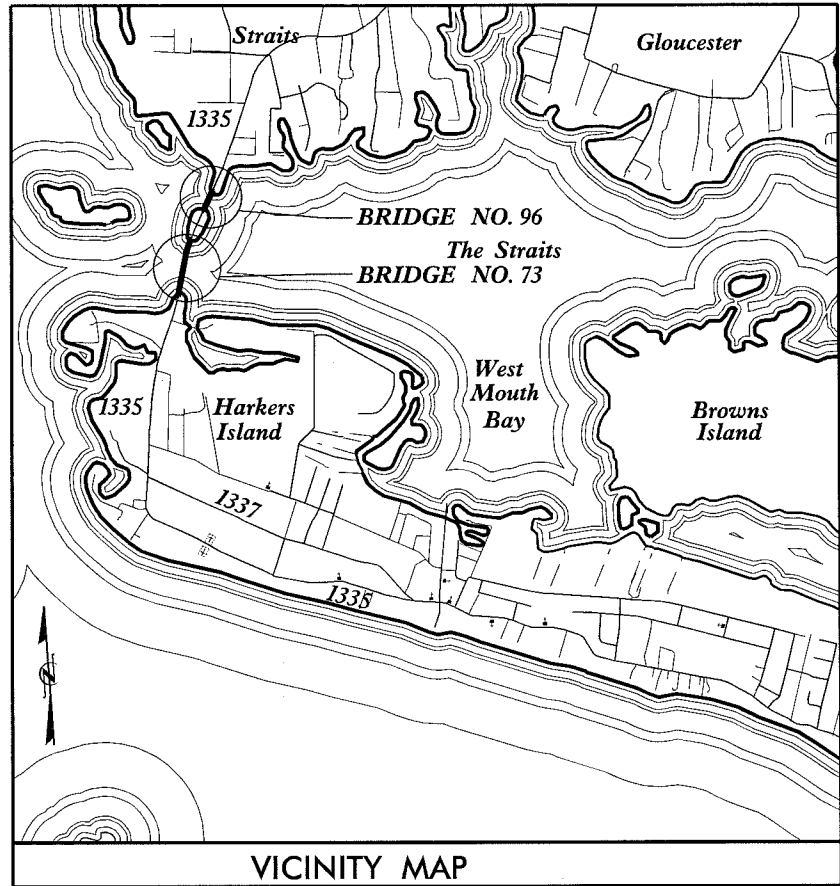


CONTRACT: TIP PROJECT: 15B.22.12



VICINITY MAP

CARTERET COUNTY

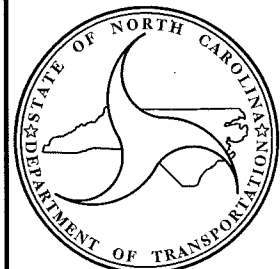
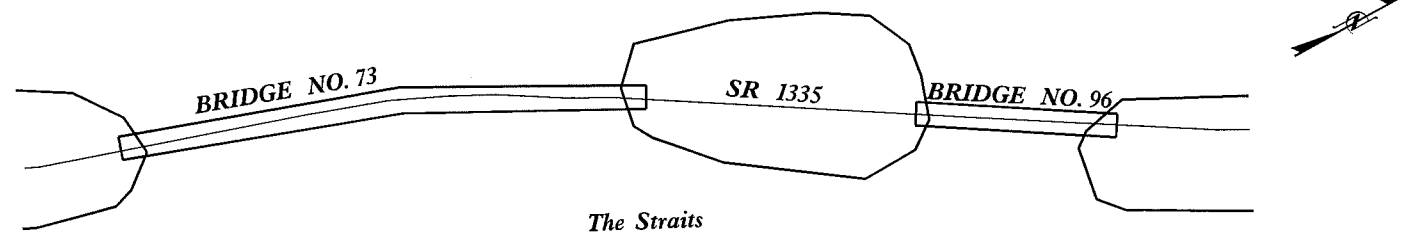
**LOCATION: BRIDGE NO. 96 ON SR 1335
OVER THE STRAITS @
HARKERS ISLAND**

**TYPE OF WORK: BRIDGE REHABILITATION,
REPLACEMENT OF EXISTING
SUPERSTRUCTURE**



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15B.22.12	1	
STATE PROJECT NO.	F.A. PROJ. NO.	DESCRIPTION	
15B.22.12		PE	
15B.22.12		CONST.	



DESIGN DATA

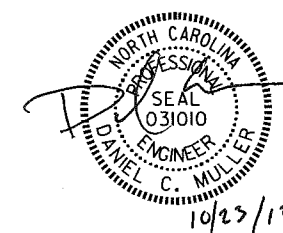
PROJECT LENGTH

2012 STANDARD SPECIFICATIONS

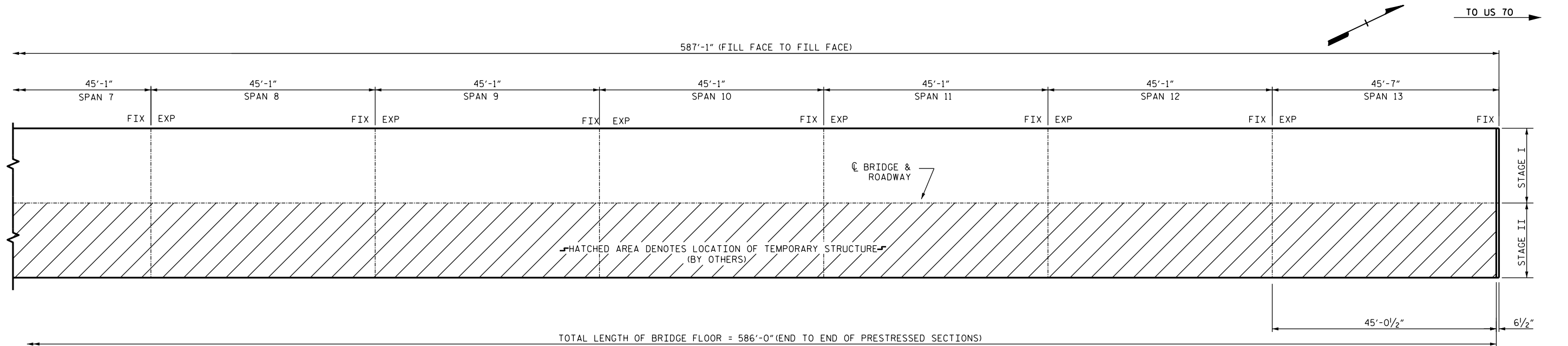
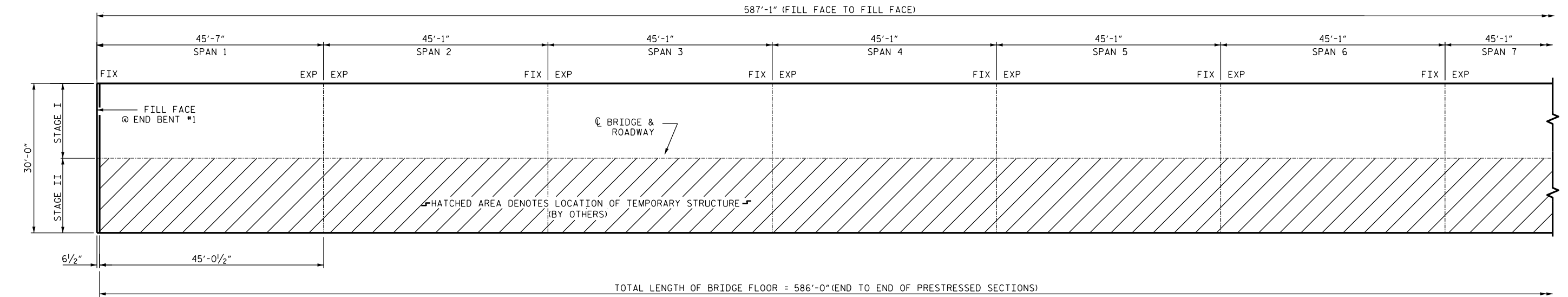
LETTING DATE:
10-31-12

RICK NELSON, PE
PROJECT ENGINEER

DANIEL MULLER, PE
STRUCTURE MANAGEMENT UNIT
PROJECT MANAGER



← TO HARKERS ISLAND



PLAN VIEW

PROJECT NO. 15B.22.12
CARTERET COUNTY
 BRIDGE NO. 96

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	MOBILIZATION	PARTIAL REMOVAL OF EXISTING STRUCTURE	EPOXY COATED REINFORCING STEEL DOWELS	REMOVAL & STOCKPILE EXISTING GUARDRAIL	TEMPORARY BARRIER	ELASTOMERIC BEARING	3'-0" X 1'-9" PRESTRESSED CONC. CORED SLABS	ASPH. CONC. SURFACE COURSE TYPE S9.5B	METAL BRIDGE RAIL	STABILIZATION OF EXIST. SPAN DURING CONSTR.
SO. YDS.	LUMP SUM	LUMP SUM	LBS.	LUMP SUM	LIN. FT.	LUMP SUM	NO. LIN. FT.	TONS	LUMP SUM	EA.
22	LUMP SUM	LUMP SUM	352	LUMP SUM	585	LUMP SUM	130 5,850	321	LUMP SUM	13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

DRAWN BY : S. T. SANDOR DATE : 10/2012
 CHECKED BY : D. MULLER DATE : 10/2012

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			7

23-OCT-2012 16:04
 S:\PRG\POC\Squad C\Preservation\Projects\15B.22.12\Microstation\5-1.dgn
 dmuller

GENERAL NOTES

ASSUMED LIVE LOAD FOR SUPERSTRUCTURE = HL 93 OR ALTERNATE LOADING.

ASSUMED LIVE LOAD FOR EXISTING SUBSTRUCTURE = HS15.

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

THE SUPERSTRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING SUPERSTRUCTURE CONSISTING OF ELEVEN PRESTRESSED CORED SLAB UNITS WITH A CLEAR ROADWAY WIDTH OF 29'-3" SHALL BE REMOVED PER THE PLANS. SEE SPECIAL PROVISION FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE".

CARE SHALL BE TAKEN NOT TO DAMAGE THE SUBSTRUCTURE DURING REMOVAL OF THE SUPERSTRUCTURE. IF THE SUBSTRUCTURE IS DAMAGED DURING REMOVAL IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A REPAIR PROCEDURE FOR THE DAMAGED AREAS. REPAIRS MADE DUE TO DAMAGE DONE BY REMOVAL SHALL BE AT THE EXPENSE OF THE CONTRACTOR. NO ADDITIONAL TIME WILL BE GRANTED IN ORDER TO PERFORM REPAIRS NEEDED DUE TO REMOVAL OF THE SUPERSTRUCTURE.

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

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.

THIS SUPERSTRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR REMOVAL AND STOCKPILE OF EXISTING GUARDRAIL, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THIS BRIDGE MAY BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR METAL BRIDGE RAIL, SEE SPECIAL PROVISIONS.

FOR STABILIZATION OF EXISTING SPAN DURING CONSTRUCTION, SEE SPECIAL PROVISIONS.

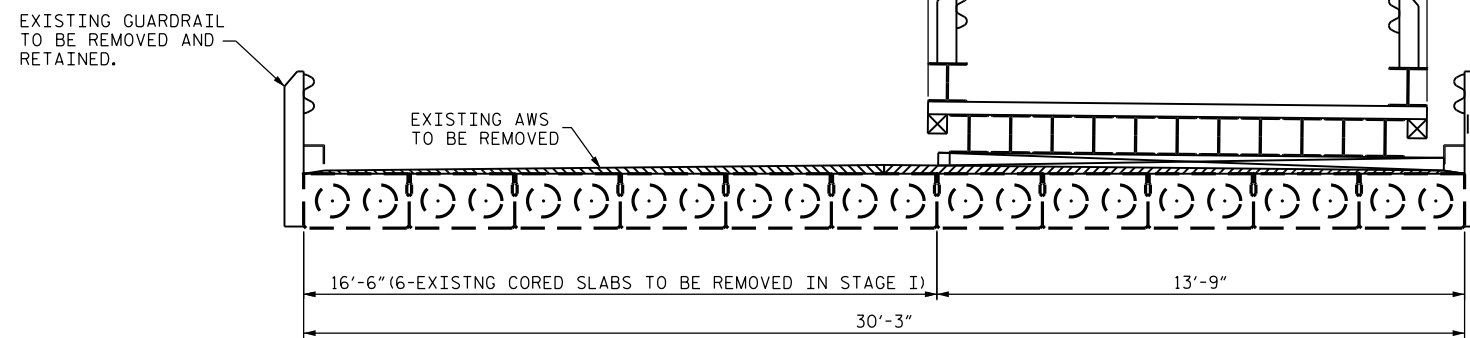
PROJECT NO. 15B.22.12

COUNTY: CARTERET

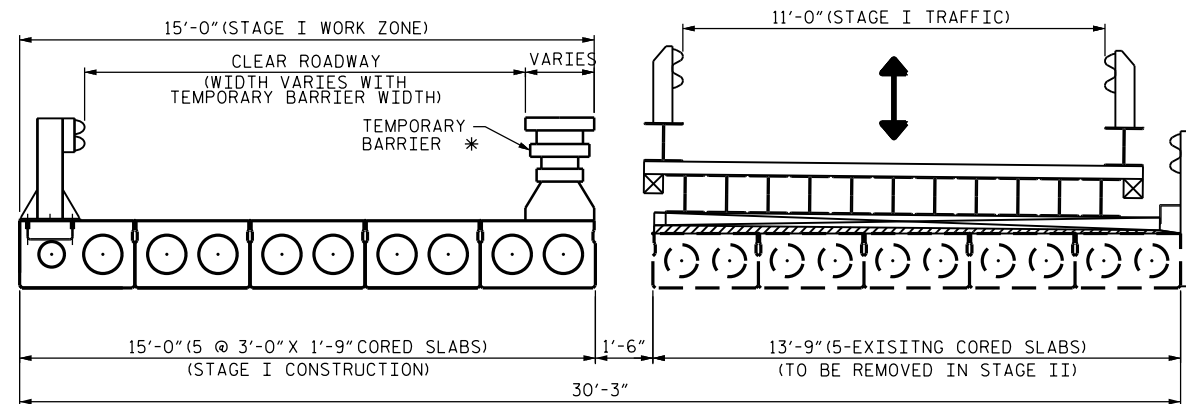
DECK REPAIR BRIDGE NO. 96

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TYPICAL SECTION,
STAGING DETAILS
&
GENERAL NOTES

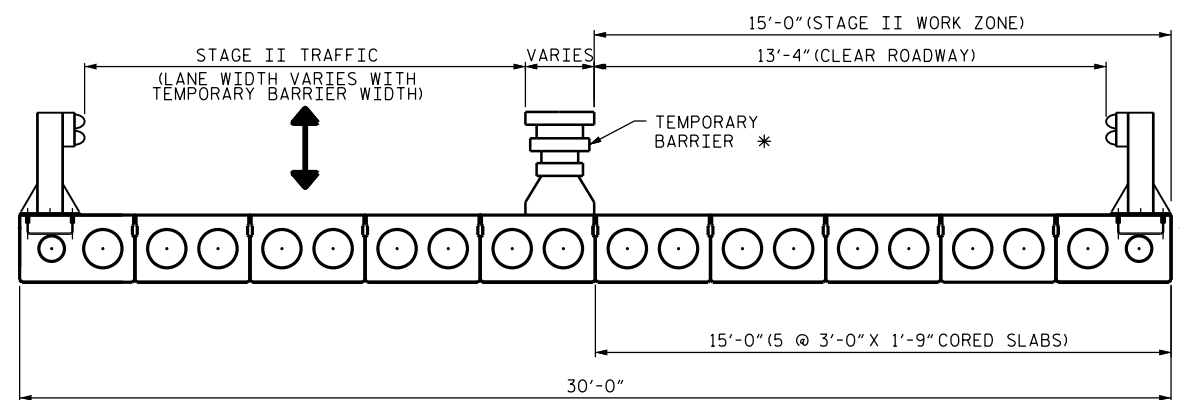
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			7
2			4			



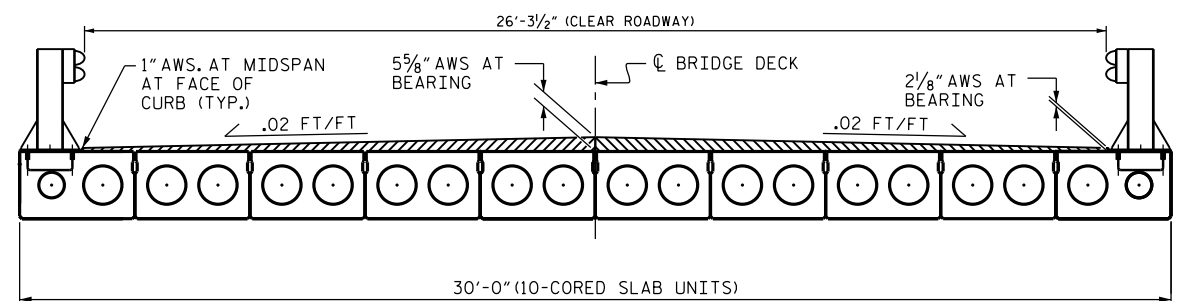
TYPICAL SECTION
(EXISTING)



TYPICAL SECTION
(STAGE I)



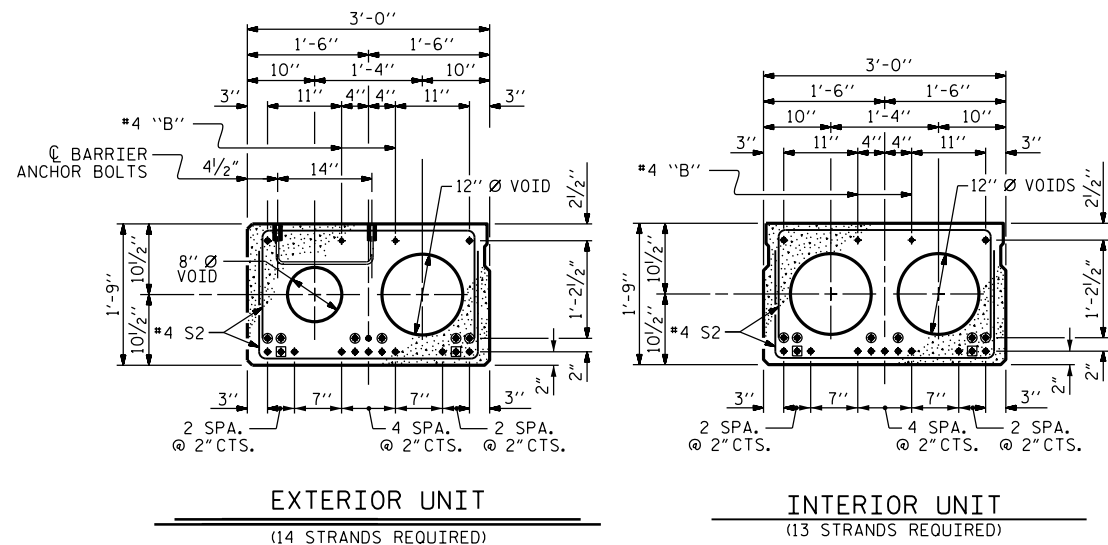
TYPICAL SECTION
(STAGE II)



TYPICAL SECTION
(FINAL)

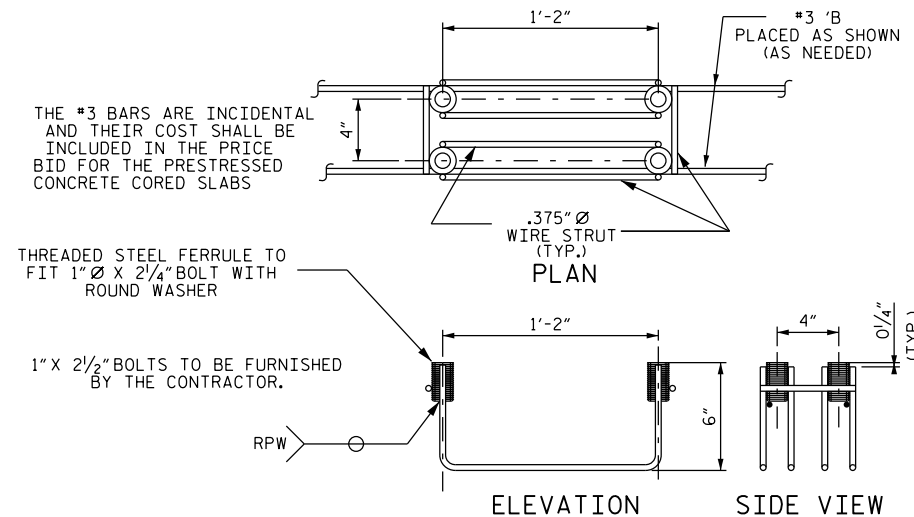
* SUBMIT DETAILS OF TEMPORARY BARRIER FOR STAGE CONSTRUCTION TO ENGINEER FOR APPROVAL

DRAWN BY: CLB DATE: 10/12
CHECKED BY: TMS DATE: 10/12



- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



GUARDRAIL ANCHOR ASSEMBLY

NOTES

THE STRUCTURAL CONCRETE ANCHOR 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 2" FOR 1" Ø FERRULES.

4 - 1" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2 1/2" GALVANIZED BOLTS 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.

WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 3/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

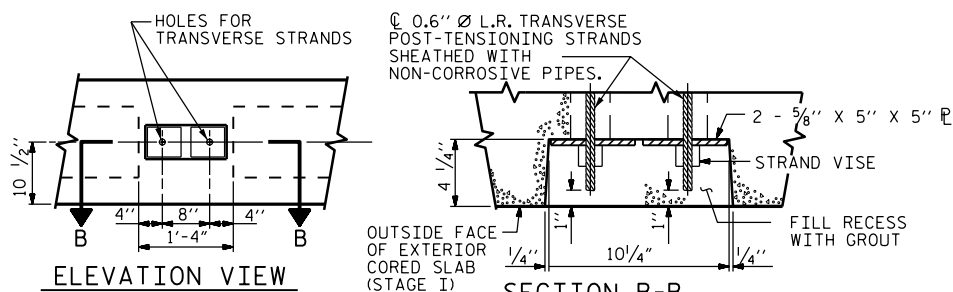
GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE SHALL BE INCLUDED IN THE UNIT CONTRACT BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

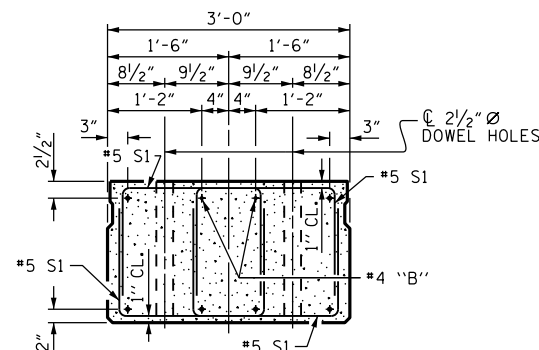
AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

AT THE CONTRACTOR'S OPTION, ANCHOR ASSEMBLY MAY BE OMITTED AND ADHESIVELY ANCHORED 1" Ø BOLTS MAY BE INSTALLED AT LOCATIONS AND SPACING INDICATED. SUBMIT ADHESIVE ANCHOR SYSTEM TO ENGINEER FOR APPROVAL. ADHESIVELY ANCHORED BOLTS TO BE TESTED TO LEVEL 2 TESTING AS PER STANDARD SPECIFICATIONS. TEST LOAD SHALL BE 15,000 LBS.



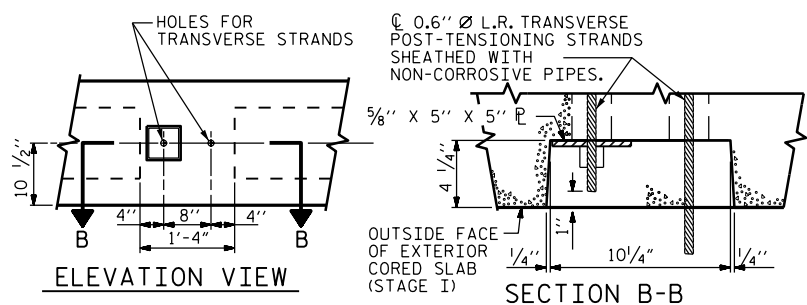
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 1)



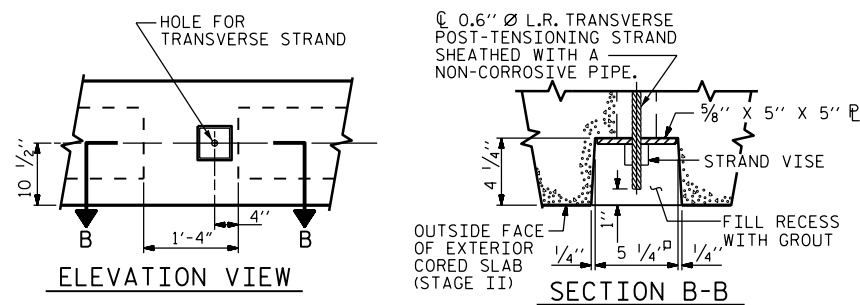
END ELEVATION

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



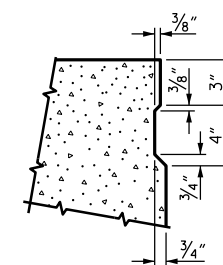
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 2)



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(TYPE 3)



SHEAR KEY DETAIL

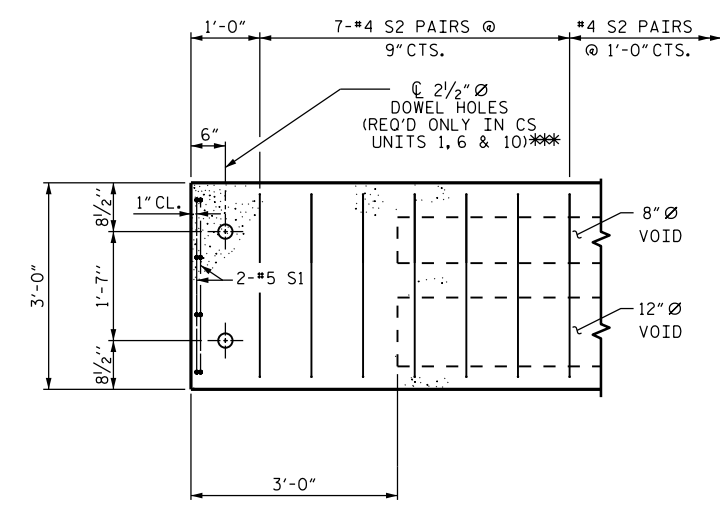
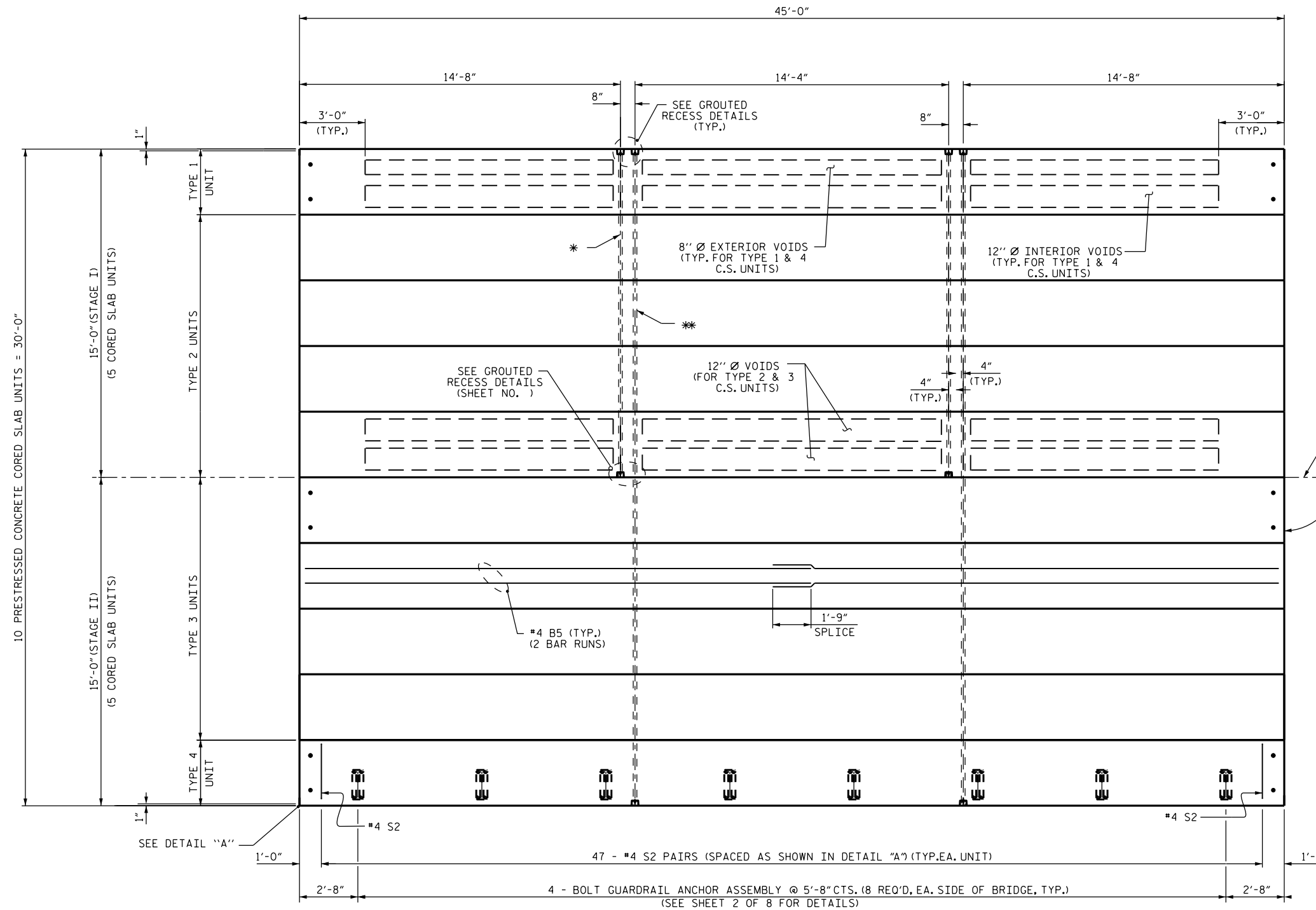
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 15B.22.12
CARTERET COUNTY
BRIDGE NO. 96

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3	
1			3			TOTAL SHEETS	
2			4			7	

ASSEMBLED BY : T. M. SHERRILL	DATE : 10/2012
CHECKED BY : E. NELSON	DATE : 10/2012
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT BOTH VOIDS ARE 12" Ø

*** IF DOWEL HOLES ARE PROVIDED AT THE END UNITS WHERE DOWELS ARE NOT REQUIRED THEY SHALL BE FILLED WITH NON-STIKING GROUT AT THE CONTRACTORS EXPENSE.

NOTES:

- "*" - STRAND GOES THRU 5 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION).
- "**" - STRAND GOES THRU ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION).

PLAN OF UNIT

PROJECT NO. 15B.22.12
 CARTERET COUNTY
 BRIDGE NO. : 96

SHEET OF

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF 45' CORED SLAB UNIT

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4	
1			3			TOTAL SHEETS	
2			4			7	

DRAWN BY : S. T. SANDOR DATE : 10/2012
 CHECKED BY : D. MULLER DATE : 10/2012

NOTES

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

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

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

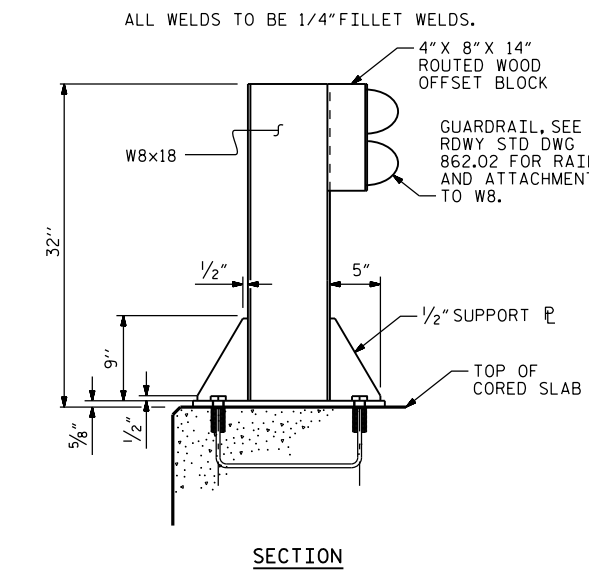
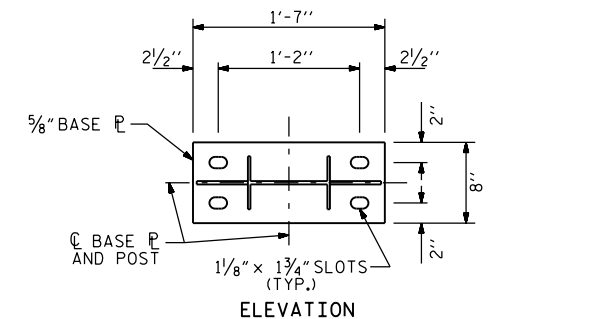
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

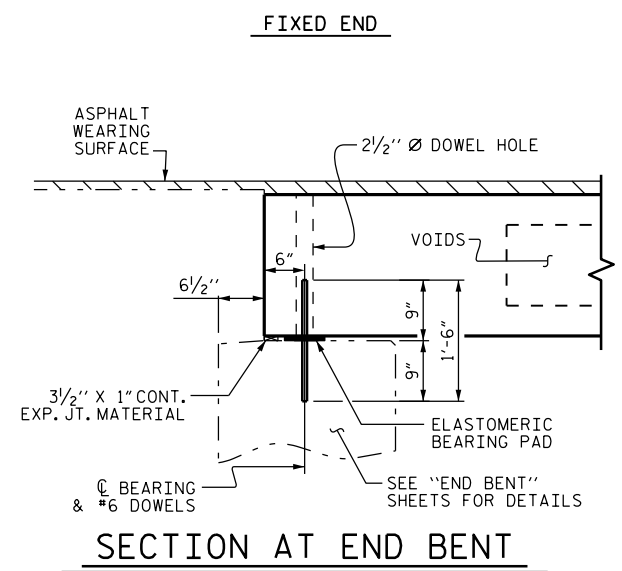
PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

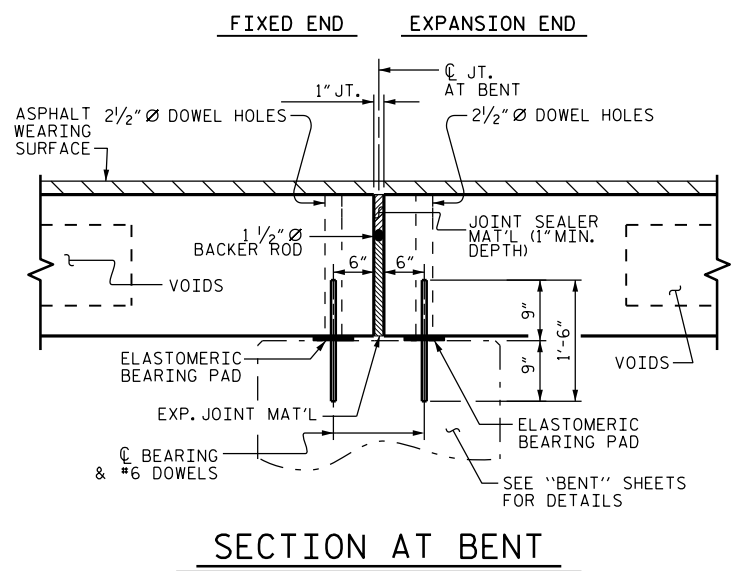
STEEL GUARDRAIL POST AND BASE PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



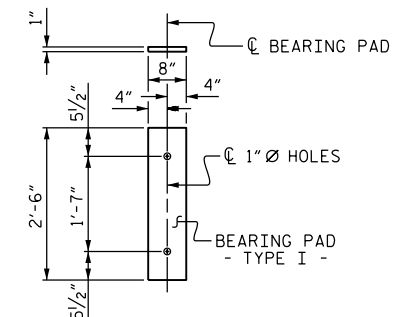
GUARDRAIL POST DETAILS



SECTION AT END BENT



SECTION AT BENT



FIXED END (TYPE I - 260 REQ'D)

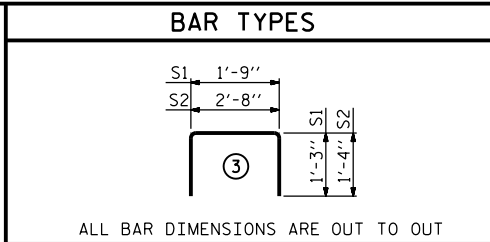
ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT (TYPE 2 & TYPE 3)

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
* B5	4	#4	STR	23'-3"	62	23'-3"	62
* S1	8	#5	3	4'-3"	35	4'-3"	35
* S2	94	#4	3	5'-4"	335	5'-4"	335
REINFORCING STEEL				LBS.	432		432
* EPOXY COATED REINFORCING STEEL				LBS.	0		0
6500 P.S.I. CONCRETE				CU. YDS.	6.5		6.5
0.6" Ø L.R. STRANDS				No.	13		13

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT (TYPE I & TYPE 4)

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
* B5	4	#4	STR	23'-3"	62	23'-3"	62
* S1	8	#5	3	4'-3"	35	4'-3"	35
* S2	94	#4	3	5'-4"	335	5'-4"	335
REINFORCING STEEL				LBS.	432		432
* EPOXY COATED REINFORCING STEEL				LBS.	0		0
6500 P.S.I. CONCRETE				CU. YDS.	7.2		7.2
0.6" Ø L.R. STRANDS				No.	14		14



CONCRETE RELEASE STRENGTH

UNIT	PSI
25', 30' & 35' UNITS	4000
40' & 45' UNITS	4000
50' & 55' UNITS	4900

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
40' & 45' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	1/8" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
45' UNIT			
EXTERIOR C.S.	26	45'-0"	1170'-0"
INTERIOR C.S.	104	45'-0"	4680'-0"
TOTAL	130	45'-0"	5850'-0"

PROJECT NO. 15B.22.12
CARTERET COUNTY
 BRIDGE NO: 96

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			7

ASSEMBLED BY : T. M. SHERRILL DATE : 10/12
 CHECKED BY : E. NELSON DATE : 10/12
 DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY : BCH 6/09

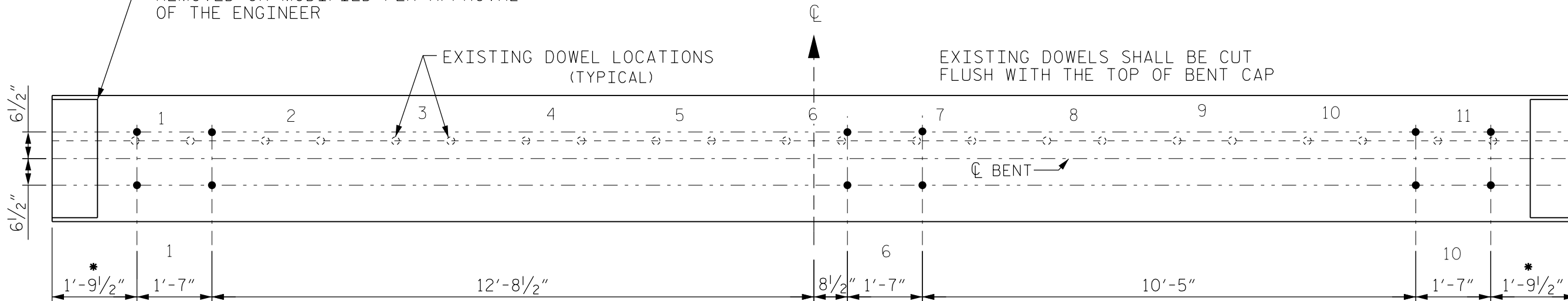
EXISTING LATERAL GUIDES MAY BE REMOVED OR MODIFIED PER APPROVAL OF THE ENGINEER

EXISTING DOWEL LOCATIONS (TYPICAL)

EXISTING DOWELS SHALL BE CUT FLUSH WITH THE TOP OF BENT CAP

NEW ANCHOR DOWELS

EXISTING ANCHOR DOWELS (ONE SIDE SHOWN)

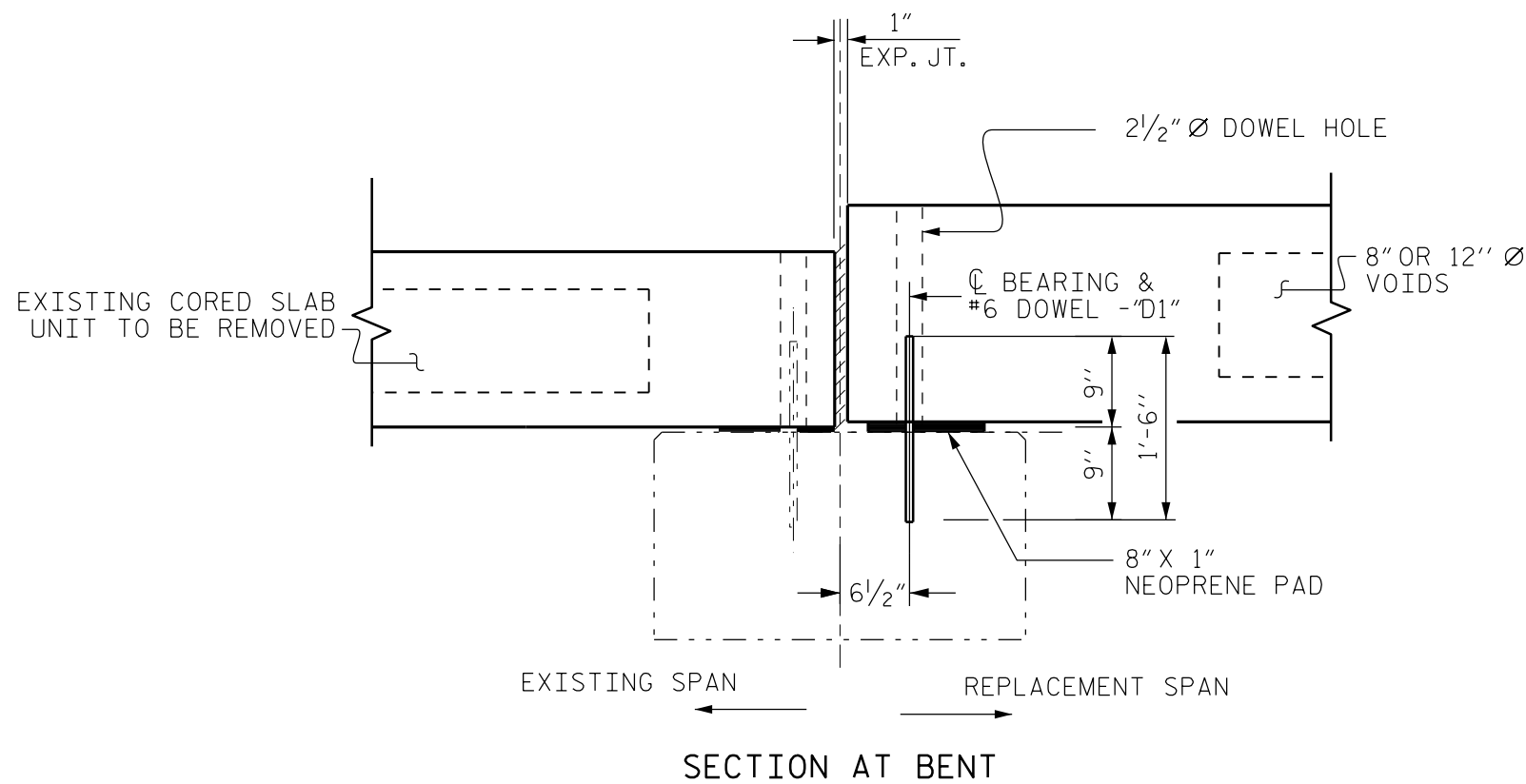


DOWEL SPACING FOR NEW CORED SLABS

* - MAY BE ADJUSTED IN THE FIELD PER APPROVAL FROM THE ENGINEER

BILL OF MATERIAL

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
D1	156	#6	STR.	1'-6"	352



PROJECT NO. 15B.22.12
CARTERET COUNTY
 BRIDGE NO. : 96

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DOWEL PLACEMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS 7
2			4			

ASSEMBLED BY : S. T. SANDOR DATE : 10/2012
 CHECKED BY : P. SPROUSE DATE : 10/2012