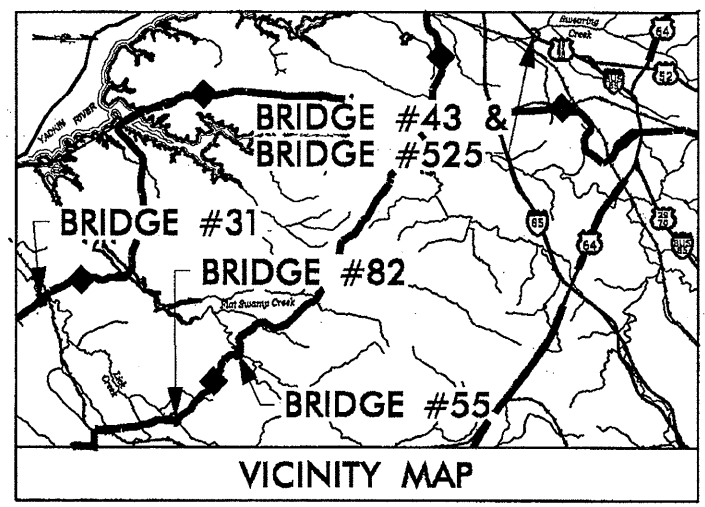
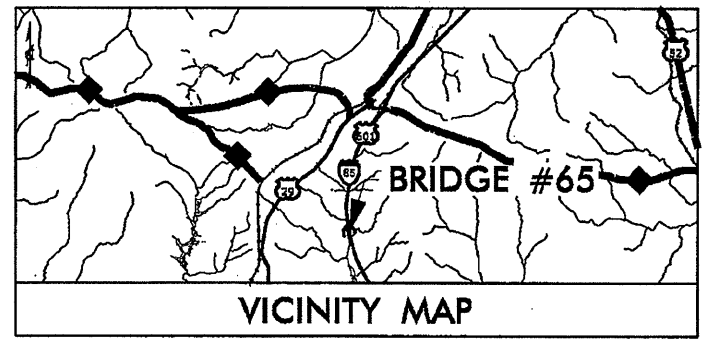


PROJECT: 17BP.9.H.2

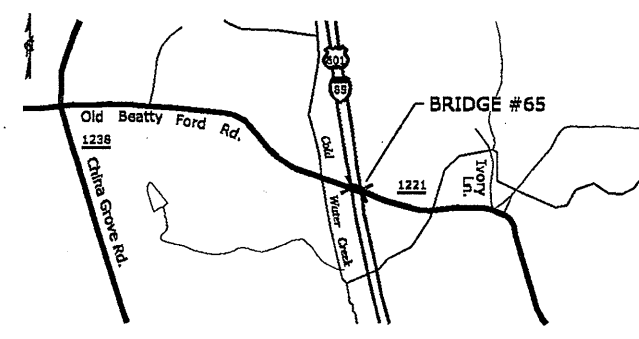
CONTRACT: C203121



VICINITY MAP
DAVIDSON COUNTY



VICINITY MAP
ROWAN COUNTY



VICINITY MAP
BRIDGE #65

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC LICENSE NO. P-0991

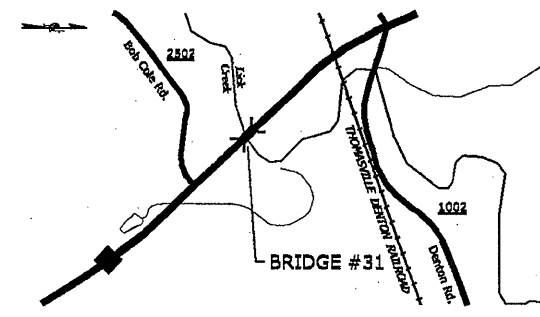
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**DAVIDSON COUNTY
ROWAN COUNTY**

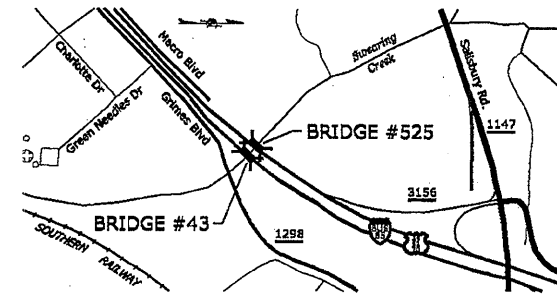
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.H.2	1	XX
STATE PROJ. NO.	F.A. DESIGN	DESCRIPTION	
17BP.9.H.2	NA	PE	
17BP.9.H.2	NA	CONSTR.	

LOCATION: BRIDGE #31 ON NC 8 OVER LICK CREEK, DAVIDSON COUNTY
 BRIDGE #43 ON US 29 & US 70 OVER SWEARING CREEK, DAVIDSON COUNTY
 BRIDGE #525 ON US 29 & US 70 OVER SWEARING CREEK, DAVIDSON COUNTY
 BRIDGE #55 ON NC 47 OVER FLAT SWAMP CREEK, DAVIDSON COUNTY
 BRIDGE #82 ON NC 47 OVER LICK CREEK, DAVIDSON COUNTY
 BRIDGE #65 ON SR 1221 OVER I-85, US601, ROWAN COUNTY

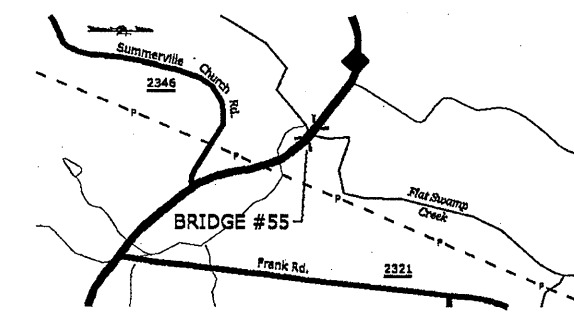
TYPE OF WORK: BRIDGE PRESERVATION: CONCRETE OVERLAY, SUPERSTRUCTURE REPLACEMENT, DECK REPLACEMENT, SUBSTRUCTURE REPAIR AND PAINTING STRUCTURAL STEEL



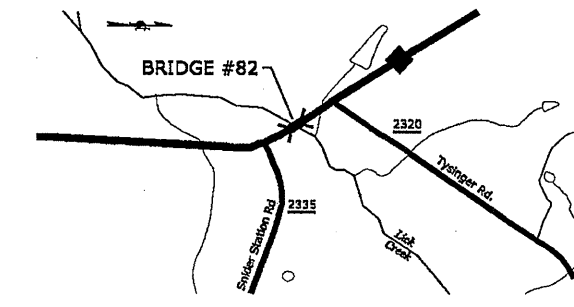
VICINITY MAP
BRIDGE #31



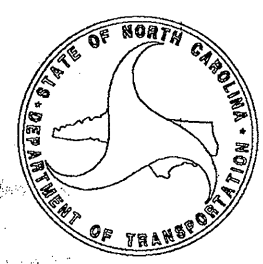
VICINITY MAP
BRIDGE #43 & #525



VICINITY MAP
BRIDGE #55



VICINITY MAP
BRIDGE #82



TRAFFIC DATA

BRIDGE #31 - ADT =	720
BRIDGE #43 - ADT =	13,000
BRIDGE #525 - ADT =	13,000
BRIDGE #55 - ADT =	1,200
BRIDGE #82 - ADT =	1,400
BRIDGE #65 - ADT =	1,800

PROJECT LENGTH

BRIDGE	LENGTH	STRUCTURE	PROJECT
#31	.04	MILE	
#43	.03	MILE	
#525	.03	MILE	
#55	.03	MILE	
#82	.04	MILE	
#65	.06	MILE	

Prepared For:
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 21, 2012

PAUL KELLY, P.E.
PROJECT ENGINEER

RICK NELSON, P.E.
NCDOT PROJECT ENGINEER

ENGINEER

FARZIN ASEFNIA, P.E.

\$DATES \$TIMES \$FILES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.9.H.2	1A	XX
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.9.H.2	NA	PE	
17BP.9.H.2	NA	CONSTR.	

**DAVIDSON COUNTY
ROWAN COUNTY**

LOCATION: BRIDGE #31 ON NC 8 OVER LICK CREEK, DAVIDSON COUNTY
BRIDGE #43 ON US 29 & US 70 OVER SWEARING CREEK, DAVIDSON COUNTY
BRIDGE #525 ON US 29 & US 70 OVER SWEARING CREEK, DAVIDSON COUNTY
BRIDGE #55 ON NC 47 OVER FLAT SWAMP CREEK, DAVIDSON COUNTY
BRIDGE #82 ON NC 47 OVER LICK CREEK, DAVIDSON COUNTY
BRIDGE #65 ON SR 1221 OVER I-85, US601, ROWAN COUNTY

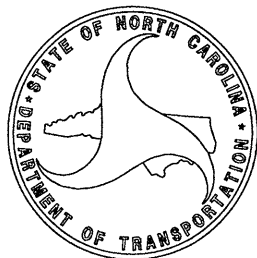
TYPE OF WORK: BRIDGE PRESERVATION: CONCRETE OVERLAY, SUPERSTRUCTURE REPLACEMENT, DECK REPLACEMENT, SUBSTRUCTURE REPAIR AND PAINTING STRUCTURAL STEEL.

INDEX OF SHEETS

1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
	STRUCTURES
S-1 – S-23	BRIDGE #31
S-24 – S-27	BRIDGE #43
S-28 – S-31	BRIDGE #525
S-32 – S-51	BRIDGE #55
S-52 – S-72	BRIDGE #82
S-73 – S-93	BRIDGE #65
SN	STRUCTURAL STANDARD NOTES
TMP-1 – TMP-2E	TRAFFIC MANAGEMENT PLANS
SD-1	SIGN DETAILS

PROJECT: 17BP.9.H.2

CONTRACT:



Prepared For:
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

PAUL KELLY, P.E.
PROJECT ENGINEER

ENGINEER

FARZIN ASEFNIA, P.E.

10/02/09

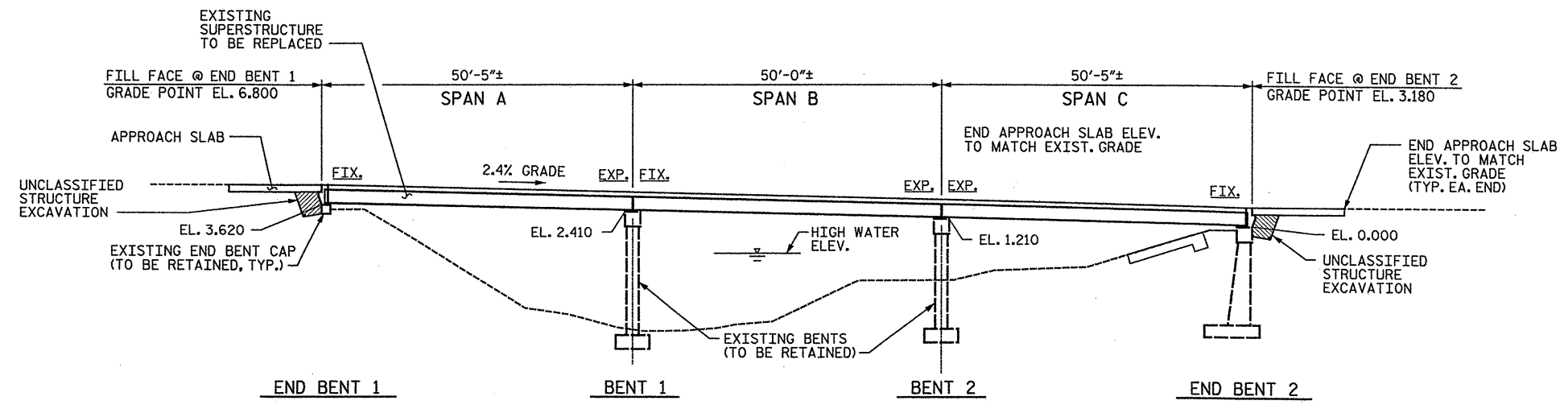
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203121

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
					8517000000-E	460	1,132.7	LF	1'***X***** CONCRETE PARAPET (1'-0" x 1'-6")
0000100000-N	800	Lump Sum		MOBILIZATION	8608000000-E	876	54	TON	RIP RAP CLASS II (2'-0" THICK)
1330000000-E	607	999	SY	INCIDENTAL MILLING	8622000000-E	876	79	SY	GEOTEXTILE FOR DRAINAGE
1525000000-E	610	139	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	8657000000-N	430	Lump Sum		ELASTOMERIC BEARINGS
1575000000-E	620	10	TON	ASPHALT BINDER FOR PLANT MIX	8660000000-E	SP	6	CF	CONCRETE REPAIRS
4400000000-E	1110	982	SF	WORK ZONE SIGNS (STATIONARY)	8678000000-E	SP	145	LF	EPOXY RESIN INJECTION
4405000000-E	1110	310	SF	WORK ZONE SIGNS (PORTABLE)	8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
4410000000-E	1110	202	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE APPROACH SLABS AT BRIDGE #31
4415000000-N	1115	3	EA	FLASHING ARROW BOARD	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE APPROACH SLABS AT BRIDGE #55
4420000000-N	1120	1	EA	PORTABLE CHANGEABLE MESSAGE SIGN	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE APPROACH SLABS AT BRIDGE #65
4430000000-N	1130	30	EA	DRUMS	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM BRIDGE APPROACH SLABS AT BRIDGE #82
4445000000-E	1145	80	LF	BARRICADES (TYPE III)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CLEANING & REPAINTING OF OF BRIDGE #65
4455000000-N	1150	12	DAY	FLAGGER	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #31
4480000000-N	1165	2	EA	TMA	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #55
4485000000-E	1170	600	LF	PORTABLE CONCRETE BARRIER	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #65
4500000000-E	1170	600	LF	RESET PORTABLE CONCRETE BARRIER	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM POST TENSIONING STRAND REPLACEMENT
4847000000-E	1205	5,125	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (STANDARD GLASS BEADS)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM STRUCTURAL STEEL MODIFICATION
4900000000-N	1251	20	EA	PERMANENT RAISED PAVEMENT MARKERS	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #31
8147000000-E	420	9,027	SF	REINFORCED CONCRETE DECK SLAB	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #65
8154000000-E	420	9,113	SF	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONC)	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #82
8156000000-E	SP	9,911	SF	CONCRETE WEARING SURFACE	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #55
8161000000-E	420	27,609	SF	GROOVING BRIDGE FLOORS	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #65
8280000000-E	440	138,224	LS	APPROX LBS STRUCTURAL STEEL	8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE #82
8296000000-N	442	Lump Sum		POLLUTION CONTROL	8893000000-E	SP	1,101.3	SY	GENERIC STRUCTURE ITEM MILLING OF BRIDGE DECK
8440000000-E	454	92	SY	METHOD A WATERPROOFING					
8468000000-E	460	1,132.7	LF	ONE BAR METAL RAIL					

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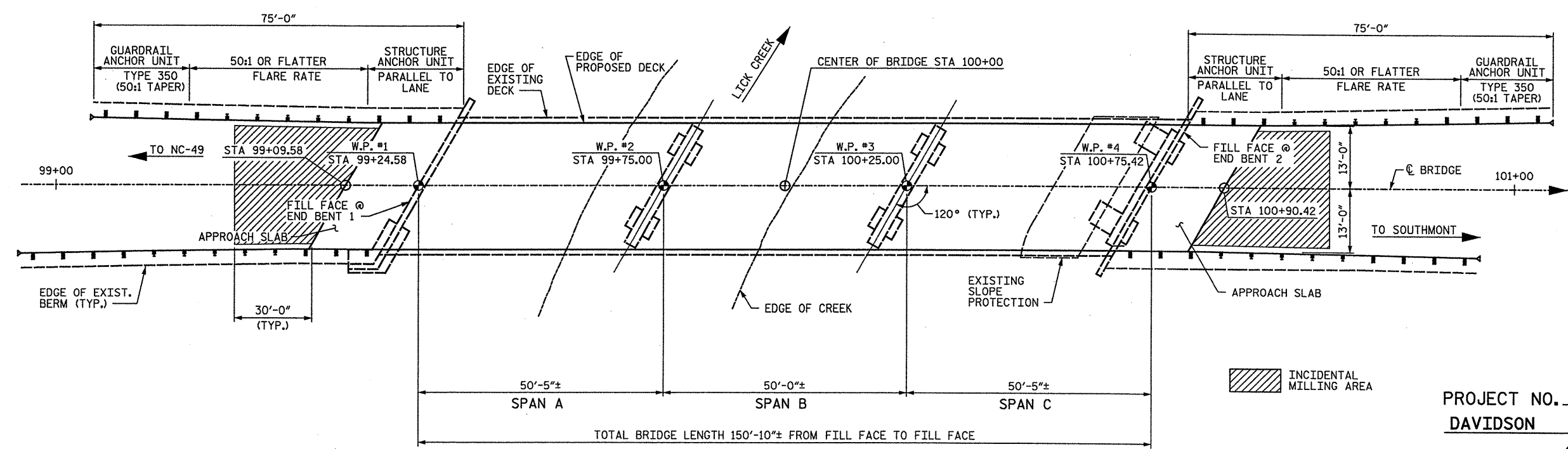
6/15/2012



SECTION ALONG CENTERLINE OF BRIDGE

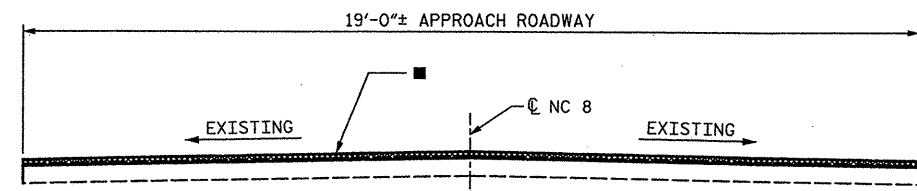
NOTE: ROADWAY BARRIER DETAILS ARE NOT SHOWN FOR CLARITY (SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)

NOTES:
 ALL EXISTING STATIONS AND ELEVATIONS ARE AS PER THE AS-BUILT PLANS.
 THE ORIGIN OF THE STATION ALONG CENTERLINE OF THE BRIDGE IS ASSUMED FOR PLAN PREPARATION.
 THE VERTICAL DATUM IS ASSUMED FOR PLAN PREPARATION.
 ALL EXISTING SUBSTRUCTURE AND FOOTINGS WILL REMAIN IN PLACE.
 WATER LEVEL SHOWN IS THE APPROXIMATE HIGHWATER MARK (1910) AS IT APPEARS IN AS BUILT PLANS.
 FOR LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS FOR SAND LIGHTWEIGHT CONCRETE.



PLAN

NOTE: ROADWAY BARRIER DETAILS ARE NOT SHOWN FOR CLARITY



TYPICAL ROADWAY SECTION

■ VARIABLE DEPTH MILLING 1 1/2" - 3 1/2". REPLACE WITH 1 1/2" MIN. ASPHALT C1 TO TRANSITION TO EXISTING RIDING SURFACE

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" DEPTH.

DRAWN BY: AR DATE: 04-12
 CHECKED BY: MR DATE: 04-12
 REV. PER NCDOT COMMENTS

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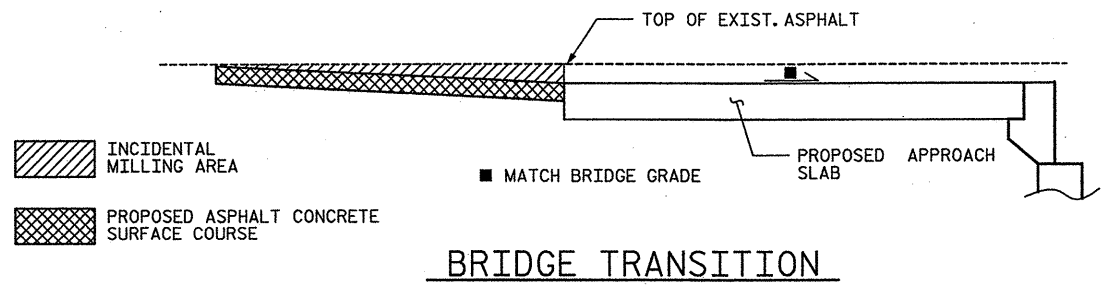
PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON NC 8
 OVER LICK CREEK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1	STV	6-12	3			TOTAL SHEETS
2			4			93

TOTAL BILL OF MATERIAL Δ

	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE 31	UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE 31	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	GROOVING BRIDGE FLOORS	BRIDGE APPROACH SLABS AT BRIDGE 31	STRUCTURAL STEEL	ONE BAR METAL RAIL	1'-0" X 1'-6" CONCRETE PARAPET (SAND LIGHTWEIGHT CONCRETE)	ELASTOMERIC BEARINGS	FOAM JOINT SEALS
	SQ. YDS.	TONS	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	LUMP SUM	APPROX. LBS.	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					3954	3773		75,678	286.7	286.7		
TOTAL	150	13	LUMP SUM	LUMP SUM	3954	3773	LUMP SUM	75,678	286.7	286.7	LUMP SUM	LUMP SUM



NOTES:

ASSUMED LIVE LOAD = HS-20 OR ALTERNATIVE LOADING.

THE PROPOSED BRIDGE SUPERSTRUCTURE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD IN ACCORDANCE WITH THE AASHTO LFD STANDARD SPECIFICATION FOR HIGHWAY BRIDGES 17TH EDITION, 2002.

THE EXISTING SUBSTRUCTURE WILL REMAIN IN PLACE. NO ANALYSIS OR DESIGN HAS BEEN PERFORMED TO EVALUATE THE CAPACITY OF THE SUBSTRUCTURE AND THE FOUNDATIONS. IF ANY DISTRESS IS NOTICED DURING THE CONSTRUCTION, THE CONTRACTOR MUST IMMEDIATELY STOP WORK AND NOTIFY THE DEPARTMENT OF TRANSPORTATION AND THE ENGINEER. THE WORK MAY NOT RESUME UNTIL THE CAUSE OF DISTRESS IS DETECTED AND RESOLVED.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB CONTINUOUS UNIT SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR 'REMOVAL OF EXISTING SUPERSTRUCTURE AT EXISTING STATION 594+20'.

THE CLASS AA LIGHTWEIGHT CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 16 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

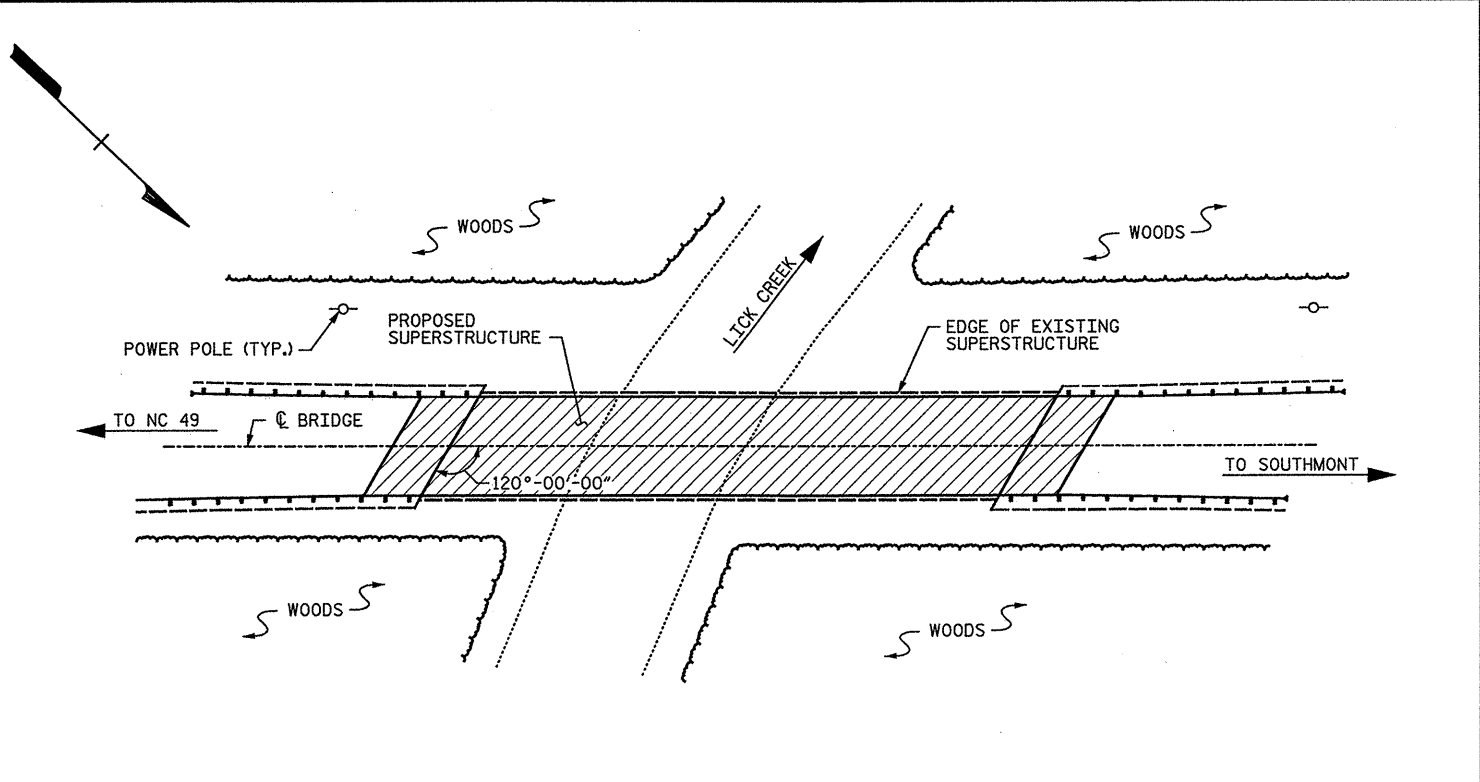
THE EXISTING SUPERSTRUCTURE CONSISTING OF ROLLED STEEL I-BEAMS @ 6'-9" CENTERS IN 3 SIMPLE SPANS OF 30'-0" WITH A CLEAR ROADWAY WIDTH OF 24'-0" SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

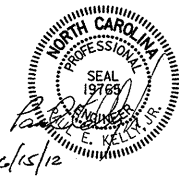
FOR GROUT FOR STRUCTURES SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY SEE SPECIAL PROVISIONS.



PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 LOCATION SKETCH AND
 TOTAL BILL OF MATERIALS
 BRIDGE ON NC 47
 OVER LICK CREEK



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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28206
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1	STV	6-12	3			TOTAL SHEETS
2			4			93

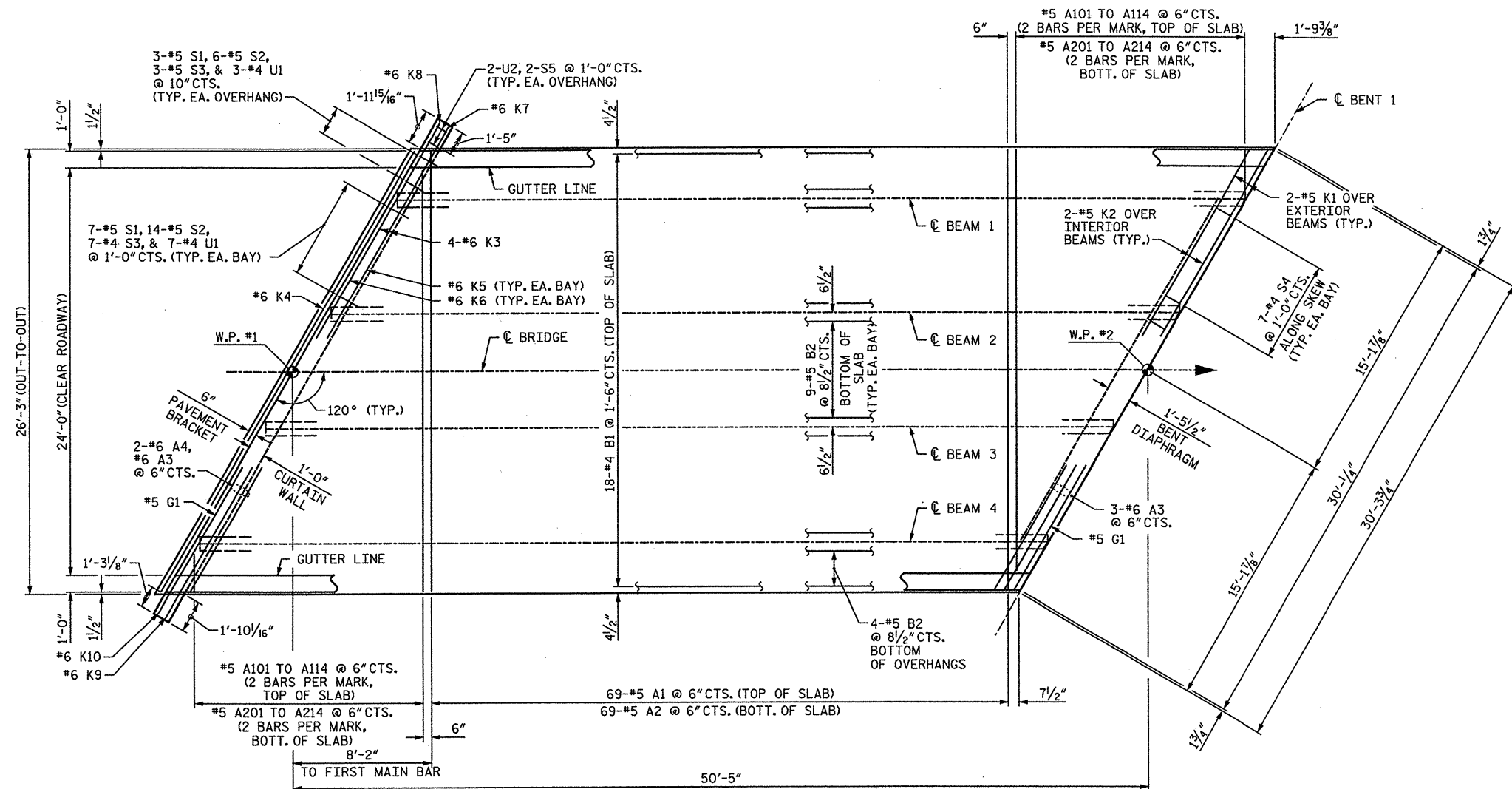
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 CHECKED BY : MR DATE : 04-12
 REV. PER NCDOT COMMENTS

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clveyoc

5/17/2012



PLAN OF SPAN A

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 SPAN A

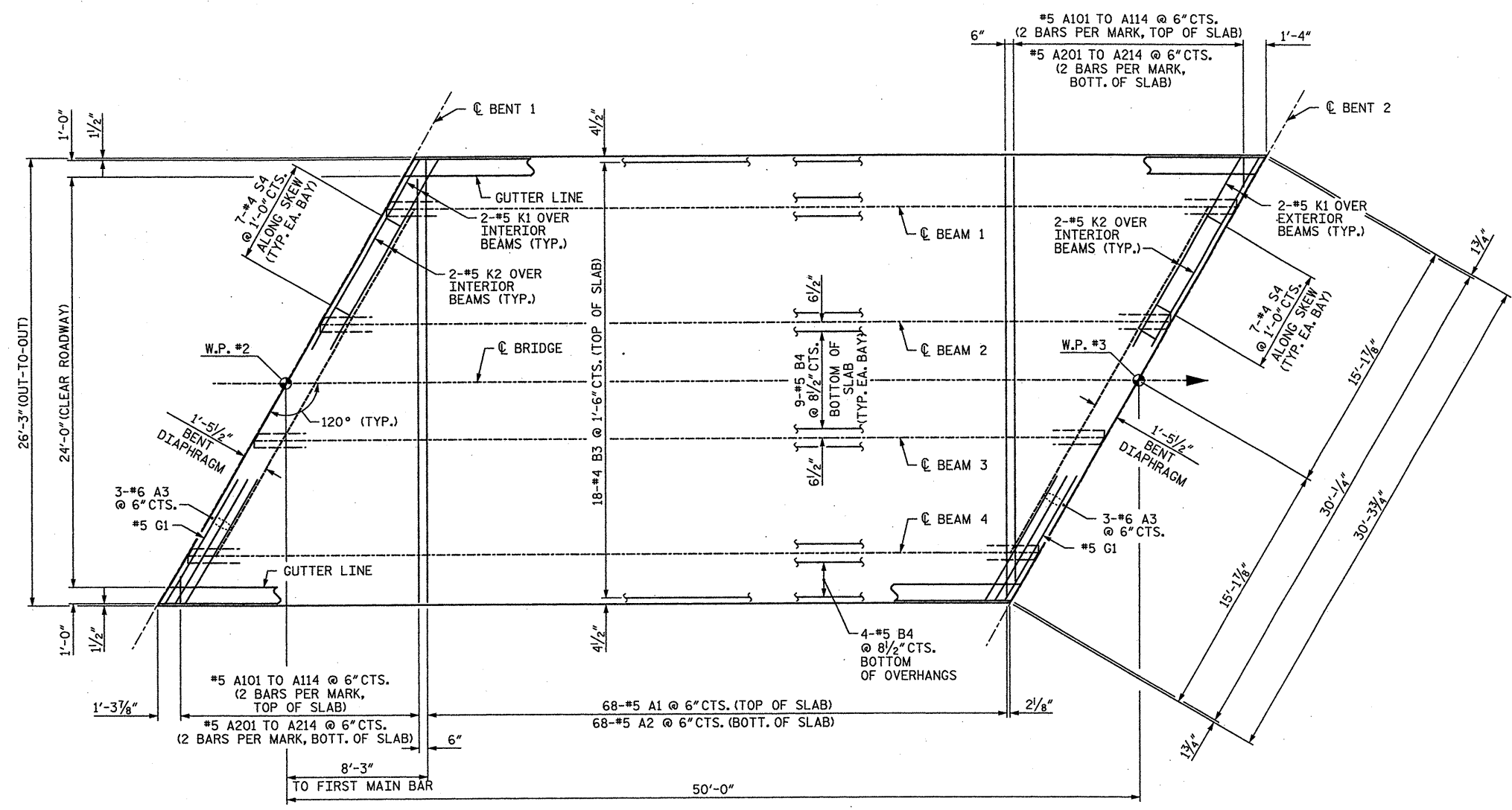


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 CHECKED BY : MR DATE : 04-05

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 NC License No. F-0591

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL SHEETS	93
2			4				

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 5/17/2012
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PLAN OF SPAN B

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 2 OF 3

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



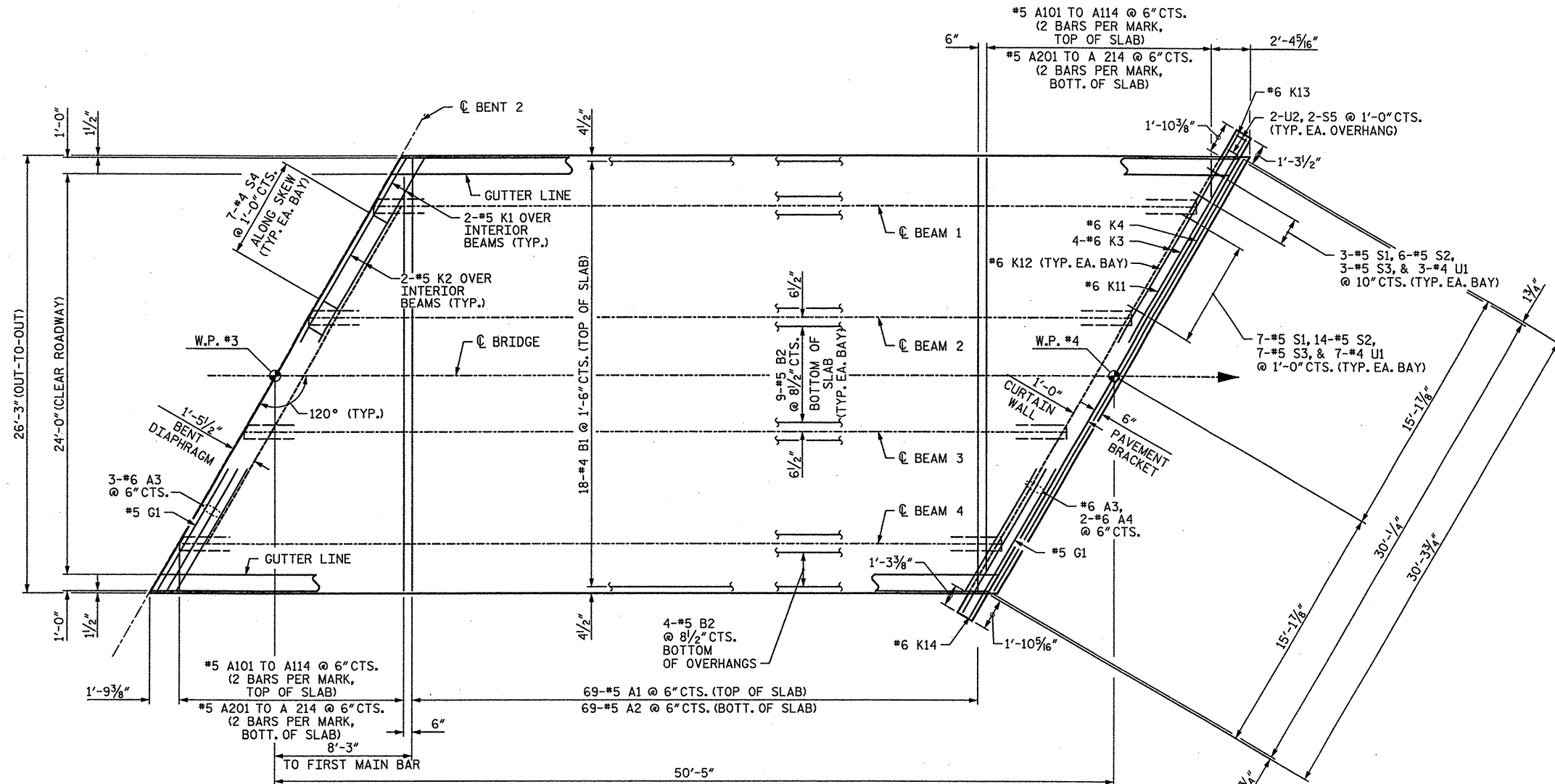
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 NC License No. F-0991

DRAWN BY : AR DATE : 04-05
 CHECKED BY : MR DATE : 04-05

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			93

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5/17/2012



PLAN OF SPAN C

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 031

REHAB. OF BRIDGE NO. 031 SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS
 SPAN C



DRAWN BY: AR DATE: 04-05
 CHECKED BY: MR DATE: 04-05

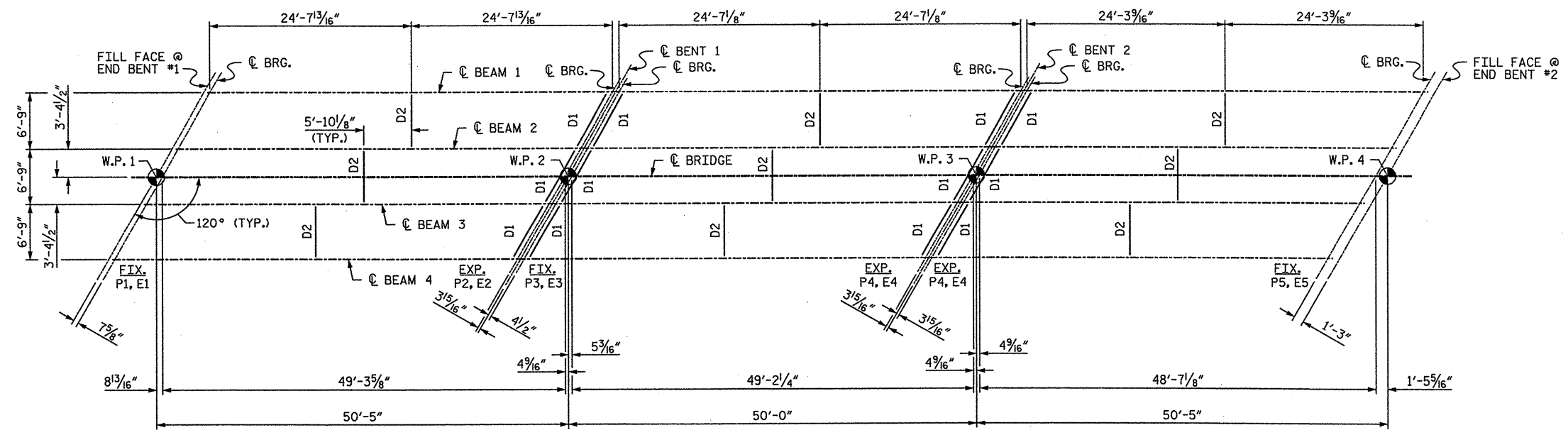
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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			93

SPAN A

SPAN B

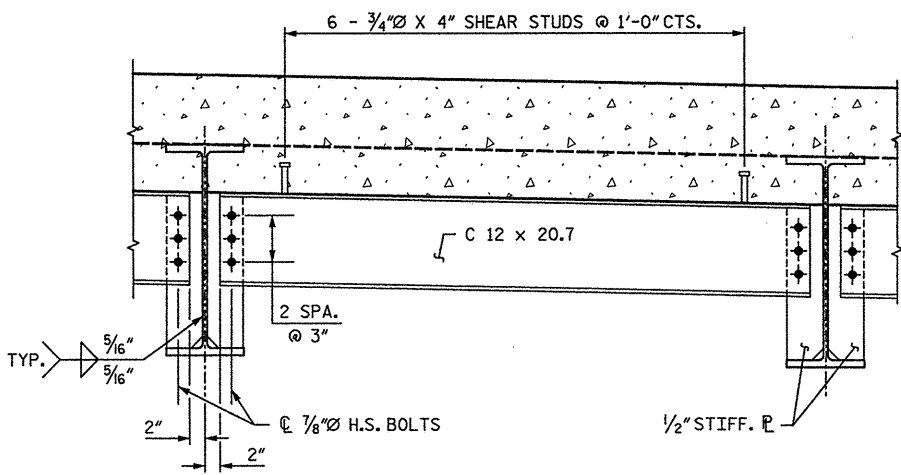
SPAN C



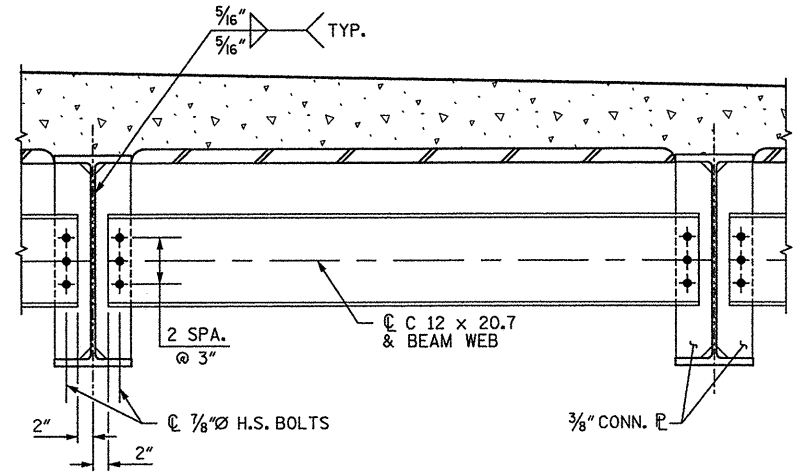
FRAMING PLAN

NOTES

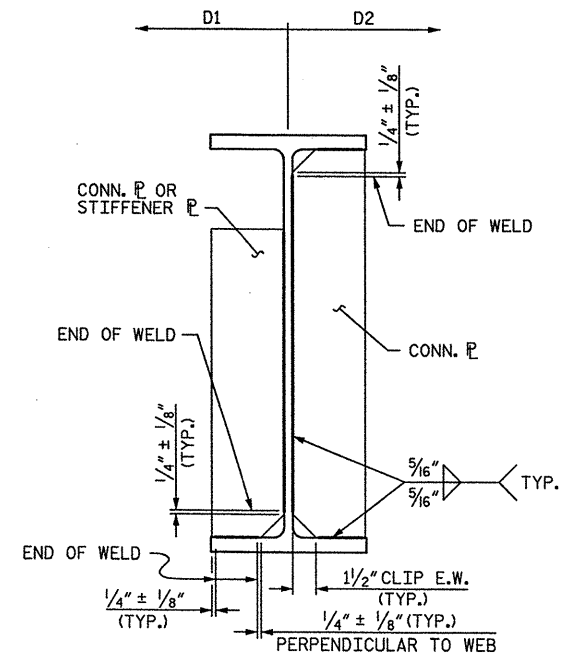
- ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
- ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
- STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.
- A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS, COVER PLATES AND SPLICE PLATES AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
- TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
- END OF BEAMS AND GIRDERS SHALL BE PLUMB.
- BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.
- NEEDLE BEAM TYPE SUPPORTS ARE REQUIRED FOR THE OVERHANG FALSEWORK IN THE SPANS WITH 27" BEAMS OR SMALLER.



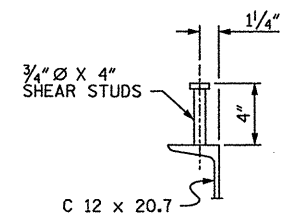
TYPICAL BENT DIAPHRAGM - D1



TYPICAL INTERMEDIATE DIAPHRAGM - D2



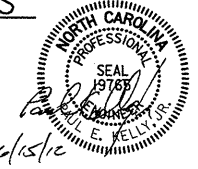
TYPICAL CONNECTOR PLATE CONNECTIONS



SHEAR STUD DETAIL (ON CHANNEL)

PROJECT NO. **17BP.9.H.2**
DAVIDSON COUNTY
 BRIDGE NO.: **031**
 REHAB. OF BRIDGE NO. 031

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN



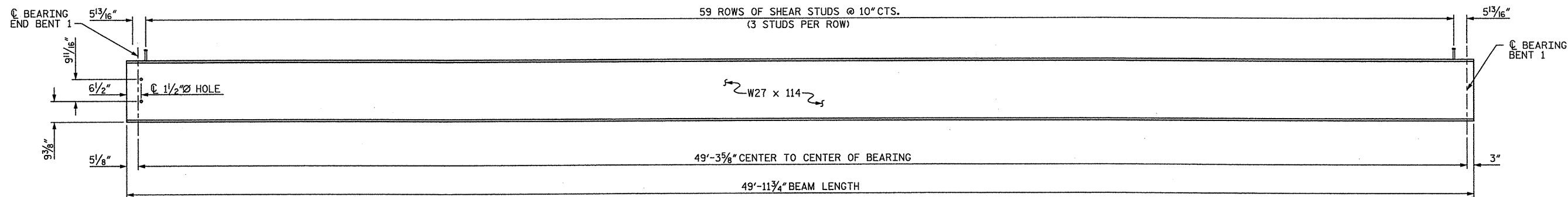
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 Charlotte, NC 28208
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NO.	BY	DATE	NO.	BY	DATE	S-7
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2			4			93

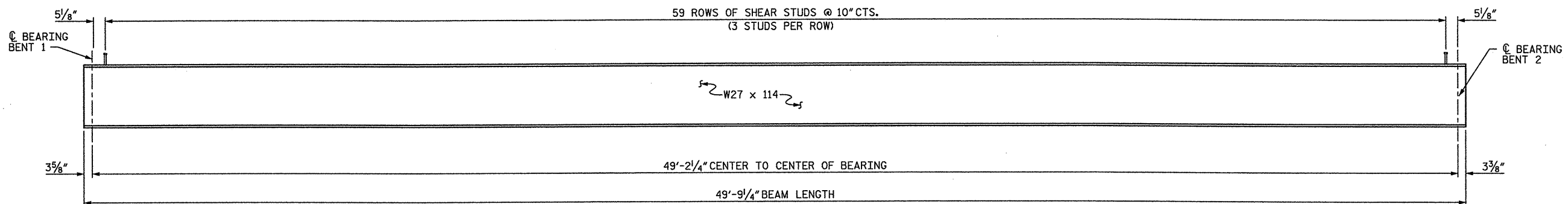
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 CHECKED BY: **MR** DATE: **04-12**
 REV. CONNECTOR P, ADDED NOTES

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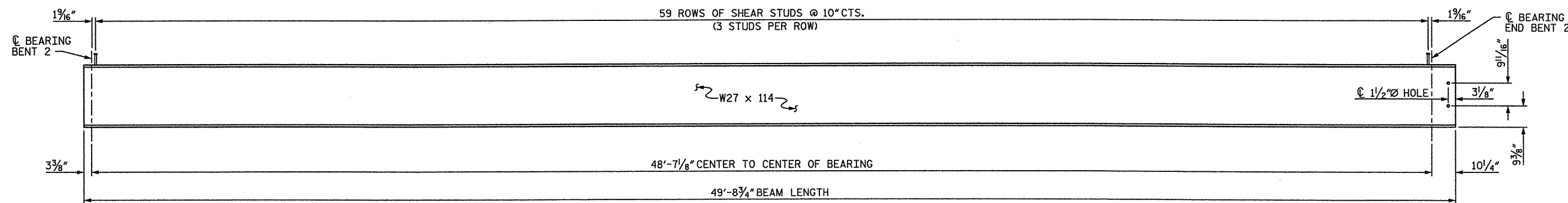
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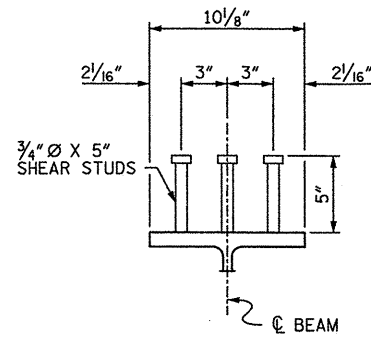
BEAM ELEVATION - SPAN A



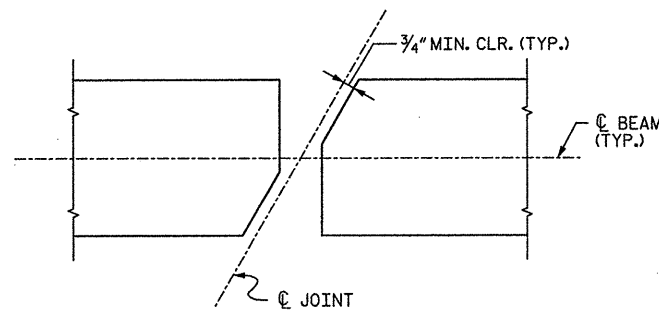
BEAM ELEVATION - SPAN B



BEAM ELEVATION - SPAN C



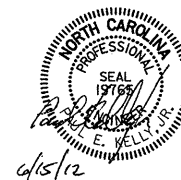
SHEAR STUD DETAIL
(ON BEAMS)



TOP FLANGE CLIP DETAILS
(TOP FLANGE AT EXPANSION JOINT)

STRUCTURAL STEEL QUANTITIES	
APPROXIMATE TOTAL	75678 LBS

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**STRUCTURAL STEEL
 DETAILS**

DRAWN BY : AR DATE : 04-12
 CHECKED BY : MR DATE : 04-12

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2			4			93

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5/17/2012
dlveyac

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
TENTH POINTS	SPAN A										
	GIRDERS 1 & 4										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.019	0.037	0.050	0.059	0.062	0.059	0.050	0.037	0.019	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.026	0.050	0.068	0.080	0.084	0.080	0.068	0.050	0.026	0.000
REQUIRED CAMBER	0	5/16	5/8	13/16	15/16	1	15/16	13/16	5/8	5/16	0
TENTH POINTS	GIRDERS 2 & 3										
	GIRDERS 2 & 3										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.021	0.039	0.054	0.063	0.066	0.063	0.054	0.039	0.021	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.028	0.053	0.072	0.084	0.089	0.072	0.062	0.045	0.024	0.000
REQUIRED CAMBER	0	5/16	5/8	7/8	1	1 1/16	1	7/8	5/8	5/16	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
TENTH POINTS	SPAN C										
	GIRDERS 1 & 4										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.019	0.037	0.050	0.059	0.062	0.059	0.050	0.037	0.019	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.026	0.050	0.068	0.080	0.084	0.080	0.068	0.050	0.026	0.000
REQUIRED CAMBER	0	5/16	5/8	13/16	15/16	1	15/16	13/16	5/8	5/16	0
TENTH POINTS	GIRDERS 2 & 3										
	GIRDERS 2 & 3										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.021	0.039	0.054	0.063	0.066	0.063	0.054	0.039	0.021	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.028	0.053	0.072	0.084	0.089	0.072	0.062	0.045	0.024	0.000
REQUIRED CAMBER	0	5/16	5/8	7/8	1	1 1/16	1	7/8	5/8	5/16	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS											
TENTH POINTS	SPAN B										
	GIRDERS 1 & 4										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.019	0.037	0.050	0.059	0.062	0.059	0.050	0.037	0.019	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.026	0.050	0.068	0.080	0.084	0.080	0.068	0.050	0.026	0.000
REQUIRED CAMBER	0	5/16	5/8	13/16	15/16	1	15/16	13/16	5/8	5/16	0
TENTH POINTS	GIRDERS 2 & 3										
	GIRDERS 2 & 3										
	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.021	0.039	0.054	0.063	0.066	0.063	0.054	0.039	0.021	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.028	0.053	0.072	0.084	0.089	0.072	0.062	0.045	0.024	0.000
REQUIRED CAMBER	0	5/16	5/8	7/8	1	1 1/16	1	7/8	5/8	5/16	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DEAD LOAD DEFLECTIONS

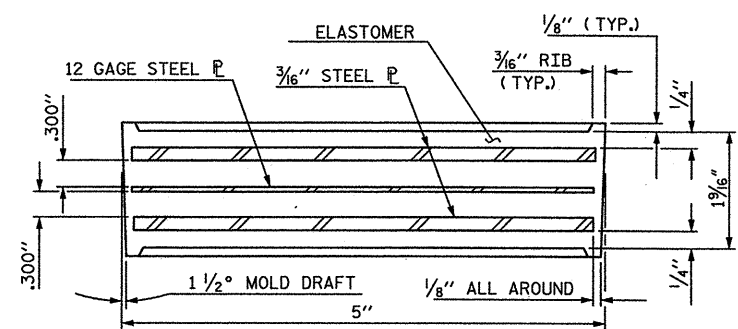
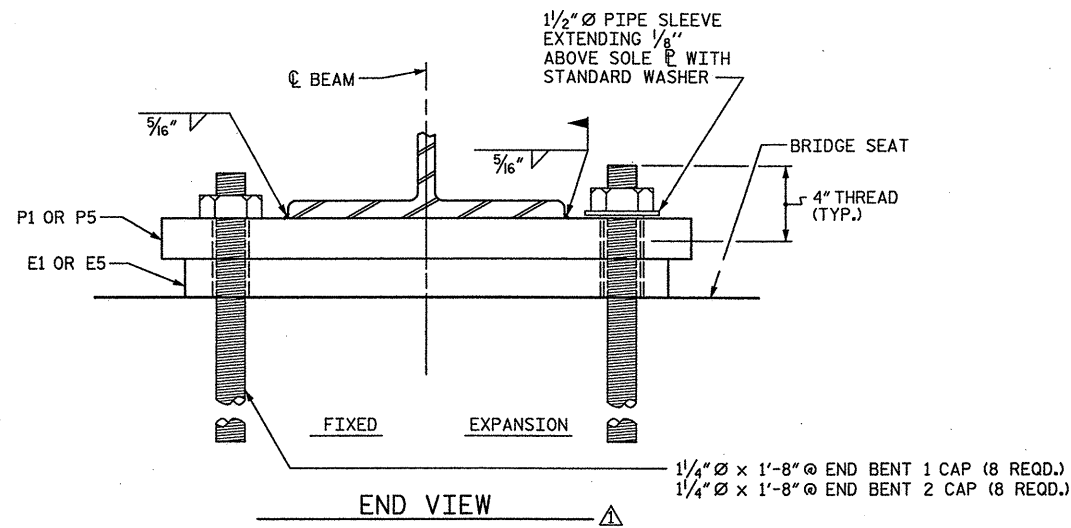


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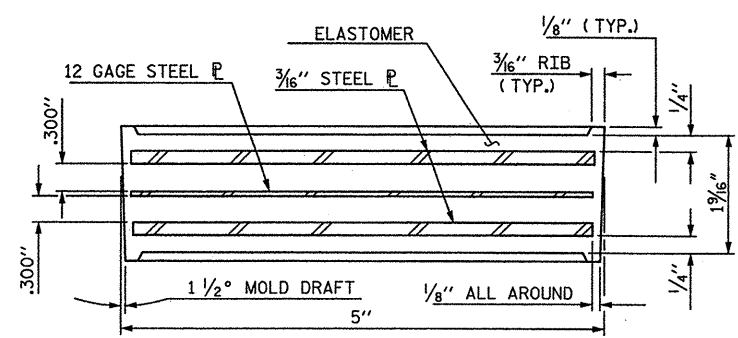
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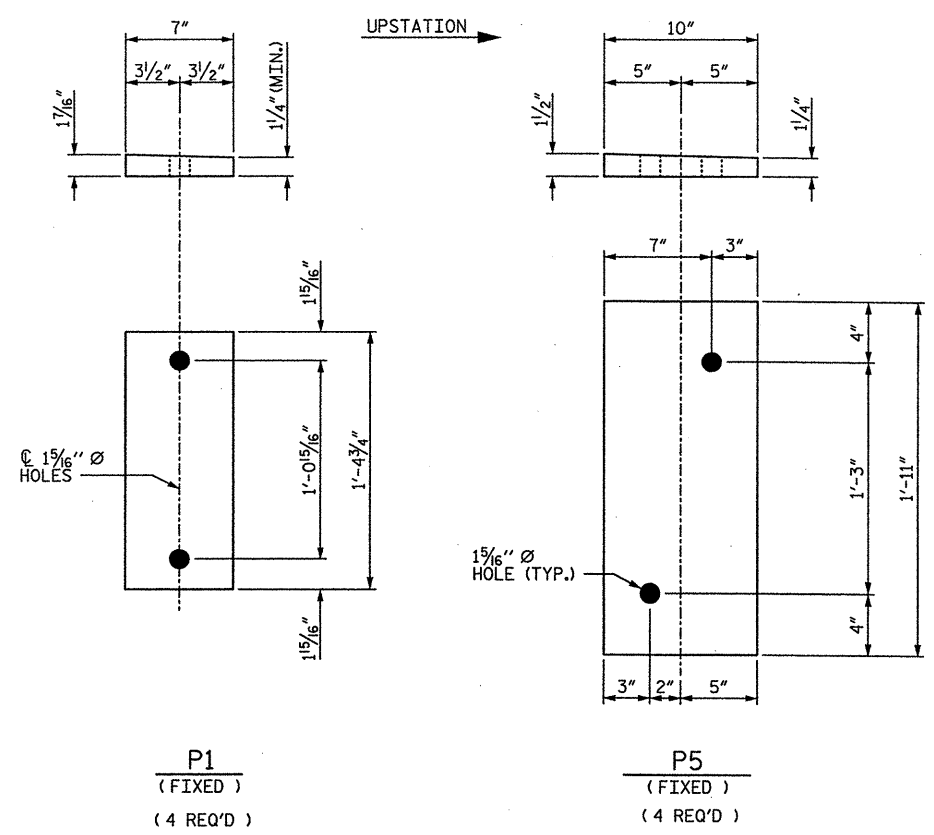
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 calveyac



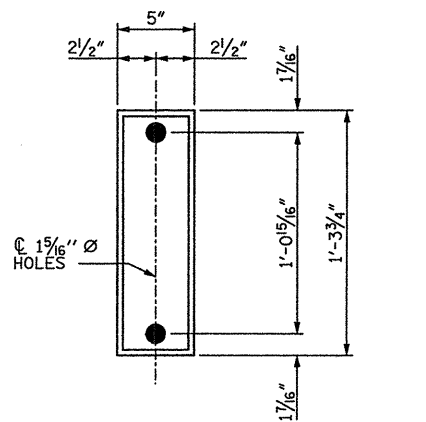
TYPICAL SECTION OF ELASTOMERIC BEARING E1



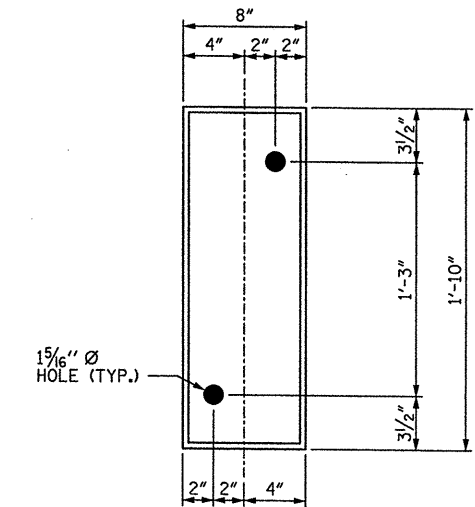
TYPICAL SECTION OF ELASTOMERIC BEARING E5



SOLE PLATE DETAILS ("P")



E1 (4 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING



E5 (4 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

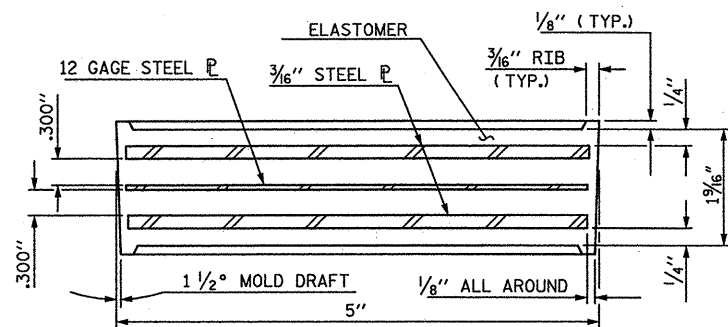
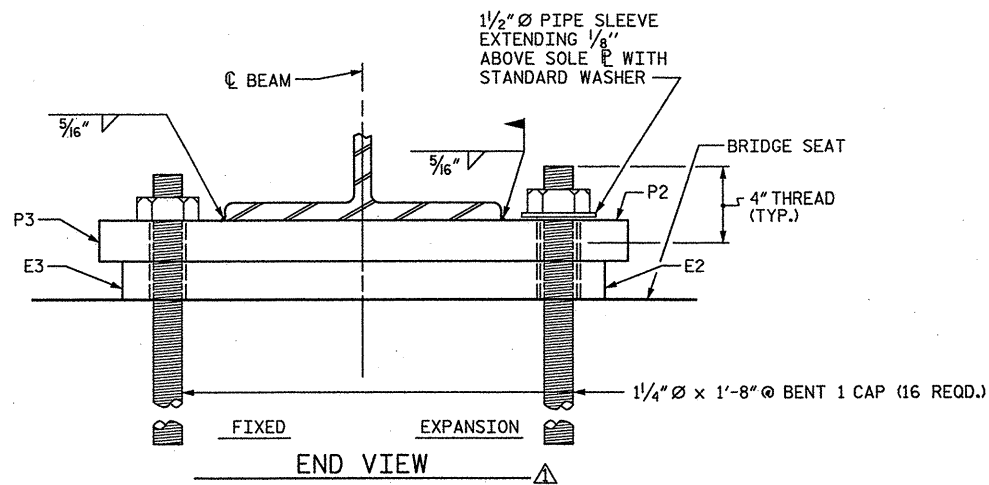
ELASTOMERIC BEARING DETAILS



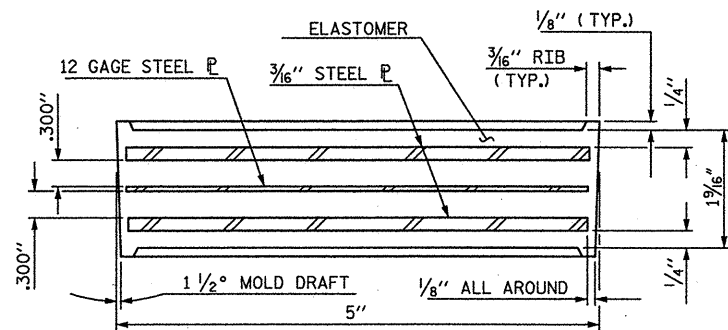
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 CHECKED BY: MR DATE: 04-12 △ REV. ANCHOR BOLT

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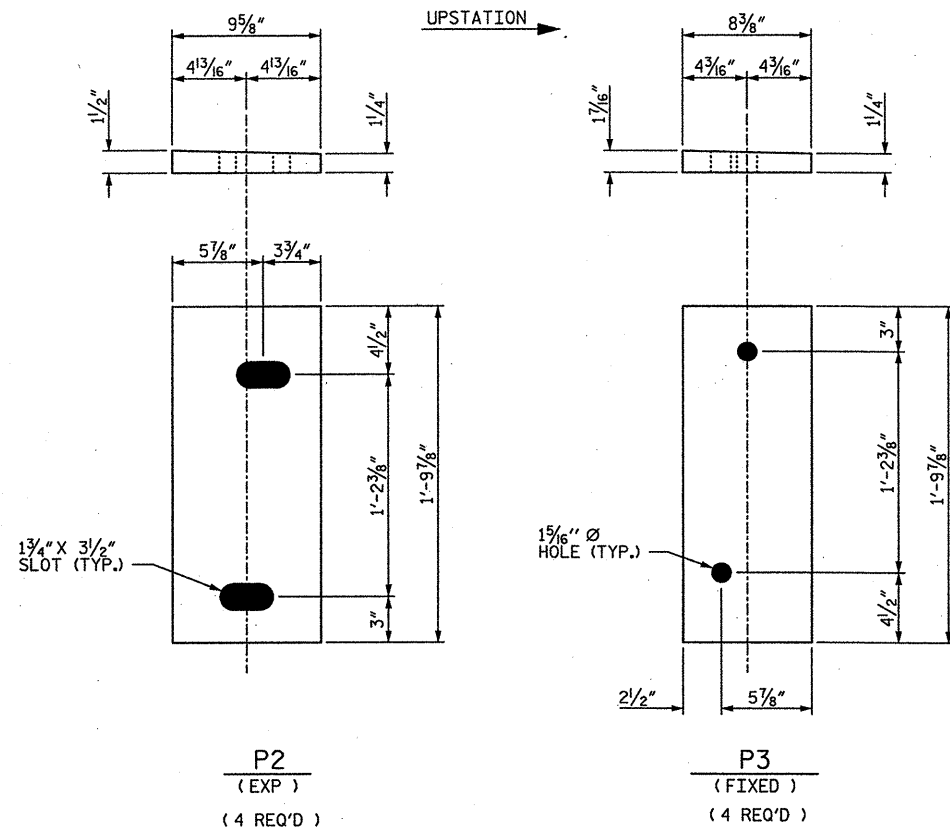
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2			4			93



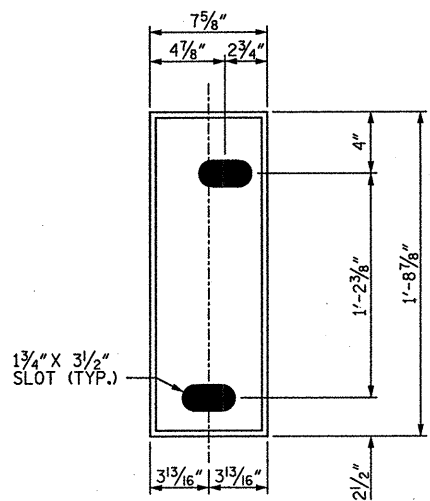
TYPICAL SECTION OF ELASTOMERIC BEARING E2



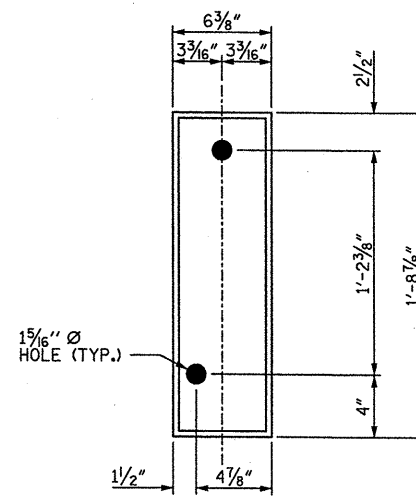
TYPICAL SECTION OF ELASTOMERIC BEARING E3



SOLE PLATE DETAILS ("P")



E2 (4 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING



E3 (4 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURR WITH A SHARP POINTED TOOL.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 031

REHAB. OF BRIDGE NO. 031 SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC
BEARING DETAILS



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REV. ANCHOR BOLT

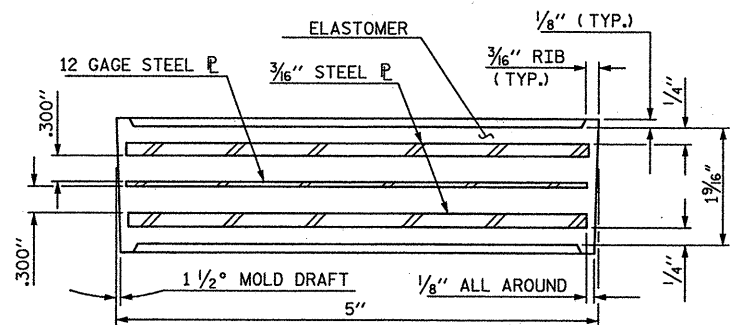
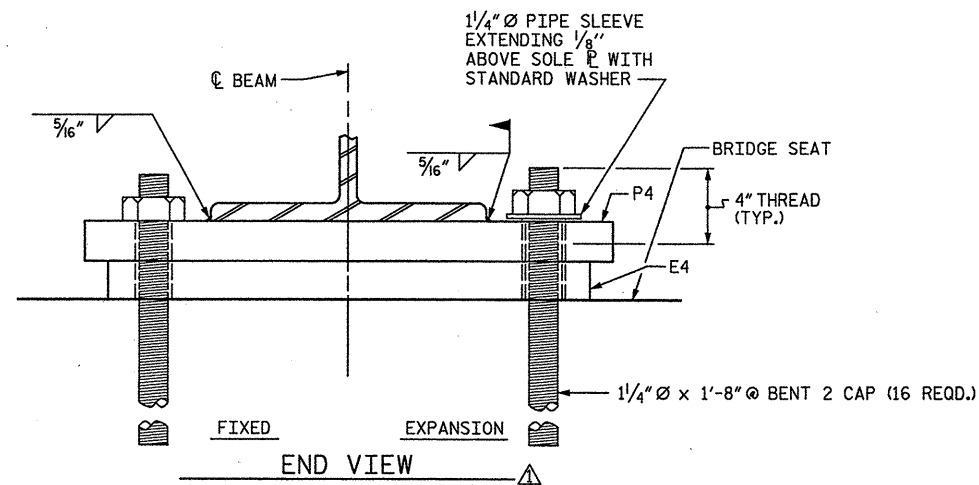
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NC License No. F-0991

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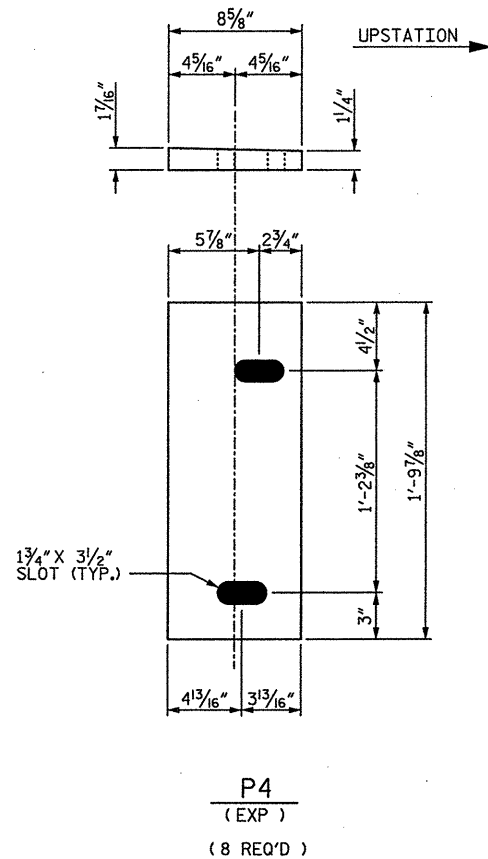
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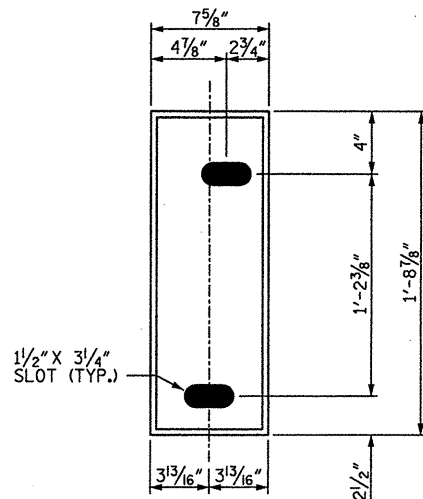
6/15/2012



TYPICAL SECTION OF ELASTOMERIC BEARING E4



SOLE PLATE DETAILS ("P")



E4 (8 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 1 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 031

REHAB. OF BRIDGE NO. 031 SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC
BEARING DETAILS



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CHECKED BY: MR DATE: 04-12

REV. ANCHOR BOLT

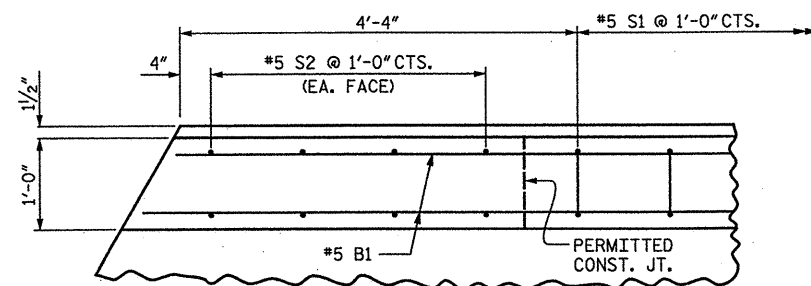
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Charlotte, NC 28208
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REVISIONS						SHEET NO.
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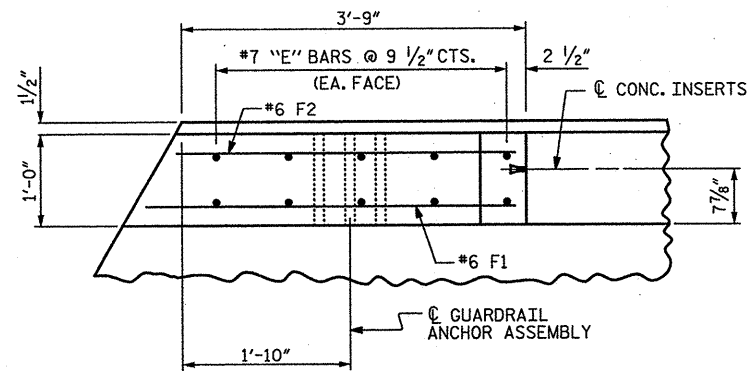
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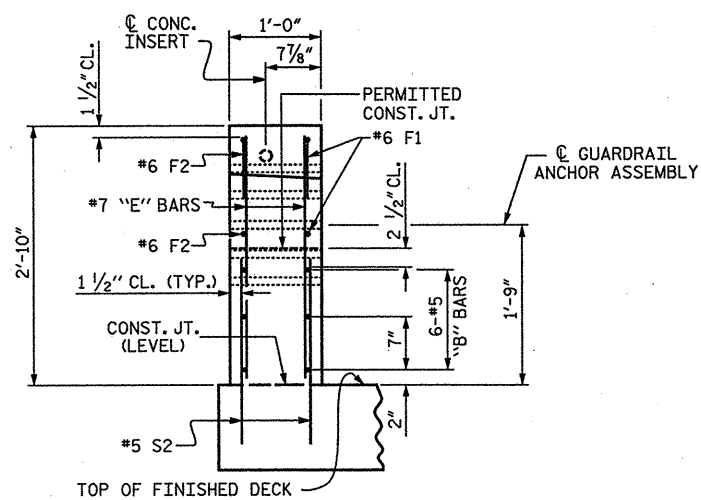
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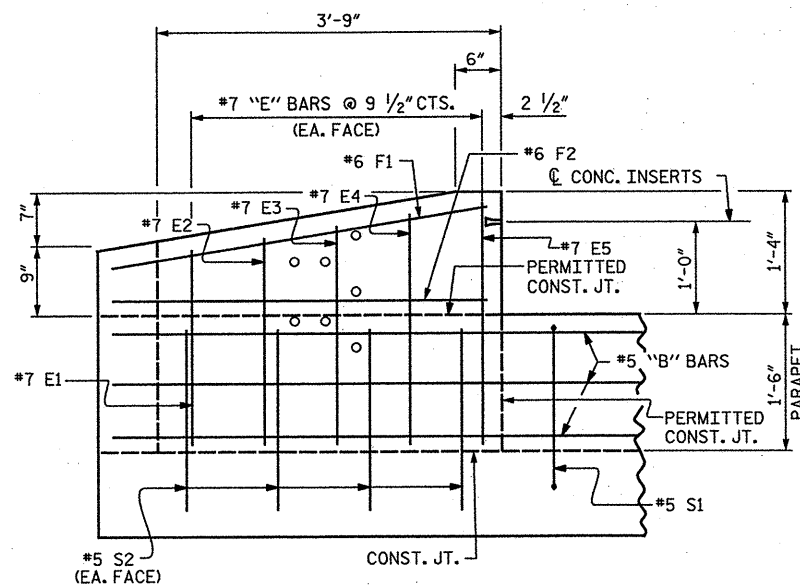
PLAN OF PARAPET



PLAN OF END POST



END VIEW



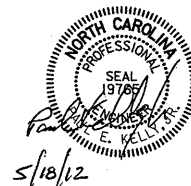
ELEVATION

PARAPET AND END POST FOR ONE BAR RAIL

ONE BAR METAL RAIL					
BILL OF MATERIAL FOR TWO END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*E1	4	#7	STR	2'-0"	16
*E2	4	#7	STR	2'-2"	18
*E3	4	#7	STR	2'-4"	19
*E4	4	#7	STR	2'-6"	20
*E5	4	#7	STR	2'-7"	21
*F1	4	#6	STR	7'-1"	43
*F2	4	#6	STR	7'-8"	46
*S2	16	#5	STR	2'-0"	33
*EPOXY COATED REINFORCING STEEL				LBS.	216
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	0.8

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PARAPET AND END
 POST DETAIL



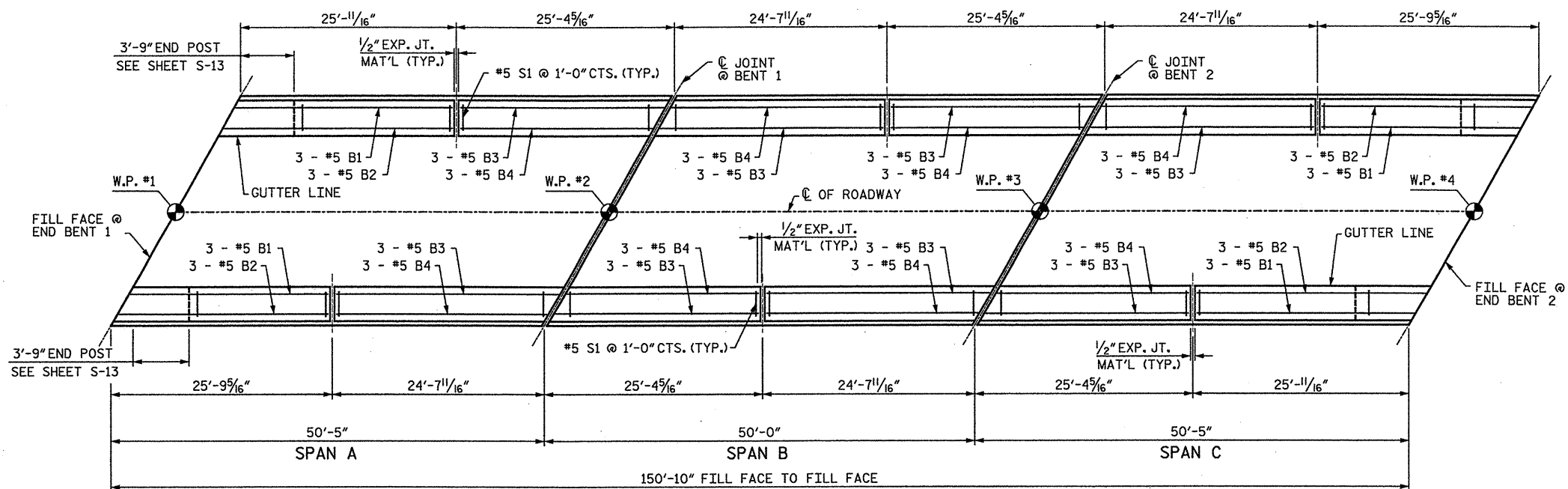
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1	STV	6-12	3			TOTAL SHEETS
2			4			93

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 CHECKED BY : MR DATE : 04-12 REV. PER NCDOT COMMENTS

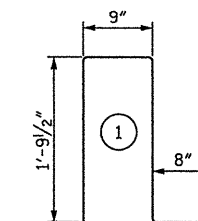
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6/15/2012
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PLAN OF CONCRETE PARAPET

BAR TYPES



BILL OF MATERIAL

FOR CONCRETE PARAPET ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	12	#5	STR	25'-0"	313
* B2	12	#5	STR	25'-4"	317
* B3	24	#5	STR	24'-10"	622
* B4	24	#5	STR	24'-6"	614
* S1	288	#5	(1)	3'-5"	1,026
* EPOXY COATED REINFORCING STEEL					LBS. 2,892
CLASS AA LIGHTWEIGHT CONCRETE					C. Y. 16.8
LIGHTWEIGHT CONCRETE PARAPET					L.F. 286.7

NOTES:

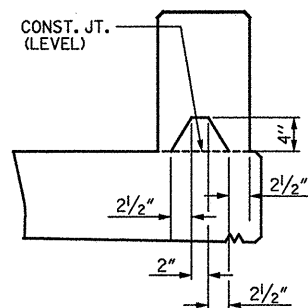
THE CONCRETE PARAPET IN SPAN "A" SHALL NOT BE CAST UNTIL THE SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

CONCRETE PARAPETS SHALL BE SAND LIGHTWEIGHT CONCRETE.

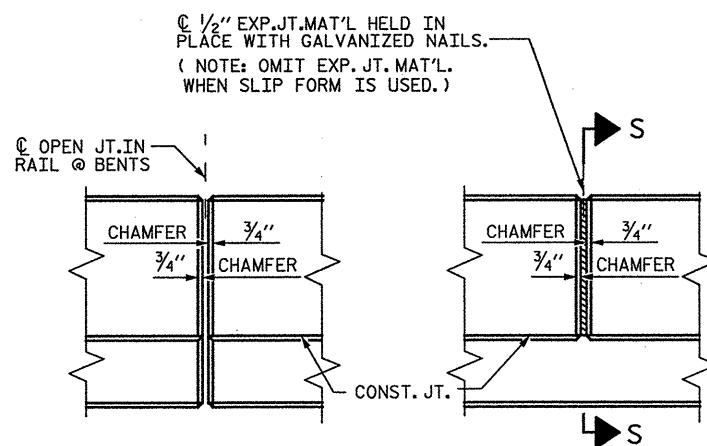
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

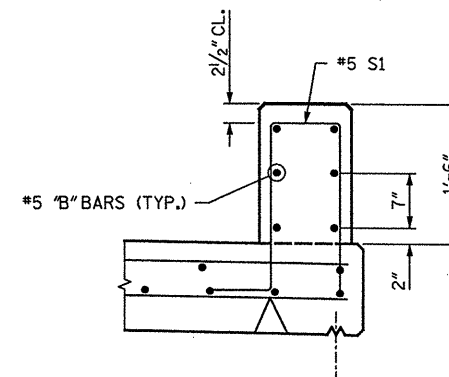
FOR END POST DETAILS, SEE SHEET S-13.



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

CONCRETE PARAPET DETAILS

PROJECT NO. **17BP.9.H.2**
DAVIDSON COUNTY
 BRIDGE NO.: **31**
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE PARAPET



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2			4			93

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

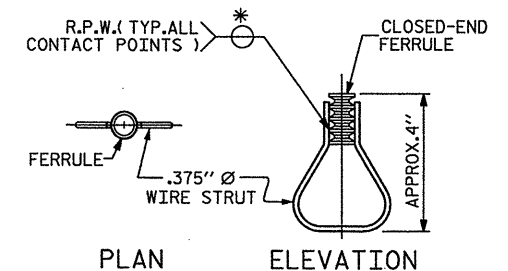
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. **17BP.9.H.2**
DAVIDSON COUNTY
 BRIDGE NO.: **31**

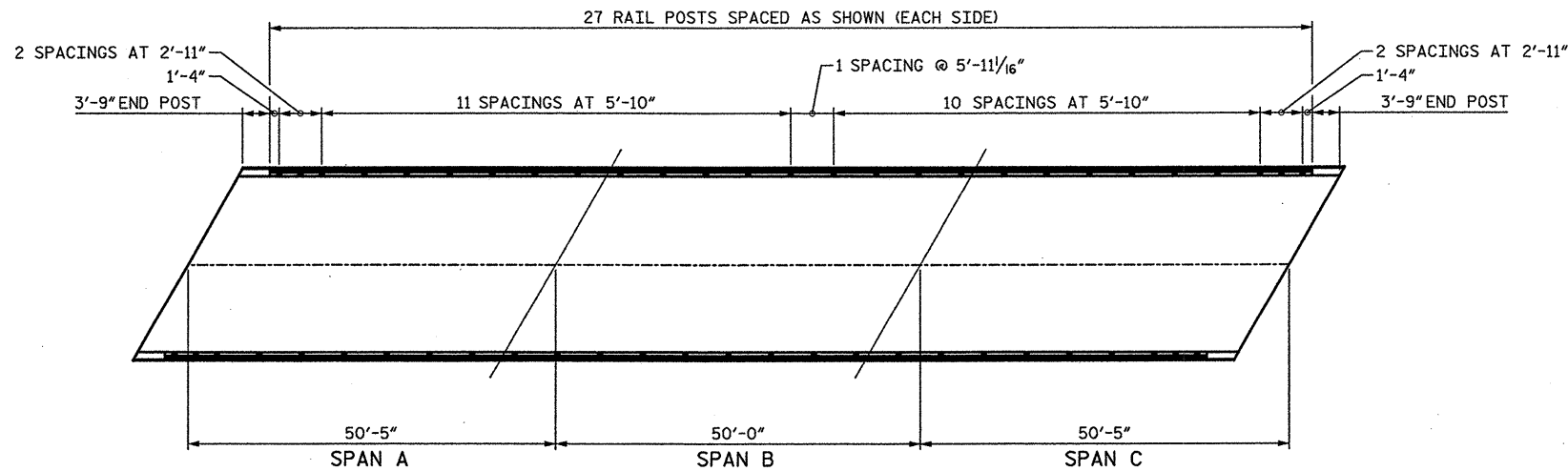
REHAB. OF BRIDGE NO. 031 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

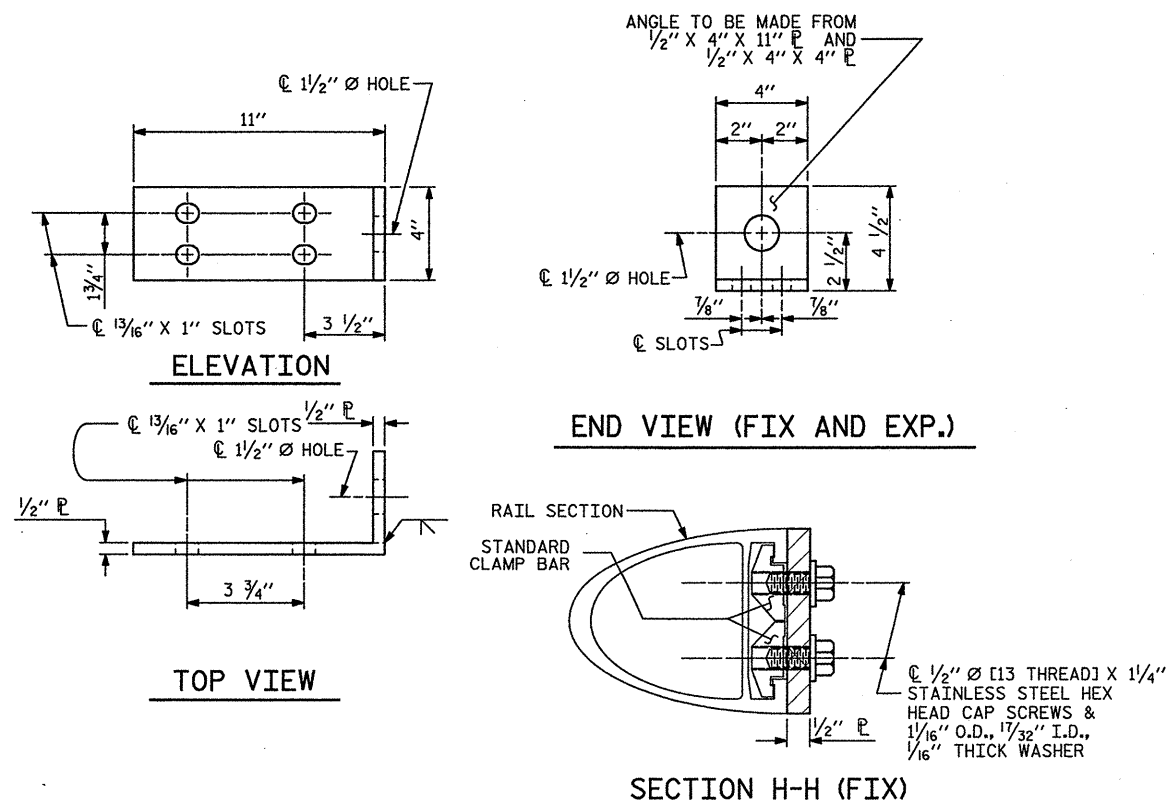


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STD. NO. BMR2



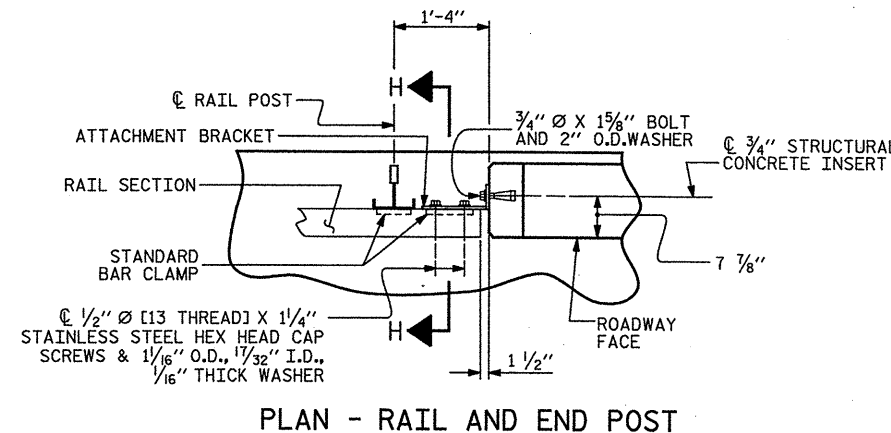
PLAN OF RAIL POST SPACINGS



FIXED

SECTION H-H (FIX)

DETAILS FOR ATTACHING METAL RAIL TO END POST



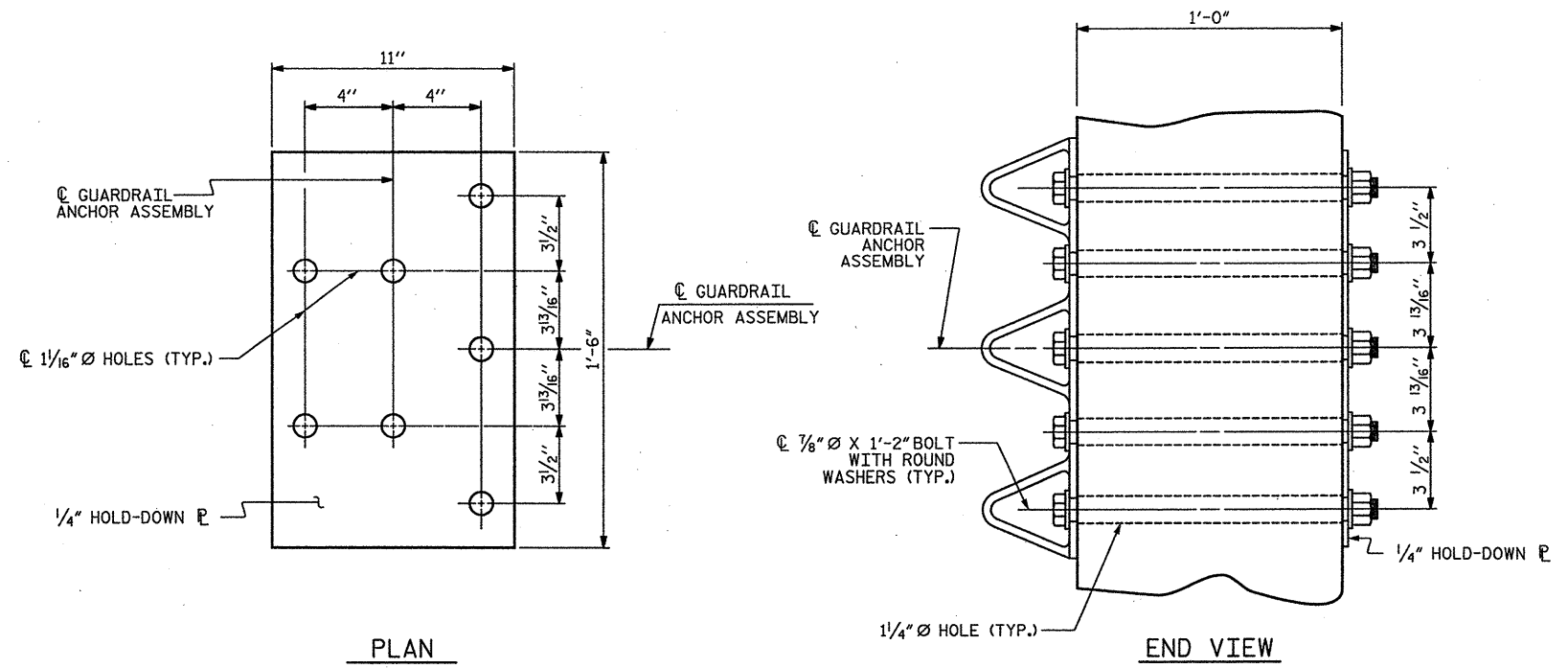
PLAN - RAIL AND END POST

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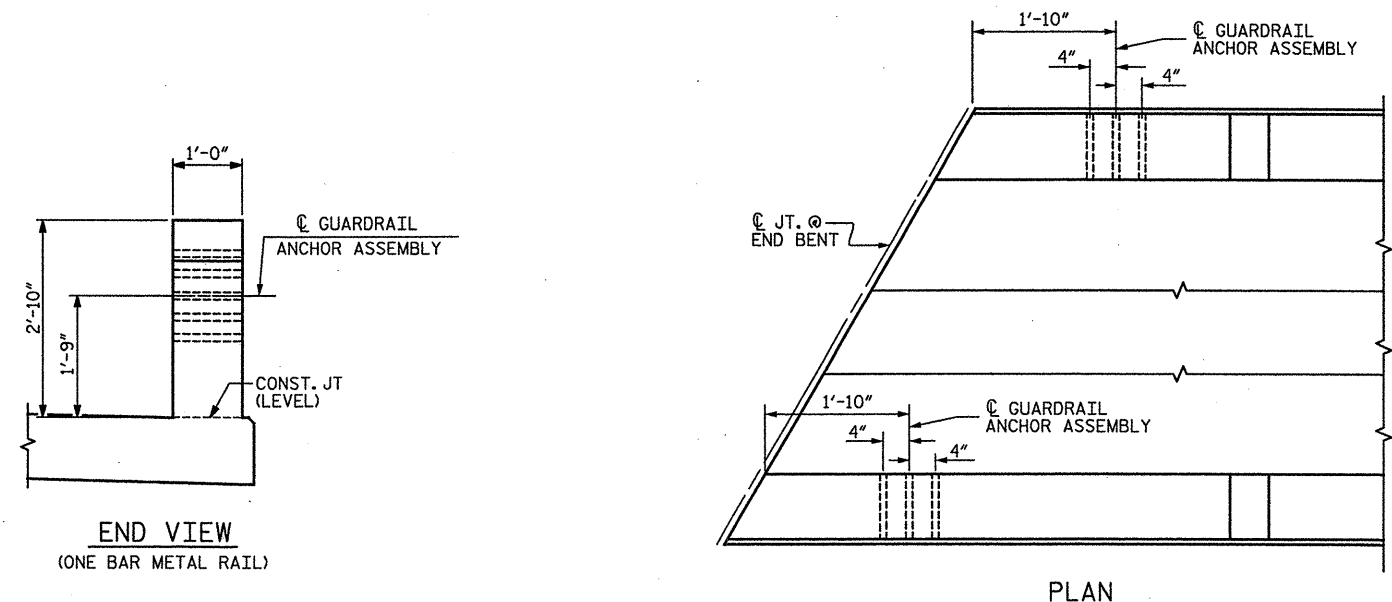
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5/17/2012



PLAN
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



END VIEW
(ONE BAR METAL RAIL)
PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

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 7/8" 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 THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 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.

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DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS



REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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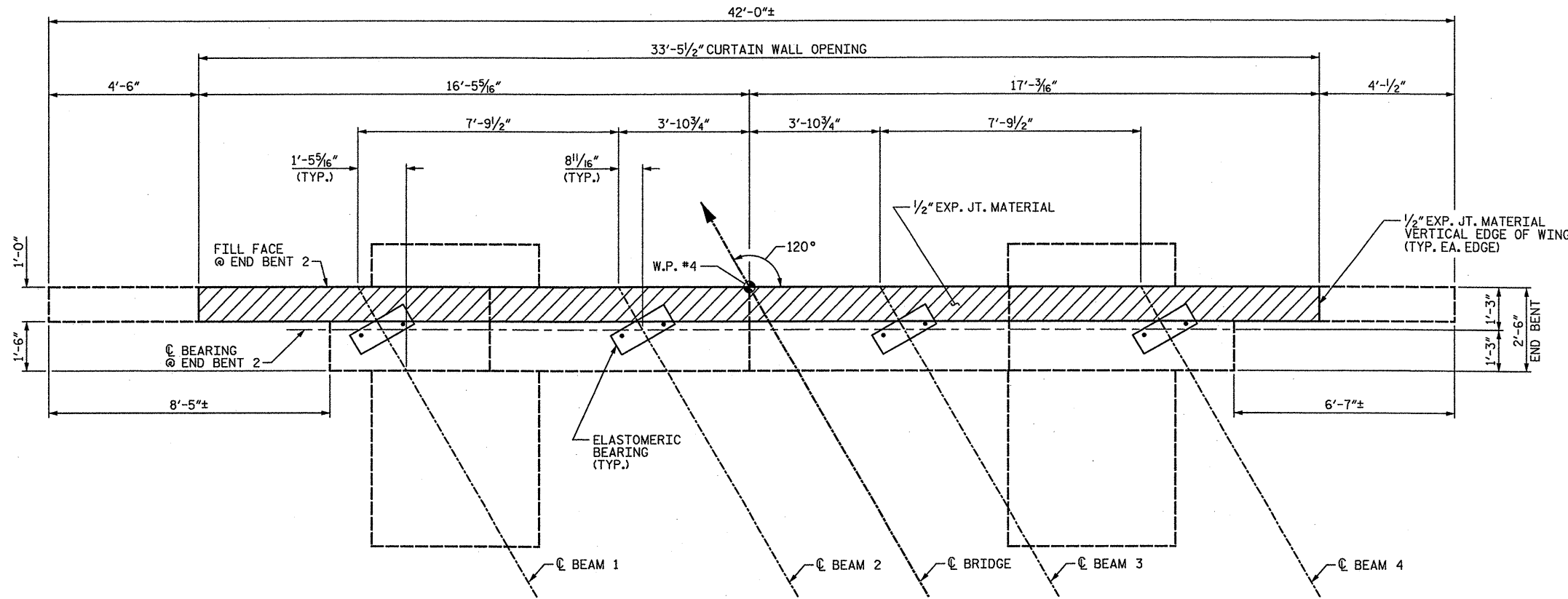
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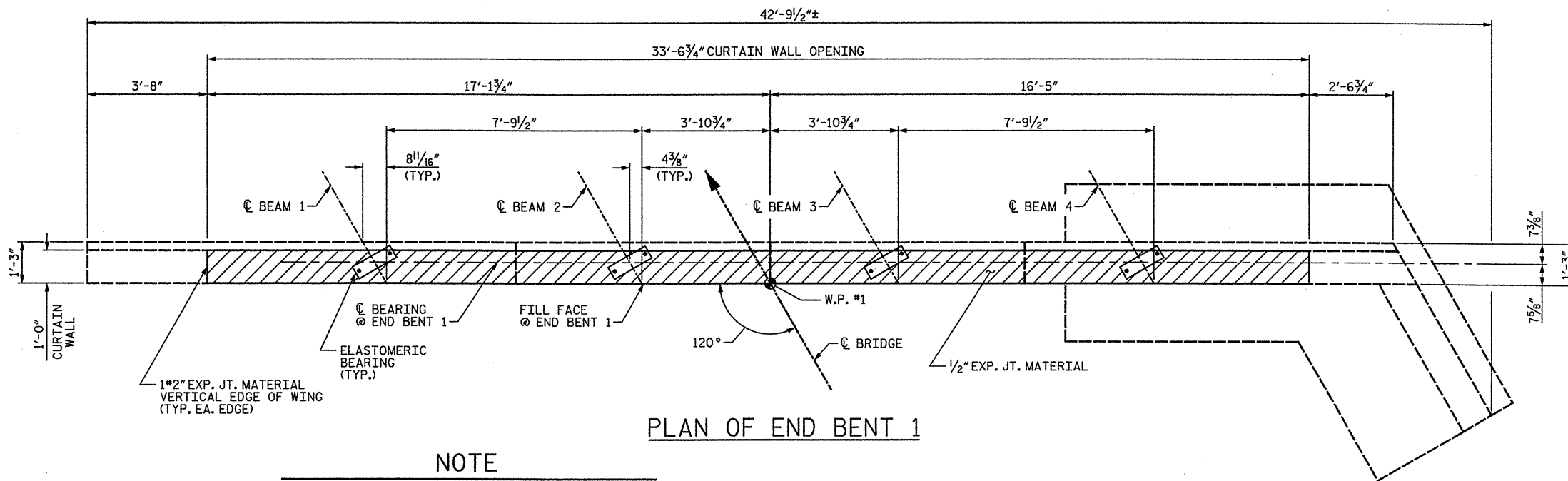
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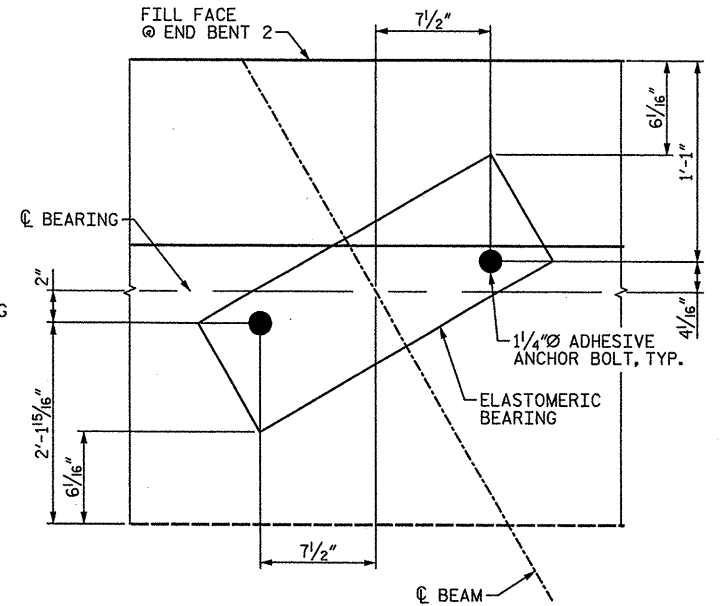
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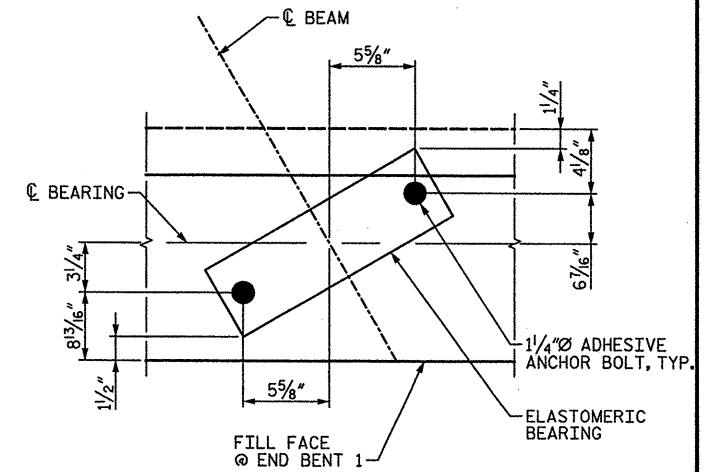
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NOTE

SEE BEARING LOCATION PLAN SHEET 2 OF 2 FOR NOTES.



ANCHOR BOLT PLACEMENT Δ DETAIL - END BENT 2



ANCHOR BOLT PLACEMENT Δ DETAIL - END BENT 1

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
BEARING LOCATION PLAN - END BENTS 1&2

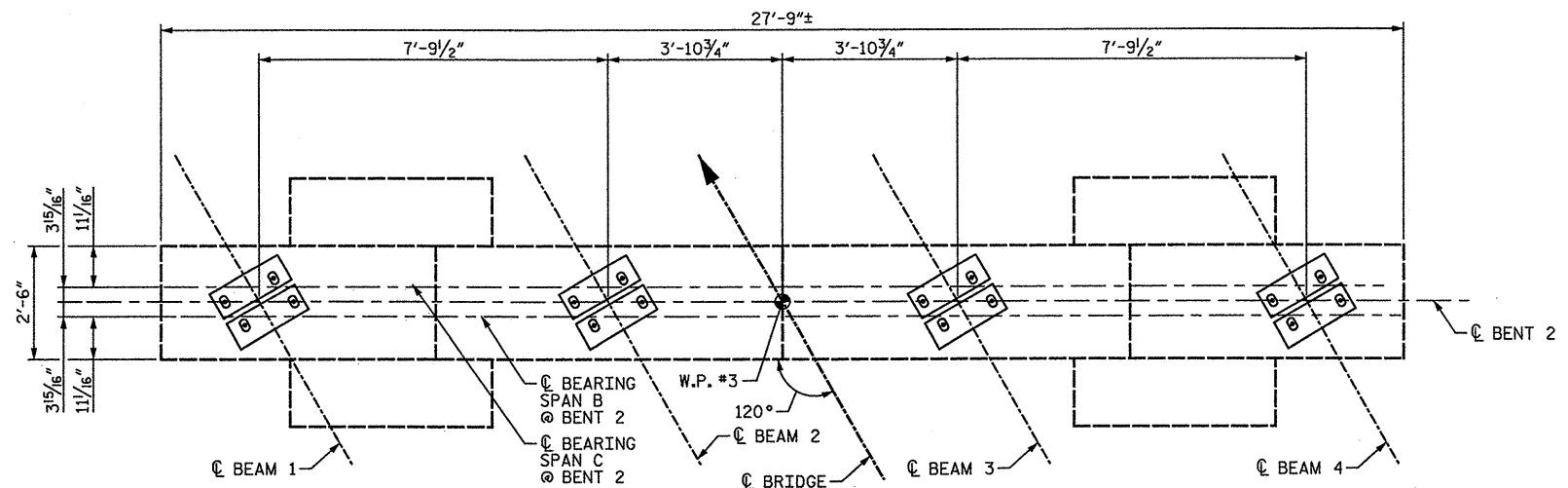


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 CHECKED BY : MR DATE : 04-12 Δ REV. ANCHOR BOLT

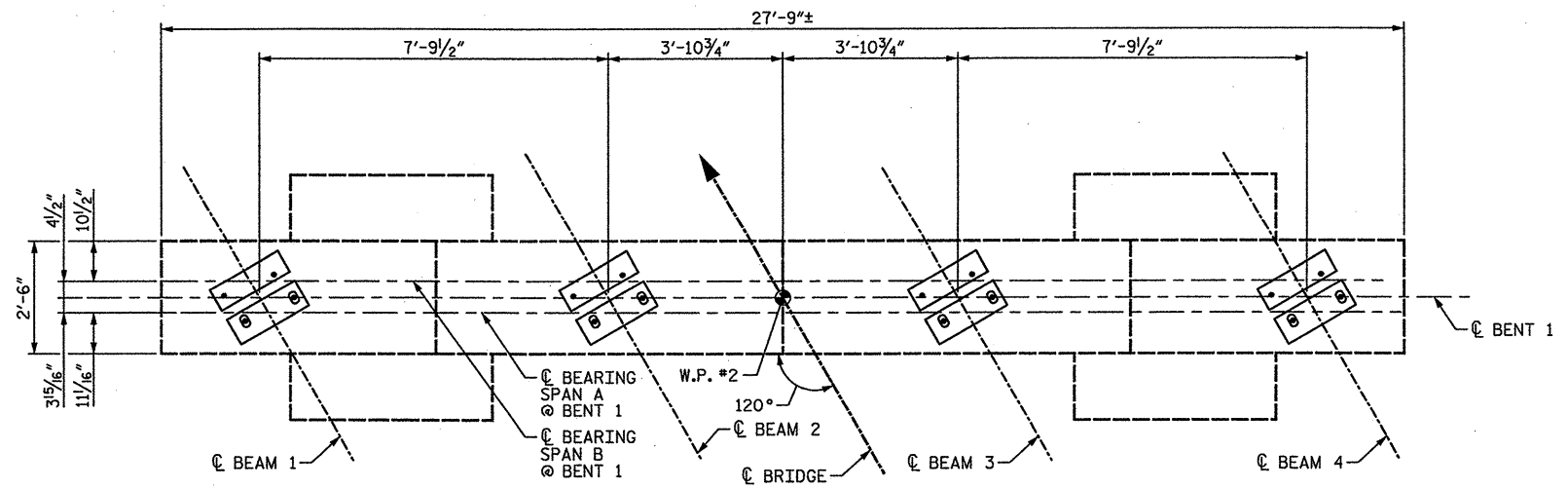
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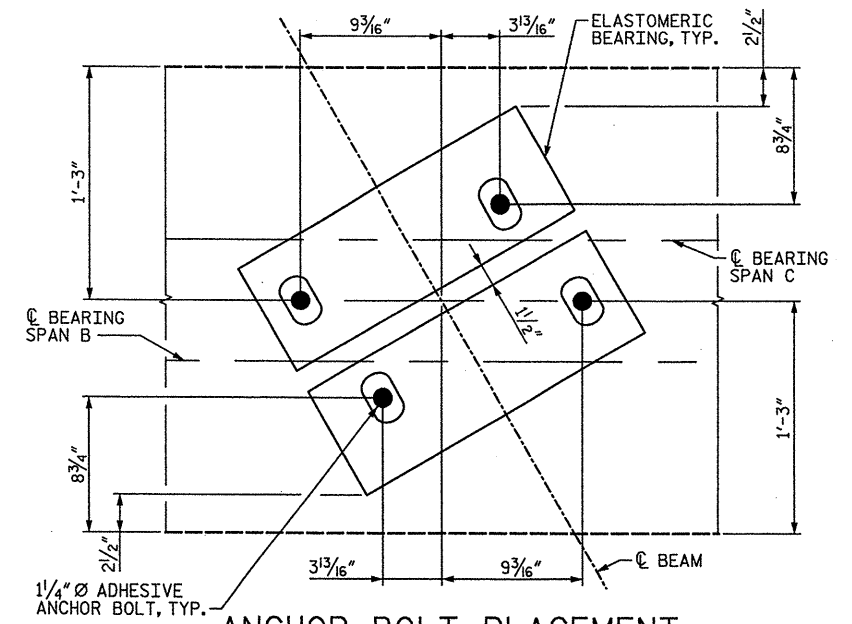
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6/15/2012



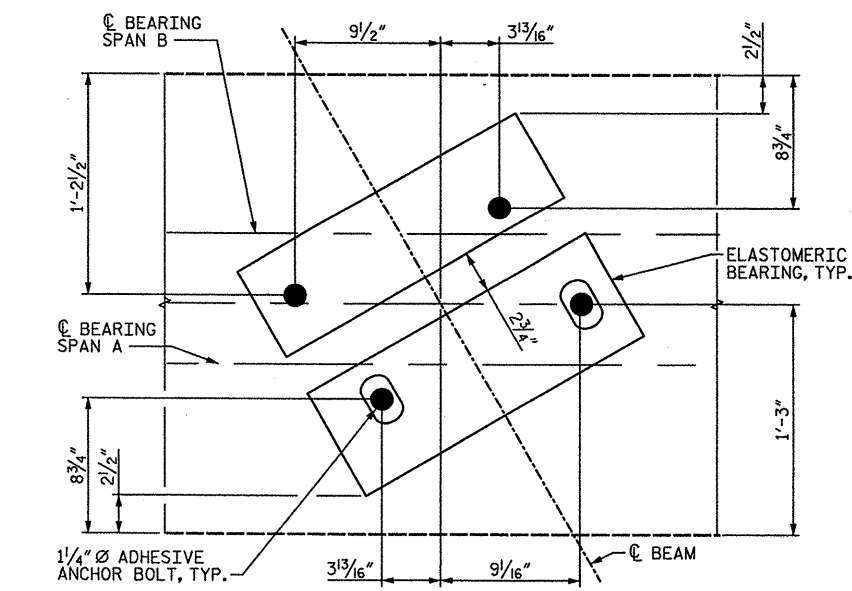
PLAN OF BENT 2



PLAN OF BENT 1



ANCHOR BOLT PLACEMENT
DETAIL - BENT 2



ANCHOR BOLT PLACEMENT
DETAIL - BENT 1

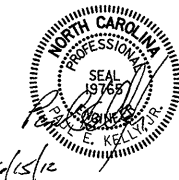
NOTES

- EXTREME CARE MUST BE TAKEN WHILE PLACING THE ANCHOR BOLTS IN THE END BENT CAP TO AVOID DAMAGE TO THE EXISTING TIMBER PILES.
- EXISTING ANCHOR BOLTS WILL BE CUT AND GROUND FLUSH WITH TOP OF CAP.
- ADHESIVE ANCHOR BOLTS FOR BENT AND END BENT CAPS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH A SAFE WORKING LOAD OF 20 KIPS TENSION AND 12 KIPS SHEAR.
- REMOVAL OF EXISTING ANCHOR BOLTS, INSTALLATION OF PROPOSED ADHESIVELY ANCHORED BOLTS, AND ALL WORK, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE ACCEPTED WORK, SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- APPLY AN EPOXY PROTECTIVE COATING TO TOP SURFACES OF BENT AND END BENT CAPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PRIOR TO APPLICATION THE CAPS SHALL BE THOROUGHLY CLEANED BY POWER WASHING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BEARING LOCATION
 PLAN - BENTS 1 & 2**

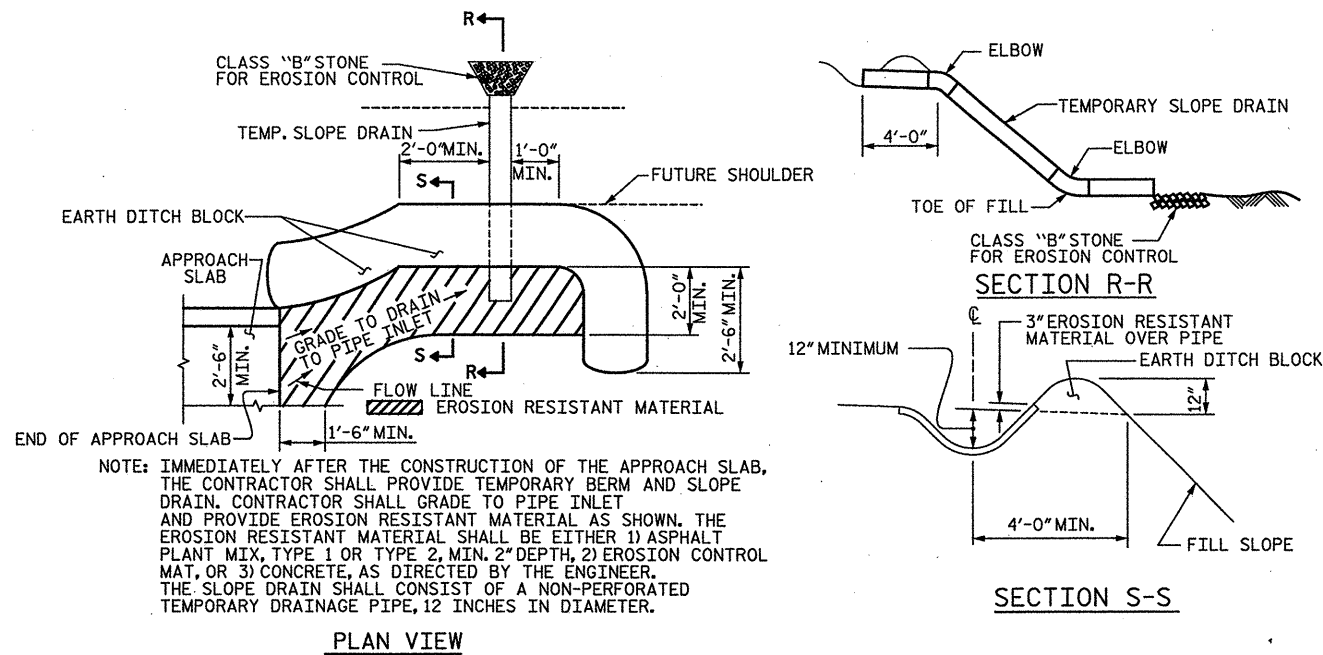


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△ REV. ANCHOR BOLT, ADDED NOTES

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1			3			TOTAL SHEETS
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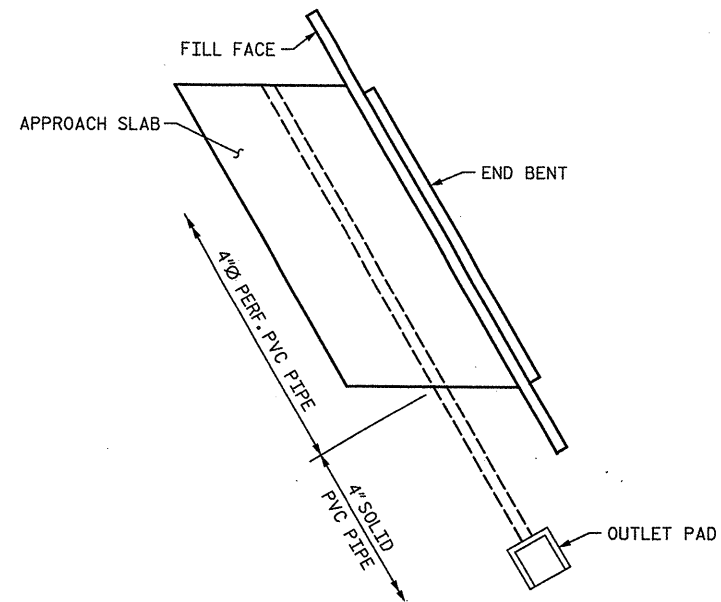


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

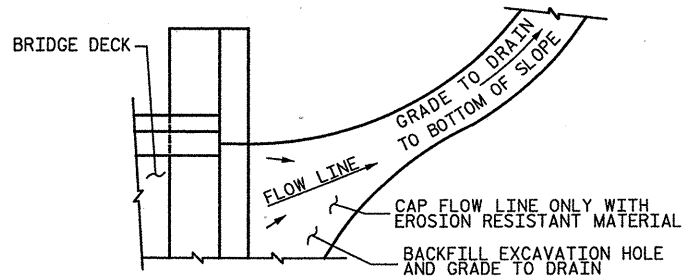
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

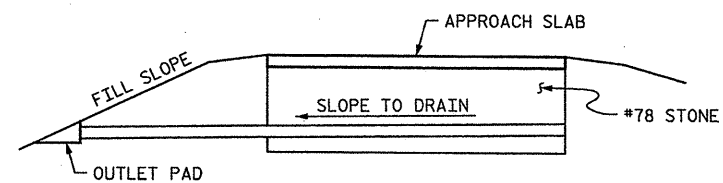


PIPE DRAIN AND OUTLET PLAN



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PIPE DRAIN AND OUTLET ELEVATION

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 031
 REHAB. OF BRIDGE NO. 031 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**



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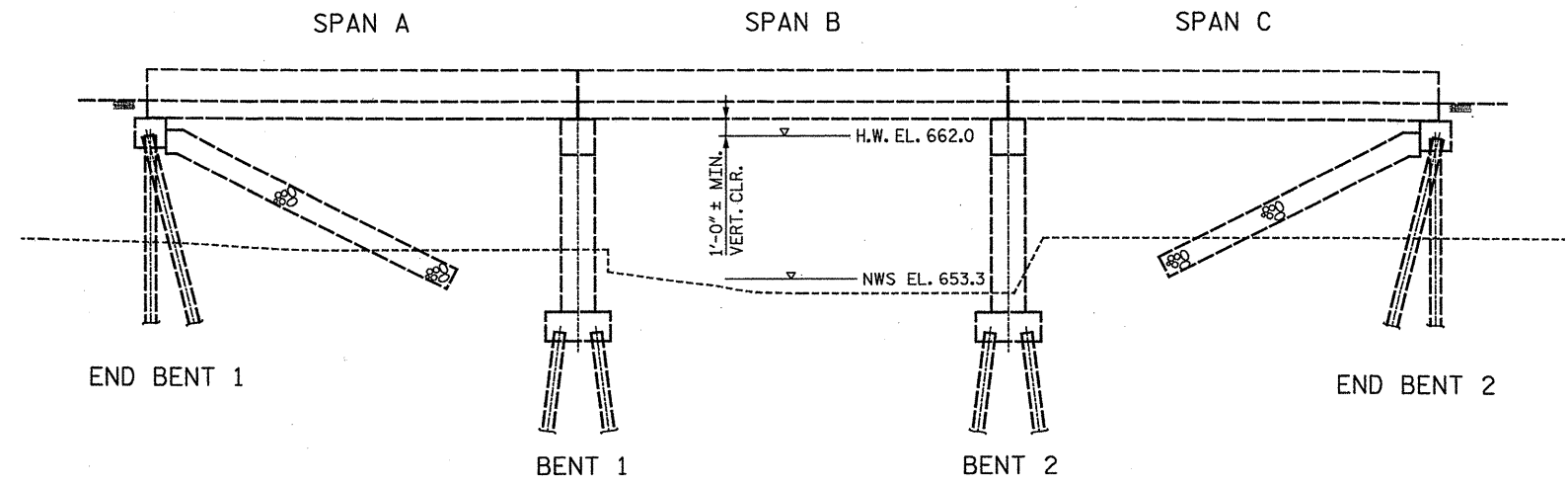
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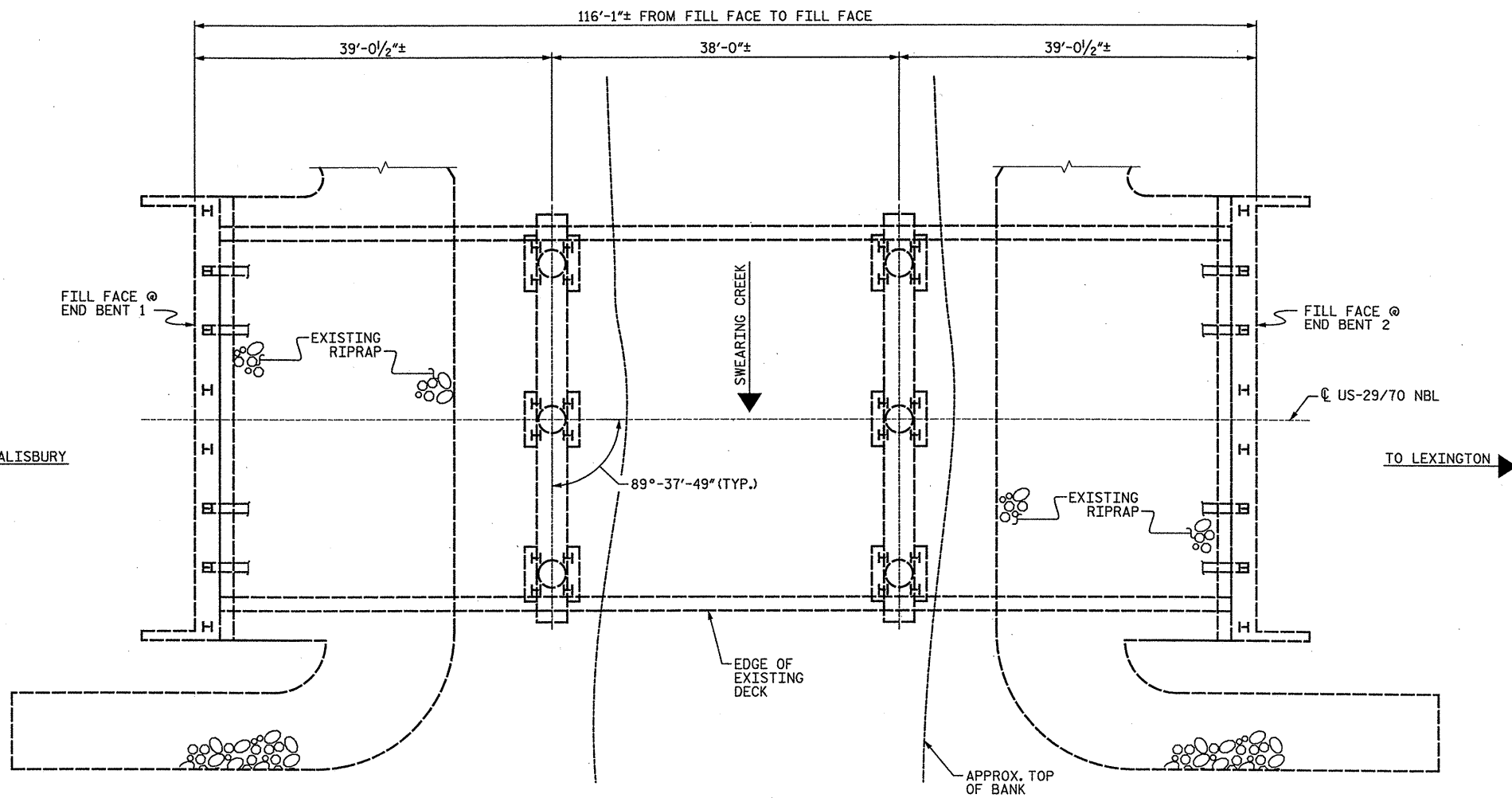
5/17/2012

NOTES:
EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.



ELEVATION

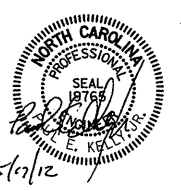
(SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN

(SPANS ARE MEASURED FROM FILL FACE TO FILL FACE)

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 43
 REHAB. OF BRIDGE NO. 43



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 PLAN & ELEVATION**
 BRIDGE ON US-29 & 70
 (NORTHBOUND)
 OVER SWEARING CREEK


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24	
1			3			TOTAL	93
2			4			SHEETS	

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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

DRAWN BY : KMG DATE : 05-12
 CHECKED BY : AC DATE : 05-12

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 5/11/2012
 daveyco

(SEE TYPICAL SECTIONS, THIS SHEET)

NOTES: 

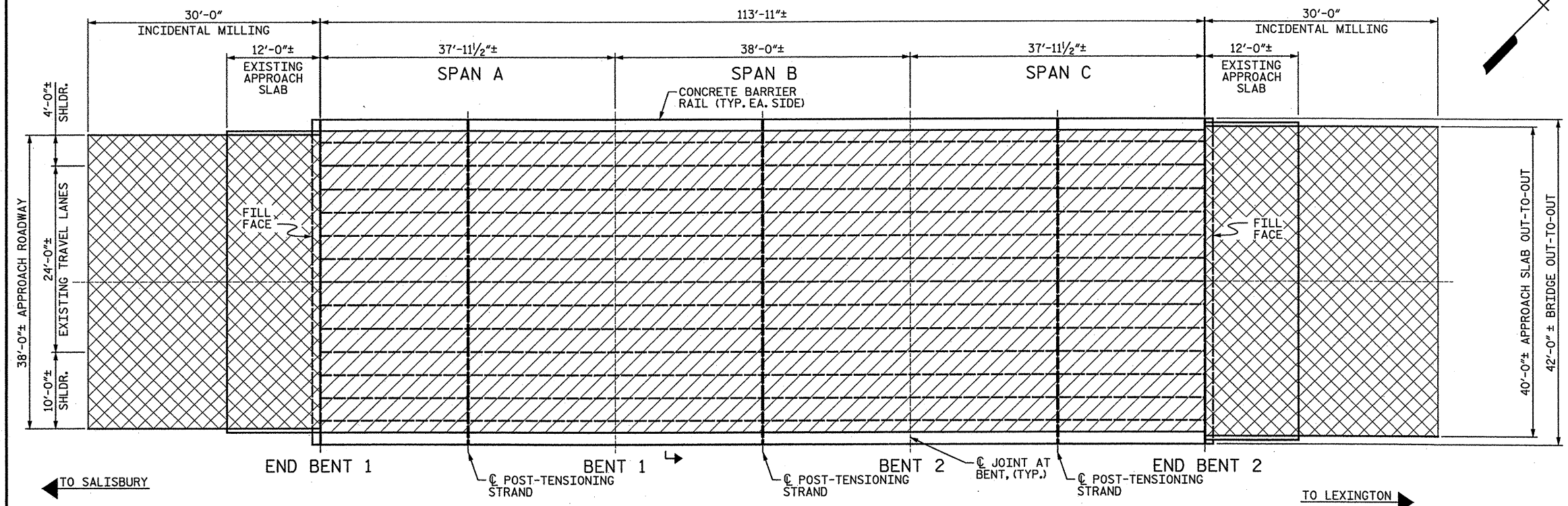
SEE SHEET NO. SN FOR GENERAL NOTES.


EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.


THE POST TENSIONING STRANDS WILL BE REPLACED PRIOR TO ANY OTHER BRIDGE WORK.

CONCRETE BRIDGE FLOORS SHALL BE GROOVED IN ACCORDANCE WITH SECTION 420-14 OF THE STANDARD SPECIFICATIONS.

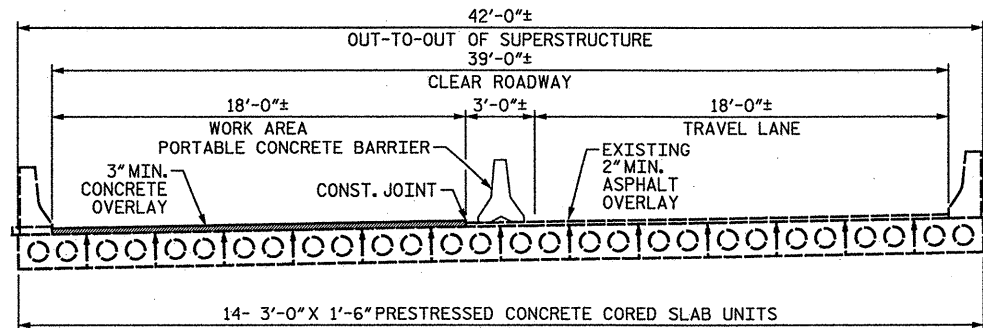
FOR TRAFFIC CONTROL, SEE TRAFFIC MANAGEMENT PLANS.



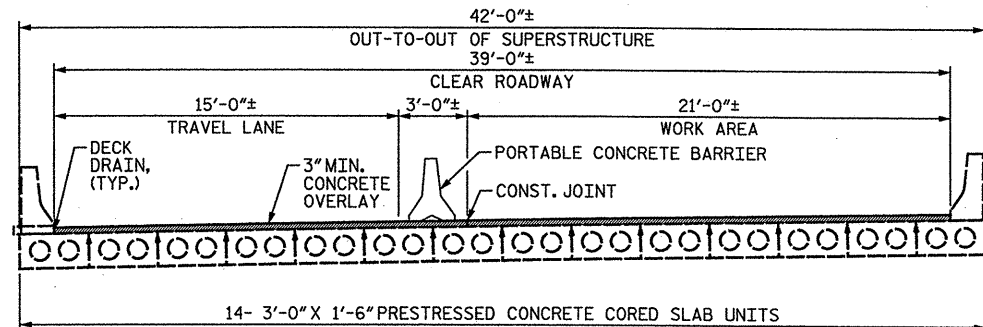
 INCIDENTAL MILLING

 MILLING OF BRIDGE DECK

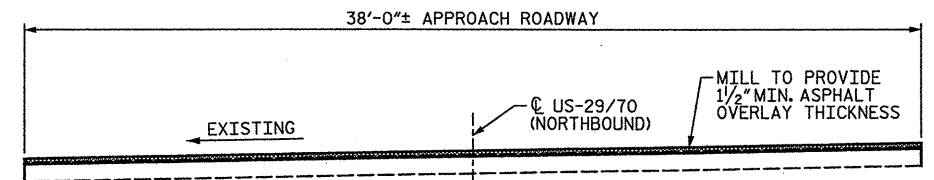
PLAN OF SPANS - PLACEMENT OF CONCRETE OVERLAY



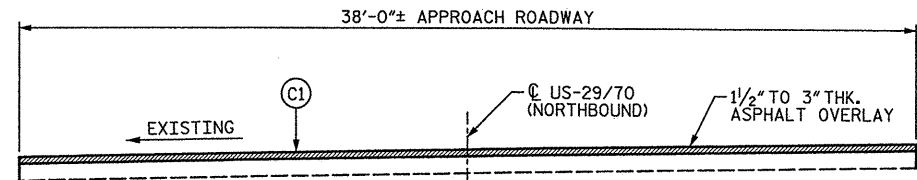
TYPICAL SECTION - STAGE I



TYPICAL SECTION - STAGE II



TYPICAL ROADWAY MILLING SECTION
(MILL DEPTH VARIES)



TYPICAL ROADWAY SECTION
(ASPHALT OVERLAY DEPTH VARIES, 1 1/2" TO 3")


C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" DEPTH.



PROJECT NO. **17BP.9.H.2**
DAVIDSON COUNTY
 BRIDGE NO.: **43**
 REHAB. OF BRIDGE NO. 43

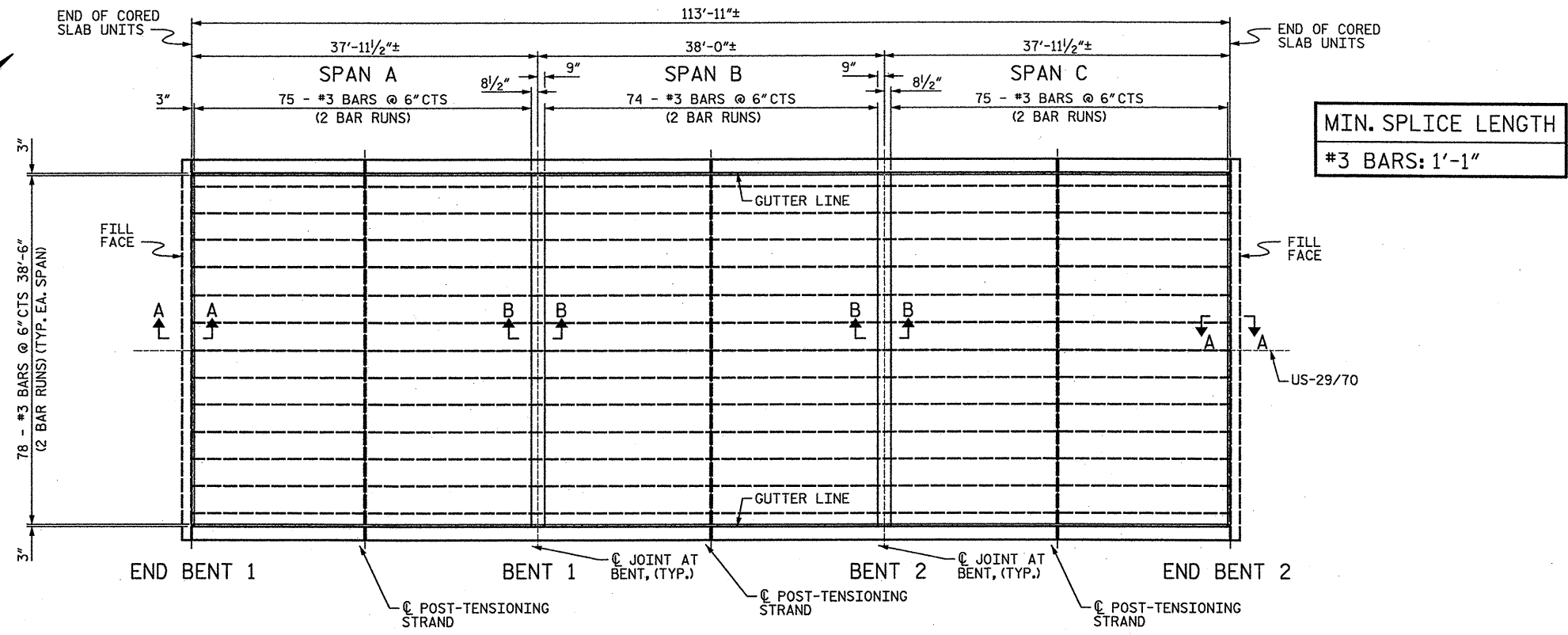
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**FRAMING PLAN &
 TYPICAL SECTIONS**
 BRIDGE ON US-29 & 70
 (NORTHBOUND)
 OVER SWEARING CREEK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1	STV	6-12	3			TOTAL SHEETS 93
2			4			

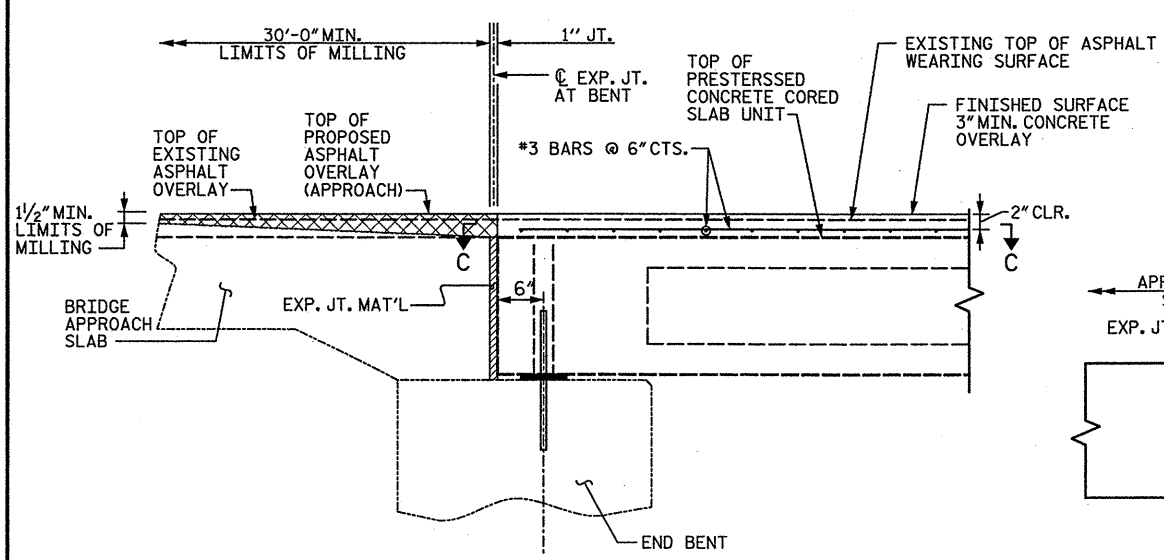
DRAWN BY: **KMG** DATE: **05-12**
 CHECKED BY: **AC** DATE: **05-12**  REV. PER NCDOT COMMENTS

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 Charlotte, NC 28208
 NC License No. F-0991

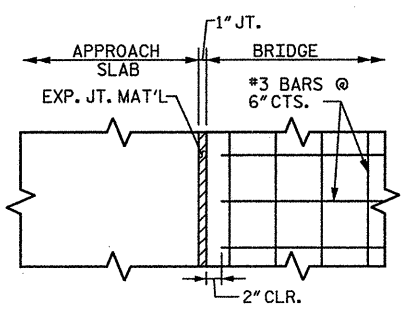
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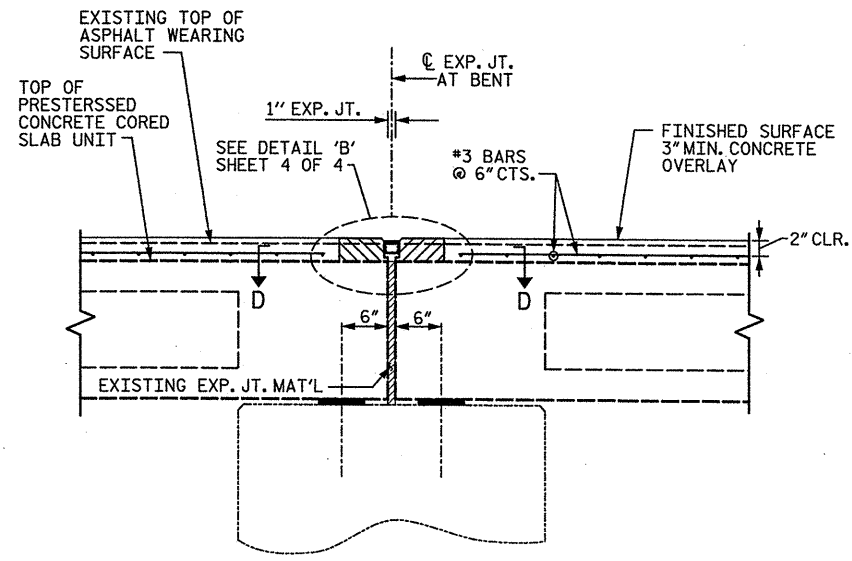
PLAN



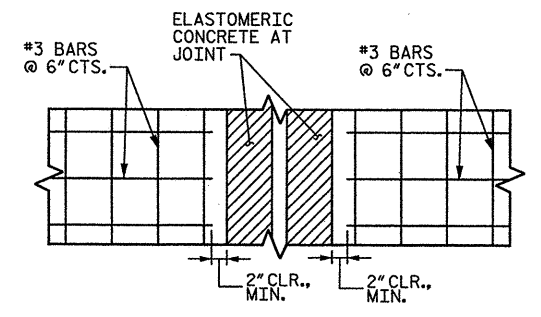
SECTION A-A Δ



SECTION C-C



SECTION B-B Δ



SECTION D-D

TOTAL BILL OF MATERIAL Δ						
INCIDENTAL MILLING	MILLING OF BRIDGE DECK	ASPHALT CONCRETE SURFACE COURSE (TYPE SF 9.5A)	CONCRETE WEARING SURFACE	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	POST-TENSIONING STRAND REPLACEMENT
SQ. YDS.	SQ. YDS.	TONS	SQ. FT.	LUMP SUM	SQ. FT.	LUMP SUM
260	493.7	32	4443	LUMP SUM	4443	LUMP SUM

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 43
 REHAB. OF BRIDGE NO. 43

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN
 DECK REPAIRS
 BRIDGE ON US-29 & 70
 (NORTHBOUND)
 OVER SWEARING CREEK

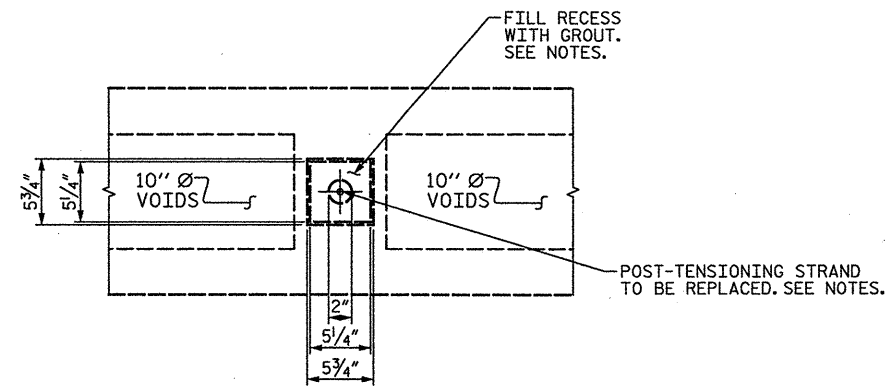


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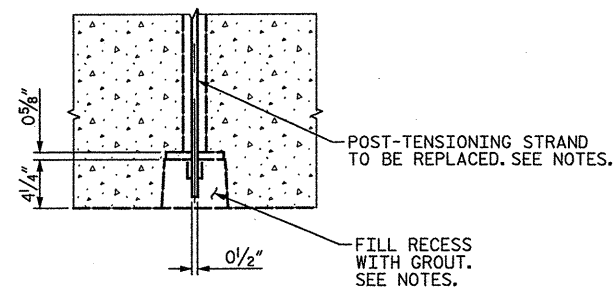
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
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2			4			93

DRAWN BY: KMG DATE: 05-12
 CHECKED BY: AC DATE: 05-12 Δ REV. PER NCDOT COMMENTS

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 6/15/2012
 WJW



ELEVATION VIEW



PLAN VIEW

DETAIL 'A'

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	1/2" Ø L.R.
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

ELASTOMERIC CONCRETE
18 CU. FT.

CLASS AA CONCRETE FOR WEARING SURFACE
41.2 CU. YDS.

REINFORCING STEEL FOR CONCRETE WEARING SURFACE
6625 LBS.

NOTES:

SEE SHEET NO. SN FOR GENERAL NOTES.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 THE ELASTOMERIC CONCRETE SHALL BE CONSIDERED INCIDENTAL TO THE FOAM JOINT SEAL PAY ITEM.
 CONTRACTOR SHALL COVER AND PROTECT THE JOINT CONSTRUCTION TO PREVENT DAMAGE DURING CONCRETE CURING AND AS NEEDED TO MAINTAIN TRAFFIC, AS DIRECTED BY THE ENGINEER.
 THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

FOR CONCRETE WEARING SURFACE SEE SPECIAL PROVISIONS.

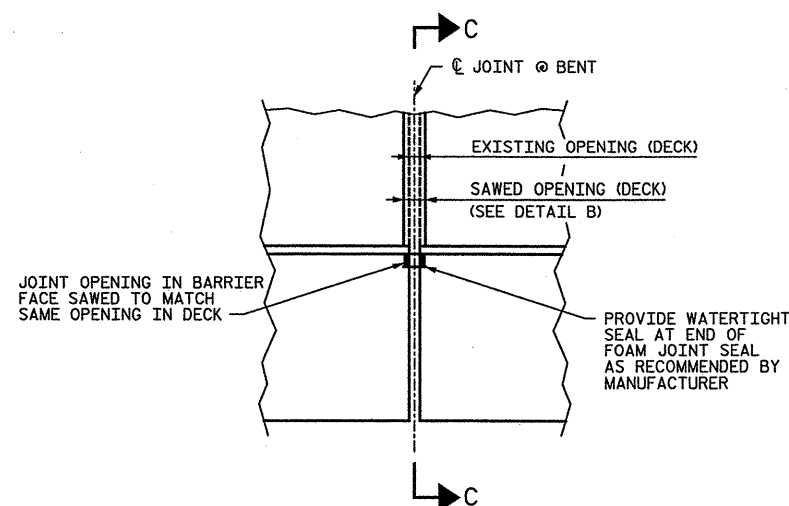
THE COST OF THE #3 (#10) BARS CAST WITH THE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".

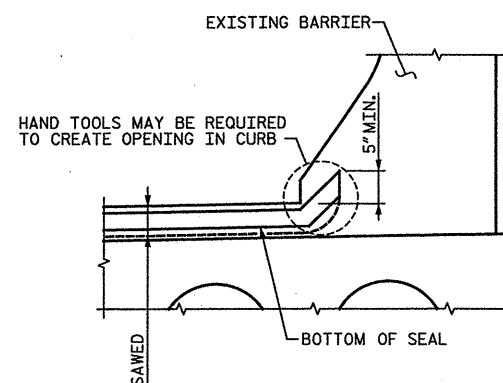
ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

REPLACEMENT OF POST-TENSIONING STRANDS:

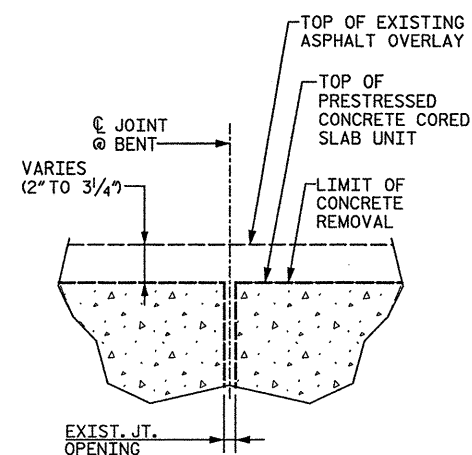
1. DETERMINE THE POST-TENSIONING STRANDS TO BE REPLACED.
2. PLACE THE 1/2" DIAMETER TRANSVERSE POST-TENSIONING STRANDS AND TENSION TO 30,980 LB IN EACH SPAN.
3. AFTER TENSIONING THE 1/2" DIAMETER TRANSVERSE STRAND IN A SPAN, FILL RECESSES AT THE ENDS OF THE TRANSVERSE STRANDS WITH AN APPROVED NON-METALLIC, NONSHRINK GROUT AND CURE FOR 3 DAYS MINIMUM AND UNTIL THE GROUT REACHES A COMPRESSIVE STRENGTH OF 3,000 PSI.



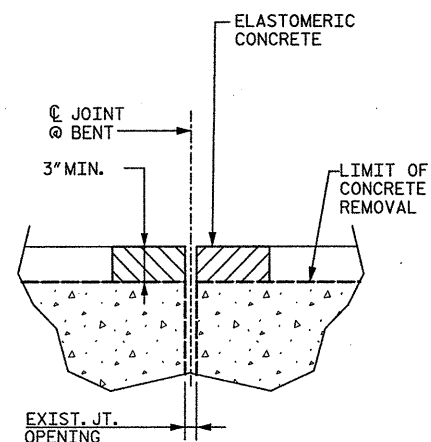
PLAN OF JOINT SEAL AT CURB



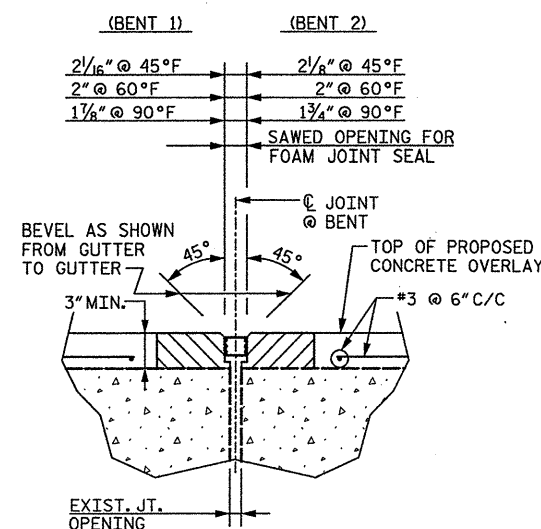
SECTION C-C



CONCRETE REMOVAL DETAIL @ EXISTING JOINT DETAIL



FOAM JOINT SEAL (DETAIL BEFORE SAWING)



FOAM JOINT SEAL (DETAIL AFTER SAWING)

DETAIL 'B'

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 43
 REHAB. OF BRIDGE NO. 43 SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL DETAILS
 BRIDGE ON US-29 & 70
 (NORTHBOUND)
 OVER SWEARING CREEK



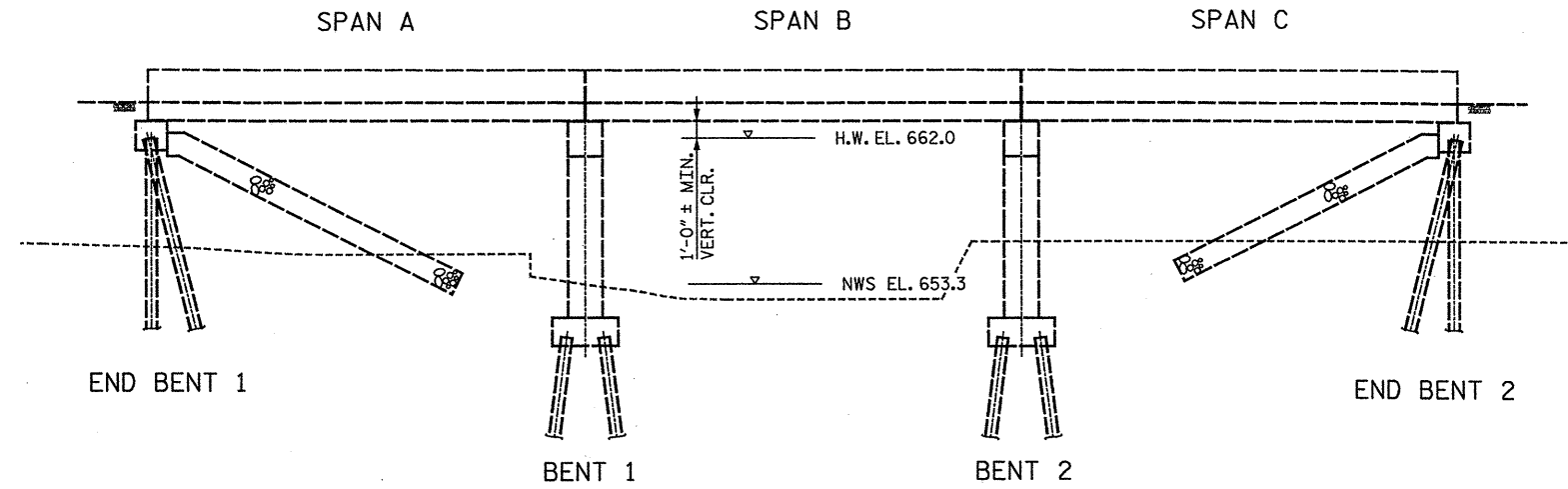
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27	
1			3			TOTAL SHEETS	
2			4			93	

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DRAWN BY: KMG DATE: 05-12
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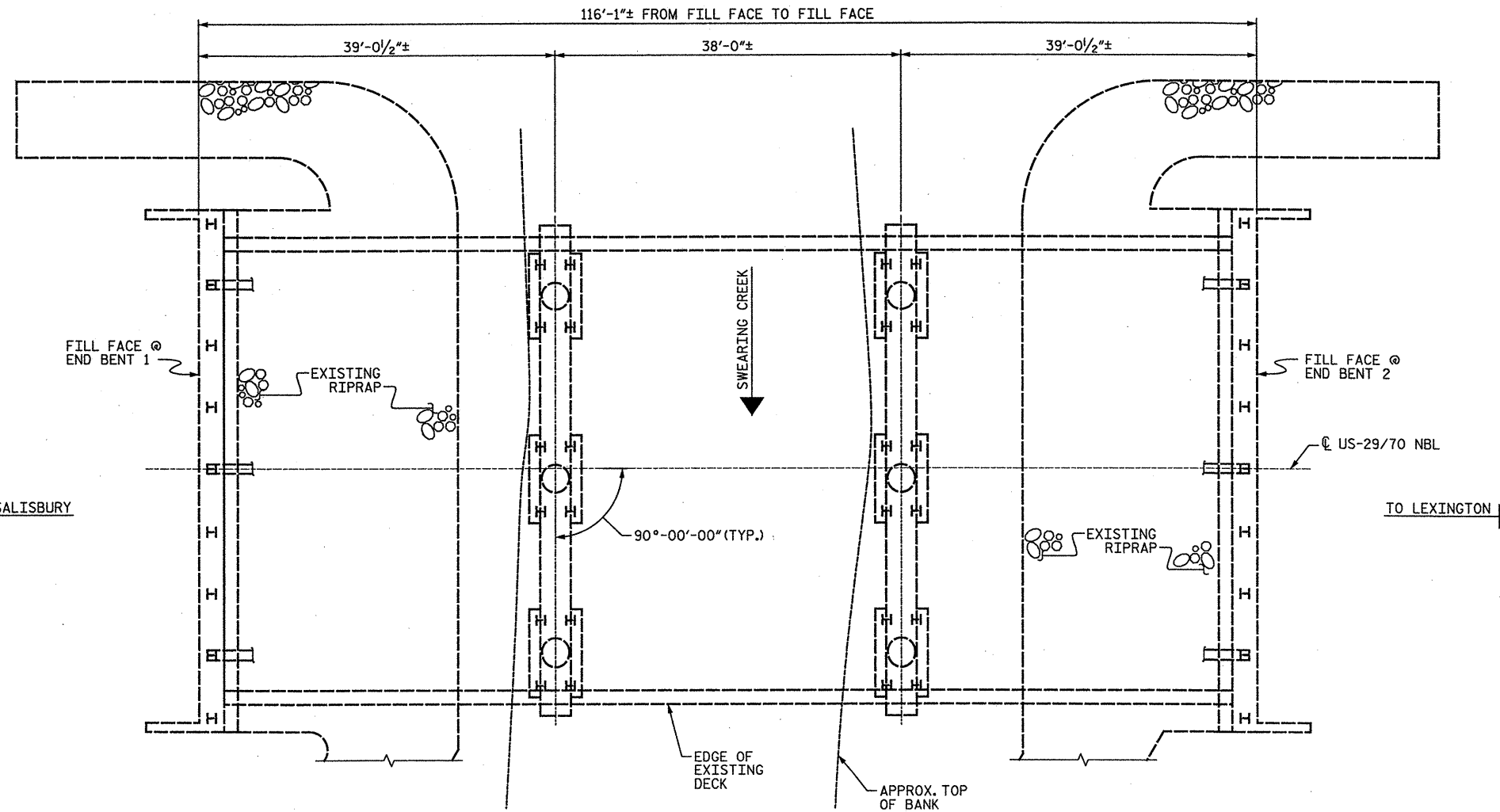
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NOTES:
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.



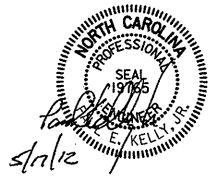
ELEVATION

(SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN

(SPANS ARE MEASURED FROM FILL FACE TO FILL FACE)



PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 525
 REHAB. OF BRIDGE NO. 525

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 PLAN & ELEVATION**
 BRIDGE ON US-29 & 70
 (SOUTHBOUND)
 OVER SWEARING CREEK

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28	
1			3			TOTAL SHEETS 93	
2			4				

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 NC License No. F-0991

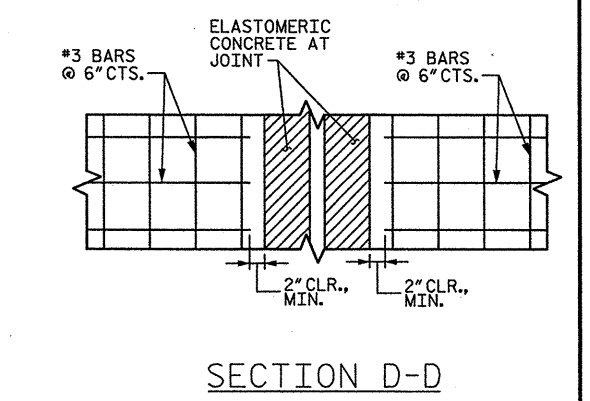
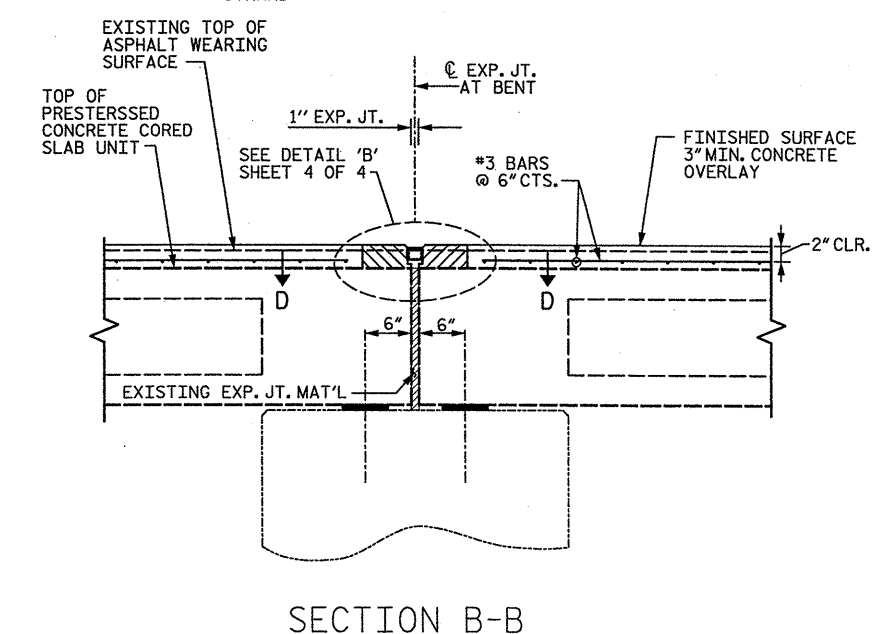
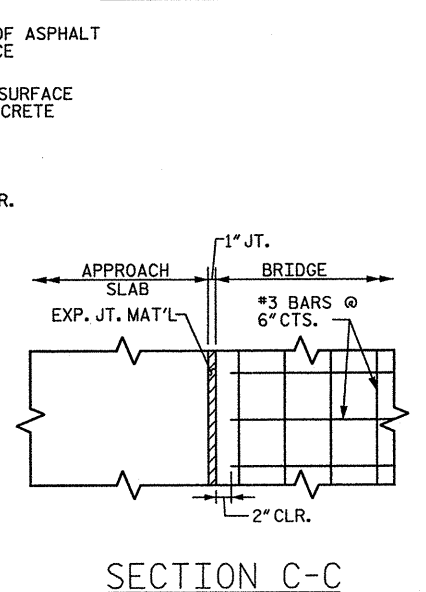
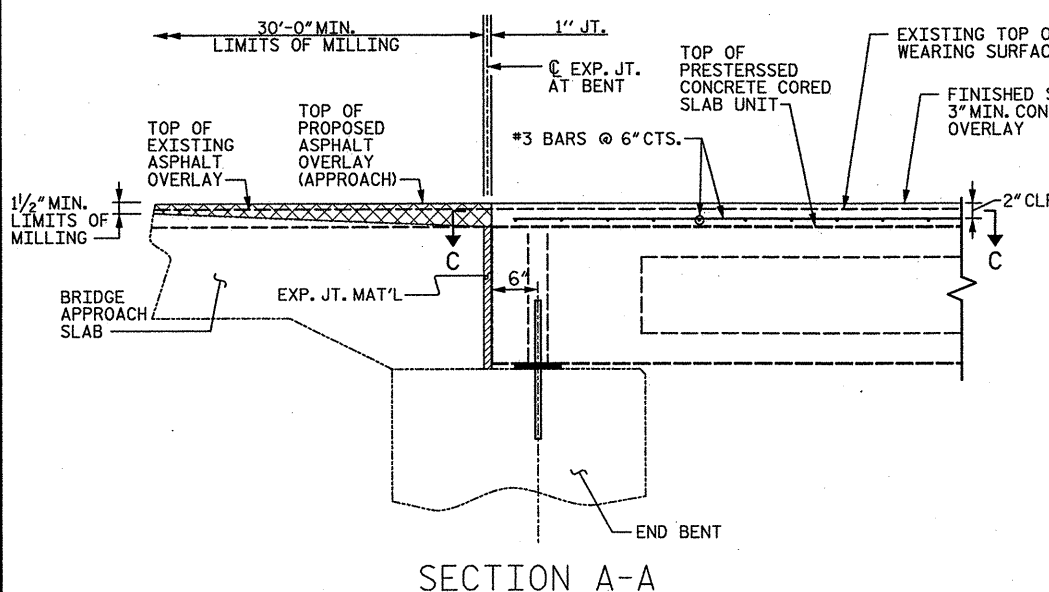
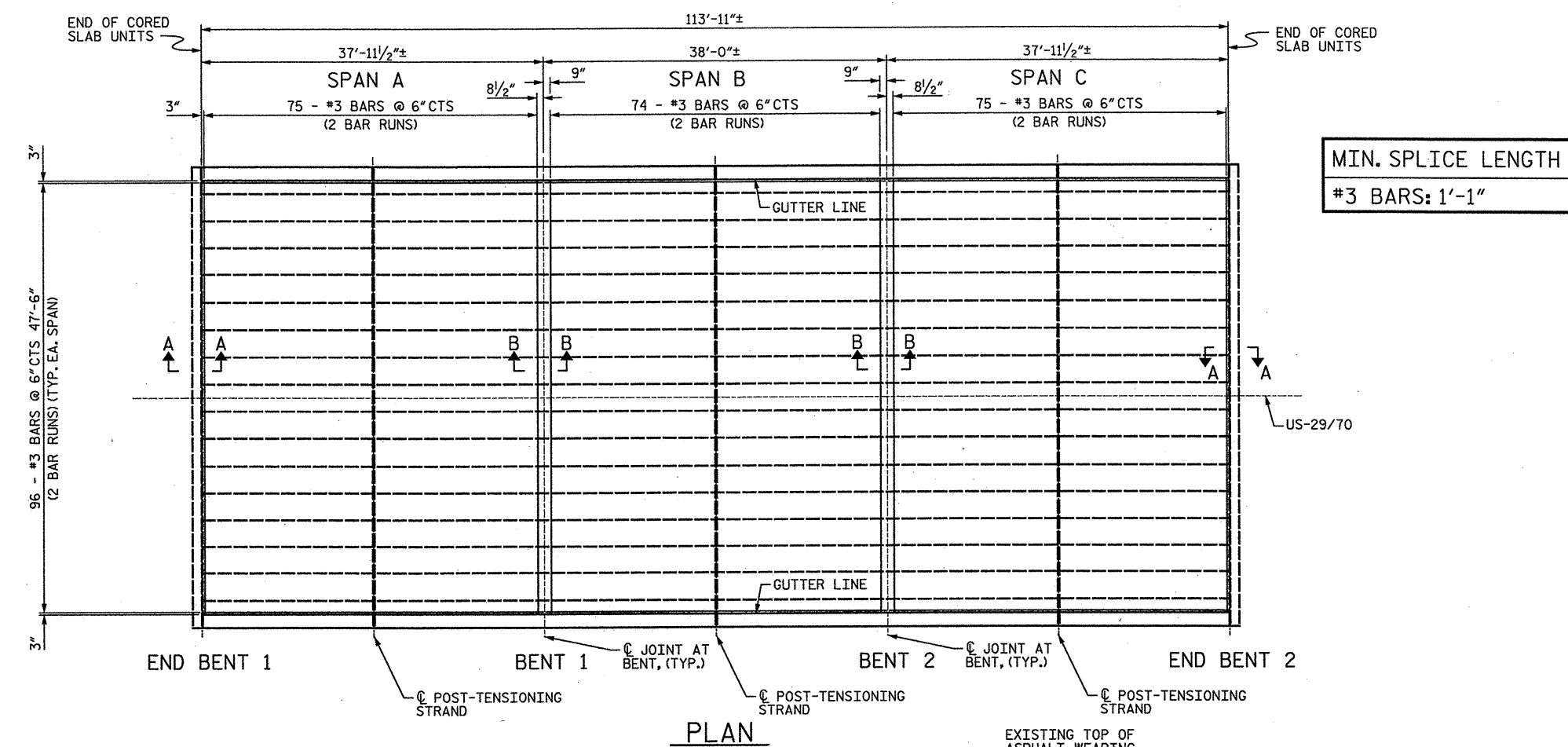
DRAWN BY : KMG DATE : 05-12
 CHECKED BY : AC DATE : 05-12

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5/17/2012

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 6/15/2012
 WJVM



PROJECT NO. **17BP.9.H.2**

DAVIDSON COUNTY

BRIDGE NO.: **525**

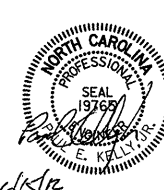
REHAB. OF BRIDGE NO. 525

TOTAL BILL OF MATERIAL						
INCIDENTAL MILLING	MILLING OF BRIDGE DECK	ASPHALT CONCRETE SURFACE COURSE (TYPE SF 9.5A)	CONCRETE WEARING SURFACE	FOAM JOINT SEAL	GROOVING BRIDGE FLOORS	POST-TENSIONING STRAND REPLACEMENT
SQ. YDS.	SQ. YDS.	TONS	SQ. FT.	LUMP SUM	SQ. FT.	LUMP SUM
325	607.6	40	5468	LUMP SUM	5468	LUMP SUM

DRAWN BY: **KMG** DATE: **05-12**

CHECKED BY: **AC** DATE: **05-12** REV. PER NCDOT COMMENTS

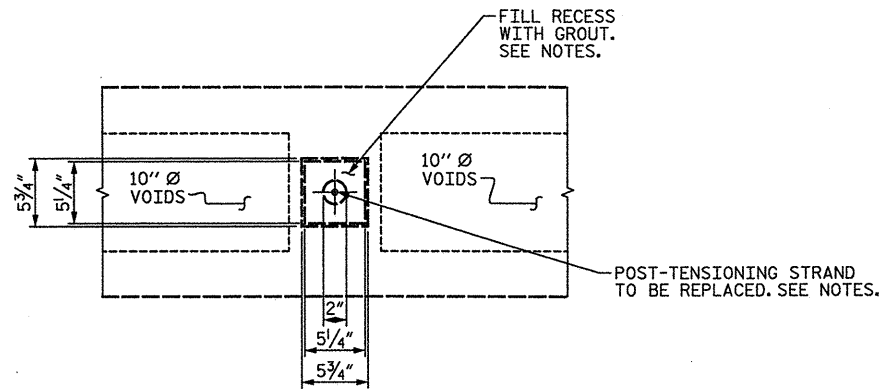
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 Charlotte, NC 28208
 NC License No. F-0991



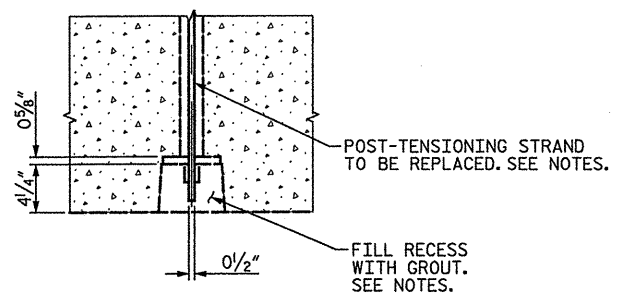
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN
 DECK REPAIRS
 BRIDGE ON US-29 & 70
 (SOUTHBOUND)
 OVER SWEARING CREEK**

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-30
1	STV	6-12	3			TOTAL SHEETS
2			4			93



ELEVATION VIEW



PLAN VIEW

DETAIL 'A'

GRADE 270 STRANDS	
AREA (SQUARE INCHES)	1/2" Ø L.R. 0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

ELASTOMERIC CONCRETE
22 CU. FT.

CLASS AA CONCRETE FOR WEARING SURFACE
50.6 CU. YDS.

REINFORCING STEEL FOR CONCRETE WEARING SURFACE
8158 LBS.

NOTES:
 SEE SHEET NO. SN FOR GENERAL NOTES.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
 THE ELASTOMERIC CONCRETE SHALL BE CONSIDERED INCIDENTAL TO THE FOAM JOINT SEAL PAY ITEM.
 CONTRACTOR SHALL COVER AND PROTECT THE JOINT CONSTRUCTION TO PREVENT DAMAGE DURING CONCRETE CURING AND AS NEEDED TO MAINTAIN TRAFFIC, AS DIRECTED BY THE ENGINEER.
 THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

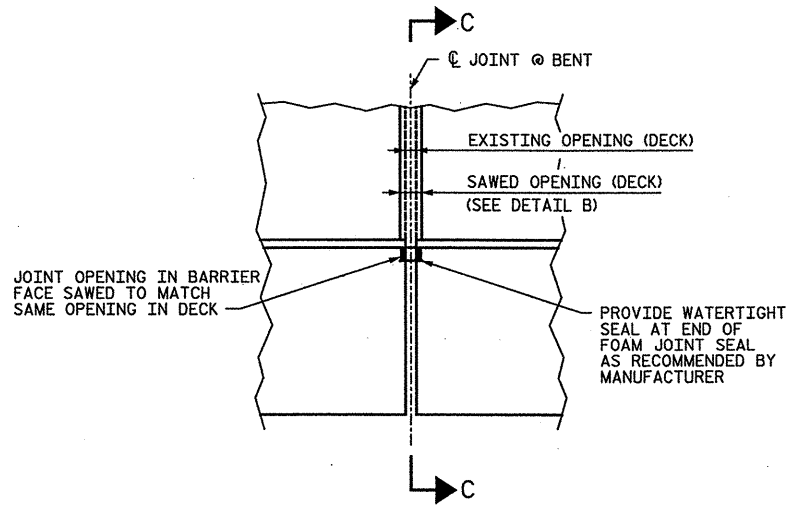
FOAM JOINT OPENING WIDTHS SHALL BE CONFIRMED IN THE FIELD. CONTRACTOR SHALL MAKE ADJUSTMENTS TO FOAM JOINT SEALS, AS NECESSARY, TO MEET EXISTING CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. ANY CHANGES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. ANY COST ASSOCIATED WITH THESE ADJUSTMENTS IS CONSIDERED INCIDENTAL AND NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

FOR CONCRETE WEARING SURFACE SEE SPECIAL PROVISIONS.
 THE COST OF THE #3 (#10) BARS CAST WITH THE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE.

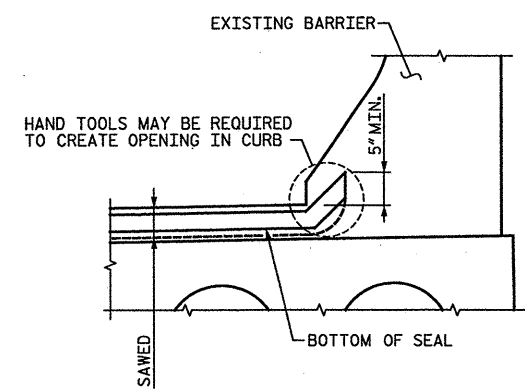
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 2 1/2".

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

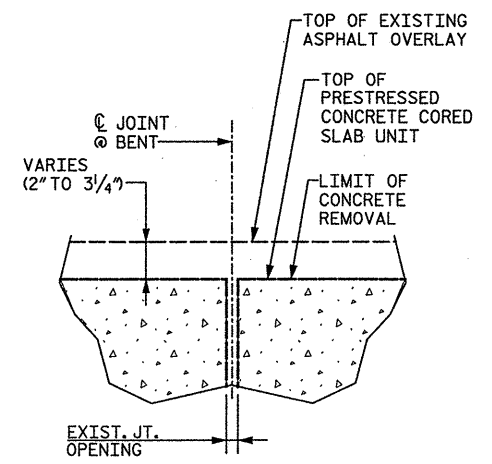
- REPLACEMENT OF POST-TENSIONING STRANDS:**
1. DETERMINE THE POST-TENSIONING STRANDS TO BE REPLACED.
 2. PLACE THE 1/2" DIAMETER TRANSVERSE POST-TENSIONING STRANDS AND TENSION TO 30,980 LB IN EACH SPAN.
 3. AFTER TENSIONING THE 1/2" DIAMETER TRANSVERSE STRAND IN A SPAN, FILL RECESSES AT THE ENDS OF THE TRANSVERSE STRANDS WITH AN APPROVED NON-METALLIC, NONSHRINK GROUT AND CURE FOR 3 DAYS MINIMUM AND UNTIL THE GROUT REACHES A COMPRESSIVE STRENGTH OF 3,000 PSI.



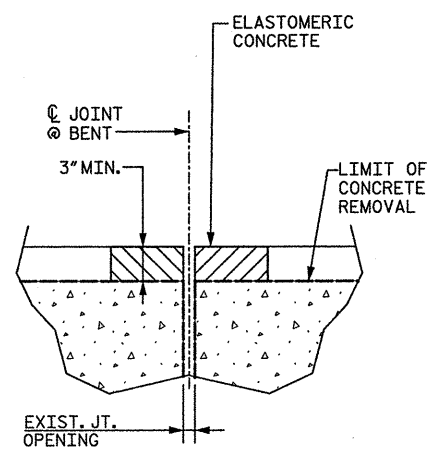
PLAN OF JOINT SEAL AT CURB



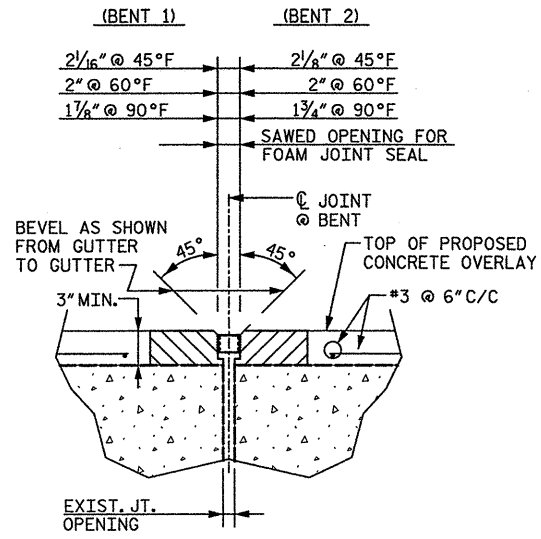
SECTION C-C



CONCRETE REMOVAL DETAIL @ EXISTING JOINT DETAIL



FOAM JOINT SEAL (DETAIL BEFORE SAWING)



FOAM JOINT SEAL (DETAIL AFTER SAWING)

DETAIL 'B'

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 525
 REHAB. OF BRIDGE NO. 525

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TYPICAL DETAILS
 BRIDGE ON US-29 & 70
 (SOUTHBOUND)
 OVER SWEARING CREEK

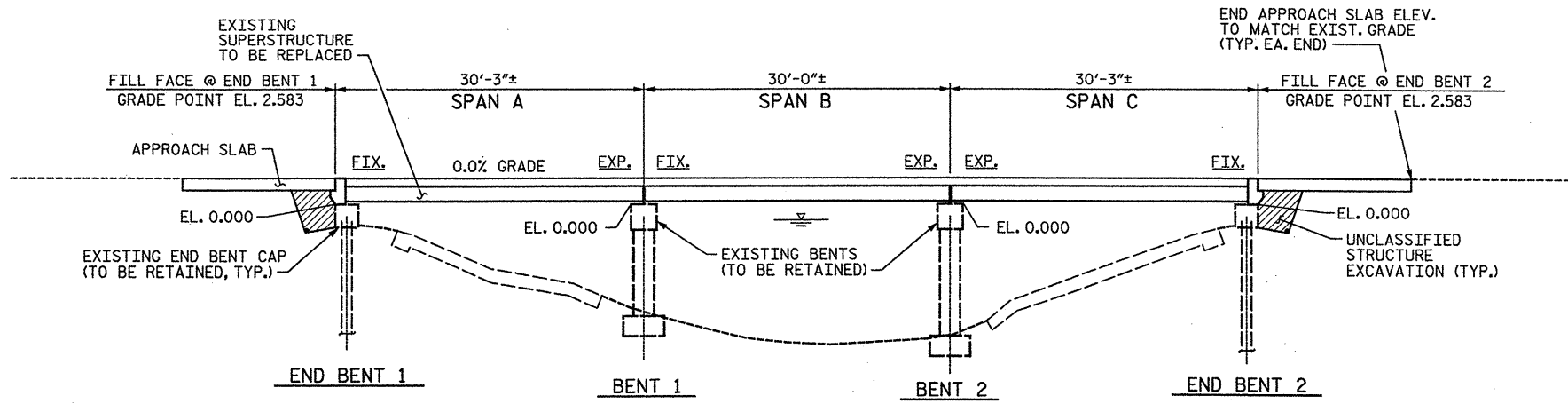
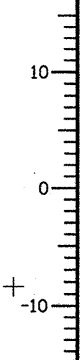


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31	
1			3			TOTAL SHEETS	
2			4			93	

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 Charlotte, NC 28208
 NC License No. F-0991

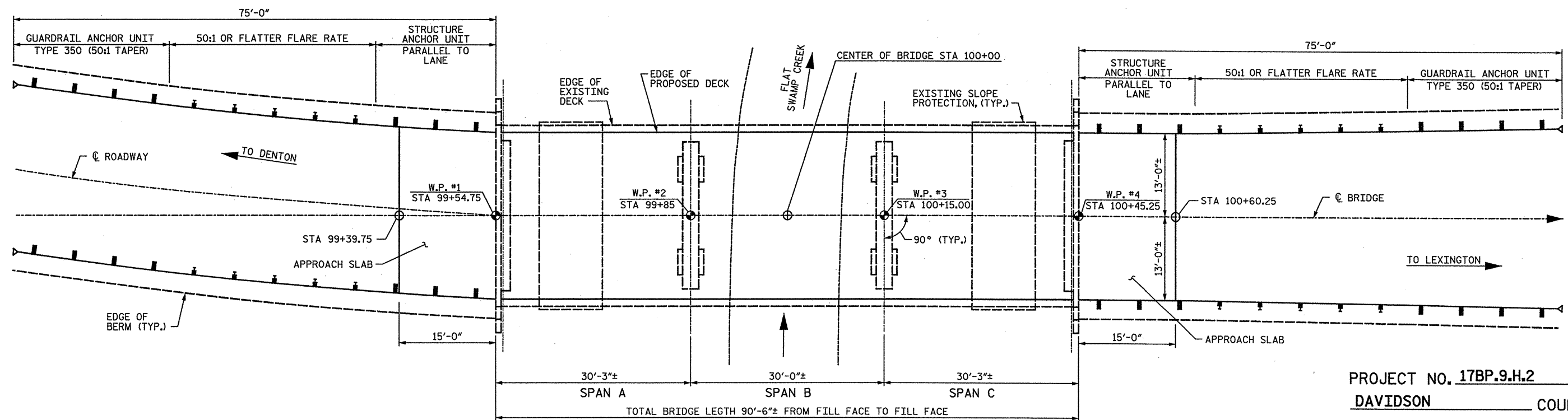
DRAWN BY: KMG DATE: 05-12
 CHECKED BY: AC DATE: 05-12

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 5/17/2012
 dveyao



SECTION ALONG C BRIDGE
 NOTE: ROADWAY BARRIER DETAILS ARE NOT SHOWN FOR CLARITY

NOTES:
 ALL EXISTING STATIONS AND ELEVATIONS ARE AS PER THE AS-BUILT PLANS.
 THE ORIGIN OF THE STATION ALONG CENTERLINE OF THE BRIDGE IS ASSUMED FOR PLAN PREPARATION.
 THE VERTICAL DATUM IS ASSUMED FOR PLAN PREPARATION.
 WORK INVOLVES REMOVAL OF EXISTING SUPERSTRUCTURE, CONSTRUCTION OF PROPOSED SUPERSTRUCTURE, DECK, BEARINGS, RAILINGS, APPROACHES AND SLOPE PROTECTION.
 ALL EXISTING SUBSTRUCTURE AND FOOTINGS WILL REMAIN IN PLACE.
 WATER LEVEL SHOWN IS THE APPROXIMATE HIGHWATER MARK AS IT APPEARS ON THE AS-BUILT PLANS.
 THE HORIZONTAL CURVE IN THE APPROACH ROADWAY SHOWN ON THE PLAN IS SCHEMATIC. THE CONTRACTOR MUST FIELD VERIFY ALL GEOMETRY PRIOR TO CONSTRUCTION.
 FOR LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS FOR SAND LIGHTWEIGHT CONCRETE.



PLAN
 NOTE: ROADWAY BARRIER DETAILS ARE NOT SHOWN FOR CLARITY

PROJECT NO. **17BP.9.H.2**
 DAVIDSON COUNTY
 BRIDGE NO.: **055**
 REHAB. OF BRIDGE NO. 055 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON NC 47
 OVER FLAT SWAMP CREEK



STV / Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28206
 NC License No. F-0991

REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1	STV	6-12	3		
2			4		

TOTAL SHEETS: 93

DRAWN BY: **JWK** DATE: **04-12**
 CHECKED BY: **MR** DATE: **04-12**
 REV. PER NCDOT COMMENTS

I:\Projects\2515384\2515384_0001\50_Deliverables & Submittals\17BP.9.H.2\Structures\AutoBr 85 Davidon\01_pBR-055 Plans.dgn
 6/15/2012
 WJVM

TOTAL BILL OF MATERIALIAL Δ

	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE 55	UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE 55	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	GROOVING BRIDGE FLOORS (SQ. FT.)	BRIDGE APPROACH SLABS AT BRIDGE 55	STRUCTURAL STEEL	METHOD A WATERPROOFING	ONE BAR METAL RAIL	1'-0" x 1'-6" CONCRETE PARAPET (SAND LIGHTWEIGHT CONCRETE)	ELASTOMERIC BEARINGS	FOAM JOINT SEALS
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	LUMP SUM	APPROX. LBS.	SQ. YD	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			2376	2506		26,220	25	166.0	166.0		
TOTAL	LUMP SUM	LUMP SUM	2376	2506	LUMP SUM	26,220	25	166.0	166.0	LUMP SUM	LUMP SUM

NOTES:

ASSUMED LIVE LOAD = HS-20 OR ALTERNATIVE LOADING.

THE PROPOSED BRIDGE SUPERSTRUCTURE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES 17TH EDITION, 2002.

THE EXISTING SUBSTRUCTURE WILL REMAIN IN PLACE. NO ANALYSIS OR DESIGN HAS BEEN PERFORMED TO EVALUATE THE CAPACITY OF THE SUBSTRUCTURE AND THE FOUNDATIONS. IF ANY DISTRESS IS NOTICED DURING THE CONSTRUCTION, THE CONTRACTOR MUST IMMEDIATELY STOP WORK AND NOTIFY THE DEPARTMENT OF TRANSPORTATION AND THE ENGINEER. THE WORK MAY NOT RESUME UNTIL THE CAUSE OF DISTRESS IS DETECTED AND RESOLVED.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB CONTINUOUS UNIT SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING SUPERSTRUCTURE AT EXISTING STATION 227+75.

THE CLASS AA LIGHTWEIGHT CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 16 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING SUPERSTRUCTURE CONSISTING OF ROLLED STEEL I-BEAMS @ 6'-9" CENTERS IN 3 SIMPLE SPANS OF 30'-0" WITH A CLEAR ROADWAY WIDTH OF 24'-0" SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

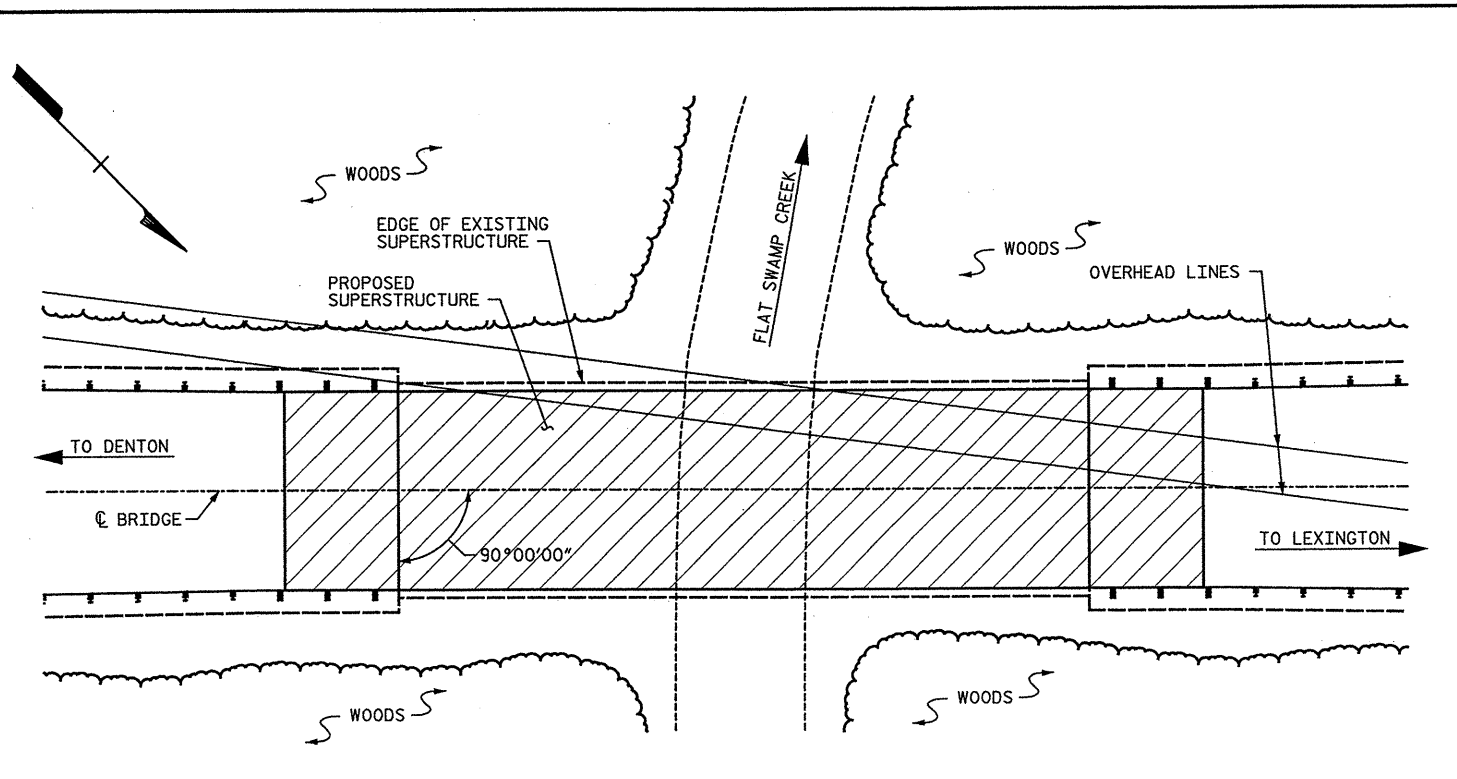
ANY ALTERATION OF ROADWAY SURFACE PROFILE IS NOT ANTICIPATED DUE TO THIS PROJECT. IF ANY ROADWAY PROFILE/GRADE ADJUSTMENT IS REQUIRED FOR SUCCESSFUL COMPLETION OF THE PROJECT, THE CONTRACTOR MUST SUBMIT THE REQUEST WITH RECOMMENDED CHANGES TO THE DEPARTMENT OF TRANSPORTATION AND THE ENGINEER FOR APPROVAL.

REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR LIGHTWEIGHT CONCRETE SEE SPECIAL PROVISION FOR SAND LIGHTWEIGHT CONCRETE.



LOCATION SKETCH

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055

REHAB. OF BRIDGE NO. 055 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 LOCATION SKETCH AND
 TOTAL BILL OF MATERIALS
 BRIDGE ON NC 47
 OVER FLAT SWAMP CREEK

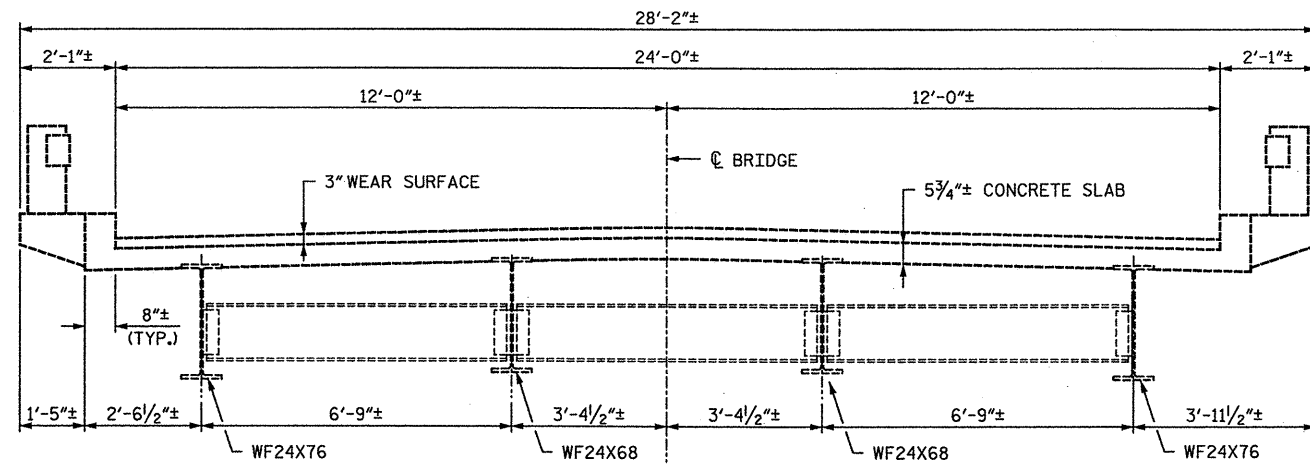


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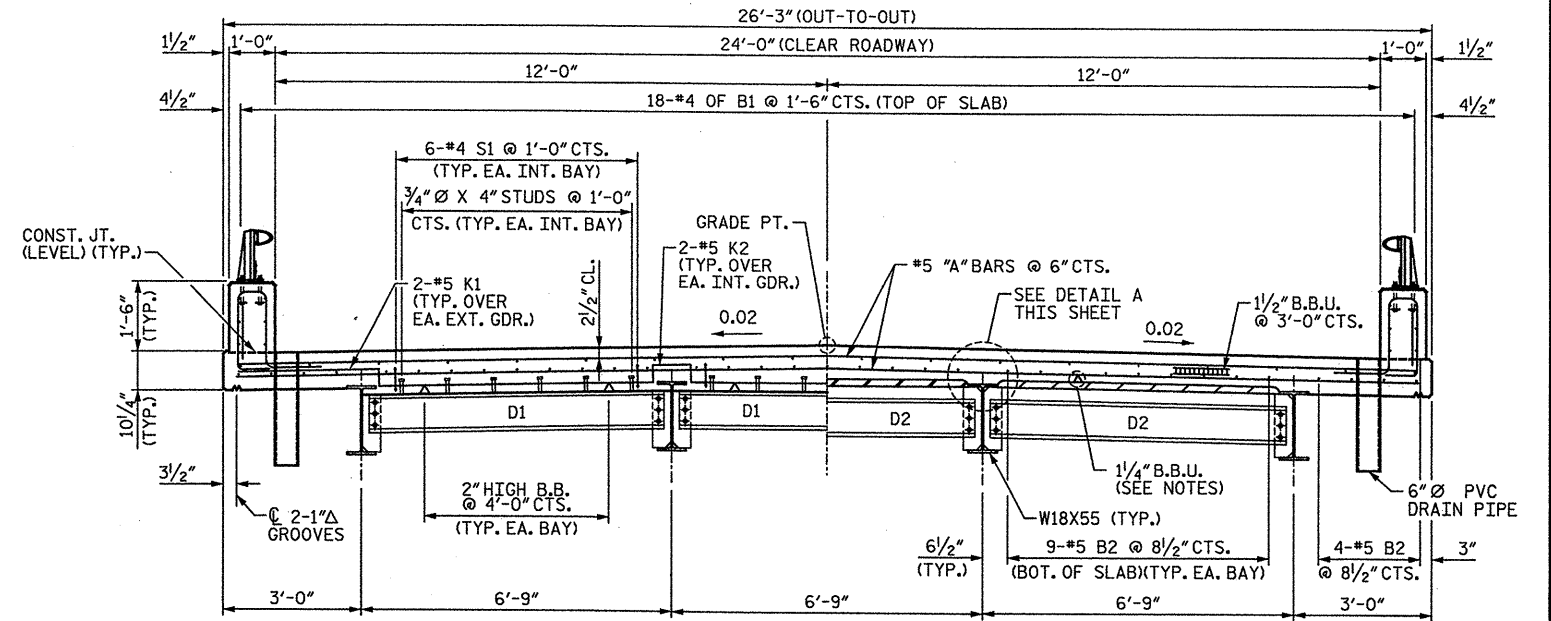
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-33	
1	STV	6-12	3			TOTAL SHEETS	
2			4			93	

DRAWN BY: J.W.K. DATE: 04-12
 CHECKED BY: M.R. DATE: 04-12
 REV. PER NCDOT COMMENTS

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 6/15/2012

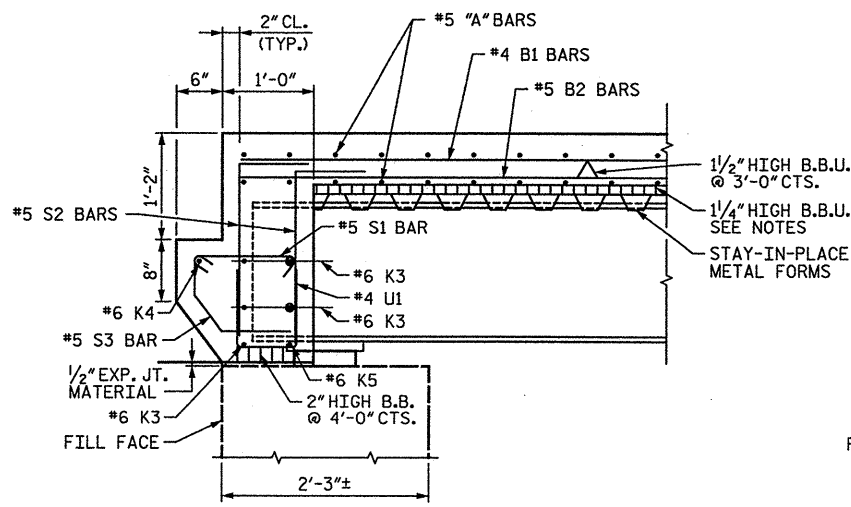


EXISTING SUPERSTRUCTURE SECTION

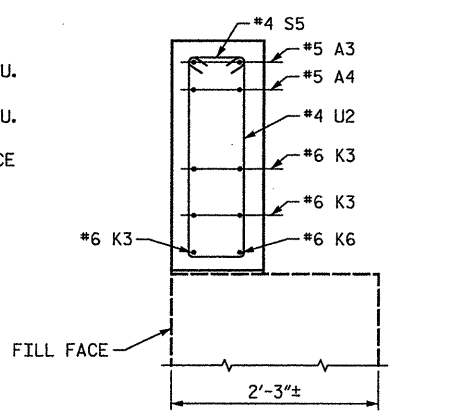


PARTIAL TYPICAL SECTION
SHOWING BENT DIAPHRAGMS

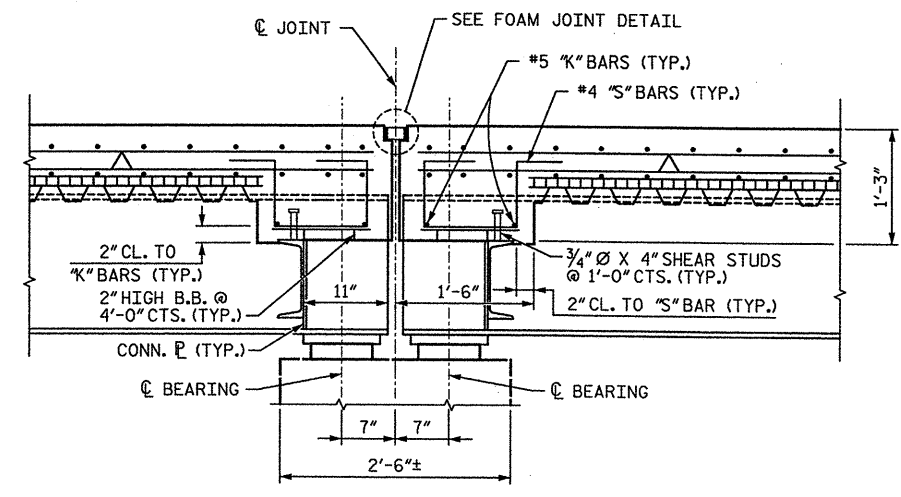
PARTIAL TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS



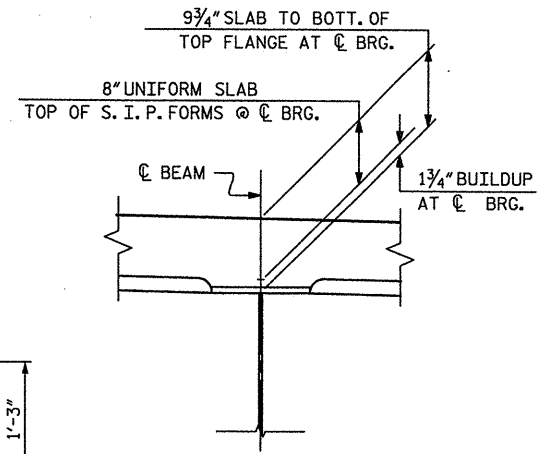
SECTION @ END BENT



SECTION @ END BENT



SECTION @ BENT



DETAIL A

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TYPICAL SECTION
 AND DETAILS



DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12
 REV. DETAIL

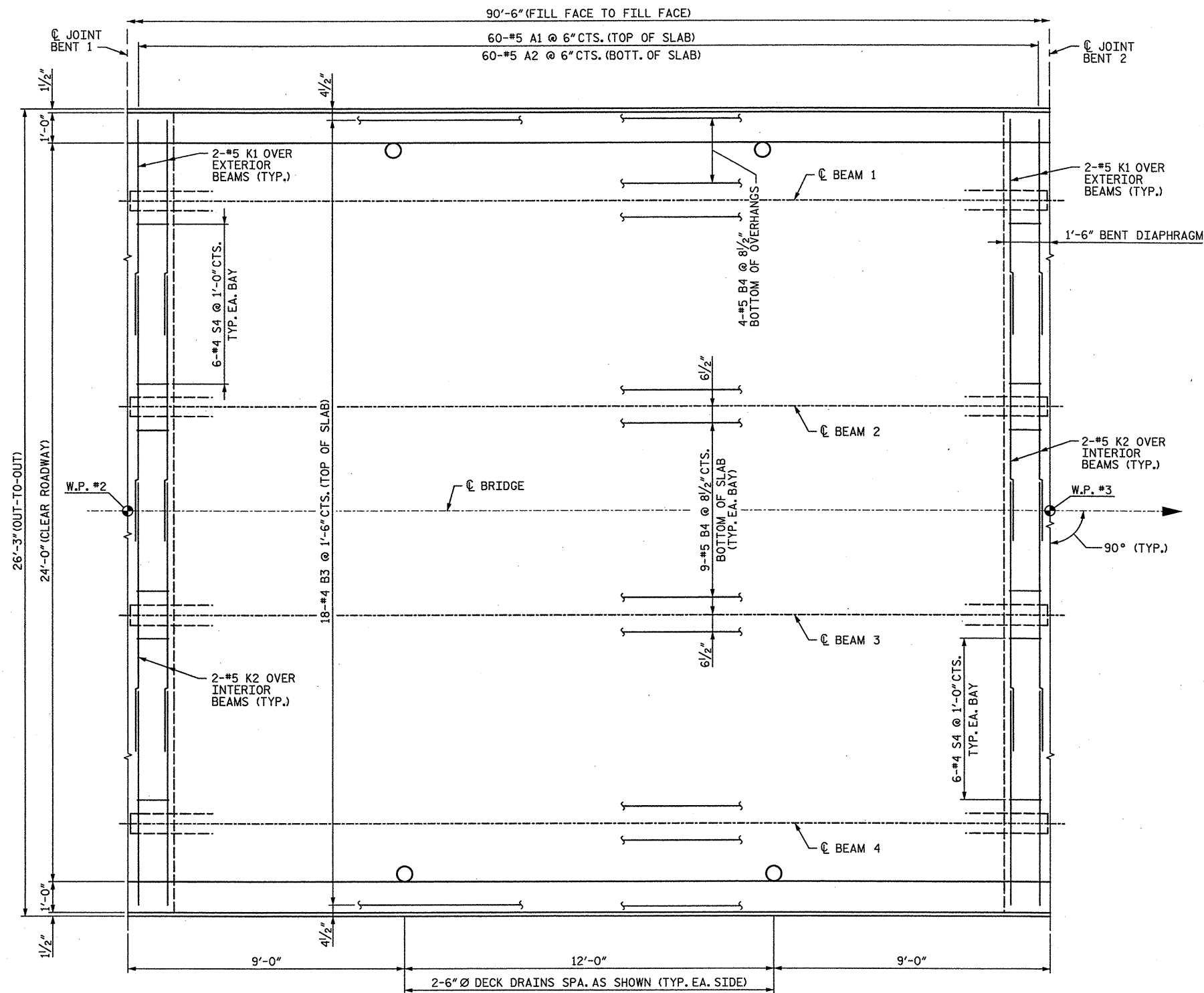
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REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 93

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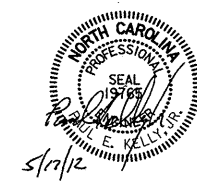
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dlveycc
5/17/2012



PLAN OF SPAN B

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055 SHEET 2 OF 3

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

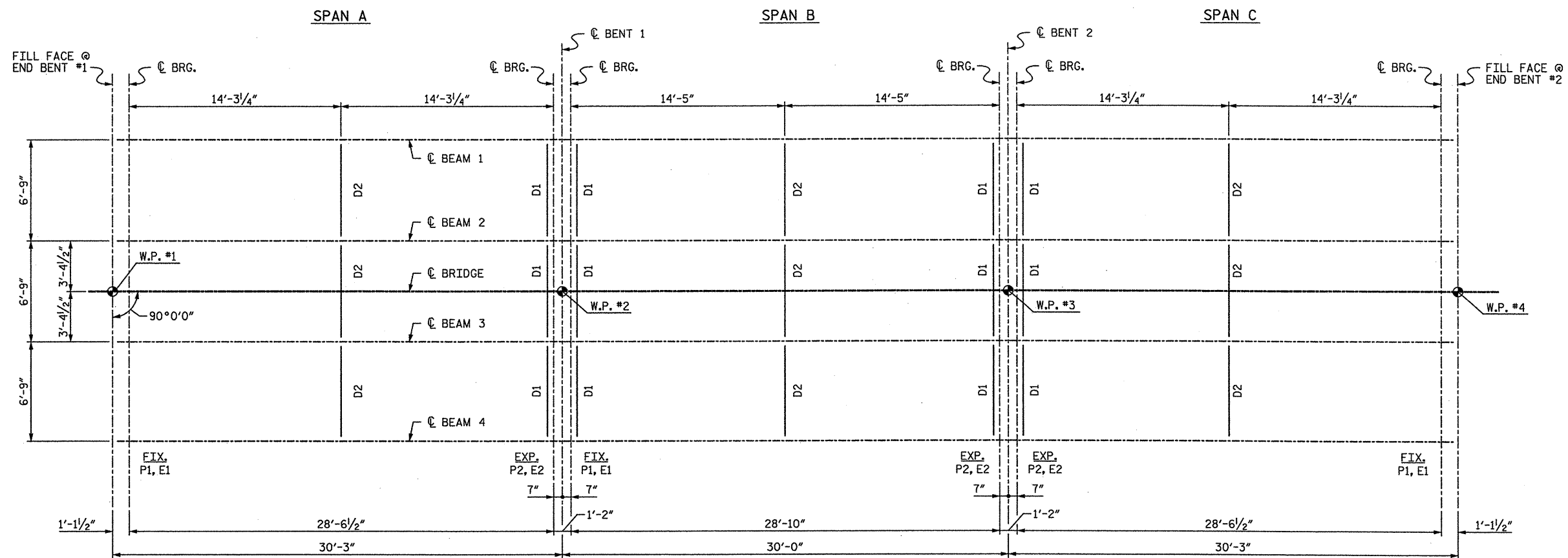


DRAWN BY: JWK DATE: 04-05
 CHECKED BY: MR DATE: 04-05

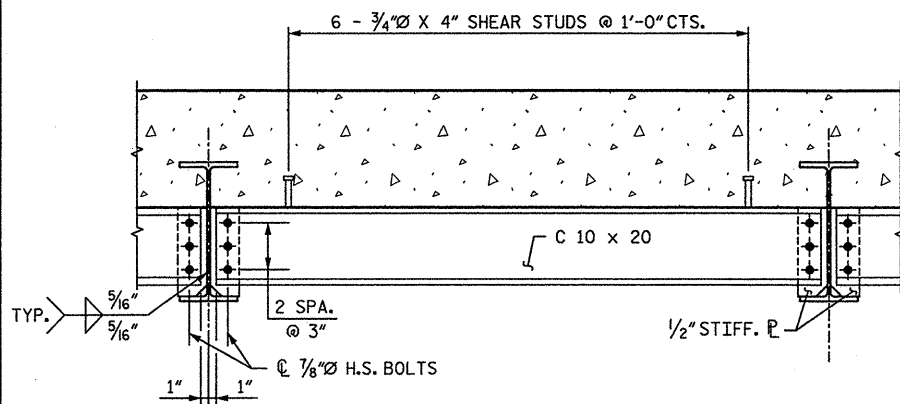
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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			93

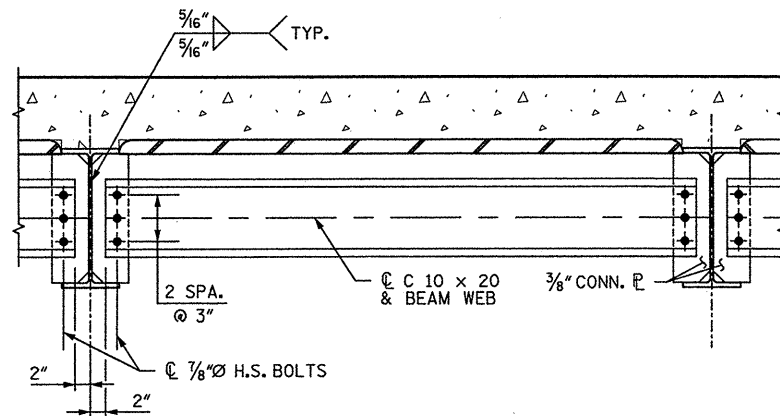
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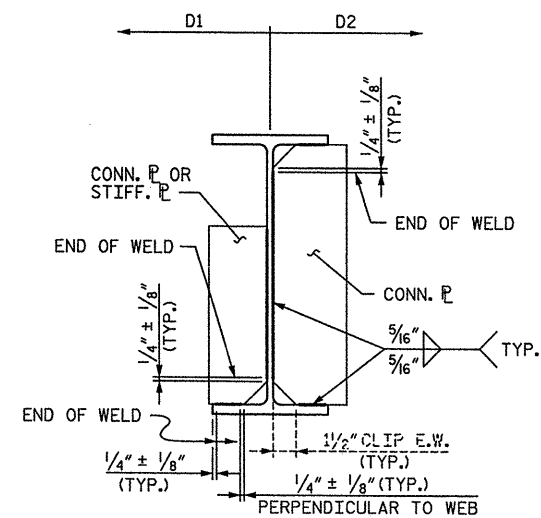
FRAMING PLAN



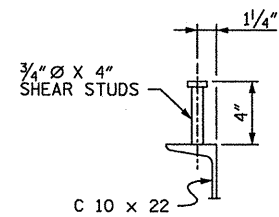
TYPICAL BENT DIAPHRAGM - D1



TYPICAL INTERMEDIATE DIAPHRAGM - D2



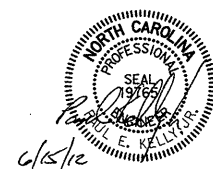
TYPICAL CONNECTOR PLATE CONNECTIONS



SHEAR STUD DETAIL (ON CHANNEL)

PROJECT NO. **17BP.9.H.2**
 DAVIDSON COUNTY
 BRIDGE NO.: **055**
 REHAB. OF BRIDGE NO. 055

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
FRAMING PLAN

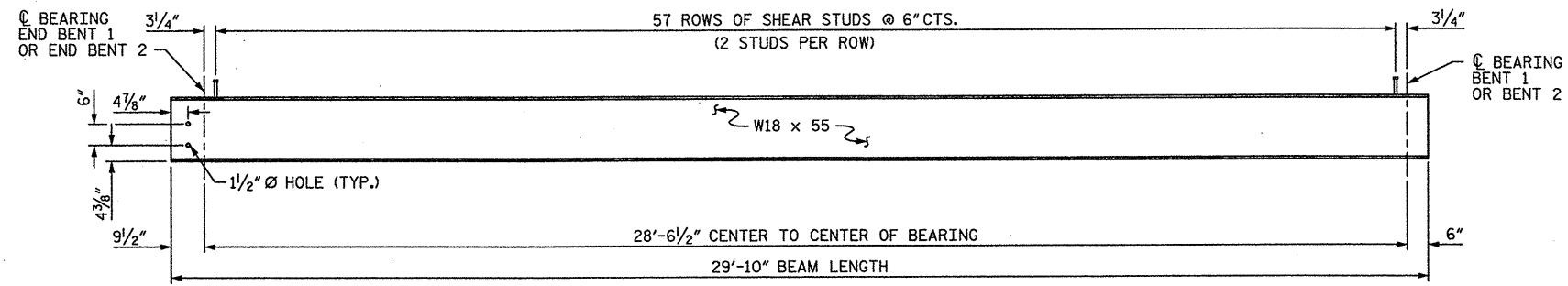


DRAWN BY: **JWK** DATE: **04-12**
 CHECKED BY: **MR** DATE: **04-12** REV. CONN. P

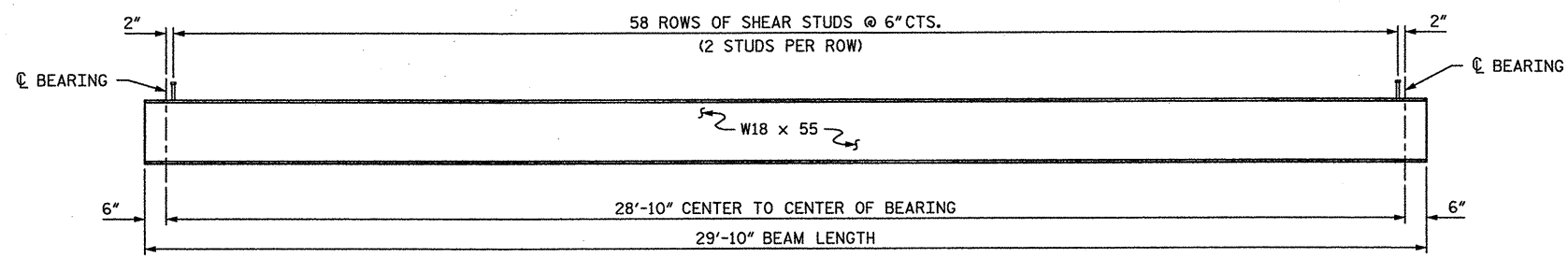
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1	STV	6-12	3			TOTAL SHEETS 93
2			4			

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6/15/2012
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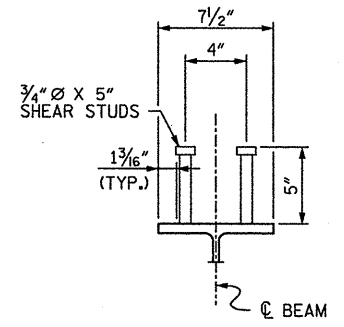
BEAM ELEVATION - SPANS A & C Δ



BEAM ELEVATION - SPAN B Δ

- Δ NOTES:**
- NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.
 - ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
 - ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
 - STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.
 - A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS, COVER PLATES AND SPLICE PLATES AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
 - TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
 - END OF BEAMS AND GIRDERS SHALL BE PLUMB.
 - BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.
 - NEEDLE BEAM TYPE SUPPORTS ARE REQUIRED FOR THE OVERHANG FALSEWORK IN THE SPANS WITH 27" BEAMS OR SMALLER.

STRUCTURAL STEEL QUANTITIES	
APPROXIMATE TOTAL	26,220 LBS



SHEAR STUD DETAIL
(ON BEAMS)

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12 Δ DELETED STIFF., ADDED NOTES

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1	STV	6-12	3			TOTAL SHEETS
2			4			93

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 1 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

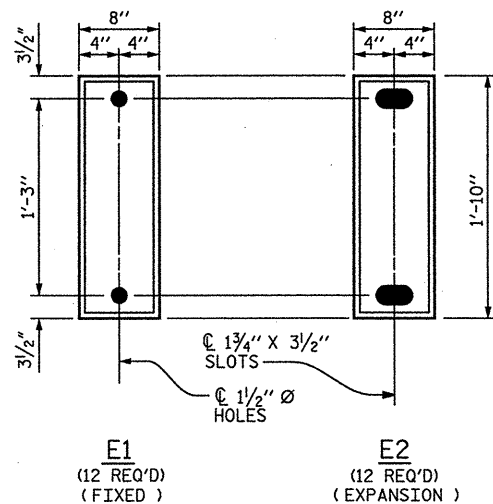
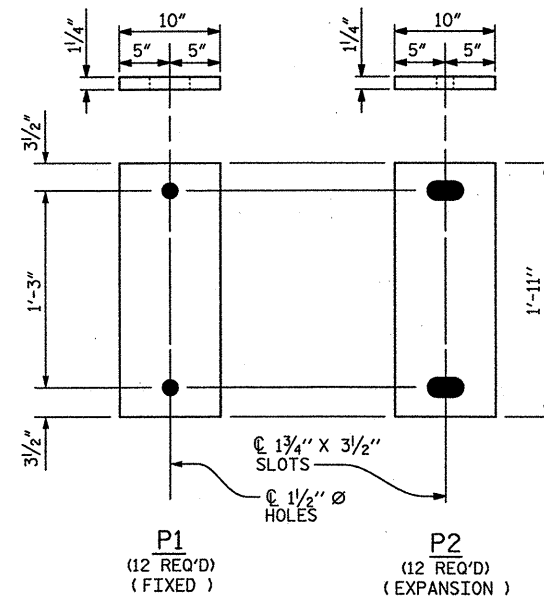
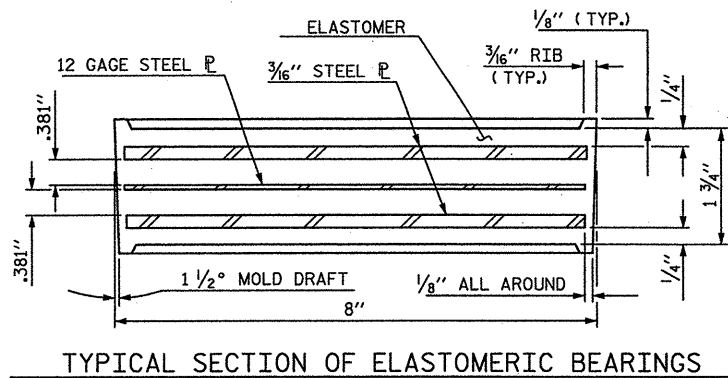
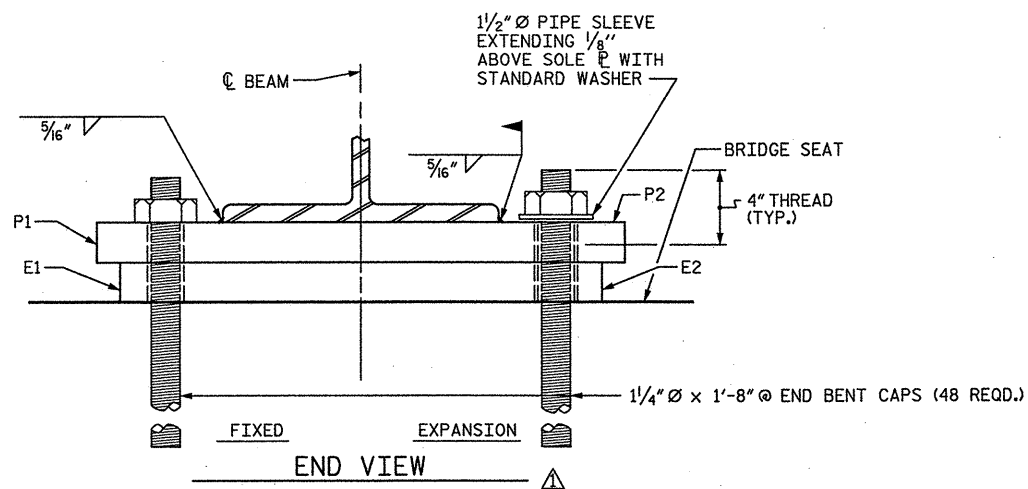
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

EXTREME CARE MUST BE TAKEN WHILE PLACING THE ANCHOR BOLTS IN THE END BENT CAP TO AVOID DAMAGE TO THE EXISTING TIMBER PILES.

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS

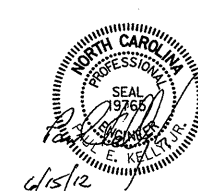


LOAD RATING	
	MAX. D/L + L.L.
TYPE I	91.3 K

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING DETAILS

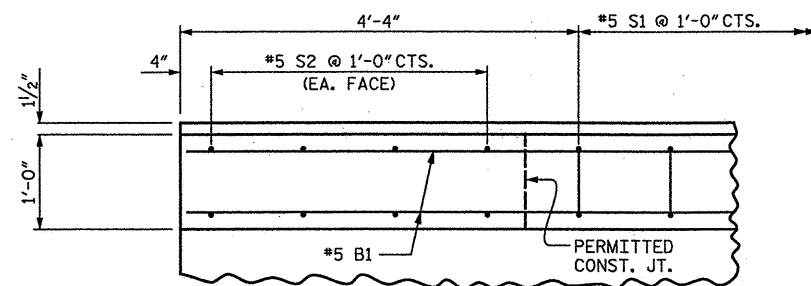


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40	
1	STV	6-12	3			TOTAL SHEETS	93
2			4				

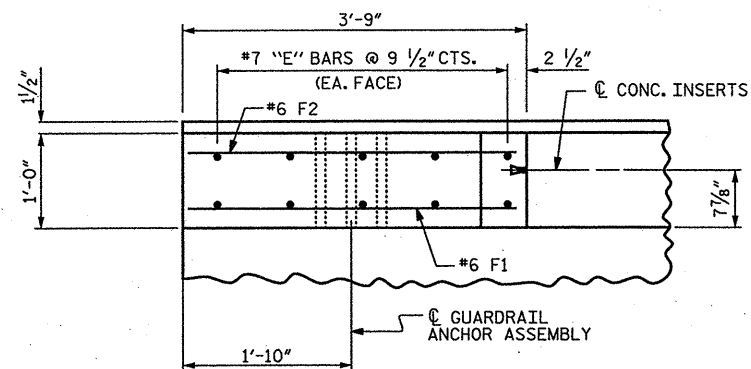
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DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12 REV. ANCHOR BOLT

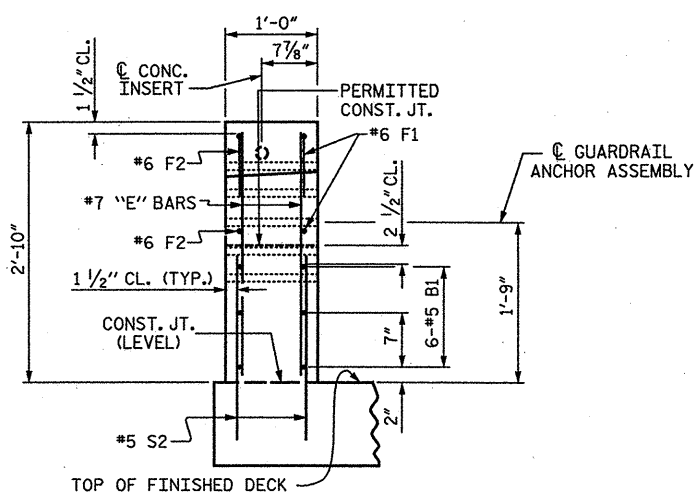
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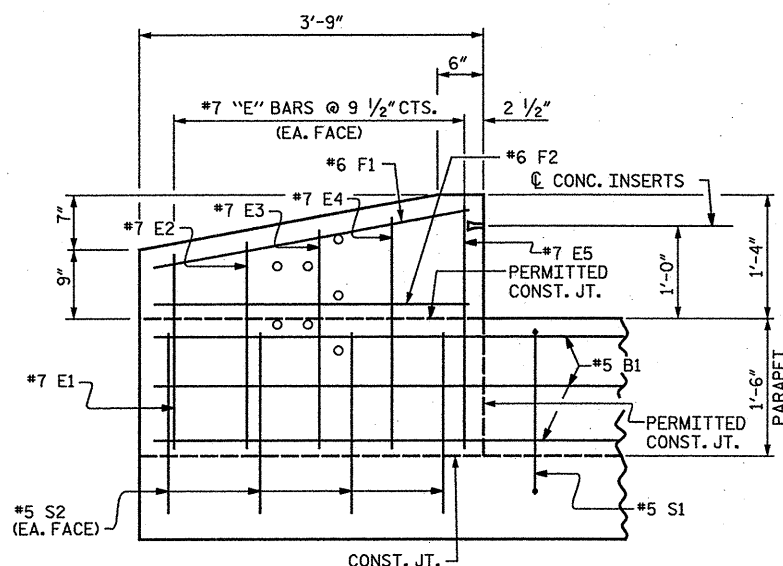
PLAN OF PARAPET



PLAN OF END POST



END VIEW



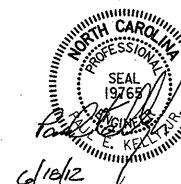
ELEVATION

PARAPET AND END POST FOR ONE BAR RAIL

ONE BAR METAL RAIL					
BILL OF MATERIAL FOR PARAPET AND TWO END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	12	#5	STR	90'-2"	1129
*E1	4	#7	STR	2'-0"	16
*E2	4	#7	STR	2'-2"	18
*E3	4	#7	STR	2'-4"	19
*E4	4	#7	STR	2'-6"	20
*E5	4	#7	STR	2'-7"	21
*F1	4	#6	STR	6'-11"	42
*F2	4	#6	STR	6'-11"	42
*S1	166	#5	1	5'-0"	866
*S2	16	#5	STR	2'-0"	33
*EPOXY COATED REINFORCING STEEL				LBS.	2206
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	0.8

NOTE: ONLY CONCRETE QUANTITIES FOR END POST ARE SHOWN. SEE "CONCRETE PARAPET" SHEET FOR CONCRETE PARAPET QUANTITIES.

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PARAPET AND END
 POST DETAILS

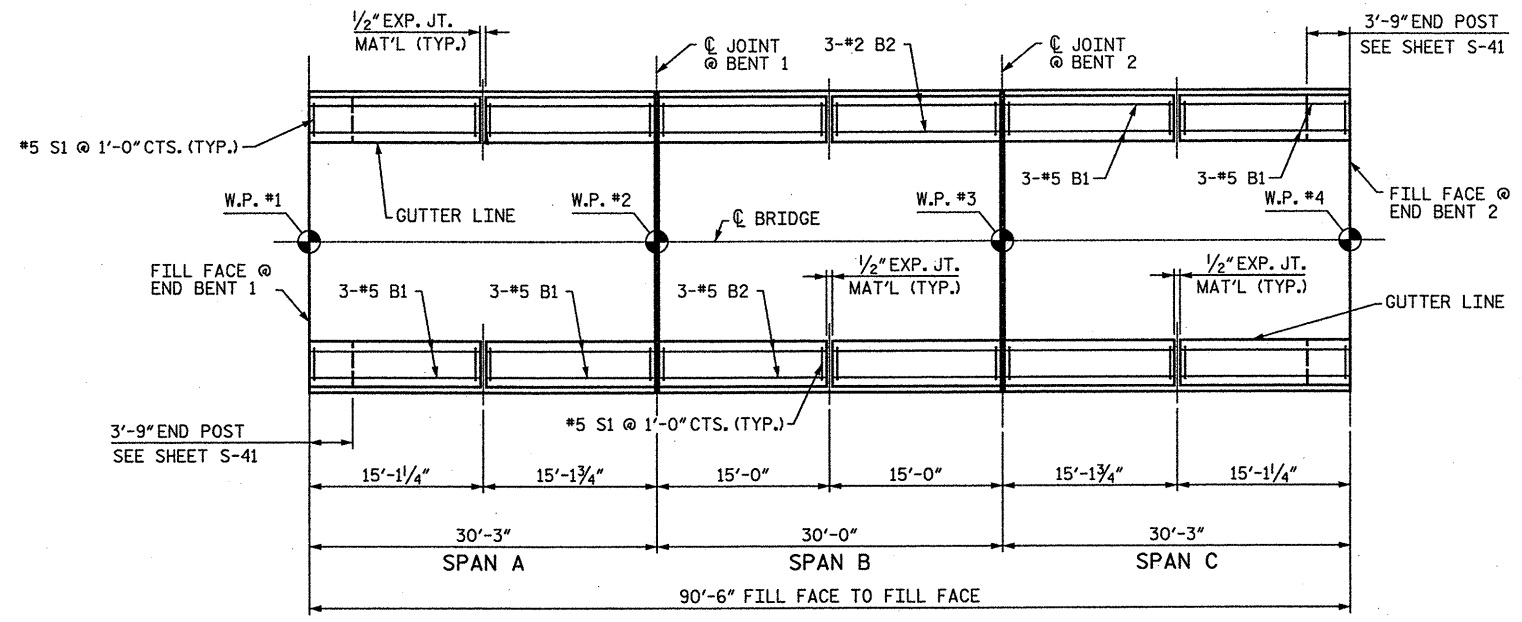
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1	STV	6-12	3			TOTAL SHEETS
2			4			93

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PLAN OF CONCRETE PARAPET

BAR TYPES					
BILL OF MATERIAL					
FOR CONCRETE PARAPET ONLY					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	48	#5 STR	14'-9"	739	
* B2	24	#5 STR	14'-7"	365	
* S1	192	#5	① 3'-5"	685	
* EPOXY COATED REINFORCING STEEL				LBS.	1,789
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	16.8
LIGHTWEIGHT CONCRETE PARAPET				L.F.	166.0

NOTES:

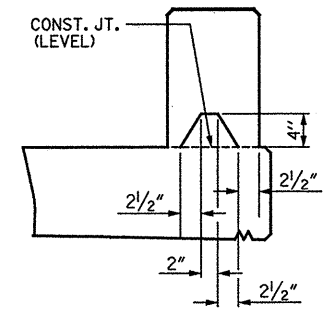
THE CONCRETE PARAPET IN SPAN "A" SHALL NOT BE CAST UNTIL THE SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

CONCRETE PARAPET WILL BE SAND LIGHTWEIGHT CONCRETE.

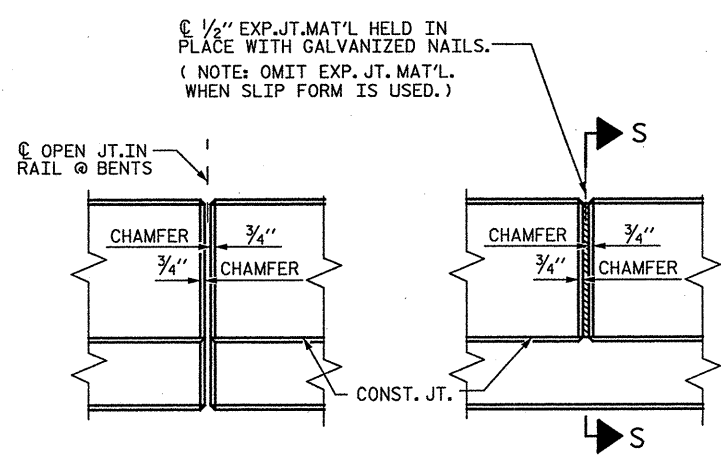
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

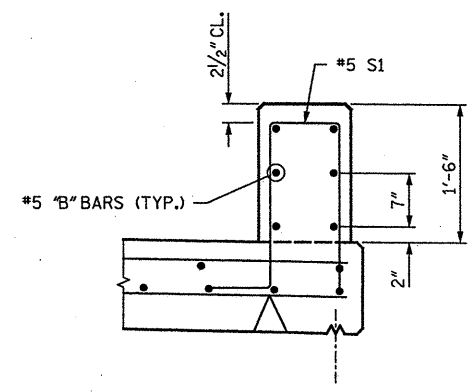
FOR END POST DETAILS, SEE SHEET S-43.



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

CONCRETE PARAPET DETAILS

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
BRIDGE NO.: 55
REHAB. OF BRIDGE NO. 055

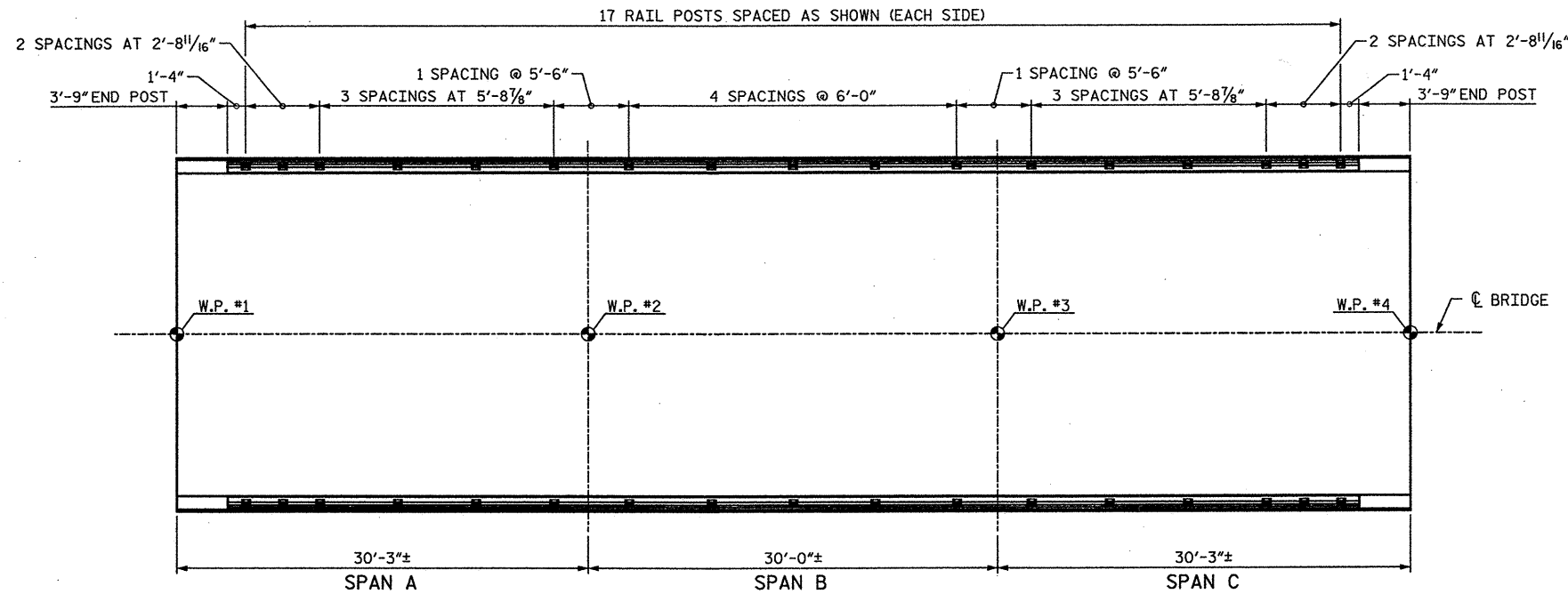
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
CONCRETE PARAPET



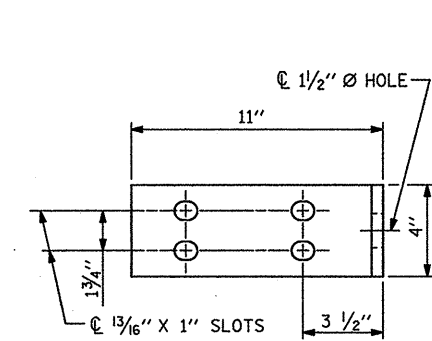
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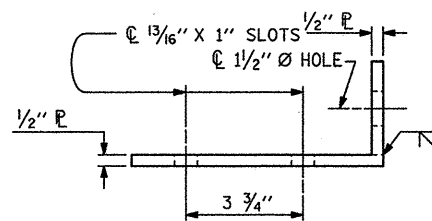
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			93



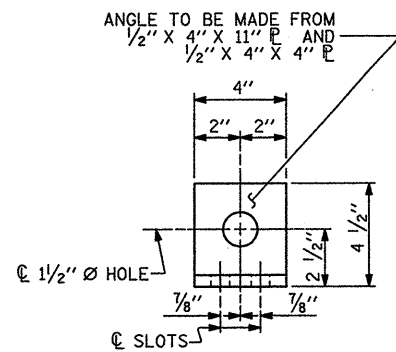
PLAN OF RAIL POST SPACINGS



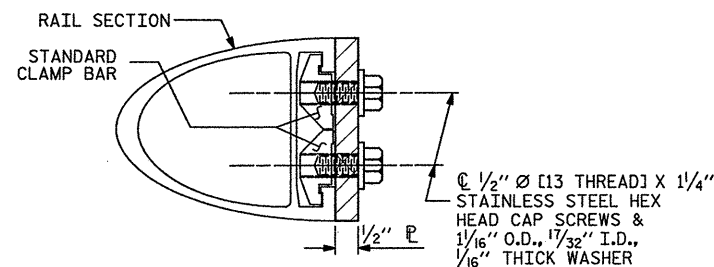
ELEVATION



TOP VIEW

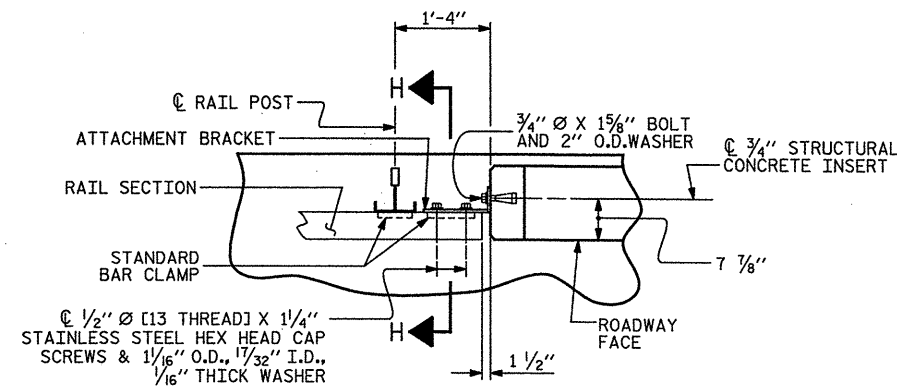


END VIEW (FIX AND EXP.)



SECTION H-H (FIX)

FIXED



PLAN - RAIL AND END POST

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/6" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

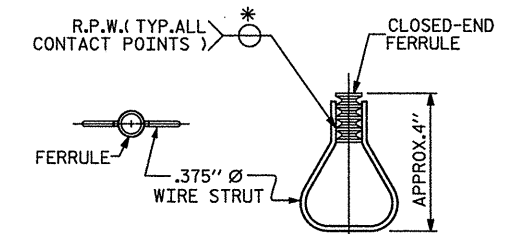
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60° F.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. **17BP.9.H.2**

DAVIDSON COUNTY

BRIDGE NO.: **055**

REHAB. OF BRIDGE NO. 055 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE OR TWO BAR METAL RAILS

REVISIONS

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

SHEET NO.

S-44

TOTAL SHEETS
93



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DRAWN BY: **JWK** DATE: **04-12**
CHECKED BY: **MR** DATE: **04-12**

STD. NO. BMR2

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5/17/2012

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 1/8" Ø BOLTS WITH NUTS AND WASHERS.

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.

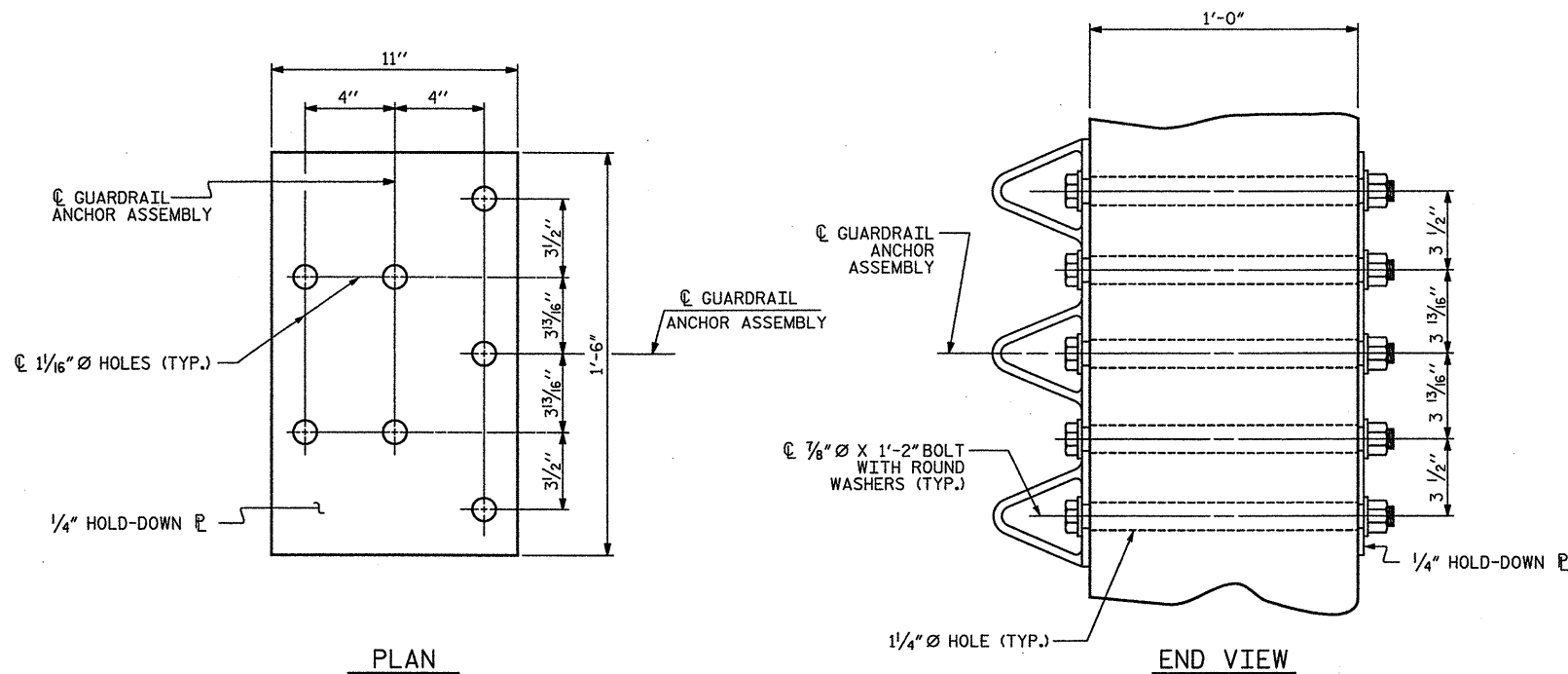
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

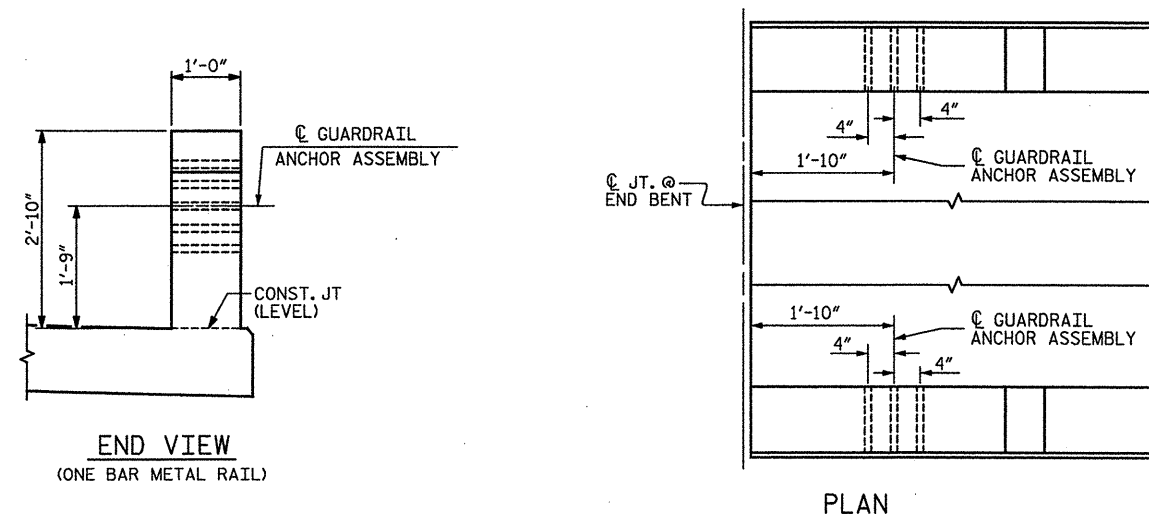
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 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.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS



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2			4						

STD. NO. GRA3

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DRAWN BY : JWK DATE : 04-12
 CHECKED BY : MR DATE : 04-12

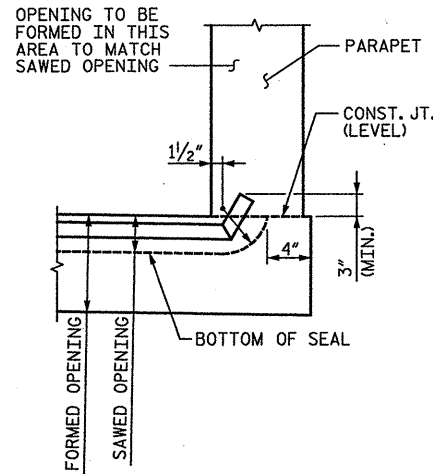
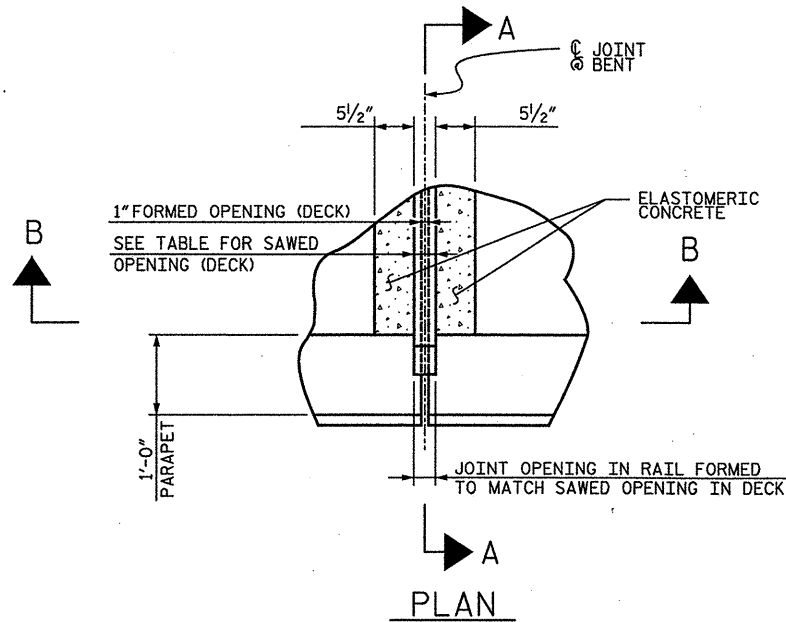
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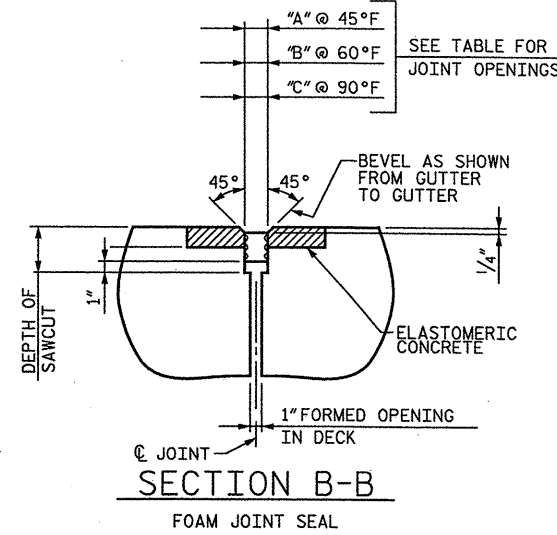
NOTES:

1. SEE SPECIAL PROVISIONS FOR FOAM JOINT SEALS.
2. SEE SPECIAL PROVISIONS FOR ELASTOMERIC CONCRETE.

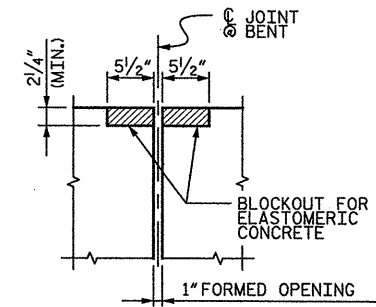


SECTION A-A

FOAM JOINT SEAL TO BE CUT, HEAT WELDED, AND TURNED UP AT A 60° ANGLE FROM THE BASE OF THE PARAPET.



SECTION B-B



SECTION B-B

FOAM JOINT SEAL (PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

MOVEMENT AND SETTING AT FOAM JOINT						
BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG C. RDWY.)	PERPENDICULAR JOINT OPENING AT 45°F ("A")	PERPENDICULAR JOINT OPENING AT 60°F ("B")	PERPENDICULAR JOINT OPENING AT 90°F ("C")
B1	90°-00'-00"	2 1/2"	5/16"	1 15/16"	1 7/8"	1 13/16"
B2	90°-00'-00"	2 1/2"	5/8"	1 15/16"	1 7/8"	1 11/16"

BILL OF MATERIAL

BENT NO.	ELASTOMERIC CONCRETE * (CU.FT.)
EB1	4.2
B1	4.2
B2	4.2
EB2	4.2

BASED ON MINIMUM BLOCKOUT SHOWN.

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 055

REHAB. OF BRIDGE NO. 055

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
JOINT SEAL
DETAILS



DRAWN BY : JWK DATE : 04-05
CHECKED BY : MR DATE : 04-05

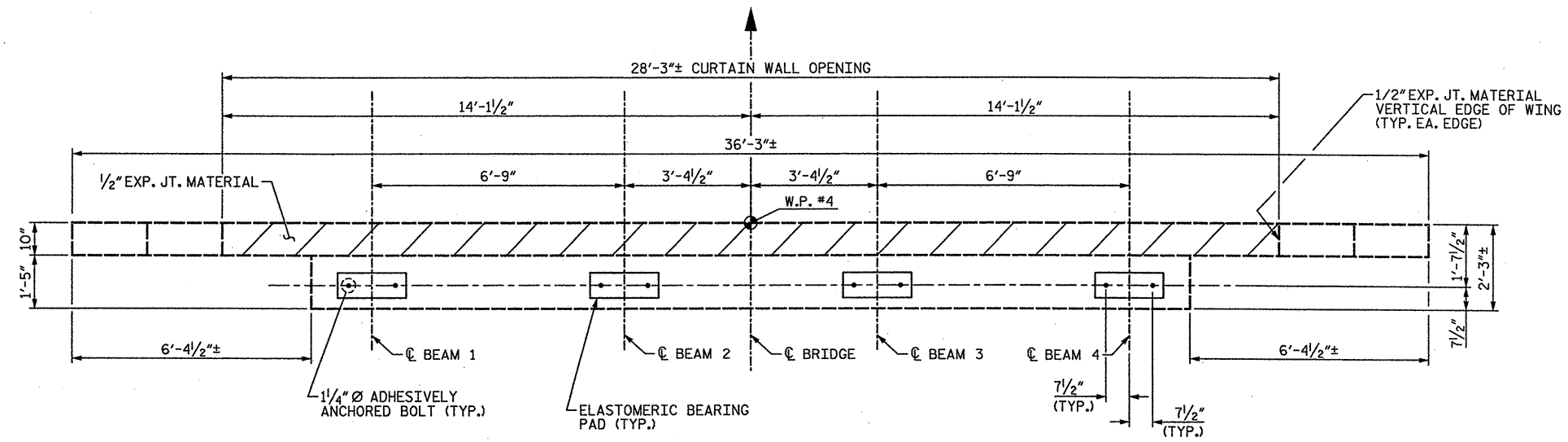
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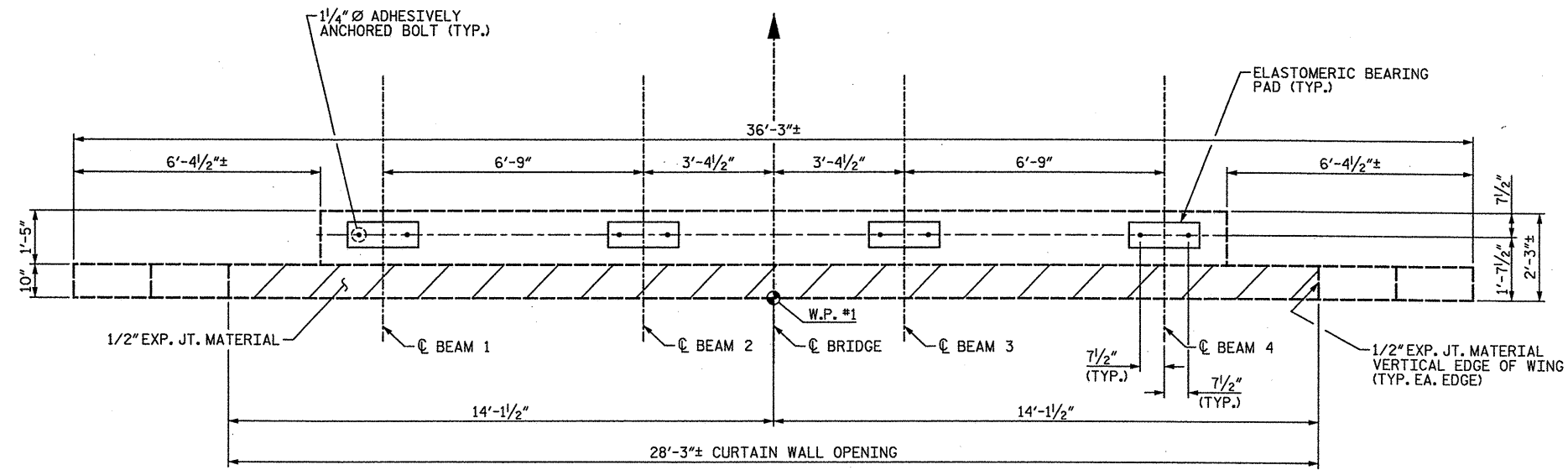
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6/15/2012



PLAN OF END BENT 2 Δ



PLAN OF END BENT 1 Δ

NOTES

- EXISTING ANCHOR BOLTS WILL BE CUT AND GROUND FLUSH WITH TOP OF CAP.
- ADHESIVE ANCHOR BOLTS FOR BENT AND END BENT CAPS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH A SAFE WORKING LOAD OF 20 KIPS TENSION AND 12 KIPS SHEAR.
- REMOVAL OF EXISTING ANCHOR BOLTS, INSTALLATION OF PROPOSED ADHESIVELY ANCHORED BOLTS, AND ALL WORK, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE ACCEPTED WORK, SHALL BE CONSIDERED INCIDENTAL TO THE STRUCTURAL STEEL INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- APPLY AN EPOXY PROTECTIVE COATING TO TOP SURFACES OF BENT AND END BENT CAPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PRIOR TO APPLICATION THE CAPS SHALL BE THOROUGHLY CLEANED BY POWER WASHING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

PROJECT NO. 17BP.9.H.2

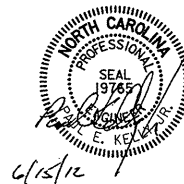
DAVIDSON COUNTY

BRIDGE NO.: 055

REHAB. OF BRIDGE NO. 055 SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING
LOCATION PLAN
END BENTS 1 & 2



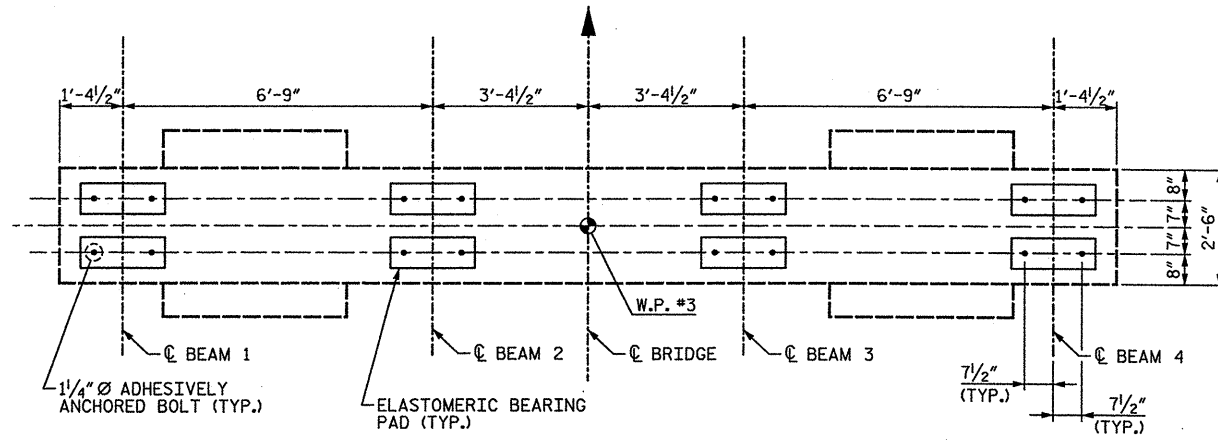
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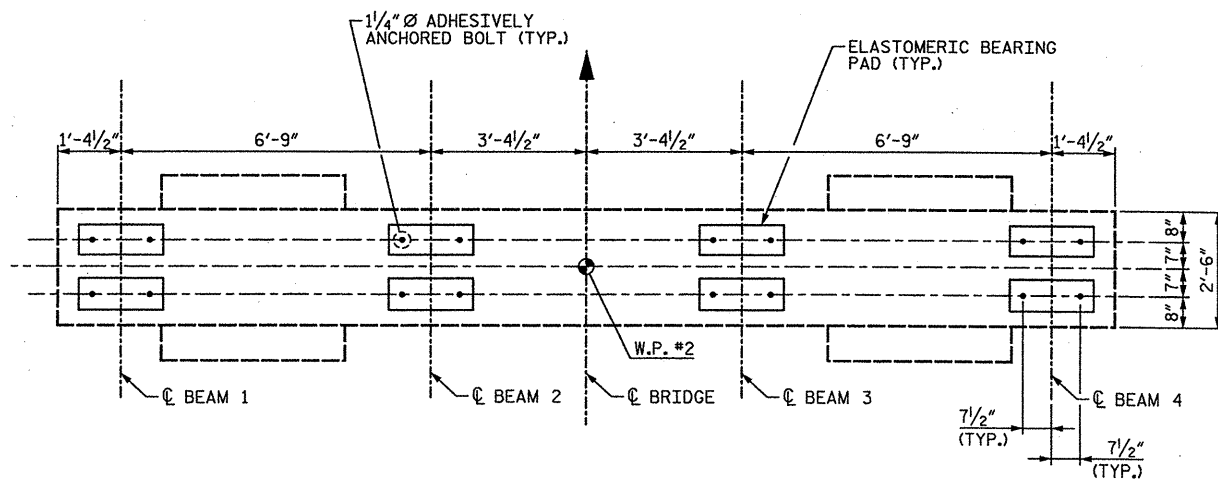
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2			4			93

△ NOTES
 SEE BEARING LOCATION PLANS SHEET 1 OF 2 FOR NOTES.



PLAN OF BENT 2 △



PLAN OF BENT 1 △

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BEARING LOCATION
 PLAN
 BENTS 1 & 2



6/15/12

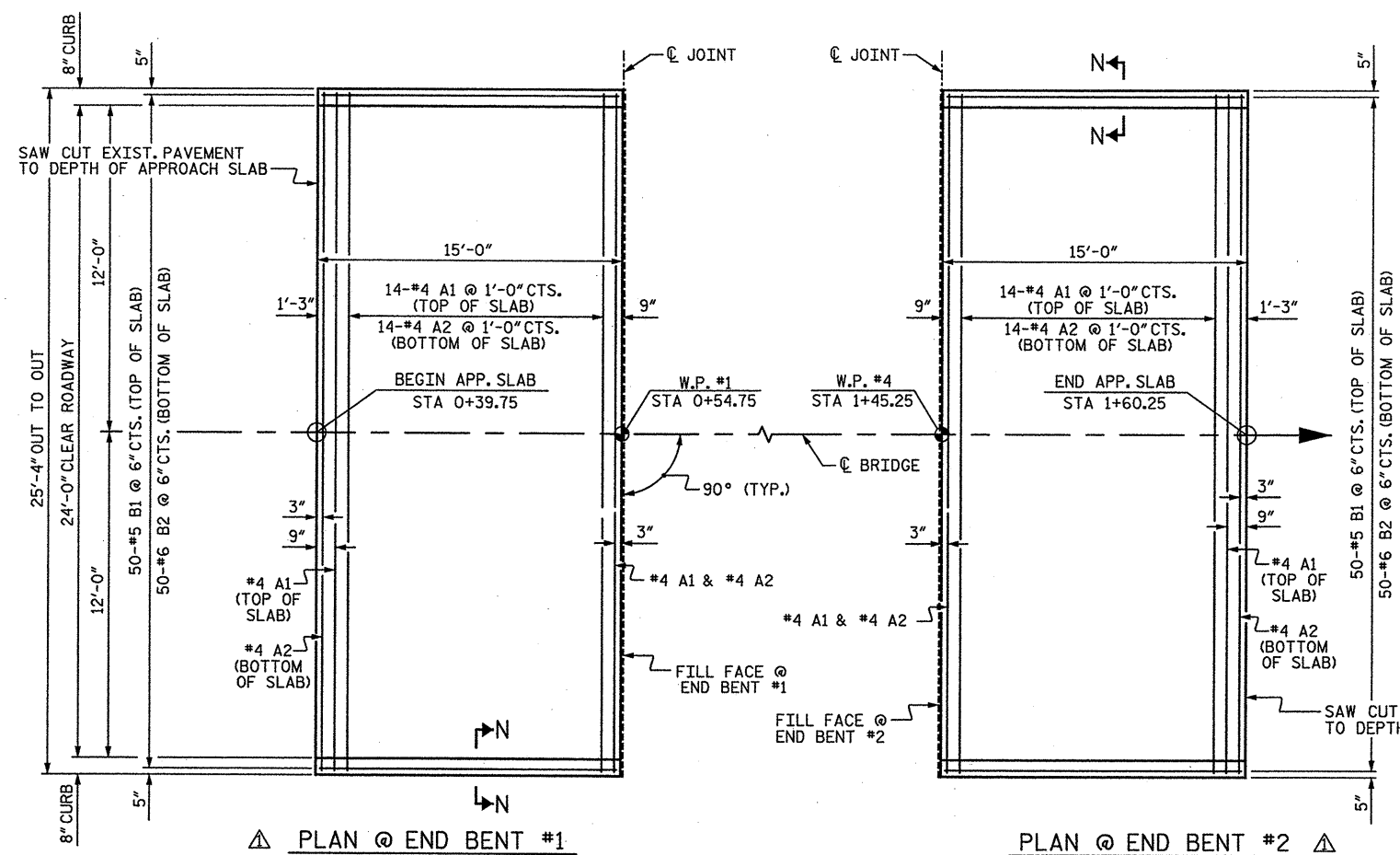
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 6/15/2012



PLAN @ END BENT #1 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, AND OUTLET PADS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE BRIDGE APPROACH SLAB. NO EXTRA MEASUREMENT OR PAYMENT WILL BE MADE.

GEOTEXTILE SHALL BE TYPE 1 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 END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

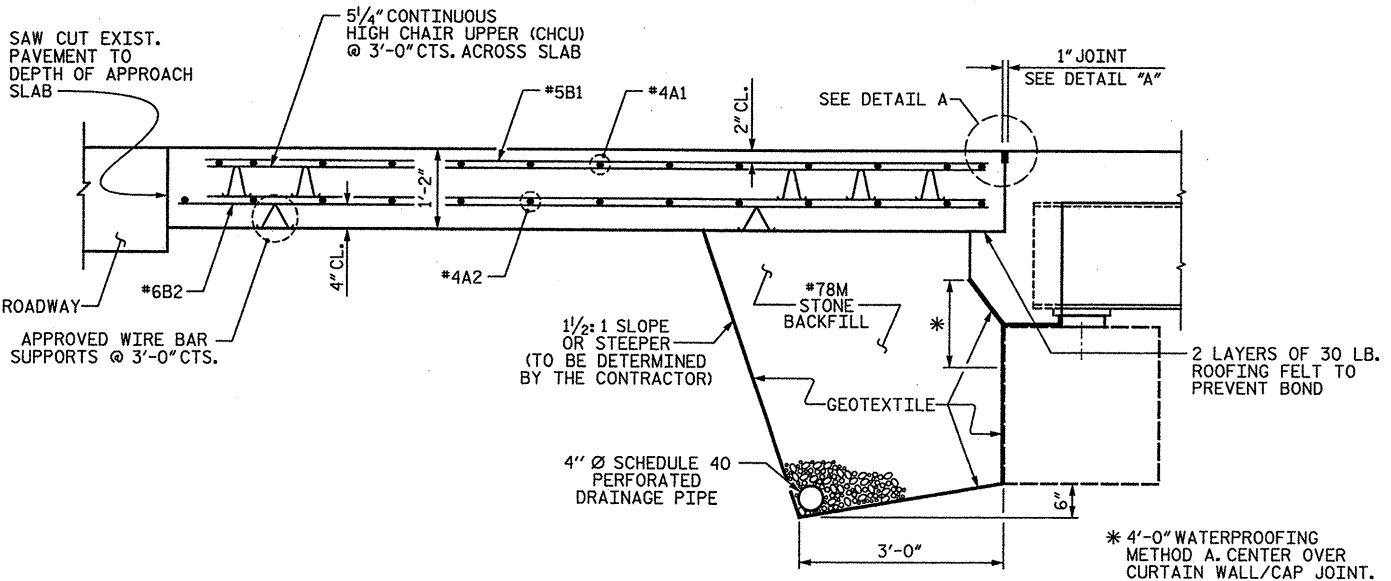
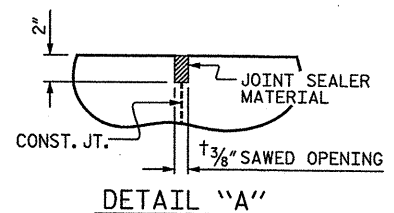
FOR OUTLET PAD SEE ROADWAY STANDARD DRAWING 815.03.

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.

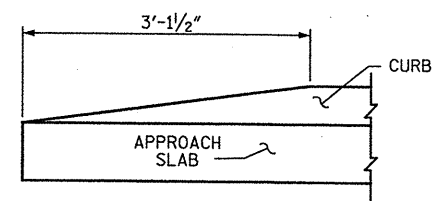
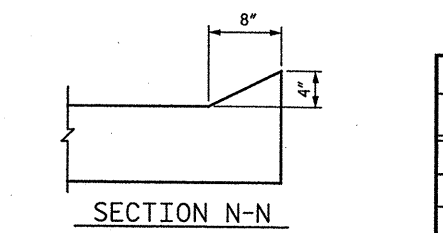
SAW CUT THE EXISTING PAVEMENT ALONG THE EDGE OF THE PROPOSED APPROACH SLAB AS SHOWN IN THE PLAN DETAILS. DEMOLISH AND EXCAVATE PAVEMENT AND SUBGRADE SOIL TO THE FULL DEPTH OF THE APPROACH SLAB.

DAMAGED PAVEMENT ALONG THE EDGE OF APPROACH SLAB SHALL BE REPAIRED TO PROVIDE A SMOOTH RIDING SURFACE TO THE SATISFACTION OF THE ENGINEER.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	14	#4	STR	25'-0"	234
A2	14	#4	STR	25'-0"	234
*B1	50	#5	STR	14'-6"	756
B2	50	#6	STR	14'-6"	1089
REINFORCING STEEL					LBS. 1323
*EPOXY COATED REINFORCING STEEL					LBS. 990
CLASS AA CONCRETE					C. Y. 16.3
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	14	#4	STR	25'-0"	234
A2	14	#4	STR	25'-0"	234
*B1	50	#5	STR	14'-6"	756
B2	50	#6	STR	14'-6"	1089
REINFORCING STEEL					LBS. 1323
*EPOXY COATED REINFORCING STEEL					LBS. 990
CLASS AA LIGHTWEIGHT CONCRETE					C. Y. 16.3



SECTION THRU SLAB



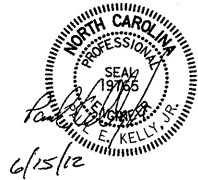
CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

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 CHECKED BY : MR DATE : 04-12

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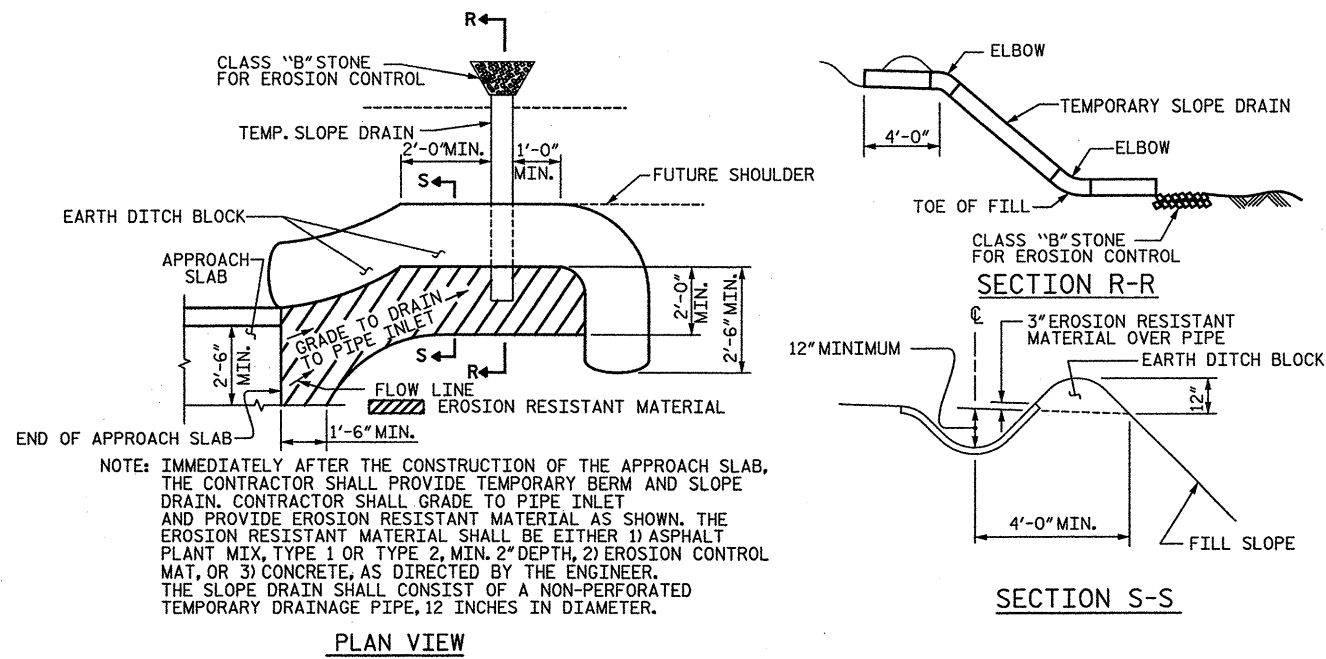
PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BRIDGE APPROACH SLAB
 PLAN & SECTION**

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
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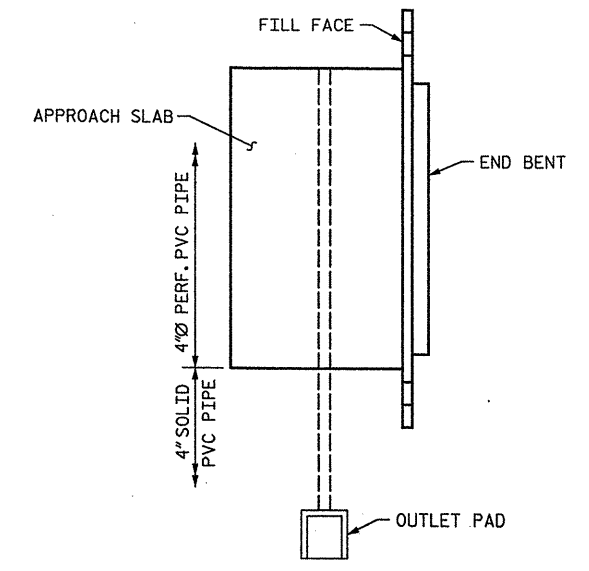
TOTAL SHEETS: 93

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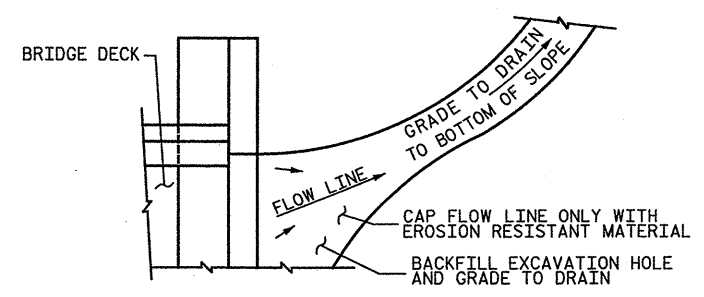


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

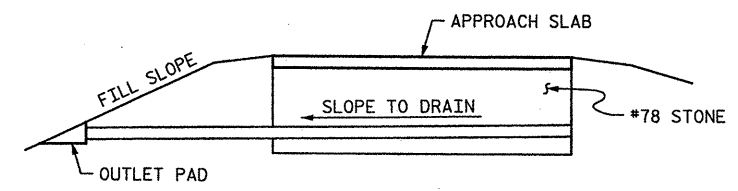


PIPE DRAIN AND OUTLET PLAN



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PIPE DRAIN AND OUTLET ELEVATION

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 055
 REHAB. OF BRIDGE NO. 055 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS

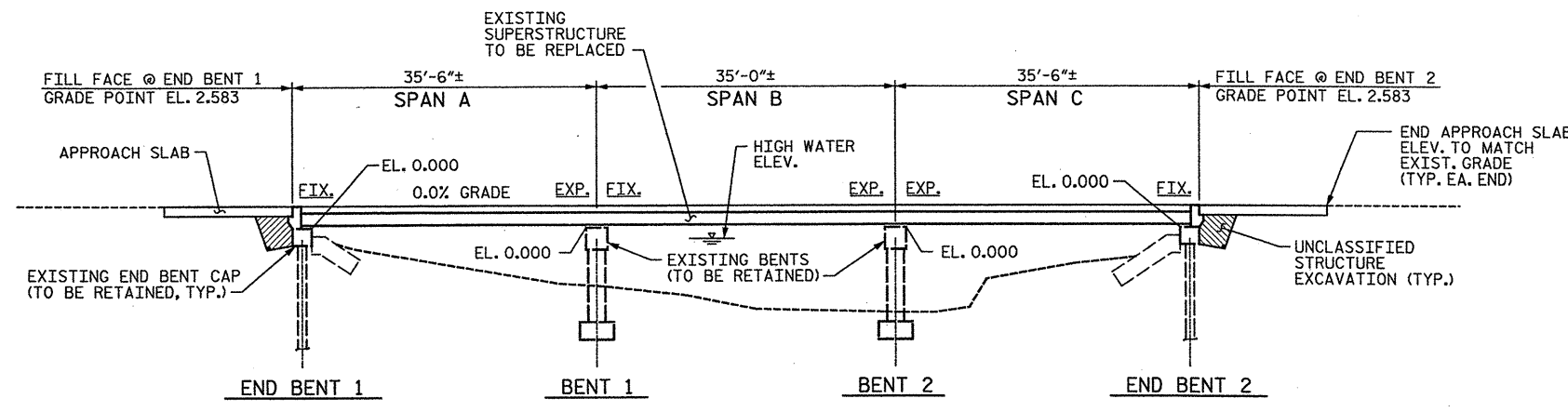


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 CHECKED BY: MR DATE: 04-12

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 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			93

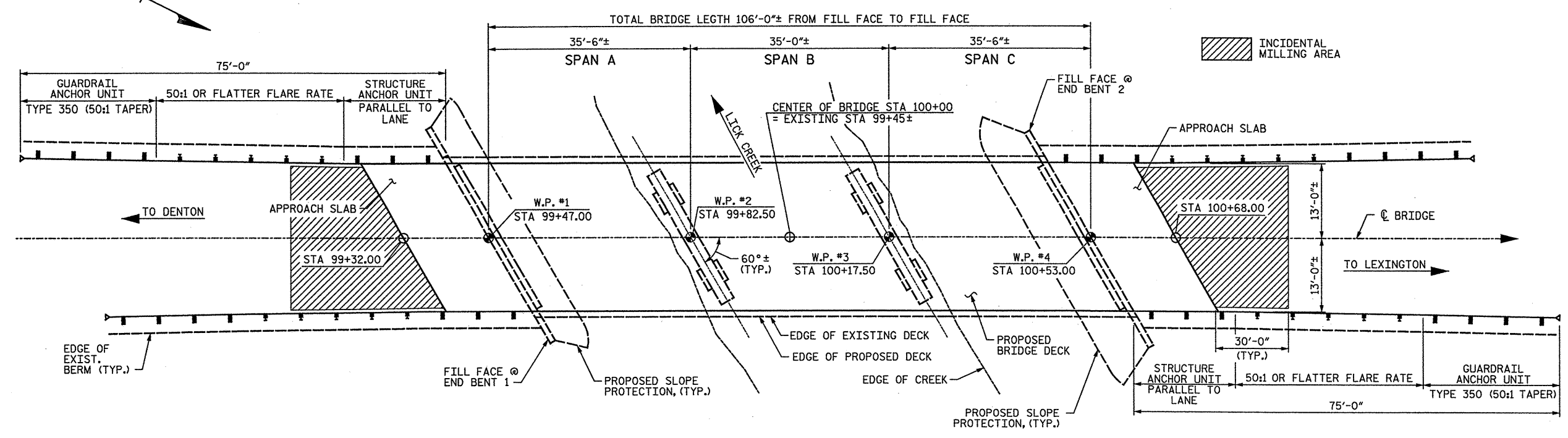
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NOTES:
 ALL EXISTING STATIONS AND ELEVATIONS ARE AS PER THE AS-BUILT PLANS.
 THE ORIGIN OF THE STATION ALONG CENTERLINE OF THE BRIDGE IS ASSUMED FOR PLAN PREPARATION.
 THE VERTICAL DATUM IS ASSUMED FOR PLAN PREPARATION.
 ALL EXISTING SUBSTRUCTURE AND FOOTINGS WILL REMAIN IN PLACE.
 WATER LEVEL SHOWN IS THE APPROXIMATE HIGHWATER MARK AS IT APPEARS IN THE AS BUILT PLANS.
 FOR LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS FOR SAND LIGHTWEIGHT CONCRETE.

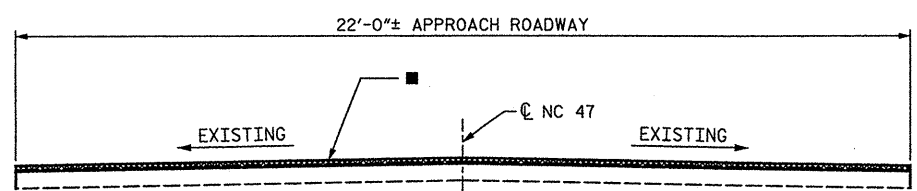
SECTION ALONG Q BRIDGE

NOTE: BRIDGE BARRIER DETAILS ARE NOT SHOWN FOR CLARITY (SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN

NOTE: BRIDGE BARRIER DETAILS ARE NOT SHOWN FOR CLARITY



TYPICAL ROADWAY MILLING SECTION

VARIABLE DEPTH MILLING 1 1/2" - 2 3/4". REPLACE WITH 1 1/2" MIN. ASPHALT C1 TO TRANSITION TO EXISTING RIDING SURFACE

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" DEPTH.
----	--

PROJECT NO. **17BP.9.H.2**
 DAVIDSON COUNTY
 BRIDGE NO.: **082**
 REHAB. OF BRIDGE NO. 082 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE ON NC 47
 OVER LICK CREEK



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 Charlotte, NC 28208
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REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	STV	6-12	3		
2			4		

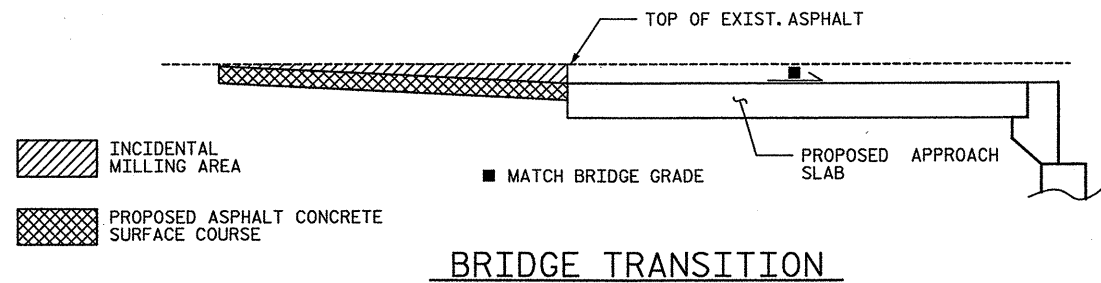
SHEET NO.	S-52
TOTAL SHEETS	93

DRAWN BY: JWK DATE: 04-12 REV. PER NCDOT COMMENTS
 CHECKED BY: MR DATE: 04-12

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TOTAL BILL OF MATERIAL Δ

	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE 82	UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE 82	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	GROOVING BRIDGE FLOORS (SQ. FT.)	BRIDGE APPROACH SLABS AT BRIDGE 82	STRUCTURAL STEEL	METHOD A WATERPROOFING	ONE BAR METAL RAIL	1'-0" x 1'-6" CONCRETE PARAPET (SAND LIGHTWEIGHT CONCRETE)	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS
	SQ. YDS.	TONS	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	LUMP SUM	APPROX. LBS.	SQ. YD	LIN. FT.	LIN. FT.	TON	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE					2783	2832		36,326	30	197.0	197.0	54	79		
TOTAL	178	15	LUMP SUM	LUMP SUM	2783	2832	LUMP SUM	36,326	30	197.0	197.0	54	79	LUMP SUM	LUMP SUM



BRIDGE TRANSITION

NOTES:

ASSUMED LIVE LOAD = HS-20 OR ALTERNATIVE LOADING.

THE PROPOSED BRIDGE SUPERSTRUCTURE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES 17TH EDITION, 2002.

THE EXISTING SUBSTRUCTURE WILL REMAIN IN PLACE. NO ANALYSIS OR DESIGN HAS BEEN PERFORMED TO EVALUATE THE CAPACITY OF THE SUBSTRUCTURE AND THE FOUNDATIONS. IF ANY DISTRESS IS NOTICED DURING THE CONSTRUCTION, THE CONTRACTOR MUST IMMEDIATELY STOP WORK AND NOTIFY THE DEPARTMENT OF TRANSPORTATION AND THE ENGINEER. THE WORK MAY NOT RESUME UNTIL THE CAUSE OF DISTRESS IS DETECTED AND RESOLVED.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING SUPERSTRUCTURE AT EXISTING STATION 227+75".

THE CLASS AA LIGHTWEIGHT CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 16 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING SUPERSTRUCTURE CONSISTING OF ROLLED STEEL I-BEAMS @ 6'-9" CENTERS IN 3 SIMPLE SPANS OF 35' WITH A CLEAR ROADWAY WIDTH OF 24'-0" SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

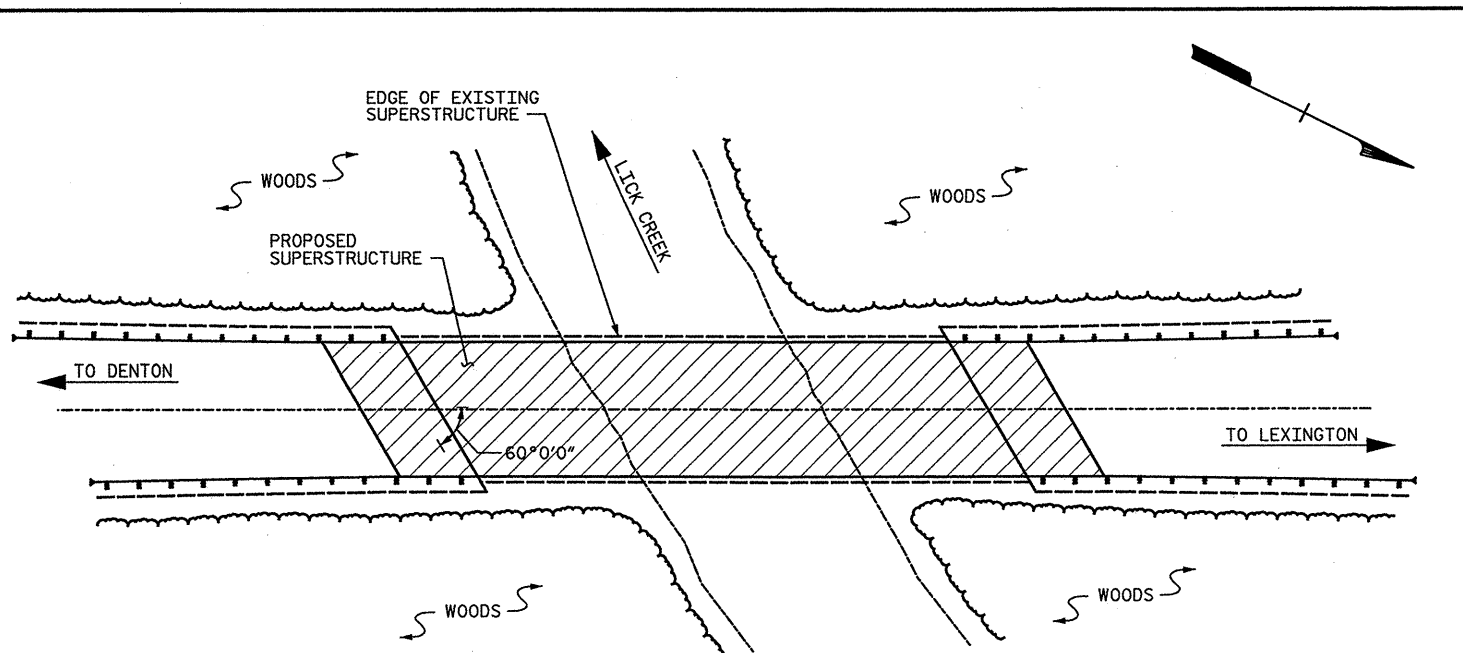
ANY ALTERATION OF ROADWAY SURFACE PROFILE IS NOT ANTICIPATED DUE TO THIS PROJECT. IF ANY ROADWAY PROFILE/GRADE ADJUSTMENT IS REQUIRED FOR SUCCESSFUL COMPLETION OF THE PROJECT, THE CONTRACTOR MUST SUBMIT THE REQUEST WITH RECOMMENDED CHANGES TO THE DEPARTMENT OF TRANSPORTATION AND THE ENGINEER FOR APPROVAL.

REMOVAL OF THE EXISTING BRIDGE SUPERSTRUCTURE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR LIGHTWEIGHT CONCRETE SEE SPECIAL PROVISION FOR SAND LIGHTWEIGHT CONCRETE.



LOCATION SKETCH

PROJECT NO. 17BP.9.H.2

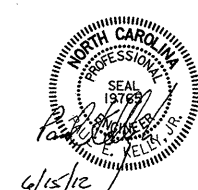
DAVIDSON COUNTY

BRIDGE NO.: 082

REHAB. OF BRIDGE NO. 082 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
LOCATION SKETCH AND
TOTAL BILL OF MATERIALS
BRIDGE ON NC 47
OVER FLAT SWAMP CREEK



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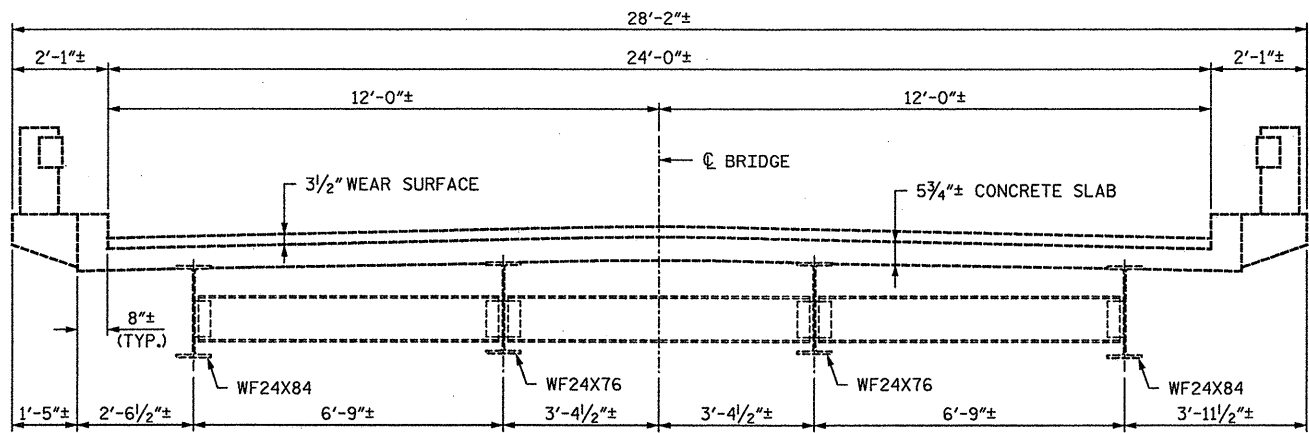
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1	STV	6-12	3			TOTAL SHEETS 93
2			4			

DRAWN BY: J.W.K. DATE: 04-12
CHECKED BY: M.R. DATE: 04-12 Δ REV. PER NCDOT COMMENTS

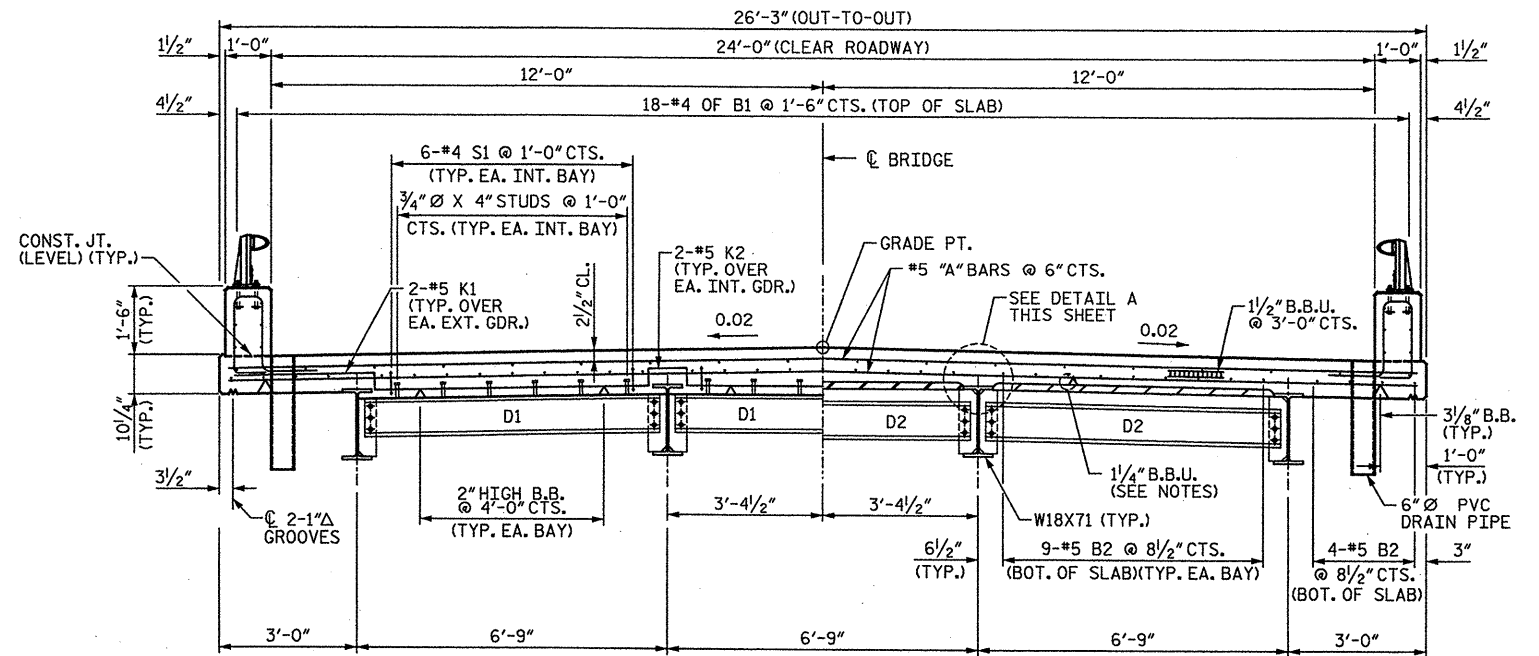
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6/15/2012

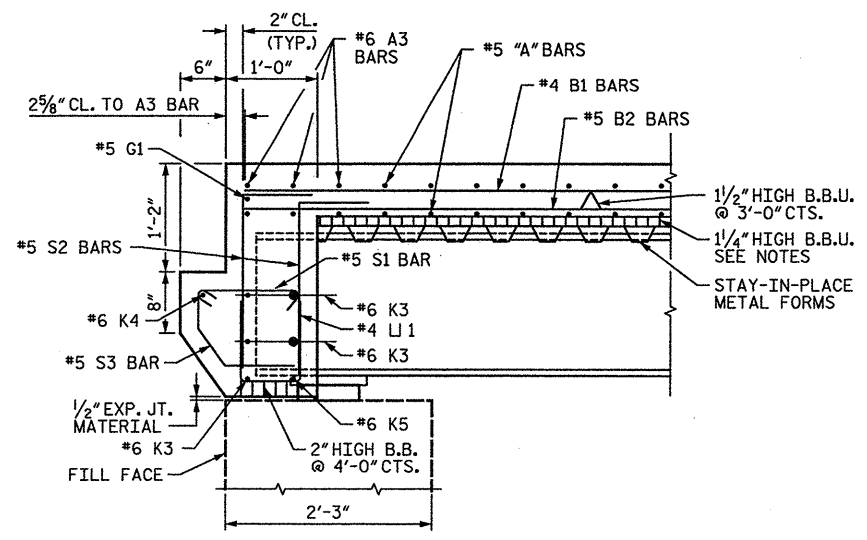


EXISTING SUPERSTRUCTURE SECTION

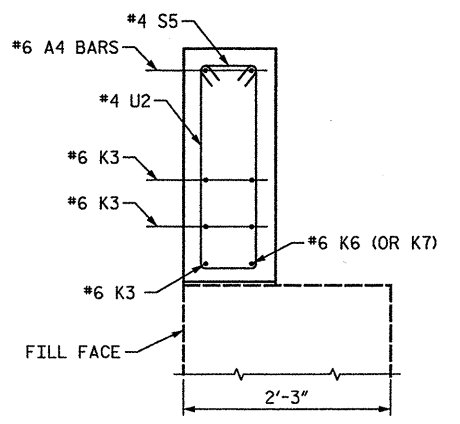


PARTIAL TYPICAL SECTION
SHOWING BENT DIAPHRAGMS

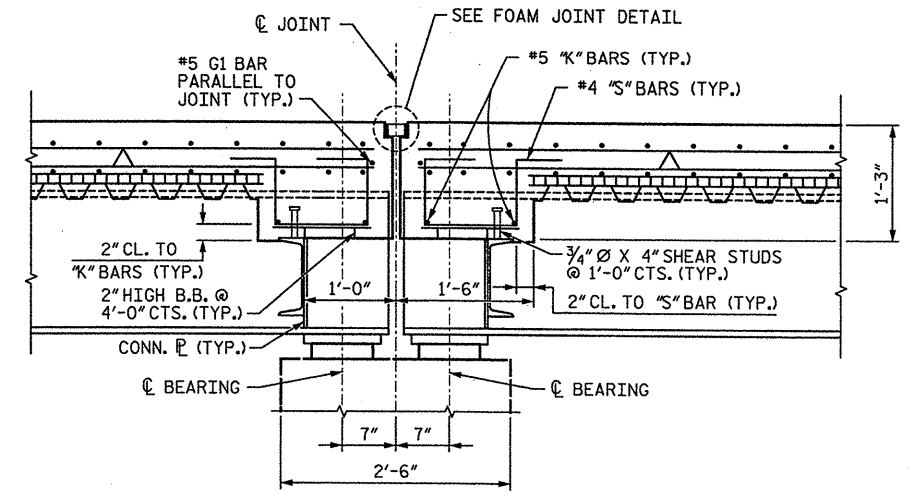
PARTIAL TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS



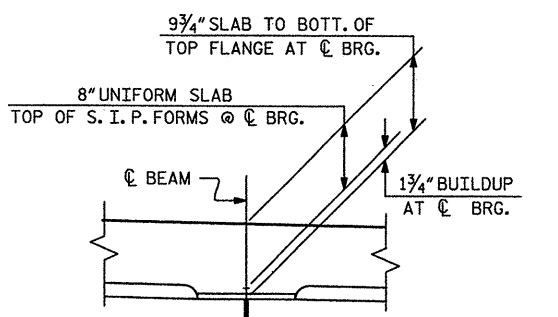
SECTION @ END BENT



SECTION @ END BENT



SECTION @ BENT



DETAIL A

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
BRIDGE NO.: 082
REHAB. OF BRIDGE NO. 082 SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
TYPICAL SECTION
AND DETAILS



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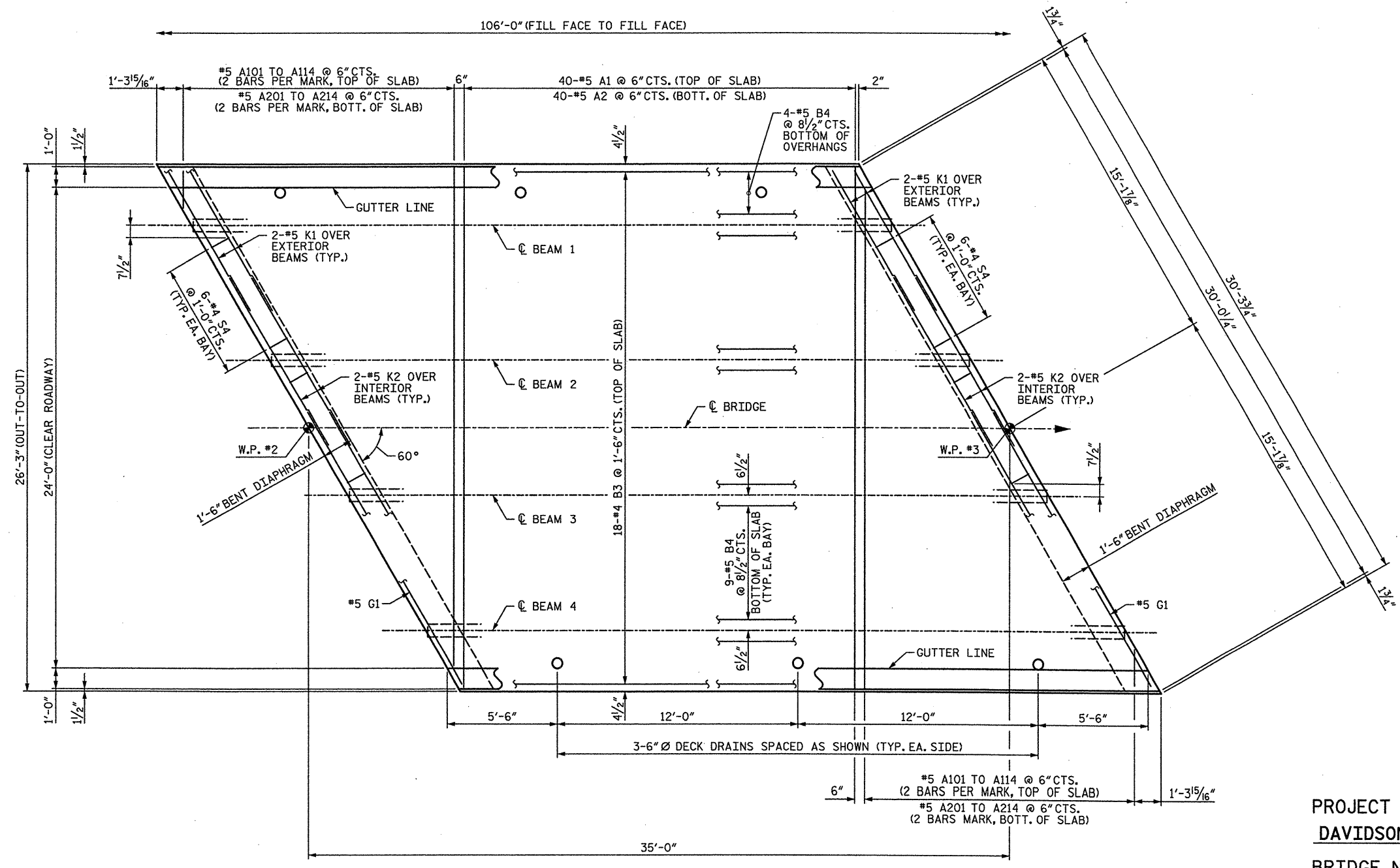
DRAWN BY: JWK DATE: 04-12
CHECKED BY: MR DATE: 04-12 REV. DETAIL

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1	STV	6-12	3			TOTAL SHEETS
2			4			93

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5/17/2012



PLAN OF SPAN B

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082

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

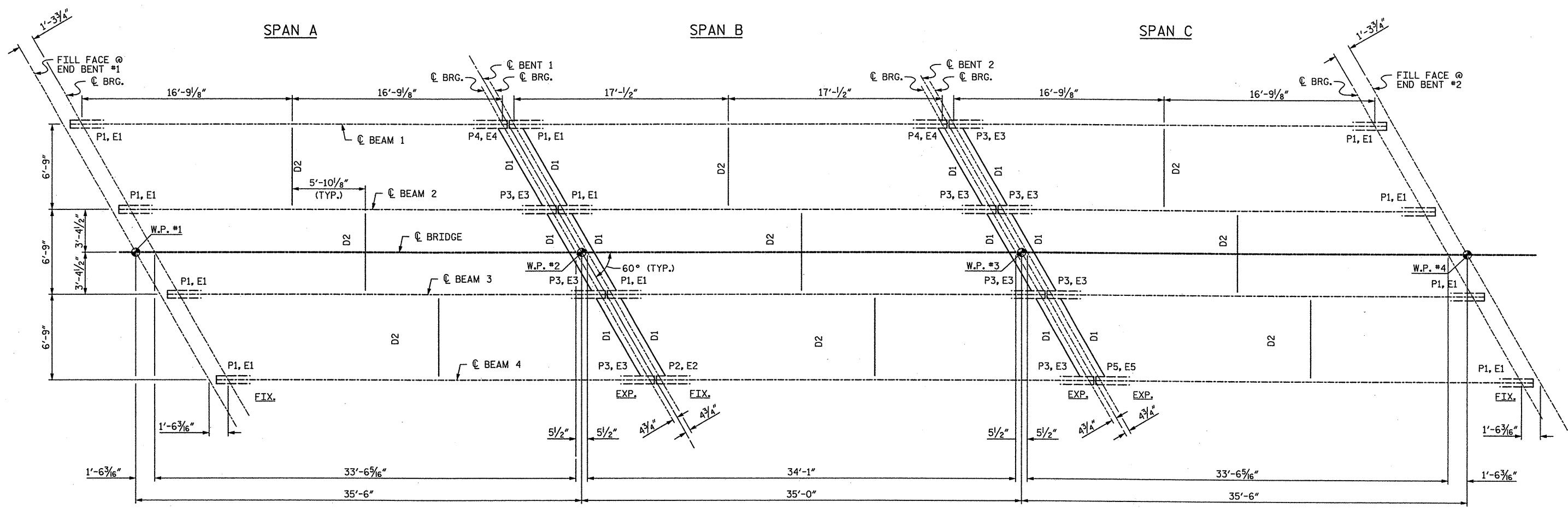


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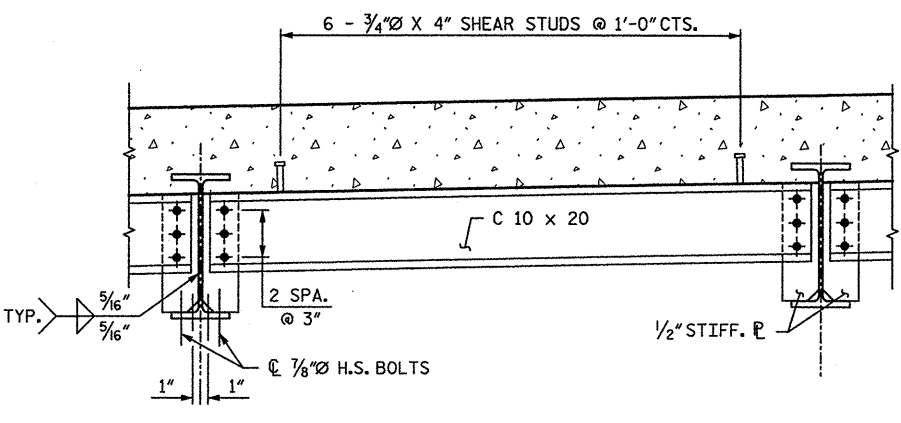
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			93

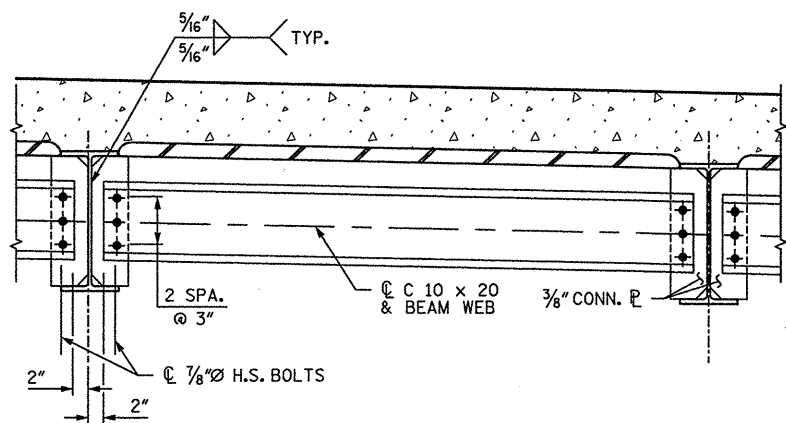
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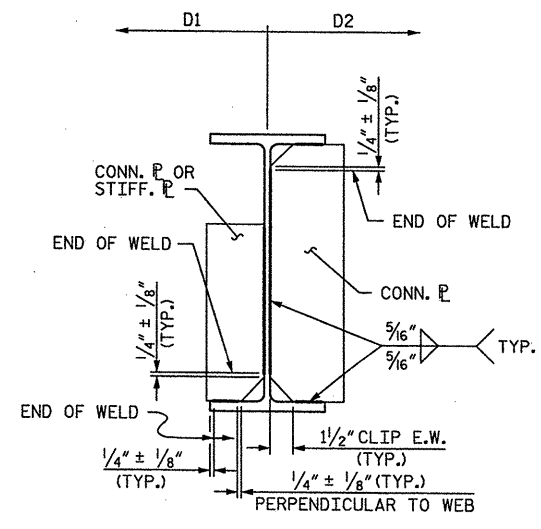
FRAMING PLAN



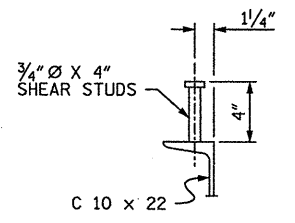
TYPICAL BENT DIAPHRAGM - D1



TYPICAL INTERMEDIATE DIAPHRAGM - D2



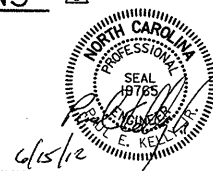
TYPICAL CONNECTOR PLATE CONNECTIONS



SHEAR STUD DETAIL (ON CHANNEL)

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN

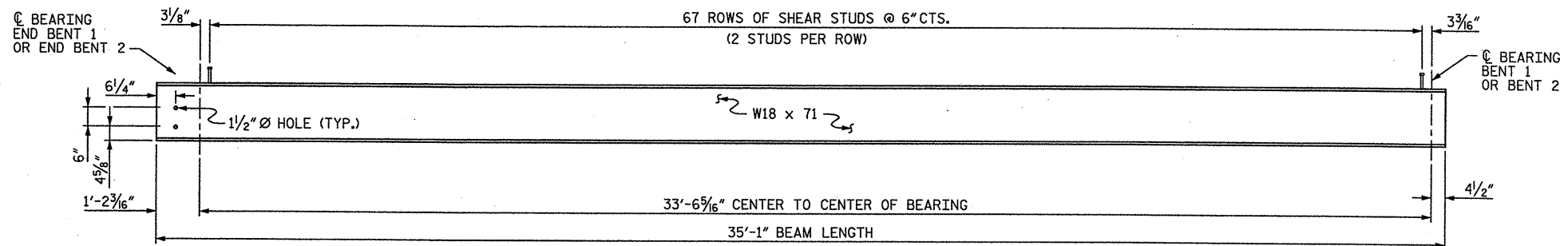


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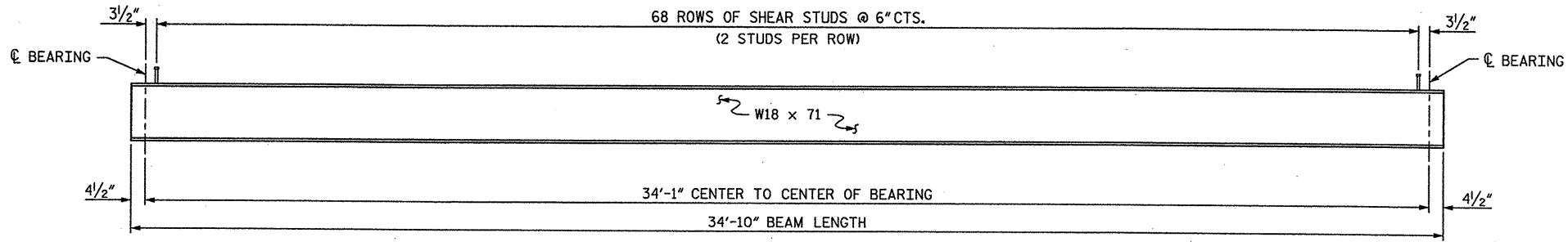
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1	STV	6-12	3			TOTAL SHEETS
2			4			93

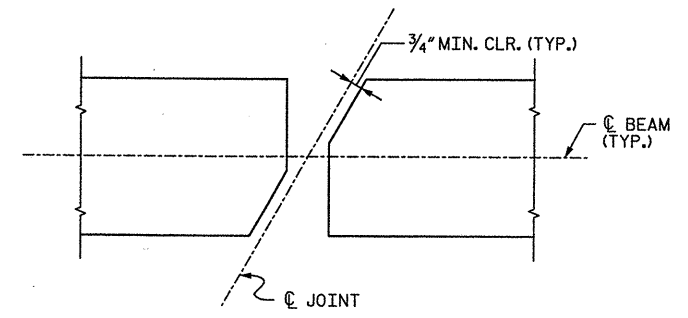
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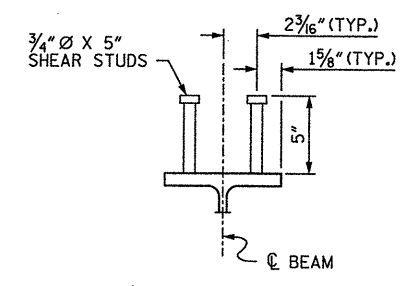
BEAM ELEVATION - SPANS A & C
(SPAN A SHOWN, SPAN C MIRROR IMAGE)



BEAM ELEVATION - SPAN B



TOP FLANGE CLIP DETAILS
(TOP FLANGE AT EXPANSION JOINT)



SHEAR STUD DETAIL
(ON BEAMS)

- NOTES:**
- NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.
 - ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
 - ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.
 - ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.
 - STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.
 - A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS, COVER PLATES AND SPLICE PLATES AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.
 - TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.
 - END OF BEAMS AND GIRDERS SHALL BE PLUMB.
 - BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.
 - NEEDLE BEAM TYPE SUPPORTS ARE REQUIRED FOR THE OVERHANG FALSEWORK IN THE SPANS WITH 27" BEAMS OR SMALLER.

STRUCTURAL STEEL QUANTITIES	
APPROXIMATE TOTAL	36,326 LBS

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
**STRUCTURAL STEEL
 DETAILS**



DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12 **REV. ADDED NOTES**

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 Charlotte, NC 28208
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-59
1	STV	6-12	3			TOTAL SHEETS
2			4			93

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 1/2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

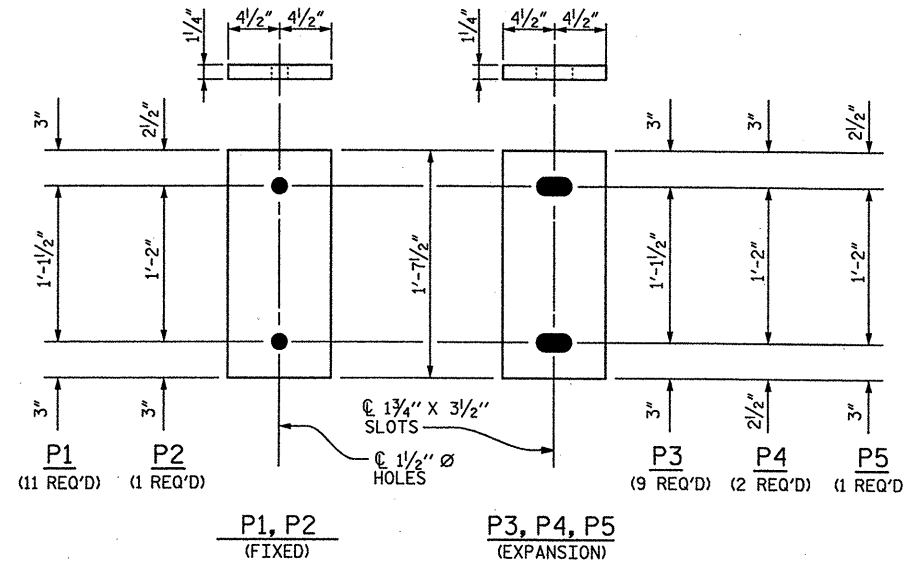
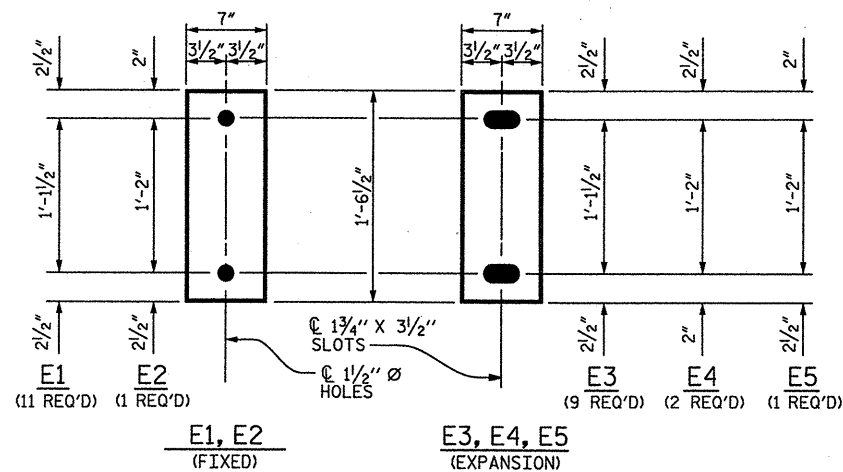
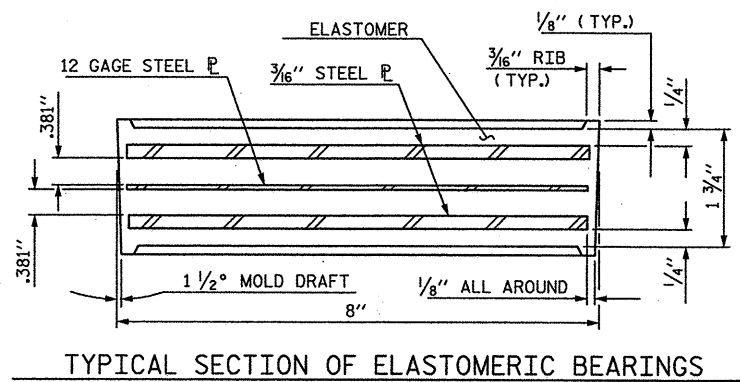
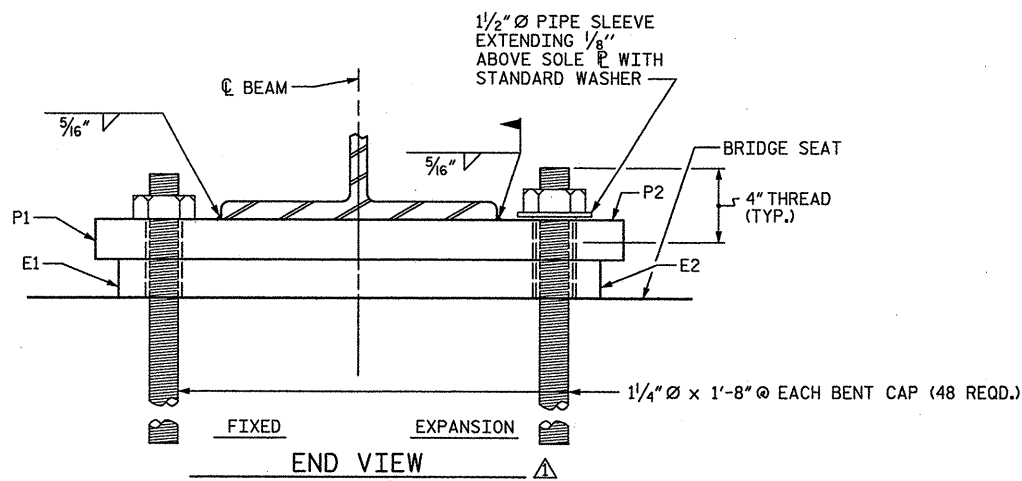
FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.



SOLE PLATE DETAILS ("P")

PLAN VIEW OF ELASTOMERIC BEARING

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING DETAILS

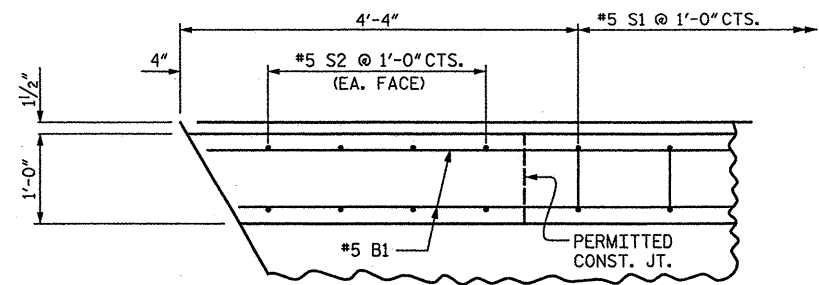


DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12 REV. ANCHOR BOLT

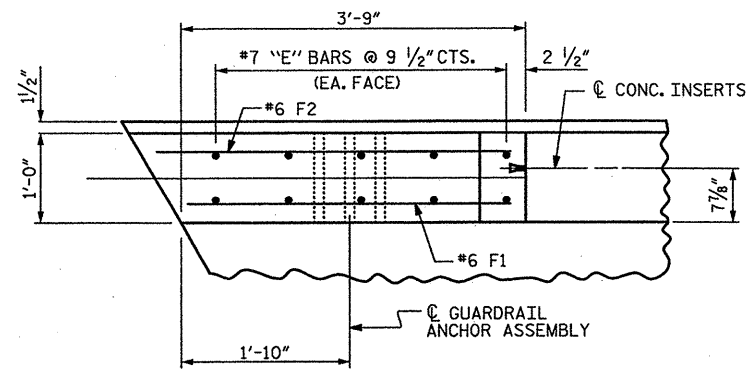
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1	STV	6-12	3			TOTAL SHEETS
2			4			93

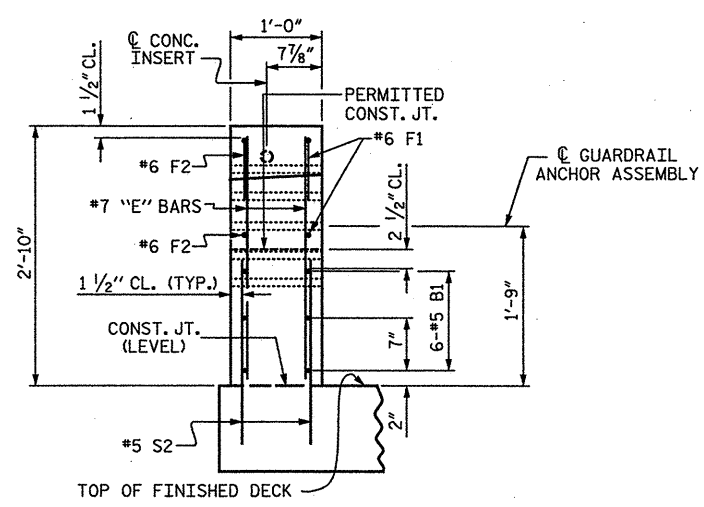
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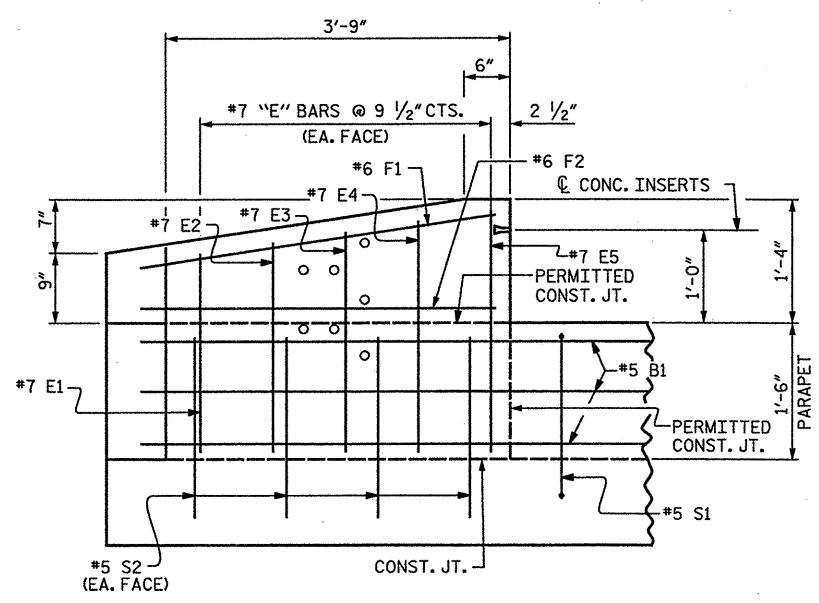
PLAN OF PARAPET



PLAN OF END POST



END VIEW



ELEVATION

PARAPET AND END POST FOR ONE BAR RAIL

ONE BAR METAL RAIL					
BILL OF MATERIAL FOR TWO END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*E1	4	#7	STR	2'-0"	16
*E2	4	#7	STR	2'-2"	18
*E3	4	#7	STR	2'-4"	19
*E4	4	#7	STR	2'-6"	20
*E5	4	#7	STR	2'-7"	21
*F1	4	#6	STR	7'-1"	43
*F2	4	#6	STR	7'-8"	46
*S2	16	#5	STR	2'-0"	33
*EPOXY COATED REINFORCING STEEL				LBS.	216
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	0.8

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PARAPET END
 POST DETAILS

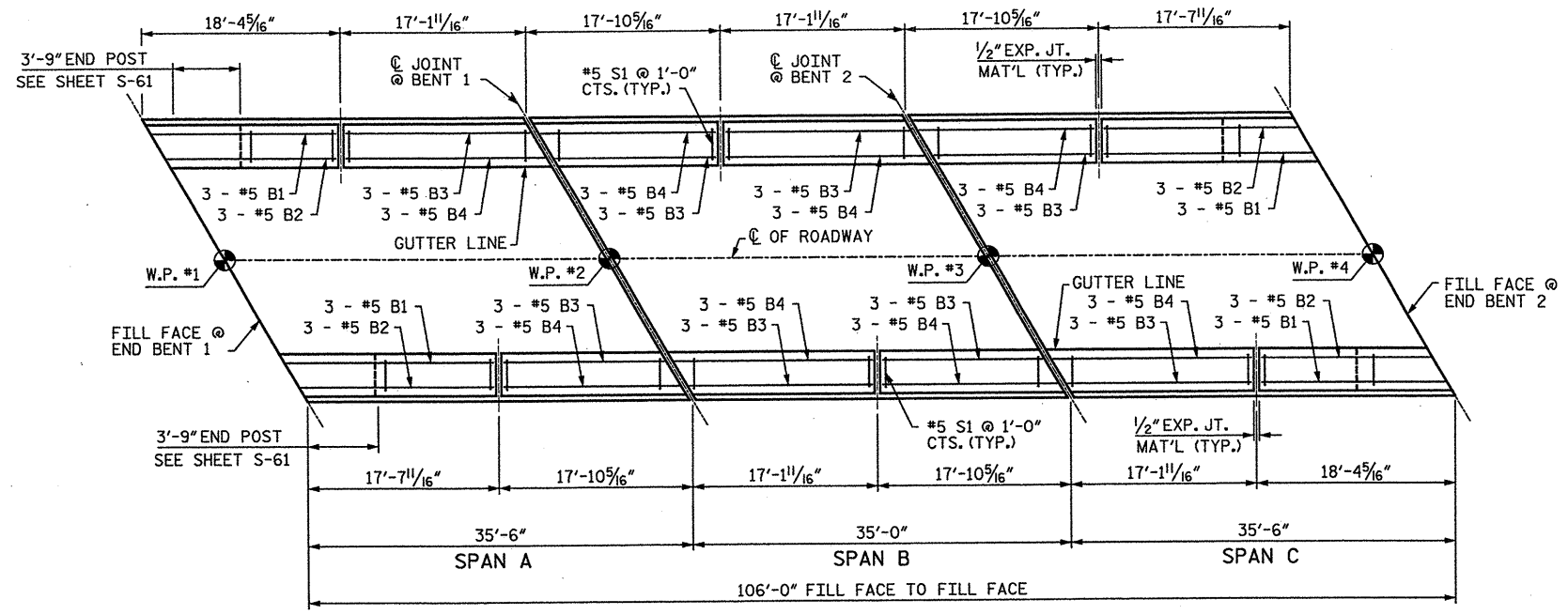
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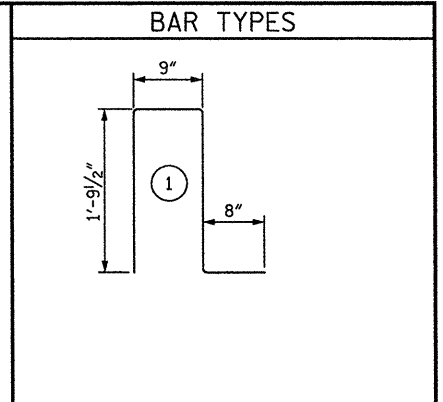
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1	STV	6-12	3			TOTAL SHEETS
2			4			93

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5/17/2012
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PLAN OF CONCRETE PARAPET



BILL OF MATERIAL					
FOR CONCRETE PARAPET ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	12	#5	STR	17'-11"	225
* B2	12	#5	STR	17'-7"	220
* B3	24	#5	STR	17'-0"	426
* B4	24	#5	STR	17'-4"	434
* S1	200	#5	(1)	3'-5"	713
* EPOXY COATED REINFORCING STEEL				LBS.	2,018
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	10.9
CONCRETE PARAPET				L.F.	196

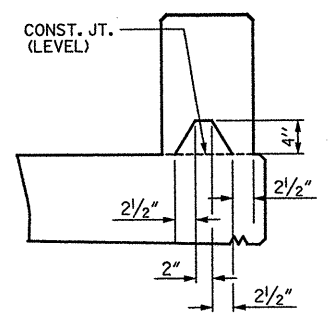
NOTES:

THE CONCRETE PARAPET IN SPAN "A" SHALL NOT BE CAST UNTIL THE SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

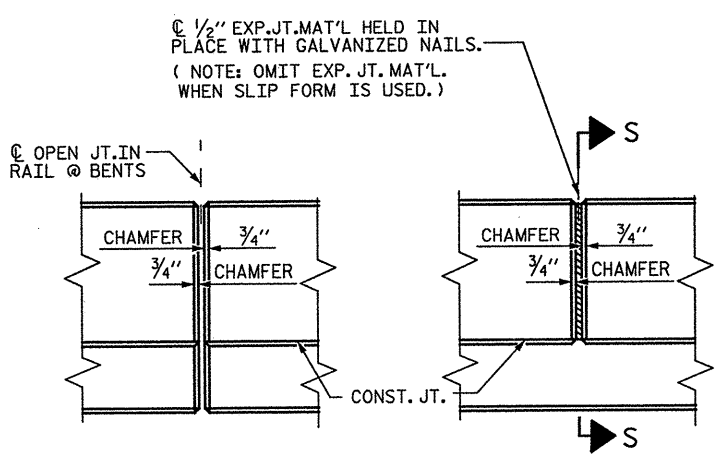
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

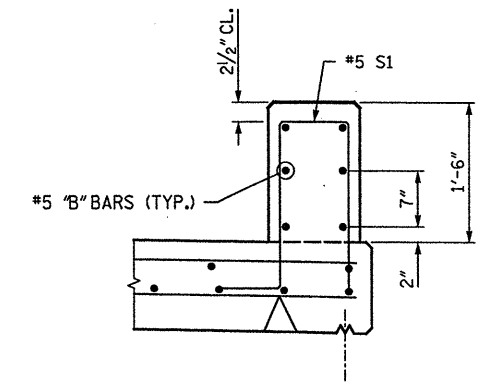
FOR END POST DETAILS, SEE SHEET S-61.



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

CONCRETE PARAPET DETAILS

PROJECT NO. **17BP.9.H.2**
DAVIDSON COUNTY
 BRIDGE NO.: **82**
 REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
CONCRETE PARAPET

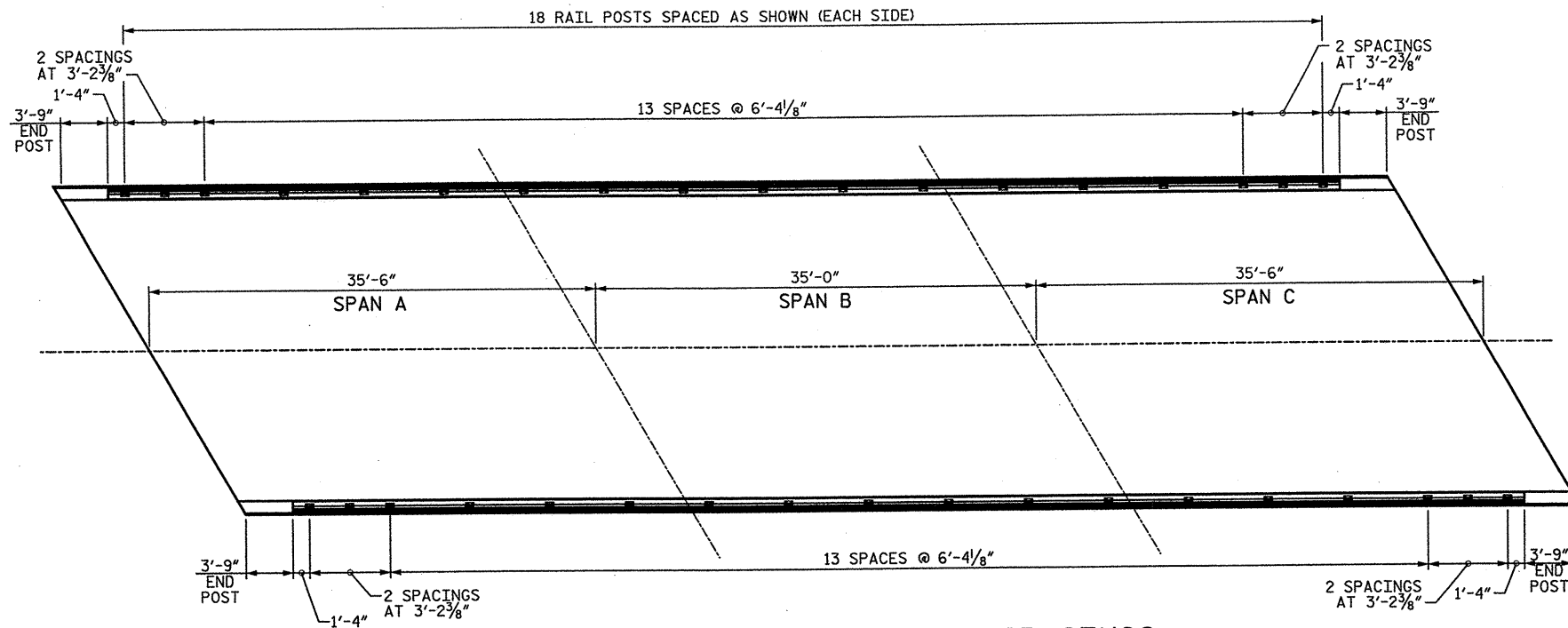


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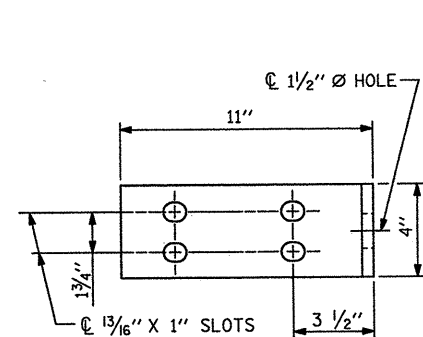
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1			3			TOTAL SHEETS	93
2			4				

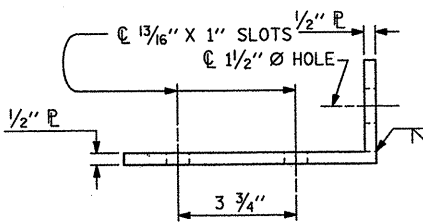
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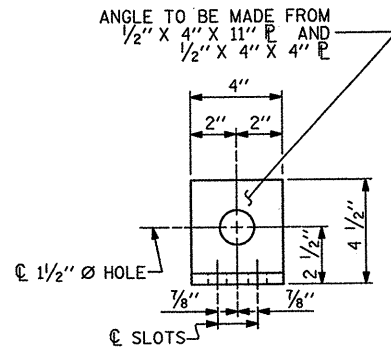
PLAN OF RAIL POST SPACINGS



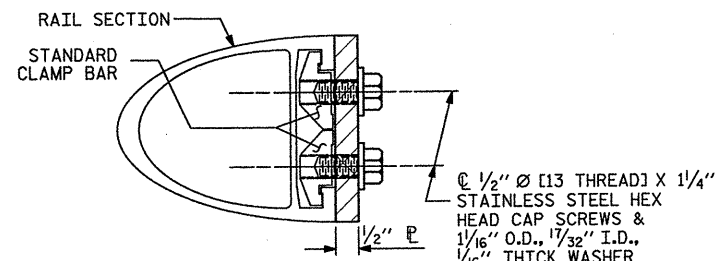
ELEVATION



TOP VIEW

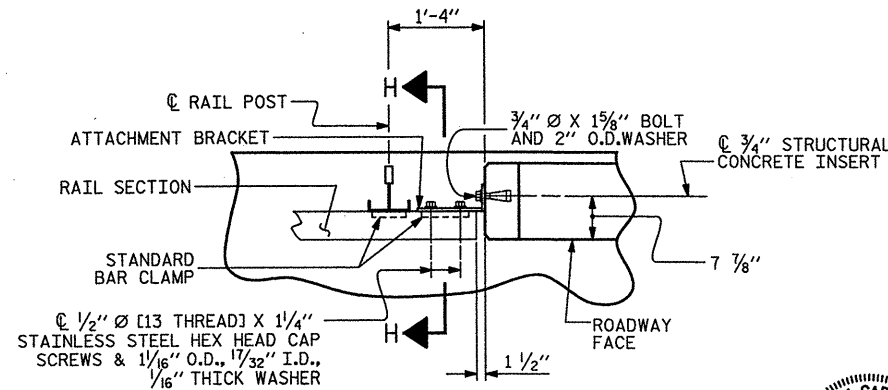


END VIEW (FIX AND EXP.)



SECTION H-H (FIX)

FIXED



PLAN - RAIL AND END POST

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
- B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

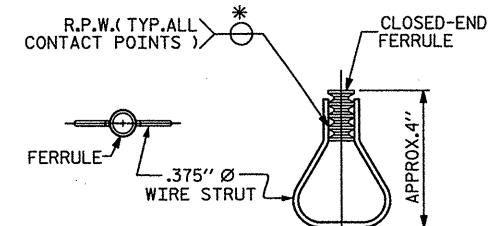
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
- C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
- D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
- E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. **17BP.9.H.2**

DAVIDSON COUNTY

BRIDGE NO.: **082**

REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE OR TWO BAR METAL RAILS

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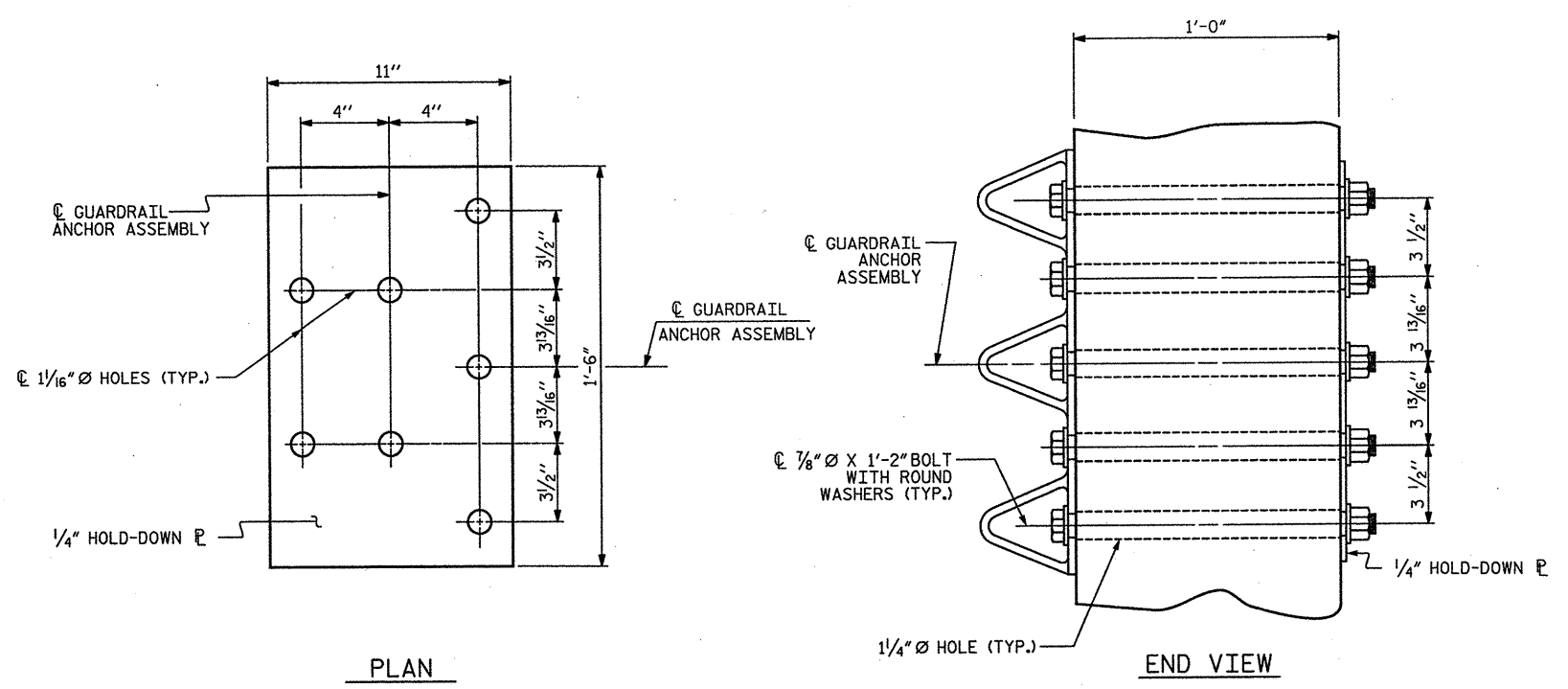
TOTAL SHEETS: 93

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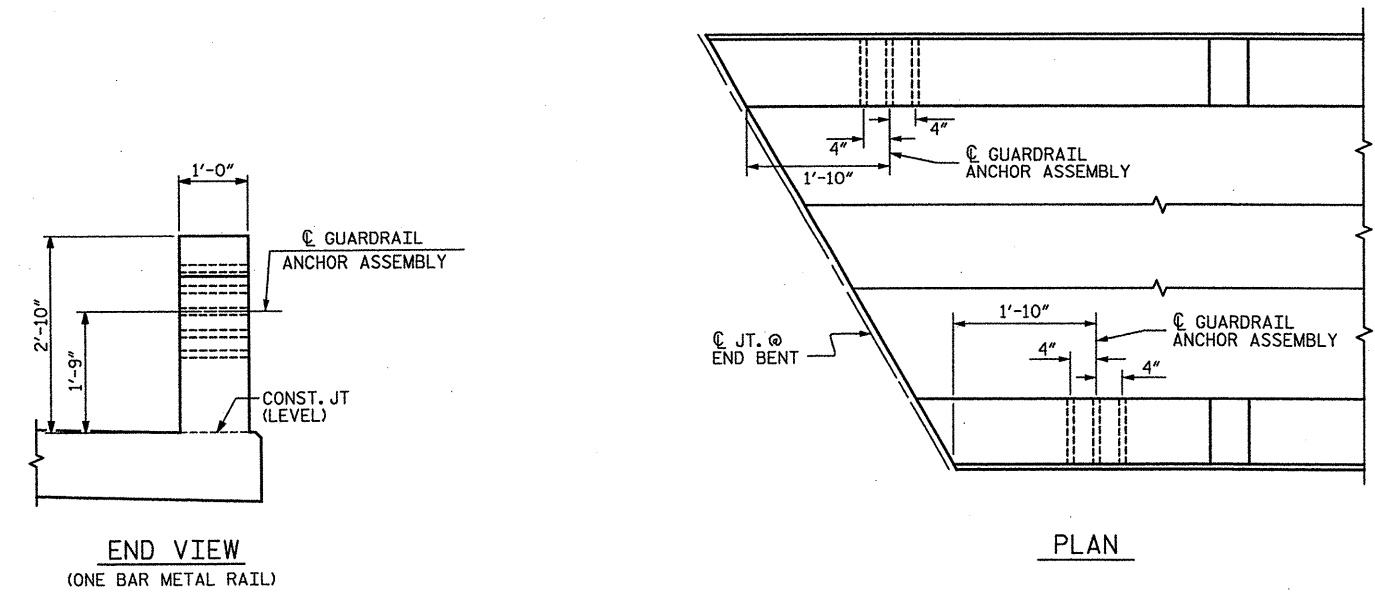
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STD. NO. BMR2



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF GUARDRAIL ANCHOR AT END POST

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

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 7/8" 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 THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

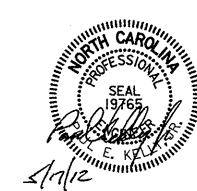
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

THE 1 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.

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
**GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS**

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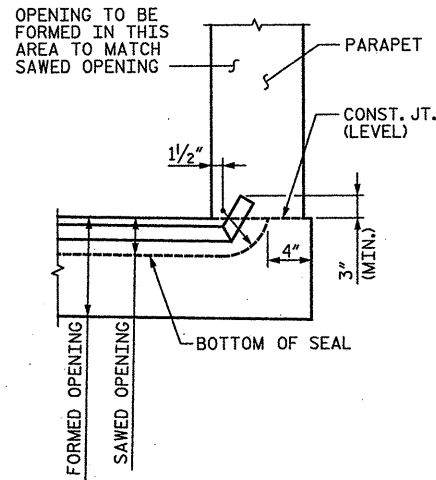
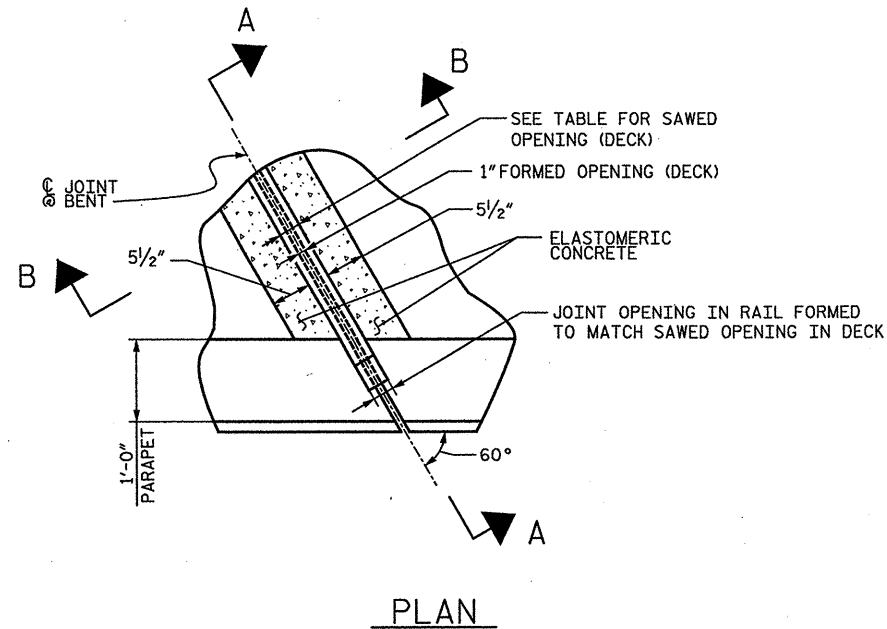
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2			4			93

STD. NO. GRA3

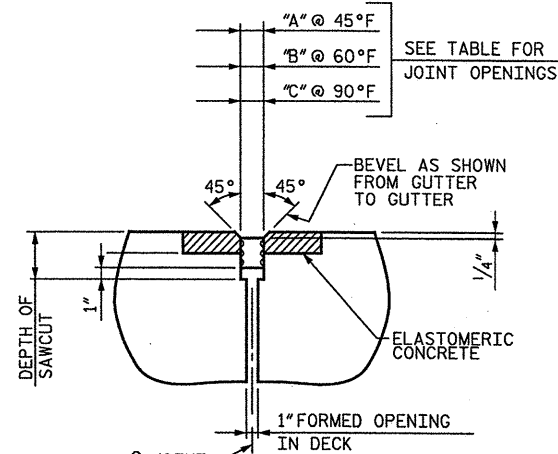
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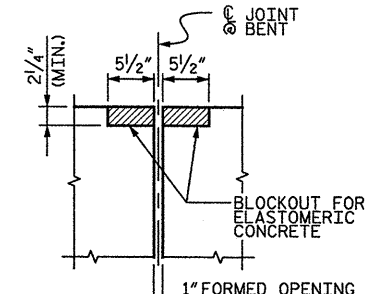
SECTION A-A

FOAM JOINT SEAL TO BE CUT, HEAT WELDED, AND TURNED UP AT A 60° ANGLE FROM THE BASE OF THE PARAPET.



SECTION B-B

FOAM JOINT SEAL



SECTION B-B

FOAM JOINT SEAL (PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

NOTES:

1. SEE SPECIAL PROVISIONS FOR FOAM JOINT SEALS.
2. SEE SPECIAL PROVISIONS FOR ELASTOMERIC CONCRETE.

MOVEMENT AND SETTING AT FOAM JOINT

BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG C. RDWY.)	PERPENDICULAR JOINT OPENING AT 45°F ("A")	PERPENDICULAR JOINT OPENING AT 60°F ("B")	PERPENDICULAR JOINT OPENING AT 90°F ("C")
B1	60°	2 1/2"	3/8"	1 5/16"	1 7/8"	1 13/16"
B2	60°	2 1/2"	11/16"	1 5/16"	1 7/8"	1 11/16"

BILL OF MATERIAL

BENT NO.	ELASTOMERIC CONCRETE * (CU.FT.)
EB1	4.8
B1	4.8
B2	4.8
EB2	4.8

BASED ON MINIMUM BLOCKOUT SHOWN.

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 082

REHAB. OF BRIDGE NO. 082

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 JOINT SEAL
 DETAILS

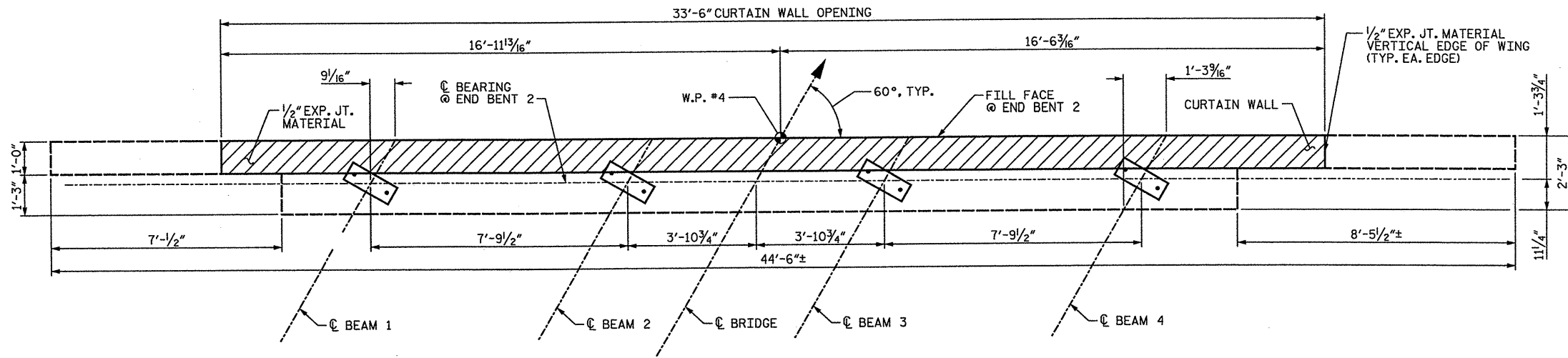


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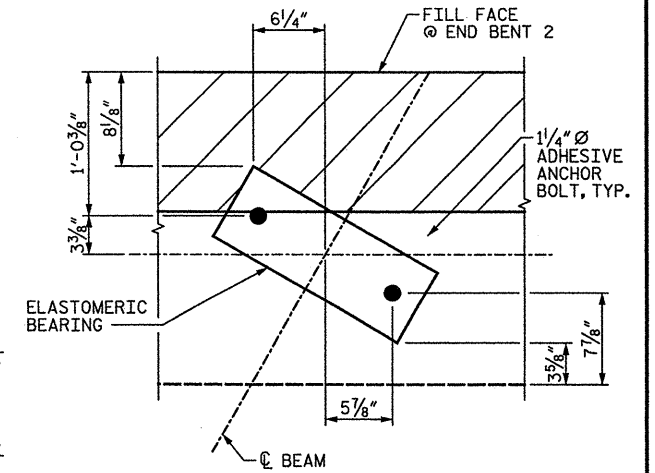
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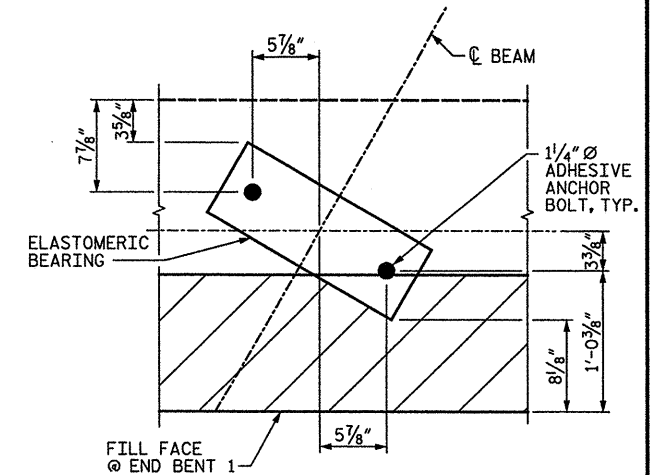
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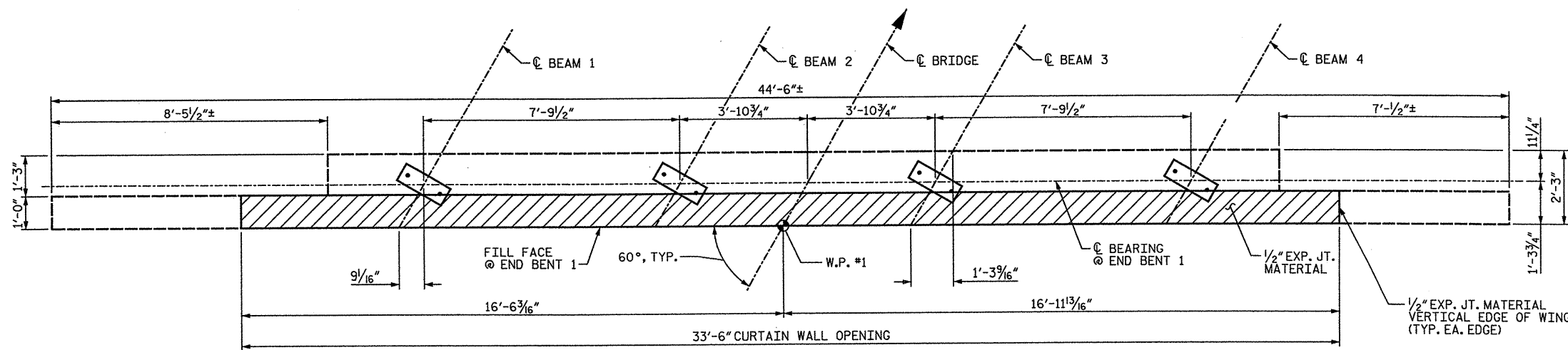
PLAN OF END BENT 2



ANCHOR BOLT PLACEMENT
DETAIL - END BENT 2



ANCHOR BOLT PLACEMENT
DETAIL - END BENT 1



PLAN OF END BENT 1

NOTE Δ

SEE BEARING LOCATION PLAN SHEET 2 OF 2 FOR NOTES.

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 082

REHAB. OF BRIDGE NO. 082 SHEET 1 OF 2

STATE OF NORTH CAROLINA
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BEARING LOCATION
PLAN
END BENTS 1&2



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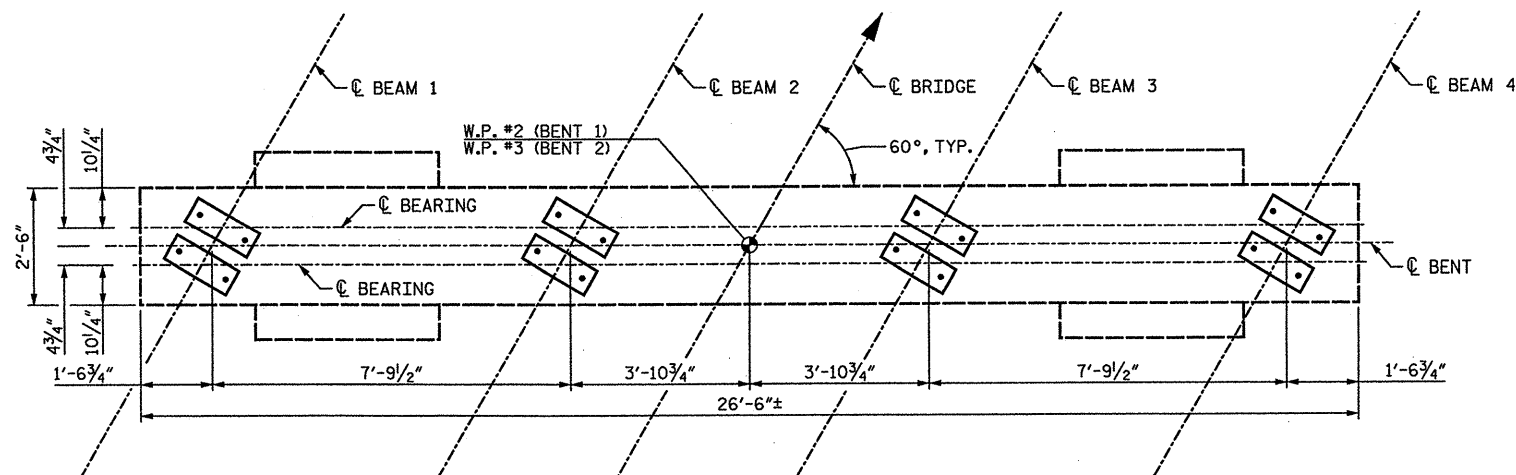
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PLAN OF BENTS 1 & 2

NOTES

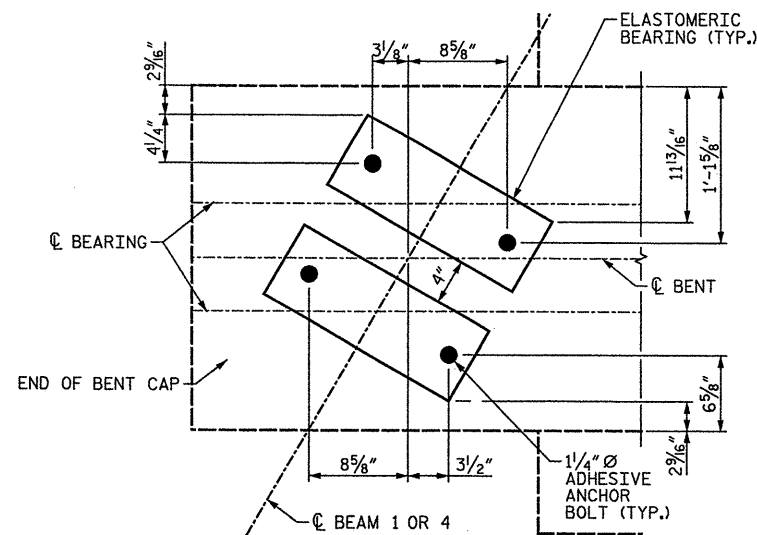
EXTREME CARE MUST BE TAKEN WHILE PLACING THE ANCHOR BOLTS IN THE END BENT CAP TO AVOID DAMAGE TO THE EXISTING TIMBER PILES.

EXISTING ANCHOR BOLTS WILL BE CUT AND GROUND FLUSH WITH TOP OF CAP.

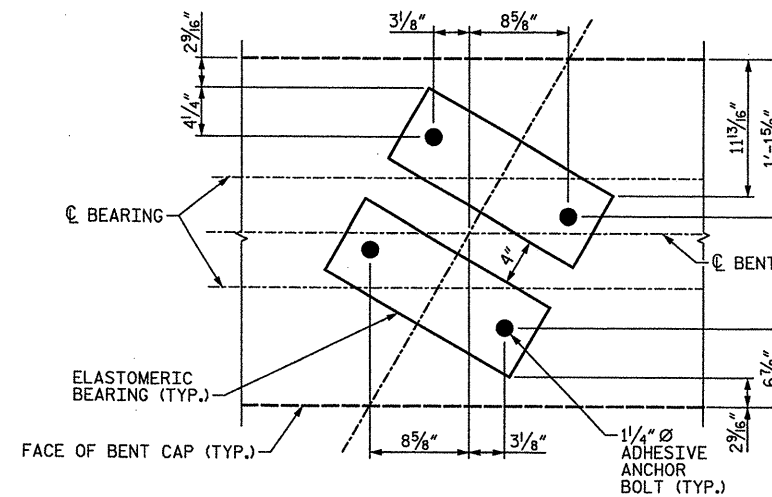
ADHESIVE ANCHOR BOLTS FOR BENT AND END BENT CAPS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH A SAFE WORKING LOAD OF 20 KIPS TENSION AND 12 KIPS SHEAR.

REMOVAL OF EXISTING ANCHOR BOLTS, INSTALLATION OF PROPOSED ADHESIVELY ANCHORED BOLTS, AND ALL WORK, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE ACCEPTED WORK, SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

APPLY AN EPOXY PROTECTIVE COATING TO TOP SURFACES OF BENT AND END BENT CAPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PRIOR TO APPLICATION THE CAPS SHALL BE THOROUGHLY CLEANED BY POWER WASHING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.



ANCHOR BOLT PLACEMENT DETAIL
BEAMS 1 & 4 OF BENTS 1 & 2



ANCHOR BOLT PLACEMENT DETAIL
BEAMS 2 & 3 OF BENTS 1 & 2

PROJECT NO. 17BP.9.H.2

DAVIDSON COUNTY

BRIDGE NO.: 082

REHAB. OF BRIDGE NO. 082 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BEARING LOCATION
PLAN
BENTS 1 & 2**



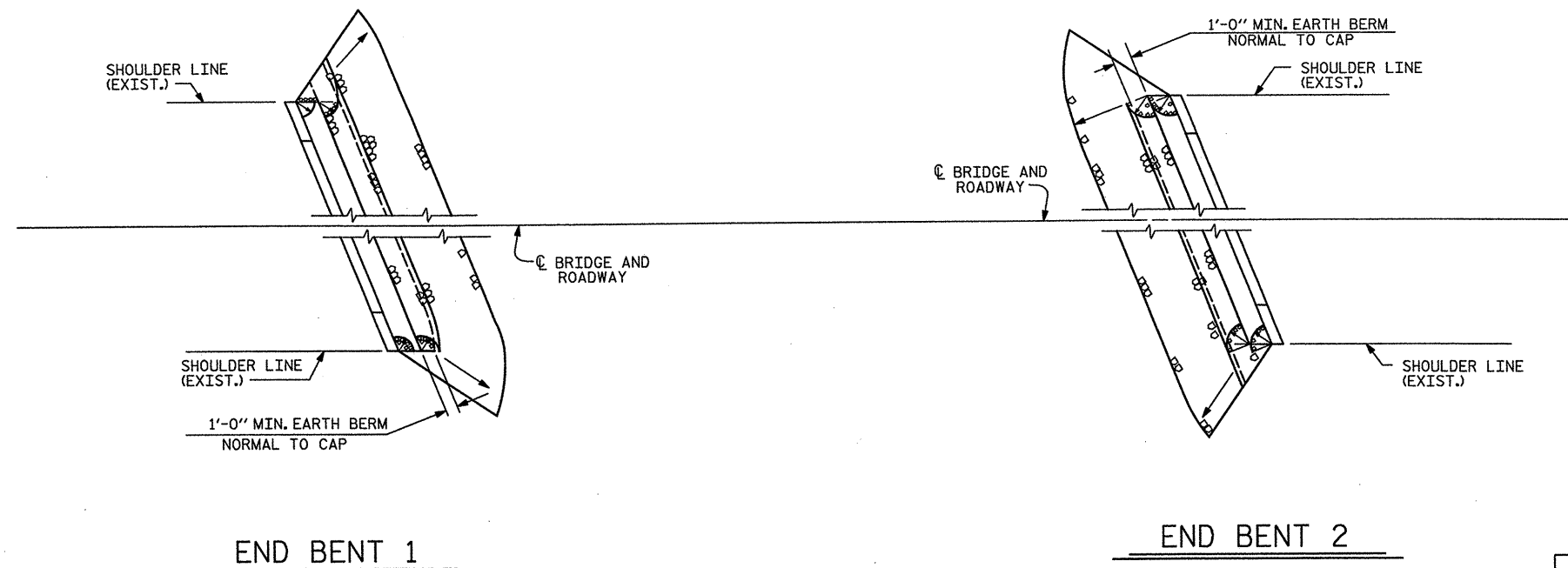
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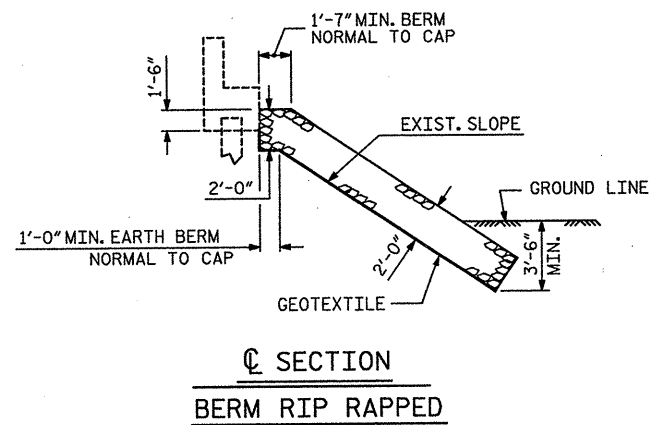
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CHECKED BY : MR DATE : 04-12

ADDED NOTES, REV. ANCHOR BOLTS

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ESTIMATED QUANTITIES		
BRIDGE 082	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	22	32
END BENT 2	32	47



PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082 SHEET 1 OF 1



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RIP RAP DETAILS

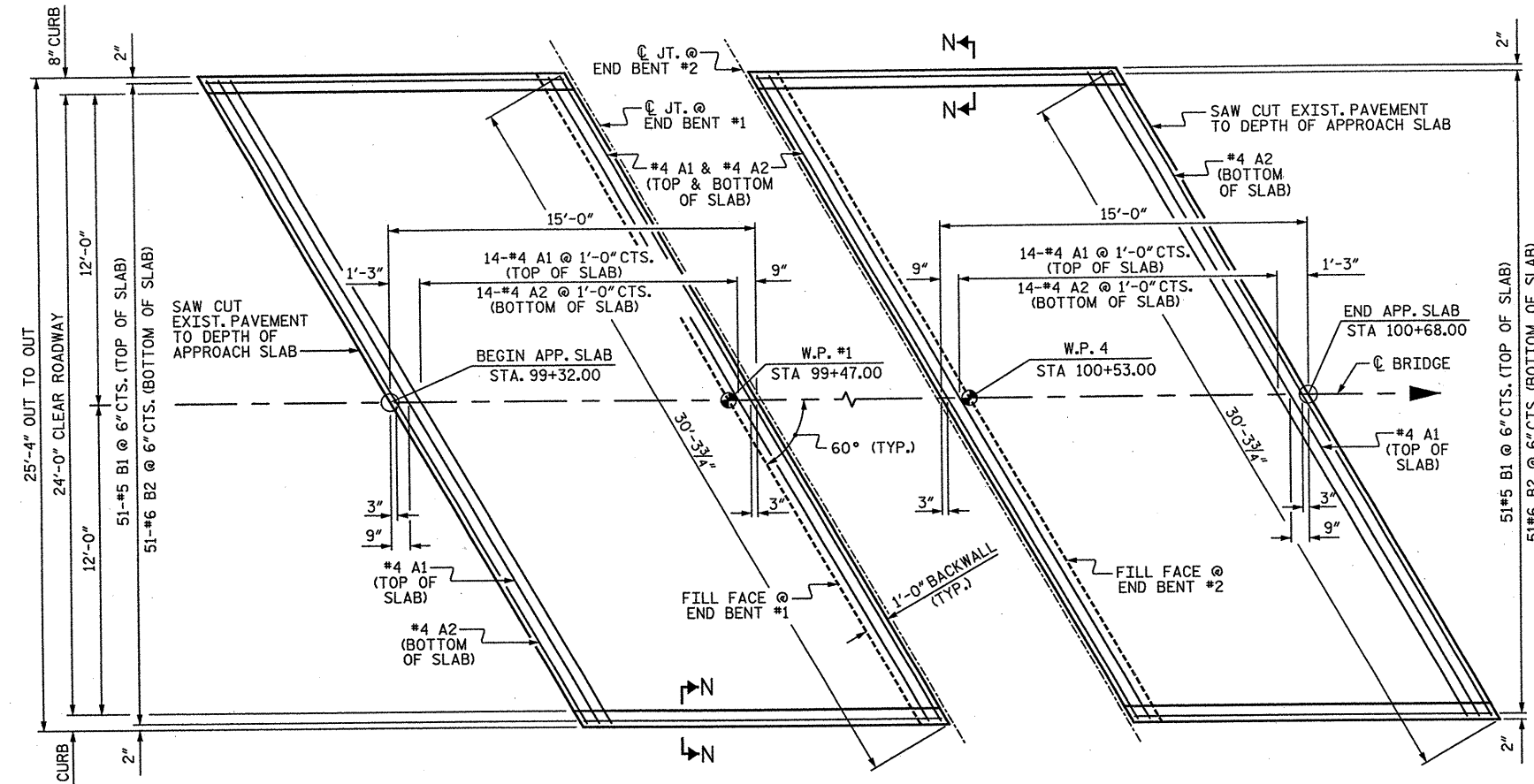
DRAWN BY : JWK DATE : 04-12
 CHECKED BY : MR DATE : 04-12

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 NC License No. F-0891

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

TOTAL SHEETS	93
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 6/15/2012



PLAN @ END BENT #1 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, AND OUTLET PADS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE BRIDGE APPROACH SLAB. NO EXTRA MEASUREMENT OR PAYMENT WILL BE MADE.

GEOTEXTILE SHALL BE TYPE 1 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 END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

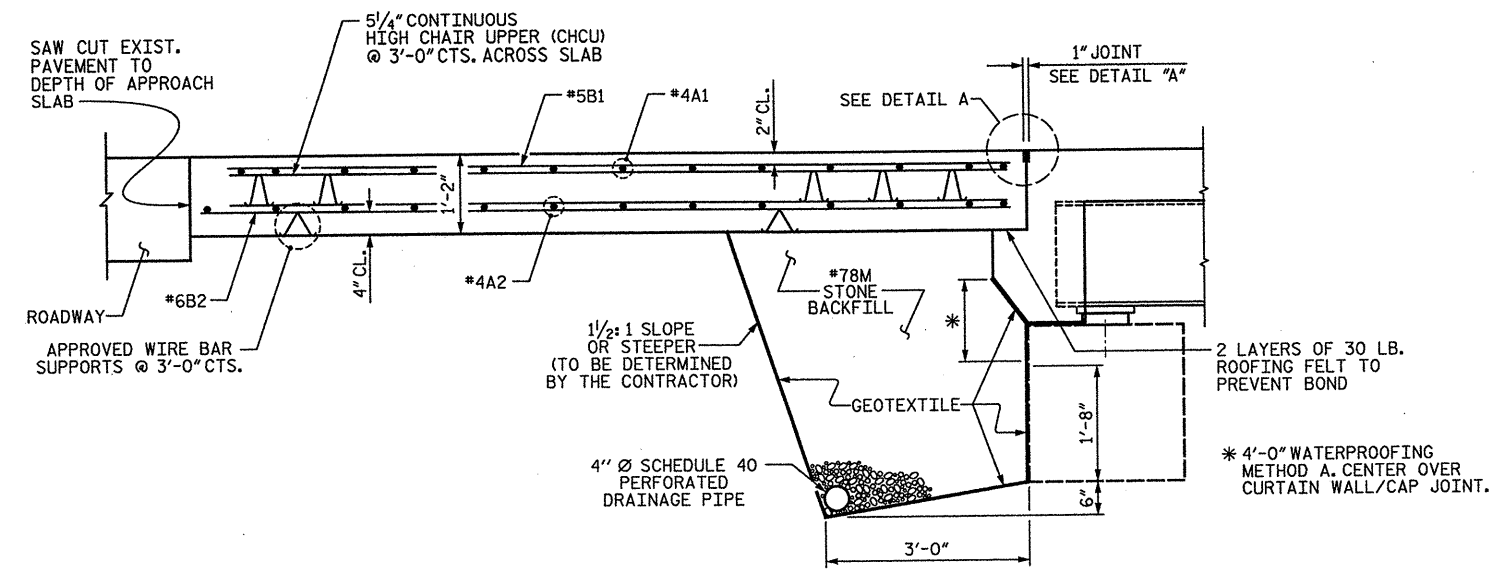
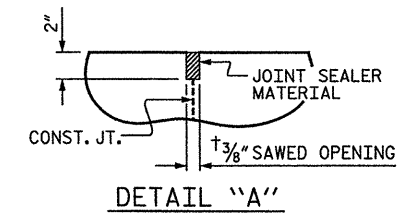
FOR OUTLET PAD SEE ROADWAY STANDARD DRAWING 815.03.

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. SEE ROADWAY PLANS.

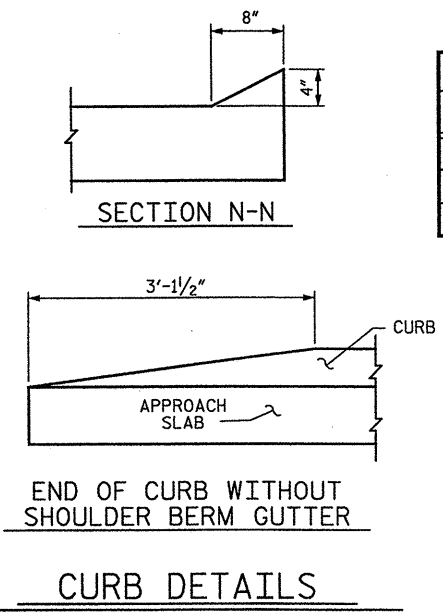
SAW CUT THE EXISTING PAVEMENT ALONG THE EDGE OF THE PROPOSED APPROACH SLAB AS SHOWN IN THE PLAN DETAILS. DEMOLISH AND EXCAVATE PAVEMENT AND SUBGRADE SOIL TO THE FULL DEPTH OF THE APPROACH SLAB.

DAMAGED PAVEMENT ALONG THE EDGE OF APPROACH SLAB SHALL BE REPAIRED TO PROVIDE A SMOOTH RIDING SURFACE TO THE SATISFACTION OF THE ENGINEER.

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	16	#4	STR	28'-10"	309	
A2	16	#4	STR	28'-10"	309	
*B1	51	#5	STR	14'-8"	781	
B2	51	#6	STR	14'-8"	1124	
REINFORCING STEEL					LBS.	1090
*EPOXY COATED REINFORCING STEEL					LBS.	1432
CLASS AA CONCRETE					C. Y.	16.6
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A	16	#4	STR	28'-10"	309	
A2	16	#4	STR	28'-10"	309	
*B	51	#5	STR	14'-8"	781	
B2	51	#6	STR	14'-8"	1124	
REINFORCING STEEL					LBS.	1090
*EPOXY COATED REINFORCING STEEL					LBS.	1432
CLASS AA LIGHTWEIGHT CONCRETE					C. Y.	16.6



SECTION THRU SLAB



SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082 SHEET 1 OF 2

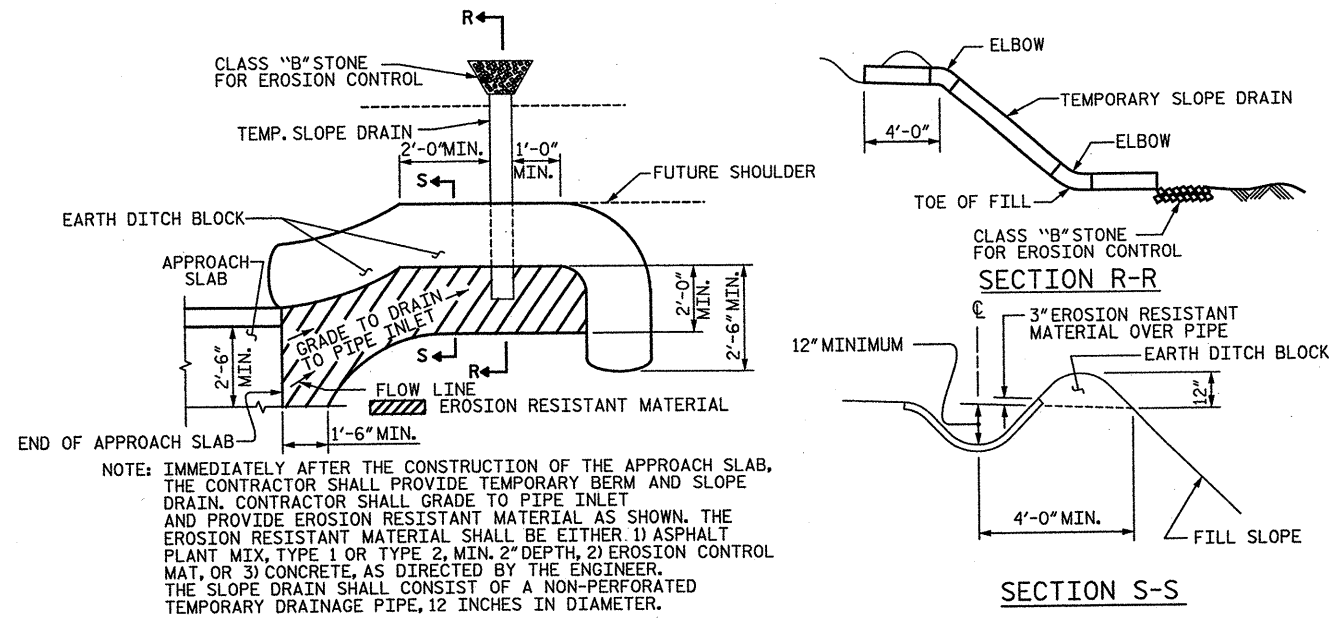
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
BRIDGE APPROACH SLAB PLAN & SECTION



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REVISIONS						SHEET NO.
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1	STV	6-12	3			TOTAL SHEETS
2			4			93

DRAWN BY: JWK DATE: 04-12
 CHECKED BY: MR DATE: 04-12 REV. PER NCDOT COMMENTS

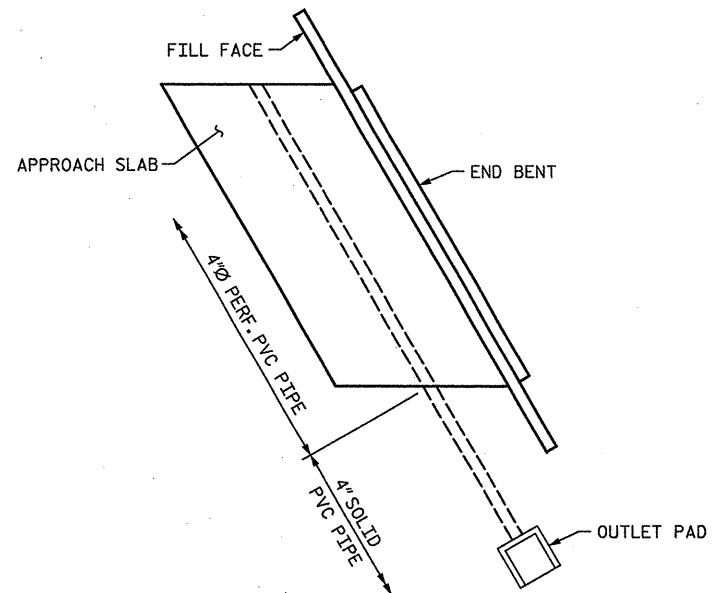


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAINAGE PIPE, 12 INCHES IN DIAMETER.

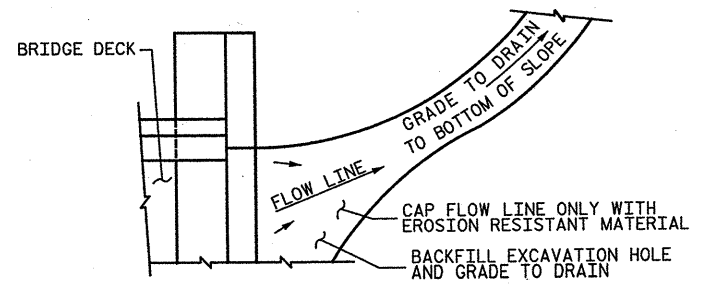
PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

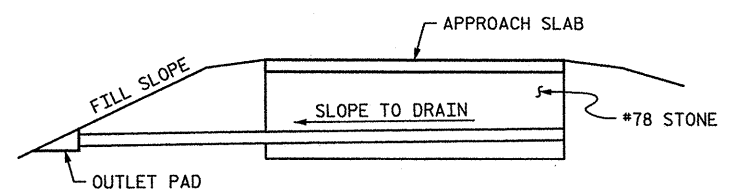


PIPE DRAIN AND OUTLET PLAN



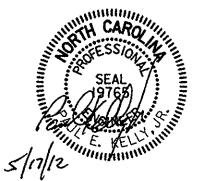
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PIPE DRAIN AND OUTLET ELEVATION

PROJECT NO. 17BP.9.H.2
 DAVIDSON COUNTY
 BRIDGE NO.: 082
 REHAB. OF BRIDGE NO. 082 SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**

DRAWN BY : JWK DATE : 04-12
 CHECKED BY : MR DATE : 04-12

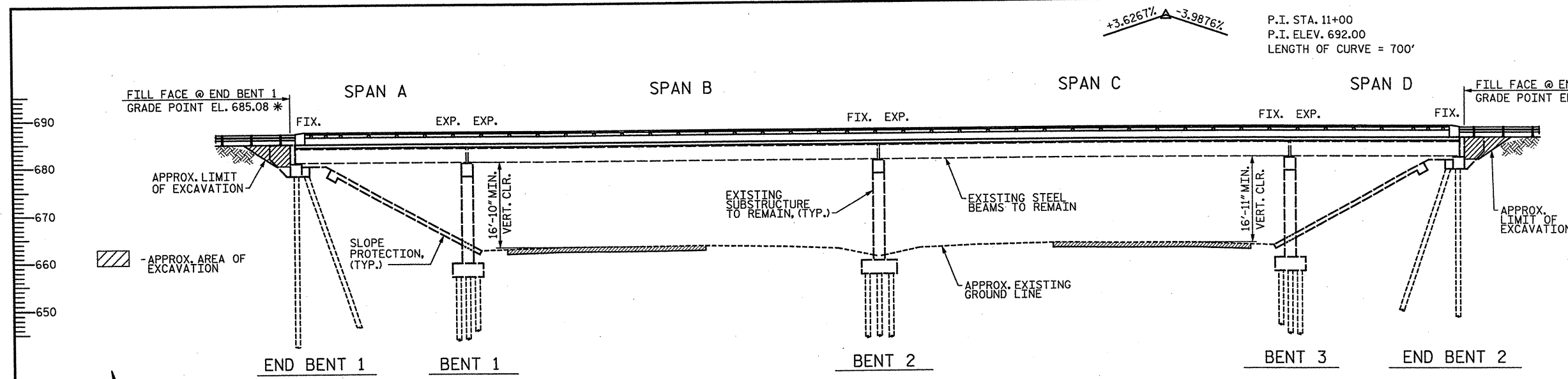
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 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-72
1			3			TOTAL SHEETS
2			4			97

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 6/17/2012
 daveyco

+3.6267% -3.9876%

P.I. STA. 11+00
P.I. ELEV. 692.00
LENGTH OF CURVE = 700'

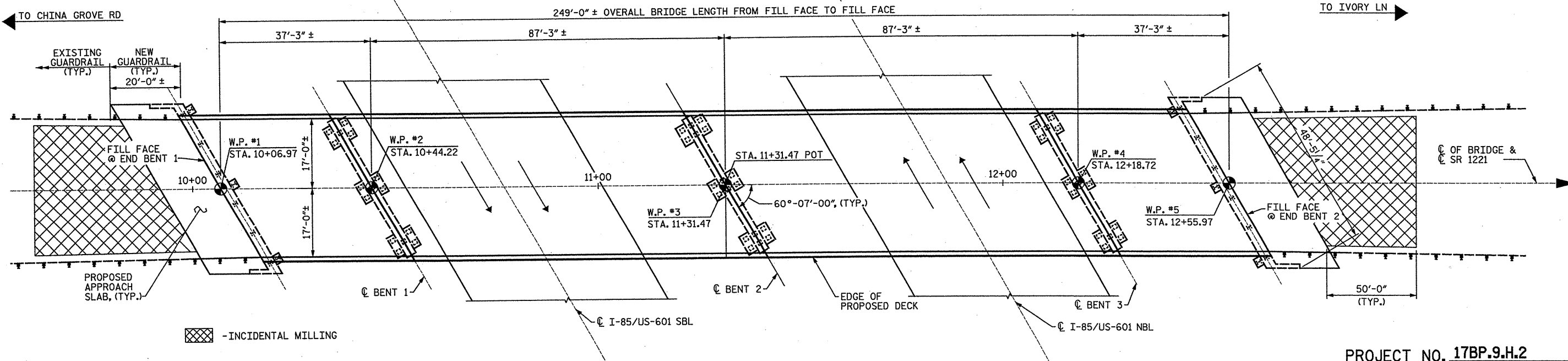


SECTION ALONG C OF BRIDGE

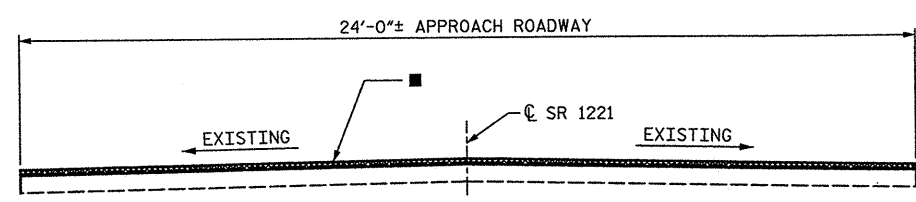
(SECTIONS AT BENTS AND END BENTS ARE AT RIGHT ANGLES)

* -EXISTING ELEVATION BASED ON AS-BUILT DRAWINGS

NOTES: Δ
SEE SHEET NO. SN FOR GENERAL NOTES.
EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.
STATION INFORMATION IS SHOWN BASED ON AS-BUILT DRAWINGS.
DIMENSIONS SHOWN IN THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE AND ARE APPROXIMATE.
REMOVE EXISTING STRUCTURES IN ACCORDANCE WITH SECTION 402 OF THE STANDARD SPECIFICATIONS EXCEPT AS NOTED HEREIN.
ALL EXISTING BEAMS, STEEL DIAPHRAGMS, AND SUBSTRUCTURE INCLUDING WINGWALLS WILL REMAIN IN PLACE.
THE CONTRACTOR SHALL EXERCISE CARE TO ENSURE THAT EXISTING STRUCTURAL ELEMENTS THAT ARE TO REMAIN IN PLACE ARE UNDAMAGED BY DEMOLITION ACTIVITIES. ALL DAMAGE TO EXISTING STRUCTURAL ELEMENTS THAT ARE TO REMAIN SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NO COST TO THE DEPARTMENT.



PLAN



TYPICAL ROADWAY SECTION Δ

■ VARIABLE DEPTH MILLING 0" - 1/2", REPLACE WITH 1/2" MIN. ASPHALT C1 TO TRANSITION TO EXISTING RIDING SURFACE

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5A AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1 1/2" DEPTH.

PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
BRIDGE NO.: 065
REHAB. OF BRIDGE NO. 065 SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE ON SR 1221
OVER I-85/US-601



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1	STV	6-12	3		
2			4		

TOTAL SHEETS: 93

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DRAWN BY: KMG DATE: 05-12
CHECKED BY: AC DATE: 05-12
 Δ REV. PER NCDOT COMMENTS

TOTAL BILL OF MATERIAL Δ

	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE SF 9.5A	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE 65	UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE 65	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	BRIDGE APPROACH SLABS AT BRIDGE 65	CLEANING AND REPAINTING OF BRIDGE 65	POLLUTION CONTROL	METHOD 'A' WATERPROOFING	ONE BAR METAL RAIL	1'-0" x 1'-6" CONCRETE PARAPET	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	EPOXY RESIN INJECTION	CONCRETE REPAIRS (CLASS 'A')	STRUCTURAL STEEL MODIFICATION
	SQ. YDS.	TONS	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SQ. YD.	LIN. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LIN. FT.	CU. FT.	LUMP SUM
TOTAL	86	39	LUMP SUM	LUMP SUM	9027	8587	LUMP SUM	LUMP SUM	LUMP SUM	37	483	483	LUMP SUM	LUMP SUM	145	6	LUMP SUM

NOTES:

DESIGN LIVE LOAD FOR REHABILITATED SUPERSTRUCTURE = HS-20.

THE REHABILITATED SUPERSTRUCTURE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES 17TH ED., 2002.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

ALL FALSEWORK AND FORMS FOR THE CAST-IN-PLACE DECK SLAB UNIT SHALL REMAIN IN PLACE UNTIL THE ENTIRE UNIT IS CAST AND CURED.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

IN AS MUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR REMOVAL OF EXISTING STRUCTURE AT BRIDGE 65.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

ALL BAR SUPPORTS USED IN THE (BARRIER RAIL, PARAPET, SIDEWALK, DECK) AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

INSTALLATION OF SHEAR CONNECTORS FOR SPANS A & D SHALL BE PAID FOR AS STRUCTURAL STEEL MODIFICATION, SEE SPECIAL PROVISIONS.

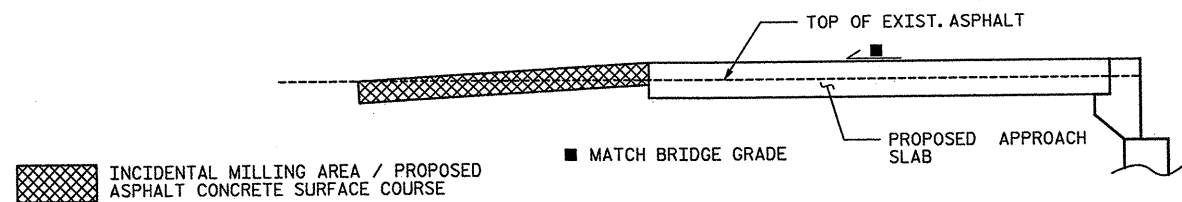
FOR CLEANING AND REPAINTING OF BRIDGE 65 SEE SPECIAL PROVISIONS FOR PAINTING EXISTING STRUCTRES.

THE BRIDGE DECK, CURTAIN WALLS, TRAFFIC BARRIERS AND END POSTS OF EXISTING STRUCTURE (THE EXISTING STRUCTURE CONSISTS OF SIMPLE SPANS OF LENGTH 37'-3", 87'-3", 87'-3" AND 37'-3" APPROXIMATELY WITH A CLEAR ROADWAY WIDTH OF 34'-0" SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

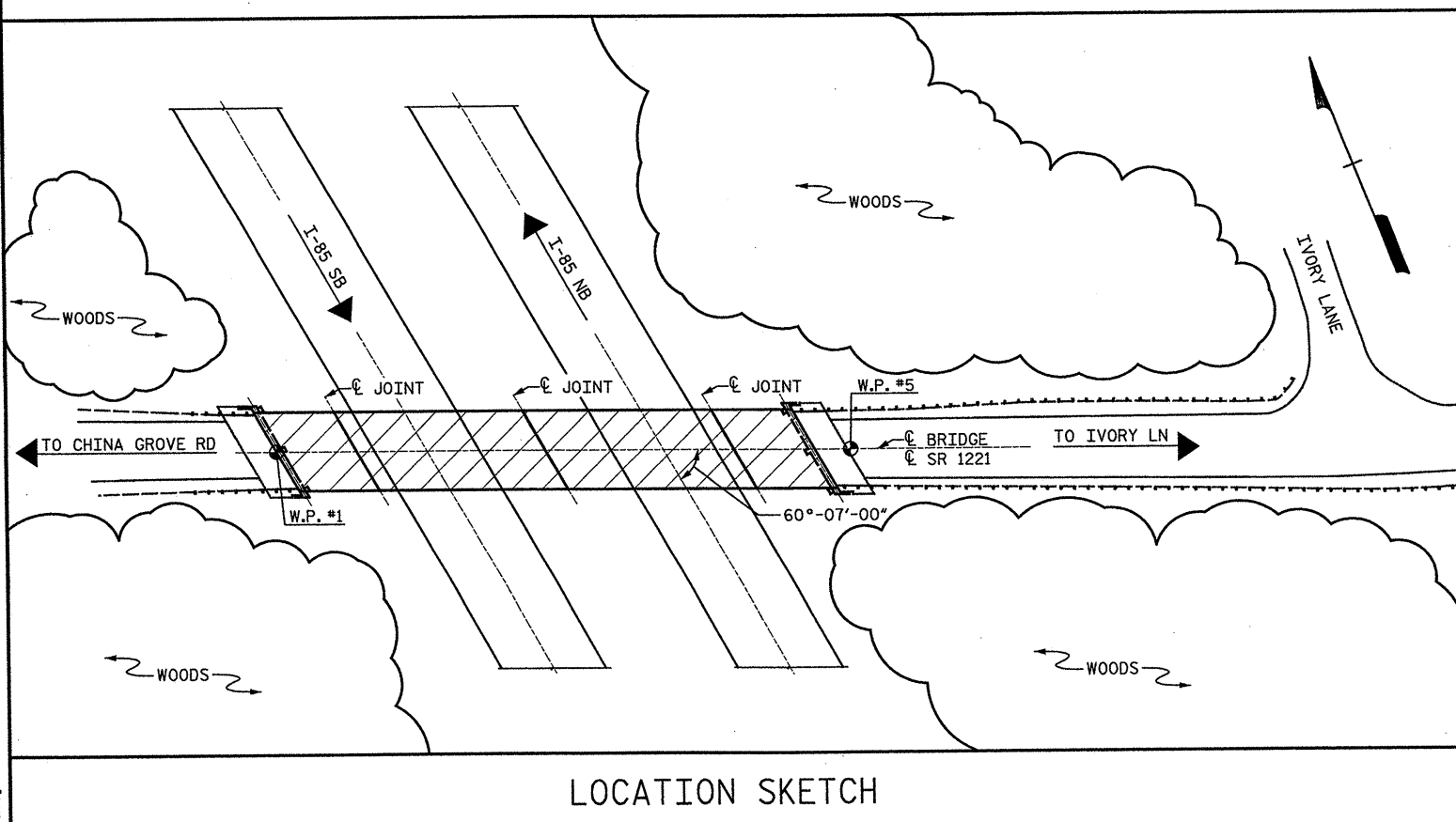
THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE ENGINEER FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

REMOVAL OF THE EXISTING BRIDGE DECK (SHOWN AS HATCHED), CURTAIN WALLS SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE TRAFFIC. THE CONTRACTOR SHALL SUBMIT PLANS FOR DEMOLITION OF BRIDGE DECK, PARAPET, CURTAIN WALLS, AND TRAFFIC BARRIERS IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

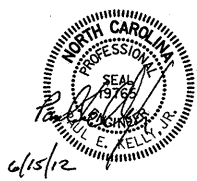
THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVISING A SYSTEM FOR REPLACEMENT OF THE EXISTING BEARING WITH THE PROPOSED ELASTOMERIC BEARING PADS SOLE PLATES, AND ANCHOR BOLTS. RAISING ALL OR PART OF THE SUPERSTRUCTURE IS ANTICIPATED. PLANS AND CALCULATIONS, SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



BRIDGE TRANSITION



LOCATION SKETCH



PROJECT NO. 17BP.9.H.2
 ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 LOCATION SKETCH AND
 TOTAL BILL OF MATERIALS
 BRIDGE ON SR 1221
 OVER I-85/US-601

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1	STV	6-12	3	
2			4	

TOTAL SHEETS: 93

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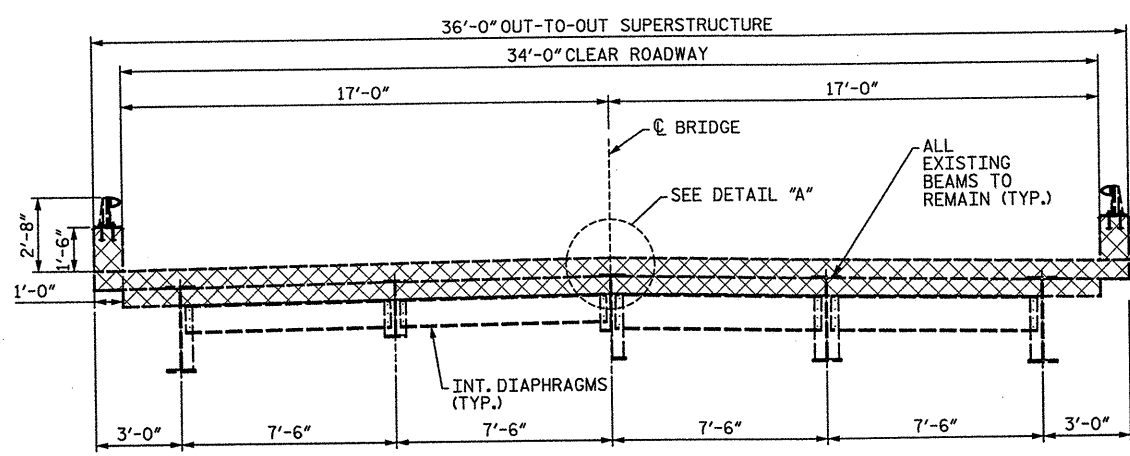
DRAWN BY: KMG DATE: 05-12
 CHECKED BY: AC DATE: 05-12
 REV. PER NCDOT COMMENTS

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 6/15/2012
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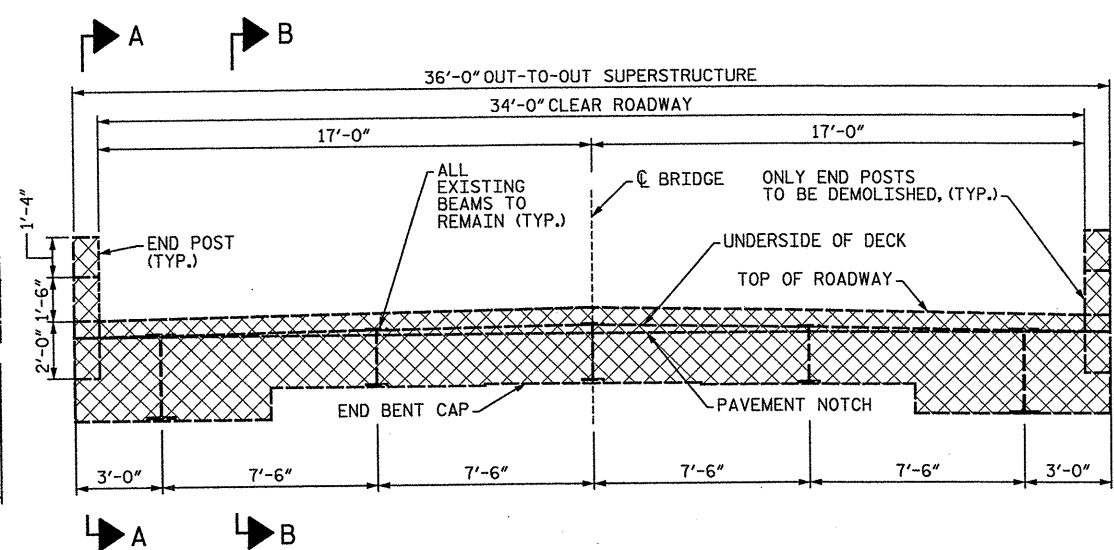
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5/17/2012

DRAWN BY: KMG DATE: 05-12
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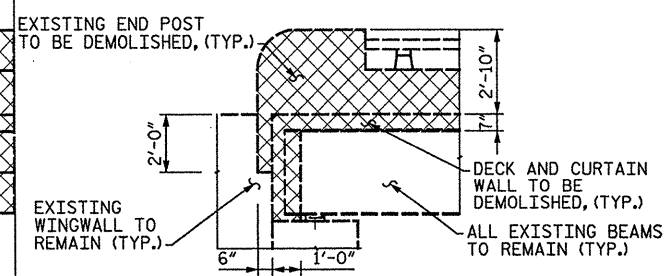
TYPICAL SECTION - EXISTING
 (DIAPHRAGMS AT BENTS SHOWN)



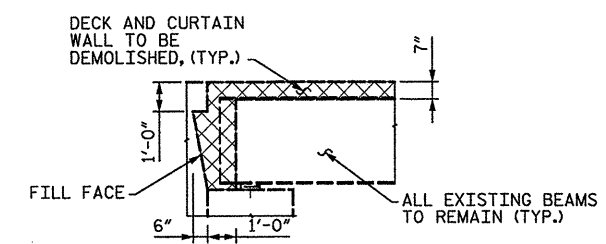
END ELEVATION - EXISTING

NOTES:
 SEE SHEET NO. SN FOR GENERAL NOTES.
 EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.
 ALL EXISTING BEAMS, DIAPHRAGMS, AND SUBSTRUCTURE INCLUDING WINGWALLS TO REMAIN.

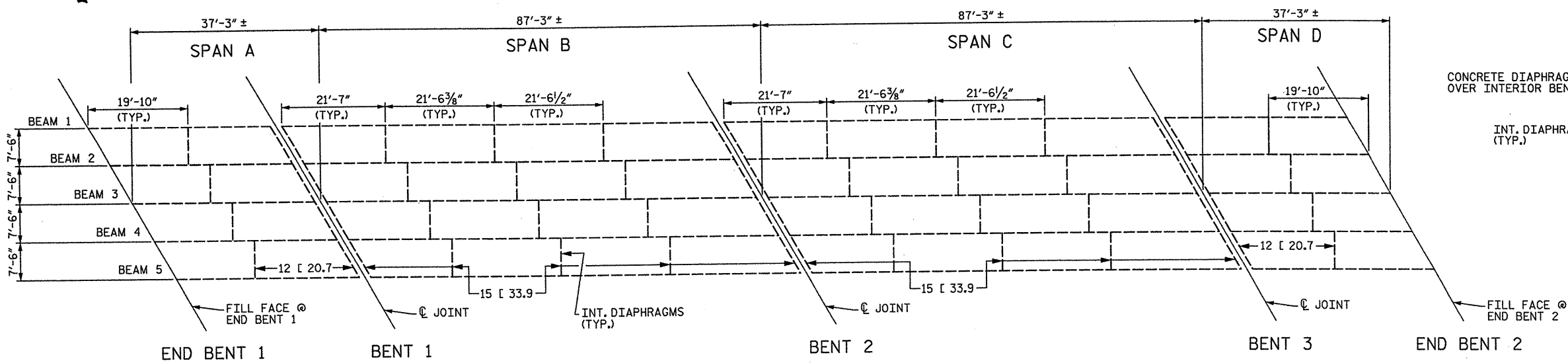
EXISTING CONCRETE TO BE REMOVED



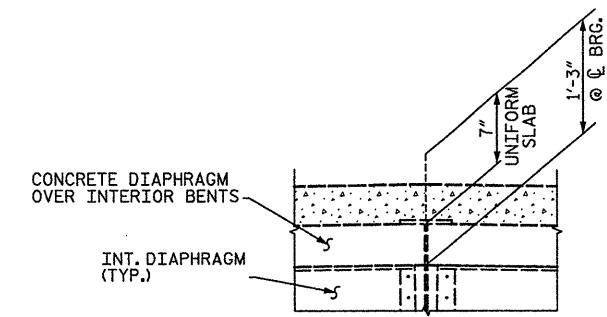
SECTION A-A



SECTION B-B



FRAMING PLAN - EXISTING
 FOR INFORMATION ONLY



DETAIL "A"

NOTE: ALL EXISTING BEAMS TO REMAIN.
 CARE SHALL BE EXERCISED WHILE DEMOLISHING THE EXISTING SLAB, SO THAT THE EXISTING SHEAR STUDS ON THE BEAMS IN SPAN 'B' AND SPAN 'C' ARE NOT DAMAGED. ANY SHEAR STUDS THAT ARE DAMAGED SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

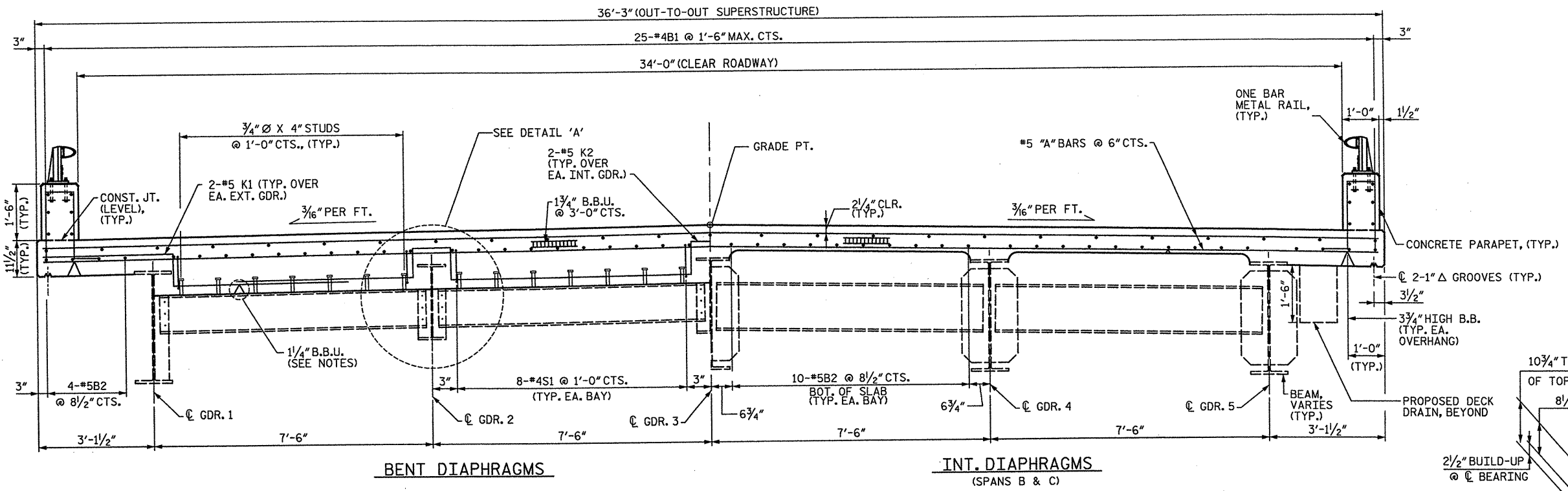
PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE EXISTING BRIDGE DETAIL



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 5/17/2012
 daveyao



NOTES:

SEE SHEET NO. SN FOR GENERAL NOTES.

EXISTING BRIDGE INFORMATION BASED ON BEST AVAILABLE DATA.

REMOVEABLE FORMS MUST BE USED FOR DECK CONSTRUCTION. STAY-IN-PLACE FORMS WILL NOT BE PERMITTED.

WHEN USING REMOVEABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (CHCM) AT 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF "A" BARS A CLEAR DISTANCE OF 1/4" ABOVE THE TOP OF THE REMOVEABLE FORM.

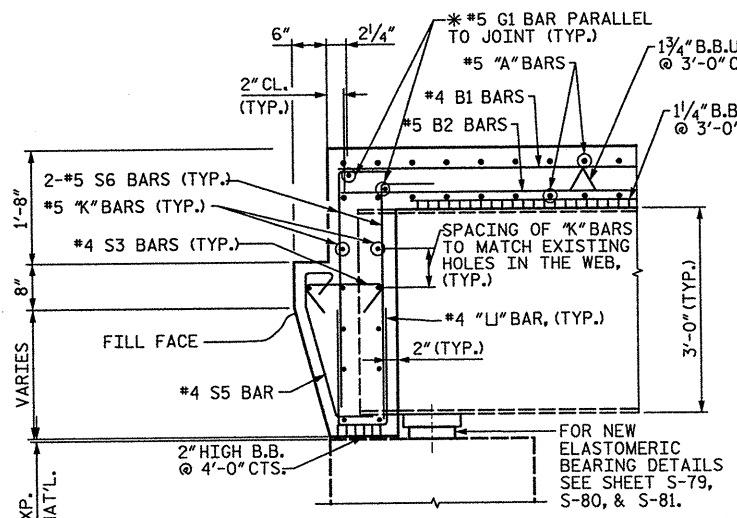
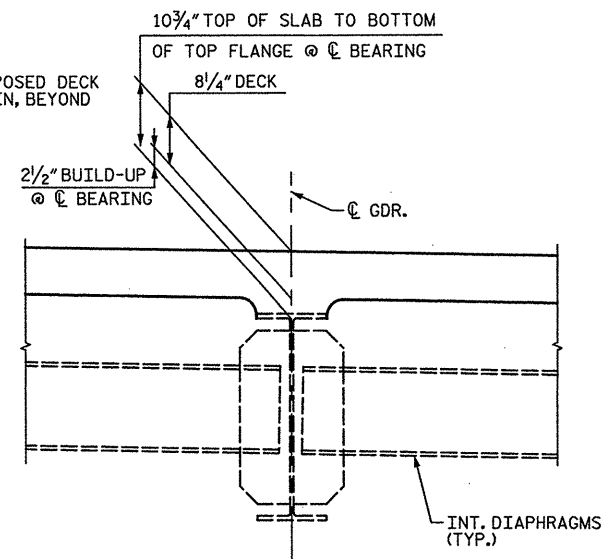
NEW SHEAR STUDS SHALL BE ATTACHED TO BEAMS IN SPANS 'A' AND 'D'.

SEE SHEET S-77 FOR PROPOSED SHEAR STUD DETAIL FOR SPANS A & D.

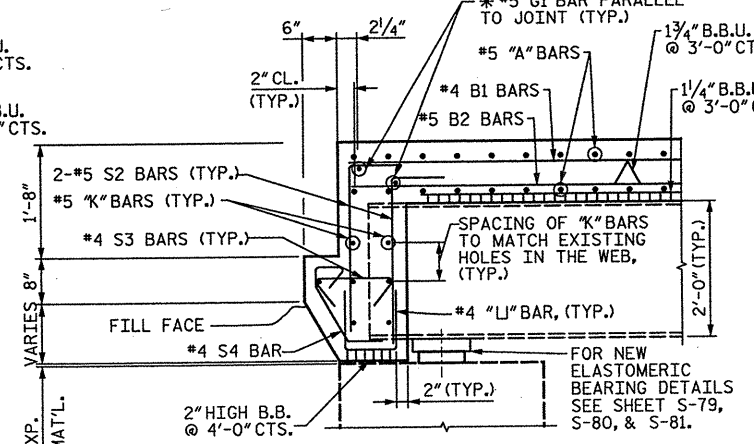
SEE NOTE ON SHEET S-75 FOR SHEAR STUDS IN SPANS B & C.

BENT DIAPHRAGMS INT. DIAPHRAGMS (SPANS B & C)

TYPICAL SECTION - PROPOSED
(DIAPHRAGMS AT BENTS SHOWN)



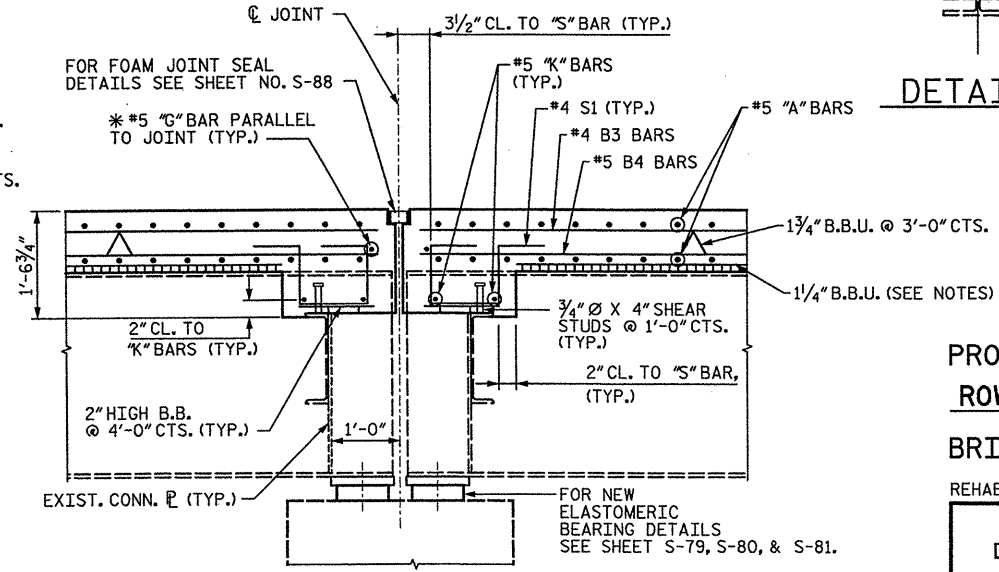
EXTERIOR GIRDERS



INTERIOR GIRDERS

PROPOSED SECTION @ END BENT

*#5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



PROPOSED SECTION @ BENTS

*#5G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.



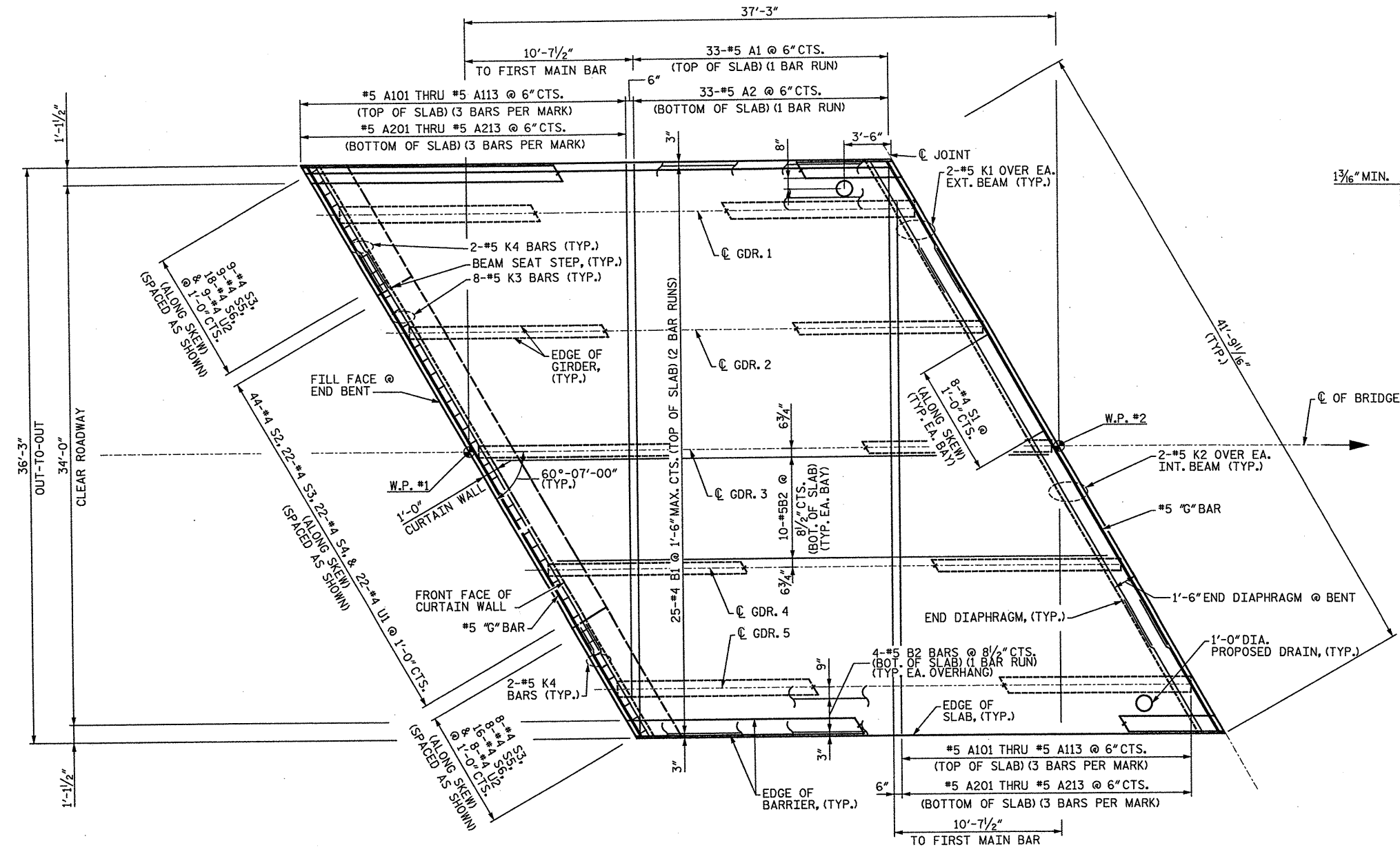
PROJECT NO. 17BP.9.H.2
 ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA				SHEET NO. S-76
DEPARTMENT OF TRANSPORTATION				
RALEIGH				TOTAL SHEETS 93
SUPERSTRUCTURE				
TYPICAL SECTION AND DETAIL				
REVISIONS				
NO.	BY:	DATE:	NO.	BY:
1			3	
2			4	

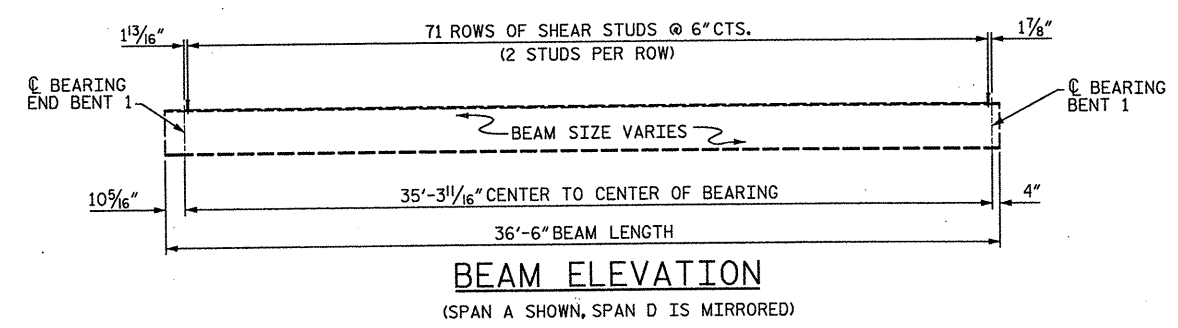
DRAWN BY : KMG DATE : 05-12
 CHECKED BY : AC DATE : 05-12

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 Charlotte, NC 28208
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I:\Projects\2515384\2515384_0001\50.Deliverables & Submittals\17BP.9.H.2\Structures\ust\c\br 65 Rowan\DR-065 Plan of Spans-Existing\111-rails.dgn
5/17/2012
dlveyco

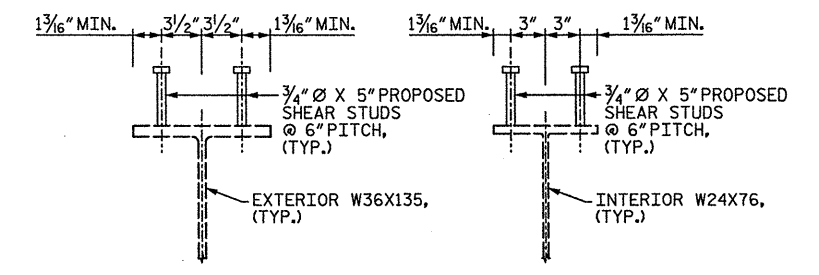


PLAN OF SPANS - SPAN A & D
(SPAN A SHOWN, SPAN D IS MIRRORED)



BEAM ELEVATION
(SPAN A SHOWN, SPAN D IS MIRRORED)

NOTES:
SEE SHEET NO. SN FOR GENERAL NOTES.
REMOVEABLE FORMS MUST BE USED FOR DECK CONSTRUCTION. STAY-IN-PLACE FORMS WILL NOT BE PERMITTED.



SPANS A & D
SHEAR STUD DETAILS



PROJECT NO. **17BP.9.H.2**
ROWAN COUNTY
BRIDGE NO.: **065**
REHAB. OF BRIDGE NO. 065 SHEET 1 OF 2

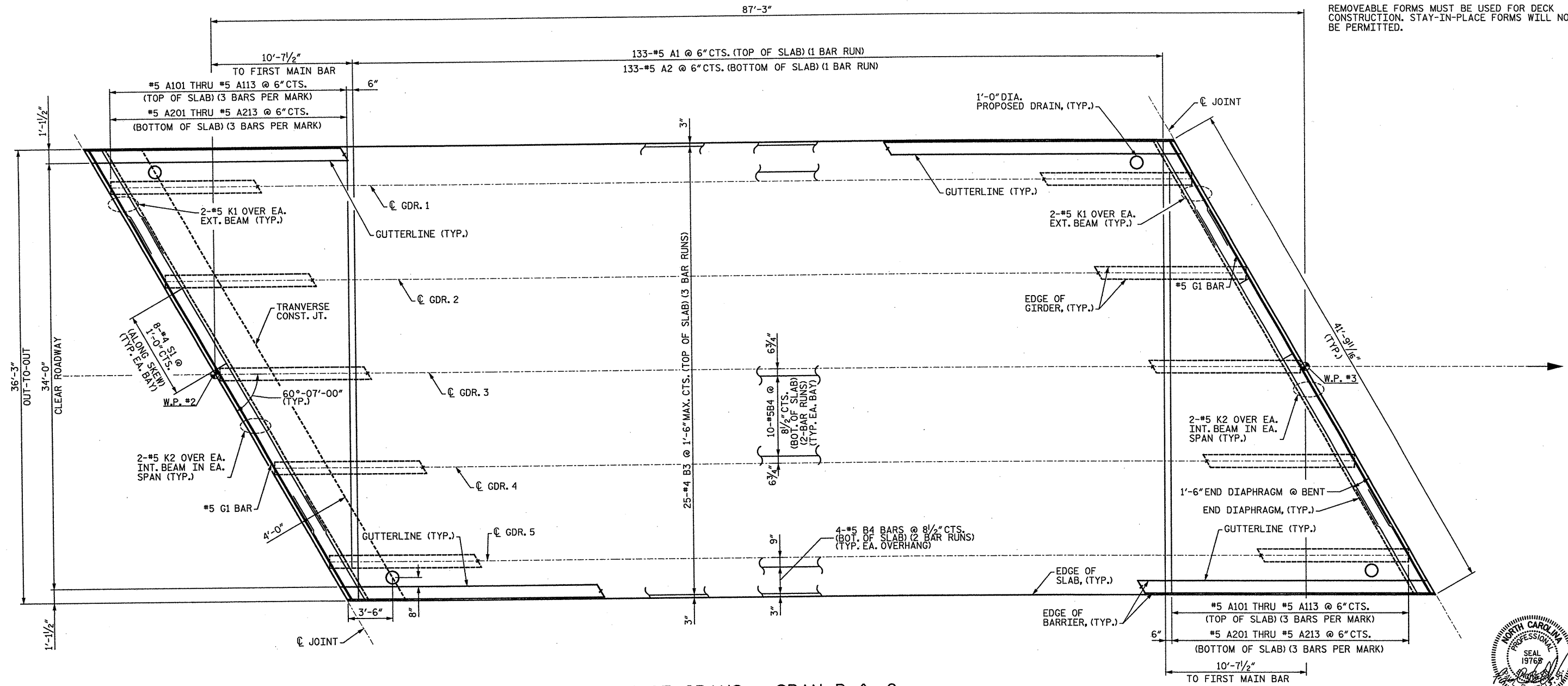
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUPERSTRUCTURE
PLAN OF SPANS**

DRAWN BY: KMG DATE: 05-12
CHECKED BY: AC DATE: 05-12

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License No. F-0891

REVISIONS						SHEET NO. S-77
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 93
2			4			

NOTES:
 SEE SHEET NO. SN FOR GENERAL NOTES.
 REMOVEABLE FORMS MUST BE USED FOR DECK CONSTRUCTION. STAY-IN-PLACE FORMS WILL NOT BE PERMITTED.



PLAN OF SPANS - SPAN B & C
 (SPAN B SHOWN, SPAN C IS SIMILAR)



PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPANS

DRAWN BY: **KMG** DATE: **05-12**
 CHECKED BY: **AC** DATE: **05-12**

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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-78	
1			3			TOTAL SHEETS	93
2			4				

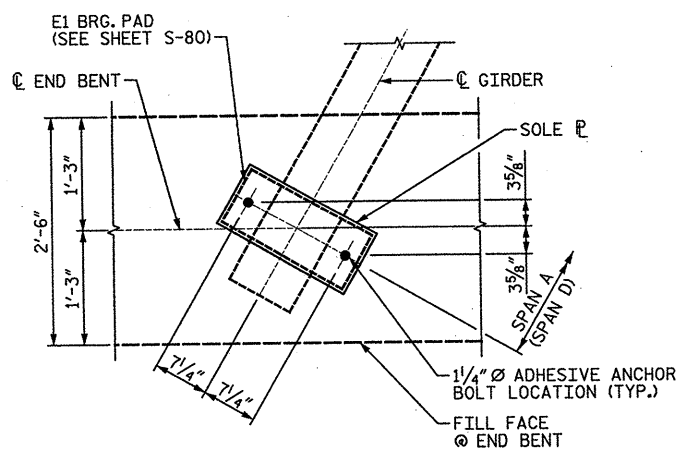
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 5/17/2012
 daveyco

I:\VP\Projects\2515384\2515384_0001\50_Deliverables & Submittals\17BP.9.H.2_Structure\usva08r_65 Rowan\08R-065 Bearing Details.dgn

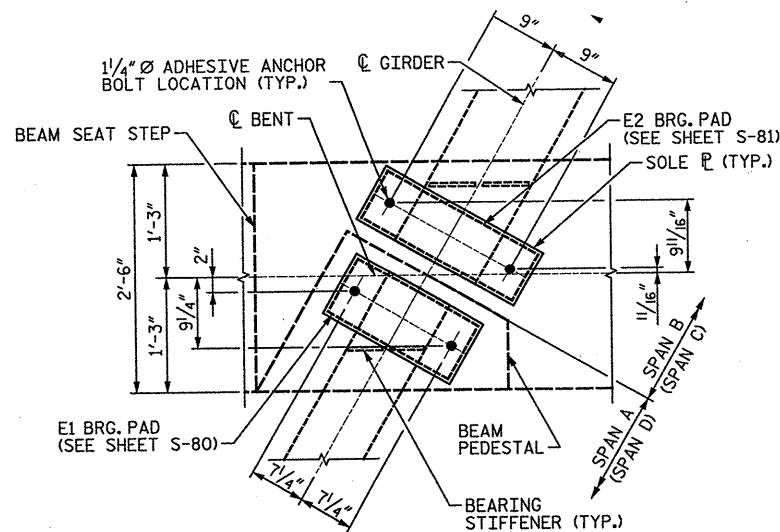
6/15/2012

DRAWN BY : AFM DATE : 05-12
 CHECKED BY : AC DATE : 05-12

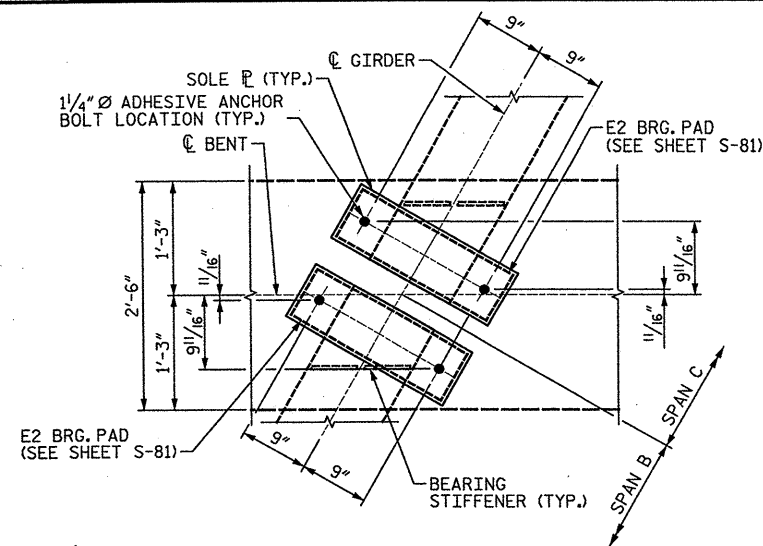
ADDED NOTES, REV. ANCHOR BOLTS



**ANCHOR BOLT PLACEMENT
 DETAIL - END BENT 1 & 2**
 (END BENT 2 SHOWN IN PARENTHESIS)



**ANCHOR BOLT PLACEMENT
 DETAIL - BENT 1 & 3**
 (BENT 3 SHOWN IN PARENTHESIS)



**ANCHOR BOLT PLACEMENT
 DETAIL - BENT 2**

NOTES

EXISTING ANCHOR BOLTS WILL BE CUT AND GROUND FLUSH WITH TOP OF CAP.

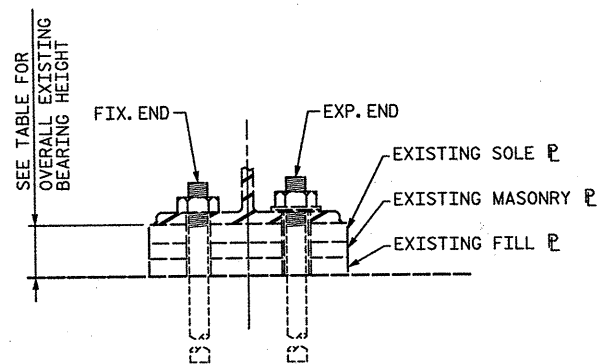
ADHESIVE ANCHOR BOLTS FOR BENT AND END BENT CAPS SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS WITH A SAFE WORKING LOAD OF 20 KIPS TENSION AND 12 KIPS SHEAR.

REMOVAL OF EXISTING ANCHOR BOLTS, INSTALLATION OF PROPOSED ADHESIVELY ANCHORED BOLTS, AND ALL WORK, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE ACCEPTED WORK, SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

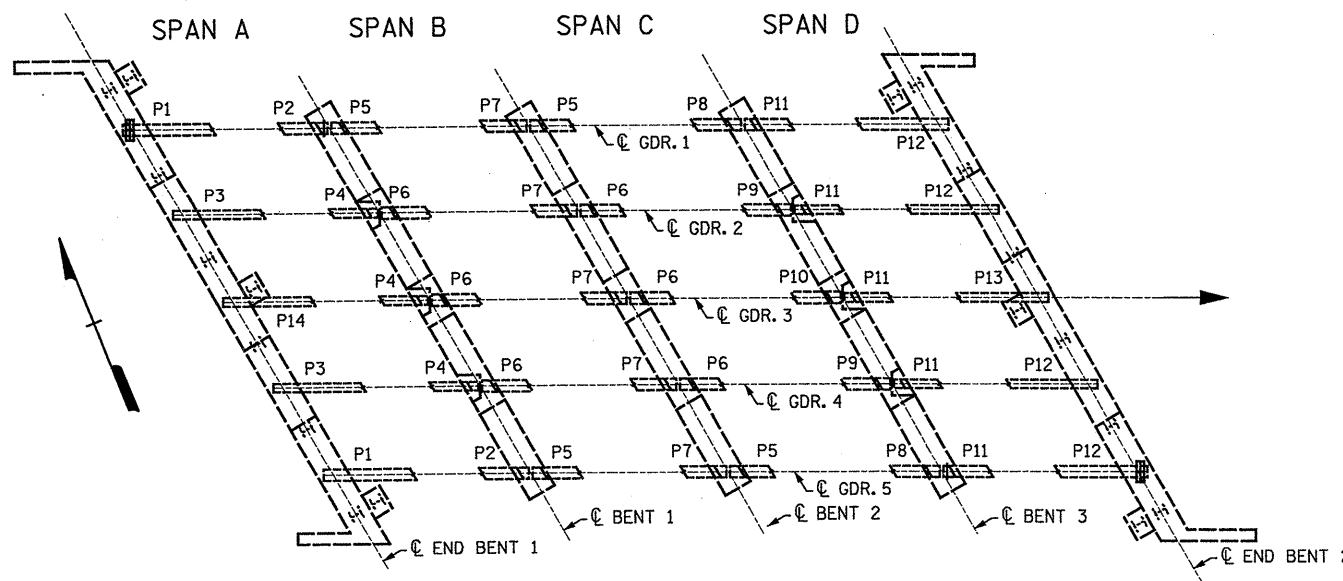
APPLY AN EPOXY PROTECTIVE COATING TO TOP SURFACES OF BENT AND END BENT CAPS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PRIOR TO APPLICATION THE CAPS SHALL BE THOROUGHLY CLEANED BY POWER WASHING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE ELASTOMERIC BEARING INSTALLATION, NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.

FOR ELASTOMERIC BEARING DETAILS, SEE SHEETS S-80 & S-81.

FOR SOLE PLATE DETAILS, SEE SHEETS S-80 & S-81.



END VIEW - EXISTING BEARINGS



SOLE PLATE LOCATION PLAN
 (SEE SHEET S-80 FOR SOLE PLATE DIMENSIONS)

EXISTING BEAM SEAT ELEVATIONS*							
GIRDER	END BENT 1	BENT 1		BENT 2	BENT 3		END BENT 2
	SPAN A	SPAN A	SPAN B	SPAN B & C	SPAN C	SPAN D	SPAN D
G1	681.06	681.29	681.29	681.33	680.55	680.55	680.00
G2	682.17	682.41	681.45	681.45	680.63	681.57	681.00
G3	682.24	682.54	681.59	681.54	680.63	681.63	681.00
G4	682.24	682.44	681.49	681.40	680.50	681.44	680.84
G5	681.20	681.37	681.37	681.24	680.30	680.30	679.68

* ELEVATIONS SHOWN ARE BASED ON AS-BUILT PLANS & ARE FOR INFORMATION ONLY. THE CONTRACTOR MUST VERIFY ALL ELEVATIONS BEFORE COMMENCING WORK.



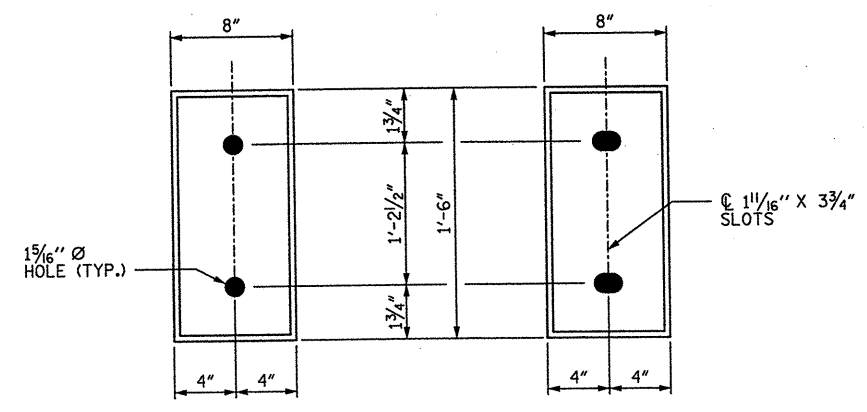
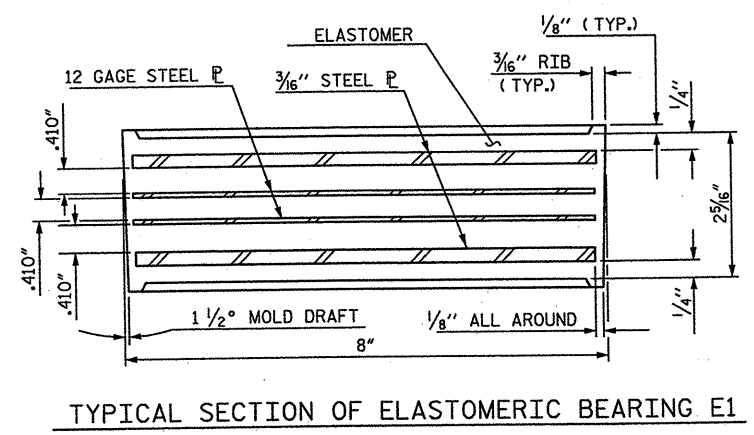
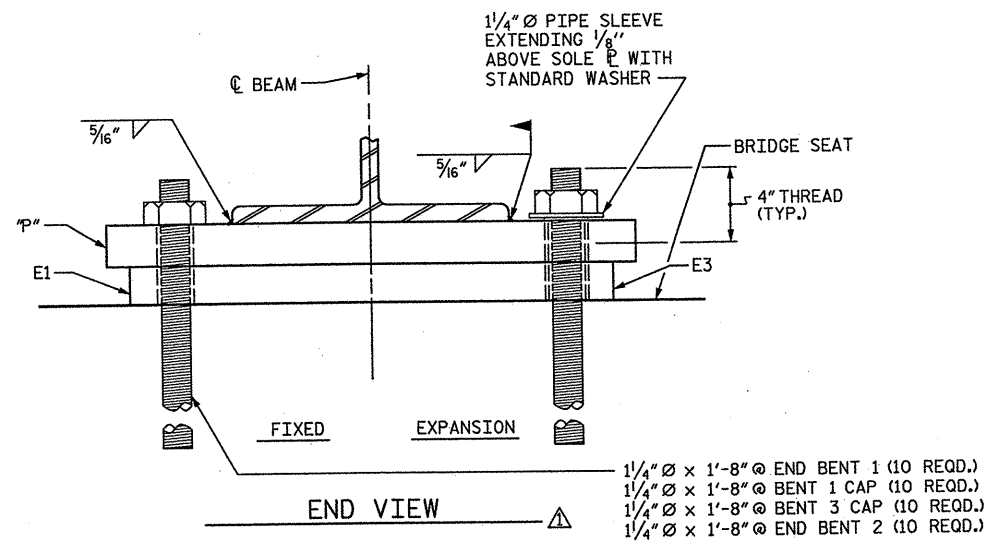
PROJECT NO. 17BP.9.H.2
 ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BEARING REPLACEMENT
 PLAN

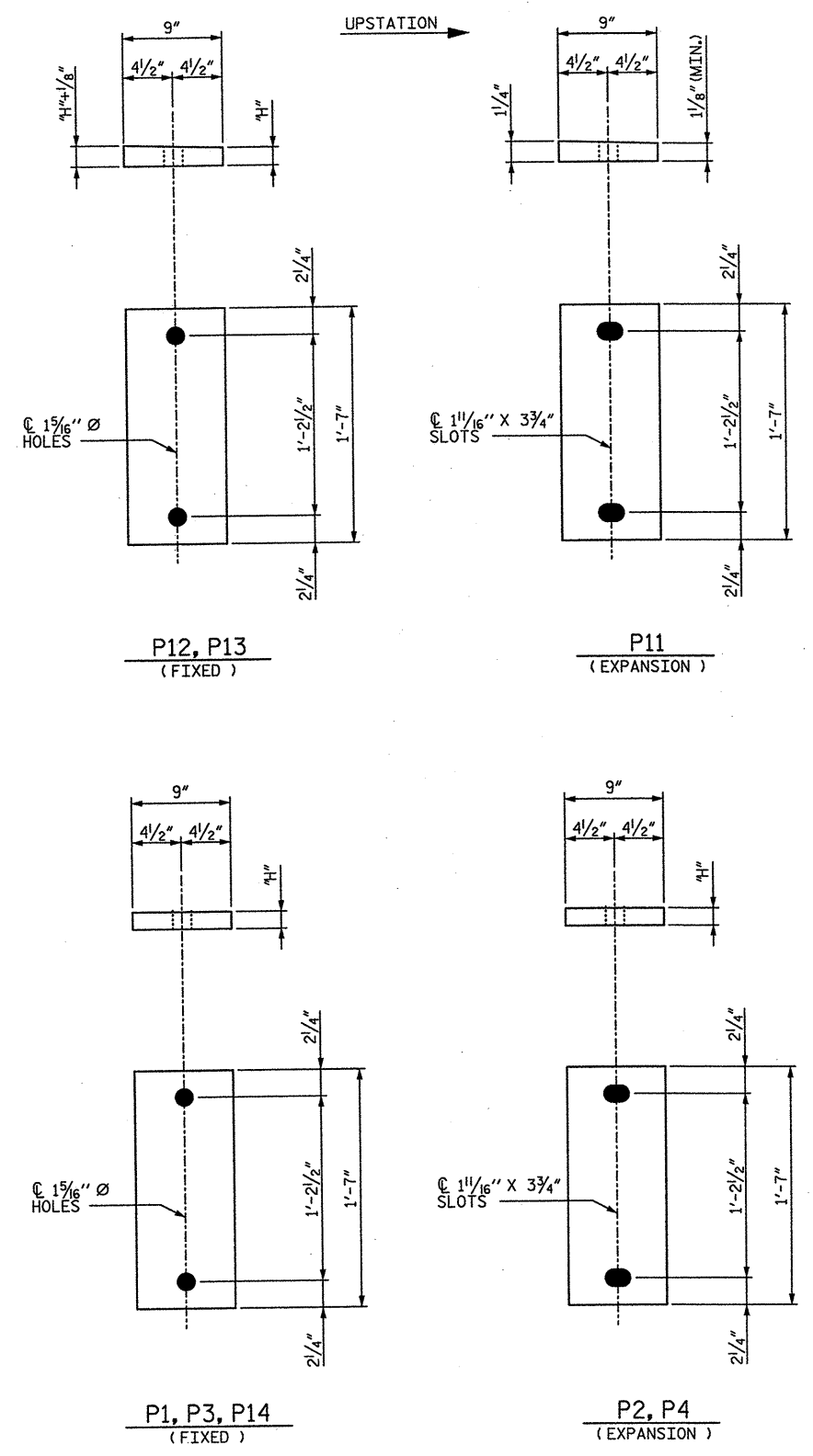
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 93

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 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991



E1 (20 REQ'D) E3 (20 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING



SOLE PLATE DETAILS ("P")

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 1/4" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

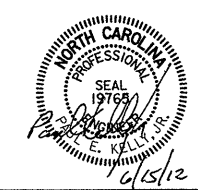
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

SOLE PLATE			
TYPE	"H"	"W"	REQ'D
P1	1 1/16"	9"	2
P2	1 5/16"	9"	2
P3	1 3/16"	9"	2
P4	1 1/4"	9"	3
P5	1 3/16"	8"	4
P6	1 1/8"	8"	6
P7	1 3/16"	8"	5
P8	1 1/8"	8"	2
P9	1 1/16"	8"	2
P10	1 11/16"	8"	1
P11	1 1/8"	8"	5
P12	1 1/8"	9"	4
P13	1 3/16"	9"	1
P14	2 3/16"	9"	1

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
BRIDGE NO.: 065
REHAB. OF BRIDGE NO. 065 SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS



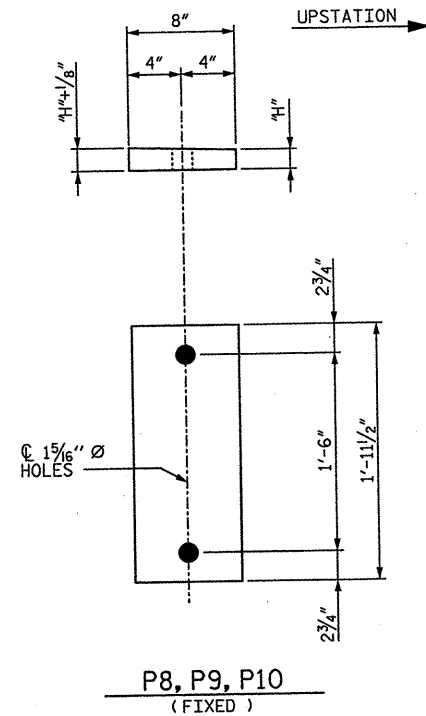
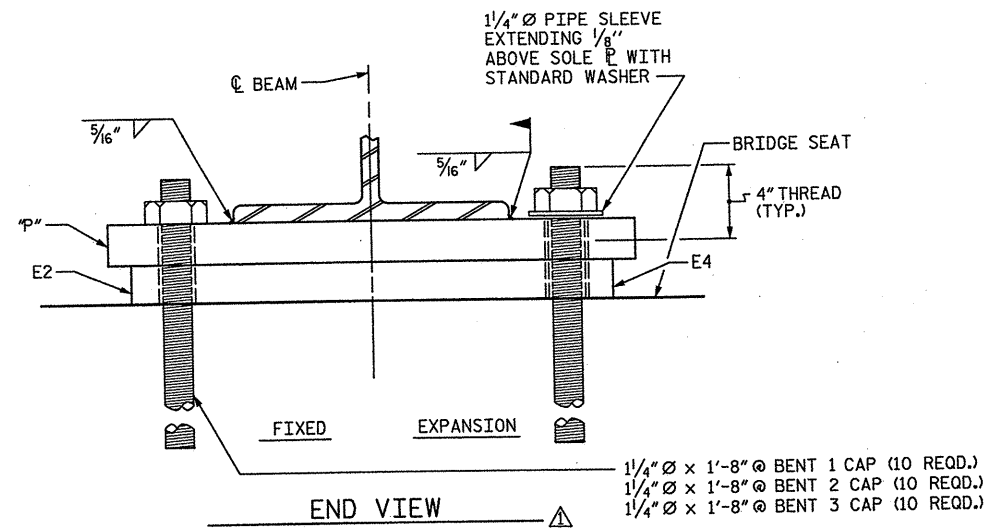
REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	S-80	
1	STV	6-12	3			TOTAL SHEETS	93
2			4				

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Charlotte, NC 28208
NC License No. F-0991

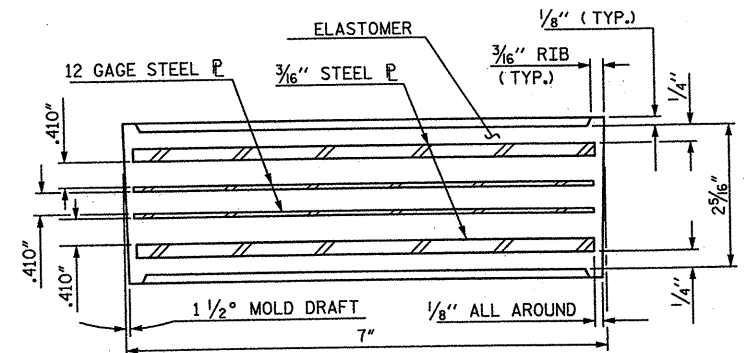
6/15/2012 WUVM IN:\Projects\2515384\2515384_0001\50.Deliverables & Submittals\17BP.9.H.2.Structures\17BP.9.H.2.Bearing Details.dgn

NOTES

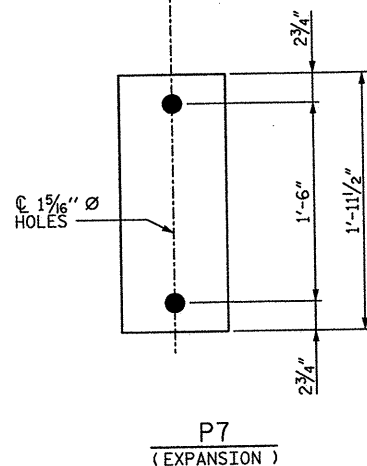
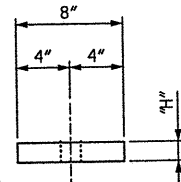
SEE SHEET S-80 FOR NOTES.



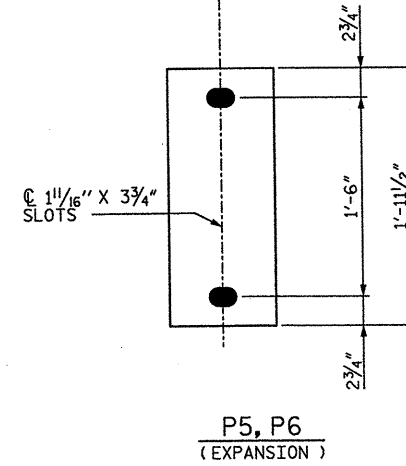
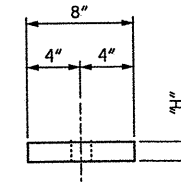
P8, P9, P10
(FIXED)



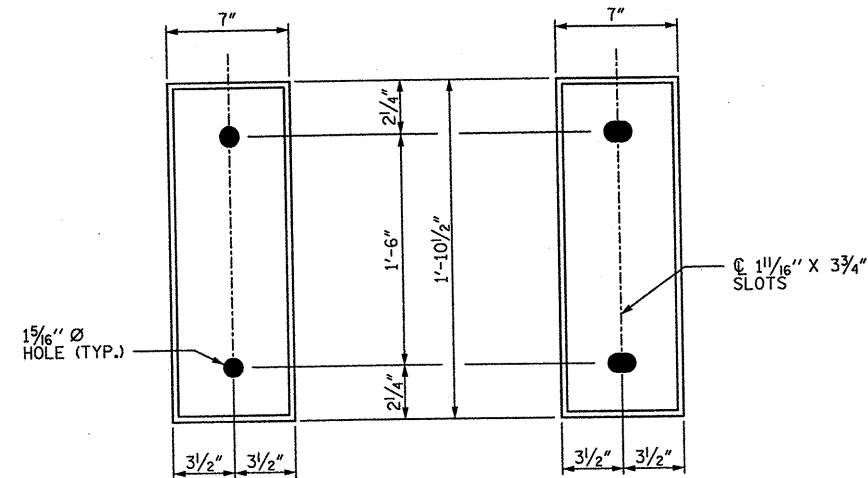
TYPICAL SECTION OF ELASTOMERIC BEARING E2



P7
(EXPANSION)



P5, P6
(EXPANSION)



E2 (20 REQ'D) E4 (20 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

SOLE PLATE DETAILS ("P")

PROJECT NO. 17BP.9.H.2
DAVIDSON COUNTY
BRIDGE NO.: 065

REHAB. OF BRIDGE NO. 031 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-81	
1	STV	6-12	3			TOTAL SHEETS	93
2			4				

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Charlotte, NC 28208
NC License No. F-0991

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6/15/2012 WJVM

DRAWN BY : ACA DATE : 06-12
CHECKED BY : PEK DATE : 06-12

REV. ANCHOR BOLT, ELAST. BEARING, AND SOLE P

DEAD LOAD DEFLECTION TABLE FOR BEAMS																						
TENTH POINTS	SPANS A & D																					
	GIRDER 1 & 5											GIRDERS 2, 3 & 4										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.000	0.000	0.002	0.003	0.004	0.005	0.005	0.005	0.004	0.003	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.003	0.005	0.007	0.008	0.008	0.008	0.007	0.005	0.003	0.000	0.000	0.011	0.020	0.027	0.032	0.034	0.032	0.027	0.020	0.011	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.003	0.007	0.009	0.011	0.011	0.011	0.009	0.007	0.003	0.000	0.000	0.013	0.024	0.032	0.038	0.040	0.038	0.032	0.024	0.013	0.000

TENTH POINTS	SPANS B & C																					
	GIRDER 1											GIRDER 3										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.021	0.038	0.051	0.059	0.063	0.060	0.052	0.038	0.021	0.000	0.000	0.022	0.041	0.055	0.064	0.067	0.064	0.055	0.040	0.022	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.061	0.109	0.145	0.168	0.179	0.171	0.147	0.109	0.061	0.000	0.000	0.077	0.140	0.188	0.219	0.230	0.219	0.188	0.138	0.075	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.004	0.008	0.010	0.012	0.013	0.012	0.010	0.008	0.004	0.000	0.000	0.004	0.008	0.011	0.012	0.013	0.012	0.011	0.008	0.004	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.087	0.155	0.206	0.239	0.254	0.243	0.208	0.155	0.087	0.000	0.000	0.104	0.188	0.254	0.295	0.310	0.295	0.253	0.185	0.101	0.000

TENTH POINTS	GIRDERS 2 & 4																					
	GIRDERS 2 & 4											GIRDER 5										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.022	0.041	0.055	0.064	0.067	0.064	0.055	0.040	0.022	0.000	0.000	0.022	0.039	0.051	0.059	0.062	0.060	0.051	0.037	0.021	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.075	0.137	0.185	0.214	0.225	0.215	0.184	0.135	0.073	0.000	0.000	0.062	0.111	0.146	0.168	0.177	0.170	0.146	0.107	0.059	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.004	0.008	0.011	0.012	0.013	0.012	0.010	0.008	0.004	0.000	0.000	0.004	0.008	0.010	0.012	0.012	0.012	0.010	0.007	0.004	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.102	0.185	0.250	0.290	0.305	0.290	0.249	0.182	0.099	0.000	0.000	0.088	0.158	0.208	0.239	0.251	0.242	0.208	0.151	0.084	0.000

NOTE:
CONTRACTOR IS RESPONSIBLE FOR VERIFYING CAMBER OF EXISTING STEEL GIRDERS.

AS-BUILT CAMBER	
SPANS A & D - ALL GIRDERS	*
SPANS B & C - ALL GIRDERS	4 ¹³ / ₁₆ "

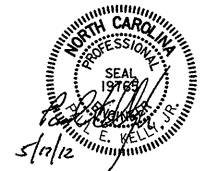
*NO AS-BUILT SHOP CAMBER
CAMBER VALUE REPORTED AT MID-SPAN OF GIRDER

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM).

VERTICAL CURVE ORDINATE TABLE FOR BEAMS																						
TENTH POINTS	SPAN A											SPAN B										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
	GIRDER 1	0.000	0.034	0.066	0.097	0.126	0.153	0.180	0.204	0.227	0.249	0.269	0.000	0.041	0.074	0.099	0.115	0.123	0.123	0.115	0.098	0.073
GIRDER 2	0.000	0.032	0.062	0.091	0.119	0.145	0.169	0.192	0.213	0.233	0.252	0.000	0.037	0.066	0.087	0.099	0.103	0.099	0.086	0.065	0.036	-0.001
GIRDER 3	0.000	0.030	0.059	0.086	0.112	0.136	0.159	0.180	0.199	0.218	0.234	0.000	0.033	0.058	0.074	0.083	0.082	0.074	0.057	0.033	-0.001	-0.042
GIRDER 4	0.000	0.028	0.055	0.081	0.105	0.127	0.148	0.168	0.186	0.202	0.217	0.000	0.029	0.050	0.062	0.066	0.062	0.050	0.029	0.000	-0.037	-0.083
GIRDER 5	0.000	0.027	0.052	0.076	0.098	0.119	0.138	0.155	0.172	0.186	0.199	0.000	0.025	0.041	0.050	0.050	0.042	0.025	0.000	-0.033	-0.074	-0.124

TENTH POINTS	SPAN C											SPAN D										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
	GIRDER 1	0.000	-0.042	-0.091	-0.150	-0.216	-0.291	-0.374	-0.465	-0.564	-0.672	-0.788	0.000	-0.052	-0.106	-0.161	-0.217	-0.276	-0.335	-0.396	-0.459	-0.523
GIRDER 2	0.000	-0.046	-0.100	-0.162	-0.232	-0.311	-0.398	-0.494	-0.597	-0.709	-0.829	0.000	-0.054	-0.109	-0.166	-0.224	-0.284	-0.346	-0.409	-0.473	-0.539	-0.606
GIRDER 3	0.000	-0.050	-0.108	-0.174	-0.249	-0.332	-0.423	-0.522	-0.630	-0.746	-0.870	0.000	-0.056	-0.113	-0.171	-0.231	-0.293	-0.356	-0.421	-0.487	-0.555	-0.624
GIRDER 4	0.000	-0.054	-0.116	-0.186	-0.265	-0.352	-0.447	-0.551	-0.663	-0.783	-0.911	0.000	-0.057	-0.116	-0.177	-0.238	-0.302	-0.367	-0.433	-0.501	-0.570	-0.641
GIRDER 5	0.000	-0.058	-0.124	-0.199	-0.281	-0.372	-0.472	-0.579	-0.695	-0.819	-0.952	0.000	-0.059	-0.120	-0.182	-0.245	-0.310	-0.377	-0.445	-0.515	-0.586	-0.659

ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM).



PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
BRIDGE NO.: 065
REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DEAD LOAD DEFLECTIONS

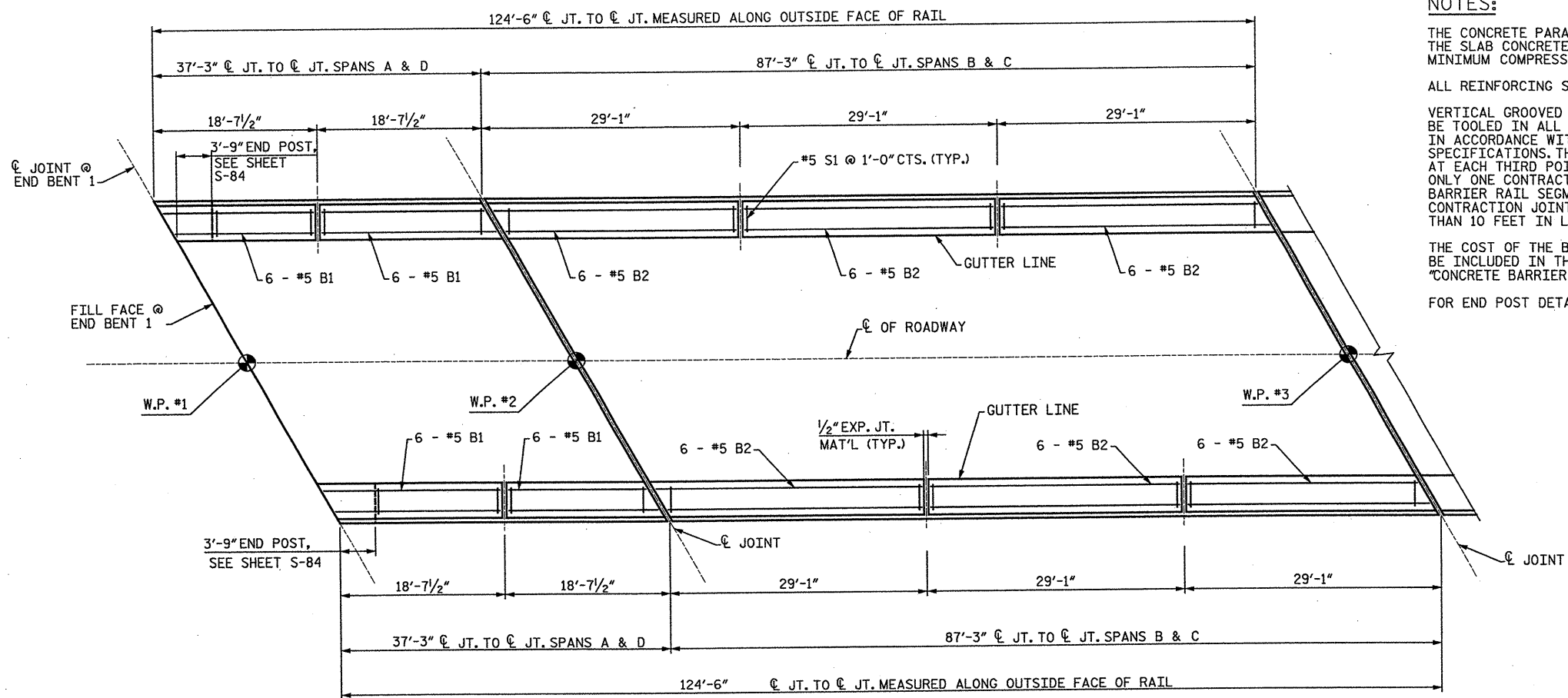
DRAWN BY : AFM DATE : 05-12
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-82
1			3			TOTAL SHEETS
2			4			93

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 5/17/2012



HALF PLAN OF CONCRETE PARAPET - SPANS A & B
(SPANS C & D MIRRORED)

NOTES:

THE CONCRETE PARAPET IN SPAN "A" SHALL NOT BE CAST UNTIL THE SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

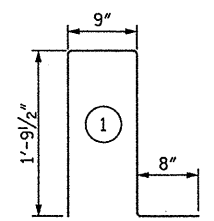
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS, THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LINEAR FOOT CONTRACT PRICE BID FOR "CONCRETE BARRIER RAIL".

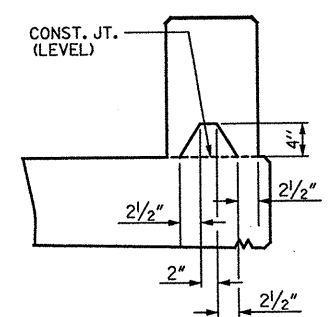
FOR END POST DETAILS, SEE SHEET S-84.

BAR TYPES

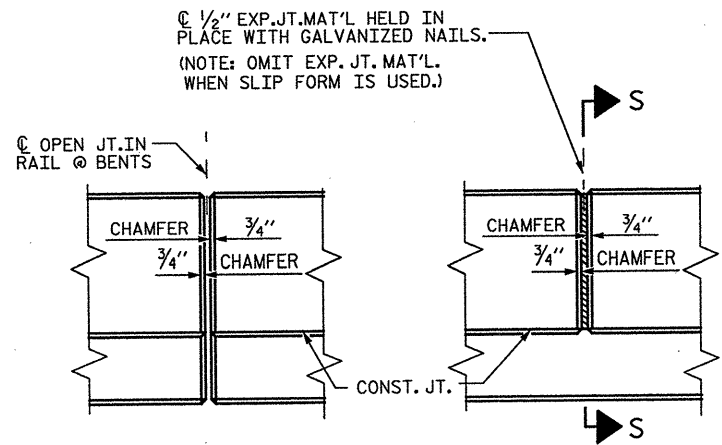


BILL OF MATERIAL

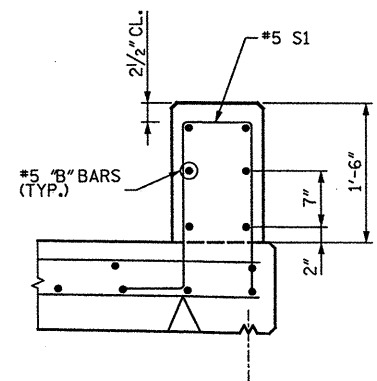
FOR CONCRETE PARAPET ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	48	#5	STR	18'-1"	906
* B2	72	#5	STR	28'-7"	2148
* S1	469	#5	①	5'-0"	2448
* EPOXY COATED REINFORCING STEEL				LBS.	5502
CLASS AA LIGHTWEIGHT CONCRETE				C. Y.	27
LIGHTWEIGHT CONCRETE PARAPET				L.F.	483



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

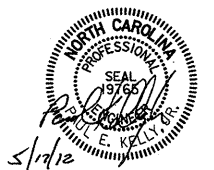


ELEVATION AT EXPANSION JOINTS



SECTION THRU RAIL

CONCRETE PARAPET DETAILS



PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

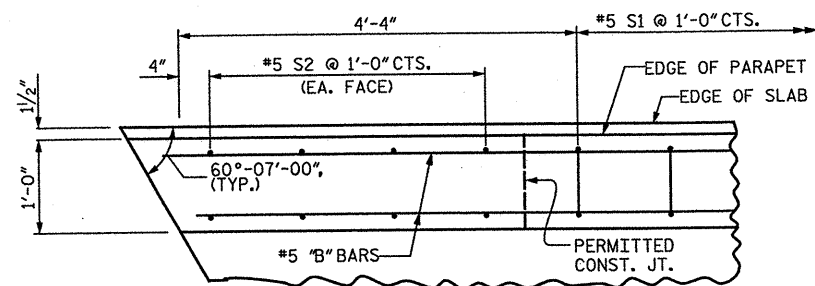
CONCRETE PARAPET

DRAWN BY: **KMG** DATE: **05-12**
 CHECKED BY: **AC** DATE: **05-12**

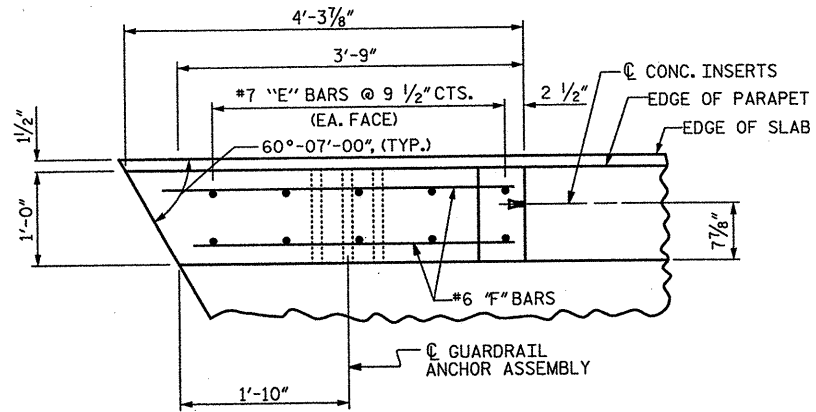
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REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
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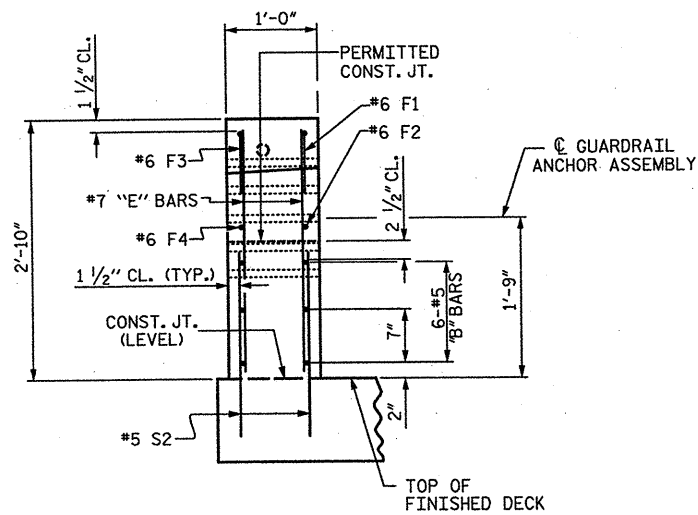
TOTAL SHEETS: 93



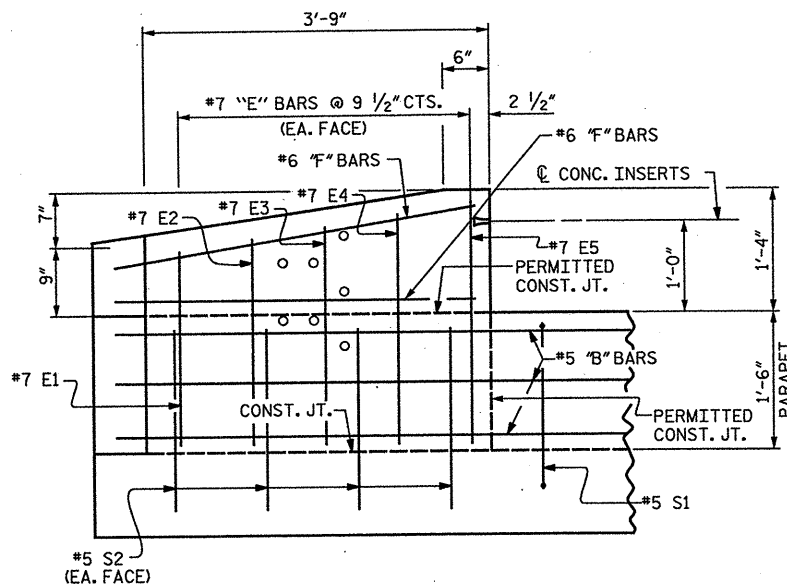
PLAN OF PARAPET



PLAN OF END POST



END VIEW

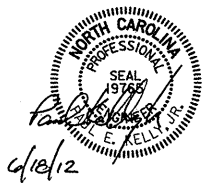


ELEVATION

PARAPET AND END POST FOR ONE BAR RAIL

ONE BAR METAL RAIL					
BILL OF MATERIAL FOR PARAPET AND TWO END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*E1	4	#7	STR	2'-0"	16
*E2	4	#7	STR	2'-2"	18
*E3	4	#7	STR	2'-4"	19
*E4	4	#7	STR	2'-6"	20
*E5	4	#7	STR	2'-7"	21
*F1	4	#6	STR	3'-3"	20
*F2	4	#6	STR	3'-3"	20
*F3	4	#6	STR	3'-9"	23
*F4	4	#6	STR	3'-9"	23
*S2	16	#5	STR	2'-0"	33
* EPOXY COATED REINFORCING STEEL					213 LBS.
CLASS AA LIGHTWEIGHT CONCRETE					0.8 C. Y.

** SEE SHEET S-83 FOR CONCRETE PARAPET PLAN & QUANTITIES.



PROJECT NO. 17BP.9.H.2
 ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 END POST
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-84
1	STV	6-12	3			TOTAL SHEETS
2			4			93

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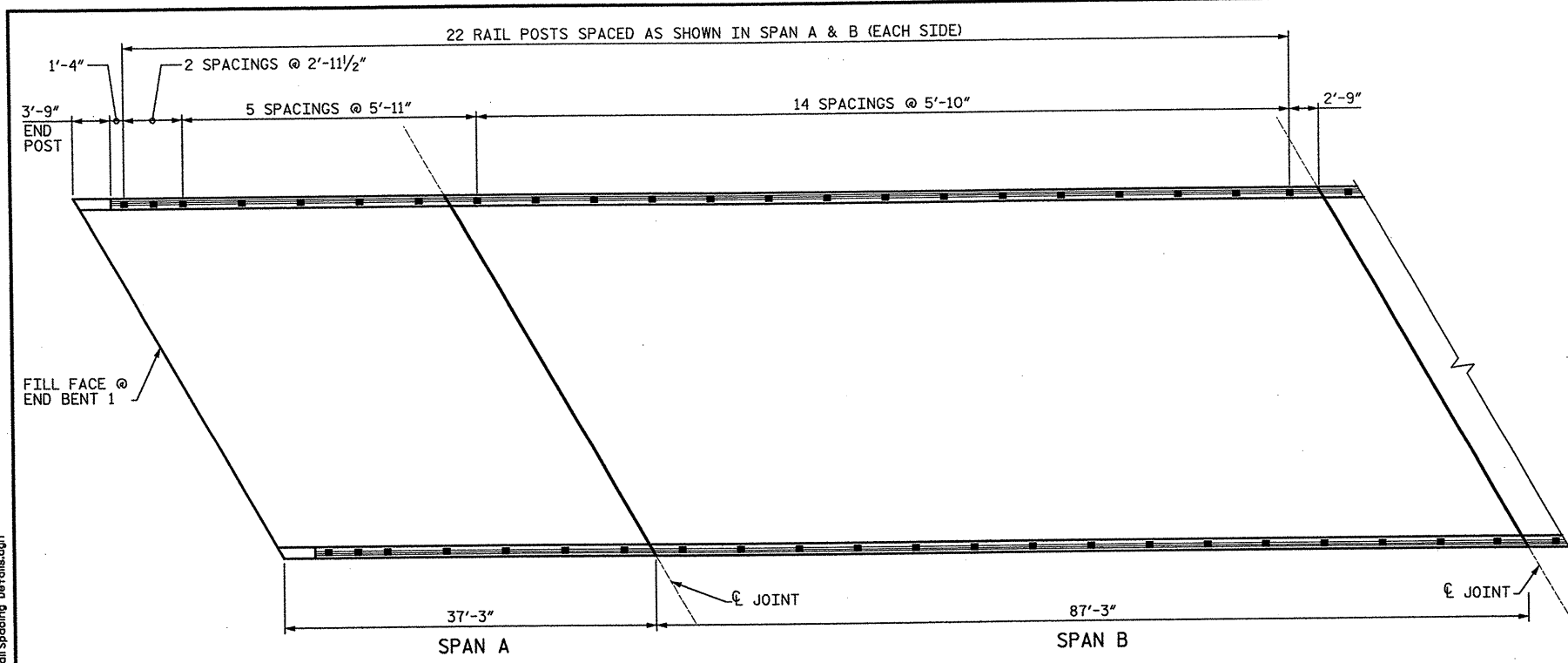
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 CHECKED BY: AC DATE: 05-12 REV. PER NCDOT COMMENTS

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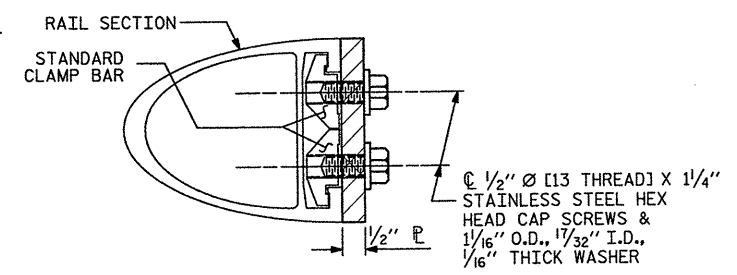
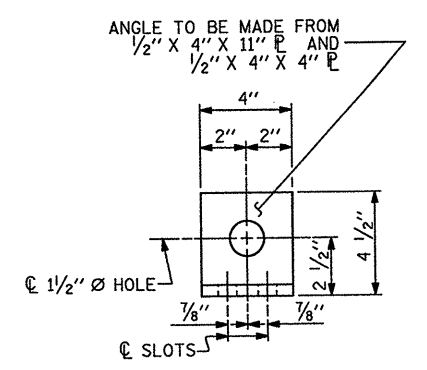
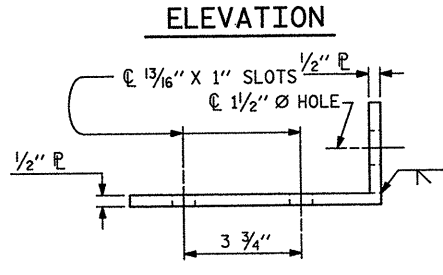
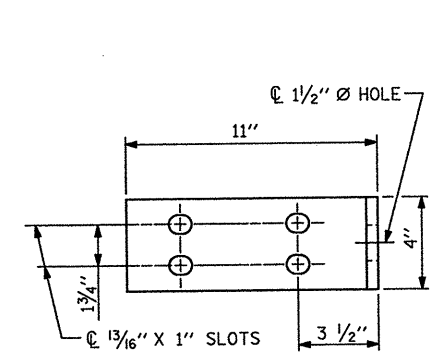
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 5/17/2012

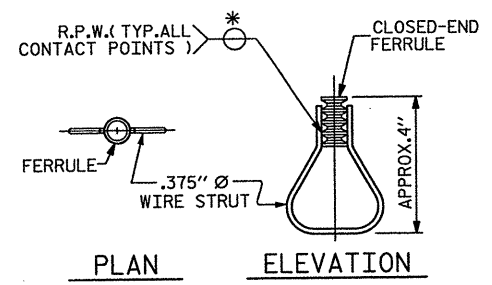


PLAN OF RAIL POST SPACINGS

(SPANS C & D MIRRORED)

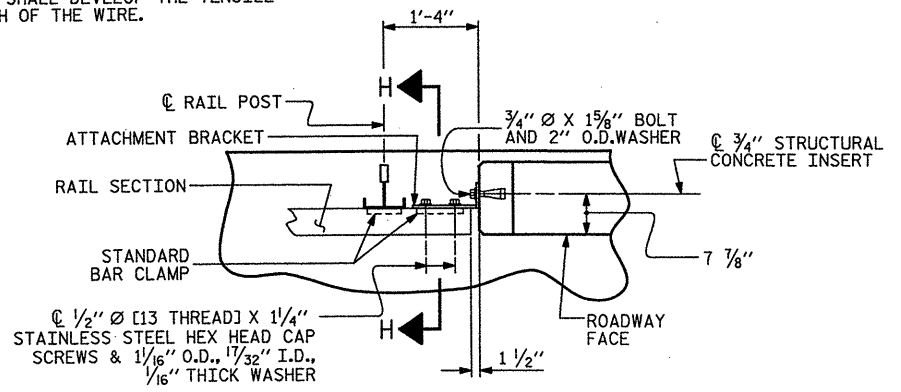


FIXED



STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N.C. THREADS.
 - C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.
 - D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 RAIL POST SPACINGS
 AND
 END OF RAIL DETAILS
 FOR ONE OR TWO BAR METAL RAILS

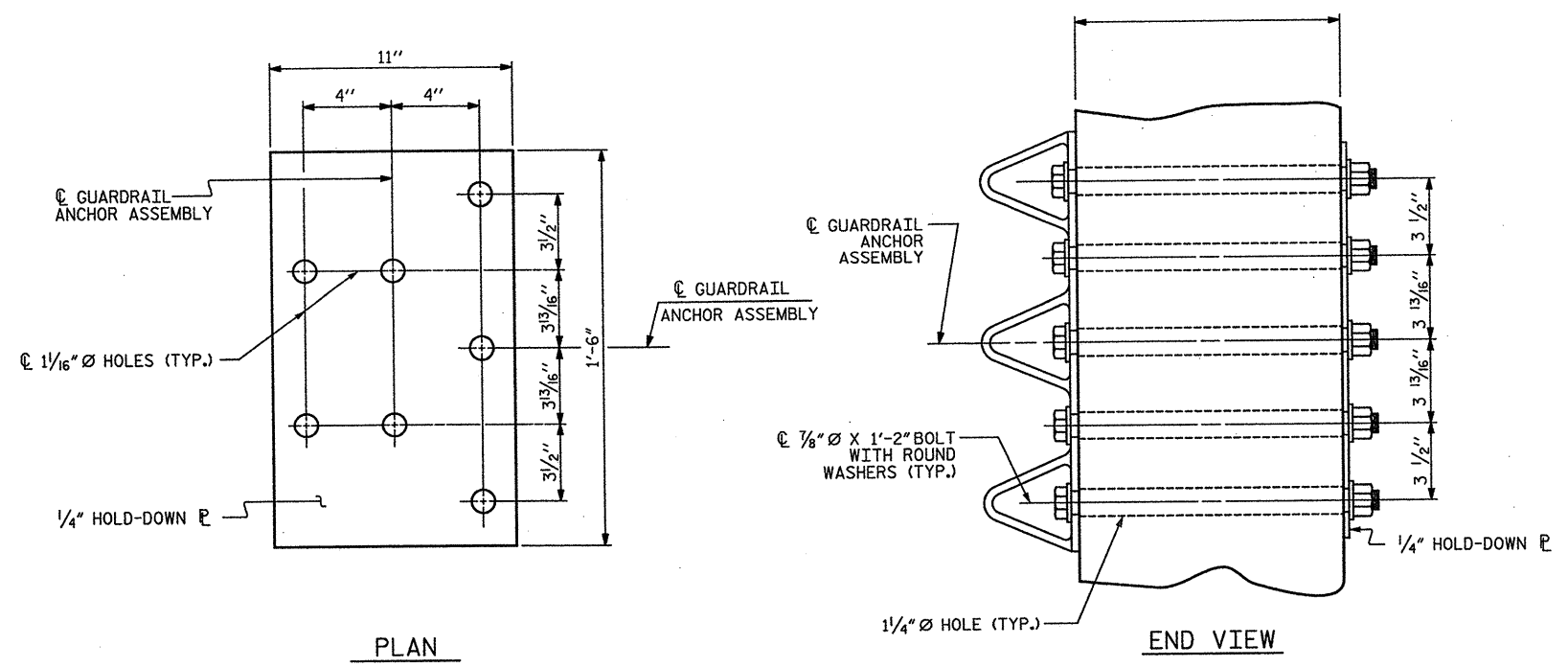
REVISIONS						SHEET NO. S-86
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

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STD. NO. BMR2

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5/17/2012
dlveyac



GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 3/8" Ø BOLTS WITH NUTS AND WASHERS.

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 3/8" 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.

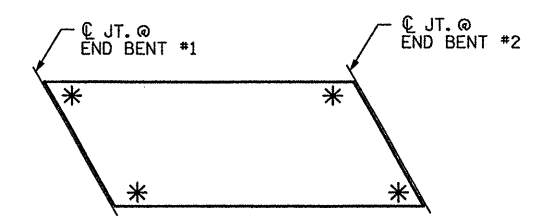
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

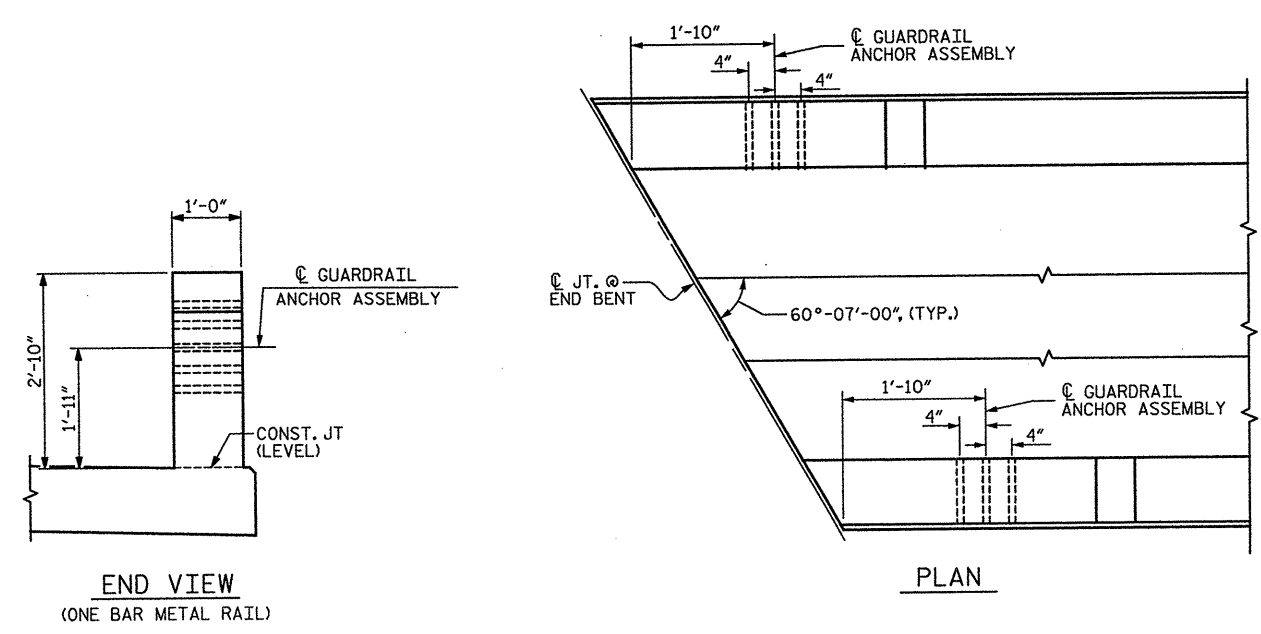
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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.



SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST



PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD GUARDRAIL ANCHORAGE DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					93

DRAWN BY : KMG DATE : 05-12
 CHECKED BY : AC DATE : 05-12

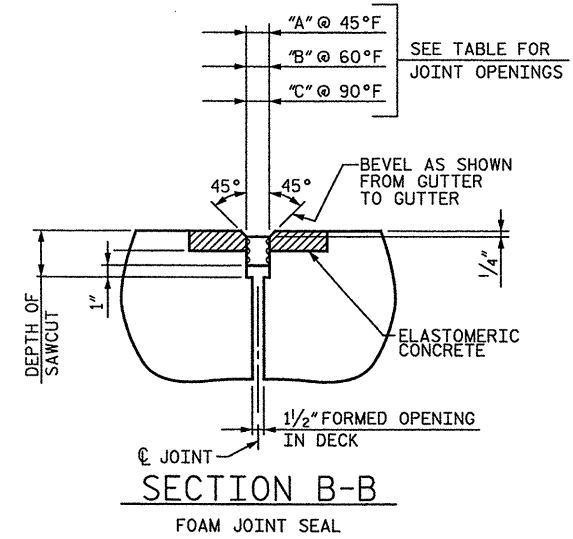
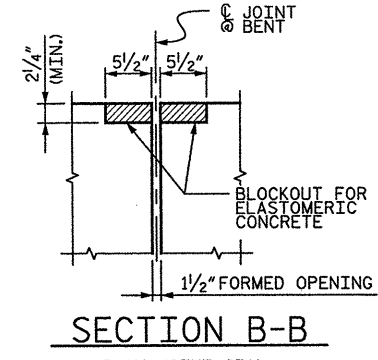
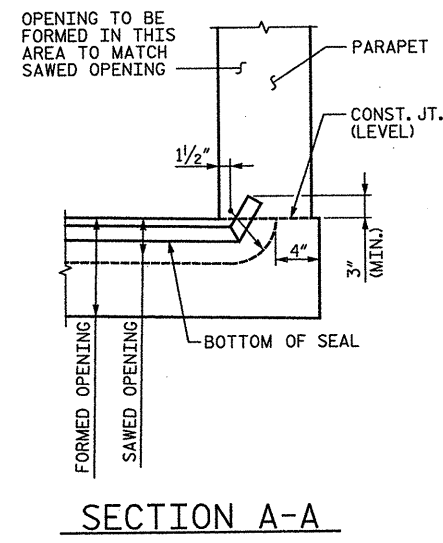
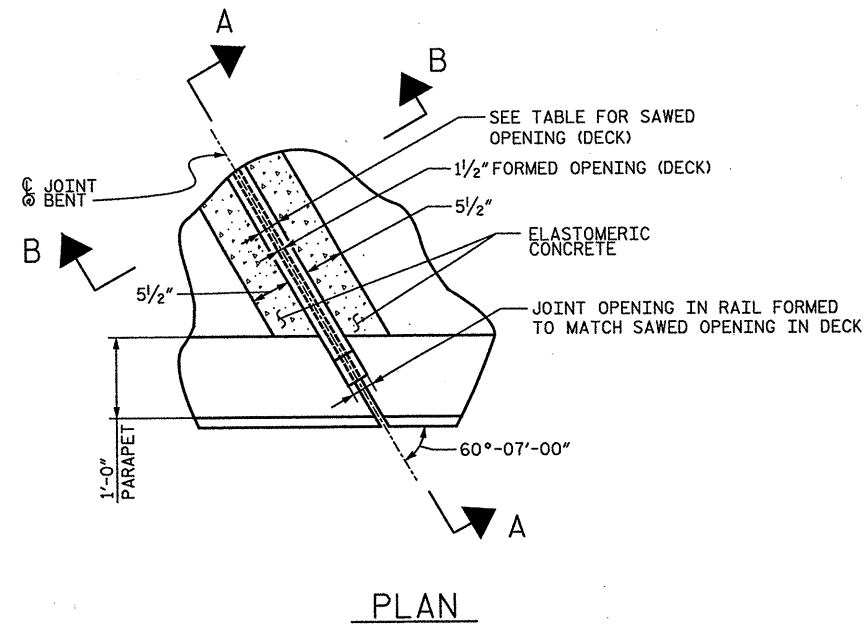
**PROGRESS SET
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STD. NO. GRA3

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5/17/2012 dlveycc



PLAN

SECTION A-A

SECTION B-B

SECTION B-B

FOAM JOINT SEAL TO BE CUT, HEAT WELDED, AND TURNED UP AT A 60° ANGLE FROM THE BASE OF THE PARAPET.

FOAM JOINT SEAL (PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)

MOVEMENT AND SETTING AT FOAM JOINT						
BENT NO.	SKREW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG C RDWY.)	PERPENDICULAR JOINT OPENING AT 45°F ("A")	PERPENDICULAR JOINT OPENING AT 60°F ("B")	PERPENDICULAR JOINT OPENING AT 90°F ("C")
B1 & B3	60°-07'-00"	2 1/2"	1"	2 1/16"	1 7/8"	1 7/16"
B2	60°-07'-00"	2 1/2"	3/4"	2"	1 7/8"	1 7/8"

BILL OF MATERIAL	
BENT NO.	ELASTOMERIC CONCRETE * (CU.FT.)
B1 & B3	6.2
B2	6.2

*BASED ON MINIMUM BLOCKOUT SHOWN, BASED ON MINIMUM BLOCKOUT WIDTH SHOWN AND AVERAGE CONCRETE WEARING THICKNESS.



PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 JOINT SEAL
 DETAILS

DRAWN BY : KMG DATE : 05-12
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REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	

S-88
 TOTAL SHEETS
 93

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"			

GROOVING BRIDGE FLOORS

APPROACH SLABS	930	SQ.FT.
BRIDGE DECK	7657	SQ.FT.
TOTAL	8587	SQ.FT.

— SUPERSTRUCTURE BILL OF MATERIAL —

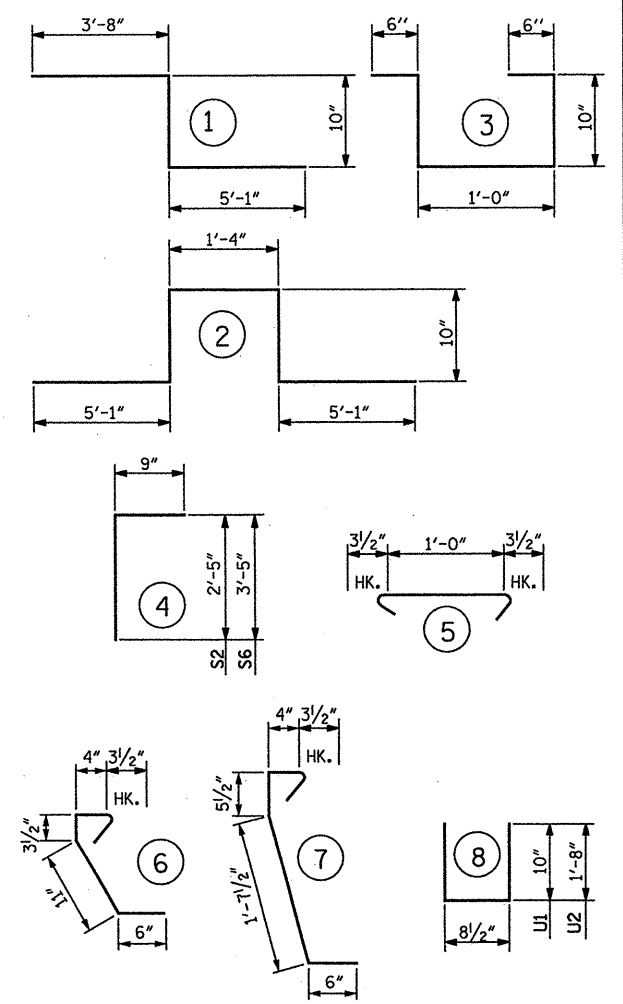
	CLASS AA LIGHTWEIGHT CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN A		5117	3885
POUR 1	41.6		
SPAN B		11004	8257
POUR 2	90.1		
SPAN C		11004	8257
POUR 3	90.1		
SPAN D		5117	3885
POUR 4	41.6		
TOTALS**	263.4	32242	24284

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

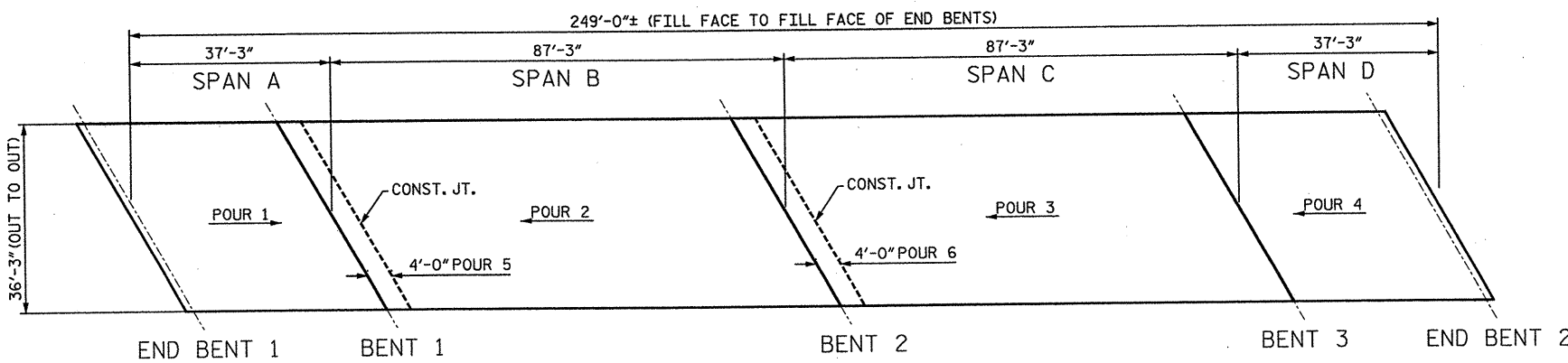
BILL OF MATERIAL

SPAN A OR D					SPAN B OR C						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	33	#5	STR	35'-11"	1237	*A1	133	#5	STR	35'-11"	4987
A2	33	#5	STR	35'-11"	1237	A2	133	#5	STR	35'-11"	4987
*A101	6	#5	STR	2'-2"	14	*A101	6	#5	STR	2'-2"	14
*A102	6	#5	STR	4'-9"	30	*A102	6	#5	STR	4'-9"	30
*A103	6	#5	STR	7'-4"	46	*A103	6	#5	STR	7'-4"	46
*A104	6	#5	STR	9'-11"	62	*A104	6	#5	STR	9'-11"	62
*A105	6	#5	STR	12'-6"	78	*A105	6	#5	STR	12'-6"	78
*A106	6	#5	STR	15'-1"	95	*A106	6	#5	STR	15'-1"	95
*A107	6	#5	STR	17'-8"	111	*A107	6	#5	STR	17'-8"	111
*A108	6	#5	STR	20'-3"	127	*A108	6	#5	STR	20'-3"	127
*A109	6	#5	STR	22'-10"	143	*A109	6	#5	STR	22'-10"	143
*A110	6	#5	STR	25'-5"	159	*A110	6	#5	STR	25'-5"	159
*A111	6	#5	STR	28'-0"	175	*A111	6	#5	STR	28'-0"	175
*A112	6	#5	STR	30'-7"	192	*A112	6	#5	STR	30'-7"	192
*A113	6	#5	STR	33'-2"	208	*A113	6	#5	STR	33'-2"	208
A201	6	#5	STR	2'-2"	14	A201	6	#5	STR	2'-2"	14
A202	6	#5	STR	4'-9"	30	A202	6	#5	STR	4'-9"	30
A203	6	#5	STR	7'-4"	46	A203	6	#5	STR	7'-4"	46
A204	6	#5	STR	9'-11"	62	A204	6	#5	STR	9'-11"	62
A205	6	#5	STR	12'-6"	78	A205	6	#5	STR	12'-6"	78
A206	6	#5	STR	15'-1"	95	A206	6	#5	STR	15'-1"	95
A207	6	#5	STR	17'-8"	111	A207	6	#5	STR	17'-8"	111
A208	6	#5	STR	20'-3"	127	A208	6	#5	STR	20'-3"	127
A209	6	#5	STR	22'-10"	143	A209	6	#5	STR	22'-10"	143
A210	6	#5	STR	25'-5"	159	A210	6	#5	STR	25'-5"	159
A211	6	#5	STR	28'-0"	175	A211	6	#5	STR	28'-0"	175
A212	6	#5	STR	30'-7"	192	A212	6	#5	STR	30'-7"	192
A213	6	#5	STR	33'-2"	208	A213	6	#5	STR	33'-2"	208
*B1	50	#4	STR	19'-4"	646	*B3	75	#4	STR	30'-4"	1520
B2	48	#5	STR	36'-7"	1833	B4	96	#5	STR	44'-6"	4456
*G1	3	#5	STR	41'-3"	129	*G1	2	#5	STR	41'-3"	86
*K1	4	#5	①	9'-7"	40	*K1	8	#5	①	9'-7"	80
*K2	6	#5	②	11'-6"	72	*K2	12	#5	②	11'-6"	144
K3	8	#5	STR	41'-3"	345						
K4	4	#5	STR	8'-6"	36	S1	64	#4	③	2'-10"	121
*S1	32	#4	③	2'-10"	61						
S2	44	#5	④	3'-2"	145						
*S3	39	#4	⑤	1'-7"	42						
*S4	22	#4	⑥	2'-4"	34						
*S5	17	#4	⑦	3'-2 1/2"	36						
*S6	34	#5	④	4'-2"	148						
U1	22	#4	⑧	2'-4 1/2"	35						
U2	17	#4	⑧	4'-1 1/2"	46						
REINFORCING STEEL					5117 LBS.	REINFORCING STEEL					11004 LBS.
*EPOXY COATED REINF. STEEL					3885 LBS.	*EPOXY COATED REINF. STEEL					8257 LBS.
CLASS AA LIGHTWEIGHT CONCRETE					41.6 CU. YDS.	CLASS AA LIGHTWEIGHT CONCRETE					85.0 CU. YDS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 9027)

DECK POURING SEQUENCE:
EACH SPAN SHALL HAVE ONE CONTINUOUS POUR IN THE DIRECTION SHOWN.
POURS 1, 2, 3, AND 4 CAN BE POURED SIMULTANEOUSLY DEPENDING ON CONTRACTOR'S PREFERENCE.
POURS 5 & 6 CAN BE POURED SIMULTANEOUSLY DEPENDING ON CONTRACTOR'S PREFERENCE.

PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
BRIDGE NO.: 065
REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BILL OF MATERIAL

DRAWN BY: KMG DATE: 05-12
CHECKED BY: AC DATE: 05-12

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

TOTAL SHEETS: 93

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6/18/2012

NOTES:

FOR CONCRETE REPAIR DETAILS, SEE SHEET NO. S-93.

CONCRETE SHALL BE SOUNDED TO DETERMINE THE EXTENT OF ALL CONCRETE REPAIRS.

FOR CRACKS REQUIRING EPOXY RESIN INJECTION, SOUNDING MAY PROVE THAT A CONCRETE REPAIR IS NECESSARY.

SPALL, CRACK, AND DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL SPALL, CRACK, AND DELAMINATION DIMENSIONS PRIOR TO MAKING REPAIRS.

THE ENGINEER SHALL BE NOTIFIED OF ANY BARS DAMAGED DURING THE CONCRETE REMOVAL PROCESS. REPAIRS TO DAMAGED BARS SHALL BE DIRECTED BY THE ENGINEER AND COMPLETED AT NO ADDITIONAL COST.

DOWEL LENGTH SHALL BE BASED ON A 9" EMBEDMENT INTO EXISTING CONCRETE AND MAY BE ADJUSTED BASED ON THE MINIMUM EMBEDMENT SPECIFIED BY THE MANUFACTURER OF THE EPOXY ADHESIVE BONDING SYSTEM.

REINFORCING STEEL SHALL BE GRADE 60.

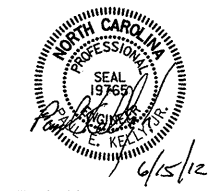
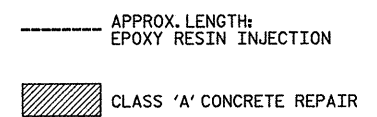
BENT CAP REPAIRS IN BEARING AREAS SHALL BE PERFORMED WITH CLASS A CONCRETE.

SUBSTRUCTURE REPAIRS SHALL PROVIDE A MINIMUM OF 2" CLEAR COVER TO REINFORCING STEEL. REPAIRED AREAS MAY BE BUILT OUT TO ACHIEVE CLEARANCE.

EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP OF ALL BENT CAPS AND THE COST SHALL BE INCLUDED IN THE OTHER BENT REPAIRS.

FOR REPLACEMENT OF BEARINGS SEE SHEET NOS. S-79, S-80, AND S-81.

ALL BEAM SEAT REPAIRS MUST BE PERFORMED BEFORE REPLACEMENT OF EXISTING BEARINGS.

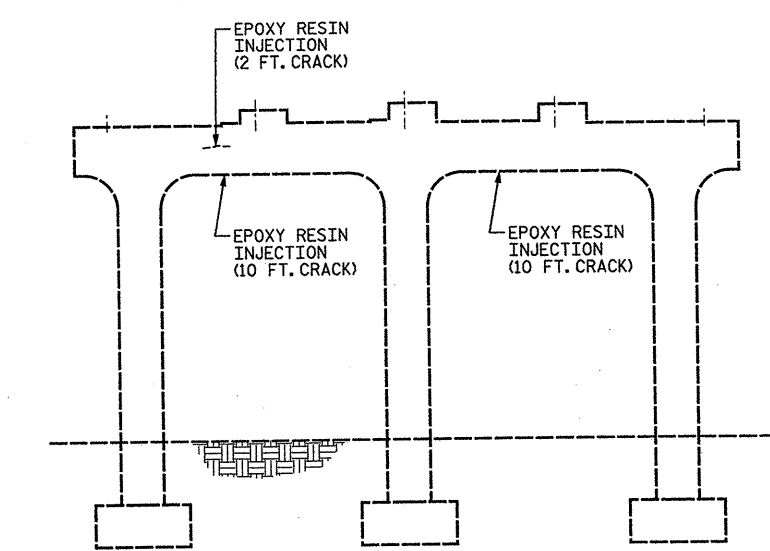


PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 2

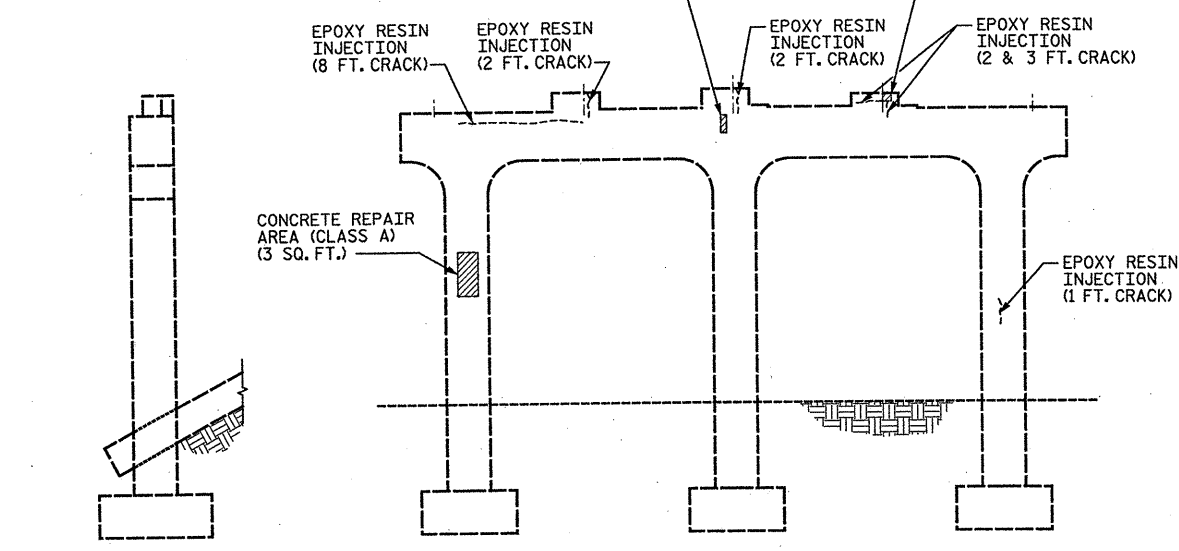
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**BENTS 1 & 3
 SUBSTRUCTURE REPAIRS**
 BRIDGE ON SR 1221
 OVER I-85/US-601

REVISIONS						SHEET NO. S-90
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	STV	6-12	3			TOTAL SHEETS 93
2			4			

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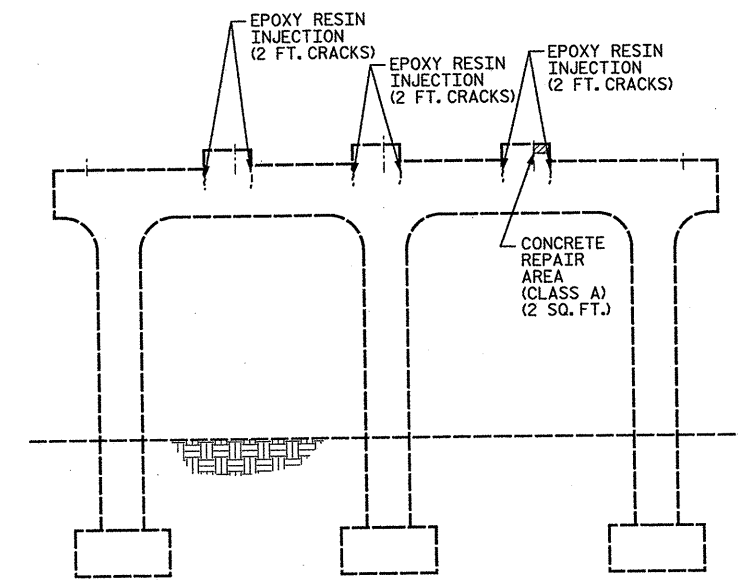
ELEVATION OF BENT 1 - LOOKING WEST



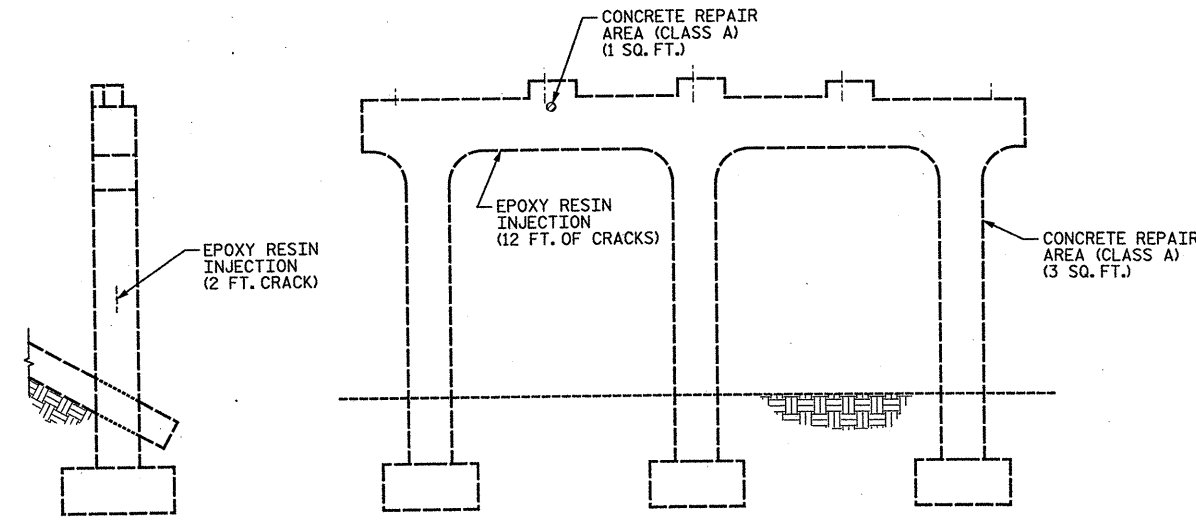
ELEVATION OF BENT 1 - LOOKING EAST

END VIEW
OF BENT 1
LOOKING NORTH

END VIEW
OF BENT 1
LOOKING SOUTH



ELEVATION OF BENT 3 - LOOKING WEST



ELEVATION OF BENT 3 - LOOKING EAST

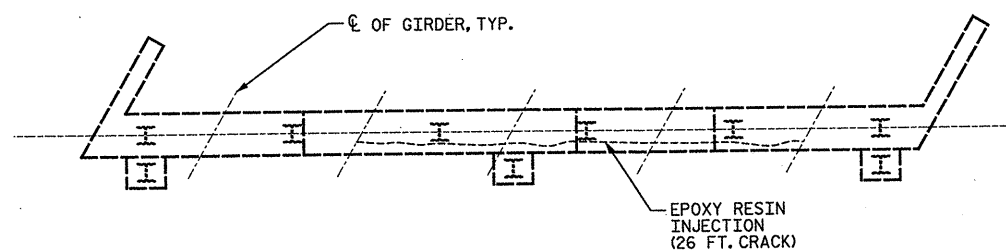
END VIEW
OF BENT 3
LOOKING NORTH

END VIEW
OF BENT 3
LOOKING SOUTH

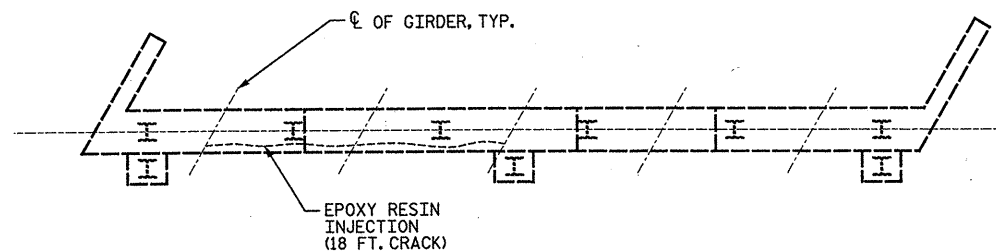
* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

DRAWN BY: RTB DATE: 05-12
 CHECKED BY: AC DATE: 05-12 REV. SHEET NO.

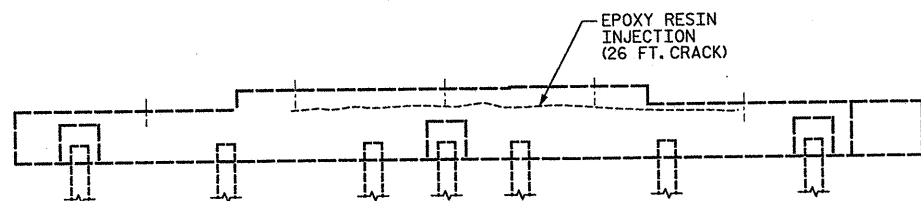
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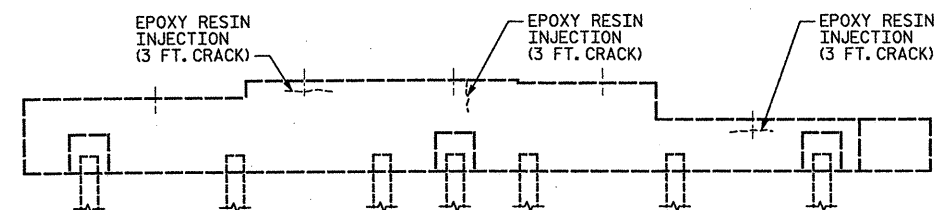
PLAN OF END BENT 1



PLAN OF END BENT 2



ELEVATION OF END BENT 1 - LOOKING WEST

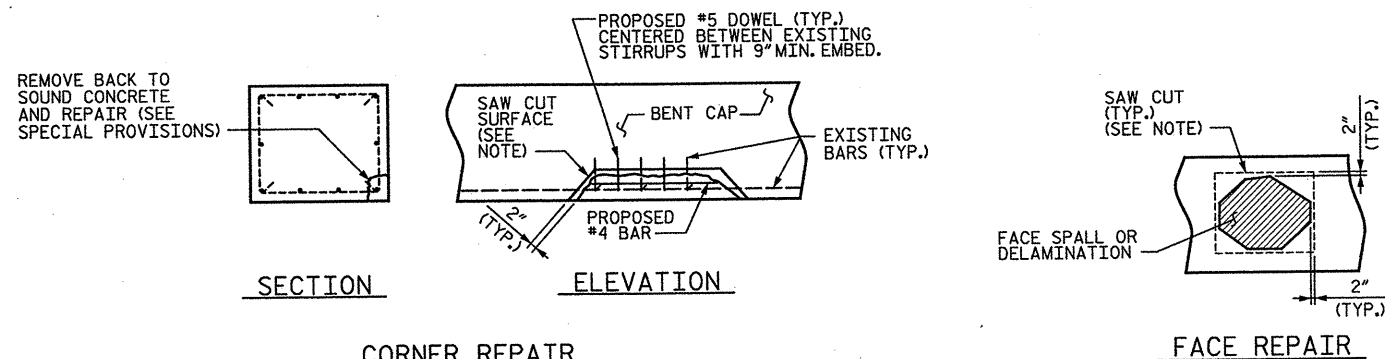


ELEVATION OF END BENT 2 - LOOKING EAST

* LOOKING DIRECTION CORRESPONDS WITH DIRECTION OF TRAVEL ALONG HIGHWAY

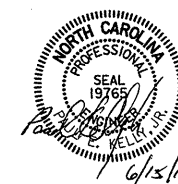
NOTE:
SEE NOTES ON SHEET S-92.

----- APPROX. LENGTH
EPOXY RESIN INJECTION



CORNER REPAIR
FACE REPAIR
TYPICAL SUBSTRUCTURE REPAIR DETAILS

NOTE: CONTRACTOR SHALL SAW CUT TO A MAXIMUM DEPTH OF 1/2". THIS DEPTH SHALL BE REDUCED TO PREVENT DAMAGE TO EXISTING REINFORCEMENT, BUT SHALL BE NO LESS THAN 1/2". CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAW CUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.



PROJECT NO. 17BP.9.H.2
ROWAN COUNTY
BRIDGE NO.: 065
REHAB. OF BRIDGE NO. 065 SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**END BENTS 1 & 2
SUBSTRUCTURE REPAIRS**
BRIDGE ON SR 1221
OVER I-85/US-601

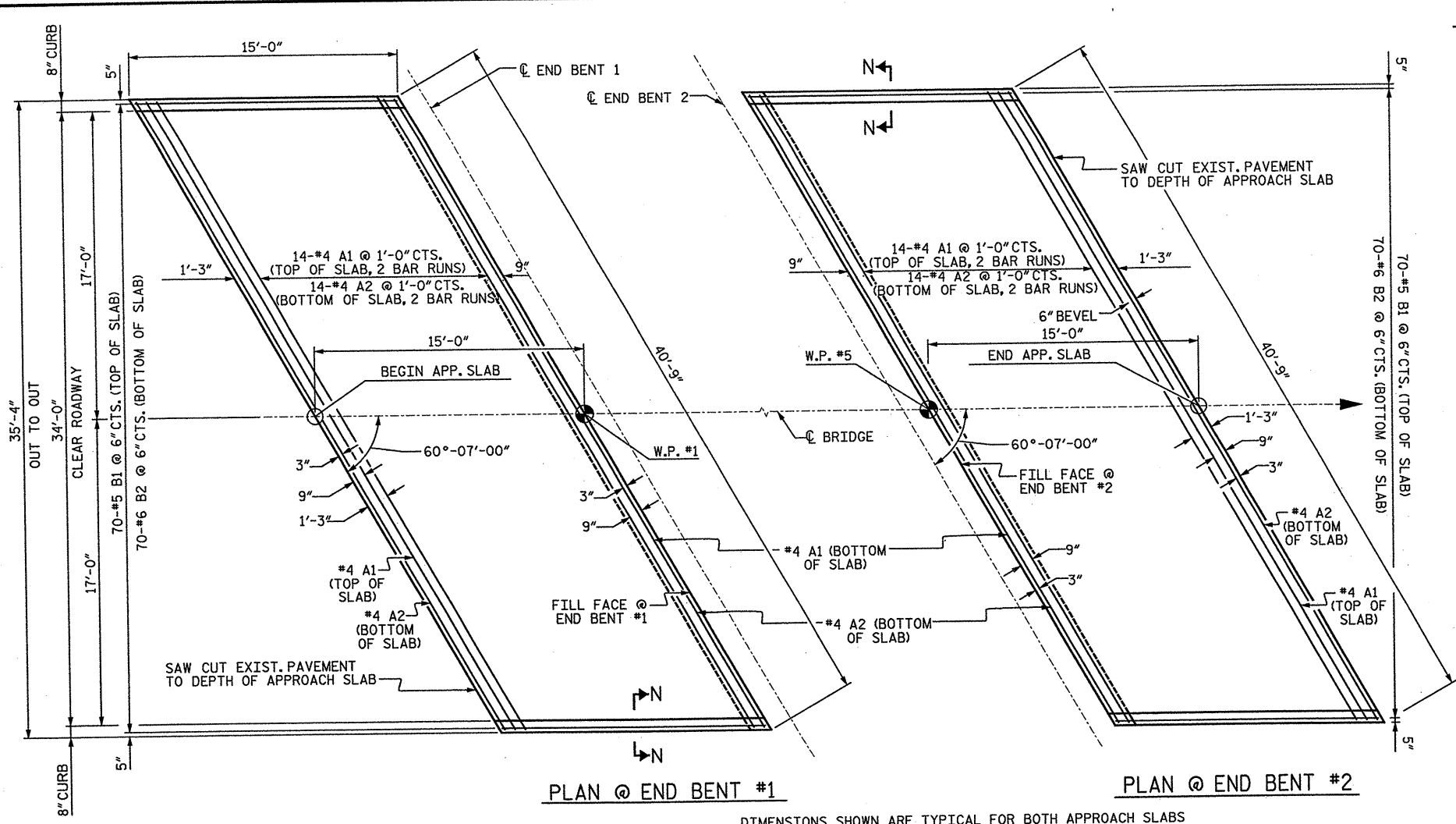
DRAWN BY: RIB DATE: 05-12
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-91
1	STV	6-12	3			TOTAL SHEETS
2			4			93

6/15/2012

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 6/15/2012
 WUVW



NOTES

BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, AND OUTLET PADS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE BRIDGE APPROACH SLAB. NO EXTRA MEASUREMENT OR PAYMENT WILL BE MADE.

GEOTEXTILE SHALL BE TYPE 1 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 END BENT FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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

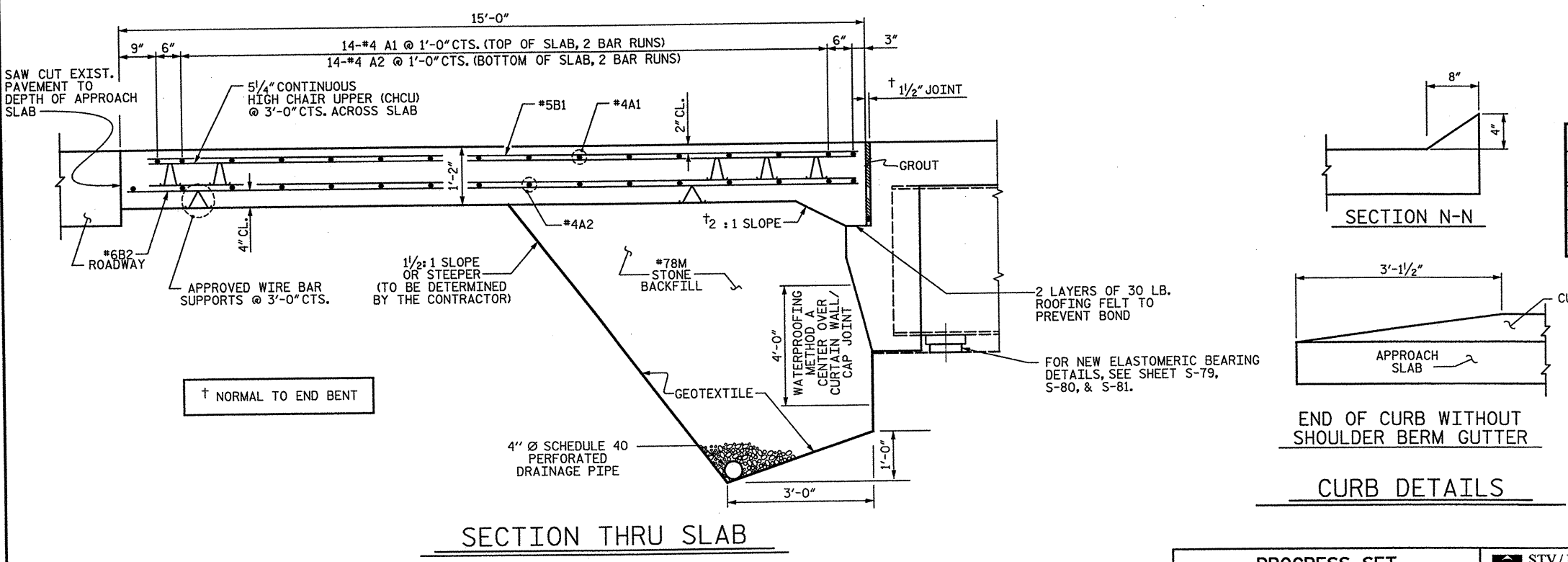
FOR OUTLET PAD SEE ROADWAY STANDARD DRAWING 815.03.

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. SEE ROADWAY PLANS.

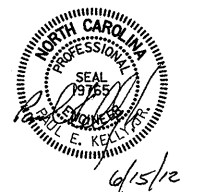
APPROACH SLAB GROOVING IS NOT REQUIRED.

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

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	21'-2"	453
A2	32	#4	STR	21'-0"	449
*B1	70	#5	STR	14'-8"	1072
B2	70	#6	STR	14'-8"	1543
REINFORCING STEEL				LBS.	1992
*EPOXY COATED REINFORCING STEEL				LBS.	1525
CLASS AA CONCRETE				C. Y.	23.6
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	32	#4	STR	21'-2"	453
A2	32	#4	STR	21'-0"	449
*B1	70	#5	STR	14'-8"	1072
B2	70	#6	STR	14'-8"	1543
REINFORCING STEEL				LBS.	1992
*EPOXY COATED REINFORCING STEEL				LBS.	1525
CLASS AA CONCRETE				C. Y.	23.6



SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"



PROJECT NO. **17BP.9.H.2**
 ROWAN COUNTY
 BRIDGE NO.: **065**
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

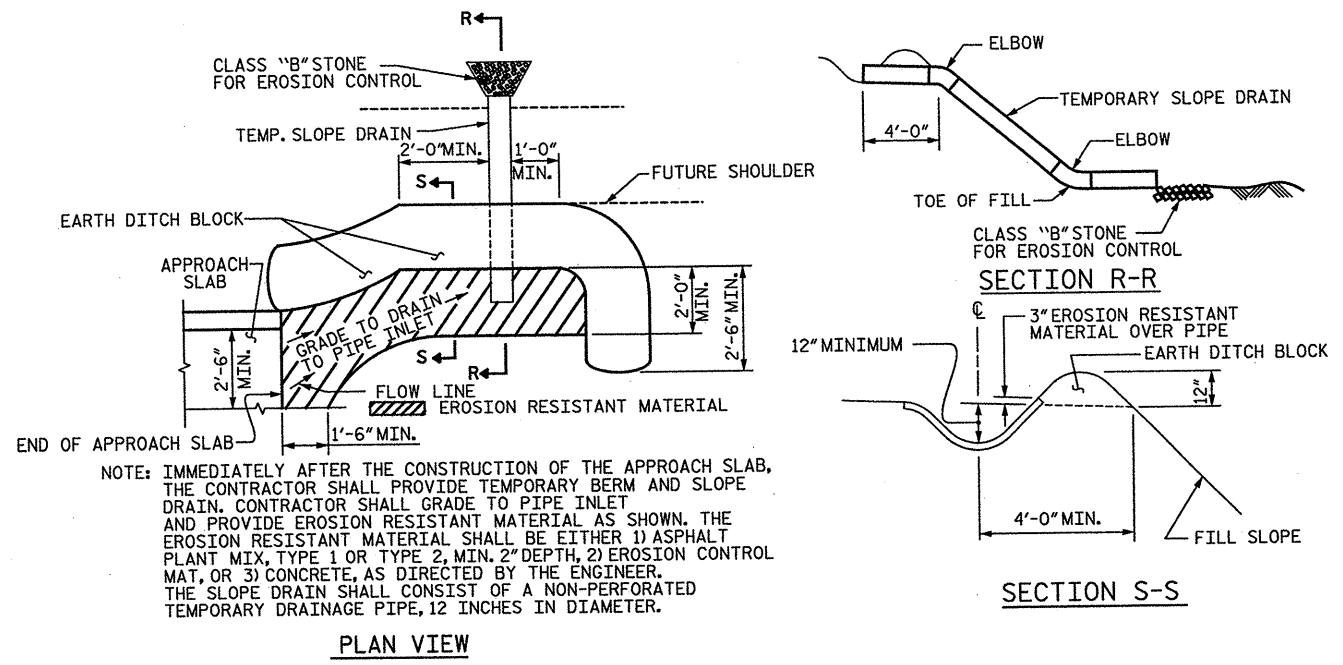
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
BRIDGE APPROACH SLAB PLAN & SECTION

DRAWN BY: **KMG** DATE: **05-12**
 CHECKED BY: **AC** DATE: **05-12** REV. SHEET NO.

**PROGRESS SET
 NOT FOR CONSTRUCTION**

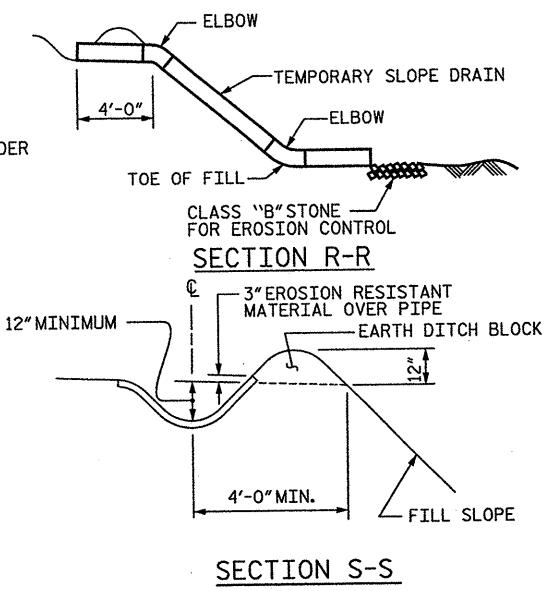
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 Charlotte, NC 28208
 NC License No. F-9991

REVISIONS						SHEET NO. S-92
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	STV	6-12	3			TOTAL SHEETS 93
2			4			



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2\"/>

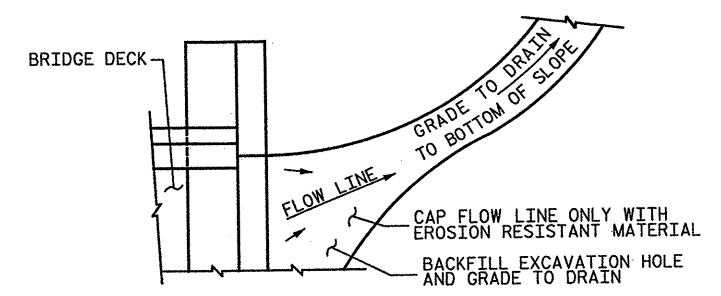
PLAN VIEW



SECTION S-S

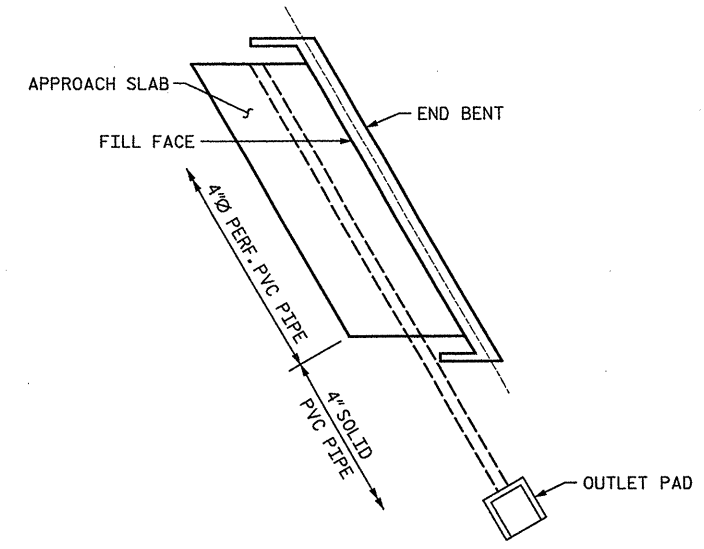
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

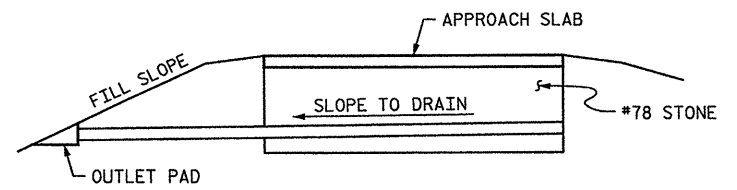


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



PIPE DRAIN AND OUTLET PLAN



PIPE DRAIN AND OUTLET ELEVATION



PROJECT NO. 17BP.9.H.2
 ROWAN COUNTY
 BRIDGE NO.: 065
 REHAB. OF BRIDGE NO. 065 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**

REVISIONS						SHEET NO. S-93
NO.	BY:	DATE:	NO.	BY:	DATE:	
1	STV	6-12	3			TOTAL SHEETS 93
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 CHECKED BY : AC DATE : 05-12 REV. SHEET NO.

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STANDARD NOTES

EXISTING STRUCTURES:

DRAWINGS SHOWN ON THESE PLANS HAVE BEEN DRAWN PER AS-BUILT DRAWINGS.

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,600 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA SAND LIGHTWEIGHT CONCRETE (MAXIMUM UNIT WEIGHT OF 120 PCF) SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP FOR LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS FOR SAND LIGHTWEIGHT CONCRETE.

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

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

STRUCTURAL STEEL:

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

HANDRAILS AND POSTS:

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

SPECIAL NOTES:

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

PROJECT NO. 17BP.9.H.2
DAVIDSON / ROWAN COUNTY
 BRIDGE NO.: _____



STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD NOTES					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO.
					SN
					TOTAL SHEETS

STV / Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC License No. F-0991

DRAWN BY : JWK DATE : 05-12
 CHECKED BY : MR DATE : 05-12

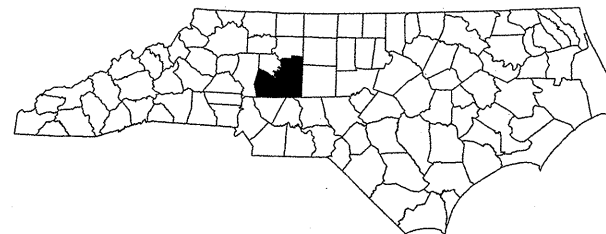
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

DAVIDSON AND ROWAN COUNTIES

DIVISION 9



LOCATION 1: DAVIDSON COUNTY BRIDGE #31 NC 8 OVER LICK CREEK
TYPE OF WORK: SUPERSTRUCTURE REPLACEMENT

LOCATION 2: DAVIDSON COUNTY BRIDGE #43 US 29 /I-85 BUS.NB OVER SWEARING CREEK
TYPE OF WORK: OVERLAY, RETENSION P/T STRANDS

LOCATION 3: DAVIDSON COUNTY BRIDGE #525 US 29 /I-85 BUS.SB OVER SWEARING CREEK
TYPE OF WORK: OVERLAY, RETENSION P/T STRANDS

LOCATION 4: DAVIDSON COUNTY BRIDGE #55 NC 47 OVER FLAT SWAMP
TYPE OF WORK: SUPERSTRUCTURE REPLACEMENT

LOCATION 5: DAVIDSON COUNTY BRIDGE #82 NC 47 OVER LICK CREEK
TYPE OF WORK: SUPERSTRUCTURE REPLACEMENT

LOCATION 6: ROWAN COUNTY BRIDGE #65 SR 1221 OVER I-85
TYPE OF WORK: SUPERSTRUCTURE REPLACEMENT, SHOTCRETE REPAIRS

SEE SHEET 1 FOR VICINITY MAPS

INDEX OF SHEETS

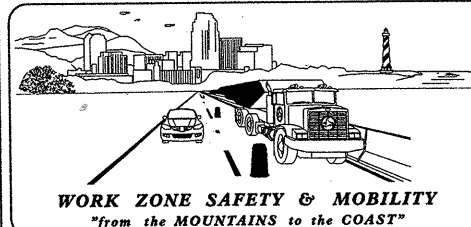
SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	GENERAL NOTES
TMP-1C,1D	PHASING NOTES
TMP-2A	OFFSITE DETOUR A
TMP-2B	OFFSITE DETOUR B
TMP-2C	OFFSITE DETOUR C
TMP-2D	OFFSITE DETOUR D
TMP-2E	OFFSITE DETOUR E
SD-1	SIGN DETAIL 1

SHEET NO.

TMP-1

PROJECT: 17BP.9.H.2

6/25/2012
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PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT
RALEIGH, NC



STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PROJECT ENGINEER JOHN JOHNSON, PE
DESIGN ENGINEER RICHARD ODYNSKI, PE

APPROVED: _____
DATE: _____

SEAL



ROADWAY STANDARD DRAWINGS


REV. SEPTEMBER 2011

ROADWAY STANDARD DRAWINGS.

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:








STD.NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESS
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1145.01	BARRICADES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS- INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS- (PERMANENT AND TEMPORARY)

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










PROJ. REFERENCE NO.	SHEET NO.
17BP.9.H.2	TMP-1A
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LEGEND




GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  WORK AREA
-  REMOVAL




TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




SIGNALS



-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES

PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

APPROVED:	DATE:	 SEAL	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	ROADWAY STANDARD DRAWINGS & LEGEND

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-85	MONDAY TO SUNDAY 6:00 A.M. TO 8:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
ALL ROADS

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC PATTERN ALTERATIONS

- G) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- H) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- I) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- J) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

- L) INSTALL TEMPORARY BARRIER ACCRDING TO TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

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INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- M) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45-50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

TRAFFIC CONTROL DEVICES

- N) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- O) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- P) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

- Q) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- R) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- S) UPON COMPLETION OF ALL OTHER CONSTRUCTION OPERATIONS, INSTALL POLYUREA AND RAISED PAVEMENT MARKINGS ON THE FINAL SURFACE AS DIRECTED BY THE ENGINEER.
- T) ALL TEMPORARY PAVEMENT MARKINGS SHALL BE PAINT.

MISCELLANEOUS

- U) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

APPROVED:	DATE:	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION & WORK ZONE TRAFFIC CONTROL	GENERAL NOTES
 SEAL EDWARD A. ODOM 6-24-12			

PHASING

USE NCDOT STD. 1101.01 SHEETS 1 THRU 3 OF 3 TO INSTALL WORK ZONE ADVANCE WARNING SIGNS AT EACH LOCATION BEFORE BEGINNING WORK.

DO NOT PERFORM WORK ON MULTIPLE BRIDGE LOCATIONS SIMULTANEOUSLY UNLESS APPROVED BY THE ENGINEER. DO NOT WORK ON BOTH SIDES OF A ROADWAY AT THE SAME LOCATION SIMULTANEOUSLY.

LOCATION 1 (DAVIDSON 31):

INTERMEDIATE CONTRACT TIME NUMBER 2: COMPLETE THE WORK REQUIRED OF LOCATION 1, STEP 1 TO STEP 4 IN 90 CONSECUTIVE CALENDAR DAYS. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 2, AND LIQUIDATED DAMAGES)

- STEP 1: USING SHEET TMP-2A, INSTALL DETOUR SIGNS AND DEVICES ALONG NC 8, HUNT RD, AND DENTON RD. COVER ALL SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 2: USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO CLOSE NC 8 AND UNCOVER DETOUR SIGNS. CONSTRUCT BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 3: ONCE ALL OTHER CONSTRUCTION IS COMPLETE INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

LOCATION 2 (DAVIDSON 43):

INTERMEDIATE CONTRACT TIME NUMBER 3: COMPLETE THE WORK REQUIRED OF LOCATION 2 IN 90 CALENDAR DAYS. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 3, AND LIQUIDATED DAMAGES)

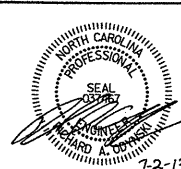

- STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS, DEVICES AND PORTABLE CONCRETE BARRIER TO CLOSE A LANE OF BRIDGE 43.
- STEP 2: PERFORM BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 3: WHEN WORK IS COMPLETE REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL PATTERN.
- STEP 4: AFTER ALL OTHER CONSTRUCTION IS COMPLETE, USE NCDOT RSD. 1101.02 SHEET 4 OF 15 TO INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.

LOCATION 3 (DAVIDSON 525):


INTERMEDIATE CONTRACT TIME NUMBER 4: COMPLETE THE WORK REQUIRED OF LOCATION 3 IN 90 CALENDAR DAYS. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 4, AND LIQUIDATED DAMAGES)

- STEP 1: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS, DEVICES, AND PORTABLE CONCRETE BARRIER TO CLOSE THE INSIDE LANE OF BRIDGE 525.
- STEP 2: PERFORM BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 3: AFTER ALL OTHER CONSTRUCTION IS COMPLETE, USE NCDOT RSD. 1101.02 SHEET 4 OF 15 TO INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
- STEP 4: WHEN WORK IS COMPLETE REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL PATTERN.
- STEP 5: USING SHEET TMP-2E, INSTALL DETOUR SIGNS AND DEVICES ALONG SALISBURY RD, GREEN NEEDLES RD, AND OLD HARGRAVE RD. COVER ALL SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 6: USING TMP-2E, CLOSE THE US 29/I-85 BUS. ON-RAMP FROM SALISBURY RD AND UNCOVER DETOUR SIGNS.
- STEP 7: USING NCDOT RSD. 1101.02 SHEET 4 OF 15, INSTALL LANE CLOSURE SIGNS, DEVICES, AND PORTABLE CONCRETE BARRIER TO CLOSE THE OUTSIDE LANES OF BRIDGE 525.
- STEP 8: PERFORM BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 9: AFTER ALL OTHER CONSTRUCTION IS COMPLETE, USE NCDOT RSD. 1101.02 SHEET 4 OF 15 AND TMP-2E TO INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
- STEP 10: WHEN WORK IS COMPLETE REMOVE ALL LANE CLOSURE SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL PATTERN.

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APPROVED:	DATE:	 SEAL 7-2-12	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	PHASING NOTES
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PHASING (CONT.)

PROJ. REFERENCE NO.	SHEET NO.
17BP.9.H.2	TMP-1D
	
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LOCATION 4 (DAVIDSON 55):

INTERMEDIATE CONTRACT TIME NUMBER 5: COMPLETE THE WORK REQUIRED OF LOCATION 4, STEP 1 TO STEP 4 IN 90 CONSECUTIVE CALENDAR DAYS. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 5, AND LIQUIDATED DAMAGES)

- STEP 1: USING SHEET TMP-2B, INSTALL DETOUR SIGNS AND DEVICES ALONG NC 47, FRANK RD, REGAN RD, JERUSALEM RD, AND YOUNG RD. COVER ALL SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 2: USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO CLOSE NC 47 AND UNCOVER DETOUR SIGNS. CONSTRUCT BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 3: ONCE ALL OTHER CONSTRUCTION IS COMPLETE INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

LOCATION 5 (DAVIDSON 82):

INTERMEDIATE CONTRACT TIME NUMBER 6: COMPLETE THE WORK REQUIRED OF LOCATION 5, STEP 1 TO STEP 4 IN 90 CONSECUTIVE CALENDAR DAYS. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 6, AND LIQUIDATED DAMAGES)

- STEP 1: USING SHEET TMP-2C, INSTALL DETOUR SIGNS AND DEVICES ALONG NC 47, SNYDER STATION RD, GARNER RD, AND TYSINGER RD. COVER ALL SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 2: USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO CLOSE NC 47 AND UNCOVER DETOUR SIGNS. CONSTRUCT BRIDGE DECK PRESERVATION WORK AS REQUIRED.
- STEP 3: ONCE ALL OTHER CONSTRUCTION IS COMPLETE INSTALL FINAL PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
- STEP 4: WHEN WORK IS COMPLETE, REMOVE ALL DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

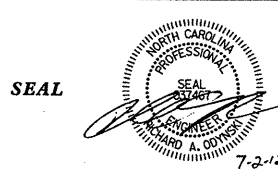
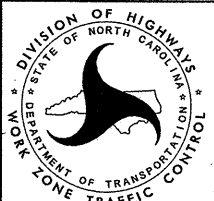
LOCATION 6 (ROWAN 65):

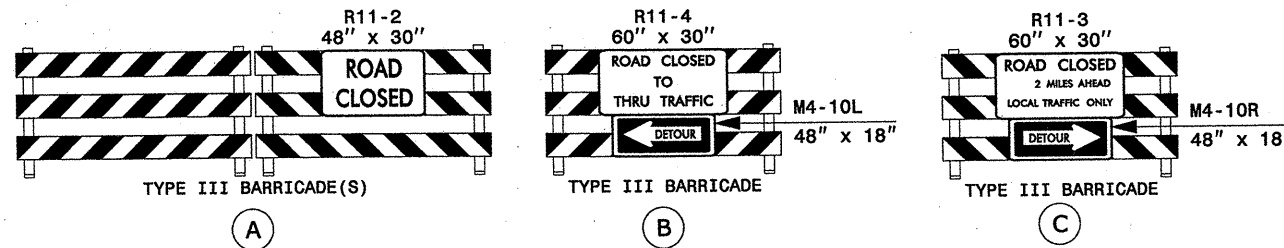
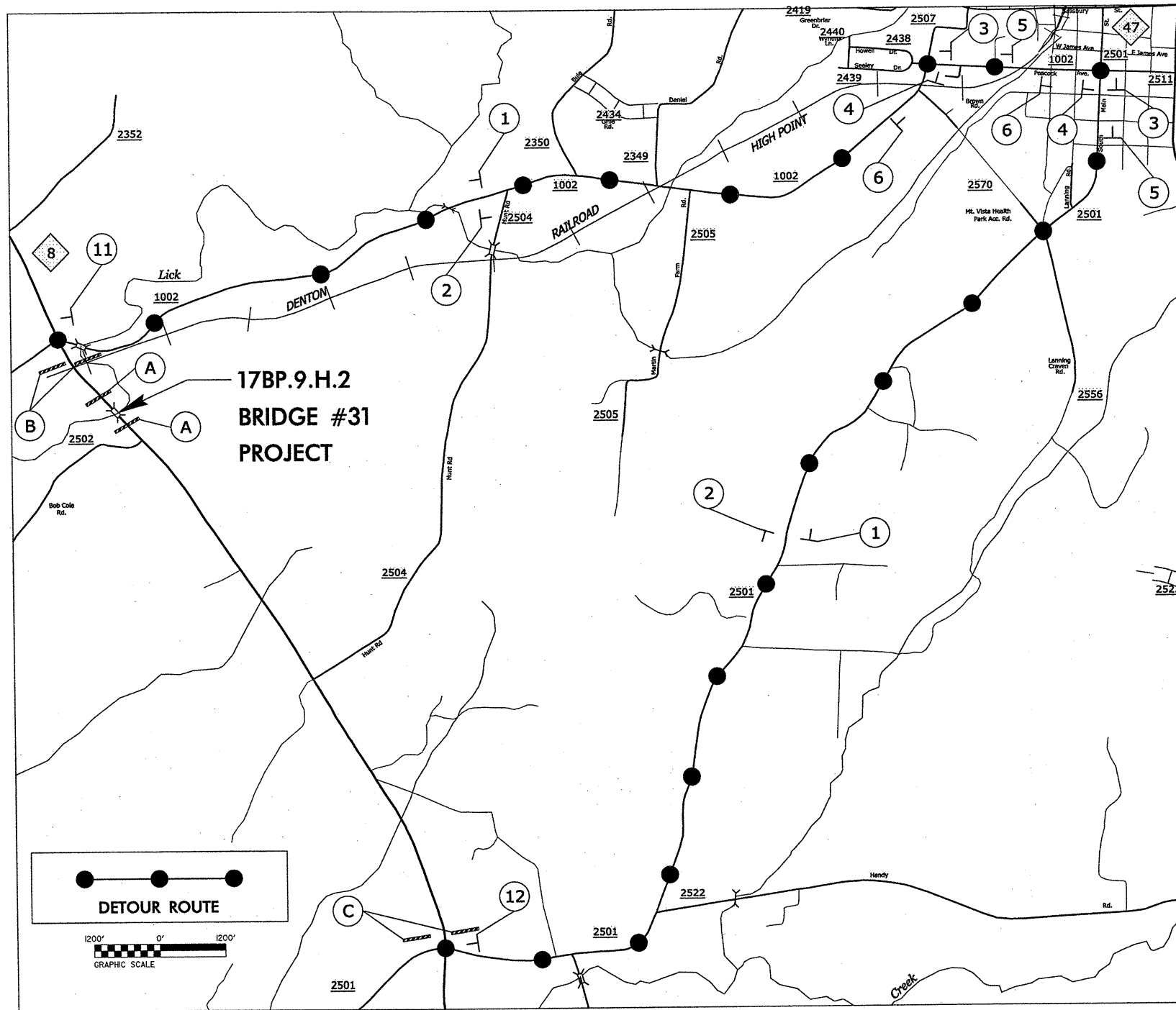
INTERMEDIATE CONTRACT TIME NUMBER 7: COMPLETE THE WORK REQUIRED OF LOCATION 6, STEP 3, WITH A MAXIMUM CLOSURE OF 30 MINUTES. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 7, AND LIQUIDATED DAMAGES)

INTERMEDIATE CONTRACT TIME NUMBER 8: COMPLETE THE WORK REQUIRED OF LOCATION 6, STEP 1 TO STEP 5 IN 90 CONSECUTIVE CALENDAR DAYS, EXCEPT FOR CLEANING AND PAINTING STRUCTURAL STEEL. (SEE SPECIAL PROVISIONS, INTERMEDIATE CONTRACT TIME NUMBER 8, AND LIQUIDATED DAMAGES)

- STEP 1: USING SHEET TMP-2D, INSTALL DETOUR SIGNS AND DEVICES ALONG SR 1221, GOLDFISH RD, MOOSE RD, AND CHINA GROVE RD. COVER ALL SIGNS UNTIL DETOUR IS READY FOR OPERATION.
- STEP 2: USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO CLOSE SR 1221 AND UNCOVER DETOUR SIGNS. CONSTRUCT BRIDGE PRESERVATION WORK AS REQUIRED.
- STEP 3: USE NCDOT RSD. 1101.03 SHEET 9 OF 9 TO REMOVE EXISTING STRUCTURE AND CONSTRUCT REPAIRS OVER I-85 AS NEEDED DURING NIGHT OPERATIONS.
- STEP 4: ONCE ALL OTHER CONSTRUCTION IS COMPLETE INSTALL FINAL PAVEMENT MARKINGS ON SR 1221 AS DIRECTED BY THE ENGINEER.
- STEP 5: WHEN WORK IS COMPLETE, REMOVE ALL DETOUR SIGNS AND DEVICES AND RETURN TRAFFIC TO ITS NORMAL TRAFFIC PATTERN.

7/2/2012 10:58:11 AM R:\TrafficControl\TCP\MICRO FILES\9H2_TMP_IB.dgn odymskr

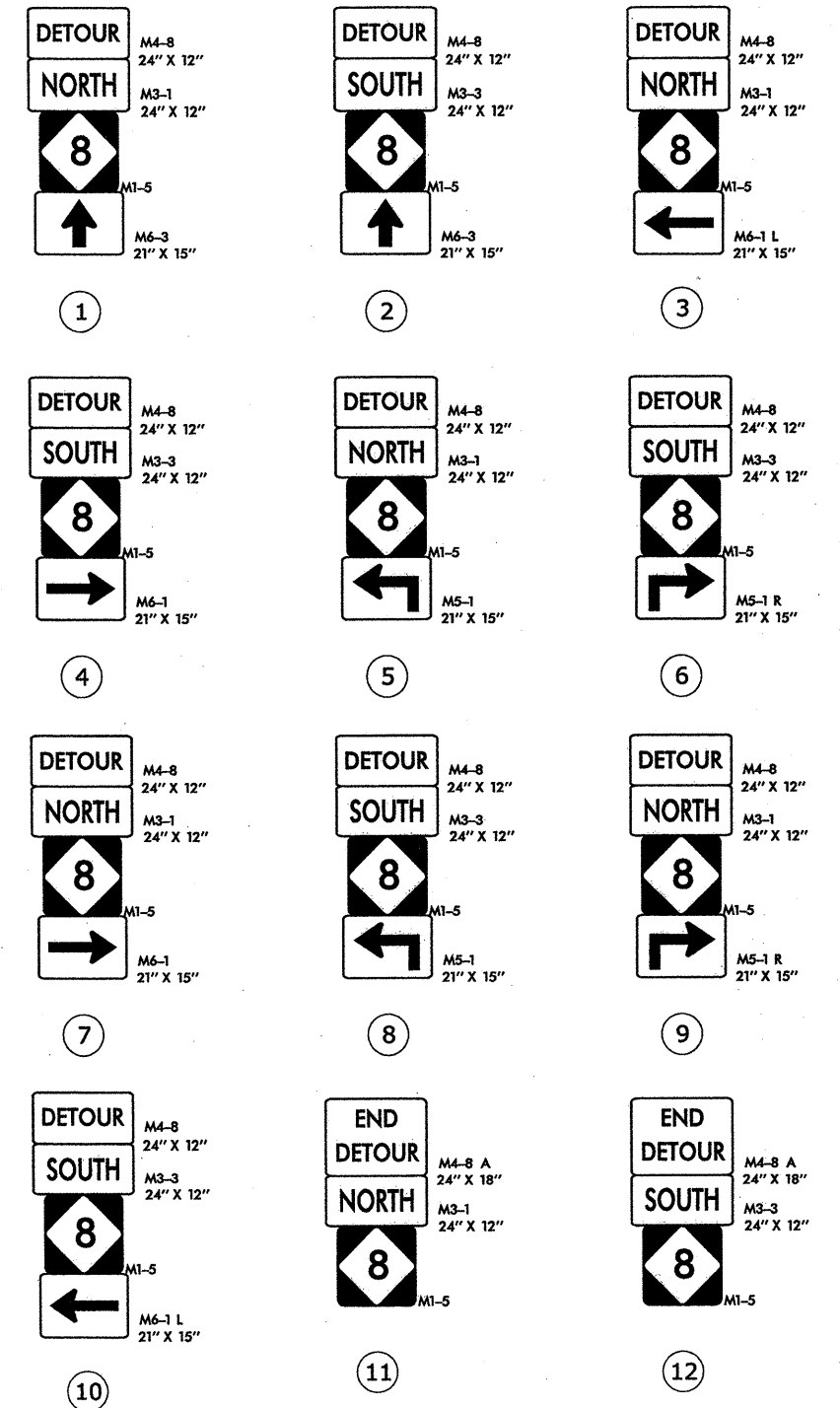
APPROVED: _____ 	DATE: 7-2-12		<h2 style="margin: 0;">PHASING NOTES</h2>
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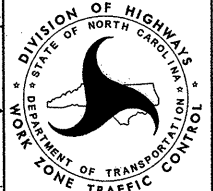



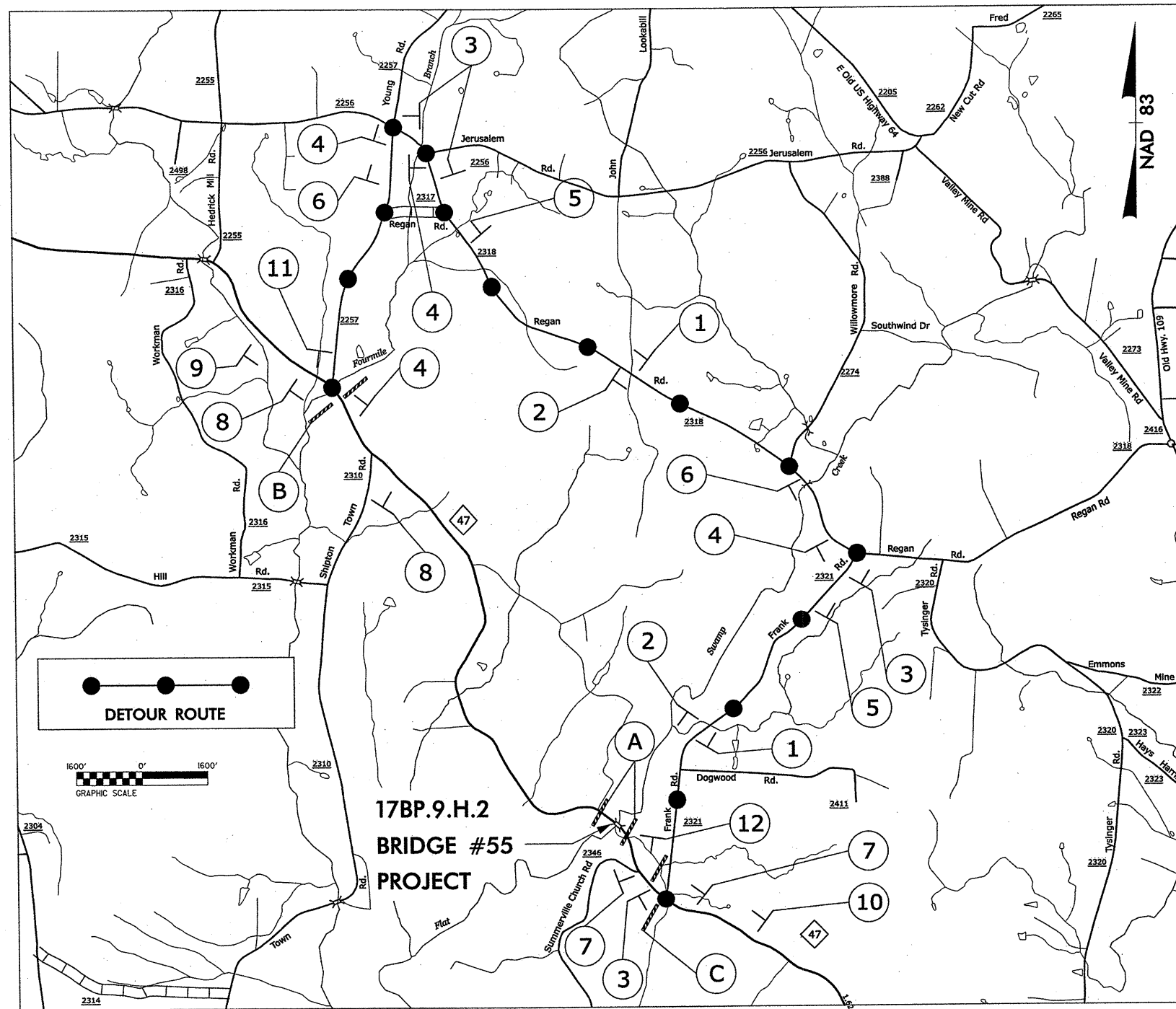
NOTES:

USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO INSTALL ROAD CLOSURE SIGNS AND DEVICES.

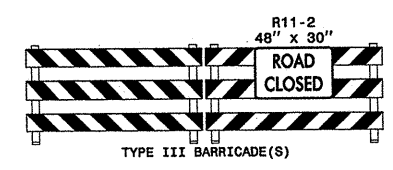
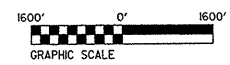
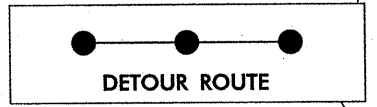
TRAFFIC CONTROL DEVICES ① THRU ⑫ SHALL BE INSTALLED AS PER THE ENGINEER'S INSTRUCTION.



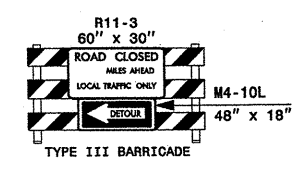
APPROVED:	DATE:	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	OFFSITE DETOUR A SIGNING AND ROAD CLOSURE SIGNING
 SEAL	6-25-12		



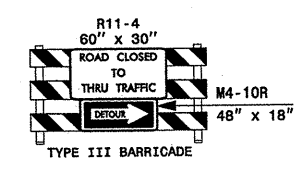
**17BP.9.H.2
BRIDGE #55
PROJECT**



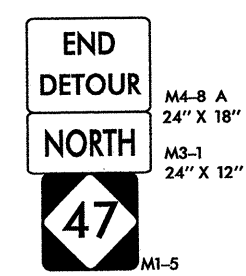
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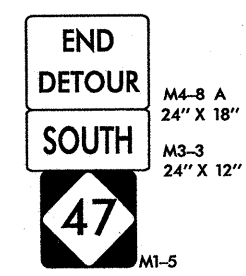
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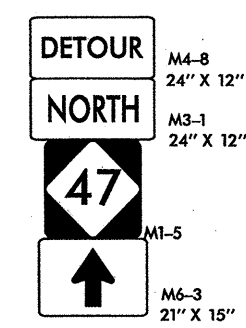
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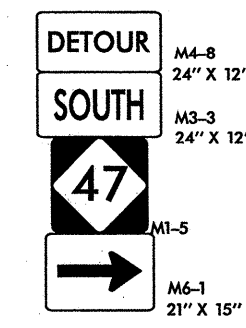
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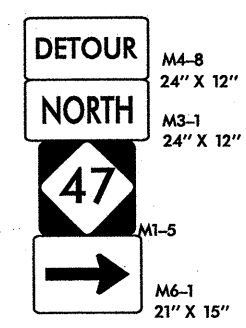
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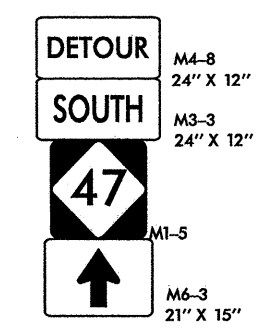
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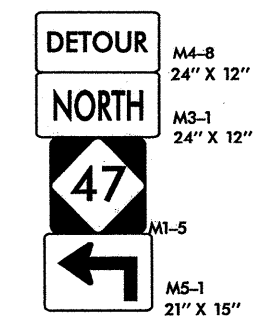
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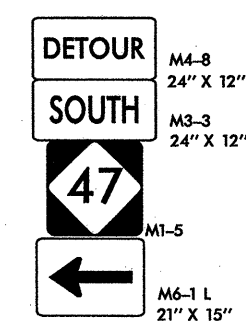
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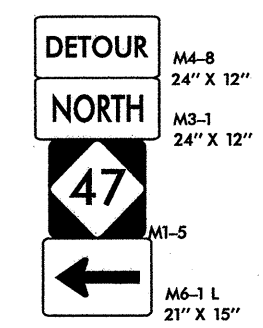
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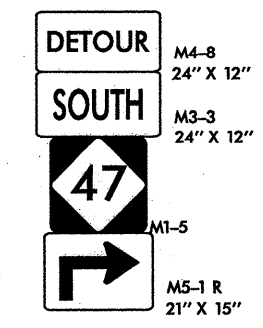
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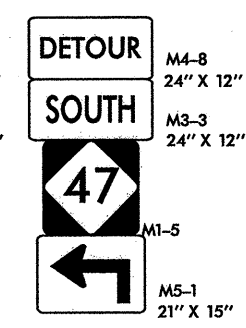
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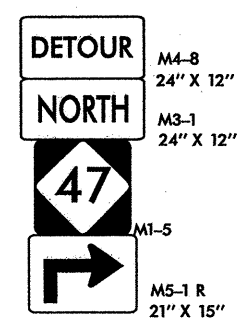
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6



9



10

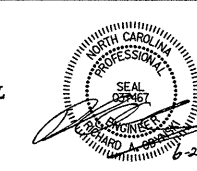
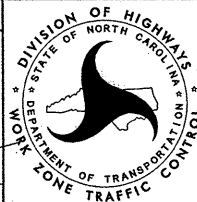
NOTES:

USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO INSTALL ROAD CLOSURE SIGNS AND DEVICES.

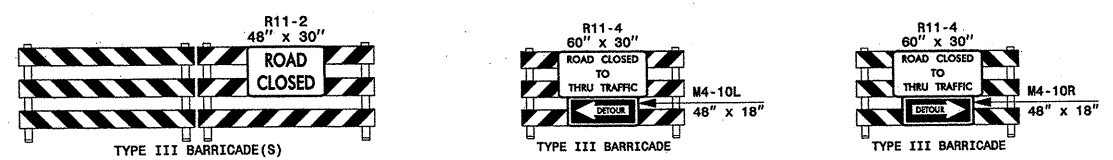
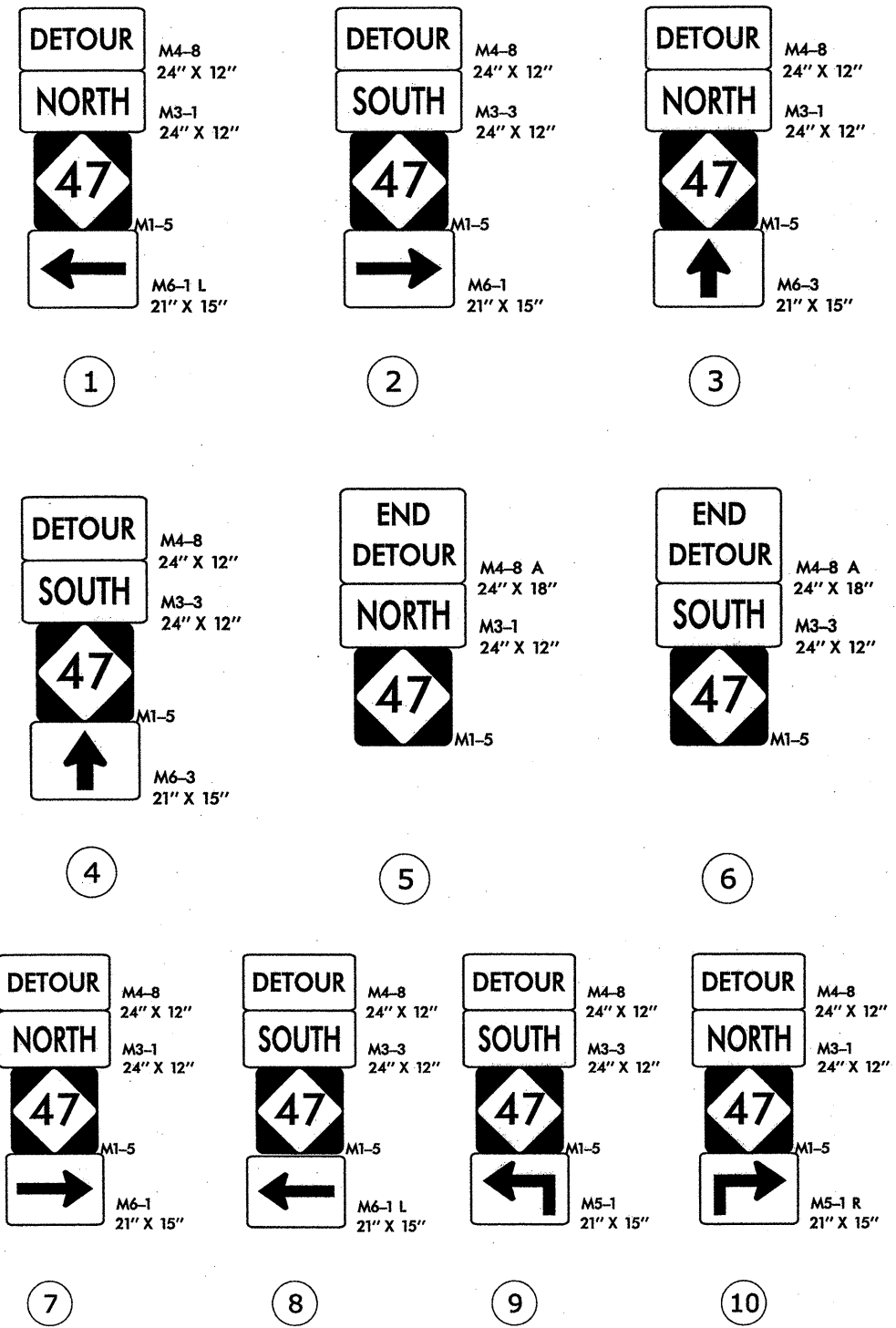
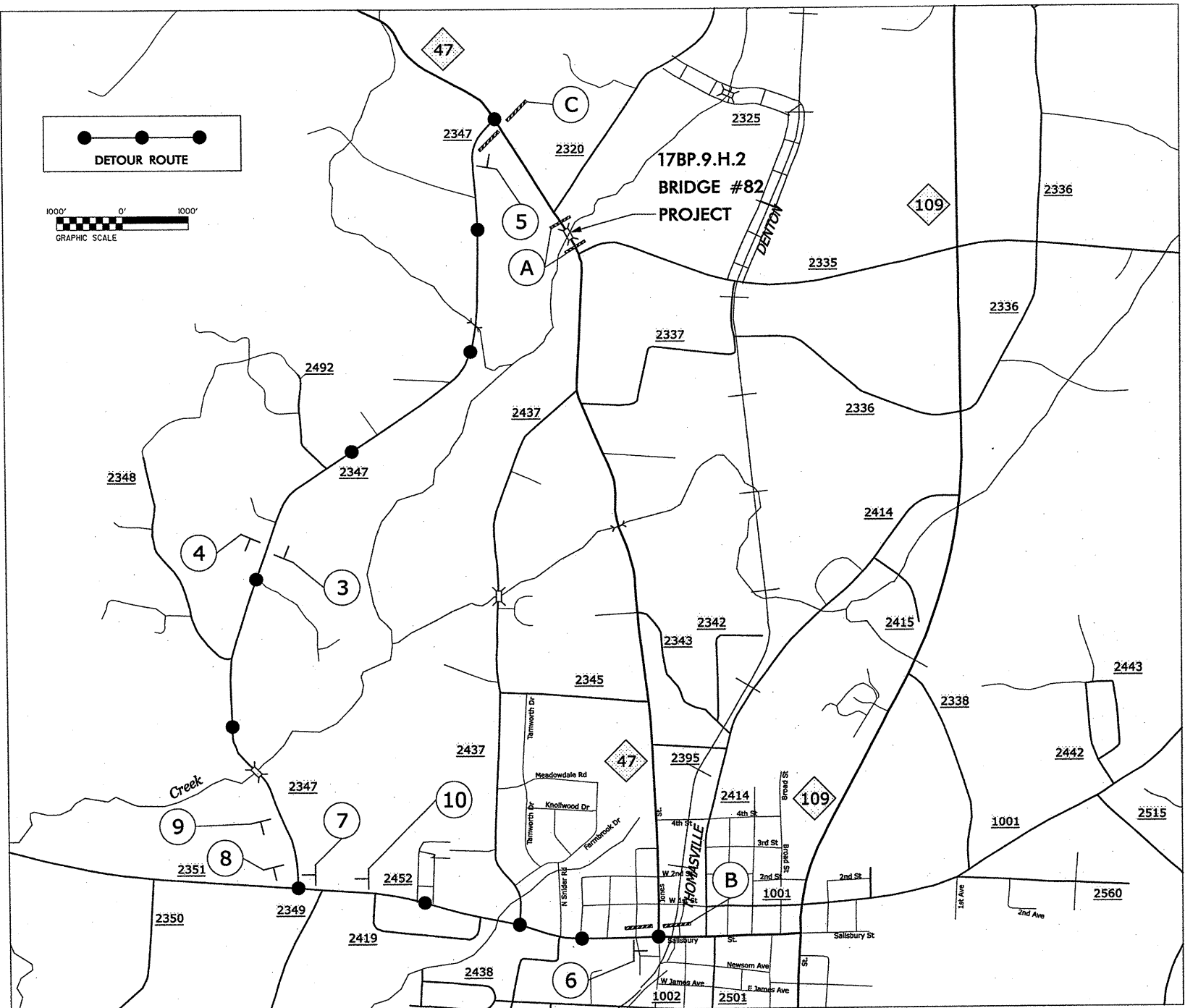
TRAFFIC CONTROL DEVICES ① THRU ⑫ SHALL BE INSTALLED AS PER THE ENGINEER'S INSTRUCTION.

APPROVED: _____ DATE: _____

SEAL




OFFSITE DETOUR B
SIGNING AND ROAD
CLOSURE SIGNING

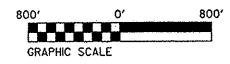
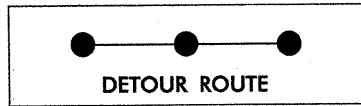
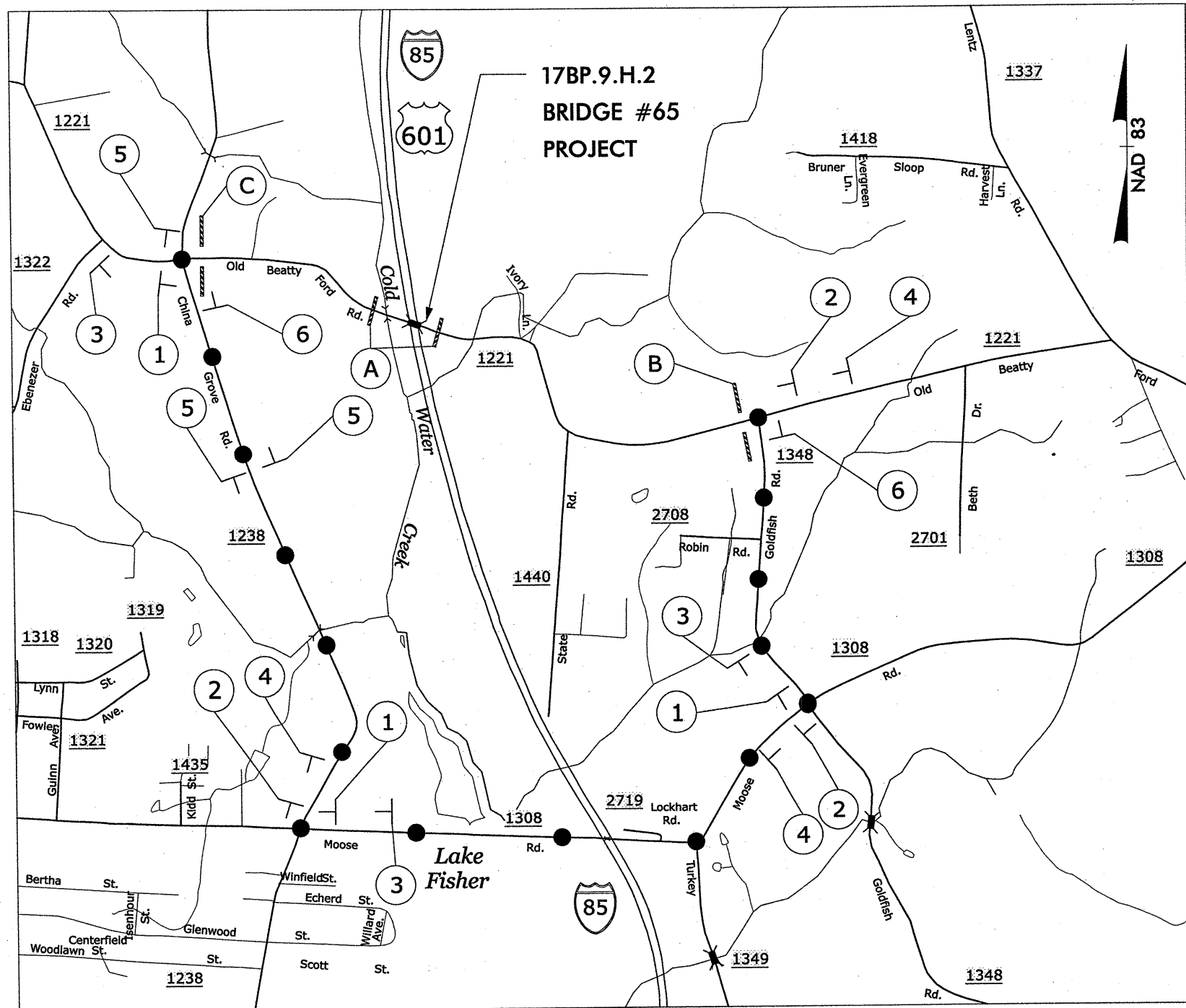


NOTES:

USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO INSTALL ROAD CLOSURE SIGNS AND DEVICES.

TRAFFIC CONTROL DEVICES ① THRU ⑩ SHALL BE INSTALLED AS PER THE ENGINEER'S INSTRUCTION.

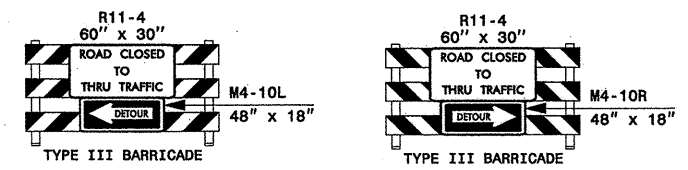
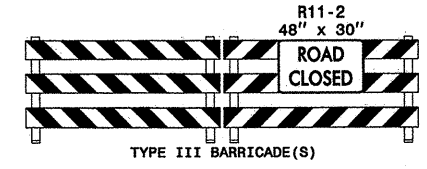
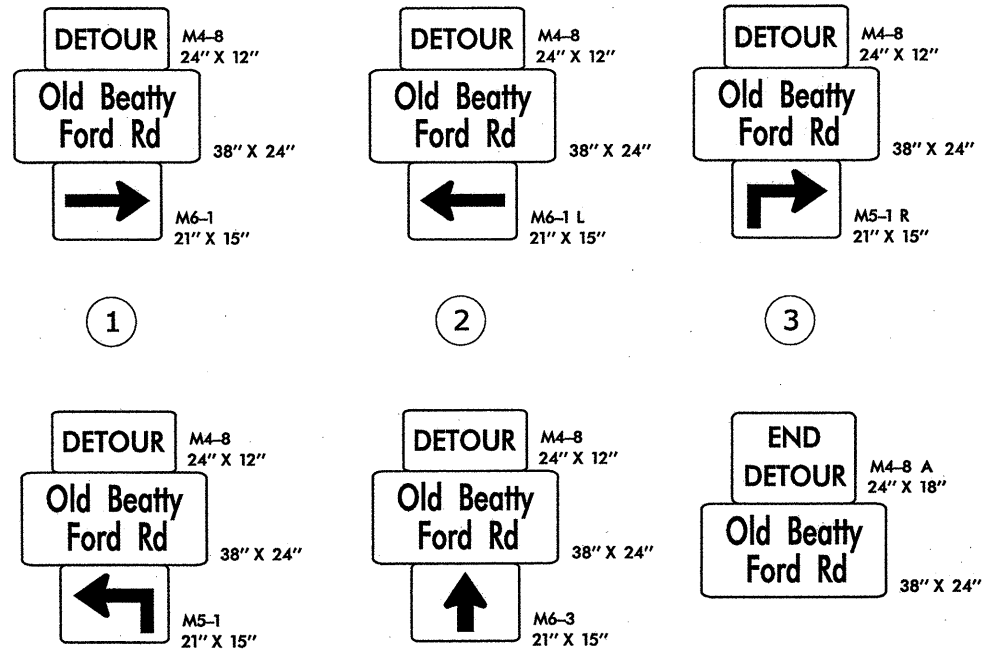
APPROVED:	DATE:	 SEAL	 DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	OFFSITE DETOUR C SIGNING AND ROAD CLOSURE SIGNING
				





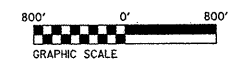
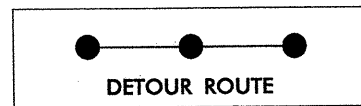
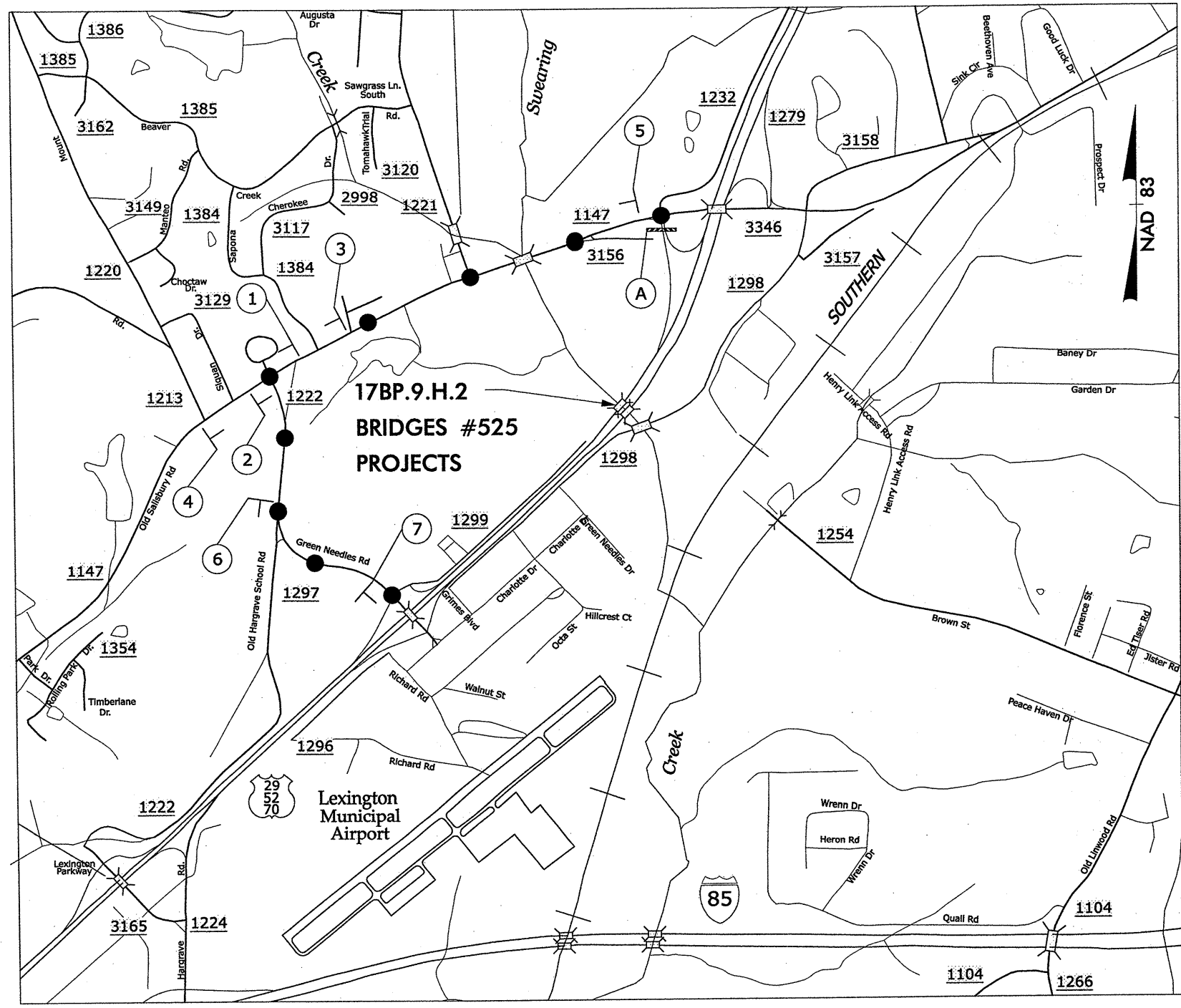
NOTES:

USE NCDOT RSD. 1101.03 SHEET 1 OF 9 TO INSTALL ROAD CLOSURE SIGNS AND DEVICES.

TRAFFIC CONTROL DEVICES ① THRU ⑥ SHALL BE INSTALLED AS PER THE ENGINEER'S INSTRUCTION.



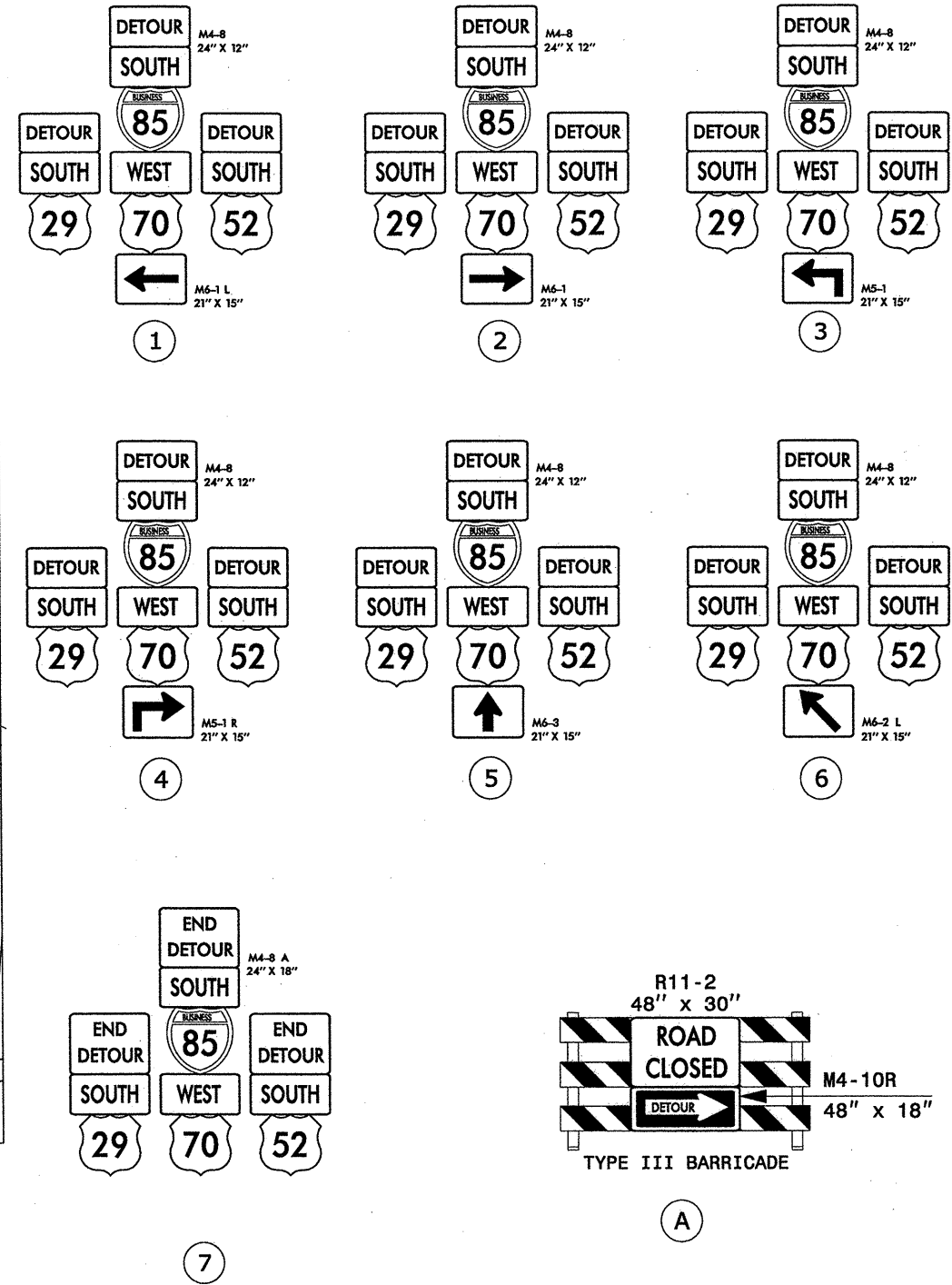
APPROVED: _____	DATE: _____	 DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	OFFSITE DETOUR D SIGNING AND ROAD CLOSURE SIGNING
 SEAL			





NOTES:

USE NCDOT RSD. 1101.03 SHEET 2 OF 9 TO INSTALL ROAD CLOSURE SIGNS AND DEVICES.

TRAFFIC CONTROL DEVICES ① THRU ⑦ SHALL BE INSTALLED AS PER THE ENGINEER'S INSTRUCTION.



APPROVED: _____ DATE: _____			OFFSITE DETOUR E SIGNING AND ROAD CLOSURE SIGNING
SEAL			

SIGN NUMBER: SD-1
 TYPE: D BACKG COLOR: FLOURESCENT ORANGE
 QUANTITY: SEE PLANS COPY COLOR: BLACK

 SIGN WIDTH: 3'-2" MAJ. COPY SERIES: GROUND
 HEIGHT: 2'-0"
 TOTAL AREA: 6.4 Sq.Ft. ROUTE MARKERS:

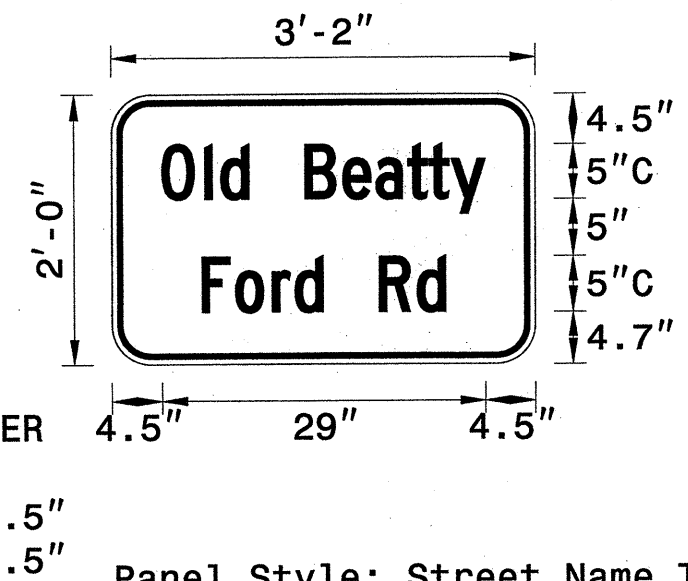
 BORDER TYPE: FLUSH
 RECESS: 0.5"
 WIDTH: 0.5" ARROW TYPES:
 RADII: 3"

 NO. Z BARS:
 LENGTH: MATL: 1.6 mm ALUMINUM

DESIGN BY: JRG CHECKED BY: RAO
 PROJECT ID: 17BP.9.H.2 DIV: 9 DATE: Feb 17, 2012

LETTER POSITIONS

O	I	d	B	e	a	t	t	y				
4.5	3.8	1.5	2.5	5	3.4	2.9	2.9	1.9	2	3.1	4.5	29
F	o	r	d	R	d							
8.1	3	3.3	2	2.5	5	3.4	2.6	8.1				21.9




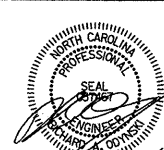
BORDER
 R=3"
 TH=0.5"
 IN=0.5"

Panel Style: Street Name TC 12in.ssi
 M.U.T.C.D.: 2009 Edition

Letter positions are to the lower left corners

- USE NOTES: 1,2
1. Legend and border shall be direct applied black non-reflective sheeting
 2. Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED:	DATE:	 DIVISION OF HIGHWAYS DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	SPECIAL SIGN DESIGN
 SEAL 6-25-12			