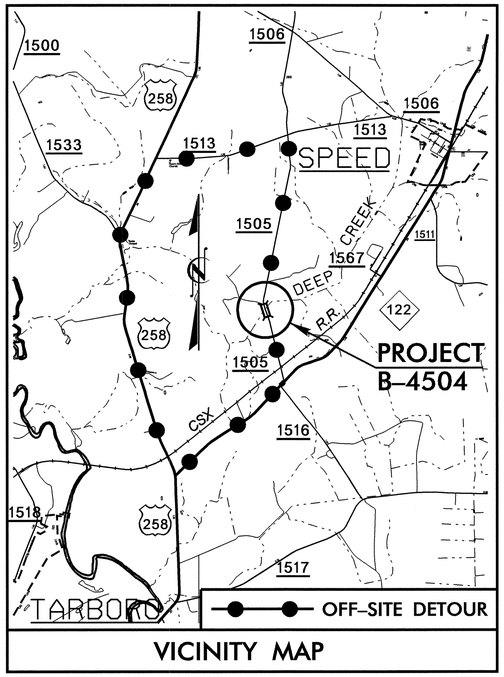
TIP PROJECT: B-4504

CONTRACT: C202097

STRUCTURE



VICINITY MAP

STATE	STATE PROJECT REFERENCE NO.		
N.C.	B-4504		
WBS PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
33735.1.1	BRZ-1505(3)	P.E.	
33735.2.1	BRZ-1505(3)	R/W & UTIL	
33735.3.1	BRZ-1505(3)	CONSTR.	

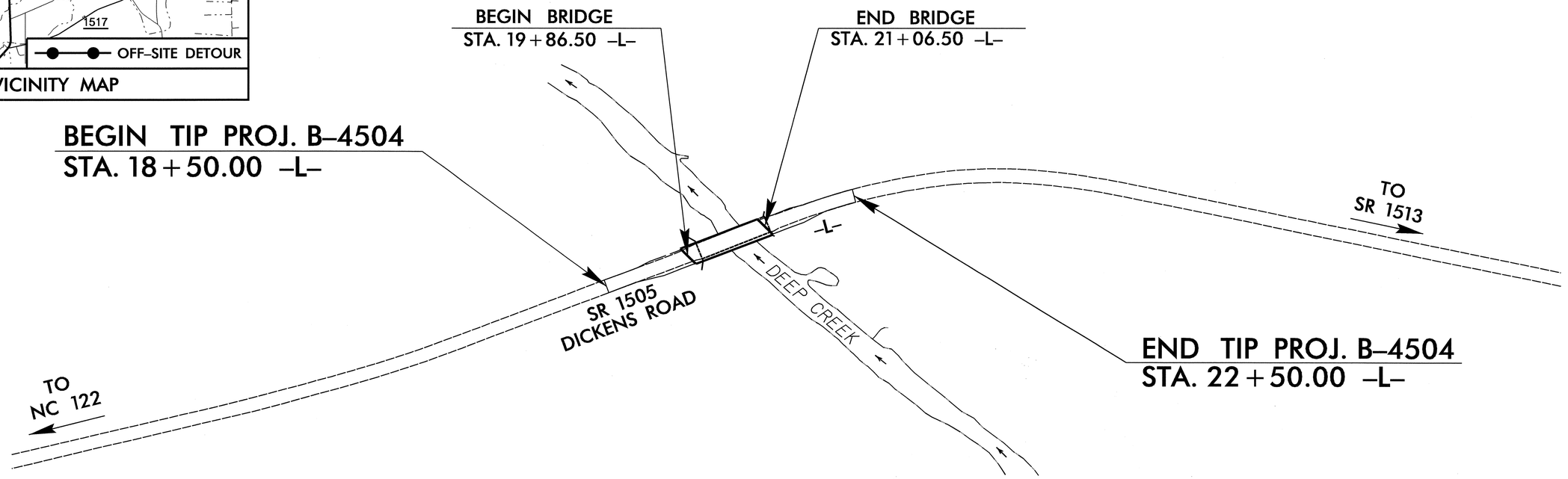
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EDGECOMBE COUNTY

LOCATION: ***BRIDGE No. 52 OVER DEEP CREEK AND APPROACHES ON SR 1505 (DICKENS ROAD)***

TYPE OF WORK: ***GRADING, PAVING, DRAINAGE, AND STRUCTURE***

NAD83/95



DESIGN DATA
(RURAL LOCAL)

ADT 2008 = 237
ADT 2030 = 400
DHV = 10 %
D = 60 %
T = 3 % *
V = 45 MPH
* TTST 1% + DUAL 2%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4504 = 0.053 MI
LENGTH STRUCTURE TIP PROJECT B-4504 = 0.023 MI
TOTAL LENGTH TIP PROJECT B-4504 = 0.076 MI

2006 STANDARDS SPECIFICATION

LETTING DATE:
MARCH 17, 2009

Prepared in the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
1000 Birch Ridge Drive Raleigh, N.C. 27610

B.S. COX, P.E.
PROJECT ENGINEER

T.J. BEACH, P.E.
PROJECT DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY ENGINEER - DESIGN

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED FOR
DIVISION ADMINISTRATOR *DATE*

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sbwilliams

F.A. PROJECT: BRZ-1505(3)

19+50 20+00 20+50 21+00 21+50

60 50 40 30

(+)0.3259% (-)0.7555%

PI = 20+65.00 -L-
EL. = 49.25'
VC = 220'

GRADE DATA -L-

SPAN "A" SPAN "B"

FILL FACE @ END BENT No. 1 STA. 19+86.50 -L- GRADE PT. EL. 48.970

BEGIN FRONT SLOPE STA. 19+82.10 -L- GRADE PT. EL. 48.962

1'-7" MIN. BERM NORMAL TO CAP (TYP.)

FIX. EL. 49.0±

UNCLASSIFIED STRUCTURE EXCAVATION (SEE NOTES)

1'-6" MIN. (TYP.)

1½:1 SLOPE (NORMAL TO CAP)

CLASS II RIP RAP (TYP.)

EXCAVATE TO EL. 41.70 SLOPE TO DRAIN

EL. 42.0±

EL. 41.0±

EXISTING SUBSTRUCTURE (TYP.)

NORMAL WATER SURFACE EL. 36.0± (8-3-06)

Q100 WATER SURFACE EL. 53.1

FIX. FIX.

HP 14 x 73 GALVANIZED STEEL PILES (TYP.)

EL. 35.0± EL. 34.0± EL. 35.0± EL. 35.0± EL. 38.0± EL. 42.0±

FILL FACE @ END BENT No. 2 STA. 21+06.50 -L- GRADE PT. EL. 48.821

BEGIN FRONT SLOPE STA. 21+10.90 -L- GRADE PT. EL. 48.802

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

FIX.

EL. 49.0± EL. 45.0±

HP 12 x 53 STEEL PILES (TYP.)

1½:1 SLOPE (NORMAL TO CAP)

APPROXIMATE NATURAL GROUND

EL. 48.0±

END BENT No. 1 BENT No. 1 END BENT No. 2

SECTION ALONG ℄ SURVEY -L-

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

OLD CONCRETE BRIDGE SEAT (PARTIALLY REMOVE AS REQUIRED) SEE NOTES

EXISTING SUBSTRUCTURE (TYP.)

DEEP CREEK

OLD CONCRETE BRIDGE SEAT

EARTH BERM EL. 44.058

BEGIN APPROACH SLAB STA. 19+75.60 -L-

TO NC 122

BEGIN FRONT SLOPE STA. 19+82.10 -L-

W.P. #1 FILL FACE @ END BENT No. 1 STA. 19+86.50 -L-

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

W.P. #2 BENT No. 1 CONTROL LINE STA. 20+46.50 -L-

65°-00'-00" (TYP.)

℄ SURVEY -L- (SR 1505) (DICKENS ROAD)

EARTH BERM EL. 44.000

W.P. #3 FILL FACE @ END BENT No. 2 STA. 21+06.50 -L-

END APPROACH SLAB STA. 21+17.40 -L-

1'-7" MIN. BERM (TYP.)

BEGIN FRONT SLOPE STA. 21+10.90 -L-

TO SR 1513

EARTH BERM EL. 43.363

EARTH BERM EL. 43.210

CLASS II RIP RAP

CLASS II RIP RAP

60'-0" 60'-0"

TOTAL LENGTH OF BRIDGE = 120'-0" (FILL FACE @ END BENT No. 1 TO FILL FACE @ END BENT No. 2)

ELEVATION

(FOR CLARITY, PILES NOT SHOWN IN PLAN VIEW)

HYDROGRAPHIC DATA

DESIGN DISCHARGE---------- 1400 CFS
FREQUENCY OF DESIGN FLOOD------ 2 YR.
DESIGN HIGH WATER ELEVATION---- 46.2
DRAINAGE AREA---------- 94 SQ. MI.
BASIC DISCHARGE (Q100)--------- 6100 CFS
BASIC HIGH WATER ELEVATION----- 53.1

OVERTOPPING FLOOD DATA
OVERTOPPING DISCHARGE---------- 2100 CFS
FREQUENCY OF OVERTOPPING FLOOD- 5 YRS
OVERTOPPING FLOOD ELEVATION---- 47.2★

★ OVERTOPPING OCCURS ALONG ROADWAY SECTION IN THE VICINITY OF STA. 23+40.00 -L-

NORTH CAROLINA PROFESSIONAL SEAL 11268 ENGINEER BETSY S. COX — 12/22/08

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH — 12/22/08

PROJECT No. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 2 REPLACES BRIDGE No. 52

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER DEEP CREEK ON SR 1505 BETWEEN NC 122 AND SR 1513

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

DRAWN BY : M.L. BROWN/JMB DATE : 12-2008
CHECKED BY : T. BANKOVICH DATE : 12-2008

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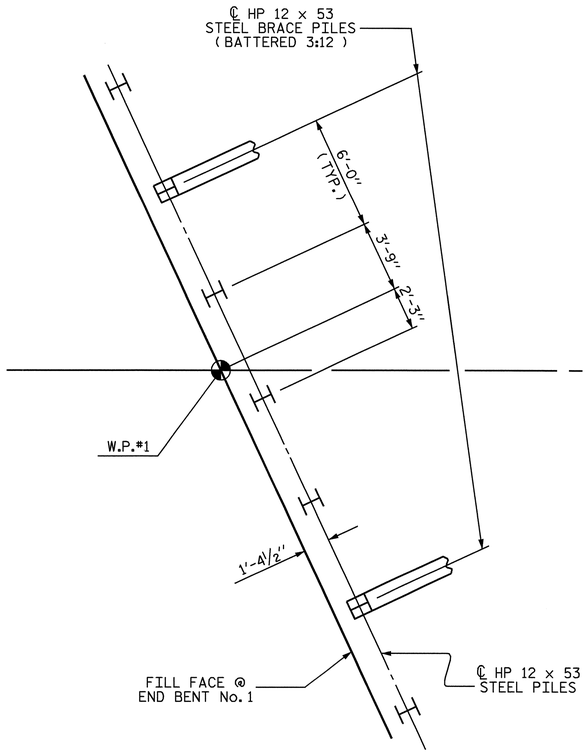
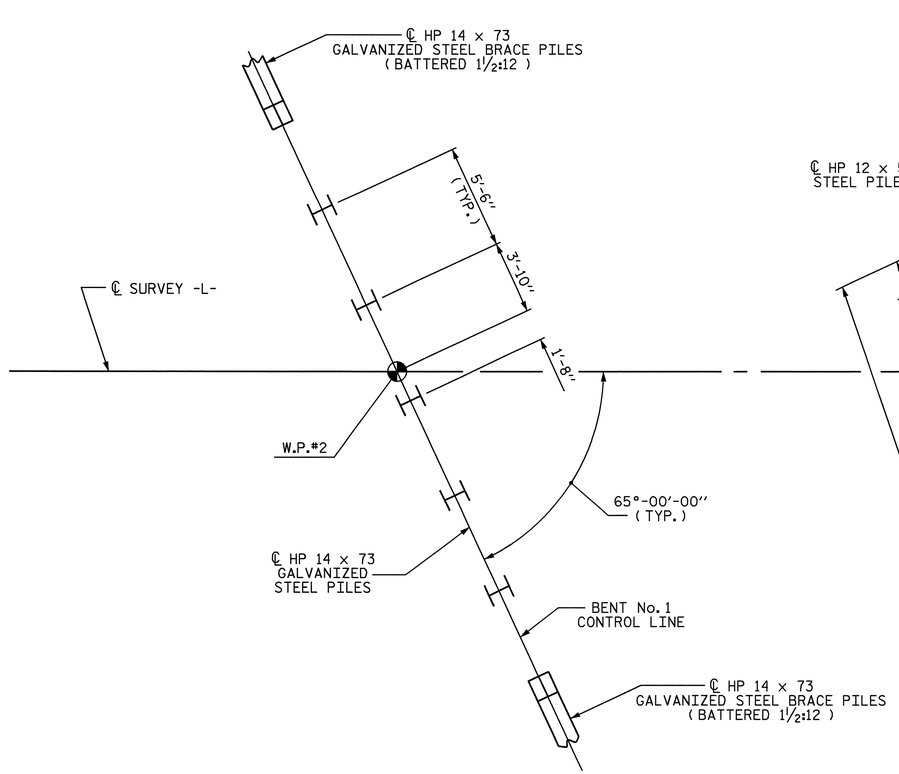
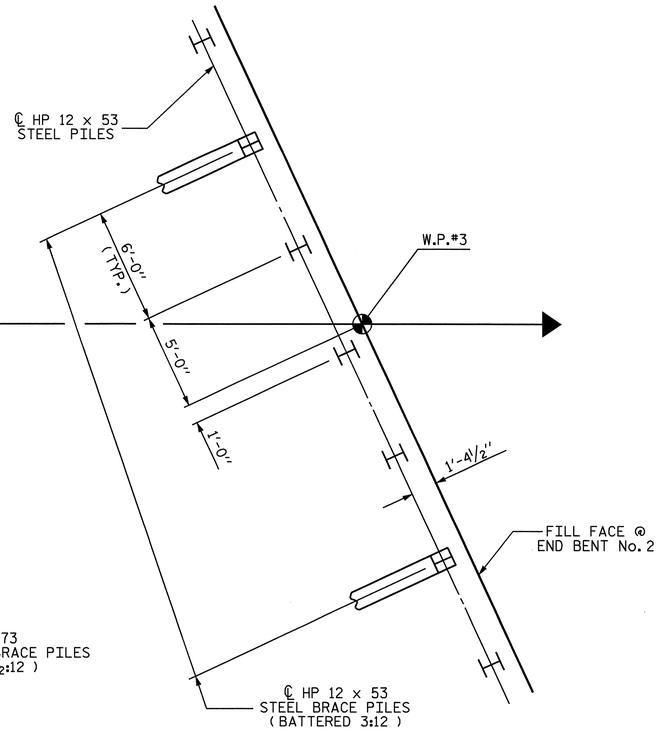


END BENT No. 1



BENT No. 1



END BENT No. 2

FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE TO THE PILE CENTERLINE AT THE BOTTOM OF THE CAP)

NOTES

DRIVE PILES AT END BENT No. 1 AND END BENT No. 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

DRIVE PILES AT BENT No. 1 TO A REQUIRED BEARING CAPACITY OF 140 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWNDRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

DRIVE PILES AT BENT No. 1 TO A TIP ELEVATION NO HIGHER THAN 0 FT.

THE SCOUR CRITICAL ELEVATION FOR BENT No. 1 IS ELEVATION 20 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT No. 1 AND END BENT No. 2 IS 50 TONS PER PILE.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT No. 1 IS 60 TONS PER PILE.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18,"EVALUATING SCOUR AT BRIDGES", MAY, 2001.

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.

FOR ADDITIONAL NOTES, SEE SHEET 3 OF 3.

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER DEEP CREEK
ON SR 1505 BETWEEN
NC 122 AND SR 1513

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

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CHECKED BY : T. BANKOVICH DATE : 12-4-08

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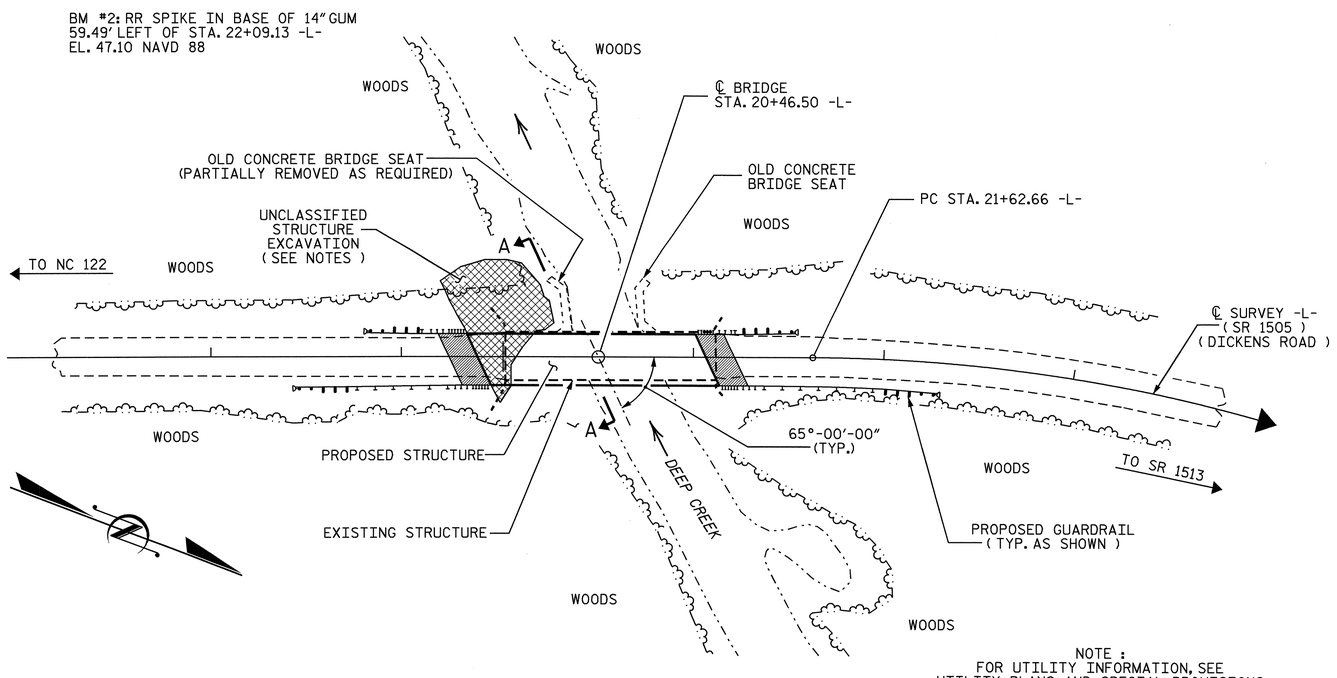
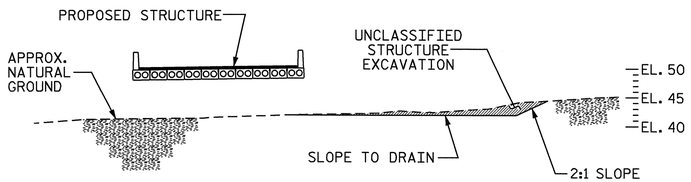


NOTE :
FOR UTILITY INFORMATION, SEE
UTILITY PLANS AND SPECIAL PROVISIONS

LOCATION SKETCH



VIEW A-A

NOTES (CONTINUED FROM SHEET 2 OF 3)

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

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLAB UNITS HAVE BEEN DESIGNED FOR HS25.

THE EXISTING STRUCTURE CONSISTING OF SPANS OF 1 @ 35'-3", 1 @ 40'-0" & 1 @ 35'-3" WITH CLEAR ROADWAY WIDTH OF 23.8 AND TIMBER FLOOR ON STEEL I-BEAMS ON TIMBER CAP/TIMBER PILE BENTS & END BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 15 FT. LEFT & 21 FT. RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. THE EXCAVATION SHOWN IN VIEW A-A OF THE LOCATION SKETCH IS ALSO INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 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.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 20+46.50 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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

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 EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISONS.

CONTRACTOR IS PROHIBITED FROM SETTING CORED SLABS FROM THE TOP OF ONE SPAN TO THE NEXT SPAN.

THE PORTION OF THE OLD CONCRETE BRIDGE SEAT THAT INTERFERES WITH CONSTRUCTION OF THE PROPOSED INTERIOR BENT SHALL BE REMOVED AS DIRECTED BY THE ENGINEER. ANY COST ASSOCIATED WITH THIS SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STA. 20+46.50 -L-.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 x 53 STEEL PILES		HP 14 x 73 GALVANIZED STEEL PILES		PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	No.	LIN. FT.	No.	LIN. FT.	No.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	No.	LIN. FT.
SUPERSTRUCTURE	LUMP SUM			LUMP SUM							234.75			LUMP SUM	20	1,173.75
END BENT No. 1		LUMP SUM	12.8		2,064	7	525			4		150	167			
BENT No. 1			10.5		1,832			7	560	4						
END BENT No. 2			12.8		2,064	7	525			4		125	139			
TOTAL	LUMP SUM	LUMP SUM	36.1	LUMP SUM	5,960	14	1,050	7	560	12	234.75	275	306	LUMP SUM	20	1,173.75

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
1/16/08

PROJECT No. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE OVER DEEP CREEK
ON SR 1505 BETWEEN
NC 122 AND SR 1513

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

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CHECKED BY : T. BANKOVICH DATE : 12-2008

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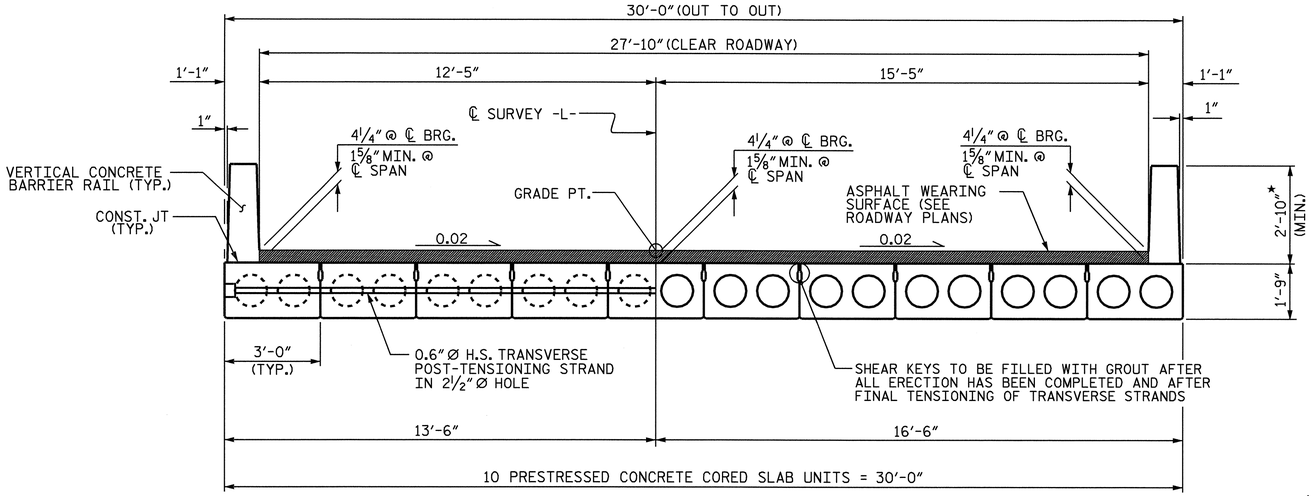
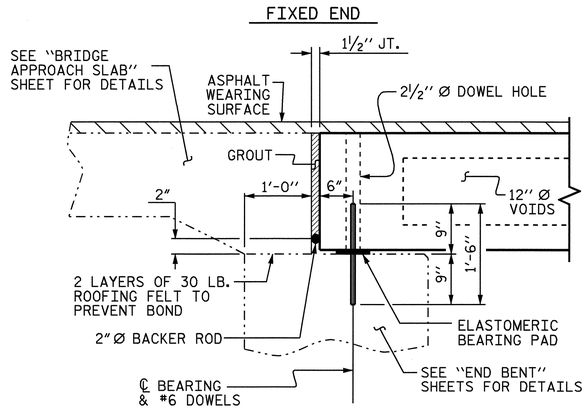


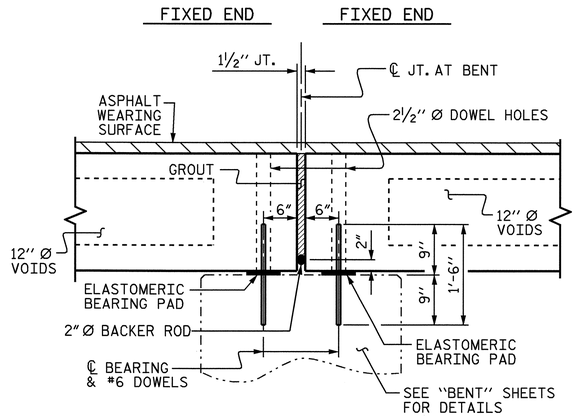
HALF SECTION AT INTERMEDIATE DIAPHRAGMS

HALF SECTION AT VOIDS

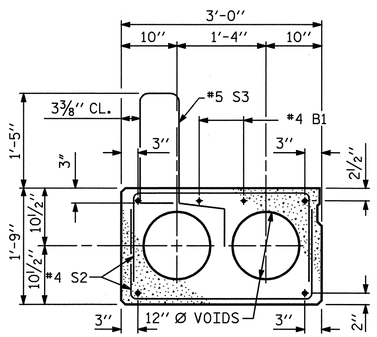
TYPICAL SECTION



SECTION AT END BENT

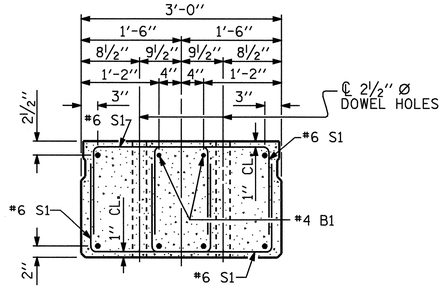


SECTION AT BENT



EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)

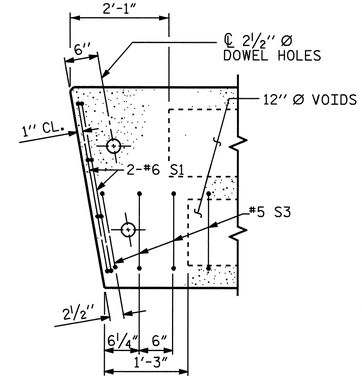


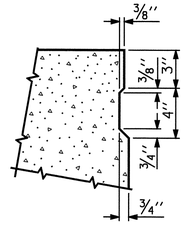
END ELEVATION

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

NOTES:

★ THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.



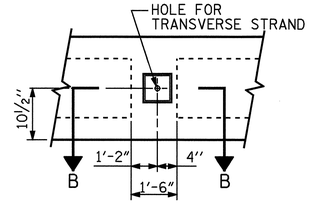


SHEAR KEY DETAIL

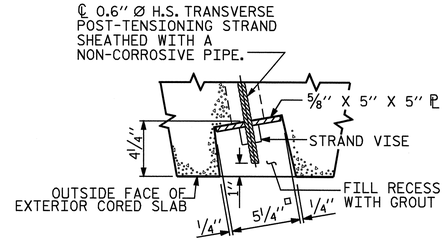
NOTE: OMIT SHEAR KEY ON THE OUTSIDE FACE OF EXTERIOR CORED SLABS.

PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS

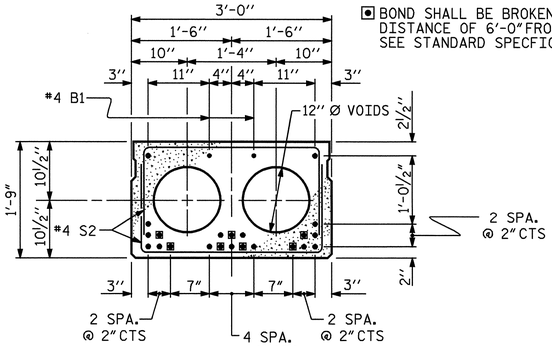


ELEVATION VIEW



SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



▣ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECFICIATIONS, ARTICLE 1078-7.

INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT

SPANS A & B (22 STRANDS)

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

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

ASSEMBLED BY :	M.L. BROWN	DATE :	04/2008
CHECKED BY :	N. PIERCE	DATE :	09/2008
DRAWN BY : WJH 4/89	REV. 10/17/00		RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR		RWW/LES
	REV. 5/1/06		TLA/GM

19-DEC-2008 10:03
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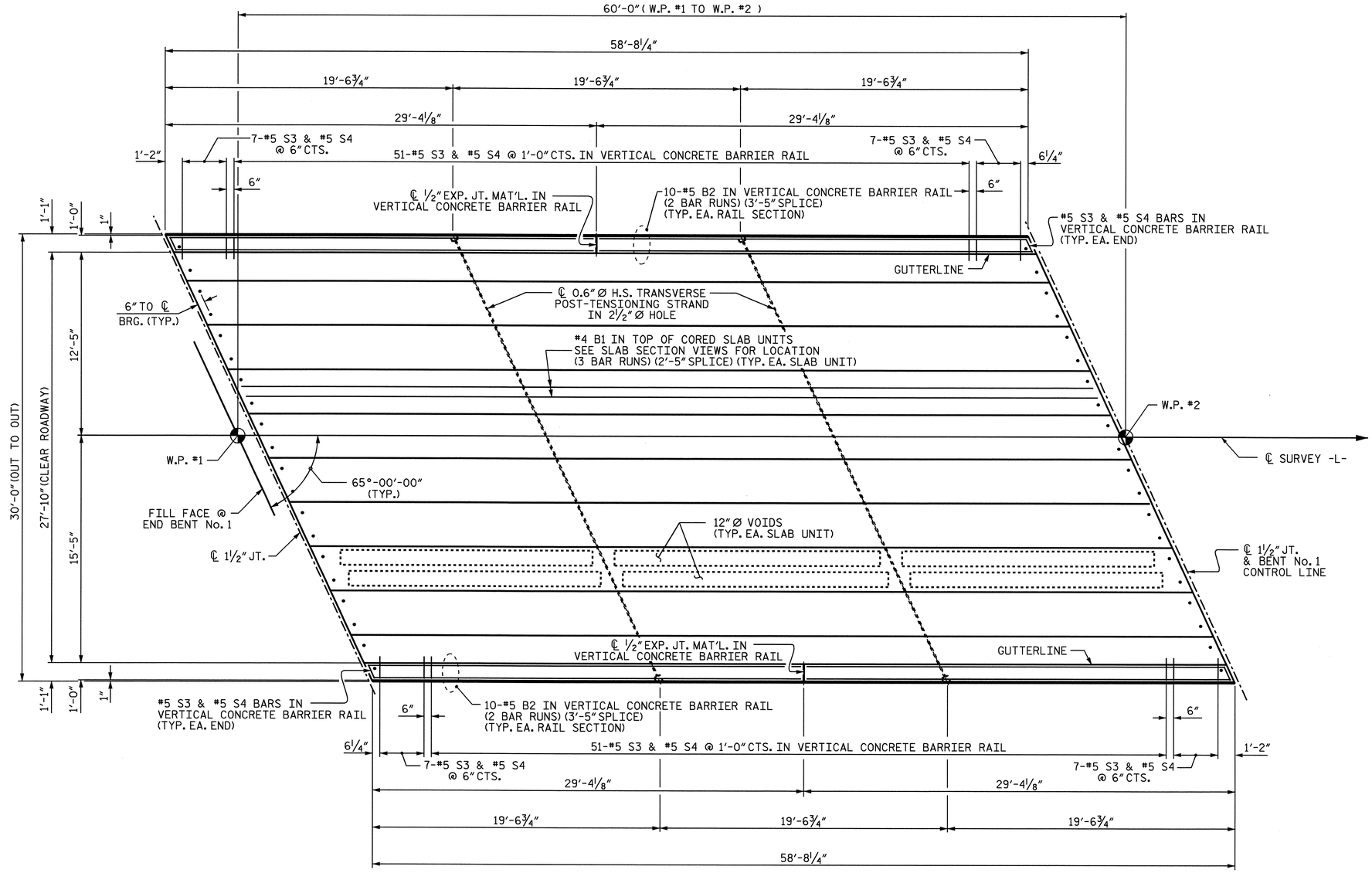
sbwilliams



SPAN "A"

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "A"

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

12/22/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
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2			4			20

DRAWN BY : M.L. BROWN DATE : 05-2008
CHECKED BY : N. PIERCE DATE : 09-2008

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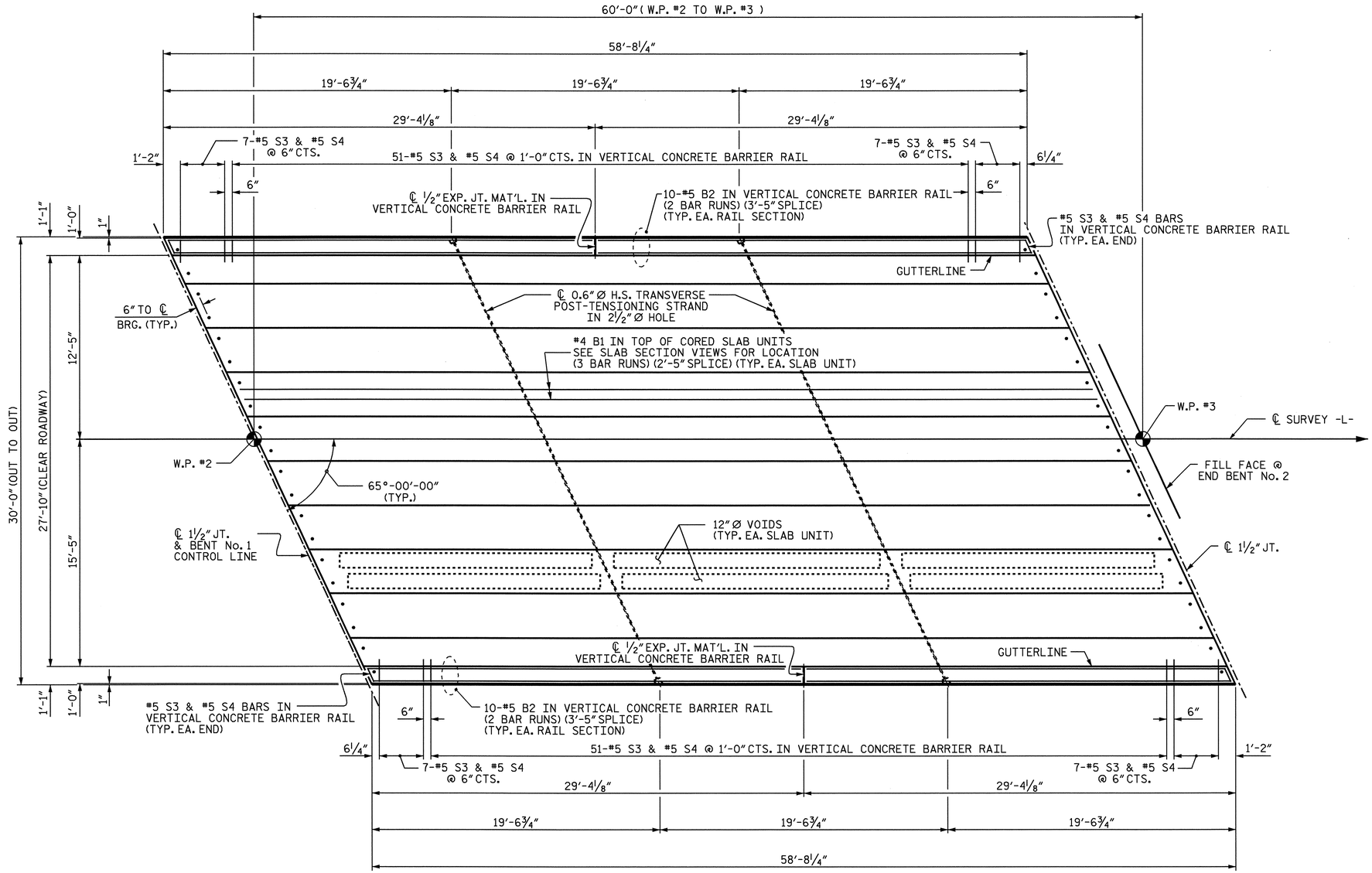
sbwilliams



SPAN "B"

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN "B"

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

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

DRAWN BY : M.L. BROWN DATE : 05-2008
CHECKED BY : N. PIERCE DATE : 09-2008

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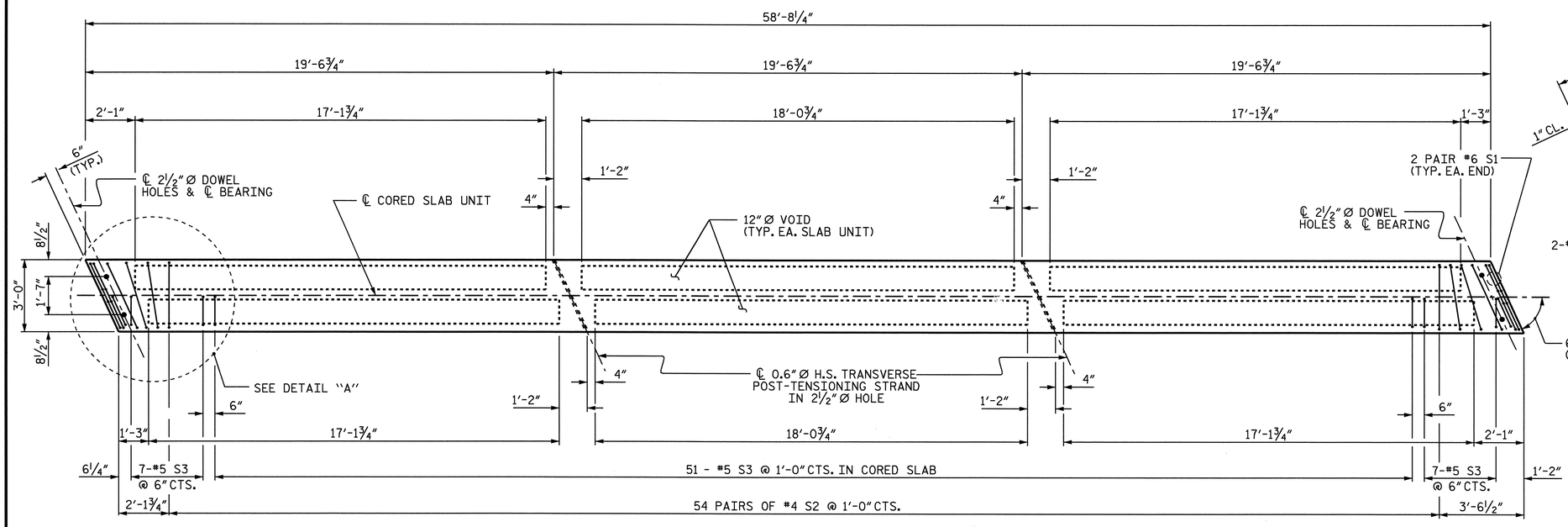
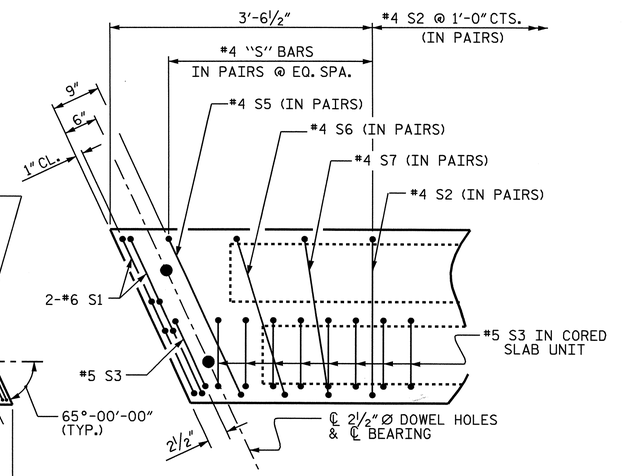
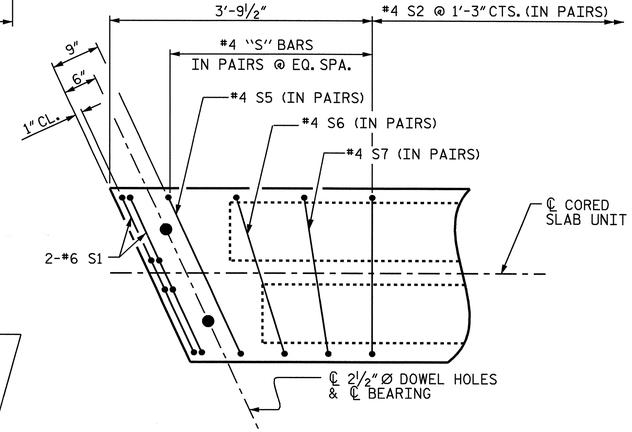


PLAN OF EXTERIOR CORED SLAB UNIT



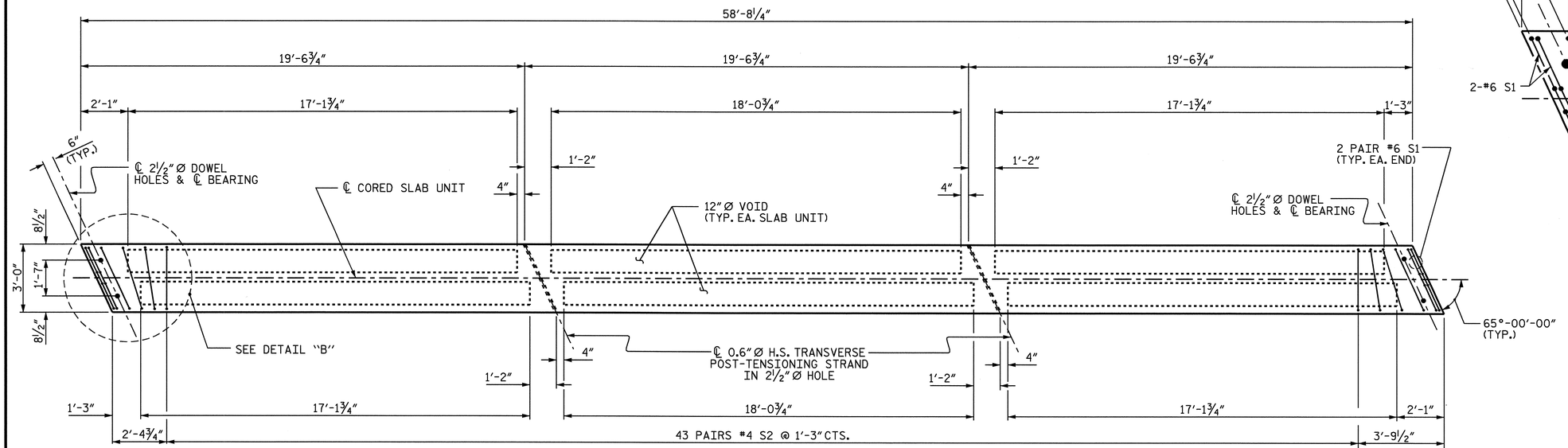
DETAIL "A"

(EA. END SIMILAR)



DETAIL "B"

(EA. END SIMILAR)



PLAN OF INTERIOR CORED SLAB UNIT

NOTE:

#5 S3 AND #4 S2 BARS MAY BE SLIGHTLY SHIFTED IN ORDER TO MAINTAIN A 2″MIN. CLEARANCE TO THE 2½″ Ø HOLE AT THE TRANSVERSE POST-TENSIONED STRANDS.

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH 12/22/08

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 3′-0″ X 1′-9″ CORED SLAB UNIT SPAN "A" & "B"

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 05-2008
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BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

BAR	BARS PER SPAN		TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN "A"	SPAN "B"					
✳ B2	80	80	160	#5	STR	16'-3"	2712
✳ S4	134	134	268	#5	2	5'-6"	1537
✳ EPOXY COATED REINFORCING STEEL							4249 LBS.
CLASS AA CONCRETE							23.3 CU.YDS.
TOTAL LIN. FT. OF VERTICAL CONCRETE BARRIER RAIL							234.75

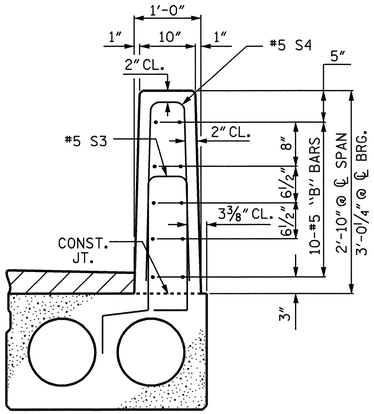
DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-9"
SPAN "A" & "B"	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3⅛" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD ✳✳	½" ↓
FINAL CAMBER	2⅝" ↑

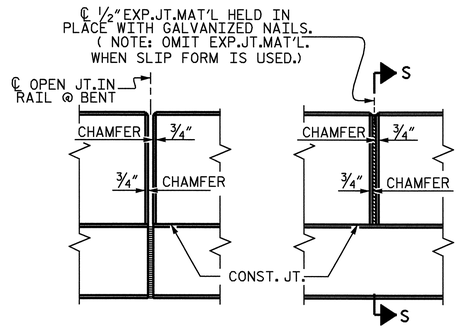
✳✳ INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED

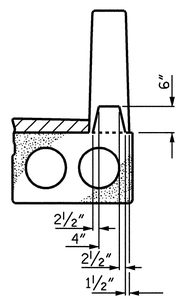
		NUMBER	LENGTH	TOTAL LENGTH
SPAN "A"	EXTERIOR C.S.	2	58'-8¼"	117'-4½"
	INTERIOR C.S.	8	58'-8¼"	469'-6"
SPAN "B"	EXTERIOR C.S.	2	58'-8¼"	117'-4½"
	INTERIOR C.S.	8	58'-8¼"	469'-6"
TOTAL		20	———	1173'-9"



SECTION THRU RAIL



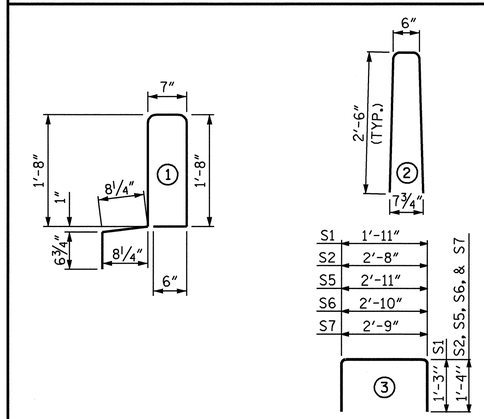
ELEVATION AT EXPANSION JOINTS



SECTION S-S

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN "A" OR "B"				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	6	#4	STR	21'-0"	84	21'-0"	84
S1	8	#6	3	4'-5"	53	4'-5"	53
S2	108	#4	3	5'-4"	385	———	———
S2	86	#4	3	———	———	5'-4"	306
✳ S3	67	#5	1	5'-8"	396	———	———
S5	4	#4	3	5'-7"	15	5'-7"	15
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-5"	14	5'-5"	14
REINFORCING STEEL					566 LBS.		487 LBS.
✳ EPOXY COATED REINFORCING STEEL					396 LBS.		———
8000 P.S.I. CONCRETE					8.4 CU. YDS.		8.4 CU. YDS.
0.6" Ø L.R. STRANDS No.					22		22

NOTES

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

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

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS. THE JOINT SHALL BE FILLED WITH GROUT.

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

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6200 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

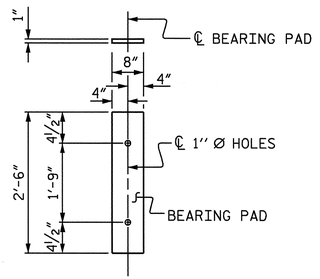
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



FIXED END
(40 REQ'D)

ELASTOMERIC BEARING DETAILS

GRADE 270 STRANDS

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

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			20

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/9/08

ASSEMBLED BY : M.L. BROWN	DATE : 05-2008	
CHECKED BY : N. PIERCE	DATE : 09-2008	
DRAWN BY : WJH 4/89	REV. 7/10/01	RWW/LES
CHECKED BY : FCJ 5/89	REV. 5/7/03RRR	RWW/JTE
	REV. 5/1/06	TLA/GM

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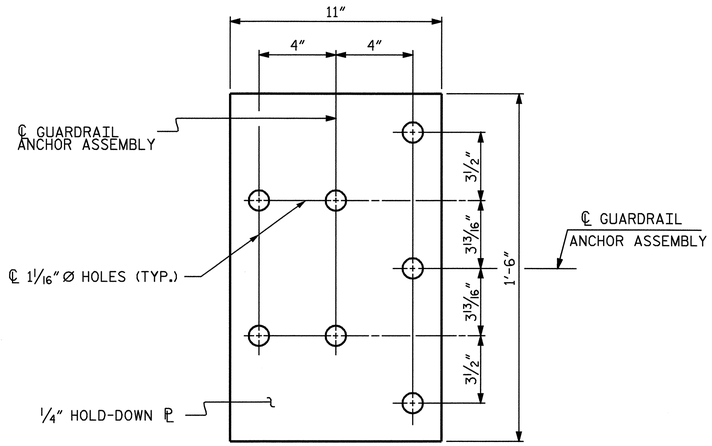
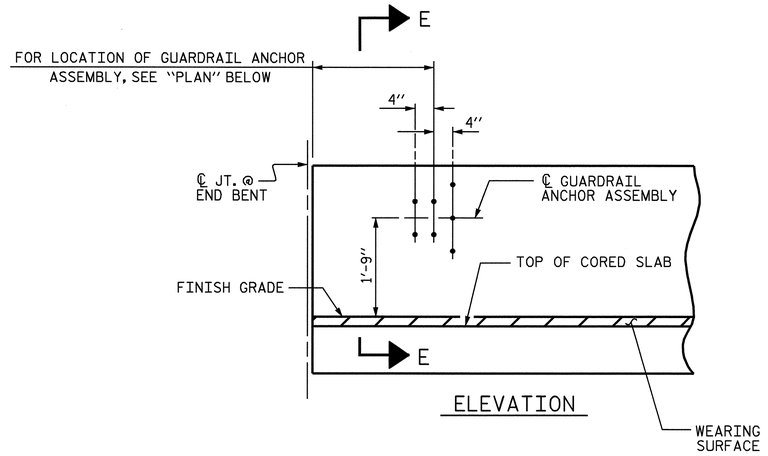
STD. NO. PCS3



PLAN



ELEVATION

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.

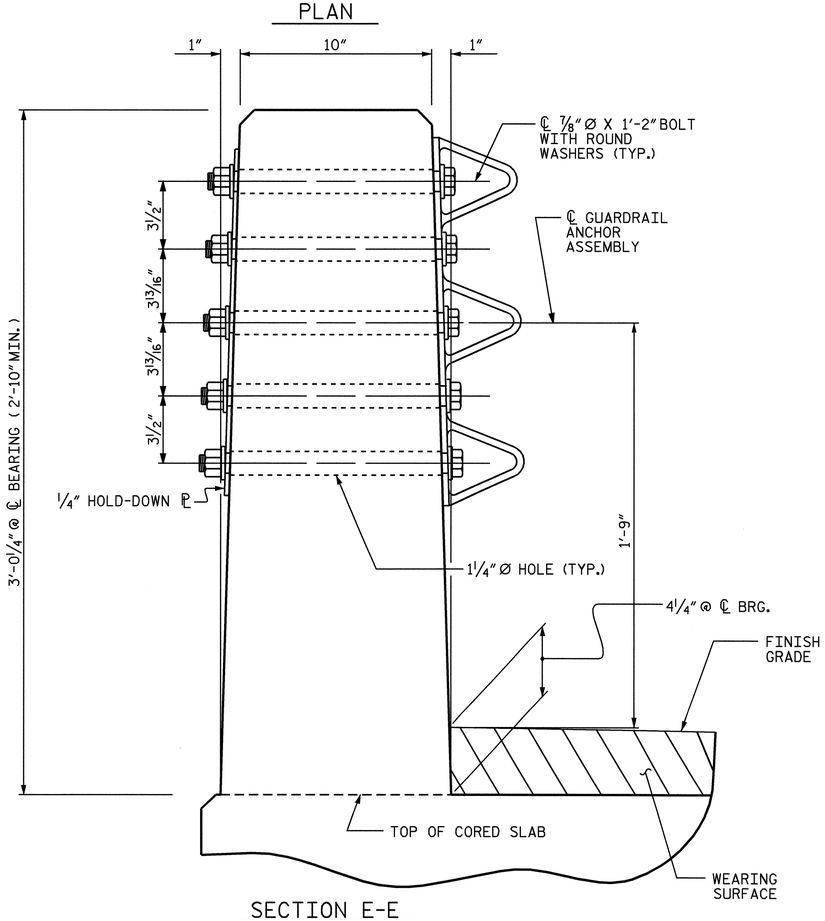
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

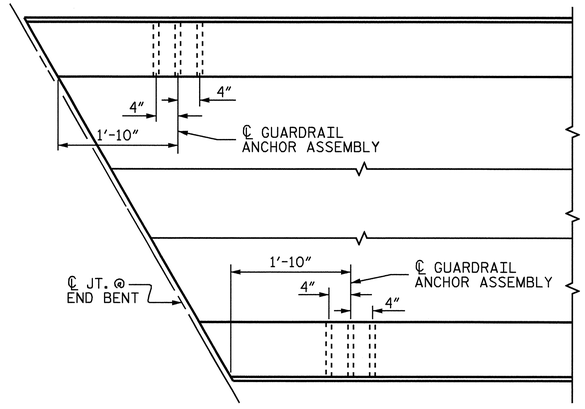
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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



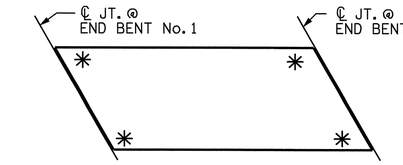
SECTION E-E



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

GUARDRAIL ANCHOR ASSEMBLY DETAILS

ASSEMBLED BY : M.L. BROWN	DATE : 9/2008
CHECKED BY : N. PIERCE	DATE : 9/2008
DRAWN BY : MAA 12/06	ADDED 12/15/06
CHECKED BY : GM 12/06	

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NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

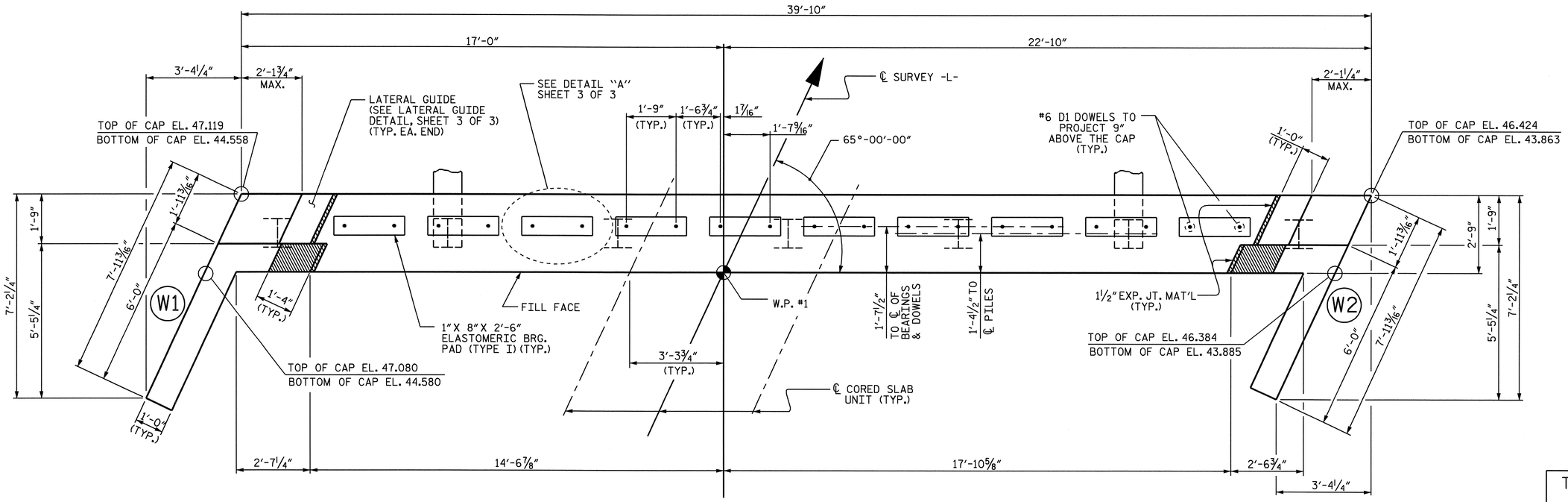
SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

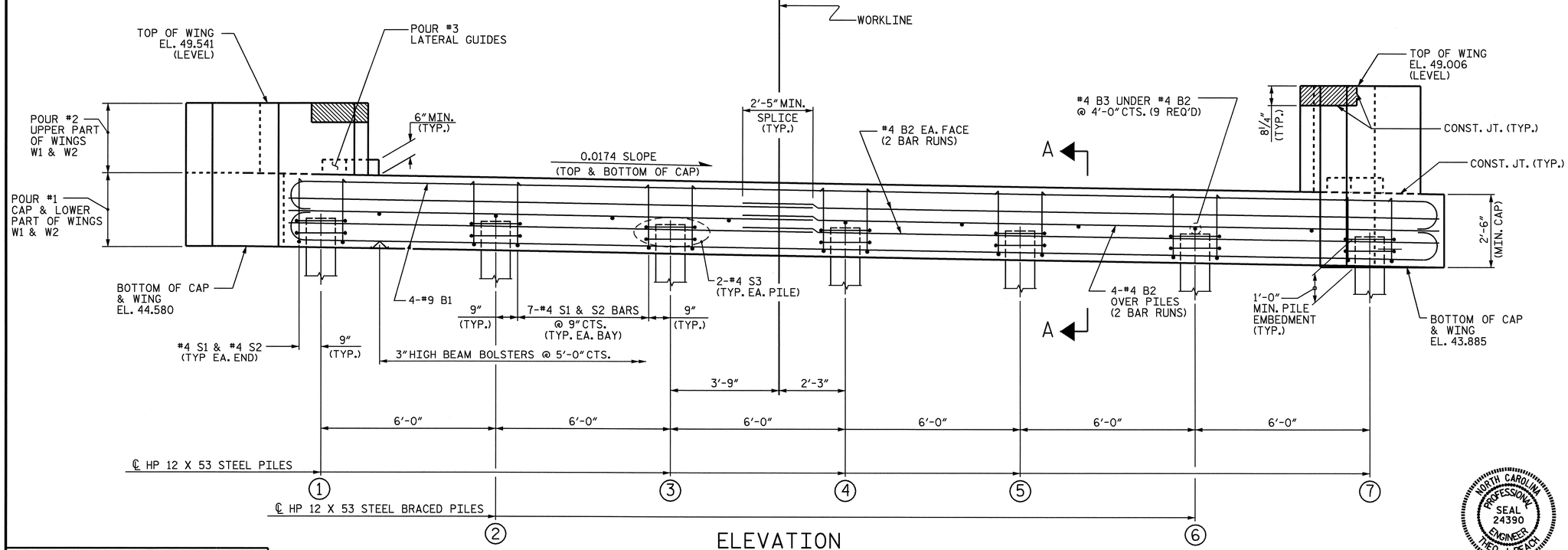
STANDARD
GUARDRAIL ANCHORAGE FOR VERTICAL CONCRETE BARRIER RAIL

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

(SHT 3) STD. NO. GRAx



PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3

NOTES:

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

THE LATERAL GUIDES AT EACH END OF THE CAP ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

THE TOP SURFACE OF BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

TOP OF PILE ELEVATIONS	
1	45.544
2	45.440
3	45.335
4	45.231
5	45.126
6	45.022
7	44.918

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

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12/16/08

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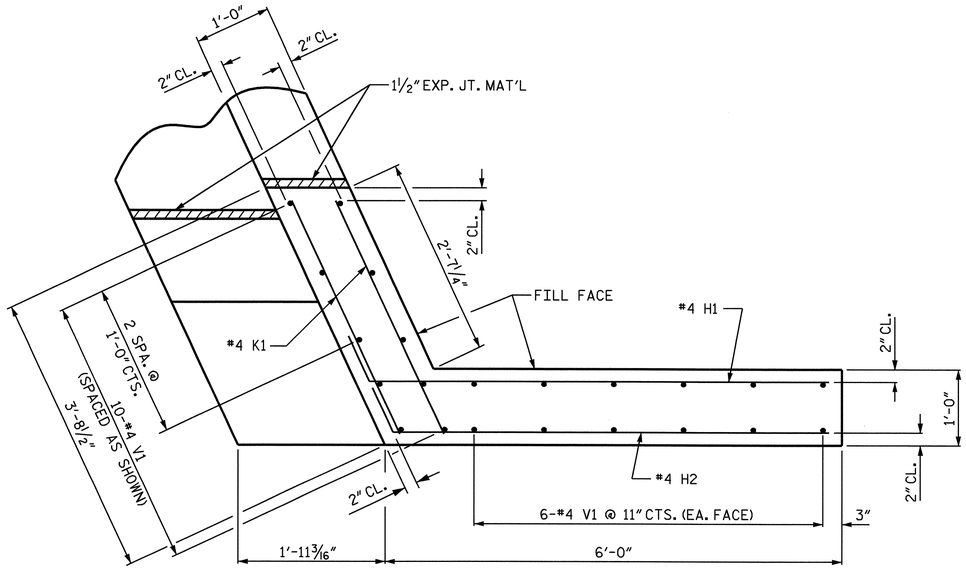
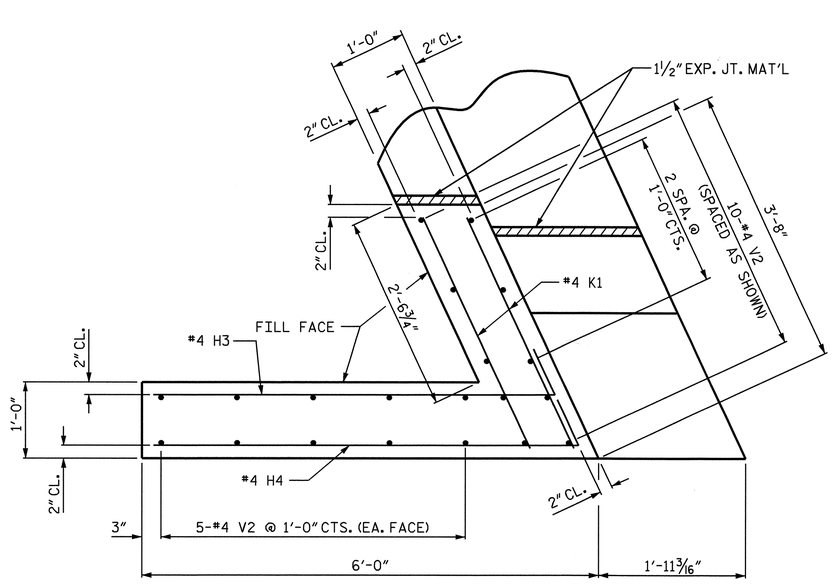
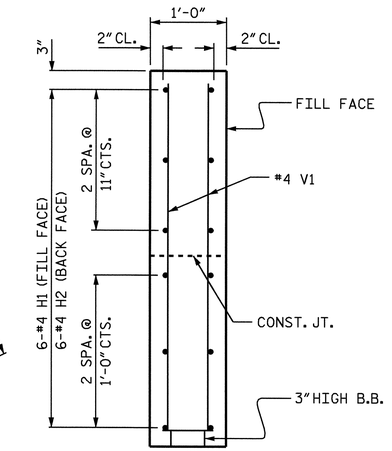


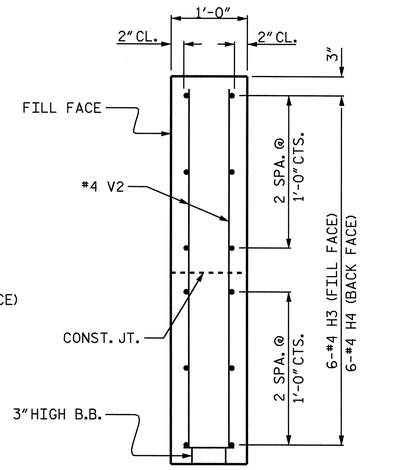
PLAN OF WING (W1)



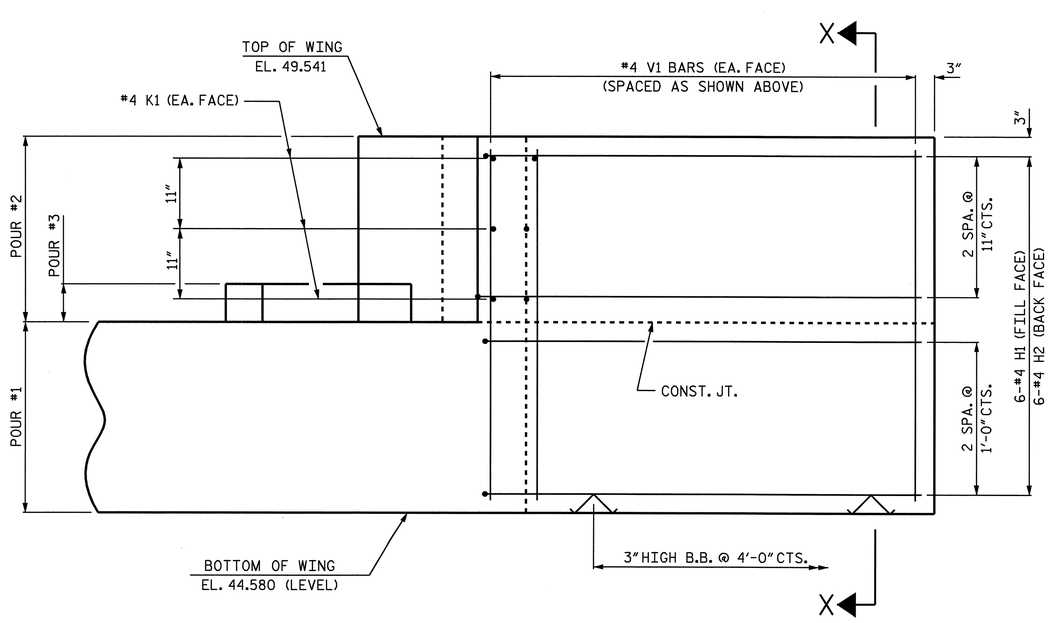
PLAN OF WING (W2)



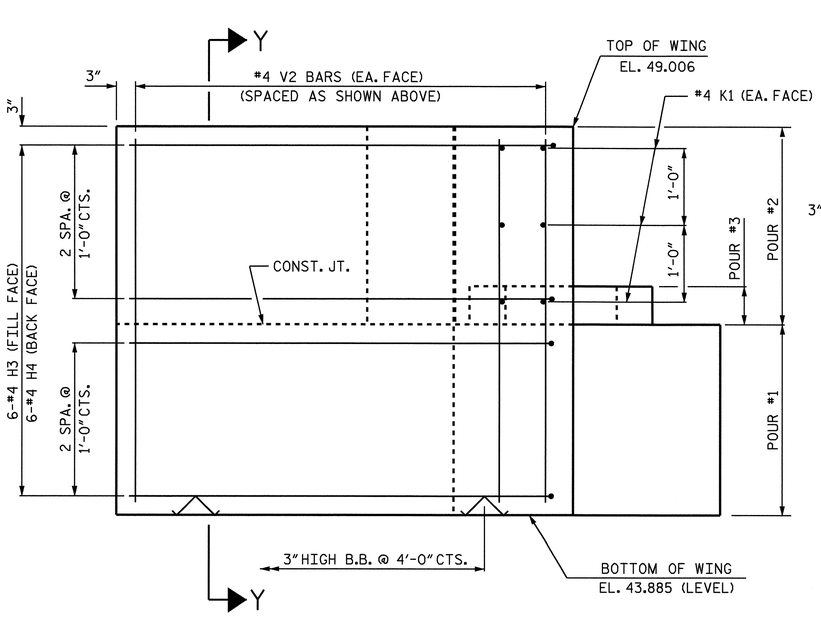
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

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

DRAWN BY : M.L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

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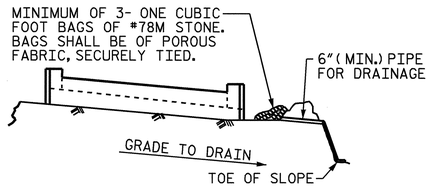
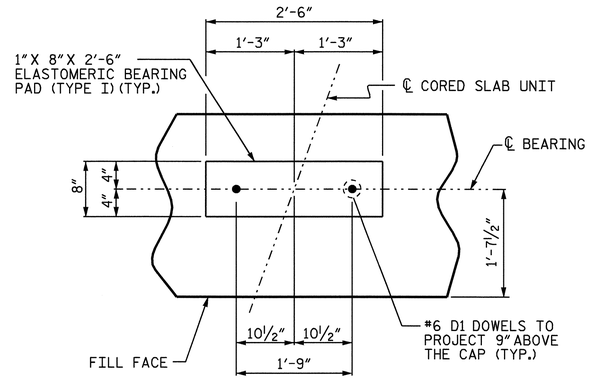


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

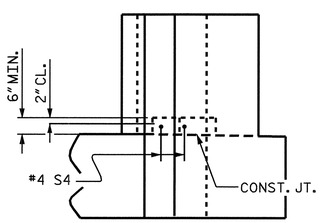
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

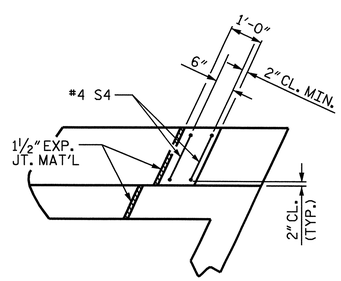
TEMPORARY DRAINAGE AT END BENT



DETAIL "A"



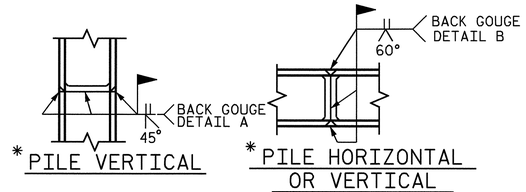
ELEVATION



PLAN

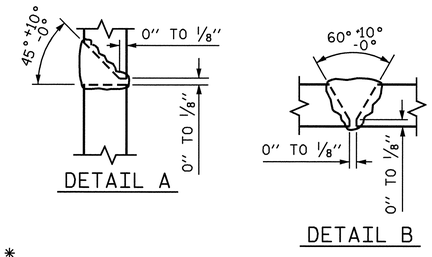
LATERAL GUIDE DETAIL

(RIGHT LATERAL GUIDE SHOWN, LEFT LATERAL GUIDE SIMILAR)



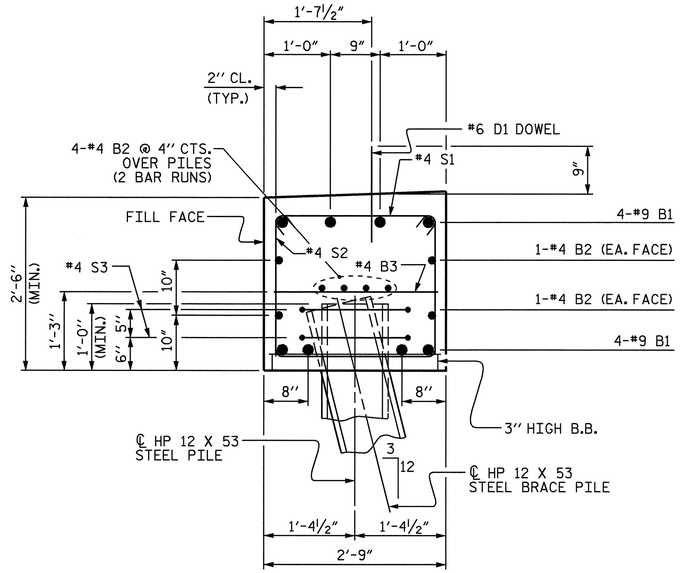
* PILE VERTICAL

* PILE HORIZONTAL OR VERTICAL



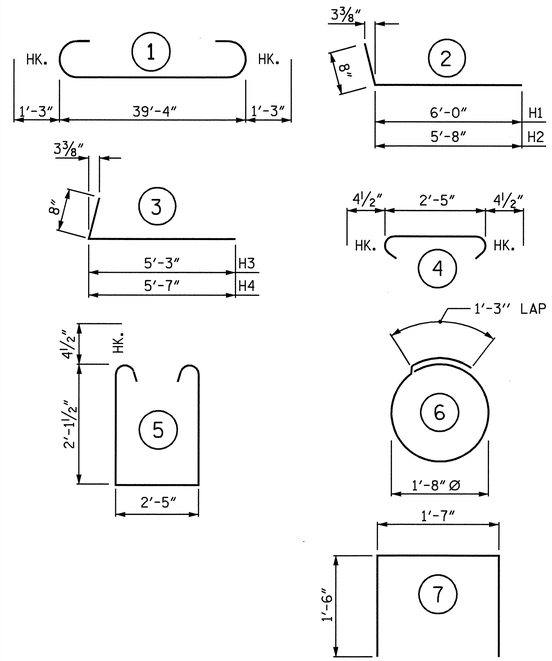
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT No. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-10"	1138
B2	16	#4	STR	21'-0"	224
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	6'-8"	27
H2	6	#4	2	6'-4"	25
H3	6	#4	3	5'-11"	24
H4	6	#4	3	6'-3"	25
K1	12	#4	STR	3'-4"	27
S1	44	#4	4	3'-2"	93
S2	44	#4	5	7'-5"	218
S3	14	#4	6	6'-6"	61
S4	4	#4	7	4'-7"	12
V1	22	#4	STR	4'-7"	67
V2	20	#4	STR	4'-9"	63

REINFORCING STEEL 2064 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP & LOWER PART OF WINGS	11.1 C.Y.
POUR #2	UPPER PART OF WINGS	1.6 C.Y.
POUR #3	LATERAL GUIDES	0.1 C.Y.
TOTAL CLASS A CONCRETE		12.8 C.Y.

HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 525

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

19-DEC-2008 10:07
r:\structures\Sub_Draw\b-4504_sd_eb#1.dgn
sbwilliams

NOTES:

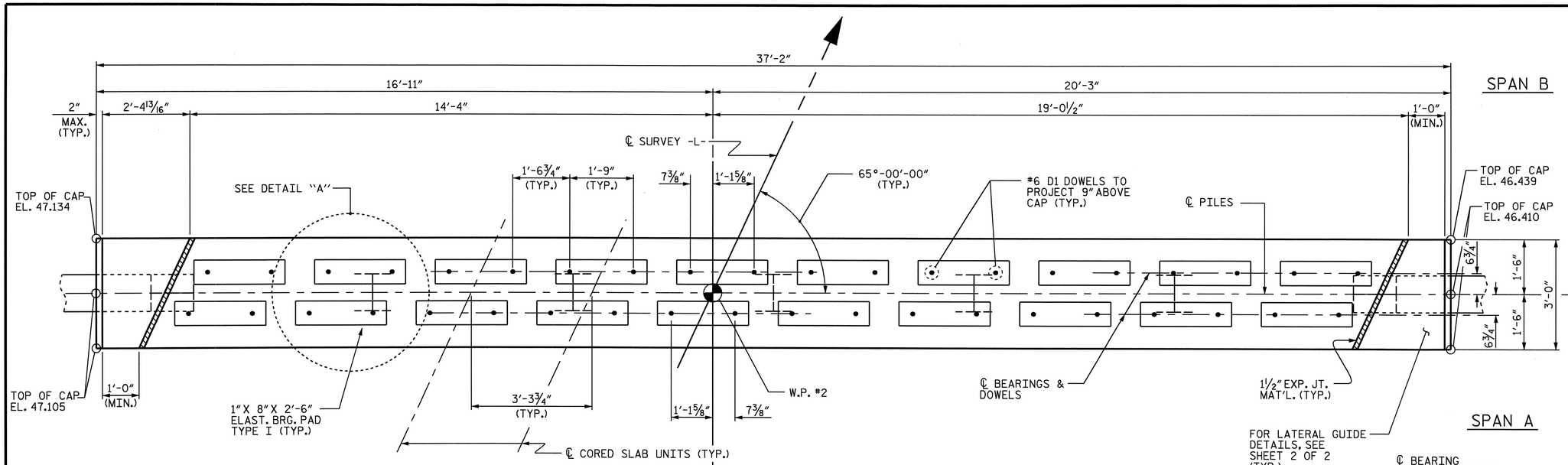
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

★INVERT ALTERNATE STIRRUPS AS SHOWN.

THE LATERAL GUIDES ARE NOT TO BE POURED UNTIL THE CORED SLAB UNITS ARE IN PLACE.

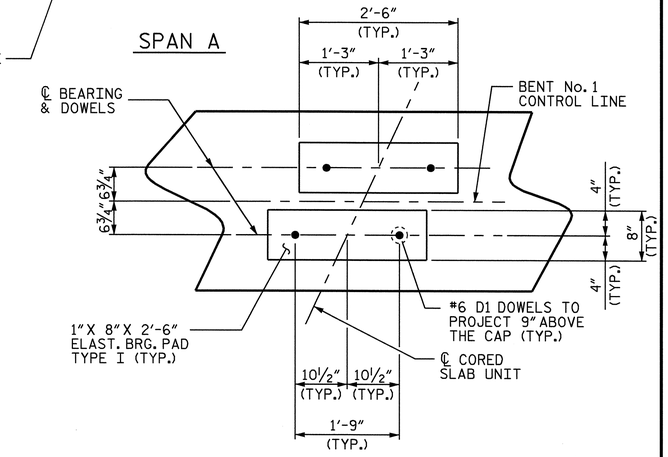
THE TOP SURFACE OF BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

GALVANIZE THE TOP 35 FEET MINIMUM OF EACH PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

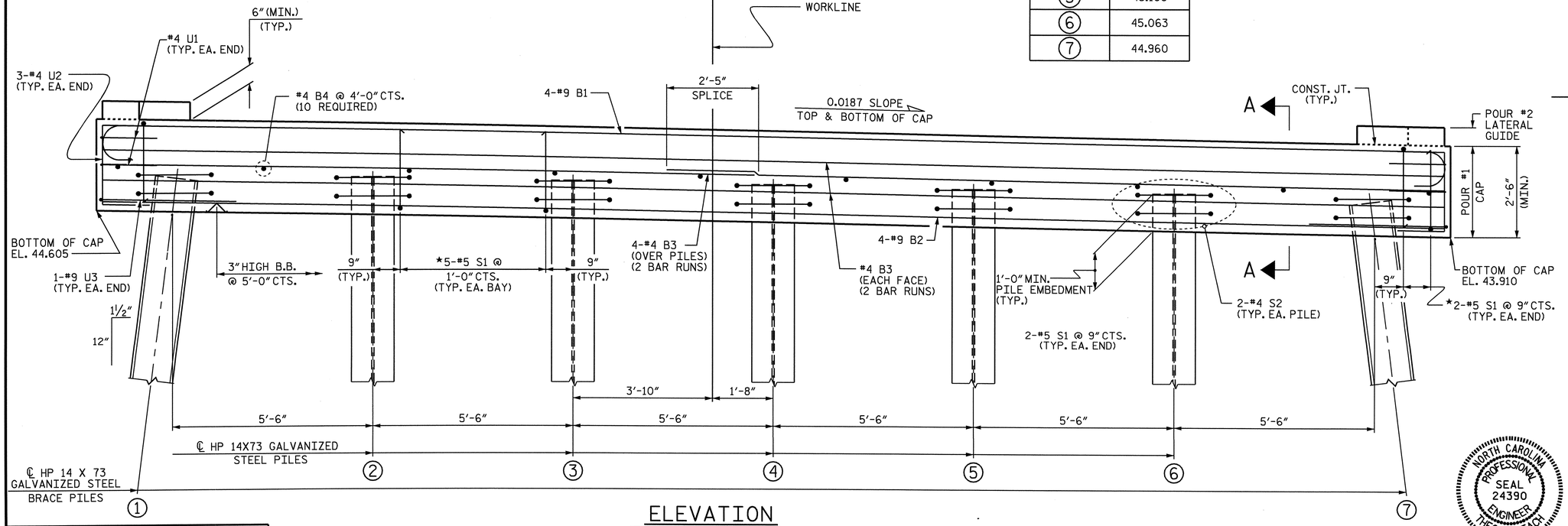


PLAN

TOP OF PILE ELEVATIONS	
①	45.577
②	45.474
③	45.371
④	45.268
⑤	45.166
⑥	45.063
⑦	44.960



DETAIL "A"



ELEVATION

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

7/16/09

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : W.G. PRICE, II DATE : 8-20-08
CHECKED BY : M.L. BROWN DATE : 9-2008

16-JAN-2009 11:48
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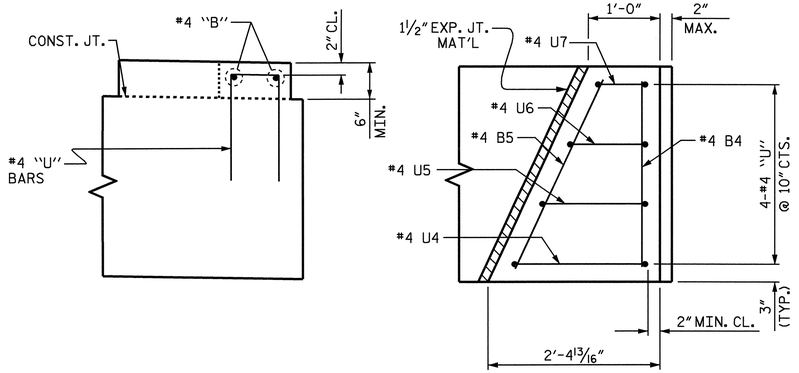
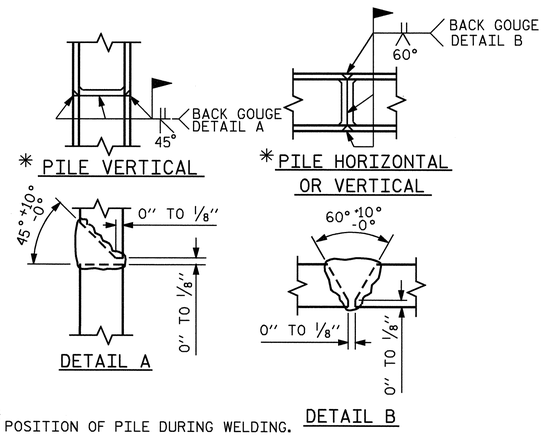
tbeach



ELEVATION

PLAN



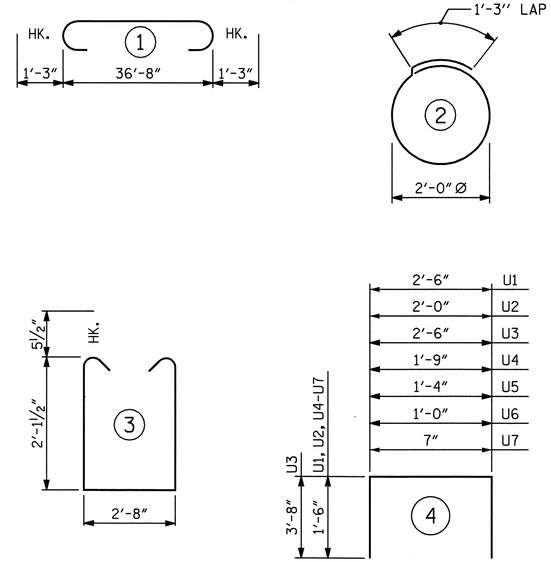
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

LATERAL GUIDE DETAIL

(RIGHT LATERAL GUIDE SHOWN, LEFT SIDE SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BENT No. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	#9	1	39'-2"	533
B2	4	#9	STR	36'-10"	501
B3	16	#4	STR	19'-8"	210
B4	12	#4	STR	2'-8"	21
B5	2	#4	STR	2'-11"	4
D1	40	#6	STR	1'-6"	90
S1	34	#5	3	7'-10"	278
S2	14	#4	2	7'-7"	71
U1	4	#4	4	5'-6"	15
U2	6	#4	4	5'-0"	20
U3	2	#9	4	9'-10"	67
U4	2	#4	4	4'-9"	6
U5	2	#4	4	4'-4"	6
U6	2	#4	4	4'-0"	5
U7	2	#4	4	3'-7"	5

REINFORCING STEEL 1832 LBS

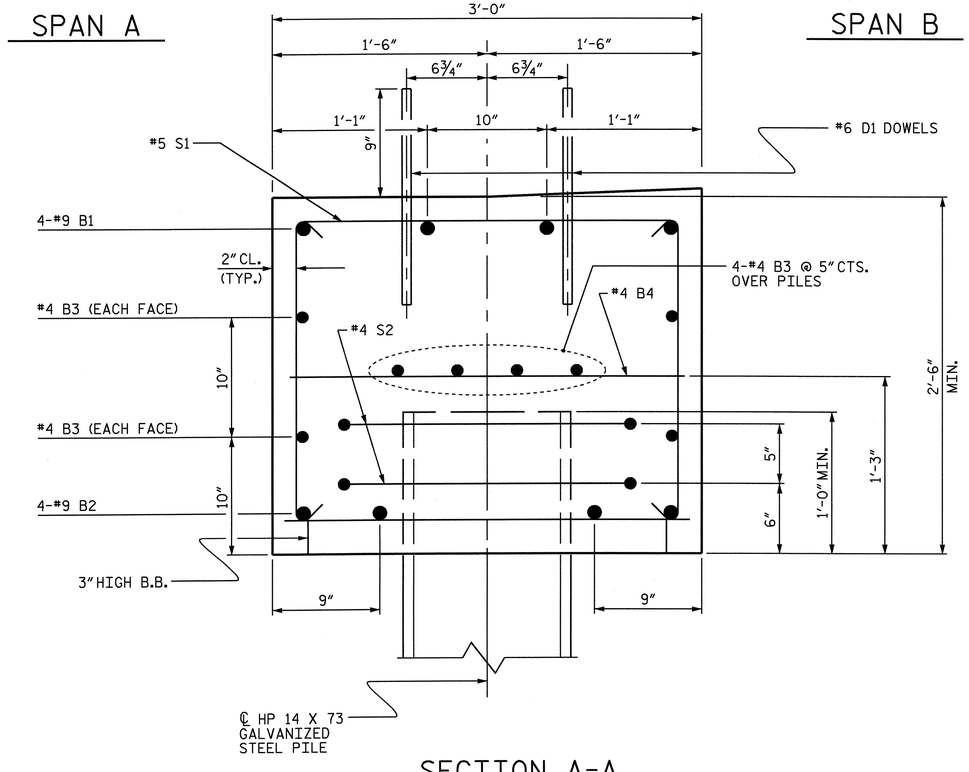
CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP) 10.3 C.Y.
POUR #2 (LATERAL GUIDES) 0.2 C.Y.

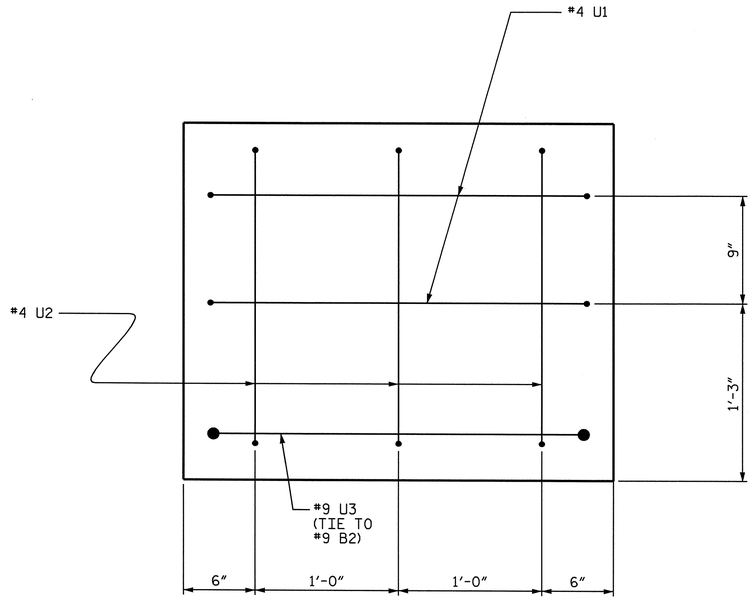
TOTAL CLASS A CONCRETE 10.5 C.Y.

HP 14 X 73 GALVANIZED STEEL PILES

No. 7 LIN. FT. 560



SECTION A-A



END OF CAP VIEW

(RIGHT END SHOWN, LEFT END SIMILAR)

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
1/16/08

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : W.G. PRICE, II DATE : 8-20-08
CHECKED BY : M.L. BROWN DATE : 9-2008

16-JAN-2009 11:49
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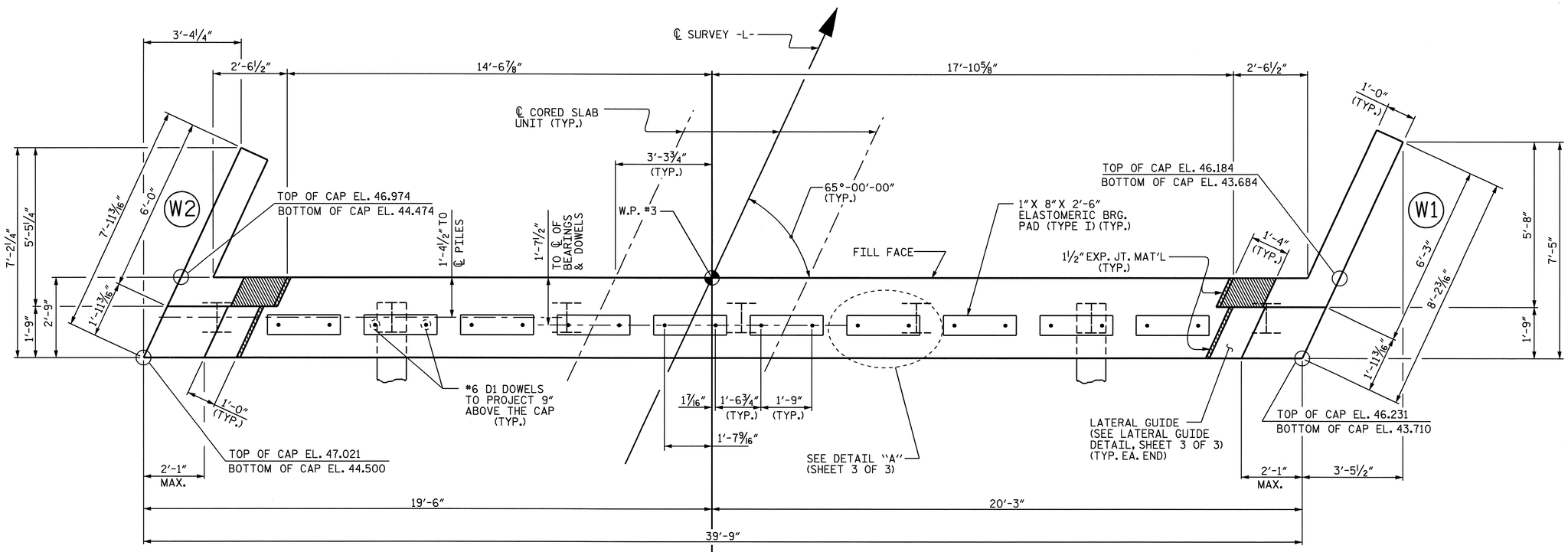
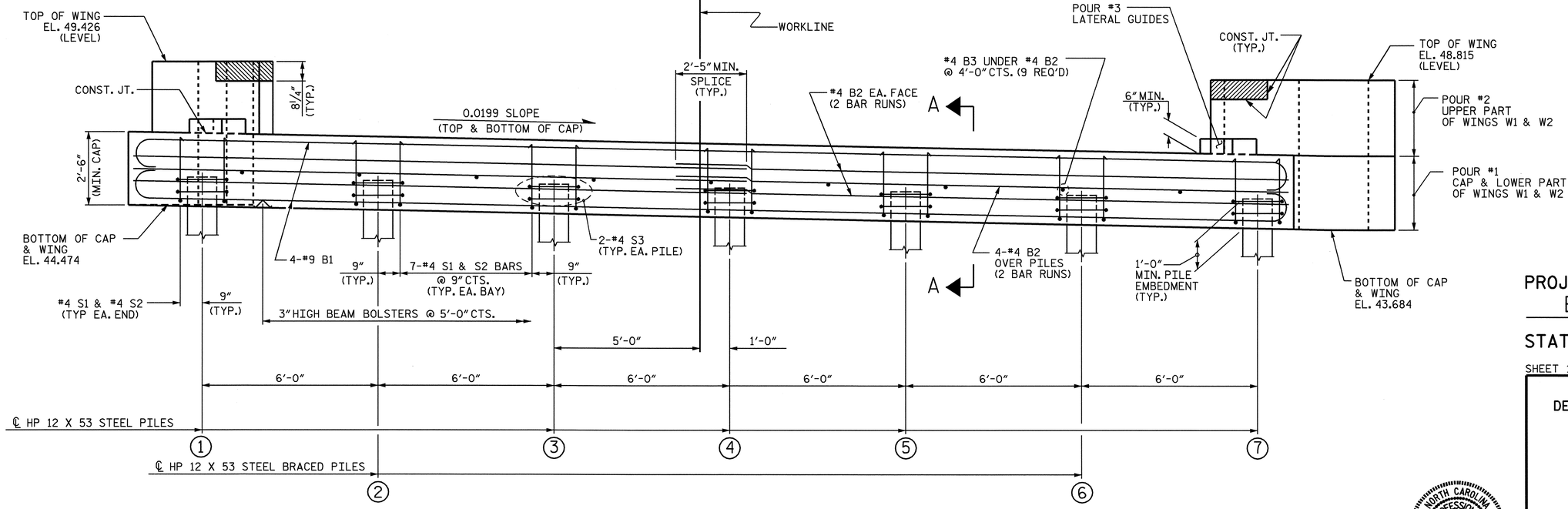
tbeach



PLAN



ELEVATION

FOR SECTION A-A, SEE SHEET 3 OF 3

NOTES:

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

THE LATERAL GUIDES AT EACH END OF THE CAP ARE NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

THE TOP SURFACE OF BENT CAP IS SLOPED LONGITUDINALLY AND TRANSVERSELY.

TOP OF PILE ELEVATIONS	
1	45.460
2	45.340
3	45.221
4	45.102
5	44.982
6	44.863
7	44.743

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

19-DEC-2008 10:08
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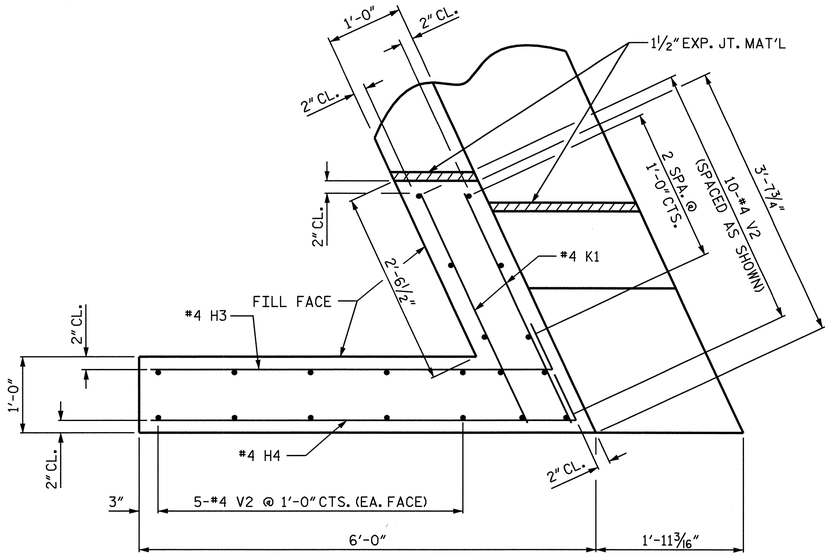
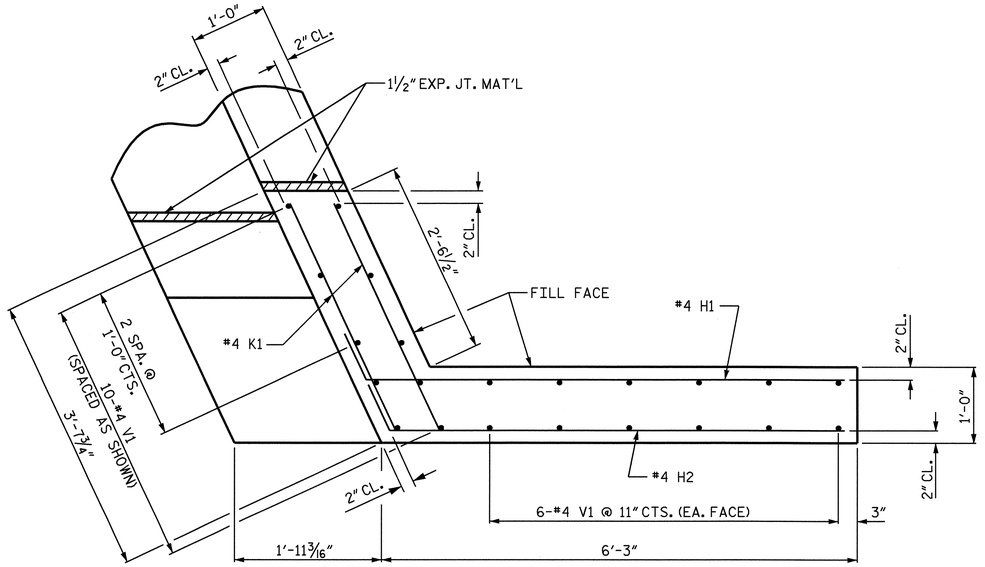
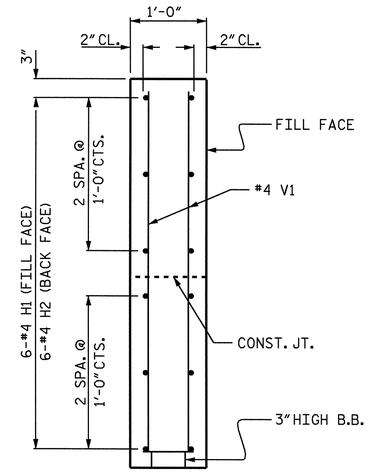
sbwilliams



PLAN OF WING (W2)



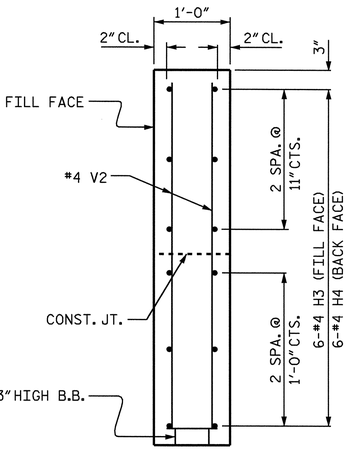
PLAN OF WING (W1)



SECTION X-X

ELEVATION OF WING (W2)

ELEVATION OF WING (W1)



SECTION Y-Y

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

12/22/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

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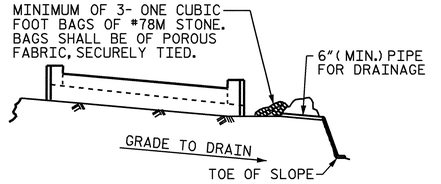
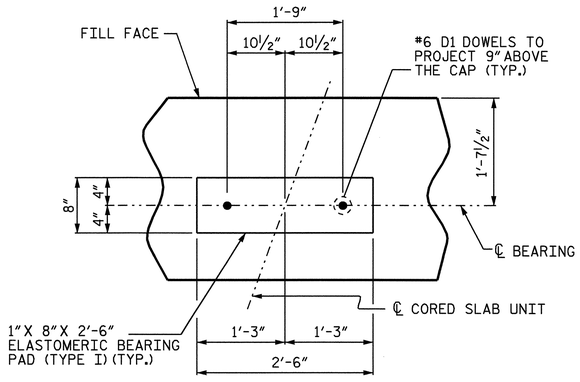


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

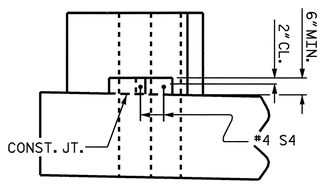
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

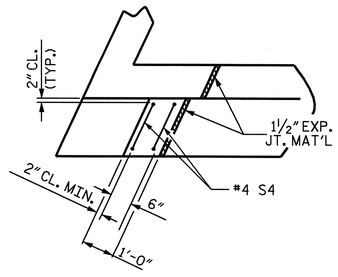
TEMPORARY DRAINAGE AT END BENT



DETAIL "A"



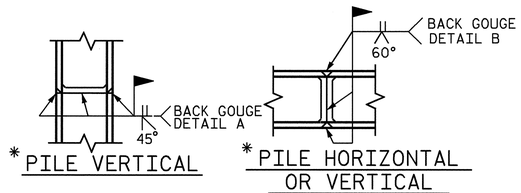
ELEVATION



PLAN

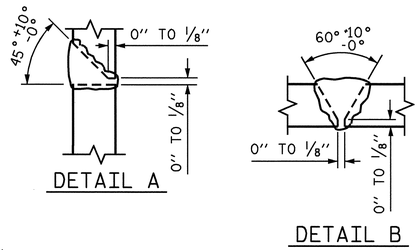
LATERAL GUIDE DETAIL

(LEFT LATERAL GUIDE SHOWN, RIGHT LATERAL GUIDE SIMILAR)



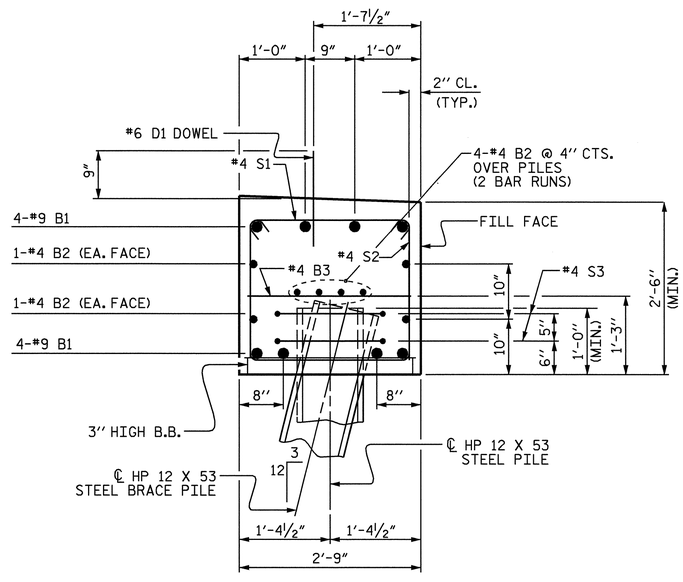
* PILE VERTICAL

* PILE HORIZONTAL OR VERTICAL



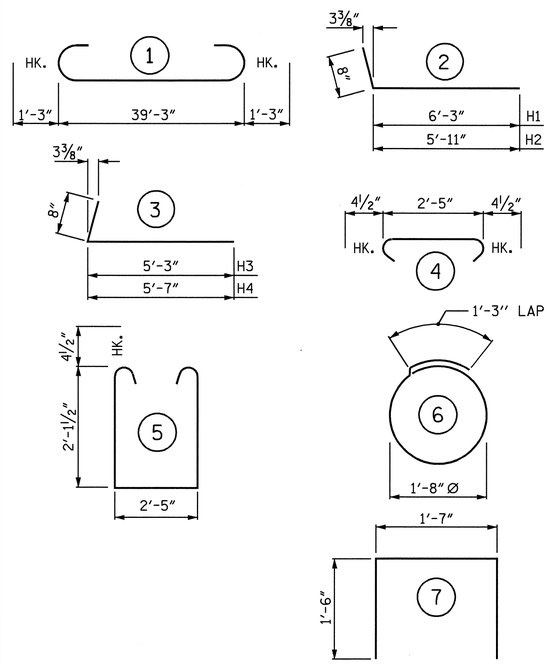
* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT No. 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	41'-9"	1136
B2	16	#4	STR	20'-11"	224
B3	9	#4	STR	2'-5"	15
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	6'-11"	28
H2	6	#4	2	6'-7"	26
H3	6	#4	3	5'-11"	24
H4	6	#4	3	6'-3"	25
K1	12	#4	STR	3'-3"	26
S1	44	#4	4	3'-2"	93
S2	44	#4	5	7'-5"	218
S3	14	#4	6	6'-6"	61
S4	4	#4	7	4'-7"	12
V1	22	#4	STR	4'-9"	70
V2	20	#4	STR	4'-7"	61

REINFORCING STEEL 2064 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP & LOWER PART OF WINGS	11.1 C.Y.
POUR #2	UPPER PART OF WINGS	1.6 C.Y.
POUR #3	LATERAL GUIDES	0.1 C.Y.
TOTAL CLASS A CONCRETE		12.8 C.Y.

HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 525

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M. L. BROWN DATE : 8/08
CHECKED BY : W.G. PRICE, II DATE : 9/08

19-DEC-2008 10:09
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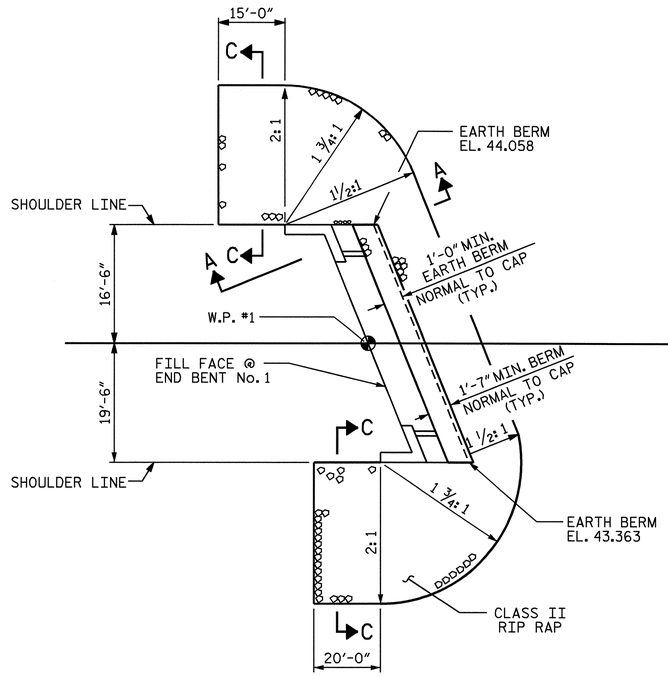
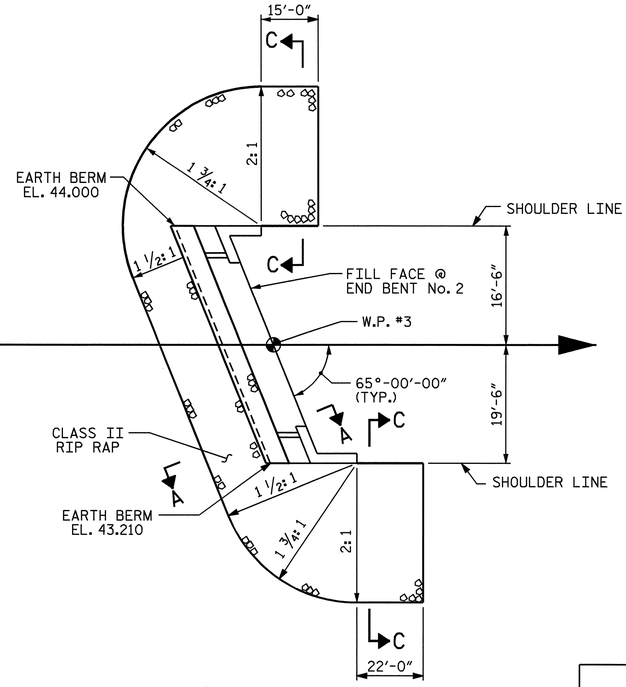
sbwilliams



END BENT No. 1

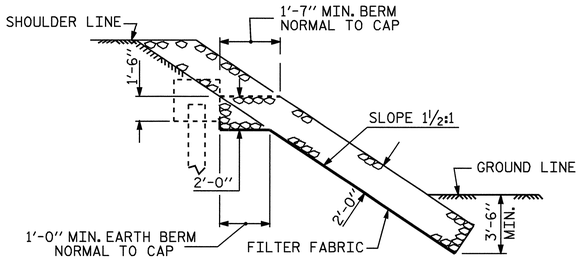


END BENT No. 2

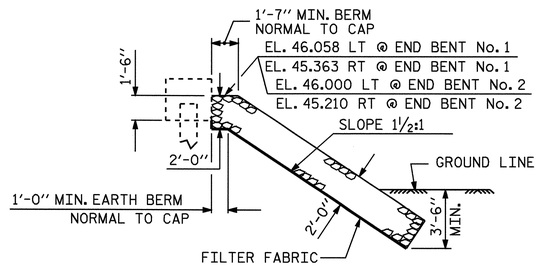
℄ SURVEY -L-

PLAN OF RIP RAP

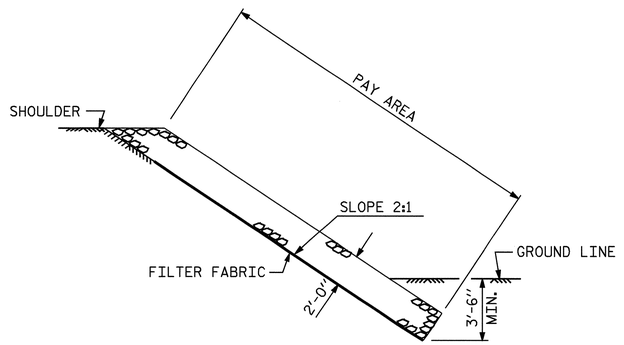
ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+46.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	150	167
END BENT 2	125	139



SECTION A-A



℄ SECTION
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4504
EDGECOMBE COUNTY
STATION: 20+46.50 -L-

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

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH 12/22/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			20

ASSEMBLED BY : W.G. PRICE, II DATE : 10/08		
CHECKED BY : T. BANKOVICH DATE : 10/08		
DRAWN BY : REK 1/84	REV. 8/16/99	RWW/LES
CHECKED BY : RDU 1/84	REV. 10/17/00	RWW/LES
	REV. 5/1/06	TLA/GM

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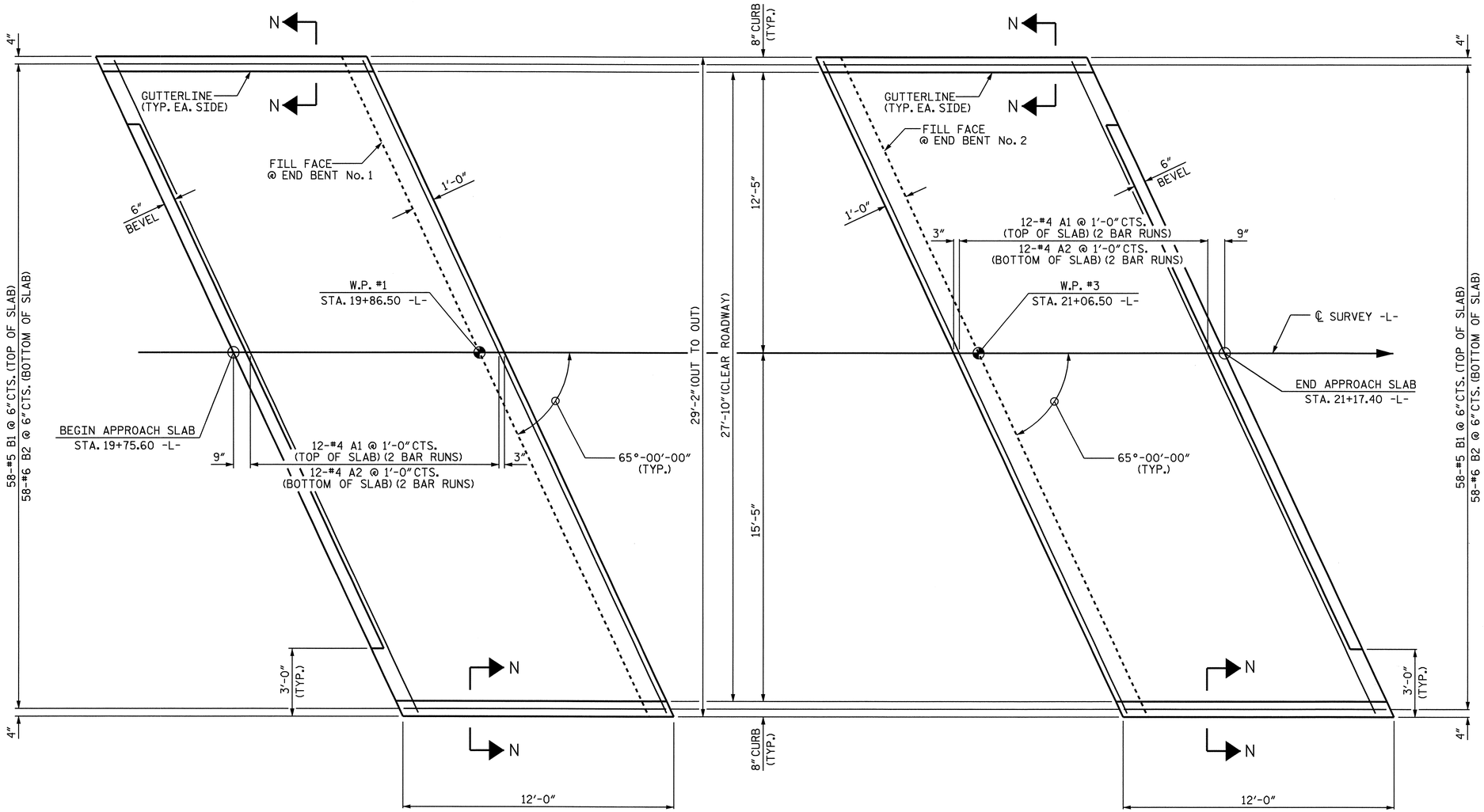
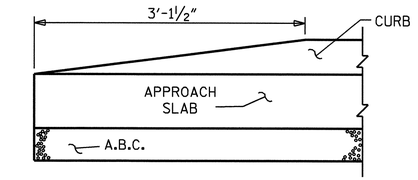
STD. NO. RR1



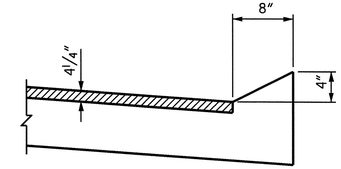
PLAN AT END BENT No. 1

PLAN AT END BENT No. 2

PLAN OF APPROACH SLABS



END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N

CURB DETAILS

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH
12/22/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : M.L. BROWN DATE : 4/2008
CHECKED BY : T. BANKOVICH DATE : 5/2008

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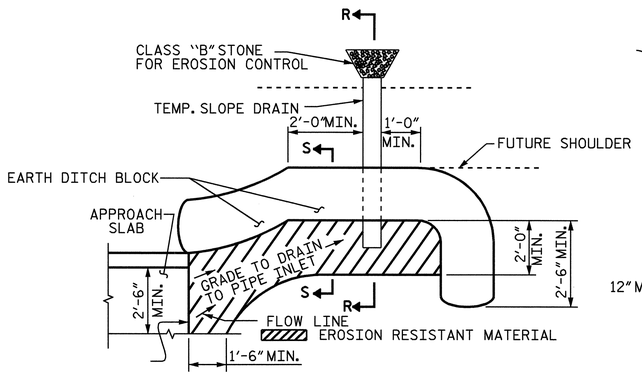
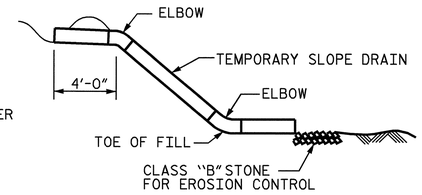
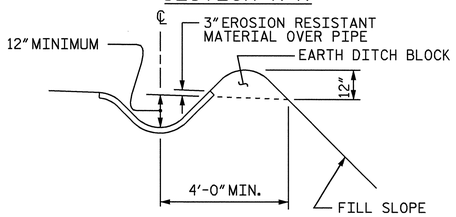


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

NOTES

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

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

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

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

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

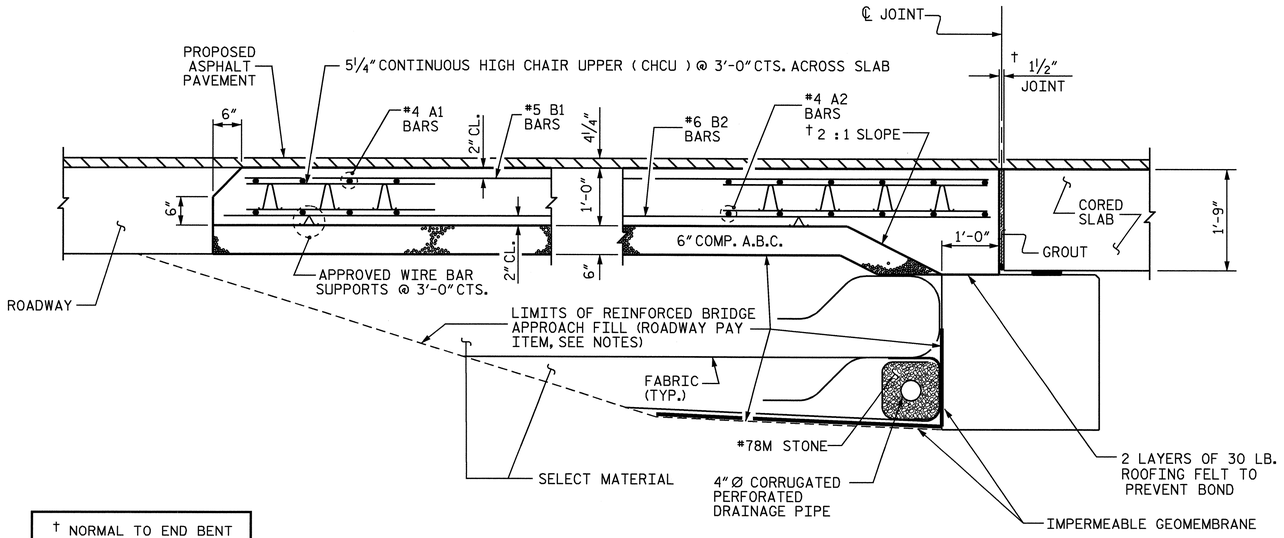
BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	24	#4	STR	16'-11"	271
A2	24	#4	STR	16'-10"	270
✳ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1286
✳ EPOXY COATED REINFORCING STEEL				LBS.	947
CLASS AA CONCRETE				C.Y.	15.0

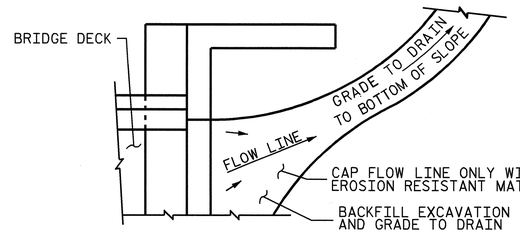
APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ A1	24	#4	STR	16'-11"	271
A2	24	#4	STR	16'-10"	270
✳ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1286
✳ EPOXY COATED REINFORCING STEEL				LBS.	947
CLASS AA CONCRETE				C.Y.	15.0



† NORMAL TO END BENT

SECTION THRU SLAB



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

PROJECT NO. B-4504

EDGECOMBE COUNTY

STATION: 20+46.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

NORTH CAROLINA PROFESSIONAL SEAL 24390 ENGINEER THEO J. BEACH

12/22/08

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

ASSEMBLED BY : M.L. BROWN	DATE : 4/2008	
CHECKED BY : T. BANKOVICH	DATE : 5/2008	
DRAWN BY : FCJ 6/87	REV. 7/10/01	LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R	RWW/JTE
	REV. 5/1/06	TLA/GM

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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 2006 "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; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

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

DOWELS:

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

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

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

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

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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 (W) RGW REV. 5-7-03 RWW (W) JTE
REV. 8-16-99 RWW (W) LES REV. 5-1-06 TLA (W) GW

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