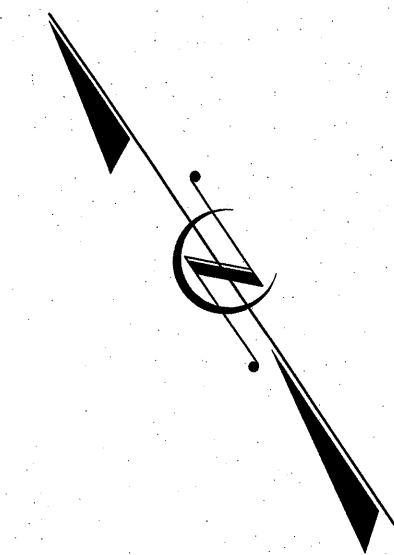


09/08/09

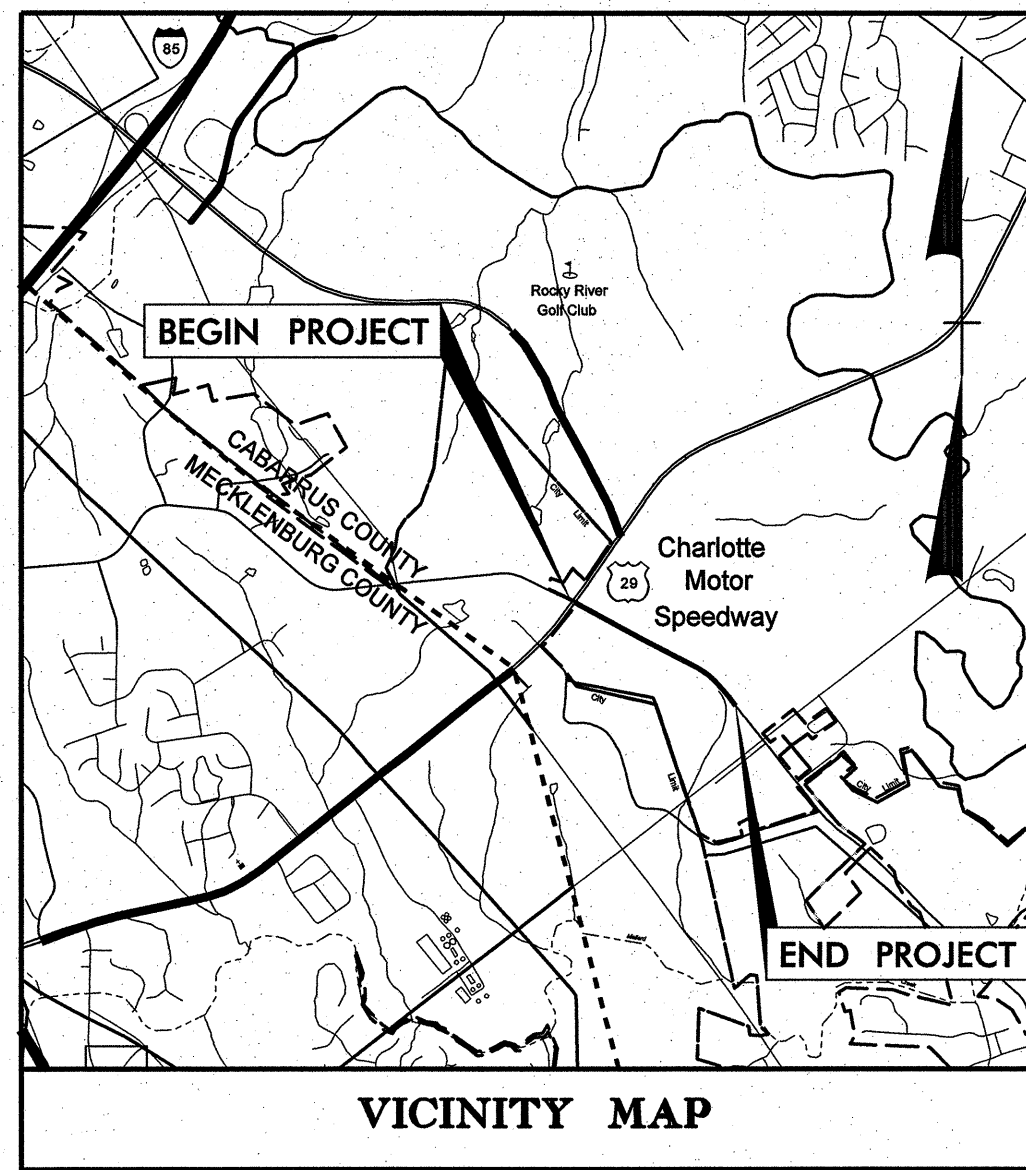
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS CABARRUS COUNTY



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5145		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
WBS 42729.1.1		P.E.	
WBS 42729.3.1		CONST.	

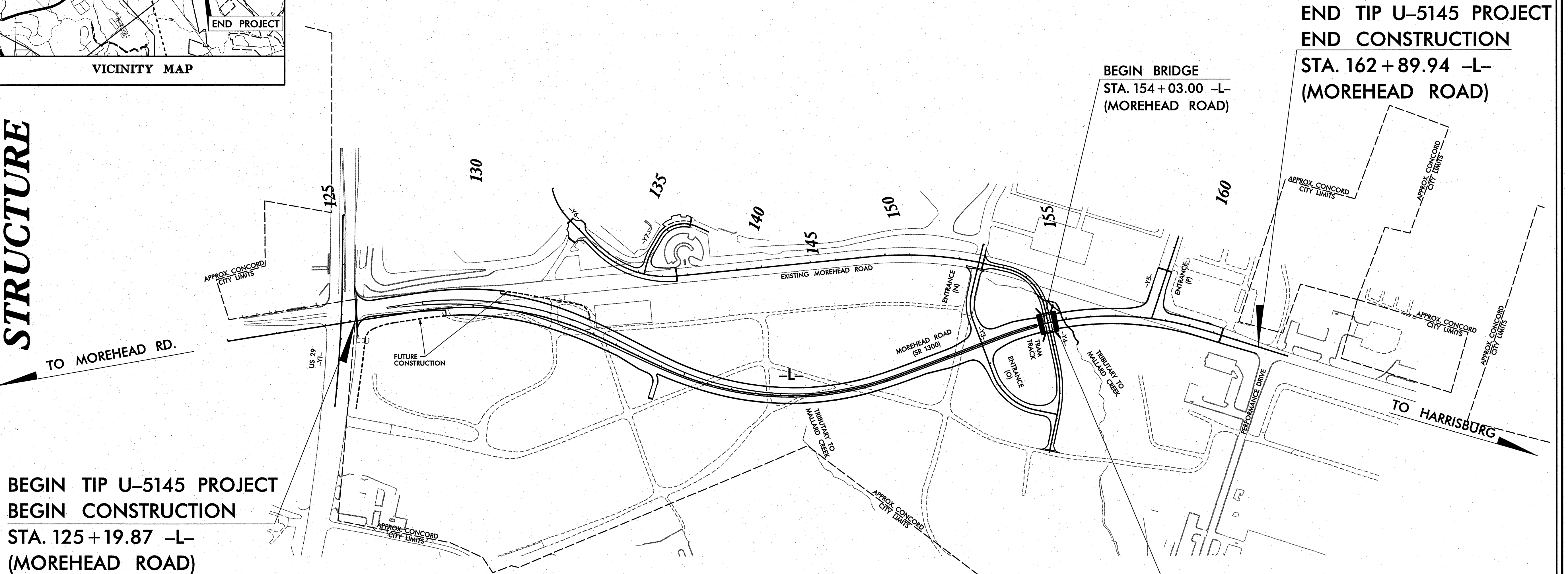
TIP PROJECT: U-5145



**LOCATION: MOREHEAD ROAD (SR 1300) FROM EAST OF US 29
TO WEST OF PERFORMANCE DRIVE**

TYPE OF WORK: STRUCTURE

STRUCTURE



**BEGIN TIP U-5145 PROJECT
BEGIN CONSTRUCTION
STA. 125+19.87 -L-
(MOREHEAD ROAD)**

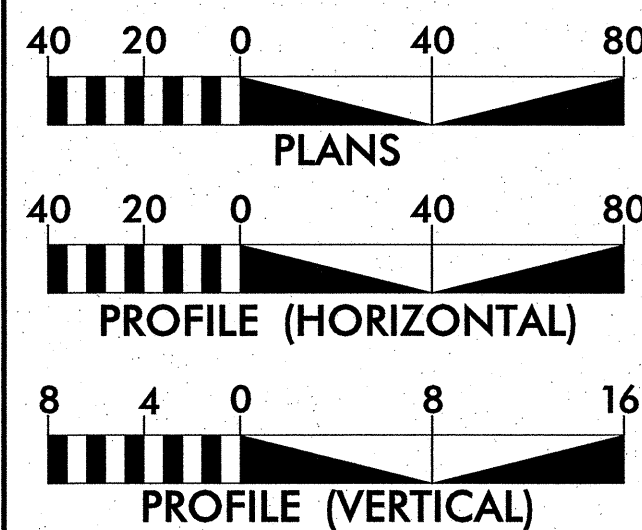
**END BRIDGE
STA. 154+47.00 -L-
(MOREHEAD ROAD)**

INDEX OF SHEETS

SM-1 THRU SM-16	STRUCTURE PLANS
SN	STANDARD NOTES
W-1	MSE RETAINING WALL ENVELOPE
W-2	MSE RETAINING WALL DETAIL & NOTES

CONTRACT 202388

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 13,900
ADT 2017 = 18,000
DHV = 10 %
T = 5 % *
V = 50 MPH

* (2% TTST & 3% DUAL)

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT = 0.706 MILES
LENGTH OF STRUCTURE PROJECT = 0.008 MILES

TOTAL LENGTH OF PROJECT = 0.714 MILES



2006 STANDARD SPECIFICATIONS

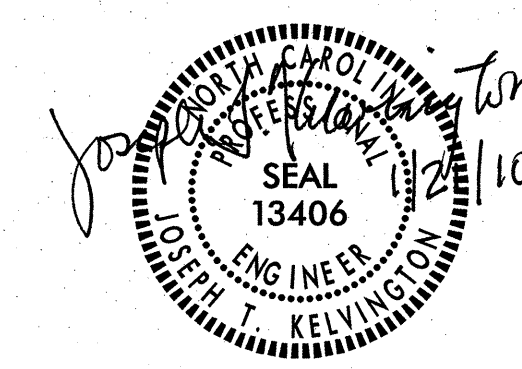
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JOSEPH T. KELVINGTON, P.E.
PROJECT ENGINEER

LETTING DATE:
MARCH 16, 2010

NCDOT CONTACT: MARC MORGAN, PE
DISTRICT ENGINEER - DIV 10 - DIST 1

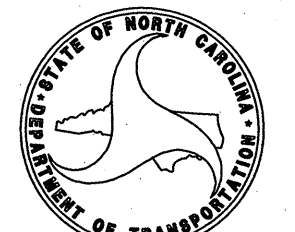
STRUCTURE DESIGN ENGINEER



SIGNATURE: _____ P.E.



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



at miller P.E.
STATE HIGHWAY DESIGN ENGINEER

I:\2010\uf\structures\morehead_road_over_tramway\drawing\morehead_rdy_tsh.dgn
brpalmer

PI = 155+25.00
 EL = 670.07'
 VC = 500'
 (-)2.8350% (+)1.9702%

PROFILE SURVEY -L-

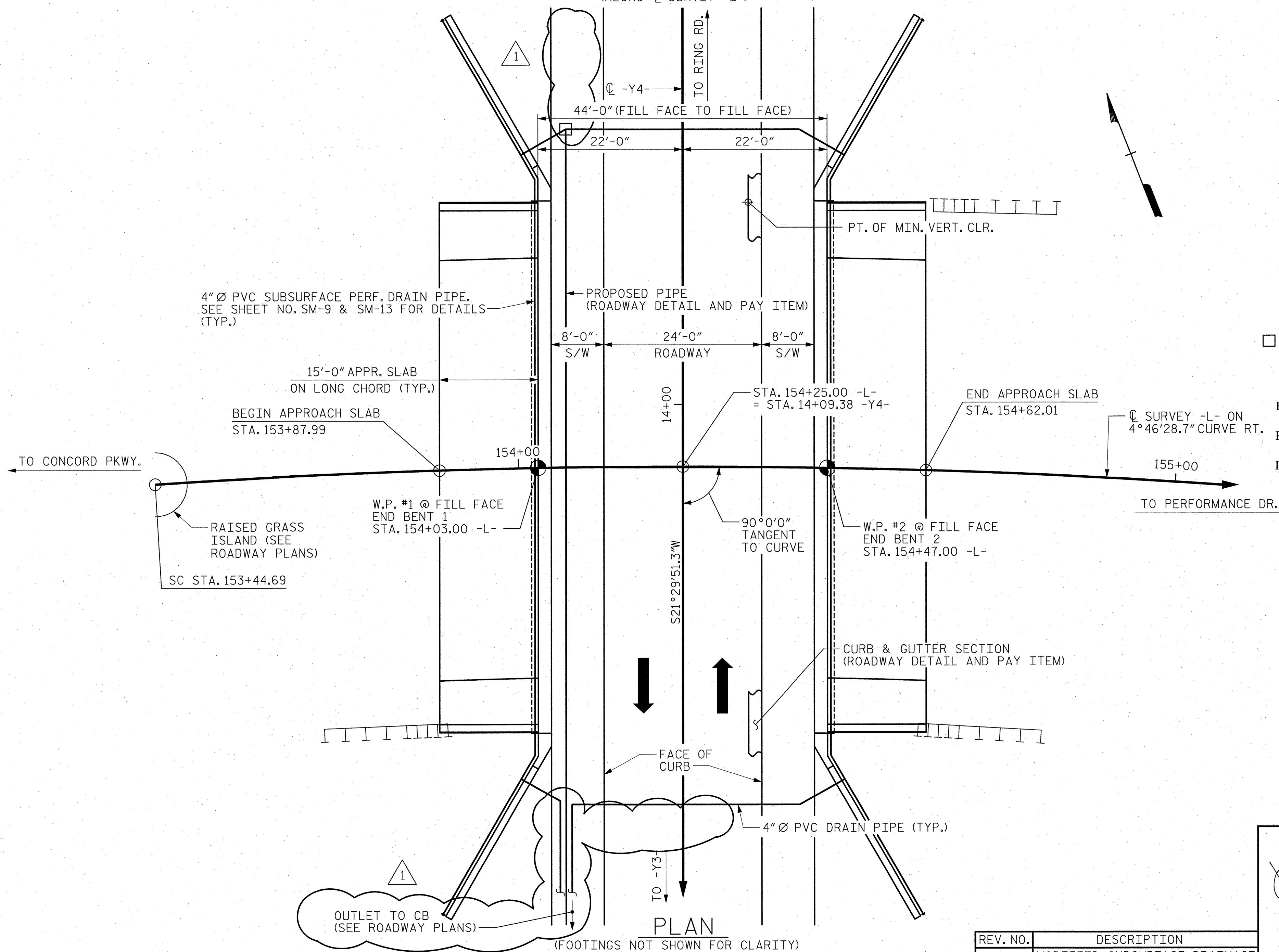
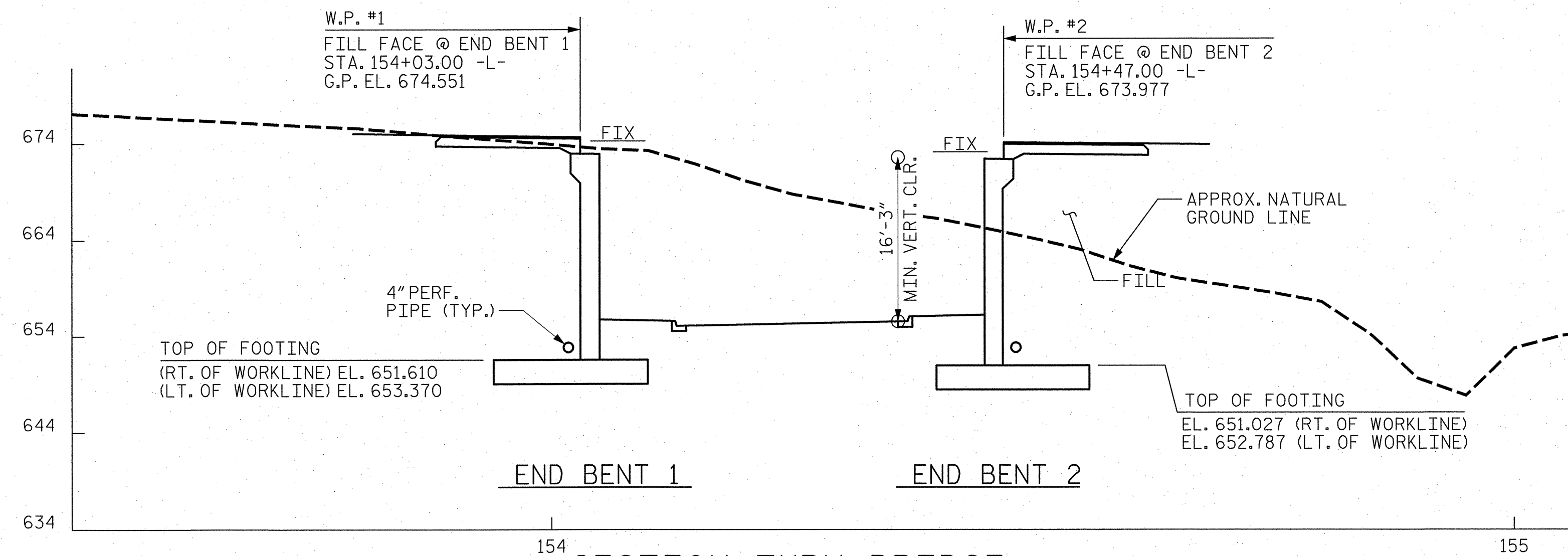
PI = 13+25.00
 EL = 658.75'
 VC = 80'
 (-)4.000%

PI = 16+00.00
 EL = 647.75'
 VC = 260'

PROFILE -Y4-

PI STA. = 156+56.74
 $\Delta = 29^{\circ}09'12.4''$ (RT)
 $D = 4^{\circ}46'28.7''$
 $L = 610.59$
 $T = 312.06$
 $R = 1,200.00'$

-L- CURVE DATA



NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.
- NO KNOWN UTILITY CONFLICTS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- 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 SPICE OF THIRTY BAR DIAMETERS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- THE SPREAD FOOTINGS AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 5 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED RESISTANCE OF 15 TSF JUST BEFORE PLACING CONCRETE.
- CONTRACTOR SHALL DEWATER FOUNDATION EXCAVATIONS AS NECESSARY TO MAINTAIN SATISFACTORY SITE CONDITIONS FOR REQUIRED SOIL BEARING CAPACITY AND CONCRETE PLACEMENT.
- EMBANKMENTS BEHIND END BENT WALLS SHALL BE CONSTRUCTED AS SHOWN WITHIN THE PLANS AND IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 410-8 OF THE STANDARD SPECIFICATIONS.
- EMBANKMENTS BEHIND END BENT WALLS SHALL NOT BE CONSTRUCTED UNTIL ALL END BENT CONCRETE HAS ACHIEVED A MINIMUM COMPRESSIVE STRENGTH, $f'_c = 3000$ PSI.
- CRANES AND OTHER HEAVY EQUIPMENT SHALL NOT BE PERMITTED TO OPERATE WITHIN 20 FEET OF END BENT WALLS ONCE EMBANKMENT IS COMPLETE WITHOUT THE APPROVAL OF THE ENGINEER.
- DENOTES JUNCTION BOX, ROADWAY DETAIL AND PAY ITEM.
- PWR CAN BE EXPECTED TO BE ENCOUNTERED AT APPROXIMATE ELEVATIONS RANGING FROM 651.7 TO 659.5 (DEPTH OF 6 TO 13.5 FEET).
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.
- FOR BRIDGE MOUNTED CHAIN LINK FENCE, SEE SPECIAL PROVISIONS.

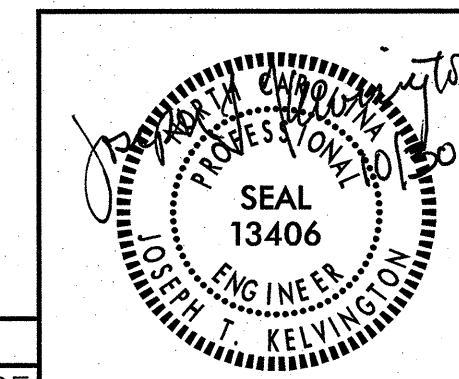


PROJECT NO. 42729 (U-5145)
 CABARRUS COUNTY
 STATION: 154+25.00 -L-

SHEET 1 of 4 BRIDGE NO. 120386

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

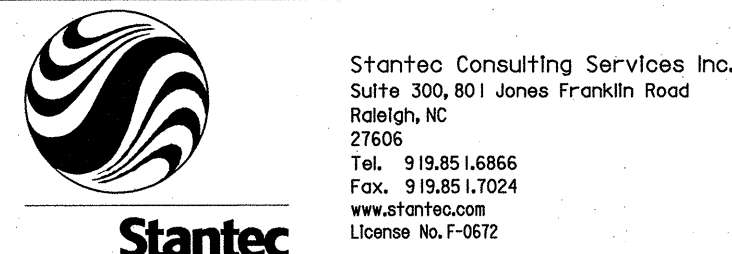
GENERAL DRAWING
 BRIDGE ON MOREHEAD ROAD
 OVER TRAMWAY



REV. NO.	DESCRIPTION
1	MODIFIED SUBSURFACE DRAINAGE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-1
1	JTK	11/30/09	3			TOTAL SHEETS
2			4			16

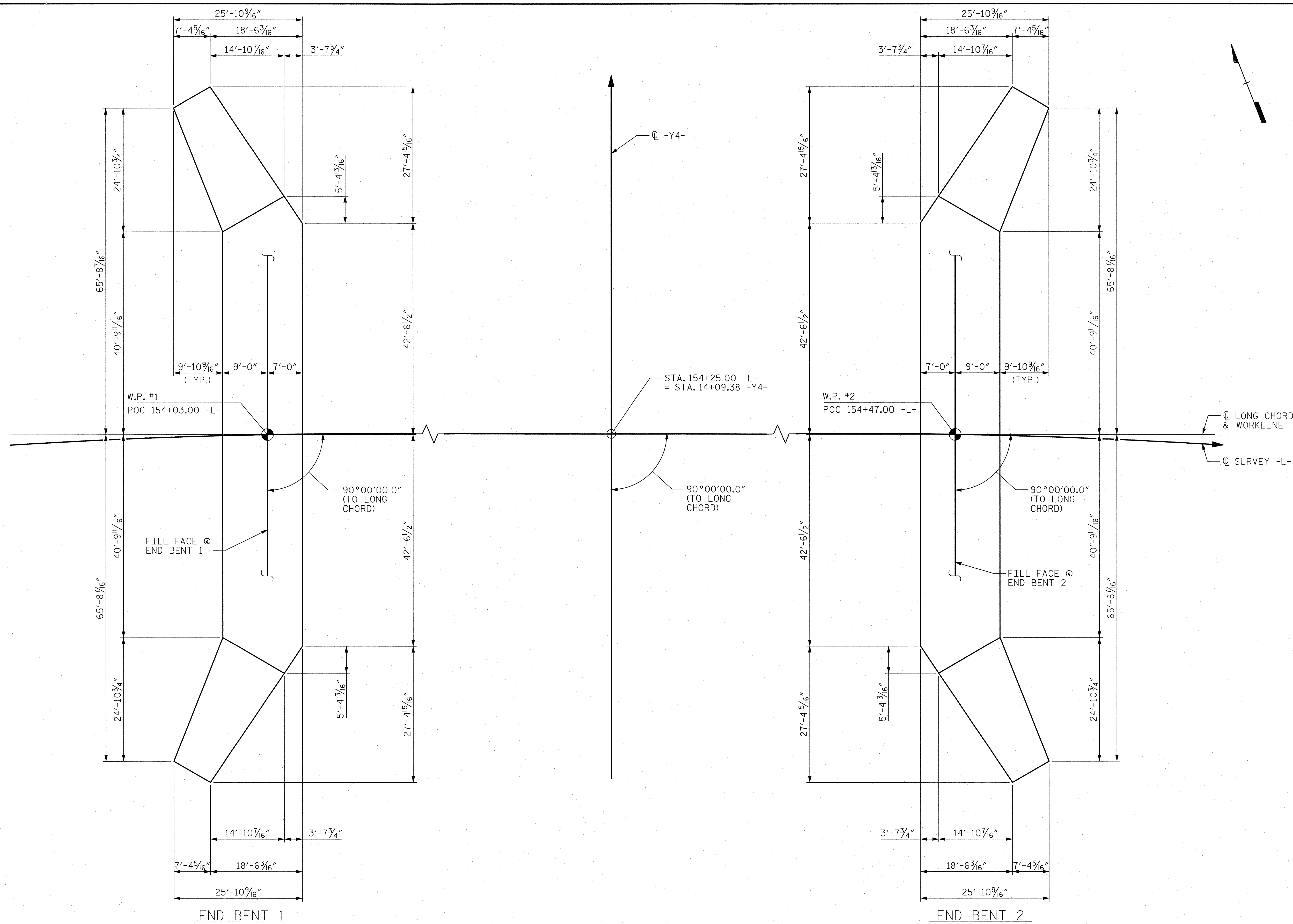
I:\Structures\Morehead Road Over Tramway\Drawing\Morehead.01.GPE.dgn 11/30/2009 3:36:34 PM #USER\$



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 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09

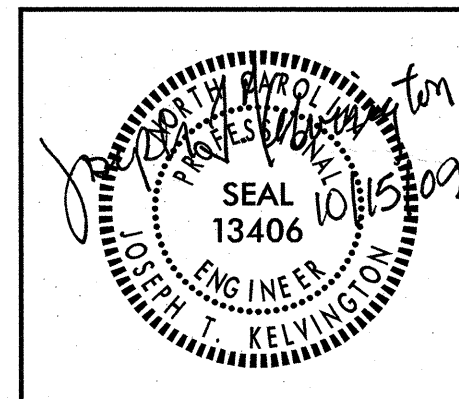
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PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

SHEET 2 of 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING BRIDGE ON MOREHEAD ROAD OVER TRAMWAY					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. SM-2
					TOTAL SHEETS 16

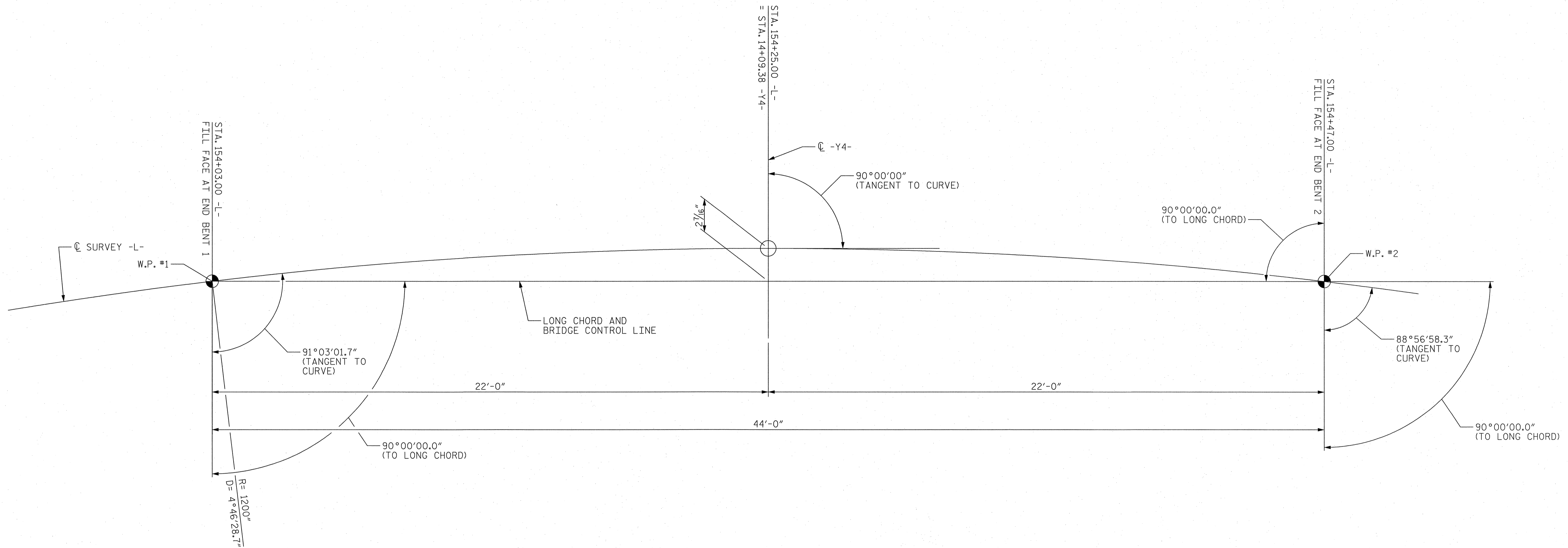


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FOUNDATION LAYOUT PLAN
 (DIMENSIONS ARE SYMMETRICAL ABOUT LONGCHORD, CL WORKLINE, AND CL TRAMWAY)

u:\structures\morehead road over tramway\drawing\morehead.03.LC.dgn 10/16/2009 2:21:01 PM \$USER\$



LONG CHORD LAYOUT
(NOTE: ALL BENTS ARE PARALLEL)

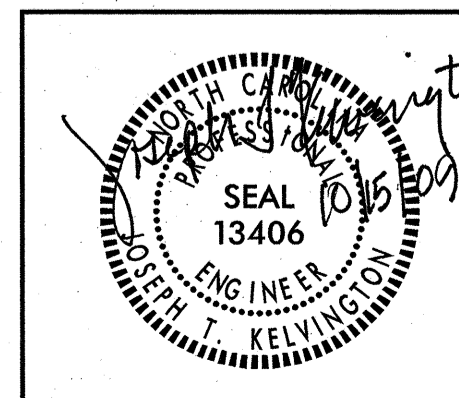


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CABARRUS COUNTY
 STATION: 154+25.00 -L-

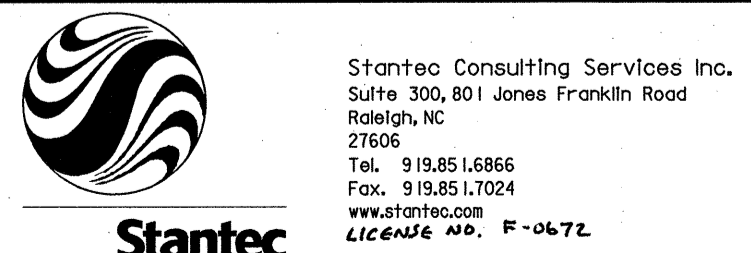
SHEET 3 OF 4

STATE OF NORTH CAROLINA
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 RALEIGH

GENERAL DRAWING
 BRIDGE ON MOREHEAD ROAD
 OVER TRAMWAY

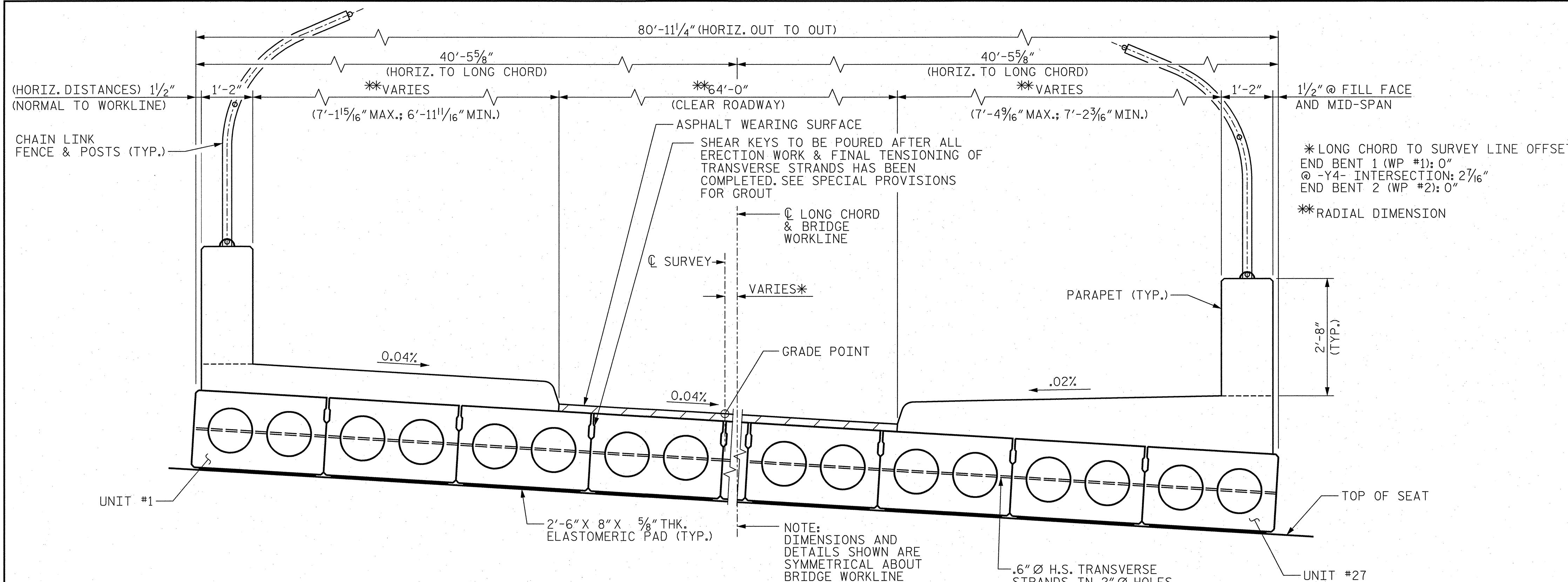


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1			3			TOTAL SHEETS
2			4			16



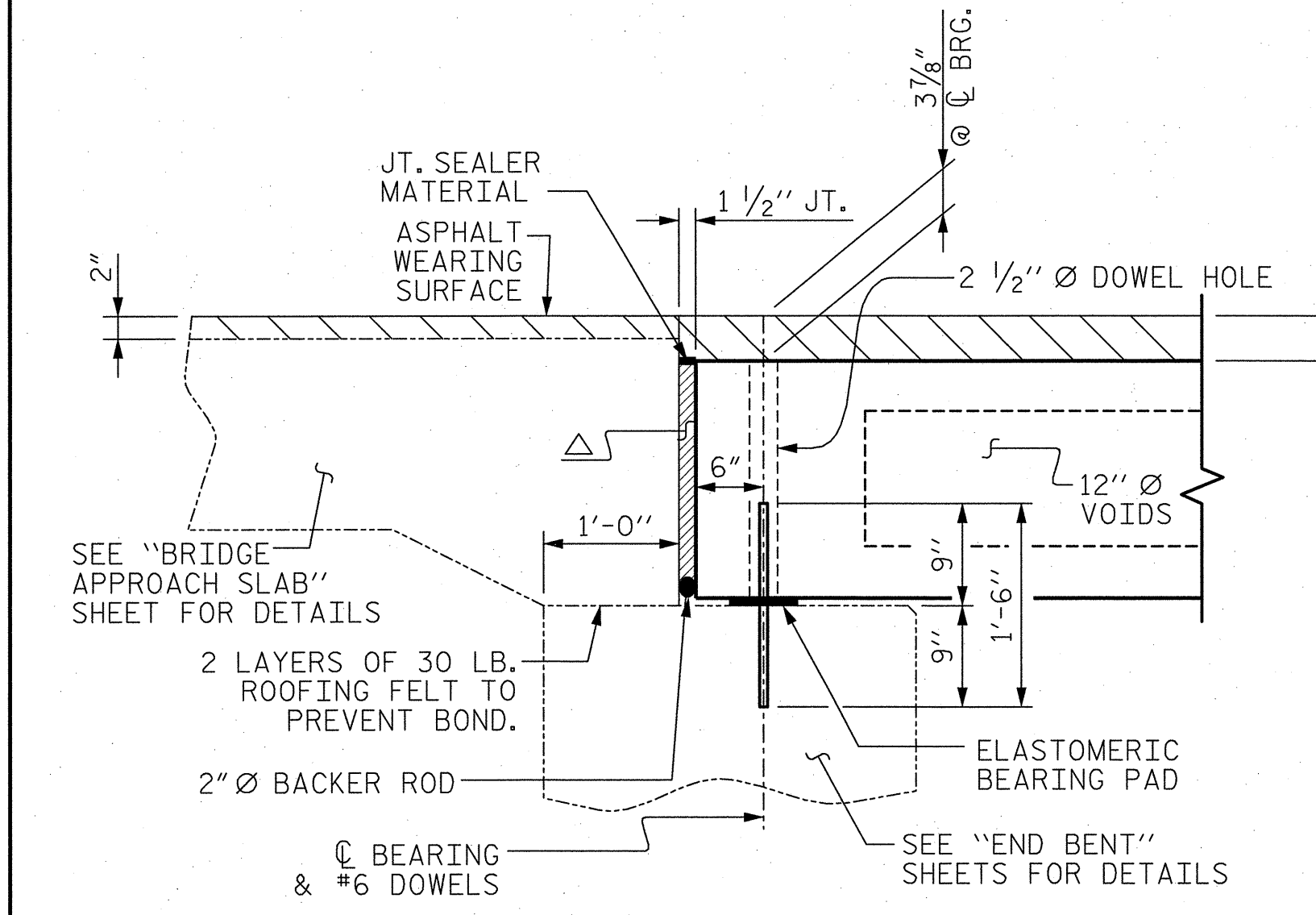
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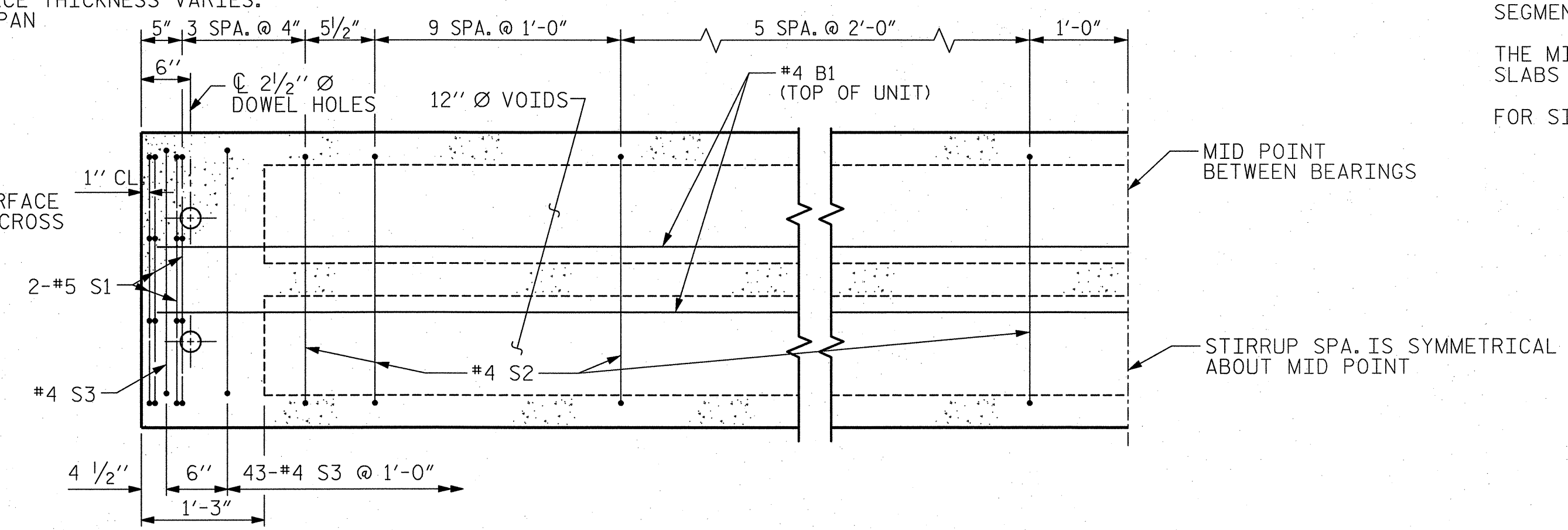
TYPICAL SECTION

NOTE: WEARING SURFACE THICKNESS VARIES. 2" MIN. @ MIDSPAN



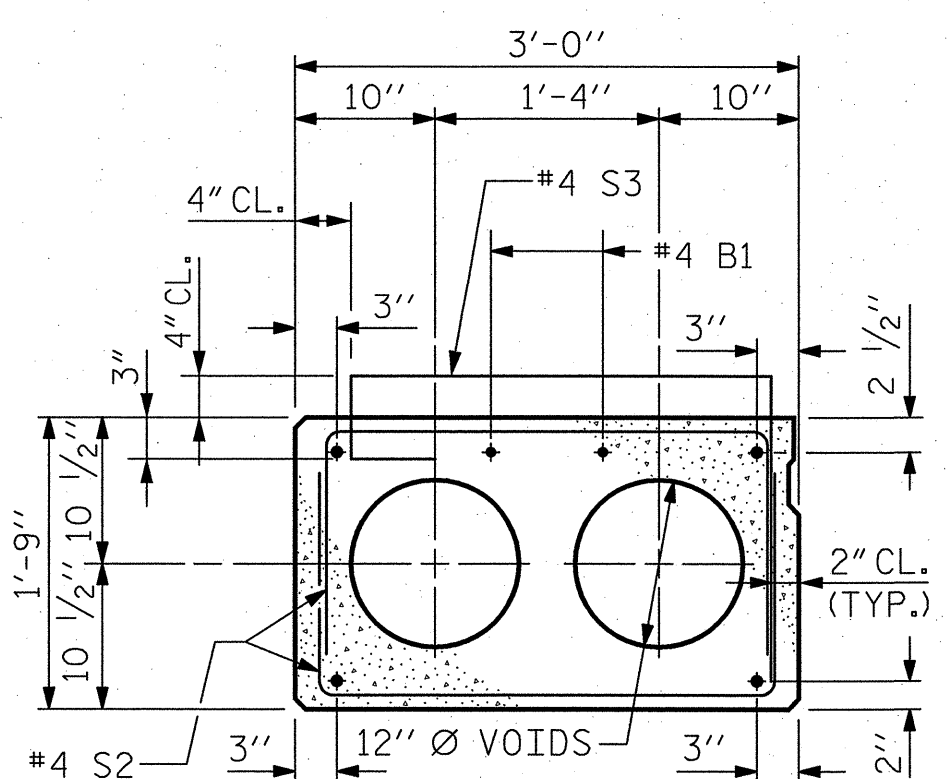
SECTION AT END BENT

△ FILL WITH NON-METALLIC, NON-SHRINK GROUT.



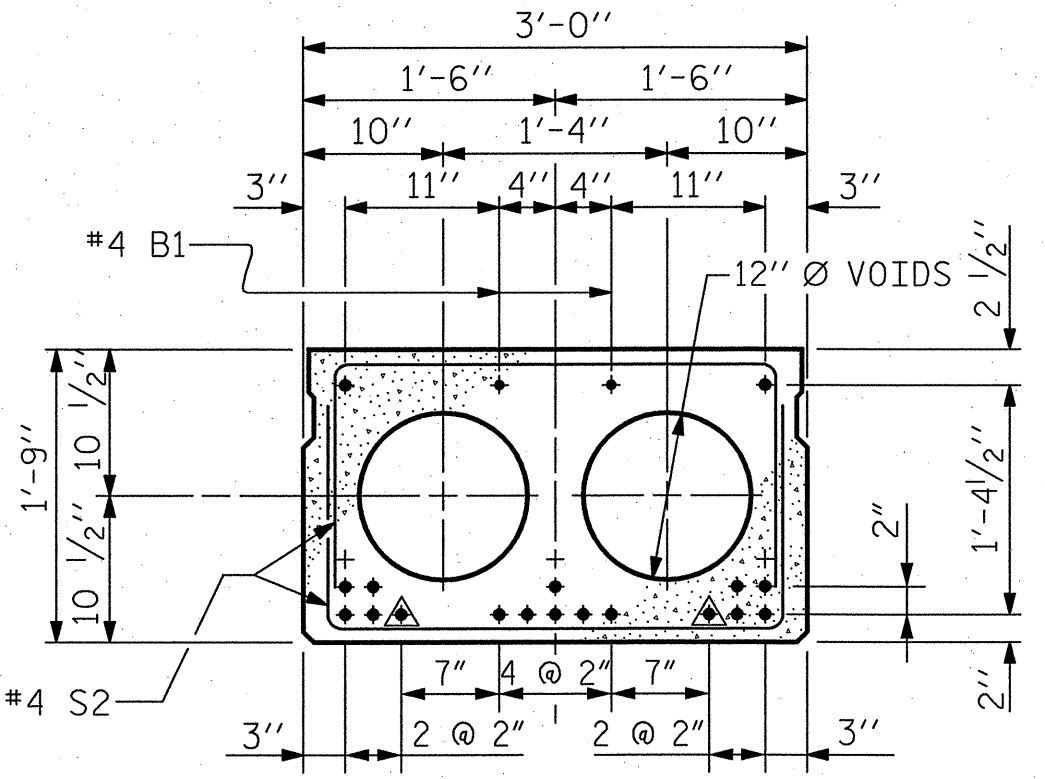
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT # 4 S5 AND # 4 S3.



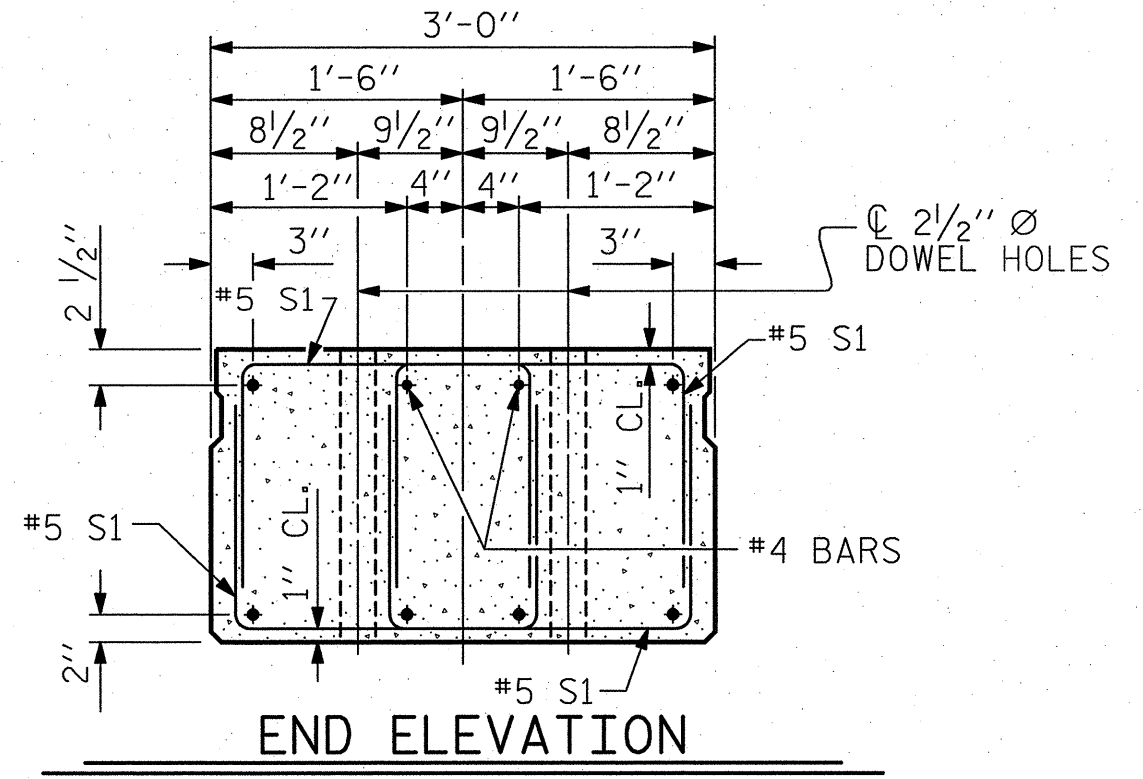
EXTERIOR SLAB SECTION

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



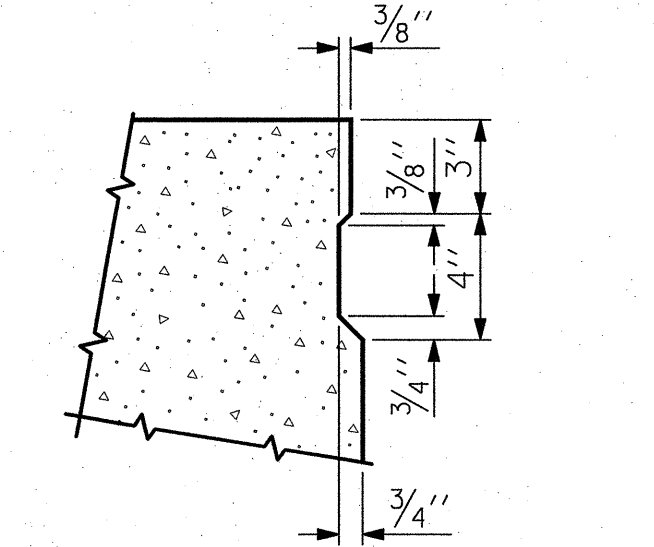
INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT



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.



SHEAR KEY DETAIL

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

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.
- 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 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 SIDWAYS. 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 5000 PSI.
- #4 S3 PROJECTING INTO SIDEWALKS SHALL BE EPOXY COATED.
- #4 S5 EMBEDDED REINFORCING STEEL 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 PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.
- THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE FOR CORED SLABS SHALL NOT BE LESS THAN 6500 PSI.
- FOR SIDEWALK AND PARAPET DETAILS, SEE SHEET SM-6.

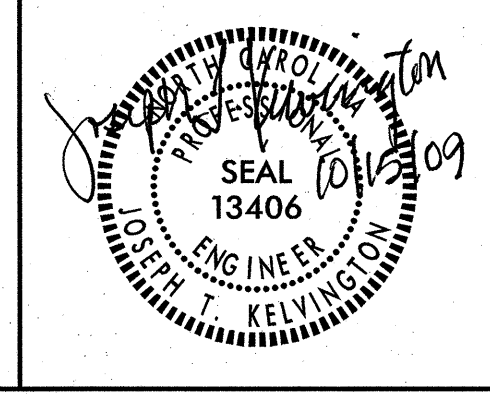


PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. SM-5
					TOTAL SHEETS 16

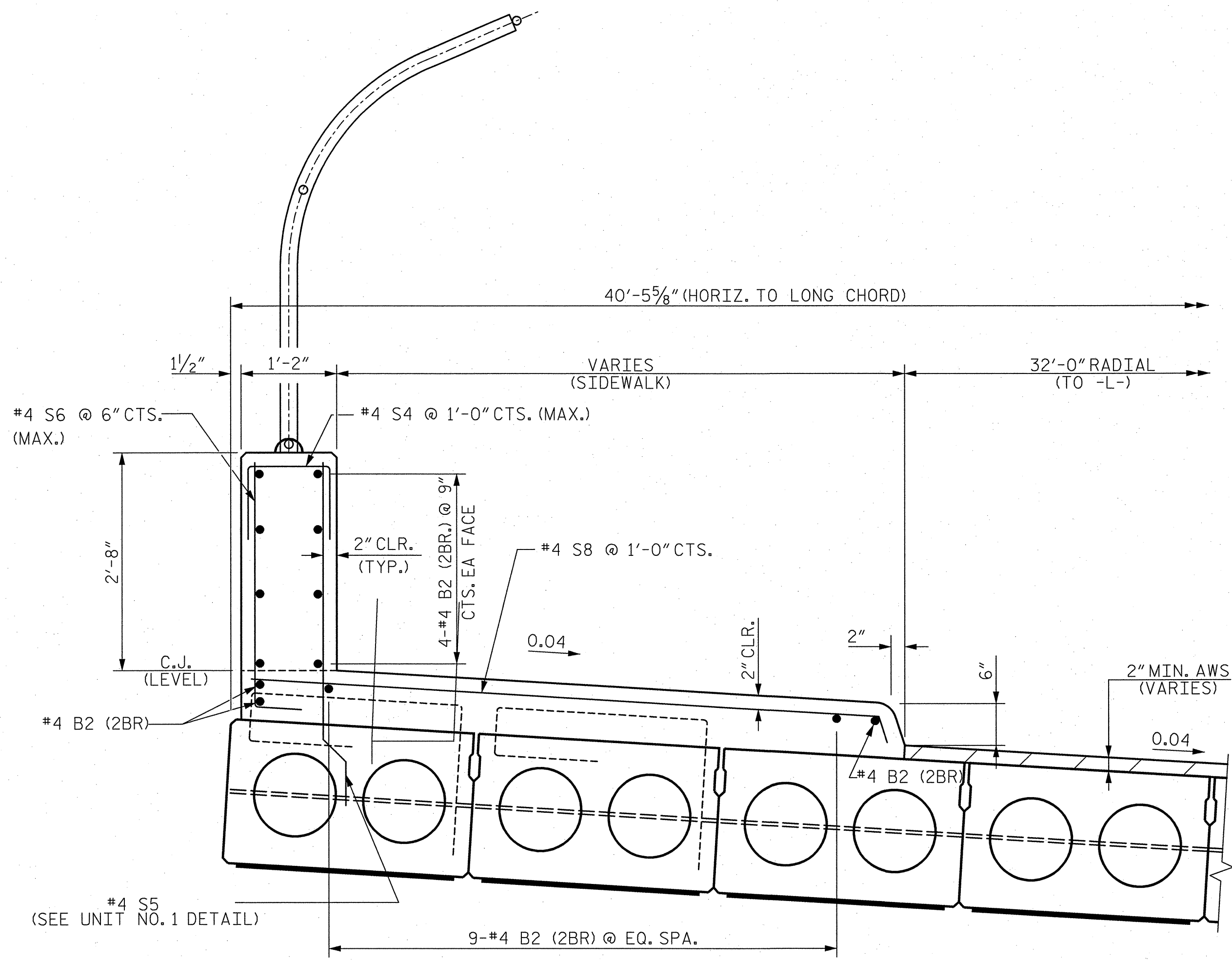
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 CHECKED BY: T. R. DUDECK DATE: 08-17-09



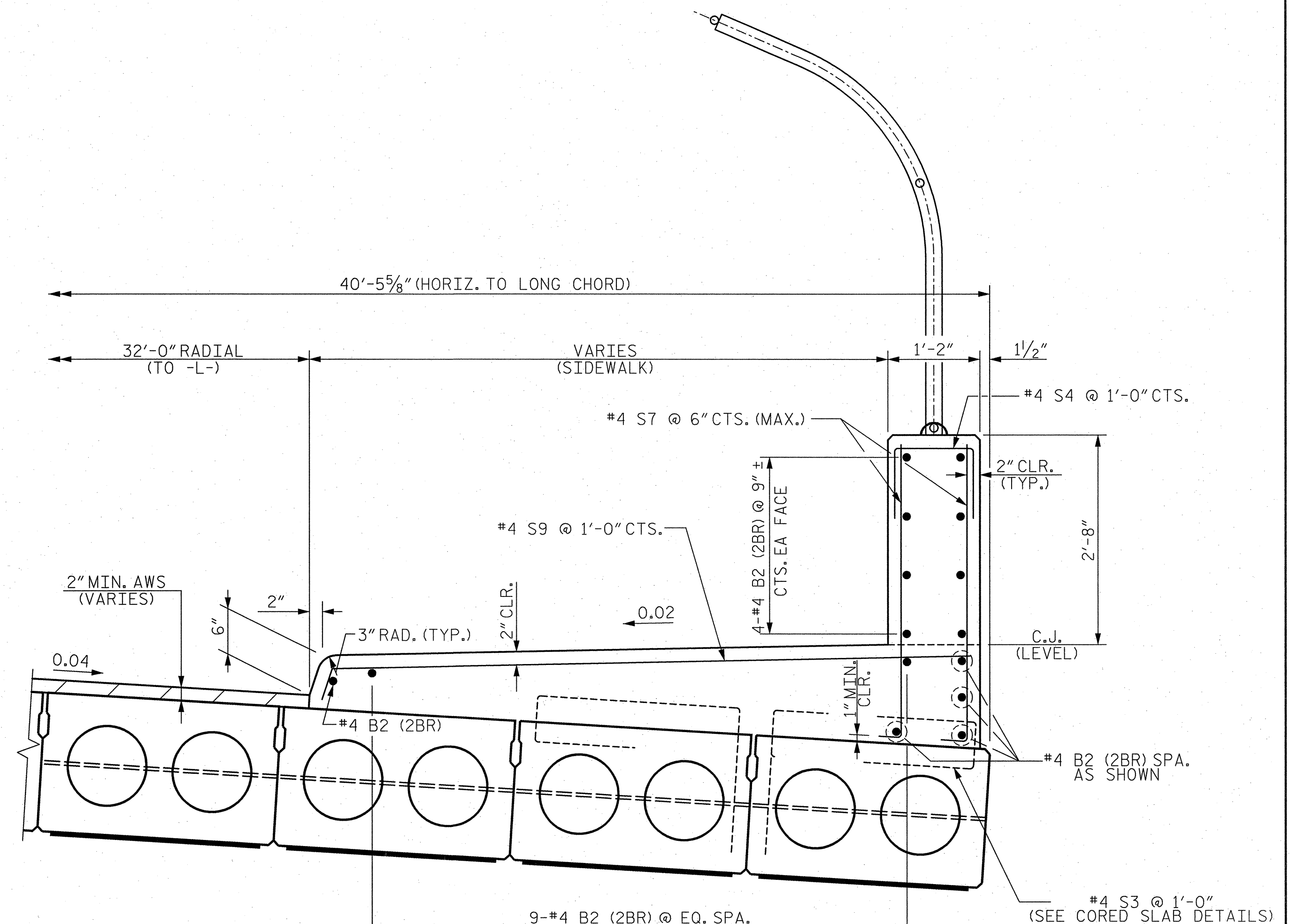
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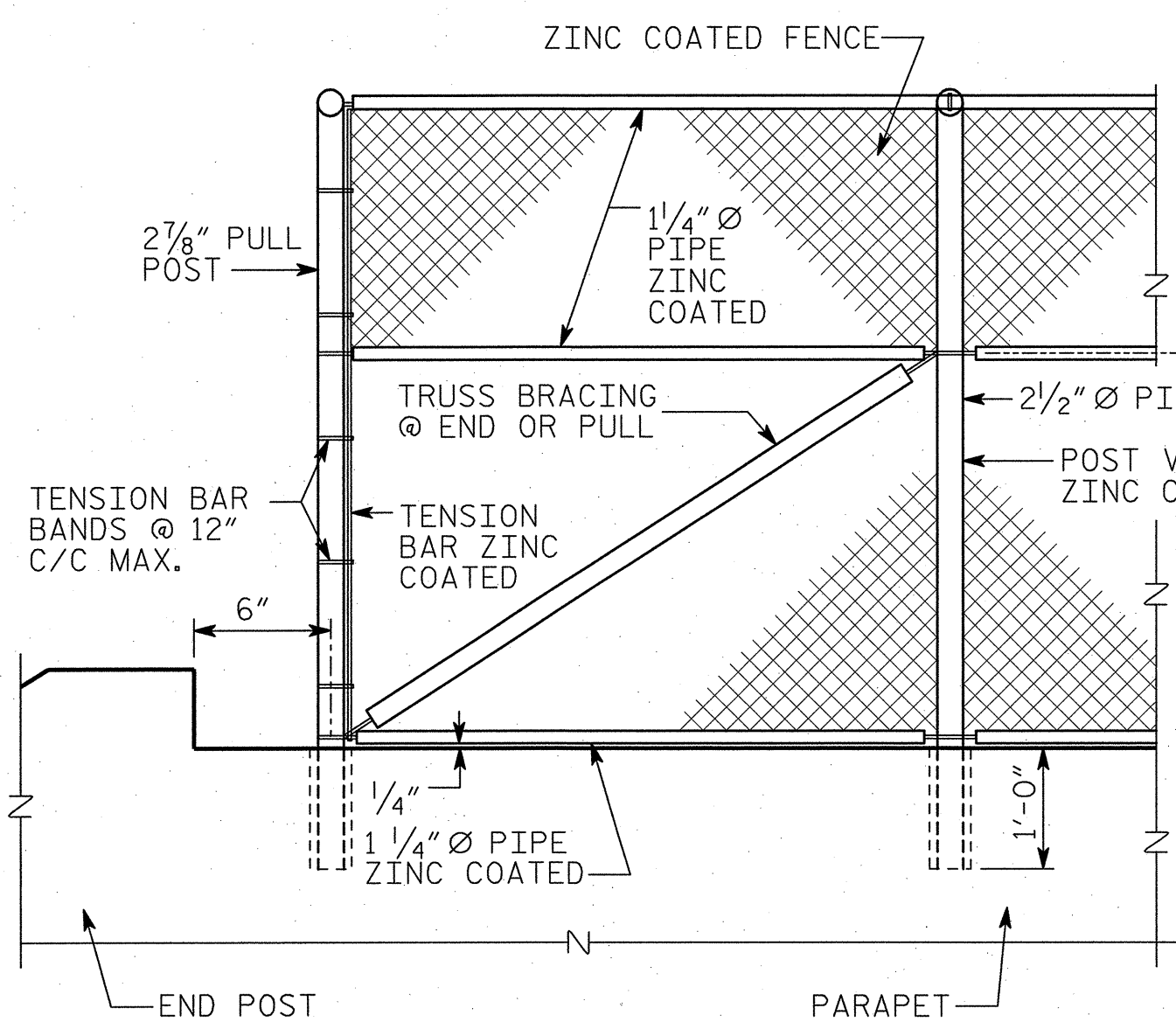
NOTE: (2BR) DENOTES 2 BAR RUN

SECTION THRU LEFT SIDEWALK & PARAPET

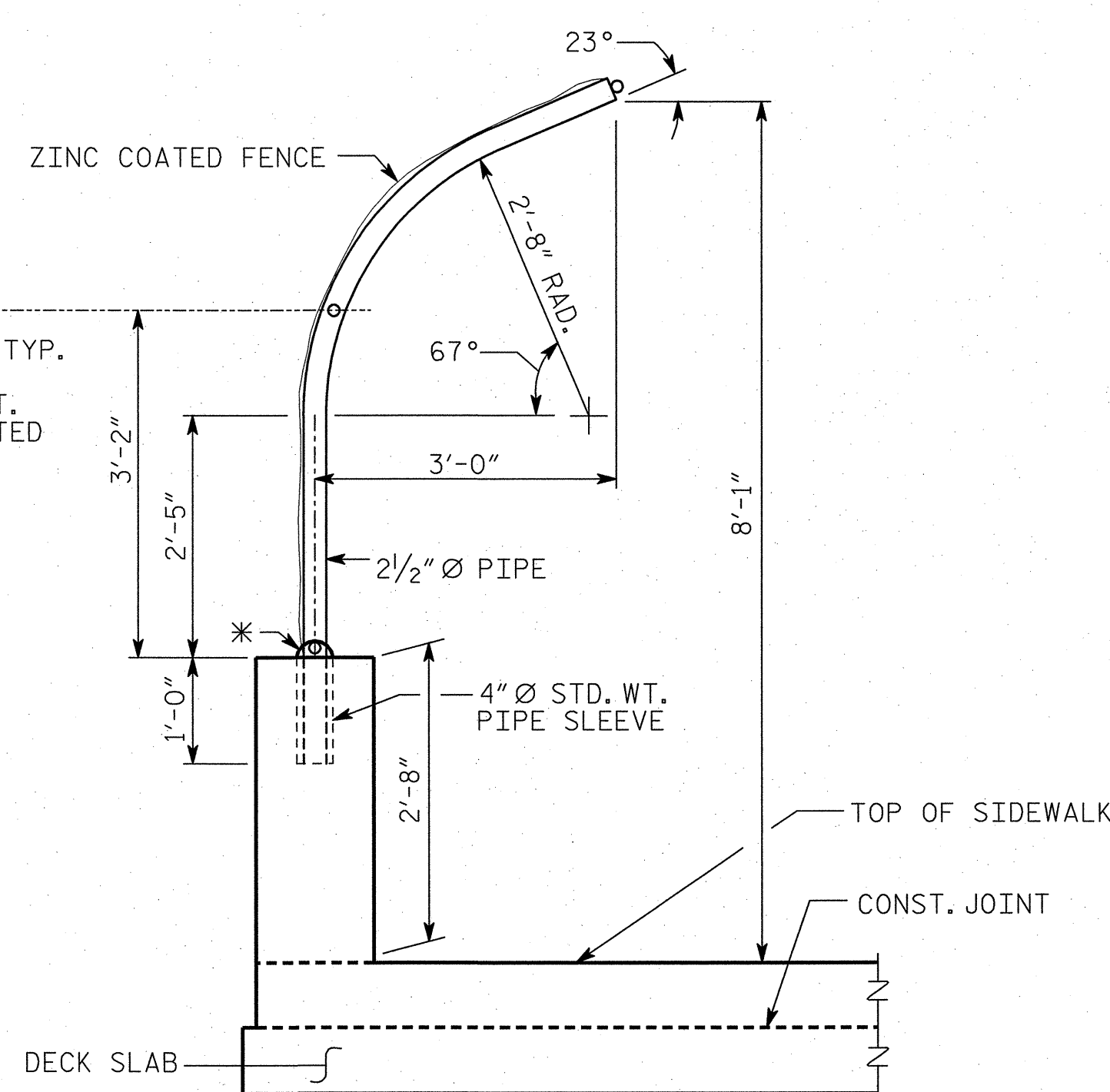


NOTE: (2BR) DENOTES 2 BAR RUN

SECTION THRU RIGHT SIDEWALK & PARAPET



FENCE ELEVATION



FENCE POST DETAIL

*NON-SHRINK, NON-METALLIC PORTLAND CEMENT GROUT, TROWEL TO PROVIDE POSITIVE DRAINAGE.

FENCE NOTES:

FENCE SHALL BE 9 GAGE CHAIN LINK ZINC COATED TWO INCH SECURITY FENCE.

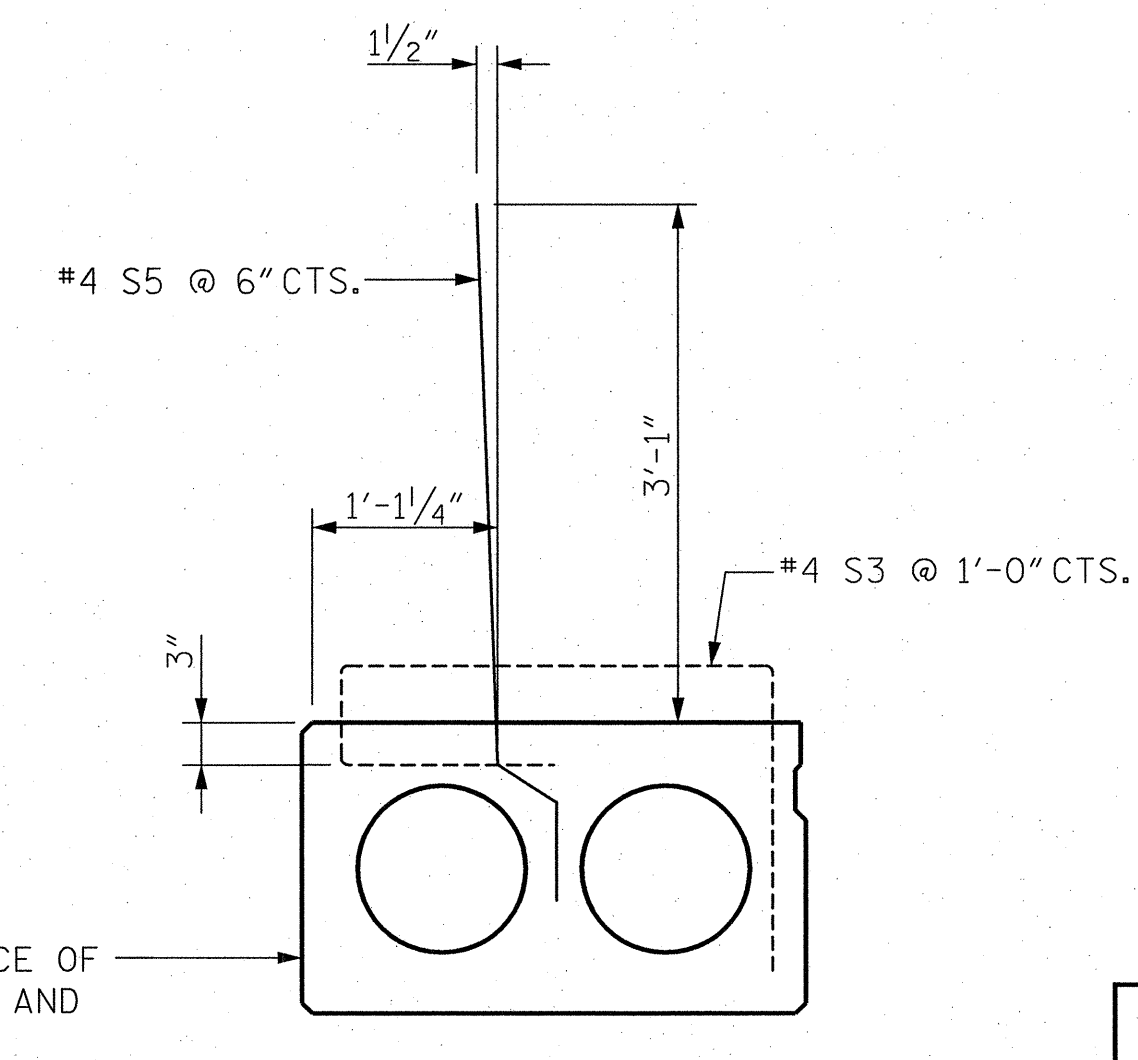
4\"/>

FOR POST SPACING, SEE BRIDGE SHEET SM-15.

GROUT SHALL BE APPROVED BY THE ENGINEER.

FABRIC SHALL BE FASTENED TO POST AT INTERVALS NOT GREATER THAN 14\"/>

PROVIDE EXPANSION SLEEVE FOR ALL RAILS TO MATCH SUPERSTRUCTURE JOINTS.



UNIT NO. 1 DETAIL

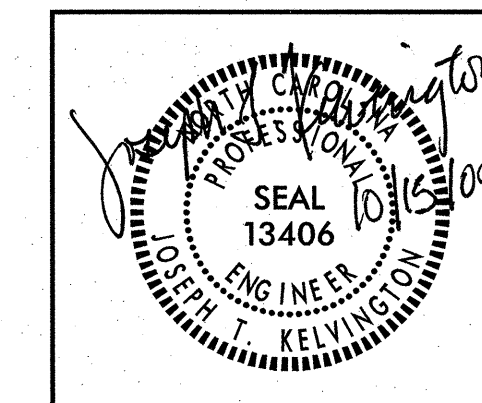


PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 TYPICAL SECTION DETAILS**

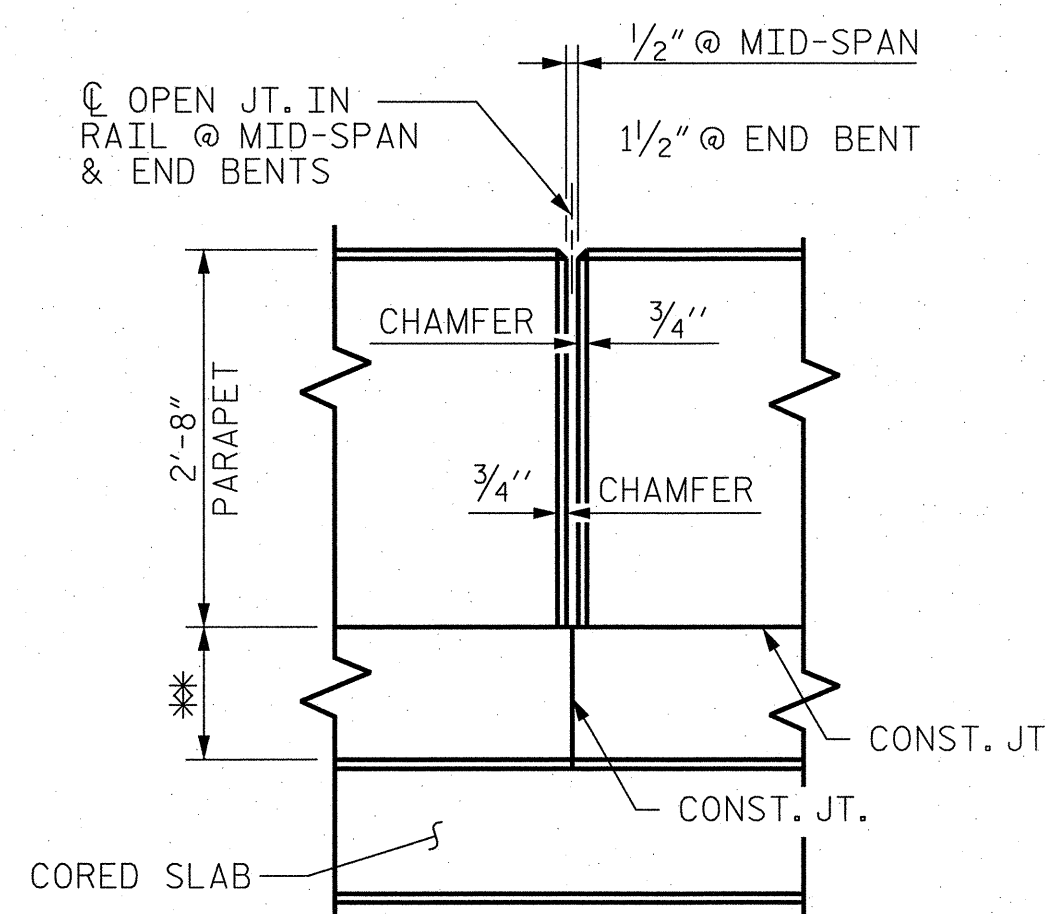
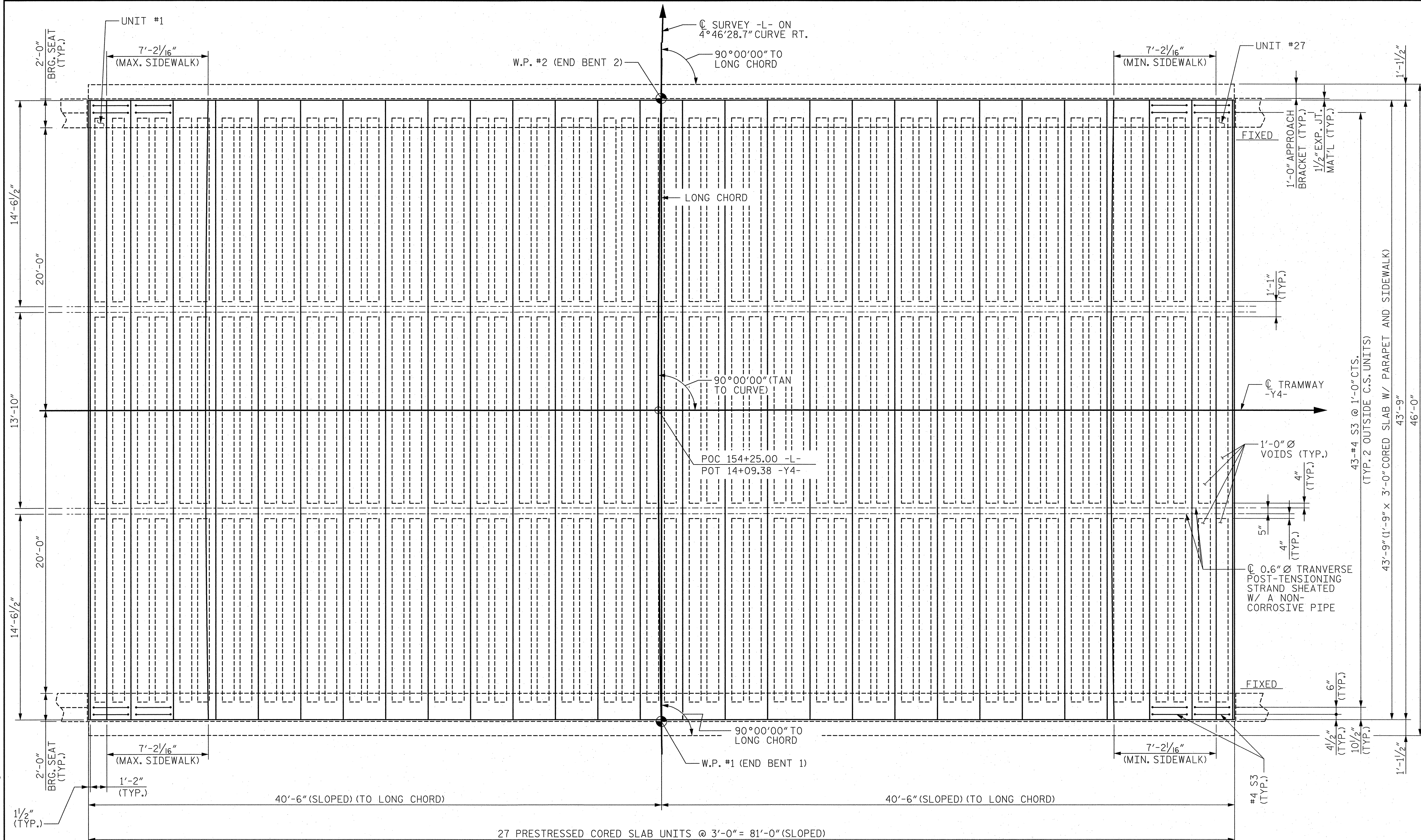
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-6	
1			3			TOTAL SHEETS	
2			4			16	



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DRAWN BY: J. L. HENNEKES DATE: 08-17-09
 CHECKED BY: T. R. DUDECK DATE: 08-17-09

GRADE 270 STRANDS	
AREA (SQ. INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



* SIDEWALK-THICKNESS VARIES
 NOTE: 1/2" EXP. JT. MATERIAL HELD IN PLACE BY GALVANIZED NAILS SHALL BE PLACED AT MID-SPAN JOINT. OMIT EXP. JT. MATERIAL WHEN SPLIP FORM IS USED.

ELEVATION AT EXPANSION JOINTS

PARAPET DETAILS

MID-SPAN SHOWN, END BENTS SIMILAR

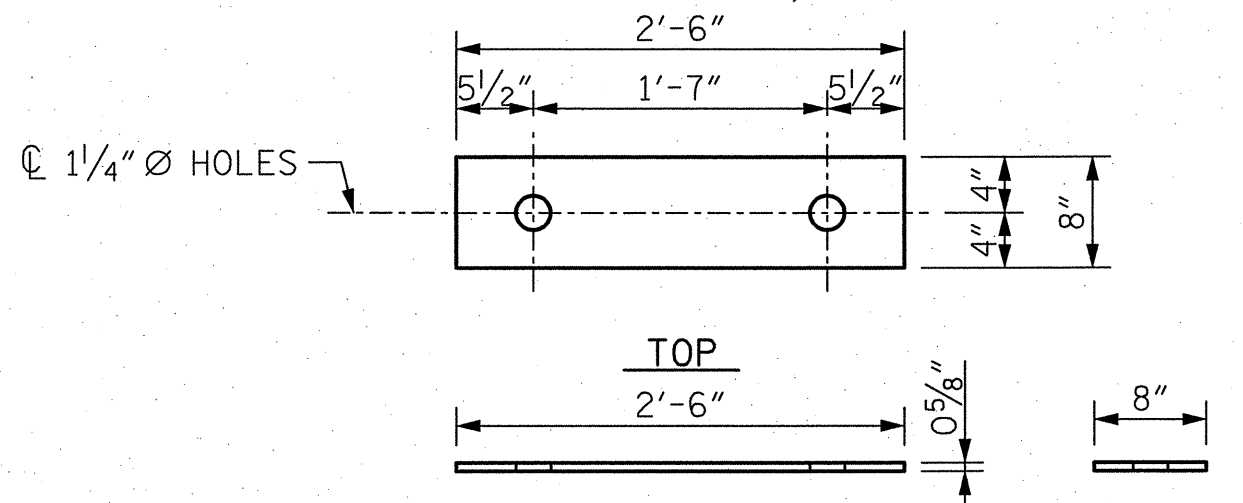


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CABARRUS COUNTY
 STATION: 154+25.00 -L-

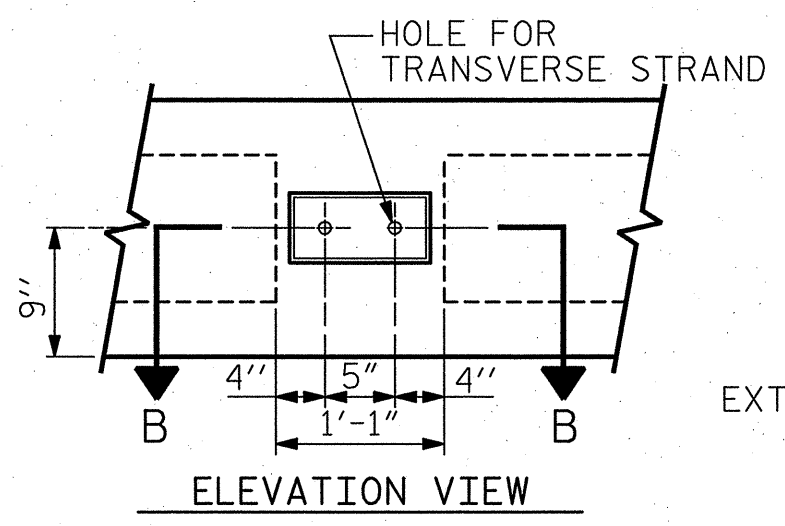
PLAN OF SPAN

NOTE: ALL DIMENSIONS AND DETAILS SHOWN ARE SYMMETRICAL ABOUT LONG CHORD EXCEPT AS NOTED.

PARAPET REINFORCEMENT AND SIDEWALK REINFORCEMENT NOT SHOWN, SEE SM-6.

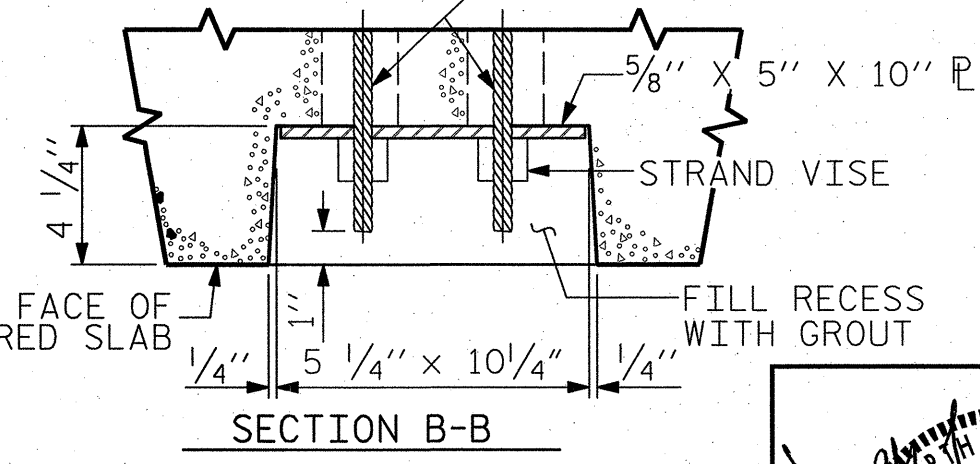


FRONT SIDE BEARING DETAIL



ELEVATION VIEW

0.6" Ø L.R. TRANSVERSE POST-TENSIONING STRAND SHEATHED WITH A NON-CORROSIVE PIPE.



SECTION B-B

GRouted RECESS AT END OF POST-TENSIONED STRAND-CORED SLABS

NOTE: ELASTOMER FOR BEARING SHALL HAVE MIN. DUROMETER HARDNESS OF 60

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 CHECKED BY: T. R. DUDECK DATE: 08-17-09

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SM-7
					TOTAL SHEETS
					16

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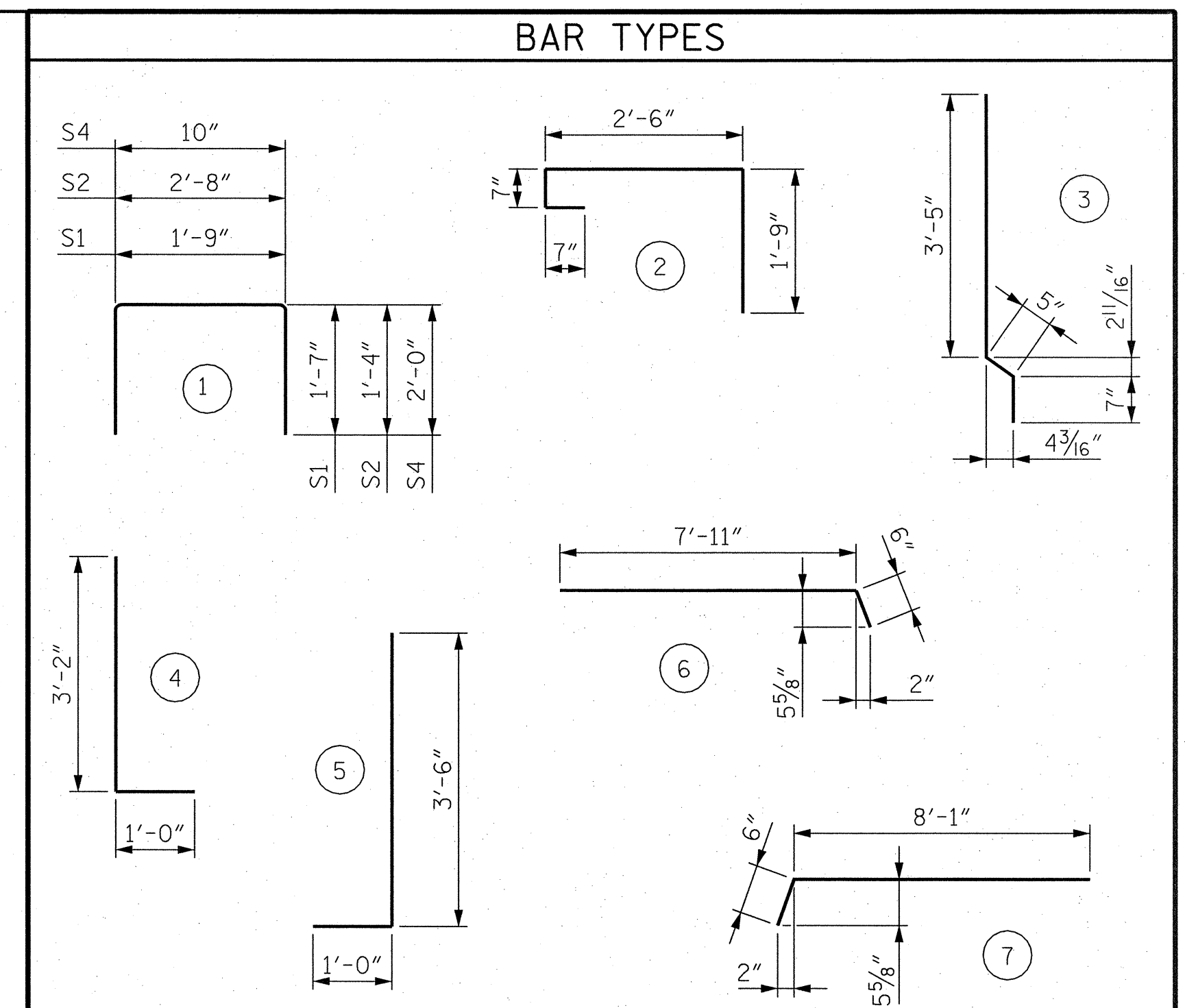
u:\structures\morehead road over tramway\drawing\Morehead-08_Super_BOM.dgn 10/16/2009 2:24:33 PM #USER#

BILL OF MATERIAL FOR ONE CORED SLAB SECTION													
				EXTERIOR UNIT 1		INTERIOR UNIT 2		INTERIOR UNITS 3-25		INTERIOR UNIT 26		EXTERIOR UNIT 27	
BAR	SIZE	TYPE	LENGTH	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT	NUMBER	WEIGHT
S1	#5	1	4'-11"	16	83	16	83	16	83	16	83	16	83
S2	#4	1	5'-4"	36	128	36	128	36	128	36	128	36	128
*S3	#4	2	5'-4"	45	160	45	160			45	160	45	160
*S5	#4	3	4'-4"	87	252								
B1	#4	STR.	22'-8"	4	95	4	95	4	95	4	95	4	95
REINFORCING STEEL				LBS.		306		306		306		306	
*EPOXY COATED REINFORCING STEEL				LBS.		412		160		160		160	
6,500 P.S.I. CONCRETE				CU. YDS.		6.0		6.0		6.0		6.0	
0.6" Ø L.R. STRANDS				NO.		18		18		18		18	

BILL OF MATERIAL FOR CONCRETE PARAPET & SIDEWALK ON CORED SLABS					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
*S4	90	#4	1	4'-10"	291
*S6	89	#4	4	4'-2"	248
*S7	178	#4	5	4'-6"	535
*S8	45	#4	6	8'-5"	253
*S9	45	#4	7	8'-6"	256
*B2	84	#4	STR.	23'-1"	1295
*EPOXY COATED REINFORCING STEEL LBS. = 2878					
CLASS AA CONCRETE CU. YDS. = 23.2					
65" CHAIN LINK FENCE = 65.5'					
1'-2" X 2'-8" CONCRETE PARAPET LIN. FT. = 87.50'					

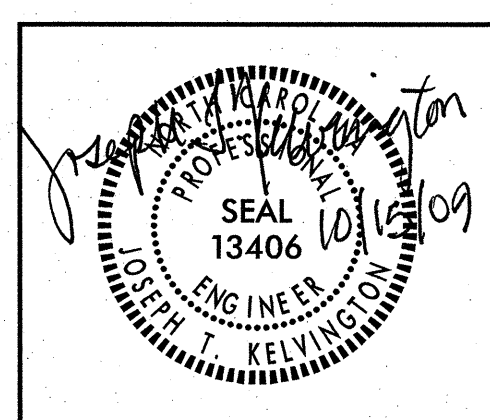
3'-0" X 1'-9" CORED SLAB UNIT	43'-9"
CAMBER (SLAB UNIT ALONE IN PLACE)	1 7/8" ↑
DEFLECTION * (SUPERIMPOSED DEAD LOAD)	1/8" ↓
FINAL DEFLECTION	1 3/4" ↑
* INCLUDES FUTURE WEARING SURFACE	

3'-0" X 1'-9" CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	43'-9"	87'-6"
INTERIOR C.S.	25	43'-9"	1,093'-9"
TOTAL	27		1,181'-3"



PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE BILL OF MATERIAL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. SM-8 TOTAL SHEETS 16

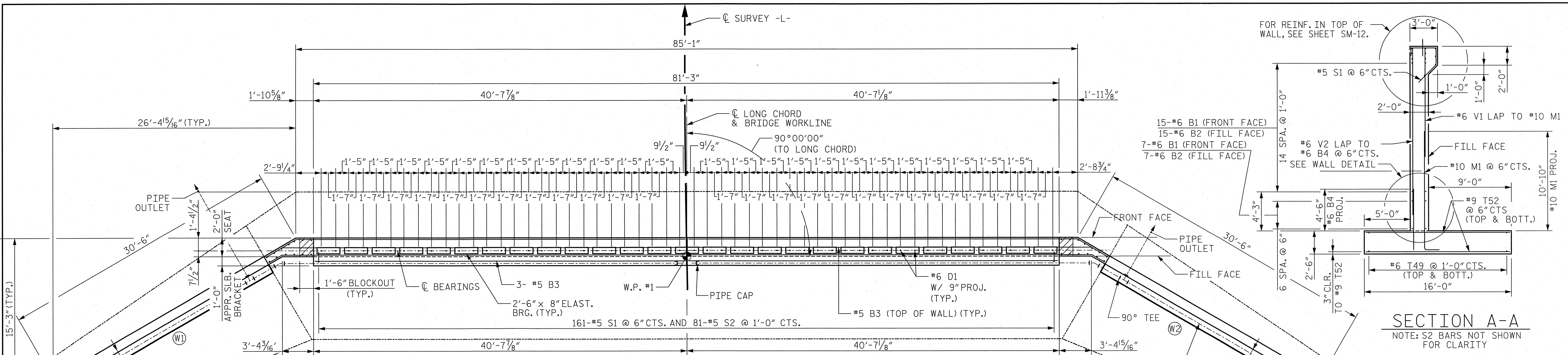


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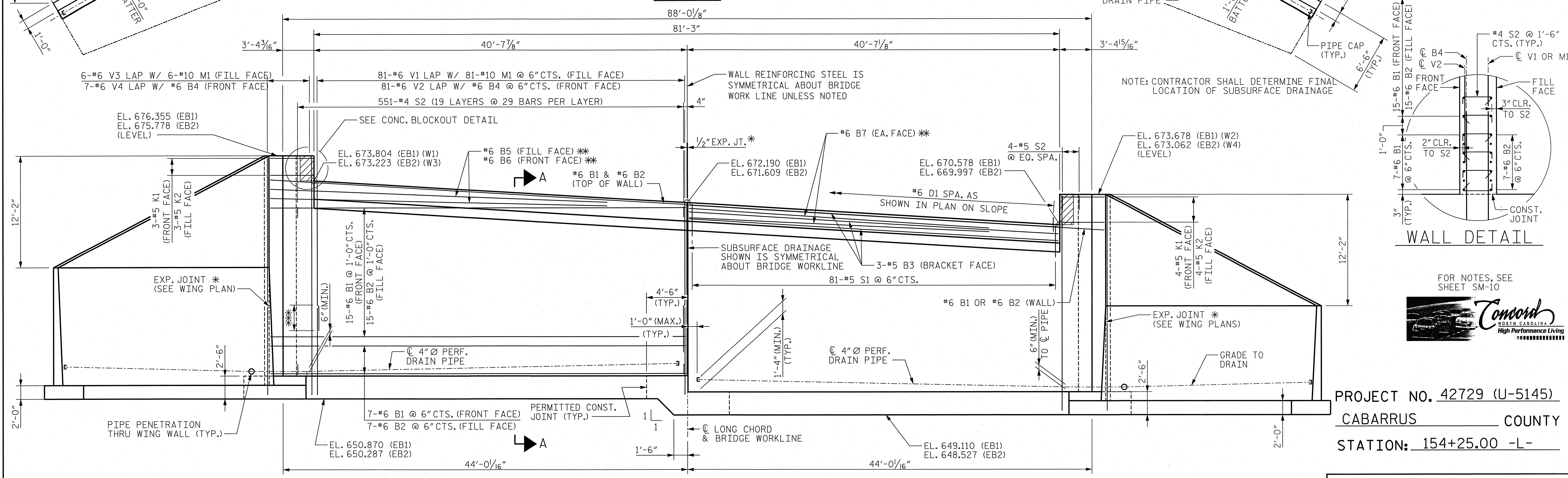
DRAWN BY: J. L. HENNEKES DATE: 08-17-09
 CHECKED BY: T. R. DUDECK DATE: 08-17-09

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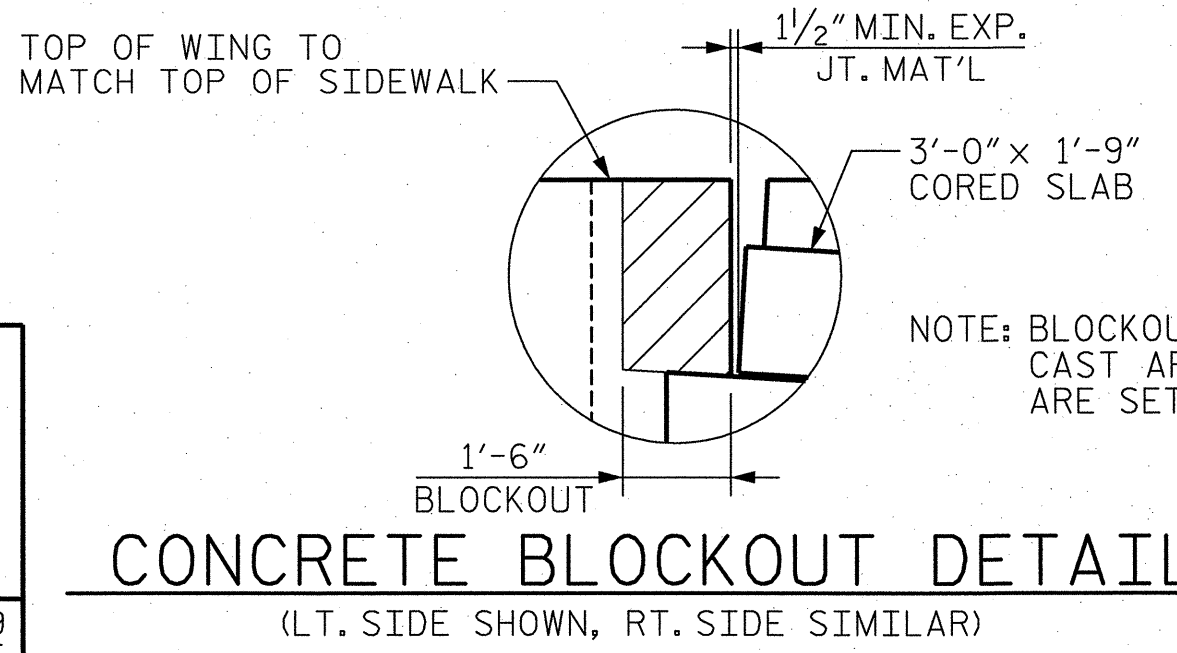
u:\structures\morehead road over tramway\drawing\morehead.09.EB.dgn



PLAN



ELEVATION



CONCRETE BLOCKOUT DETAIL

NOTE: FOR MAIN FOOTING REINFORCEMENT, SEE FOOTING LAYOUT DRAWING.

* 1/2" MIN EXP. JOINT MADE WATER TIGHT THRU USE OF 6" PLASTIC WATERSTOP. EXP. JOINT SHALL RUN FROM TOP OF WING OR ABUTMENT WALL TO TOP OF WING OR ABUTMENT FOOTING.

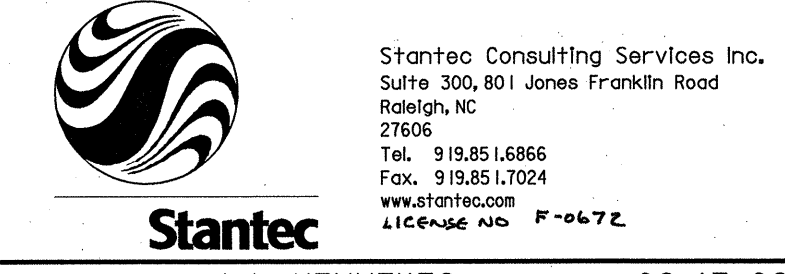
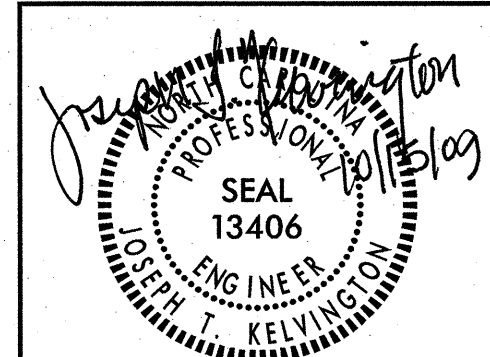
** PLACE SPLAYED REINFORCING BETWEEN B1 & B2 @ 4" MIN. AND 1'-0" MAX. CTS.

** 2'-9" MIN. LAP #6 V2 TO #6 B4
2'-9" MIN. LAP #6 V1 TO #10 M1

PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1 & 2
PLAN & ELEVATION

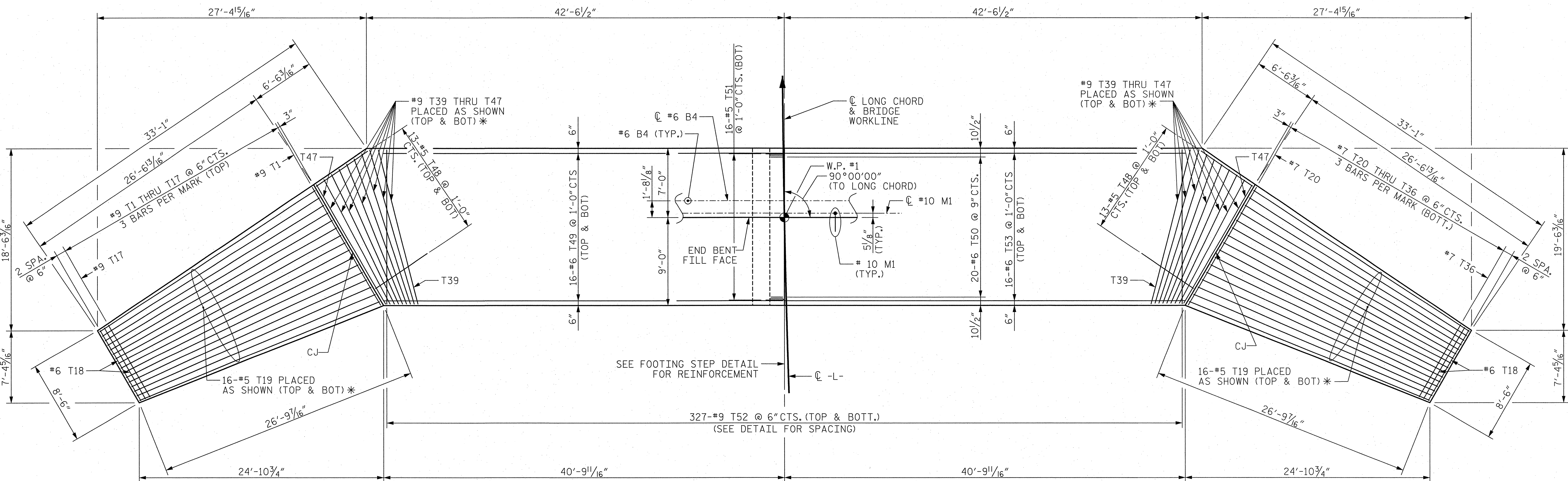
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-9
1			3			TOTAL SHEETS
2			4			16



DRAWN BY: J. L. HENNEKES DATE: 08-17-09
CHECKED BY: T. R. DUDECK DATE: 08-17-09



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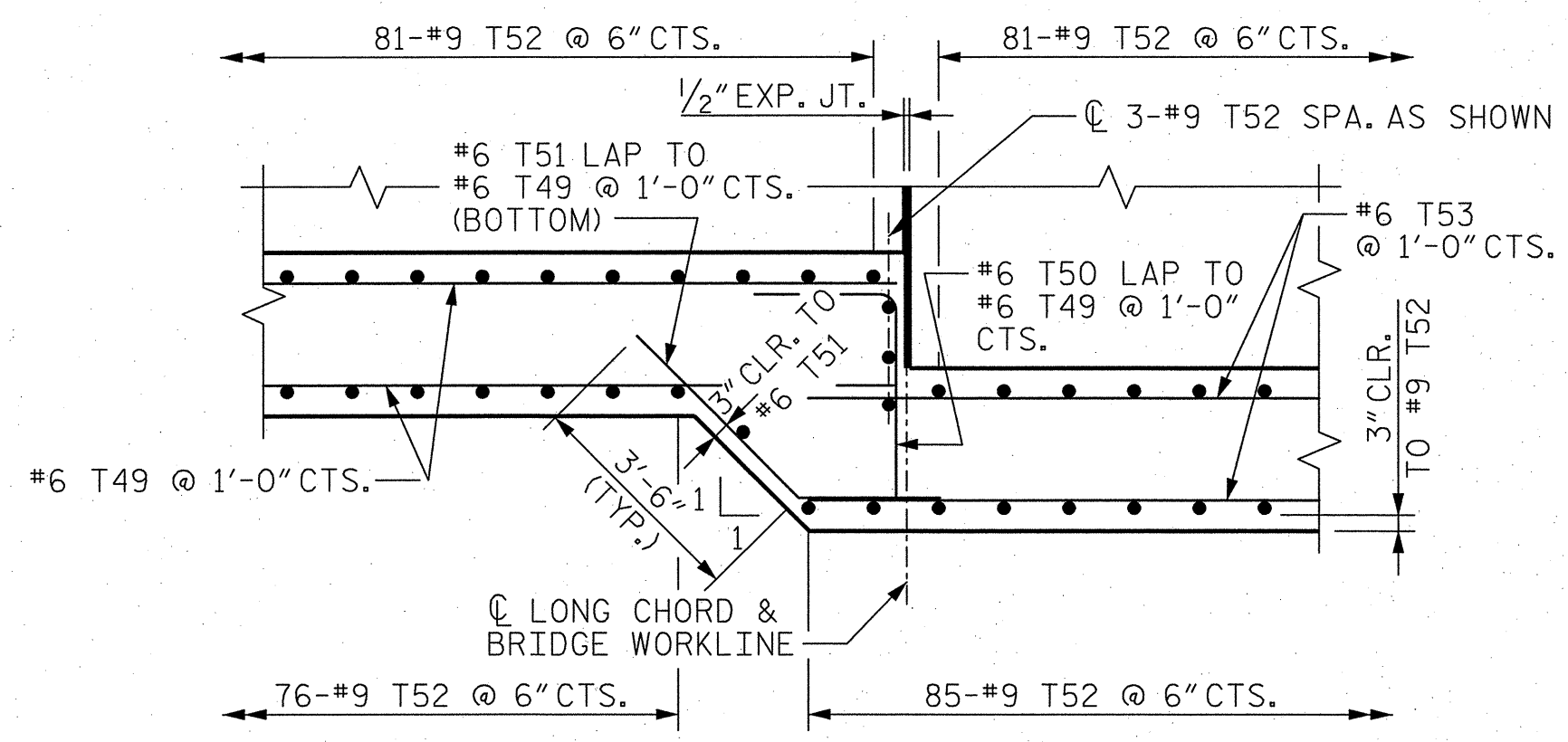


*PLACE SPLAYED REINFORCING @ 4" MIN AND 1'-0" MAX CTS.

FOR WING WALL AND END BENT WALL REINFORCEMENT EMBEDDED IN FOOTINGS, SEE END BENT AND WING PLANS ON SHEETS SM-9 & SM-11

PLAN

END BENT 1 SHOWN, END BENT 2 SIMILAR



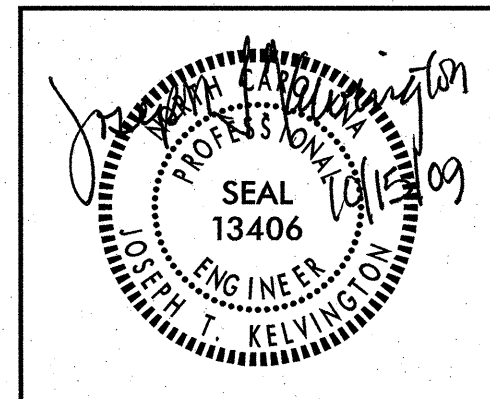
FOOTING STEP DETAIL

NOTES:
 REINFORCEMENT IN END BENT WALLS MAY BE SHIFTED AS NECESSARY TO CLEAR #6 DOWELS.
 FOR BILL OF MATERIAL, SEE SH. SM-12.
 THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH EACH WING WALL AS REQUIRED AND AS SHOWN IN THE PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE. NO SEPARATE PAYMENT FOR 4" DIA. DRAIN PIPE SHALL BE MADE. THE COST OF THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.
 (2BR) DENOTES TWO BAR RUN.
 CLEAR COVER TO ALL REINFORCING STEEL SHALL BE 2" UNLESS OTHERWISE NOTED IN THE PLANS.
 FILL BEHIND END BENT WALLS AT OPPOSITE ENDS OF THE BRIDGE SHALL BE PLACED AT APPROXIMATELY THE SAME RATE. THE MAXIMUM DIFFERENCE BETWEEN THE DEPTH OF FILL BEHIND END BENTS SHALL NOT EXCEED 3 FT.



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CABARRUS COUNTY
 STATION: 154+25.00 -L-

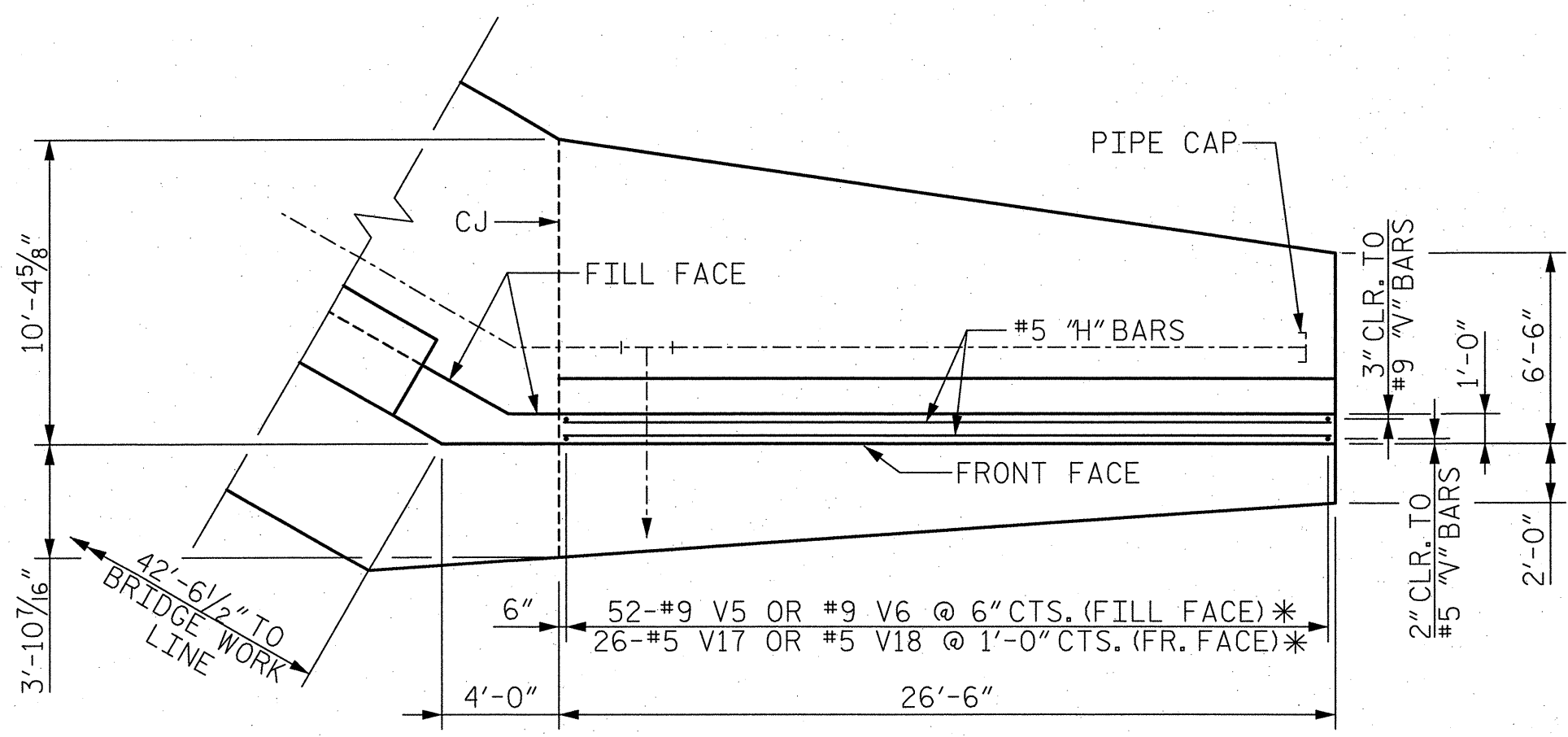
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 SUBSTRUCTURE
 END BENT 1 & 2
 FOOTING LAYOUT



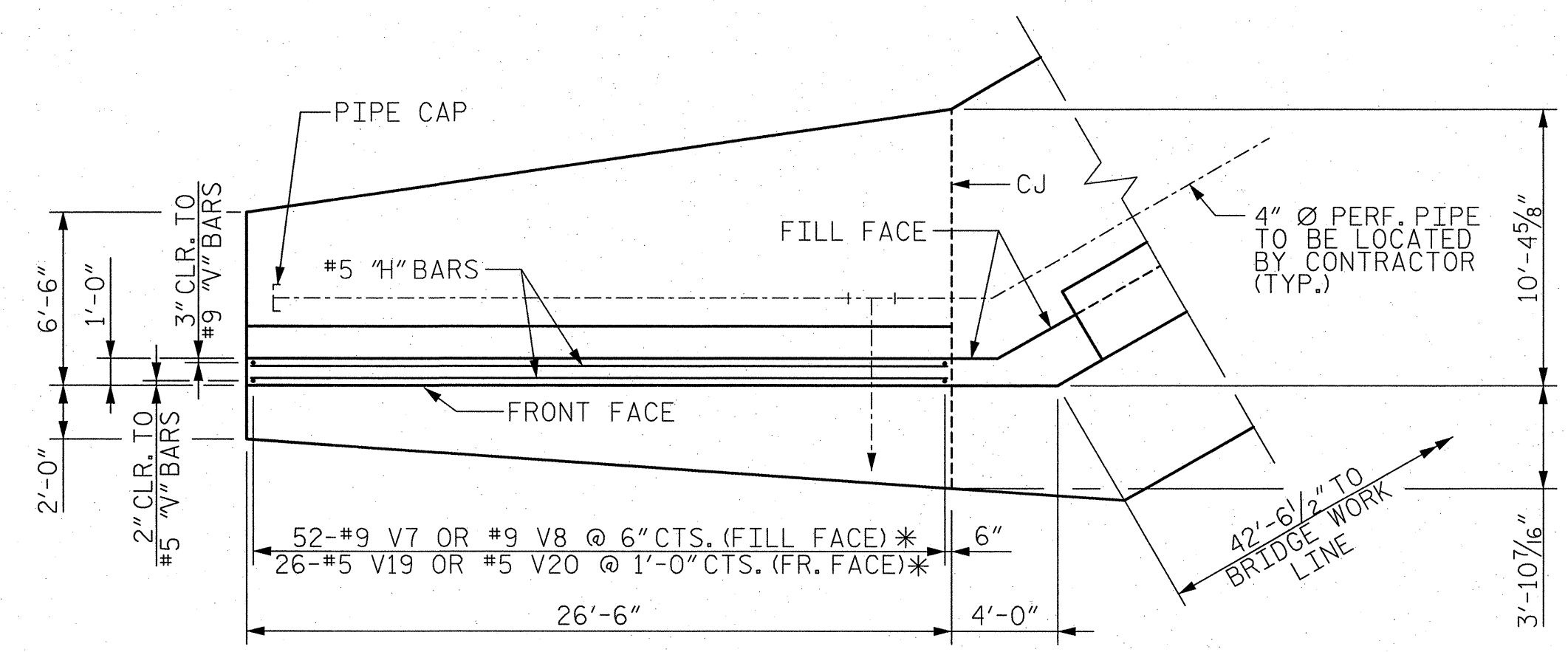
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-10
1			3			TOTAL SHEETS
2			4			16

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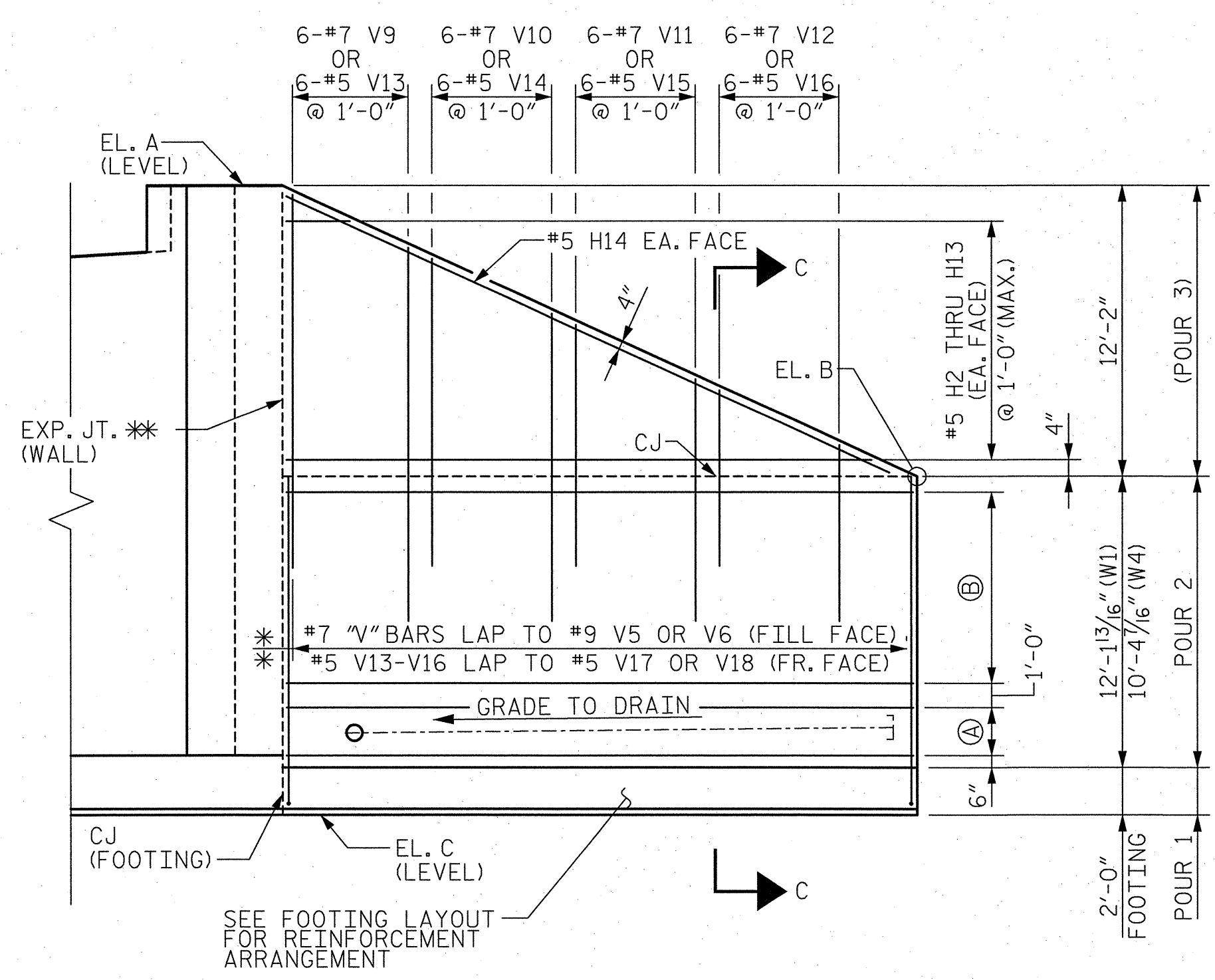
DRAWN BY: T.R. DUDECK DATE: 08-17-09
 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09



PLAN OF WING W1, W4

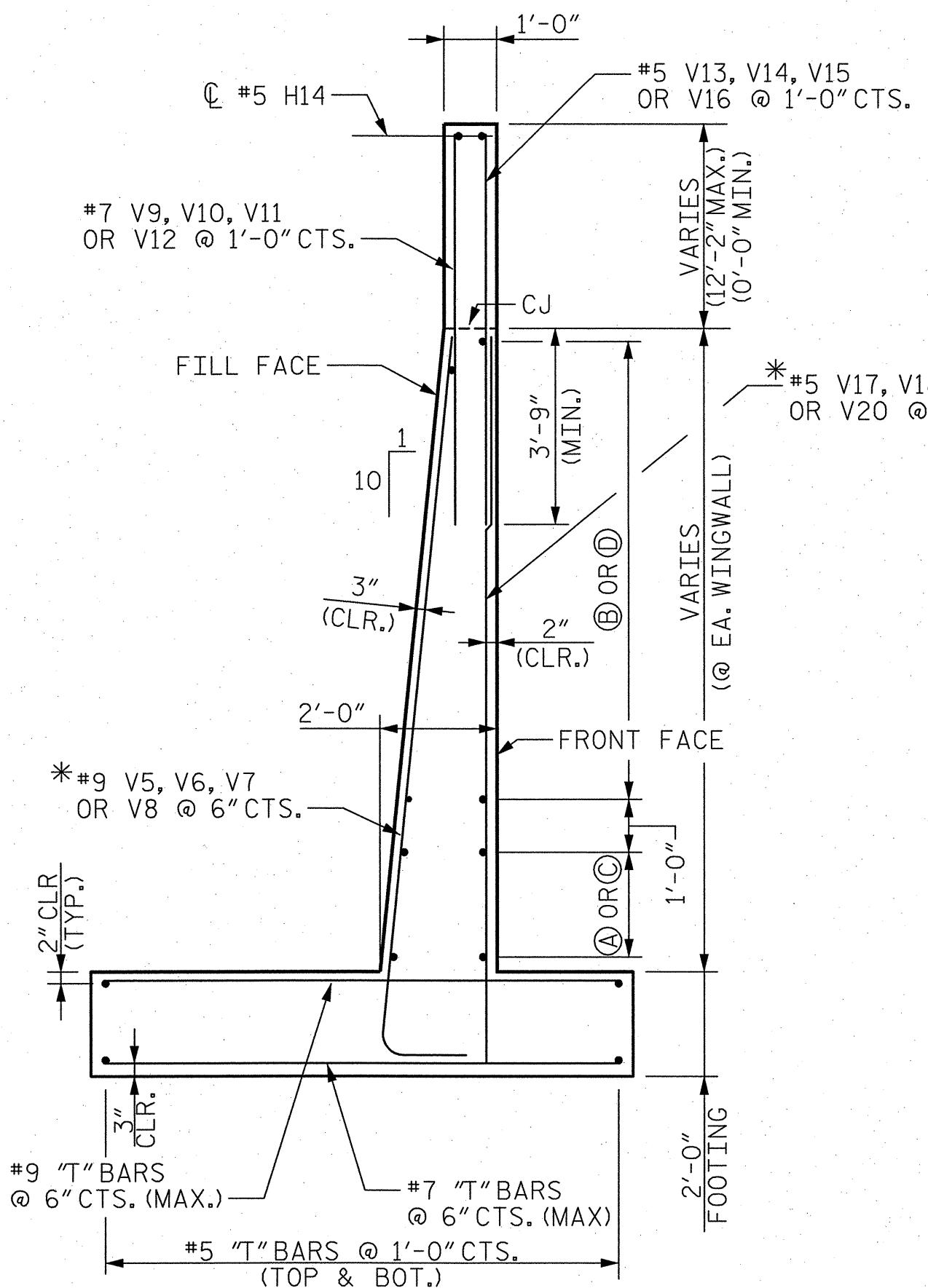


PLAN OF WING W2, W3



ELEVATION OF WING W1, W4

- Ⓐ 5-#5 H1 (W1 & W4) @ 6" CTS. (EA. FACE)
- Ⓑ 8-#5H1 (W1) @ 1'-0" CTS. (EA. FACE)
7-#5 H1 (W4) @ 1'-0" CTS. (EA. FACE)



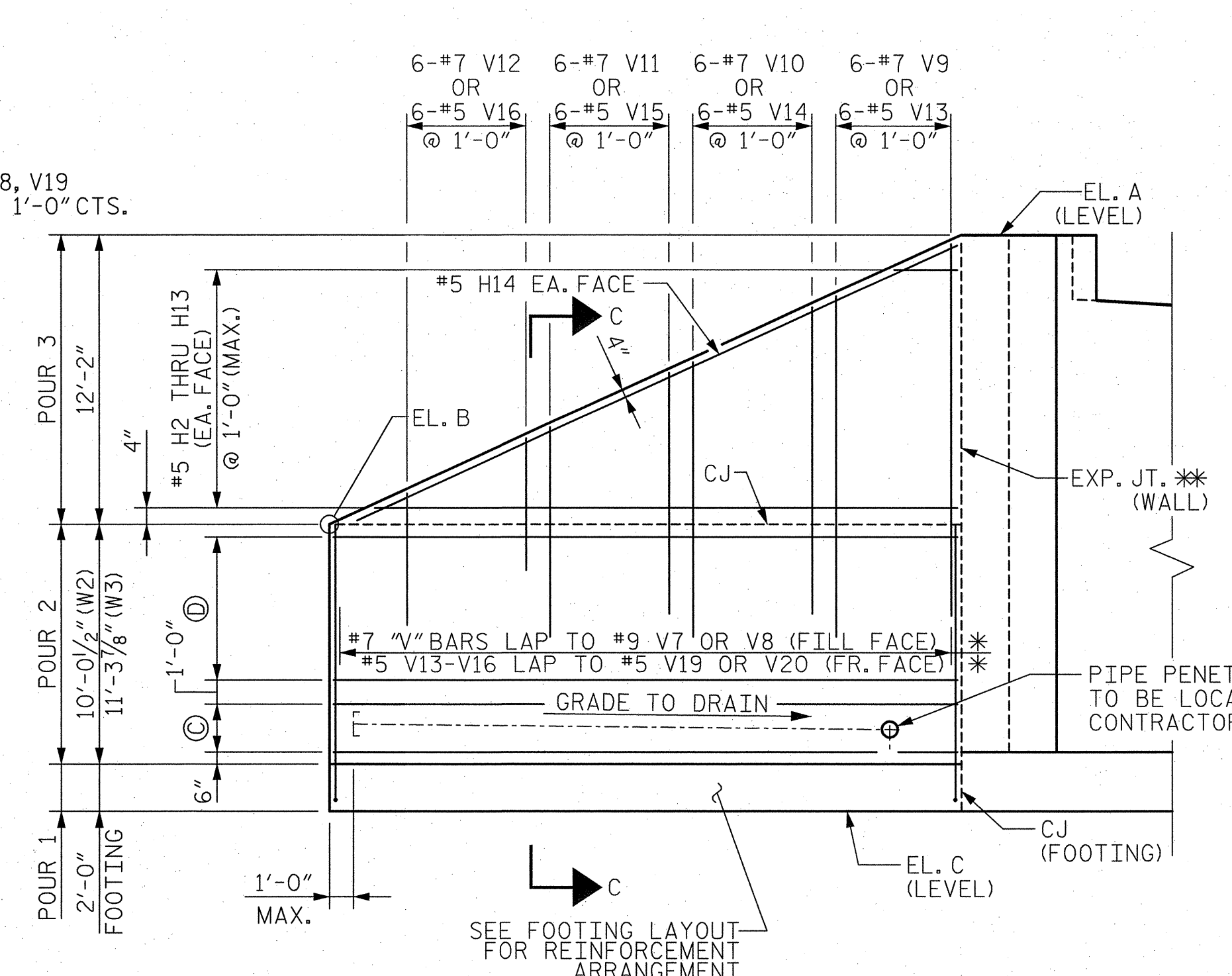
SECTION C-C

*#9 V5 & #5 V17 (W4), #9 V6 & #5 V18 (W1), #9 V7 & #5 V19 (W2), #9V8 & #5 V20 (W3).

*1/2" MIN EXP. JOINT MADE WATER TIGHT THRU USE OF PLASTIC WATERSTOP. EXP. JOINT SHALL RUN FROM TOP OF WING WALL TO TOP OF WING FOOTING.

WING WALL & FOOTING ELEVATIONS				
WING	A	B	C	
W1	676.355	664.188	650.870	
W2	673.678	661.511	649.110	
W3	675.778	663.611	650.287	
W4	673.062	660.895	648.527	

NOTES:
1. SUBSURFACE DRAINAGE SHOWN FOR WING W2 & W3 IS TYP. FOR W1 & W4
2. SEE FOOTING LAYOUT FOR ORIENTATION OF FOOTING REINFORCEMENT



ELEVATION OF WING W2, W3

- Ⓒ 5-#5 H1 (W2 & W3) @ 6" CTS. (EA. FACE)
- Ⓓ 7-#5 H1 (W2) @ 1'-0" CTS. (EA. FACE)
8-#5 H1 (W3) @ 1'-0" CTS. (EA. FACE)

PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1 & 2
WING WALL DETAILS

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

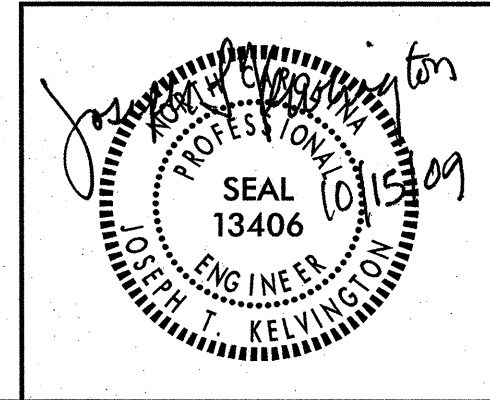
SHEET NO. SM-11
TOTAL SHEETS 16



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DRAWN BY: B. J. ELLIOT DATE: 08-17-09
CHECKED BY: T. R. DUDECK DATE: 08-17-09



BILL OF MATERIAL

END BENT 1					WING 1 & WING 2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	46	#6	1	45'-11"	3,172	H1	50	#5	STR.	26'-2"	1,365
B2	46	#6	1	45'-6"	3,144	H2	4	#5	STR.	25'-1"	105
B3	10	#5	STR.	40'-2"	419	H3	4	#5	STR.	22'-11"	96
B4	176	#6	STR.	6'-7"	1,740	H4	4	#5	STR.	20'-9"	87
B5	2	#6	1	36'-9"	110	H5	4	#5	STR.	18'-7"	78
B6	2	#6	1	37'-2"	112	H6	4	#5	STR.	16'-5"	68
B7	4	#6	STR.	33'-7"	202	H7	4	#5	STR.	14'-3"	59
D1	54	#6	STR.	2'-0"	162	H8	4	#5	STR.	12'-0"	50
K1	7	#5	1	5'-3"	38	H9	4	#5	STR.	9'-10"	41
K2	7	#5	1	4'-10"	35	H10	4	#5	STR.	7'-8"	32
M1	174	#10	2	14'-9"	11,044	H11	4	#5	STR.	5'-6"	23
S1	162	#5	3	7'-11"	1,338	H12	4	#5	STR.	3'-4"	14
S2	1102	#4	5	2'-8"	1,963	H13	4	#5	STR.	1'-2"	5
T39	4	#9	STR.	14'-0"	190	H14	4	#5	STR.	28'-3"	118
T40	4	#9	STR.	14'-4"	195	V6	52	#9	5	14'-5"	2,549
T41	4	#9	STR.	14'-8"	199	V7	52	#9	5	13'-6"	2,387
T42	4	#9	STR.	15'-0"	204	V9	12	#7	STR.	16'-2"	397
T43	4	#9	STR.	15'-4"	209	V10	12	#7	STR.	13'-5"	329
T44	4	#9	STR.	15'-8"	213	V11	12	#7	STR.	10'-8"	262
T45	4	#9	STR.	16'-0"	218	V12	12	#7	STR.	7'-11"	194
T46	4	#9	STR.	16'-3"	221	V13	12	#5	STR.	16'-2"	202
T47	4	#9	STR.	16'-2"	220	V14	12	#5	STR.	13'-5"	168
T48	52	#5	STR.	6'-3"	339	V15	12	#5	STR.	10'-8"	134
T49	32	#6	STR.	40'-7"	1,951	V16	12	#5	STR.	7'-11"	99
T50	20	#6	2	7'-0"	210	V18	26	#5	STR.	12'-9"	346
T51	16	#6	1	7'-0"	168	V19	26	#5	STR.	11'-10"	321
T52	327	#9	STR.	15'-8"	17,418	V5	52	#9	5	14'-5"	2,549
T53	32	#6	STR.	42'-1"	2,023	V7	52	#9	5	13'-6"	2,387
V1	162	#6	STR.	12'-3"	2,981	V9	12	#7	STR.	16'-2"	397
V2	162	#6	STR.	18'-5"	4,481	V10	12	#7	STR.	13'-5"	329
V3	12	#6	STR.	15'-4"	276	V11	12	#7	STR.	10'-8"	262
V4	14	#6	STR.	21'-8"	456	V12	12	#7	STR.	7'-11"	194
						V13	12	#5	STR.	16'-2"	202
						V14	12	#5	STR.	13'-5"	168
						V15	12	#5	STR.	10'-8"	134
						V16	12	#5	STR.	7'-11"	99
						V18	26	#5	STR.	12'-9"	346
						V19	26	#5	STR.	11'-10"	321
						T1	6	#9	STR.	13'-5"	274
						T2	6	#9	STR.	13'-1"	267
						T3	6	#9	STR.	12'-9"	260
						T4	6	#9	STR.	12'-5"	253
						T5	6	#9	STR.	12'-1"	247
						T6	6	#9	STR.	11'-9"	240
						T7	6	#9	STR.	11'-6"	235
						T8	6	#9	STR.	11'-2"	228
						T9	6	#9	STR.	10'-10"	221
						T10	6	#9	STR.	10'-6"	214
						T11	6	#9	STR.	10'-2"	207
						T12	6	#9	STR.	9'-10"	201
						T13	6	#9	STR.	9'-6"	194
						T14	6	#9	STR.	9'-2"	187
						T15	6	#9	STR.	8'-10"	180
						T16	6	#9	STR.	8'-6"	173
						T17	6	#9	STR.	8'-2"	167
						T18	8	#6	STR.	8'-2"	98
						T19	64	#5	STR.	26'-2"	1,747
						T20	6	#7	STR.	13'-5"	165
						T21	6	#7	STR.	13'-1"	160
						T22	6	#7	STR.	12'-9"	156
						T23	6	#7	STR.	12'-5"	152

REINFORCING STEEL (END BENT 1)
TOTAL (LBS.) 55,651

CLASS A CONCRETE (END BENT 1)
POUR 1: FOOTING CONCRETE C.Y. 134.4
POUR 2A: ABUTMENT WALL CONCRETE C.Y. 69.8
POUR 2B: ABUTMENT WALL CONCRETE C.Y. 69.9
TOTAL CLASS A CONCRETE C.Y. 274.1

REINFORCING STEEL (WING WALL 1 & 2)
TOTAL (LBS.) 17,376

CLASS A CONCRETE WING WALL 1
POUR 1: FOOTING CONCRETE C.Y. 18.7
POUR 2: WING WALL 1 CONCRETE C.Y. 16.7
POUR 3: WING WALL 1 CONCRETE C.Y. 6.0
TOTAL CLASS A CONCRETE C.Y. 41.4

CLASS A CONCRETE WING WALL 2
POUR 1: FOOTING CONCRETE C.Y. 18.7
POUR 2: WING WALL 1 CONCRETE C.Y. 15.3
POUR 3: WING WALL 1 CONCRETE C.Y. 6.0
TOTAL CLASS A CONCRETE C.Y. 40.0

BILL OF MATERIAL

END BENT 2					WING 3 & WING 4						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	46	#6	1	45'-11"	3,172	H1	50	#5	STR.	26'-2"	1,365
B2	46	#6	1	45'-6"	3,144	H2	4	#5	STR.	25'-1"	105
B3	10	#5	STR.	40'-2"	419	H3	4	#5	STR.	22'-11"	96
B4	176	#6	STR.	6'-7"	1,740	H4	4	#5	STR.	20'-9"	87
B5	2	#6	1	36'-9"	110	H5	4	#5	STR.	18'-7"	78
B6	2	#6	1	37'-2"	112	H6	4	#5	STR.	16'-5"	68
B7	4	#6	STR.	33'-7"	202	H7	4	#5	STR.	14'-3"	59
D1	54	#6	STR.	2'-0"	162	H8	4	#5	STR.	12'-0"	50
K1	7	#5	1	5'-3"	38	H9	4	#5	STR.	9'-10"	41
K2	7	#5	1	4'-10"	35	H10	4	#5	STR.	7'-8"	32
M1	174	#10	2	14'-9"	11,044	H11	4	#5	STR.	5'-6"	23
S1	162	#5	3	7'-11"	1,338	H12	4	#5	STR.	3'-4"	14
S2	1102	#4	5	2'-8"	1,963	H13	4	#5	STR.	1'-2"	5
T39	4	#9	STR.	14'-0"	190	H14	4	#5	STR.	28'-3"	118
T40	4	#9	STR.	14'-4"	195	V5	52	#9	5	13'-6"	2,387
T41	4	#9	STR.	14'-8"	199	V7	52	#9	5	13'-6"	2,387
T42	4	#9	STR.	15'-0"	204	V9	12	#7	STR.	16'-2"	399
T43	4	#9	STR.	15'-4"	209	V10	12	#7	STR.	13'-6"	331
T44	4	#9	STR.	15'-8"	213	V11	12	#7	STR.	10'-9"	264
T45	4	#9	STR.	16'-0"	218	V12	12	#7	STR.	8'-0"	196
T46	4	#9	STR.	16'-3"	221	V13	12	#5	STR.	16'-3"	203
T47	4	#9	STR.	16'-2"	220	V14	12	#5	STR.	13'-6"	169
T48	52	#5	STR.	6'-3"	339	V15	12	#5	STR.	10'-9"	135
T49	32	#6	STR.	40'-7"	1,951	V16	12	#5	STR.	8'-0"	100
T50	20	#6	2	7'-0"	210	V17	26	#5	STR.	11'-9"	319
T51	16	#6	1	7'-0"	168	V20	26	#5	STR.	12'-9"	346
T52	327	#9	STR.	15'-8"	17,418	V5	52	#9	5	13'-6"	2,387
T53	32	#6	STR.	42'-1"	2,023	V7	52	#9	5	13'-6"	2,387
V1	162	#6	STR.	12'-3"	2,981	V9	12	#7	STR.	16'-3"	399
V2	162	#6	STR.	18'-5"	4,481	V10	12	#7	STR.	13'-6"	331
V3	12	#6	STR.	15'-4"	276	V11	12	#7	STR.	10'-9"	264
V4	14	#6	STR.	21'-7"	454	V12	12	#7	STR.	8'-0"	196
						V13	12	#5	STR.	16'-3"	203
						V14	12	#5	STR.	13'-6"	169
						V15	12	#5	STR.	10'-9"	135
						V16	12	#5	STR.	8'-0"	100
						V17	26	#5	STR.	11'-9"	319
						V20	26	#5	STR.	12'-9"	346
						T1	6	#9	STR.	13'-5"	274
						T2	6	#9	STR.	13'-1"	267
						T3	6	#9	STR.	12'-9"	260
						T4	6	#9	STR.	12'-5"	253
						T5	6	#9	STR.	12'-1"	247
						T6	6	#9	STR.	11'-9"	240
						T7	6	#9	STR.	11'-6"	235
						T8	6	#9	STR.	11'-2"	228
						T9	6	#9	STR.	10'-10"	221
						T10	6	#9	STR.	10'-6"	214
						T11	6	#9	STR.	10'-2"	207
						T12	6	#9	STR.	9'-10"	201
						T13	6	#9	STR.	9'-6"	194
						T14	6	#9	STR.	9'-2"	187
						T15	6	#9	STR.	8'-10"	180
						T16	6	#9	STR.	8'-6"	173
						T17	6	#9	STR.	8'-2"	167
						T18	8	#6	STR.	8'-2"	98
						T19	64	#5	STR.	26'-2"	1,747
						T20	6	#7	STR.	13'-5"	165
						T21	6	#7	STR.	13'-1"	160
						T22	6	#7	STR.	12'-9"	156
						T23	6	#7	STR.	12'-5"	152

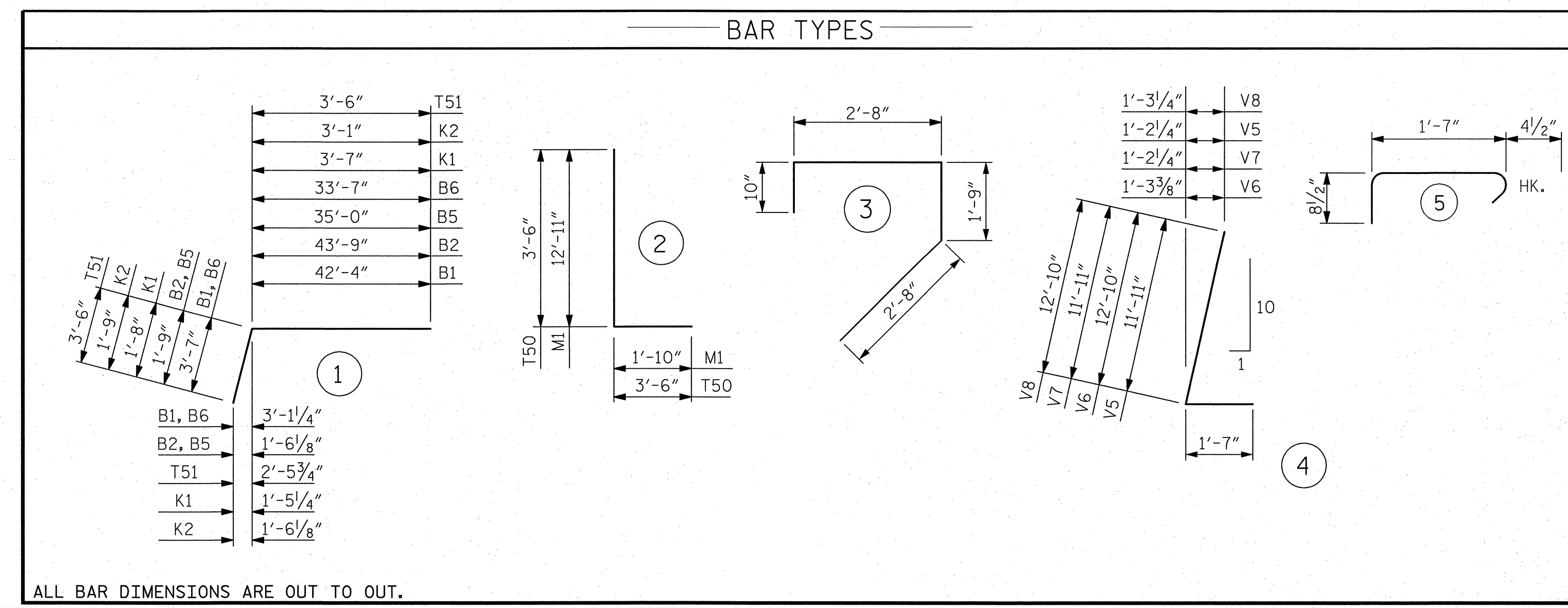
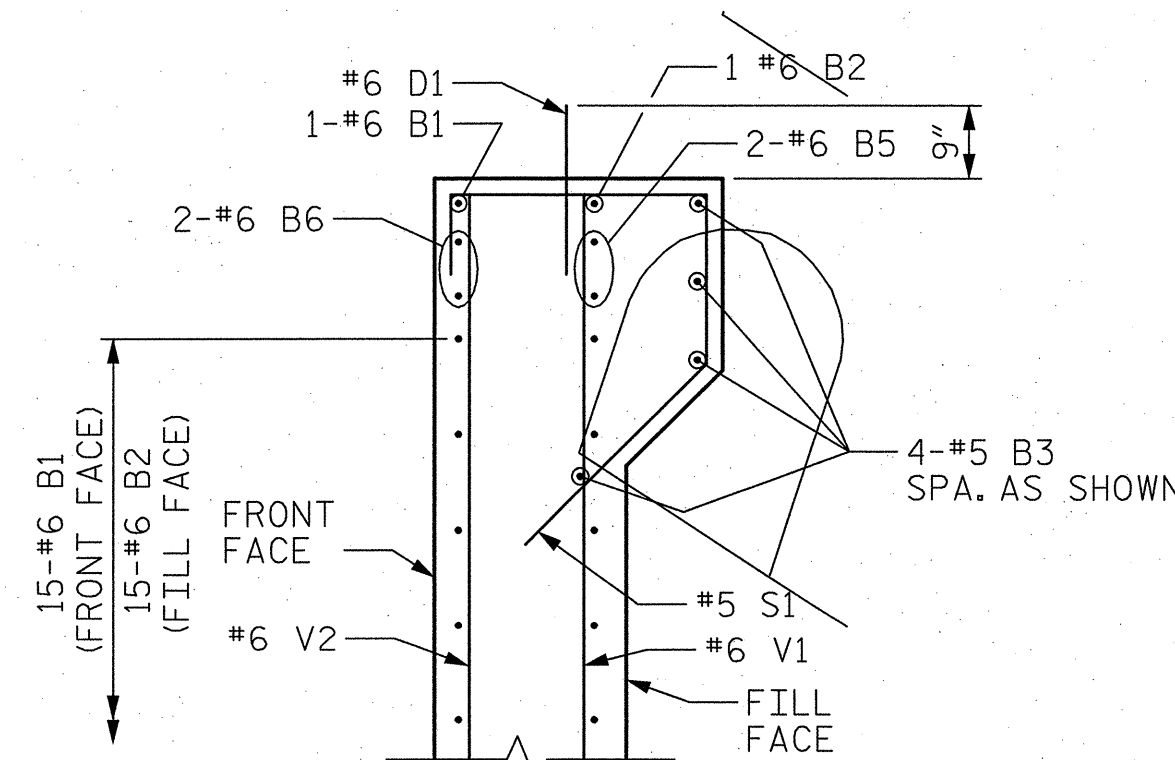
REINFORCING STEEL (END BENT 2)
TOTAL (LBS.) 55,649

CLASS A CONCRETE (END BENT 2)
POUR 1: FOOTING CONCRETE C.Y. 134.5
POUR 2A: ABUTMENT WALL CONCRETE C.Y. 69.8
POUR 2B: ABUTMENT WALL CONCRETE C.Y. 68.0
TOTAL CLASS A CONCRETE C.Y. 272.3

REINFORCING STEEL (WING WALL 3 & 4)
TOTAL (LBS.) 17,386

CLASS A CONCRETE WING WALL 3
POUR 1: FOOTING CONCRETE C.Y. 18.7
POUR 2: WING WALL 1 CONCRETE C.Y. 16.7
POUR 3: WING WALL 1 CONCRETE C.Y. 6.0
TOTAL CLASS A CONCRETE C.Y. 41.4

CLASS A CONCRETE WING WALL 4
POUR 1: FOOTING CONCRETE C.Y. 18.7
POUR 2: WING WALL 1 CONCRETE C.Y. 15.3
POUR 3: WING WALL 1 CONCRETE C.Y. 6.0
TOTAL CLASS A CONCRETE C.Y. 40.0

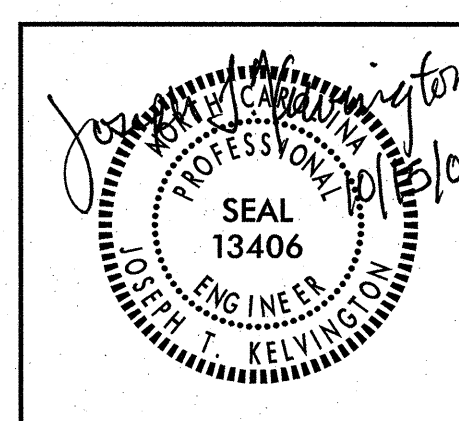


PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BILL OF MATERIAL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-12	
1			3			TOTAL	16
2			4			SHEETS	

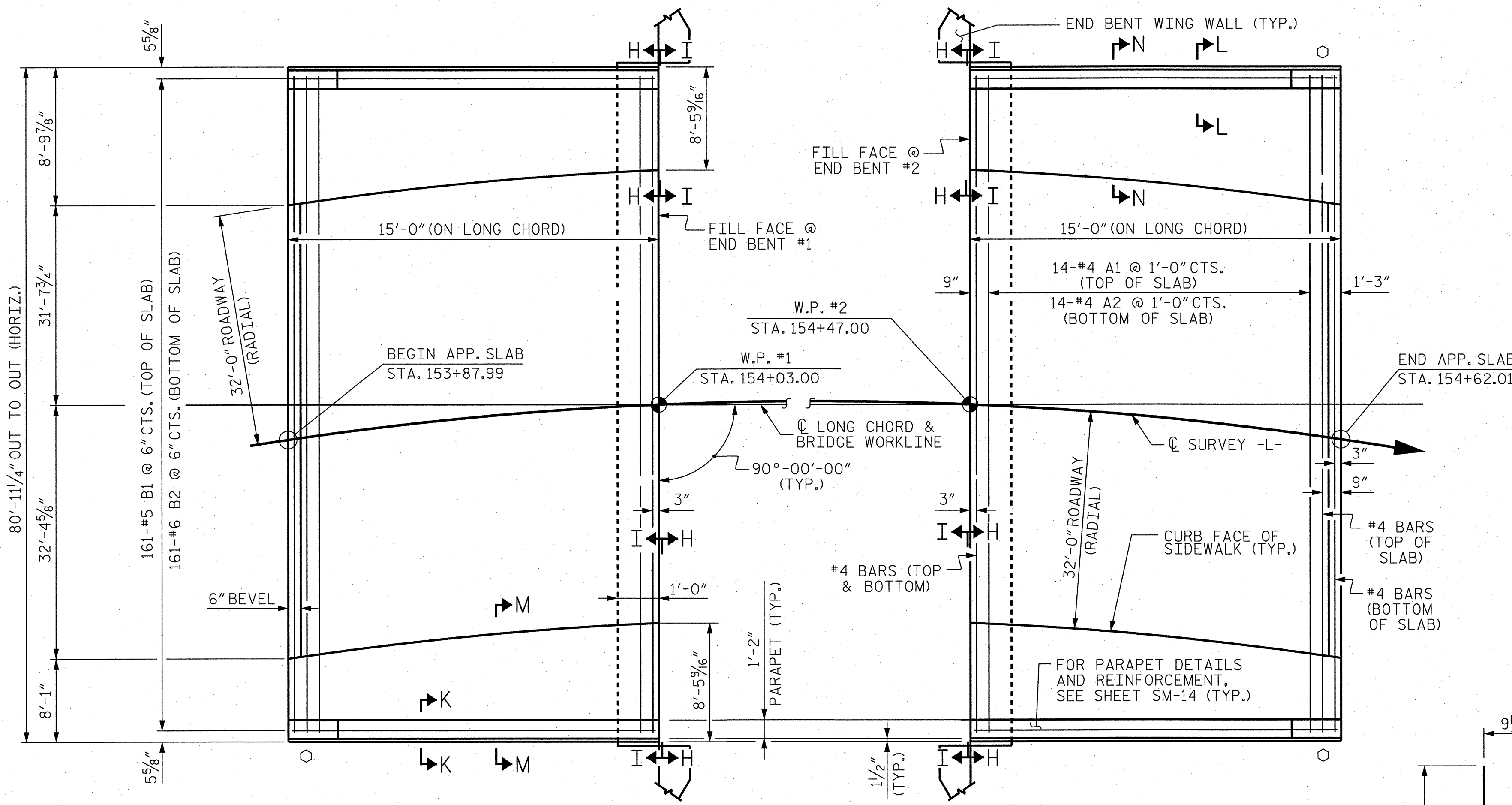


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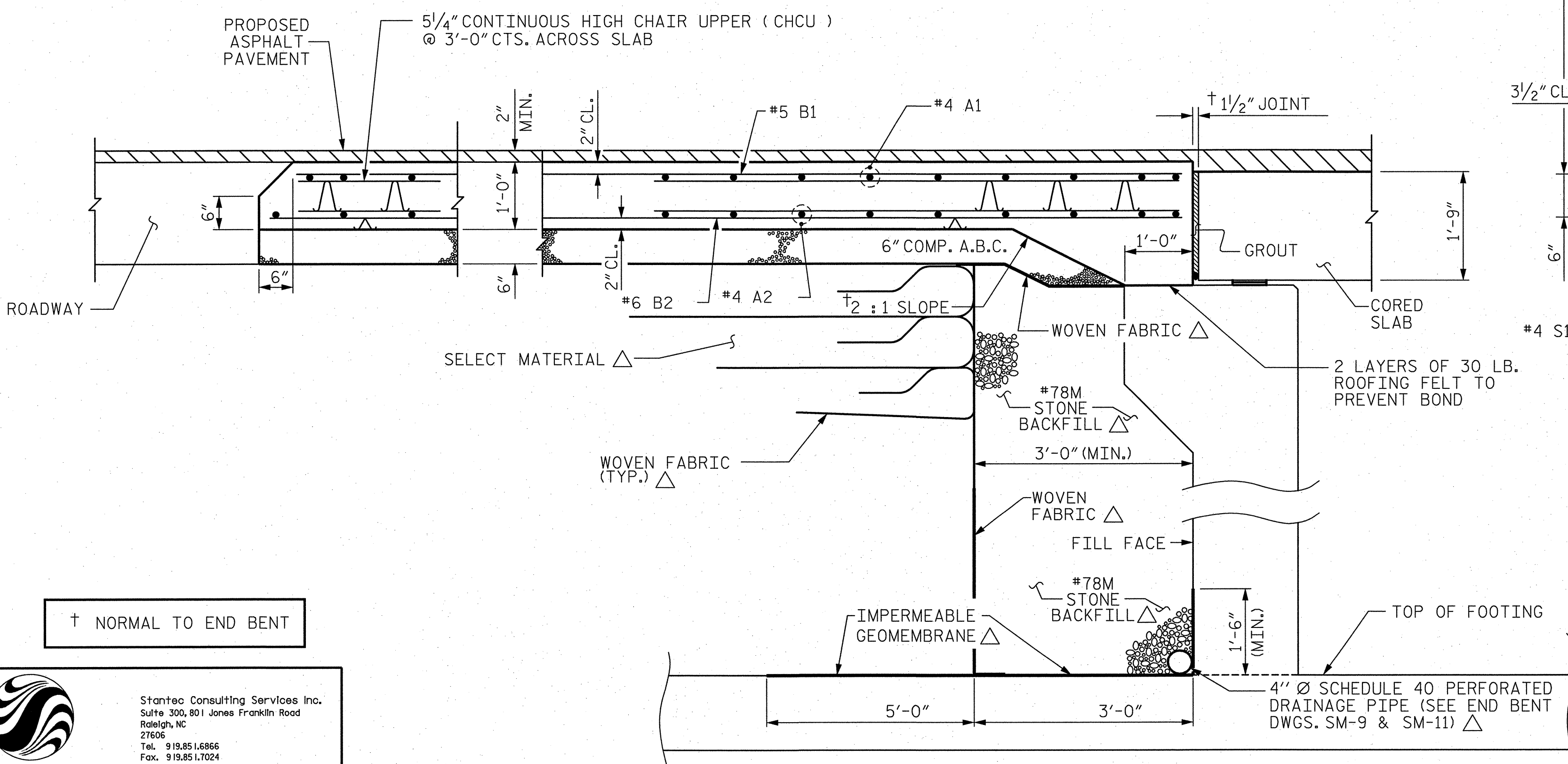
Stantec

DRAWN BY: J. L. HENNEKES DATE: 08-17-09
CHECKED BY: T. R. DUDECK DATE: 08-17-09

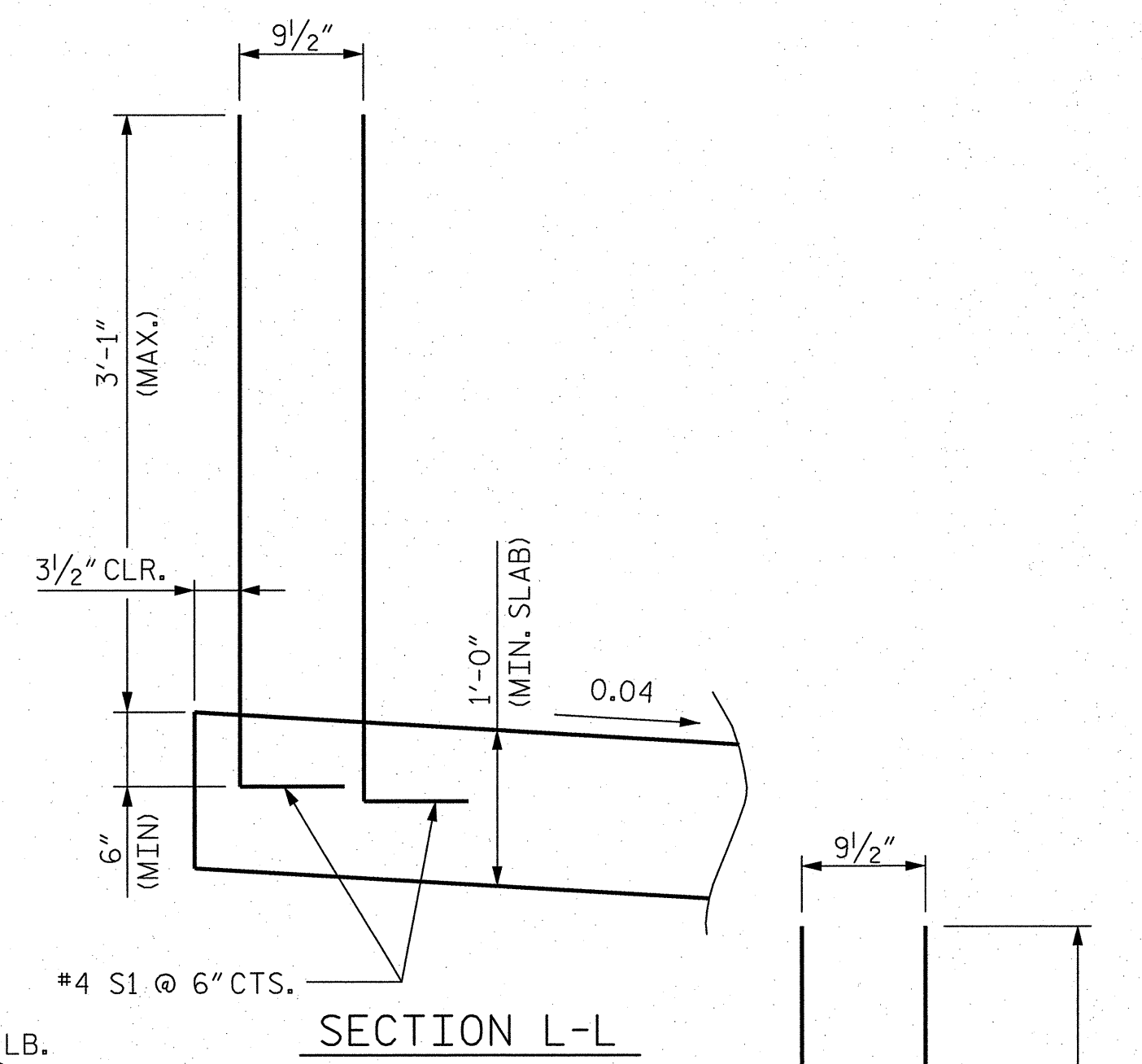
u:\structures\morehead road over tramway\drawing\morehead_l2_sub_BOM.dgn 10/16/2009 2:22:21 PM \$USER\$



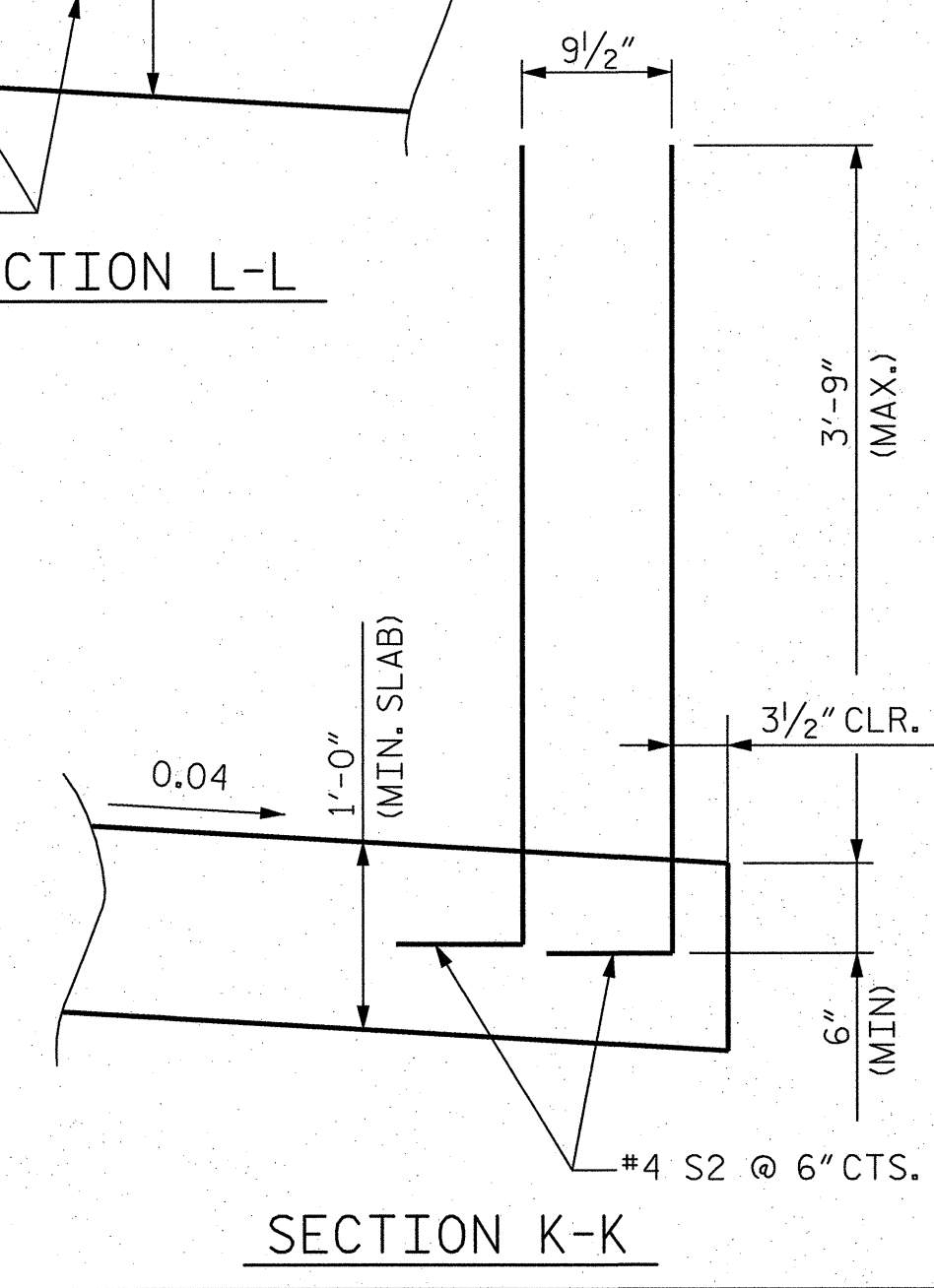
PLAN @ END BENT #1
 PLAN @ END BENT #2
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS
 O - DENOTES GUARDRAIL ANCHORAGE. SEE DWG. SM-15 FOR DETAILS.



SECTION THRU SLAB
 Δ ROADWAY DETAIL AND PAY ITEM



SECTION L-L



SECTION K-K

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO SETTING CORED SLABS.
 FOR MODIFIED REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.
 AREA BETWEEN THE WING WALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE. 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 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.
 ALL REINFORCING STEEL IN SIDEWALKS AND PARAPETS SHALL BE EPOXY COATED.
 ALL CONCRETE FOR APPROACH SLABS, SIDEWALKS, AND PARAPETS SHALL BE CLASS AA.
 FOR SECTIONS H-H, I-I, N-N, AND M-M SEE SHEET NO. SM-14.

BILL OF MATERIAL					
FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	42	#4	STR	28'-3"	293
A2	42	#4	STR	28'-1"	788
*B1	161	#5	STR	14'-2"	2379
B2	161	#6	STR	14'-8"	3547
*B3	16	#5	STR	14'-8"	245
*B4	4	#6	STR	3'-3"	20
*B5	4	#6	STR	1'-4"	8
*B6	4	#6	STR	2'-5"	15
*B7	4	#7	STR	2'-7"	21
*B8	4	#7	STR	3'-0"	25
*B9	4	#7	STR	3'-5"	28
*B10	4	#7	STR	3'-10"	31
*B11	4	#7	STR	4'-2"	34
*D1	112	#4	STR	1'-0"	75
*S1	58	#4	1	4'-7"	178
*S2	58	#4	1	5'-3"	203
*S3	30	#4	2	4'-10"	97
*S4	18	#4	STR	14'-8"	176
*S5	30	#4	3	6'-8"	134
*S6	30	#4	STR	4'-0"	80
REINFORCING STEEL				LBS.	4335
*EPOXY COATED REINFORCING STEEL				LBS.	4542
CLASS AA CONCRETE BREAKDOWN					
POUR 1 SLAB				C. Y.	50.0
POUR 2 SIDEWALK				C. Y.	7.2
POUR 3 PARAPET				C. Y.	3.9
CLASS AA CONCRETE				C. Y.	61.1
BAR TYPES					
ALL BAR DIMENSIONS ARE OUT TO OUT					

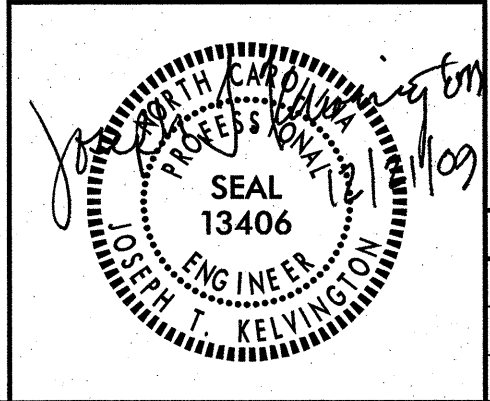


PROJECT NO. 42729 (U-5145)
 CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB

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



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DRAWN BY: B. J. ELLIOT DATE: 08-17-09
 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09

NOTES:

STEEL FOR SIDEWALK COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL.

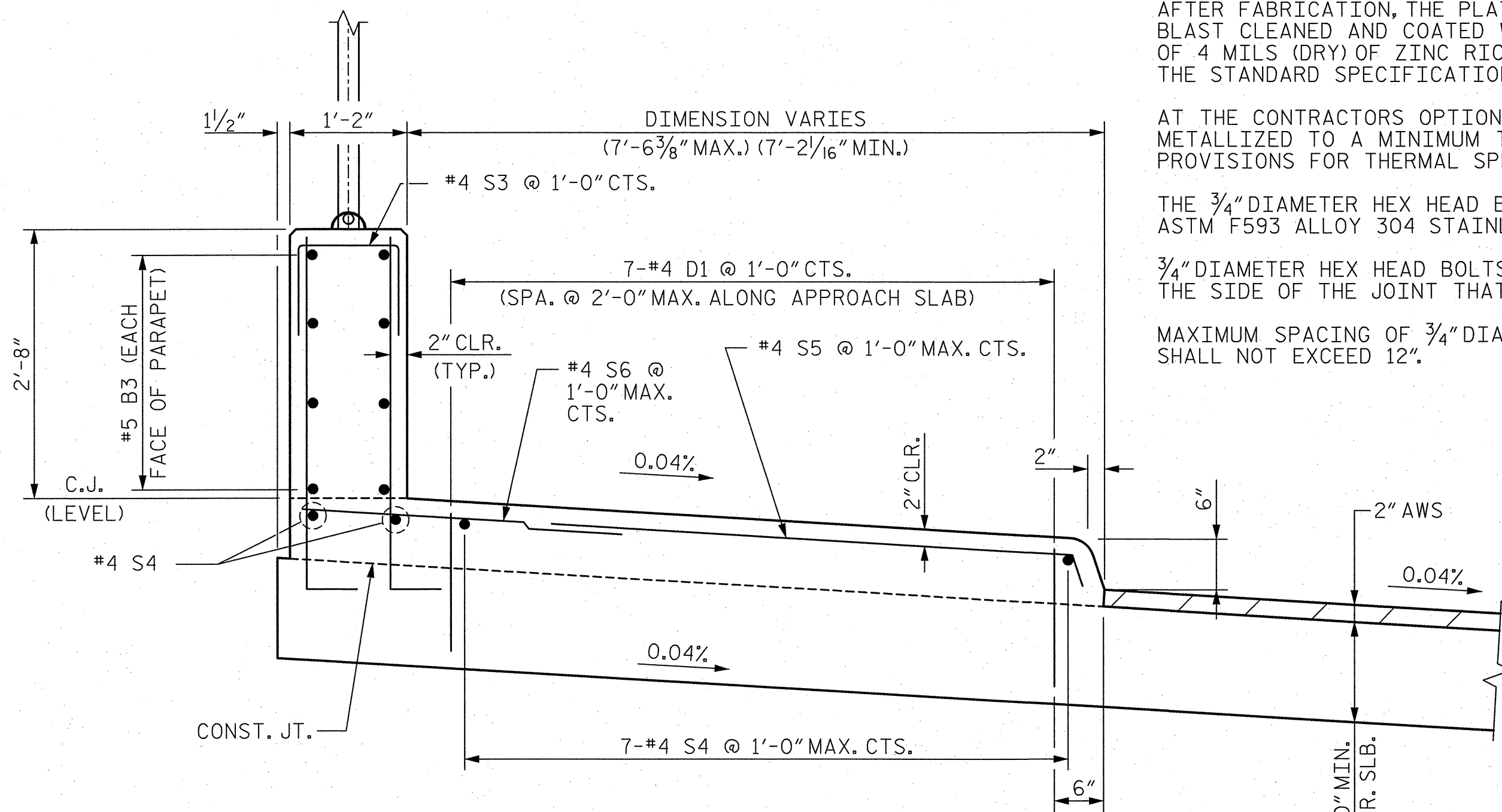
AFTER FABRICATION, THE PLATES SHALL BE COMMERCIALY BLAST CLEANED AND COATED WITH A MINIMUM THICKNESS OF 4 MILS (DRY) OF ZINC RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT THE CONTRACTORS OPTION, THESE SURFACES MAY BE METALLIZED TO A MINIMUM THICKNESS OF 6 MILS. SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

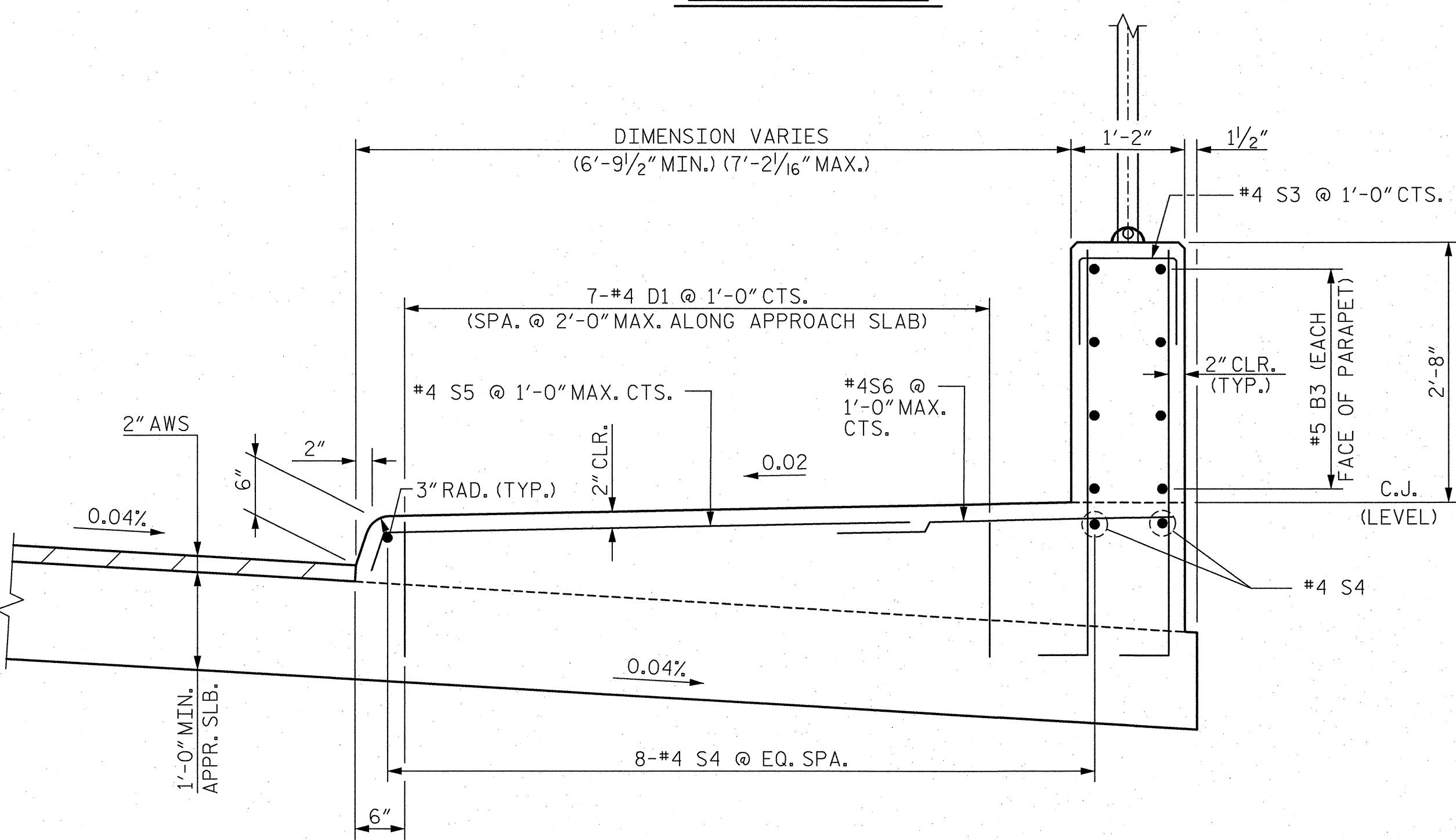
THE 3/4" DIAMETER HEX HEAD BOLTS SHALL CONFORM TO ASTM F593 ALLOY 304 STAINLESS STEEL.

3/4" DIAMETER HEX HEAD BOLTS AND FERULES SHALL BE MOUNTED ON THE SIDE OF THE JOINT THAT IS CLOSEST TO APPROACHING TRAFFIC.

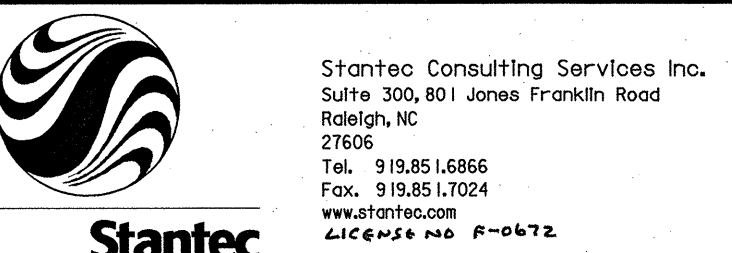
MAXIMUM SPACING OF 3/4" DIAMETER BOLTS ALONG THE JOINT SHALL NOT EXCEED 12".



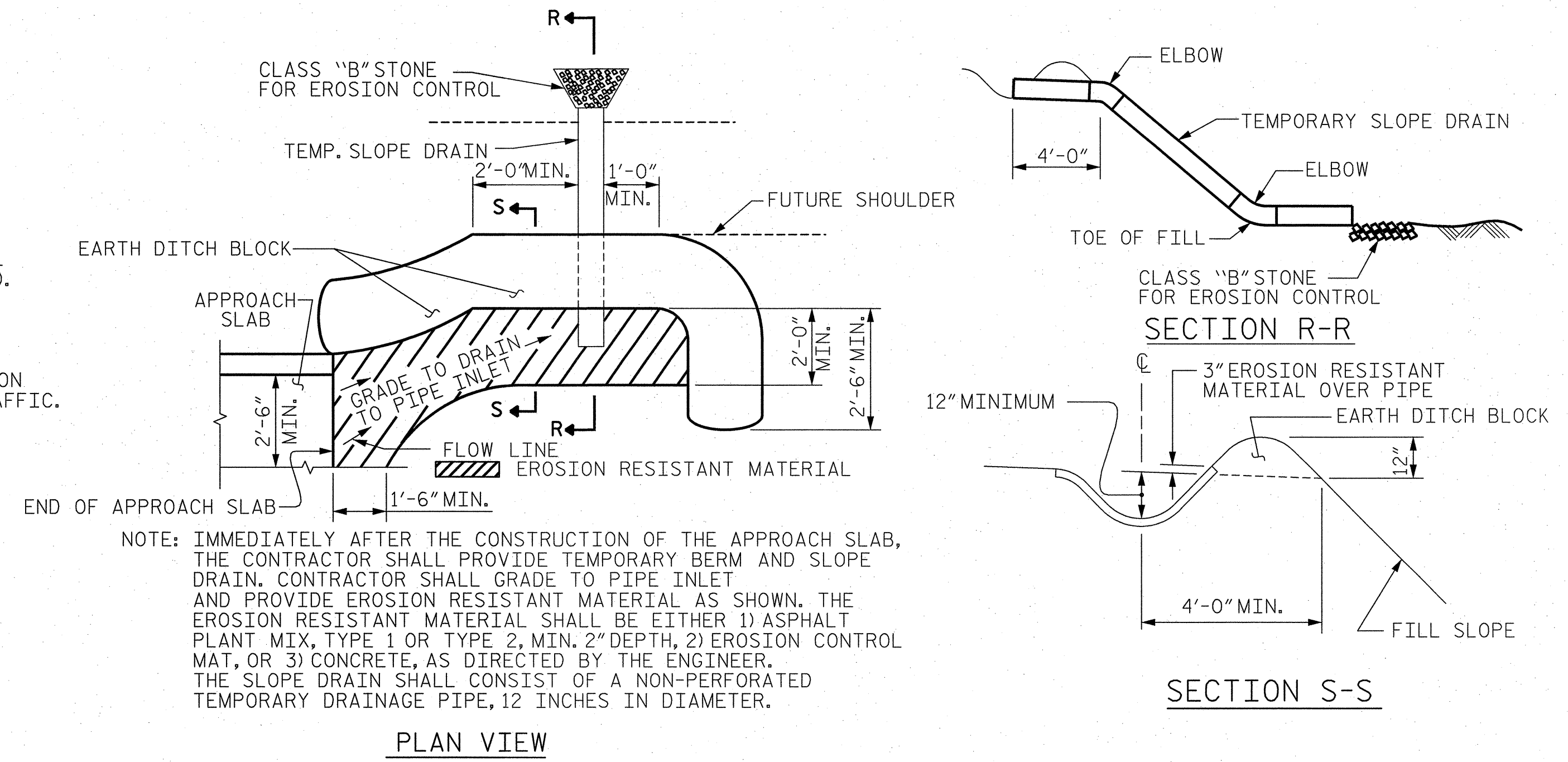
SECTION N-N



SECTION M-M

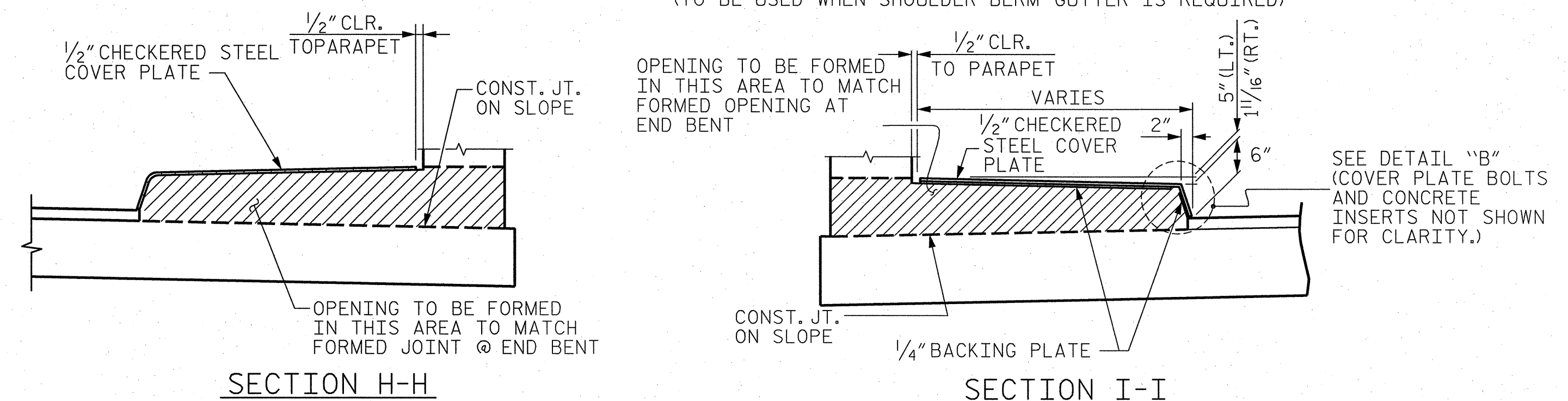


DRAWN BY: J. L. HENNEKES DATE: 08-17-09
 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09



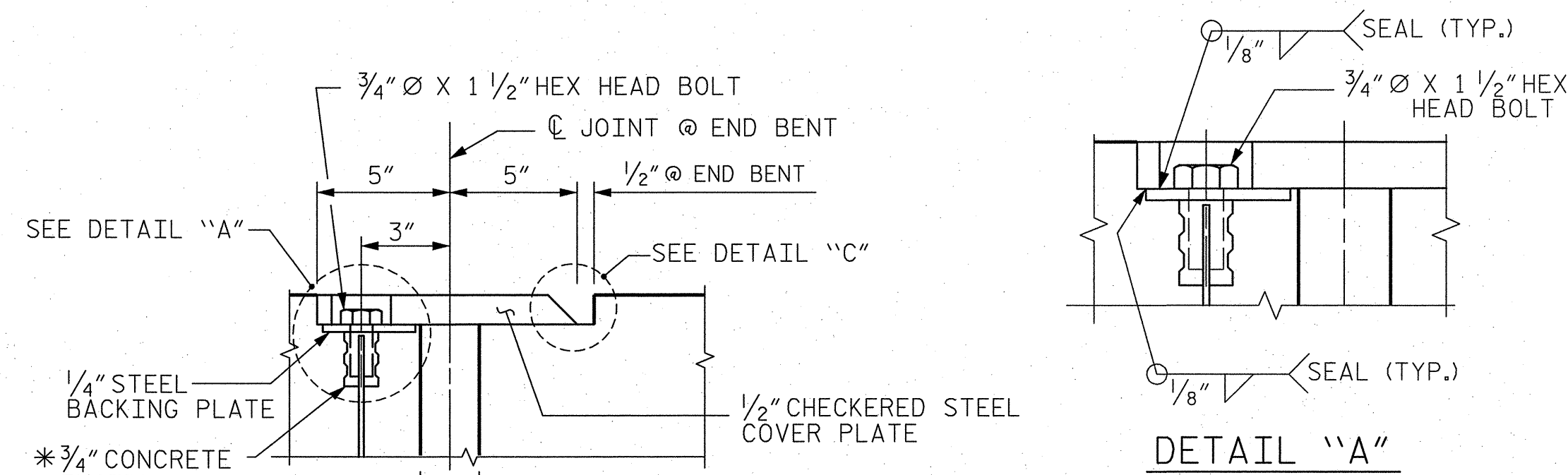
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



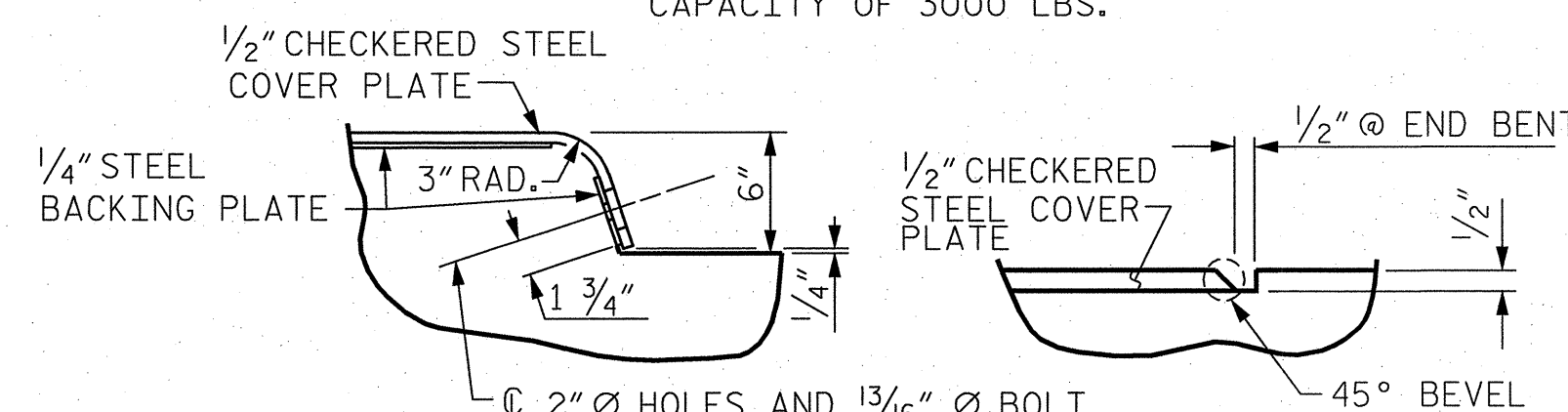
SECTION H-H

SECTION I-I



SECTION K-K

DETAIL "A"



DETAIL "B"

DETAIL "C"

JOINT SEAL DETAILS @ END BENT



PROJECT NO. 42729 (U-5145)
 CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-14
1			3			TOTAL SHEETS
2			4			16

STD. NO. BAS10

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.

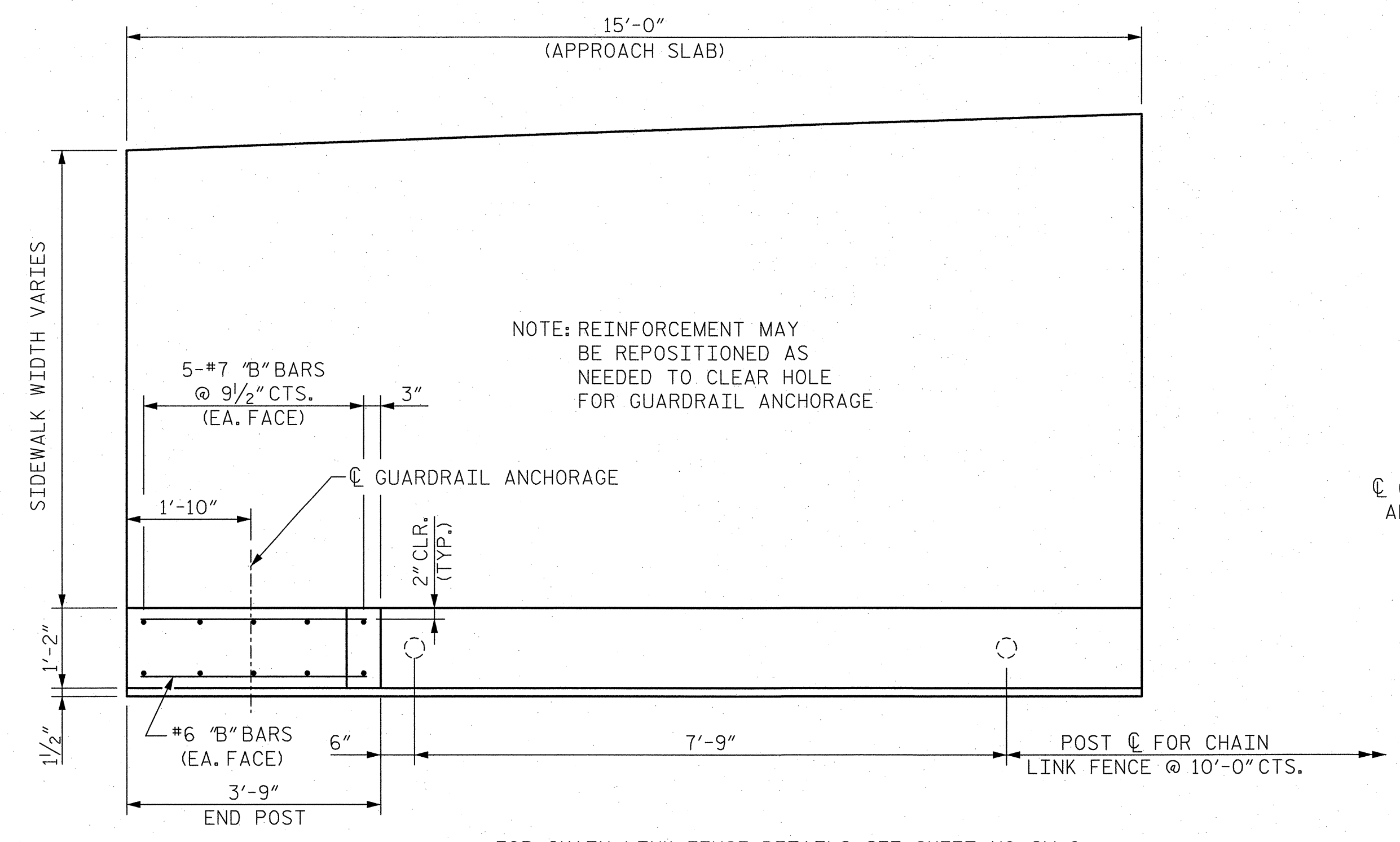
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

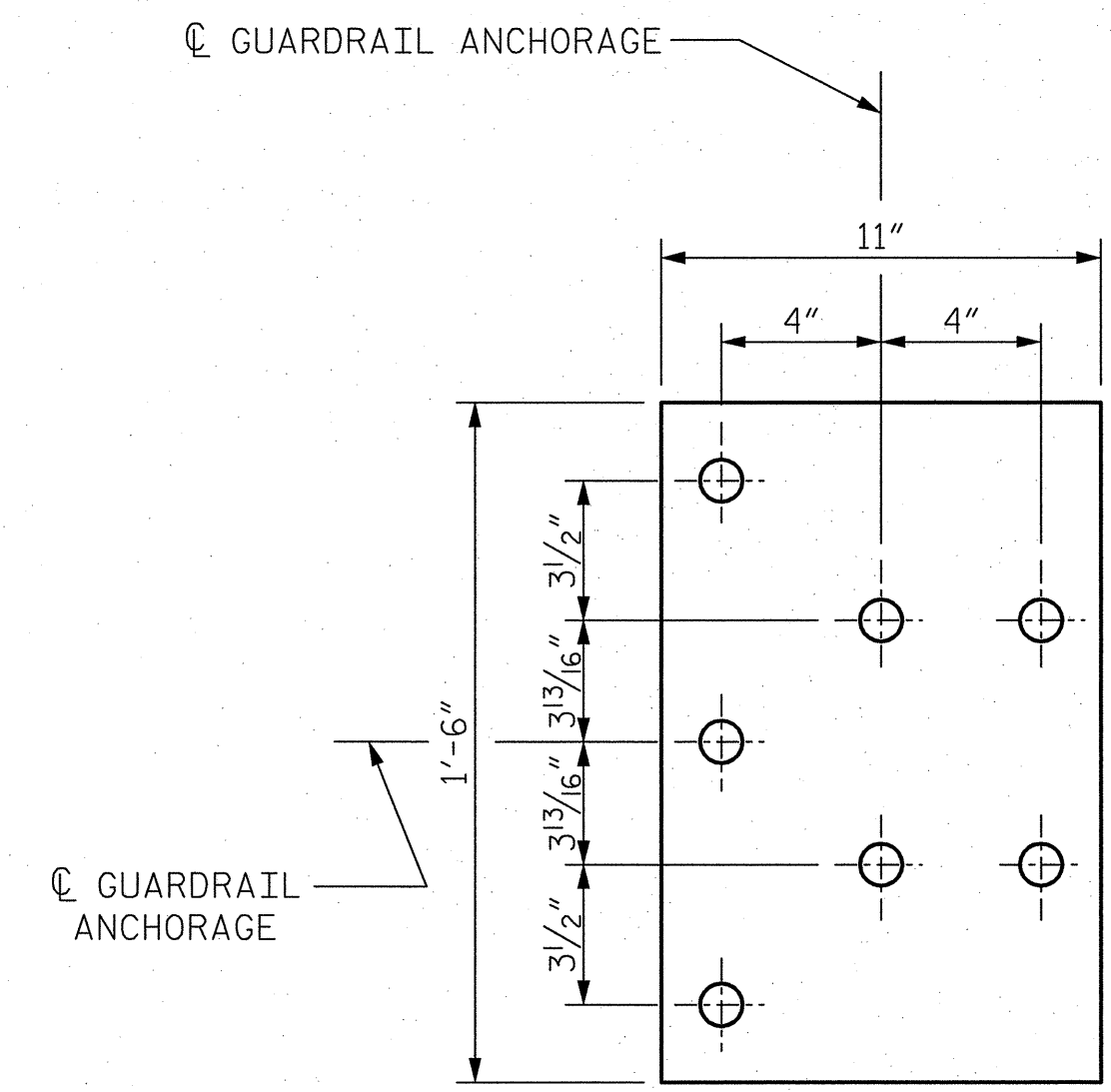
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

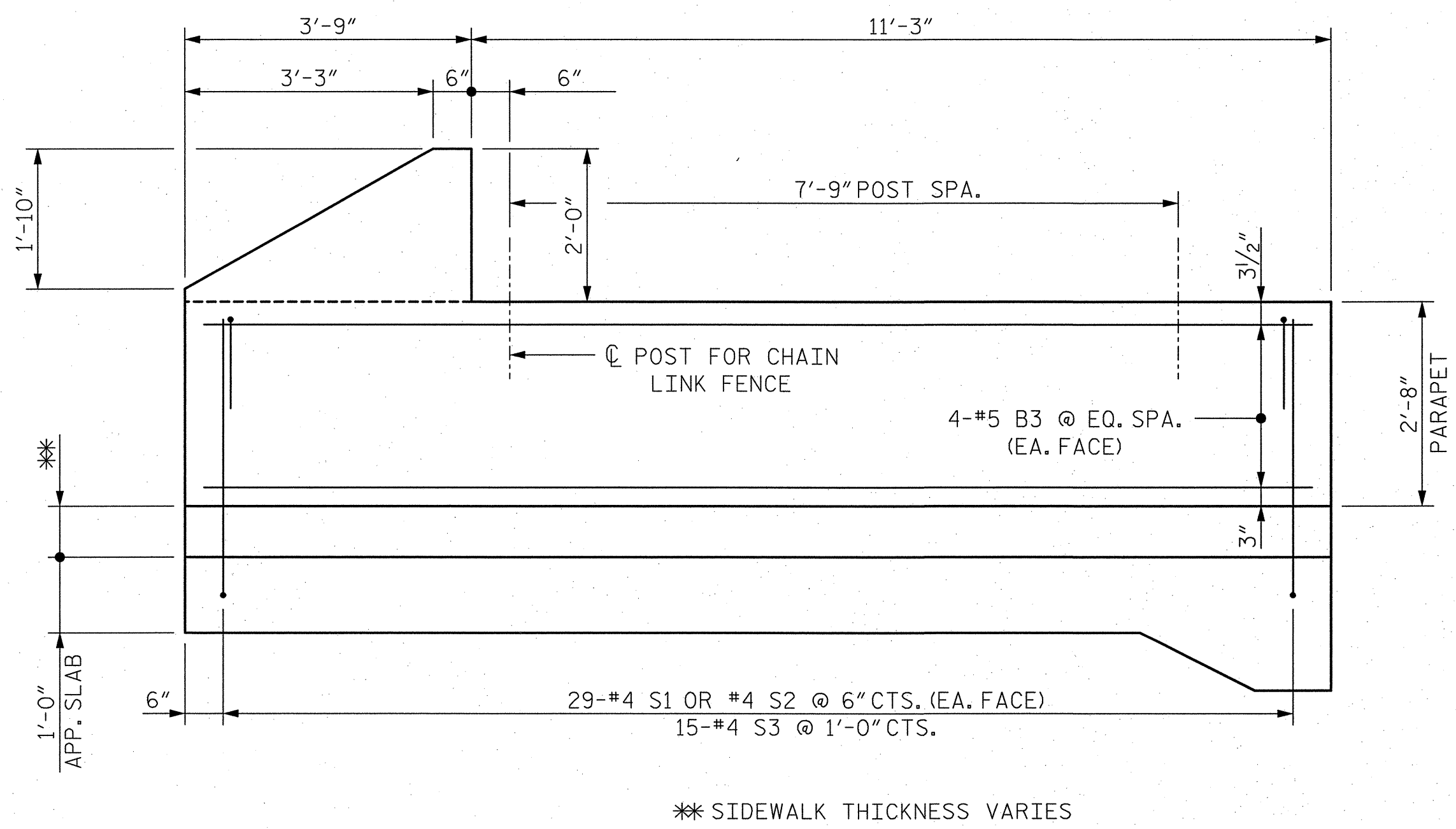
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



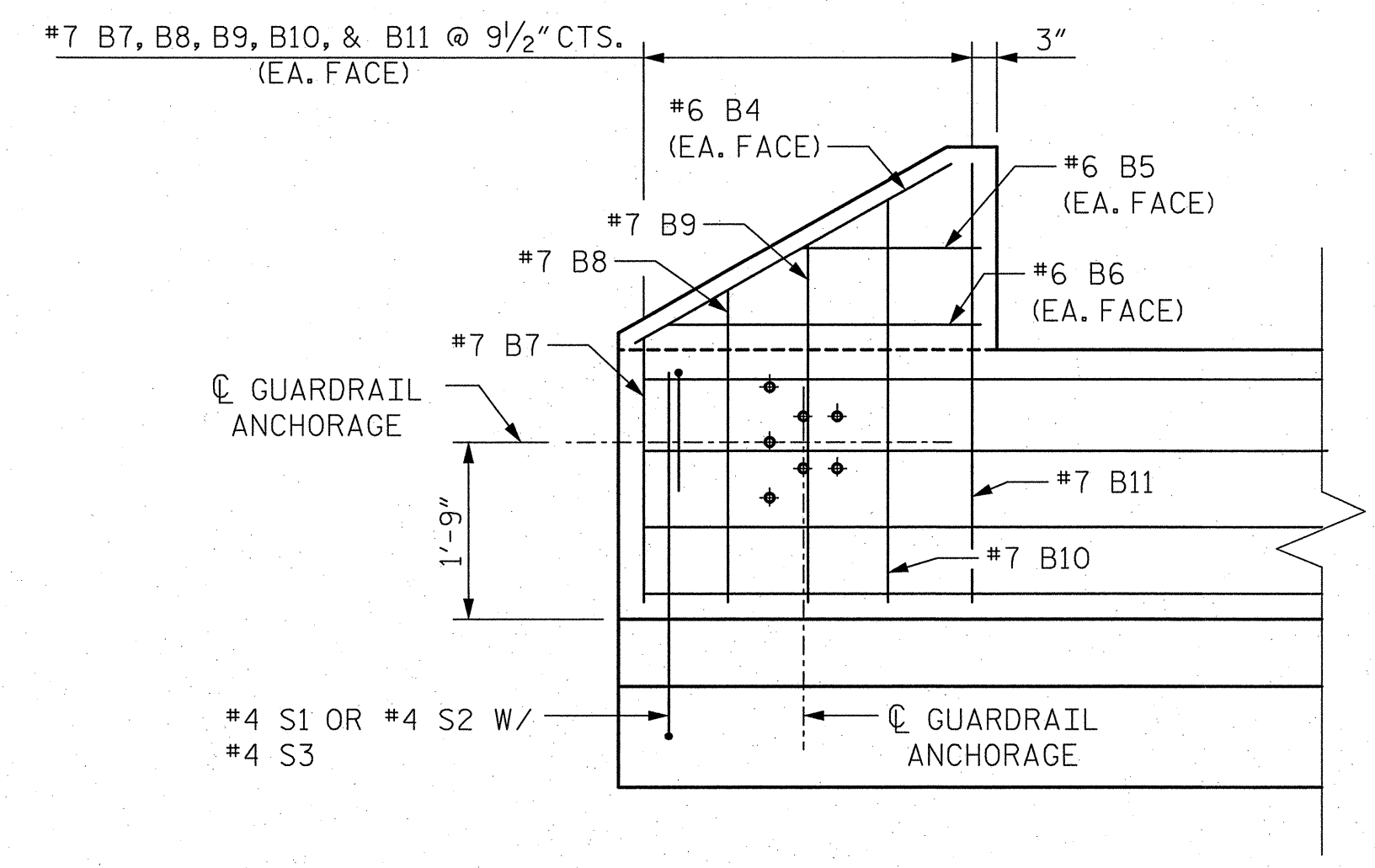
FOR CHAIN LINK FENCE DETAILS, SEE SHEET NO. SM-6
PARAPET & END POST PLAN
 (TYP. EA. SIDE @ BOTH END BENTS)



GUARDRAIL ANCHORAGE PLATE



PARAPET & END POST ELEVATION

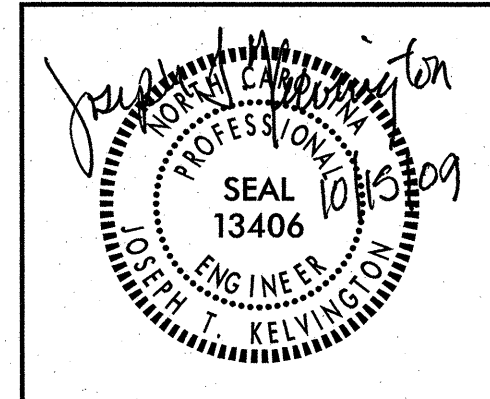


END POST ELEVATION



PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
APPROACH SLAB DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	SM-15	
1			3			TOTAL SHEETS	16
2			4				

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DRAWN BY: B. J. ELLIOT DATE: 08-17-09
 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								SERVICE III LIMIT STATE				COMMENT NUMBER		
						MOMENT				SHEAR				MOMENT						
						LIVE-LOAD FACTORS (γ _L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN NUMBER	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN NUMBER	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (γ _L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR		SPAN NUMBER	DISTANCE FROM LEFT END OF SPAN (FT)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.39	--	1.75	0.38	1.45	A	21.4	0.60	1.32	A	2.5	0.80	0.38	1.84	A	21.4	
	HL-93 (OPERATING)	N/A	1	1.80	--	1.35	0.38	1.87	A	21.4	0.60	1.71	A	2.5	N/A	--	--	--	--	
	HS-20 (INVENTORY)	36.00	2	1.69	60.8	1.80	0.38	1.77	A	21.4	0.60	1.69	A	2.5	1.00	0.38	2.26	A	21.4	
	HS-20 (OPERATING)	36.00	2	2.19	78.8	1.35	0.38	2.30	A	21.4	0.60	2.19	A	2.5	N/A	--	--	--	--	
LEGAL LOAD RATING	SNSH	13.50	3	3.32	44.8	1.80	0.38	3.32	A	21.4	0.60	3.87	A	12.6	1.00	0.38	3.49	A	21.4	
	SNGAR BS2	20.00	3	2.70	54.0	1.80	0.38	2.70	A	21.4	0.60	2.83	A	12.6	1.00	0.38	2.83	A	21.4	
	SNCOT TS3	27.25	3	1.66	45.2	1.80	0.38	1.66	A	21.4	0.60	1.70	A	12.6	1.00	0.38	1.74	A	21.4	
	SNAG RIS2	22.00	3	2.63	57.9	1.80	0.38	2.63	A	17.0	0.60	2.69	A	12.6	1.00	0.38	2.78	A	17.0	
	SNAG GRS4	34.93	3	1.47	51.3	1.80	0.38	1.47	A	21.4	0.60	1.53	A	2.5	1.00	0.38	1.54	A	21.4	
	SNS5A	35.55	3	1.43	50.8	1.80	0.38	1.43	A	21.4	0.60	1.61	A	2.5	1.00	0.38	1.50	A	21.4	
	SNS6A	39.95	3	1.35	53.9	1.80	0.38	1.35	A	21.4	0.60	1.45	A	2.5	1.00	0.38	1.42	A	21.4	
	SNS7B	42.00	3	1.29	54.2	1.80	0.38	1.29	A	21.4	0.60	1.48	A	2.5	1.00	0.38	1.35	A	21.4	
	TNT4A	33.08	3	1.67	55.2	1.80	0.38	1.68	A	21.4	0.60	1.67	A	12.6	1.00	0.38	1.76	A	21.4	
	TNAG RIT3	33.00	3	1.66	54.8	1.80	0.38	1.66	A	21.4	0.60	1.82	A	12.6	1.00	0.38	1.74	A	21.4	
	TNAG RIT4	44.00	3	1.29	56.8	1.80	0.38	1.43	A	21.4	0.60	1.29	A	2.5	1.00	0.38	1.50	A	21.4	
	TNT6A	41.60	3	1.44	59.9	1.80	0.38	1.44	A	21.4	0.60	1.72	A	2.5	1.00	0.38	1.51	A	21.4	
	TNT7A	42.00	3	1.44	60.5	1.80	0.38	1.44	A	21.4	0.60	1.46	A	2.5	1.00	0.38	1.51	A	21.4	
	TNT7B	42.00	3	1.44	60.5	1.80	0.38	1.44	A	21.4	0.60	1.46	A	2.5	1.00	0.38	1.51	A	21.4	
	TNAG RIT5A	45.00	3	1.33	59.8	1.80	0.38	1.33	A	21.4	0.60	1.34	A	2.5	1.00	0.38	1.40	A	21.4	
TNAG RIT5B	45.00	3	1.17	52.6	1.80	0.38	1.30	A	21.4	0.60	1.17	A	2.5	1.00	0.38	1.36	A	21.4		

LOAD FACTORS:

LIMIT STATE	γ _{DC}	γ _{DW}
STRENGTH I	1.25	1.50
SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS FOR DESIGN LOAD RATING ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

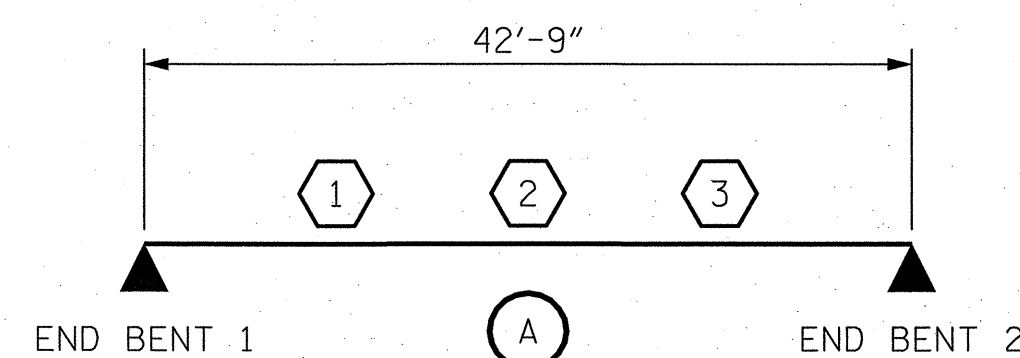
MINIMUM RATING FACTORS FOR LEGAL LOAD RATING ARE BASED ON THE STRENGTH I LIMIT STATE.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1. DISTRIBUTION FACTORS SHOWN ARE EXPRESSIONS OF TRUCKS PER CORED SLAB UNIT.
2. (A) DENOTES SPAN DESIGNATION.
3. LEGAL LOAD RATINGS ARE FROM NCDOT VEHICLE DESCRIPTIONS REVISED 7/31/08.

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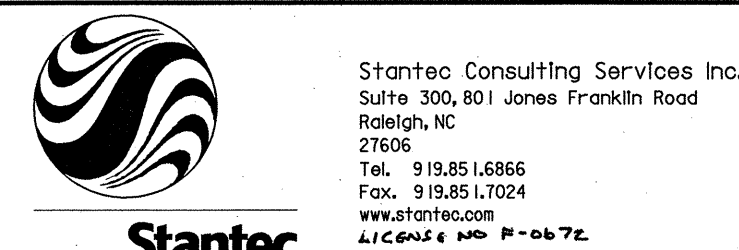
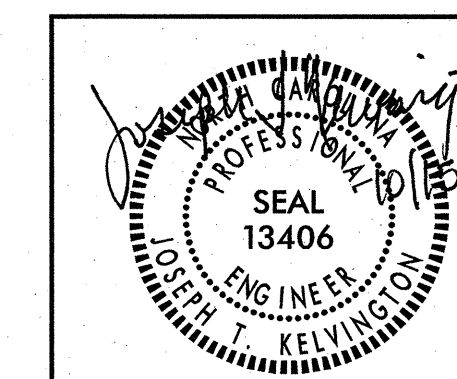
LRFR SUMMARY

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93) **
2	DESIGN LOAD RATING (HS-20) **
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



PROJECT NO. 42729 (U-5145)
CABARRUS COUNTY
 STATION: 154+25.00 -L-

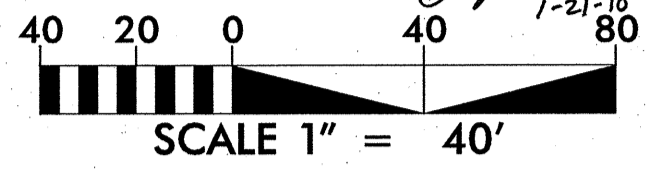
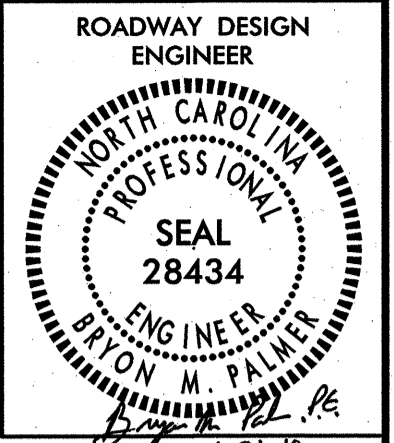
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. SM-16
					TOTAL SHEETS 16



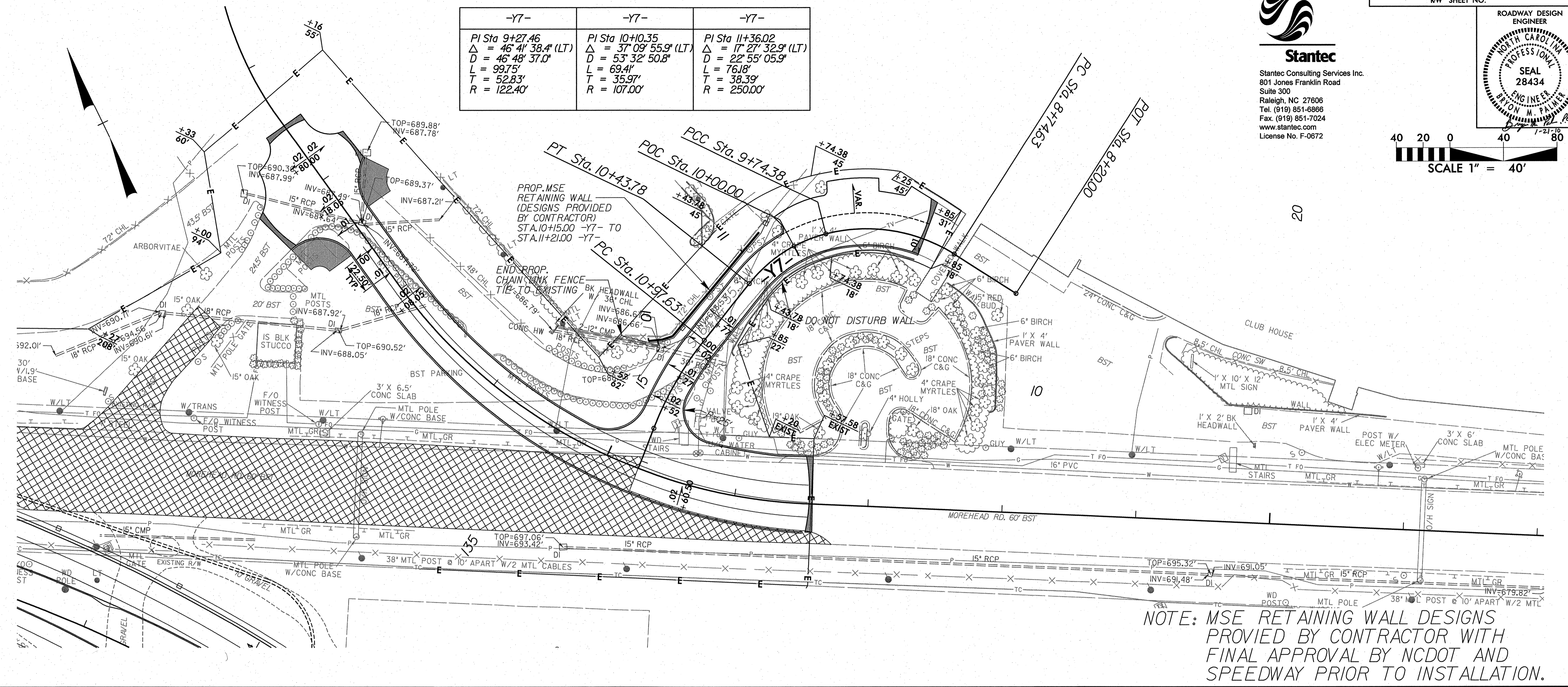
DRAWN BY: R.M. CULLEN DATE: 08-17-09
 CHECKED BY: J. T. KELVINGTON DATE: 08-17-09



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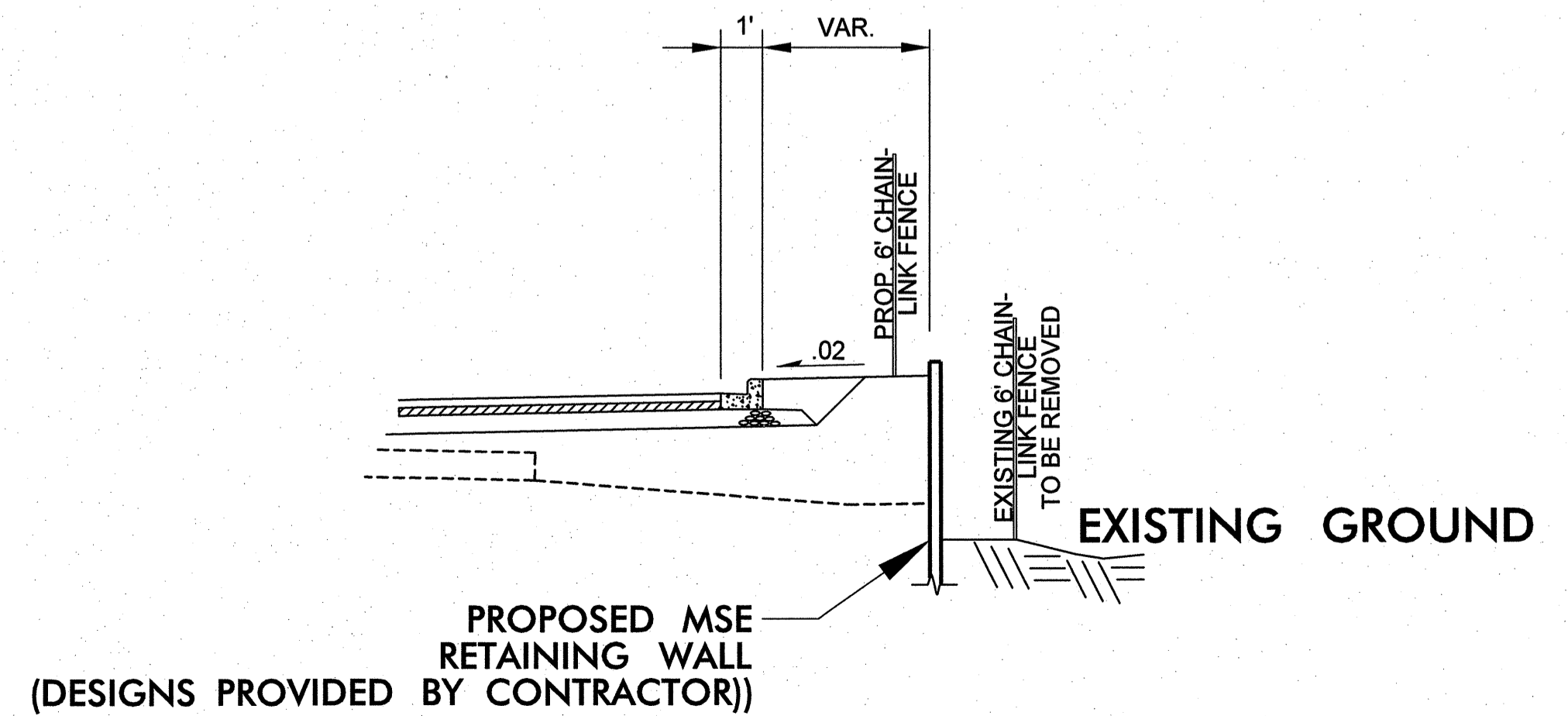
-Y7-	-Y7-	-Y7-
PI Sta 9+27.46	PI Sta 10+10.35	PI Sta 11+36.02
$\Delta = 46' 41'' 38.4''$ (LT)	$\Delta = 37' 09'' 55.9''$ (LT)	$\Delta = 17' 27'' 32.9''$ (LT)
$D = 46' 48'' 37.0''$	$D = 53' 32'' 50.8''$	$D = 22' 55'' 05.9''$
$L = 99.75'$	$L = 69.4'$	$L = 76.18'$
$T = 52.83'$	$T = 35.97'$	$T = 38.39'$
$R = 122.40'$	$R = 107.00'$	$R = 250.00'$



NOTE: MSE RETAINING WALL DESIGNS PROVIDED BY CONTRACTOR WITH FINAL APPROVAL BY NCDOT AND SPEEDWAY PRIOR TO INSTALLATION.

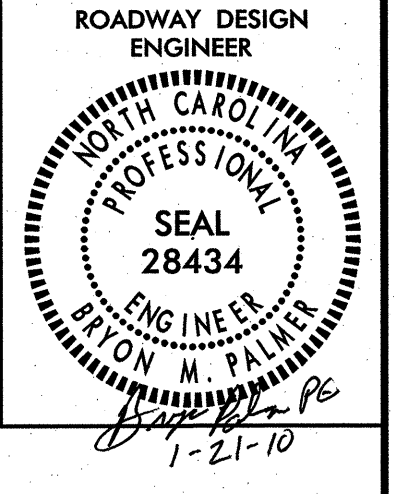
MSE RETAINING WALL		APPROX. TOP OF WALL	
710			
702			
694			
686			
678			
670			
662			
	10	11	

— APPROX. TOP OF WALL
- - - APPROX. BOTTOM OF WALL / EXISTING GROUND

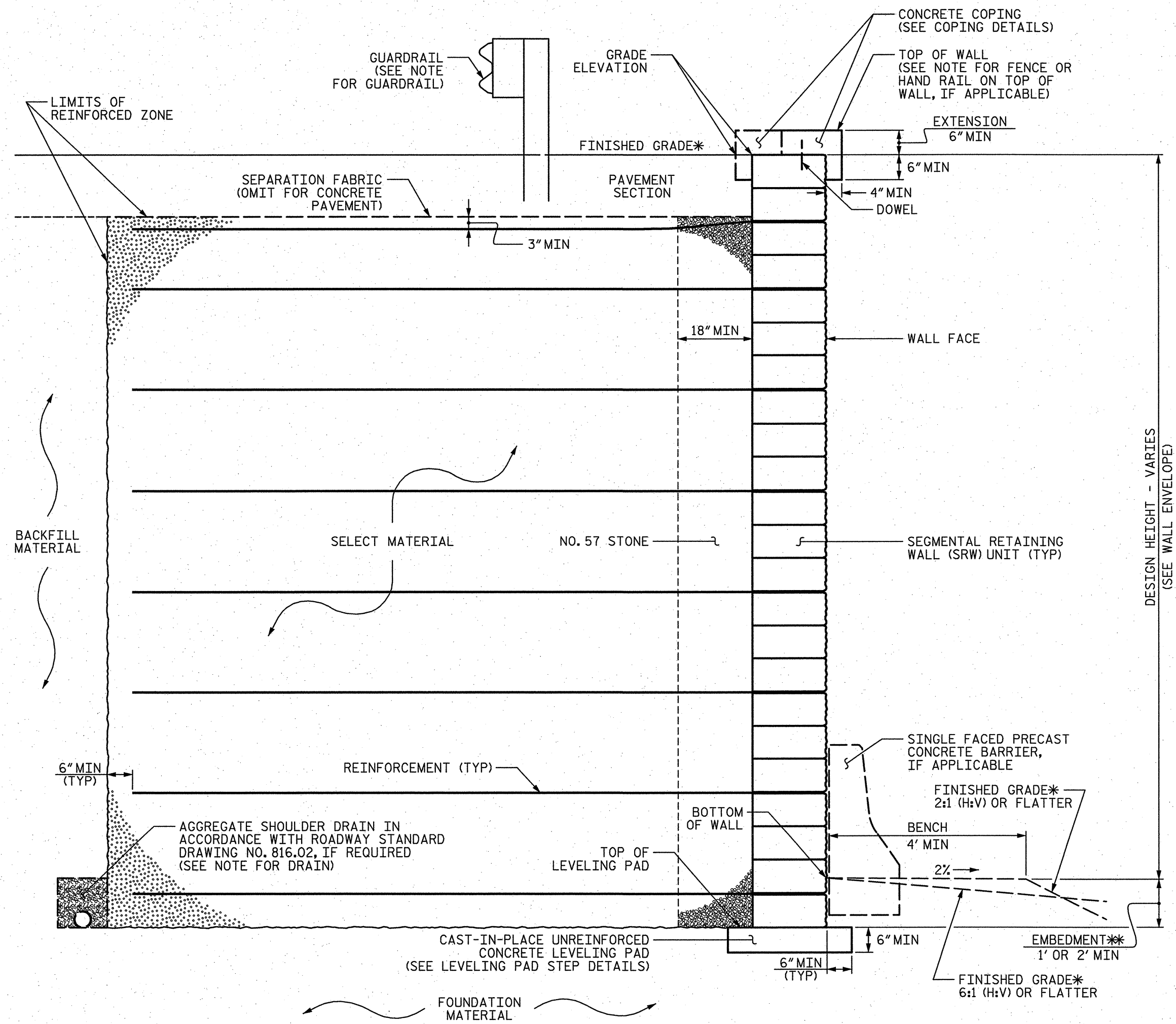


STA. 10+15.00 TO 11+21.00 (RT) -Y7-

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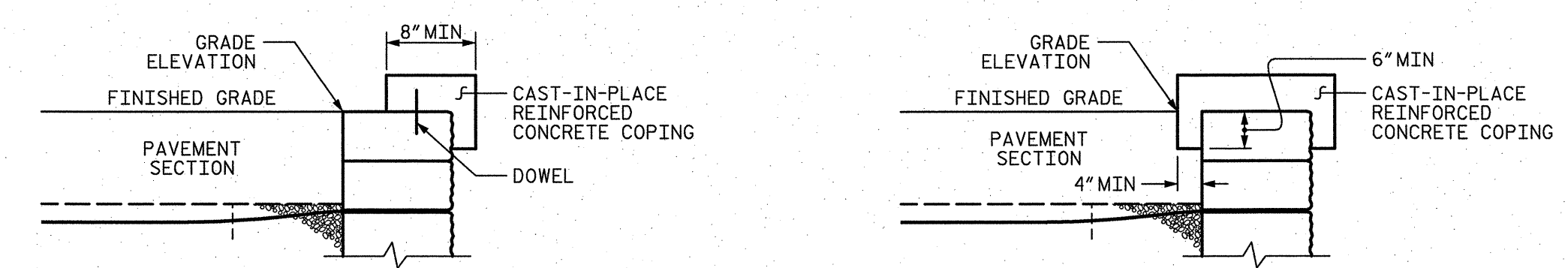


MSE RETAINING WALL DETAIL AND NOTES



MSE WALL WITH SRW UNITS TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.
 **SEE MSE RETAINING WALLS PROVISION FOR EMBEDMENT REQUIREMENTS.



COPING DETAILS

AT THE CONTRACTOR'S OPTION, CONNECT COPING TO SRW UNITS WITH DOWELS OR EXTEND COPING DOWN BACK OF SRW UNITS.

NOTES

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.
 FOR GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.
 A FENCE OR HAND RAIL IS REQUIRED ON TOP OF RETAINING WALL. 72" CHAIN LINK FENCE SHALL BE USED AS SHOWN IN THE ROADWAY PLANS. FENCE ATTACHMENTS TO THE WALL OR PLACEMENT DIRECTIONS IN THE ROAD SHOULDER SHALL BE PROVIDED BY THE WALL DESIGNER AND ACCEPTED BY DOT PRIOR TO INSTALLATION.
 USE AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL UNITS FOR RETAINING WALL.
 BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL, SURVEY EXISTING GROUND ELEVATIONS SHOWN ON THE WALL PROFILE VIEW (WALL ENVELOPE) AND SUBMIT A REVISED WALL ENVELOPE FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THIS ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL FOR WALL HEIGHTS EQUAL TO THE DESIGN HEIGHT (DIFFERENCE BETWEEN GRADE ELEVATION AND BOTTOM OF WALL ELEVATION) PLUS EMBEDMENT (DIFFERENCE BETWEEN BOTTOM OF WALL ELEVATION AND TOP OF LEVELING PAD ELEVATION).

- DESIGN RETAINING WALL FOR THE FOLLOWING:
 1) MINIMUM SERVICE LIFE = 75 YEARS
 2) PRESUMPTIVE ALLOWABLE BEARING CAPACITY = 2000 PSF
 3) SELECT MATERIAL PARAMETERS:

MATERIAL STANDARD SIZE NO. (IN ACCORDANCE WITH SECTIONS 1005 AND 1014 OF THE STANDARD SPECIFICATIONS)	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
2S AND 2MS	125	34	0
57, 67 AND 78M	110	38	0

4) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (gamma) PCF	FRICTION ANGLE (phi) DEGREES	COHESION (c) PSF
BACKFILL	110	25	0
FOUNDATION	110	25	0

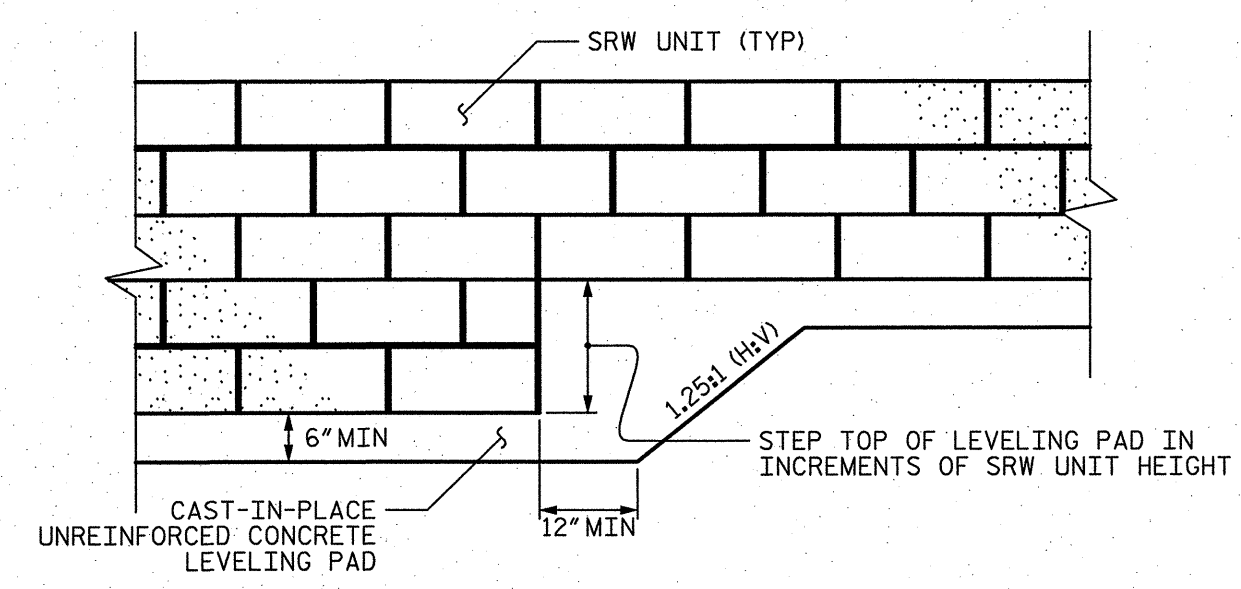
ALL IN-SITU MATERIAL PARAMETERS SHALL BE VERIFIED BY THE CONTRACTOR AND ACCEPTED PRIOR TO STARTING WALL DESIGN.

DESIGN RETAINING WALL FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

DO NOT PLACE LEVELING PAD CONCRETE, SELECT MATERIAL OR REINFORCEMENT FOR RETAINING WALL UNTIL OBTAINING APPROVAL OF THE EXCAVATION DEPTH AND FOUNDATION MATERIAL.

SEGMENTAL RETAINING WALL UNIT FINISH AND COLOR SHALL BE ACCEPTED BY NCDOT AND CHARLOTTE MOTOR SPEEDWAY PRIOR TO BEGINNING WALL DESIGN.

FILL SLOPES ARE INTENDED TO WRAP AROUND END OF MSE RETAINING WALL OR AS DIRECTED BY ENGINEER. FINAL FILL TREATMENT AT WALL ENDS SHALL BE DETERMINED FOLLOWING WALL ENVELOPE VERIFICATION LISTED ABOVE TO DETERMINE THE FINAL WALL LENGTH NECESSARY TO SERVE THE EXISTING AND FINAL FIELD CONDITIONS.



LEVELING PAD STEP DETAIL

8/17/09
 1/21/2010
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 p.palmer

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINISHES 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