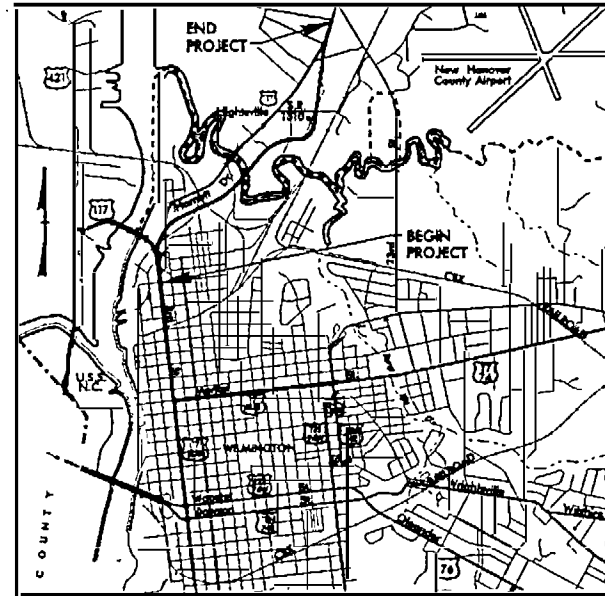


U-0092A

PROJECT: 8.2250110

STRUCTURES



VICINITY MAP

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

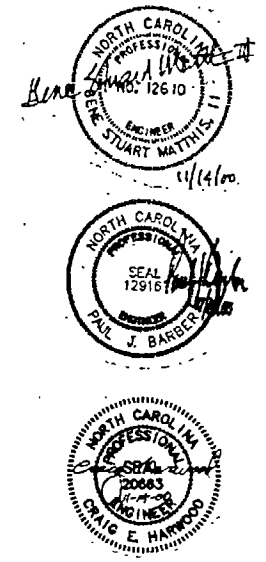
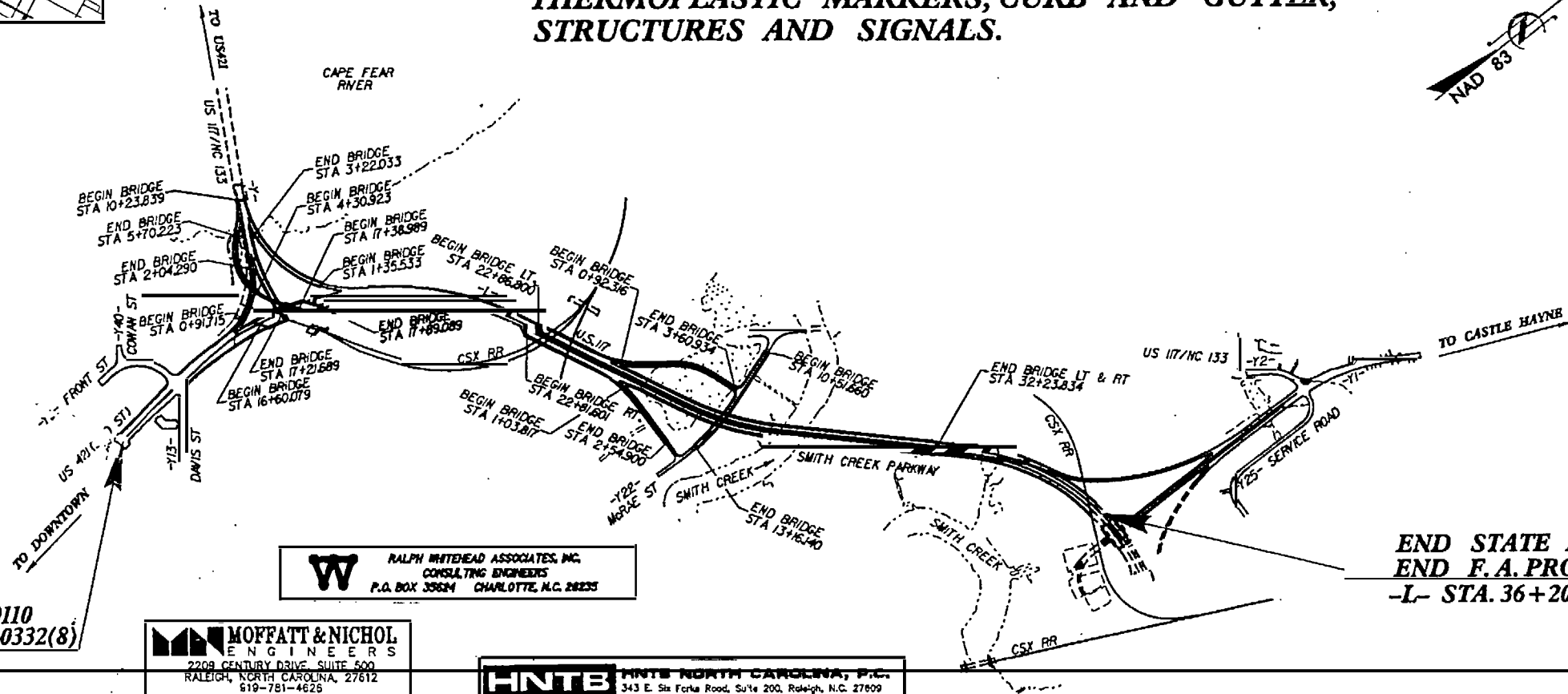
**NEW HANOVER COUNTY**

LOCATION: SMITH CREEK PARKWAY FROM HARNETT STREET  
TO U.S. 117 CASTLE HAYNE ROAD IN WILMINGTON

TYPE OF WORK: RESURFACING, WIDENING, GUARDRAIL, DRAINAGE,  
THERMOPLASTIC MARKERS, CURB AND GUTTER,  
STRUCTURES AND SIGNALS.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-0092A		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.2250110	MANHS-0332(8)	P.E.	
8.2250112	STPNHS-0332(10)	R/W & UTIL	
8.2250113	STPNHS-0332(12)	R/W & UTIL	
8.2250110	MANHS-0332(8)	CONST.	



BEGIN STATE PROJECT 8.2250110  
BEGIN F.A. PROJECT MANHS-0332(8)  
-L- STA. 12+50.000

**MOFFATT & NICHOL**  
ENGINEERS  
2209 CENTURY DRIVE, SUITE 500  
RALEIGH, NORTH CAROLINA, 27612  
619-781-4625

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200, Raleigh, N.C. 27609

END STATE PROJECT 8.2250110  
END F.A. PROJECT MANHS-0332(8)  
-L- STA. 36+20.000

	<p><b>DESIGN DATA</b></p> <p>ADT 1990 = 21000 ADT 2020 = 49000</p> <p>DHV = 9 % D = 55 % T = 8 % * V = 80 km/h</p> <p>* TTST 5 % DUAL 3 %</p>	<p><b>PROJECT LENGTH</b></p> <p>LENGTH ROADWAY F.A.PROJECT MANHS-0332(8) = 1.299 km LENGTH STRUCTURES F.A.PROJECT MANHS-0332(8) = 1.071 km TOTAL LENGTH STATE PROJECT 8.2250110 = 2.370 km</p>	<p>Prepared In the Office of:</p> <p><b>DIVISION OF HIGHWAYS</b></p> <p>1995 STANDARD SPECIFICATIONS</p> <p>LETTING DATE: February 20, 2001</p>	<p>STRUCTURE DESIGN UNIT 1000 Birch Ridge Dr., Raleigh, NC 27610</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <p>STATE DESIGN ENGINEER DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION</p> <p>APPROVED: _____ DATE: _____</p>
	<p>APPROVED: _____ DATE: _____</p>				

10+00

+20

+40

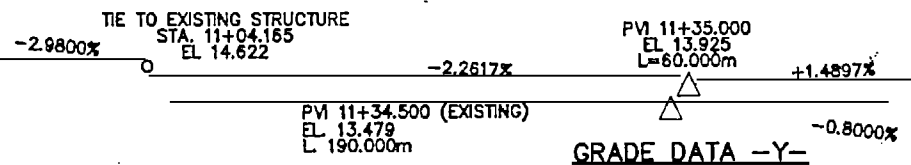
+60

+80

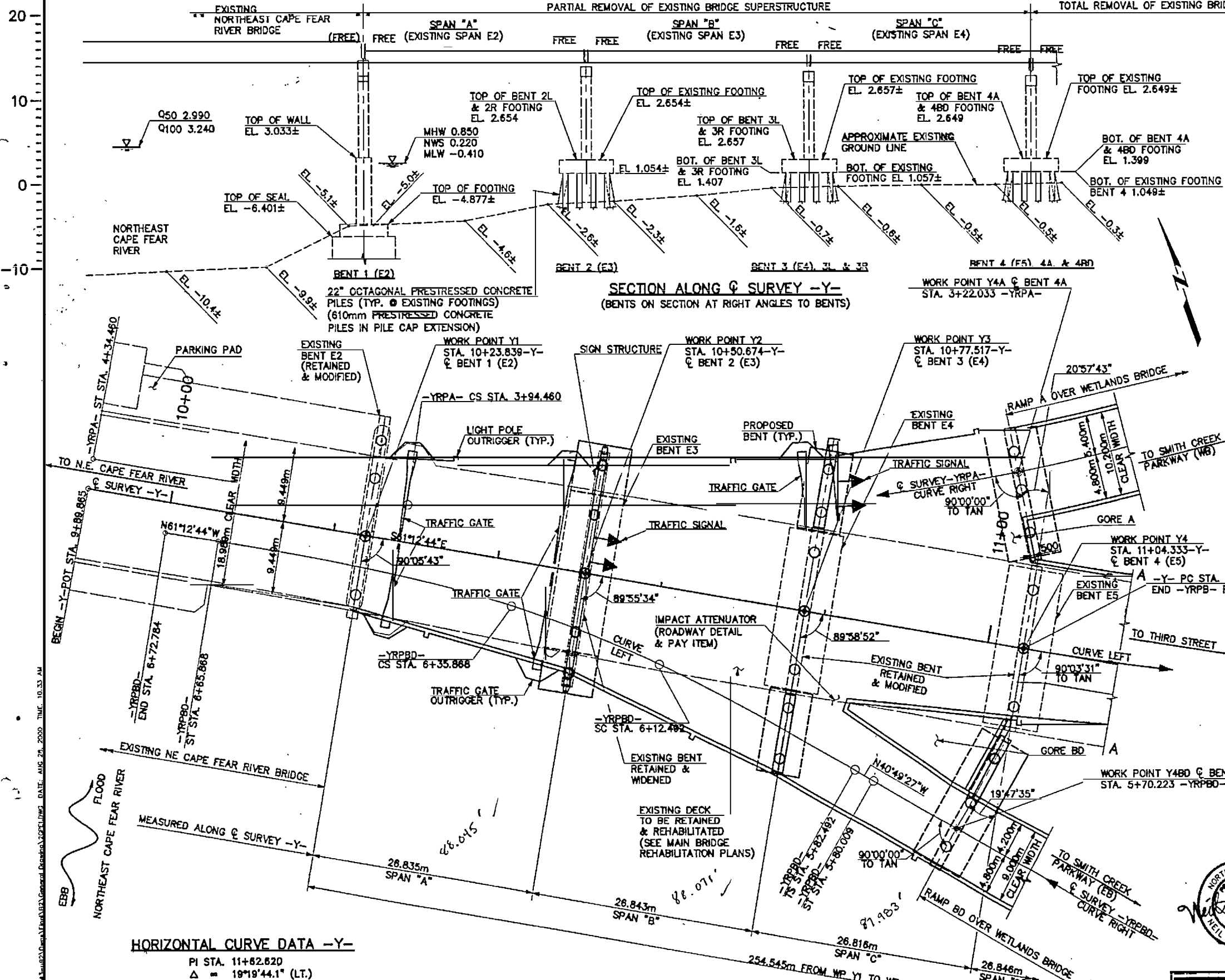
11+00

+20

FED. AID PROJ. NO. MANHS-0332(8)

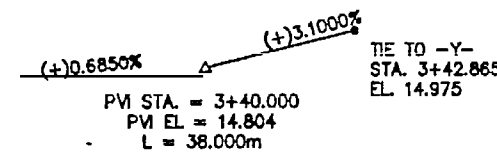


FOR GENERAL NOTES, SEE SHEET 9 OF 10  
 FOR SUPERELEVATION INFORMATION  
 SEE TYPICAL SECTIONS AND TRANSITION  
 ZONE SHEETS.



HORIZONTAL CURVE DATA -YRPA-

PI STA. 2+58.971	PIS STA. 4+07.801
$\Delta = 73^{\circ}21'27.1"$ (RT.)	$\theta_s = 4^{\circ}31'45.5"$ (RT.)
L = 323.924m	Ls = 40.000m
T = 188.435m	LT = 26.675m
R = 253.000m	ST = 13.341m
SE = .06	

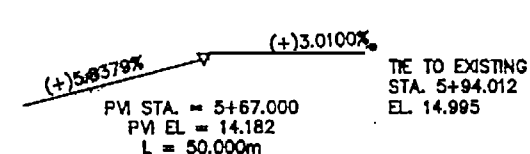


GRADE DATA -YRPA-

HORIZONTAL CURVE DATA -YRPBD-

PI STA. 4+85.255	PIS STA. 5+50.071
$\Delta = 58^{\circ}26'57.5"$ (RT.)	$\theta_s = 11^{\circ}58'11.8"$ (RT.)
L = 110.174m	Ls = 45.000m
T = 60.420m	LT = 30.089m
R = 108.000m	ST = 15.062m
SE = .06	

PIS STA. 6+02.502	PI STA. 6+24.203	PIS STA. 6+45.877
$\theta_s = 5^{\circ}43'46.5"$ (LT.)	$\Delta = 8^{\circ}55'44.1"$ (LT.)	$\theta_s = 5^{\circ}43'46.5"$ (LT.)
Ls = 30.000m	L = 23.378m	Ls = 30.000m
LT = 20.010m	T = 11.712m	LT = 20.010m
ST = 10.010m	R = 150.000m	ST = 10.010m



GRADE DATA -YRPBD-



PROJECT No. U-0092A

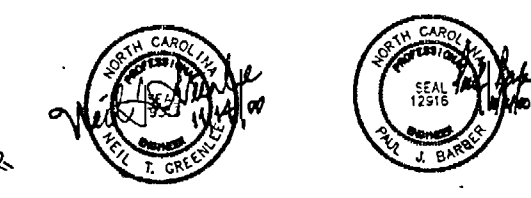
NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-  
= POS 3+95.129 -YRPBD-

WIDENING & REHABILITATION  
SHEET 1 OF 10 OF BRIDGE NO. 11

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING FOR NC133  
 MAIN BRIDGE ON -Y- OVER  
 RAMP BD BETWEEN N.E. CAPE FEAR  
 RIVER AND THIRD STREET



HORIZONTAL CURVE DATA -Y-

PI STA. 11+62.620
$\Delta = 19^{\circ}19'44.1"$ (LT.)
L = 115.800m
T = 58.455m
R = 343.280m

PLAN - NC 133 MAIN BRIDGE ON -Y-

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27608

DRAWN BY: J. BARBER DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00

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

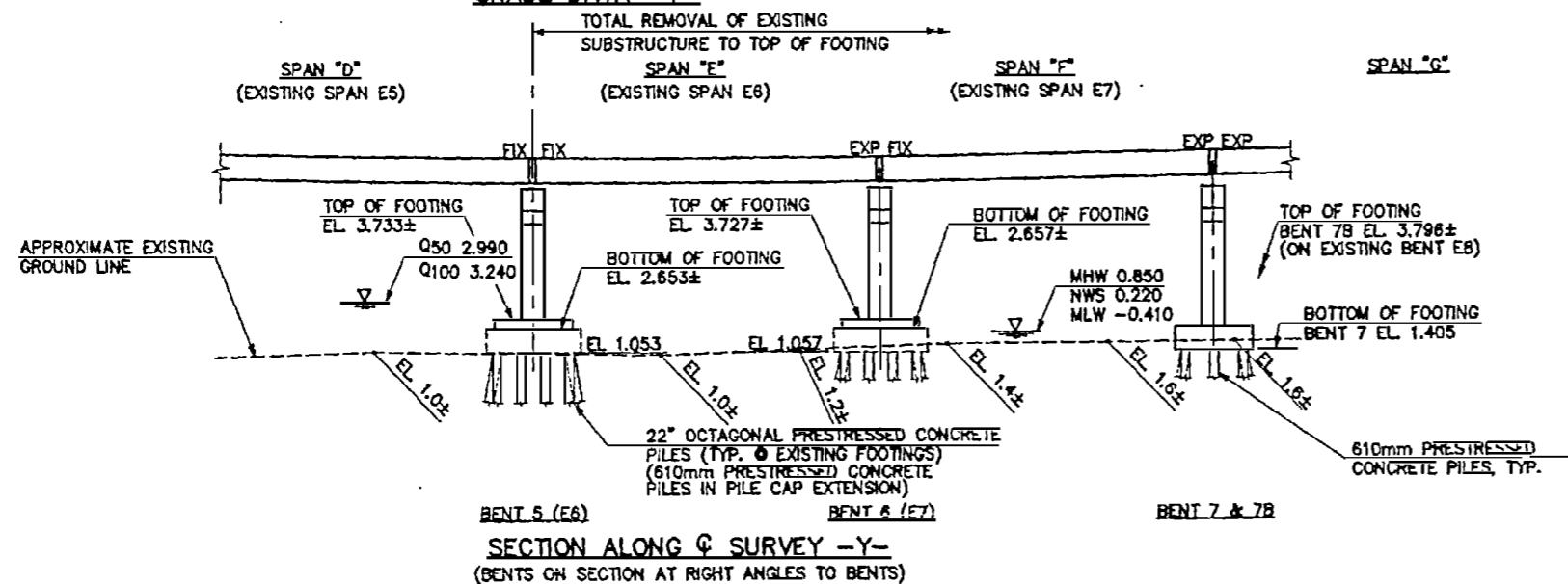
11+00      +20      +40      +60      +80      12+00

TIE TO EXISTING STRUCTURE  
STA. 11+04.165  
EL. 14.622

PVI 11+35.000  
EL. 13.925  
L=60.000m

-2.2617%      +1.4897%

**GRADE DATA -Y-**



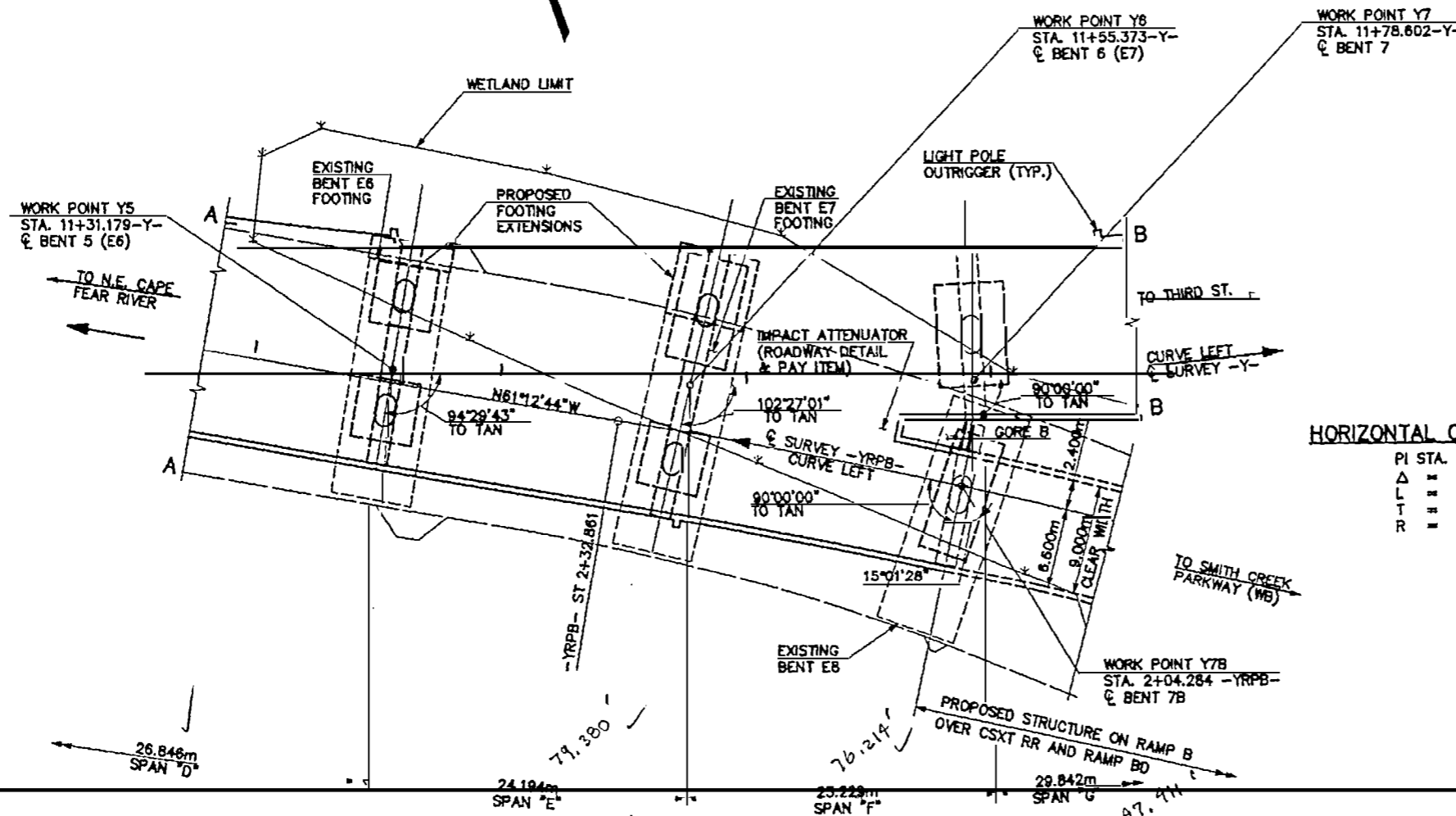
**SECTION ALONG Q SURVEY -Y-**  
(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)

FOR GENERAL NOTES SEE SHEET 9 OF 10.

FOR SUPERELEVATION INFORMATION, SEE TYPICAL SECTION SHEETS AND TRANSITION ZONE PLANS.

**HORIZONTAL CURVE DATA -YRPB-**

PI STA. 1+17.162	PIS STA. 1+92.938
$\Delta = 45^{\circ}01'10.6"$ (LT.)	$\theta_s = 11^{\circ}27'33.0"$ (LT.)
L = 117.861m	Ls = 60.000m
T = 62.162m	LT = 40.084m
R = 150.000m	ST = 20.077m
SE = .06	



(+)1.5778%	(-)1.2378%	(-)0.5050%
PVI STA. = 1+48.000	PVI STA. = 2+22.000	PVI STA. = 2+53.000
PVI EL. = 15.127	PVI EL. = 14.211	PVI EL. = 14.054
L = 50.000m	L = 14.000m	L = 47.000m

**GRADE DATA -YRPB-**

**HORIZONTAL CURVE DATA -Y-**

PI STA. 11+62.620
$\Delta = 19^{\circ}19'44.1"$ (LT.)
L = 115.800m
T = 58.455m
R = 343.260m



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 10

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
GENERAL PLAN  
& ELEVATION



**ANTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE      DATE: 7/00  
CHECKED BY: P. BARBER      DATE: 7/00      DWG. NO. 2

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

SHEET NO. 2  
TOTAL SHEETS 101

**PLAN - NC 133 MAIN BRIDGE ON -Y-**

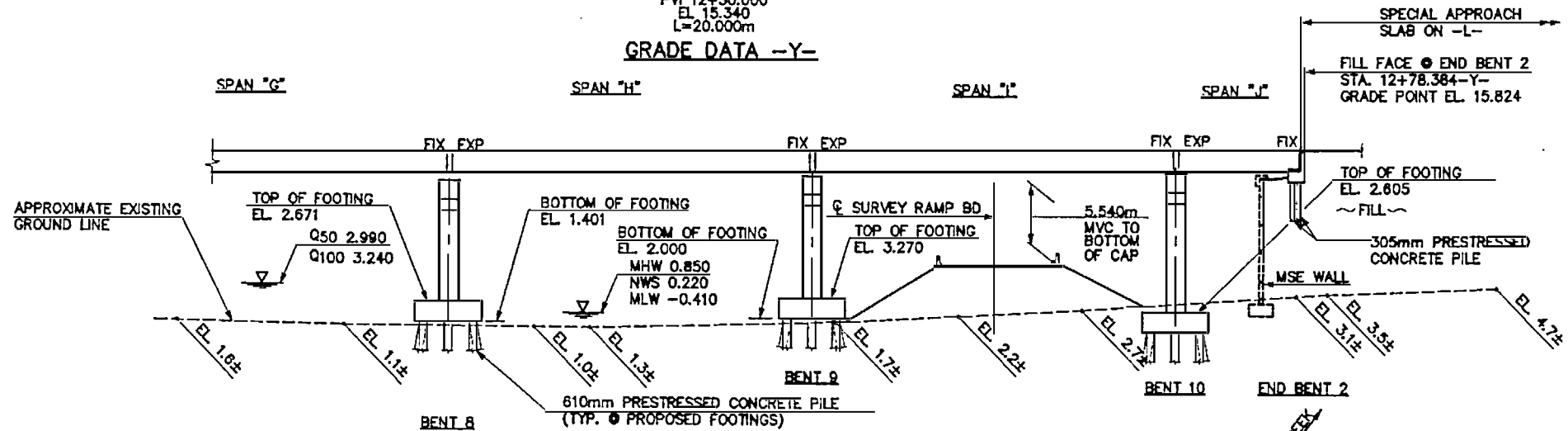
NAME: P:\2014\10-27\102\General Drawing\YRPB2.DWG DATE: AUG 28, 2009 TIME: 10:30 AM

1+80 12+00 +20 +40 +60 +80 13+00

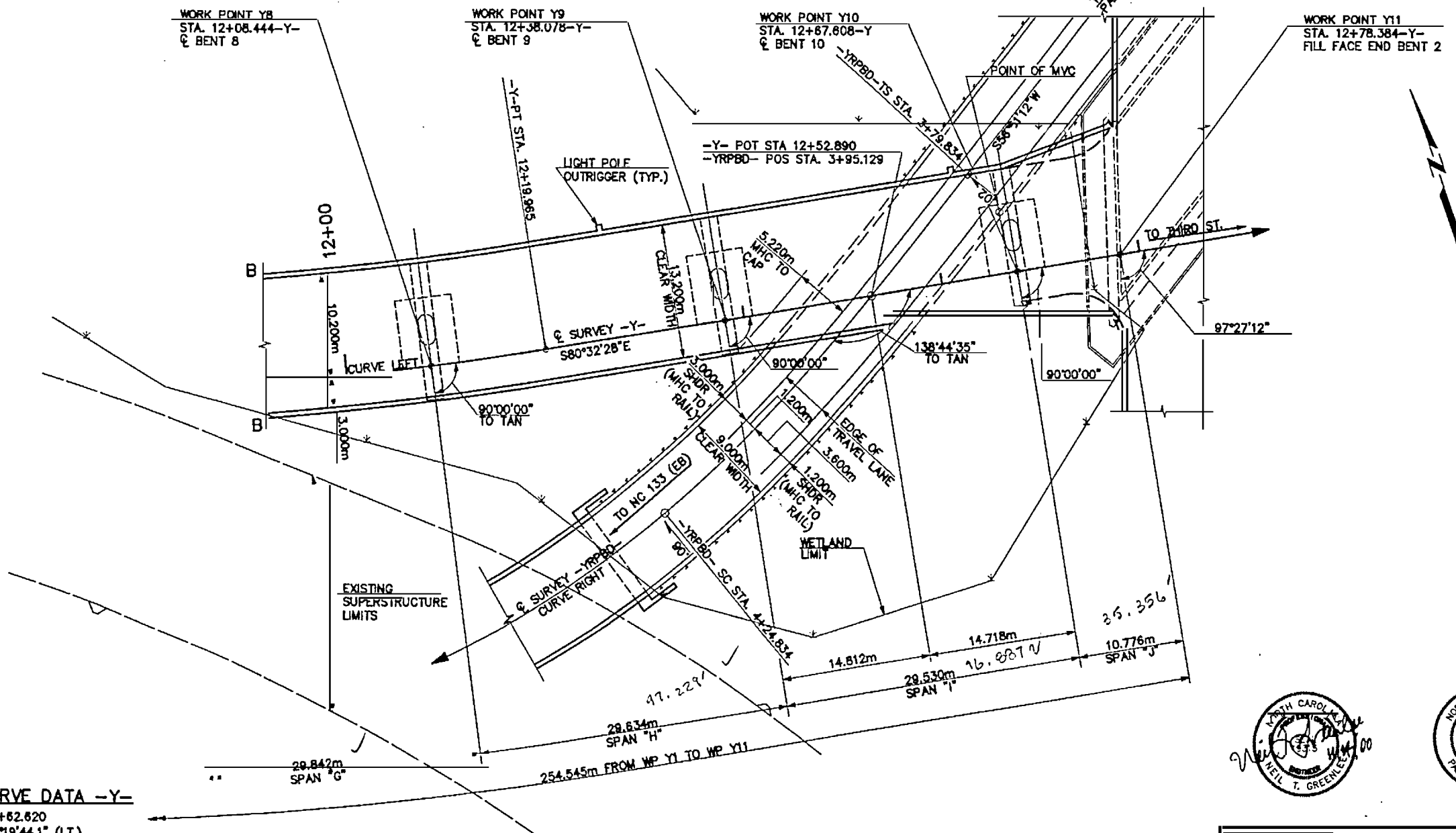
GRADE DATA -Y-  
 +1.4897% +1.0000%  
 PVI 12+30.000  
 EL. 15.340  
 L=20.000m

FOR GENERAL NOTES, SEE SHEET 9 OF 10.  
 FOR SUPERELEVATION INFORMATION, SEE TYPICAL SECTIONS AND TRANSITION ZONE PLANS.

20  
10  
0  
-10



SECTION ALONG C SURVEY -Y-  
 (BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



GRADE DATA -YRPBD-  
 (-)0.9269% (+)5.8380%  
 PVI STA. = 4+20.000  
 PVI EL. = 5.600  
 L = 136.000m

HORIZONTAL CURVE DATA -YRPBD-  
 PIS STA. 4+09.903 PI STA. 4+85.255  
 $\Delta = 11^\circ 58' 11.8''$  (RT.)  $\Delta = 58^\circ 26' 57.5''$  (RT.)  
 $L_s = 45.000$ m  $L = 110.174$ m  
 $LT = 30.068$ m  $T = 80.420$ m  
 $ST = 15.062$ m  $R = 108.000$ m  
 $SE = .06$

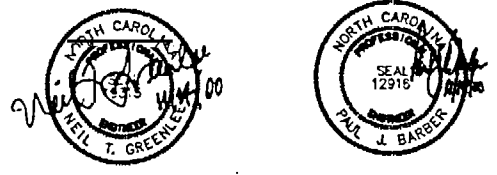


PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 3 OF 10  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 GENERAL PLAN  
 & ELEVATION

HORIZONTAL CURVE DATA -Y-  
 PI STA. 11+62.620  
 $\Delta = 19^\circ 19' 44.1''$  (LT.)  
 $L = 115.800$ m  
 $T = 58.455$ m  
 $ST = 343.288$ m

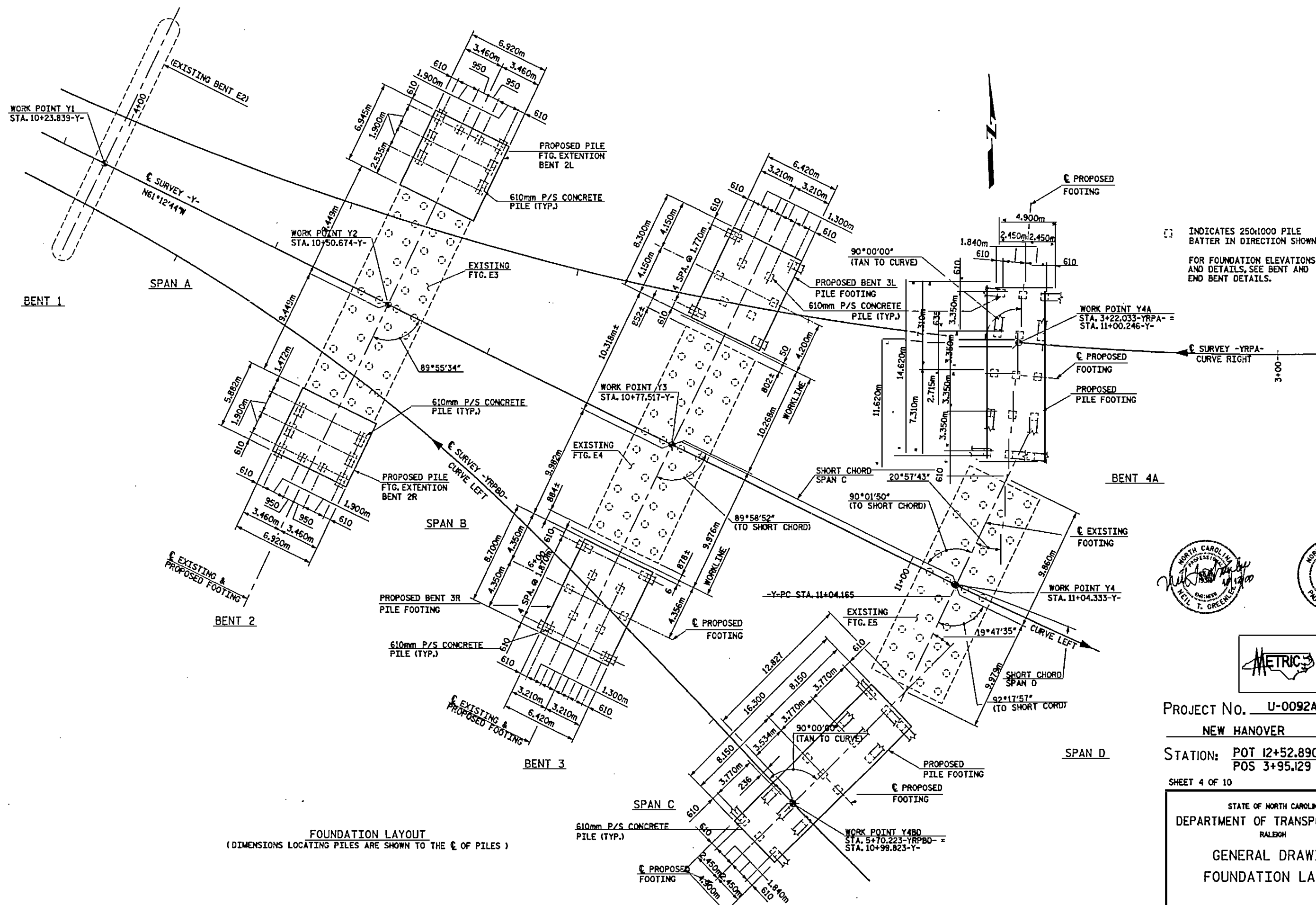
PLAN - NC 133 MAIN BRIDGE ON -Y-



HNTB HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: J. BARBER DATE: 7/18/15  
 CHECKED BY: P. BARBER DATE: 7/20/15  
 DWG. NO. 3

REVISIONS						SHEET NO. 53
NO.	BY	DATE	NO.	BY	DATE	
1			1			TOTAL SHEETS 1011
2			4			

NAME: P:\2014-09-09\Drawings\102\General Drawing\102\3.DWG. DATE: AUG 28, 2000 TIME: 10:55 AM



FOUNDATION LAYOUT  
(DIMENSIONS LOCATING PILES ARE SHOWN TO THE C OF PILES)

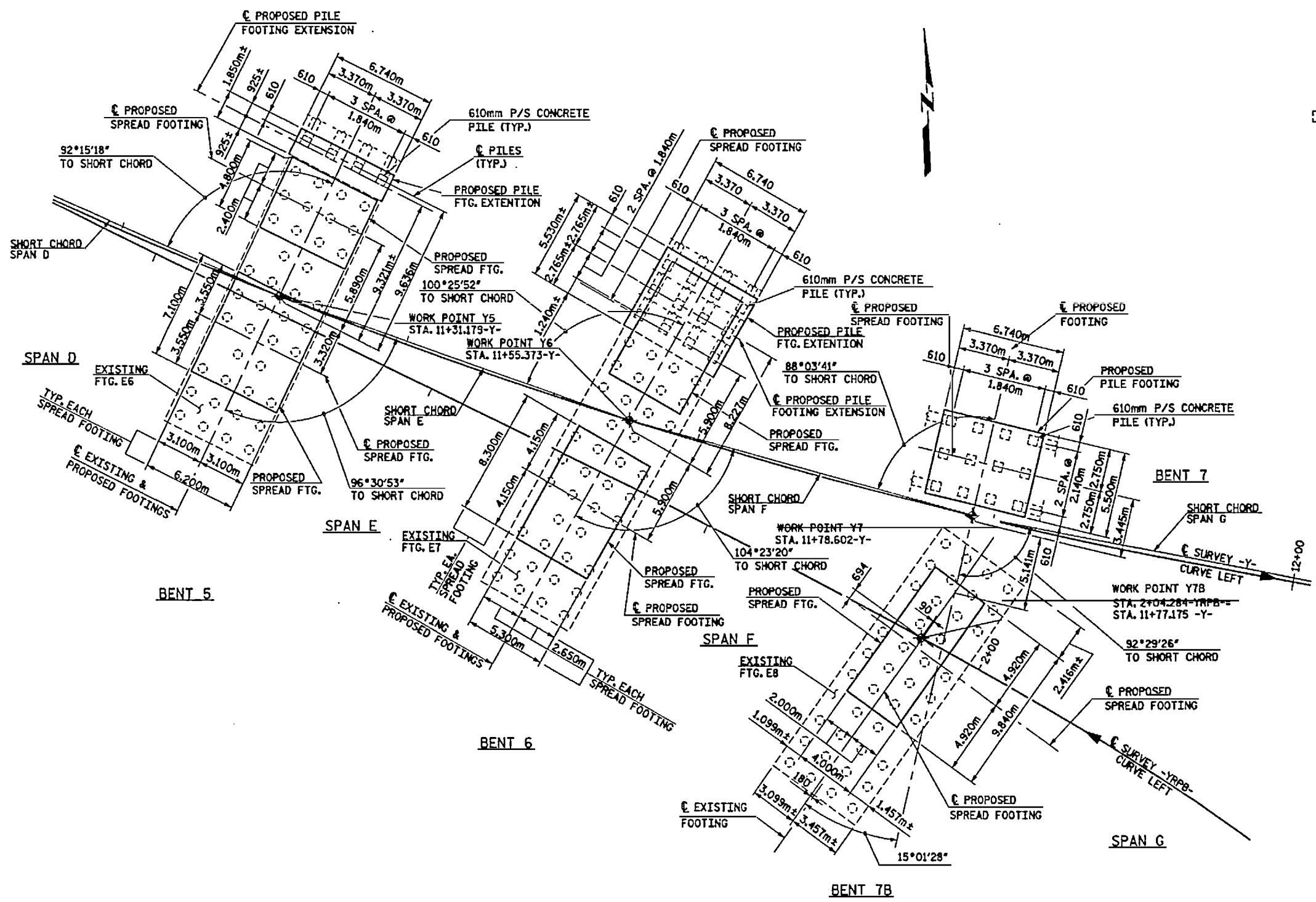
[ ] INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.  
FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y- = POS 3+95.129 -YRPBD-  
SHEET 4 OF 10

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOUNDATION LAYOUT

<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 343 E. SIX Forks Rd., Suite 200, Raleigh, N.C. 27609		REVISIONS				SHEET S-4
DRAWN BY: A. ECHARD CHECKED BY: NIG ZENO	DATE: 7/00 DATE: 7/00	NO. 1 NO. 2	BY 3 BY 4	DATE DATE	TOTAL SHEETS: 101	
DWG. NO. 4						



INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.

FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.

BENT 5

SPAN E

BENT 6

SPAN F

BENT 7B

SPAN G

BENT 7

FOUNDATION LAYOUT  
(DIMENSIONS LOCATING PILES ARE SHOWN TO THE C OF PILES)



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y- =  
POS 3+95.129 -YRPB-  
SHEET 5 OF 10

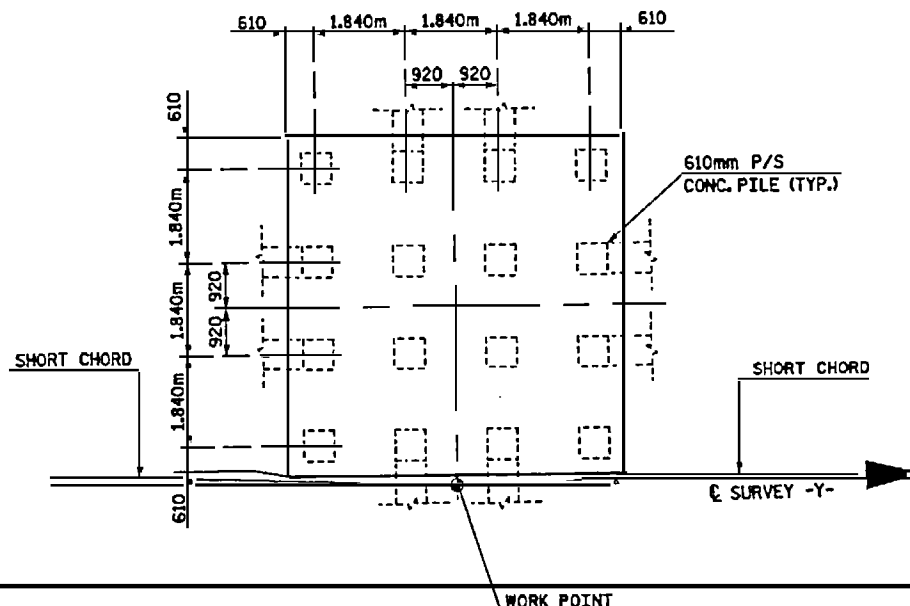
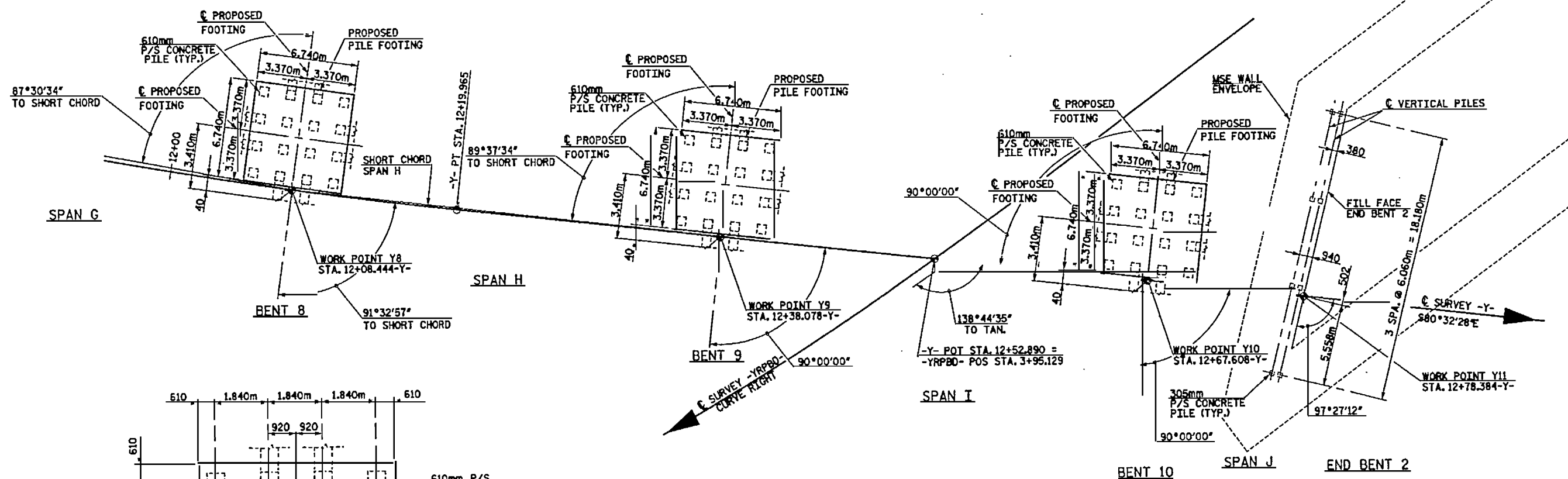


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOUNDATION LAYOUT

**INTB** INTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: A. ECHERD DATE: 7/00  
CHECKED BY: NIG Z CHO DATE: 7/00 DWG. NO. 5

REVISIONS						SHEET NO. 5	TOTAL SHEETS 101
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN. FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.



TYPICAL PILE LAYOUT  
610mm PILE LAYOUT TYPICAL  
@ BENTS 8, 9 & 10

FOUNDATION LAYOUT  
(DIMENSIONS LOCATING PILES ARE SHOWN TO THE C. OF PILES)



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y- =  
POS 3+95.129 -YRPBD-

SHEET 6 OF 10



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOUNDATION LAYOUT

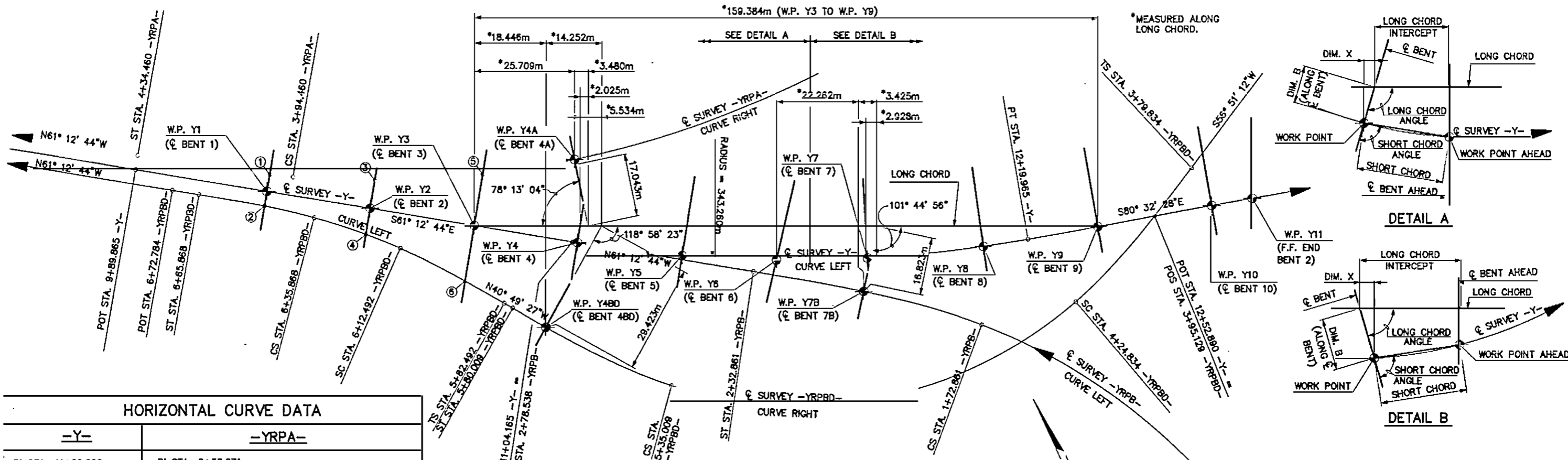
**ANTE** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: A. ECHERD DATE: 7/00  
CHECKED BY: NTG / Z COO DATE: 7/00 DWG. NO. 6

REVISIONS						SHEET NO. 6-C	TOTAL SHEETS 101
NO.	BY	DATE	NO.	BY	DATE		
1.			3.				
2.			4.				

**-Y- LINE & LONG CHORD LAYOUT DATA**

WORK POINT NUMBER	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y4A	Y7B	Y4B0
W.P. STA. -Y-	10+23.839	10+50.874	10+77.517	11+04.333	11+31.179	11+55.373	11+78.602	12+08.444	12+38.078	12+67.808	12+78.384	W.P. STA. -YRPA-	W.P. STA. -YRPB-	W.P. STA. -YRPB0-
LONG CHORD ANGLE			99° 07' 50"	99° 10' 48"	99° 08' 09"	103° 03' 08"	86° 43' 29"	81° 44' 37"	79° 49' 14"			3+22.033	2+04.284	5+70.223
SHORT CHORD ANGLE			89° 58' 52"	92° 17' 57"	96° 30' 53"	104° 23' 20"	92° 28' 26"	91° 32' 57"	89° 37' 34"					
LONG CHORD INTERCEPT (m)			27.164	27.159	24.952	20.768	29.409	28.932						
SHORT CHORD (m)			26.816	26.839	24.189	23.225	28.832	29.632						
DIMENSION X (m)				0.689	1.203	1.991	0.461	0.732						
DIMENSION B (m)				4.319	7.575	8.813	8.057	5.100						
W.P. NORTH COORDINATE	56158.5280	56145.6080	56132.6800	56119.7659	56107.7827	56098.6196	56091.3280	56084.1738	56079.1135	56074.2800	56072.4890	56139.7527	56083.7120	56102.2370
W.P. EAST COORDINATE	706316.5400	706340.0580	706363.5840	706387.0887	706411.1009	706435.4877	706459.5370	706484.5001	706513.6965	706542.8250	706533.4540	706393.4043	706431.8030	706372.3060

NOTE: ANGLES AT W.P. Y9 ARE TO EXTENSIONS OF LONG CHORD AND SHORT CHORD OF BACK SPAN.



**HORIZONTAL CURVE DATA**

-Y-		-YRPA-		-YRPB-		-YRPB0-	
PI STA. 11+62.620	PI STA. 2+58.971	PI STA. 4+07.801	PI STA. 1+17.162	PI STA. 1+92.938	PI STA. 4+09.903	PI STA. 4+85.255	PI STA. 5+50.071
Δ = 19°19'44.1" (LT.)	Δ = 73°21'27.1" (RT.)	Δ = 4°31'45.5"	Δ = 45°01'10.6" (LT.)	Δ = 11°27'33.0"	Δ = 11°56'11.8"	Δ = 58°26'57.5" (RT.)	Δ = 11°56'11.8"
L = 115.800m	L = 323.924m	L = 40.000m	L = 117.861m	L = 80.000m	L = 45.000m	L = 110.174m	L = 45.000m
T = 58.455m	T = 188.439m	T = 26.875m	T = 62.162m	T = 40.084m	T = 30.069m	T = 80.420m	T = 30.069m
R = 343.280m	R = 253.000m	R = 13.341m	R = 150.000m	R = 20.077m	R = 108.000m	R = 150.000m	R = 15.062m
SE = .02	SE = .06	SE = .06	SE = .06	SE = .06	SE = .06	SE = .06	SE = .06

**LONG CHORD LAYOUT - NC 133 MAIN BRIDGE (-Y-)**

NOTE: Q SURVEY -Y- IS TANGENT AT WORK POINTS Y1, Y2, Y3, Y9, Y10 AND Y11. Q BENTS 7 AND 8 ARE RADIAL TO Q SURVEY -Y-. Q BENTS 9 AND 10 ARE NORMAL TO Q SURVEY -Y-.

**SUPPLEMENTAL BENT LAYOUT DATA**

PT.	LOC.	STATION	COORDINATES (m)		-Y- STATIONS & OFFSETS (m)
①	Q BENT 1	4+00.468 -YRPA-	56162.2480 N	706318.5820 E	10+23.846 -Y- 4.247 (LT.)
②	Q BENT 2	6+48.949 -YRPB0-	56155.2200 N	706314.7150 E	10+23.833 -Y- 3.779 (RT.)
③	Q BENT 3	3+73.478 -YRPA-	56151.9000 N	706343.5080 E	10+50.864 -Y- 7.176 (LT.)
④	Q BENT 4	6+21.917 -YRPB0-	56139.7880 N	706336.8710 E	10+50.882 -Y- 6.635 (RT.)
⑤	Q BENT 5	3+45.975 -YRPA-	56144.1420 N	706369.8770 E	10+77.513 -Y- 13.076 (LT.)
⑥	Q BENT 6	5+93.980 -YRPB0-	56120.1570 N	706356.7080 E	10+77.522 -Y- 14.286 (RT.)
W.P. Y4A	Q BENT 4A				11+00.246 -Y- 20.559 (LT.)
W.P. Y4B0	Q BENT 4B0				10+98.821 -Y- 22.480 (RT.)
W.P. Y7B	Q BENT 7B				11+77.198 -Y- 8.361 (RT.)

SEE "-Y- LINE & LONG CHORD LAYOUT DATA" TABLE, THIS SHEET.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 7 OF 10

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 LONG CHORD LAYOUT



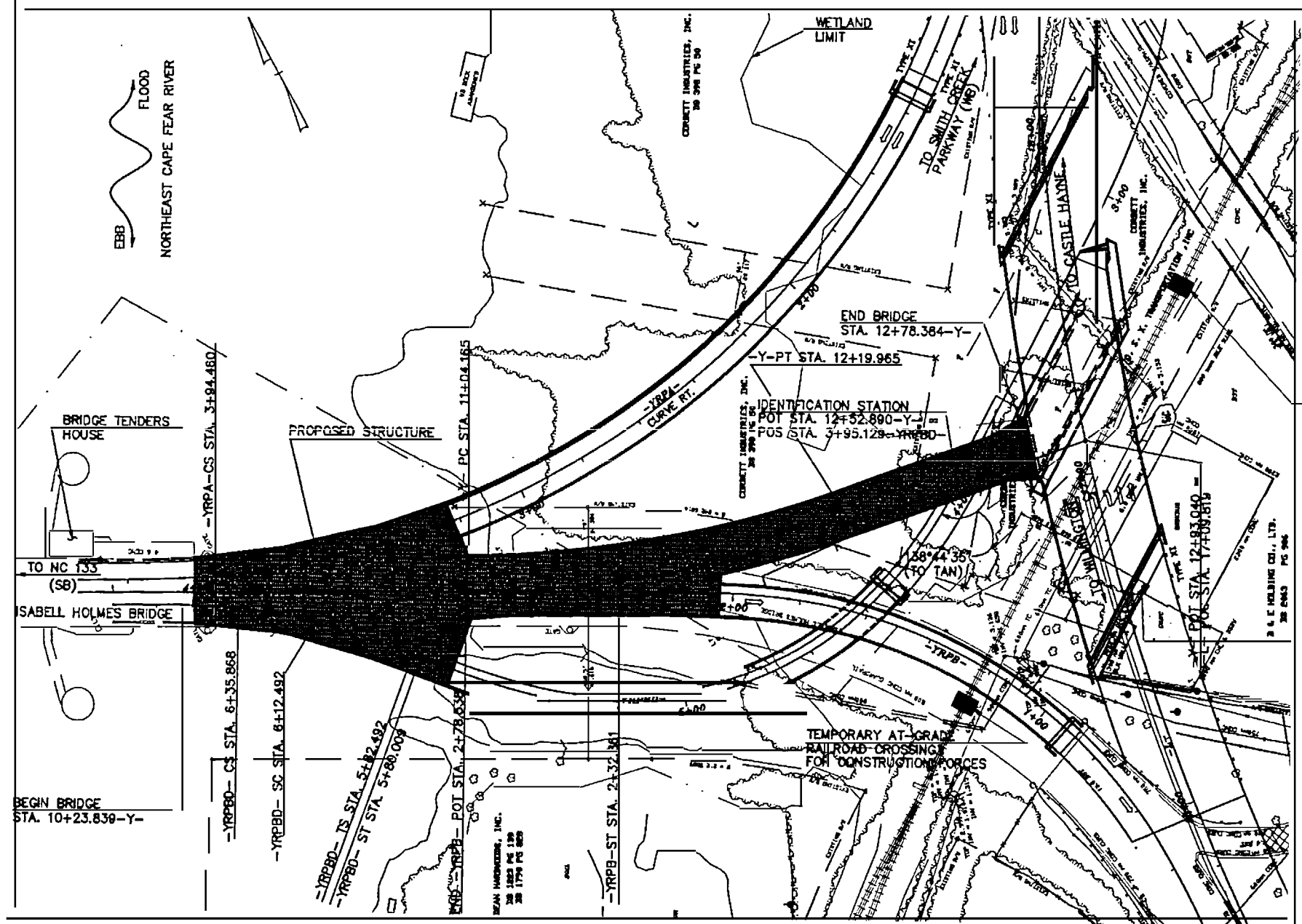
**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27606  
 DRAWN BY: M. WRIGHT DATE: 5/99  
 CHECKED BY: N. GREENLEE DATE: 7/00  
 DWG. NO. 7

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

TOTAL SHEETS 10/1



B.M. #38 SQ. CUT IN CONC. BASE OF LIGHT AT ISABELL HOLMES BRIDGE TENDER'S HOUSE ELEV. 17.840



LOCATION SKETCH

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

NOTE: EXISTING STRUCTURE PARTIAL REMOVAL REQUIRED. FOR EXISTING STRUCTURE OUTLINE, SEE GENERAL PLAN AND ELEVATION SHEETS.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 8 OF 10

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
**LOCATION SKETCH**



**INTB** NORTH CAROLINA, P.E.  
 343 E. 5th Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: J. BAYNE DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00  
 DWG. NO. 8

RELATIONS						SHEET NO. 8 OF 8
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 10/11
2			4			

NAME: P:\21143-00\21143-00\Drawings\General Drawings\21143-00\21143-00.dwg DATE: JUN 31, 2000 TIME: 8:30 AM

**GENERAL NOTES**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

ASSUMED LIVE LOAD = MS 18 OR ALTERNATE LOADING.

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

FOR REINFORCED CONCRETE DECK SLAB, SEE SPECIAL PROVISIONS.

FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS.

FOR CURING BRIDGE DECK SLABS, SEE SPECIAL PROVISION FOR REINFORCED CONCRETE DECK SLAB.

PILES FOR BENTS 2, 3, 4, 4A, 4B, 5, 6, 7, 7B, 8, 9, & 10 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 890KN EACH.

PILES FOR END BENT 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 445KN EACH.

FOR PILE DRIVING ACCURACY, SEE SPECIAL PROVISIONS.

FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

THE STANDARD ARMORED EVAZOTE JOINTS (INCLUDING ELASTOMERIC CONCRETE) LOCATED AT BENT 4A, 4B, 7B, AND END BENT 2 ARE TO BE PAID FOR AND CONSTRUCTED AS PART OF THIS BRIDGE. BLOCKOUT DETAILS & REQUIREMENTS FOR THESE JOINTS HAVE BEEN INCLUDED IN THE OTHER STRUCTURE PLANS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

THE CONCRETE IN THE COLUMNS, CAPS, AND FOOTINGS SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS AA CONCRETE.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, A PORTION OF THE EXISTING STRUCTURE CONSISTING OF SPANS E2 (PARTIAL), E3 (PARTIAL), E4 (PARTIAL), AND E5 THRU E7 ON PIERS E2 THRU E8 SHALL BE REMOVED. PARTIAL DEMOLITION OF SPANS E2, E3, & E4 SHALL BE PERFORMED IN STAGES AS SHOWN IN THE CONSTRUCTION SEQUENCE DRAWINGS. THE EXISTING BRIDGE HAS A CLEAR ROADWAY WIDTH OF APPROXIMATELY 18.898m. THE SUPERSTRUCTURE CONSISTS OF A NOMINALLY REINFORCED CONCRETE DECK SLAB SUPPORTED BY SIMPLE SPAN CHORDED PRESTRESSED CONCRETE GIRDERS WITH SPANS OF APPROXIMATELY 26.822m, 26.822m, 26.822m, 26.822m, 23.744m, AND 23.470m RESPECTIVELY. SPAN E2 THRU E5 ARE SUPPORTED BY 9-AASHTO TYPE IV BEAMS, AND SPANS E6 & E7 ARE SUPPORTED BY 8-AASHTO TYPE IV BEAMS. PIERS E2 THRU E5 ARE TO BE RETAINED. THE EXISTING 3 COLUMN POST AND BEAM REINFORCED CONCRETE PIERS E6, E7, & E8 SHALL BE REMOVED TO TOP OF PILE CAP AS NOTED IN PLANS. DEMOLITION OF PIER E8 SHALL BE COORDINATED WITH THE PORTION OF THE EXISTING STRUCTURE REMOVAL REQUIRED UNDER THE RAMP B STRUCTURE OVER CSXT AND RAMP BD. 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.

STEEL PILE TIPS ARE REQUIRED FOR ALL 305mm & 610mm PRESTRESSED CONCRETE PILES AT BENT 2, 3, 4A, 4B AND 5 THRU 10 & END BENT 2. FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 100 - 175KN-m PER BLOW WILL BE REQUIRED TO DRIVE THE 610mm PRESTRESSED CONCRETE PILES. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM THE PROVISIONS OUTLINED IN ARTICLE 450-6 OF THE STANDARD SPECIFICATIONS.

THE (FIRST) PRODUCTION 610mm PRESTRESSED CONCRETE PILE AT BENT NO. 4A, & 10 SHALL BE DRIVEN AS A DYNAMIC LOAD TEST PILE AS DIRECTED BY THE ENGINEER. SEE BEARING PILES SPECIAL PROVISION. THE PILE DRIVING ANALYZER AND WAVE EQUATION SHALL BE USED TO DETERMINE THE BEARING CAPACITY OF THE 610mm PRESTRESSED CONCRETE PILES.

DYNAMIC PILE LOAD TEST PILES SHALL BE DRIVEN AT LOCATIONS PROVIDED IN THE TABLE BELOW. SEE SPECIAL PROVISIONS.

DYNAMIC TEST PILE #	STATION (-Y-)	PILE TYPE	DESIGN CAPACITY	ESTIMATED LENGTH	DRIVING TABLES PROVIDED
1	11+00.246-Y- OFFSET=20.559m LT. (BENT 4A)	610mm SQ. PILE	890 KN	12m	BENTS 2, 3, 4A, 4B, 6-9
2	12+67.808-Y- (BENT 10)	610mm SQ. PILE	890 KN	8m	BENT 10

THE 305mm PRESTRESSED CONCRETE PILES AT END BENT 2 SHALL BE DRIVEN PRIOR TO CONSTRUCTION OF THE MSE WALL.

THE EXISTING BRIDGE SHALL BE REMOVED BY SAWING AND/OR NON-SHATTERING METHODS SUCH THAT DEBRIS WILL NOT FALL INTO THE WATER. THE CONTRACTOR SHALL SUBMIT THE PLAN FOR THE BRIDGE DEMOLITION TO THE RESIDENT ENGINEER FOR THE RESIDENT ENGINEER'S REVIEW AND APPROVAL.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 2 IS ELEV. -7.0m, FOR BENT NO. 3 IS ELEV. -4.0m, FOR BENTS NO. 4, 4A, 4B IS ELEV. -7.0m, 7B IS ELEV. -5.0m, AND FOR BENT 8 IS ELEV. -4.0m. THESE ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

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.

**HYDRAULIC DATA**

DESIGN DISCHARGE: 1784 CU. METERS/SEC.

FREQUENCY OF DESIGN FLOOD: 100 YEARS.

DESIGN HIGH WATER ELEVATION: 3.240m.

DRAINAGE AREA: N/A (TIDAL).

BASIC DISCHARGE(Q50): 1664 CU. METERS/SEC.

BASIC HIGH WATER ELEVATION: 2.990m.

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE: 3897 CU. METERS/SEC.

FREQUENCY OF OVERTOPPING FLOOD: 500+ YRS.

OVERTOPPING FLOOD ELEVATION: 3.900m.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED DOWELS IN PLACE OF EXPOSING AND RETAINING THE EXISTING "A" BAR SLAB REINFORCING IN SPANS A, B, & C (STAGE I & II). SEE SPECIAL PROVISION FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM FOR THIS APPLICATION WOULD BE REQUIRED.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A STRUCTURE IN A HIGHLY CORROSIVE AREA.

ALL METALLIZED SURFACES SHALL RECEIVE A SEAL COATING AS SPECIFIED IN THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED FOR BARRIER RAIL BARS. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS.

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 STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm 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 FALSEWORK AND FORMS OVER OR ADJACENT TO TRAFFIC, SEE SPECIAL PROVISIONS.

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

ANY INCIDENTAL REINFORCING USED IN THE DECK SHALL BE EPOXY COATED.

ALL REINFORCING STEEL IN PRESTRESSED CONCRETE GIRDERS AND PILES SHALL NOT BE EPOXY COATED.

OVERHEAD SIGNS (ROADWAY DETAIL & PAY ITEMS) ARE TO BE SUPPORTED ON BENT 2. SEE SPECIAL PROVISION, "SUPPORTS FOR BRIDGE MOUNTED SIGNS".

THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, FABRICATION, AND INSTALLATION OF OVERHEAD SIGNS AND ANCHOR BOLTS LOCATED ON BENT 2. FOR DETAILS AND DESIGN INFORMATION SEE SIGNING PLANS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE NUMBER, SIZE, AND LAYOUT OF ANCHOR BOLTS FOR THE OVERHEAD SIGN AND TRAFFIC POLES SHALL BE APPROVED PRIOR TO CASTING THE BENT CAP. FURTHERMORE, THE ANCHOR BOLT ASSEMBLY SHALL NOT INTERFERE WITH THE BENT CAP REINFORCING STEEL.

SIGNAL POLES (TRAFFIC SIGNAL PLANS DETAIL & PAY ITEMS) ARE TO BE SUPPORTED ON BENT 3L. SEE SPECIAL PROVISION, "SUPPORTS FOR BRIDGE MOUNTED SIGNAL POLES".

THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, FABRICATION, AND INSTALLATION OF TRAFFIC POLES AND ANCHOR BOLTS LOCATED ON BENT 3L. FOR DETAILS AND DESIGN INFORMATION SEE TRAFFIC SIGNAL PLANS.

FOR REGULATORY SIGN LOCATIONS, DETAILS, AND PAY ITEMS, SEE ROADWAY SIGNAGE PLANS.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS, PILE CAPS AND FOOTINGS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

ALL BAR SUPPORTS USED IN THE SUBSTRUCTURE AND SUPERSTRUCTURE, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

FOR GROOVING BRIDGE FLOORS AND APPROACH SLABS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

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

THE CONCRETE IN THE 610mm & 305mm PILES SHALL CONTAIN SILICA FUME. FOR SILICA FUME, SEE SPECIAL PROVISIONS.

MECHANICALLY SPLICED BAR LENGTHS AT BENTS 2, 5 & 6 ARE BASED ON A 150mm CLEARANCE FROM THE CUT FACE OF EXISTING CONCRETE AS SHOWN ON THE PLANS. CONTRACTOR SHALL ADJUST BAR LENGTHS AS REQUIRED FOR THE TYPE OF MECHANICAL SPLICE SYSTEM BEING USED.

THE EXISTING BRIDGE DECK IS TO BE RETAINED AND REHABILITATED. SEE "REHABILITATION PLAN SHEETS FOR WEST END SPANS AND SPANS A, B AND C".



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 9 OF 10

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
**GENERAL NOTES**



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. SIX FORKS RD., SUITE 200, RALEIGH, N.C. 27609  
 DRAWN BY: A. ECHERD DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 9

REVISIONS						SHEET NO. S-9
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

MAUF: P:\20143-u02\Drawings\170\General\Drawings\170\GENNOTES.DWG DATE: JUL 31 2000 TIME: 1:19 PM

NAME: P:\2013-09-23\Drawings\General Drawing\20130923.DWG DATE: NOV 14, 2000 TIME: 9:01 AM

**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	EPOXY COATED REINFORCING STEEL	EPOXY COATED SPIRAL COLUMN REINFORCING STEEL	1372mm PRESTRESSED CONCRETE GIRDERS	305mm PRESTRESSED CONCRETE PILES	610mm PRESTRESSED CONCRETE PILES	STEEL PILE TIPS
	LUMP SUM	LUMP SUM	SQ. METERS	SQ. METERS	CU. METERS	kg.	kg.	NO. METERS	NO. METERS	NO. METERS	EA.
SUPERSTRUCTURE	---	---	4,037.5	3,987.0	---	---	---	70 1732.194	---	---	---
BENT 1	---	---	---	---	---	---	---	---	---	---	---
BENT 2	---	---	---	---	203.5	14,462	1,414	---	---	16 256.0	16
BENT 3L	---	---	---	---	104.5	6,709	824	---	---	10 124.0	10
BENT 3	---	---	---	---	---	---	---	---	---	---	---
BENT 3R	---	---	---	---	106.3	7,483	827	---	---	10 124.0	10
BENT 4A	---	---	---	---	152.6	10,558	1,138	---	---	15 186.0	15
BENT 4	---	---	---	---	---	---	---	---	---	---	---
BENT 4BD	---	---	---	---	165.0	11,353	1,057	---	---	15 186.0	15
BENT 5	---	---	---	---	171.9	15,783	---	---	---	4 48.0	4
BENT 6	---	LUMP SUM	---	---	234.9	22,149	---	---	---	12 144.0	12
BENT 7	---	LUMP SUM	---	---	100.1	10,704	---	---	---	12 148.8	12
BENT 7B	---	---	---	---	89.3	9,257	---	---	---	---	---
BENT 8	---	---	---	---	111.7	11,870	---	---	---	16 176.0	16
BENT 9	---	---	---	---	111.1	11,821	---	---	---	16 160.0	16
BENT 10	---	LUMP SUM	---	---	112.7	12,812	---	---	---	16 97.6	16
END BENT 2	---	---	---	---	33.7	3,666	---	---	8 136.0	---	8
<b>TOTAL</b>	<b>LUMP SUM</b>	<b>LUMP SUM</b>	<b>4,037.5</b>	<b>3,987.0</b>	<b>1,697.3</b>	<b>148,627</b>	<b>5,260</b>	<b>70 1732.194</b>	<b>8 136.0</b>	<b>142 1,850.4</b>	<b>150</b>

872.432'  
439.659'  
429.654'  
659.481'  
659.481'  
170.612'  
511.836'  
527.589'  
629.952'  
577.456'  
372.721'  
462.227'

	CONCRETE BARRIER RAIL	ELASTOMERIC BEARINGS	EPOXY MORTAR REPAIR	EVAZOTE JOINT SEALS	CONSTRUCTION AND REMOVAL OF TEMPORARY ACCESS	CLASS I SURFACE PREPARATION	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY
	METERS	LUMP SUM	SQ. METERS	LUMP SUM	LUMP SUM	SQ. METERS	SQ. METERS	SQ. METERS	CU. METERS	SQ METERS
SUPERSTRUCTURE	558.019	LUMP SUM	---	LUMP SUM	---	7008	400	42	222.8	7008
BENT 1	---	---	0.038	---	---	---	---	---	---	---
BENT 2	---	---	0.052	---	---	---	---	---	---	---
BENT 3L	---	---	---	---	---	---	---	---	---	---
BENT 3	---	---	0.041	---	---	---	---	---	---	---
BENT 3R	---	---	---	---	---	---	---	---	---	---
BENT 4A	---	---	---	---	---	---	---	---	---	---
BENT 4	---	---	0.076	---	---	---	---	---	---	---
BENT 4BD	---	---	---	---	---	---	---	---	---	---
BENT 5	---	---	---	---	---	---	---	---	---	---
BENT 6	---	---	---	---	---	---	---	---	---	---
BENT 7	---	---	---	---	---	---	---	---	---	---
BENT 7B	---	---	---	---	---	---	---	---	---	---
BENT 8	---	---	---	---	---	---	---	---	---	---
BENT 9	---	---	---	---	---	---	---	---	---	---
BENT 10	---	---	---	---	---	---	---	---	---	---
END BENT 2	---	---	---	---	---	---	---	---	---	---
<b>TOTAL</b>	<b>558.019</b>	<b>LUMP SUM</b>	<b>0.207</b>	<b>LUMP SUM</b>	<b>LUMP SUM</b>	<b>7008</b>	<b>400</b>	<b>42</b>	<b>222.8</b>	<b>7008</b>



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

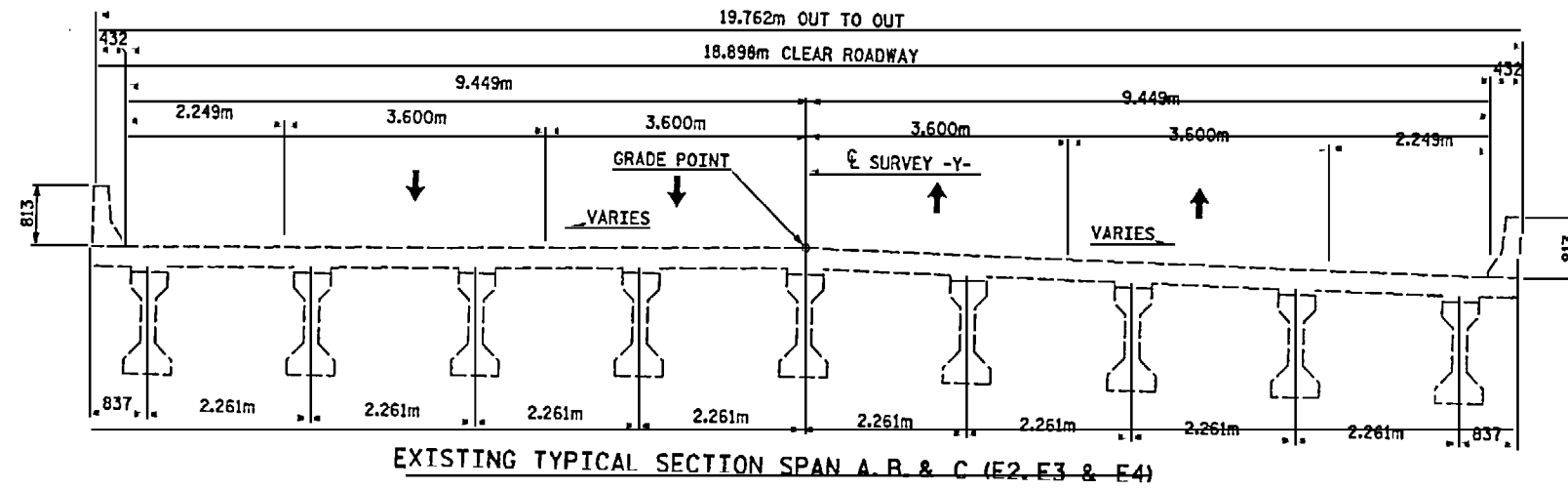
SHEET 10 OF 10



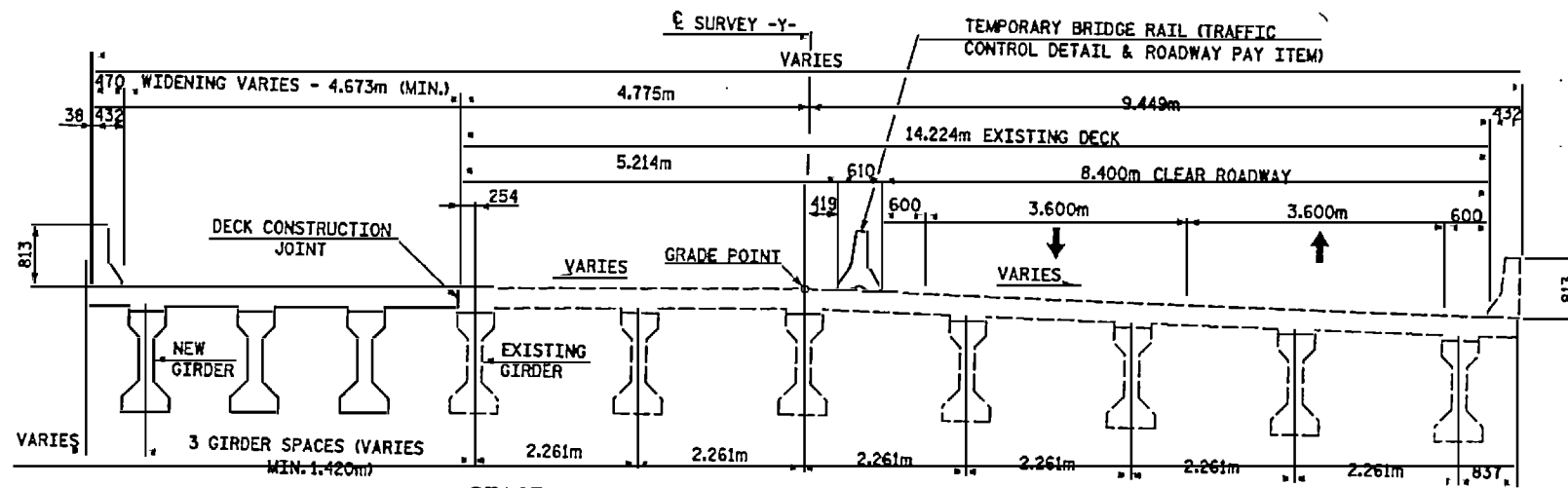
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
**BILL OF MATERIAL**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: A. ECHERO DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 5/00 DWG. NO. 10

REVISIONS						SHEET NO. 10
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

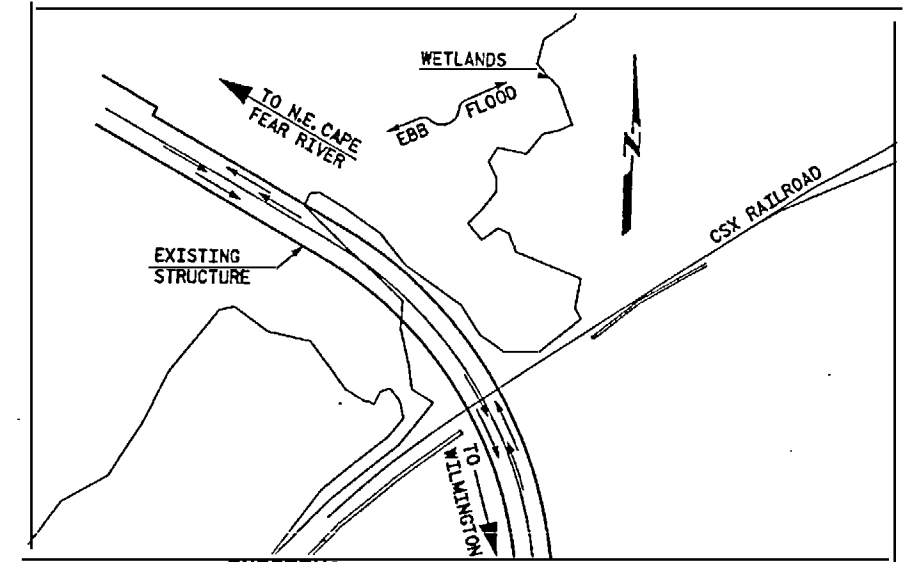


EXISTING TYPICAL SECTION SPAN A, B & C (E2, E3 & E4)

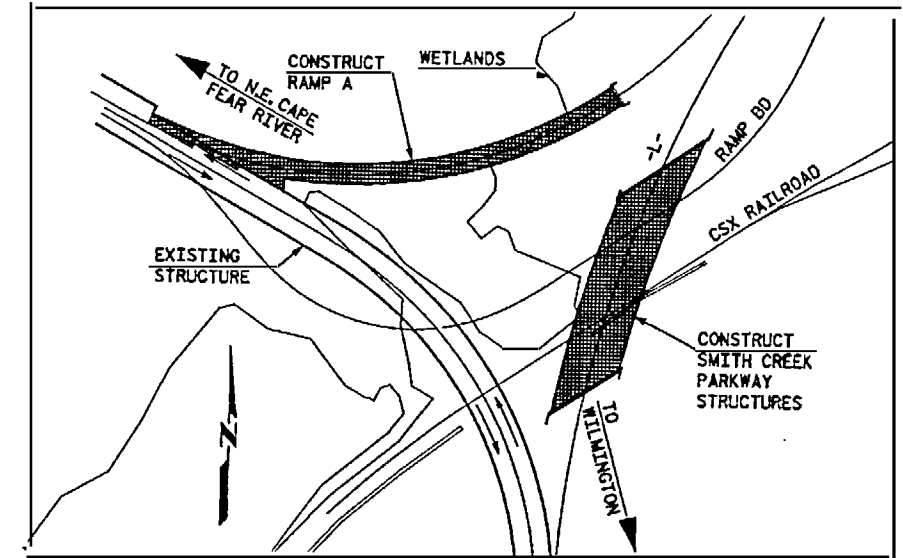


STAGE 1 TYPICAL SECTION SPAN A (CRITICAL)

(CONSTRUCT RAMP A TIE-IN AND SMITH CREEK PARKWAY OVER RAMP BD AND CSX RAILROAD. MAINTAIN REDUCED LANES ON EXISTING BRIDGE.)



EXISTING STRUCTURE AND TRAFFIC PATTERN



STAGE 1 - RAMP A AND SMITH CREEK PARKWAY CONSTRUCTION AND TRAFFIC PATTERN



NOTE: SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE STANDARD PRECAST TEMPORARY CONCRETE MEDIAN BARRIER.

PROJECT No. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

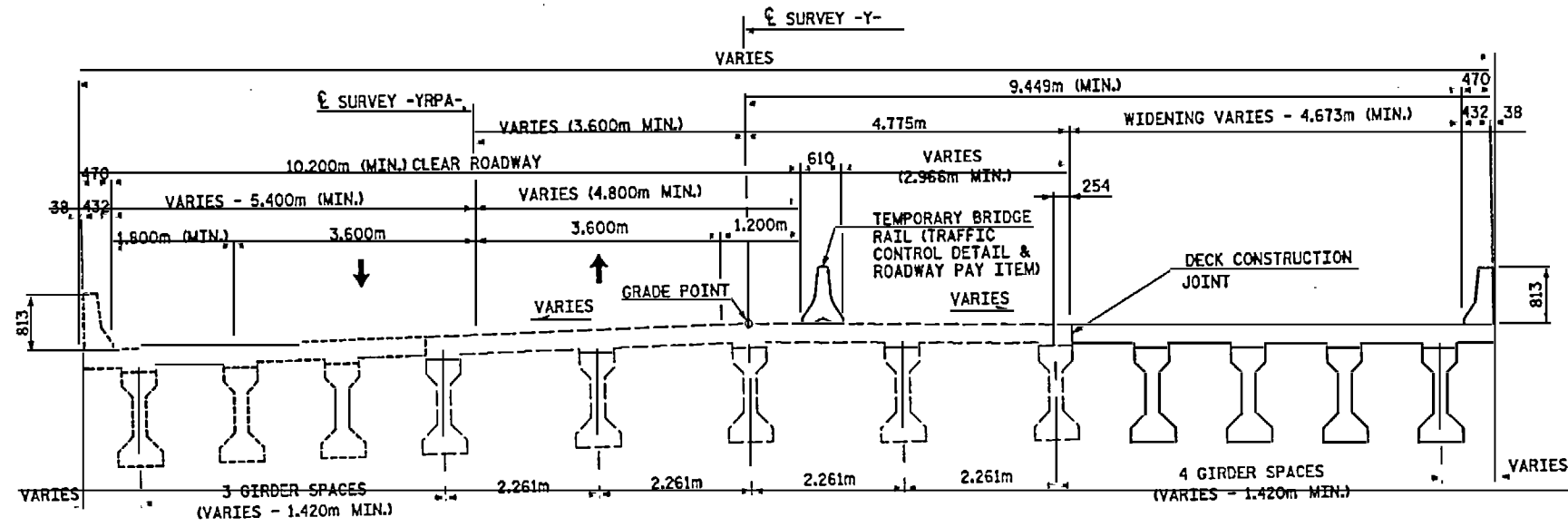
CONSTRUCTION SEQUENCE



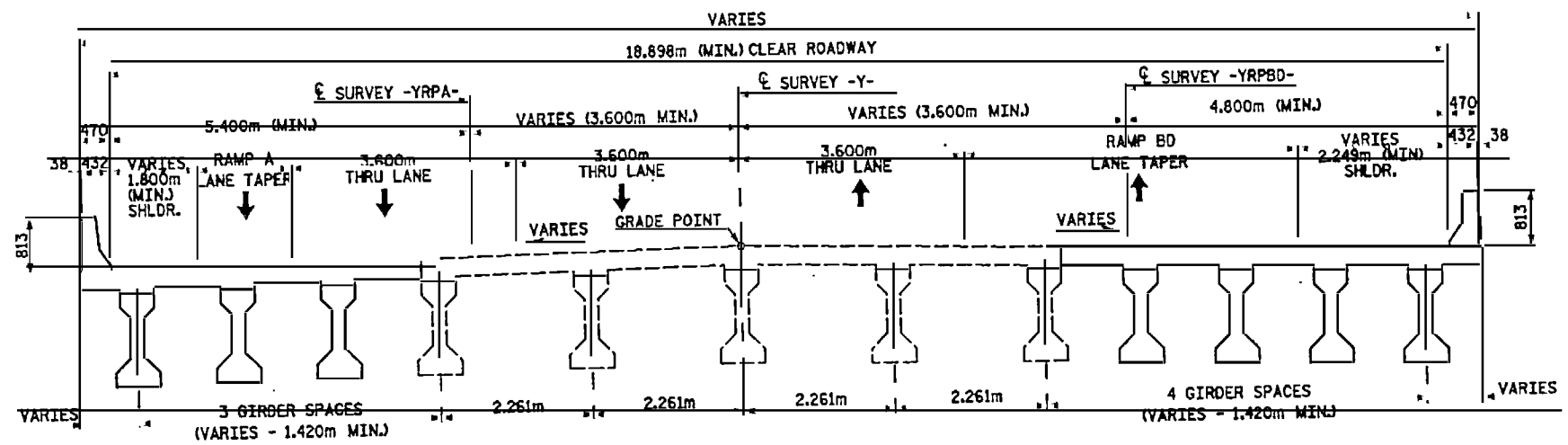
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. SIX FORKS RD., SUITE 200, RALEIGH, N.C. 27603

DRAWN BY: M. WRIGHT DATE: 12/99  
CHECKED BY: P. BARBER DATE: 1/00 DWG. NO. 1

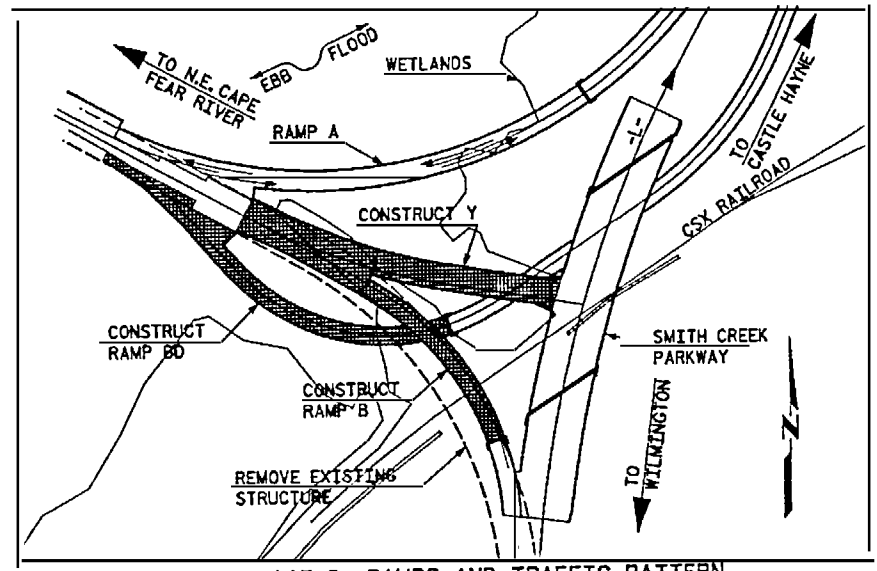
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NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



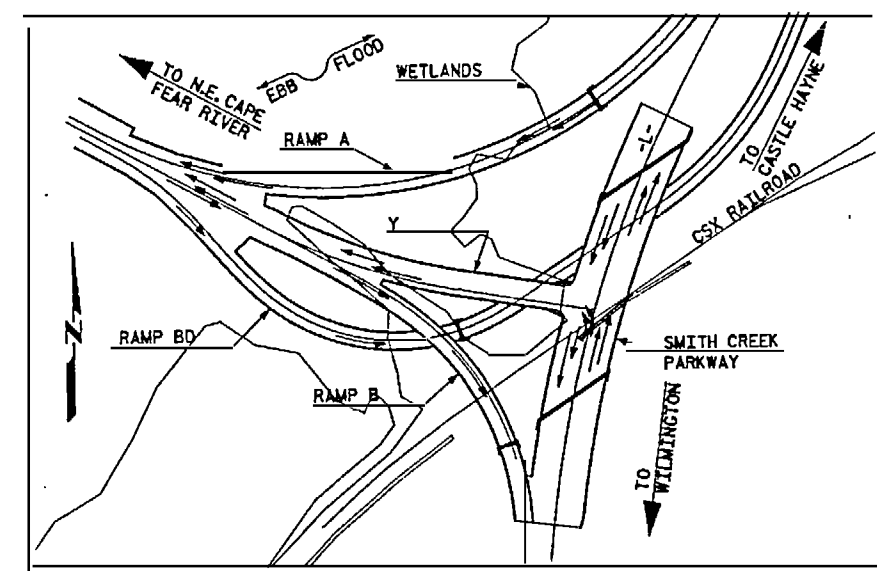
**PHASE 2 TYPICAL SECTION SPAN A (CRITICAL)**  
 (SHIFT TRAFFIC TO RAMP A BRIDGE. DEMOLISH EXISTING BRIDGE COMPONENTS AND CONSTRUCT BRIDGE ON -Y-, RAMP B, AND RAMP BD TIE-IN)



**ULTIMATE TYPICAL SECTION SPAN A**  
 (OPEN TRAFFIC TO AND FROM ALL RAMPS)



STAGE 2 RAMPS AND TRAFFIC PATTERN



COMPLETED RAMPS AND TRAFFIC PATTERN



NOTE: SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE STANDARD PRECAST TEMPORARY CONCRETE MEDIAN BARRIER.

PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 2 OF 2

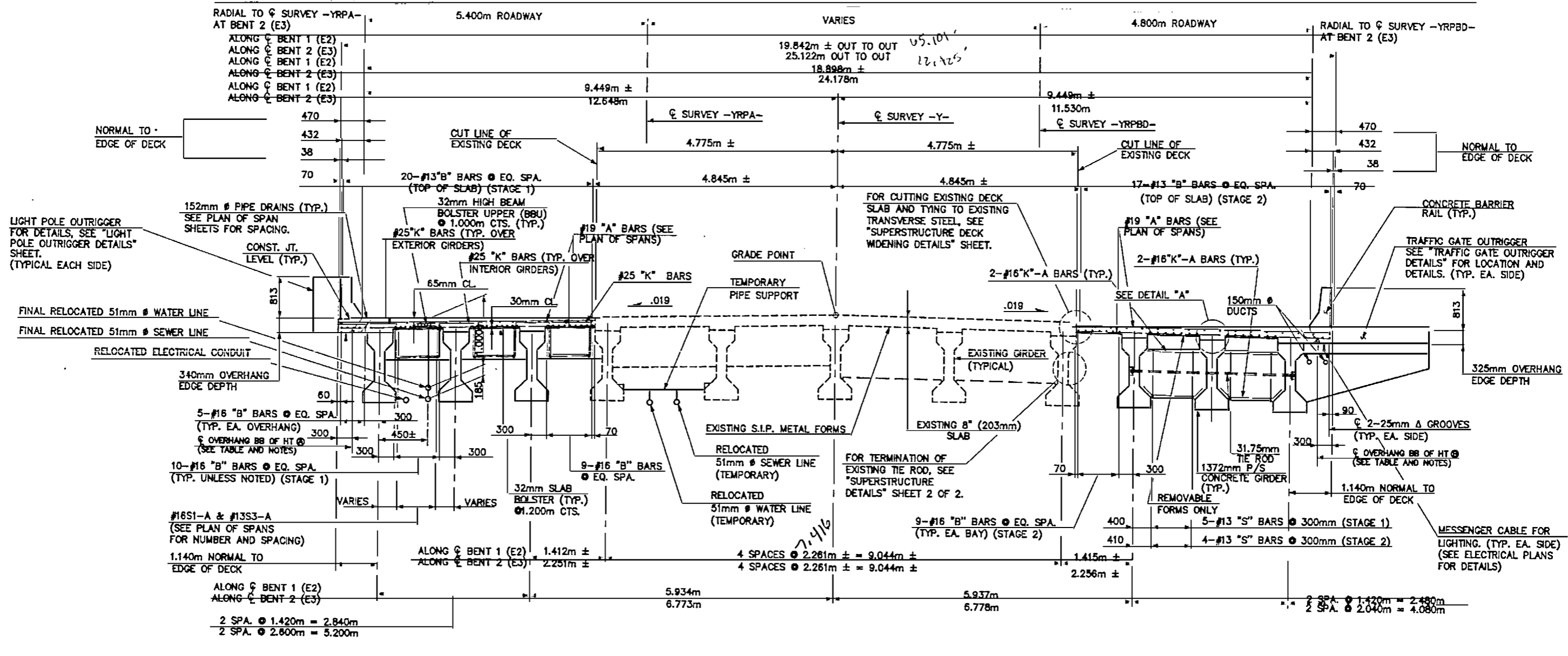
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 CONSTRUCTION  
 SEQUENCE



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 12/93  
 CHECKED BY: P. BARBER DATE: 1/90 DWG. NO. 12

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

SHEET NO. 3-12  
 TOTAL SHEETS 101



HALF SECTION @ BENT DIAPHRAGM

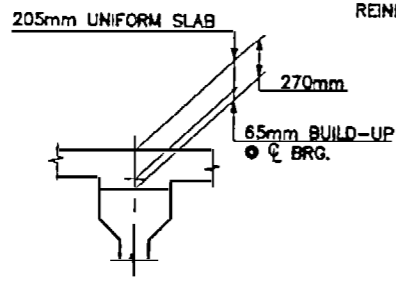
TYPICAL SECTION - SPAN A

HALF SECTION @ INTERMEDIATE DIAPHRAGM

SPAN A HAS CHORDED EDGES OF DECK.

OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
126	134	125	134

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.



DETAIL A (AT @ BRG.)

NOTE: BUILDUP VARIES BETWEEN @ BEARINGS.

NOTES:

- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND STIRRUPS IN BENT DIAPHRAGMS.
- TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm @ TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.
- CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.
- ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.
- FOR SUPPORT DETAILS AND LOCATIONS OF TEMPORARY WATER AND SEWER LINES DURING STAGE 1 CONSTRUCTION, SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.
- FOR SUPPORT DETAILS AND LOCATIONS OF FINAL WATER AND SEWER LINES (AFTER STAGE 1 CONSTRUCTION IS COMPLETE), SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.
- THE DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.
- SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-



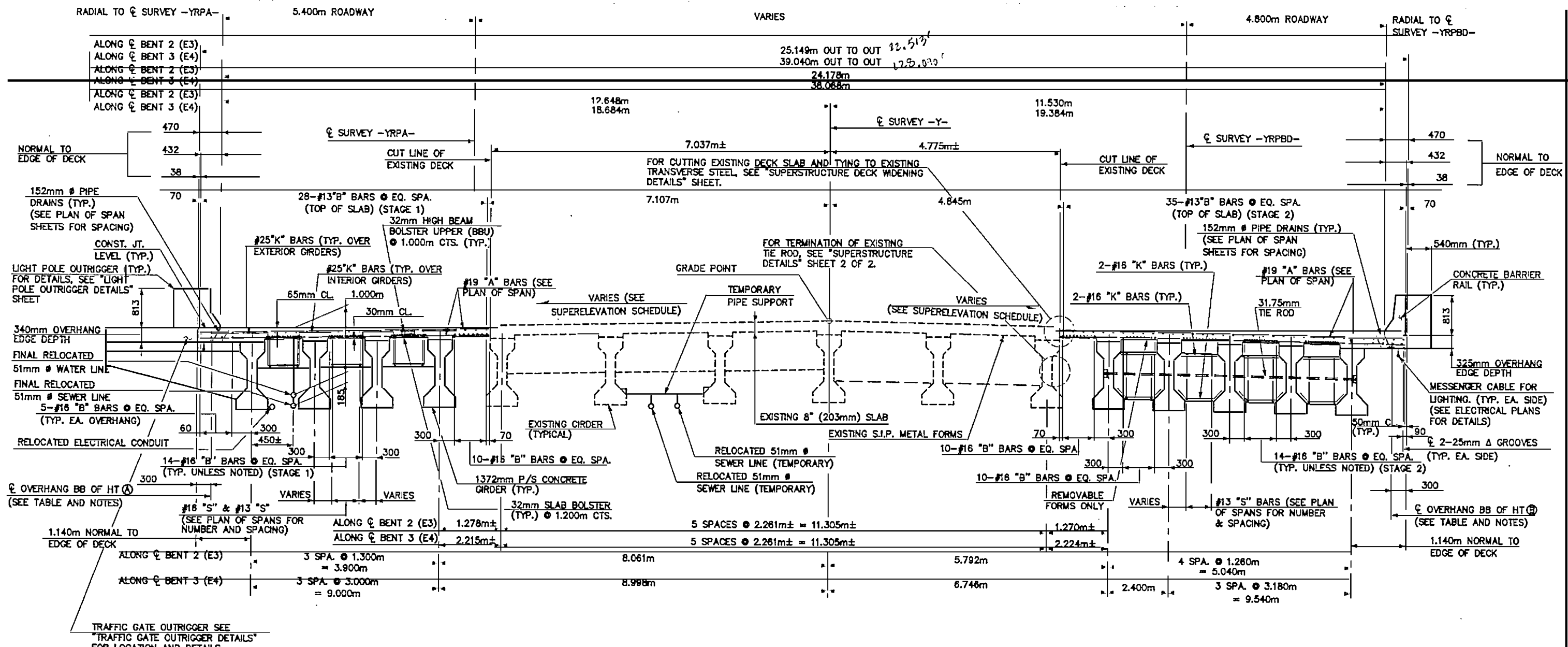
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 SPAN A

HNTB		HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609			
NO.	BY	DATE	NO.	BY	DATE
1		7/00	3		
2		7/00			

REVISIONS

SHEET NO. 5-13  
 TOTAL SHEETS 10-1

NAME: P:\2014-092A\Drawings\Structural\Typical Sections\21552CA.DWG DATE: AUG 28, 2009 TIME: 1:23 PM



**TYPICAL SECTION - SPAN B**  
SPAN B HAS CHORDED EDGES OF DECK.

**NOTES:**

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

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

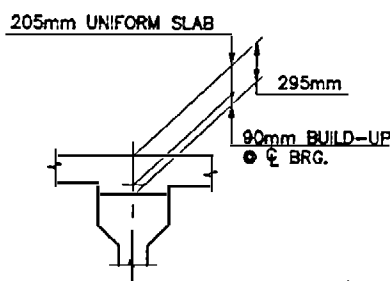
FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

FOR SUPPORT DETAILS AND LOCATIONS OF TEMPORARY WATER AND SEWER LINES DURING STAGE 1 CONSTRUCTION, SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.

FOR SUPPORT DETAILS AND LOCATIONS OF FINAL WATER AND SEWER LINES (AFTER STAGE 1 CONSTRUCTION IS COMPLETE), SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.

THE DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
117	134	122	134

**NOTE:** THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.

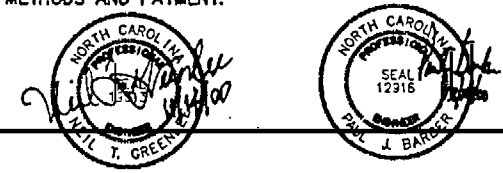
**DETAIL A**  
(AT  $\phi$  BRG.)  
NOTE: BUILD-UP VARIES BETWEEN  $\phi$  BEARINGS

SUPERELEVATION SCHEDULE	
Y LEFT	
STATION	S.E.
10+15.810	0.0190
10+76.189	0.0190
11+04.185	-0.0082
11+33.251	0.02

SUPERELEVATION SCHEDULE		
YRPA (RAMP A)		
STATION	S.E.	
	LEFT	RIGHT
3+15.242	-0.0400	0.0400
3+41.118	-0.00956	0.00956



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

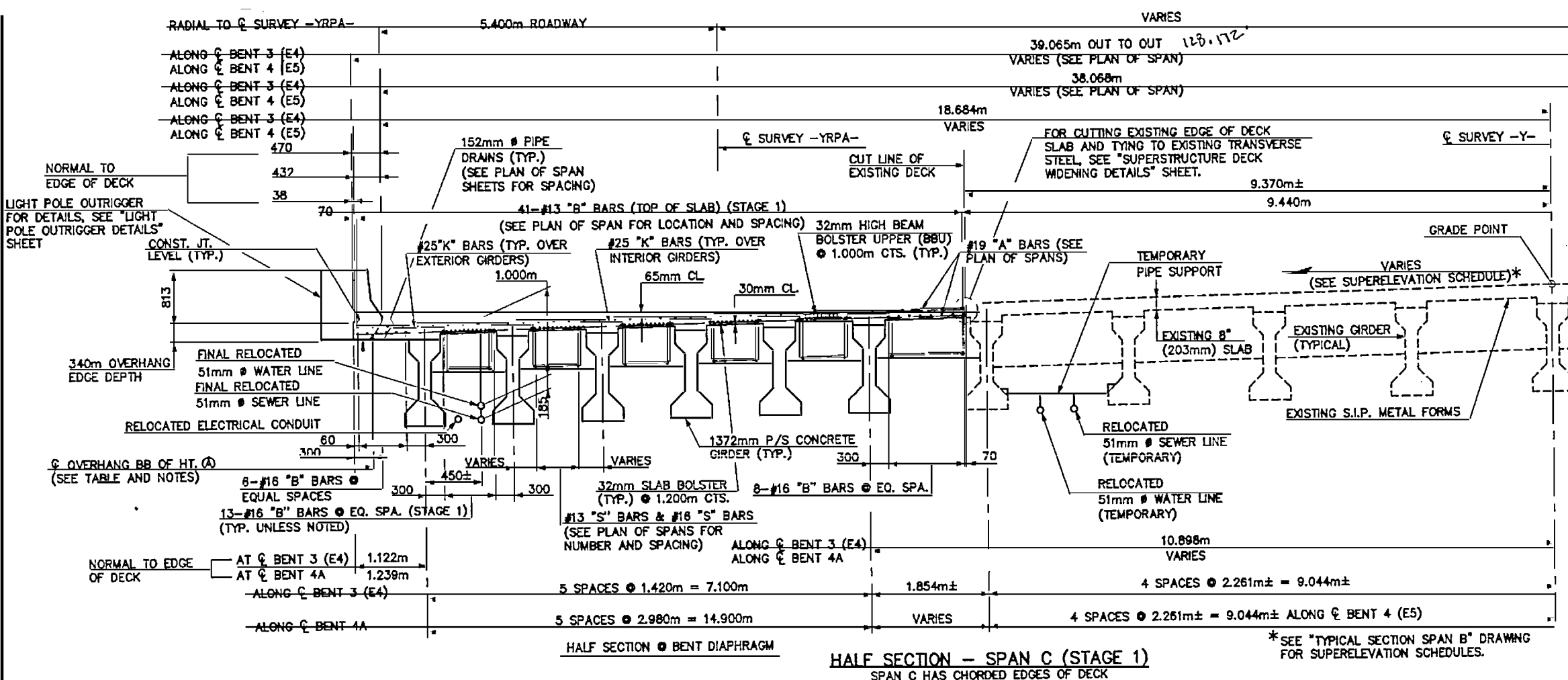


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
SPAN B

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00  
DWG. NO. 14

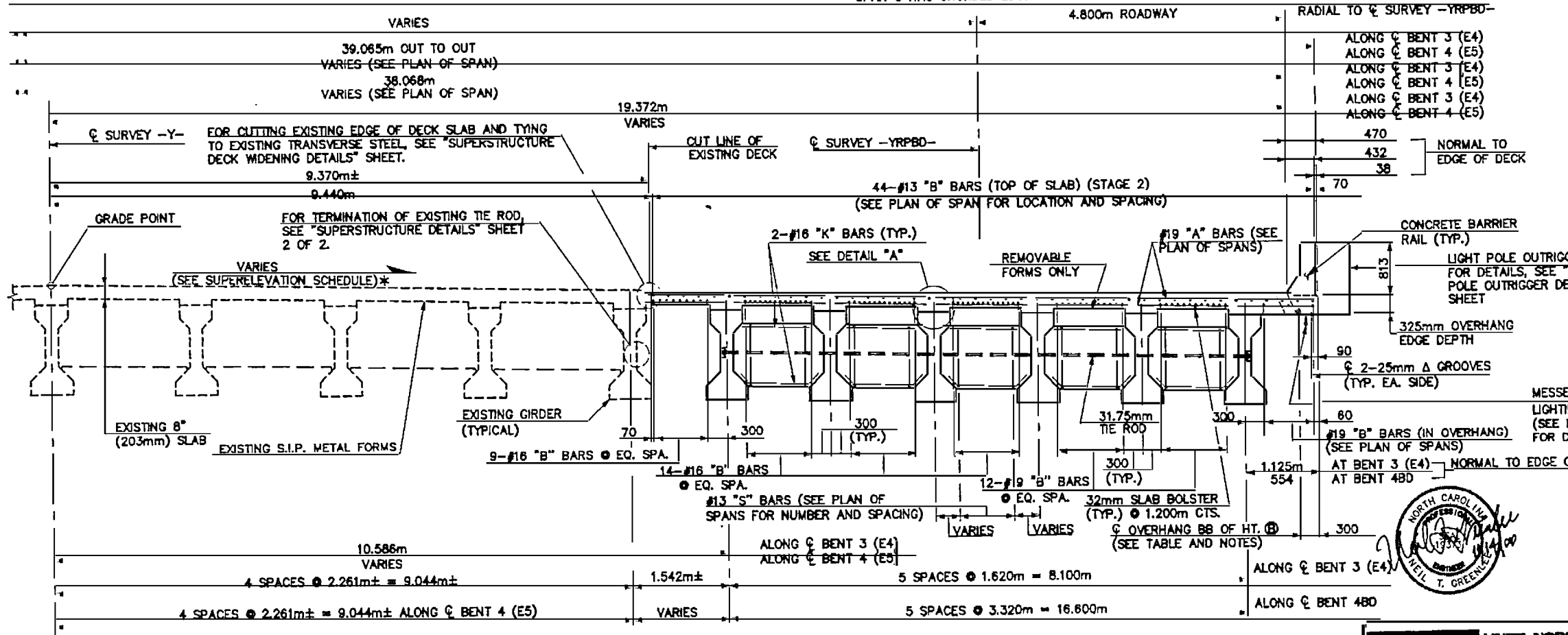
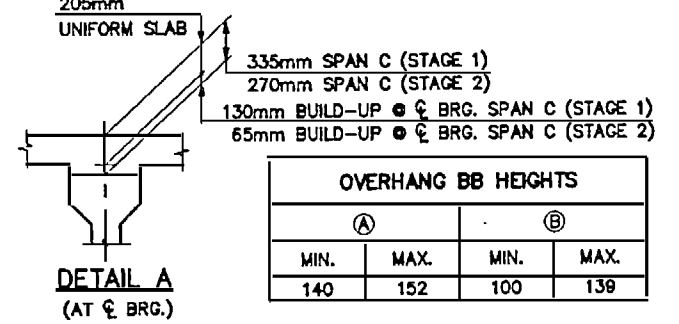
REVISIONS						SHEET NO. S-14
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

DATE: JUL 04, 2000 TIME: 9:40 AM



**NOTES:**

- FOR TEMPORARY WATER AND SEWER LINE SHIFT DETAILS AT BENT 3, SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS.
- LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND STIRRUPS IN BENT DIAPHRAGMS.
- TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.
- CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.
- ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.
- FOR SUPPORT DETAILS AND LOCATIONS OF TEMPORARY WATER AND SEWER LINES DURING STAGE 1 CONSTRUCTION, SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.
- FOR SUPPORT DETAILS AND LOCATIONS OF FINAL WATER AND SEWER LINES (AFTER STAGE 1 CONSTRUCTION IS COMPLETE), SEE "DETAILS OF WATERMAIN AND SEWERMAIN ATTACHMENT" DRAWINGS. SUPPORTS ARE NOT A STRUCTURE DETAIL OR PAY ITEM.
- THE DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.
- SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



**NOTE:** THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 TYPICAL SECTION  
 SPAN C



\*SEE "TYPICAL SECTION SPAN B" DRAWING FOR SUPERELEVATION SCHEDULES.

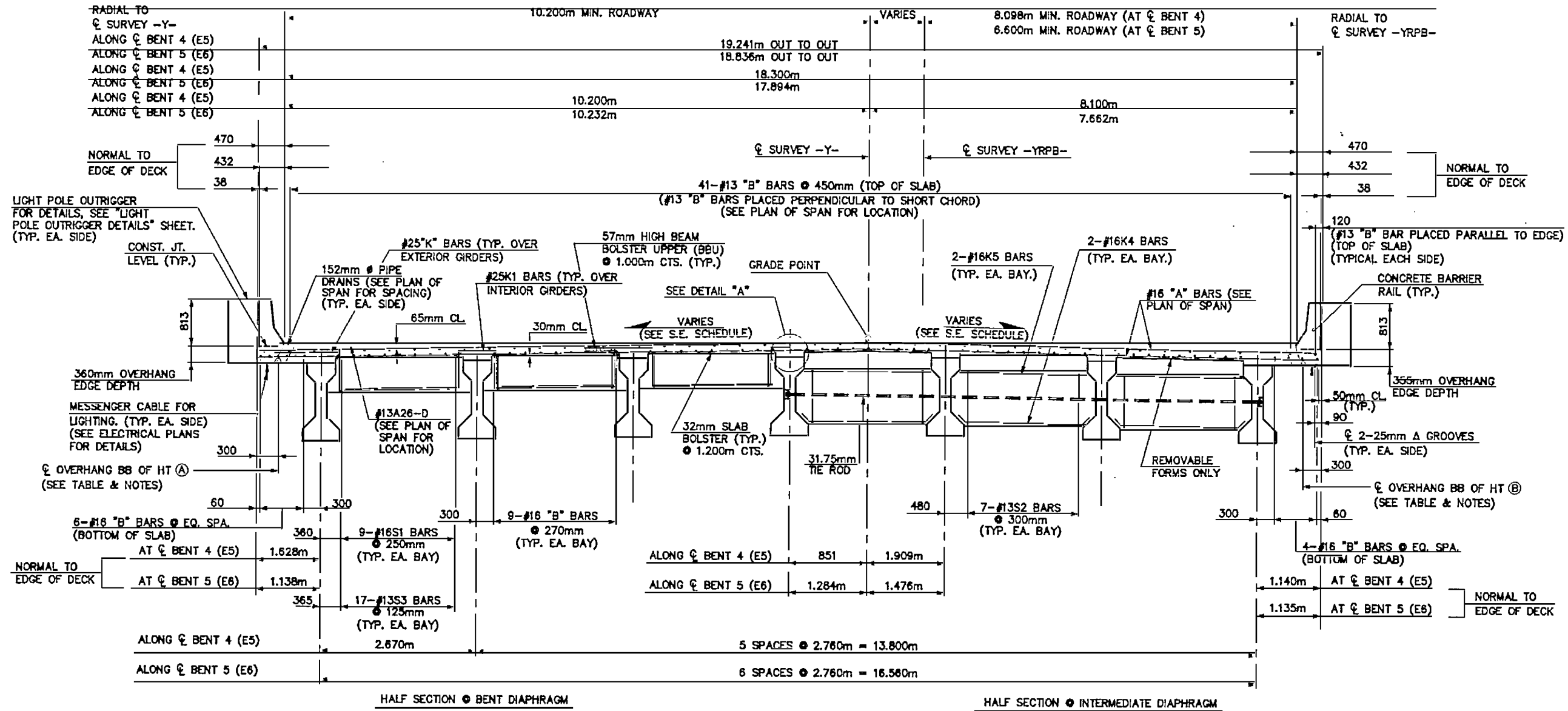
HALF SECTION - SPAN C (STAGE 2)  
 SPAN C HAS CHORDED EDGES OF DECK

HALF SECTION - INTERMEDIATE DIAPHRAGM

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: J. BAYNE DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 15

REVISIONS						SHEET NO. 8-15
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS (21)
2			4			





**TYPICAL SECTION - SPAN D**  
SPAN D HAS CHORDED EDGES OF DECK.

**NOTES:**

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

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm Ø TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

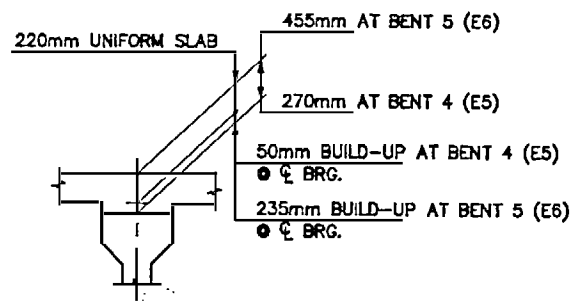
ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

EDGE OF DECK IS CHORDED BETWEEN BENTS IN SPAN "D".

DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



**DETAIL A**  
(AT BENT BRG.)

NOTE: BUILDUP VARIES BETWEEN BENT BRGINGS

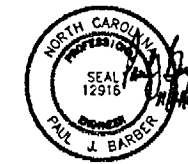
OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
140	195	127	191

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

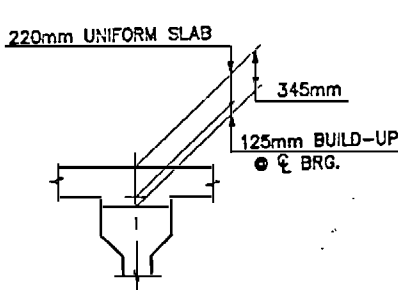
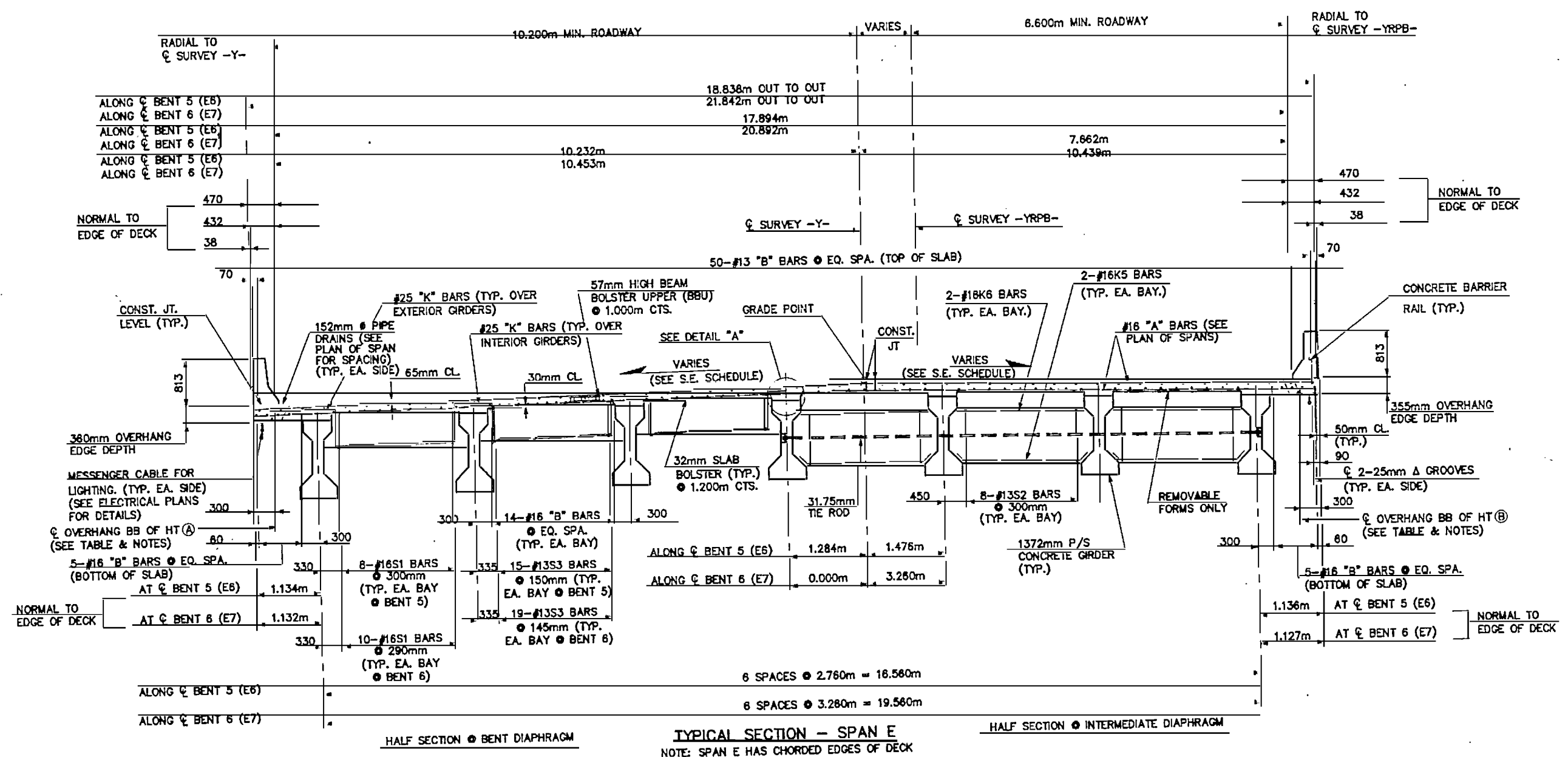
SUPERELEVATION SCHEDULE		
STATION (-Y-)	SE	
	LEFT	RIGHT
11+04.165	-0.0062	0.02
11+33.251	0.02	0.02



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
TYPICAL SECTION  
SPAN D

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 16

REVISIONS						SHEET NO. 8-10
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			



**DETAIL A**  
(AT  $\phi$  BRG.)

NOTE: BUILDUP VARIES BETWEEN  $\phi$  BEARINGS

SUPERELEVATION SCHEDULE			
LEFT		RIGHT	
STATION	SE	STATION	SE
11+04.185-Y-	-0.0062	11+04.185-Y-	0.02
11+33.251-Y-	0.02	11+47.333-Y-	0.02
12+67.808-Y-	0.02	BEGIN GORE TRANSITION SEE NOTE	
		2+34.246-YRPB-	0.02
		1+79.000-YRPB-	0.02

NOTE: SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B" FOR GORE SUPERELEVATION INFORMATION.

OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
123	157	130	154

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.

**NOTES:**

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

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm  $\phi$  TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR GORE CONSTRUCTION JOINT LOCATION, SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B."

FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

EDGE OF DECK IS CHORDED BETWEEN BENTS IN SPAN "E".

DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
SPAN E

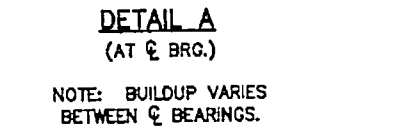
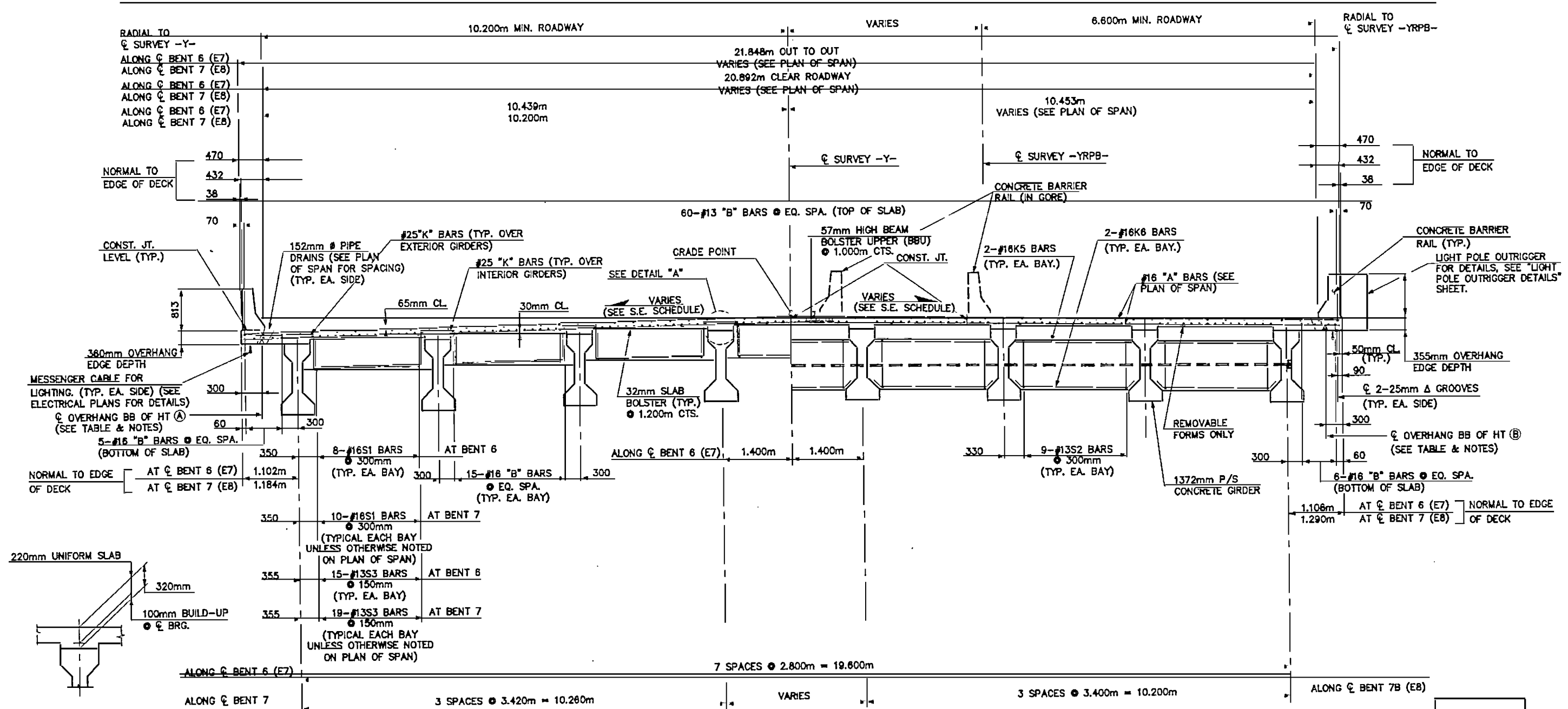
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DATE 7/00  
DWG. NO. 17

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

SHEET NO. S-17  
TOTAL SHEETS (17)

NAME: P:\29143-02\Drawings\Struct\Sections\2T2D.DWG DATE: AUG 28, 2000 TIME: 3:17 PM



OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
137	149	125	147

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.

SUPERELEVATION SCHEDULE			
LEFT		RIGHT	
STATION	SE	STATION	SE
11+33.251-Y-	0.02	11+04.165-Y-	0.02
12+67.808-Y-	0.02	11+47.333-Y-	0.02
BEGIN GORE TRANSITION SEE NOTE			
2+34.246-YRPB-	0.02		
1+79.000-YRPB-	0.02		

NOTE: SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B" FOR GORE SUPERELEVATION INFORMATION.

NOTES:  
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS AND STIRRUPS IN BENT DIAPHRAGMS.

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm @TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

FOR GORE CONSTRUCTION JOINT LOCATION, SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B."

EDGE OF DECK IS CHORDED BETWEEN BENTS IN SPAN "F".

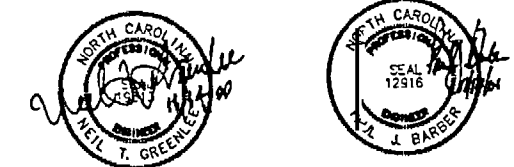
DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.



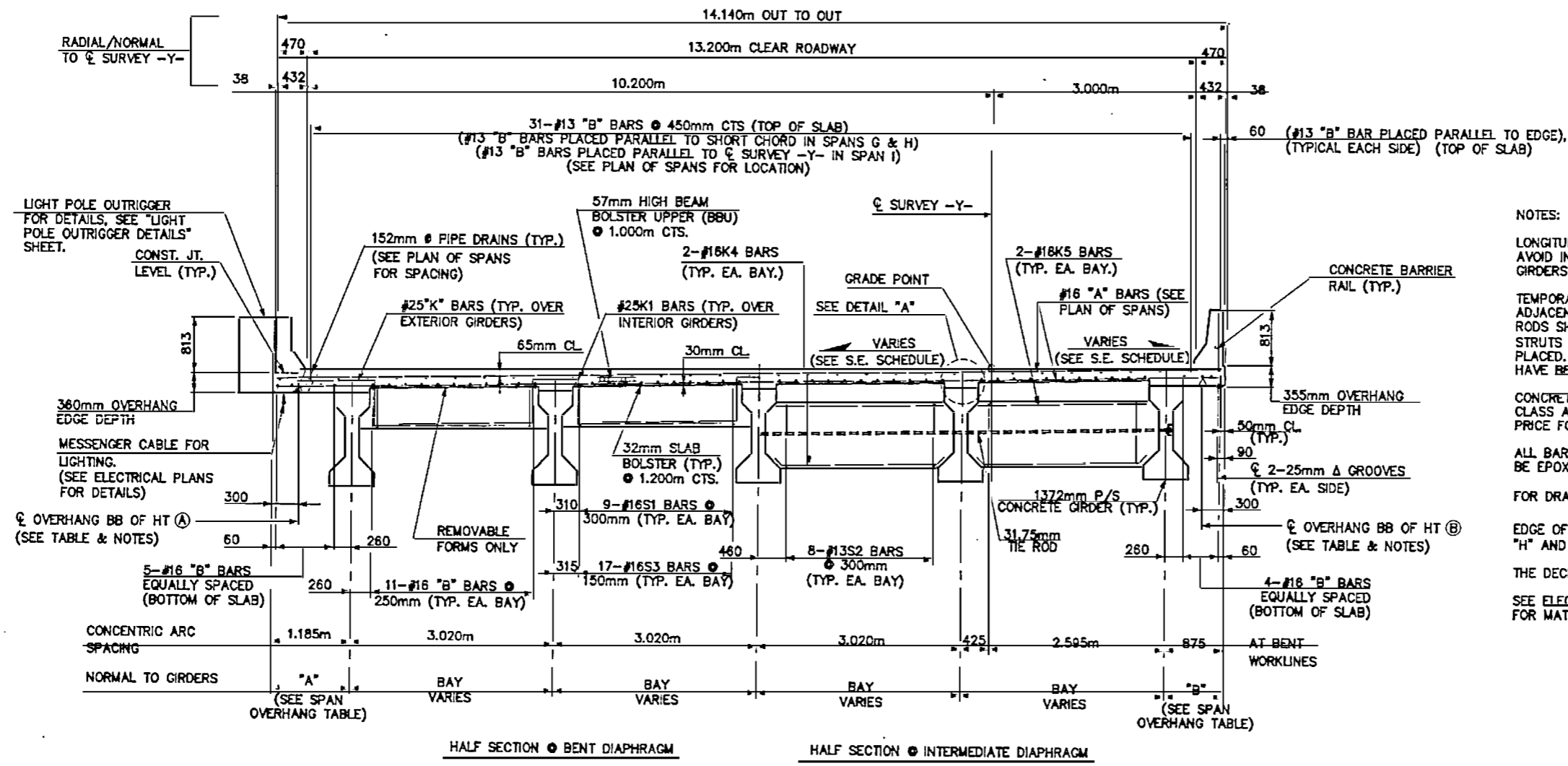
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TYPICAL SECTION  
SPAN F



HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00  
DWG. NO. 18

REVISIONS						SHEET NO. 5-18
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS (101)
2			4			



NOTES:

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

TEMPORARY STRUTS SHALL BE PLACED BETWEEN PRESTRESSED GIRDERS ADJACENT TO THE DIAPHRAGMS AND THE NUTS ON THE 31.75mm  $\phi$  TIE RODS SHALL BE FULLY TIGHTENED BEFORE THE DIAPHRAGMS ARE CAST. STRUTS SHALL REMAIN IN PLACE THREE (3) DAYS AFTER CONCRETE IS PLACED. THE TIE RODS SHALL BE RE-TIGHTENED AFTER THE STRUTS HAVE BEEN REMOVED.

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

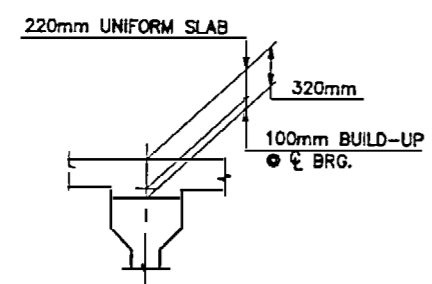
EDGE OF DECK IS ON CONCENTRIC ARCS BETWEEN BENTS IN SPANS "G", "H" AND "I".

THE DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.

**TYPICAL SECTION - SPANS G, H & I**

NOTE: GIRDERS ARE SIMPLE SPAN CHORDED ON CONCENTRIC ARCS IN SPANS G & H.



**DETAIL A**  
(AT  $\phi$  BRG.)

NOTE: BUILDUP VARIES BETWEEN  $\phi$  BEARINGS

SPAN	OVERHANG BB HEIGHTS			
	A		B	
	MIN.	MAX.	MIN.	MAX.
G	102	149	149	155
H	129	149	132	155
I	126	149	118	155

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.

SPAN	TABLE OF DECK GEOMETRY (mm)			
	"A"		"B"	
	MIN.	MAX.	MIN.	MAX.
G	870	1186	876	1202
H	1090	1185	875	972
I	1185	1185	875	875

STATION (-Y-)	SE	
	LEFT	RIGHT
11+78.157	0.02	0.01
11+84.157	0.02	-0.02
12+67.608	0.02	-0.02



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-



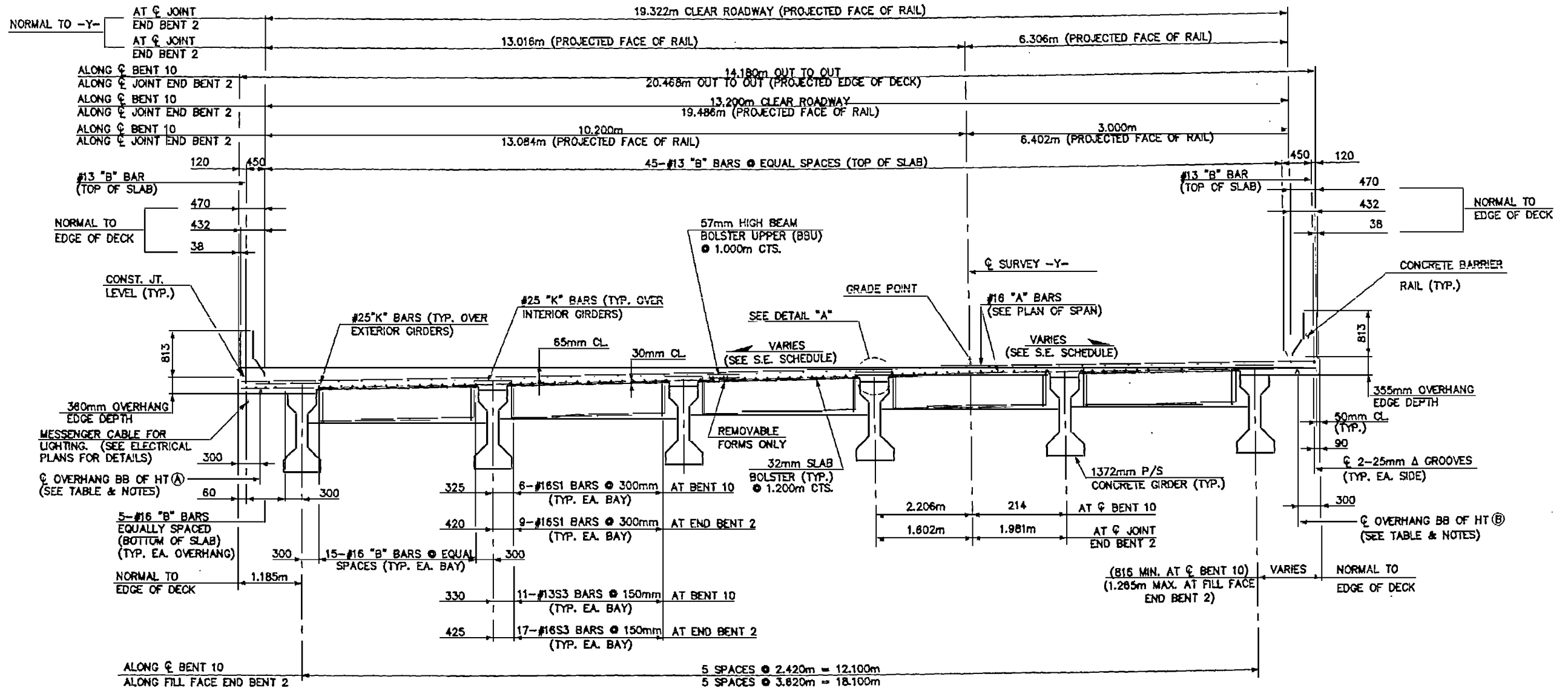
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 TYPICAL SECTION  
 SPANS G, H & I

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: J. BAYNE DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 7/00 DWG. NO. 19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-19
2			4			

TOTAL SHEETS 10/11

NAME: P:\2014\4092\0492\Drawings\Substructure\Typical Sections\252000.dwg DATE: AUG 26, 2000 TIME: 3:43 PM



**TYPICAL SECTION - SPAN J**  
 NOTE: SPAN J HAS CHORDED EDGES OF DECK.

**NOTES:**

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

CONCRETE IN BENT AND INTERMEDIATE DIAPHRAGMS SHALL BE CLASS AA. PAYMENT SHALL BE MADE UNDER THE UNIT CONTRACT PRICE FOR REINFORCED CONCRETE DECK SLAB.

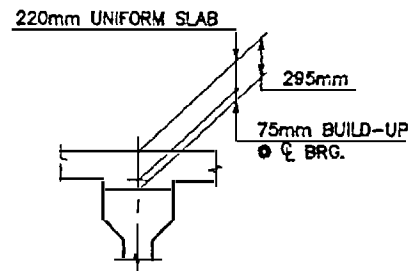
ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EDGE OF DECK IS CHORDED BETWEEN BENTS IN SPAN "J".

THE DECK SLAB SHALL BE CONSTRUCTED USING REMOVABLE FORMS.

SEE ELECTRICAL CONDUIT SYSTEM DETAILS AND SPECIAL PROVISIONS FOR MATERIALS, CONSTRUCTION METHODS AND PAYMENT.

STATION (-Y-)	SE	
	LEFT	RIGHT
12+57.608	0.02	-0.02
12+60.808	-0.001	0.003



**DETAIL A**  
(AT  $\phi$  BRG.)

NOTE: BUILDUP VARIES BETWEEN  $\phi$  BEARINGS.

OVERHANG BB HEIGHTS			
A		B	
MIN.	MAX.	MIN.	MAX.
140	149	140	149

NOTE: THE ABOVE VALUES REPRESENT EXPECTED BB HEIGHTS BASED UPON DESIGN VALUES. ACTUAL HEIGHTS REQUIRED ARE A FUNCTION OF CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL STOCK A VARIETY OF HEIGHTS TO PROVIDE ADEQUATE CLEARANCES AND SUPPORT TO THE REINFORCING AS REQUIRED BY THE PLANS.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

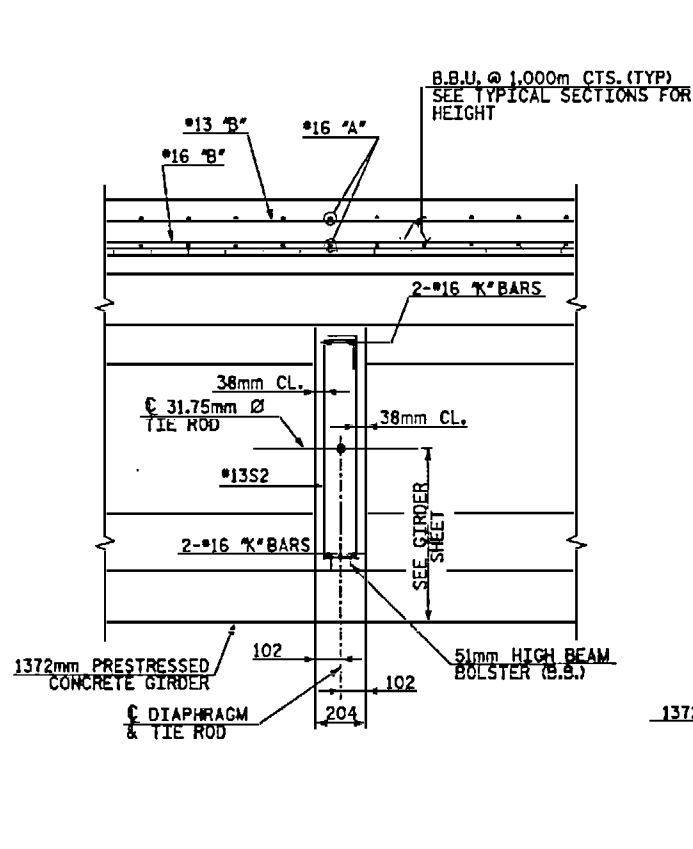


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 TYPICAL SECTION  
 SPAN J

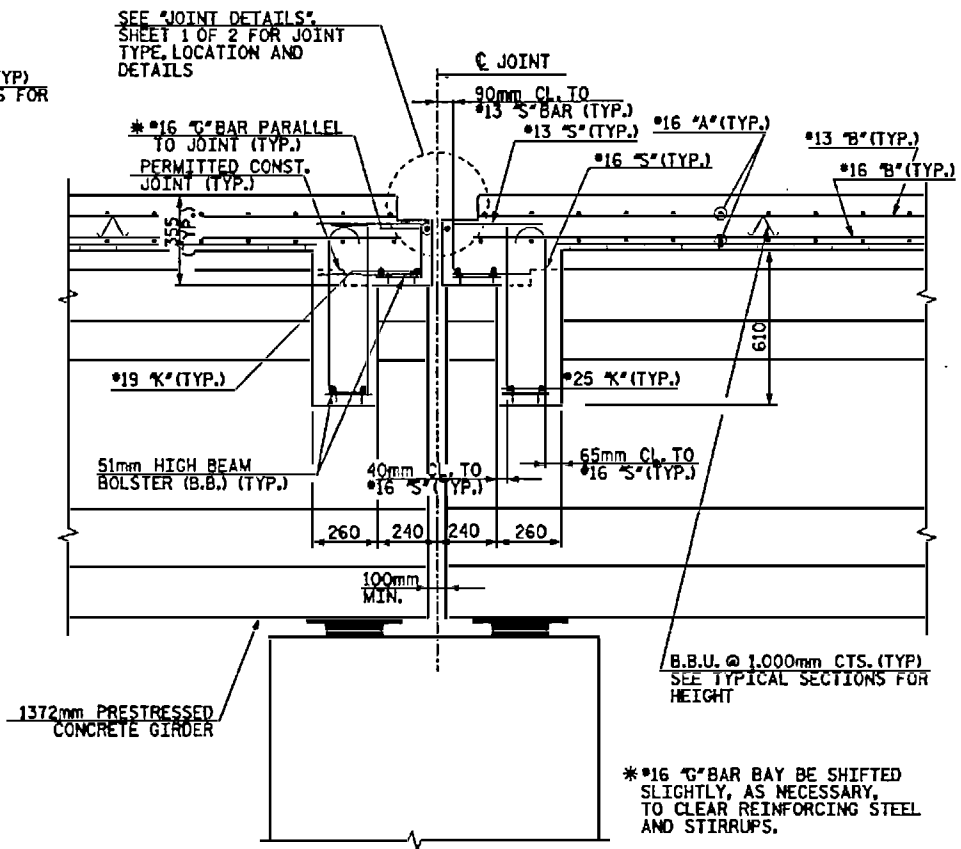
REVISIONS						SHEET NO. 8-20 TOTAL SHEETS 1011
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

**HNTP NORTH CAROLINA, P.C.**  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: J. BAYNE DATE: 7/90 DWG. NO. 20  
 CHECKED BY: D. HAWKINS DATE: 7/90

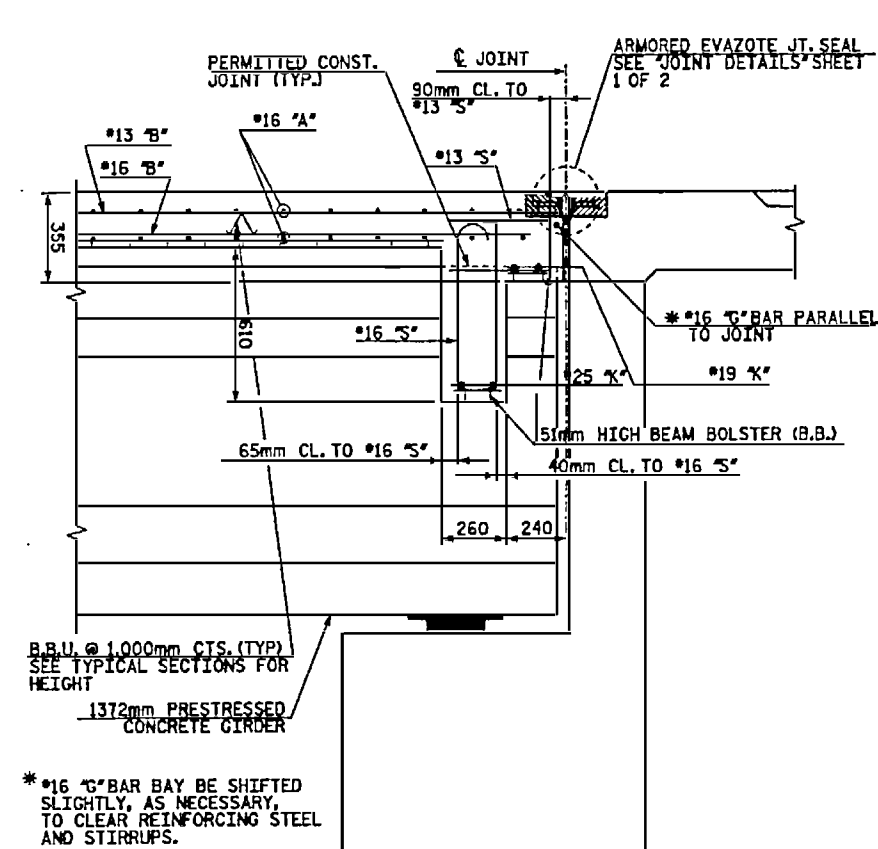
NAME: P:\2014\12-09\Drawings\Structure\Typical Section\12152C1.Dwg DATE: AUG 28, 2008 TIME: 3:54 PM



SECTION THRU INTERMEDIATE DIAPHRAGM

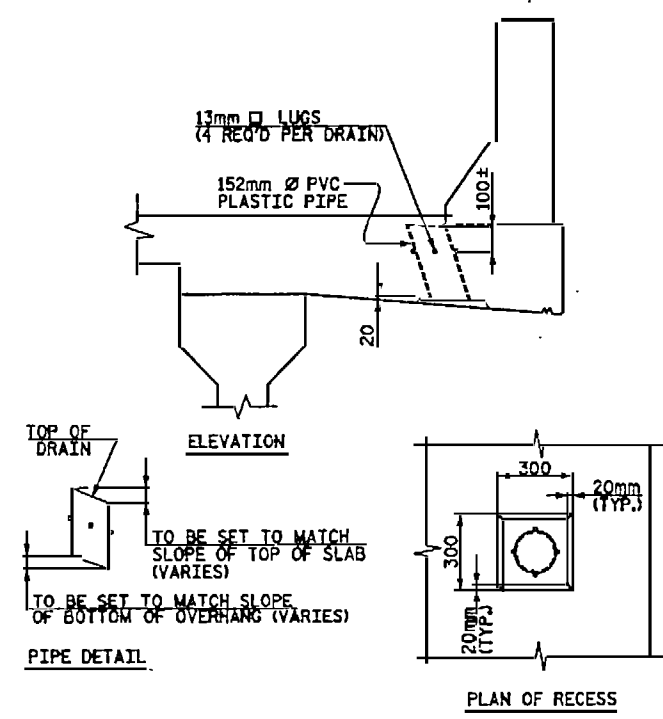


SECTION THRU DIAPHRAGM AT BENT

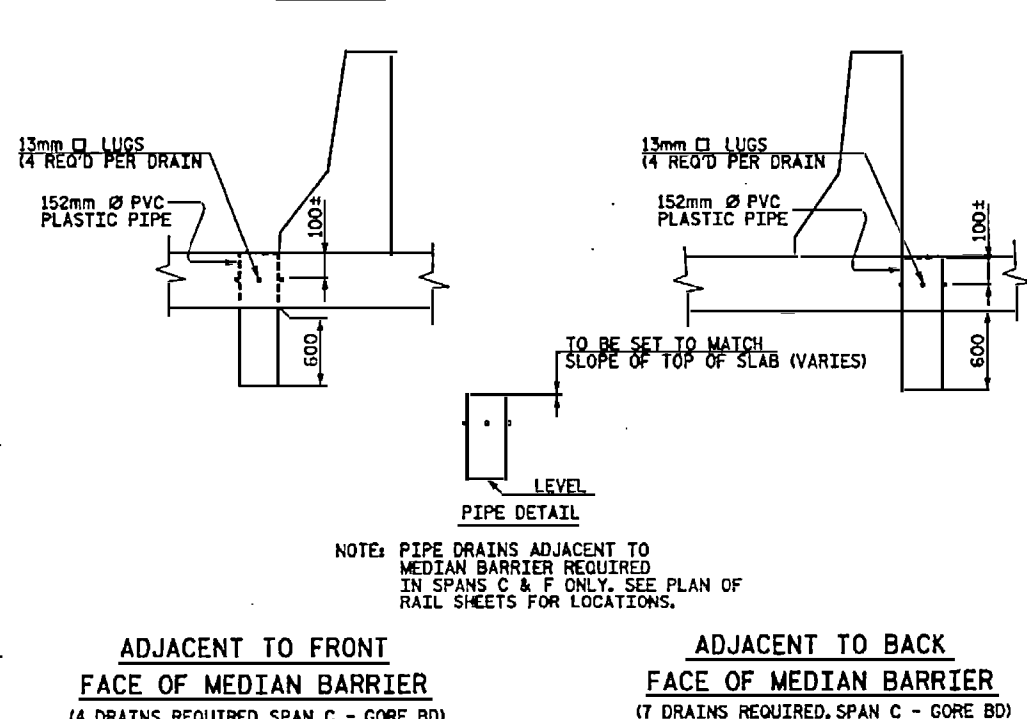


SECTION THRU DIAPHRAGM AT END BENT 2

**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING SEE "CONCRETE BARRIER RAIL" SHEETS.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE THAT SPAN HAS BEEN AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 #16 #4 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEETS.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEETS.  
 FOR DRAIN LOCATIONS IN SPAN GORE AREAS, SEE "PLAN OF RAIL" SHEETS. FOR DECK DRAINS IN SPANS, SEE SUPERSTRUCTURE PLAN OF SPAN SHEETS.  
 FOR ADDITIONAL NOTES, SEE "TYPICAL SECTION SPAN A".



IN OVERHANG (113 DRAINS REQUIRED)

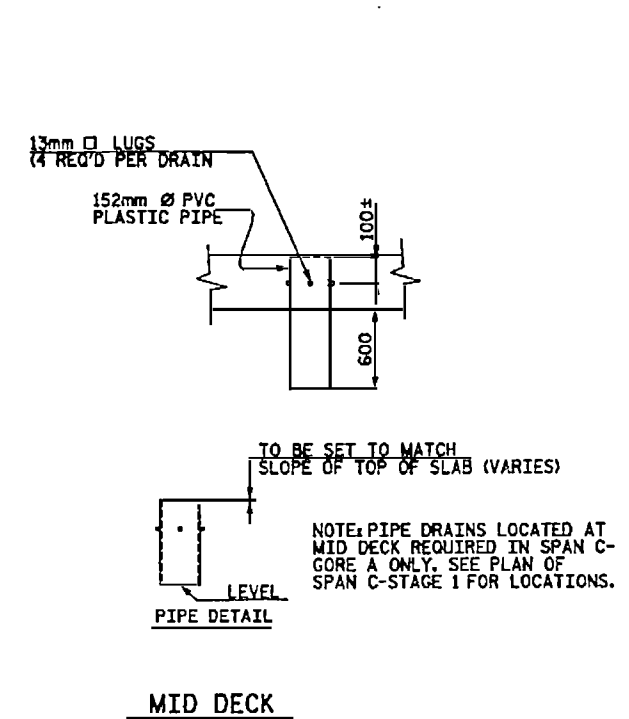


ADJACENT TO FRONT FACE OF MEDIAN BARRIER (4 DRAINS REQUIRED, SPAN C - GORE BD) (2 DRAINS REQUIRED, SPAN F - GORE B)

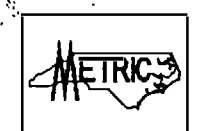
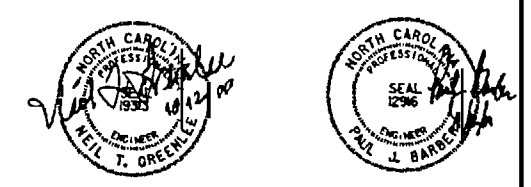
ADJACENT TO BACK FACE OF MEDIAN BARRIER (7 DRAINS REQUIRED, SPAN C - GORE BD) (3 DRAINS REQUIRED, SPAN F - GORE B)

DRAIN DETAILS

**NOTE:**  
 TOP OF FLOOR DRAIN TO BE SET 10mm BELOW SURFACE OF SLAB.  
 4 - 13mm □ LUGS TO BE GLUED TO THE P.V.C. PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN.  
 DRAINS SHALL BE LOCATED IN DECK TO PREVENT DRAINAGE SPILL ON TO BOTTOM FLANGE OF PRESTRESSED GIRDERS. ANY RELOCATIONS NECESSARY SHALL BE APPROVED BY THE ENGINEER.



MID DECK (11 DRAINS REQUIRED, SPAN C - GORE A)



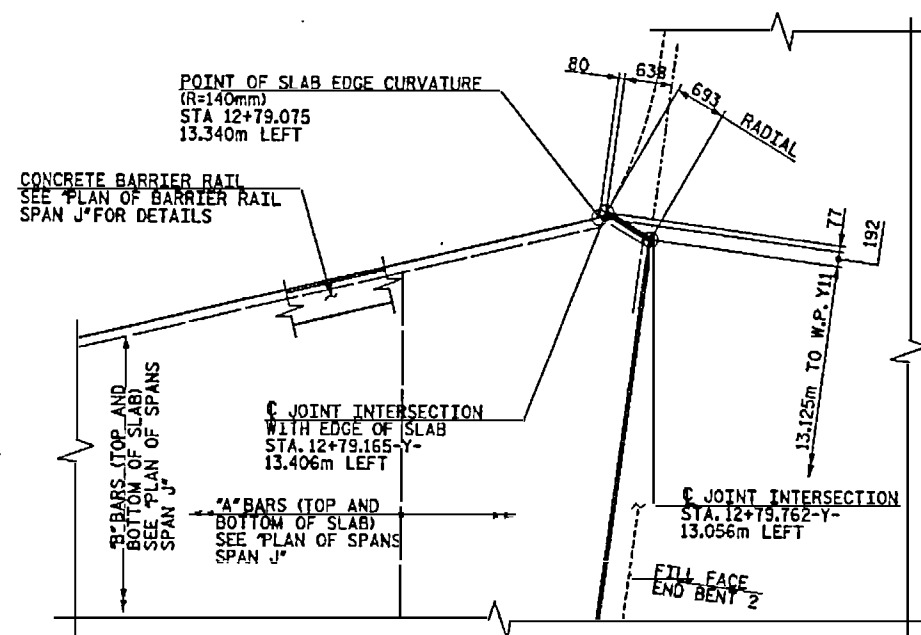
PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: \_\_\_\_\_

SHEET 1 OF 2

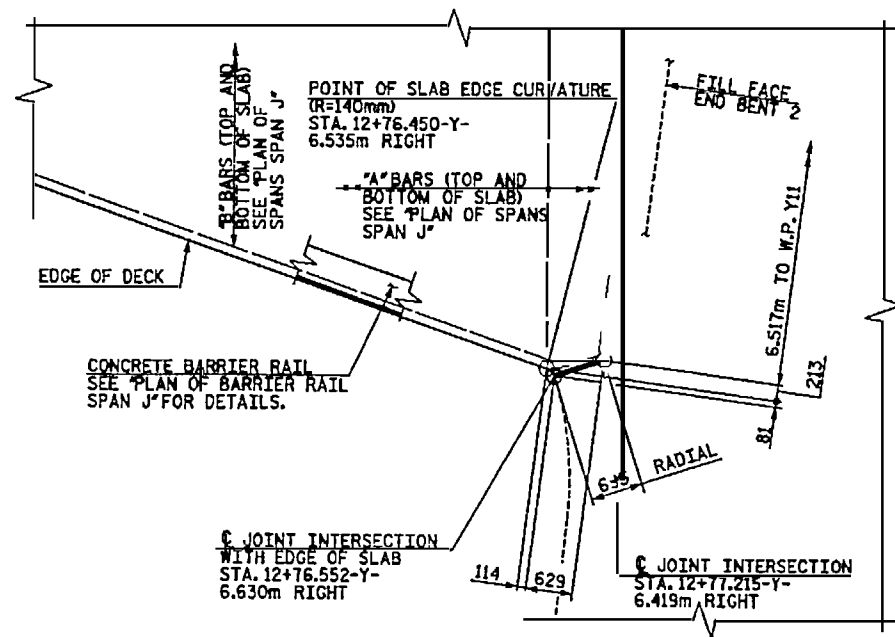
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 DETAILS

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27603  
 DRAWN BY: J. BAYNE DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 21

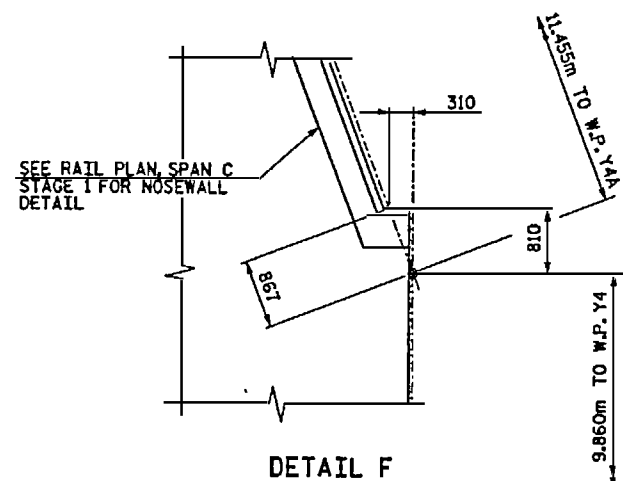
REVISIONS						SHEET NO. S-2.1
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



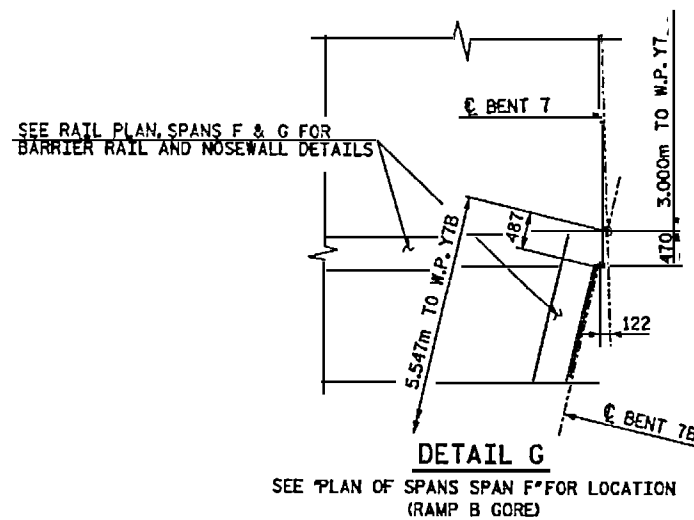
**DETAIL D**  
SEE PLAN OF SPANS SPAN J FOR LOCATION



**DETAIL E**  
SEE PLAN OF SPANS SPAN J FOR LOCATION

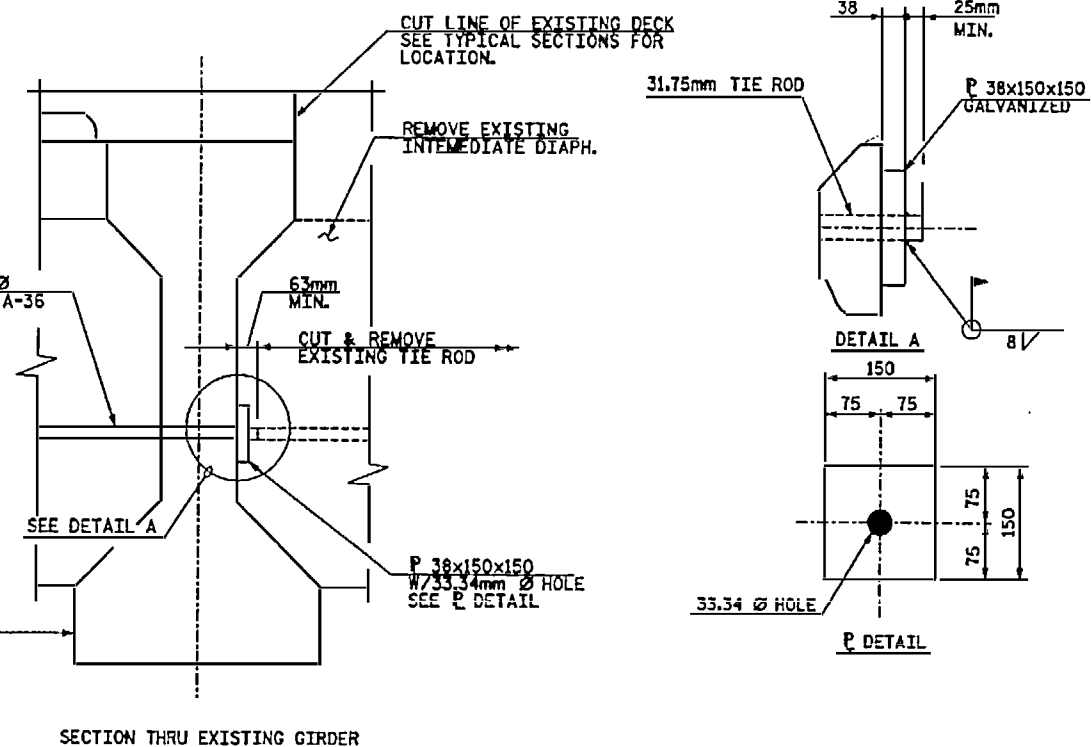


**DETAIL F**  
SEE PLAN OF SPANS, SPAN C, STAGE 1 FOR LOCATION



**DETAIL G**  
SEE PLAN OF SPANS SPAN F FOR LOCATION  
(RAMP B GORE)

EXISTING 1/4" (31.75mm) Ø  
TIE ROD (A.S.T.M. GRADE A-36  
STRUCTURAL STEEL)  
(UN GALVANIZED)



**SECTION THRU EXISTING GIRDER**

**EXISTING TIE ROD TERMINATION DETAILS**

SPANS A & B

**NOTE:**

THE CONTRACTOR SHALL DEMOLISH THE INTERMEDIATE DIAPHRAGM WHILE TAKING PRECAUTIONS TO MAINTAIN THE INTEGRITY OF THE EXISTING GIRDER TO REMAIN.

THE CONTRACTOR MAY SUBMIT ALTERNATIVE TIE ROD TERMINATION DETAILS.

CONTRACTOR SHALL VERIFY TIE ROD DIAMETER IN THE FIELD AND ADJUST TERMINATION PLATE HOLE SIZE AS REQUIRED. HOLE SHALL NOT BE GREATER THAN 2mm (1/16") IN DIAMETER THAN TIE ROD DIAMETER.

THE EXISTING TIE ROD EXPOSED END SHALL BE PROTECTED WITH A COAL TAR EPOXY PAINT PER STANDARD SPECIFICATIONS PRIOR TO ASSEMBLY. ONCE ASSEMBLED AND WELDED, THE ENTIRE ASSEMBLY SHALL BE RECOATED AS NECESSARY.



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

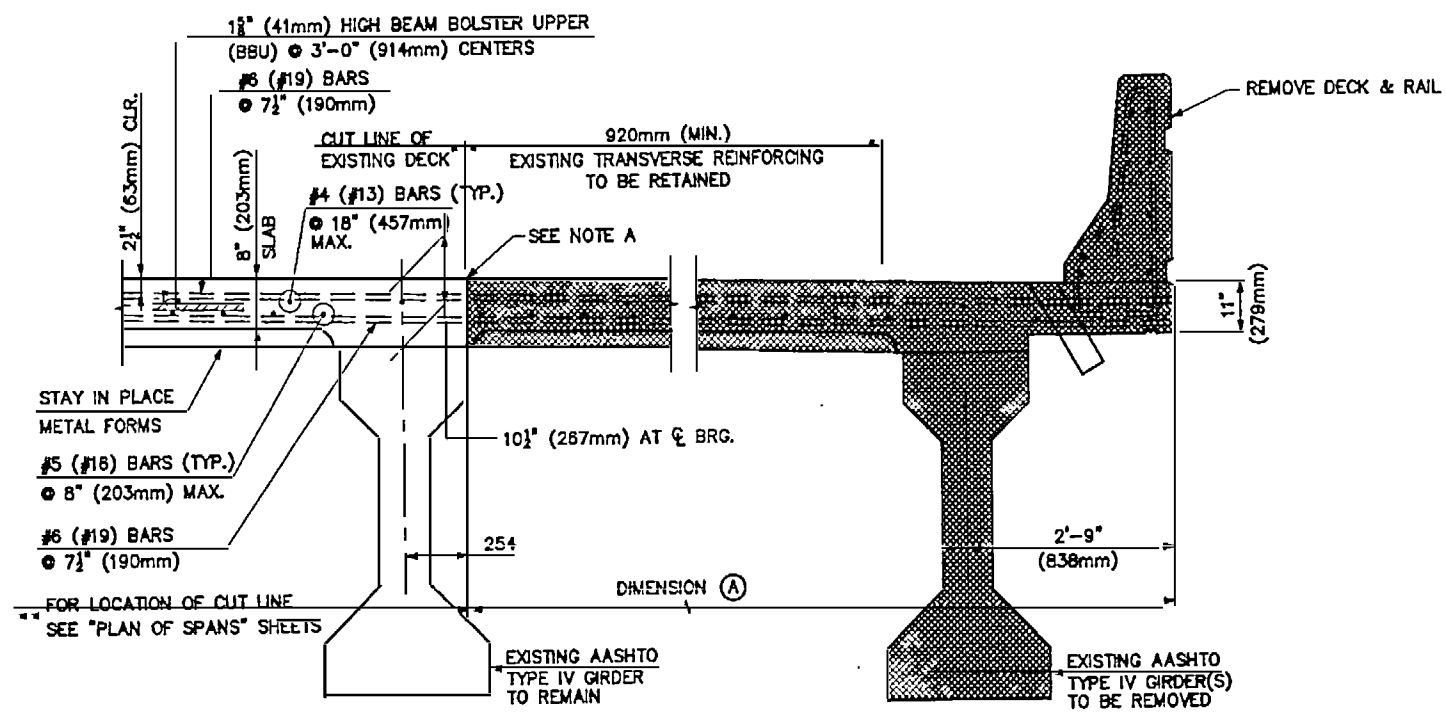
SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
DETAILS



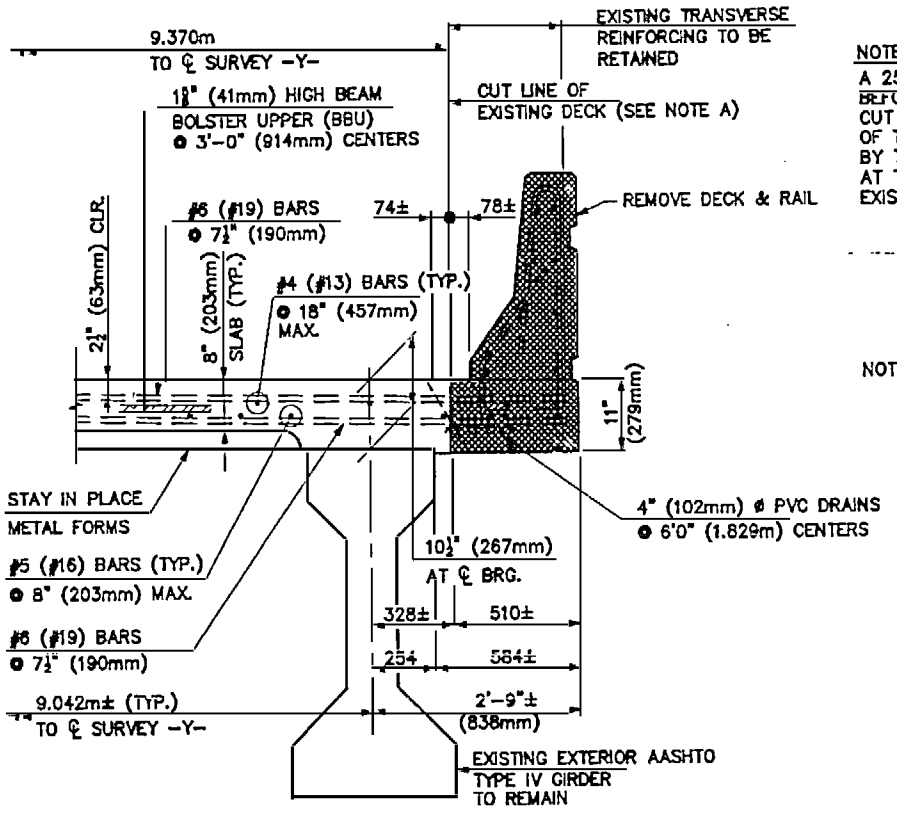
**HNTB** HNTB NORTH CAROLINA, P.C.  
141 E. 5th Street, Raleigh, NC 27601  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 22

REVISIONS						SHEET NO. 5-22
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			



STAGE	LOCATION	DIMENSION (A)
STAGE	SPAN A LEFT	5.106m
	SPAN B LEFT	2.844m
STAGE	SPAN A RIGHT	5.106m
	SPAN B RIGHT	5.106m

**TYPICAL DEMOLITION DETAIL - SPANS A & B**  
(RIGHT SIDE SHOWN - LEFT SIDE SIMILAR)



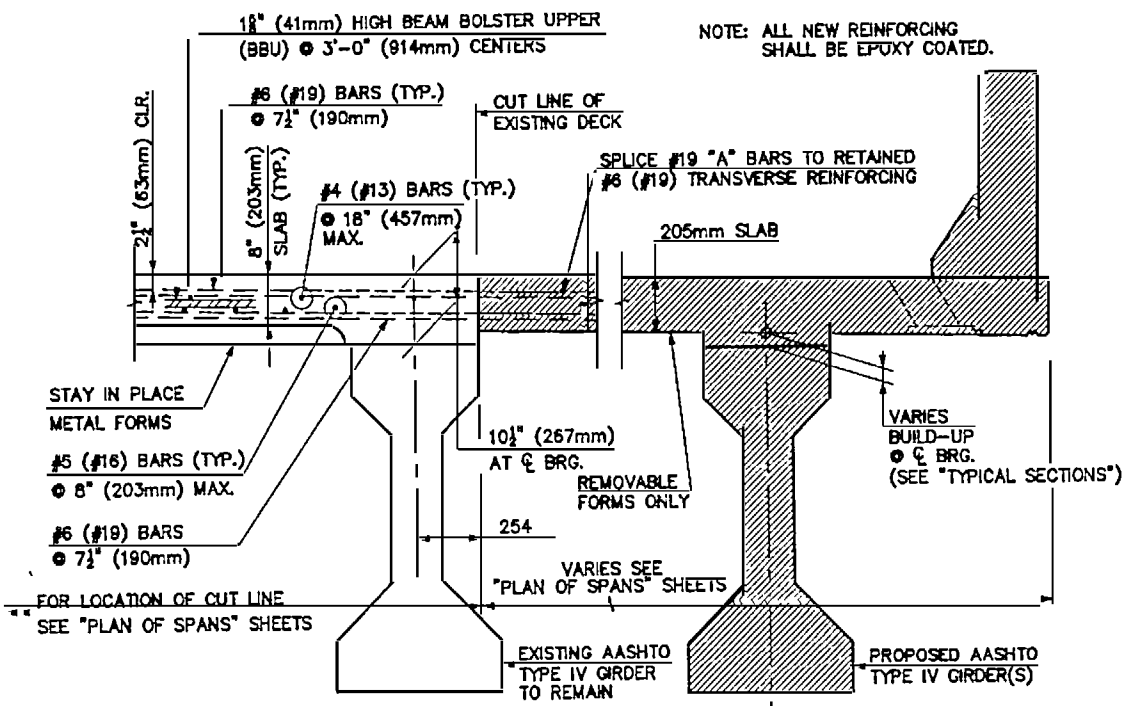
**TYPICAL DEMOLITION DETAIL - SPAN C**  
(RIGHT SIDE SHOWN - LEFT SIDE SIMILAR)

**NOTE A:**  
A 25mm DEEP GROOVE SHALL BE SAWS IN THE TOP OF DECK SLAB BEFORE REMOVING EXISTING CONCRETE. IN THE EVENT THE 25mm SAW CUT RESULTS IN DAMAGE TO THE REINFORCING STEEL, THE DEPTH OF THE CUT SHALL BE REDUCED TO AVOID SUCH DAMAGE AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN TO OBTAIN A STRAIGHT LINE AT THE TOP AND BOTTOM OF OLD AND NEW CONCRETE. RETAIN EXISTING STEEL AS SHOWN.

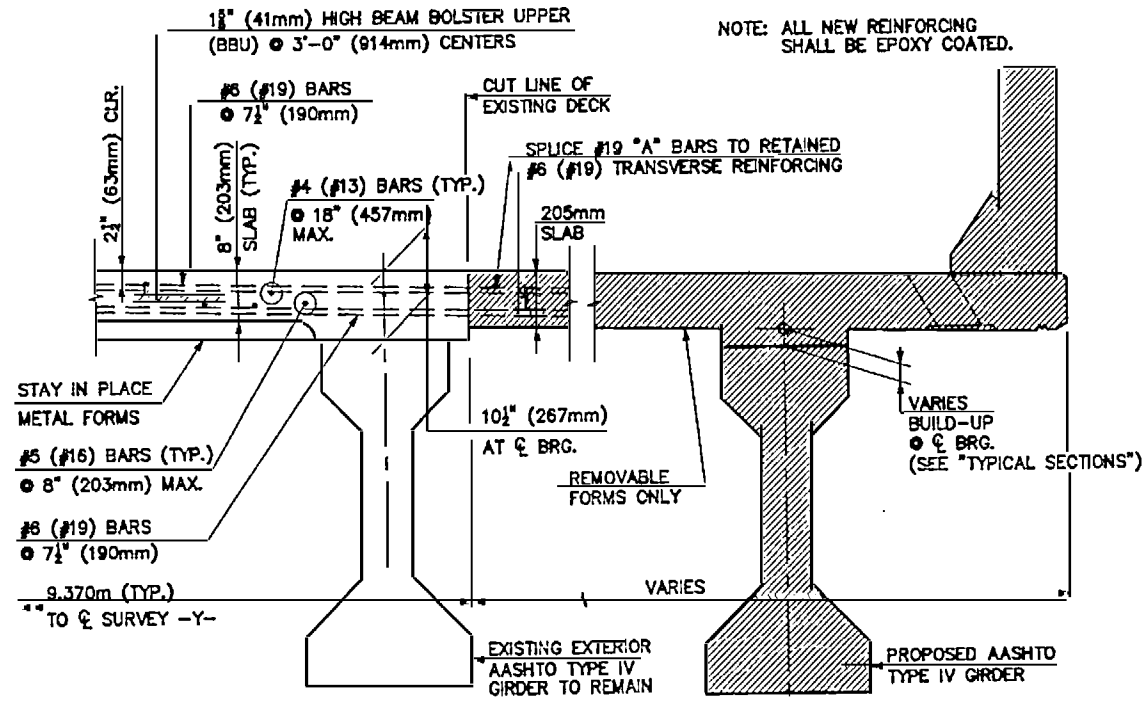
**NOTE:** EXISTING DECK UTILIZES CLASS AA CONCRETE. EXISTING REINFORCING (BLACK) ALLOWABLE TENSILE STRESS IS CONSISTENT WITH GRADE 40 STEEL.

**LEGEND:**

- EXISTING STRUCTURE TO BE REMOVED
- PROPOSED STRUCTURE



**TYPICAL WIDENING DETAIL-SPANS A & B**  
(RIGHT SIDE SHOWN - LEFT SIDE SIMILAR)



**TYPICAL WIDENING DETAIL-SPAN C**  
(RIGHT SIDE SHOWN - LEFT SIDE SIMILAR)

**NOTE:** ALL NEW REINFORCING SHALL BE EPOXY COATED.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
DECK WIDENING DETAILS



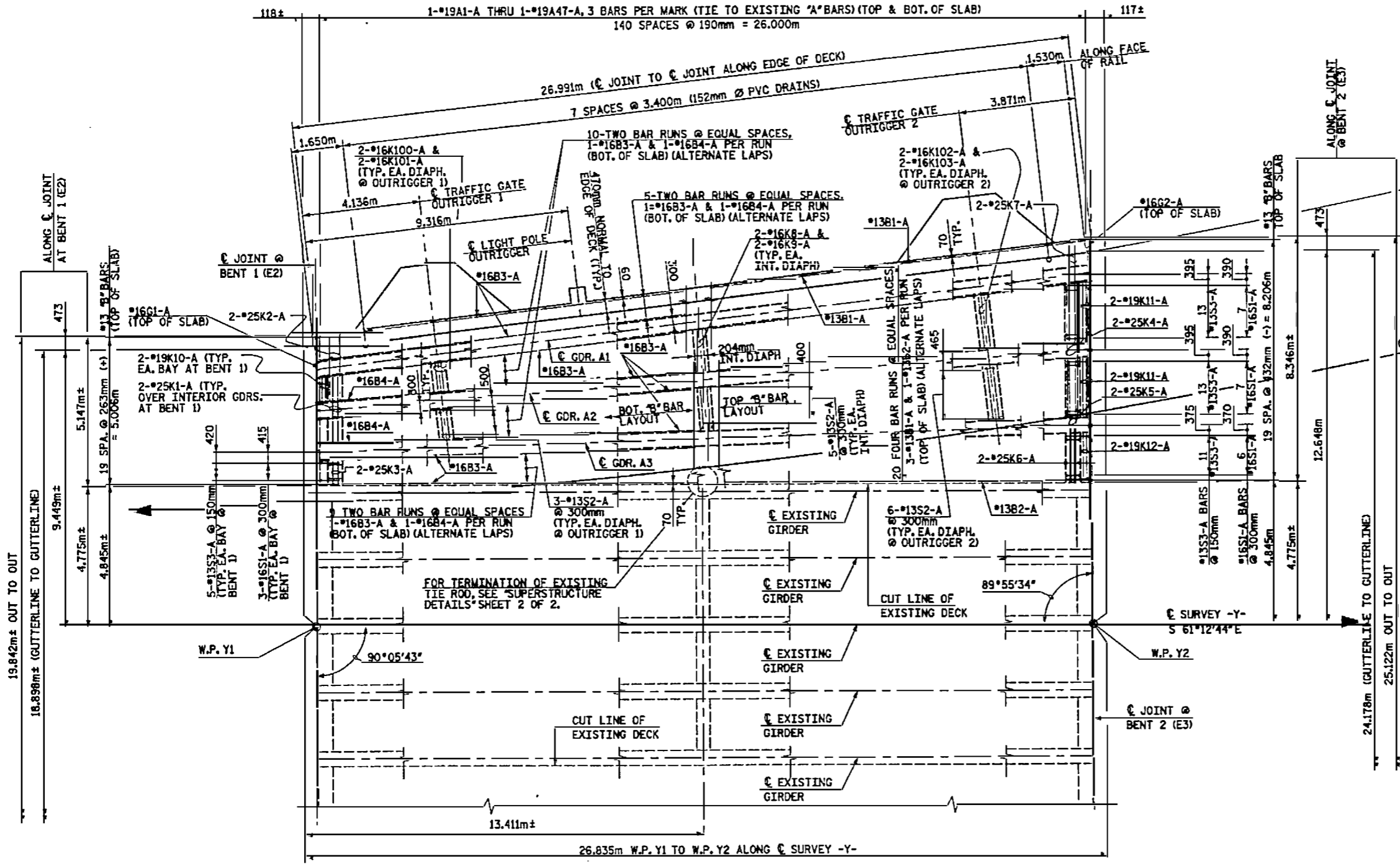
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 23

REVISIONS						SHEET NO. 8-23
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			



NOTE:  
 "A" BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLANS. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE "A" BAR LENGTHS ACCORDINGLY.

NOTES:  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 \*16 "A" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.  
 FOR TRAFFIC GATE OUTRIGGER DETAILS, SEE "TRAFFIC GATE OUTRIGGER DETAILS" SHEET.  
 FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL SEE "DECK WIDENING DETAILS" SHEET.

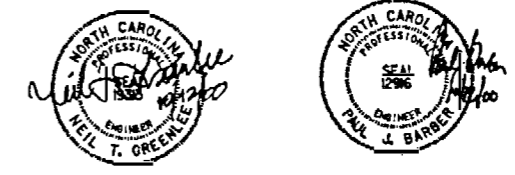


PLAN OF SPAN A - STAGE 1

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO C SURVEY -Y-. SPAN A HAS CHORDED EDGES OF DECK.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT I2+52.890 -Y-



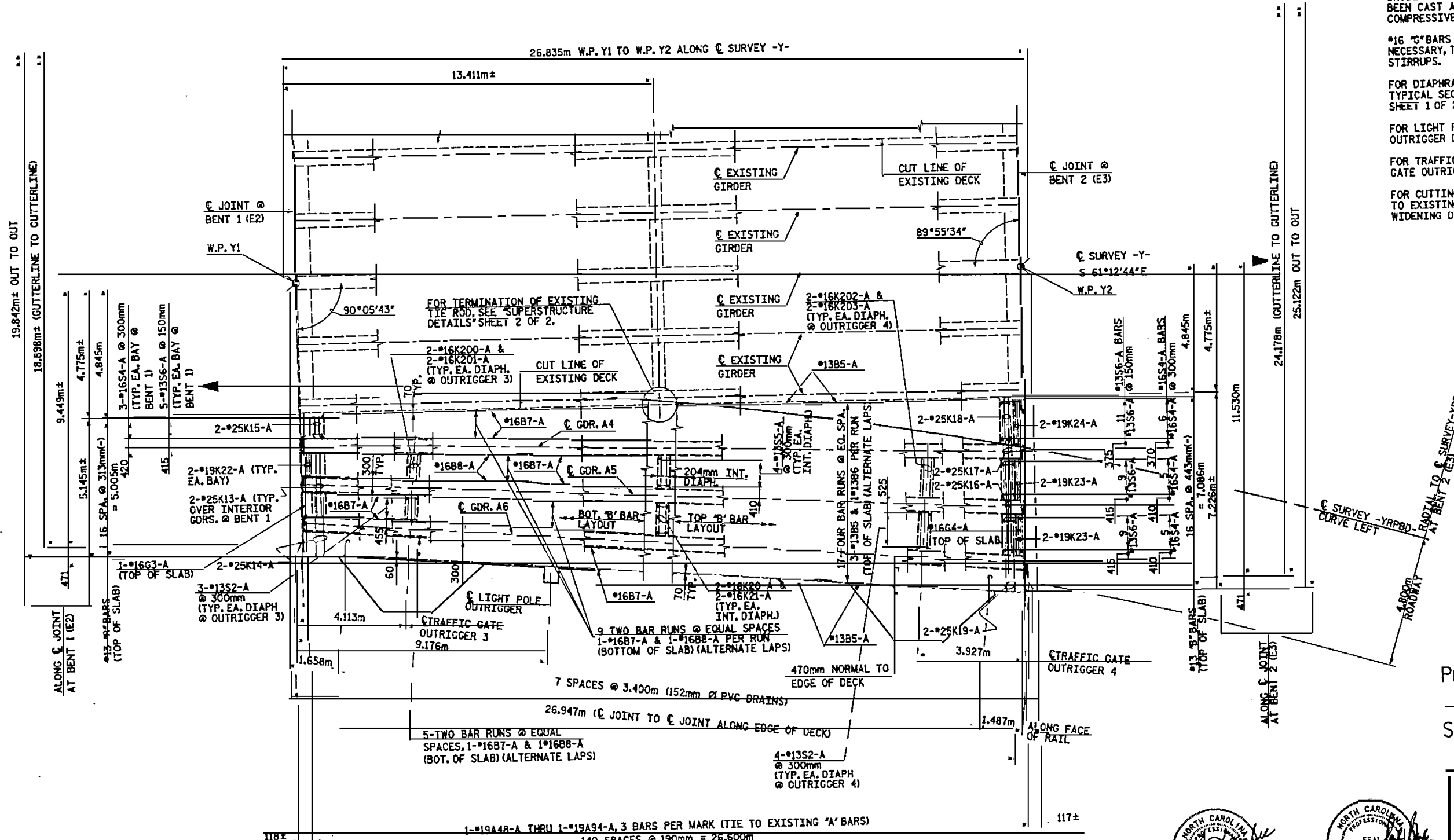
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN A  
 STAGE 1

HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HARKINS DATE: 7/00  
 DWG. NO. 24

REVISIONS						SHEET NO. 6-24
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS (51)
2			4			

NOTE:  
 \*A\* BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLANS. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE \*A\* BAR LENGTHS ACCORDINGLY.

NOTES:  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 \*16 \*G\* BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.  
 FOR TRAFFIC GATE OUTRIGGER DETAILS, SEE "TRAFFIC GATE OUTRIGGER DETAILS" SHEET.  
 FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL SEE "DECK WIDENING DETAILS" SHEET.



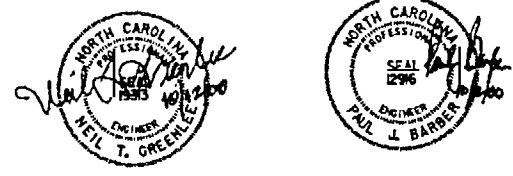
PLAN OF SPAN A - STAGE 2

NOTE: ALL \*A\* BARS SHALL BE PLACED PERPENDICULAR TO C SURVEY -Y-  
 SPAN A HAS CHORDED EDGES OF DECK



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN A  
 STAGE 2

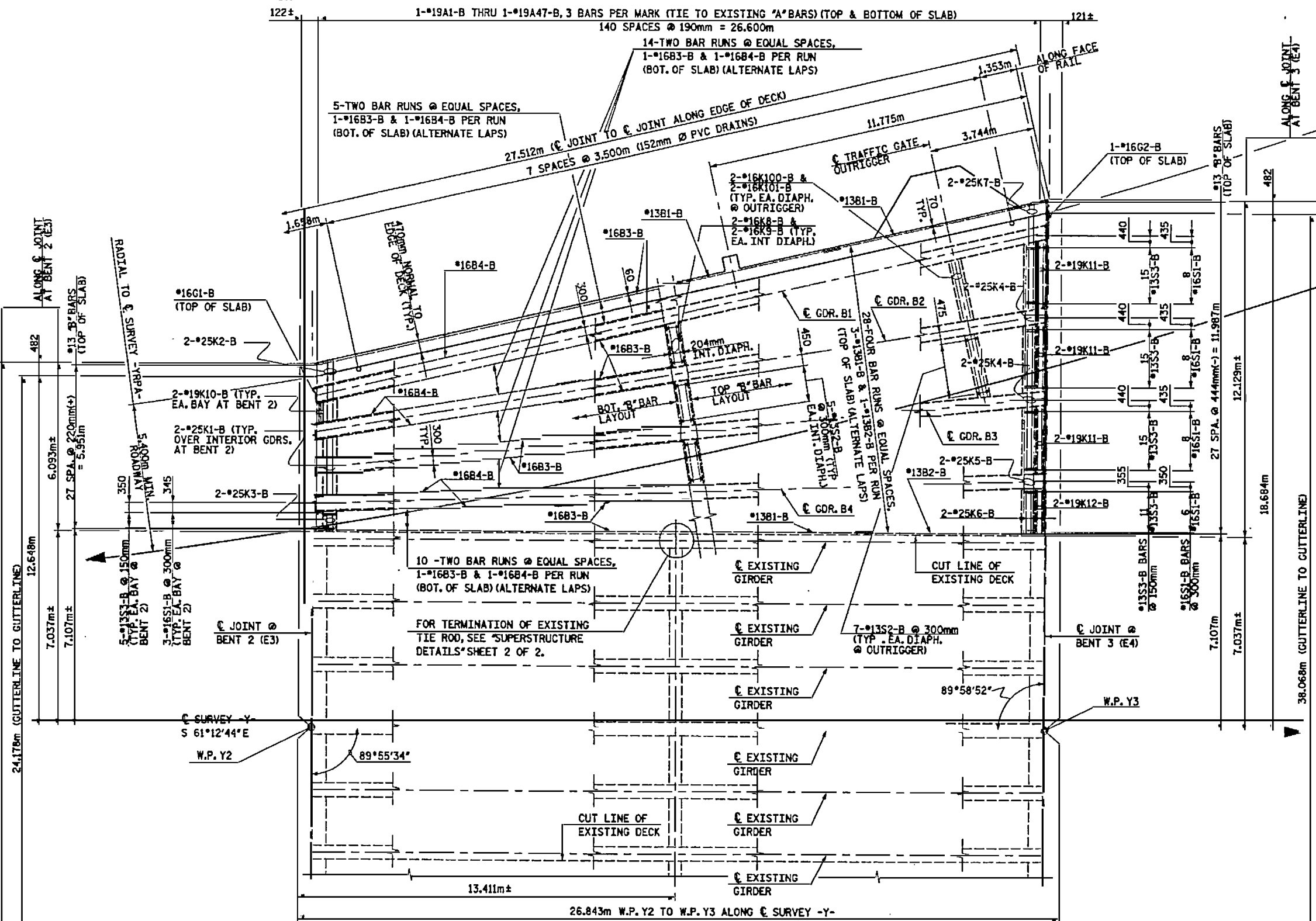


HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HARKINS DATE: 7/00 DWG. NO. 25

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

SHEET NO. 5-25  
 TOTAL SHEETS 10/11

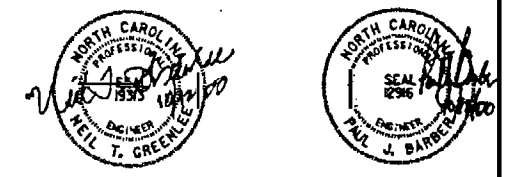
NOTE:  
 "A" BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLANS. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE "A" BAR LENGTHS ACCORDINGLY.



PLAN OF SPAN B - STAGE 1

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO C SURVEY -Y-. SPAN B HAS CHORDED EDGES OF DECK.

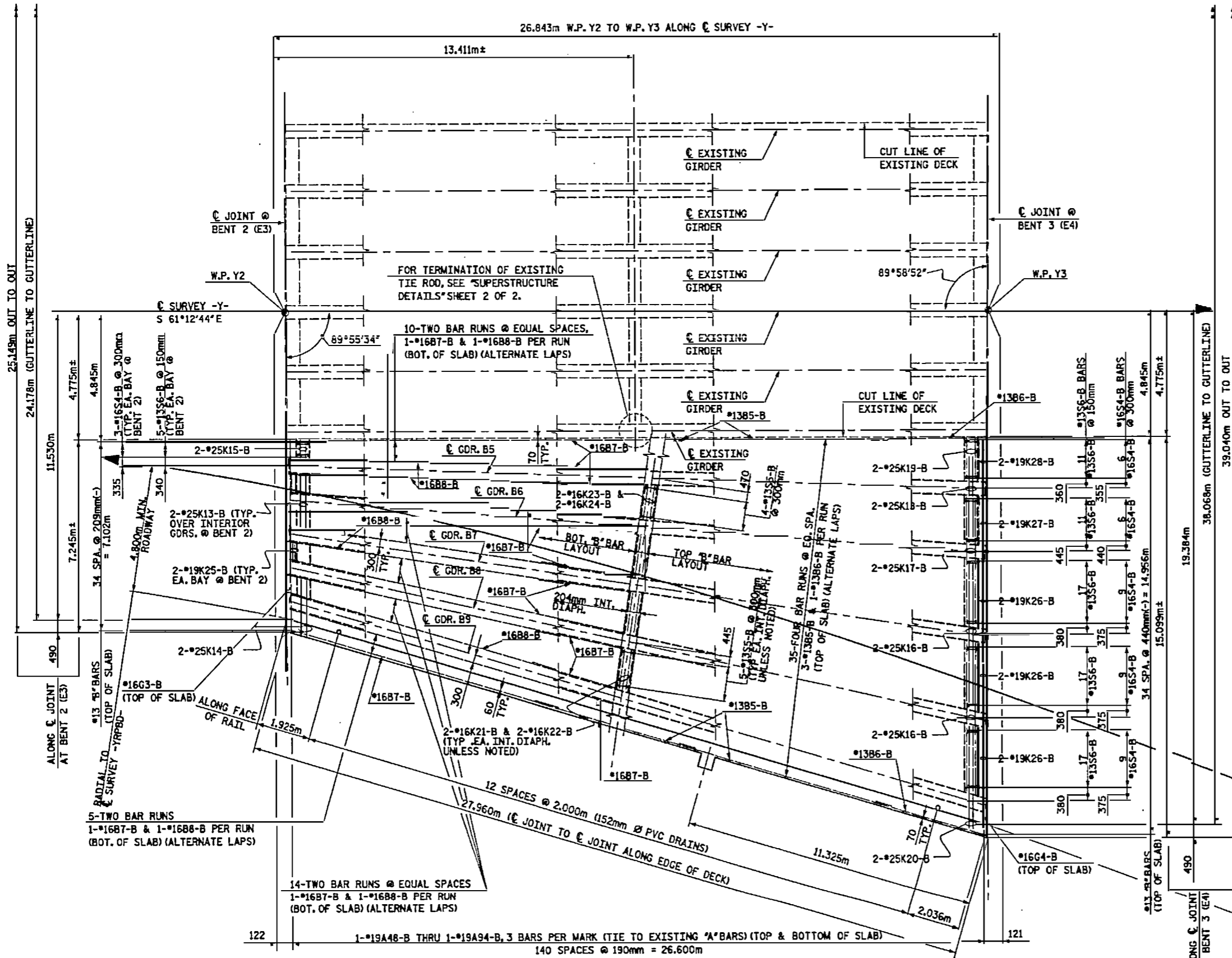
NOTES:  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 #16 "C" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.  
 FOR TRAFFIC GATE OUTRIGGER DETAILS, SEE "TRAFFIC GATE OUTRIGGER DETAILS" SHEET.  
 FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL, SEE "DECK WIDENING DETAILS" SHEET.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN B  
 STAGE 1

<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609		REVISIONS				SHEET NO. 5-22
DRAWN BY: M. WRIGHT	DATE: 7/00	NO.	BY	DATE		TOTAL SHEETS 1517
CHECKED BY: J. HAWKINS	DATE: 7/00	1		3		
		2		4		

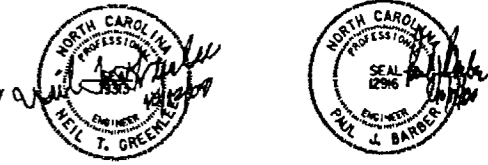


PLAN OF SPAN B - STAGE 2

NOTE: "A" BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLAN. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE "A" BAR LENGTHS ACCORDINGLY.

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO  $\bar{C}$  SURVEY -Y-. SPAN B HAS CHORDED EDGES OF DECK.

**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 #16 "A" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.  
 FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL, SEE "DECK WIDENING DETAILS" SHEET.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN B  
 STAGE 2

REVISIONS						SHEET NO. S-27	TOTAL SHEETS 10/11
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

HNTB HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: W. WRIGHT DATE: 7/00 DWG. NO. 27  
 CHECKED BY: D. HAWKINS DATE: 7/00

NOTE:

\*A\* BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLANS. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE \*A\* BAR LENGTHS ACCORDINGLY.

1-19A54-C THRU 1-19A82-C (TIE TO EXISTING \*A\* BARS)  
(TOP AND BOT. OF SLAB) 28 SPACES @ 190mm = 5.320m

NOTES:

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.

FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

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

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.

\*16 \*G\* BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

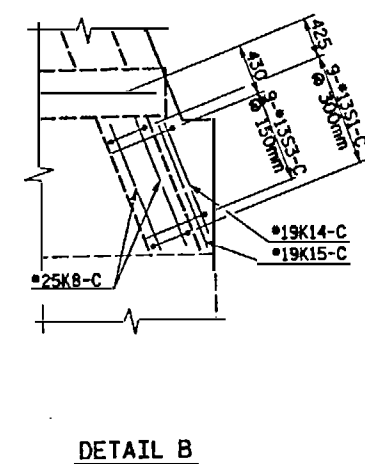
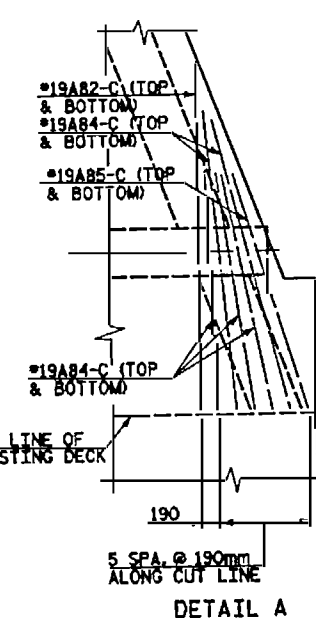
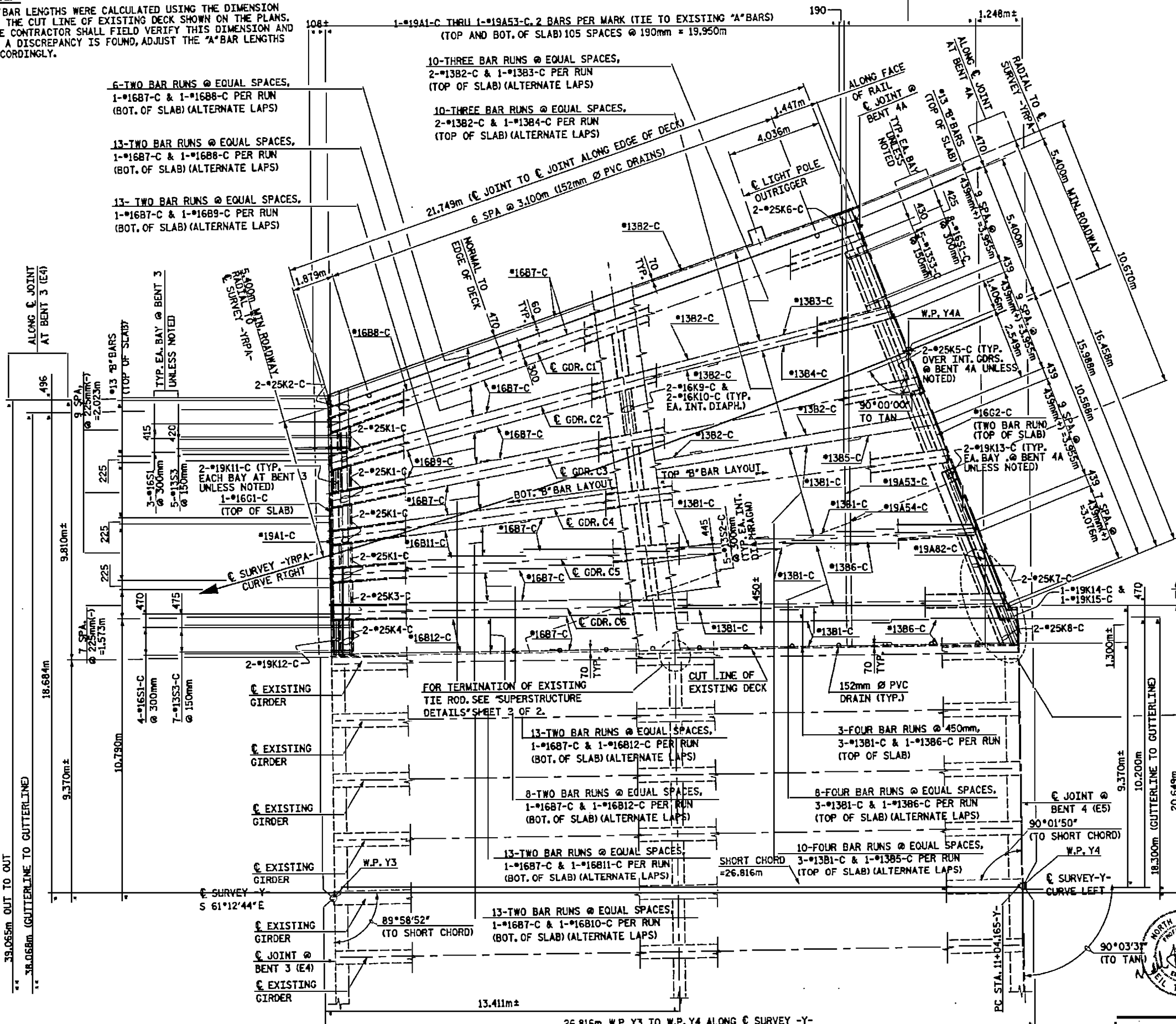
FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL, SEE "DECK WIDENING DETAILS" SHEET.

FOR LOCATION OF DECK DRAINS IN RAMP A GORE, SEE "SUPERSTRUCTURE RAIL PLAN SPAN C STAGE 1" SHEET.

FOR GORE CONSTRUCTION JOINT LOCATION, SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP A" SHEET.

\*A\* BARS IN TOP OF SLAB MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH BLOCKOUT FOR ARMORED EVAZOTE JOINT.



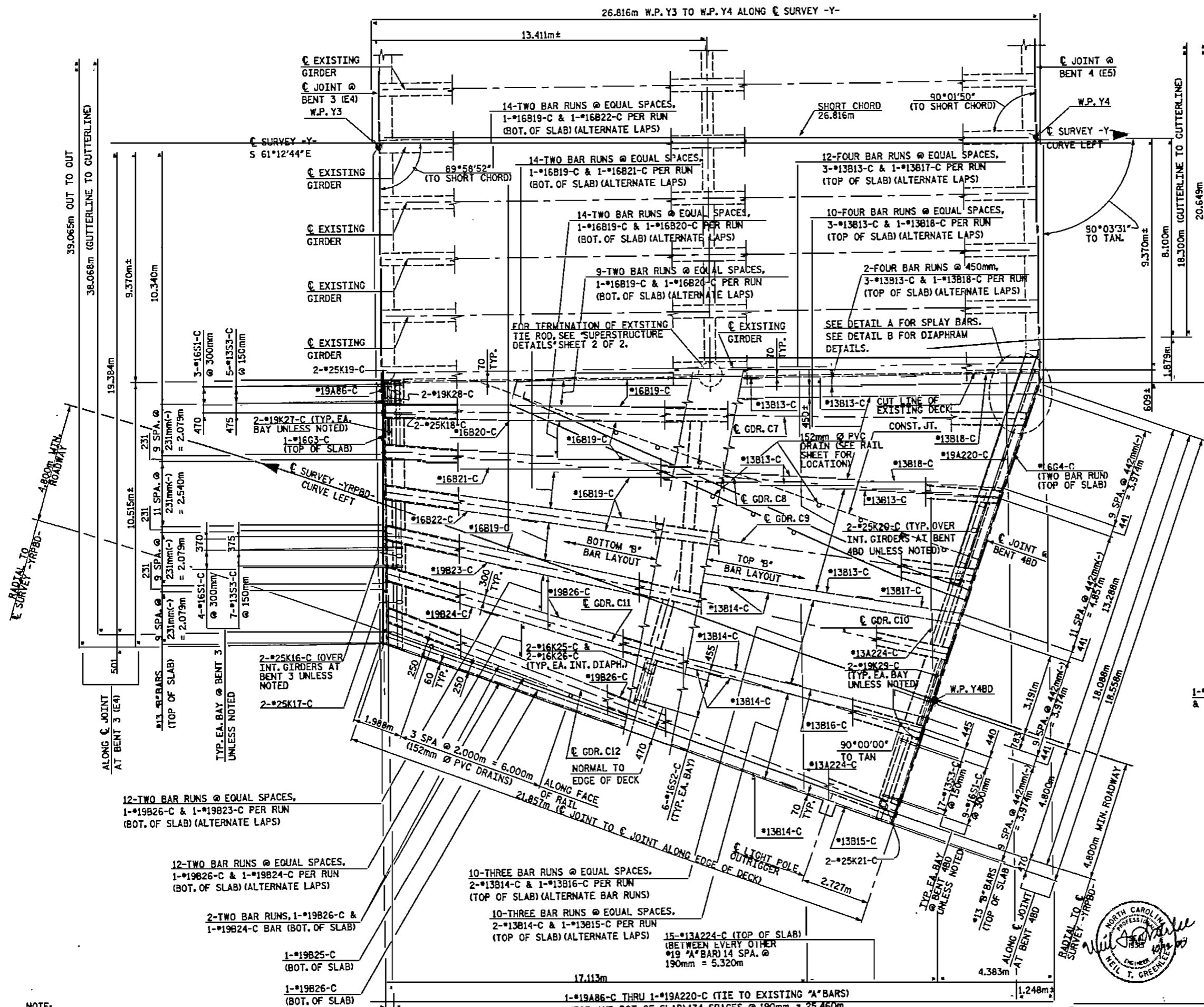
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN C  
STAGE 1

HNTB HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: D. HAWKINS DATE: 8/00 DWG. NO. 28

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

PLAN OF SPAN C - STAGE 1  
NOTE: ALL \*A\* BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD.  
SPAN C HAS CHORDED EDGES OF DECK.



**NOTES:**

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.

FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

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

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.

\*16 "C" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

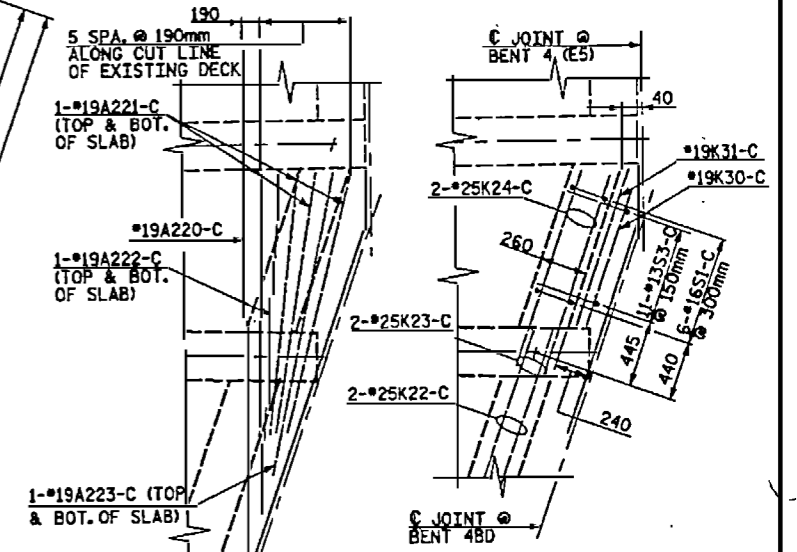
FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

FOR CUTTING EXISTING DECK SLAB AND TYING TO EXISTING TRANSVERSE STEEL, SEE "DECK WIDENING DETAILS" SHEET.

FOR LOCATION OF DECK DRAINS IN RAMP BD GORE, SEE "SUPERSTRUCTURE RAIL PLAN SPAN C STAGE 2" SHEET.

FOR GORE CONSTRUCTION JOINT LOCATION, SEE SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP BD SHEET.

\*"A" BARS IN TOP OF SLAB MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH BLOCKOUT FOR ARMORED EVAZOTE JOINT.



**NOTE:**  
 "A" BAR LENGTHS WERE CALCULATED USING THE DIMENSION TO THE CUT LINE OF EXISTING DECK SHOWN ON THE PLANS. THE CONTRACTOR SHALL FIELD VERIFY THIS DIMENSION AND IF A DISCREPANCY IS FOUND, ADJUST THE "A" BAR LENGTHS ACCORDINGLY.

**PLAN OF SPAN C - STAGE 2**  
 NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD. SPAN C HAS CHORDED EDGES OF DECK.

**HNTB** NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27603

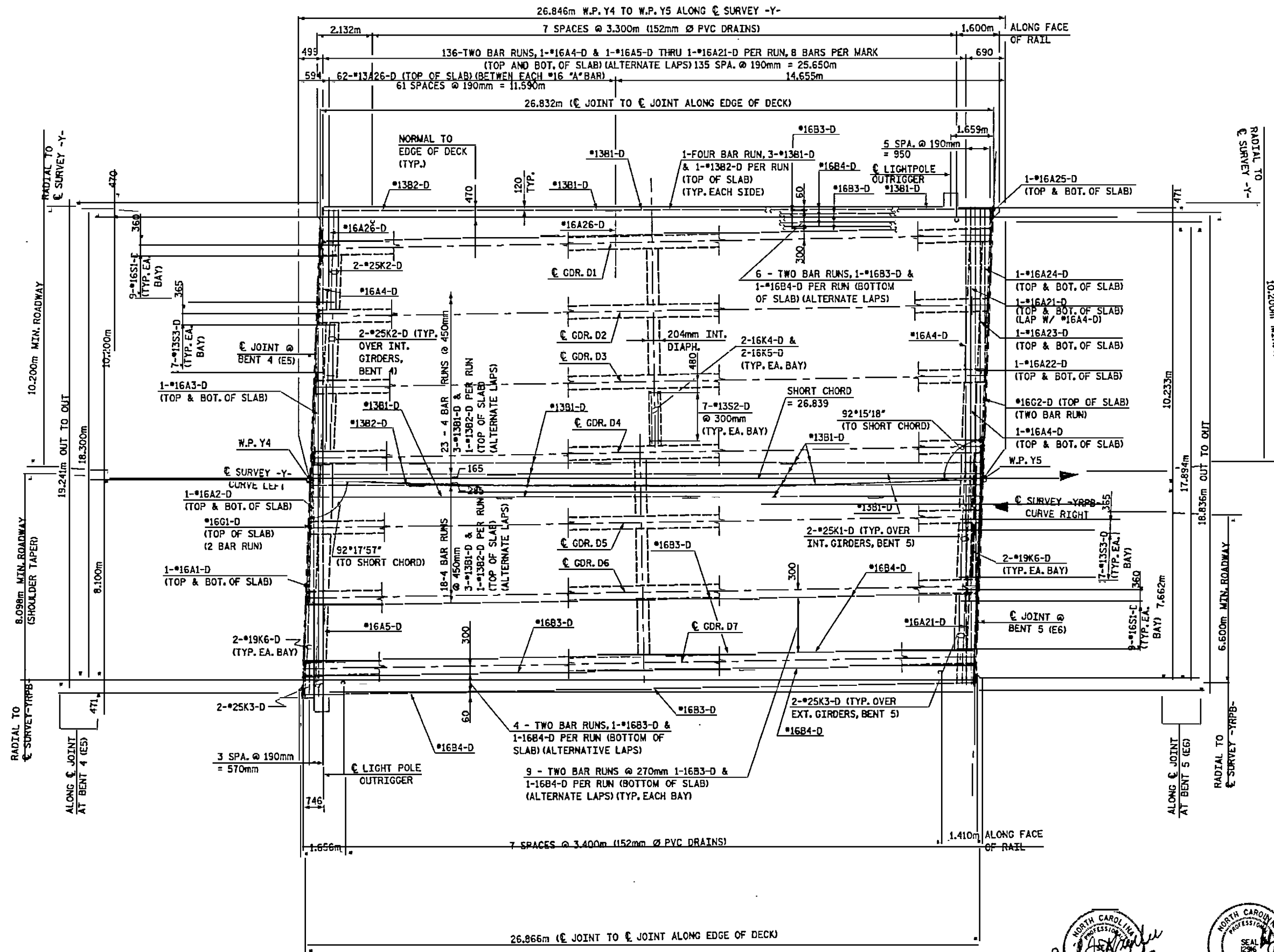
DRWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 8/00 DWG. NO. 29

PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN C  
 STAGE 2

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

SHEET NO. 5 OF 23  
 TOTAL SHEETS 1011



**NOTES:**

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.

FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

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

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.

#16 "A" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

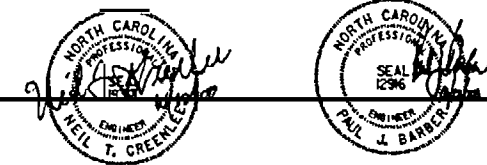
FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

**PLAN OF SPAN D**

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD.  
SPAN D HAS CHORDED EDGES OF DECK.

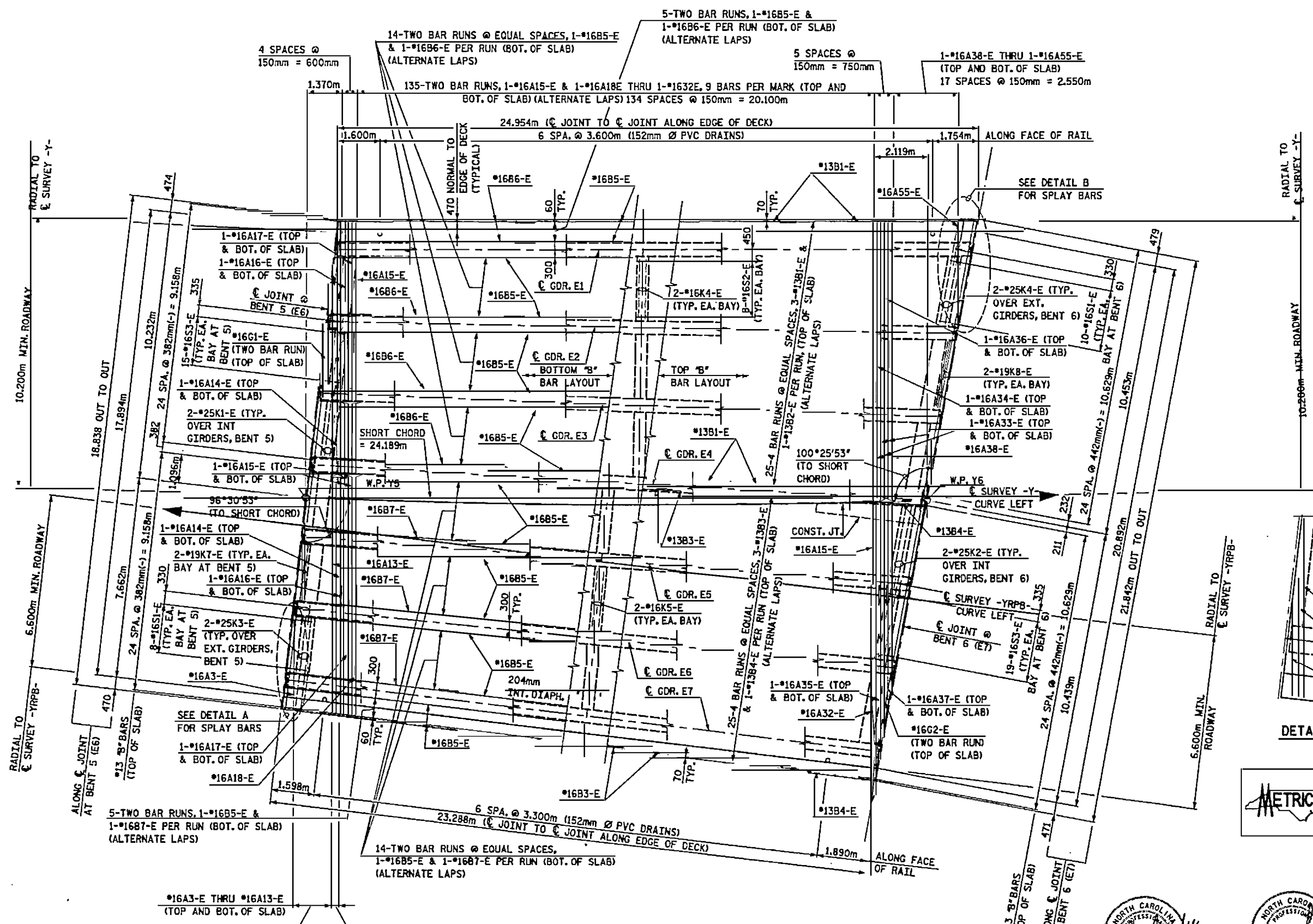


PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

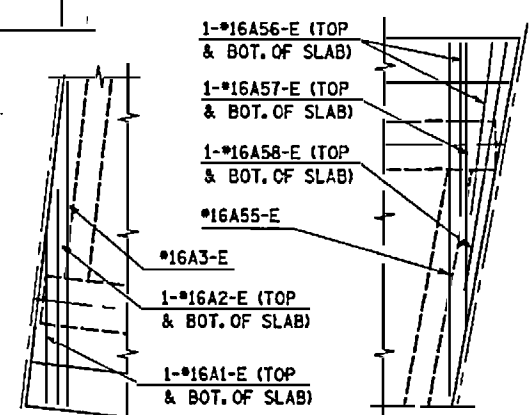


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
PLAN OF SPANS  
SPAN D

<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609		REVISONS		SHEET NO. 30
DRAWN BY: M. WRIGHT	DATE: 7/00	NO.	BY	DATE
CHECKED BY: D. HAWKINS	DATE: 7/00	1	3	
		2	4	
DWG. NO. 30				TOTAL SHEETS 101



**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 Mpa.  
 #16 "A" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR CORE CONSTRUCTION JOINT LOCATION, SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B".



**PLAN OF SPAN E**

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD. SPAN E HAS CHORDED EDGES OF DECK.

PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT I2+52.890 -Y-

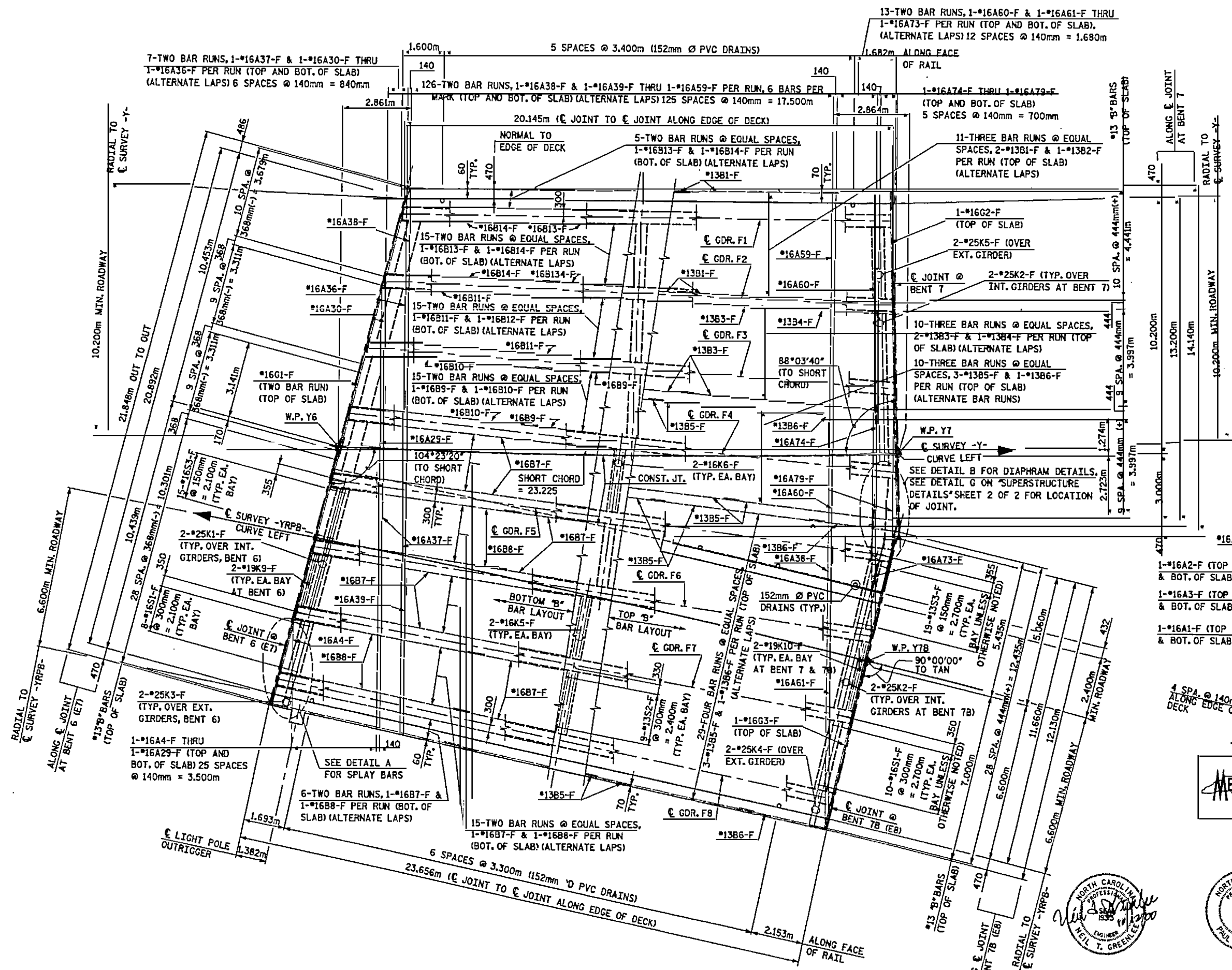


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 PLAN OF SPANS  
 SPAN E

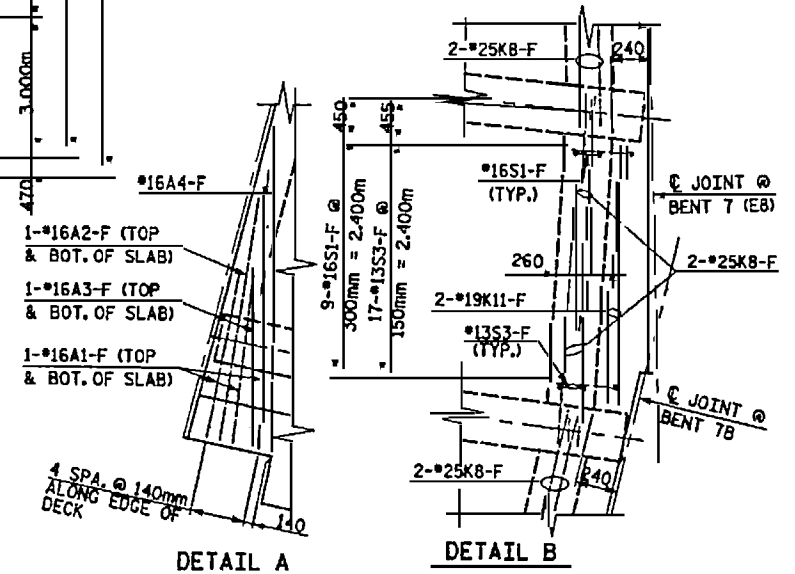
HNTB		HNTB NORTH CAROLINA, P.C.		REVISIONS		SHEET NO. 31
NO.	BY	DATE	NO.	BY	DATE	
1		7/00	3			TOTAL SHEETS 101
2		7/00	4			

DRWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 7/00  
 DWG. NO. 31





**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 \*16 "Ø" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR GORE CONSTRUCTION JOINT LOCATION, SEE SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B SHEET  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.  
 FOR LOCATION OF DECK DRAINS IN RAMP B BORE, SEE "SUPERSTRUCTURE RAIL PLAN SPAN F & G" SHEET.  
 \*A" BARS IN TOP OF SLAB MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH BLOCKOUT FOR ARMORED EVAZOTE JOINT.



**PLAN OF SPAN F**

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD. SPAN F HAS CHORDED EDGES OF DECK.

**HNTE NORTH CAROLINA, P.C.**  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 7/00 DWG. NO. 32

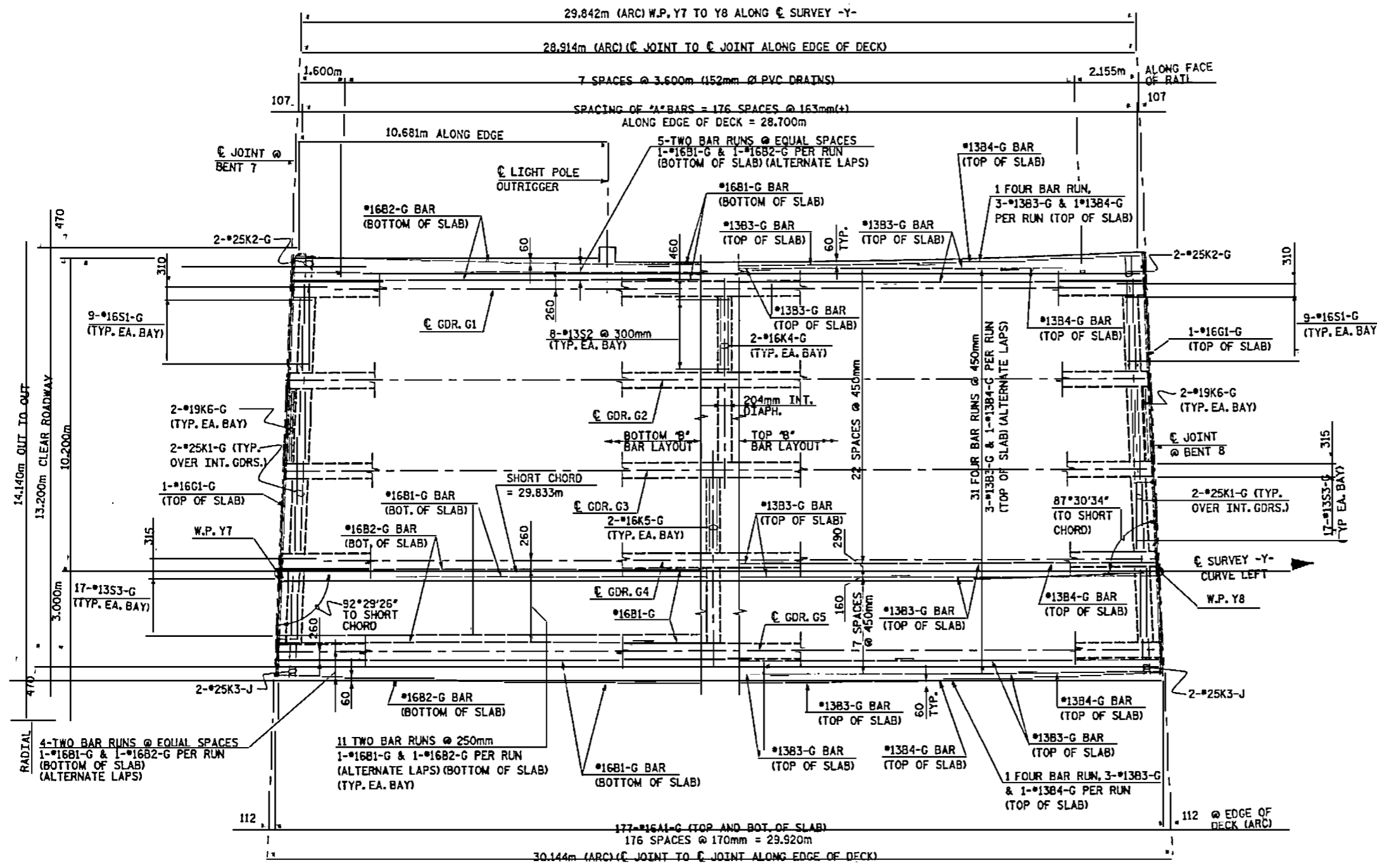
PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

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

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

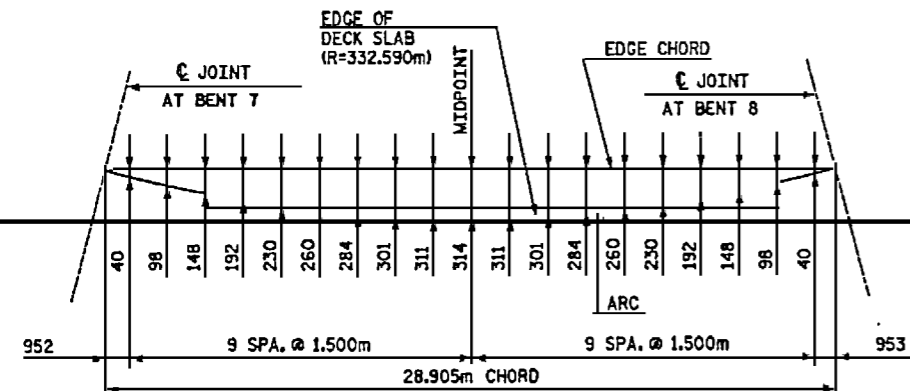
TOTAL SHEETS: 101

**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 \*16G1-G BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

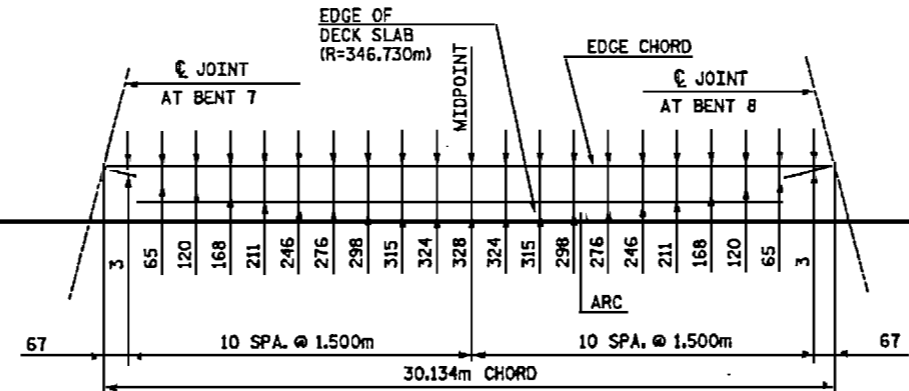


**PLAN OF SPAN G**

NOTE: ALL REINFORCING IN DECK SLAB SHALL BE PLACED RADIALLY.



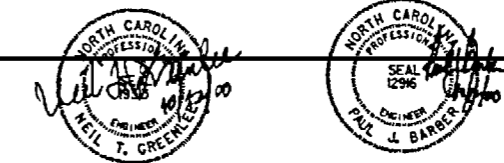
**LEFT SIDE EDGE OF DECK ARC OFFSETS**



**RIGHT SIDE EDGE OF DECK ARC OFFSETS**



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



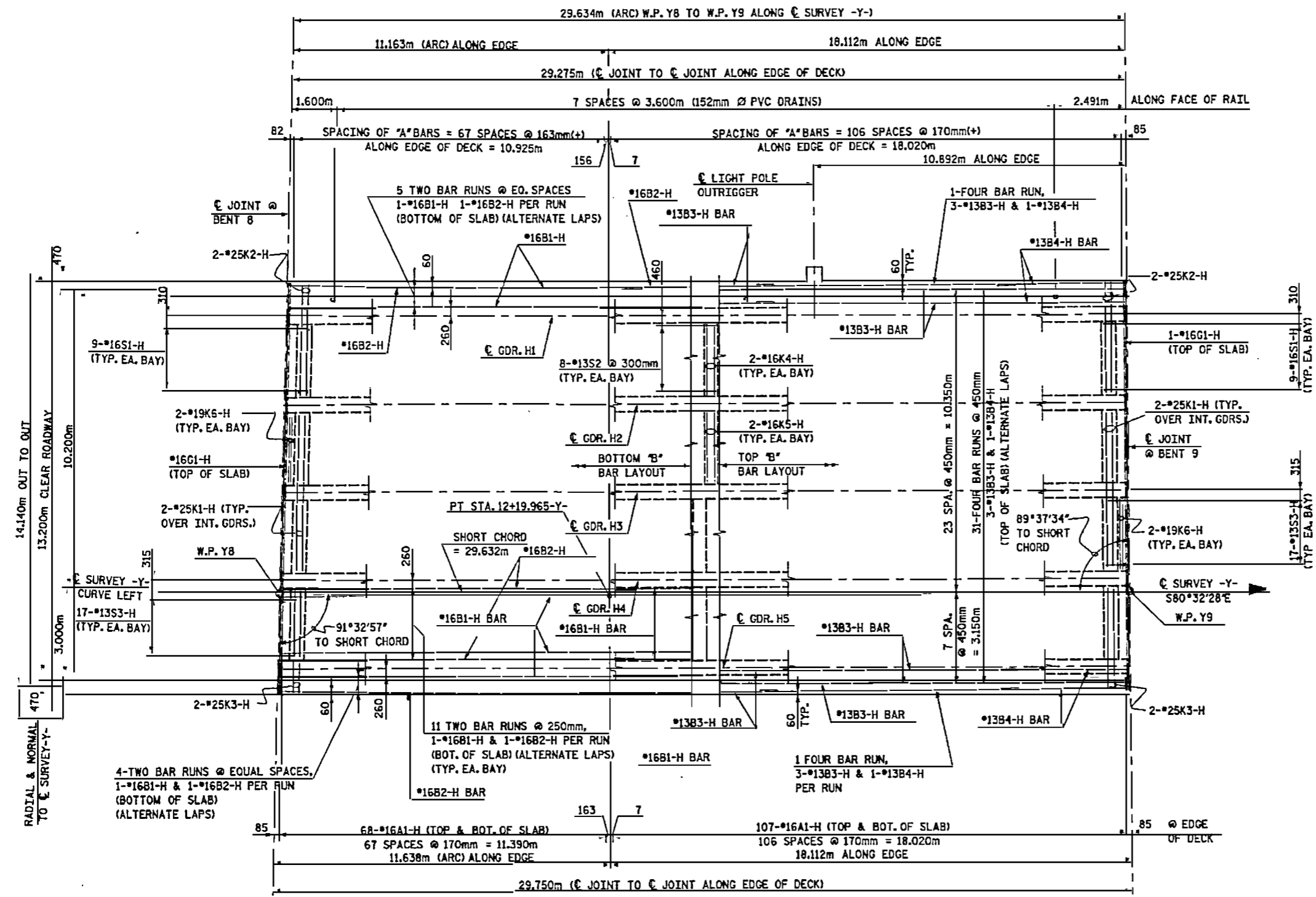
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEGH

**SUPERSTRUCTURE  
 PLAN OF SPANS  
 SPAN G**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. SIX FORKS RD., SUITE 200, RALEGH, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/02  
 CHECKED BY: D. HARKINS DATE: 7/00  
 DWG. NO. 33

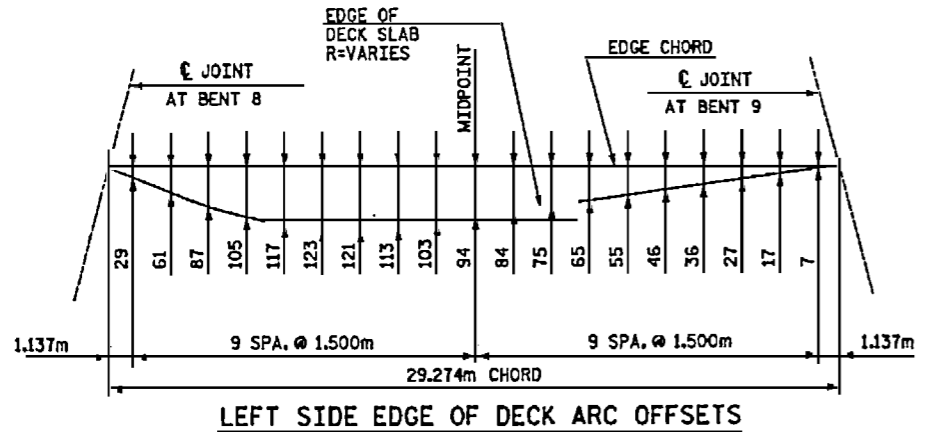
REVISIONS						SHEET NO. 3-32
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 13/17
2			4			

**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 Mpa.  
 \*16G1-H BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

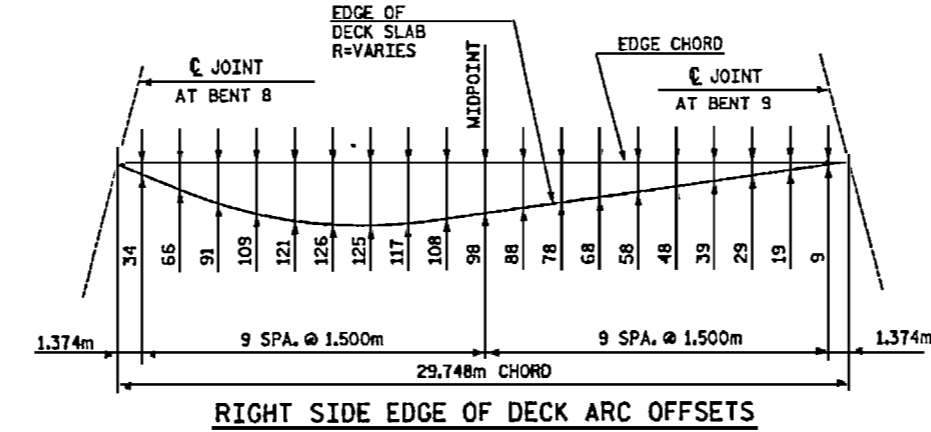


**PLAN OF SPAN H**

NOTE: ALL REINFORCING IN DECK SHALL BE PLACED RADIALY.



**LEFT SIDE EDGE OF DECK ARC OFFSETS**



**RIGHT SIDE EDGE OF DECK ARC OFFSETS**



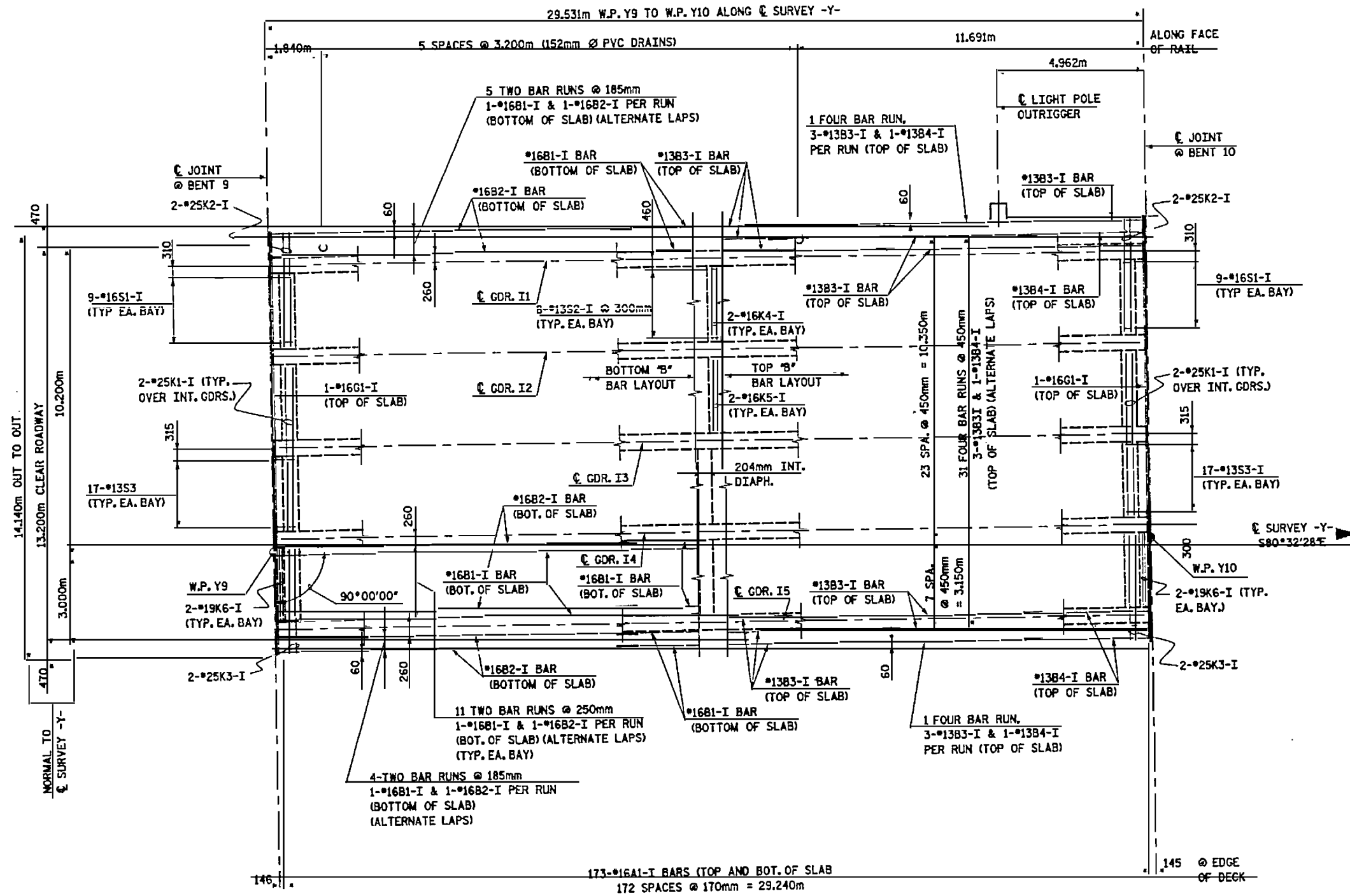
PROJECT NO. U-092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



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

**HNTPB** HNTPB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 7/00  
 DWG. NO. 34

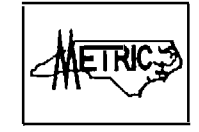
REVISIONS						SHEET NO. 5-24
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



**NOTES:**  
 FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.  
 FOR DECK DRAINS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.  
 BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.  
 \*16G1-I BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.  
 FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.  
 FOR LIGHT POLE OUTRIGGER DETAILS, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET.

**PLAN OF SPAN I**

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO  $\odot$  SURVEY -Y-.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



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

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00 DWG. NO. 35  
 CHECKED BY: D. HARKINS DATE: 7/00

REVISIONS						NO. 6-00 TOTAL SHEETS 1011
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

**NOTES:**

FOR CONCRETE BARRIER RAIL DIMENSIONS, REINFORCEMENT AND JOINT SPACING, SEE "CONCRETE BARRIER RAIL" SHEETS.

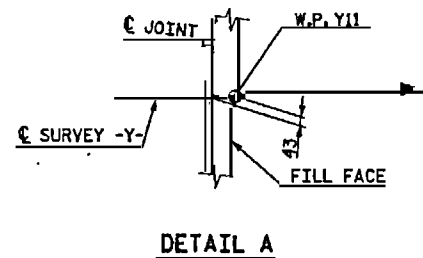
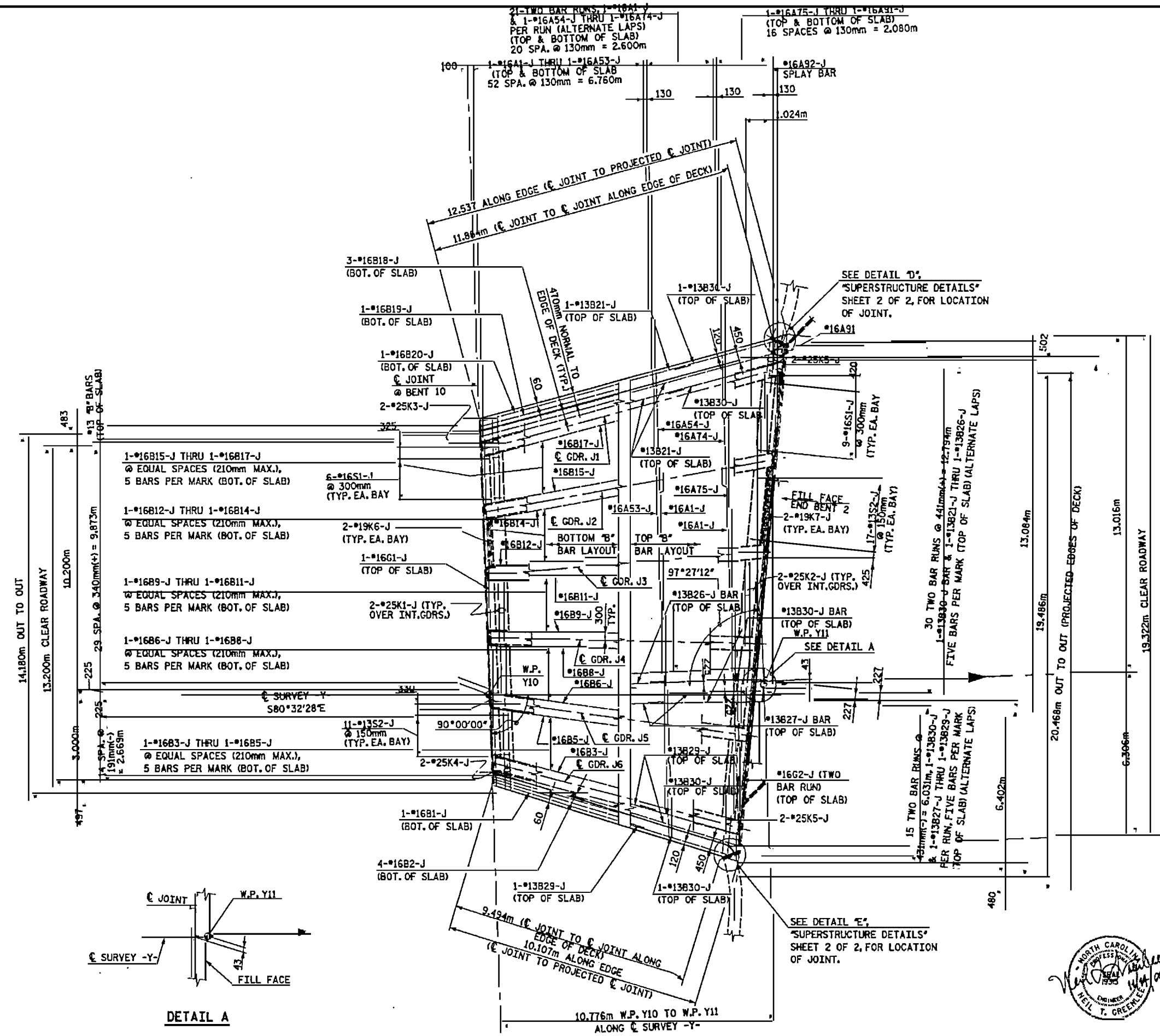
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 Mpa.

\*16" BARS MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

FOR DIAPHRAGM DETAILS, SEE "SUPERSTRUCTURE TYPICAL SECTION" AND "SUPERSTRUCTURE DETAILS" SHEETS.

\*A" BARS IN TOP OF SLAB MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH BLOCKOUT FOR ARMORED EVAZOTE JOINT.



NOTE: \*A" BARS IN DECK SLAB SHALL BE PLACED PERPENDICULAR TO SURVEY -Y. SPAN J HAS CHORDED EDGES OF DECK.

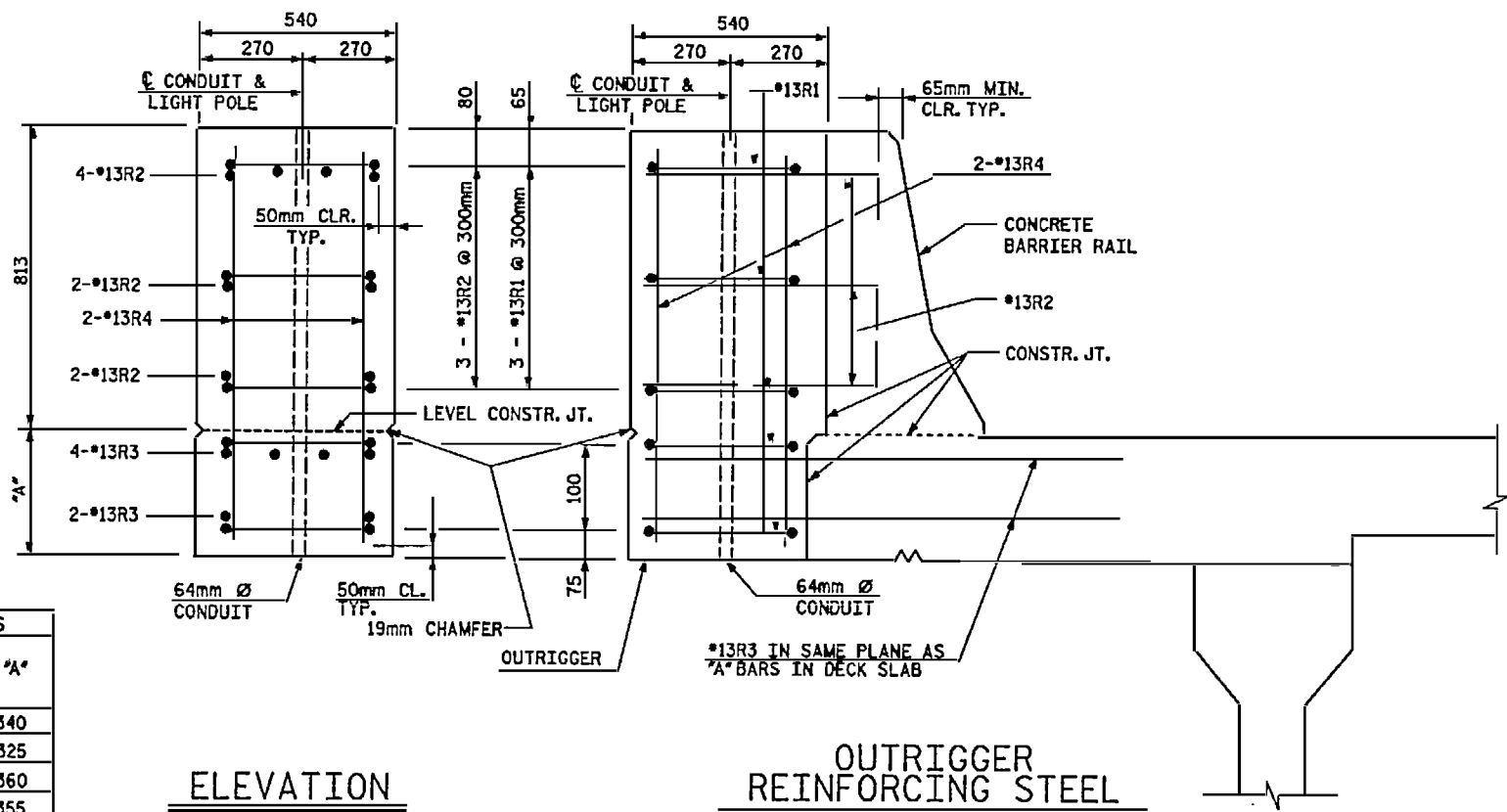


PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



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

<b>HNTB</b>		<b>HNTB NORTH CAROLINA, P.C.</b>		343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609																									
DRAWN BY: M. WRIGHT	DATE: 7/00	DATE: 7/00	DWG. NO. 36																										
CHECKED BY: D. HAWKINS	DATE: 7/00	DATE: 7/00																											
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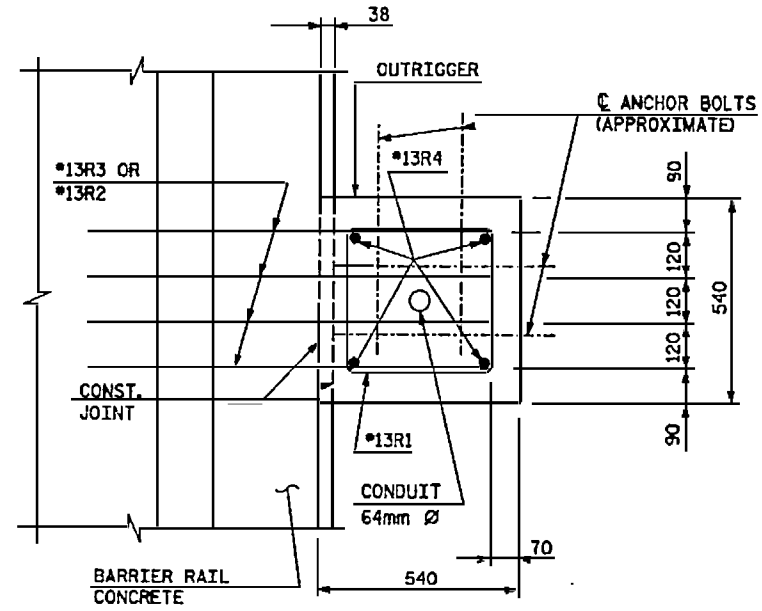


OVERHANG DEPTHS	
SPAN	"A"
A-L, B-L, C-L	340
A-R, B-R, C-R	325
D-L, G-L, H-L, I-L	360
D-R, F-R	355

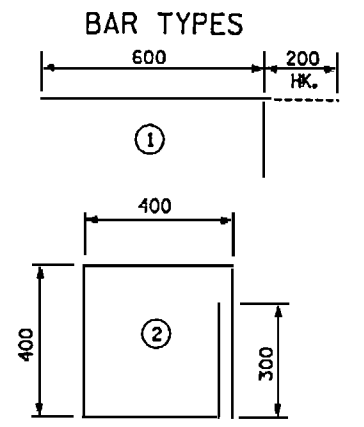
NOTE: A-L REFERS TO SPAN A-LEFTSIDE.  
B-R REFERS TO SPAN B-RIGHTSIDE.

**ELEVATION**

**OUTRIGGER REINFORCING STEEL**



**PLAN**



ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF MATERIAL  
(TOTAL 12 REQ'D) FOR ONE OUTRIGGER**

BAR	NO.	SIZE	TYPE	LENGTH	MASS
R1	5	#13	2	1900	9
R2	8	#13	1	800	6
R3	6	#13	STR	1080	6
R4	4	#13	STR	1040	4
R4	4	#13	STR	1020	4
R4	4	#13	STR	1060	4

SPAN	EPOXY COATED REINFORCING STEEL kg	CLASS AA CONCRETE CU. METERS
A-L, B-L, C-L	25	.33
A-R, B-R, C-R	25	.33
D-L, G-L, H-L, I-L, D-R, F-R	25	.33

NOTE: A-L REFERS TO SPAN A-LEFTSIDE.  
B-R REFERS TO SPAN B-RIGHTSIDE.

- NOTES:
- PAYMENT FOR THE OUTRIGGERS SHALL BE INCLUDED IN THE PAY ITEM "REINFORCED CONCRETE DECK SLAB"
  - FOR CONDUIT, ANCHOR BOLTS, LIGHT POLE AND ADDITIONAL DETAILS SEE ELECTRICAL DRAWINGS.
  - ANCHOR BOLT LAYOUT SHOWN ON PLANS IS FOR INFORMATIONAL PURPOSES ONLY. LIGHT POLE OUTRIGGER SHALL NOT BE CONSTRUCTED UNTIL AFTER BOLTS AND ANCHOR BOLT TEMPLATE IS SUPPLIED BY THE APPROVED MANUFACTURER UNDER THE ELECTRICAL CONTRACT. INSTALLATION OF THE ANCHOR BOLTS SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM "REINFORCED CONCRETE DECK".
  - EMBEDDED CONDUIT LOCATION SHALL BE COORDINATED WITH LIGHT BASE REQUIREMENTS.
  - FOR LOCATIONS OF LIGHT POLE OUTRIGGERS, SEE "SUPERSTRUCTURE - PLANS OF SPANS" SHEETS.



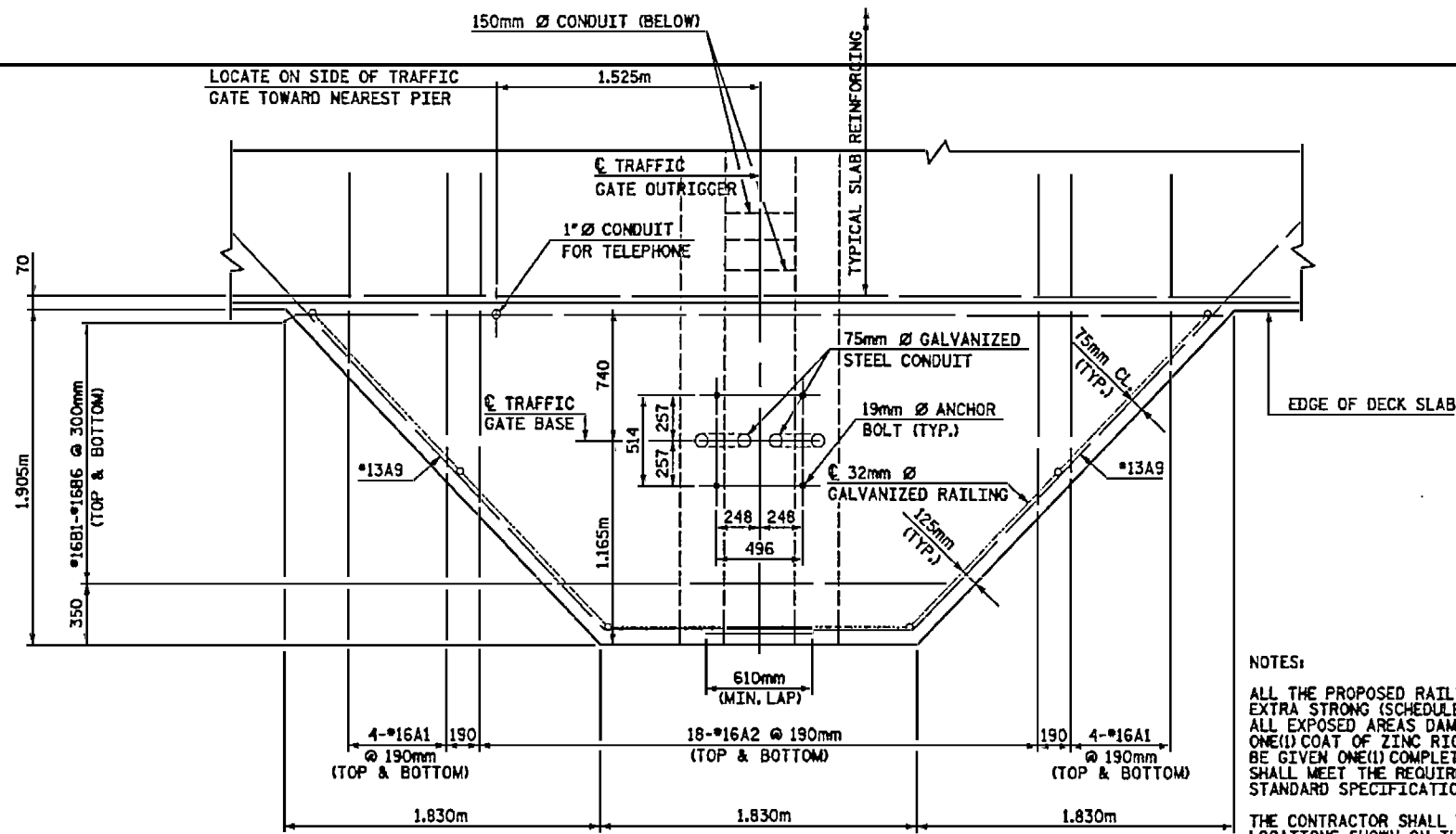
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



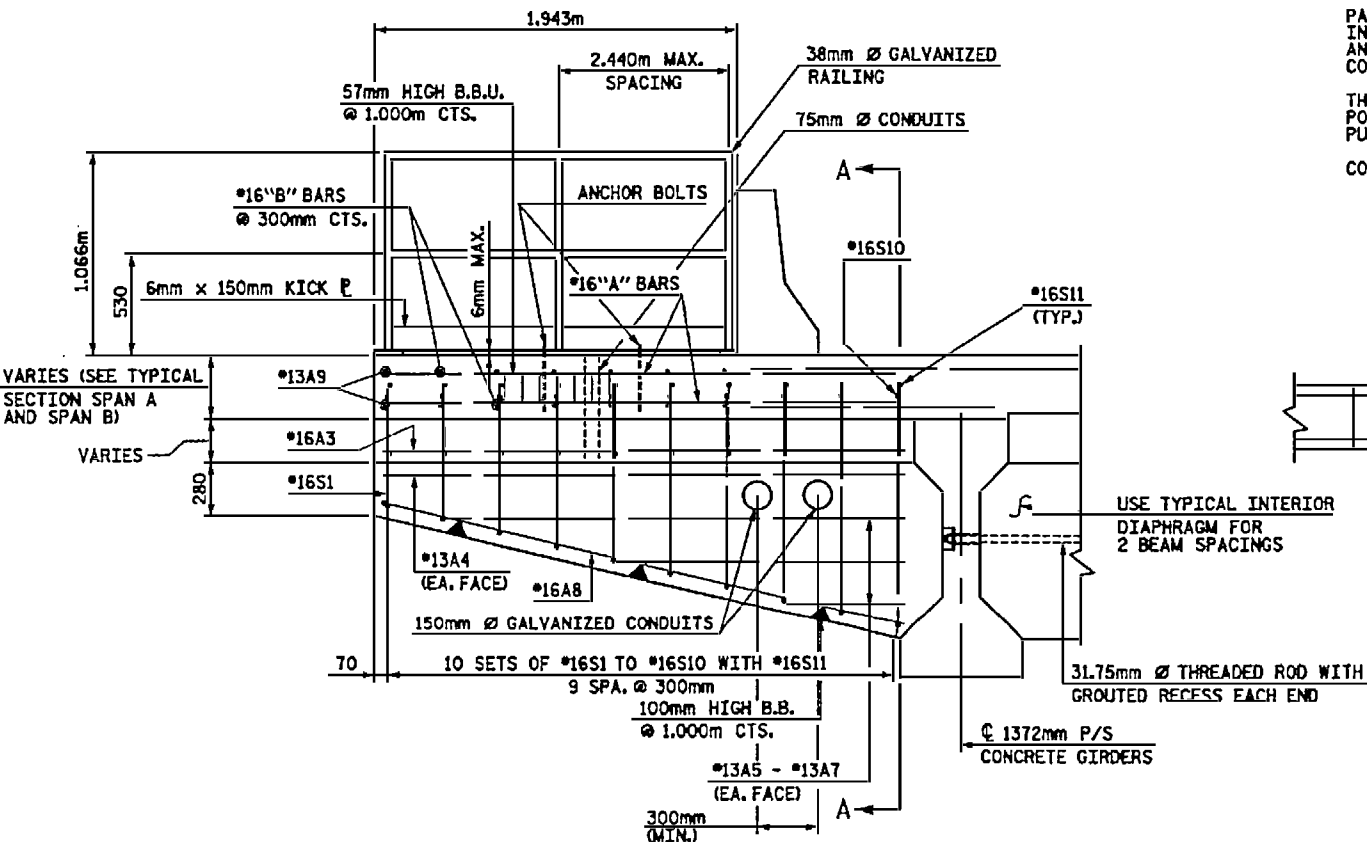
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 LIGHT POLE  
 OUTRIGGER DETAILS

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: A. ECHERO DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 37

REVISIONS						SHEET NO. 2-27
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			



PLAN



TYPICAL ELEVATION OF SLAB EXTENSION FOR TRAFFIC GATES

NOTES:

ALL THE PROPOSED RAILINGS SHALL BE ASTM A53, TYPE E OR S, GRADE B, EXTRA STRONG (SCHEDULE 80) GALVANIZED PIPE WITH WELDED CONNECTIONS. ALL EXPOSED AREAS DAMAGED BY WELDING AND HANDLING SHALL BE GIVEN ONE(1) COAT OF ZINC RICH PAINT AFTER WHICH THE POST AND RAILINGS SHALL BE GIVEN ONE(1) COMPLETE COAT OF ZINC RICH PAINT. THE ZINC RICH PAINT SHALL MEET THE REQUIREMENTS OF SECTION 1080-9 OF THE STANDARD SPECIFICATIONS.

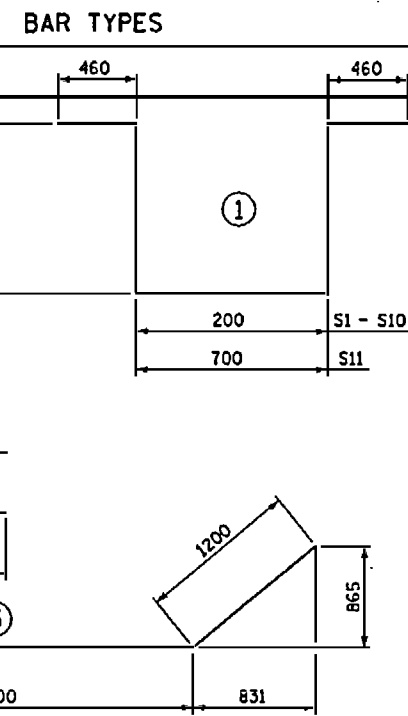
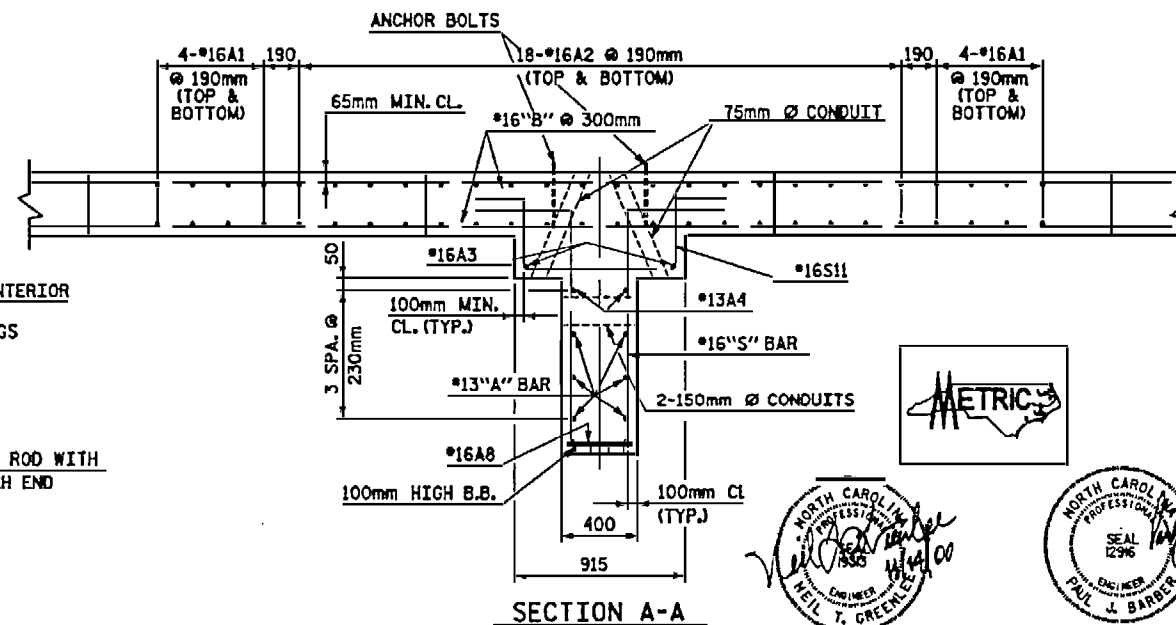
THE CONTRACTOR SHALL VERIFY THAT THE BOLT PATTERN AND CONDUIT LOCATIONS SHOWN ON THE PLANS FOR THE TRAFFIC GATE BASE AGREES WITH THE MANUFACTURER'S SPECIFICATION FOR THE TRAFFIC GATE BASE PLATE.

ANCHOR BOLTS FOR TRAFFIC GATE BASE TO BE SUPPLIED BY THE TRAFFIC GATE MANUFACTURER.

PAYMENT FOR THE ENTIRE COST OF THE TRAFFIC GATE OUTRIGGER, INCLUDING FURNISHING AND INSTALLING THE GALVANIZED STEEL PIPE POST AND RAILING, SHALL BE INCLUDED IN THE PAY ITEM FOR REINFORCED CONCRETE DECK SLAB.

THE CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS FOR STEEL PIPE POST AND RAILING TO THE ENGINEER FOR APPROVAL PRIOR TO THE PURCHASE AND INSTALLATION OF THE STEEL PIPE POST AND RAILING.

COORDINATE LOCATIONS OF CONDUITS WITH ELECTRICAL PLANS.

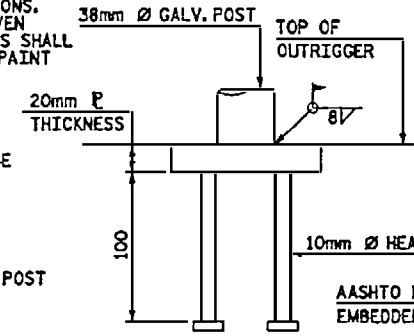


BILL OF REINFORCING

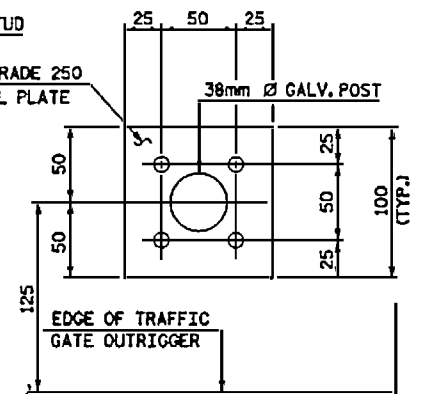
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
TRAFFIC GATE OUTRIGGER					
A1	16	16	STR.	1740	43
A2	36	16	STR.	2700	151
A3	2	16	STR.	2680	8
A4	2	13	STR.	2680	5
A5	2	13	STR.	2500	5
A6	2	13	STR.	1580	3
A7	2	13	STR.	680	1
A8	1	16	2	5720	9
A9	4	13	3	4100	16
B1	2	16	STR.	2340	7
B2	2	16	STR.	2920	9
B3	2	16	STR.	3480	11
B4	2	16	STR.	4060	13
B5	2	16	STR.	4640	14
B6	2	16	STR.	5220	16
S1	1	16	1	2280	4
S2	1	16	1	2440	4
S3	1	16	1	2560	4
S4	1	16	1	2720	4
S5	1	16	1	2880	4
S6	1	16	1	3040	5
S7	1	16	1	3200	5
S8	1	16	1	3320	5
S9	1	16	1	3480	5
S10	1	16	1	3640	6
S11	10	16	1	2100	33

QUANTITIES

ITEM	UNIT	QUANTITY
EPOXY COATED REINFORCING STEEL	kg	390
CLASS AA CONCRETE		
OUTRIGGER	CU. METERS	3.5

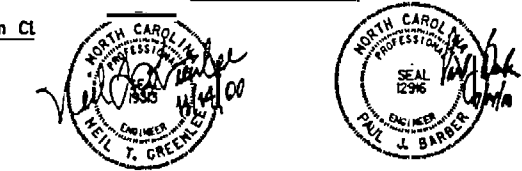


ELEVATION OF EMBEDDED PLATE



PLAN OF EMBEDDED PLATE

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

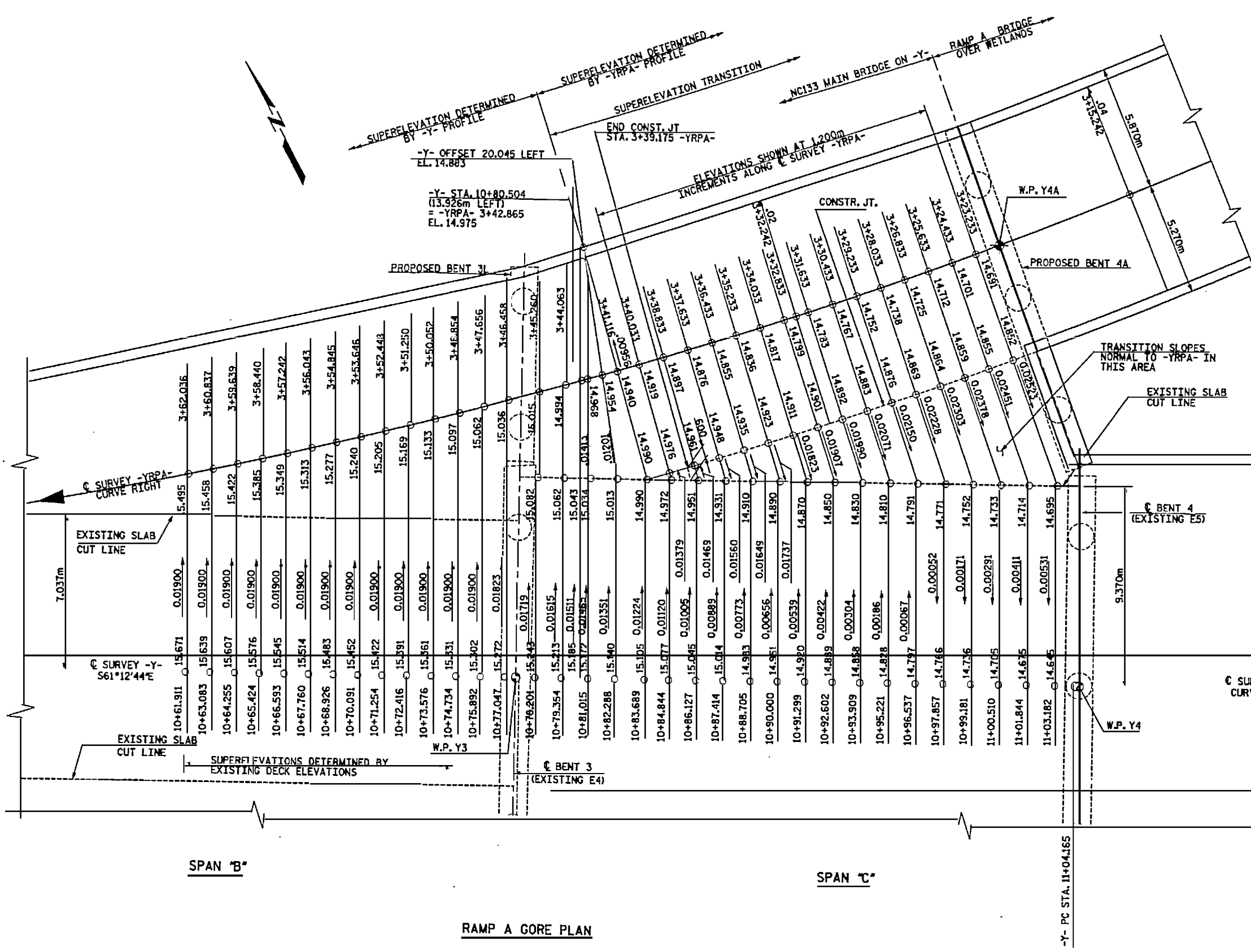


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TRAFFIC GATE OUTRIGGER

HNTB HNTB NORTH CAROLINA, P.C.					
343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1		8/00	3		
2		8/00	4		

DRAWN BY: R. KNIGHT DATE: 8/00  
CHECKED BY: D. HAWKINS DATE: 8/00  
DWG. NO. 38

SHEET NO. S-38	
TOTAL SHEETS	10/11



**-YRPA- (RAMP A) - PROFILE**

TIE TO -Y- STA. 3+42.865 EL. 14.975 (+)0.6950% (+)3.1000%

PVI STA. = 3+40.000  
PVI EL. = 14.804  
L = 38.000m

---

**-Y- PROFILE**

EXISTING DECK  
PVI STA. = 9+49.500  
PVI EL. = 18.992  
L = 178.000m

NEW DECK  
PVI STA. = 11+35.000  
PVI EL. = 13.925  
L = 60.000m

TIE OF EXISTING TO NEW DECK  
STA. 11+04.165 EL. 14.622

EXISTING DECK  
PVI STA. = 11+34.500  
PVI EL. = 13.479  
L = 190.000m

**SUPERELEVATION SCHEDULE**

-Y- LEFT

STATION	S.E.
10+15.610	0.0190
10+76.189	0.0190
11+04.165	-0.0062
11+33.251	0.02

**SUPERELEVATION SCHEDULE**

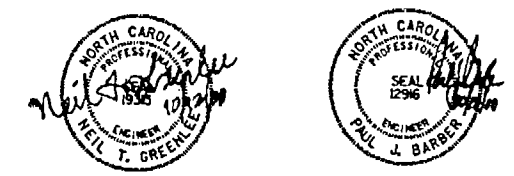
-YRPA- (RAMP A)

STATION	S.E.	
	LEFT	RIGHT
3+15.242	-0.0400	0.0400
3+41.116	-0.00956	0.00956



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TRANSITION ZONE PLAN  
GORE AT RAMP A



NOTE:  
BARRIER RAIL NOT SHOWN IN GORE FOR CLARITY. FOR BARRIER RAIL IN GORE SEE RAIL PLAN SPAN C.

**HNTB HNTB NORTH CAROLINA, P.C.**  
313 E. Six Forks Rd., Suite 200, Raleigh, NC 27609

DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00

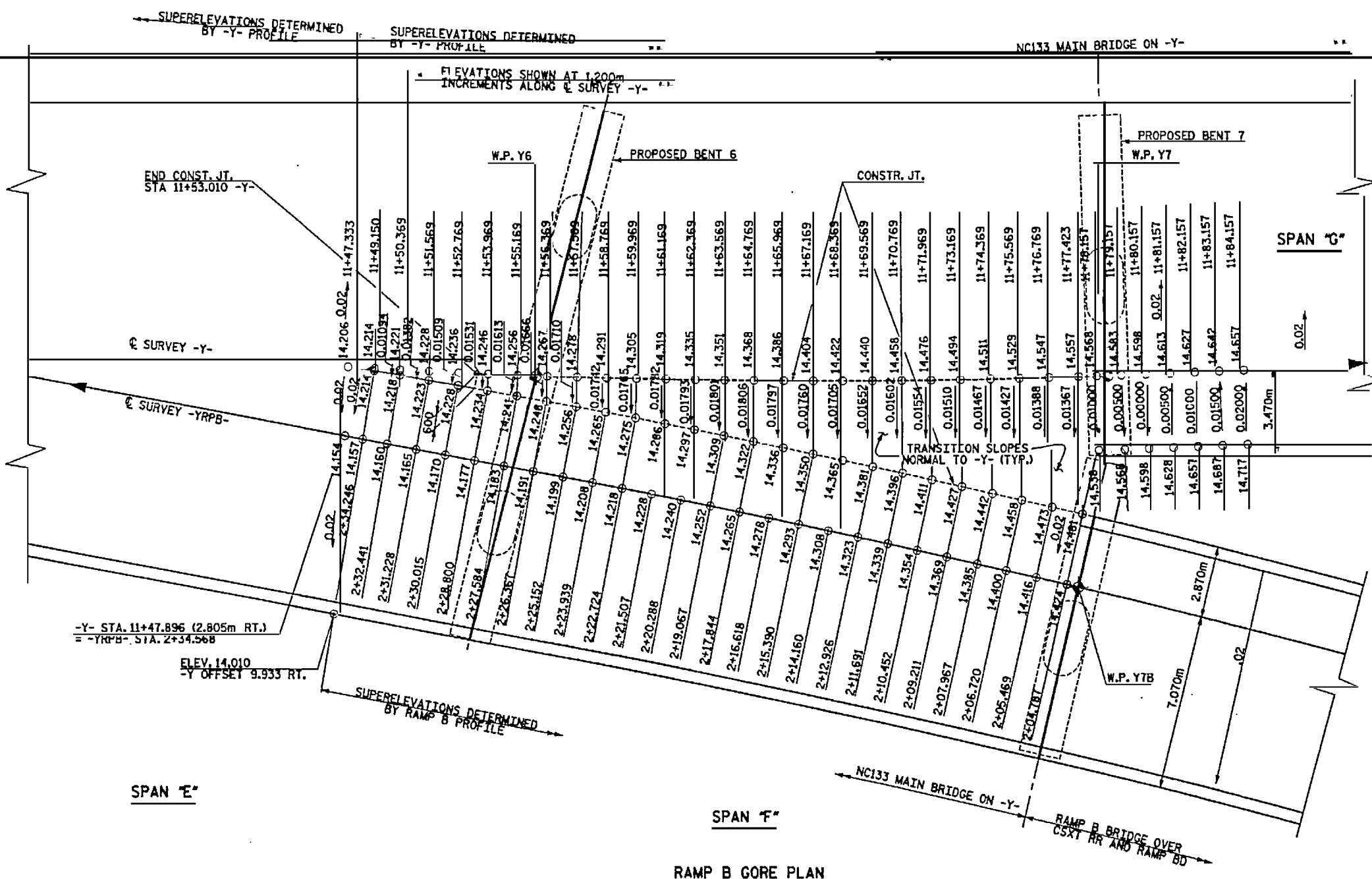
DWG. NO. 39

**REVISIONS**

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

**SHEET**  
2-25  
TOTAL SHEETS 101

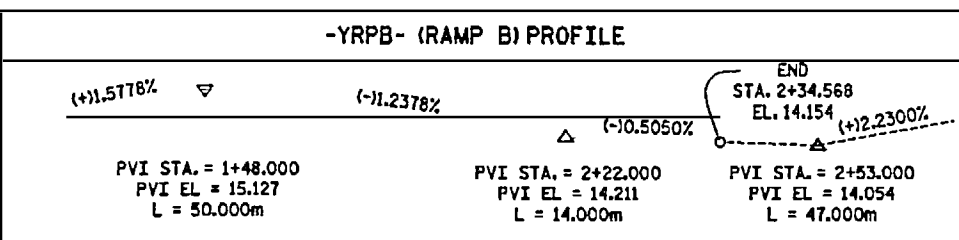
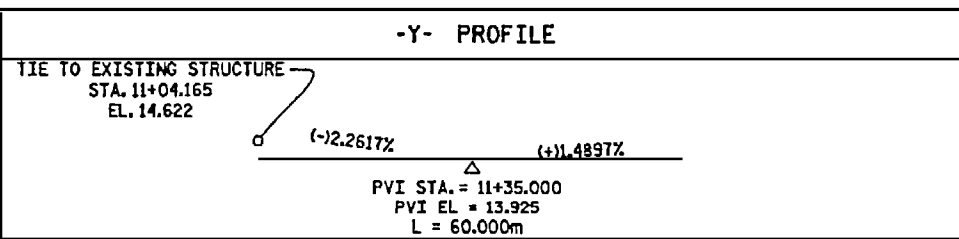




NOTE:  
BARRIER RAIL NOT SHOWN IN GORE  
FOR CLARITY, FOR BARRIER RAIL IN  
GORE, SEE 'RAIL PLAN SPAN E'



PROJECT NO. U-092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-



SUPERELEVATION SCHEDULE					
-YRPB- (RAMP B)			-Y-		
STATION	S.E.		STATION	S.E.	
	LEFT	RIGHT		LEFT	RIGHT
1+45.000	0.0600	-0.0600	11+33.251	0.0200	0.0200
1+79.000	0.0200	-0.0200	11+47.896	0.0200	0.0200
2+34.246	0.0200	-0.0200	GORE	0.0200	VARIES
			11+77.423	0.0200	0.01367
			11+84.157	0.0200	-0.0200

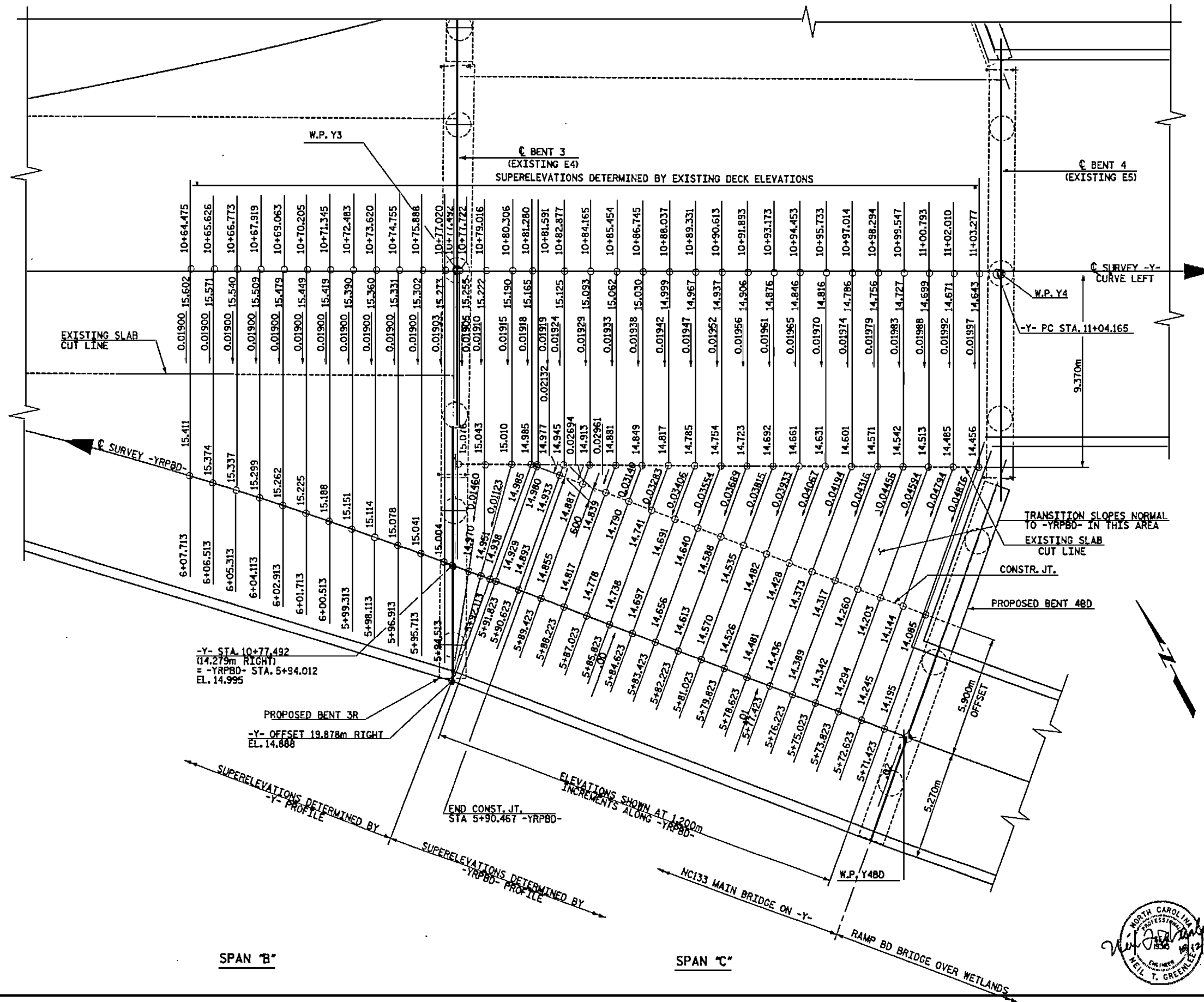


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
TRANSITION ZONE PLAN  
GORE AT RAMP B

**FNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE DATE: 8/93 DWG. NO. 40  
CHECKED BY: P. BARBER DATE: 7/00

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

SHEET NO. 5-40  
TOTAL SHEETS 104



**-YRPBD- (RAMP BD) PROFILE**

(+5.8379%      (+)3.0100%

PVI STA. = 5+67.000  
PVI EL. = 14.182  
L = 50.000m

TIE TO EXISTING STA. 5+94.012 EL. 14.995

---

**-Y- PROFILE**

EXISTING DECK  
PVI STA. = 9+49.500  
PVI EL. = 18.992  
L = 178.000m

NEW DECK  
PVI STA. = 11+35.000  
PVI EL. = 13.925  
L = 60.000m

(+13.0000%      -2.9800%      -2.2617% (+)1.4897%      -0.9000%

TIE OF EXISTING TO NEW DECK STA. 11+04.165 EL. 14.622

EXISTING DECK PVI STA. = 11+34.500 PVI EL. = 13.479 L = 190.000m

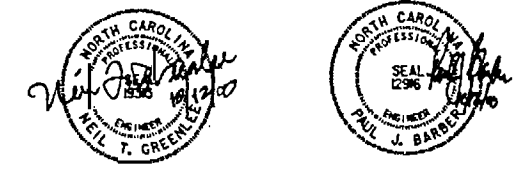
**SUPERELEVATION SCHEDULE**

STATION	-YRPBD-		-Y-	
	LEFT	S.E. RIGHT	STATION	S.E. (RIGHT)
5+40.423	-.06000	0.06000	10+15.610	0.0190
5+70.423	-.02000	0.02000	10+76.189	0.0190
5+92.113	0.00892	-.00892	11+04.165	0.0200
			11+47.896	0.0200

NOTE:  
BARRIER RAIL NOT SHOWN IN GORE FOR CLARITY. FOR BARRIER RAIL IN GORE, SEE 'RAIL PLAN SPAN C'



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 TRANSITION ZONE PLAN  
 GORE AT RAMP BD

**HNTB HNTB NORTH CAROLINA, P.C.**  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

REVISIONS						SHEET NO. 5-41
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

DRAWN BY: J. BAYNE      DATE: 7/00  
 CHECKED BY: P. BARBER      DATE: 7/00      DWG. NO. 4

SPAN "B"

SPAN "C"

RAMP BD GORE PLAN

**NOTES:**

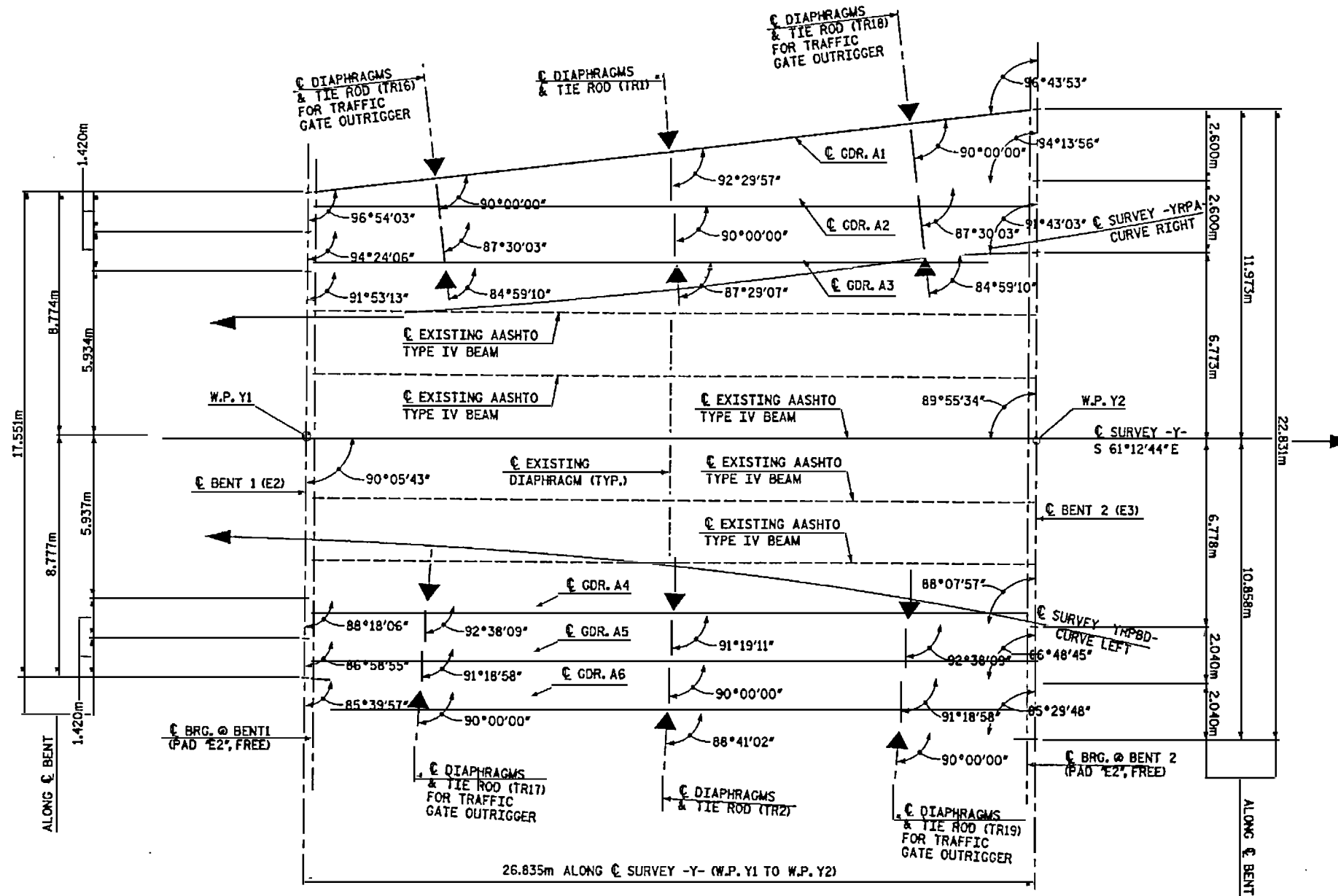
SOLE PLATES NOT REQUIRED FOR SPAN A GIRDERS. EMBEDDED PLATES IN ENDS OF GIRDERS SHALL BE ORIENTED AS NECESSARY TO PRODUCE A LEVEL INTERFACE WITH ELASTOMERIC BEARING PADS. SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET FOR MORE INFORMATION.

FOR TIE ROD LOCATIONS AND DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET.

FOR DIAPHRAGM DETAILS, SEE TYPICAL SECTION SPAN A AND SUPERSTRUCTURE DETAILS SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE ELASTOMERIC BEARING DETAILS SHEETS.

FOR GIRDER DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER SHEETS.



**FRAMING PLAN - SPAN A**

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS.  
TR = TIE ROD



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



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

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. SIX FORKS RD., SUITE 200, RALEIGH, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: N. GREENLEE DATE: 7/00 DWG. NO. 42

REVISIONS					SHEET NO. 5-42
NO.	BY	DATE	NO.	BY	
1			3		TOTAL SHEETS 101
2			4		

**NOTES:**

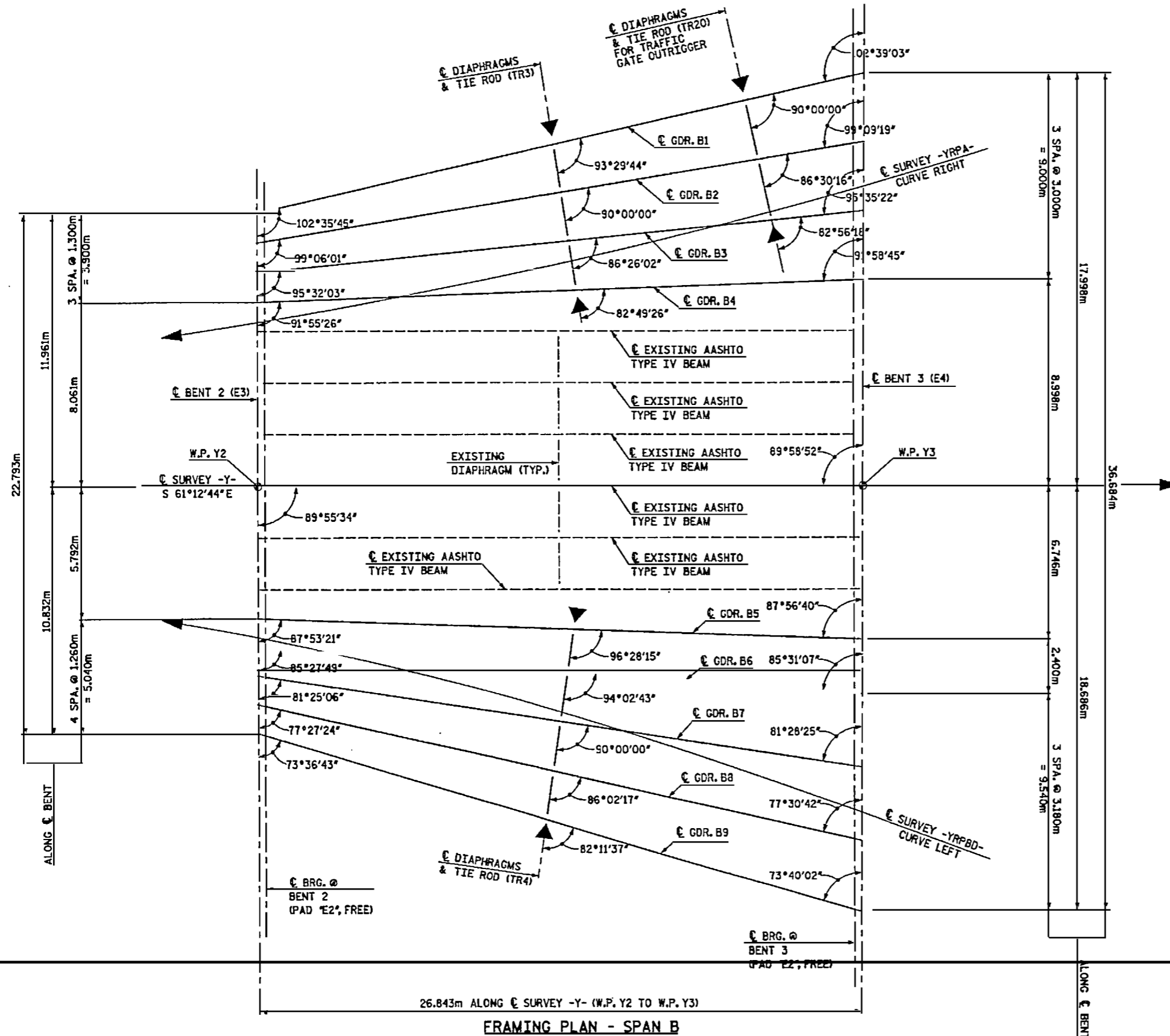
SOLE PLATES NOT REQUIRED FOR SPAN B GIRDERS. EMBEDDED PLATES IN ENDS OF GIRDERS SHALL BE ORIENTED AS NECESSARY TO PRODUCE A LEVEL INTERFACE WITH ELASTOMETRIC BEARING PADS. SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET FOR MORE INFORMATION.

FOR TIE ROD LOCATIONS AND DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET.

FOR DIAPHRAGM DETAILS, SEE 'TYPICAL SECTION SPAN B' AND 'SUPERSTRUCTURE DETAILS' SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE 'ELASTOMERIC BEARING DETAILS' SHEETS.

FOR GIRDER DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER SHEETS.

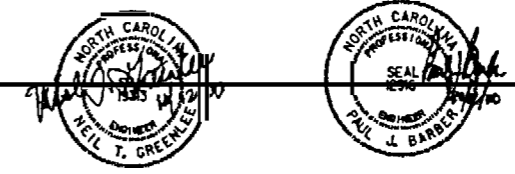


**FRAMING PLAN - SPAN B**

▲ LOCATION OF GROUDED RECESS FOR ENDS OF TIE RODS.  
TR = TIE RODS



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



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

**HNTE** HNTE NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27603  
 DRAWN BY: M. WRIGHT DATE: 10/99  
 CHECKED BY: N. GREENLEE DATE: 7/00 DWG. NO. 43

REVISIONS						SHEET NO. 3-25
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 10/11
2			4			

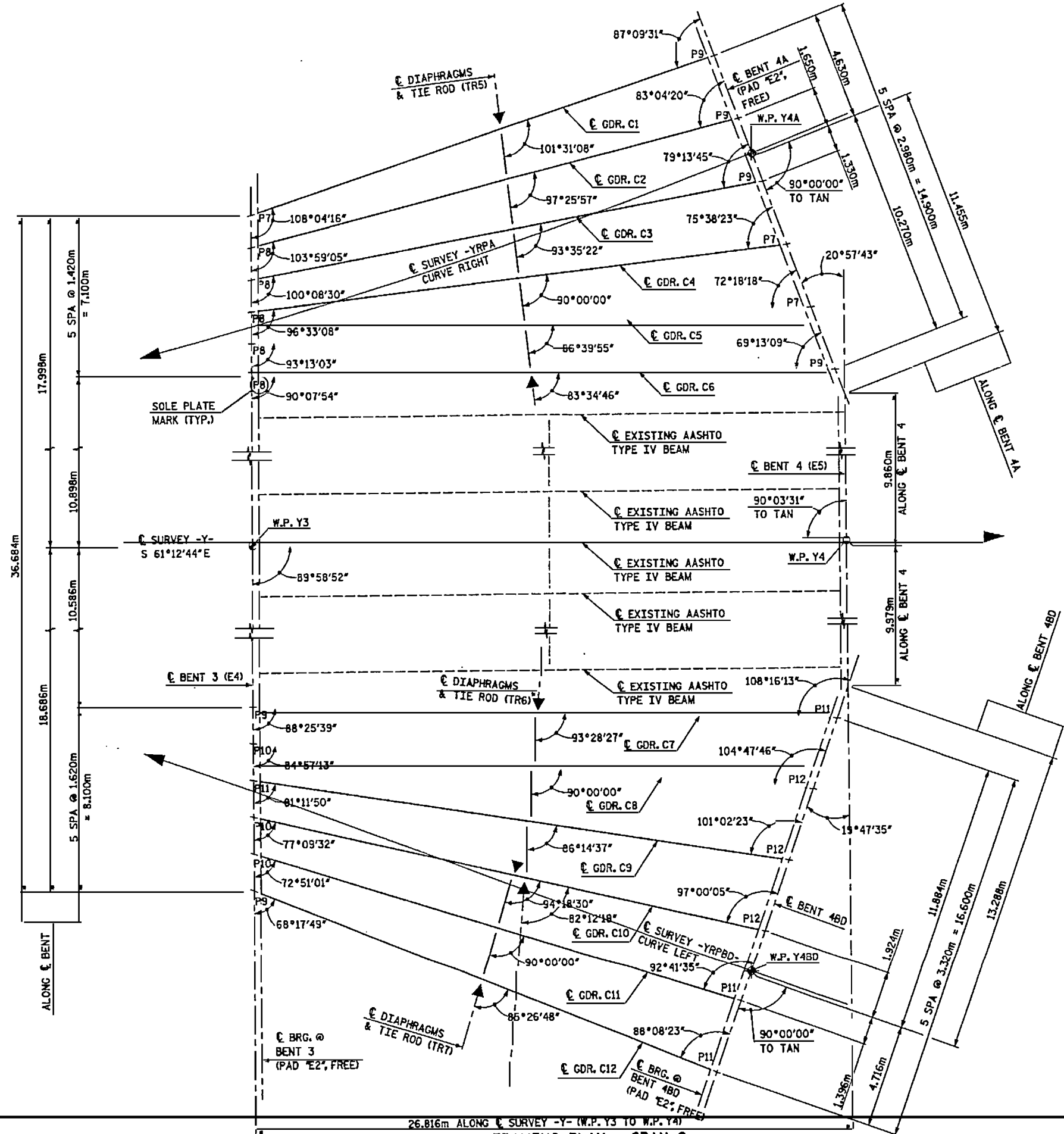
NOTES:

FOR TIE ROD LOCATIONS AND DETAILS, SEE '1372mm PRESTRESSED CONCRETE GIRDER DETAILS' SHEET.

FOR DIAPHRAGM DETAILS, SEE 'TYPICAL SECTION SPAN C' AND 'SUPERSTRUCTURE DETAILS' SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE 'ELASTOMERIC BEARING DETAILS' SHEETS.

FOR GIRDER DETAILS, SEE '1372mm PRESTRESSED CONCRETE GIRDER' SHEETS.



FRAMING PLAN - SPAN C  
 ▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS  
 TR = TIE ROD



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

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



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 10/99  
 CHECKED BY: N. GREENLEE DATE: 7/00 DWG. NO. 44

REVISIONS						SHEET NO. S-44
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

NOTES:

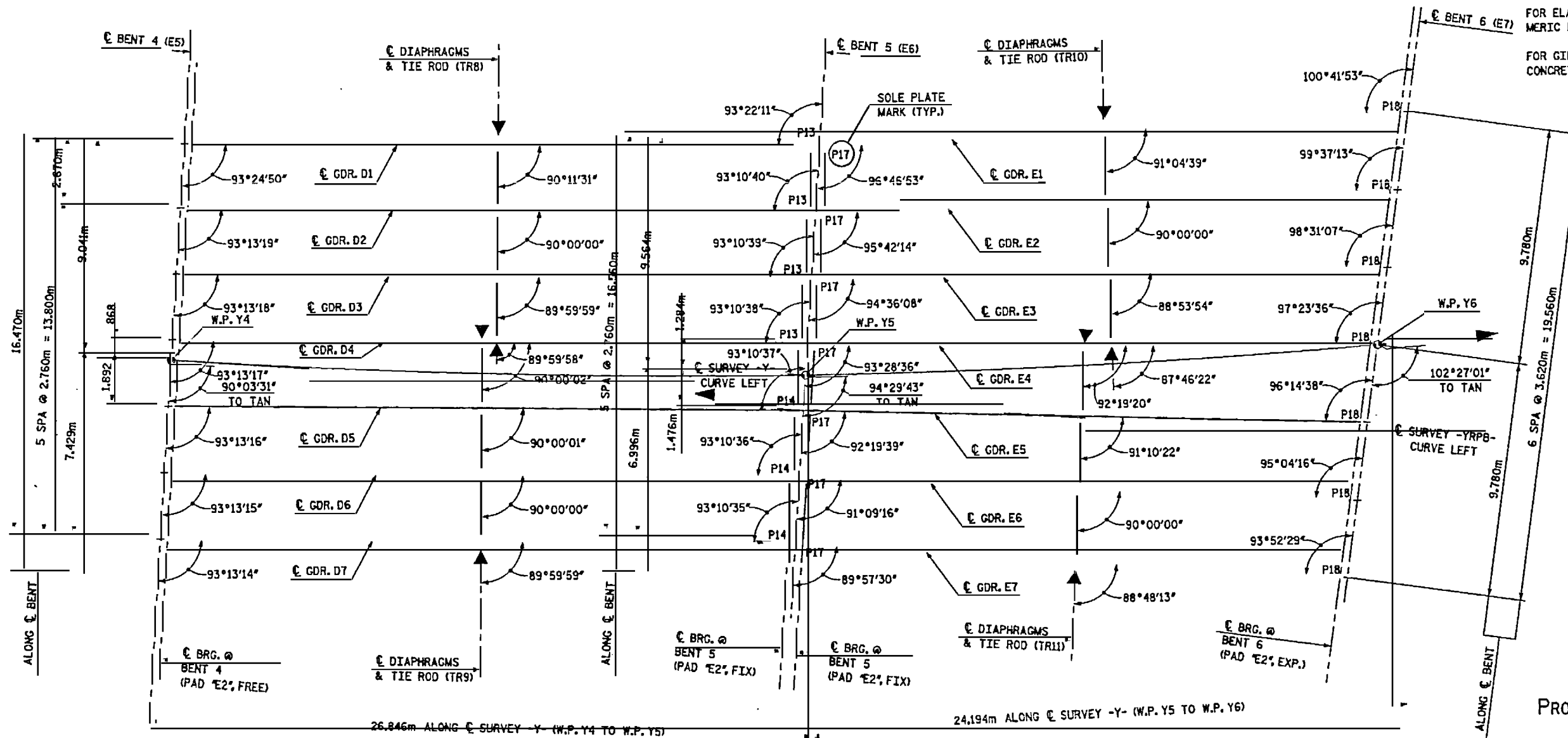
SOLE PLATES NOT REQUIRED FOR SPAN D GIRDERS AT BENT 4. EMBEDDED PLATES IN ENDS OF GIRDERS SHALL BE ORIENTED AS NECESSARY TO PRODUCE A LEVEL INTERFACE WITH ELASTOMERIC BEARING PADS. SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET FOR MORE INFORMATION.

FOR TIE ROD LOCATIONS AND DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET.

FOR DIAPHRAGM DETAILS, SEE TYPICAL SECTION SPAN A, TYPICAL SECTION SPAN E AND SUPERSTRUCTURE DETAILS SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE ELASTOMERIC BEARING DETAILS SHEETS.

FOR GIRDER DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER SHEETS.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SPAN D

SPAN E

FRAMING PLAN - SPANS D & E

▲ LOCATION OF GROUDED RECESS FOR ENDS OF TIE RODS.

TR = TIE ROD



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN  
 SPANS D & E

HNTB HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27603  
 DRAWN BY: M. WRIGHT DATE: 10/99  
 CHECKED BY: N. GREENLEE DATE: 1/00 DWG. NO. 45

REVISIONS						SHEET NO. S-43	TOTAL SHEETS (51)
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

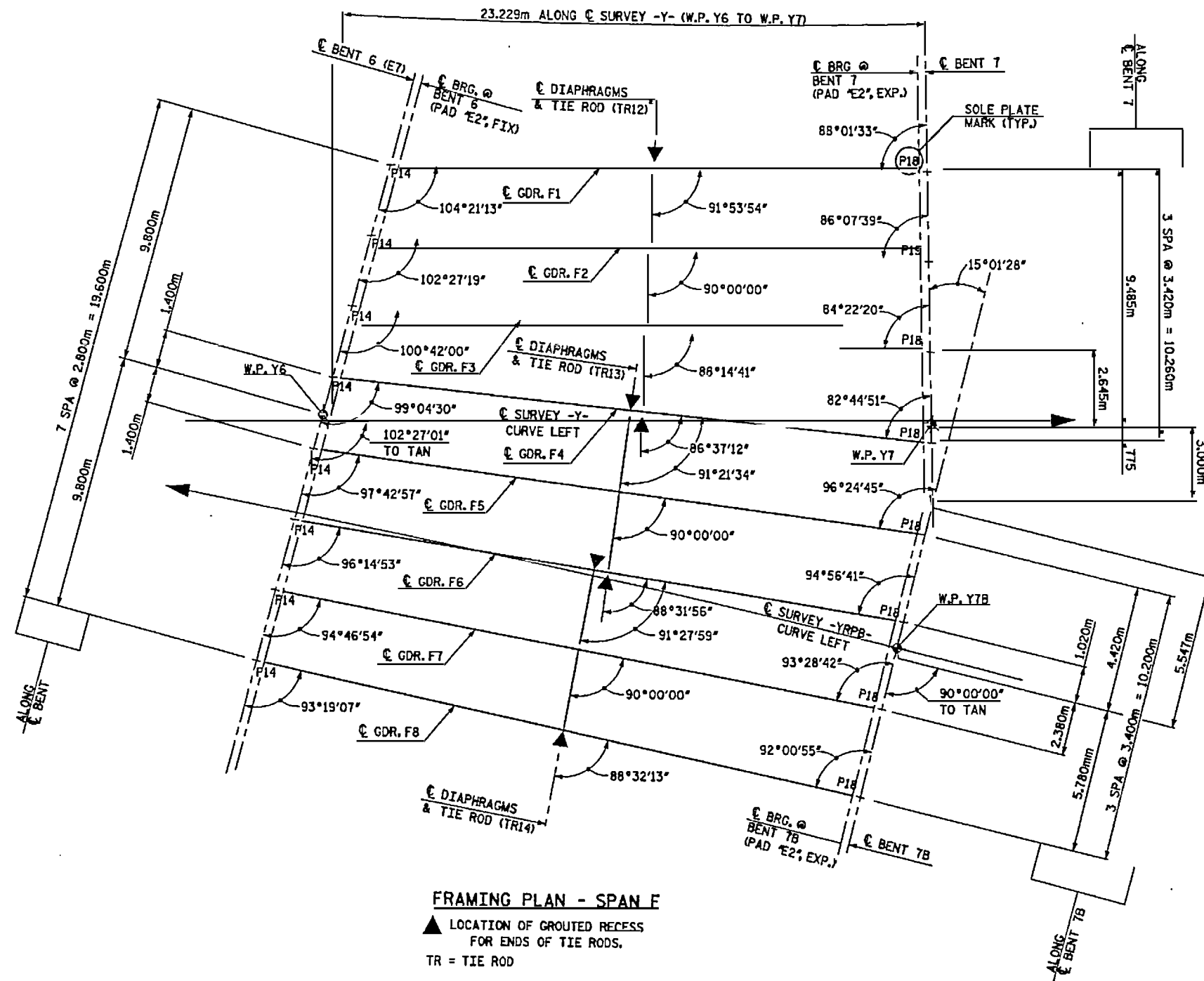
**NOTES:**

FOR TIE ROD LOCATIONS AND DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER DETAILS SHEET.

FOR DIAPHRAGM DETAILS, SEE TYPICAL SECTION SPAN F AND SUPERSTRUCTURE DETAILS SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE ELASTOMERIC BEARING DETAILS SHEETS.

FOR GIRDER DETAILS, SEE 1372mm PRESTRESSED CONCRETE GIRDER SHEETS.



**FRAMING PLAN - SPAN F**

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS.  
TR = TIE ROD



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN  
 SPAN F

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: M. WRIGHT DATE: 10/99  
 CHECKED BY: N. GREENLEE DATE: 1/00 DWG. NO. 46

REVISIONS					SHEET NO. 5-24
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 151
2			4		

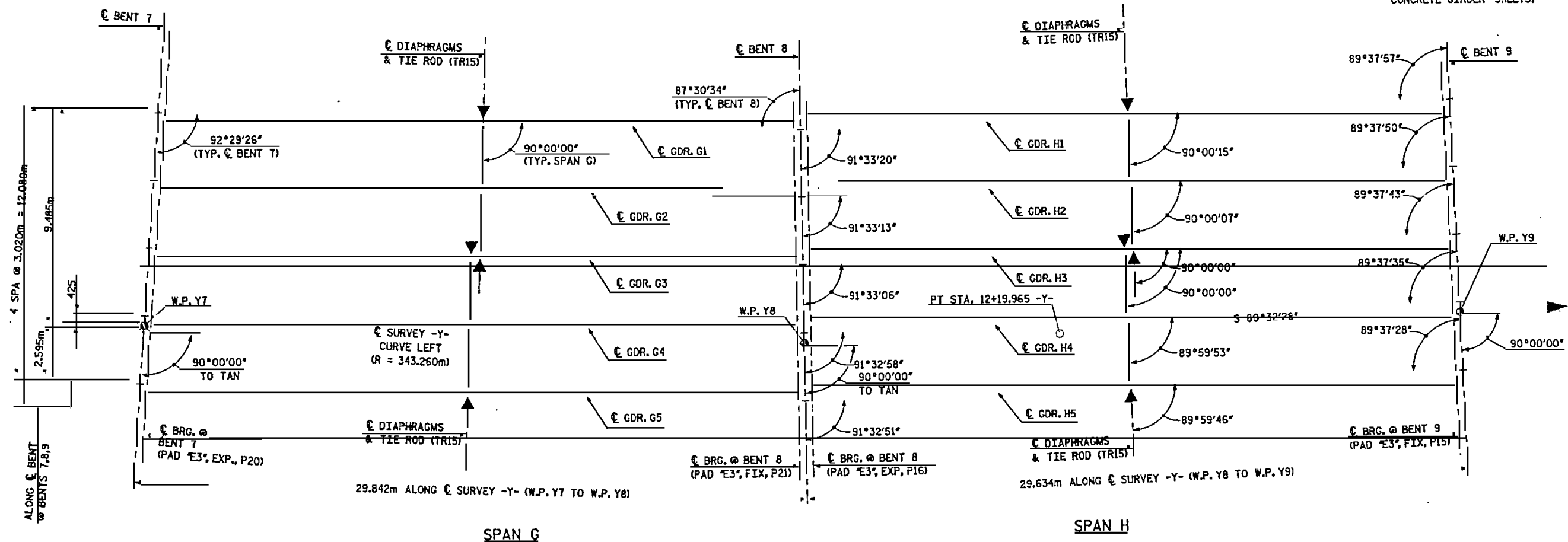
NOTES:

FOR TIE ROD LOCATIONS AND DETAILS, SEE "1372mm PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.

FOR DIAPHRAGM DETAILS, SEE "TYPICAL SECTION SPANS G, H & I" AND "SUPERSTRUCTURE DETAILS" SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE "ELASTOMERIC BEARING DETAILS" SHEETS.

FOR GIRDER DETAILS, SEE "1372mm PRESTRESSED CONCRETE GIRDER" SHEETS.



FRAMING PLAN - SPANS G & H

- ▲ LOCATION OF GROUDED RECESS FOR ENDS OF TIE RODS.
- TR = TIE ROD
- P21 = SOLE PLATE MARK (TYP.)



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 FRAMING PLAN  
 SPANS G & H

**FNTE** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY M. WRIGHT DATE 10/99  
 CHECKED BY N. GREENLEE DATE 1/00 DWG. NO. 47

REVISIONS						SHEET NO. S-4-7	TOTAL SHEETS (of 1)
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				



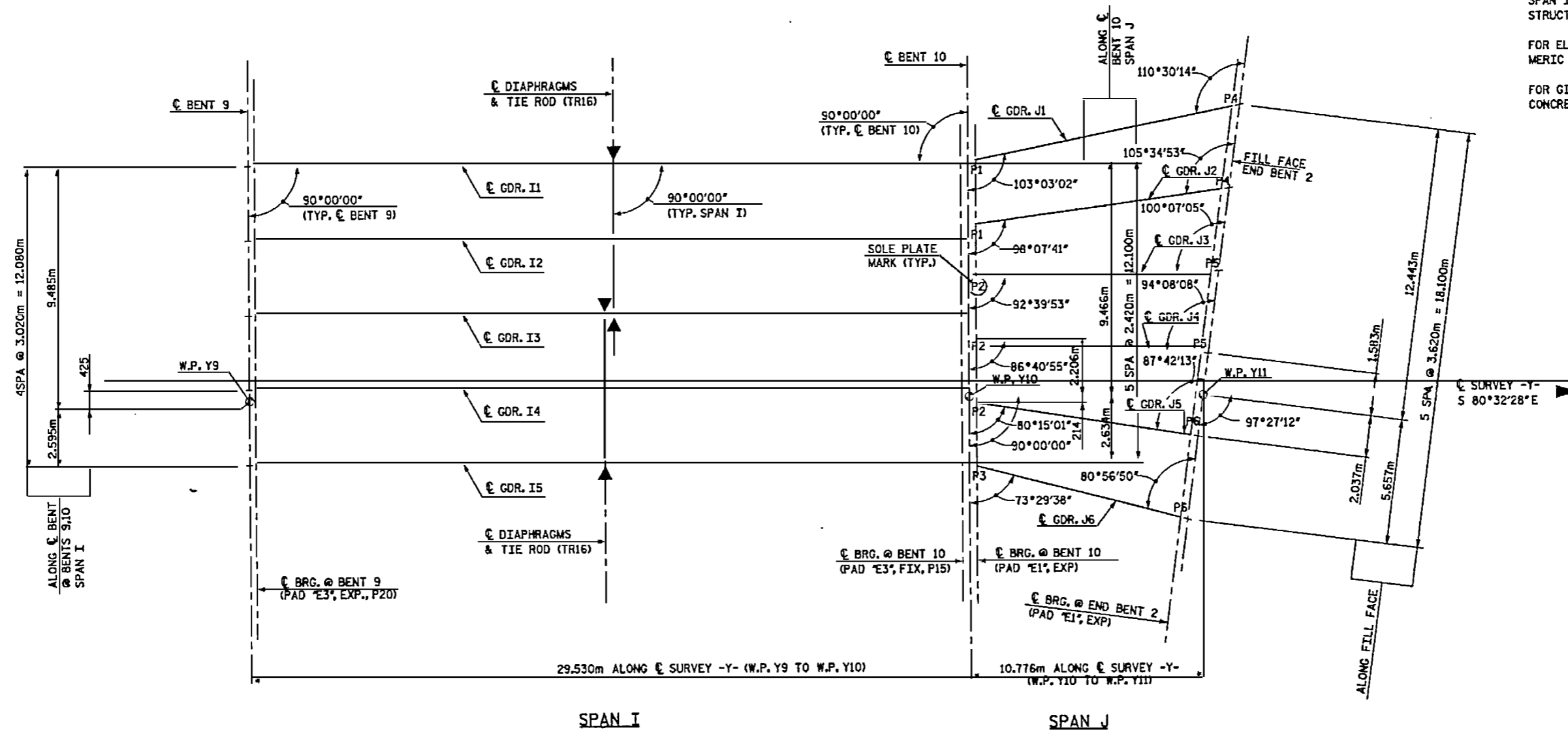
**NOTES:**

FOR TIE ROD LOCATIONS AND DETAILS, SEE "1372mm PRESTRESSED CONCRETE GIRDER DETAILS" SHEET.

FOR DIAPHRAGM DETAILS, SEE "TYPICAL SECTION SPAN I," "TYPICAL SECTION SPAN J" AND "SUPERSTRUCTURE DETAILS" SHEETS.

FOR ELASTOMERIC BEARING DETAILS, SEE "ELASTOMERIC BEARING DETAILS" SHEETS.

FOR GIRDER DETAILS, SEE "1372mm PRESTRESSED CONCRETE GIRDER" SHEETS.



SPAN I

SPAN J

**FRAMING PLAN - SPANS I & J**

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS.  
TR = TIE ROD



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
FRAMING PLAN  
SPANS I & J



**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 10/99  
CHECKED BY: N. GREENLEE DATE: 7/00 DWG. NO. 48

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

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 9 OF 9. TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO GIRDER END SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. 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.

ALL PRESTRESSED 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 29.0 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRIDE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

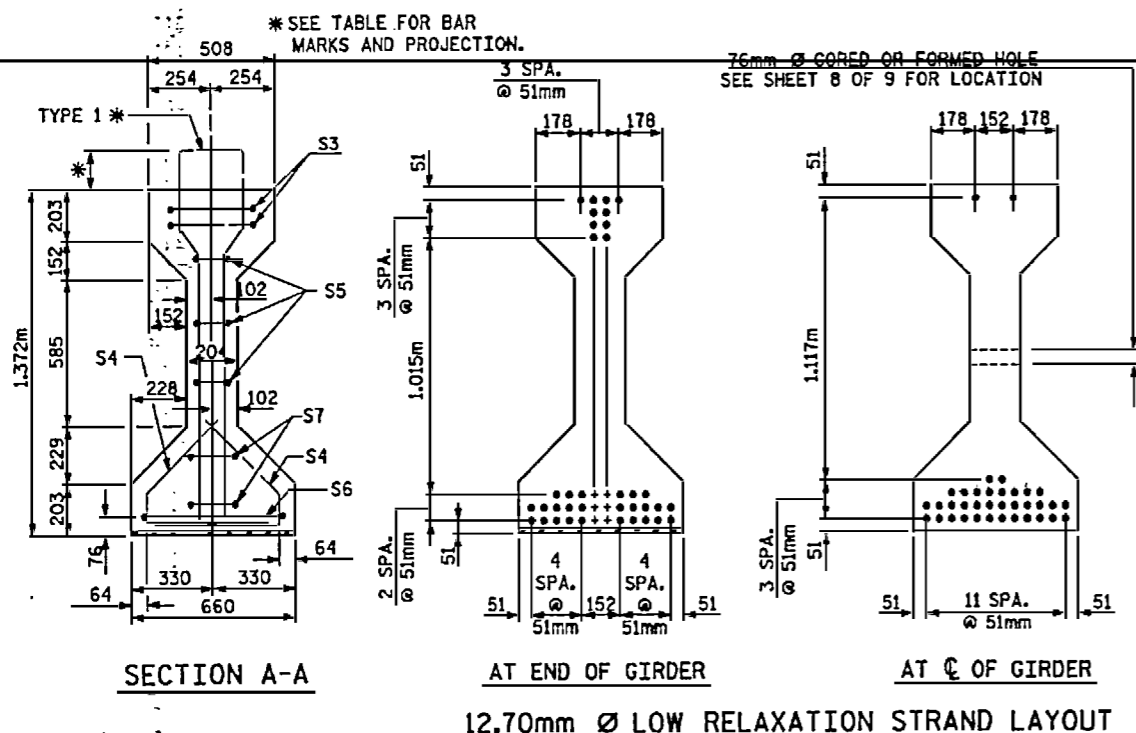
THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 130 KN AT EACH HOLD DOWN POINT.

12.70mm Ø L.R. GRADE 270 STRANDS

AREA (mm <sup>2</sup> )	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
96.71	183.7	137.8

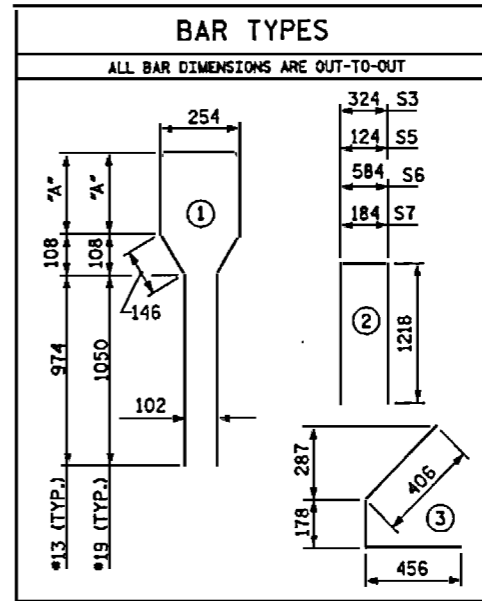
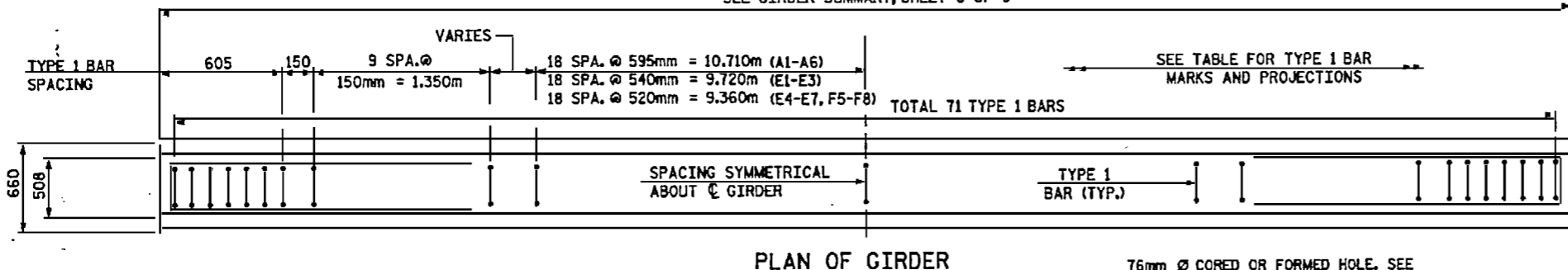
REINFORCING STEEL FOR ONE GIRDER

GIRDERS	BAR NUMBER	SIZE	TYPE	"A" DIM (mm)	LENGTH (mm)	WEIGHT (kg)
A1-A6	S1	27	#13	1	363	86
	S2	30	#13	1	373	97
	S8	14	#19	1	297	101
E1-E7	S1	27	#13	1	373	87
	S2	20	#13	1	413	66
	S8	7	#13	1	443	24
	S9	10	#19	1	337	74
F5-F8	S10	7	#19	1	367	53
	S1	57	#13	1	383	185
	S2	14	#19	1	307	102
	S3	4	#13	2	—	2,760
	S4	68	#13	3	—	1,040
	S5	6	#13	2	—	2,560
	S6	2	#13	2	—	3,020
S7	4	#13	2	—	2,620	



GIRDER	TYPE 1 BAR MARKS & PROJECTIONS					
	GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5	GRP. 6
A1-A6	7-S8	15-S2	27-S1	15-S2	7-S8	—
	142mm	132mm	142mm	—	—	—
E1-E7	7-S9	15-S2	27-S1	5-S2	10-S8	7-S10
	182mm	142mm	182mm	212mm	—	—
F5-F8	7-S2	57-S1	7-S2	—	—	—
	152mm	—	—	—	—	—

SEE GIRDER SUMMARY, SHEET 8 OF 9

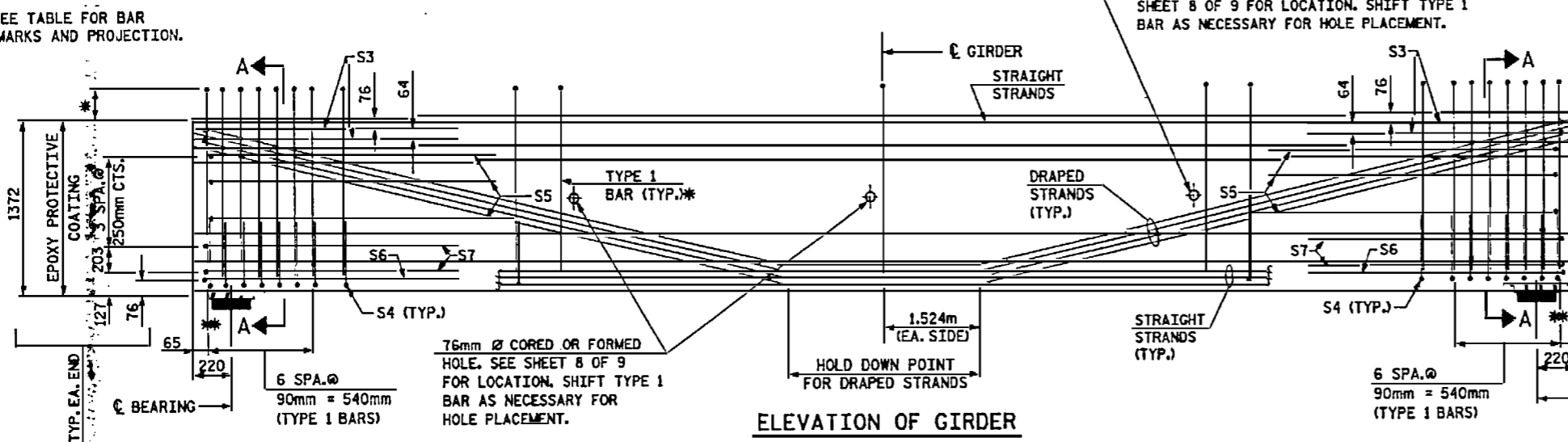


GIRDER QUANTITIES			
GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
A1	396	13.7	36
A2	396	13.6	36
A3	396	13.6	36
A4	396	13.6	36
A5	396	13.6	36
A6	396	13.6	36
E1	416	12.6	36
E2	416	12.5	36
E3	416	12.3	36
E4	416	12.2	36
E5	416	12.1	36
E6	416	11.9	36
E7	416	11.8	36
F5	399	11.9	36
F6	399	11.9	36
F7	399	11.9	36
F8	399	12.0	36

GIRDERS REQUIRED			
GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
A1-A6	1 EA.	⊕	160.450
E1-E7	1 EA.	⊕	167.812
F5-F8	1 EA.	⊕	93.834

⊕ SEE SHEET 8 OF 9

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-  
 SHEET 1 OF 9



\* SPAN A GIRDERS HAVE TILTED "B-1" PLATES IN LIEU OF SOLE PLATES. SEE SHEET 9 OF 9 FOR DETAILS. SEE "ELASTOMETRIC BEARING DETAILS" AND "FRAMING PLAN" SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.

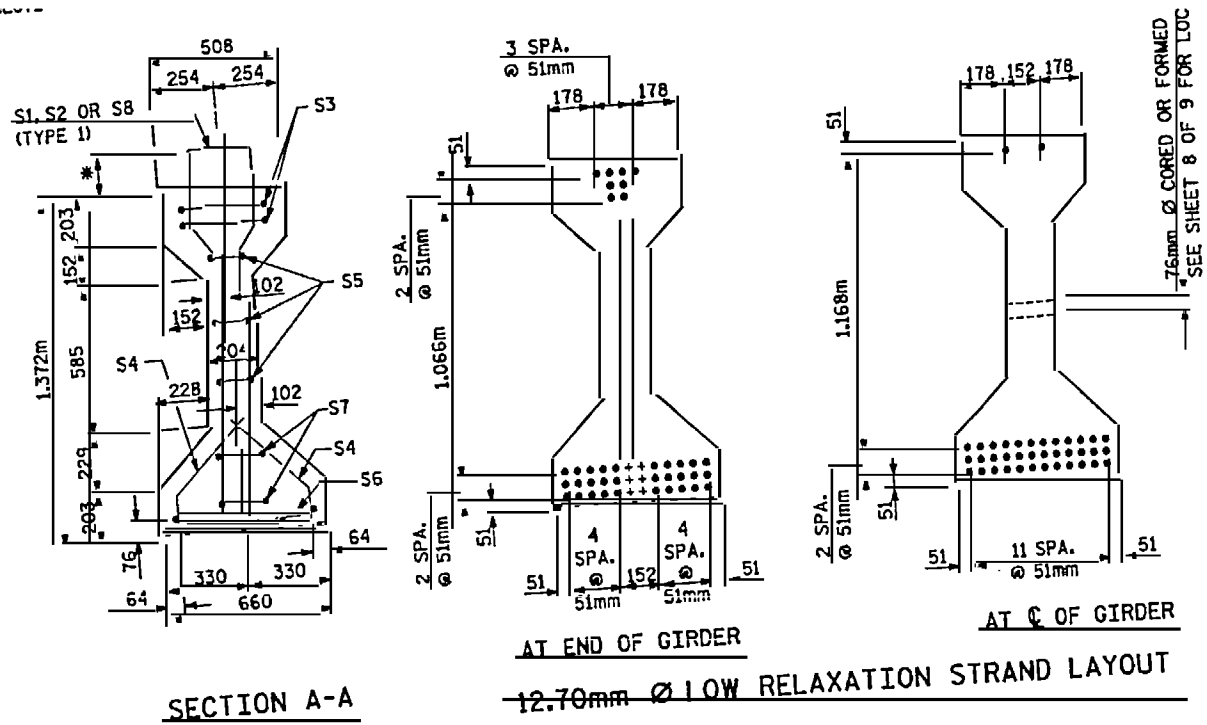
ASSEMBLED BY: M. WRIGHT	DATE: 7/00
CHECKED BY: N. GREENLEE	DATE: 7/00
DRAWN BY: JMB	10/87
CHECKED BY: GRP	10/87
REV. 5/16/97	EEM/RGW
REV. 7/17/98	RWW/LES
REV. 8/16/99	RWW/LES



DWG. NO. 49

REVISIONS						SHEET NO. 5-49
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 10/11
2			4			

STD. NO. PCG3SM



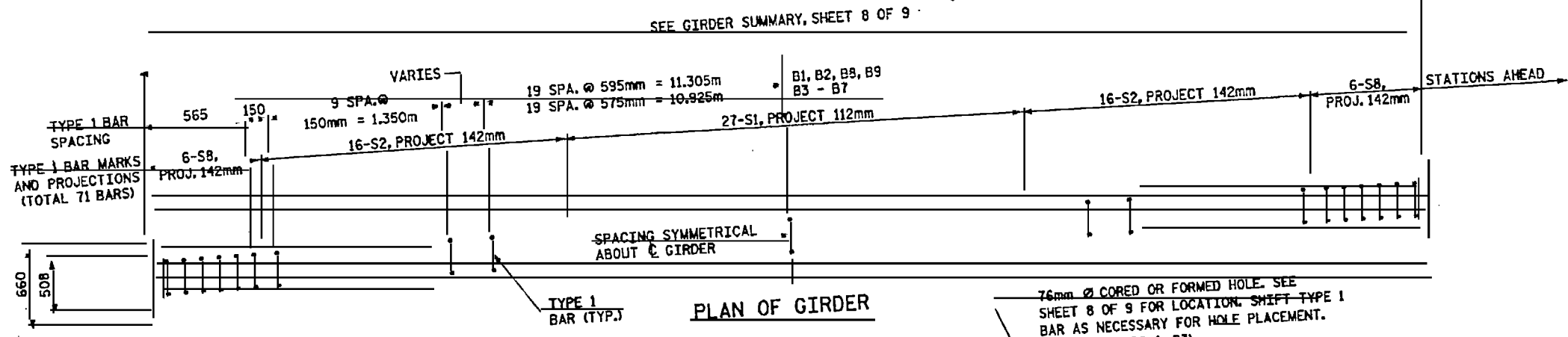
TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.  
 ALL REINFORCING STEEL SHALL BE GRADE 420.  
 APPLY EPOXY PROTECTIVE COATING TO GIRDER END SURFACES.  
 FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.  
 FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. EMBEDDED PLATE "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.  
 ALL PRESTRESSED 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 29.0 MPa.  
 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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.  
 WHEN DRAPED STRANDS ARE DETAIL, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.  
 FOR VERTICAL CRACKS IN PRESTRESSED CONCRETE GIRDERS PRIOR TO DETENSIONING, SEE SPECIAL PROVISIONS.  
 PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.  
 PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	"A" DIM (mm)	LENGTH (mm)	WEIGHT (kg)
S1	27	#13	1	343	3,180	85
S2	32	#13	1	373	3,240	103
S3	4	#13	2	---	2,760	11
S4	64	#13	3	---	1,040	66
S5	6	#13	2	---	2,560	15
S6	2	#13	2	---	3,020	6
S7	4	#13	2	---	2,620	10
S8	12	#19	1	297	3,240	87

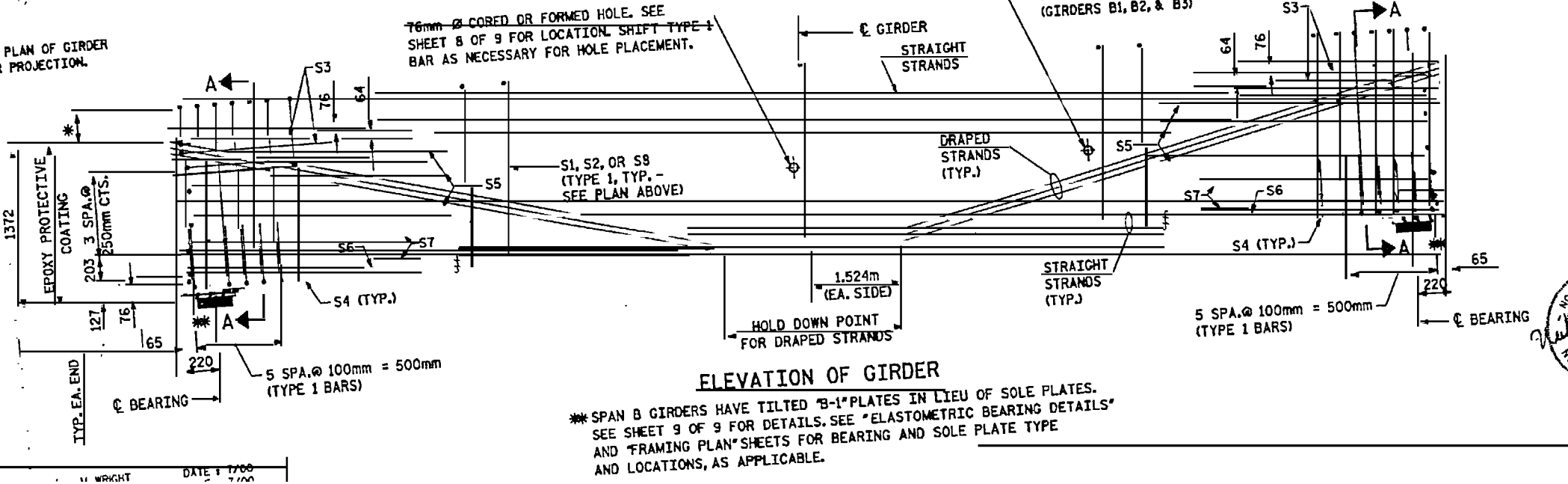
BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
B1	383	13.9	38
B2	383	13.8	38
B3	383	13.7	38
B4	383	13.6	38
B5	383	13.6	38
B6	383	13.6	38
B7	383	13.7	38
B8	383	13.9	38
B9	383	14.1	38



GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
B1-B9	1 EA.	⊕	243.418

⊕ SEE SHEET 8 OF 9

PROJECT NO. 11-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-  
 SHEET 2 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALPH H

STANDARD  
 1372mm PRESTRESSED  
 CONCRETE GIRDER  
 SPAN B

NO.	BY	DATE	NO.	BY	DATE
1			1		

REVISIONS

DATE: 1/17/06

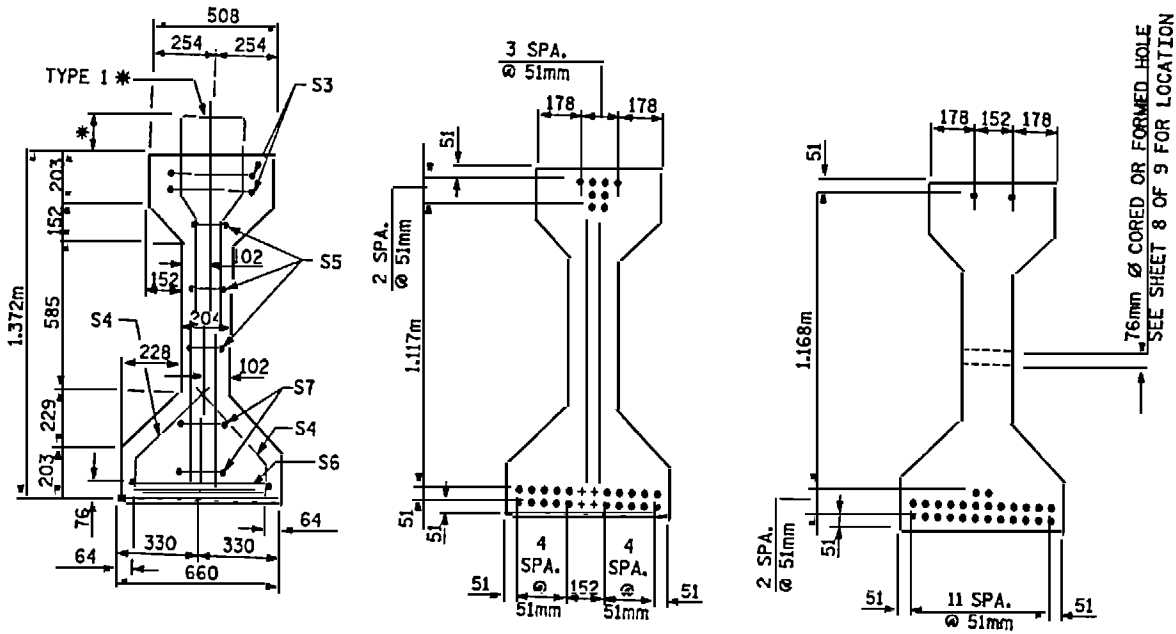
WRIGHT

DRG. NO. 50

STD. NO. PCG35M



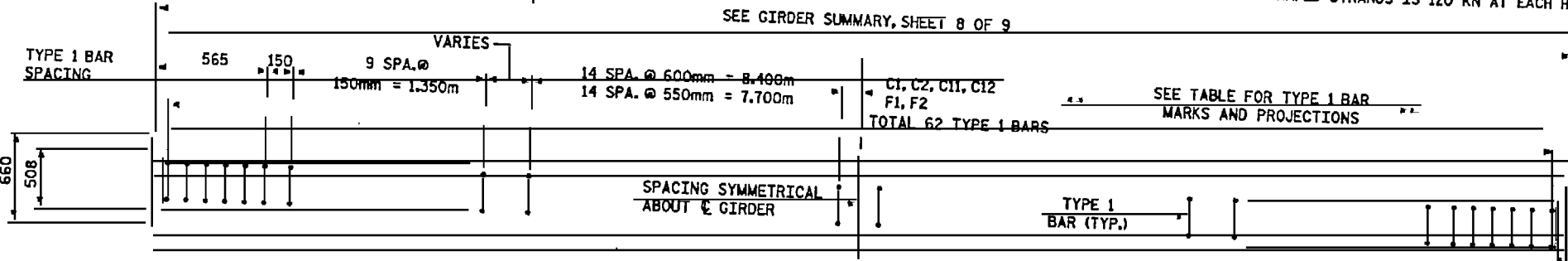
\*SEE TABLE FOR BAR MARKS AND PROJECTION.



SECTION A-A

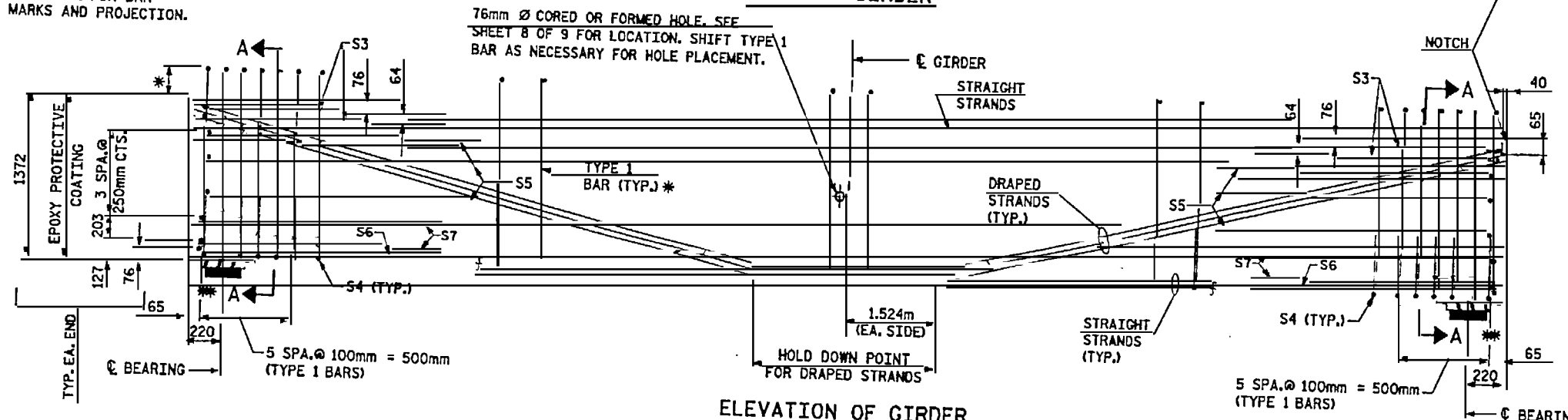
AT END OF GIRDER  
AT C OF GIRDER  
AT Q OF GIRDER  
12.70mm Ø LOW RELAXATION STRAND LAYOUT

GIRDER	STATIONS AHEAD				
	GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5
C1-C2	6-S9	18-S2	18-S1	14-S8	6-S10
C11,C12	6-S2	50-S1	6-S2		
F1,F2					



PLAN OF GIRDER

\*SEE TABLE FOR BAR MARKS AND PROJECTION.



ELEVATION OF GIRDER

\*SPAN C GIRDERS HAVE TILTED "B-1" PLATES IN LIEU OF SOLE PLATES. SEE SHEET 9 OF 9 FOR DETAILS. SEE "ELASTOMETRIC BEARING DETAILS" AND FRAMING PLAN SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 9 OF 9.

TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO GIRDER END SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. 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.

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THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE GIRDER SHALL BE DONE WHEN CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 29.0 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 120 KN AT EACH HOLD DOWN POINT.

12.70mm Ø L. R. GRADE 270 STRANDS		
AREA (mm <sup>2</sup> )	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER

GIRDERS	BAR NUMBER	SIZE	TYPE	"A" DIM (mm)	LENGTH (mm)	WEIGHT (kg)
C1,C2	S1	18	#13	1	393	3,280
	S2	18	#13	1	423	3,340
	S8	14	#13	1	413	3,320
	S9	6	#19	1	347	3,340
C11,C12 F1,F2	S10	6	#19	1	337	3,320
	S1	50	#13	1	383	3,260
	S2	12	#19	1	307	3,260
	S3	4	#13	2	---	2,760
	S4	64	#13	3	---	1,040
	S5	6	#13	2	---	2,560
	S6	2	#13	2	---	3,020
S7	4	#13	2	---	2,620	

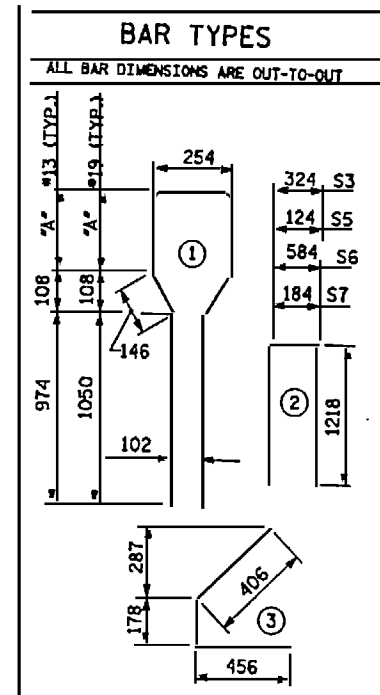
GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
C1	363	11.2	28
C2	363	11.5	28
C11	357	11.5	28
C12	357	11.2	28
F1	357	10.4	28
F2	357	10.8	28

GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
C1,C2,C11,C12	1 EA.	⊕	89.328
F1,F2	1 EA.	⊕	41.506

⊕ SEE SHEET 8 OF 9

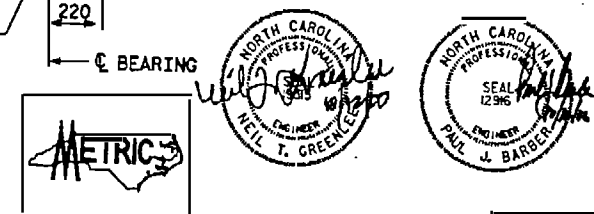


PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-  
SHEET 3 OF 9

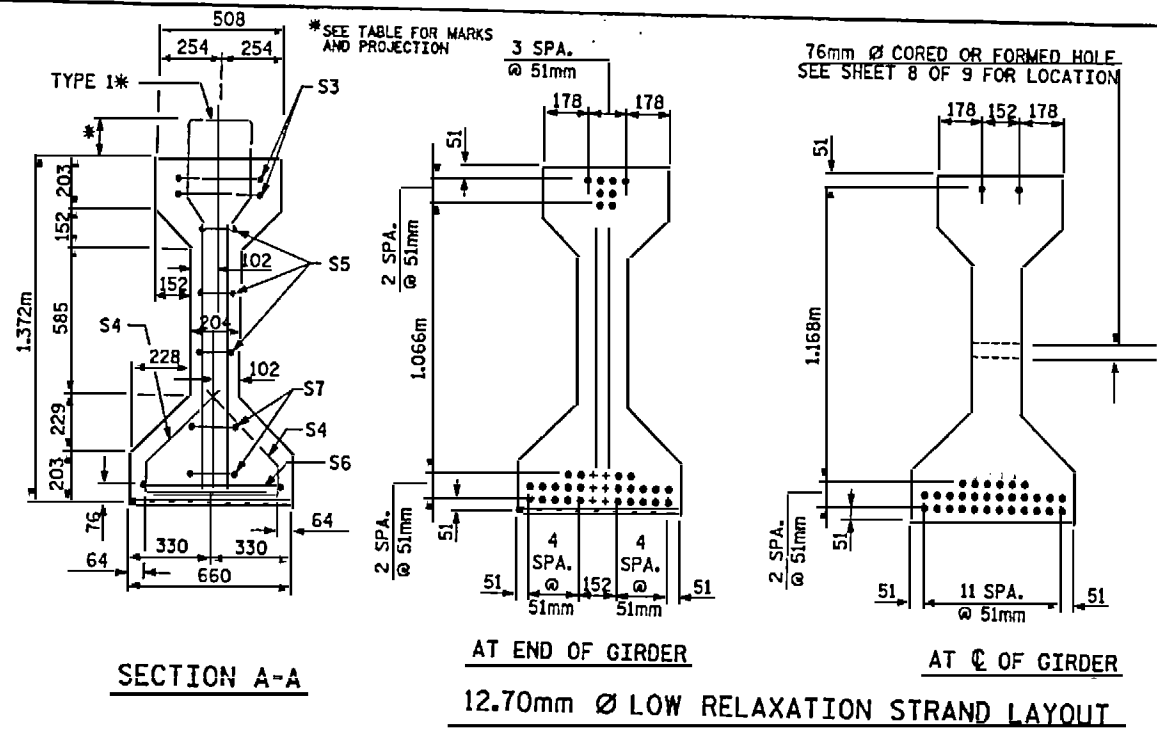
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RELIEF  
STANDARD  
1372mm PRESTRESSED  
CONCRETE GIRDER  
SPAN C (C1, C2, C11, C12)  
SPAN F (F1, F2)

REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	DATE
1			3	61
2			4	101

DWG. NO. 51



ASSEMBLED BY: M. WRIGHT	DATE: 7/00
CHECKED BY: N. GREENLEE	DATE: 7/00
DRAWN BY: JWB 10/87	REV. 5/16/97
CHECKED BY: CRP 10/87	REV. 7/17/98
	REV. 8/16/99
	EM/RGW
	RWW/LES
	RWW/LES



SECTION A-A

12.70mm Ø LOW RELAXATION STRAND LAYOUT

TYPE 1 BAR MARKS & PROJECTIONS												
GIRDER	STATIONS AHEAD						GIRDER	STATIONS AHEAD				
	GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5	GRP. 6		GRP. 7	GRP. 1	GRP. 2	GRP. 3	GRP. 4
C3,C4	6-S9	15-S8	9-S2	8-S1	9-S2	15-S8	6-S9	6-S8	24-S2	8-S1	24-S2	6-S8
	182mm	132mm	102mm	132mm	182mm			132mm	102mm	132mm		
C5	6-S8	15-S2	17-S1	24-S2	6-S8		C8	6-S2	56-S1	6-S2		
	182mm	132mm		182mm				162mm				
C6	6-S2	56-S1	6-S2				C9	6-S2	56-S1	6-S2		
	182mm							152mm				
C7	6-S8	10-S2	36-S1	10-S2	6-S8		C10, F3,F4	6-S2	56-S1	6-S2		
	132mm	102mm	132mm					152mm				

**NOTES**

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 9 OF 9. TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO GIRDER END SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. 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.

ALL PRESTRESSED 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 29.0 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 110 KN AT EACH HOLD DOWN POINT.

12.70mm Ø L.R. GRADE 270 STRANDS		
AREA (mm <sup>2</sup> )	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER

GIRDER	BAR	NUMBER	SIZE	TYPE	"A" DIM (mm)	LENGTH (mm)	WEIGHT (kg)
C3,C4	S1	8	#13	1	333	3,160	25
	S2	18	#13	1	363	3,220	58
	S8	30	#13	1	413	3,320	99
	S9	12	#19	1	337	3,320	89
C5	S1	17	#13	1	363	3,220	54
	S2	39	#13	1	413	3,320	129
	S8	12	#19	1	155	3,320	89
C6	S1	56	#13	1	413	3,320	185
	S2	12	#19	1	337	3,320	89
C7	S1	36	#13	1	333	3,160	113
	S2	20	#13	1	363	3,220	64
	S8	12	#19	1	287	3,220	86
C8	S1	8	#13	1	333	3,160	25
	S2	48	#13	1	363	3,220	154
	S8	12	#19	1	287	3,220	86
C9	S1	56	#13	1	393	3,280	183
	S2	12	#19	1	317	3,280	88
C10, F3,F4	S1	56	#13	1	383	3,260	181
	S2	12	#19	1	307	3,260	87
	S3	4	#13	2		2,760	11
	S4	64	#13	3		1,040	66
	S5	6	#13	2		2,560	15
	S6	2	#13	2		3,020	6
	S7	4	#13	2		2,620	10

GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
C3	379	11.9	32
C4	379	12.3	32
C5	380	12.8	32
C6	382	13.3	32
C7	371	13.3	32
C8	373	12.8	32
C9	379	12.3	32
C10	376	11.9	32
F3	376	11.2	32
F4	376	11.6	32

GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
C3-C10	1 EA.	⊕	197,790
F3,F4	1 EA.	⊕	44,888

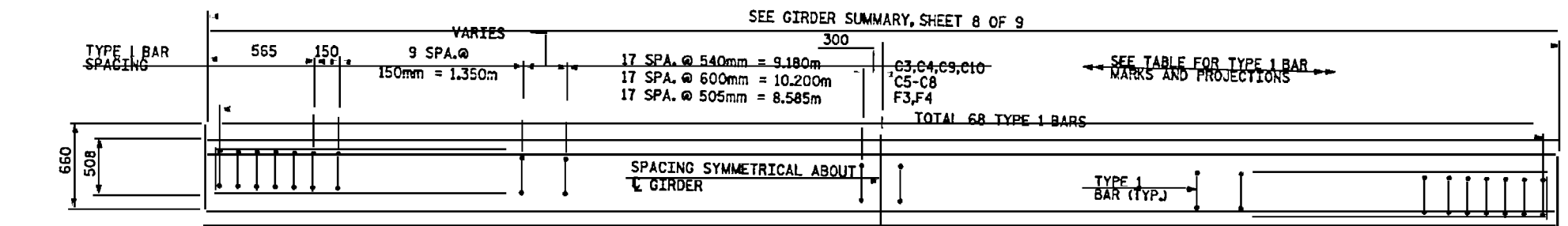
⊕ SEE SHEET 8 OF 9

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

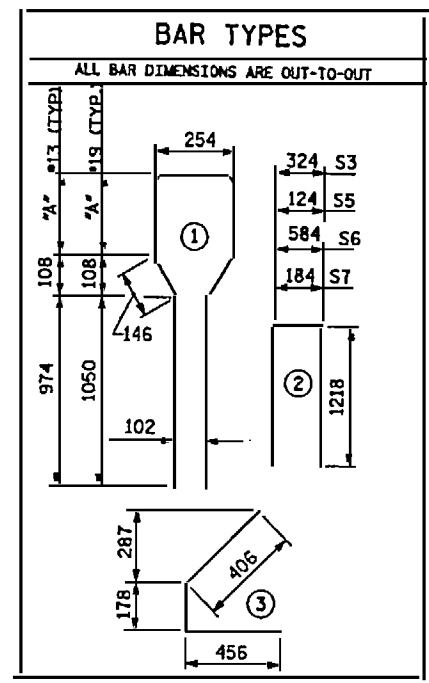
SHEET 4 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALPH  
 STANDARD  
 1372mm PRESTRESSED  
 CONCRETE GIRDER  
 SPAN C (C3-C10)  
 SPAN F (F3, F4)

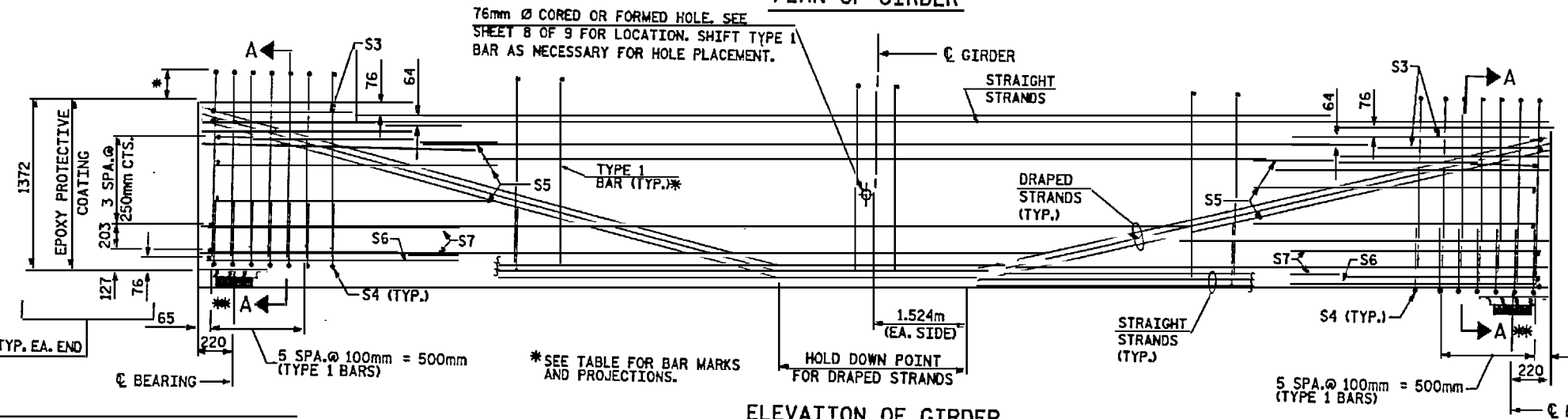
REVISIONS					SHEET NO. S-52
NO.	BY	DATE	NO.	DATE	
1			1		TOTAL SHEETS 1011
2			2		



PLAN OF GIRDER



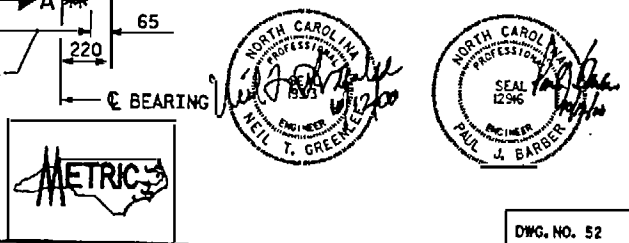
BAR TYPES



ELEVATION OF GIRDER

\* SPAN C GIRDERS HAVE TILTED "B-1" PLATES IN LIEU OF SOLE PLATES. SEE "ELASTOMETRIC BEARING DETAILS" AND "FRAMING PLAN" SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.

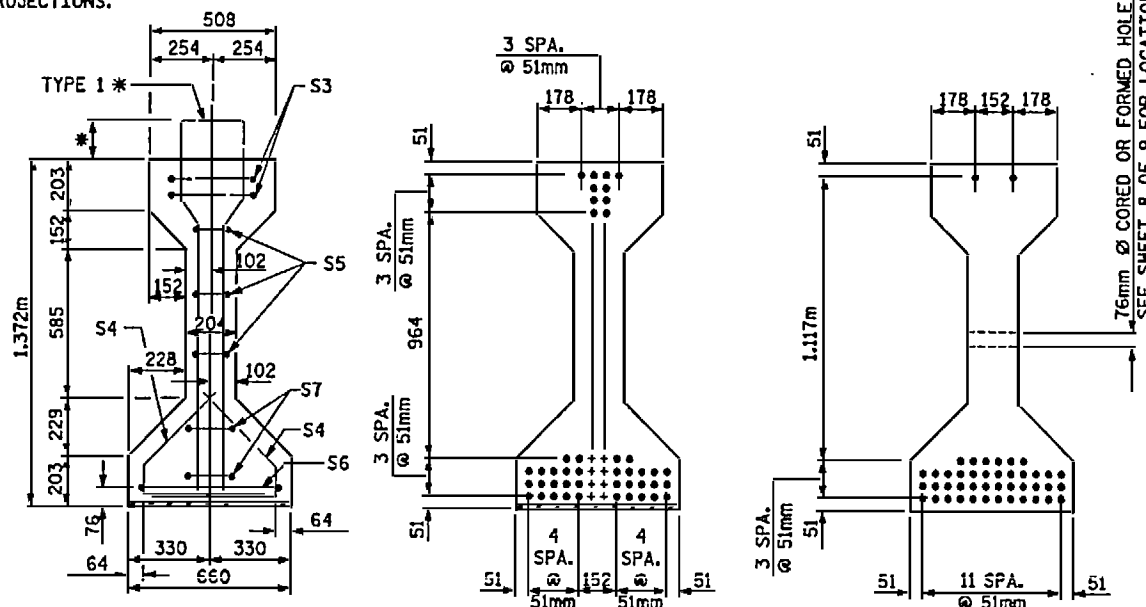
ASSEMBLED BY: M. WRIGHT	DATE: 7/00
CHECKED BY: N. GREENLEE	DATE: 7/00
DRAWN BY: JMB 10/87	REV. 5/16/97 EEM/RGW
CHECKED BY: GRP 10/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES



DWG. NO. 52

STD. NO. PCG35M

\* SEE PLAN OF GIRDER FOR BAR MARKS AND PROJECTIONS.



SECTION A-A  
12.70mm Ø LOW RELAXATION STRAND LAYOUT

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 9 OF 9.

TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO GIRDER END SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE 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.

ALL PRESTRESSED 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 33.8 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

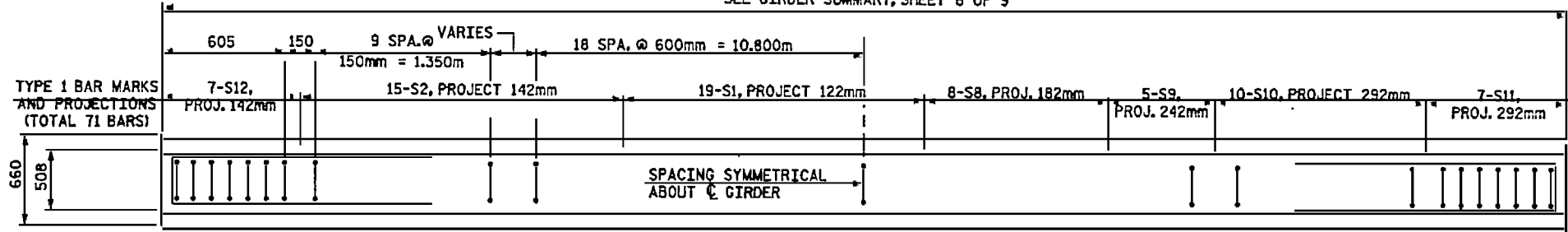
FOR HIGH STRENGTH PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 110 KN AT EACH HOLD DOWN POINT.

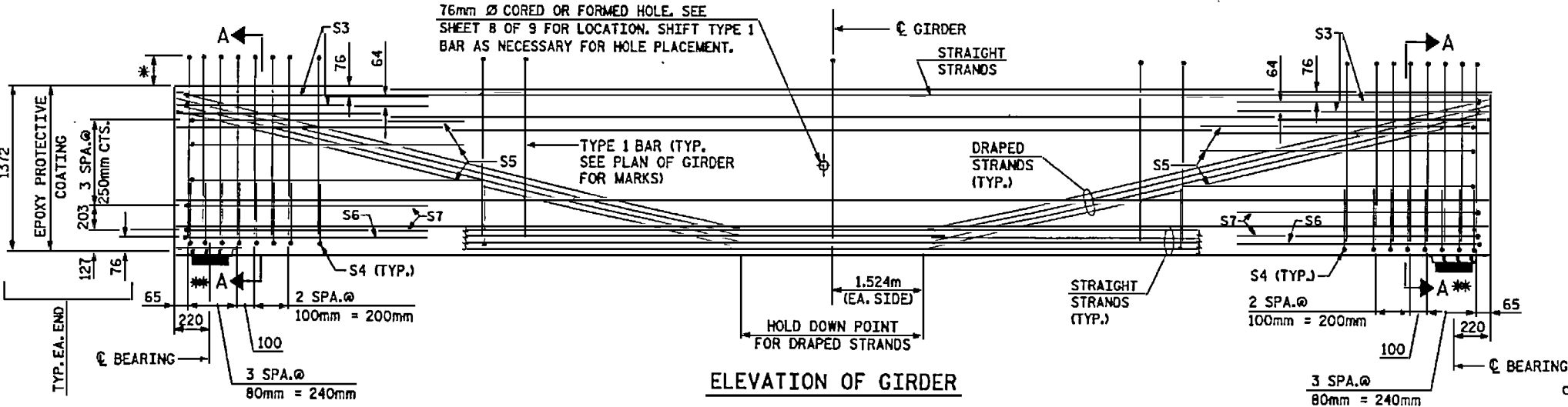
12.70mm Ø L. R. GRADE 270 STRANDS						
AREA (mm <sup>2</sup> )	ULTIMATE STRENGTH (KN PER STRAND)	APPLIED PRESTRESS (KN PER STRAND)				
98.71	183.7	137.8				
REINFORCING STEEL FOR ONE GIRDER						
BAR	NUMBER	SIZE	TYPE	A*DIML (mm)	LENGTH (mm)	WEIGHT (kg)
S1	19	#13	1	353	3,200	60
S2	15	#13	1	373	3,240	48
S3	4	#13	2	—	2,760	11
S4	68	#13	3	—	1,040	70
S5	6	#13	2	—	2,560	15
S6	2	#13	2	—	3,020	6
S7	4	#13	2	—	2,620	10
S8	8	#13	1	413	3,320	26
S9	5	#13	1	473	3,440	17
S10	10	#13	1	523	3,540	35
S11	7	#19	1	447	3,540	55
S12	7	#19	1	297	3,240	51
GIRDER QUANTITIES						
GIRDER	REINFORCING STEEL (kg)	48.3 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.			
D1	404	13.6	44			
D2	404	13.6	44			
D3	404	13.6	44			
D4	404	13.6	44			
D5	404	13.6	44			
D6	404	13.6	44			
D7	404	13.6	44			
GIRDERS REQUIRED						
GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)			
D1-D7	1 EA.	⊕	187.032			

SEE GIRDER SUMMARY, SHEET 8 OF 9



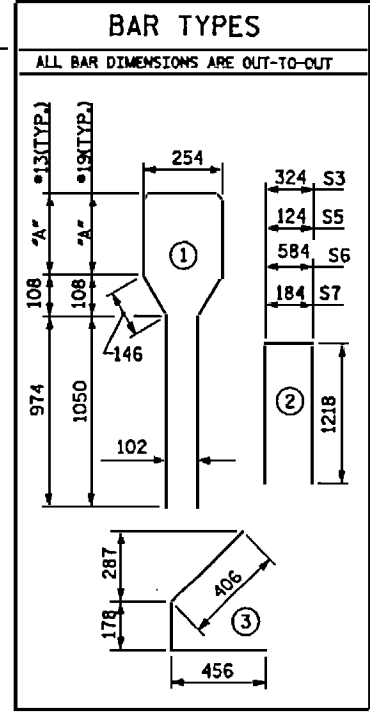
PLAN OF GIRDER

\* SEE PLAN OF GIRDER FOR PROJECTIONS.



ELEVATION OF GIRDER

\*\* SPAN D GIRDERS HAVE TILTED "B-1" PLATES AT ONE END IN LIEU OF SOLE PLATES. SEE "ELASTOMETRIC BEARING DETAILS" AND "FRAMING PLAN" SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

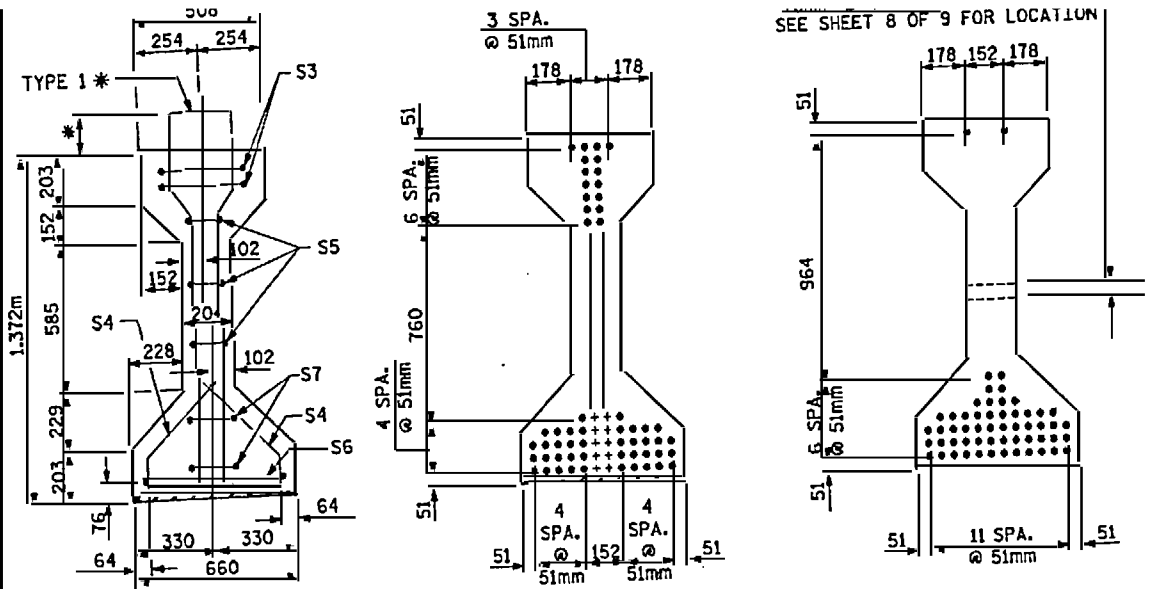
SHEET 5 OF 9  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
1372mm PRESTRESSED  
CONCRETE GIRDER  
SPAN D

ASSEMBLED BY: M. WRIGHT	DATE: 2/00
CHECKED BY: DWH/NTG	DATE: 5/00
DRAWN BY: JWB 10/87	REV. 5/16/97 EEM/RGW
CHECKED BY: GRP 10/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES

Professional Engineer stamps for Neil T. Greenlee and Paul J. Barber, North Carolina, 1993 and 1996. Includes a METRICS logo and DWG. NO. 53.

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-53
1			5			TOTAL SHEETS 1011
2			4			

STD. NO. PCG3SM



SECTION A-A

AT END OF GIRDER  
12.70mm Ø LOW RELAXATION STRAND LAYOUT

TYPE 1 BAR MARKS & PROJECTIONS

GIRDER	STATIONS AHEAD				
	GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5
G1-G4	8-S8	21-S2	20-S1	21-S2	8-S8
	142mm	112mm		142mm	
G5	8-S8	26-S2	10-S1	26-S2	8-S8
	172mm	122mm		172mm	
H1-H5	8-S2	62-S1	8-S2		
	152mm				
I1-I5	8-S8	26-S2	10-S1	26-S2	8-S8
	152mm	122mm		152mm	

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 7 OF 9.

TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. 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.

ALL PRESTRESSED 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 41.4 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

FOR HIGH STRENGTH PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

THE UPLIFT FORCE DUE TO DRAPED STRANDS IS 150 KN AT EACH HOLD DOWN POINT.

REINFORCING STEEL FOR ONE GIRDER

GIRDERS	BAR	NUMBER	SIZE	TYPE	FA DIM (mm)	LENGTH (mm)	WEIGHT (kg)
G1-G4	S1	20	#13	1	343	3,180	63
	S2	42	#13	1	373	3,240	135
	S8	16	#19	1	297	3,240	116
G5	S1	10	#13	1	353	3,200	32
	S2	52	#13	1	403	3,300	171
H1-H5	S8	16	#19	1	327	3,300	118
	S1	62	#13	1	383	3,260	201
I1-I5	S2	16	#19	1	307	3,260	117
	S1	10	#13	1	353	3,200	32
	S2	52	#13	1	383	3,260	169
	S8	16	#19	1	307	3,260	117
	S3	4	#13	2	—	2,760	11
	S4	72	#13	3	—	1,040	74
	S5	6	#13	2	—	2,560	15
	S6	2	#13	2	—	3,020	6
	S7	4	#13	2	—	2,620	10

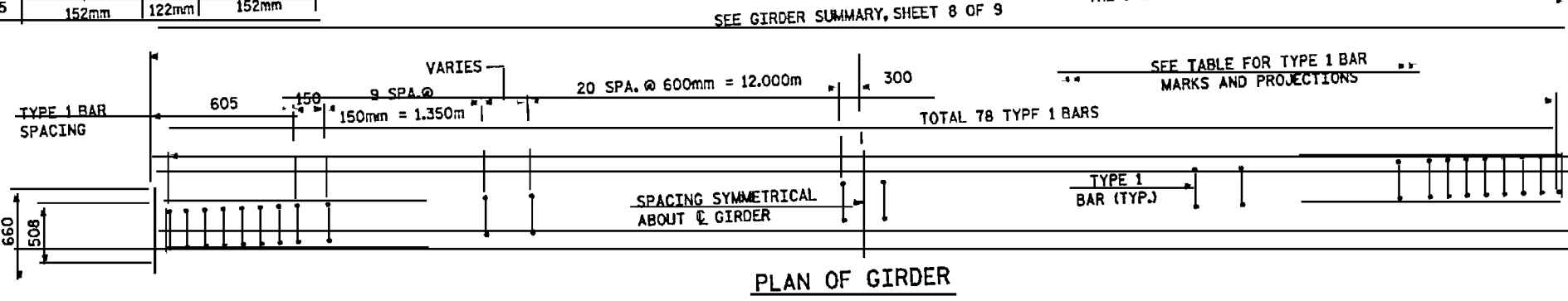
GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	55.2 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
G1	430	14.7	56
G2	430	14.8	56
G3	430	15.0	56
G4	430	15.1	56
G5	437	15.2	56
H1	434	14.9	56
H2	434	14.9	56
H3	434	15.0	56
H4	434	15.0	56
H5	434	15.1	56
I1	434	15.0	56
I2	434	15.0	56
I3	434	15.0	56
I4	434	15.0	56
I5	434	15.0	56

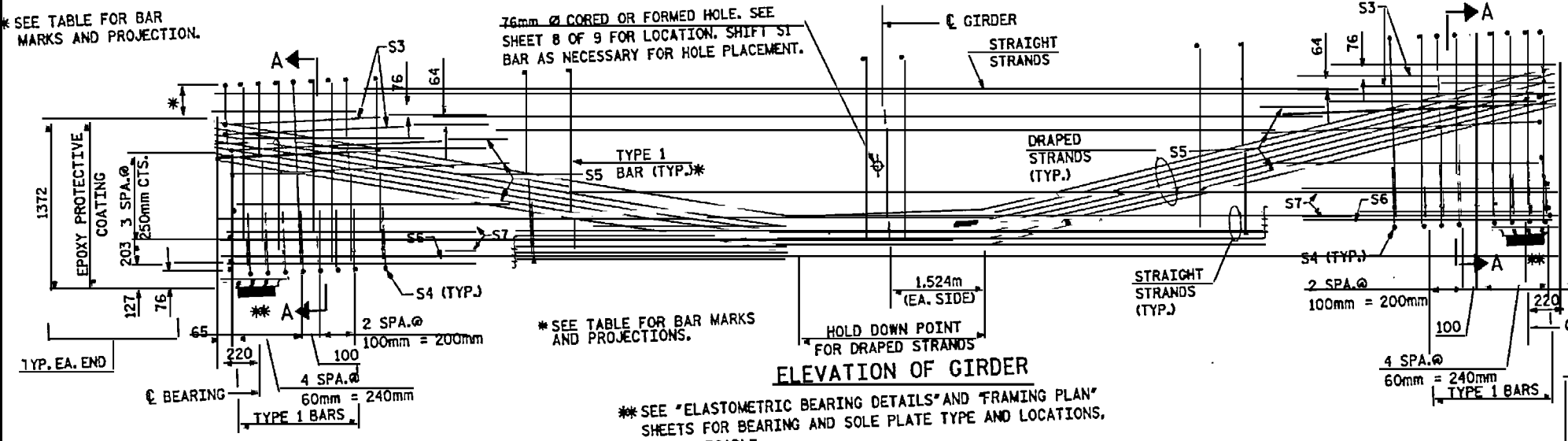
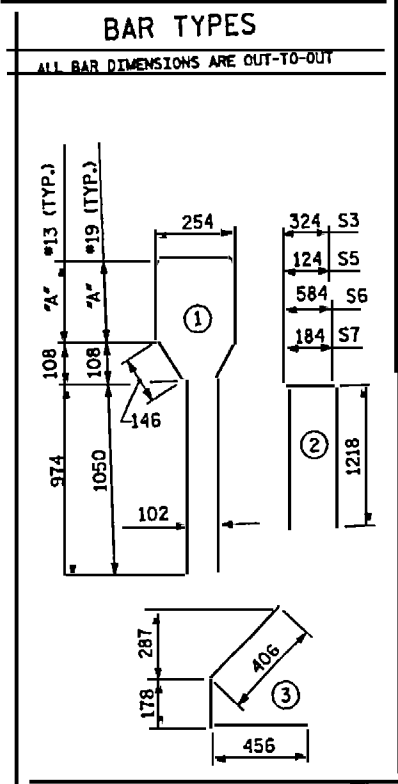
GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
G1-G5	1 EA.	⊕	147.066
H1-H5	1 EA.	⊕	146.966
I1-I5	1 EA.	⊕	146.850

⊕ SEE SHEET 8 OF 9



PLAN OF GIRDER



ELEVATION OF GIRDER

METRICS

STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12936 NEIL T. GREENE

STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12936 PAUL J. BARBER

DWG. NO. 54

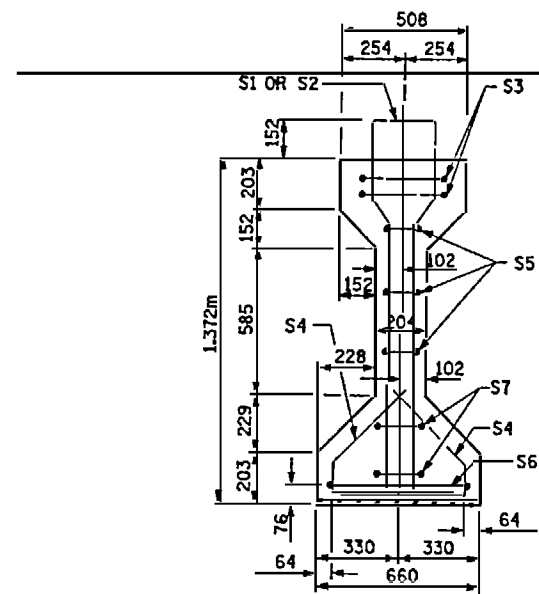
PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-  
SHEET 6 OF 9

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALPH

STANDARD 1372mm PRESTRESSED CONCRETE GIRDER SPANS G, H & I

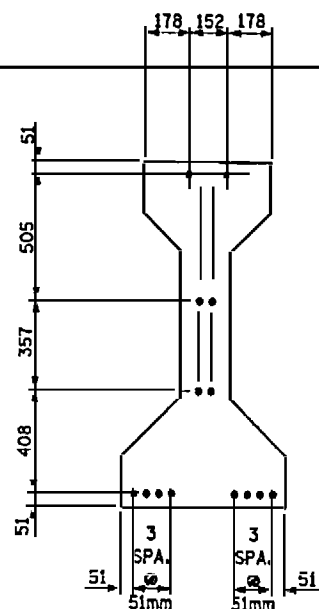
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. 5-54  
TOTAL SHEETS 1011  
STD. NO. PC63SM



SECTION A-A

12.70mm Ø LOW RELAXATION STRAND LAYOUT (STRAIGHT STRANDS)



NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR TIE ROD ASSEMBLY DETAILS AND GROUTED RECESS AT ENDS OF TIE RODS, SEE SHEET 9 OF 9. TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL STEEL.

ALL REINFORCING STEEL SHALL BE GRADE 420.

APPLY EPOXY PROTECTIVE COATING TO END OF GIRDER SURFACES.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR DETAILS OF EMBEDDED PLATE "B-1", SEE SHEET 9 OF 9. EMBEDDED PLATE "B-1" SHALL BE GALVANIZED IN ACCORDANCE WITH THE 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.

ALL PRESTRESSED 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 24.2 MPa.

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 SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

WHEN DRAPED STRANDS ARE DETAILED, THE LONGITUDINAL LOCATION OF THE HOLD DOWN DEVICES SHALL BE WITHIN 150mm OF THE LOCATION SHOWN AND THE CENTER OF GRAVITY OF THE GROUP OF DRAPED STRANDS SHALL BE LOCATED WITHIN 13mm OF THE THEORETICAL LOCATION SHOWN.

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

PRESTRESSED CONCRETE GIRDERS ARE DESIGNED FOR 0 MPa TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

12.70mm Ø L. R. GRADE 270 STRANDS

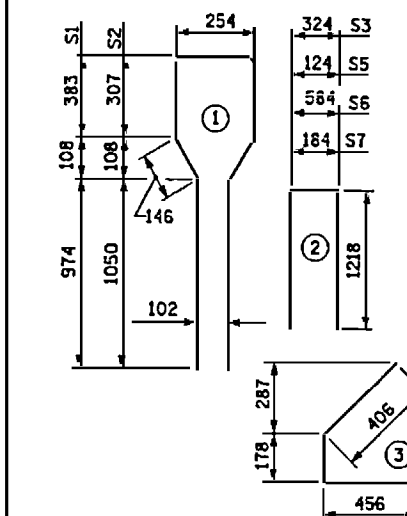
AREA (mm <sup>2</sup> )	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER

BAR	NUMBER	SIZE	TYPE	LENGTH (mm)	WEIGHT (kg)
S1	33	#13	1	3,260	107
S2	12	#19	1	3,260	87
S3	4	#13	2	2,760	11
S4	64	#13	3	1,040	66
S5	6	#13	2	2,560	15
S6	2	#13	2	3,020	6
S7	4	#13	2	2,620	10

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	34.5 MPa CONCRETE (m <sup>3</sup> )	12.70mm Ø L.R. STRANDS No.
J1	302	6.2	14
J2	302	5.8	14
J3	302	5.5	14
J4	302	5.3	14
J5	302	5.1	14
J6	302	5.0	14

GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
J1-J6	1 EA.	⊕	64.874

⊕ SEE SHEET 8 OF 9

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 7 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

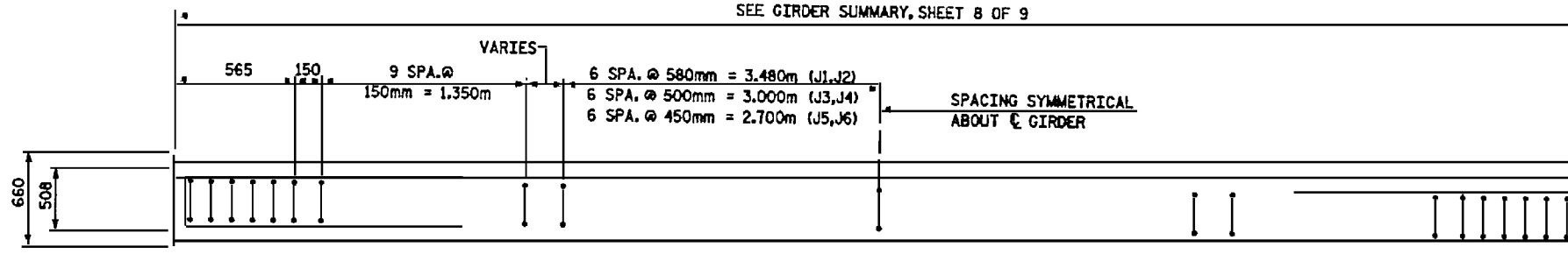
STANDARD  
1372mm PRESTRESSED  
CONCRETE GIRDER  
SPAN J

REVISIONS						SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS	
1			3			1011	
2			4				

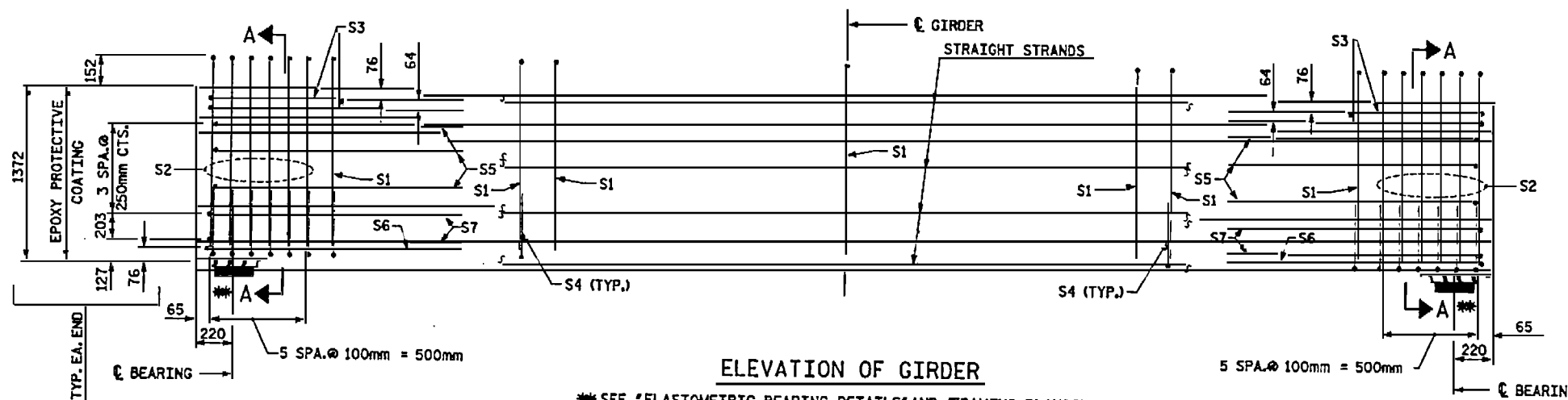
DWG. NO. 55

STD. NO. PCG3SM

SEE GIRDER SUMMARY, SHEET 8 OF 9



PLAN OF GIRDER



ELEVATION OF GIRDER

SEE "ELASTOMETRIC BEARING DETAILS" AND "FRAMING PLAN" SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.

ASSEMBLED BY: M. WRIGHT	DATE: 7/00
CHECKED BY: N. GREENLEE	DATE: 7/00
DRAWN BY: JMS 10/87	REV. 5/16/97 EEM/RGW
CHECKED BY: GRP 10/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES



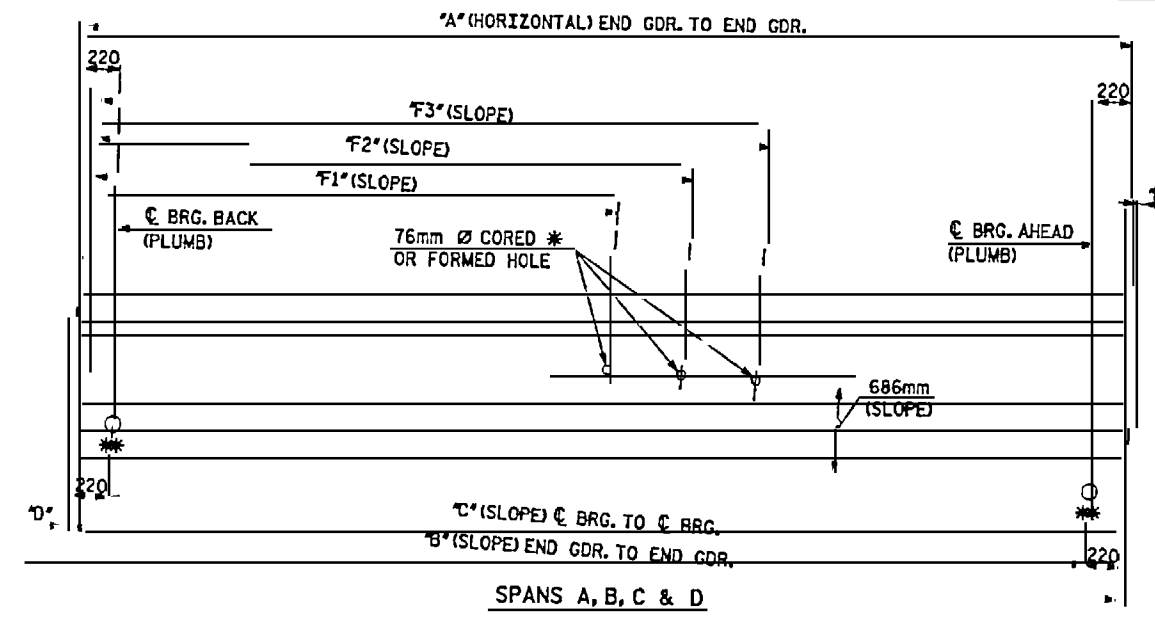


**GIRDER DIMENSIONS**

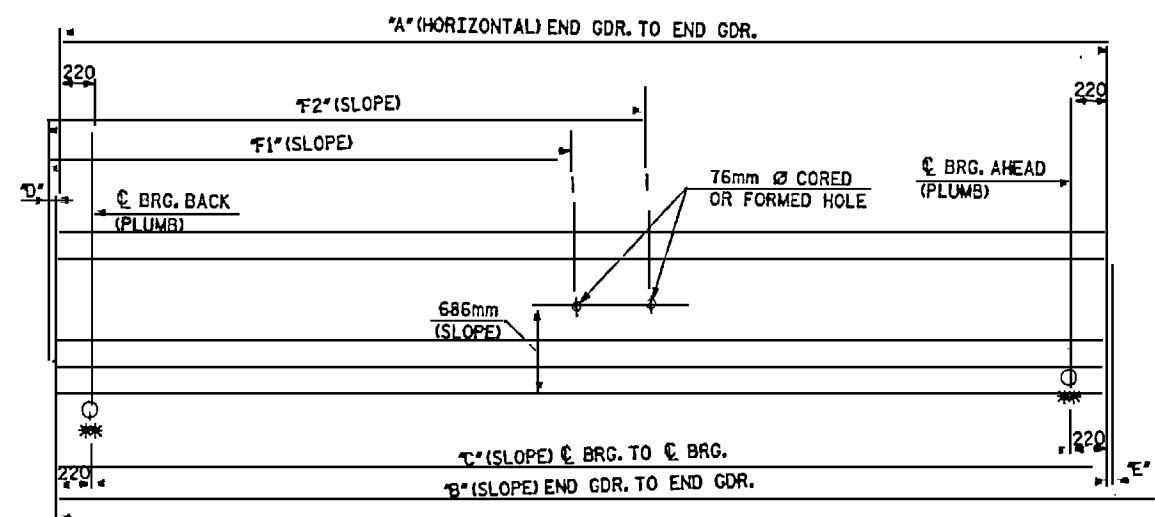
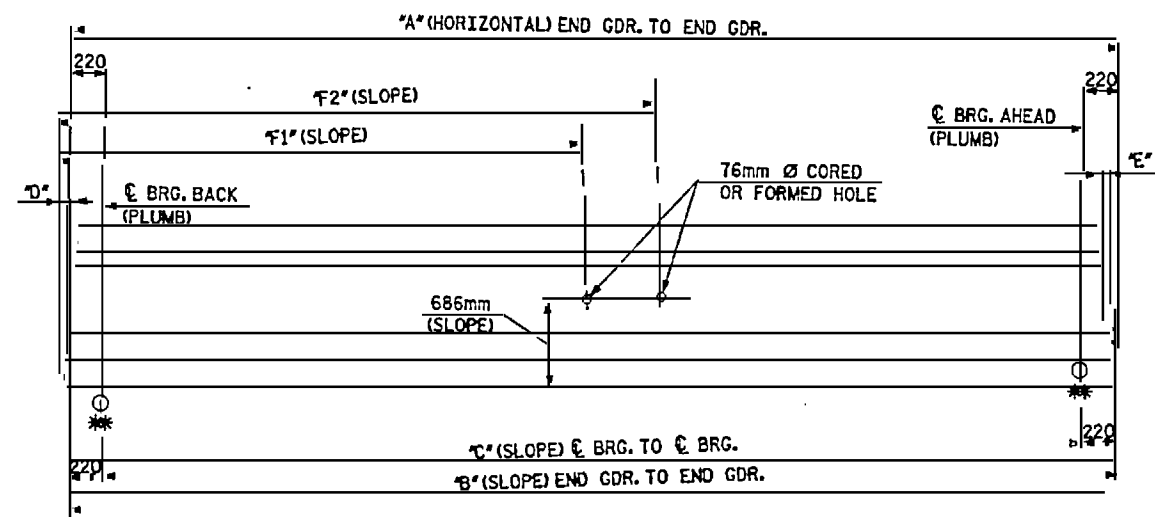
SPAN	GIRDER	"A" (m)	"B" (m)	"C" (m)	"D" (mm)	"E" (mm)	F1" (m)	F2" (m)	F3" (m)	
A	A1	26.830	26.842	26.402	33	50	4.194	13.271	23.187	
	A2	26.724	26.736	26.295	31	50	4.370	13.368	23.380	
	A3	26.570	26.681	26.241	30	50	4.555	13.491	23.620	
	A4	26.706	26.717	26.277	29	50	4.341	13.453	23.275	
	A5	26.738	26.749	26.309	30	50	4.230	13.375	23.149	
	A6	26.782	26.794	26.354	31	50	4.120	13.303	23.035	
B	B1	27.350	27.362	26.922	30	52	13.338	23.959		
	B2	27.032	27.043	26.603	28	52	13.522	24.290		
	B3	26.818	26.829	26.389	27	51	13.758	24.719		
	B4	26.708	26.718	26.278	25	50	14.047			
	B5	26.696	26.706	26.266	25	51	13.958			
	B6	26.758	26.769	26.329	27	51	13.715			
	B7	26.970	26.982	26.542	29	52	13.491			
	B8	27.310	27.323	26.882	30	53	13.331			
	B9	27.176	27.190	27.349	33	53	13.228			
	C	C1	21.960	21.964	21.524	18	33	11.853		
		C2	22.612	22.615	22.174	13	28	11.881		
C3		23.368	23.370	22.929	*	25	11.970			
C4		24.222	24.223	23.783	*	20	12.110			
C5		25.152	25.163	24.723	*	22	12.296			
C6		26.178	26.180	25.740	10	26	12.516			
C7		26.166	26.176	25.736	31	45	12.737			
C8		25.132	25.147	24.707	39	55	12.572			
C9		24.194	24.213	23.772	45	63	12.457			
C10		23.368	23.364	22.943	41	59	11.857	12.397		
C11		22.664	22.677	22.236	39	53	11.338			
C12		22.092	22.102	21.662	34	48	10.885			
D	D1	26.716	26.723	26.283	21	44	13.210			
	D2	26.714	26.720	26.280	17	40	13.360			
	D3	26.716	26.720	26.280	13	37	13.514			
	D4	26.718	26.721	26.281	10	33	13.053	13.669		
	D5	26.720	26.723	26.283	*	31	13.207			
	D6	26.722	26.725	26.285	*	31	13.362			
	D7	26.726	26.729	26.289	*	31	13.518			
E	E1	24.748	24.748	24.308	12	*	11.965			
	E2	24.476	24.476	24.036	12	*	12.238			
	E3	24.210	24.210	23.770	13	*	12.514			
	E4	23.954	23.954	23.514	13	*	11.633	12.796		
	E5	23.708	23.708	23.268	10	10	11.683			
	E6	23.472	23.472	23.032	*	11	11.736			
	E7	23.244	23.244	22.804	*	12	11.794			
F	F1	20.340	20.342	19.902	28	12	9.983			
	F2	21.166	21.168	20.728	27	14	10.583			
	F3	22.012	22.015	21.575	30	12	11.194			
	F4	22.876	22.878	22.438	29	11	11.344	11.815		
	F5	23.434	23.436	22.996	27	*	11.718			
	F6	23.440	23.442	23.002	26	*	11.501	12.099		
	F7	23.462	23.463	23.023	26	*	11.731			
	F8	23.498	23.499	23.059	25	*	11.970			
G	G1	28.888	28.891	28.451	36	*	14.646			
	G2	29.150	29.153	28.713	35	*	14.777			
	G3	29.414	29.417	28.977	34	*	14.509	14.909		
	G4	29.676	29.679	29.239	34	*	14.640			
	G5	29.938	29.942	29.502	37	10	14.771			
H	H1	29.194	29.197	28.757	33	*	14.736			
	H2	29.296	29.299	28.859	33	*	14.818			
	H3	29.398	29.401	28.961	32	*	14.499	14.899		
	H4	29.498	29.501	29.061	32	*	14.581			
	H5	29.600	29.603	29.163	33	*	14.663			
I	I1	29.370	29.371	28.931	28	*	14.886			
	I2	29.370	29.371	28.931	28	*	14.886	14.886		
	I3	29.370	29.371	28.931	28	*	14.486			
	I4	29.370	29.371	28.931	28	*	14.486			
	I5	29.370	29.371	28.931	29	*	14.486			
J	J1	12.104	12.108	11.667	35	32				
	J2	11.452	11.455	11.014	31	27				
	J3	10.892	10.894	10.454	26	22				
	J4	10.436	10.437	9.997	21	17				
	J5	10.100	10.100	9.660	*	12				
	J6	9.890	9.890	9.450	10	*				
TOTAL		1731.834	1732.194							

\* GIRDER END SLOPE INSIGNIFICANT, THEREFORE NO END BEVEL REQUIRED.

NOTE: VALUES FOR "F1", "F2" & "F3" ARE GIVEN ONLY WHERE HOLES ARE REQUIRED.



\* NOTE: 76mm Ø HOLES ASSOCIATED WITH DIAPHRAGMS FOR TRAFFIC GATE OUTRIGGERS ARE TO BE FORMED ONLY.



**GIRDER ELEVATION**

NOTE: SPAN J GIRDERS HAVE NO CORED OR FORMED HOLES  
 \*\* SPAN A, B, C & D GIRDERS HAVE TILTED "B-1" PLATES IN LIEU OF SOLE PLATES. SEE SHEET 9 OF 9 FOR DETAILS. SEE "ELASTOMETRIC BEARING DETAILS" AND "FRAMING PLAN" SHEETS FOR BEARING AND SOLE PLATE TYPE AND LOCATIONS, AS APPLICABLE.



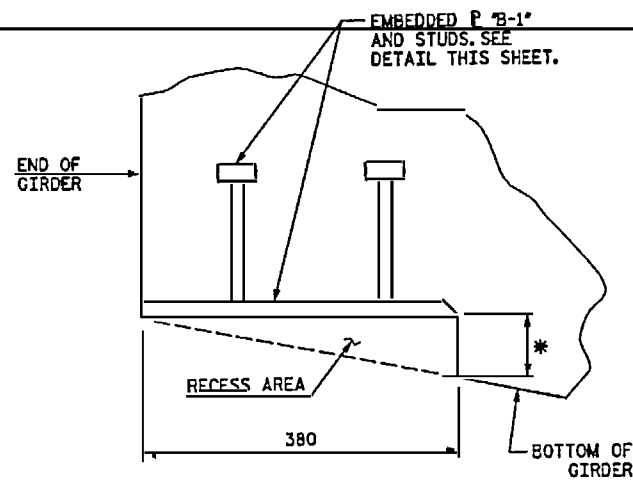
PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-  
 SHEET 8 OF 9

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUPERSTRUCTURE 1372mm PRESTRESSED CONCRETE GIRDER SUMMARY</b>					
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			2		
					SHEET NO. S-96
					TOTAL SHEETS 1011

ASSEMBLED BY: M. WRIGHT	DATE: 7/00
CHECKED BY: N. GREENLEE	DATE: 7/00
DRAWN BY: JMB 10/87	REV. 5/16/97 EEM/RGW
CHECKED BY: GRP 10/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES

DOC. NO. 56

STD. NO. PCG3SM

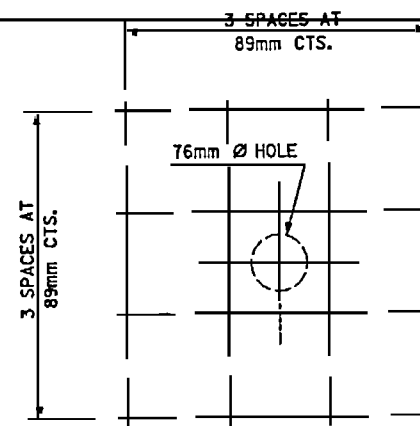
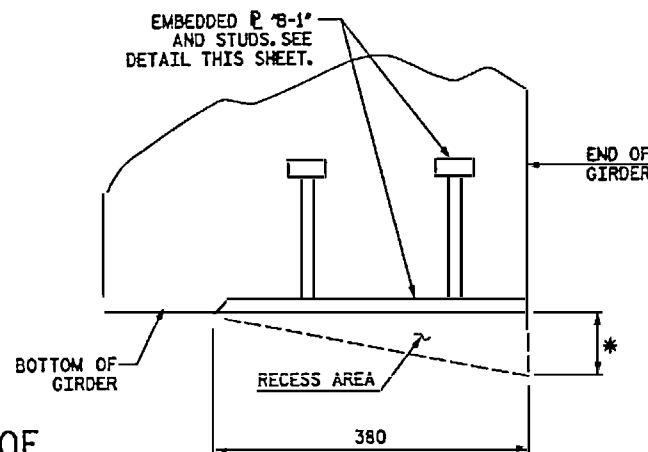


STATIONS  
AHEAD →

\* SEE TABLE OF  
'B-1' BEVELS,  
THIS SHEET.

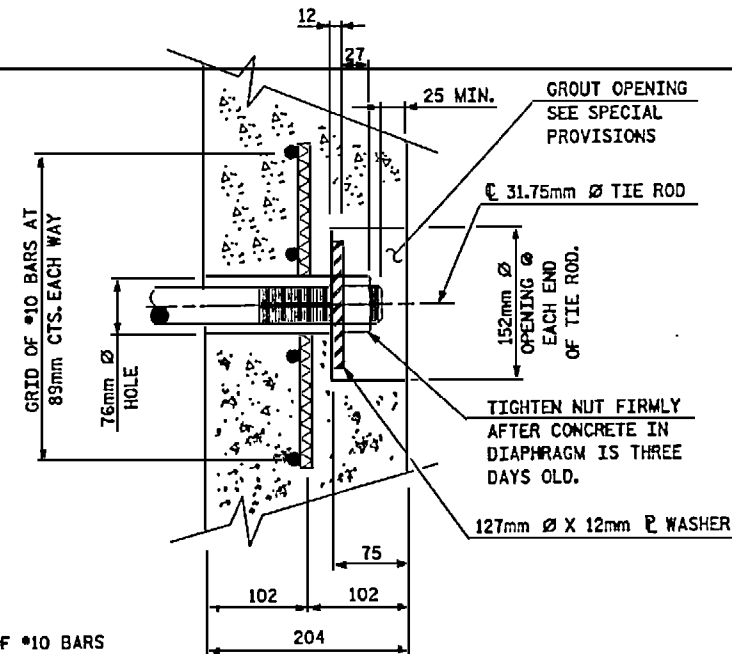
### ORIENTATION OF EMBEDDED PLATE 'B-1'

NOTE: SPANS A, B, C & D ONLY, SEE  
TABLE OF 'B-1' BEVELS ON  
THIS SHEET.



TACK WELDS, IF USED, SHALL  
NOT REDUCE THE AREA OF  
THE #10 BARS.

#10 BAR GRID



WEIGHT OF #10 BARS  
NOT INCLUDED IN  
THE BILL OF MATERIAL.

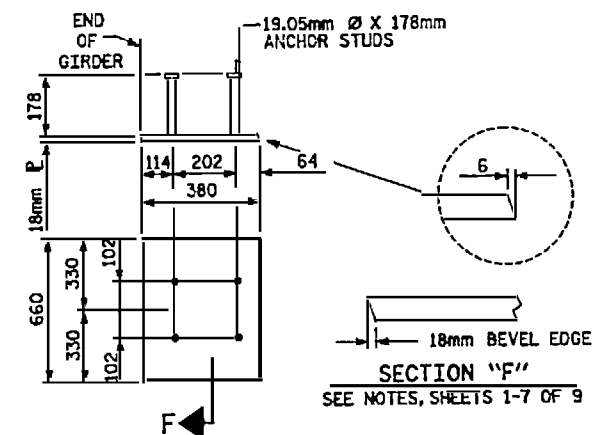
DETAIL "A"

### GROUTED RECESS FOR ENDS OF TIE ROD

'B-1' BEVELS			
SPAN	GIRDER	BACK BEVEL	AHEAD BEVEL
A	A1	9	14
	A2	9	14
	A3	8	14
	A4	8	14
	A5	8	14
	A6	9	14
B	B1	8	14
	B2	8	14
	B3	7	14
	B4	7	14
	B5	7	14
	B6	7	14
	B7	8	14
	B8	8	15
C	C1	5	9
	C2	0	8
	C3	0	7
	C4	0	6
	C5	0	6
	C6	0	7
	C7	9	13
	C8	11	15
	C9	13	17
	C10	11	16
	C11	11	15
	C12	9	13
D	D1	6	
	D2	5	SOLE
	D3	0	PLATE
	D4	0	REQ'D
	D5	0	
	D6	0	
	D7	0	

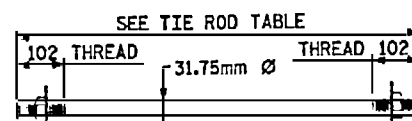
TIE ROD TABLE		
SPAN	MARK	LENGTH (m)
A	TR1	4.160
	TR2	3.600
	TR16	3.380
	TR17	3.190
	TR18	5.040
	TR19	4.060
B	TR3	6.580
	TR4	8.520
C	TR20	5.740
	TR5	11.000
D	TR6	7.460
	TR7	5.020
E	TR8	8.380
	TR9	8.420
F	TR10	9.120
	TR11	9.160
	TR12	9.380
G	TR13	6.280
	TR14	6.340
H	TR15	6.180
	TR15	6.180
I	TR15	6.180
	TR15	6.180

NOTE: FOR TIE ROD MARK LOCATION,  
SEE 'FRAMING PLAN' SHEETS.

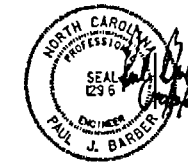


### EMBEDDED PLATE 'B-1' DETAILS

TWO EMBEDDED PLATES 'B-1'  
ARE REQUIRED FOR EACH GIRDER.  
SEE ORIENTATION OF EMBEDDED  
PLATE 'B-1' DETAIL ON THIS  
SHEET FOR ADDITIONAL INFO.



Ø 12mm X 127mm Ø WASHER AND HEX NUT (EACH END)  
**31.75mm Ø TIE ROD ASSEMBLY**  
( 25 COMPLETE ASSEMBLIES REQUIRED )



PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 9 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALPH

**SUPERSTRUCTURE**  
1372mm PRESTRESSED  
CONCRETE  
GIRDER DETAILS

ASSEMBLED BY: M. WRIGHT DATE: 7/00  
CHECKED BY: N. GREENLEE DATE: 7/00  
DRAWN BY: JMB 10/87 REV. 5/16/97 EEM/RGW  
CHECKED BY: GRP 10/87 REV. 7/17/98 RWW/LES  
REV. 8/16/99 RWW/LES

DWG. NO. 57

REVISIONS						SHEET NO. 5-57
NO.	BY	DATE	NC	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

STD. NO. PCC35M

DEAD LOAD DEFLECTION TABLE FOR SPAN "A" - GIRDER A1											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.023	0.042	0.055	0.064	0.067	0.064	0.055	0.042	0.023	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.008	0.015	0.020	0.024	0.025	0.024	0.020	0.015	0.008	0.000
FINAL CAMBER	↑ 0	15	27	35	40	42	40	35	27	15	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "B" - GIRDERS B4, B6											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.051	0.067	0.077	0.080	0.077	0.067	0.051	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000
FINAL CAMBER	↑ 0	23	39	51	58	60	58	51	39	23	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "A" - GIRDERS A2, A3											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.023	0.042	0.055	0.064	0.067	0.064	0.055	0.042	0.023	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000
FINAL CAMBER	↑ 0	17	30	39	45	47	45	39	30	17	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "B" - GIRDER B5											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.051	0.067	0.077	0.080	0.077	0.067	0.051	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.006	0.011	0.015	0.017	0.018	0.017	0.015	0.011	0.006	0.000
FINAL CAMBER	↑ 0	23	40	52	60	62	60	52	40	23	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "A" - GIRDERS A4, A5											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.023	0.042	0.055	0.064	0.067	0.064	0.055	0.042	0.023	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.005	0.011	0.014	0.017	0.018	0.017	0.014	0.011	0.005	0.000
FINAL CAMBER	↑ 0	17	31	41	47	49	47	41	31	17	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "B" - GIRDER B9											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.052	0.068	0.078	0.082	0.078	0.068	0.052	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.009	0.018	0.024	0.029	0.031	0.029	0.024	0.018	0.009	0.000
FINAL CAMBER	↑ 0	20	34	44	49	51	49	44	34	20	0

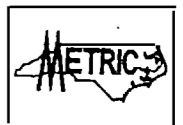
DEAD LOAD DEFLECTION TABLE FOR SPAN "A" - GIRDER A6											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.023	0.042	0.055	0.064	0.067	0.064	0.055	0.042	0.023	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.007	0.014	0.019	0.023	0.024	0.023	0.019	0.014	0.007	0.000
FINAL CAMBER	↑ 0	16	28	36	41	43	41	36	28	16	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "C" - GIRDERS C1, C2, C11, C12											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.014	0.025	0.034	0.039	0.041	0.039	0.034	0.025	0.014	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.004	0.007	0.010	0.012	0.012	0.012	0.010	0.007	0.004	0.000
FINAL CAMBER	↑ 0	10	18	24	27	29	27	24	18	10	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "B" - GIRDER B1											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.030	0.052	0.069	0.079	0.083	0.079	0.069	0.052	0.030	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.009	0.018	0.023	0.027	0.029	0.027	0.023	0.018	0.009	0.000
FINAL CAMBER	↑ 0	21	36	46	52	54	52	46	36	21	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "B" - GIRDERS B2, B3, B7, B8											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.051	0.068	0.078	0.081	0.078	0.068	0.051	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.007	0.013	0.019	0.022	0.023	0.022	0.019	0.013	0.007	0.000
FINAL CAMBER	↑ 0	22	38	49	56	58	56	49	38	22	0

NOTE: ALL VALUES ARE SHOWN IN METERS, EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN MILLIMETERS.  
\* INCLUDES FUTURE WEARING SURFACE



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
GIRDER CAMBER & DEFLECTIONS



**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. 5th Forks Rd., Suite 200, Raleigh, NC 27609  
DRAWN BY: A. LEBER DATE: 07/00  
CHECKED BY: D. SPIVEY DATE: 07/00 DWG. NO. 58

REVISIONS						SHEET NO.	TOTAL SHEETS
NO.	BY	DATE	NO.	BY	DATE		
1			3			5	101
2			4				

DEAD LOAD DEFLECTION TABLE FOR SPAN "C" - GIRDER C3											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.019	0.034	0.045	0.052	0.054	0.052	0.045	0.034	0.019	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.004	0.008	0.011	0.012	0.013	0.012	0.011	0.008	0.004	0.000
FINAL CAMBER	↑ 0	15	26	34	39	41	39	34	26	15	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "D" - GIRDER D7											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.050	0.069	0.080	0.083	0.080	0.069	0.050	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.009	0.017	0.024	0.028	0.029	0.028	0.024	0.017	0.009	0.000
FINAL CAMBER	↑ 0	20	35	45	52	54	52	45	35	20	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "C" - GIRDER C6											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.020	0.036	0.047	0.054	0.057	0.054	0.047	0.036	0.020	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.002	0.005	0.007	0.008	0.009	0.008	0.007	0.005	0.002	0.000
FINAL CAMBER	↑ 0	18	31	40	46	48	46	40	31	18	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "E" - GIRDERS E1, E2, E3											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.022	0.040	0.053	0.062	0.065	0.062	0.053	0.040	0.022	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.008	0.014	0.020	0.023	0.024	0.023	0.020	0.014	0.008	0.000
FINAL CAMBER	↑ 0	14	26	34	39	41	39	34	26	14	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "C" - GIRDERS C7, C8											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.020	0.036	0.047	0.054	0.057	0.054	0.047	0.036	0.020	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000
FINAL CAMBER	↑ 0	14	24	31	35	37	35	31	24	14	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "E" - GIRDERS E4, E5, E6, E7											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.021	0.038	0.051	0.059	0.062	0.059	0.051	0.038	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.006	0.011	0.016	0.018	0.019	0.018	0.016	0.011	0.006	0.000
FINAL CAMBER	↑ 0	15	27	35	41	43	41	35	27	15	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "C" - GIRDERS C4, C5, C9, C10											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.019	0.035	0.046	0.053	0.055	0.053	0.046	0.035	0.019	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.004	0.009	0.013	0.015	0.015	0.015	0.013	0.009	0.004	0.000
FINAL CAMBER	↑ 0	15	26	33	38	40	38	33	26	15	0

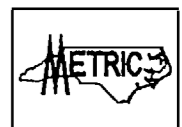
DEAD LOAD DEFLECTION TABLE FOR SPAN "F" - GIRDERS F1, F2											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.013	0.024	0.031	0.036	0.038	0.036	0.031	0.024	0.013	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.004	0.007	0.009	0.011	0.012	0.011	0.009	0.007	0.004	0.000
FINAL CAMBER	↑ 0	9	17	22	25	26	25	22	17	9	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "D" - GIRDER D1											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.052	0.069	0.080	0.084	0.080	0.069	0.052	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.010	0.019	0.027	0.031	0.033	0.031	0.027	0.019	0.010	0.000
FINAL CAMBER	↑ 0	19	33	42	49	51	49	42	33	19	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "D" - GIRDERS D2, D3, D4, D5, D6											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE)	↑ 0.000	0.029	0.052	0.069	0.080	0.084	0.080	0.069	0.052	0.029	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L. *↓	0.000	0.009	0.016	0.022	0.027	0.028	0.027	0.022	0.016	0.009	0.000
FINAL CAMBER	↑ 0	20	36	47	53	56	53	47	36	20	0

NOTE: ALL VALUES ARE SHOWN IN METERS,  
EXCEPT FINAL CAMBER WHICH IS SHOWN  
IN MILLIMETERS.

\* INCLUDES FUTURE WEARING SURFACE



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
GIRDER CAMBER &  
DEFLECTIONS

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: A. COLE DATE: 07/03  
CHECKED BY: D. SPIVEY DATE: 07/03 DWG. NO. 59

REVISIONS						SHEET NO. 5-23
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS (61)
2			4			

DEAD LOAD DEFLECTION TABLE FOR SPAN "F" - GIRDERS F3, F4											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.018	0.032	0.043	0.050	0.052	0.050	0.043	0.032	0.018	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.005	0.009	0.013	0.016	0.016	0.016	0.013	0.009	0.005	0.000
FINAL CAMBER †	0	13	23	30	34	36	36	30	23	13	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "H" - GIRDER H5											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.070	0.094	0.109	0.114	0.109	0.094	0.070	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.012	0.022	0.030	0.035	0.037	0.035	0.030	0.022	0.012	0.000
FINAL CAMBER †	0	27	48	64	74	77	74	64	48	27	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "F" - GIRDERS F5, F6, F7, F8											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.021	0.038	0.051	0.059	0.062	0.059	0.051	0.038	0.021	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.006	0.012	0.016	0.019	0.020	0.019	0.016	0.012	0.006	0.000
FINAL CAMBER †	0	15	26	35	40	42	40	35	26	15	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "I" - GIRDERS I1, I2, I3, I4											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.070	0.094	0.109	0.114	0.109	0.094	0.070	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000
FINAL CAMBER †	0	26	45	60	69	72	69	60	45	26	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "G" - GIRDER G1											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.038	0.069	0.093	0.107	0.113	0.107	0.093	0.069	0.038	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.011	0.021	0.028	0.033	0.035	0.033	0.028	0.021	0.011	0.000
FINAL CAMBER †	0	27	48	64	74	78	74	64	48	27	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "I" - GIRDER I5											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.070	0.094	0.109	0.114	0.109	0.094	0.070	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.012	0.022	0.030	0.035	0.037	0.035	0.030	0.022	0.012	0.000
FINAL CAMBER †	0	27	48	64	74	77	74	64	48	27	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "G" - GIRDERS G2, G3, G4											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.070	0.094	0.109	0.114	0.109	0.094	0.070	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000
FINAL CAMBER †	0	26	45	60	69	72	69	60	45	26	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "J" - GIRDERS J1, J2, J3, J4, J5, J6											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.001	0.002	0.003	0.004	0.004	0.004	0.003	0.002	0.001	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
FINAL CAMBER †	0	1	2	2	3	3	3	2	2	1	0

DEAD LOAD DEFLECTION TABLE FOR SPAN "G" - GIRDER G5											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.071	0.095	0.110	0.115	0.110	0.095	0.071	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.014	0.027	0.037	0.043	0.046	0.043	0.037	0.027	0.014	0.000
FINAL CAMBER †	0	25	44	58	67	70	67	58	44	25	0

NOTE: ALL VALUES ARE SHOWN IN METERS, EXCEPT FINAL CAMBER WHICH IS SHOWN IN MILLIMETERS.

\* INCLUDES FUTURE WEARING SURFACE



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT STA. I2+52.890-Y-

SHEET 3 OF 3

DEAD LOAD DEFLECTION TABLE FOR SPAN "H" - GIRDERS H1, H2, H3, H4											
TENTH POINTS	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
CAMBER (GIRDER ALONE IN PLACE) †	0.000	0.039	0.070	0.094	0.109	0.114	0.109	0.094	0.070	0.039	0.000
DEFLECTION DUE TO SUPERIMPOSED D.L.* ‡	0.000	0.013	0.025	0.034	0.040	0.042	0.040	0.034	0.025	0.013	0.000
FINAL CAMBER †	0	26	45	60	69	72	69	60	45	26	0



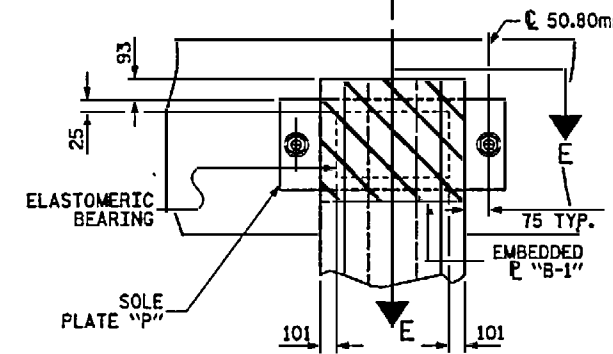
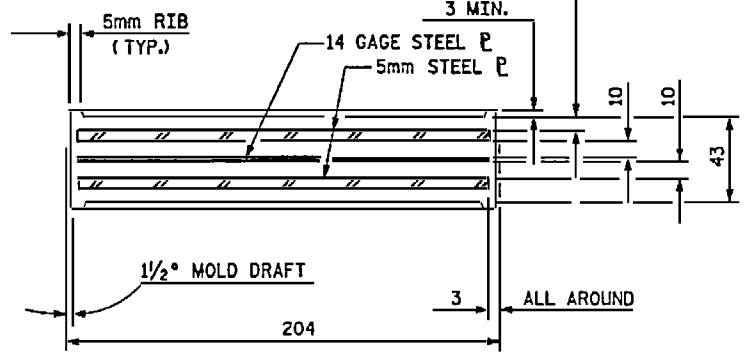
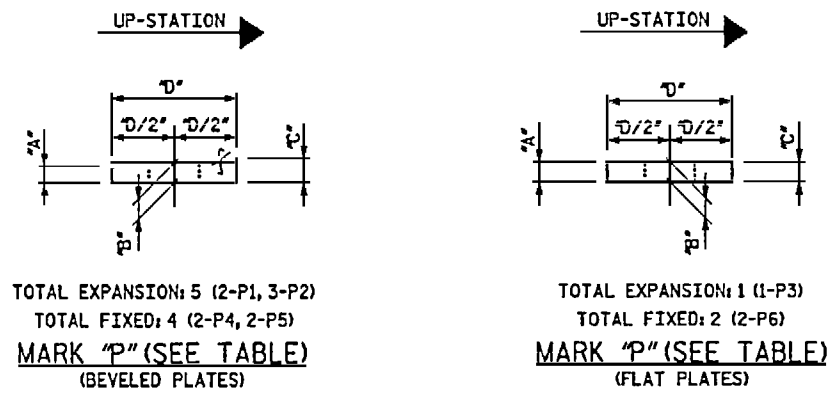
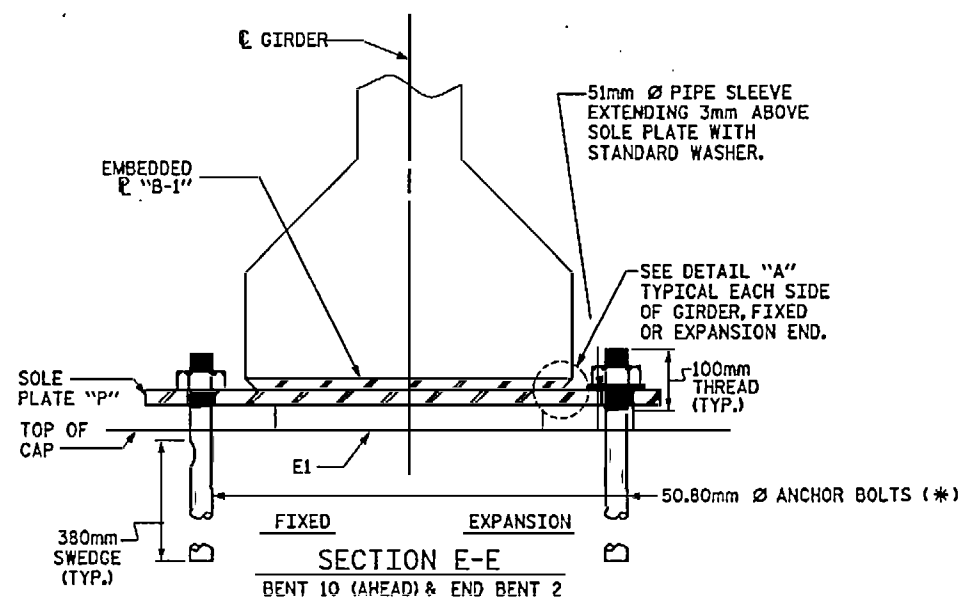
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 GIRDER CAMBER &  
 DEFLECTIONS

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: A. ECHERD DATE: 07/00  
 CHECKED BY: D. SPIVEY DATE: 07/00 DWG. NO. 80

REVISIONS						SHEET NO. 5122	TOTAL SHEETS (of 1)
NO.	BY	DATE	NO.	BY	DATE		
1			3				
2			4				

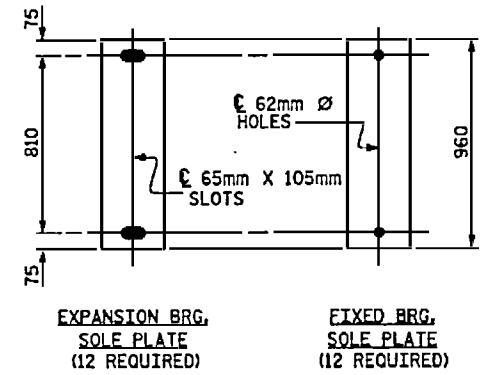
**NOTES**

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 51mm DIA. 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 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 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 149° C. 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 M291M-12 OR AASHTO M292M-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293M. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.  
 ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.  
 SOLE PLATES SHALL BE AASHTO M270 GRADE 250 STEEL.



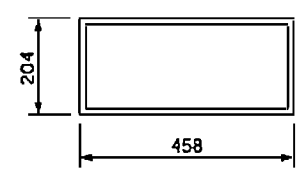
(\*) FOR ANCHOR BOLT LENGTHS, SEE SUBSTRUCTURE BENT SHEETS

—LOAD RATINGS—	
TYPE III	MAX.D.L.+ L.L. 512 kN

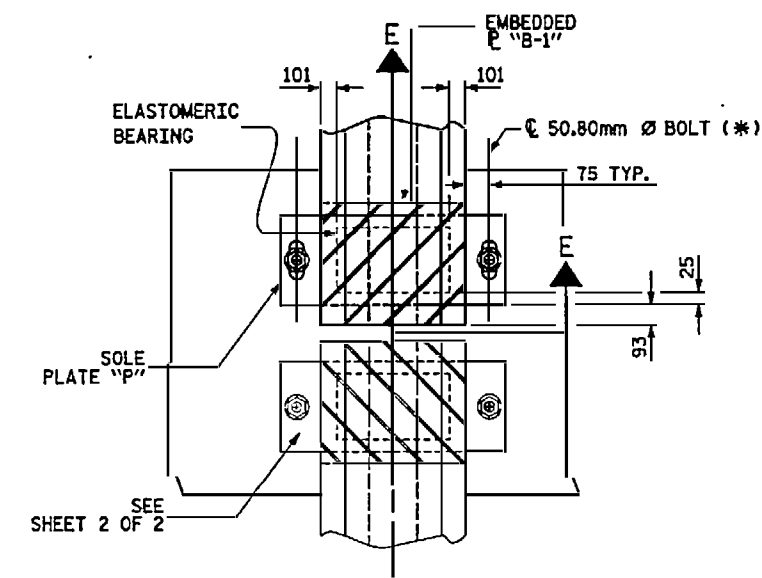


**SOLE PLATE DETAILS**

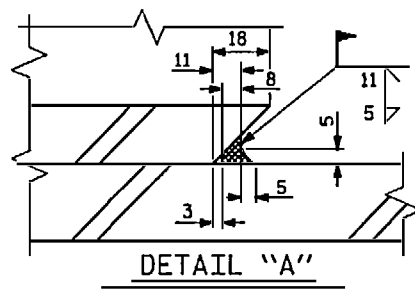
**TYPICAL SECTION OF ELASTOMERIC BEARINGS**



**PLAN VIEW OF ELASTOMERIC BEARING TYPE III SPAN J**



**TYPICAL PLAN VIEW (SHOWING SIMPLE SPAN J, BENT 10) (EXP. BRG.)**



**DETAIL "A"**

—TABLE OF SOLE PLATE VARIABLES—

BENT	SPAN BACK	SPAN AHEAD	CDRS.	FIX/EXP	"A"	"B"	"C"	"D"	MARK
10	I	J	1, 2	EXP	32	35	38	254	P1
		J	3-5	EXP	34	36	38	254	P2
		J	6	EXP	32	32	32	254	P3
EB2	J		1, 2	FIX	32	35	38	254	P4
	J		3, 4	FIX	34	36	38	254	P5
	J		5, 6	FIX	32	32	32	254	P6

NOTE: FIX DENOTES FIXED BEARING. EXP DENOTES EXPANSION BEARING.

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POC 12+52.890 -Y-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD ELASTOMERIC BEARING DETAILS**  
 PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS				SHEET NO.		
NO.	BY	DATE	NO.	BY	DATE	
1			1			801
2			4			101

ASSEMBLED BY: C. OLIVER	DATE: 7/00
CHECKED BY: P. BARBER	DATE: 7/00
DRAWN BY: EEM 2/97	REV. 5/16/97 EEM/RGW
CHECKED BY: VAP 2/97	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES



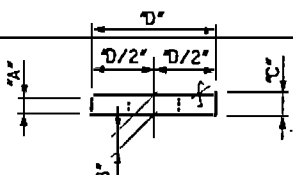
DWG. NO. 61

STD. NO. EB3SM

NOTES

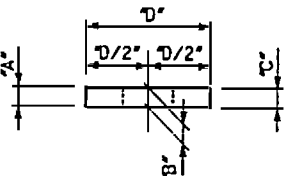
FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.  
 AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.  
 THE 51mm DIA. PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 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 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 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 149° C. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.  
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 ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291M-12 OR AASHTO M292M-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293M. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.  
 ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.  
 SOLE PLATES SHALL BE AASHTO M270 GRADE 250 STEEL.  
 (\*) FOR ANCHOR BOLT LENGTHS, SEE SUBSTRUCTURE BENT SHEETS

UP-STATION →

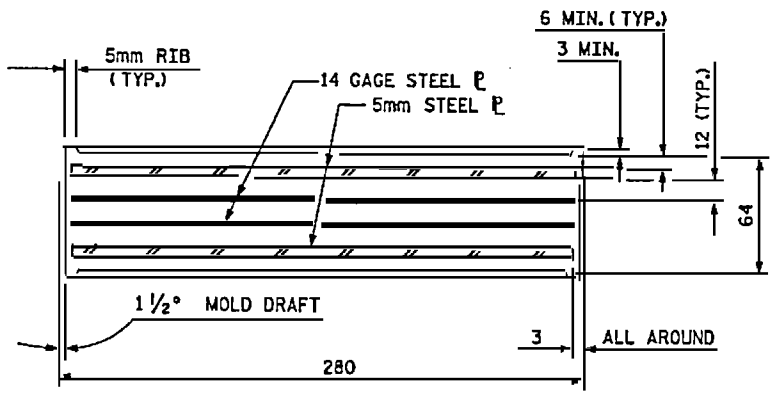
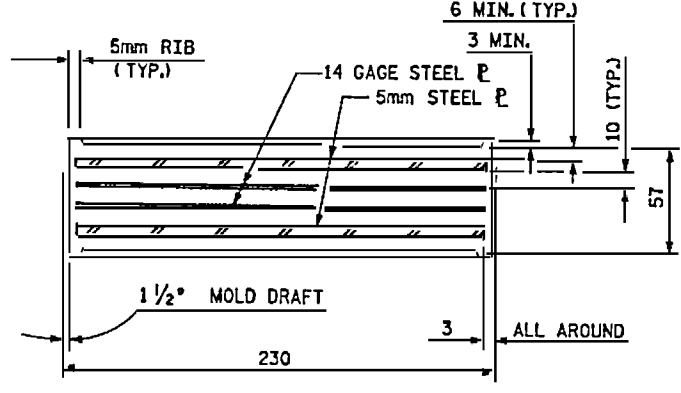
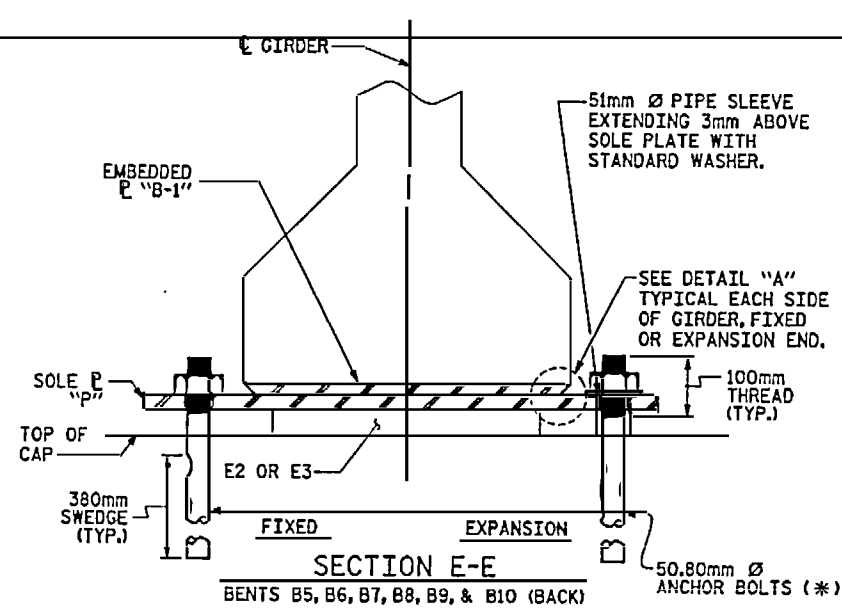
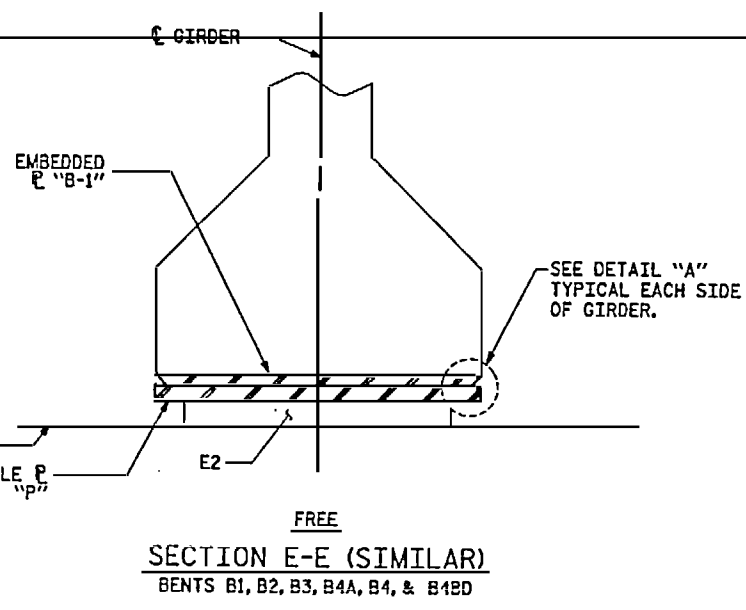


TOTAL FREE: 19 (3-P7, 6-P9, 3-P10, 4-P11, 3-P12)  
 TOTAL EXPANSION: 15 (10-P20, 5-P16)  
 TOTAL FIXED: 15 (4-P13, 11-P14)  
 MARK "P" (SEE TABLE)  
 (BEVELED PLATES)

UP-STATION →

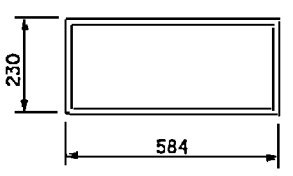


TOTAL FREE: 7 (5-P8, 2-P22)  
 TOTAL EXPANSION: 15 (14-P18, 1-P19)  
 TOTAL FIXED: 22 (10-P15, 7-P17, 5-P21)  
 MARK "P" (SEE TABLE)  
 (FLAT PLATES)



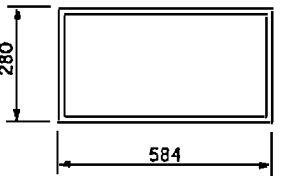
TYPICAL SECTION OF ELASTOMERIC BEARINGS

TYPICAL SECTION OF ELASTOMERIC BEARINGS



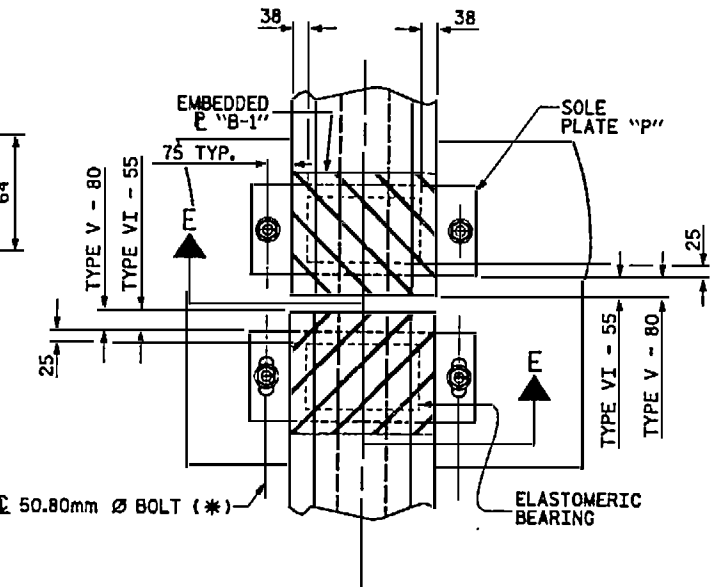
E2 (98 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING



E3 (30 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING



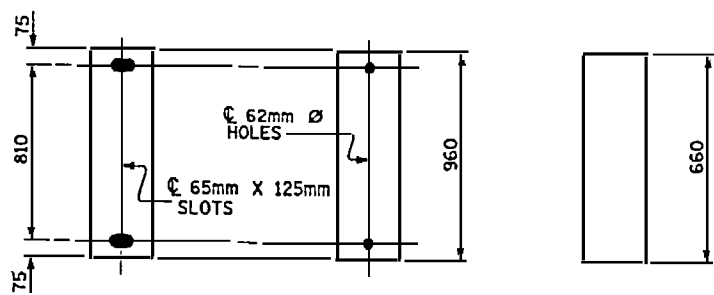
TYPICAL PLAN VIEW

(SHOWING SIMPLE SPAN BENT WITH ANCHOR BOLTS)

— TABLE OF SOLE PLATE VARIABLES —

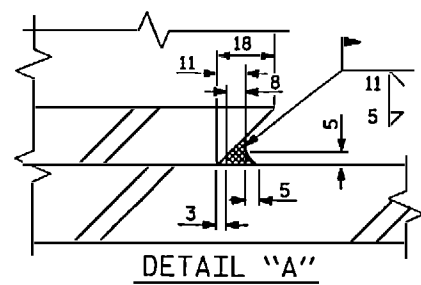
BENT	SPAN BACK	SPAN AHEAD	GDRS.	FIX/EXP/FREE	"A"	"B"	"C"	"D"	MARK
1	EXIST.								
	A		1-6	FREE	SEE PRESTRESSED CONCRETE GIRDER SHEETS				
2	A		1-6	FREE	SEE PRESTRESSED CONCRETE GIRDER SHEETS				
	B		1-9	FREE	SEE PRESTRESSED CONCRETE GIRDER SHEETS				
3	C		1	FREE	38	36	34	280	P7
			2-6	FREE	32	32	32	280	P8
			7, 12	FREE	38	35	32	280	P9
			8, 10, 11	FREE	40	36	32	280	P10
			9	FREE	50	45	40	280	P11
4A	C		1-3, 6	FREE	38	35	32	280	P9
			4, 5	FREE	38	36	34	280	P7
4	C		EXIST.						
4BD	C		1-7	FREE	SEE PRESTRESSED CONCRETE GIRDER SHEETS				
			7, 11, 12	FREE	50	45	40	280	P11
5	D		8-10	FREE	50	44	38	280	P12
6	E								
7	F		1-4	FIX	40	36	32	280	P13
			5-7	FIX	38	35	32	280	P14
7B	F		1-7	FIX	32	32	32	280	P17
			1-8	EXP	32	32	32	280	P18
8	G		1-7	EXP	32	32	32	280	P18
			1-8	FIX	32	35	38	280	P14
9	H		1, 3, 4	EXP	32	32	32	280	P18
			2	EXP	40	40	40	280	P19
10	I		1-5	EXP	32	36	40	330	P20
			5-8	EXP	32	32	32	280	P18
10	J								

NOTE: FIX DENOTES FIXED BEARING; EXP DENOTES EXPANSION BEARING; FREE DENOTES BEARING WITHOUT ANCHOR BOLTS.



EXPANSION BRG. SOLE PLATE (60 REQUIRED)  
 FIXED BRG. SOLE PLATE (74 REQUIRED)  
 FREE BRG. SOLE PLATE (122 REQUIRED)

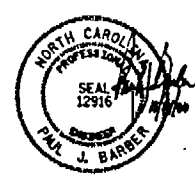
SOLE PLATE DETAILS



DETAIL "A"

— LOAD RATINGS —

	MAX. D.L. + L.L.
TYPE V	801 kN
TYPE VI	936 kN



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POC 12+52.890 -Y-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 STANDARD  
 ELASTOMERIC BEARING  
 DETAILS  
 PRESTRESSED CONCRETE GIRDER  
 SUPERSTRUCTURE

REVISIONS

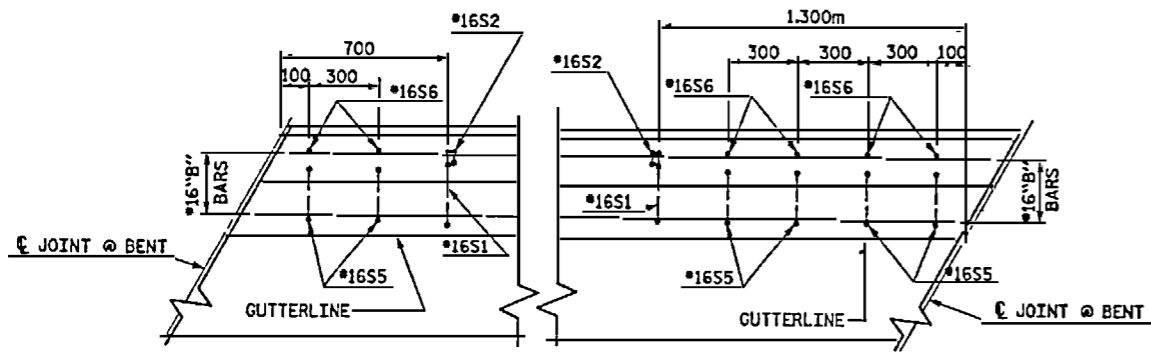
NO.	BY	DATE	NO.	BY	DATE
1			2		
2			3		
3			4		

SHEET NO. 562  
 1011

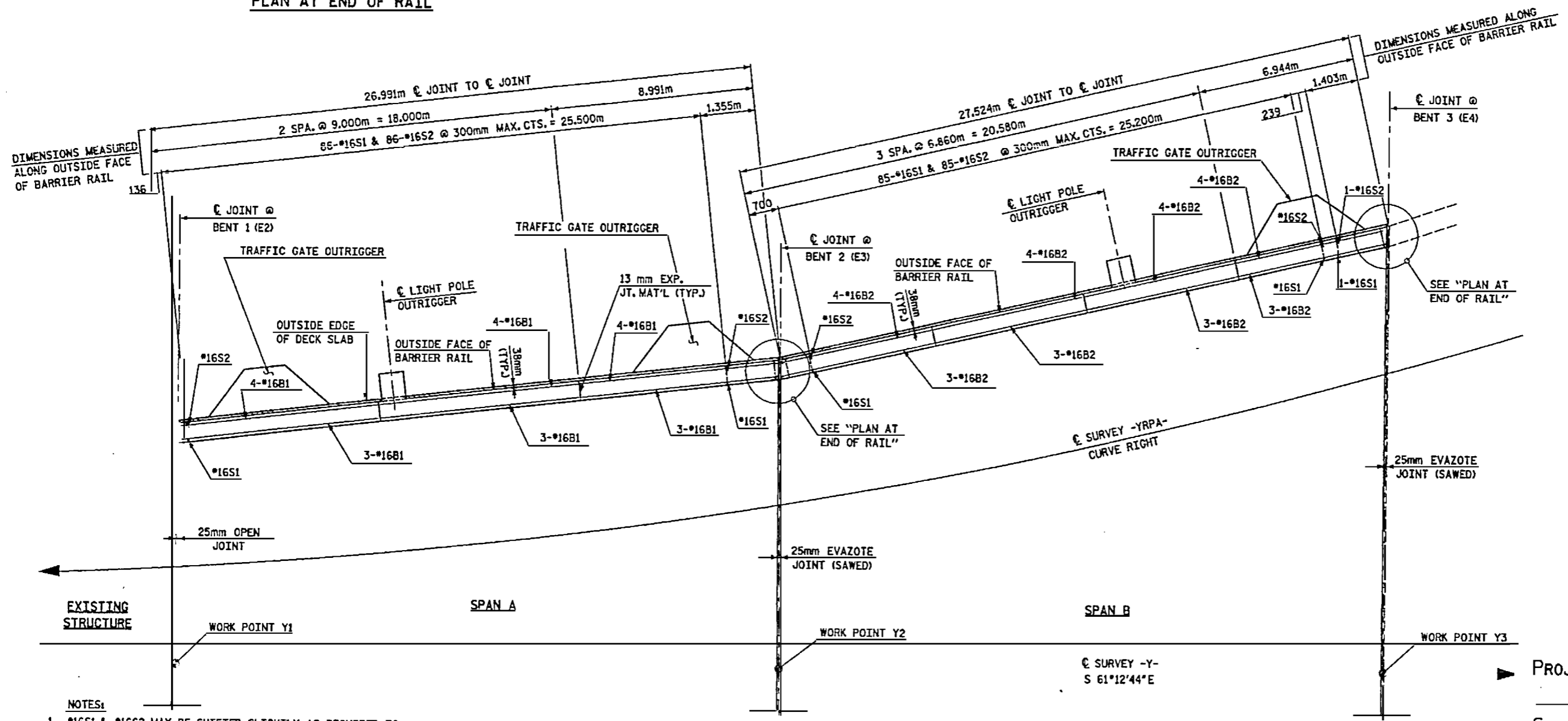
ASSEMBLED BY: C. OLIVER DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00  
 DRAWN BY: EEM 2/97 REV. 5/16/97 EEM/RGW  
 CHECKED BY: VAP 2/97 REV. 7/17/98 RWW/LES  
 REV. 8/16/99 RWW/LES

DWG. NO. 62

STD. NO. EB4SM



PLAN AT END OF RAIL



PLAN OF BARRIER RAILS - SPANS A & B - STAGE 1

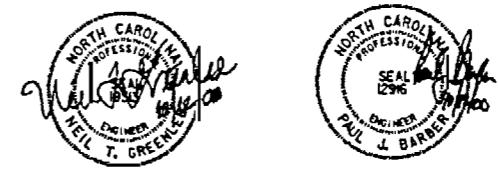
NOTE: BARRIER RAIL/EDGE OF DECK IS CHORDED.

- NOTES:
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN A" AND "PLAN OF SPANS SPAN B" FOR LOCATIONS.
  - FOR DETAILS OF TRAFFIC GATE OUTRIGGER, SEE "TRAFFIC GATE OUTRIGGER" SHEET. SEE "PLAN OF SPANS SPAN A" AND "PLAN OF SPANS SPAN B" FOR LOCATIONS.
  - #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

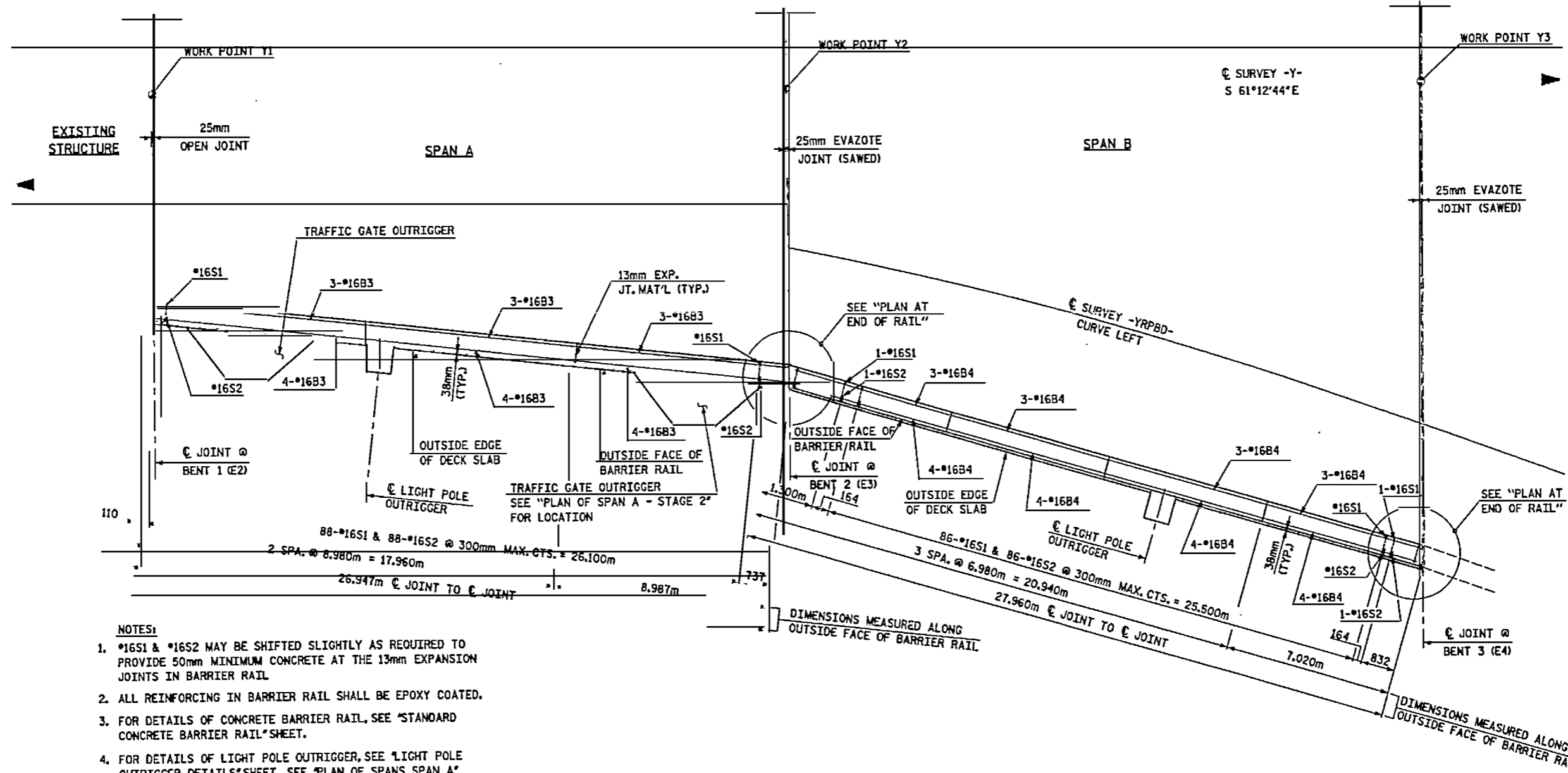
SHEET 1 OF 9  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 RAIL PLAN  
 SPANS A & B  
 STAGE 1



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 63

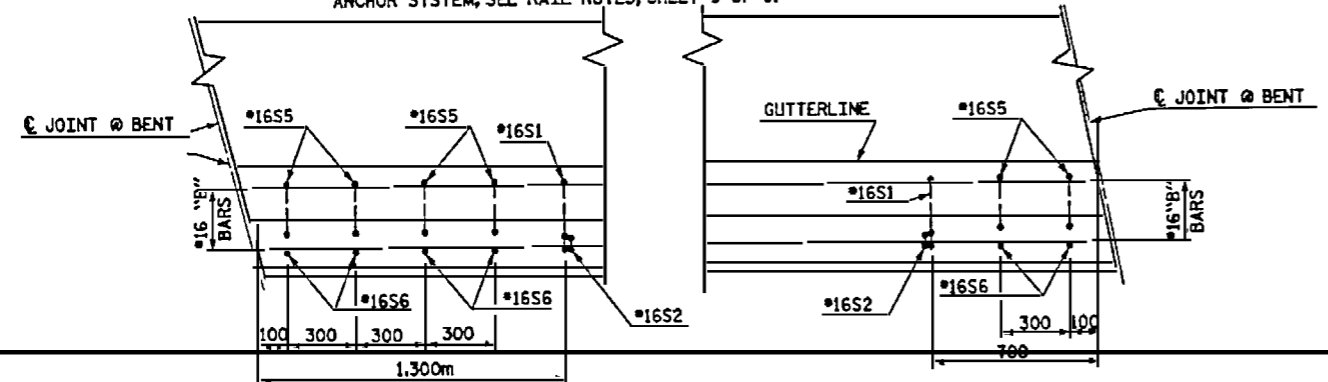
REVISIONS						SHEET NO. 5-22
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 10/11
2			4			



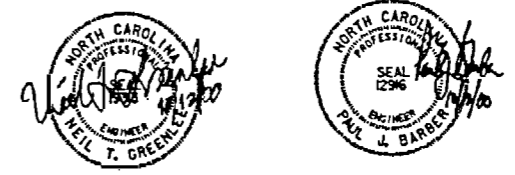


- NOTES:**
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL.
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN A" AND "PLAN OF SPANS SPAN B" FOR LOCATIONS.
  - FOR DETAILS OF TRAFFIC GATE OUTRIGGER, SEE "TRAFFIC GATE OUTRIGGER" SHEET. SEE "PLAN OF SPANS SPAN A" AND "PLAN OF SPANS SPAN B" FOR LOCATIONS.
  - #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM, SEE RAIL NOTES, SHEET 9 OF 9.

**PLAN OF BARRIER RAILS - SPANS A & B - STAGE 2**  
 NOTE: BARRIER RAIL/EDGE OF DECK IS CHORDED.



**PLAN AT END OF RAIL**



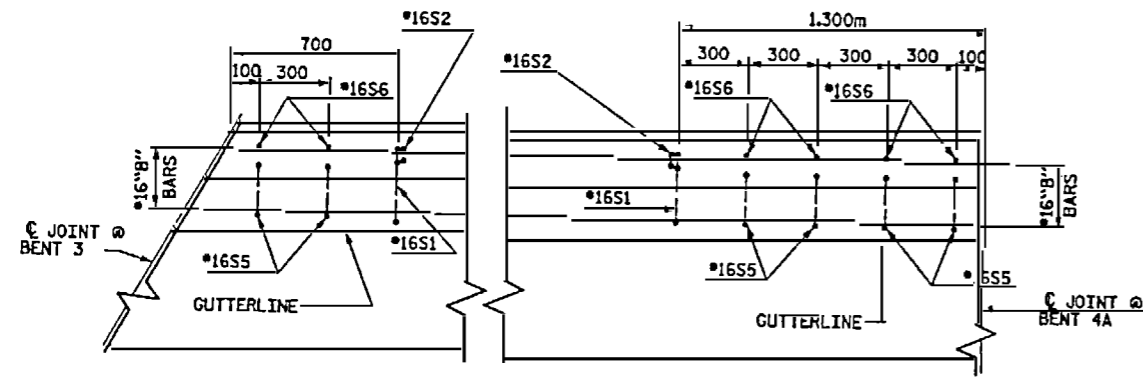
PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 2 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 RAIL PLAN  
 SPANS A & B  
 STAGE 2

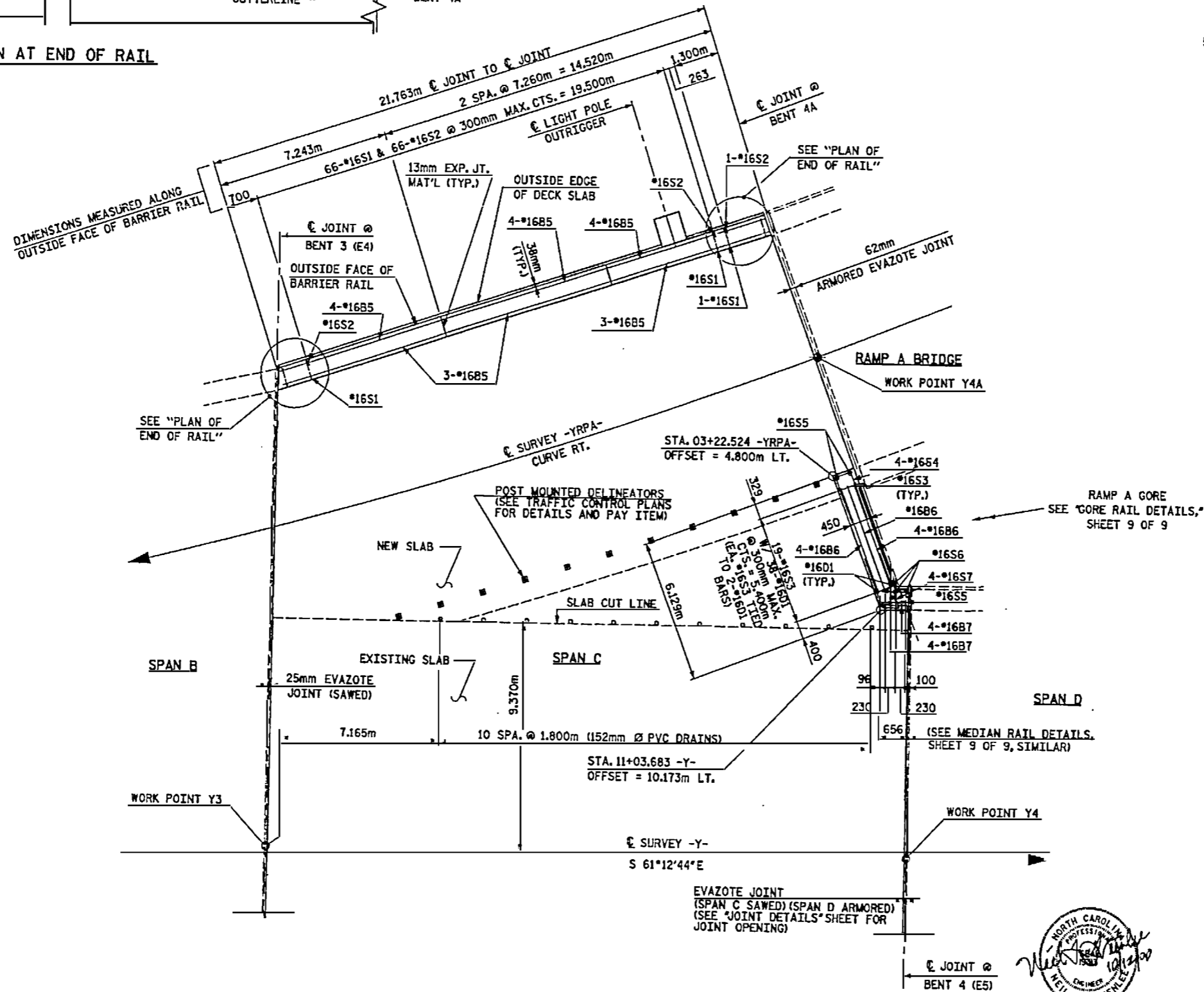
**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 64

REVISIONS						SHEET NO. S-CA
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			



PLAN AT END OF RAIL

- NOTES:
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL.
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN C FOR LOCATIONS."
  - #16D1, #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9.



PLAN OF BARRIER RAILS - SPAN C - STAGE 1

NOTE: OUTSIDE BARRIER RAIL/EDGE OF DECK IS CHORDED



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

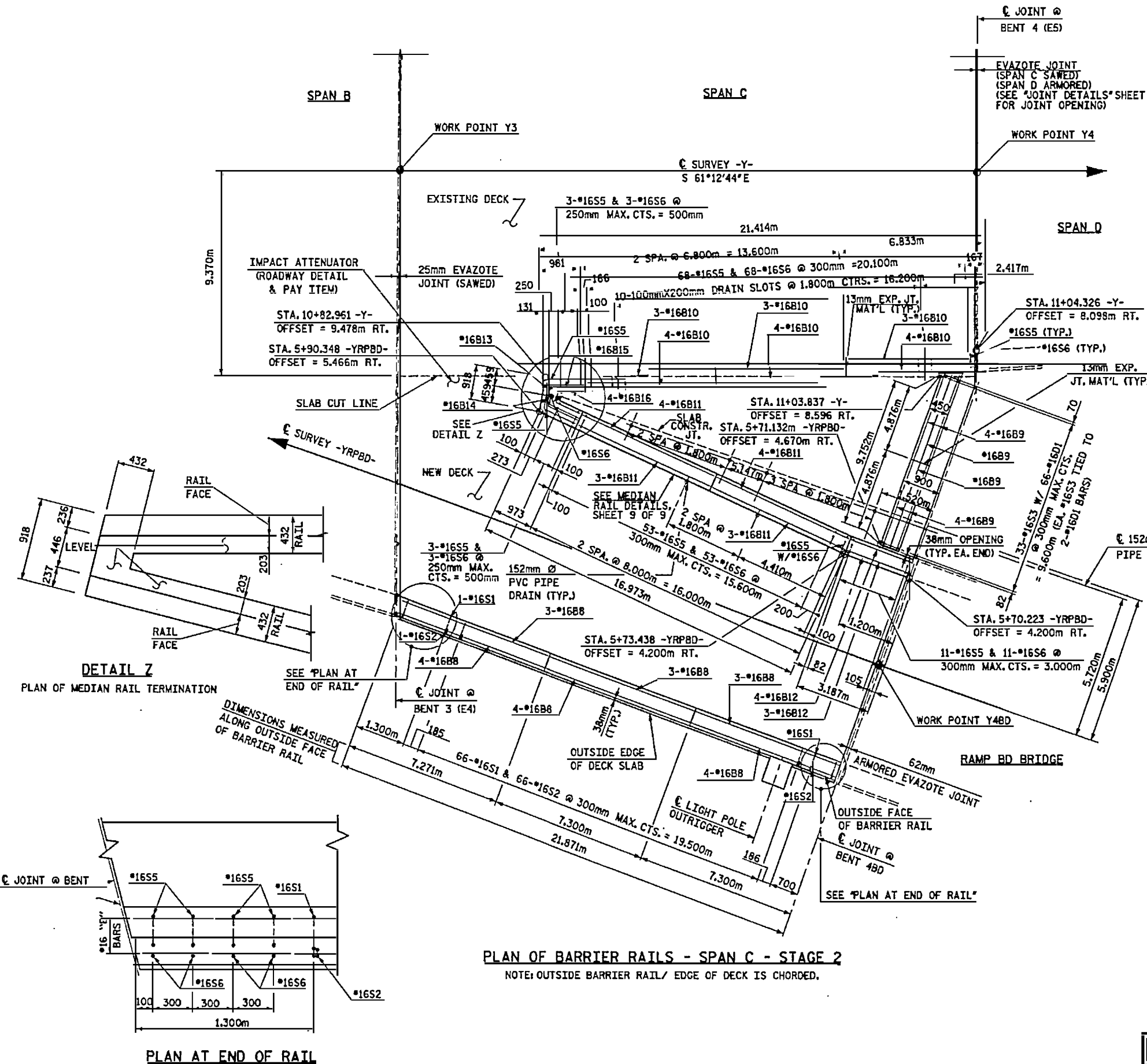
SHEET 3 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 RAIL PLAN  
 SPAN C  
 STAGE 1

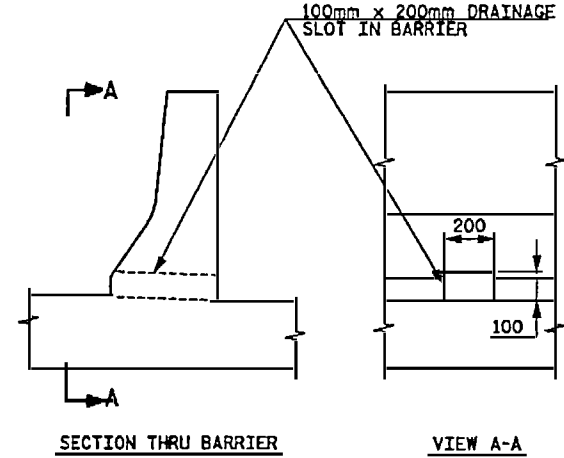


**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: M. WRIGHT DATE: 7/02  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 65

REVISIONS						SHEET NO. 502
NO.	BY	DATE	NO.	BY	DATE	
1			3			707 SHEETS 101
2			4			

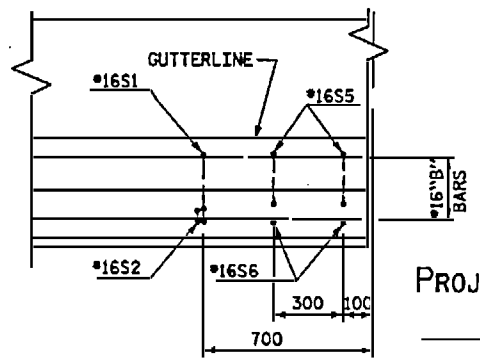


- NOTES:**
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN C FOR LOCATIONS."
  - #16D1, #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9



**DRAINAGE SLOT DETAILS**

NOTE: SLOTS IN RAIL SHALL BE CENTERED BETWEEN ADJACENT #16S5/ #16S6 GROUPS TO PROVIDE A MINIMUM COVER OF 40mm TO REINFORCING.



PLAN AT END OF RAIL



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

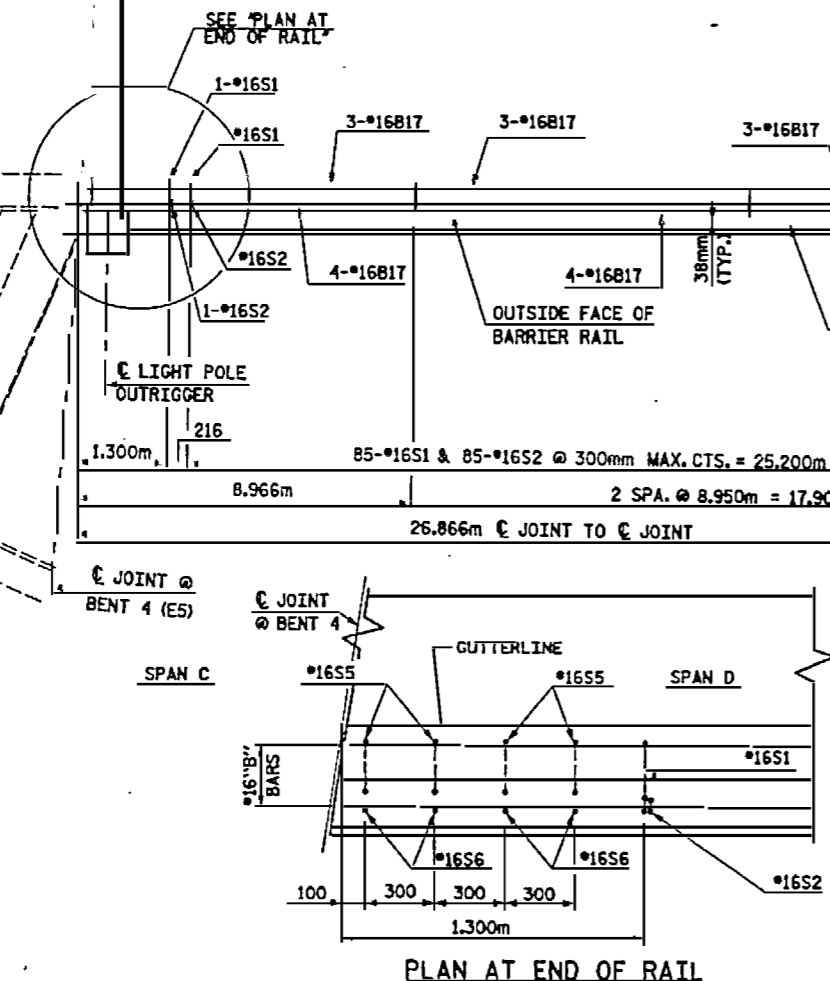
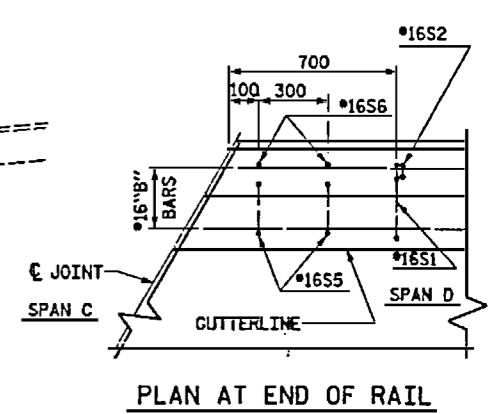
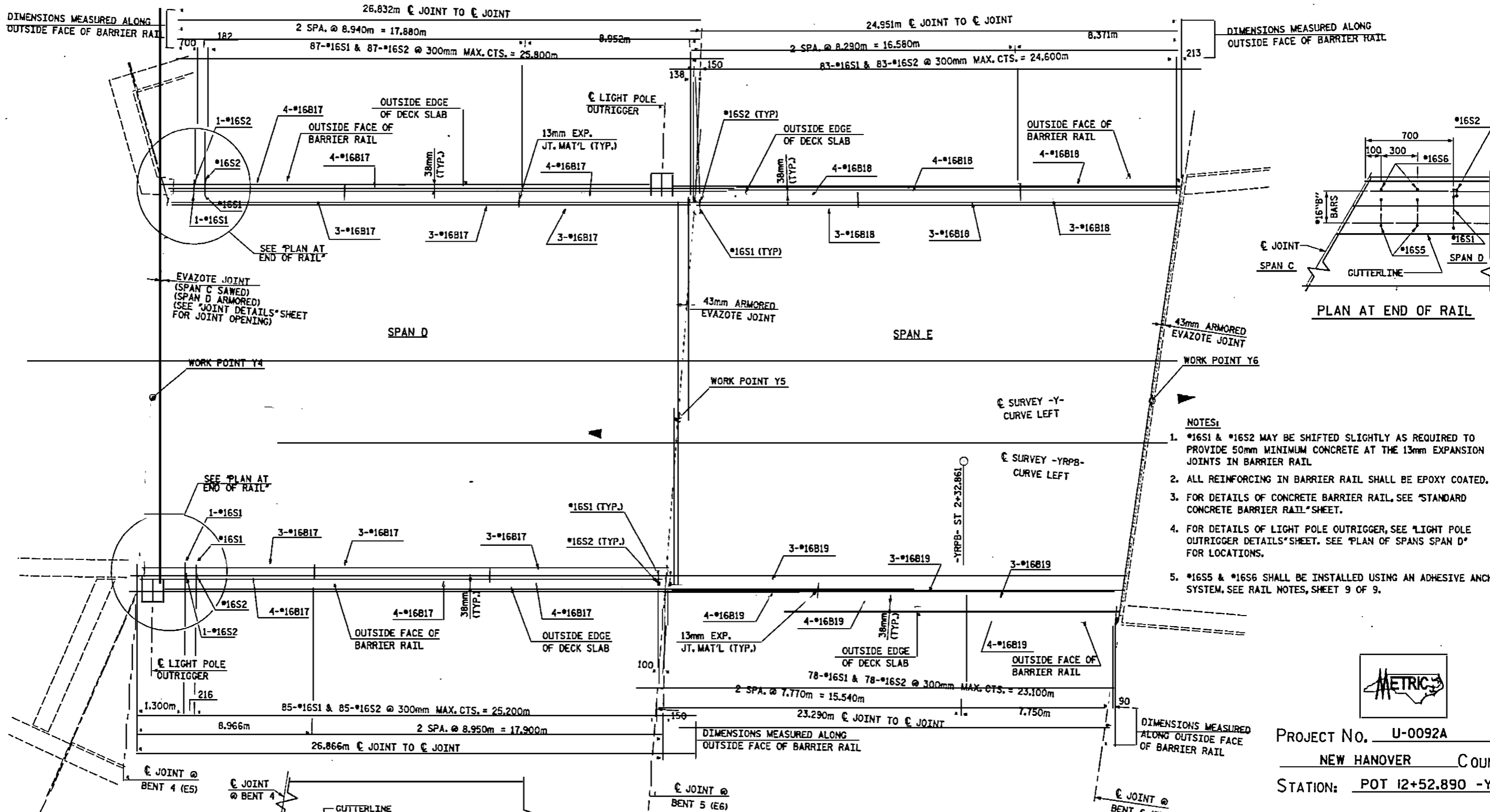
SHEET 4 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 RAIL PLAN  
 SPAN C  
 STAGE 2



**FNTB** NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27603  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO.: 00

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL
2			4		10/11



- NOTES:**
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL.
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER DETAILS, SEE "PLAN OF SPANS SPAN D" FOR LOCATIONS.
  - #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9.

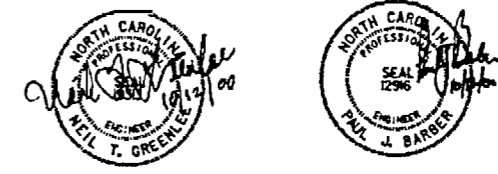
**PLAN OF BARRIER RAILS - SPANS D & E**  
NOTE: OUTSIDE BARRIER RAIL/EDGE OF DECK IS CHORDED.



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

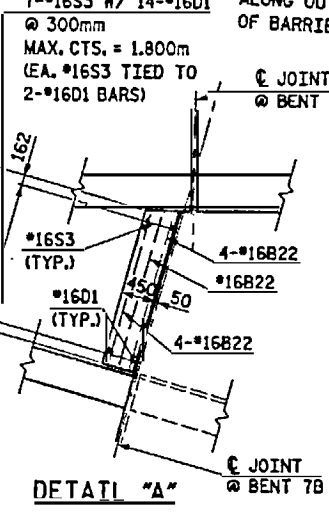
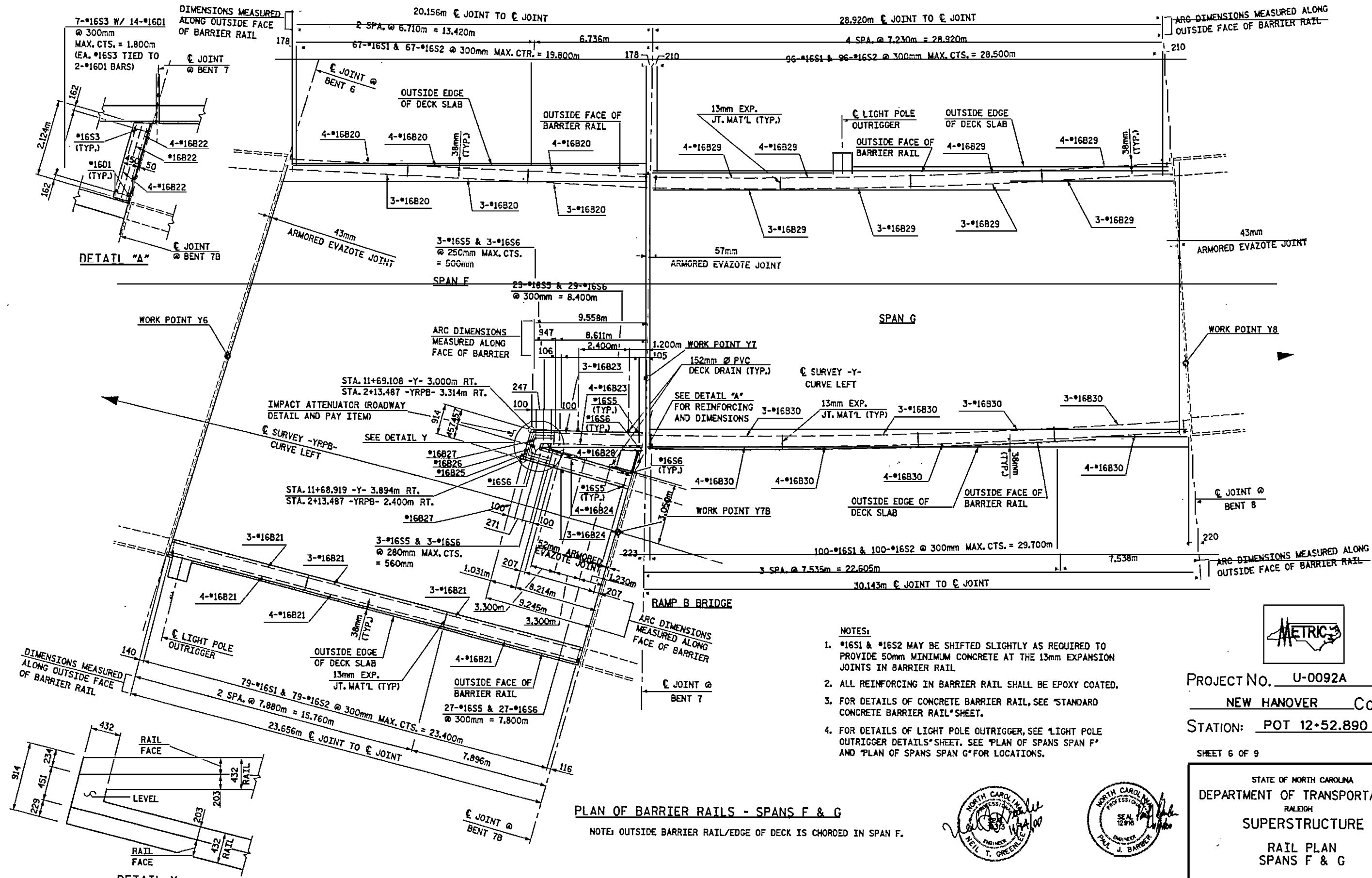
SHEET 5 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 RAIL PLAN  
 SPANS D & E



**ANTE** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: W. WRIGHT DATE: 12/99  
 CHECKED BY: P. BARBER DATE: 1/00 DRG. NO. 67

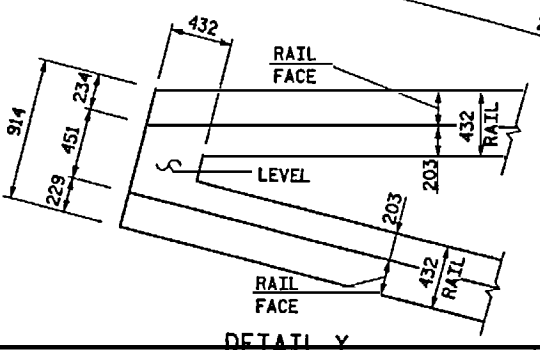
REVISIONS						SHEET NO. 5 of 9
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



SPAN F  
29-#16S5 & 29-#16S6 @ 300mm = 8.400m

SPAN G

RAMP B BRIDGE



DETAIL Y  
PLAN OF MEDIAN RAIL TERMINATION

PLAN OF BARRIER RAILS - SPANS F & G

NOTE: OUTSIDE BARRIER RAIL/EDGE OF DECK IS CHORDED IN SPAN F.

NOTES:

- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL.
- ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
- FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
- FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN F" AND "PLAN OF SPANS SPAN G" FOR LOCATIONS.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 6 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
RAIL PLAN  
SPANS F & G

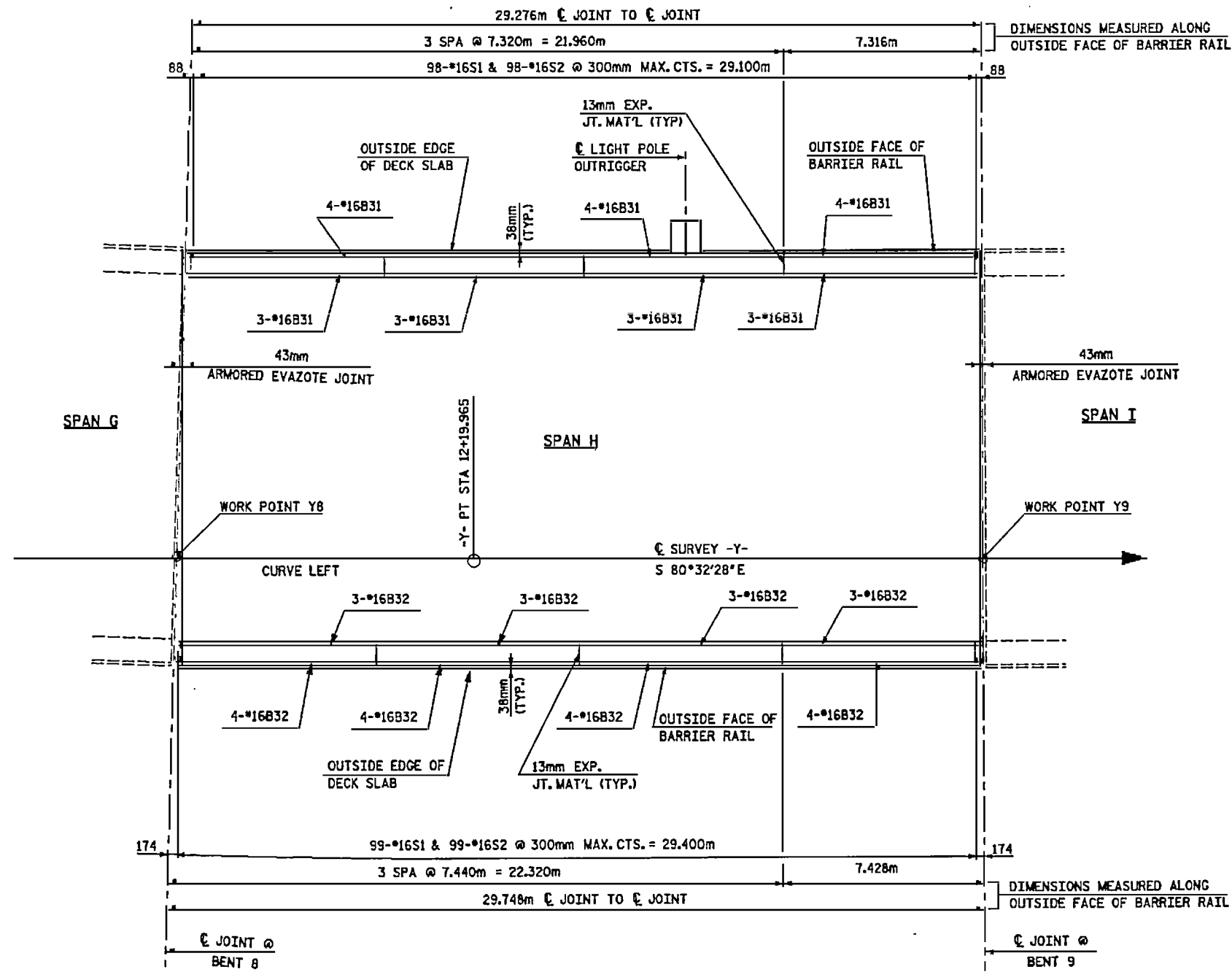


**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27608

DRAWN BY: M. WRIGHT  
CHECKED BY: BARBER  
DATE: 12/29  
DATE: 1/00  
DWG. NO. 68

REVISIONS						SHEET NO. S-C-2
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			

- NOTES:**
- \*16S1 & \*16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN H" FOR LOCATIONS.



PLAN OF BARRIER RAILS - SPAN H



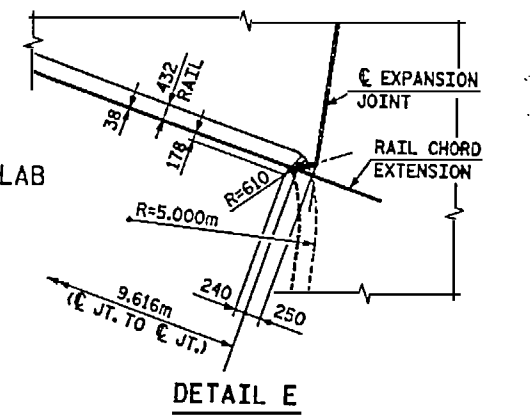
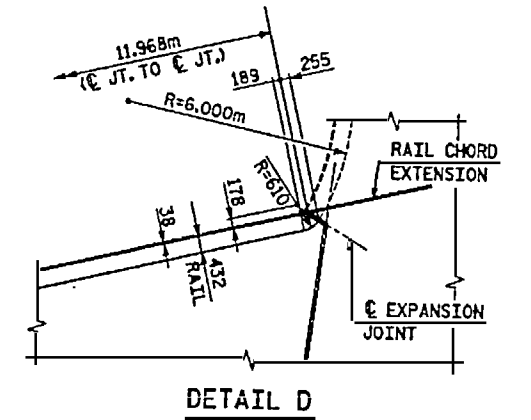
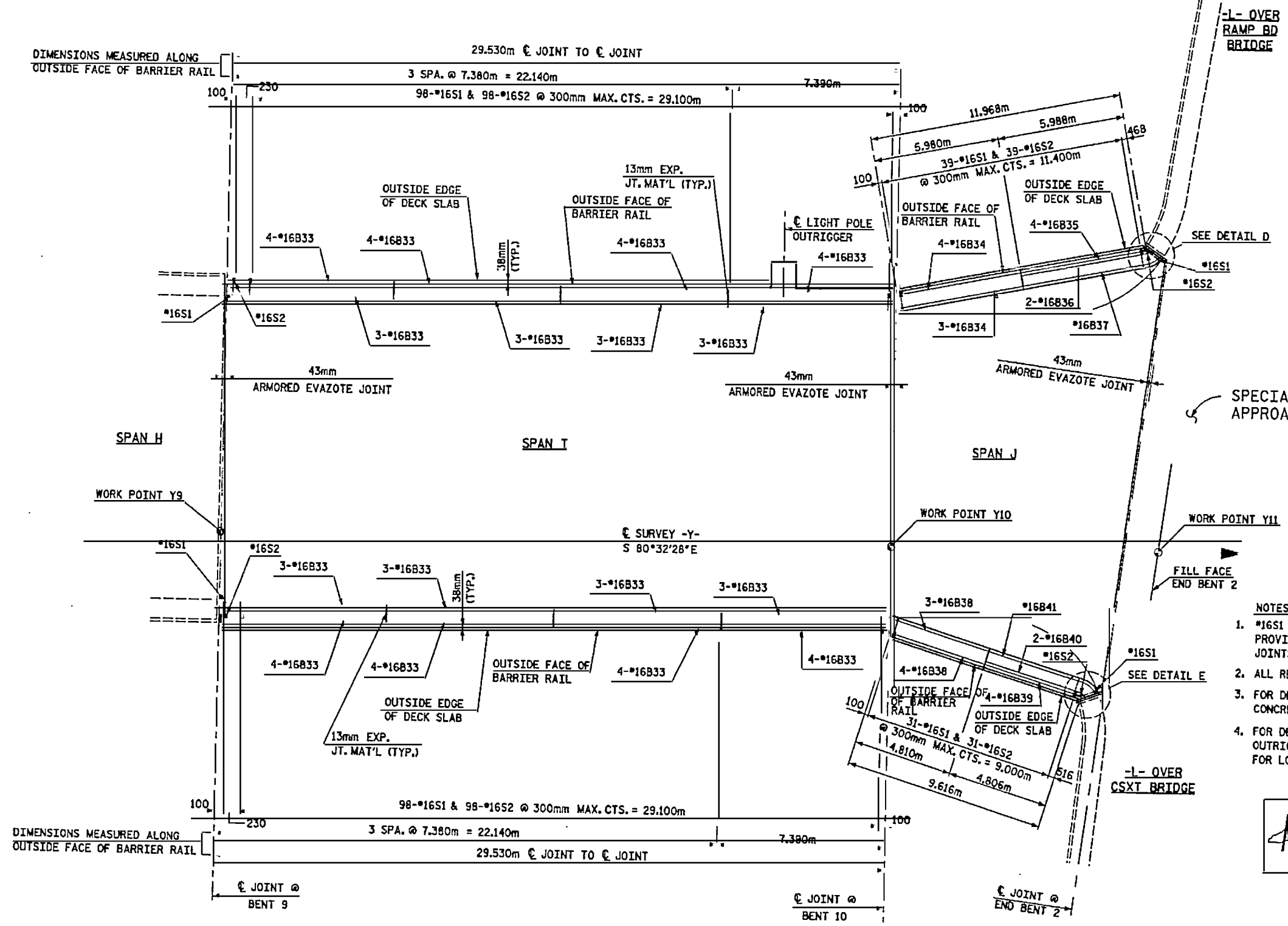
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 7 OF 9

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 RAIL PLAN  
 SPAN H



<b>HNTB</b>		<b>HNTB NORTH CAROLINA, P.C.</b>		343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY	V. WRIGHT	DATE	12/39	DWG. NO.	60
CHECKED BY	P. BARBER	DATE	1/00		
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
					SHEET NO. S-C-1
					TOTAL SHEETS 161

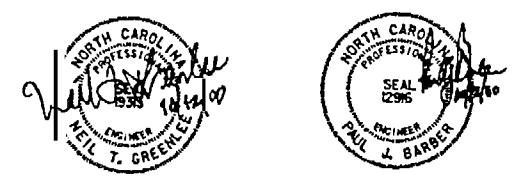


- NOTES:**
- #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
  - ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
  - FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
  - FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN I FOR LOCATIONS."

PROJECT No. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 8 OF 9

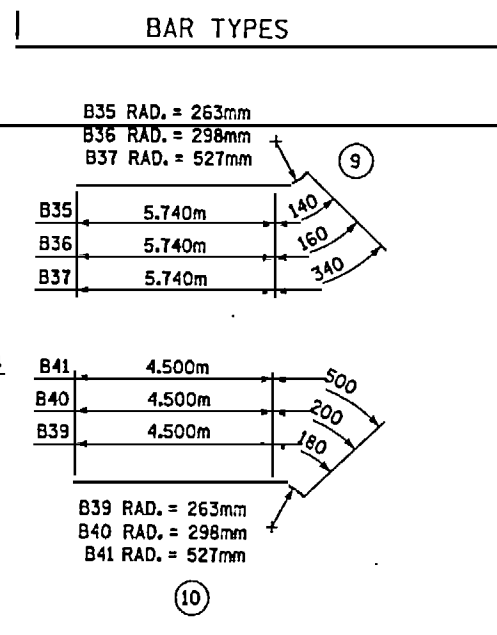
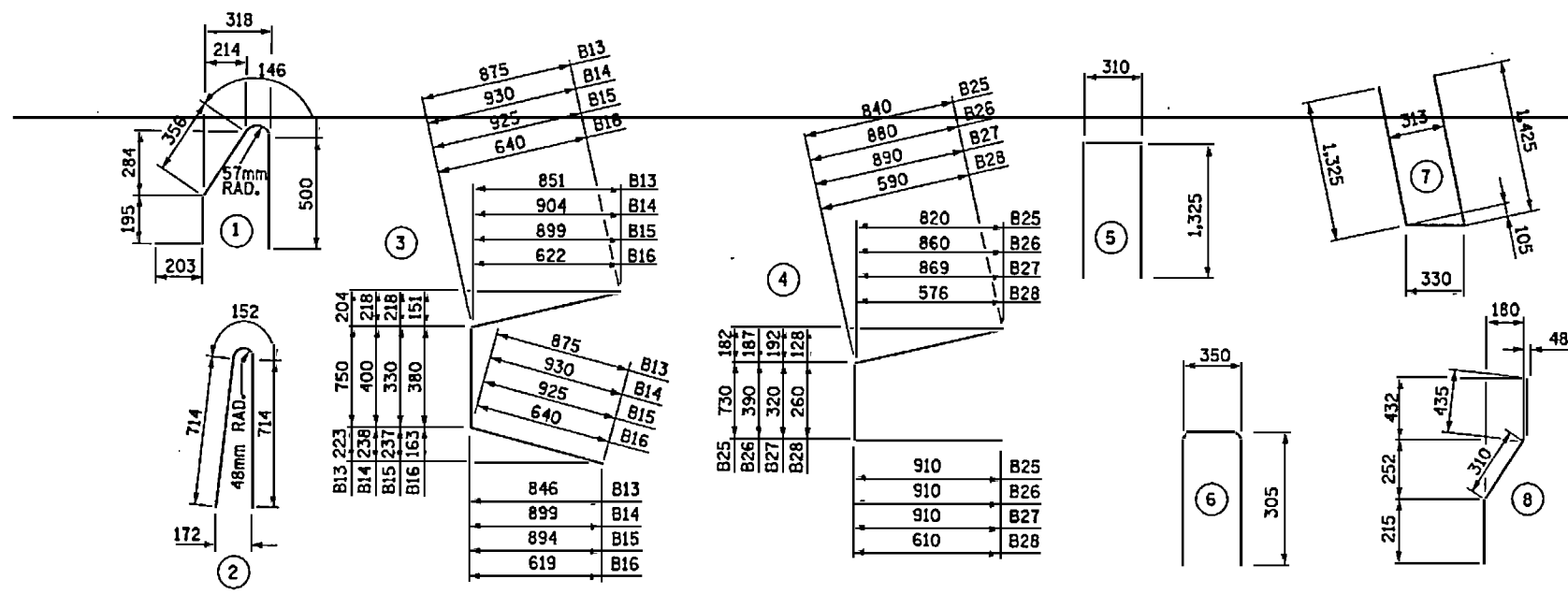
PLAN OF BARRIER RAILS - SPANS I & J



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: V. WRIGHT DATE: 7/00  
 CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 70

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

SHEET NO. 8-70  
TOTAL SHEETS 101



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	1,625	*16	1	1,400	3,531
S2	1,625	*16	2	1,580	3,989
S3	59	*16	6	960	88
S4	4	*16	5	2,960	18
S5	244	*16	8	960	364
S6	242	*16	STR.	900	338
S7	4	*16	7	3,080	19
B1	21	*16	STR.	8,820	287
B2	28	*16	STR.	6,740	293
B3	21	*16	STR.	8,840	288
B4	28	*16	STR.	6,860	298
B5	21	*16	STR.	7,120	232
B6	9	*16	STR.	5,440	76
B7	8	*16	STR.	540	7
B8	21	*16	STR.	7,160	233
B9	18	*16	STR.	4,760	133
B10	21	*16	STR.	6,680	218
B11	14	*16	STR.	7,880	171
B12	7	*16	STR.	3,040	33
B13	1	*16	3	2,500	4
B14	1	*16	3	2,260	4
B15	1	*16	3	2,180	3
B16	4	*16	3	1,660	10
B17	42	*16	STR.	8,820	575
B18	21	*16	STR.	8,160	266

BILL OF MATERIAL					
FOR CONCRETE BARRIER RAIL ONLY					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B19	21	*16	STR.	7,620	248
B20	21	*16	STR.	6,580	214
B21	21	*16	STR.	7,740	252
B22	9	*16	STR.	2,020	28
B23	7	*16	STR.	8,460	92
B24	7	*16	STR.	8,080	88
B25	1	*16	4	2,480	4
B26	1	*16	4	2,180	3
B27	1	*16	4	2,120	3
B28	4	*16	4	1,460	9
B29	28	*16	STR.	7,080	308
B30	28	*16	STR.	7,400	322
B31	28	*16	STR.	7,180	312
B32	28	*16	STR.	7,300	317
B33	56	*16	STR.	7,240	629
B34	7	*16	STR.	5,840	63
B35	4	*16	9	5,880	37
B36	2	*16	9	5,900	18
B37	1	*16	9	6,080	9
B38	7	*16	STR.	4,680	51
B39	4	*16	10	4,680	29
B40	2	*16	10	4,700	15
B41	1	*16	10	5,000	8
D1	118	*16	STR.	900	165

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

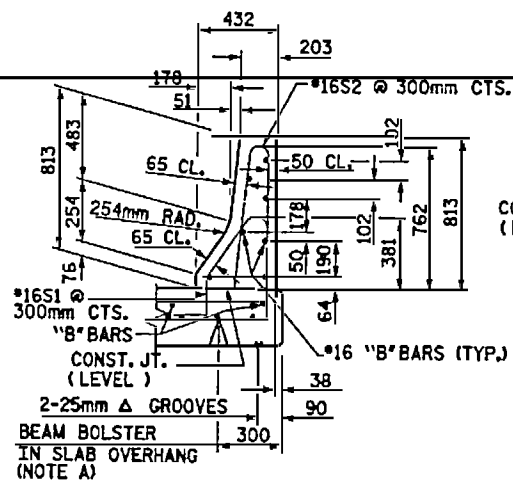
THE \*16S5, \*16S6, AND \*16D1 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM, FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS, THE YIELD LOAD FOR THE \*16S5, \*16S6 AND \*16D1 BARS IS 82.7 KN. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

VERTICAL GROOVED CONTRACTION JOINTS, 12mm 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 JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 6.100m IN LENGTH AND NO JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 3.500m IN LENGTH.

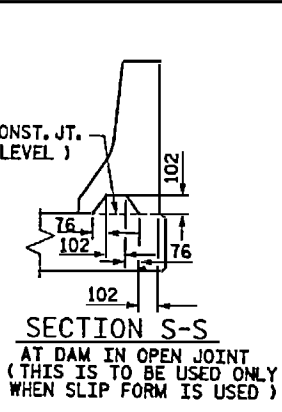
AN EMBEDMENT DEPTH OF 150mm HAS BEEN INCLUDED IN THE LENGTH FOR THE \*16D1, \*16S5 & \*16S6 ADHESIVELY ANCHORED BARS, CONTRACTOR SHALL ADJUST BAR LENGTH FOR SELECTED MANUFACTURER'S EMBEDMENT REQUIREMENTS.

EPOXY COATED REINFORCING STEEL	14,698 kg
CLASS AA CONCRETE BARRIER RAIL	114.6 CU. METER
CLASS AA CONCRETE GORE RAIL	13.9 CU. METER
CLASS AA CONCRETE NOSE WALL	6.6 CU. METER
CONCRETE BARRIER RAIL	497.538 METERS
CONCRETE MEDIAN RAIL	60.481 METERS
TOTAL	558.019 METERS

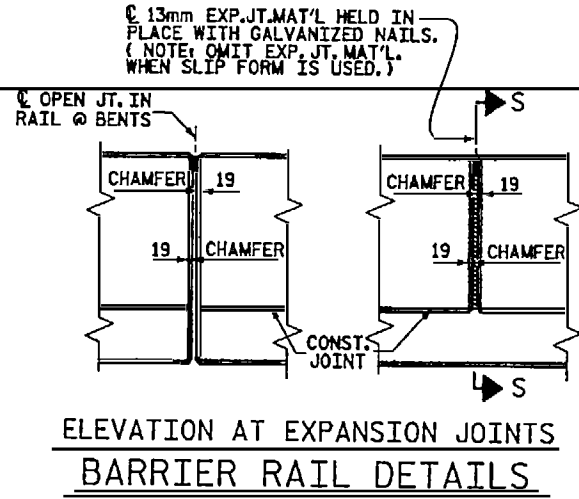
CONCRETE NOSE WALL CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL IN THE CONSTRUCTION OF THE BARRIER RAIL AND INCLUDED IN THE PAY ITEM FOR CONCRETE BARRIER RAIL. NO NOSEWALL LENGTH HAS BEEN INCORPORATED IN THE BARRIER RAIL LENGTH.



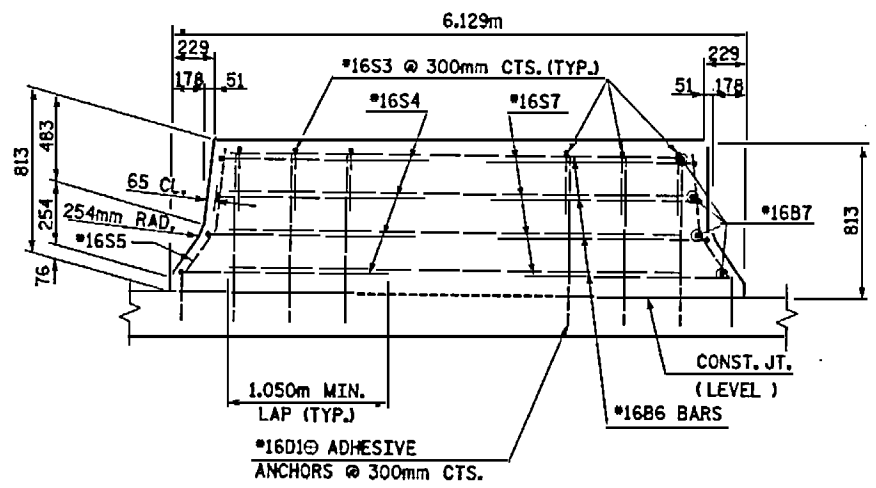
SECTION THRU RAIL  
NOTE A: FOR SIZE OF BB IN OVERHANG, SEE TYPICAL SECTION SHEETS.



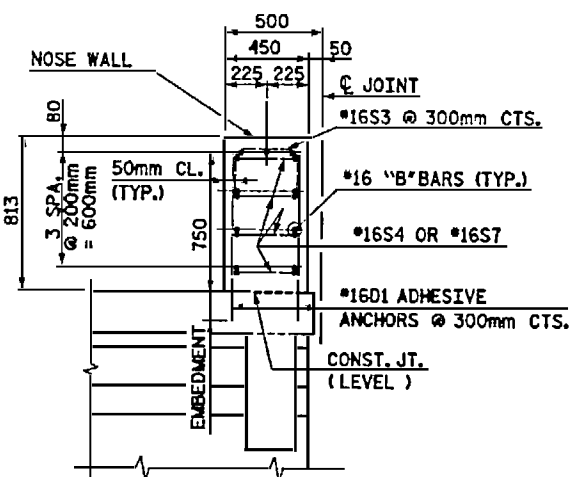
SECTION S-S  
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



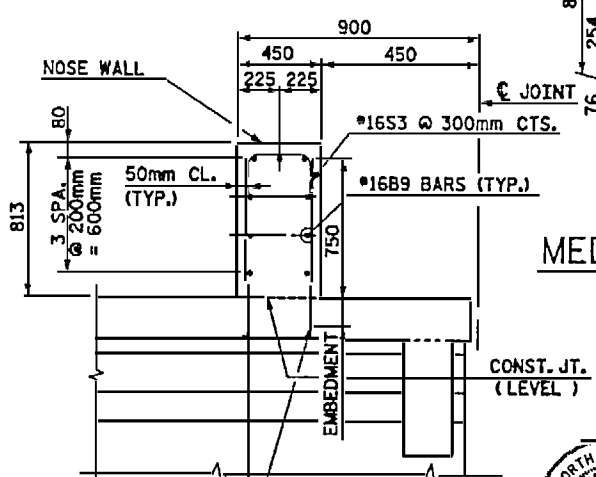
ELEVATION AT EXPANSION JOINTS  
BARRIER RAIL DETAILS



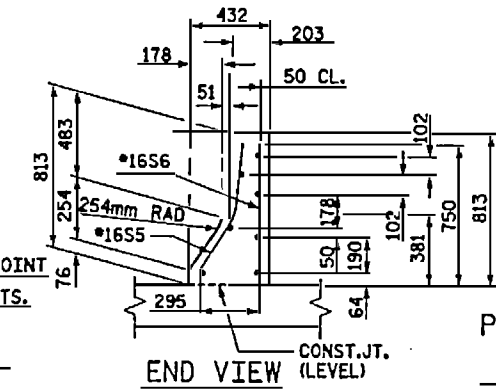
ELEVATION VIEW SPAN C - STAGE 1  
RAMP A GORE



END VIEW AT GORES "A" AND "B"



END VIEW AT GORE BD



END VIEW

ASSEMBLED BY: M. WRGHT	DATE: 7/00
CHECKED BY: P. BARBER	DATE: 7/00
DRAWN BY: AR3 5/87	REV. 5/16/97 EEM/RCH
CHECKED BY: SJD 9/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POC I2+52.890 -Y-  
SHEET 9 OF 9

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RAILROAD  
STANDARD  
CONCRETE  
BARRIER RAIL

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	8-71
1			3		TOTAL SHEETS 1011
2			4		

DWG. NO. 71

CBR1SM



**NOTES**

ANGLES SHALL CONFORM TO AASHTO M270 GRADE 250 STEEL OR APPROVED EQUAL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169 GRADES 1010 THRU 1020 OR APPROVED EQUAL.

STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON THE PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

UPON COMPLETION OF SHOP FABRICATION, THE ENTIRE ANCHOR ASSEMBLY SHALL BE METALLIZED TO A MINIMUM THICKNESS OF 0.150mm. THE 12.70mm Ø STUD ANCHORS AND ANCHOR TABS NEED NOT BE METALLIZED. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

ANCHOR ASSEMBLY SHALL BE CONTINUOUS THE LENGTH OF THE JOINT FROM GUTTER TO GUTTER. AT FIELD SPLICE LOCATIONS, THE ENDS OF THE STEEL ANGLES SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE FOR SKEWS LESS THAN 80° AND GREATER THAN 100°. FINISHED FIELD WELDS SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 0.100mm OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. ANCHOR ASSEMBLY SHALL NOT BE SHIPPED IN LENGTHS EXCEEDING 6.1m UNLESS APPROVED BY THE ENGINEER.

THE ANCHOR ASSEMBLY SHALL BE SECURED AND LEVELLED AS SHOWN IN THE "ARMORED JOINT ANCHOR ASSEMBLY DETAILS". NO SUBMITTALS ARE REQUIRED FOR 9.53mm Ø EXPANSION ANCHORS, NUTS OR WASHERS. THE CONTRACTOR MAY SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF ALIGNING AND LEVELLING THE ANGLES. THE ALTERNATE METHOD SHALL NOT INCLUDE ANY WELDING TO THE OUTSIDE FACE OF THE ANGLES.

AFTER THE ELASTOMERIC CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE ANY EXCESS CONCRETE THAT COMES THROUGH THE WEEP HOLES AND THOROUGHLY CLEAN THE ANGLES. ANY DAMAGED STEEL SHALL BE COATED WITH A MINIMUM OF 0.100mm OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

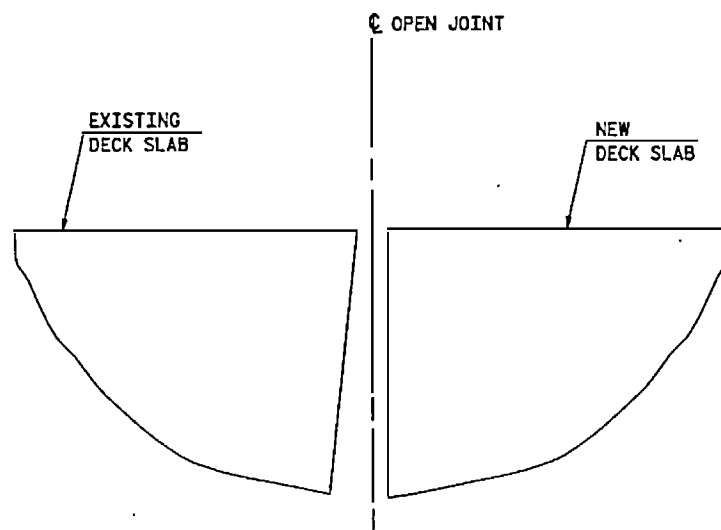
FOR SKEWS BETWEEN 70° AND 110°, THE CONTRACTOR MAY, AT HIS OPTION, USE A COMPRESSION JOINT SEAL IN LIEU OF THE EVAZOTE JOINT SEAL. SEE SPECIAL PROVISION FOR OPTIONAL PREFORMED COMPRESSION JOINT SEALS.

SEE SPECIAL PROVISIONS FOR EVAZOTE JOINT SEALS.

SEE SPECIAL PROVISIONS FOR ELASTOMERIC CONCRETE.

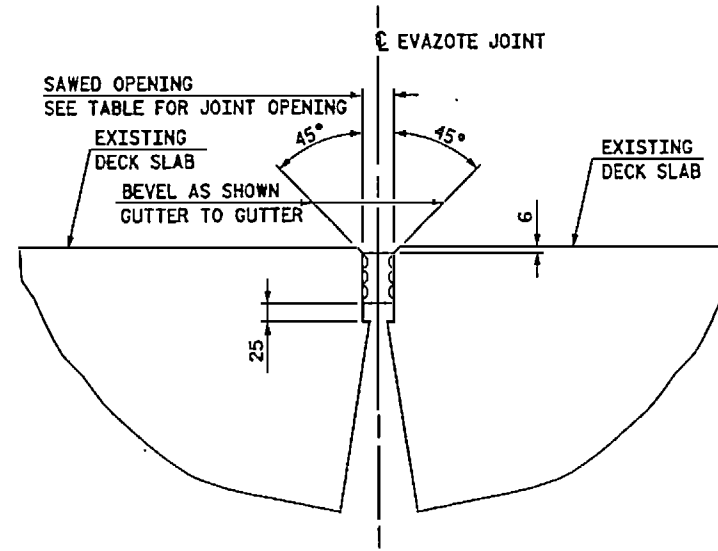
THE STANDARD ARMORED EVAZOTE JOINTS (INCLUDING ELASTOMERIC CONCRETE) AT BENTS 4A, 4BD, 7B AND END BENT 2 ARE TO BE CONSTRUCTED AND PAID FOR AS A PART OF THIS BRIDGE.

FOR EVAZOTE JOINT SEALS AT WEST END OF MAIN BRIDGE, SEE "REHABILITATION OF WEST END EVAZOTE JOINT SEAL DETAILS" SHEET.



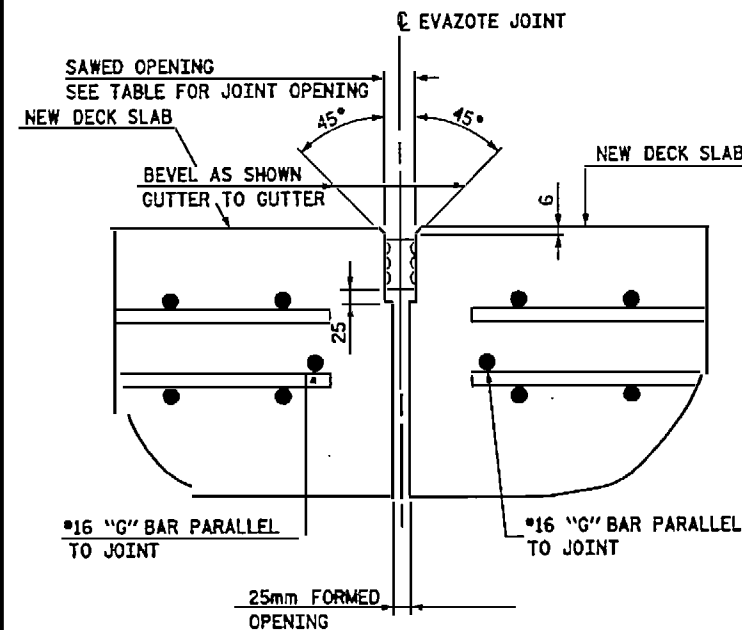
**OPEN JOINT DETAILS**

SECTION NORMAL TO JOINT AT BENT 1



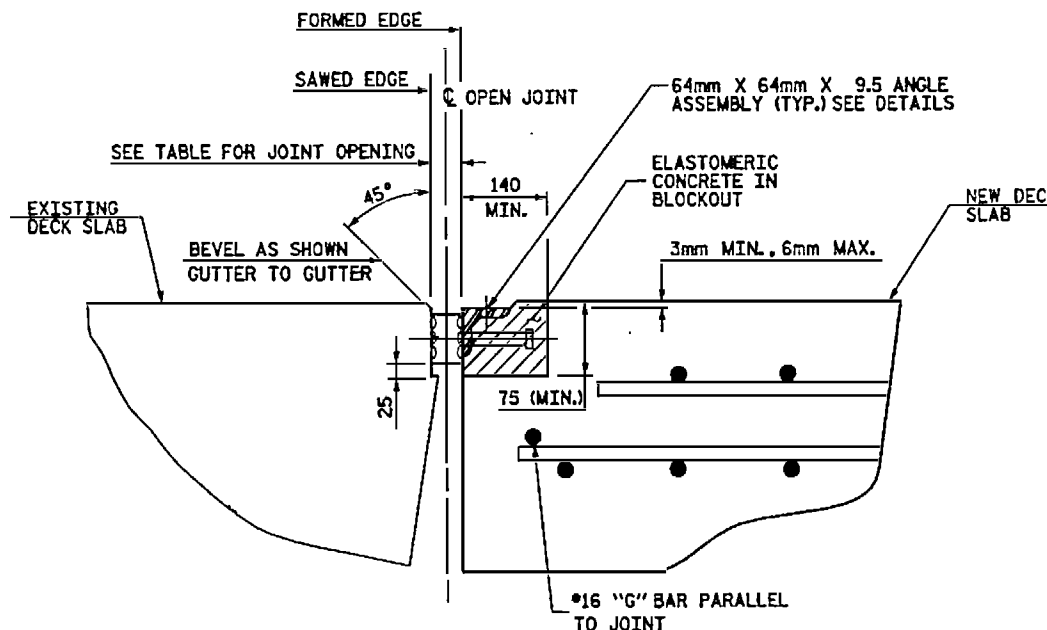
**EVAZOTE JOINT DETAILS**

SECTION NORMAL TO JOINT AT BENTS 2 & 3 (EXISTING DECK CONDITION, TYPICAL)



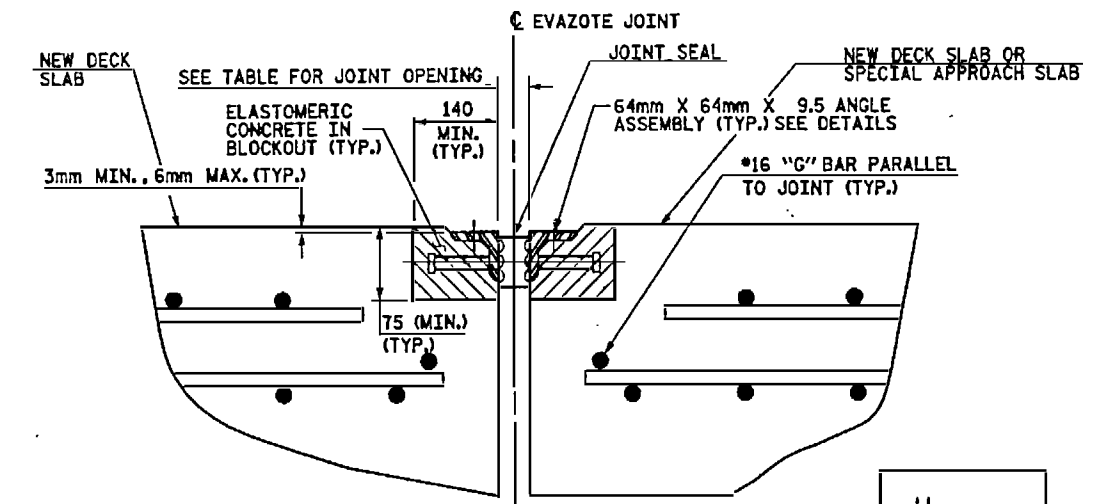
**EVAZOTE JOINT DETAILS**

SECTION NORMAL TO JOINT AT BENTS 2 & 3 (NEW DECK CONDITION, TYPICAL)



**ARMORED JOINT DETAILS**

SECTION NORMAL TO JOINT AT BENT 4 (EXISTING DECK CONDITION TO NEW DECK CONDITION)



**ARMORED JOINT DETAILS**

SECTION NORMAL TO JOINT AT BENT 4A, 4BD, 5, 6, 7, 7B, 8, 9 & 10 & EB2



MOVEMENT AND SETTING AT JOINT						
BENT	SKEW ANGLE	NOMINAL UNCOMPRESSED EVAZOTE SEAL WIDTH	TOTAL MOVEMENT (ALONG C BRIDGE)	PERPENDICULAR JOINT OPENING AT 0° C	PERPENDICULAR JOINT OPENING AT 16° C	PERPENDICULAR JOINT OPENING AT 32° C
BENT 1	90° ±	OPEN	19mm	32mm	25mm	18mm
BENT 2	90° ±	71mm	19mm	50mm	43mm	36mm
BENT 3	90° ±	71mm	19mm	50mm	43mm	36mm
BENT 4A	78° ±	103mm	39mm	76mm	62mm	48mm
BENT 4	90° ±	71mm	29mm	53mm	43mm	33mm
BENT 4BD	98° ±	103mm	40mm	76mm	62mm	48mm
BENT 5	94° ±	71mm	0mm (FIXED)	43mm	43mm	43mm
BENT 6	100° ±	71mm	17mm	49mm	43mm	37mm
BENT 7	90° ±	95mm	37mm	70mm	57mm	44mm
BENT 7B	92° ±	87mm	34mm	64mm	52mm	40mm
BENT 8	91° ±	71mm	21mm	51mm	43mm	35mm
BENT 9	90° ±	71mm	21mm	51mm	43mm	35mm
BENT 10	103° ±	71mm	9mm	46mm	43mm	40mm
END BENT 2	97° ±	71mm	0mm (FIXED)	43mm	43mm	43mm

JOINT OPENINGS ARE MEASURED PERPENDICULAR TO THE JOINT.  
TOTAL MOVEMENT IS CALCULATED ALONG A CHORD AT CENTERLINE OF DECK AT BENT.

PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POC 12+52.890 -Y-

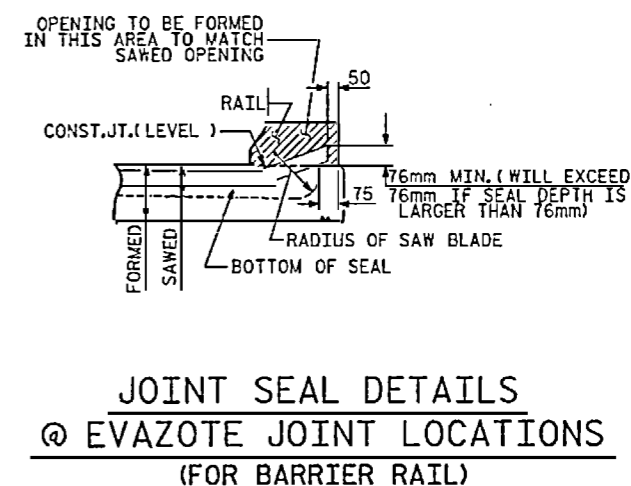
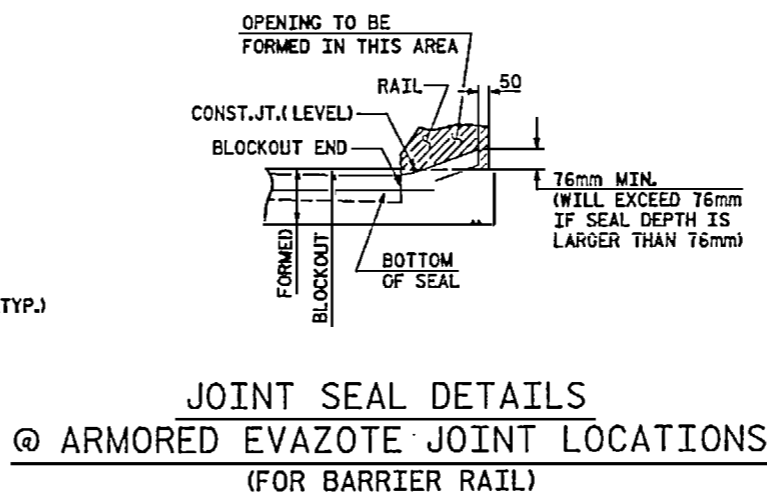
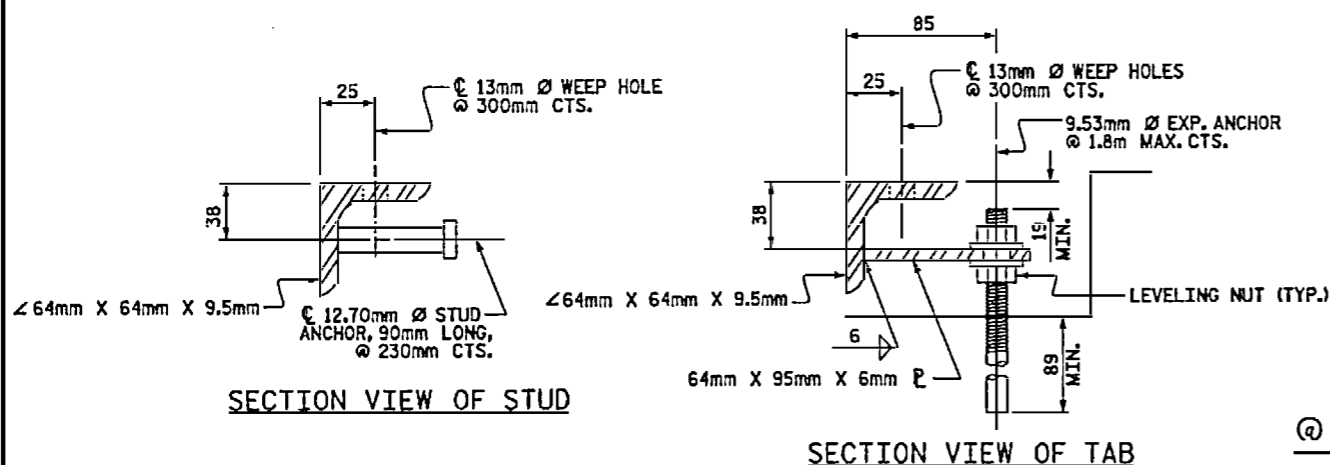
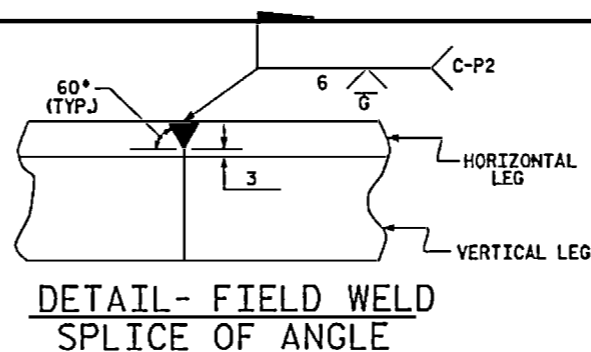
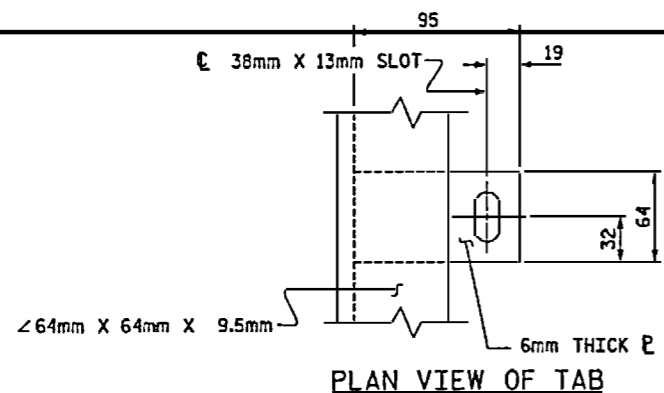
SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
JOINT DETAILS

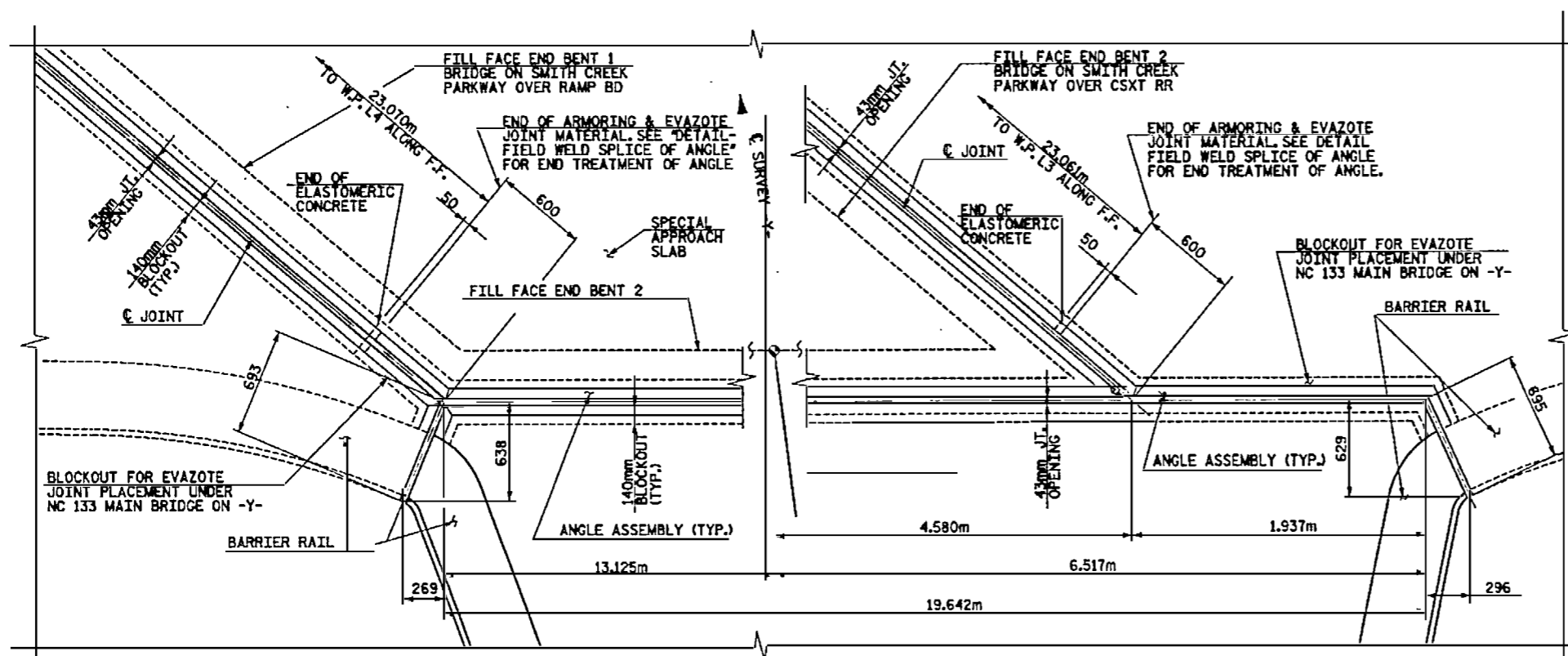


**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. 5th Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: C. OLIVER DATE: 7/00  
CHECKED BY: P. BARBER DATE: 7/00 DWG. NO. 72

REVISIONS				SHEET NO. S-72
NO.	BY	DATE	DATE	
1		3		TOTAL SHEETS 101
2		4		



ARMORED JOINT ANCHOR ASSEMBLY DETAILS



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POC I2+52.890 -Y-

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

JOINT DETAILS

<b>HNTB</b>		<b>HNTB NORTH CAROLINA, P.C.</b>		343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609	
DRAWN BY: C. OLIVER		DATE: 7/00		DWG. NO. T3	
CHECKED BY: P. BARBER		DATE: 7/00			
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		
SHEET NO. 8-73					TOTAL SHEETS 101



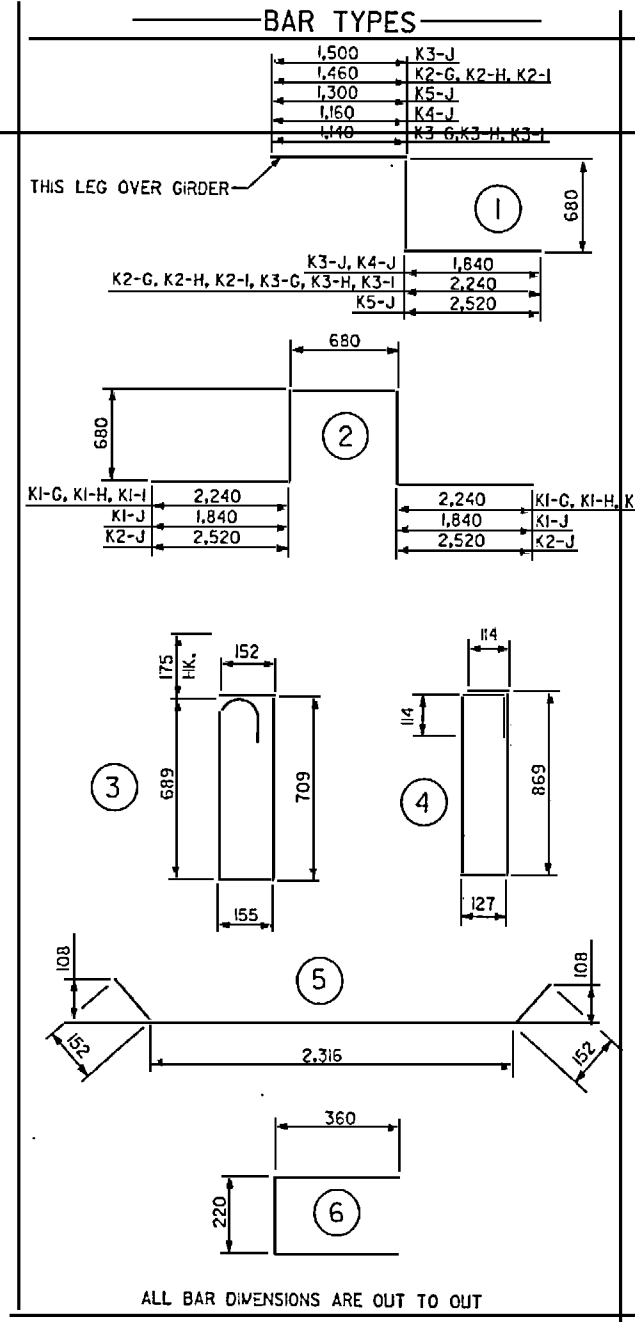






REINFORCING BAR SCHEDULE

SPAN G						SPAN I					SPAN J					SPAN J					SPAN J																																
BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS												
AI-G	354	#16	STR.	14,040	7,714	AI-I	346	#16	STR.	14,040	7,539	AI-J	44	#16	STR.	14,120	964	AI-J	2	#16	STR.	17,860	55	BI-J	1	#16	STR.	9,440	15																								
TOTAL EPOXY COATED REINFORCING STEEL SPAN G					12,339	TOTAL EPOXY COATED REINFORCING STEEL SPAN I					12,094	TOTAL EPOXY COATED REINFORCING STEEL SPAN J										7,487																															



SUPERSTRUCTURE BILL OF MATERIAL		
	CLASS AA CONCRETE ( CU. METER )	EPOXY COATED REINFORCING STEEL ( kg )
SPAN 'A'+,++	101.6	12,968
SPAN 'B'+,++	135.7	21,510
SPAN 'C'+	167.5	26,996
SPAN 'D'+	135.2	14,126
SPAN 'E'	125.5	16,899
SPAN 'F'+	139.3	19,812
SPAN 'G'+	107.8	12,339
SPAN 'H'+	108.4	12,208
SPAN 'I'+	107.7	12,094
SPAN 'J'+	51.0	7,487
TOTALS**	1,179.7	156,439

\*\* QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED  
+ QUANTITIES INCLUDE LIGHT POLE OUTRIGGER  
++ QUANTITIES INCLUDE TRAFFIC GATE OUTRIGGER

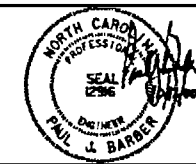
GROOVING BRIDGE FLOORS	
	SQ.METER
APPROACH SLABS	
BRIDGE DECK	3,987.0
TOTAL	3,987.0

NOTE: BRIDGE DECK GROOVING SHALL BE TERMINATED 150MM FROM CUT LINE OF EXISTING DECK.

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	
#13	610	540	610	540	840
#16	770	660	770	660	1050
#19	920	790	1190	790	1330
#22	1580	1060			
#25	2080	1390			

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

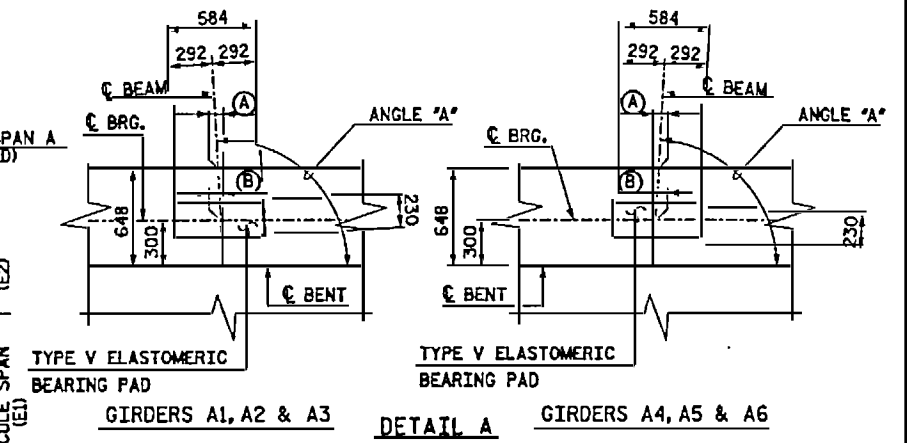
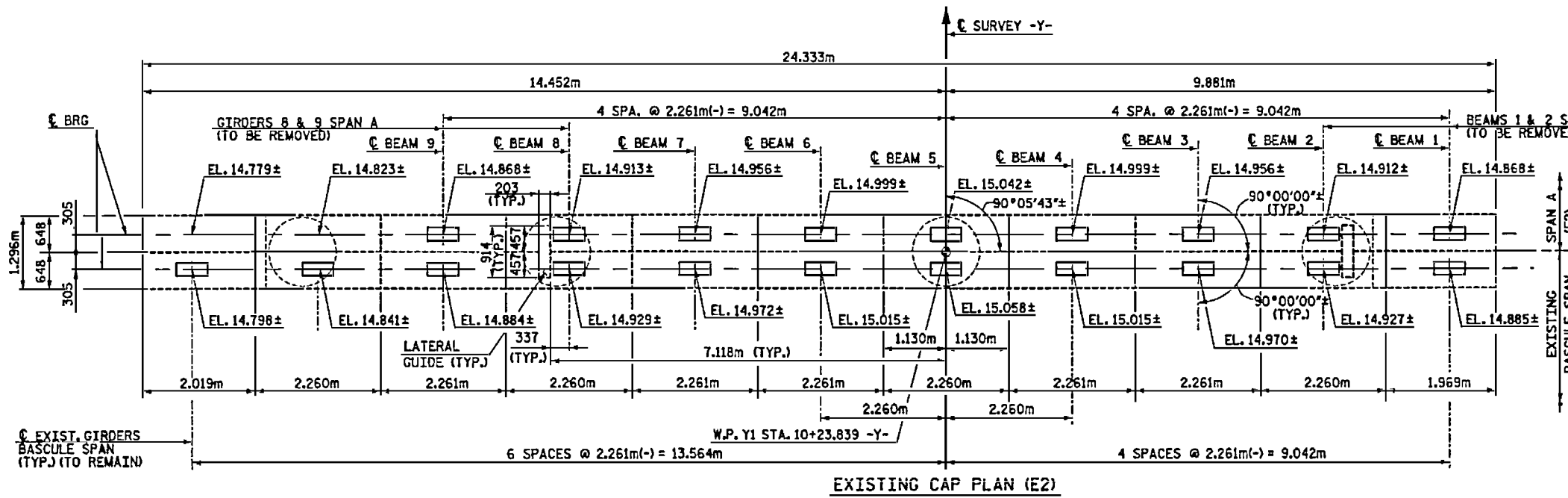
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD SUPERSTRUCTURE BILL OF MATERIAL



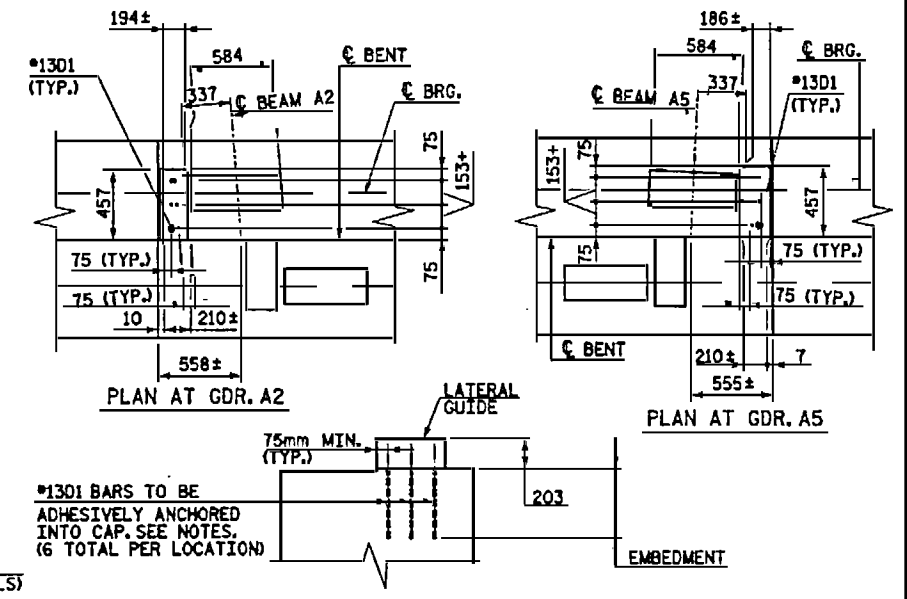
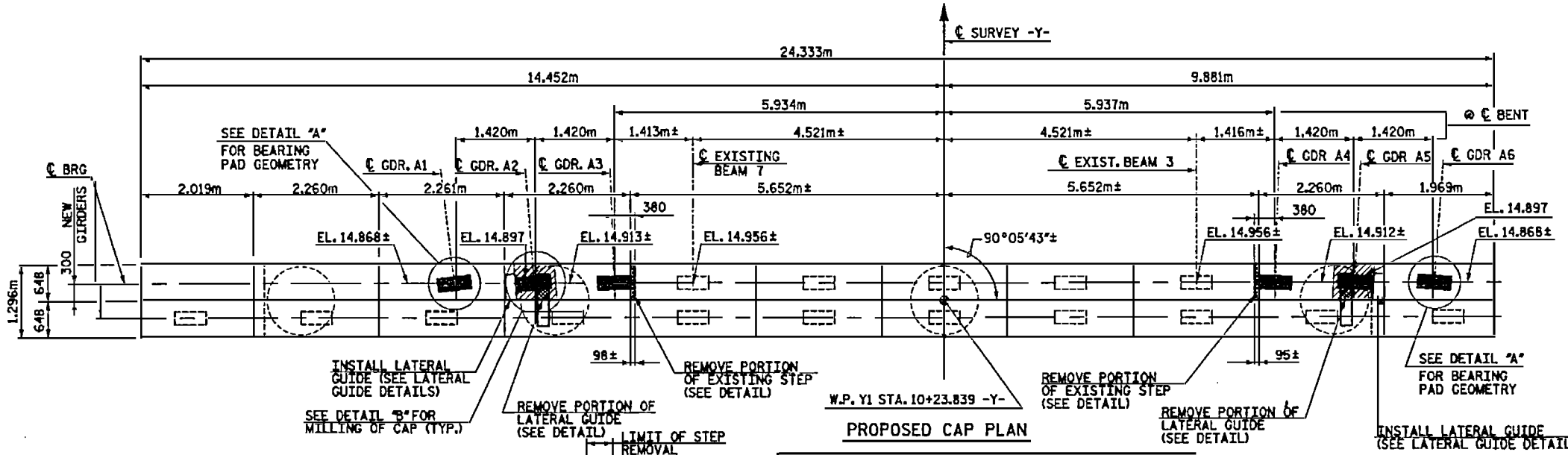
ASSEMBLED BY: MWH	DATE: 10/99
CHECKED BY: DWH	DATE: 7/00
DRAWN BY: JVB 5/87	REV. 5/16/97 EEM/RGW
CHECKED BY: SJJ 9/87	

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

TOTAL SHEETS: 1 of 1



SPAN A DIMENSIONS			
GIRDER	ANGLE "A"	(A)	(B)
A1	96°54'03"	78	36
A2	94°24'06"	50	23
A3	91°53'13"	21	10
A4	88°18'06"	19	9
A5	86°58'55"	34	16
A6	85°39'57"	49	23



BILL OF REINFORCING - BENT 1					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 2					
D1	12	#13	STR.	300	4
EPOXY COATED REINFORCING STEEL					4

NOTES:

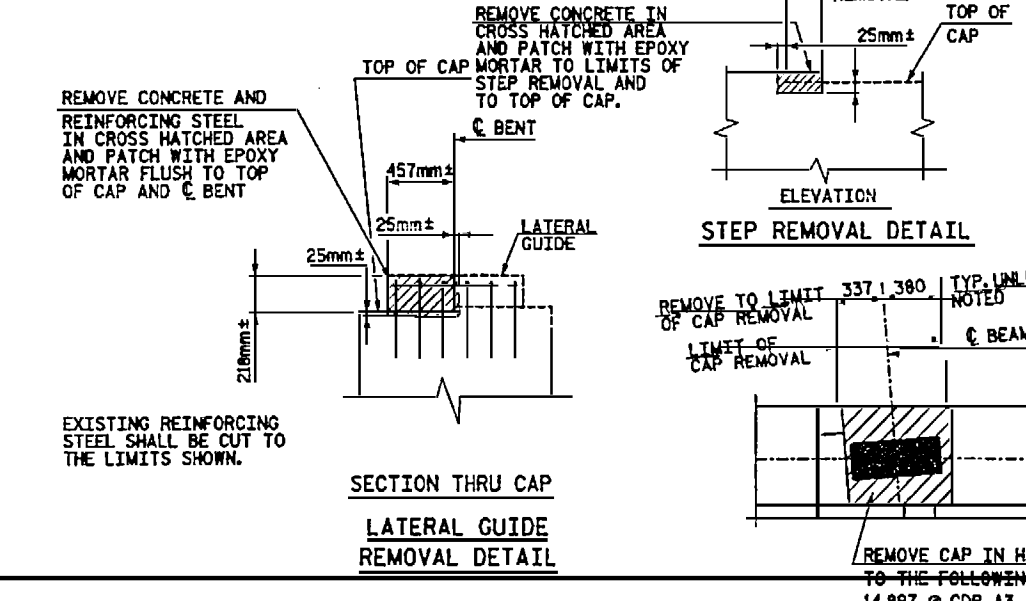
FOR EPOXY MORTAR REPAIRS, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS."

THE #1301 BARS SHALL BE INSTALLED USING AN EPOXY ANCHORING SYSTEM. FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR #1301 BARS IS 53.4kN. THE LENGTH OF THE #1301 BARS SHALL BE 300mm BASED UPON AN ASSUMED EMBEDMENT OF 150mm. THE CONTRACTOR SHALL ADJUST BAR LENGTH FOR SELECTED MANUFACTURERS EMBEDMENT REQUIREMENTS.

ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA PROVIDED BY NCDOT PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF DECK AND TOP OF BRIDGE SEAT ELEVATIONS AT EACH EXISTING GIRDER LOCATION AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION ACTIVITIES ABOVE THE BOTTOM OF THE EXISTING CAP SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTANT WITH THE CONTRACT PLAN ELEVATIONS.

NOTE: REMOVE CONCRETE IN CROSS HATCHED AREA AND PATCH WITH EPOXY MORTAR TO LIMITS OF CAP REMOVAL AND TO PROPOSED TOP OF CAP.



QUANTITIES	
EPOXY MORTAR REPAIR	0.038 m <sup>2</sup>

**HNTE NORTH CAROLINA, P.C.**

343 E. Six Forks Rd., Suite 203, Raleigh, NC 27609

DRWN BY: J. RAYNE DATE: 7/03

CHECKED BY: P. BARBER DATE: 8/03

DWG. NO. 79

PROJECT No. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

BENT 1

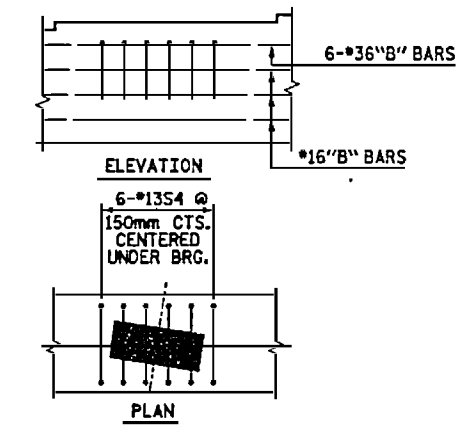
(EXISTING BENT E2)

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

SHEET NO. 5-79

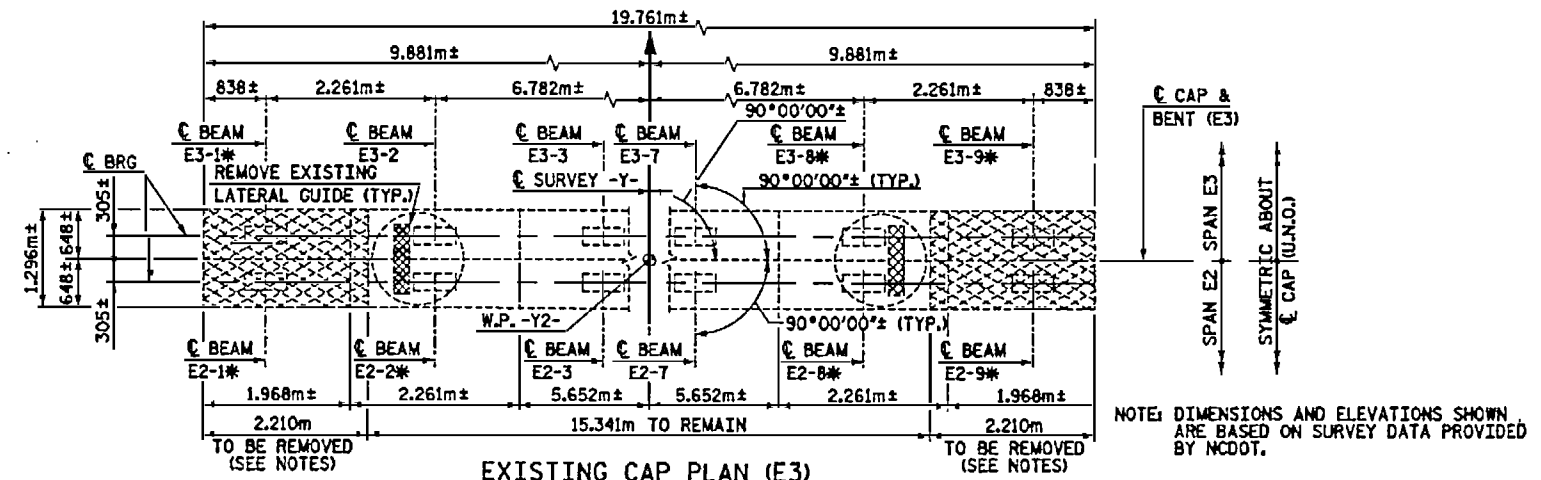
TOTAL SHEETS 10/11





**LAYOUT FOR PLACEMENT OF #1354 BARS**

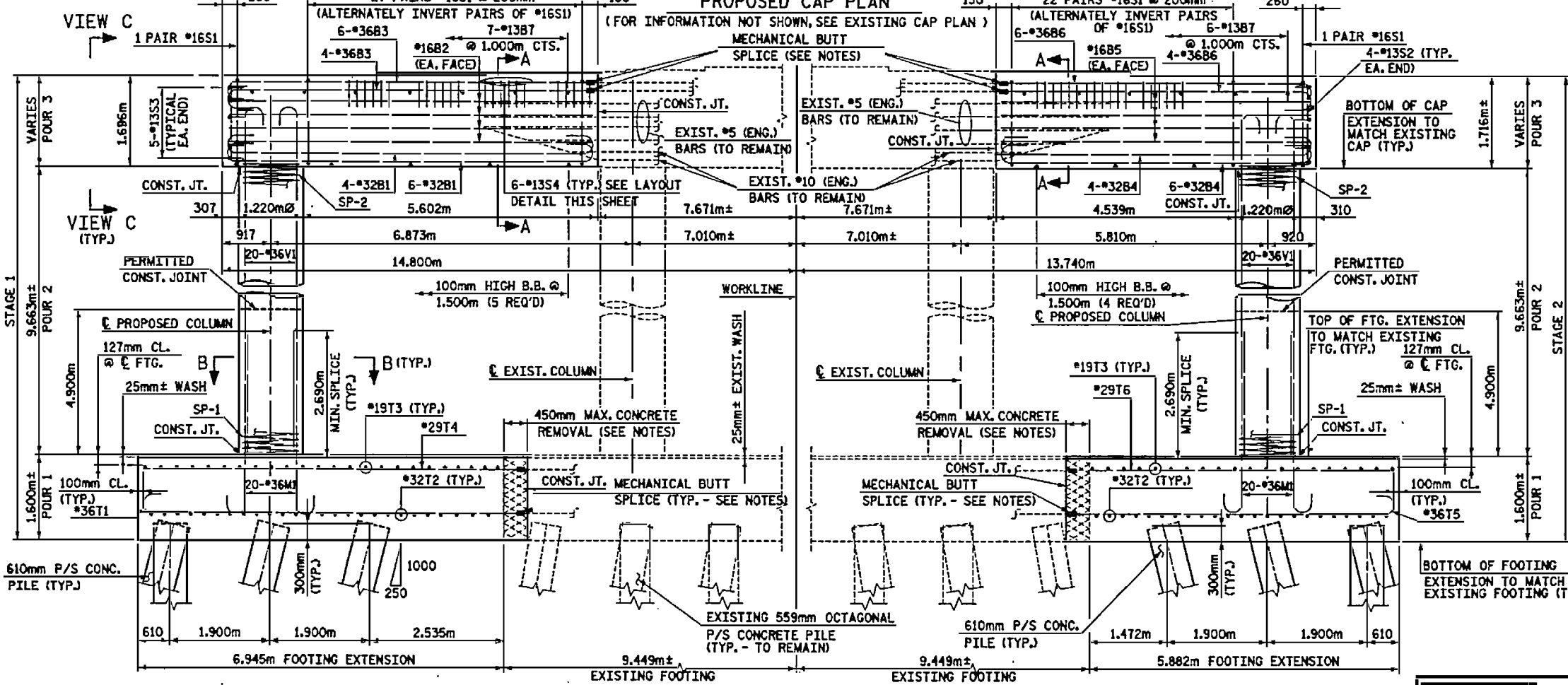
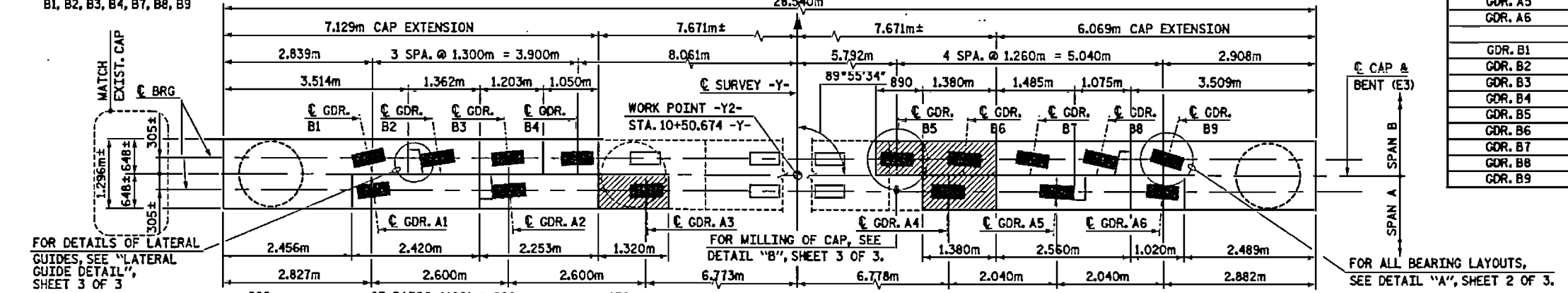
TYPICAL UNDER GDR. A1, A2, A5, A6, B1, B2, B3, B4, B7, B8, B9



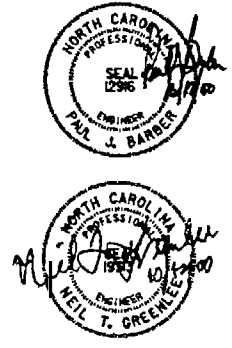
EXISTING BEAM SEAT ELEVATIONS	
LOCATION	ELEVATION
E2-1	14.130±
E2-2	14.173±
E2-3	14.216±
E2-7	14.216±
E2-8	14.173±
E2-9	14.130±
E3-1	14.113±
E3-2	14.156±
E3-3	14.199±
E3-7	14.199±
E3-8	14.156±
E3-9	14.113±

PROPOSED GIRDER SEAT ELEVATIONS	
LOCATION	ELEVATION
GDR. A1	14.072
GDR. A2	14.121
GDR. A3	14.170
GDR. A4	14.170
GDR. A5	14.131
GDR. A6	14.092
GDR. B1	14.027
GDR. B2	14.052
GDR. B3	14.077
GDR. B4	14.102
GDR. B5	14.144
GDR. B6	14.120
GDR. B7	14.096
GDR. B8	14.071
GDR. B9	14.047

**NOTES:**  
FOR SECTION A-A, SECTION B-B AND VIEW C-C, SEE SHEET 2 OF 3.  
FOR SEQUENCE OF CONSTRUCTION, SEE SHEET 3 OF 3.  
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.  
THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.  
CLASS AA CONCRETE SHALL BE USED IN ALL CAST IN PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR, FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.  
STEEL PILE TIPS ARE REQUIRED FOR 610mm SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.  
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.  
FOR EPOXY COATED SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.  
ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA PROVIDED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF DECK AND TOP OF BRIDGE SEAT ELEVATIONS AT EACH EXISTING GIRDER LOCATION AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION ACTIVITIES ABOVE THE BOTTOM OF THE EXISTING CAP SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTENT WITH THE CONTRACT PLAN ELEVATIONS.  
REMOVAL OF EXISTING CONCRETE: EXISTING CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN ON SHEETS 1 OF 3, 2 OF 3 AND 3 OF 3. EXISTING REINFORCING STEEL WITHIN CONCRETE REMOVAL LIMITS TO BE BUTT SPliced, LAP SPliced, OR MATCHED WITH NEW REINFORCING STEEL AS INDICATED ON THE PLANS SHALL BE CLEANED AND PREPARED ACCORDINGLY DURING CONCRETE REMOVAL OPERATIONS. OTHER EXISTING REINFORCING STEEL WITHIN THE CONCRETE REMOVAL LIMITS SHALL BE REMOVED AND PROPERLY DISCARDED DURING CONCRETE REMOVAL OPERATIONS. FLAME CUTTING OF EXISTING OR NEW REINFORCING STEEL IS NOT PERMITTED. CURVED PORTIONS OF EXISTING HOOKS SHALL BE REMOVED PRIOR TO BUTT SPlicing WITH NEW REINFORCING STEEL.  
FOR MECHANICAL BUTT SPlicing FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS. YIELD STRENGTH FOR DETERMINATION OF MECHANICAL BUTT SPlice CAPACITY SHALL BE 276 MPa (40ksi).



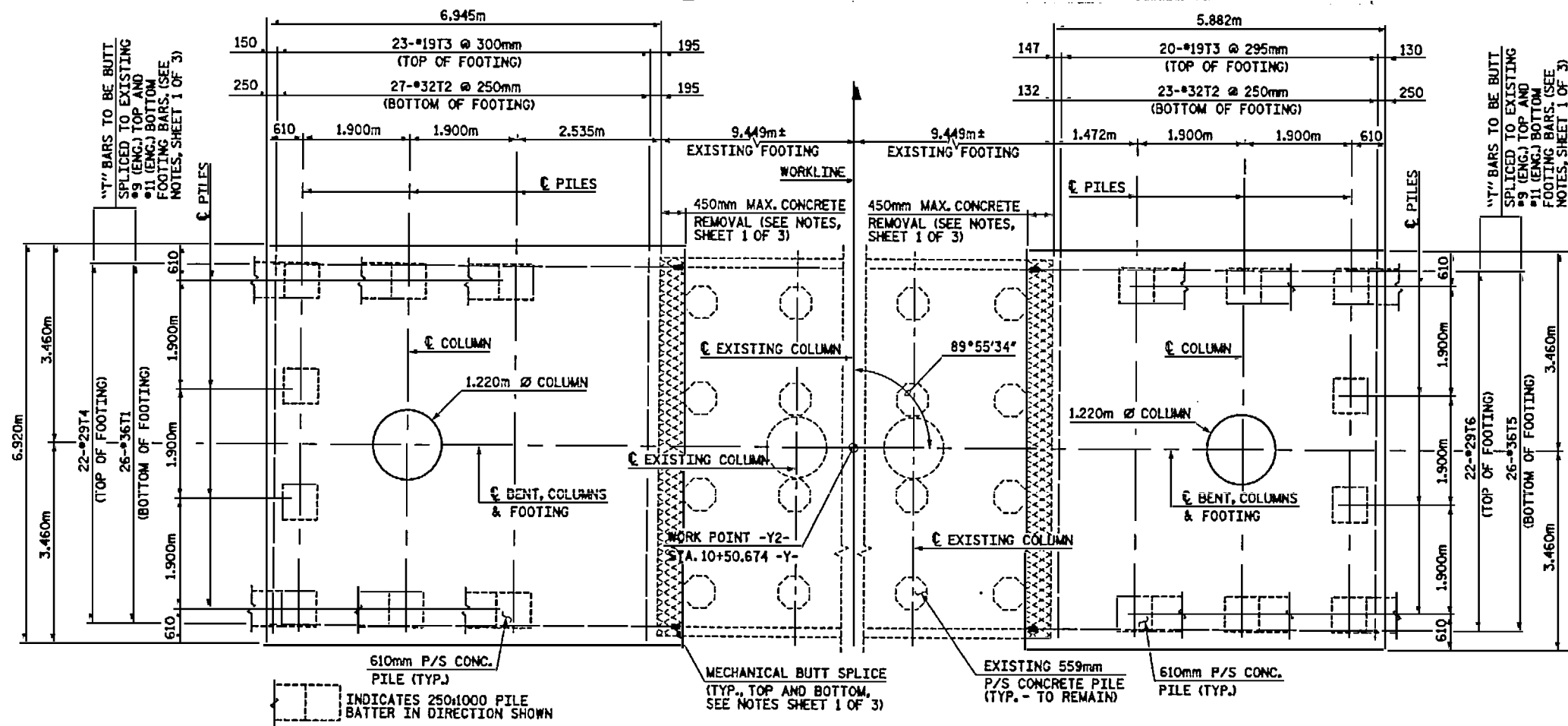
- Denotes concrete and reinforcing removal
- Denotes concrete milling of bent cap for placement of new bearings
- Denotes concrete removal only



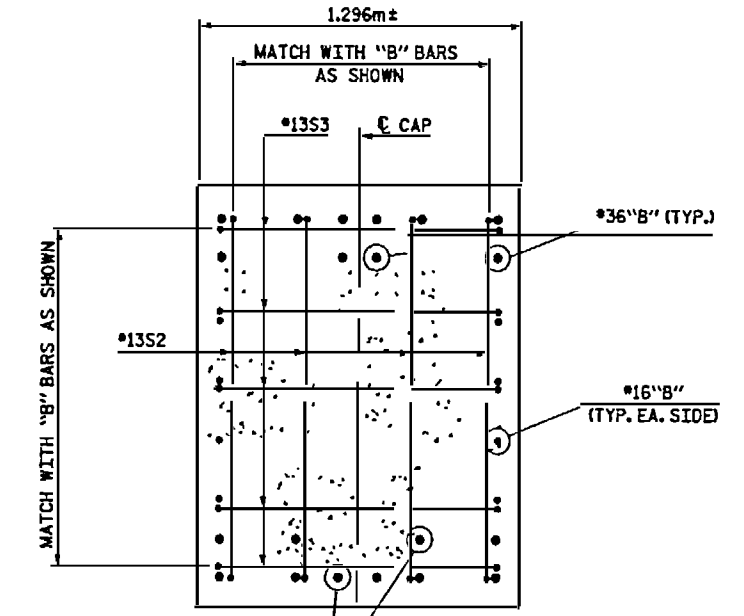
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT. I2+52.890 -Y-

SHEET 1 OF 3  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 2  
(EXISTING BENT E3)

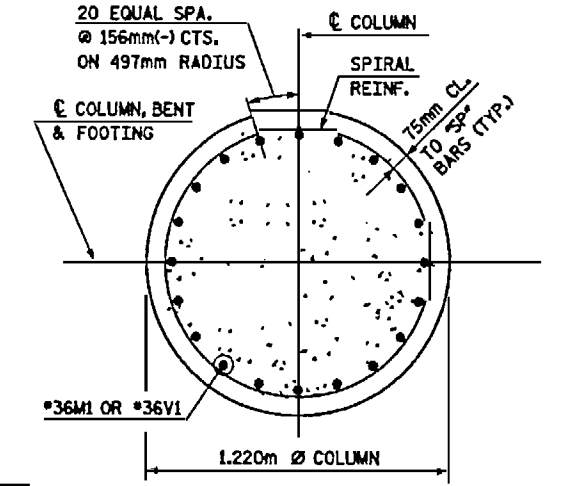
HNTB NORTH CAROLINA, P.C.		REVISIONS		SHEET NO. 5-20		
NO.	BY	DATE	NO.		BY	DATE
1	R. KNIGHT	09/00	3			
2	N. GREENLEE	09/00	4			



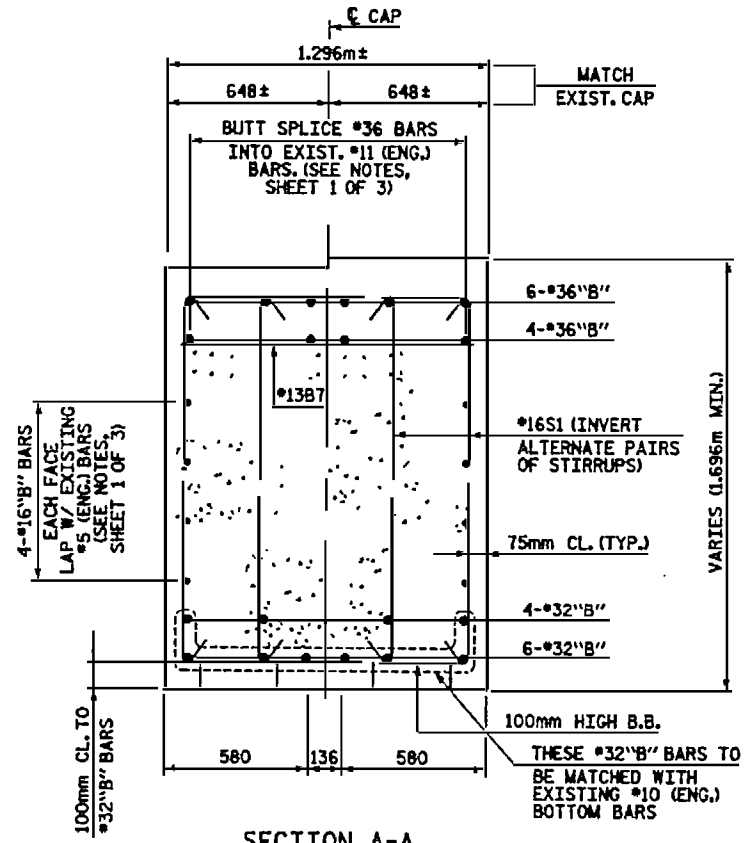
FOOTING PLAN



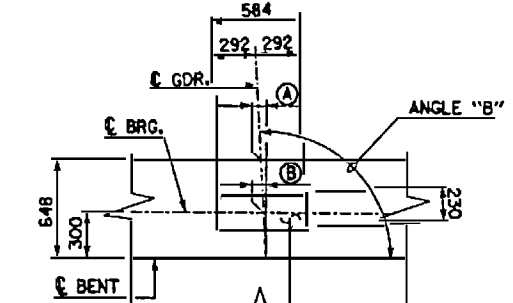
VIEW C-C



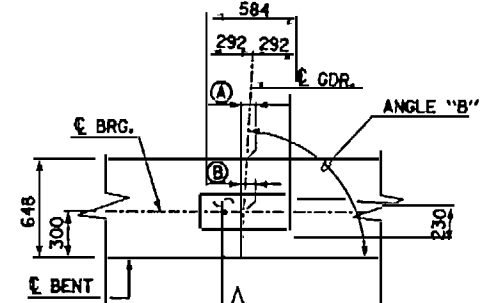
SECTION B-B



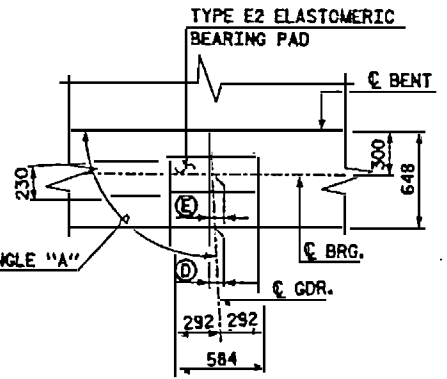
SECTION A-A



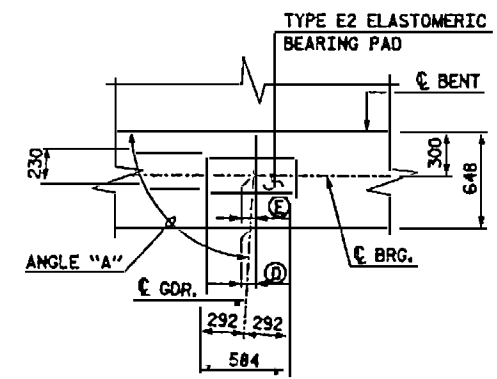
TYPE E2 ELASTOMERIC BEARING PAD  
GDR. B1, B2, B3, B4



TYPE E2 ELASTOMERIC BEARING PAD  
GDR. B5, B6, B7, B8, B9



GDR. A1, A2, A3



GDR. A4, A5, A6

DETAIL "A"

GIRDER	ANGLE "A"	(A)	(B)
A1	96°43'53"	76	35
A2	94°13'56"	48	22
A3	91°43'03"	19	9
A4	88°07'57"	21	10
A5	86°48'45"	36	17
A6	85°29'48"	51	24

GIRDER	ANGLE "B"	(D)	(E)
B1	102°35'45"	145	67
B2	99°06'01"	104	48
B3	95°32'03"	63	29
B4	91°55'26"	22	10
B5	87°53'22"	24	11
B6	85°27'49"	51	24
B7	81°25'06"	98	45
B8	77°27'24"	144	67
B9	73°36'43"	191	88



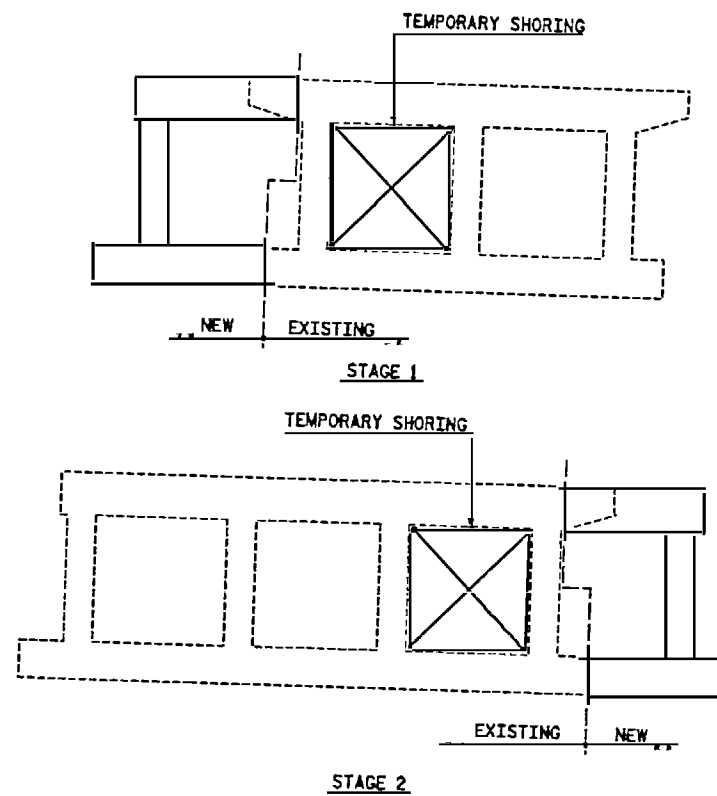
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 2

REVISIONS		SHEET NO.
NO.	DATE	
1	9/03	3
2	9/00	4

DRAWN BY: R. KNIGHT DATE: 9/03  
CHECKED BY: N. GREENLEE DATE: 9/00 DWG. NO. 81



SEQUENCE OF CONSTRUCTION

NOTE: THE TEMPORARY SHORING PAY ITEM IS INCIDENTAL TO THE REMOVAL OF EXISTING STRUCTURE.

- STAGE 1 NOTES:**
- ERECT TEMPORARY SHORING AS SHOWN. SHORING SHALL SUPPORT EXISTING CAP DIRECTLY BENEATH ALL EXISTING GIRDER BEARING POINTS AND SHALL BE CAPABLE OF SUPPORTING BOOKN AT EACH SUPPORT POINT. CAP SHALL BEAR FULLY ON TEMPORARY SHORING AT EACH SUPPORT POINT BEFORE PROCEEDING TO STEP 2. SHORING SHALL BE CONTINUOUSLY SUPPORTED AT THE EXISTING FOOTING CAP, I.E. NO CONCENTRATED SUPPORT POINTS WILL BE ALLOWED.
  - CONSTRUCT FOOTING EXTENSION, COLUMN AND CAP EXTENSION AS SHOWN ON THE PLANS.
  - REMOVE TEMPORARY SHORING AND PROCEED WITH STAGE 1 SUPERSTRUCTURE ERECTION AFTER ALL NEW CONCRETE HAS REACHED A MINIMUM STRENGTH OF 31.0 MPa.
  - PROCEED TO STAGE 2.

- STAGE 2 NOTES:**
- ERECT TEMPORARY SHORING AS SHOWN. SHORING SHALL SUPPORT EXISTING CAP DIRECTLY BENEATH ALL EXISTING GIRDER BEARING POINTS AND SHALL BE CAPABLE OF SUPPORTING BOOKN AT EACH SUPPORT POINT. CAP SHALL BEAR FULLY ON TEMPORARY SHORING AT EACH SUPPORT POINT BEFORE PROCEEDING TO STEP 2. SHORING SHALL BE CONTINUOUSLY SUPPORTED AT THE EXISTING FOOTING CAP, I.E. NO CONCENTRATED SUPPORT POINTS WILL BE ALLOWED.
  - CONSTRUCT FOOTING EXTENSION, COLUMN AND CAP EXTENSION AS SHOWN ON THE PLANS.
  - REMOVE TEMPORARY SHORING AND PROCEED WITH STAGE 2 SUPERSTRUCTURE ERECTION AFTER ALL NEW CONCRETE HAS REACHED A MINIMUM STRENGTH OF 31.0 MPa.

**BILL OF REINFORCING - STAGE 1**

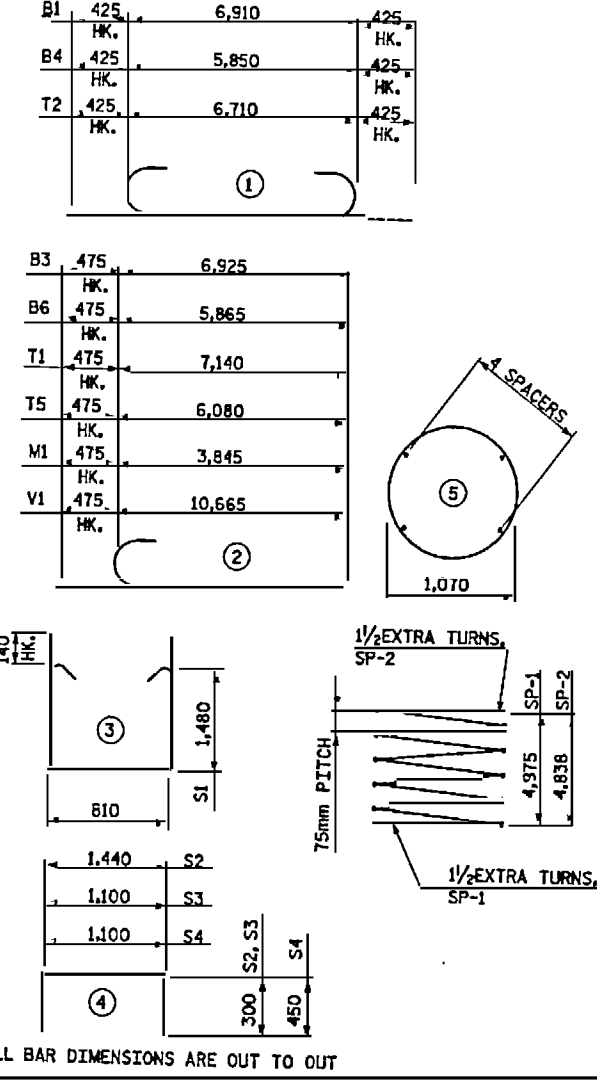
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 2					
B1	10	*32	1	7,680	492
B2	8	*16	STR.	7,300	91
B3	10	*36	2	7,400	585
B7	7	*13	STR.	1,080	8
D1	12	*13	STR.	300	4
S1	56	*16	3	4,080	355
S2	4	*13	4	2,040	8
S3	5	*13	4	1,700	8
S4	36	*13	4	2,000	72
SP-1	1	*	5	228,640	355
SP-2	1	*	5	226,980	352
M1	20	*36	2	4,340	686
V1	20	*36	2	11,140	1,762
T1	26	*36	2	7,620	1,506
T2	27	*32	1	7,560	1,307
T3	23	*19	STR.	7,720	397
T4	22	*29	STR.	7,140	795

**QUANTITIES**

EPOXY COATED REINFORCING STEEL	kg	8,076
EPOXY COATED SPIRAL COL. REINF. STEEL	kg	707
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	81.6
POUR 2 COLUMN	CU. METERS	11.3
POUR 3 CAP	CU. METERS	15.9
TOTAL	CU. METERS	108.8
10mm P/S CONC. PILES	NO.	8
STEEL PILE TIPS	METERS	128
	NO.	8

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.  
\* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

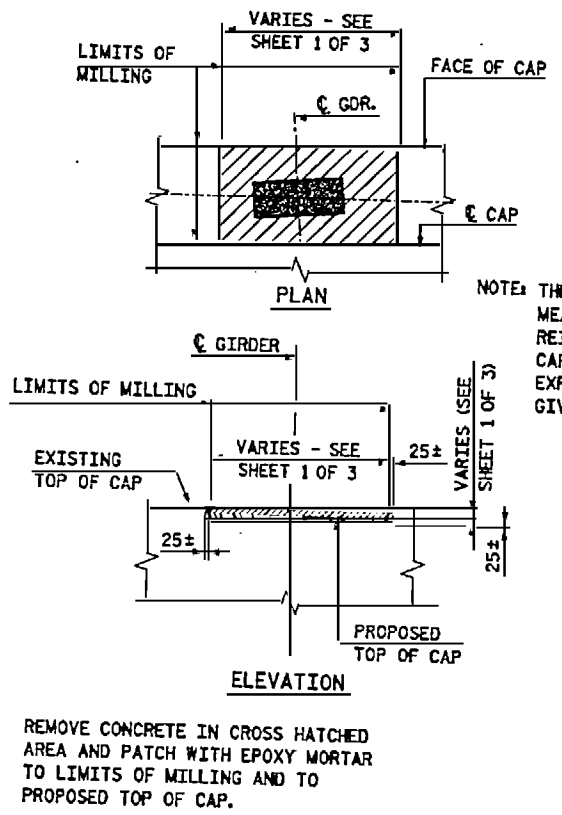
**BILL OF REINFORCING - STAGE 2**

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 2					
B4	10	*32	1	6,620	424
B5	8	*16	STR.	5,880	71
B6	10	*36	2	5,880	463
B7	6	*13	STR.	1,080	6
D1	12	*13	STR.	300	4
S1	46	*16	3	4,080	291
S2	4	*13	4	2,040	8
S3	5	*13	4	1,700	8
S4	30	*13	4	2,000	60
SP-1	1	*	5	228,640	355
SP-2	1	*	5	228,960	352
M1	20	*36	2	4,440	439
V1	20	*36	2	11,080	1,127
T2	23	*32	1	7,560	1,114
T3	20	*19	STR.	7,720	345
T5	26	*36	2	6,540	1,245
T6	22	*29	STR.	6,080	677

**QUANTITIES**

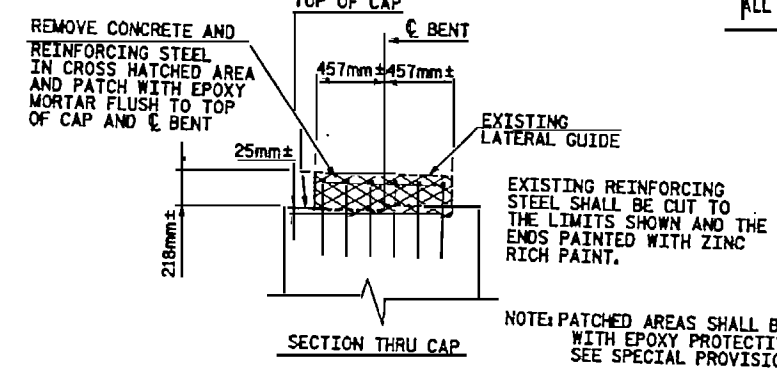
EPOXY COATED REINFORCING STEEL	kg	6,386
EPOXY COATED SPIRAL COL. REINF. STEEL	kg	707
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	69.7
POUR 2 COLUMN	CU. METERS	11.3
POUR 3 CAP	CU. METERS	13.7
TOTAL	CU. METERS	94.7
10mm P/S CONC. PILES	NO.	8
STEEL PILE TIPS	METERS	128
	NO.	8

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.  
\* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.



DETAIL "B"

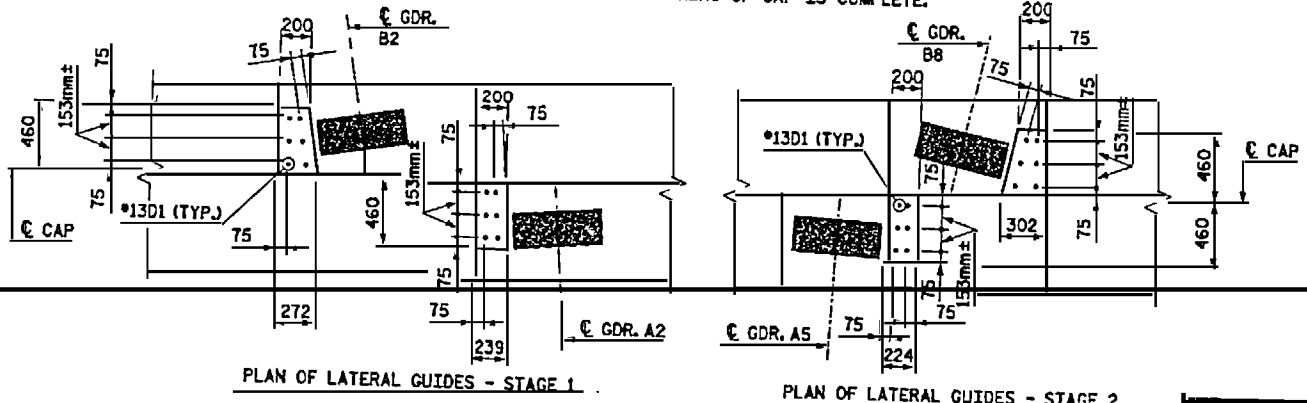
NOTE: THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING REINFORCING STEEL IS NOT DAMAGED DURING CAP REMOVAL. ALL REINFORCING STEEL EXPOSED DURING CAP REMOVAL SHALL BE GIVEN ONE COAT OF ZINC RICH PAINT.



SECTION THRU CAP

**LATERAL GUIDE REMOVAL DETAIL**

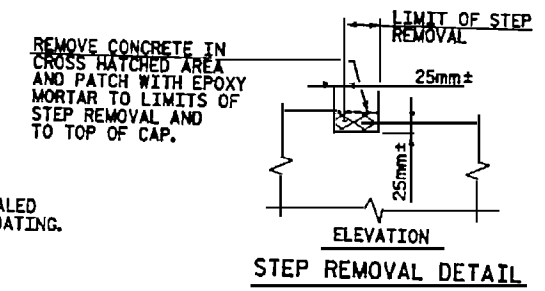
NOTE: LATERAL GUIDES SHALL NOT BE CONSTRUCTED UNTIL MILLING AND PATCHING OF CAP IS COMPLETE.



PLAN OF LATERAL GUIDES - STAGE 1

PLAN OF LATERAL GUIDES - STAGE 2

**LATERAL GUIDE DETAILS**



STEP REMOVAL DETAIL

**QUANTITIES**

EPOXY MORTAR REPAIR	0.052 m
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PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

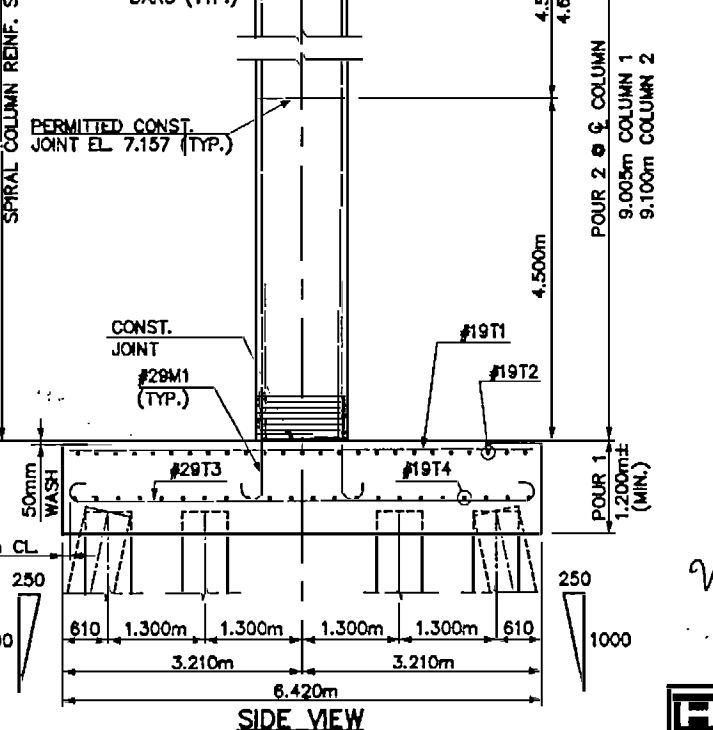
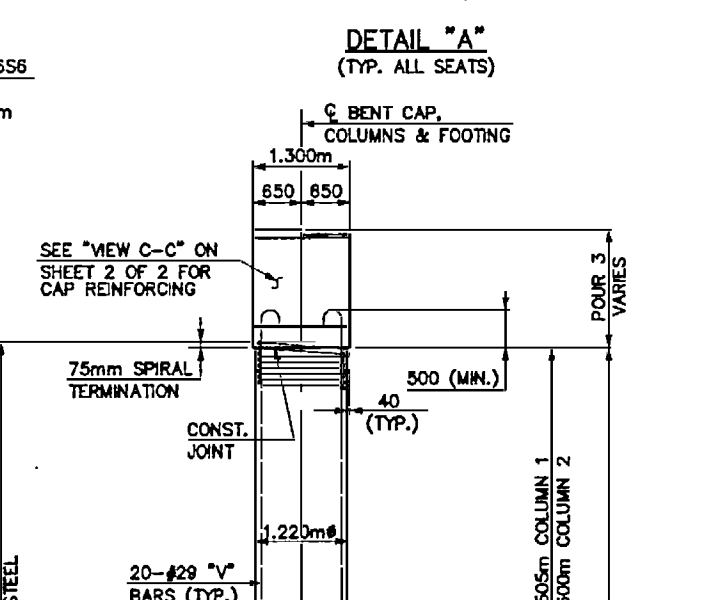
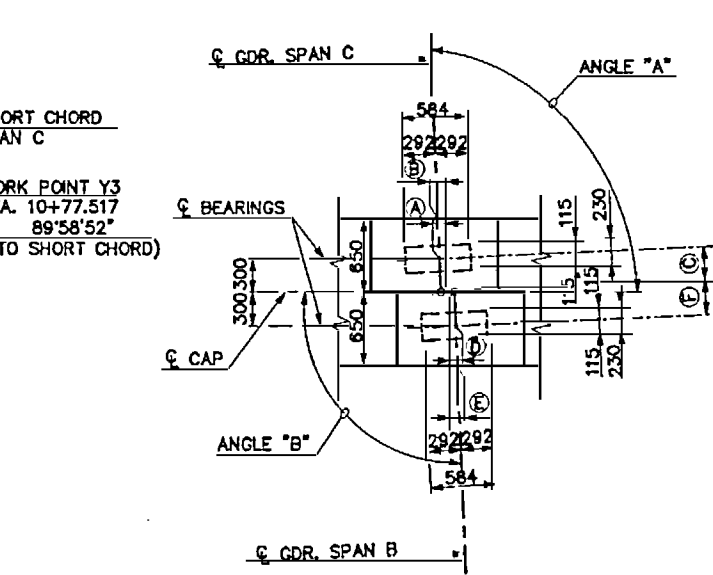
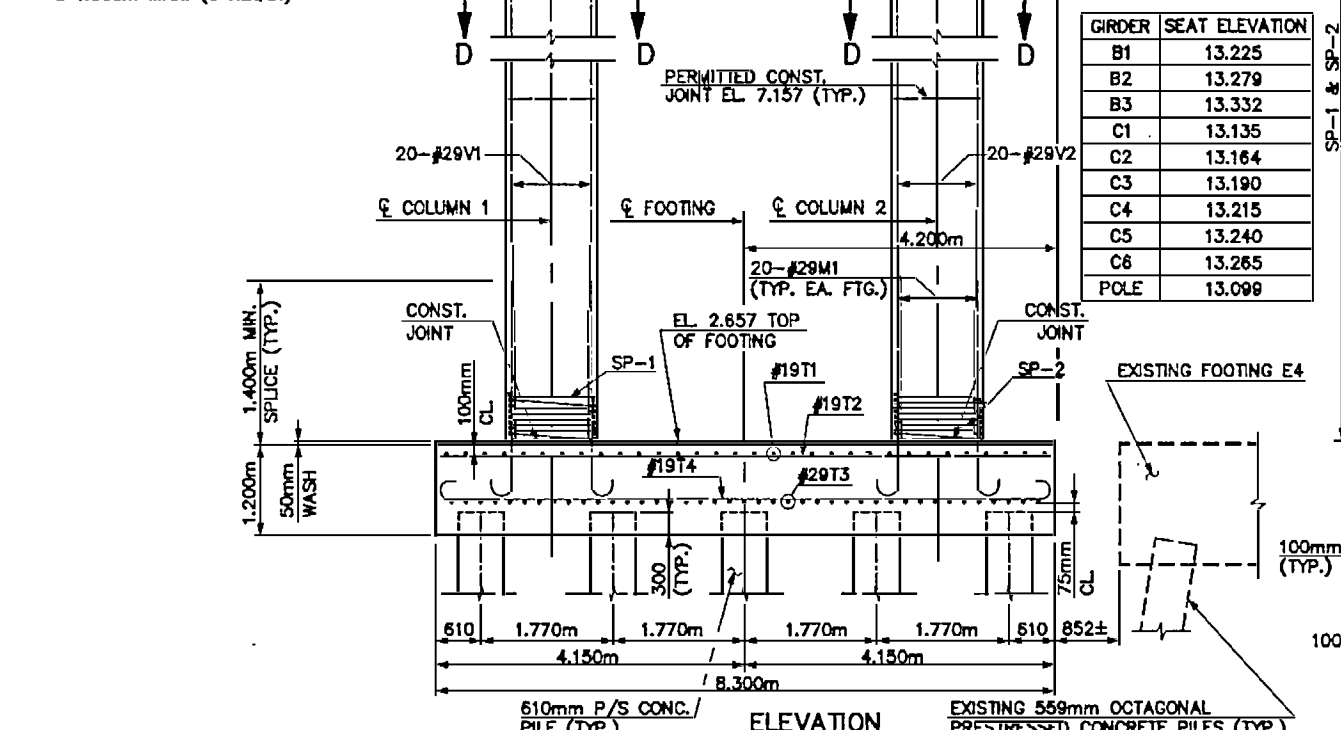
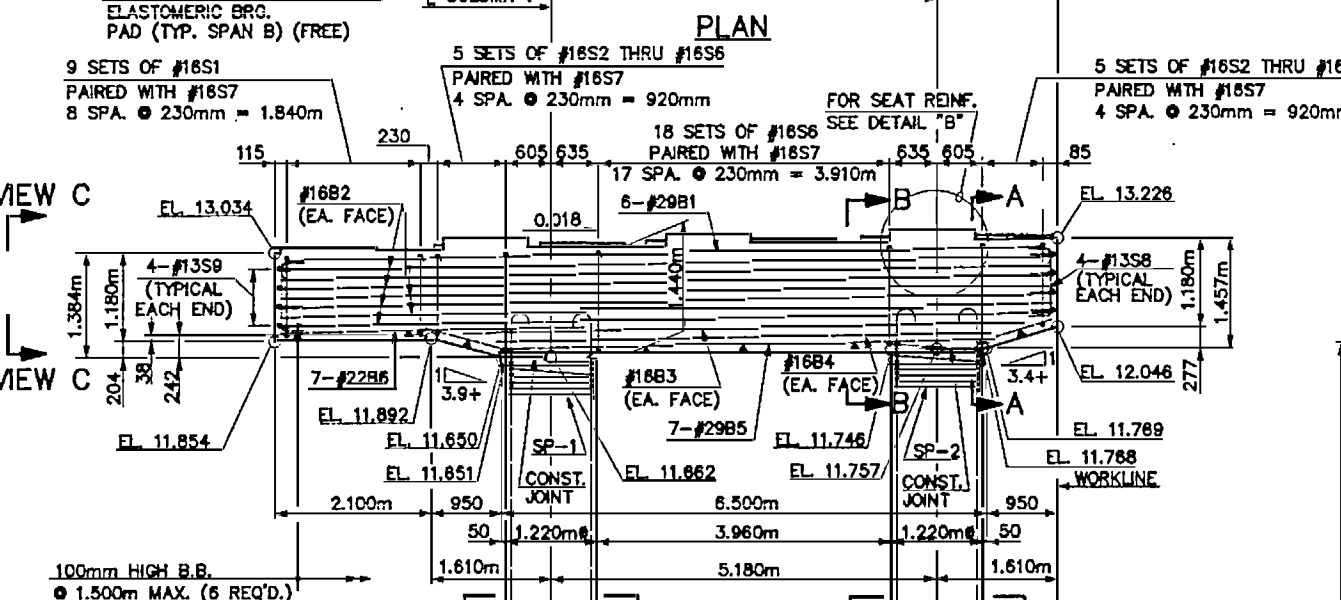
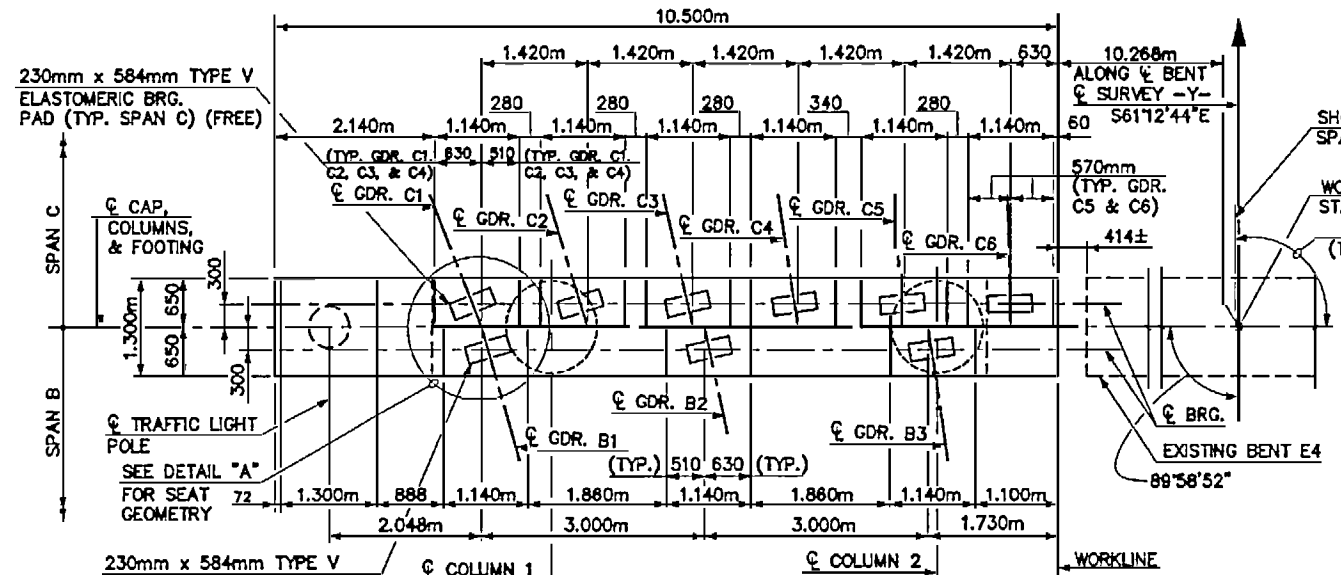
SUBSTRUCTURE  
BENT 2  
(EXISTING BENT E3)

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27602  
DRAWN BY: H. KNIGHT DATE: 9/00  
CHECKED BY: N. GREENLEE DATE: 9/00 DWG. NO. 82

**REVISIONS**

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

SHEET NO. 5-62  
TOTAL SHEETS 15/1



SPAN C				
GRDR	ANGLE "B"	(A)	(B)	(C)
C1	108°04'18"	98	212	316
C2	103°39'05"	75	162	309
C3	100°08'30"	54	118	305
C4	96°33'08"	34	75	302
C5	93°13'03"	17	37	300
C6	90°07'54"	1	1	300

SPAN B				
GRDR	ANGLE "A"	(D)	(E)	(F)
B1	102°39'03"	67	146	307
B2	99°09'19"	48	105	304
B3	95°35'22"	29	64	301

**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.

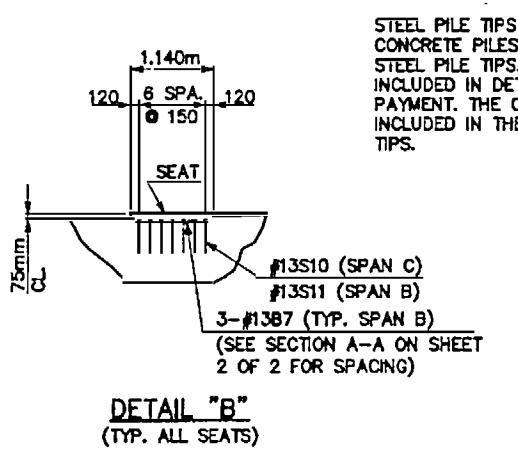
THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

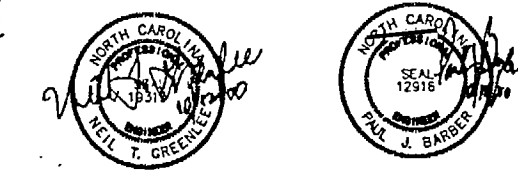
FOR EPOXY COATED SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 3L. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

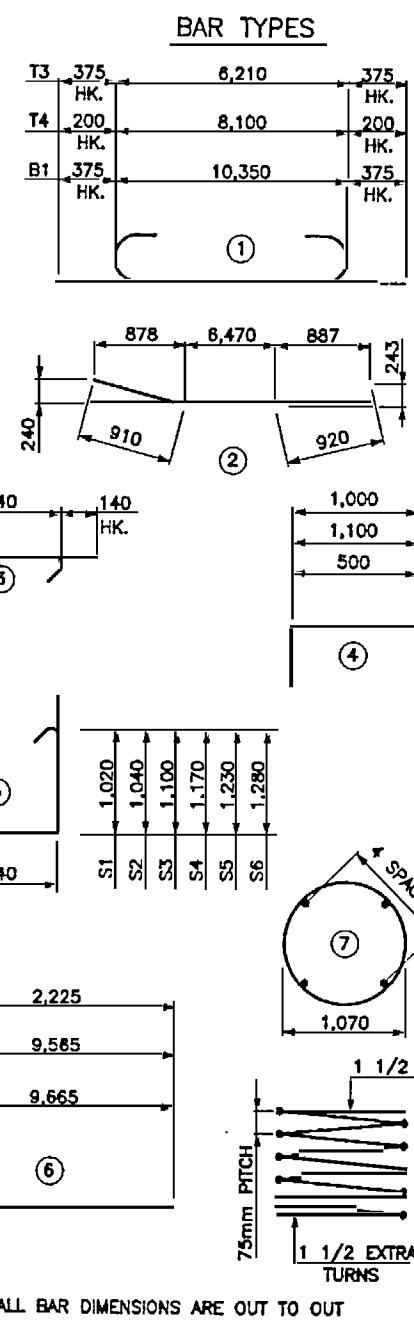
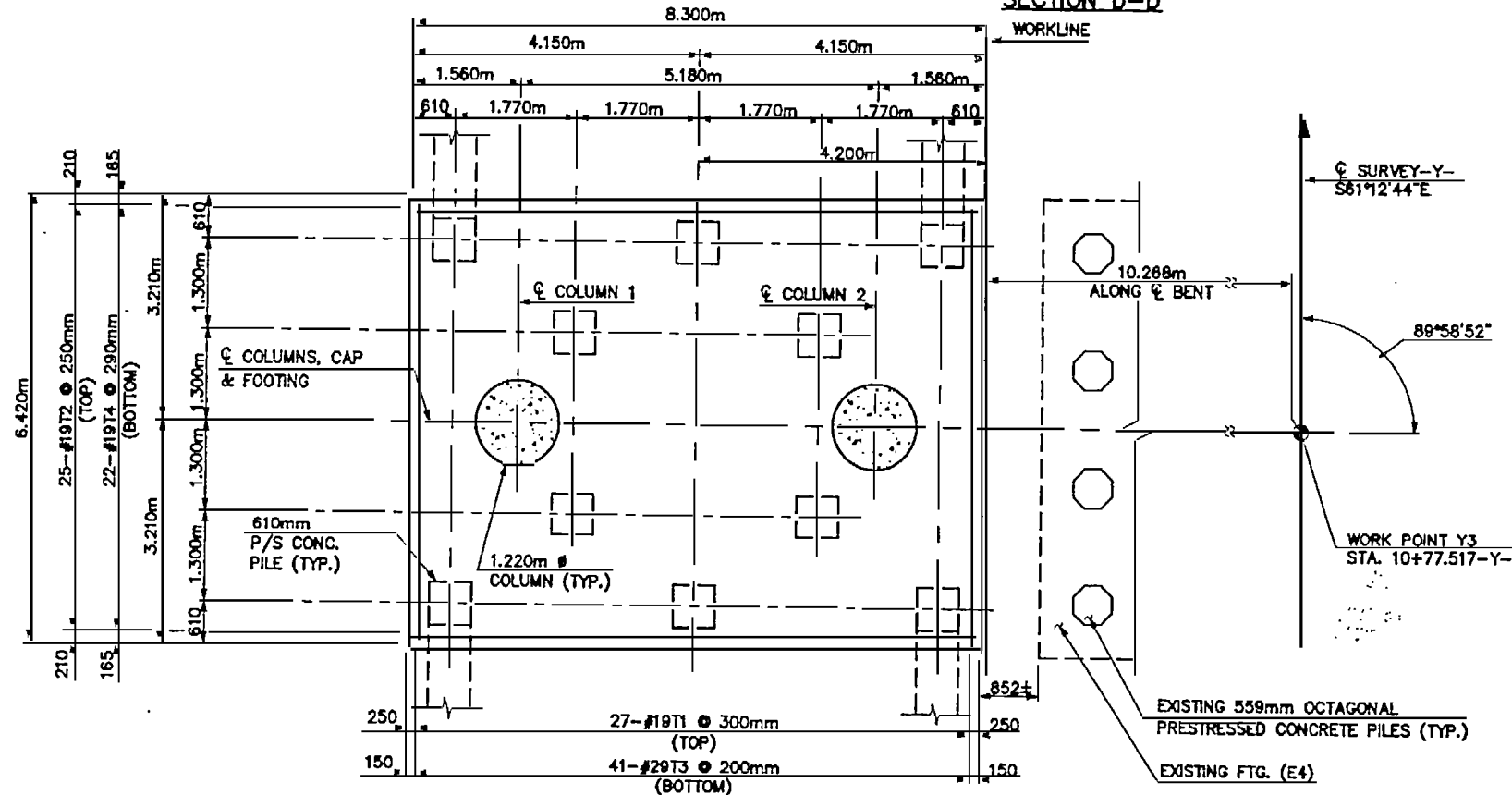
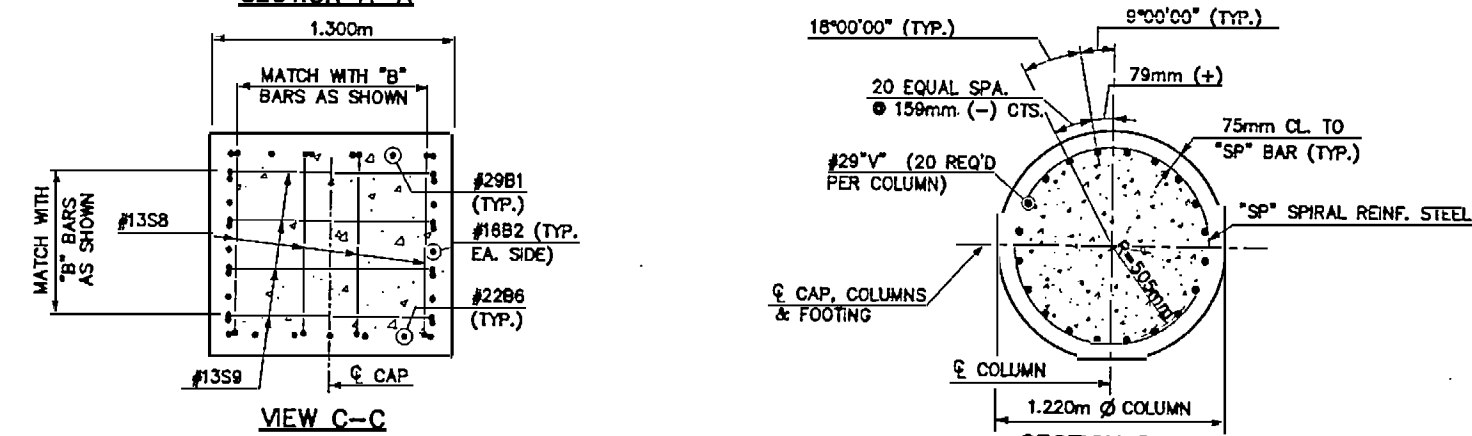
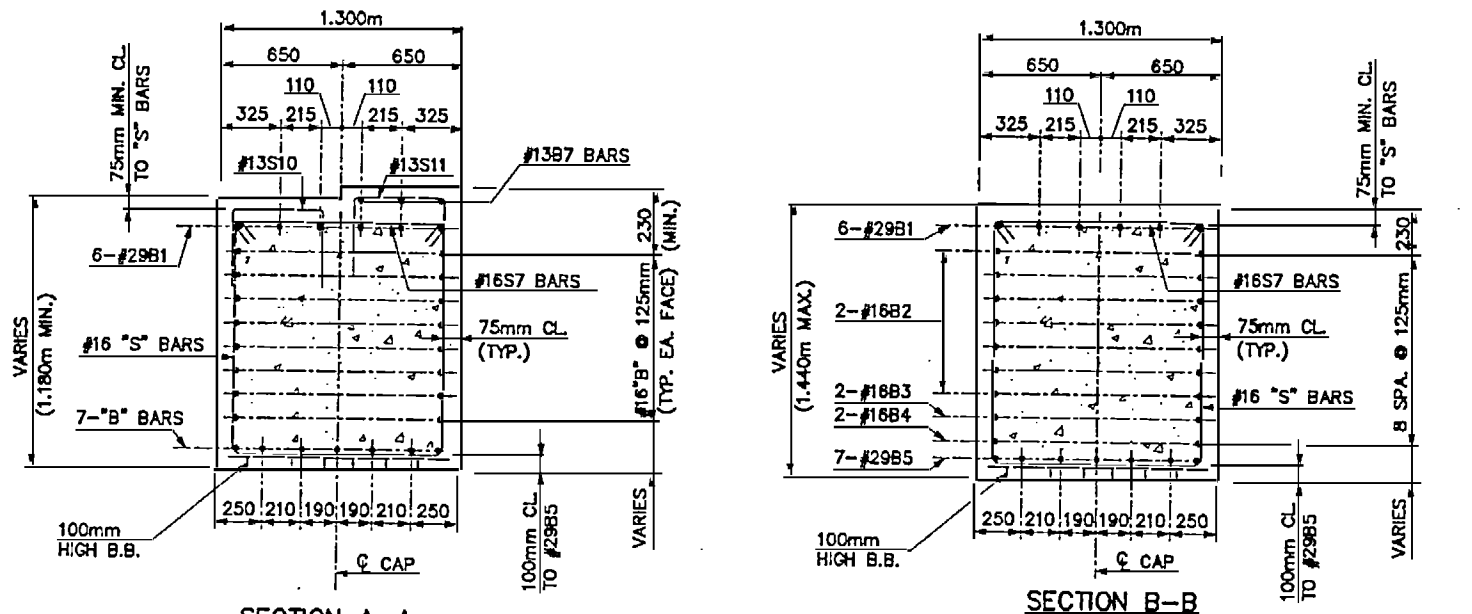
SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 3L



**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: K. RITSEMA/NEW DATE: 8/00  
 CHECKED BY: D. HAWKINS DATE: 8/00 DWG. NO. 83

REVISIONS					SHEET NO. 5-23
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS (11)
2			4		

MAUF: 131145-001 (02) Construction/1071/1544.DWG. DATE: AUG 17, 2000 TIME: 9:07 AM



BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 3A					
B1	6	#16	STR.	11,100	337
B2	14	#16	STR.	10,340	225
B3	2	#16	STR.	8,200	25
B4	2	#16	STR.	7,200	22
B5	7	#29	STR.	8,300	294
B6	7	#22	STR.	3,600	77
B7	9	#13	STR.	980	9
S1	9	#18	STR.	3,480	48
S2	2	#16	STR.	3,500	11
S3	2	#16	STR.	3,620	11
S4	2	#16	STR.	3,780	12
S5	2	#16	STR.	3,880	12
S6	20	#16	STR.	3,980	124
S7	37	#16	STR.	1,420	82
S8	8	#13	STR.	1,600	13
S9	8	#13	STR.	1,700	14
S10	42	#13	STR.	1,300	54
S11	21	#13	STR.	1,500	31
SP-1	1	*	STR.	412,540	410
SP-2	1	*	STR.	416,740	414
V1	20	#29	STR.	9,940	1,006
V2	20	#29	STR.	10,040	1,016
M1	40	#29	STR.	2,800	526
T1	32	#19	STR.	6,220	445
T2	25	#19	STR.	8,100	453
T3	41	#29	STR.	6,960	1,444
T4	22	#19	STR.	8,500	418

QUANTITIES		
EPOXY COATED REINFORCING STEEL	kg.	6,709
EPOXY COATED SPIRAL COL. REINF. STEEL	kg.	824
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	64.2
POUR 2 COLUMNS	CU. METERS	21.1
POUR 3 CAP	CU. METERS	19.2
TOTAL	CU. METERS	104.5
610mm P/S CONC. PILES	NO.	10
	METERS	124.0
STEEL PILE TIPS	NO.	10

NOTES:  
 ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.  
 \* THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.  
 CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.



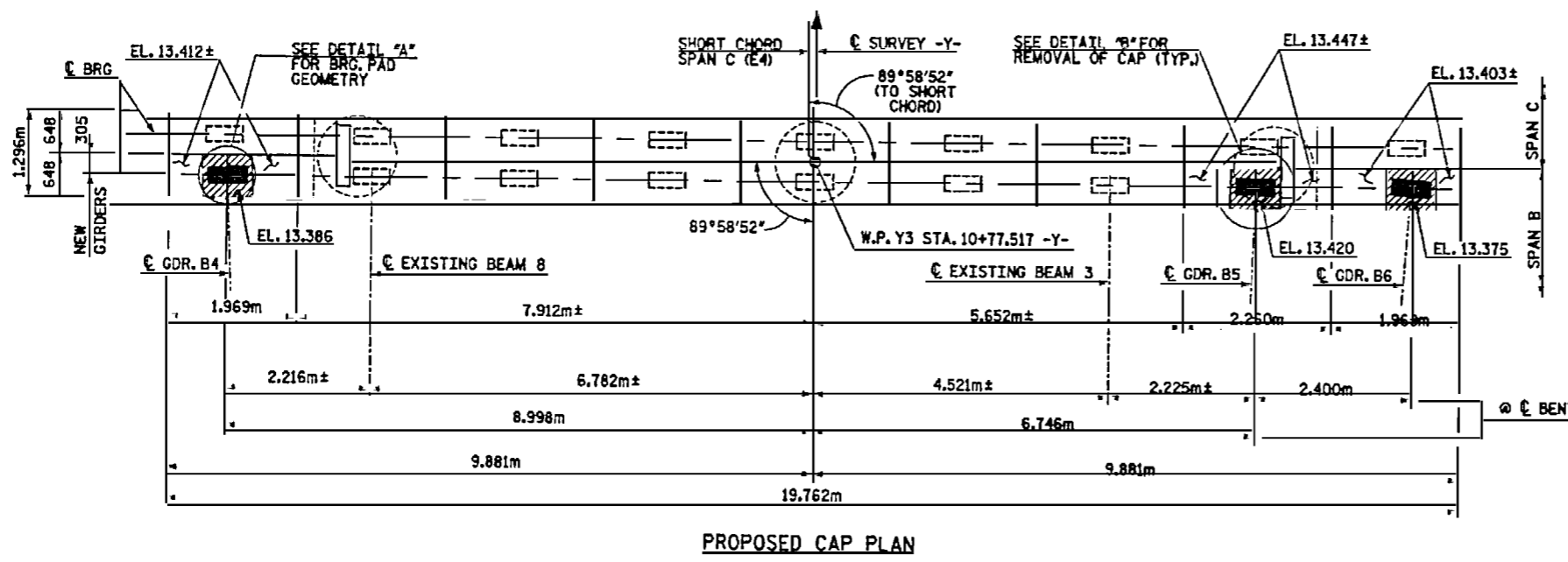
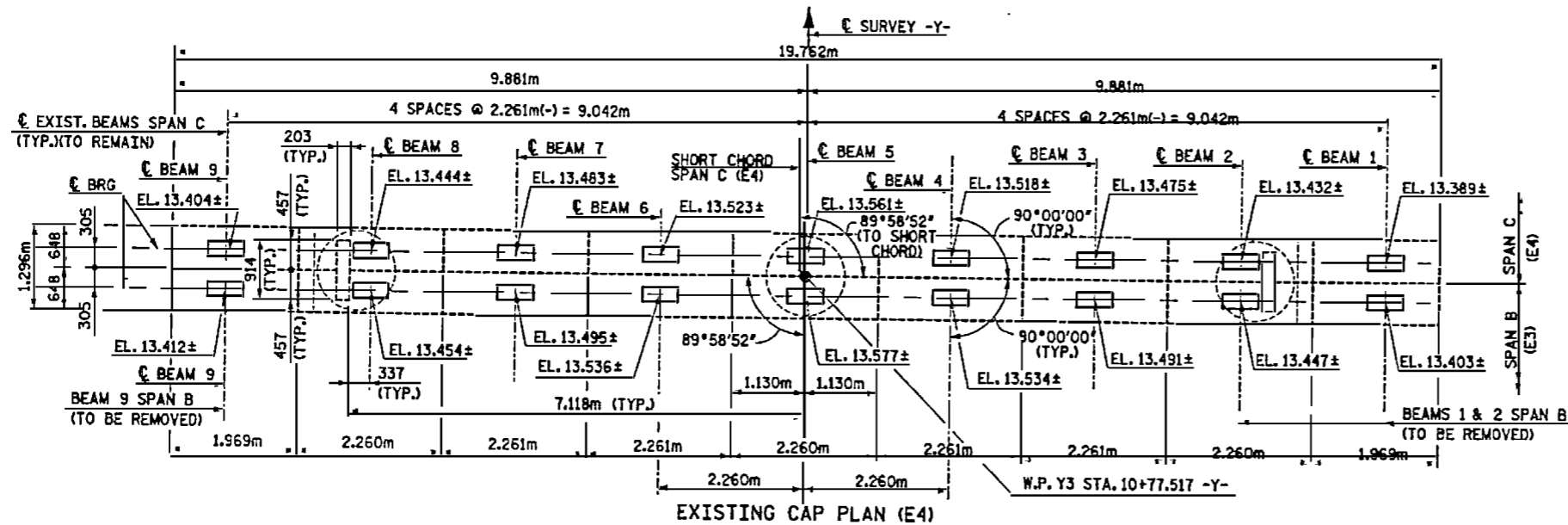
PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 3A

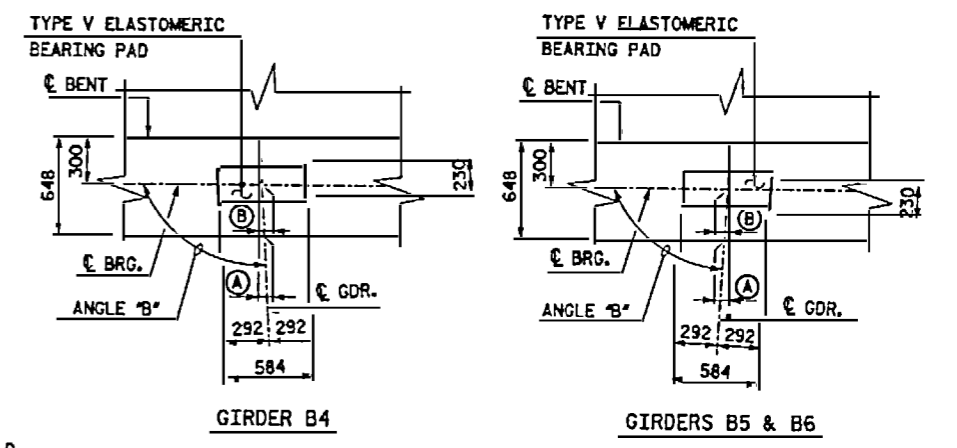
DATE: 8/00  
 CHECKED BY: D. HAWKINS  
 DATE: 8/00  
 DWG. NO. 84

REVISIONS				SHEET NO.
NO.	BY	DATE	DATE	
1				3-24
2				TOTAL SHEETS 10/1

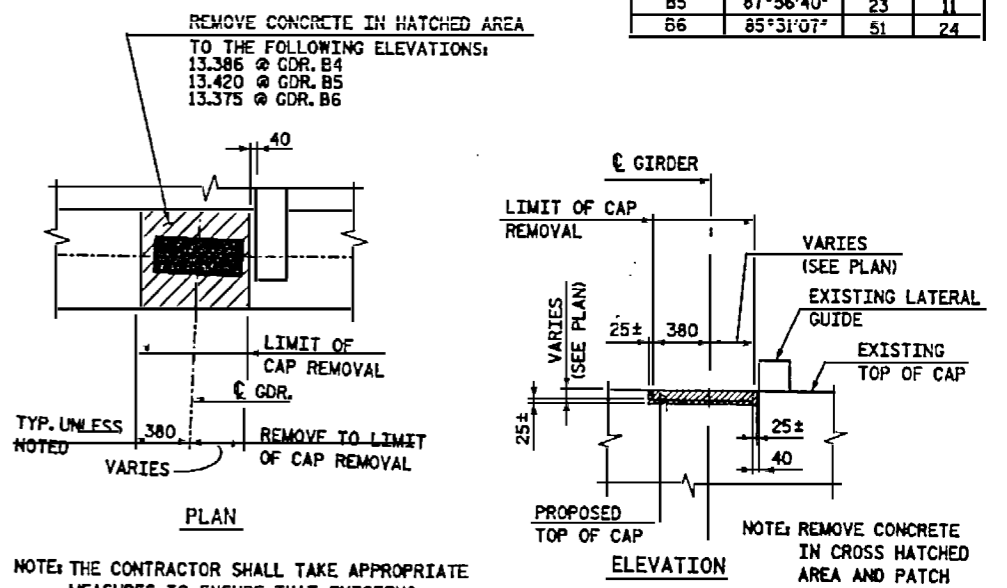
NAME: P:\3143-092\092\Drawings\Substructure\21813A4.DWG. DATE: SEP 12, 2000 TIME: 4:43 PM



NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.



SPAN B DIMENSIONS			
GIRDER	ANGLE "B"	(A)	(B)
B4	91°58'45"	22	10
B5	87°56'40"	23	11
B6	85°31'07"	51	24



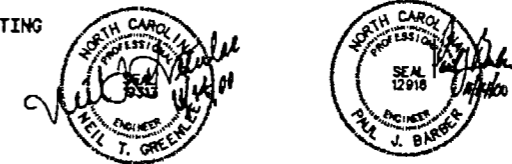
NOTE: THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING REINFORCING STEEL IS NOT DAMAGED DURING CAP MILLING.

NOTE: PATCHED AREAS SHALL BE SEALED WITH EPOXY PROTECTIVE COATING. SEE SPECIAL PROVISIONS.

QUANTITIES	
EPOXY MORTAR REPAIR	0.041 m <sup>2</sup>

NOTES:  
FOR EPOXY MORTAR REPAIRS, SEE SPECIAL PROVISIONS.

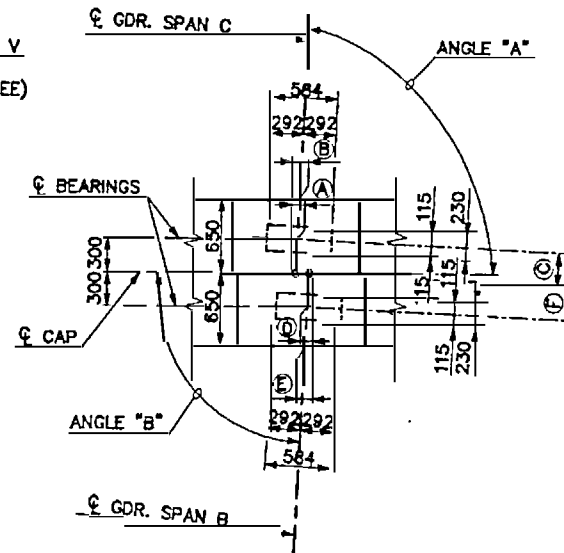
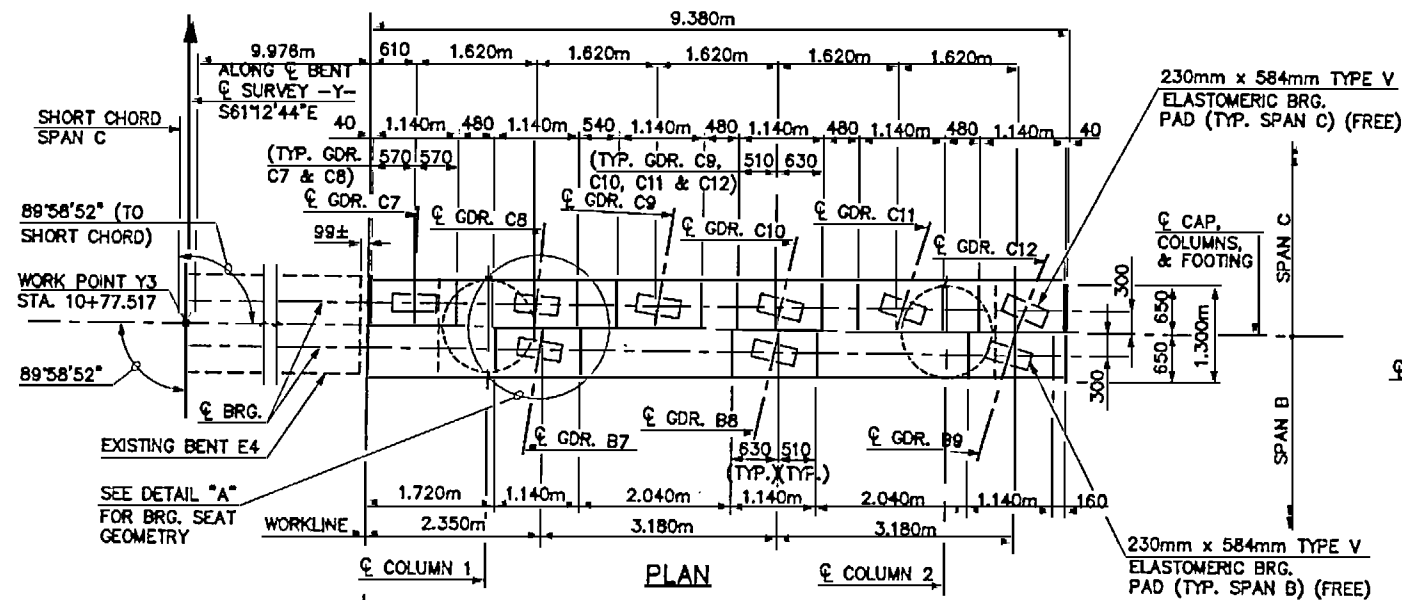
ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA PROVIDED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF DECK AND TOP OF BRIDGE SEAT ELEVATIONS AT EACH EXISTING GIRDER LOCATION AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION ACTIVITIES ABOVE THE BOTTOM OF THE EXISTING CAP SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTENT WITH THE CONTRACT PLAN ELEVATIONS.



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
BENT 3  
(EXISTING BENT E4)

HNTB		HNTB NORTH CAROLINA, P.C.		REVISIONS				SHEET			
343 E. 5th Fork Rd., Suite 200, Raleigh, N.C. 27609		343 E. 5th Fork Rd., Suite 200, Raleigh, N.C. 27609		NO.	BY	DATE	NO.	BY	DATE	NO.	OF
DRAWN BY: J. BAYNE		DATE: 7/00		1			3			3	OF
CHECKED BY: J. HAWKINS		DATE: 7/00		2			4			TOTAL	SHEETS
		DWG. NO. 85						10			

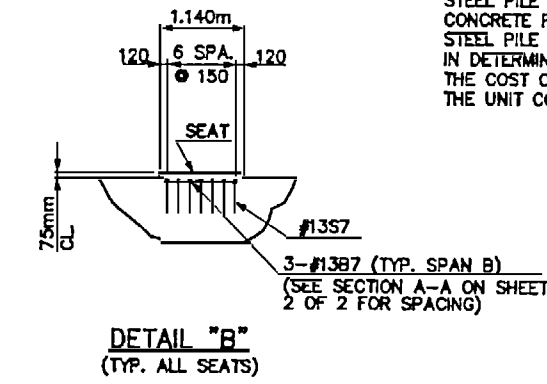
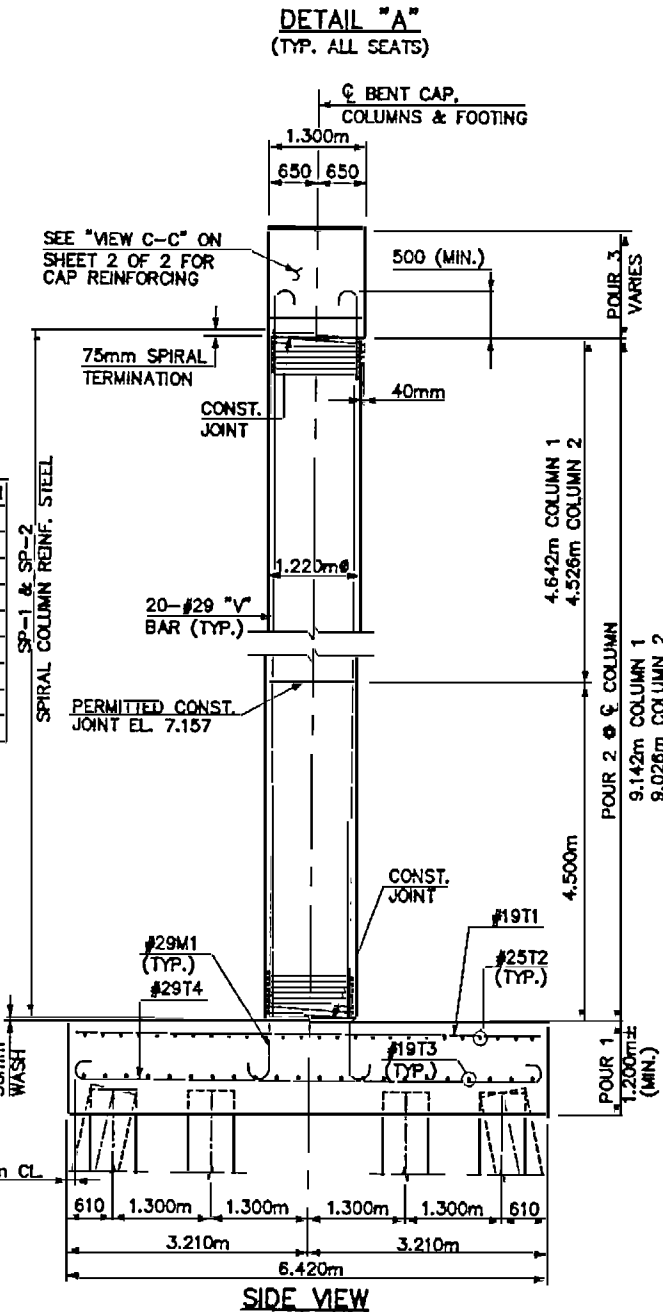
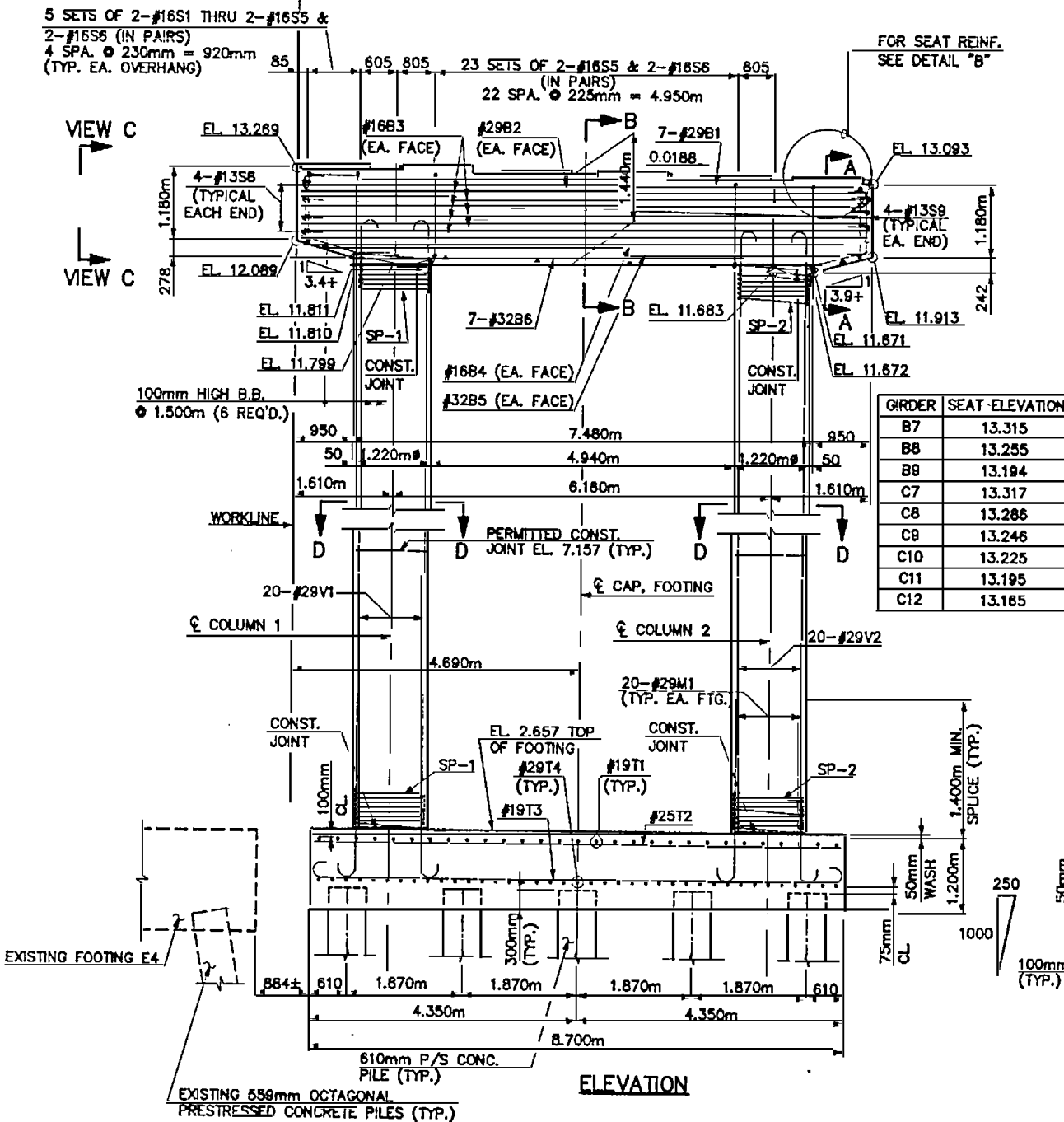


SPAN C				
ORDER	ANGLE "A"	(A)	(B)	(C)
C7	88°25'39"	8	18	300
C8	84°57'13"	26	57	301
C9	81°11'50"	46	101	304
C10	77°09'32"	68	148	308
C11	72°51'01"	93	201	314
C12	68°17'49"	119	259	323

SPAN B				
ORDER	ANGLE "B"	(D)	(E)	(F)
B7	81°28'25"	45	97	303
B8	77°30'42"	66	144	307
B9	73°40'02"	88	190	313

**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 TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.
- FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- FOR SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.
- STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 3R. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.



PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 3R

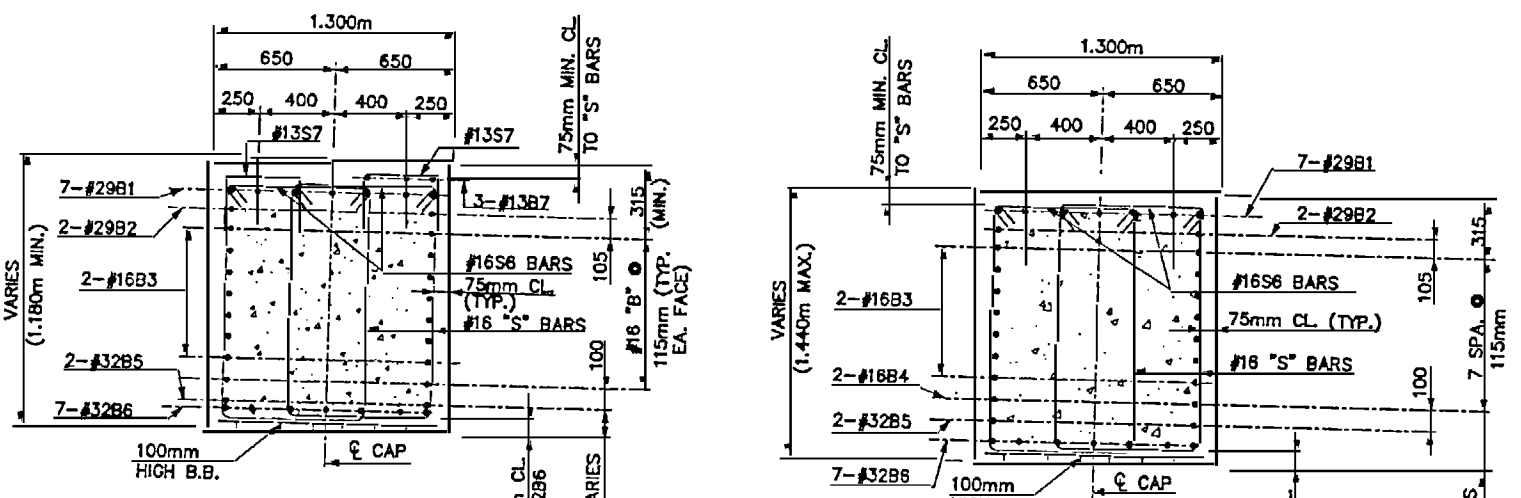
**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: K. RITSEMA/MEW DATE: 8/00  
 CHECKED BY: D. HANCOCK DATE: 8/00 DWG. NO. 88

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

SHEET NO. 308  
 TOTAL SHEETS 101

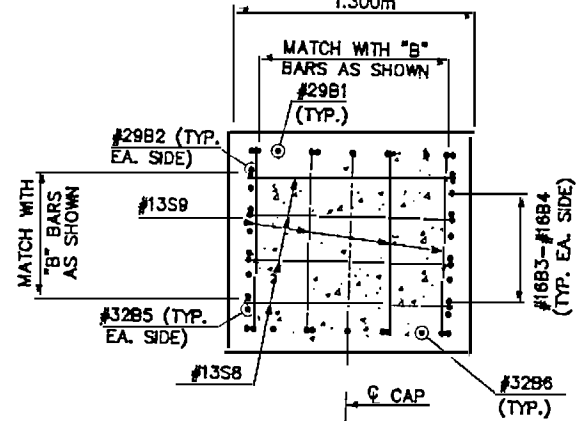
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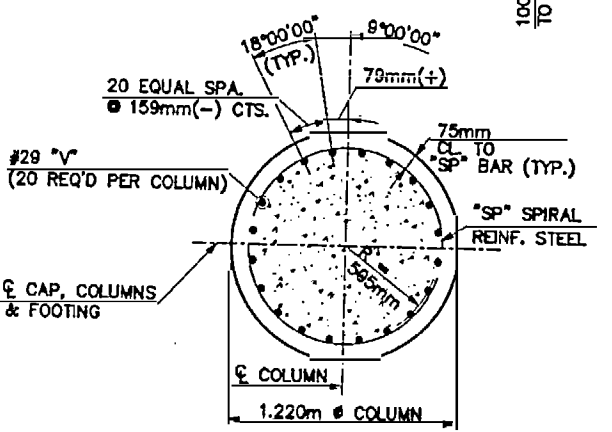


SECTION A-A

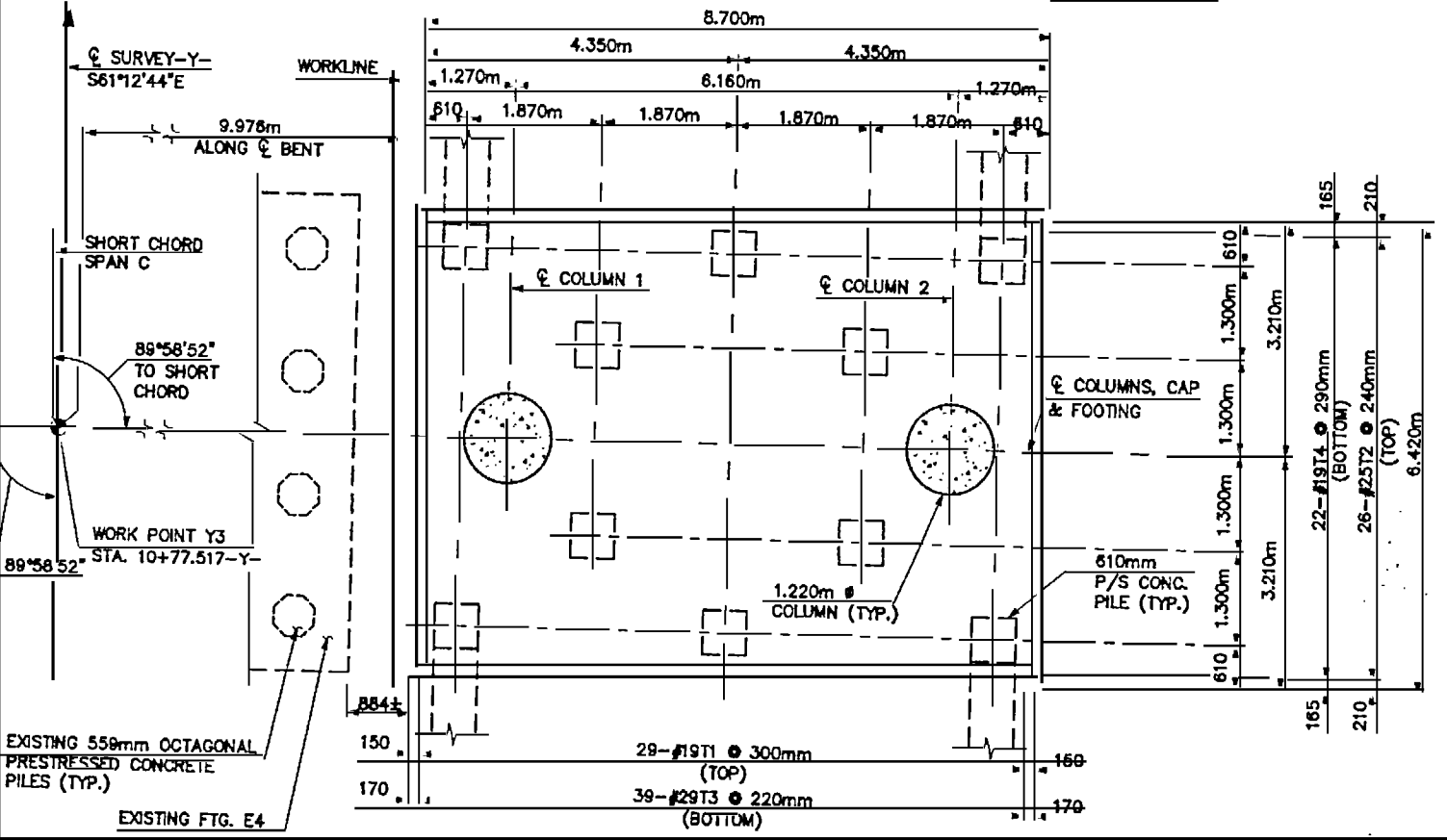
SECTION B-B



SECTION C-C

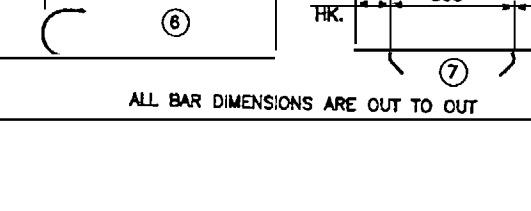
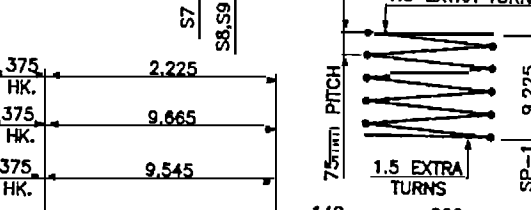
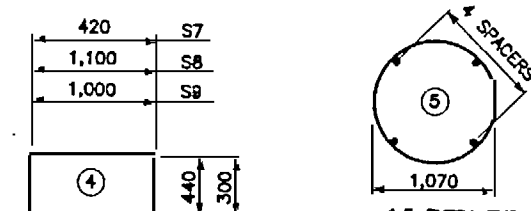
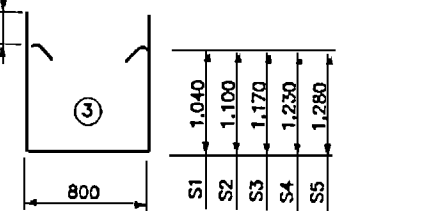
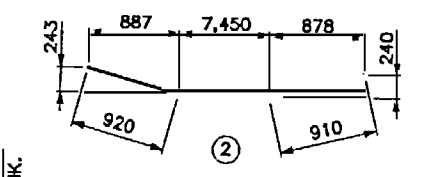
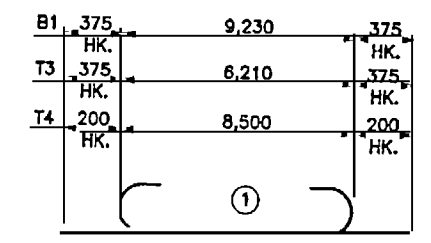


SECTION D-D



FOOTING PLAN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 3BD					
B1	7	#29	1	9,980	353
B2	2	#29	STR.	9,220	93
B3	12	#16	STR.	9,220	172
B4	2	#16	STR.	9,060	23
B5	2	#32	STR.	8,180	105
B6	7	#32	2	9,280	416
B7	9	#13	STR.	980	9
S1	4	#16	3	3,180	20
S2	4	#16	3	3,280	20
S3	4	#16	3	3,420	21
S4	4	#16	3	3,540	22
S5	50	#16	3	3,640	282
S6	86	#16	7	1,080	111
S7	21	#13	4	1,300	27
S8	8	#13	4	1,700	14
S9	8	#13	4	1,600	13
SP-1	1	*	5	418,520	416
SP-2	1	*	5	413,420	411
V1	20	#29	6	10,040	1,016
V2	20	#29	8	9,920	1,004
M1	40	#29	6	2,600	526
T1	29	#19	STR.	6,220	403
T2	26	#25	STR.	8,500	878
T3	39	#29	1	8,980	1,373
T4	29	#19	1	8,900	577
QUANTITIES					
EPOXY COATED REINFORCING STEEL				kg.	7,483
EPOXY COATED SPIRAL COL. REINF. STEEL				kg.	827
CLASS AA CONCRETE					
POUR 1 FOOTING				CU. METERS	87.3
POUR 2 COLUMN				CU. METERS	21.3
POUR 3 CAP				CU. METERS	17.7
TOTAL				CU. METERS	106.3
610mm P/S CONC. PILES				NO.	10
				METERS	124.0
STEEL PILE TIPS				NO.	10

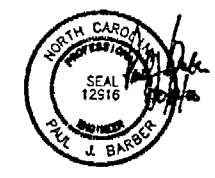
NOTES:  
 ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.  
 [Symbol] INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.  
 CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

\* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 2



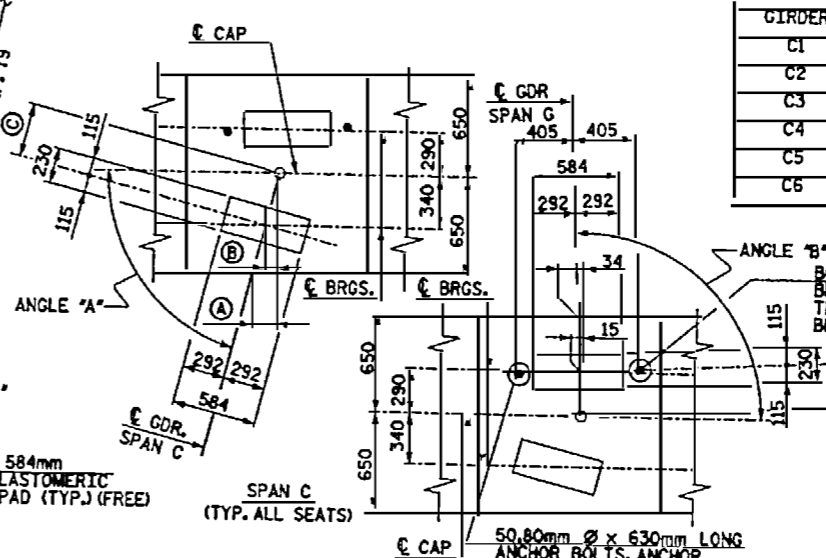
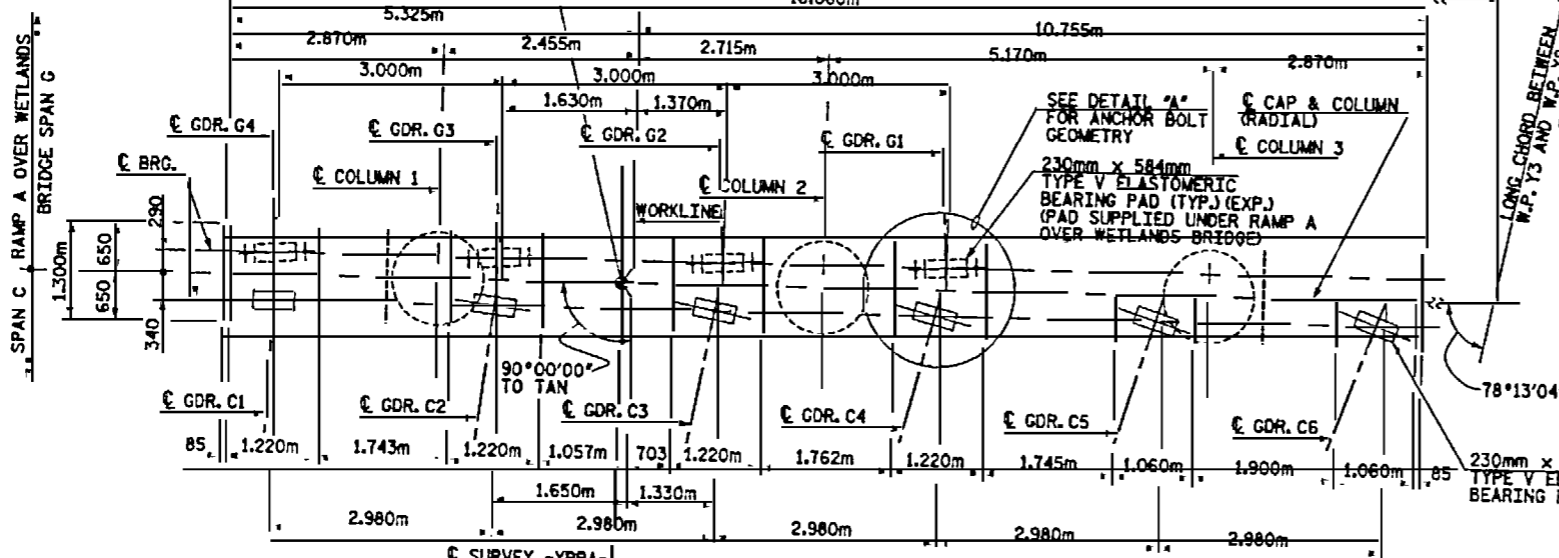
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 3R

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: K. RISEMA/MEW DATE: 8/00  
 CHECKED BY: D. HARRIS DATE: 9/00 DWG. NO. 87

REVISIONS						SHEET NO. 2-52
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



WORK POINT Y4A  
STA. 3+22.033 -YRPA-



GIRDER	ANGLE "A"	(A)	(B)	(C)	GIRDER	ANGLE "B"
C1	87°09'31"	32	17	340	G1	93°00'43"
C2	83°04'20"	79	41	343	G2	93°00'43"
C3	79°13'45"	124	65	346	G3	93°00'43"
C4	75°36'23"	166	87	351	G4	93°00'43"
C5	72°18'18"	207	108	357		
C6	69°13'09"	247	129	364		

BOLTS FOR THIS SIDE OF BENT SHALL BE SUPPLIED BY THE RAMP A OVER WETLANDS BRIDGE CONTRACTOR.

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

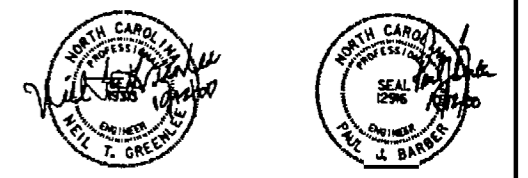
CLASS AA CONCRETE SHALL BE USED IN ALL CAST IN PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 4A. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

ANCHOR BOLTS AND BEARING PADS ON THE RAMP A OVER WETLANDS BRIDGE SIDE OF BENT 4A ARE TO BE PAID FOR UNDER THAT CONTRACT. ANCHOR BOLTS SHALL BE INSTALLED UNDER THIS CONTRACT. INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO THE SEVERAL PAY ITEMS INVOLVED IN THE CONSTRUCTION OF THE BENT.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

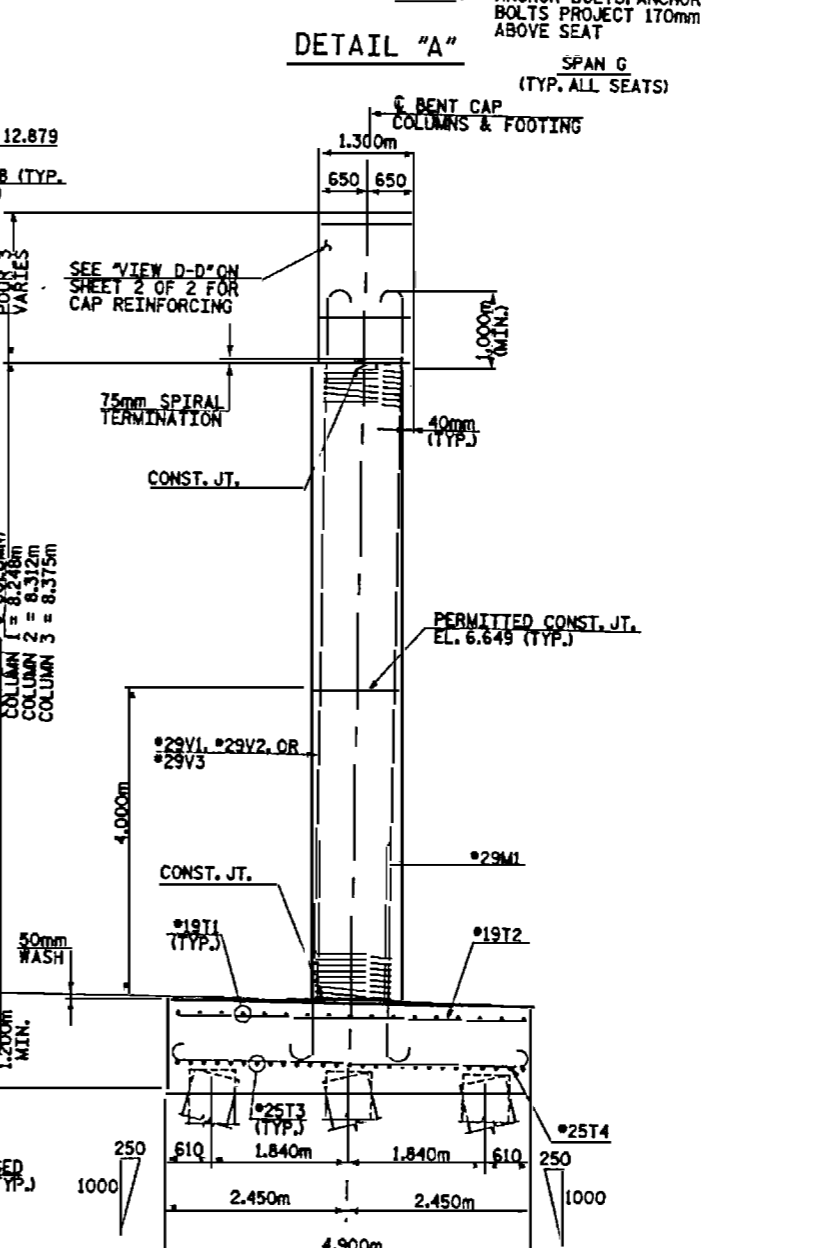
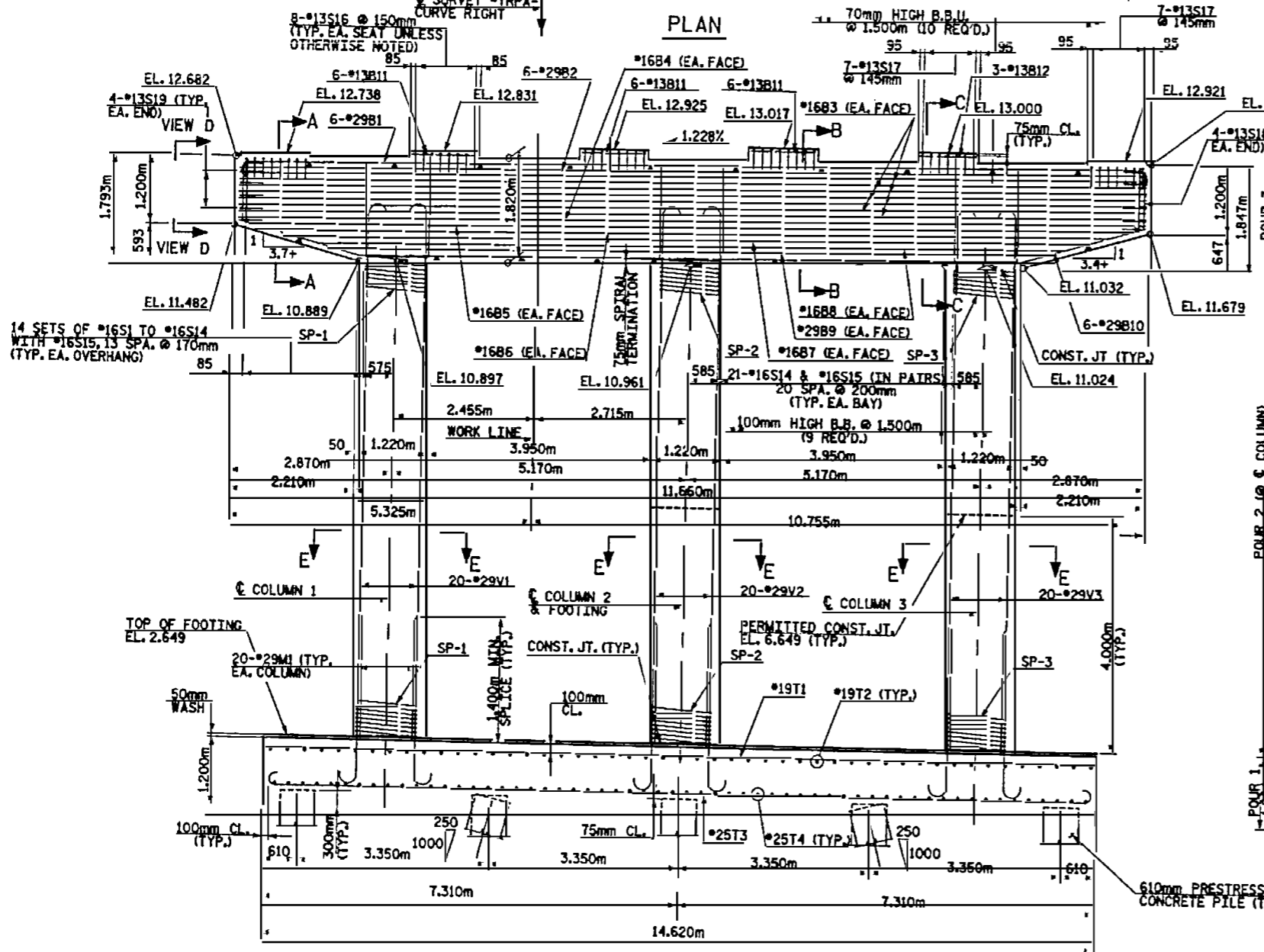
FOR EPOXY COATED SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.



PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 4A



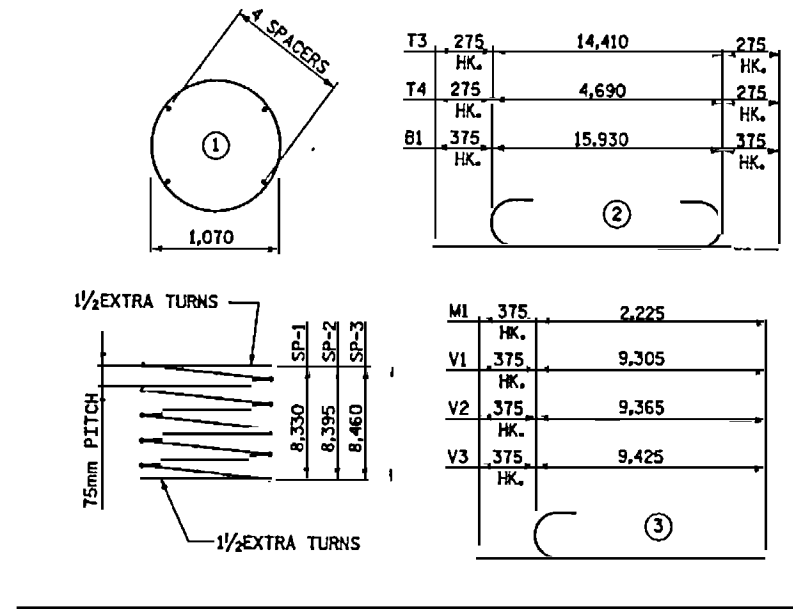
ELEVATION

END VIEW

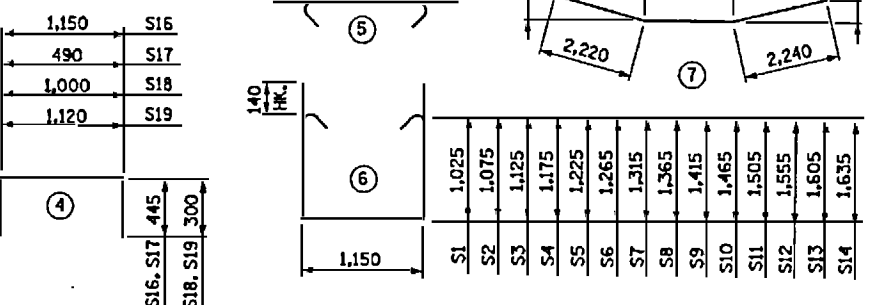
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: C. O. TYER DATE: 8/00 DWG. NO. 88

REVISIONS					SHEET NO. 3-86
NO.	BY	DATE	NO.	BY	
1			3		
2			4		

TOTAL SHEETS (31)



**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

**QUANTITIES**

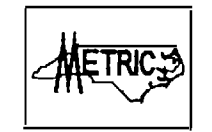
EPOXY COATED REINFORCING STEEL	kq.	10,558
EPOXY COATED SPIRAL COL. REINF. STEEL	kq.	1,138
<b>CLASS AA CONCRETE</b>		
POUR 1 FOOTING	CU. METERS	86.1
POUR 2 COLUMN	CU. METERS	29.2
POUR 3 CAP	CU. METERS	37.3
TOTAL	CU. METERS	152.6
610mm P/S CONC. PILES	NO.	15
STEEL PILE TIPS	METERS	186.0
	NO.	15

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

**BILL OF REINFORCING**

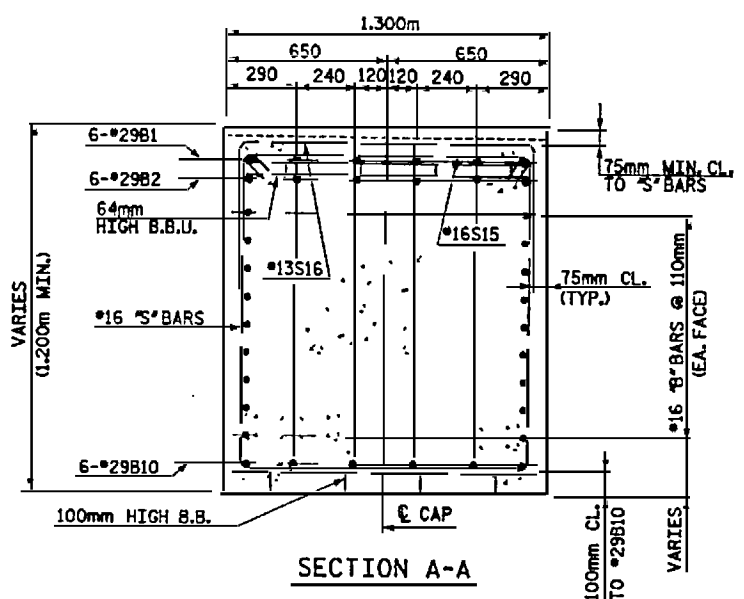
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
<b>BENT 4A</b>					
B1	6	#29	2	16,680	506
B2	6	#29	STR.	15,920	483
B3	14	#16	STR.	15,920	346
B4	2	#16	STR.	15,700	49
B5	2	#16	STR.	14,920	46
B6	2	#16	STR.	14,120	44
B7	2	#16	STR.	13,340	41
B8	2	#16	STR.	12,560	39
B9	2	#29	STR.	11,880	120
B10	6	#29	7	16,080	488
B11	18	#13	STR.	1,060	19
B12	3	#13	STR.	900	3
S1	2	#16	6	3,480	11
S2	2	#16	6	3,580	11
S3	2	#16	6	3,680	11
S4	2	#16	6	3,780	12
S5	2	#16	6	3,880	12
S6	2	#16	6	3,960	12
S7	2	#16	6	4,060	13
S8	2	#16	6	4,160	13
S9	2	#16	6	4,260	13
S10	2	#16	6	4,360	14
S11	2	#16	6	4,440	14
S12	2	#16	6	4,540	14
S13	2	#16	6	4,640	14
S14	44	#16	6	4,700	321
S15	70	#16	5	1,400	156
S16	32	#13	4	2,040	65
S17	14	#13	4	1,380	19
S18	8	#13	4	1,600	13
S19	8	#13	4	1,720	14
SP-1	1	*	1	378,880	377
SP-2	1	*	1	381,760	379
SP-3	1	*	1	384,640	382
V1	20	#29	3	9,680	980
V2	20	#29	3	9,740	986
V3	20	#29	3	9,800	992
M1	60	#29	3	2,600	789
T1	17	#19	STR.	14,420	548
T2	49	#19	STR.	4,700	515
T3	27	#25	2	14,960	1,605
T4	58	#25	2	5,240	1,207

\* THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

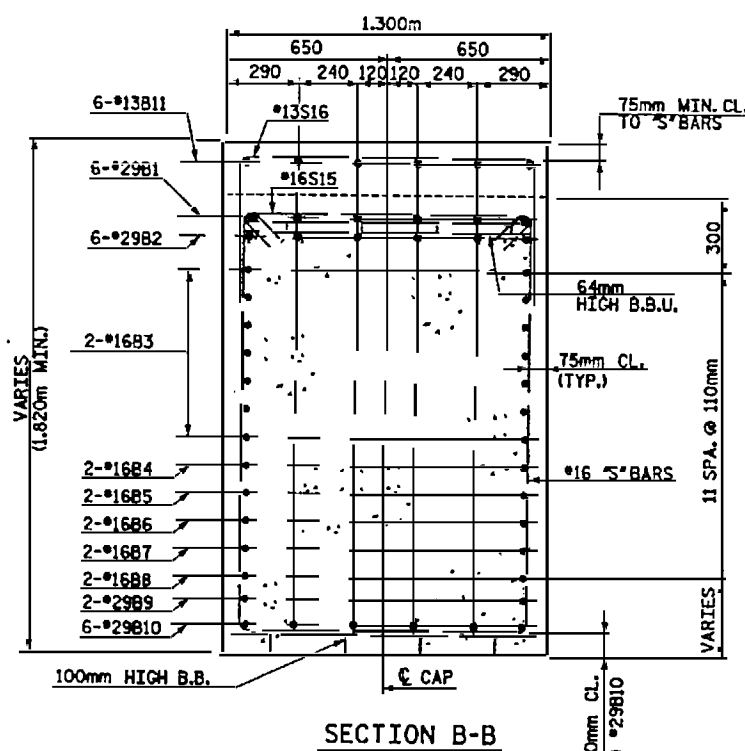


PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

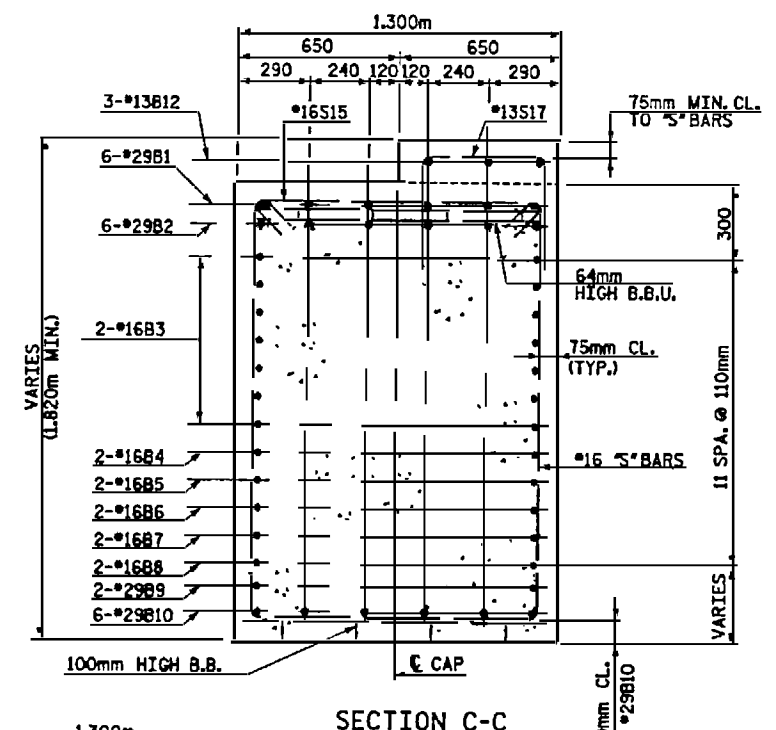
SHEET 2 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 4A



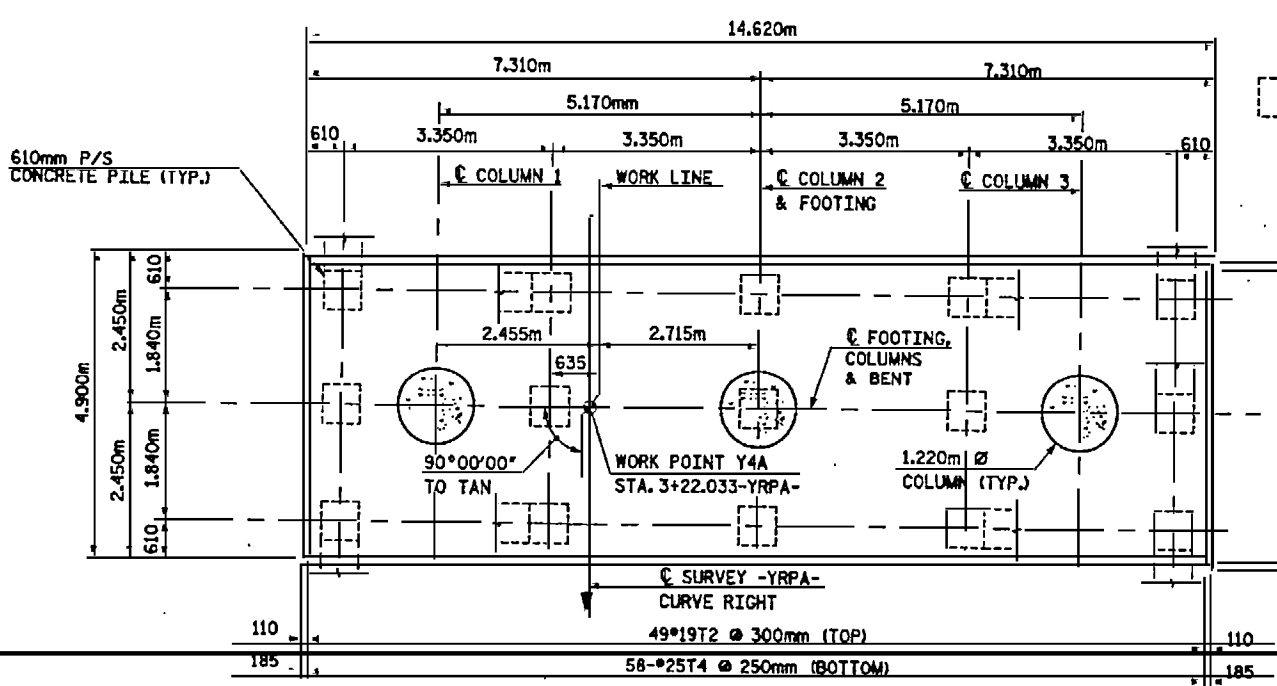
SECTION A-A



SECTION B-B

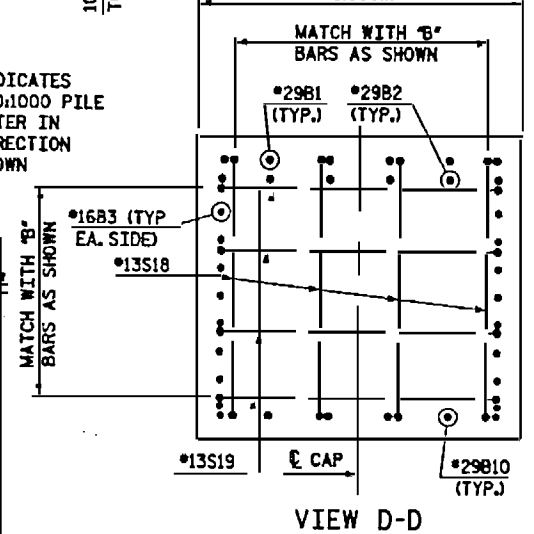


SECTION C-C

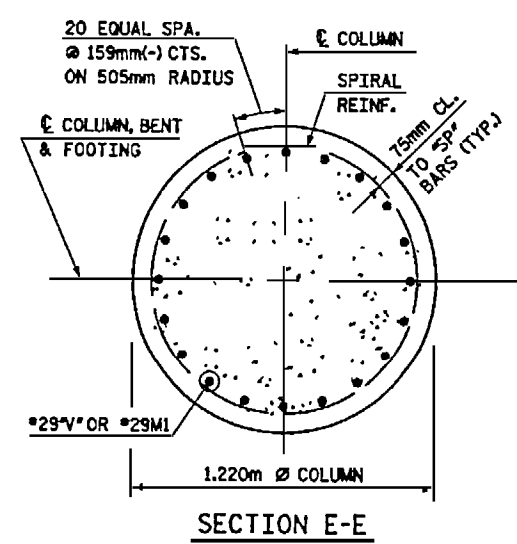


FOOTING PLAN

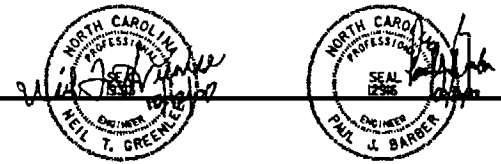
INDICATES 250/1000 PILE BATER IN DIRECTION SHOWN



VIEW D-D



SECTION E-E

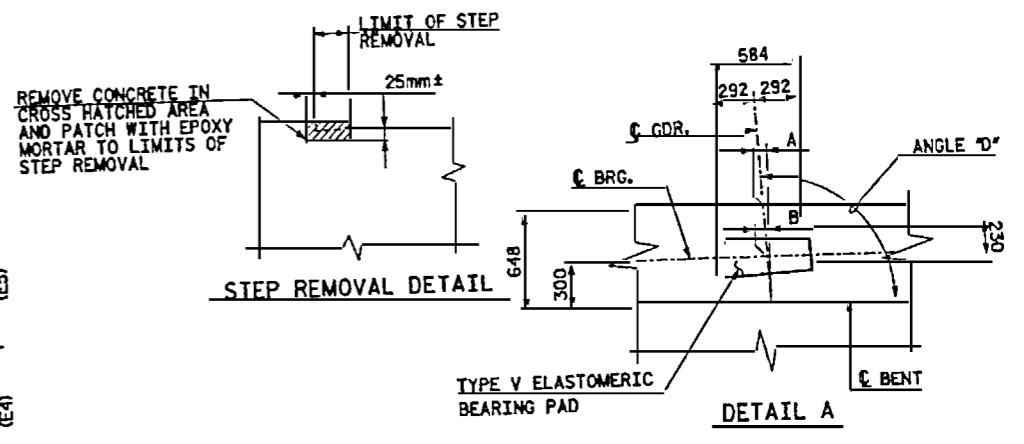
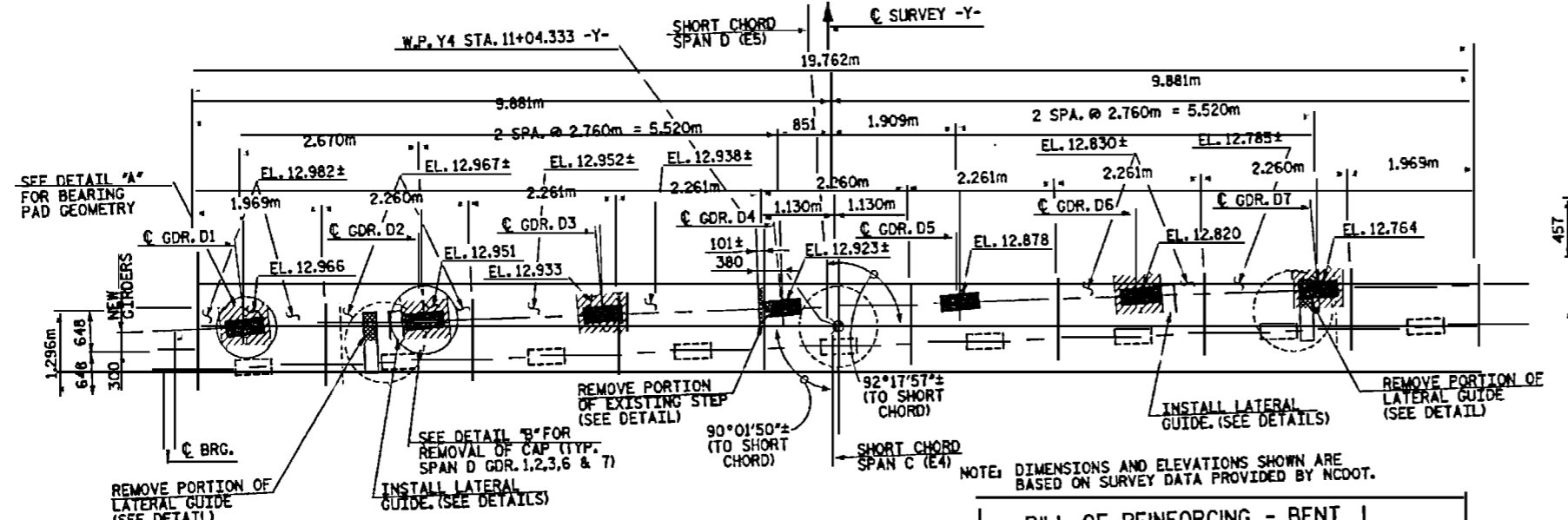
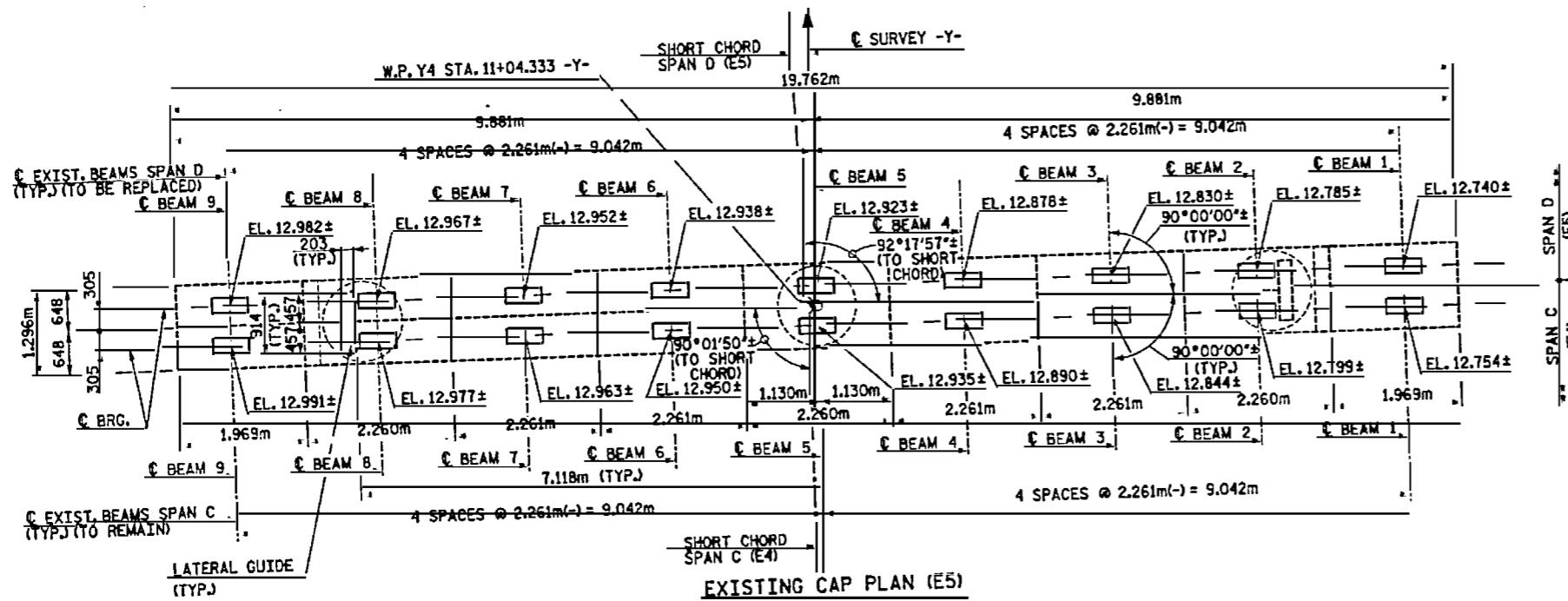


**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC, 27609  
 DRAWN BY: M. WRIGHT DATE: 7/00  
 CHECKED BY: C. OLIVER DATE: 8/00 DWG. NO. 89

**REVISIONS**

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

SHEET NO. 2 OF 2  
 TOTAL SHEETS 101



SECTION

75mm MIN. (TYP.)

203

EMBEDMENT

SECTION

648

300

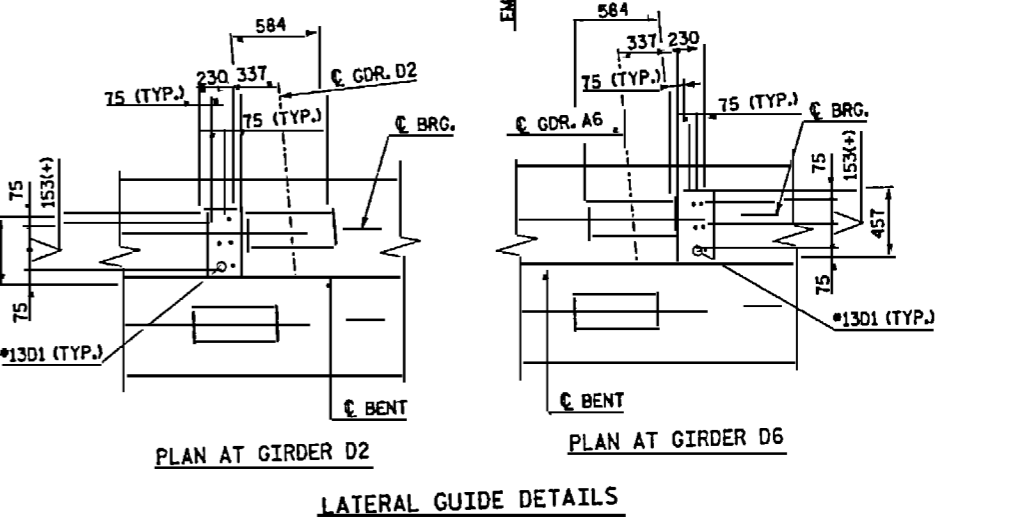
584

292, 292

ANGLE 'D'

DETAIL A

SPAN D DIMENSIONS			
GIRDER	ANGLE 'D'	(A)	(B)
D1	93°24'50"	39	18
D2	93°13'19"	36	17
D3	93°13'18"	36	17
D4	93°13'17"	36	17
D5	93°13'16"	36	17
D6	93°13'15"	36	17
D7	93°13'14"	36	17



NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.

BILL OF REINFORCING - BENT 1					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 2					
D1	12	#13	STR.	300	4
EPOXY COATED REINFORCING STEEL					

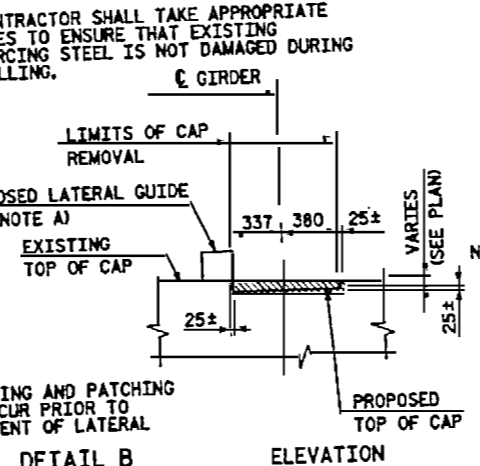
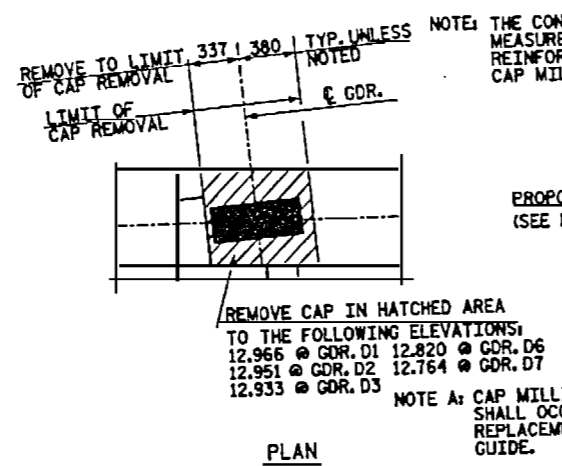
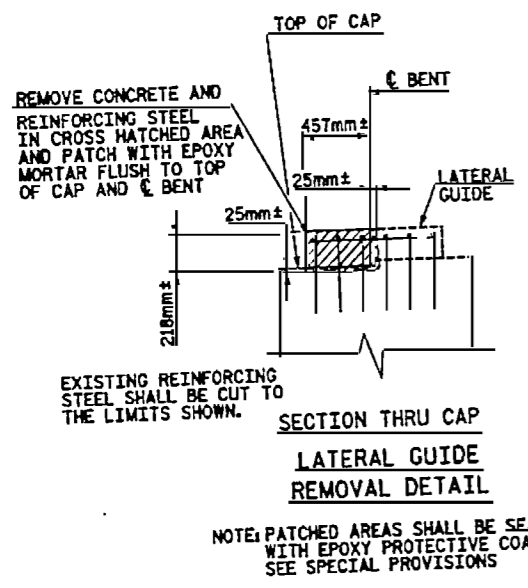
NOTES:

FOR EPOXY MORTAR REPAIRS, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS".

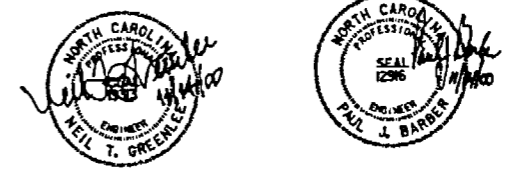
THE #1301 BARS SHALL BE INSTALLED USING AN EPOXY ANCHORING SYSTEM. FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR #1301 BARS IS 53.4KN. THE LENGTH OF THE #1301 BARS SHALL BE 300mm BASED UPON AN ASSUMED EMBEDMENT OF 150mm. THE CONTRACTOR SHALL ADJUST BAR LENGTH FOR SELECTED MANUFACTURERS EMBEDMENT REQUIREMENTS.

ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA PROVIDED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF DECK AND TOP OF BRIDGE SEAT ELEVATIONS AT EACH EXISTING GIRDER LOCATION AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION ACTIVITIES ABOVE THE BOTTOM OF THE EXISTING CAP SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTENT WITH THE CONTRACT PLAN ELEVATIONS.



NOTE: REMOVE CONCRETE IN CROSS HATCHED AREA AND PATCH WITH EPOXY MORTAR TO LIMITS OF CAP REMOVAL AND TO PROPOSED TOP OF CAP.

QUANTITIES	
EPOXY MORTAR REPAIR	0.076 m <sup>2</sup>

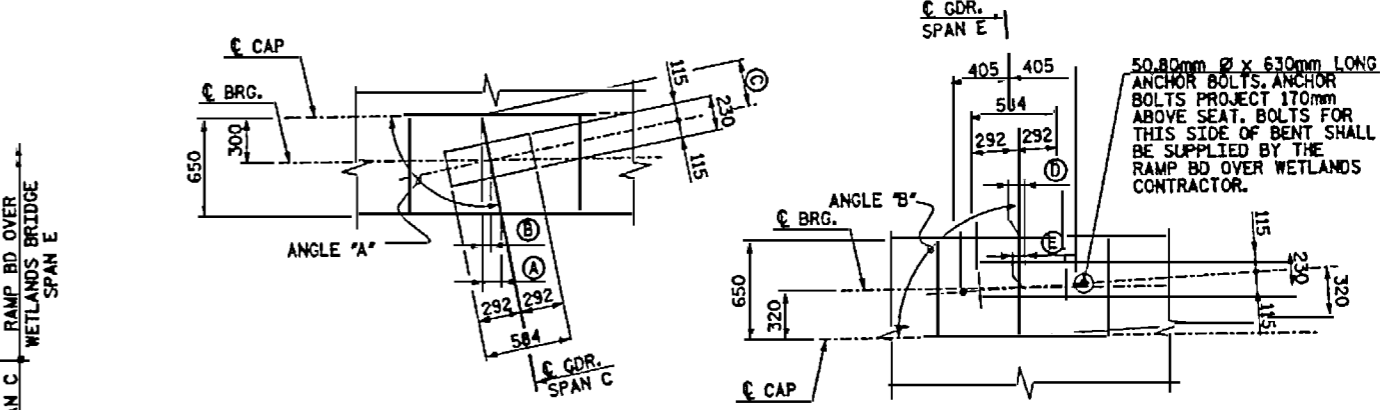
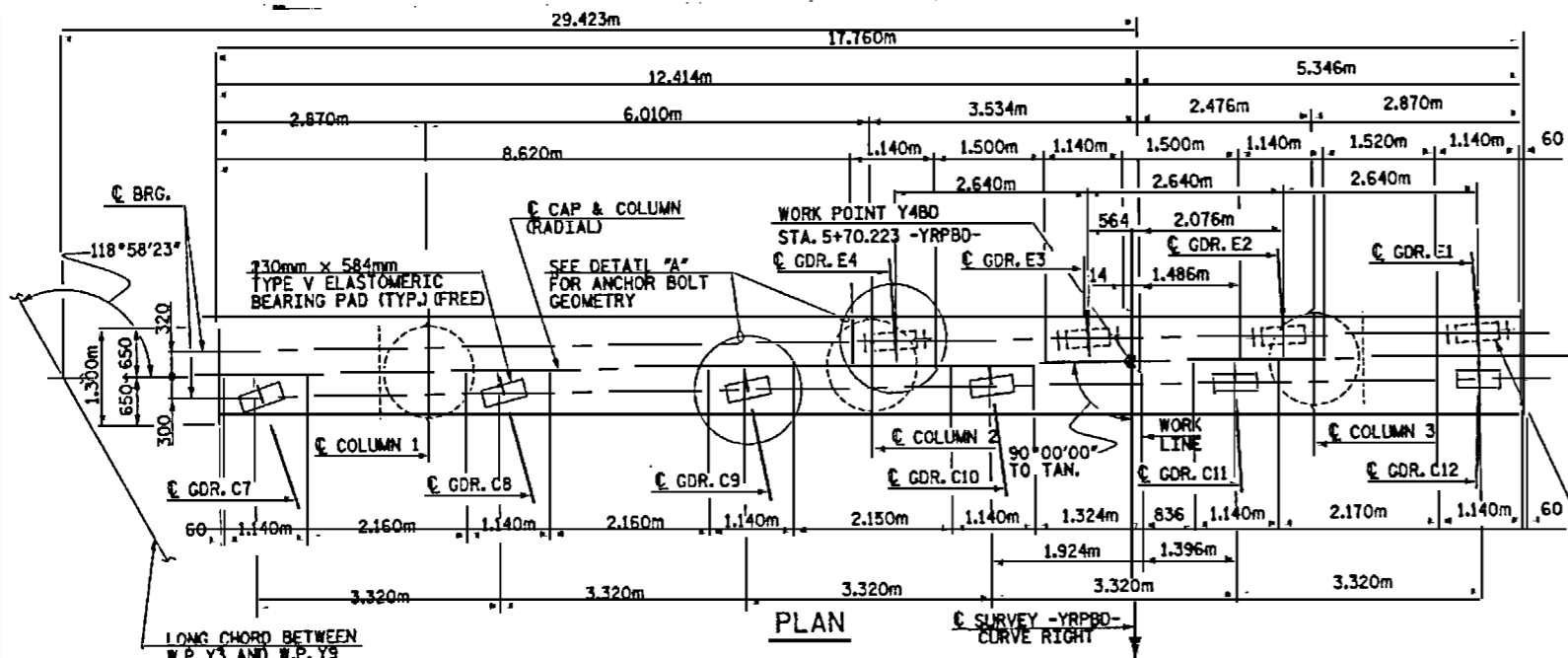


PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 4  
 (EXISTING BENT E5)

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

ANTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC, 27603  
 DWG. NO. 90  
 DATE 8/00  
 CHECKED BY P. BARBER



SPAN C (TYP. ALL SEATS)      **DETAIL "A"**      SPAN E (TYP. ALL SEATS)

GIRDER	ANGLE "A"	(A)	(B)	(C)	GIRDER	ANGLE "B"	(D)	(E)
C7	108°16'13"	215	99	316	E1	86°51'39"	36	18
C8	104°47'46"	172	79	310	E2	86°52'13"	36	17
C9	101°02'23"	127	59	306	E3	86°52'48"	35	17
C10	97°00'05"	80	37	302	E4	86°53'24"	35	17
C11	92°41'35"	31	14	300				
C12	88°08'22"	-21	-10	300				

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST IN PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 480. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

ANCHOR BOLTS AND BEARING PADS ON THE RAMP BD OVER WETLANDS BRIDGE SIDE OF BENT 480 ARE TO BE PAID FOR UNDER THIS CONTRACT. ANCHOR BOLTS SHALL BE INSTALLED UNDER THIS CONTRACT. INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO THE SEVERAL PAY ITEMS INVOLVED IN THE CONSTRUCTION OF THE BENT.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATED SPIRAL COLUMN REINFORCING STEEL, SEE SPECIAL PROVISIONS.

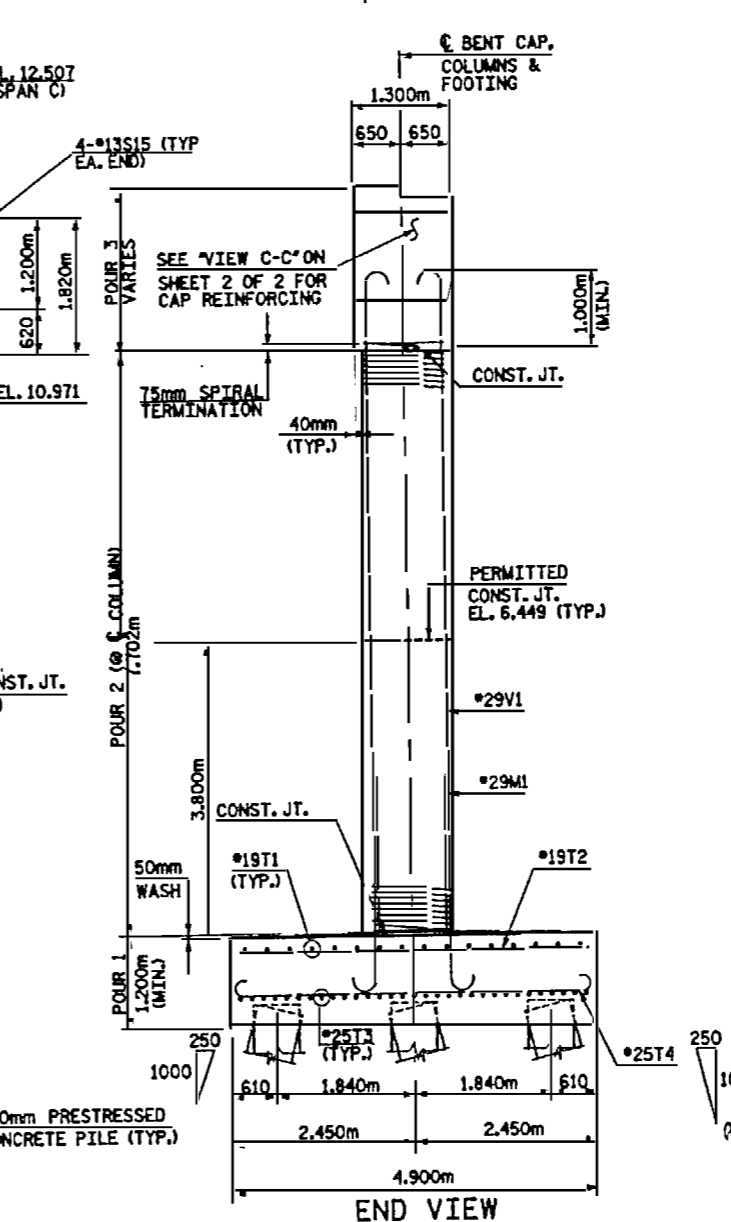
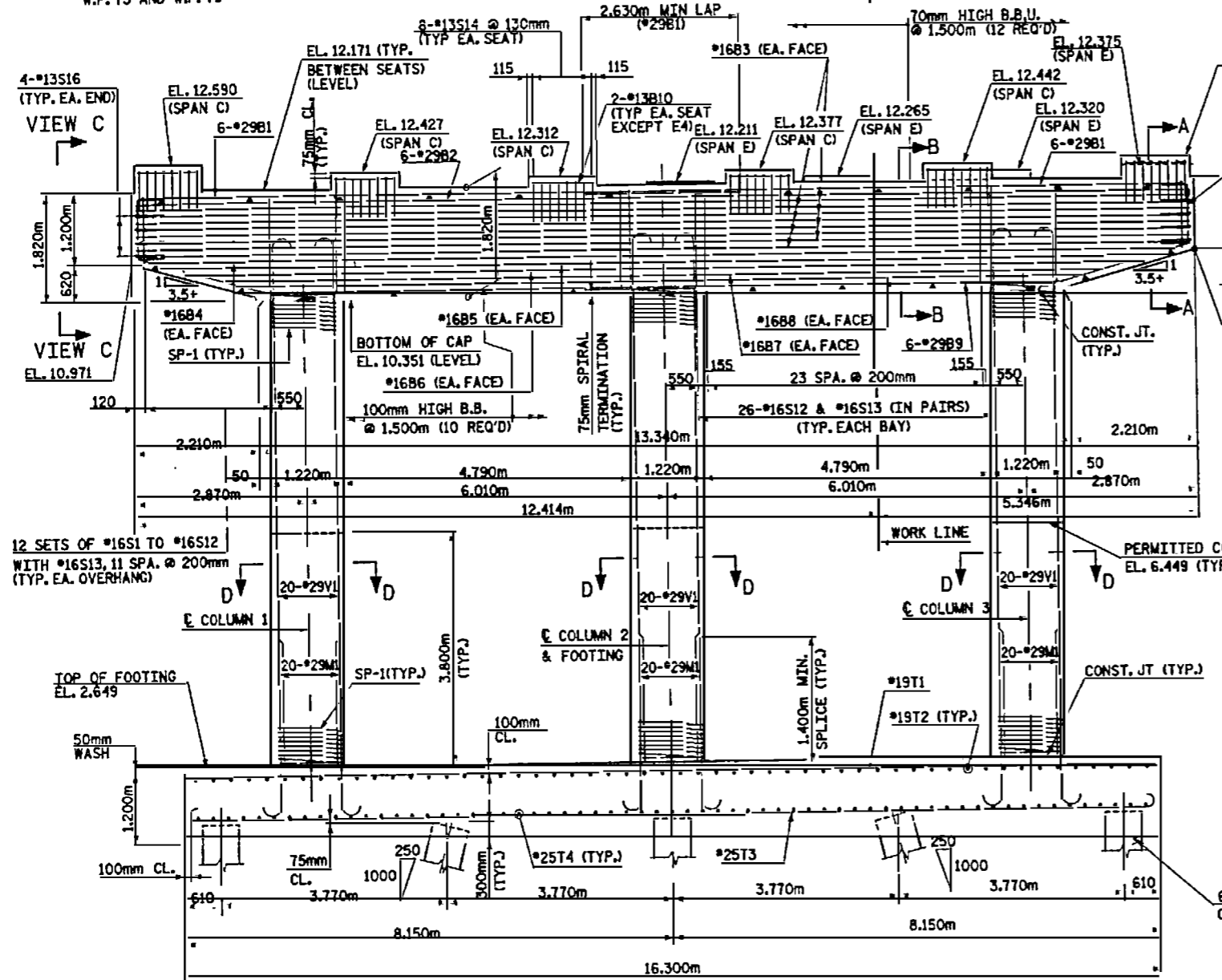
PROJECT No. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 1 OF 2

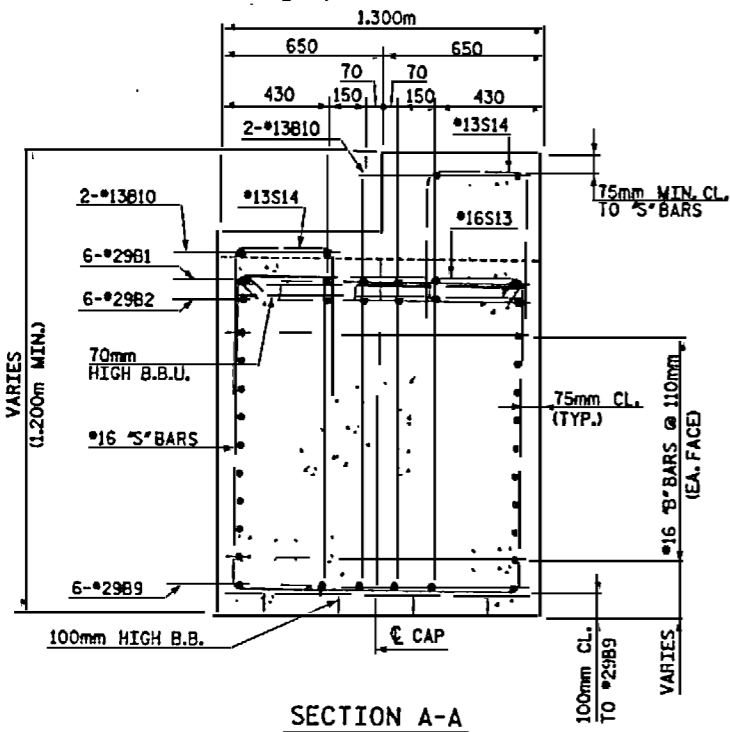
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 480



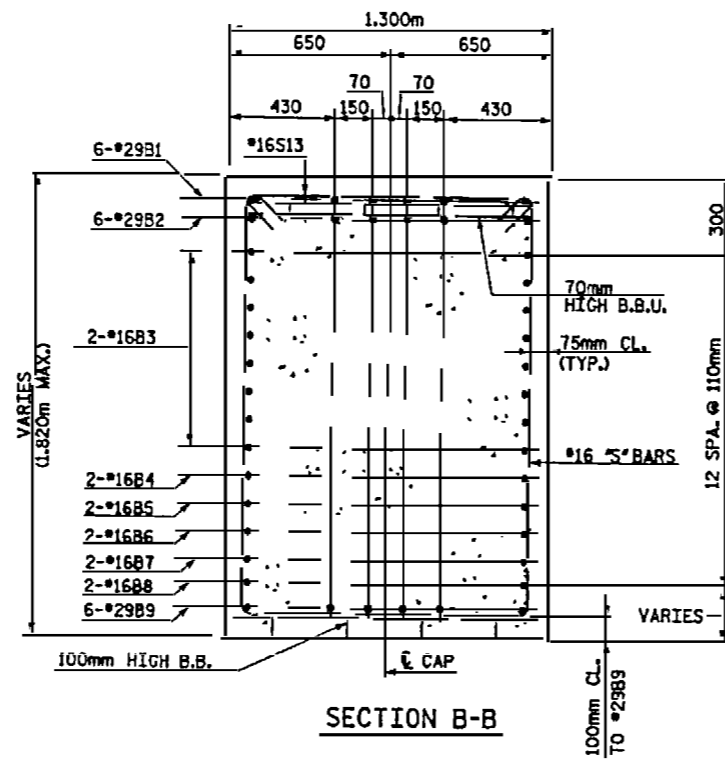
**HNTB** HNTB NORTH CAROLINA  
 343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609  
 DRAWN BY: J. BAYNE      DATE: 7/00  
 CHECKED BY: G. O'NEAL      DATE: 8/05      DWG. NO. 31

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

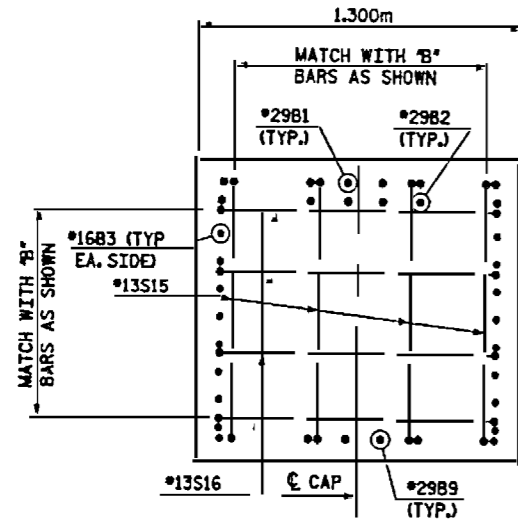
TOTAL SHEETS: 101



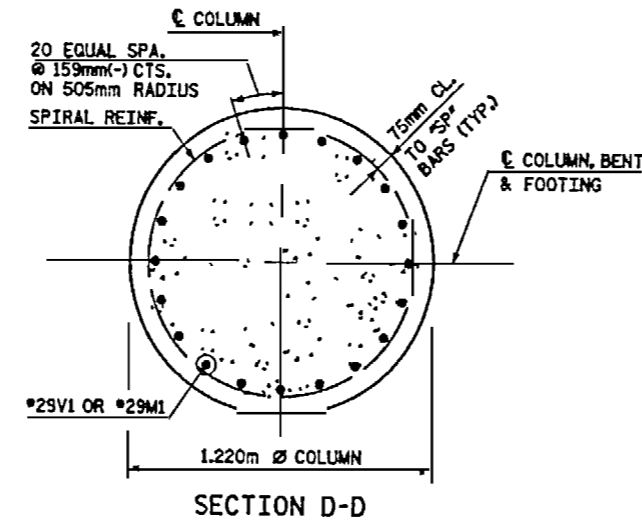
SECTION A-A



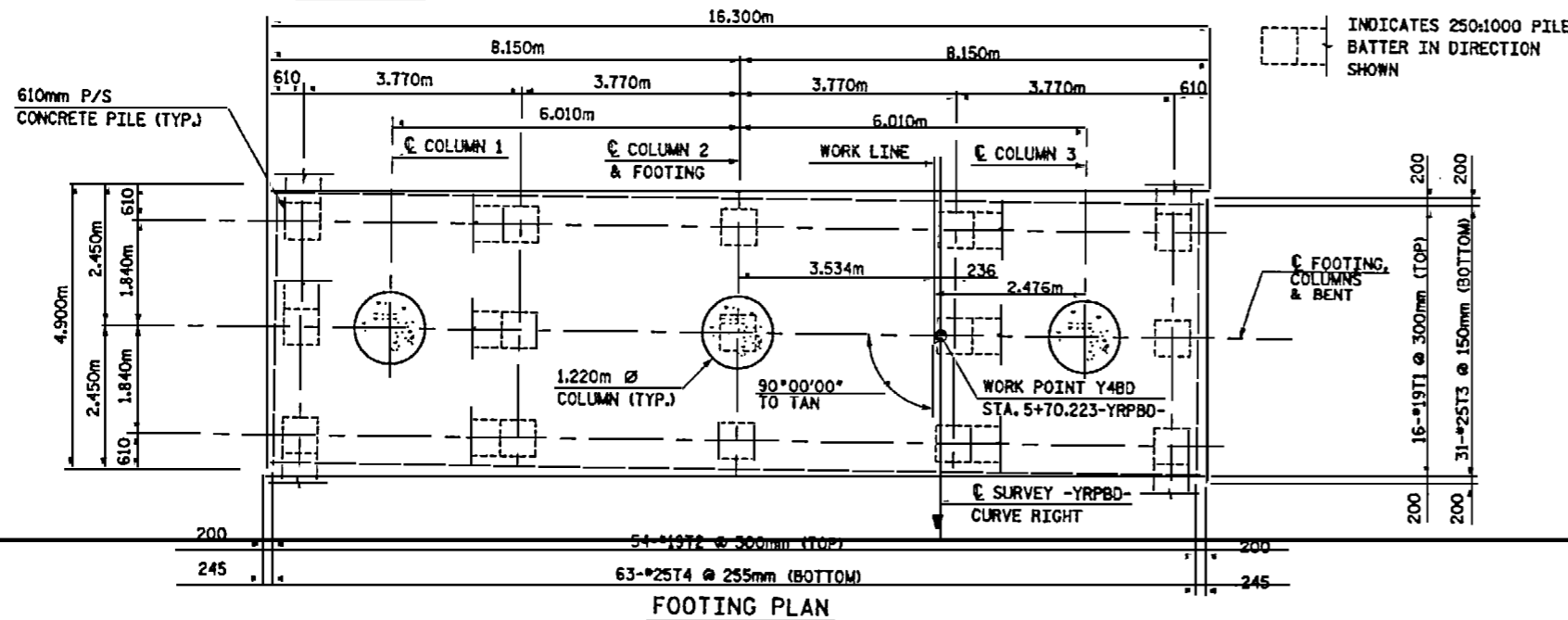
SECTION B-B



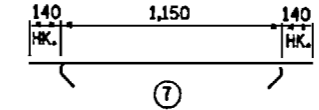
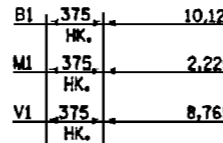
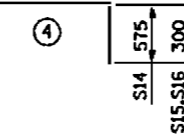
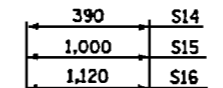
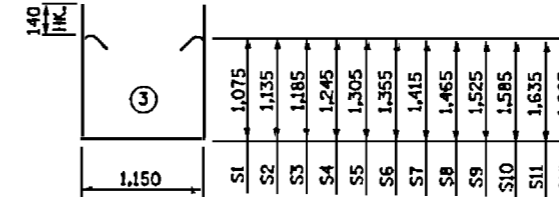
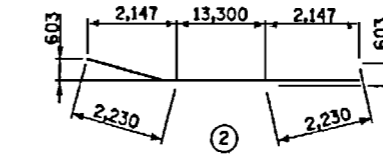
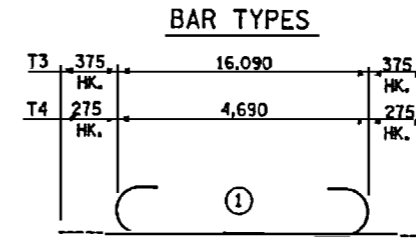
VIEW C-C



SECTION D-D



FOOTING PLAN



ALL BAR DIMENSIONS ARE OUT TO OUT

\* THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.



BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 4BD					
B1	12	#29		10,500	638
B2	6	#29	STR.	17,600	534
B3	16	#16	STR.	17,600	437
B4	2	#16	STR.	16,600	52
B5	2	#16	STR.	15,800	49
B6	2	#16	STR.	15,020	47
B7	2	#16	STR.	14,240	44
B8	2	#16	STR.	13,460	42
B9	6	#29		17,760	539
B10	18	#13	STR.	980	18
S1	2	#16	3	3,580	11
S2	2	#16	3	3,700	11
S3	2	#16	3	3,800	12
S4	2	#16	3	3,920	12
S5	2	#16	3	4,040	13
S6	2	#16	3	4,140	13
S7	2	#16	3	4,260	13
S8	2	#16	3	4,360	14
S9	2	#16	3	4,480	14
S10	2	#16	3	4,600	14
S11	2	#16	3	4,700	15
S12	54	#16	3	4,760	399
S13	76	#16	7	1,440	170
S14	80	#13	4	1,540	122
S15	8	#13	4	1,600	13
S16	8	#13	4	1,720	14
SP-1	3	*	5	354,520	1,057
V1	60	#29	6	9,140	2,775
W1	60	#29	6	2,600	789
T1	16	#19	STR.	16,100	576
T2	54	#19	STR.	4,700	567
T3	31	#25	1	16,840	2,074
T4	63	#25	1	5,240	1,312

QUANTITIES

EPOXY COATED REINFORCING STEEL	Kg.	11,353
EPOXY COATED SPIRAL COL. REINF. STEEL	Kg.	1,057
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	96.2
POUR 2 COLUMNS	CU. METERS	27.0
POUR 3 CAP	CU. METERS	41.8
TOTAL	CU. METERS	165.0
610mm P/S CONC. PILES	NO.	15
	METERS	186.0
STEEL PILE TIPS	NO.	15

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

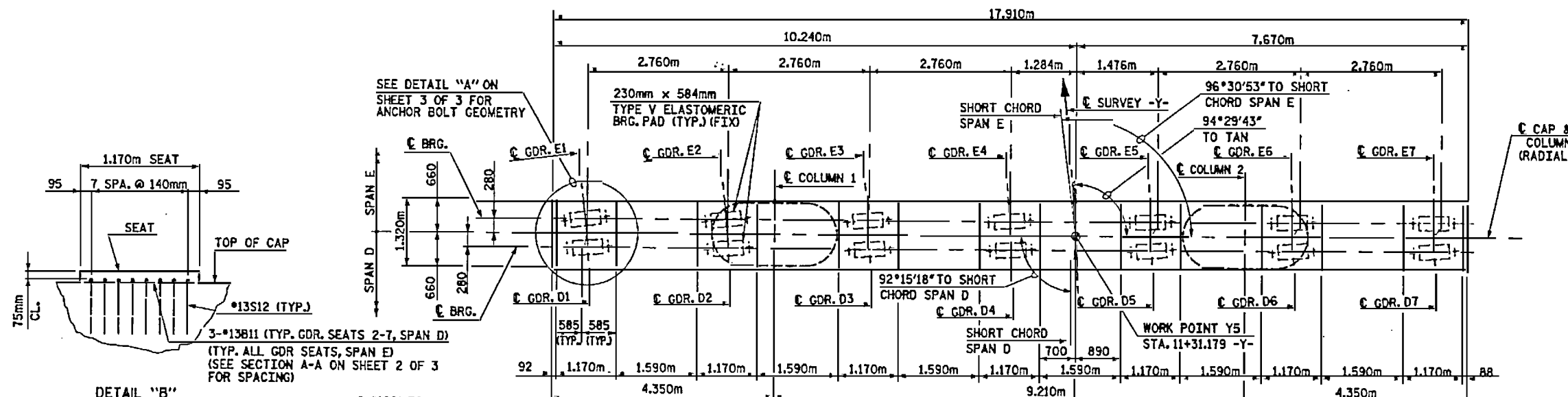
SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 4BD

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. 5th Forks Rd., Suite 200, Raleigh, N.C. 27603  
DRAWN BY: J. BAYNE DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 8/00  
DWG. NO. 92

REVISIONS					SHEET NO. S-32
NO.	BY	DATE	NO.	BY	
1			3		
2			4		

TOTAL SHEETS 101



**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.

DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR, FOR CALCIUM NITRATE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

EXISTING BENT E6, LOCATED AT PROPOSED BENT 5, SHALL BE REMOVED (IE. BENT CAP AND COLUMNS) TO TOP OF EXISTING PILE CAP. REMOVAL SHALL NOT EXCEED THE LIMITS GIVEN IN THE PLANS AND SHALL NOT BE UNDERTAKEN UNTIL APPROVAL HAS BEEN GIVEN BY THE ENGINEER.

THE TOP SURFACE OF THE EXISTING PILE CAP BELOW THE PROPOSED SPREAD FOOTING SHALL BE ROUGHENED TO A FULL 6mm AMPLITUDE AND CLEANED PRIOR TO CASTING NEW CONCRETE AGAINST SURFACE.

THE YIELD LOAD FOR THE \*16D1 DOWELS SHALL BE 82.7 Kn. AN EMBEDMENT LENGTH OF 300mm HAS BEEN ASSUMED FOR REINFORCING LENGTH. CONTRACTOR SHALL ADJUST BAR LENGTH FOR MANUFACTURER REQUIRED EMBEDMENT LENGTH. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED BOLTS OR DOWELS.

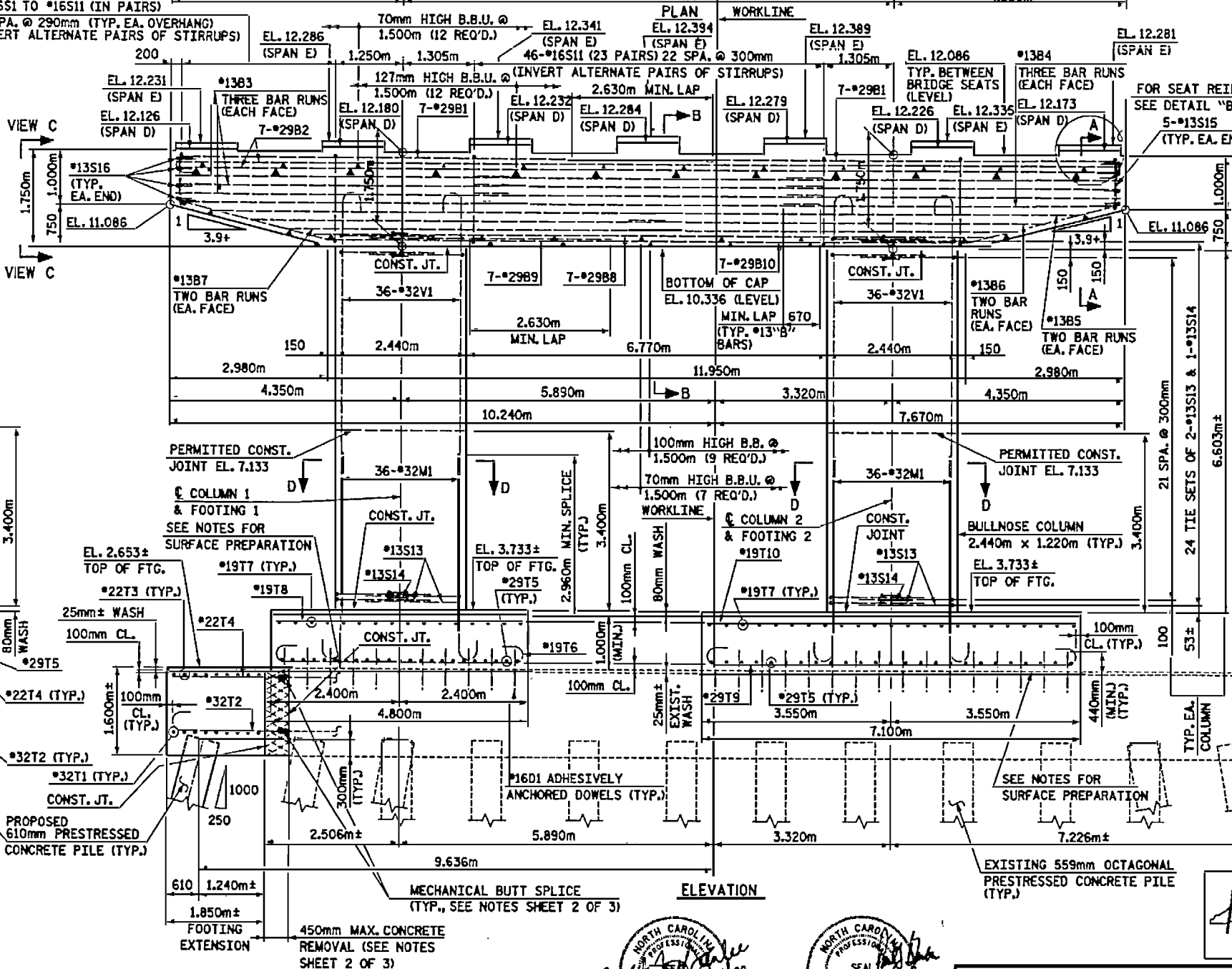
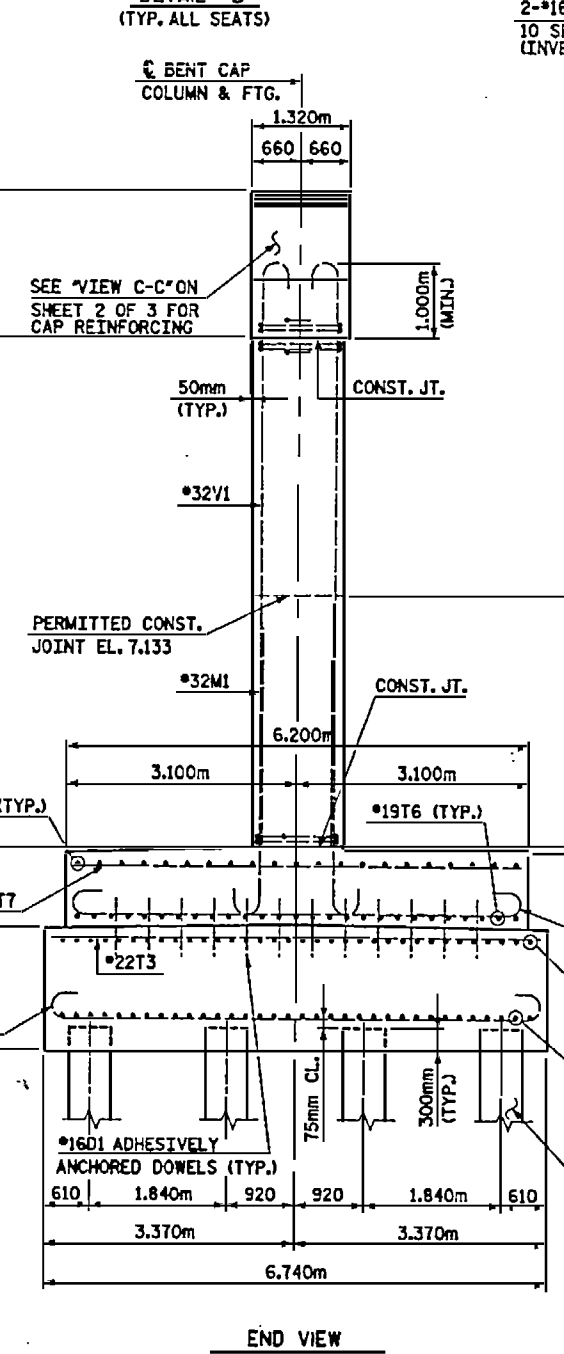
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOOTING ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA FURNISHED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF FOOTING ELEVATIONS AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTENT WITH THE CONTRACT PLAN ELEVATIONS.

FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISION ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 5. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

THE REMOVAL OF THE BENT CAP AND COLUMNS AND THE PARTIAL REMOVAL OF THE PILE CAP ON EXISTING BENT E6 SHALL BE INCLUDED IN THE REMOVAL OF EXISTING STRUCTURE.

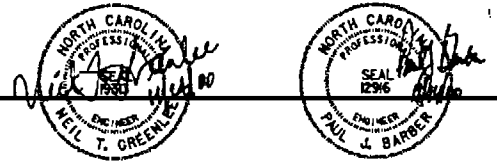


FOR SEAT REINF. SEE DETAIL "B" 5-\*13S15 (TYP. EA. END)

EL. 2.653± TOP OF EXIST. FOOTING E6 (TO REMAIN)

PROJECT No. U-092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 1 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 5



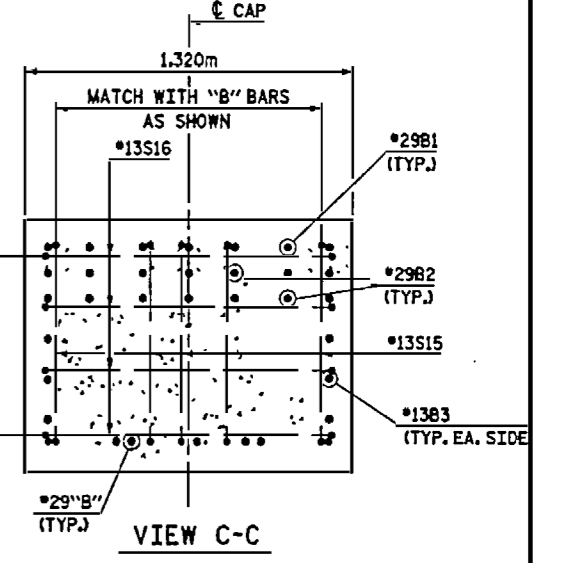
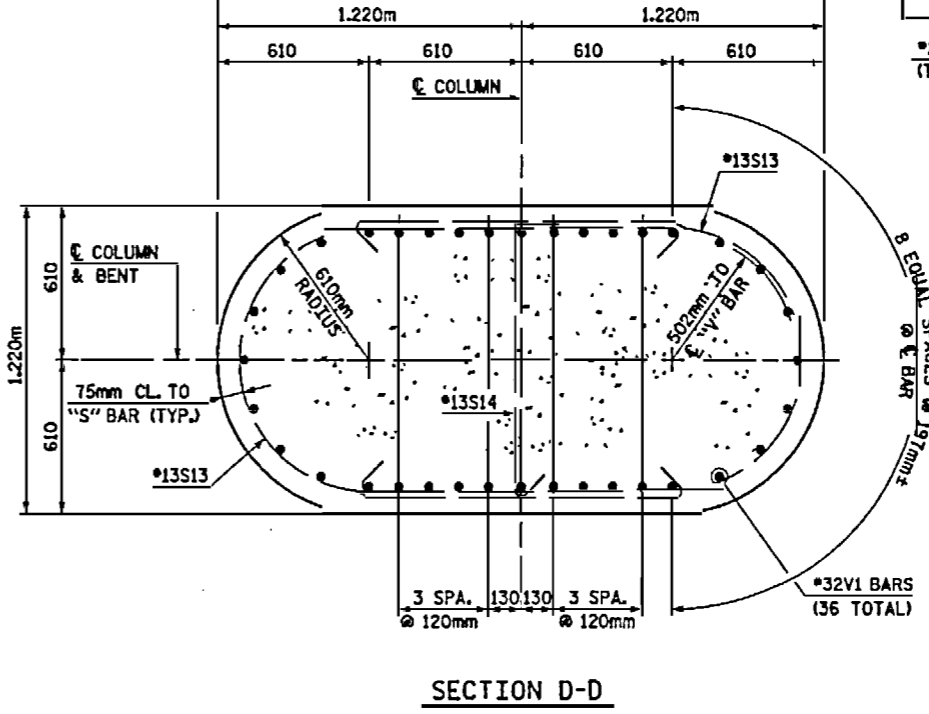
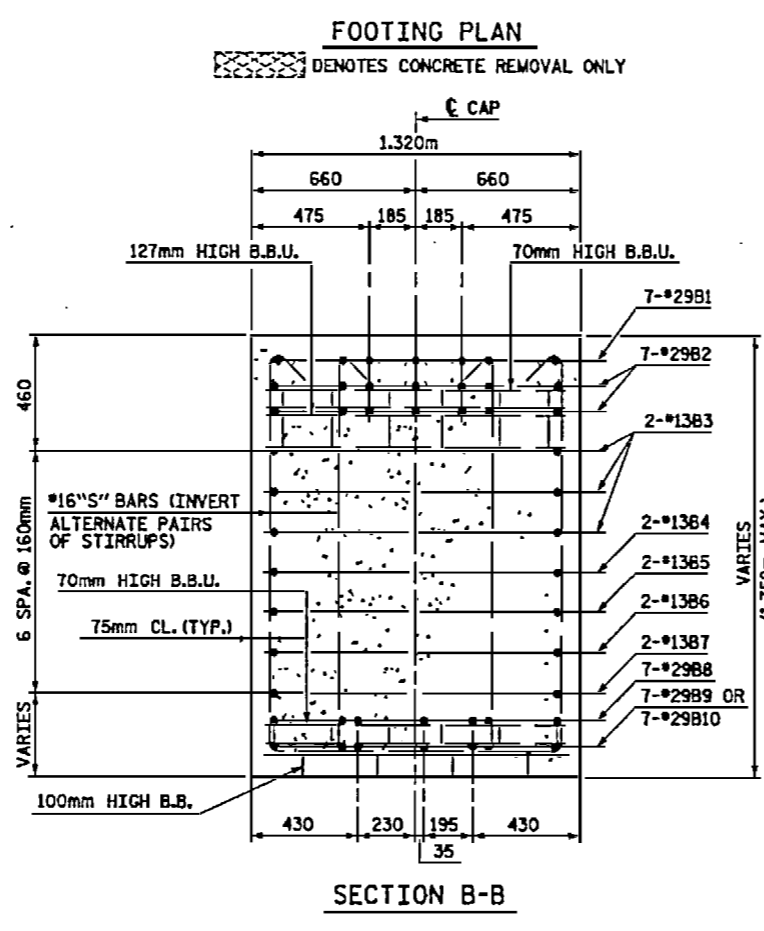
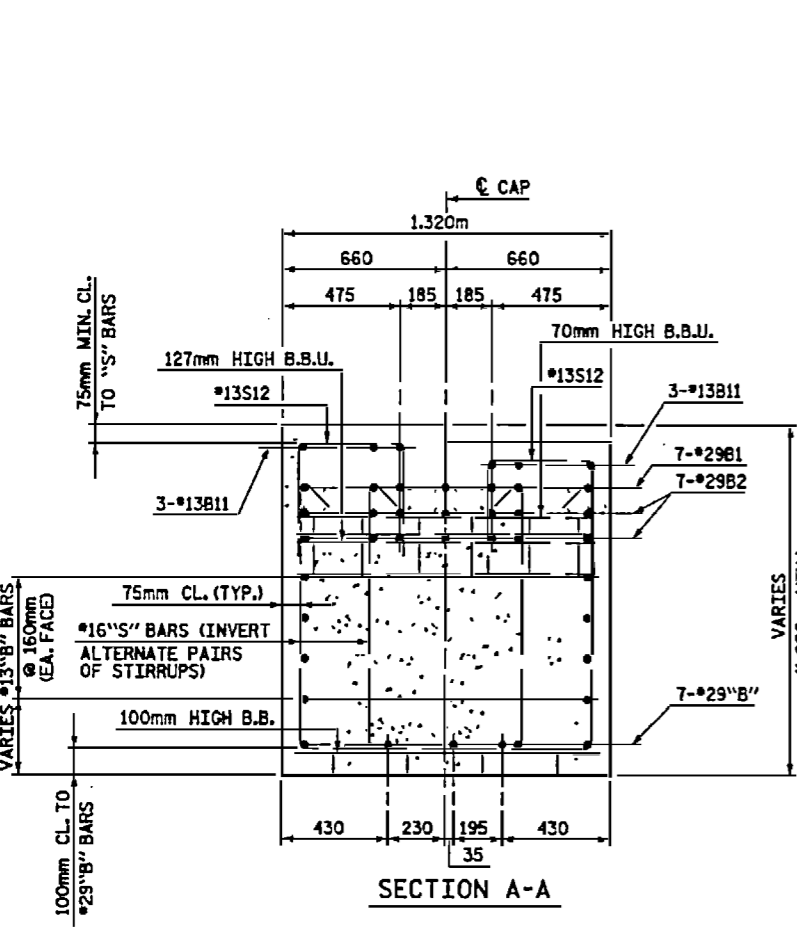
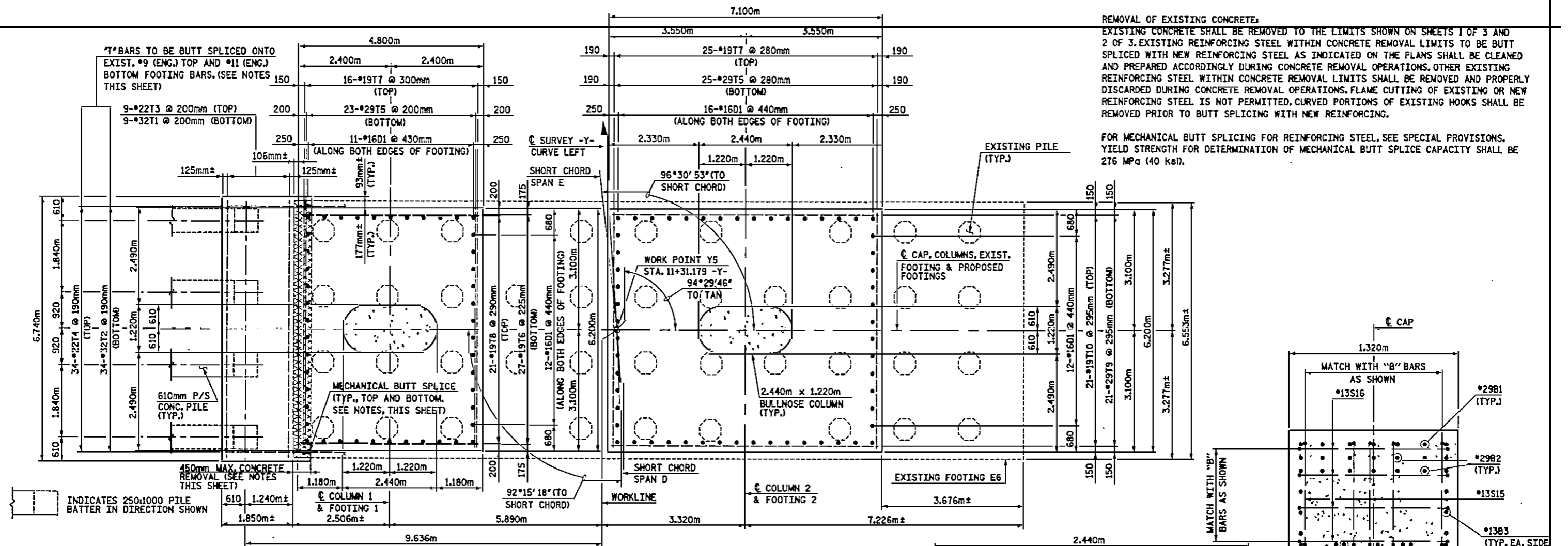
REVISIONS		SHEET
NO.	DATE	
1		3
2		4

DRWN BY: R. KNIGHT  
 CHECKED BY: C. OLIVER  
 DATE: 7/00  
 DATE: 7/00  
 DWG. NO. 93

--- DENOTES CONCRETE REMOVAL ONLY

**REMOVAL OF EXISTING CONCRETE:**  
 EXISTING CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN ON SHEETS 1 OF 3 AND 2 OF 3. EXISTING REINFORCING STEEL WITHIN CONCRETE REMOVAL LIMITS TO BE BUTT SPLICED WITH NEW REINFORCING STEEL AS INDICATED ON THE PLANS SHALL BE CLEANED AND PREPARED ACCORDINGLY DURING CONCRETE REMOVAL OPERATIONS. OTHER EXISTING REINFORCING STEEL WITHIN CONCRETE REMOVAL LIMITS SHALL BE REMOVED AND PROPERLY DISCARDED DURING CONCRETE REMOVAL OPERATIONS. FLAME CUTTING OF EXISTING OR NEW REINFORCING STEEL IS NOT PERMITTED. CURVED PORTIONS OF EXISTING HOOKS SHALL BE REMOVED PRIOR TO BUTT SPLICING WITH NEW REINFORCING.

FOR MECHANICAL BUTT SPLICING FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS. YIELD STRENGTH FOR DETERMINATION OF MECHANICAL BUTT SPLICE CAPACITY SHALL BE 276 MPa (40 ksi).



**FOOTING PLAN**  
 DENOTES CONCRETE REMOVAL ONLY

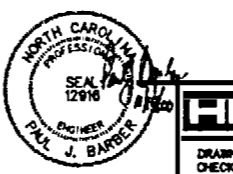
**SECTION A-A**

**SECTION B-B**

**SECTION D-D**

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 2 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 5

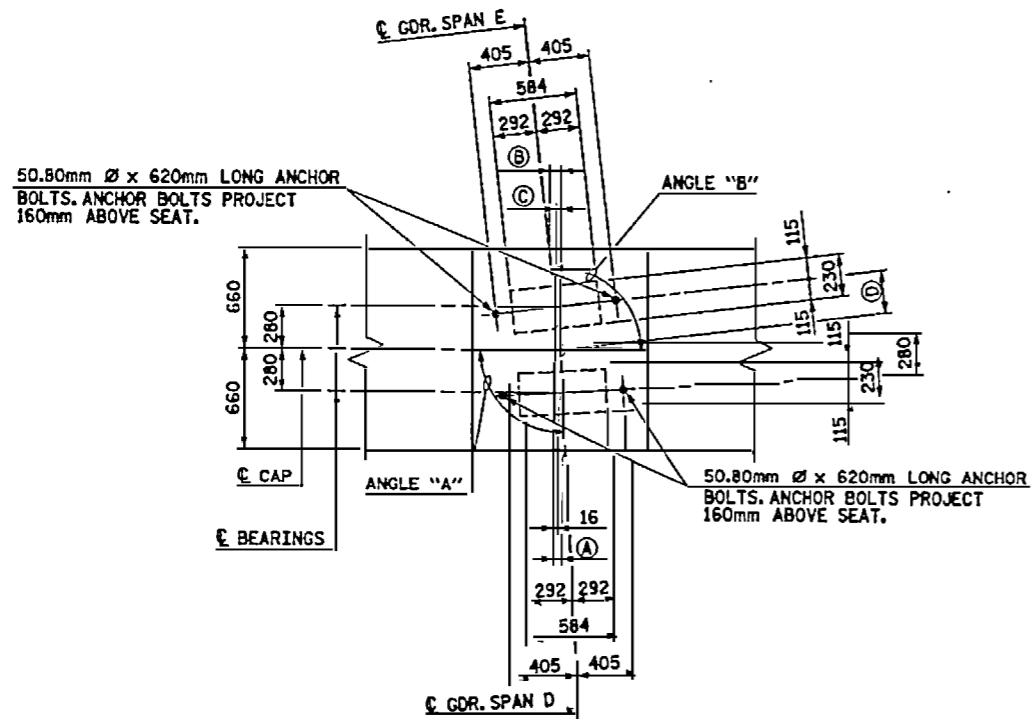


**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: R. KNIGHT  
 CHECKED BY: G. OLIVER  
 DATE: 7/00  
 DATE: 7/00  
 DWG. NO. 84

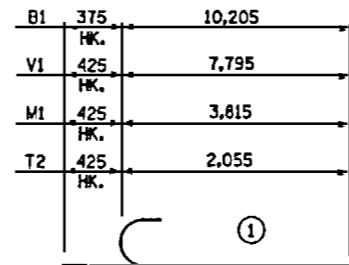
REVISIONS					SHEET NO. 3-14
NO.	BY	DATE	NO.	BY	
1			3		
2			4		

TOTAL SHEETS 151

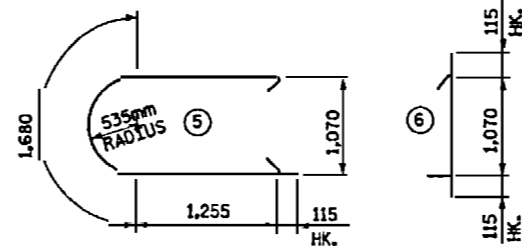
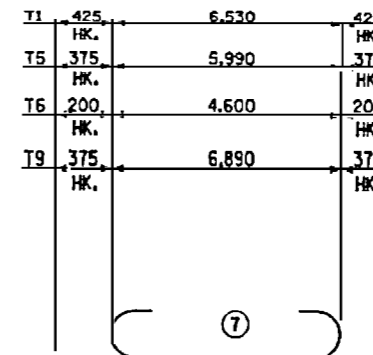
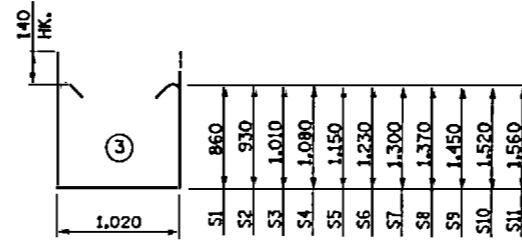
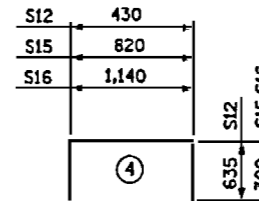
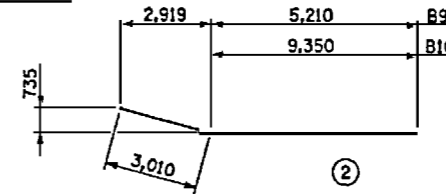
GIRDER	ANGLE "A"	(A)	GIRDER	ANGLE "B"	(B)	(C)	(D)
D1	93°22'11"	39	E1	96°46'53"	78	33	282
D2	93°10'40"	37	E2	95°42'14"	66	28	281
D3	93°10'39"	37	E3	94°36'08"	53	23	281
D4	93°10'38"	37	E4	93°28'36"	40	17	281
D5	93°10'37"	37	E5	92°19'39"	27	11	280
D6	93°10'36"	37	E6	91°09'16"	13	6	280
D7	93°10'35"	37	E7	89°57'30"	0	0	280



DETAIL A  
(TYP. ALL SEATS)



BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

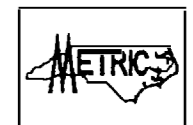
QUANTITIES

EPOXY COATED REINFORCING STEEL	Kg.	15,783
CLASS AA CONCRETE		
POUR 1 PILE CAP EXTENSION	CU. METERS	19.7
POUR 2 SPREAD FOOTINGS	CU. METERS	76.7
POUR 3 COLUMNS	CU. METERS	35.1
POUR 4 CAP	CU. METERS	40.4
TOTAL	CU. METERS	171.9
610mm P/S CONC. PILES	NO.	4
	METERS	48.0
STEEL PILE TIPS	NO.	4
FOUNDATION EXCAVATION FOR BENT 5	LUMP SUM	-

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 5					
B1	14	29	1	10,580	749
B2	14	29	STR.	17,760	1,258
B3	18	13	STR.	6,380	114
B4	6	13	STR.	6,320	38
B5	4	13	STR.	8,500	34
B6	4	13	STR.	7,860	31
B7	4	13	STR.	7,220	29
B8	7	29	STR.	12,100	429
B9	7	29	2	8,220	291
B10	7	29	2	12,360	438
B11	39	13	STR.	1,020	40
D1	102	16	STR.	740	117
S1	4	16	3	3,020	19
S2	4	16	3	3,160	20
S3	4	16	3	3,320	21
S4	4	16	3	3,460	21
S5	4	16	3	3,600	22
S6	4	16	3	3,760	23
S7	4	16	3	3,900	24
S8	4	16	3	4,040	25
S9	4	16	3	4,200	26
S10	4	16	3	4,340	27
S11	50	16	3	4,420	343
S12	112	13	4	1,700	189
S13	96	13	5	4,420	422
S14	48	13	6	1,300	62
S15	10	13	4	1,420	14
S16	8	13	4	1,740	14
V1	72	32	1	8,220	3,790
M1	72	32	1	4,240	1,955
T1	9	32	7	7,380	425
T2	34	32	1	2,480	540
T3	9	22	STR.	6,540	179
T4	34	22	STR.	2,060	213
T5	48	29	7	6,740	1,637
T6	27	19	7	5,000	302
T7	41	19	STR.	6,000	550
T8	21	19	STR.	4,600	216
T9	21	29	7	7,640	812
T10	21	19	STR.	6,900	324



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT I2+52.890 -Y-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

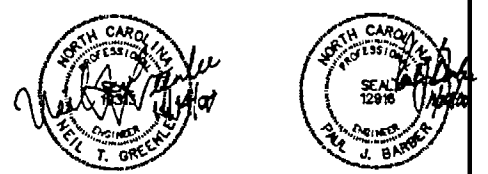
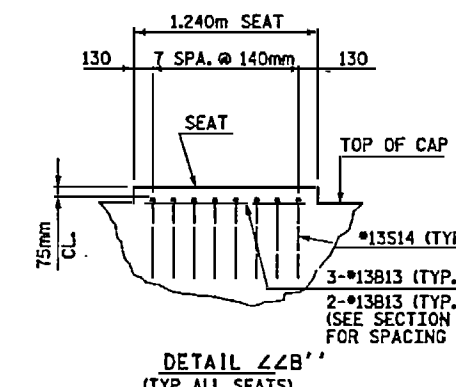
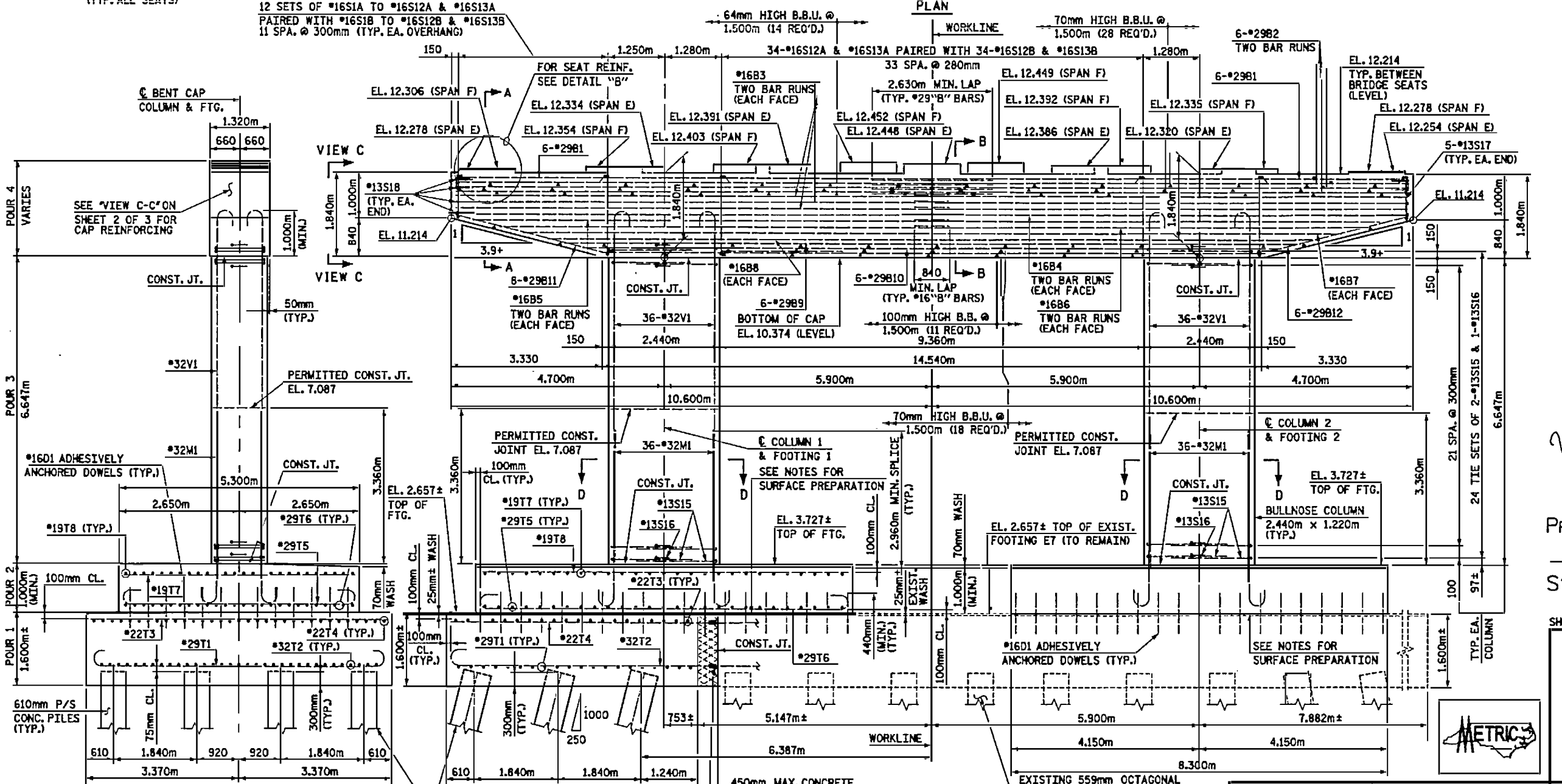
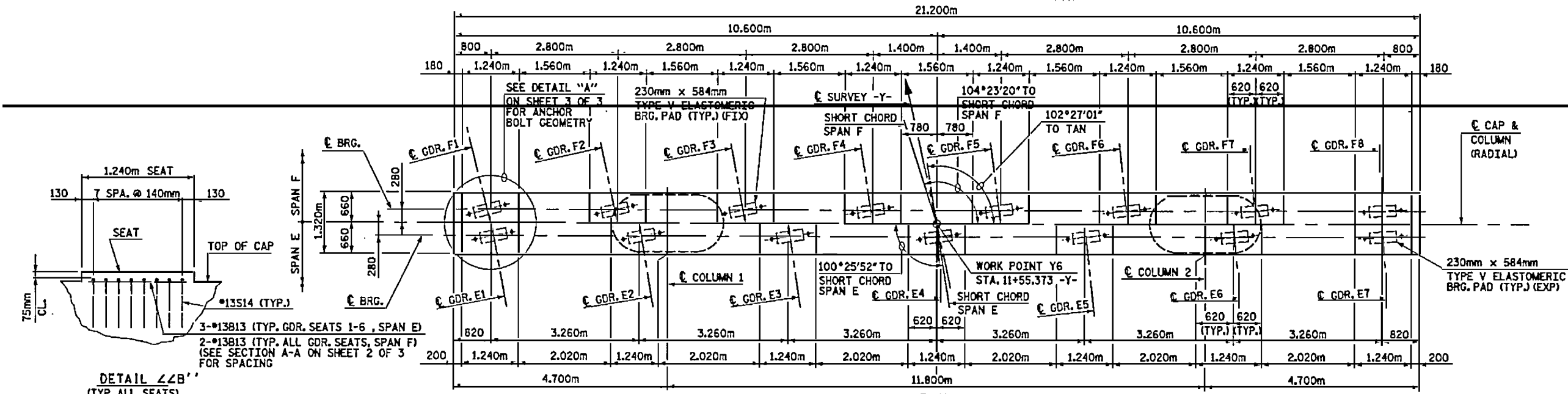
SUBSTRUCTURE  
BENT 5



**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. 5th Forks Rd, Suite 200, Raleigh, N.C. 27609  
DRAWN BY: R. KNIGHT DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00 DWG. NO. 95

REVISIONS						SHEET NO. S-95
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS: 101
2			4			





PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 1 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE BENT 6**

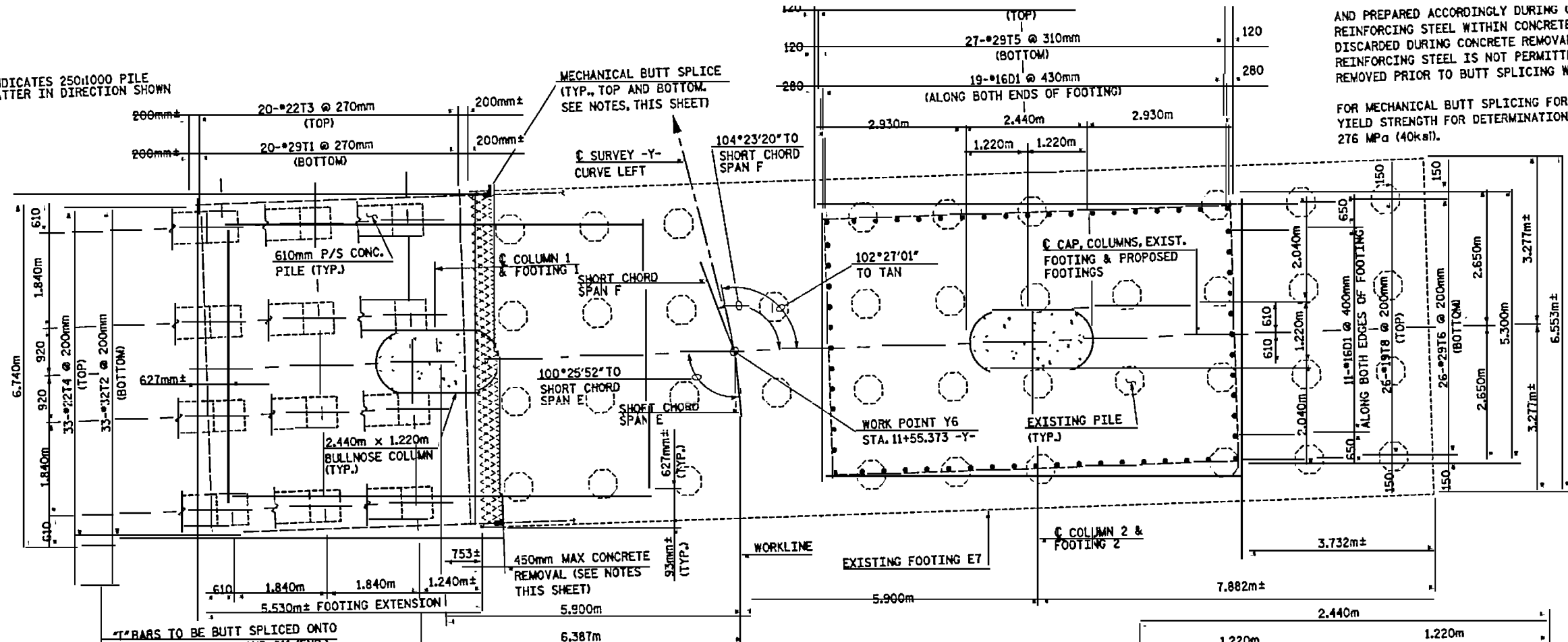
REVISIONS					SHEET NO. 3-36
NO.	BY	DATE	NO.	BY	
1			3		
2			4		

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. St. Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY: R. KNIGHT DATE: 7/00  
 CHECKED BY: L. OLYVER DATE: 8/00 DWG. NO. 96

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN

AND PREPARED ACCORDINGLY DURING CONCRETE REMOVAL OPERATIONS. REINFORCING STEEL WITHIN CONCRETE REMOVAL LIMITS SHALL BE REMOVED AND PROPERLY DISCARDED DURING CONCRETE REMOVAL OPERATIONS. FLAME CUTTING OF EXISTING OR NEW REINFORCING STEEL IS NOT PERMITTED. CURVED PORTIONS OF EXISTING HOOKS SHALL BE REMOVED PRIOR TO BUTT SPlicing WITH NEW REINFORCING.

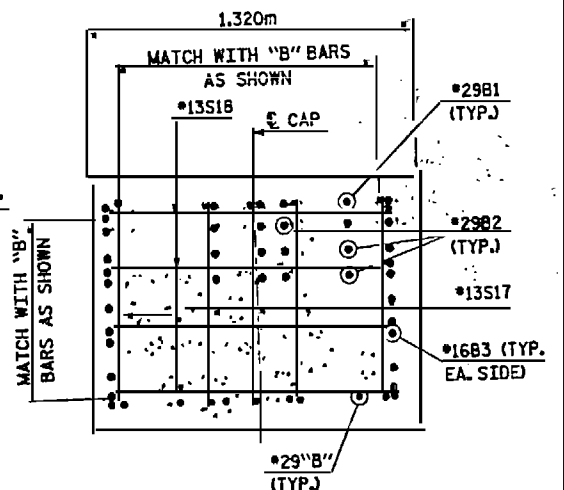
FOR MECHANICAL BUTT SPlicing FOR REINFORCING STEEL, SEE SPECIAL PROVISIONS. YIELD STRENGTH FOR DETERMINATION OF MECHANICAL BUTT SPlicing CAPACITY SHALL BE 276 MPa (40ksi).



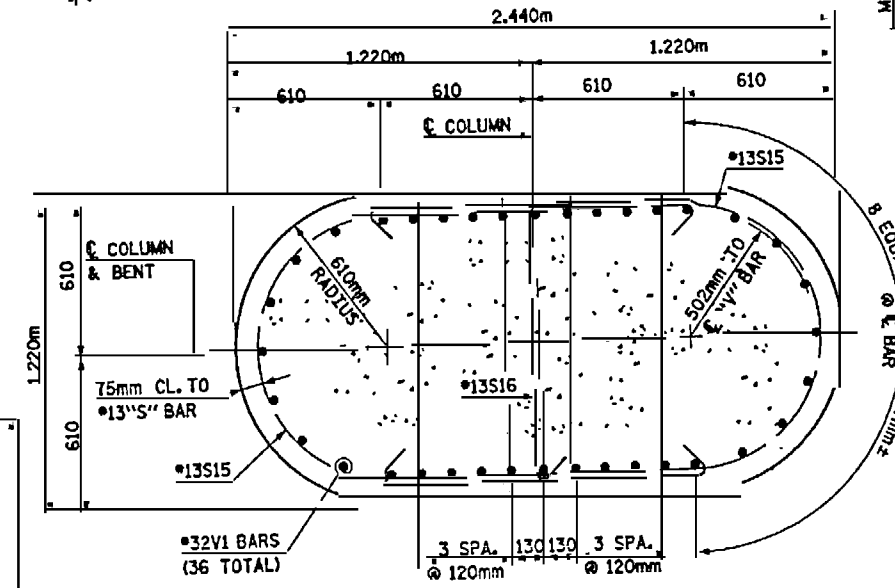
FOOTING PLAN

NOTE: SPREAD FOOTING REINFORCING AND DIMENSIONS ARE TYPICAL FOR EACH SPREAD FOOTING.  
 DENOTES CONCRETE REMOVAL ONLY

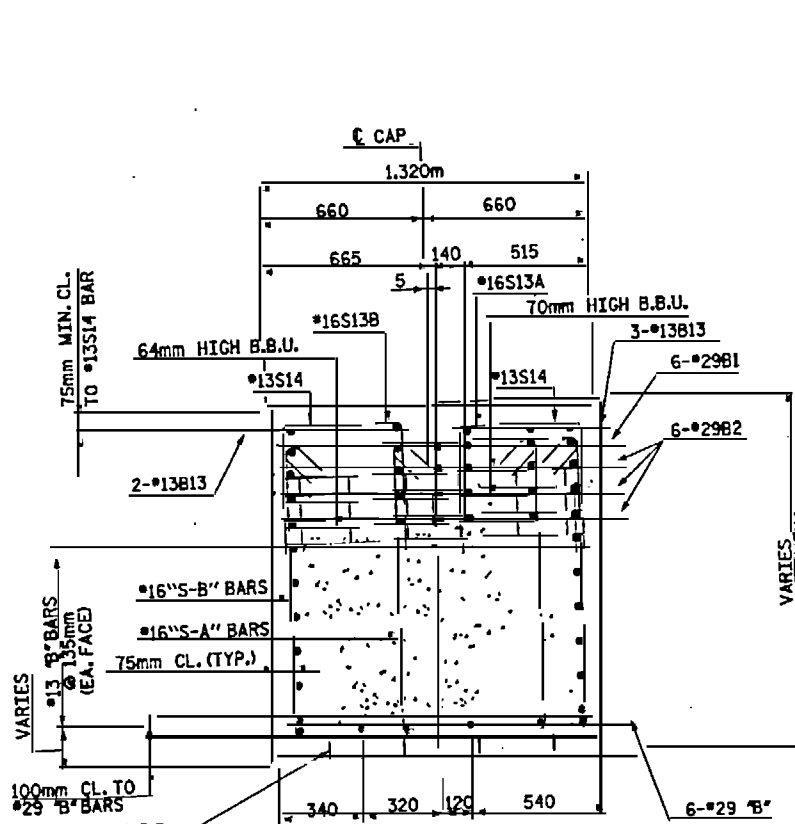
\*T BARS TO BE BUTT SPliced ONTO EXIST. \*9 (ENG.) TOP AND \*11 (ENG.) BOTTOM FOOTING BARS. (SEE NOTES THIS SHEET)



VIEW C-C



SECTION D-D



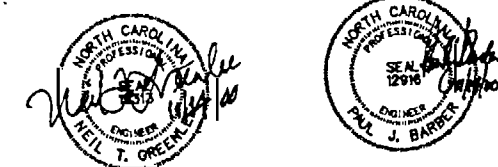
SECTION B-B



PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 2 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 BENT 6



HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DWG. NO. 97

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

**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.

DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR. FOR CALCIUM NITRATE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

EXISTING BENT E7, LOCATED AT PROPOSED BENT 6, SHALL BE REMOVED (I.E. BENT CAP AND COLUMNS) TO TOP OF EXISTING PILE CAP. REMOVAL SHALL NOT EXCEED THE LIMITS GIVEN IN THE PLANS AND SHALL NOT BE UNDERTAKEN UNTIL APPROVAL HAS BEEN GIVEN BY THE ENGINEER. EXISTING COLUMN REINFORCING SHALL BE REMOVED TO A MINIMUM DEPTH OF 100mm BELOW TOP OF EXISTING PILE CAP SURFACE AND HOLE SHALL BE FILLED WITH CLASS AA CONCRETE. WHERE EXISTING COLUMN REINFORCING IS BENEATH PROPOSED SPREAD FOOTING, REINFORCING MAY BE CUT FLUSH WITH TOP OF EXISTING CAP. PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE SEVERAL PAY ITEMS FOR THE BENT.

THE TOP SURFACE OF THE EXISTING PILE CAP BELOW THE PROPOSED SPREAD FOOTING SHALL BE ROUGHENED TO A FULL 6mm AMPLITUDE AND CLEANED PRIOR TO CASTING NEW CONCRETE AGAINST SURFACE.

THE YIELD LOAD FOR THE #16D1 DOWELS SHALL BE 82.7 KN. AN EMBEDMENT LENGTH OF 300mm HAS BEEN ASSUMED FOR REINFORCING LENGTH. CONTRACTOR SHALL ADJUST BAR LENGTH FOR MANUFACTURER REQUIRED EMBEDMENT LENGTH. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED BOLTS OR DOWELS.

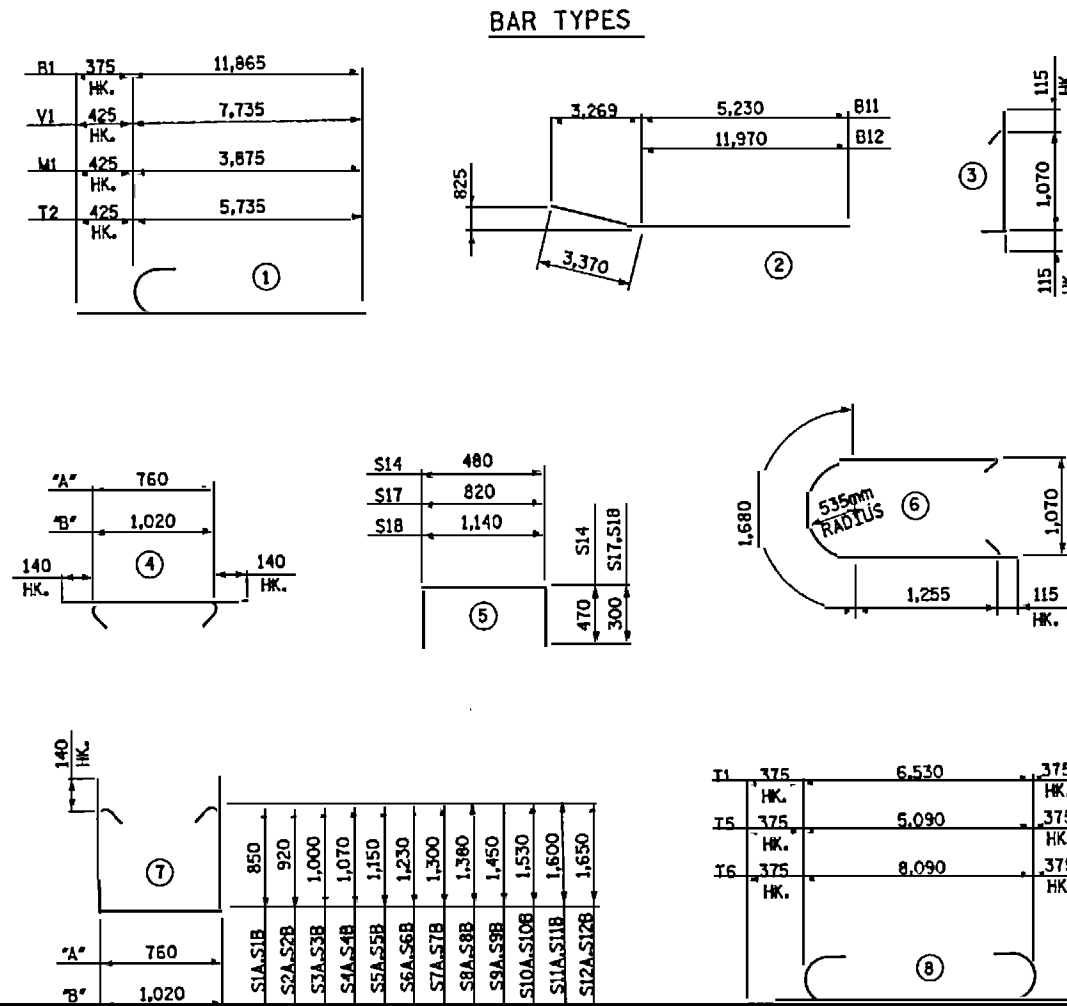
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

FOOTING ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA FURNISHED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF FOOTING ELEVATIONS AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION SHALL NOT BEGIN PRIOR TO NOTIFICATION FROM THE ENGINEER THAT THE FIELD VERIFIED ELEVATIONS ARE CONSISTENT WITH THE CONTRACT PLAN ELEVATIONS.

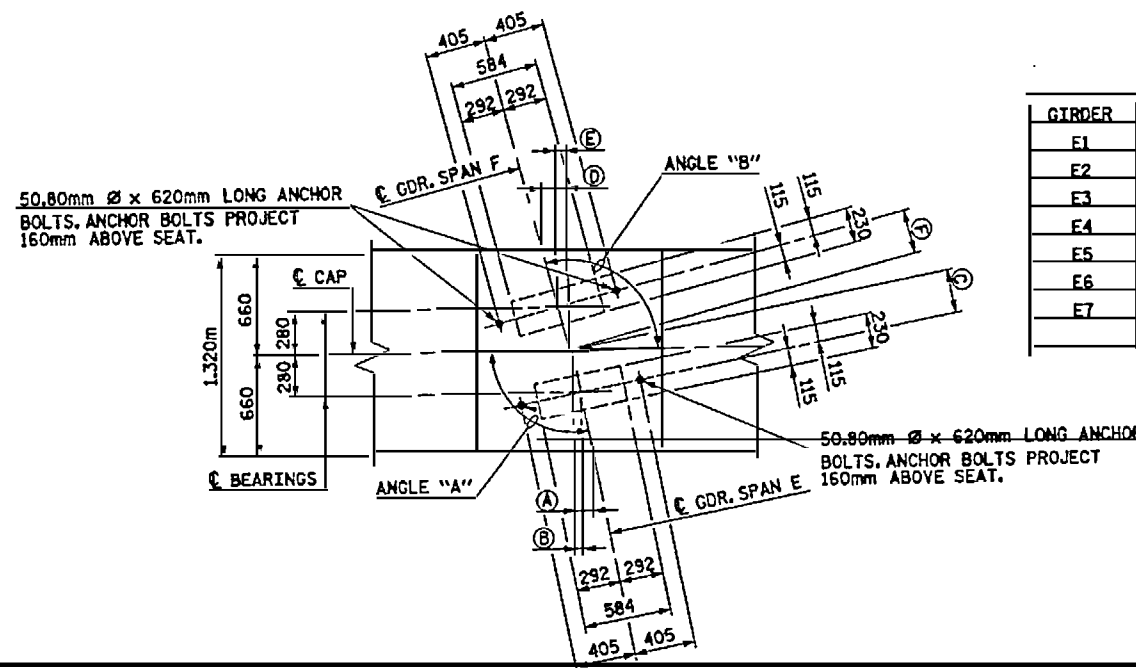
FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISION 'ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS'.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 6. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

THE REMOVAL OF THE BENT CAP AND COLUMNS AND THE PARTIAL REMOVAL OF THE PILE CAP ON EXISTING BENT E7 SHALL BE INCLUDED IN THE REMOVAL OF EXISTING STRUCTURE.



ALL BAR DIMENSIONS ARE OUT TO OUT



**DETAIL A**  
(TYP. ALL SEATS)

BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 6					
B1	12	29	1	12,240	743
B2	36	29	STR.	11,860	2160
B3	12	16	STR.	11,860	221
B4	4	16	STR.	11,600	72
B5	4	16	STR.	11,080	69
B6	4	16	STR.	10,540	65
B7	4	16	STR.	17,320	108
B8	4	16	STR.	16,240	101
B9	12	29	STR.	15,600	947
B10	12	29	STR.	14,820	900
B11	6	29	2	8,600	261
B12	6	29	2	15,340	466
B13	34	13	STR.	1,080	36
D1	120	16	STR.	740	138
S1A	2	16	7	2,740	9
S1B	2	16	7	3,000	9
S2A	2	16	7	2,880	9
S2B	2	16	7	3,140	10
S3A	2	16	7	3,040	9
S3B	2	16	7	3,300	10
S4A	2	16	7	3,180	10
S4B	2	16	7	3,440	11
S5A	2	16	7	3,340	10
S5B	2	16	7	3,600	11
S6A	2	16	7	3,500	11
S6B	2	16	7	3,760	12
S7A	2	16	7	3,640	11
S7B	2	16	7	3,900	12
S8A	2	16	7	3,800	12
S8B	2	16	7	4,060	13
S9A	2	16	7	3,940	12
S9B	2	16	7	4,200	13
S10A	2	16	7	4,100	13
S10B	2	16	7	4,360	14
S11A	2	16	7	4,240	13
S11B	2	16	7	4,500	14
S12A	36	16	7	4,340	242
S12B	36	16	7	4,600	257
S13A	58	16	4	1,040	94
S13B	58	16	4	1,300	117

BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 6					
S14	112	13	5	1,420	158
S15	96	13	6	4,420	422
S16	48	13	3	1,300	62
S17	10	13	5	1,420	14
S18	8	13	5	1,740	14
V1	72	32	1	8,160	3,762
M1	72	32	1	4,300	1,983
T1	20	29	8	7,280	737
T2	33	32	1	6,160	1,302
T3	20	22	STR.	6,540	398
T4	33	22	STR.	5,740	576
T5	54	29	8	5,840	1,596
T6	52	29	8	8,840	2,326
T7	54	19	STR.	5,100	616
T8	52	19	STR.	8,100	941

QUANTITIES	
EPOXY COATED REINFORCING STEEL	kg. 22,149
CLASS AA CONCRETE	
POUR 1 PILE CAP EXTENSION	CU. METERS 58.8
POUR 2 SPREAD FOOTINGS	CU. METERS 91.1
POUR 3 COLUMNS	CU. METERS 35.4
POUR 4 CAP	CU. METERS 49.6
TOTAL	CU. METERS 234.9
610mm P/S CONC. PILES	NO. 12
	METERS 144.0
STEEL PILE TIPS	NO. 12
FOUNDATION EXCAVATION FOR BENT 6	LUMP SUM -

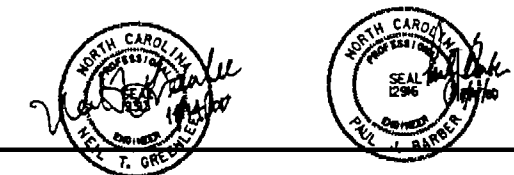
NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

GIRDER	ANGLE "A"	(A)	(B)	(C)	GIRDER	ANGLE "B"	(D)	(E)	(F)
E1	100°41'53"	125	53	285	F1	104°21'13"	169	72	289
E2	99°37'13"	112	47	284	F2	102°27'19"	146	62	287
E3	98°31'07"	99	42	283	F3	100°42'00"	125	53	285
E4	97°23'36"	86	36	282	F4	99°04'30"	105	45	284
E5	96°14'38"	72	31	282	F5	97°42'57"	89	38	283
E6	95°04'16"	59	25	281	F6	96°14'53"	72	31	282
E7	93°52'29"	45	19	281	F7	94°46'54"	55	23	281
					F8	93°19'07"	38	16	280



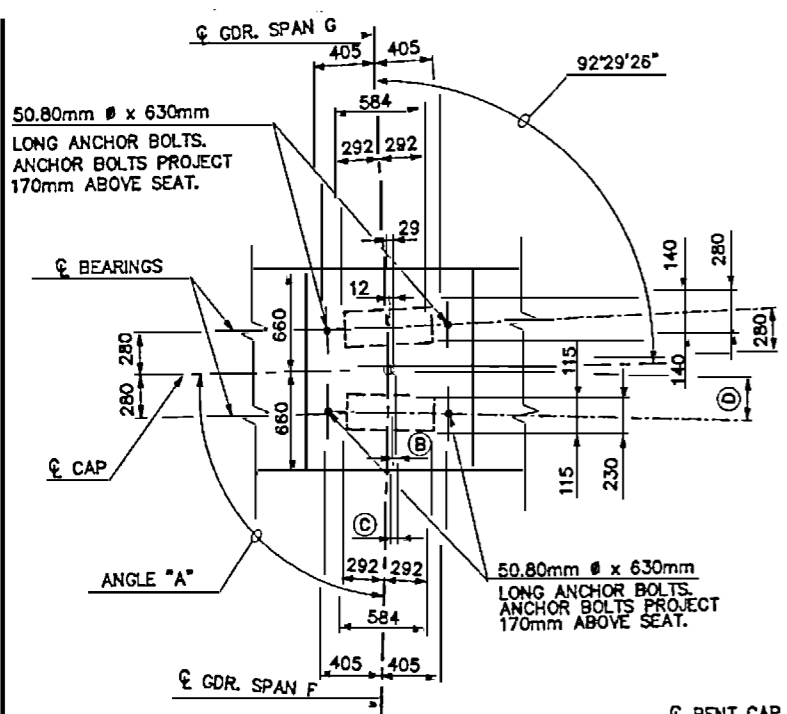
PROJECT No. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

SHEET 3 OF 3  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALPH  
 SUBSTRUCTURE  
 BENT 6



HNTB HNTB NORTH CAROLINA, P.C.					
343 E. Six Forks Rd., Suite 200, Raleigh, NC 27609					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

DRWN BY: R. KNIGHT DATE: 7/00  
 CHECKED BY: C. OLIVER DATE: 8/00 DWG. NO.: 98



280mm x 584mm TYPE V ELASTOMERIC BRG. PAD (TYP. SPAN G) (EXP.)

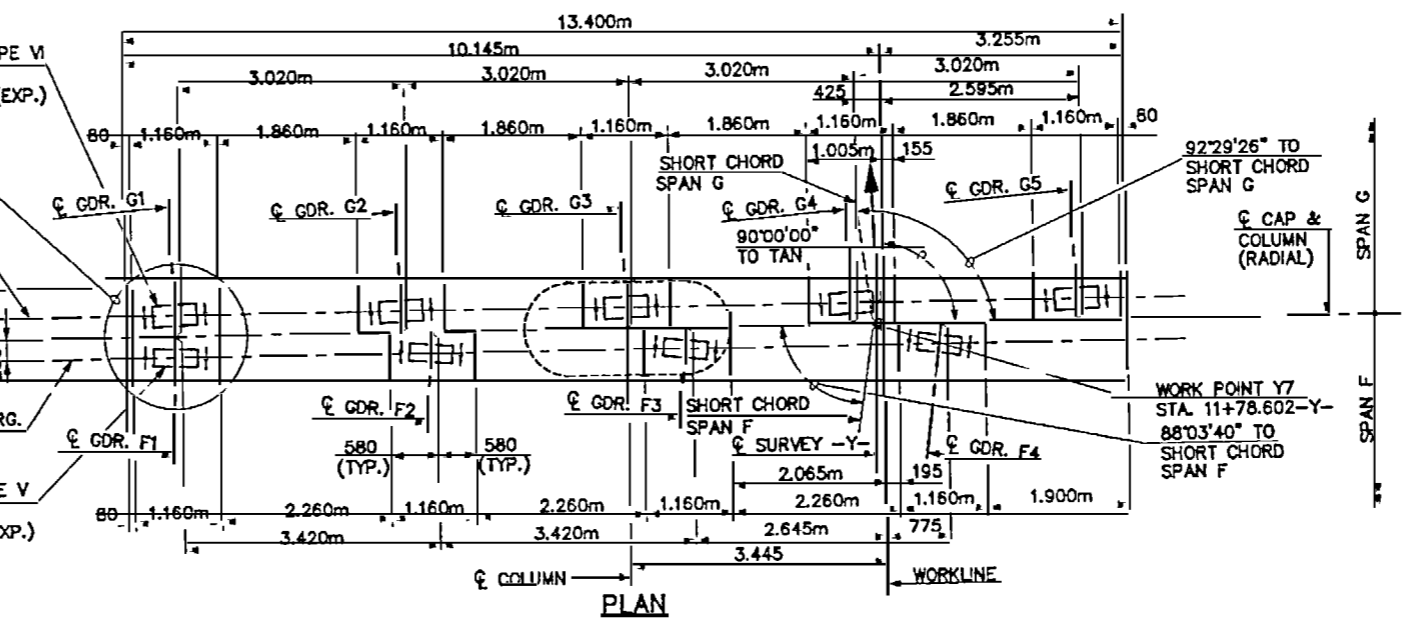
SEE DETAIL "A" FOR ANCHOR BOLT GEOMETRY

230mm x 584mm TYPE V ELASTOMERIC BRG. PAD (TYP. SPAN F) (EXP.)

SEE "VIEW C-C" ON SHEET 2 OF 2 FOR CAP REINFORCING

**DETAIL "A"**  
(TYP. ALL SEATS)

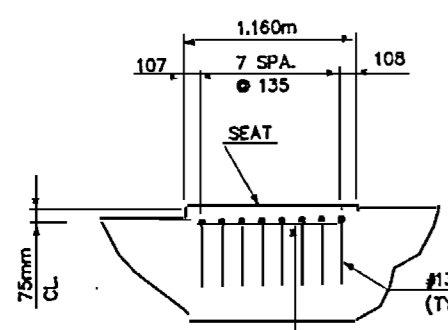
GIRDER	ANGLE "A"	Ⓑ	Ⓒ	Ⓓ
F1	88°01'33"	10	23	280
F2	86°07'39"	19	45	281
F3	84°22'20"	27	65	281
F4	82°44'51"	35	83	282



PLAN

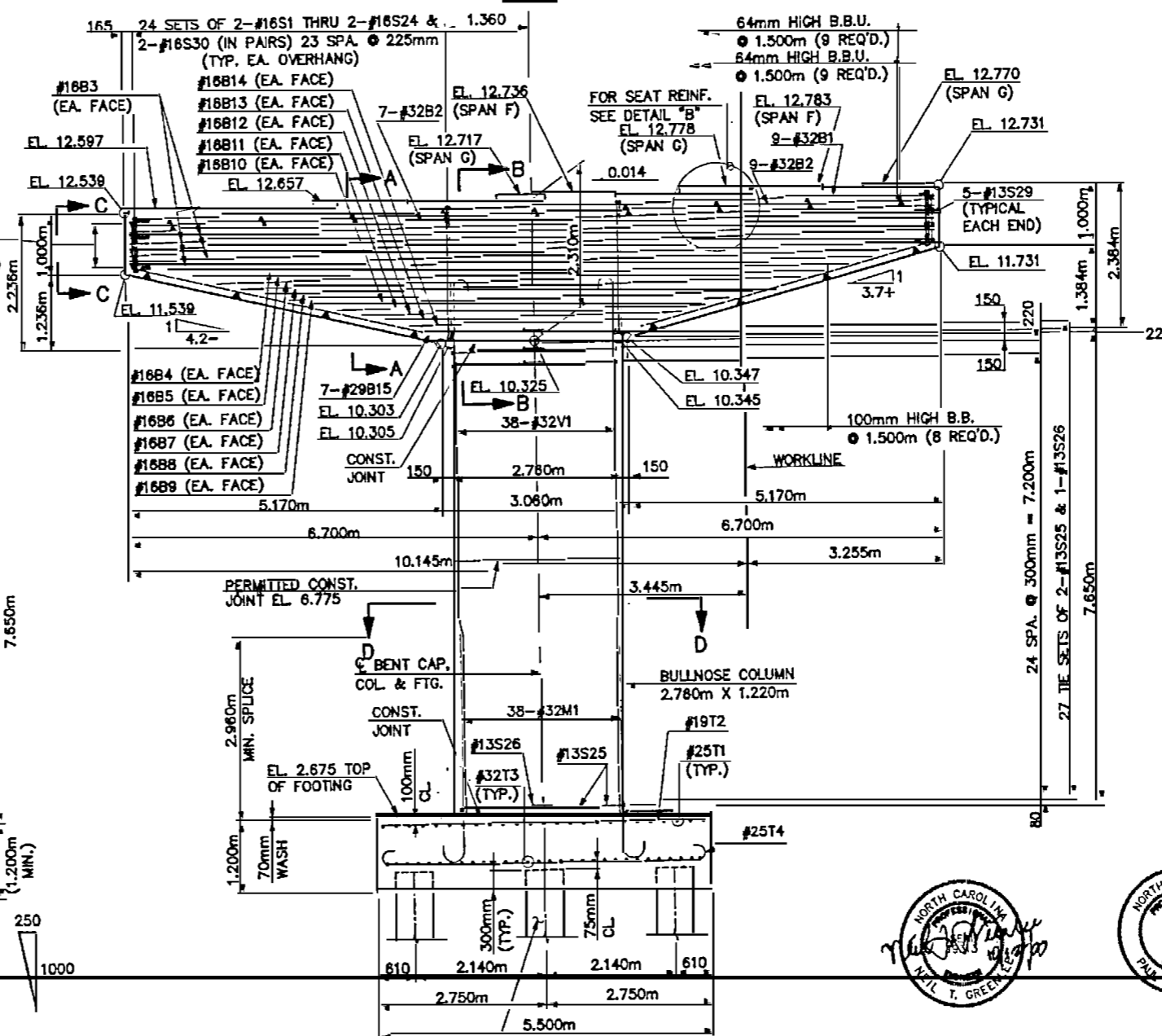
NOTES

- 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.
- DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.
- THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
- CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.
- FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.
- STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 7. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.



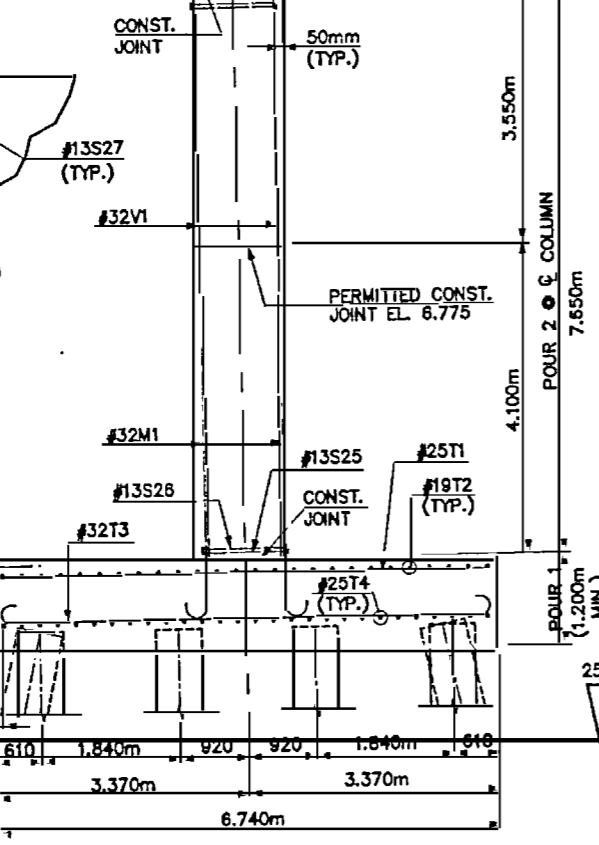
DETAIL "B"

3-#13B16 (SEE SECTION A-A ON SHEET 2 OF 2 FOR SPACING) (TYP. SPAN F, GDR. SEATS G3 & G4) (TYP. SPAN G, GDR. SEATS G2, G3 & G4)



ELEVATION

SIDE VIEW



610mm P/S CONC. PILE (TYP.)



PROJECT No. **U-0092A**  
 NEW HANOVER COUNTY  
 STATION: **POT STA. 12+52.890-Y-**

SHEET 1 OF 2

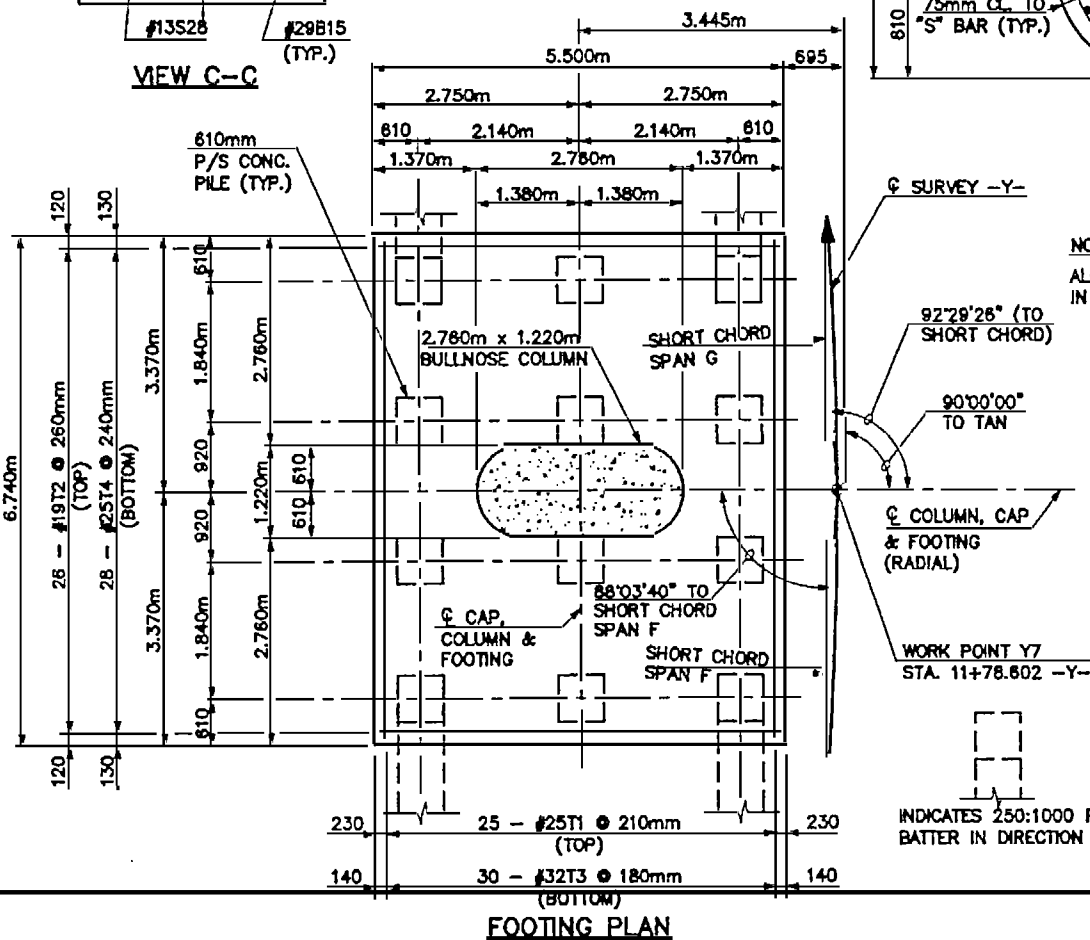
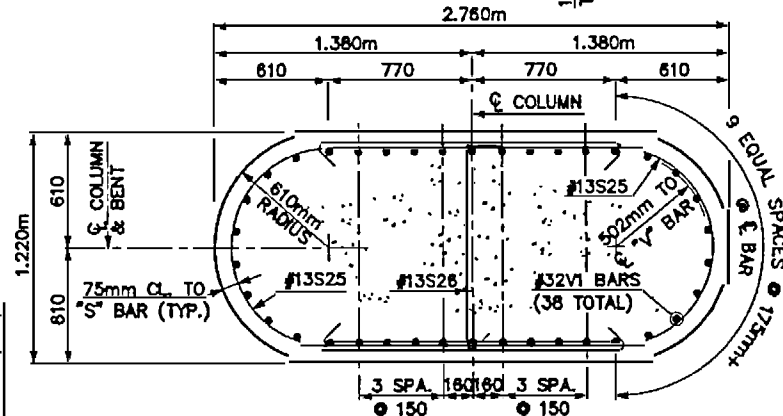
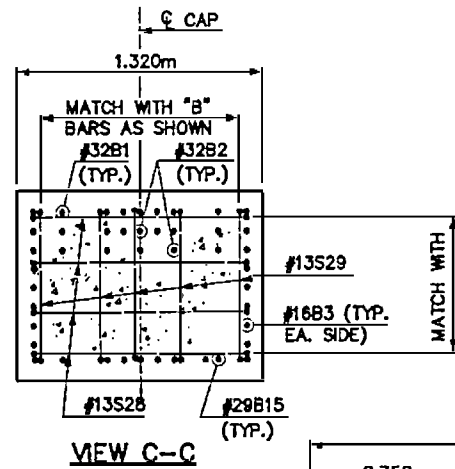
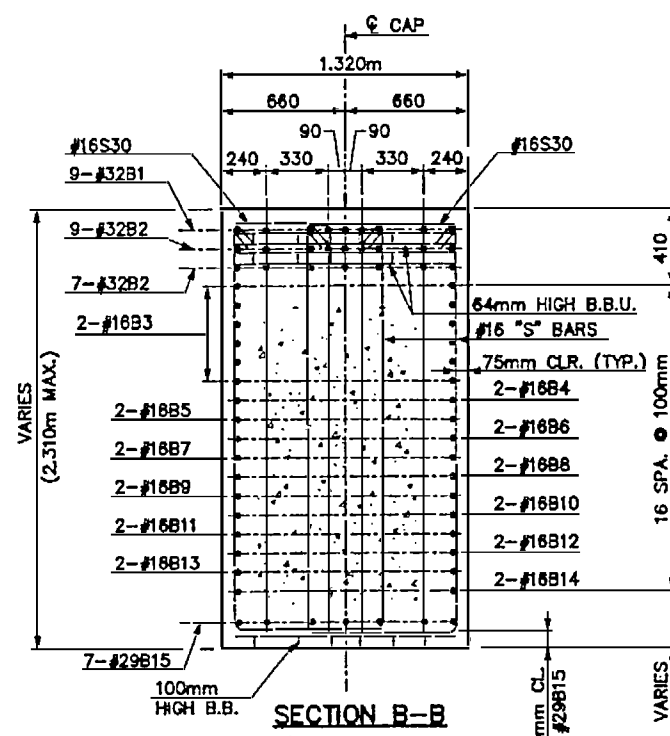
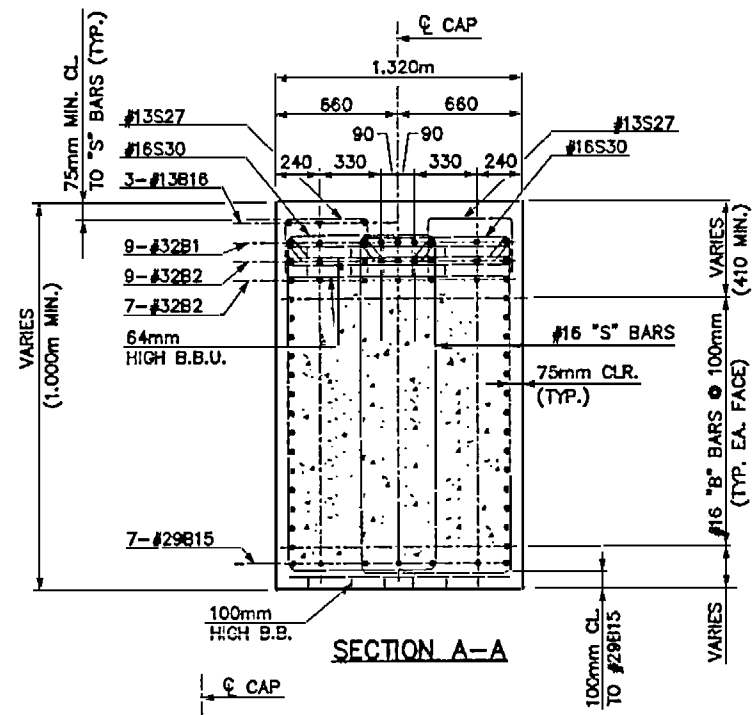
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**

**BENT 7**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. St. Forks Rd., Suite 200, Raleigh, N.C. 27609

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			S-99
2			4			

DRAWN BY: **K. RITSENA** DATE: **7/00**  
 CHECKED BY: **D. HARRIS** DATE: **8/00** DWG. NO. **99**



NOTE:  
ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

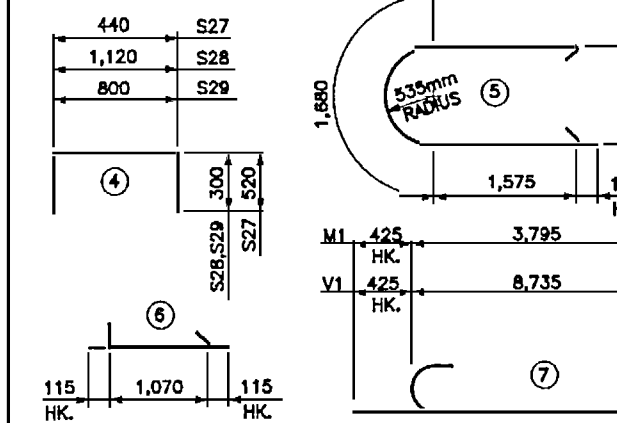
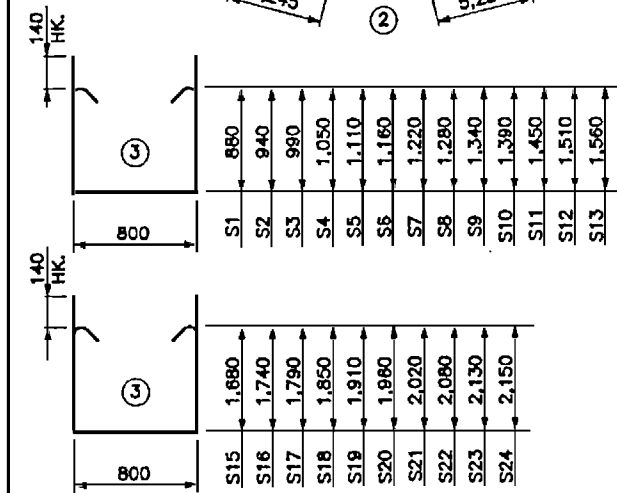
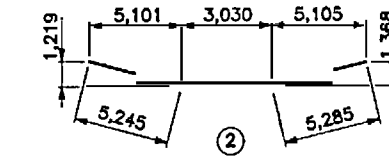
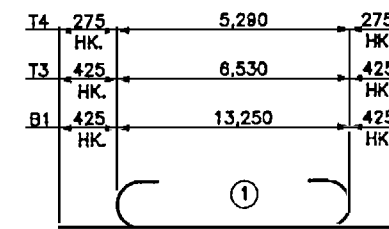
92'28"28" (TO SHORT CHORD)

90'00"00" TO TAN

92'03"40" TO SHORT CHORD SPAN F

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.

BAR TYPES

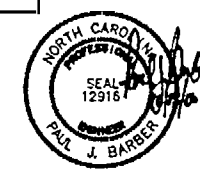


ALL BAR DIMENSIONS ARE OUT TO OUT

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED

QUANTITIES	
EPOXY COATED REINFORCING STEEL	kg. 10,704
CLASS AA CONCRETE	
POUR 1 FOOTING	CU. METERS 44.4
POUR 2 COLUMN	CU. METERS 23.3
POUR 3 CAP	CU. METERS 32.4
TOTAL	CU. METERS 100.1
610mm P/S CONC. PILES	
	NO. 12
	METERS 148.8
STEEL PILE TIPS	
	NO. 12
FOUNDATION EXCAVATION FOR BENT 7	
	LUMP SUM

HNTB NORTH CAROLINA, P.C.  
343 E. 5th FORT RD., SUITE 200, RALEIGH, NC 27601  
DRAWN BY: K. RITSEMA DATE: 7/00  
CHECKED BY: D. HARRIS DATE: 8/00 DWG. NO. 100



BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 7					
B1	9	#32	1	14,100	813
B2	16	#32	STR.	13,240	1,357
B3	12	#16	STR.	13,240	247
B4	2	#16	STR.	12,420	38
B5	2	#16	STR.	11,640	36
B6	2	#16	STR.	10,860	34
B7	2	#16	STR.	10,080	31
B8	2	#16	STR.	9,280	29
B9	2	#16	STR.	8,480	26
B10	2	#16	STR.	7,700	24
B11	2	#16	STR.	6,900	21
B12	2	#16	STR.	6,120	19
B13	2	#16	STR.	5,320	17
B14	2	#16	STR.	4,540	14
B15	7	#29	2	13,560	480
B16	15	#13	STR.	1,000	15
S1	4	#16	3	2,840	18
S2	4	#16	3	2,960	18
S3	4	#16	3	3,060	19
S4	4	#16	3	3,180	20
S5	4	#18	3	3,300	20
S6	4	#16	3	3,400	21
S7	4	#16	3	3,520	22
S8	4	#18	3	3,640	23
S9	4	#16	3	3,760	23
S10	4	#16	3	3,860	24
S11	4	#16	3	3,980	25
S12	4	#16	3	4,100	25
S13	4	#16	3	4,200	26
S14	4	#16	3	4,320	27
S15	4	#18	3	4,440	28
S16	4	#16	3	4,560	28
S17	4	#18	3	4,660	29
S18	4	#18	3	4,780	30
S19	4	#18	3	4,900	30
S20	4	#18	3	5,000	31
S21	4	#18	3	5,120	32
S22	4	#18	3	5,240	33
S23	4	#18	3	5,340	33
S24	4	#18	3	5,380	33
S25	54	#13	5	5,080	272
S26	27	#13	6	1,300	35
S27	72	#13	4	1,480	106
S28	8	#13	4	1,720	14
S29	10	#13	4	1,400	14
S30	98	#18	8	1,080	181
V1	38	#32	7	9,160	2,229
M1	38	#32	7	4,220	1,027
T1	25	#25	STR.	6,540	860
T2	26	#19	STR.	5,300	308
T3	30	#32	1	7,380	1,418
T4	28	#25	1	5,840	850

PROJECT No. U-0092A

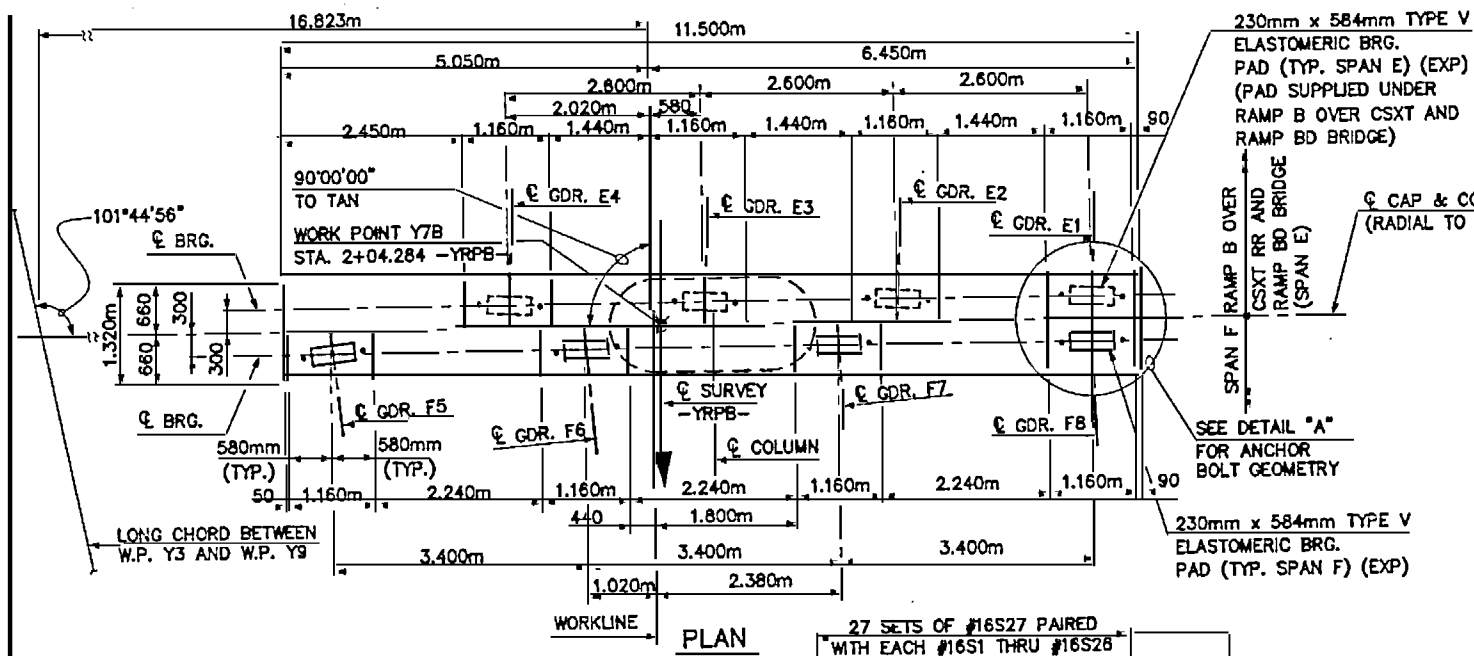
NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 2

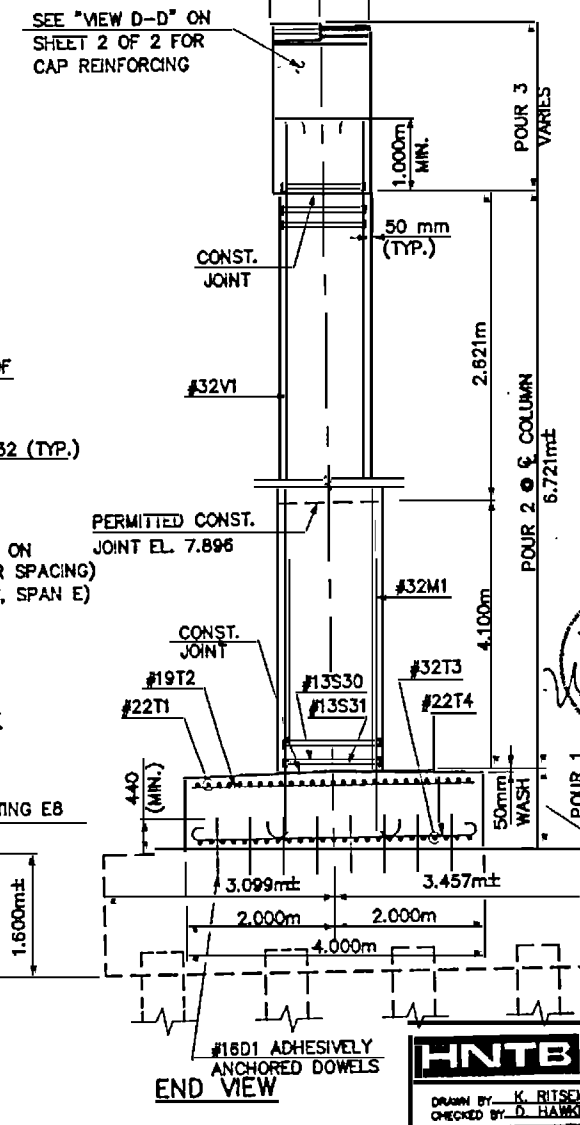
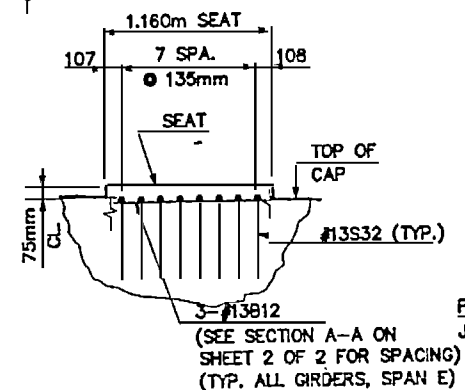
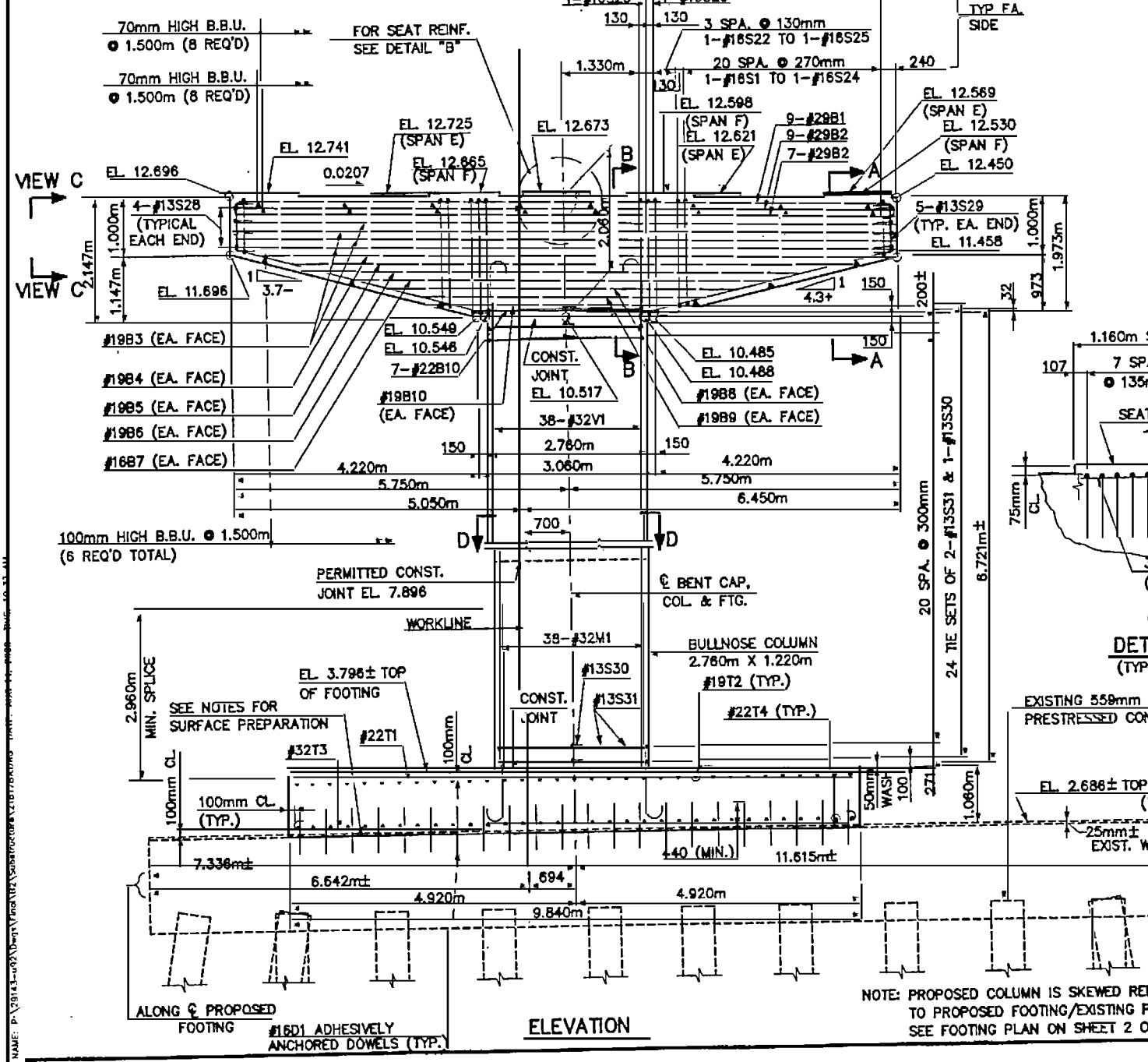
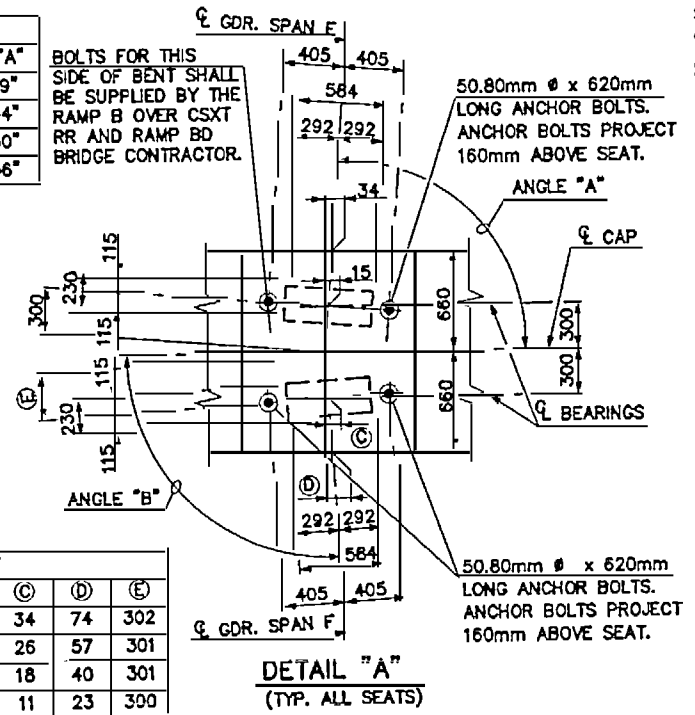
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 7

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



SPAN E	
GIRDER	ANGLE "A"
E1	87°03'19"
E2	87°03'04"
E3	87°02'50"
E4	87°02'36"

SPAN F				
GIRDER	ANGLE "B"	©	Ⓧ	Ⓧ
F5	96°24'45"	34	74	302
F6	94°56'41"	26	57	301
F7	93°28'42"	18	40	301
F8	92°00'55"	11	23	300



**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.

DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

EXISTING BENT E8, LOCATED AT PROPOSED BENT 7B, SHALL BE REMOVED (IE. BENT CAP AND COLUMNS) TO TOP OF EXISTING PILE CAP. REMOVAL SHALL NOT EXCEED THE LIMITS GIVEN IN THE PLANS AND SHALL NOT BE UNDERTAKEN UNTIL APPROVAL HAS BEEN GIVEN BY THE ENGINEER. COLUMN REINFORCING SHALL BE REMOVED TO A MINIMUM DEPTH OF 100mm BELOW TOP OF EXISTING PILE CAP SURFACE AND HOLE SHALL BE FILLED WITH CLASS AA CONCRETE. WHERE EXISTING COLUMN REINFORCING IS BENEATH PROPOSED SPREAD FOOTING, REINFORCING MAY BE CUT FLUSH WITH TOP OF EXISTING CAP. PAYMENT WILL BE CONSIDERED INCIDENTAL TO THE SEVERAL PAY ITEMS FOR THE BENT.

THE TOP SURFACE OF THE EXISTING PILE CAP BELOW THE PROPOSED SPREAD FOOTING SHALL BE ROUGHENED TO A FULL 6mm AMPLITUDE AND CLEANED PRIOR TO CASTING NEW CONCRETE AGAINST SURFACE.

THE YIELD LOAD FOR THE #16D1 DOWELS SHALL BE 82.7 Kn. AN EMBEDMENT LENGTH OF 300mm HAS BEEN ASSUMED FOR REINFORCING LENGTH. CONTRACTOR SHALL ADJUST BAR LENGTH FOR MANUFACTURER REQUIRED EMBEDMENT LENGTH. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED BOLTS OR DOWELS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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.

ANCHOR BOLTS AND BEARING PADS ON THE RAMP B OVER CSXT RR AND RAMP BD BRIDGE SIDE OF BENT 7B ARE TO BE PAID FOR UNDER THAT CONTRACT. ANCHOR BOLTS SHALL BE INSTALLED UNDER THIS CONTRACT. INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO THE SEVERAL PAY ITEMS INVOLVED IN THE CONSTRUCTION OF THE BENT.

THE REMOVAL OF THE BENT CAP AND COLUMNS ON EXISTING BENT E8 SHALL BE INCLUDED IN THE REMOVAL OF EXISTING STRUCTURE.



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 7B

HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: K. RITSEMA  
CHECKED BY: D. HAWKINS

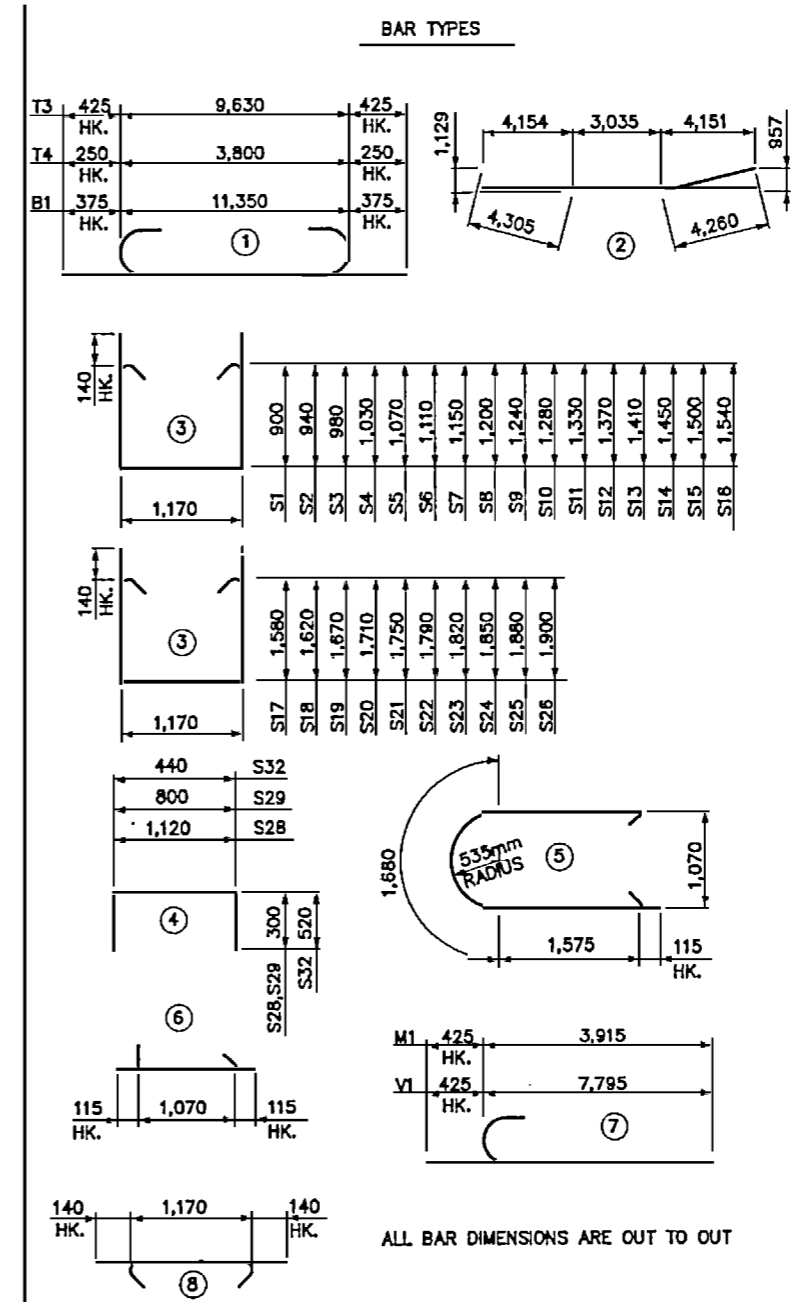
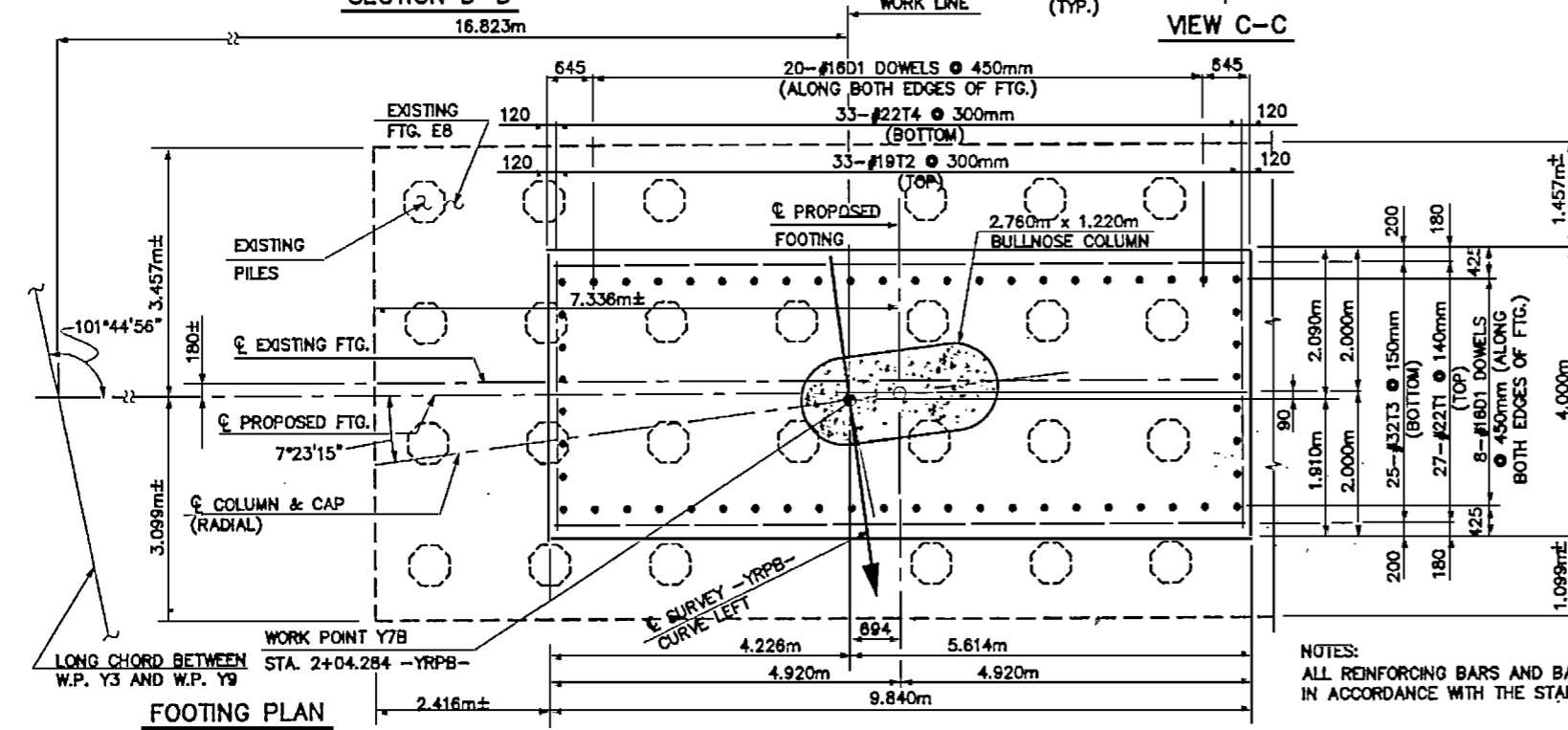
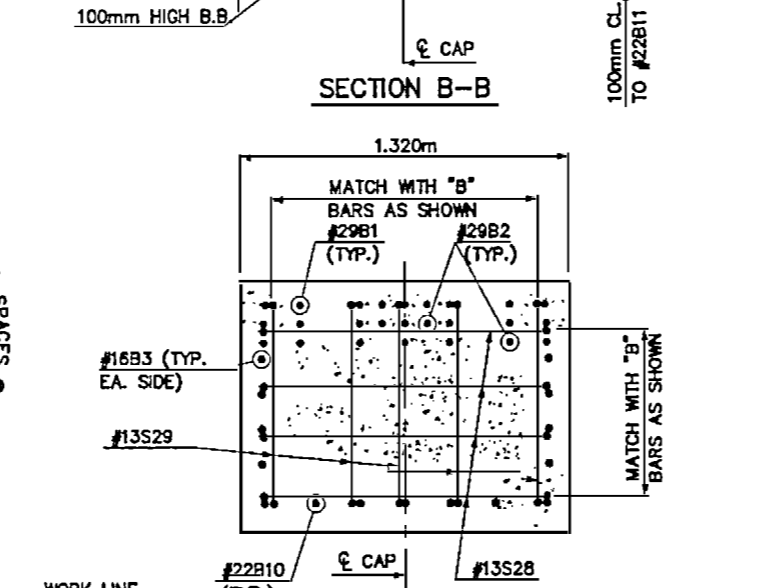
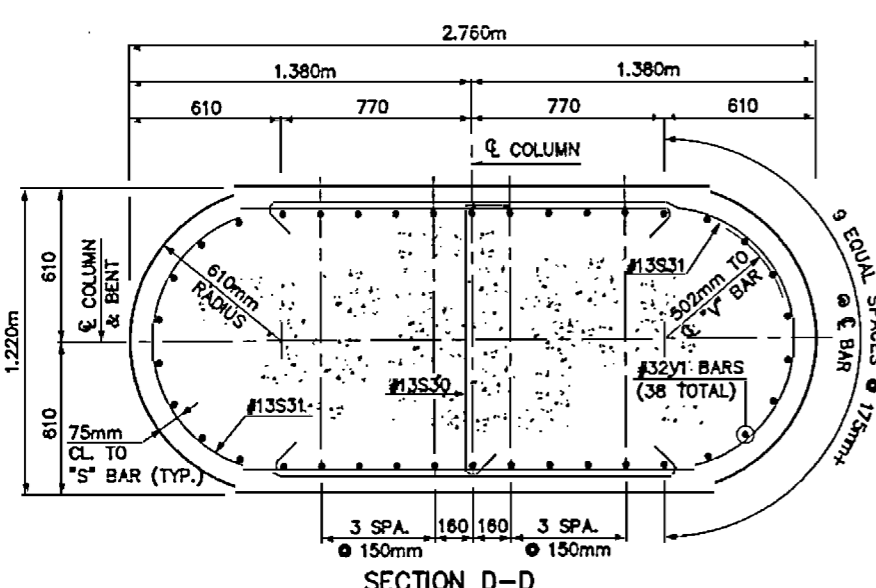
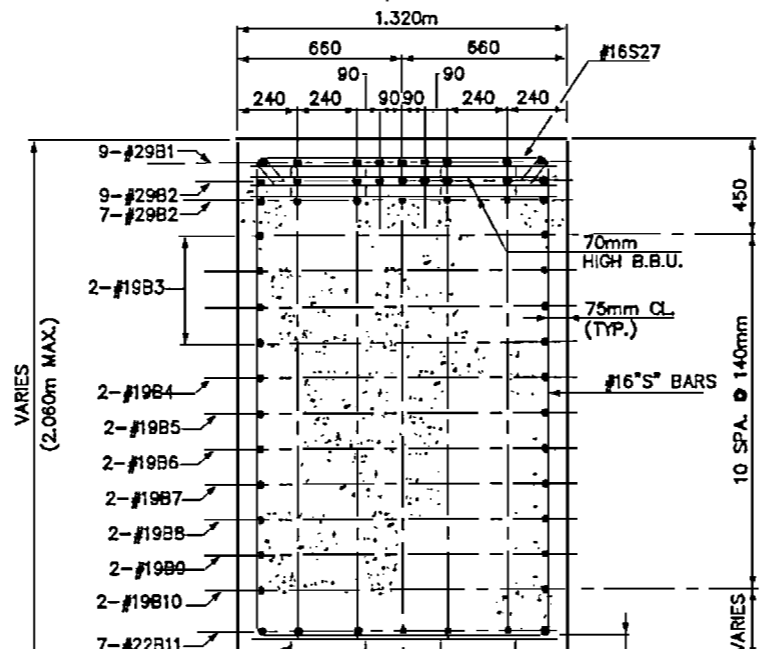
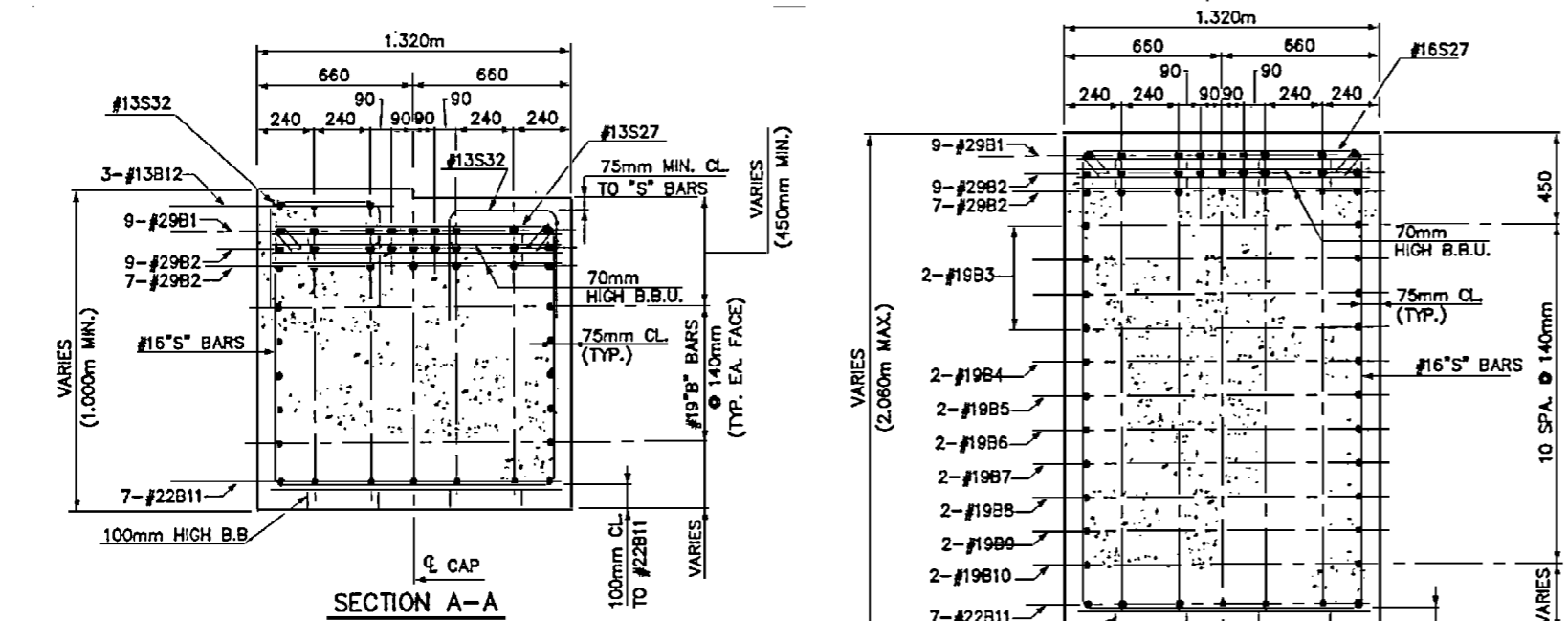
DATE: 8/00  
DATE: 8/00

DWG. NO. 101

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

SHEET NO. 5-101  
TOTAL SHEETS 101

NOTE: PROPOSED COLUMN IS SKEWED RELATIVE TO PROPOSED FOOTING/EXISTING PILE CAP. SEE FOOTING PLAN ON SHEET 2 OF 2.



QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY	WEIGHT (kg)
<b>EPOXY COATED REINFORCING STEEL</b>				
T1	#22 STR.	kg	9,257	
<b>CLASS AA CONCRETE</b>				
POUR 1	FOOTING	CU. METERS	43.0	
POUR 2	COLUMN	CU. METERS	20.5	
POUR 3	CAP	CU. METERS	25.8	
TOTAL		CU. METERS	89.3	

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED

BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 7B					
B1	9	#29	1	12,100	551
B2	16	#29	STR.	11,340	918
B3	8	#19	STR.	11,340	203
B4	2	#19	STR.	10,500	47
B5	2	#19	STR.	9,380	42
B6	2	#19	STR.	8,280	37
B7	2	#19	STR.	7,180	32
B8	2	#19	STR.	6,040	27
B9	2	#19	STR.	4,920	22
B10	2	#19	STR.	3,820	17
B11	7	#22	2	11,800	247
B12	12	#13	STR.	1,000	12
D1	56	#16	STR.	740	64
S1	2	#16	3	2,880	9
S2	2	#16	3	2,960	9
S3	2	#18	3	3,040	9
S4	2	#16	3	3,140	10
S5	2	#16	3	3,220	10
S6	2	#16	3	3,300	10
S7	2	#16	3	3,380	10
S8	2	#16	3	3,480	11
S9	2	#16	3	3,580	11
S10	2	#16	3	3,640	11
S11	2	#16	3	3,740	12
S12	2	#16	3	3,820	12
S13	2	#16	3	3,900	12
S14	2	#16	3	3,980	12
S15	2	#16	3	4,080	13
S16	2	#16	3	4,180	13
S17	2	#16	3	4,240	13
S18	2	#16	3	4,320	13
S19	2	#16	3	4,420	14
S20	2	#16	3	4,500	14
S21	2	#16	3	4,580	14
S22	2	#16	3	4,680	14
S23	2	#16	3	4,720	15
S24	2	#16	3	4,780	15
S25	2	#16	3	4,840	15
S26	4	#16	3	4,880	30
S27	54	#16	8	1,480	122
S28	8	#13	4	1,720	14
S29	10	#13	4	1,400	14
S30	24	#13	6	1,300	31
S31	48	#13	5	5,080	241
S32	32	#13	4	1,480	47
V1	38	#32	7	8,220	2,000
M1	38	#32	7	4,340	1,056
T1	27	#22	STR.	9,640	792
T2	33	#19	STR.	3,800	280
T3	25	#32	1	10,480	1,678
T4	33	#22	1	4,300	432

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: POC 12+52.890 -Y-

SHEET 2 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUBSTRUCTURE  
 BENT 7B



ANTB HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27606  
 DRAWN BY: K. RITSEMA DATE: 7/00  
 CHECKED BY: D. HAWKINS DATE: 8/00 DWG. NO. 102

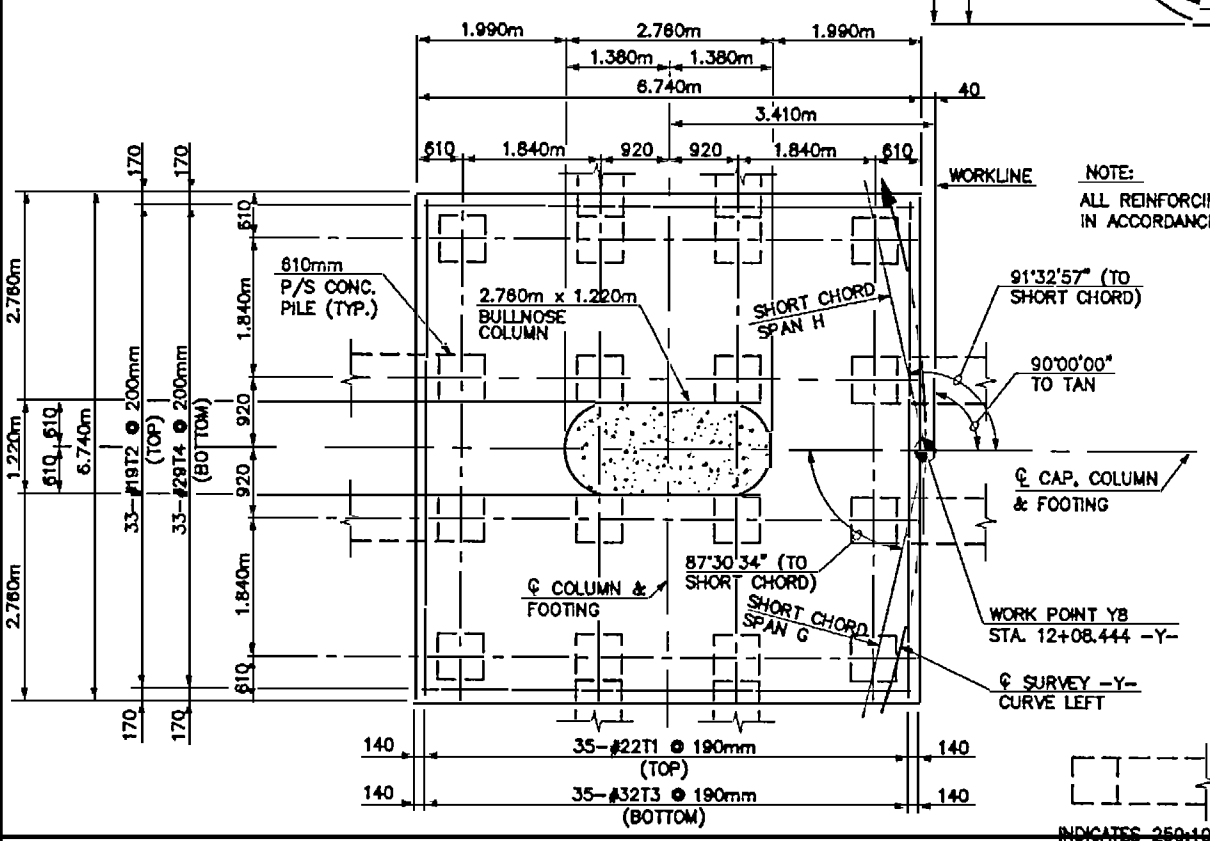
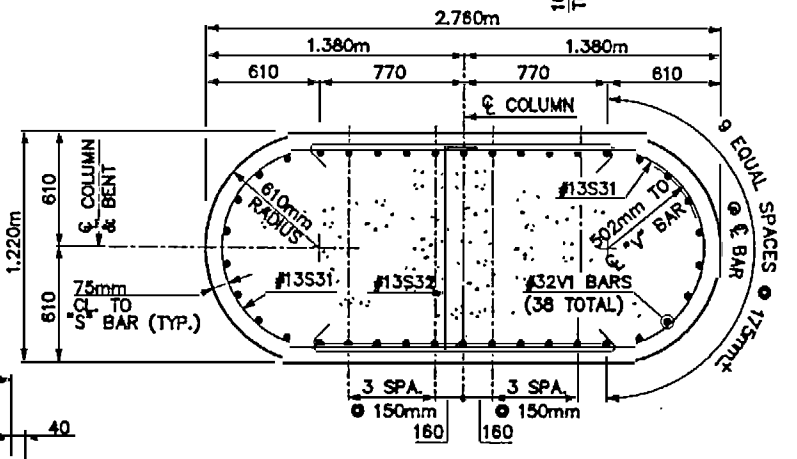
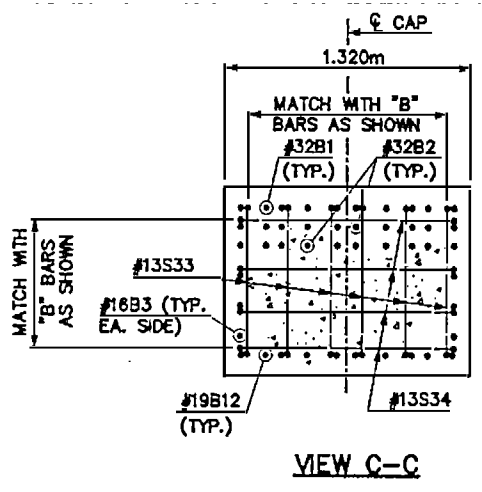
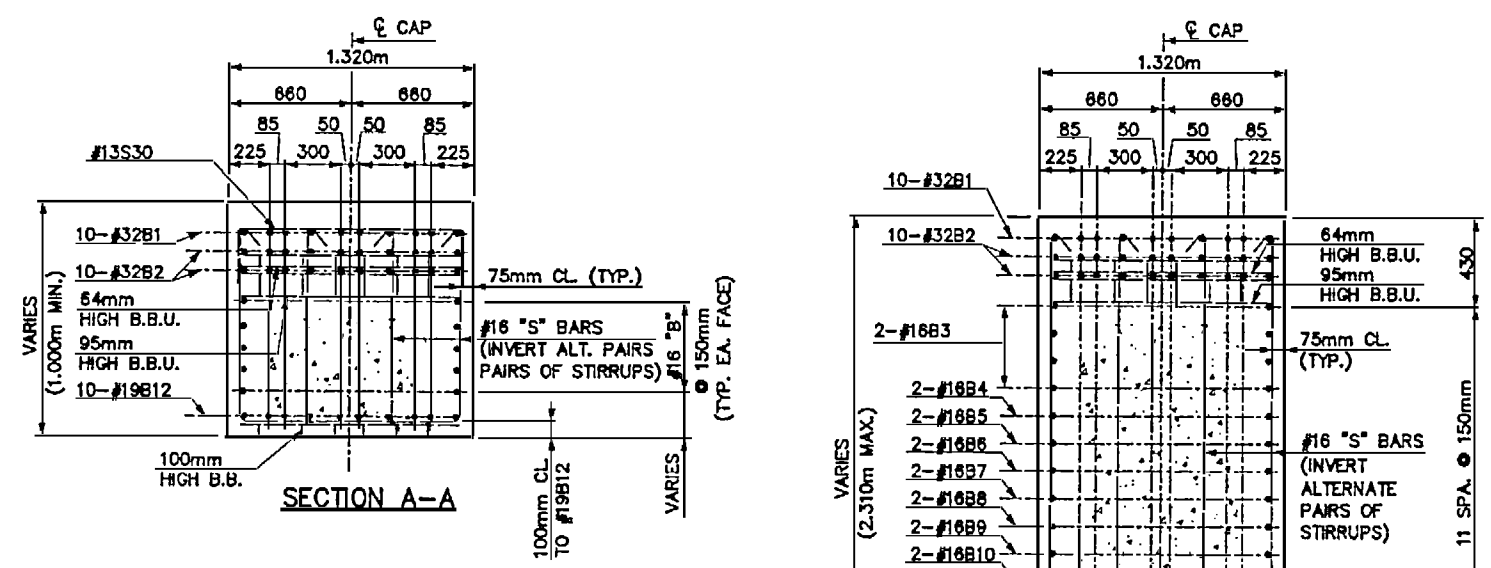
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

NOTES:  
 ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.





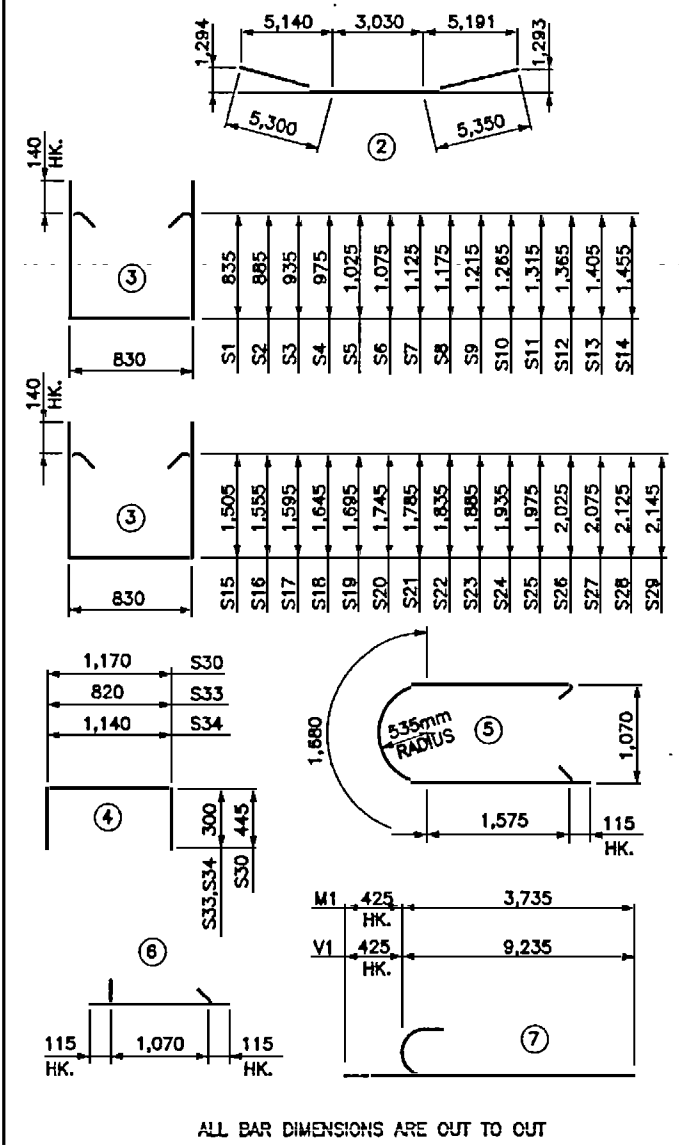
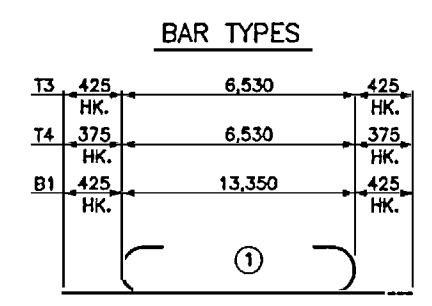
NAME: P:\21143-092\Draw\12\Substructure\2\TR180.DWG DATE: J.E. 10. 2010 TIME: 4:28 PM



NOTE: ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

QUANTITIES		
EPOXY COATED REINFORCING STEEL	kg.	11,870
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	54.3
POUR 2 COLUMN	CU. METERS	24.8
POUR 3 CAP	CU. METERS	32.8
TOTAL	CU. METERS	111.7
610mm P/S CONC. PILES	NO.	16
	METERS	178.0
STEEL PILE TIPS	NO.	16

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING					
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 8					
B1	10	#32	1	14,200	909
B2	20	#32	STR.	13,360	1,711
B3	8	#18	STR.	13,360	166
B4	2	#18	STR.	12,020	37
B5	2	#16	STR.	10,820	34
B6	2	#18	STR.	9,640	30
B7	2	#18	STR.	8,440	28
B8	2	#16	STR.	7,240	22
B9	2	#16	STR.	6,040	19
B10	2	#16	STR.	4,840	15
B11	2	#18	STR.	3,640	11
B12	10	#19	2	13,680	308
S1	4	#16	3	2,780	17
S2	4	#16	3	2,880	18
S3	4	#16	3	2,980	18
S4	4	#16	3	3,060	19
S5	4	#16	3	3,160	20
S6	4	#16	3	3,260	20
S7	4	#16	3	3,360	21
S8	4	#16	3	3,460	21
S9	4	#16	3	3,540	22
S10	4	#18	3	3,640	23
S11	4	#18	3	3,740	23
S12	4	#18	3	3,840	24
S13	4	#16	3	3,920	24
S14	4	#16	3	4,020	25
S15	4	#16	3	4,120	26
S16	4	#16	3	4,220	26
S17	4	#16	3	4,300	27
S18	4	#16	3	4,400	27
S19	4	#16	3	4,500	28
S20	4	#16	3	4,600	29
S21	4	#16	3	4,680	29
S22	4	#16	3	4,780	30
S23	4	#18	3	4,880	30
S24	4	#16	3	4,980	31
S25	4	#16	3	5,080	31
S26	4	#16	3	5,180	32
S27	4	#16	3	5,280	33
S28	4	#16	3	5,360	33
S29	4	#16	3	5,400	34
S30	35	#13	4	2,080	72
S31	58	#13	5	5,060	292
S32	29	#13	6	1,300	37
S33	12	#13	4	1,420	17
S34	8	#13	4	1,740	14
V1	38	#32	7	9,660	2,351
M1	38	#32	7	4,160	1,012
T1	35	#22	STR.	6,540	698
T2	33	#19	STR.	6,540	482
T3	35	#32	1	7,380	1,654
T4	33	#28	1	7,280	1,218

PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 2  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 8



HTNB NORTH CAROLINA, P.E.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00 DWG. NO. 104

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

SHEET 2 OF 2  
TOTAL SHEETS 101

**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.

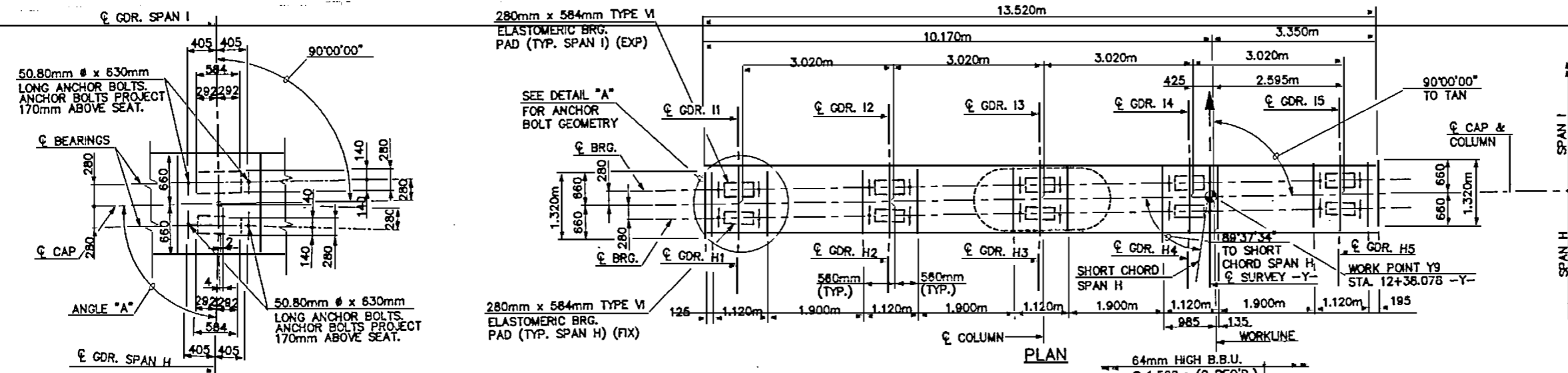
DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.

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

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR. FOR CALCIUM NITRATE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

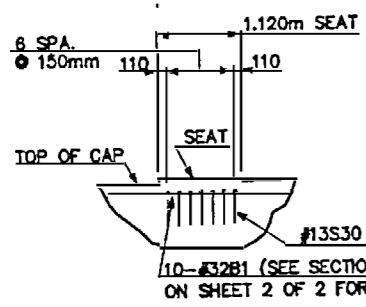
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 9. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

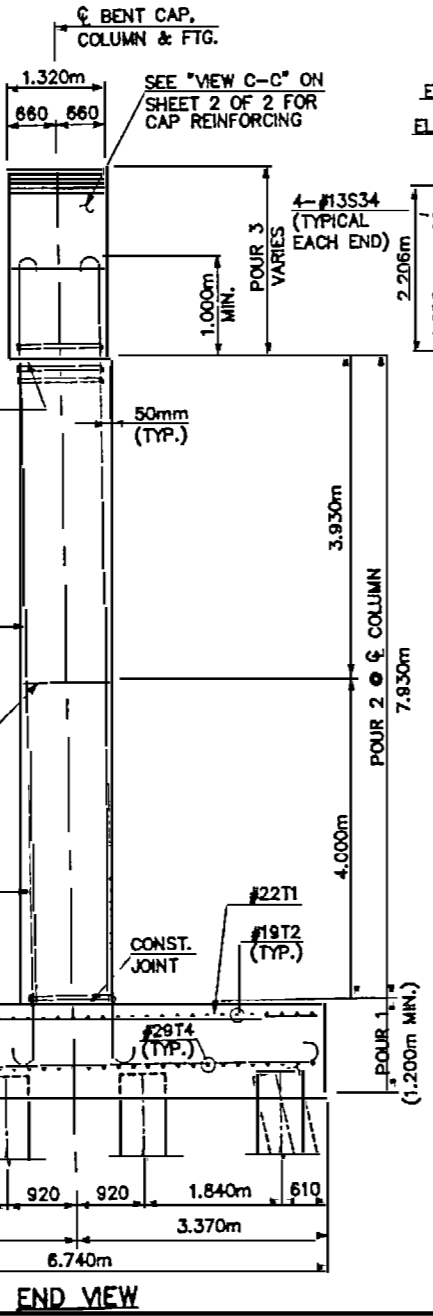


**DETAIL "A"**  
(TYP. ALL SEATS)

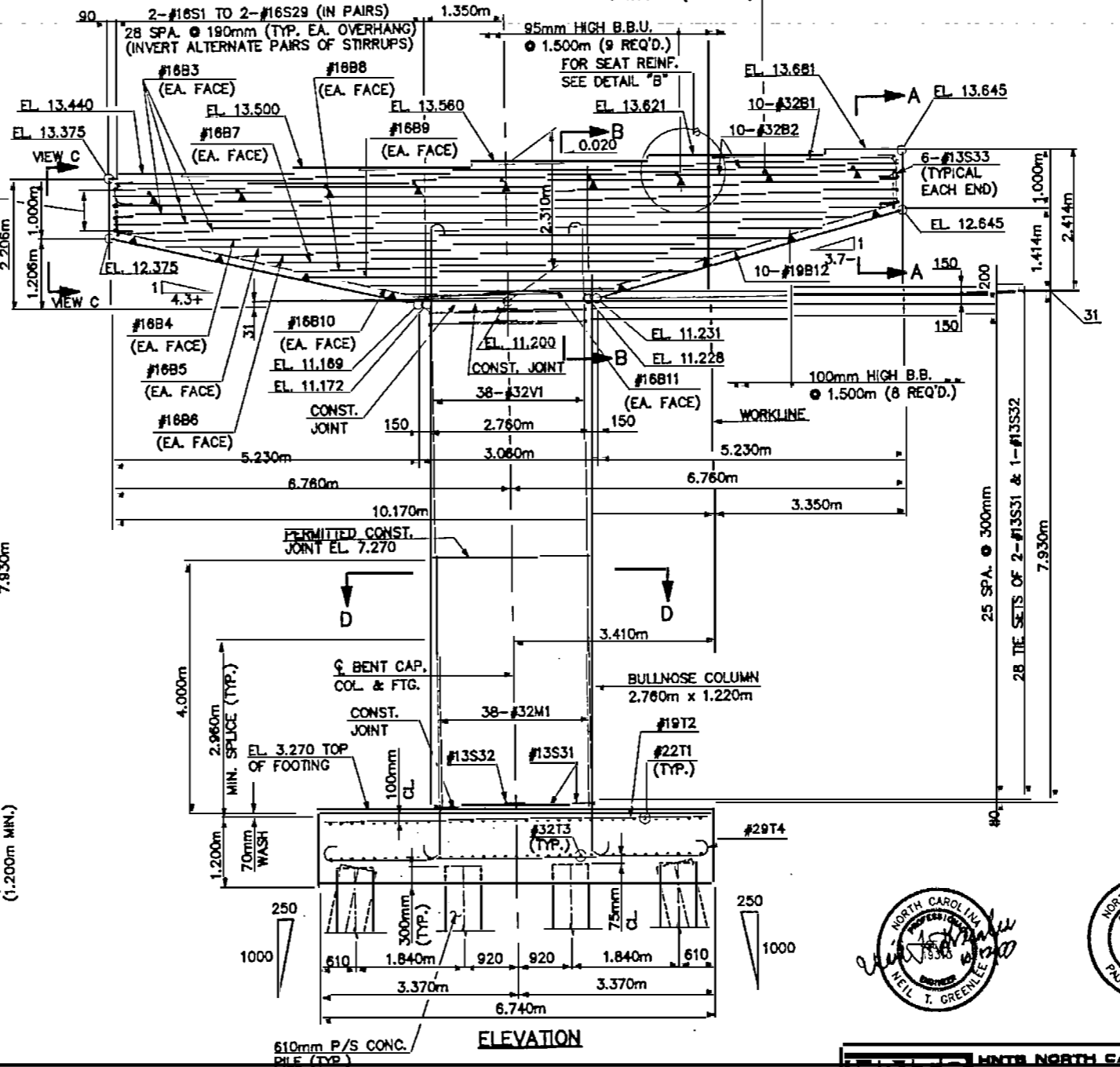
GRID	ANGLE "A"
H1	89°37'57"
H2	89°37'50"
H3	89°37'43"
H4	89°37'35"
H5	89°37'28"



**DETAIL "B"**  
(TYP. ALL SEATS)



**END VIEW**



**ELEVATION**



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y

SHEET 1 OF 2

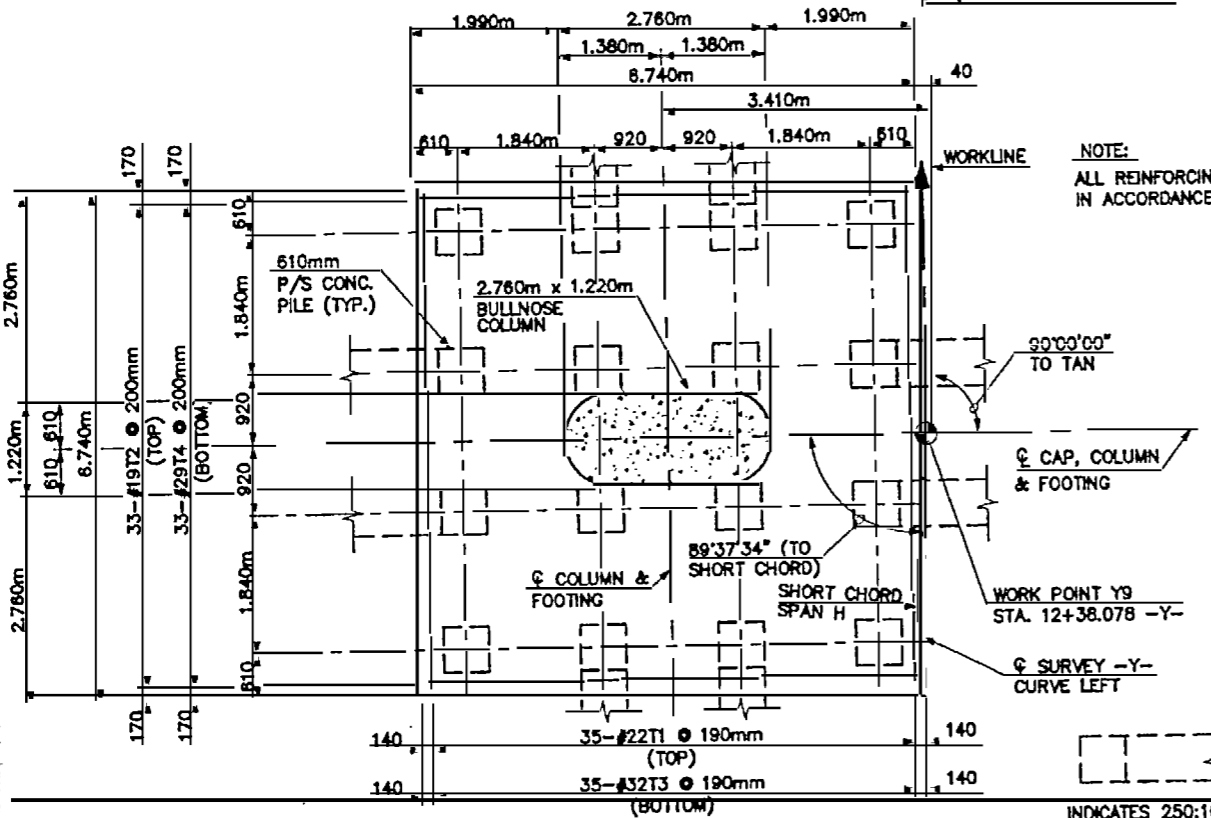
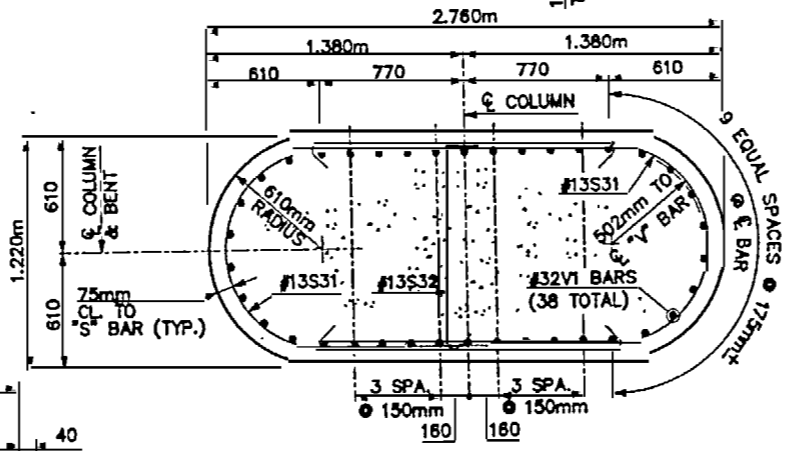
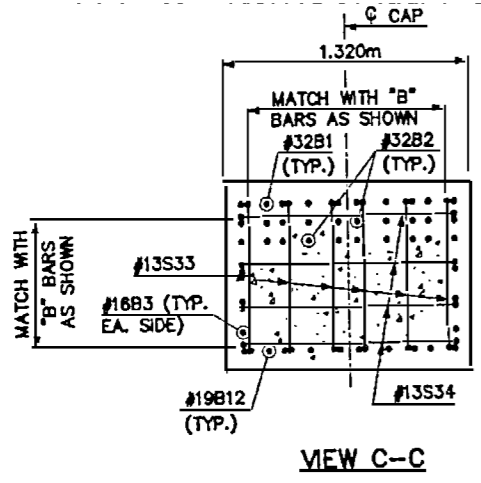
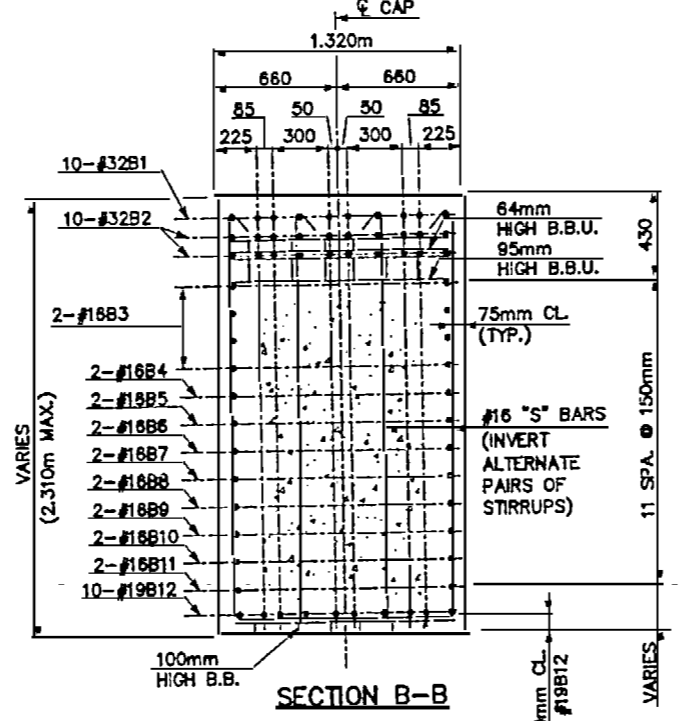
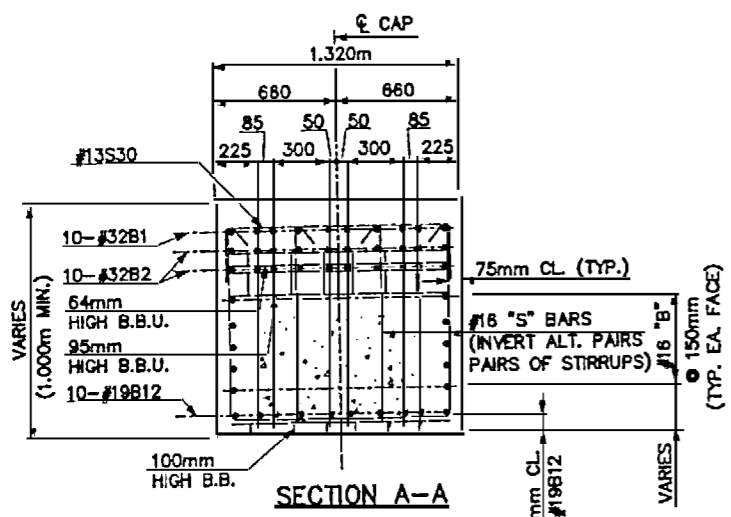
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
**BENT 9**



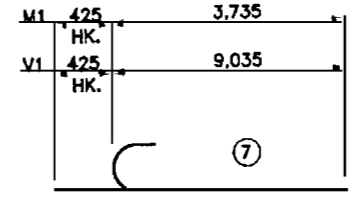
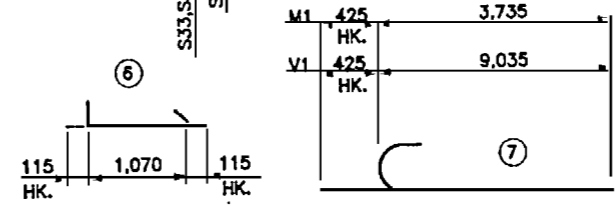
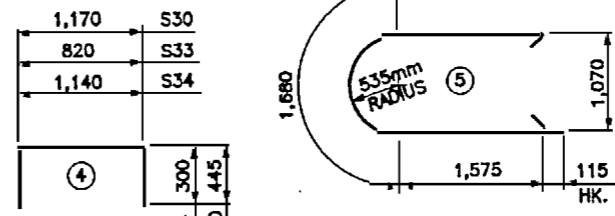
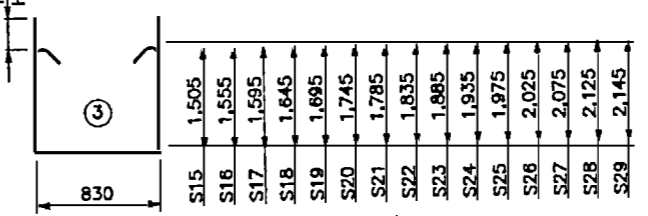
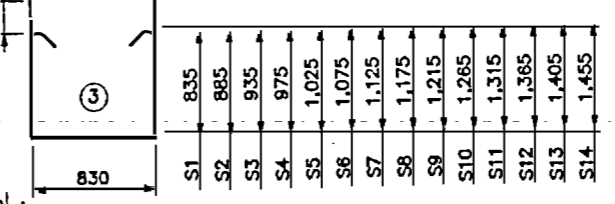
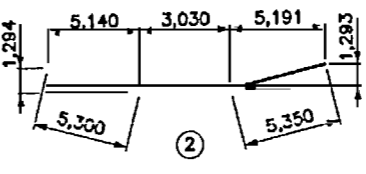
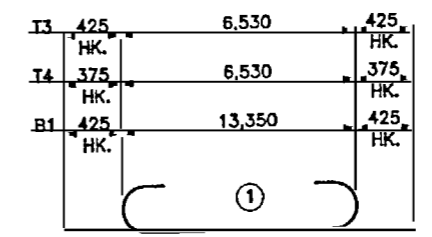
**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00 DWG. NO. 105

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	
1			3		TOTAL SHEETS 10/11
2			4		



**NOTE:**  
ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

**BILL OF REINFORCING**

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 9					
B1	10	#32	1	14,200	908
B2	20	#32	STR.	13,380	1,711
B3	8	#18	STR.	13,380	186
B4	2	#18	STR.	12,020	37
B5	2	#18	STR.	10,820	34
B6	2	#18	STR.	9,640	30
B7	2	#18	STR.	8,440	26
B8	2	#18	STR.	7,240	22
B9	2	#18	STR.	6,040	19
B10	2	#18	STR.	4,840	15
B11	2	#18	STR.	3,640	11
B12	10	#19	2	13,680	306
S1	4	#16	3	2,780	17
S2	4	#16	3	2,880	18
S3	4	#16	3	2,980	18
S4	4	#16	3	3,060	19
S5	4	#16	3	3,160	20
S6	4	#16	3	3,260	20
S7	4	#16	3	3,360	21
S8	4	#16	3	3,460	21
S9	4	#16	3	3,540	22
S10	4	#16	3	3,640	23
S11	4	#16	3	3,740	23
S12	4	#16	3	3,840	24
S13	4	#16	3	3,920	24
S14	4	#16	3	4,020	25
S15	4	#16	3	4,120	26
S16	4	#16	3	4,220	26
S17	4	#16	3	4,300	27
S18	4	#16	3	4,400	27
S19	4	#16	3	4,500	28
S20	4	#18	3	4,600	29
S21	4	#16	3	4,680	29
S22	4	#16	3	4,780	30
S23	4	#18	3	4,880	30
S24	4	#16	3	4,980	31
S25	4	#16	3	5,080	31
S26	4	#18	3	5,180	32
S27	4	#16	3	5,280	33
S28	4	#16	3	5,360	33
S29	4	#18	3	5,400	34
S30	35	#13	4	2,060	72
S31	58	#13	5	5,060	292
S32	28	#13	6	1,300	37
S33	12	#13	4	1,420	17
S34	8	#13	4	1,740	14
V1	38	#32	7	9,460	2,302
M1	38	#32	7	4,160	1,012
T1	35	#22	STR.	6,540	686
T2	33	#19	STR.	6,540	482
T3	35	#32	1	7,380	1,654
T4	33	#29	1	7,280	1,216

QUANTITIES		
EPOXY COATED REINFORCING STEEL	kg.	11,821
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	54.3
POUR 2 COLUMN	CU. METERS	24.2
POUR 3 CAP	CU. METERS	32.6
TOTAL	CU. METERS	111.1
#610mm P/S CONC. PILES	NO.	18
	METERS	180.0
STEEL PILE TIPS	NO.	18
FOUNDATION EXCAVATION		
FOR BENT 9	LUMP SUM	

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 2

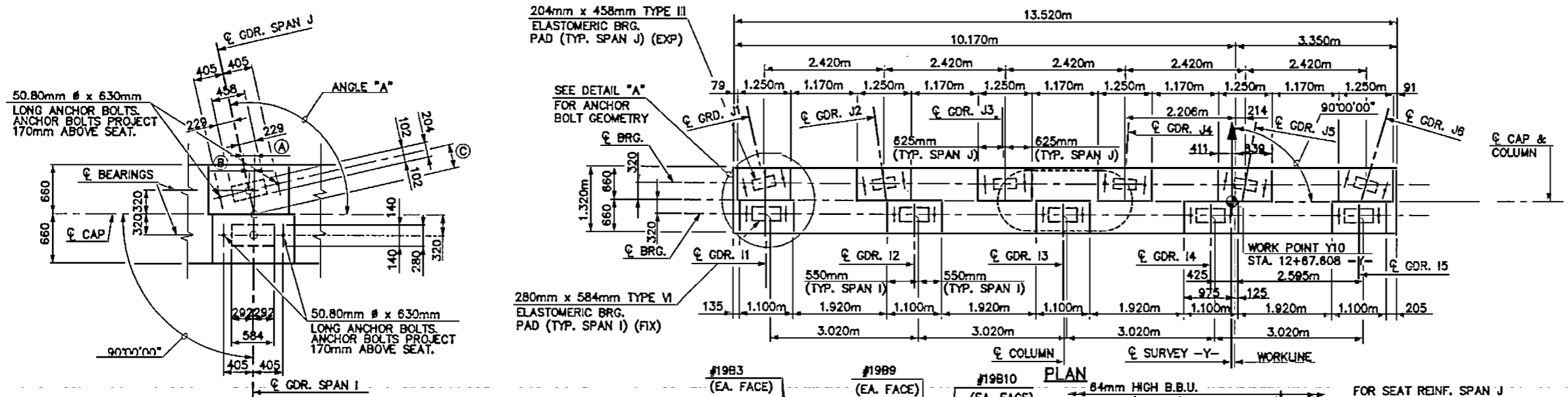
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
BENT 9



**INTE** NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00 DWG. NO. 106

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

SHEET NO. 101  
TOTAL SHEETS 101



**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.

DETAILED DRAWINGS FOR FALSEWORK AND FORMS FOR THIS HAMMERHEAD BENT SHALL BE SUBMITTED FOR BENT CAP. SEE SHEET SNSM.

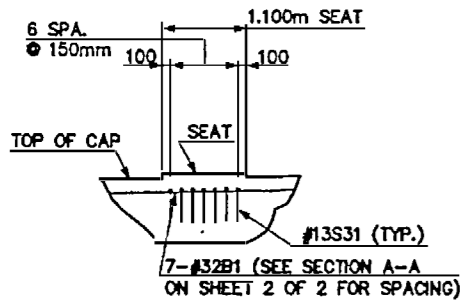
THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRATE CORROSION INHIBITOR. FOR CALCIUM NITRATE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

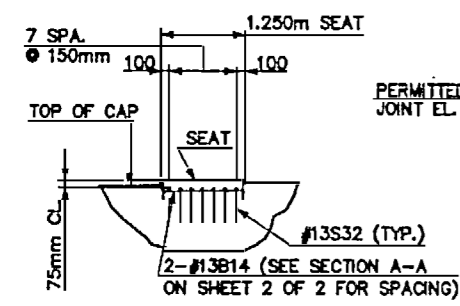
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

**DETAIL "A"**  
(TYP. ALL SEATS)

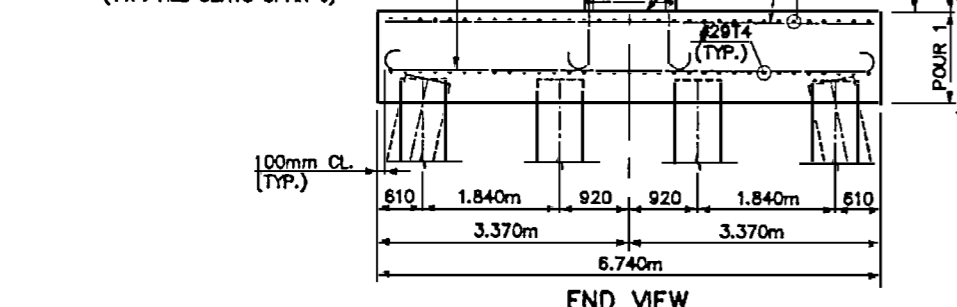
GIRDER	ANGLE "A"	(A)	(B)	(C)
J1	103°03'02"	153	74	328
J2	98°07'41"	94	46	323
J3	92°38'53"	31	15	320
J4	86°40'55"	-38	-19	-321
J5	80°15'01"	-113	-55	-325
J6	73°28'38"	-196	-95	-334



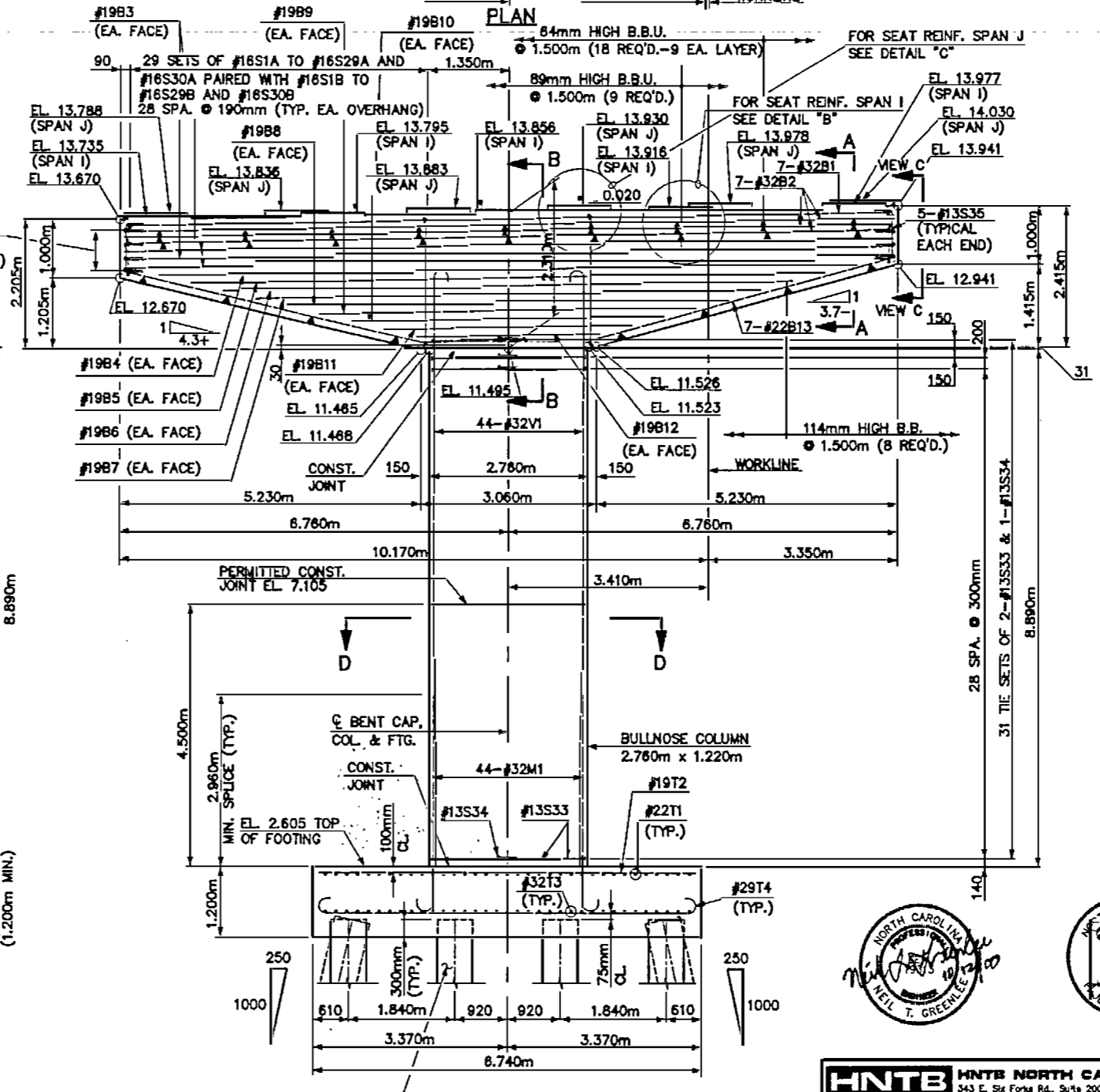
**DETAIL "B"**  
(TYP. ALL SEATS SPAN I)



**DETAIL "C"**  
(TYP. ALL SEATS SPAN J)



**END VIEW**



**ELEVATION**



PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT STA. 12+52.890-Y-

SHEET 1 OF 2

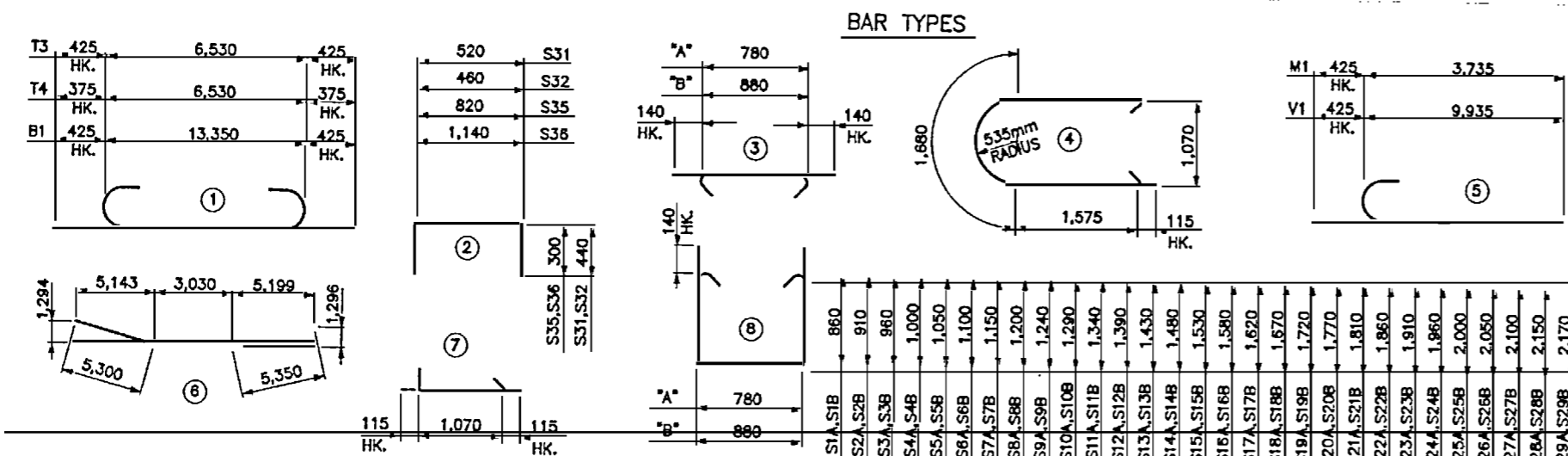
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
BENT 10



<b>HNTB</b> HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609		REVISIONS			SHEET NO. 3-127 TOTAL SHEETS 161
NO.	BY	DATE	NO.	BY	
1			3		
2			4		

DRAWN BY: M. WRIGHT DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00  
DWG. NO. 107



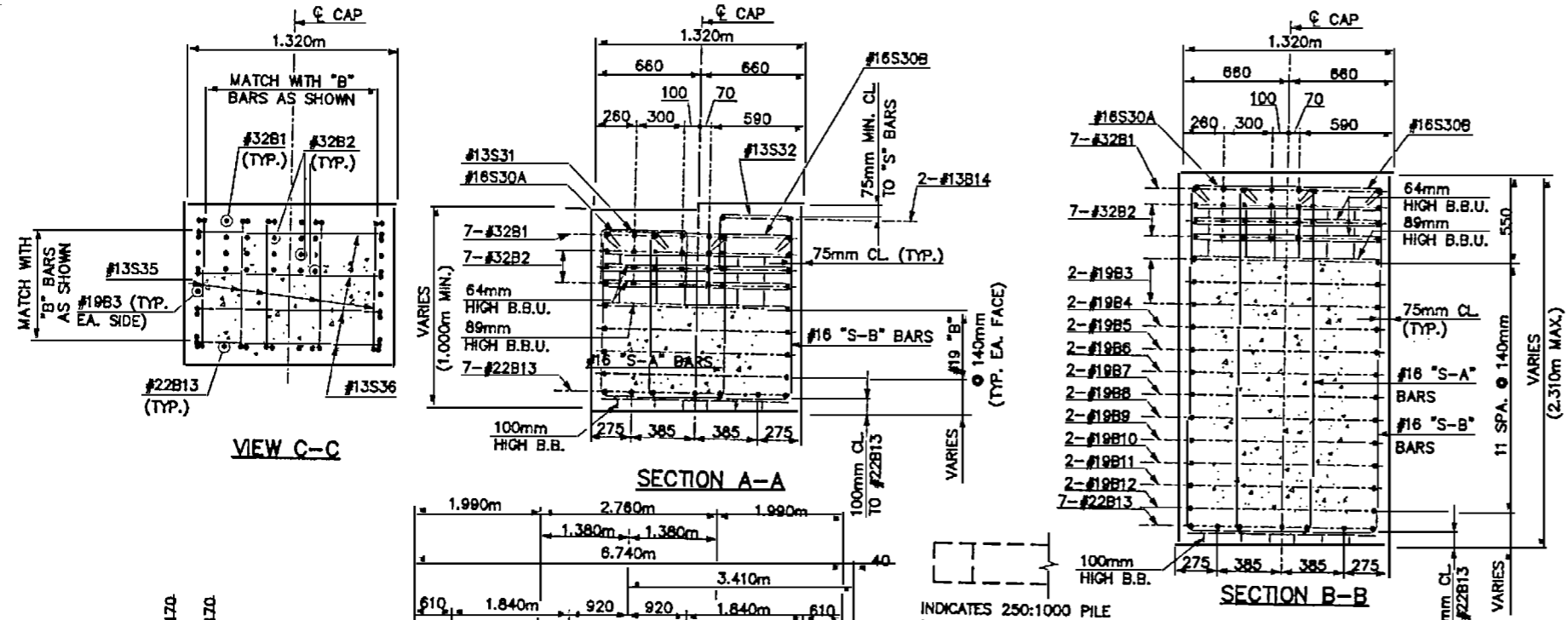
**BILL OF REINFORCING**

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 10					
B1	7	#32	1	14,200	637
B2	21	#32	STR.	13,360	1,797
B3	6	#19	STR.	13,360	179
B4	2	#19	STR.	12,400	55
B5	2	#19	STR.	11,280	50
B6	2	#19	STR.	10,160	45
B7	2	#19	STR.	9,040	40
B8	2	#19	STR.	7,920	35
B9	2	#19	STR.	6,800	30
B10	2	#19	STR.	5,680	25
B11	2	#19	STR.	4,560	20
B12	2	#19	STR.	3,440	15
B13	7	#22	6	13,880	291
B14	12	#13	STR.	1,100	13
S1A	2	#16	8	2,760	9
S1B	2	#16	8	2,880	9
S2A	2	#16	8	2,880	9
S2B	2	#16	8	2,980	9
S3A	2	#16	8	2,980	9
S3B	2	#16	8	3,080	10
S4A	2	#16	8	3,060	9
S4B	2	#16	8	3,180	10
S5A	2	#16	8	3,180	10
S5B	2	#16	8	3,280	10
S6A	2	#16	8	3,280	10
S6B	2	#16	8	3,360	10
S7A	2	#16	8	3,380	10
S7B	2	#16	8	3,460	11
S8A	2	#16	8	3,460	11
S8B	2	#16	8	3,560	11
S9A	2	#16	8	3,540	11
S9B	2	#16	8	3,640	11
S10A	2	#16	8	3,640	11
S10B	2	#16	8	3,740	12
S11B	2	#16	8	3,840	12
S12A	2	#16	8	3,840	12
S12B	2	#16	8	3,940	12
S13A	2	#16	8	3,920	12
S13B	2	#16	8	4,020	12
S14A	2	#16	8	4,020	12
S14B	2	#16	8	4,120	13
S15A	2	#16	8	4,120	13
S15B	2	#16	8	4,220	13
S16A	2	#16	8	4,220	13
S16B	2	#16	8	4,320	13
S17A	2	#16	8	4,300	13
S17B	2	#16	8	4,400	14
S18A	2	#16	8	4,400	14
S18B	2	#16	8	4,500	14
S19A	2	#16	8	4,500	14
S19B	2	#16	8	4,600	14
S20A	2	#16	8	4,800	14
S20B	2	#16	8	4,700	15

**BILL OF REINFORCING**

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 10					
S21A	2	#16	8	4,880	15
S21B	2	#16	8	4,780	15
S22A	2	#16	8	4,780	15
S22B	2	#16	8	4,880	15
S23A	2	#16	8	4,880	15
S23B	2	#16	8	4,980	15
S24A	2	#16	8	4,980	15
S24B	2	#16	8	5,080	16
S25A	2	#16	8	5,060	16
S25B	2	#16	8	5,160	16
S26A	2	#16	8	5,160	16
S26B	2	#16	8	5,260	16
S27A	2	#16	8	5,260	16
S27B	2	#16	8	5,360	17
S28A	2	#16	8	5,360	17
S28B	2	#16	8	5,460	17
S29A	2	#16	8	5,400	17
S29B	2	#16	8	5,500	17
S30A	58	#18	3	1,060	95
S30B	58	#16	3	1,180	104
S31	35	#13	2	1,400	49
S32	48	#13	2	1,340	64
S33	62	#13	4	5,060	312
S34	31	#13	7	1,300	40
S35	10	#13	2	1,420	14
S36	8	#13	2	1,740	14
V1	44	#32	5	10,360	2,919
M1	44	#32	5	4,160	1,172
T1	35	#22	STR.	6,540	696
T2	33	#19	STR.	6,540	482
T3	35	#32	1	7,380	1,654
T4	33	#29	1	7,280	1,216

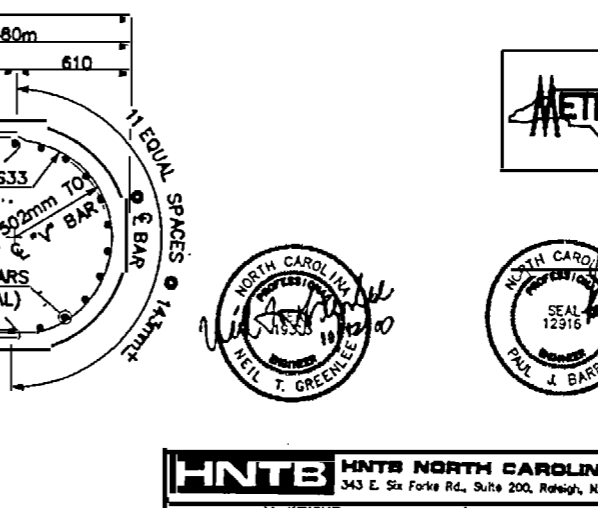
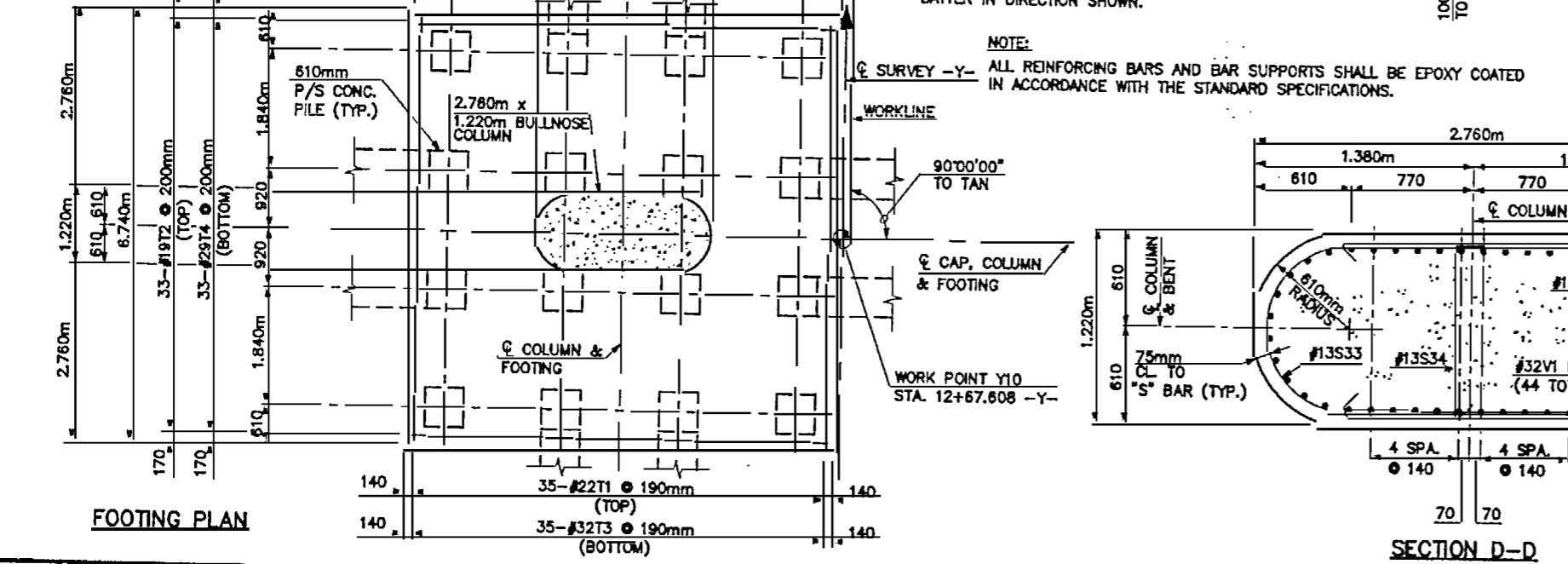
ALL BAR DIMENSIONS ARE OUT TO OUT



**QUANTITIES**

EPXY COATED REINFORCING STEEL	kg.	12,812
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	52.7
POUR 2 COLUMN	CU. METERS	27.1
POUR 3 CAP	CU. METERS	32.9
TOTAL	CU. METERS	112.7
610mm P/S CONC. PILES	NO.	16
	METERS	97.6
STEEL PILE TIPS	NO.	16
FOUNDATION EXCAVATION		
TOTAL	LUMP SUM	

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.



PROJECT No. **U-0092A**  
 NEW HANOVER COUNTY  
 STATION: **POT STA. 12+52.890-Y-**  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE BENT 10**

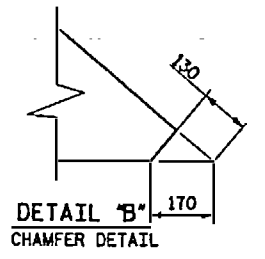
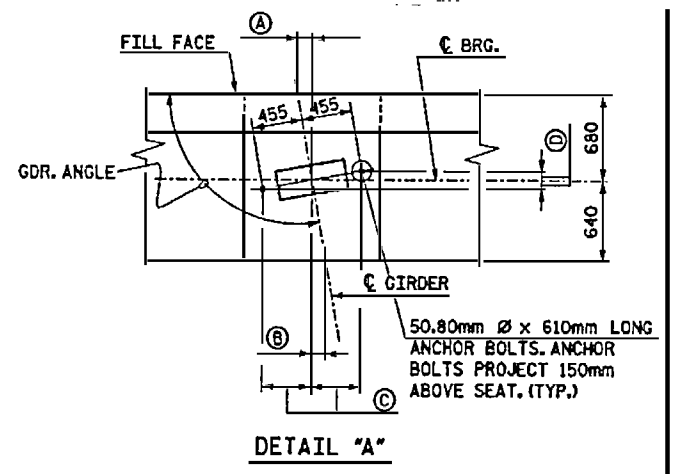
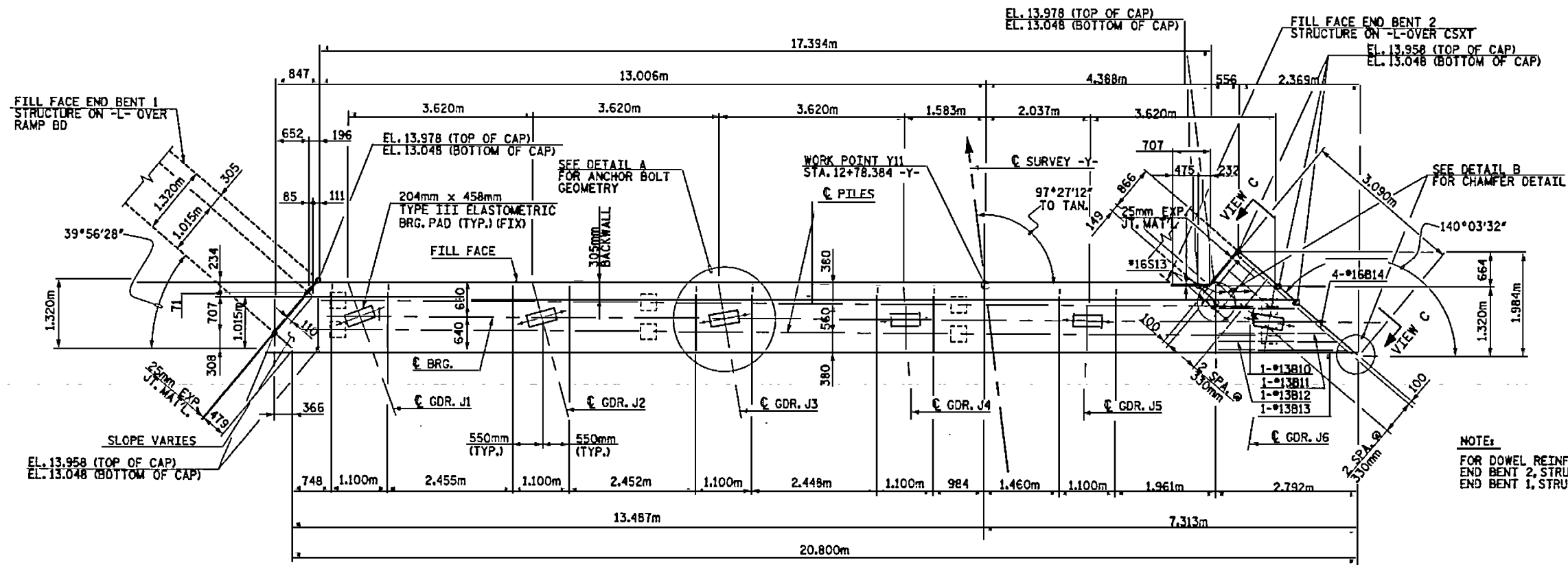
REVISONS

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

SHEET NO. **S-108**  
 TOTAL SHEETS **101**

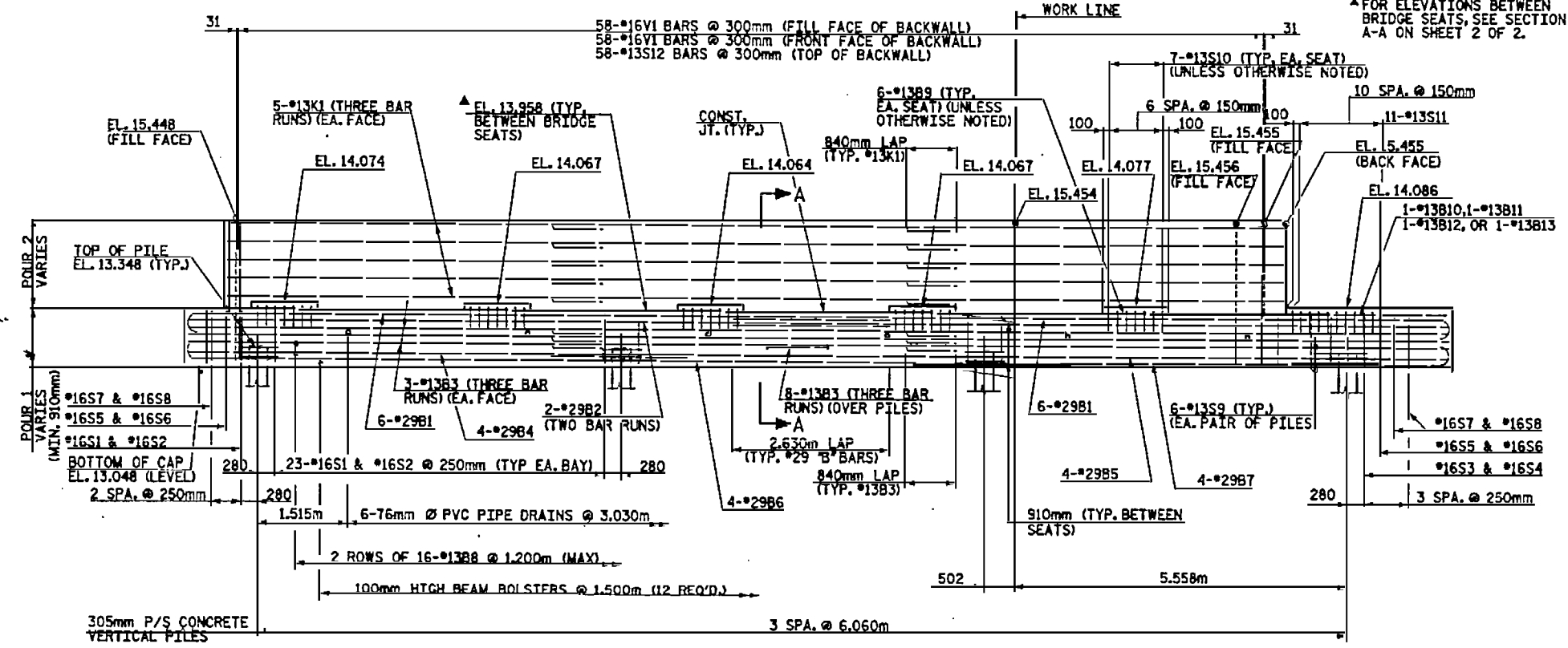
**HNTB** HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27608  
 DRAWN BY: **M. WRIGHT** DATE: **7/00**  
 CHECKED BY: **E. OLIVER** DATE: **7/00** DWG. NO. **108**

NAME: P:\29143-92\Drawings\Substructure\2111101.DWG DATE: JUN 21, 2000 TIME: 8:12 AM



NOTE:  
FOR DOWEL REINFORCEMENT, SEE PLANS FOR END BENT 2, STRUCTURE ON -L- OVER CSXT AND END BENT 1, STRUCTURE ON -L- OVER RAMP BD.

PLAN



GIRDER	GDR. ANGLE	(A)	(B)	(C)	(D)
J1	110°30'14"	254	239	379	142
J2	105°34'53"	190	178	390	109
J3	100°07'05"	121	114	399	71
J4	94°08'08"	49	46	404	29
J5	87°42'13"	-27	-26	405	16
J6	80°56'50"	-108	-102	400	64

NOTE:  
FOR PIPE DRAIN DETAILS, GENERAL NOTES, SECTION A-A, & VIEW C-C, SEE SHEET 2 OF 2.  
THE 305mm SQ. PRESTRESSED CONCRETE PILES AT THE END BENT SHALL BE DRIVEN PRIOR TO CONSTRUCTION OF THE MSE WALL.

ELEVATION



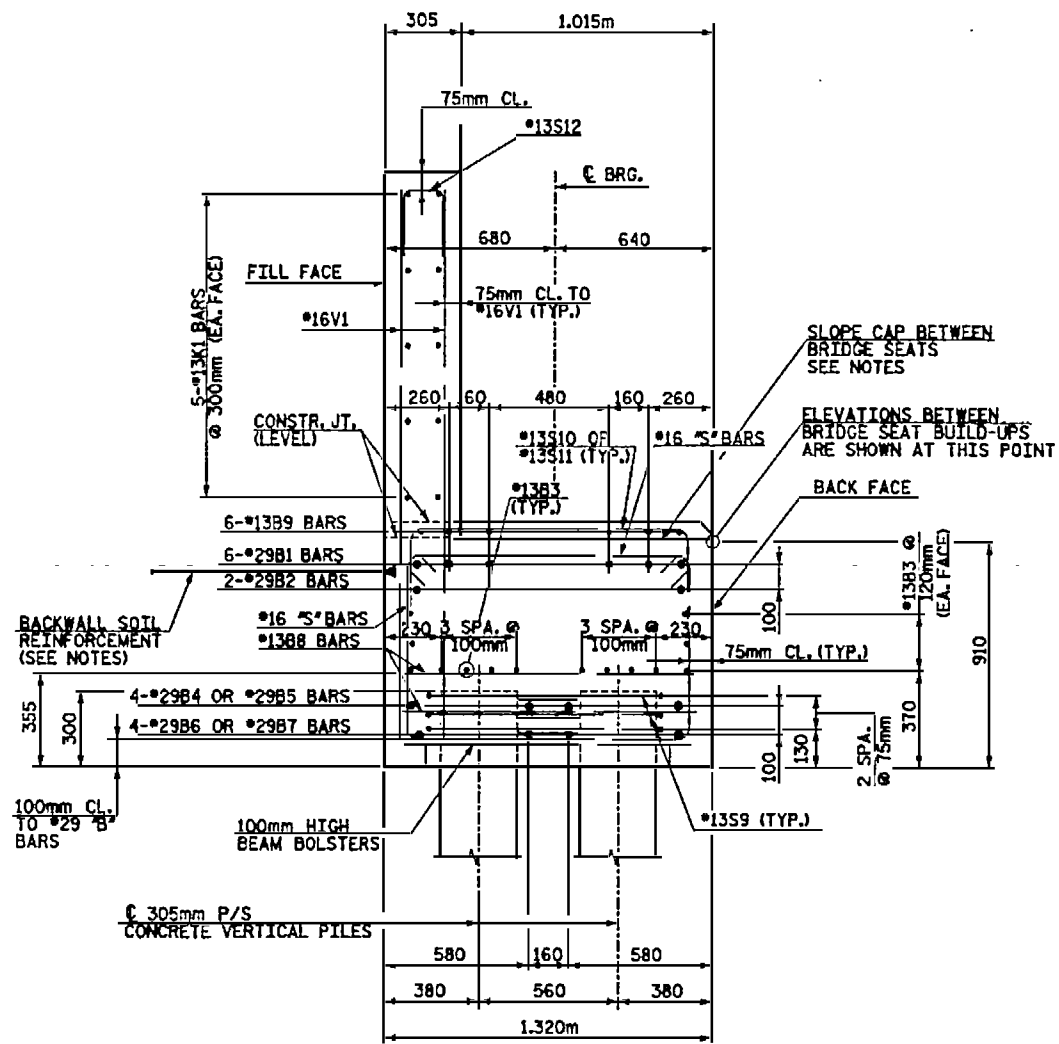
PROJECT No. U-0092A  
NEW HANOVER COUNTY  
STATION: POT 12+52.890 -Y-

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 2

HNTB NORTH CAROLINA, P.C.		REVISIONS		SHEET NO.	
NO.	BY	DATE	NO.		BY
1	J. BAYNE	7/00	3	109	TOTAL SHEETS
2	C. OLIVER	7/00	4		

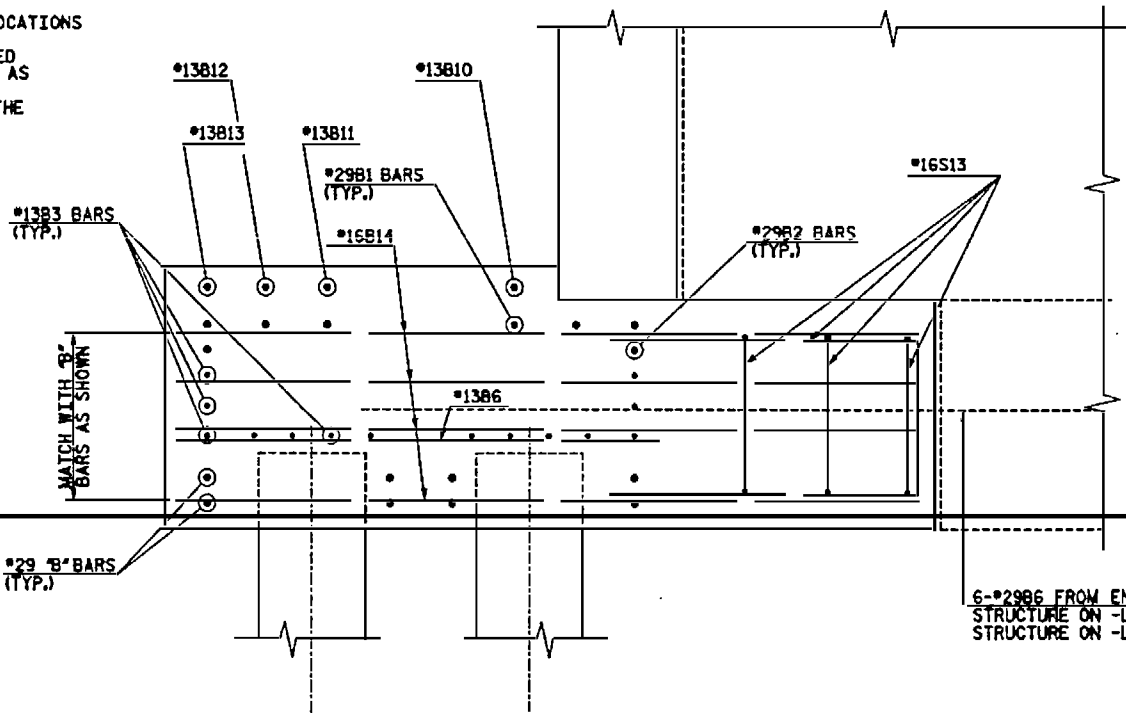


SECTION A-A

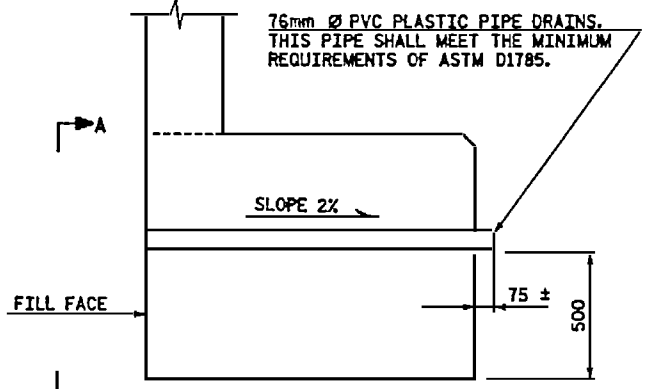
NOTE: ANCHOR BOLTS NOT SHOWN FOR CLARITY

NOTE:

BACKWALL SOIL REINFORCEMENT INSERT LOCATIONS SHALL BE COORDINATED WITH MSE WALL MANUFACTURER. INSERTS SHALL BE PROVIDED BY MSE WALL CONTRACTOR AND INSTALLED AS PART OF THE END BENT CONSTRUCTION. THE SOIL REINFORCEMENT SHALL RESIST THE FOLLOWING SERVICE LOAD: 25 kN/m



VIEW C-C



SECTION THRU CAP

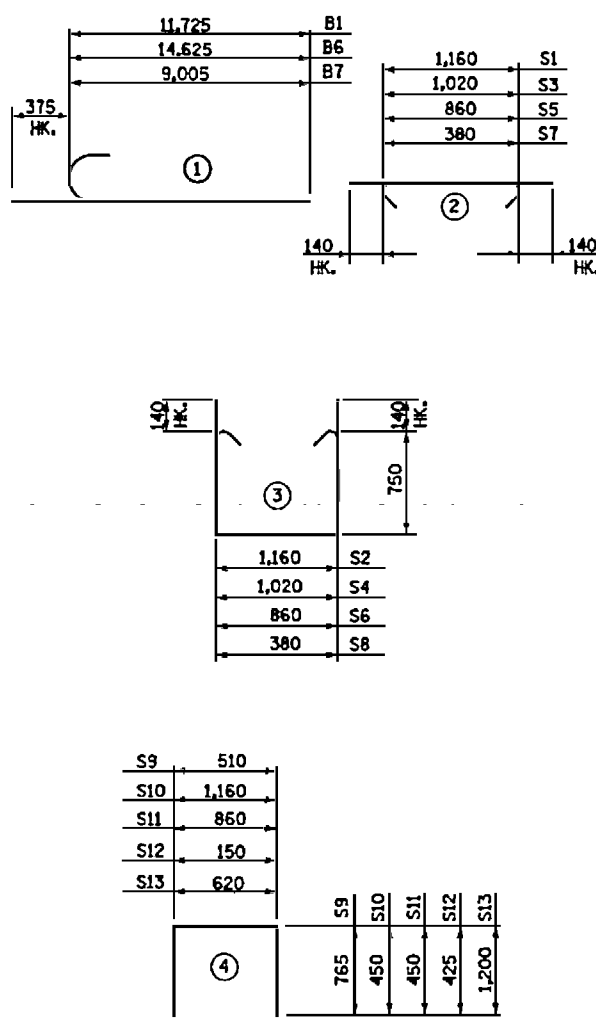
150mm SQUARE ALUMINUM OR GALVANIZED STEEL WIRE 4 MESH HARDWARE CLOTH OF COMMERCIAL QUALITY. ANCHOR FIRMLY TO FILL FACE.

VIEW A-A

NOTES:

NO SEPARATE PAYMENT WILL BE MADE FOR FURNISHING AND INSTALLING THE PVC PLASTIC PIPE DRAINS, HARDWARE CLOTH AND FASTENERS. THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES:

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

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

PIPE DRAINS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR REINFORCING STEEL AND ANCHOR BOLTS.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

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

THE TOP SURFACE AREAS OF THE END BENT CAPS EXCEPT THE BRIDGE SEAT BUILD-UPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

STEEL PILE TIPS ARE REQUIRED FOR 305mm PRESTRESSED CONCRETE PILES AT END BENT 2. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS. THE STEEL PILE TIPS SHALL NOT BE INCLUDED IN DETERMINING THE LENGTH OF THE PILE FOR PAYMENT. THE COST OF THE STEEL PILE TIPS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE FOR STEEL PILE TIPS.

BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
END BENT 2					
B1	12	*29		12,100	735
B2	4	*29	STR.	11,720	237
B3	42	*13	STR.	7,500	313
B4	4	*29	STR.	8,560	173
B5	4	*29	STR.	15,060	305
B6	4	*29		15,000	304
B7	4	*29		9,380	190
B8	32	*13	STR.	1,160	37
B9	30	*13	STR.	940	28
B10	1	*13	STR.	1,520	2
B11	1	*13	STR.	2,080	2
B12	1	*13	STR.	2,280	2
B13	1	*13	STR.	2,480	2
B14	4	*16	STR.	2,800	17
K1	30	*13	STR.	6,440	192
S1	70	*16	2	1,440	156
S2	70	*16	3	2,940	319
S3	1	*16	2	1,300	2
S4	1	*16	3	2,800	4
S5	2	*16	2	1,140	4
S6	2	*16	3	2,640	8
S7	3	*16	2	660	3
S8	3	*16	3	2,160	10
S9	24	*13	4	2,040	49
S10	35	*13	4	2,060	72
S11	11	*13	4	1,760	19
S12	58	*13	4	1,000	58
S13	5	*16	4	3,020	23
V1	116	*16	STR.	2,220	400

QUANTITIES

EPOXY COATED REINFORCING STEEL	kg	3,666
CLASS AA CONCRETE BREAKDOWN		
POUR 1 - CAP	CUL METERS	25.6
POUR 2 - BACKWALL	CUL METERS	7.8
<b>TOTAL</b>	<b>CUL METERS</b>	<b>33.4</b>
305mm P/S CONC. PILES	NO.	8
	METERS	136.0
STEEL PILE TIPS	NO.	8

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.



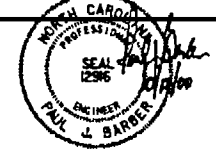
PROJECT No. U-092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT 2



**FNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DESIGNED BY: J. BAYNE DATE: 7/00  
CHECKED BY: C. OLIVER DATE: 7/00

DWG. NO. 80

REVISIONS						SHEET NO. S-110
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			

**NOTES**

CONCRETE DESIGN DATA :  $f'_c = 34.5 \text{ MPa}$ ;  $f_a = 13.8 \text{ MPa}$

IMPACT IN HANDLING = 50%

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 24.1 MPa.

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST - IN - PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 50mm WIDE.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY USE EITHER OF THE FOLLOWING STRAND CONFIGURATIONS:

SIZE	GRADE	NUMBER OF STRANDS	AREA mm <sup>2</sup>	ULTIMATE STRENGTH KN	APPLIED PRESTRESS FORCE KN
12.70	270	4	98.71	183.7 PER STRAND	137.8 PER STRAND
12.70	270	5	98.71	183.7 PER STRAND	137.8 PER STRAND

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN PAIRS, EXCEPT WHERE 5 STRANDS ARE USED THE LAST STRAND MAY BE BURNED SINGLY, ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 STRANDS MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

BUILD-UPS SHALL BE 'CLASS AA' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 20.7 MPa AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

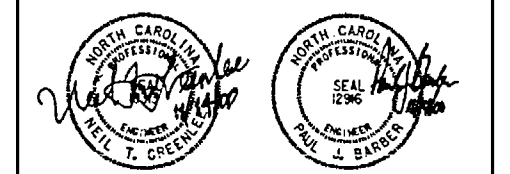
ALL CORNERS TO BE CHAMFERED 19mm.

ALL MILD REINFORCING STEEL IN PILES SHALL BE BLACK.

ALL CONCRETE USED IN THE PILES AND PILE BUILDUP SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

STEEL PILE TIPS ARE REQUIRED FOR ALL 305mm PRESTRESSED CONCRETE PILES. SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS.  
THE CONCRETE IN THE 310mm PRESTRESSED CONCRETE PILES SHALL CONTAIN SILICA FUME. FOR SILICA FUME, SEE SPECIAL PROVISIONS.



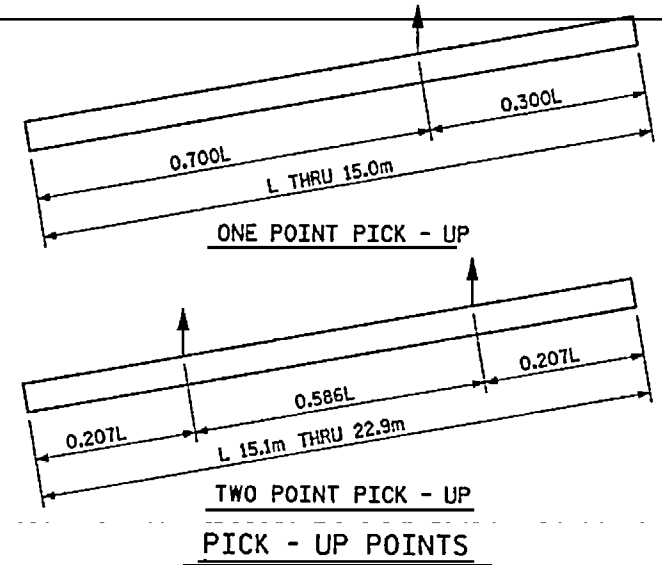
PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: POT I2+52.890 -Y-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**STANDARD  
305mm PRESTRESSED  
CONCRETE PILE**

REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	DATE	
1			3		3-111
2			4		1011

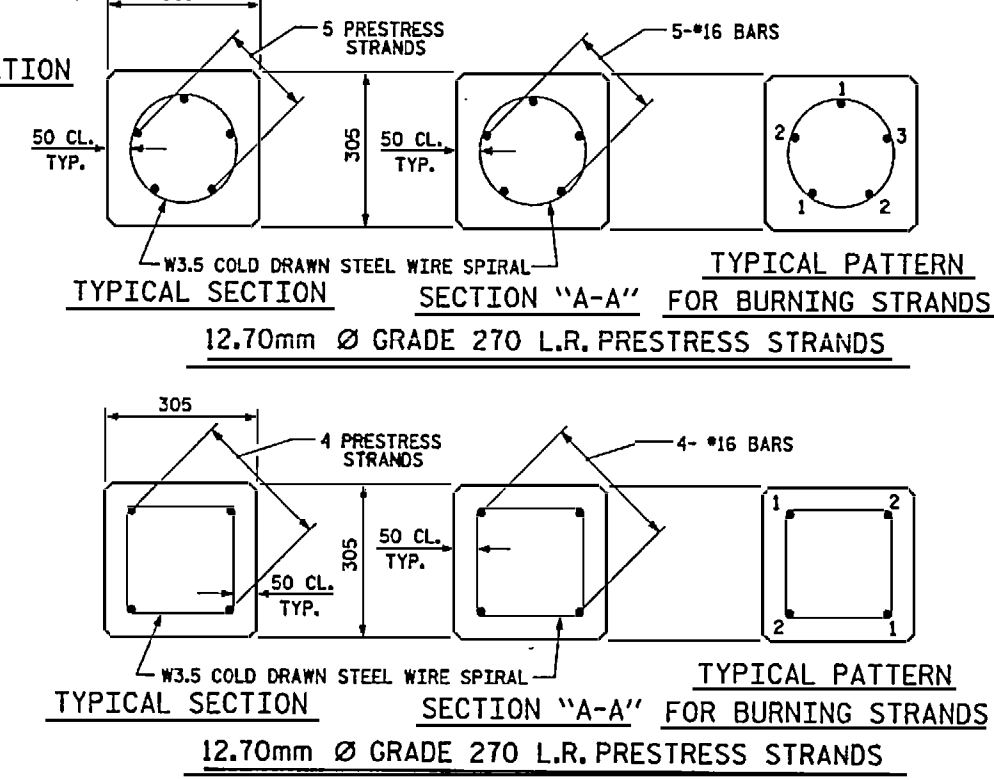
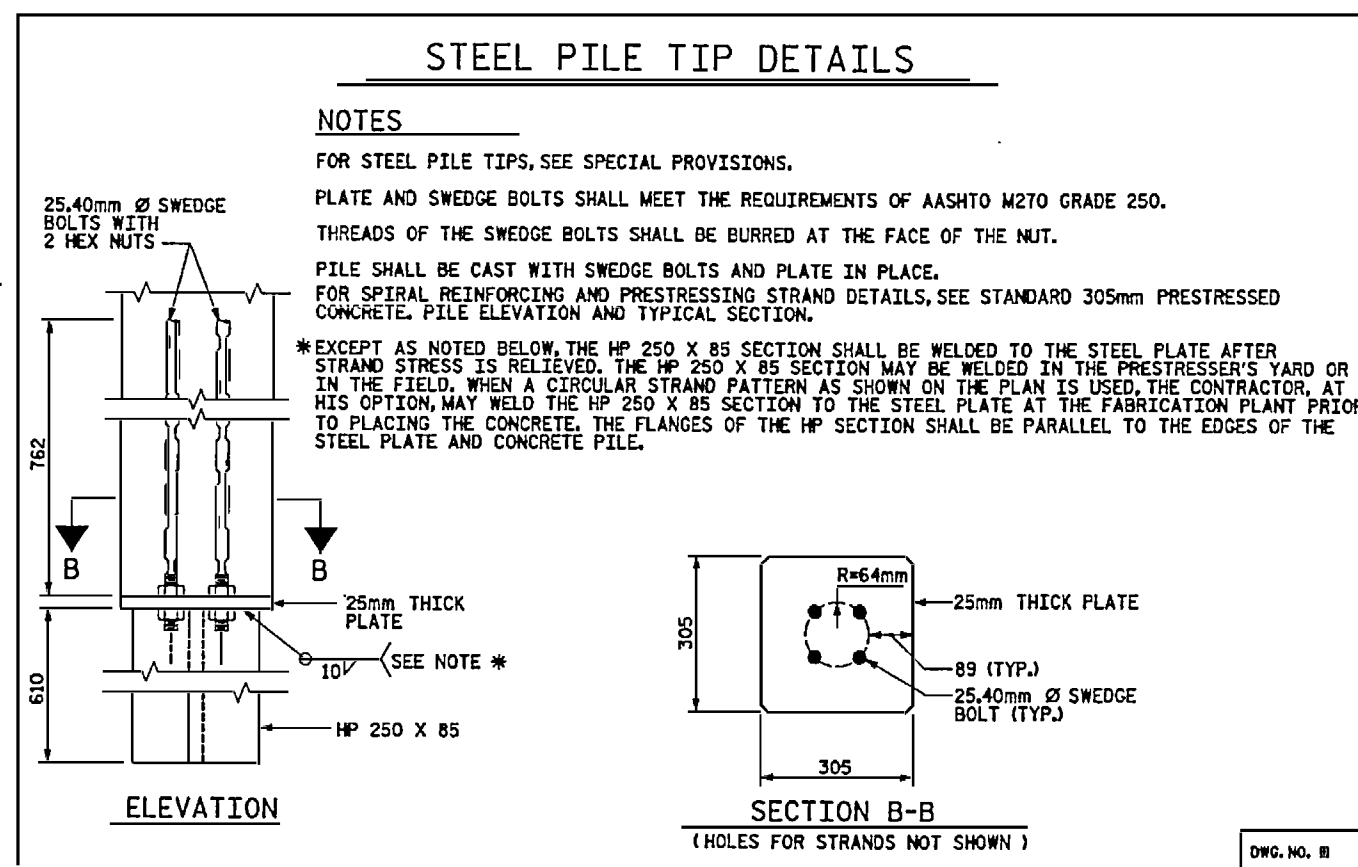
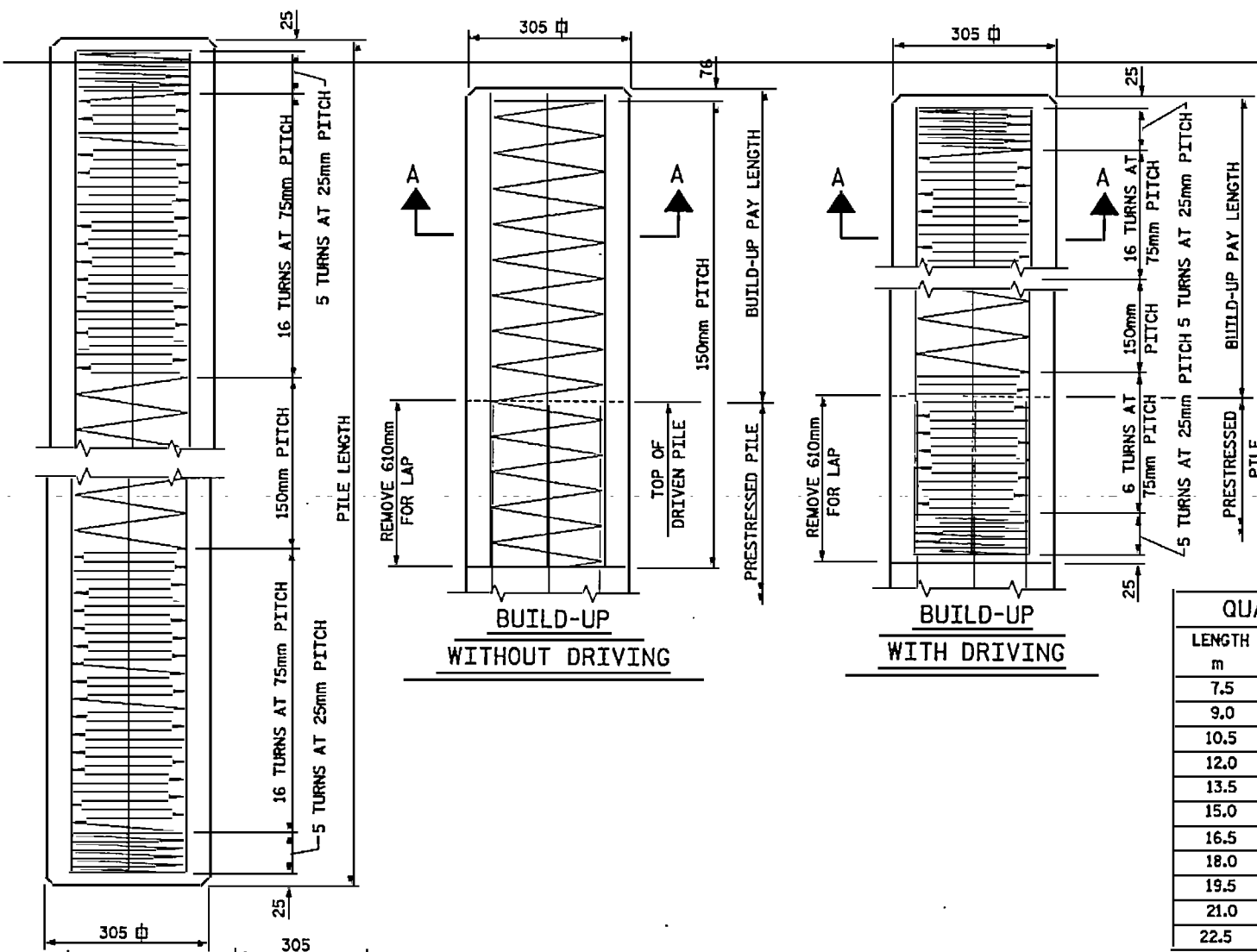
DWG. NO. 31

STD. NO. PCP1SM



**QUANTITIES FOR ONE 305mm PRESTRESSED PILE**

LENGTH m	CONCRETE m <sup>3</sup>	PILE WT. kg	ONE PICK-UP POINT		TWO PICK-UP POINT	
			0.300L m	0.700L m	0.207L m	0.586L m
7.5	0.70	1680	2.25	5.25		
9.0	0.84	2020	2.70	6.30		
10.5	0.98	2350	3.15	7.35		
12.0	1.12	2690	3.60	8.40		
13.5	1.26	3030	4.05	9.45		
15.0	1.40	3360	4.50	10.50		
16.5	1.53	3680			3.42	9.67
18.0	1.67	4010			3.73	10.55
19.5	1.81	4350			4.04	11.43
21.0	1.95	4690			4.35	12.31
22.5	2.09	5020			4.66	13.19



ASSEMBLED BY : A. ECHERO DATE : 7/00  
CHECKED BY : P. BARBER DATE : 7/00  
DRAWN BY : FCJ 7/88 REV. 5/16/97 ESM/RW  
CHECKED BY : CRK 3/89 REV. 7/11/98 RWW/LES  
REV. 8/16/99 RWW/LES



**NOTES**

CONCRETE DESIGN DATA :  $f'c = 34.5 \text{ MPa}$ ,  $f_o = 13.8 \text{ MPa}$   
 IMPACT IN HANDLING = 50%  
 IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.  
 PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS, AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

THE CONTRACTOR SHALL USE THE FOLLOWING STRAND TYPE:

SIZE mm	GRADE	NUMBER OF STRANDS	AREA mm <sup>2</sup>	ULTIMATE STRENGTH KN	APPLIED PRESTRESS FORCE KN
12.70	270	16	98.71	183.7 PER STRAND	137.8 PER STRAND

STRANDS SHALL BE EQUALLY SPACED AS SHOWN IN THE "TYPICAL SECTION".  
 A CIRCULAR STRAND PATTERN SHALL NOT BE PERMITTED.  
 THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.  
 IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES, STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 5-5 AND 6-6, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.  
 BUILD-UPS SHALL BE OF 'CLASS AA' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 20.7 MPa, AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203M EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.  
 THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 24.1 MPa.

ALL MILD REINFORCING IN PILES SHALL BE BLACK.

ALL CONCRETE IN THE PILES AND PILE BUILD UP SHALL CONTAIN CALCIUM NITRIDE CORROSION INHIBITOR, FOR CALCIUM NITRIDE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

STEEL PILE TIPS ARE REQUIRED FOR ALL 610mm PRESTRESSED CONCRETE PILES, SEE SPECIAL PROVISIONS FOR STEEL PILE TIPS.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS TO BE INDICATED WITH A BLACK MARK 50mm WIDE.

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
 STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD  
 610mm PRESTRESSED  
 CONCRETE PILE**

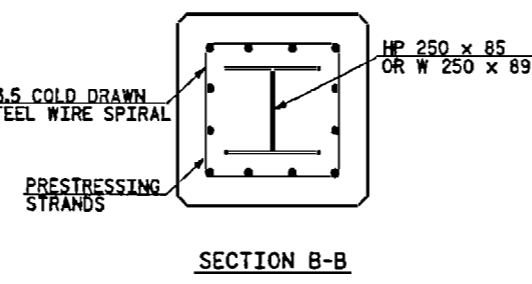
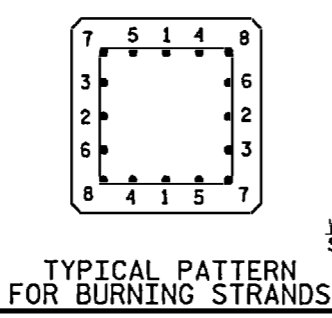
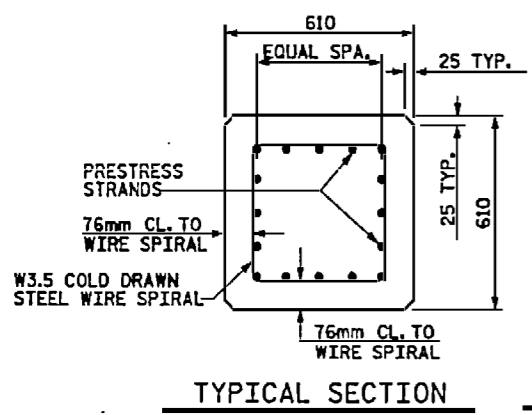
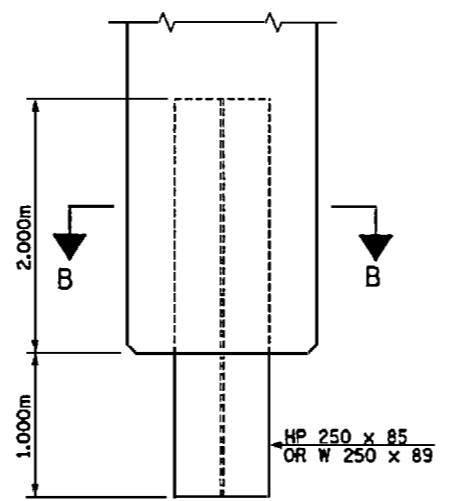
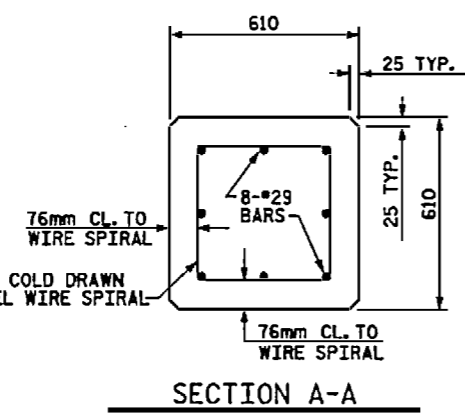
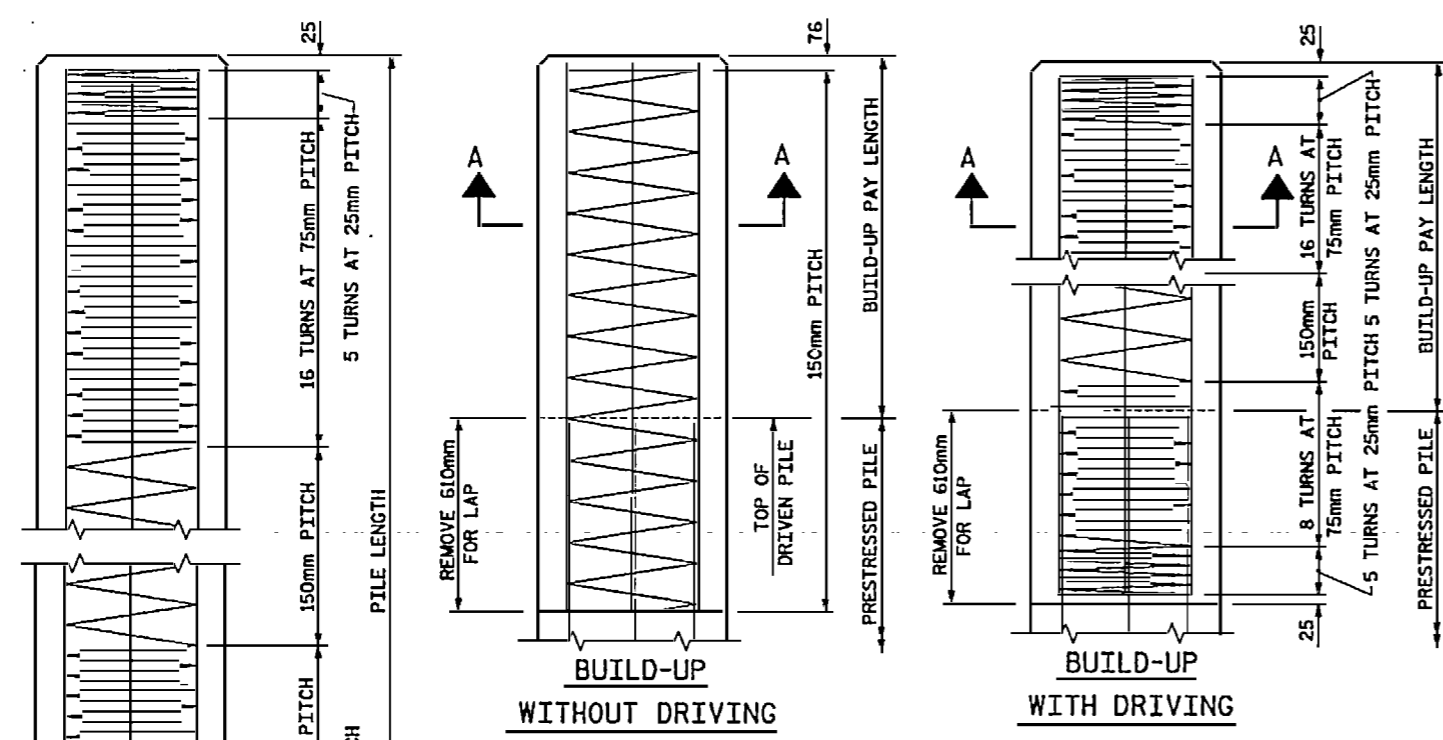
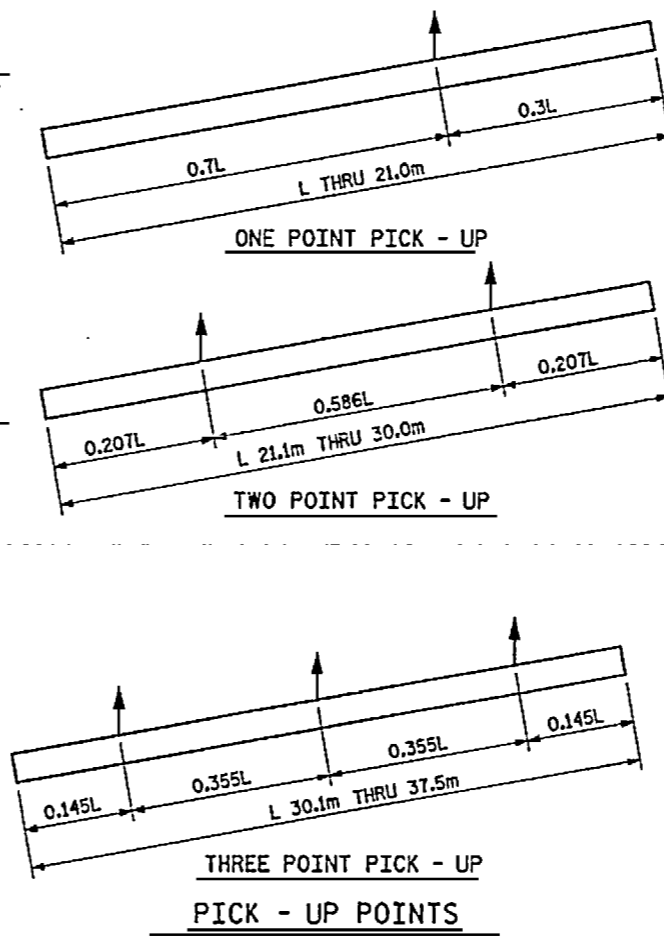
REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	DATE
1			3	
2			4	

DWG. NO. 112

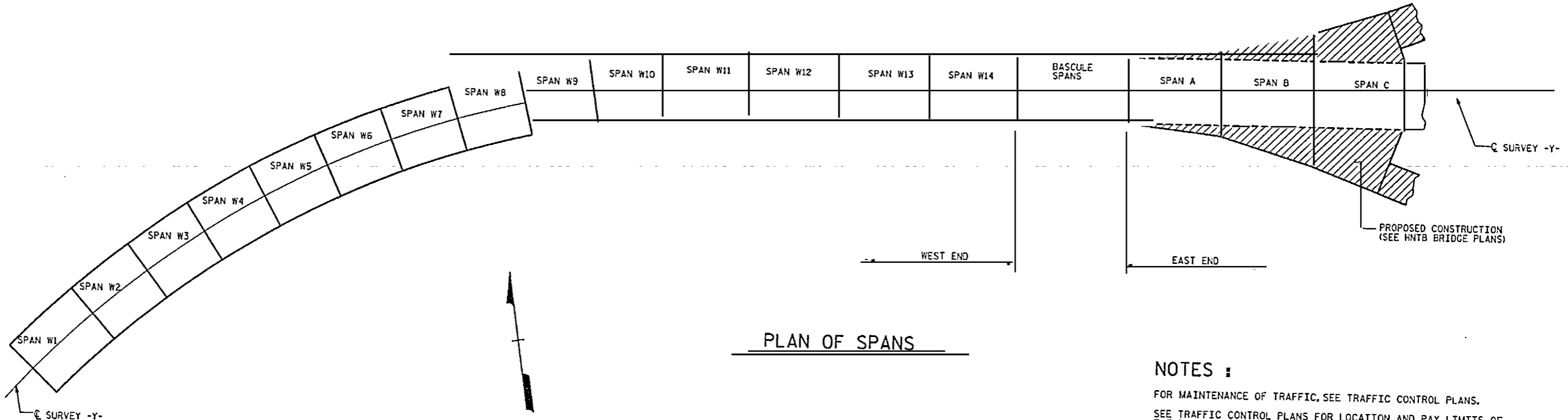
STD. NO. PCP3SM

**QUANTITIES FOR ONE 610 SQUARE PILE**

LENGTH m	CONCRETE m <sup>3</sup>	PILE WT. kg	ONE PICK-UP POINT		TWO PICK-UP POINTS		THREE PICK-UP POINTS	
			0.3L m	0.7L m	0.207L m	0.586L m	0.145L m	0.355L m
7.5	2.79	6,700	2.25	5.25				
9.0	3.35	8,050	2.70	6.30				
10.5	3.91	9,390	3.15	7.35				
12.0	4.47	10,740	3.60	8.40				
13.5	5.02	12,060	4.05	9.45				
15.0	5.58	13,410	4.50	10.50				
16.5	6.14	14,750	4.95	11.55				
18.0	6.70	16,100	5.40	12.60				
19.5	7.26	17,440	5.85	13.65				
21.0	7.81	18,770	6.30	14.70				
22.5	8.37	20,110			4.66	13.19		
24.0	8.93	21,460			4.97	14.06		
25.5	9.49	22,800			5.28	14.94		
27.0	10.05	24,150			5.59	15.82		
28.5	10.60	25,470			5.90	16.70		
30.0	11.16	26,820			6.21	17.58		
31.5	11.72	28,160					4.57	11.18
33.0	12.28	29,510					4.79	11.72
34.5	12.84	30,850					5.00	12.25
36.0	13.40	32,200					5.22	12.78
37.5	13.95	33,520					5.44	13.31



ASSEMBLED BY : A. ECHERO DATE : 7/00  
 CHECKED BY : P. BARBER DATE : 6/00  
 DRAWN BY : W.H. 1/89 REV. 5/16/97 EEM/RGW  
 CHECKED BY : CPK 3/89 REV. 8/16/99 RAL/LES



PLAN OF SPANS

**NOTES :**

FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS.  
 SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE PORTABLE CONCRETE BARRIER.  
 THE CONTRACTOR SHALL REPAIR SPALLED AND DELAMINATED AREAS IN THE BARRIER RAIL ON SPANS W1 THRU W14. THE PAYMENT FOR THIS WORK IS INCLUDED IN THE VARIOUS PAY ITEMS FOR DECK REHABILITATION.

**BILL OF MATERIAL**

	CLASS I SURFACE PREPARATION	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING AND FINISHING OF LATEX MODIFIED CONCRETE	EVAZOTE JOINT SEALS
	SO. METERS	SO. METERS	SO. METERS	CU. METERS	SO. METERS	LUMP SUM
WEST END	5933	400	42	188.4	5933	LUMP SUM
EAST END	1075			34.4	1075	
TOTAL	7008	400	42	222.8	7008	LUMP SUM

PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: 12+52.890 -Y-

SHEET 1 OF 6

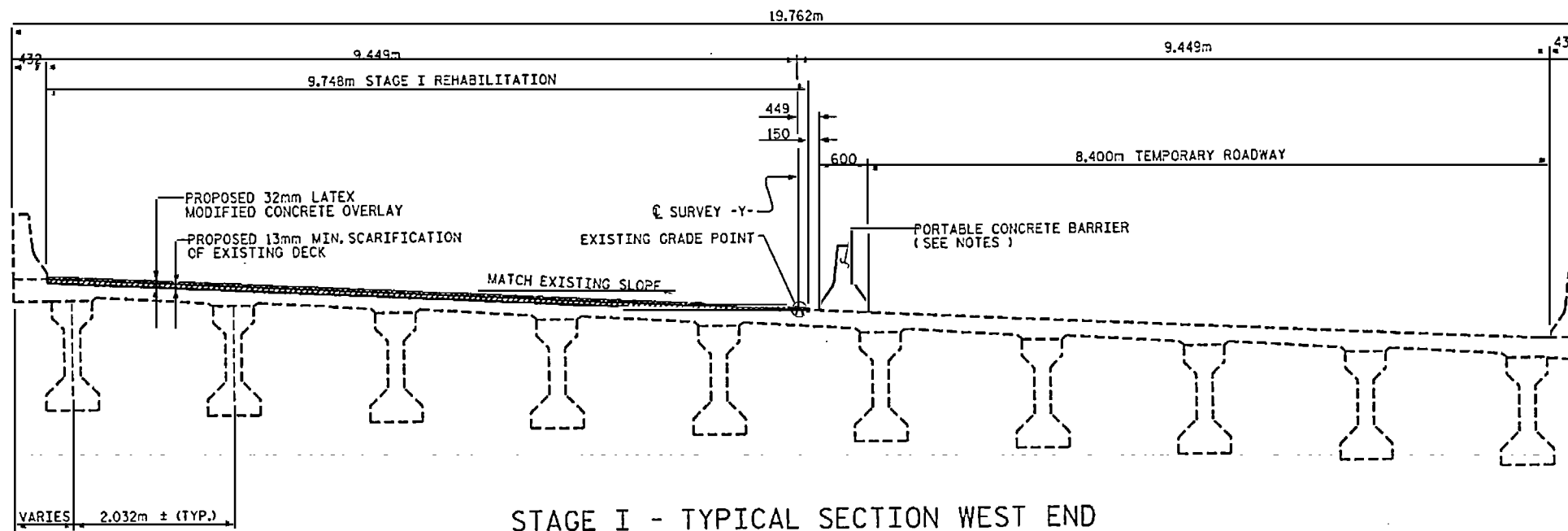
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 US117 OVER  
 NORTHEAST CAPE FEAR RIVER  
 BILL OF MATERIAL  
 REHABILITATION OF  
 WEST END  
 AND SPANS A, B & C  
 OF EAST END



DWS NO. 113

DRAWN BY : A.R.Chesson DATE : 10-00  
 CHECKED BY : D.PETREY DATE : 10-00

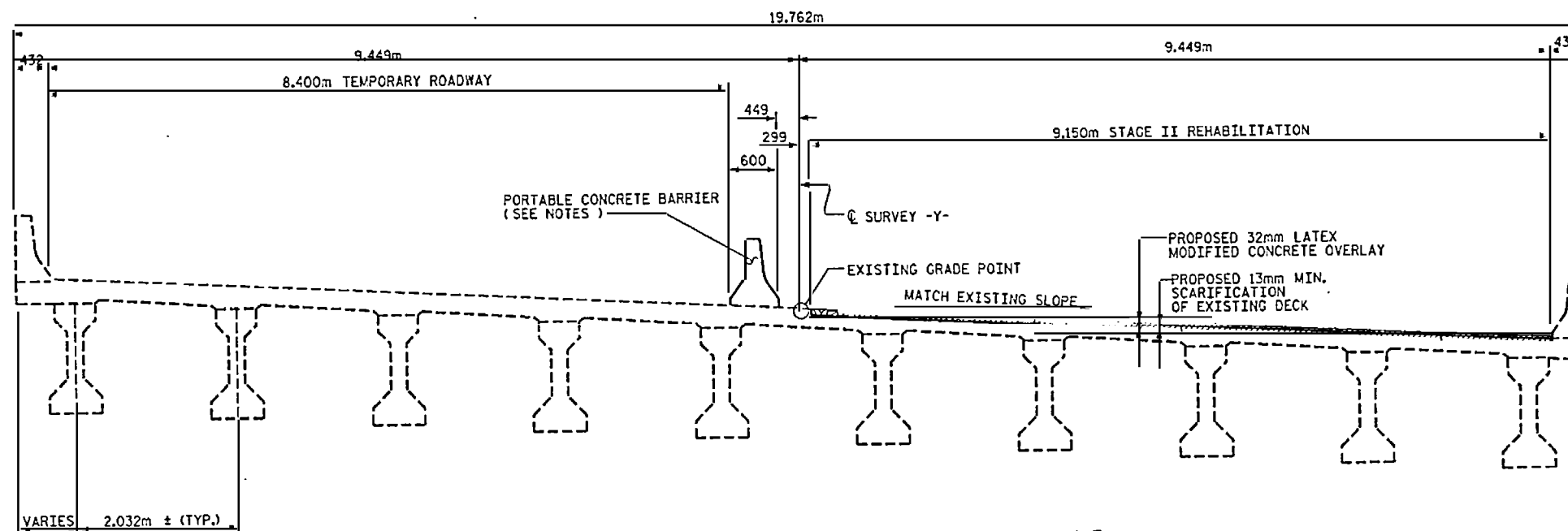
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			5-113
2			4			TOTAL SHEETS 101



**STAGE I - TYPICAL SECTION WEST END**

(REHABILITATION OF EXISTING BRIDGE)

PLACE PORTABLE CONCRETE BARRIER AS SHOWN, SCARIFY AND MAKE ALL NECESSARY DECK REPAIR (CLASS I, CLASS II AND CLASS III SURFACE PREPARATION), OVERLAY 32mm LATEX MODIFIED CONCRETE, SAW JOINTS, AND INSTALL EVAZOTE JOINT SEALS.



**STAGE II - TYPICAL SECTION WEST END**

(REHABILITATION OF EXISTING BRIDGE)

PLACE PORTABLE CONCRETE BARRIER AS SHOWN, SCARIFY AND MAKE ALL NECESSARY DECK REPAIR (CLASS I, CLASS II AND CLASS III SURFACE PREPARATION), OVERLAY 32mm LATEX MODIFIED CONCRETE, SAW JOINTS, AND INSTALL EVAZOTE JOINT SEALS.

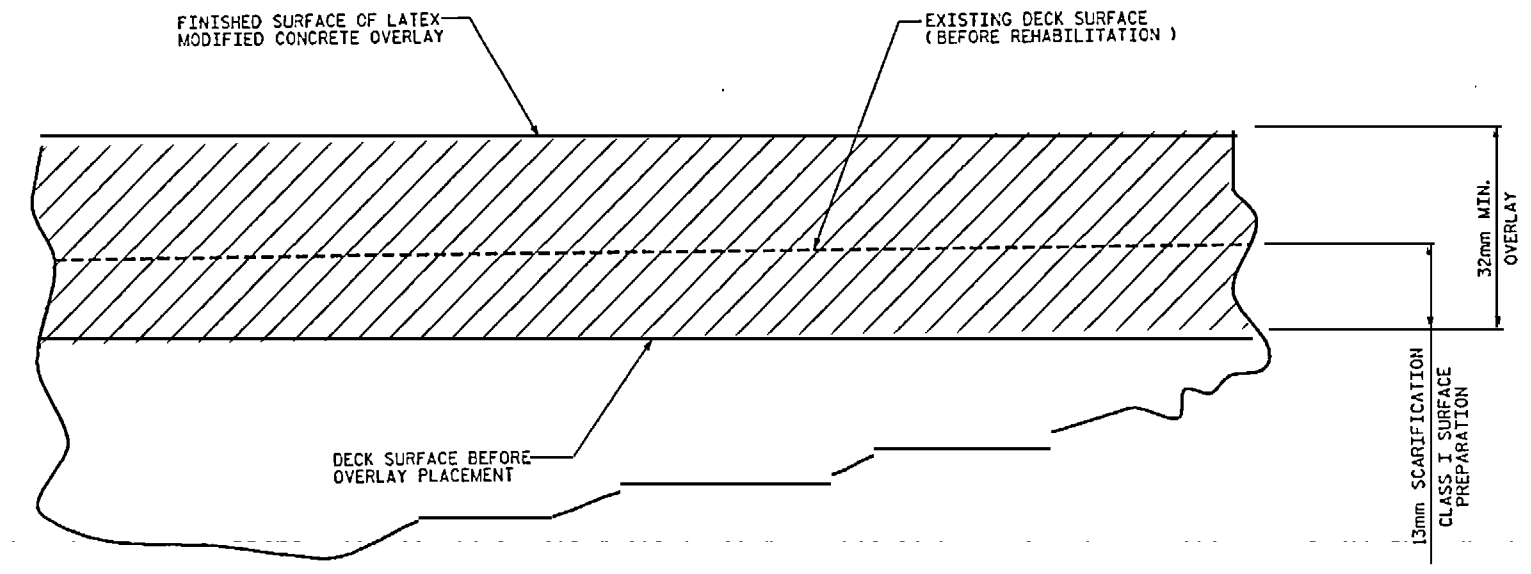
PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
 STATION: 12+52.890 -Y-

SHEET 2 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 US117 OVER  
 NORTHEAST CAPE FEAR RIVER  
 REHABILITATION OF  
 WEST END  
 STAGING SEQUENCE



REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			5-114
2			4			TOTAL SHEETS 1011



**NOTES**

FOR CLASS I, II AND III SURFACE PREPARATION, SEE SPECIAL PROVISION "REPAIR OF BRIDGE DECKS AND APPROACH PAVEMENT WITH LATEX MODIFIED CONCRETE".

QUANTITIES SHOWN FOR CLASS II AND CLASS III SURFACE PREPARATION ARE ESTIMATED. THE QUANTITIES TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF SQUARE METERS OF CLASS II OR CLASS III SURFACE PREPARATION COMPUTED BY THE ENGINEER FROM MEASUREMENTS OF THE AREAS THAT ARE PREPARED TO RECEIVE THE OVERLAY.

FOR LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

QUANTITIES SHOWN FOR LATEX MODIFIED CONCRETE ARE ESTIMATED.

REINFORCING STEEL SPLICES SHALL BE WELDED AS DETAILED AND SHALL CONFORM TO THE CURRENT AWS REINFORCING STEEL WELDING SPECIFICATIONS.

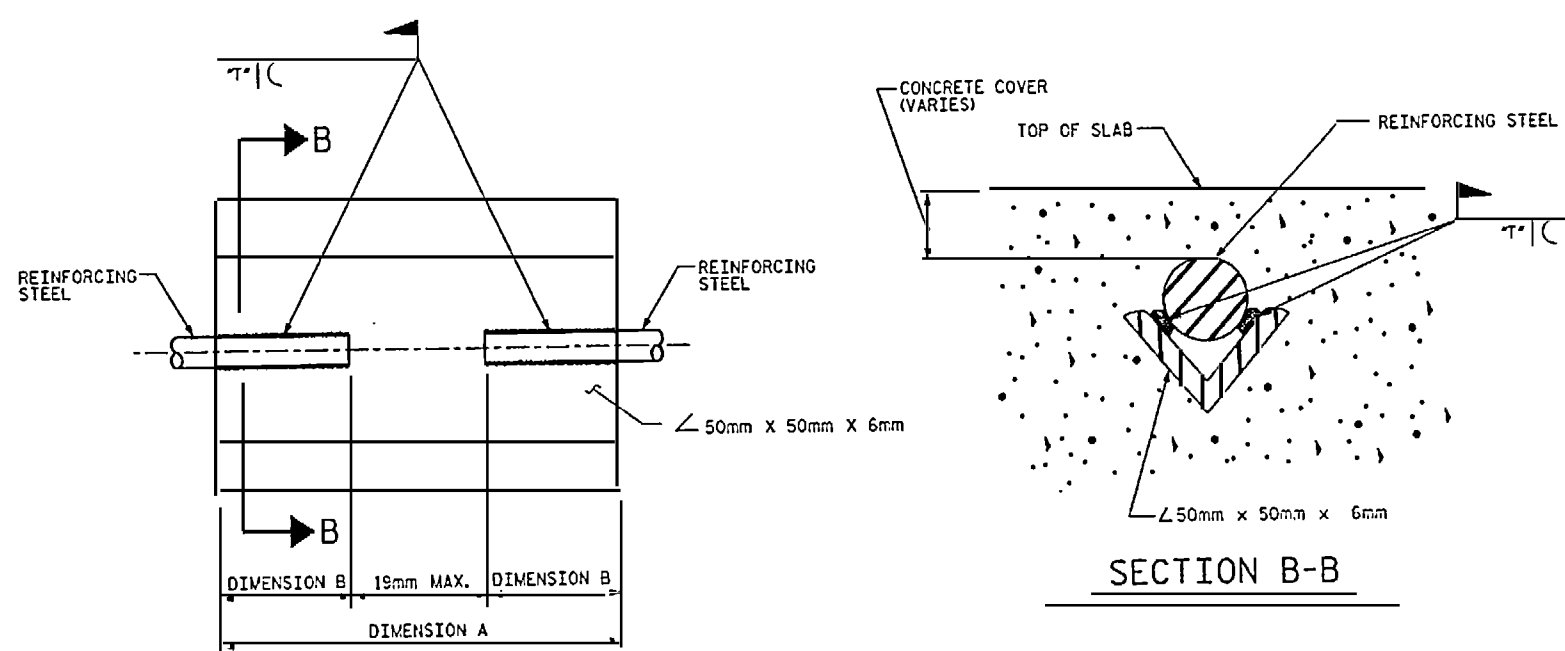
CHEMICAL ANALYSIS OF THE EXISTING REINFORCING STEEL WILL NOT BE REQUIRED.

FOR PLACEMENT SEQUENCE OF THE LATEX MODIFIED CONCRETE OVERLAY, SEE "STAGING SEQUENCE" SHEET.

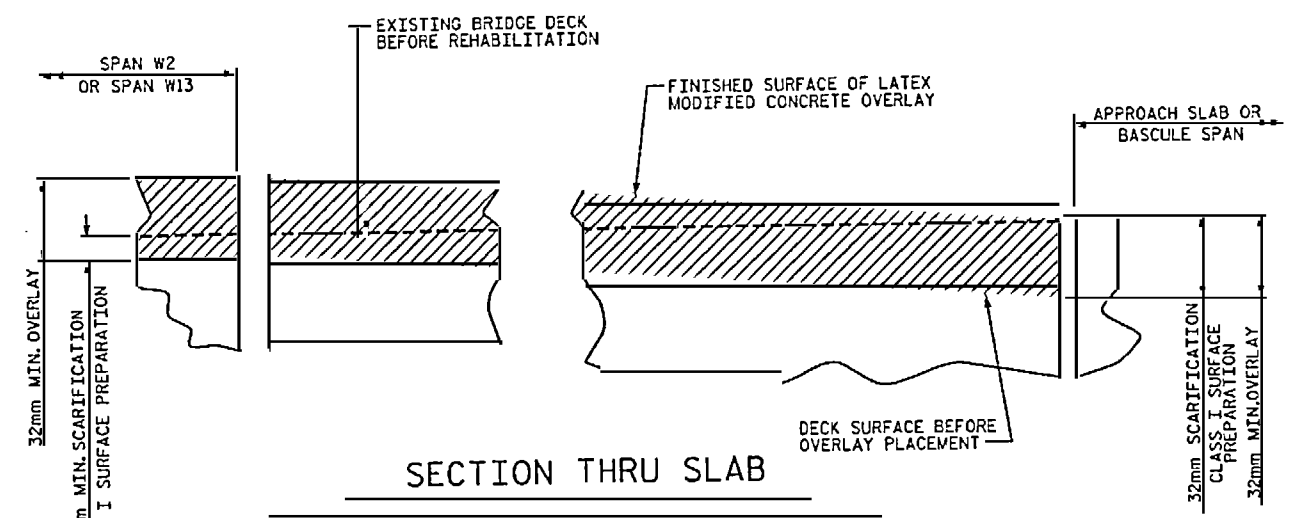
THE LATEX MODIFIED CONCRETE OVERLAY SURFACE SHALL NOT BE GROOVED WITH A SAW. THE SURFACE SHALL BE FINISHED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. SEE LATEX MODIFIED CONCRETE SPECIAL PROVISION.

**SECTION THRU SLAB**

SPANS W2 THRU W13



**SECTION B-B**



**SECTION THRU SLAB**

SPANS W1 AND W14

BAR SIZE	DIMENSION A	DIMENSION B	WELD SIZE "T"
#13	100mm	38mm	6
#16	152mm	57mm	6
#19	178mm	76mm	8

**WELD DETAIL FOR SPLICING REINFORCING STEEL**

USED IN CLASS II AND CLASS III SURFACE PREPARATION

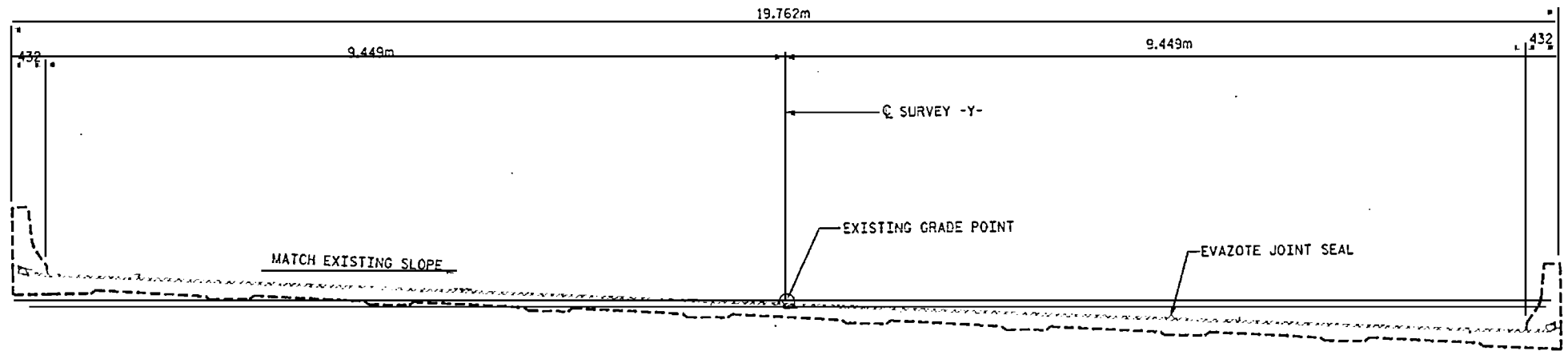
PROJECT NO. U-0092A  
 NEW HANOVER COUNTY  
 STATION: 12+52.890 -Y-  
 SHEET 3 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 US117 OVER  
 NORTHEAST CAPE FEAR RIVER  
 REHABILITATION OF  
 WEST END  
 TYPICAL SECTION



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

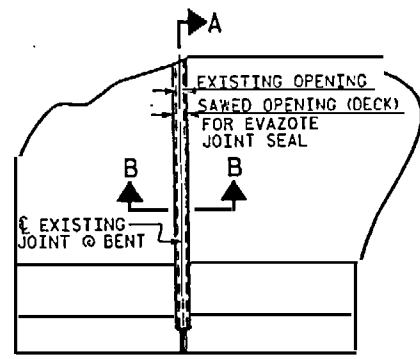
D:\splan\civil\metric\ncnover\0092\crt\5.dgn  
c1son



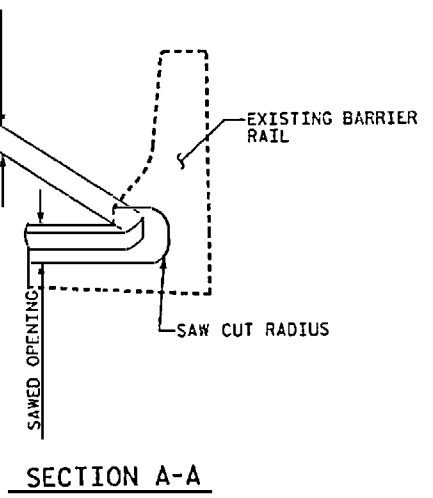
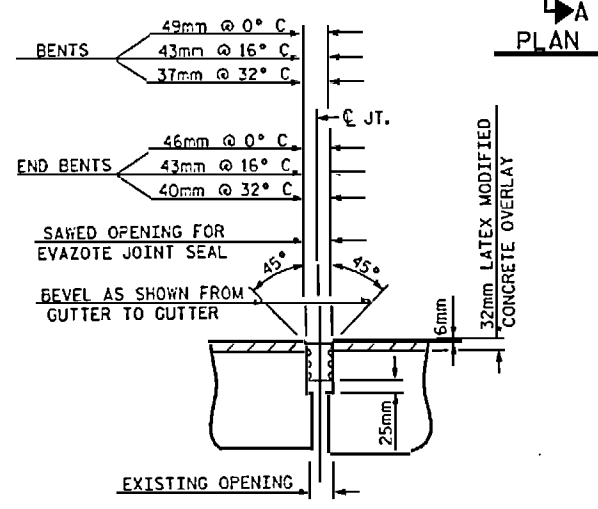
**SECTION THRU EVAZOTE JOINT SEAL  
WEST END ONLY**

**NOTES :**

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.  
 DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.  
 THE OPENINGS SHOWN ARE BASED ON A NOMINAL UNCOMPRESSED SEAL WIDTH OF 71mm.



**PLAN**



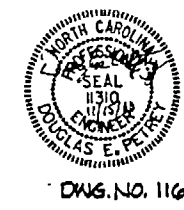
**SECTION B-B**

**SECTION A-A**

**EVAZOTE JOINT SEAL DETAILS @ BENTS  
WEST END ONLY**

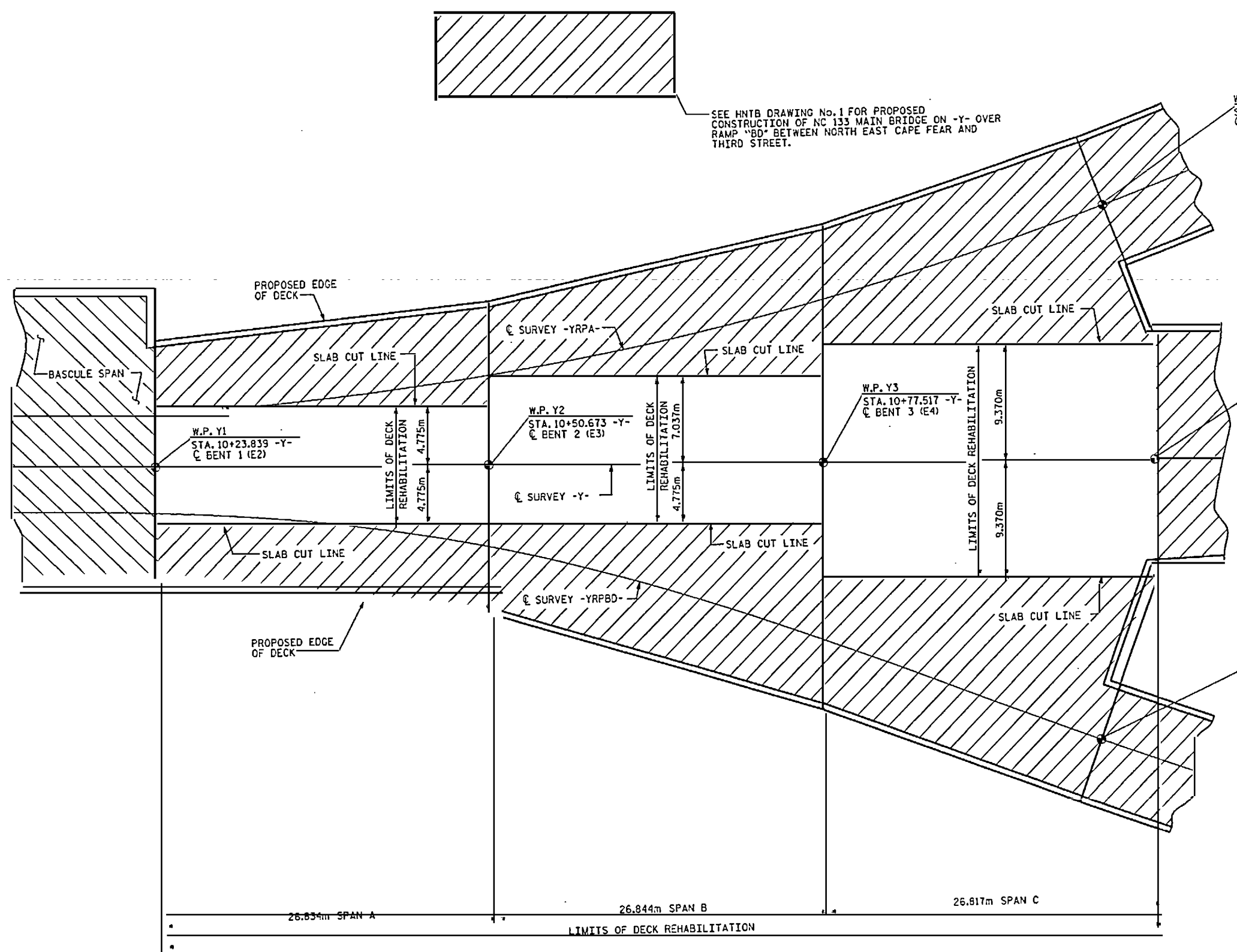
PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
 STATION: 12+52.890 -Y-  
 SHEET 4 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 US117 OVER  
 NORTHEAST CAPE FEAR RIVER  
 REHABILITATION OF  
 WEST END  
 EVAZOTE JOINT  
 SEAL DETAILS



DRAWN BY : A.R.Chesson DATE : 10-00  
 CHECKED BY : D.PETREY DATE : 10-00

REVISIONS				SHEET NO
NO.	BY	DATE	NO.	DATE
1			3	
2			4	
				TOTAL SHEETS
				1011



SEE HNTB DRAWING No. 1 FOR PROPOSED CONSTRUCTION OF NC 133 MAIN BRIDGE ON -Y- OVER RAMP "BD" BETWEEN NORTH EAST CAPE FEAR AND THIRD STREET.

W.P. Y4A  
STA. 3+22.033 -YRPA-  
C BENT 4A

W.P. Y4  
STA. 11+04.334 -Y-  
C BENT 4 (E5)

W.P. Y4BD  
STA. 5+70.223 -YRPBD-  
C BENT 4BD

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
STATION: 12+52.890 -Y-

SHEET 5 OF 6

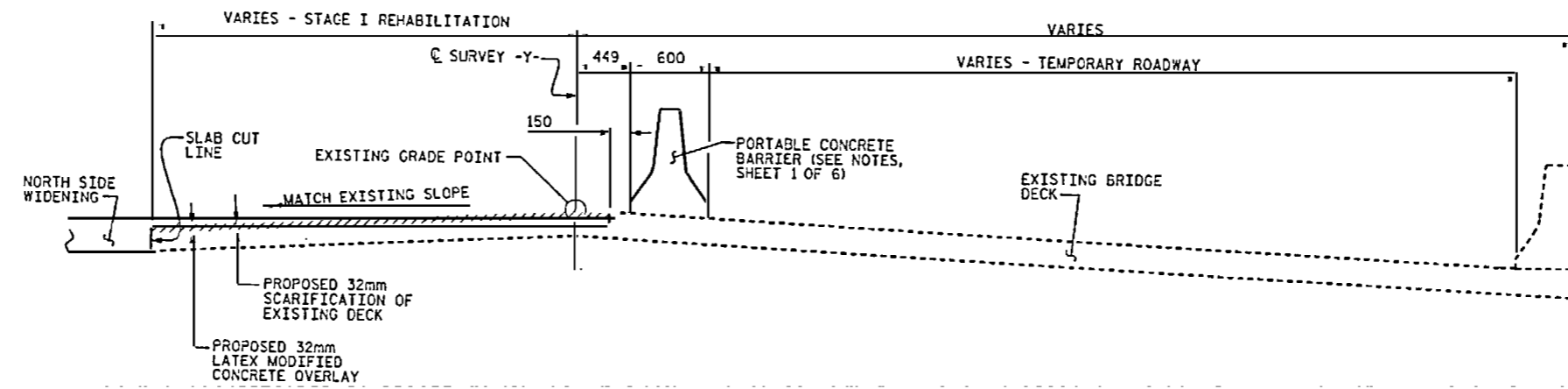
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
US117 OVER  
NORTHEAST CAPE FEAR RIVER  
REHABILITATION OF  
EAST END,  
SPANS A, B & C



DWG. NO. 117

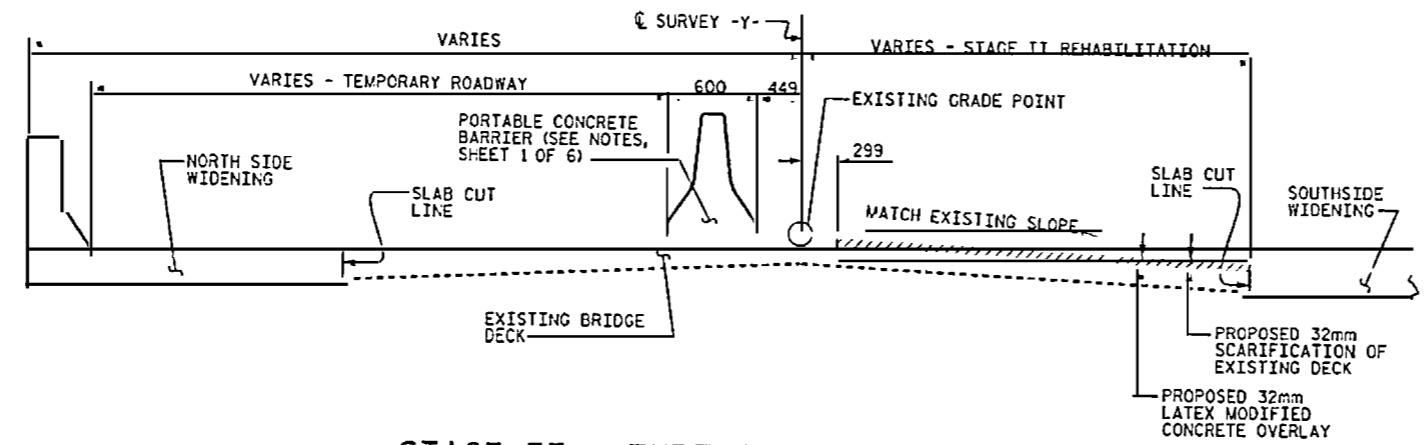
REVISIONS						SHEET NO. S-117
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			

DRAWN BY: A.R.Chesson DATE: 8-00  
CHECKED BY: D.PETREY DATE: 10-00



**STAGE I - TYPICAL SECTION - EAST END**

PLACE PORTABLE CONCRETE BARRIER AS SHOWN, SCARIFY AND MAKE ALL NECESSARY DECK REPAIR (CLASS I, CLASS II AND CLASS III SURFACE PREPARATION), & OVERLAY 32mm LATEX MODIFIED CONCRETE.

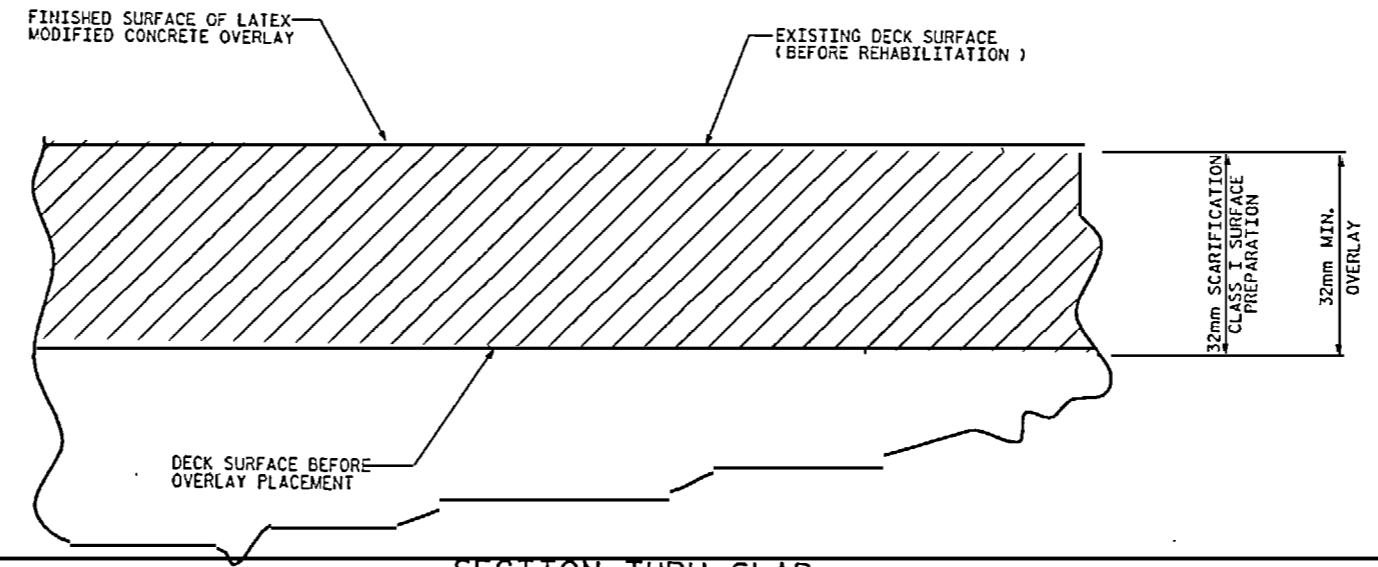


**STAGE II - TYPICAL SECTION - EAST END**

PLACE PORTABLE CONCRETE BARRIER AS SHOWN, SCARIFY AND MAKE ALL NECESSARY DECK REPAIR (CLASS I, CLASS II AND CLASS III SURFACE PREPARATION), & OVERLAY 32mm LATEX MODIFIED CONCRETE.

**NOTES :**

FOR WELD DETAILS FOR REINFORCING STEEL, SEE SHEET 3 OF 6.  
 FOR SAWING JOINTS AND INSTALLATION OF EVAZOTE JOINT SEALS, SEE PLAN SHEETS FOR WIDENING OF SPANS A, B & C OF EXISTING BRIDGE.



**SECTION THRU SLAB**

PROJECT NO. U-0092A  
NEW HANOVER COUNTY  
 STATION: 12+52.890 -Y-  
 SHEET 6 OF 6

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEGH  
 US117 OVER  
 NORTHEAST CAPE FEAR RIVER  
 REHABILITATION OF  
 EAST END  
 TYPICAL SECTIONS



DWG. NO. 118

DRAWN BY: A.R.Chesson DATE: 9-00  
 CHECKED BY: D.PETREY DATE: 10-00

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	6-118
1			3			TOTAL SHEETS (6)
2			4			