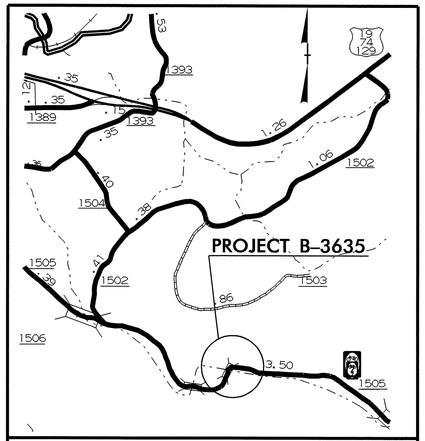
TIP PROJECT: B-3635

CONTRACT: C202038

STRUCTURE



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

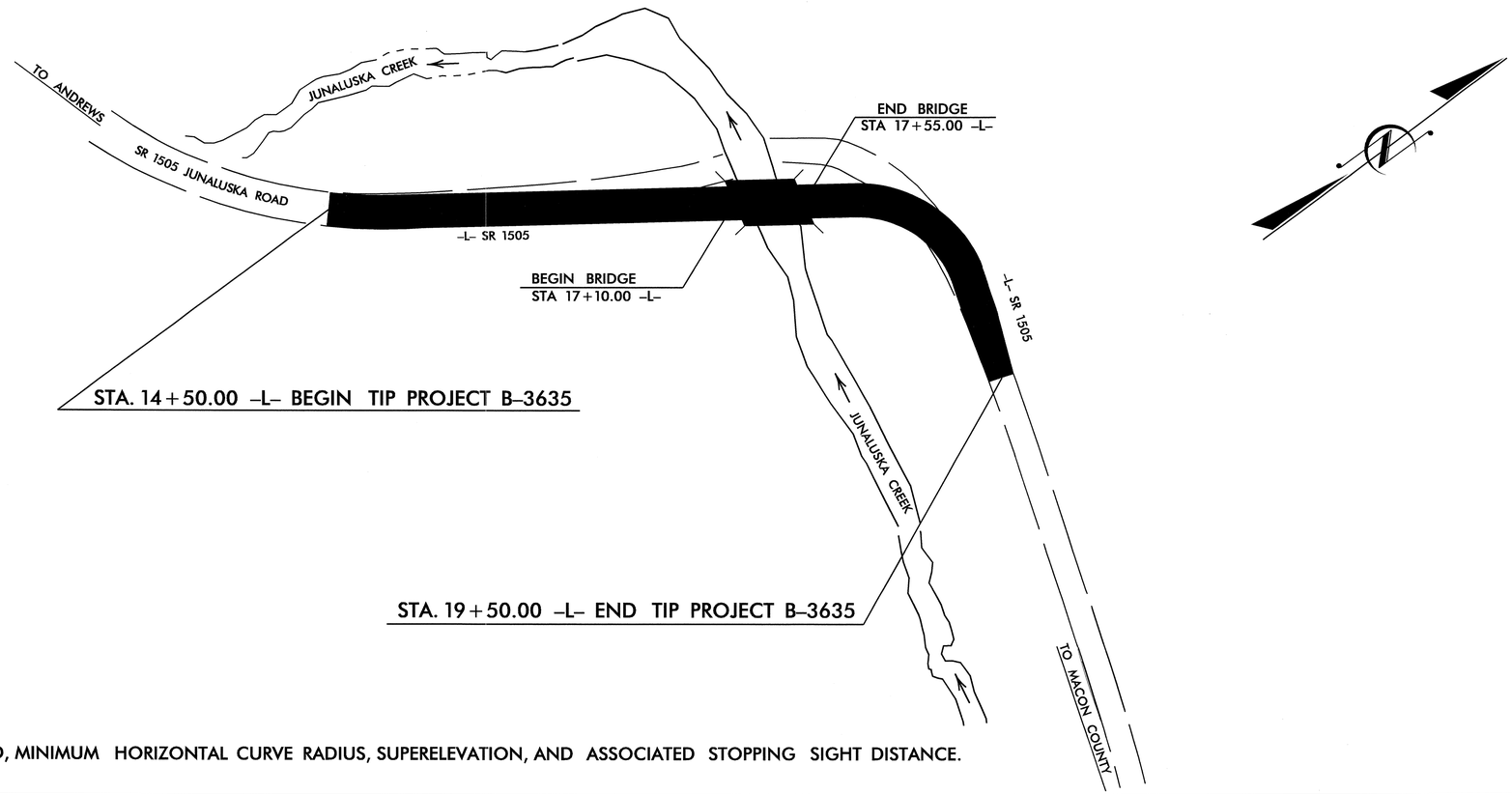
CHEROKEE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3635		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33183.1.1	BRSTP-1505(1)	P.E.
33183.2.1	BRSTP-1505(1)	ROW / UTILITIES
33183.3.1	BRSTP-1505(1)	CONST.

LOCATION: ***BRIDGE NO. 26 OVER JUNALUSKA CREEK AND APPROACHES ON SR 1505 (JUNALUSKA ROAD)***

TYPE OF WORK: ***GRADING, DRAINAGE, STRUCTURE, PAVING, AND TEMPORARY SIGNAL.***



** DESIGN EXCEPTION REQUIRED FOR DESIGN SPEED, MINIMUM HORIZONTAL CURVE RADIUS, SUPERELEVATION, AND ASSOCIATED STOPPING SIGHT DISTANCE.

DESIGN DATA

ADT 2008 = 1278
ADT 2025 = 1800
DHV = 14 %
D = 60 %
T = 3 % *
V = 30 MPH **

* TTST 1% DUALS 2%

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT = 0.086 MI
LENGTH STRUCTURE OF F.A. PROJECT = 0.009 MI
TOTAL LENGTH OF F.A. PROJECT = 0.095 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :

DECEMBER 16, 2008

J. C. FRYE, P.E.
PROJECT ENGINEER

W. A. DAVIS, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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qtnguyen

F. A. PROJECT : BRSTP-1505(1)

GRADE DATA -L-

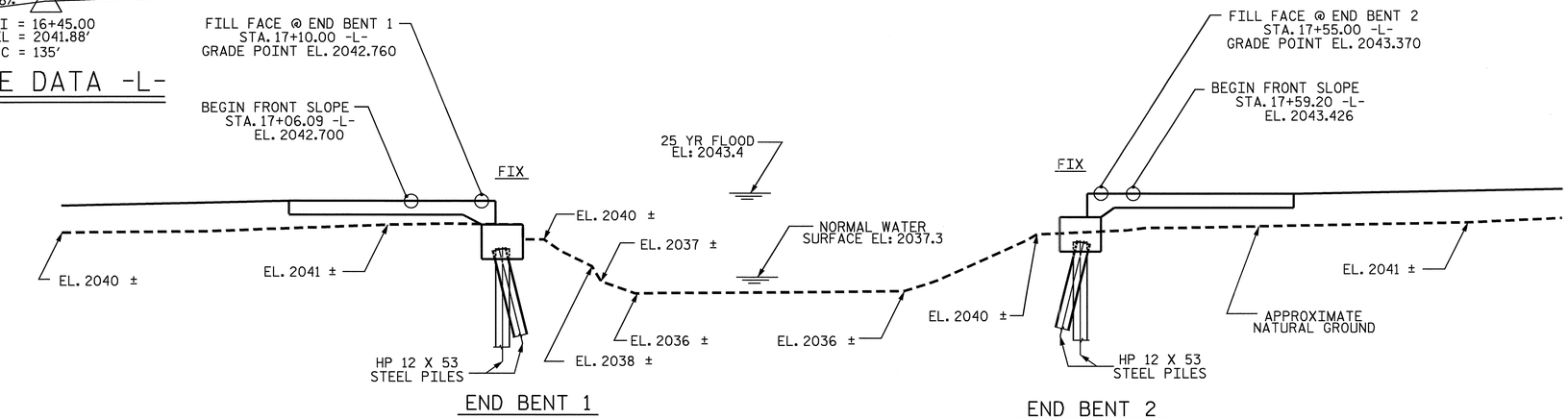
(+)5.8148% ▲ (+)1.3542%

PI = 16+45.00
EL = 2041.88'
VC = 135'

GRADE DATA -L-

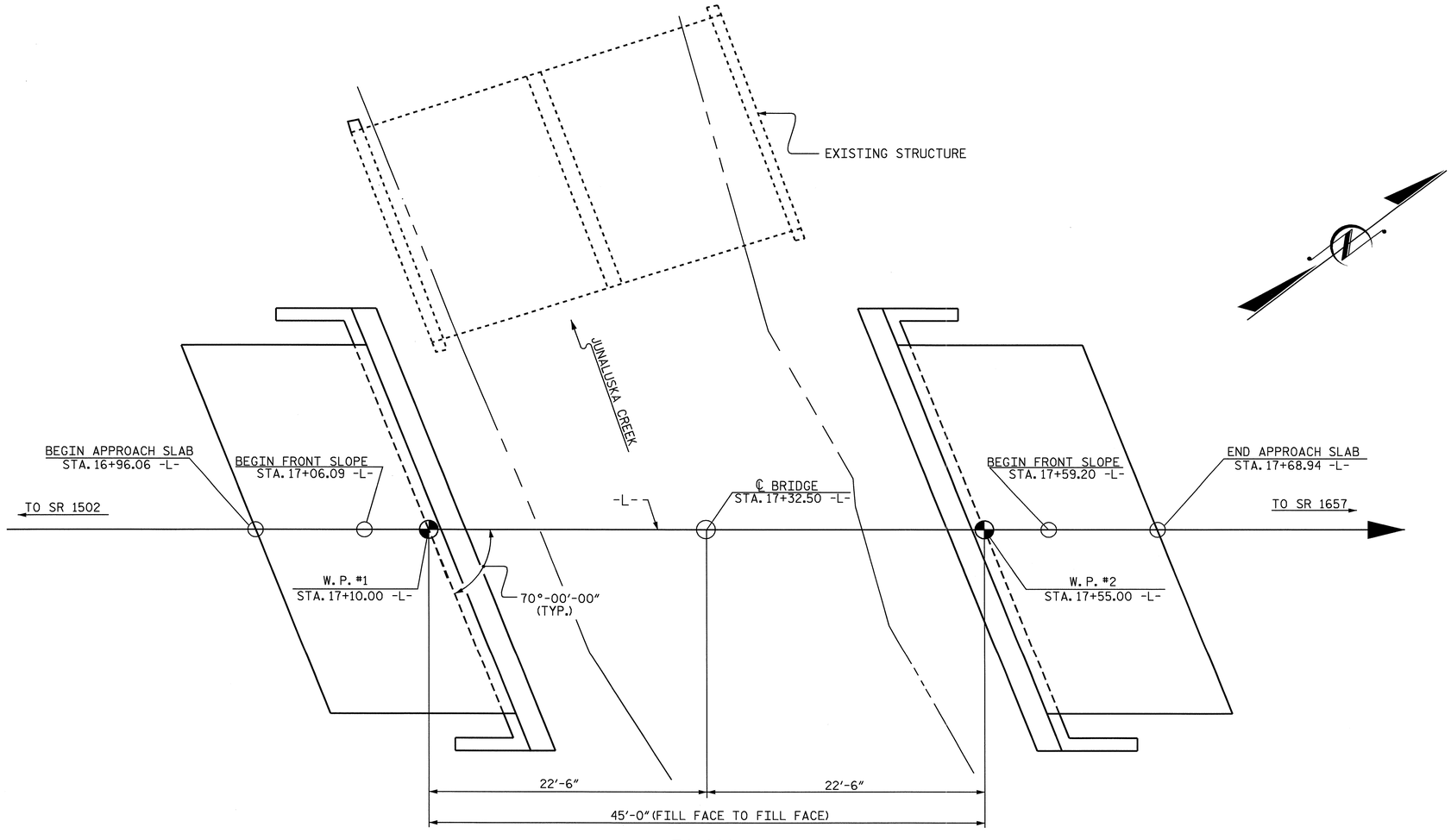
(+)1.3542% ▲ (+)2.4923%

PI = 18+85.00
EL = 2045.13'
VC = 125'



SECTION ALONG -L-

(SECTION @ END BENTS ARE TAKEN AT RIGHT ANGLES)



PLAN

(PILES NOT SHOWN IN PLAN VIEW)

DRAWN BY : J.L. WALTON/QTN DATE : 3/08-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

22-OCT-2008 09:16
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qtnguyen

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/22/08

NORTH CAROLINA PROFESSIONAL SEAL 11915 ENGINEER JOHN C. FRYE
10/22/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 26

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER JUNALUSKA CREEK ON SR 1505 BETWEEN SR 1502 AND SR 1657

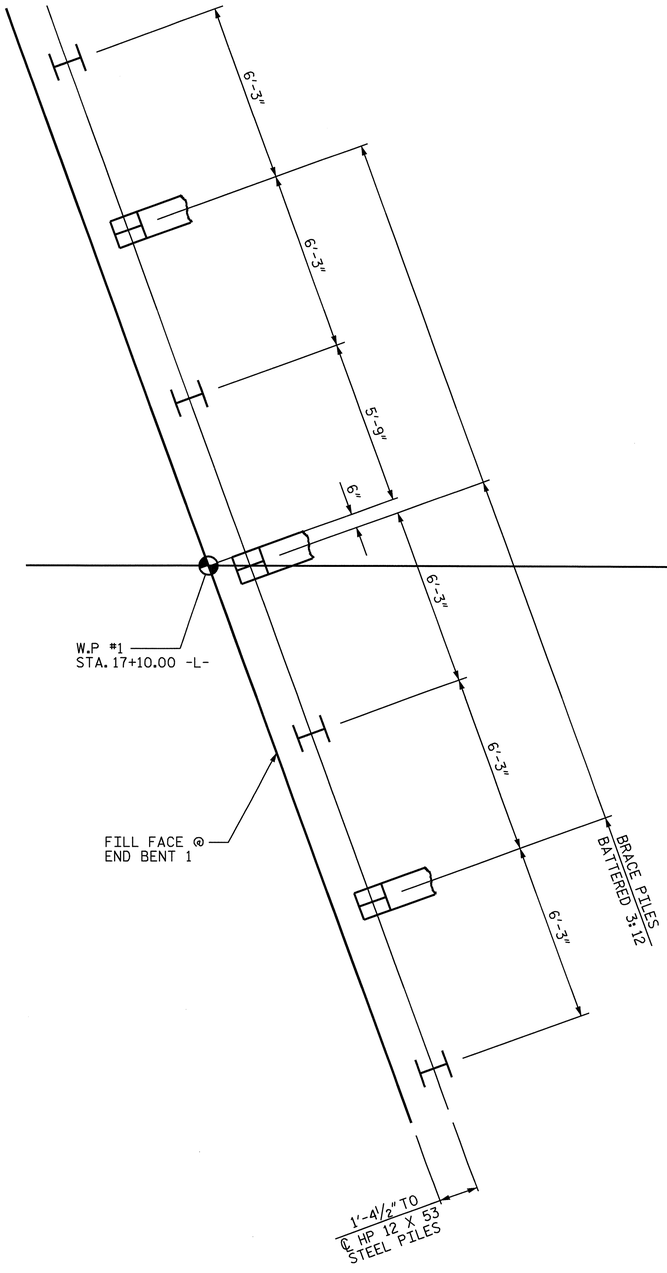
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			24

NOTES

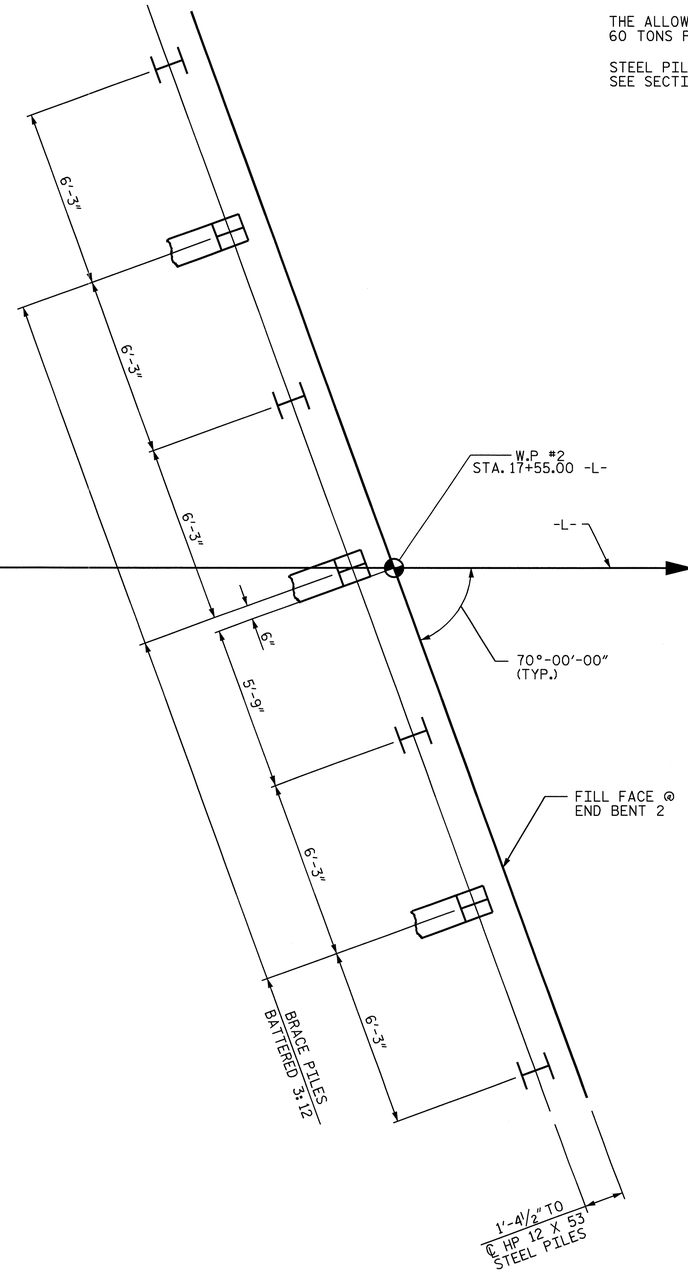
DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT NO. 1 AND BENT NO. 2 IS 60 TONS PER PILE.

STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT BENT NO. 1 AND BENT NO. 2. SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



END BENT 1



END BENT 2

FOUNDATION LAYOUT

DIMENSION LOCATING STEEL PILES ARE TO STEEL PILE CENTER

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER JUNALUSKA CREEK ON SR 1505 BETWEEN SR 1502 AND SR 1657

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

DRAWN BY : J.L. WALTON/QTN DATE : 1/08-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

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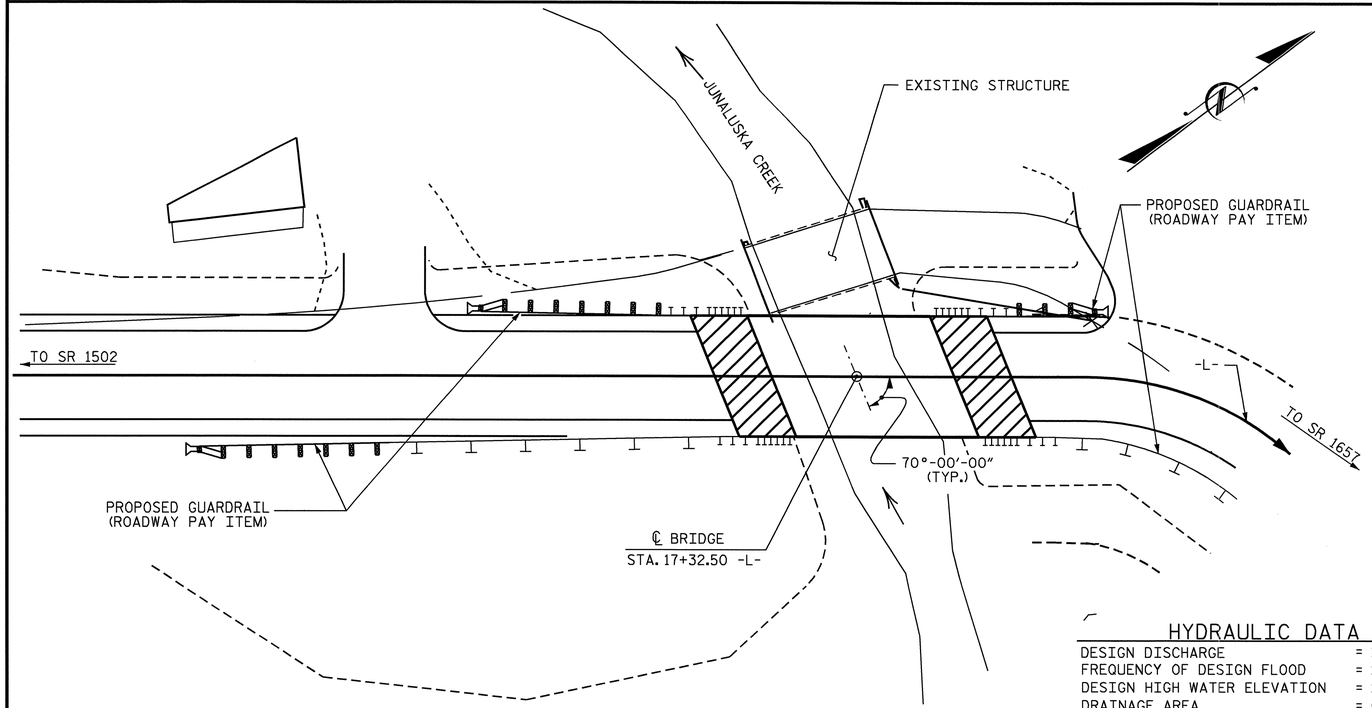
qtnguyen

BM3: CHISLED SQUARE ON ROCK, STA. 17+43.94 -L- 67.76' LEFT, EL. 2040.07'



HYDRAULIC DATA

DESIGN DISCHARGE	= 1650 cfs
FREQUENCY OF DESIGN FLOOD	= 25 yrs.
DESIGN HIGH WATER ELEVATION	= 2043.4
DRAINAGE AREA	= 6.7 sq. mi.
BASIC DISCHARGE (Q100)	= 2500 cfs
BASIC HIGH WATER ELEVATION	= 2044.2

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1200 cfs
FREQUENCY OF OVERTOPPING FLOOD	= 10 yrs.
OVERTOPPING FLOOD ELEVATION	= 2042.9

FOR UTILITY INFORMATION,
SEE UTILITY PLANS AND
SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

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

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF TWO 16'-3" STEEL I-BEAM SPANS, WITH A CLEAR ROADWAY WIDTH OF 17'-6" ON A TIMBER FLOOR ON RUBBLE MASONRY ABUTMENTS AND TIMBER BENTS AND CRUTCH BENTS AND LOCATED APPROXIMATELY 14' DOWNSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING BRIDGE, 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.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 17+32.50 -L-."

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURE, SEE SPECIAL PROVISIONS.

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	TWO BAR METAL RAIL	1'-2"X 2'-8" CONCRETE PARAPET	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	EACH	LIN.FT.	LIN.FT.	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE			LUMP SUM					69.35	85.20	LUMP SUM	11	468.65
END BENT 1		13.0		2078	7	35	7					
END BENT 2		13.1		2081	7	35	7					
TOTAL	LUMP SUM	26.1	LUMP SUM	4159	14	70	14	69.35	85.20	LUMP SUM	11	468.65

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE OVER JUNALUSKA CREEK ON SR 1505 BETWEEN SR 1502 AND SR 1657

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

DRAWN BY : J.L. WALTON/QTN DATE : 1/08-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

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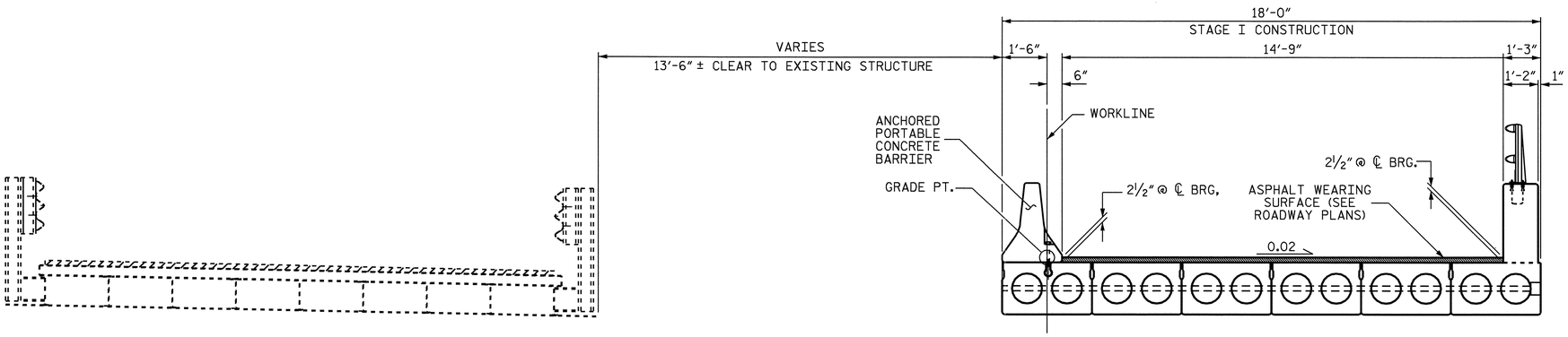
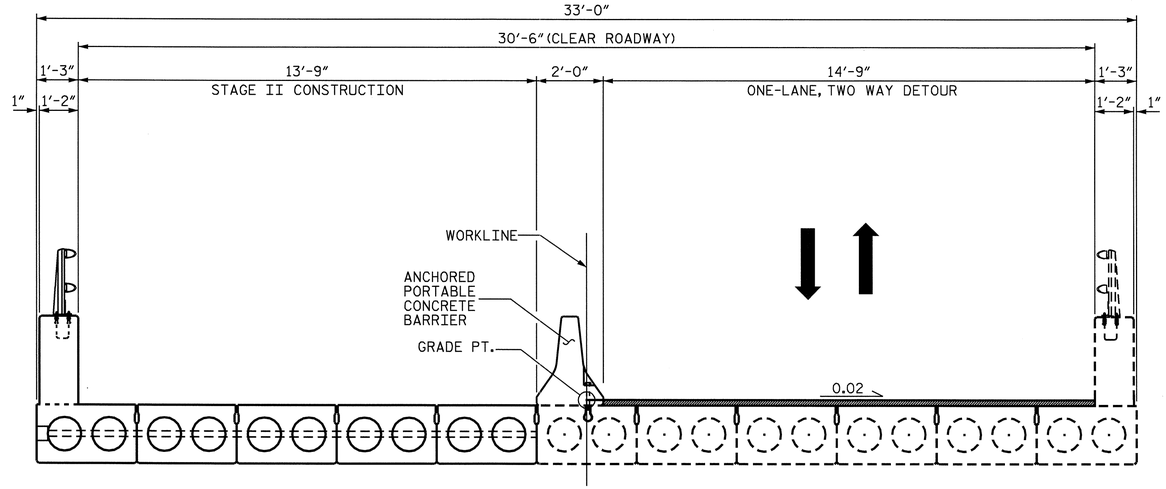


STAGE I CONSTRUCTION

CONSTRUCT STAGE I CONSTRUCTION, ATTACH TEMPORARY ANCHORED PORTABLE CONCRETE BARRIER USING FERRULE INSERTS ON CORED SLAB UNITS, AND PLACE FIRST ASPHALT SURFACE COURSE ON STAGE I.



STAGE II CONSTRUCTION

REMOVE EXISTING STRUCTURE, CONSTRUCT STAGE II CONSTRUCTION.

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE

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

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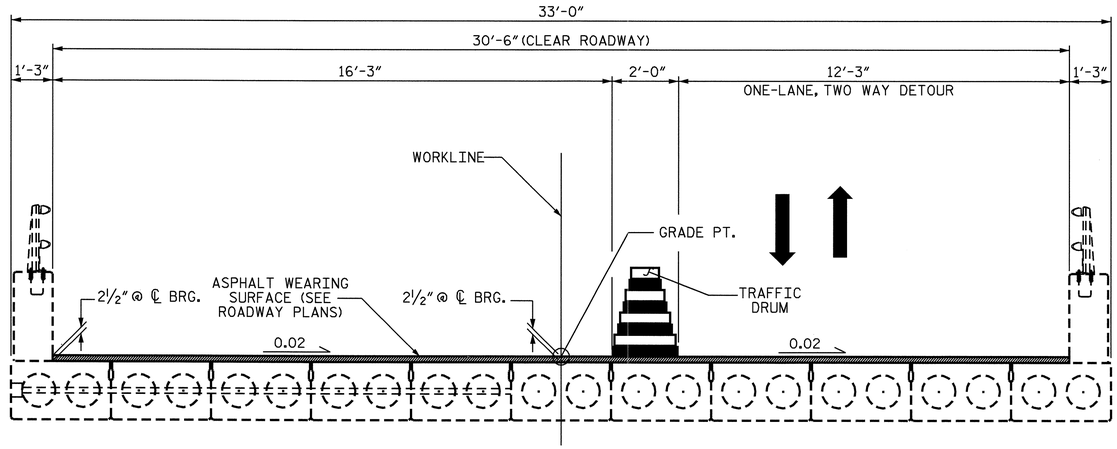
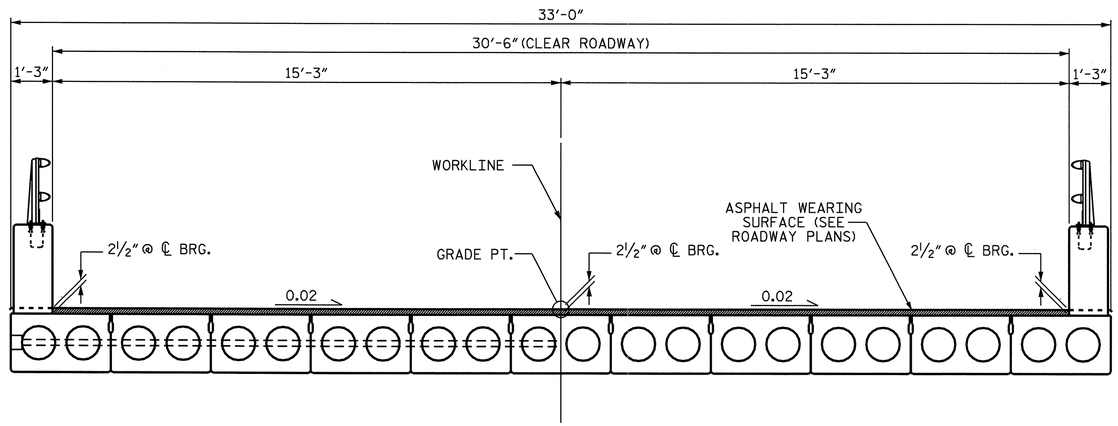
qtnguyen



STAGE III CONSTRUCTION

PLACE TRAFFIC DRUMS AS SHOWN AND REMOVE TEMPORARY ANCHORED PORTABLE CONCRETE BARRIER IN STAGE I. FILL CONCRETE INSERTS WITH GROUT, PLACE REMAINING ASPHALT WEARING SURFACE.



FINAL TYPICAL SECTION

RELOCATE TRAFFIC DRUMS AS necessary.

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE

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

DRAWN BY : A. SORSENGINH/QTN DATE : 2/06-6/08
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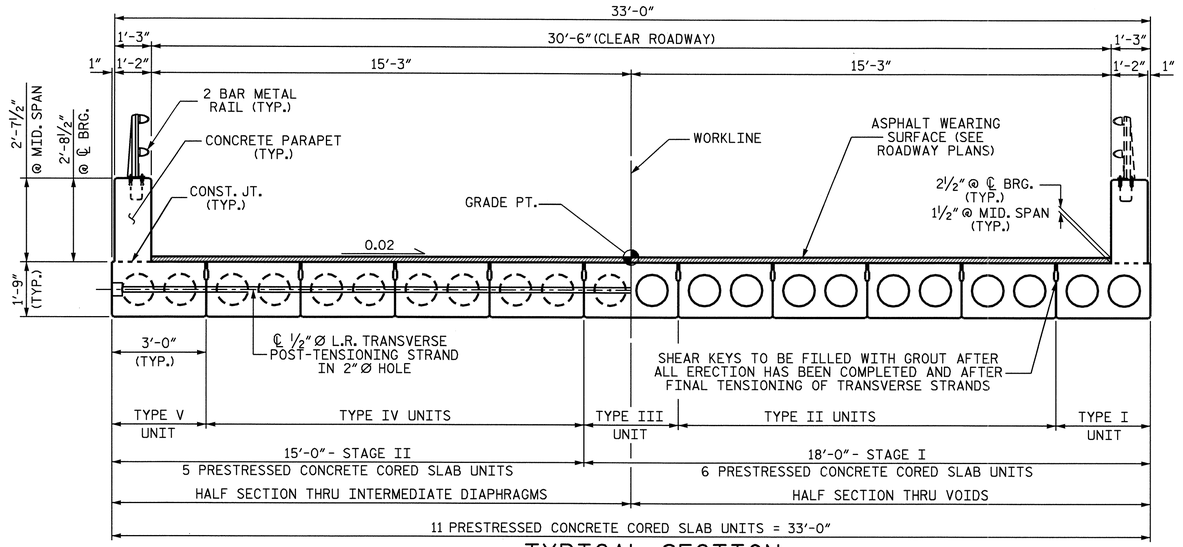
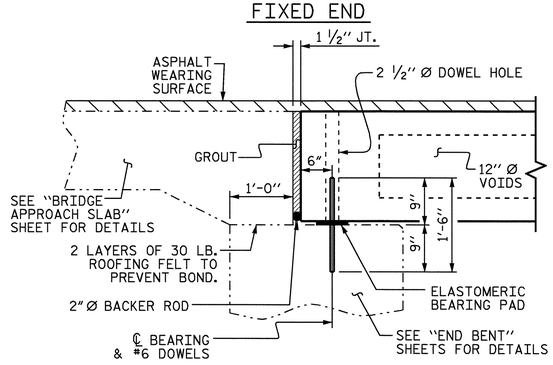
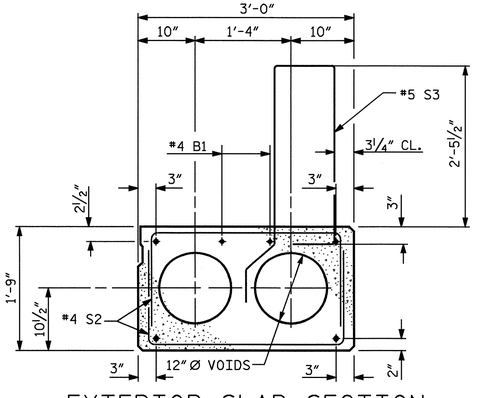


TYPICAL SECTION

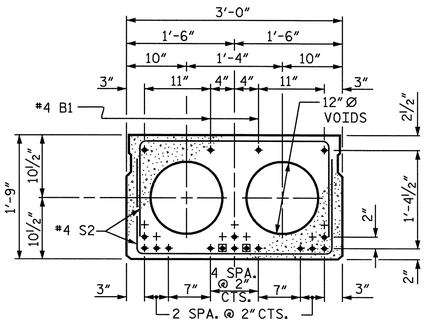


SECTION AT END BENT



EXTERIOR SLAB SECTION

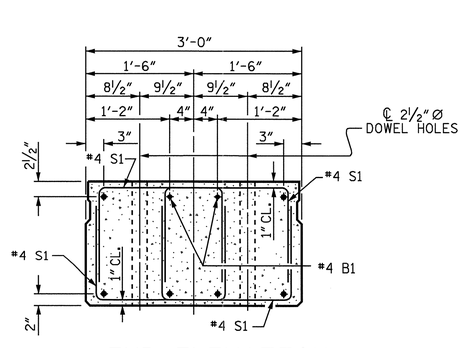
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION

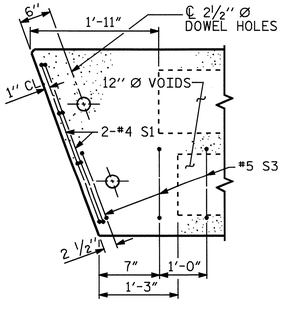
½" Ø LOW RELAXATION STRAND LAYOUT

● BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



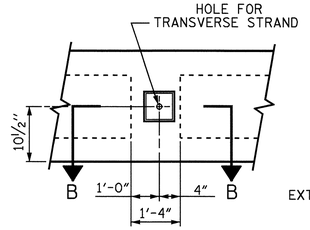
END ELEVATION

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

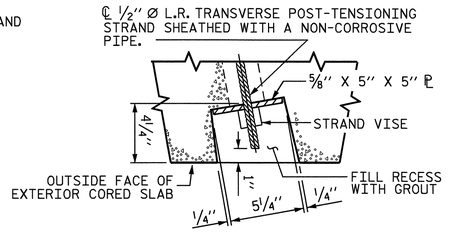


PART PLAN-EXTERIOR SECTION

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



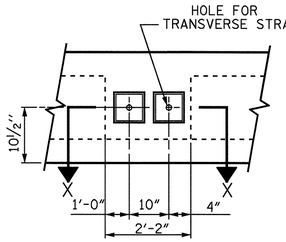
ELEVATION VIEW



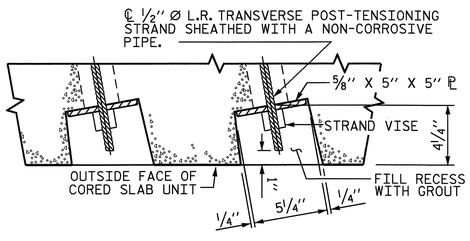
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(STAGE II)



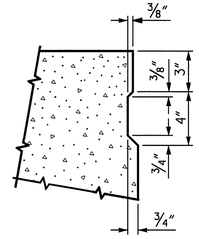
ELEVATION VIEW



SECTION X-X

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

(STAGE I)



SHEAR KEY DETAIL

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

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : A. SORSENGINH/QTN DATE : 2/06-6/08
CHECKED BY : P. K. NEWTON DATE : 10/13/08

03-NOV-2008 10:07
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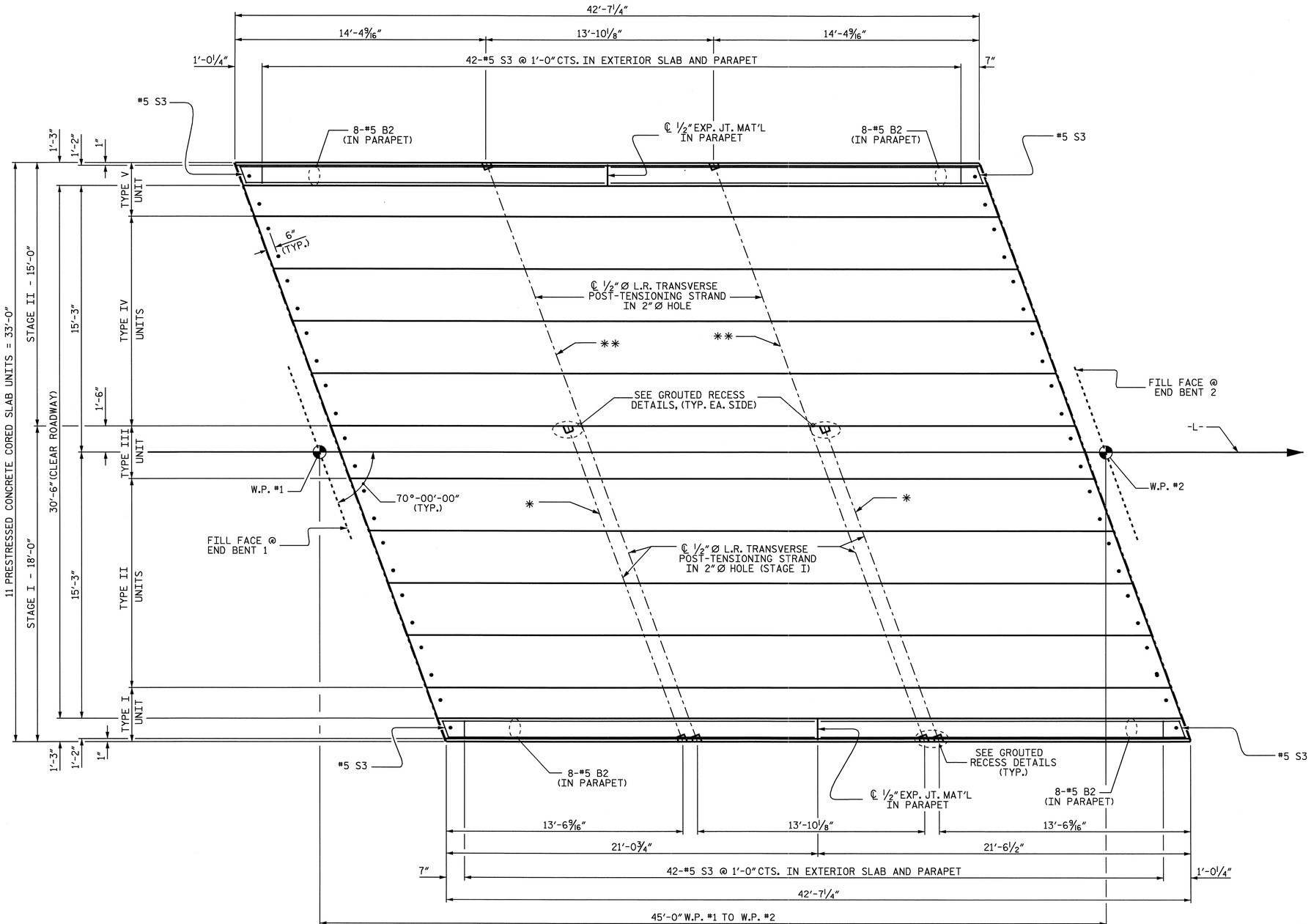
qtnguyen

* STRAND #1 GOES THRU 6 CORED SLAB UNITS
(TO BE TENSIONED DURING STAGE I CONSTRUCTION)

** STRAND #2 GOES THRU ALL CORED SLAB UNITS
(TO BE TENSIONED DURING STAGE 2 CONSTRUCTION)



PLAN OF SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/22/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : A. SORSENGINH/QTN DATE : 8/06-6/08
CHECKED BY : P. K. NEWTON DATE : 10/13/08

22-OCT-2008 09:14
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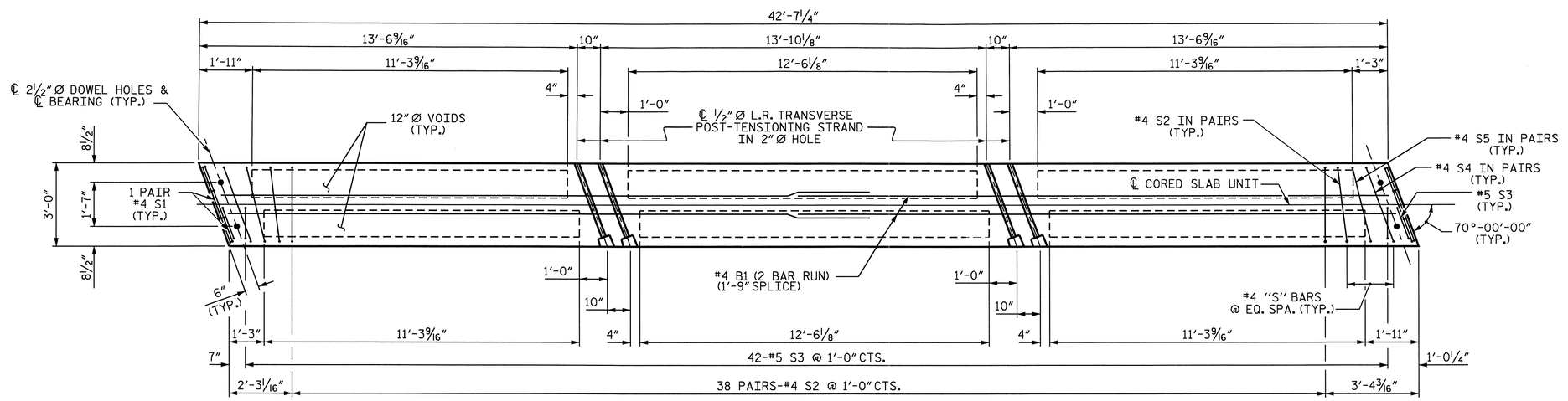
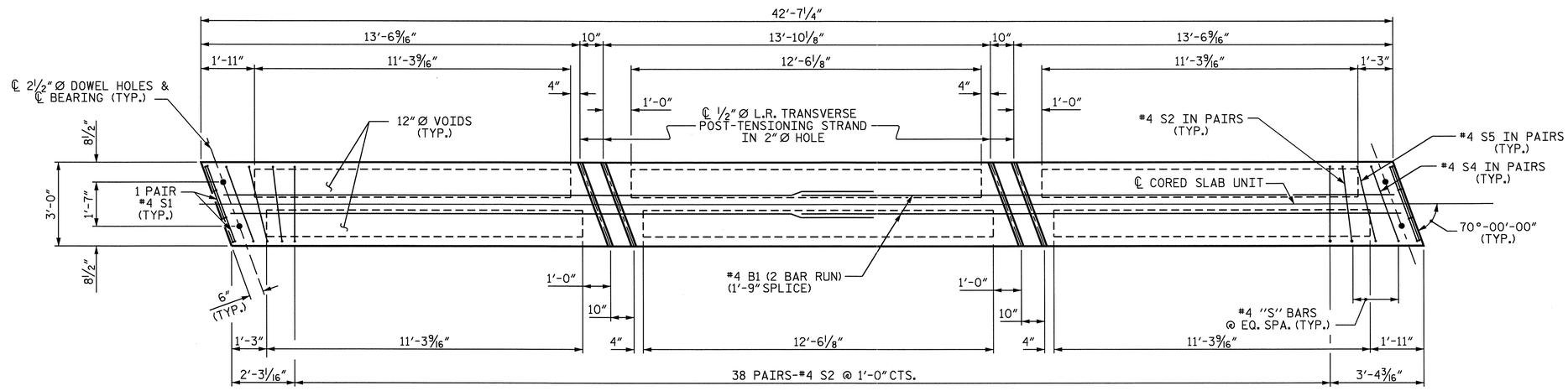
qtnguyen



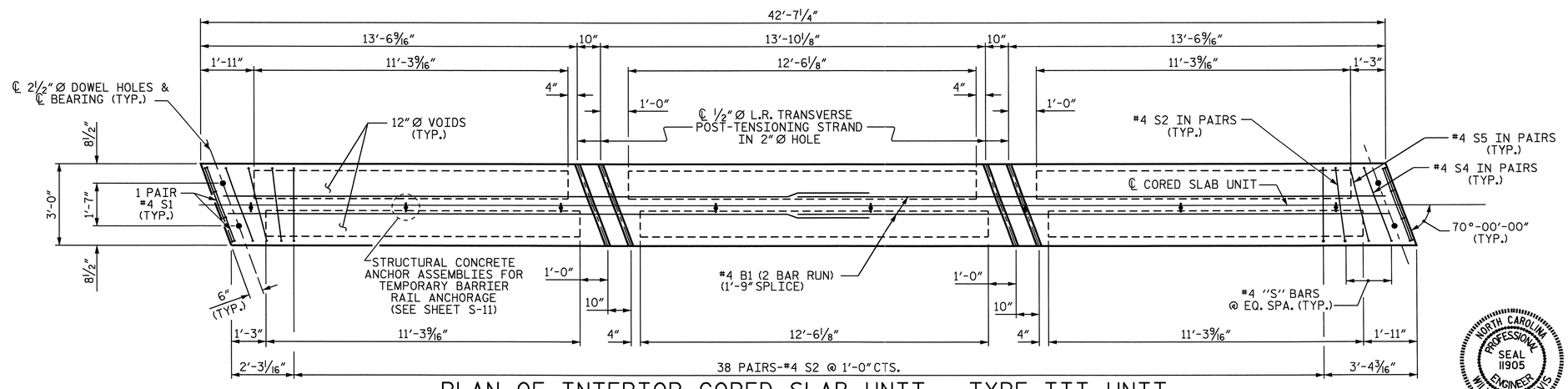
PLAN OF EXTERIOR CORED SLAB UNIT - TYPE I UNIT

(STAGE I)



PLAN OF INTERIOR CORED SLAB UNIT - TYPE II UNIT

(STAGE I)



PLAN OF INTERIOR CORED SLAB UNIT - TYPE III UNIT

(STAGE I - FOR LOCATION AND SPACING OF STRUCTURAL CONCRETE ANCHOR ASSEMBLIES FOR TEMPORARY BARRIER RAIL, SEE "TEMPORARY BARRIER RAIL ANCHORAGE DETAILS SHEET.")

DRAWN BY : A. SORSENGINH/QIN DATE : 9/06-6/08
CHECKED BY : P. K. NEWTON DATE : 10/13/08

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PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

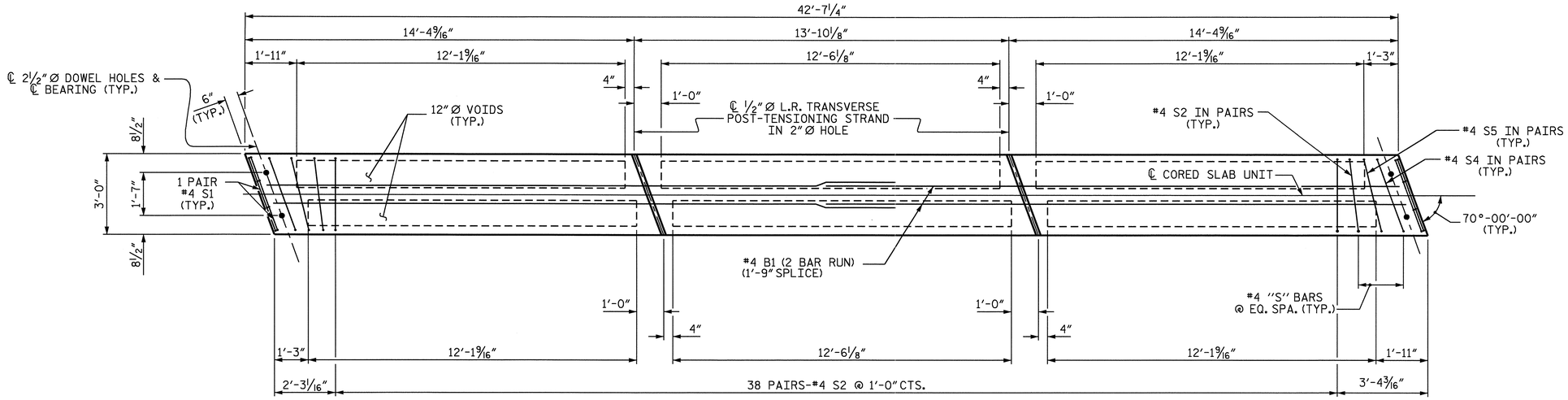
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

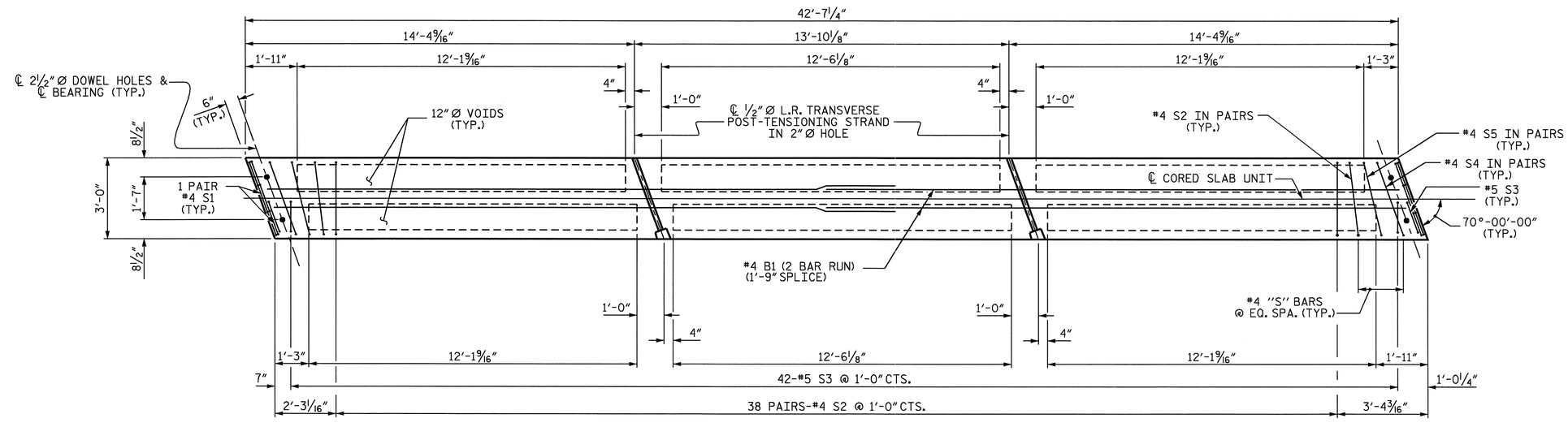
NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24



PLAN OF INTERIOR CORED SLAB UNIT - TYPE IV UNIT

(STAGE II)



PLAN OF EXTERIOR CORED SLAB UNIT - TYPE V UNIT

(STAGE II)

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/21/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : A. SORSENGINH/QTN DATE : 9/06-6/08
CHECKED BY : P. K. NEWTON DATE : 10/13/08

22-OCT-2008 09:14
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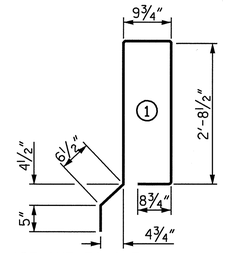
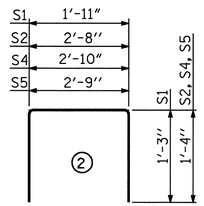
GRADE 270 STRANDS	
	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
B1	#4	1'-9"

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

				STAGE I						STAGE II			
				TYPE I UNIT		TYPE II UNIT		TYPE III UNIT		TYPE IV UNIT		TYPE V UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	22'-0"	59	22'-0"	59	22'-0"	59	22'-0"	59	22'-0"	59
S1	8	#4	2	4'-5"	24	4'-5"	24	4'-5"	24	4'-5"	24	4'-5"	24
S2	80	#4	2	5'-4"	285	5'-4"	285	5'-4"	285	5'-4"	285	5'-4"	285
* S3	44	#5	1	7'-11"	363							7'-11"	363
S4	4	#4	2	5'-6"	15	5'-6"	15	5'-6"	15	5'-6"	15	5'-6"	15
S5	4	#4	2	5'-5"	14	5'-5"	14	5'-5"	14	5'-5"	14	5'-5"	14
REINFORCING STEEL					397		397		397		397		397
* EPOXY COATED REINFORCING STEEL			LBS.		363								363
5,000 P.S.I. CONCRETE			CU. YDS.		6.2		6.2		6.2		6.1		6.1
1/2" Ø L.R. STRANDS			No.		16		16		16		16		16

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

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

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

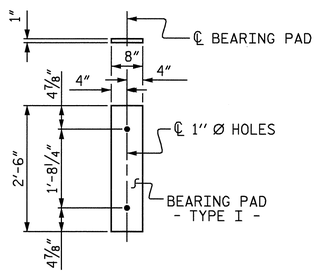
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4,000 PSI.

ALL REINFORCING STEEL IN CONCRETE PARAPETS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.



FIXED END
(TYPE I - 22 REQ'D)

ELASTOMERIC BEARING DETAILS

DEAD LOAD DEFLECTION AND CAMBER					
	STAGE I			STAGE II	
	TYPE I	TYPE II	TYPE III	TYPE IV	TYPE V
	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 1/16" ↑	1 1/16" ↑	1 1/16" ↑	1 1/16" ↑	1 1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/8" ↓	1/8" ↓	1/8" ↓	1/8" ↓	1/8" ↓
FINAL CAMBER	15/16" ↑	15/16" ↑	15/16" ↑	15/16" ↑	15/16" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED				
		NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	1	42'-7 1/4"	42'-7 1/4"
	TYPE II	4	42'-7 1/4"	170'-5"
	TYPE III	1	42'-7 1/4"	42'-7 1/4"
	STAGE I TOTAL	6		255'-7 1/2"
STAGE II	TYPE IV	4	42'-7 1/4"	170'-5"
	TYPE V	1	42'-7 1/4"	42'-7 1/4"
	STAGE II TOTAL	5	42'-7 1/4"	213'-0 1/4"
	TOTAL	11		468'-7 3/4"

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : A. SORSENGINH/QTN	DATE : 10/06-6/08
CHECKED BY : P.K. NEWTON	DATE : 10/13/08
DRAWN BY : WJH 4/89	REV. 7/10/01 RWW/LES
CHECKED BY : FCJ 5/89	REV. 5/7/03RRR RWW/JTE
	REV. 5/1/06 TLA/GM

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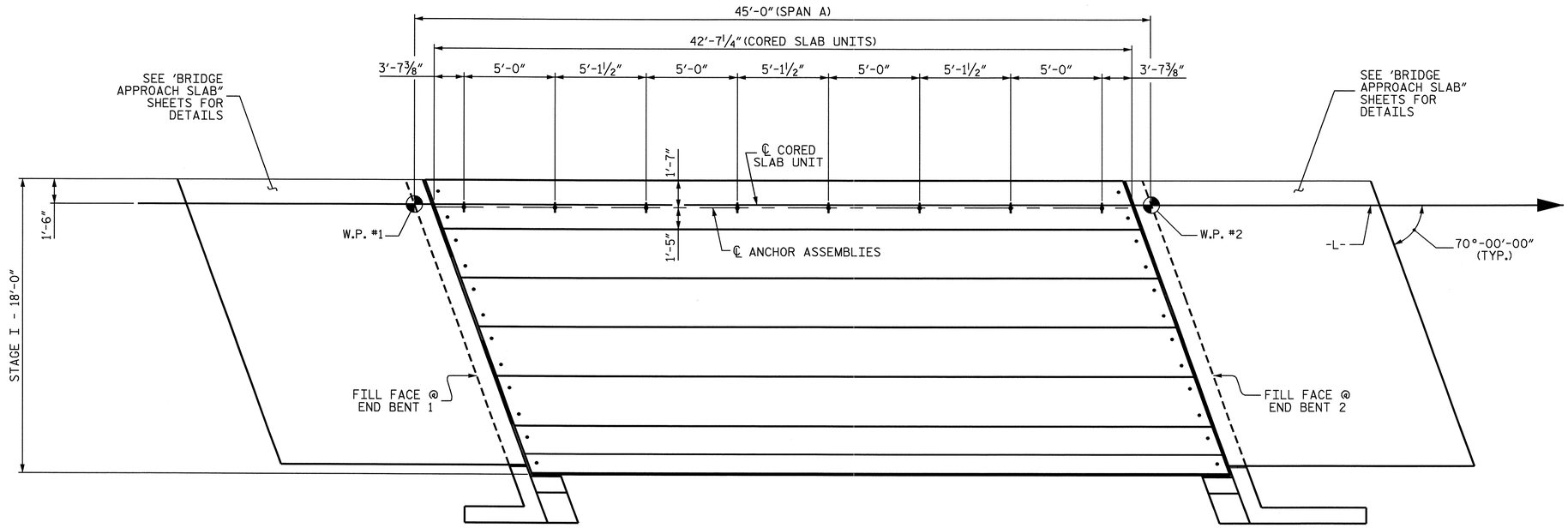
STD. NO. PCS3



CONRETE INSERT SPACING FOR TEMPORARY BARRIER RAIL - STAGE I

NOTES

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1⅝".

B. 1 - ⅞" Ø X 8½" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ⅞" Ø X 8½" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A325. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

D. STRUCTURAL CONCRETE INSERT ASSEMBLIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE COST OF THE STRUCTURAL CONCRETE INSERT ASSEMBLY, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0"x 1'-9" PRESTRESSED CONCRETE CORED SLABS.

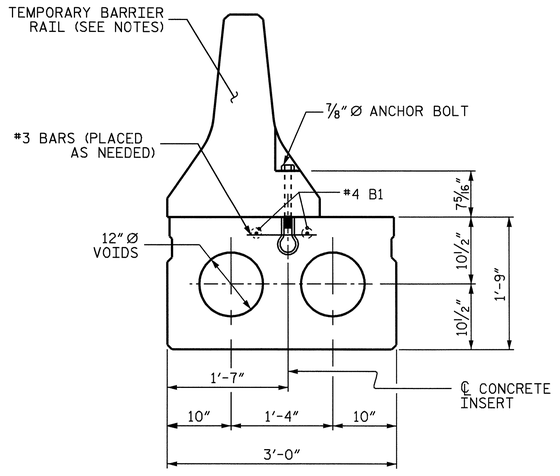
TO FACILITATE PLACEMENT OF STRUCTURAL CONCRETE INSERT ASSEMBLIES, #3 BARS MAY BE TIED TO THE #4 B1 BARS IN THE CORED SLAB UNITS. THE COST OF THE #3 BARS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0"x 1'-9" PRESTRESSED CONCRETE CORED SLABS.

STIRRUPS IN THE CORED SLAB UNITS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STRUCTURAL CONCRETE INSERT ASSEMBLIES.

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

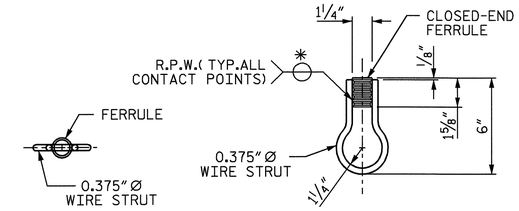
SEE TRAFFIC CONTROL PLANS FOR TEMPORARY BARRIER RAIL.

AFTER REMOVAL OF TEMPORARY BARRIER RAIL, THE STRUCTURAL CONCRETE INSERTS SHALL BE FILLED WITH GROUT.



SECTION OF CONCRETE INSERT LOCATION

(TYPE III UNIT, STAGE I)



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS

11/13/08

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TEMPORARY BARRIER RAIL ANCHORAGE DETAILS FOR TYPE III CORED SLAB UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : A. SORSENGINH/QTN DATE : 9/06-6/08
CHECKED BY : W. A. DAVIS DATE : 10/13/08

03-NOV-2008 09:22
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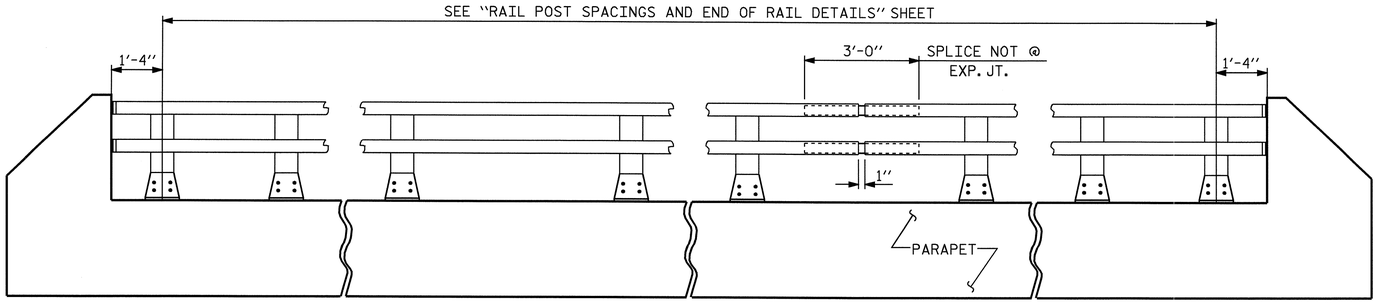
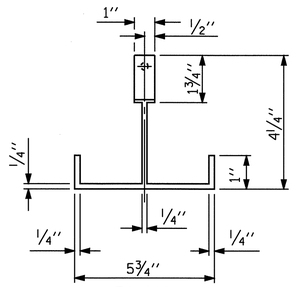
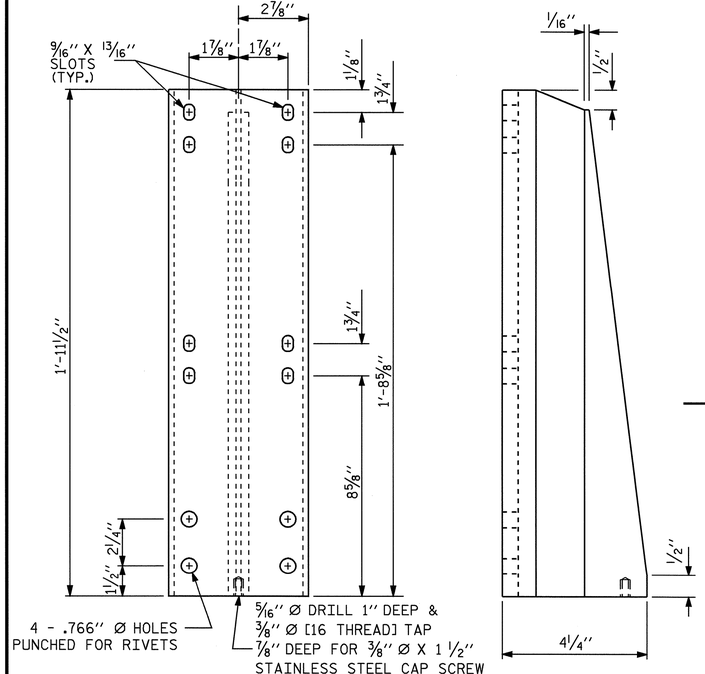


ELEVATION

NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



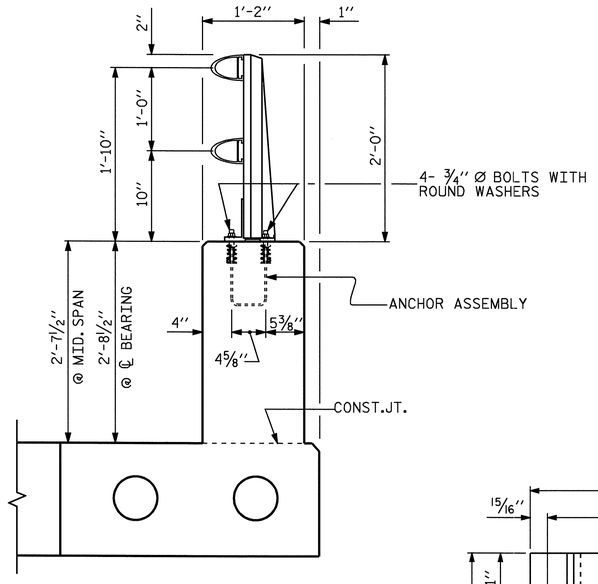
PLAN



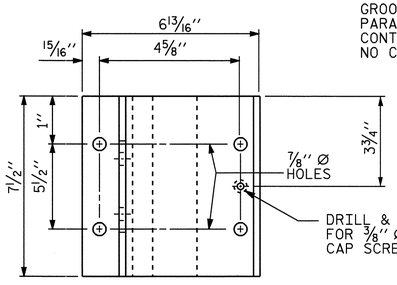
FRONT ELEVATION

SIDE ELEVATION

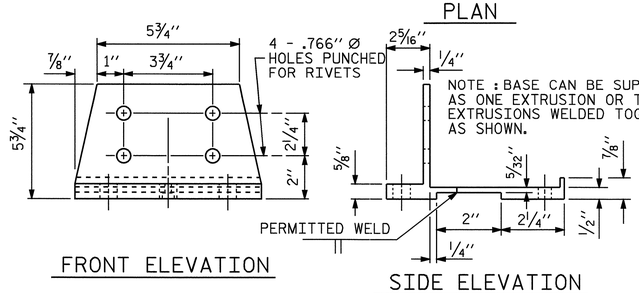
DETAILS OF POST



SECTION THRU PARAPET AND RAIL



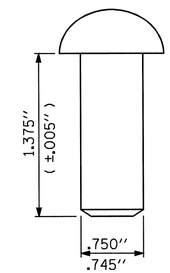
PLAN



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8FT. TO 10FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 69.35 LIN. FT.

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
4/3/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : A. SORSENGINH/QTN	DATE : 2/06-6/08	
CHECKED BY : W. A. DAVIS	DATE : 10/13/08	
DRAWN BY : EEM 6/94	REV. 10/17/00	LES/RDR
CHECKED BY : RGW 6/94	REV. 5/7/03R	RWW/JTE
	REV. 5/1/06	TLA/GM

03-NOV-2008 09:22
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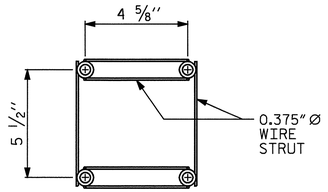
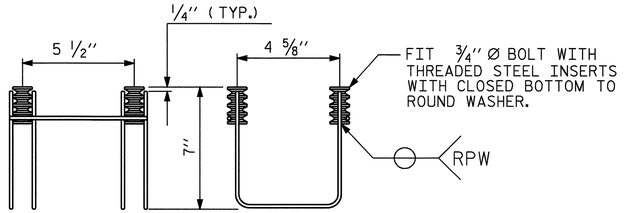
STD. NO. BMR3



PLAN



SIDE VIEW ELEVATION

MINIMUM LENGTH OF THREADS IN INSERT (FERRULE): 1 3/4''

4-BOLT METAL RAIL ANCHOR ASSEMBLY

(12 ASSEMBLIES REQUIRED)

NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2'' FOR 3/4'' FERRULES.

B. 4 - 3/4'' Ø X 2 1/2'' BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4'' Ø X 2 1/2'' GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16'' Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

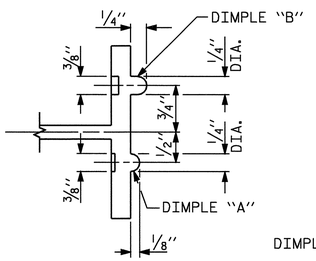
D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.

E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.

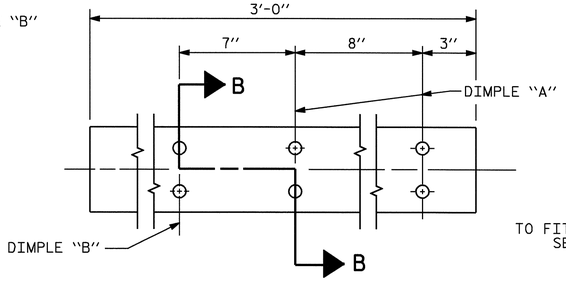
F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

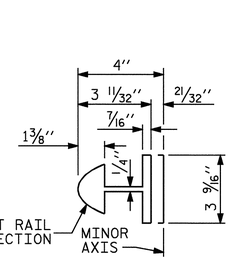
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



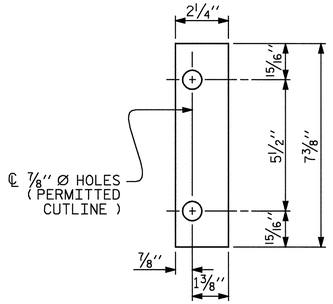
SECTION B - B



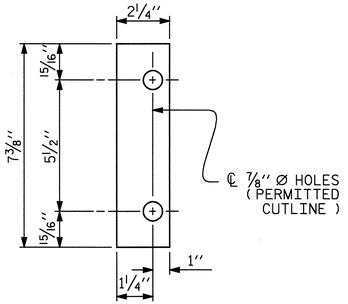


BAR SECTION

EXPANSION BAR DETAILS



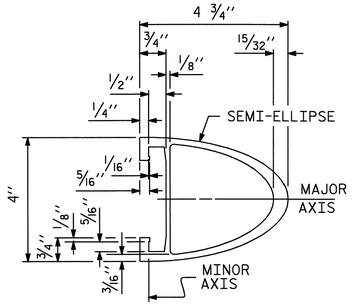
FRONT PLATE



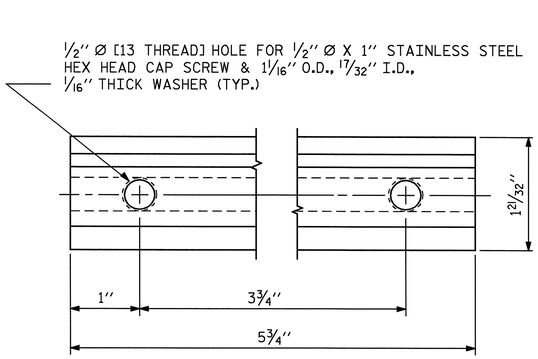
REAR PLATE

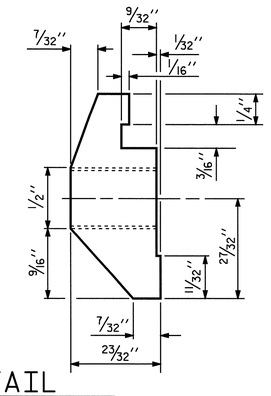
SHIM DETAILS

NOTE :
SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.



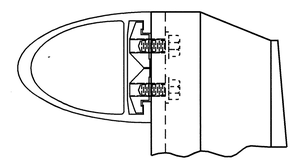
RAIL SECTION



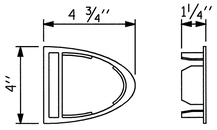


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			24

STD. NO. BMR4

ASSEMBLED BY : A. SORSENGINH/QTN		DATE : 2/06-6/08	
CHECKED BY : W. A. DAVIS		DATE : 10/13/08	
DRAWN BY : EEM	6/94	REV. 2/6/97	EEM/RGW
CHECKED BY : RGW	6/94	REV. 8/16/99	MAB/LES
		REV. 5/1/06R	KMM/GM

22-OCT-2008 09:13
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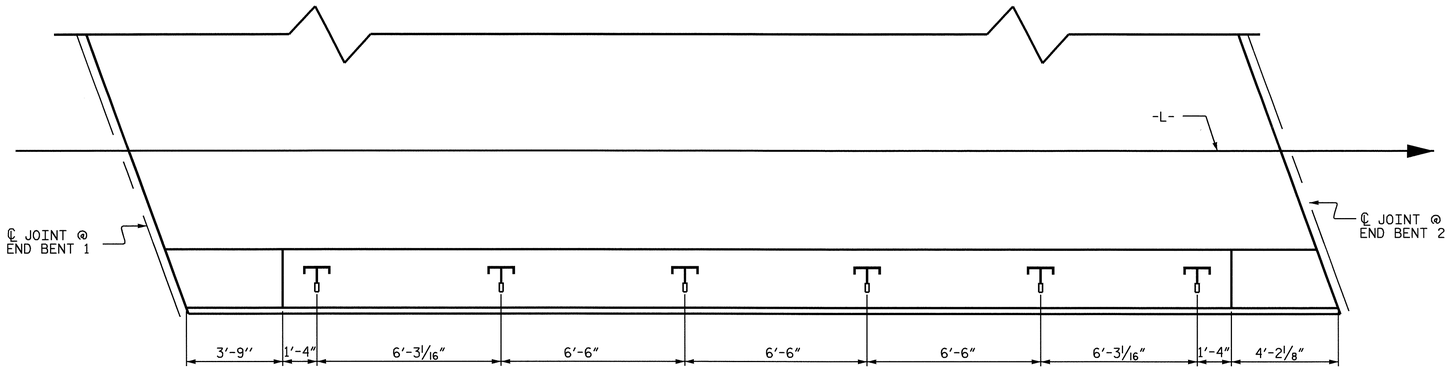
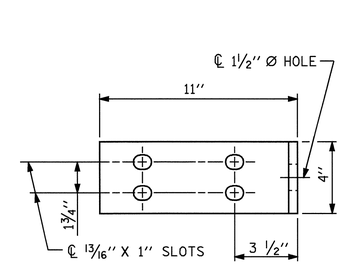
qtnguyen

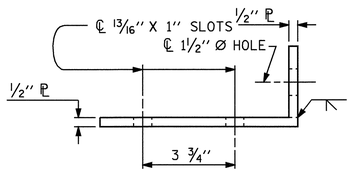


PLAN OF RAIL POST SPACINGS

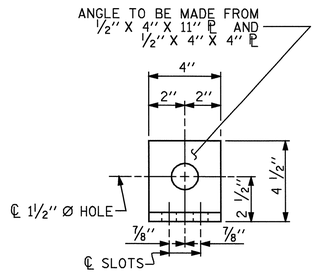
(SYMMETRICAL ABOUT -L- WITH END POSTS ROTATED)



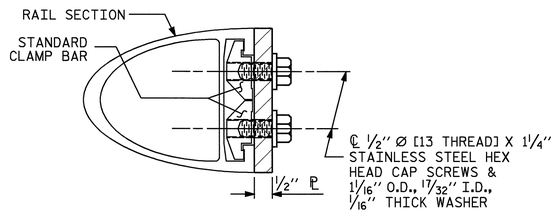
ELEVATION



TOP VIEW

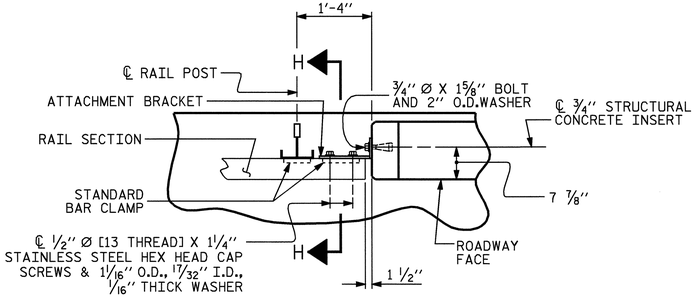


END VIEW



SECTION H-H

DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN - RAIL AND END POST

NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".

B. 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4"Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4"Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

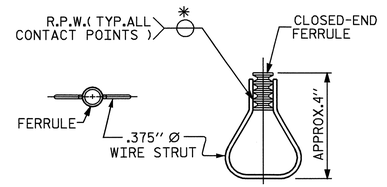
E. 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4"Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4"Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

*EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10.22.08

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

RAIL POST SPACINGS AND END OF RAIL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			24

STD. NO. BMR2

ASSEMBLED BY : A. SORSENGINH/QTN	DATE : 2/06-6/08
CHECKED BY : W. A. DAVIS	DATE : 10/13/08
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

22-OCT-2008 09:13
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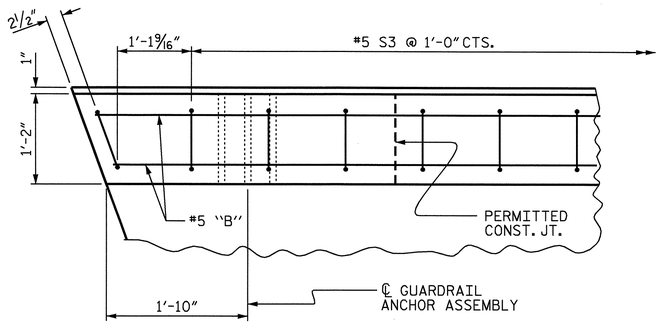
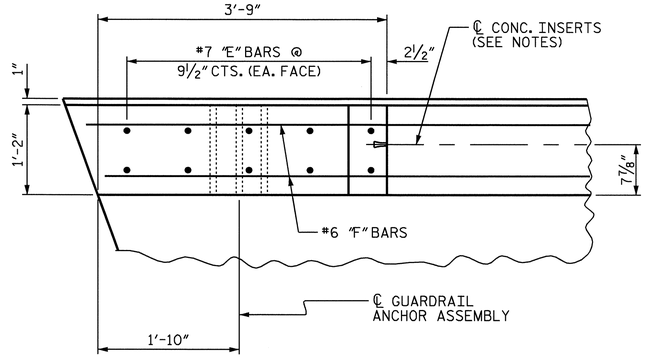
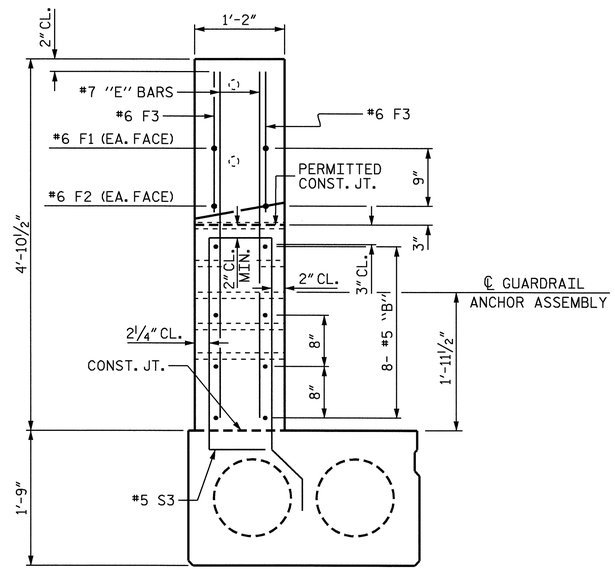
qtnguyen



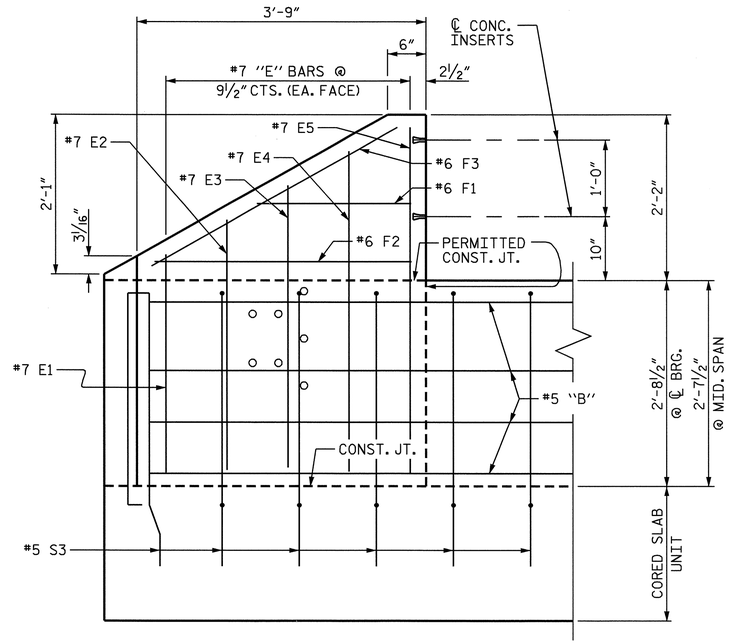
PLAN OF PARAPET



PLAN OF END POST



END VIEW



ELEVATION

BILL OF MATERIAL FOR PARAPETS AND END POSTS

	STAGE I					STAGE II					TOTAL
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	NO.	SIZE	TYPE	LENGTH	WEIGHT	
✳ B2	16	#5	STR	20'-9"	346	16	#5	STR	20-9"	346	692
✳ E1	4	#7	STR	2'-10"	23	4	#7	STR	2'-10"	23	46
✳ E2	4	#7	STR	3'-3"	27	4	#7	STR	3'-3"	27	54
✳ E3	4	#7	STR	3'-8"	30	4	#7	STR	3'-8"	30	60
✳ E4	4	#7	STR	4'-2"	34	4	#7	STR	4'-2"	34	68
✳ E5	4	#7	STR	4'-6"	37	4	#7	STR	4'-6"	37	74
✳ F1	4	#6	STR	2'-0"	12	4	#6	STR	2'-0"	12	24
✳ F2	4	#6	STR	3'-4"	20	4	#6	STR	3'-4"	20	40
✳ F3	4	#6	STR	3'-8"	22	4	#6	STR	3'-8"	22	44
✳ EPOXY COATED REINF. STEEL				LBS.	551					551	1102
CLASS AA CONCRETE				CU. YDS.	5.3					5.3	10.6
TOTAL LIN. FT. OF CONC. PARAPET					42.60					42.60	85.20

PARAPET AND END POST FOR TWO BAR RAIL

NOTES

FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEETS.

ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.

THE REINFORCING STEEL & CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

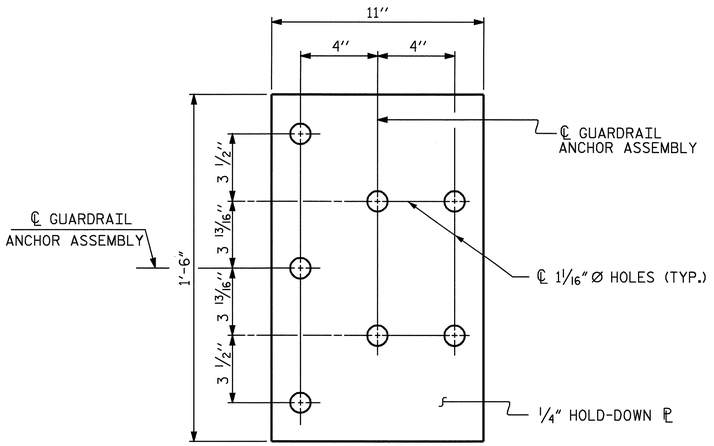
PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

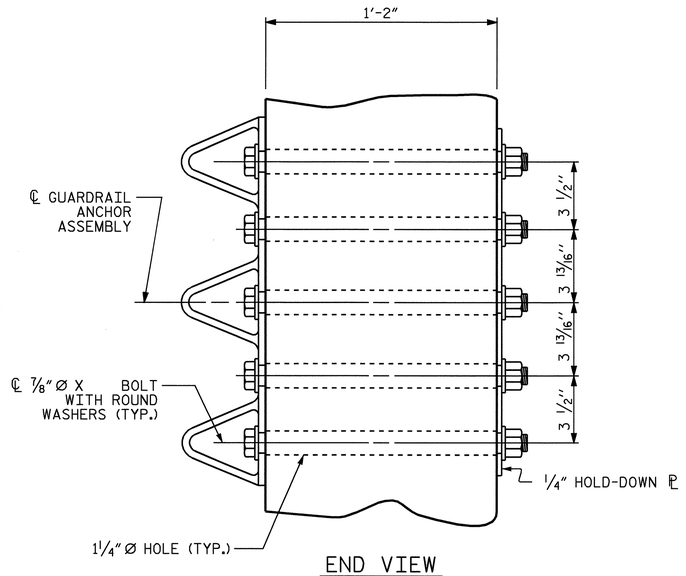
SUPERSTRUCTURE
CONCRETE PARAPET DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : P. K. NEWTON/QTN DATE : 11/07-6/08
CHECKED BY : W. A. DAVIS DATE : 10/13/08



PLAN



END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4'' HOLD DOWN PLATE AND 7 - 7/8'' Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

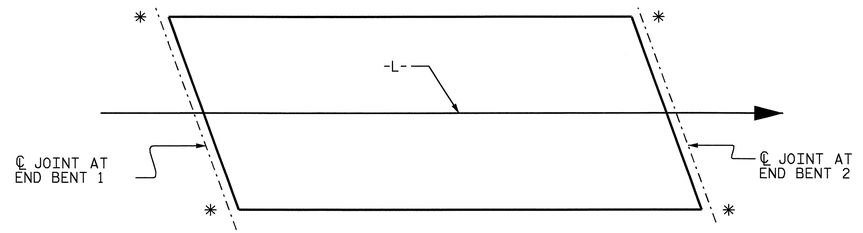
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8'' Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

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

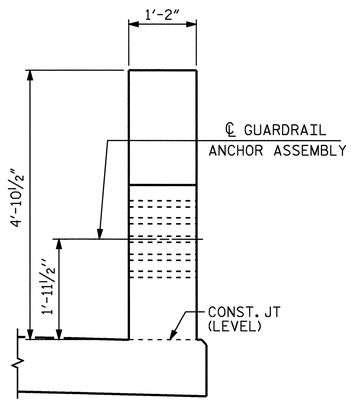
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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

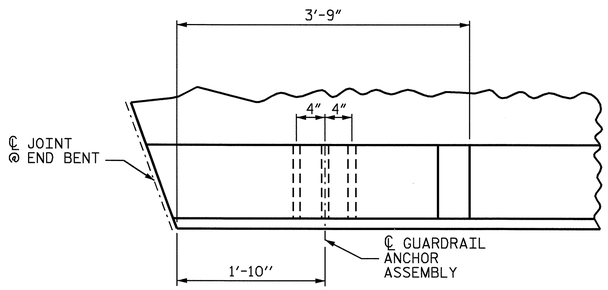


SKETCH SHOWING POINTS OF ATTACHMENT

*LOCATION OF GUARDRAIL ATTACHMENT



END VIEW



PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS

10/22/08

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : A. SORSENGINH/PKN	DATE : 11/1/07
CHECKED BY : W. A. DAVIS	DATE : 10/13/08
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

22-OCT-2008 09:12
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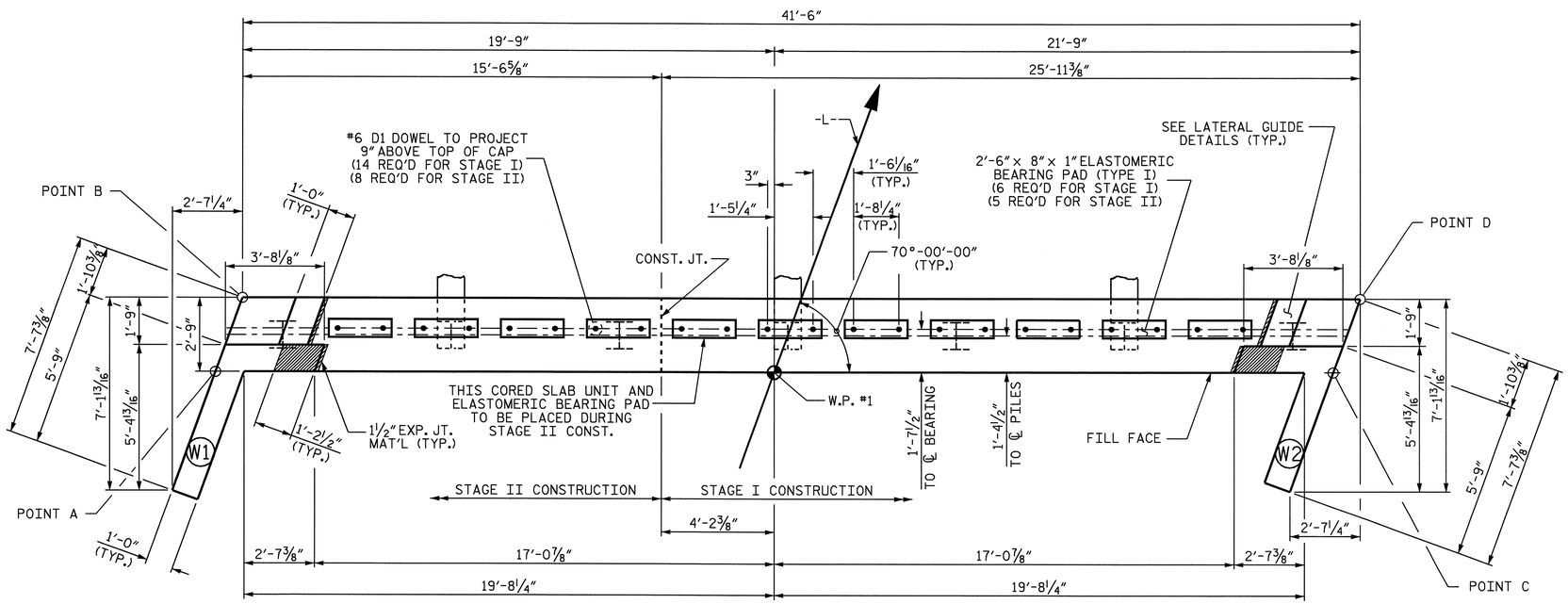
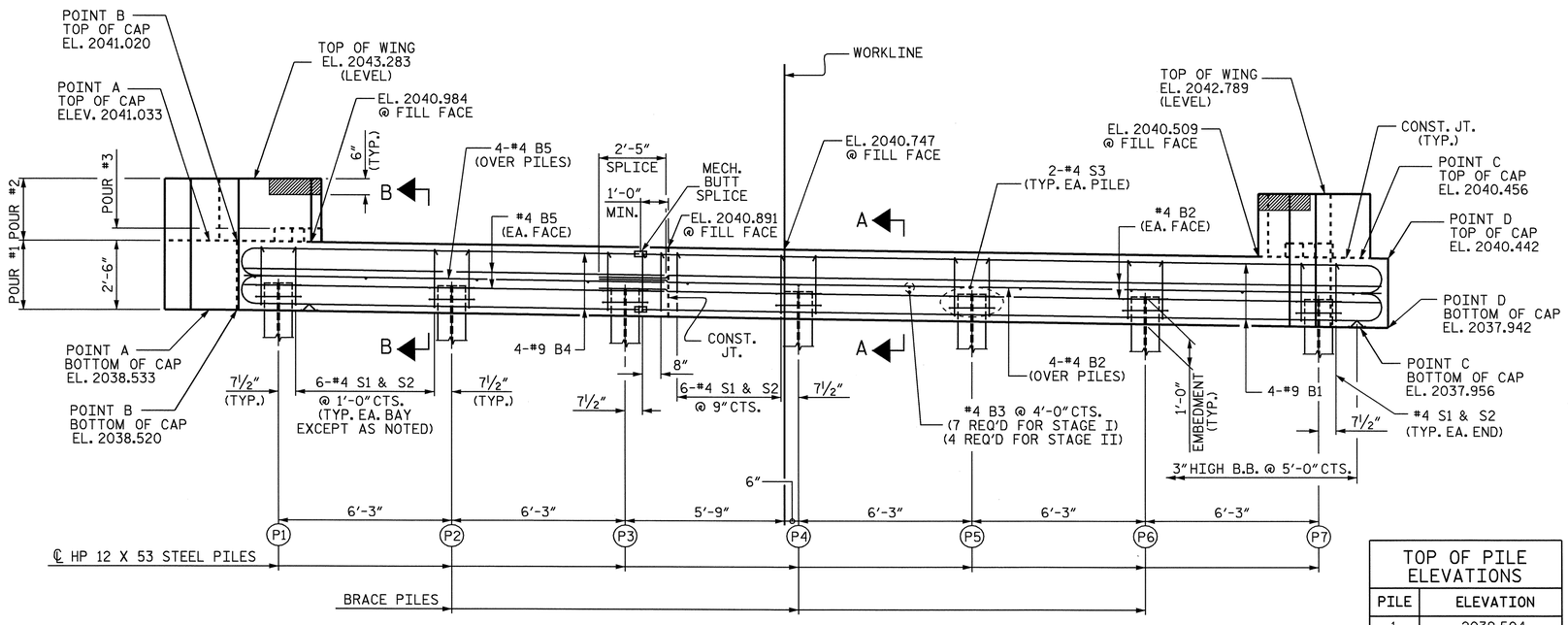
qtnguyen

STD. NO. BMR8



PLAN



ELEVATION

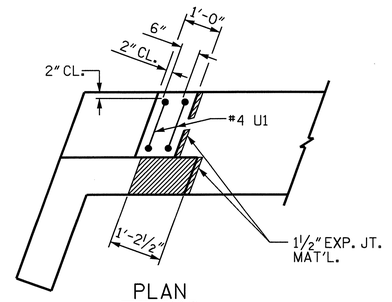
TOP OF PILE ELEVATIONS	
PILE	ELEVATION
1	2039.504
2	2039.417
3	2039.330
4	2039.243
5	2039.156
6	2039.070
7	2038.983

NOTES

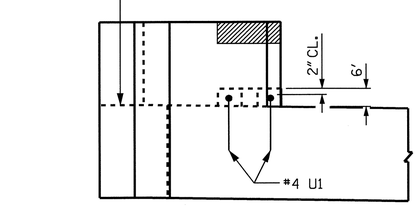
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



PLAN



ELEVATION

LATERAL GUIDE

(EACH END SIMILAR)

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS 11/3/08

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.L.WALTON/QTN DATE : 6/07-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

03-NOV-2008 09:20
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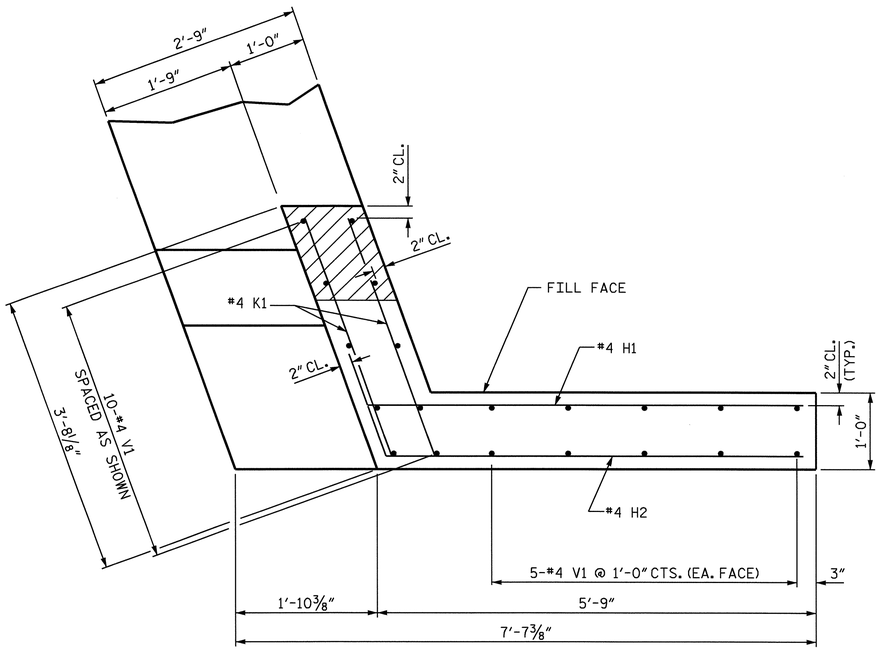
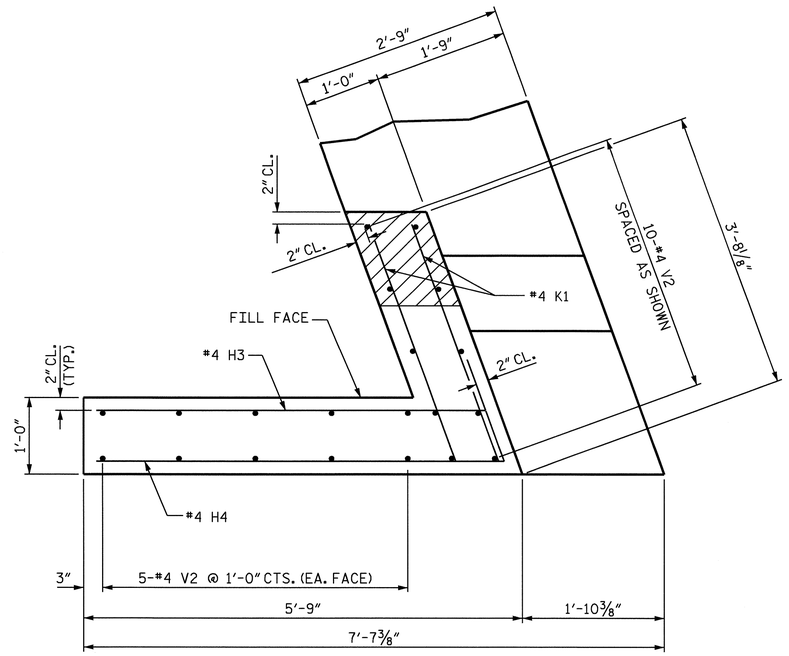
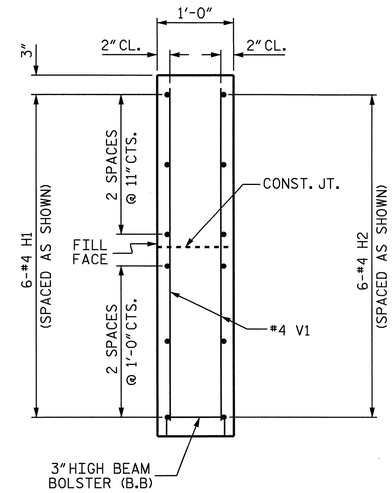
qtnguyen



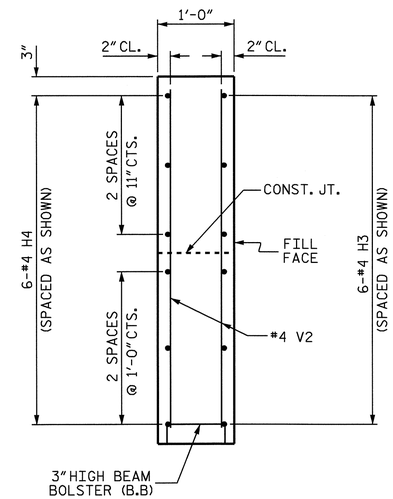
PLAN OF WING W1



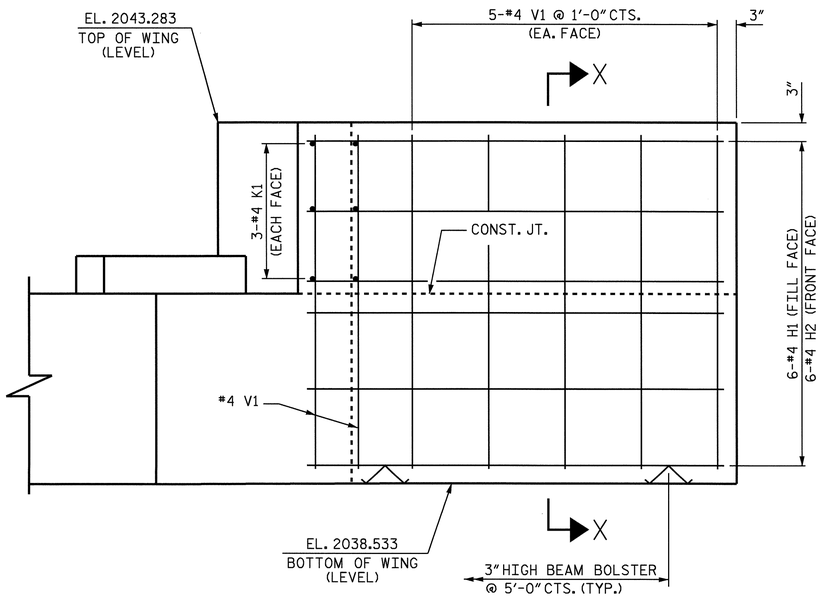
PLAN OF WING W2



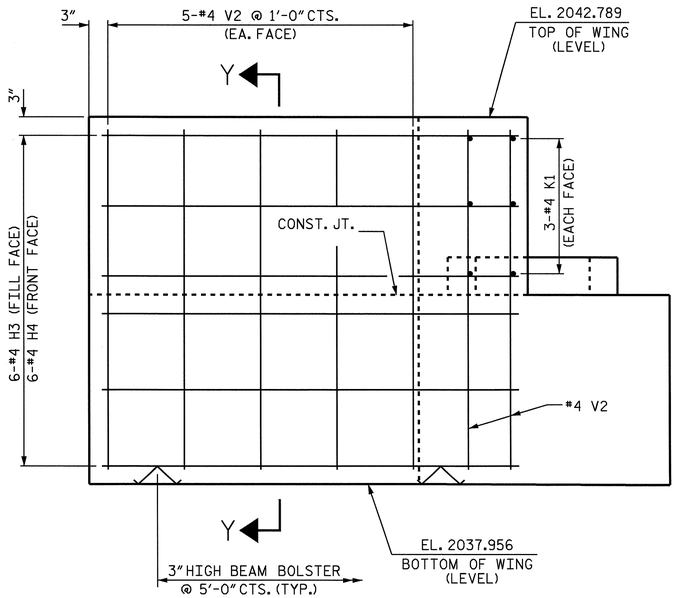
SECTION X-X



SECTION Y-Y



ELEVATION OF WING W1



ELEVATION OF WING W2

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/22/08

DRAWN BY : J.L. WALTON/QTN DATE : 11/07-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

22-OCT-2008 09:11
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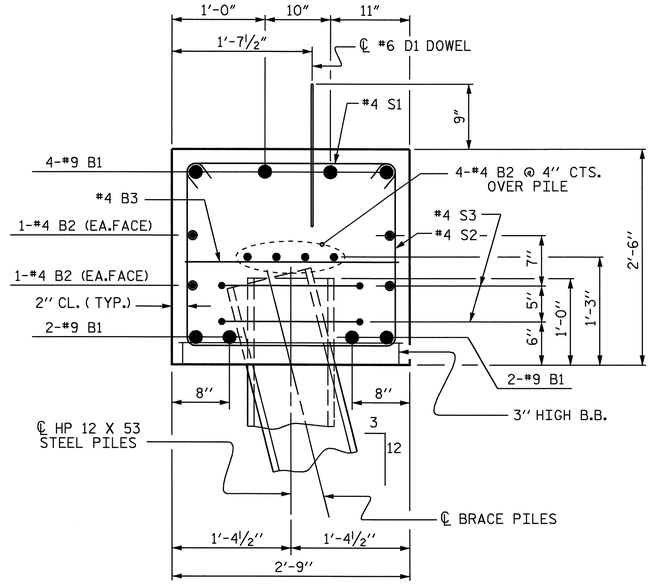
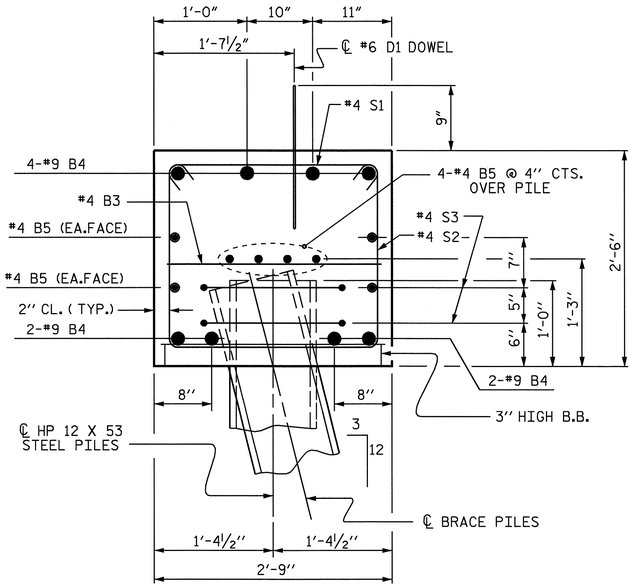
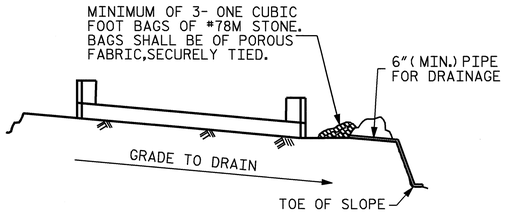
qtnguyen



SECTION A-A



SECTION B-B



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

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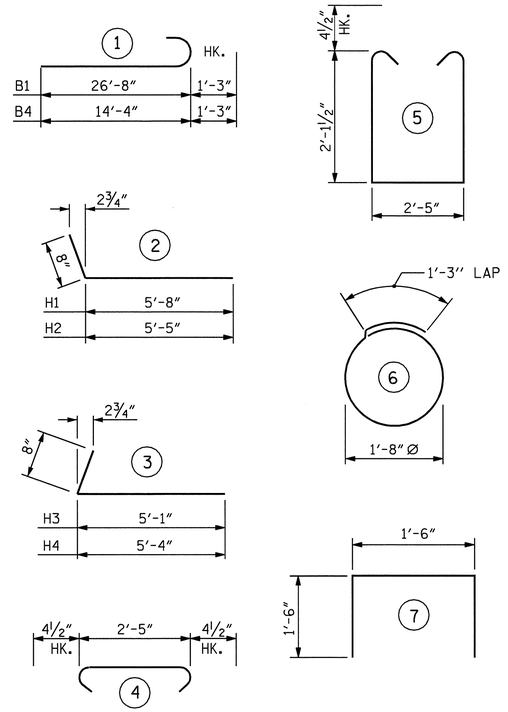
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR END BENT 1

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	27'-11"	759
B2	8	#4	STR	28'-2"	151
B3	7	#4	STR	2'-5"	11
D1	14	#6	STR	1'-6"	32
H3	6	#4	3	5'-9"	23
H4	6	#4	3	6'-0"	24
K1	6	#4	STR	3'-3"	13
S1	25	#4	4	3'-2"	53
S2	25	#4	5	7'-5"	124
S3	8	#4	6	6'-6"	35
U1	2	#4	7	4'-6"	6
V2	20	#4	STR	4'-6"	60

REINFORCING STEEL = 1291 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1: CAP & LOWER PART OF WING
C.Y. 6.9

POUR #2: UPPER PART OF WING
C.Y. 0.7

POUR #3: LATERAL GUIDE
C.Y. 0.1

TOTAL CLASS A CONCRETE
C.Y. 7.7

HP 12 X 53 STEEL PILES
NO. 4 LIN. FT. 20
STEEL PILE POINTS EA. 4

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	4	#4	STR	2'-5"	6
B4	8	#9	1	15'-7"	424
B5	8	#4	STR	15'-4"	82
D1	8	#6	STR	1'-6"	18
H1	6	#4	2	6'-4"	25
H2	6	#4	2	6'-1"	24
K1	6	#4	STR	3'-3"	13
S1	15	#4	4	3'-2"	32
S2	15	#4	5	7'-5"	74
S3	6	#4	6	6'-6"	26
U1	2	#4	7	4'-5"	6
V1	20	#4	STR	4'-5"	59

REINFORCING STEEL = 787 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1: CAP & LOWER PART OF WING
C.Y. 4.5

POUR #2: UPPER PART OF WING
C.Y. 0.7

POUR #3: LATERAL GUIDE
C.Y. 0.1

TOTAL CLASS A CONCRETE
C.Y. 5.3

HP 12 X 53 STEEL PILES
NO. 3 LIN. FT. 15
STEEL PILE POINTS EA. 3

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24

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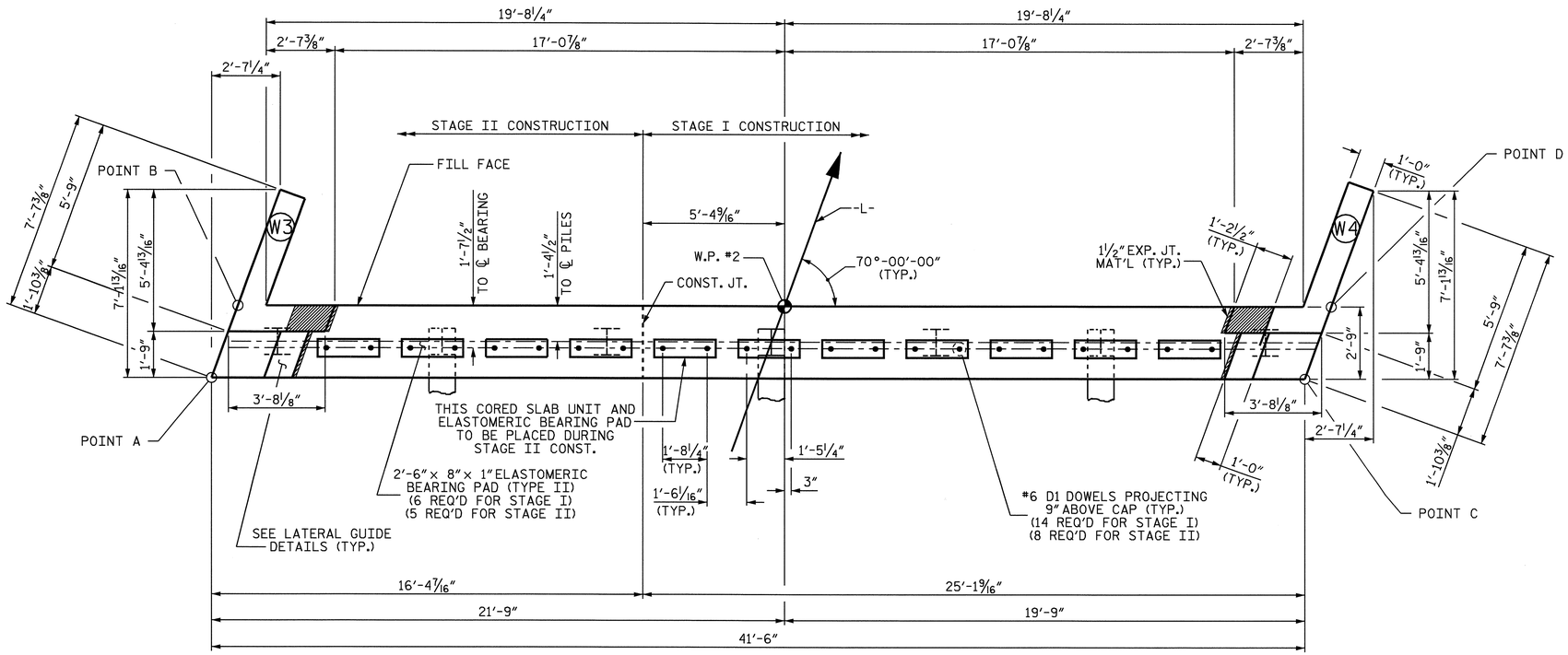
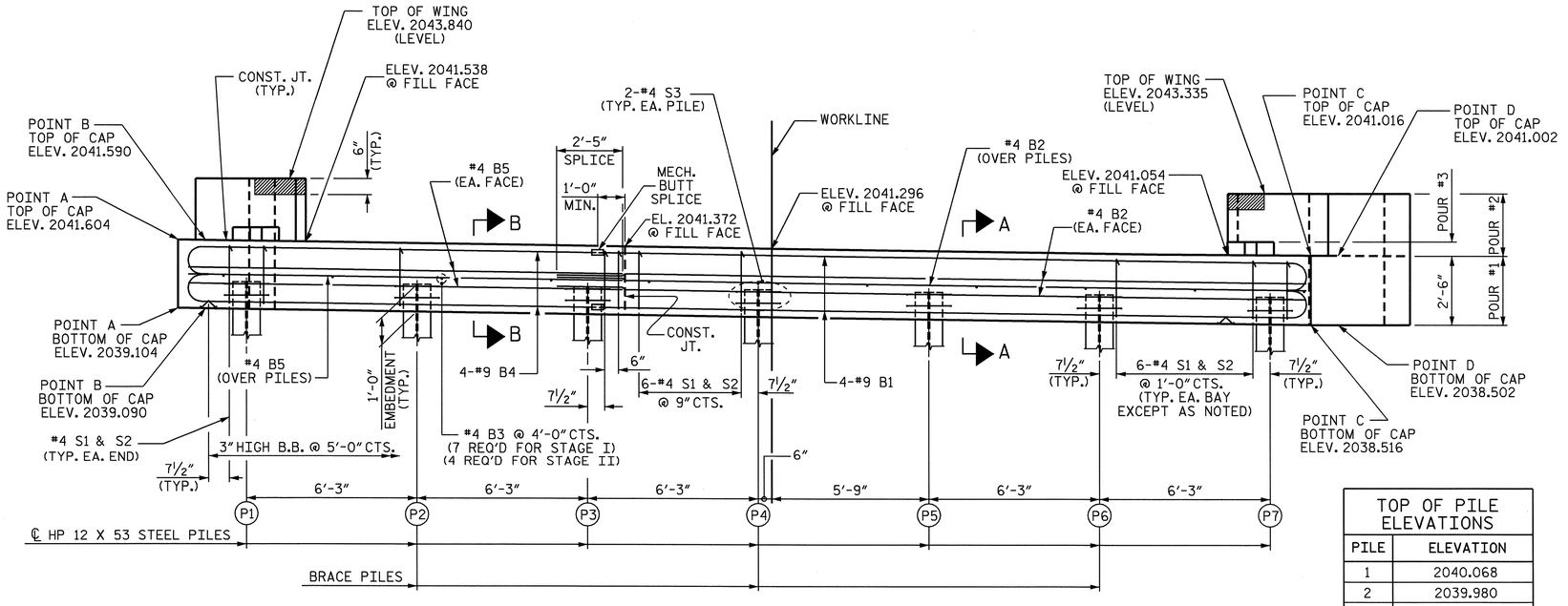
NCBDS



PLAN



ELEVATION

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
1	2040.068
2	2039.980
3	2039.891
4	2039.803
5	2039.714
6	2039.626
7	2039.537

NOTES

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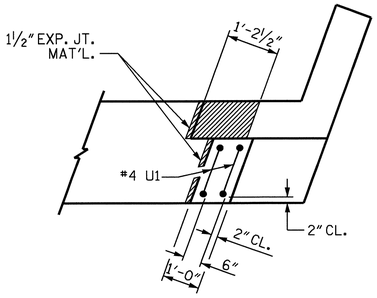
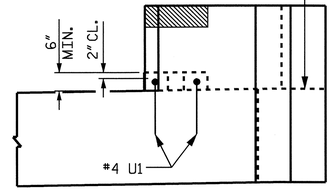


PLAN



ELEVATION

LATERAL GUIDE

(EACH END SIMILAR)

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			24

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

DRAWN BY : J.L. WALTON/QTN DATE : 6/07-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

03-NOV-2008 09:20
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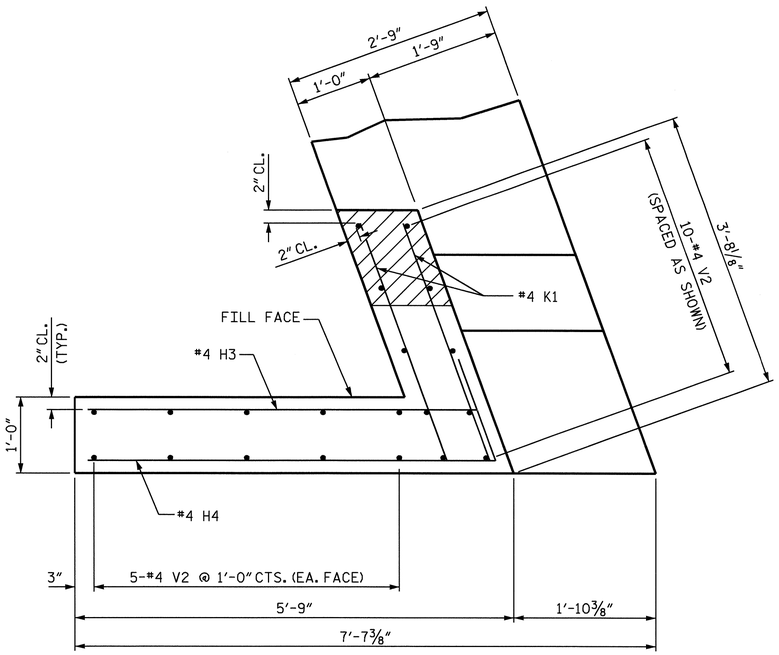
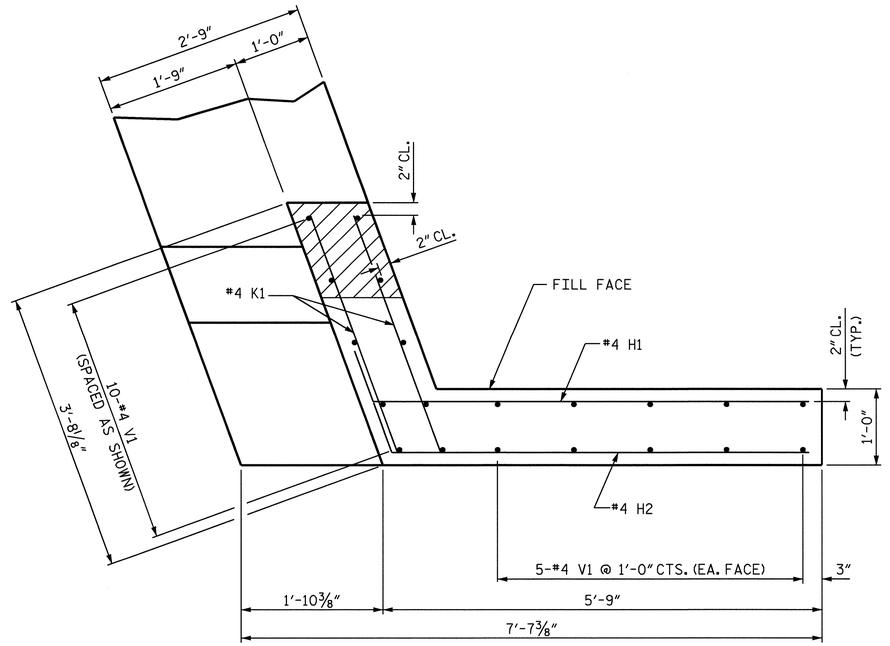
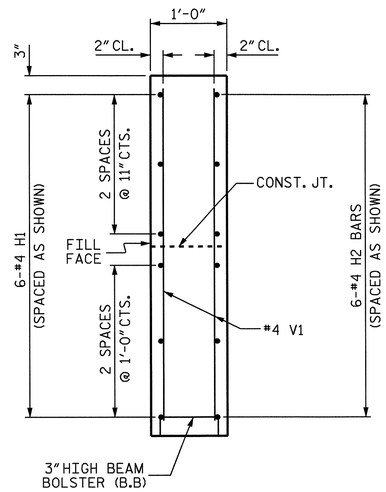
qtnguyen



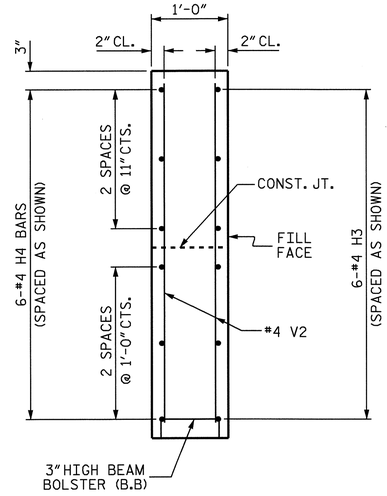
PLAN OF WING W3



PLAN OF WING W4



SECTION X-X



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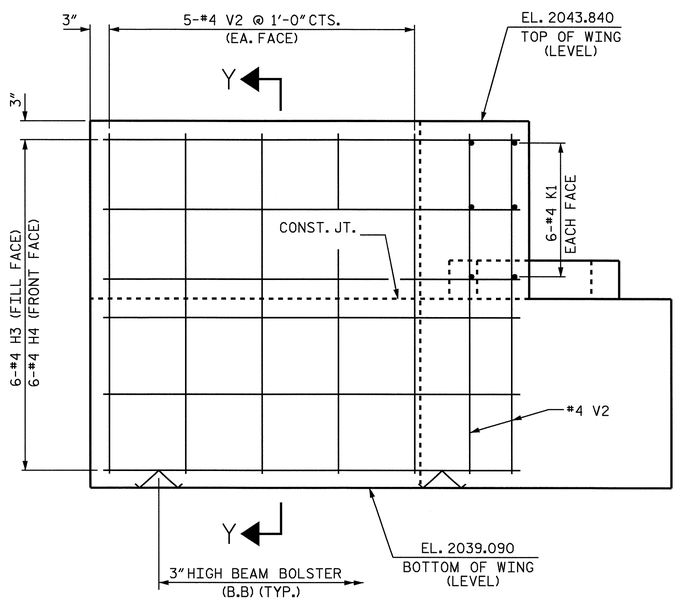
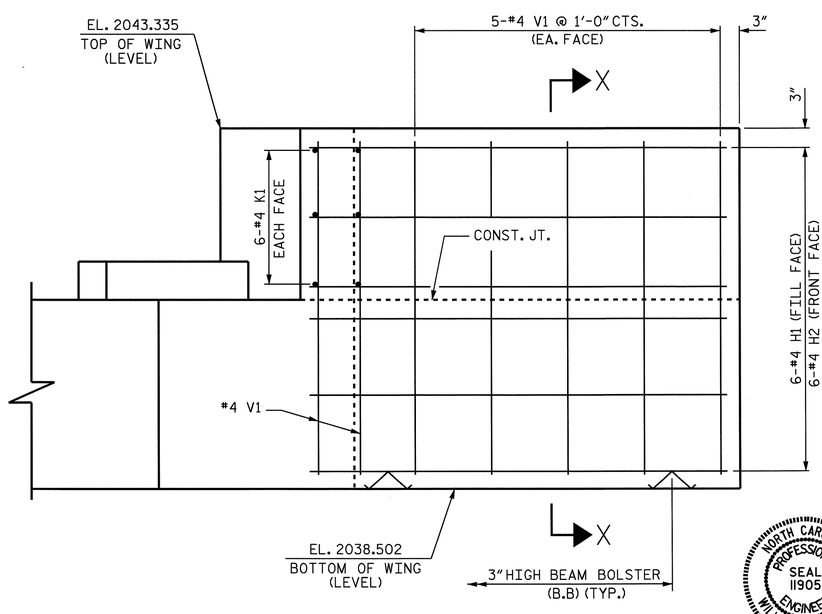


ELEVATION OF WING W3



ELEVATION OF WING W4

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.L. WALTON/QTN DATE : 11/07-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

22-OCT-2008 09:10
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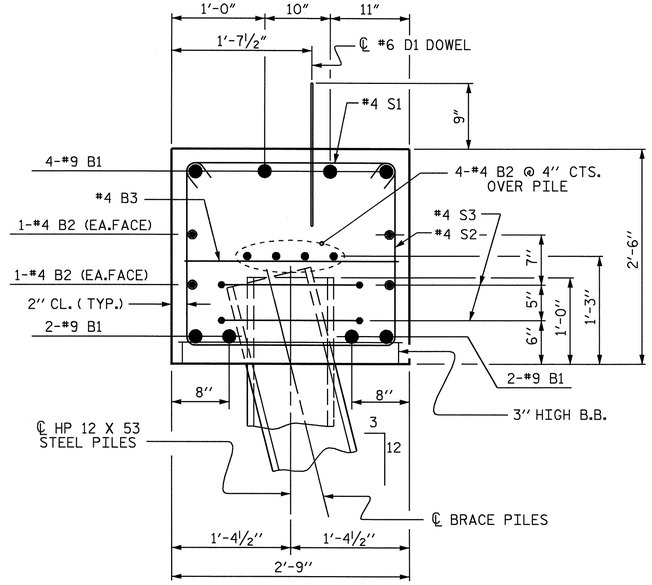
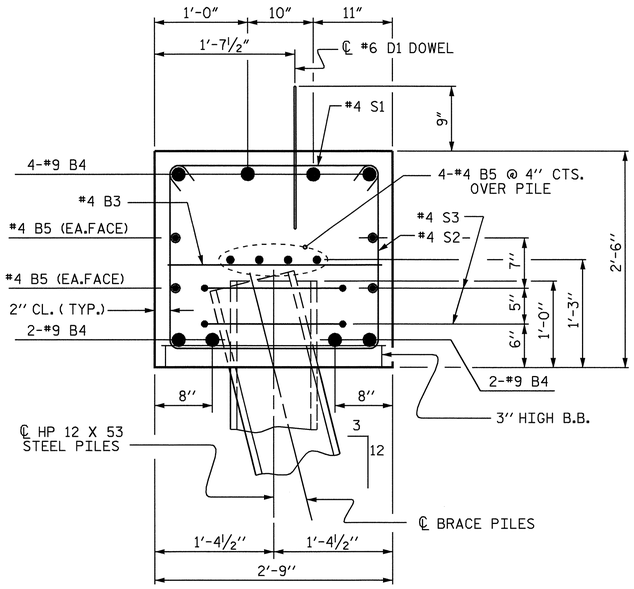
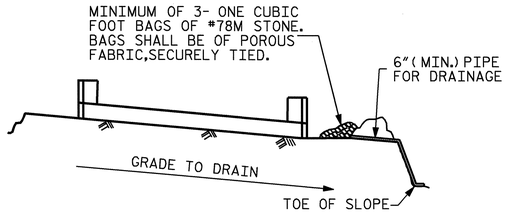
qtnguyen



SECTION A-A



SECTION B-B



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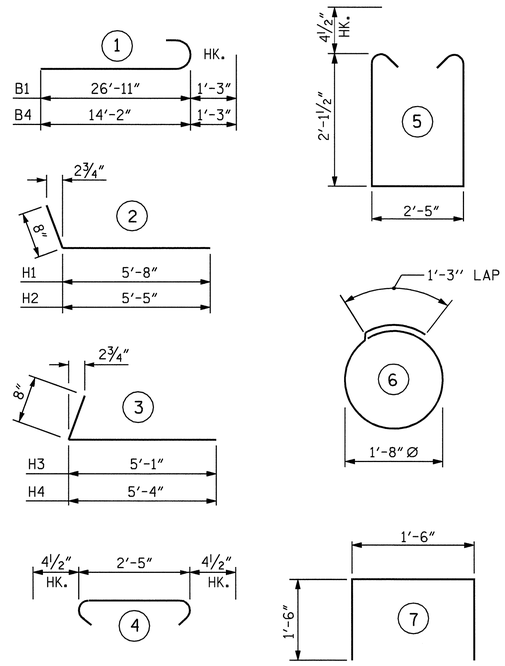
TEMPORARY DRAINAGE AT END BENT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR END BENT 2

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	28'-2"	766
B2	8	#4	STR	28'-4"	151
B3	7	#4	STR	2'-5"	11
D1	14	#6	STR	1'-6"	32
H1	6	#4	2	6'-4"	25
H2	6	#4	2	6'-1"	24
K1	6	#4	STR	3'-3"	13
S1	25	#4	4	3'-2"	53
S2	25	#4	5	7'-5"	124
S3	8	#4	6	6'-6"	35
U1	2	#4	7	4'-6"	6
V1	20	#4	STR	4'-6"	60

REINFORCING STEEL = 1300 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1: CAP & LOWER PART OF WING
C.Y. 7.0

POUR #2: UPPER PART OF WING
C.Y. 0.7

POUR #3: LATERAL GUIDE
C.Y. 0.1

TOTAL CLASS A CONCRETE
C.Y. 7.8

HP 12 X 53 STEEL PILES
NO. 4 LIN. FT. 20
STEEL PILE POINTS EA. 4

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B3	4	#4	STR	2'-5"	6
B4	8	#9	1	15'-5"	419
B5	8	#4	STR	15'-2"	81
D1	8	#6	STR	1'-6"	18
H3	6	#4	3	5'-9"	23
H4	6	#4	3	6'-0"	24
K1	6	#4	STR	3'-3"	13
S1	15	#4	4	3'-2"	32
S2	15	#4	5	7'-5"	74
S3	6	#4	6	6'-6"	26
U1	2	#4	7	4'-6"	6
V2	20	#4	STR	4'-5"	59

REINFORCING STEEL = 781 LBS

CLASS A CONCRETE BREAKDOWN

POUR #1: CAP & LOWER PART OF WING
C.Y. 4.5

POUR #2: UPPER PART OF WING
C.Y. 0.7

POUR #3: LATERAL GUIDE
C.Y. 0.1

TOTAL CLASS A CONCRETE
C.Y. 5.3

HP 12 X 53 STEEL PILES
NO. 3 LIN. FT. 15
STEEL PILE POINTS EA. 3

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
11/3/08

PROJECT NO. B-3635
CHEROKEE COUNTY
STATION: 17+32.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : J.L. WALTON/QTN DATE : 2/07-6/08
CHECKED BY : P.K. NEWTON DATE : 10/13/08

03-NOV-2008 09:20
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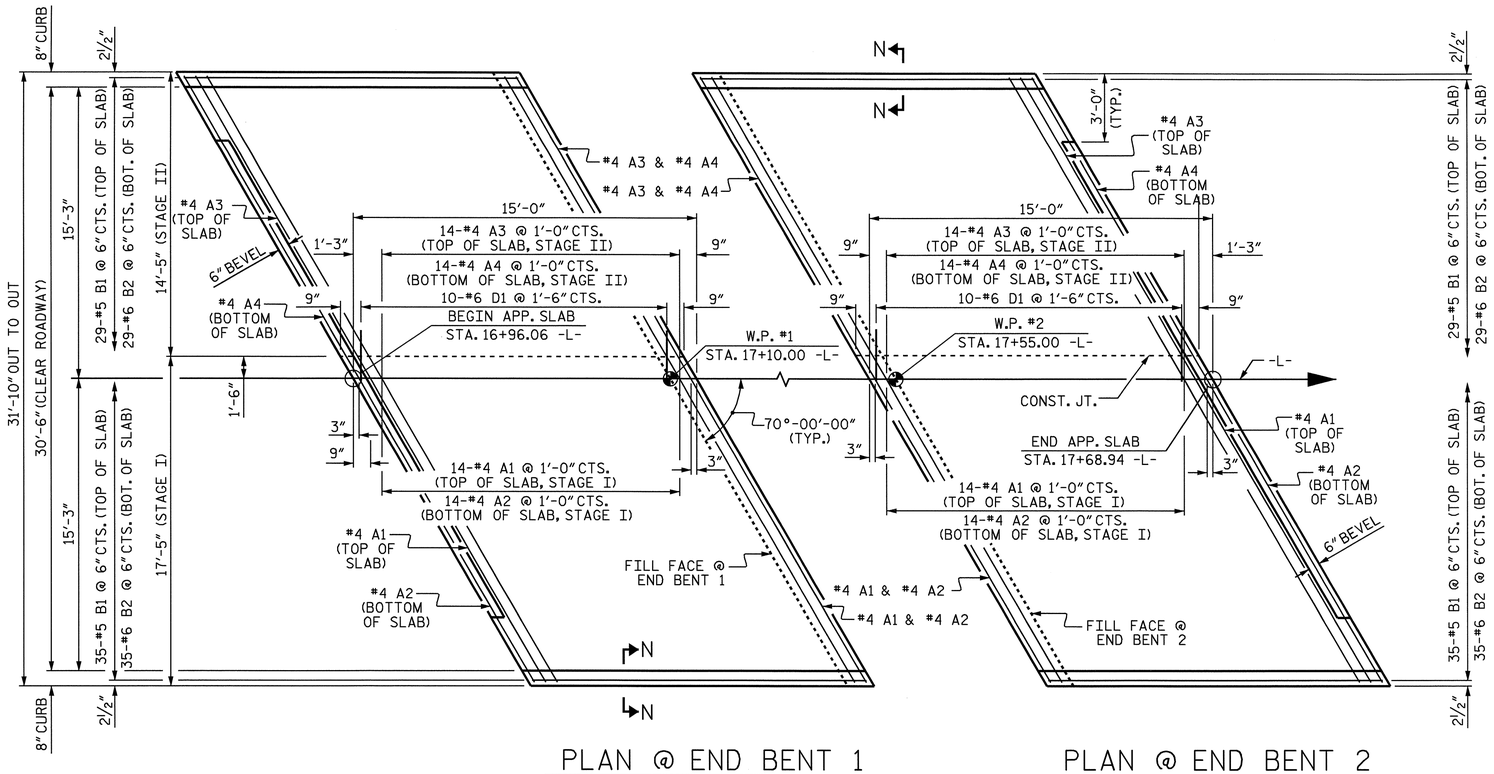
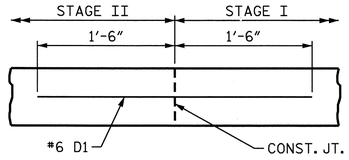
qtnguyen



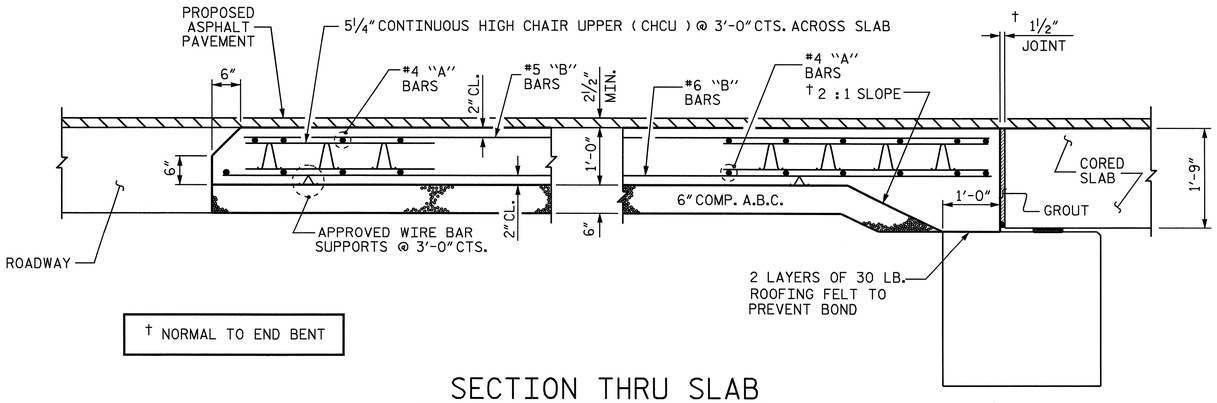
PLAN @ END BENT 1

PLAN @ END BENT 2

(DIMENSIONS ARE TYPICAL FOR BOTH APPROACH SLABS)

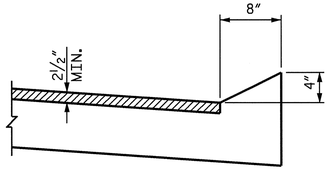


DOWEL DETAIL
(ELEVATION VIEW)

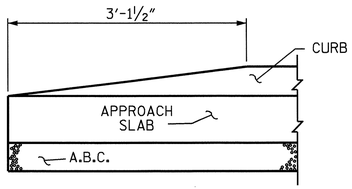


† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

BILL OF MATERIAL — APPROACH SLAB AT EB 1 STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	16	#4	STR	18′-2″	194
A2	16	#4	STR	18′-2″	194
✳B1	35	#5	STR	14′-3″	520
B2	35	#6	STR	14′-7″	767
✳D1	10	#6	STR	3′-0″	45
REINFORCING STEEL			LBS.		961
✳EPOXY COATED REINFORCING STEEL			LBS.		759
CLASS AA CONCRETE			C.Y.		11.4

BILL OF MATERIAL — APPROACH SLAB AT EB 2 STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A1	16	#4	STR	18′-2″	194
A2	16	#4	STR	18′-2″	194
✳B1	35	#5	STR	14′-3″	520
B2	35	#6	STR	14′-7″	767
✳D1	10	#6	STR	3′-0″	45
REINFORCING STEEL			LBS.		961
✳EPOXY COATED REINFORCING STEEL			LBS.		759
CLASS AA CONCRETE			C.Y.		11.4

APPROACH SLAB AT EB 1 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	16	#4	STR	14′-11″	159
A4	16	#4	STR	14′-11″	159
✳B1	29	#5	STR	14′-3″	431
B2	29	#6	STR	14′-7″	635
REINFORCING STEEL			LBS.		794
✳EPOXY COATED REINFORCING STEEL			LBS.		590
CLASS AA CONCRETE			C.Y.		9.4

APPROACH SLAB AT EB 2 STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳A3	16	#4	STR	14′-11″	159
A4	16	#4	STR	14′-11″	159
✳B1	29	#5	STR	14′-3″	431
B2	29	#6	STR	14′-7″	635
REINFORCING STEEL			LBS.		794
✳EPOXY COATED REINFORCING STEEL			LBS.		590
CLASS AA CONCRETE			C.Y.		9.4

NOTES

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6″ COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1′-0″ OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

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

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

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

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

APPROACH SLAB GROOVING IS NOT REQUIRED.

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/22/08

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			24

ASSEMBLED BY : J.L. WALTON/QTN		DATE : 2/07-6/08	
CHECKED BY : H.B. SHAH		DATE : 10/13/08	
DRAWN BY : FCJ 6/87	REV. 7/10/01	LES/RDR	
CHECKED BY : EGA 6/87	REV. 5/7/03R	RWW/JTE	
	REV. 5/1/06R	KMM/GM	

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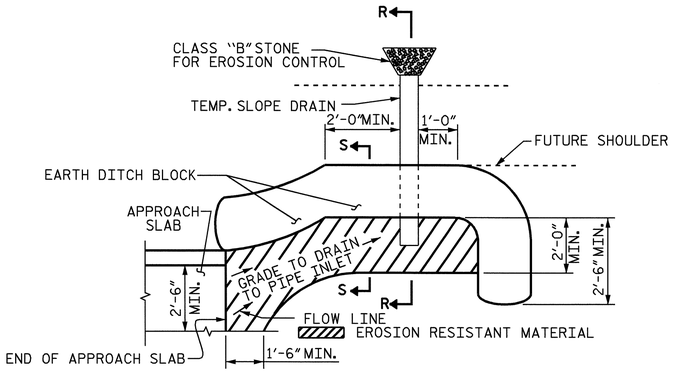
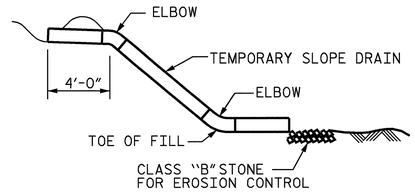
STD. NO. BAS7 (SHT 3)

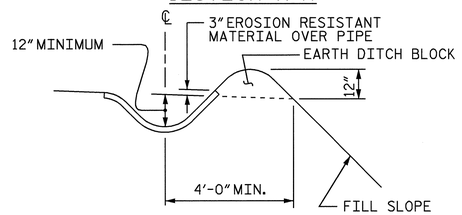


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW



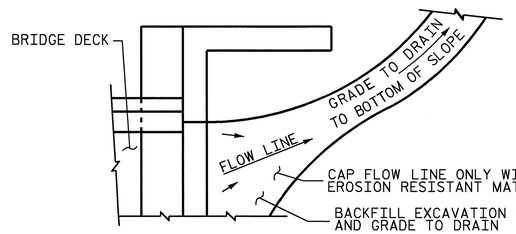
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

NORTH CAROLINA PROFESSIONAL SEAL 11905 ENGINEER WILLIAM A. DAVIS
10/22/08

PROJECT NO. B-3635

CHEROKEE COUNTY

STATION: 17+32.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

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

STD. NO. BAS10

ASSEMBLED BY : J.L. WALTON/QTN		DATE : 2/07-6/08	
CHECKED BY : H.B SHAH		DATE : 10/13/08	
DRAWN BY : FCJ	11/88	REV. 10/17/00	RWW/LES
CHECKED BY : ARB	11/88	REV. 5/7/03	RWW/JTE
		REV. 5/1/06R	MAA/KMM

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qtnguyen

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM ω RGW REV. 6-27-02 RWW ω JTE
REV. 8-16-99 RWW ω LES