09/08/99

TIP PROJECT: B-3453

CONTRACT: C201794

STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3453		

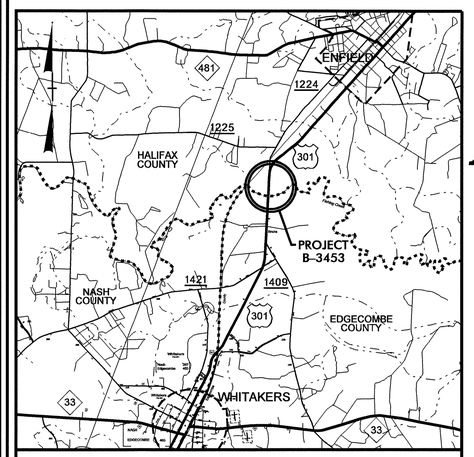
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33073.1.1	BRSTP-301(10)	PE
33073.2.1	BRSTP-301(10)	R/W, UTILITIES
33073.3.1	BRSTP-301(16)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EDGECOMBE & HALIFAX COUNTIES

LOCATION: BRIDGE NO. 23 OVER FISHING CREEK AND BRIDGE NO. 17 OVER FISHING CREEK OVERFLOW ON US 301

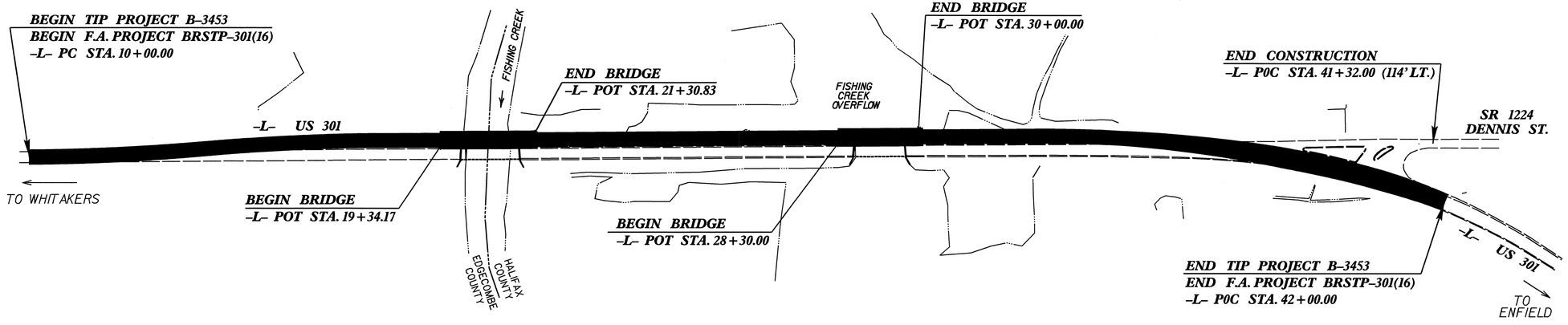
TYPE OF WORK: GRADING, DRAINAGE, STRUCTURES, PAVING, AND GUARDRAIL



VICINITY MAP

NEAREST SHIPPING POINT: ENFIELD ON
ATLANTIC COASTLINE RR, 2.0± MILES FROM
BRIDGE

NAD 83



DESIGN DATA

ADT 2005 = 7,735
ADT 2025 = 14,900
DHV = 10 %
D = 60 %
T = 13 % *
V = 60 MPH

* TTST 9 %   DUAL 4 %

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3453	=	0.537 mi
LENGTH OF STRUCTURES TIP PROJECT B-3453	=	0.069 mi
TOTAL LENGTH OF TIP PROJECT B-3453	=	0.606 mi

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 15, 2007

O. R. AZIZI, PE
PROJECT ENGINEER

T. L. COGGINS, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

SEAL 14552 GREGORY R. PERFETTI

6·24·05

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR   DATE

24-JUN-2005 13:56
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$
tcoggins

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padkins

F.A. PROJECT NO.: BRSTP-301(16)

+1.2000% -0.3000%

GRADE DATA

P.I. STA. = 19+60.00 -L-
EL. = 100.87'
V.C. = 230.00'

SECTION ALONG ℄ -L-

SPAN A | SPAN B | SPAN C

FILL FACE @ END BENT #1
STA. 19+34.17 -L-
GRADE PT. EL. 100.301

BEGIN FRONT SLOPE
STA. 19+25.53 -L-
GRADE PT. EL. 100.245

EXP.

1'-0" MIN. EARTH BERM (TYP.)

1½:1 SLOPE NORMAL TO CAP (TYP.)

EL. 93.1 ±

EL. 88.8 ±

EL. 86.4 ±

EL. 85.0 ±

EL. 84.7 ±

1'-6"

HP 12 x 53 STEEL PILES

END BENT #1

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

EL. 81.0 ±

APPROXIMATE NATURAL GROUND LINE

EL. 73.7 ±

FIXED FIXED

EL. 85.0 ±
TOP OF 4'-0" Ø DRILLED PIER
EL. 78.116
(TYP.)

BENT #1

HIGH WATER
EL. 94.9 ±
(9-18-99)

N.W.S.
EL. 76.9 ±

EL. 71.0 ±

EL. 71.1 ±

EXISTING STRUCTURE (TYP.)

FIXED FIXED

EL. 71.0 ±

TOP OF 4'-0" Ø DRILLED PIER
EL. 78.101
(TYP.)

BENT #2

EL. 85.5 ±

EL. 75.0 ±

EL. 73.2 ±

FILL FACE @ END BENT #2
STA. 21+30.83 -L-
GRADE PT. EL. 100.358

EXP.

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

BEGIN FRONT SLOPE
STA. 21+39.52 -L-
GRADE PT. EL. 100.331

EL. 86.3 ±

EL. 86.3 ±

1'-6"

EL. 85.0 ±

HP 12 x 53 STEEL PILES

END BENT #2

PLAN

(PILES NOT SHOWN FOR CLARITY)

PLAIN RIP RAP CLASS II WITH FILTER FABRIC FOR DRAINAGE (TYP.)

1'-0" MIN. EARTH BERM
EL. 91.489 (LEVEL)

1'-0" MIN. EARTH BERM
EL. 91.540 (LEVEL)

FISHING CREEK

BENT #1 CONTROL LINE

BENT #2 CONTROL LINE

W.P. #1
FILL FACE @ END BENT #1
STA. 19+34.17 -L-

BEGIN APPROACH SLAB
STA. 19+10.17 -L-

TO WHITAKERS

BEGIN FRONT SLOPE
STA. 19+25.53 -L-

STAGE II TEMPORARY SHORING (ROADWAY PAY ITEM)

W.P. #2
STA. 20+00.00 -L

BRIDGE I.D.
STA. 20+32.50 -L-

W.P. #3
STA. 20+65.00 -L

℄ -L-
(US 301)

90°-00'-00"
(TYP.)

W.P. #4
FILL FACE @ END BENT #2
STA. 21+30.83 -L-

END APPROACH SLAB
STA. 21+54.83 -L-

TO ENFIELD

BEGIN FRONT SLOPE
STA. 21+39.52 -L-

STAGE II TEMPORARY SHORING (ROADWAY PAY ITEM)

STAGE I TEMPORARY SHORING (ROADWAY PAY ITEM)

EXISTING STRUCTURE (TYP.)

STAGE I TEMPORARY SHORING (ROADWAY PAY ITEM)

32'-6" 32'-6"

65'-10" SPAN "A"

65'-0" SPAN "B"

65'-10" SPAN "C"

196'-8" TOTAL LENGTH OF BRIDGE
(FILL FACE @ END BENT #1 TO FILL FACE @ END BENT #2)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

DRAWN BY : T.L.A./P.S.A. DATE : 12-04
CHECKED BY : T.L. COGGINS DATE : 01-05

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 23

NORTH CAROLINA PROFESSIONAL SEAL 12274 ENGINEER OMAR R. AZIZI
1/16/07

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
1/16/07

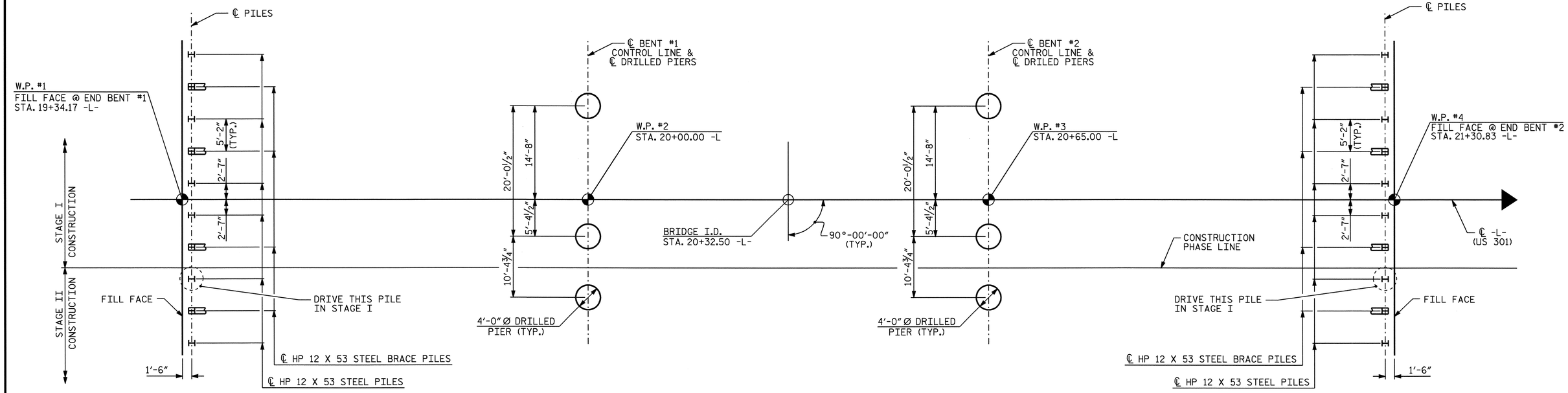
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER FISHING CREEK ON US 301 BETWEEN SR 1409 AND SR 1224

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			69

STR. #1



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINES AT THE BOTTOM OF CAP.

DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO DRILLED PIER CENTERLINES.

END BENT BRACE PILES ARE BATTERED AT 3:12.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
FISHING CREEK
ON US 301 BETWEEN
SR 1409 AND SR 1224

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/6/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : T. L. COGGINS DATE : 01-05

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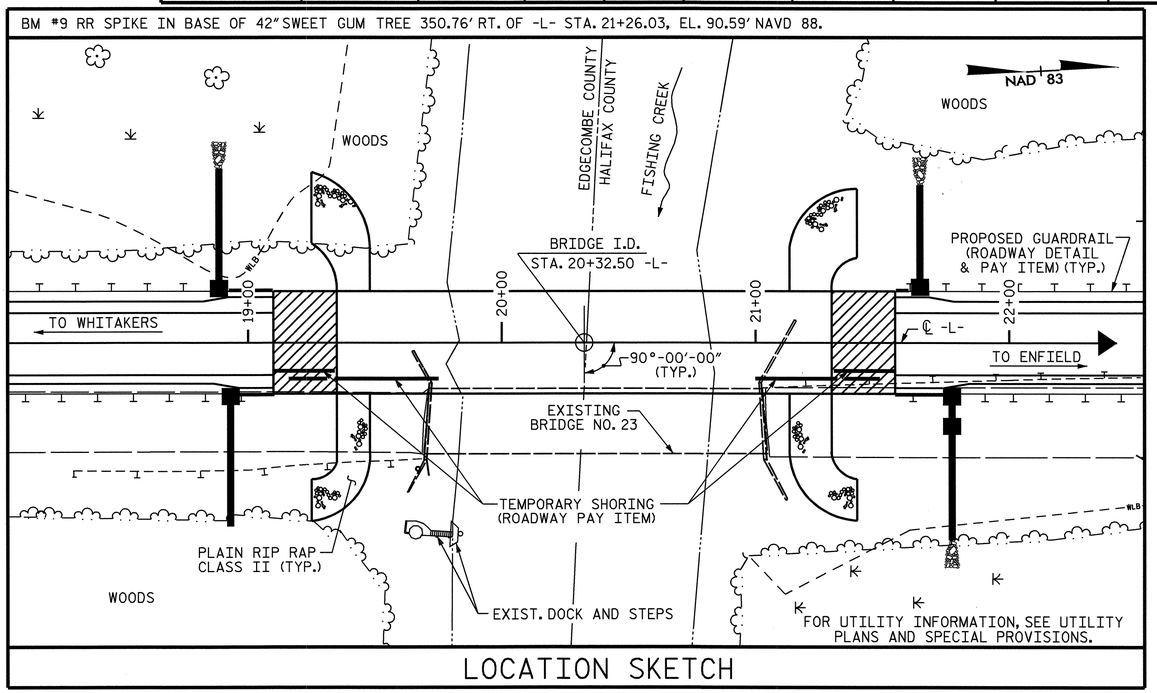
padkins

STR. #1

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	4'-0" DIA. DRILLED PIERS IN SOIL	4'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 4'-0" DIA. DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	45" PRESTRESSED CONCRETE GIRDERS		HP 12 X 53 STEEL PILES		CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	CU.YDS.	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN.FT.	NO.	LIN.FT.	LIN.FT.	TON	SQ. YD.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE									8,416	8,904					21	1,347.50			389.16			LUMP SUM	LUMP SUM
END BENT NO.1								575			28.0		4,474				10	400		189	210		
BENT NO.1			50.70	25.30	52.35	1	1				42.8		14,076	2,925									
BENT NO.2			33.27	24.40	35.30	1	1				42.8		12,906	2,475									
END BENT NO.2								260			28.0		4,474				10	250		260	288		
TOTAL	LUMP SUM	LUMP SUM	83.97	49.70	87.65	2	2	835	8,416	8,904	141.6	LUMP SUM	35,930	5,400	21	1,347.50	20	650	389.16	449	498	LUMP SUM	LUMP SUM



LOCATION SKETCH

PILES AT END BENT NOS. 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS EACH.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

THE DRILLED PIERS AT BENT NOS. 1 AND 2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 30 TONS/FT^2 .

THE REQUIRED TIP BEARING CAPACITY AT BENT NOS. 1 AND 2 SHALL BE VERIFIED.

DRILLED PIERS FOR BENT NOS. 1 AND 2 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 259 TONS EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT NO. 1 AND THE CASING SHALL NOT EXTEND BELOW ELEVATION 58.0 (LEFT) OR 62.0 (CENTER AND RIGHT), RESPECTIVELY, WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS REQUIRED FOR DRILLED PIERS AT BENT NO. 2 AND THE CASING SHALL NOT EXTEND BELOW ELEVATION 61.0 (LEFT) OR 69.0 (CENTER AND RIGHT), RESPECTIVELY, WITHOUT THE ENGINEER'S PERMISSION.

FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS FOR DRILLED PIERS.

DRILLED PIERS AT BENT NO. 1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 49.0 FT. (LEFT) AND 55.0 FT. (CENTER AND RIGHT) AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT NO. 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 53.0 FT. (LEFT) AND 62.0 FT. (CENTER AND RIGHT) AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS 58.1 FT. (LEFT) AND 62.3 FT. (CENTER AND RIGHT). THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS 61.4 FT. (LEFT) AND 68.9 FT. (CENTER AND RIGHT). THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENT NOS. 1 OR 2.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

SID INSPECTIONS MAY BE REQUIRED TO INSPECT THE BOTTOM CLEANLINESS OF THE DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTION. SEE DRILLED PIERS SPECIAL PROVISION.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENT NOS. 1 OR 2. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.

NOTES:

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 42'-2", 1 SPAN @ 42'-8" AND 1 SPAN @ 41'-6" WITH REINFORCED CONCRETE DECK ON REINFORCED CONCRETE ABUTMENTS AND BENTS WITH ROUND NOSE POST AND WEB AND LOCATED AT PROPOSED BRIDGE SITE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE 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.

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 STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR LIMITS OF TEMPORARY SHORING, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING, SEE ROADWAY PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

CRANES WILL NOT BE ALLOWED ON THE EXISTING BRIDGE DURING STAGE I CONSTRUCTION.

TEMPORARY WORK BRIDGES ARE REQUIRED. FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 20+32.50 -L-, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

FOR FABRICATED METAL STAY IN PLACE FORMS, SEE SPECIAL PROVISIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE OF EXISTING ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.

FOR STEEL H PILES, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
1/16/07

HYDRAULIC DATA

DESIGN DISCHARGE	=	17,000 CFS
FREQUENCY OF DESIGN FLOOD	=	50 YR.
DESIGN HIGH WATER ELEVATION	=	94.4'
DRAINAGE AREA	=	526 Sq. MILES
BASIC DISCHARGE (Q100)	=	20,700 CFS
BASIC HIGH WATER ELEVATION	=	95.9'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	=	22,000 CFS
FREQUENCY OF OVERTOPPING FLOOD	=	100+ YR.
OVERTOPPING FLOOD ELEVATION	=	96.2'

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 3

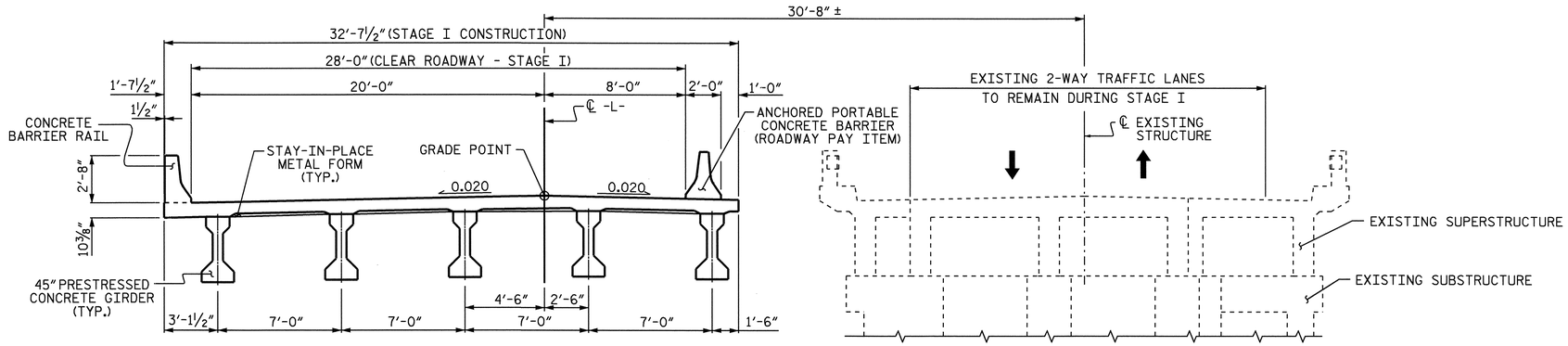
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER FISHING CREEK ON US 301 BETWEEN SR 1409 AND SR 1224

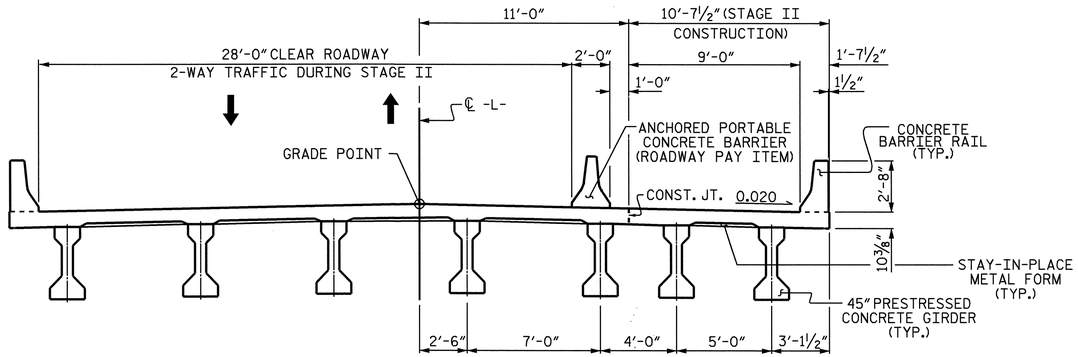
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : T.L.A./P.S.A. DATE : 12-04
CHECKED BY : T.L. COGGINS DATE : 01-05



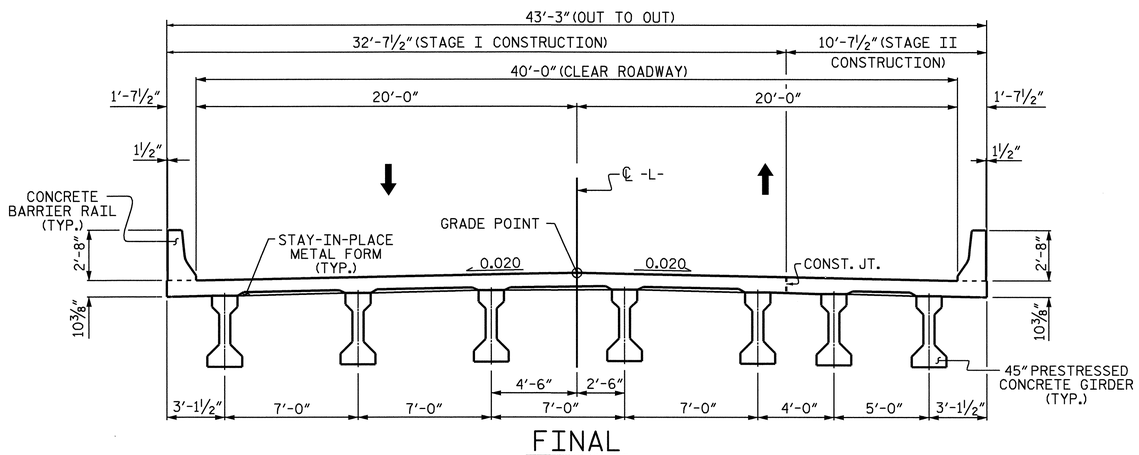
STAGE I

MAINTAIN 2-WAY TRAFFIC ON EXISTING STRUCTURE. CONSTRUCT STAGE I OF PROPOSED BRIDGE.



STAGE II

SHIFT 2-WAY TRAFFIC TO NEW STRUCTURE. COMPLETELY REMOVE EXISTING STRUCTURE. CONSTRUCT STAGE II OF PROPOSED BRIDGE. AFTER STAGE II CONSTRUCTION, REMOVE ANCHORED PORTABLE CONCRETE BARRIER AND SHIFT TRAFFIC TO FINAL 2-WAY PATTERN.



FINAL

NOTE:

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

11/16/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : T.L.A./P.S.A. DATE : 01-05
CHECKED BY : M. K./T. COGGINS DATE : 01-05

16-JAN-2007 15:00
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padkins

STR. #1

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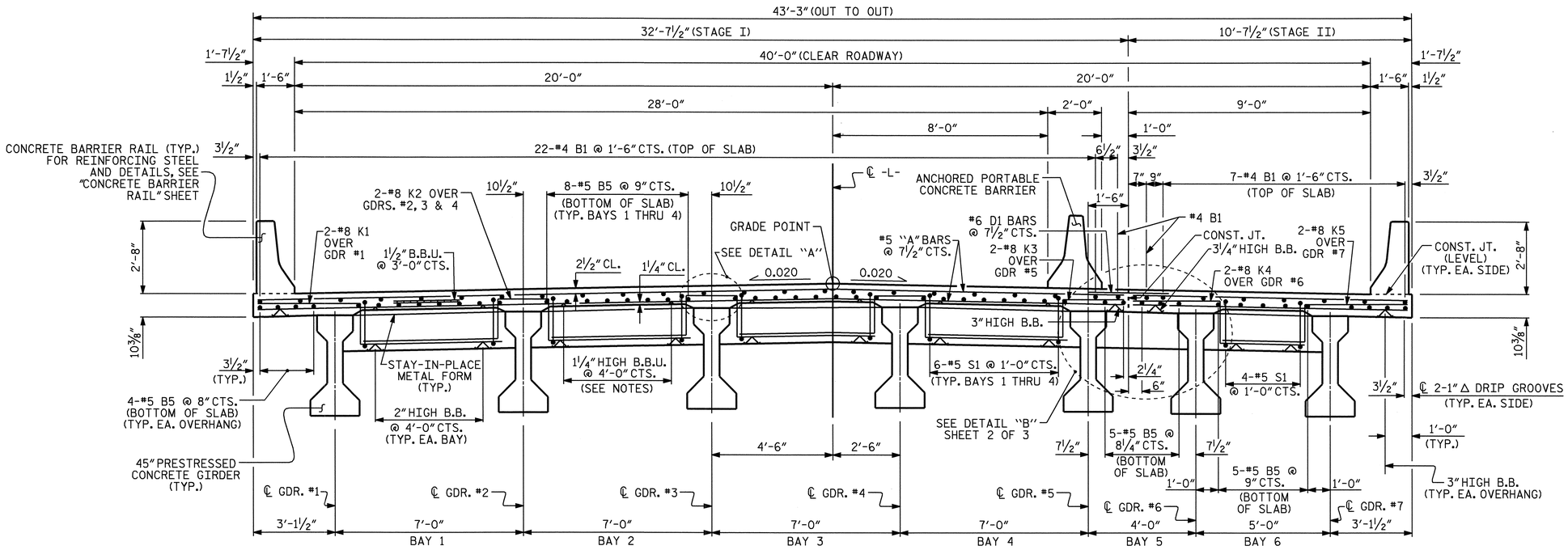
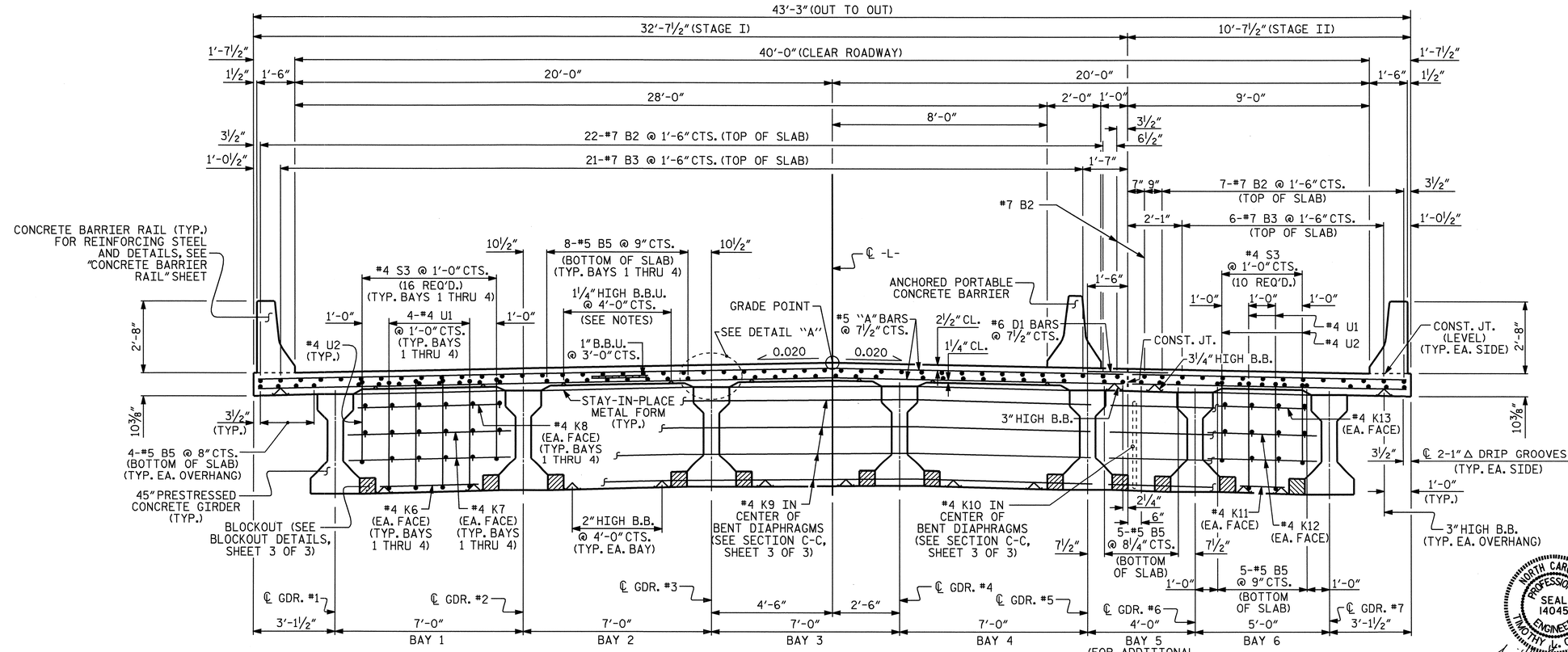
padkins



TYPICAL SECTION @ END BENT DIAPHRAGM



TYPICAL SECTION @ BENT DIAPHRAGM

(FOR ADDITIONAL REINFORCING STEEL IN BAY 5, SEE DETAIL "C", SHEET 3 OF 3)

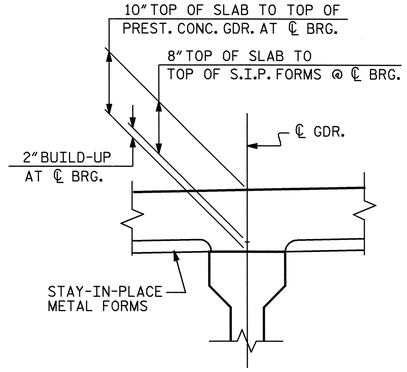
NOTES

PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.



DETAIL "A"

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

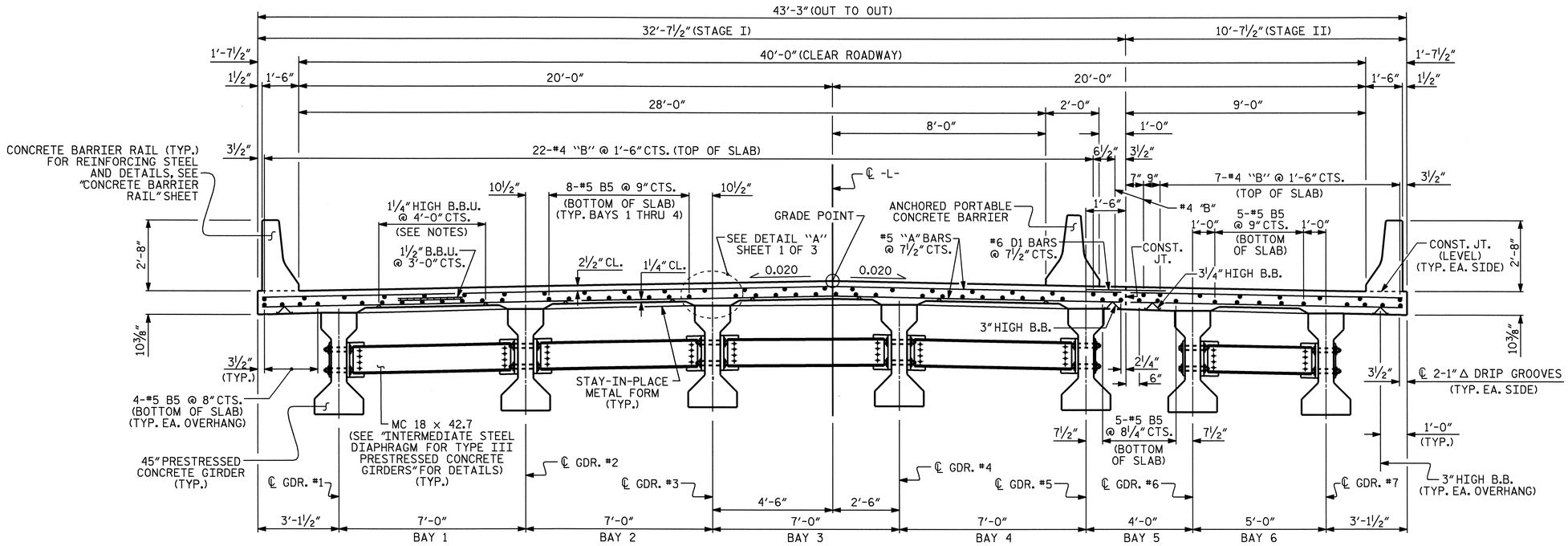
TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS 4/24/06

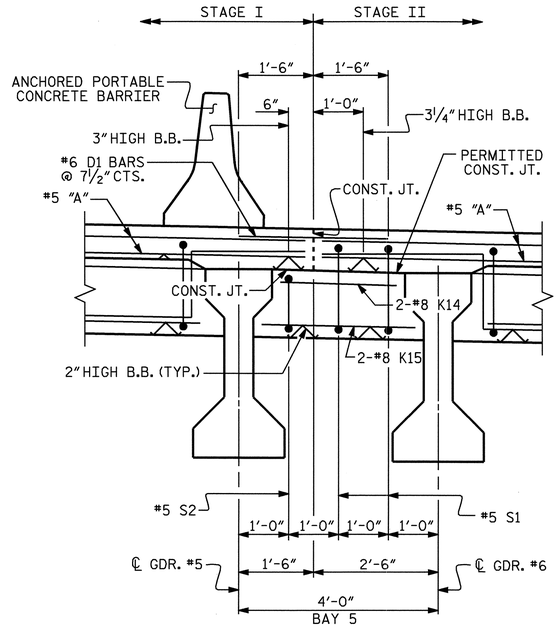
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : T.L. AVERETTE DATE : 05-03
CHECKED BY : P. ADKINS DATE : 06-03

STR. #1



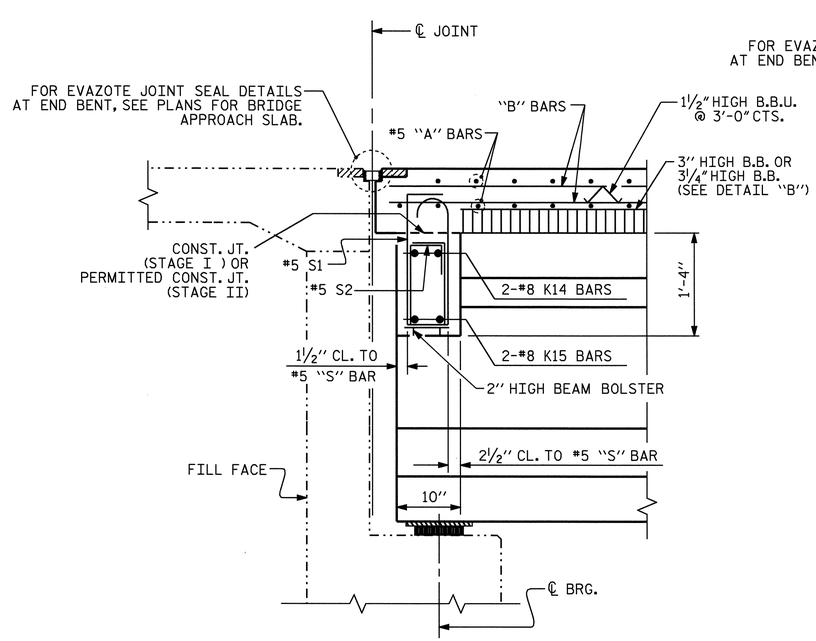
TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM



DETAIL "B"

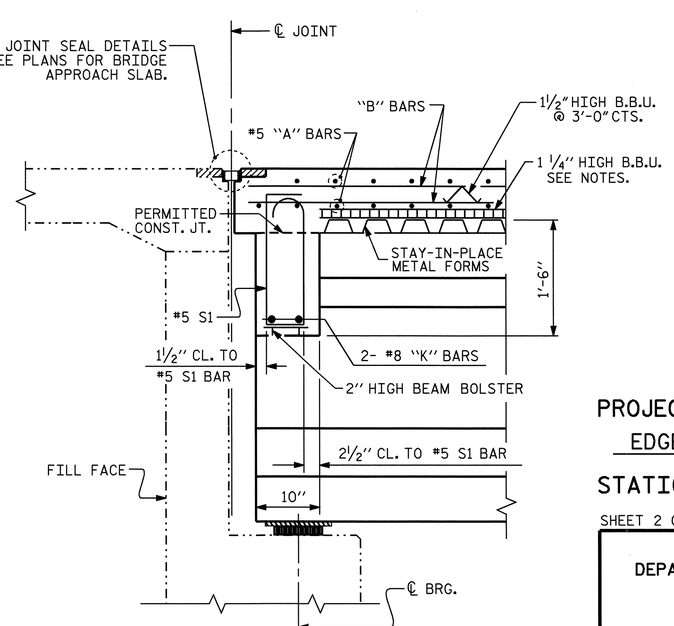
SHOWING END BENT DIAPHRAGM FOR BAY 5

"B" BARS IN TOP AND BOTTOM OF SLAB NOT SHOWN FOR CLARITY.
#6 D1 DOWELS ARE TO BE PLACED IN STAGE I.



SECTION B-B

SECTION THRU END BENT DIAPHRAGM
(SHOWING BAY 5 ONLY)



SECTION A-A

SECTION THRU END BENT DIAPHRAGM
(TYPICAL BAYS 1 THRU 4, & BAY 6)

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

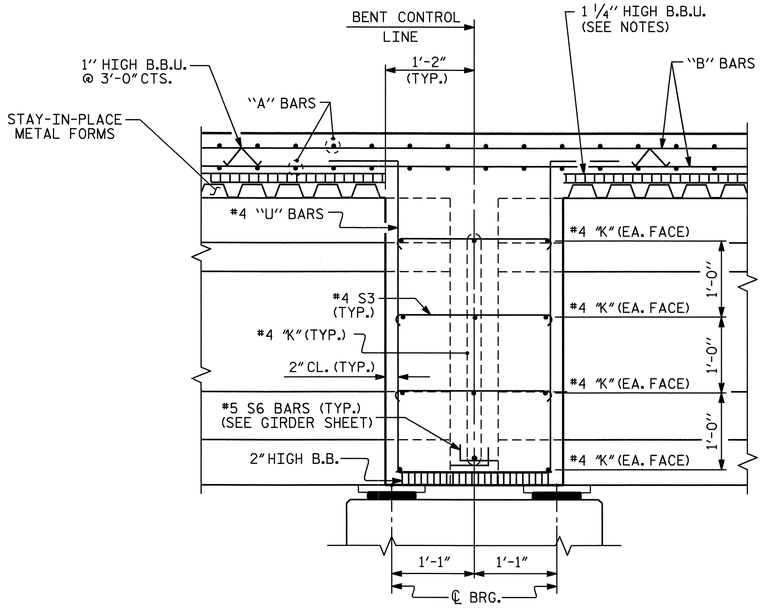
SUPERSTRUCTURE

TYPICAL SECTION AND DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			69

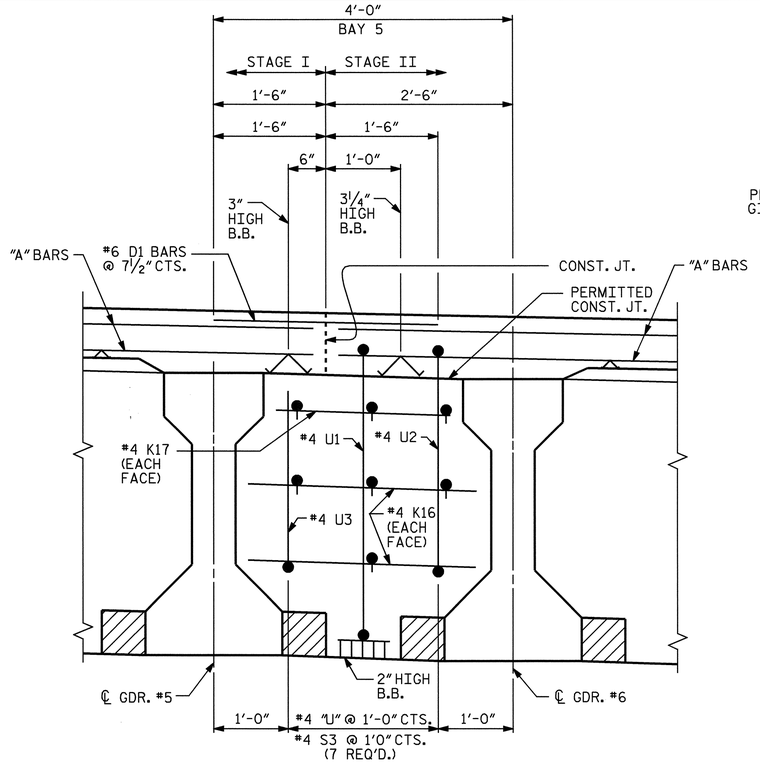
DRAWN BY : T.L. AVERETTE DATE : 05-03
CHECKED BY : P. ADKINS DATE : 06-03

STR. #1



SECTION C-C

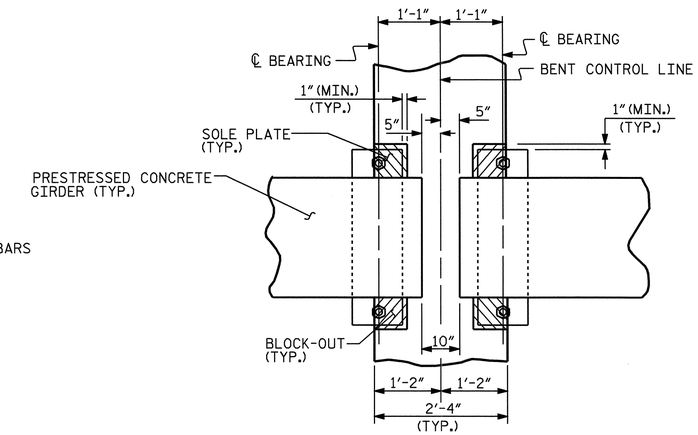
SECTION THRU BENT DIAPHRAGM



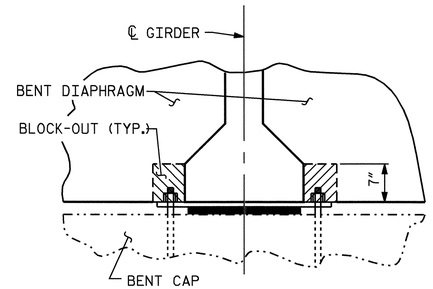
DETAIL "C"

SHOWING BENT DIAPHRAGM FOR BAY 5

"B" BARS IN TOP AND BOTTOM OF SLAB NOT SHOWN FOR CLARITY.

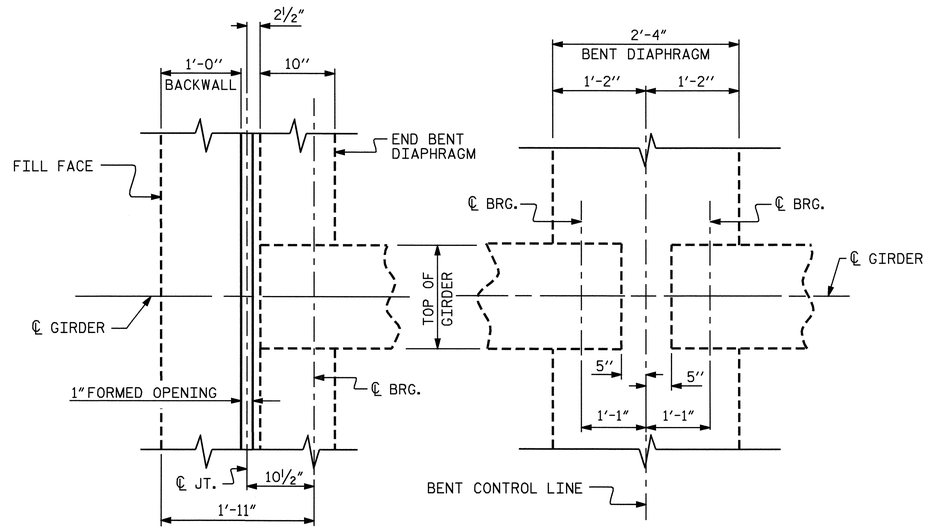


PLAN



SECTION

BENT DIAPHRAGM BLOCKOUT DETAIL



END BENT DIAPHRAGM — BENT DIAPHRAGM

PLAN

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

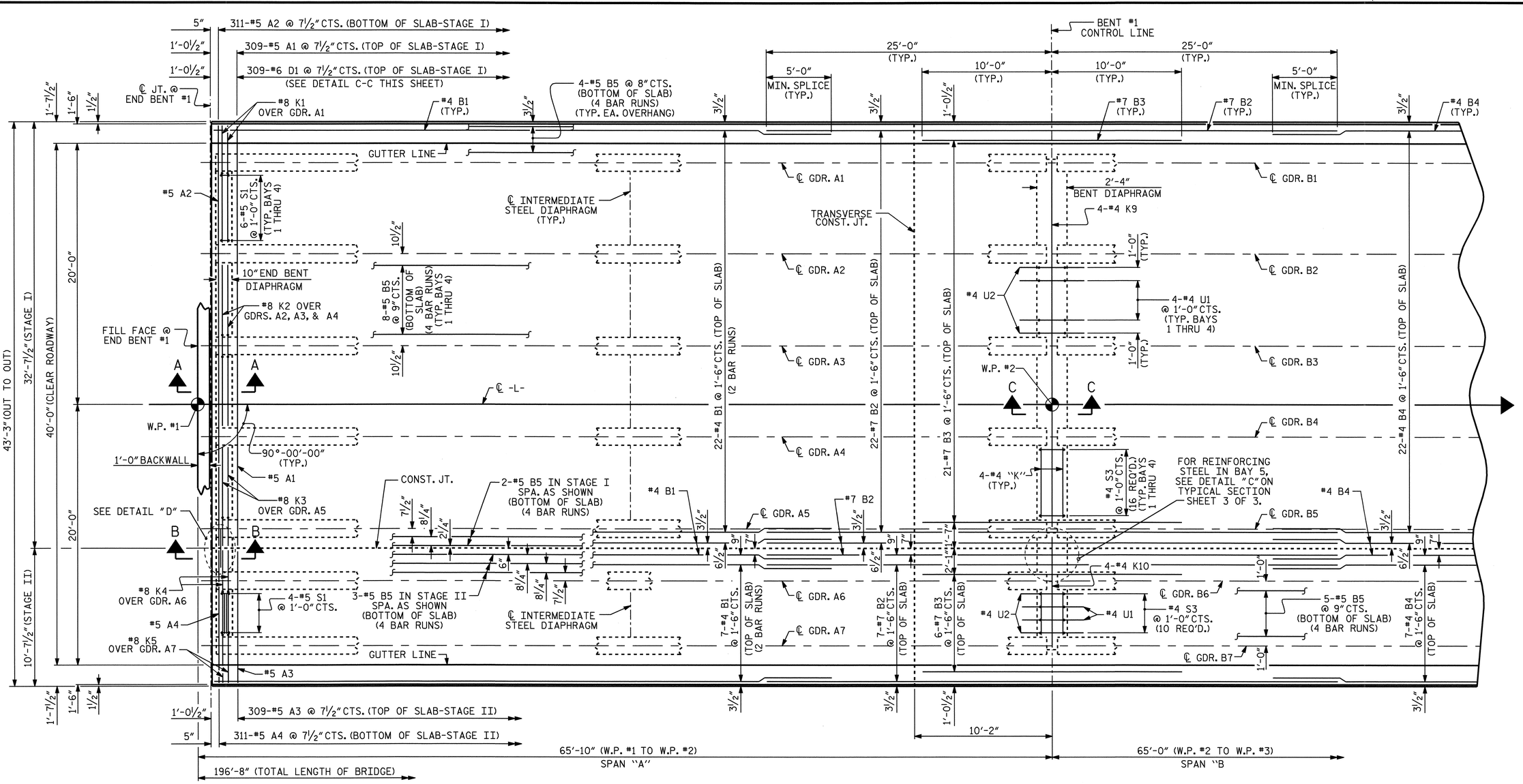
TYPICAL SECTION DETAILS

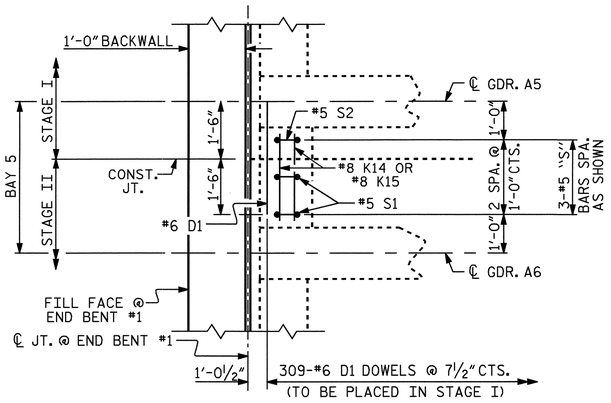
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COSGRAVE
4/26/06

DRAWN BY : T.L. AVERETTE DATE : 06-03
CHECKED BY : P. ADKINS DATE : 06-03

STR. #1





DETAIL "D"

("A" BARS AND "B" BARS NOT SHOWN)

PLAN OF SPAN "A"

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTIONS A-A AND B-B, SEE "TYPICAL SECTION AND DETAILS" SHEET 2 OF 3.
FOR SECTION C-C, SEE "TYPICAL SECTION AND DETAILS" SHEET 3 OF 3.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

DRAWN BY : T.L. AVERETTE DATE : 06-03
CHECKED BY : P. ADKINS DATE : 06-03

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 1 OF 3

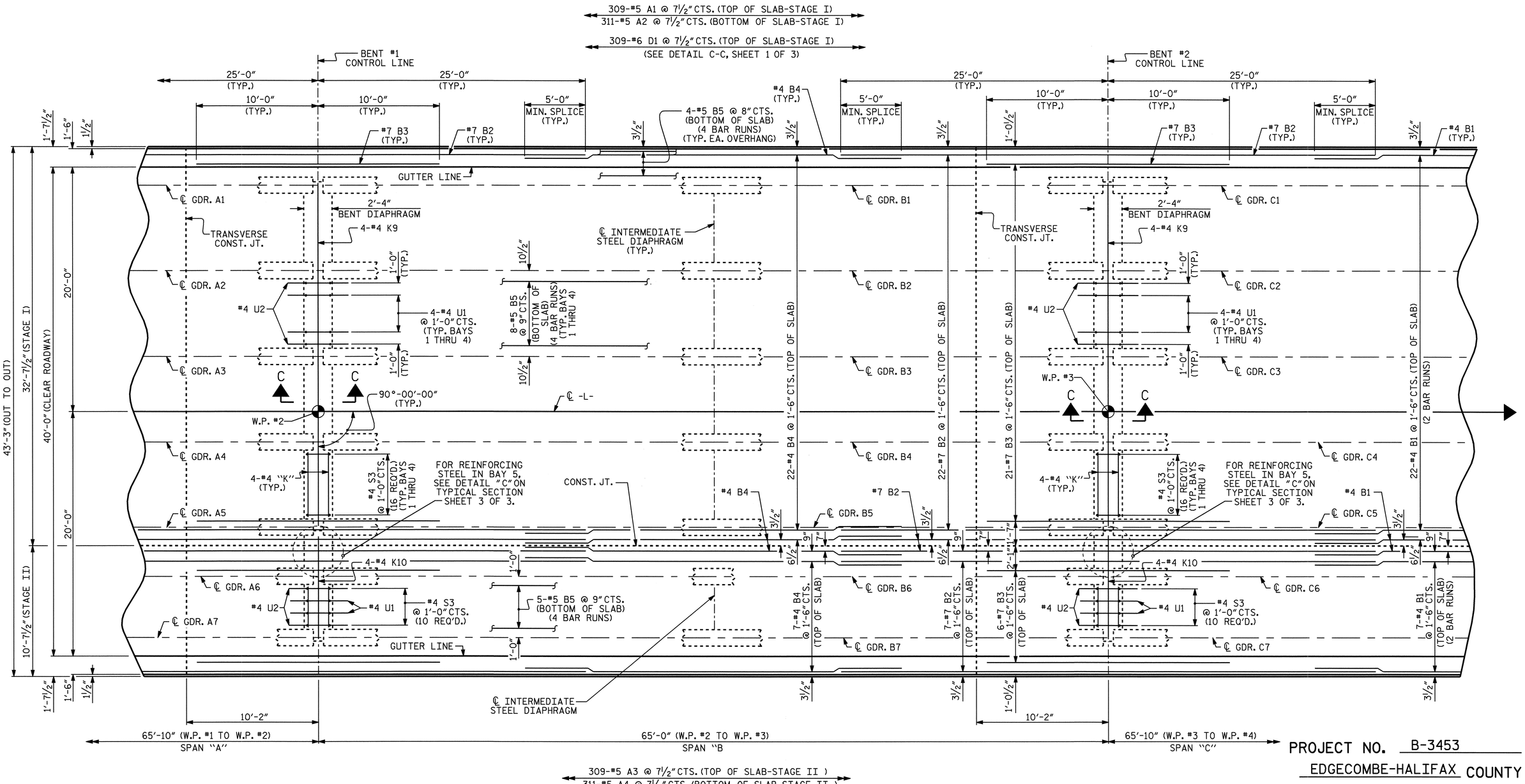
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "A"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			69

STR. #1



PLAN OF SPAN "B"

FOR LOCATION OF #5 B5 BARS IN BOTTOM OF BAY 5,
SEE PLAN OF SPAN "A", SHEET 1 OF 3 OR PLAN OF SPAN "C", SHEET 3 OF 3.
FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTION C-C, SEE "TYPICAL SECTION AND DETAILS" SHEET 3 OF 3.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/24/06

DRAWN BY : T.L. AVERETTE DATE : 06-03
CHECKED BY : P. ADKINS DATE : 06-03

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-
SHEET 2 OF 3

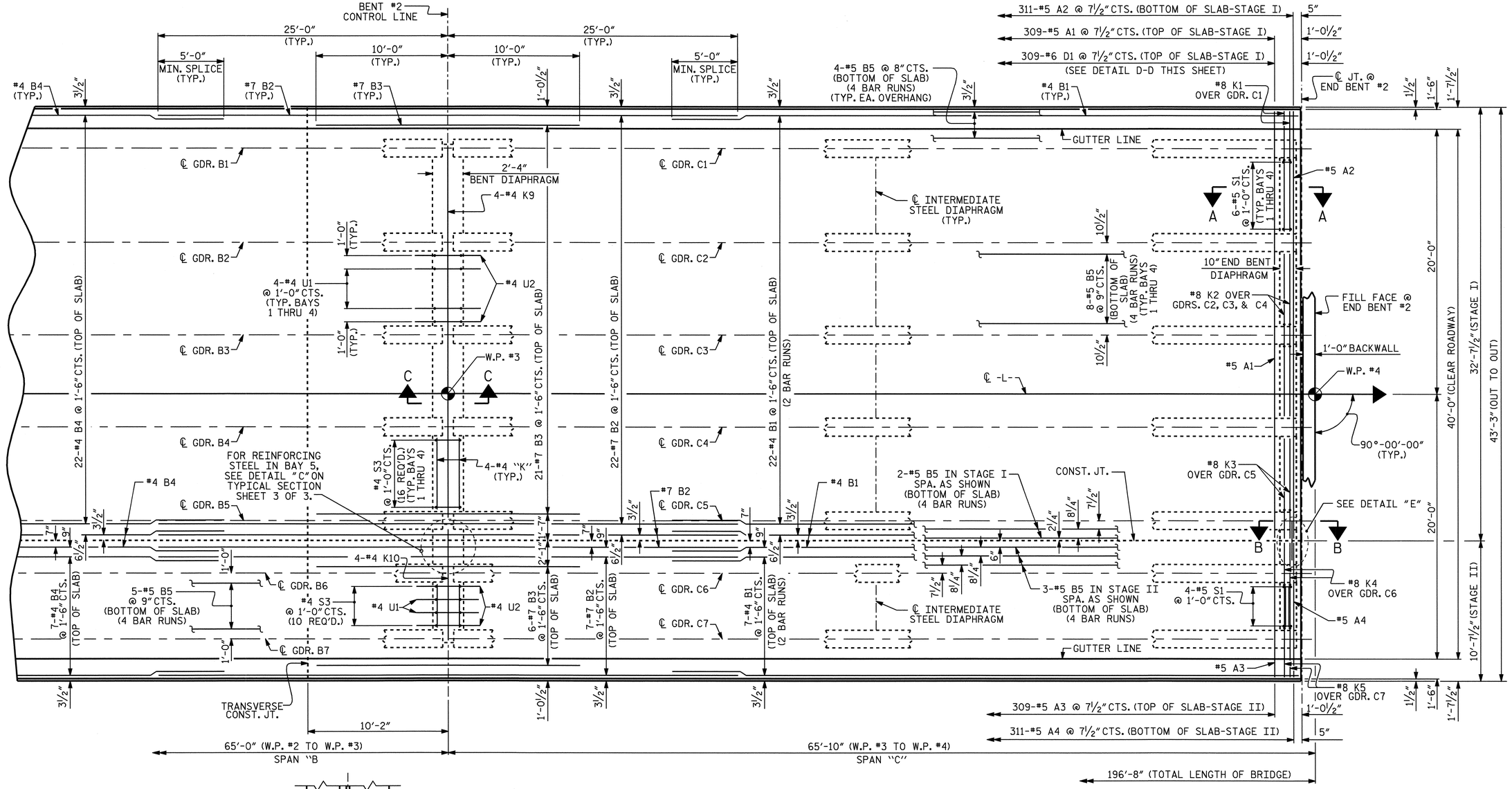
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "B"

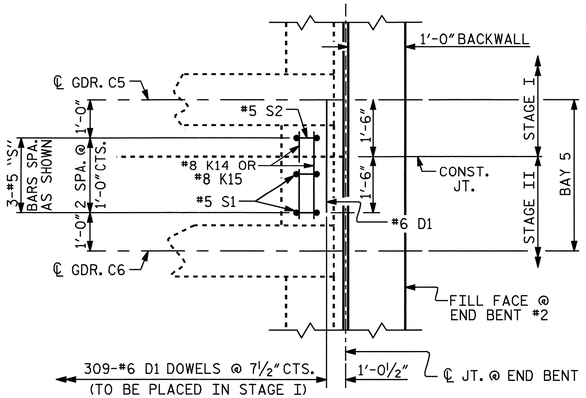
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			69

STR. #1



PLAN OF SPAN "C"

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTIONS A-A AND B-B, SEE "TYPICAL SECTION AND DETAILS" SHEET 2 OF 3.
FOR SECTION C-C, SEE "TYPICAL SECTION AND DETAILS" SHEET 3 OF 3.



DETAIL "E"

("A" BARS AND "B" BARS NOT SHOWN)

DRAWN BY : T.L. AVERETTE DATE : 06-03
CHECKED BY : P. ADKINS DATE : 06-03

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

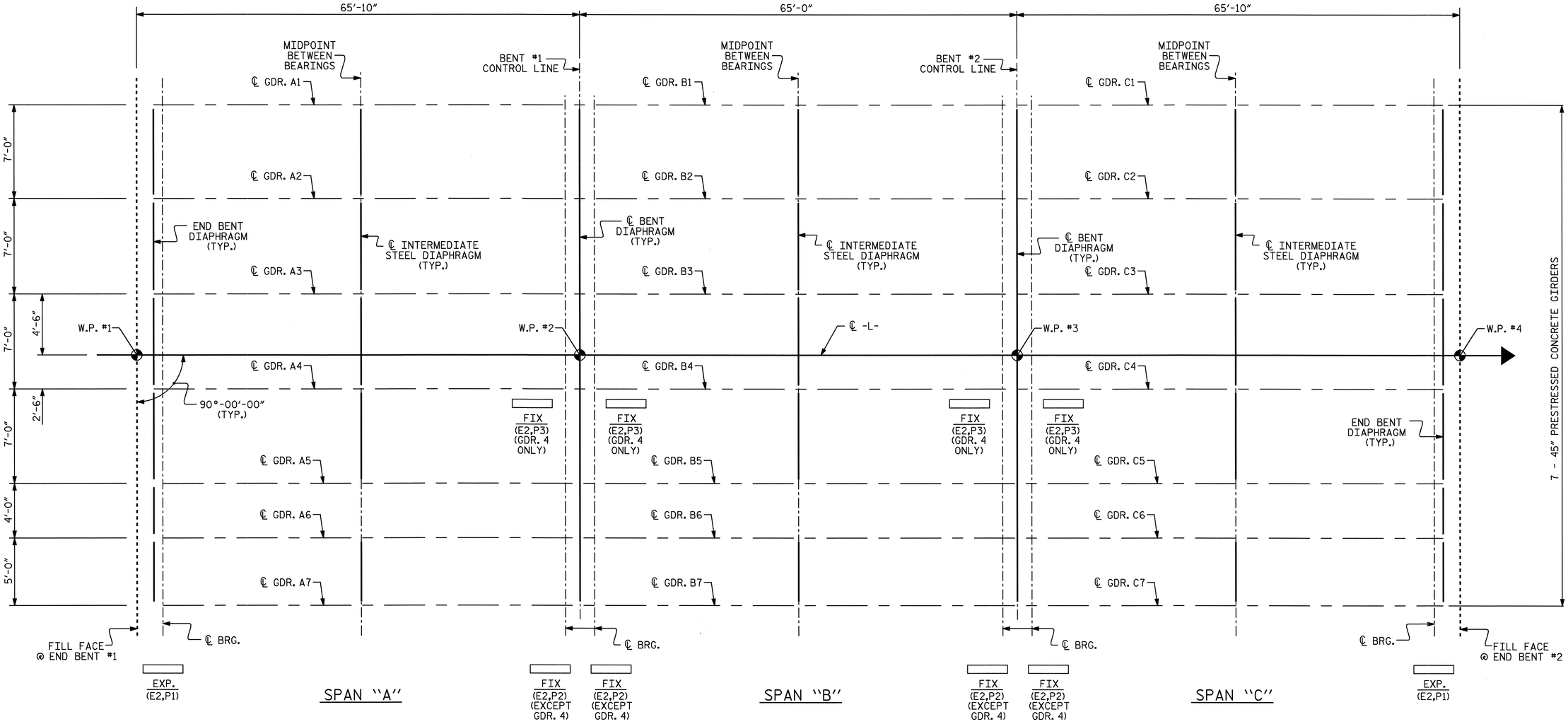
SUPERSTRUCTURE

PLAN OF SPAN "C"

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			69

STR. #1



FRAMING PLAN

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

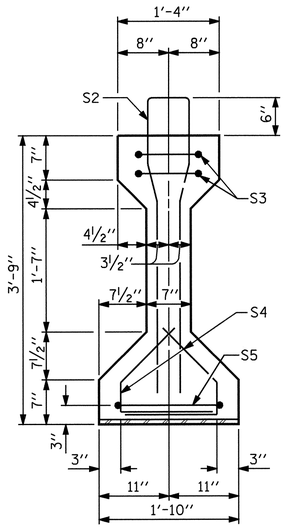
FRAMING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/16

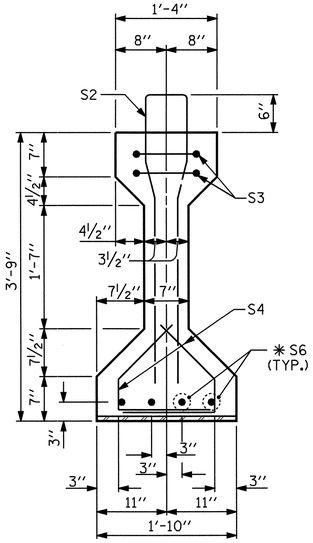
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : T.L. AVERETTE DATE : 06-03
CHECKED BY : P. ADKINS DATE : 06-03

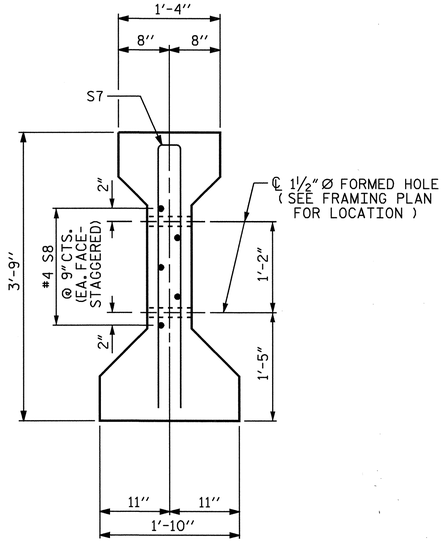
NC005 STR. #1



SECTION A-A

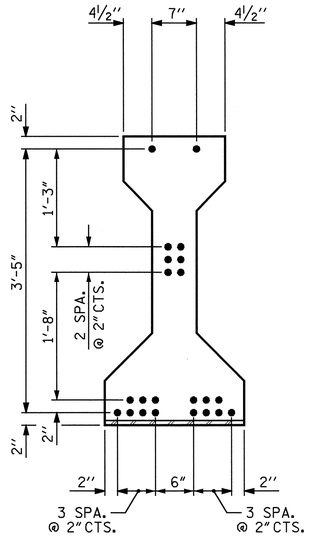


SECTION B-B

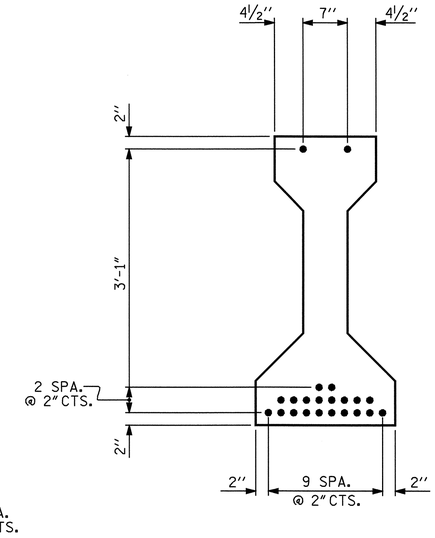


SECTION C-C

(S1 BARS NOT SHOWN)

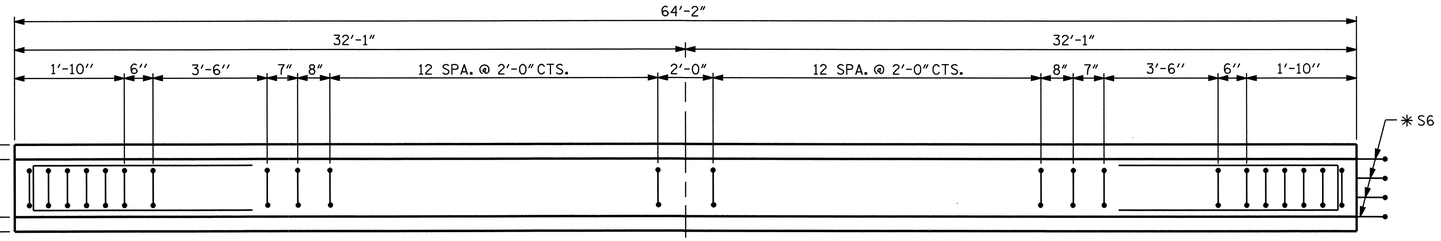


AT END OF GIRDER

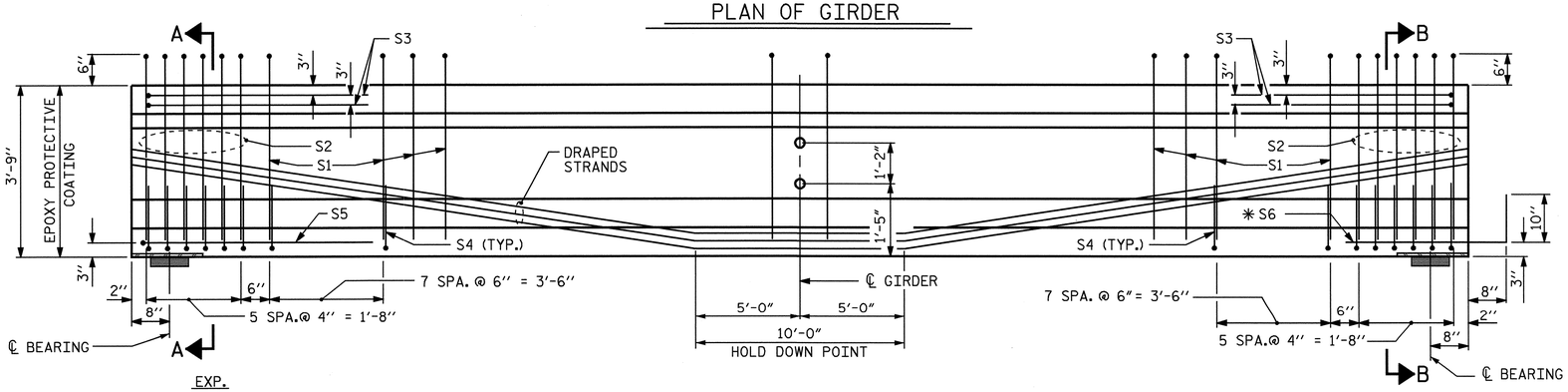


AT ℄ OF GIRDER

½" Ø LOW RELAXATION STRAND LAYOUT

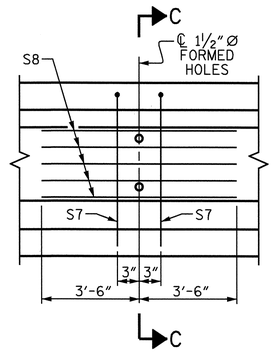


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR S7 AND S8 BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR ALL GIRDERS

½" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

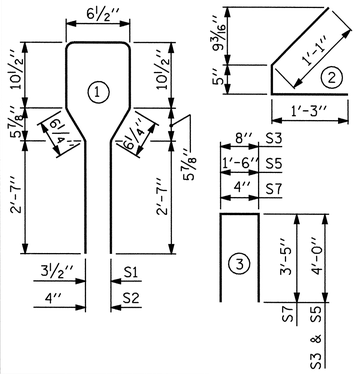
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	44	#4	1	8'-6"	250
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	56	#4	2	2'-9"	103
S5	1	#4	3	9'-6"	6
✳S6	4	#5	STR	3'-8"	15
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

✳NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	5,000 PSI CONCRETE	½" Ø L.R. STRANDS
	LB.	C.Y.	No.
	588	9.2	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
14	64'-2"	898'-4"

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
AASHTO TYPE III PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD
SPANS A & C

NOVEMBER 1991

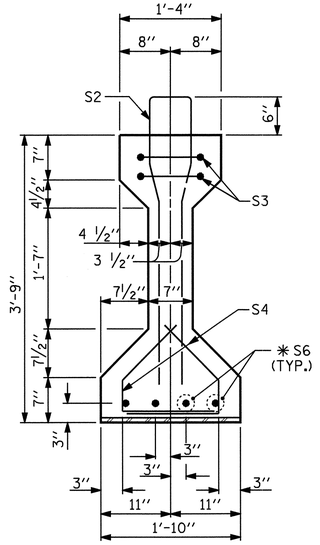
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY : T.L. AVERETTE	DATE : 06-03
CHECKED BY : P. ADKINS	DATE : 06-03
DRAWN BY : ELR 8/91	REV. 2/6/97 EEM/RGW
CHECKED BY : GRP 8/91	REV. 7/17/98 RWW/LES
	REV. 10/17/00R RWW/LES

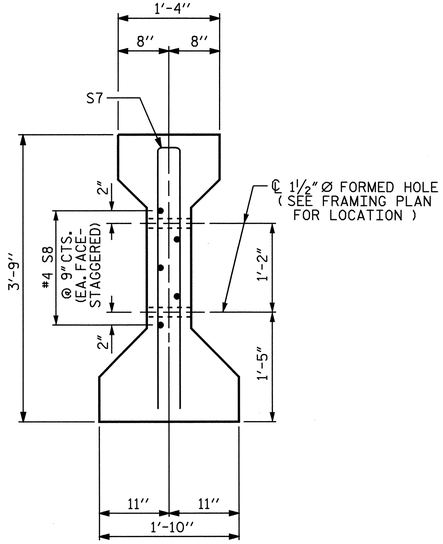
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

Timothy L. Coggins 11/16/07

STD No PCG5 STR. #1

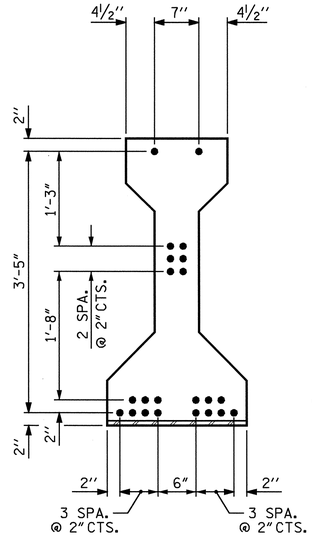


SECTION B-B

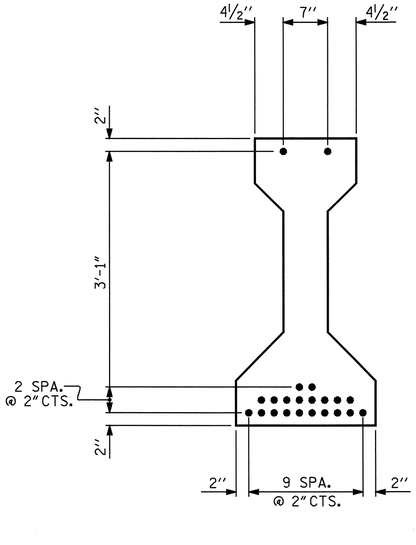


SECTION C-C

(S1 BARS NOT SHOWN)

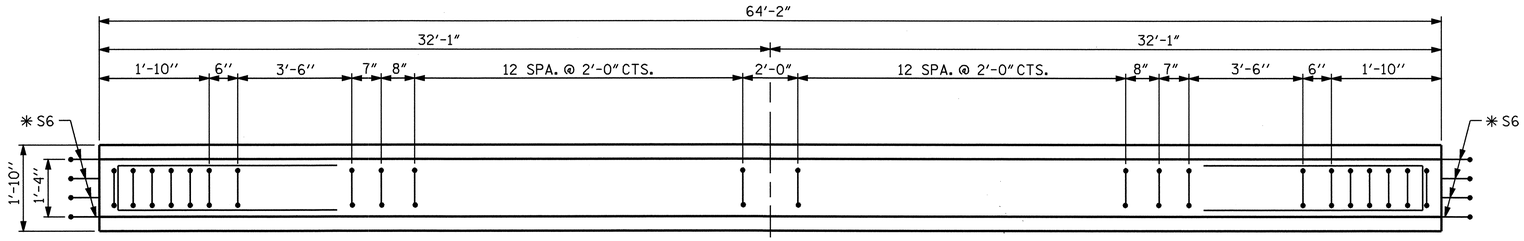


AT END OF GIRDER

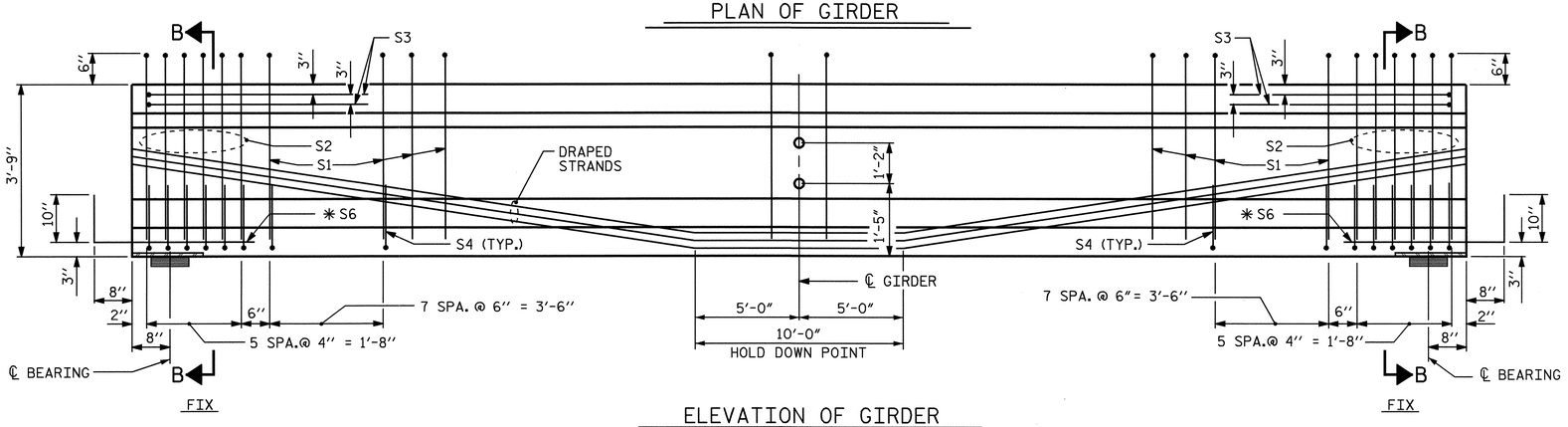


AT ℄ OF GIRDER

½" Ø LOW RELAXATION STRAND LAYOUT

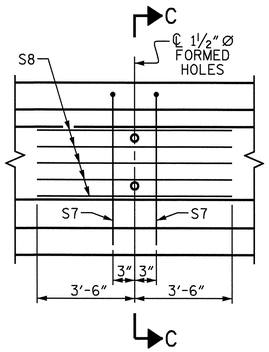


PLAN OF GIRDER



ELEVATION OF GIRDER

(SEE PARTIAL ELEVATION FOR S7 AND S8 BARS)



PARTIAL ELEVATION

SHOWING INTERMEDIATE DIAPHRAGM REINFORCING STEEL FOR ALL GIRDERS

½" Ø L. R. GRADE 270 STRANDS

AREA (SQUARE INCHES)	ULTIMATE STRENGTH (LBS. PER STRAND)	APPLIED PRESTRESS (LBS. PER STRAND)
0.153	41,300	30,980

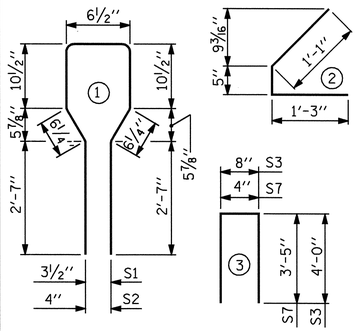
REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
S1	44	#4	1	8'-6"	250
S2	12	#6	1	8'-6"	153
S3	4	#4	3	8'-8"	23
S4	56	#4	2	2'-9"	103
✱S6	8	#5	STR	3'-8"	31
S7	2	#5	3	7'-2"	15
S8	5	#4	STR	7'-0"	23

✱NOTE: S6 BARS SHALL BE BENT BEFORE SHIPMENT. HEAT BENDING SHALL NOT BE ALLOWED.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



QUANTITIES FOR ONE GIRDER

	REINFORCING STEEL	5,000 PSI CONCRETE	½" Ø L.R. STRANDS
	LB.	C.Y.	No.
	598	9.2	22

GIRDERS REQUIRED

NUMBER	LENGTH	TOTAL LENGTH
7	64'-2"	449'-2"

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
AASHTO TYPE III
PRESTRESSED CONCRETE GIRDER
CONTINUOUS FOR LIVE LOAD
SPAN B

NOVEMBER 1991

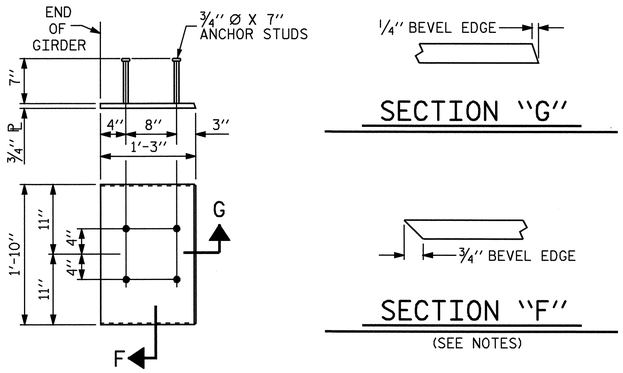
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY : T.L. AVERETTE	DATE : 06-03
CHECKED BY : P. ADKINS	DATE : 06-03
DRAWN BY : ELR 8/91	REV. 2/6/97 EEM/RGW
CHECKED BY : GRP 8/91	REV. 7/17/98 RWW/LES
	REV. 10/17/00R RWW/LES

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

11/16/07

STD No PCG5 STR. #1



EMBEDDED PLATE "B-1" DETAILS FOR AASHTO TYPE III GIRDER

(2 REQ'D PER GIRDER)

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 SHALL BE GRADE 60.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES INDICATED IN ELEVATION VIEW. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. BEVEL EDGES OF PLATE "B-1" TO GIVE CLOSE FIT BUT NOT TIGHT FIT TO STEEL CASTING FORM.

ANCHOR STUDS SHALL CONFORM TO AASHTO M169 GRADES 1010 THROUGH 1020 OR APPROVED EQUAL, AND SHALL MEET THE TYPE "B" REQUIREMENTS OF SUBSECTION 7.3 OF THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

AT ENDS OF GIRDERS TO BE EMBEDDED IN CONCRETE DIAPHRAGMS OR END WALLS, PRESTRESSING STRANDS MAY EXTEND A MAXIMUM OF 2" BEYOND THE GIRDER ENDS. OTHERWISE, PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE GIRDER ENDS.

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

DEPENDING ON THE TYPE OF SYSTEM USED TO SUPPORT THE DECK SLAB FORMS, PRESET ANCHORS MAY BE NECESSARY IN THE PRESTRESSED CONCRETE GIRDER.

THE TOP SURFACE OF THE GIRDER, EXCLUDING THE OUTSIDE 4", SHALL BE RAKED TO A DEPTH OF 1/4".

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 6" OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 1/2" OF THE THEORETICAL LOCATION SHOWN.

FOR VERTICAL CRACKS IN PRESTRESSED CONCRETE GIRDERS PRIOR TO DETENSIONING, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

1/2"Ø LOW RELAXATION	SPAN A, B & C																																
	GIRDER 1											GIRDERS 2 THRU 4											GIRDER 5										
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.045	0.084	0.115	0.135	0.142	0.135	0.115	0.084	0.045	0.000	0.000	0.045	0.084	0.115	0.135	0.142	0.135	0.115	0.084	0.045	0.000	0.000	0.045	0.084	0.115	0.135	0.142	0.135	0.115	0.084	0.045	0.000
✱DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.000	0.017	0.032	0.044	0.052	0.054	0.052	0.044	0.032	0.017	0.000	0.000	0.018	0.034	0.047	0.055	0.057	0.055	0.047	0.034	0.018	0.000	0.000	0.016	0.030	0.040	0.047	0.050	0.047	0.040	0.030	0.016	0.000
FINAL CAMBER ↑	0	5/16"	5/8"	7/8"	1"	1 1/16"	1"	7/8"	5/8"	5/16"	0	0	5/16"	5/8"	13/16"	15/16"	1"	15/16"	13/16"	5/8"	5/16"	0	0	3/8"	11/16"	7/8"	1 1/16"	1 1/8"	1 1/16"	7/8"	11/16"	3/8"	0

✱ INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

1/2"Ø LOW RELAXATION	SPAN A, B & C																						
	GIRDER 6											GIRDER 7											
TENTH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	
CAMBER (GIRDER ALONE IN PLACE) ↑	0.000	0.045	0.084	0.115	0.135	0.142	0.135	0.115	0.084	0.045	0.000	0.000	0.045	0.084	0.115	0.135	0.142	0.135	0.115	0.084	0.045	0.000	
✱DEFLECTION DUE TO SUPERIMPOSED D.L. ↓	0.000	0.013	0.024	0.032	0.038	0.040	0.038	0.032	0.024	0.013	0.000	0.000	0.015	0.028	0.039	0.045	0.047	0.045	0.039	0.028	0.015	0.000	
FINAL CAMBER ↑	0	3/8"	3/4"	1"	1 3/16"	1 1/4"	1 3/16"	1"	3/4"	3/8"	0	0	3/8"	11/16"	15/16"	1 1/16"	1 1/8"	1 1/16"	15/16"	11/16"	3/8"	0	

✱ INCLUDES FUTURE WEARING SURFACE
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT " FINAL CAMBER ", WHICH IS GIVEN IN INCHES (FRACTION FORM).

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
PRESTRESSED CONCRETE GIRDER CONTINUOUS FOR LIVE LOAD DETAILS

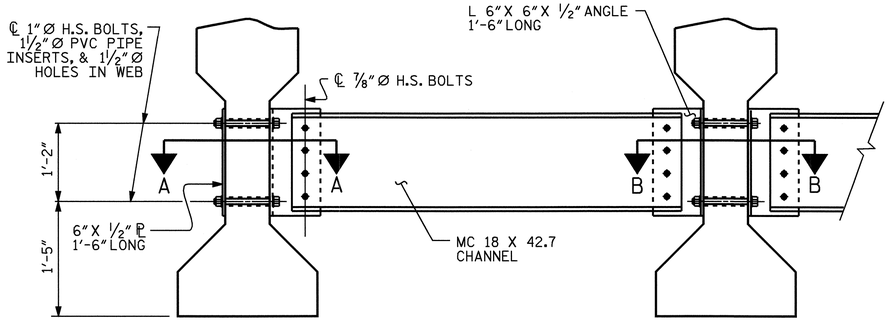
NOVEMBER 1991

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			69

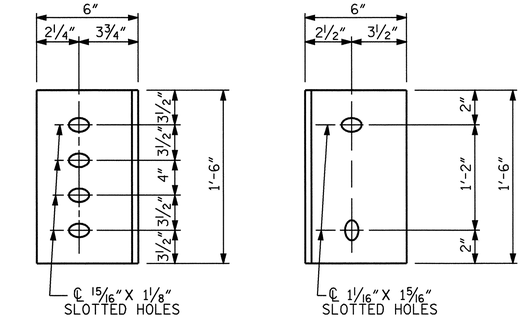
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
11/16/07

ASSEMBLED BY : T.L. AVERETTE	DATE : 06-03
CHECKED BY : P. ADKINS	DATE : 06-03
DRAWN BY : ELR 11/91	REV. 8/16/99 MAB/LES
CHECKED BY : GRP 11/91	REV. 10/17/00 RWW/LES
	REV. 7/10/01RR LES/RDR

STD.No.PCG11 STR. #1



PART SECTION AT INTERMEDIATE DIAPHRAGM



CONNECTION PLATE DETAILS

STRUCTURAL STEEL NOTES

ALL INTERMEDIATE DIAPHRAGM STEEL, CONNECTOR PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 50 OR APPROVED EQUAL.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE CHANNEL MEMBER SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS THROUGH THE GIRDER WEB SHALL BE SNUG TIGHTENED FOLLOWED BY AN ADDITIONAL ¼ TURN.

THE CHANNELS, ANGLES, BOLTS, WASHERS, PLATE WASHERS AND DIRECT TENSION INDICATORS SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

USE A MINIMUM 7/16" THICK PLATE WASHER WITH STANDARD HOLES UNDER EACH BOLT HEAD AND NUT. THE PLATE WASHERS SHALL HAVE SUFFICIENT SIZE TO COVER THE HOLES AFTER INSTALLATION. DIRECT TENSION INDICATORS ARE TO BE USED IN CONJUNCTION WITH THE PLATE WASHERS.

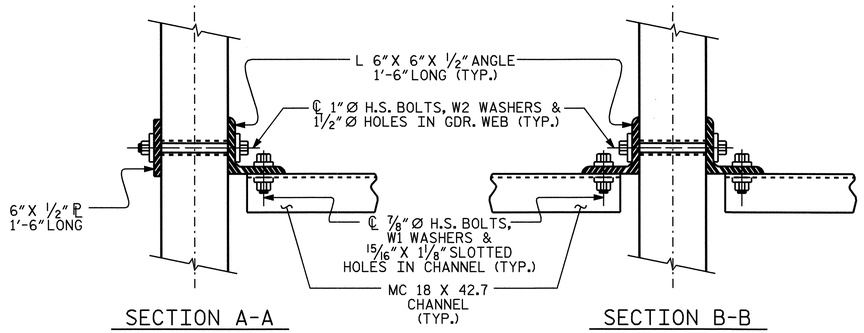
PROVIDE SUFFICIENT LENGTH OF ALL BOLTS TO ACCOMODATE WASHERS, DIRECT TENSION INDICATORS, THE THICKNESS OF CONNECTING MEMBER PLUS AT LEAST ¼" PROJECTION BEYOND THE NUT.

INTERMEDIATE DIAPHRAGM ASSEMBLY SHALL COMPLY WITH SECTION 1072 OF THE STANDARD SPECIFICATIONS.

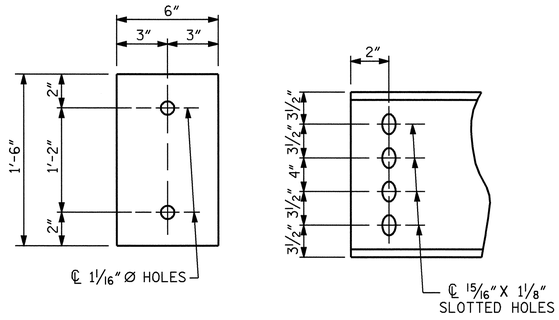
CONTRACTOR SHALL SUBMIT TWO SETS OF WORKING DRAWINGS FOR THE INTERMEDIATE DIAPHRAGM ASSEMBLY FOR REVIEW, COMMENTS AND ACCEPTANCE. AFTER REVIEW, COMMENTS, AND ACCEPTANCE, SUBMIT SEVEN SETS FOR DISTRIBUTION.

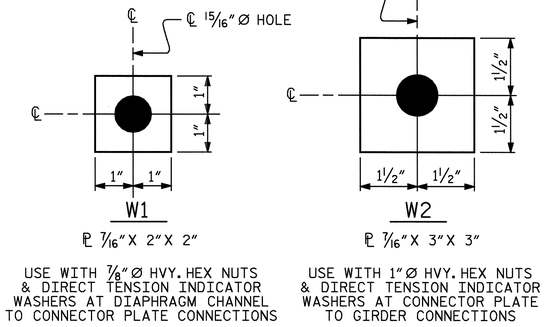
IN THE EXTERIOR BAYS, TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE STEEL DIAPHRAGMS. STRUTS SHALL REMAIN IN PLACE 3 DAYS AFTER CONCRETE IS PLACED. ALL AASHTO M164 H.S. BOLTS SHALL BE FULLY TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

THE COST OF THE STEEL DIAPHRAGMS AND ASSEMBLIES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



CONNECTION DETAILS





WASHER DETAILS

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

4/24/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD INTERMEDIATE STEEL DIAPHRAGM FOR TYPE III PRESTRESSED CONCRETE GIRDERS

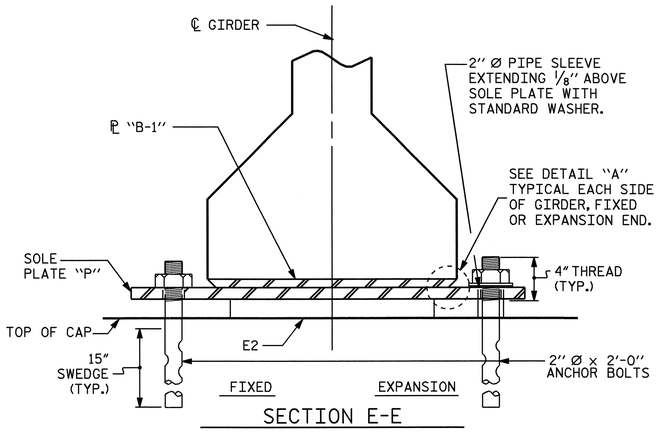
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY : PEGGY ADKINS DATE : 1-06 CHECKED BY : T. L. COGGINS DATE : 4-06	
DRAWN BY : TLA 6/05 CHECKED BY : VC 6/05	ADDED 10/21/05

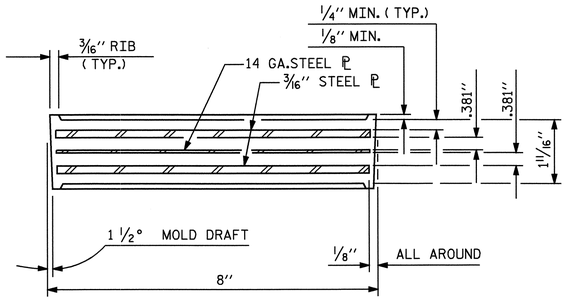
26-APR-2006 09:45
R:\STRUCTØ1\b3453\str#1\padkins\MICROSØ1\B3453_SD_G3_01.dgn
padkins

STR. #1

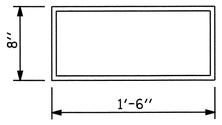
STD.No.PCG12



SECTION E-E



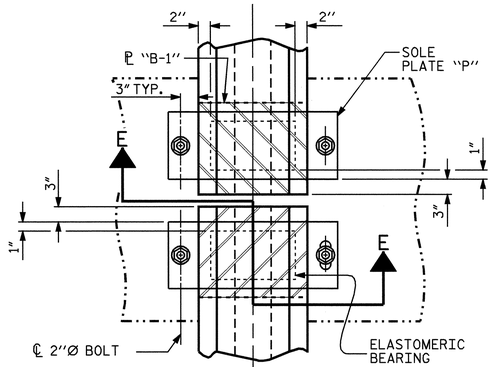
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (42 REQ'D)

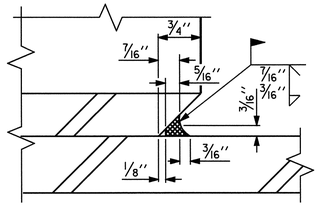
PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

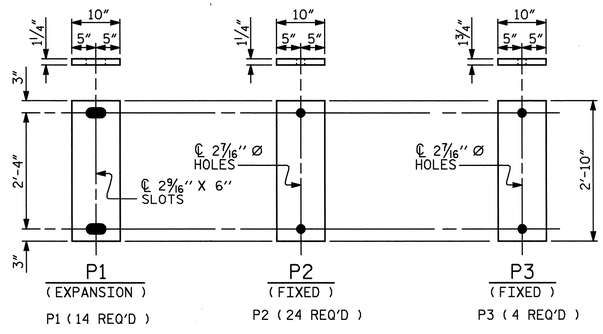


TYPICAL HALF-PLAN (SHOWING CONTINUOUS BENT)

TYPICAL HALF-PLAN (EXPANSION AT END BENT ONLY)



DETAIL "A"



SOLE PLATE DETAILS ("P")

NOTES

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

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

STEEL SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE EMBEDDED PLATE AND SOLE PLATE THAT ARE TO BE WELDED. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHEN WELDING THE SOLE PLATE TO THE EMBEDDED PLATE IN THE GIRDER, 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.

SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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 BOLT, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

— LOAD RATINGS —	
	MAX.D.L.+L.L.
45"PCG -TYPE III	115 K

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

ASSEMBLED BY : T.L. AVERETTE	DATE : 06-03				
CHECKED BY : P. ADKINS	DATE : 06-03				
DRAWN BY : WJH 8/89	REV. 8/16/99	RWW/LES			
CHECKED BY : CRK 8/89	REV. 10/17/00	RWW/LES			
	REV. 7/10/01	RWW/LES			

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
4/26/06

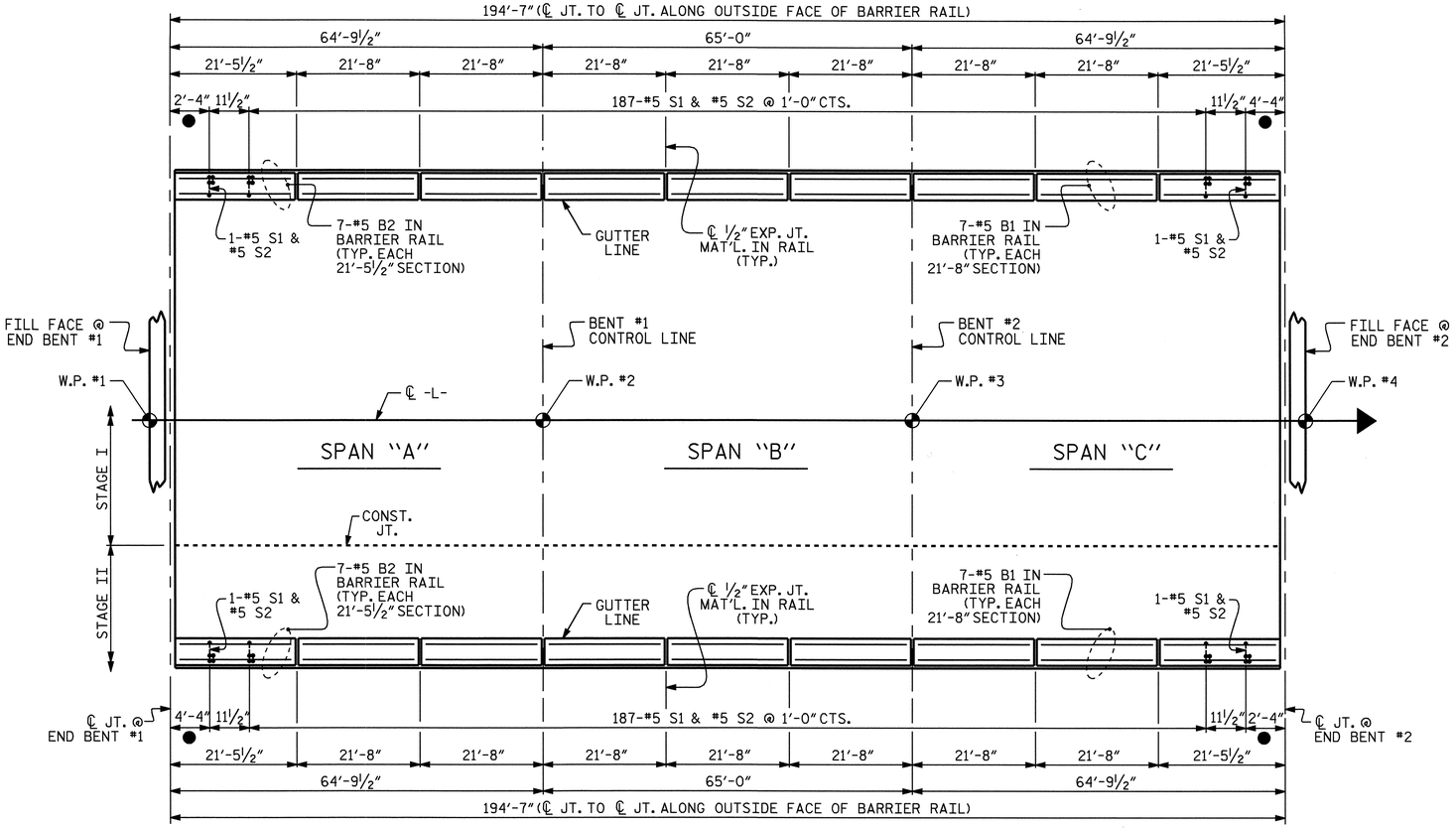
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD ELASTOMERIC BEARING DETAILS

PRESTRESSED CONCRETE GIRDER
AUGUST SUPERSTRUCTURE 1989

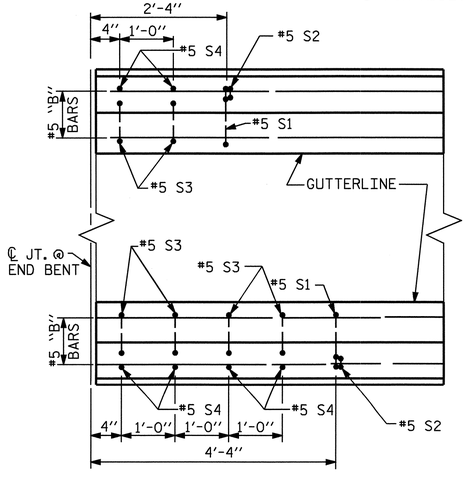
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			69

STD.No.EB3 STR. #1

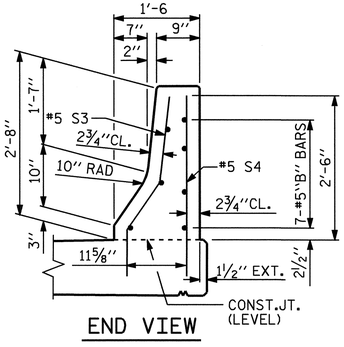


PLAN OF BARRIER RAIL

● FOR ADDITIONAL REINFORCEMENT IN BARRIER RAIL, "SEE END OF RAIL DETAILS".



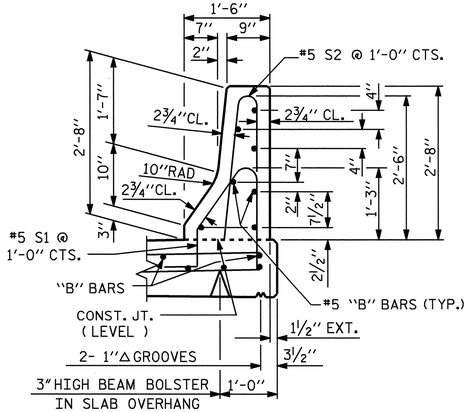
PLAN



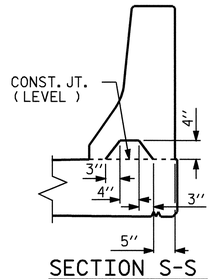
END VIEW

END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

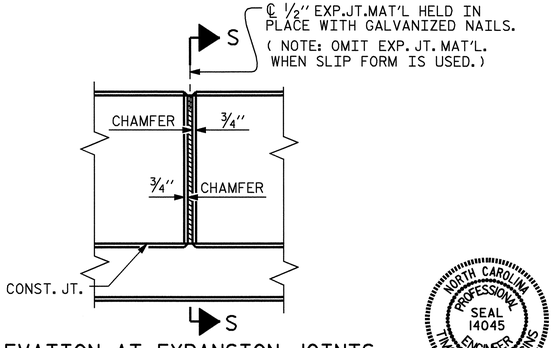


SECTION THRU RAIL



SECTION S-S

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



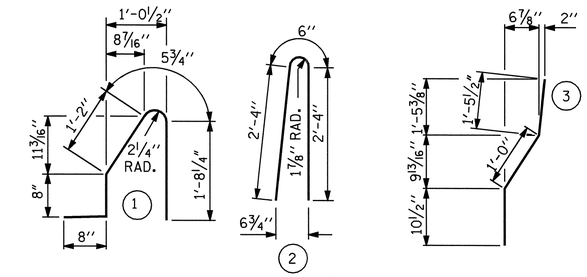
ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

BILL OF MATERIAL STAGE I — FOR LEFT SIDE CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	49	#5	STR	21'-3"	1086
✳ B2	14	#5	STR	21'-0"	307
✳ S1	189	#5	1	4'-8"	920
✳ S2	189	#5	2	5'-2"	1018
✳ S3	6	#5	3	3'-4"	21
✳ S4	6	#5	STR	3'-2"	20
✳ EPOXY COATED REINFORCING STEEL					3372 LBS.
CLASS AA CONCRETE					19.5 CU. YDS.
CONCRETE BARRIER RAIL					194.58 LIN. FT.

BILL OF MATERIAL STAGE II — FOR RIGHT SIDE CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	49	#5	STR	21'-3"	1086
✳ B2	14	#5	STR	21'-0"	307
✳ S1	189	#5	1	4'-8"	920
✳ S2	189	#5	2	5'-2"	1018
✳ S3	6	#5	3	3'-4"	21
✳ S4	6	#5	STR	3'-2"	20
✳ EPOXY COATED REINFORCING STEEL					3372 LBS.
CLASS AA CONCRETE					19.5 CU. YDS.
CONCRETE BARRIER RAIL					194.58 LIN. FT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

EVAZOTE JOINT SEALS ARE REQUIRED AT EACH END BENT. THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

VERTICAL GROOVED CONTRACTION JOINTS, ½" 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.

#5 S1 AND #5 S2 MAY BE SHIFTED SLIGHTLY AS NECESSARY TO MAINTAIN 2" COVER AT ½" EXPANSION JOINTS IN RAIL.

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD CONCRETE BARRIER RAIL

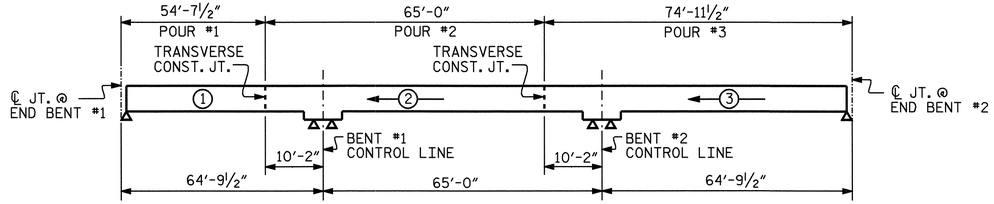
OCTOBER 1987

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			69

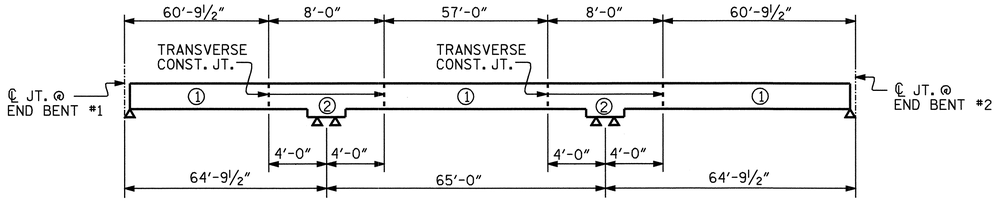
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/01

ASSEMBLED BY : T.L. AVERETTE		DATE : 06-03	
CHECKED BY : P. ADKINS		DATE : 06-03	
DRAWN BY : ARB 5/87	REV. 8/16/99		RWW/LES
CHECKED BY : SJD 9/87	REV. 10/17/00		RWW/LES
	REV. 5/7/03R		RWW/JTE

STD NO. CBRL STR. #1

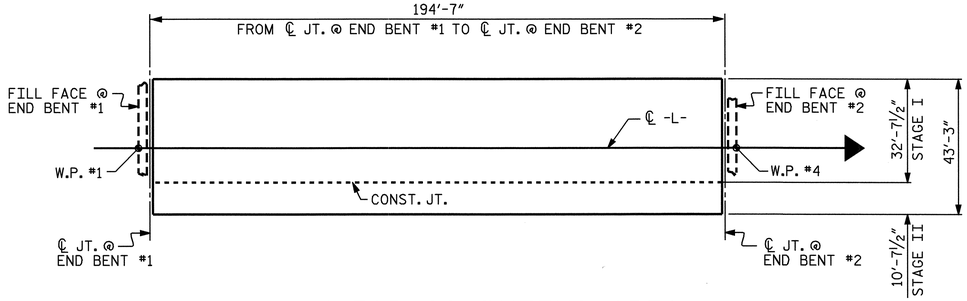


POURING SEQUENCE



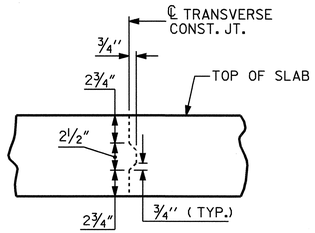
OPTIONAL POURING SEQUENCE

POUR ② CANNOT BE STARTED UNTIL BOTH ADJACENT ① POURS REACH A MIN. OF 3000 PSI.



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB

STAGE I = 6348 SQ. FT.
STAGE II = 2068 SQ. FT.
TOTAL = 8416 SQ. FT.



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

BILL OF MATERIAL

STAGE I — SPANS A, B & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	309	#5	STR	32'-3"	10394
A2	311	#5	STR	32'-3"	10461
✳B1	92	#4	STR	23'-4"	1434
✳B2	46	#7	STR	50'-0"	4701
✳B3	42	#7	STR	20'-0"	1717
✳B4	23	#4	STR	25'-0"	384
B5	152	#5	STR	50'-2"	7953
✳D1	309	#6	STR	3'-0"	1392
✳K1	4	#8	1	10'-6"	112
✳K2	12	#8	2	15'-5"	494
✳K3	4	#8	1	8'-11"	95
K6	16	#4	STR	3'-8"	39
K7	32	#4	STR	6'-1"	130
K8	16	#4	STR	5'-4"	57
K9	8	#4	STR	28'-3"	151
✳S1	48	#5	3	4'-11"	246
S3	128	#4	5	2'-9"	235
U1	32	#4	2	13'-1"	280
U2	16	#4	2	11'-1"	118

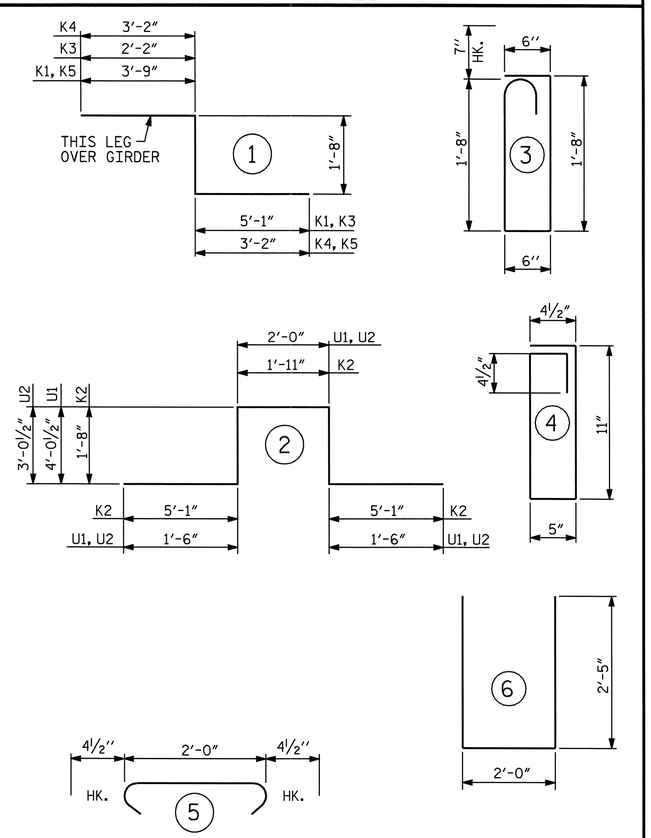
REINFORCING STEEL = 19424 LBS
✳EPOXY COATED REINFORCING STEEL = 20969 LBS

STAGE II — SPANS A, B & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	309	#5	STR	10'-3"	3303
A4	311	#5	STR	10'-3"	3325
✳B1	32	#4	STR	23'-4"	499
✳B2	16	#7	STR	50'-0"	1635
✳B3	12	#7	STR	20'-0"	491
✳B4	8	#4	STR	25'-0"	134
B5	48	#5	STR	50'-2"	2512
✳K4	4	#8	1	8'-0"	85
✳K5	4	#8	1	8'-7"	92
K10	8	#4	STR	8'-3"	44
K11	4	#4	STR	1'-8"	4
K12	8	#4	STR	4'-1"	22
K13	4	#4	STR	3'-4"	9
✳K14	4	#8	STR	2'-2"	23
✳K15	4	#8	STR	2'-11"	31
K16	8	#4	STR	3'-1"	16
K17	4	#4	STR	2'-4"	6
✳S1	12	#5	3	4'-11"	62
✳S2	2	#5	4	3'-5"	7
S3	34	#4	5	2'-9"	62
U1	6	#4	2	13'-1"	52
U2	6	#4	2	11'-1"	44
U3	2	#4	6	6'-10"	9

REINFORCING STEEL = 6105 LBS
✳EPOXY COATED REINFORCING STEEL = 6362 LBS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

		CLASS AA CONCRETE (CU. YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
STAGE I	POUR 1	52.7	19424	20969
	POUR 2	69.6		
	POUR 3	79.7		
	STAGE I TOTAL	202.0		
STAGE II	POUR 1	17.7	6105	6362
	POUR 2	23.1		
	POUR 3	26.5		
	STAGE II TOTAL	67.3		
TOTALS ✳✳		269.3	25529	27331

✳✳ QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	1754 SQ.FT.
BRIDGE DECK	7150 SQ.FT.
TOTAL	8904 SQ.FT.

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"	—	—	—

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

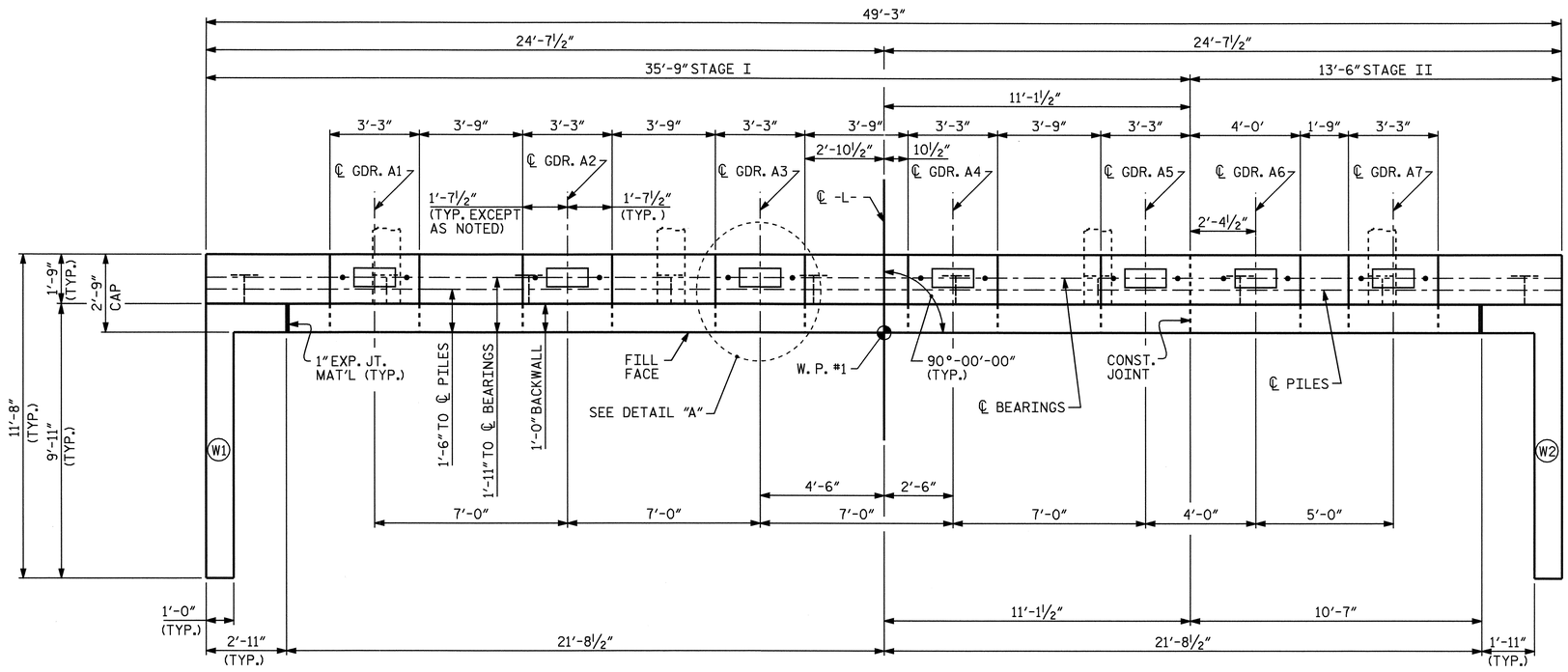
STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL

OCTOBER 1987

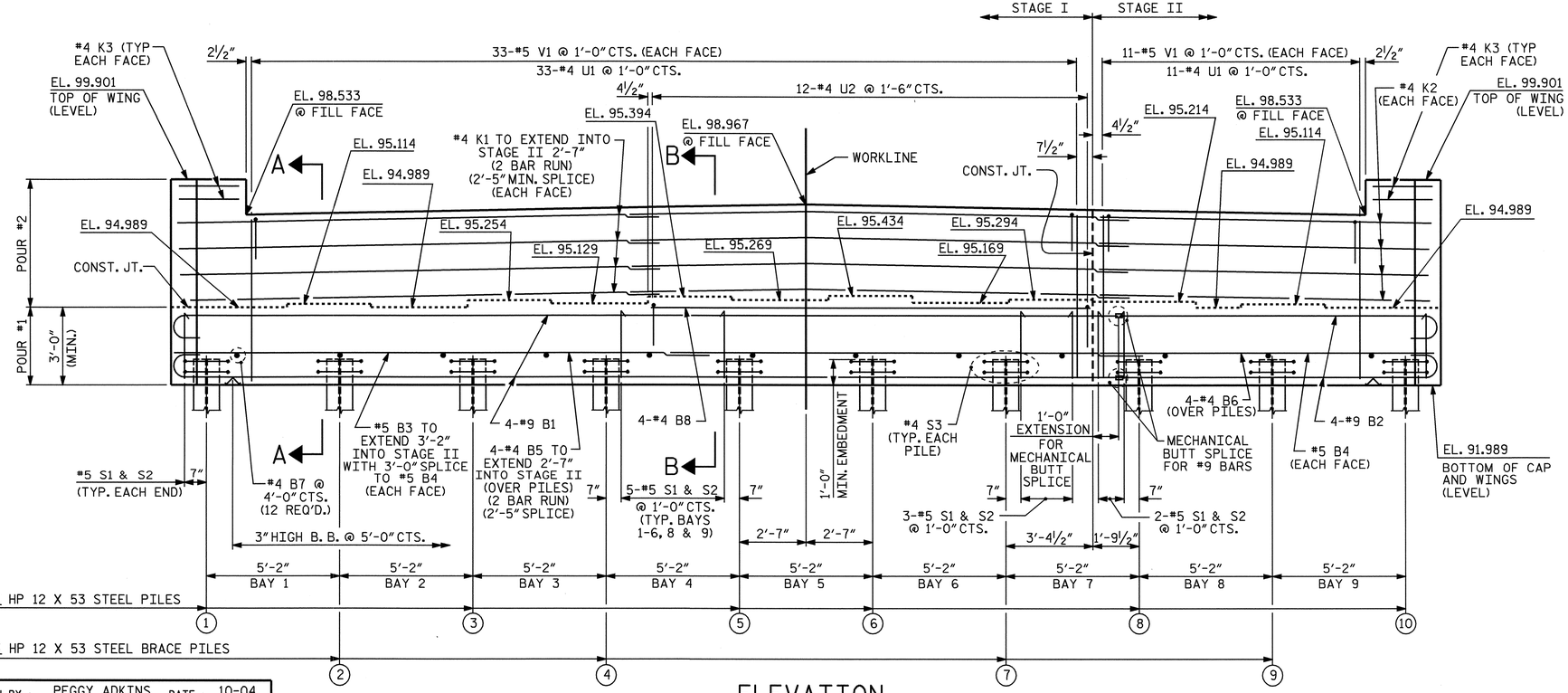
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY : T.L. AVERETTE	DATE: 06-03
CHECKED BY : P. ADKINS	DATE: 06-03
DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES

STD. NO. BOM2 STR. #1



PLAN



ELEVATION

NOTES

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

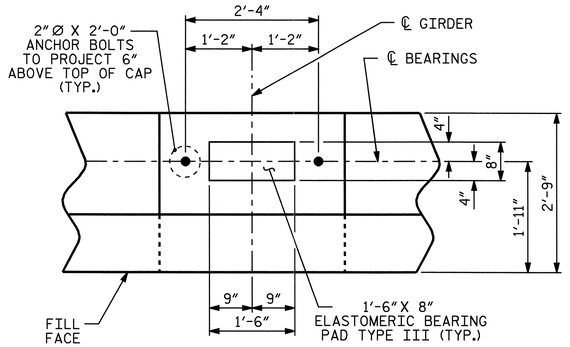
THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

PILE NO. 8 TO BE DRIVEN IN STAGE I.



DETAIL "A"

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:38
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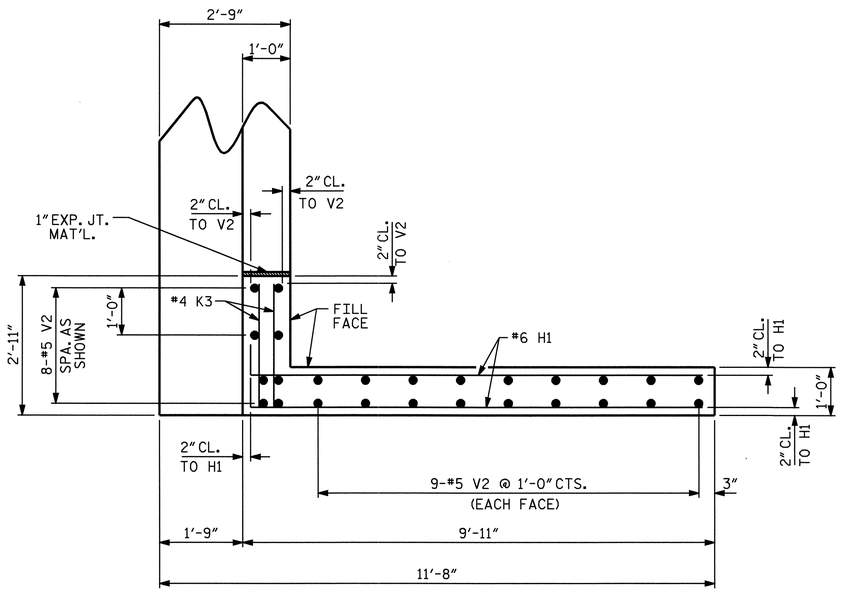
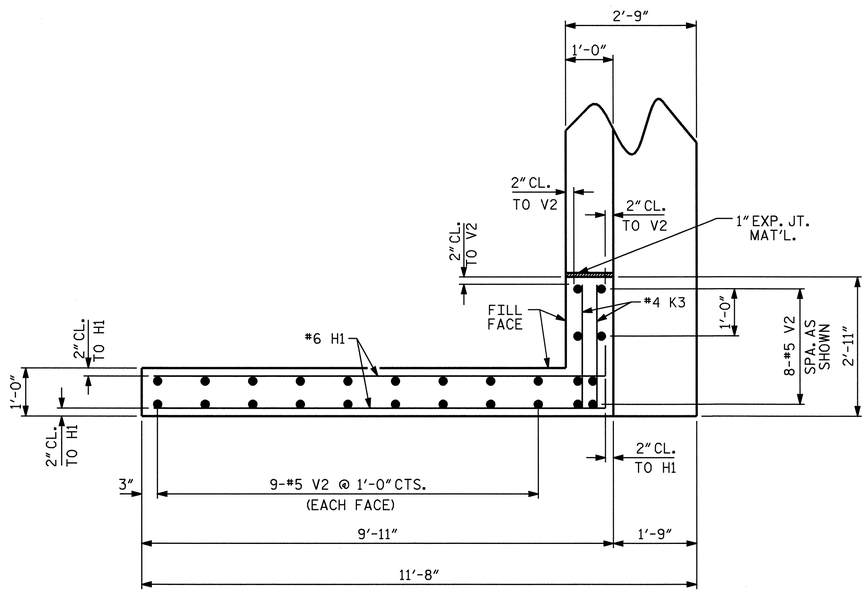
padkins

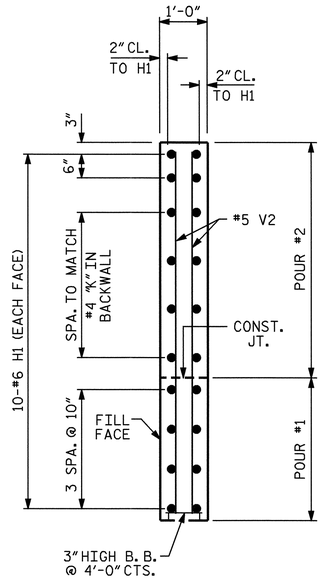
STR. #1

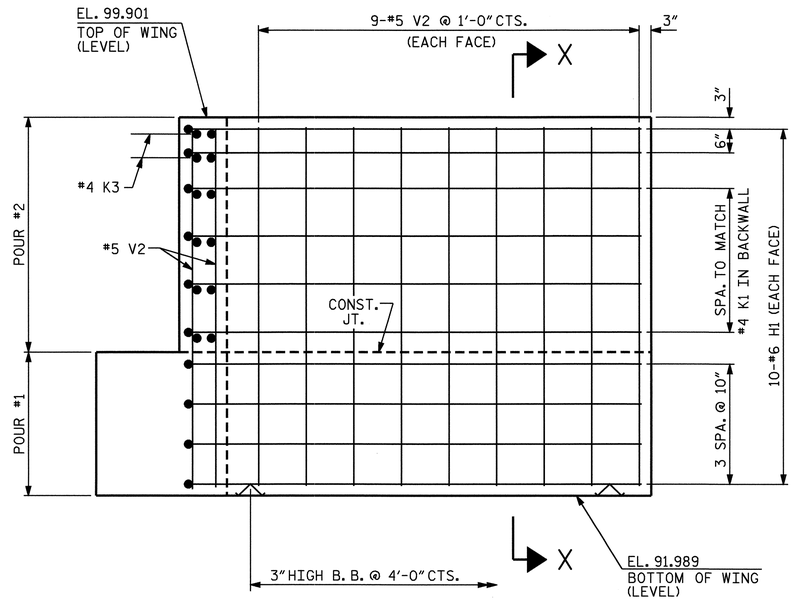


PLAN OF LEFT WING W1

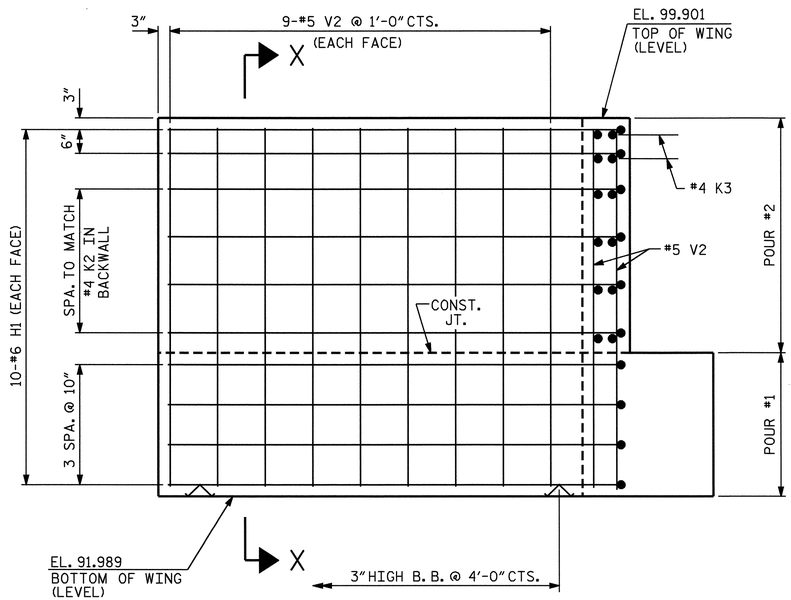


PLAN OF RIGHT WING W2





ELEVATION OF LEFT WING W1



ELEVATION OF RIGHT WING W2

SECTION X-X

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:39
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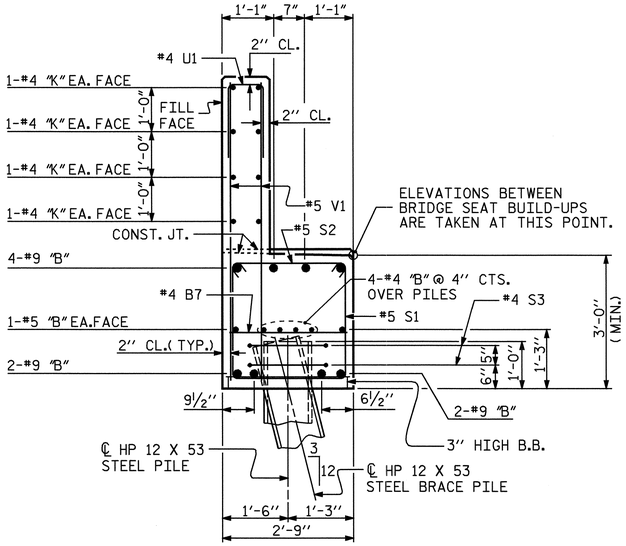
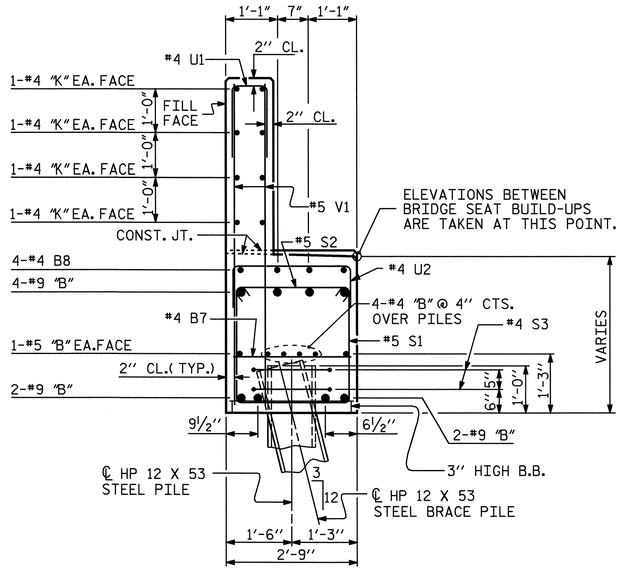
STR. #1

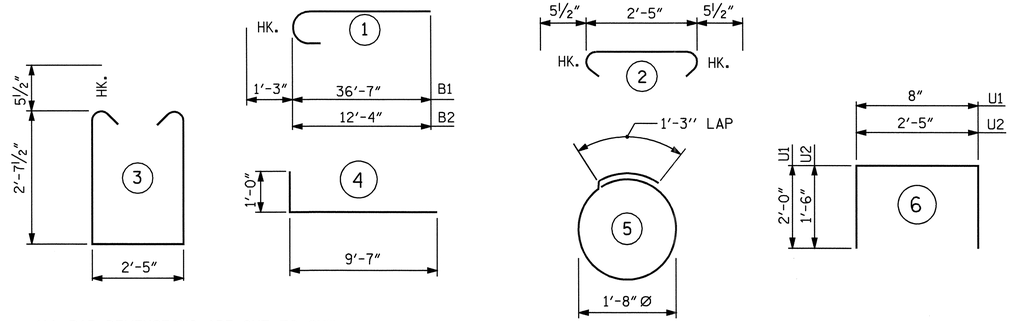


SECTION A-A



SECTION B-B

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	37'-10"	1029
B3	2	5	STR	38'-7"	80
B5	8	4	STR	20'-4"	109
B7	9	4	STR	2'-5"	15
B8	4	4	STR	16'-11"	45
H1	20	6	4	10'-7"	318
K1	16	4	STR	20'-4"	217
K3	4	4	STR	2'-7"	7
S1	34	5	3	8'-7"	304
S2	34	5	2	3'-4"	118
S3	14	4	5	6'-6"	61
U1	33	4	6	4'-8"	103
U2	12	4	6	5'-5"	43
V1	66	5	STR	6'-2"	425
V2	26	5	STR	7'-6"	203

TOTAL REINFORCING STEEL 3077 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 12.7 CU. YD.

POUR #2 BACKWALL & UPPER WING 6.5 CU. YD.

TOTAL CLASS "A" CONCRETE 19.2 CU. YD.

HP 12 X 53 STEEL PILES
NO. 7 280 FT.

BILL OF MATERIAL — STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	8	9	1	13'-7"	369
B4	2	5	STR	13'-2"	27
B6	4	4	STR	13'-2"	35
B7	3	4	STR	2'-5"	5
H1	20	6	4	10'-7"	318
K2	8	4	STR	13'-2"	70
K3	4	4	STR	2'-7"	7
S1	13	5	3	8'-7"	116
S2	13	5	2	3'-4"	45
S3	6	4	5	6'-6"	26
U1	11	4	6	4'-8"	34
V1	22	5	STR	6'-2"	142
V2	26	5	STR	7'-6"	203

TOTAL REINFORCING STEEL 1397 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 5.3 CU. YD.

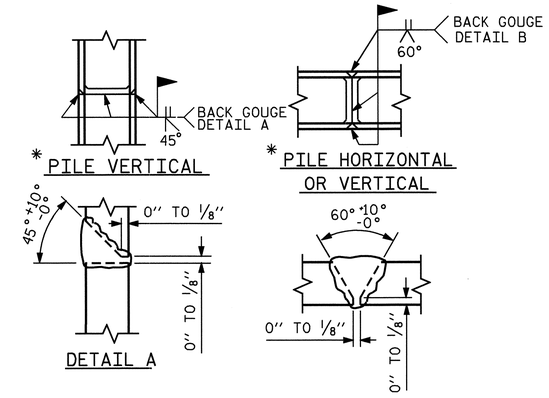
POUR #2 BACKWALL & UPPER WING 3.5 CU. YD.

TOTAL CLASS "A" CONCRETE 8.8 CU. YD.

HP 12 X 53 STEEL PILES
NO. 3 120 FT.

TOTAL BILL OF MATERIAL

TOTAL REINFORCING STEEL	4474 LBS.
TOTAL CLASS "A" CONCRETE	28.0 CU. YD.
HP 12 X 53 STEEL PILES NO. 10	400 FT.



*POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

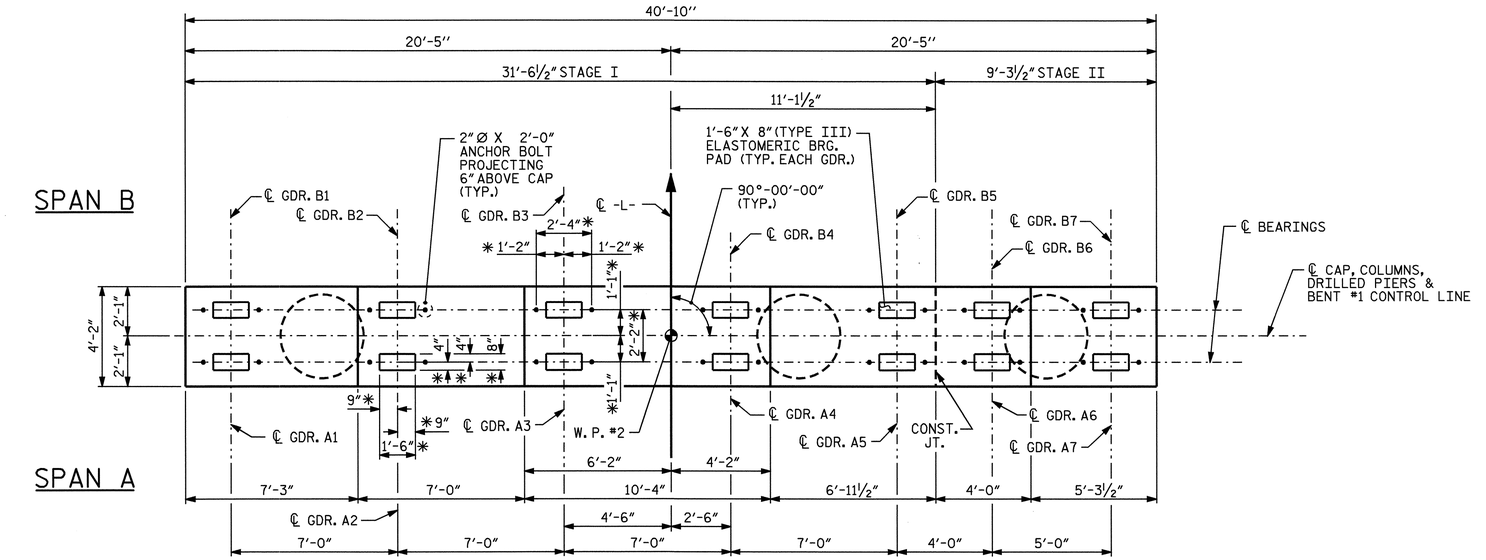
SUBSTRUCTURE

END BENT #1

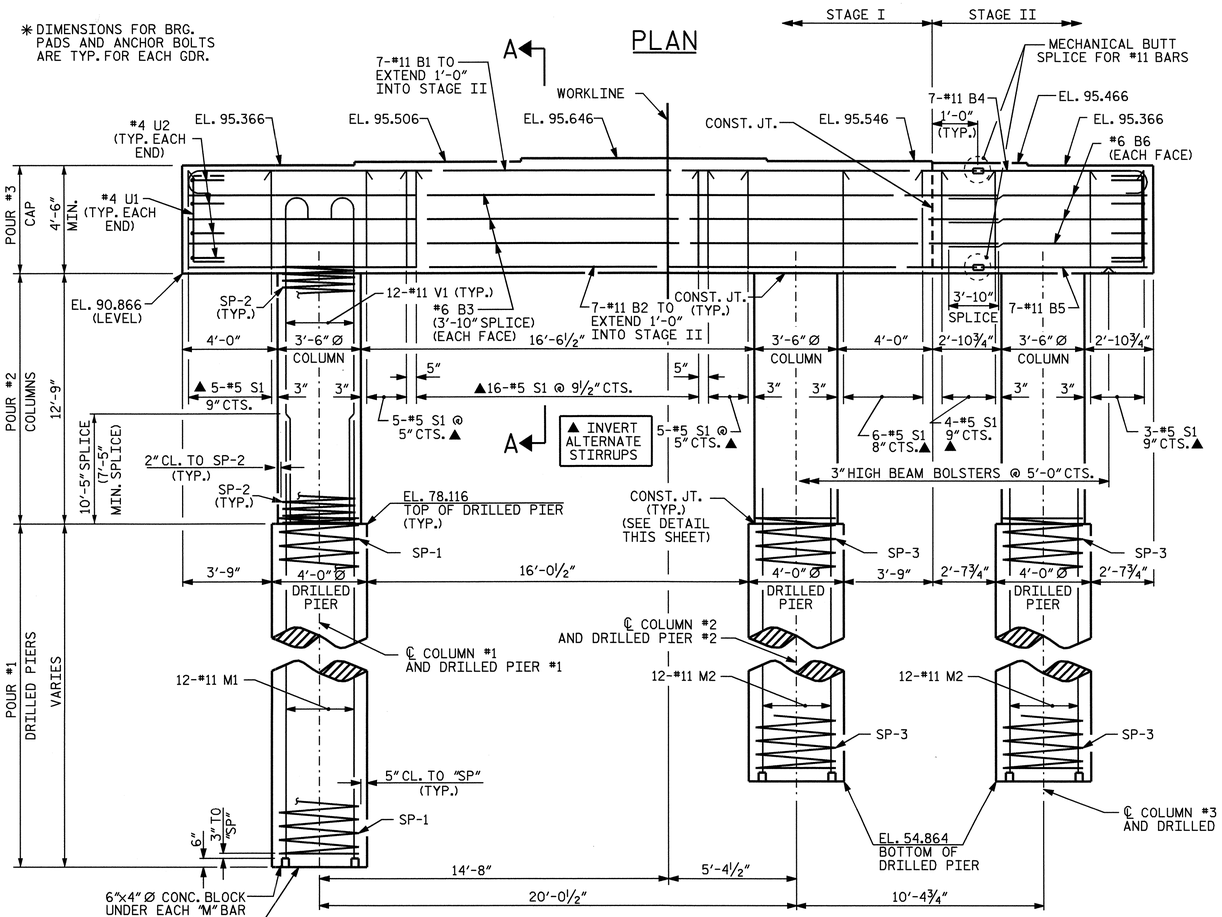
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			69

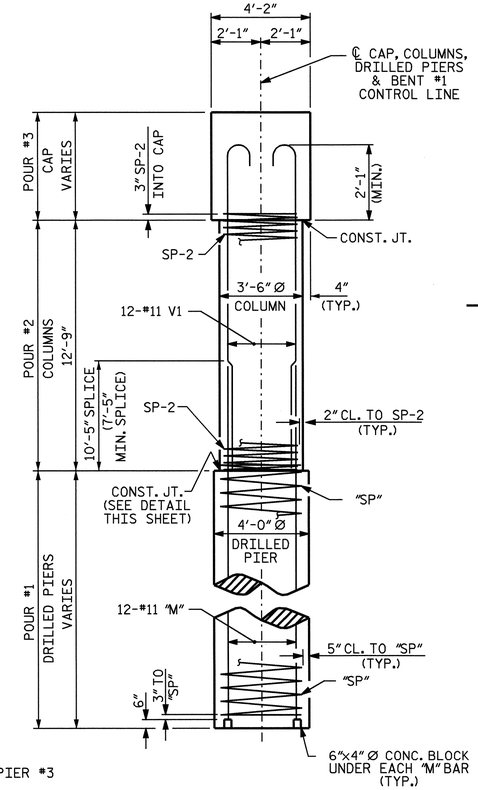
DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05



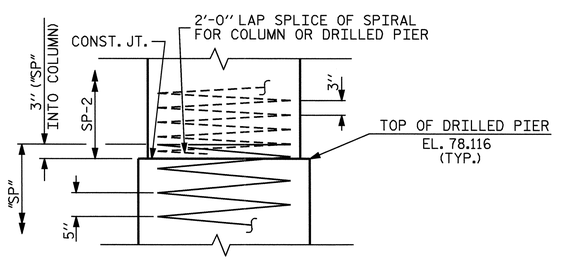
* DIMENSIONS FOR BRG. PADS AND ANCHOR BOLTS ARE TYP. FOR EACH GDR.



ELEVATION



END ELEVATION



CONSTRUCTION JOINT DETAIL

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY A. COGGINS
4/26/06

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

26-APR-2006 09:35
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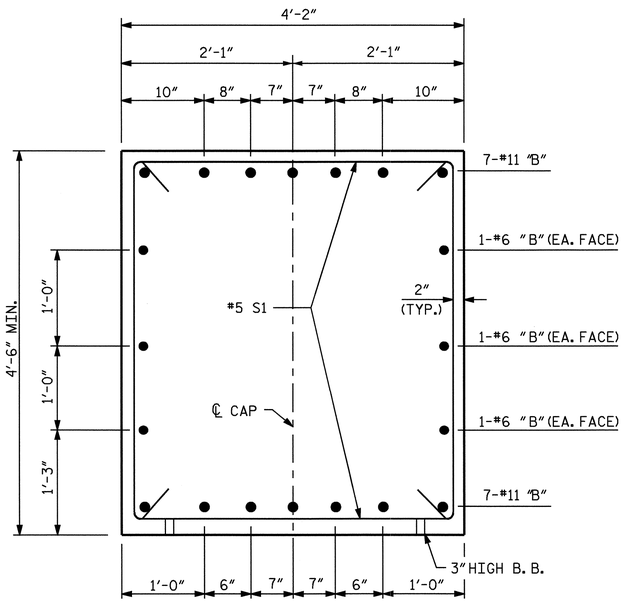
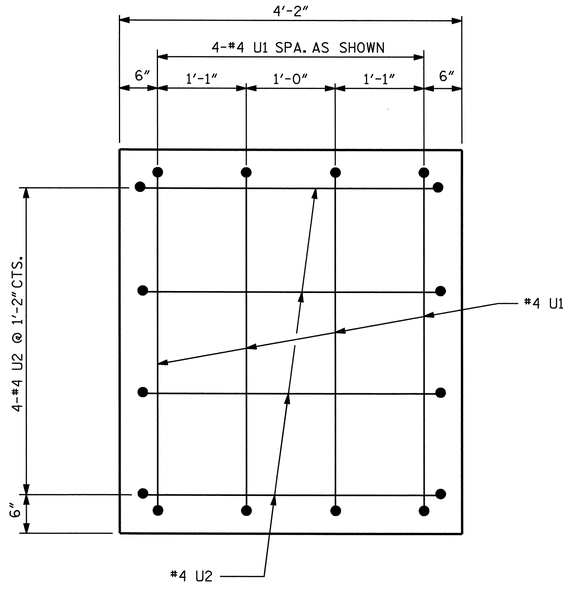
STR. #1

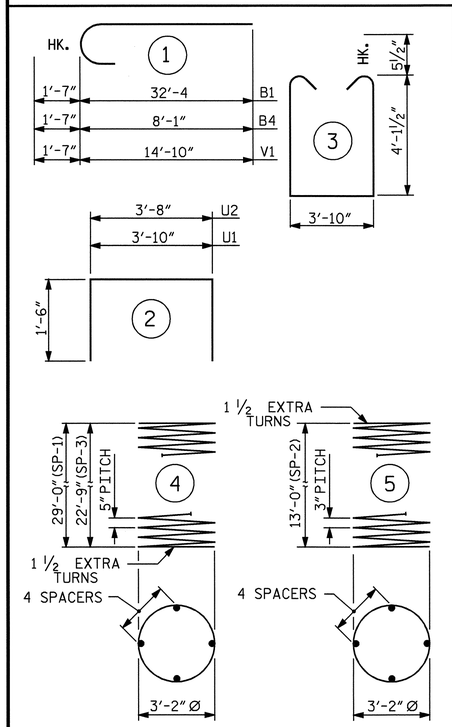


SECTION A-A



END VIEW
(TYP. EACH END)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	11	1	33'-11"	1261
B2	7	11	STR	32'-4"	1203
B3	6	6	STR	35'-5"	319
M1	12	11	STR	39'-5"	2513
M2	12	11	STR	33'-2"	2115
S1	37	5	3	13'-0"	502
U1	4	4	2	6'-10"	18
U2	4	4	2	6'-8"	18
V1	24	11	1	16'-5"	2093

REINFORCING STEEL 10042 LBS.

SP-1	1	**	4	696'-4"	726
SP-2	2	*	5	525'-5"	702
SP-3	1	**	4	549'-6"	573

SPIRAL COLUMN
REINFORCING STEEL 2001 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #3 CAP CU. YD. 22.7
POUR #2 COLUMNS CU. YD. 9.1
TOTAL CLASS A CONCRETE CU. YD. 31.8

DRILLED PIERS
DRILLED PIER CONCRETE
POUR #1 DRILLED PIERS CU. YD. 24.6

4'-0" Ø DRILLED PIERS NOT IN SOIL LIN. FT. 17.55

4'-0" Ø DRILLED PIERS IN SOIL LIN. FT. 35.20

CSL TUBES LIN. FT. 231.00

PERMANENT STEEL CASING
FOR 4'-0" Ø DRILLED PIER LIN. FT. 36.23

BILL OF MATERIAL — STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	7	11	1	9'-8"	360
B5	7	11	STR	8'-1"	301
B6	6	6	STR	8'-11"	80
M2	12	11	STR	33'-2"	2115
S1	7	5	3	13'-0"	95
U1	4	4	2	6'-10"	18
U2	4	4	2	6'-8"	18
V1	12	11	1	16'-5"	1047

REINFORCING STEEL 4034 LBS.

SP-2	1	*	5	525'-5"	351
SP-3	1	**	4	549'-6"	573

SPIRAL COLUMN
REINFORCING STEEL 924 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #3 CAP CU. YD. 6.5
POUR #2 COLUMN CU. YD. 4.5
TOTAL CLASS A CONCRETE CU. YD. 11.0

DRILLED PIERS
DRILLED PIER CONCRETE
POUR #1 DRILLED PIER CU. YD. 10.8

4'-0" Ø DRILLED PIERS NOT IN SOIL LIN. FT. 7.75

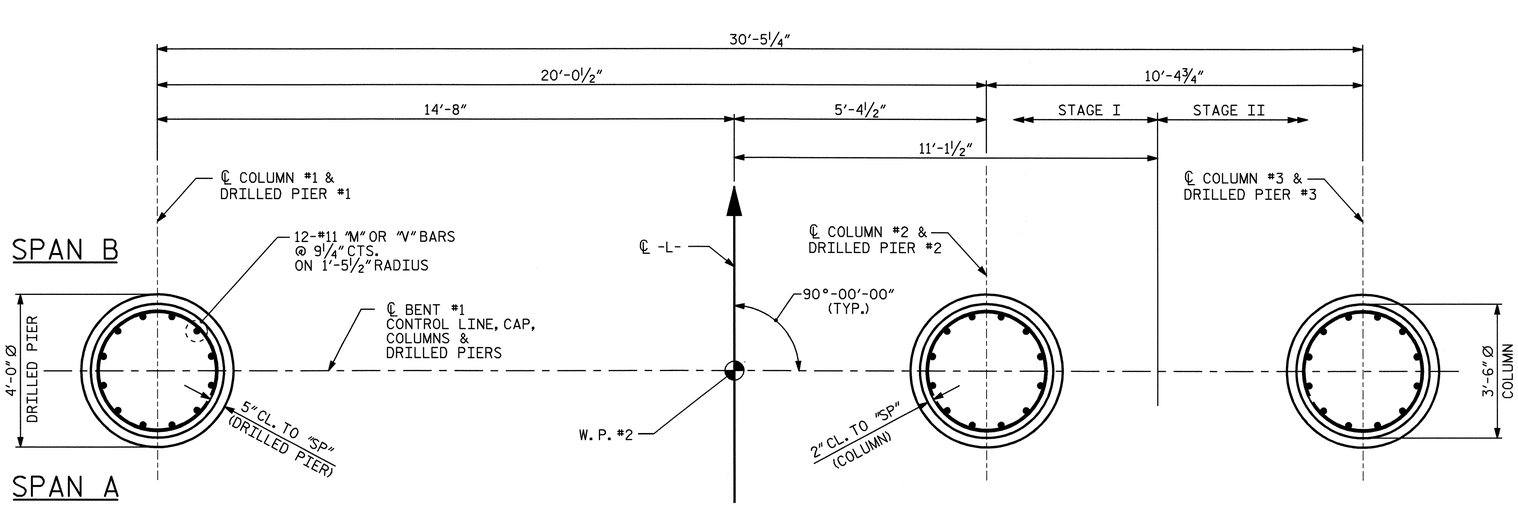
4'-0" Ø DRILLED PIERS IN SOIL LIN. FT. 15.50

CSL TUBES LIN. FT. 103.00

PERMANENT STEEL CASING
FOR 4'-0" Ø DRILLED PIER LIN. FT. 16.12

* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

** THE SP-1 & SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR,



PLAN OF DRILLED PIERS AND COLUMNS
(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

TOTAL BILL OF MATERIAL

REINFORCING STEEL	14076 LBS.
SPIRAL COLUMN REINFORCING STEEL	2925 LBS.
TOTAL CLASS A CONCRETE	42.8 CU. YD.
DRILLED PIER CONCRETE	35.4 CU. YD.
4'-0" Ø DRILLED PIERS NOT IN SOIL	25.30 LIN. FT.
4'-0" Ø DRILLED PIERS IN SOIL	50.70 LIN. FT.
CSL TUBES	334.00 LIN. FT.
PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER	52.35 LIN. FT.
CROSSHOLE SONIC LOGGING	1 EACH
SID INSPECTION	1 EACH

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

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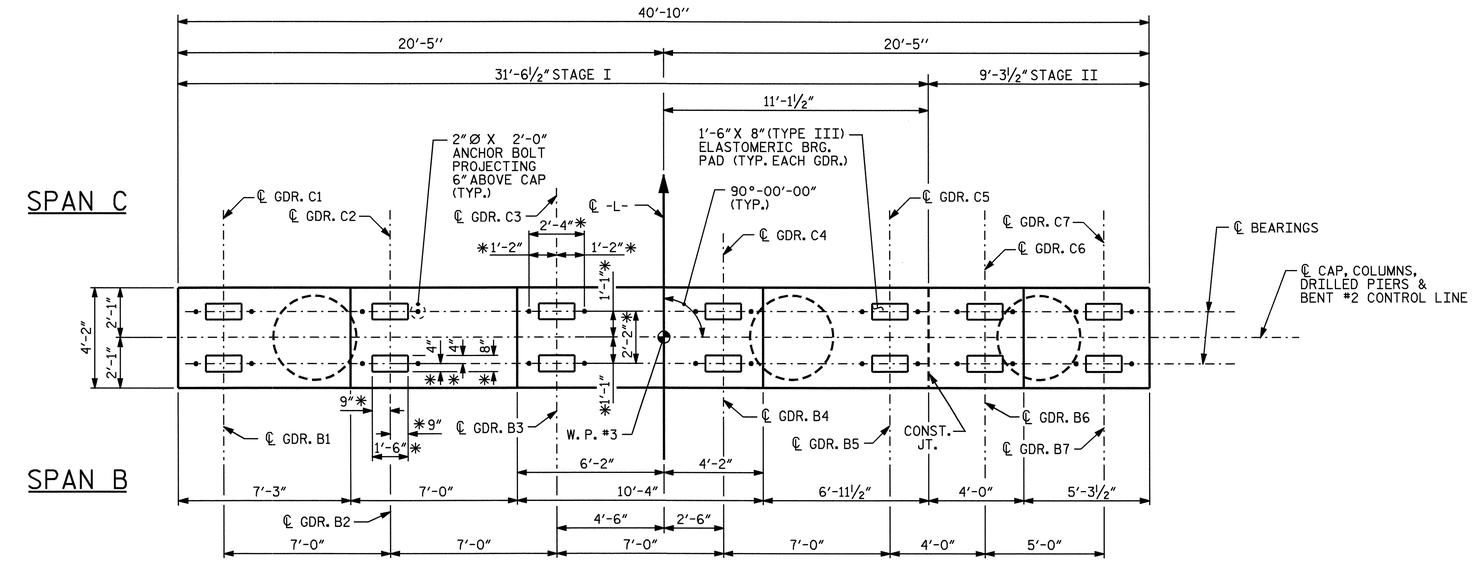
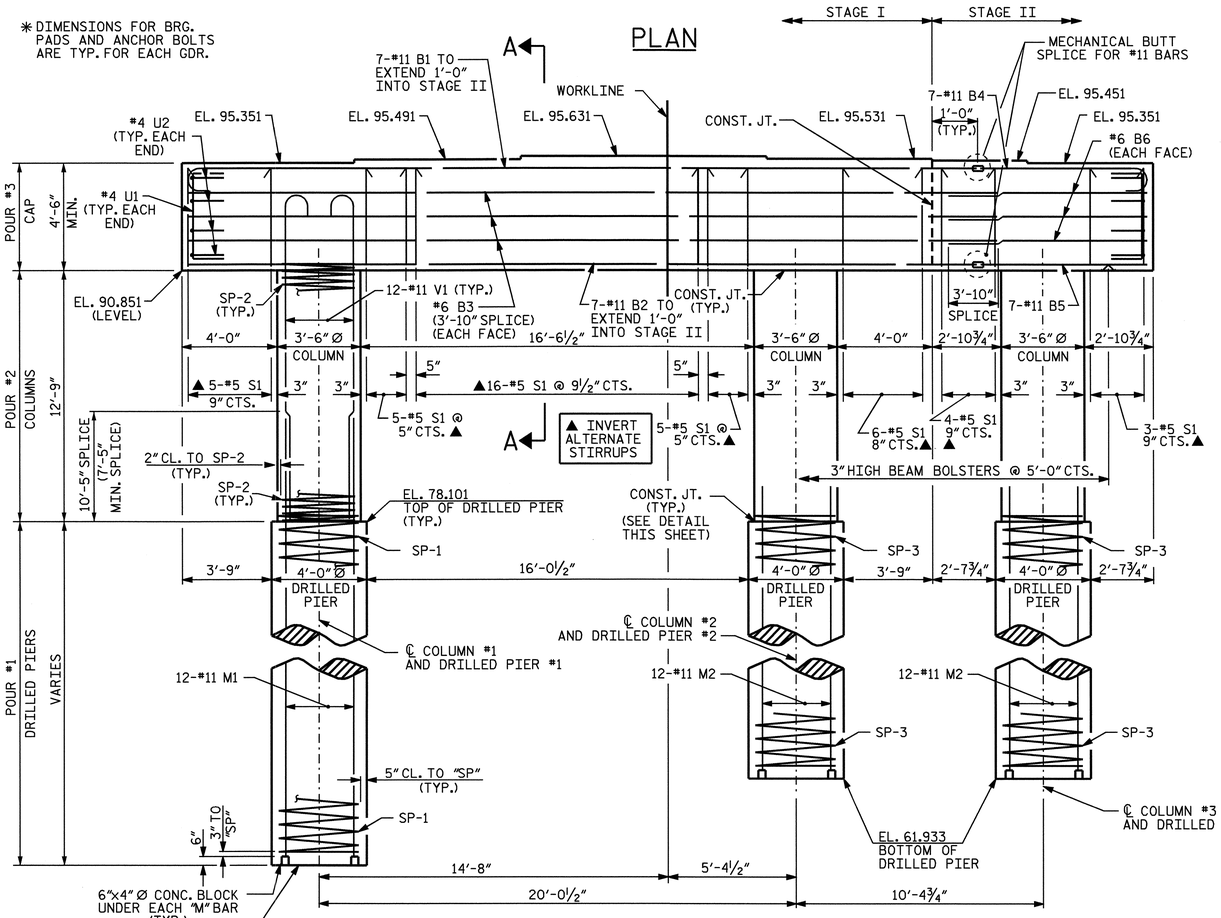
STR. #1

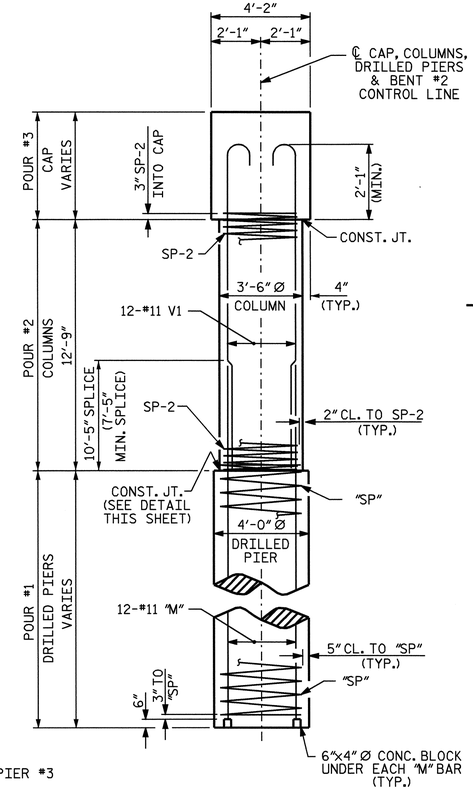


* DIMENSIONS FOR BRG. PADS AND ANCHOR BOLTS ARE TYP. FOR EACH GDR.

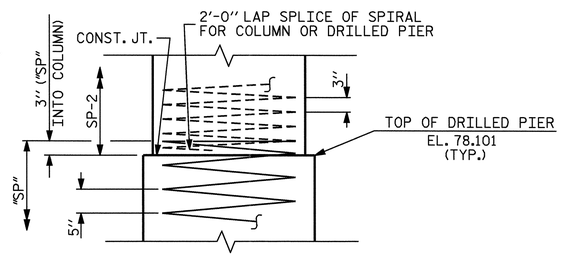
PLAN



ELEVATION



END ELEVATION



CONSTRUCTION JOINT DETAIL

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3'-0" OF EXTRA LENGTH.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

26-APR-2006 09:36
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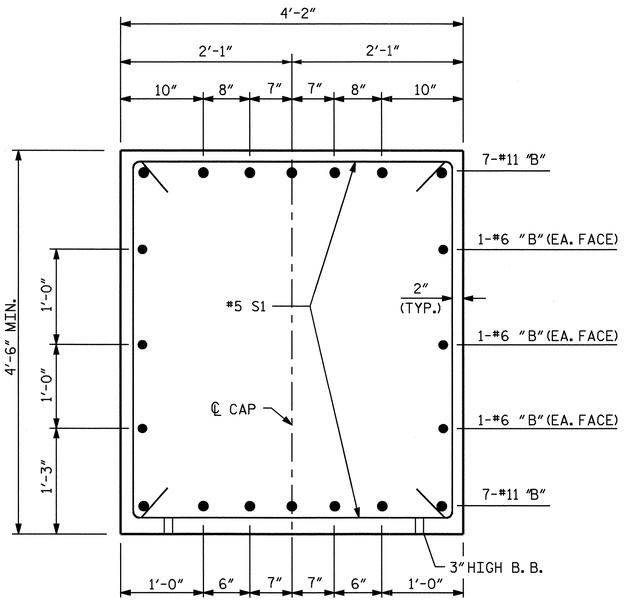
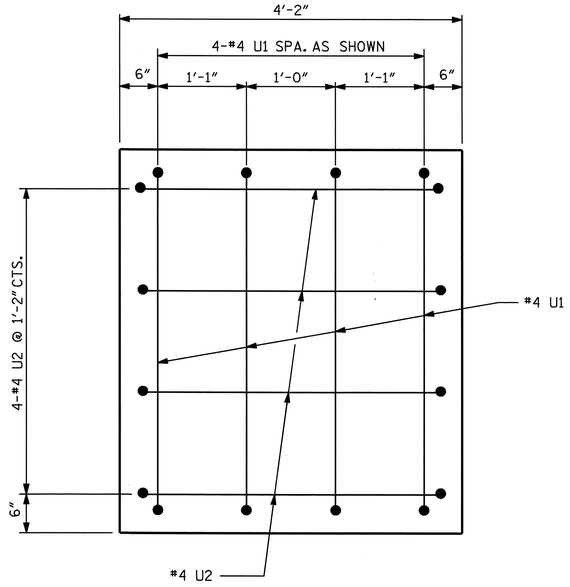
padkins

STR. #1

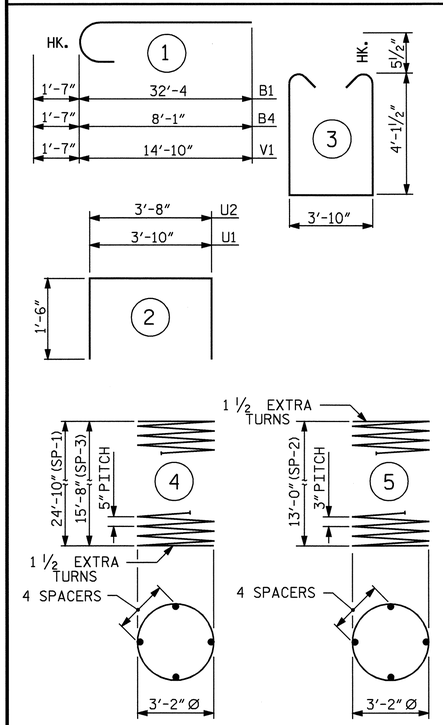


SECTION A-A



END VIEW
(TYP. EACH END)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	7	11	1	33'-11"	1261
B2	7	11	STR	32'-4"	1203
B3	6	6	STR	35'-5"	319
M1	12	11	STR	35'-3"	2247
M2	12	11	STR	26'-1"	1663
S1	37	5	3	13'-0"	502
U1	4	4	2	6'-10"	18
U2	4	4	2	6'-8"	18
V1	24	11	1	16'-5"	2093

REINFORCING STEEL 9324 LBS.

SP-1	1	**	4	598'-5"	624
SP-2	2	*	5	525'-5"	702
SP-3	1	**	4	383'-0"	399

SPIRAL COLUMN
REINFORCING STEEL 1725 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #3 CAP CU. YD. 22.7
POUR #2 COLUMNS CU. YD. 9.1
TOTAL CLASS A CONCRETE CU. YD. 31.8

DRILLED PIERS
DRILLED PIER CONCRETE
POUR #1 DRILLED PIERS CU. YD. 19.3

4'-0" Ø DRILLED PIERS NOT IN SOIL LIN. FT. 17.55

4'-0" Ø DRILLED PIERS IN SOIL LIN. FT. 23.95

CSL TUBES LIN. FT. 186.00

PERMANENT STEEL CASING FOR
4'-0" Ø DRILLED PIER LIN. FT. 26.20

BILL OF MATERIAL
STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	7	11	1	9'-8"	360
B5	7	11	STR	8'-1"	301
B6	6	6	STR	8'-11"	80
M2	12	11	STR	26'-1"	1663
S1	7	5	3	13'-0"	95
U1	4	4	2	6'-10"	18
U2	4	4	2	6'-8"	18
V1	12	11	1	16'-5"	1047

REINFORCING STEEL 3582 LBS.

SP-2	1	*	5	525'-5"	351
SP-3	1	**	4	383'-0"	399

SPIRAL COLUMN
REINFORCING STEEL 750 LBS.

CLASS A CONCRETE BREAKDOWN
POUR #3 CAP CU. YD. 6.5
POUR #2 COLUMN CU. YD. 4.5
TOTAL CLASS A CONCRETE CU. YD. 11.0

DRILLED PIERS
DRILLED PIER CONCRETE
POUR #1 DRILLED PIER CU. YD. 7.5

4'-0" Ø DRILLED PIERS NOT IN SOIL LIN. FT. 6.85

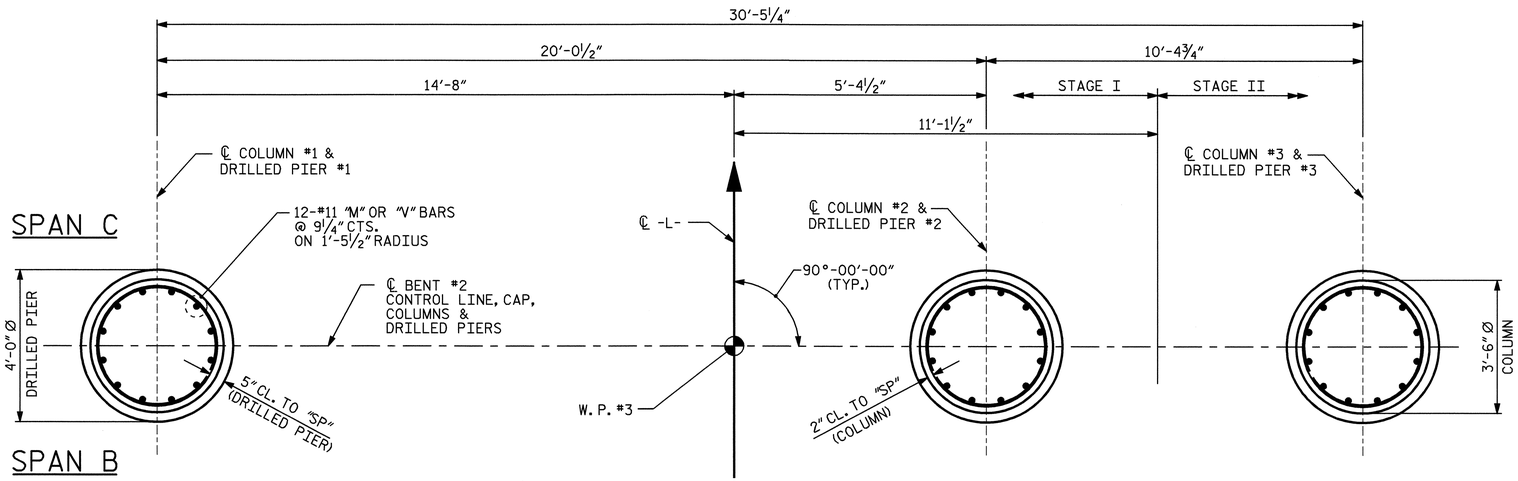
4'-0" Ø DRILLED PIERS IN SOIL LIN. FT. 9.32

CSL TUBES LIN. FT. 74.67

PERMANENT STEEL CASING FOR
4'-0" Ø DRILLED PIER LIN. FT. 9.10

* THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

** THE SP-1 & SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR,



PLAN OF DRILLED PIERS AND COLUMNS
(DIM. & REINFORCING STEEL ARE TYPICAL FOR EACH COLUMN & DRILLED PIER)

TOTAL BILL OF MATERIAL

REINFORCING STEEL	12906 LBS.
SPIRAL COLUMN REINFORCING STEEL	2475 LBS.
TOTAL CLASS A CONCRETE	42.8 CU. YD.
DRILLED PIER CONCRETE	26.8 CU. YD.
4'-0" Ø DRILLED PIERS NOT IN SOIL	24.40 LIN. FT.
4'-0" Ø DRILLED PIERS IN SOIL	33.27 LIN. FT.
CSL TUBES	260.67 LIN. FT.
PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER	35.30 LIN. FT.
CROSSHOLE SONIC LOGGING	1 EACH
SID INSPECTION	1 EACH

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS 4/26/06

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

26-APR-2006 09:36
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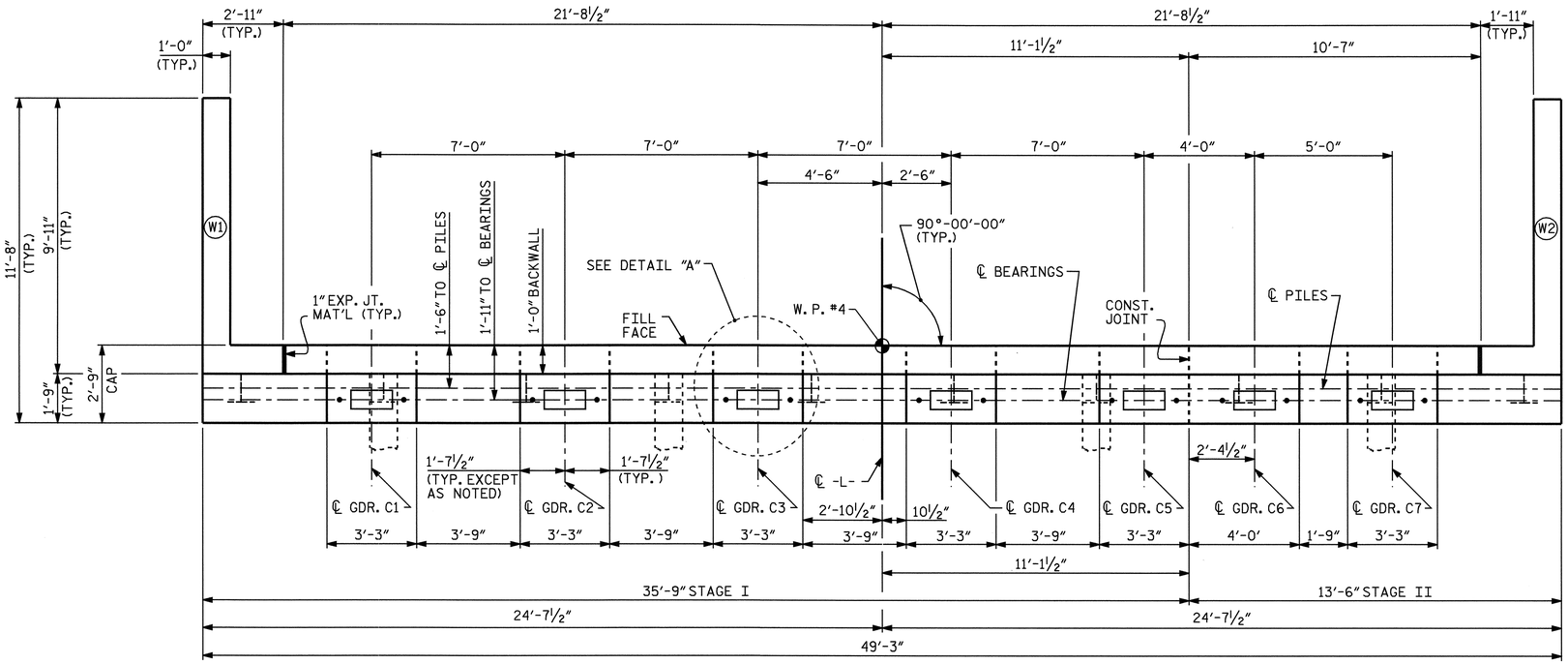
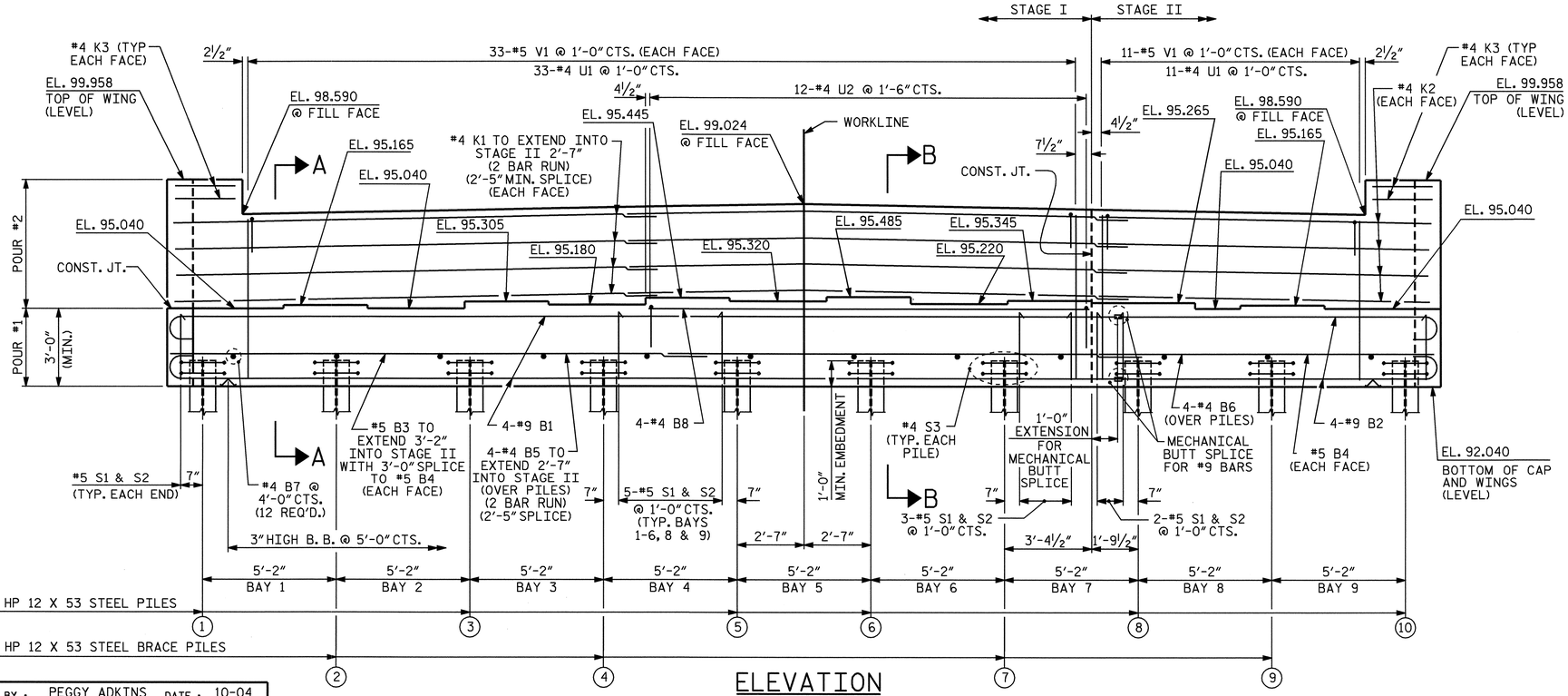
STR. #1



PLAN



ELEVATION

NOTES

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

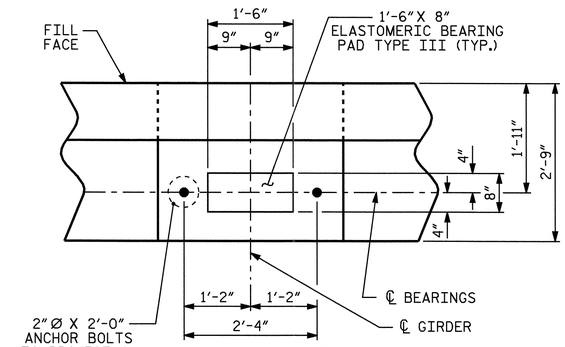
THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

PILE NO. 8 TO BE DRIVEN IN STAGE I.



DETAIL "A"

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:40
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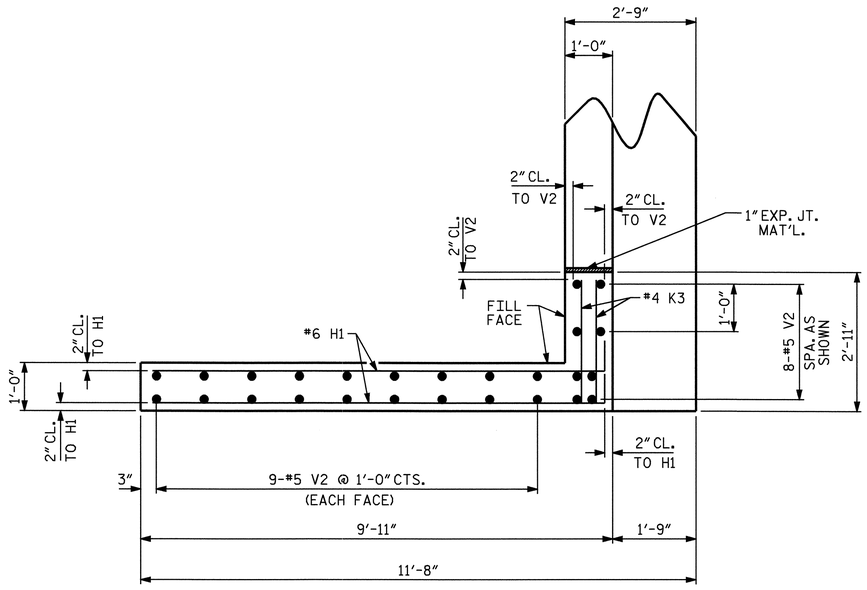
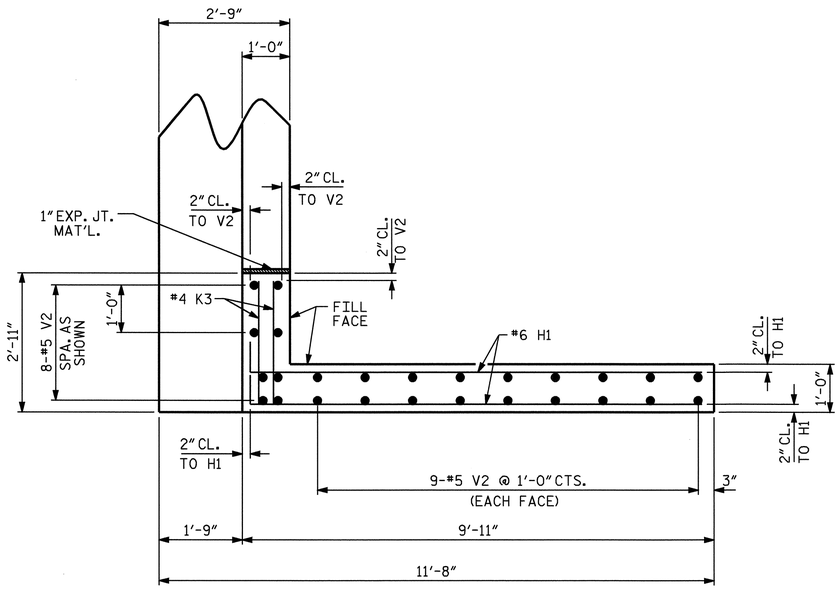
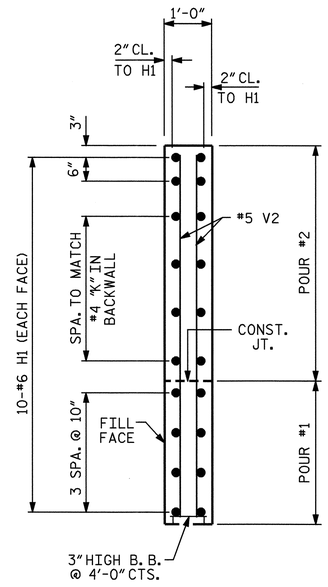
STR. #1 NC00DS

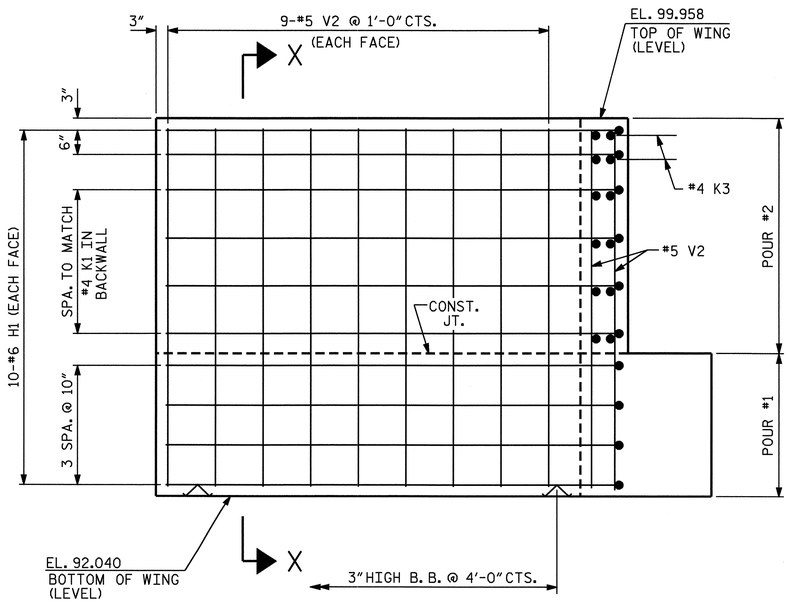


PLAN OF LEFT WING W1

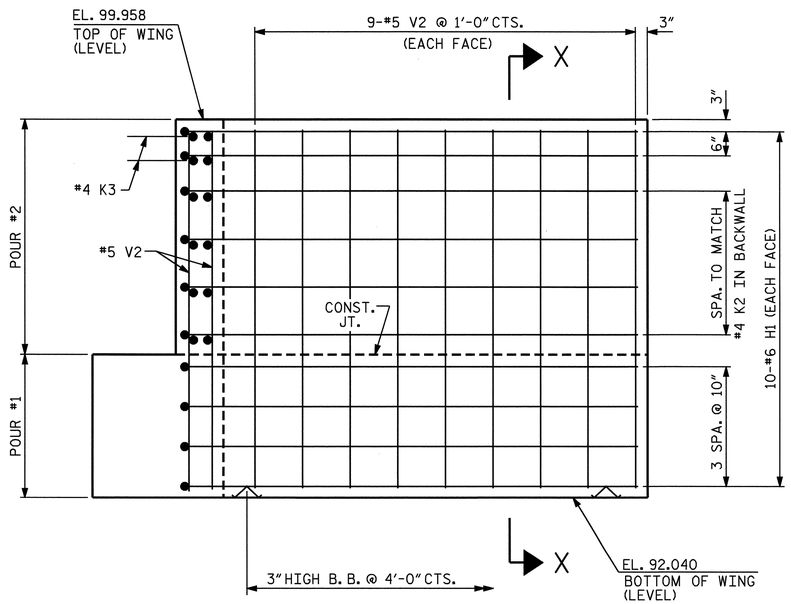


PLAN OF RIGHT WING W2





ELEVATION OF LEFT WING W1



ELEVATION OF RIGHT WING W2

SECTION X-X

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:40
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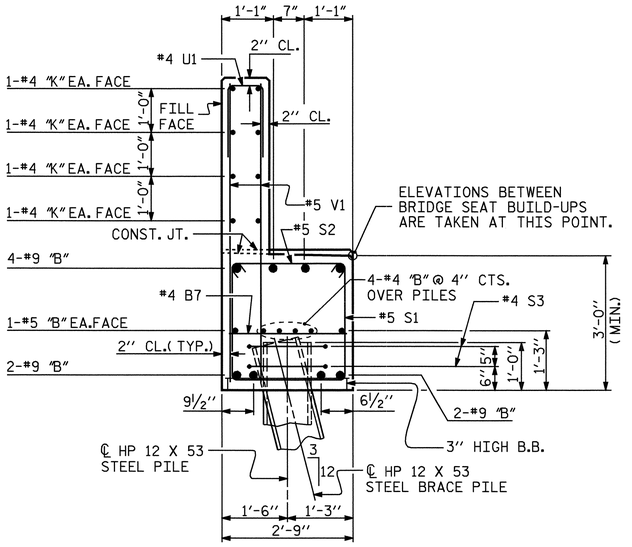
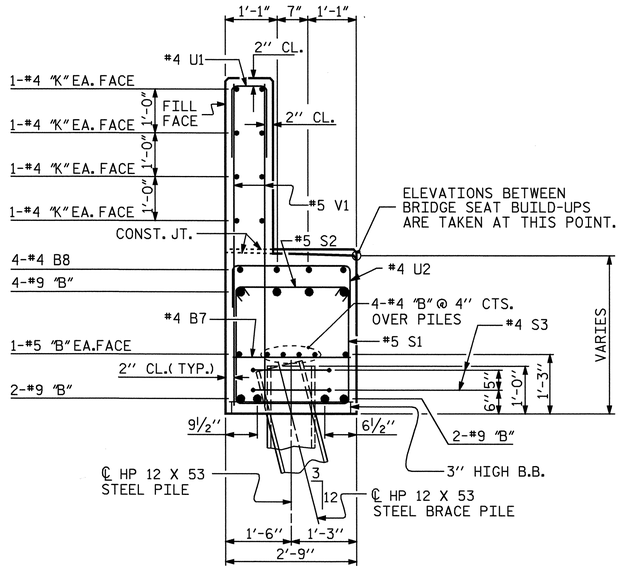
STR. #1

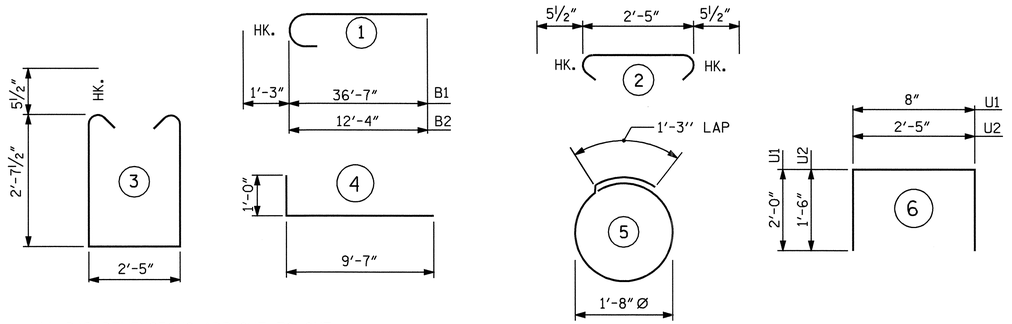


SECTION A-A



SECTION B-B

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	37'-10"	1029
B3	2	5	STR	38'-7"	80
B5	8	4	STR	20'-4"	109
B7	9	4	STR	2'-5"	15
B8	4	4	STR	16'-11"	45
H1	20	6	4	10'-7"	318
K1	16	4	STR	20'-4"	217
K3	4	4	STR	2'-7"	7
S1	34	5	3	8'-7"	304
S2	34	5	2	3'-4"	118
S3	14	4	5	6'-6"	61
U1	33	4	6	4'-8"	103
U2	12	4	6	5'-5"	43
V1	66	5	STR	6'-2"	425
V2	26	5	STR	7'-6"	203

TOTAL REINFORCING STEEL 3077 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 12.7 CU. YD.

POUR #2 BACKWALL & UPPER WING 6.5 CU. YD.

TOTAL CLASS "A" CONCRETE 19.2 CU. YD.

HP 12 X 53 STEEL PILES
NO. 7 175 FT.

BILL OF MATERIAL STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	8	9	1	13'-7"	369
B4	2	5	STR	13'-2"	27
B6	4	4	STR	13'-2"	35
B7	3	4	STR	2'-5"	5
H1	20	6	4	10'-7"	318
K2	8	4	STR	13'-2"	70
K3	4	4	STR	2'-7"	7
S1	13	5	3	8'-7"	116
S2	13	5	2	3'-4"	45
S3	6	4	5	6'-6"	26
U1	11	4	6	4'-8"	34
V1	22	5	STR	6'-2"	142
V2	26	5	STR	7'-6"	203

TOTAL REINFORCING STEEL 1397 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 5.3 CU. YD.

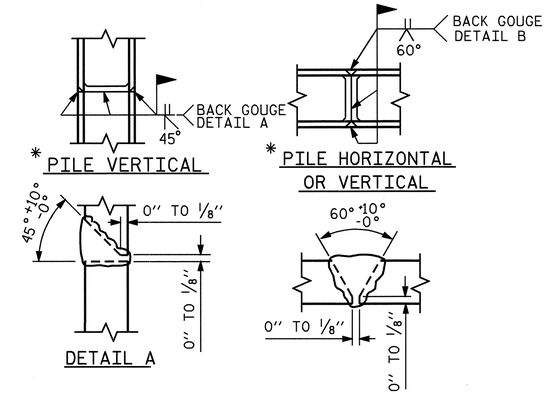
POUR #2 BACKWALL & UPPER WING 3.5 CU. YD.

TOTAL CLASS "A" CONCRETE 8.8 CU. YD.

HP 12 X 53 STEEL PILES
NO. 3 75 FT.

TOTAL BILL OF MATERIAL

TOTAL REINFORCING STEEL	4474 LBS.
TOTAL CLASS "A" CONCRETE	28.0 CU. YD.
HP 12 X 53 STEEL PILES NO. 10	250 FT.



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

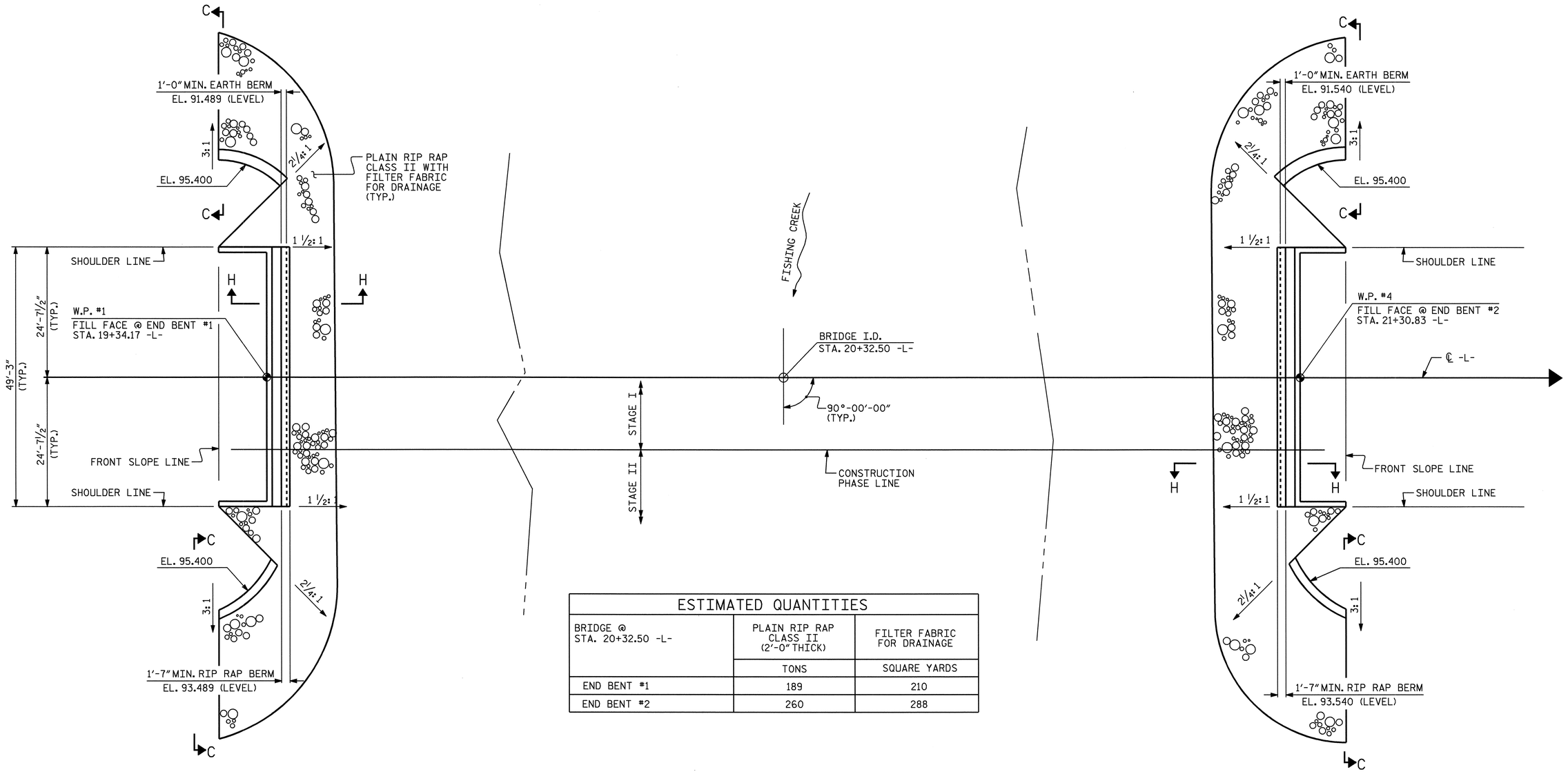
SUBSTRUCTURE

END BENT #2

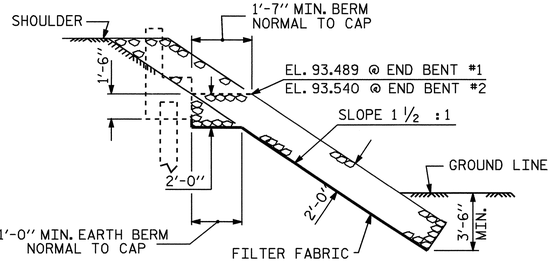
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			69

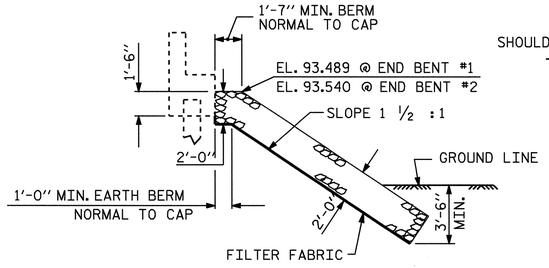
DRAWN BY : PEGGY ADKINS DATE : 10-04
CHECKED BY : F. GUZMAN DATE : 1-05



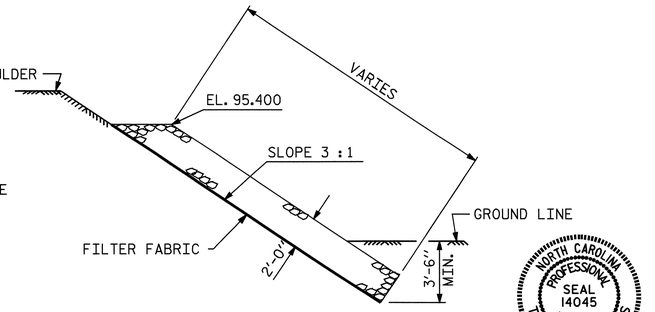
ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+32.50 -L-	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	189	210
END BENT #2	260	288



SECTION H-H



℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
RIP RAP DETAILS

ASSEMBLED BY : T.L. AVERETTE	DATE : 10-03
CHECKED BY : PEGGY ADKINS	DATE : 09-04
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			69

26-APR-2006 09:47
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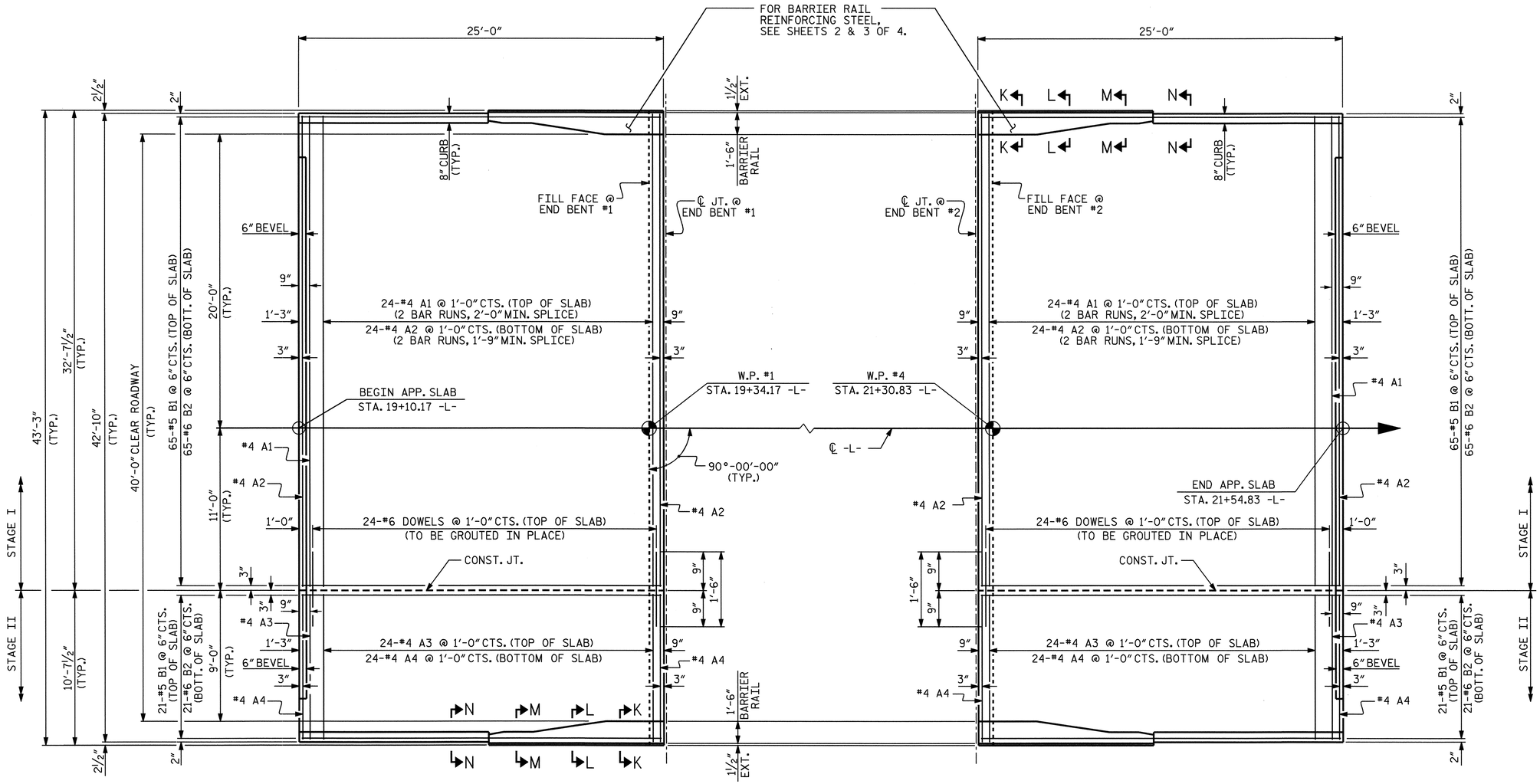
padkins

SKEW 90° STR. #1 NCDOT STD. NO. RR2



@ END BENT #1

@ END BENT #2

PLAN

(FOR SECTIONS N-N, M-M, L-L AND K-K, SEE SHEET 2 OF 4.)

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT WITH BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS
Timothy J. Coggins 4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			69

STR. #1 NCDOT

DRAWN BY : PEGGY ADKINS DATE : 09-04
CHECKED BY : T. AVERETTE DATE : 10-04

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NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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.

THE 6" COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF THE SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL AND SHALL BE GROUTED TO STAGE I.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 ½".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

STAGE I CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	50	#4	STR	17'-2"	573
A2	52	#4	STR	17'-0"	591
✳B1	65	#5	STR	23'-8"	1604
B2	65	#6	STR	24'-7"	2400
✳B3	1	#5	3	6'-4"	7
✳B4	7	#5	STR	11'-8"	85
✳D1	24	#6	STR	1'-6"	54
✳S1	28	#5	STR	3'-3"	95
✳S2	20	#5	1	4'-1"	85
✳S3	10	#5	2	2'-3"	23

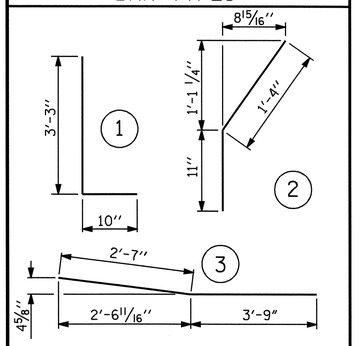
REINFORCING STEEL	LBS.	2991
✳EPOXY COATED REINFORCING STEEL	LBS.	2526
CLASS AA CONCRETE BREAKDOWN		
POUR 1 SLAB & CURB	C.Y.	30.7
POUR 2 RAIL	C.Y.	1.1
CLASS AA CONCRETE	C.Y.	31.8

STAGE II CONSTRUCTION

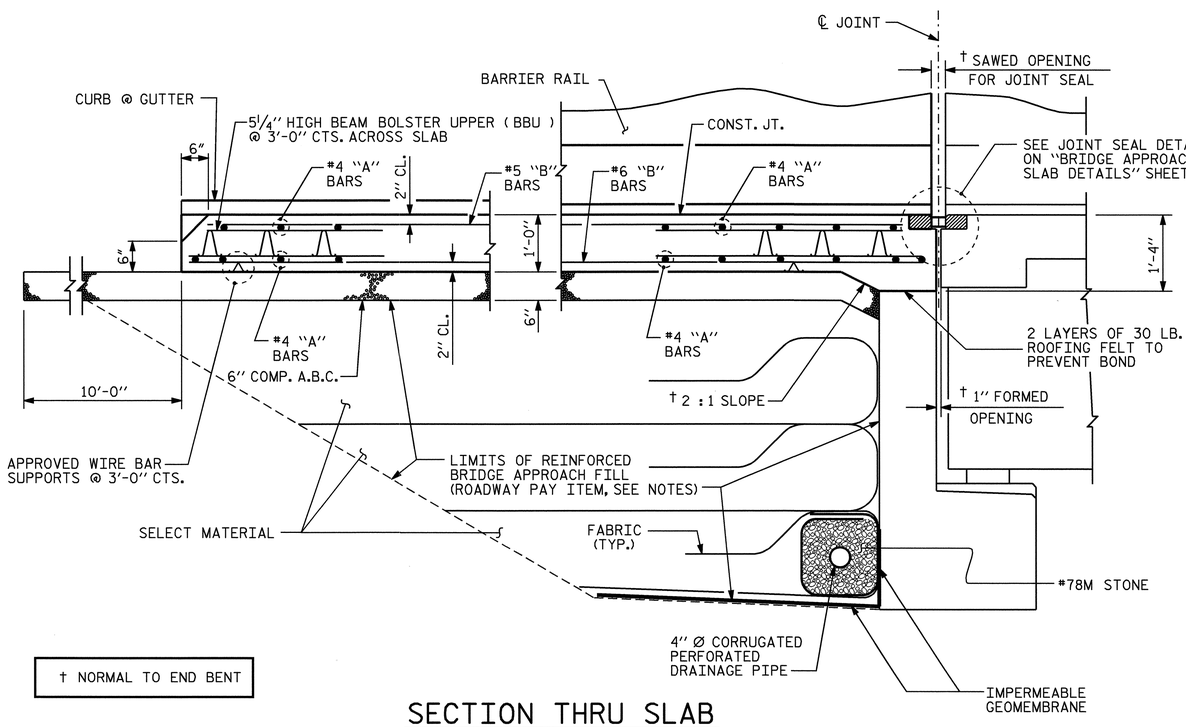
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	25	#4	STR	10'-1"	168
A4	26	#4	STR	10'-1"	175
✳B1	21	#5	STR	23'-8"	518
B2	21	#6	STR	24'-7"	775
✳B3	1	#5	3	6'-4"	7
✳B4	7	#5	STR	11'-8"	85
✳S1	28	#5	STR	3'-3"	95
✳S2	20	#5	1	4'-1"	85
✳S3	10	#5	2	2'-3"	23

REINFORCING STEEL	LBS.	950
✳EPOXY COATED REINFORCING STEEL	LBS.	981
CLASS AA CONCRETE BREAKDOWN		
POUR 1 SLAB & CURB	C.Y.	10.0
POUR 2 RAIL	C.Y.	1.1
CLASS AA CONCRETE	C.Y.	11.1

BAR TYPES

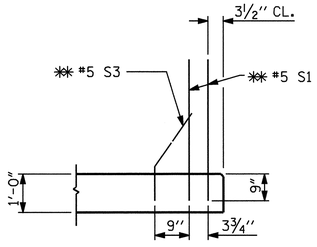


ALL BAR DIMENSIONS ARE OUT TO OUT

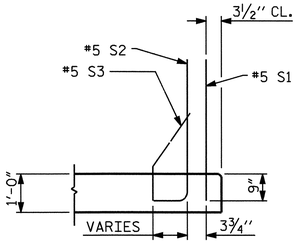


† NORMAL TO END BENT

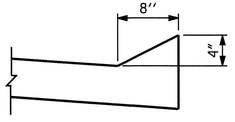
SECTION THRU SLAB



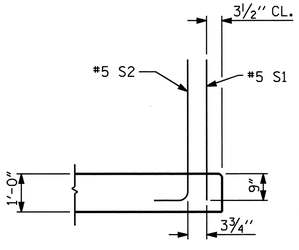
SECTION K-K
✳✳ ADHESIVELY ANCHORED



SECTION L-L



SECTION N-N



SECTION M-M

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT WITH BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS 4/26/06

ASSEMBLED BY : PEGGY ADKINS	DATE : 9-04
CHECKED BY : T. AVERETTE	DATE : 10-04
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			69

STR. #1 STD. NO. BAS5

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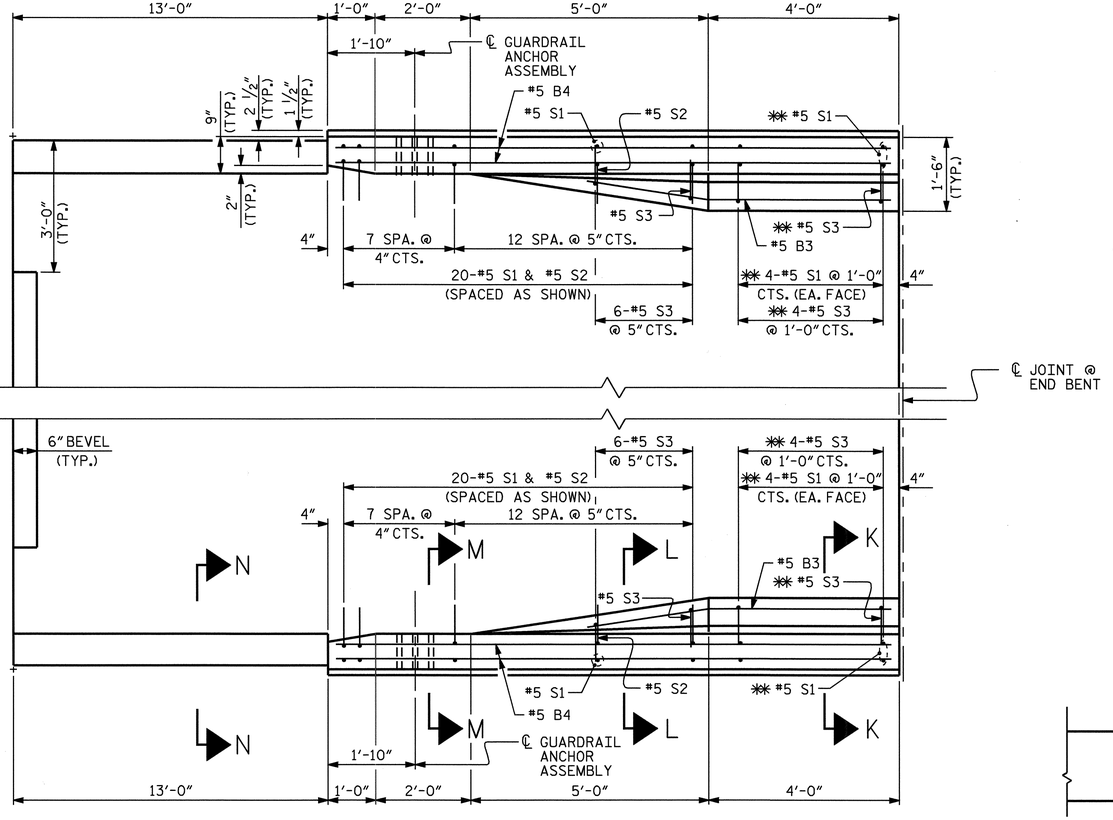
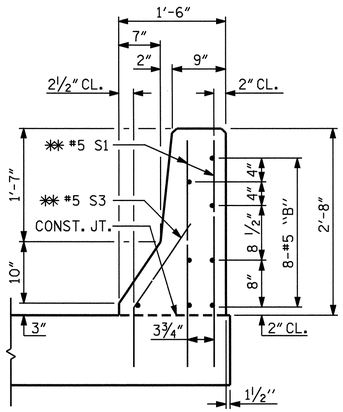


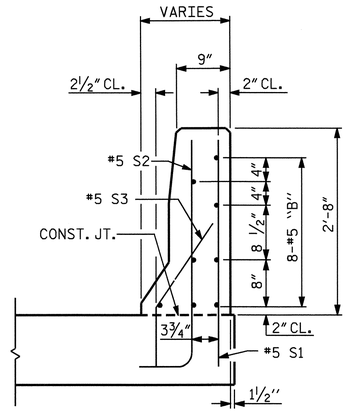
PLAN

BEGIN APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR



SECTION K-K

✱✱ ADHESIVELY ANCHORED



SECTION L-L

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.

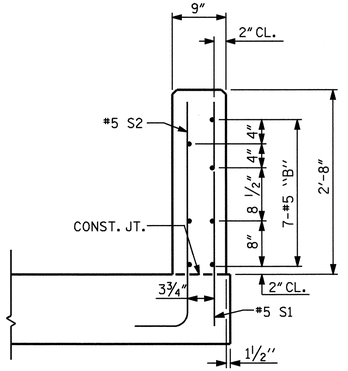
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

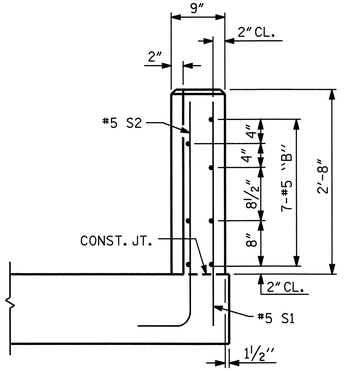
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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.

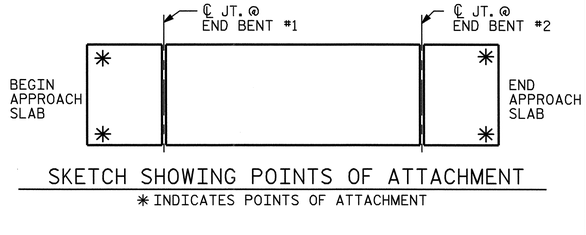
THE #5 S1 AND #5 S3 BARS SHALL BE INSTALLED, WHERE NOTED ON THE PLANS, USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S1 AND #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



SECTION M-M

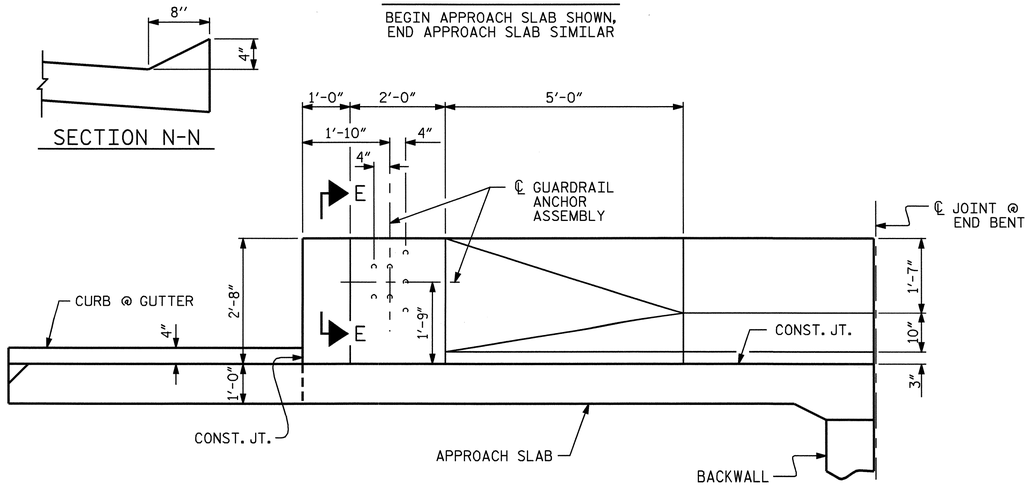


END VIEW OF RAIL

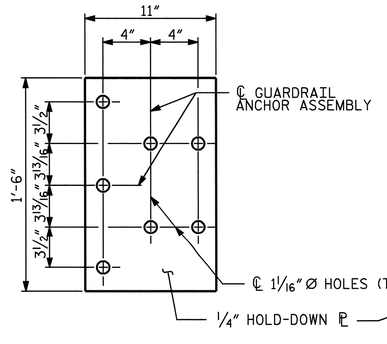


SKETCH SHOWING POINTS OF ATTACHMENT

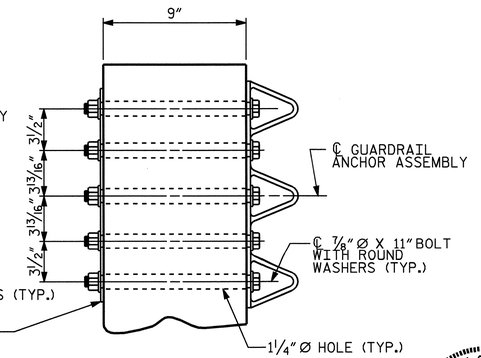
✱ INDICATES POINTS OF ATTACHMENT



ELEVATION



PLAN



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/06

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
DETAILS FOR FLEXIBLE
PAVEMENT WITH BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			69

STR. #1 STD. NO. BAS6

ASSEMBLED BY : PEGGY ADKINS	DATE : 09-04
CHECKED BY : T. AVERETTE	DATE : 10-04
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	

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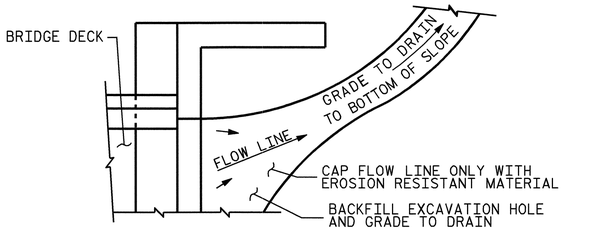
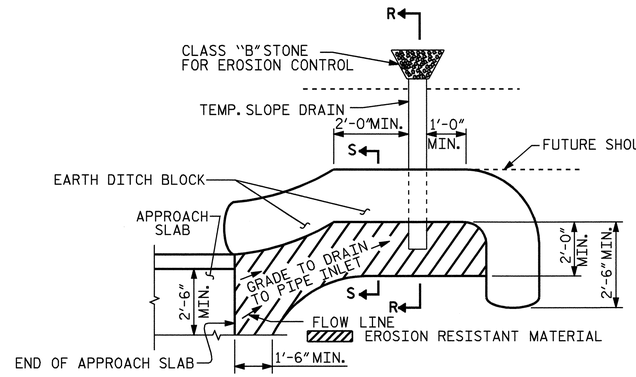


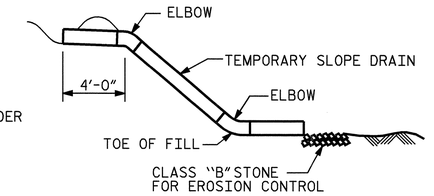
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

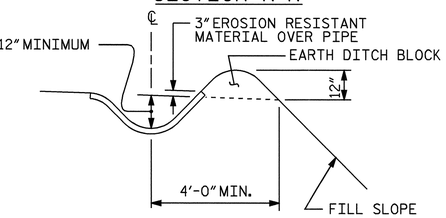


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

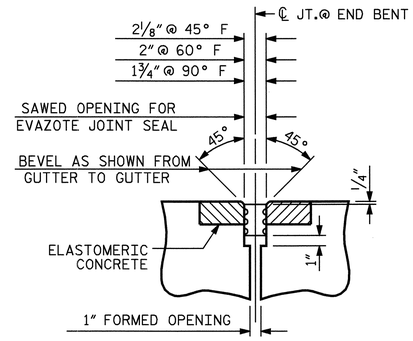


SECTION R-R

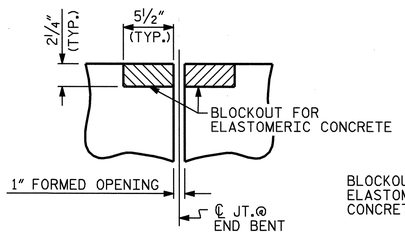


SECTION S-S

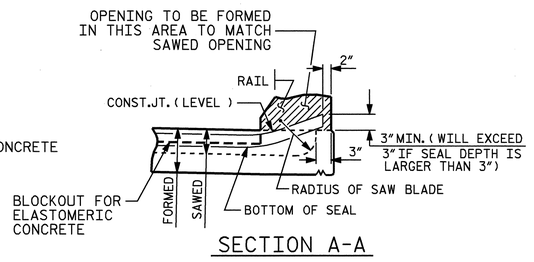
TEMPORARY BERM AND SLOPE DRAIN DETAILS



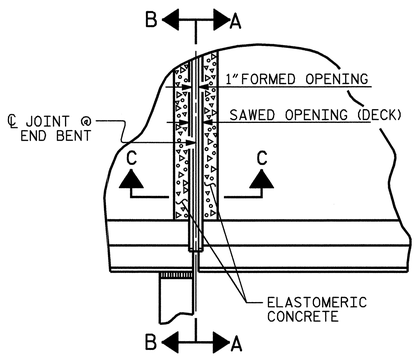
SECTION C-C
EVAZOTE JOINT SEAL



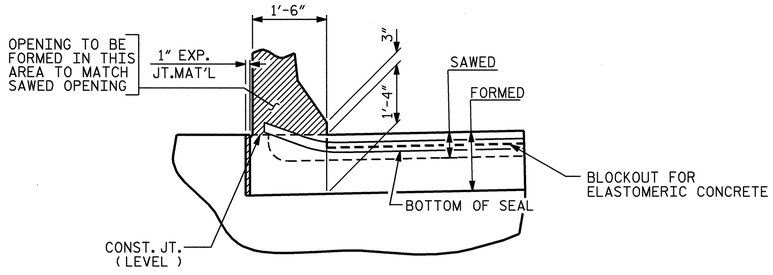
SECTION C-C
PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS



SECTION A-A



PLAN



SECTION B-B

BILL OF MATERIAL		
	STAGE I	STAGE II
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.3	1.5
2	5.3	1.5
TOTAL	10.6	3.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

JOINT SEAL DETAILS @ END BENT

(FOR BARRIER RAIL)

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS

1988

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

SHEET NO. S-33
TOTAL SHEETS 69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS
4/19/06

ASSEMBLED BY : PEGGY ADKINS		DATE : 09-04	
CHECKED BY : T. AVERETTE		DATE : 10-04	
DRAWN BY : FCJ	11/88	REV. 8/16/99	MAB/LES
CHECKED BY : ARB	11/88	REV. 10/17/00	RWW/LES
		REV. 5/7/03	RWW/JTE

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STR. #1

OVERHANG BRACKET CALCULATION INSTRUCTIONS

AASHTO SHAPES - TYPES III, IV, V, AND VI

1. RECORD KNOWN INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
2. CALCULATE THE MAXIMUM SCREED LOAD PER BRACKET (SLPB) WITH AN ESTIMATED R = 1.5. SLPB = R X W. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
3. WITH THE ESTIMATED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE, AND 45° HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE THE BRACKET SPACING, S.
4. CALCULATE S/D1 AND S/D2, ROUNDING UP TO NEAREST VALUE IN TABLE 2. ENTER TABLE 2 AND DETERMINE R VALUE.
5. CALCULATE REVISED SLPB. ROUND VALUE UP TO NEAREST SLPB VALUE INDICATED ON APPROPRIATE TABLE 1-1, 1-2, 1-3, OR 1-4.
6. WITH THE REVISED SLPB, OVERHANG SLAB THICKNESS, "K" VALUE AND 45 HANGER SAFE WORKING LOAD (SWL), ENTER THE APPROPRIATE TABLE 1-1, 1-2, 1-3 OR 1-4 (BASED ON OVERHANG DIMENSION) AND DETERMINE REVISED BRACKET SPACING, S.
7. CONTINUE ITERATIONS OF STEPS 4-6 UNTIL THE REVISED BRACKET SPACING, S, IS THE SAME AS THE PREVIOUS S VALUE.
8. CHECK LUMBER JOIST SPACING: WITH BRACKET SPACING VALUE, S, ROUND THIS VALUE UP TO THE NEAREST VALUE OF ALLOWABLE SPAN LENGTH OF JOIST OF TABLE 3. USING THIS VALUE, ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE, DETERMINE JOIST SPACING FROM TABLE 3. IF NECESSARY, ADJUST LUMBER JOIST SIZE AND/OR JOIST SPACING TO MEET ALLOWABLE SPAN LENGTH OF JOIST.
9. CONVERSELY, IF THE DESIRED JOIST SPACING IS KNOWN, USE THIS ALONG WITH THE AVERAGE OVERHANG SLAB THICKNESS AND THE LUMBER JOIST SIZE TO DETERMINE IF ALLOWABLE SPAN LENGTH OF JOIST IS GREATER THAN THE BRACKET SPACING, S. IF NECESSARY, ADJUST LUMBER JOIST SIZE TO MEET REQUIREMENTS OF ALLOWABLE SPAN LENGTH OF JOIST AND JOIST SPACING.
10. RECORD REMAINING INFORMATION ON "BRIDGE OVERHANG BRACKET SUMMARY" FORM.
11. SUBMIT FORM AND CALCULATIONS FOR REVIEW AND APPROVAL.

TABLE 1-1 (FOR USE ON **UP TO 2'-0" OVERHANG** Ⓛ & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS Ⓣ (In)	BRACKET Ⓚ DIMENSION (In)	SCREED LOAD PER BRACKET 2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	45° HANGER SWL (lbs)
		BRACKET SPACING									
10	30				2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
		3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	40				2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
		3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	50				2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	5'-9"	4000
		3'-6"	4'-0"	4'-5"	4'-9"	5'-1"	5'-3"	5'-5"	5'-7"	6'-7"	6000
12	30					2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000
		3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
	40					2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000
		3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
	50					2'-4"	2'-10"	3'-4"	3'-9"	5'-2"	4000
		3'-2"	3'-7"	4'-1"	4'-7"	5'-0"	5'-2"	5'-4"	5'-7"	6'-5"	6000
14	30					2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000
		2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
	40					2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000
		2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
	50					2'-2"	2'-7"	3'-0"	3'-5"	4'-9"	4000
		2'-10"	3'-4"	3'-9"	4'-2"	4'-7"	5'-0"	5'-4"	5'-7"	6'-4"	6000
16	30					2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000
		2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000
	40					2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000
		2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000
	50					2'-0"	2'-4"	2'-9"	3'-2"	4'-4"	4000
		2'-8"	3'-0"	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	6'-3"	6000

TABLE 1-2 (FOR USE ON **OVER 2'-0" TO 2'-6" OVERHANG** Ⓛ & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS Ⓣ (In)	BRACKET Ⓚ DIMENSION (In)	SCREED LOAD PER BRACKET 2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	45° HANGER SWL (lbs)
		BRACKET SPACING									
10	30					2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000
		3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	40					2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000
		3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
	50					2'-4"	2'-9"	3'-3"	3'-8"	5'-1"	4000
		3'-1"	3'-6"	4'-0"	4'-5"	4'-11"	5'-3"	5'-5"	5'-7"	6'-7"	6000
12	30					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
		2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
	40					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
		2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
	50					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
		2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-5"	6000
14	30						2'-3"	2'-7"	3'-0"	4'-1"	4000
		2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
	40						2'-3"	2'-7"	3'-0"	4'-1"	4000
		2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
	50						2'-3"	2'-7"	3'-0"	4'-1"	4000
		2'-6"	2'-10"	3'-3"	3'-7"	4'-0"	4'-4"	4'-9"	5'-1"	6'-3"	6000
16	30						2'-1"	2'-5"	2'-9"	3'-9"	4000
		2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000
	40						2'-1"	2'-5"	2'-9"	3'-9"	4000
		2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000
	50						2'-1"	2'-5"	2'-9"	3'-9"	4000
		2'-3"	2'-7"	2'-11"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"	5'-8"	6000

TABLE 1-3 (FOR USE ON **OVER 2'-6" TO 3'-0" OVERHANG** Ⓛ & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS Ⓣ (In)	BRACKET Ⓚ DIMENSION (In)	SCREED LOAD PER BRACKET 2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	45° HANGER SWL (lbs)
		BRACKET SPACING									
10	30					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
						4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	6000
	40					2'-1"	2'-6"	2'-11"	3'-4"	4'-6"	4000
		2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	6000
	50					2'-1'	2'-6"	2'-11"	3'-4"	4'-6"	4000
		2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	4'-10"	5'-3"	5'-7"	6'-7"	6000
12	30						2'-2"	2'-7"	2'-11"	4'-0"	4000
						3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
	40						2'-2"	2'-7"	2'-11"	4'-0"	4000
		2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
	50						2'-2"	2'-7"	2'-11"	4'-0"	4000
		2'-5"	2'-10"	3'-2"	3'-6"	3'-11"	4'-3"	4'-8"	5'-0"	6'-1"	6000
14	30						2'-0"	2'-4"	2-8"'	3'-8"	4000
						3'-2"	3'-6"	4'-2"	4'-6"	5'-6"	6000
	40						2'-0"	2'-4"	2'-8"	3'-8"	4000
		2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	5'-6"	6000
	50						2'-0"	2'-4"	2'-8"	3'-8"	4000
		2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	5'-6"	6000
16	30					2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	4000
									2'-1"	2'-5"	4000
	40								3'-10"	4'-1"	4000
		2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	5'-0"	6000
	50								2'-1"	2'-5"	4000
		2'-0"	2'-4"	2'-7"	2'-11"	3'-2"	3'-6"	3'-10"	4'-1"	5'-0"	6000

TABLE 1-4 (FOR USE ON **OVER 3'-0" TO 3'-6" OVERHANG** Ⓛ & 54" HORIZONTAL LEG LENGTH OF THE OVERHANG BRACKET)

AVG. SLAB THICKNESS Ⓣ (In)	BRACKET Ⓚ DIMENSION (In)	SCREED LOAD PER BRACKET 2500 lbs.	2250 lbs.	2000 lbs.	1750 lbs.	1500 lbs.	1250 lbs.	1000 lbs.	750 lbs.	0 lbs.	45° HANGER SWL (lbs)
		BRACKET SPACING									
10	30						2'-1"	2'-5"	2'-9"	3'-10"	4000
						2'-3"	2'-11"	3'-7"	4'-3"	5'-9"	6000
	40						2'-1"	2'-5"	2'-9"	3'-10"	4000
					2'-4"	3'-0"	3'-7"	4'-1"	4'-5"	4'-9"	5'-9"	6000
	50						2'-1"	2'-5"	2'-9"	3'-10"	4000
		2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-1"	4'-5"	4'-9"	5'-9"	6000
12	30							2'-2"	2'-6"	3-5"	4000
						2'-1"	2'-8"	3'-4"	3'-11"	5'-2"	6000
	40							2'-2"	2'-6"	3'-5"	4000
					2'-2"	2'-9"	3'-4"	3'-7"	3'-11"	4'-3"	5'-2"	6000
	50							2'-2"	2'-6"	3'-5"	4000
		2'-1"	2'-4"	2'-8"	3'-0"	3'-4"	3'-7"	3'-11"	4'-3"	5'-2"	6000
14	30								2-3"'	3'-1"	4000
						2'-0"	2'-6"	3'-1"	3'-8"	4'-8"	6000
	40								2'-3"	3'-1"	4000
					2'-0"	2'-7"	3'-0"	3'-3"	3'-6"	3'-10"	4'-8"	6000
	50								2'-3"	3'-1"	4000
			2'-2"	2'-5"	2'-8"	3'-0"	3'-3"	3'-6"	3'-10"	4'-8"	6000
16	30								2'-0"	2'-9"	4000
							2'-4"	2'-10"	3'-5"	4'-3"	6000
	40								2'-0"	2'-9"	4000
						2'-5"	2'-8"	2'-11"	3'-3"	3'-6"	4'-3"	6000
	50								2'-0"	2'-9"	4000
					2'-2"	2'-5"	2'-8"	2'-11"	3'-3"	3'-6"	4'-3"	6000

DEFINITIONS

SLPB = SCREED LOAD PER BRACKET (R x W)
R = SCREED LOAD FACTOR, OBTAINED FROM TABLE 2
W = WHEEL LOAD
S = BRACKET SPACING
T = AVERAGE SLAB THICKNESS
SWL = SAFE WORKING LOAD
K = DIMENSION DEFINED ON "BRIDGE OVERHANG BRACKET SUMMARY" ON SHEET 2
L = OVERHANG MEASURED FROM EDGE OF TOP FLANGE TO EDGE OF SUPERSTRUCTURE

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES
III, IV, V, AND VI

NORTH CAROLINA PROFESSIONAL SEAL 18788 ENGINEER CHANG-CHUAN VICTOR CHAO
Chang-Chuan V. Chao
2-25-2005

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	

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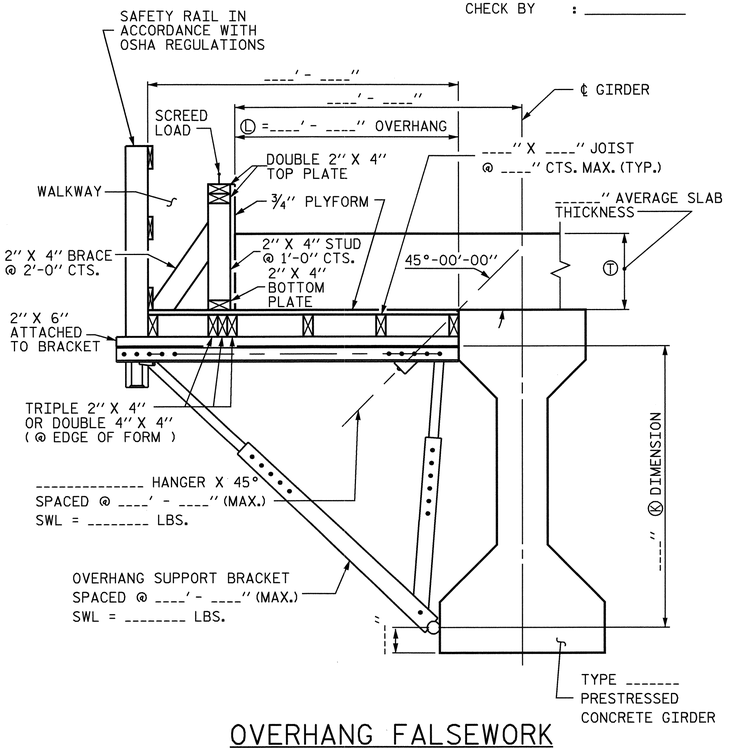
OF1

BRIDGE OVERHANG BRACKET SUMMARY

TOTAL SCREED WEIGHT = _____ LBS.
NUMBER OF SCREED WHEELS = _____
SCREED WHEEL LOAD (W) = _____ LBS.
SCREED LOAD PER BRACKET = _____ LBS.

PROJECT No. : _____
COUNTY : _____
STATION : _____
DESCRIPTION : _____
DATE : _____
DESIGN BY : _____
CHECK BY : _____



OVERHANG FALSEWORK

NOTES

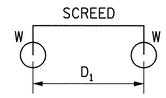
DESIGN INCLUDES CONSTRUCTION LIVE LOAD 20 PSF ON THE AREA SUPPORTED AND 75 PLF AT THE OUTSIDE DECK OF OVERHANGS.

REQUIRED MINIMUM DIAGONAL LEG CAPACITY: 3600 LB WORKING LOAD

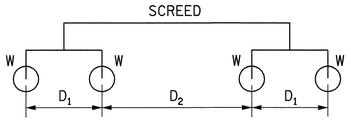
THE CONTRACTOR HAS THE OPTION OF SUBMITTING HIS OWN DESIGN FOR OVERHANG FALSEWORK IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

SUBMITTALS UTILIZING THE INSTRUCTIONS AND PROCEDURES DESCRIBED ON SHEET 1 OF 3 SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND SPECIAL PROVISIONS, EXCEPT THAT CALCULATIONS FOR OVERHANG FALSEWORK NEED NOT BE SEALED BY A REGISTERED ENGINEER.

FOR OVERHANG FALSEWORK BRACING DESIGN, SEE SHEET 3 OF 3.



4-WHEEL MACHINE



8-WHEEL MACHINE

4 WHEEL MACHINE	
S/D1	R
<= 1.0	1.00
1.1	1.09
1.2	1.17
1.3	1.23
1.4	1.29
1.5	1.33
1.6	1.38
1.7	1.41
1.8	1.44
1.9	1.47
2.0	1.50
2.2	1.55
2.4	1.58
2.6	1.62
2.8	1.64
3.0	1.67
3.5	1.71
4.0	1.75

TABLE 2: SCREED LOAD FACTOR "R"

		THE SCREED LOAD FACTOR R (FOR 8 WHEEL MACHINE)																	
		S/D2																	
S/D1		<= 1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.5	4.0
	<= 1.0	1.00	1.09	1.17	1.23	1.29	1.33	1.38	1.41	1.44	1.47	1.50	1.55	1.58	1.62	1.64	1.67	1.71	1.75
	1.1	1.09	1.18	1.26	1.32	1.38	1.42	1.47	1.50	1.54	1.56	1.59	1.64	1.67	1.71	1.73	1.76	1.81	1.84
	1.2	1.17	1.26	1.33	1.40	1.45	1.50	1.54	1.58	1.61	1.64	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92
	1.3	1.23	1.32	1.40	1.46	1.52	1.56	1.61	1.64	1.68	1.70	1.73	1.78	1.81	1.85	1.87	1.90	1.95	1.98
	1.4	1.29	1.38	1.45	1.52	1.57	1.62	1.66	1.70	1.73	1.76	1.79	1.83	1.87	1.90	1.93	1.95	2.00	2.07
	1.5	1.33	1.42	1.50	1.56	1.62	1.67	1.71	1.75	1.78	1.81	1.83	1.88	1.92	1.95	1.98	2.00	2.10	2.17
	1.6	1.38	1.47	1.54	1.61	1.66	1.71	1.75	1.79	1.82	1.85	1.88	1.92	1.96	1.99	2.04	2.08	2.18	2.25
	1.7	1.41	1.50	1.58	1.64	1.70	1.75	1.79	1.82	1.86	1.89	1.91	1.96	2.00	2.05	2.11	2.16	2.25	2.32
	1.8	1.44	1.54	1.61	1.68	1.73	1.78	1.82	1.86	1.89	1.92	1.94	1.99	2.06	2.12	2.17	2.22	2.32	2.39
	1.9	1.47	1.56	1.64	1.70	1.76	1.81	1.85	1.89	1.92	1.95	1.97	2.04	2.11	2.18	2.23	2.28	2.38	2.45
	2.0	1.50	1.59	1.67	1.73	1.79	1.83	1.88	1.91	1.94	1.97	2.00	2.09	2.17	2.23	2.29	2.33	2.43	2.50
	2.2	1.55	1.64	1.71	1.78	1.83	1.88	1.92	1.96	1.99	2.04	2.09	2.18	2.26	2.32	2.38	2.42	2.52	2.59
	2.4	1.58	1.67	1.75	1.81	1.87	1.92	1.96	2.00	2.06	2.11	2.17	2.26	2.33	2.40	2.45	2.50	2.60	2.67
	2.6	1.62	1.71	1.78	1.85	1.90	1.95	1.99	2.05	2.12	2.18	2.23	2.32	2.40	2.46	2.52	2.56	2.66	2.73
	2.8	1.64	1.73	1.81	1.87	1.93	1.98	2.04	2.11	2.17	2.23	2.29	2.38	2.45	2.52	2.57	2.62	2.71	2.79
	3.0	1.67	1.76	1.83	1.90	1.95	2.00	2.08	2.16	2.22	2.28	2.33	2.42	2.50	2.56	2.62	2.67	2.76	2.83
	3.5	1.71	1.81	1.88	1.95	2.00	2.10	2.18	2.25	2.32	2.38	2.43	2.52	2.60	2.66	2.71	2.76	2.86	2.93
	4.0	1.75	1.84	1.92	1.98	2.07	2.17	2.25	2.32	2.39	2.45	2.50	2.59	2.67	2.73	2.79	2.83	2.93	3.00

TABLE 3: ALLOWABLE SPAN LENGTH OF JOISTS AND JOIST SPACINGS

AVG. SLAB THICKNESS Ⓣ (IN)	LUMBER JOIST SIZE (IN X IN)	JOIST SPACINGS			
		15 IN	12 IN	10 IN	8 IN
		THE ALLOWABLE SPAN LENGTH OF JOISTS			
10	2 X 4	———	4' - 6"	4' - 9"	5' - 0"
	4 X 4	5' - 9"	6' - 3"	6' - 6"	6' - 7"
12	2 X 4	———	4' - 3"	4' - 9"	5' - 0"
	4 X 4	5' - 3"	6' - 0"	6' - 3"	6' - 5"
14	2 X 4	———	4' - 0"	4' - 6"	5' - 0"
	4 X 4	———	5' - 6"	6' - 0"	6' - 4"
16	2 X 4	———	4' - 0"	4' - 3"	4' - 9"
	4 X 4	———	5' - 3"	5' - 9"	6' - 3"

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 20+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES
III, IV, V, AND VI

NORTH CAROLINA PROFESSIONAL SEAL 18788 ENGINEER CHANG-CHUAN VICTOR CHAO

Chang-Chuan V. Chao
2-25-2005

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-35
1			3			TOTAL SHEETS
2			4			69

ASSEMBLED BY:	DATE:
CHECKED BY:	DATE:
DRAWN BY: R. WRIGHT 06/04	REV.
CHECKED BY: C. V. CHAO 06/04	

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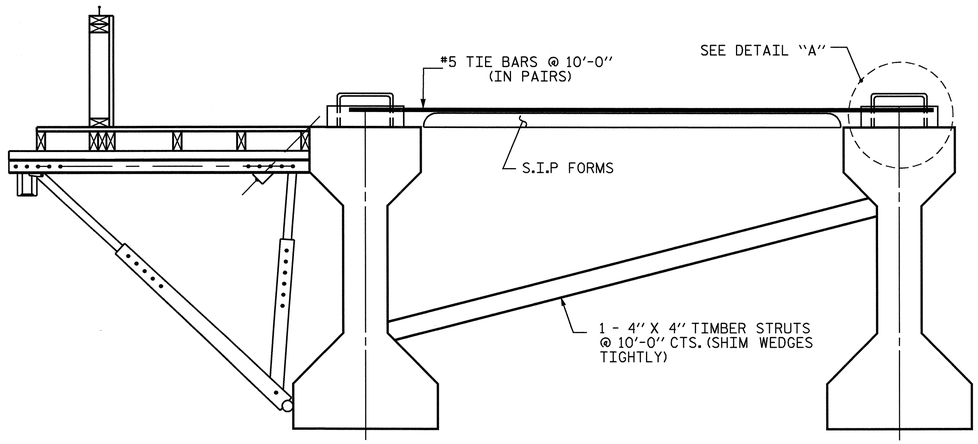
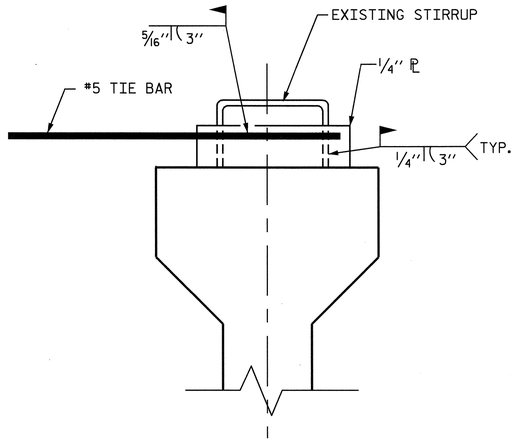


EXTERIOR GIRDER INTERIOR GIRDER

DETAIL OF REQUIRED OVERHANG FALSEWORK BRACING SYSTEM



DETAIL "A"

NOTES:

EACH #5 TIE BAR SHALL BE WELDED TO ONE STIRRUP LOOP AS SHOWN IN DETAIL "A". #5 TIE BARS SHALL BE WELDED TO TWO ADJACENT STIRRUPS OF THE EXTERIOR GIRDER AND THE ADJACENT INTERIOR GIRDER BETWEEN PERMANENT DIAPHRAGMS. WELD STEEL PLATES IN BETWEEN THE TIE BARS AND THE STIRRUP LOOP. WELDING TWO TIE BARS TO THE SAME STIRRUP LOOP SHALL NOT BE PERMITTED.

MAXIMUM SPACING BETWEEN THE BRACING (TIE BARS-TIMBER STRUT) IS 10'-0" CTS. #5 TIE BARS SHALL BE LOCATED OVER A TIMBER STRUT.

INSTALL TIE BARS AND TIMBER STRUTS PRIOR TO PLACEMENT OF CONCRETE OR SCREED WEIGHT ONTO THE OVERHANG FALSEWORK.

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 20+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD OVERHANG FALSEWORK

AASHTO TYPES
III, IV, V, AND VI

NORTH CAROLINA PROFESSIONAL SEAL 18788 ENGINEER CHANG-CHUAN VICTOR CHAO

Chang-Chuan V. Chao
2-25-2005

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			69

DRAWN BY: R. WRIGHT 06/04 DATE : _____
CHECKED BY: C. V. CHAO 06/04 DATE : _____

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F.A. PROJECT NO.: BRSTP-301(16)

27+80 27+90 28+00 28+10 28+20 28+30 28+40 28+50 28+60 28+70 28+80 28+90 29+00 29+10 29+20 29+30 29+40 29+50 29+60 29+70 29+80 29+90 30+00 30+10 30+20 30+30

+1.2000% -0.3000%

GRADE DATA

P.I. STA. = 19+60.00 -L-
EL. = 100.87'
V.C. = 230.00'

SPAN A

SPAN B

SPAN C

FILL FACE @ END BENT #1
STA. 28+30.00 -L-
GRADE PT. EL. 98.260

BEGIN FRONT SLOPE
STA. 28+22.35 -L-
GRADE PT. EL. 98.283

EXP.

1'-0" MIN. EARTH BERM (TYP.)

1½:1 SLOPE NORMAL TO CAP (TYP.)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

1'-6"

EL. 85.4 ±

EL. 85.1 ±

EL. 84.8 ±

EL. 84.0 ±

ROCK EMBANKMENT AND CORE MATERIAL, SEE ROADWAY PLANS

HP 12 x 53 STEEL PILES

APPROXIMATE NATURAL GROUND LINE

FIXED FIXED

EXISTING STRUCTURE (TYP.)

HP 14 x 73 STEEL PILES

N.W.S. EL. 85.9 ±

EL. 83.9 ±

EL. 84.1 ±

FIXED FIXED

HIGH WATER EL. 94.9 ± (9-18-99)

EL. 84.1 ±

HP 14 x 73 STEEL PILES

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

EL. 85.0 ±

EL. 84.5 ±

EXP.

FILL FACE @ END BENT #2
STA. 30+00.00 -L-
GRADE PT. EL. 97.750

BEGIN FRONT SLOPE
STA. 30+07.57 -L-
GRADE PT. EL. 97.727

1'-6"

EL. 85.3 ±

HP 12 x 53 STEEL PILES

EL. 85.6 ±

EL. 86.3 ±

ROCK EMBANKMENT AND CORE MATERIAL, SEE ROADWAY PLANS

END BENT #1

BENT #1

BENT #2

END BENT #2

SECTION ALONG ℄ -L-

PLAIN RIP RAP CLASS II WITH FILTER FABRIC FOR DRAINAGE (TYP.)

1'-0" MIN. EARTH BERM
EL. 90.885 (LEVEL)

W.P. #1
FILL FACE @ END BENT #1
STA. 28+30.00 -L-

BEGIN APPROACH SLAB
STA. 28+06.00 -L-

TO WHITAKERS

BEGIN FRONT SLOPE
STA. 28+22.35 -L-

STAGE II TEMPORARY SHORING (ROADWAY PAY ITEM)

STAGE I TEMPORARY SHORING (ROADWAY PAY ITEM)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

BENT #1 CONTROL LINE

FISHING CREEK OVERFLOW

W.P. #2
STA. 28+87.08 -L

BRIDGE I.D.
STA. 29+15.00 -L-

℄ -L-
(US 301)

90°-00'-00" (TYP.)

EXISTING STRUCTURE (TYP.)

BENT #2 CONTROL LINE

W.P. #3
STA. 29+42.92 -L

1'-0" MIN. EARTH BERM
EL. 90.387 (LEVEL)

W.P. #4
FILL FACE @ END BENT #2
STA. 30+00.00 -L-

END APPROACH SLAB
STA. 30+24.00 -L-

TO ENFIELD

BEGIN FRONT SLOPE
STA. 30+07.57 -L-

STAGE II TEMPORARY SHORING (ROADWAY PAY ITEM)

STAGE I TEMPORARY SHORING (ROADWAY PAY ITEM)

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

27'-11" 27'-11"

57'-1" SPAN "A"

55'-10" SPAN "B"

57'-1" SPAN "C"

170'-0" TOTAL LENGTH OF BRIDGE
(FILL FACE @ END BENT #1 TO FILL FACE @ END BENT #2)

PLAN

(PILES NOT SHOWN FOR CLARITY)

DRAWN BY : T.L. A./P.S.A. DATE : 12-04
CHECKED BY : T.L. COGGINS DATE : 01-05

NORTH CAROLINA PROFESSIONAL SEAL 12274 ENGINEER OMAR R. AZIZ
1/16/07

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
1/16/07

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 17

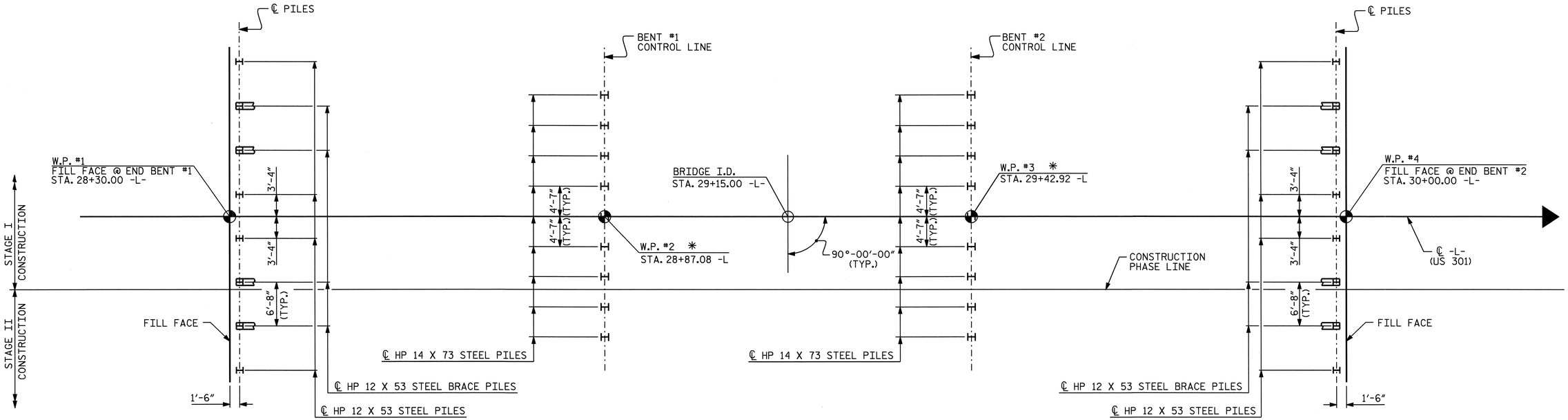
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
FISHING CREEK OVERFLOW
ON US 301 BETWEEN
SR 1409 AND SR 1224

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			69

STR. #2



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINES AT THE BOTTOM OF CAP..
END BENT BRACE PILES ARE BATTERED AT 3:12.

* ONE HP 14 X 73 STEEL PILE IS LOCATED AT INTERSECTION OF ℄ -L- AND BENT CONTROL LINES.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
FISHING CREEK OVERFLOW
ON US 301 BETWEEN
SR 1409 AND SR 1224

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : T.L. COGGINS DATE : 01-05

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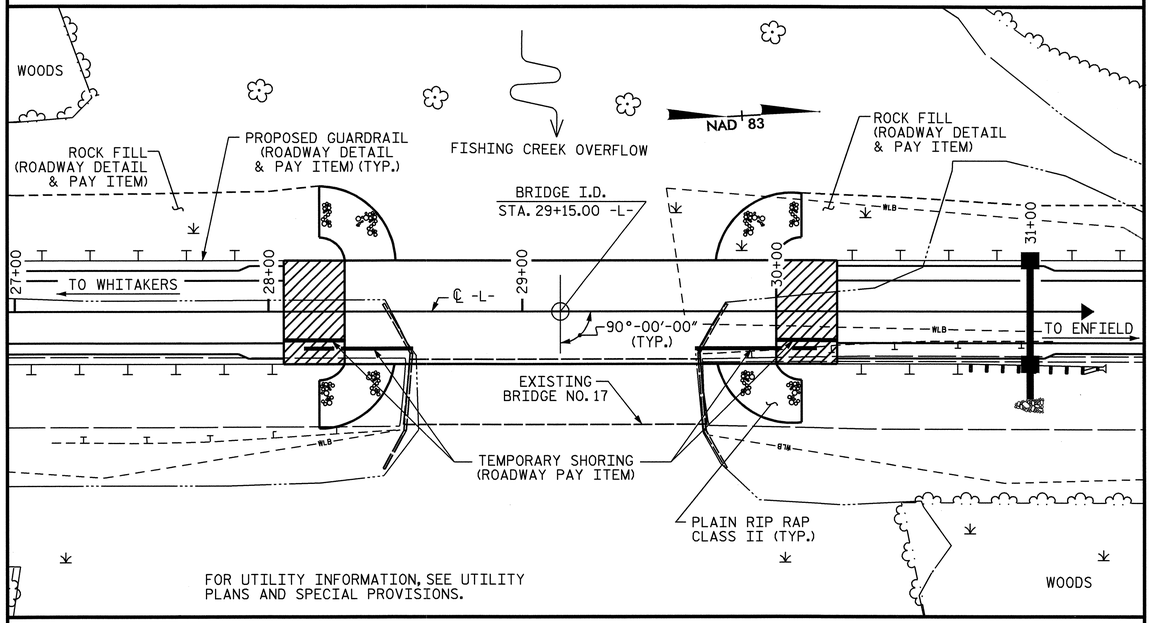
padkins

STR. #2



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 17,000 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 94.4'
DRAINAGE AREA	= 526 Sq. MILES
BASIC DISCHARGE (Q100)	= 20,700 CFS
BASIC HIGH WATER ELEVATION	= 95.9'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 22,000 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100+ YR.
OVERTOPPING FLOOD ELEVATION	= 96.2'

NOTES:

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE BEAMS HAVE BEEN DESIGNED FOR HS25.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

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.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS @ 40'-0" WITH REINFORCED CONCRETE DECK GIRDERS SUPPORTED ON REINFORCED CONCRETE ABUTMENTS AND BENTS WITH SQUARE NOSE POST AND WEB AND LOCATED AT PROPOSED BRIDGE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

REMOVAL OF THE EXISTING BRIDGE 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.

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 STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR LIMITS OF TEMPORARY SHORING, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING, SEE ROADWAY PLANS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

CRANES WILL NOT BE ALLOWED ON THE EXISTING BRIDGE DURING CONSTRUCTION OF STAGE I.

FOR STEEL H PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT NOS. 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 50 TONS EACH.

PILES AT BENTS NOS. 1 AND 2 SHALL BE DRIVEN TO AN ELEVATION NO HIGHER THAN 57.0 FT. AND SATISFY THE BEARING CAPACITY OF 75 TONS EACH.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

THE SCOUR CRITICAL ELEVATION FOR BENTS NOS. 1 AND 2 IS 73.0 FT. THE SCOUR CRITICAL ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE CONTRACTOR SHALL OBSERVE A 3 MONTH WAITING PERIOD BEFORE BEGINNING ANY WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT.

FOR SETTLEMENT PLATES, SEE ROADWAY PLANS.

THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. FOR GALVANIZING STEEL PILES, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.

THE CONTRACTOR IS ADVISED OF ROCK EMBANKMENT AND CORE MATERIAL AT BOTH END BENTS. SEE ROADWAY PLANS FOR DETAILS.

WORK ON END BENTS SHALL NOT BE STARTED UNTIL APPROACH ROCK EMBANKMENT AND CORE MATERIAL IN THE AREA OF THE END BENT PILES HAVE BEEN PLACED.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. EACH SIDE OF CENTERLINE OF EXISTING ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AS UNCLASSIFIED STRUCTURE EXCAVATION.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES		HP 14 X 73 STEEL PILES		GALVANIZING STEEL PILES	CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	CU.YDS.	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	NO.	LIN.FT.	LUMP SUM	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE			7,262	7,918				197,900						335.84			LUMP SUM	LUMP SUM
END BENT NO.1		350			21.6		3,480		8	280					246	273		
BENT NO.1					11.9		2,184				9	315	LUMP SUM					
BENT NO.2					11.9		2,184				9	315	LUMP SUM					
END BENT NO.2		445			21.6		3,480		8	280					233	259		
TOTAL	LUMP SUM	795	7,262	7,918	67.0	LUMP SUM	11,328	197,900	16	560	18	630	LUMP SUM	335.84	479	532	LUMP SUM	LUMP SUM

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

Timothy L. Coggins 1/16/07

DRAWN BY : T.L. A./P.S.A. DATE : 12-04
CHECKED BY : T.L. COGGINS DATE : 01-05

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 29+15.00 -L-
SHEET 3 OF 3

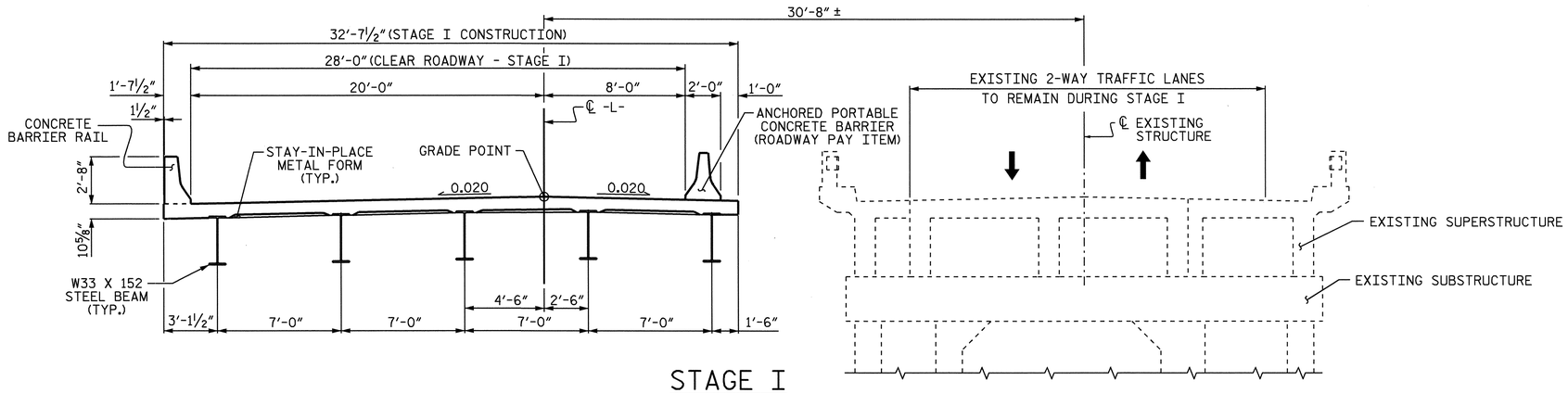
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
FISHING CREEK OVERFLOW
ON US 301 BETWEEN
SR 1409 AND SR 1224

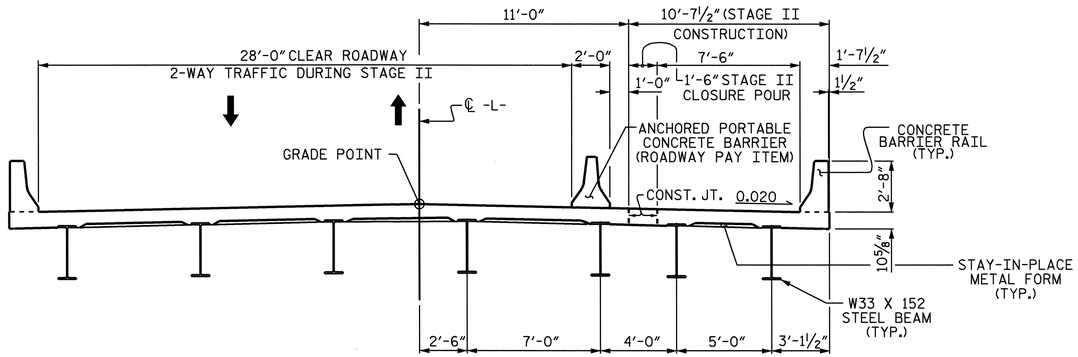
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			69

NCDOT STR. #2



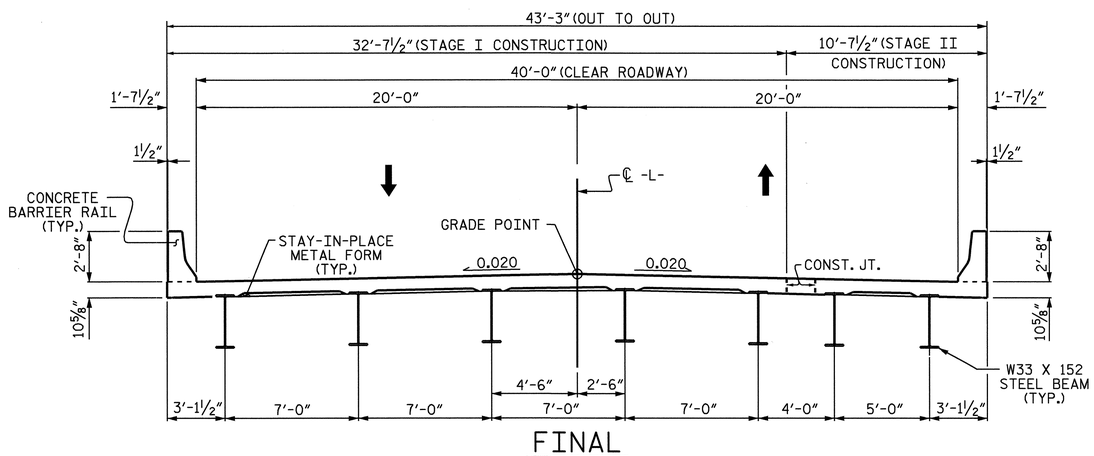
STAGE I

MAINTAIN 2-WAY TRAFFIC ON EXISTING STRUCTURE. CONSTRUCT STAGE I OF PROPOSED BRIDGE.



STAGE II

SHIFT 2-WAY TRAFFIC TO NEW STRUCTURE. COMPLETELY REMOVE EXISTING STRUCTURE. CONSTRUCT STAGE II OF PROPOSED BRIDGE. AFTER STAGE II CONSTRUCTION, REMOVE ANCHORED PORTABLE CONCRETE BARRIER AND SHIFT TRAFFIC TO FINAL 2-WAY PATTERN.



FINAL

NOTE:

SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE ANCHORED PORTABLE CONCRETE BARRIER.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

1/17/14

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : T.L.A./P.S.A. DATE : 01-05
CHECKED BY : M. K./T. COGGINS DATE : 01-05

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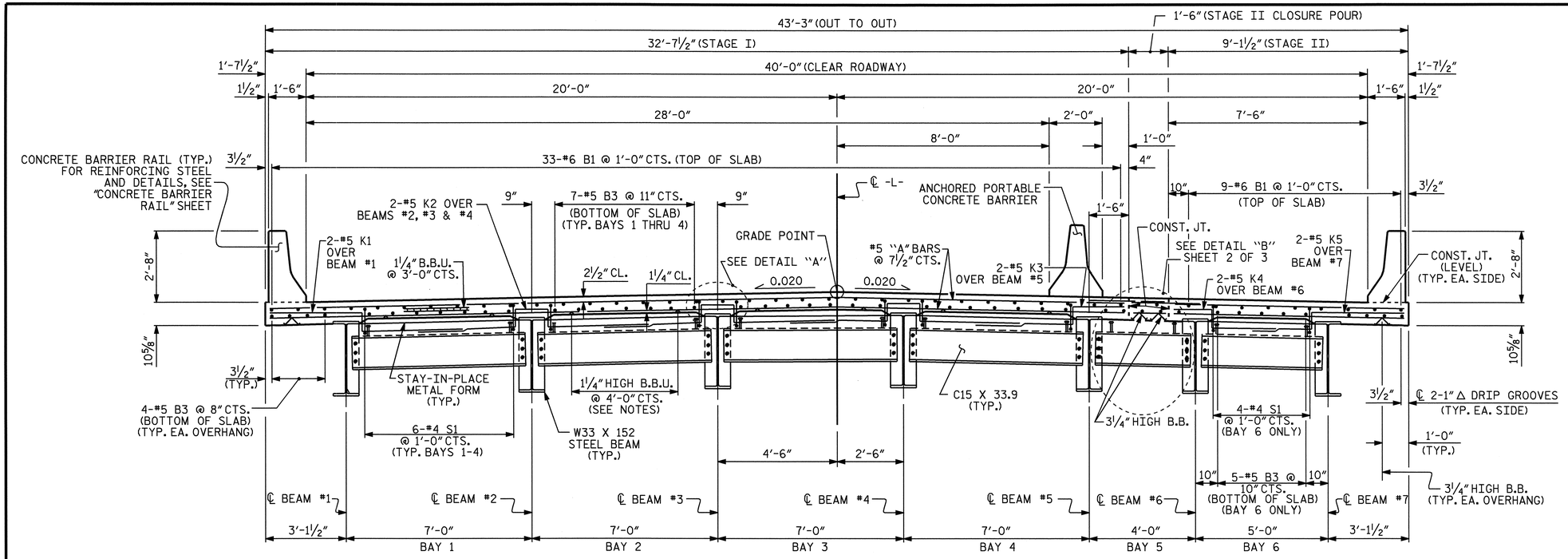
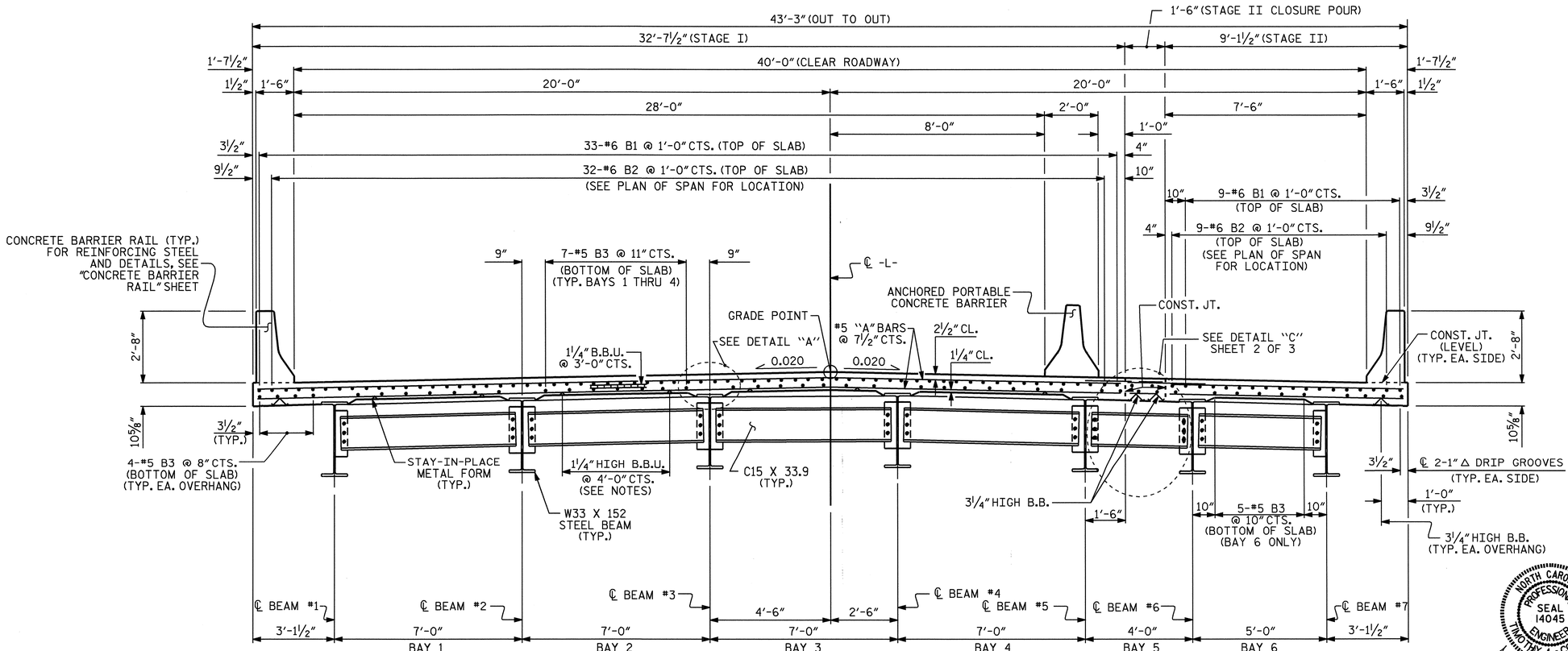


TYPICAL SECTION @ END BENT DIAPHRAGM



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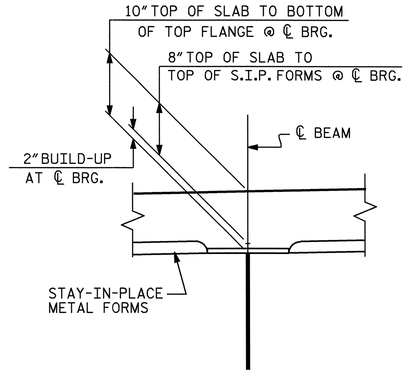


DETAIL "A"

NOTES

PROVIDE 1¼" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2½" ABOVE THE TOP OF THE REMOVABLE FORM.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

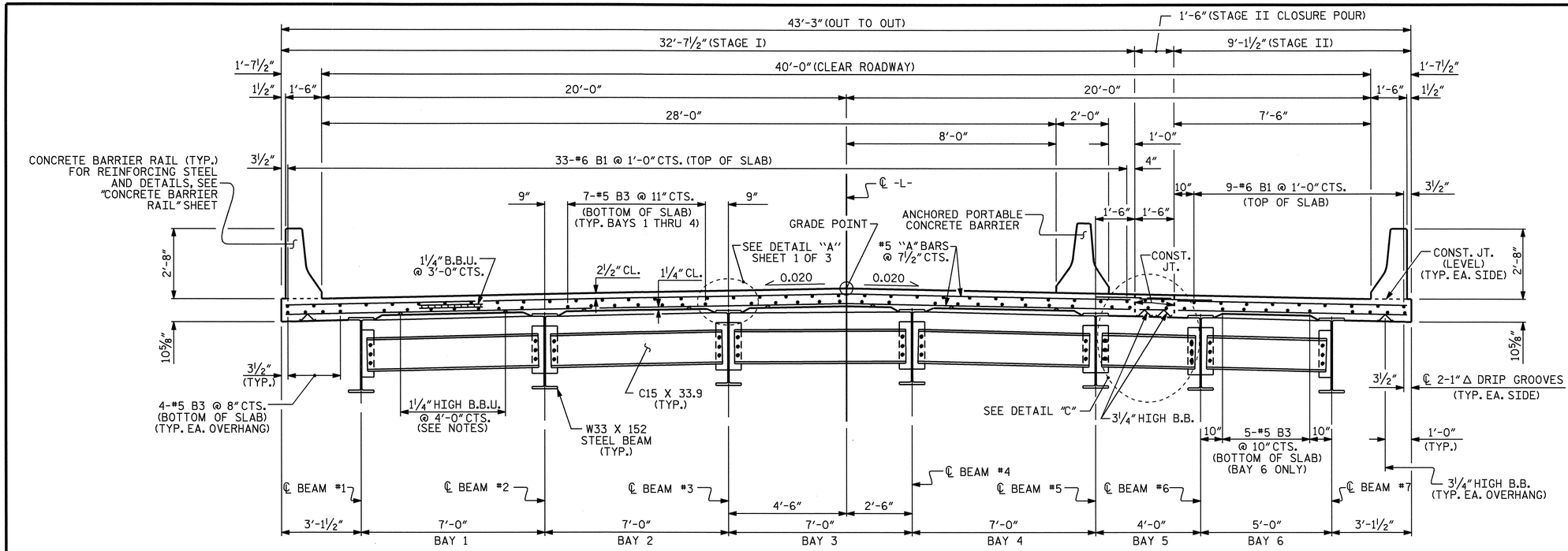
TYPICAL SECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			69

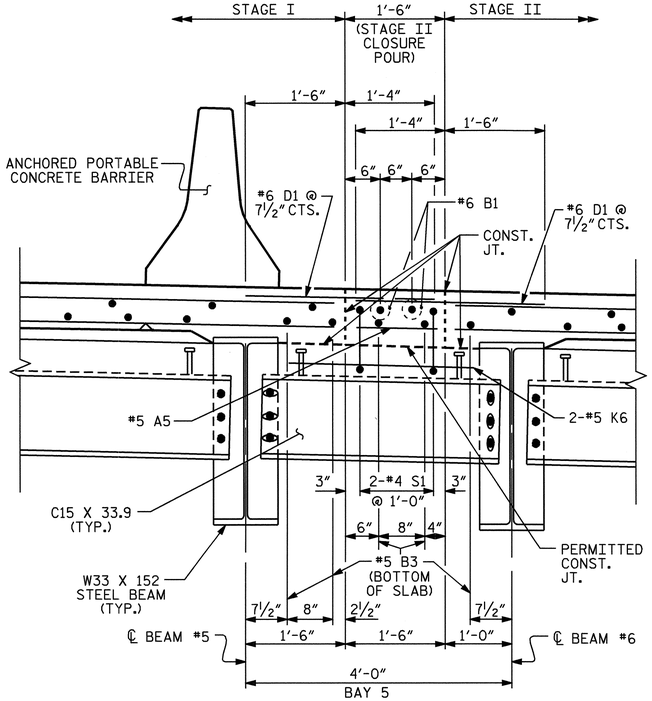
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/24/06

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

STR. #2



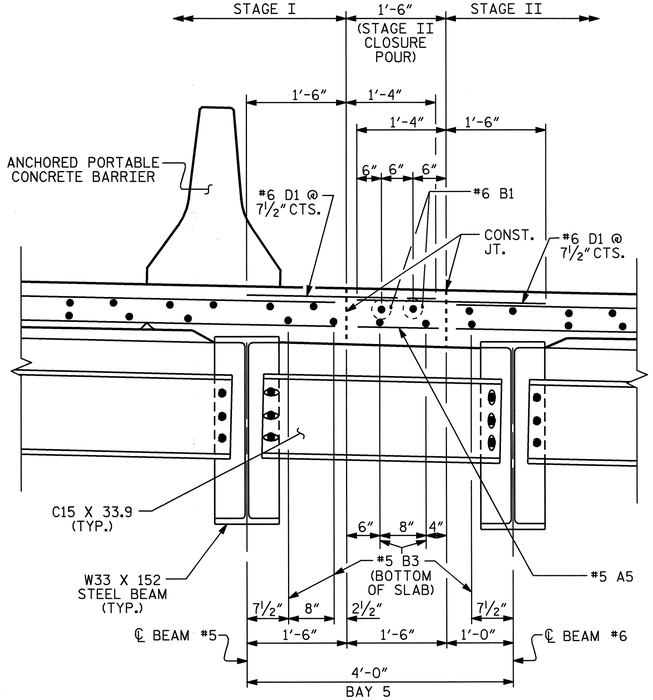
TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM



DETAIL "B"

SHOWING END BENT DIAPHRAGM FOR BAY 5

#6 D1 DOWELS ARE TO BE PLACED IN STAGE I AND STAGE II.
HIGH B. B. NOT SHOWN FOR CLARITY.



DETAIL "C"

SHOWING BENT & INTERMEDIATE DIAPHRAGMS FOR BAY 5

#6 D1 DOWELS ARE TO BE PLACED IN STAGE I AND STAGE II.
HIGH B. B. NOT SHOWN FOR CLARITY.

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. HOGGINS
4/26/06

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

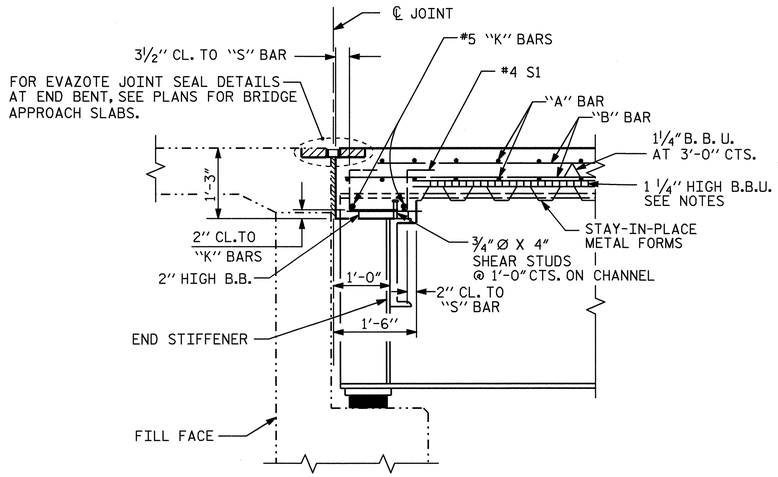
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

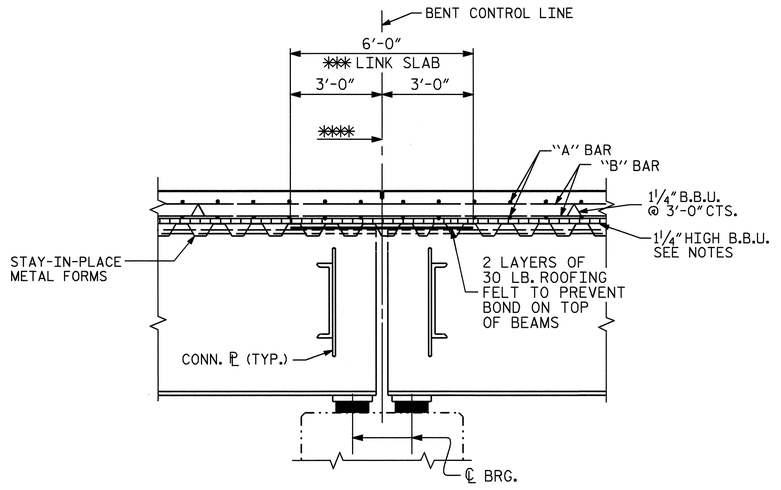
SUPERSTRUCTURE
TYPICAL SECTION AND DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			69

STR. #2



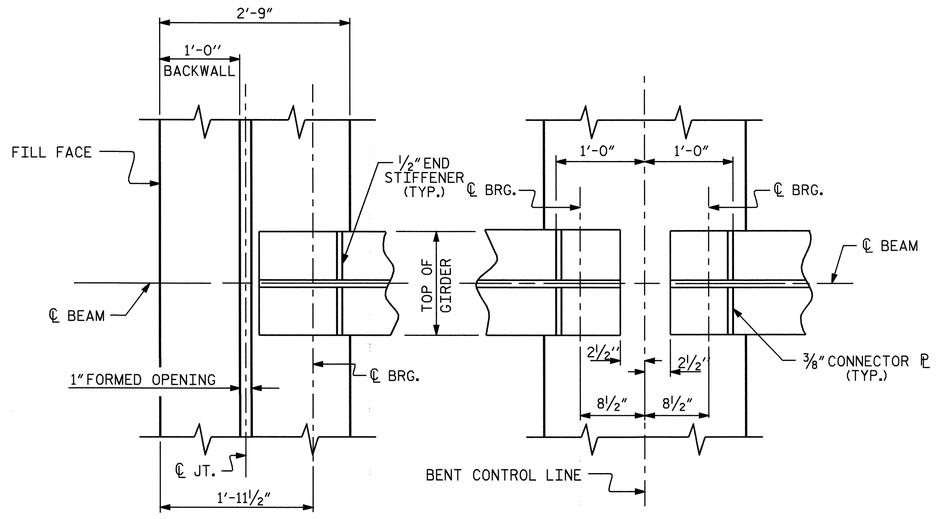
SECTION A-A



SECTION B-B

*** THE TOP OF THE BEAM IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF SHEAR CONNECTORS. NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.

**** THE CONTRACTOR SHALL SAW A 1½" DEEP CONTRACTION JOINT AT BENT CONTROL LINE WITHIN 24 HOURS OF POURING THE DECK. JOINT SHALL BE FILLED WITH JOINT SEALER MATERIAL. THE JOINT FILLER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.



END BENT DIAPHRAGM

BENT DIAPHRAGM

PLAN

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY LL COGGINS 4/26/06

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

SHEET 3 OF 3

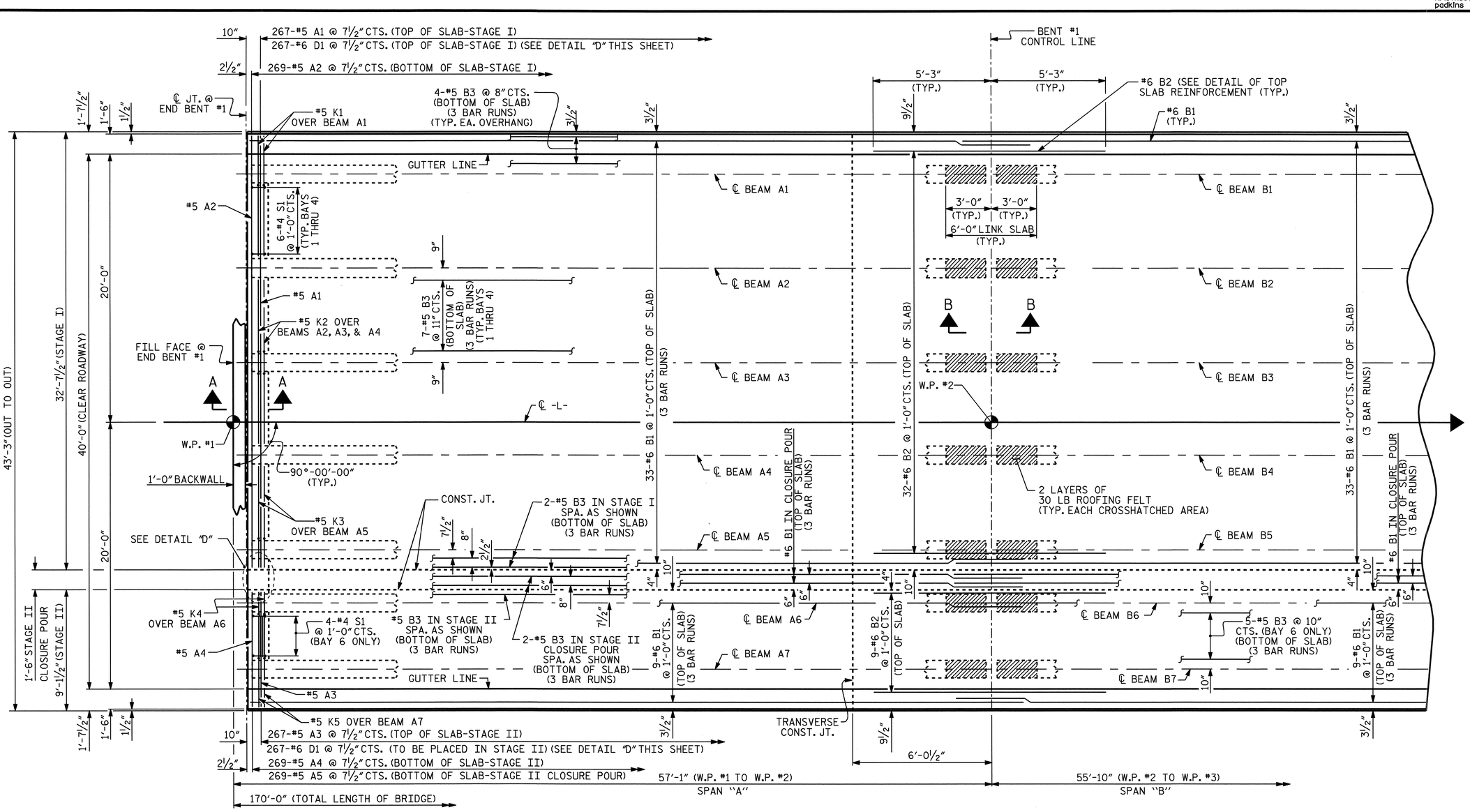
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION DETAILS

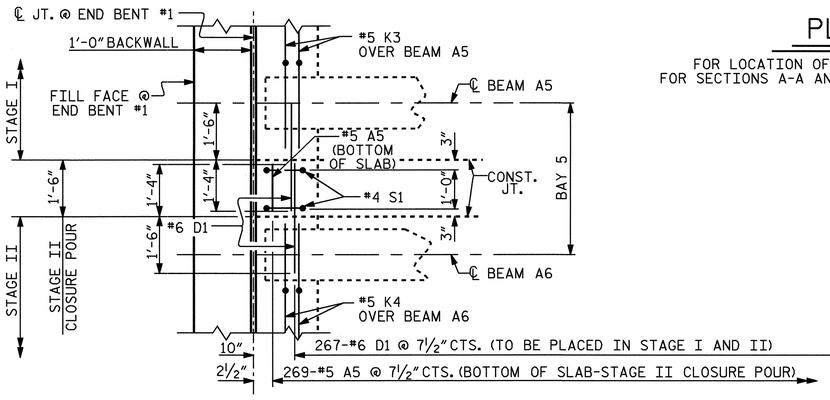
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			69

STR. #2



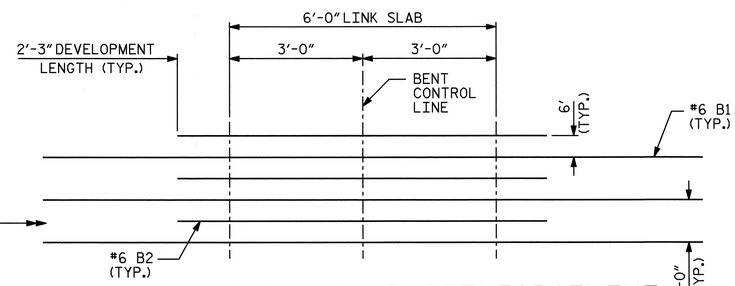
PLAN OF SPAN "A"

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTIONS A-A AND B-B, SEE "TYPICAL SECTION DETAILS" SHEET 3 OF 3.



DETAIL "D"

("B" BARS NOT SHOWN IN CLOSURE POUR)



DETAIL OF TOP SLAB REINFORCEMENT

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/04

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

SHEET 1 OF 3

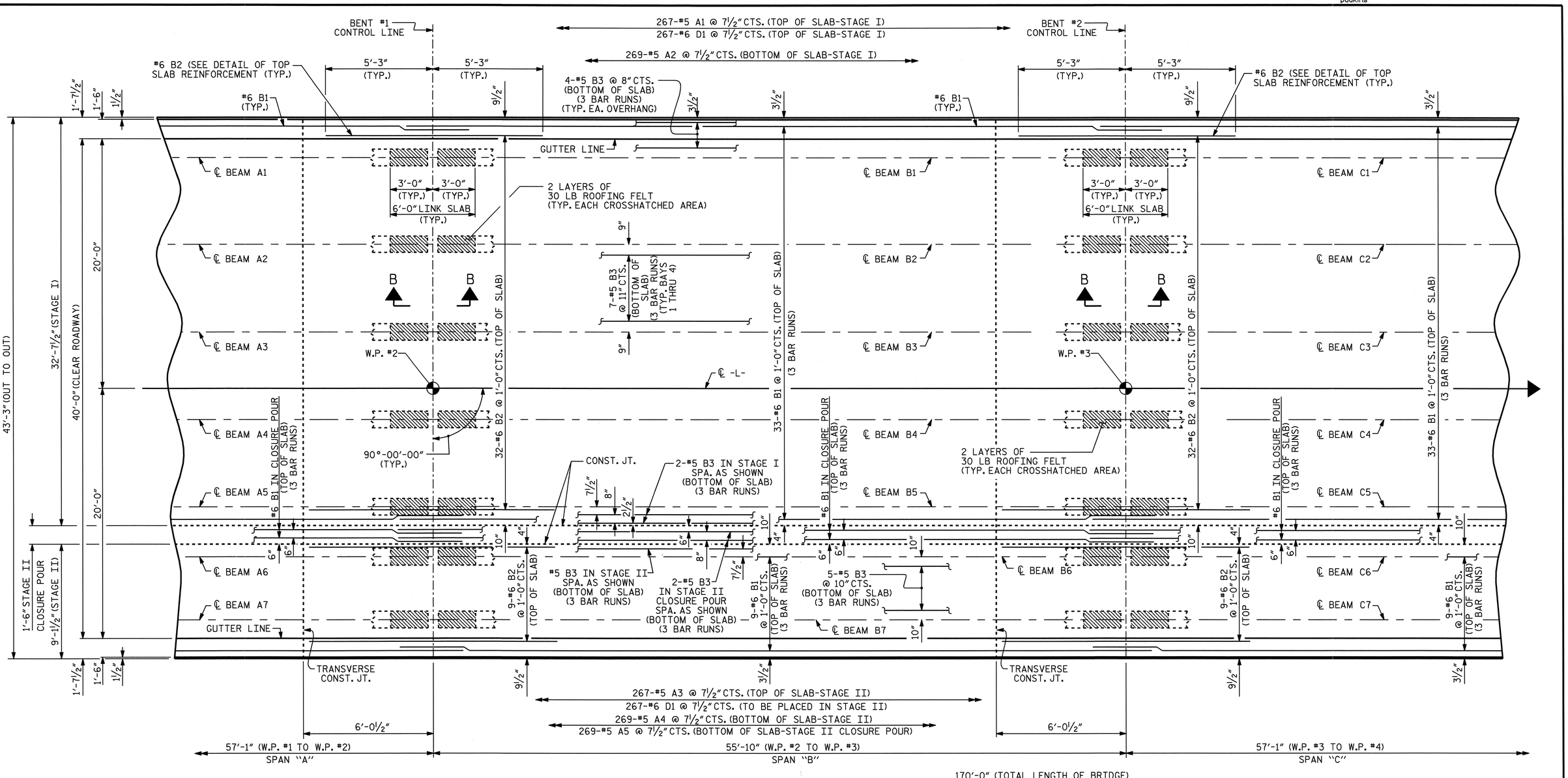
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "A"

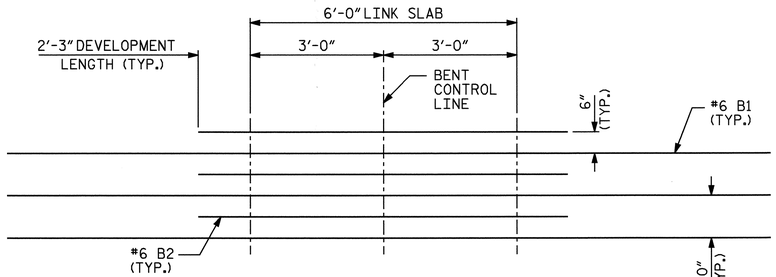
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			69

STR. #2



PLAN OF SPAN "B"

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTION B-B, SEE "TYPICAL SECTION DETAILS" SHEET 3 OF 3.



DETAIL OF TOP SLAB REINFORCEMENT

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "B"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

STR. #2

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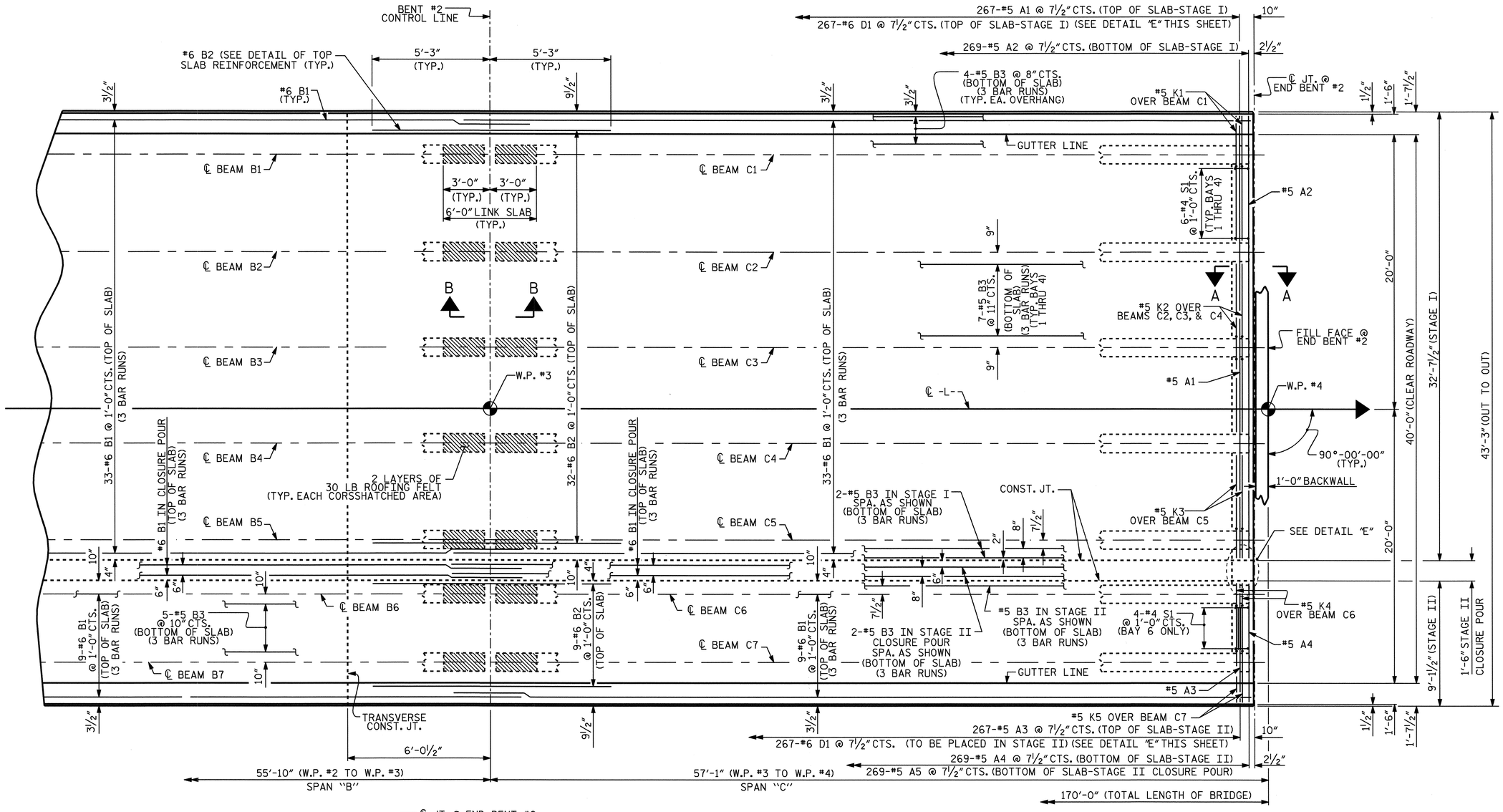
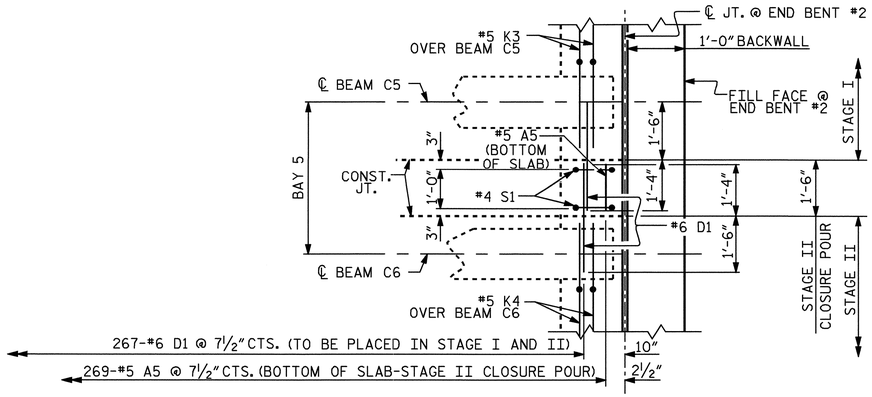
padkins



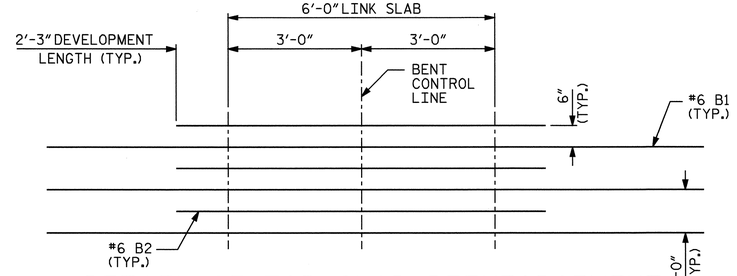
PLAN OF SPAN "C"

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "FRAMING PLAN."
FOR SECTIONS A-A AND B-B, SEE "TYPICAL SECTION DETAILS" SHEET 3 OF 3.



DETAIL "E"

("B" BARS NOT SHOWN IN CLOSURE POUR)



DETAIL OF TOP SLAB REINFORCEMENT

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY A. COGGINS
Timothy A. Coggins 4/26/06

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

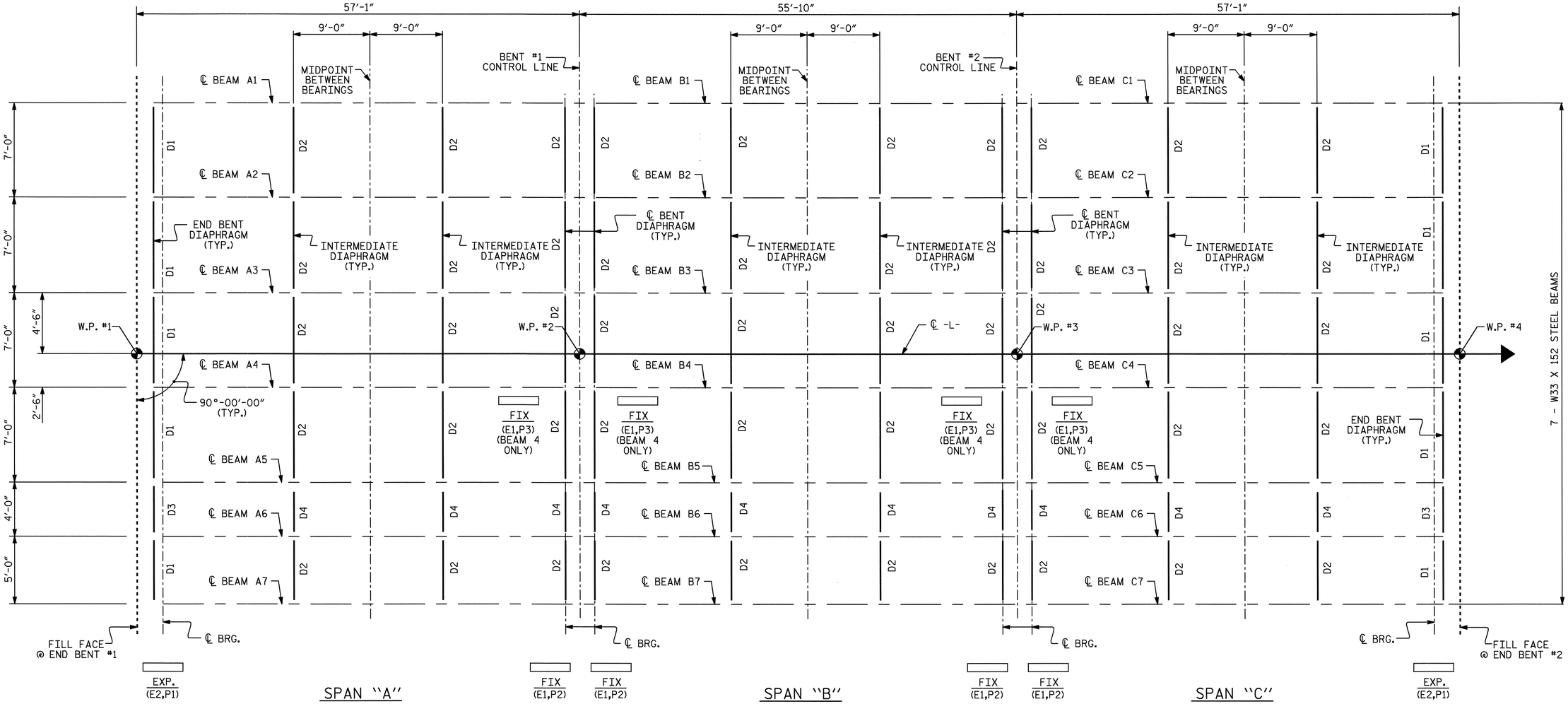
SUPERSTRUCTURE

PLAN OF SPAN "C"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

STR. #2



FRAMING PLAN

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

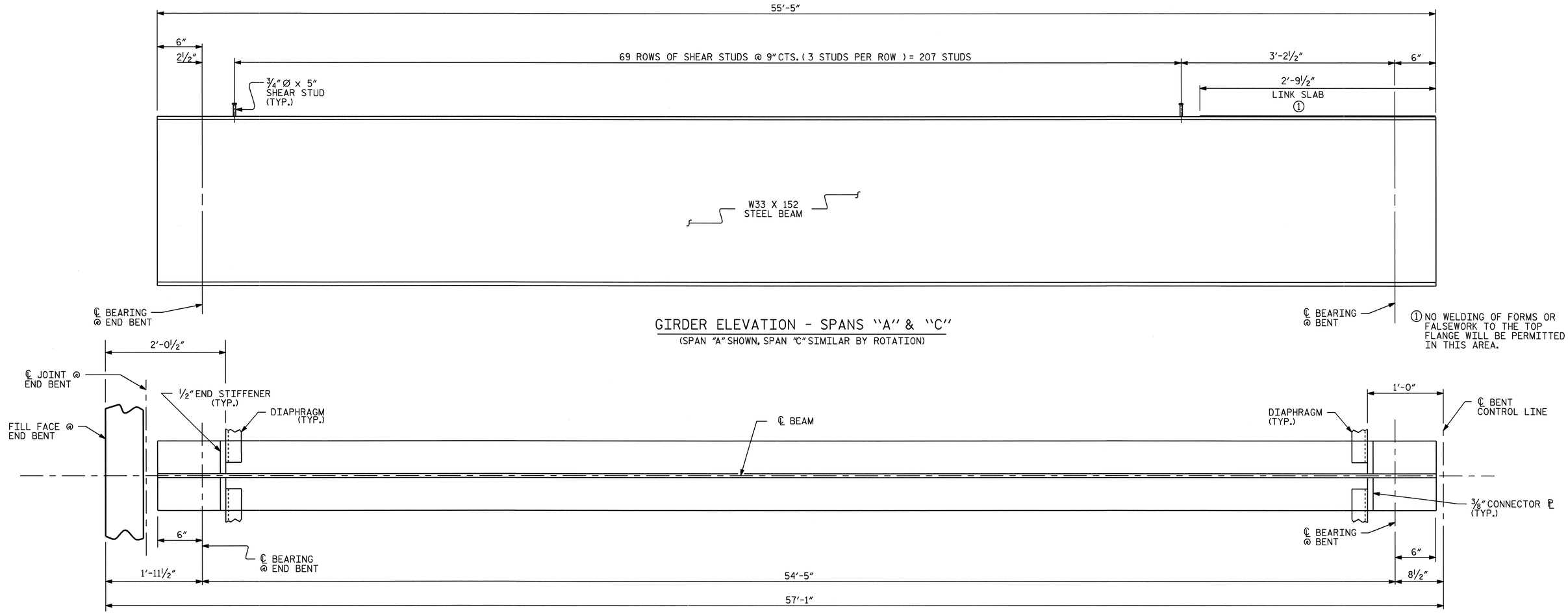
FRAMING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY K. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

STR. #2



GIRDER ELEVATION - SPANS "A" & "C"

(SPAN "A" SHOWN, SPAN "C" SIMILAR BY ROTATION)

① NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS AREA.

BOTTOM FLANGE DETAIL - SPANS "A" & "C"

(SPAN "A" SHOWN, SPAN "C" SIMILAR BY ROTATION)

NOTES:

NUTS ON BOLTS FOR CONNECTING DIAPHRAGM TO CONNECTOR PLATE SHALL BE LEFT LOOSE FOR PURPOSE OF ADJUSTMENT UNTIL BOTH SIDES OF SLAB HAVE BEEN POURED.

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.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE ⅞" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.

END OF BEAMS SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

END STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLTS.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

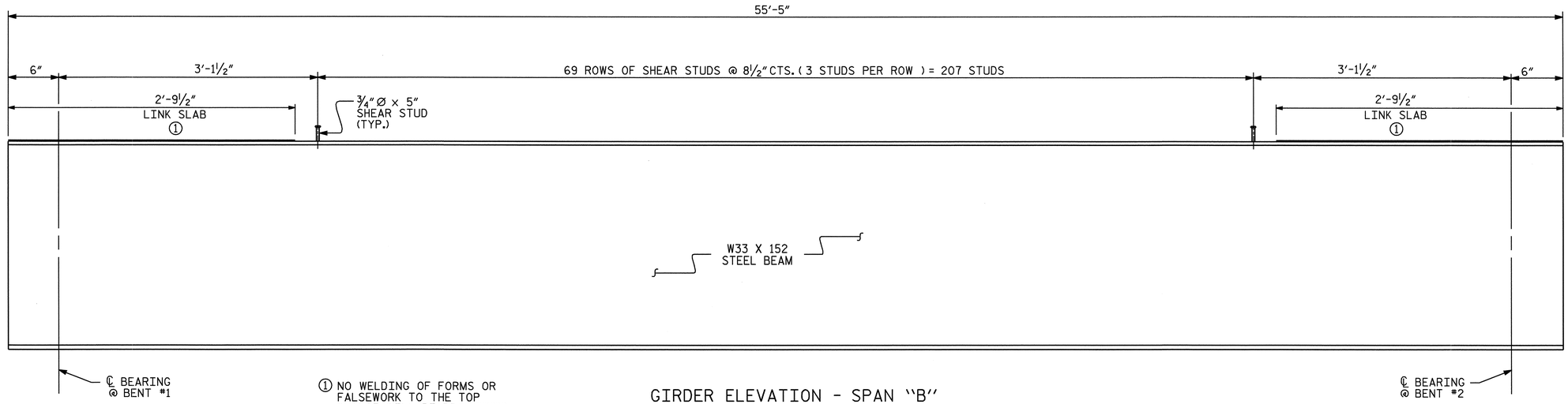
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPANS "A" & "C"

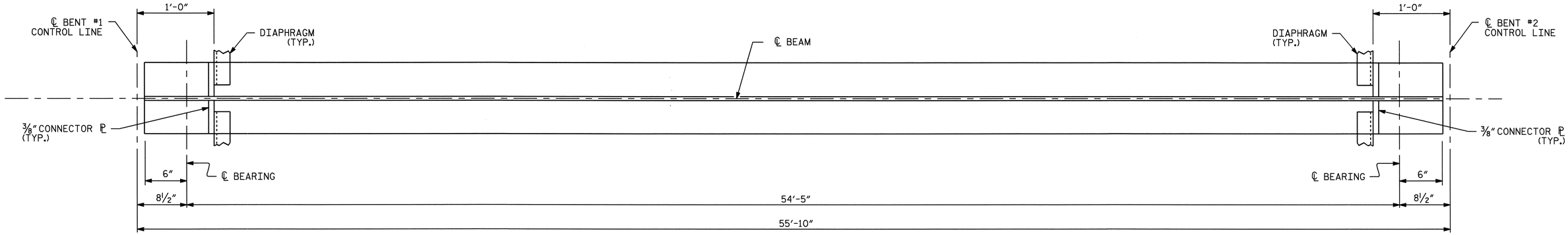
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			69

STR. #2



① NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS AREA.

GIRDER ELEVATION - SPAN "B"



BOTTOM FLANGE DETAIL - SPAN "B"

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

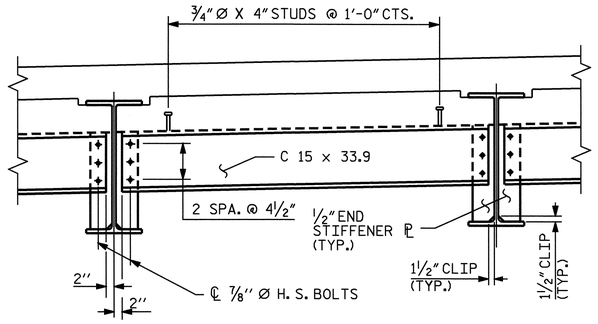
SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS
SPAN "B"

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			69

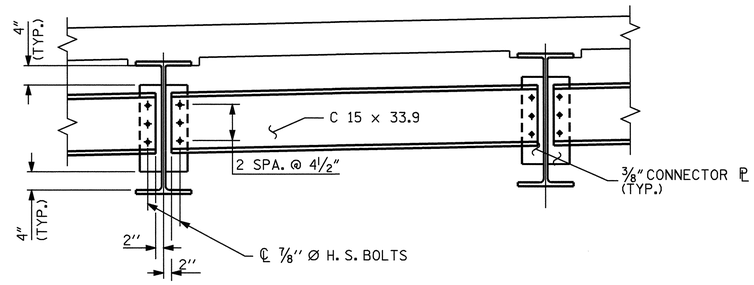
DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

STR. #2



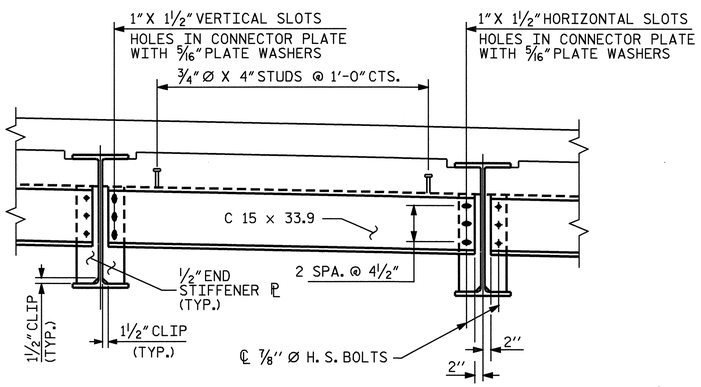
TYPICAL END BENT DIAPHRAGM D1

(@ BAYS 1, 2, 3, 4 AND 6 ONLY)



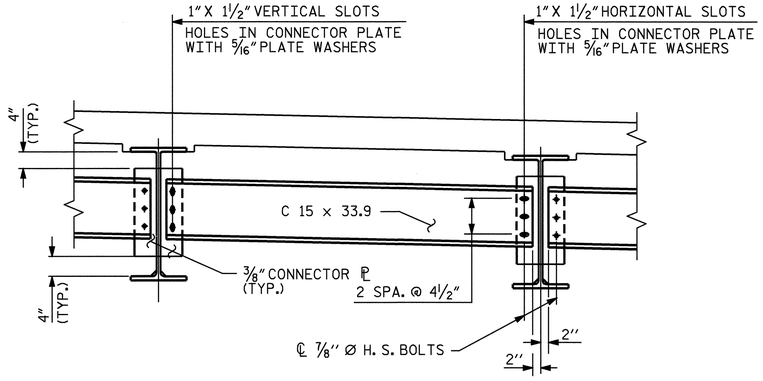
TYPICAL BENT AND INTERMEDIATE DIAPHRAGM D2

(@ BAYS 1, 2, 3, 4 AND 6 ONLY)



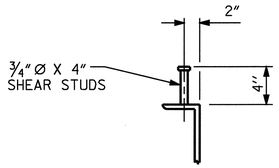
TYPICAL END BENT DIAPHRAGM D3

(@ BAY 5 ONLY)



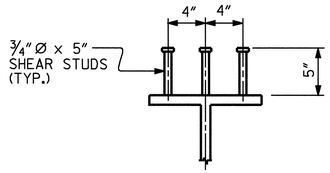
TYPICAL BENT AND INTERMEDIATE DIAPHRAGM D4

(@ BAY 5 ONLY)



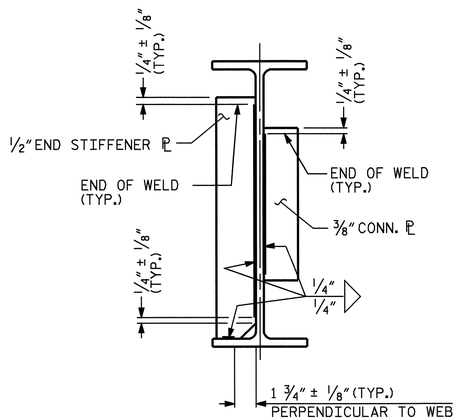
SHEAR STUD DETAILS

(ON CHANNELS @ END BENTS ONLY)



SHEAR STUD DETAILS

(TYPICAL ALL BEAMS)



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

26-APR-2006 09:59
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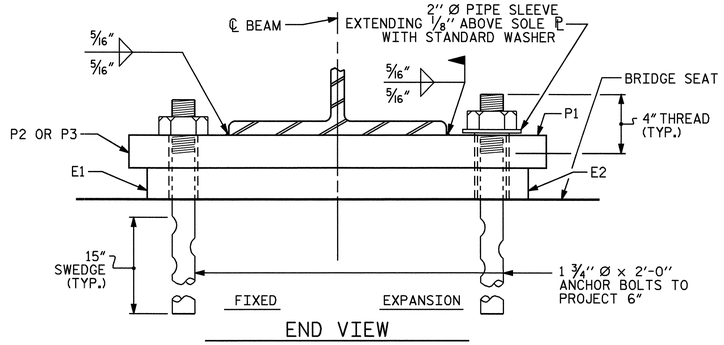
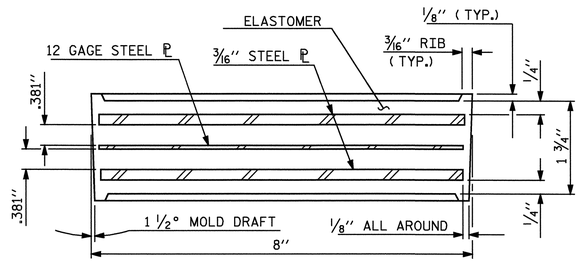
padkins

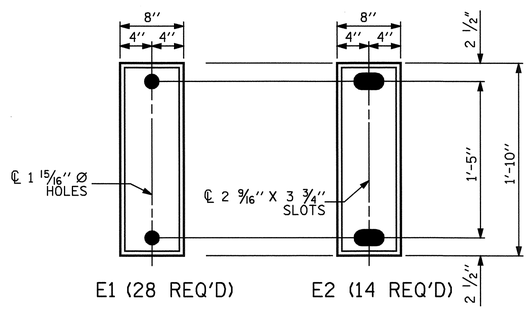
STR. #2



END VIEW

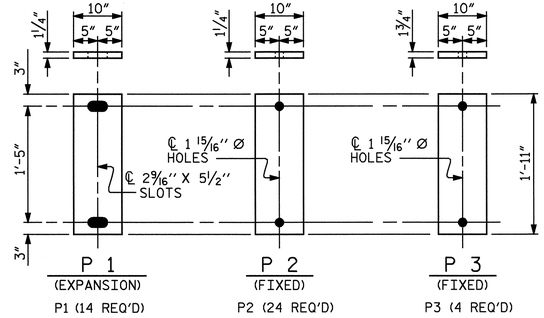


TYPICAL SECTION OF ELASTOMERIC BEARINGS



PLAN VIEW OF ELASTOMERIC BEARING

TYPE I



P1 (14 REQ'D) P2 (24 REQ'D) P3 (4 REQ'D)

SOLE PLATE DETAILS ("P")

NOTES

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

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 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.

LOAD RATINGS

	MAX.D.L.+L.L.
TYPE I	91 K

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

ASSEMBLED BY : PEGGY ADKINS	DATE : 8-04				
CHECKED BY : M.M. PARSONS	DATE : 12-04				
DRAWN BY : JMB 11/87	REV. 7/17/98	RWW/LES			
CHECKED BY : ARB 11/87	REV. 8/16/99	MAB/LES			
	REV. 10/17/00	RWW/LES			

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS 4/26/06

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD ELASTOMERIC BEARING DETAILS

(STEEL SUPERSTRUCTURE)

FEB. 1988

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			69

STR. #2 STD.No.EB1

26-APR-2006 09:52
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padkins

DEAD LOAD DEFLECTION TABLE FOR BEAMS

	SPANS A, B & C										
	BEAM #1										
@ TENTH POINTS BETWEEN ℄ BEARINGS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF BEAM	0.000	-0.004	-0.007	-0.010	-0.012	-0.012	-0.012	-0.010	-0.007	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.018	-0.034	-0.046	-0.054	-0.057	-0.054	-0.046	-0.034	-0.018	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.002	-0.004	-0.005	-0.006	-0.006	-0.006	-0.005	-0.004	-0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.024	-0.045	-0.061	-0.072	-0.075	-0.072	-0.061	-0.045	-0.024	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	5/16"	9/16"	3/4"	7/8"	15/16"	7/8"	3/4"	9/16"	5/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR BEAMS

	SPANS A, B & C										
	BEAMS #2, #3 & #4										
@ TENTH POINTS BETWEEN ℄ BEARINGS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF BEAM	0.000	-0.004	-0.007	-0.010	-0.012	-0.012	-0.012	-0.010	-0.007	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.018	-0.035	-0.048	-0.056	-0.059	-0.056	-0.048	-0.035	-0.018	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.002	-0.004	-0.005	-0.005	-0.006	-0.005	-0.005	-0.004	-0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.024	-0.046	-0.063	-0.073	-0.077	-0.073	-0.063	-0.046	-0.024	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	5/16"	9/16"	13/16"	15/16"	15/16"	15/16"	13/16"	9/16"	5/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR BEAMS

	SPANS A, B & C										
	BEAM #5										
@ TENTH POINTS BETWEEN ℄ BEARINGS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF BEAM	0.000	-0.004	-0.007	-0.010	-0.012	-0.012	-0.012	-0.010	-0.007	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.015	-0.028	-0.038	-0.044	-0.047	-0.044	-0.038	-0.028	-0.015	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.001	-0.003	-0.004	-0.004	-0.004	-0.004	-0.004	-0.003	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.020	-0.038	-0.052	-0.060	-0.063	-0.060	-0.052	-0.038	-0.020	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	7/16"	5/8"	3/4"	3/4"	3/4"	5/8"	7/16"	1/4"	0

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

DEAD LOAD DEFLECTION TABLE FOR BEAMS

	SPANS A, B & C										
	BEAM #6										
@ TENTH POINTS BETWEEN ℄ BEARINGS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF BEAM	0.000	-0.004	-0.007	-0.010	-0.012	-0.012	-0.012	-0.010	-0.007	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.013	-0.025	-0.034	-0.039	-0.041	-0.039	-0.034	-0.025	-0.013	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.001	-0.003	-0.004	-0.005	-0.005	-0.005	-0.004	-0.003	-0.001	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.018	-0.035	-0.048	-0.056	-0.058	-0.056	-0.048	-0.035	-0.018	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	3/16"	7/16"	9/16"	11/16"	11/16"	11/16"	9/16"	7/16"	3/16"	0

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

DEAD LOAD DEFLECTION TABLE FOR BEAMS

	SPANS A, B & C										
	BEAM #7										
@ TENTH POINTS BETWEEN ℄ BEARINGS	0	.10	.20	.30	.40	.50	.60	.70	.80	.90	0
DEFLECTION DUE TO WEIGHT OF BEAM	0.000	-0.004	-0.007	-0.010	-0.012	-0.012	-0.012	-0.010	-0.007	-0.004	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.015	-0.029	-0.039	-0.046	-0.049	-0.046	-0.039	-0.029	-0.015	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.002	-0.003	-0.004	-0.004	-0.005	-0.004	-0.004	-0.003	-0.002	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.021	-0.039	-0.053	-0.062	-0.066	-0.062	-0.053	-0.039	-0.021	0.000
VERTICAL CURVE ORDINATE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ORDINATE DUE TO SUPERELEVATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER	0	1/4"	7/16"	5/8"	3/4"	13/16"	3/4"	5/8"	7/16"	1/4"	0

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

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

1/16/07

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 8-04
CHECKED BY : M.M. PARSONS DATE : 12-04

16-JAN-2007 15:05
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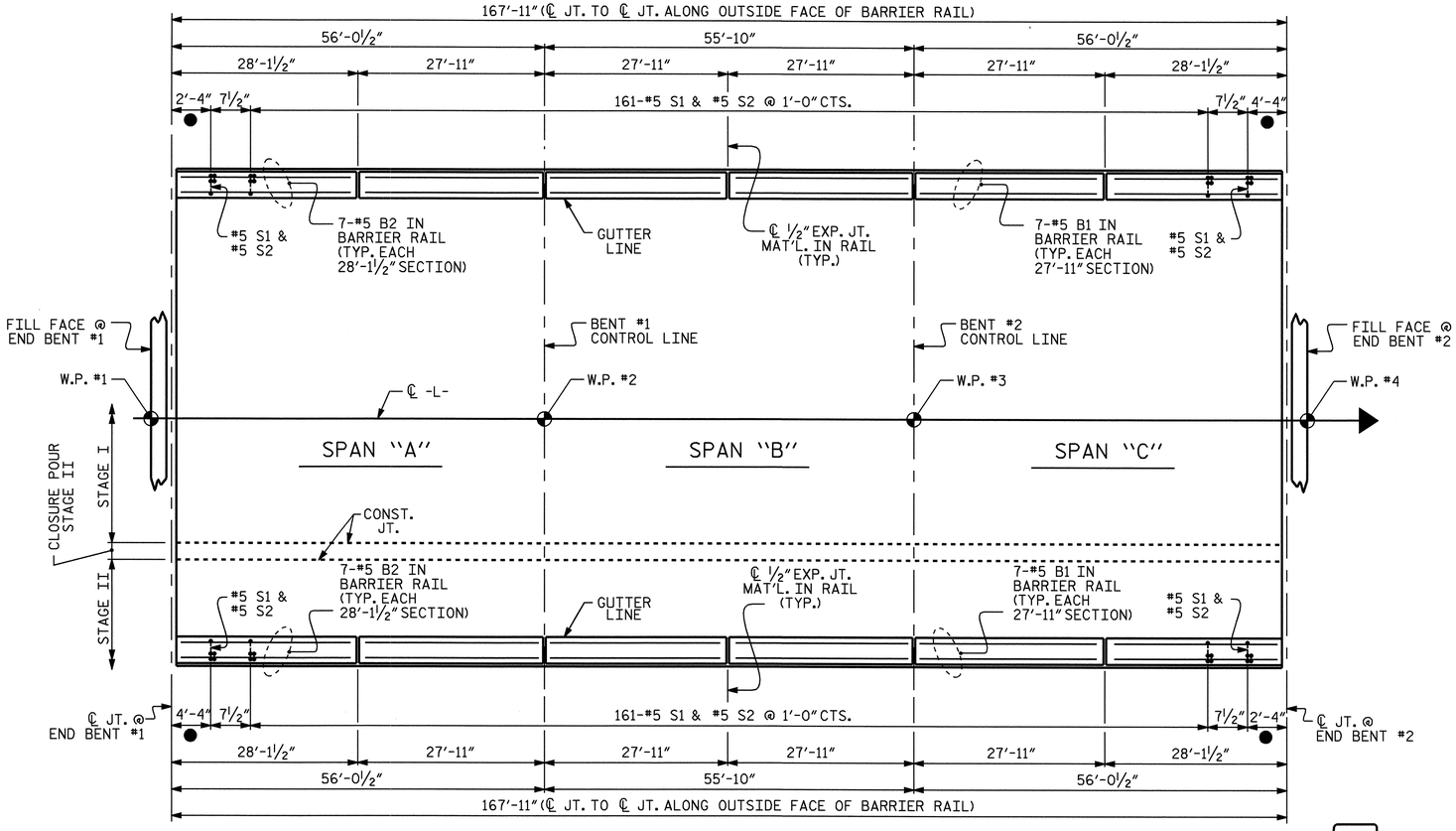
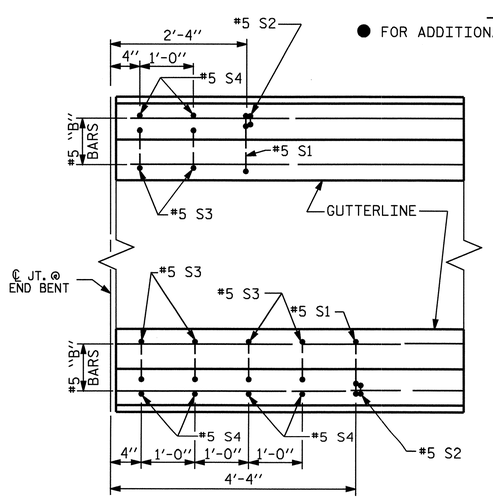
STR. #2

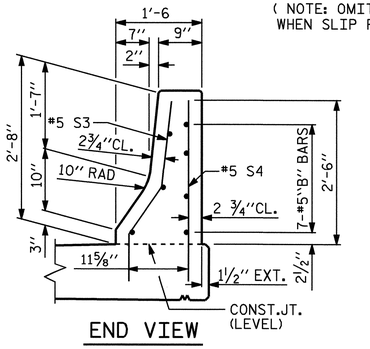


PLAN OF BARRIER RAIL

● FOR ADDITIONAL REINFORCEMENT IN BARRIER RAIL, "SEE END OF RAIL DETAILS".

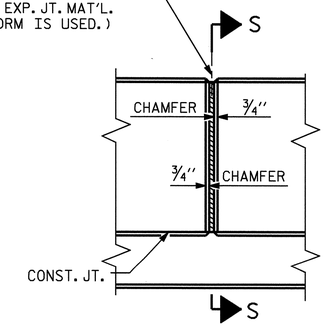


PLAN

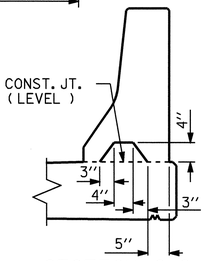


END VIEW

℄ ½" EXP.JT.MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
(NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)

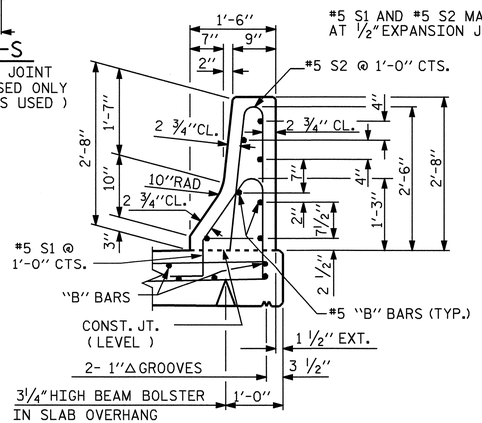


ELEVATION AT EXPANSION JOINTS



SECTION S-S

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



SECTION THRU RAIL

END OF RAIL DETAILS

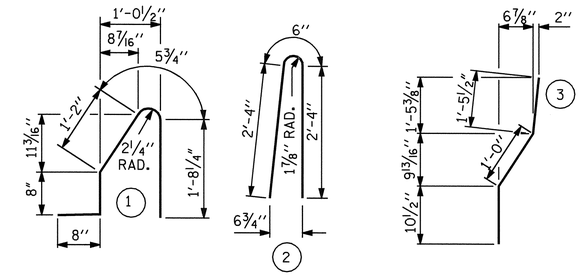
FOR ADHESIVE ANCHORING AT SAWED JOINTS

BARRIER RAIL DETAILS

BILL OF MATERIAL STAGE I					
FOR LEFT SIDE CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	28	#5	STR	27'-6"	803
✳ B2	14	#5	STR	27'-8"	404
✳ S1	163	#5	1	4'-8"	793
✳ S2	163	#5	2	5'-2"	878
✳ S3	6	#5	3	3'-4"	21
✳ S4	6	#5	STR	3'-2"	20
✳ EPOXY COATED REINFORCING STEEL					2919 LBS.
CLASS AA CONCRETE					16.8 CU. YDS.
CONCRETE BARRIER RAIL					167.92 LIN. FT.

BILL OF MATERIAL STAGE II					
FOR RIGHT SIDE CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B1	28	#5	STR	27'-6"	803
✳ B2	14	#5	STR	27'-8"	404
✳ S1	163	#5	1	4'-8"	793
✳ S2	163	#5	2	5'-2"	878
✳ S3	6	#5	3	3'-4"	21
✳ S4	6	#5	STR	3'-2"	20
✳ EPOXY COATED REINFORCING STEEL					2919 LBS.
CLASS AA CONCRETE					16.8 CU. YDS.
CONCRETE BARRIER RAIL					167.92 LIN. FT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES

THE BARRIER RAIL IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

WHEN EVAZOTE JOINT SEAL IS REQUIRED, THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

VERTICAL GROOVED CONTRACTION JOINTS, ½" 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.

#5 S1 AND #5 S2 MAY BE SHIFTED SLIGHTLY AS NECESSARY TO MAINTAIN 2" COVER AT ½" EXPANSION JOINTS IN RAIL.

PROJECT NO. B-3453

EDGECOMBE-HALIFAX COUNTY

STATION: 29+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD CONCRETE BARRIER RAIL

OCTOBER 1987

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
4/26/06

ASSEMBLED BY : PEGGY ADKINS	DATE : 8-04		
CHECKED BY : M.M. PARSONS	DATE : 12-04		
DRAWN BY : ARB 5/87	REV. 8/16/99	RWW/LES	
CHECKED BY : SJD 9/87	REV. 10/17/00	RWW/LES	
	REV. 5/7/03R	RWW/JTE	

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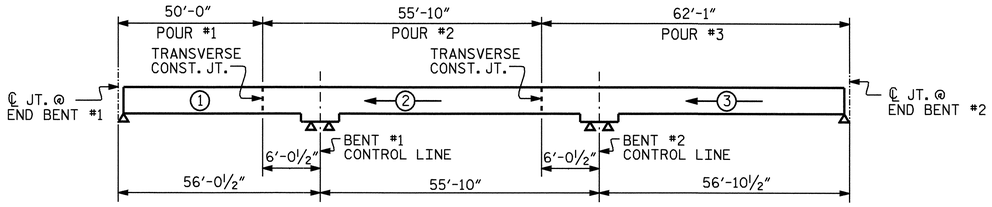
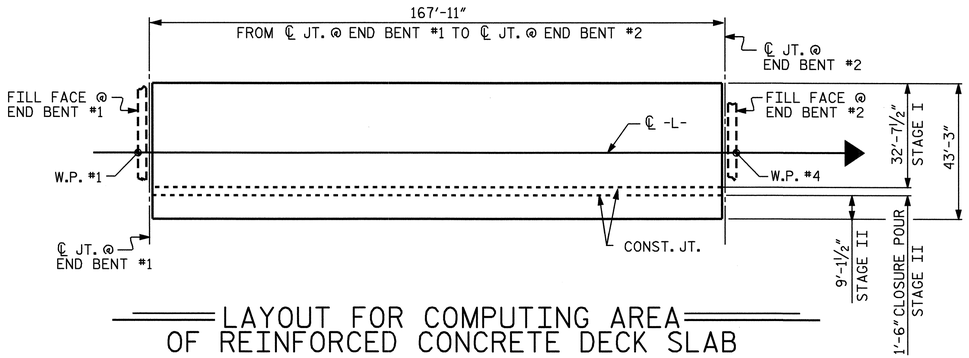
STR. #2

STD. NO. CBRI

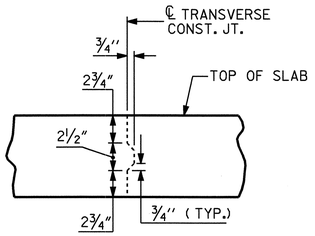


POURING SEQUENCE



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB

(STAGE I SQ. FT. = 5478)
(STAGE II SQ. FT. = 1532)
(CLOSURE POUR SQ. FT. = 252)
(TOTAL SQ. FT. = 7262)



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

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"	——	——	——

BILL OF MATERIAL

STAGE I — SPANS A, B & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	267	#5	STR	32'-3"	8981
A2	269	#5	STR	32'-3"	9048
✳B1	99	#6	STR	57'-7"	8563
✳B2	64	#6	STR	10'-6"	1009
B3	102	#5	STR	57'-4"	6099
✳D1	267	#6	STR	2'-10"	1136
✳K1	4	#5	1	8'-4"	35
✳K2	12	#5	2	11'-0"	138
✳K3	4	#5	1	6'-9"	28
✳S1	48	#4	3	3'-6"	112

REINFORCING STEEL = 15147 LBS
✳EPOXY COATED REINFORCING STEEL = 20002 LBS

STAGE II — SPANS A, B & C

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	267	#5	STR	8'-9"	2437
A4	269	#5	STR	8'-9"	2455
✳B1	27	#6	STR	57'-7"	2335
✳B2	18	#6	STR	10'-6"	284
B3	30	#5	STR	57'-4"	1794
✳D1	267	#6	STR	2'-10"	1136
✳K4	4	#5	1	5'-3"	22
✳K5	4	#5	1	7'-4"	31
✳S1	8	#4	3	3'-6"	19

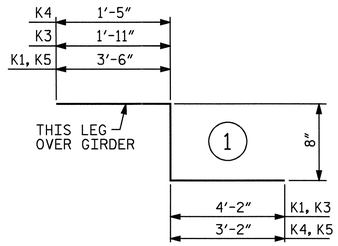
REINFORCING STEEL = 4249 LBS
✳EPOXY COATED REINFORCING STEEL = 6264 LBS

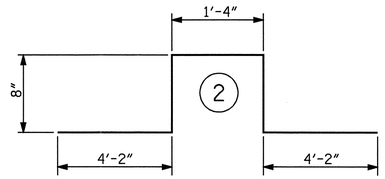
STAGE II CLOSURE POUR — SPANS A, B & C

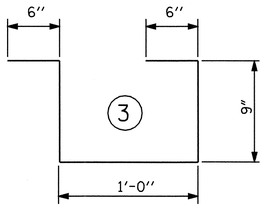
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A5	269	#5	STR	1'-2"	327
✳B1	6	#6	STR	57'-7"	519
B3	6	#5	STR	57'-4"	359
✳K6	4	#5	STR	3'-0"	13
✳S1	4	#4	3	3'-6"	9

REINFORCING STEEL = 686 LBS
✳EPOXY COATED REINFORCING STEEL = 532 LBS

BAR TYPES







ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE		REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
		(CU. YDS.)	(LBS.)	(LBS.)
STAGE I	POUR 1	47.1	15147	20002
	POUR 2	51.8		
	POUR 3	58.4		
	STAGE I TOTAL	157.3		
STAGE II	POUR 1	13.3	4249	6264
	POUR 2	14.9		
	POUR 3	16.8		
	STAGE II TOTAL	45.0		
STAGE II CLOSURE POUR	POUR 1	7.9	686	532
TOTALS ✳✳		210.2	20082	26798

✳✳ QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

GROOVING BRIDGE FLOORS

APPROACH SLABS	1754 SQ.FT.
BRIDGE DECK	6164 SQ.FT.
TOTAL	7918 SQ.FT.

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE

BILL OF MATERIAL

OCTOBER 1987

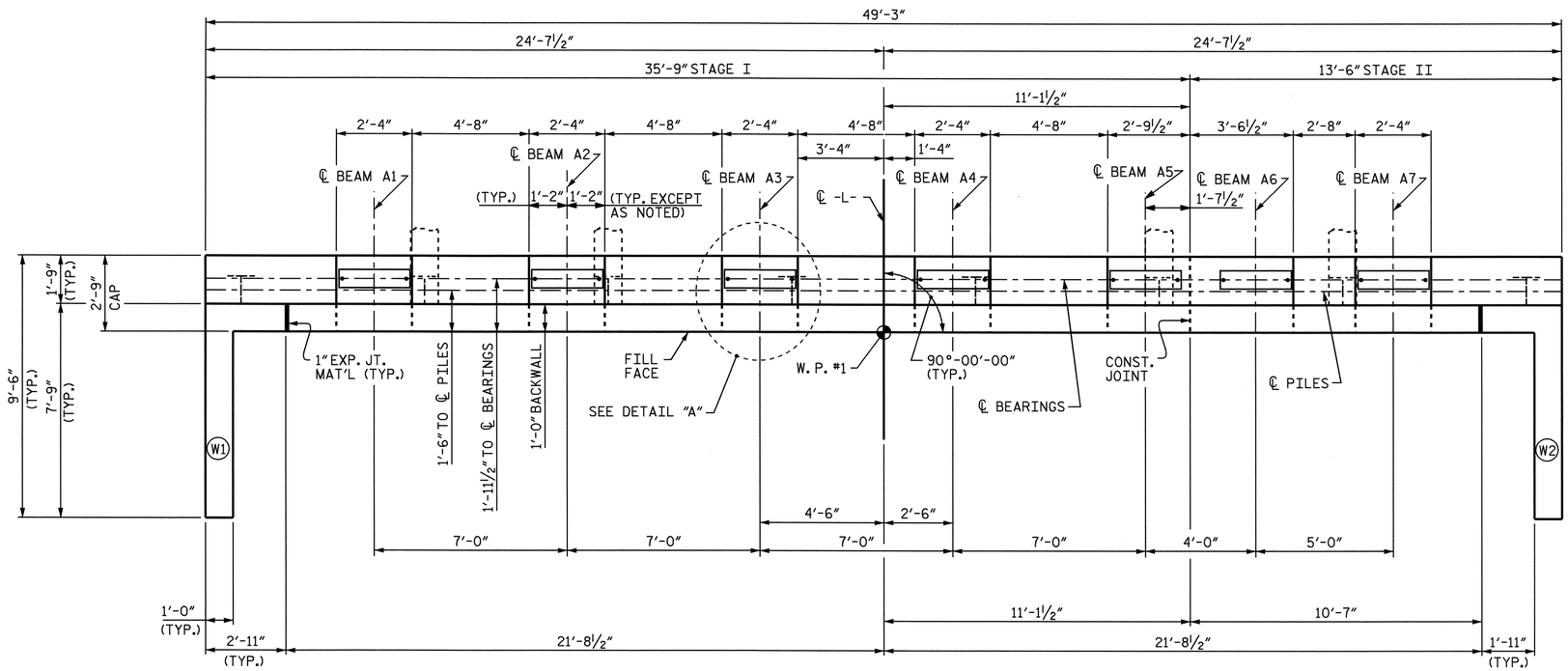
NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/00

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			69

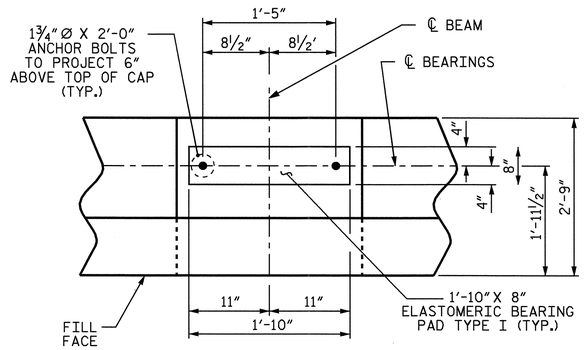
ASSEMBLED BY : PEGGY ADKINS DATE: 8-04
CHECKED BY : M.M. PARSONS DATE: 12-04

DRAWN BY : JMB 5/87	REV. 6/1/94 EEM/GRP
CHECKED BY : SJD 9/87	REV. 8/16/99 RWW/LES

STD. NO. BOM1 STR. #2



PLAN



DETAIL "A"

NOTES

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

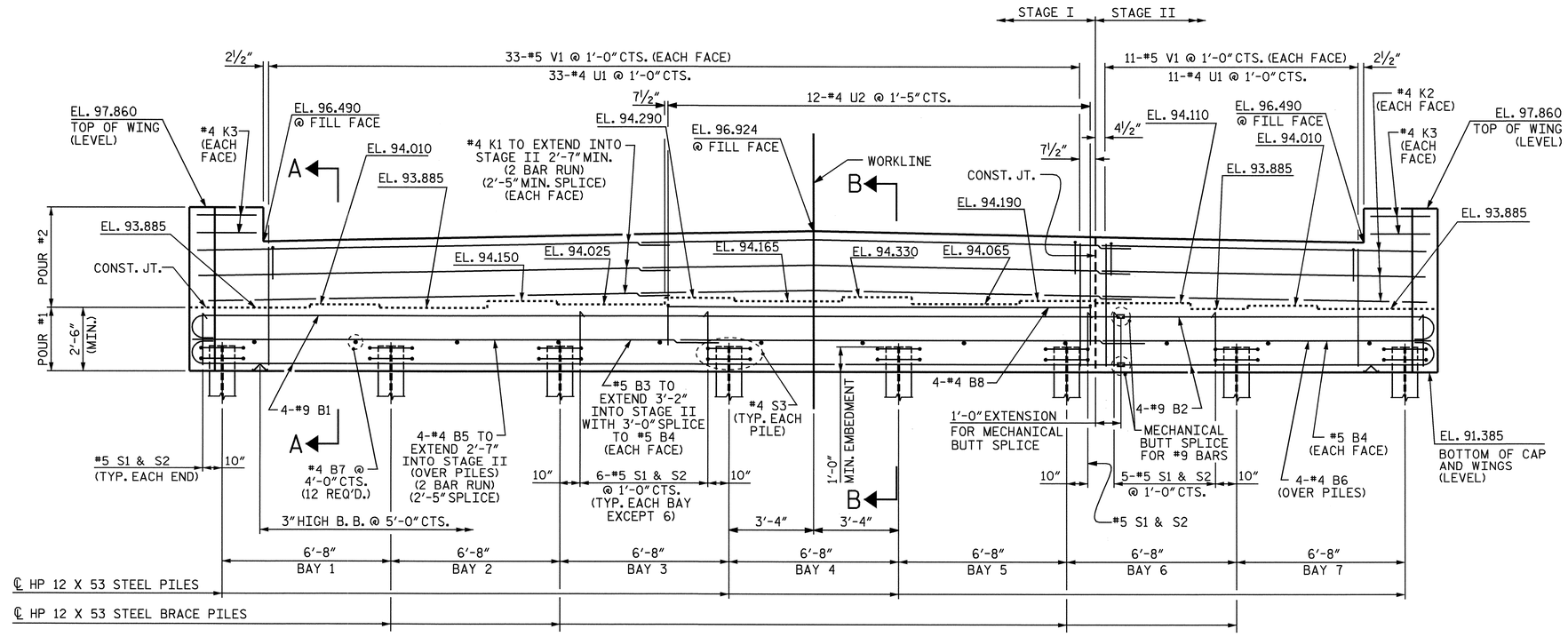
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.



ELEVATION

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY RA COGGINS

4/26/06

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:54
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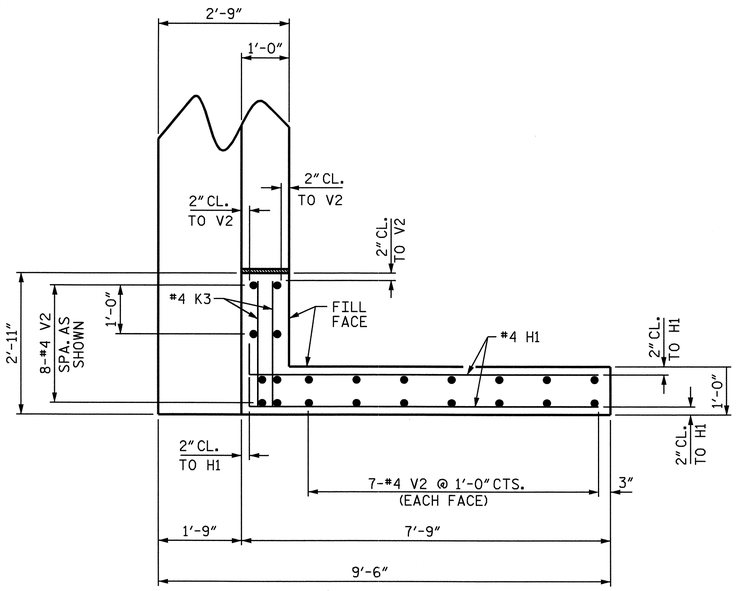
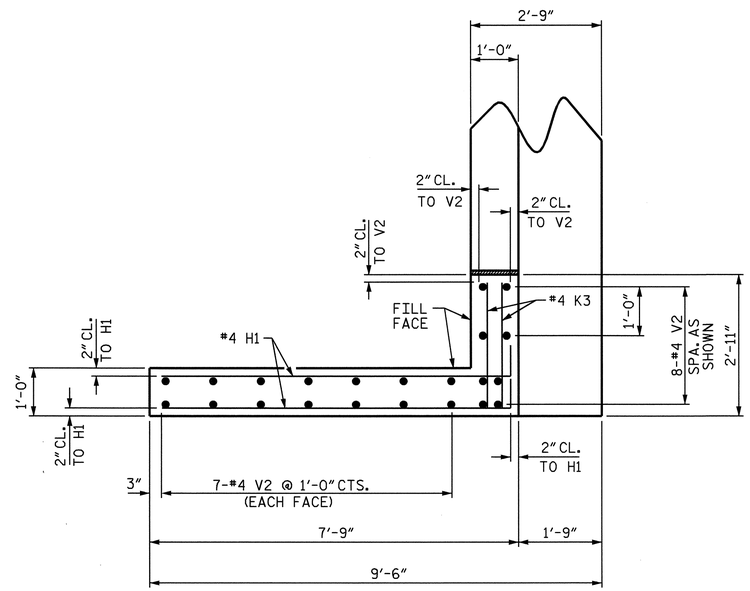
padkins

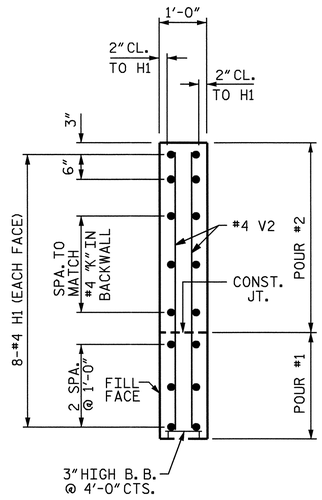
STR. #2



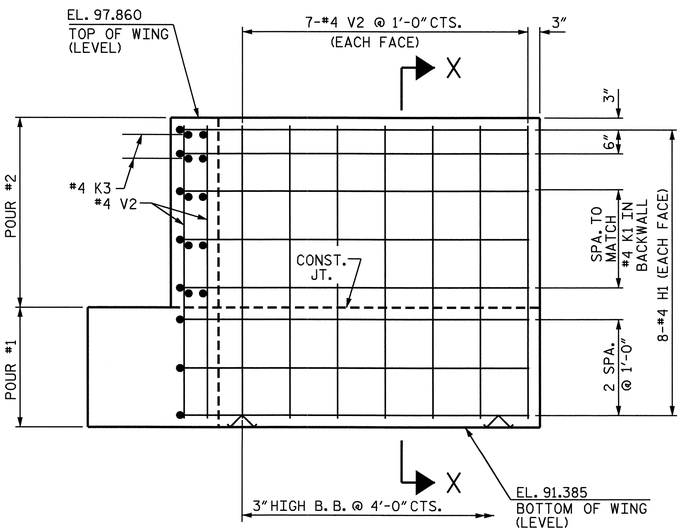
PLAN OF LEFT WING W1



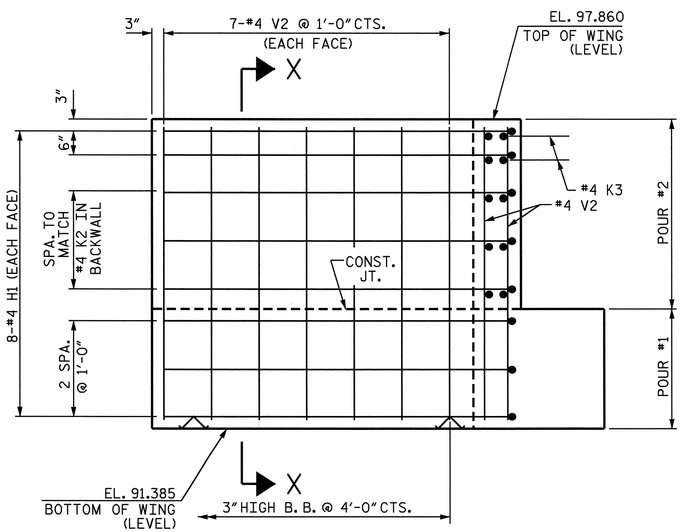
PLAN OF RIGHT WING W2



SECTION X-X



ELEVATION OF LEFT WING W1



ELEVATION OF RIGHT WING W2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 29+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : F. GUZMAN DATE : 1-05

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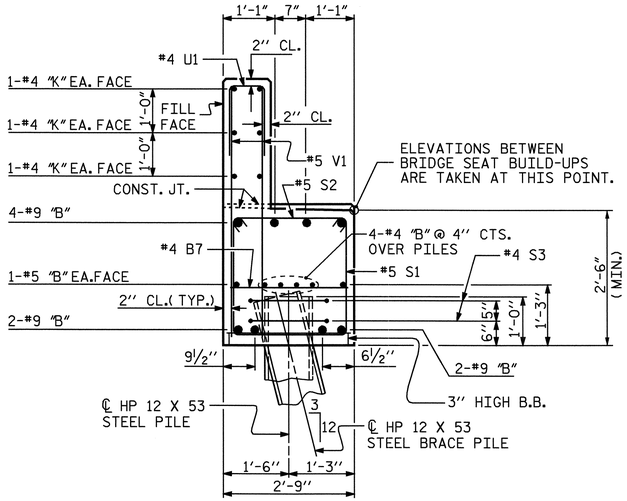
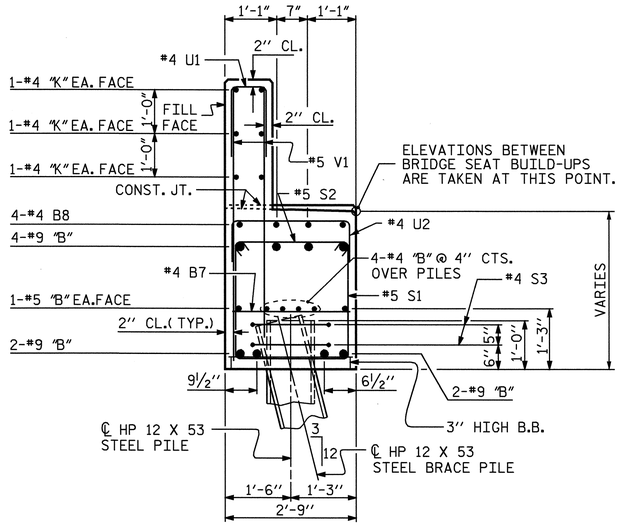
STR. #2

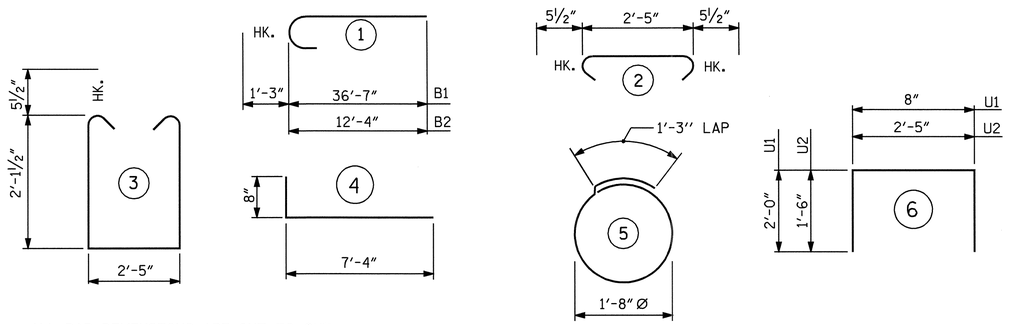


SECTION A-A



SECTION B-B

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	37'-10"	1029
B3	2	5	STR	38'-9"	81
B5	8	4	STR	20'-4"	109
B7	9	4	STR	2'-5"	15
B8	4	4	STR	16'-5"	44
H1	16	4	4	8'-0"	86
K1	12	4	STR	20'-4"	163
K3	4	4	STR	2'-7"	7
S1	32	5	3	7'-7"	253
S2	32	5	2	3'-4"	111
S3	12	4	5	6'-6"	52
U1	33	4	6	4'-8"	103
U2	12	4	6	5'-5"	43
V1	66	5	STR	4'-9"	327
V2	22	4	STR	6'-1"	89

TOTAL REINFORCING STEEL 2512 LBS.

BILL OF MATERIAL STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	8	9	1	13'-7"	369
B4	2	5	STR	13'-2"	27
B6	4	4	STR	13'-2"	35
B7	3	4	STR	2'-5"	5
H1	16	4	4	8'-0"	86
K2	6	4	STR	13'-2"	53
K3	4	4	STR	2'-7"	7
S1	12	5	3	7'-7"	95
S2	12	5	2	3'-4"	42
S3	4	4	5	6'-6"	17
U1	11	4	6	4'-8"	34
V1	22	5	STR	4'-9"	109
V2	22	4	STR	6'-1"	89

TOTAL REINFORCING STEEL 968 LBS.

TOTAL BILL OF MATERIAL

TOTAL REINFORCING STEEL 3480 LBS.

CLASS "A" CONCRETE BREAKDOWN
TOTAL CLASS "A" CONCRETE 21.6 CU. YD.

HP 12 X 53 STEEL PILES
NO. 8 280 LIN. FT.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 10.4 CU. YD.
POUR #2 BACKWALL & UPPER WING 4.6 CU. YD.

TOTAL CLASS "A" CONCRETE 15.0 CU. YD.

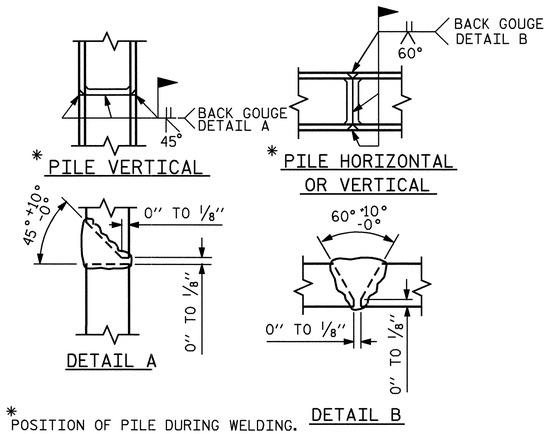
HP 12 X 53 STEEL PILES
NO. 6 210 LIN. FT.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 4.2 CU. YD.
POUR #2 BACKWALL & UPPER WING 2.4 CU. YD.

TOTAL CLASS "A" CONCRETE 6.6 CU. YD.

HP 12 X 53 STEEL PILES
NO. 2 70 LIN. FT.



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-3453
EDGECOMBE/HALIFAX COUNTY
STATION: 29+15.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

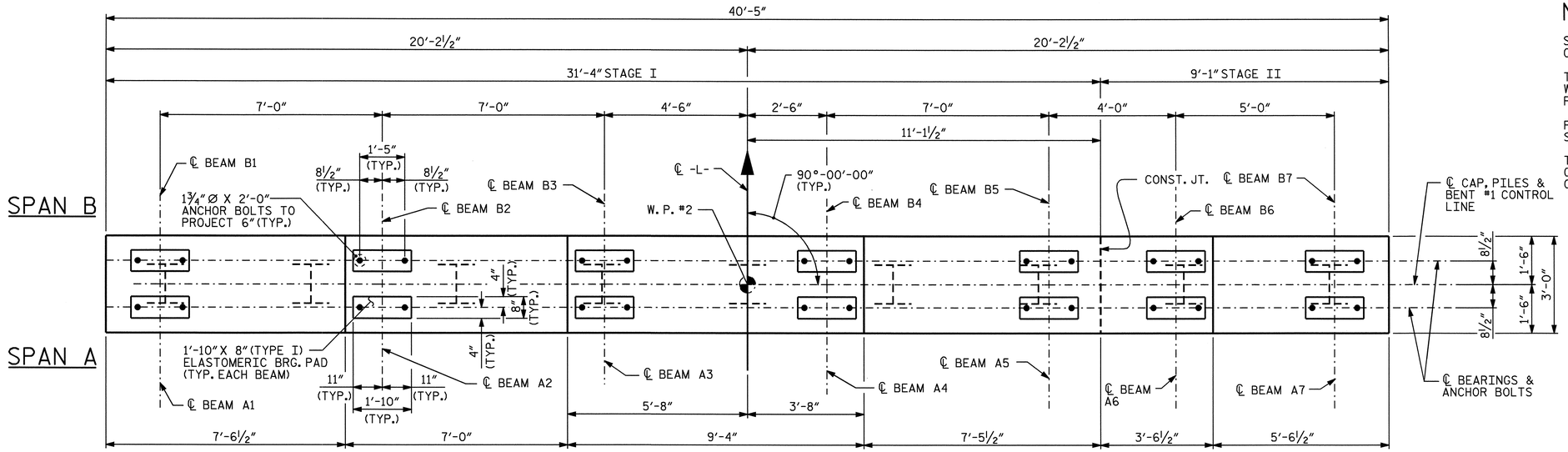
END BENT #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

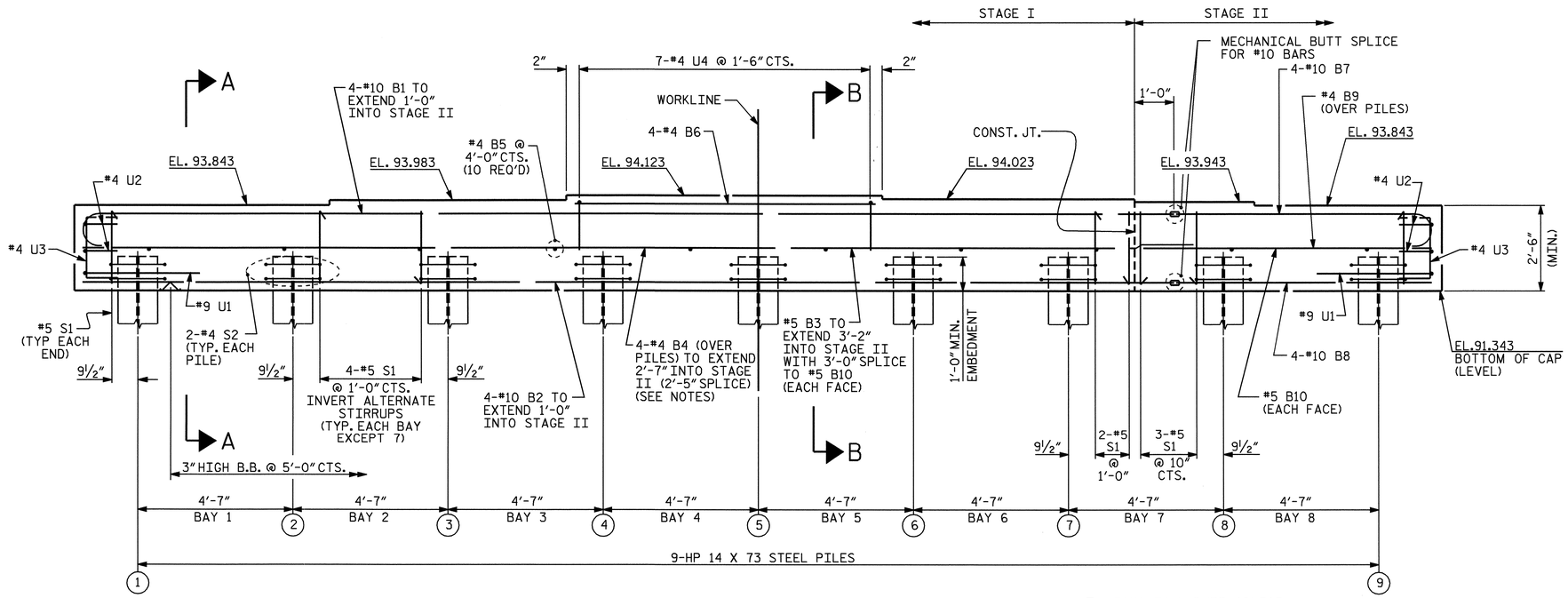
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-57
1			3			TOTAL SHEETS 69
2			4			

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : F. GUZMAN DATE : 1-05

STR. #2



PLAN



ELEVATION

□ MECHANICAL BUTT SPLICE

NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. FOR GALVANIZING STEEL PILES, SEE SPECIAL PROVISIONS.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

THE #4 B4 BARS ABOVE PILES EXTENDING OUT OF CAP AT CONSTRUCTION JOINT MAY BE FIELD BENT TO PROVIDE CLEARANCE TO DRIVE PILE NO. 8.

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/24/06

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1			3			TOTAL SHEETS
2			4			69

STR. #2

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

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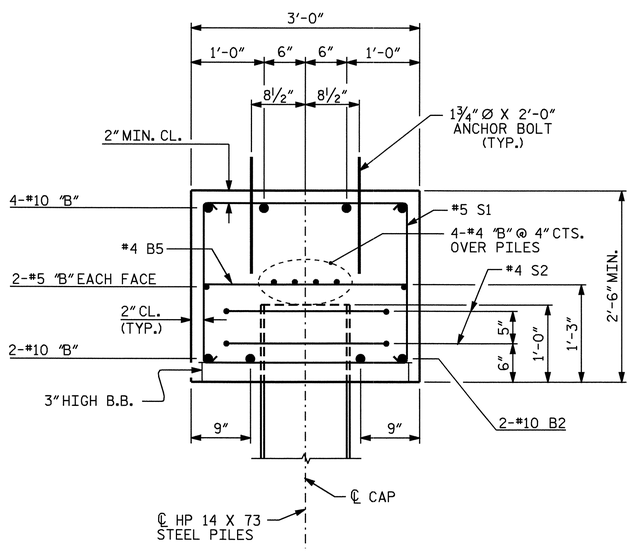
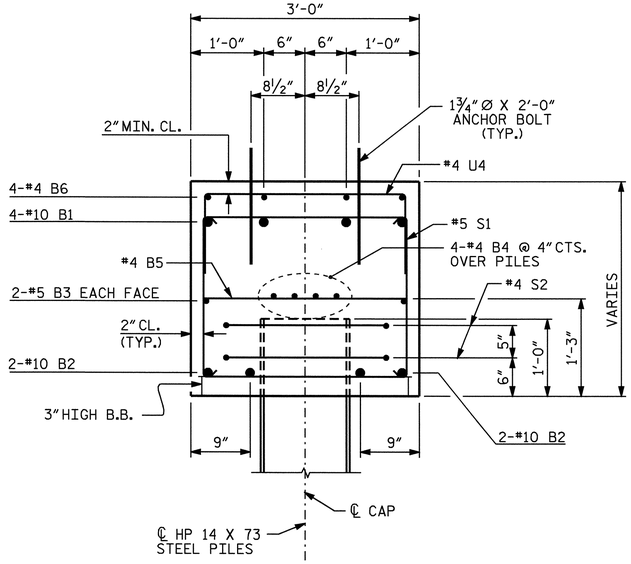
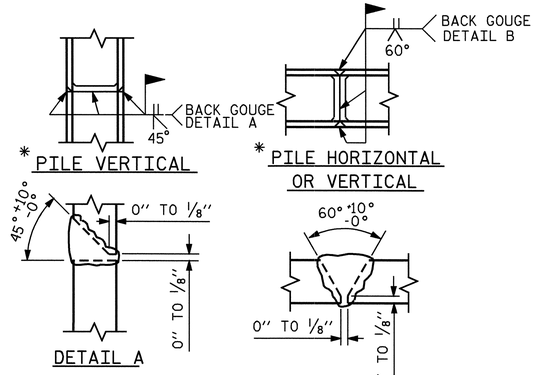
padkins



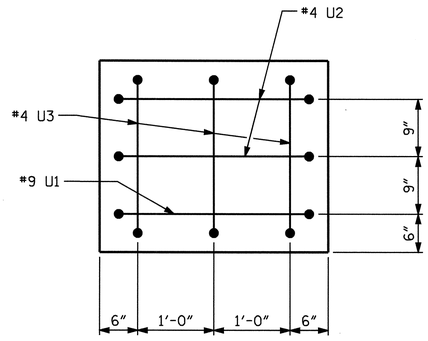
SECTION A-A



SECTION B-B

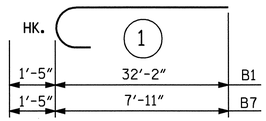


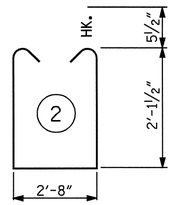
PILE SPLICE DETAILS

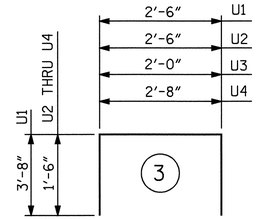


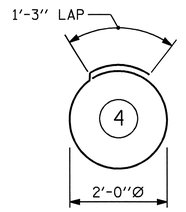
END VIEW
(TYP. EACH END)

BAR TYPES









ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	10	1	33'-7"	578
B2	4	10	STR	32'-2"	554
B3	2	5	STR	34'-4"	72
B4	8	4	STR	18'-1"	97
B5	8	4	STR	2'-8"	14
B6	4	4	STR	9'-0"	24
S1	27	5	2	7'-10"	221
S2	14	4	4	7'-7"	71
U1	1	9	3	9'-10"	33
U2	2	4	3	5'-6"	7
U3	3	4	3	5'-0"	10
U4	7	4	3	5'-8"	26

REINFORCING STEEL 1707 LBS.

CLASS "A" CONCRETE 9.3 CU.YD.

HP 14 X 73 STEEL PILES
NO. 7 245 LIN. FT.

BILL OF MATERIAL — STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B5	2	4	STR	2'-8"	4
B7	4	10	1	9'-4"	161
B8	4	10	STR	7'-11"	136
B9	4	4	STR	8'-9"	23
B10	2	5	STR	8'-9"	18
S1	8	5	2	7'-10"	65
S2	4	4	4	7'-7"	20
U1	1	9	3	9'-10"	33
U2	2	4	3	5'-6"	7
U3	3	4	3	5'-0"	10

REINFORCING STEEL 477 LBS.

CLASS "A" CONCRETE 2.6 CU.YD.

HP 14 X 73 STEEL PILES
NO. 2 70 LIN. FT.

TOTAL BILL OF MATERIAL

REINFORCING STEEL	2184 LBS.
CLASS "A" CONCRETE	11.9 CU.YD.
HP 14 X 73 STEEL PILES NO. 9	315 LIN. FT.
GALVANIZING STEEL PILES	LUMP SUM

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #1

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-59
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

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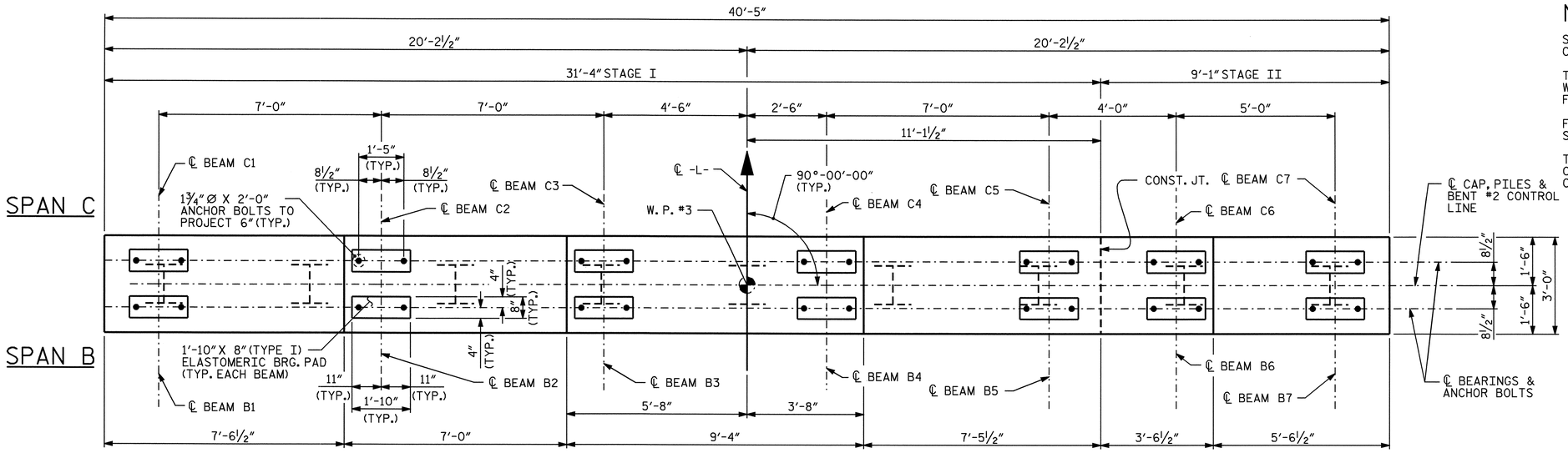
STR. #2



PLAN

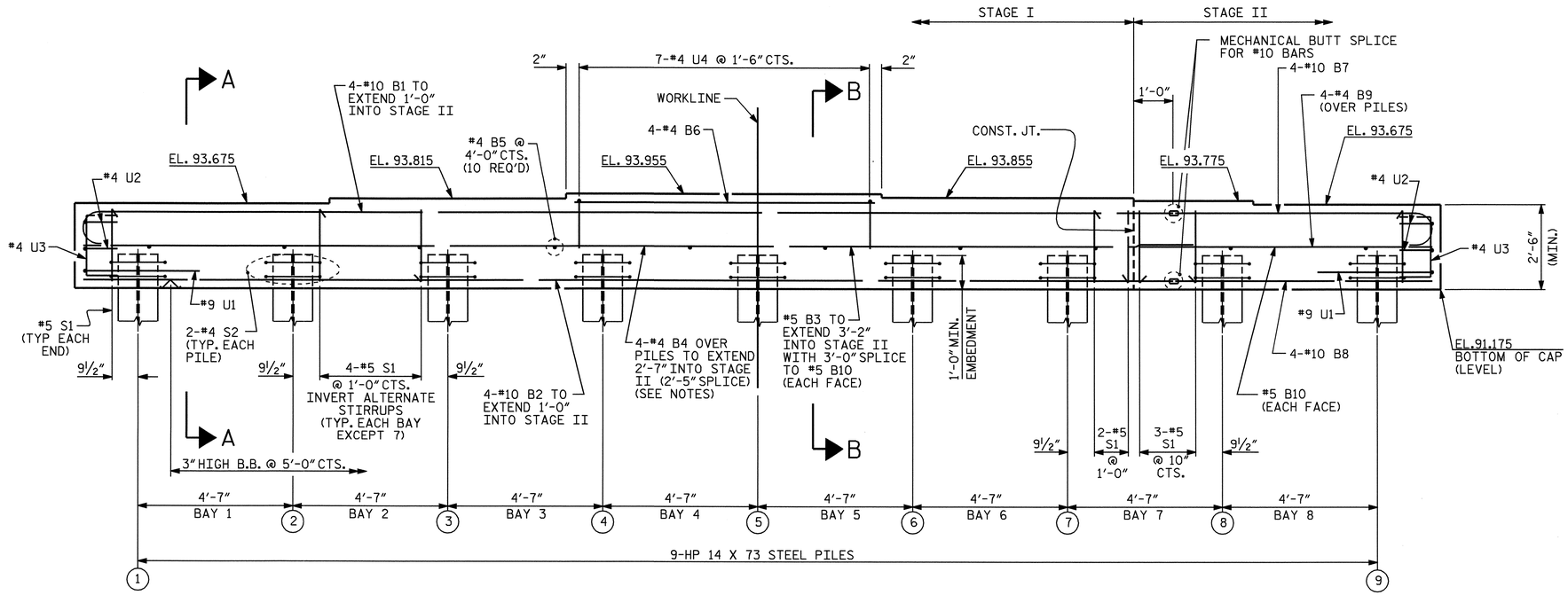
NOTES:

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE STEEL PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. FOR GALVANIZING STEEL PILES, SEE SPECIAL PROVISIONS.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

THE #4 B4 BARS ABOVE PILES EXTENDING OUT OF CAP AT CONSTRUCTION JOINT MAY BE FIELD BENT TO PROVIDE CLEARANCE TO DRIVE PILE NO. 8.



ELEVATION

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-60
1			3			TOTAL SHEETS
2			4			69

STR. #2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

26-APR-2006 09:52
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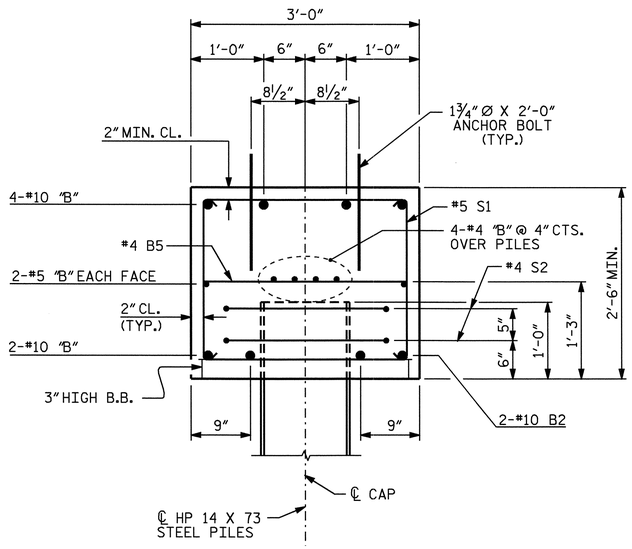
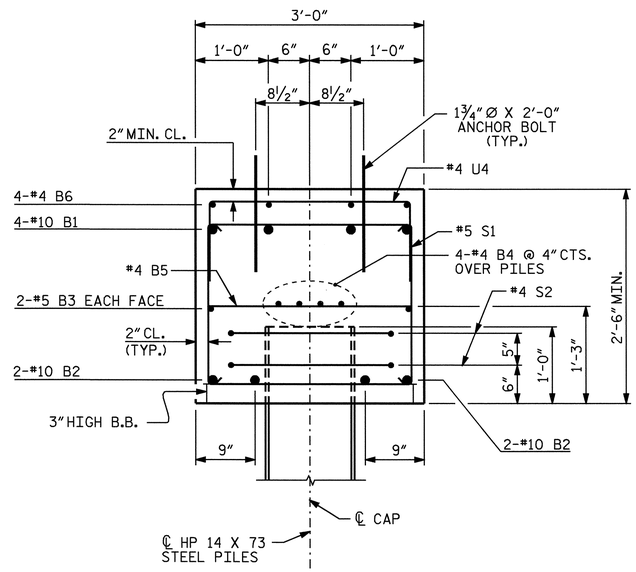
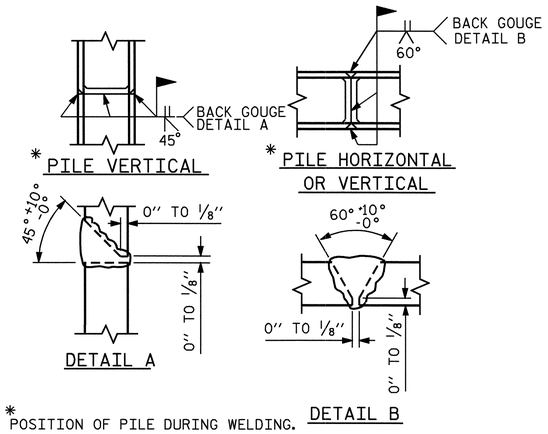


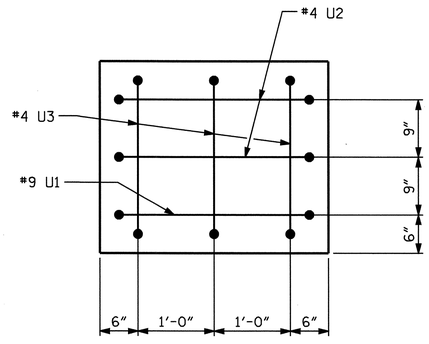
SECTION A-A



SECTION B-B

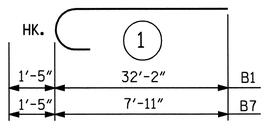


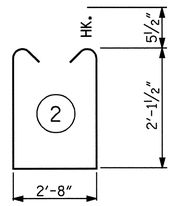
PILE SPLICE DETAILS

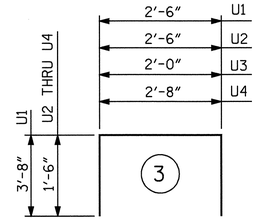


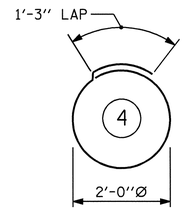
END VIEW
(TYP. EACH END)

BAR TYPES









ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	10	1	33'-7"	578
B2	4	10	STR	32'-2"	554
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B4	8	4	STR	18'-1"	97
B5	8	4	STR	2'-8"	14
B6	4	4	STR	9'-0"	24
S1	27	5	2	7'-10"	221
S2	14	4	4	7'-7"	71
U1	1	9	3	9'-10"	33
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U3	3	4	3	5'-0"	10
U4	7	4	3	5'-8"	26

REINFORCING STEEL 1707 LBS.

CLASS "A" CONCRETE 9.3 CU.YD.

HP 14 X 73 STEEL PILES
NO. 7 245 LIN. FT.

BILL OF MATERIAL — STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B5	2	4	STR	2'-8"	4
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B8	4	10	STR	7'-11"	136
B9	4	4	STR	8'-9"	23
B10	2	5	STR	8'-9"	18
S1	8	5	2	7'-10"	65
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U2	2	4	3	5'-6"	7
U3	3	4	3	5'-0"	10

REINFORCING STEEL 477 LBS.

CLASS "A" CONCRETE 2.6 CU.YD.

HP 14 X 73 STEEL PILES
NO. 2 70 LIN. FT.

TOTAL BILL OF MATERIAL

REINFORCING STEEL	2184 LBS.
CLASS "A" CONCRETE	11.9 CU.YD.
HP 14 X 73 STEEL PILES NO. 9	315 LIN. FT.
GALVANIZING STEEL PILES	LUMP SUM

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

Timothy L. Coggins 4/26/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : W. D. CRUTCHER DATE : 1-05

26-APR-2006 09:52
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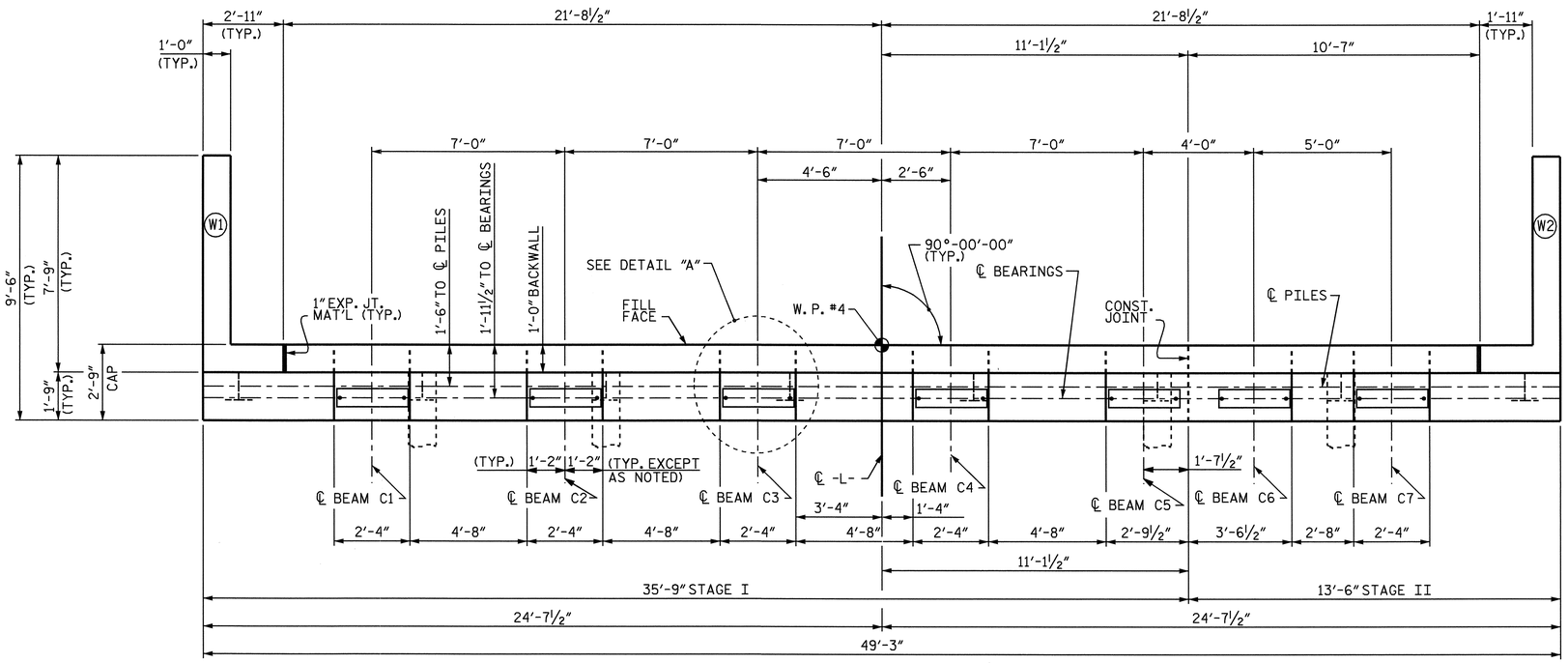
padkins

STR. #2



PLAN

NOTES

STIRRUPS IN THE CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

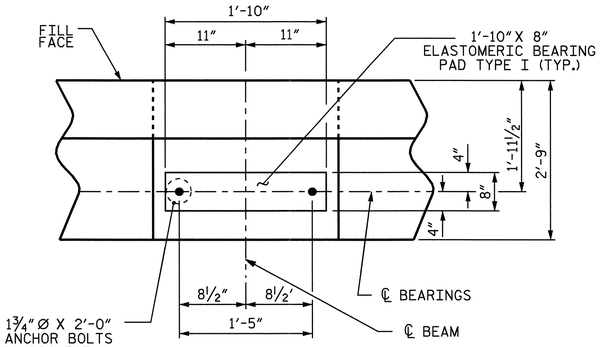
BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

THE TOP SURFACE AREAS OF THE END BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

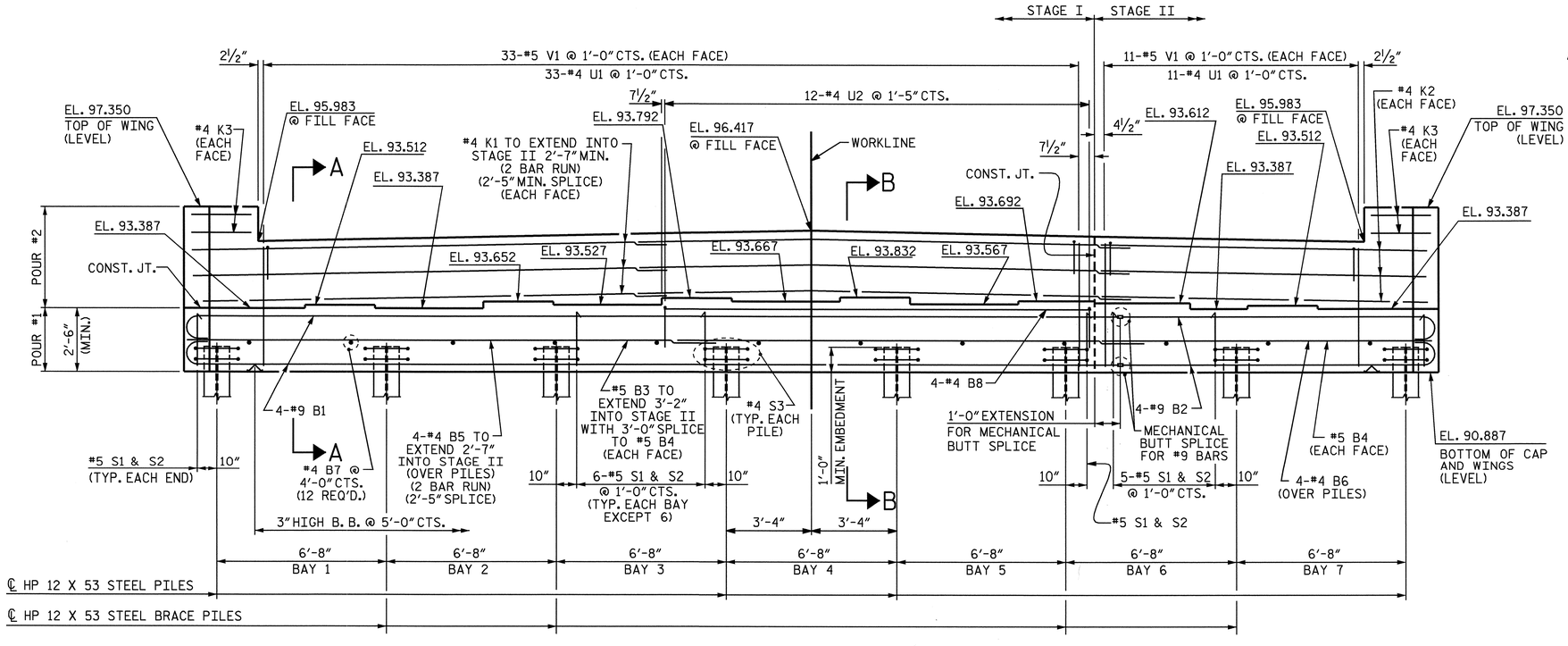
THE TOP SURFACE OF THE END BENT CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4"Ø DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.



DETAIL "A"



ELEVATION

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-62
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS
4/26/06

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:55
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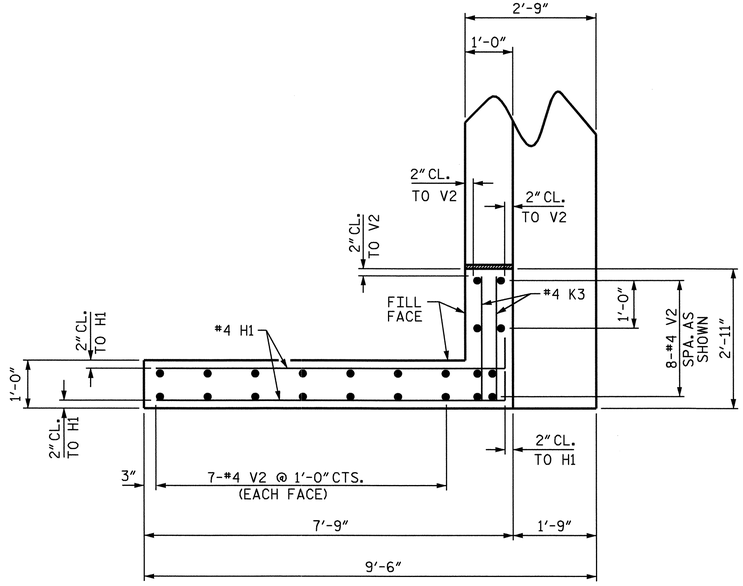
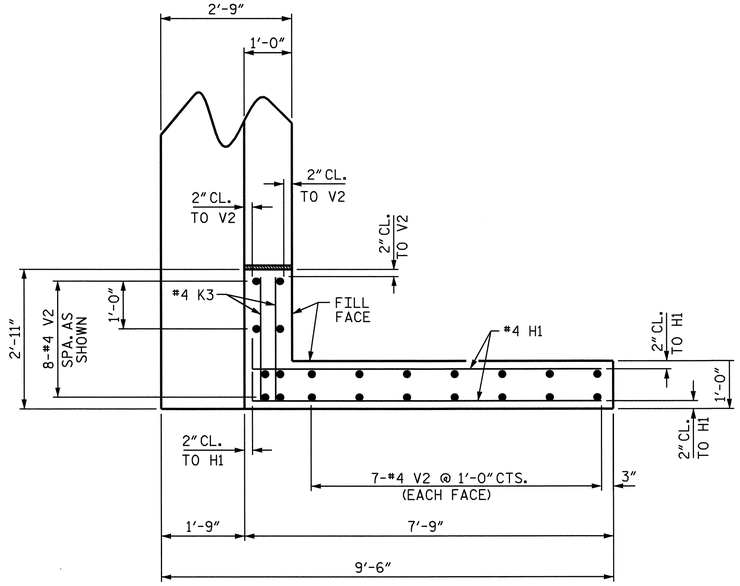
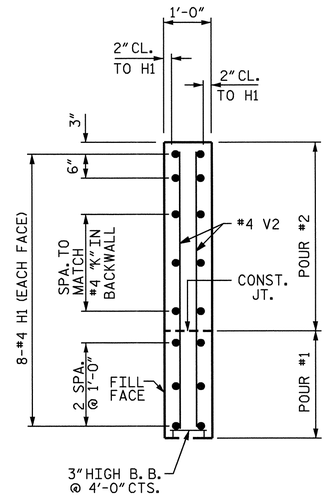
STR. #2



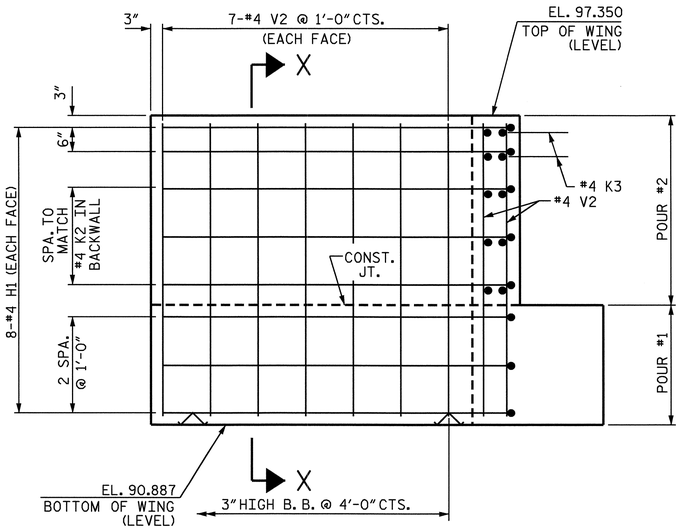
PLAN OF LEFT WING W1



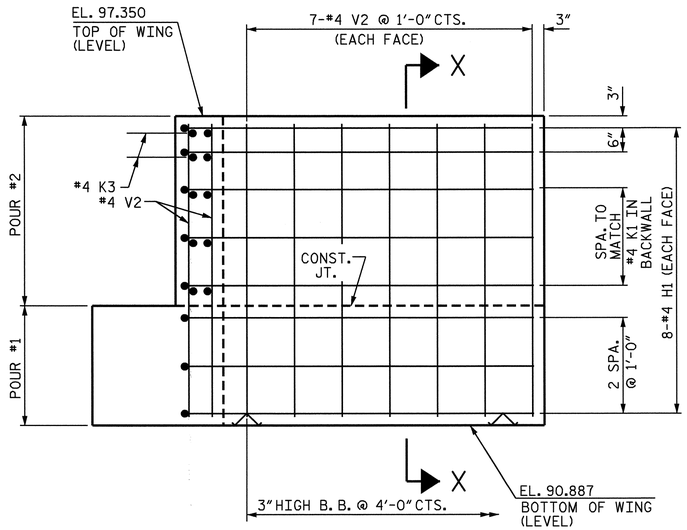
PLAN OF RIGHT WING W2



SECTION X-X



ELEVATION OF LEFT WING W1



ELEVATION OF RIGHT WING W2

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY J. COGGINS

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-63
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04
CHECKED BY : F. GUZMAN DATE : 1-05

26-APR-2006 09:55
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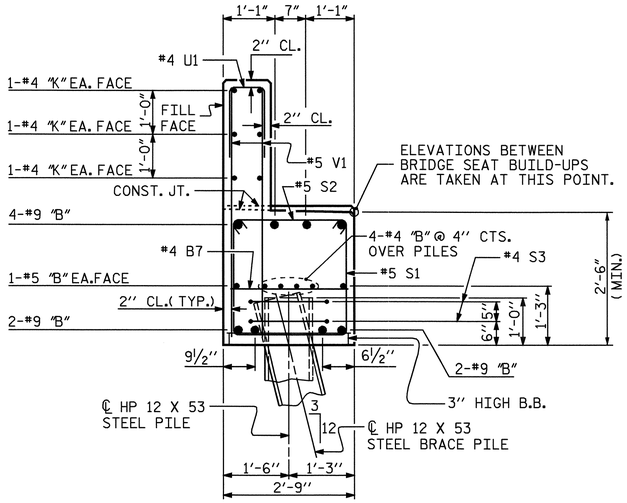
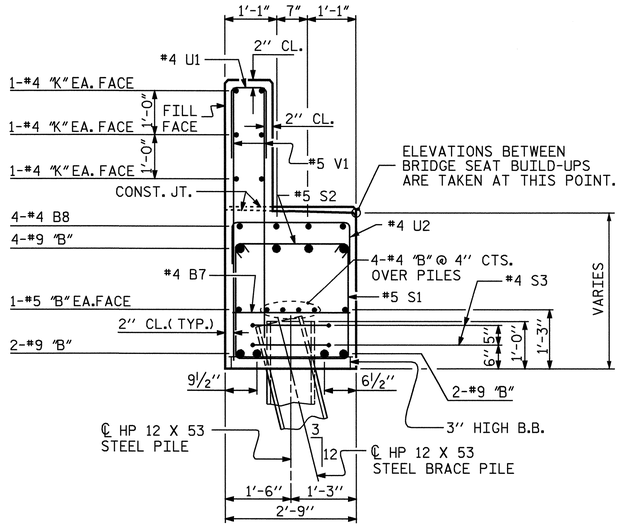
padkins

STR. #2

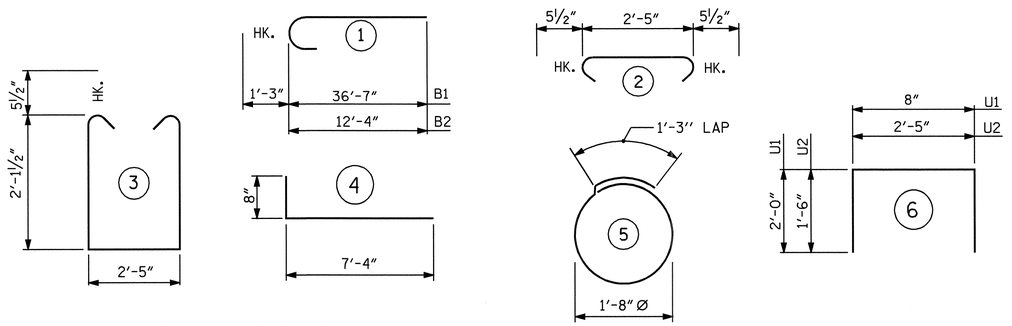


SECTION A-A



SECTION B-B

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL — STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	37'-10"	1029
B3	2	5	STR	38'-9"	81
B5	8	4	STR	20'-4"	109
B7	9	4	STR	2'-5"	15
B8	4	4	STR	16'-5"	44
H1	16	4	4	8'-0"	86
K1	12	4	STR	20'-4"	163
K3	4	4	STR	2'-7"	7
S1	32	5	3	7'-7"	253
S2	32	5	2	3'-4"	111
S3	12	4	5	6'-6"	52
U1	33	4	6	4'-8"	103
U2	12	4	6	5'-5"	43
V1	66	5	STR	4'-9"	327
V2	22	4	STR	6'-1"	89

TOTAL REINFORCING STEEL 2512 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 10.4 CU. YD.

POUR #2 BACKWALL & UPPER WING 4.6 CU. YD.

TOTAL CLASS "A" CONCRETE 15.0 CU. YD.

HP 12 X 53 STEEL PILES

NO. 6 210 LIN. FT.

BILL OF MATERIAL — STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B2	8	9	1	13'-7"	369
B4	2	5	STR	13'-2"	27
B6	4	4	STR	13'-2"	35
B7	3	4	STR	2'-5"	5
H1	16	4	4	8'-0"	86
K2	6	4	STR	13'-2"	53
K3	4	4	STR	2'-7"	7
S1	12	5	3	7'-7"	95
S2	12	5	2	3'-4"	42
S3	4	4	5	6'-6"	17
U1	11	4	6	4'-8"	34
V1	22	5	STR	4'-9"	109
V2	22	4	STR	6'-1"	89

TOTAL REINFORCING STEEL 968 LBS.

CLASS "A" CONCRETE BREAKDOWN

POUR #1 CAP & LOWER WING 4.2 CU. YD.

POUR #2 BACKWALL & UPPER WING 2.4 CU. YD.

TOTAL CLASS "A" CONCRETE 6.6 CU. YD.

HP 12 X 53 STEEL PILES

NO. 2 70 LIN. FT.

TOTAL BILL OF MATERIAL

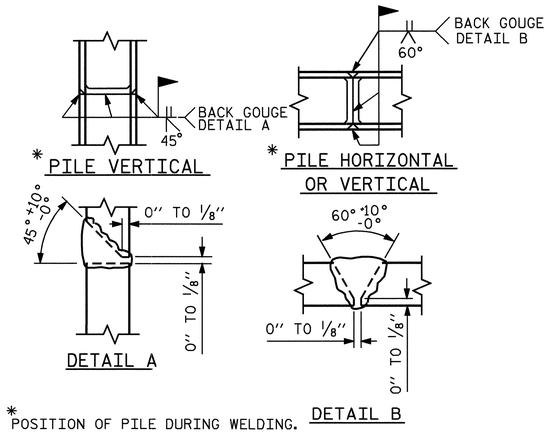
TOTAL REINFORCING STEEL 3480 LBS.

CLASS "A" CONCRETE BREAKDOWN

TOTAL CLASS "A" CONCRETE 21.6 CU. YD.

HP 12 X 53 STEEL PILES

NO. 8 280 LIN. FT.



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

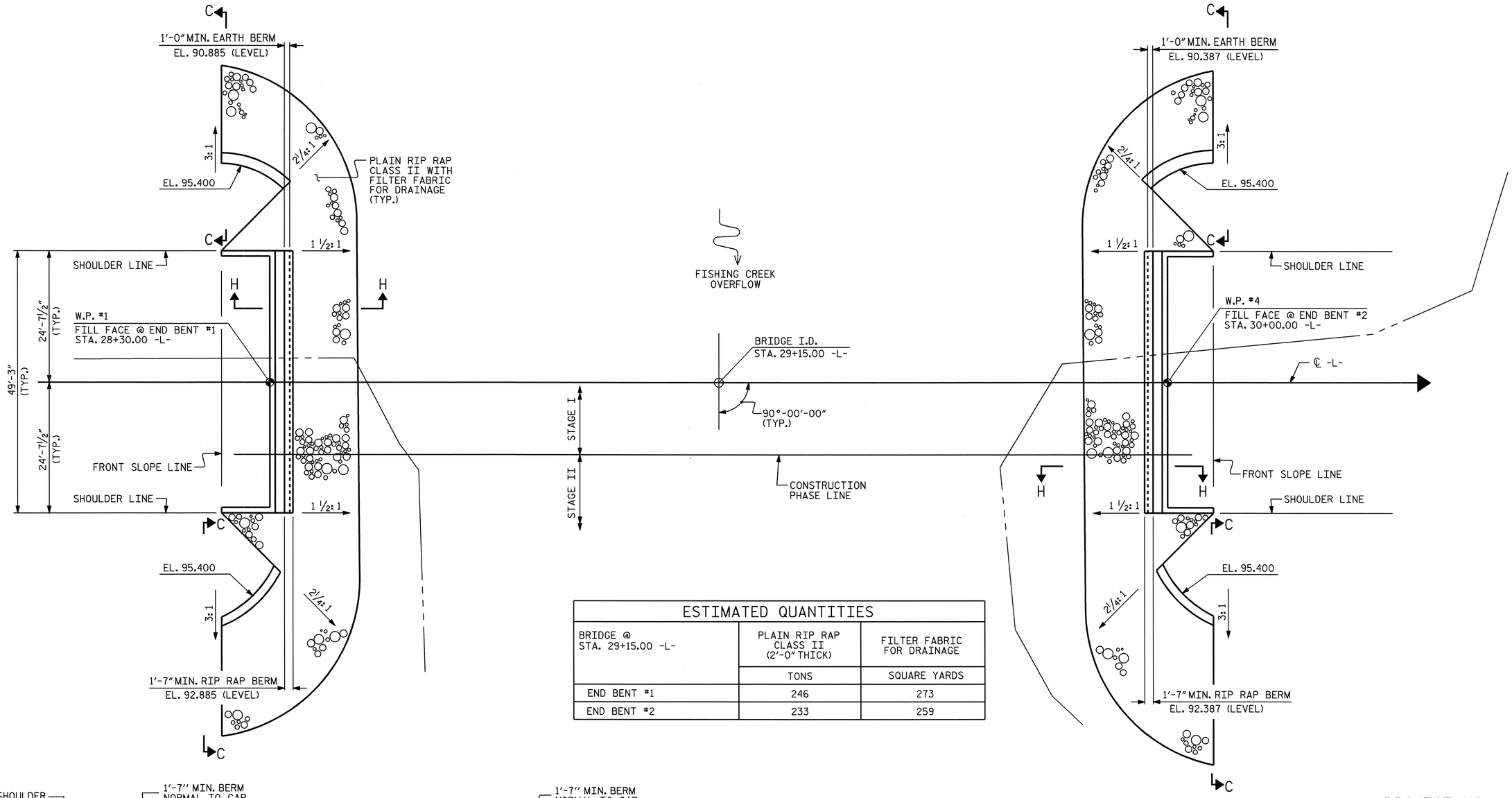
SUBSTRUCTURE

END BENT #2

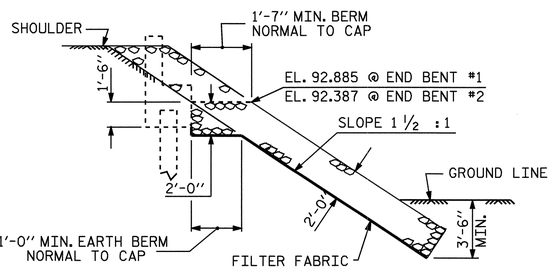
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 12-04

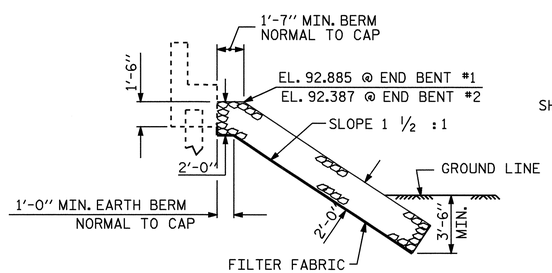
CHECKED BY : F. GUZMAN DATE : 1-05



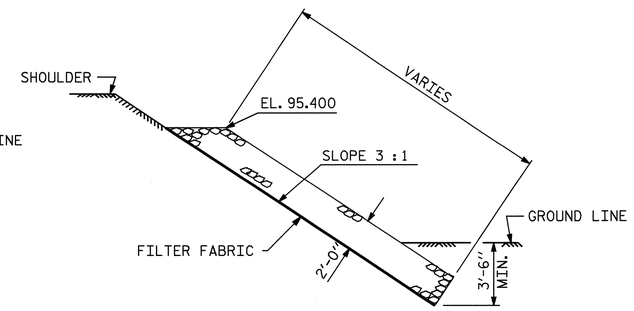
ESTIMATED QUANTITIES		
BRIDGE @ STA. 29+15.00 -L-	PLAIN RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	246	273
END BENT #2	233	259



SECTION H-H



℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-3453
EDGECOMBE-HALIFAX COUNTY
STATION: 29+15.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS 4/26/06

ASSEMBLED BY : T.L. AVERETTE	DATE : 10-04
CHECKED BY : PEGGY ADKINS	DATE : 11-04
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-65
1			3			TOTAL SHEETS
2			4			69

26-APR-2006 09:57
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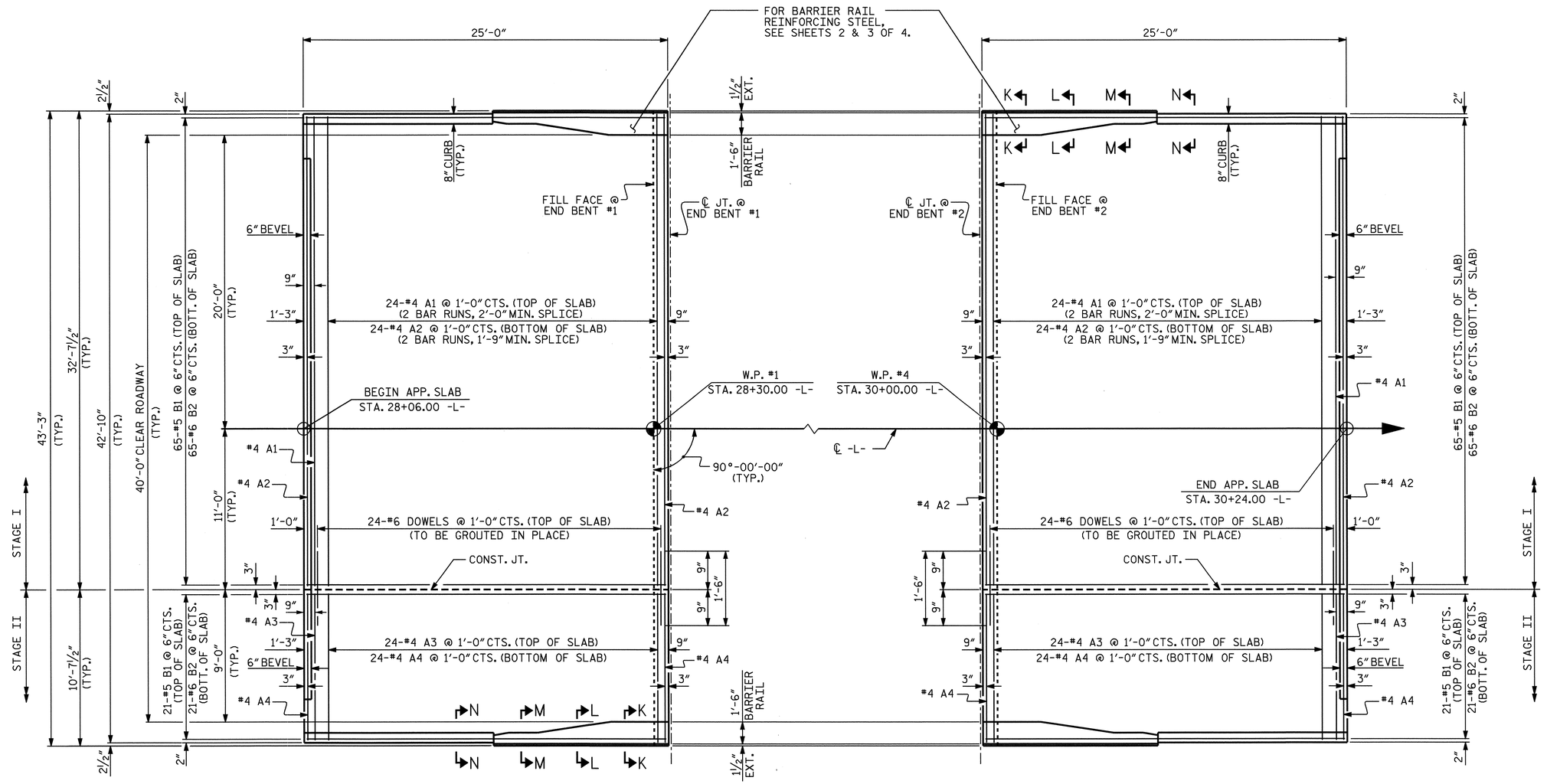
padkins

SKEW 90° STR. #2

STD. NO. RR2



@ END BENT #1

@ END BENT #2

PLAN

(FOR SECTIONS N-N, M-M, L-L AND K-K, SEE SHEET 1 OF 4.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT
WITH BARRIER RAIL

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY W. COGGINS
4/24/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-66
1			3			TOTAL SHEETS
2			4			69

DRAWN BY : PEGGY ADKINS DATE : 09-04
CHECKED BY : T. AVERETTE DATE : 10-04

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STR. #2

NOTES

THE COST OF THE BARRIER RAIL ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4'' Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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.

THE 6'' COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0'' OUTSIDE OF EACH EDGE OF THE SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS ''A'' CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

THE JOINT SHALL BE SAWED PRIOR TO THE CASTING OF THE BARRIER RAIL.

DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL AND SHALL BE GROUTED TO STAGE I.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 ½''.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

STAGE I CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	50	#4	STR	17'-2"	573
A2	52	#4	STR	17'-0"	591
✳B1	65	#5	STR	23'-8"	1604
B2	65	#6	STR	24'-7"	2400
✳B3	1	#5	3	6'-4"	7
✳B4	7	#5	STR	11'-8"	85
✳D1	24	#6	STR	1'-6"	54
✳S1	28	#5	STR	3'-3"	95
✳S2	20	#5	1	4'-1"	85
✳S3	10	#5	2	2'-3"	23

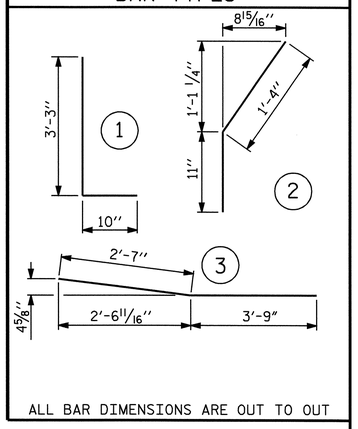
REINFORCING STEEL	LBS.	2991
✳EPOXY COATED REINFORCING STEEL	LBS.	2526
CLASS AA CONCRETE BREAKDOWN		
POUR 1 SLAB & CURB	C.Y.	30.7
POUR 2 RAIL	C.Y.	1.1
CLASS AA CONCRETE	C.Y.	31.8

STAGE II CONSTRUCTION

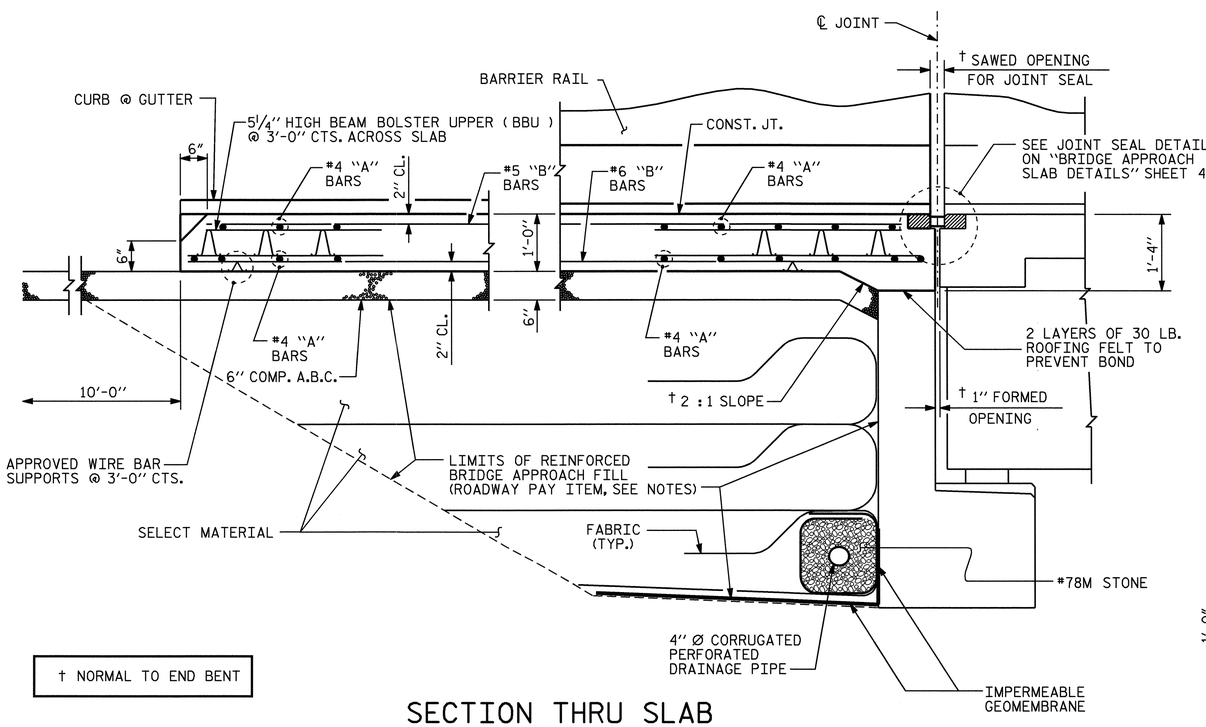
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	25	#4	STR	10'-1"	168
A4	26	#4	STR	10'-1"	175
✳B1	21	#5	STR	23'-8"	518
B2	21	#6	STR	24'-7"	775
✳B3	1	#5	3	6'-4"	7
✳B4	7	#5	STR	11'-8"	85
✳S1	28	#5	STR	3'-3"	95
✳S2	20	#5	1	4'-1"	85
✳S3	10	#5	2	2'-3"	23

REINFORCING STEEL	LBS.	950
✳EPOXY COATED REINFORCING STEEL	LBS.	981
CLASS AA CONCRETE BREAKDOWN		
POUR 1 SLAB & CURB	C.Y.	10.0
POUR 2 RAIL	C.Y.	1.1
CLASS AA CONCRETE	C.Y.	11.1

BAR TYPES

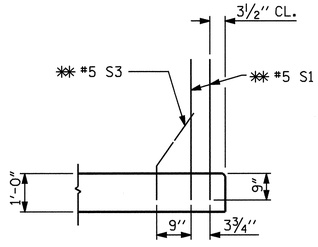


ALL BAR DIMENSIONS ARE OUT TO OUT



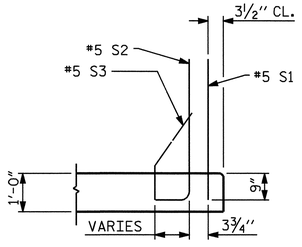
† NORMAL TO END BENT

SECTION THRU SLAB

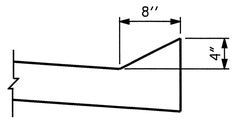


SECTION K-K

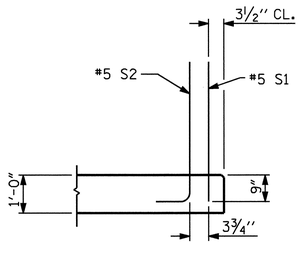
✳✳ ADHESIVELY ANCHORED



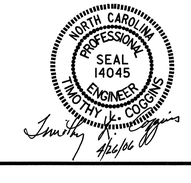
SECTION L-L



SECTION N-N



SECTION M-M



PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT WITH BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-67
1			3			TOTAL SHEETS
2			4			69

STR. #2 STD. NO. BAS5

ASSEMBLED BY : PEGGY ADKINS	DATE : 9-04
CHECKED BY : T. AVERETTE	DATE : 10-04
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	

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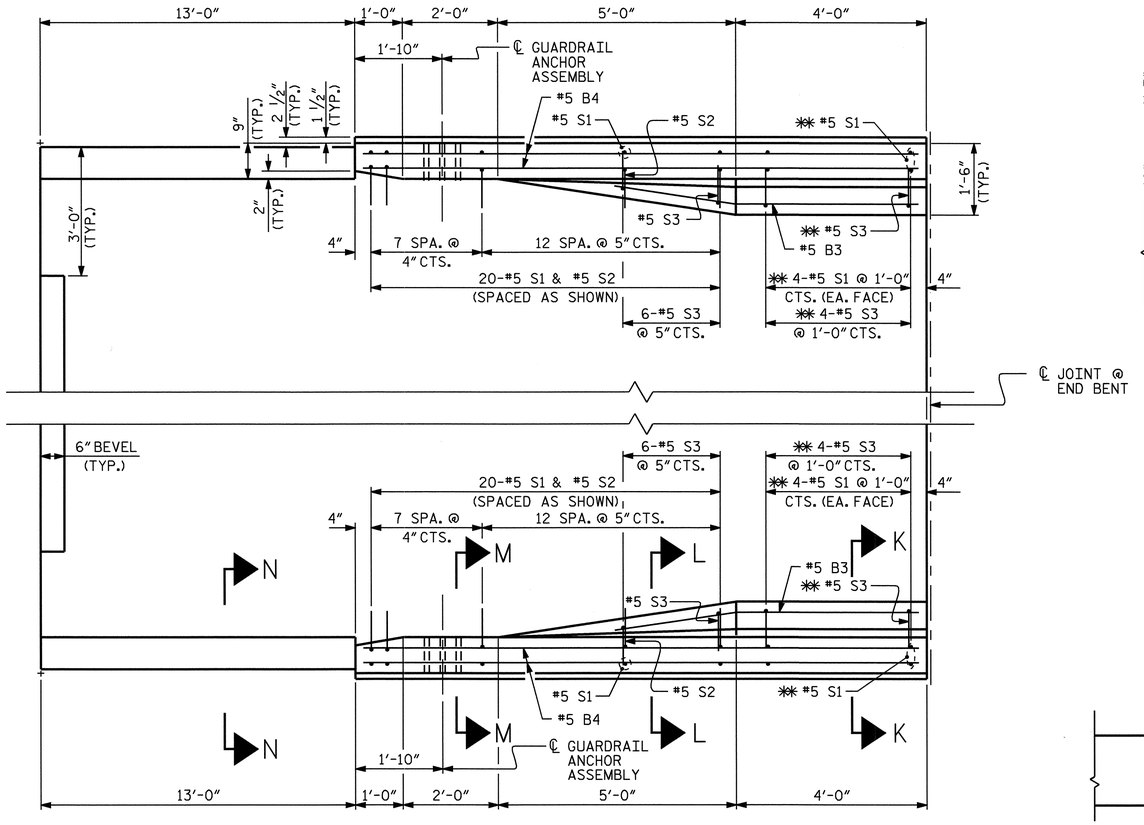
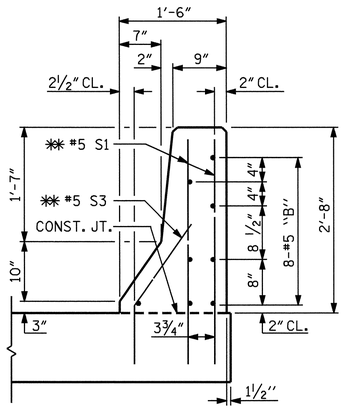


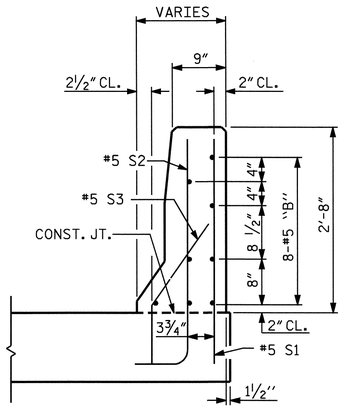
PLAN

BEGIN APPROACH SLAB SHOWN, END APPROACH SLAB SIMILAR



SECTION K-K

✱✱ ADHESIVELY ANCHORED



SECTION L-L

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.

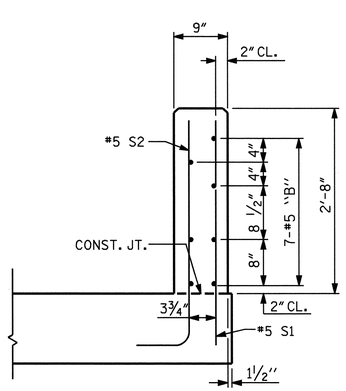
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

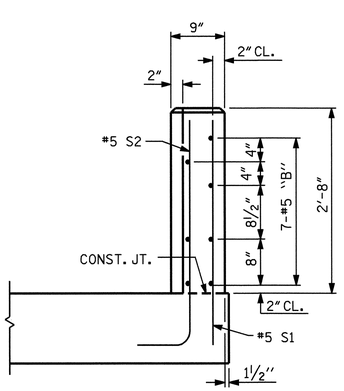
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

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.

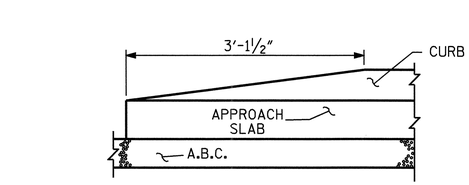
THE #5 S1 AND #5 S3 BARS SHALL BE INSTALLED, WHERE NOTED ON THE PLANS, USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR THE #5 S1 AND #5 S3 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



SECTION M-M



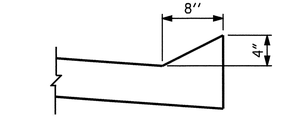
END VIEW OF RAIL



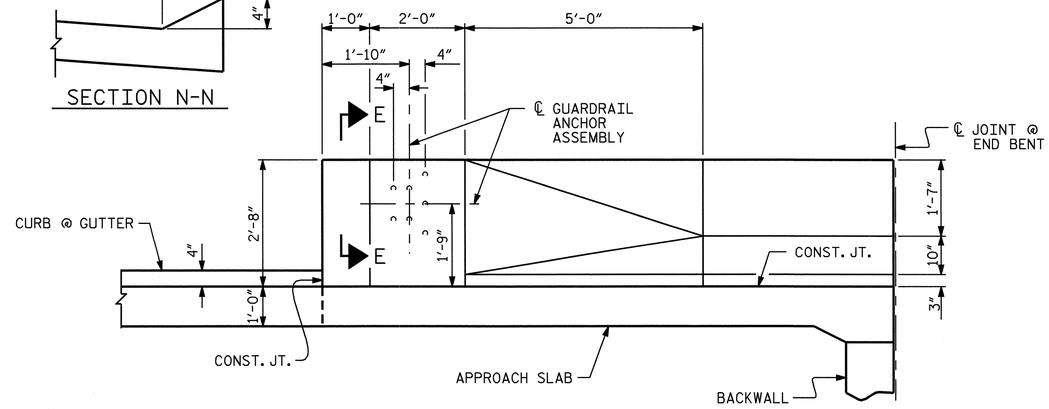
SKETCH SHOWING POINTS OF ATTACHMENT

✱ INDICATES POINTS OF ATTACHMENT

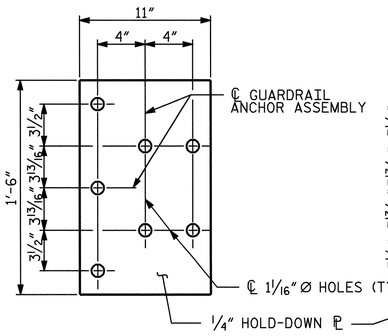
END OF CURB WITHOUT SHOULDER BERM GUTTER



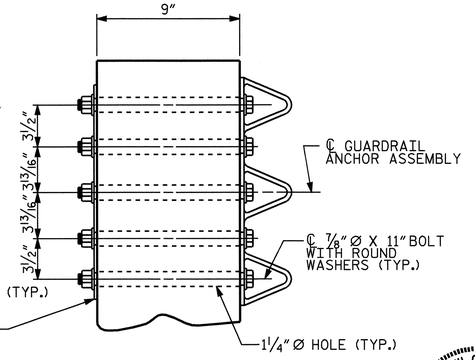
SECTION N-N



ELEVATION



PLAN



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY A. COGGINS 4/26/06

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB
DETAILS FOR FLEXIBLE
PAVEMENT WITH BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-68
1			3			TOTAL SHEETS
2			4			69

STR. #2 STD. NO. BAS6

ASSEMBLED BY : PEGGY ADKINS	DATE : 09-04
CHECKED BY : T. AVERETTE	DATE : 10-04
DRAWN BY : LES 8/01	REV. 5/7/03R RWW/JTE
CHECKED BY : RDR 8/01	

26-APR-2006 10:11
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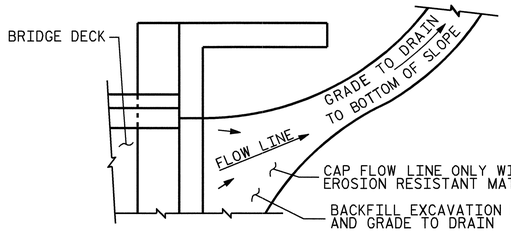
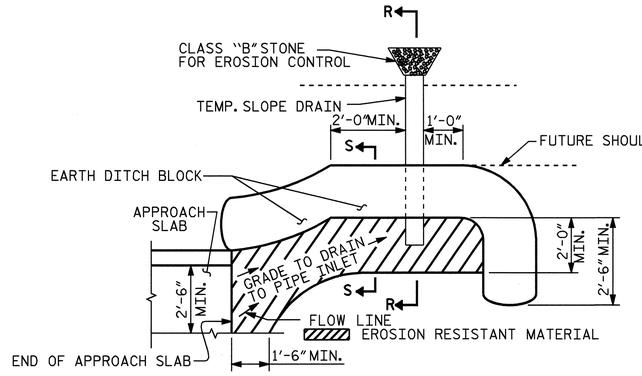
padkins



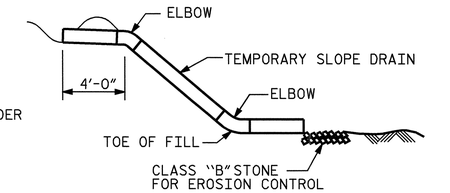
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

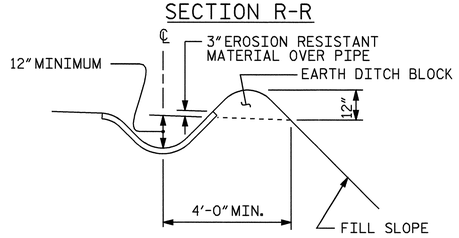


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

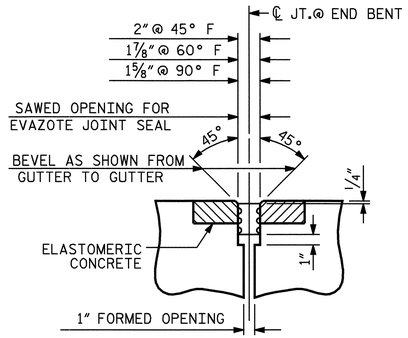


SECTION R-R

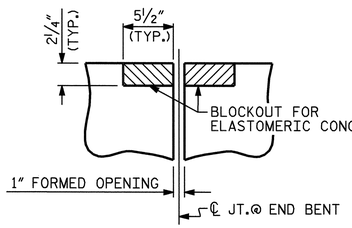


SECTION S-S

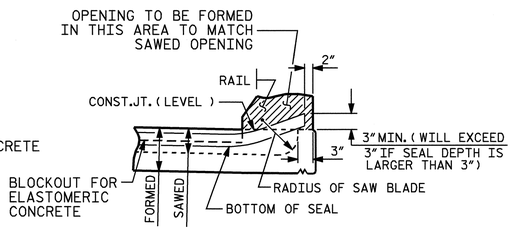
TEMPORARY BERM AND SLOPE DRAIN DETAILS



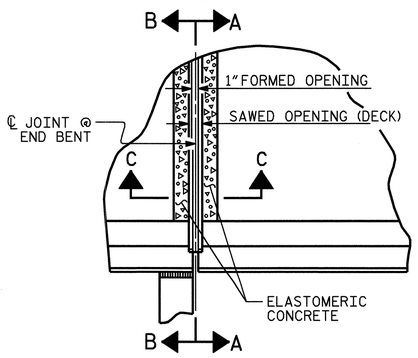
SECTION C-C
EVAZOTE JOINT SEAL



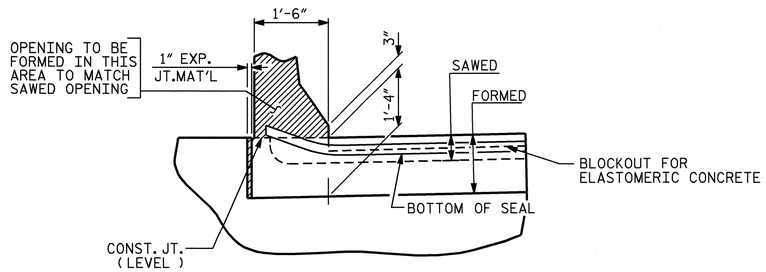
SECTION C-C
PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS



SECTION A-A



PLAN



SECTION B-B

JOINT SEAL DETAILS @ END BENT

(FOR BARRIER RAIL)

BILL OF MATERIAL		
	STAGE I	STAGE II
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.3	1.5
2	5.3	1.5
TOTAL	10.6	3.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

PROJECT NO. B-3453

EDGECOMBE/HALIFAX COUNTY

STATION: 29+15.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS

1988

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-69
1			3			TOTAL SHEETS
2			4			69

NORTH CAROLINA PROFESSIONAL SEAL 14045 ENGINEER TIMOTHY L. COGGINS

4/26/06

ASSEMBLED BY : PEGGY ADKINS		DATE : 09-04	
CHECKED BY : T. AVERETTE		DATE : 10-04	
DRAWN BY : FCJ	11/88	REV. 8/16/99	MAB/LES
CHECKED BY : ARB	11/88	REV. 10/17/00	RWW/LES
		REV. 5/7/03	RWW/JTE

19-APR-2006 12:30
Z:\Structures\b3453\str#2\padkins\Microstation\B3453_SD_AS_02.dgn
tcoggins

STR. #2

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM & RGW REV. 6-27-02 RWW & JTE