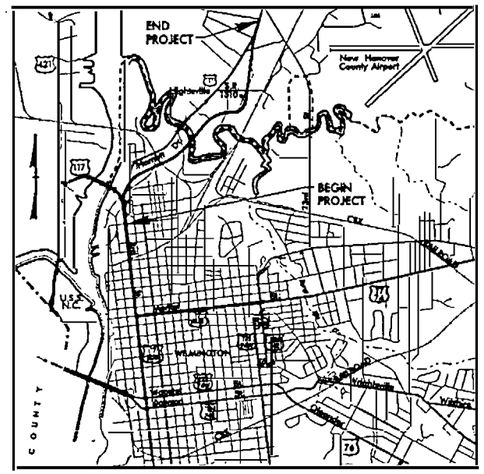
U-0092A

PROJECT: 8.2250110

STRUCTURES



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

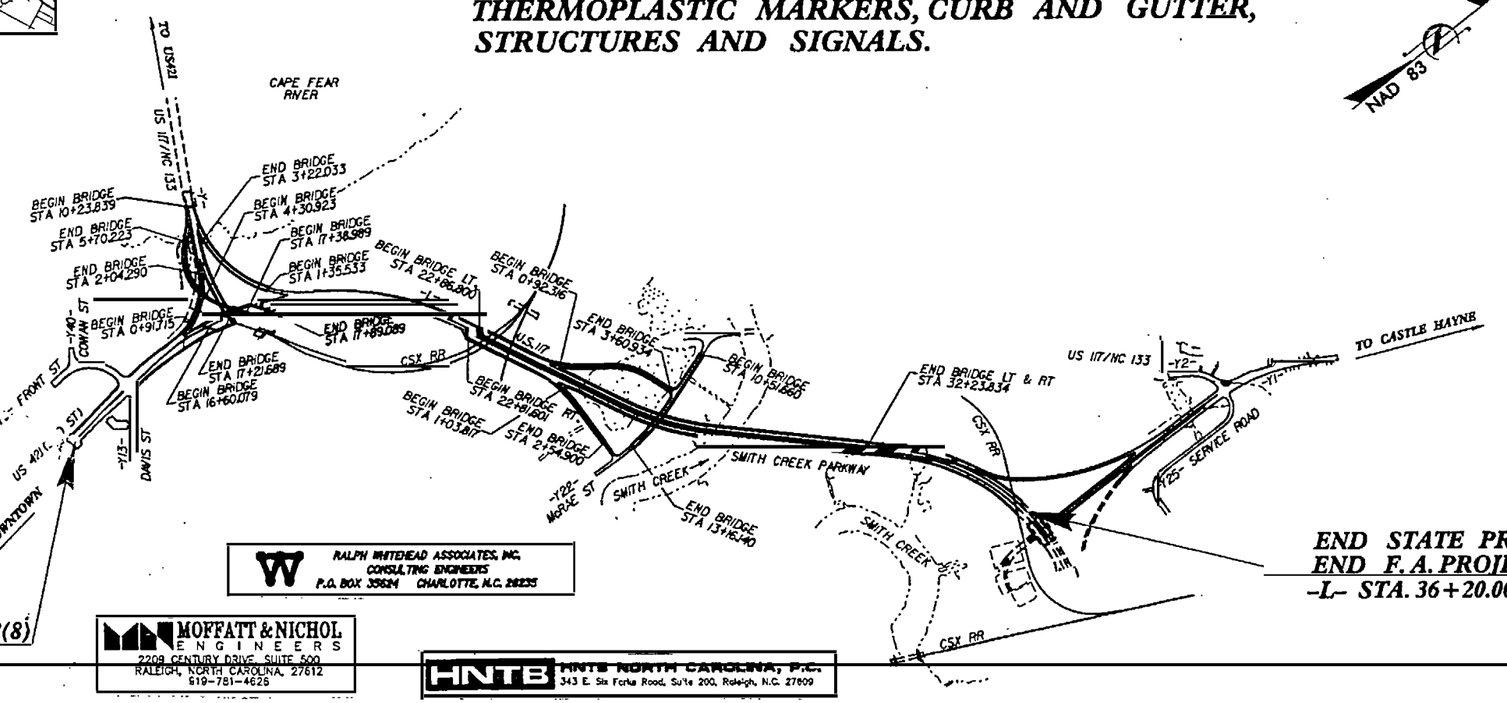
LOCATION: *SMITH CREEK PARKWAY FROM HARNETT STREET TO U.S. 117 CASTLE HAYNE ROAD IN WILMINGTON*

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

METRIC

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.



NAD 83

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

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

#11

RALPH WHITEHEAD ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 35514 CHARLOTTE, N.C. 28235

MOFFATT & NICHOL
ENGINEERS
2209 CENTURY DRIVE, SUITE 500
RALEIGH, NORTH CAROLINA, 27612
919-781-4626

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

NORTH CAROLINA PROFESSIONAL SEAL 12610 ENGINEER STUART MATTHIS
11/14/00

NORTH CAROLINA PROFESSIONAL SEAL 12916 ENGINEER PAUL J. BARBER

NORTH CAROLINA PROFESSIONAL SEAL 20683 ENGINEER CRAIG E. HAMWOOD

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN DATA

ADT 1990 = 21000
ADT 2020 = 49000
DHV = 9 %
D = 55 %
T = 8 % *
V = 80 km/h

* TTST 5 % DUAL 3 %

PROJECT LENGTH

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~~

Prepared in the Office of:
DIVISION OF HIGHWAYS
1995 STANDARD SPECIFICATIONS

LETTING DATE:
February 20, 2001

STRUCTURE DESIGN UNIT
1000 Birch Ridge Dr. Raleigh, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

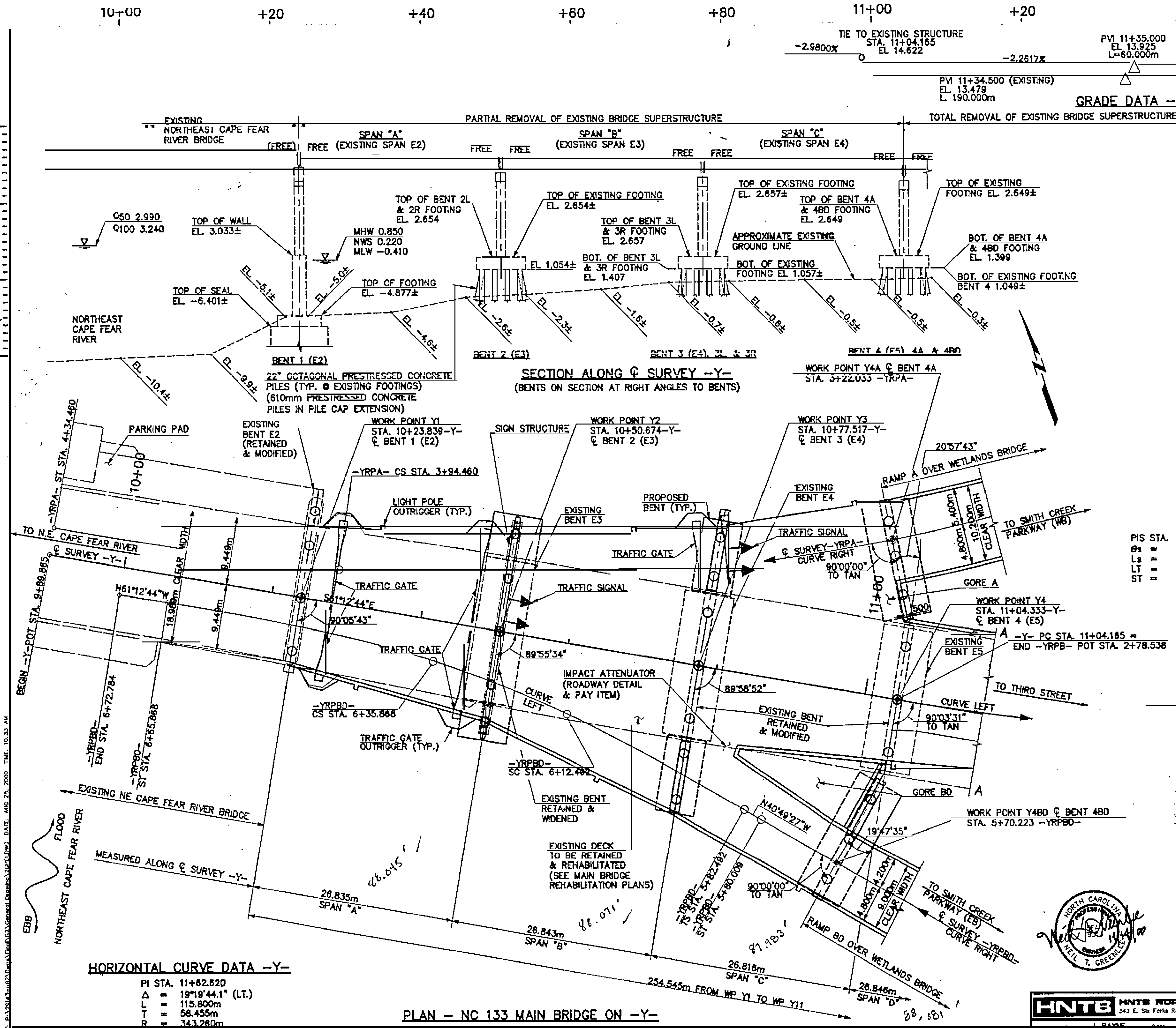
APPROVED
DIVISION ADMINISTRATOR *DATE*

04-DEC-2000 12:22

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 -Y-

PI STA. 11+62.620
Δ = 19°19'44.1" (LT.)
L = 115.800m
T = 58.455m
R = 343.260m

HORIZONTAL CURVE DATA -YRPA-

PI STA. 2+58.971		PIS STA. 4+07.801	
Δ =	73°21'27.1" (RT.)	θs =	4°31'45.5" (RT.)
L =	323.924m	Ls =	40.000m
T =	188.435m	LT =	26.675m
R =	253.000m	ST =	13.341m
SE =	.06		

(+)0.6850% (+)3.1000%
PVI STA. = 3+40.000
PVI EL = 14.804
L = 38.000m
TIE TO -Y- STA. 3+42.865 EL 14.975

GRADE DATA -YRPA-

HORIZONTAL CURVE DATA -YRPBD-

PI STA. 4+85.255		PIS STA. 5+50.071	
Δ =	58°26'57.5" (RT.)	θs =	11°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	
θs =	5°43'46.5" (LT.)	Δ =	8°55'44.1" (LT.)	θs =	5°43'46.5" (LT.)
Ls =	30.000m	L =	23.376m	Ls =	30.000m
LT =	20.010m	T =	11.712m	LT =	20.010m
ST =	10.010m	R =	150.000m	ST =	10.010m

(+)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

GRADE DATA -YRPBD-

METRIC

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

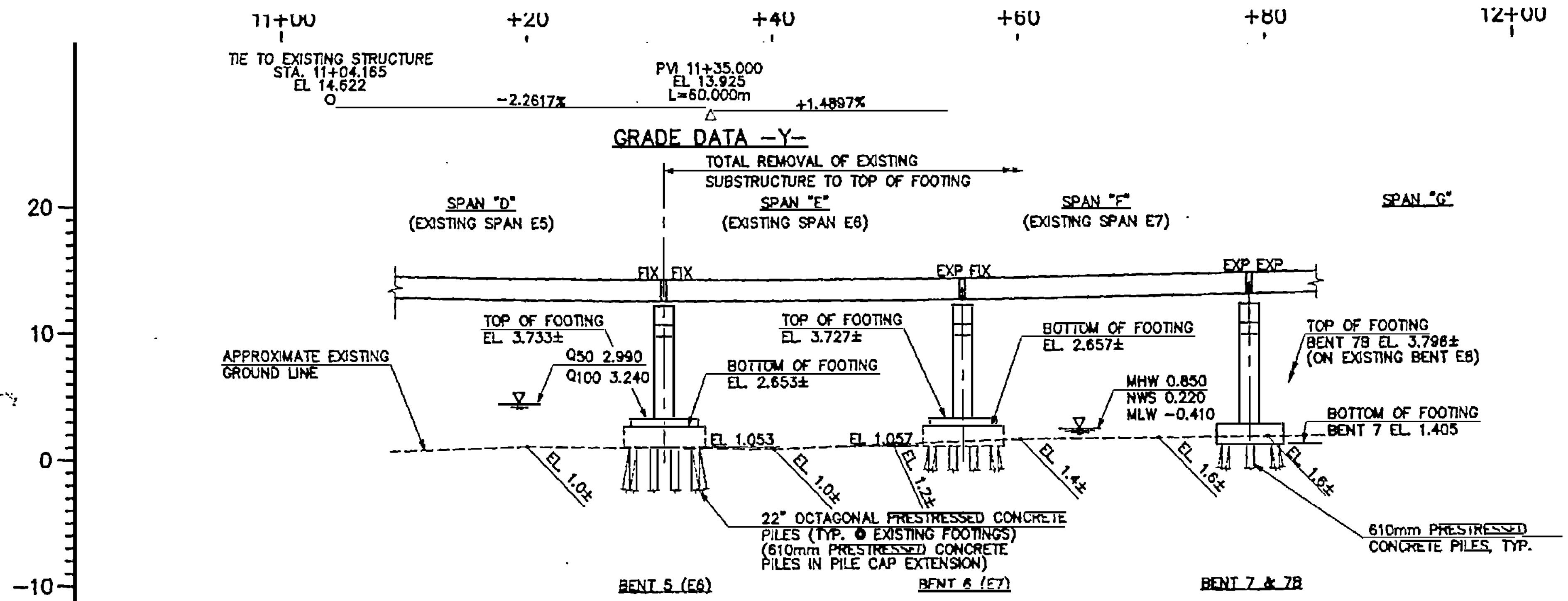
SEAL 12916 — NORTH CAROLINA PROFESSIONAL ENGINEER — NEIL T. GREENLEE
NORTH CAROLINA PROFESSIONAL ENGINEER — PAUL J. BARBER

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. 1

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

SHEET NO. S-1
TOTAL SHEETS 101



SECTION ALONG ℄ 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-

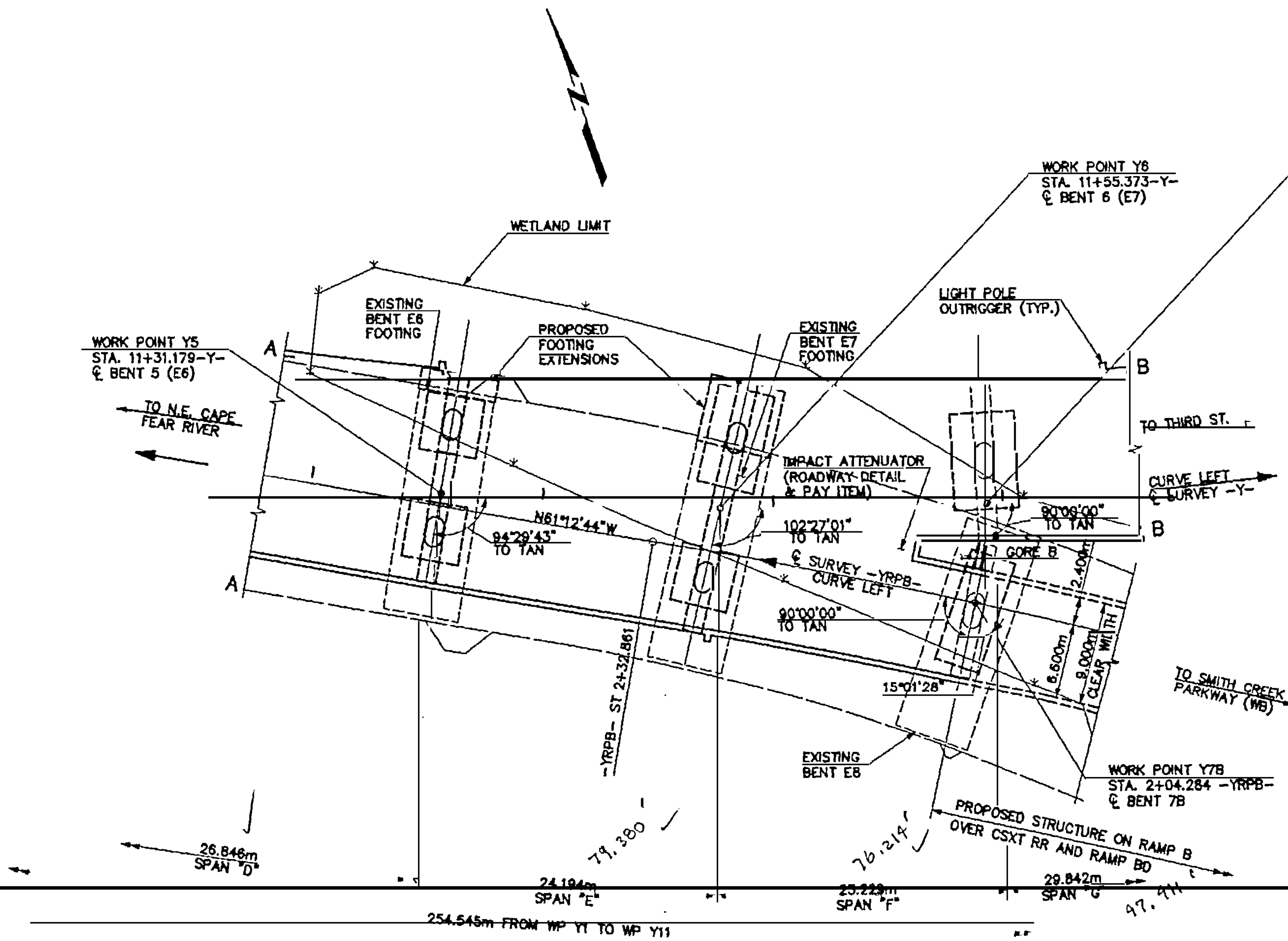
PI STA.	1+17.162	PIS STA.	1+92.938
Δ =	45°01'10.6" (LT.)	θs =	11°27'33.0" (LT.)
L =	117.861m	Ls =	60.000m
T =	62.162m	LT =	40.084m
R =	150.000m	ST =	20.077m
SE =	.06		

(+)1.5778% (-)1.2378% (-)0.5050%

END STA. 2+34.568
EL. 14.154

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-



PLAN - NC 133 MAIN BRIDGE ON -Y-

HORIZONTAL CURVE DATA -Y-

PI STA.	=	11+62.620
Δ	=	19°19'44.1" (LT.)
L	=	115.800m
T	=	58.455m
R	=	343.260m

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 2 OF 10

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15313 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12516 PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
GENERAL PLAN
& ELEVATION

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

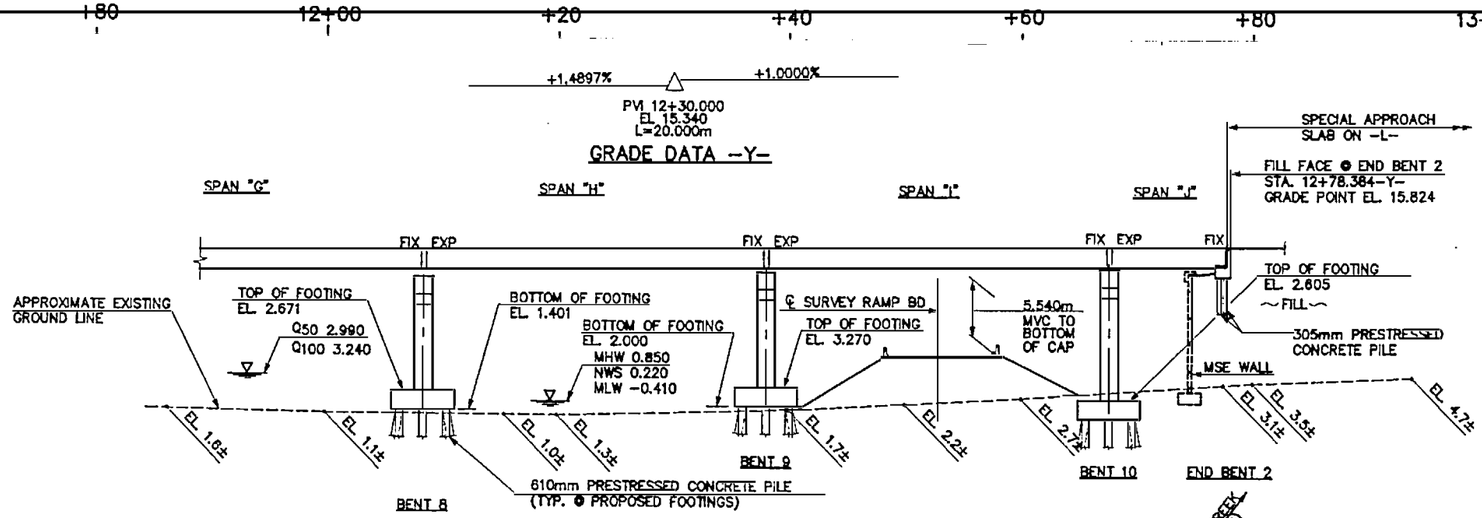
REVISIONS

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

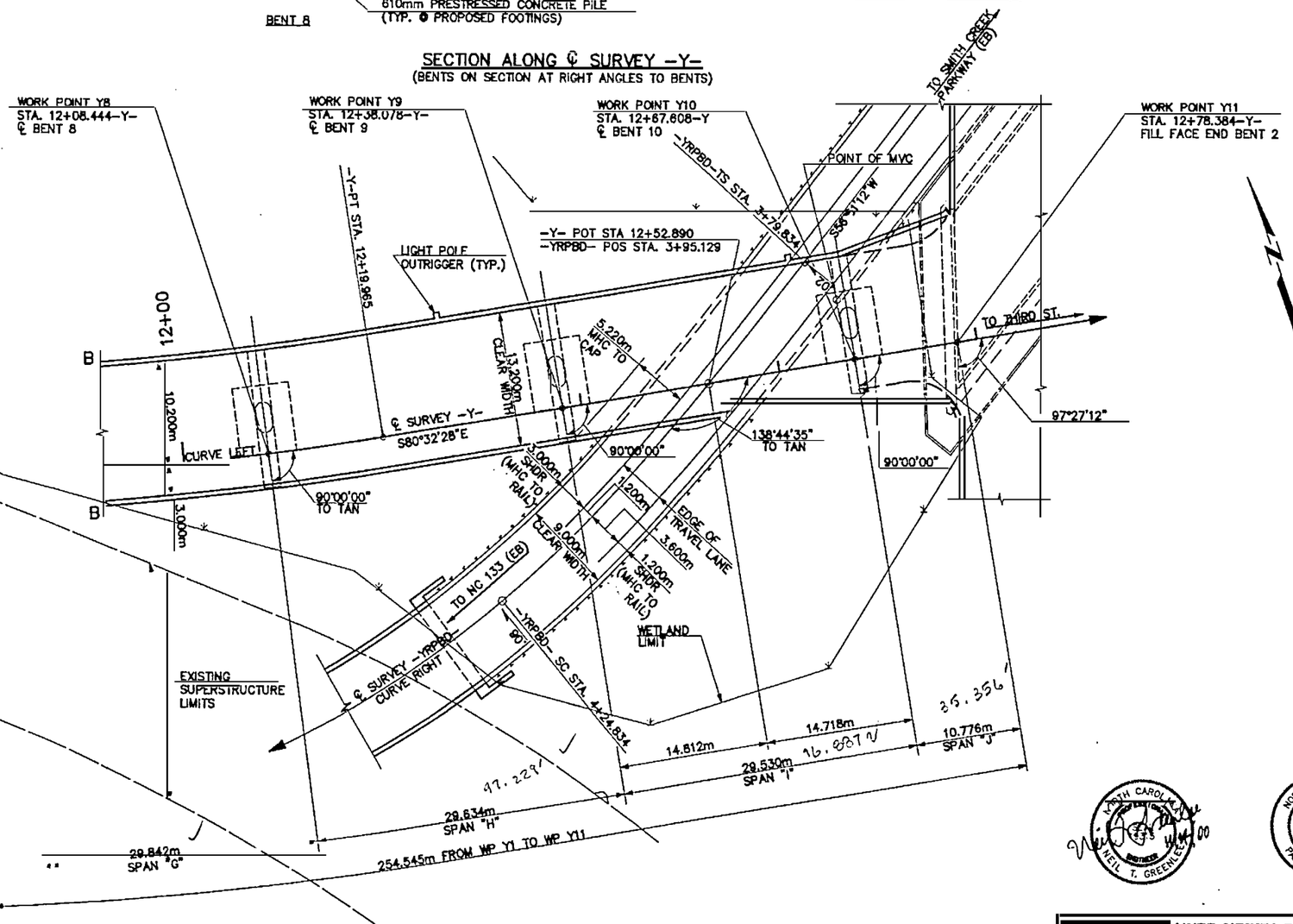
SHEET NO. 3-2
TOTAL SHEETS 161

FOR GENERAL NOTES, SEE SHEET 9 OF 10.

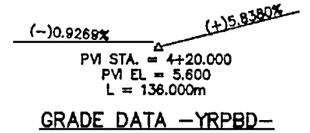
FOR SUPERELEVATION INFORMATION, SEE TYPICAL SECTIONS AND TRANSITION ZONE PLANS.



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



PLAN – NC 133 MAIN BRIDGE ON -Y-



GRADE DATA -YRPBD-

HORIZONTAL CURVE DATA -YRPBD-

PIS STA.	4+09.903	PI STA.	4+85.255
θs =	11°56'11.8" (RT.)	Δ =	58°26'57.5" (RT.)
Ls =	45.000m	L =	110.174m
LT =	30.068m	T =	60.420m
ST =	15.062m	R =	108.000m
		SE =	.06

HORIZONTAL CURVE DATA -Y-

PI STA.	11+62.620
Δ =	19°19'44.1" (LT.)
L =	115.800m
T =	58.455m
R =	343.288m

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 3 OF 10

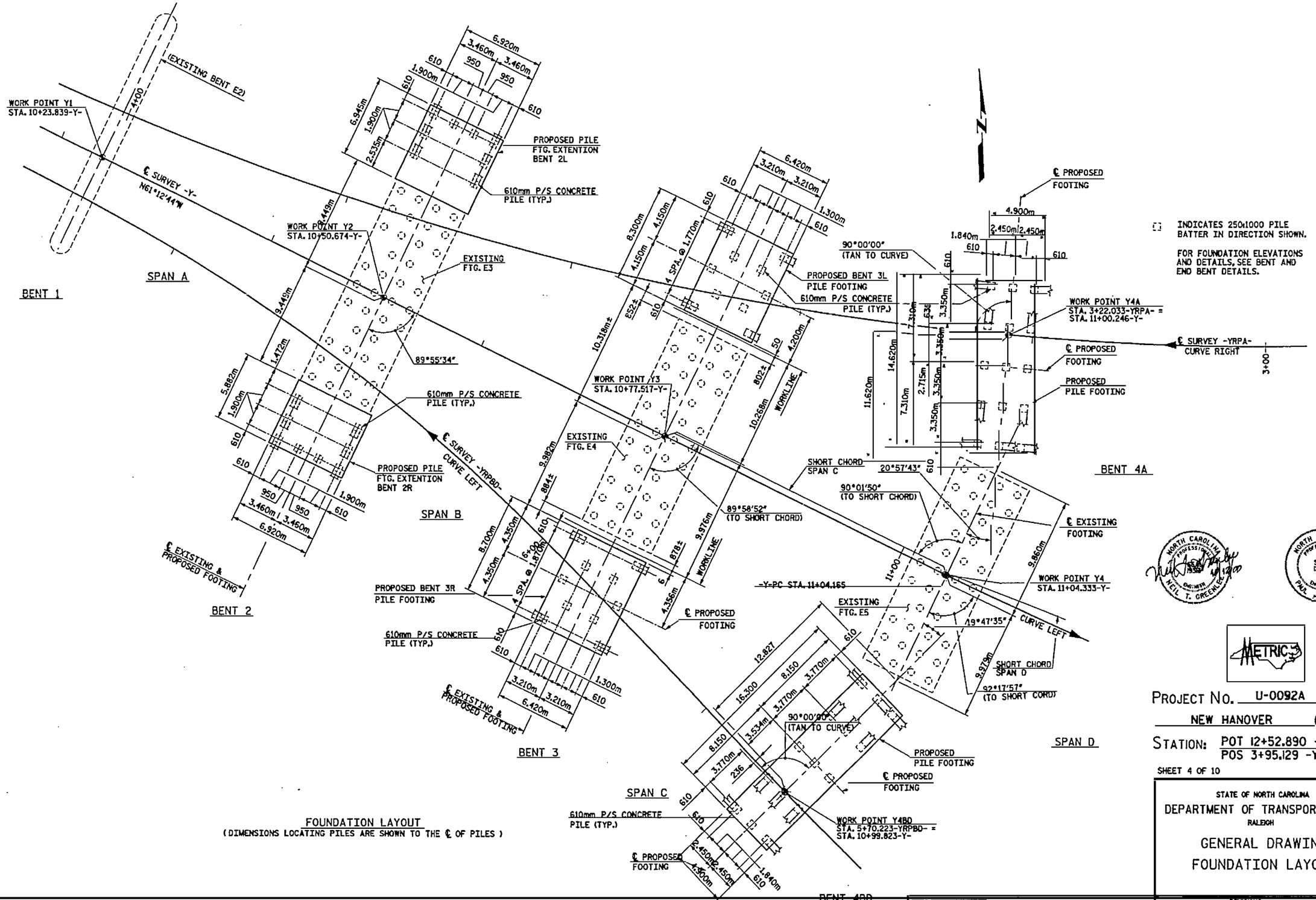
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
GENERAL PLAN
& ELEVATION

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

DRAWN BY J. RANGE DATE 7-00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 3

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

NAME: P:\29143-02\Dwgs\Final\R2\General Drawing\GDP3.DWG DATE: AUG 28, 2000 TIME: 10:55 AM



PROJECT NO. U-0092A

NEW HANOVER COUNTY

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

SHEET 4 OF 10

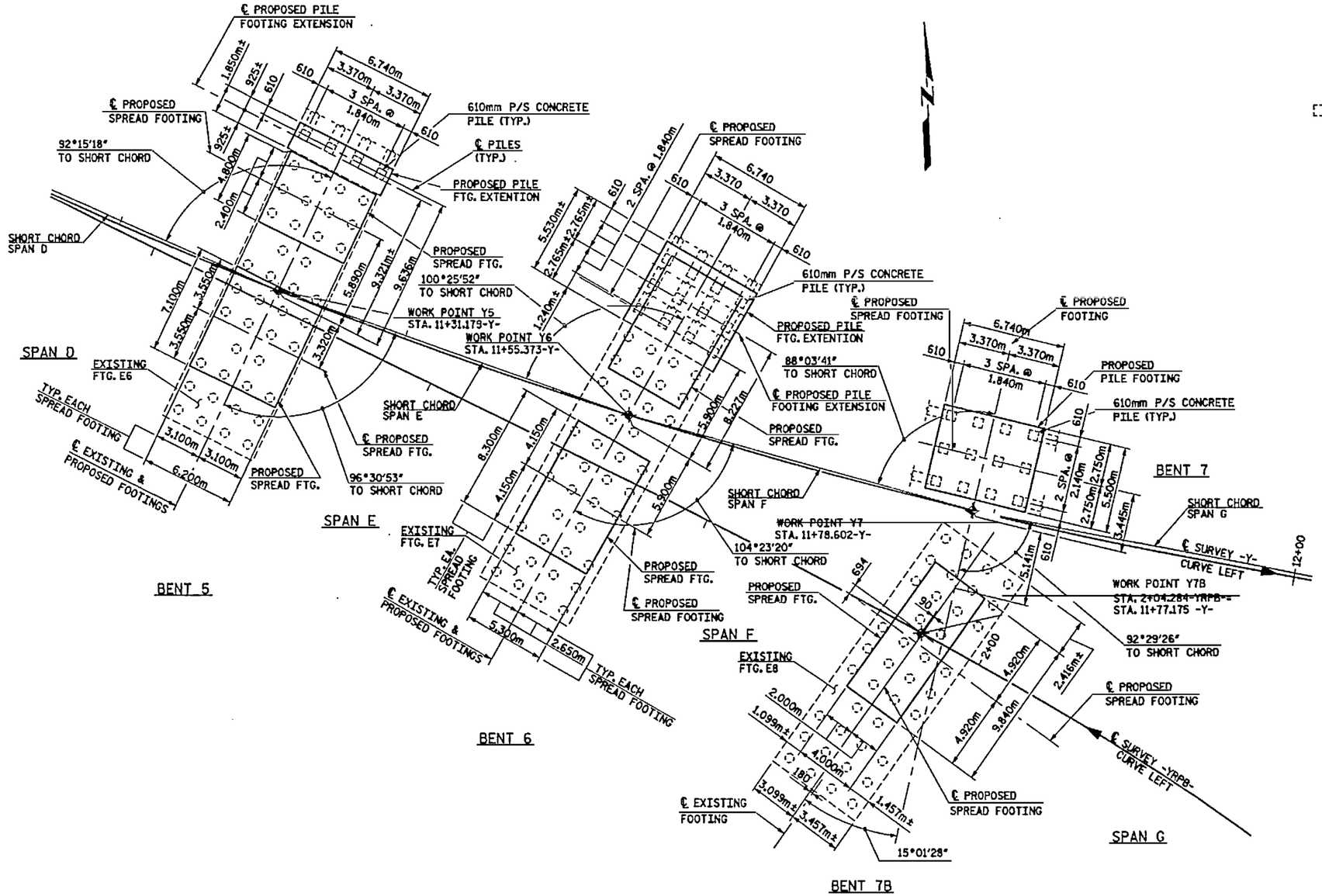
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOUNDATION LAYOUT

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/CDO DATE 7/00
DWG. NO. 4

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



FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO THE ℄ OF PILES)

- INDICATES 250x1000 PILE BATTER IN DIRECTION SHOWN.

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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

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

SHEET 5 OF 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOUNDATION LAYOUT

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19311 NEIL T. GREENLEE

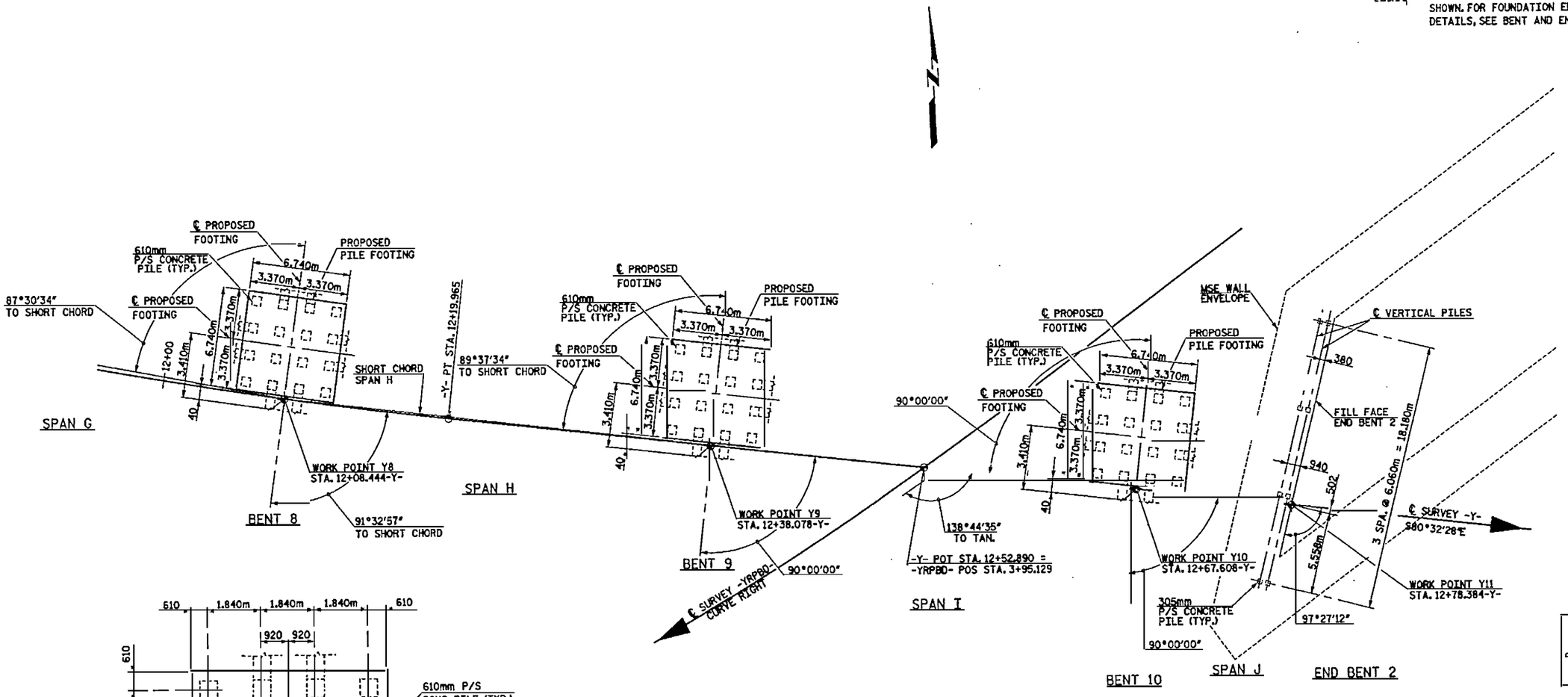
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15296 PAUL J. BARBER

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

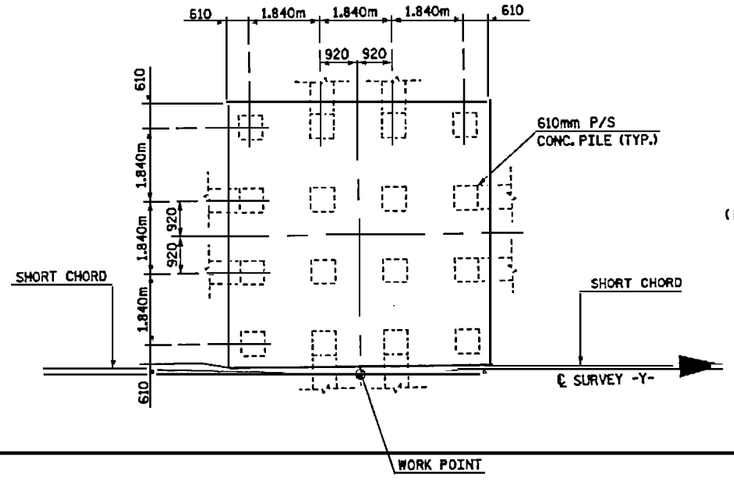
DRAWN BY A. ECHERD DATE 7/00
CHECKED BY NTG / CHO DATE 7/00
DWG. NO. 5

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

[□□□] - INDICATES 250x1000 PILE BATTER IN DIRECTION SHOWN. FOR FOUNDATION ELEVATIONS AND DETAILS, SEE BENT AND END BENT DETAILS.



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



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

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

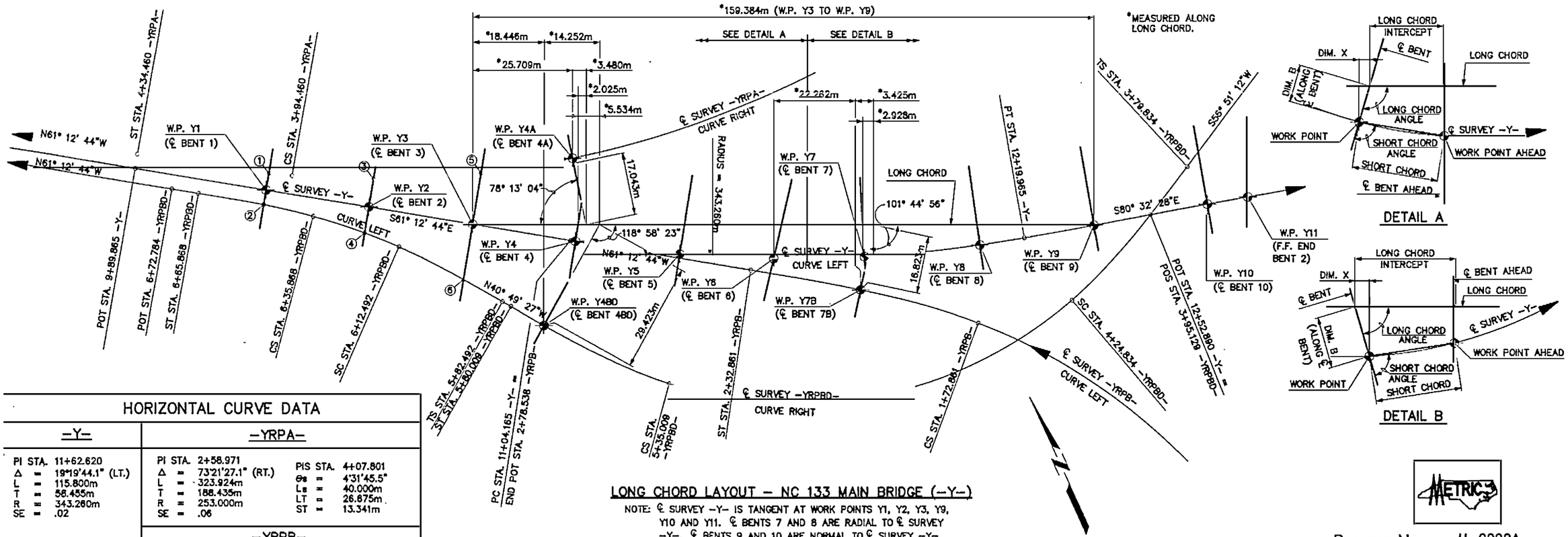
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609
DRAWN BY A. ECHERD DATE 7/00
CHECKED BY NTG / CDO DATE 7/00
DWG. NO. 6

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

-Y- LINE & LONG CHORD LAYOUT DATA

WORK POINT NUMBER	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y4A	Y7B	Y48D
W.P. STA. -Y-	10+23.839	10+50.674	10+77.517	11+04.333	11+31.179	11+55.373	11+78.602	12+08.444	12+38.078	12+67.606	12+78.384	W.P. STA. -YRPA-	W.P. STA. -YRPB-	W.P. STA. -YRPBD-
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° 29' 26"	91° 32' 57"	89° 37' 34"	———	———			
LONG CHORD INTERCEPT (m)	———	———	27.164	27.159	24.952	20.768	29.409	29.932	———	———	———			
SHORT CHORD (m)	———	———	26.816	26.839	24.189	23.225	29.832	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	56158.5290	56145.6060	56132.6800	56119.7659	56107.7827	56098.6196	56091.3280	56084.1738	56079.1135	56074.2600	56072.4890	56139.7527	56083.7120	56102.2370
W.P. EAST COORDINATE	706318.5400	706340.6580	706363.5840	706387.0867	706411.1009	706433.4877	706455.3370	706484.3001	706513.6965	706542.8250	706553.4340	706393.4043	706431.8030	706372.3060

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



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

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

HORIZONTAL CURVE DATA

-Y-

PI STA. 11+62.620
Δ = 19°19'44.1" (LT.)
L = 115.800m
T = 58.455m
R = 343.280m
SE = .02

-YRPA-

PI STA. 2+58.971
Δ = 73°21'27.1" (RT.)
L = 323.924m
T = 188.435m
R = 253.000m
SE = .06

PIS STA. 4+07.801
θs = 4°31'45.5"
Ls = 40.000m
LT = 26.875m
ST = 13.341m

-YRPB-

PI STA. 1+17.162
Δ = 45°01'10.6" (LT.)
L = 117.861m
T = 62.162m
R = 150.000m
SE = .06

PIS STA. 1+92.938
θs = 11°27'33.0"
Ls = 60.000m
LT = 40.084m
ST = 20.077m

-YRPBD-

PIS STA. 4+09.903
θs = 11°56'11.8"
Ls = 45.000m
LT = 30.069m
ST = 15.062m

PI STA. 4+85.255
Δ = 58°26'57.5" (RT.)
L = 110.174m
T = 60.420m
R = 108.000m
SE = .06

PIS STA. 5+50.071
θs = 11°56'11.8"
Ls = 45.000m
LT = 30.069m
ST = 15.062m

PIS STA. 6+02.502
θs = 5°43'46.5"
Ls = 30.000m
LT = 20.010m
ST = 10.010m

PI STA. 6+24.203
Δ = 8°55'44.1" (LT.)
L = 23.376m
T = 11.712m
R = 150.000m
SE = .06

PIS STA. 6+45.877
θs = 5°43'46.5"
Ls = 30.000m
LT = 20.010m
ST = 10.010m

SUPPLEMENTAL BENT LAYOUT DATA

PT.	LOC.	STATION	COORDINATES (m)		-Y- STATIONS & OFFSETS (m)	
①	℄ BENT 1	4+00.468 -YRPA-	56162.2480 N	706318.5920 E	10+23.846 -Y-	4.247 (LT.)
②		6+48.949 -YRPBD-	56155.2200 N	706314.7150 E	10+23.833 -Y-	3.779 (RT.)
③	℄ BENT 2	3+73.478 -YRPA-	56151.9000 N	706343.5060 E	10+50.664 -Y-	7.176 (LT.)
④		6+21.917 -YRPBD-	56139.7880 N	706336.8710 E	10+50.682 -Y-	6.635 (RT.)
⑤	℄ BENT 3	3+45.975 -YRPA-	56144.1420 N	706369.8770 E	10+77.513 -Y-	13.076 (LT.)
⑥		5+93.980 -YRPBD-	56120.1570 N	706356.7080 E	10+77.522 -Y-	14.286 (RT.)
W.P. Y4A	℄ BENT 4A	SEE "-Y- LINE & LONG CHORD LAYOUT DATA" TABLE, THIS SHEET.			11+00.246 -Y-	20.559 (LT.)
W.P. Y48D	℄ BENT 48D				10+99.821 -Y-	22.480 (RT.)
W.P. Y7B	℄ BENT 7B				11+77.198 -Y-	8.361 (RT.)

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 7 OF 10

NEIL T. GREENLEE — NORTH CAROLINA PROFESSIONAL ENGINEER — 10/00

SEAL 12918 — NORTH CAROLINA PROFESSIONAL ENGINEER — J. J. BARBER — 10/00

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

DRAWN BY M. WRIGHT DATE 5/99
CHECKED BY N. GREENLEE DATE 7/00
DWG. NO. 7

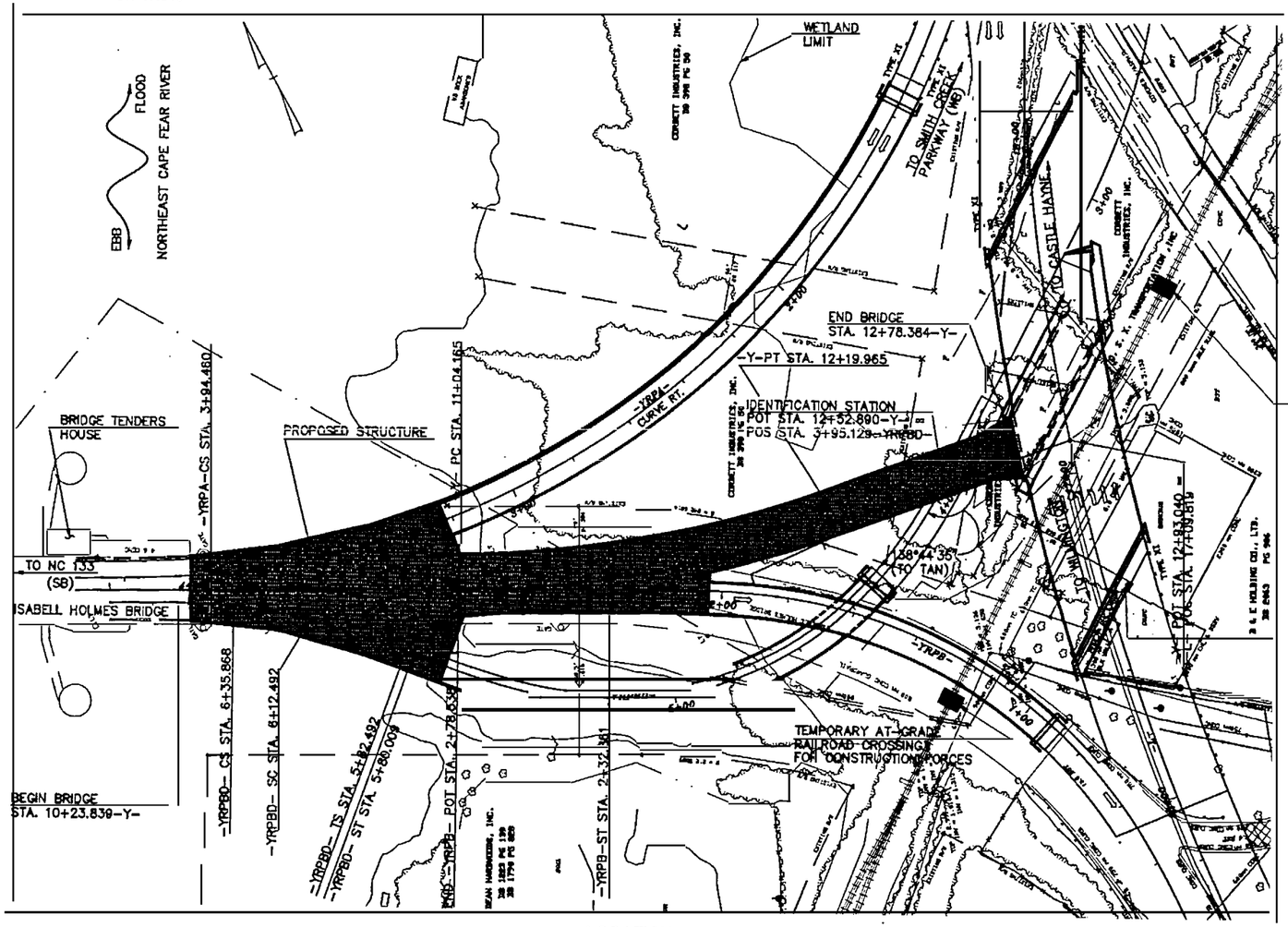
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

LONG CHORD LAYOUT

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-7
1			3			TOTAL SHEETS
2			4			10

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.

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19301 NEIL T. GREENLEE ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER ENGINEER

HNTB HNTB NORTH CAROLINA, P.A.
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. 8

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

NAME: P:\29143-ug2\Dwgs\Final\PR2\General Drawing\LOCN.DWG DATE: JUL 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, 4BD, 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, 4BD, 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 CONSTRUCITON 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, 23.744m, AND 23.470m RESPECTIVLEY. 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, 4BD 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, 4BD, 6-9
2	12+67.608-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, 4BD 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 STSTEM 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".

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12516 — PAUL J. BARBER

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.
NO.	BY	DATE	NO.	BY	DATE	S-9
1			3			TOTAL SHEETS
2			4			1011

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 (+ 610 mm)		610mm PRESTRESSED CONCRETE PILES (+1.0 m)		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	832.432′
BENT 3L	—	—	—	—	104.5	6,709	824	—	—	—	—	10	124.0	10	439.659′
BENT 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
BENT 3R	—	—	—	—	106.3	7,483	827	—	—	—	—	10	124.0	10	439.659′
BENT 4A	—	—	—	—	152.6	10,558	1,138	—	—	—	—	15	186.0	15	659.481′
BENT 4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
BENT 4BD	—	—	—	—	165.0	11,353	1,057	—	—	—	—	15	186.0	15	659.481′
BENT 5	—	—	—	—	171.9	15,783	—	—	—	—	—	4	48.0	4	170.612′
BENT 6	—	LUMP SUM	—	—	234.9	22,149	—	—	—	—	—	12	144.0	12	511.836′
BENT 7	—	LUMP SUM	—	—	100.1	10,704	—	—	—	—	—	12	148.8	12	527.537′
BENT 7B	—	—	—	—	89.3	9,257	—	—	—	—	—	—	—	—	
BENT 8	—	—	—	—	111.7	11,870	—	—	—	—	—	16	176.0	16	629.952′
BENT 9	—	—	—	—	111.1	11,821	—	—	—	—	—	16	160.0	16	577.456′
BENT 10	—	LUMP SUM	—	—	112.7	12,812	—	—	—	—	—	16	97.6	16	372.721′
END BENT 2	—	—	—	—	33.7	3,666	—	—	—	8	136.0	—	—	8	462.227′
TOTAL	LUMP SUM	LUMP SUM	4,037.5	3,987.0	1,697.3	148,627	5,260	70	1732.194	8	136.0	142	1,650.4	150	

	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	—	—	—	—	—	—	—	—	—	—
TOTAL	558.019	LUMP SUM	0.207	LUMP SUM	LUMP SUM	7008	400	42	222.8	7008

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 10 OF 10

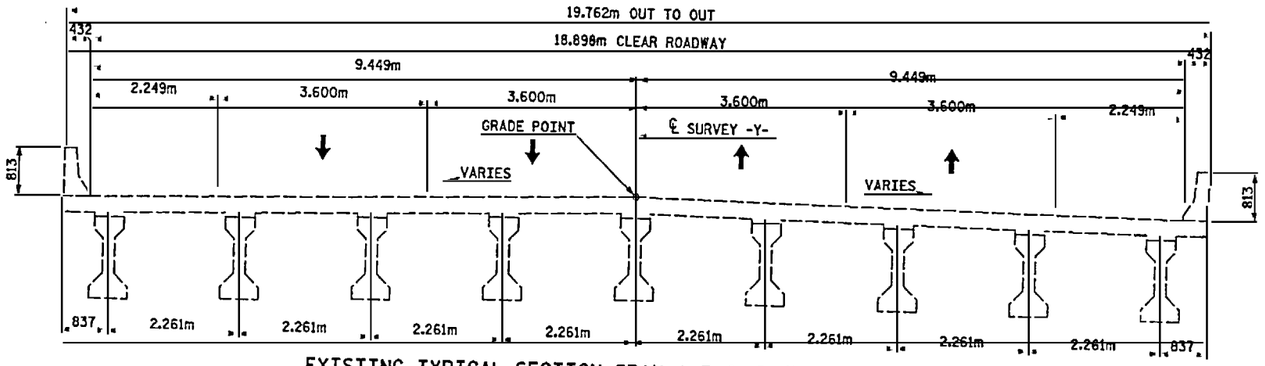
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BILL OF MATERIAL

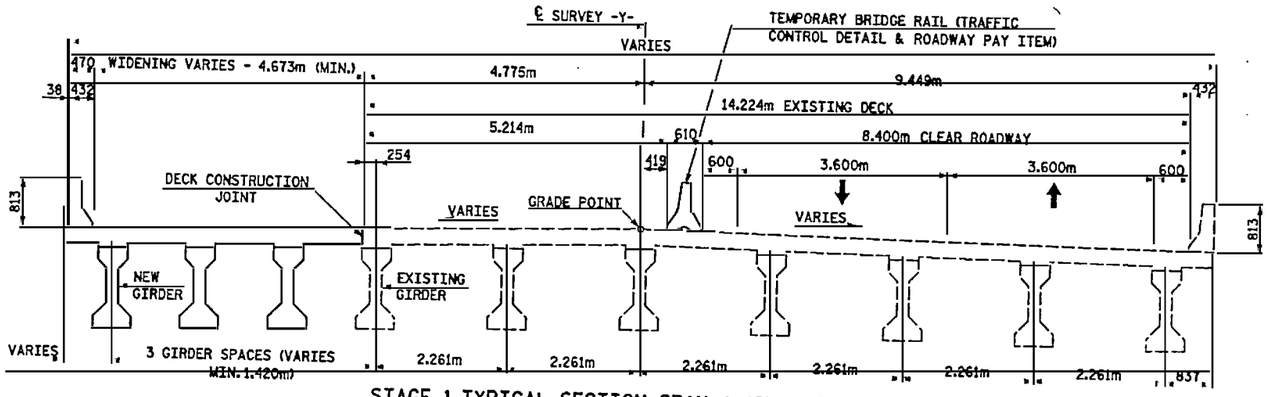
HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY A. ECHERD DATE 7/00
CHECKED BY P. BARBER DATE 5/00
DWG. NO. 10

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

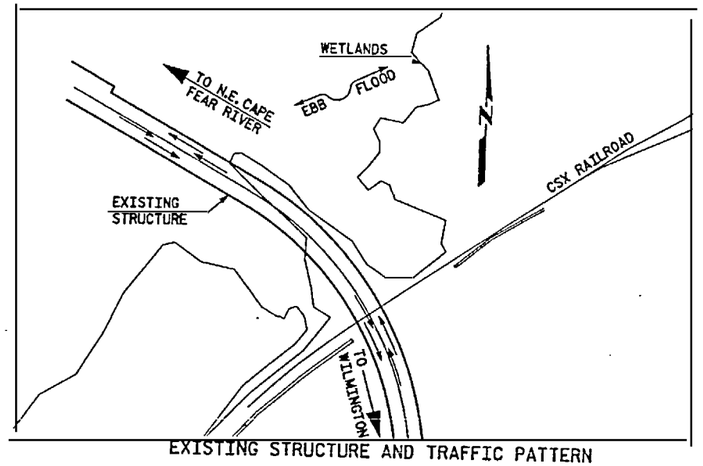


EXISTING TYPICAL SECTION SPAN A, B & C (E2, E3 & E4)

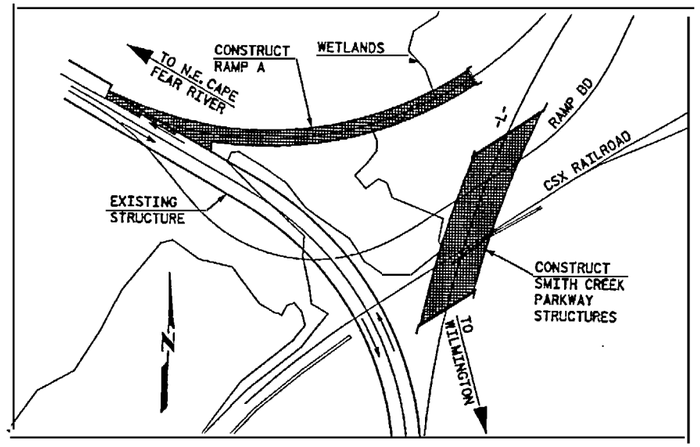


STAGE 1 TYPICAL SECTION SPAN A (CRITICAL)

(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

METRIC

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

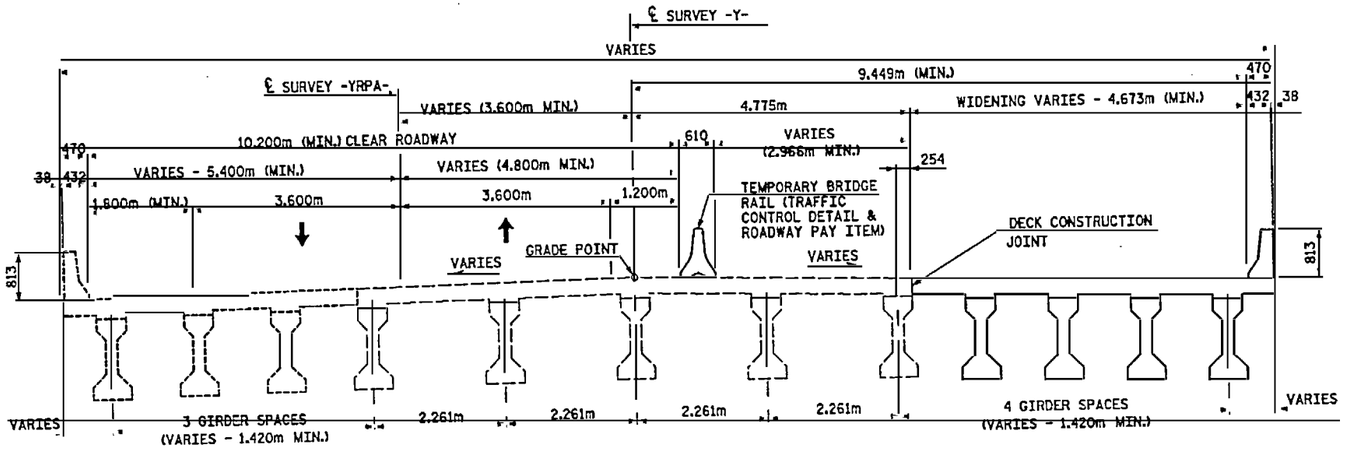
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 1933 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12967 PAUL J. BARBER

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

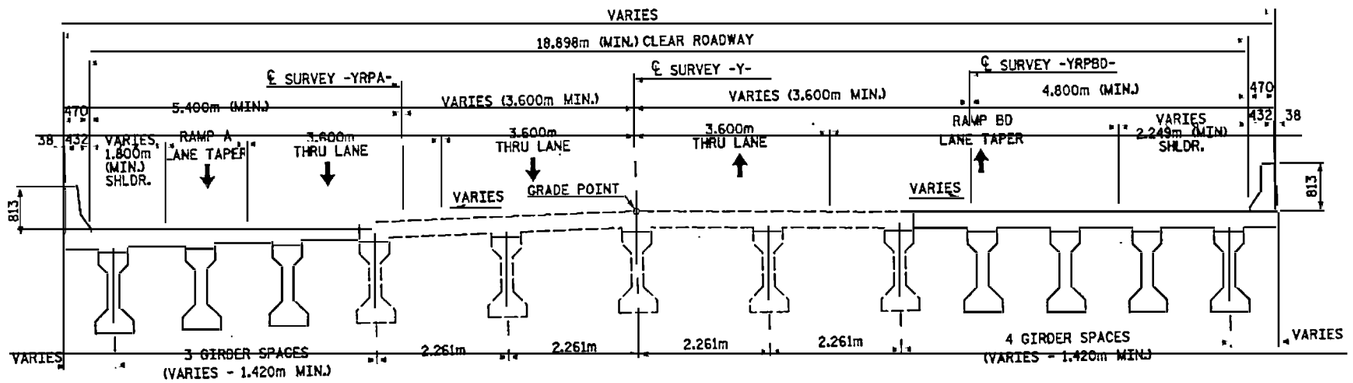
DRAWN BY M. WRIGHT DATE 12/99
CHECKED BY P. BARBER DATE 1/00
DWG. NO. 8

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-11
1			3			TOTAL SHEETS
2			4			101



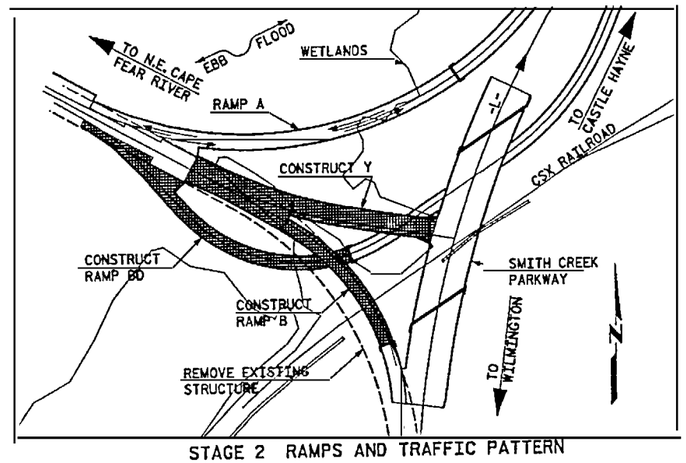
PHASE 2 TYPICAL SECTION SPAN A (CRITICAL)

(SHIFT TRAFFIC TO RAMP A BRIDGE. DEMOLISH EXISTING BRIDGE COMPONENTS AND CONSTRUCT BRIDGE ON -Y-, RAMP B, AND RAMP BD TIE-IN)

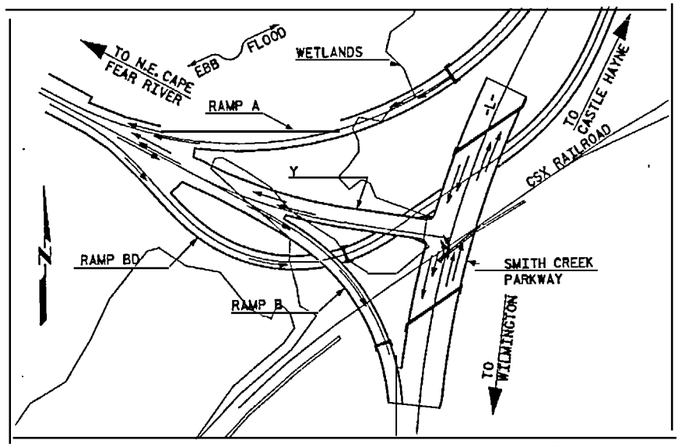


ULTIMATE TYPICAL SECTION SPAN A

(OPEN TRAFFIC TO AND FROM ALL RAMPS)



STAGE 2 RAMPS AND TRAFFIC PATTERN



COMPLETED RAMPS AND TRAFFIC PATTERN

METRIC

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

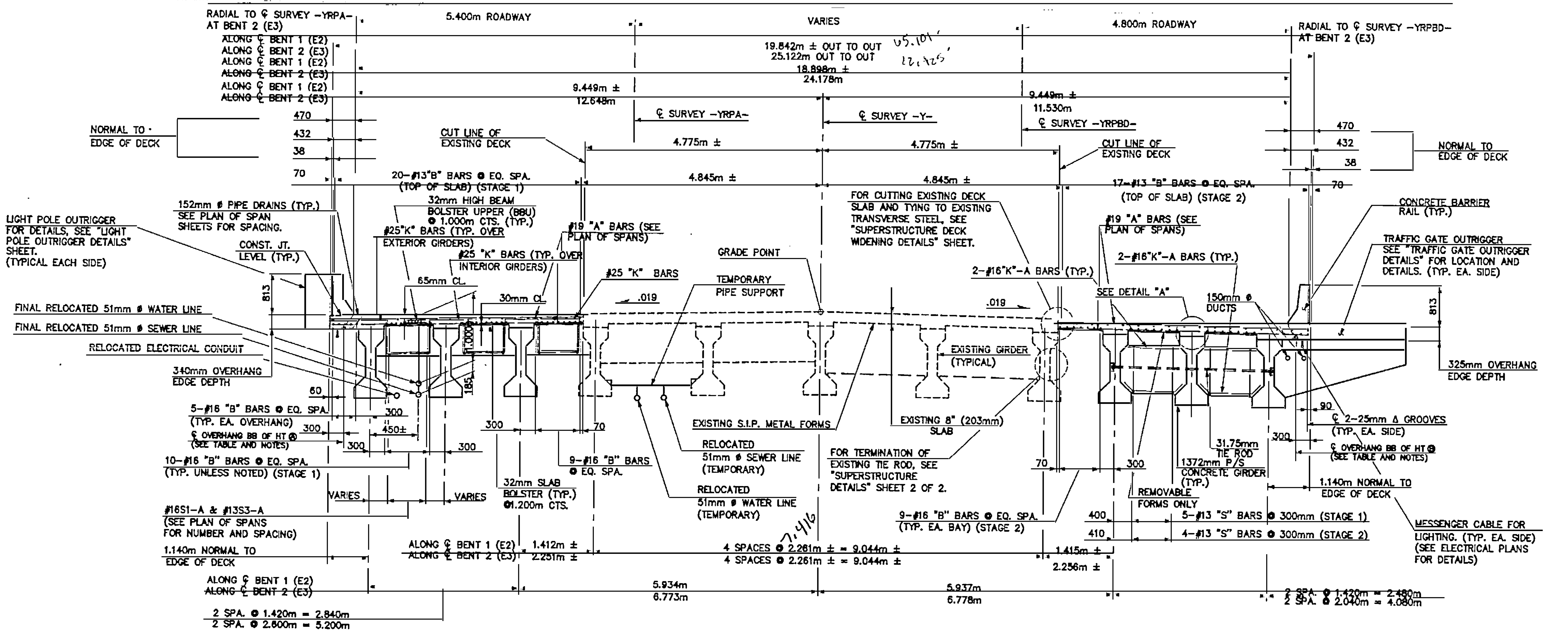
NORTH CAROLINA PROFESSIONAL SEAL 9930 ENGINEER NEIL T. CREECH 9/12/00

NORTH CAROLINA PROFESSIONAL SEAL 12996 ENGINEER PAUL J. BARBER

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

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	3-12
1			3			TOTAL SHEETS
2			4			161

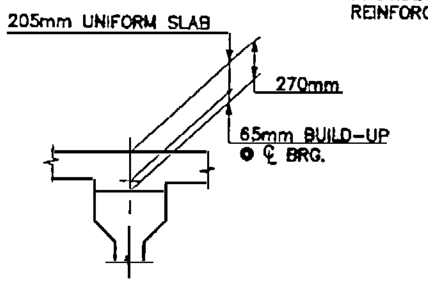


TYPICAL SECTION – SPAN A

SPAN A HAS CHORDED EDGES OF DECK.

OVERHANG BB HEIGHTS			
Ⓐ		Ⓑ	
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 øTIE 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.

METRIC

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

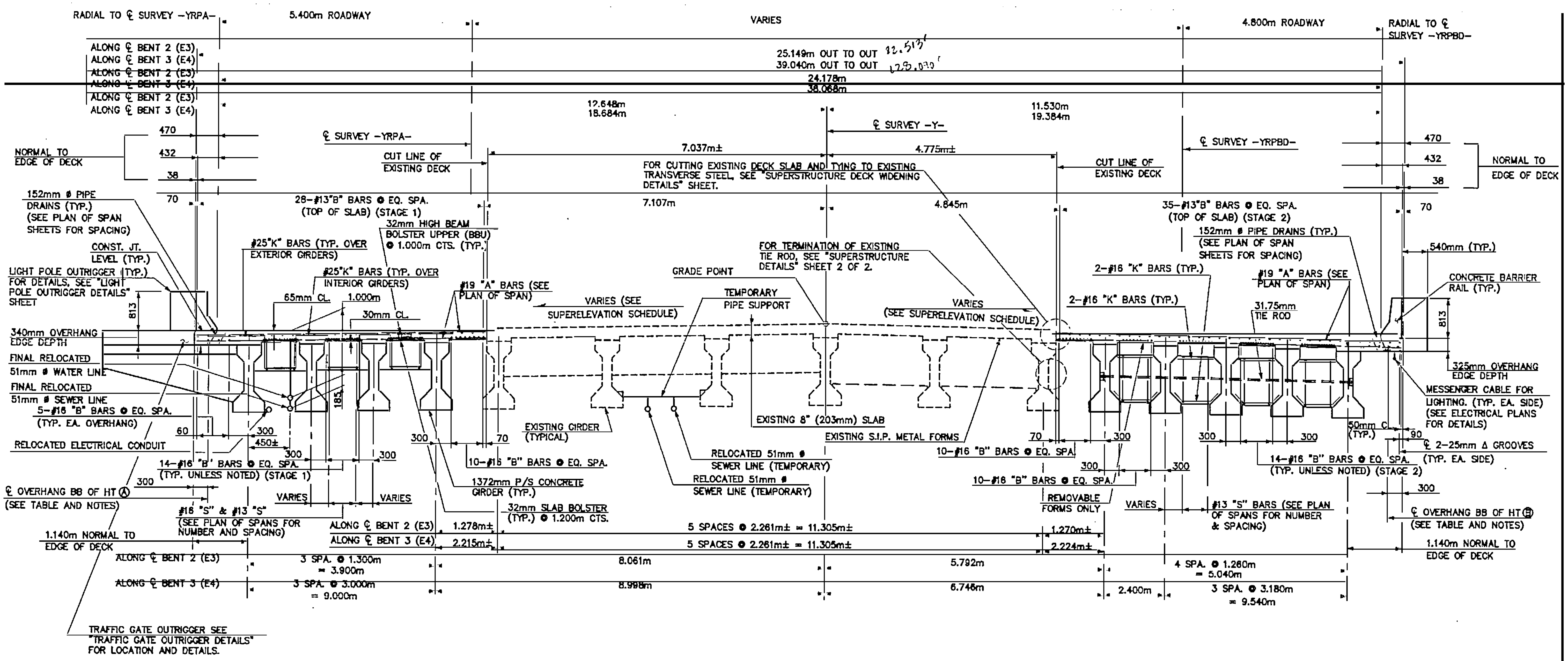
SUPERSTRUCTURE

TYPICAL SECTION
SPAN A

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

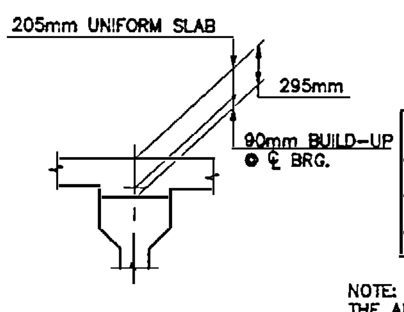
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 13

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



TYPICAL SECTION – SPAN B

SPAN B HAS CHORDED EDGES OF DECK.



DETAIL A

(AT ℄ BRG.)

NOTE:
BUILD-UP VARIES BETWEEN ℄ BEARINGS

OVERHANG BB HEIGHTS			
Ⓐ		Ⓑ	
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.

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 øTIE 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.

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	S.E. RIGHT
3+15.242	−0.0400	0.0400
3+41.116	−0.00956	0.00956

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

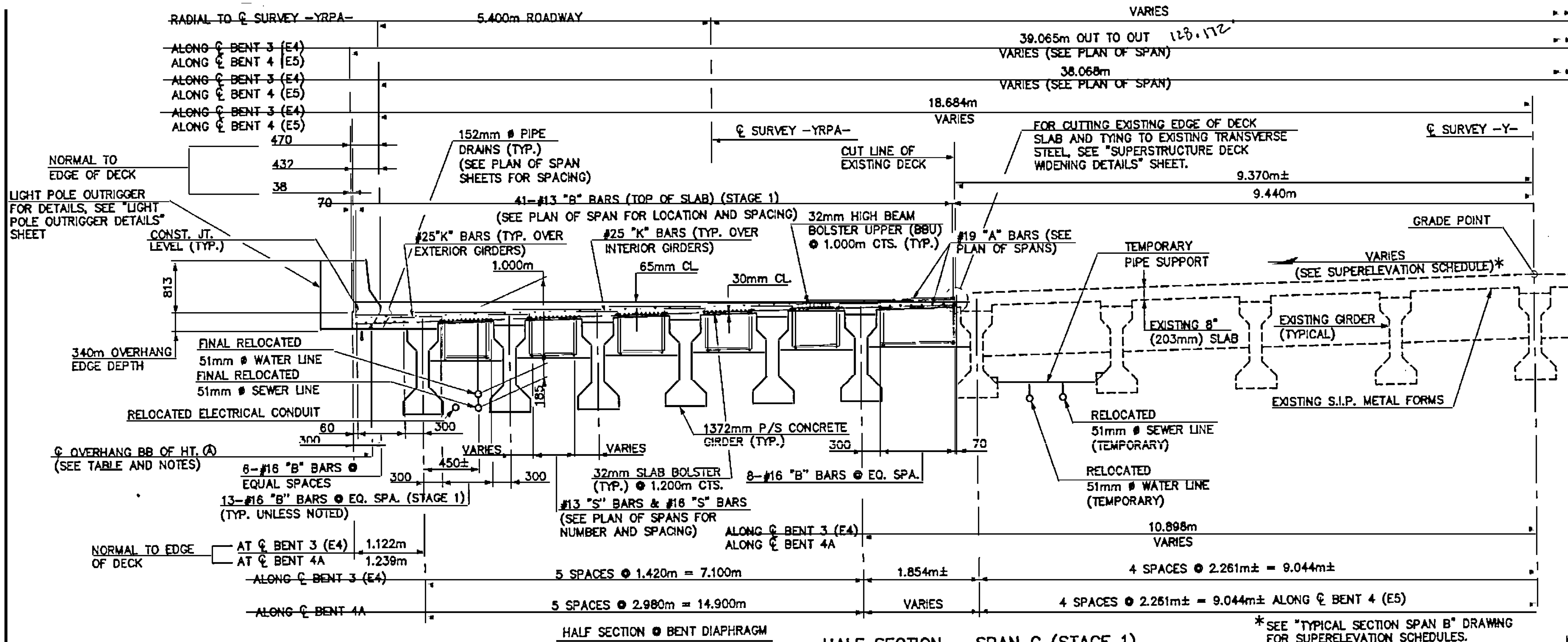
TYPICAL SECTION
SPAN B

HNTB 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

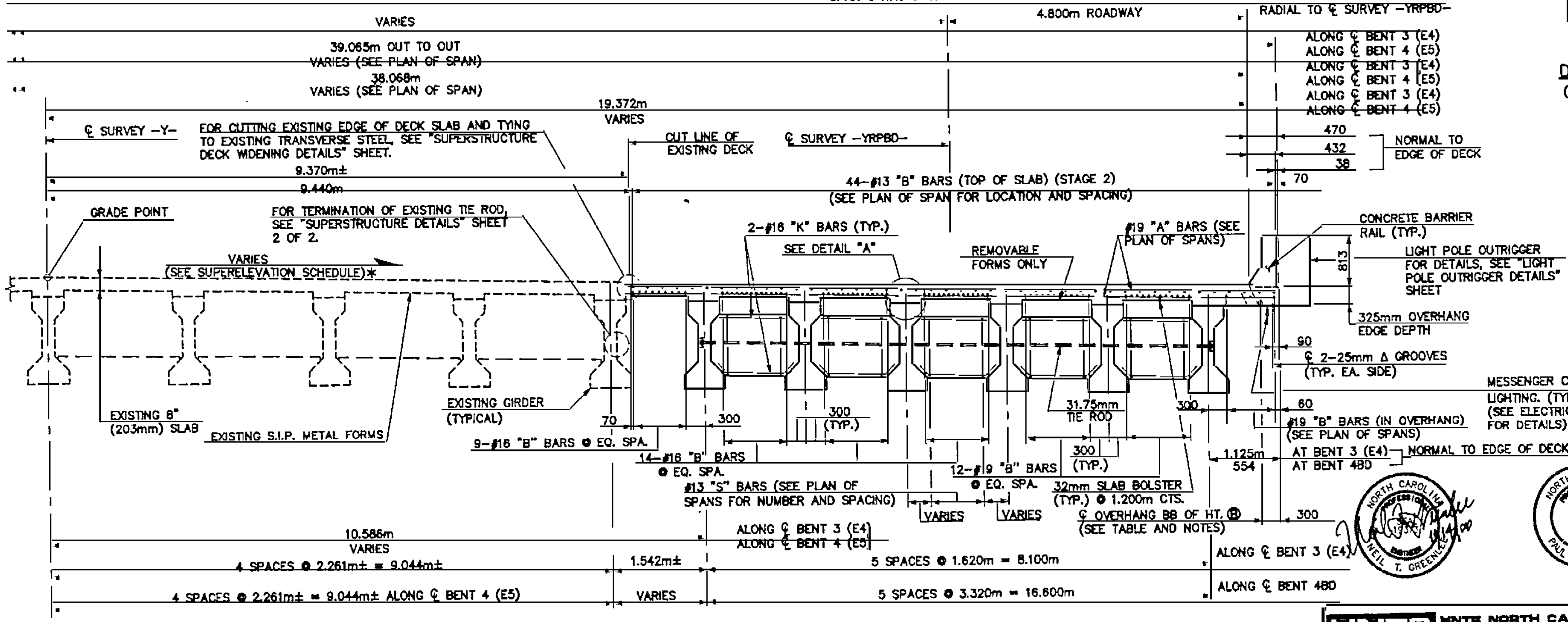
REVISIONS							
NO.	BY	DATE		NO.	BY	DATE	
1				3			
2				4			

SHEET NO. S-14
TOTAL SHEETS 161



HALF SECTION – SPAN C (STAGE 1)

SPAN C HAS CHORDED EDGES OF DECK



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

HALF SECTION – SPAN C (STAGE 2)

SPAN C HAS CHORDED EDGES OF DECK

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 øTIE 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.

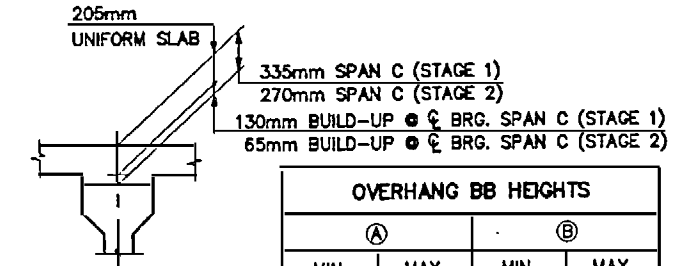
FOR DRAIN DETAILS, SEE "SUPERSTRUCTURE DETAILS" SHEET 1 OF 2.

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.



DETAIL A

(AT ℄ BRG.)

OVERHANG BB HEIGHTS			
Ⓐ		Ⓑ	
MIN.	MAX.	MIN.	MAX.
140	152	100	139

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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

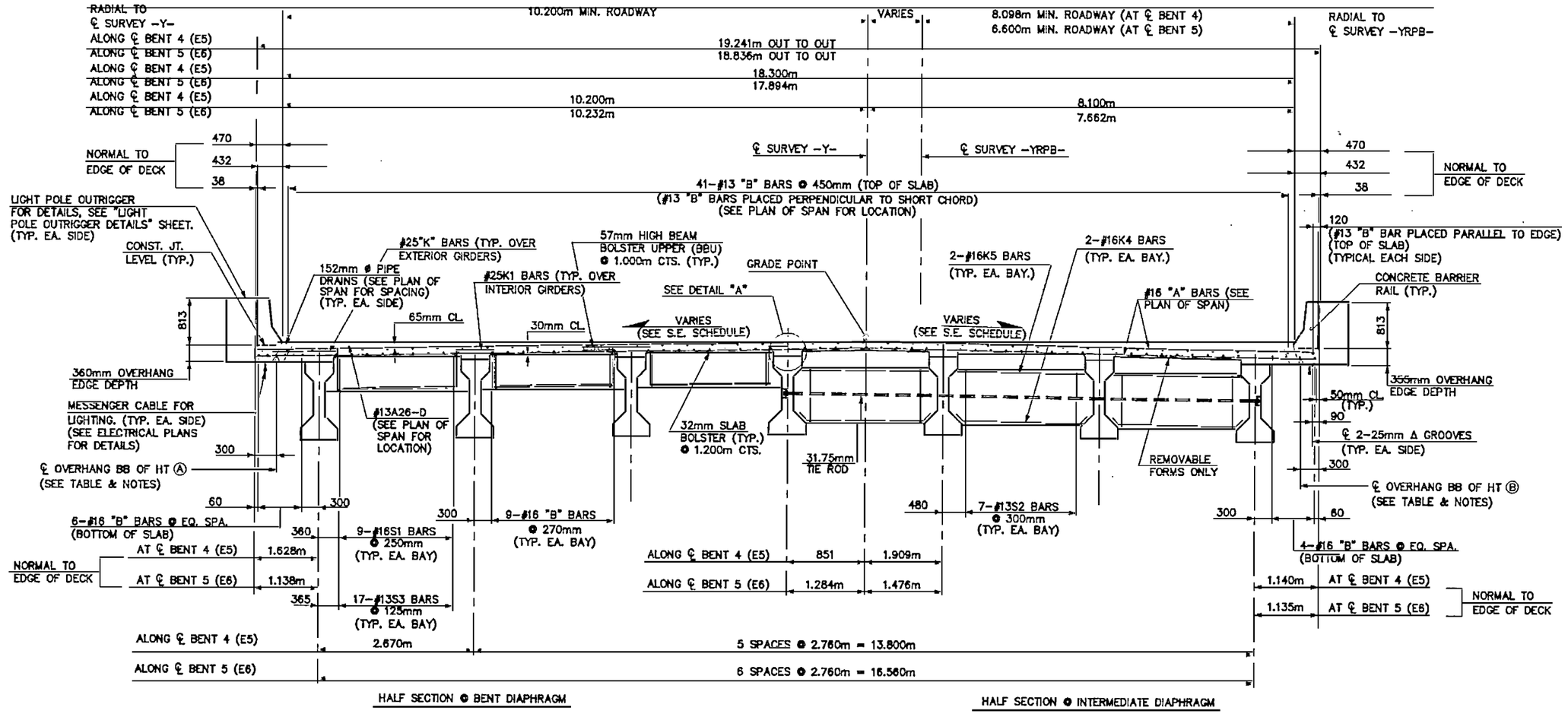
TYPICAL SECTION
SPAN C

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

SHEET NO. S-15
TOTAL SHEETS 101



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.

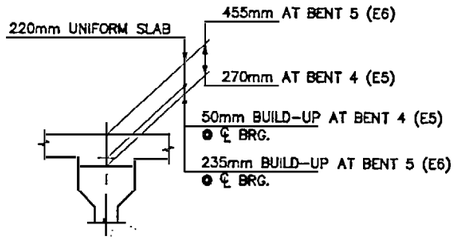
ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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 ℄ BRG.)

NOTE: BUILDUP VARIES BETWEEN ℄ BEARINGS

OVERHANG BB HEIGHTS			
Ⓐ		Ⓑ	
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.

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

METRIC

PROJECT NO. U–0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890–Y–

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

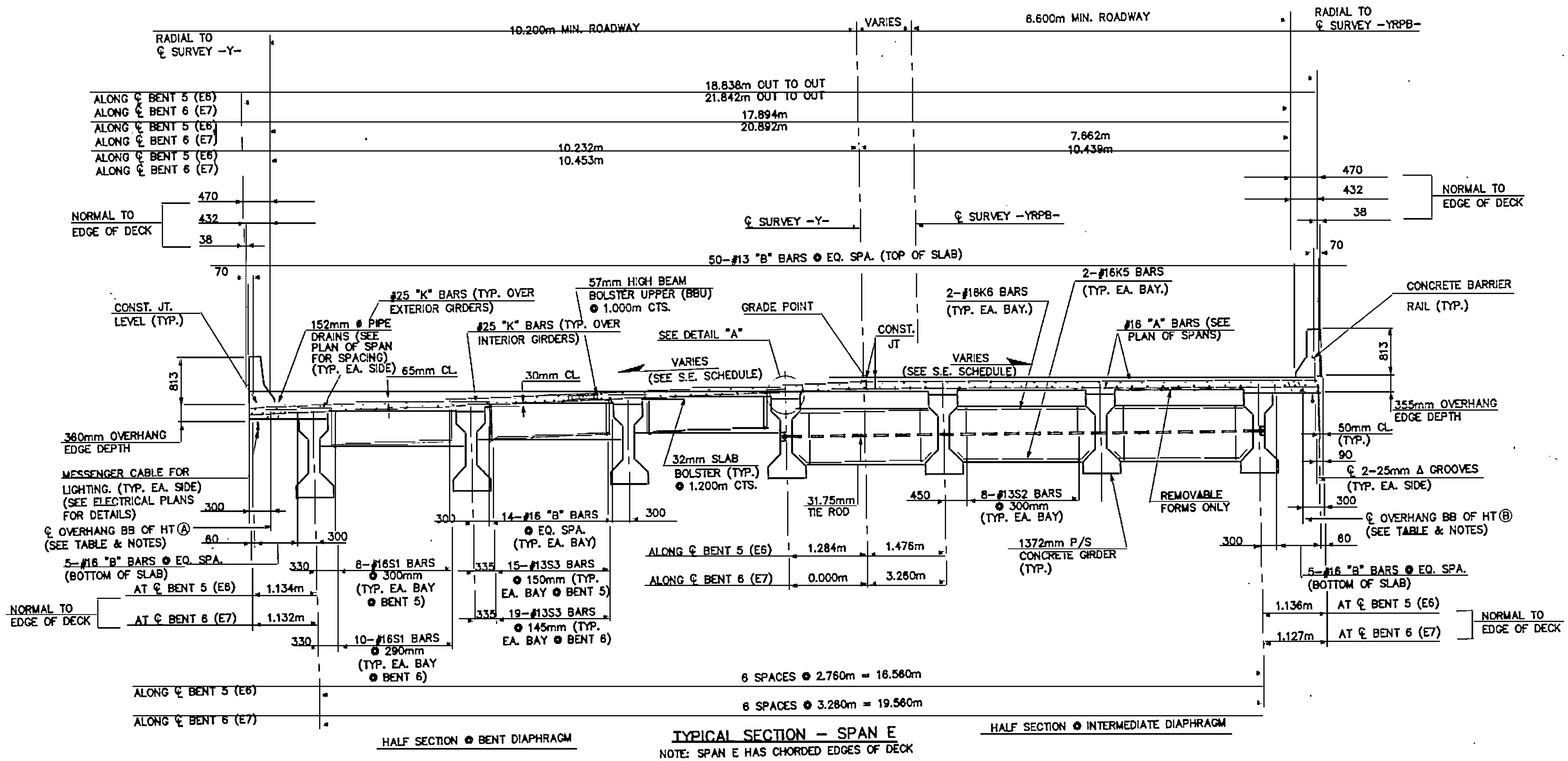
TYPICAL SECTION SPAN D

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

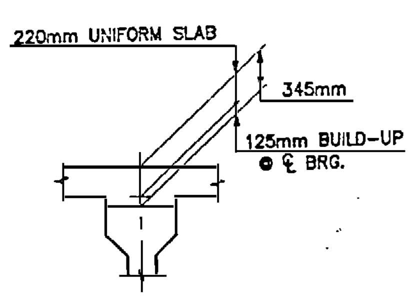
REVISIONS						SHEET NO. S-16
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1011
2			4			

NAME: P:\29143-092\Design\Final\02\Superstructure\Typical Sections\27TCC02.DWG DATE: AUG 28, 2000 TIME: 3:01 PM



TYPICAL SECTION - SPAN E

NOTE: SPAN E HAS CHORDED EDGES OF DECK



DETAIL A
(AT ℄ BRG.)

NOTE: BUILDUP VARIES BETWEEN ℄ BEARINGS

SUPERELEVATION SCHEDULE

LEFT		RIGHT	
STATION	SE	STATION	SE
11+04.165-Y-	-0.0062	11+04.165-Y-	0.02
11+33.251-Y-	0.02	11+47.333-Y-	0.02
12+67.606-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

Ⓐ		Ⓑ	
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 øTIE 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.

METRIC

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

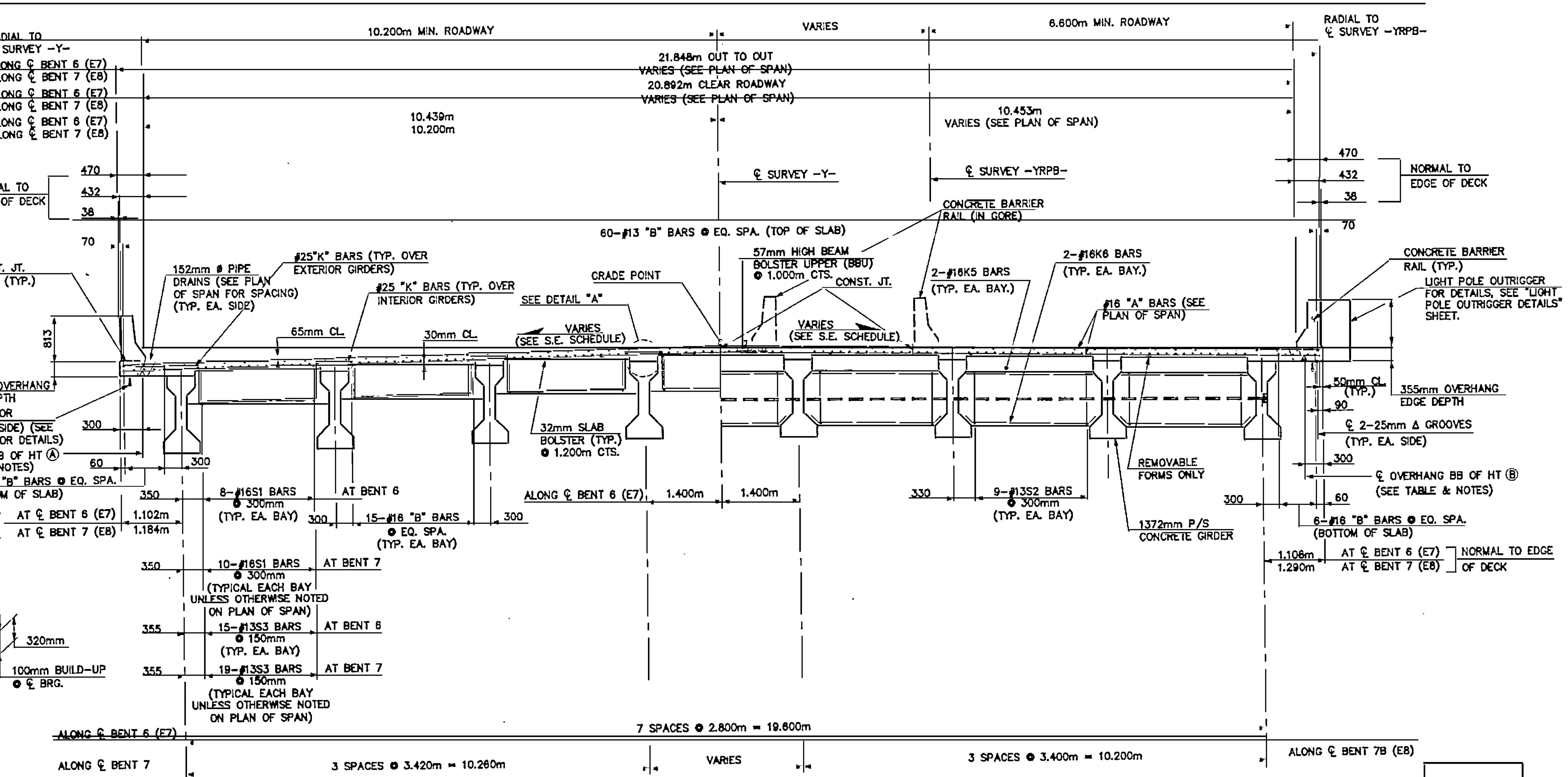
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

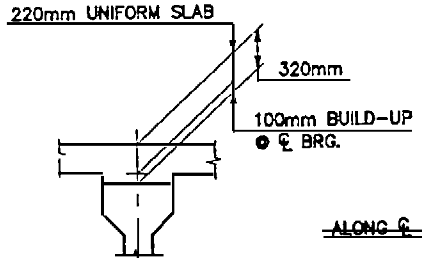
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 17

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

SHEET NO. S-17
TOTAL SHEETS [illegible]

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — NEIL T. GREENLEE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 — PAUL J. BARBER





DETAIL A
(AT ℄ BRG.)

NOTE: BUILDUP VARIES BETWEEN ℄ BEARINGS.

TYPICAL SECTION – SPAN F

NOTE: SPAN F 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 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.

OVERHANG BB HEIGHTS

Ⓐ		Ⓑ	
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.

METRIC

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

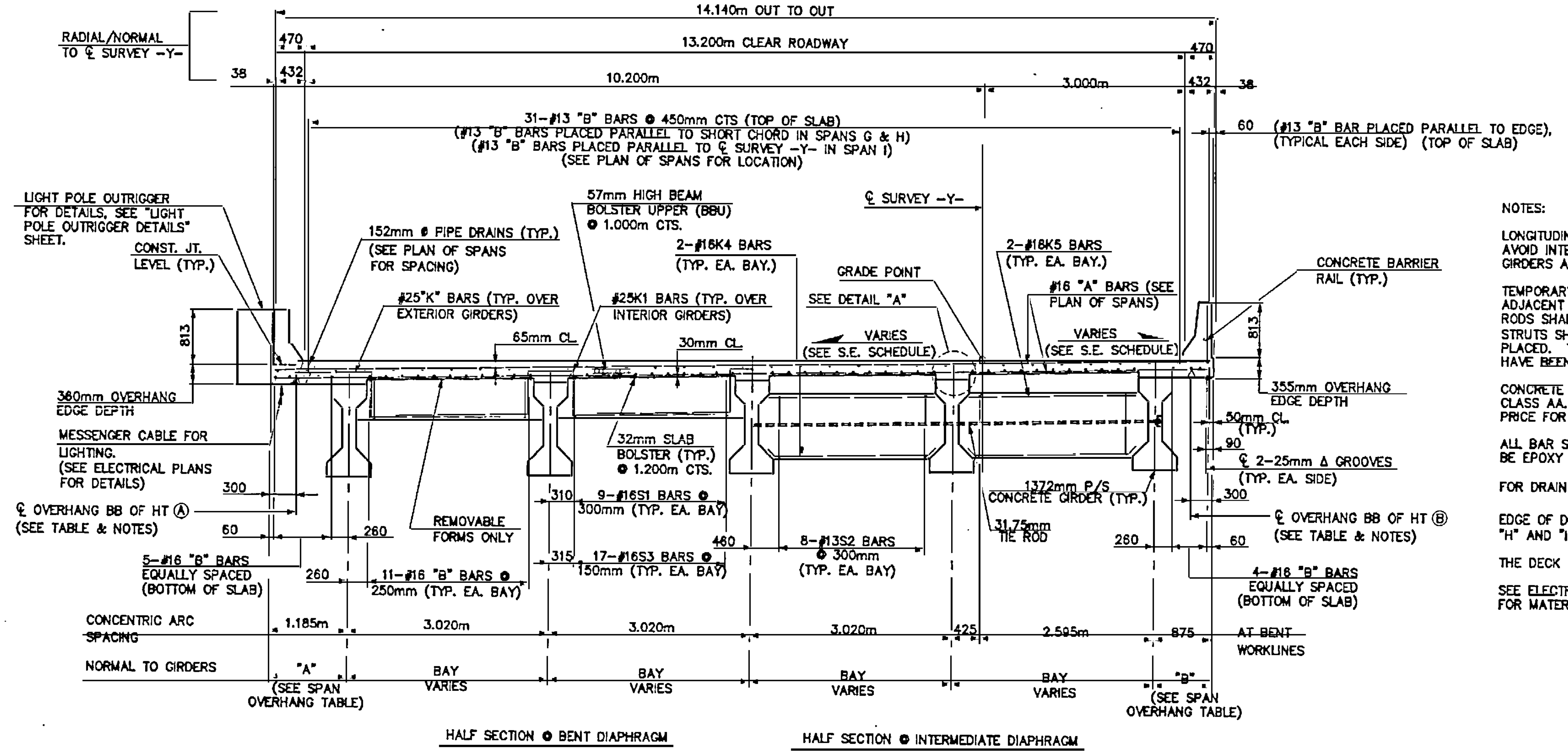
SUPERSTRUCTURE
TYPICAL SECTION
SPAN F

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

SHEET NO. S-18
TOTAL SHEETS [illegible]



TYPICAL SECTION – SPANS G, H & I

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

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.

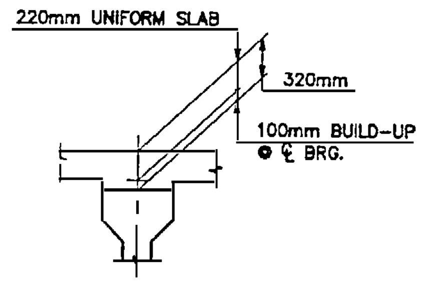
ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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

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.



DETAIL A

(AT ℄ BRG.)

NOTE: BUILDUP VARIES BETWEEN ℄ BEARINGS

OVERHANG BB HEIGHTS

SPAN	Ⓐ		Ⓑ	
	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.

TABLE OF DECK GEOMETRY (mm)

SPAN	"A"		"B"	
	MIN.	MAX.	MIN.	MAX.
G	870	1186	876	1202
H	1090	1185	875	972
I	1185	1185	875	875

SUPERELEVATION SCHEDULE

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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL – NEIL T. GREENE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 – PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

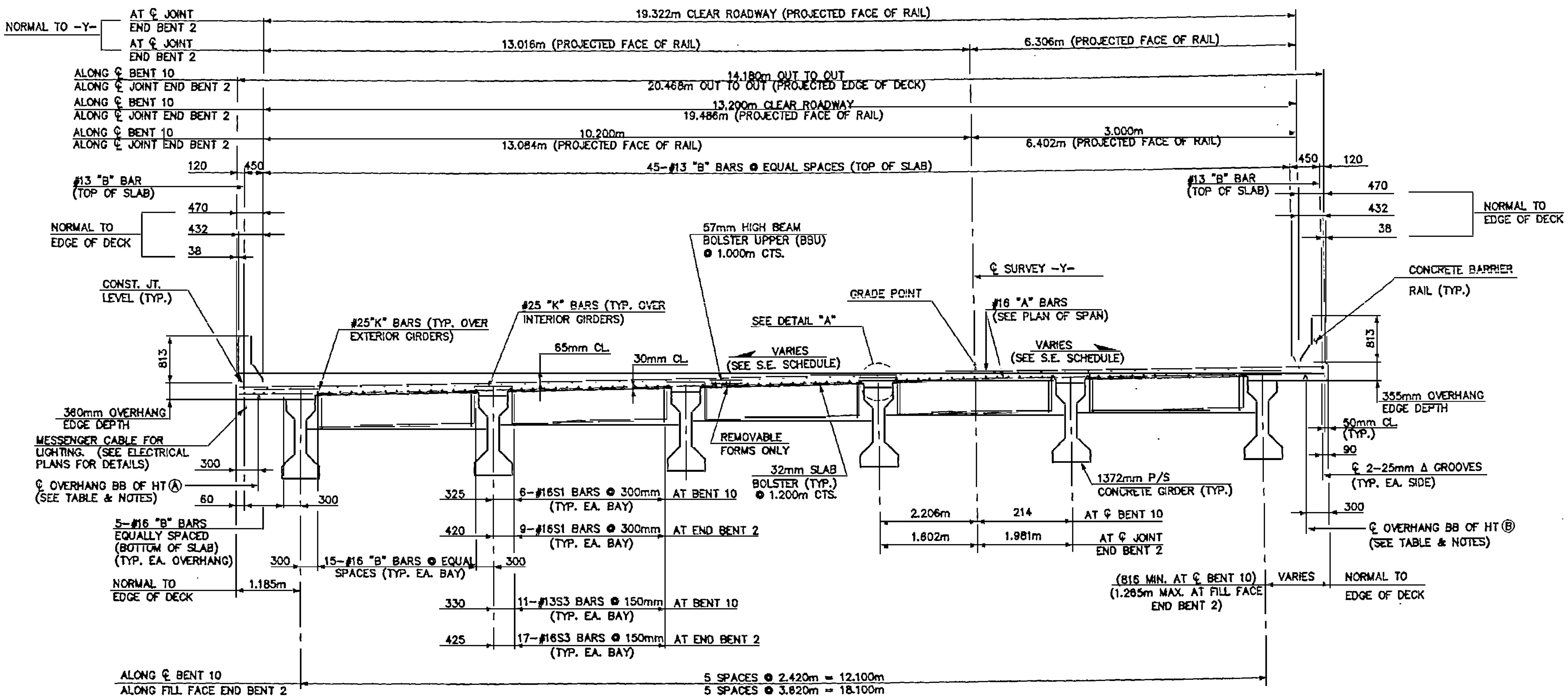
SUPERSTRUCTURE

TYPICAL SECTION
SPANS G, H & I

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

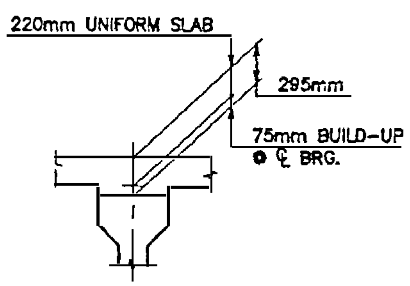
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 19

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-19
1			3			TOTAL SHEETS
2			4			1011



TYPICAL SECTION – SPAN J

NOTE: SPAN J HAS CHORDED EDGES OF DECK.



DETAIL A

(AT ℄ BRG.)

NOTE: BUILDUP VARIES BETWEEN ℄ BEARINGS.

OVERHANG BB HEIGHTS			
Ⓐ		Ⓑ	
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.

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.

SUPERELEVATION SCHEDULE		
STATION (-Y-)	SE	
	LEFT	RIGHT
12+67.608	0.02	-0.02
12+80.608	-0.001	0.003

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

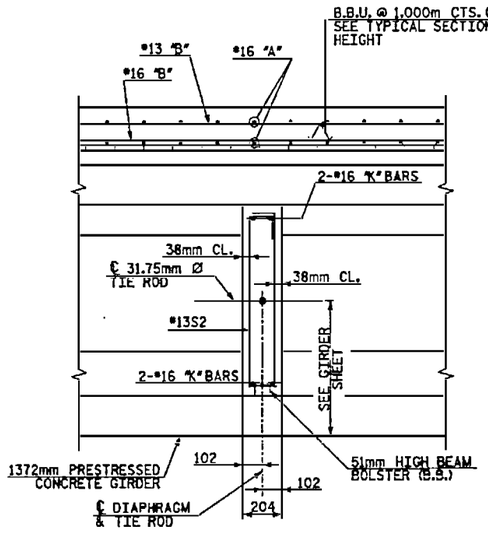
TYPICAL SECTION
SPAN J

NORTH CAROLINA PROFESSIONAL ENGINEER – NEIL T. GREENE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 – PAUL J. BARBER

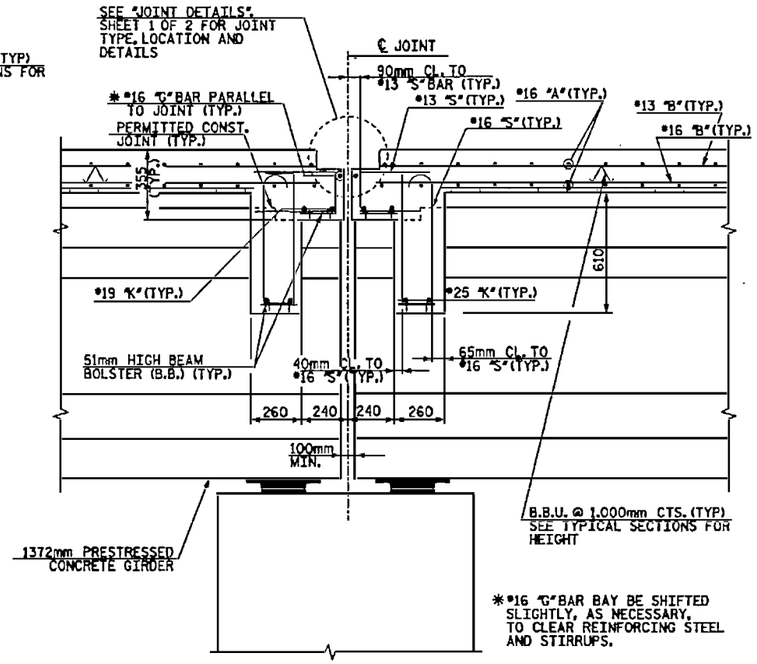
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 20

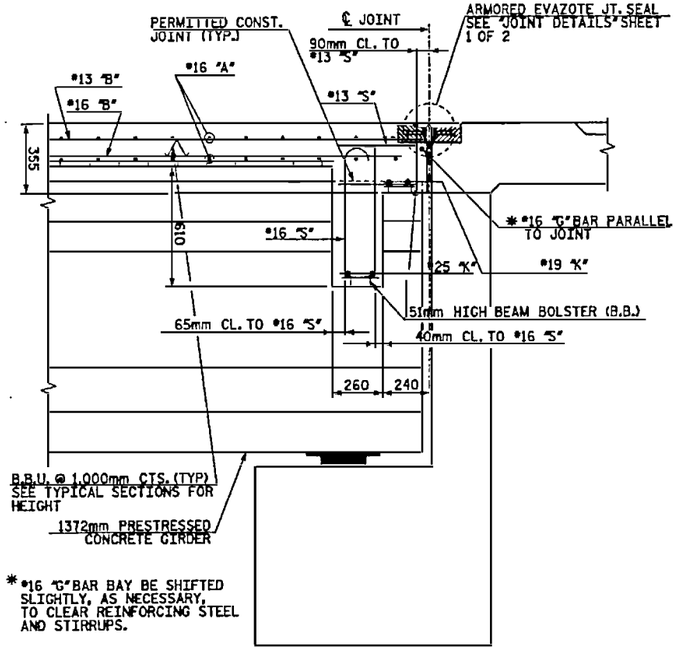
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	S-20
1			3			TOTAL SHEETS	1011
2			4				



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 SLIGHTY, 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.

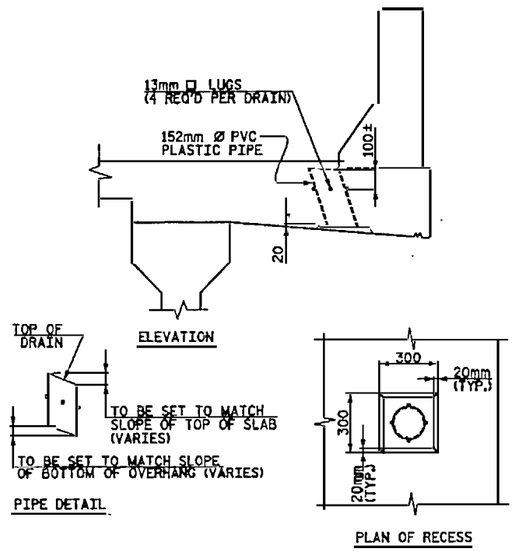
#16'G' BAR MAY BE SHIFTED SLIGHTY, AS NECESSARY, TO CLEAR REINFORCING STEEL AND STIRRUPS.

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

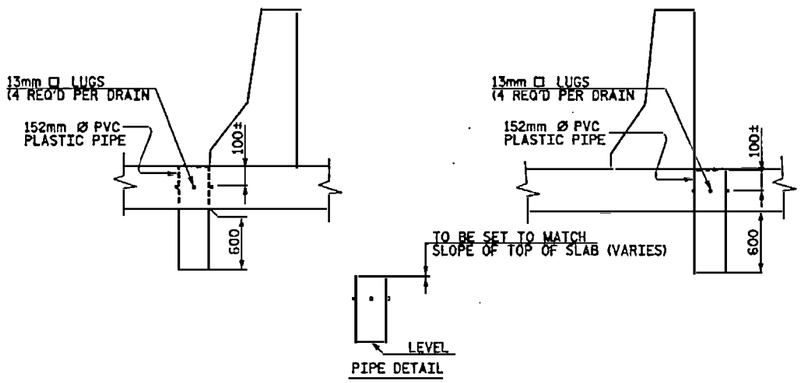
FOR LIGHT POLE OUTRIGGER DETAILS, SEE 'LIGHT POLE OUTRIGGER DETAILS' SHEETS.

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'.



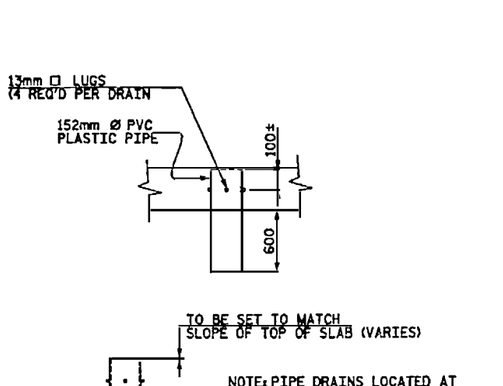
IN OVERHANG
(113 DRAINS REQUIRED)



NOTE: PIPE DRAINS ADJACENT TO MEDIAN BARRIER REQUIRED IN SPANS C & F ONLY. SEE PLAN OF RAIL SHEETS FOR LOCATIONS.

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)



NOTE: PIPE DRAINS LOCATED AT MID DECK REQUIRED IN SPAN C-GORE A ONLY. SEE PLAN OF SPAN C-STAGE 1 FOR LOCATIONS.

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

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.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9331 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12296 PAUL J. BARBER

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION:

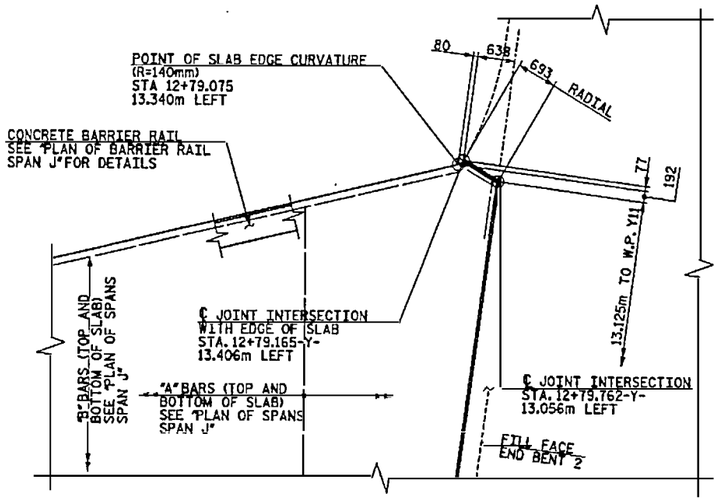
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
DETAILS

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

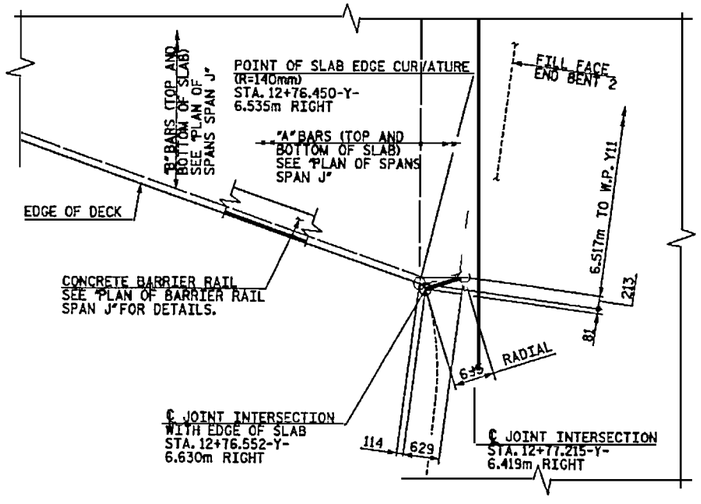
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DRG. NO. 21

REVISIONS						SHEET NO. S-2.1
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			1011



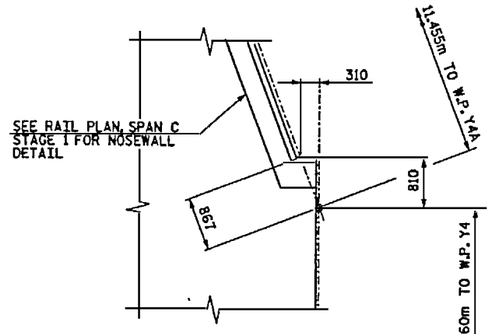
DETAIL D

SEE "PLAN OF SPANS SPAN J" FOR LOCATION



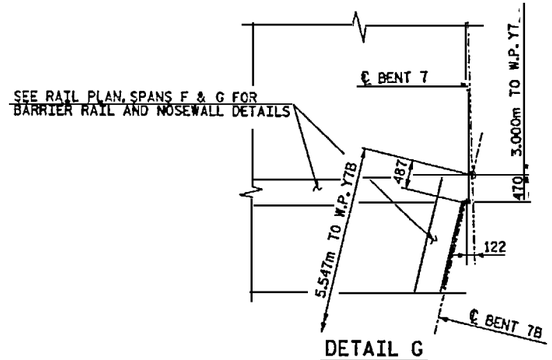
DETAIL E

SEE "PLAN OF SPANS SPAN J" FOR LOCATION



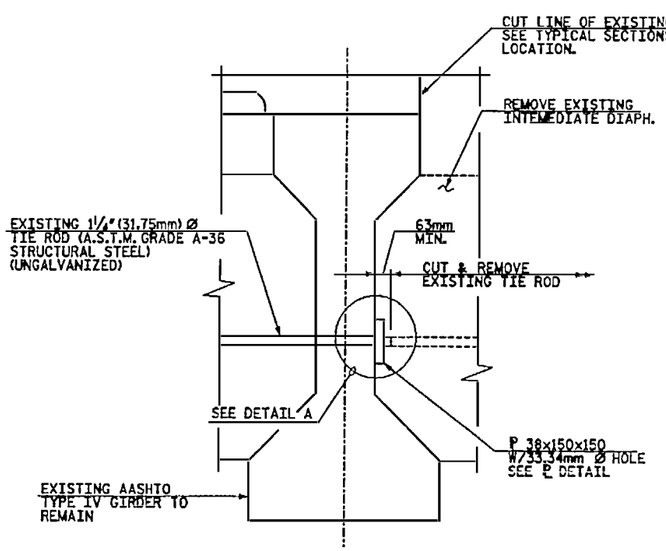
DETAIL F

SEE "PLAN OF SPANS, SPAN C, STAGE 1" FOR LOCATION

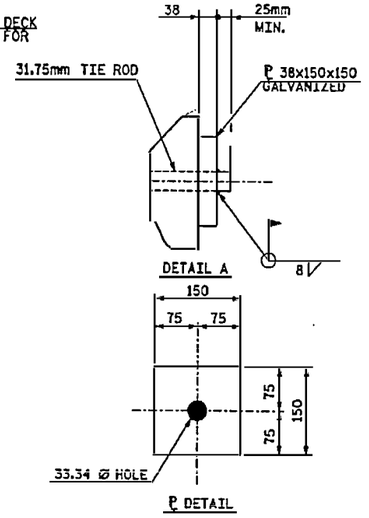


DETAIL G

SEE "PLAN OF SPANS SPAN F" FOR LOCATION
(RAMP B GORE)



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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 19313 ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL SEAL 12946 ENGINEER PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

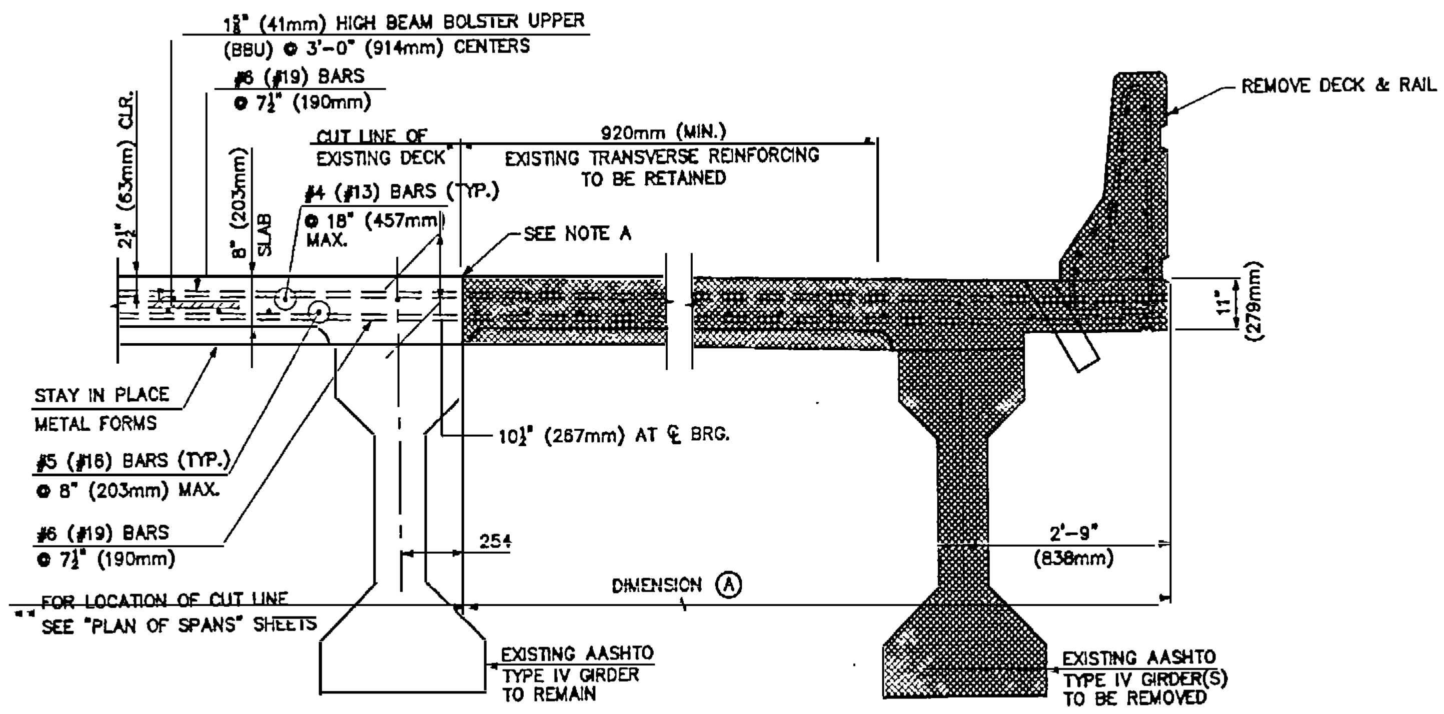
SUPERSTRUCTURE

DETAILS

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 300, Raleigh, NC 27609

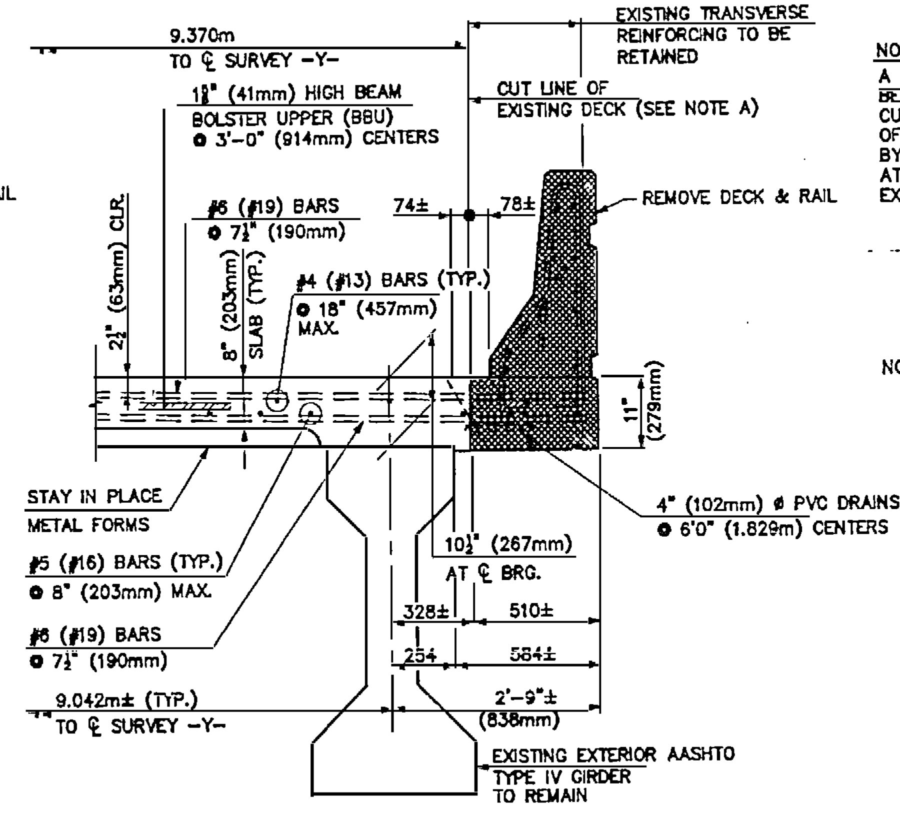
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 22

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			10011



	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)

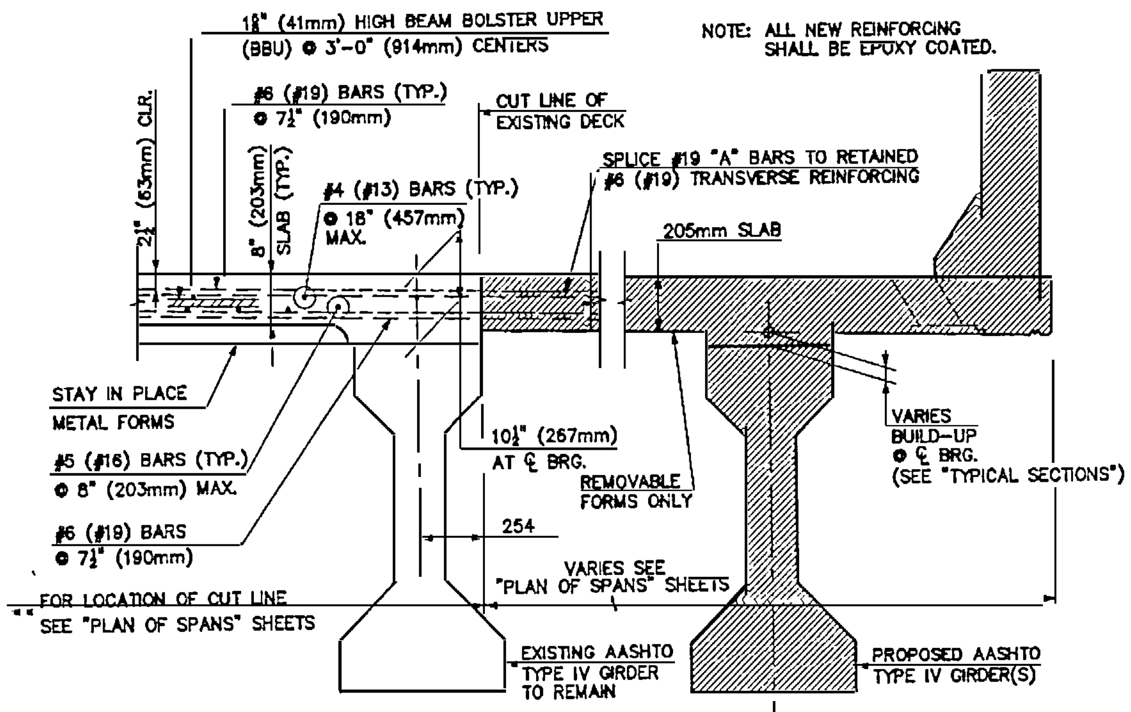


TYPICAL DEMOLITION DETAIL – SPAN C
(RIGHT SIDE SHOWN – LEFT SIDE SIMILAR)

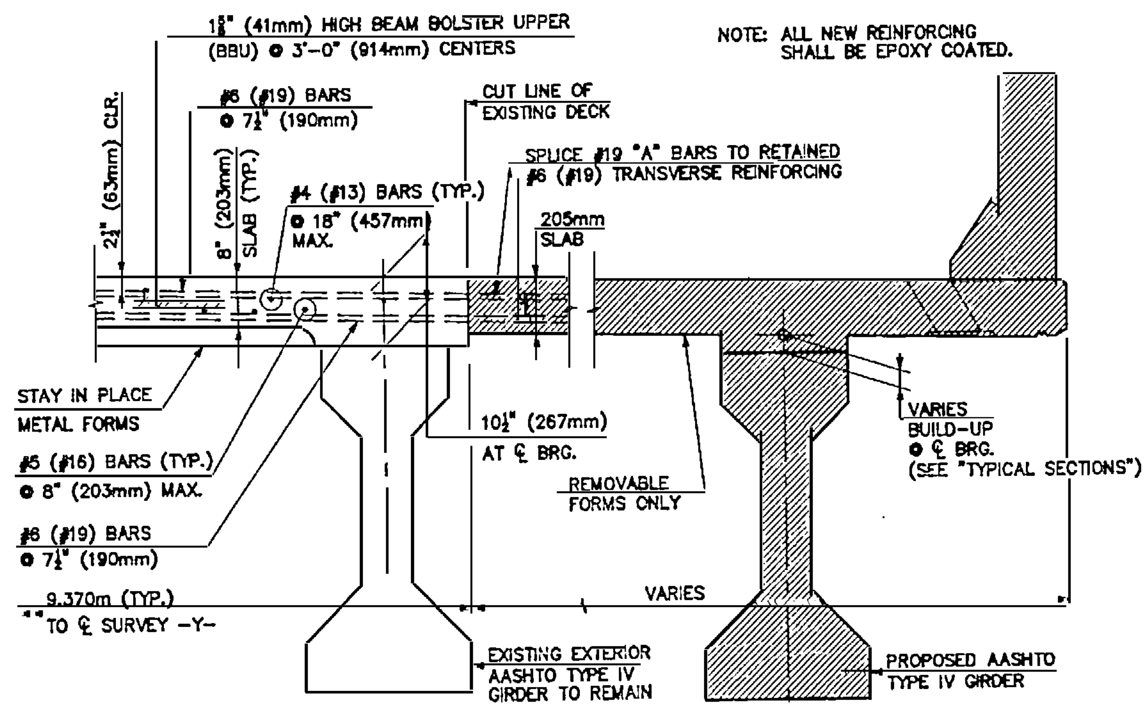
NOTE A:
A 25mm DEEP GROOVE SHALL BE SAWED IN THE TOP OF DECK SLAB BEFORE REMOVING EXISTING CONCRETE. IN THE EVENT THE 25mm SAW CUT RESULTS IN DAMAGE TO THE REINFORCING STEEL, THE DEPTH OF THE CUT SHALL BE REDUCED TO AVOID SUCH DAMAGE AS DIRECTED BY THE ENGINEER. CARE SHALL BE TAKEN TO OBTAIN A STRAIGHT 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)

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19513 NEIL T. GREENE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12516 PAUL L. BARBER

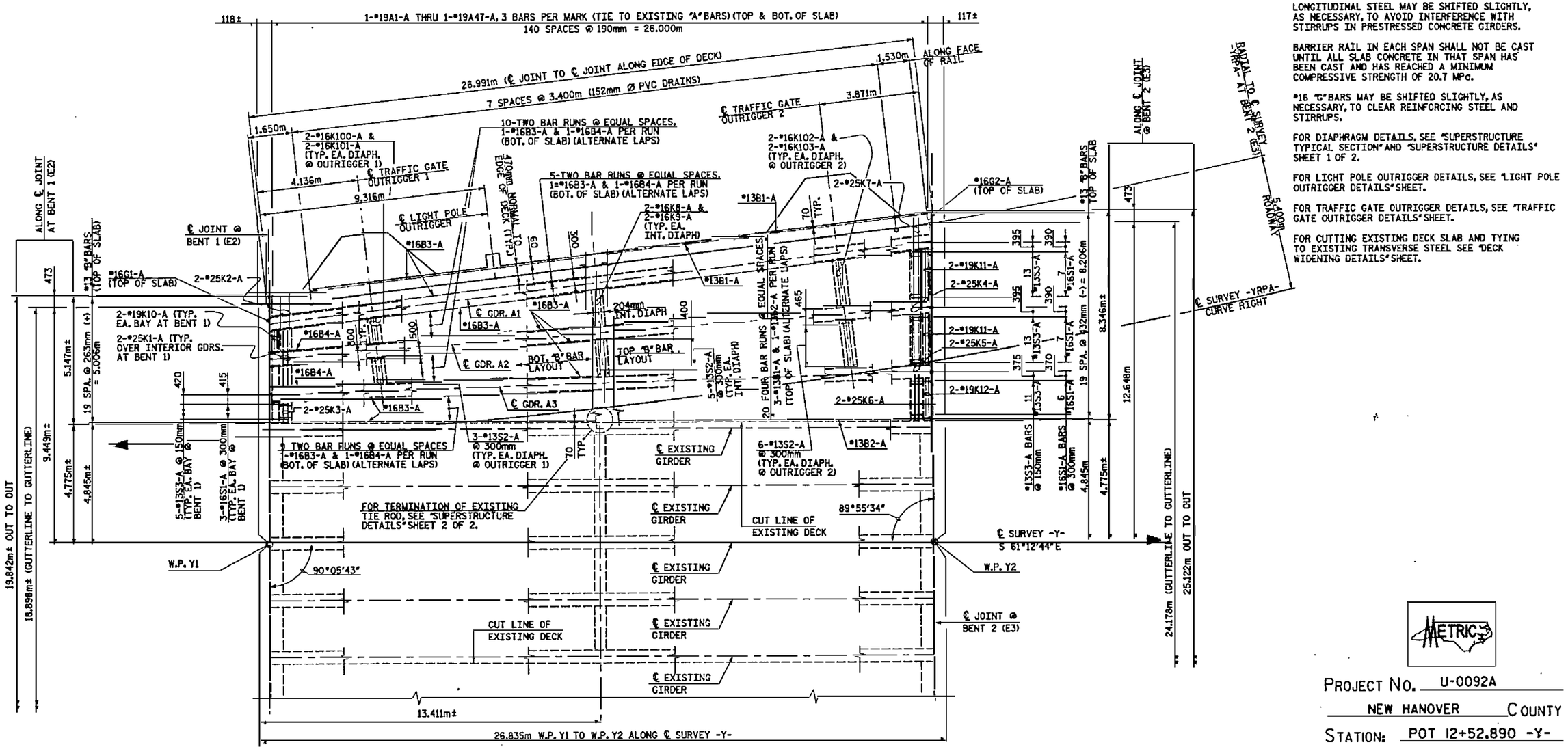
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 23

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

SHEET NO. S-23
TOTAL SHEETS 1011

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 A - STAGE 1

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO ℄ SURVEY -Y-.
SPAN A 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 "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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19031 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12986 PAUL J. BARBER

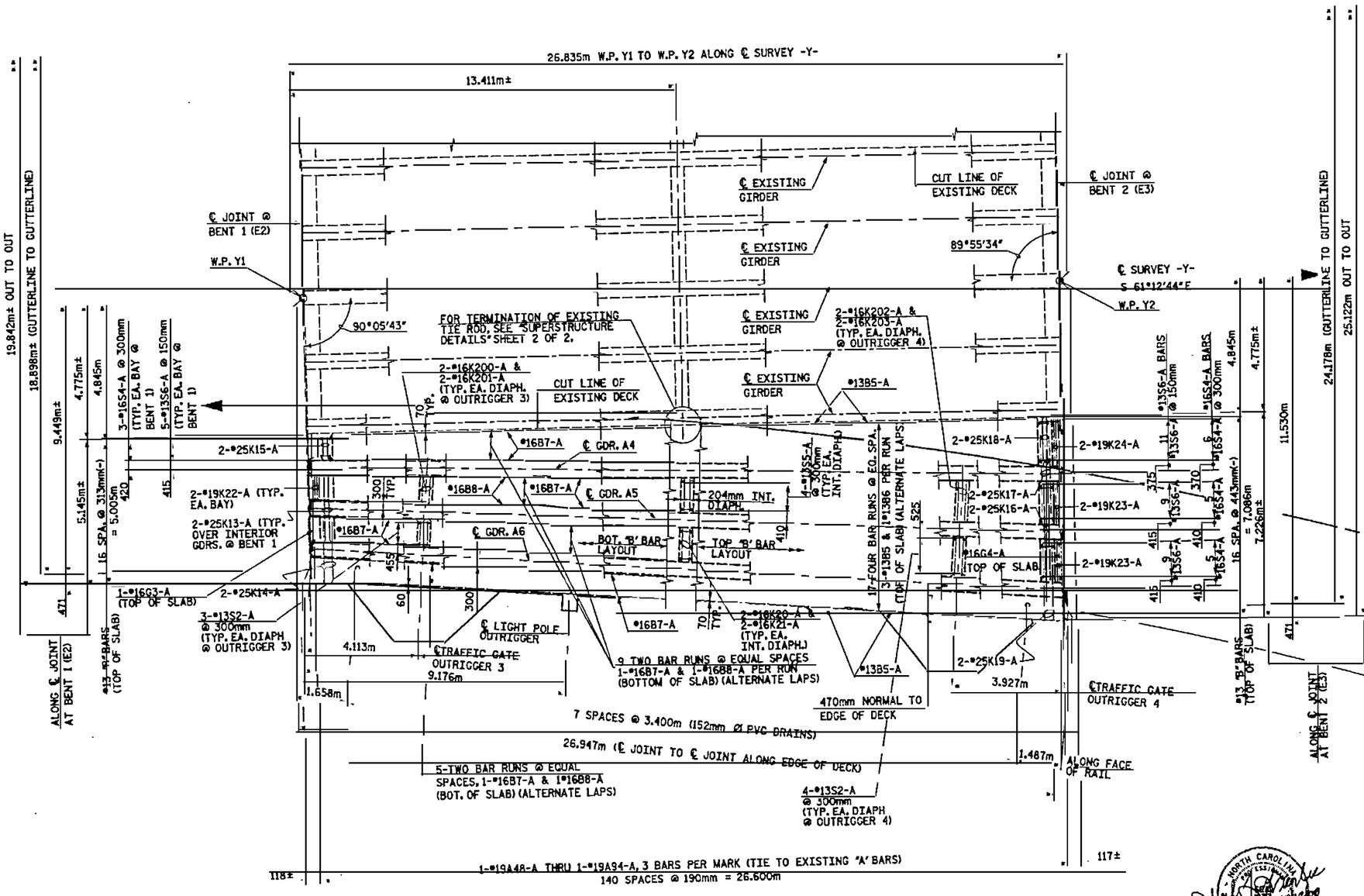
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
SPAN A
STAGE 1

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. HAWKINS DATE 7/00
DWG. NO. 24

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

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 A - STAGE 2

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO ℄ SURVEY -Y-
SPAN A 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 "S" 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.

METRIC

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

NORTH CAROLINA PROFESSIONAL SEAL 19535 ENGINEER NEIL T. GREENLEE 10-12-00

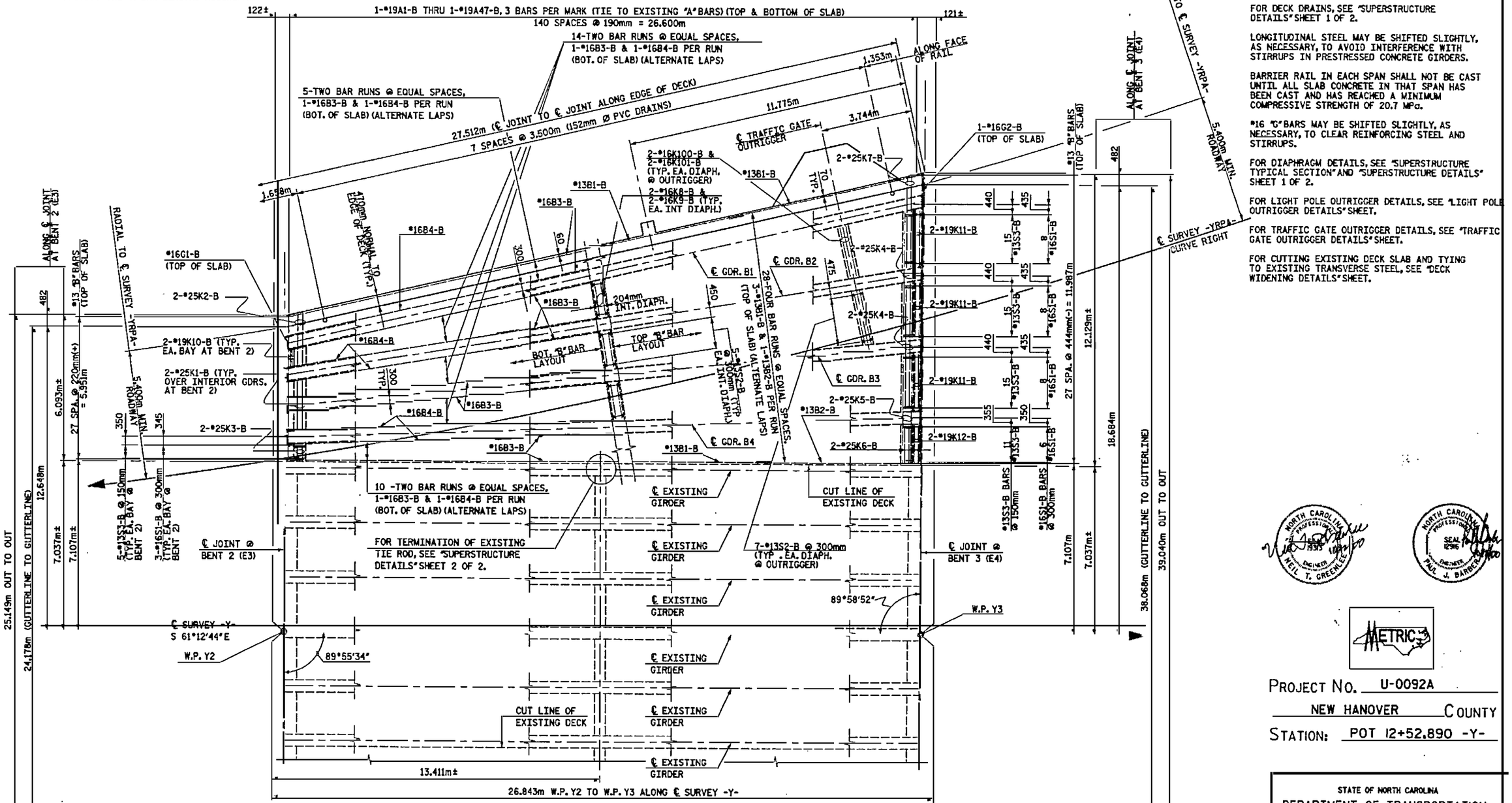
NORTH CAROLINA PROFESSIONAL SEAL 2296 ENGINEER PAUL J. BARBER

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 7/00
DWG. NO. 25

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-25
1			3			TOTAL SHEETS
2			4			1011

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 ℄ 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 "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.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19351 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8296 PAUL J. BARBER

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

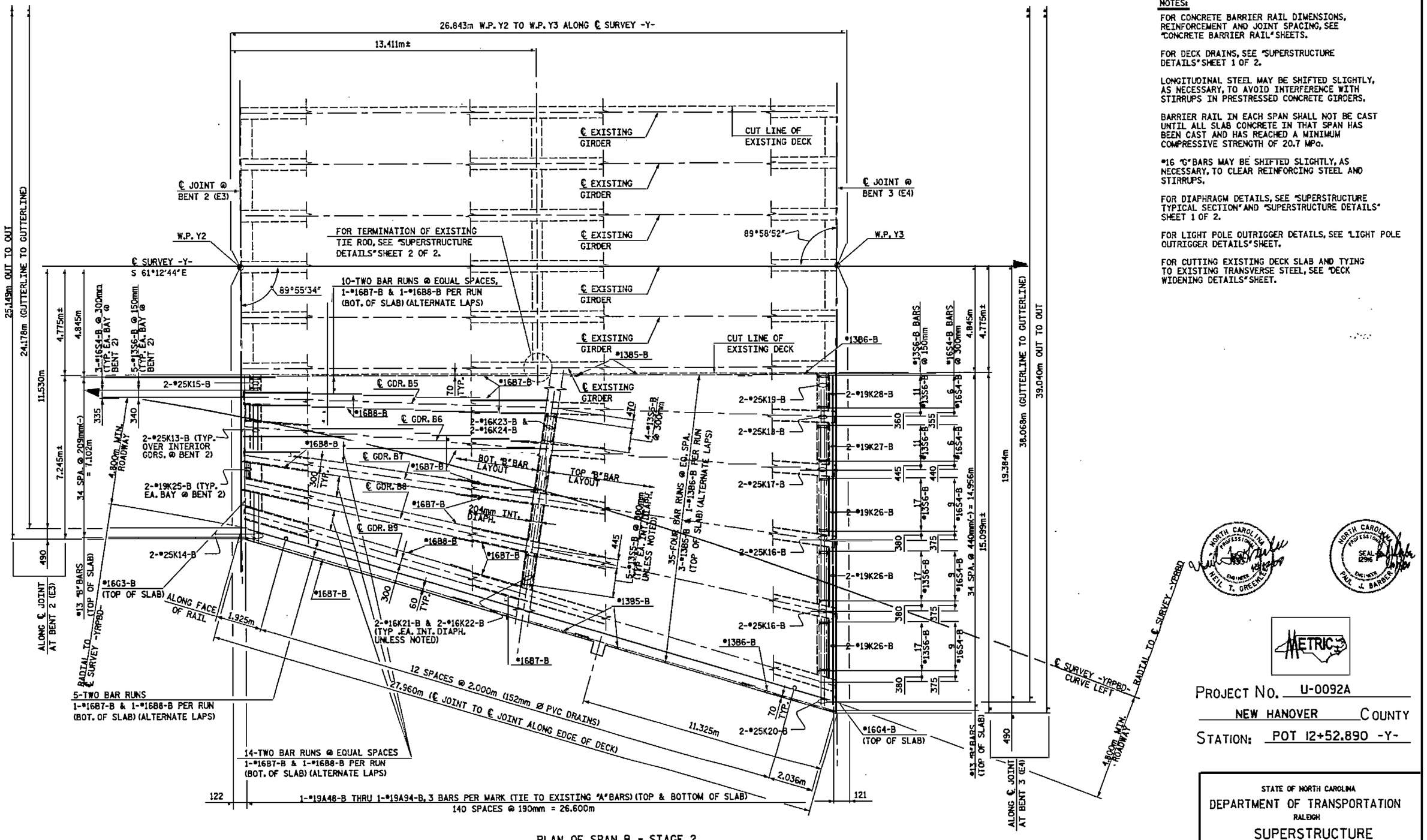
STATION: PDT 12+52.890 -Y-

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

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

DRAWN BY W. WRIGHT DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 26

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			1611



PLAN OF SPAN B - STAGE 2

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO ℄ 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 "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.

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.

METRIC

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

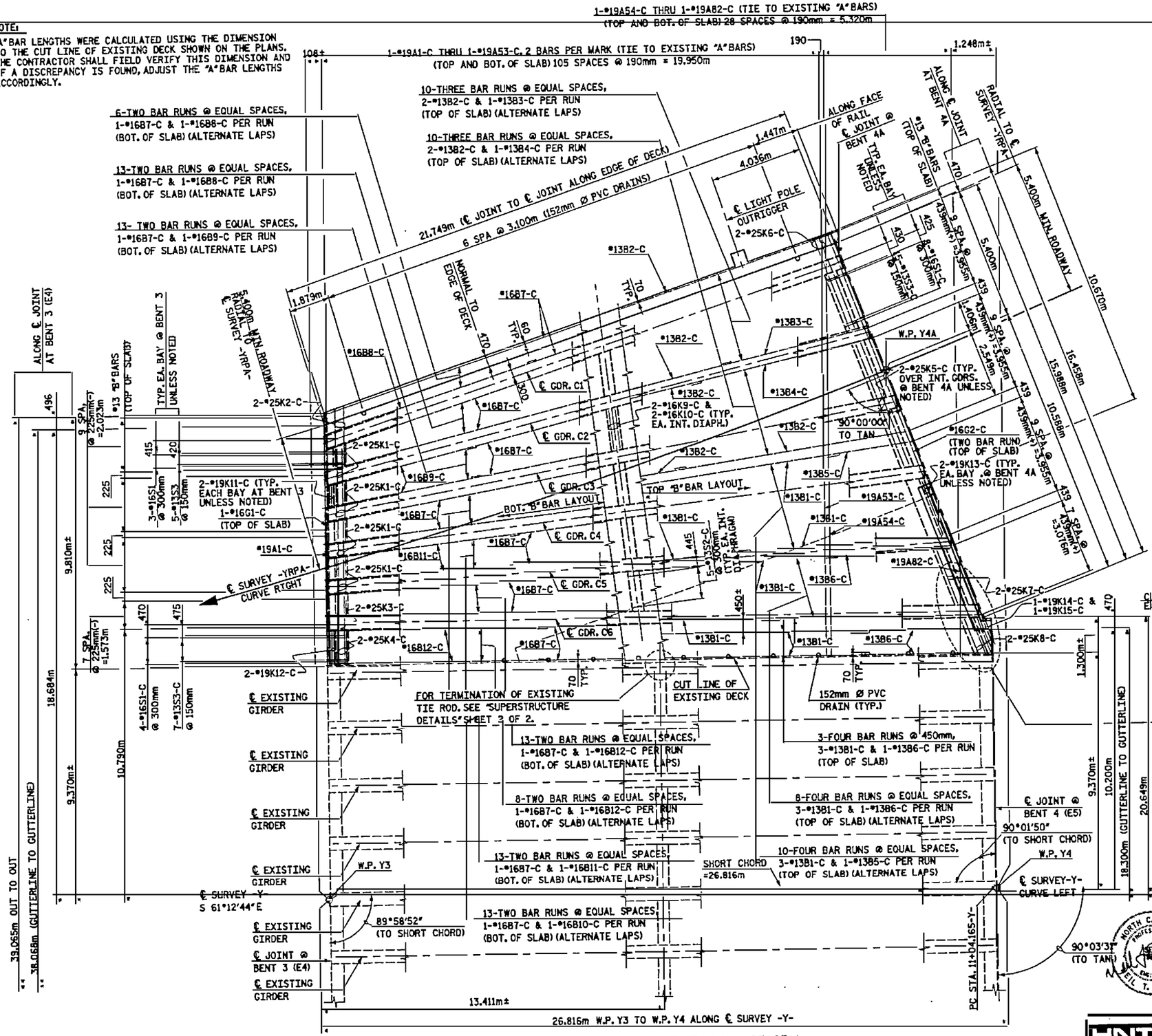
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
SPAN B
STAGE 2

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

DRAWN BY W. WRIGHT DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 27

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

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 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 "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.

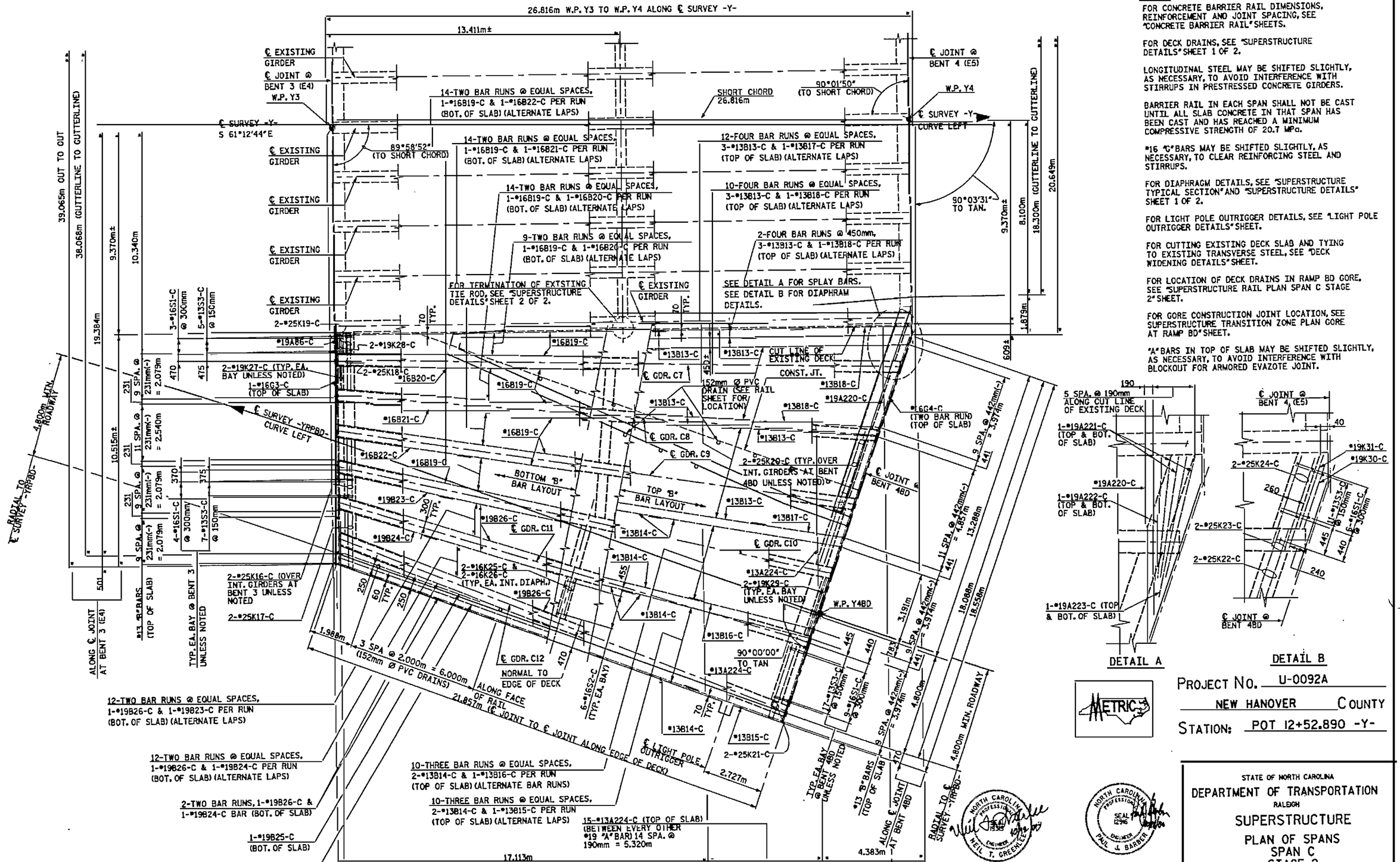
METRIC

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 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						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	9-28
1			3			TOTAL SHEETS
2			4			1011



DETAIL A

DETAIL B

PLAN OF SPAN C - STAGE 2

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

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 "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.

METRIC

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

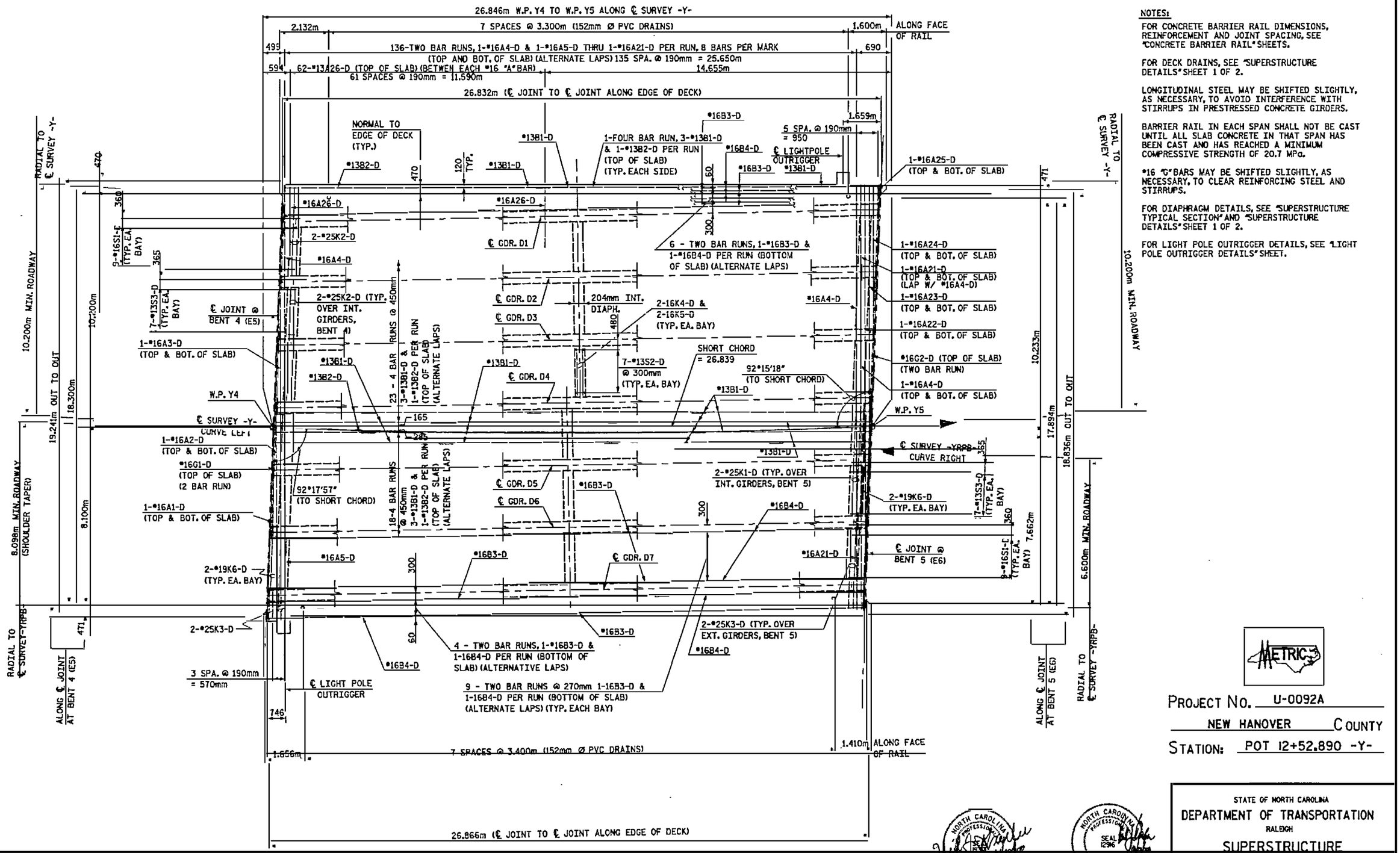
NORTH CAROLINA PROFESSIONAL SEAL 1935 ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL SEAL 12961 ENGINEER PAUL J. BARBER

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. 29

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

PLAN OF SPAN D

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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

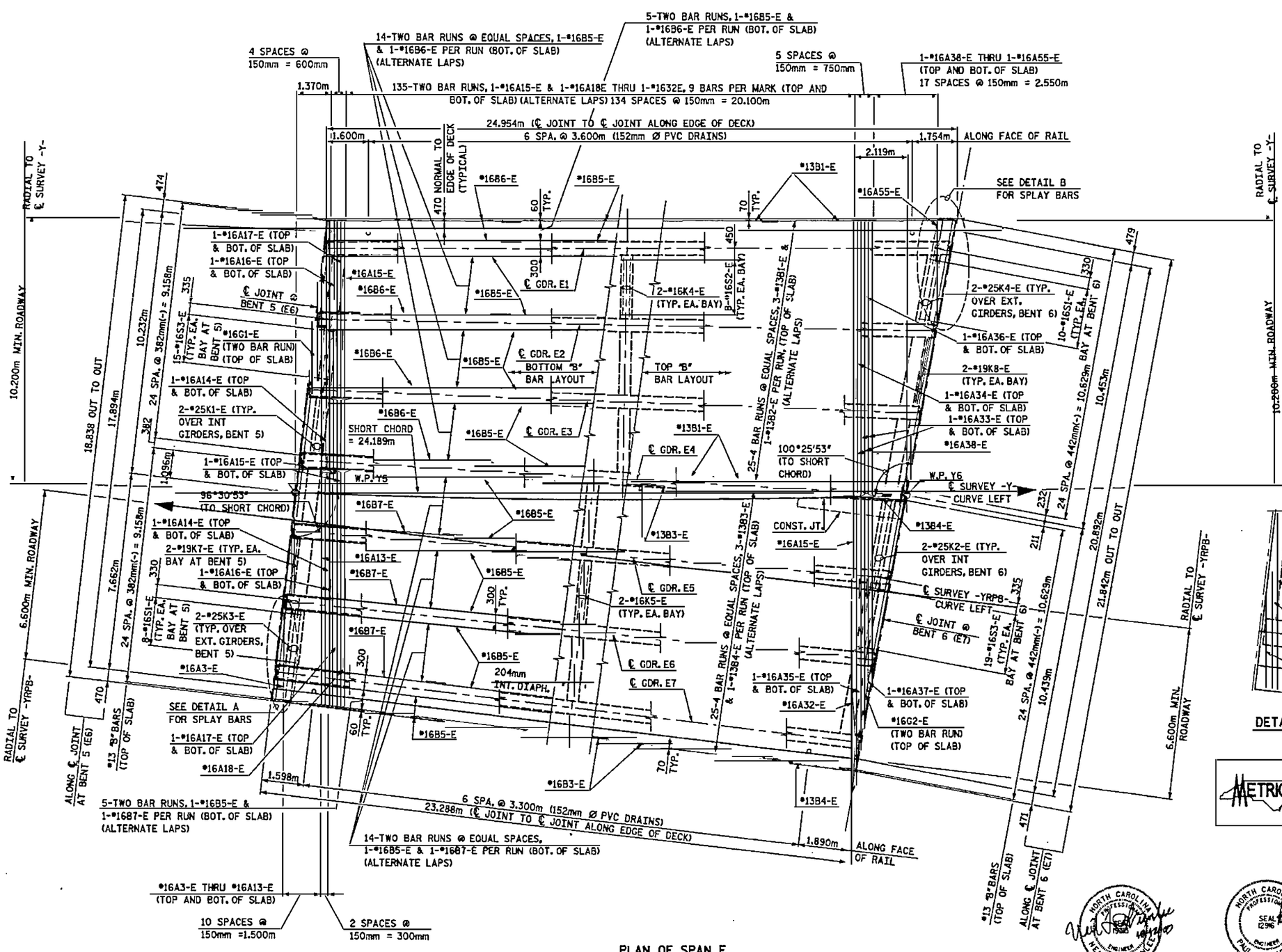
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

PLAN OF SPANS
SPAN D

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

DRAWN BY W. WRIGHT DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 30

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	30
1			3			TOTAL SHEETS
2			4			101



PLAN OF SPAN E

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD. SPAN E 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.

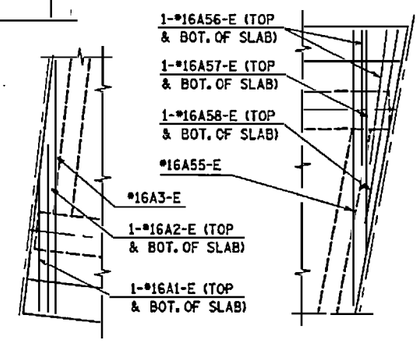
LONGITUDINAL STEEL MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO AVOID INTERFERENCE WITH STIRRUPS IN PRESTRESSED CONCRETE GIRDERS.

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 "G" 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 GORE CONSTUCTION JOINT LOCATION, SEE "SUPERSTRUCTURE TRANSITION ZONE PLAN GORE AT RAMP B".



DETAIL A DETAIL B

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

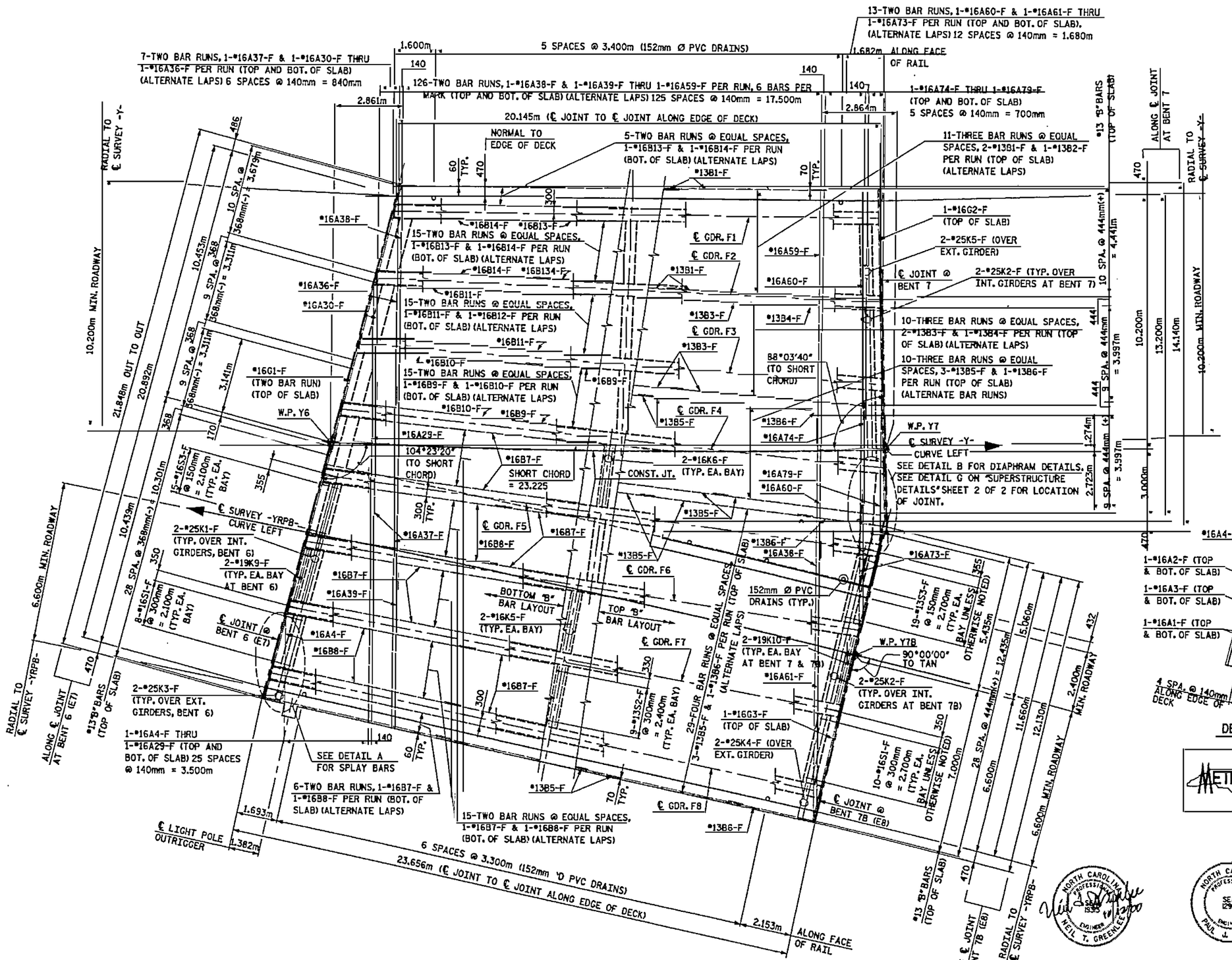
SUPERSTRUCTURE

PLAN OF SPANS SPAN E

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 7/00
DWG. NO. 31

REVISIONS						SHEET NO. S-21
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 101
2			4			



PLAN OF SPAN F

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO SHORT CHORD. SPAN F 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 "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 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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

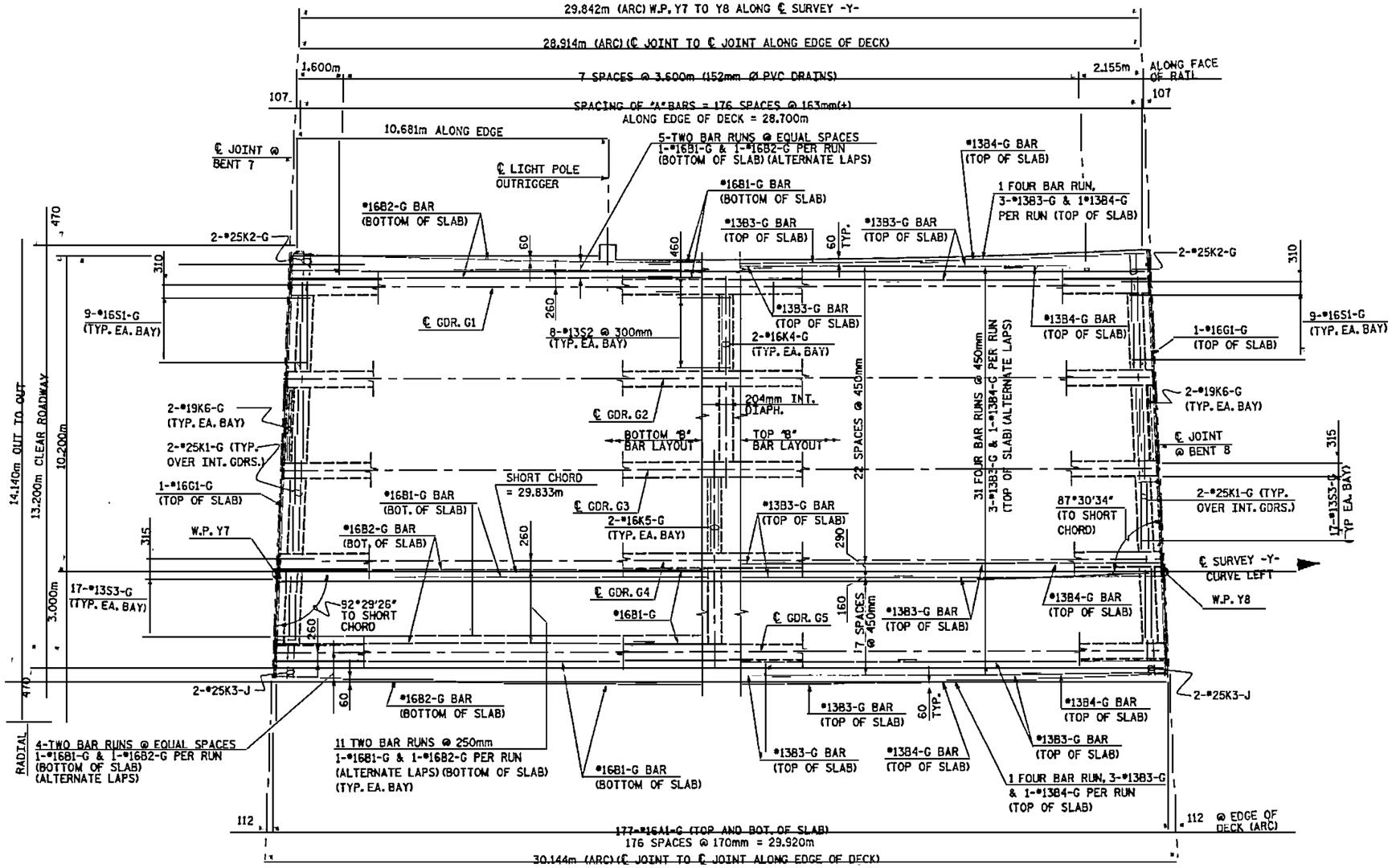
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
PLAN OF SPANS SPAN F

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

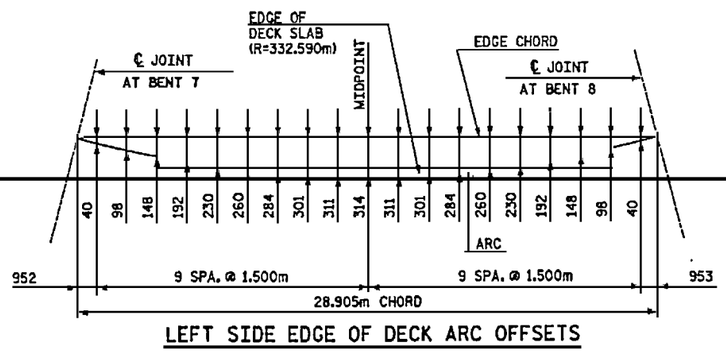
DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 32

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			101

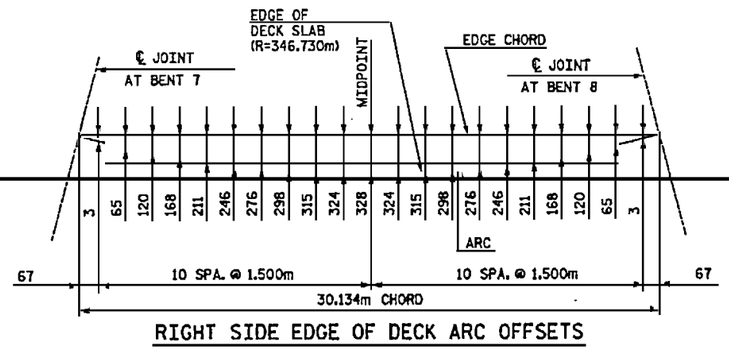


PLAN OF SPAN G

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



LEFT SIDE EDGE OF DECK ARC OFFSETS



RIGHT SIDE EDGE OF DECK ARC OFFSETS

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.

METRIC

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 G

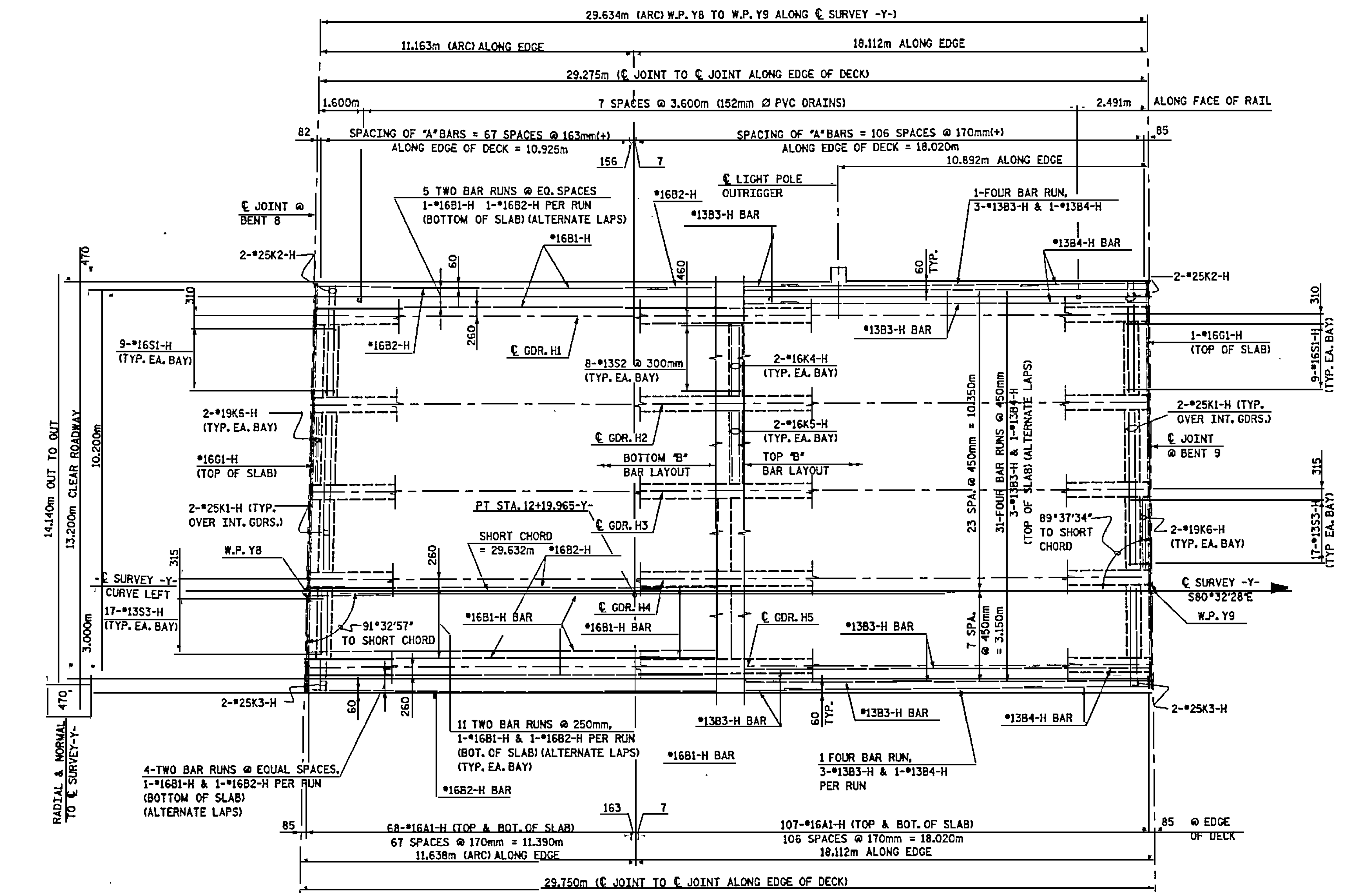
NORTH CAROLINA PROFESSIONAL ENGINEER NEIL T. GREENE

NORTH CAROLINA PROFESSIONAL SEAL 12996 ENGINEER PAUL J. BARBER

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

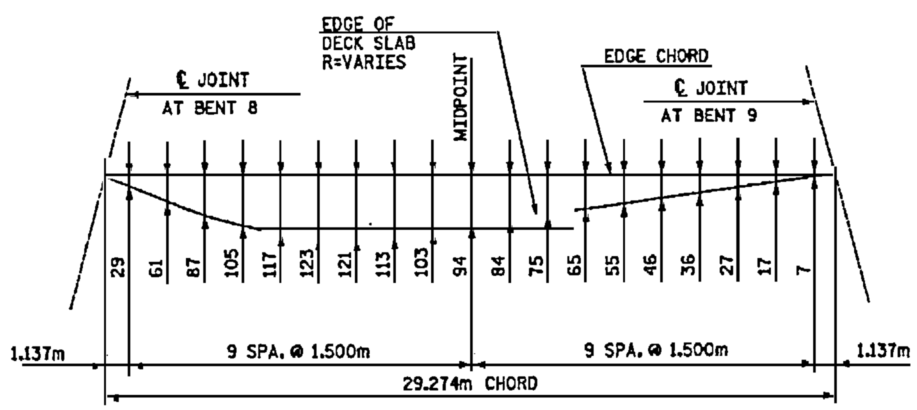
DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 33

REVISIONS						SHEET NO. S-33
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 1611
2			4			

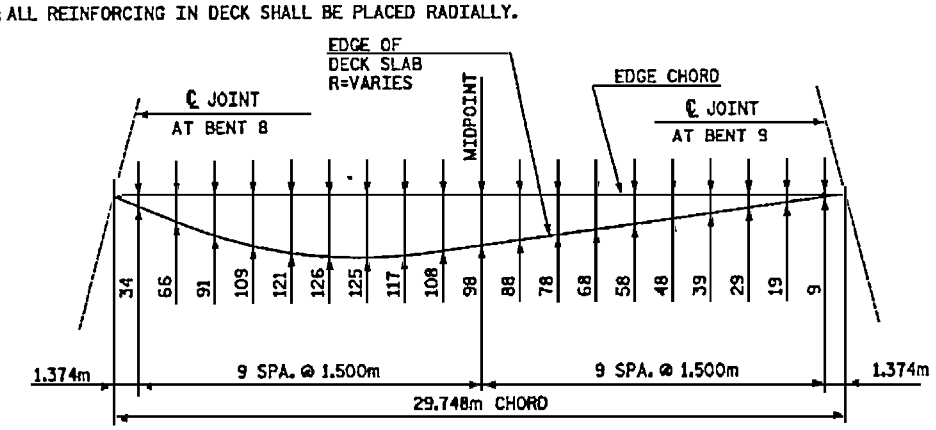


PLAN OF SPAN H

NOTE: ALL REINFORCING IN DECK SHALL BE PLACED RADIALLY.



LEFT SIDE EDGE OF DECK ARC OFFSETS



RIGHT SIDE EDGE OF DECK ARC OFFSETS

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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

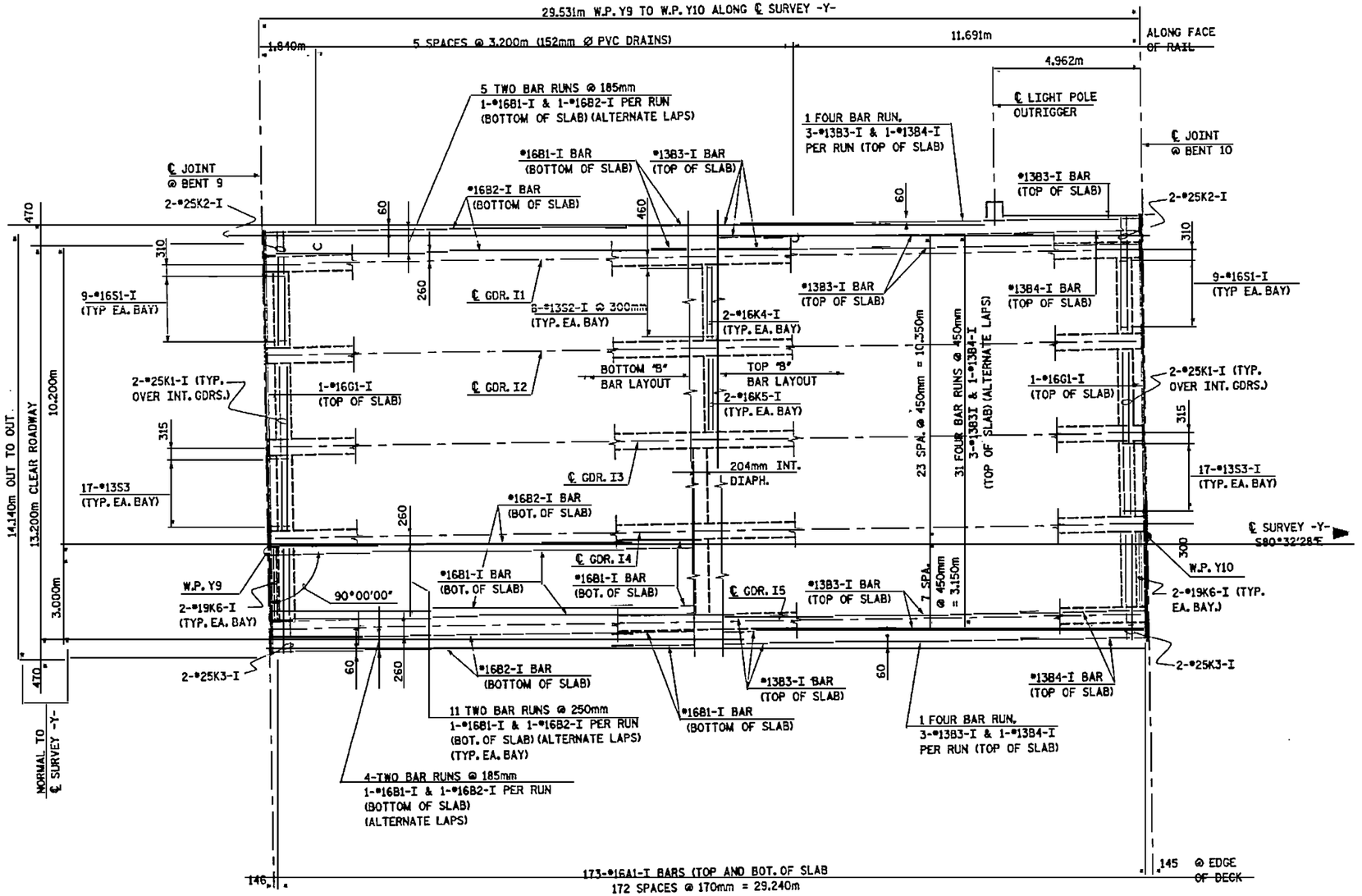
PLAN OF SPANS
SPAN H

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 7/00
DWG. NO. 34

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

SHEET NO. S-34
TOTAL SHEETS 1011



PLAN OF SPAN I

NOTE: ALL "A" BARS SHALL BE PLACED PERPENDICULAR TO ℄ SURVEY -Y-.

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.

METRIC

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

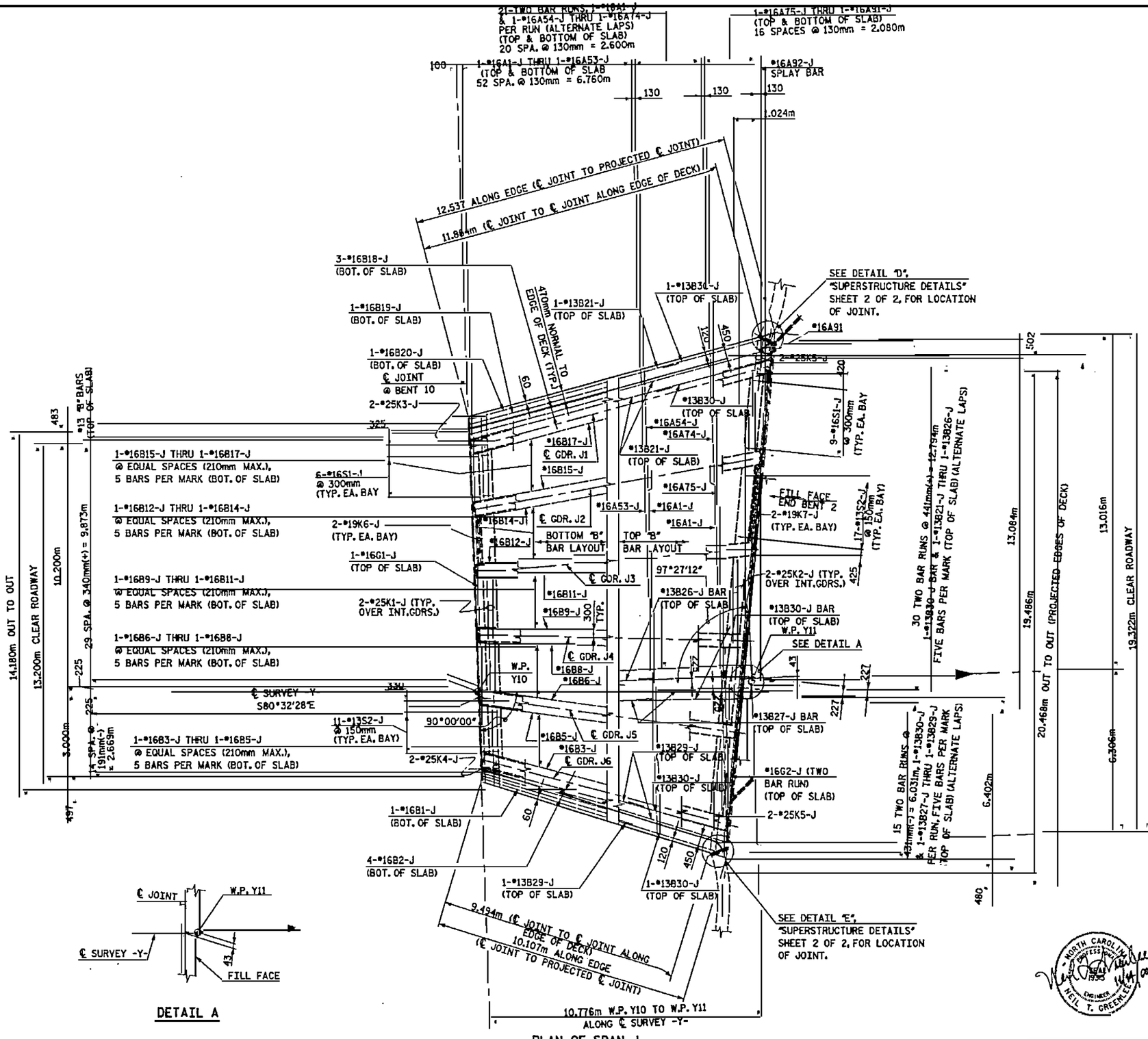
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19383 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12996 PAUL J. BARBEK

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

DRAWN BY: W. WRIGHT DATE 7/00
CHECKED BY: D. HAWKINS DATE 7/00
DWG. NO. 35

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-35
1			3			TOTAL SHEETS
2			4			1011



DETAIL A

PLAN OF SPAN J

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

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"G" 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.

METRIC

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

NORTH CAROLINA PROFESSIONAL SEAL 19551 ENGINEER NEIL T. GREENLEE

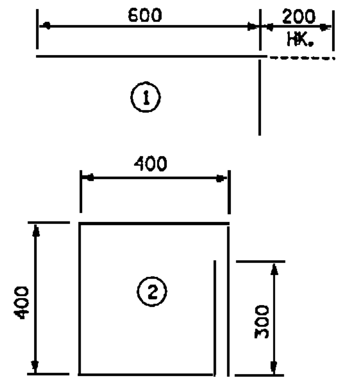
NORTH CAROLINA PROFESSIONAL SEAL 12916 ENGINEER PAUL J. BARBER

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 7/00
DWG. NO. 36

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-32
1			3			TOTAL SHEETS
2			4			101

BAR TYPES



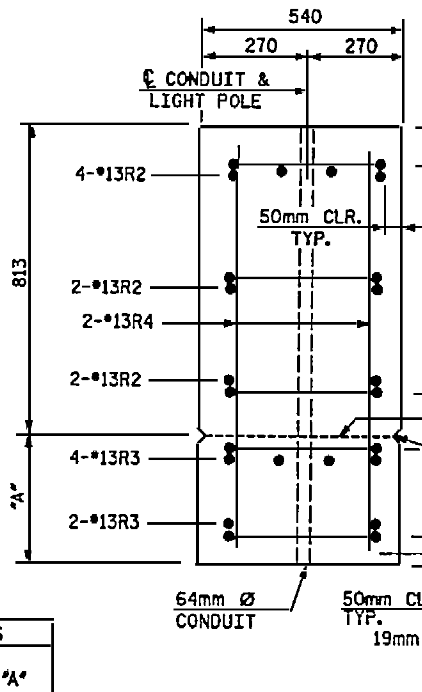
ALL BAR DIMENSIONS ARE OUT TO OUT

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
A-L, B-L, C-L	R4	4	#13	STR	1040	4
A-R, B-R, C-R	R4	4	#13	STR	1020	4
D-L, G-L, H-L, I-L, D-R, F-R	R4	4	#13	STR	1060	4

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

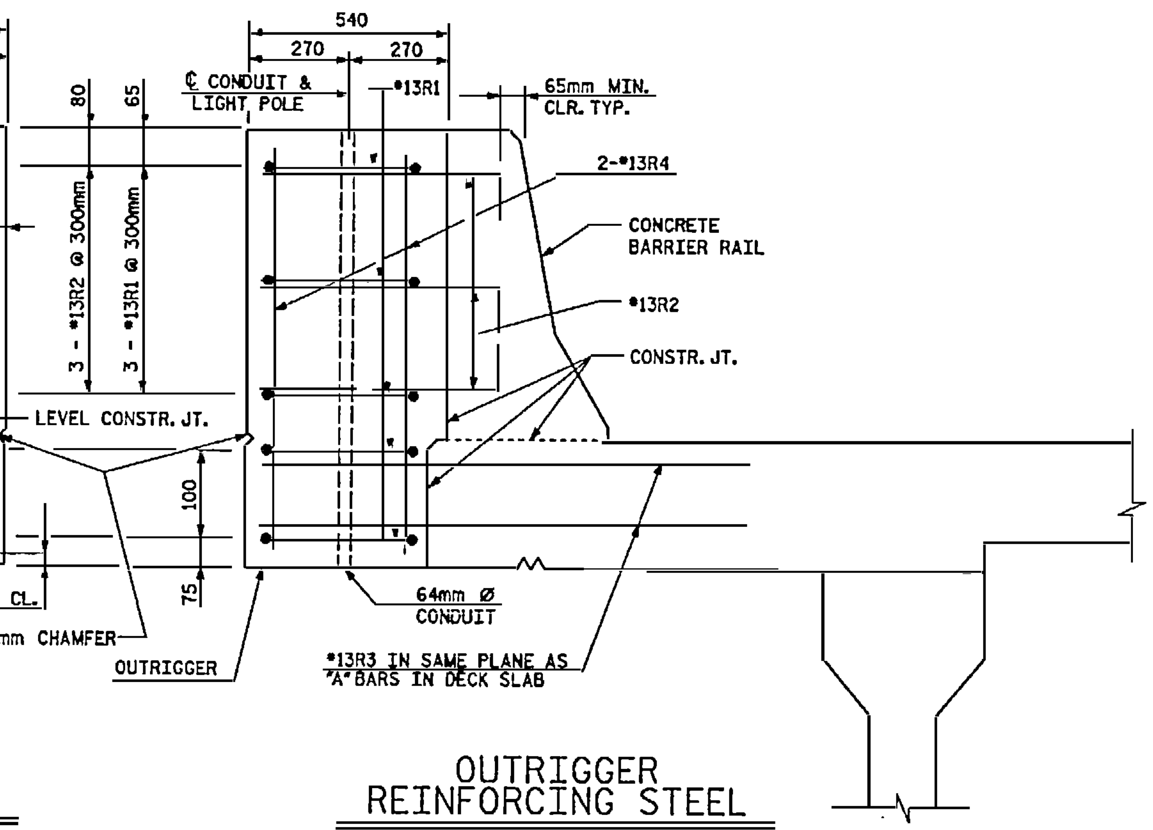
SPAN	EPOXY COATED REINFORCING STEEL kg	CLASS AA CONCRETE CU. METERS
A-L, B-L, C-L	25	.33
A-R, B-R, C-R	25	.33
D-L, G-L, H-L, I-L, D-R, F-R	25	.33



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.

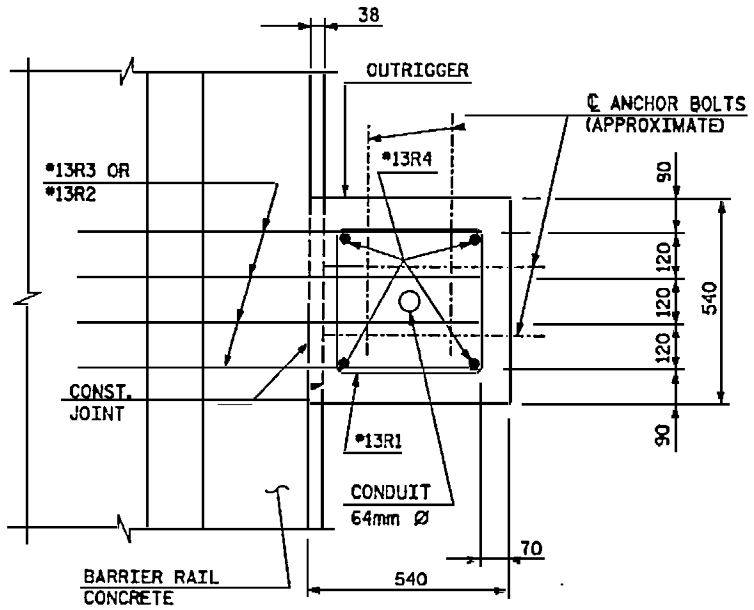
ELEVATION



OUTRIGGER REINFORCING STEEL

NOTES:

1. PAYMENT FOR THE OUTRIGGERS SHALL BE INCLUDED IN THE PAY ITEM "REINFORCED CONCRETE DECK SLAB"
2. FOR CONDUIT, ANCHOR BOLTS, LIGHT POLE AND ADDITIONAL DETAILS SEE ELECTRICAL DRAWINGS.
3. 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".
4. EMBEDDED CONDUIT LOCATION SHALL BE COORDINATED WITH LIGHT BASE REQUIREMENTS.
5. FOR LOCATIONS OF LIGHT POLE OUTRIGGERS, SEE "SUPERSTRUCTURE - PLANS OF SPANS" SHEETS.



PLAN

METRIC

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

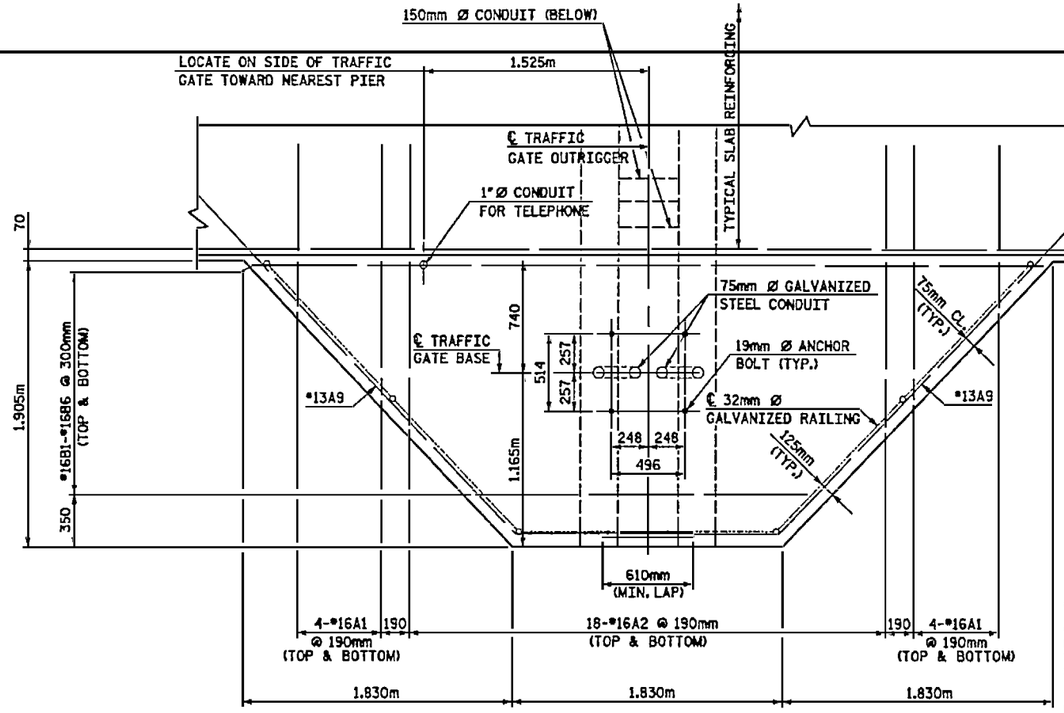
SUPERSTRUCTURE

LIGHT POLE OUTRIGGER DETAILS

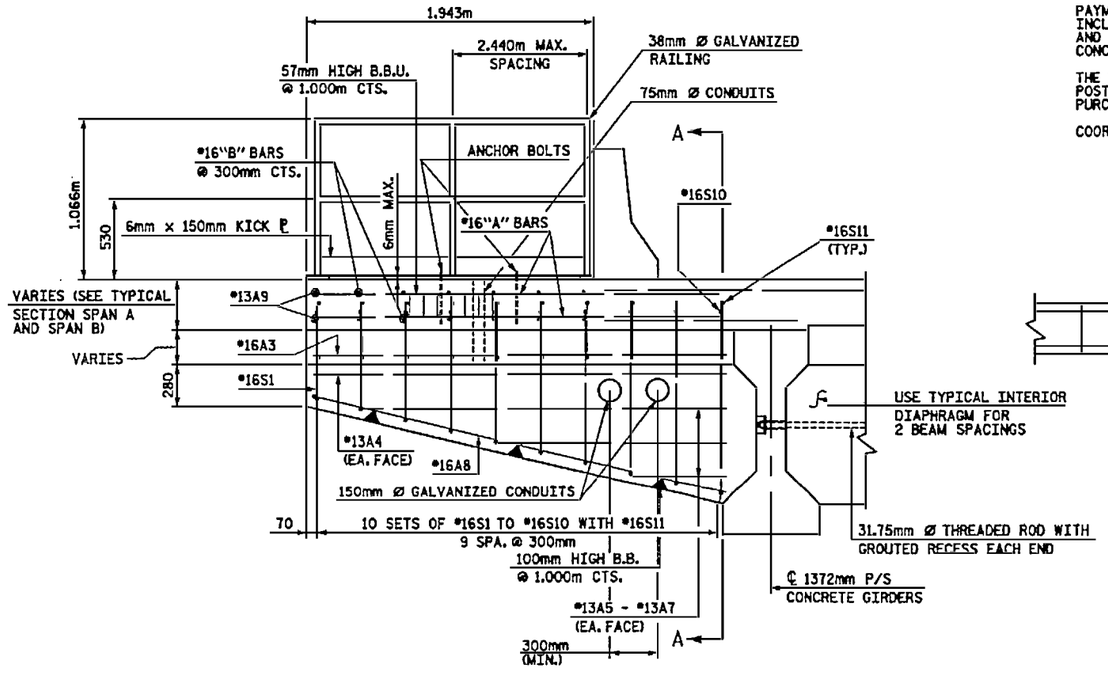
HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY A. ECHERD DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 37

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. S-37
1			3			TOTAL SHEETS 101
2			4			

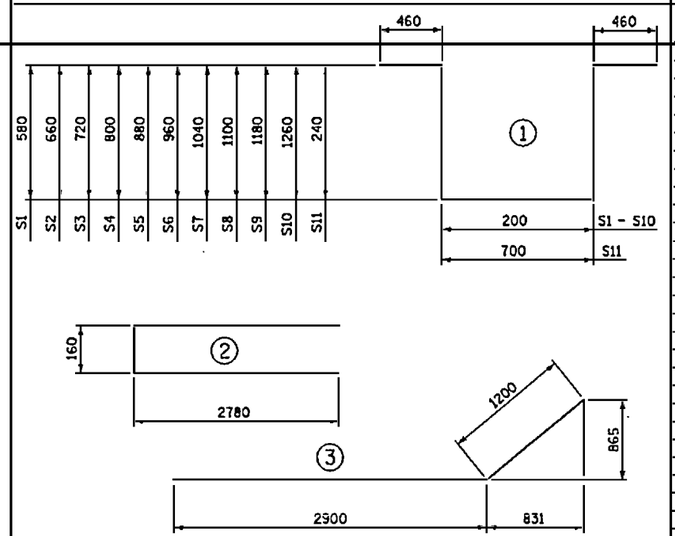


PLAN



TYPICAL ELEVATION OF SLAB EXTENSION FOR TRAFFIC GATES

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

EPOXY COATED REINFORCING STEEL	Kg.	390
CLASS AA CONCRETE		
· OUTRIGGER	CU. METERS	3.5

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 REQUIREMENTSOF SECTION 1080-9 OF THE STANDARD SPECIFICATIONS.

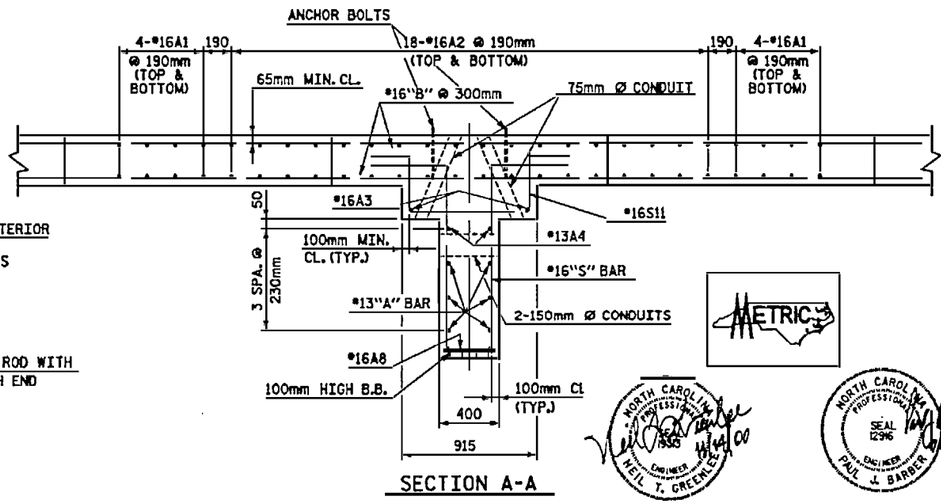
THE CONTRACTOR SHALL VERIFY THAT THE BOLT PATTERN AND CONDUIT LOCATIONS SHOWN ON THE PLANS FOR THE TRAFFIC GATE BASE AGREES WITH THE MANUFACTURER'S SPECIFICATION FOR THE TRAFFIC GATE BASE PLATE.

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

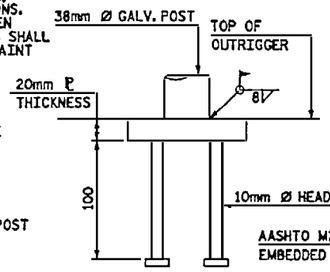
PAYMENT FOR THE ENTIRE COST OF THE TRAFFIC GATE OUTRIGGER, INCLUDING FURNISHING AND INSTALLING THE GALVANIZED STEEL PIPE POST AND RAILING, SHALL BE INCLUDED IN THE PAY ITEM FOR REINFORCED CONCRETE DECK SLAB.

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.

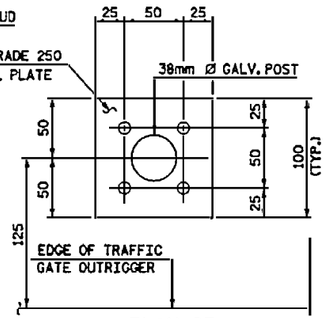
COORDINATE LOCATIONS OF CONDUITS WITH ELECTRICAL PLANS.



SECTION A-A



ELEVATION OF EMBEDDED PLATE



PLAN OF EMBEDDED PLATE

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

METRIC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

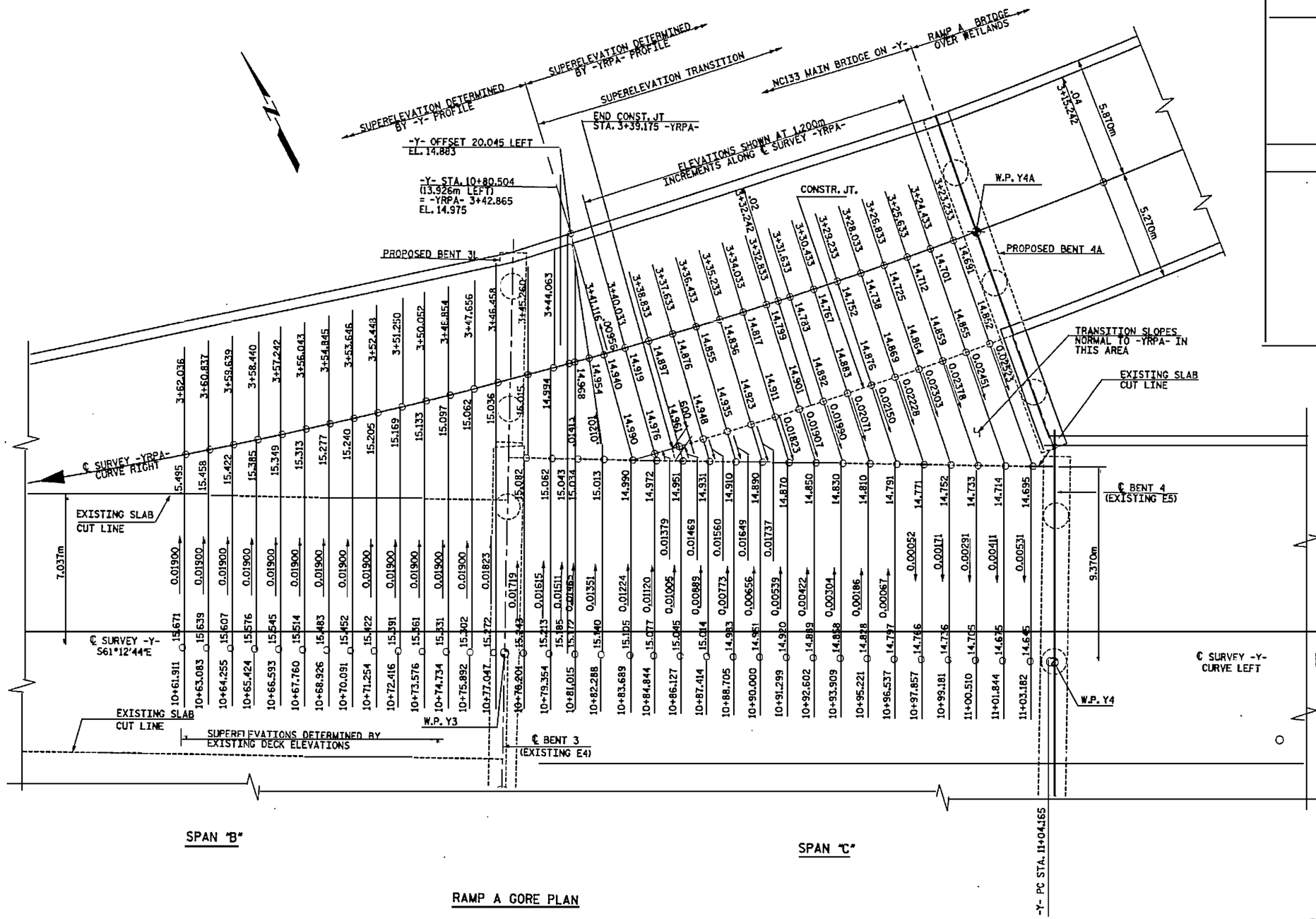
SUPERSTRUCTURE

TRAFFIC GATE OUTRIGGER

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

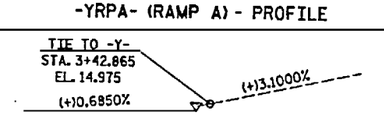
DRAWN BY R. KNIGHT DATE 8/00
CHECKED BY D. HAWKINS DATE 8/00
DWG. NO. 38

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-365
1			3			TOTAL SHEETS
2			4			1011

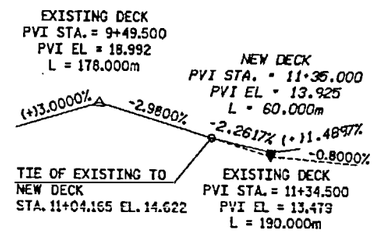


NOTE:
BARRIER RAIL NOT SHOWN IN GORE FOR CLARITY. FOR BARRIER RAIL IN GORE, SEE "RAIL PLAN SPAN C"

-YRPA- (RAMP A) - PROFILE



-Y- PROFILE



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

METRIC

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

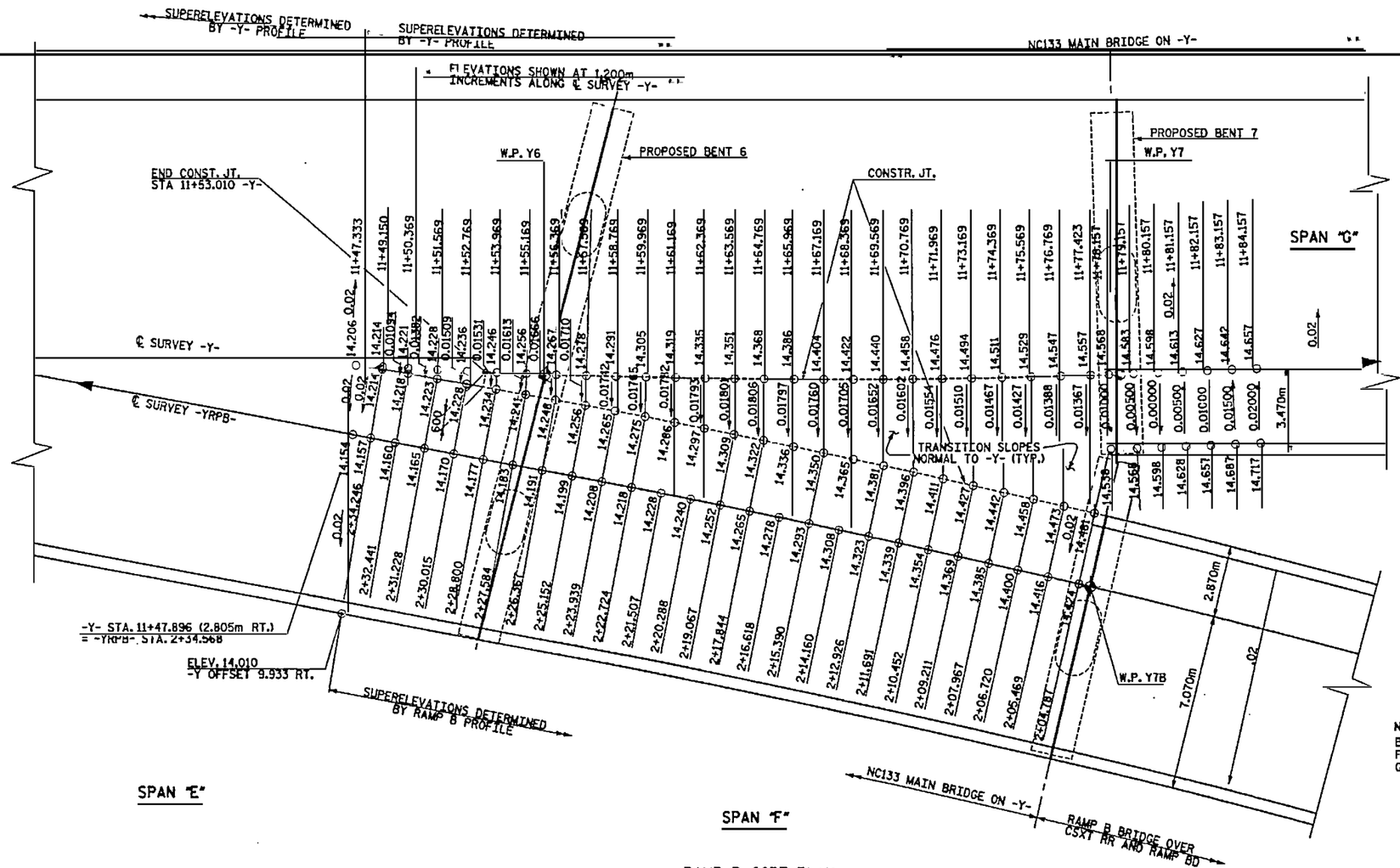
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

TRANSITION ZONE PLAN
GORE AT RAMP A

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. 39

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



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

-Y- PROFILE

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

(-)2.2617% (+)1.4897%

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

-YRPB- (RAMP B) PROFILE

(+)1.5778% (-)1.2378% (-)0.5050% (+)2.2300%

END
STA. 2+34.568
EL. 14.154

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

SUPERELEVATION SCHEDULE

-YRPB- (RAMP B)			-Y-		
	S.E.			S.E.	
STATION	LEFT	RIGHT	STATION	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

METRIC

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

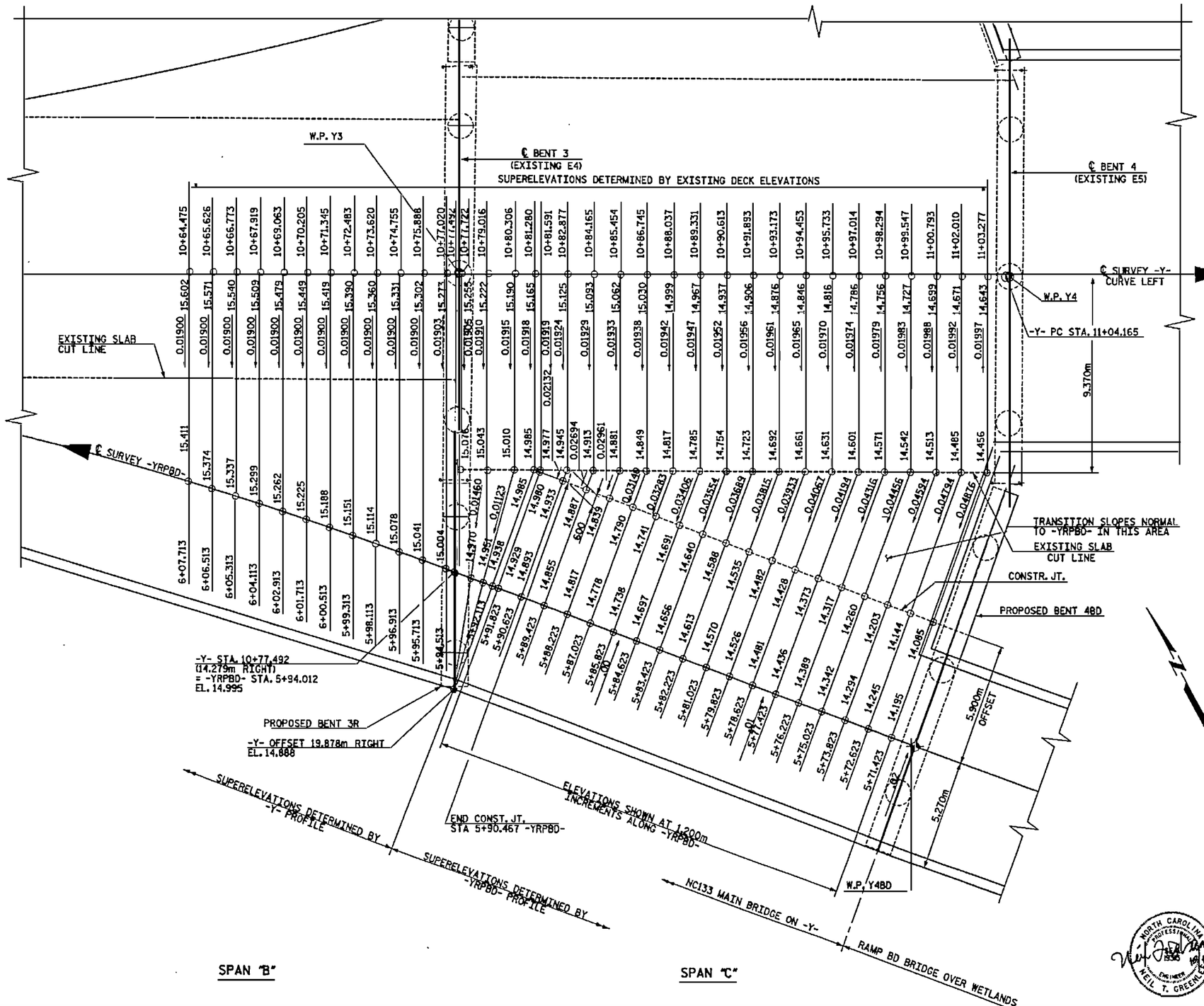
TRANSITION ZONE PLAN
GORE AT RAMP B

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 8936 NEIL T. CREEKLE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12396 PAUL J. BARBER

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

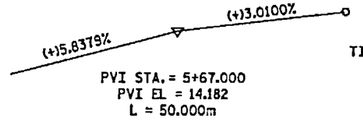
DRAWN BY J. BAYNE DATE 8/99
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 40

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-40
1			3			TOTAL SHEETS
2			4			1041

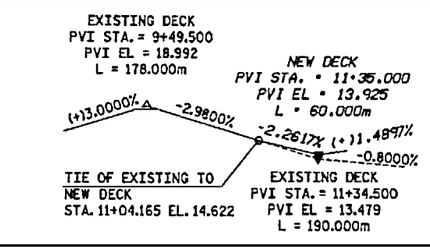


RAMP BD GORE PLAN

-YRPBD- (RAMP BD) PROFILE



-Y- PROFILE



SUPERELEVATION SCHEDULE

-YRPBD- STATION	S.E. LEFT	S.E. RIGHT	-Y- STATION	-Y- 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"

METRIC

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 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. 41

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

SHEET NO. S-41
TOTAL SHEETS 101

NOTES:

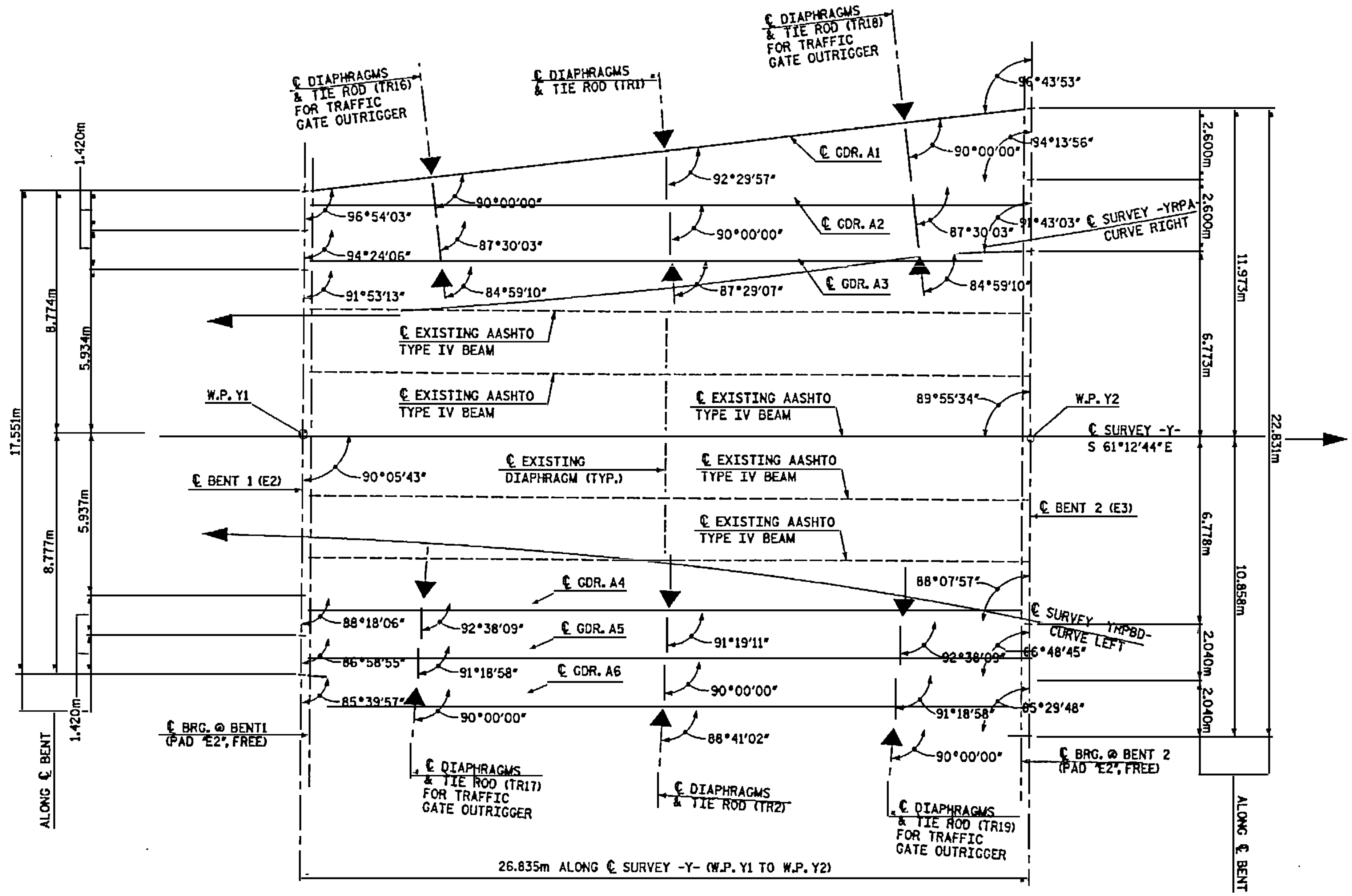
SOLE PLATES NOT REQUIRED FOR SPAN A GIRDERS. EMBEDDED PLATES IN ENDS OF GIRDERS SHALL BE ORIENTED AS NECESSARY TO PRODUCE A LEVEL INTERFACE WITH ELASTOMETRIC BEARING PADS. SEE "1372mm PRESTRESSED CONCRETE GIRDER DETAILS" SHEET FOR MORE INFORMATION.

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

FOR DIAPHRAGM DETAILS, SEE "TYPICAL SECTION SPAN 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

METRIC

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

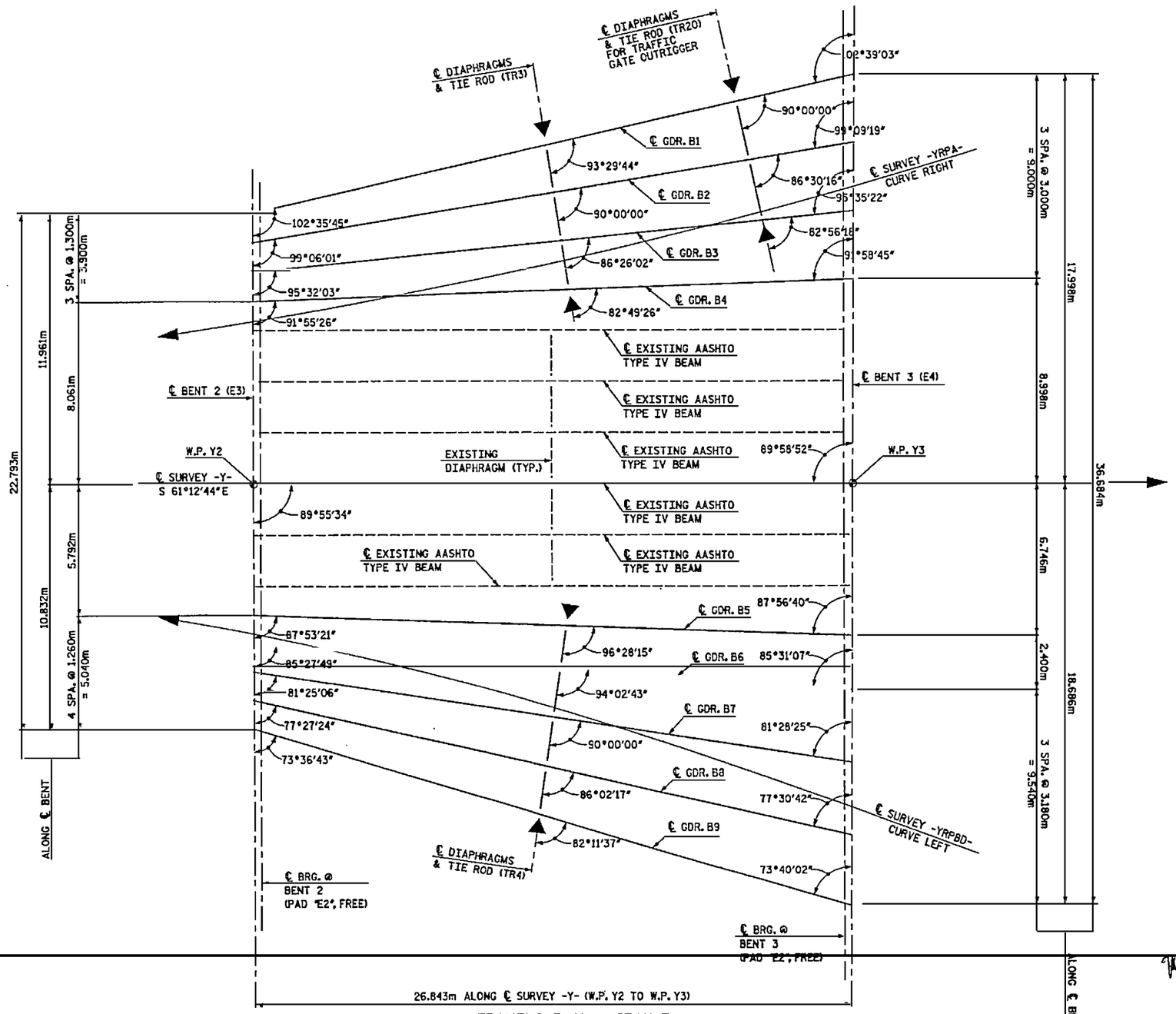
HNTB NORTH CAROLINA, P.C.
345 E. Six Forks Rd. Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY N. GREENLEE DATE 7/00
DWG. NO. 42

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-42
1			3			TOTAL SHEETS
2			4			1011

SEAL 12916 NORTH CAROLINA PROFESSIONAL ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER PAUL J. BARBER



FRAMING PLAN - SPAN B

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

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.

METRIC

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

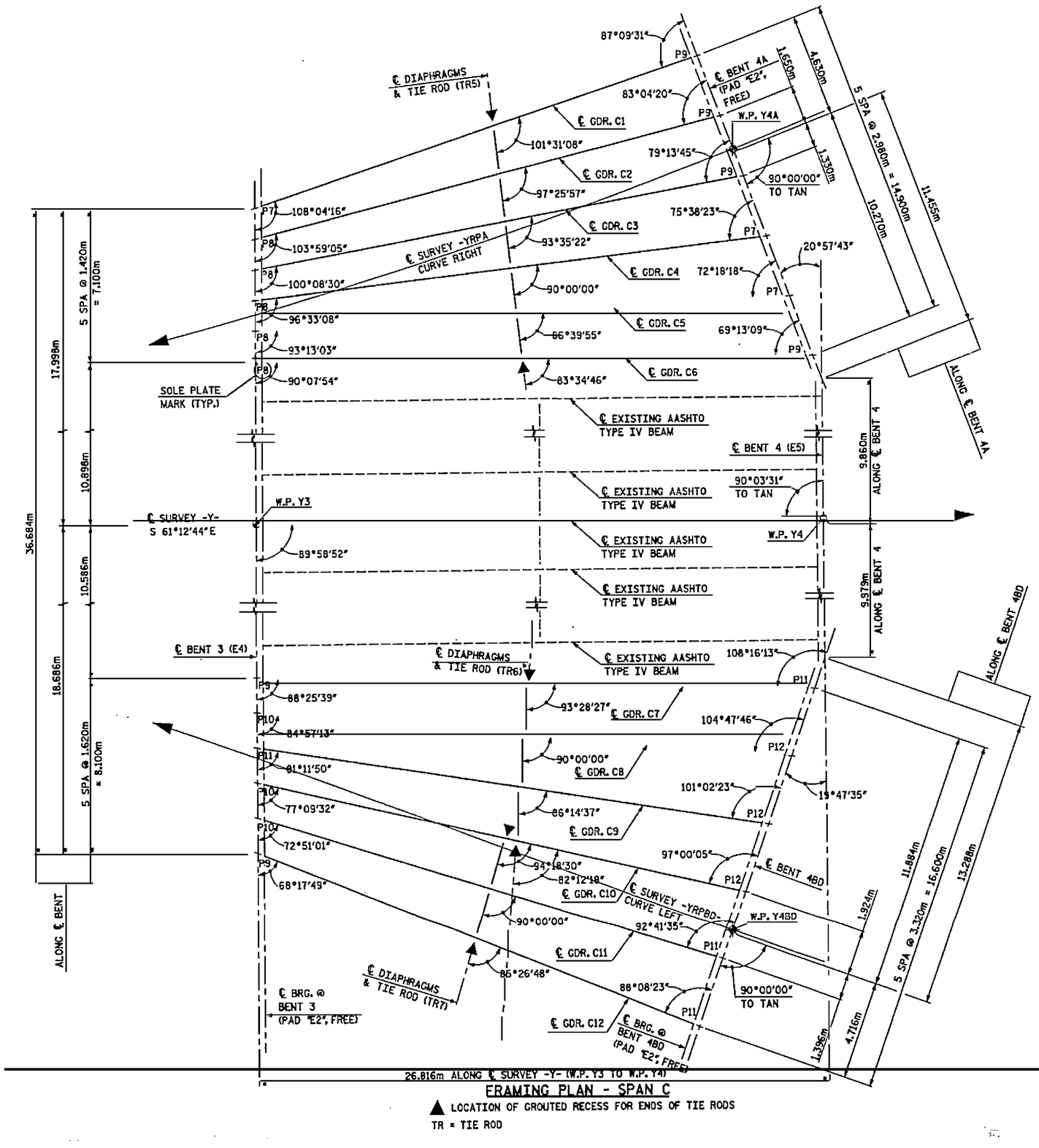
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19335 NEIL T. GREENLEE 10/00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 42916 PAUL J. BARBER 10/00

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. 43

REVISIONS						SHEET NO. 3-43
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS 1611
1			3			
2			4			



FRAMING PLAN - SPAN C

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS

TR = TIE ROD

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.

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL NEIL T. GREENLEE 10/17/00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

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

NOTES:

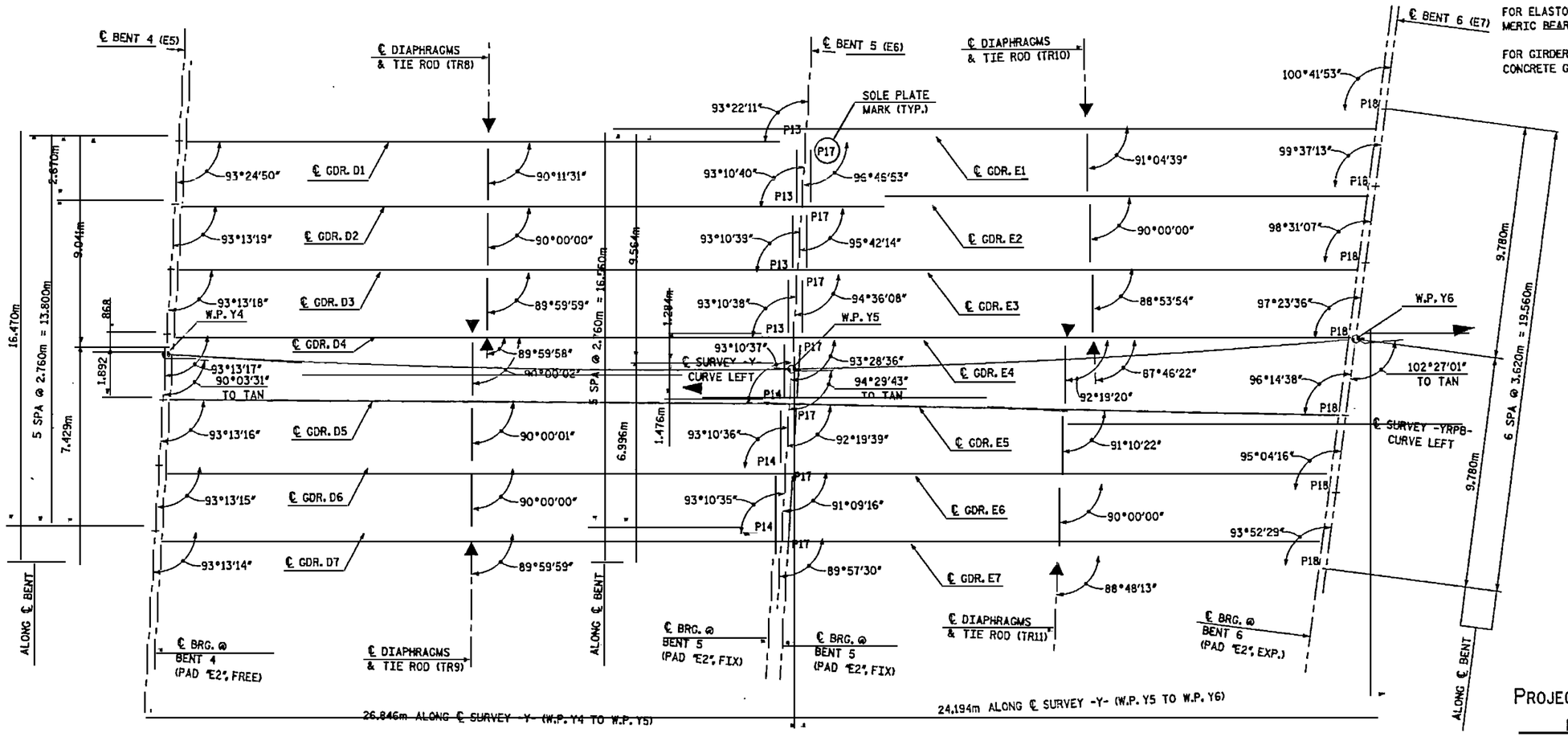
SOLE PLATES NOT REQUIRED FOR SPAN D GIRDERS AT BENT 4. EMBEDDED PLATES IN ENDS OF GIRDERS SHALL BE ORIENTED AS NECESSARY TO PRODUCE A LEVEL INTERFACE WITH ELASTOMETRIC BEARING PADS. SEE "1372mm PRESTRESSED CONCRETE GIRDER DETAILS" SHEET FOR MORE INFORMATION.

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

FOR DIAPHRAGM DETAILS, SEE "TYPICAL SECTION SPAN 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.



SPAN D

SPAN E

FRAMING PLAN - SPANS D & E

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS.

TR = TIE ROD

METRIC

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 D & E

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. 45

REVISIONS						SHEET NO. S-45
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS (61)
1			3			
2			4			

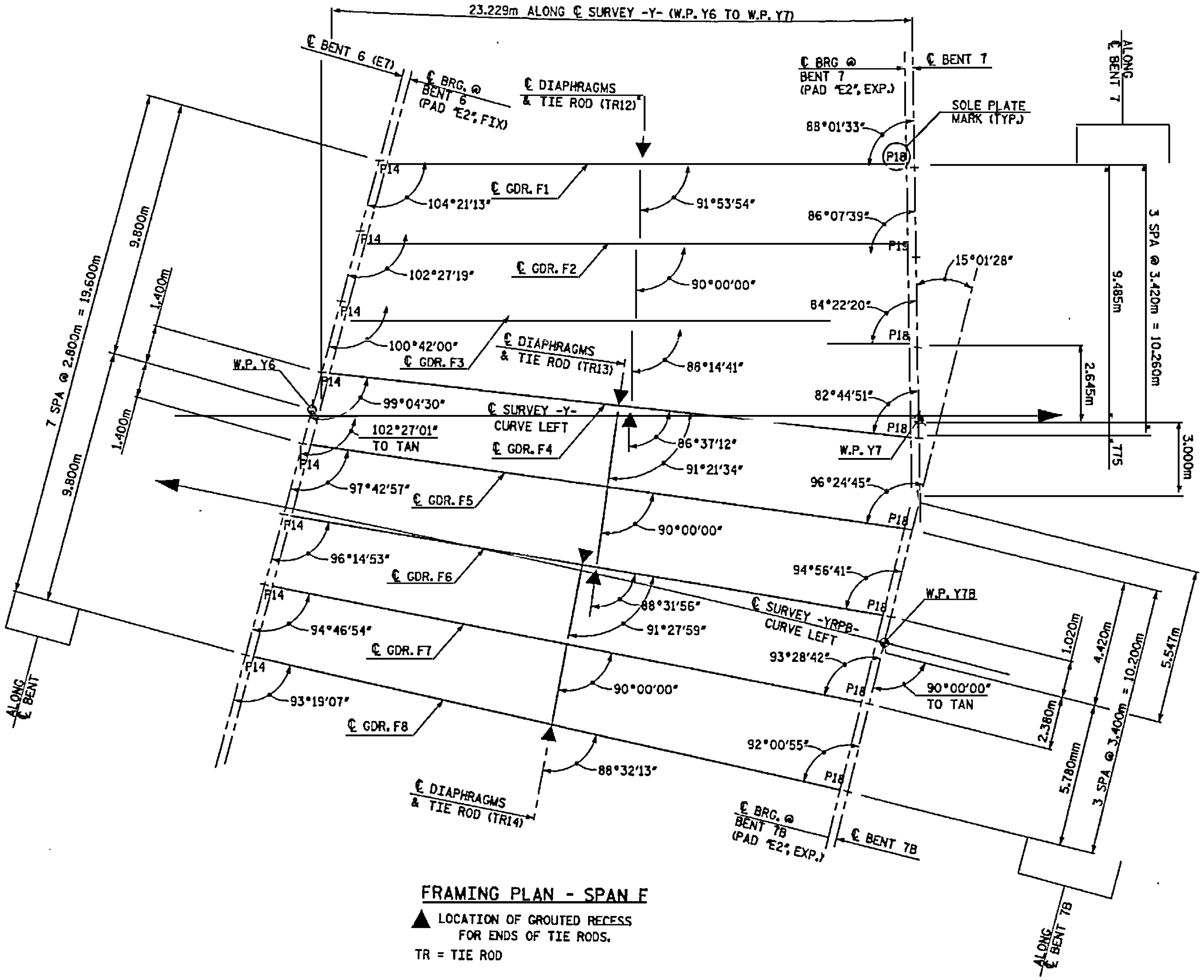
NOTES:

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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 — PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN
SPAN F

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. 46

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

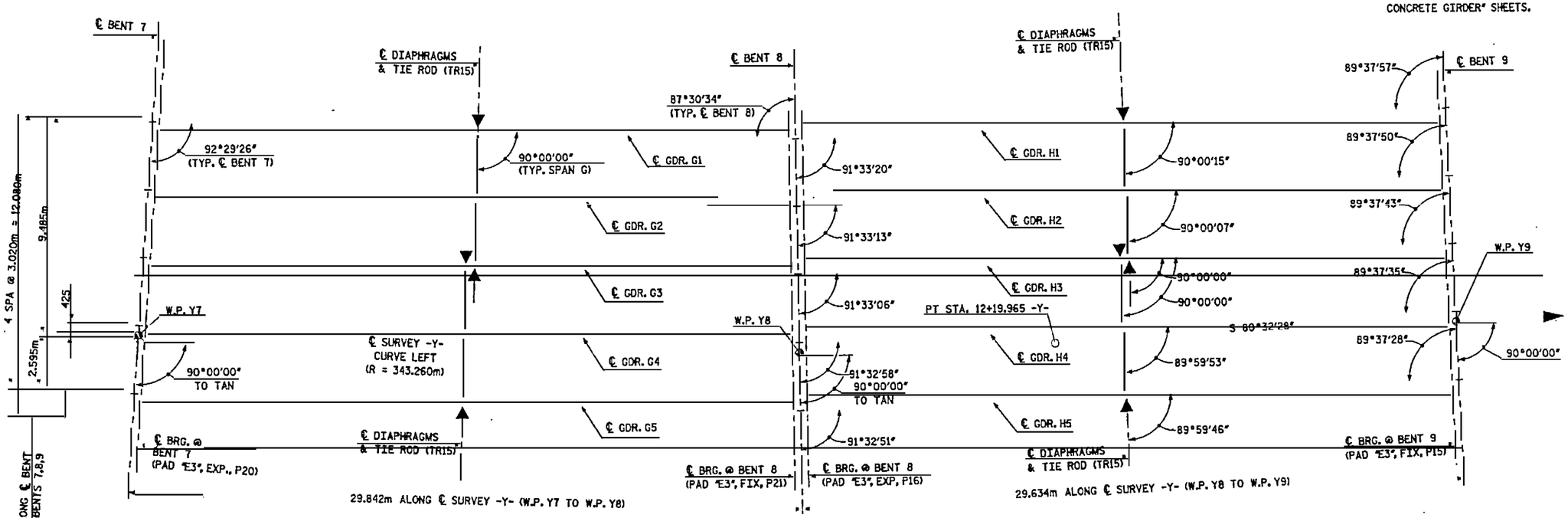
NOTES:

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.



SPAN G

SPAN H

FRAMING PLAN - SPANS G & H

▲ LOCATION OF GROUTED RECESS FOR ENDS OF TIE RODS.

TR = TIE ROD

P21 = SOLE PLATE MARK (TYP.)

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13333 NEIL T. GREENLEE 10/12/00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12396 PAUL J. BARBER 10/12/00

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. 47

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

FRAMING PLAN
SPANS G & H

REVISIONS						SHEET NO. S-47
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			1011
2			4			

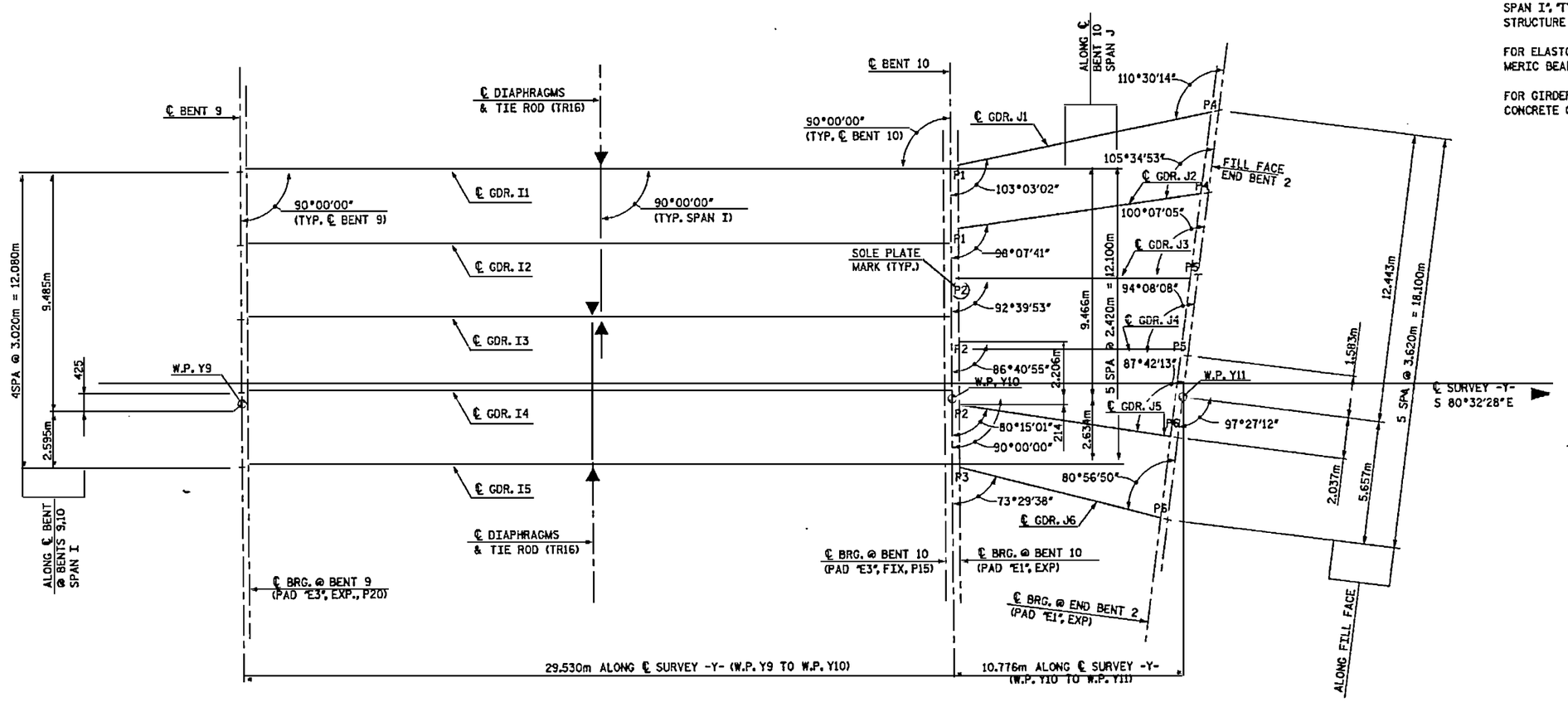
NOTES:

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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

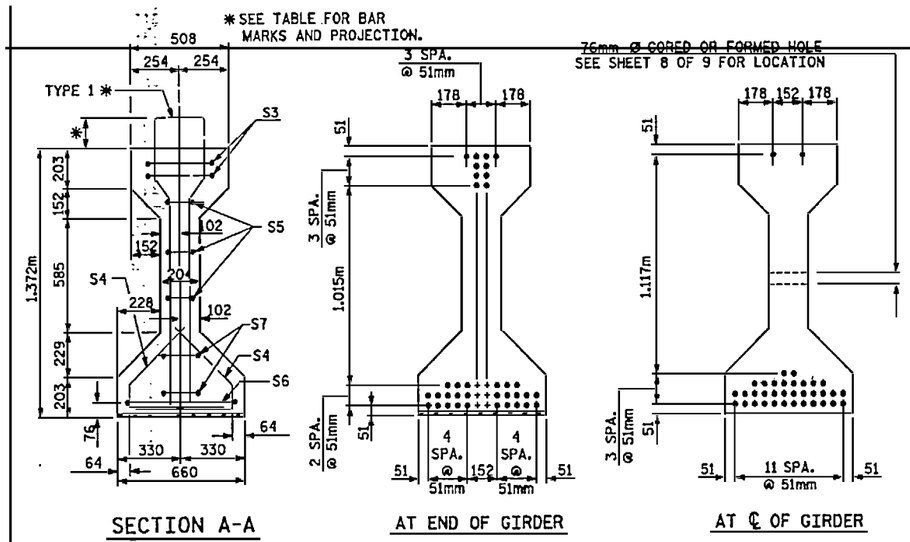
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

FRAMING PLAN
SPANS I & J

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

DRAWN BY M. WRIGHT DATE 10/98
CHECKED BY N. GREENLEE DATE 7/00
DWG. NO. 48

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-46
1			3			TOTAL SHEETS
2			4			1611



SECTION A-A

AT END OF GIRDER

AT ℄ OF GIRDER

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 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 130 kN AT EACH HOLD DOWN POINT.

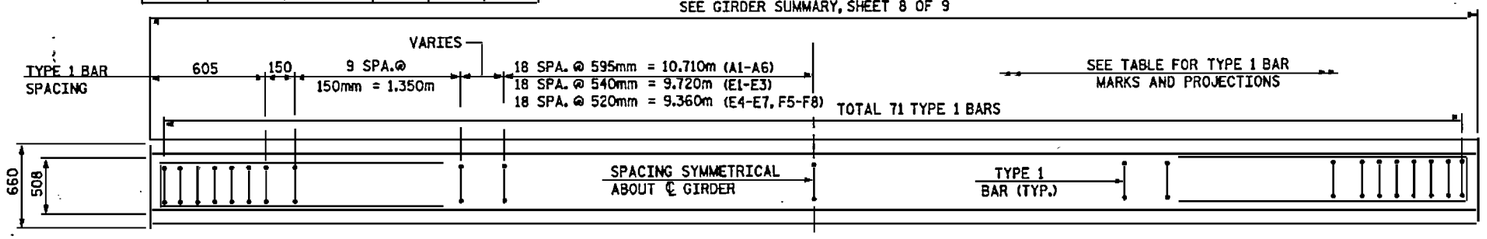
12.70mm Ø L.R. GRADE 270 STRANDS		
AREA (mm^2)	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
98.71	183.7	137.8

REINFORCING STEEL FOR ONE GIRDER

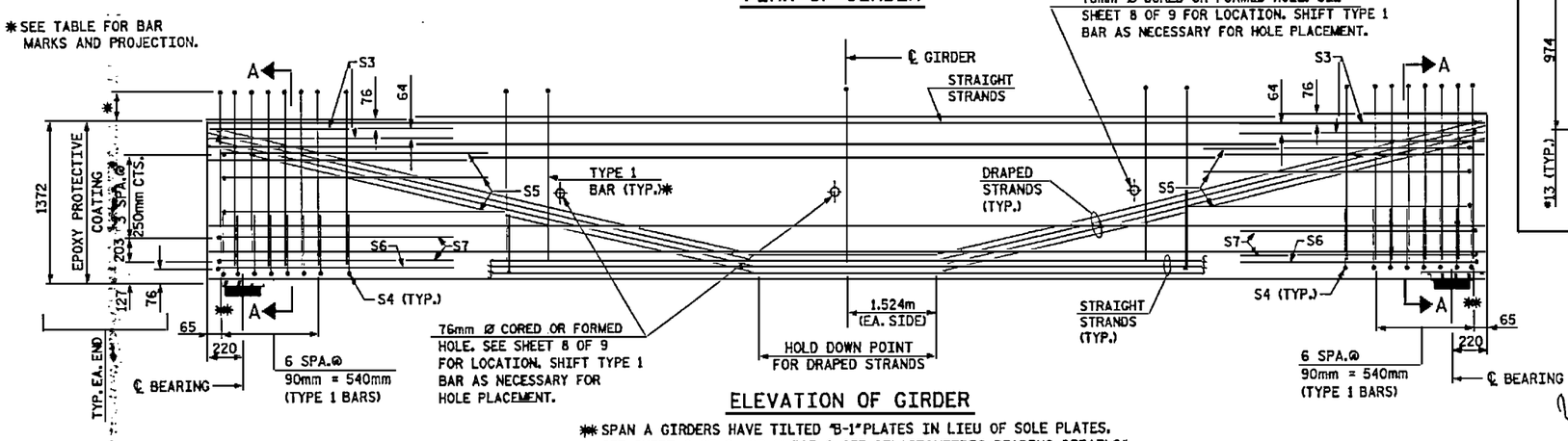
GIRDERS	BAR	NUMBER	SIZE	TYPE	"A" DIM (mm)	LENGTH (mm)	WEIGHT (kg)
A1-A6	S1	27	#13	1	363	3,220	86
	S2	30	#13	1	373	3,240	97
	S8	14	#19	1	297	3,240	101
E1-E7	S1	27	#13	1	373	3,240	87
	S2	20	#13	1	413	3,320	66
	S8	7	#13	1	443	3,380	24
	S9	10	#19	1	337	3,320	74
	S10	7	#19	1	367	3,380	53
F5-F8	S1	57	#13	1	383	3,260	185
	S2	14	#19	1	307	3,260	102
	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

TYPE 1 BAR MARKS & PROJECTIONS						
GIRDER	STATIONS AHEAD →					
	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



PLAN OF GIRDER

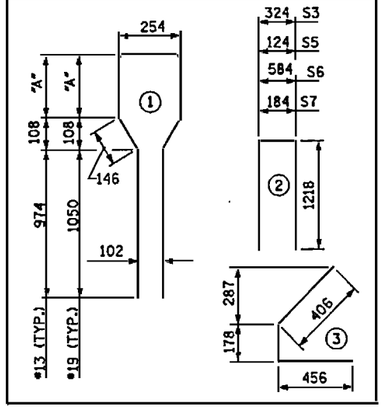


ELEVATION OF GIRDER

* 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.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m^3)	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

METRIC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 1372mm PRESTRESSED CONCRETE GIRDER SPANS A & E SPAN F (F5-F8)

ASSEMBLED BY : M. WRIGHT	DATE : 7/00
CHECKED BY : N. GREENLEE	DATE : 7/00
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

NEIL T. GREENLEE — SEAL 19313 — ENGINEER

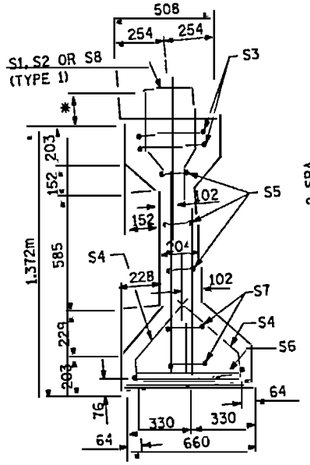
PAUL J. BARBER — SEAL 12396 — ENGINEER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			101

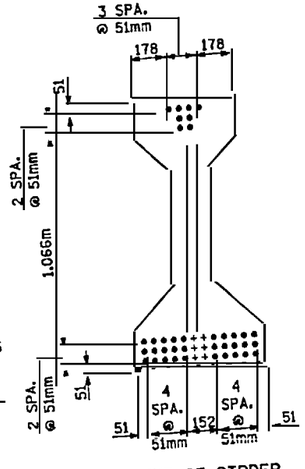
DWG. NO. 49

STD. NO. PCG3SM

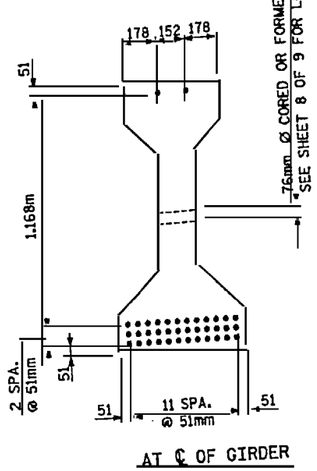
FOR PROJECT



SECTION A-A



AT END OF GIRDER



AT ℄ OF GIRDER

~~12.70mm~~ Ø LOW RELAXATION STRAND LAYOUT

TIE ROD ASSEMBLIES SHALL BE AASHTO M270 GRADE 250 STRUCTURAL

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.

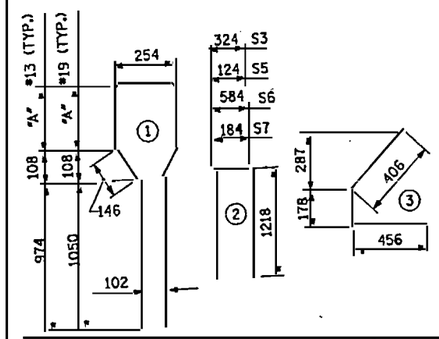
PRESTRESSED CONCRETE GIRDERS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. SEE SPECIAL PROVISIONS.

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

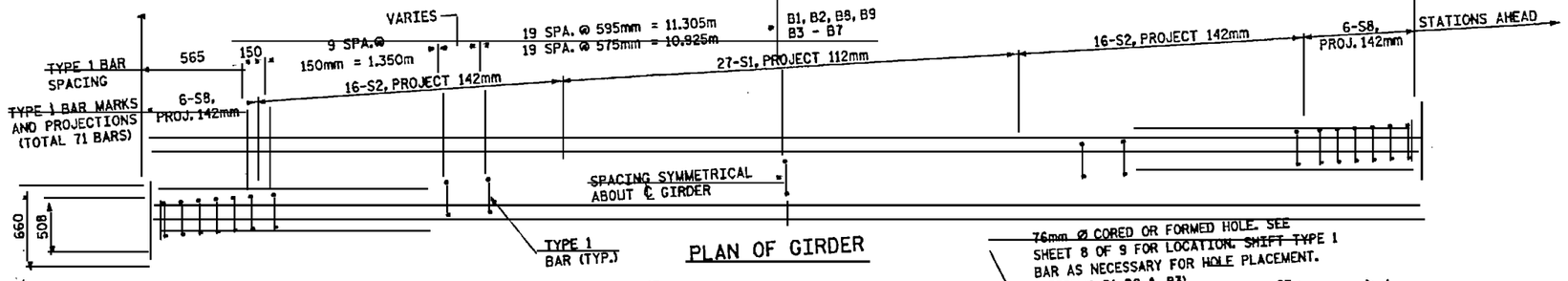
GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m^3)	12.70mm Ø L.R. STRANDS No.
~~B1~~	~~383~~	~~13.9~~	~~38~~
~~B2~~	~~383~~	~~13.8~~	~~38~~
~~B3~~	~~383~~	~~13.7~~	~~38~~
~~B4~~	~~383~~	~~13.6~~	~~38~~
~~B5~~	~~383~~	~~13.6~~	~~38~~
~~B6~~	~~383~~	~~13.6~~	~~38~~
~~B7~~	~~383~~	~~13.7~~	~~38~~
~~B8~~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

GIRDERS REQUIRED

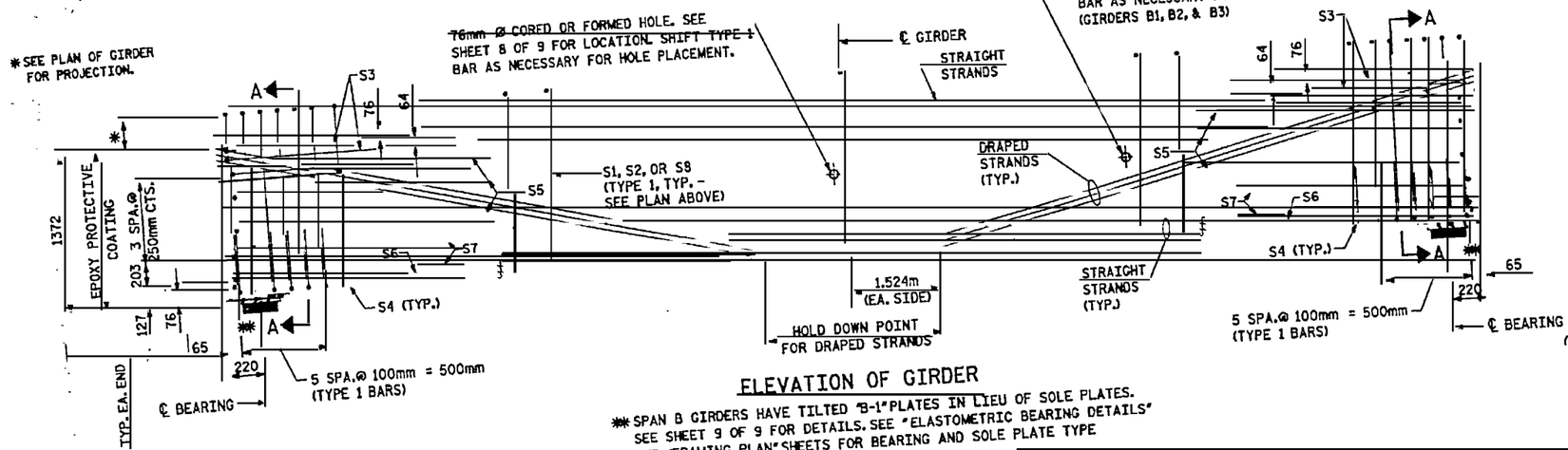
GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
~~B1-B9~~	1 EA.	⊕	~~245.418~~

⊕ SEE SHEET 8 OF 9

SEE GIRDER SUMMARY, SHEET 8 OF 9



PLAN OF GIRDER



ELEVATION OF GIRDER

** SPAN B 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.

METRIC

PROJECT NO. 11-0092A

NEW HANOVER COUNTY

STATION: ~~PGT~~ 12+52.890 -Y-

~~SHEET 2 OF 9~~

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

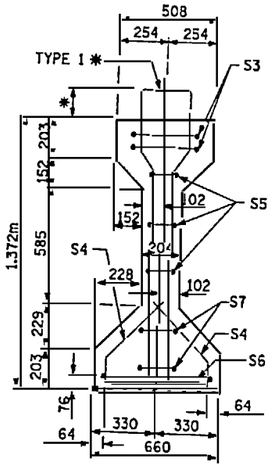
STANDARD 1372mm PRESTRESSED CONCRETE GIRDER SPAN B

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

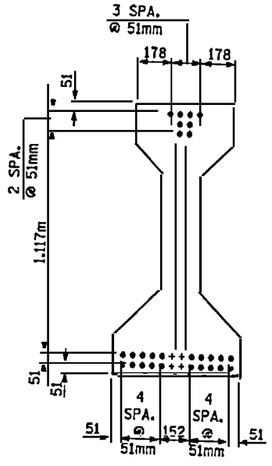
DWG. NO. 50

STD. NO. PCG3SM

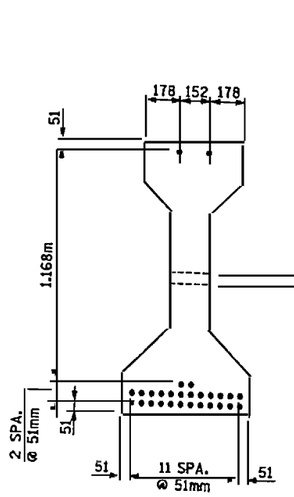
*SEE TABLE FOR BAR MARKS AND PROJECTION.



SECTION A-A



AT END OF GIRDER

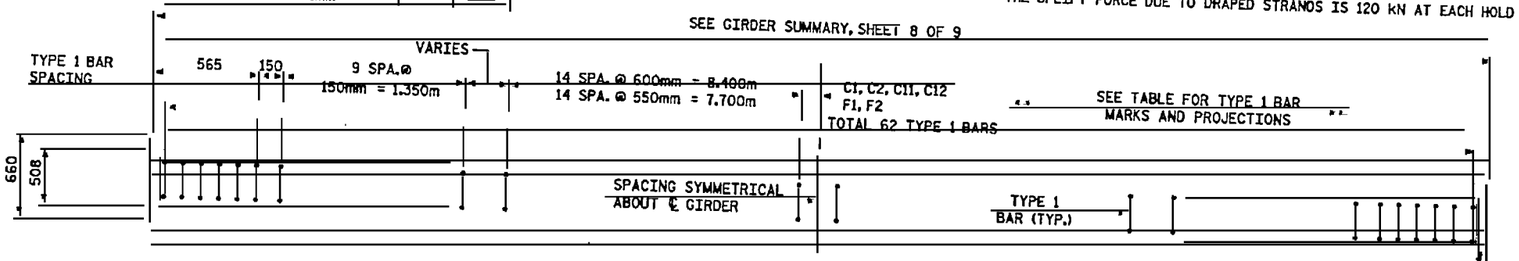


AT ℄ OF GIRDER

12.70mm Ø LOW RELAXATION STRAND LAYOUT

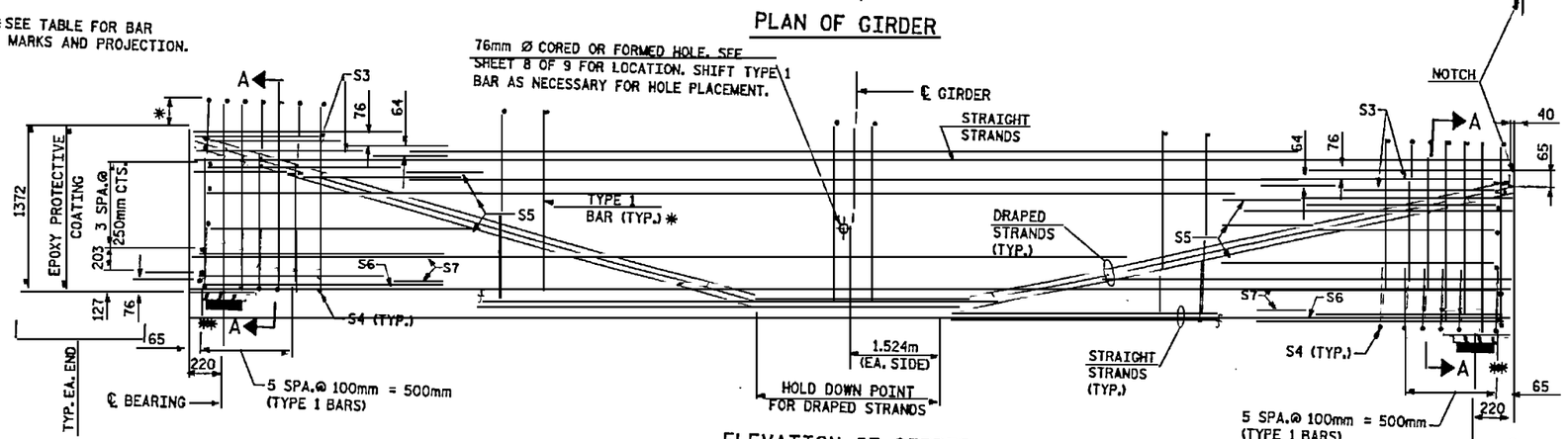
TYPE 1 BAR MARKS & PROJECTIONS

GIRDER	STATIONS AHEAD → GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5
C1-C2	6-S9	18-S2	18-S1	14-S8	6-S10
	192mm		162mm	182mm	
C11,C12 F1,F2	6-S2	50-S1	6-S2	—	—
	152mm			—	—



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.

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 120 kN AT EACH HOLD DOWN POINT.

12.70mm Ø L. R. GRADE 270 STRANDS

AREA (mm^2)	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	59
	S2	18	#13	1	423	3,340	60
	S8	14	#13	1	413	3,320	46
	S9	6	#19	1	347	3,340	45
	S10	6	#19	1	337	3,320	45
C11,C12 F1,F2	S1	50	#13	1	383	3,260	162
	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^3)	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

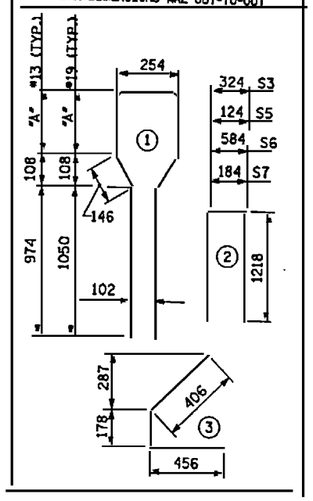
GIRDERS REQUIRED

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



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

STANDARD
1372mm PRESTRESSED CONCRETE GIRDER
SPAN C (C1, C2, C11, C12)
SPAN F (F1, F2)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS
2			4			10

STD. NO. PCG3SM

DWG. NO. 51

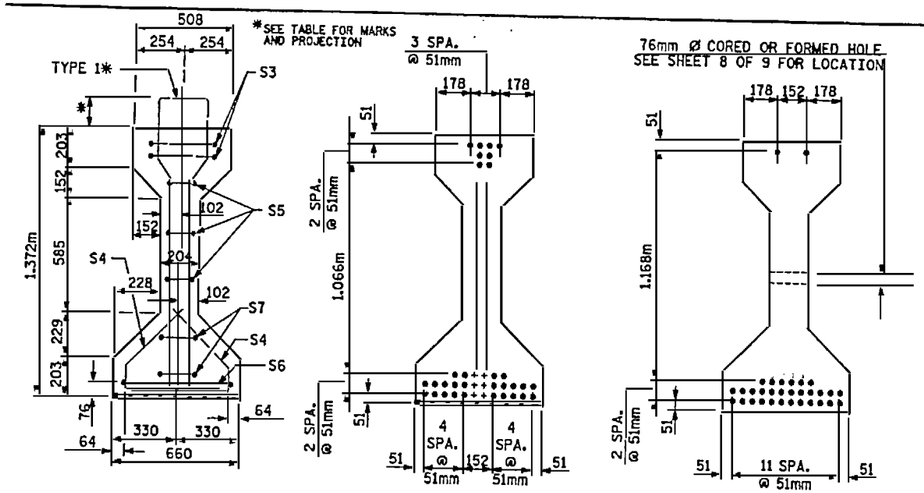
ASSEMBLED BY : M. WRIGHT DATE : 7/00
CHECKED BY : N. GREENLEE DATE : 7/00

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

METRIC

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12946 NEIL T. GREENLEE ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12946 PAUL J. BARBER ENGINEER



SECTION A-A

AT END OF GIRDER

AT ℄ 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	GRP. 6	GRP. 7
C3,C4	6-S9	15-S8	9-S2	8-S1	9-S2	15-S8	6-S9
	182mm		132mm	102mm	132mm	182mm	
C5	6-S8	15-S2	17-S1	24-S2	6-S8	—	—
	182mm		132mm	182mm		—	—
C6	6-S2	56-S1	6-S2	—	—	—	—
	182mm			—	—	—	—
C7	6-S8	10-S2	36-S1	10-S2	6-S8	—	—
	132mm		102mm	132mm		—	—

GIRDER	STATIONS AHEAD → GRP. 1	GRP. 2	GRP. 3	GRP. 4	GRP. 5
C8	6-S8	24-S2	8-S1	24-S2	6-S8
	132mm		102mm	132mm	
C9	6-S2	56-S1	6-S2	—	—
	162mm			—	—
C10, F3,F4	6-S2	56-S1	6-S2	—	—
	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^2)	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)
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

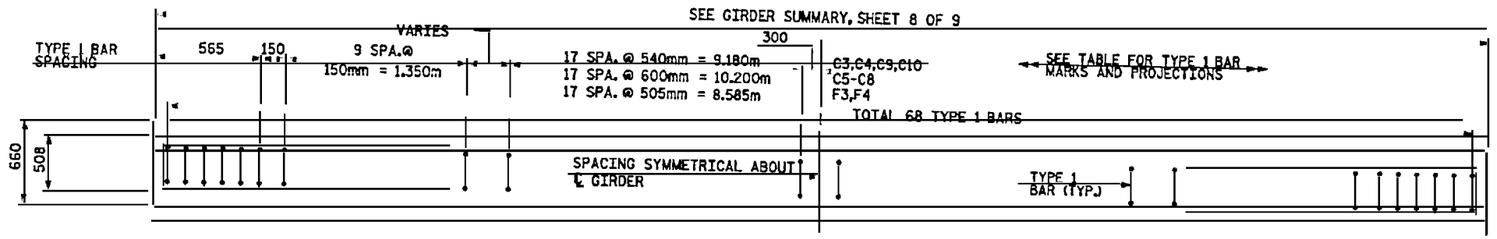
GIRDER QUANTITIES

GIRDER	REINFORCING STEEL (kg)	41.4 MPa CONCRETE (m^3)	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

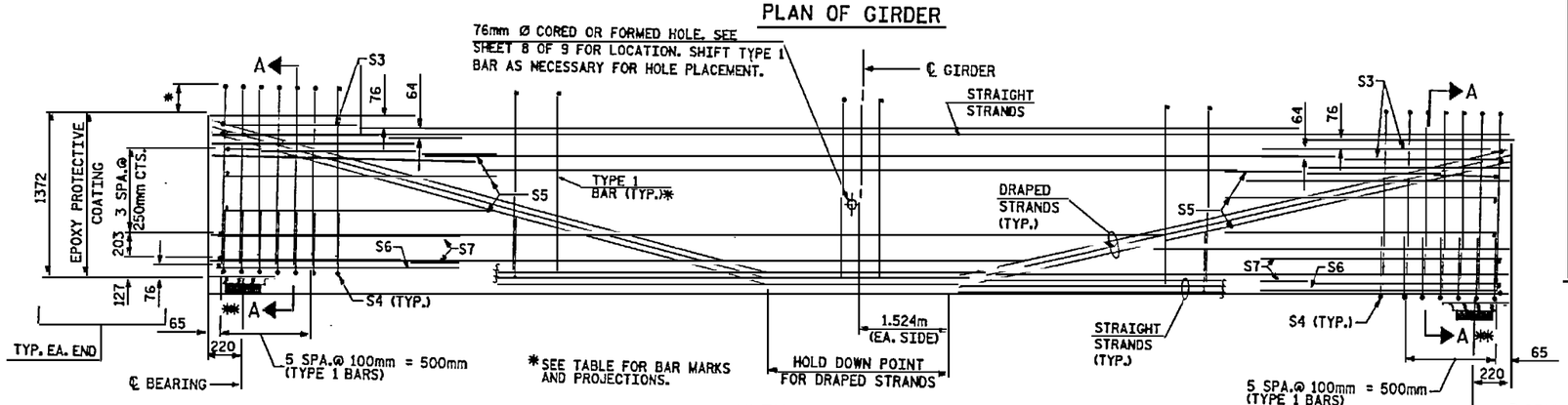
GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
C3-C10	1 EA.	⊕	197.790
F3,F4	1 EA.	⊕	44.888

⊕ SEE SHEET 8 OF 9



PLAN OF GIRDER



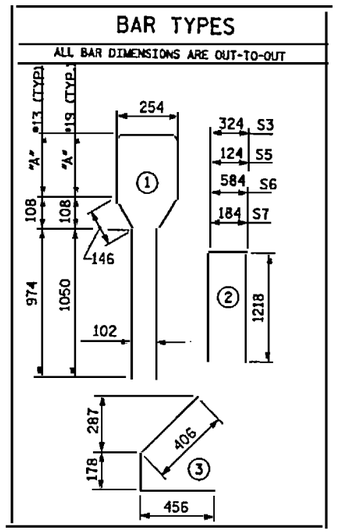
*SEE TABLE FOR BAR MARKS AND PROJECTIONS.

ELEVATION OF GIRDER

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

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



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

STANDARD 1372mm PRESTRESSED CONCRETE GIRDER SPAN C (C3-C10) SPAN F (F3, F4)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8-S2
1			3			TOTAL SHEETS
2			4			1 of 1

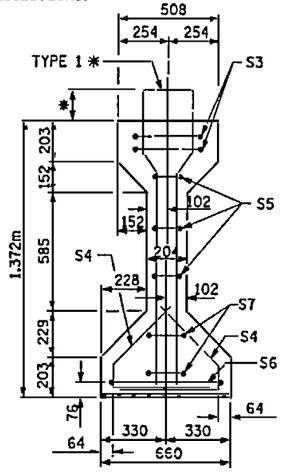
ASSEMBLED BY :	M. WRIGHT	DATE : 7/00
CHECKED BY :	N. GREENLEE	DATE : 7/00
DRAWN BY : JWB	10/87	REV. 5/16/97 EEW/RGW
CHECKED BY : GRP	10/87	REV. 7/17/98 RWW/LES
		REV. 8/18/99 RWW/LES

METRIC

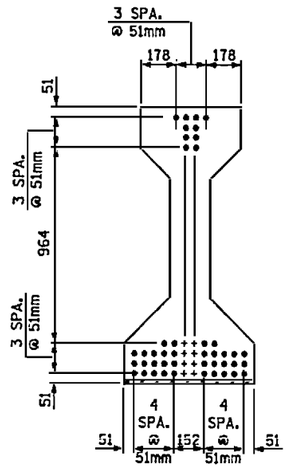
DWG. NO. 52

STD. NO. PCG3SM

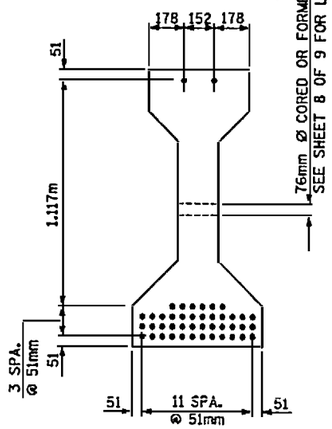
*SEE PLAN OF GIRDER FOR BAR MARKS AND PROJECTIONS.



SECTION A-A



AT END OF GIRDER



AT ℄ OF GIRDER

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^2)	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" DIM. (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

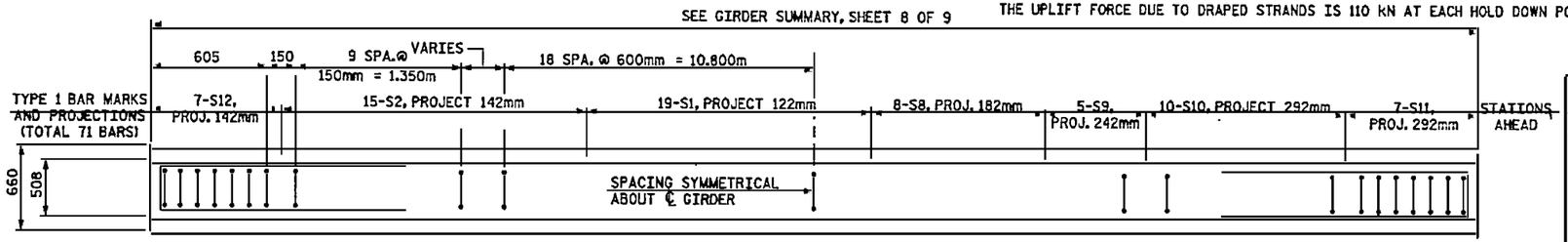
GIRDER	REINFORCING STEEL (kg)	48.3 MPa CONCRETE (m^3)	12.70mm Ø L.R. STRANDS No.
D1	404	13.6	44
D2	404	13.6	44
D3	404	13.6	44
D4	404	13.6	44
D5	404	13.6	44
D6	404	13.6	44
D7	404	13.6	44

GIRDERS REQUIRED

GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
D1-D7	1 EA.	⊕	187.032

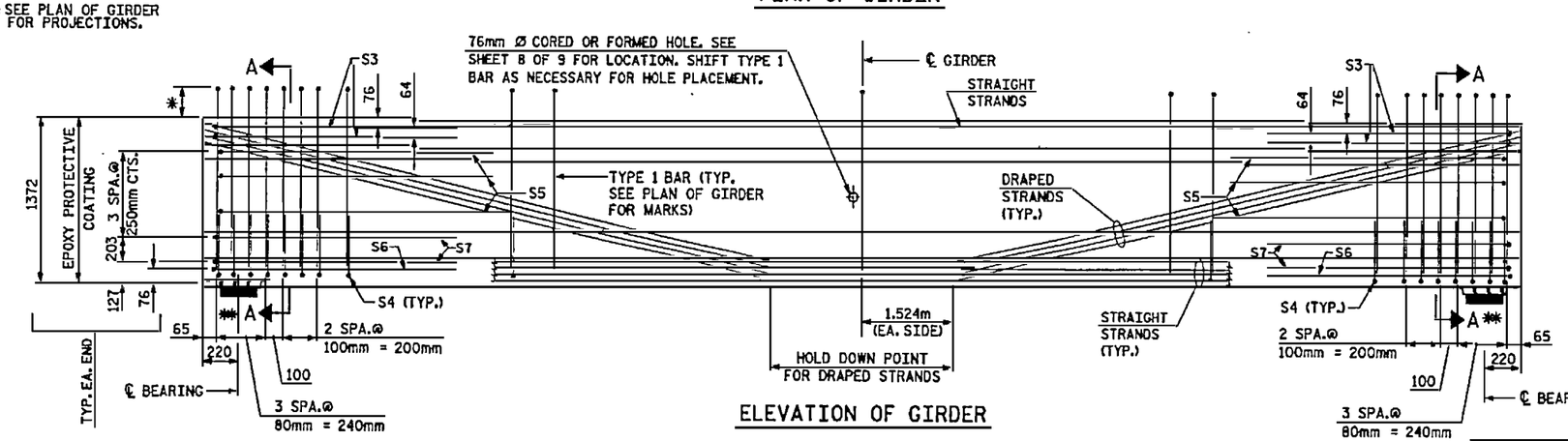
⊕ SEE SHEET 8 OF 9

SEE GIRDER SUMMARY, SHEET 8 OF 9



PLAN OF GIRDER

*SEE PLAN OF GIRDER FOR PROJECTIONS.

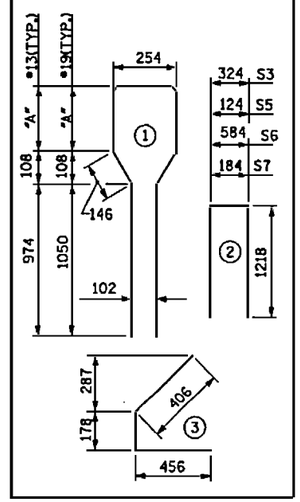


ELEVATION OF GIRDER

** 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.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



ASSEMBLED BY : M. WRIGHT	DATE : 2/00
CHECKED BY : DWH/NTG	DATE : 5/00
DRAWN BY : JMB 10/87	REV. 5/15/97 EEW/RGW
CHECKED BY : GRP 10/87	REV. 7/17/98 RWW/LES
	REV. 8/16/99 RWW/LES

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 5 OF 9

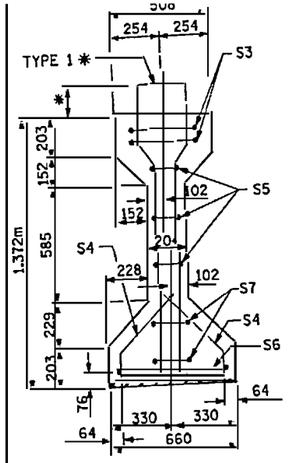
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
1372mm PRESTRESSED CONCRETE GIRDER
SPAN D

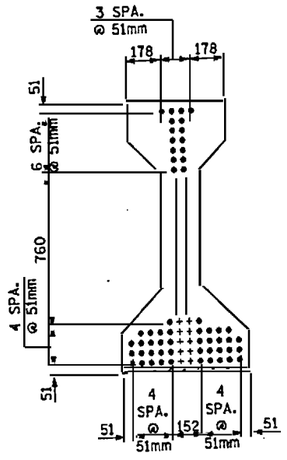
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			101

DWG. NO. 53

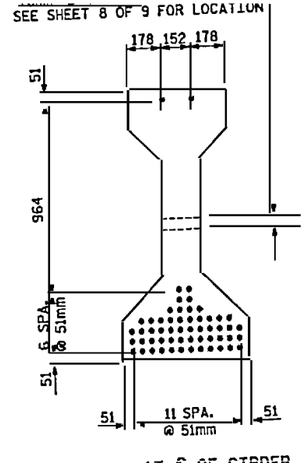
STD. NO. PCG3SM



SECTION A-A



AT END OF GIRDER



AT ℄ 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	A-S8	21-S2	20-S1	21-S2	B-S8
	142mm		112mm	142mm	
G5	A-S8	26-S2	10-S1	26-S2	B-S8
	172mm		122mm	172mm	
H1-H5	A-S2	62-S1	B-S2	—	—
	152mm			—	—
I1-I5	A-S8	26-S2	10-S1	26-S2	B-S8
	152mm		122mm	152mm	

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 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	"A" 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
	S8	16	#19	1	327	3,300	118
H1-H5	S1	62	#13	1	383	3,260	201
	S2	16	#19	1	307	3,260	117
I1-I5	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

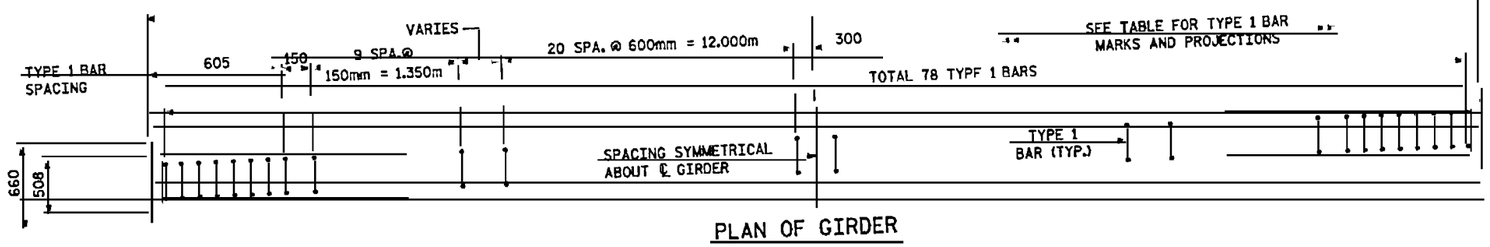
GIRDER	REINFORCING STEEL (kg)	55.2 MPa CONCRETE (m^3)	12.70mm Ø L.R. STRANDS No.
G1	430	14.7	56
G2	430	14.8	56
G3	430	15.0	56
G4	430	15.1	56
G5	437	15.2	56
H1	434	14.9	56
H2	434	14.9	56
H3	434	15.0	56
H4	434	15.0	56
H5	434	15.1	56
I1	434	15.0	56
I2	434	15.0	56
I3	434	15.0	56
I4	434	15.0	56
I5	434	15.0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

GIRDERS REQUIRED

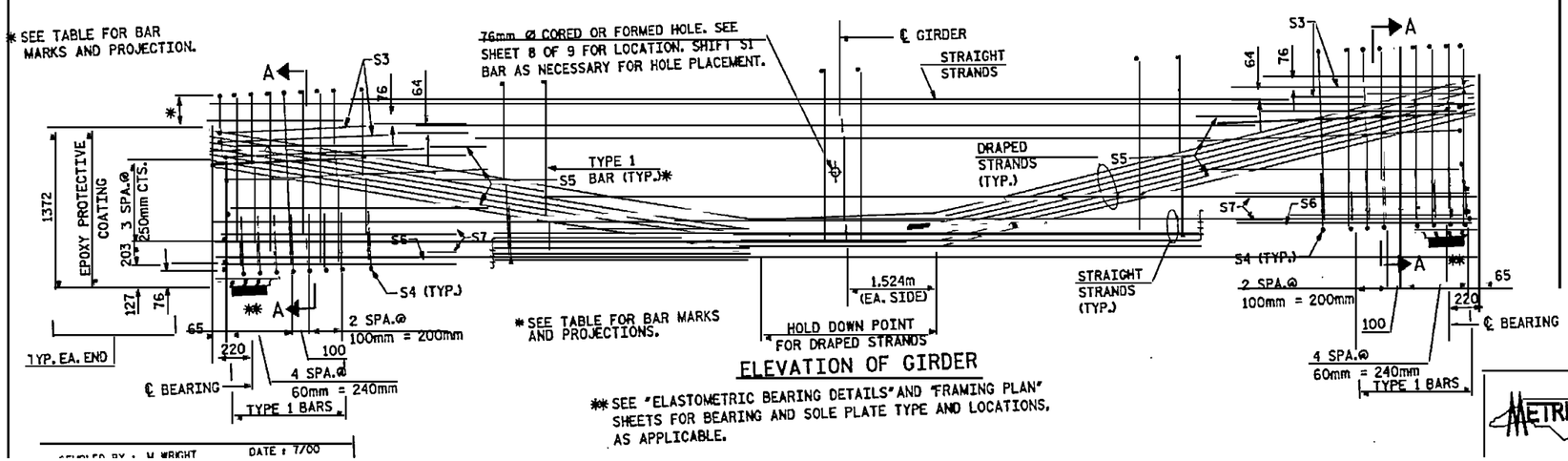
GIRDER	QTY.	LENGTH (m)	TOTAL LENGTH (m)
G1-G5	1 EA.	⊕	147.066
H1-H5	1 EA.	⊕	146.986
I1-I5	1 EA.	⊕	146.850

⊕ SEE SHEET 8 OF 9

SEE GIRDER SUMMARY, SHEET 8 OF 9



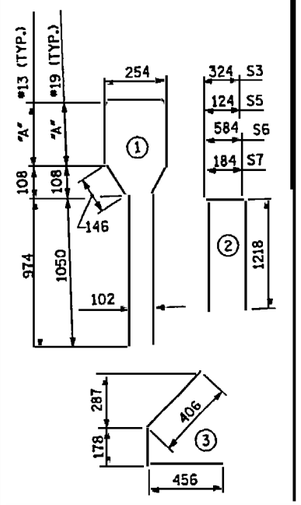
PLAN OF GIRDER



ELEVATION OF GIRDER

BAR TYPES

ALL BAR DIMENSIONS ARE OUT-TO-OUT



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

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

REVISIONS

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

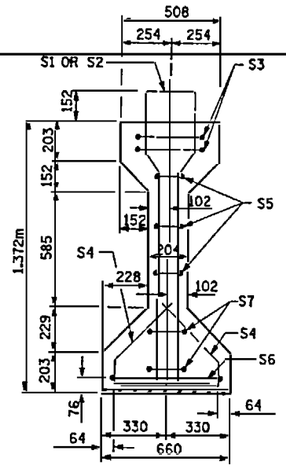
SHEET NO. S-54
TOTAL SHEETS 101

DWG. NO. 54

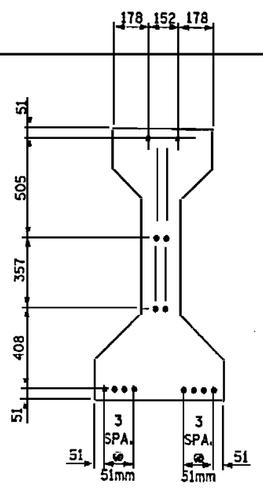
STD. NO. PC63SM

METRIC

DESIGNED BY: M WRIGHT DATE: 7/00



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.

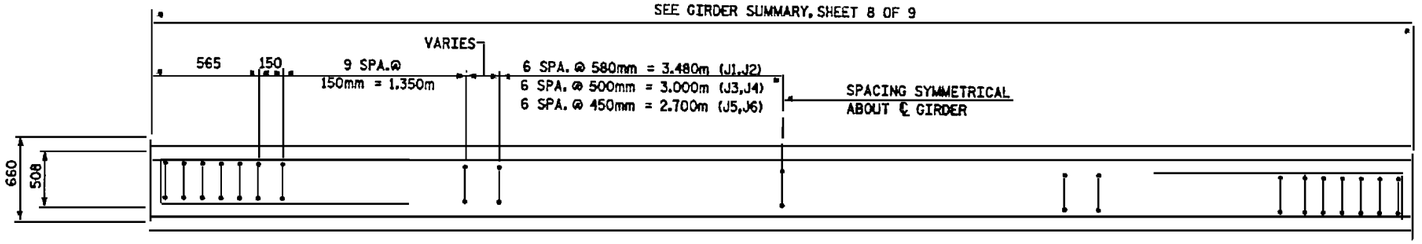
THE TOP SURFACE OF THE GIRDER SHALL BE RAKED TO A DEPTH OF 6mm EXCEPT IN THE AREA BETWEEN THE STIRRUP AND THE EDGE OF THE GIRDER.

~~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.~~

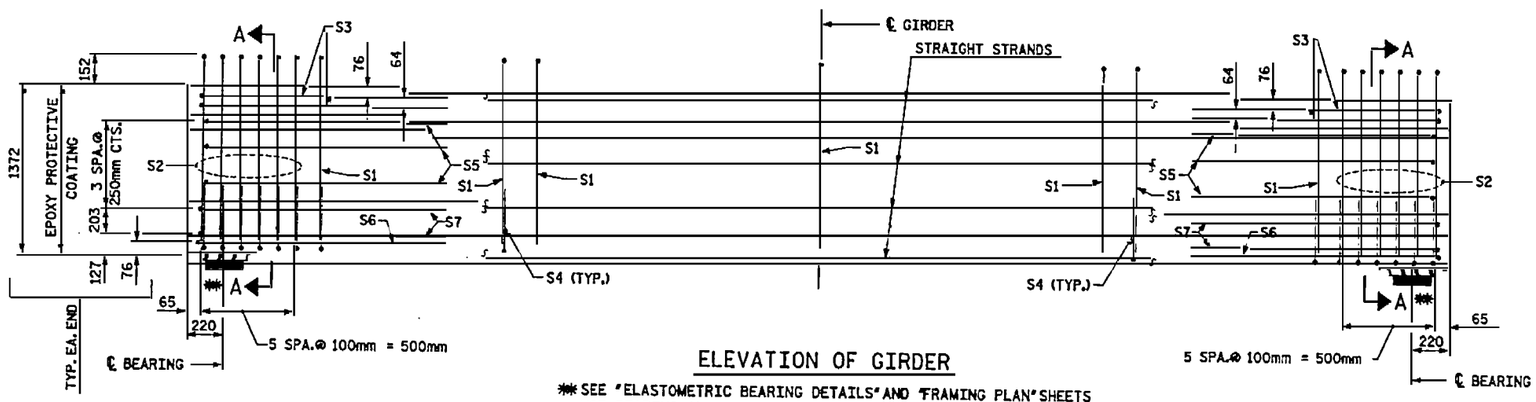
FOR VERTICAL CRACKS IN PRESTRESSED CONCRETE GIRDERS PRIOR TO DETENSIONING, SEE SPECIAL PROVISIONS.

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.



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 : JM3 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	

12.70mm Ø L. R. GRADE 270 STRANDS

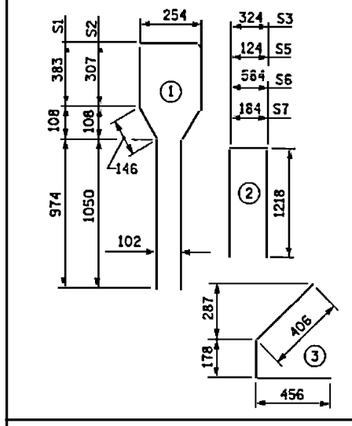
AREA (mm2)	ULTIMATE STRENGTH (kN PER STRAND)	APPLIED PRESTRESS (kN PER STRAND)
98.71	183.7	137.8

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^3)	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

METRIC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
1372mm PRESTRESSED CONCRETE GIRDER
SPAN J

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			1011

DWG. NO. 55

STD. NO. PCG3SM

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19318 NEIL T. GREENLEE

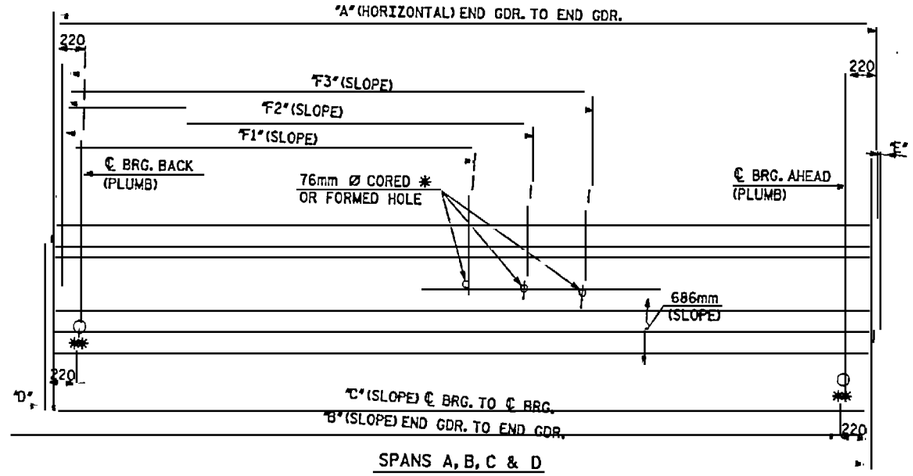
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

GIRDER DIMENSIONS

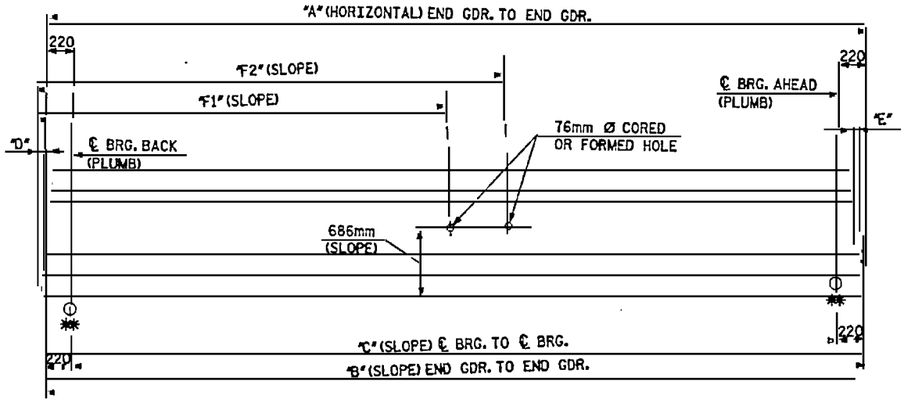
SPAN	GIRDER	"A" (m)	"B" (m)	"C" (m)	"D" (mm)	"E" (mm)	"F1" (m)	"F2" (m)	"F3" (m)
A	A1	26.830	26.842	26.402	33	50	4.194	13.271	23.187
	A2	26.724	26.736	26.295	31	50	4.370	13.368	23.380
	A3	26.670	26.681	26.241	30	50	4.555	13.491	23.620
	A4	26.706	26.717	26.277	29	50	4.341	13.453	23.275
	A5	26.738	26.749	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	27.776	27.790	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	25.162	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	23.384	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	—	—
	I3	29.370	29.371	28.931	28	*	14.486	14.886	—
	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.

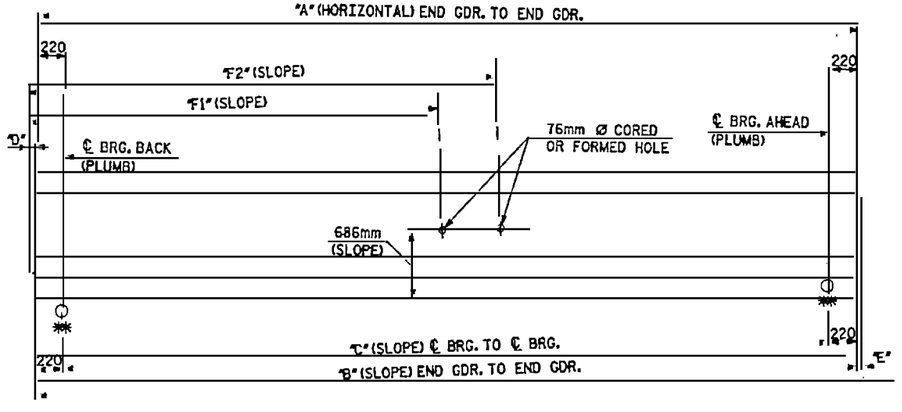
NOTE: VALUES FOR "F1", "F2" & "F3" ARE GIVEN ONLY WHERE HOLES ARE REQUIRED.



SPANS A, B, C & D



SPAN E



SPANS F, G, H, I & J

NOTE: SPAN J GIRDERS HAVE NO CORED OR FORMED HOLES

GIRDER ELEVATION

** 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.

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

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19013 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12996 PAUL J. BARBER

METRIC

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

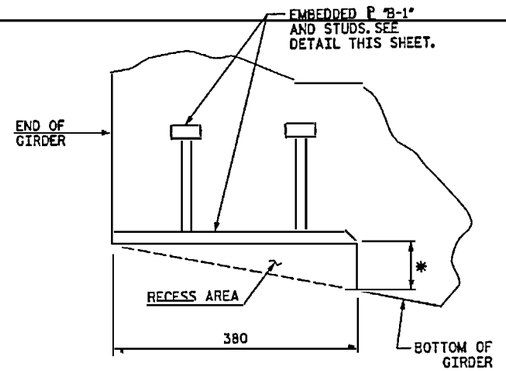
SUPERSTRUCTURE

1372mm PRESTRESSED CONCRETE GIRDER SUMMARY

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			1011

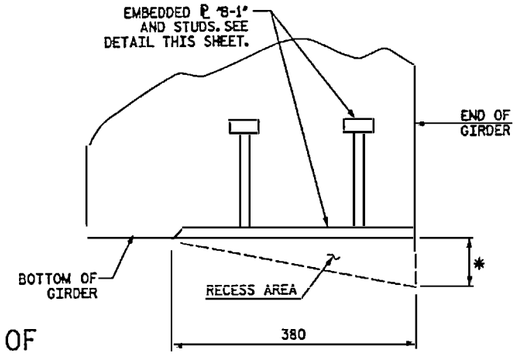
DWG. NO. 56

STD. NO. PCG3SM



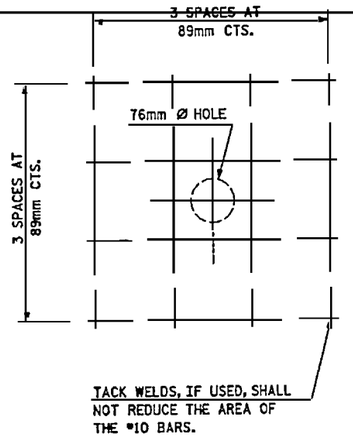
STATIONS AHEAD →

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



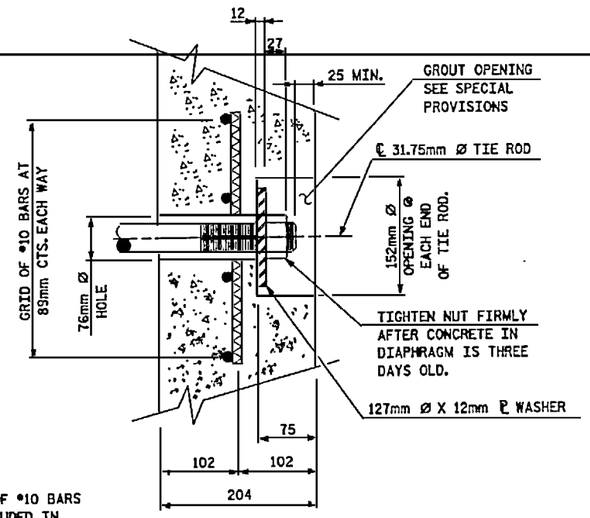
ORIENTATION OF EMBEDDED PLATE "B-1"

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



#10 BAR GRID

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



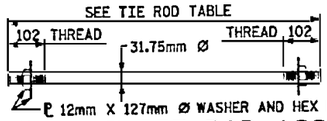
DETAIL "A"

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
	B9	9	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	SOLE PLATE REQ'D
	D2	5	
	D3	0	
	D4	0	
	D5	0	
	D6	0	
	D7	0	

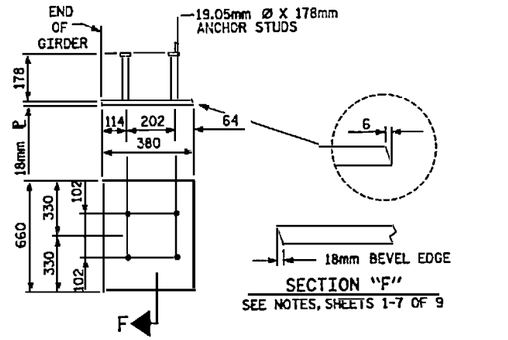
TIE ROD TABLE		
SPAN	MARK	LENGTH (m)
A	TR1	4.160
	TR2	3.600
	TR16	3.380
	TR17	3.190
	TR18	5.040
	TR19	4.060
B	TR3	6.580
	TR4	8.520
	TR20	5.740
C	TR5	11.000
	TR6	7.460
	TR7	5.020
D	TR8	8.380
	TR9	8.420
E	TR10	9.120
	TR11	9.160
F	TR12	9.380
	TR13	6.280
	TR14	6.340
G	TR15	6.180
	TR15	6.180
H	TR15	6.180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

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



31.75mm Ø TIE ROD ASSEMBLY

(25 COMPLETE ASSEMBLIES REQUIRED)



SECTION "F"
SEE NOTES, SHEETS 1-7 OF 9

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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: PGT 12+52.890 -Y-

SHEET 9 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
1372mm PRESTRESSED CONCRETE GIRDER DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	8-57
1			3			TOTAL SHEETS
2			4			101

DWG. NO. 57

STD. NO. PCG3SM

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	

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 "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 "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 "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 "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

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 "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 "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 "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

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

* INCLUDES FUTURE WEARING SURFACE

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19539 NEIL T. GREENE JR.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12586 PAUL J. BARBER

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

DRAWN BY A. ECHEBO DATE 07/00
CHECKED BY D. SPIVEY DATE 07/00
DWG. NO. 58

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
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 "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 "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 "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 "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

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 "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 "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 "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

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

* INCLUDES FUTURE WEARING SURFACE

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19305 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL SEAL 12996 ENGINEER PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

GIRDER CAMBER & DEFLECTIONS

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

DRAWN BY A. ECHERO DATE 07/09
CHECKED BY D. SETVEY DATE 07/09
DWG. NO. 59

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
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 "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 "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 "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 "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

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

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 "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 "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 "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

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

* INCLUDES FUTURE WEARING SURFACE

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GIRDER CAMBER & DEFLECTIONS

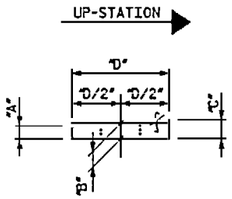
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

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

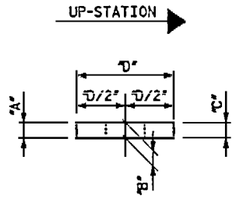
DRAWN BY A. ECHERD DATE 07/00
CHECKED BY D. SHIVEY DATE 07/00
DWG. NO. 60

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. S-60
1			3			TOTAL SHEETS
2			4			1011



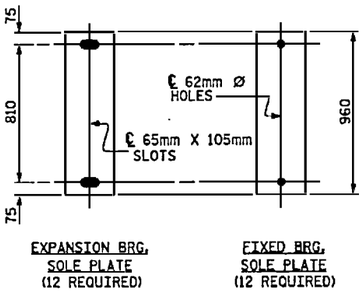
TOTAL EXPANSION: 5 (2-P1, 3-P2)
TOTAL FIXED: 4 (2-P4, 2-P5)

MARK "P" (SEE TABLE)
(BEVELED PLATES)



TOTAL EXPANSION: 1 (1-P3)
TOTAL FIXED: 2 (2-P6)

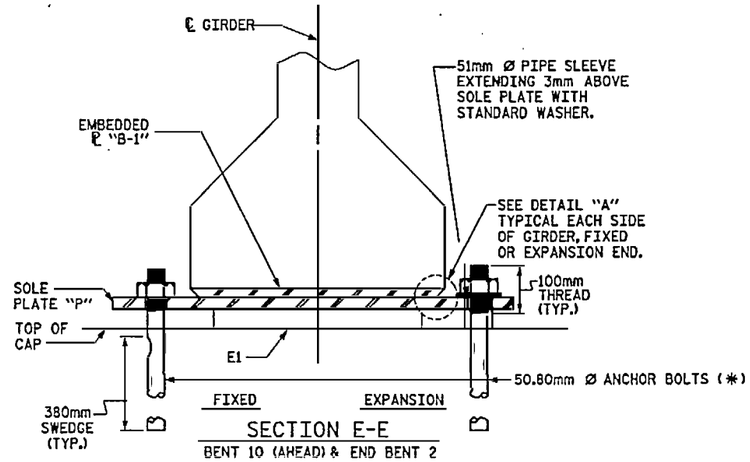
MARK "P" (SEE TABLE)
(FLAT PLATES)



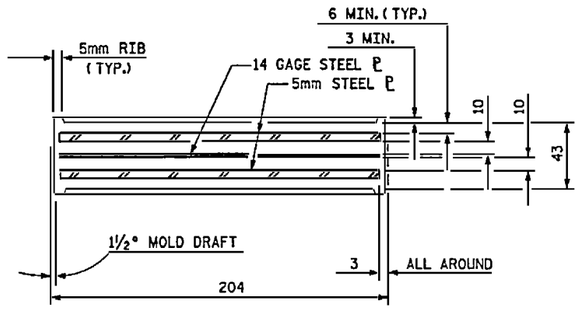
EXPANSION BRG. SOLE PLATE (12 REQUIRED)

FIXED BRG. SOLE PLATE (12 REQUIRED)

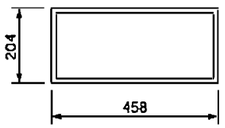
SOLE PLATE DETAILS



SECTION E-E
BENT 10 (AHEAD) & END BENT 2



TYPICAL SECTION OF ELASTOMERIC BEARINGS

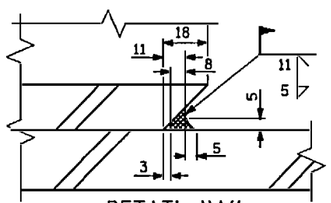


E1 (12 REQ'D)

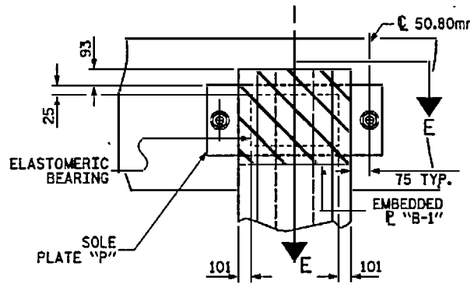
PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

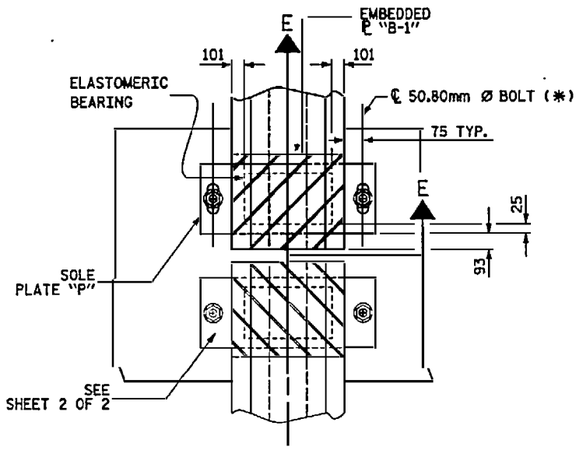
SPAN J



DETAIL "A"



TYPICAL PLAN VIEW
(SHOWING SIMPLE SPAN J, END BENT 2)
(FIXED BRG.)



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

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 ½ 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—	
	MAX. D.L. + L.L.
TYPE III	512 kN

—TABLE OF SOLE PLATE VARIABLES—

BENT	SPAN BACK	SPAN AHEAD	GDRS.	FIX/EXP	"A"	"B"	"C"	"D"	MARK
10	I		—	FIX	SEE SHEET 2 OF 2				
		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.

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	

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

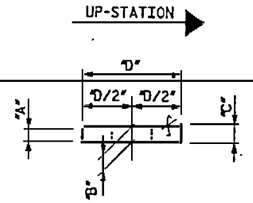
STANDARD ELASTOMERIC BEARING DETAILS

PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS:
2			4			1011

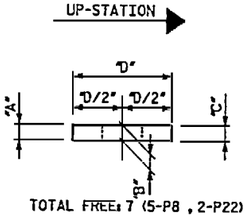
DWG. NO. 61

STD. NO. EB3SM



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)



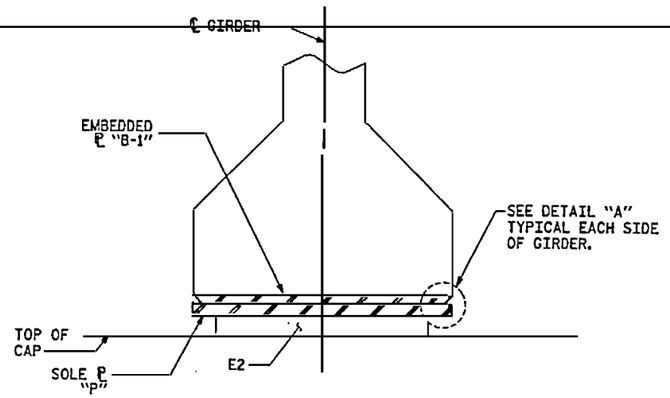
TOTAL FREE: 7 (5-P8 , 2-P22)
TOTAL EXPANSION: 15 (14-P18, 1-P19)
TOTAL FIXED: 22 (10-P15, 7-P17, 5-P21)

MARK "P" (SEE TABLE)
(FLAT PLATES)

— TABLE OF SOLE PLATE VARIABLES —

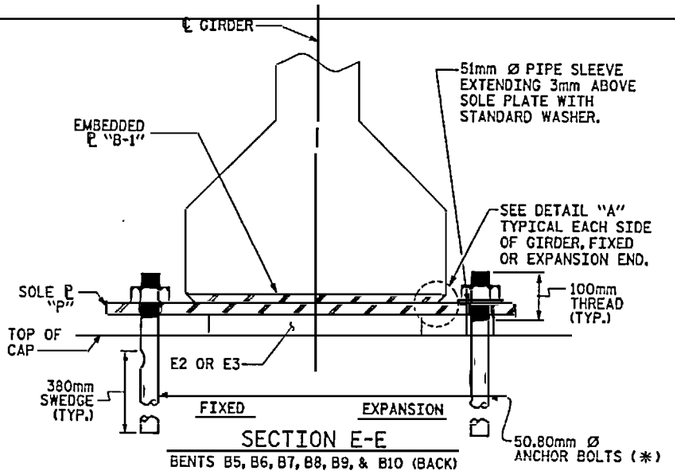
BENT	SPAN BACK	SPAN AHEAD	GDRS.	FIX/EXP/FREE	"A"	"B"	"C"	"D"	MARK
1	EXIST.	—	—	—	—	—	—	—	—
		A	1-6	FREE	SEE "PRESTRESSED CONCRETE GIRDER" SHEETS				
		A	3,4	FREE	12	12	12	280	P22
2	A		1-6	FREE	SEE "PRESTRESSED CONCRETE GIRDER" SHEETS				
		B	1-9	FREE	SEE "PRESTRESSED CONCRETE GIRDER" SHEETS				
3	B		1-9	FREE	SEE "PRESTRESSED CONCRETE GIRDER" SHEETS				
		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
	—	—	—	—	RAMP A STRUCTURE				
4	C		EXIST.	—	—	—	—	—	—
		D	1-7	FREE	SEE "PRESTRESSED CONCRETE GIRDER" SHEETS				
4BD	C		7, 11, 12	FREE	50	45	40	280	P11
			8-10	FREE	50	44	38	280	P12
	—	—	—	—	RAMP BD STRUCTURE				
5	D		1-4	FIX	40	36	32	280	P13
			5-7	FIX	38	35	32	280	P14
		E	1-7	FIX	32	32	32	280	P17
6	E		1-7	EXP	32	32	32	280	P18
		F	1-8	FIX	32	35	38	280	P14
7	F		1, 3, 4	EXP	32	32	32	280	P18
			2	EXP	40	40	40	280	P19
		G	1-5	EXP	32	36	40	330	P20
7B	F		5-8	EXP	32	32	32	280	P18
	—	—	—	—	RAMP B STRUCTURE				
8	G		1-5	FIX	38	38	38	330	P21
		H	1-5	EXP	42	46	50	330	P16
9	H		1-5	FIX	32	32	32	330	P15
		I	1-5	EXP	32	36	40	330	P20
10	I		1-5	FIX	32	32	32	330	P15
		J	—	EXP	SEE SHEET 1 OF 2				

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

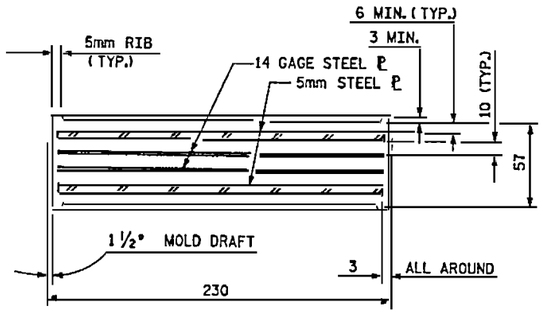


FREE

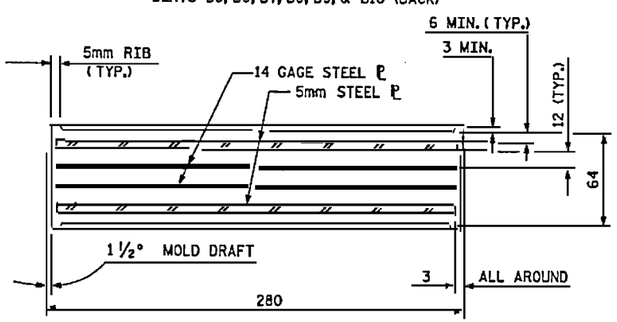
SECTION E-E (SIMILAR)
BENTS B1, B2, B3, B4A, B4, & B4BD



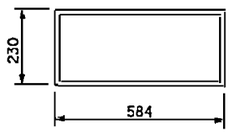
SECTION E-E
BENTS B5, B6, B7, B8, B9, & B10 (BACK)



TYPICAL SECTION OF ELASTOMERIC BEARINGS



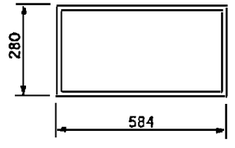
TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (98 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

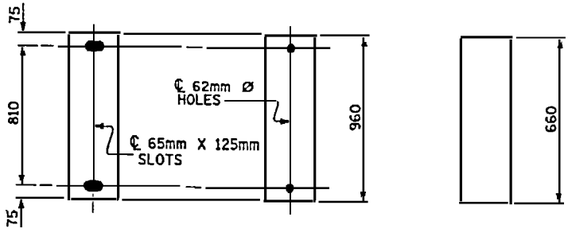
TYPE V
SPANS A, B, C, D, E & F



E3 (30 REQ'D)

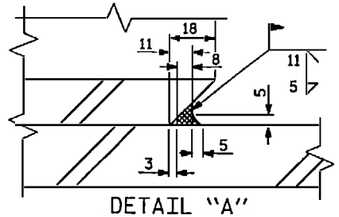
PLAN VIEW OF ELASTOMERIC BEARING

TYPE VI
SPANS G, H & I



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

SOLE PLATE DETAILS



DETAIL "A"

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 ½ 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.

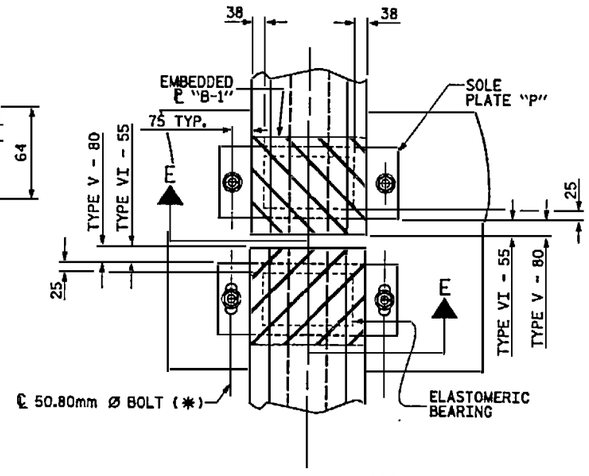
SOLE PLATE "P", BOLTS, NUTS, WASHERS, AND PIPE SLEEVE SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE GIRDERS.

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.

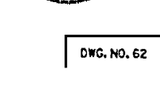
(*) FOR ANCHOR BOLT LENGTHS, SEE SUBSTRUCTURE BENT SHEETS



TYPICAL PLAN VIEW
(SHOWING SIMPLE SPAN BENT WITH ANCHOR BOLTS)

— 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
RALEIGH

STANDARD ELASTOMERIC BEARING DETAILS

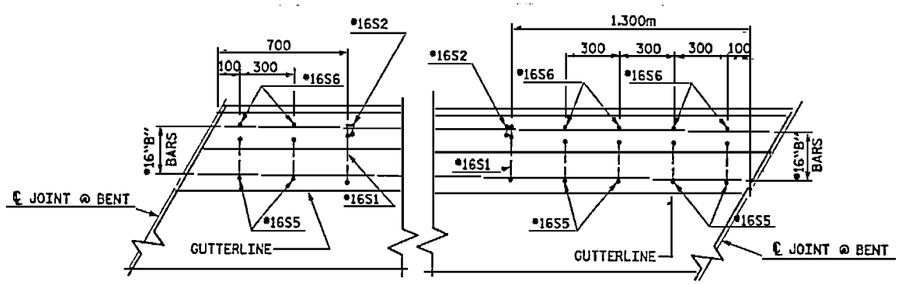
PRESTRESSED CONCRETE GIRDER SUPERSTRUCTURE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-62
1			3			TOTAL SHEETS
2			4			1011

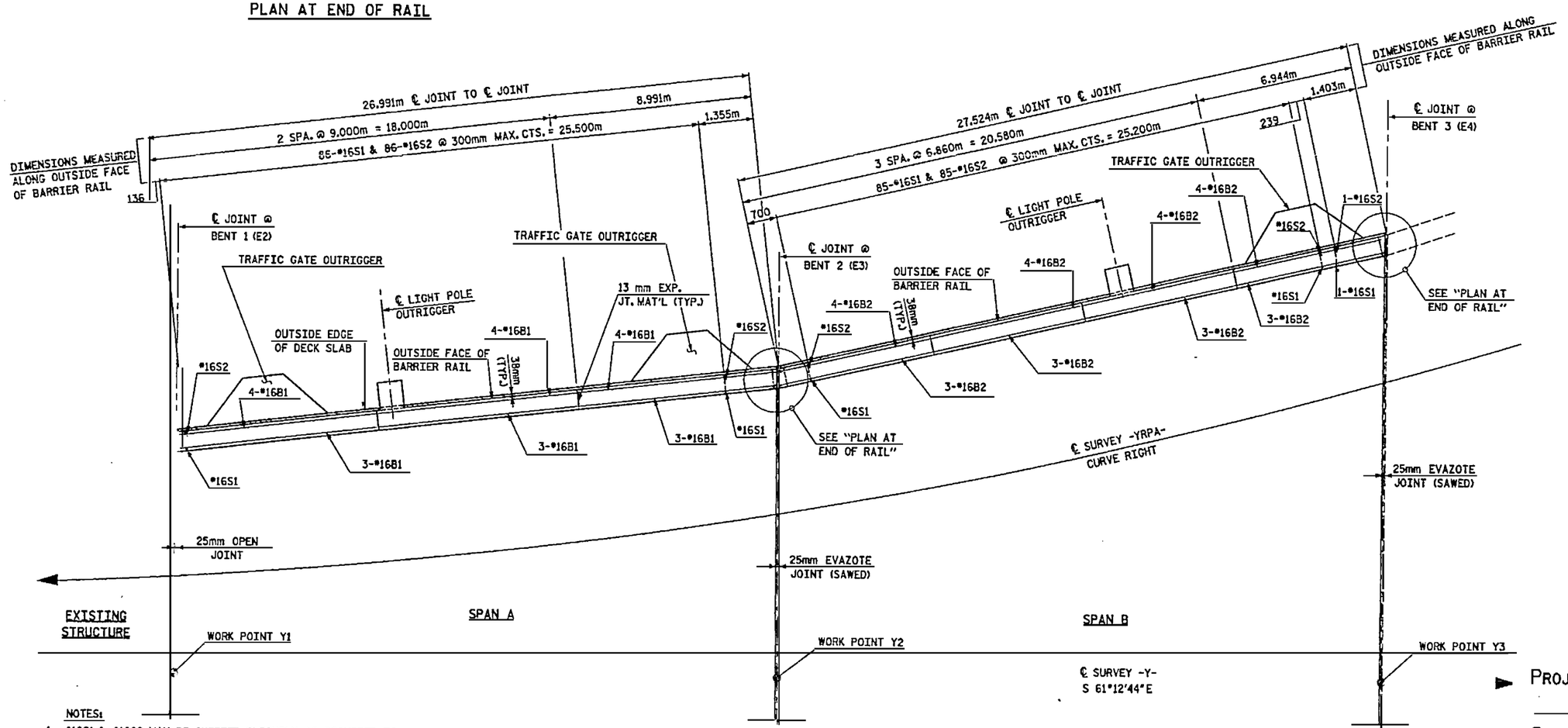
DWG. NO. 62

STD. NO. EB4SM

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



PLAN AT END OF RAIL



NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. 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.
5. 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.
6. #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 1

NOTE: BARRIER RAIL/EDGE OF DECK IS CHORDED.

METRIC

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

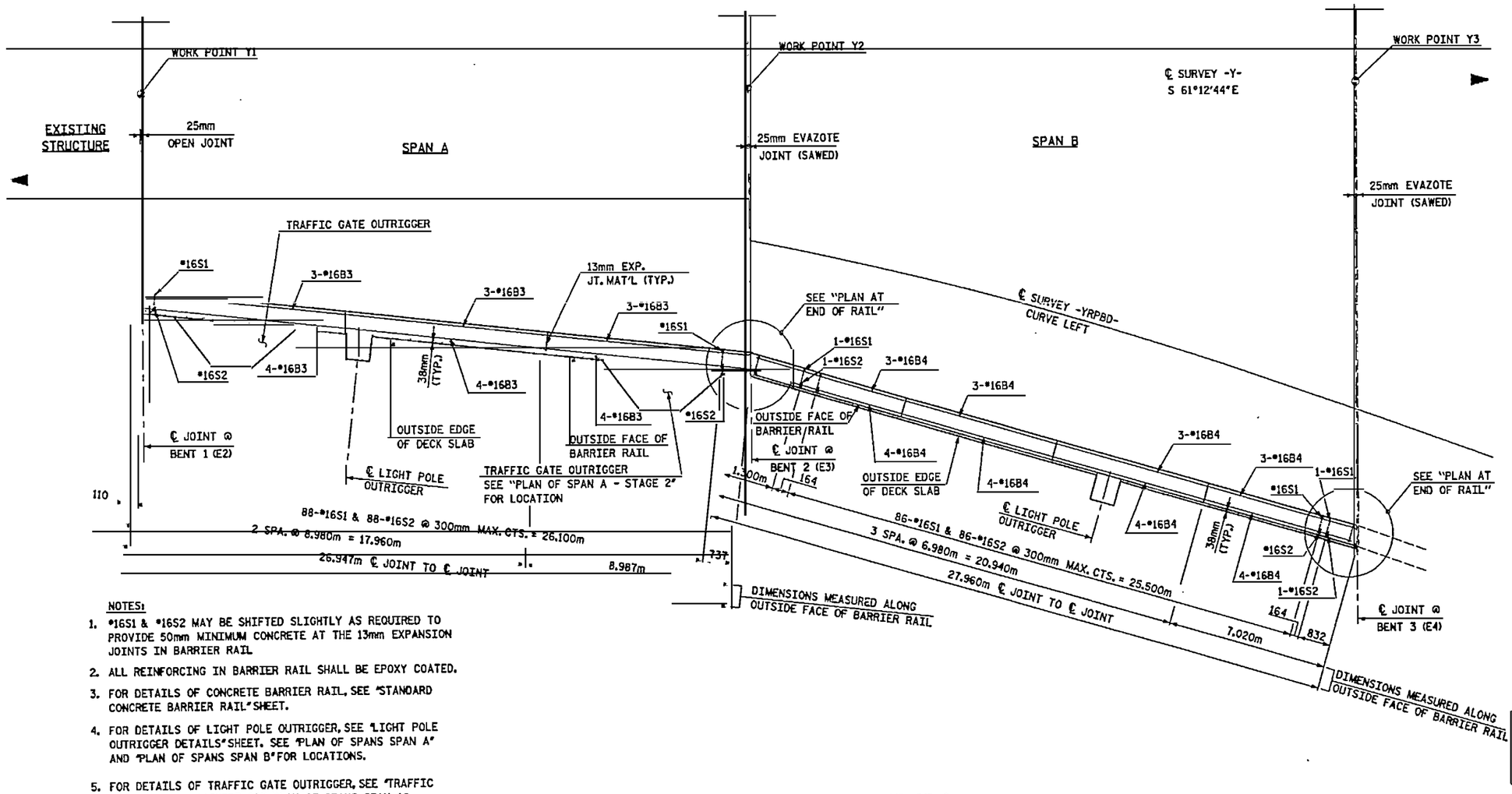
SUPERSTRUCTURE

RAIL PLAN
SPANS A & B
STAGE 1

HNTB 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.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			1011

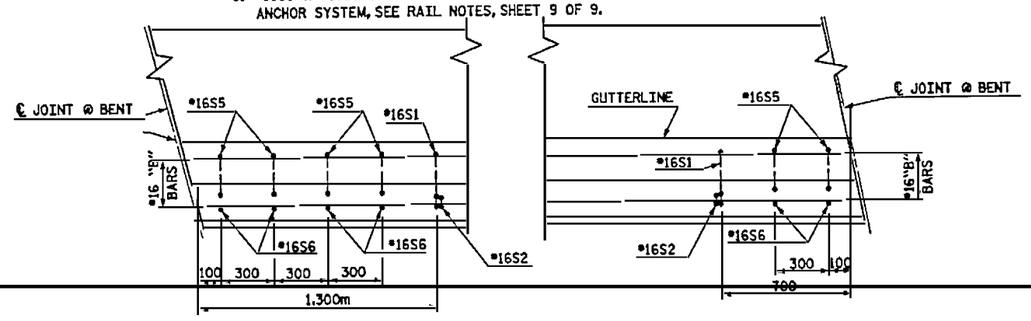


NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL.
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. 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.
5. 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.
6. #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-

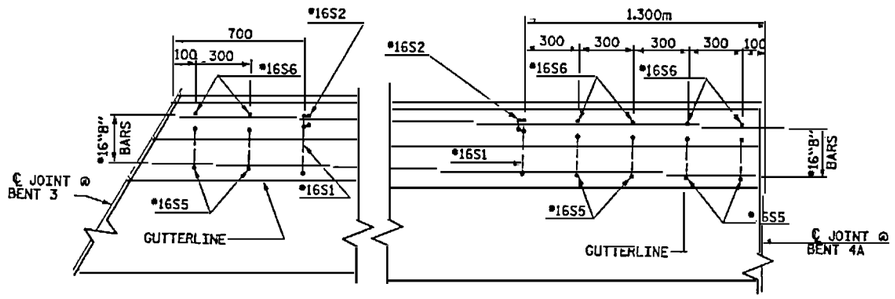
SHEET 2 OF 9

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

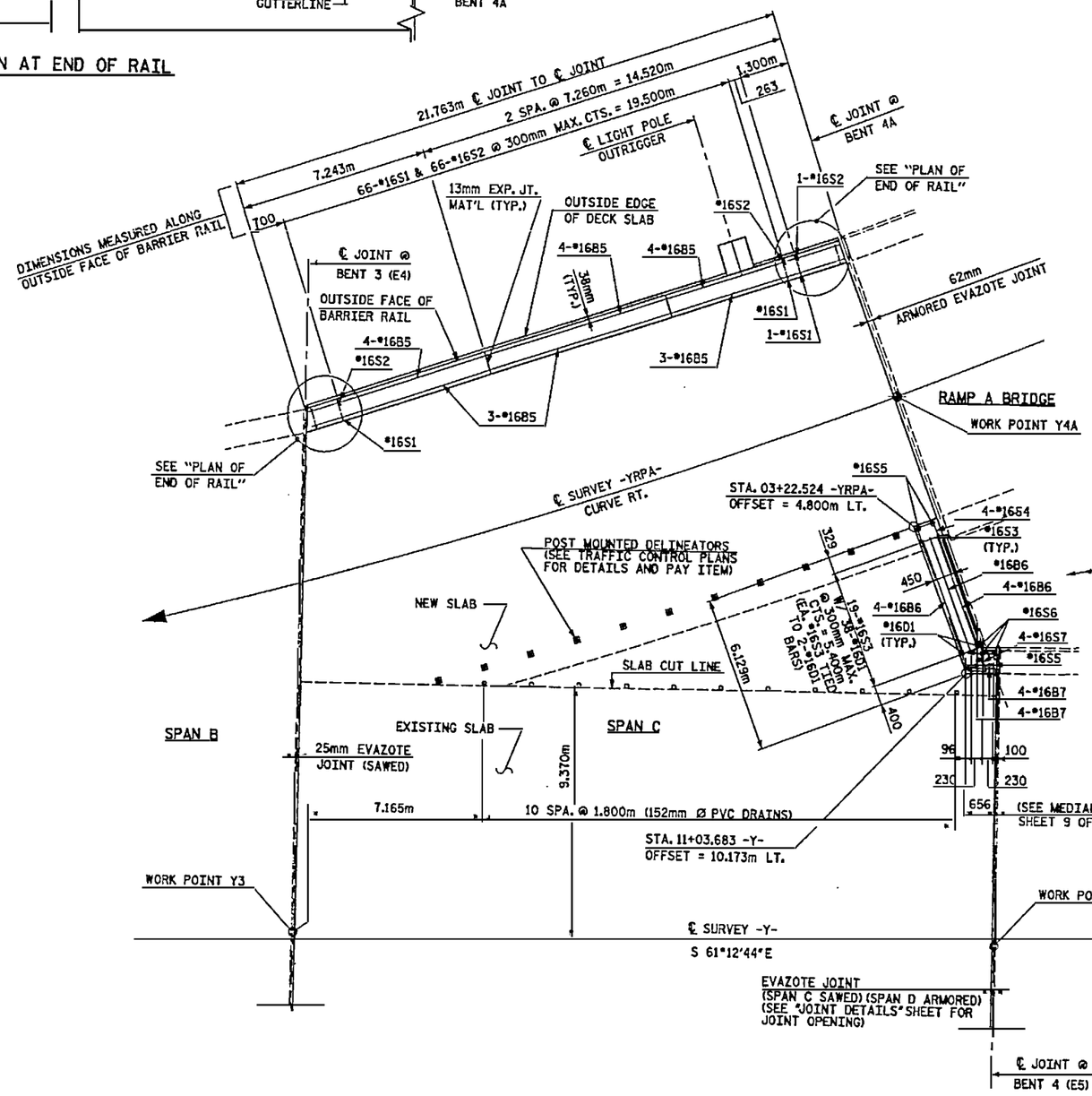
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-C-A
1			3			TOTAL SHEETS
2			4			1011

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



PLAN AT END OF RAIL



PLAN OF BARRIER RAILS - SPAN C - STAGE 1

NOTE: OUTSIDE BARRIER RAIL/EDGE OF DECK IS CHORDED

NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN C FOR LOCATIONS.
5. #16D1, #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9.

METRIC

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

NORTH CAROLINA PROFESSIONAL SEAL 13503 ENGINEER NEIL T. GREENLEE 10/12/00

NORTH CAROLINA PROFESSIONAL SEAL 12996 ENGINEER PAUL J. BARBER 10/12/00

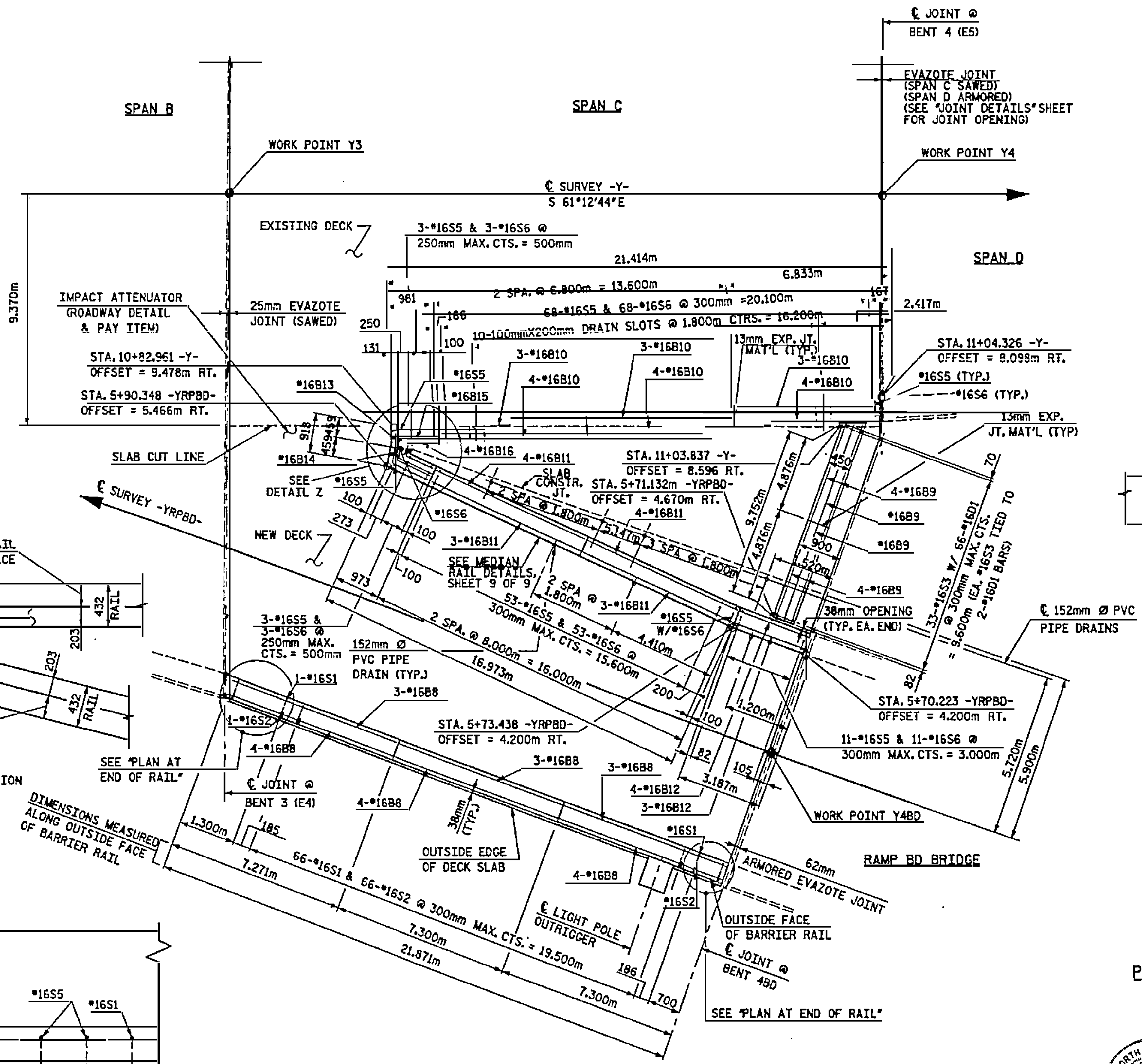
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 65

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-22
1			3			TOTAL SHEETS
2			4			101

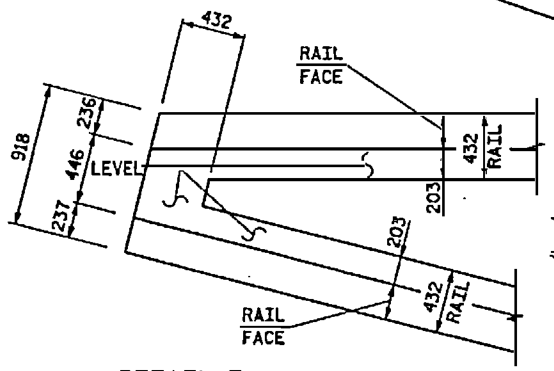
NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN C" FOR LOCATIONS.
5. #16D1, #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9



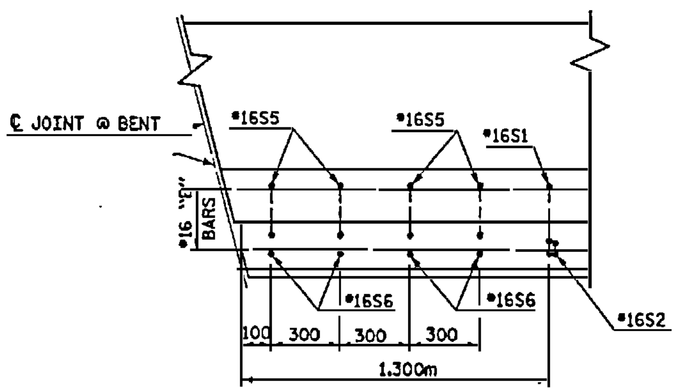
PLAN OF BARRIER RAILS - SPAN C - STAGE 2

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

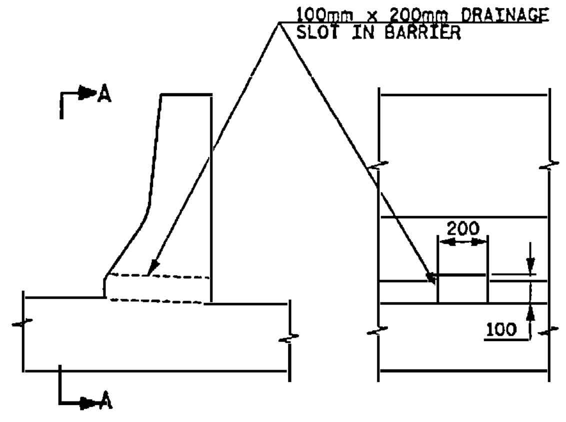


DETAIL Z

PLAN OF MEDIAN RAIL TERMINATION

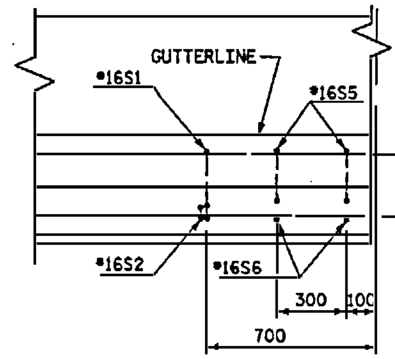


PLAN AT END OF RAIL



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

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 4 OF 9

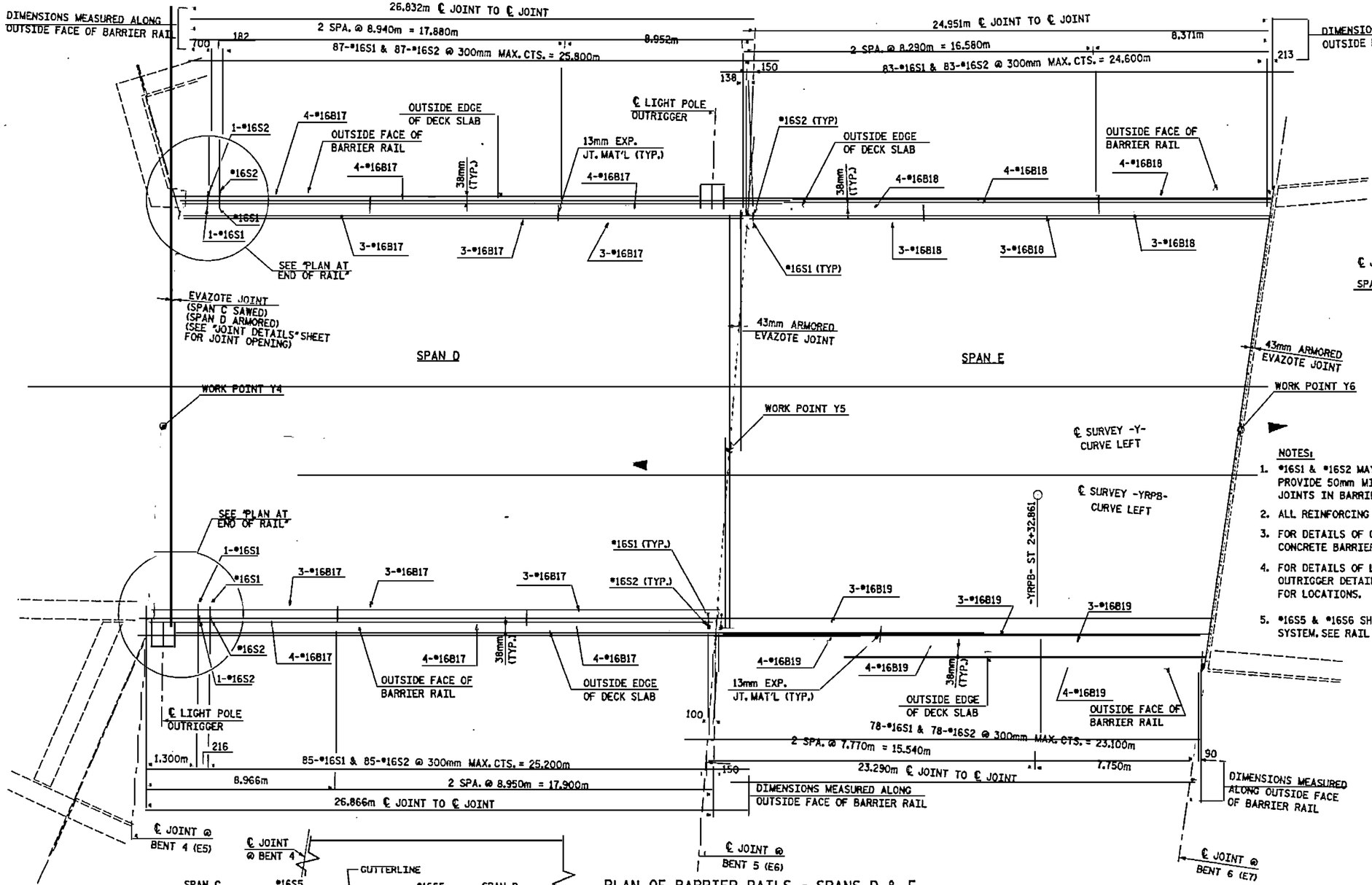
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
RAIL PLAN
SPAN C
STAGE 2

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

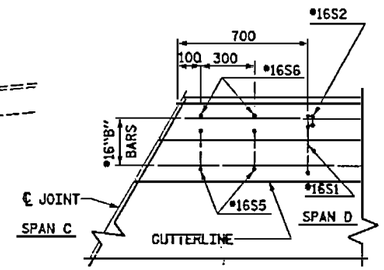
DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY P. BARBER DATE 7/00

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

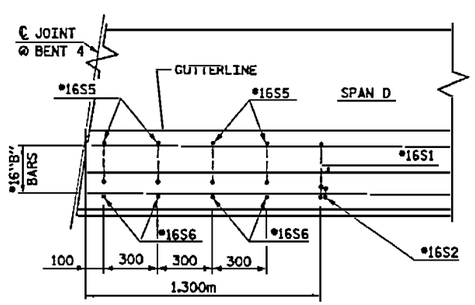


PLAN OF BARRIER RAILS - SPANS D & E

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



PLAN AT END OF RAIL



PLAN AT END OF RAIL

NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN D" FOR LOCATIONS.
5. #16S5 & #16S6 SHALL BE INSTALLED USING AN ADHESIVE ANCHOR SYSTEM. SEE RAIL NOTES, SHEET 9 OF 9.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

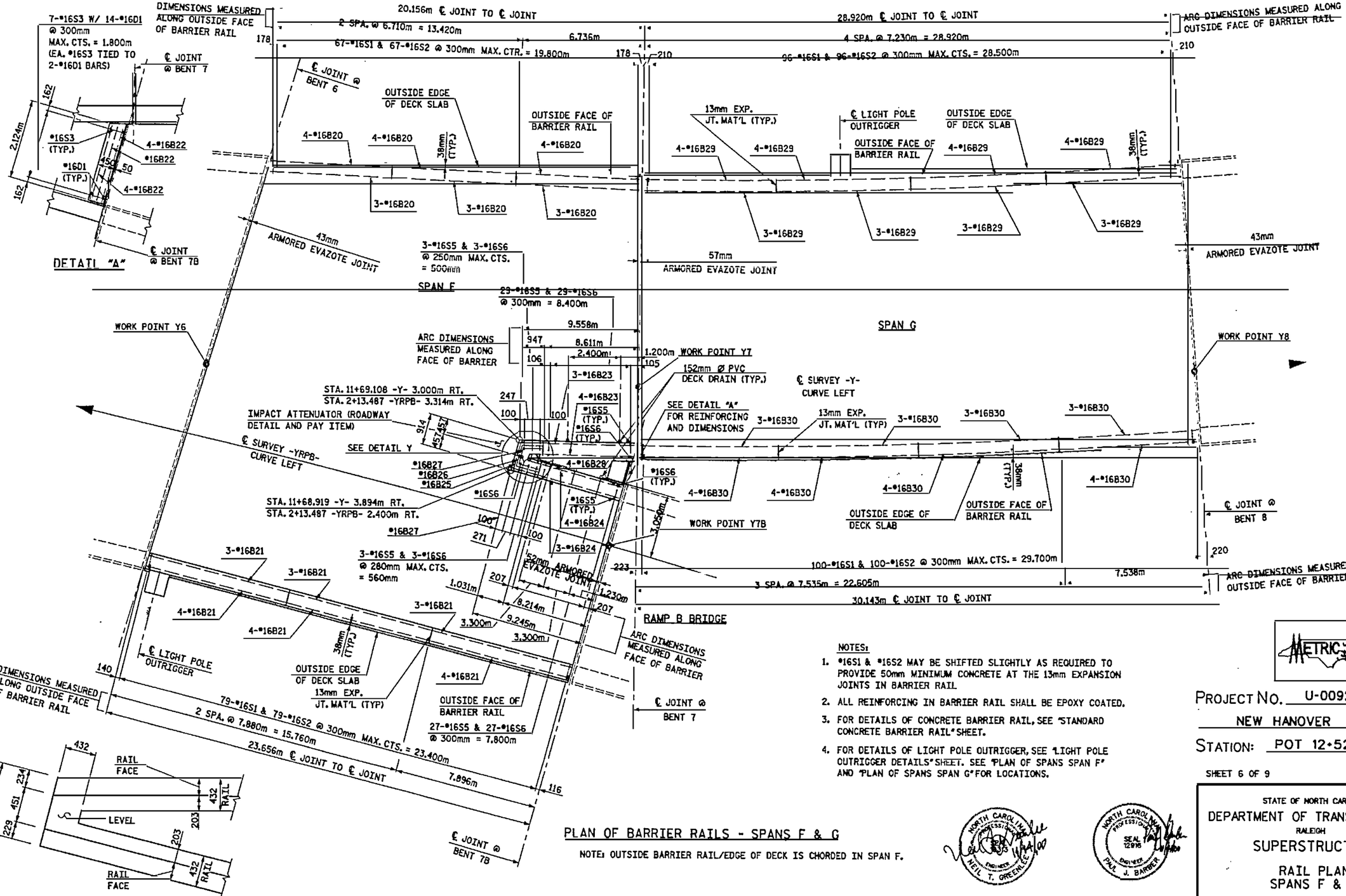
SHEET 5 OF 9

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

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

DRAWN BY M. WRIGHT DATE 12/99
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 67

REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. 5-67
1			3			TOTAL SHEETS 101
2			4			



PLAN OF BARRIER RAILS - SPANS F & G

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

NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. 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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 6 OF 9

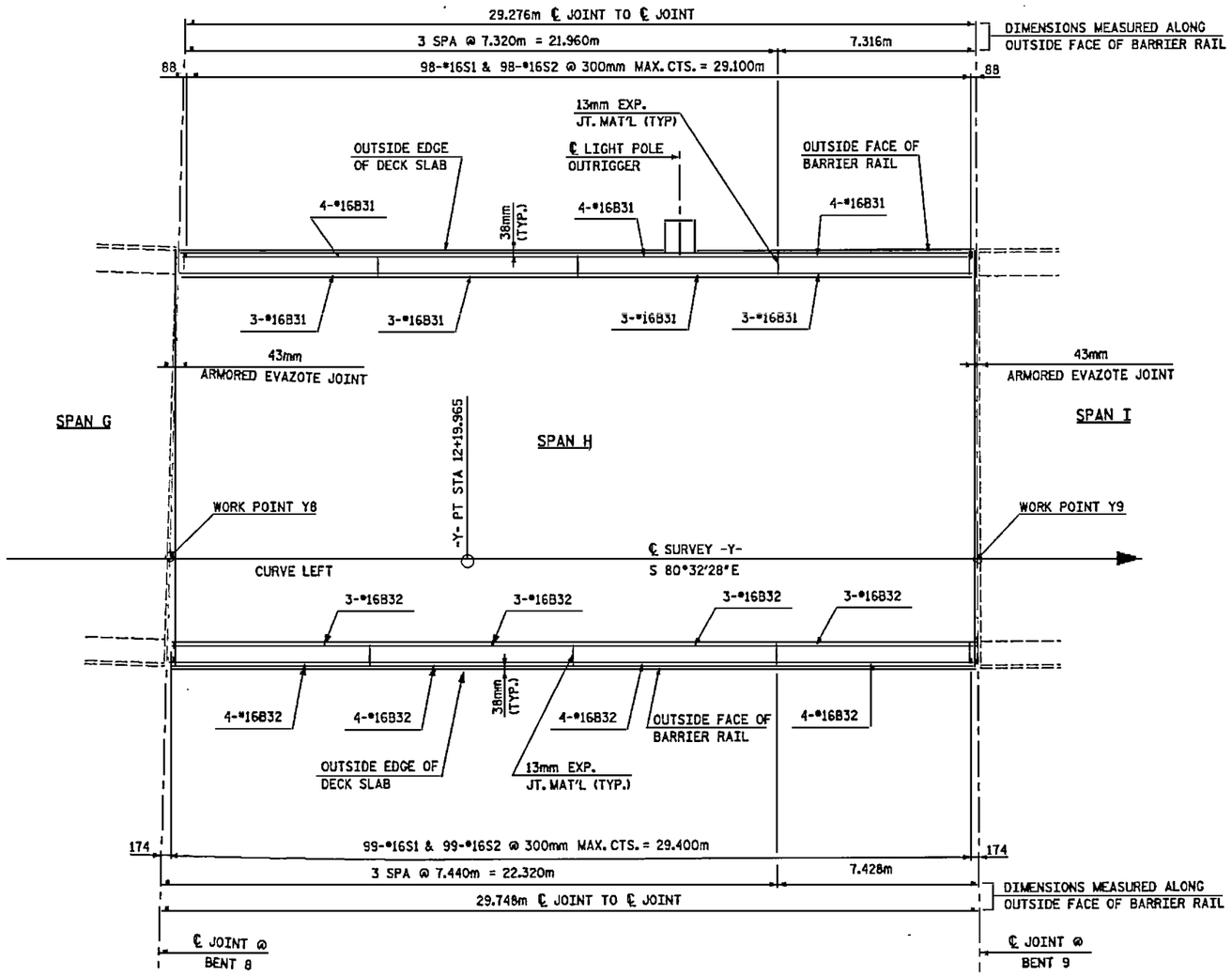
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

RAIL PLAN
SPANS F & G

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

DRAWN BY: M. WRIGHT DATE 12/99
CHECKED BY: P. BARBER DATE 1/00
DWG. NO. 68

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-68
1			3			TOTAL SHEETS
2			4			101



PLAN OF BARRIER RAILS - SPAN H

NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN H FOR LOCATIONS.

METRIC

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

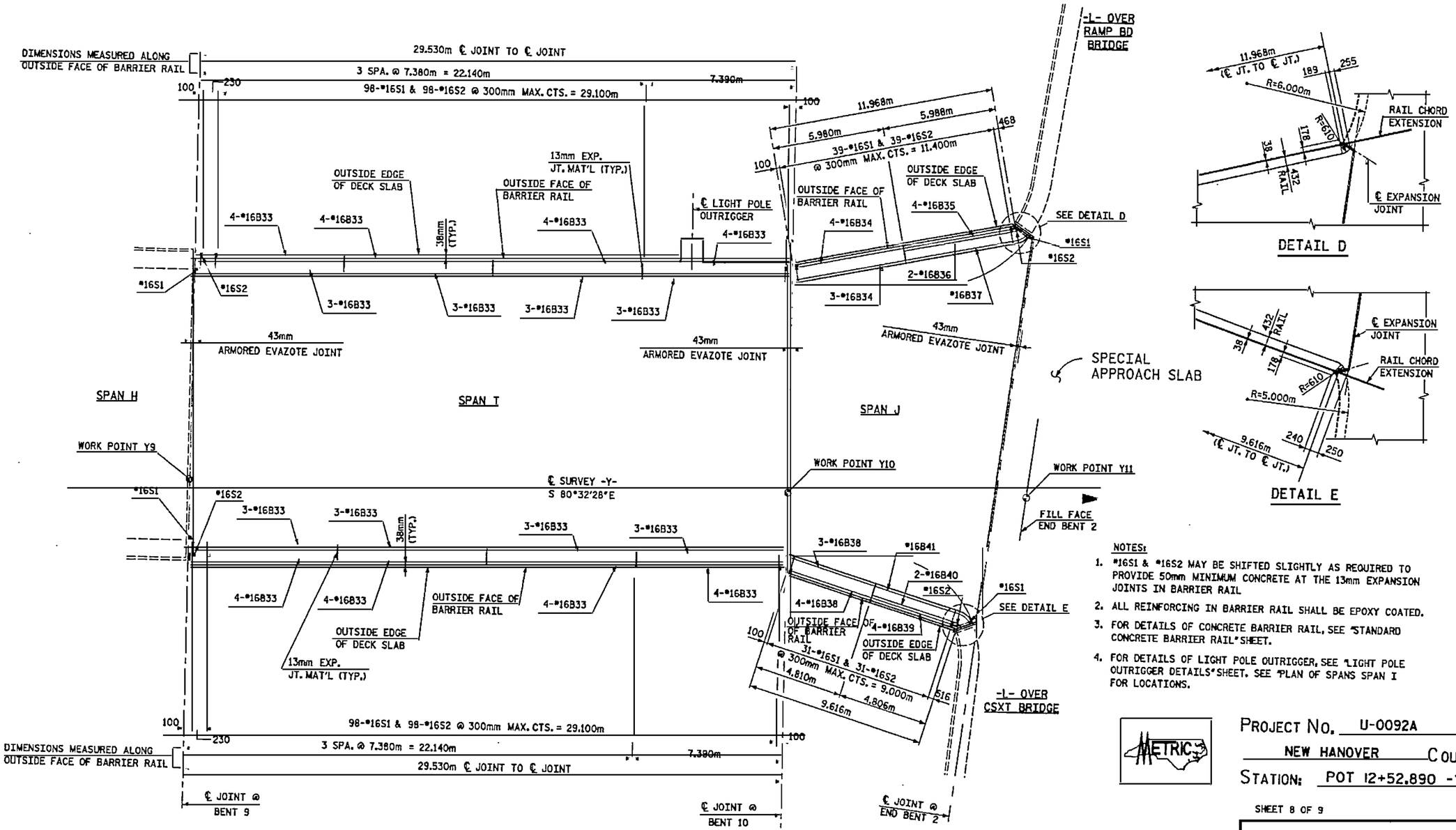
NEIL T. GREENLEE ENGINEER SEAL 12596

PAUL J. BARBER ENGINEER SEAL 12596

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

DRAWN BY V. WRIGHT DATE 12/99
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 66

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	B-69
1			3			TOTAL SHEETS
2			4			1611



PLAN OF BARRIER RAILS - SPANS I & J

DETAIL D

DETAIL E

NOTES:

1. #16S1 & #16S2 MAY BE SHIFTED SLIGHTLY AS REQUIRED TO PROVIDE 50mm MINIMUM CONCRETE AT THE 13mm EXPANSION JOINTS IN BARRIER RAIL
2. ALL REINFORCING IN BARRIER RAIL SHALL BE EPOXY COATED.
3. FOR DETAILS OF CONCRETE BARRIER RAIL, SEE "STANDARD CONCRETE BARRIER RAIL" SHEET.
4. FOR DETAILS OF LIGHT POLE OUTRIGGER, SEE "LIGHT POLE OUTRIGGER DETAILS" SHEET. SEE "PLAN OF SPANS SPAN I FOR LOCATIONS.

METRIC

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
SUPERSTRUCTURE

RAIL PLAN
SPANS I & J

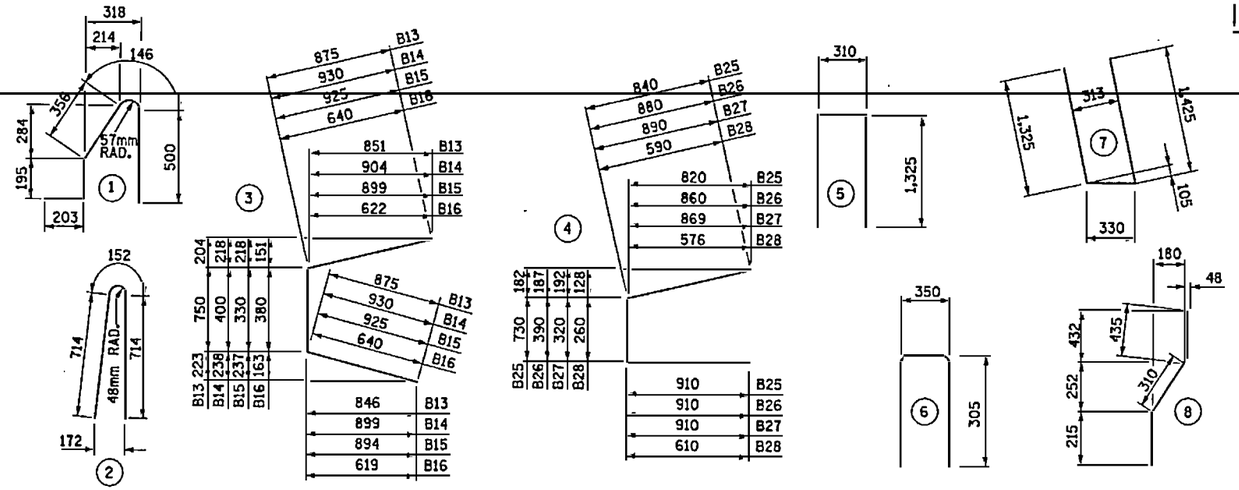
NORTH CAROLINA PROFESSIONAL SEAL 19331 ENGINEER NEIL T. GREENEE

NORTH CAROLINA PROFESSIONAL SEAL 12916 ENGINEER PAUL J. BARBER

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

DRAWN BY N. WRIGHT DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. TO

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



ALL BAR DIMENSIONS ARE OUT TO OUT

BAR TYPES

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

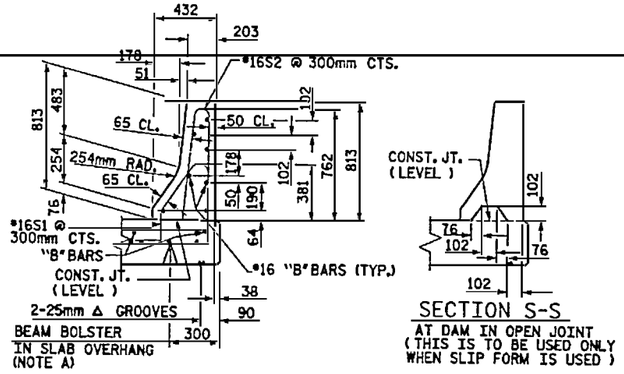
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
S1	1,625	#16	1	1,400	3,531
~~S2~~	~~1,625~~	~~#16~~	~~2~~	~~1,580~~	~~3,983~~
S3	59	#16	6	960	88
S4	4	#16	5	2,960	18
S5	244	#16	8	960	364
S6	242	#16	STR.	900	338
S7	4	#16	7	3,080	19
B1	21	#16	STR	8,820	287
B2	28	#16	STR	6,740	293
B3	21	#16	STR	8,840	288
B4	28	#16	STR	6,860	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.	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

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

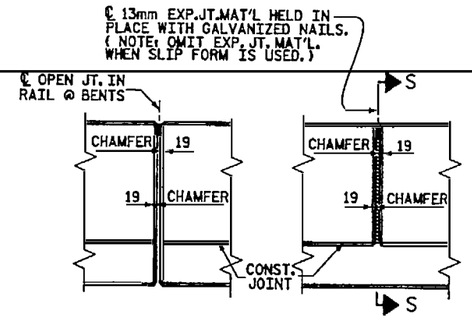


SECTION THRU RAIL

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

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.

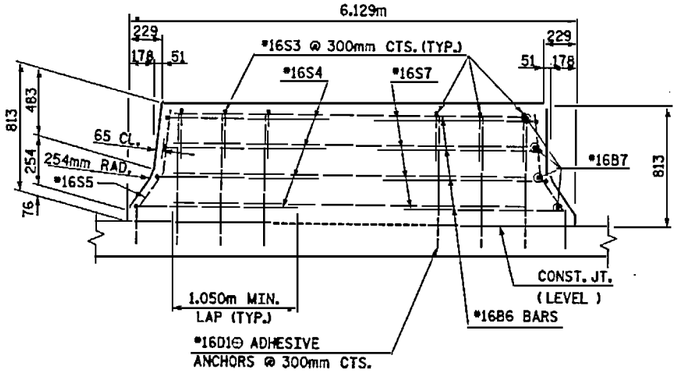
ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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.

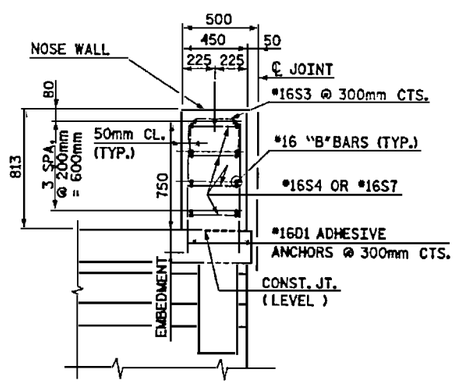
AN EMBEDMENT DEPTH OF 150mm HAS BEEN INCLUDED IN THE LENGTH FOR THE #16D1, #16S5 & #16S6 ADHESIVELY ANCHORED BARS. CONTRACTOR SHALL ADJUST BAR LENGTH FOR SELECTED MANUFACTURER'S EMBEDMENT REQUIREMENTS.

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.



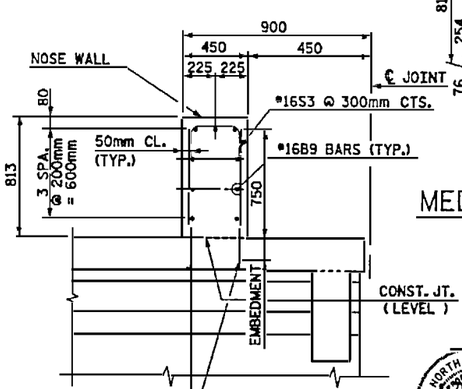
ELEVATION VIEW SPAN C - STAGE 1

RAMP A GORE

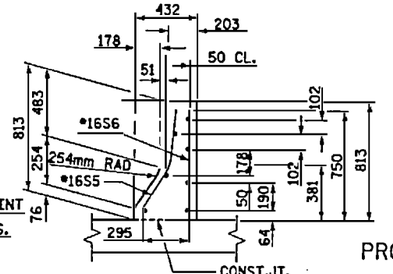


END VIEW AT GORES "A" AND "B"

GORE RAIL DETAILS



END VIEW AT GORE BD



END VIEW

MEDIAN/BARRIER RAIL

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POC 12+52.890 -Y-

SHEET 9 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD CONCRETE BARRIER RAIL

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

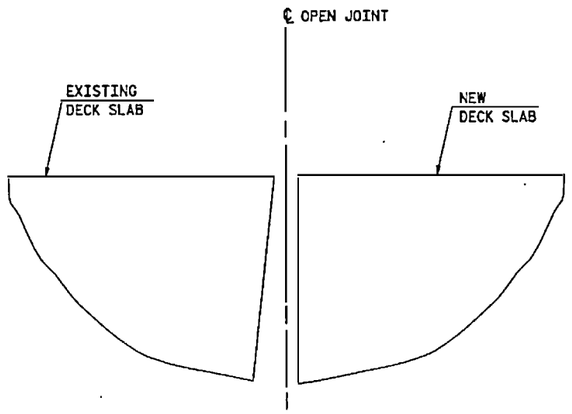
DWG. NO. 71

CBR1SM

ASSEMBLED BY : M. WRIGHT	DATE : 7/00
CHECKED BY : P. BARBER	DATE : 7/00
DRAWN BY : ARB 5/87	REV. 5/16/97 EEM/RGH
CHECKED BY : SJD 9/87	REV. 7/17/98 RWH/LES
	REV. 8/16/99 RWH/LES

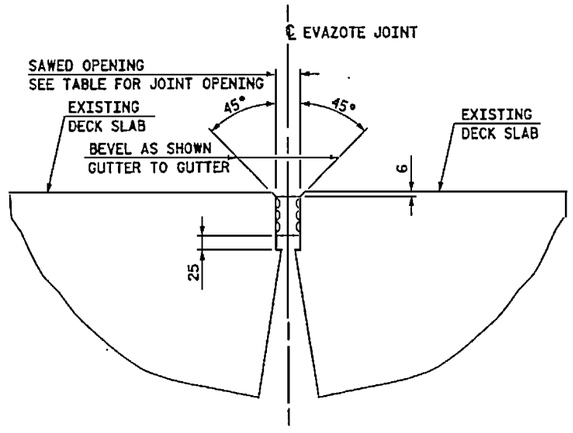
NORTH CAROLINA PROFESSIONAL SEAL 19308 ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL SEAL 17986 ENGINEER PAUL J. BARBER



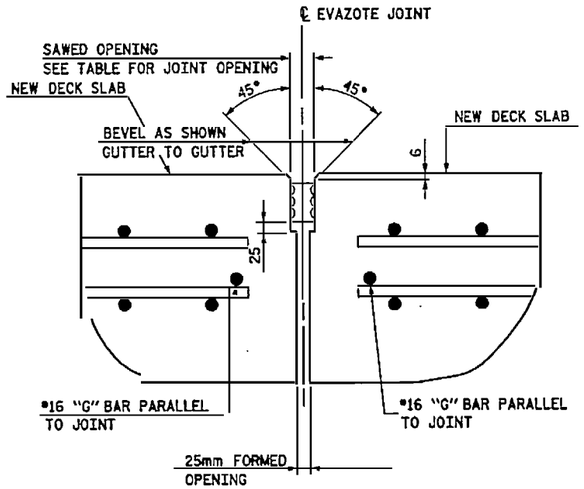
OPEN JOINT DETAILS

SECTION NORMAL TO JOINT AT BENT 1



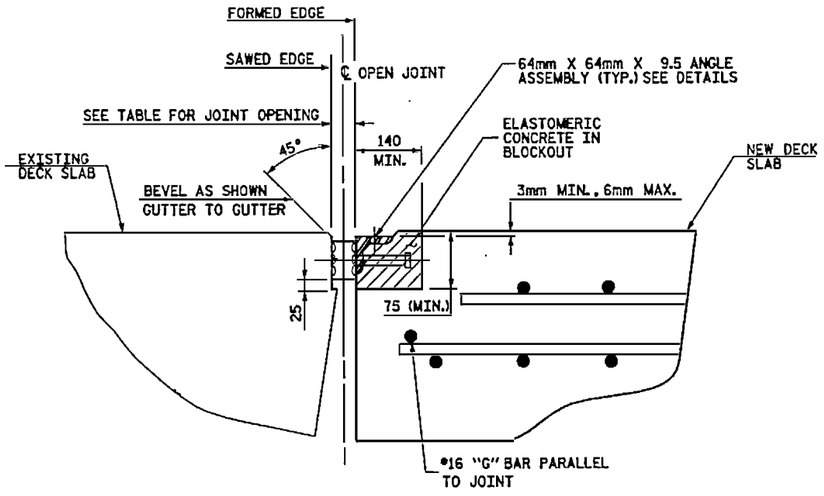
EVAZOTE JOINT DETAILS

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)

MOVEMENT AND SETTING AT JOINT						
BENT	SKEW ANGLE	NOMINAL UNCOMPRESSED EVAZOTE SEAL WIDTH	TOTAL MOVEMENT (ALONG ℄ 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.

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 LEVELED 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.

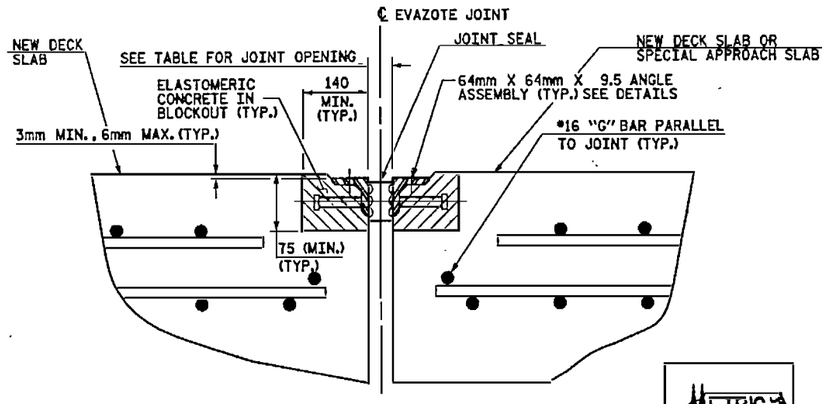
~~FOR SKEWS BETWEEN 70° AND 110°, THE CONTRACTOR MAY, AT HIS OPTION, USE A COMPRESSION JOINT SEAL IN LIEU OF THE EVAZOTE JOINT SEAL. SEE SPECIAL PROVISION FOR OPTIONAL PREFORMED COMPRESSION JOINT SEALS.~~

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 "REHIBILITATION OF WEST END EVAZOTE JOINT SEAL DETAILS" SHEET.



ARMORED JOINT DETAILS

SECTION NORMAL TO JOINT AT BENT 4A, 4BD, 5, 6, 7, 7B, 8, 9 & 10 & EB2

METRIC

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

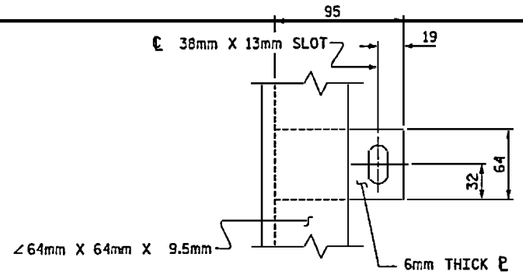
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19857 NEIL T. GREENLEE 7/00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12976 PAUL J. BARBER 7/00

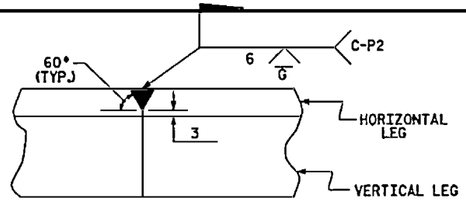
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY C. OLIVER DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. 72

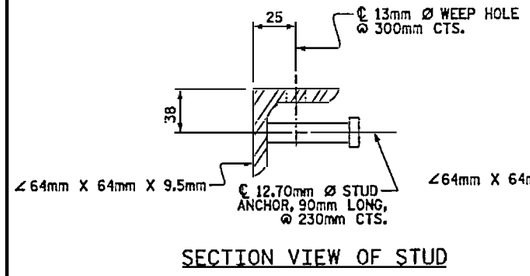
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-72
1			3			TOTAL SHEETS
2			4			101



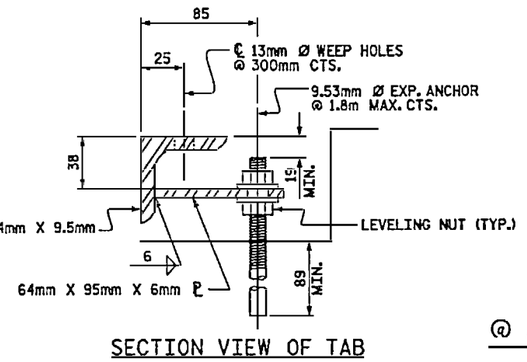
PLAN VIEW OF TAB



DETAIL- FIELD WELD SPLICE OF ANGLE

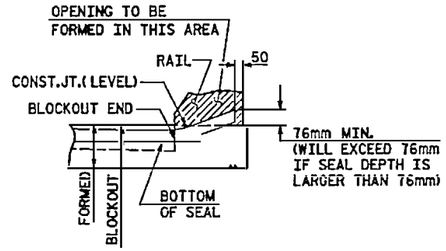


SECTION VIEW OF STUD

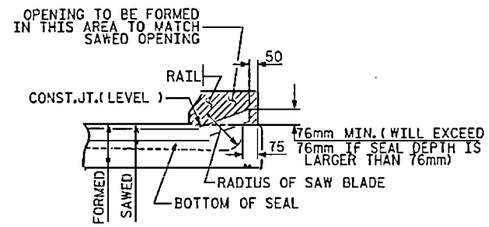


SECTION VIEW OF TAB

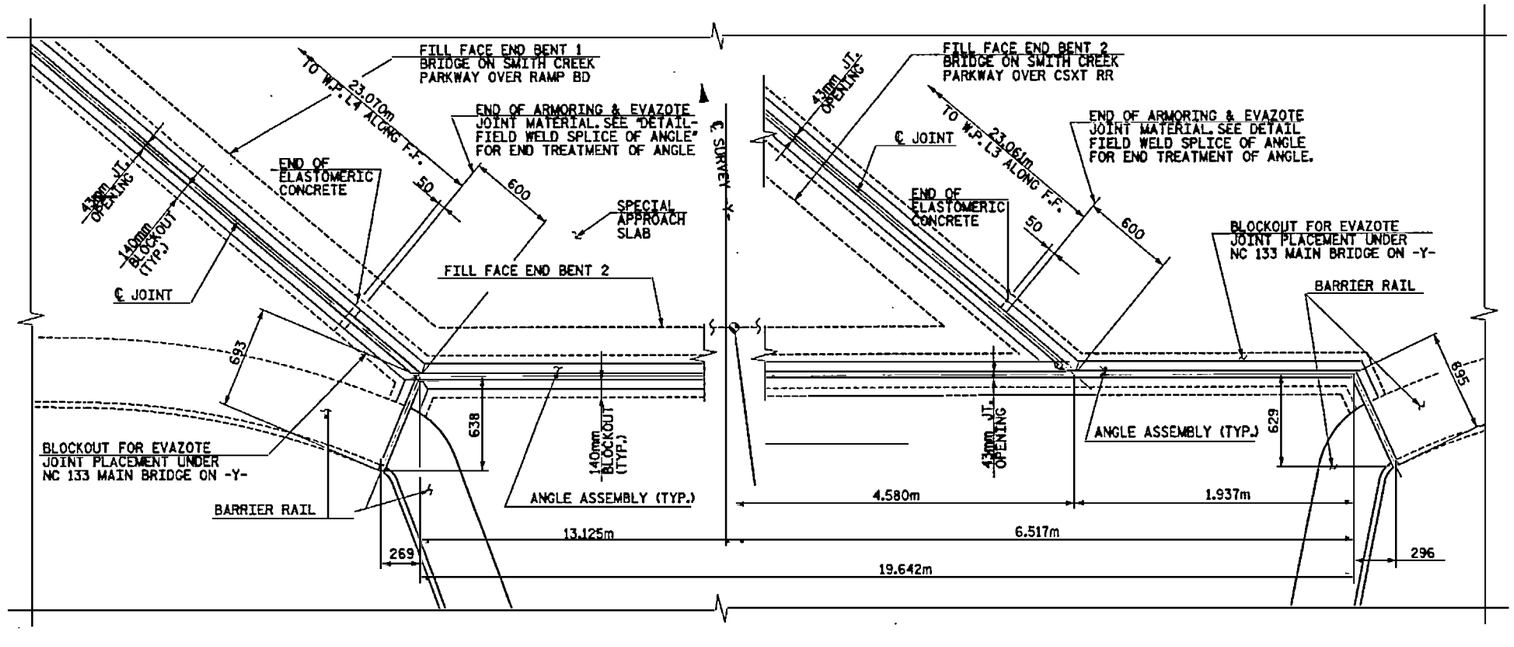
ARMORED JOINT ANCHOR ASSEMBLY DETAILS



JOINT SEAL DETAILS
@ ARMORED EVAZOTE JOINT LOCATIONS
(FOR BARRIER RAIL)



JOINT SEAL DETAILS
@ EVAZOTE JOINT LOCATIONS
(FOR BARRIER RAIL)



JOINT INTERSECTION DETAIL AT END BENT 2

METRIC

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

JOINT DETAILS

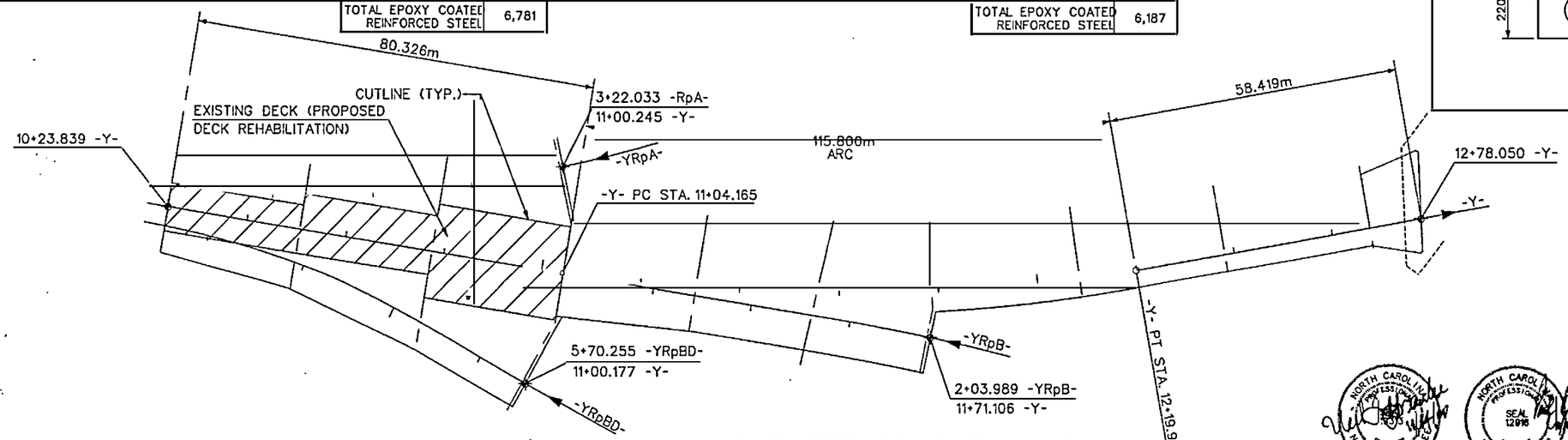
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY C. OLIVER DATE 7/00
CHECKED BY P. BARBER DATE 7/00
DWG. NO. T3

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-73
1			3			TOTAL SHEETS
2			4			1011

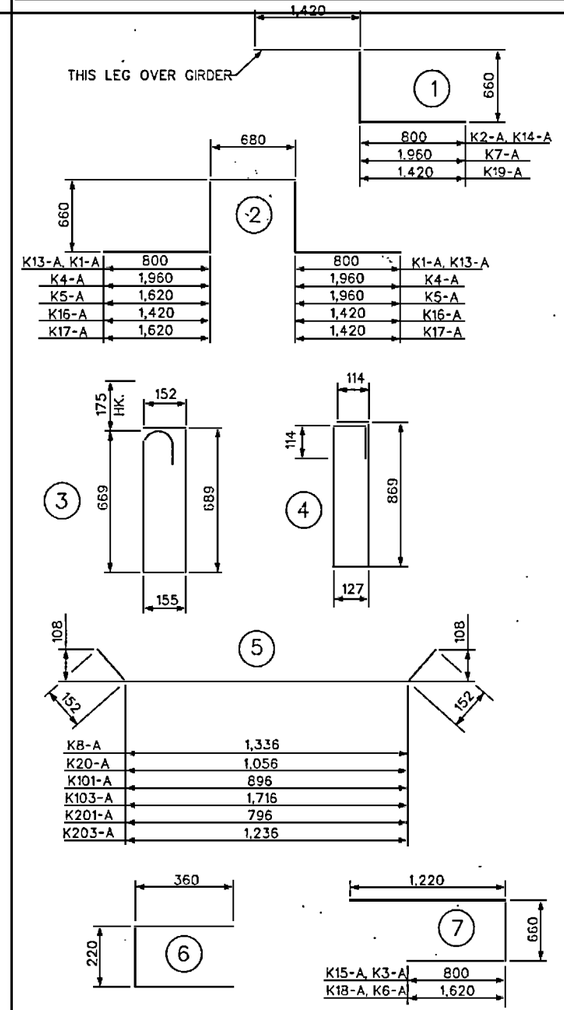
REINFORCING BAR SCHEDULE

SPAN A - STAGE 1						SPAN A - STAGE 1						SPAN A - STAGE 2						SPAN A - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-A	6	#19	STR.	5,100	68	B1-A	60	#13	STR.	8,000	477	A48-A	6	#19	STR.	5,100	68	B5-A	51	#13	STR.	8,000	406
A2-A	6	#19	STR.	5,160	69	B2-A	20	#13	STR.	4,700	93	A49-A	6	#19	STR.	5,140	69	B6-A	17	#13	STR.	4,660	79
A3-A	6	#19	STR.	5,240	70	B3-A	34	#16	STR.	18,000	950	A50-A	6	#19	STR.	5,180	69	B7-A	32	#16	STR.	18,000	894
A4-A	6	#19	STR.	5,300	71	B4-A	34	#16	STR.	9,640	509	A51-A	6	#19	STR.	5,220	70	B8-A	32	#16	STR.	9,600	477
A5-A	6	#19	STR.	5,380	72							A52-A	6	#19	STR.	5,260	71						
A6-A	6	#19	STR.	5,440	73	G1-A	1	#16	STR.	5,100	8	A53-A	6	#19	STR.	5,300	71	G3-A	1	#16	STR.	5,080	8
A7-A	6	#19	STR.	5,500	74	G2-A	1	#16	STR.	8,280	13	A54-A	6	#19	STR.	5,340	72	G4-A	1	#16	STR.	7,160	11
A8-A	6	#19	STR.	5,580	75							A55-A	6	#19	STR.	5,380	72						
A9-A	6	#19	STR.	5,640	76	K1-A	4	#25	2	3,600	57	A56-A	6	#19	STR.	5,440	73	K13-A	4	#25	2	3,600	57
A10-A	6	#19	STR.	5,720	77	K2-A	2	#25	1	2,880	23	A57-A	6	#19	STR.	5,480	73	K14-A	2	#25	1	2,880	23
A11-A	6	#19	STR.	5,780	78	K3-A	2	#25	7	2,680	21	A58-A	6	#19	STR.	5,520	74	K15-A	2	#25	7	2,680	21
A12-A	6	#19	STR.	5,840	78	K4-A	2	#25	2	5,260	42	A59-A	6	#19	STR.	5,560	75	K16-A	2	#25	2	4,840	38
A13-A	6	#19	STR.	5,920	79	K5-A	2	#25	2	4,920	39	A60-A	6	#19	STR.	5,600	75	K17-A	2	#25	2	5,040	40
A14-A	6	#19	STR.	5,980	80	K6-A	2	#25	7	3,500	28	A61-A	6	#19	STR.	5,640	76	K18-A	2	#25	7	3,500	28
A15-A	6	#19	STR.	6,060	81	K7-A	2	#25	1	4,040	32	A62-A	6	#19	STR.	5,680	76	K19-A	2	#25	1	3,500	28
A16-A	6	#19	STR.	6,120	82	K8-A	4	#16	5	1,640	11	A63-A	6	#19	STR.	5,720	77	K20-A	4	#16	5	1,360	22
A17-A	6	#19	STR.	6,180	83	K9-A	4	#16	STR.	1,480	9	A64-A	6	#19	STR.	5,780	78	K21-A	4	#16	STR.	1,200	7
A18-A	6	#19	STR.	6,260	84	K10-A	6	#19	STR.	800	11	A65-A	6	#19	STR.	5,820	78	K22-A	6	#19	STR.	800	11
A19-A	6	#19	STR.	6,320	85	K11-A	4	#19	STR.	1,980	18	A66-A	6	#19	STR.	5,860	79	K23-A	4	#19	STR.	1,420	13
A20-A	6	#19	STR.	6,400	86	K100-A	4	#16	STR.	1,040	6	A67-A	6	#19	STR.	5,900	79	K24-A	2	#19	STR.	1,620	7
A21-A	6	#19	STR.	6,460	87	K101-A	4	#16	5	1,200	7	A68-A	6	#19	STR.	5,940	80	K200-A	4	#16	STR.	960	6
A22-A	6	#19	STR.	6,520	87	K102-A	4	#16	STR.	1,880	12	A69-A	6	#19	STR.	5,980	80	K201-A	4	#16	5	1,100	7
A23-A	6	#19	STR.	6,600	89	K103-A	4	#16	5	2,020	13	A70-A	6	#19	STR.	6,020	81	K202-A	4	#16	STR.	1,400	9
A24-A	6	#19	STR.	6,660	89							A71-A	6	#19	STR.	6,060	81	K203-A	4	#16	5	1,540	10
A25-A	6	#19	STR.	6,740	90							A72-A	6	#19	STR.	6,100	82						
A26-A	6	#19	STR.	6,800	91	S1-A	29	#16	3	1,840	83	A73-A	6	#19	STR.	6,160	83	S4-A	25	#16	3	1,840	71
A27-A	6	#19	STR.	6,860	92	S2-A	28	#13	4	2,220	62	A74-A	6	#19	STR.	6,200	83	S5-A	22	#13	4	2,220	49
A28-A	6	#19	STR.	6,940	93	S3-A	52	#13	6	940	49	A75-A	6	#19	STR.	6,240	84	S6-A	44	#13	6	940	41
A29-A	6	#19	STR.	7,000	94							A76-A	6	#19	STR.	6,280	84						
A30-A	6	#19	STR.	7,080	95							A77-A	6	#19	STR.	6,320	85						
A31-A	6	#19	STR.	7,140	96							A78-A	6	#19	STR.	6,360	85						
A32-A	6	#19	STR.	7,200	97							A79-A	6	#19	STR.	6,400	86						
A33-A	6	#19	STR.	7,280	98							A80-A	6	#19	STR.	6,440	86						
A34-A	6	#19	STR.	7,340	98							A81-A	6	#19	STR.	6,480	87						
A35-A	6	#19	STR.	7,420	100							A82-A	6	#19	STR.	6,540	88						
A36-A	6	#19	STR.	7,480	100							A83-A	6	#19	STR.	6,580	88						
A37-A	6	#19	STR.	7,540	101							A84-A	6	#19	STR.	6,620	89						
A38-A	6	#19	STR.	7,620	102							A85-A	6	#19	STR.	6,660	89						
A39-A	6	#19	STR.	7,680	103							A86-A	6	#19	STR.	6,700	90						
A40-A	6	#19	STR.	7,760	104							A87-A	6	#19	STR.	6,740	90						
A41-A	6	#19	STR.	7,820	105							A88-A	6	#19	STR.	6,780	91						
A42-A	6	#19	STR.	7,880	106							A89-A	6	#19	STR.	6,820	91						
A43-A	6	#19	STR.	7,960	107							A90-A	6	#19	STR.	6,860	92						
A44-A	6	#19	STR.	8,020	108							A91-A	6	#19	STR.	6,920	93						
A45-A	6	#19	STR.	8,100	109							A92-A	6	#19	STR.	6,960	93						
A46-A	6	#19	STR.	8,160	109							A93-A	6	#19	STR.	7,000	94						
A47-A	6	#19	STR.	8,220	110							A94-A	6	#19	STR.	7,040	94						
				TOTAL EPOXY COATED REINFORCED STEEL	6,781													TOTAL EPOXY COATED REINFORCED STEEL	6,187					



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB
(SQ. METER = 4,037.5)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			101

DWG. NO. 74

STD. NO. BOM2SM

ASSEMBLED BY : MEW	DATE : 10/99
CHECKED BY : DWH	DATE : 7/00
DRAWN BY : JMB 5/87	REV. 5/16/97 EEM/RGW
CHECKED BY : SJD 9/87	

REINFORCING BAR SCHEDULE

SPAN B - STAGE 1

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-B	6	#19	STR.	6,080	82
A2-B	6	#19	STR.	6,200	83
A3-B	6	#19	STR.	6,340	85
A4-B	6	#19	STR.	6,460	87
A5-B	6	#19	STR.	6,580	88
A6-B	6	#19	STR.	6,720	90
A7-B	6	#19	STR.	6,840	92
A8-B	6	#19	STR.	6,960	93
A9-B	6	#19	STR.	7,100	95
A10-B	6	#19	STR.	7,220	97
A11-B	6	#19	STR.	7,360	99
A12-B	6	#19	STR.	7,480	100
A13-B	6	#19	STR.	7,600	102
A14-B	6	#19	STR.	7,740	104
A15-B	6	#19	STR.	7,860	105
A16-B	6	#19	STR.	7,980	107
A17-B	6	#19	STR.	8,120	109
A18-B	6	#19	STR.	8,240	110
A19-B	6	#19	STR.	8,360	112
A20-B	6	#19	STR.	8,500	114
A21-B	6	#19	STR.	8,620	116
A22-B	6	#19	STR.	8,760	117
A23-B	6	#19	STR.	8,880	119
A24-B	6	#19	STR.	9,000	121
A25-B	6	#19	STR.	9,140	123
A26-B	6	#19	STR.	9,260	124
A27-B	6	#19	STR.	9,380	126
A28-B	6	#19	STR.	9,520	128
A29-B	6	#19	STR.	9,640	129
A30-B	6	#19	STR.	9,760	131
A31-B	6	#19	STR.	9,900	133
A32-B	6	#19	STR.	10,020	134
A33-B	6	#19	STR.	10,160	136
A34-B	6	#19	STR.	10,280	138
A35-B	6	#19	STR.	10,400	139
A36-B	6	#19	STR.	10,540	141
A37-B	6	#19	STR.	10,660	143
A38-B	6	#19	STR.	10,780	145
A39-B	6	#19	STR.	10,920	146
A40-B	6	#19	STR.	11,040	148
A41-B	6	#19	STR.	11,160	150
A42-B	6	#19	STR.	11,300	152
A43-B	6	#19	STR.	11,420	153
A44-B	6	#19	STR.	11,540	155
A45-B	6	#19	STR.	11,680	157
A46-B	6	#19	STR.	11,800	158
A47-B	6	#19	STR.	11,940	160

SPAN B - STAGE 1

BAR	NO.	SIZE	TYPE	LENGTH	MASS
B1-B	84	#13	STR.	8,400	701
B2-B	28	#13	STR.	4,020	112
B3-B	57	#16	STR.	18,000	1,592
B4-B	57	#16	STR.	10,160	899
G1-B	1	#16	STR.	6,040	9
G2-B	1	#16	STR.	12,060	19
K1-B	6	#25	2	3,360	80
K2-B	2	#25	1	2,780	22
K3-B	2	#25	7	2,560	20
K4-B	4	#25	2	6,440	102
K5-B	2	#25	2	5,800	46
K6-B	2	#25	7	3,460	27
K7-B	2	#25	1	4,320	34
K8-B	6	#16	STR.	1,580	15
K9-B	6	#16	5	1,740	16
K10-B	8	#19	STR.	660	12
K11-B	6	#19	STR.	2,340	31
K12-B	2	#19	STR.	1,580	7
K100-B	4	#16	STR.	2,200	14
K101-B	4	#16	5	2,360	15
S1-B	42	#16	3	1,840	120
S2-B	29	#13	4	2,220	64
S3-B	76	#13	6	940	71

TOTAL EPOXY COATED REINF. STEEL SPAN B - STAGE 1 = 9,704

SPAN B - STAGE 2

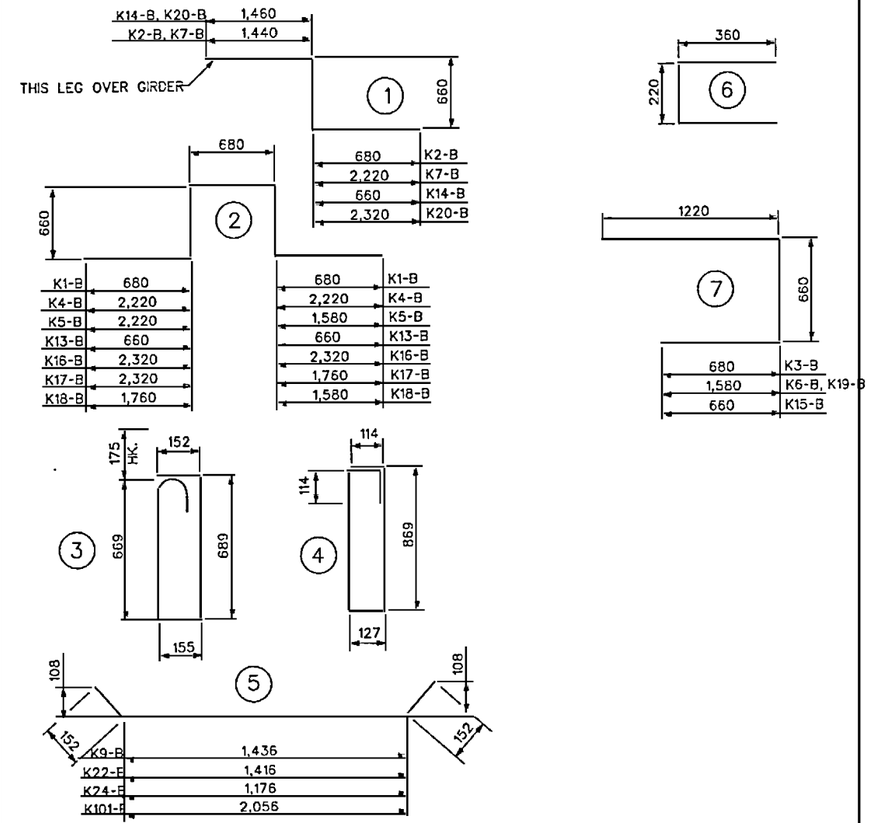
BAR	NO.	SIZE	TYPE	LENGTH	MASS
A48-B	6	#19	STR.	7,220	97
A49-B	6	#19	STR.	7,380	99
A50-B	6	#19	STR.	7,560	101
A51-B	6	#19	STR.	7,720	104
A52-B	6	#19	STR.	7,880	106
A53-B	6	#19	STR.	8,060	108
A54-B	6	#19	STR.	8,220	110
A55-B	6	#19	STR.	8,380	112
A56-B	6	#19	STR.	8,560	115
A57-B	6	#19	STR.	8,720	117
A58-B	6	#19	STR.	8,900	119
A59-B	6	#19	STR.	9,060	121
A60-B	6	#19	STR.	9,220	124
A61-B	6	#19	STR.	9,400	126
A62-B	6	#19	STR.	9,560	128
A63-B	6	#19	STR.	9,720	130
A64-B	6	#19	STR.	9,900	133
A65-B	6	#19	STR.	10,060	135
A66-B	6	#19	STR.	10,220	137
A67-B	6	#19	STR.	10,400	139
A68-B	6	#19	STR.	10,560	142
A69-B	6	#19	STR.	10,720	144
A70-B	6	#19	STR.	10,900	146
A71-B	6	#19	STR.	11,060	148
A72-B	6	#19	STR.	11,220	150
A73-B	6	#19	STR.	11,400	153
A74-B	6	#19	STR.	11,560	155
A75-B	6	#19	STR.	11,720	157
A76-B	6	#19	STR.	11,900	160
A77-B	6	#19	STR.	12,060	162
A78-B	6	#19	STR.	12,220	164
A79-B	6	#19	STR.	12,400	166
A80-B	6	#19	STR.	12,560	168
A81-B	6	#19	STR.	12,720	171
A82-B	6	#19	STR.	12,900	173
A83-B	6	#19	STR.	13,060	175
A84-B	6	#19	STR.	13,220	177
A85-B	6	#19	STR.	13,400	180
A86-B	6	#19	STR.	13,560	182
A87-B	6	#19	STR.	13,720	184
A88-B	6	#19	STR.	13,900	186
A89-B	6	#19	STR.	14,060	189
A90-B	6	#19	STR.	14,220	191
A91-B	6	#19	STR.	14,400	193
A92-B	6	#19	STR.	14,560	195
A93-B	6	#19	STR.	14,720	197
A94-B	6	#19	STR.	14,900	200

SPAN B - STAGE 2

BAR	NO.	SIZE	TYPE	LENGTH	MASS
B5-B	105	#13	STR.	8,400	877
B6-B	35	#13	STR.	4,460	155
B7-B	67	#16	STR.	18,000	1,872
B8-B	67	#16	STR.	10,600	1,102
G3-B	1	#16	STR.	7,200	11
G4-B	1	#16	STR.	15,020	23
K13-B	8	#25	2	3,320	106
K14-B	2	#25	1	2,780	22
K15-B	2	#25	7	2,540	20
K16-B	4	#25	2	6,840	106
K17-B	2	#25	2	6,080	48
K18-B	2	#25	2	5,340	42
K19-B	2	#25	7	3,460	27
K20-B	2	#25	1	4,440	35
K21-B	6	#16	STR.	1,580	15
K22-B	6	#16	5	1,720	16
K23-B	2	#16	STR.	1,320	4
K24-B	2	#16	5	1,480	5
K25-B	10	#19	STR.	840	14
K26-B	6	#19	STR.	2,520	34
K27-B	2	#19	STR.	1,760	8
K28-B	2	#19	STR.	1,580	7
S4-B	54	#16	3	1,840	154
S5-B	19	#13	4	2,220	42
S6-B	98	#13	6	940	92

TOTAL EPOXY COATED REINF. STEEL SPAN B - STAGE 2 = 11,886

BAR TYPES



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

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE BILL OF MATERIAL

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

SHEET NO. B-75
TOTAL SHEETS 11

DWG. NO. 75

STD. NO. BOM2SM

ASSEMBLED BY : MEW DATE : 10/99
CHECKED BY : DWH DATE : 7/00
DRAWN BY : JMB 5/87 REV. 5/16/97 EEM/RGW
CHECKED BY : SJD 9/87

REINFORCING BAR SCHEDULE

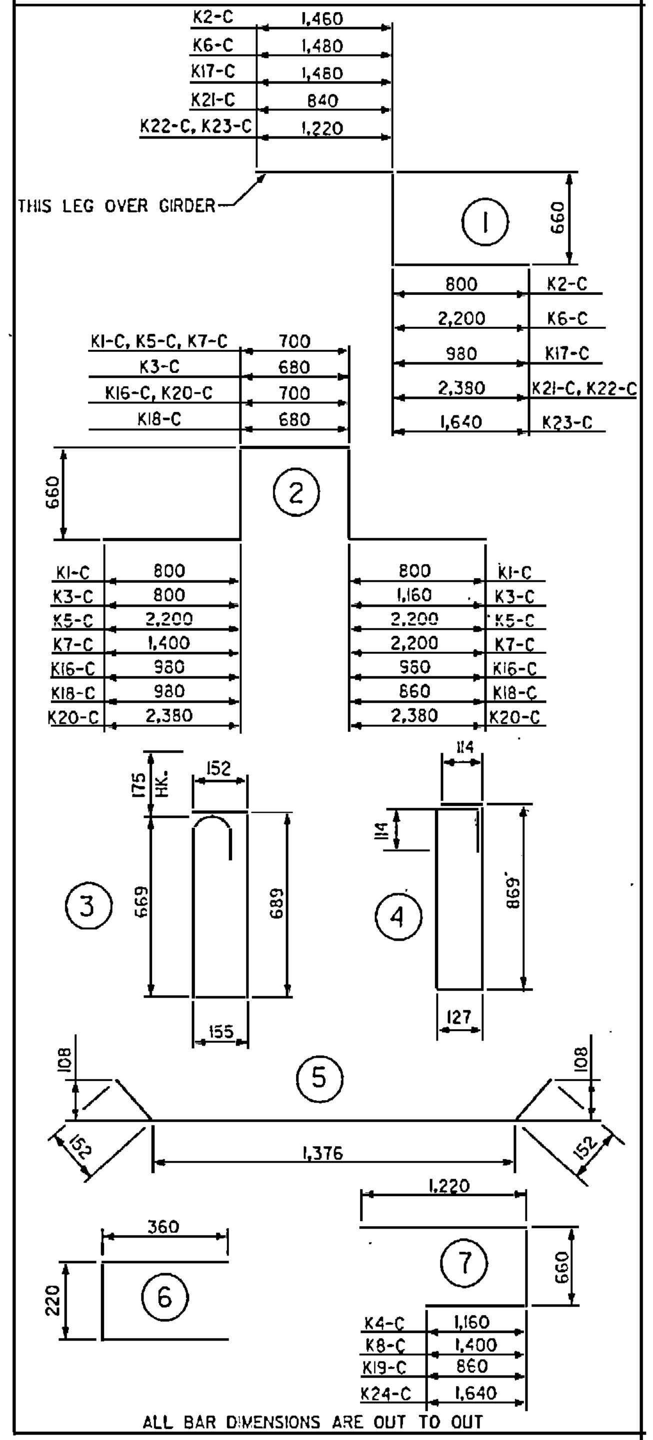
SPAN C - STAGE 1						SPAN C - STAGE 1					
BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-C	4	#19	STR.	9,780	87	A69-C	2	#19	STR.	10,120	45
A2-C	4	#19	STR.	9,920	89	A70-C	2	#19	STR.	9,620	43
A3-C	4	#19	STR.	10,040	90	A71-C	2	#19	STR.	9,120	41
A4-C	4	#19	STR.	10,160	91	A72-C	2	#19	STR.	8,640	39
A5-C	4	#19	STR.	10,300	92	A73-C	2	#19	STR.	8,140	36
A6-C	4	#19	STR.	10,420	93	A74-C	2	#19	STR.	7,640	34
A7-C	4	#19	STR.	10,540	94	A75-C	2	#19	STR.	7,140	32
A8-C	4	#19	STR.	10,660	95	A76-C	2	#19	STR.	6,640	30
A9-C	4	#19	STR.	10,800	97	A77-C	2	#19	STR.	6,160	28
A10-C	4	#19	STR.	10,920	98	A78-C	2	#19	STR.	5,660	25
A11-C	4	#19	STR.	11,040	99	A79-C	2	#19	STR.	5,160	23
A12-C	4	#19	STR.	11,180	100	A80-C	2	#19	STR.	4,660	21
A13-C	4	#19	STR.	11,300	101	A81-C	2	#19	STR.	4,160	19
A14-C	4	#19	STR.	11,420	102	A82-C	2	#19	STR.	3,680	16
A15-C	4	#19	STR.	11,560	103	A83-C	6	#19	STR.	2,400	32
A16-C	4	#19	STR.	11,680	104	A84-C	4	#19	STR.	3,040	27
A17-C	4	#19	STR.	11,800	105	A85-C	2	#19	STR.	2,480	11
A18-C	4	#19	STR.	11,940	107						
A19-C	4	#19	STR.	12,060	108	B1-C	63	#13	STR.	8,000	501
A20-C	4	#19	STR.	12,160	109	B2-C	40	#13	STR.	9,000	358
A21-C	4	#19	STR.	12,320	110	B3-C	10	#13	STR.	5,760	57
A22-C	4	#19	STR.	12,440	111	B4-C	10	#13	STR.	6,960	69
A23-C	4	#19	STR.	12,560	112	B5-C	10	#13	STR.	2,940	29
A24-C	4	#19	STR.	12,700	114	B6-C	11	#13	STR.	4,540	50
A25-C	4	#19	STR.	12,820	115	B7-C	79	#16	STR.	18,000	2,207
A26-C	4	#19	STR.	12,940	116	B8-C	19	#16	STR.	5,340	157
A27-C	4	#19	STR.	13,080	117	B9-C	13	#16	STR.	6,100	123
A28-C	4	#19	STR.	13,200	118	B10-C	13	#16	STR.	6,960	140
A29-C	4	#19	STR.	13,320	119	B11-C	13	#16	STR.	7,900	159
A30-C	4	#19	STR.	13,440	120	B12-C	21	#16	STR.	9,460	308
A31-C	4	#19	STR.	13,580	121						
A32-C	4	#19	STR.	13,700	122	G1-C	1	#16	STR.	9,720	15
A33-C	4	#19	STR.	13,820	124	G2-C	1	#16	STR.	17,300	27
A34-C	4	#19	STR.	13,960	125						
A35-C	4	#19	STR.	14,080	126	K1-C	8	#25	2	3,620	115
A36-C	4	#19	STR.	14,200	127	K2-C	2	#25	1	2,920	23
A37-C	4	#19	STR.	14,340	128	K3-C	2	#25	2	3,960	31
A38-C	4	#19	STR.	14,460	129	K4-C	2	#25	7	3,040	24
A39-C	4	#19	STR.	14,580	130	K5-C	8	#25	2	6,420	204
A40-C	4	#19	STR.	14,720	132	K6-C	2	#25	1	4,340	34
A41-C	4	#19	STR.	14,840	133	K7-C	2	#25	2	5,620	45
A42-C	4	#19	STR.	14,960	134	K8-C	2	#25	7	3,280	26
A43-C	4	#19	STR.	15,100	135	K9-C	10	#16	5	1,680	26
A44-C	4	#19	STR.	15,220	136	K10-C	10	#16	STR.	1,540	24
A45-C	4	#19	STR.	15,340	137	K11-C	10	#13	STR.	800	32
A46-C	4	#19	STR.	15,480	138	K12-C	2	#19	STR.	1,160	9
A47-C	4	#19	STR.	15,600	139	K13-C	10	#19	STR.	2,320	92
A48-C	4	#19	STR.	15,720	141	K14-C	1	#19	STR.	980	4
A49-C	4	#19	STR.	15,860	142	K15-C	1	#19	STR.	1,400	6
A50-C	4	#19	STR.	15,980	143						
A51-C	4	#19	STR.	16,100	144						
A52-C	4	#19	STR.	16,220	145	S1-C	64	#16	3	1,840	183
A53-C	4	#19	STR.	16,360	146	S2-C	25	#13	4	2,220	55
A54-C	2	#19	STR.	16,480	74	S3-C	116	#13	6	940	108
A55-C	2	#19	STR.	16,540	74						
A56-C	2	#19	STR.	16,600	74						
A57-C	2	#19	STR.	16,080	72						
A58-C	2	#19	STR.	15,580	70						
A59-C	2	#19	STR.	15,080	67						
A60-C	2	#19	STR.	14,580	65						
A61-C	2	#19	STR.	14,100	63						
A62-C	2	#19	STR.	13,600	61						
A63-C	2	#19	STR.	13,100	59						
A64-C	2	#19	STR.	12,600	56						
A65-C	2	#19	STR.	12,100	54						
A66-C	2	#19	STR.	11,620	52						
A67-C	2	#19	STR.	11,120	50						
A68-C	2	#19	STR.	10,620	47						

TOTAL EPOXY COATED REINFORCING STEEL SPAN C - STAGE 1: 12,874

SPAN C - STAGE 2						SPAN C - STAGE 2						SPAN C - STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS	BAR	NO.	SIZE	TYPE	LENGTH	MASS
A86-C	2	#19	STR.	10,440	47	A154-C	2	#19	STR.	15,200	68	A222-C	2	#19	STR.	3,520	16
A87-C	2	#19	STR.	10,500	47	A155-C	2	#19	STR.	15,260	68	A223-C	2	#19	STR.	3,180	14
A88-C	2	#19	STR.	10,580	47	A156-C	2	#19	STR.	15,340	69	A224-C	15	#13	STR.	7,400	110
A89-C	2	#19	STR.	10,640	48	A157-C	2	#19	STR.	15,400	69						
A90-C	2	#19	STR.	10,720	48	A158-C	2	#19	STR.	15,480	69	B13-C	72	#13	STR.	8,000	573
A91-C	2	#19	STR.	10,780	48	A159-C	2	#19	STR.	15,540	69	B14-C	40	#13	STR.	9,000	358
A92-C	2	#19	STR.	10,860	49	A160-C	2	#19	STR.	15,620	70	B15-C	10	#13	STR.	5,740	57
A93-C	2	#19	STR.	10,920	49	A161-C	2	#19	STR.	15,680	70	B16-C	10	#13	STR.	6,820	68
A94-C	2	#19	STR.	11,000	49	A162-C	2	#19	STR.	15,760	70	B17-C	12	#13	STR.	2,940	35
A95-C	2	#19	STR.	11,060	49	A163-C	2	#19	STR.	15,820	71	B18-C	12	#13	STR.	4,520	54
A96-C	2	#19	STR.	11,140	50	A164-C	2	#19	STR.	15,900	71	B19-C	51	#16	STR.	18,000	1,425
A97-C	2	#19	STR.	11,200	50	A165-C	2	#19	STR.	15,960	71	B20-C	23	#16	STR.	9,460	338
A98-C	2	#19	STR.	11,280	50	A166-C	2	#19	STR.	16,040	72	B21-C	14	#16	STR.	7,620	170
A99-C	2	#19	STR.	11,340	51	A167-C	2	#19	STR.	16,100	72	B22-C	14	#16	STR.	6,900	150
A100-C	2	#19	STR.	11,420	51	A168-C	2	#19	STR.	16,180	72	B23-C	12	#19	STR.	6,220	167
A101-C	2	#19	STR.	11,480	51	A169-C	2	#19	STR.	16,240	73	B24-C	14	#19	STR.	5,520	173
A102-C	2	#19	STR.	11,560	52	A170-C	2	#19	STR.	16,320	73	B25-C	1	#19	STR.	8,120	18
A103-C	2	#19	STR.	11,620	52	A171-C	2	#19	STR.	16,380	73	B26-C	27	#19	STR.	18,000	1,086
A104-C	2	#19	STR.	11,700	52	A172-C	2	#19	STR.	16,460	74						
A105-C	2	#19	STR.	11,760	53	A173-C	2	#19	STR.	16,520	74	G3-C	1	#16	STR.	10,420	16
A106-C	2	#19	STR.	11,840	53	A174-C	2	#19	STR.	16,600	74	G4-C	2	#16	STR.	9,660	30
A107-C	2	#19	STR.	11,900	53	A175-C	2	#19	STR.	16,660	74						
A108-C	2	#19	STR.	11,980	54	A176-C	2	#19	STR.	16,740	75	K16-C	8	#25	2	3,980	127
A109-C	2	#19	STR.	12,040	54	A177-C	2	#19	STR.	16,800	75	K17-C	2	#25	1	3,120	25
A110-C	2	#19	STR.	12,120	54	A178-C	2	#19	STR.	16,880	75	K18-C	2	#25	2	3,840	31
A111-C	2	#19	STR.	12,180	54	A179-C	2	#19	STR.	16,940	76	K19-C	2	#25	7	2,740	22
A112-C	2	#19	STR.	12,260	55	A180-C	2	#19	STR.	17,020	76	K20-C	8	#25	2	6,780	215
A113-C	2	#19	STR.	12,320	55	A181-C	2	#19	STR.	17,080	76	K21-C	2	#25	1	3,880	31
A114-C	2	#19	STR.	12,400	55	A182-C	2	#19	STR.	17,160	77	K22-C	2	#25	1	4,260	34
A115-C	2	#19	STR.	12,460	56	A183-C	2	#19	STR.	17,220	77	K23-C	2	#25	1	3,520	28
A116-C	2	#19	STR.	12,540	56	A184-C	2	#19	STR.	17,300	77	K24-C	2	#25	7	3,520	28
A117-C	2	#19	STR.	12,600	56	A185-C	2	#19	STR.	17,360	78	K25-C	10	#16	STR.	1,820	28
A118-C	2	#19	STR.	12,680	57	A186-C	2	#19	STR.	17,440	78	K26-C	10	#16	5	1,980	31
A119-C	2	#19	STR.	12,740	57	A187-C	2	#19	STR.	17,500	78	K27-C	10	#19	STR.	980	22
A120-C	2	#19	STR.	12,820	57	A188-C	2	#19	STR.	17,580	79	K28-C	2	#19	STR.	860	4
A121-C	2	#19	STR.	12,880	58	A189-C	2	#19	STR.	17,640	79	K29-C	10	#19	STR.	2,660	59
A122-C	2	#19	STR.	12,960	58	A190-C	2	#19	STR.	17,720	79	K30-C	1	#19	STR.	1,180	3
A123-C	2	#19	STR.	13,020	58	A191-C	2	#19	STR.	17,780	79	K31-C	1	#19	STR.	1,560	3
A124-C	2	#19	STR.	13,100	59	A192-C	2	#19	STR.	17,860	80						
A125-C	2	#19	STR.	13,160	59	A193-C	2	#19	STR.	17,920	80	S1-C	74	#16	3	1,840	211
A126-C	2	#19	STR.	13,240	59	A194-C	2	#19	STR.	17,440	78	S2-C	30	#13	4	2,220	66
A127-C	2	#19	STR.	13,300	59	A195-C	2	#19	STR.	16,900	76	S3-C	136	#13	6	940	127
A128-C	2	#19	STR.	13,380	60	A196-C	2	#19	STR.	16,380	73						
A129-C	2	#19	STR.	13,440	60	A197-C	2	#19	STR.	15,840	71						
A130-C	2	#19	STR.	13,520	60	A198-C	2	#19	STR.	15,320	68						
A131-C	2	#19	STR.	13,580	61	A199-C	2	#19	STR.	14,800	66						
A132-C	2	#19	STR.	13,660	61	A200-C	2	#19	STR.	14,260	64						
A133-C	2	#19	STR.	13,720	61	A201-C	2	#19	STR.	13,740	61						
A134-C	2	#19	STR.	13,800	62	A202-C	2	#19	STR.	13,220	59						
A135-C	2	#19	STR.	13,860	62	A203-C	2	#19	STR.	12,680	57						
A136-C	2	#19	STR.	13,940	62	A204-C	2	#19	STR.	12,160	54						
A137-C	2	#19	STR.	14,000	63	A205-C	2	#19	STR.	11,640	52						
A138-C	2	#19	STR.	14,080	63	A206-C	2	#19	STR.	11,100	50						
A139-C	2	#19	STR.	14,140	63	A207-C	2	#19	STR.	10,580	47						
A140-C	2	#19	STR.	14,220	64	A208-C	2	#19	STR.	10,060	45						
A141-C	2	#19	STR.	14,280	64	A209-C	2	#19	STR.	9,520	43						
A142-C	2	#19	STR.	14,360	64	A210-C	2	#19	STR.	9,000	40						
A143-C	2	#19	STR.	14,420	64	A211-C	2	#19	STR.	8,480	38						
A144-C	2	#19	STR.	14,600	65	A212-C	2	#19	STR.	7,940	35						
A145-C	2	#19	STR.	14,560	65	A213-C	2	#19	STR.	7,420	33						
A146-C	2	#19	STR.	14,640	65	A214-C	2	#19	STR.	6,880	31						
A147-C	2	#19	STR.	14,700	66	A215-C	2	#19	STR.	6,360	28						
A148-C	2	#19	STR.	14,780	66	A216-C	2	#19	STR.	5,840	26						
A149-C	2	#19	STR.	14,840	66	A217-C	2	#19	STR.	5,300	24						
A150-C	2	#19	STR.	14,920	67	A218-C	2	#19	STR.	4,780	21						
A151-C	2	#19	STR.	14,980	67	A219-C	6	#19	STR.	4,260	19						
A152-C	2	#19	STR.	15,060	67	A220-C	2	#19	STR.	3,720	17						
A153-C	2	#19	STR.	15,120	68	A221-C	8	#19	STR.	2,700	48						

TOTAL EPOXY COATED REINFORCING STEEL SPAN C - STAGE 2: 14,122

BAR TYPES



PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POC 12+52.875 -Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE BILL OF MATERIAL

ASSEMBLED BY : MEW	DATE : 10/99
CHECKED BY : DWH	DATE : 9/00
DRAWN BY : JMB 5/87 CHECKED BY : SJD 9/87	REV. 5/16/97 EEM/RGW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

DWG. NO. 76

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-76
1			3					TOTAL SHEETS
2			4					101

STD. NO. BOM2SM

REINFORCING BAR SCHEDULE

SPAN D

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-D	2	#16	STR.	4,960	15
A2-D	2	#16	STR.	9,680	30
A3-D	2	#16	STR.	14,420	45
A4-D	274	#16	STR.	15,000	6,379
A5-D	16	#16	STR.	4,900	122
A6-D	16	#16	STR.	4,880	121
A7-D	16	#16	STR.	4,860	121
A8-D	15	#16	STR.	4,840	120
A9-D	16	#16	STR.	4,820	120
A10-D	16	#16	STR.	4,800	119
A11-D	15	#16	STR.	4,760	118
A12-D	16	#16	STR.	4,740	118
A13-D	16	#16	STR.	4,720	117
A14-D	16	#16	STR.	4,700	117
A15-D	16	#16	STR.	4,680	116
A16-D	16	#16	STR.	4,640	115
A17-D	16	#16	STR.	4,620	115
A18-D	16	#16	STR.	4,600	114
A19-D	16	#16	STR.	4,580	114
A20-D	16	#16	STR.	4,560	113
A21-D	18	#16	STR.	4,520	126
A22-D	2	#16	STR.	16,460	51
A23-D	2	#16	STR.	11,640	36
A24-D	2	#16	STR.	6,820	21
A25-D	2	#16	STR.	2,000	6
A26-D	62	#13	STR.	1,740	107
B1-D	129	#13	STR.	8,000	1,026
B2-D	43	#13	STR.	4,560	195
B3-D	64	#16	STR.	18,000	1,788
B4-D	64	#16	STR.	9,520	946
G1-D	2	#16	STR.	9,960	31
G2-D	2	#16	STR.	9,760	30
K1-D	10	#25	2	6,160	489
K2-D	2	#25	1	4,640	37
K3-D	6	#25	1	4,140	99
K4-D	12	#16	5	2,160	40
K5-D	12	#16	STR.	2,160	40
K6-D	24	#19	STR.	2,060	110
S1-D	108	#16	3	1,880	315
S2-D	42	#13	4	2,220	93
S3-D	204	#13	6	940	191
				TOTAL EPOXY COATED REINFORCING STEEL SPAN D	14,126

SPAN E

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-E	2	#16	STR.	1,800	6
A2-E	2	#16	STR.	2,280	7
A3-E	2	#16	STR.	3,600	11
A4-E	2	#16	STR.	4,940	15
A5-E	2	#16	STR.	6,260	19
A6-E	2	#16	STR.	7,600	24
A7-E	2	#16	STR.	8,920	28
A8-E	2	#16	STR.	10,260	32
A9-E	2	#16	STR.	11,580	36
A10-E	2	#16	STR.	12,920	40
A11-E	2	#16	STR.	14,240	44
A12-E	2	#16	STR.	15,560	48
A13-E	2	#16	STR.	16,920	53
A14-E	4	#16	STR.	9,520	59
A15-E	276	#16	STR.	14,700	6,298
A16-E	4	#16	STR.	4,980	31
A17-E	4	#16	STR.	5,020	31
A18-E	18	#16	STR.	5,180	145
A19-E	18	#16	STR.	5,340	149
A20-E	18	#16	STR.	5,500	154
A21-E	18	#16	STR.	5,660	158
A22-E	18	#16	STR.	5,820	163
A23-E	18	#16	STR.	5,980	167
A24-E	18	#16	STR.	6,140	172
A25-E	18	#16	STR.	6,300	176
A26-E	18	#16	STR.	6,480	181
A27-E	18	#16	STR.	6,640	185
A28-E	18	#16	STR.	6,800	190
A29-E	18	#16	STR.	6,960	194
A30-E	18	#16	STR.	7,120	199
A31-E	18	#16	STR.	7,280	203
A32-E	18	#16	STR.	7,440	208
A33-E	8	#16	STR.	14,000	174
A34-E	2	#16	STR.	7,740	24
A35-E	2	#16	STR.	6,920	21
A36-E	2	#16	STR.	6,120	19
A37-E	2	#16	STR.	5,300	16
A38-E	2	#16	STR.	17,700	55
A39-E	2	#16	STR.	16,880	52
A40-E	2	#16	STR.	16,060	50
A41-E	2	#16	STR.	15,240	47
A42-E	2	#16	STR.	14,440	45
A43-E	2	#16	STR.	13,620	42
A44-E	2	#16	STR.	12,800	40
A45-E	2	#16	STR.	11,980	37
A46-E	2	#16	STR.	11,180	35
A47-E	2	#16	STR.	10,360	32
A48-E	2	#16	STR.	9,540	30
A49-E	2	#16	STR.	8,720	27
A50-E	2	#16	STR.	7,920	25

SPAN E

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A51-E	2	#16	STR.	7,100	22
A52-E	2	#16	STR.	6,280	19
A53-E	2	#16	STR.	5,460	17
A54-E	2	#16	STR.	4,660	14
A55-E	2	#16	STR.	3,840	12
A56-E	4	#16	STR.	1,820	11
A57-E	2	#16	STR.	3,000	9
A58-E	2	#16	STR.	2,640	8
B1-E	75	#13	STR.	7,620	568
B2-E	25	#13	STR.	3,780	94
B3-E	75	#13	STR.	7,380	550
B4-E	25	#13	STR.	3,680	91
B5-E	94	#16	STR.	18,000	2,626
B6-E	47	#16	STR.	7,580	553
B7-E	47	#16	STR.	6,760	493
G1-E	2	#16	STR.	9,760	30
G2-E	2	#16	STR.	11,260	35
K1-E	10	#25	2	6,320	251
K2-E	10	#25	2	6,760	269
K3-E	4	#25	1	4,220	67
K4-E	4	#25	1	4,440	71
K5-E	12	#16	5	2,600	48
K6-E	12	#16	STR.	2,440	45
K7-E	12	#19	STR.	2,140	57
K8-E	12	#19	STR.	2,640	71
S1-E	108	#16	3	1,880	315
S2-E	48	#13	4	2,220	165
S3-E	204	#13	6	940	191
				TOTAL EPOXY COATED REINFORCING STEEL SPAN E	16,899

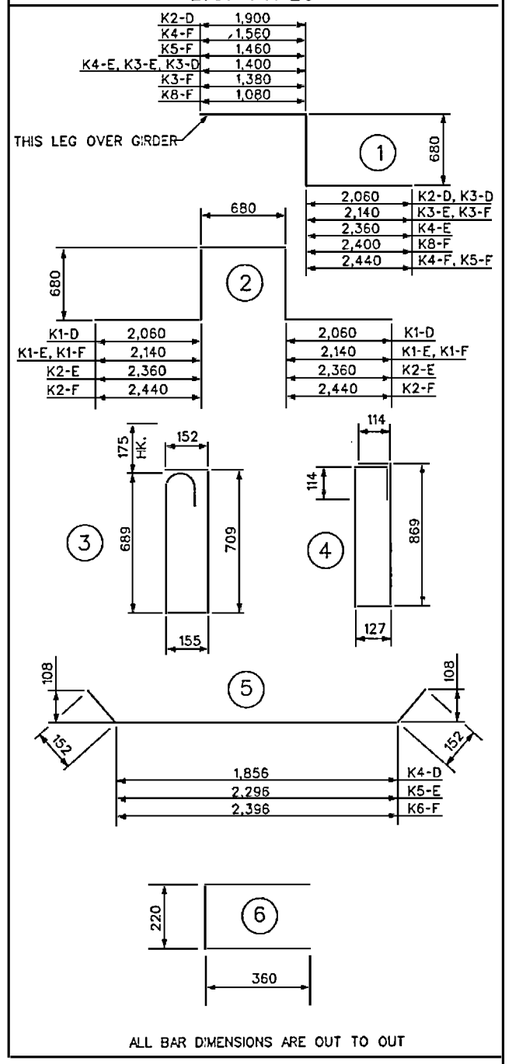
SPAN F

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-F	6	#16	STR.	1,800	17
A2-F	2	#16	STR.	2,600	8
A3-F	2	#16	STR.	2,920	9
A4-F	2	#16	STR.	3,620	11
A5-F	2	#16	STR.	4,180	13
A6-F	2	#16	STR.	4,740	15
A7-F	2	#16	STR.	5,320	17
A8-F	2	#16	STR.	5,880	18
A9-F	2	#16	STR.	6,440	20
A10-F	2	#16	STR.	7,020	22
A11-F	2	#16	STR.	7,580	24
A12-F	2	#16	STR.	8,140	25
A13-F	2	#16	STR.	8,720	27
A14-F	2	#16	STR.	9,380	29
A15-F	2	#16	STR.	9,840	31
A16-F	2	#16	STR.	10,420	32
A17-F	2	#16	STR.	10,980	34
A18-F	2	#16	STR.	11,540	36
A19-F	2	#16	STR.	12,120	38
A20-F	2	#16	STR.	12,680	39
A21-F	2	#16	STR.	13,240	41
A22-F	2	#16	STR.	13,820	43
A23-F	2	#16	STR.	14,380	45
A24-F	2	#16	STR.	14,940	46
A25-F	2	#16	STR.	15,520	48
A26-F	2	#16	STR.	16,080	50
A27-F	2	#16	STR.	16,640	52
A28-F	2	#16	STR.	17,220	53
A29-F	2	#16	STR.	17,780	55
A30-F	2	#16	STR.	5,140	16
A31-F	2	#16	STR.	5,700	18
A32-F	2	#16	STR.	6,280	19
A33-F	2	#16	STR.	7,840	21
A34-F	2	#16	STR.	7,400	23
A35-F	2	#16	STR.	7,980	25
A36-F	2	#16	STR.	8,540	27
A37-F	14	#16	STR.	14,000	304
A38-F	252	#16	STR.	16,600	6,492
A39-F	12	#16	STR.	6,520	121
A40-F	12	#16	STR.	6,700	125
A41-F	12	#16	STR.	6,860	128
A42-F	12	#16	STR.	7,040	131
A43-F	12	#16	STR.	7,220	134
A44-F	12	#16	STR.	7,400	138
A45-F	12	#16	STR.	7,560	141
A46-F	12	#16	STR.	7,740	144
A47-F	12	#16	STR.	7,920	148
A48-F	12	#16	STR.	8,080	150
A49-F	12	#16	STR.	8,260	154
A50-F	12	#16	STR.	8,440	157
A51-F	12	#16	STR.	8,600	160
A52-F	12	#16	STR.	8,780	164
A53-F	12	#16	STR.	8,960	167
A54-F	12	#16	STR.	9,140	170
A55-F	12	#16	STR.	9,300	173
A56-F	12	#16	STR.	9,480	177
A57-F	12	#16	STR.	9,660	180

SPAN F

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A58-F	12	#16	STR.	9,820	183
A59-F	12	#16	STR.	10,000	186
A60-F	26	#16	STR.	15,100	609
A61-F	2	#16	STR.	11,080	34
A62-F	2	#16	STR.	10,460	32
A63-F	2	#16	STR.	9,860	31
A64-F	2	#16	STR.	9,260	29
A65-F	2	#16	STR.	8,660	27
A66-F	2	#16	STR.	8,060	25
A67-F	2	#16	STR.	7,460	23
A68-F	2	#16	STR.	6,860	21
A69-F	2	#16	STR.	6,240	19
A70-F	2	#16	STR.	5,640	18
A71-F	2	#16	STR.	5,040	16
A72-F	2	#16	STR.	4,440	14
A73-F	2	#16	STR.	3,840	12
A74-F	2	#16	STR.	17,540	54
A75-F	2	#16	STR.	16,940	53
A76-F	2	#16	STR.	16,340	51
A77-F	2	#16	STR.	15,740	49
A78-F	2	#16	STR.	11,440	36
A79-F	2	#16	STR.	6,700	21
B1-F	22	#13	STR.	8,940	195
B2-F	11	#13	STR.	4,440	49
B3-F	20	#13	STR.	9,000	179
B4-F	10	#13	STR.	5,440	54
B5-F	117	#13	STR.	7,240	842
B6-F	39	#13	STR.	3,620	140
B7-F	66	#16	STR.	16,200	1,659
B8-F	66	#16	STR.	8,080	828
B9-F	15	#16	STR.	15,700	385
B10-F	15	#16	STR.	7,840	183
B11-F	15	#16	STR.	15,140	352
B12-F	15	#16	STR.	7,540	176
B13-F	20	#16	STR.	14,580	453
B14-F	20	#16	STR.	7,260	225
G1-F	2	#16	STR.	11,280	35
G2-F	1	#16	STR.	14,040	22
G3-F	1	#16	STR.	12,600	20
K1-F	12	#25	2	6,320	301
K2-F	8	#25	2	6,920	220
K3-F	4	#25	1	4,200	67
K4-F	2	#25	1	4,880	37
K5-F	2	#25	1	4,580	36
K6-F	14	#16	5	2,700	59
K7-F	14	#16	STR.	2,540	55
K8-F	8	#25	1	4,160	132
K9-F	14	#19	STR.	2,180	68
K10-F	12	#19	STR.	2,780	75
K11-F	2	#19	STR.	2,720	12
S1-F	125	#16	3	1,880	365
S2-F	63	#13	4	2,220	139
S3-F	235	#13	6	940	221
				TOTAL EPOXY COATED REINFORCING STEEL SPAN F	19,812

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POC 12+52.875 -Y-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD SUPERSTRUCTURE BILL OF MATERIAL

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-77
1			3			TOTAL SHEETS
2			4			1of1

DWG. NO. 77

STD. NO. BOM2SM

ASSEMBLED BY : MEW	DATE : 10/99
CHECKED BY : DWH	DATE : 7/00
DRAWN BY : JW3 5/87	REV. 5/16/97 EEM/RGW
CHECKED BY : SJD 9/87	

NORTH CAROLINA PROFESSIONAL SEAL 9303 ENGINEER NEIL T. GREENLEE 11/14/00

NORTH CAROLINA PROFESSIONAL SEAL 12915 ENGINEER PAUL J. BARBER 11/14/00

REINFORCING BAR SCHEDULE

SPAN G

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-G	354	#16	STR.	14,040	7,714
B1-G	53	#16	STR.	18,000	1,481
B2-G	53	#16	STR.	12,760	1,050
B3-G	99	#13	STR.	9,000	886
B4-G	33	#13	STR.	4,820	158
G1-G	2	#16	STR.	14,040	44
K1-G	12	#25	2	6,520	311
K2-G	4	#25	1	4,380	70
K3-G	4	#25	1	4,220	67
K4-G	8	#16	5	2,620	33
K5-G	8	#16	STR.	2,460	31
K6-G	16	#19	STR.	2,400	86
S1-G	72	#16	3	1,880	210
S2-G	32	#13	4	2,220	71
S3-G	136	#13	6	940	127
TOTAL EPOXY COATED REINFORCING STEEL SPAN G					12,339

SPAN H

A1-H	350	#16	STR.	14,040	7,627
B1-H	53	#16	STR.	18,000	1,481
B2-H	53	#16	STR.	12,380	1,018
B3-H	99	#13	STR.	9,000	886
B4-H	33	#13	STR.	4,440	146
G1-H	2	#16	STR.	14,040	44
K1-H	12	#25	2	6,520	311
K2-H	4	#25	1	4,380	70
K3-H	4	#25	1	4,220	67
K4-H	8	#16	5	2,620	33
K5-H	8	#16	STR.	2,460	31
K6-H	16	#19	STR.	2,400	86
S1-G	72	#16	3	1,880	210
S2-G	32	#13	4	2,220	71
S3-G	136	#13	6	940	127
TOTAL EPOXY COATED REINFORCING STEEL SPAN H					12,208

SPAN I

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-I	346	#16	STR.	14,040	7,539
B1-I	53	#16	STR.	18,000	1,481
B2-I	53	#16	STR.	12,160	1,000
B3-I	99	#13	STR.	9,000	886
B4-I	33	#13	STR.	4,220	138
G1-I	2	#16	STR.	14,040	44
K1-I	12	#25	2	6,520	311
K2-I	4	#25	1	4,380	70
K3-I	4	#25	1	4,220	67
K4-I	8	#16	5	2,620	33
K5-I	8	#16	STR.	2,460	31
K6-I	16	#19	STR.	2,400	86
S1-I	72	#16	3	1,880	210
S2-I	32	#13	4	2,220	71
S3-I	136	#13	6	940	127
TOTAL EPOXY COATED REINFORCING STEEL SPAN I					12,094

SPAN J

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A1-J	44	#16	STR.	14,120	964
A2-J	2	#16	STR.	14,200	44
A3-J	2	#16	STR.	14,260	44
A4-J	2	#16	STR.	14,340	45
A5-J	2	#16	STR.	14,420	45
A6-J	2	#16	STR.	14,500	45
A7-J	2	#16	STR.	14,560	45
A8-J	2	#16	STR.	14,640	45
A9-J	2	#16	STR.	14,720	46
A10-J	2	#16	STR.	14,800	46
A11-J	2	#16	STR.	14,860	46
A12-J	2	#16	STR.	14,940	46
A13-J	2	#16	STR.	15,020	47
A14-J	2	#16	STR.	15,100	47
A15-J	2	#16	STR.	15,160	47
A16-J	2	#16	STR.	15,240	47
A17-J	2	#16	STR.	15,320	48
A18-J	2	#16	STR.	15,380	48
A19-J	2	#16	STR.	15,460	48
A20-J	2	#16	STR.	15,540	48
A21-J	2	#16	STR.	15,620	48
A22-J	2	#16	STR.	15,680	49
A23-J	2	#16	STR.	15,760	49
A24-J	2	#16	STR.	15,840	49
A25-J	2	#16	STR.	15,920	49
A26-J	2	#16	STR.	15,980	50
A27-J	2	#16	STR.	16,060	50
A28-J	2	#16	STR.	16,140	50
A29-J	2	#16	STR.	16,220	50
A30-J	2	#16	STR.	16,280	51
A31-J	2	#16	STR.	16,360	51
A32-J	2	#16	STR.	16,440	51
A33-J	2	#16	STR.	16,520	51
A34-J	2	#16	STR.	16,580	51
A35-J	2	#16	STR.	16,660	52
A36-J	2	#16	STR.	16,740	52
A37-J	2	#16	STR.	16,820	52
A38-J	2	#16	STR.	16,880	52
A39-J	2	#16	STR.	16,960	53
A40-J	2	#16	STR.	17,040	53
A41-J	2	#16	STR.	17,120	53
A42-J	2	#16	STR.	17,180	53
A43-J	2	#16	STR.	17,260	54
A44-J	2	#16	STR.	17,340	54
A45-J	2	#16	STR.	17,400	54
A46-J	2	#16	STR.	17,480	54
A47-J	2	#16	STR.	17,560	55
A48-J	2	#16	STR.	17,640	55
A49-J	2	#16	STR.	17,700	55
A50-J	2	#16	STR.	17,780	55

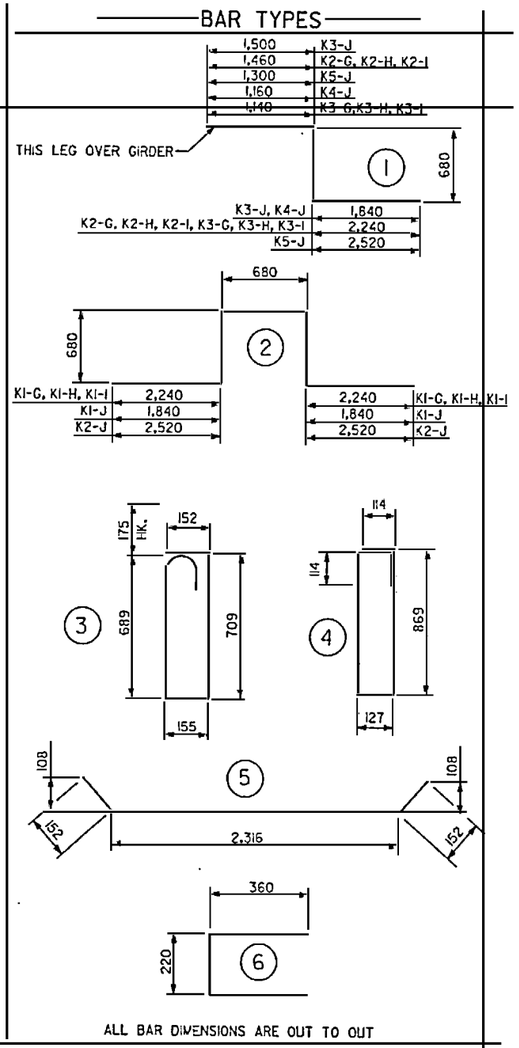
SPAN J

BAR	NO.	SIZE	TYPE	LENGTH	MASS
A51-J	2	#16	STR.	17,860	55
A52-J	2	#16	STR.	17,940	56
A53-J	2	#16	STR.	18,000	56
A54-J	2	#16	STR.	4,760	15
A55-J	2	#16	STR.	4,820	15
A56-J	2	#16	STR.	4,900	15
A57-J	2	#16	STR.	4,980	15
A58-J	2	#16	STR.	5,060	16
A59-J	2	#16	STR.	5,120	16
A60-J	2	#16	STR.	5,200	16
A61-J	2	#16	STR.	5,280	16
A62-J	2	#16	STR.	5,360	17
A63-J	2	#16	STR.	5,420	17
A64-J	2	#16	STR.	5,500	17
A65-J	2	#16	STR.	5,580	17
A66-J	2	#16	STR.	5,660	18
A67-J	2	#16	STR.	5,720	18
A68-J	2	#16	STR.	5,800	18
A69-J	2	#16	STR.	5,880	18
A70-J	2	#16	STR.	5,940	18
A71-J	2	#16	STR.	6,020	19
A72-J	2	#16	STR.	6,100	19
A73-J	2	#16	STR.	6,180	19
A74-J	2	#16	STR.	5,440	17
A75-J	2	#16	STR.	17,800	55
A76-J	2	#16	STR.	16,840	52
A77-J	2	#16	STR.	15,880	49
A78-J	2	#16	STR.	14,900	46
A79-J	2	#16	STR.	13,940	43
A80-J	2	#16	STR.	12,980	40
A81-J	2	#16	STR.	12,020	37
A82-J	2	#16	STR.	11,060	34
A83-J	2	#16	STR.	10,080	31
A84-J	2	#16	STR.	9,120	28
A85-J	2	#16	STR.	8,160	25
A86-J	2	#16	STR.	7,200	22
A87-J	2	#16	STR.	6,240	19
A88-J	2	#16	STR.	5,280	16
A89-J	2	#16	STR.	4,300	13
A90-J	2	#16	STR.	3,260	10
A91-J	2	#16	STR.	2,200	7
A92-J	2	#16	STR.	1,440	4

SPAN J

BAR	NO.	SIZE	TYPE	LENGTH	MASS
B1-J	1	#16	STR.	9,440	15
B2-J	4	#16	STR.	9,780	51
B3-J	5	#16	STR.	10,040	78
B4-J	5	#16	STR.	10,060	78
B5-J	5	#16	STR.	10,120	79
B6-J	5	#16	STR.	10,240	79
B7-J	5	#16	STR.	10,320	80
B8-J	5	#16	STR.	10,420	81
B9-J	5	#16	STR.	10,580	82
B10-J	5	#16	STR.	10,700	83
B11-J	5	#16	STR.	10,840	84
B12-J	5	#16	STR.	11,040	86
B13-J	5	#16	STR.	11,200	87
B14-J	5	#16	STR.	11,380	88
B15-J	5	#16	STR.	11,600	90
B16-J	5	#16	STR.	11,800	92
B17-J	5	#16	STR.	12,020	93
B18-J	3	#16	STR.	12,280	57
B19-J	1	#16	STR.	12,060	19
B20-J	1	#16	STR.	11,800	18
B21-J	6	#13	STR.	9,000	54
B22-J	5	#13	STR.	8,540	42
B23-J	5	#13	STR.	8,180	44
B24-J	5	#13	STR.	7,840	39
B25-J	5	#13	STR.	7,500	37
B26-J	5	#13	STR.	7,180	36
B27-J	5	#13	STR.	6,900	34
B28-J	5	#13	STR.	6,680	33
B29-J	6	#13	STR.	6,660	40
B30-J	47	#13	STR.	4,000	187
G1-J	1	#16	STR.	14,120	22
G2-J	2	#16	STR.	10,160	32
K1-J	8	#25	2	5,720	182
K2-J	8	#25	2	7,080	225
K3-J	2	#25	1	4,020	32
K4-J	2	#25	1	3,680	29
K5-J	4	#25	1	4,500	72
K6-J	10	#19	STR.	1,820	41
K7-J	10	#19	STR.	2,940	66
S1-J	75	#16	3	1,880	219
S2-J	140	#13	6	940	131
TOTAL EPOXY COATED REINFORCING STEEL SPAN J					7,487

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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			

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

APPROACH SLABS	—— SQ.METER
BRIDGE DECK	3,987.0 SQ.METER
TOTAL	3,987.0 SQ.METER

NOTE: BRIDGE DECK GROOVING SHALL BE TERMINATED 150mm FROM CUT LINE OF EXISTING DECK.

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

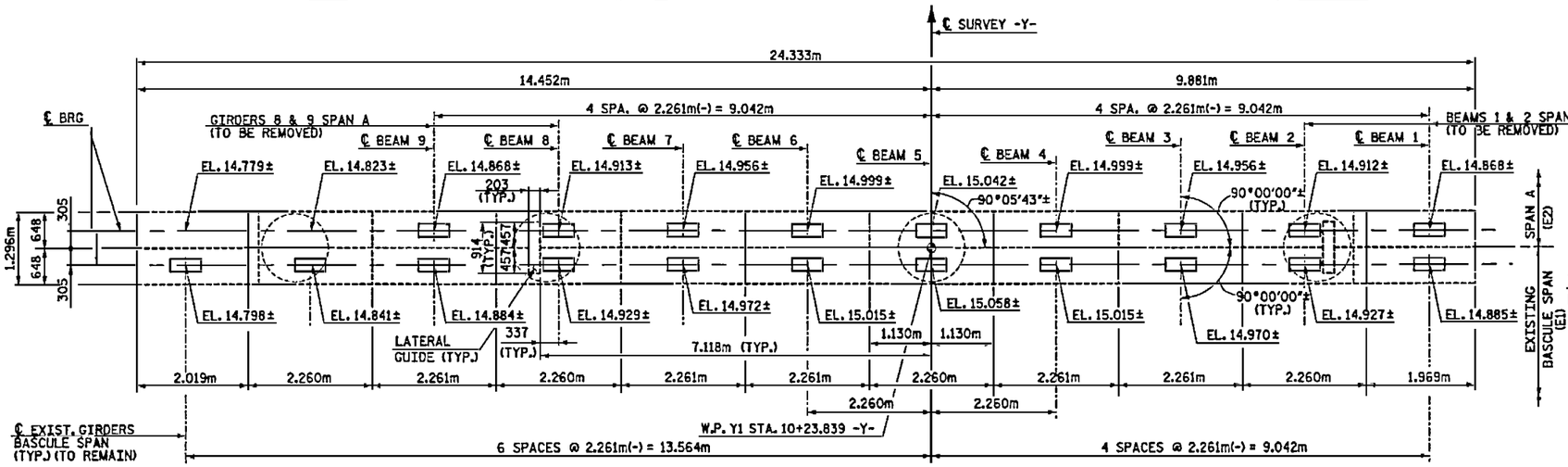
ASSEMBLED BY : MEW DATE : 10/93
CHECKED BY : DWH DATE : 7/00
DRAWN BY : JMB 5/87
CHECKED BY : SJD 9/87
REV. 5/16/97 EEM/RGW

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19331 NEIL T. GREENLEE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12396 PAUL J. BARBER

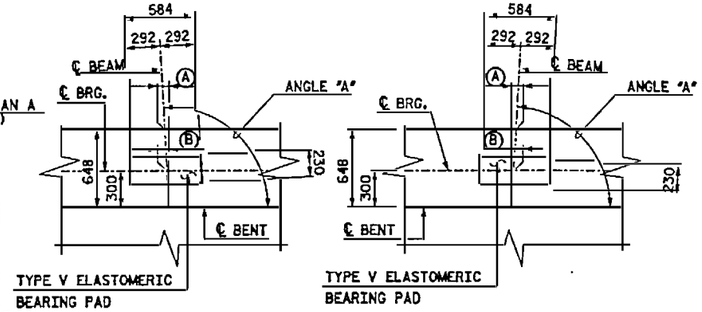
DWG. NO. 78

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			1011

STD. NO. BOM2SM



EXISTING CAP PLAN (E2)

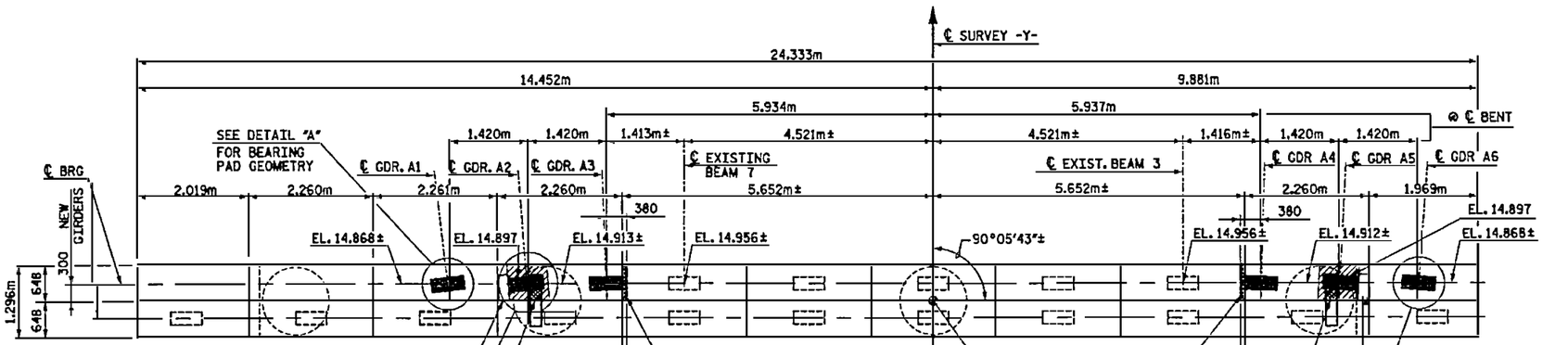


GIRDERS A1, A2 & A3

DETAIL A

GIRDERS A4, A5 & A6

SPAN A DIMENSIONS			
GIRDER	ANGLE "A"	Ⓐ	Ⓑ
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



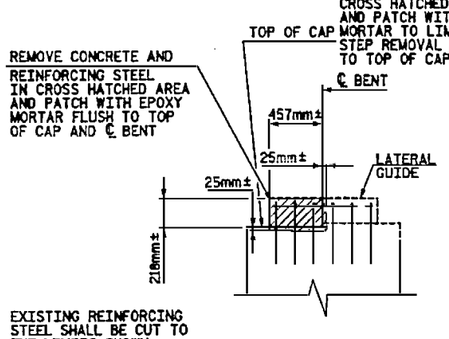
PROPOSED CAP PLAN

PLAN AT GDR. A2

PLAN AT GDR. A5

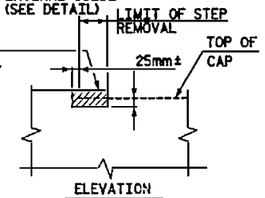
SECTION THRU LATERAL GUIDE

LATERAL GUIDE DETAILS



SECTION THRU CAP

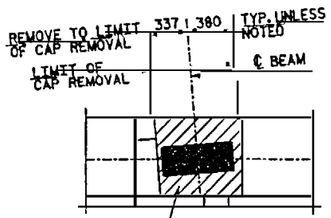
LATERAL GUIDE REMOVAL DETAIL



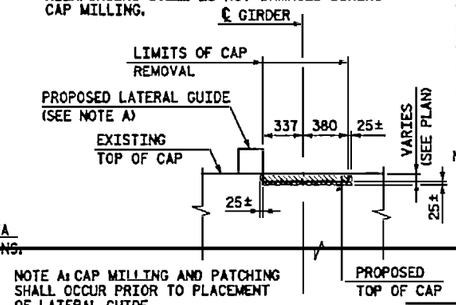
STEP REMOVAL DETAIL

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

NOTE: THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING REINFORCING STEEL IS NOT DAMAGED DURING CAP MILLING.



PLAN



NOTE A: CAP MILLING AND PATCHING SHALL OCCUR PRIOR TO PLACEMENT OF LATERAL GUIDE.

DETAIL "B"

ELEVATION

QUANTITIES	
EPOXY MORTAR REPAIR	0.038 m^2

NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.

NOTES:

FOR EPOXY MORTAR REPAIRS, SEE SPECIAL PROVISIONS.

FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISION "ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS."

THE #13D1 BARS SHALL BE INSTALLED USING AN EPOXY ANCHORING SYSTEM. FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR #13D1 BARS IS 53.4kN. THE LENGTH OF THE #13D1 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.

NOTE: PATCHED AREAS SHALL BE SEALED WITH EPOXY PROTECTIVE COATING. SEE SPECIAL PROVISIONS.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

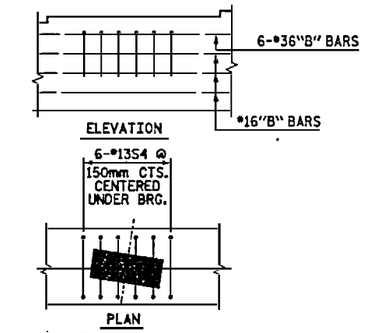
SUBSTRUCTURE

BENT 1
(EXISTING BENT E2)

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

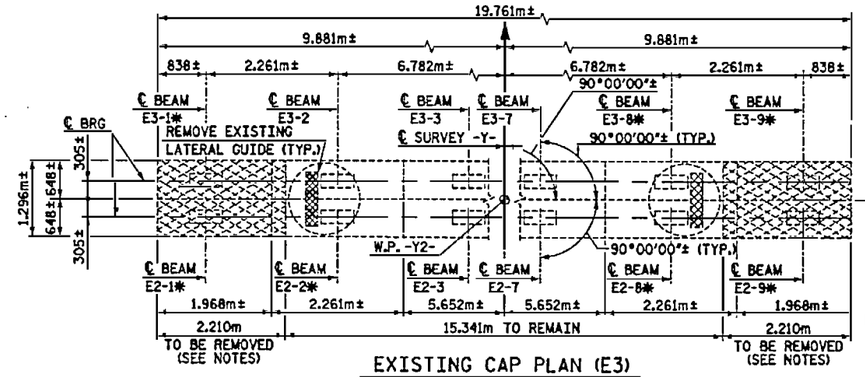
DRAWN BY J. RAYNE DATE 7/00
CHECKED BY P. BARBER DATE 8/00
DWG. NO. 79

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-79
1			3			TOTAL SHEETS
2			4			161



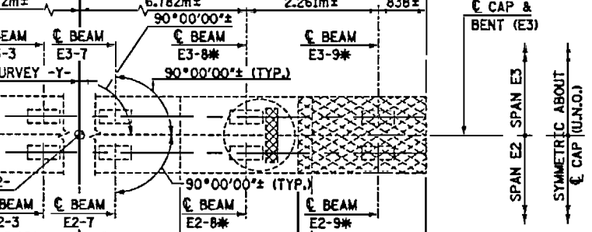
LAYOUT FOR PLACEMENT OF #13S4 BARS

TYPICAL UNDER GDR. A1, A2, A5, A6, B1, B2, B3, B4, B7, B8, B9



EXISTING CAP PLAN (E3)

(*DENOTES BEAMS TO BE REMOVED)



NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.

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.

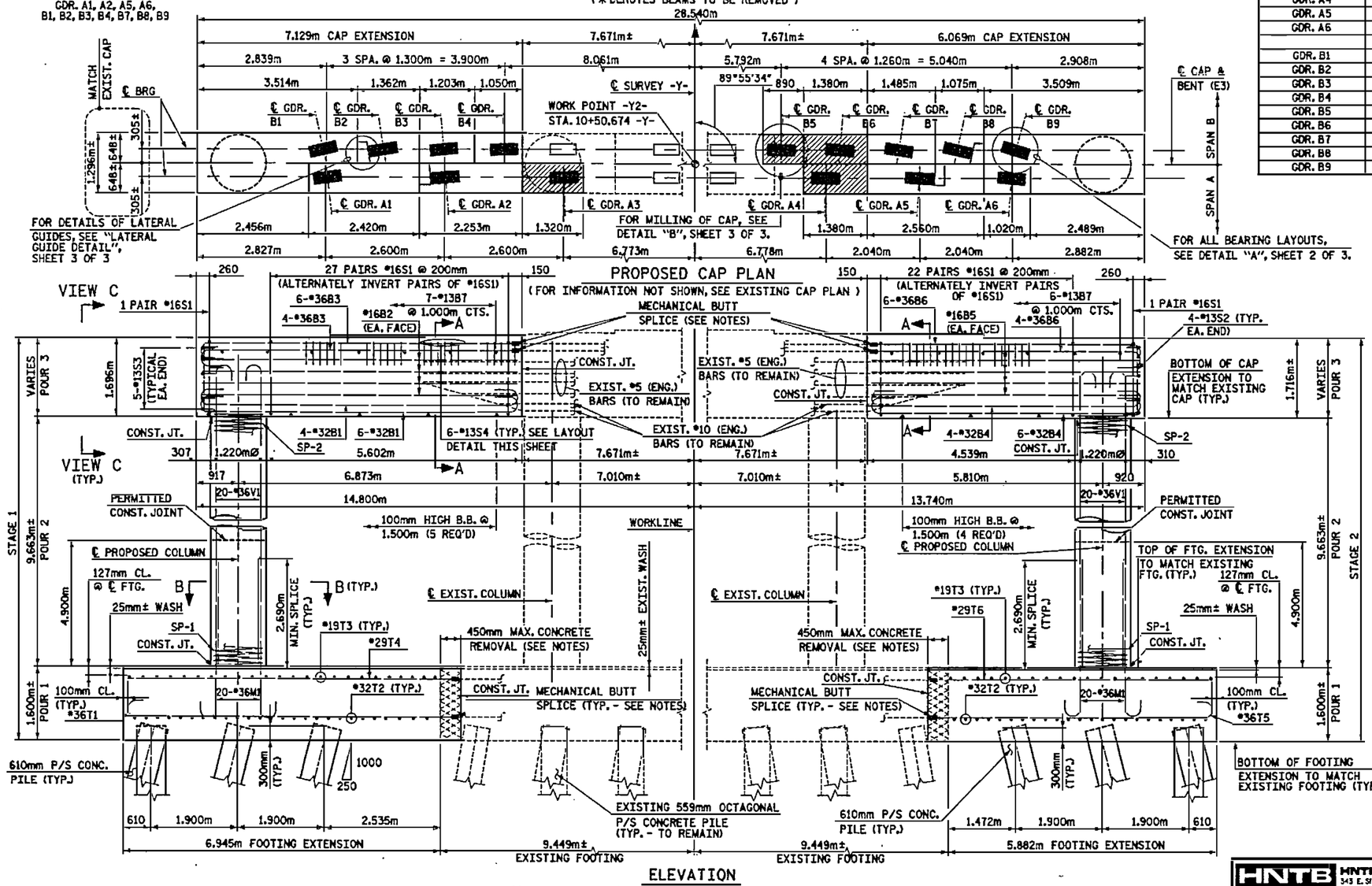
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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 WIHT 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).



ELEVATION

(FOR INFORMATION NOT SHOWN, SEE EXISTING CAP ELEVATION)

DENOTES CONCRETE AND REINFORCING REMOVAL

DENOTES CONCRETE MILLING OF BENT CAP FOR PLACEMENT OF NEW BEARINGS

DENOTES CONCRETE REMOVAL ONLY

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 1 OF 3

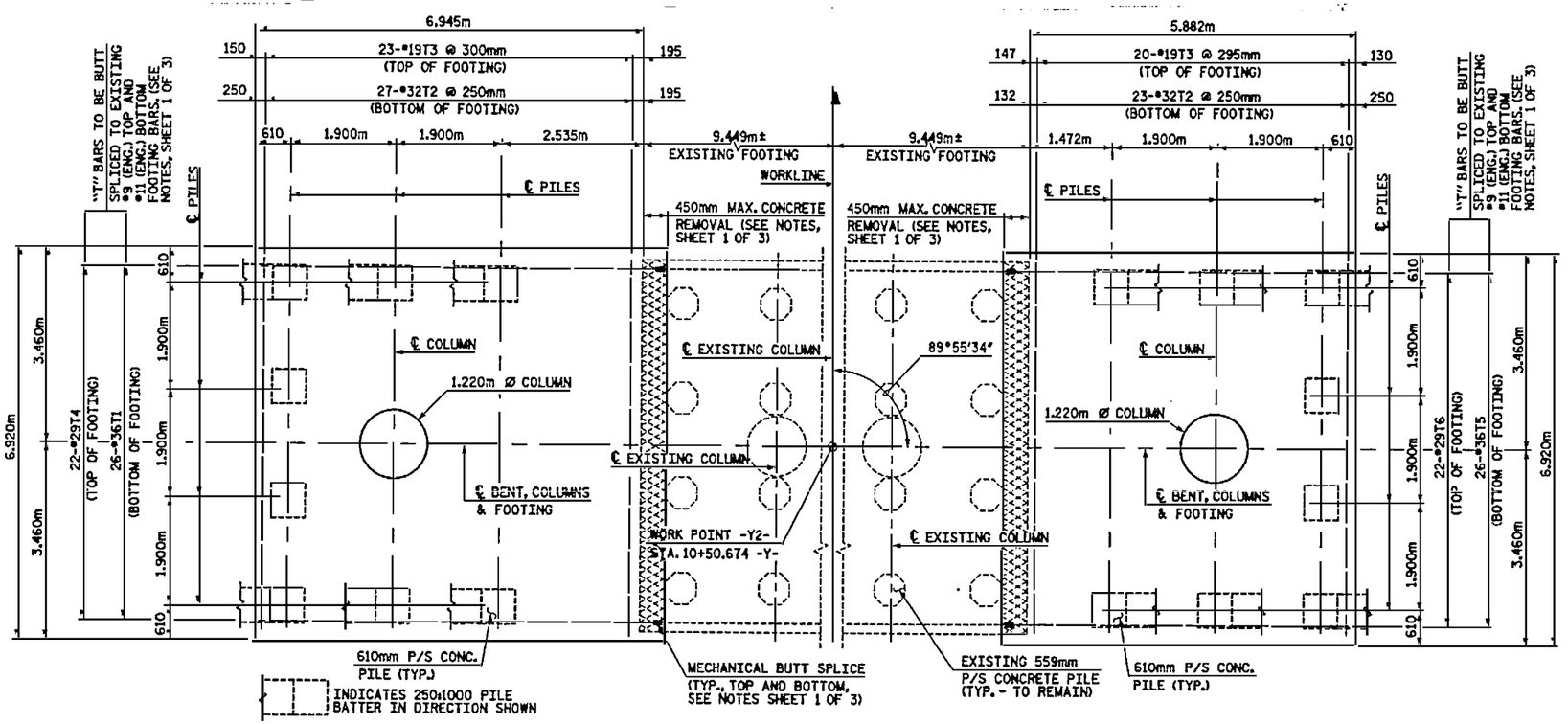
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2
(EXISTING BENT E3)

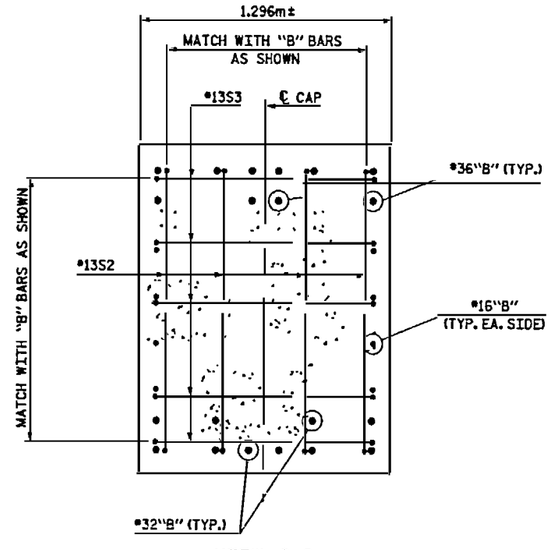
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY R. KNIGHT DATE 09/00
CHECKED BY N. GREENLEE DATE 09/00
DISC. NO. 80

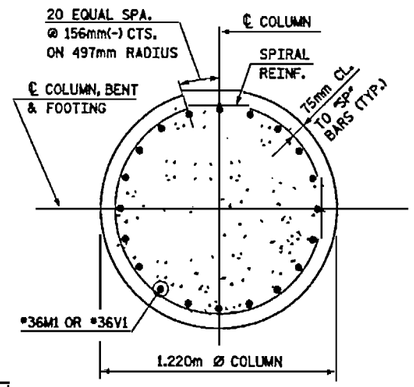
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-80
1			3			TOTAL SHEETS
2			4			1011



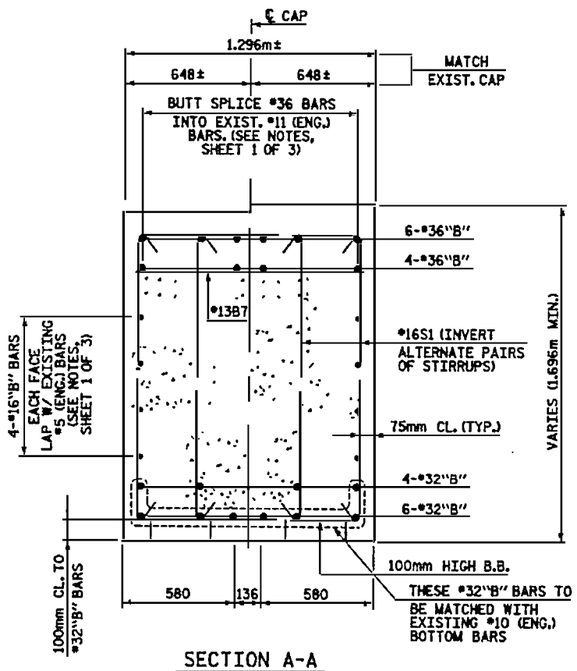
FOOTING PLAN



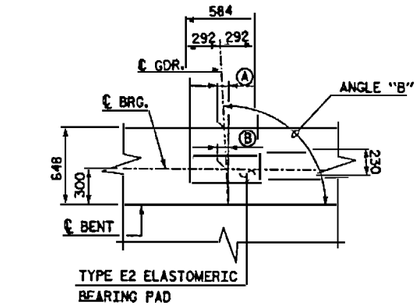
VIEW C-C



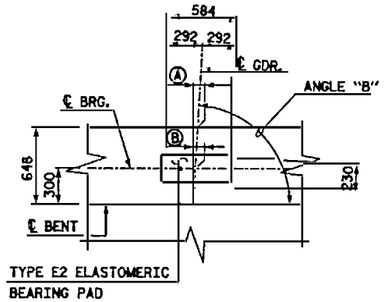
SECTION B-B



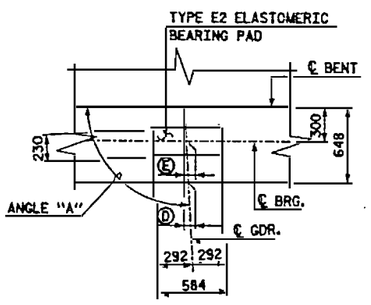
SECTION A-A



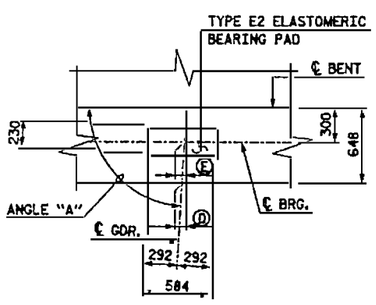
GDR. B1, B2, B3, B4



GDR. B5, B6, B7, B8, B9



GDR. A1, A2, A3



GDR. A4, A5, A6

GIRDER	ANGLE "A"	Ⓐ	Ⓑ
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"	Ⓓ	Ⓔ
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

DETAIL "A"

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

SHEET 2 OF 3

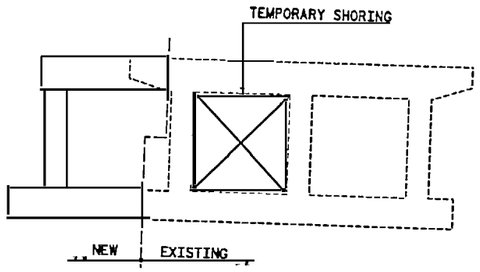
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

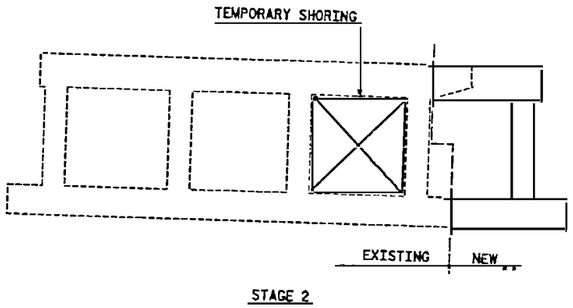
HNTB HNTB NORTH CAROLINA, P.C.

DRAWN BY R. KNIGHT DATE 9/00
CHECKED BY N. GREENLEE DATE 9/00
DWG. NO. 8

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-251
1			3			TOTAL SHEETS
2			4			161



STAGE 1



STAGE 2

STAGE 1 NOTES:

1. ERECT TEMPORARY SHORING AS SHOWN. SHORING SHALL SUPPORT EXISTING CAP DIRECTLY BENEATH ALL EXISTING GIRDER BEARING POINTS AND SHALL BE CAPABLE OF SUPPORTING 800kN 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.
2. CONSTRUCT FOOTING EXTENSION, COLUMN AND CAP EXTENSION AS SHOWN ON THE PLANS.
3. REMOVE TEMPORARY SHORING AND PROCEED WITH STAGE 1 SUPERSTRUCTURE ERECTION AFTER ALL NEW CONCRETE HAS REACHED A MINIMUM STRENGTH OF 31.0 MPa.
4. PROCEED TO STAGE 2.

STAGE 2 NOTES:

1. ERECT TEMPORARY SHORING AS SHOWN. SHORING SHALL SUPPORT EXISTING CAP DIRECTLY BENEATH ALL EXISTING GIRDER BEARING POINTS AND SHALL BE CAPABLE OF SUPPORTING 800kN 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.
2. CONSTRUCT FOOTING EXTENSION, COLUMN AND CAP EXTENSION AS SHOWN ON THE PLANS.
3. REMOVE TEMPORARY SHORING AND PROCEED WITH STAGE 2 SUPERSTRUCTURE ERECTION AFTER ALL NEW CONCRETE HAS REACHED A MINIMUM STRENGTH OF 31.0 MPa.

SEQUENCE OF CONSTRUCTION

NOTE: THE TEMPORARY SHORING PAY ITEM IS INCIDENTAL TO THE REMOVAL OF EXISTING STRUCTURE.

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

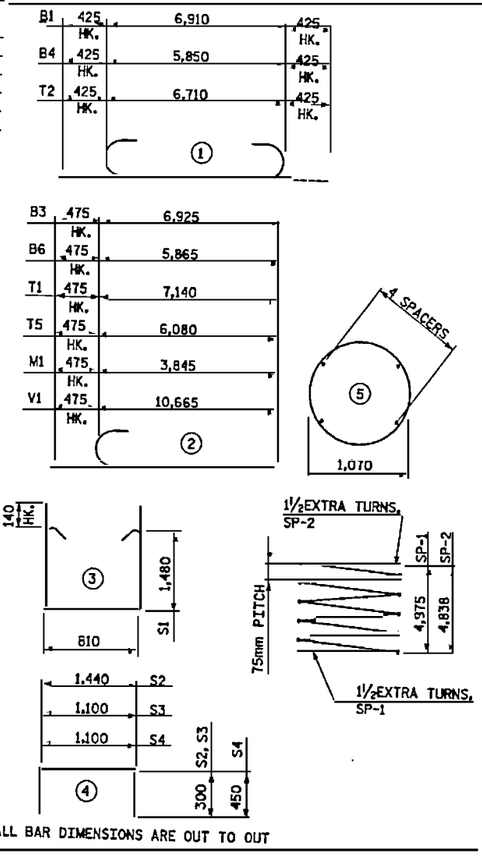
QUANTITIES

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
610mm P/S CONC. PILES	NO.	8
	METERS	128
STEEL PILE TIPS	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

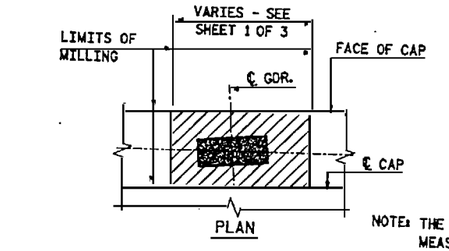
MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 2					
B4	10	#32	1	6,620	424
B5	8	#16	STR.	5,880	77
B6	10	#36	2	5,880	465
B7	6	#13	STR.	1,080	6
D1	12	#13	STR.	300	4
S1	46	#16	3	4,080	291
S2	4	#13	4	2,040	8
S3	5	#13	4	1,700	8
S4	30	#13	4	2,000	60
SP-1	1	*	5	228,640	355
SP-2	1	*	5	228,960	352
M1	20	#36	2	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

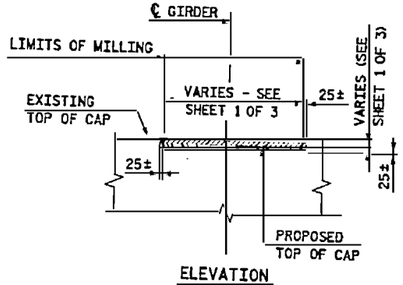
EPOXY COATED REINFORCING STEEL	kg	6,386
EPOXY COATED SPIRAL COL. REINF. STEEL	kg	707
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	69.7
POUR 2 COLUMN	CU. METERS	11.3
POUR 3 CAP	CU. METERS	13.7
TOTAL	CU. METERS	94.7
610mm P/S CONC. PILES	NO.	8
	METERS	128
STEEL PILE TIPS	NO.	8

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.



PLAN

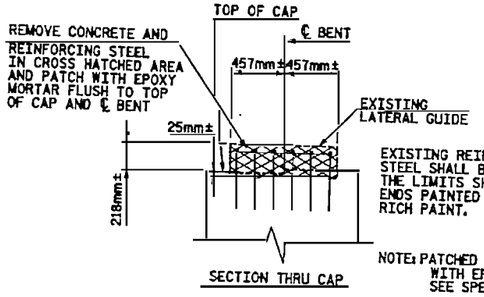


ELEVATION

REMOVE CONCRETE IN CROSS HATCHED AREA AND PATCH WITH EPOXY MORTAR TO LIMITS OF MILLING AND TO PROPOSED TOP OF CAP.

DETAIL "B"

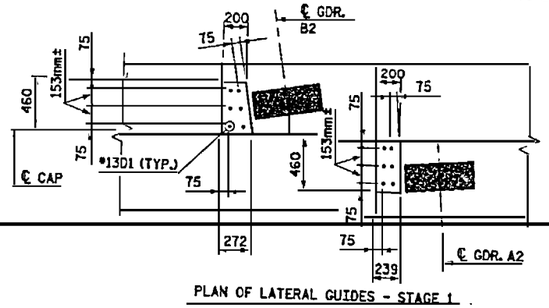
NOTE: THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING REINFORCING STEEL IS NOT DAMAGED DURING CAP REMOVAL. ALL REINFORCING STEEL EXPOSED DURING CAP REMOVAL SHALL BE GIVEN ONE COAT OF ZINC RICH PAINT.



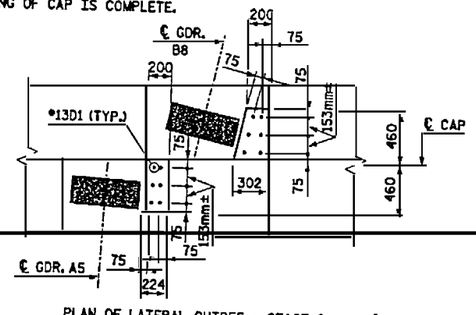
NOTE: PATCHED AREAS SHALL BE SEALED WITH EPOXY PROTECTIVE COATING. SEE SPECIAL PROVISIONS.

LATERAL GUIDE REMOVAL DETAIL

NOTE: LATERAL GUIDES SHALL NOT BE CONSTRUCTED UNTIL MILLING AND PATCHING OF CAP IS COMPLETE.



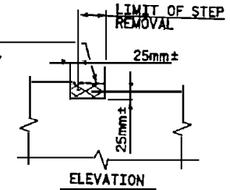
PLAN OF LATERAL GUIDES - STAGE 1



PLAN OF LATERAL GUIDES - STAGE 2

LATERAL GUIDE DETAILS

REMOVE CONCRETE IN CROSS HATCHED AREA AND PATCH WITH EPOXY MORTAR TO LIMITS OF STEP REMOVAL AND TO TOP OF CAP.



STEP REMOVAL DETAIL

QUANTITIES	
EPOXY MORTAR REPAIR	0.052 m

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

DRAWN BY R. KNIGHT DATE 9/00
CHECKED BY N. GREENLEE DATE 9/00
DWG. NO. 82

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-82
1			3			TOTAL SHEETS
2			4			1of1

PROJECT NO. U-0092A

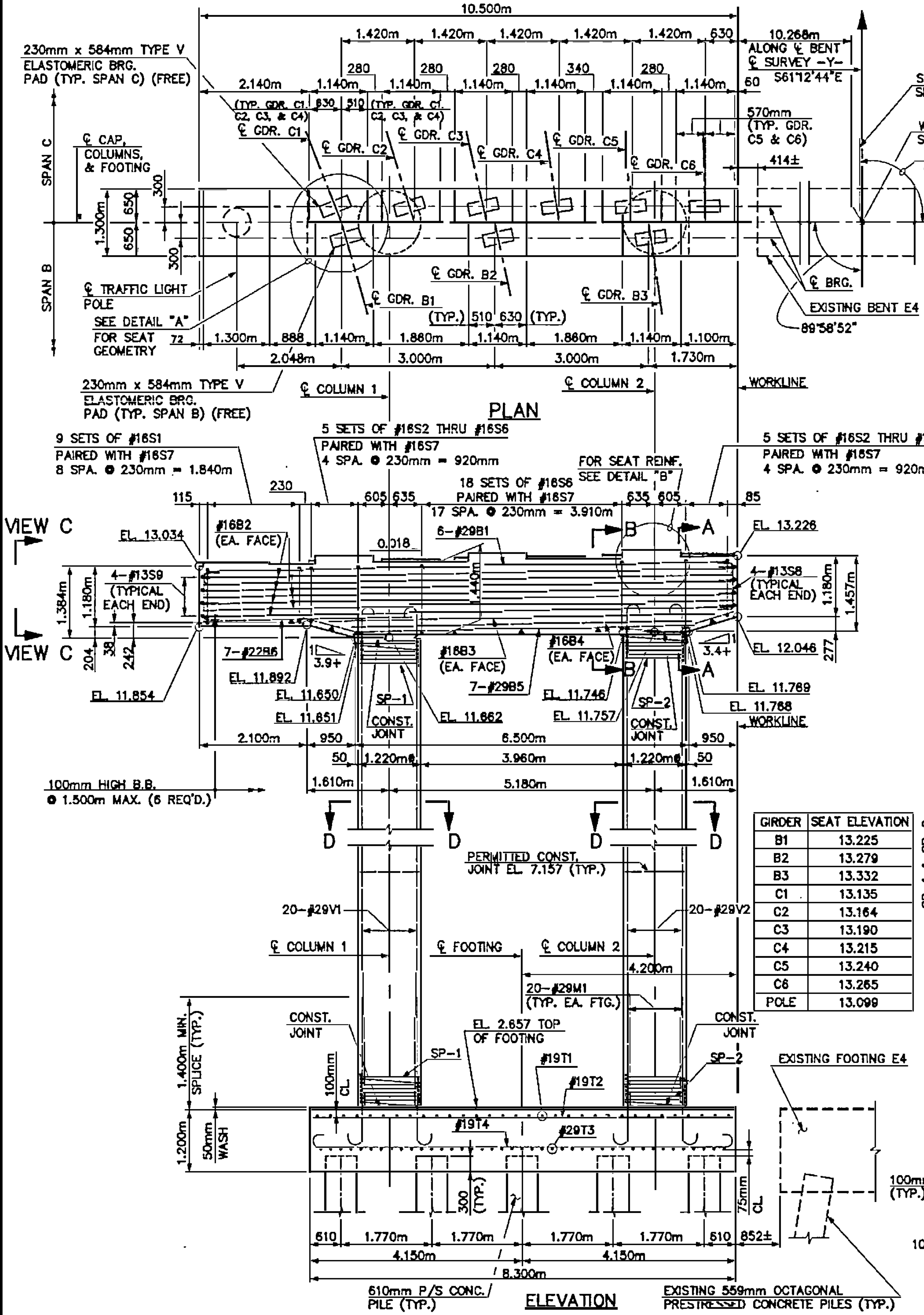
NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

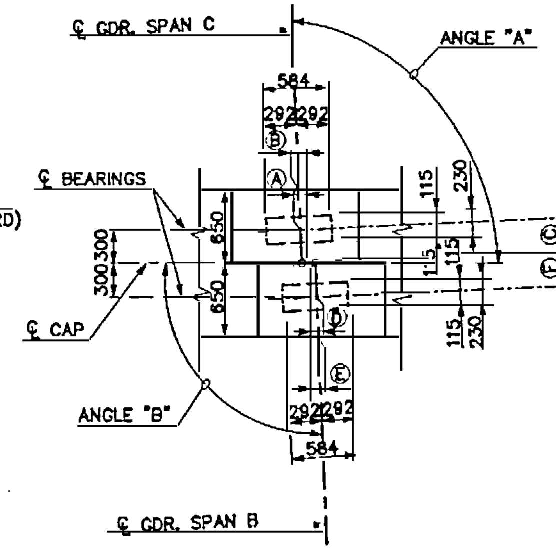
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2
(EXISTING BENT E3)



GIRDER	SEAT ELEVATION
B1	13.225
B2	13.279
B3	13.332
C1	13.135
C2	13.164
C3	13.190
C4	13.215
C5	13.240
C6	13.265
POLE	13.099



DETAIL "A"
(TYP. ALL SEATS)

SPAN C				
GIRDER	ANGLE "B"	Ⓐ	Ⓑ	Ⓒ
C1	108°04'16"	98	212	316
C2	103°59'05"	75	162	309
C3	100°08'30"	54	116	305
C4	96°33'08"	34	75	302
C5	93°13'03"	17	37	300
C6	90°07'54"	1	1	300

SPAN B				
GIRDER	ANGLE "A"	Ⓓ	Ⓔ	Ⓕ
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.

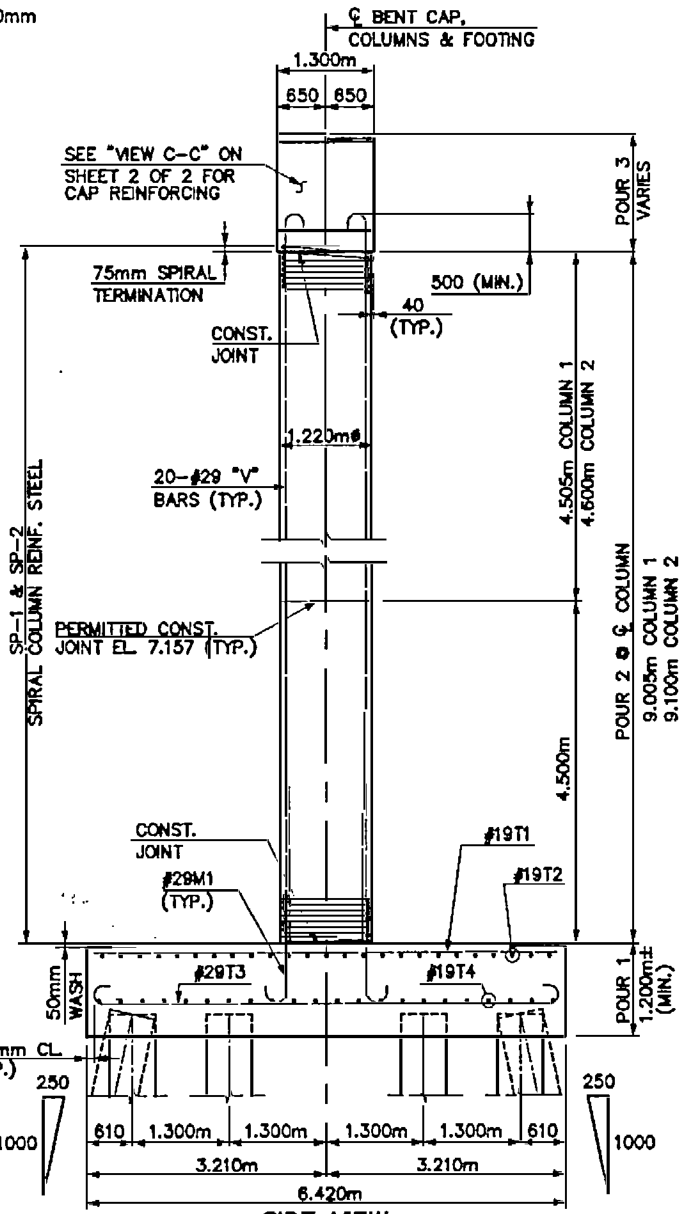
THE TOP SURFACE AREAS OF THE BENT CAP SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THAT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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.

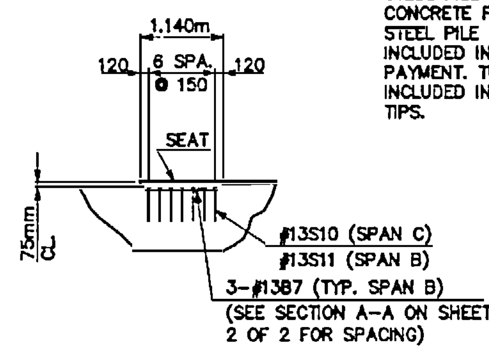
FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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.



SIDE VIEW



DETAIL "B"
(TYP. ALL SEATS)

METRIC

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

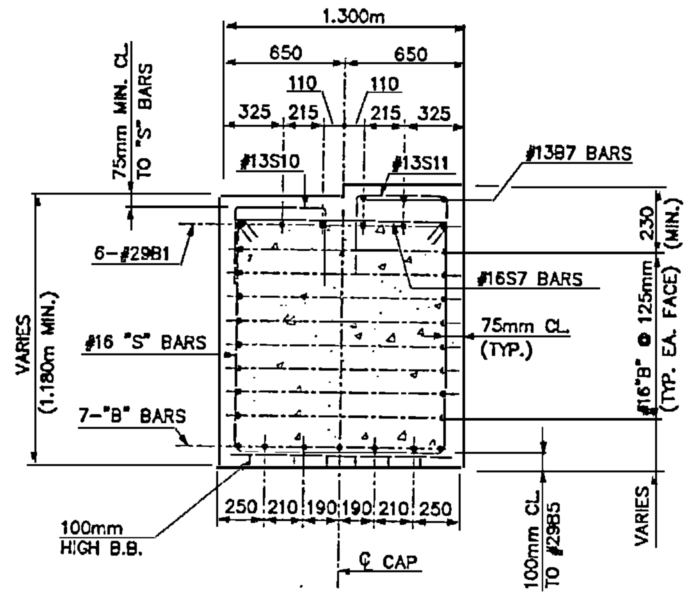
SUBSTRUCTURE

BENT 3L

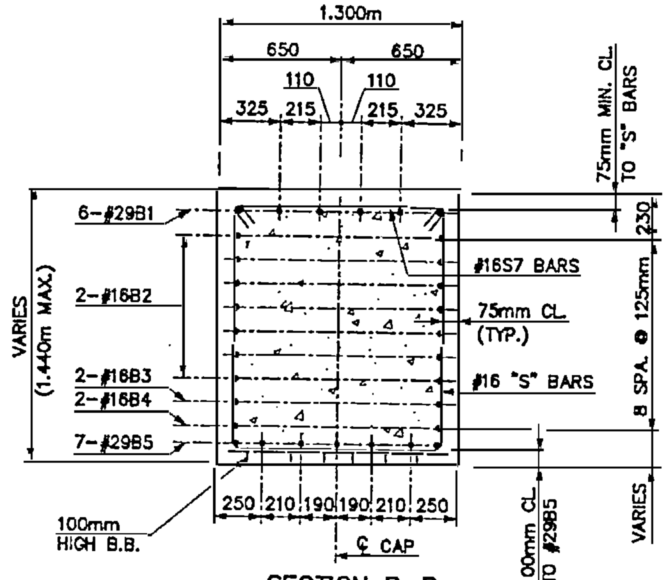
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY K. RITSEMA/MEW DATE 8/00
CHECKED BY D. HAWKINS DATE 8/00
DWG. NO. 83

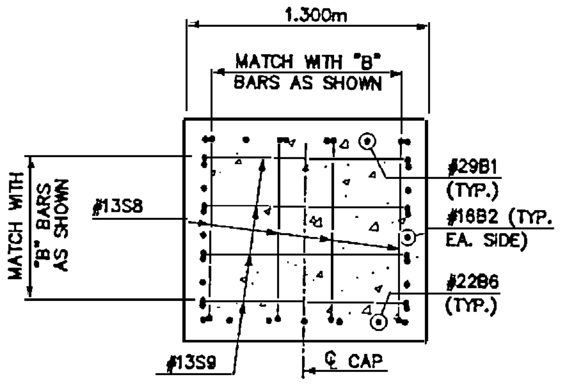
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	SHEET NO. S-83
1			3			TOTAL SHEETS 101
2			4			



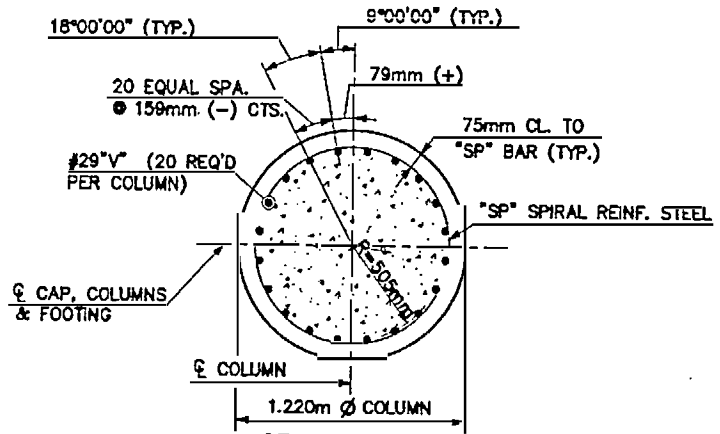
SECTION A-A



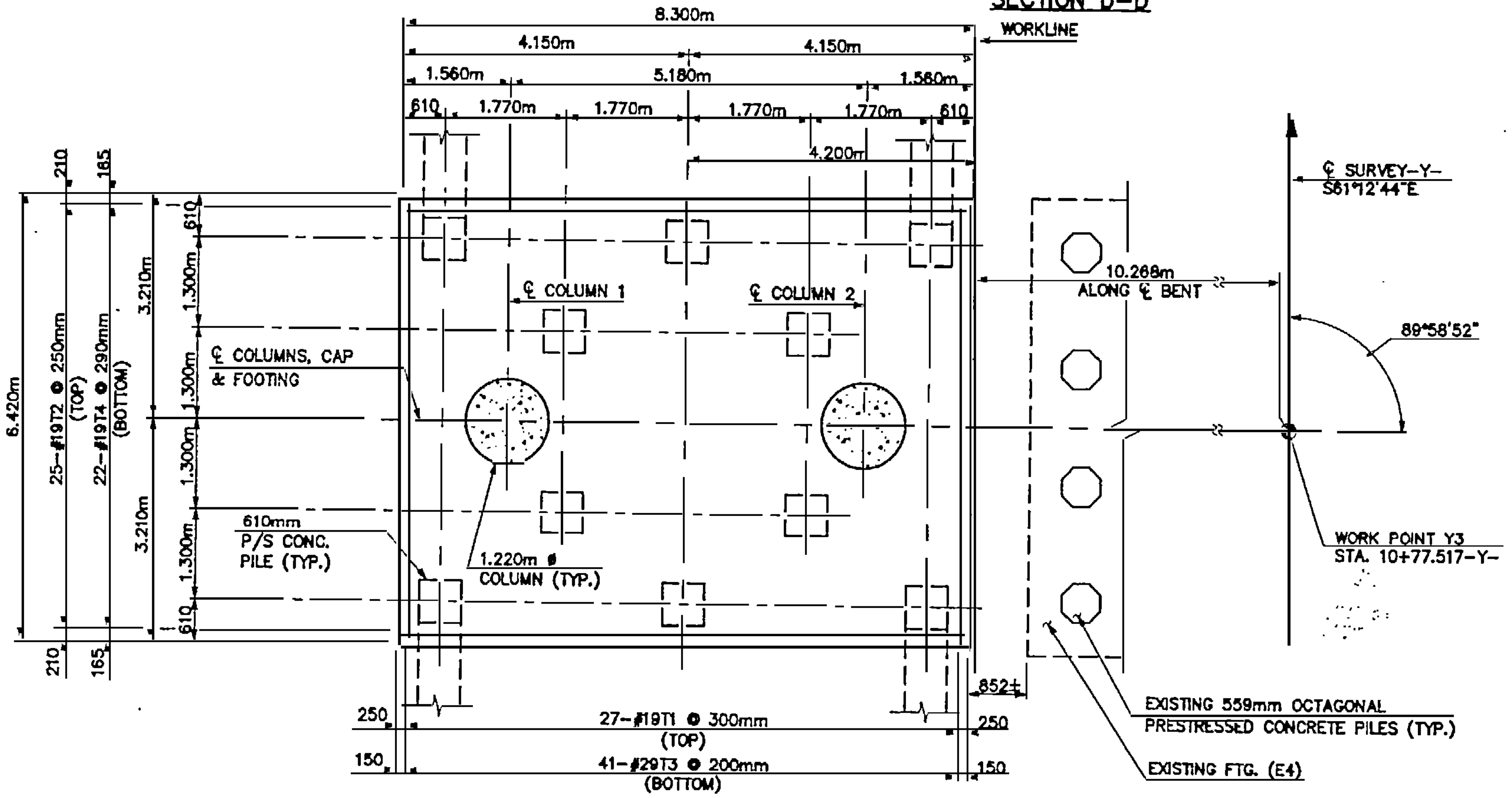
SECTION B-B



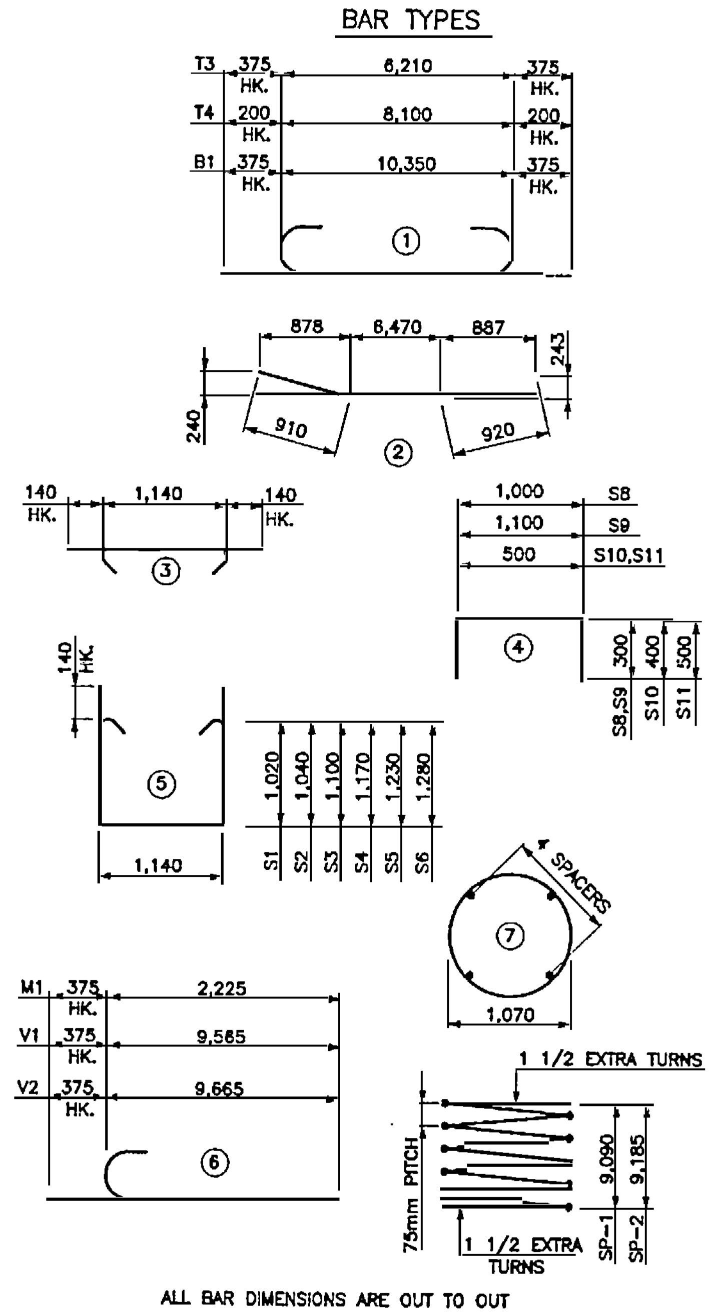
VIEW C-C



SECTION D-D



FOOTING PLAN



BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 3A					
B1	6	#29	1	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	2	8,300	294
B6	7	#22	STR.	3,600	77
B7	9	#13	STR.	980	9
S1	9	#16	5	3,460	48
S2	2	#16	5	3,500	11
S3	2	#16	5	3,620	11
S4	2	#16	5	3,760	12
S5	2	#16	5	3,880	12
S6	20	#16	5	3,980	124
S7	37	#16	3	1,420	82
S8	8	#13	4	1,600	13
S9	8	#13	4	1,700	14
S10	42	#13	4	1,300	54
S11	21	#13	4	1,500	31
SP-1	1	*	7	412,540	410
SP-2	1	*	7	416,740	414
V1	20	#29	6	9,940	1,006
V2	20	#29	6	10,040	1,016
M1	40	#29	6	2,800	526
T1	32	#19	STR.	6,220	445
T2	25	#19	STR.	8,100	453
T3	41	#29	1	6,960	1,444
T4	22	#19	1	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.

METRIC

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 3L

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

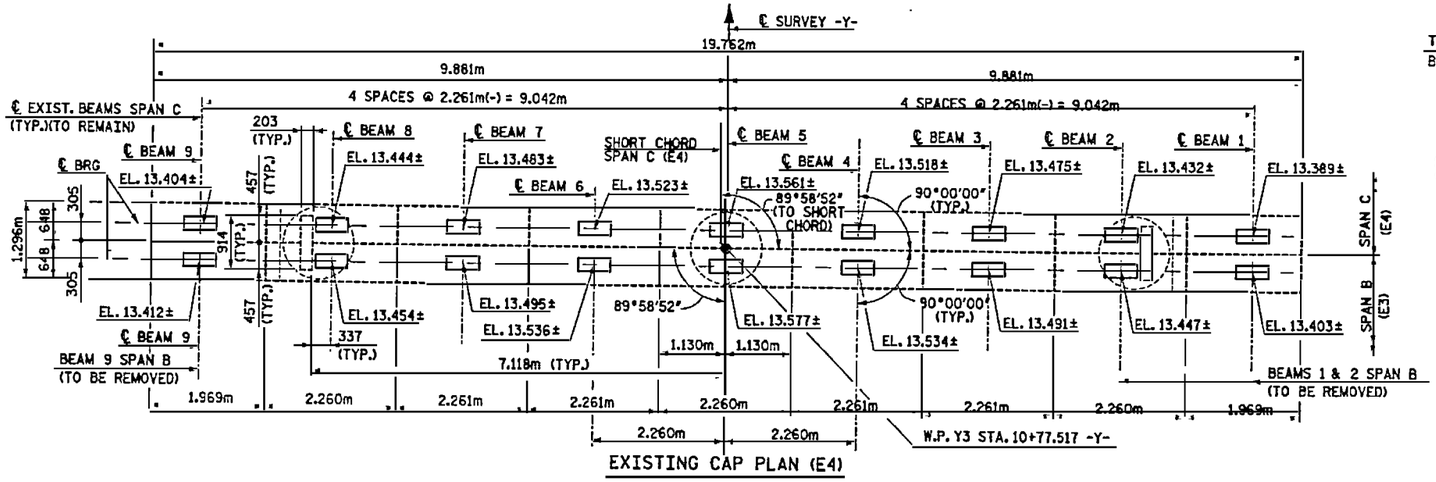
DRAWN BY K. RITSEMA/MEW DATE 8/00
CHECKED BY D. HAWKINS DATE 8/00

DWG. NO. 84

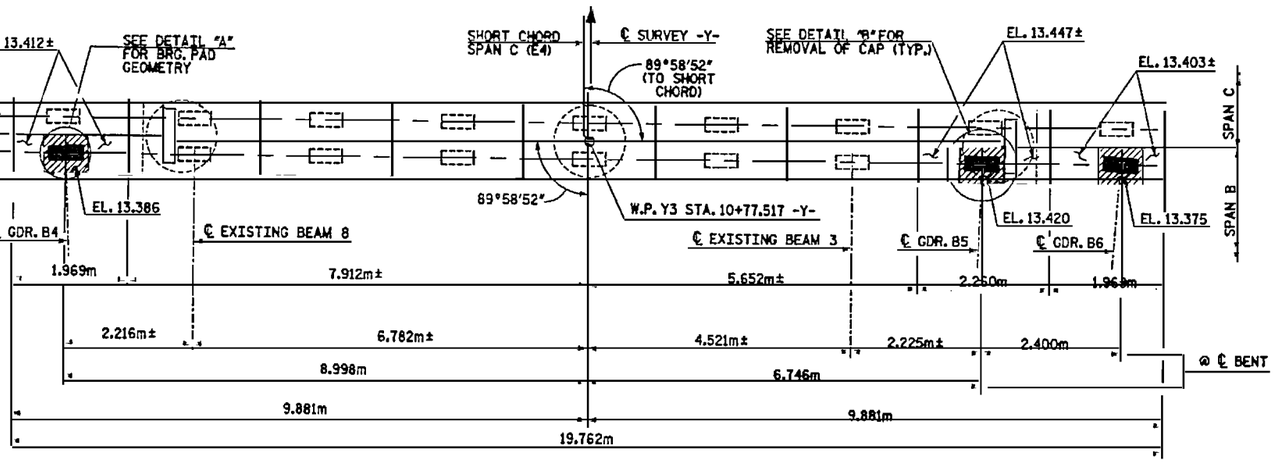
REVISIONS						
NO.	BY	DATE	NO.	BY	DATE	
1			3			
2			4			

SHEET NO. S-84
TOTAL SHEETS 101

NAME: P:\2143-u92\Dsgs\Final\02\Substructure\2187348.DWG DATE: SEP 12, 2000 TIME: 4:43 PM

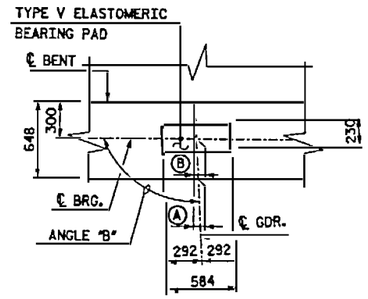


EXISTING CAP PLAN (E4)

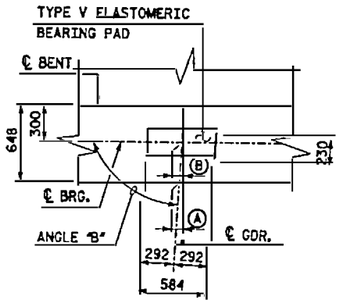


PROPOSED CAP PLAN

NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.



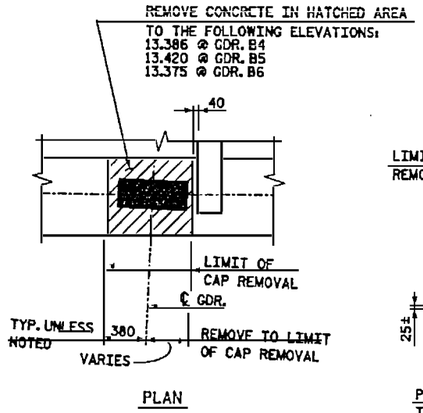
GIRDER B4



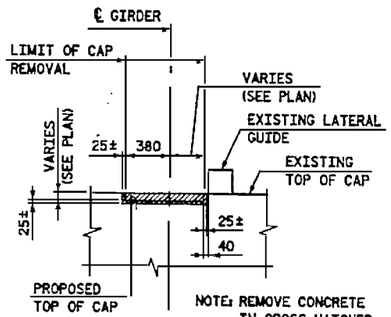
GIRDERS B5 & B6

DETAIL A

SPAN B DIMENSIONS			
GIRDER	ANGLE "B"	Ⓐ	Ⓑ
B4	91°58'45"	22	10
B5	87°56'40"	23	11
B6	85°31'07"	51	24



PLAN



ELEVATION

NOTE: REMOVE CONCRETE IN CROSS HATCHED AREA AND PATCH WITH EPOXY MORTAR TO LIMITS OF CAP REMOVAL AND TO PROPOSED TOP OF CAP.

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.

DETAIL B

QUANTITIES	
EPOXY MORTAR REPAIR	0.041 m³

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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

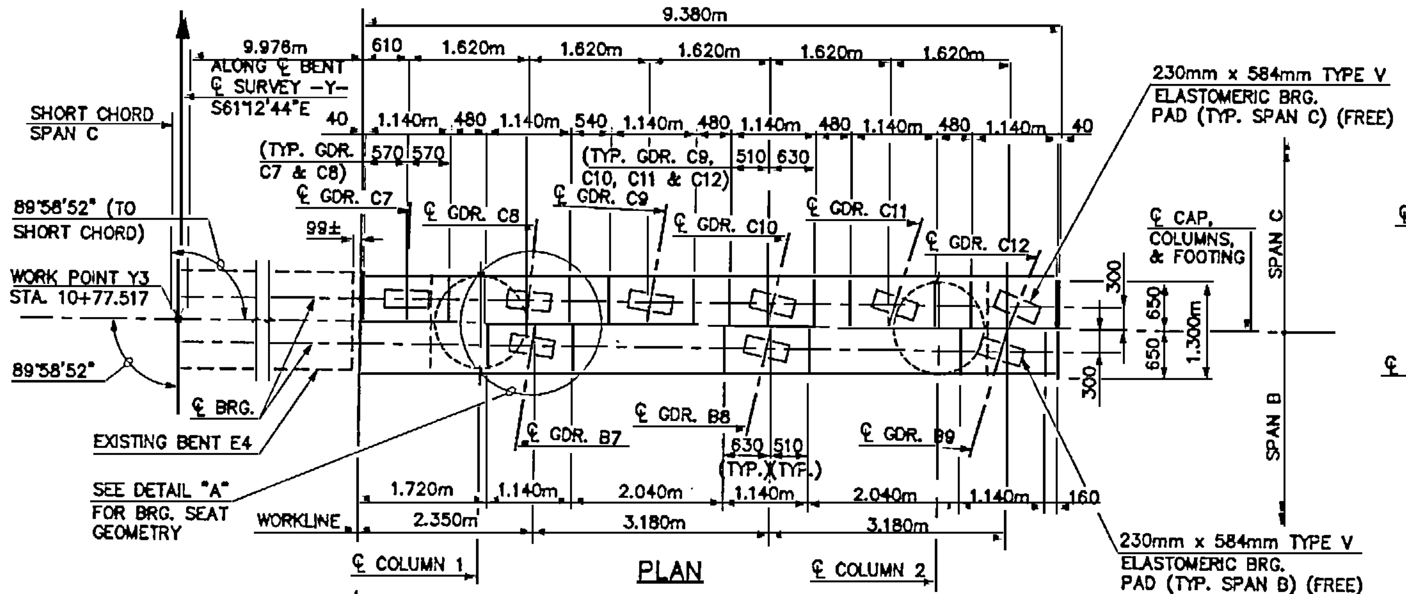
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

BENT 3
(EXISTING BENT E4)

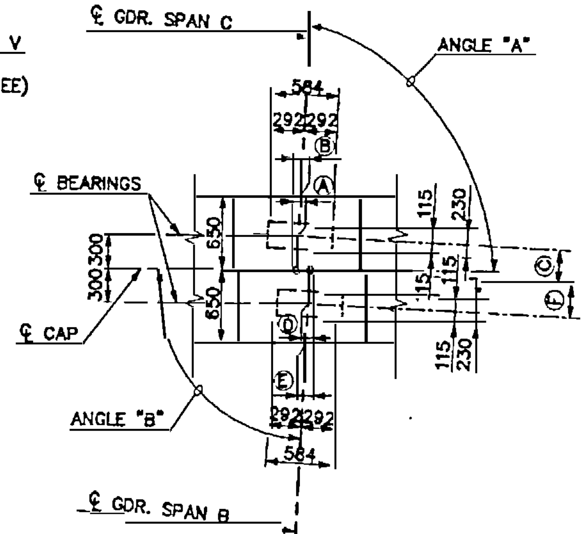
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 7/00
CHECKED BY D. HAWKINS DATE 7/00
DWG. NO. 85

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



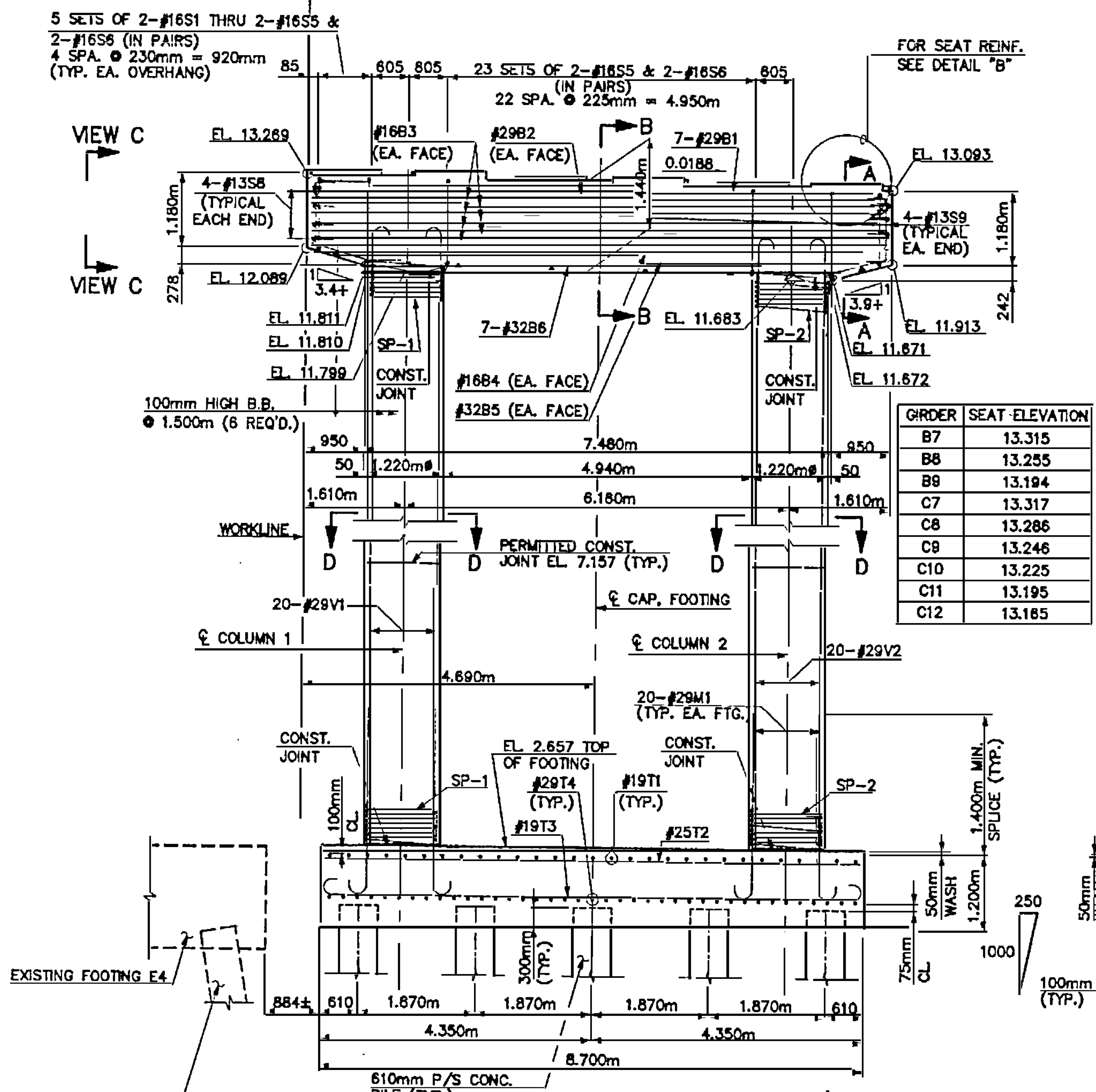
PLAN



DETAIL "A"
(TYP. ALL SEATS)

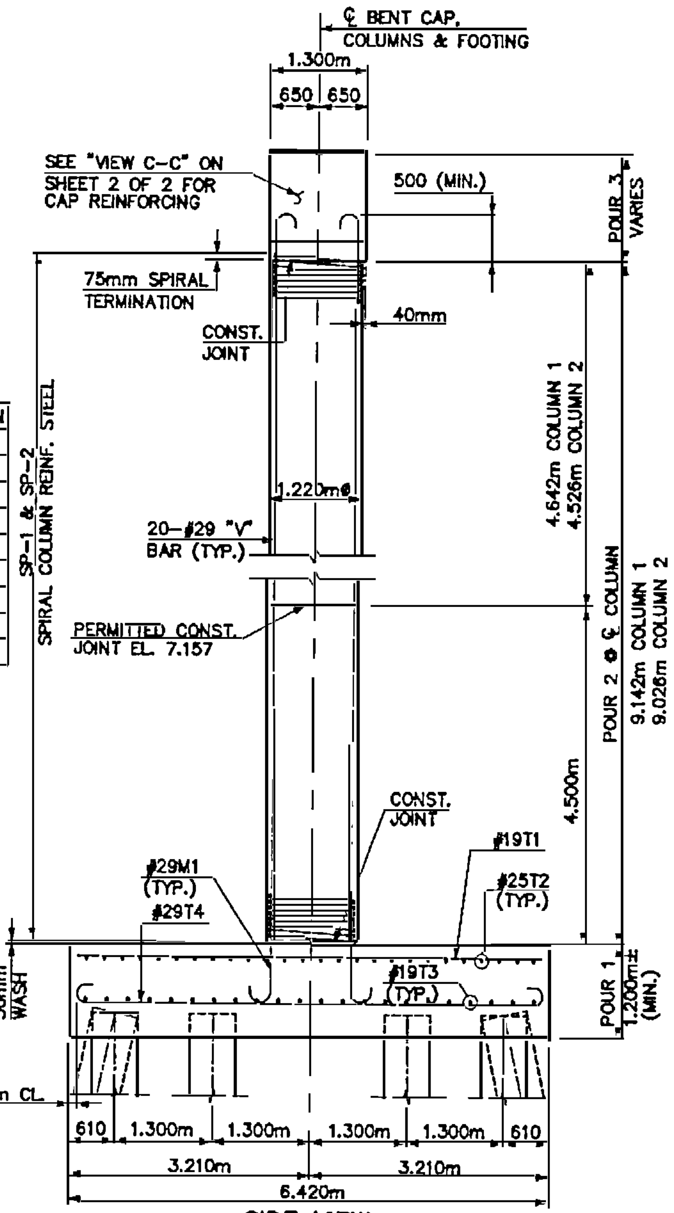
SPAN C				
GIRDER	ANGLE "A"	Ⓐ	Ⓑ	Ⓒ
C7	88°25'39"	8	18	300
C8	84°57'13"	26	57	301
C9	81°11'50"	46	101	304
C10	77°09'32"	68	148	308
C11	72°51'01"	93	201	314
C12	68°17'49"	119	259	323

SPAN B				
GIRDER	ANGLE "B"	Ⓓ	Ⓔ	Ⓕ
B7	81°28'25"	45	97	303
B8	77°30'42"	66	144	307
B9	73°40'02"	88	190	313

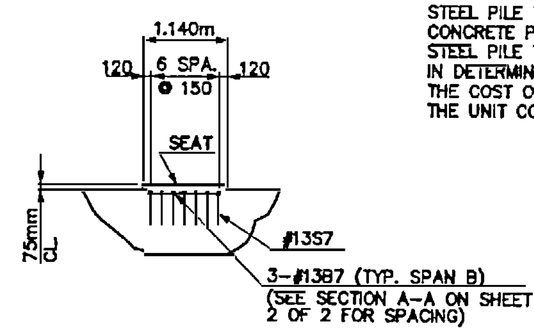


GIRDER	SEAT ELEVATION
B7	13.315
B8	13.255
B9	13.194
C7	13.317
C8	13.286
C9	13.246
C10	13.225
C11	13.195
C12	13.185

ELEVATION



SIDE VIEW



DETAIL "B"
(TYP. ALL SEATS)

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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890-Y-

SHEET 1 OF 2

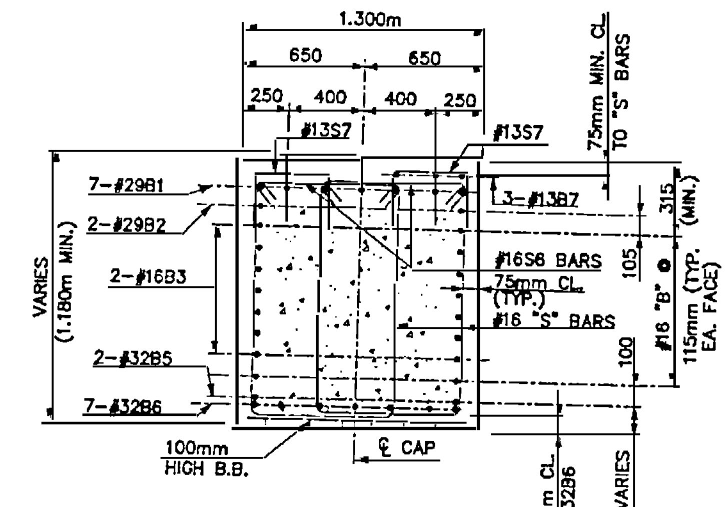
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 3R

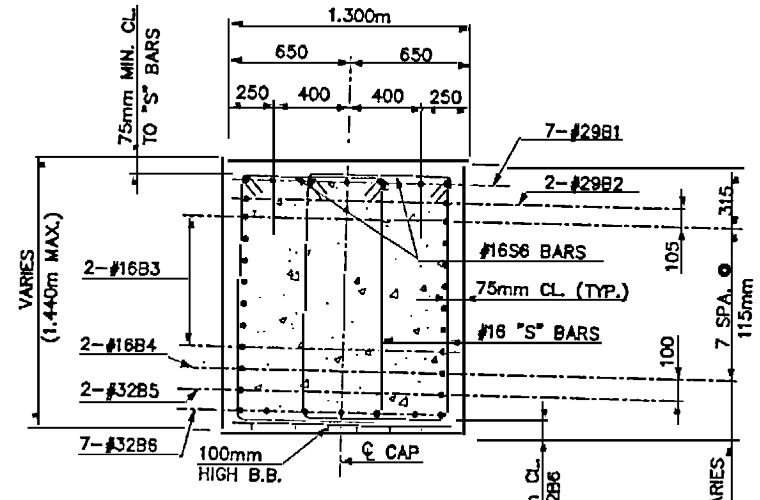
HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY K. RITSEMA/MEW DATE 8/00
CHECKED BY D. HAWKINS DATE 9/00
DWG. NO. 86

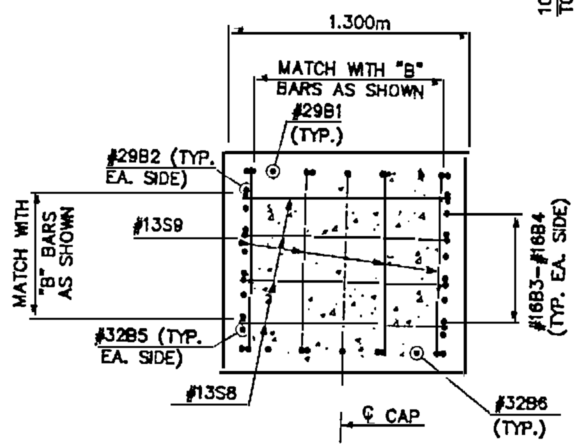
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	S-86
1			3			TOTAL SHEETS	161
2			4				



SECTION A-A



SECTION B-B



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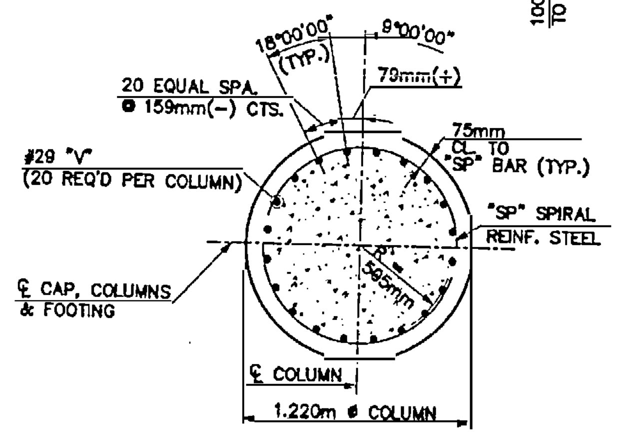
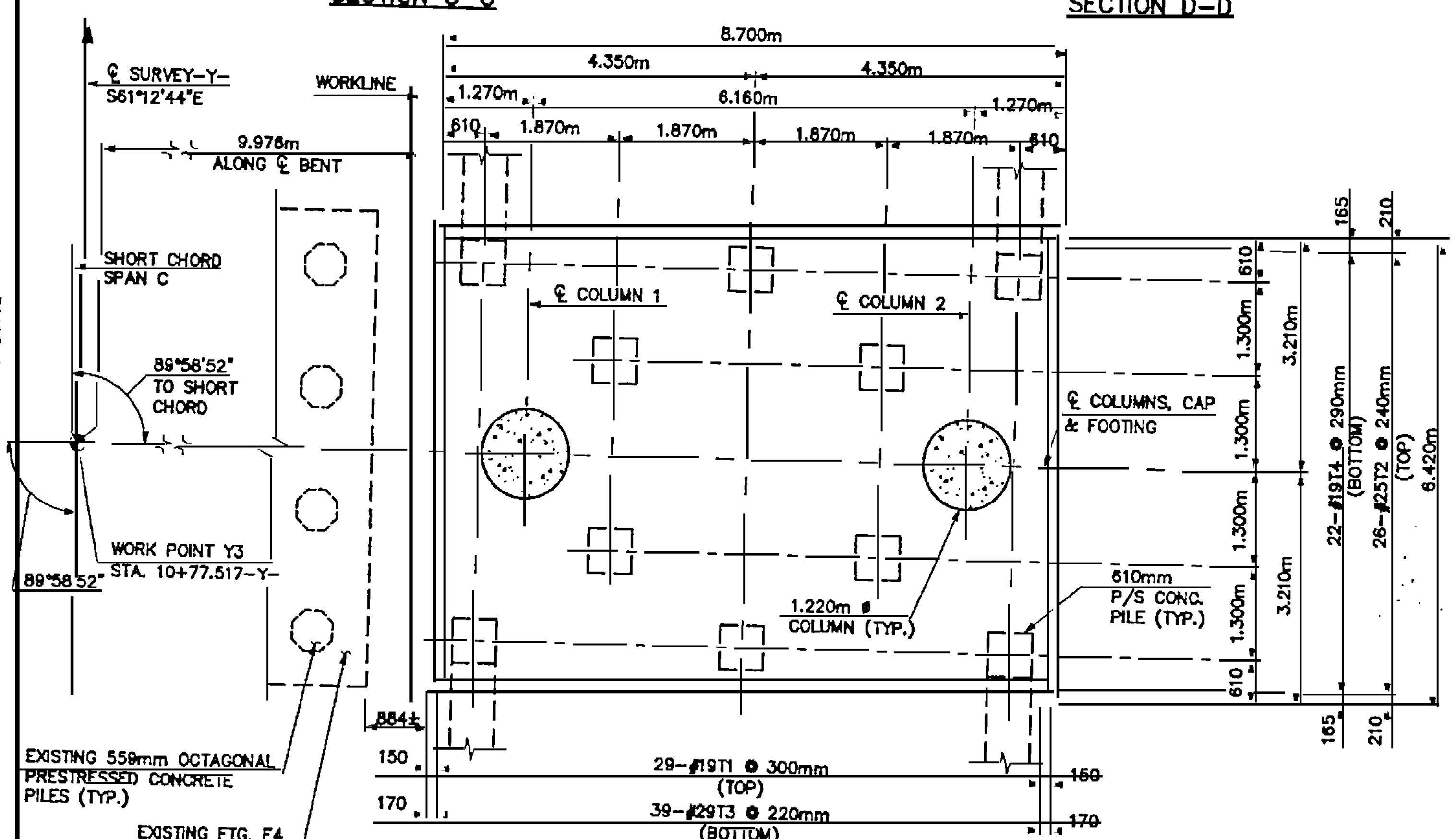
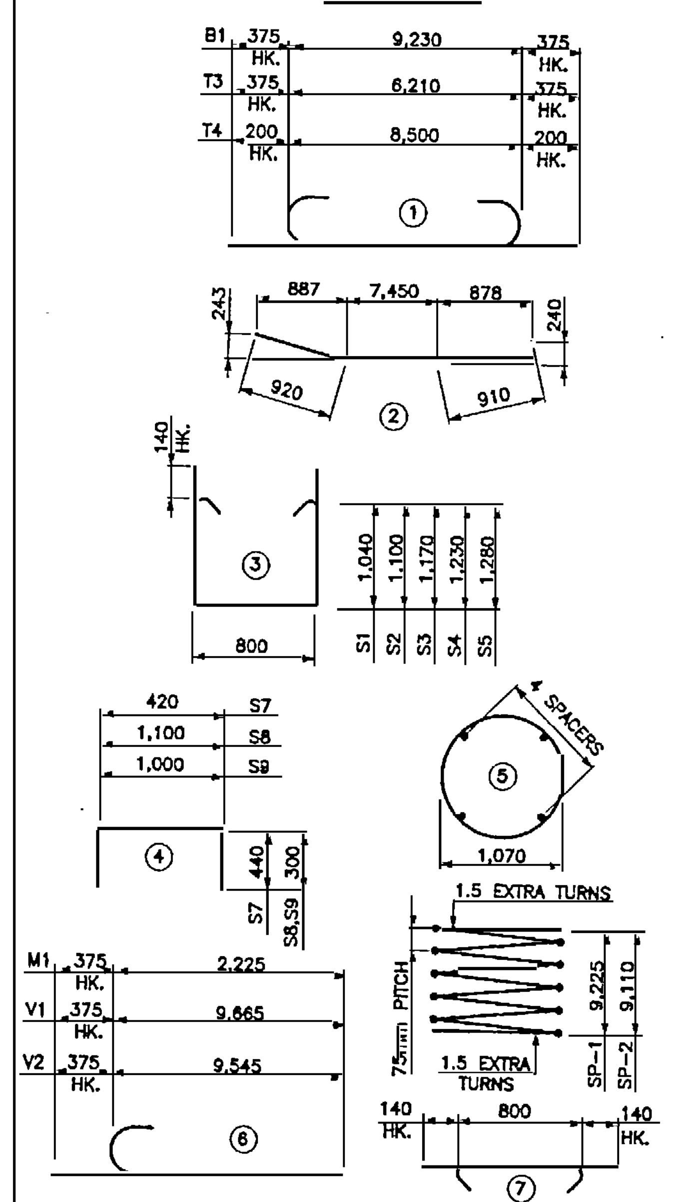


SECTION D-D



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	3,160	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	66	#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	6	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	8,960	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	67.3
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

* THE SP-1 AND SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.

NOTES:

ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.

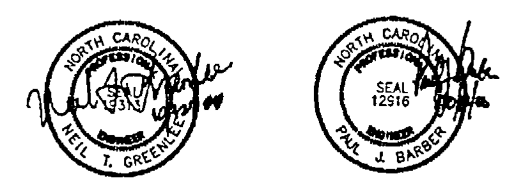
CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT STA. 12+52.890 -Y-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

BENT 3R

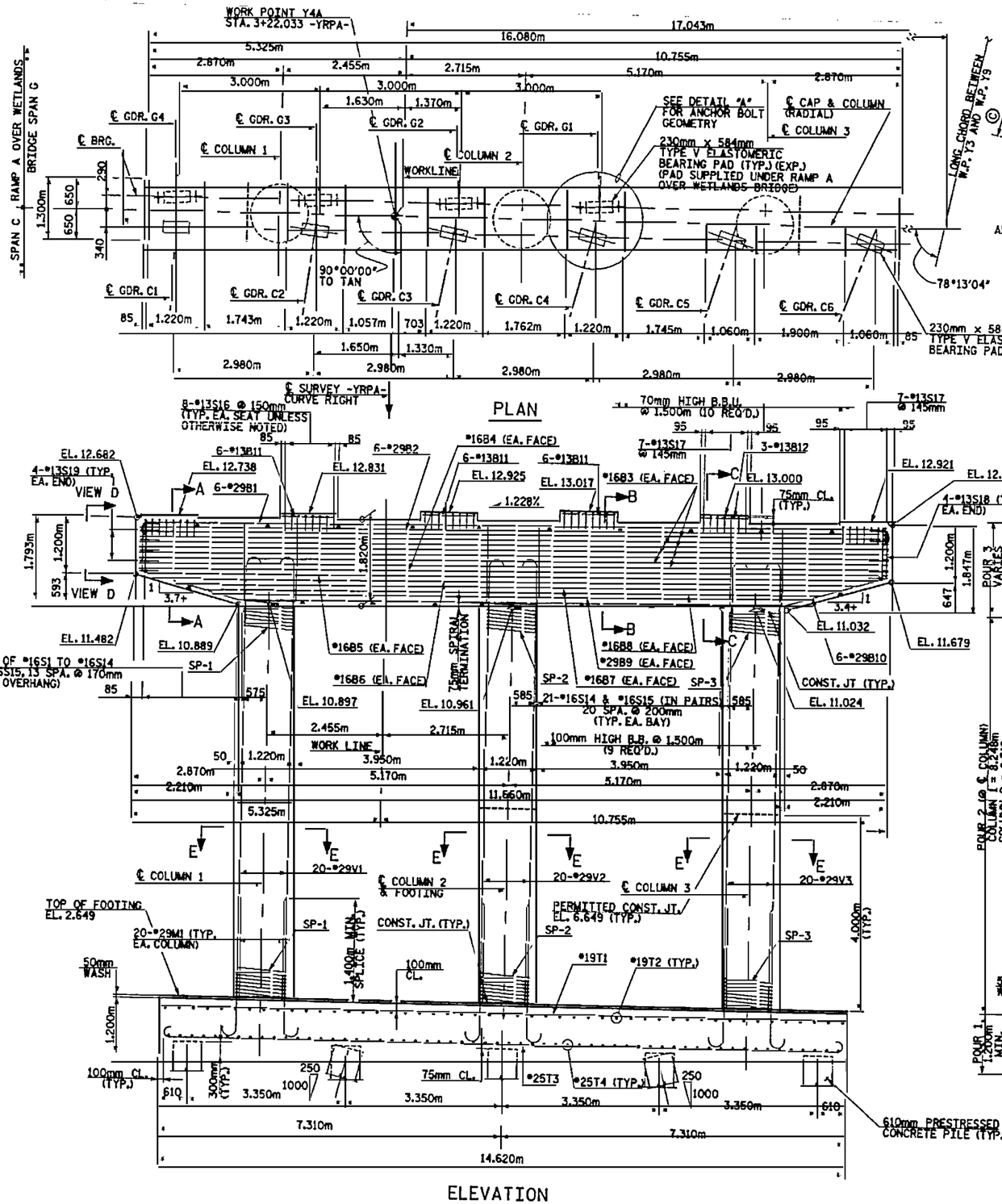
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY K. RITSEMA/MEW DATE 8/00
CHECKED BY D. HAWKINS DATE 9/00
DWG. NO. 87

REVISIONS

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

SHEET NO. S-87
TOTAL SHEETS 101



GIRDER	ANGLE "A"	Ⓐ	Ⓑ	Ⓒ	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°38'23"	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.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19385 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12996 PAUL J. BARBER

METRIC

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

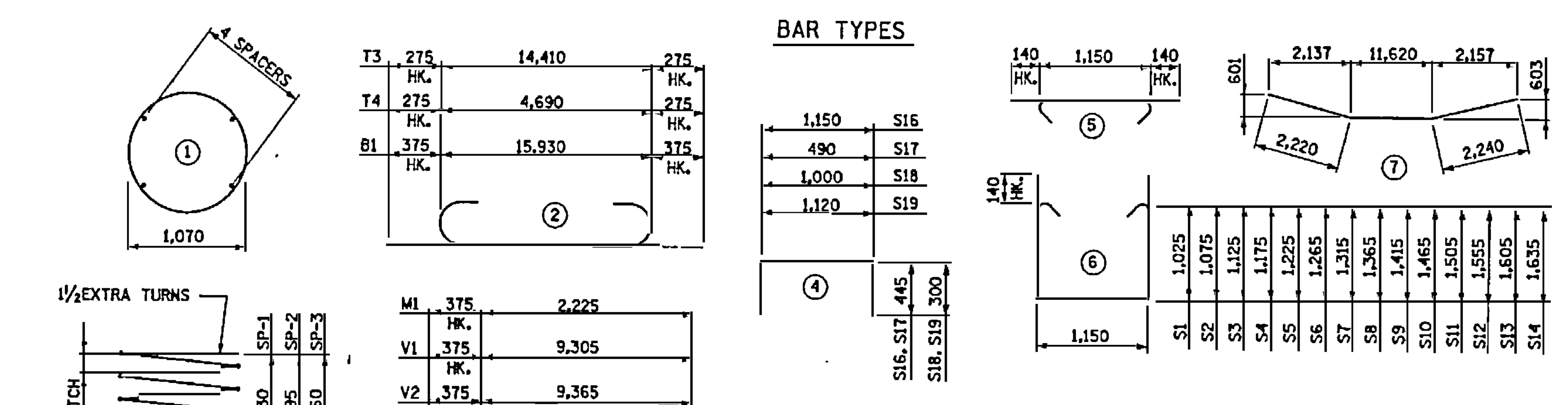
SUBSTRUCTURE

BENT 4A

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. OLIVER DATE 8/00
DWG. NO. 88

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



ALL BAR DIMENSIONS ARE OUT TO OUT

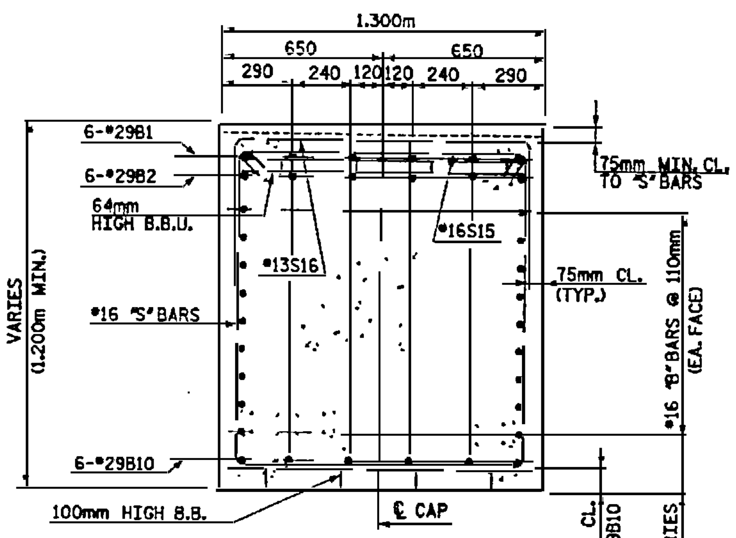
QUANTITIES		
EPOXY COATED REINFORCING STEEL	kg.	10,558
EPOXY COATED SPIRAL COL. REINF. STEEL	kg.	1,138
CLASS AA CONCRETE		
POUR 1 FOOTING	CU. METERS	86.1
POUR 2 COLUMN	CU. METERS	29.2
POUR 3 CAP	CU. METERS	37.3
TOTAL	CU. METERS	152.6
610mm P/S CONC. PILES	NO.	15
	METERS	186.0
STEEL PILE TIPS	NO.	15

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

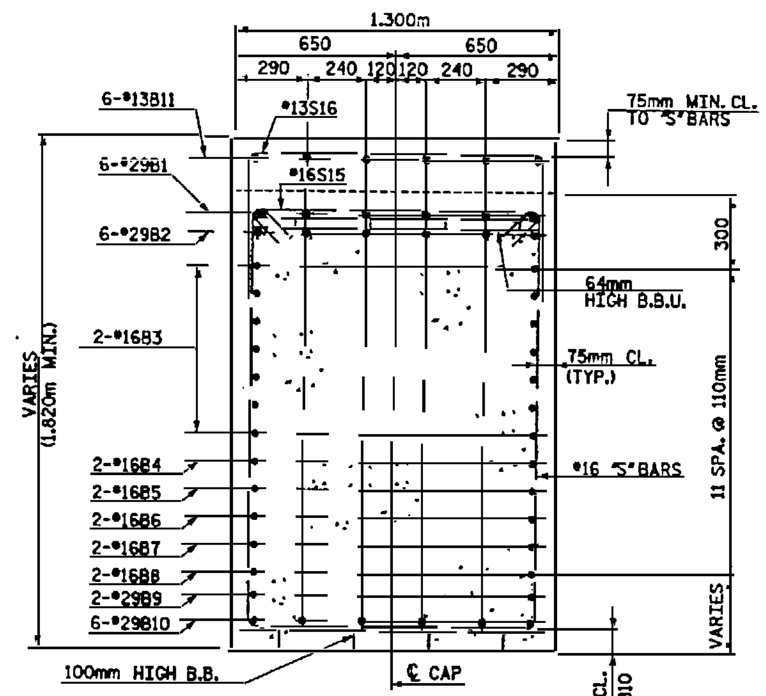
BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
BENT 4A					
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	1,440	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

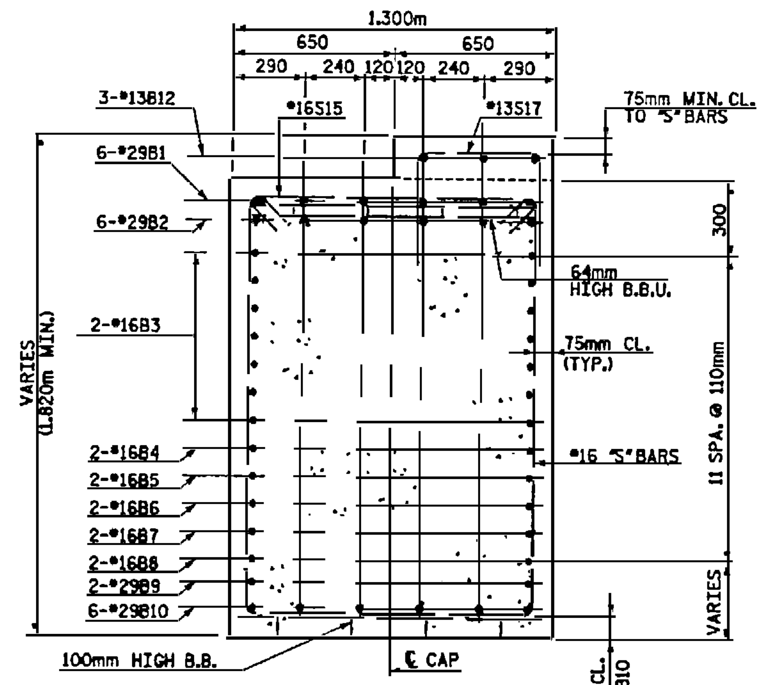
* THE SP-1, SP-2, AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 COLD DRAWN WIRE OR #13 PLAIN OR DEFORMED BAR.



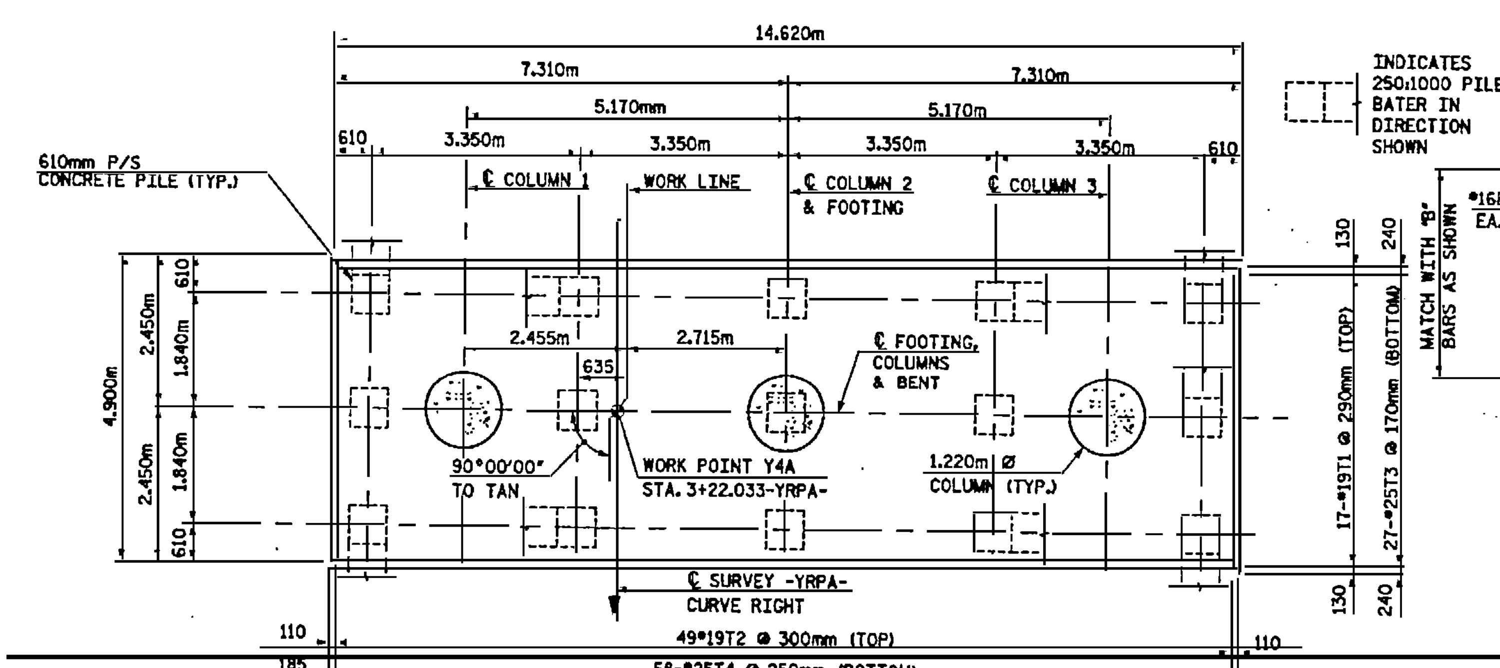
SECTION A-A



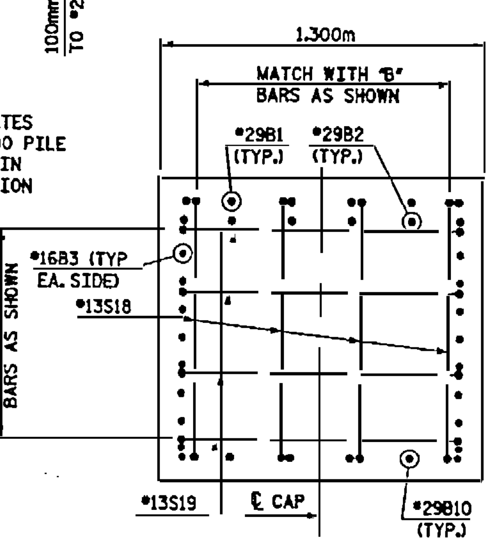
SECTION B-B



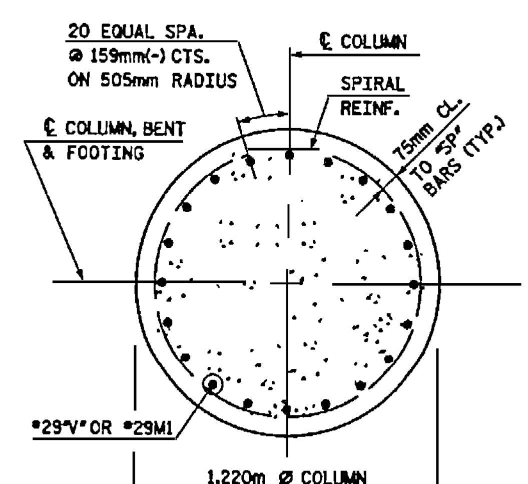
SECTION C-C



FOOTING PLAN



VIEW D-D



SECTION E-E

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL PAUL J. BARBER

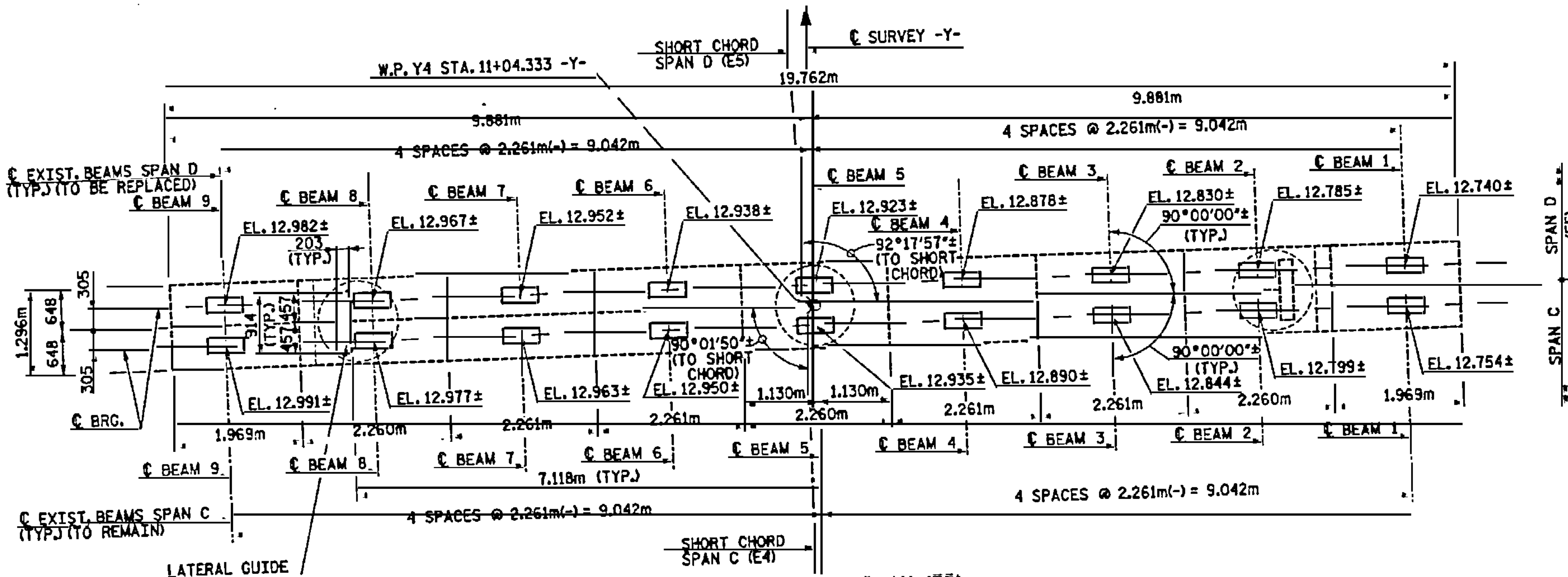
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 8/00
DWG. NO. 89

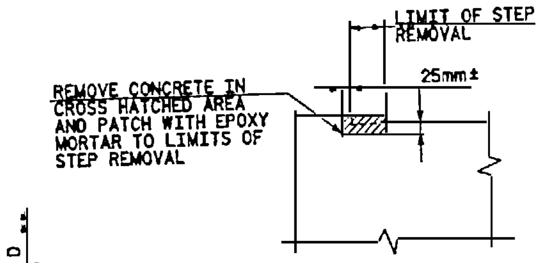
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-89

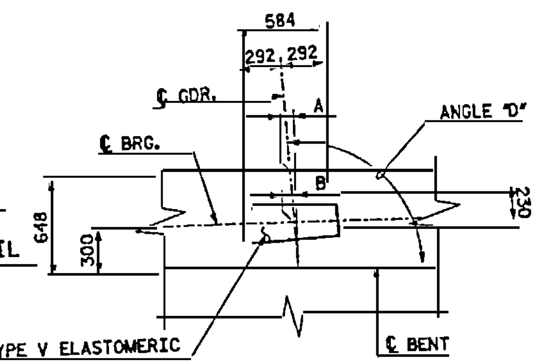
TOTAL SHEETS 101



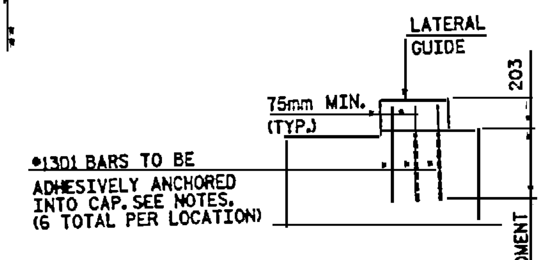
EXISTING CAP PLAN (E5)



STEP REMOVAL DETAIL

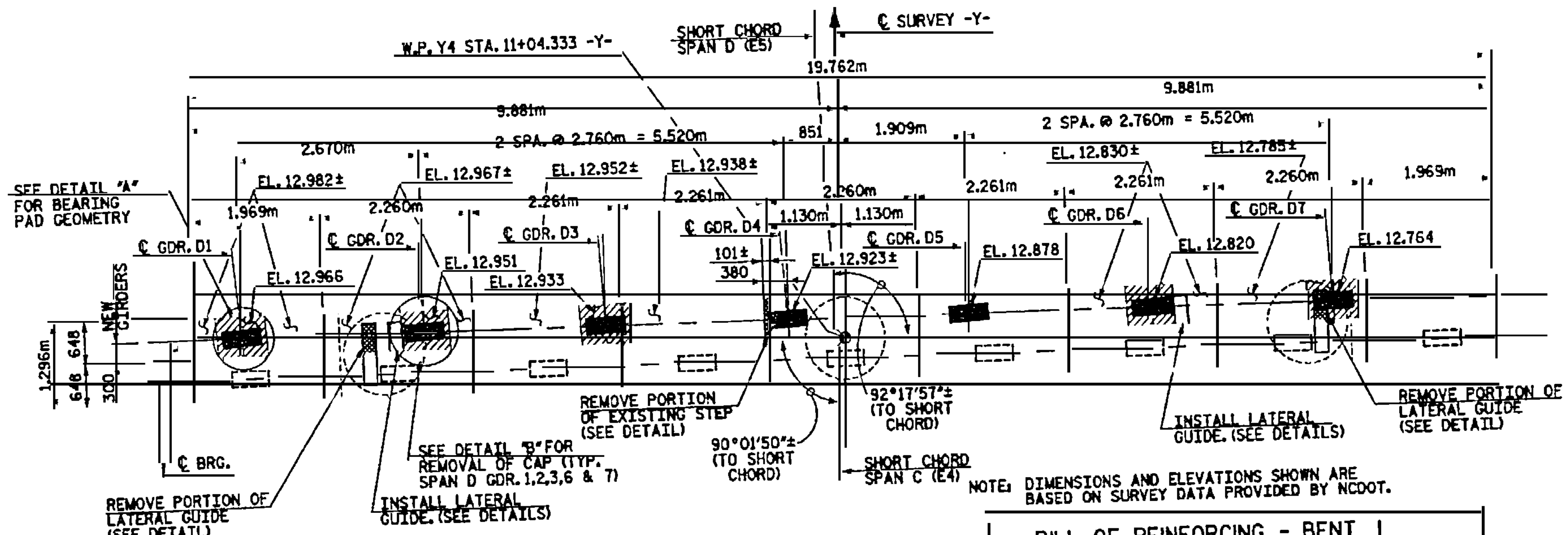


DETAIL A



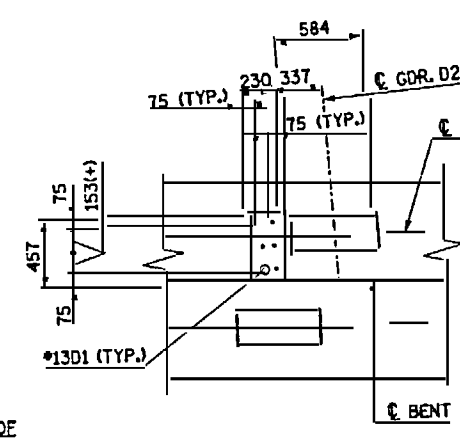
SECTION

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

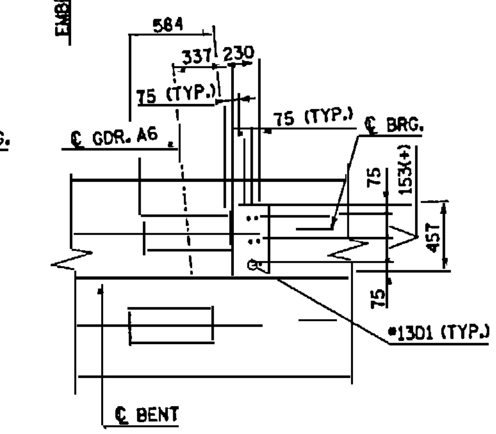


PROPOSED CAP PLAN

NOTE: DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON SURVEY DATA PROVIDED BY NCDOT.



PLAN AT GIRDER D2



PLAN AT GIRDER D6

LATERAL GUIDE DETAILS

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 #13D1 BARS SHALL BE INSTALLED USING AN EPOXY ANCHORING SYSTEM. THE YIELD LOAD FOR ADHESIVELY ANCHORED DOWELS, SEE SPECIAL PROVISIONS. THE YIELD LOAD FOR #13D1 BARS IS 53.4kN. THE LENGTH OF THE #13D1 BARS SHALL BE 300mm BASED UPON AN ASSUMED EMBEDMENT OF 150mm. THE CONTRACTOR SHALL ADJUST BAR LENGTH FOR SELECTED MANUFACTURERS EMBEDMENT REQUIREMENTS.

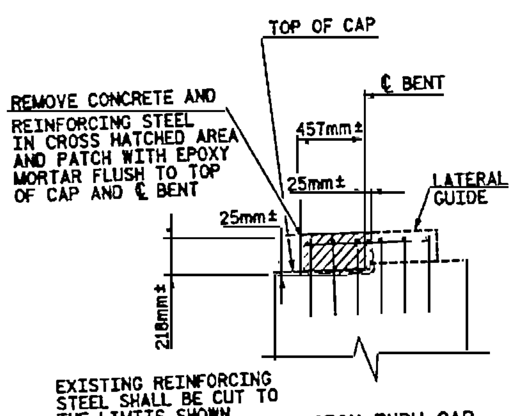
ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA PROVIDED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF DECK AND TOP OF BRIDGE SEAT ELEVATIONS AT EACH EXISTING GIRDER LOCATION AND FURNISH THIS INFORMATION TO THE 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.

METRIC

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

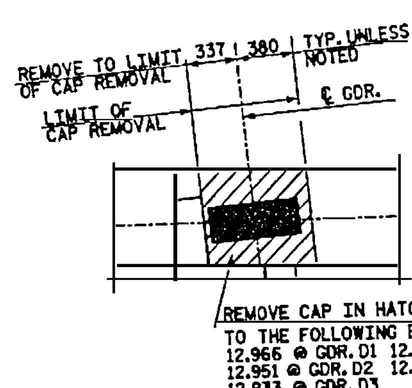


SECTION THRU CAP

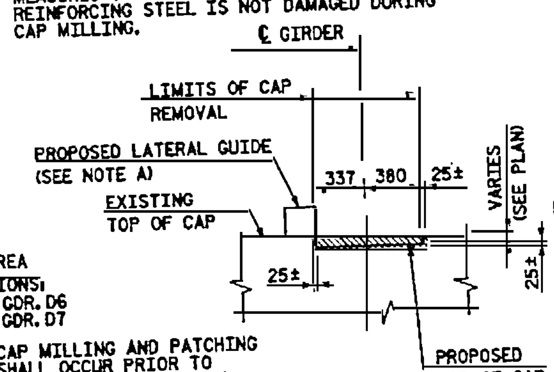
LATERAL GUIDE REMOVAL DETAIL

NOTE: PATCHED AREAS SHALL BE SEALED WITH EPOXY PROTECTIVE COATING. SEE SPECIAL PROVISIONS

NOTE: THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT EXISTING REINFORCING STEEL IS NOT DAMAGED DURING CAP MILLING.



PLAN



NOTE A: CAP MILLING AND PATCHING SHALL OCCUR PRIOR TO REPLACEMENT OF LATERAL GUIDE.

DETAIL B

ELEVATION

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 m²

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — NEIL T. GREENLEE
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 — PAUL J. BARBER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

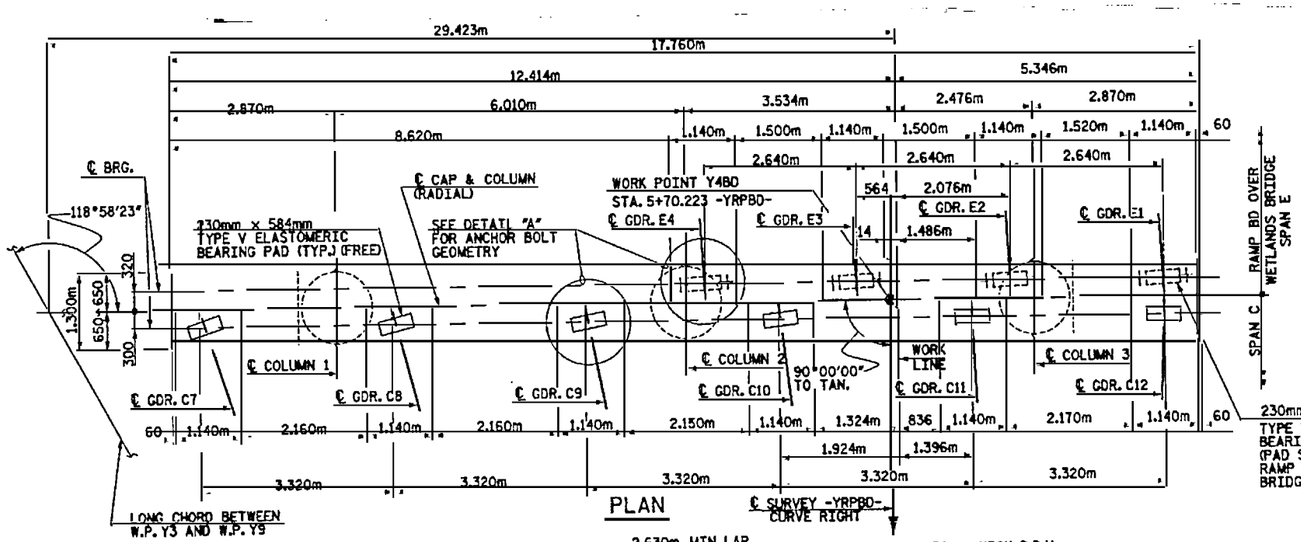
BENT 4
(EXISTING BENT E5)

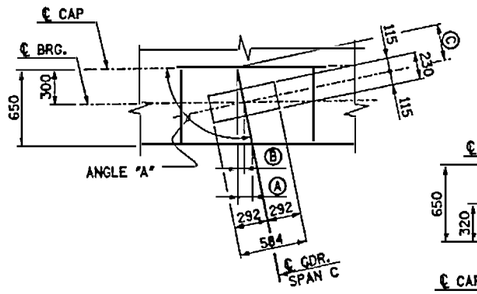
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 8/00
CHECKED BY P. BARBER DATE 8/00
DWG. NO. 90

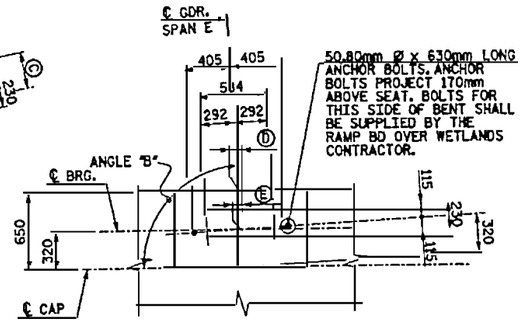
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-90
TOTAL SHEETS [illegible]





SPAN C
(TYP. ALL SEATS)



SPAN E
(TYP. ALL SEATS)

DETAIL "A"

GIRDER	ANGLE "A"	Ⓐ	Ⓑ	Ⓒ	GIRDER	ANGLE "B"	Ⓓ	Ⓔ
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.

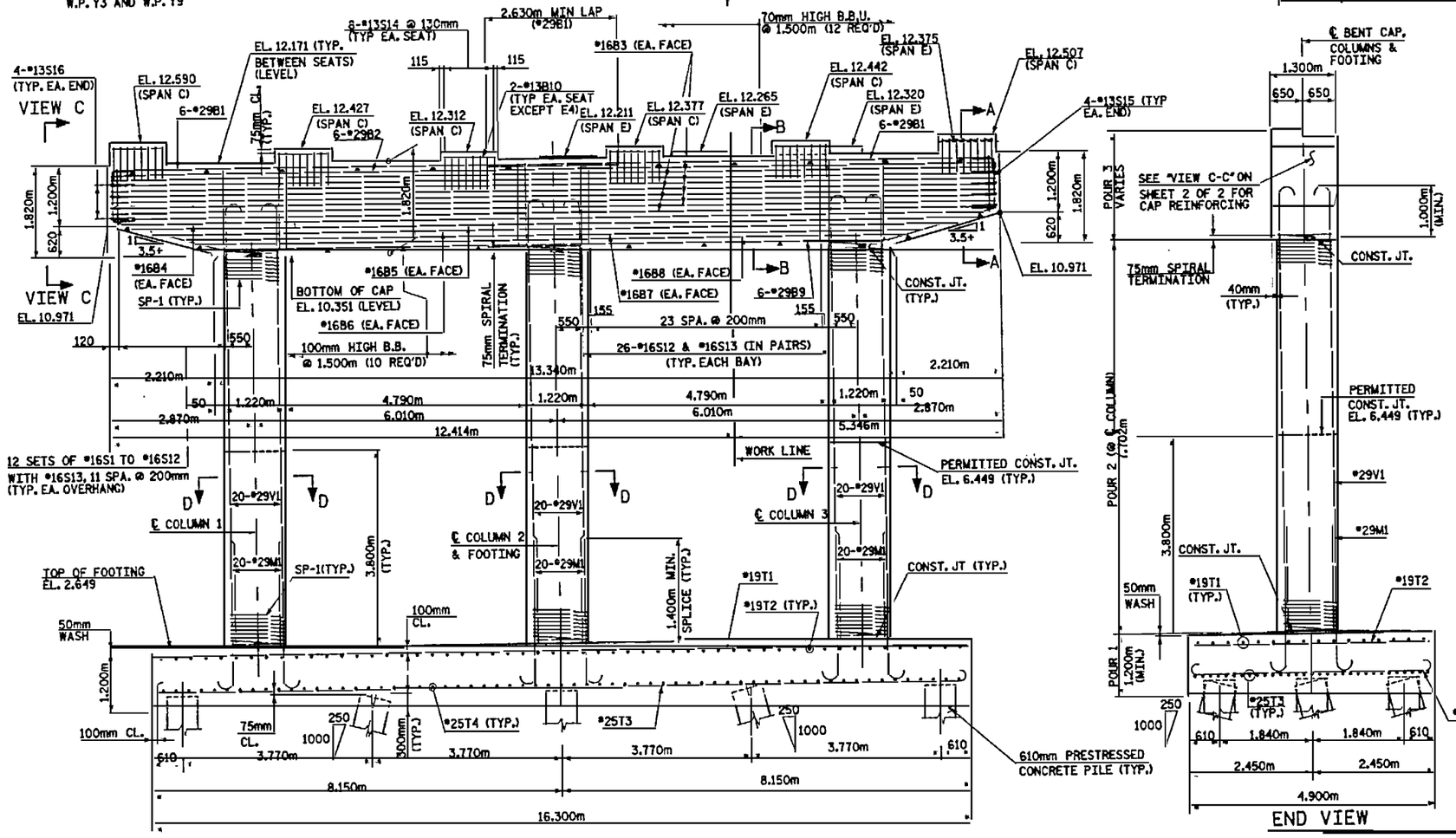
CLASS AA CONCRETE SHALL BE USED IN ALL CAST IN PLACE COLUMNS, BENT CAPS AND FOOTINGS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

STEEL PILE TIPS ARE REQUIRED FOR 610mm PRESTRESSED CONCRETE PILES AT BENT 4BD. 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 4BD 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.



ELEVATION

END VIEW

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

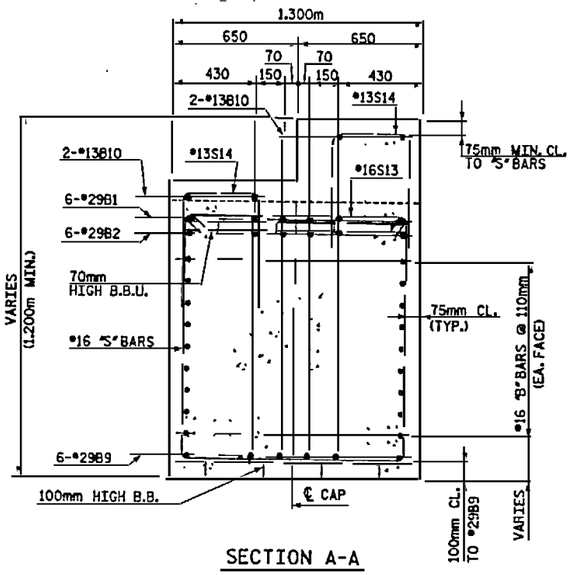
SUBSTRUCTURE

BENT 4BD

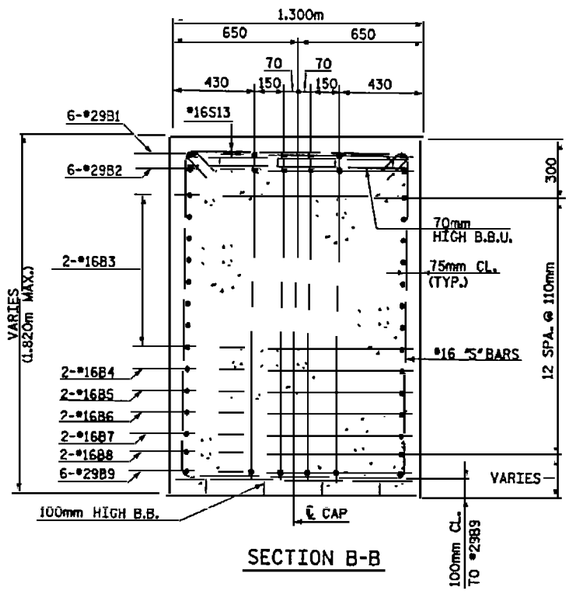
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, NC. 27609

DRAWN BY J. BAYNE DATE 7/00
CHECKED BY C. OLIVER DATE 8/05
DWG. NO. S1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-91
1			3			TOTAL SHEETS
2			4			101



SECTION A-A



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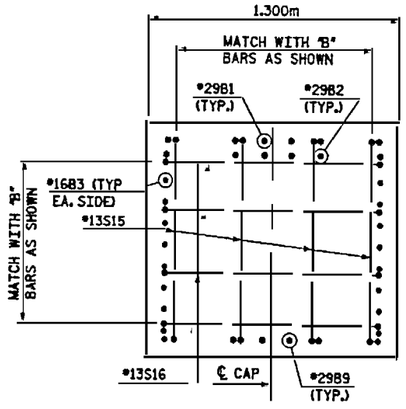
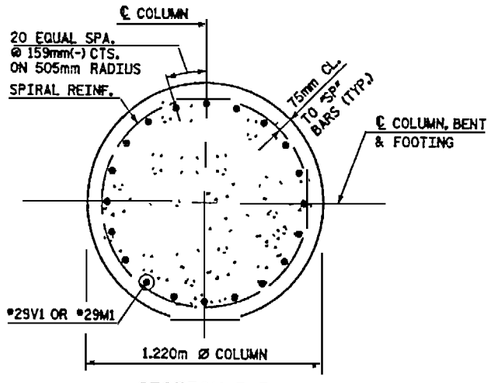
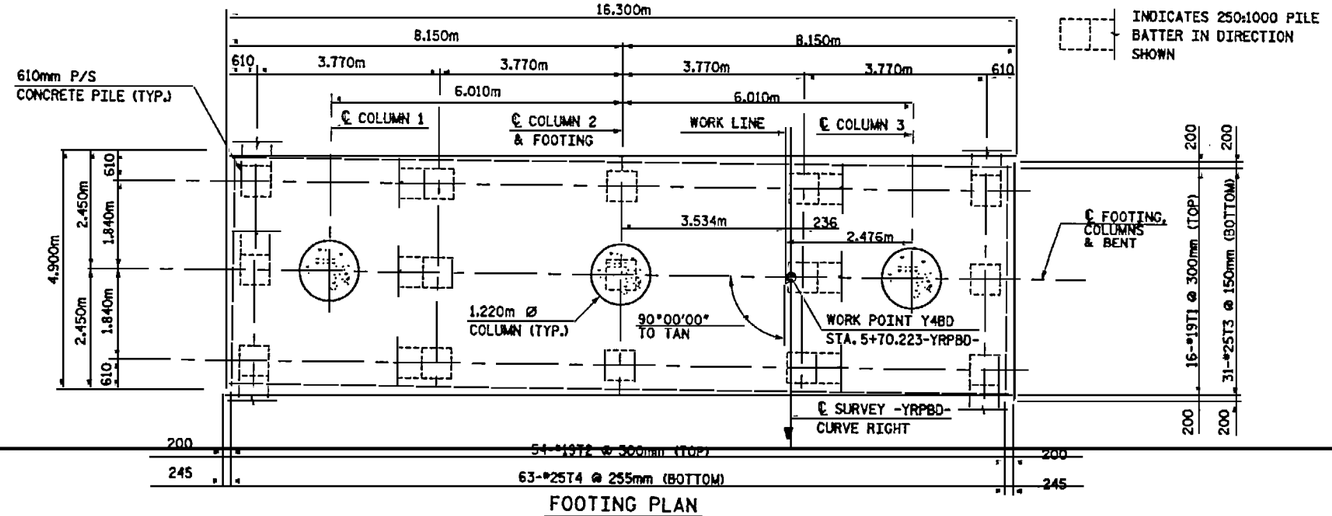


VIEW C-C



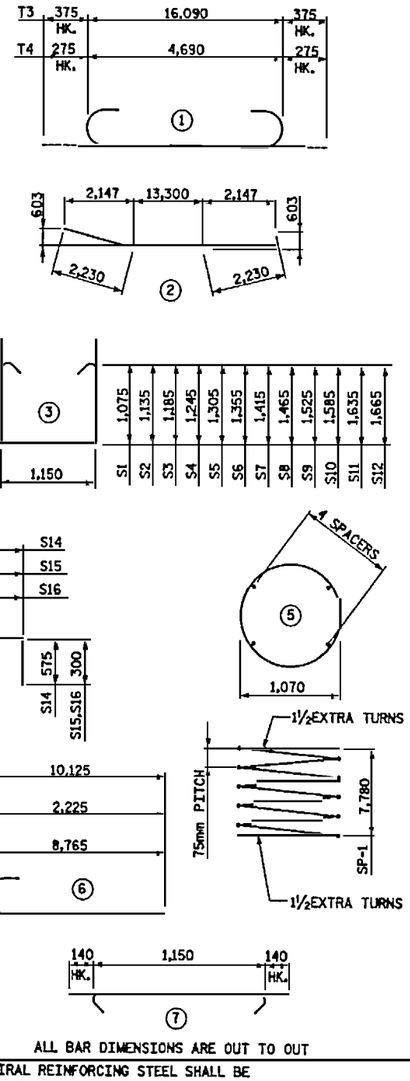
SECTION D-D



FOOTING PLAN

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (Kg)
BENT 4BD					
B1	12	#29	6	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	2	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	389
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
M1	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

* 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.

METRIC

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

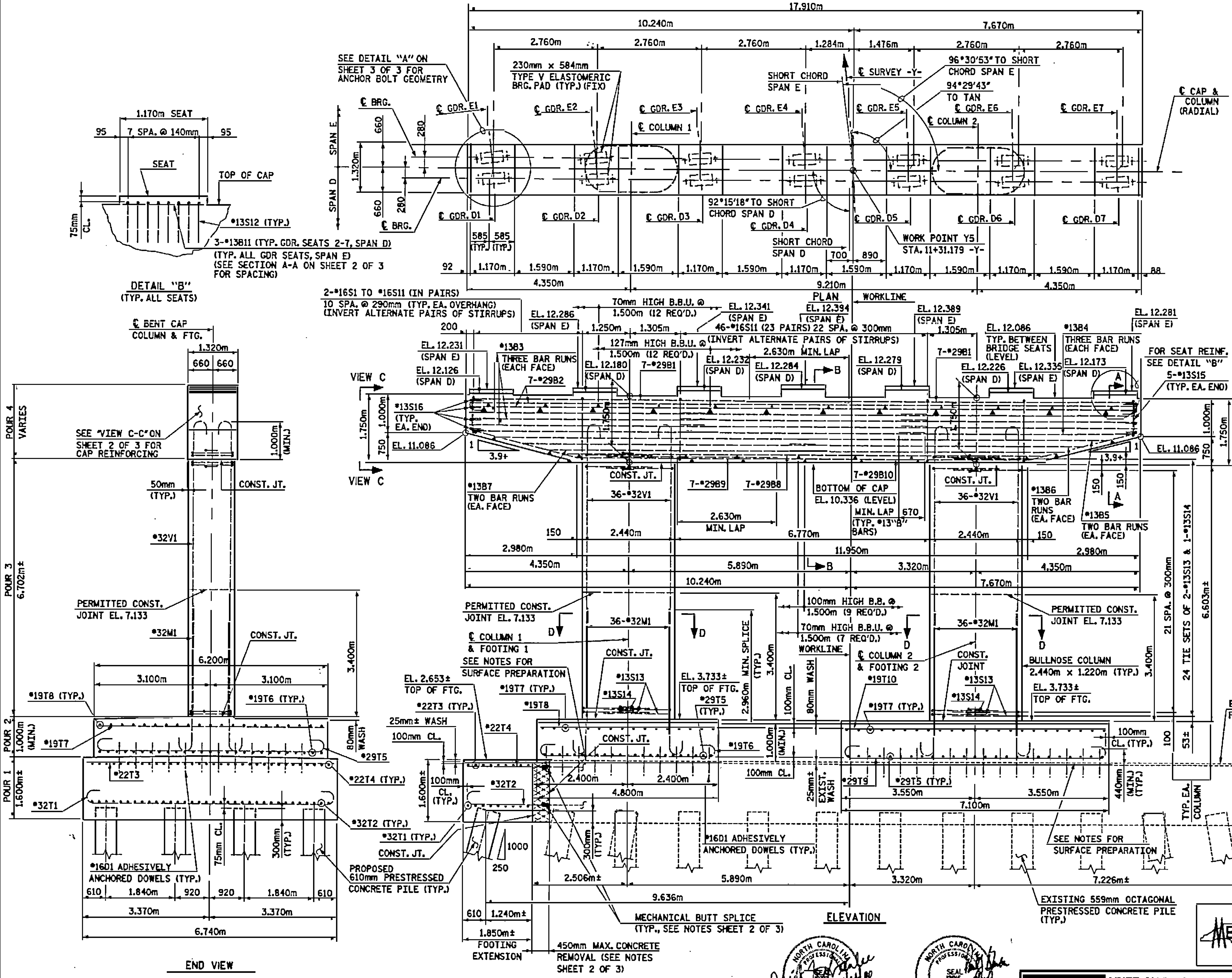
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17863 NEIL T. GREENLEE 10/12/00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12986 PAUL J. BARBER

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. OLIVER DATE: 8/00
DWG. NO. 92

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-92
1			3			TOTAL SHEETS
2			4			101



DENOTES CONCRETE REMOVAL ONLY

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.

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 5

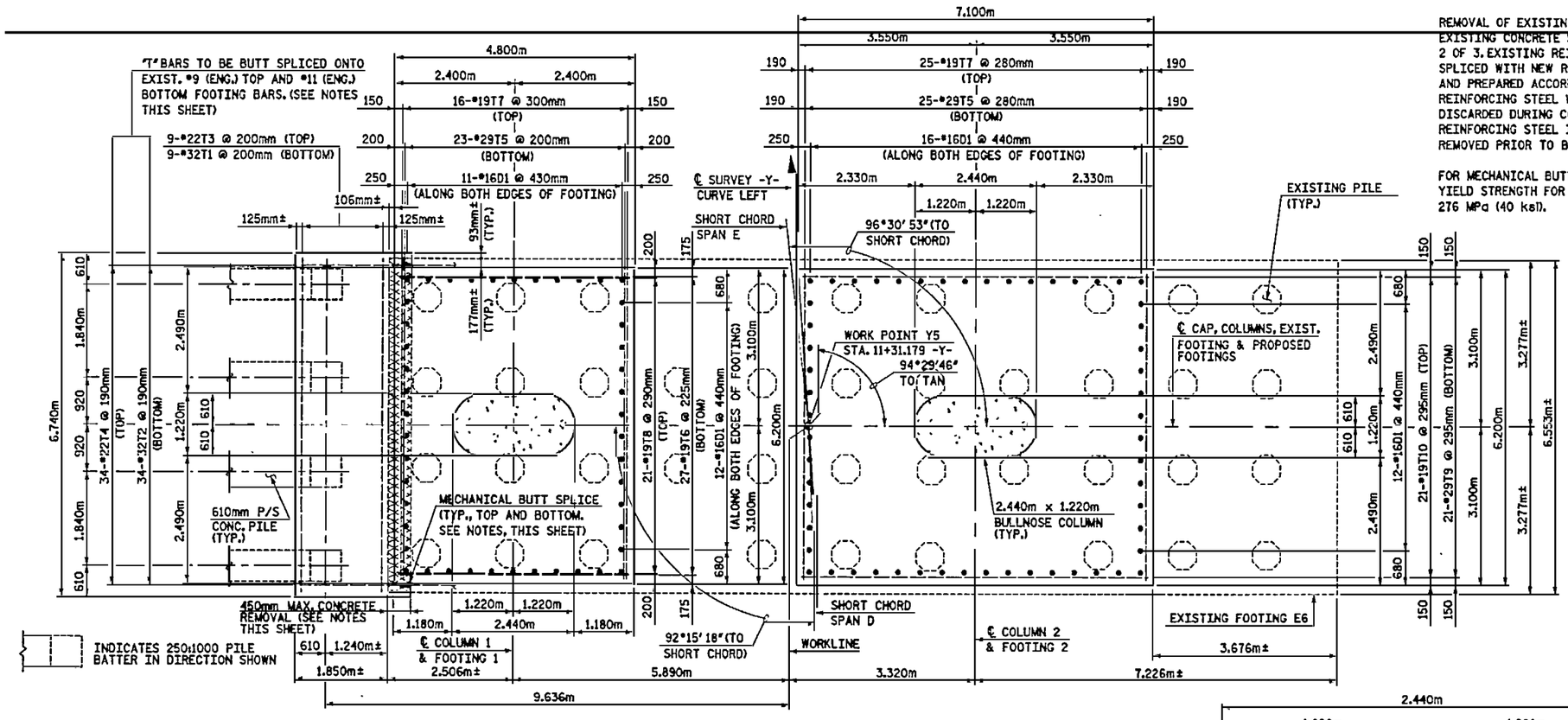
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY R. KNIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 93

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

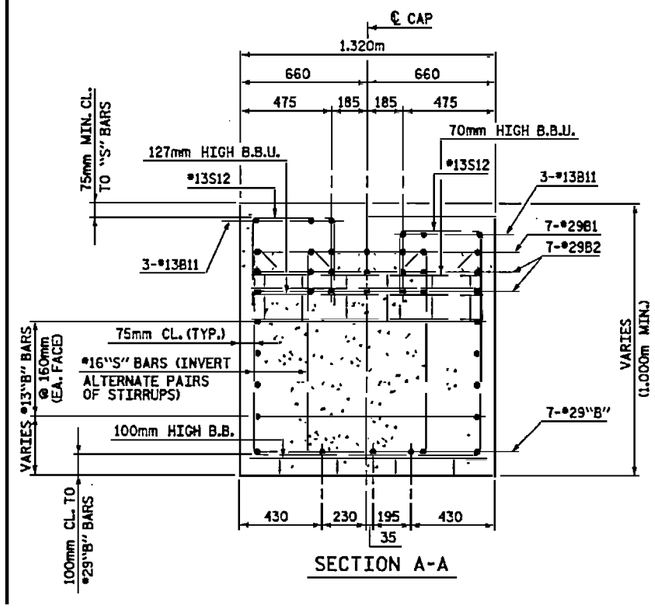
REMOVAL OF EXISTING CONCRETE:
EXISTING CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN ON SHEETS 1 OF 3 AND 2 OF 3. EXISTING REINFORCING STEEL WITHIN CONCRETE REMOVAL LIMITS TO BE BUTT SPLICED WITH NEW REINFORCING STEEL AS INDICATED ON THE PLANS SHALL BE CLEANED AND PREPARED ACCORDINGLY DURING CONCRETE 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).

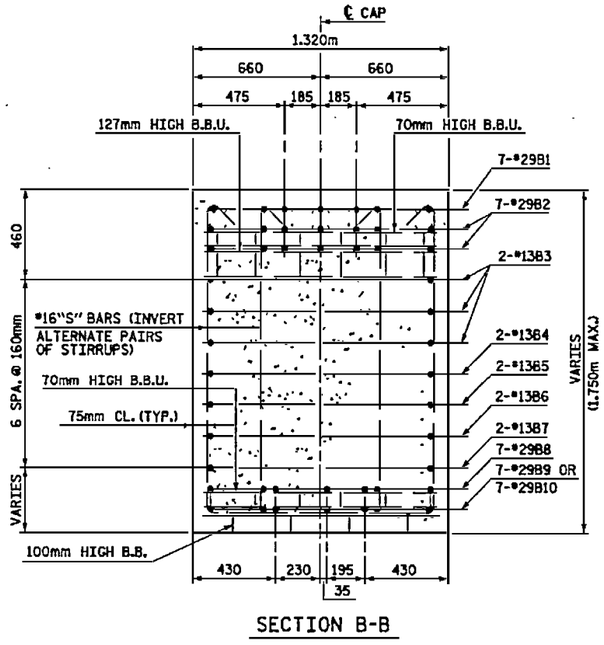


FOOTING PLAN

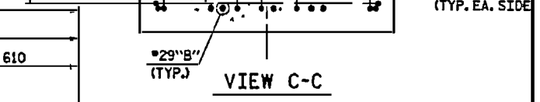
DENOTES CONCRETE REMOVAL ONLY



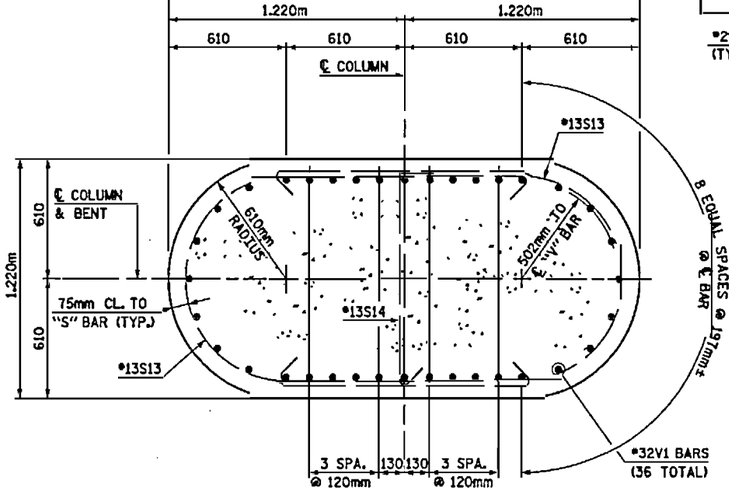
SECTION A-A



SECTION B-B



VIEW C-C



SECTION D-D

METRIC

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

NEIL T. GREENE ENGINEER SEAL 19513

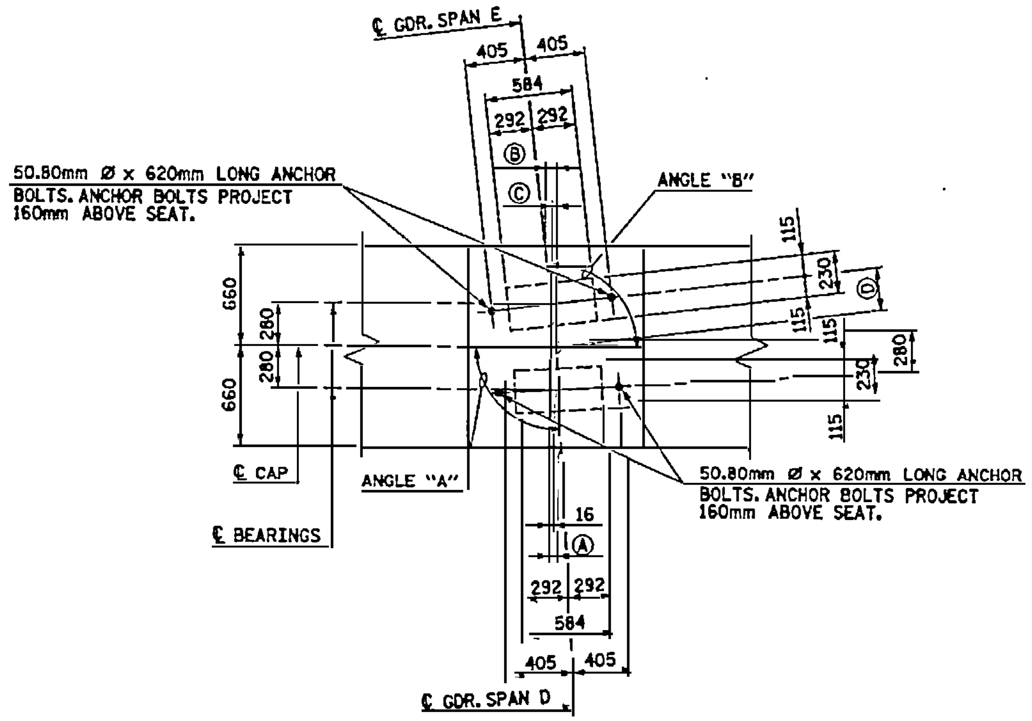
PAUL J. BARBER ENGINEER SEAL 12918

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

DRAWN BY: R. KNIGHT DATE: 7/00
CHECKED BY: O. OLIVER DATE: 7/00
DWG. NO. 94

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-94
1			3			TOTAL SHEETS
2			4			1811

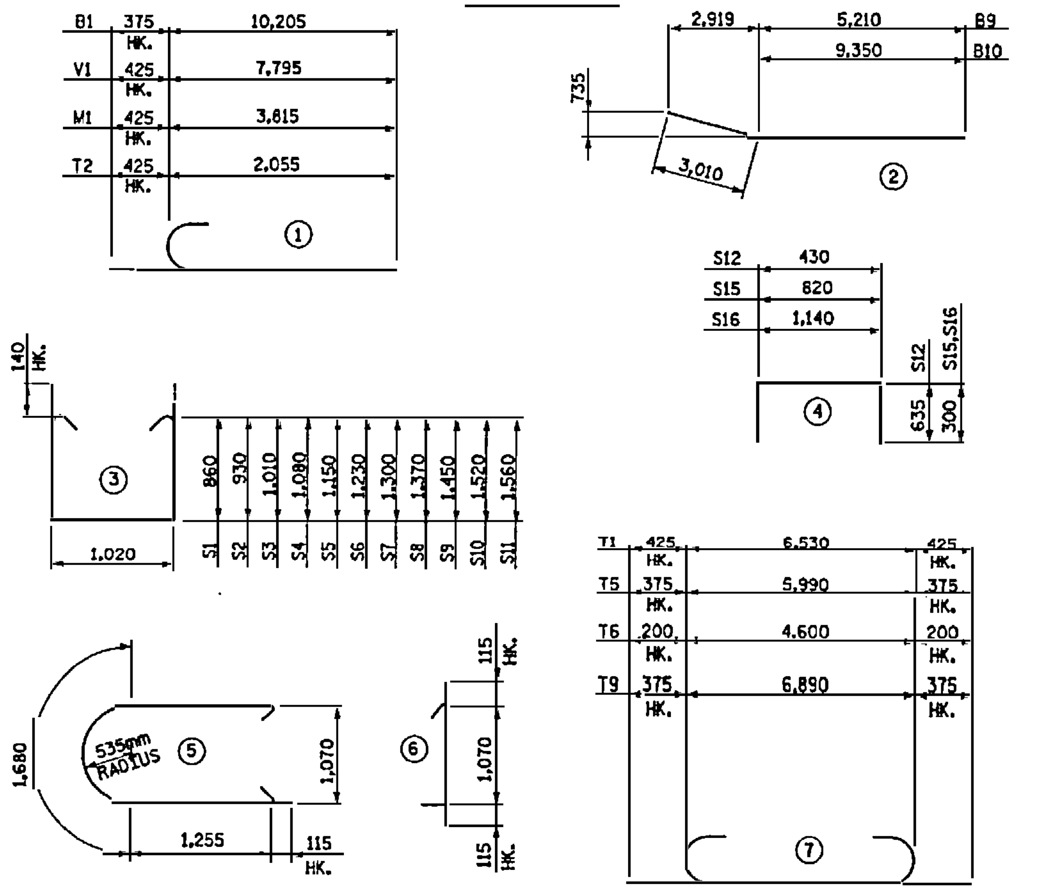
GIRDER	ANGLE "A"	(A)	GIRDER	ANGLE "B"	(B)	(C)	(D)
D1	93°22'11"	39	E1	96°46'53"	78	33	282
D2	93°10'40"	37	E2	95°42'14"	66	28	281
D3	93°10'39"	37	E3	94°36'08"	53	23	281
D4	93°10'38"	37	E4	93°28'36"	40	17	281
D5	93°10'37"	37	E5	92°19'39"	27	11	280
D6	93°10'36"	37	E6	91°09'16"	13	6	280
D7	93°10'35"	37	E7	89°57'30"	0	0	280



DETAIL A

(TYP. ALL SEATS)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

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.

METRIC

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 5

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19368 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

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

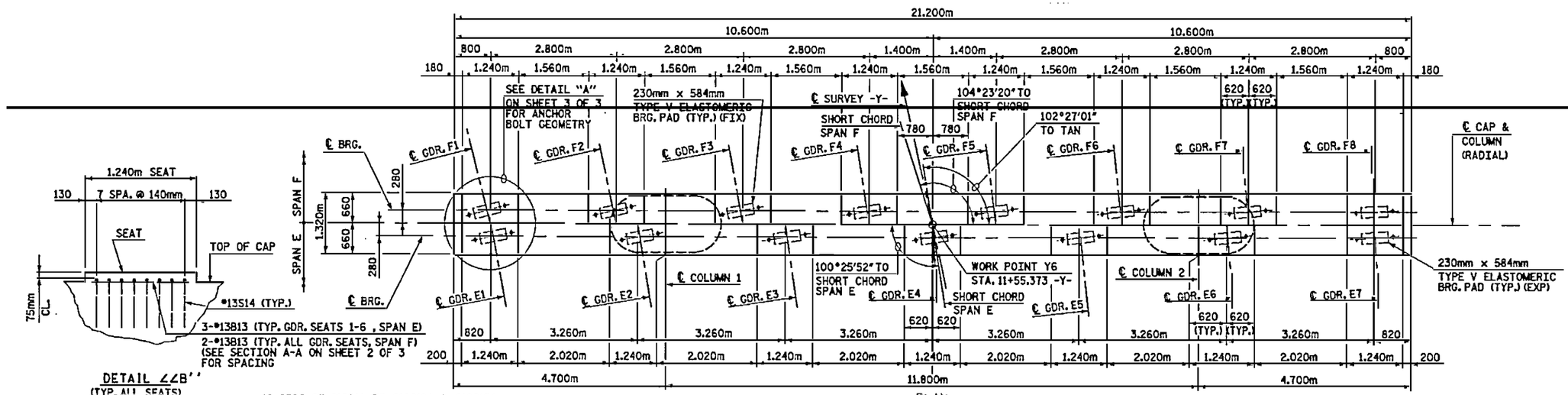
DRAWN BY R. KNIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 95

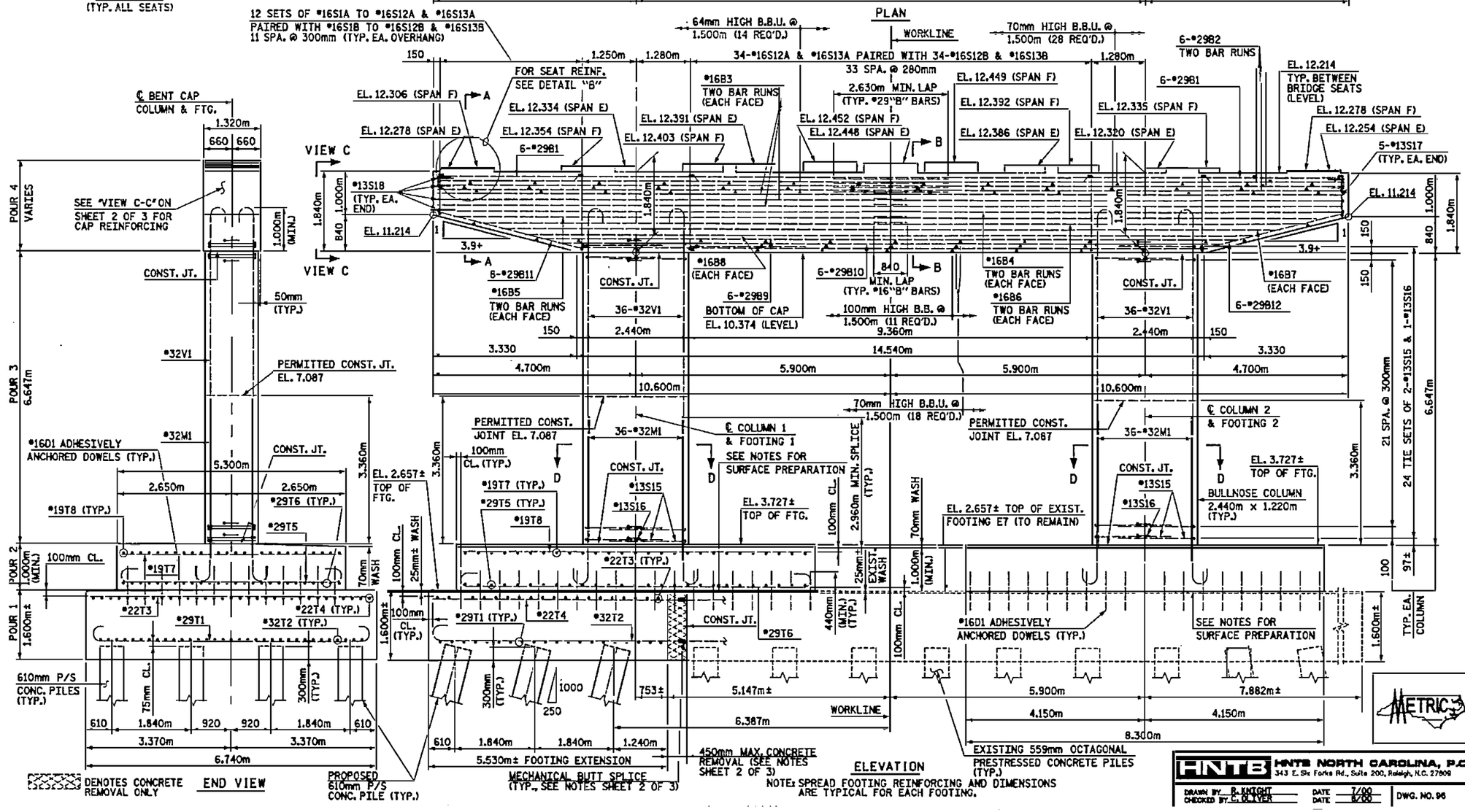
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-95

TOTAL SHEETS 101

FOR NOTES, SEE SHEET 3 OF 3.





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

METRIC

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

DRAWN BY: R. KNIGHT DATE 7/00
CHECKED BY: C. OLIVER DATE 8/00
DWG. NO. 96

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-96
1			3			TOTAL SHEETS
2			4			(CH)

INDICATES 250i1000 PILE BATTER IN DIRECTION SHOWN

MECHANICAL BUTT SPLICE (TYP., TOP AND BOTTOM. SEE NOTES, THIS SHEET)

20-#22T3 @ 270mm (TOP)

20-#29T1 @ 270mm (BOTTOM)

200mm±

℄ SURVEY -Y- CURVE LEFT

104°23'20" TO SHORT CHORD SPAN F

610mm P/S CONC. PILE (TYP.)

℄ COLUMN 1 & FOOTING 1

SHORT CHORD SPAN F

102°27'01" TO TAN

100°25'52" TO SHORT CHORD SPAN E

SHORT CHORD SPAN E

627mm±

2.440m x 1.220m BULLNOSE COLUMN (TYP.)

WORK POINT Y6 STA. 11+55.373 -Y-

℄ CAP, COLUMNS, EXIST. FOOTING & PROPOSED FOOTINGS

EXISTING PILE (TYP.)

6.740m

1.840m

920

610

33-#22T4 @ 200mm (TOP)

33-#32T2 @ 200mm (BOTTOM)

753±

450mm MAX CONCRETE REMOVAL (SEE NOTES THIS SHEET)

1.240m±

5.530m± FOOTING EXTENSION

5.900m

6.387m

WORKLINE

EXISTING FOOTING E7

℄ COLUMN 2 & FOOTING 2

7.882m±

3.732m±

"T" BARS TO BE BUTT SPLICED ONTO EXIST. #9 (ENG.) TOP AND #11 (ENG.) BOTTOM FOOTING BARS. (SEE NOTES THIS SHEET)

FOOTING PLAN

NOTE: SPREAD FOOTING REINFORCING AND DIMENSIONS ARE TYPICAL FOR EACH SPREAD FOOTING.

DENOTES CONCRETE REMOVAL ONLY

(TOP)
27-#29T5 @ 310mm
(BOTTOM)
19-#16D1 @ 430mm
(ALONG BOTH ENDS OF FOOTING)

120
120
280

2.930m
2.440m
2.930m
1.220m
1.220m

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 SPLICE CAPACITY SHALL BE 276 MPa (40ksi).

150
650
2.040m
610
1.220m
11-#16D1 @ 400mm ALONG BOTH EDGES OF FOOTING
26-#19T8 @ 200mm (TOP)
26-#29T6 @ 200mm (BOTTOM)
2.650m
5.300m
3.277m±
6.553m±

1.320m
MATCH WITH "B" BARS AS SHOWN
#13S18
℄ CAP
#29B1 (TYP.)
#29B2 (TYP.)
#13S17
#16B3 (TYP. EA. SIDE)
#29 "B" (TYP.)
MATCH WITH "B" BARS AS SHOWN

VIEW C-C

℄ CAP
1.320m
660
665
140
515
5
#16S13A
70mm HIGH B.B.U.
#16S13B
64mm HIGH B.B.U.
3-#13B13
6-#29B1
6-#29B2
75mm MIN. CL. TO #13S14 BAR
#13S14
2-#13B13
#16 "S-B" BARS
#16 "S-A" BARS
75mm CL. (TYP.)
VARIES
#13 "B" BARS @ 135mm (EA. FACE)
VARIES (1,000m MIN.)
100mm CL. TO #29 "B" BARS
340
320
120
540
6-#29 "B"

SECTION B-B

℄ CAP
1.320m
660
665
140
515
5
#16S13B
#16S13A
64mm HIGH B.B.U.
70mm HIGH B.B.U.
6-#29B1
6-#29B2
2-#16B3
2-#16B4
2-#16B5
2-#16B6
2-#16B7
2-#16B8
6-#29B9
6-#29B10
6-#29B11 OR #29B12
500
7 SPA. @ 135mm
#16 "S-B" BARS
#16 "S-A" BARS
70mm HIGH B.B.U.
75mm CL. (TYP.)
VARIES
VARIES (1,840m MAX.)
100mm HIGH B.B.
340
320
120
540

SECTION D-D

2.440m
1.220m
1.220m
610
610
610
610
℄ COLUMN
#13S15
℄ COLUMN & BENT
610
1.220m
610
510mm RADIUS
502mm "D" BAR
8 EQUAL SPACES @ 3 BAR @ 197mm±
75mm CL. TO #13 "S" BAR
#13S16
#13S15
#32V1 BARS (36 TOTAL)
3 SPA. @ 120mm
130
130
3 SPA. @ 120mm

VIEW C-C

METRIC

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

NORTH CAROLINA PROFESSIONAL SEAL 3512 ENGINEER NEIL T. GREENE

NORTH CAROLINA PROFESSIONAL SEAL 12916 ENGINEER PAUL J. BARBER

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

DRAWN BY: R. KNIGHT DATE 7/00
CHECKED BY: C. OLIVER DATE 8/00
DWG. NO. 97

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-97
1			3			TOTAL SHEETS
2			4			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 E7, LOCATED AT PROPOSED BENT 6, 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. 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 #1601 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.

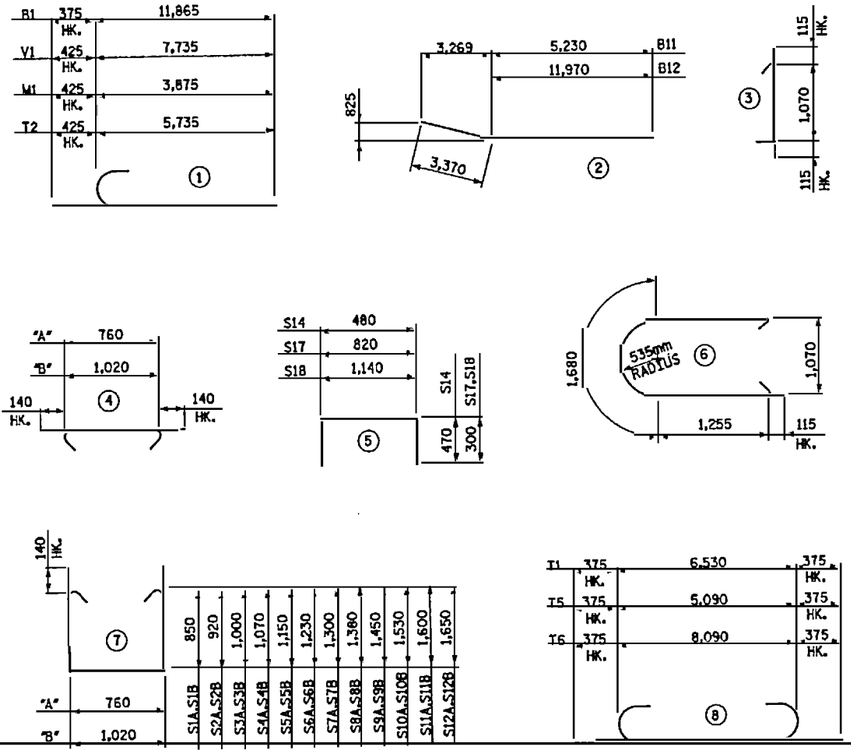
FOOTING ELEVATIONS SHOWN ON THIS SHEET WERE GENERATED FROM EXISTING BRIDGE PLANS AND SURVEY DATA FURNISHED BY NCDOT. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY EXISTING TOP OF FOOTING ELEVATIONS AND FURNISH THIS INFORMATION TO THE ENGINEER. CONSTRUCTION SHALL NOT BEGIN PRIOR 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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

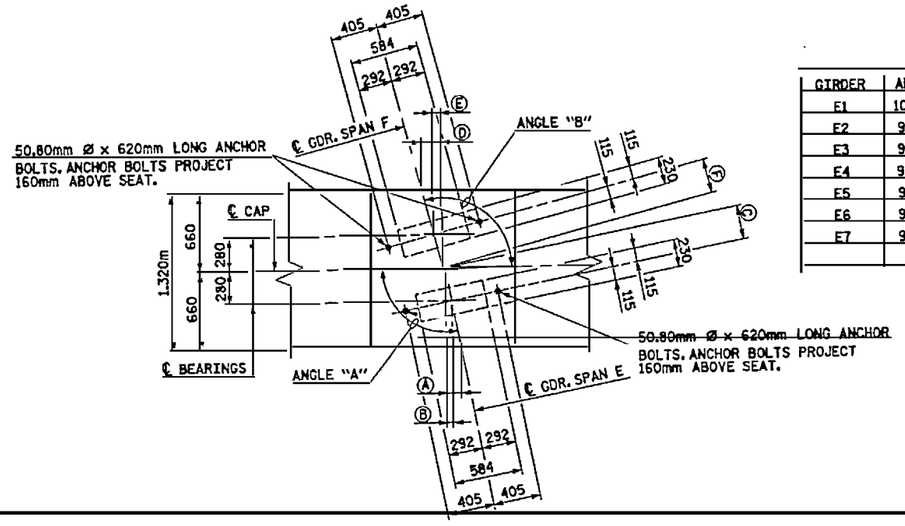
BILL OF REINFORCING

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.



DETAIL A
(TYP. ALL SEATS)

GIRDER	ANGLE "A"	Ⓐ	Ⓑ	Ⓒ	GIRDER	ANGLE "B"	Ⓓ	Ⓔ	Ⓕ
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°14'36"	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

METRIC

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 6~~

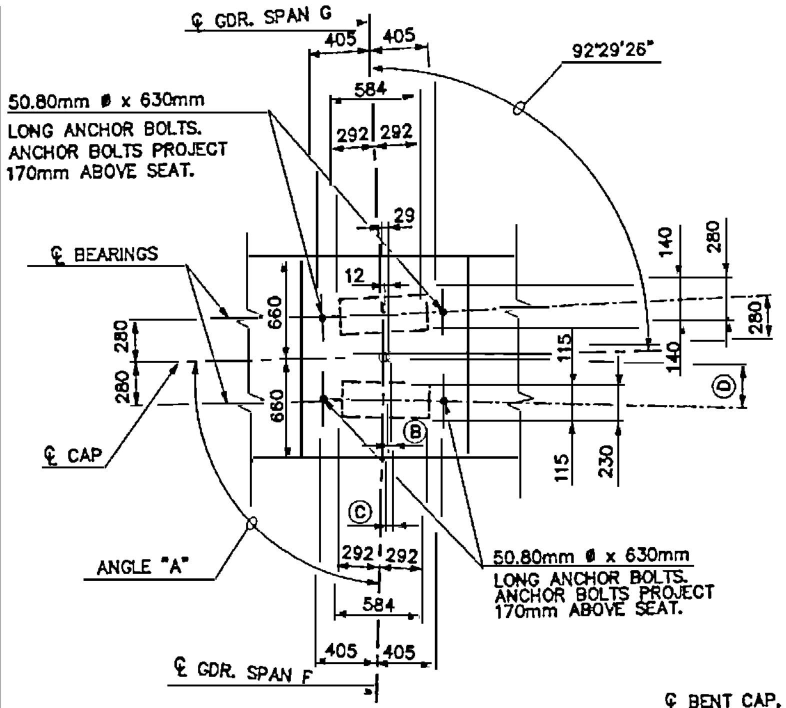
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15833 NEIL T. GREENLEE ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12996 PAUL A. BARBER ENGINEER

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

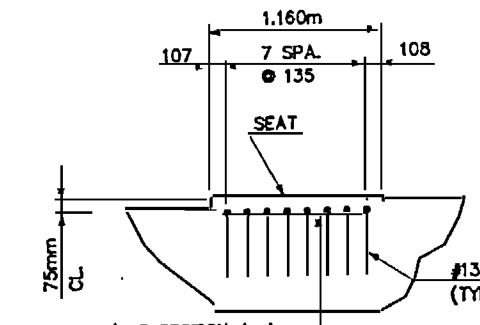
DRAWN BY R. KNIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 8/00
DWG. NO.: 98

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-78
1			3			TOTAL SHEETS
2			4			101

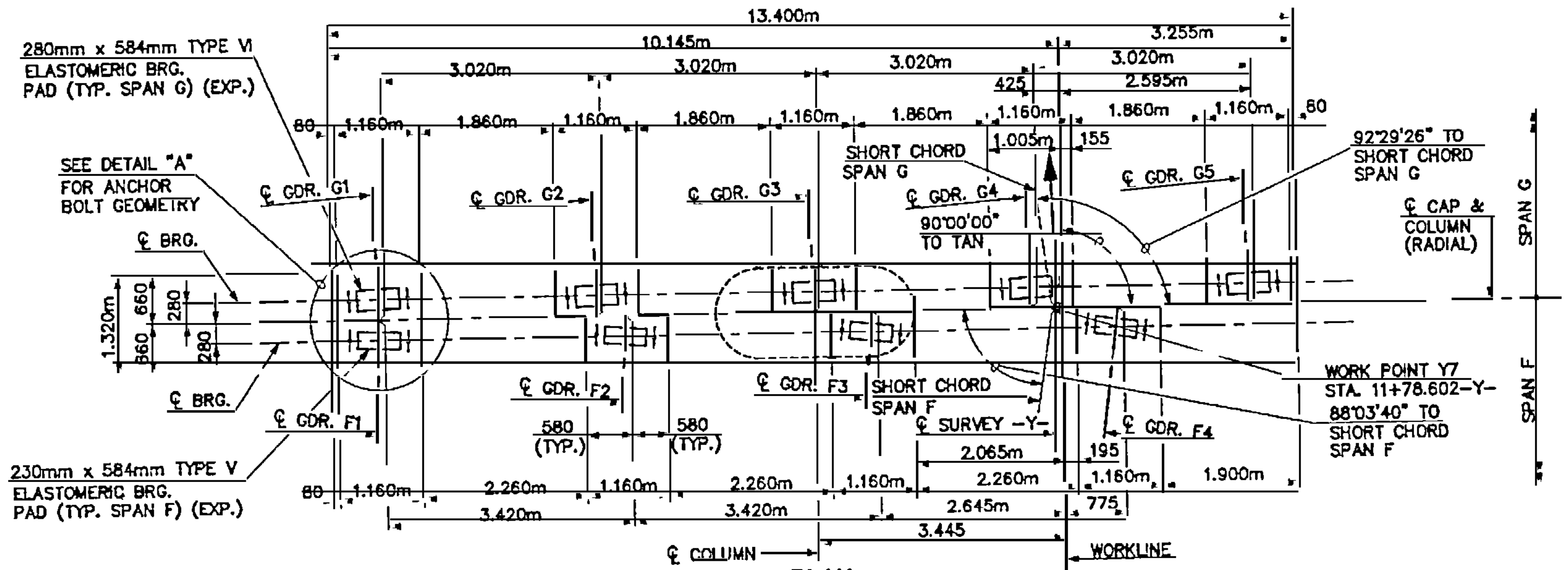


DETAIL "A"
(TYP. ALL SEATS)

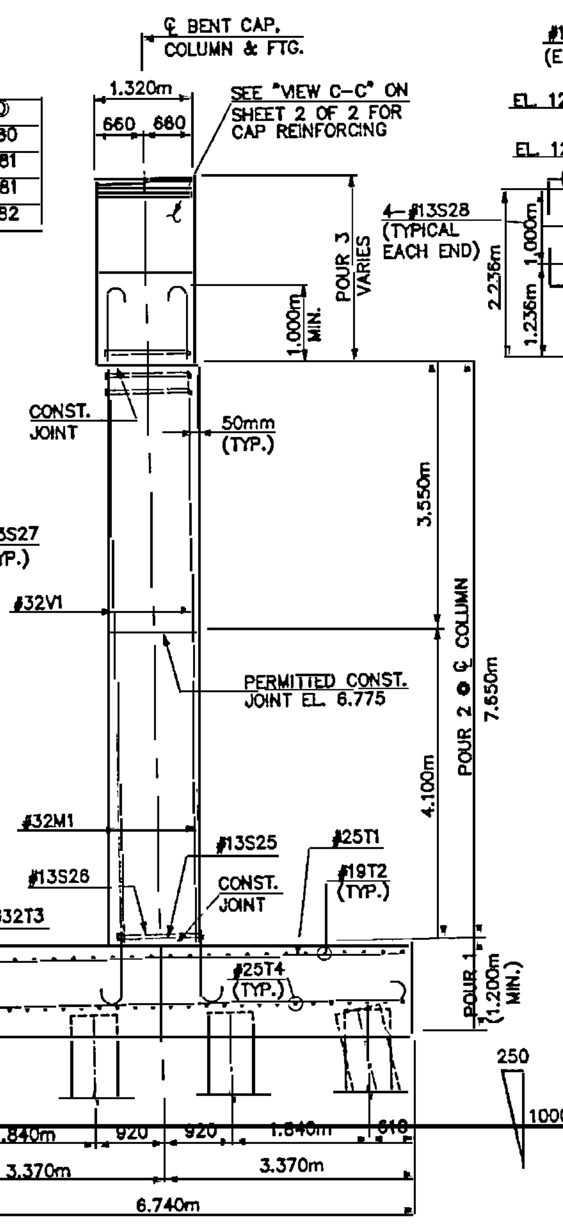
GIRDER	ANGLE "A"	Ⓑ	Ⓒ	Ⓓ
F1	88°01'33"	10	23	280
F2	86°07'39"	19	45	281
F3	84°22'20"	27	65	281
F4	82°44'51"	35	83	282



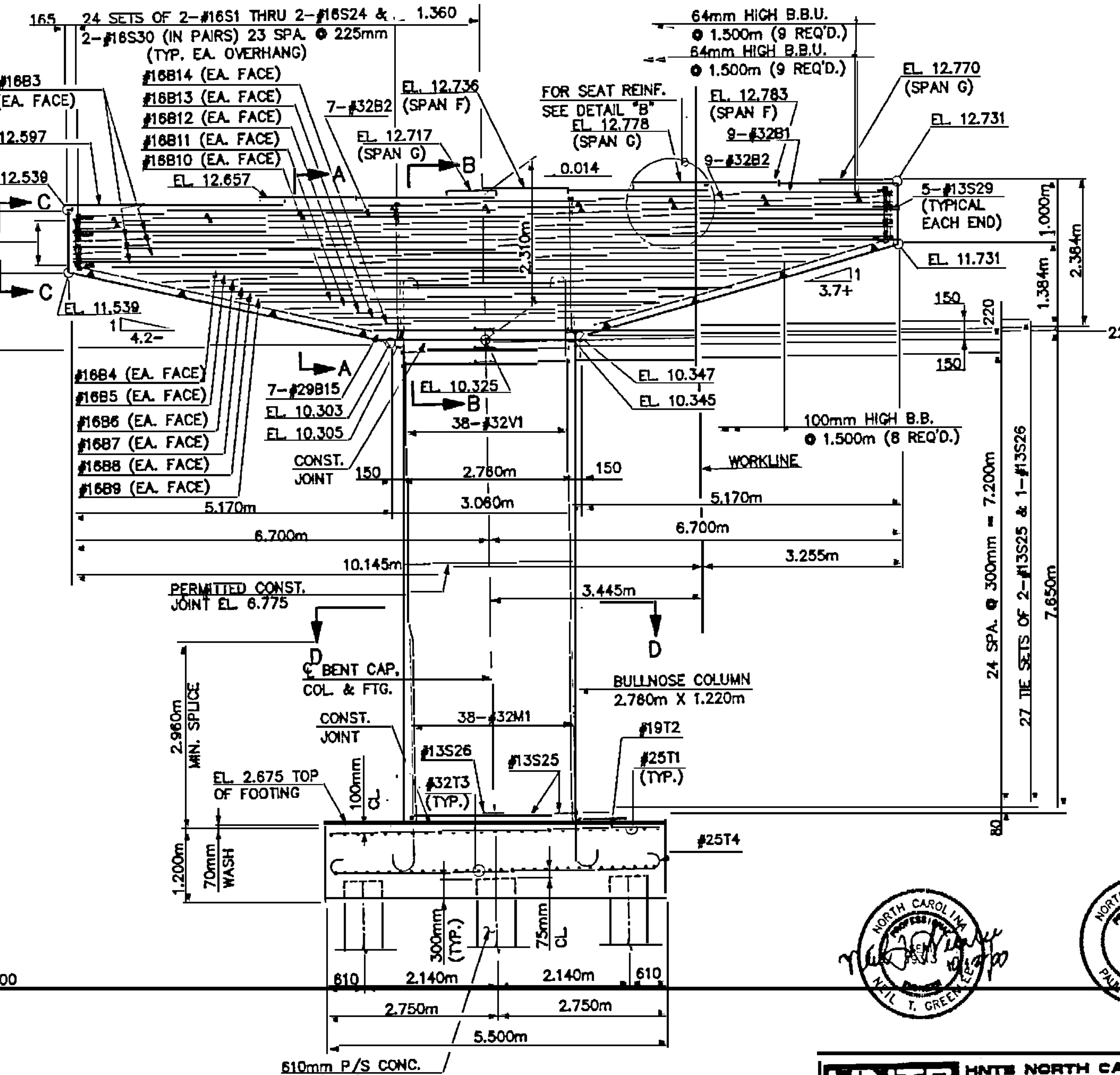
DETAIL "B"
(TYP. ALL SEATS)



PLAN



SIDE VIEW



ELEVATION

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.

METRIC

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

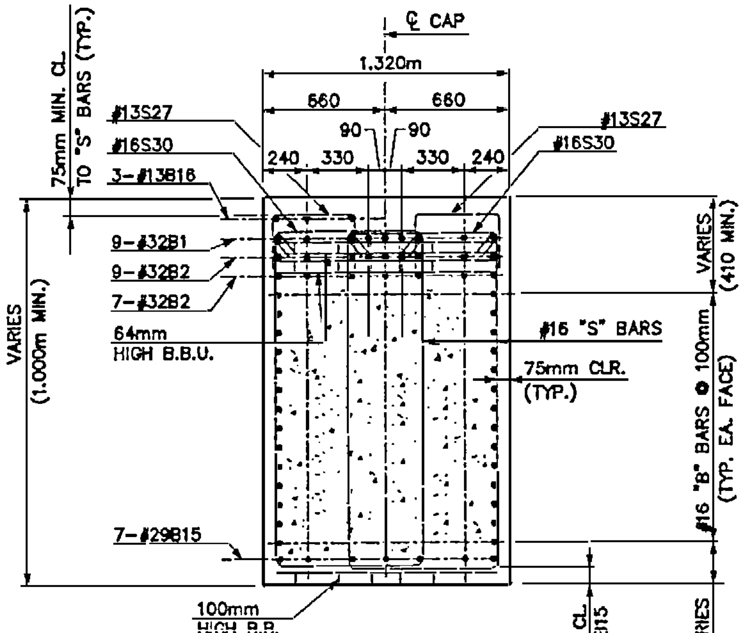
SUBSTRUCTURE

BENT 7

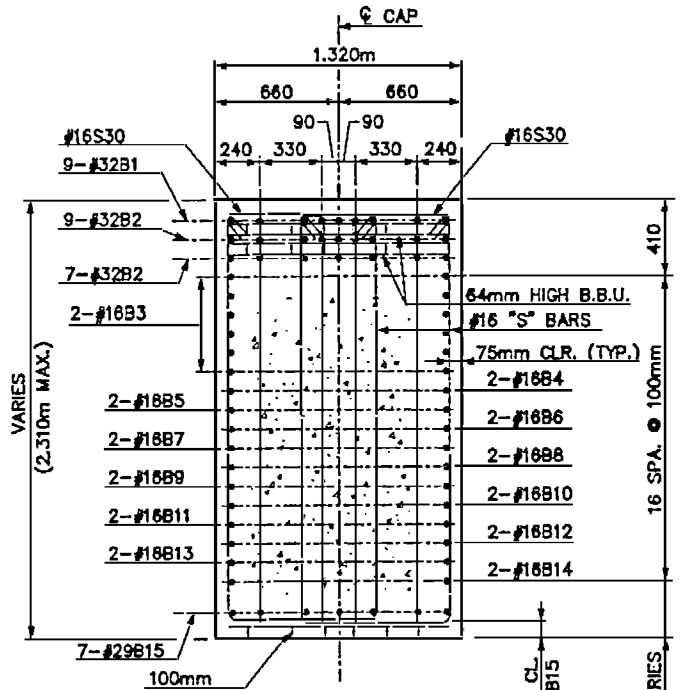
HNTB HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY K. RITSEMA DATE 7/00
CHECKED BY D. HARKINS DATE 8/00
DWG. NO. 99

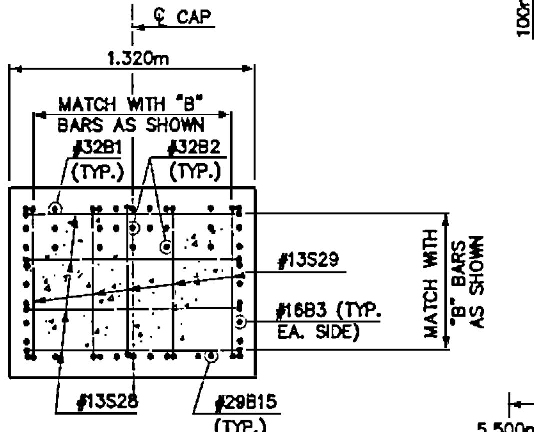
REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	S-99
1			3			TOTAL SHEETS	1011
2			4				



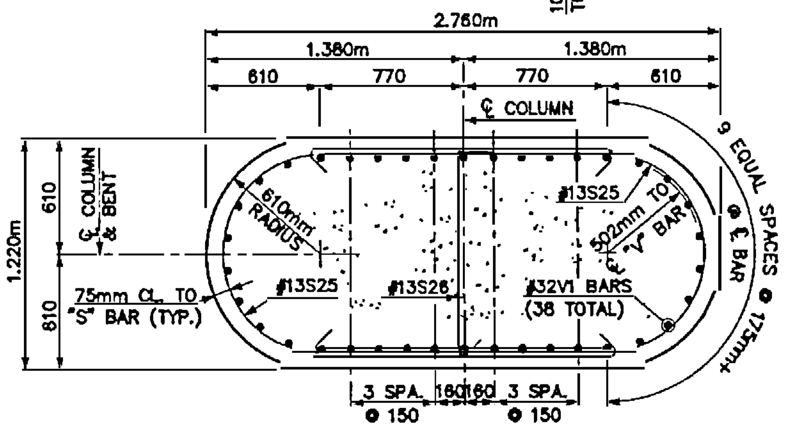
SECTION A-A



SECTION B-B



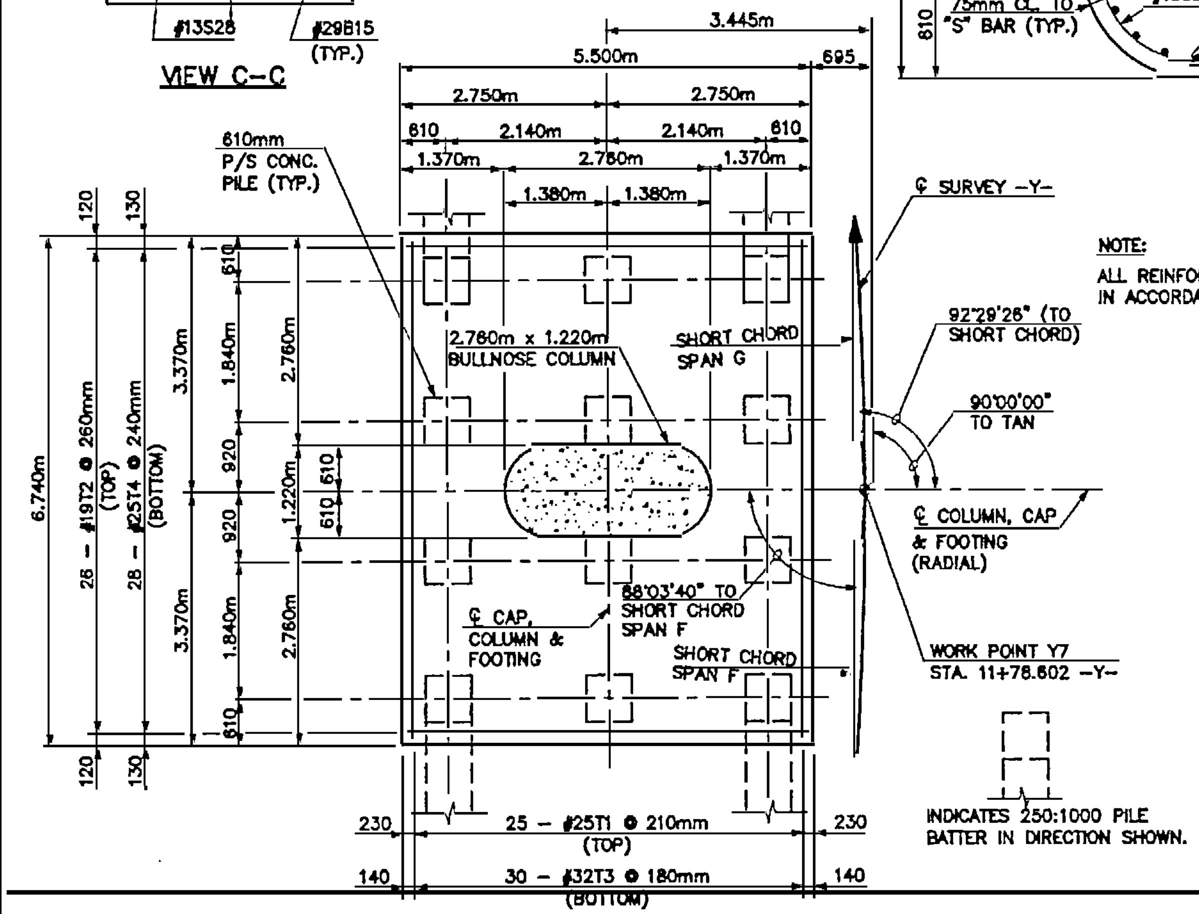
VIEW C-C



SECTION D-D

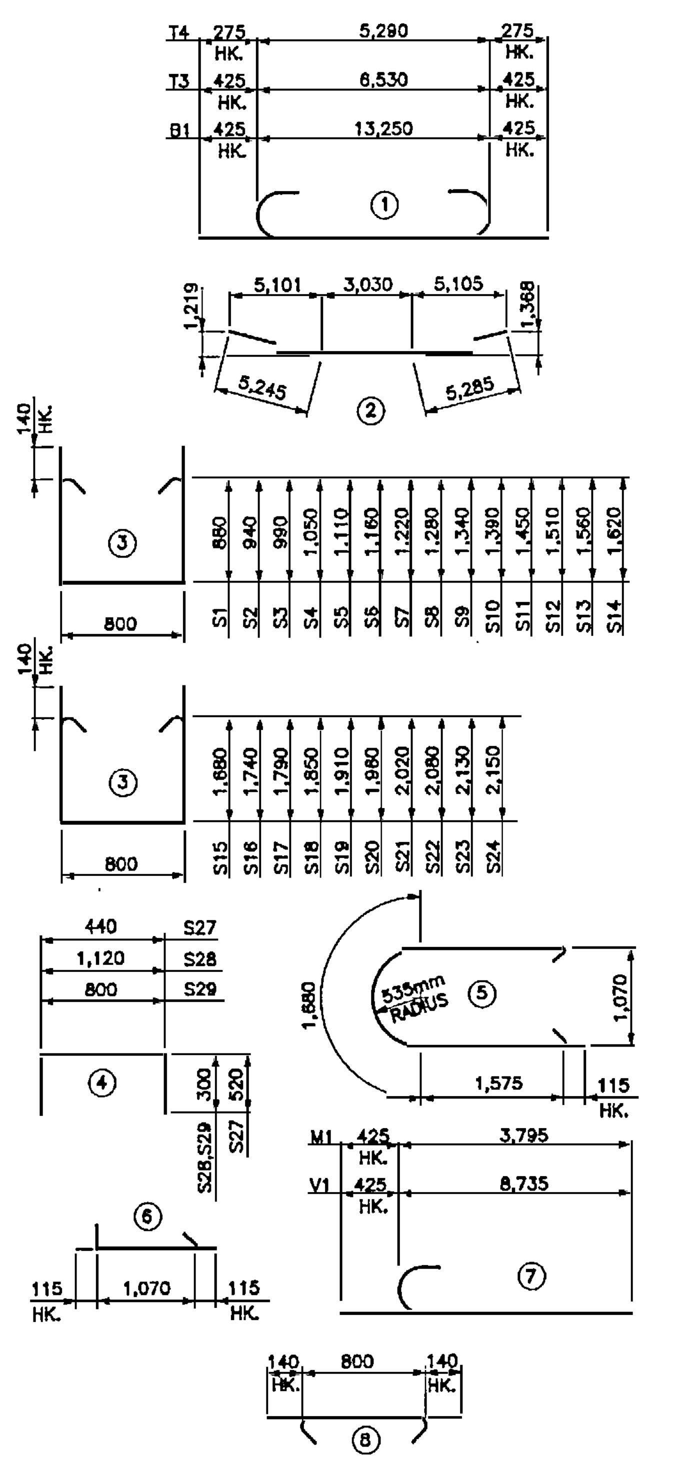
NOTE:

ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



FOOTING PLAN

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

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	39
B5	2	#16	STR.	11,640	36
B6	2	#16	STR.	10,860	34
B7	2	#16	STR.	10,060	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	#16	3	3,300	20
S6	4	#16	3	3,400	21
S7	4	#16	3	3,520	22
S8	4	#16	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	#16	3	4,440	28
S16	4	#16	3	4,560	28
S17	4	#16	3	4,660	29
S18	4	#16	3	4,780	30
S19	4	#16	3	4,900	30
S20	4	#16	3	5,000	31
S21	4	#16	3	5,120	32
S22	4	#16	3	5,240	33
S23	4	#16	3	5,340	33
S24	4	#16	3	5,380	33
S25	54	#13	5	5,060	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	96	#16	8	1,080	161
V1	38	#32	7	9,160	2,229
M1	38	#32	7	4,220	1,027
T1	25	#25	STR.	6,540	650
T2	26	#19	STR.	5,300	308
T3	30	#32	1	7,380	1,418
T4	28	#25	1	5,840	650

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	—

METRIC

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

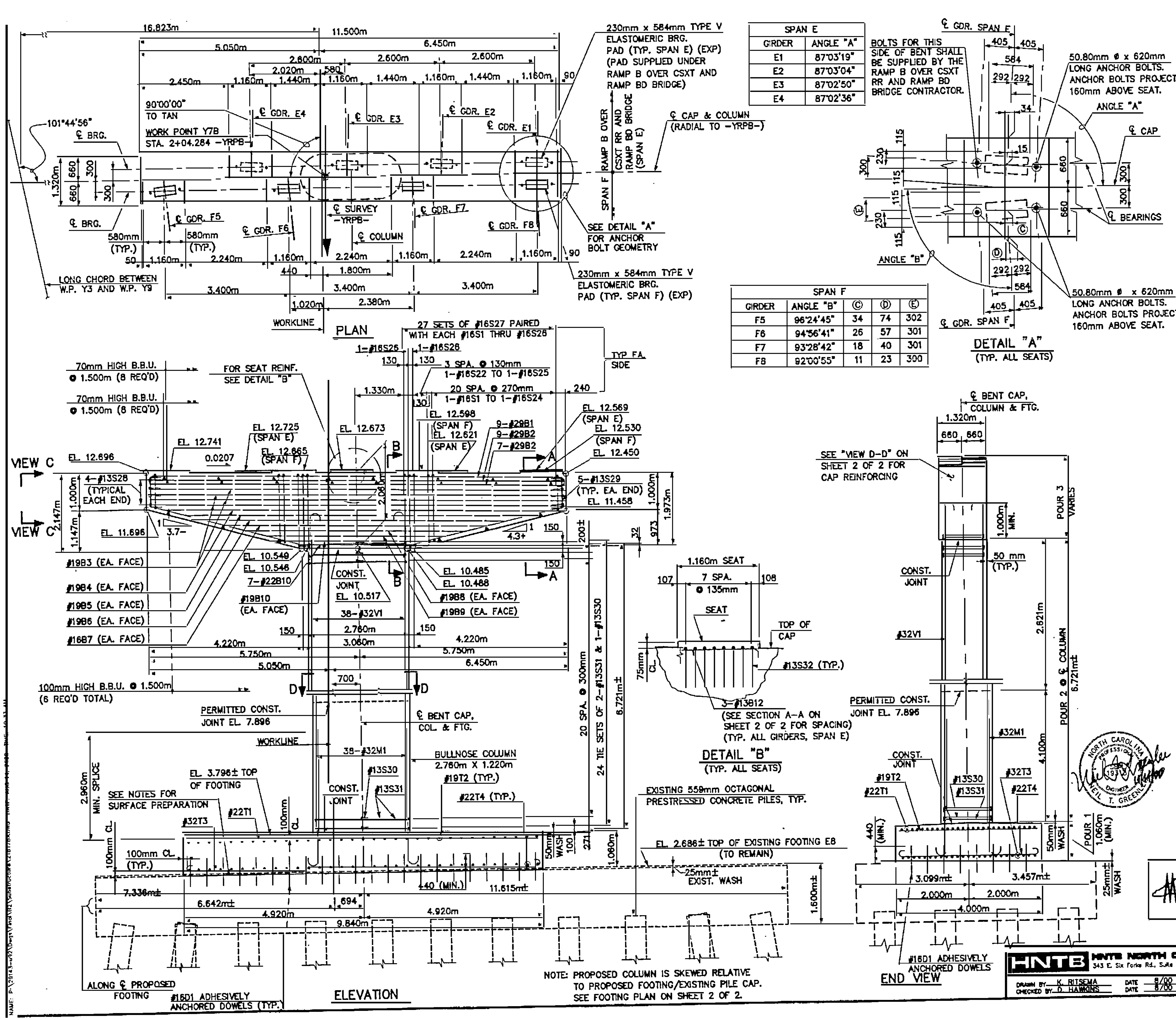
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY K. RITSEMA DATE 7/00
CHECKED BY D. HARKINS DATE 8/00

DWG. NO. 100

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

SHEET NO.
TOTAL SHEETS 101



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

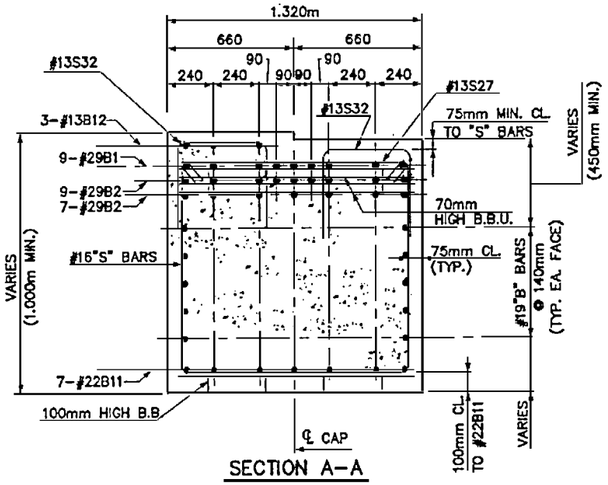
METRIC

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

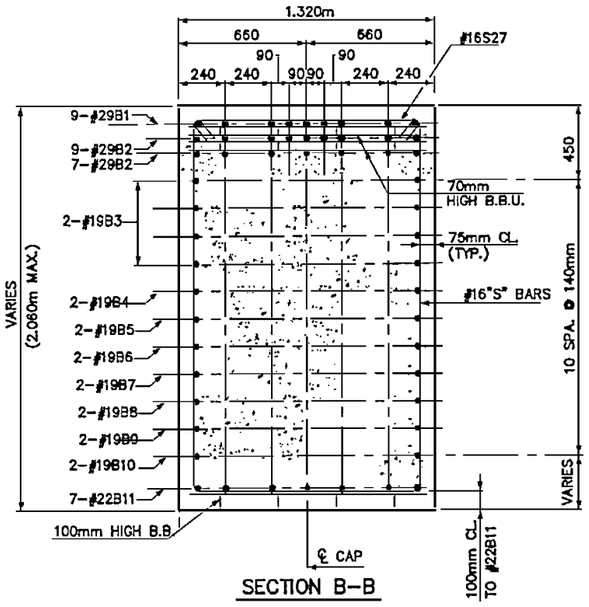
DRAWN BY K. RITSEMA DATE 8/00
CHECKED BY D. HAWKINS DATE 8/00
DWG. NO. 101

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

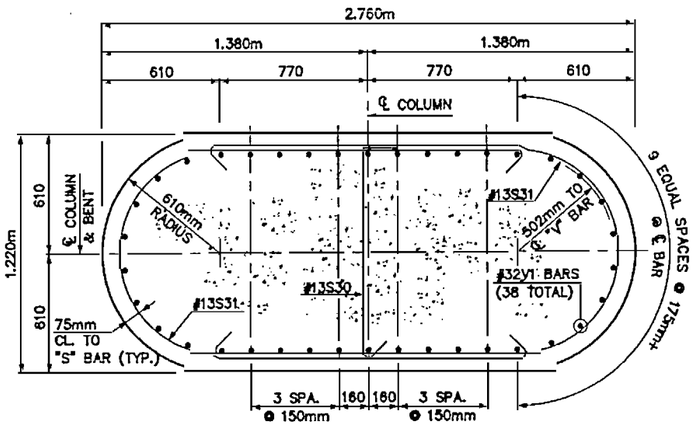
SHEET NO. S-101
TOTAL SHEETS 101



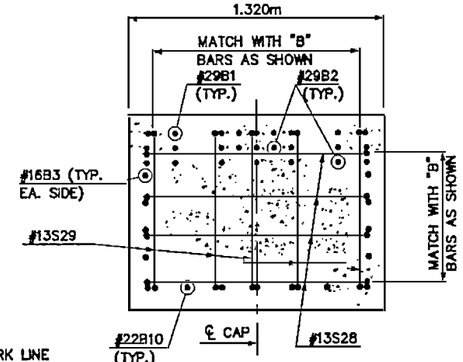
SECTION A–A



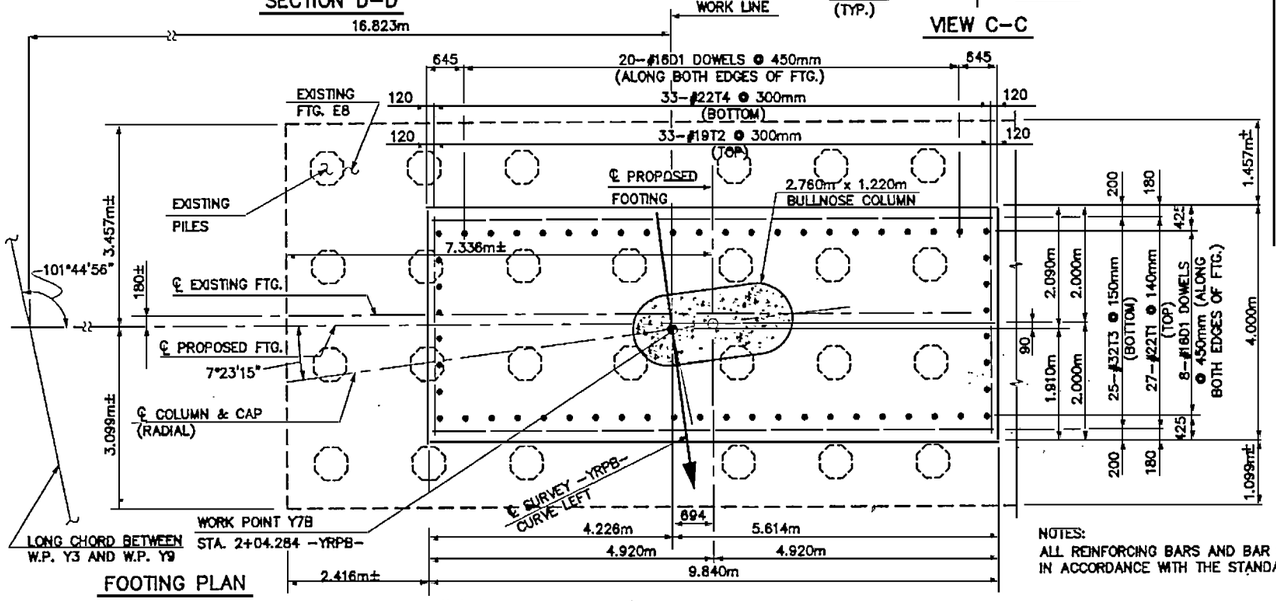
SECTION B–B



SECTION D–D



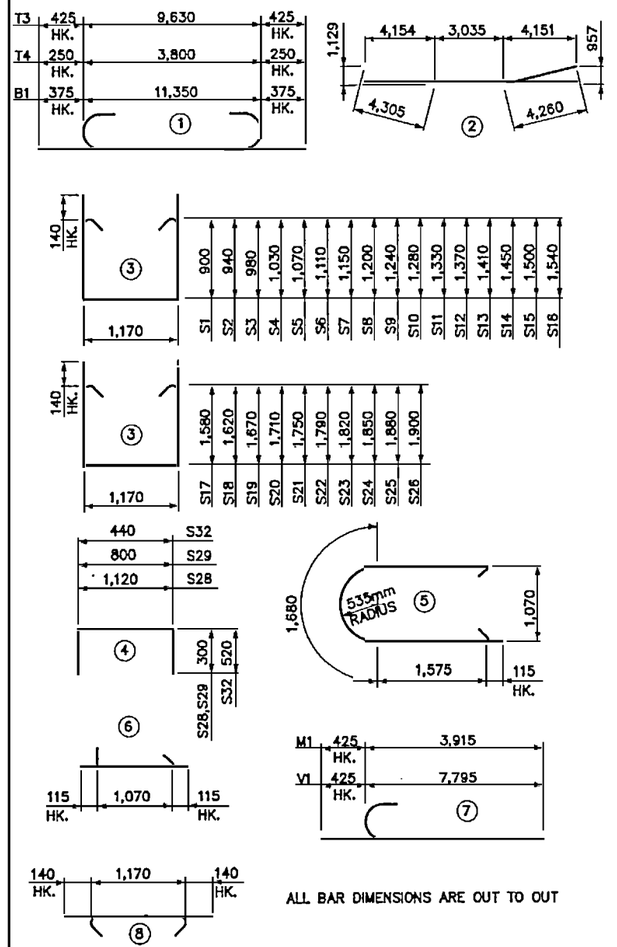
VIEW C–C



FOOTING PLAN

NOTES:
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

QUANTITIES

EPOXY COATED REINFORCING STEEL	kg.	9,257
CLASS AA CONCRETE		
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.	7,160	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	11,600	247
B12	12	#13	STR.	1,000	12
D1	56	#18	STR.	740	64
S1	2	#16	3	2,880	9
S2	2	#16	3	2,960	9
S3	2	#16	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	3,560	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	4,160	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	4,660	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	1,460	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	5,060	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-

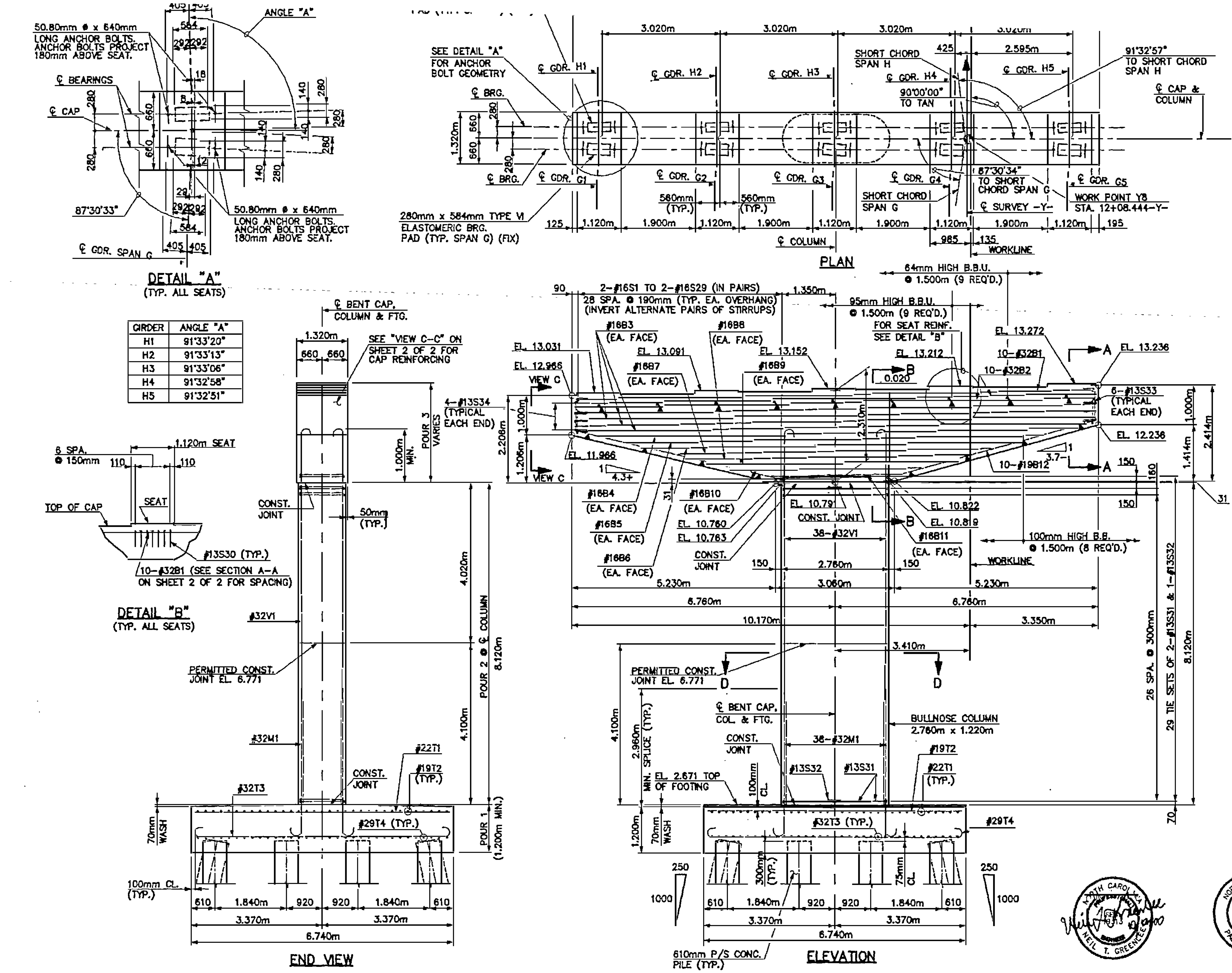
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
BENT 7B

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

DRAWN BY K. RITSEMA DATE 7/00
CHECKED BY D. HAWKINS DATE 8/00
DWG. NO. 102

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-102
1			3			TOTAL SHEETS
2			4			011



GIRDER	ANGLE "A"
H1	91°33'20"
H2	91°33'13"
H3	91°33'06"
H4	91°32'58"
H5	91°32'51"

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 8. SEE SPECIAL PROVISONS 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.

METRIC

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

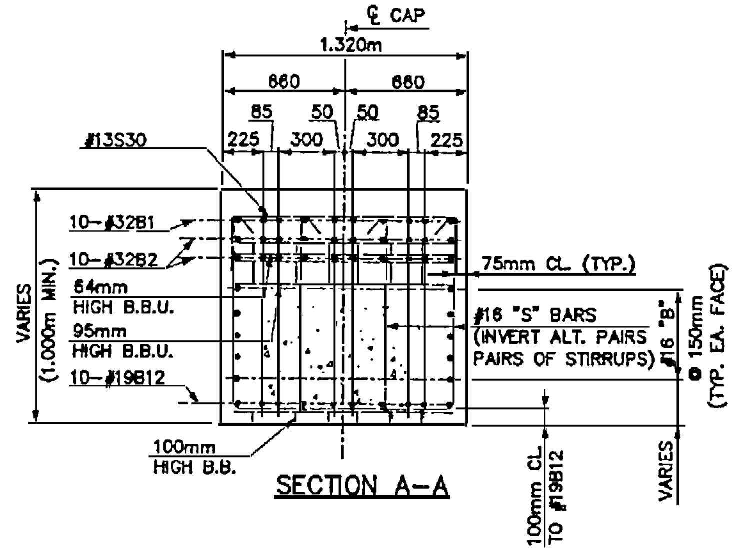
SUBSTRUCTURE
BENT 8

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

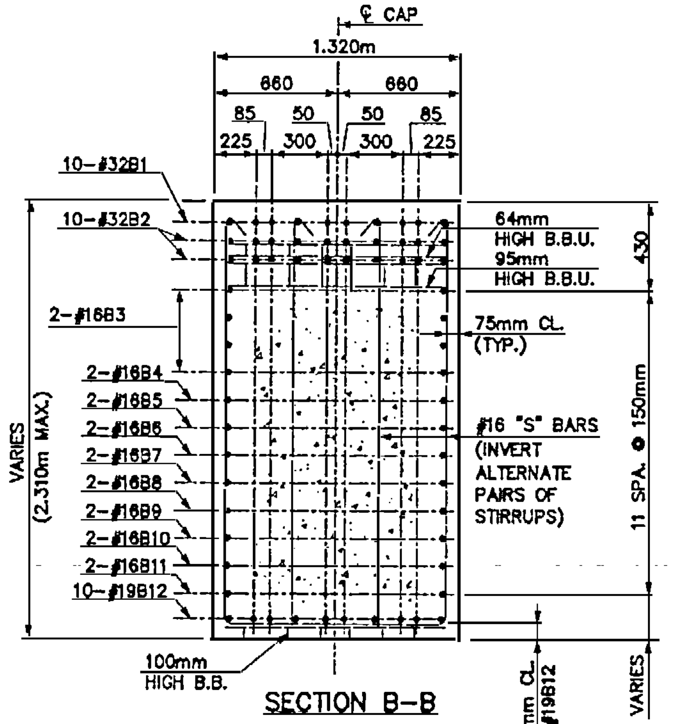
M. WRIGHT DATE 7/00 DWG. NO. 103

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

SHEET NO. S-103
TOTAL SHEETS 1011



SECTION A–A



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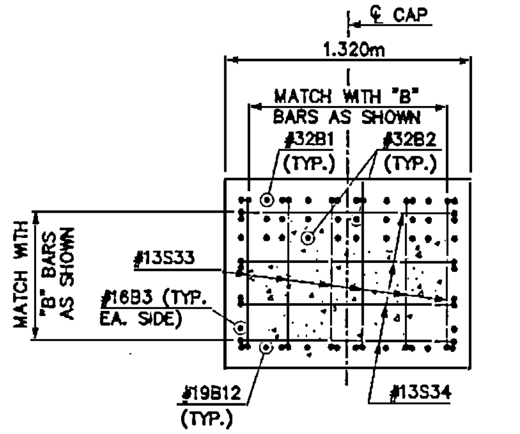
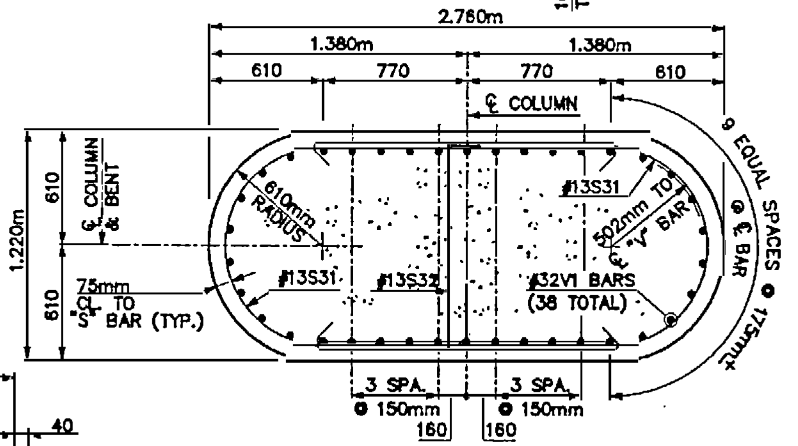
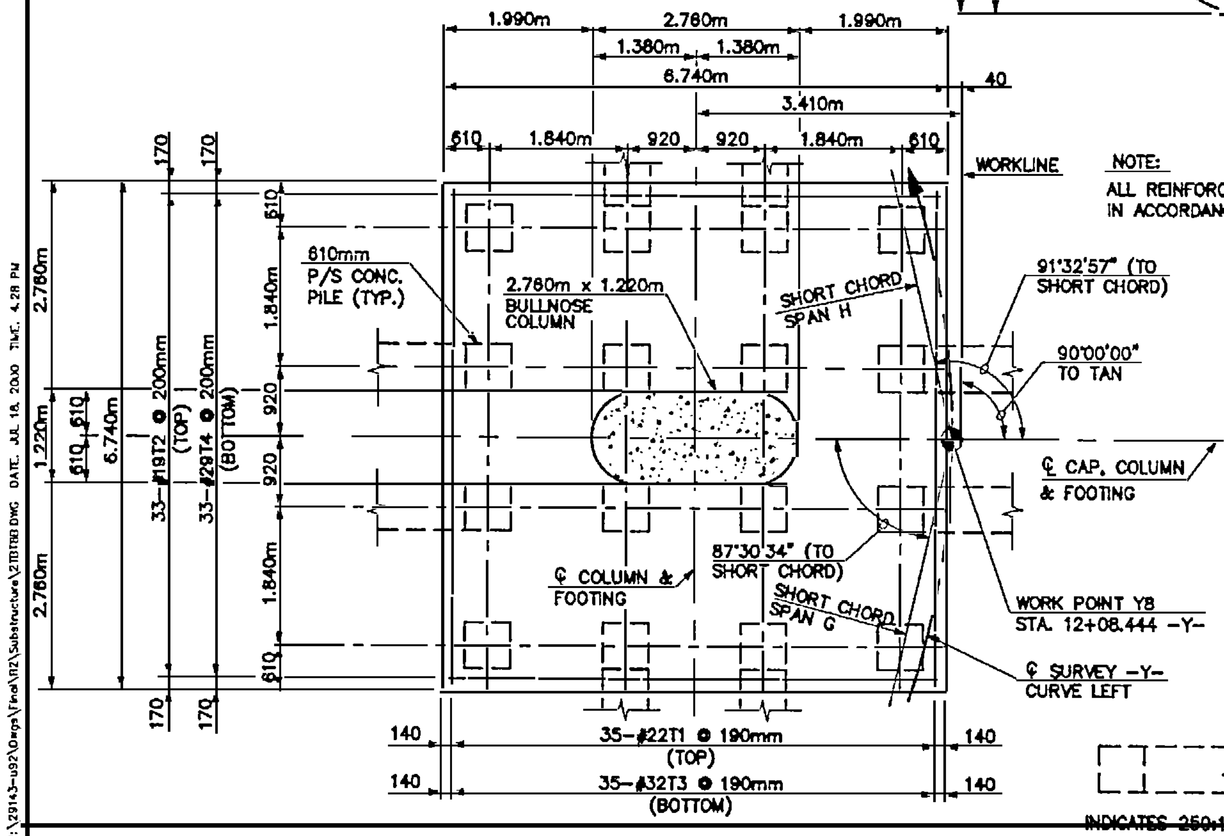


VIEW C–C



SECTION D–D

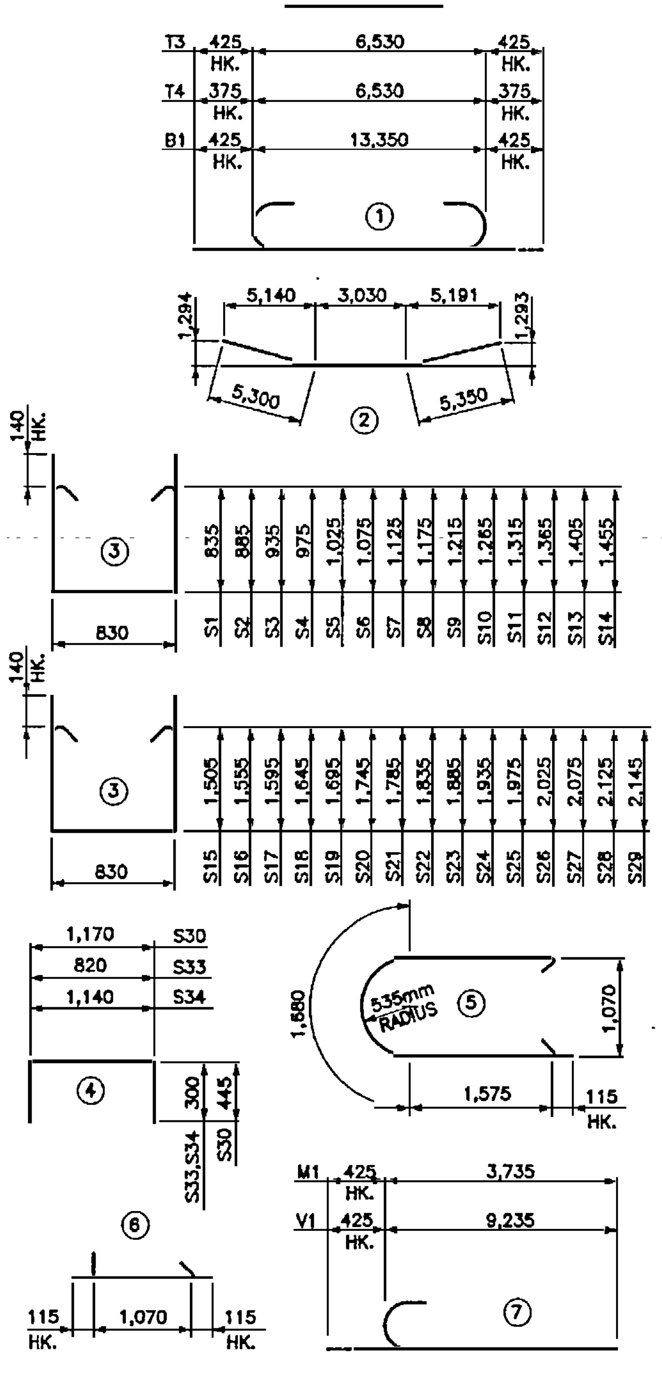


FOOTING PLAN

NOTE: ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.

BAR TYPES



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	#16	STR.	13,360	166
B4	2	#16	STR.	12,020	37
B5	2	#16	STR.	10,820	34
B6	2	#16	STR.	9,640	30
B7	2	#16	STR.	8,440	26
B8	2	#16	STR.	7,240	22
B9	2	#16	STR.	6,040	19
B10	2	#16	STR.	4,840	15
B11	2	#16	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	#16	3	4,600	29
S21	4	#16	3	4,680	29
S22	4	#16	3	4,780	30
S23	4	#16	3	4,880	30
S24	4	#16	3	4,980	31
S25	4	#16	3	5,060	31
S26	4	#16	3	5,160	32
S27	4	#16	3	5,260	33
S28	4	#16	3	5,360	33
S29	4	#16	3	5,400	34
S30	35	#13	4	2,060	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	696
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.	11,870
CLASS AA CONCRETE			
POUR 1	FOOTING	CU. METERS	54.3
POUR 2	COLUMN	CU. METERS	24.8
POUR 3	CAP	CU. METERS	32.6
TOTAL		CU. METERS	111.7
610mm P/S CONC. PILES		NO.	16
		METERS	176.0
STEEL PILE TIPS		NO.	16

NOTE: CONCRETE DISPLACED BY CONCRETE PILE HEADS HAS BEEN DEDUCTED.

METRIC

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9502 NEIL T. GREENLEE

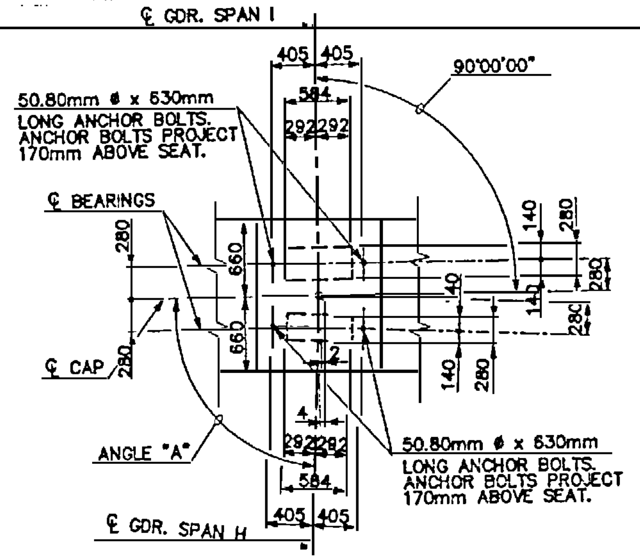
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

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

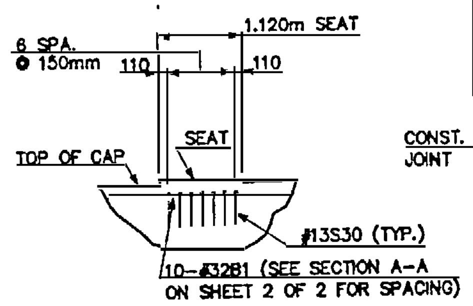
DWG. NO. 104

REVISIONS							
NO.	BY	DATE	NO.	BY	DATE	SHEET NO.	S-104
1			3			TOTAL SHEETS	101
2			4				

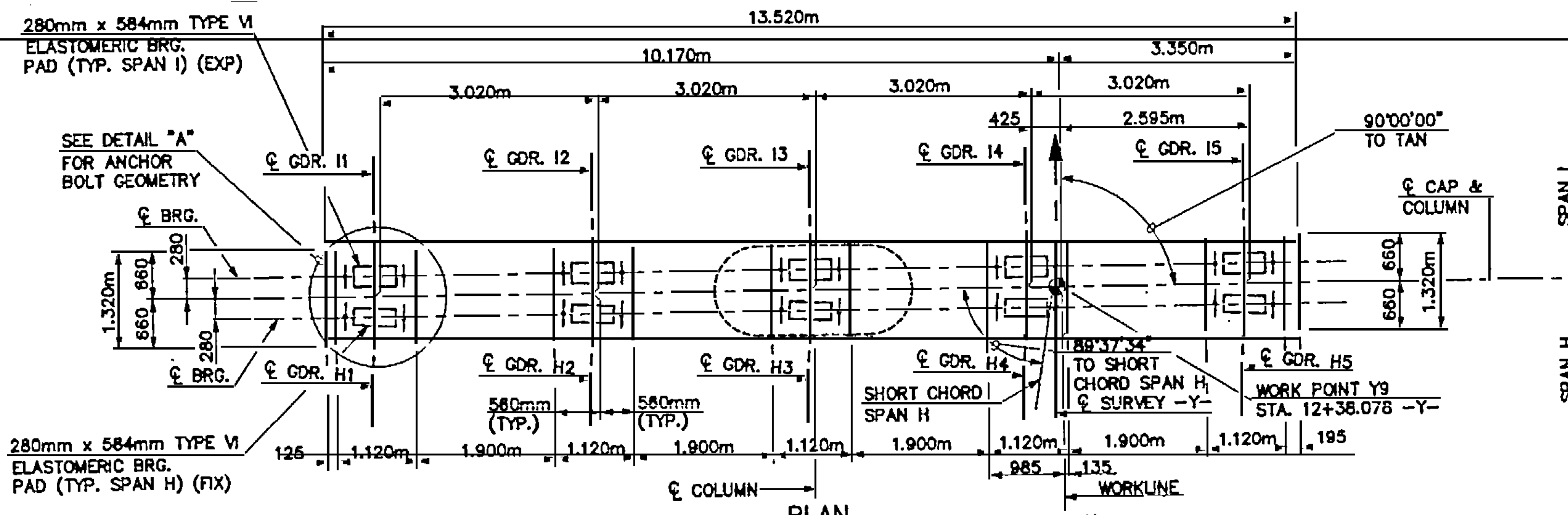


DETAIL "A"
(TYP. ALL SEATS)

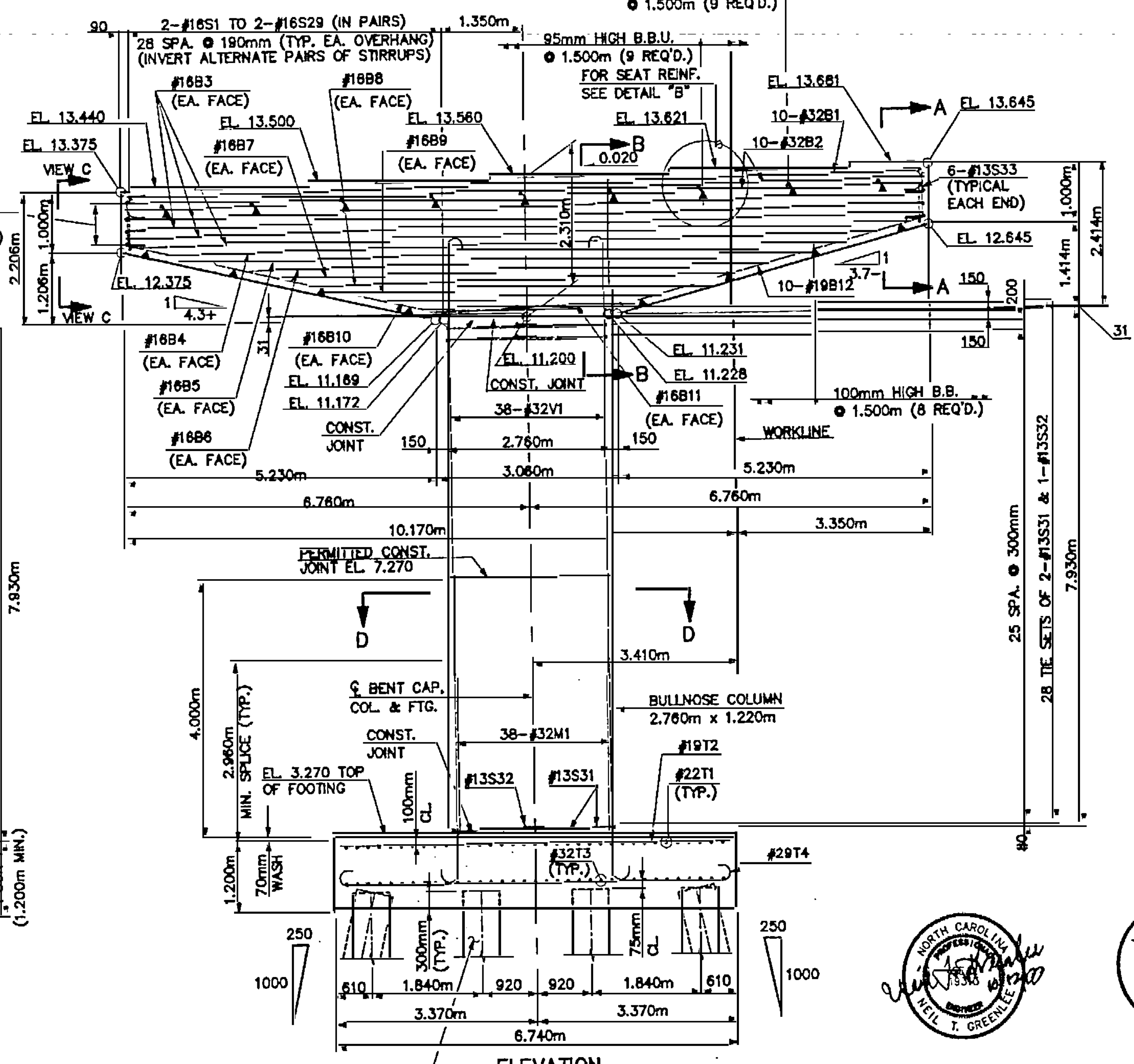
GIRDER	ANGLE "A"
H1	89°37'57"
H2	89°37'50"
H3	89°37'43"
H4	89°37'35"
H5	89°37'28"



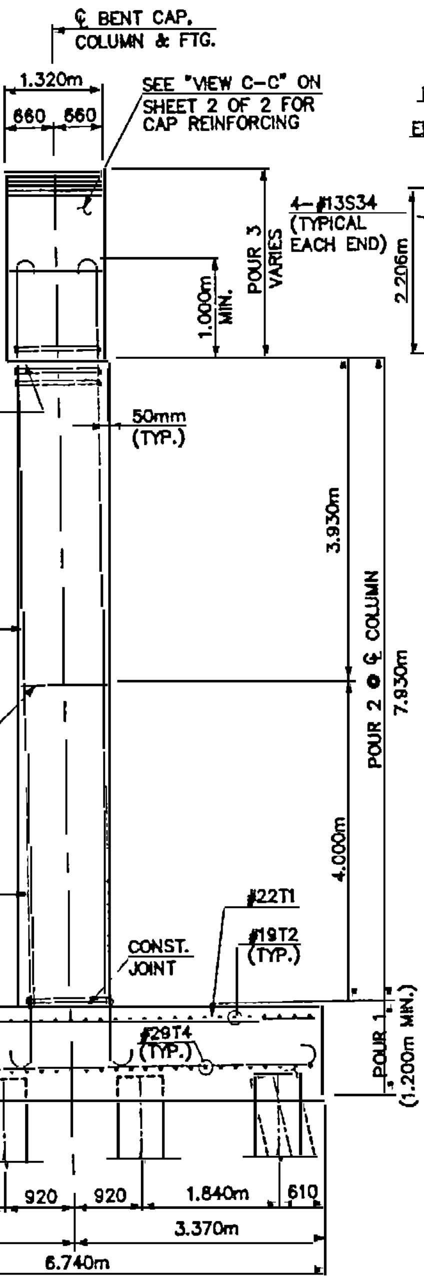
DETAIL "B"
(TYP. ALL SEATS)



PLAN



ELEVATION



END VIEW

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 PROVISONS 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.

METRIC

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

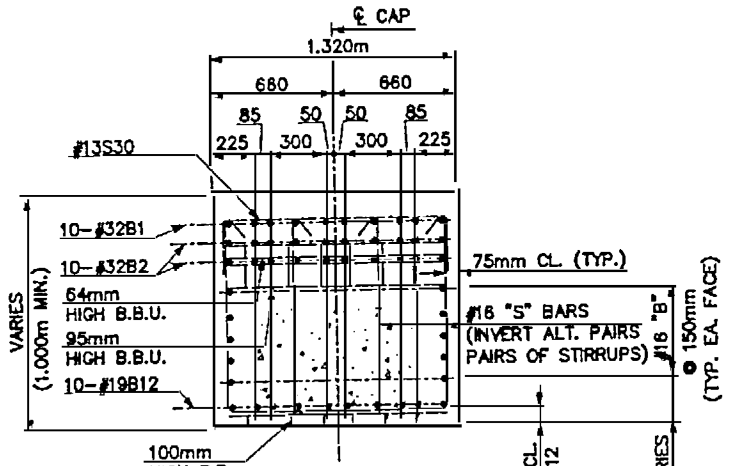
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 105

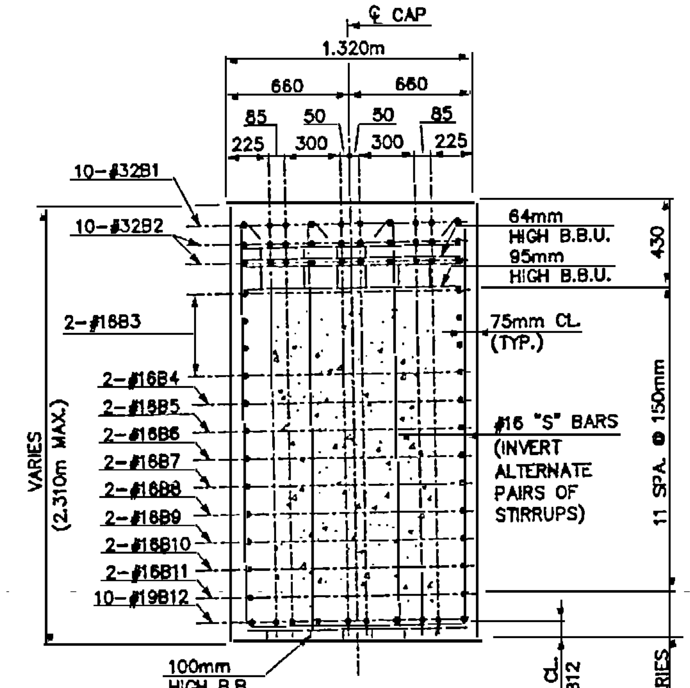
REVISIONS

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

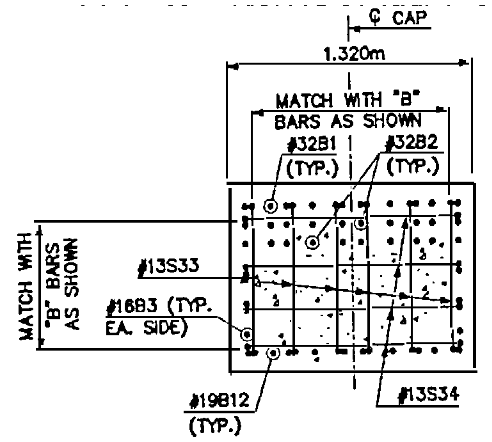
SHEET NO. / TOTAL SHEETS



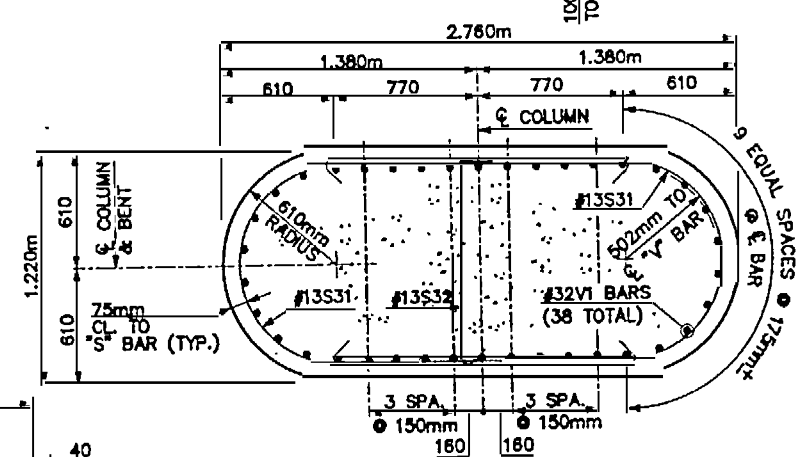
SECTION A–A



SECTION B–B

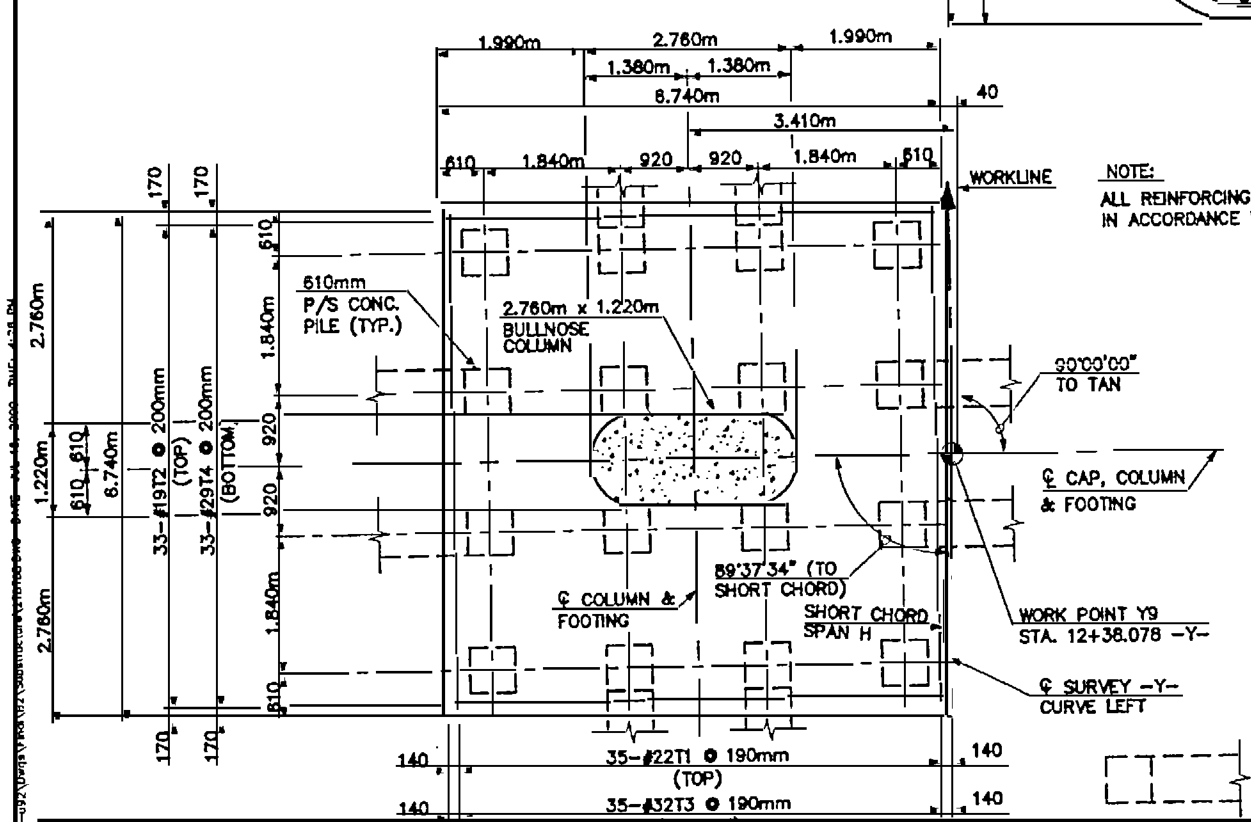


VIEW C–C



SECTION D–D

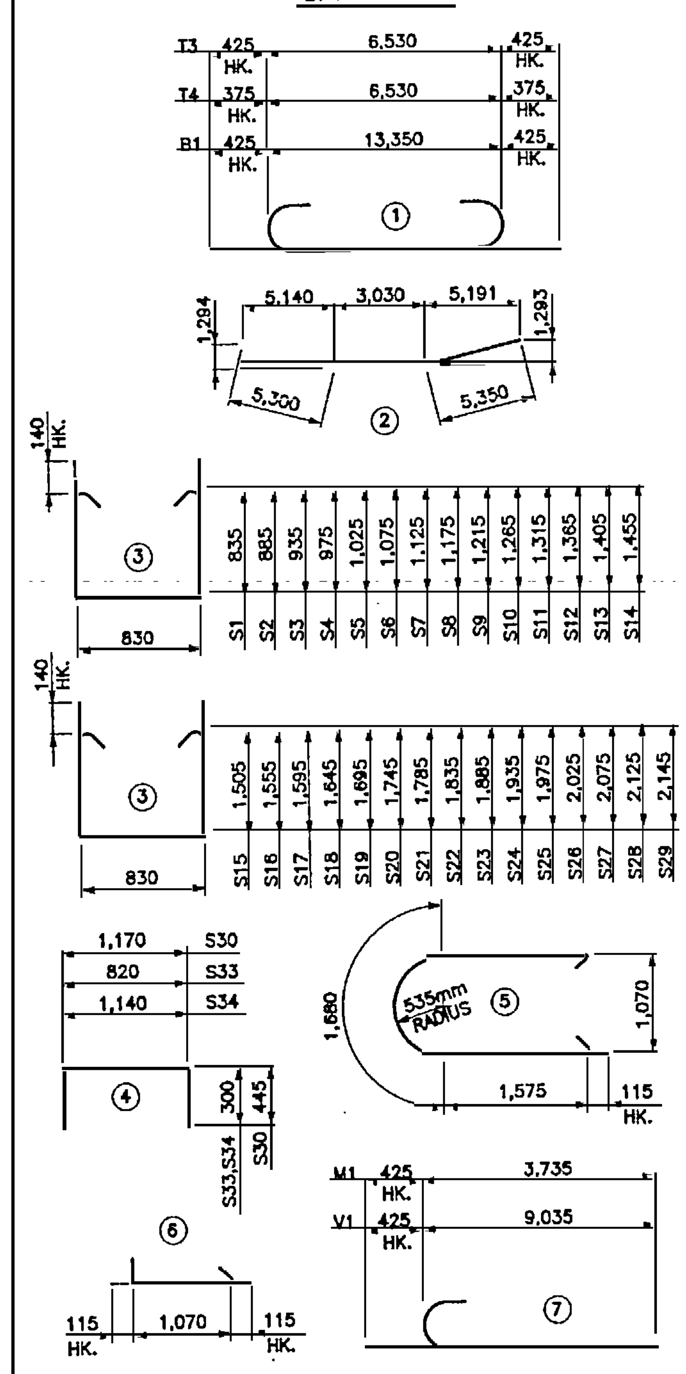
NOTE:
ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



FOOTING PLAN

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.

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	909
B2	20	#32	STR.	13,360	1,711
B3	8	#16	STR.	13,360	166
B4	2	#16	STR.	12,020	37
B5	2	#16	STR.	10,820	34
B6	2	#16	STR.	9,640	30
B7	2	#16	STR.	8,440	26
B8	2	#16	STR.	7,240	22
B9	2	#16	STR.	6,040	19
B10	2	#16	STR.	4,840	15
B11	2	#16	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	#16	3	4,600	29
S21	4	#16	3	4,680	29
S22	4	#16	3	4,780	30
S23	4	#16	3	4,880	30
S24	4	#16	3	4,980	31
S25	4	#16	3	5,060	31.
S26	4	#16	3	5,160	32
S27	4	#16	3	5,260	33
S28	4	#16	3	5,360	33
S29	4	#16	3	5,400	34
S30	35	#13	4	2,060	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	9,460	2,302
M1	38	#32	7	4,160	1,012
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

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.

METRIC

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

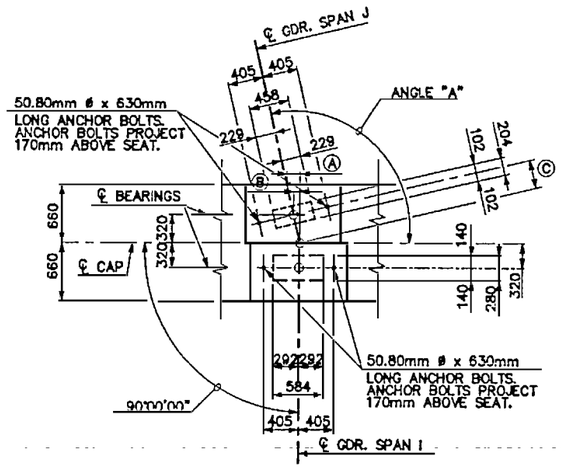
NORTH CAROLINA PROFESSIONAL ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 PAUL J. BARBER

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

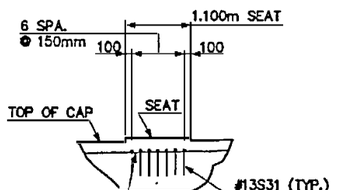
DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 106

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

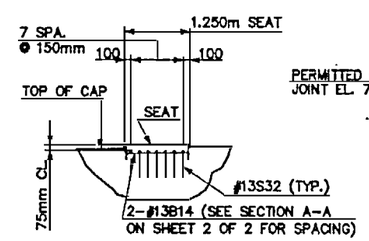


DETAIL "A"
(TYP. ALL SEATS)

GIRDER	ANGLE "A"	Ⓐ	Ⓑ	Ⓒ
J1	103°03'02"	153	74	328
J2	98°07'41"	94	46	323
J3	92°39'53"	31	15	320
J4	86°40'55"	-38	-19	-321
J5	80°15'01"	-113	-55	-325
J6	73°29'38"	-196	-95	-334



DETAIL "B"
(TYP. ALL SEATS SPAN I)



DETAIL "C"
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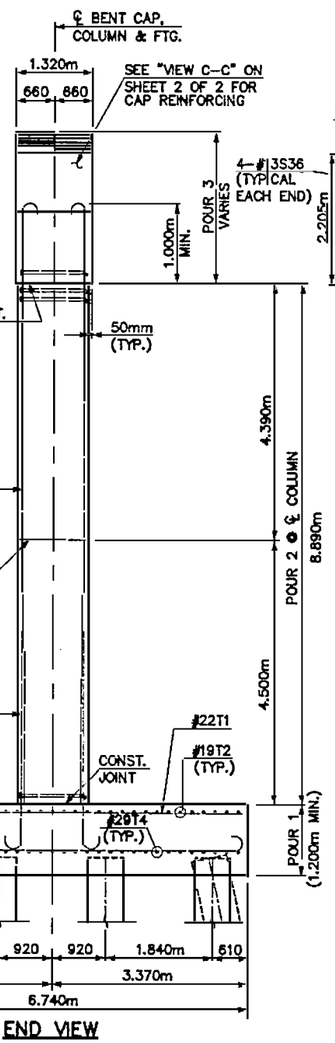
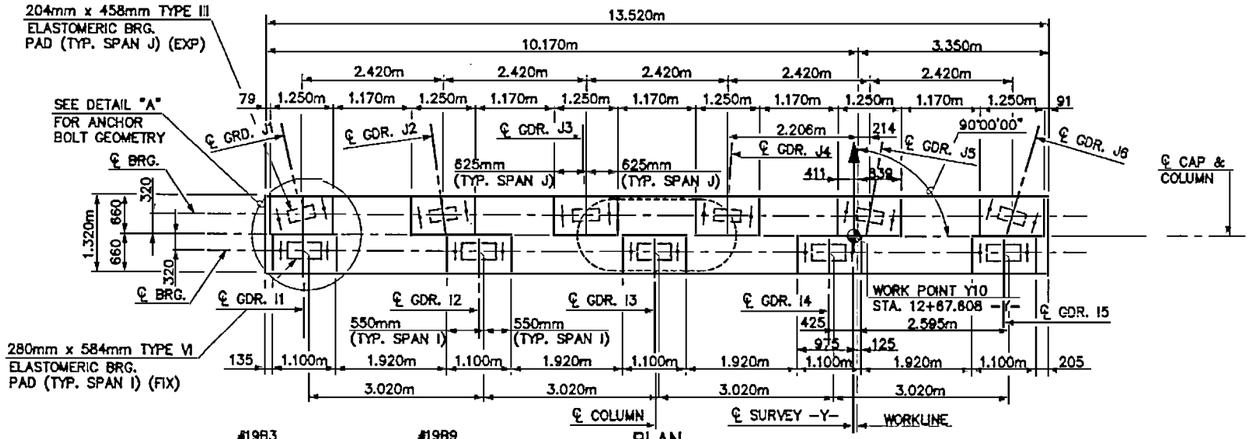
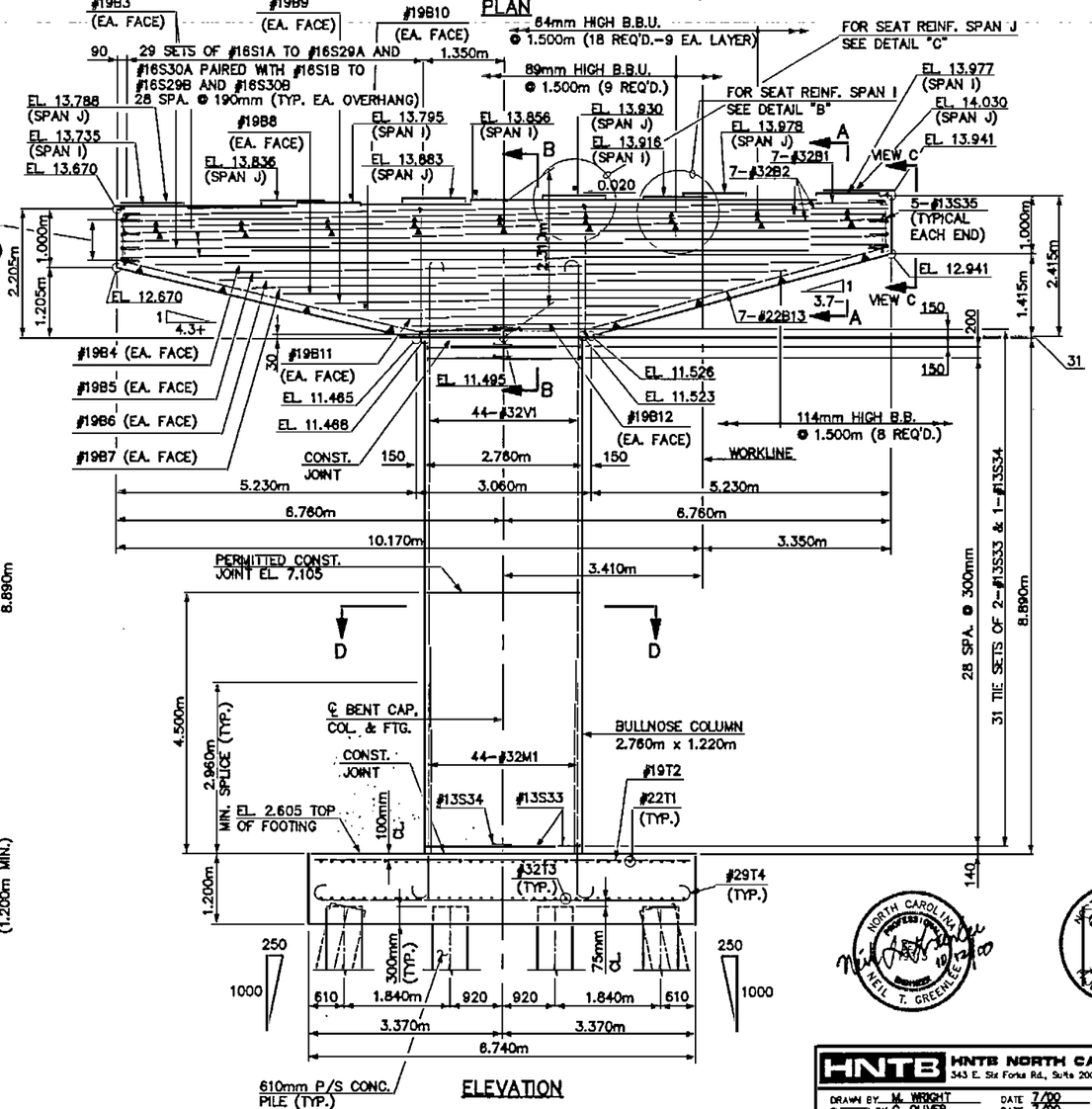


END VIEW



PLAN



ELEVATION

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 10. SEE SPECIAL PROVISONS 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.

METRIC

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

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

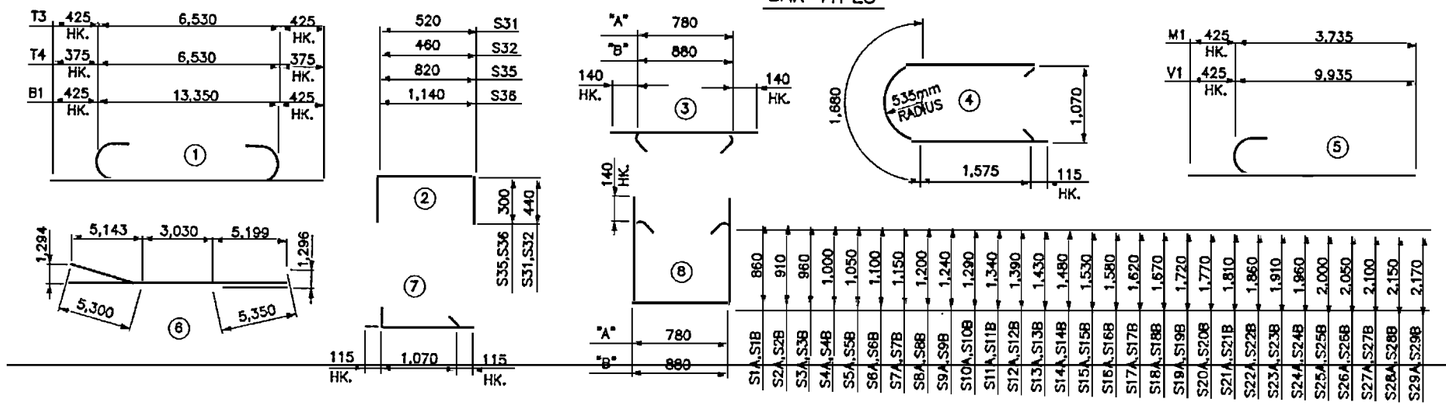
DRAWN BY M. WRIGHT DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 107

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-107
1			3			TOTAL SHEETS
2			4			161

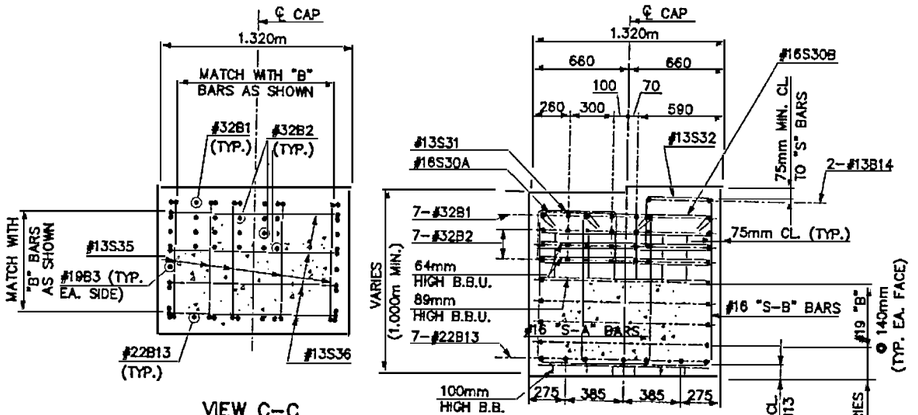
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 12916 M. J. BARBER

BAR TYPES

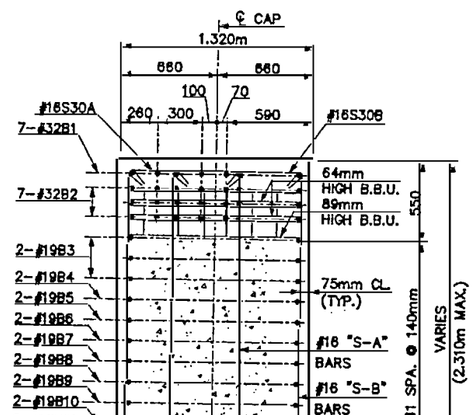


ALL BAR DIMENSIONS ARE OUT TO OUT



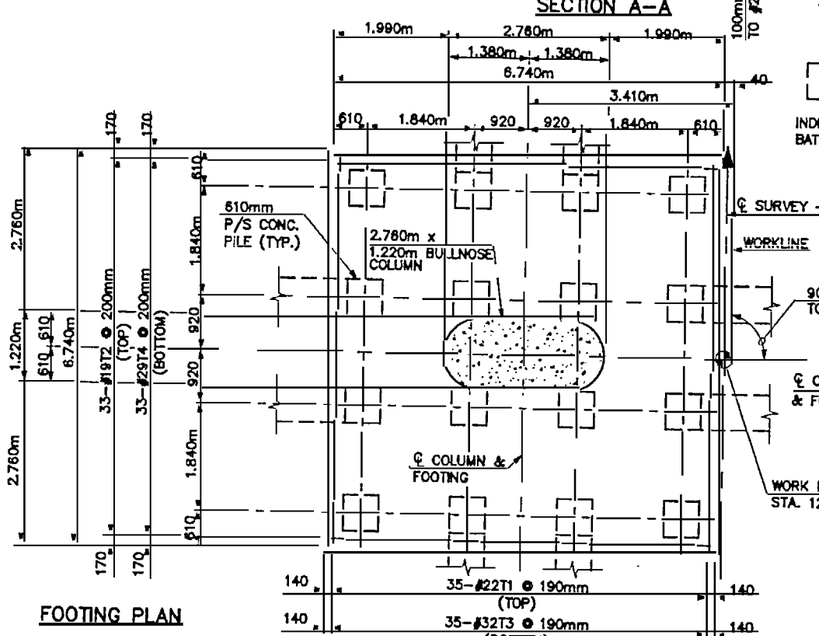
VIEW C–C

SECTION A–A



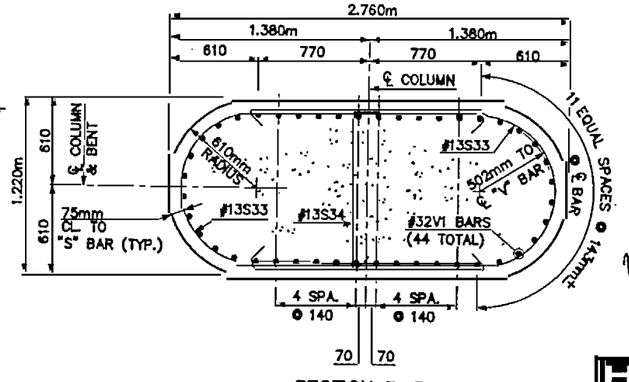
SECTION B–B

INDICATES 250:1000 PILE BATTER IN DIRECTION SHOWN.



FOOTING PLAN

NOTE:
ALL REINFORCING BARS AND BAR SUPPORTS SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



SECTION D–D

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.	3,460	15
B13	7	#22	6	13,680	291
B14	12	#13	STR.	1,100	13
S1A	2	#16	8	2,780	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	3,160	10
S5A	2	#16	8	3,160	10
S5B	2	#16	8	3,260	10
S6A	2	#16	8	3,260	10
S6B	2	#16	8	3,360	10
S7A	2	#16	8	3,360	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
S11A	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	4,600	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	4,680	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	#16	3	1,060	95
S30B	58	#16	3	1,160	104
S31	35	#13	2	1,400	49
S32	48	#13	2	1,340	84
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

QUANTITIES

EPOXY 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 FOR BENT 10		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

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: E. OLIVER DATE 7/00
DWG. NO. 108

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-108
1			3			TOTAL SHEETS
2			4			101

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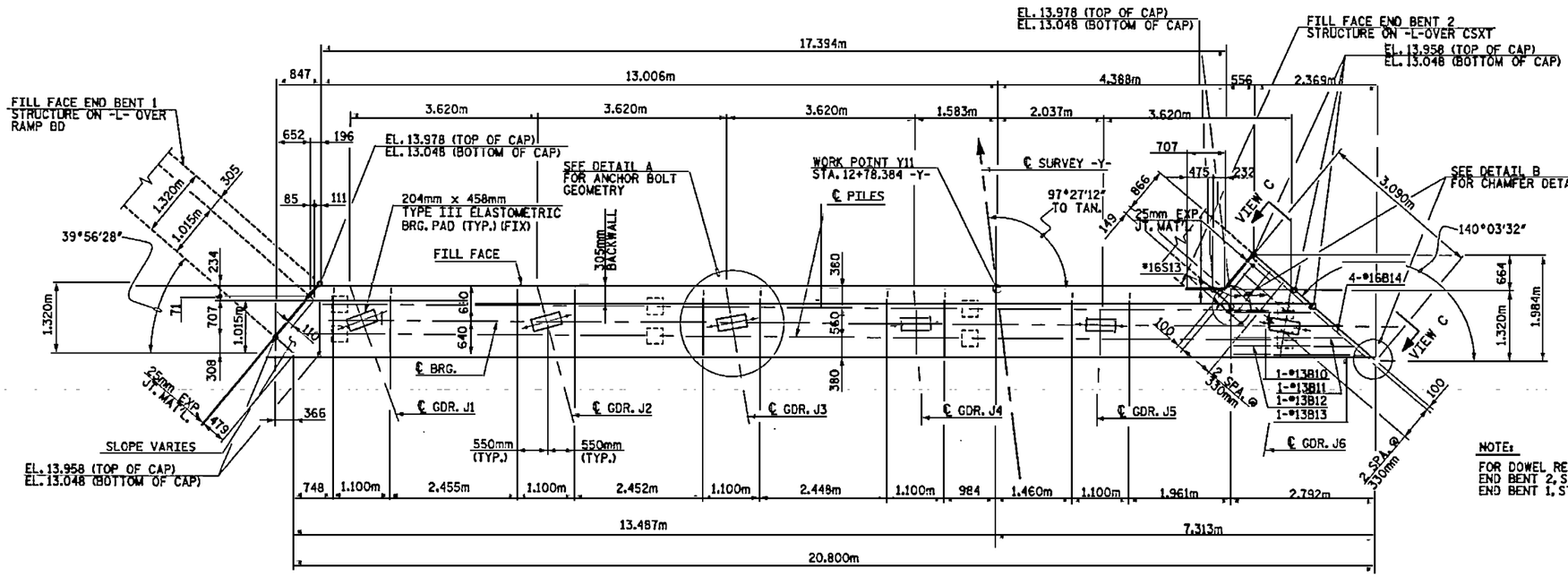
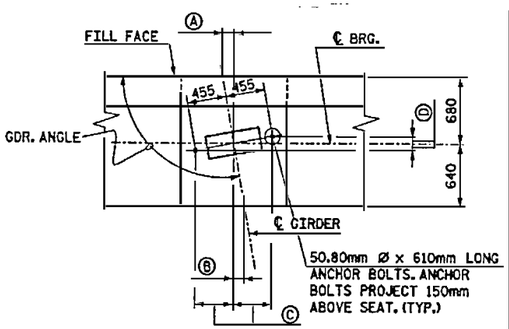
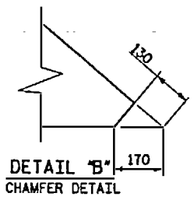


PLAN

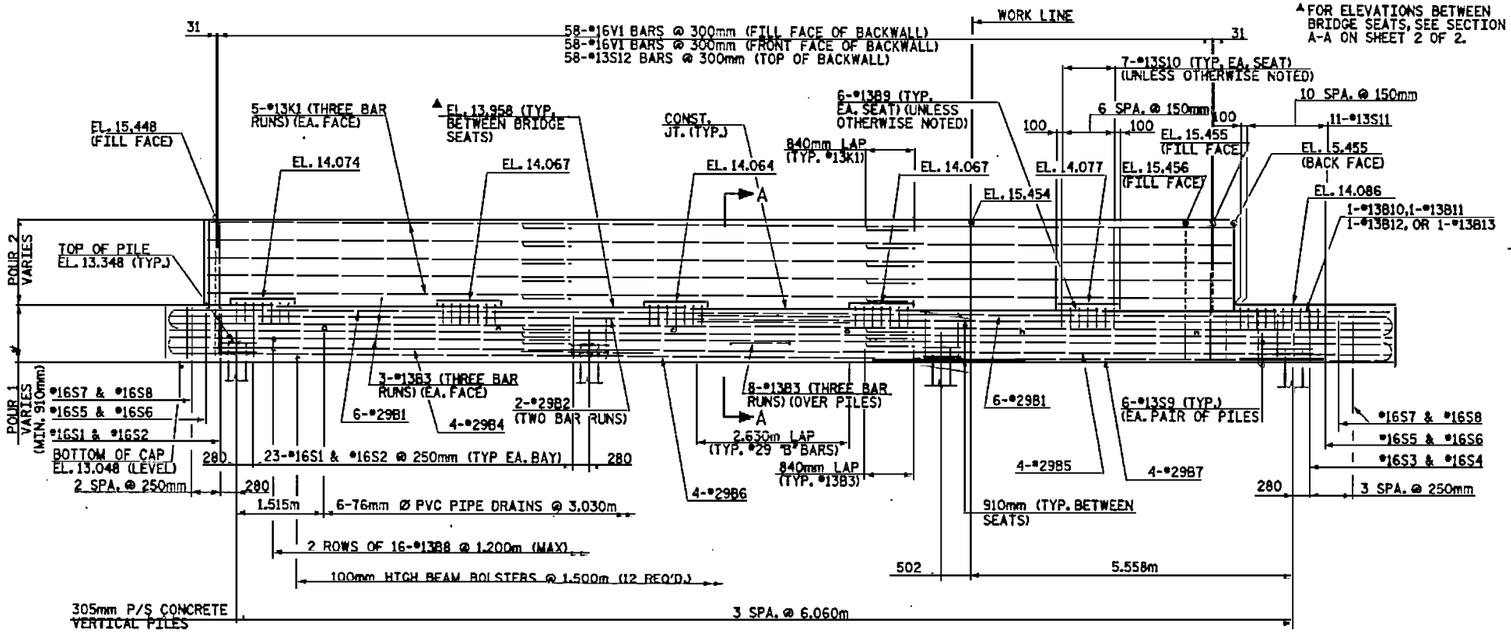


DETAIL "A"



DETAIL "B"
CHAMFER DETAIL

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.



ELEVATION

GIRDER	GDR. ANGLE	Ⓐ	Ⓑ	Ⓒ	Ⓓ
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

NOTES:
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.

METRIC

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

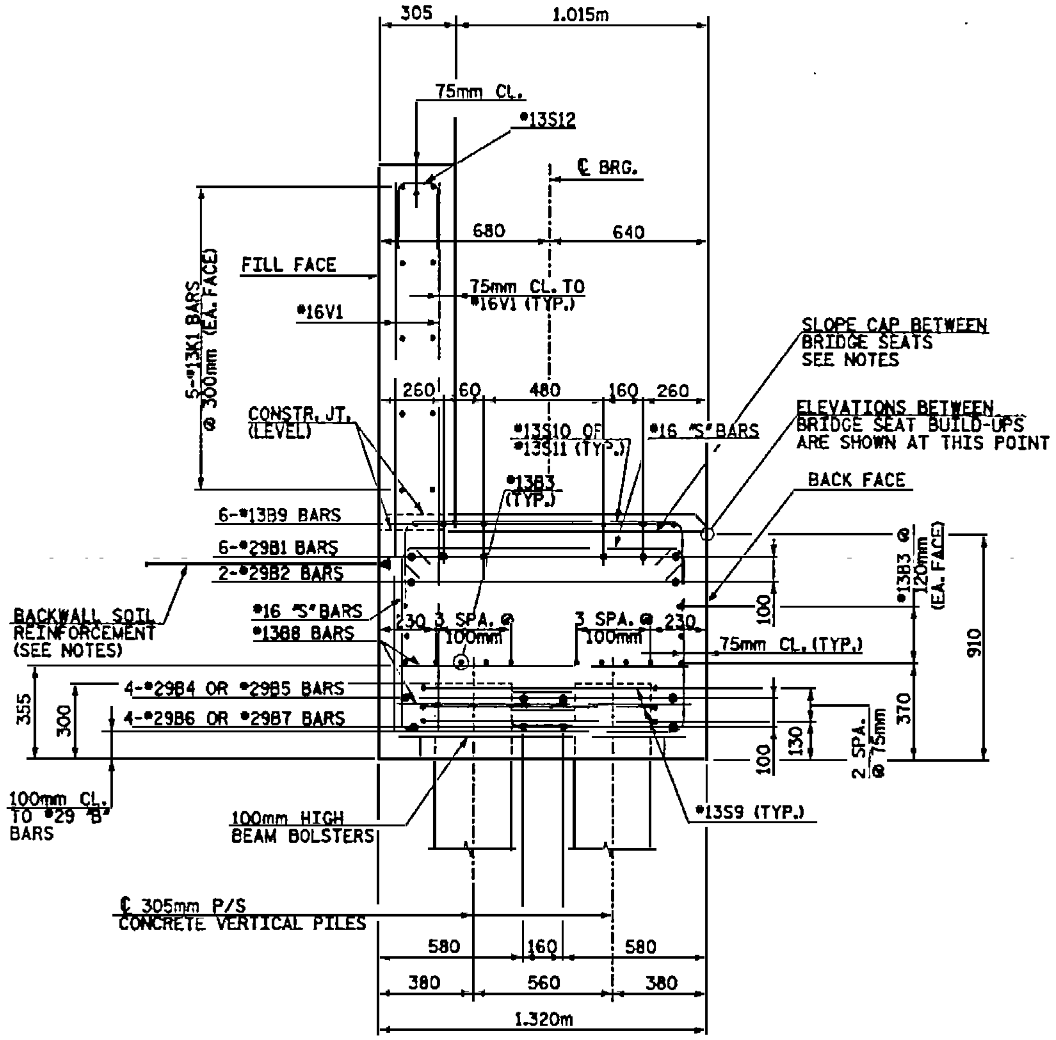
NORTH CAROLINA PROFESSIONAL SEAL 029355 ENGINEER NEIL T. GREENLEE

NORTH CAROLINA PROFESSIONAL SEAL 12966 ENGINEER PAUL J. BARBER

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

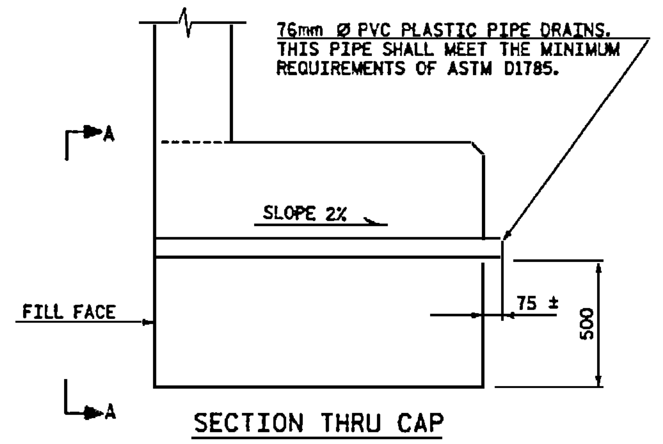
DRAWN BY J. BAYNE DATE 7/00
CHECKED BY C. OLTVER DATE 7/00
DWG. NO. 109

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

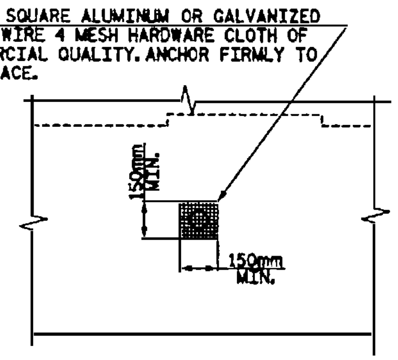


SECTION A-A

NOTE: ANCHOR BOLTS NOT SHOWN FOR CLARITY



SECTION THRU CAP



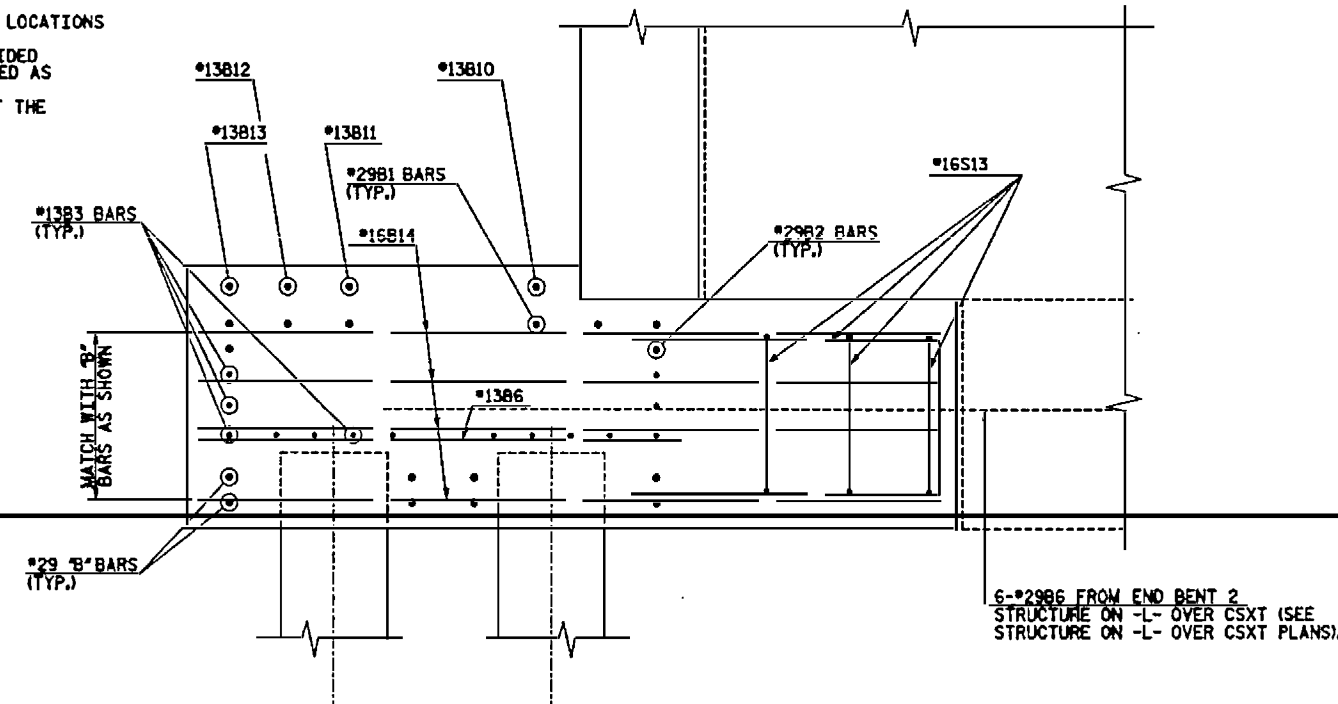
VIEW A-A

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.

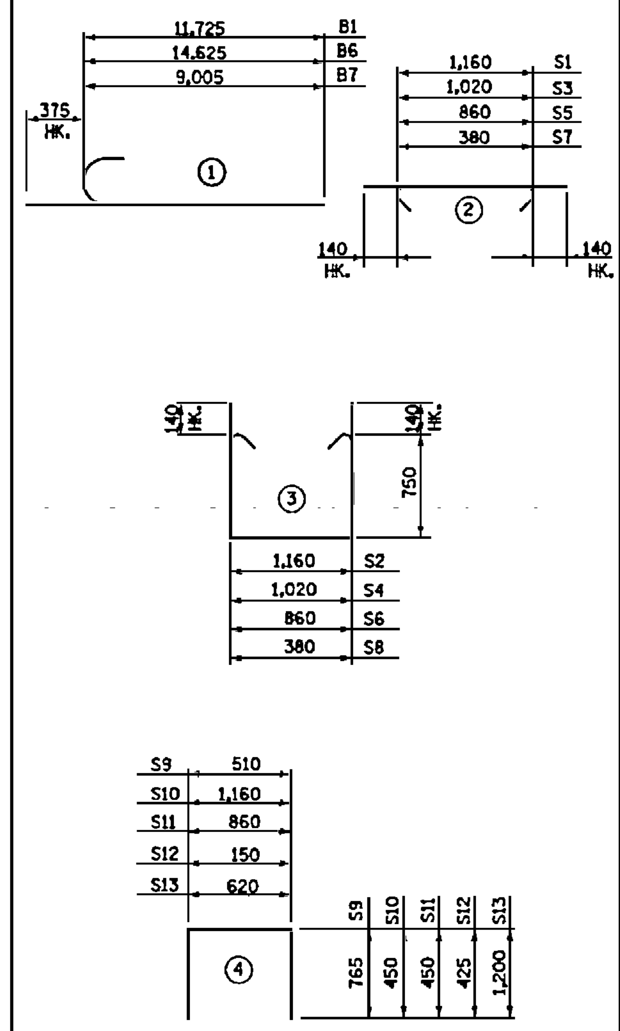
NOTE:

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF REINFORCING

MARK	NO.	SIZE	TYPE	LENGTH (mm)	MASS (kg)
END BENT 2					
B1	12	•29	1	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	1	15,000	304
B7	4	•29	1	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	CU. METERS	25.6
POUR 2 - BACKWALL	CU. METERS	7.8
TOTAL	CU. METERS	33.4
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.

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 BUILDUPS 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.

METRIC

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

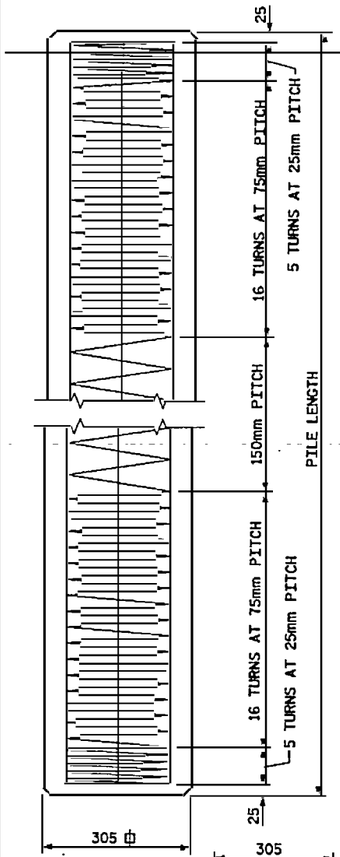
END BENT 2

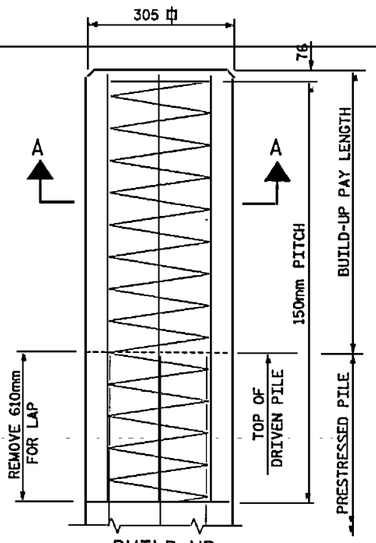
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY J. BAYNE DATE 7/00
CHECKED BY C. OLIVER DATE 7/00
DWG. NO. 10

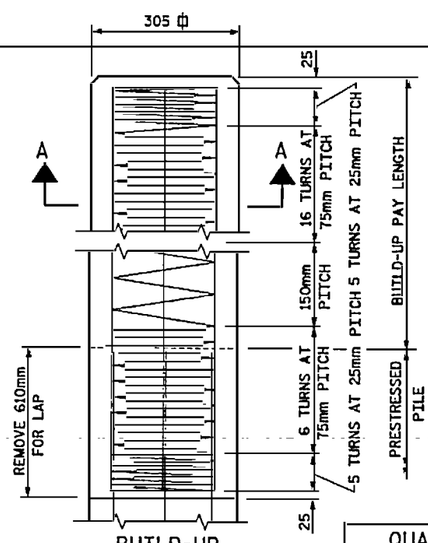
REVISIONS					
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-110
TOTAL SHEETS 101

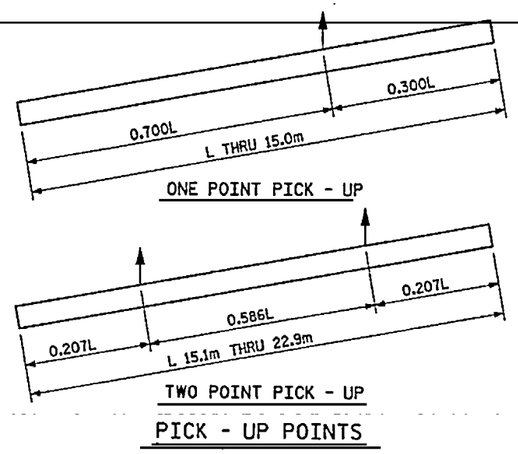




BUILD-UP
WITHOUT DRIVING



BUILD-UP
WITH DRIVING



PICK - UP POINTS

NOTES

CONCRETE DESIGN DATA : f'c = 34.5 MPa; fci = 13.8 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 mm2	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 OF CALCIUM NITRITE CORROSION INHIBITOR. FOR CALCIUM NITRITE CORROSION INHIBITOR, SEE SPECIAL PROVISIONS.

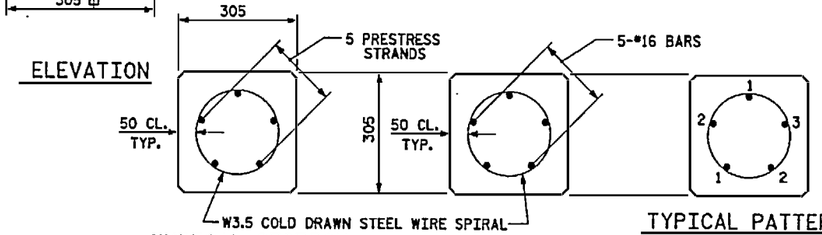
THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.

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 FLUME, SEE SPECIAL PROVISIONS.

QUANTITIES FOR ONE 305mm PRESTRESSED PILE

LENGTH m	CONCRETE m3	PILE WT. kg	ONE PICK-UP POINT 0.300L m	ONE PICK-UP POINT 0.700L m	TWO PICK-UP POINT 0.207L m	TWO PICK-UP POINT 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



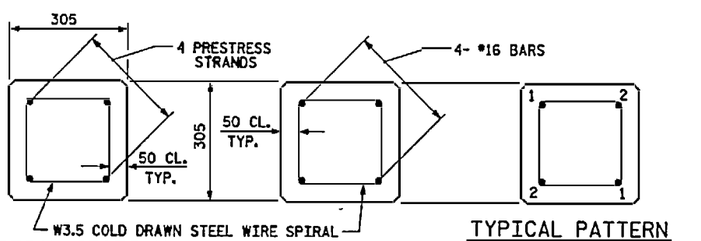
ELEVATION

TYPICAL SECTION

SECTION "A-A"

TYPICAL PATTERN FOR BURNING STRANDS

12.70mm ⌀ GRADE 270 L.R. PRESTRESS STRANDS



TYPICAL SECTION

SECTION "A-A"

TYPICAL PATTERN FOR BURNING STRANDS

12.70mm ⌀ GRADE 270 L.R. PRESTRESS STRANDS

STEEL PILE TIP DETAILS

NOTES

FOR STEEL PILE TIPS, SEE SPECIAL PROVISIONS.

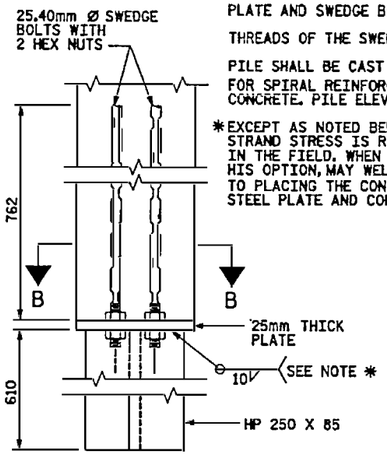
PLATE AND SWEDGE BOLTS SHALL MEET THE REQUIREMENTS OF AASHTO M270 GRADE 250.

THREADS OF THE SWEDGE BOLTS SHALL BE BURRED AT THE FACE OF THE NUT.

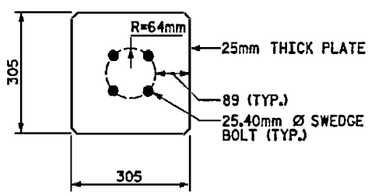
PILE SHALL BE CAST WITH SWEDGE BOLTS AND PLATE IN PLACE.

FOR SPIRAL REINFORCING AND PRESTRESSING STRAND DETAILS, SEE STANDARD 305mm PRESTRESSED CONCRETE. PILE ELEVATION AND TYPICAL SECTION.

* EXCEPT AS NOTED BELOW, THE HP 250 X 85 SECTION SHALL BE WELDED TO THE STEEL PLATE AFTER STRAND STRESS IS RELIEVED. THE HP 250 X 85 SECTION MAY BE WELDED IN THE PRESTRESSER'S YARD OR IN THE FIELD. WHEN A CIRCULAR STRAND PATTERN AS SHOWN ON THE PLAN IS USED, THE CONTRACTOR, AT HIS OPTION, MAY WELD THE HP 250 X 85 SECTION TO THE STEEL PLATE AT THE FABRICATION PLANT PRIOR TO PLACING THE CONCRETE. THE FLANGES OF THE HP SECTION SHALL BE PARALLEL TO THE EDGES OF THE STEEL PLATE AND CONCRETE PILE.



ELEVATION



SECTION B-B

(HOLES FOR STRANDS NOT SHOWN)

PROJECT NO. U-0092A

NEW HANOVER COUNTY

STATION: POT 12+52.890 -Y-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

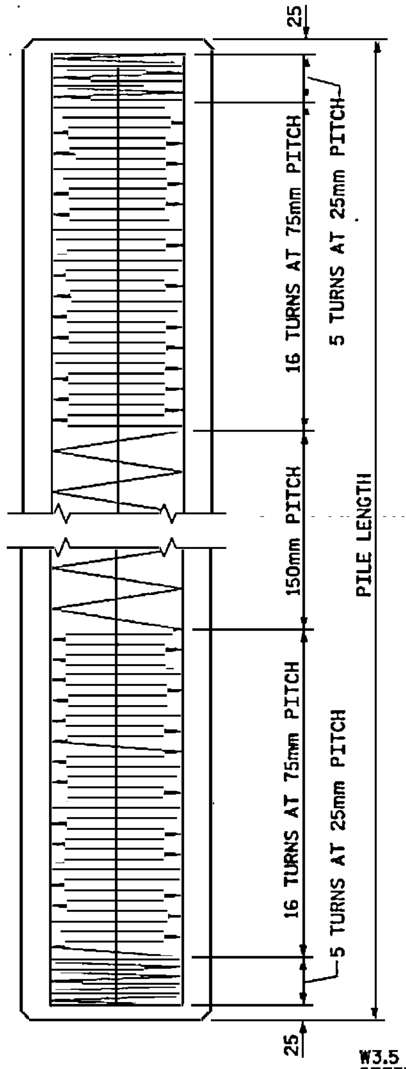
STANDARD 305mm PRESTRESSED CONCRETE PILE

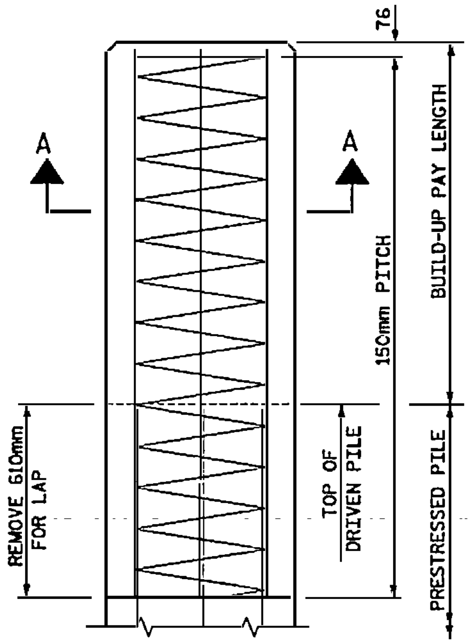
ASSEMBLED BY : A. ECHERD	DATE : 7/00
CHECKED BY : P. BARBER	DATE : 7/00
DRAWN BY : FCJ 7/88	REV. 5/16/97 EEM/RCW
CHECKED BY : CRK 3/89	REV. 7/17/98 RWW/LES
	REV. 8/18/99 RWW/LES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-111
1			3			TOTAL SHEETS
2			4			101

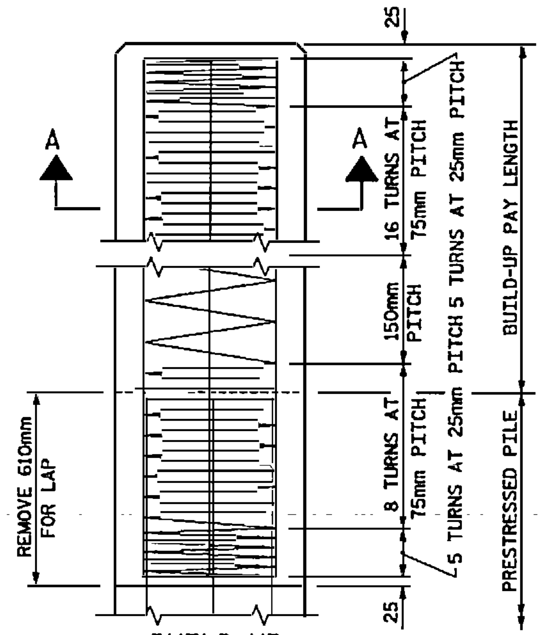
DWG. NO. 111

STD. NO. PCP1SM

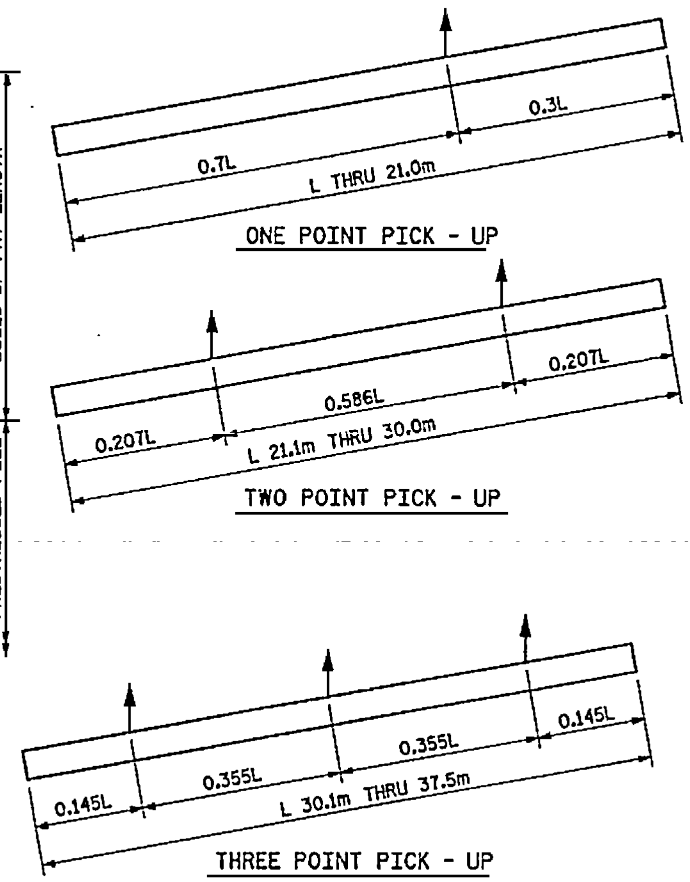




BUILD-UP WITHOUT DRIVING



BUILD-UP WITH DRIVING



PICK - UP POINTS

NOTES

CONCRETE DESIGN DATA : f'c = 34.5 MPa.; fc = 13.8 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^2	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.

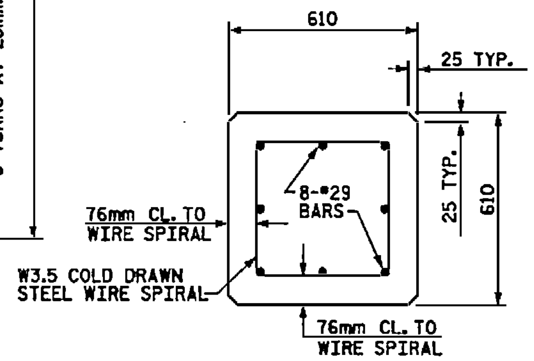
THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

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.

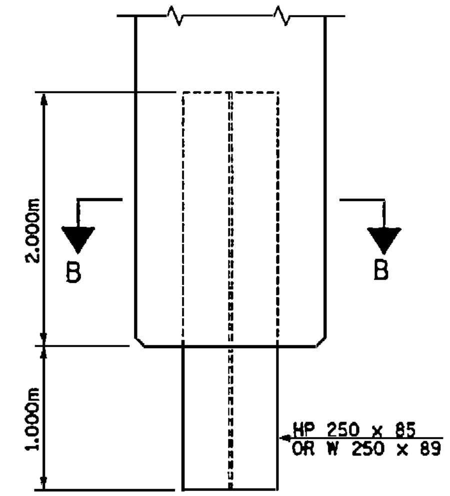
BUILD-UPS SHALL BE OF 'CLASS AA' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 20.7 MPa. AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

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.

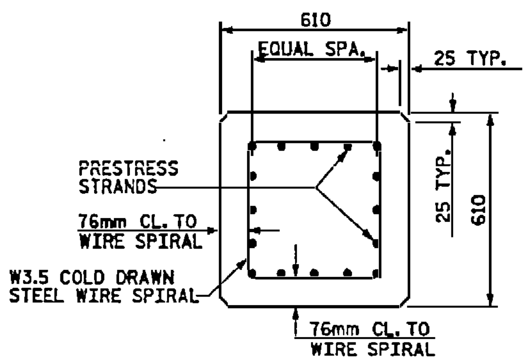
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 24.1 MPa.



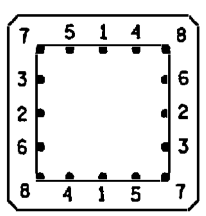
SECTION A-A



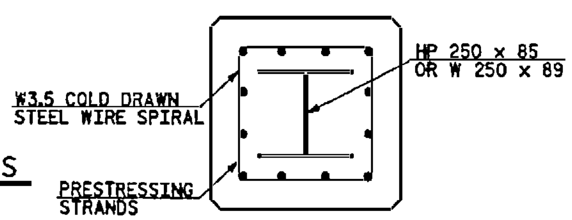
ELEVATION



TYPICAL SECTION



TYPICAL PATTERN FOR BURNING STRANDS



SECTION B-B

PILE TIP DETAILS

QUANTITIES FOR ONE 610 SQUARE PILE								
LENGTH	CONCRETE	PILE WT.	ONE PICK-UP POINT		TWO PICK-UP POINTS		THREE PICK-UP POINTS	
m	m^3	kg	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

ALL MILD REINFORCING IN PILES SHALL BE BLACK.

ALL CONCRETE IN THE PILES AND PILE BUILD UP 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 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

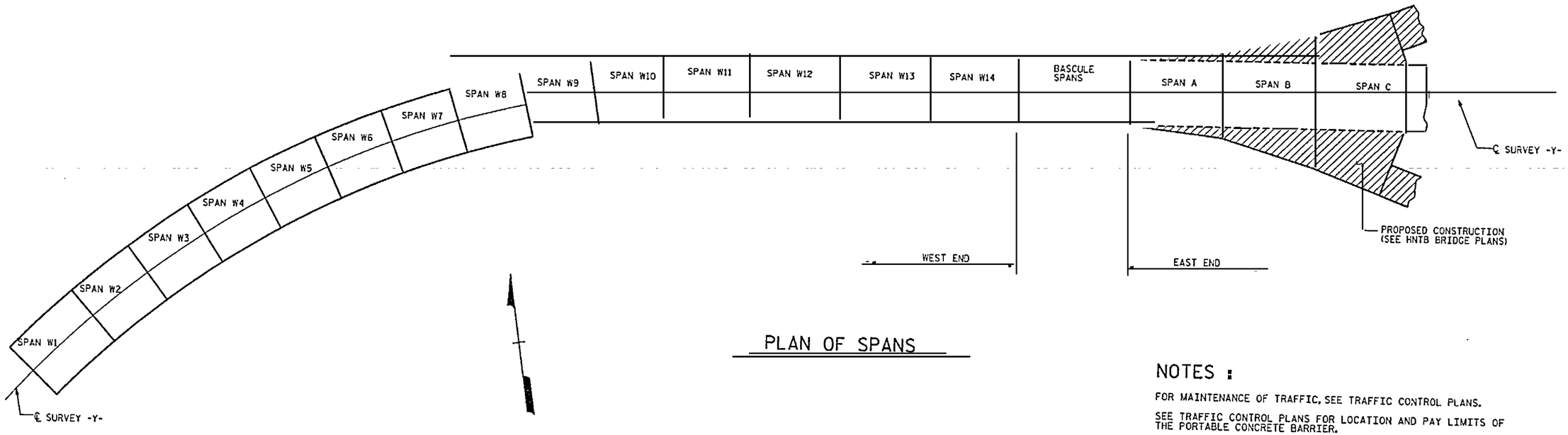
STANDARD
610mm PRESTRESSED
CONCRETE PILE

REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	S-112
1			3			TOTAL SHEETS	1011
2			4				

DWG. NO. 112

ASSEMBLED BY : A. ECHERO DATE : 7/00
CHECKED BY : P. BARBER DATE : 6/00
DRAWN BY : WJH 1/89
CHECKED BY : CPK 3/89
REV. 5/16/97 EEM/RGW
REV. 8/16/99 RAL/LES

STD. NO. PCP3SM



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
	SQ. METERS	SQ. METERS	SQ. METERS	CU. METERS	SQ. 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

DRAWN BY : A.R.Chesson DATE : 10-00
CHECKED BY : D.PETREY DATE : 10-00

NORTH CAROLINA PROFESSIONAL SEAL 11310 ENGINEER DOUGLAS E. PETREY

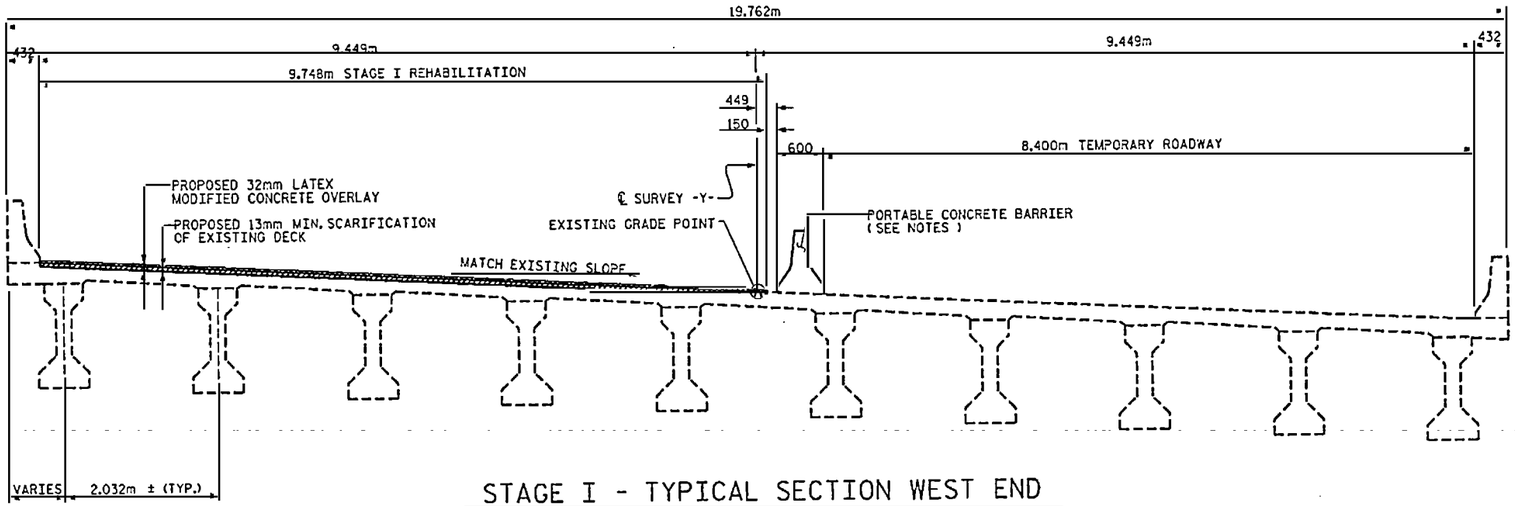
DMS NO. 113

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

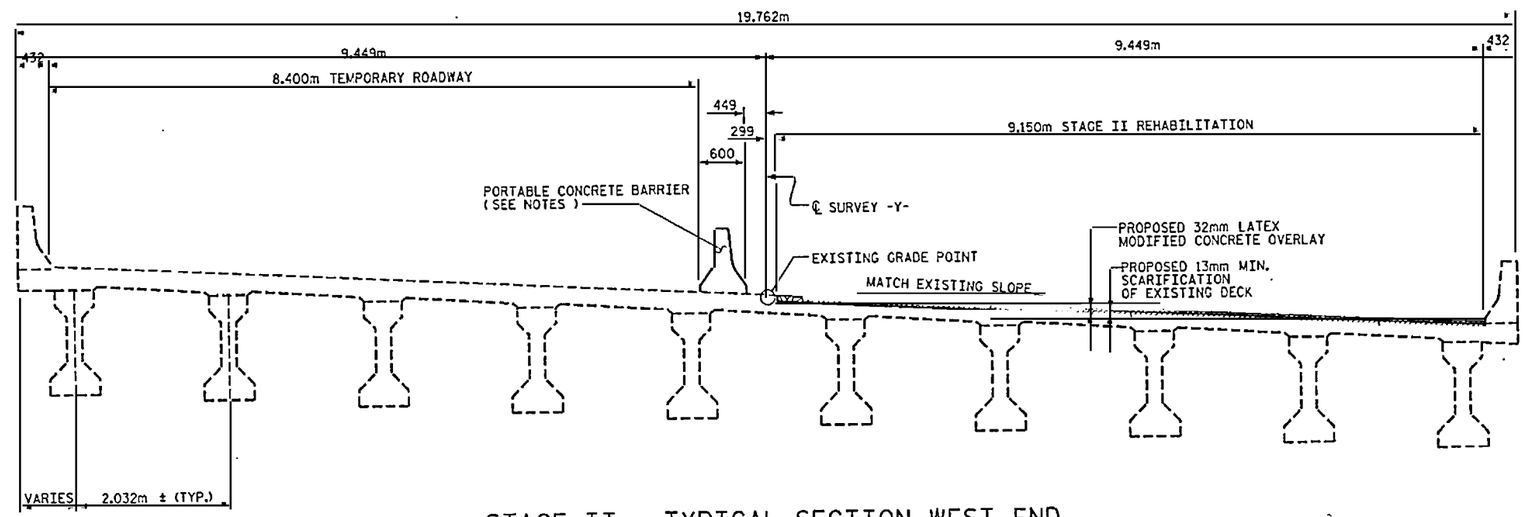
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-113
1			3			TOTAL SHEETS
2			4			1011



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.

DRAWN BY : M.COINS/A.R.Chesson DATE : 3/23/00
CHECKED BY : D.PETREY DATE : 10-00

NORTH CAROLINA PROFESSIONAL SEAL 11310 ENGINEER DOUGLAS E. PETREY

DWG. NO. 114

PROJECT NO. U-0092A
NEW HANOVER COUNTY
STATION: 12+52.890 -Y-
SHEET 2 OF 6

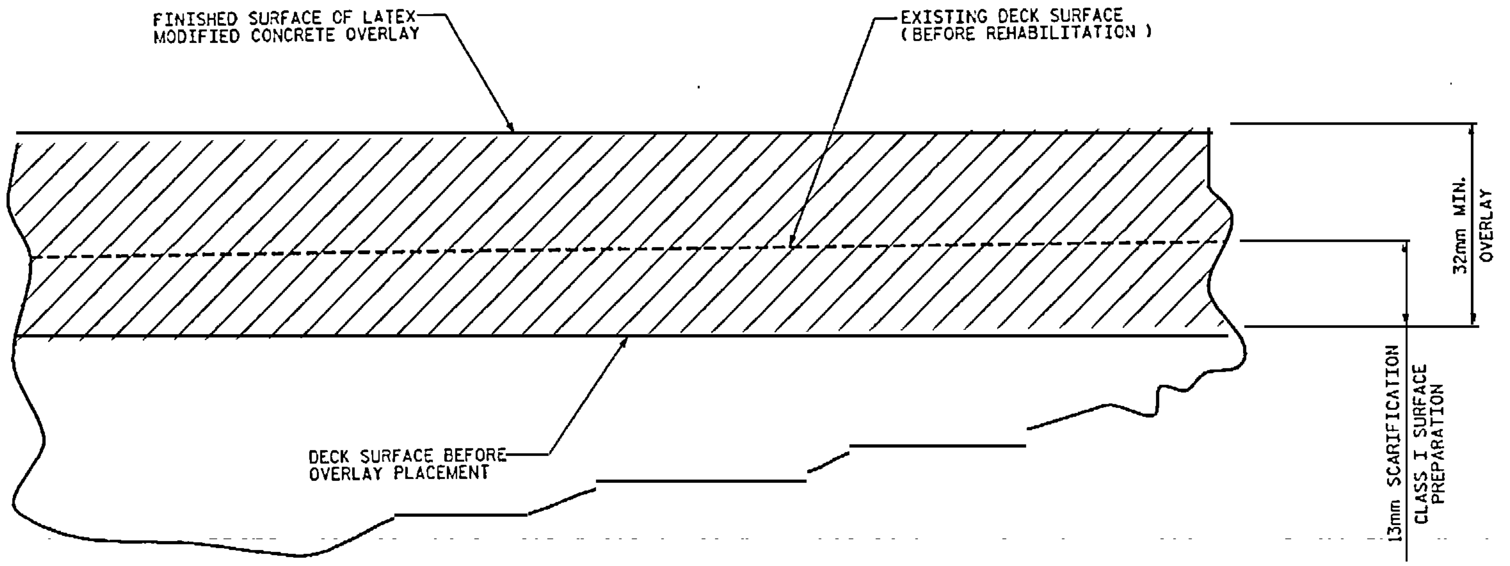
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

US117 OVER
NORTHEAST CAPE FEAR RIVER

REHABILITATION OF
WEST END
STAGING SEQUENCE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-114
1			3			TOTAL SHEETS
2			4			101

D:\users\olson\petrie\hanover\u0092arhb.dgn
olson



SECTION THRU SLAB

SPANS W2 THRU W13

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.

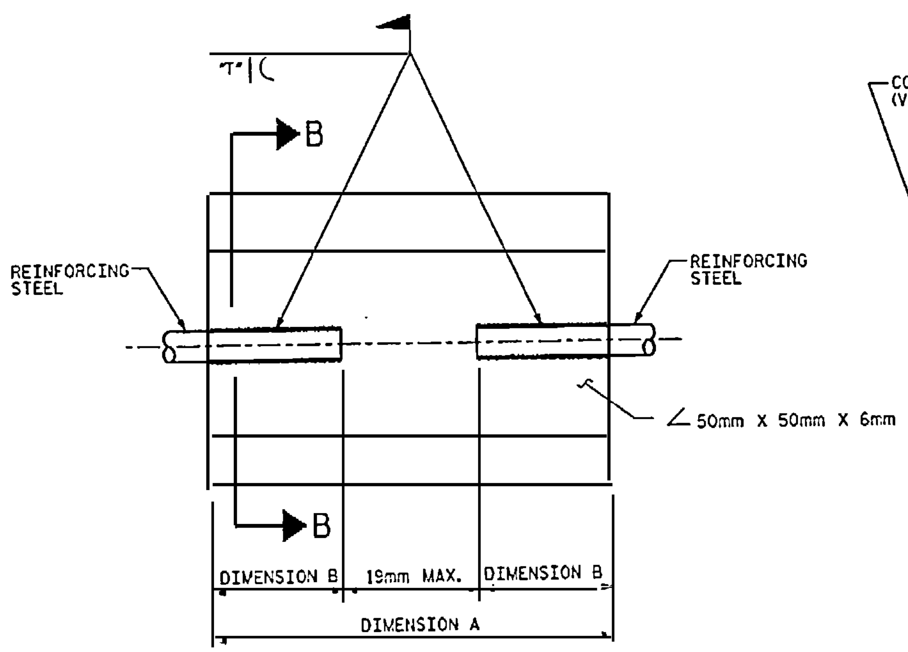
QUANTITIES SHOWN FOR LATEX MODIFIED CONCRETE ARE ESTIMATED.

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.

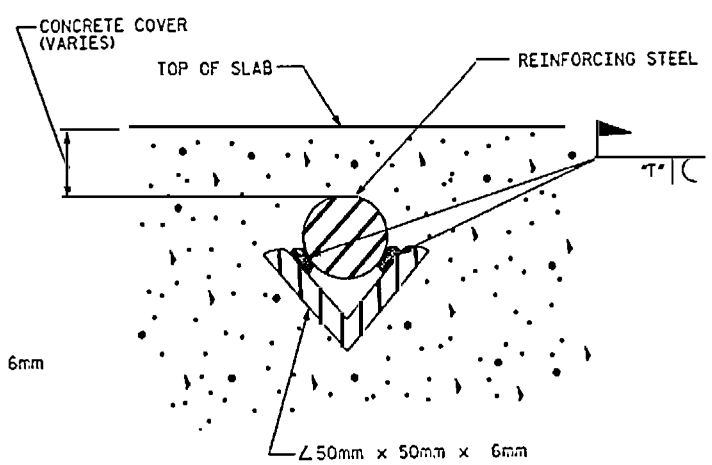
THE LATEX MODIFIED CONCRETE OVERLAY SURFACE SHALL NOT BE GROOVED WITH A SAW. THE SURFACE SHALL BE FINISHED IN ACCORDANCE WITH THE SPECIAL PROVISIONS. SEE LATEX MODIFIED CONCRETE SPECIAL PROVISION.



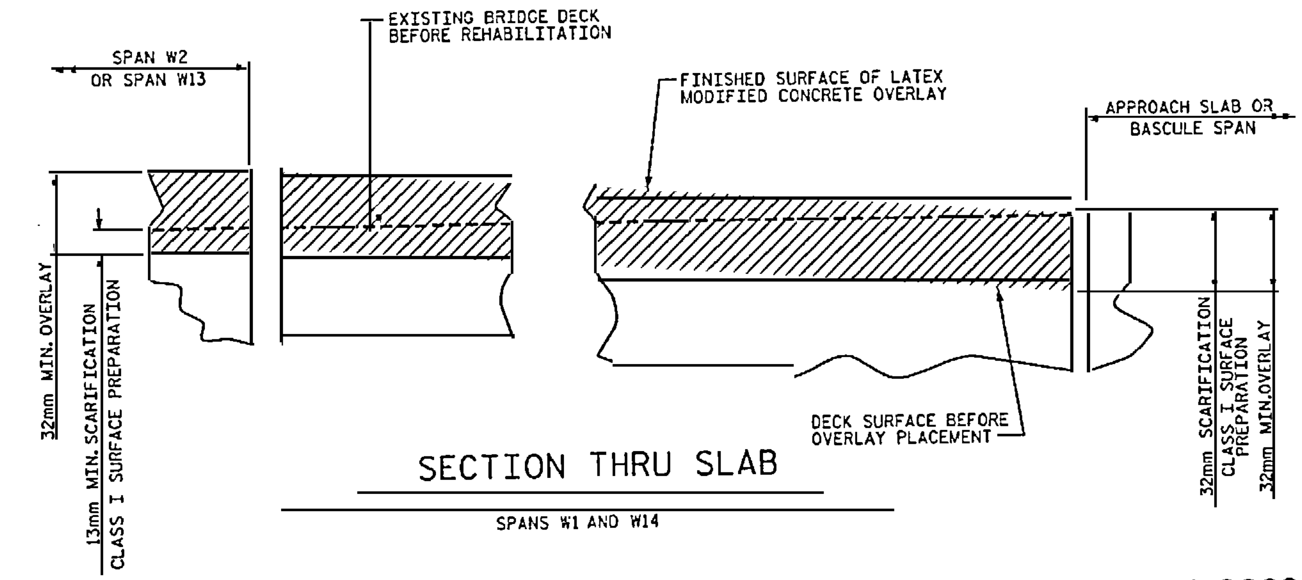
BAR SIZE	DIMENSION A	DIMENSION B	WELD SIZE "T"
#13	100mm	38mm	6
#16	152mm	57mm	6
#19	178mm	76mm	8

WELD DETAIL FOR SPLICING REINFORCING STEEL

USED IN CLASS II AND CLASS III SURFACE PREPARATION



SECTION B-B



SECTION THRU SLAB

SPANS W1 AND W14

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

NORTH CAROLINA PROFESSIONAL SEAL 11310 ENGINEER DOUGLAS E. PETREY

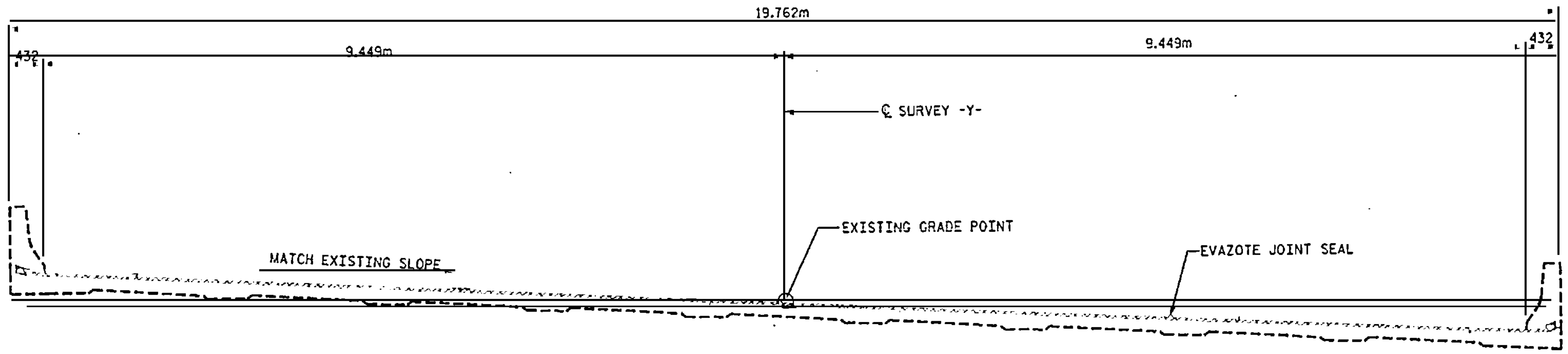
DWG. NO. 115.

REVISIONS

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

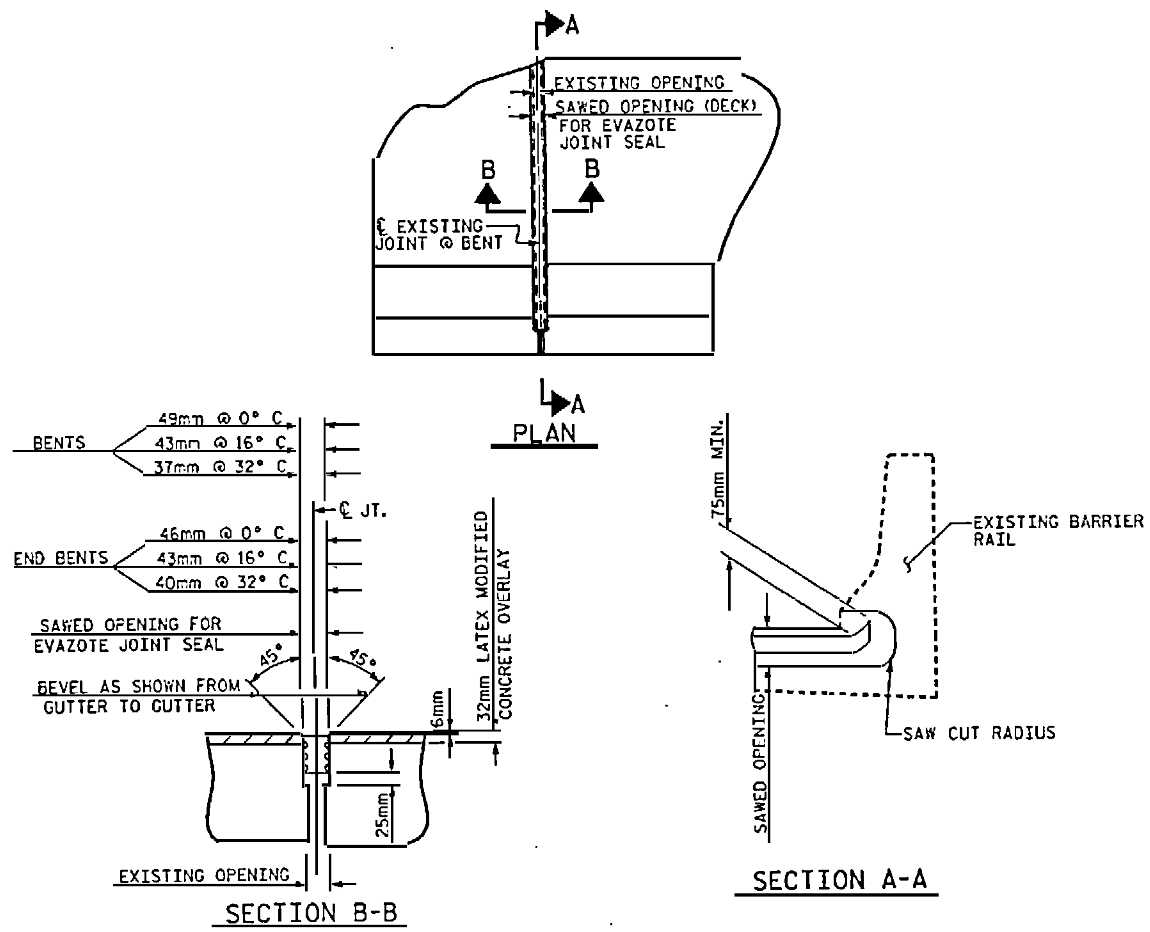
SHEET NO. S-115
TOTAL SHEETS 1011

DRAWN BY: M.GOINS/A.R.Chesson DATE: 8-00
CHECKED BY: D.PETREY DATE: 10-00



SECTION THRU EVAZOTE JOINT SEAL

WEST END ONLY



EVAZOTE JOINT SEAL DETAILS @ BENTS

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.

PROJECT NO. U-0092A

NEW HANOVER COUNTY

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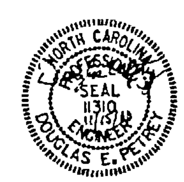
SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

US117 OVER NORTHEAST CAPE FEAR RIVER

REHABILITATION OF WEST END EVAZOTE JOINT SEAL DETAILS

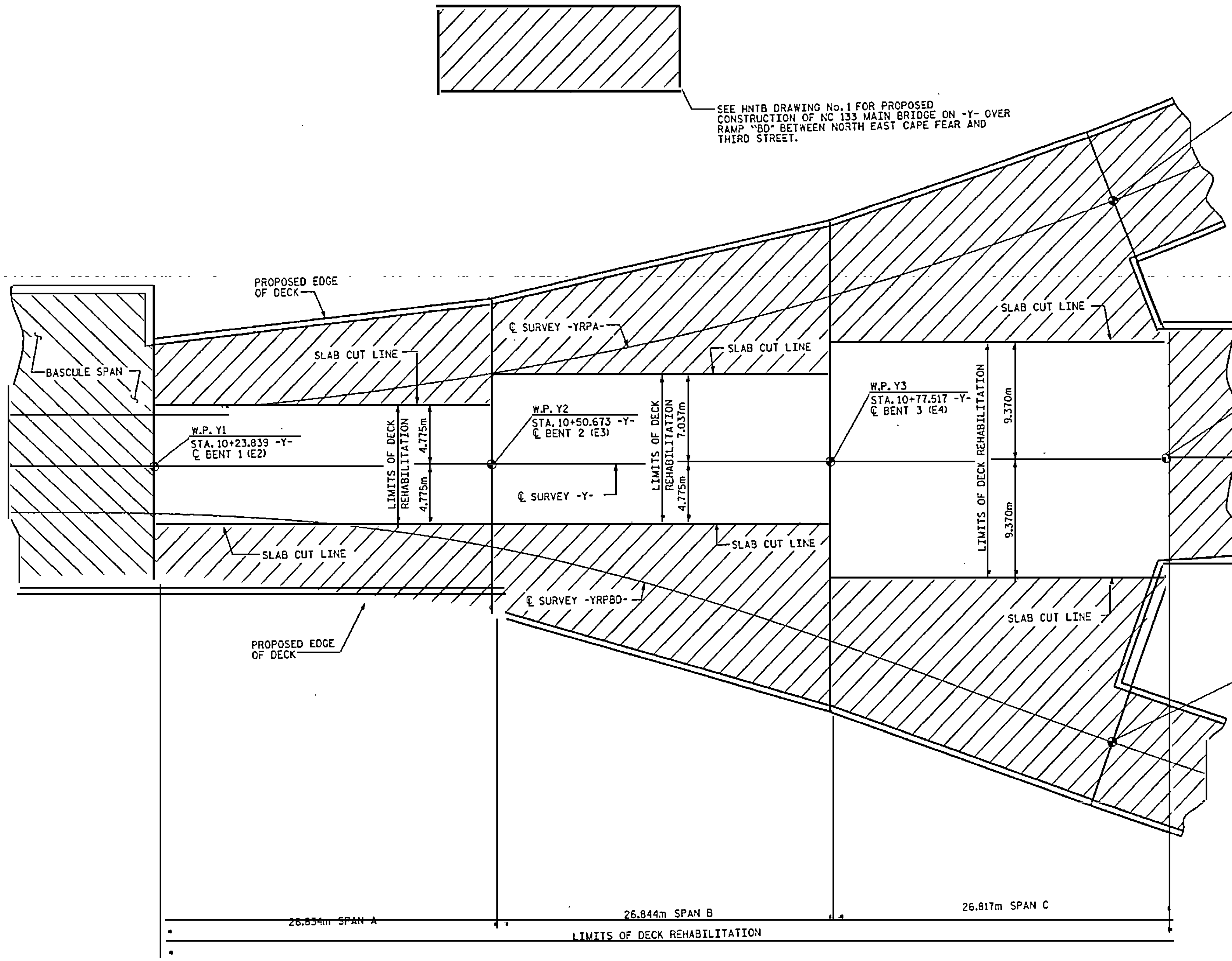


DWG. NO. 116

REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO	S-116
1			3			TOTAL SHEETS	1011
2			4				

DRAWN BY : A.R.Chesson DATE : 10-00
CHECKED BY : D.PETREY DATE : 10-00

c:\temp\u0092arhb.dgn



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

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER DOUGLAS E. PETREY

DWG. NO. 117

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-117
1			3					TOTAL SHEETS
2			4					1011

DRAWN BY : A.R.Chesson DATE : 8-00
CHECKED BY : D.PETREY DATE : 10-00

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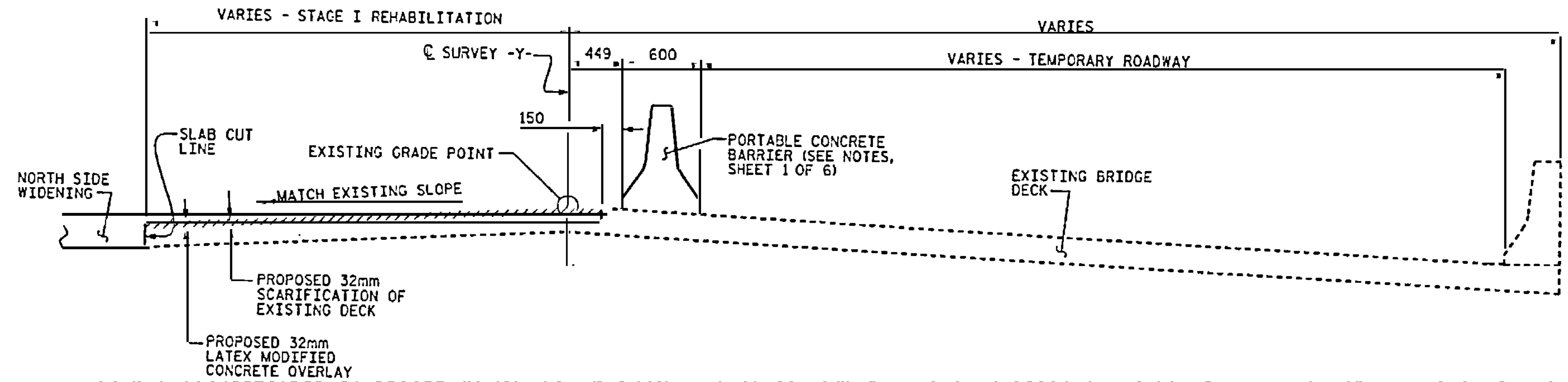
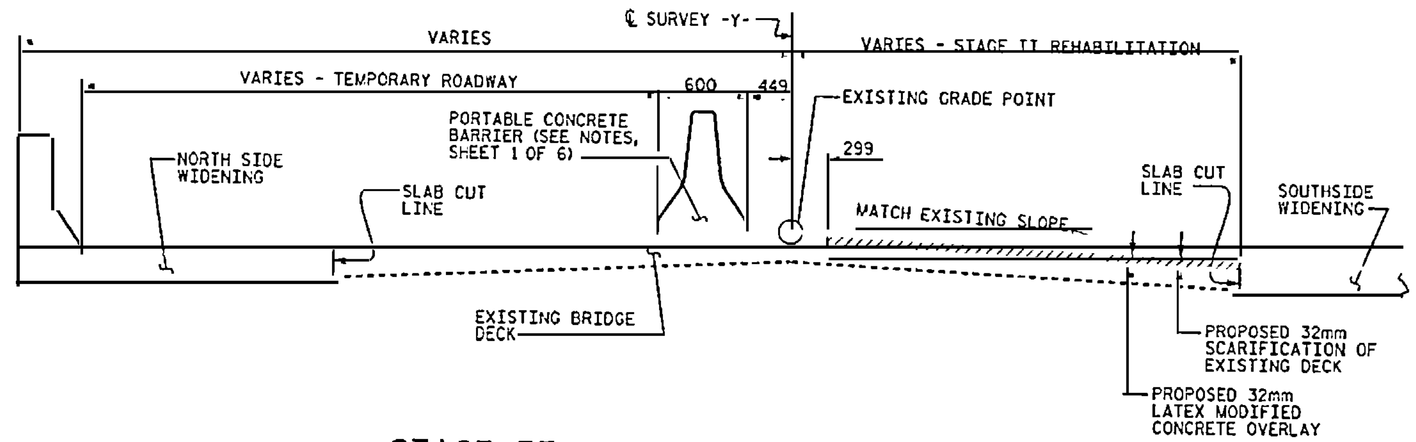


STAGE I - TYPICAL SECTION - EAST END

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.



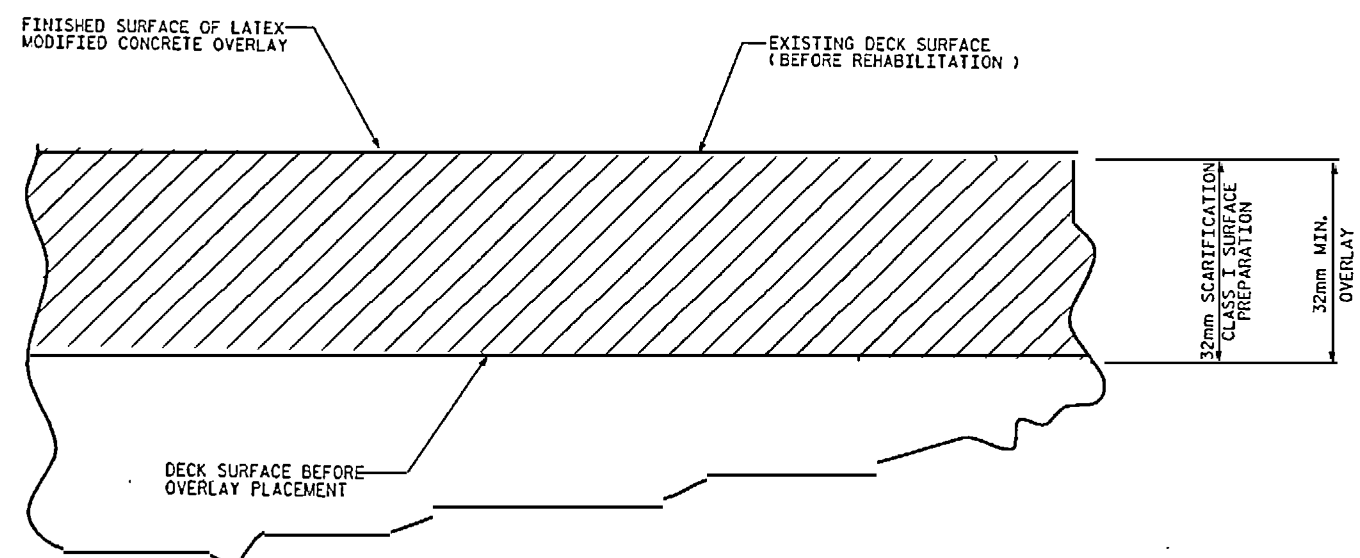
STAGE II - TYPICAL SECTION - EAST END

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
RALEIGH

US117 OVER NORTHEAST CAPE FEAR RIVER

REHABILITATION OF EAST END TYPICAL SECTIONS

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-118
1			3					TOTAL SHEETS
2			4					1011

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 11310 DOUGLAS E. PETREY

DWG. NO. 118

DRAWN BY: A.R.Chesson DATE: 9-00
CHECKED BY: D.PETREY DATE: 10-00