2)
EXPANSION END (TYPE II - 9 REQ'D @ BENT *1)
ELASTOMERIC BEARING DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	28'-1"	75	28'-1"	75
S1	8	#4	3	4'-3"	23	4'-3"	23
S2	108	#4	3	5'-4"	385	5'-4"	385
*S3	58	#5	1	4'-9"	277		
REINFORCING STEEL					483 LBS.		483 LBS.
*EPOXY COATED REINFORCING STEEL					277 LBS.		
5,000 P.S.I. CONCRETE					7.7 CU. YDS.		7.7 CU. YDS.
1/2" L.R. STRANDS				No.	26		26

DEAD LOAD DEFLECTION AND CAMBER

		3'-0" x 1'-9"
		1/2" L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)		2 5/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**		5/8"
FINAL CAMBER		2 9/16"

** DOES NOT INCLUDE FUTURE WEARING SURFACE

BILL OF MATERIAL FOR CONCRETE BRIDGE RAIL AND PARAPET

BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*B2	24	#4	STR	17'-11"	287
*B3	16	#4	STR	28'-8"	306
*S4	112	#4	5	2'-4"	175
*S5	36	#4	4	6'-7"	158
*S6	36	#4	2	4'-11"	118
*S7	36	#4	3	4'-4"	104

*EPOXY COATED REINFORCING STEEL 1148 LBS.
CLASS AA CONCRETE 11.2 CU.YDS.
TOTAL LIN.FT. OF CONCRETE BRIDGE RAIL 109'-6 1/2"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	54'-9 1/4"	109'-6 1/2"
INTERIOR C.S.	7	54'-9 1/4"	383'-4 1/2"
TOTAL	9		492'-11 1/4"

GRADE 270 STRANDS

		1/2" L.R.
AREA	(SQUARE INCHES)	0.153
ULTIMATE STRENGTH	(LBS. PER STRAND)	41,300
APPLIED PRESTRESS	(LBS. PER STRAND)	30,980

GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

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

THE 2" BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT, PER SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN CONCRETE BRIDGE RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

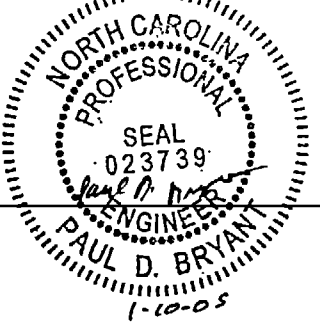
APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS. FOR EPOXY PROTECTIVE COATING, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'E'.

FOR ELASTOMERIC BEARINGS, SEE NC DOT SPECIAL PROVISIONS ON SHEET 'E'.

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

CLASS AA CONCRETE
(CONCRETE WEARING SURFACE)
TOTAL ... 28.2 CU.YDS.

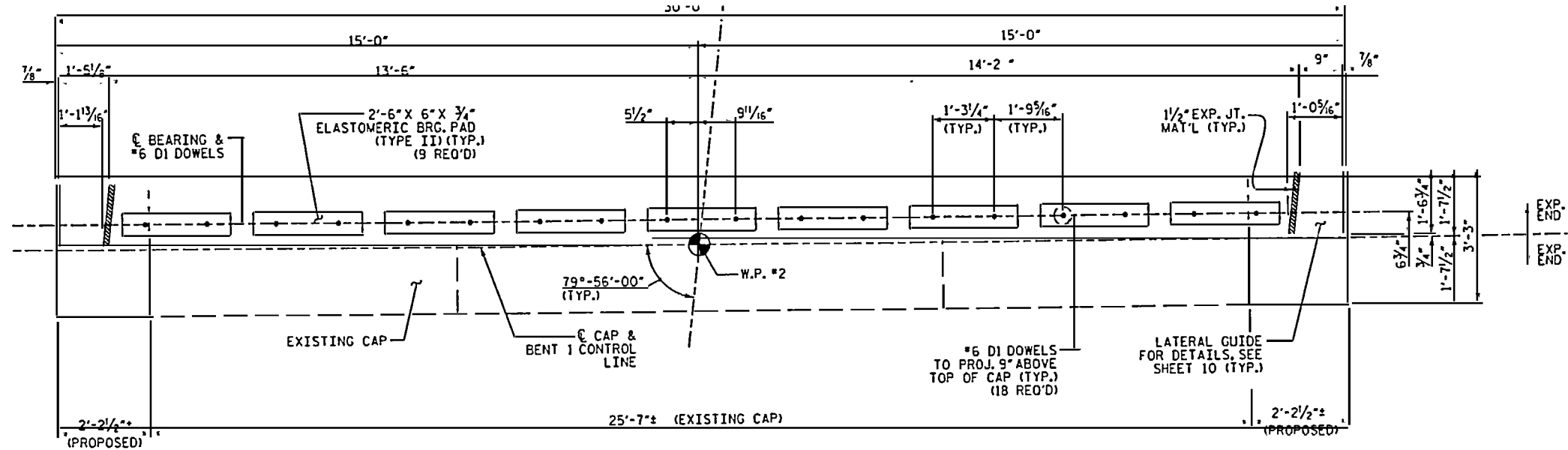


WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO: 167

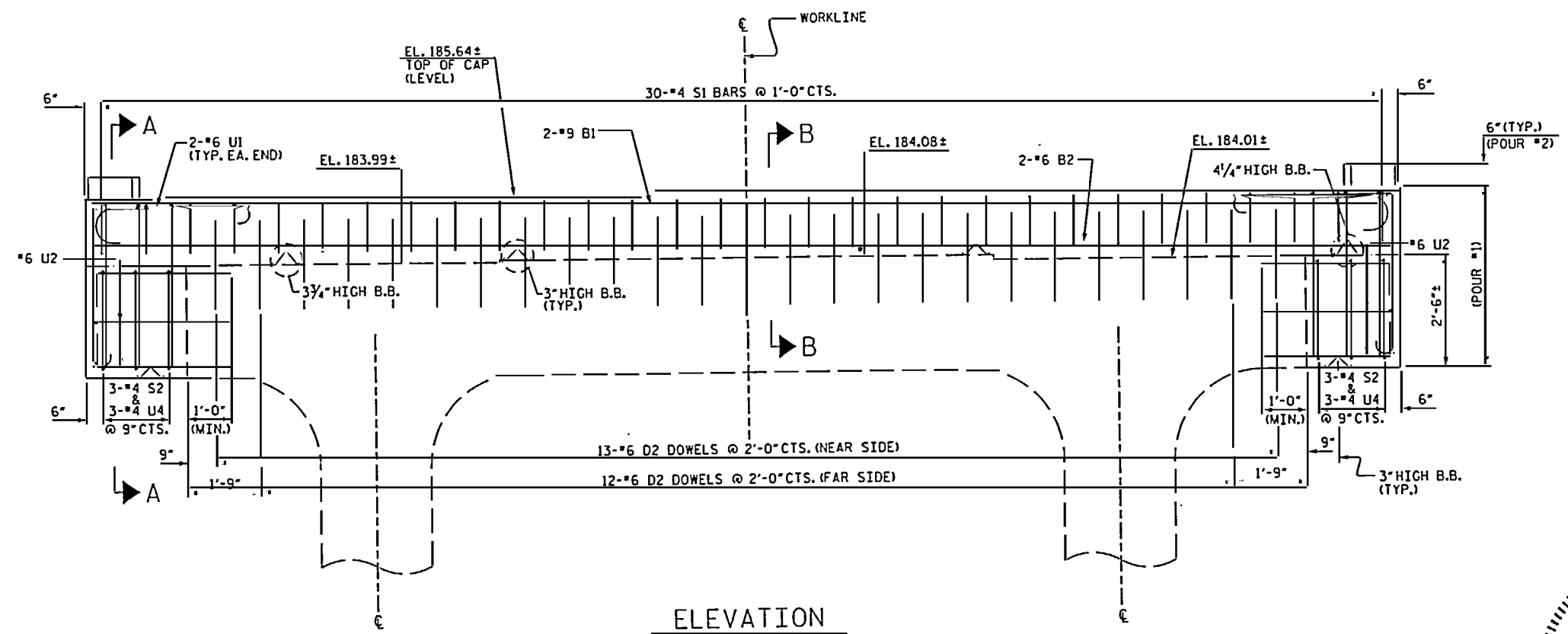
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED
CONCRETE CORED
SLAB UNIT

OCTOBER 1981				REVISIONS				SHEET NO. 8	
NO.	BY	DATE	NO.	BY	DATE			TOTAL SHEETS 12	
1			3						
2			4						

ASSEMBLED BY : K. McCALLEY/ALM	DATE : 8/12/03				
CHECKED BY : D. R. CALHOUN	DATE : 8/20/03				
DRAWN BY : WJH 4/89	REV. 10/17/00	RWW/LES			
CHECKED BY : FCJ 5/89	REV. 7/10/01	RWW/LES			
	REV. 5/7/03	RWW/JTE			
	REVISED BY : B. BARBER	DATE : 12/2004			
	CHECKED BY : P. BRYANT	DATE : 01/2005			



PLAN



ELEVATION

AFTER THE CORED SLAB UNITS ARE IN PLACE.
 D2 & U2 BARS SHALL BE ADHESIVELY ANCHORED.
 FOR ADHESIVELY ANCHORED DOWELS OR BARS, SEE SPECIAL PROVISIONS ON SHEET 'A' AND NC DOT STANDARD SPECIFICATIONS SECTION 420.14.
 PRIOR TO BEGINNING CONSTRUCTION, ALL DIMENSIONS AND ELEVATIONS OF EXISTING BENTS ARE TO BE VERIFIED IN THE FIELD.

WBS ELEMENT NO. 30062
 ROBESON COUNTY
 BRIDGENO: 167

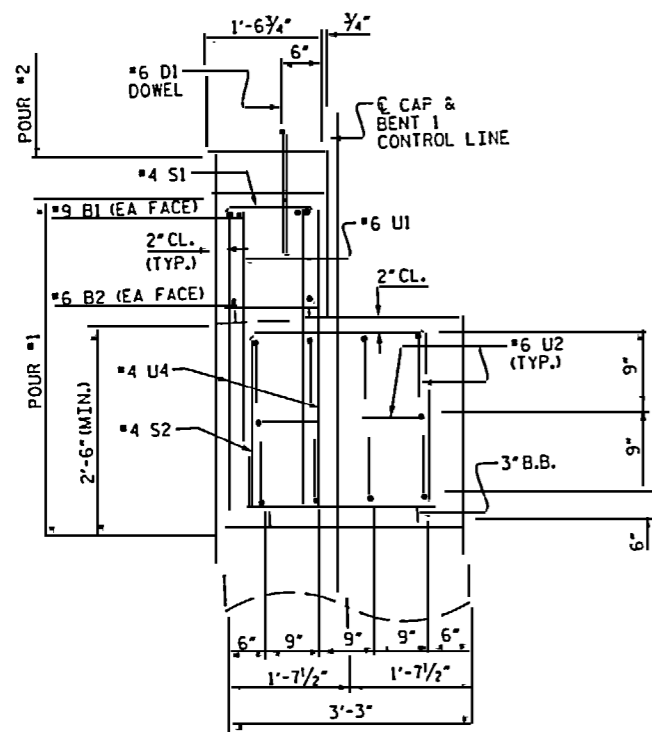


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

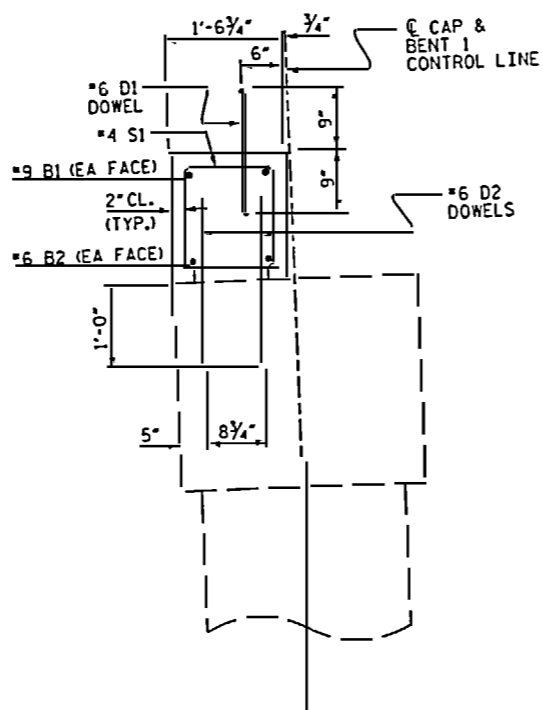
SUBSTRUCTURE
 BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	9
1			3			TOTAL SHEETS
2			4			12

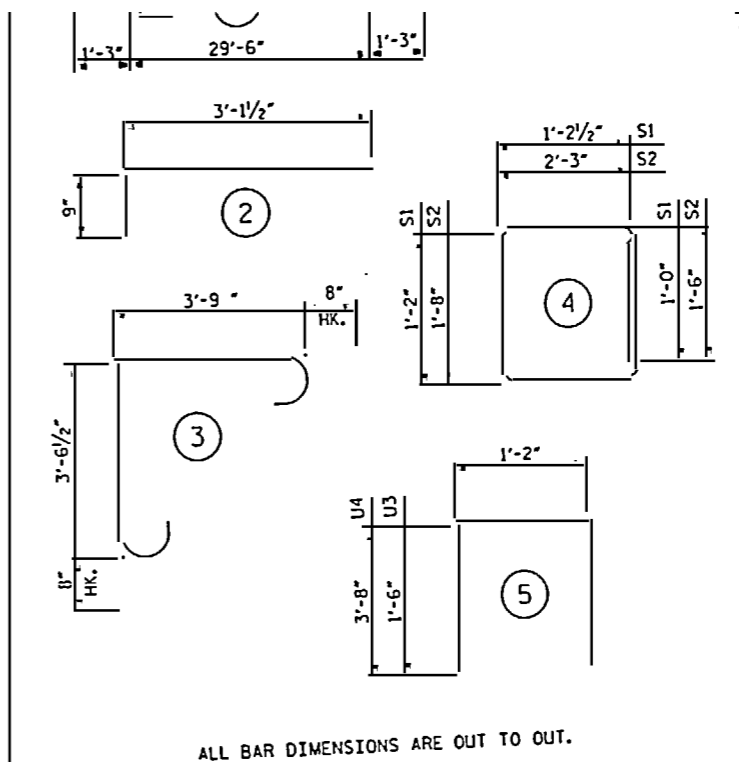
DRAWN BY : K. McCAULEY/ALM DATE : 8/18/03 REVISD BY : B. BARBER DATE : 12/2004
 CHECKED BY : D.R.CALHOUN DATE : 8/18/03 CHECKED BY : P. BRYANT DATE : 01/2005



SECTION A-A



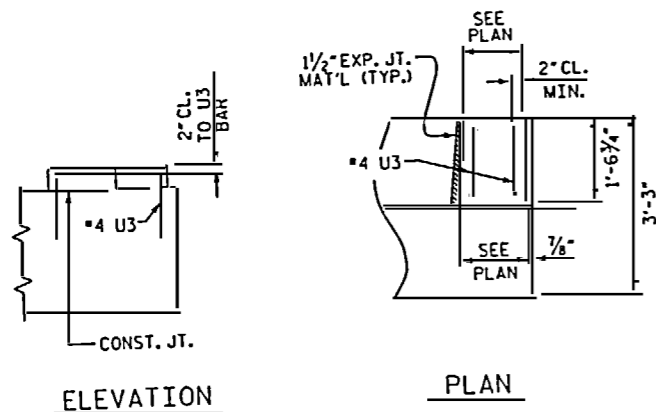
SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

D1	18	6	S1K	1-0	15
D2	25	6	STR	2-0	15
S1	30	4	4	5-9	115
S2	6	4	4	9-4	30
U1	4	6	3	8-7 1/2	53
U2	20	6	2	3-10 1/2	117
U3	4	4	5	4-2	11
U4	6	4	5	8-6	34

REINFORCING STEEL		791 LBS
CLASS A CONCRETE BREAKDOWN		
POUR 1 (CAP)		3.4 yds
POUR 2 (LATERAL GUIDE)		0.1 yds
TOTAL CLASS A CONCRETE		3.5 yds



ELEVATION

PLAN

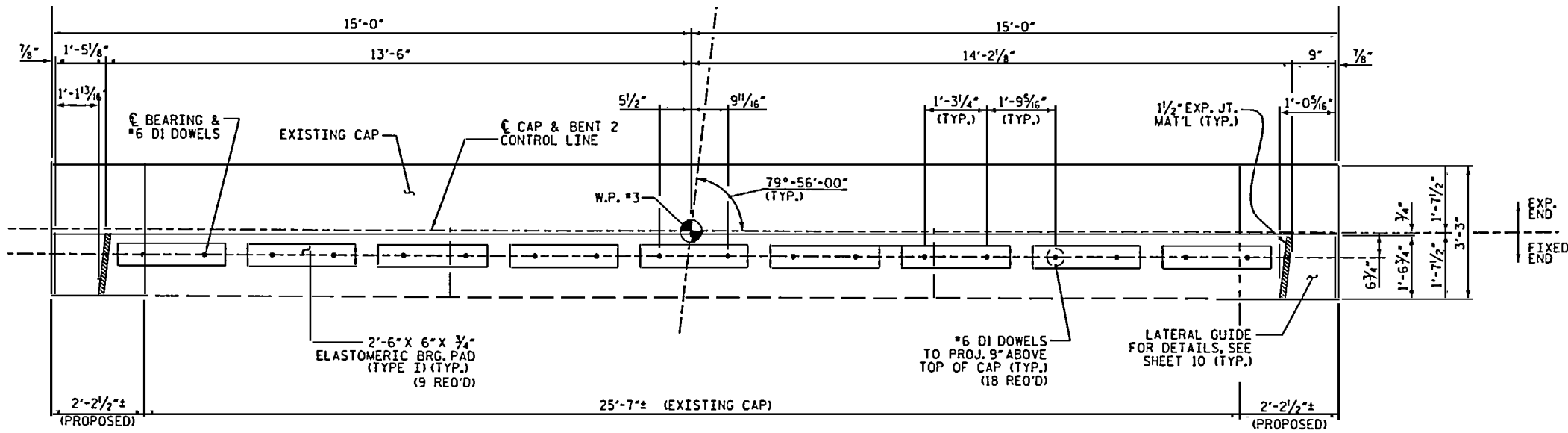
LATERAL GUIDE DETAILS

WBS ELEMENT NO. 30062
 ROBESON COUNTY
 BRIDGE NO: 167

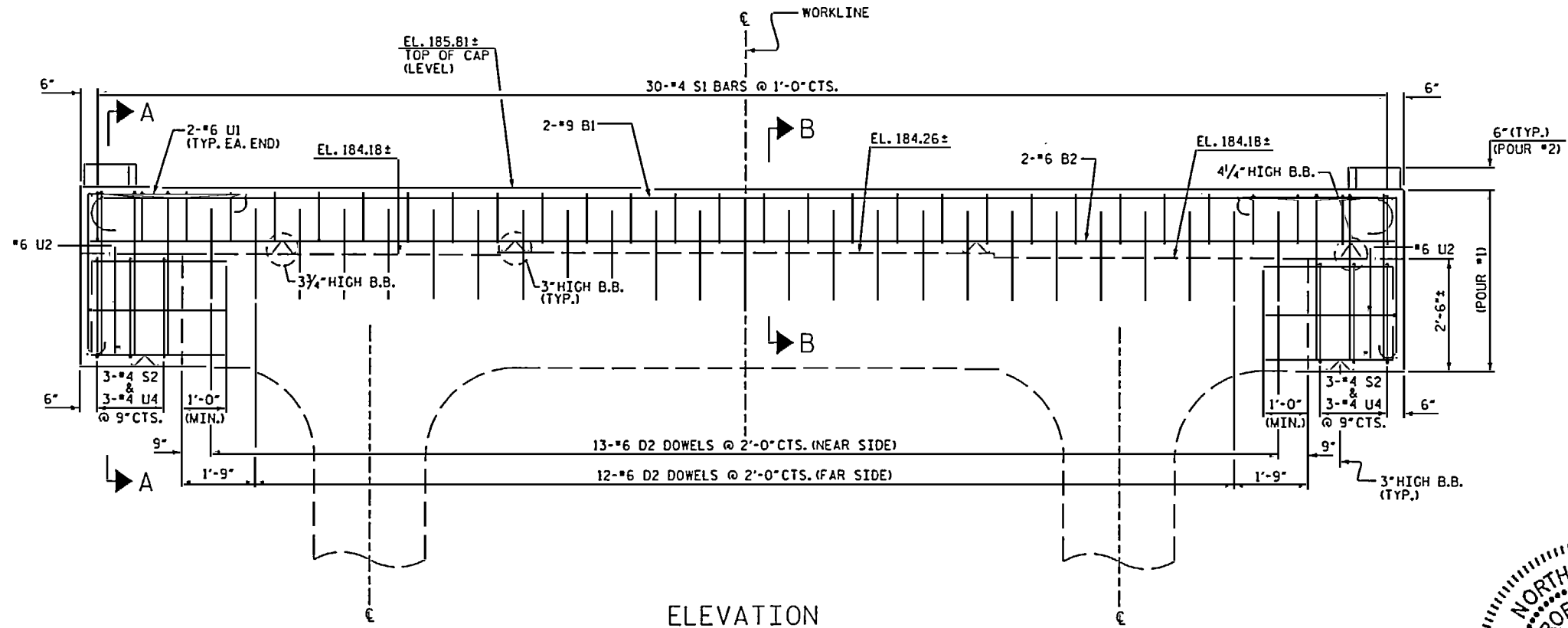


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			10
2			4			12



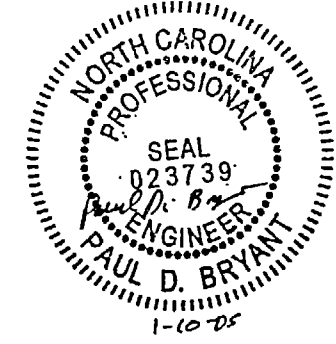
PLAN



ELEVATION

ALL REINFORCEMENT SHALL BE ADHESIVELY ANCHORED AFTER THE CORED SLAB UNITS ARE IN PLACE.
 D2 & U2 BARS SHALL BE ADHESIVELY ANCHORED.
 FOR ADHESIVELY ANCHORED DOWELS OR BARS, SEE SPECIAL PROVISIONS ON SHEET 'A' AND NC DOT STANDARD SPECIFICATIONS SECTION 420.14.
 PRIOR TO BEGINNING CONSTRUCTION, ALL DIMENSIONS AND ELEVATIONS OF EXISTING BENTS ARE TO BE VERIFIED IN THE FIELD.

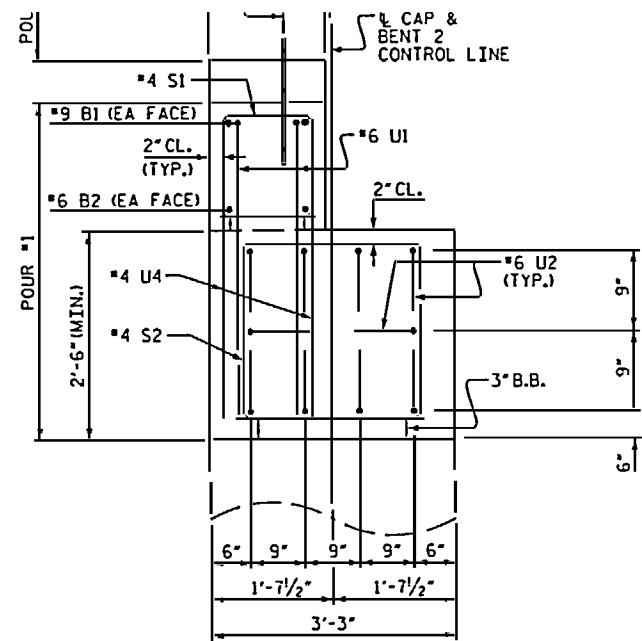
WBS ELEMENT NO. 30062
 ROBESON COUNTY
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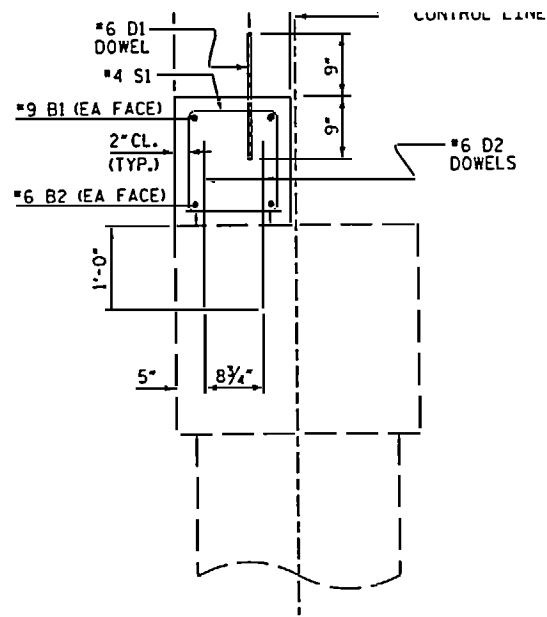
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 2

DRAWN BY: K. MCCAULEY/ALM DATE: 8/18/03 REVISIONS BY: B. BARBER DATE: 12/2004
 CHECKED BY: D.R. CALHOUN DATE: 8/18/03 CHECKED BY: P. BRYANT DATE: 01/2005

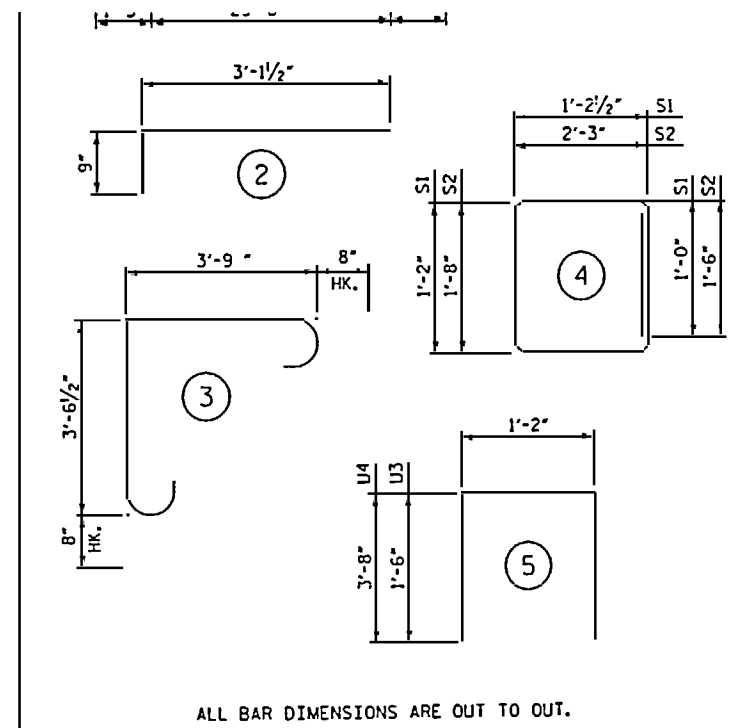
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	11	
1			3			TOTAL SHEETS	
2			4			12	



SECTION A-A



SECTION B-B



ALL BAR DIMENSIONS ARE OUT TO OUT.

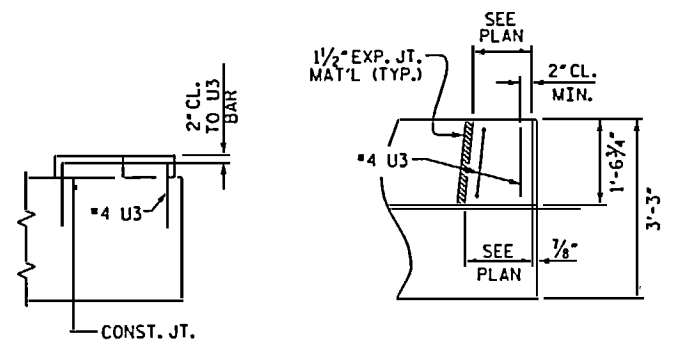
D2	25	6	STR	2-0	75
S1	30	4	4	5-9	115
S2	6	4	4	9-4	38
U1	4	6	3	8-7 1/2	53
U2	20	6	2	3-10 1/2	117
U3	4	4	5	4-2	11
U4	6	4	5	8-6	34

REINFORCING STEEL 791 LBS

CLASS A CONCRETE BREAKDOWN

POUR 1 (CAP)	3.4 yd ³
POUR 2 (LATERAL GUIDE)	0.1 yd ³

TOTAL CLASS A CONCRETE 3.5 yd³

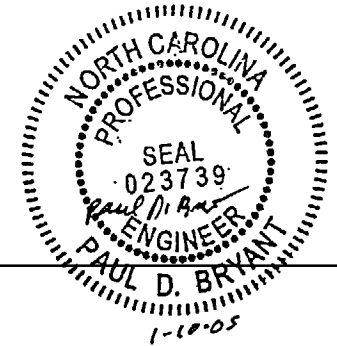


ELEVATION

PLAN

LATERAL GUIDE DETAILS

WBS ELEMENT NO. 30062
ROBESON COUNTY
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT 2

DRAWN BY: K. McCauley/ALM	DATE: 8/19/03	REVISED BY: B. BARBER	DATE: 12/2004
CHECKED BY: D.R. CALHOUN	DATE: 8/19/03	CHECKED BY: P. BRYANT	DATE: 01/2005

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
1			3			12	
2			4			12	

The work covered by this Special Provision consists of furnishing all necessary labor, equipment, and materials and performing all operations necessary for installing anchor bolts/dowels in concrete using an adhesive bonding system in accordance with the details shown on the plans and with the requirements of this specification unless otherwise directed.

Submit a description of the proposed adhesive bonding system to the Engineer for review, comments and acceptance. Include in the description the bolt type and its deformations, equipment, manufacturer's recommended hole diameter, embedment depth, material specifications, and any other material, equipment or procedure not covered by the plans or these specifications. List the properties of the adhesive, including density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength. If bars/dowels containing a corrosion protective coating are required, provide an adhesive that does not contain any chemical elements that are detrimental to the coating and include a statement to this effect in the submittal.

2.0 MATERIALS

Use an adhesive bonding system that has been tested for a tensile strength of 125% of the specified anchor bolt/dowel yield load. Provide certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that the anchor bolt/dowel will not move. The minimum concrete compressive strength is 3000 psi (20.7 MPa) for certification and anchorage selection.

Package components of the adhesive so that one whole container of each component mixes to form one batch of adhesive. Use containers designed so that all of the contents may be removed easily and sealed tightly to prevent leakage. Furnish adhesive material requiring hand mixing in two separate containers designated as Component A and Component B. Provide a self contained cartridge or capsule consisting of two components which are automatically mixed as they are dispensed, as in the case of a cartridge, or drilled into, as in the case of a capsule.

Clearly label each container with the manufacturer's name, date of manufacture, batch number, batch expiration date, direction for use, and warnings and precautions concerning the contents as required by State or Federal Laws and Regulations.

2.0 PROCEDURE

A. Drilling of Holes into Concrete

When directed, use a jig or fixture to ensure the holes are positioned and aligned correctly during the drilling process. Upon approval, adjusting hole locations to avoid reinforcing steel is permitted.

Drill the holes with a pneumatic drill unless another drilling method is approved. Follow the manufacturer's recommendations regarding the diameter of the drilled hole.

Immediately after completion of drilling, blow all dust and debris out of the holes with oil-free compressed air using a wand extending to the bottom of the hole. Remove all dust from the sides of the holes by brushing the holes with a stiff-bristled brush of a sufficient size and then blow the hole free of dust. Repeat this procedure until the hole is completely clean. Check each hole with a depth gauge to ensure proper embedment depth.

Repair spalled or otherwise damaged concrete using approved methods.

B. Inspection of Holes

Inspect each hole immediately prior to placing the adhesive and the anchor bolts/dowels. Ensure all holes are dry and free of dust, dirt, oil, and grease. Rework any hole that does not meet the requirements of this Special Provision.

C. Mixing of Adhesive

Mix the adhesive in strict conformance with the manufacturer's instructions.

D. Embedment of Anchor Bolt/Dowel

Clean each anchor bolt/dowel so that it is free of all rust, grease, oil, and other contaminants.

Unless otherwise shown on the plans, the minimum anchor bolt/dowel embedment depth is such that the adhesive develops at least 125% of the anchor bolt/dowel yield load as determined by the manufacturer.

Insert the anchor bolt/dowel the specified depth into the hole and slightly agitate it to ensure wetting and complete encapsulation. After insertion of the anchor bolt/dowel, strike off any excessive adhesive flush with the concrete face. Should the adhesive fail to fill the hole, add additional adhesive to the hole to allow a flush strike-off.

Do not disturb the anchor bolts/dowels while adhesive is hardening.

4.0 FIELD TESTING

When specified on the plans, test the installed anchor bolts/dowels for adequate adhesive as specified below. Inform the Engineer when the tests will be performed at least 2 days prior to testing. Conduct the tests in the presence of the Engineer.

Use a calibrated hydraulic centerhole jack system for testing. Place the jack on a plate washer that has a hole at least 1/8 inch (3 mm) larger than the hole drilled into the concrete. Position the plate washer on center to allow an

unobstructed pull. Position the anchor bolts/dowels and the jack on the same axis. Have an approved testing agency calibrate the jack within 6 months prior to testing. Supply the Engineer with a certificate of calibration.

In the presence of the Engineer, field test 10% of the first 50 anchor bolts/dowels prior to installing any additional anchors. For testing, apply and hold briefly 90% of the anchor bolt/dowel yield load shown on the plans. No visible signs of movement of the anchor bolts/dowels is permitted under this load. Upon receiving satisfactory results from these tests, install the remaining anchors. Test a minimum of 2% of the remaining anchors as previously prescribed.

Record data for each anchor bolt/dowel tested on the report from entitled "Installation Test Report of Adhesively Anchored Anchor Bolts or Dowels". Obtain this form from the NC DOT Materials and Tests Engineer. Submit a copy of the completed report forms to the Engineer.

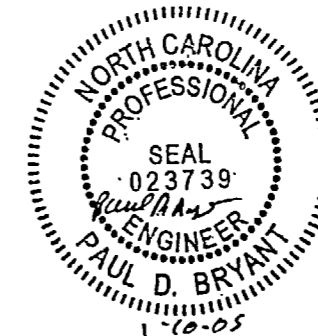
Final acceptance of the adhesively anchored system is based on the conformance of the pull test to the requirements of this specification. Failure to meet the criteria of this specification is grounds for rejection.

5.0 BASIS OF PAYMENT

No separate measurement of payment will be made for furnishing, installing, and testing anchor bolts/dowels.

Payment at the contract unit prices for the various pay items will be full compensation for all materials, equipment, tools, labor, and incidentals necessary to complete the above work.

WBS ELEMENT NO. 30062
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 BRIDGE NO: 167



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PROJECT SPECIAL PROVISIONS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. A

DRAWN BY: B. BARBER DATE: 12/2004
 CHECKED BY: P. BRYANT DATE: 01/2005

This Special Provision applies in addition to Article 420-3 of the Standard Specifications.

This Special Provision covers falsework or forms including metal stay-in-place forms and precast concrete deck panels erected over vehicular, pedestrian or railroad traffic, or vessel traffic on navigable waterways. It also covers falsework and forms for those parts of a substructure unit constructed within 20 ft. (6 m) of the edge of a travelway or railroad track and more than 25 ft. (7.6 m) above the ground line at the time of substructure construction.

1.0 SUBMITTALS

Submit detailed drawings as required by the Standard Specifications or other Special Provisions and one set of design calculations for falsework and forms for review and acceptance before beginning construction of the falsework or forms. Have the drawings and design calculations prepared, signed and sealed by a North Carolina Registered Professional Engineer. These submittal requirements apply to all falsework and form systems covered by this Special Provision.

2.0 DESIGN

Design falsework and forms for the combined effects of dead load and live load and with appropriate safety factors in accordance with these Special Provisions and the respective design codes of the materials used. Include the weight of concrete, reinforcing steel, forms and falsework in the dead load. Live load includes the actual weight of any equipment the falsework supports, applied as concentrated loads at the points of contact, and a uniform load of not less than 20 lbs/ft² (1.0 kPa) applied over the supported area. In addition, apply a line load of 75 lbs/ft (1.1 kN/m) along the outside edge of deck overhangs.

3.0 INSPECTION

Before the form or falsework system is loaded, inspect the erected falsework and forms and submit a written statement certifying that the erected falsework system complies with the accepted detailed drawings prepared by the Registered Professional Engineer. Submit a separate certification for each span, unit, or bridge component. Any condition that does not comply with the accepted drawings, or any other condition deemed unsatisfactory by the Engineer, is cause for rejection until corrections are made.

4.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items will be full compensation for the above work required for falsework or forms.

GENERAL PROPOSED STRUCTURE AT STATION

1.0 GENERAL

Maintain traffic on _____ as shown in Traffic Control Plans and as directed by the Engineer.

Provide a minimum temporary vertical clearance of _____ at all times during construction.

Submit plans and calculations for review and approval for protecting traffic and bracing girders, as described herein, at the above station before beginning work at this location. Have the drawings and design calculations prepared, signed, and sealed by a North Carolina Registered Professional Engineer. The approval of the Engineer will not relieve the Contractor of the responsibility for the safety of the method or equipment.

2.0 PROTECTION OF TRAFFIC

Protect traffic from any operation that affords the opportunity for construction materials, equipment, tools, etc. to be dropped into the path of traffic beneath the structure. Based on Contractor means and methods determine and clearly define all dead and live loads for this system, which, at a minimum, shall be installed between beams or girders over any travelway or shoulder area where traffic is maintained. Install the protective system before beginning any construction operations over traffic. In addition, for these same areas, keep the overhang falsework in place until after the rails have been poured.

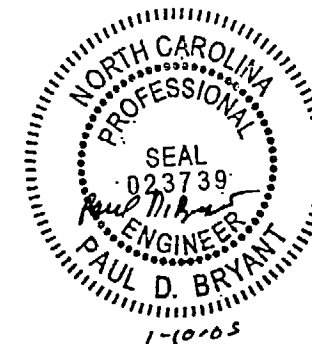
3.0 BRACING GIRDERS

Brace girders to resist wind forces, weight of forms and other temporary loads, especially those eccentric to the vertical axis of the member during all stages of erection and construction. Before casting of intermediate diaphragms, decks, or connecting steel diaphragms do not allow the horizontal movement of girders to exceed 1/2 inch (13mm).

4.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items will be full compensation for the above work.

WBS ELEMENT NO. 30062
ROBESON COUNTY
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PROJECT SPECIAL PROVISIONS

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

DRAWN BY: B. BARBER DATE: 12/2004
CHECKED BY: P. BRYANT DATE: 01/2005

specifications, other Special Provisions, or contract plans. Make submittals that are not specifically noted in this Special Provision directly to the Resident Engineer.

If submittals contain variations from plan details or specifications, significantly affect project cost, or significantly affect field construction or operations, discuss them with, and submit them through, the Resident Engineer. State the reason for the proposed variation in the submittals. To minimize overall review time, make sure all working drawing submittals are complete when first submitted. Provide a contact name and phone number with each submittal. Direct any questions regarding working drawing submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

20 WORKING DRAWINGS SUBMITTAL CONTACTS

All submittals noted herein are reviewed by the Structure Design Unit and/or the Geotechnical Engineering Unit.

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:	Via other delivery service:
M. G. R. Perfetti, P. E. State Bridge Design Engineer North Carolina Department of Transportation Structure Design Unit 1581 Mail Service Center Raleigh, NC 27699-1581 Attention: M. R. P. D. Lambert, P. E.	M. G. R. Perfetti, P. E. State Bridge Design Engineer North Carolina Department of Transportation Structure Design Unit 1000 Birch Ridge Drive Raleigh, NC 27610 Attention: M. R. P. D. Lambert, P. E.

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:	Via other delivery service:
Via US mail:	Via other delivery service:
M. R. K. J. Kim, Ph. D., P. E. Eastern Regional Geotechnical Manager North Carolina Department of Transportation Geotechnical Engineering Unit Eastern Regional Office 1570 Mail Service Center 100 Raleigh, NC 27699-1570	M. R. K. J. Kim, Ph. D., P. E. Eastern Regional Geotechnical Manager North Carolina Department of Transportation Geotechnical Engineering Unit Eastern Regional Office 3301 Jones Sausage Road, Suite 100 Gamer, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:	Via other delivery service:
M. R. John PiliplchuK, L. G., P. E. Western Regional Geotechnical Manager North Carolina Department of Transportation Geotechnical Engineering Unit Western Regional Office 5253 Z Max Boulevard Harrisburg, NC 28075	M. R. John PiliplchuK, L. G., P. E. Western Regional Geotechnical Manager North Carolina Department of Transportation Geotechnical Engineering Unit Western Regional Office 5253 Z Max Boulevard Harrisburg, NC 28075

Direct any questions concerning submittal review status, review comments, or drawing markups to the following contacts:

Primary Structures Contact:	Paul Lambert (919) 250-4041 (919) 250-4082 facsimile plambert@dot.state.nc.us
Secondary Structures Contact:	James G. Alther (919) 250-4042 Mar-Pan Hul (919) 250-4044
Eastern Regional Geotechnical Contact (Divisions 1-7):	K. J. Kim (919) 662-4710 (919) 662-3095 facsimile KJKim@dot.state.nc.us
Western Regional Geotechnical Contact (Divisions 8-14):	John PiliplchuK (704) 455-8902 (704) 455-8912 facsimile jpiliplchuK@dot.state.nc.us

30 SUBMITTAL COPIES

The quantities provided in this Special Provision act as a guide in the submittal process.

Unless otherwise required by the contract, submit two sets of supporting calculations to the Structure Design Unit.

Furnish one complete copy of the submittal, including all attachments, to the Resident Engineer. If requested, provide additional copies of any submittal. At the same time, submit the following number of copies directly to the Structure Design Unit and/or the Geotechnical Engineering Unit:

Submittal	Design Unit	UNIT	Requiring Submittal
Arch Culvert Falsework	5	0	Plan Note & SN Sheet
Box Culvert Falsework ²	5	0	Plan Note & SN Sheet
Cofferdams ⁴	6	1	Articles 410-5 and 420-8
Expansion Joint Seals (hold down plate type with base angle)	9	0	"Expansion Joint Seals"
Expansion Joint Seals (modular)	2, then 9	0	"Modular Expansion Joint Seals"
Expansion Joint Seals (strip seals)	9	0	"Strip Seals"
Falsework & Forms (superstructure)	8	0	Article 420-3
Falsework & Forms ² (substructure)	8	0	Article 420-3
Mechanically Stabilized Earth Retaining Walls ⁴	7	1	"MSE Retaining Walls"
Metal Bridge Railing	8	0	Plan Note
Metal Stay-In-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{5,6}	7	0	Article 1072-10
Miscellaneous Metalwork ^{5,6}	7	0	Article 1072-10
Overhead Sign Assemblies	13	0	Article 903-3(C)
Pile Points	7	1	Article 450-6(D) & "Steel Pile Points"
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Precast Concrete Box Culverts	2, then 1 reproducible	0	"(Optional) Precast Reinforced Concrete Box Culvert at Station ____"
Precast Retaining Wall Panels	10	0	Article 1077-2
Pot bearings ⁵	8	0	"Pot Bearings"
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Proprietary retaining walls ⁴	9	1	Applicable Project Special Provision
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078- 11
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Revised Bridge Deck Plans (adaptation to metal stay-in-place forms)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	"Modular Expansion Joint Seals"
Soil Nail Retaining Walls ⁴	4	1	Applicable Project Special Provision
Sound Barrier Wall Steel Fabrication Plans ⁶	7	0	Article 1072-10 & "Sound Barrier Wall"
Sound Barrier Wall Casting Plans	10	0	Article 1077-2 & "Sound Barrier Wall"
Structural Steel ⁵	2, then 7	0	Article 1072-10
TFE Expansion Bearings ⁵	8	0	Article 1072-10
Temporary Detour Structures ⁴	10	1	Article 400-3 & Construction, Maintenance and Removal of Temporary Structure at Station ____
Temporary Shoring ⁴	6	1	Article 410-4 & Temporary Shoring for Maintenance of Traffic"
Temporary Fabric or Wire Walls ⁸	0	2	Applicable Project Special Provision
Permanent Anchored Tieback Retaining Walls ⁴	4	1	Applicable Project Special Provision
Evazote Joint Seals ⁷	9	0	Applicable Project Special Provision
Optional Disc Bearings ⁵	8	0	"Optional Disc Bearings"
Removal of Existing Structure over Railroad	5	0	Railroad Special Provisions
Drilled Pier Construction Sequence Plans ⁸	0	2	"Drilled Piers"
Pile Hammers ⁸	0	2	Article 450-6

FOOTNOTES

- References are provided to help locate the part of the contract where the working drawing submittals are required. References in quotes refer to the Project Special Provision by that name. Articles refer to the Standard Specifications.
- Submittals for these items are necessary only when plan notes require them.
- Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials and Tests Unit.
- These submittals are reviewed by the Structure Design Unit and the Geotechnical Engineering Unit. If NCDOT Shoring Standards are used, working drawings need not be submitted, but the Shoring Selection Form should be forwarded to the Geotechnical Engineering Unit.
- The fabricator may submit these items directly to the Structure Design Unit.
- The two sets of preliminary submittals required by Article 1072-10 of the Standard Specifications are not required for these items.
- Submittals for Fabrication Drawings are not required. Submission of Catalogue Cuts of Proposed Material is required. See Section 5.A of the Project Special Provision.
- Submittals for these items are reviewed by the Geotechnical Engineering Unit only and correspondence regarding these items should be directed to and will come from the Geotechnical Engineering Unit.

WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO. 167



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PROJECT SPECIAL PROVISIONS					
REVISORS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

DRAWN BY: B. BARBER DATE: 12/2004
CHECKED BY: P. BRYANT DATE: 01/2005

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term temporary works is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS

A. Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO Guide Design Specifications for Bridge Temporary Works except as noted herein.

1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph (177 Km/hr). In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet (m) above ground	Pressure, lb/ft ² (kPa) for Indicated Wind Velocity, mph (Km/hr)				
	70 (112.7)	80 (128.7)	90 (144.8)	100 (160.9)	110 (177.0)
0 to 30 (0 to 9.1)	15 (0.72)	20 (0.96)	25 (1.20)	30 (1.44)	35 (1.68)
30 to 50 (9.1 to 15.2)	20 (0.96)	25 (1.20)	30 (1.44)	35 (1.68)	40 (1.92)
50 to 100 (15.2 to 30.5)	25 (1.20)	30 (1.44)	35 (1.68)	40 (1.92)	45 (2.15)
over 100 (30.5)	30 (1.44)	35 (1.68)	40 (1.92)	45 (2.15)	50 (2.39)

2. Time of Removal

The following requirements replace those of Article 3.4.8.2

Do not remove forms until the concrete has attained strengths required in Article 420-17 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Alexander	70 (112.7)	Gaston	70 (112.7)	Pasquotank	100 (160.9)
Alleghany	70 (112.7)	Gates	90 (144.8)	Pender	100 (160.9)
Anson	70 (112.7)	Graham	80 (128.7)	Perquimans	100 (160.9)
Ashe	70 (112.7)	Granville	70 (112.7)	Person	70 (112.7)
Avery	70 (112.7)	Greene	80 (128.7)	PIH	90 (144.8)
Beaufort	100 (160.9)	Gulford	70 (112.7)	Polk	80 (128.7)
Bertie	90 (144.8)	Halifax	80 (128.7)	Randolph	70 (112.7)
Bladen	90 (144.8)	Harnett	70 (112.7)	Richmond	70 (112.7)
Brunswick	100 (160.9)	Haywood	80 (128.7)	Robeson	80 (128.7)
Buncombe	80 (128.7)	Henderson	80 (128.7)	Rockingham	70 (112.7)
Burke	70 (112.7)	Hertford	90 (144.8)	Rowan	70 (112.7)
Cabarrus	70 (112.7)	HoKe	70 (112.7)	Rutherford	70 (112.7)
Caldwell	70 (112.7)	Hyde	110 (177.0)	Sampson	90 (144.8)
Camden	100 (160.9)	Jadell	70 (112.7)	Scotland	70 (112.7)
Carteret	110 (177.0)	Jackson	80 (128.7)	Stanley	70 (112.7)
Caswell	70 (112.7)	Johnston	80 (128.7)	Stokes	70 (112.7)
Catawba	70 (112.7)	Jones	100 (160.9)	Surry	70 (112.7)
Cherokee	80 (128.7)	Lee	70 (112.7)	Swain	80 (128.7)
Chatham	70 (112.7)	Lenoir	90 (144.8)	Transylvania	80 (128.7)
Chowan	90 (144.8)	Lincoln	70 (112.7)	Tyrell	100 (160.9)
Clay	80 (128.7)	Macon	80 (128.7)	Union	70 (112.7)
Cleveland	70 (112.7)	Madison	80 (128.7)	Vance	70 (112.7)
Columbus	90 (144.8)	Martin	90 (144.8)	Wake	70 (112.7)
Craven	100 (160.9)	McDowell	70 (112.7)	Warren	70 (112.7)
Cumberland	80 (128.7)	Mecklenburg	70 (112.7)	Washington	100 (160.9)
Currituck	100 (160.9)	Mitchell	70 (112.7)	Watauga	70 (112.7)
Dare	110 (177.0)	Montgomery	70 (112.7)	Wayne	80 (128.7)
Davison	70 (112.7)	Moore	70 (112.7)	Wilkes	70 (112.7)
Davie	70 (112.7)	Nash	80 (128.7)	Wilson	80 (128.7)
Duplin	90 (144.8)	New Hanover	100 (160.9)	Yadkin	70 (112.7)
Durham	70 (112.7)	Northampton	80 (128.7)	Yancey	70 (112.7)
Edgecombe	80 (128.7)	Onslow	100 (160.9)		
Forsyth	70 (112.7)	Orange	70 (112.7)		

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize, metallize or otherwise protect these devices as directed by the Engineer. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

A. Review and Approval

The Engineer is responsible for the review and approval of temporary works drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tie-backs attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch (25 mm). For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

5.0 REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

6.0 METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

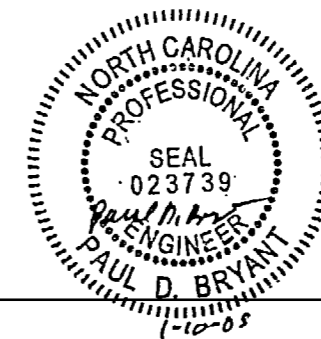
7.0 BASIS OF PAYMENT

Payment of the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

WBS ELEMENT NO. 30062

ROBESON COUNTY

BRIDGE NO. 167



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PROJECT SPECIAL
PROVISIONS

REVISIONS

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

DRAWN BY: B. BARBER DATE: 12/2004
CHECKED BY: P. BRYANT DATE: 01/2005

1.0 DESCRIPTION

This work consists of preparing the concrete surface and furnishing and applying an epoxy protective coating to the surfaces described in this Special Provision. When epoxy protective coating is required, cure the top surfaces of the bent or end bent caps in accordance with the Standard Specifications, but do not use the Membrane Curing Compound method.

2.0 MATERIALS

Use an epoxy coating that meets the most recently published NCDOT Specification on the date of advertisement. Use the epoxy coating that meets NCDOT-Type 4A Flexible, epoxy coating, moisture insensitive.

Provide a certification for the proposed epoxy showing that it meets NCDOT-Type 4A.

The following companies have epoxies that meet Type 4A Specifications:

- E-Bond Epoxy, Inc.
Fort Lauderdale, Florida 33307
- Permaglle Industries
Plainview, NY 11803
- Poly-Carb
Cleveland, OH 44139
- Tamms, Inc.
Mentor, OH 44060
- Adhesive Engineering
Cleveland, OH 44122-5554
- Kaufman Products
Baltimore, MD 21226-1131
- Prime Resins
Lithonia, GA 30058
- SiKa Corporation
Lyndhurst, N. J. 07071

A copy of the specifications for Epoxy Resin Systems is available from the Materials and Tests Unit.

3.0 SURFACES

With the exception of cored slab bridges, apply the epoxy protective coating to the top surface area, including chamfer area, of bent caps under expansion joints and of end bent caps, excluding areas under elastomeric bearings. For cored slab bridges, do not apply the epoxy protective coating to the bent or end bent caps. Also, apply epoxy protective coating to the ends of prestressed concrete members as noted on the plans.

Use extreme care to keep the area under the elastomeric bearings free of the epoxy protective coating. Do not apply the epoxy protective coating in the notch at the ends of the prestressed concrete girders.

Thoroughly clean all dust, dirt, grease, oil, laitance, and other objectionable material from the concrete surfaces to be coated. Air-blast all surfaces immediately prior to applying the protective coating.

Only use cleaning agents pre-approved by the Engineer.

4.0 APPLICATION

Apply epoxy protective coating only when the air temperature is at least 40°F (4°C) and rising, but less than 95°F (35°C) and the surface temperature of the area to be coated is at least 40°F (4°C). Remove any excess or free standing water from the surfaces before applying the coating. Apply one coat of epoxy protective coating at a rate such that it covers between 100 and 200 ft²/gal (2.5 and 5 m²/liter).

Note: Under certain combinations of circumstances, the cured epoxy protective coating may develop "bily" condition on the surface due to amine blush. This condition is not detrimental to the applied system.

Apply the coating so that the entire designated surface of the concrete is covered and all pores filled. To provide a uniform appearance, use the exact same material on all visible surfaces.

5.0 BASIS OF PAYMENT

No separate measurement or payment will be made for preparing, furnishing and applying the epoxy protective coating to the concrete surfaces.

Payment at the contract unit prices for the various pay items will be full compensation for the above work including all materials, equipment, tools, labor, and incidentals necessary to complete the work.

ELASTOMERIC BEARINGS

(10-03-02)

Use elastomeric bearings in accordance with Article 1079-2 of the Standard Specifications except as follows:

TABLE 1079-2
NATURAL RUBBER ELASTOMER REQUIREMENTS

Grade (durometer)	50	60
PHYSICAL PROPERTIES		
Hardness ASTM D2240	50 +5 -5	60 +5 -5



WBS ELEMENT NO. 30062
ROBESON COUNTY
BRIDGE NO: 167

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PROJECT SPECIAL PROVISIONS					
REVIS IONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

DRAWN BY: B. BARBER DATE: 12/2004
CHECKED BY: P. BRYANT DATE: 01/2005