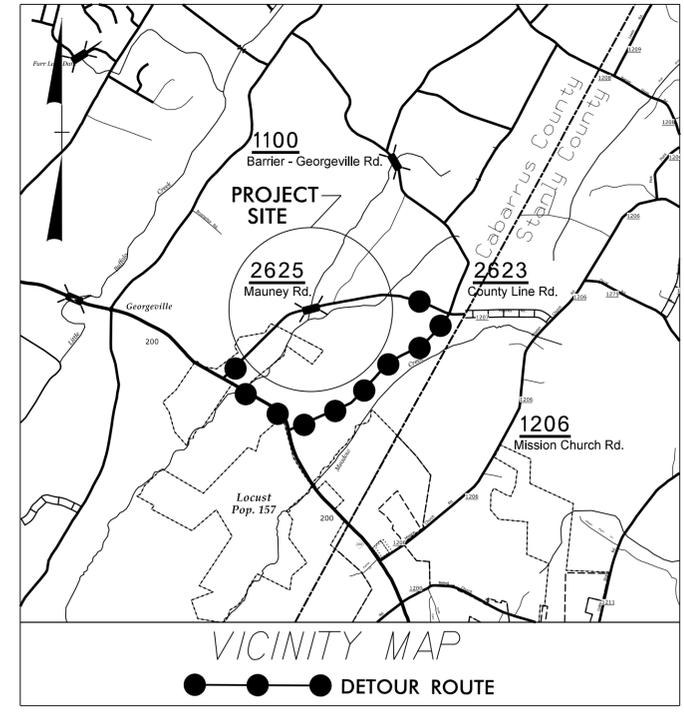


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**STATE PROJECT: BP10-R055**  
**CONTRACT: DJ00585**

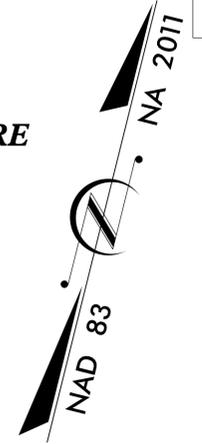
See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



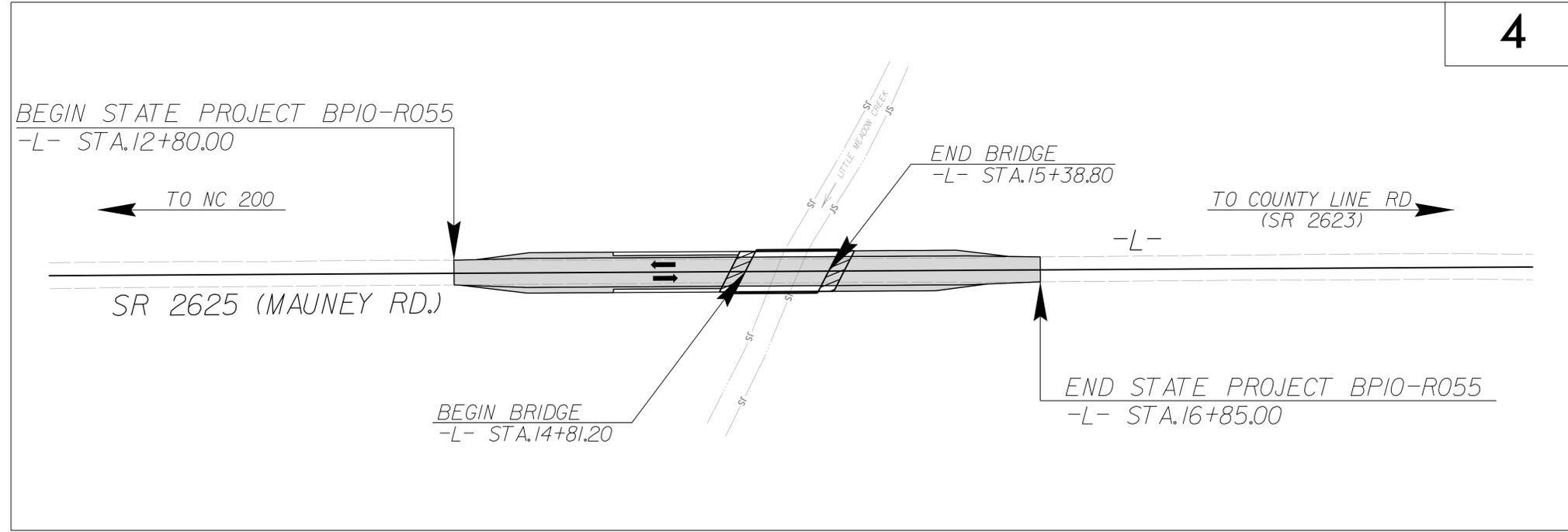
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CABARRUS COUNTY**

**LOCATION: REPLACE BRIDGE NO. 120292 OVER LITTLE MEADOW CREEK ON SR 2625 (MAUNEY RD.)**

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

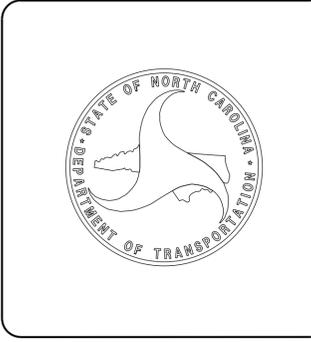


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>BP10-R055</b>	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP10.R055.1		PE	
BP10.R055.2		RW UTIL	
BP10.R055.3		CON	
<b>100% PLANS</b>			



**STRUCTURES**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT 2025 = 150
ADT 2045 = 336
V = 55 MPH
FUNC CLASS = LOCAL
SUB - REGIONAL TIER

**PROJECT LENGTH**

LENGTH OF ROADWAY STATE PROJECT BP10-R055	=	0.066 MILES
LENGTH OF STRUCTURE STATE PROJECT BP10-R055	=	0.011 MILES
TOTAL LENGTH OF STATE PROJECT BP10-R055	=	0.077 MILES



Prepared in the Office of:

**KCI**  
KCI Associates of N.C., P.A.  
4800 Falls of Neuse Road, Suite 200  
Raleigh, NC 27609  
Phone (919) 783-9214  
NC Firm License No: C-0764

Plans Prepared For:

**NCDOT DIVISION 10**  
716 W. Main St.  
Albemarle, NC 28001

2024 STANDARD SPECIFICATIONS

**LETTING DATE:**  
**DECEMBER 3, 2025**

**ROBERT F. DECOLA, P.E.**  
PROJECT ENGINEER

**MATTHEW G. ARMSTRONG, P.E.**  
PROJECT DESIGN ENGINEER

**NCDOT CONTACT:** **YANWEI MA, P.E.**  
DIVISION 10 BRIDGE PROGRAM MANAGER

14+00

15+00

16+00

(-)1.1248%    (+)1.1667%

PI = 14+15.00  
EL = 583.72'  
VC = 120'

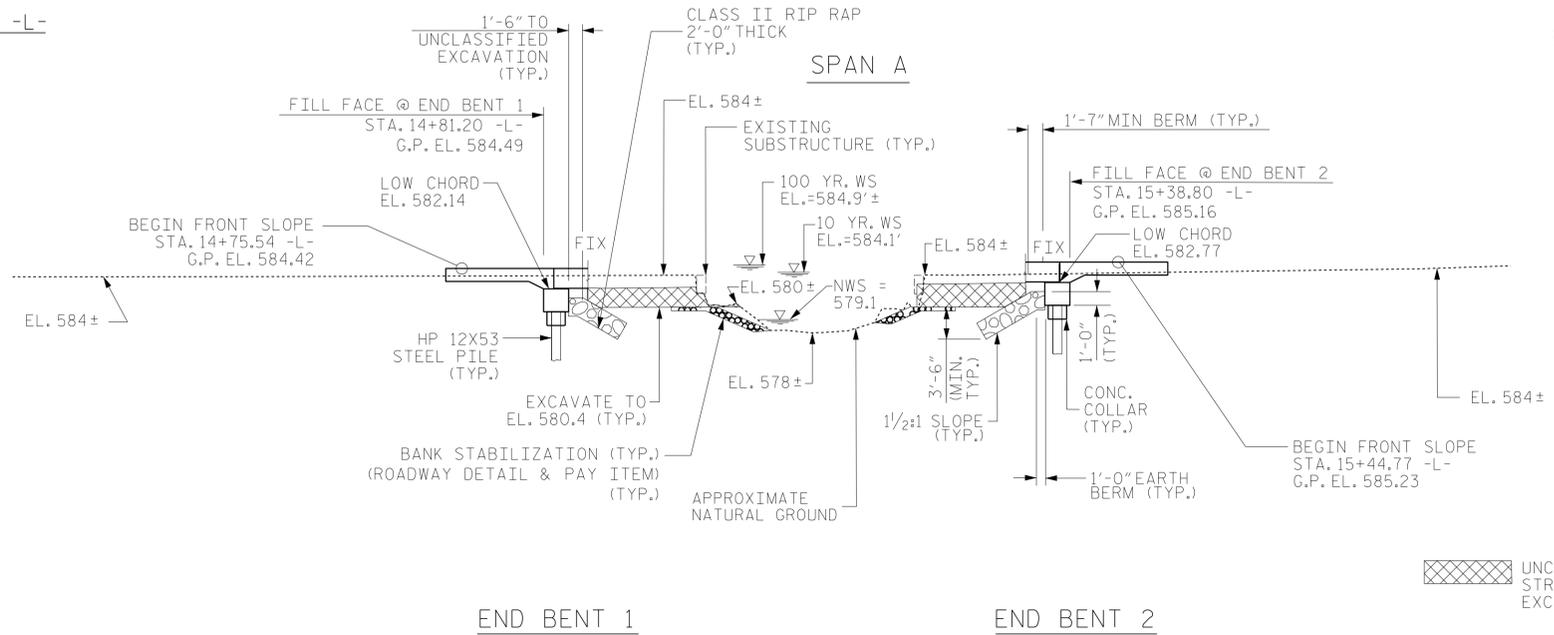
GRADE DATA -L-

(+)1.1667%    (+)3.7427%

PI = 16+10.00  
EL = 585.99'  
VC = 135'

GRADE DATA -L-

600  
590  
580  
570  
560

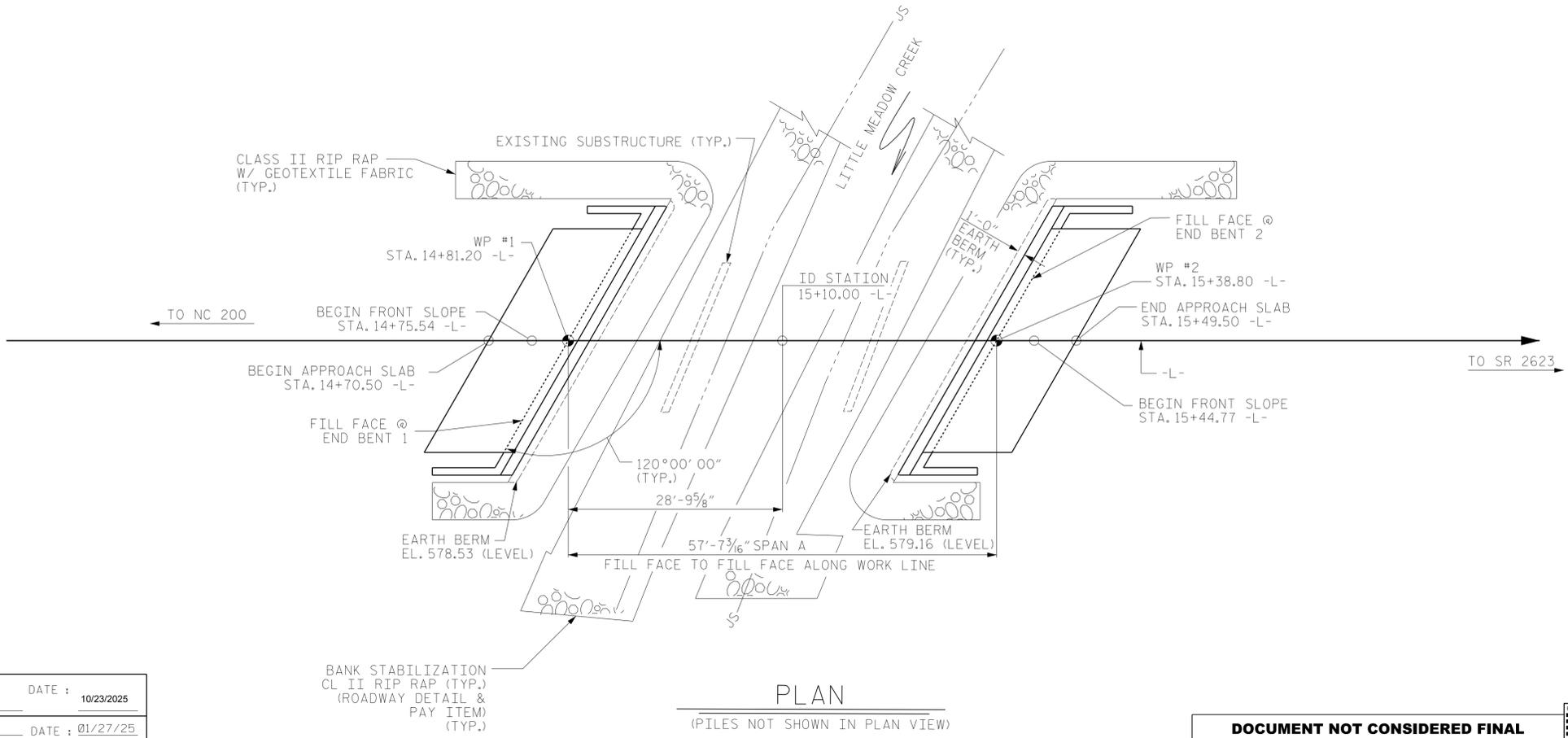


BRIDGE HYDRAULIC DATA		
DESIGN DISCHARGE	= 630	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 584.1	FT
DRAINAGE AREA	= 1.56	SQ. MI.
BASE DISCHARGE (Q <sub>00</sub> )	= 1100	CFS
BASE HW ELEVATION	= 584.9	FT
OVERTOPPING DISCHARGE	= 800	CFS
OVERTOPPING FREQUENCY	= <25	YRS
OVERTOPPING ELEVATION	= 584.1 *	FT

\* @ STATION 14+13.90 -L-

SECTION ALONG -L-  
(SECTIONS AT END BENTS ARE AT RIGHT ANGLES)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN

(PILES NOT SHOWN IN PLAN VIEW)

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
STATION: 15+10.00 -L-

SHEET 1 OF 4 REPLACES BRIDGE 120292

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING  
FOR BRIDGE ON SR 2625  
(MAUNEY RD) OVER  
LITTLE MEADOW CREEK  
BETWEEN NC 200 & SR 2623  
(COUNTY LINE RD)



DESIGN ENGINEER OF RECORD: Robert Decola	DATE : 10/23/2025
DRAWN BY : C. MURPHY	DATE : 01/27/25
CHECKED BY : R. DeCola	DATE : 01/28/25

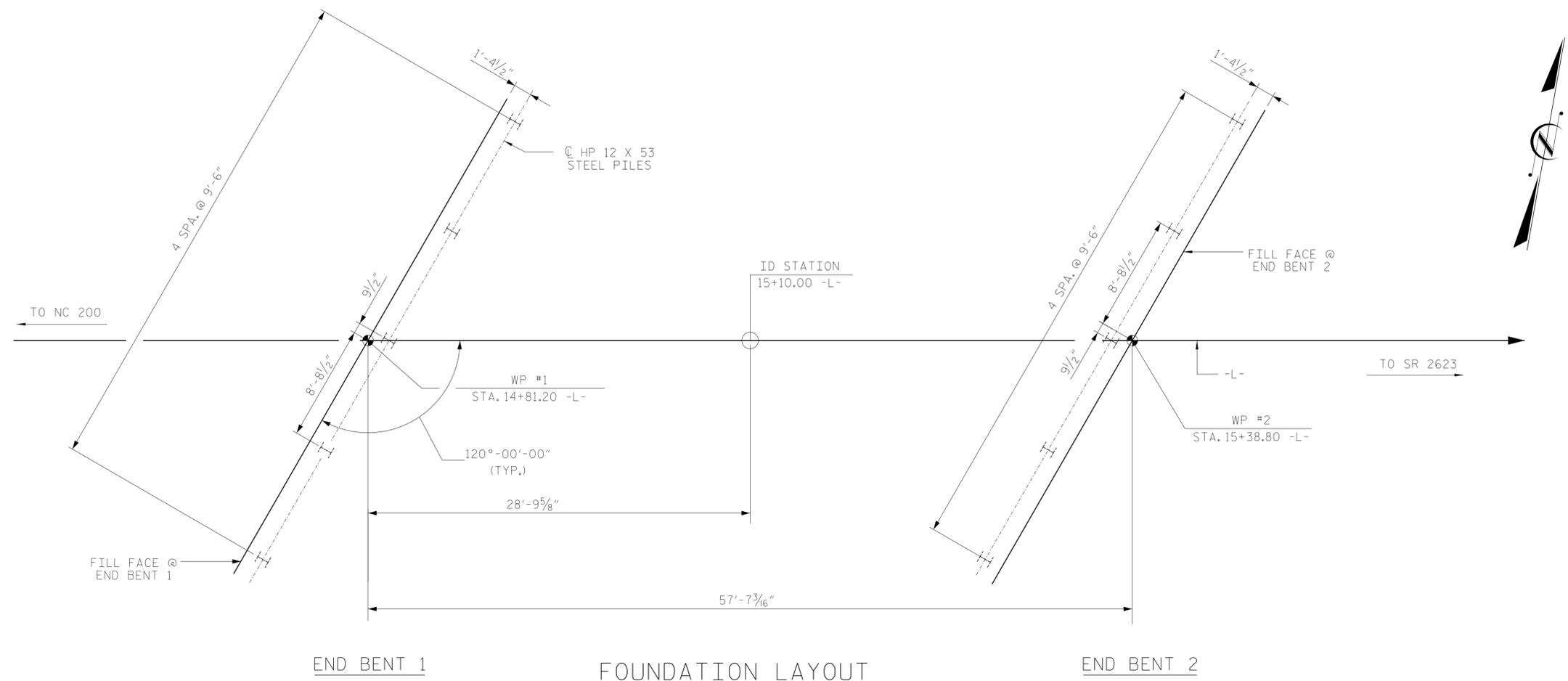
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ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS LICENSE NUMBER: C-0764  
**KCI Associates**  
of North Carolina, P.A.  
4000 Falls of Neuse Road, Suite 200 Raleigh, NC 27609-6270 Phone 919 783-9244

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

TOTAL SHEETS: 16

KCI PROJ. NO. 221601946.08C



### FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILE

### FOUNDATION NOTES

- 1) FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.
- 2) CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT NO. 1 AND END BENT NO. 2.

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 2 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON SR 2625  
 (MAUNEY RD) OVER  
 LITTLE MEADOW CREEK  
 BETWEEN NC 200 & SR 2623  
 (COUNTY LINE RD)

DESIGN ENGINEER OF RECORD: Robert DeCola	DATE : 10/23/2025
DRAWN BY : C. MURPHY	DATE : 01/27/25
CHECKED BY : R. DeCola	DATE : 01/28/25

**DOCUMENT NOT CONSIDERED FINAL  
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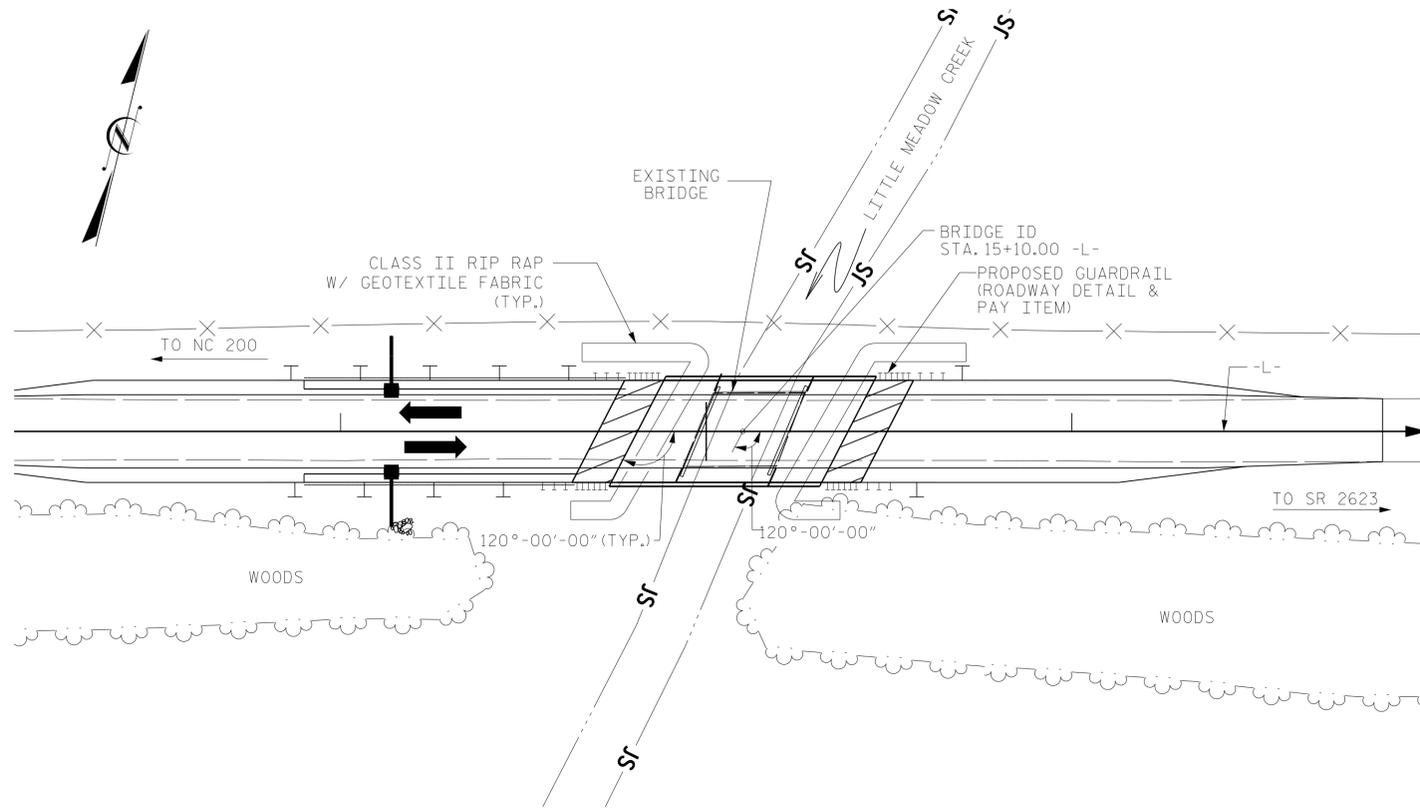


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			16

KCI PROJ. NO. 221601946.08C



BENCHMARK: BM #2 YELLOW BENCHTIE IN 15"MAPLE STA. 15+35.07 -L- 20.65' RT N 572007, E 1570292, EL. = 610.49' NAVD 88



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

NOTES:

- ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- 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 15+10.00 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 @ 25'-6" STEEL BEAM SPAN WITH CLEAR ROADWAY WIDTH OF 19'-2", TIMBER DECK ON TIMBER CAP, TIMBER POST ON CONCRETE SILL END BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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 IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

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

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE @ STA. 15+10.00 -L-	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION @ STA. 15+10.00 -L-	CLASS A CONCRETE	BRIDGE APPROACH SLABS @ STA. 15+10.00 -L-	REIN-FORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP12X53 STEEL PILES	HP 12 X 53 STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	CLASS II RIP RAP (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTO-MERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	LIN.FT.	LIN.FT.	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	EACH	NO.	LIN.FT.	LIN.FT.	TONS	SO.YDS.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE					LUMP SUM		LUMP SUM				110.29			LUMP SUM	550.00	
END BENT 1			17	33		15.2		2206	5	5	60		108	120		
END BENT 2			22	28		15.2		2206	5	5	60		116	129		
TOTAL	LUMP SUM	LUMP SUM	39	61	LUMP SUM	30.4	LUMP SUM	4412	10	10	120	110.29	224	249	LUMP SUM	550.00

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE ON SR 2625  
 (MAUNEY RD) OVER  
 LITTLE MEADOW CREEK  
 BETWEEN NC 200 & SR 2623  
 (COUNTY LINE RD)

DESIGN ENGINEER OF RECORD: Robert Decola DATE: 10/28/2025  
 DRAWN BY: C. MURPHY DATE: 01/27/25  
 CHECKED BY: R. DeCola DATE: 01/28/25

**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS LICENSE NUMBER: C-0764  
**KCI Associates**  
 of North Carolina, P.A.  
 4500 Falls of Neuse Road, Suite 200 Raleigh, NC 27609-6270 Phone: (919) 883-8044

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

KCI PROJ. NO. 221601946.08C

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

LOAD TYPE	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								
						LIVELOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD	HL-93 (INVENTORY)	N/A	1	1.163	--	1.75	0.249	1.36	55'	EL	26.923	0.659	1.21	55'	EL	10.769	0.80	0.249	1.16	55'	EL	26.923		
	HL-93 (OPERATING)	N/A		1.564	--	1.35	0.249	1.76	55'	EL	26.923	0.659	1.56	55'	EL	10.769	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.000	2	1.424	51.265	1.75	0.249	1.70	55'	EL	26.923	0.659	1.42	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923		
	HS-20 (OPERATING)	36.000		1.846	66.455	1.35	0.249	2.20	55'	EL	26.923	0.659	1.85	55'	EL	10.769	N/A	--	--	--	--	--		
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		3.057	41.264	1.4	0.249	4.46	55'	EL	26.923	0.659	3.96	55'	EL	10.769	0.80	0.249	3.06	55'	EL	26.923	
		SNGARBS2	20.000		2.374	47.473	1.4	0.249	3.46	55'	EL	26.923	0.659	2.90	55'	EL	10.769	0.80	0.249	2.37	55'	EL	26.923	
		SNAGRIS2	22.000		2.291	50.392	1.4	0.249	3.34	55'	EL	26.923	0.659	2.72	55'	EL	10.769	0.80	0.249	2.29	55'	EL	26.923	
		SNCOTTS3	27.250		1.524	41.521	1.4	0.249	2.22	55'	EL	26.923	0.659	1.98	55'	EL	10.769	0.80	0.249	1.52	55'	EL	26.923	
		SNAGGRS4	34.925		1.310	45.740	1.4	0.249	1.91	55'	EL	26.923	0.659	1.71	55'	EL	10.769	0.80	0.249	1.31	55'	EL	26.923	
		SNS5A	35.550		1.278	45.439	1.4	0.249	1.86	55'	EL	26.923	0.659	1.76	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		SNS6A	39.950		1.189	47.481	1.4	0.249	1.73	55'	EL	26.923	0.659	1.63	55'	EL	10.769	0.80	0.249	1.19	55'	EL	26.923	
		SNS7B	42.000		1.132	47.562	1.4	0.249	1.65	55'	EL	26.923	0.659	1.64	55'	EL	10.769	0.80	0.249	1.13	55'	EL	26.923	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.454	47.984	1.4	0.249	2.12	55'	EL	26.923	0.659	1.92	55'	EL	10.769	0.80	0.249	1.45	55'	EL	26.923	
		TNT4A	33.075		1.465	48.451	1.4	0.249	2.14	55'	EL	26.923	0.659	1.85	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923	
		TNT6A	41.600		1.213	50.478	1.4	0.249	1.77	55'	EL	26.923	0.659	1.81	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
		TNT7A	42.000		1.228	51.576	1.4	0.249	1.79	55'	EL	26.923	0.659	1.67	55'	EL	10.769	0.80	0.249	1.23	55'	EL	26.923	
		TNT7B	42.000		1.282	53.827	1.4	0.249	1.87	55'	EL	26.923	0.659	1.58	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		TNAGRIT4	43.000		1.213	52.158	1.4	0.249	1.77	55'	EL	26.923	0.659	1.52	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
		TNAGT5A	45.000		1.136	51.134	1.4	0.249	1.66	55'	EL	26.923	0.659	1.55	55'	EL	10.769	0.80	0.249	1.14	55'	EL	26.923	
		TNAGT5B	45.000	3	1.116	50.224	1.4	0.249	1.63	55'	EL	26.923	0.659	1.44	55'	EL	10.769	0.80	0.249	1.12	55'	EL	26.923	
EMERGENCY VEHICLE (EV)	EV2	28.750		1.642	47.205	1.3	0.249	2.62	55'	EL	29.620	0.659	1.64	55'	EL	5.420	0.80	0.249	1.78	55'	EL	26.923		
	EV3	43.000	4	1.111	47.752	1.3	0.249	1.70	55'	EL	26.920	0.659	1.11	55'	EL	5.420	0.80	0.249	1.16	55'	EL	26.923		

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

**NOTES:**

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

- 1.
- 2.
- 3.
- 4.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING \*\*

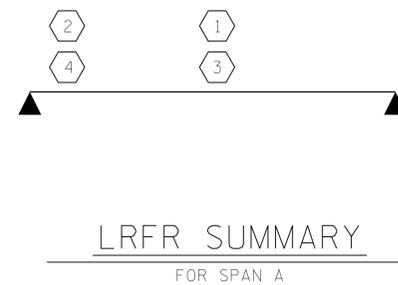
4 EMERGENCY VEHICAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

---

GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-



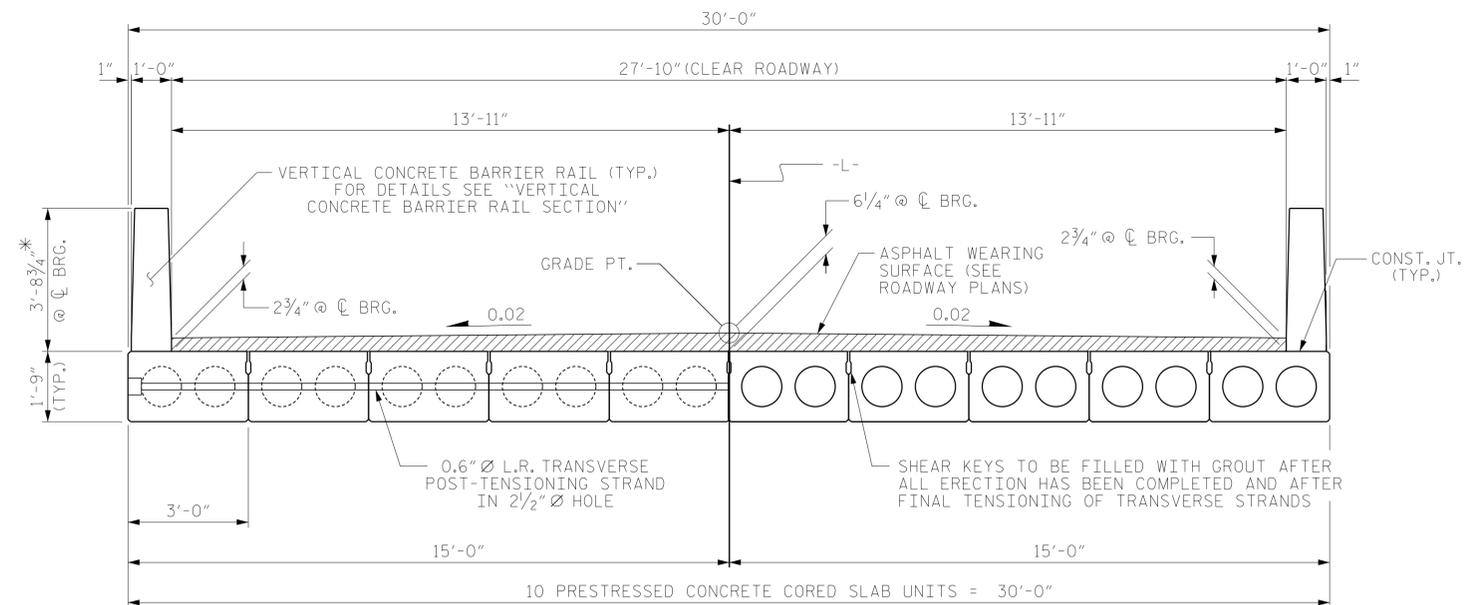
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 55' CORED SLAB UNIT  
 120° SKEW  
 (NON-INTERSTATE TRAFFIC)

DESIGN ENGINEER OF RECORD: <b>Robert DeCola</b>	DATE : <b>10/23/2025</b>
DRAWN BY : <u>C. MURPHY</u>	DATE : <u>01/27/25</u>
CHECKED BY : <u>R. DeCola</u>	DATE : <u>01/28/25</u>

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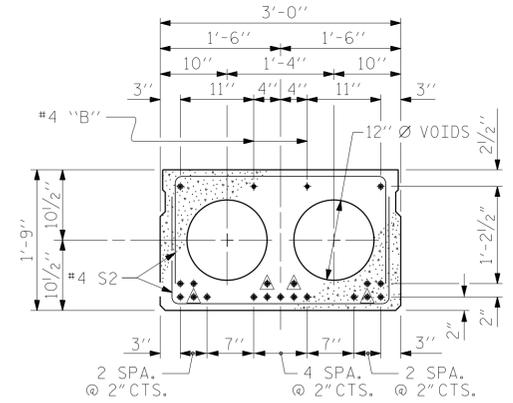


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS 16
2			4			



HALF SECTION AT INTERMEDIATE DIAPHRAGMS  
TYPICAL SECTION  
HALF SECTION THROUGH VOIDS

\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



INTERIOR SLAB SECTION (55' UNIT)  
(19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

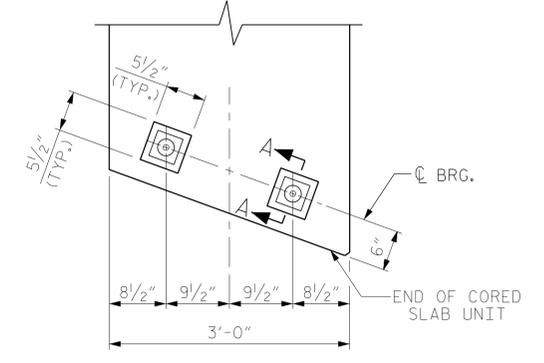
- ⚠ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- ⦿ OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED, IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

NOTES

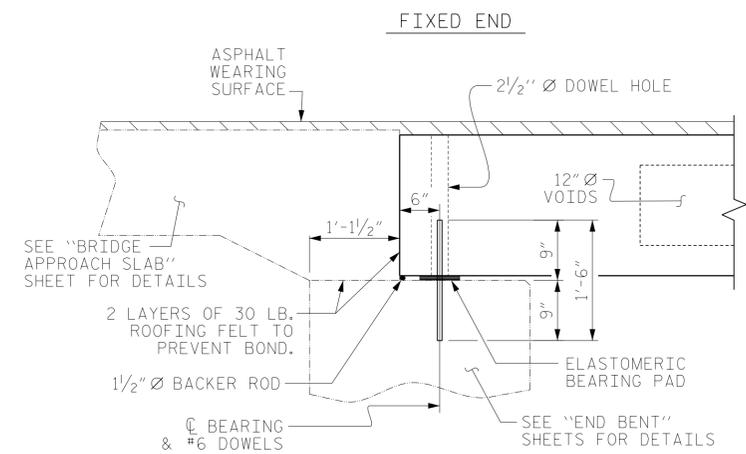
AT ALL FIXED AND EXPANSION ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS SHALL BE FILLED WITH NON-SHRINK GROUT TO THE BOTTOM OF THE ANCHOR BOLT BLOCKOUT PRIOR TO INSTALLING THE ANCHOR PLATES, WASHERS, AND NUTS. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF EXTERIOR CORED SLAB SECTIONS WITH HOLD-DOWN ANCHOR BOLTS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO THE BOTTOM OF THE ANCHOR BOLT BLOCKOUT PRIOR TO INSTALLING THE ANCHOR BOLT BLOCKOUT AND NUTS.

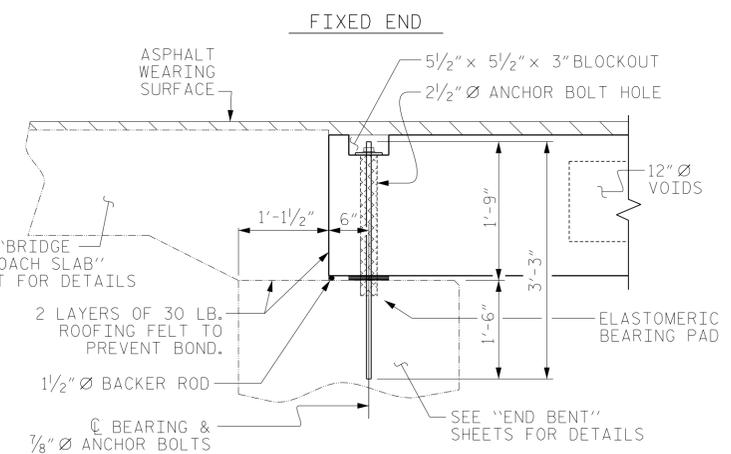
THE ANCHOR BOLT BLOCKOUTS IN EXTERIOR CORED SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT PRIOR TO PLACEMENT OF THE WEARING SURFACE.



TYPICAL PLAN (TYP. FOR EXTERIOR CORED SLABS)

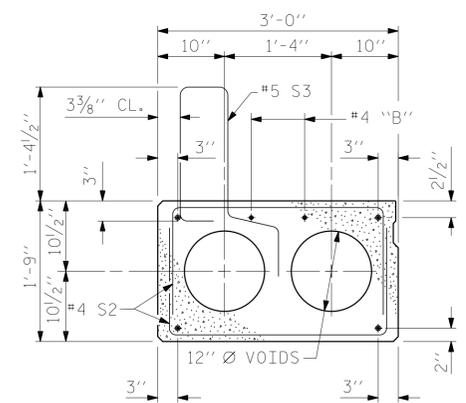


SECTION AT END BENT FOR INTERIOR CORED SLAB UNITS

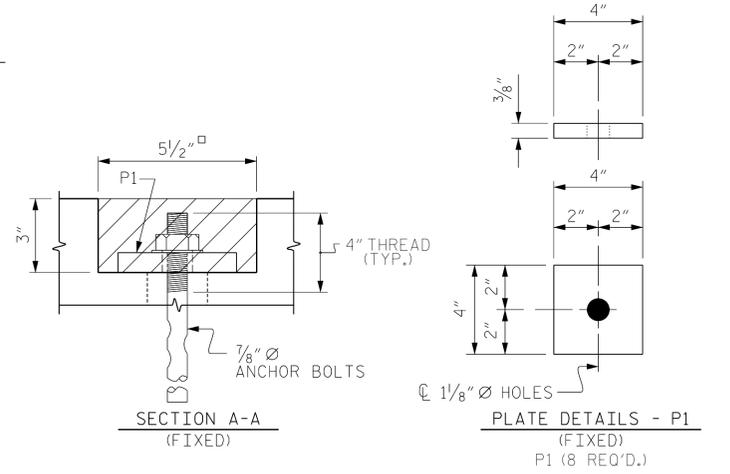


SECTION AT END BENT FOR EXTERIOR CORED SLAB UNITS

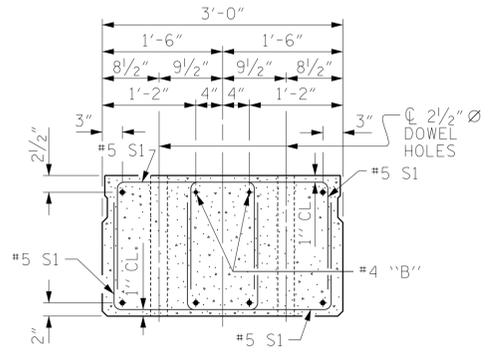
DEBONDING LEGEND



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

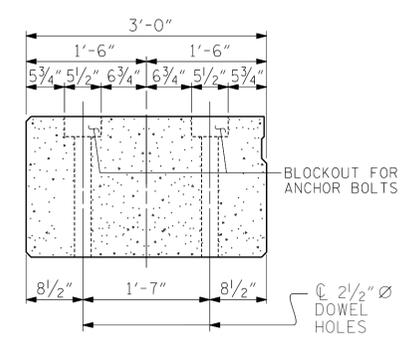


BLOCKOUT DETAIL FOR ANCHOR BOLTS (TYP. FOR EXTERIOR CORED SLAB)



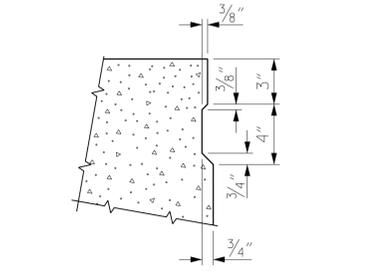
END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION AND 5 1/2" X 5 1/2" X 3" BLOCKOUT.



END ELEVATION

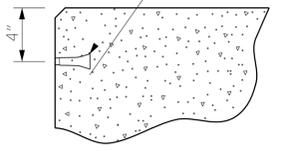
SHOWING LOCATION OF BLOCKOUT FOR ANCHOR BOLTS AND DOWEL HOLES.



SHEAR KEY DETAIL

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

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.



THREADED INSERT DETAIL



PROJECT NO. BP10-R055  
CABARRUS COUNTY  
STATION: 15+10.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 1'-9"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT  
120° SKEW

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

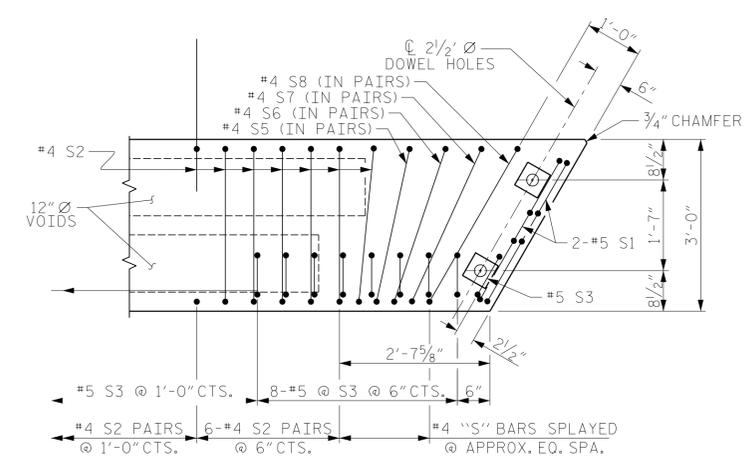
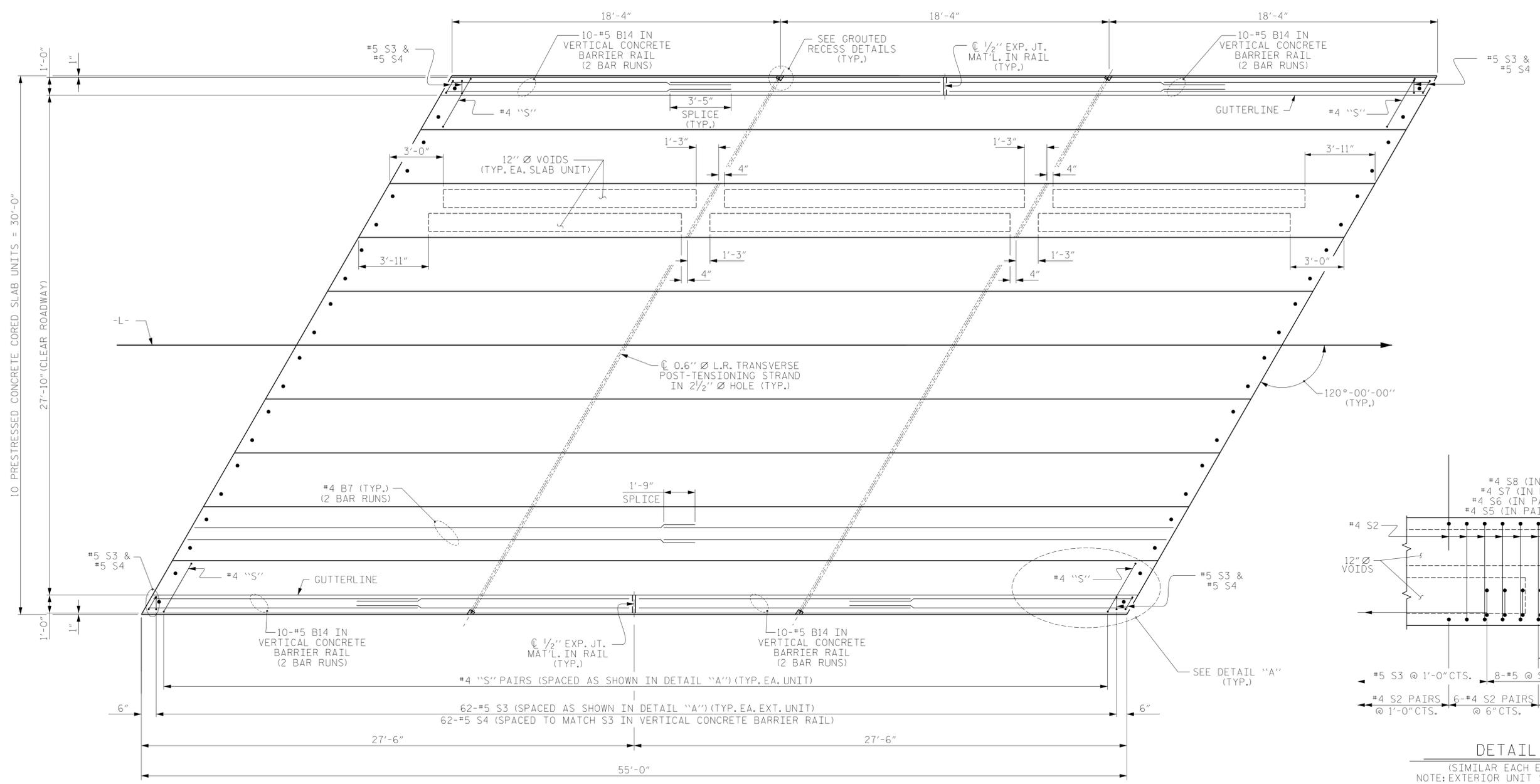
KCI\_JOB\_NO: 2216011946.08C

DESIGN ENGINEER OF RECORD: <b>Robert Decola</b>	DATE: <b>10/23/2025</b>
DRAWN BY: <b>C. MURPHY</b>	DATE: <b>01/27/25</b>
CHECKED BY: <b>R. DeColo</b>	DATE: <b>01/28/25</b>

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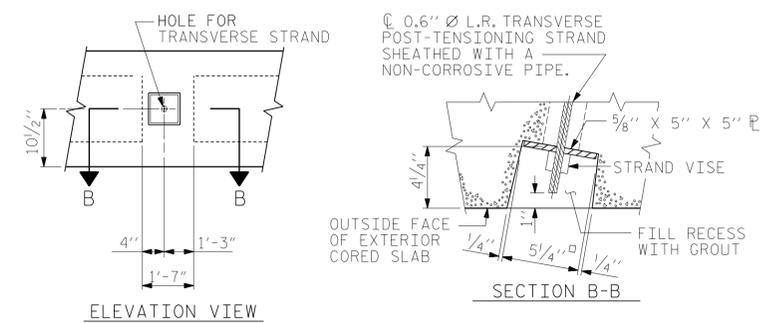


STD. NO. 21" PCS2\_30\_120S



**DETAIL "A"**  
 (SIMILAR EACH END OF UNIT)  
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS AND BLOCKOUT FOR ANCHOR BOLTS.

**PLAN OF UNIT**



**GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLAB**

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF 55' UNIT  
 27'-10" CLEAR ROADWAY  
 120° SKEW

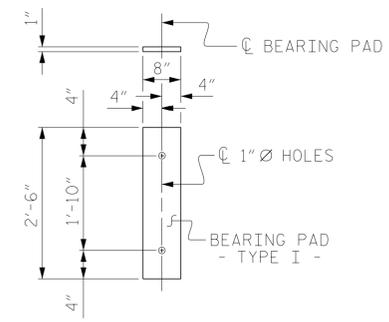


DESIGN ENGINEER OF RECORD: Robert Decola	DATE : 10/23/2025
DRAWN BY : C. MURPHY	DATE : 01/27/25
CHECKED BY : R. DeColo	DATE : 01/28/25

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			16	

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FIXED END  
(TYPE I - 20 REQ'D)

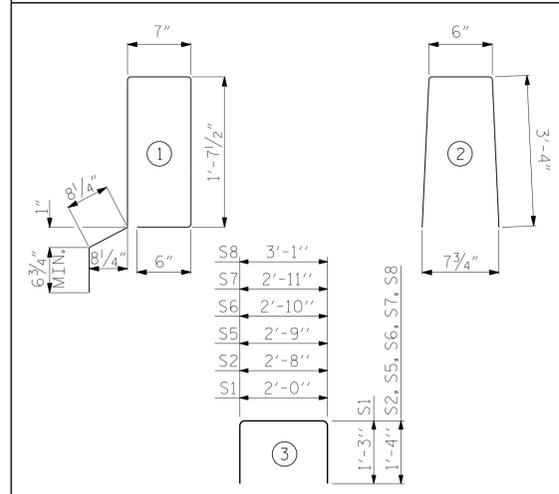
**ELASTOMERIC BEARING DETAILS**

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

**BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT**

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	112	#4	3	5'-4"	399	5'-4"	399
* S3	64	#5	1	5'-7"	373		
S5	4	#4	3	5'-5"	14	5'-5"	14
S6	4	#4	3	5'-6"	15	5'-6"	15
S7	4	#4	3	5'-7"	15	5'-7"	15
S8	4	#4	3	5'-9"	15	5'-9"	15
REINFORCING STEEL				LBS.	571		571
* EPOXY COATED REINFORCING STEEL				LBS.	373		
6500 P.S.I. CONCRETE				CU. YDS.	8.0		8.0
0.6" Ø L.R. STRANDS				No.	19		19

**BAR TYPES**



ALL BAR DIMENSIONS ARE OUT TO OUT

**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 BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL 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.

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 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.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

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 THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

**BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL**

BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
* B14	80	80	#5	STR	15'-6"	1293
* S4	128	128	#5	2	7'-2"	957
* EPOXY COATED REINFORCING STEEL				LBS.		2250
CLASS AA CONCRETE				CU. YDS.		14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL				LN. FT.		110.29

**CORED SLABS REQUIRED**

55' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10	55'-0"	550'-0"

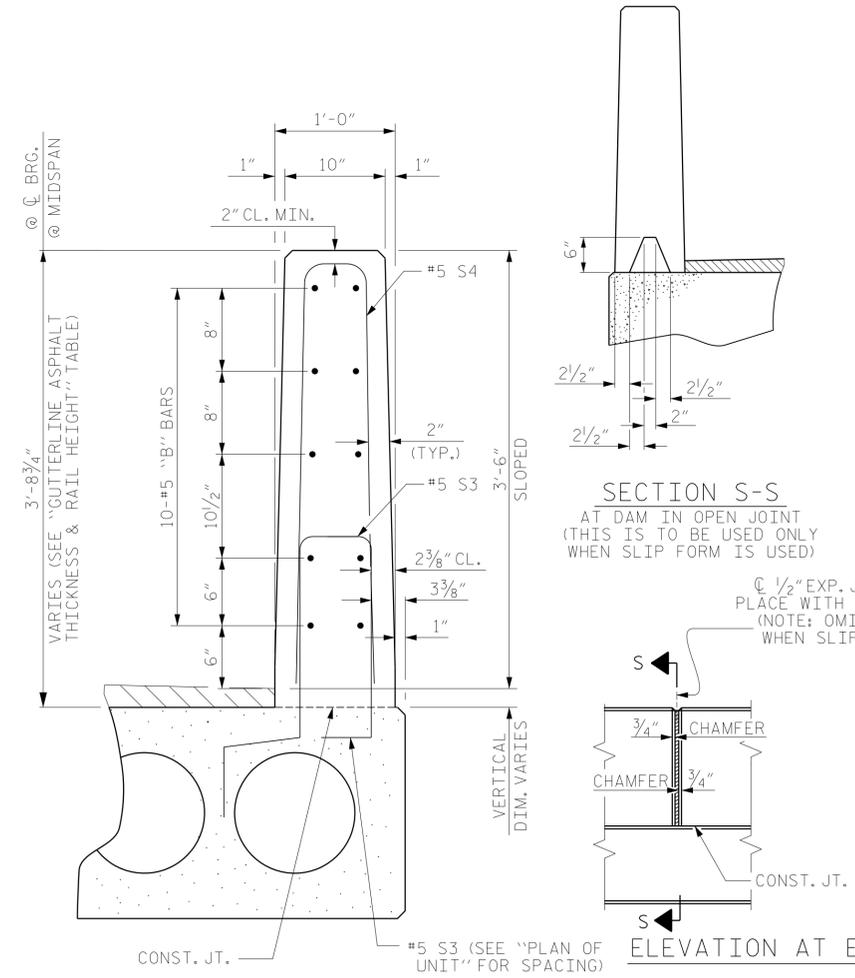
**DEAD LOAD DEFLECTION AND CAMBER**

55' CORED SLAB UNIT	3'-0" x 1'-9"
0.6" Ø L.R. STRAND	
CAMBER (SLAB ALONE IN PLACE)	1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1 1/8" ↑

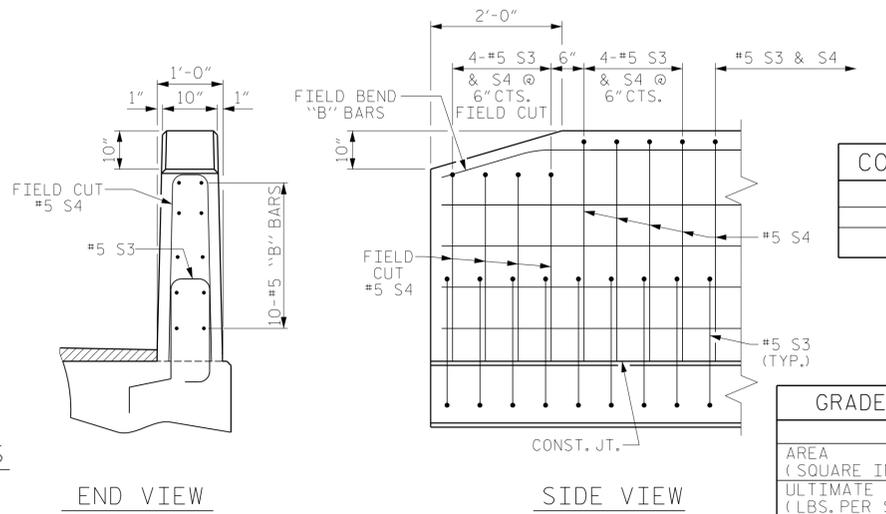
\*\* INCLUDES FUTURE WEARING SURFACE

**GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT**

	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
55' UNIT	1 5/8"	3'-7 5/8"



**VERTICAL CONCRETE BARRIER RAIL SECTION**



END VIEW

SIDE VIEW

**END OF RAIL DETAILS**

**CONCRETE RELEASE STRENGTH**

UNIT	PSI
55' UNIT	4900

**GRADE 270 STRANDS**

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



PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 120° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
			4			16

KCI\_JOB\_NO: 2216011946.08C

DESIGN ENGINEER OF RECORD: Robert DeCola DATE: 10/23/2025  
 DRAWN BY: C. MURPHY DATE: 01/27/25  
 CHECKED BY: R. DeCola DATE: 01/28/25

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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.)

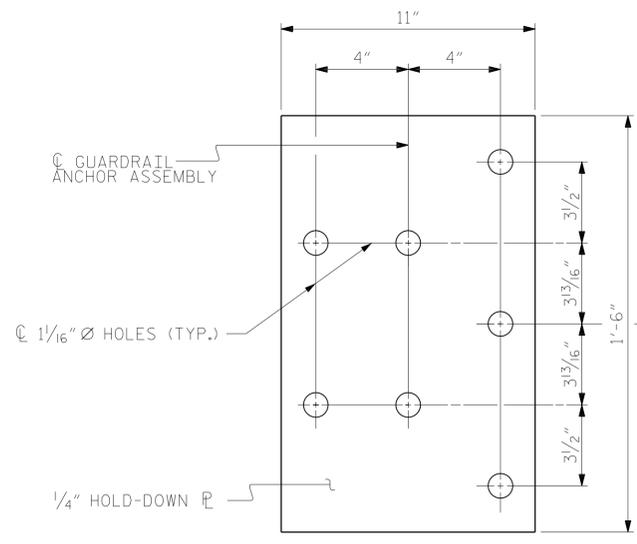
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

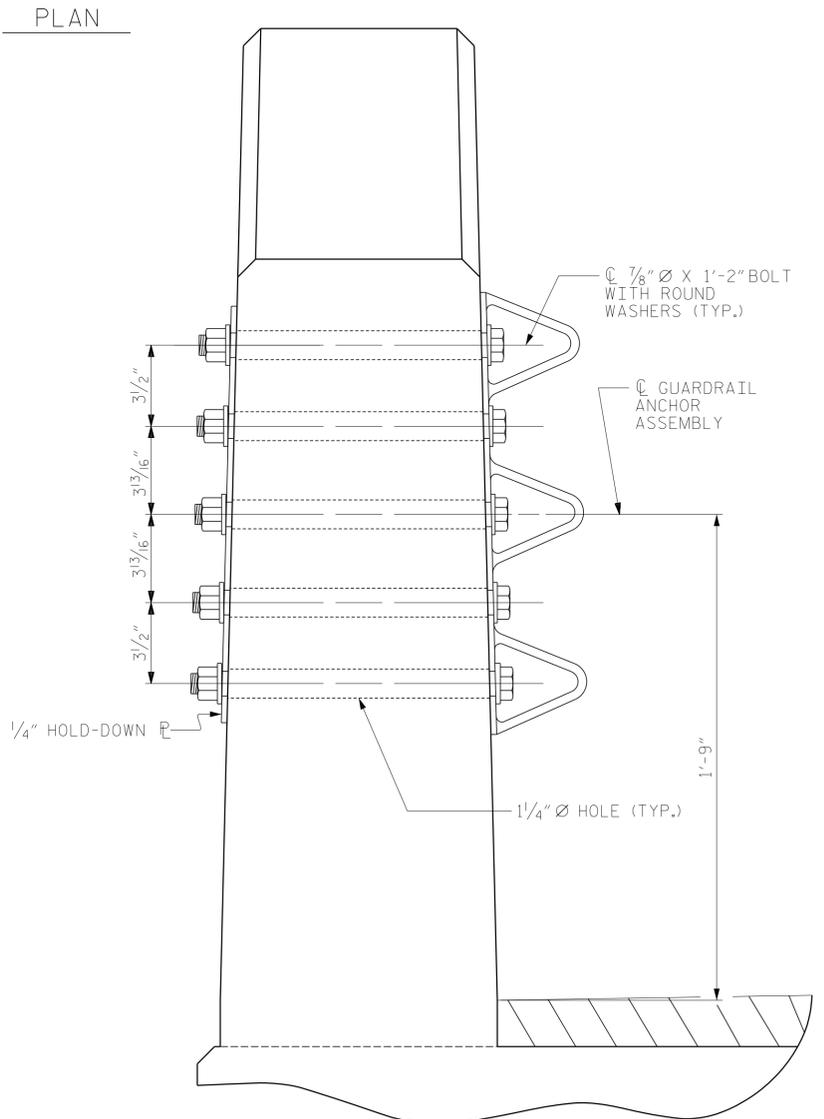
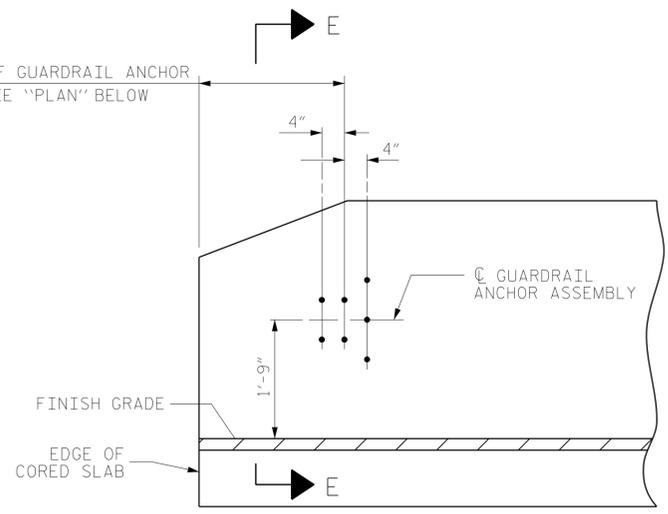
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

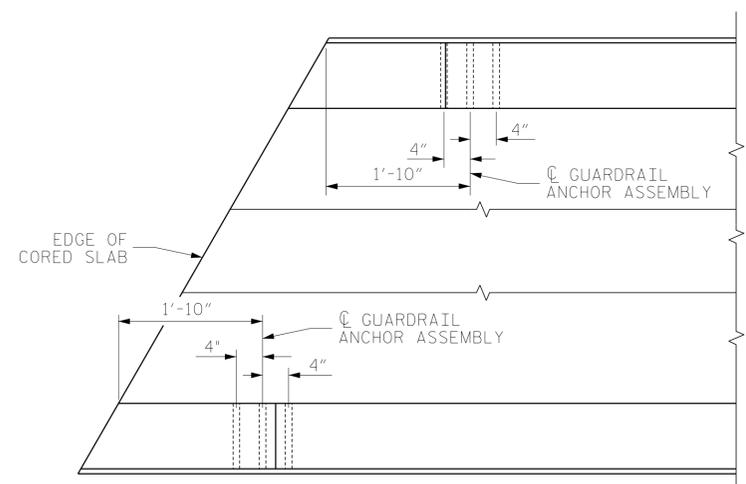
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

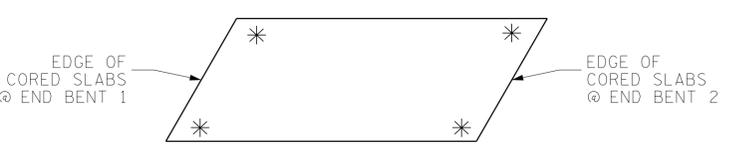


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 GUARDRAIL ANCHORAGE  
 DETAILS  
 FOR VERTICAL CONCRETE  
 BARRIER RAIL

KCI\_JOB NO: 2216011946.08C

DESIGN ENGINEER OF RECORD: <b>Robert Decola</b>	DATE : <b>10/23/2025</b>
DRAWN BY : <b>C. MURPHY</b>	DATE : <b>01/27/25</b>
CHECKED BY : <b>R. DeCola</b>	DATE : <b>01/28/25</b>

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			16

(SHT 1a) STD. NO. GRA3

NOTES

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

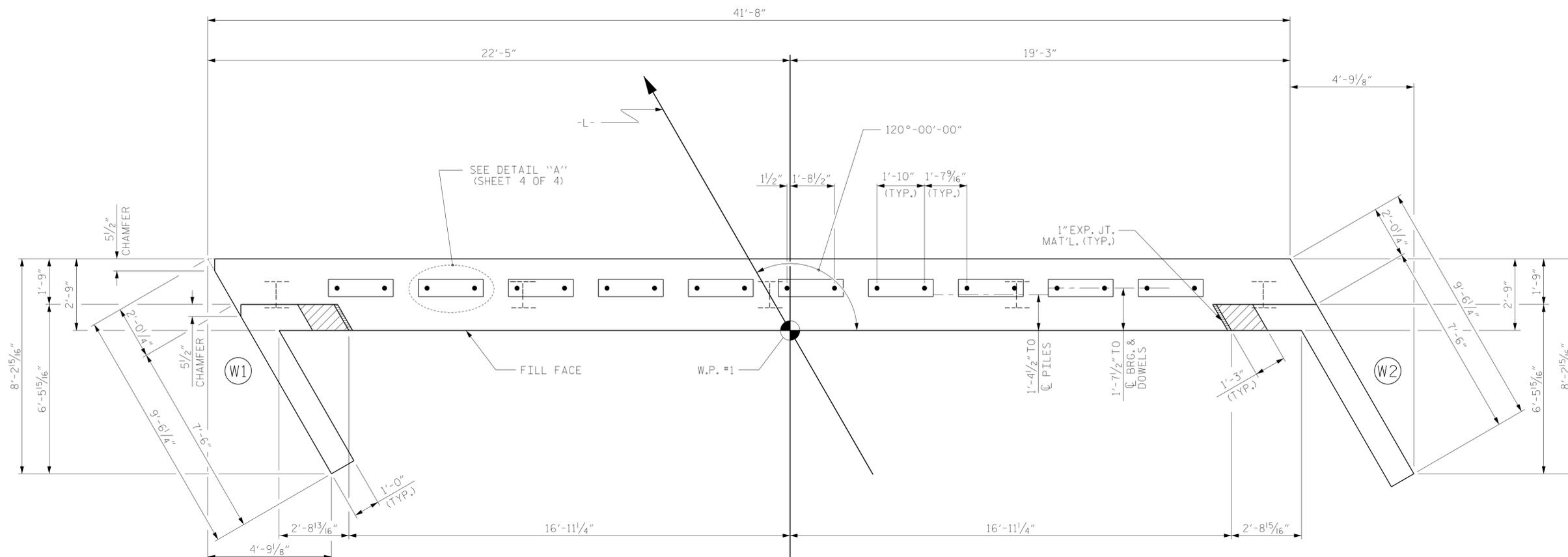
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

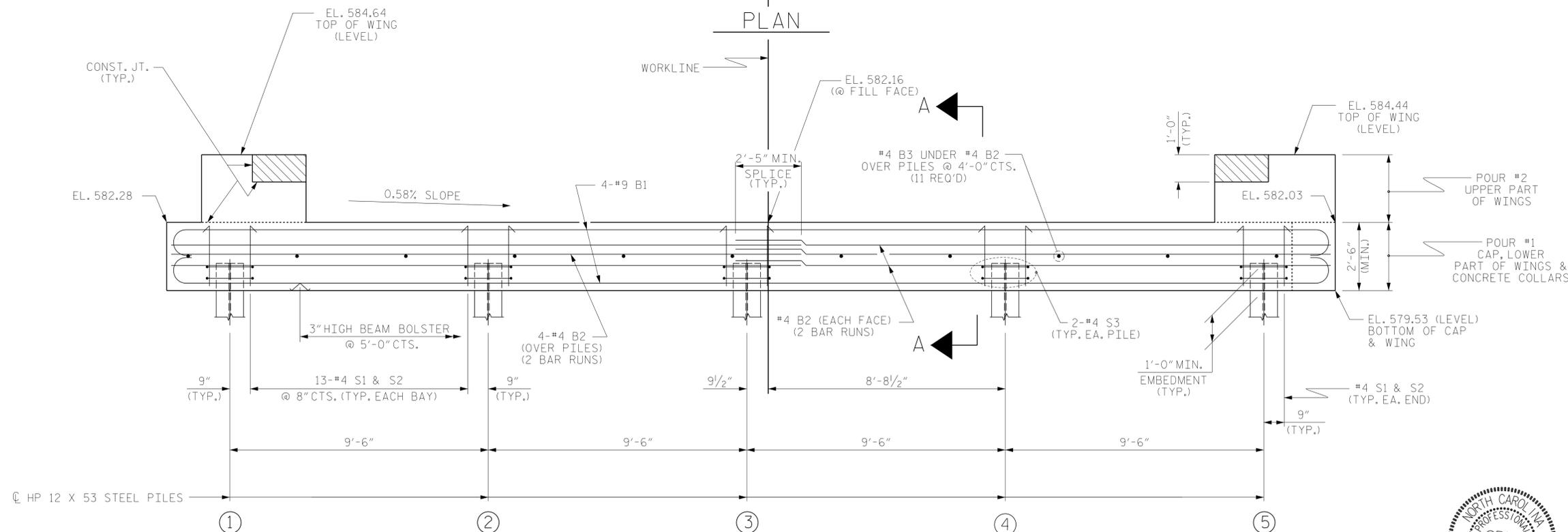
FOR WING DETAILS, SEE SHEET 3 OF 4.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. ANCHOR PLATES, WASHERS, AND NUTS SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

NO SEPARATE PAYMENT SHALL BE MADE FOR THE ANCHOR BOLTS, ANCHOR PLATES, WASHERS, AND NUTS. THE COST OF THE MATERIAL AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



PLAN



ELEVATION

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 1



10/23/2025

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

SHEET NO.
S-10
TOTAL SHEETS
16

DESIGN ENGINEER OF RECORD: Robert Decola DATE: 10/23/2025

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 CHECKED BY: R. DeCola DATE: 01/28/25

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 4 OF 4.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

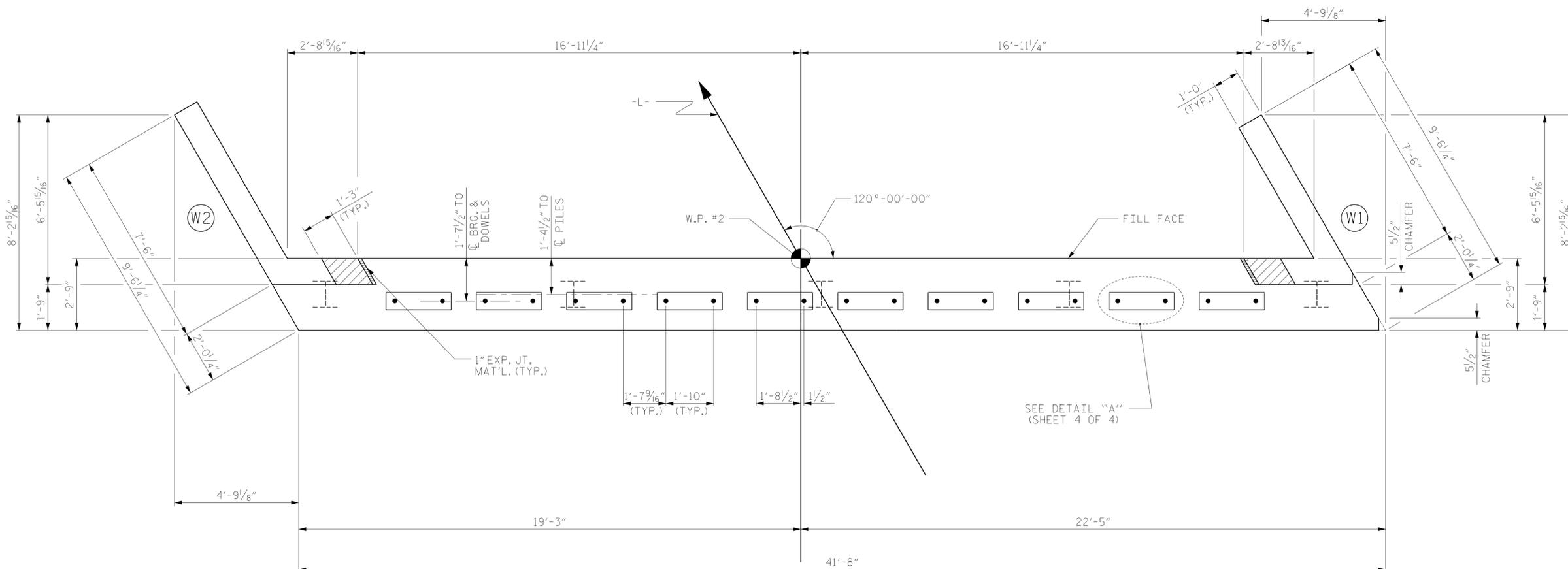
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**KCI Associates**  
 of North Carolina, P.A.  
4800 Falls of Neuse Road, Suite 200 Raleigh, NC 27629-1270 Phone 919-783-9201

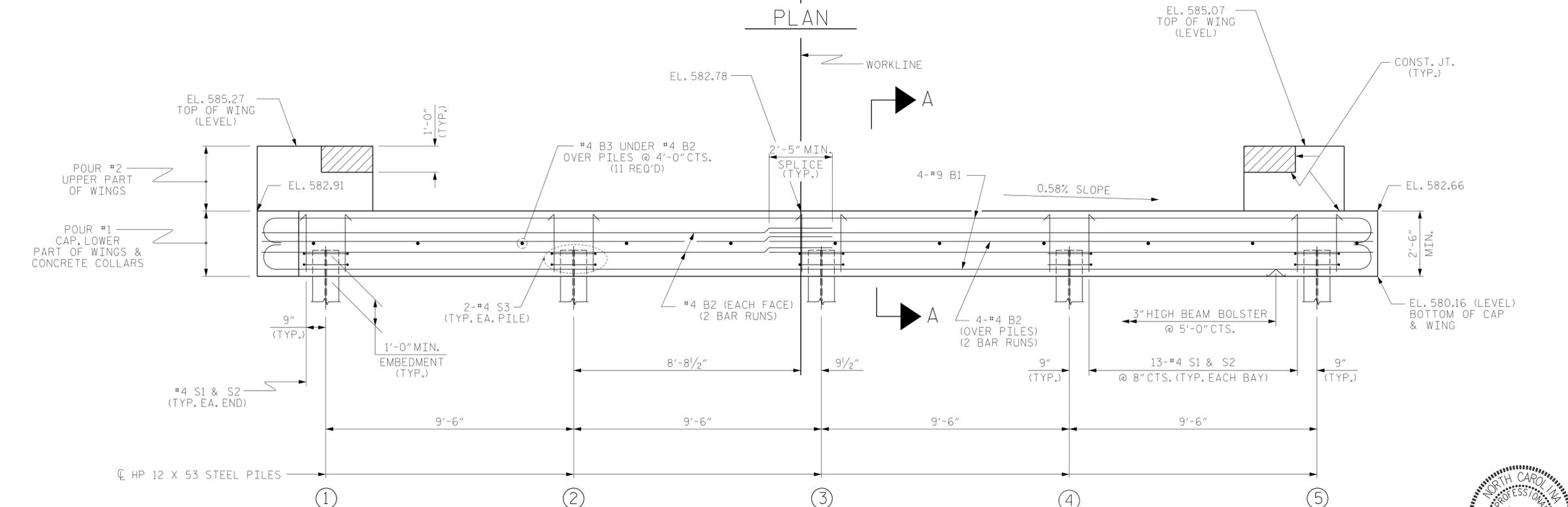
KCI\_JOB NO: 2216011946.08C

NOTES

FOR NOTES, SEE SHEET 1 OF 4.



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 4 OF 4.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 2



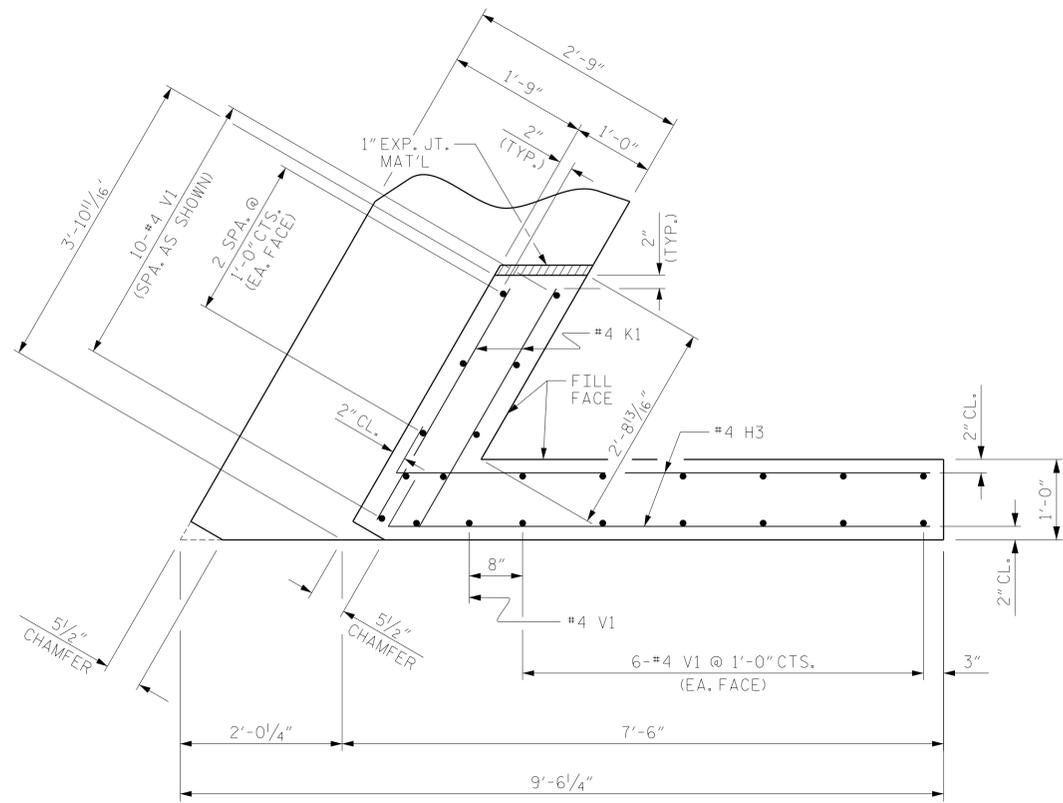
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS 16	
2			4				

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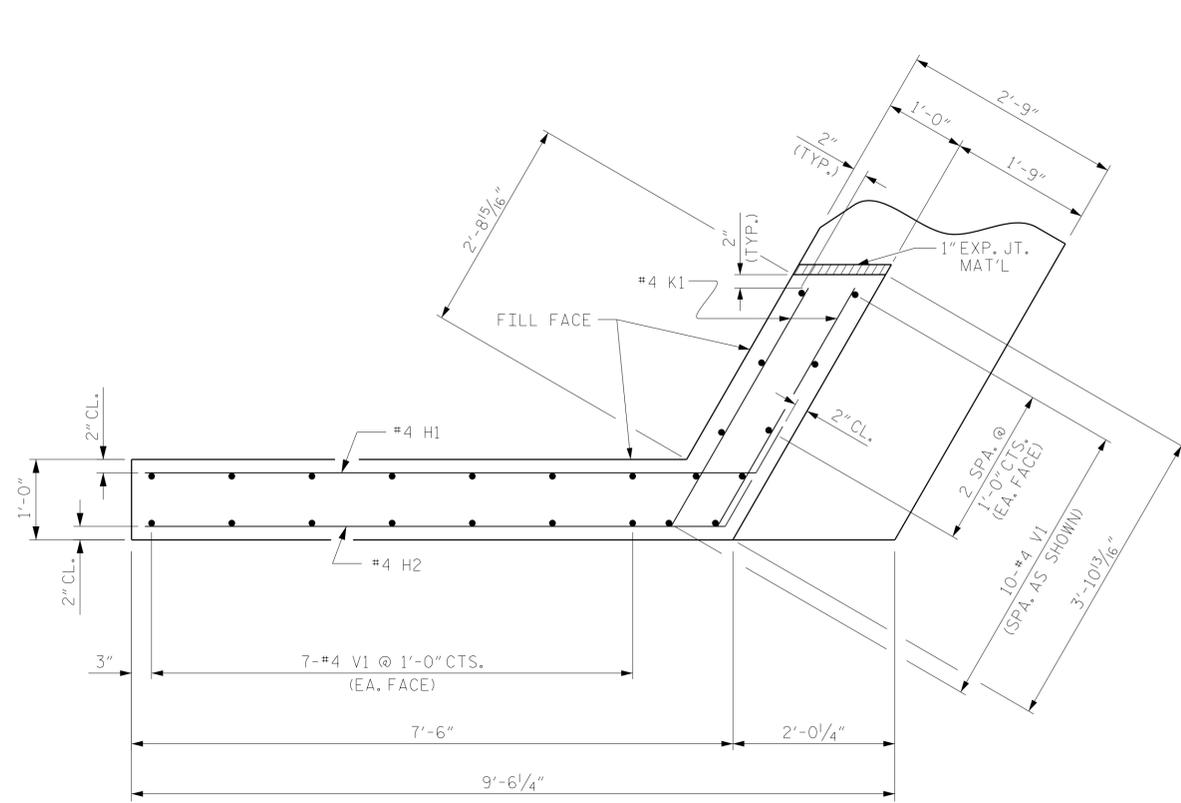
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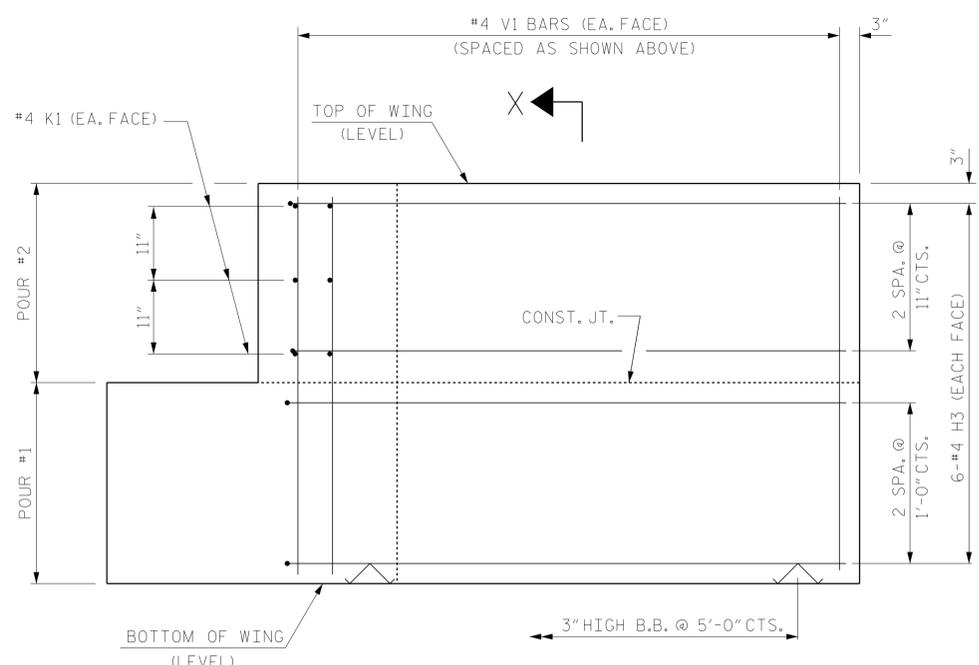
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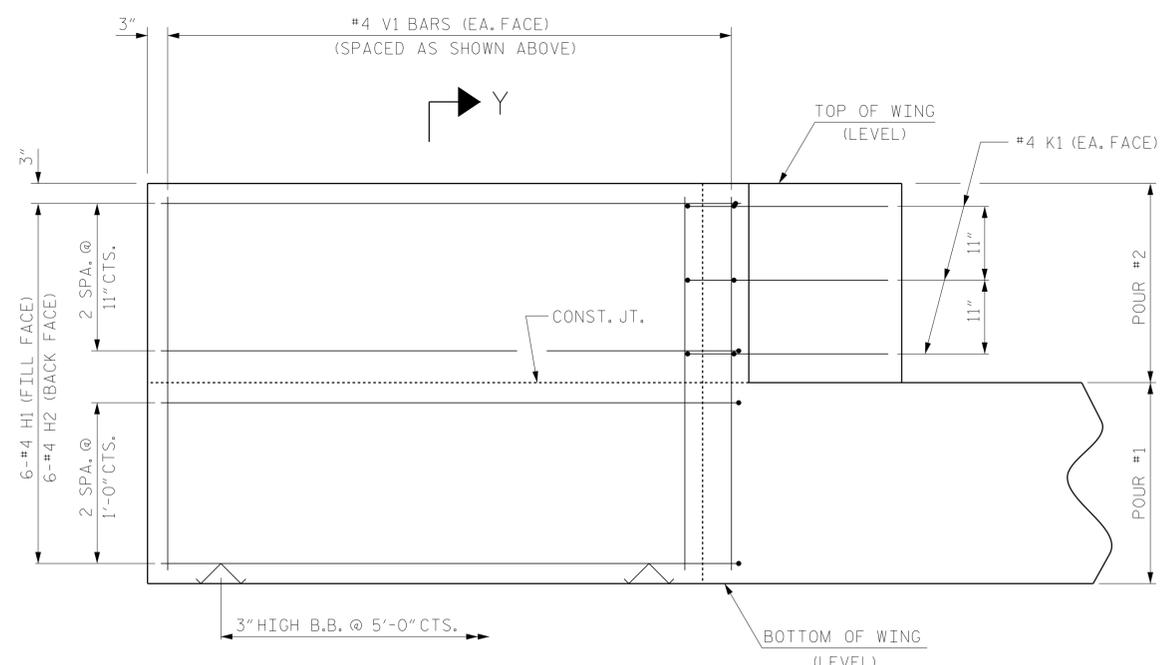
PLAN OF WING (W1)



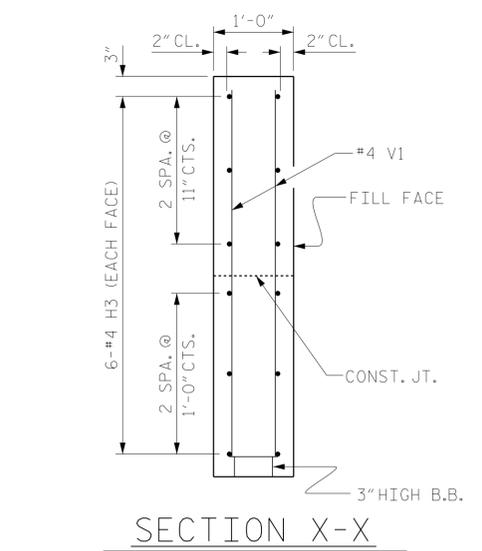
PLAN OF WING (W2)



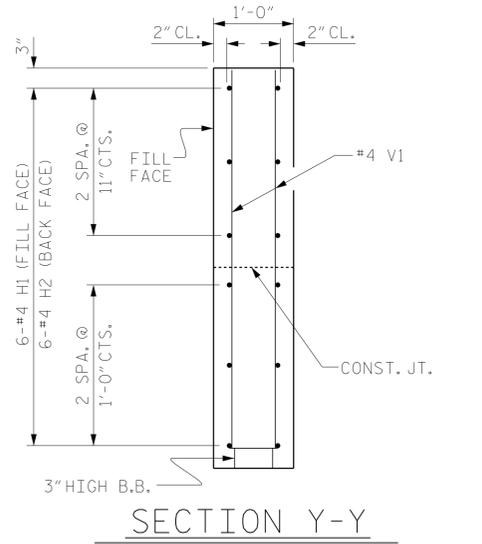
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

WING DETAILS

DESIGN ENGINEER OF RECORD: Robert Decola	DATE : 10/23/2025
DRAWN BY : C. MURPHY	DATE : 01/27/25
CHECKED BY : R. DeColo	DATE : 01/28/25

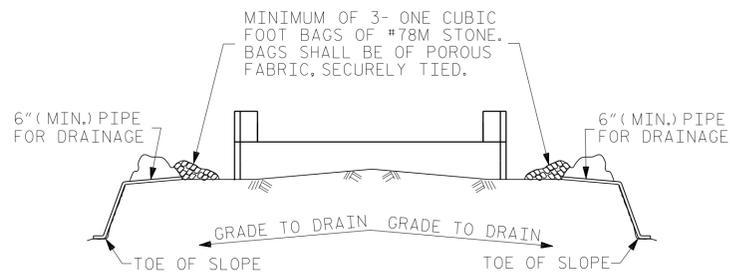
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PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
SHEET 3 OF 4					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-12					TOTAL SHEETS 16

KCI\_JOB NO: 2216011946.08C

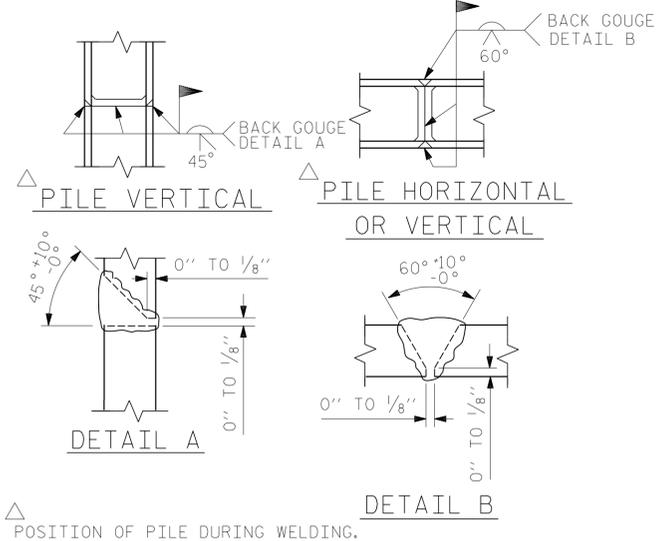


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

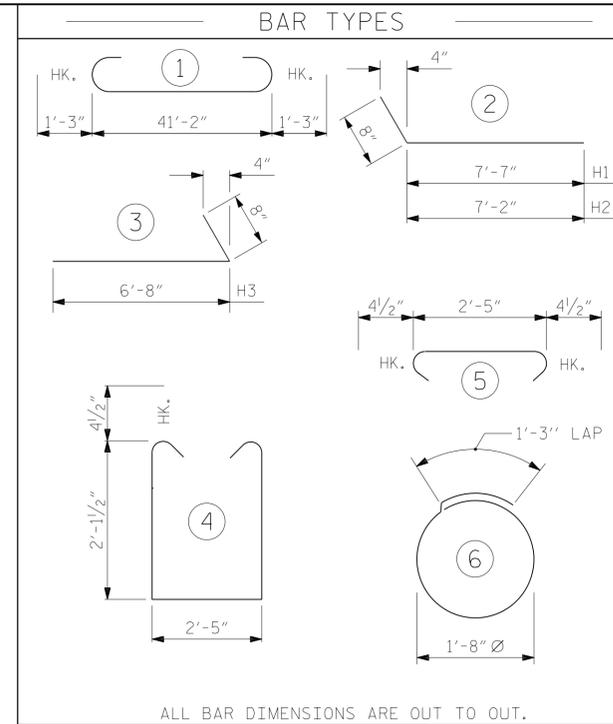
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

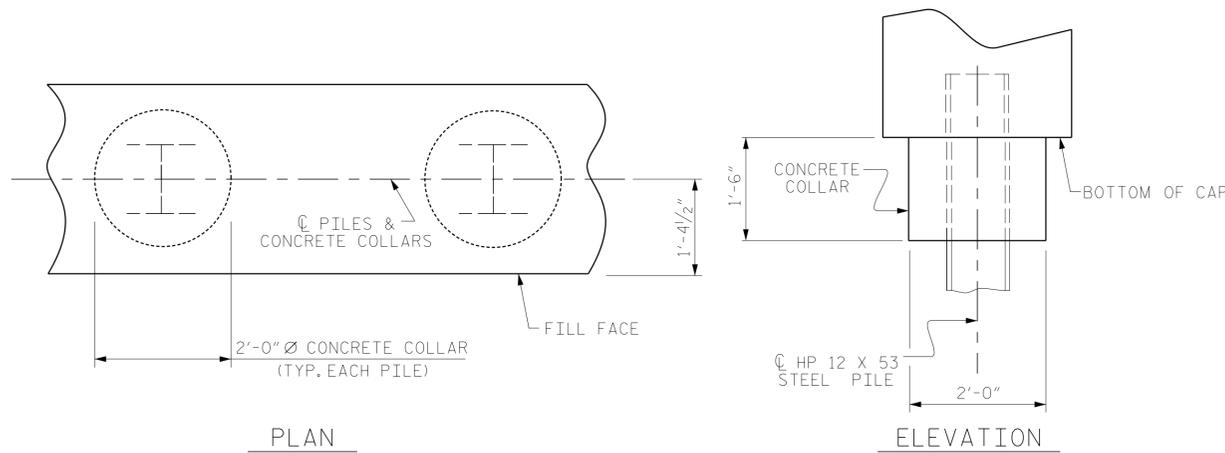
**TEMPORARY DRAINAGE AT END BENT**



**PILE SPLICE DETAILS**

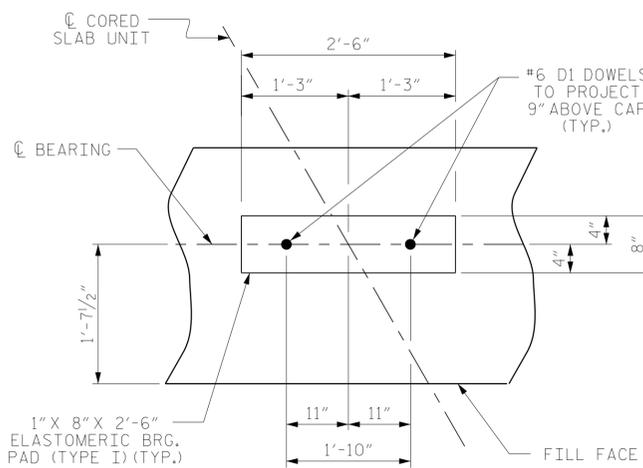


BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		43'-8"	1188
B2	16	#4	STR	21'-11"	234
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H1	6	#4		8'-3"	33
H2	6	#4		7'-10"	31
H3	12	#4		7'-4"	59
K1	12	#4	STR	3'-3"	26
S1	54	#4		7'-5"	268
S2	54	#4		3'-2"	114
S3	10	#4		6'-6"	43
V1	47	#4	STR	4'-8"	147
REINFORCING STEEL (FOR ONE END BENT)					2206 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1	CAP, LOWER PART OF WINGS & COLLARS				13.3 C.Y.
POUR #2	UPPER PART OF WINGS				1.9 C.Y.
TOTAL CLASS A CONCRETE					15.2 C.Y.

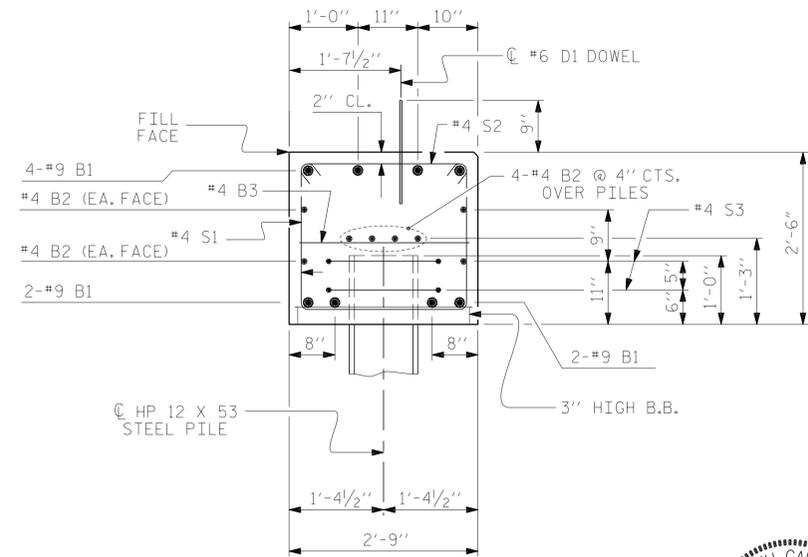


**CORROSION PROTECTION FOR STEEL PILES DETAIL**

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



**SECTION A-A**

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2  
 DETAILS

REVISIONS

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

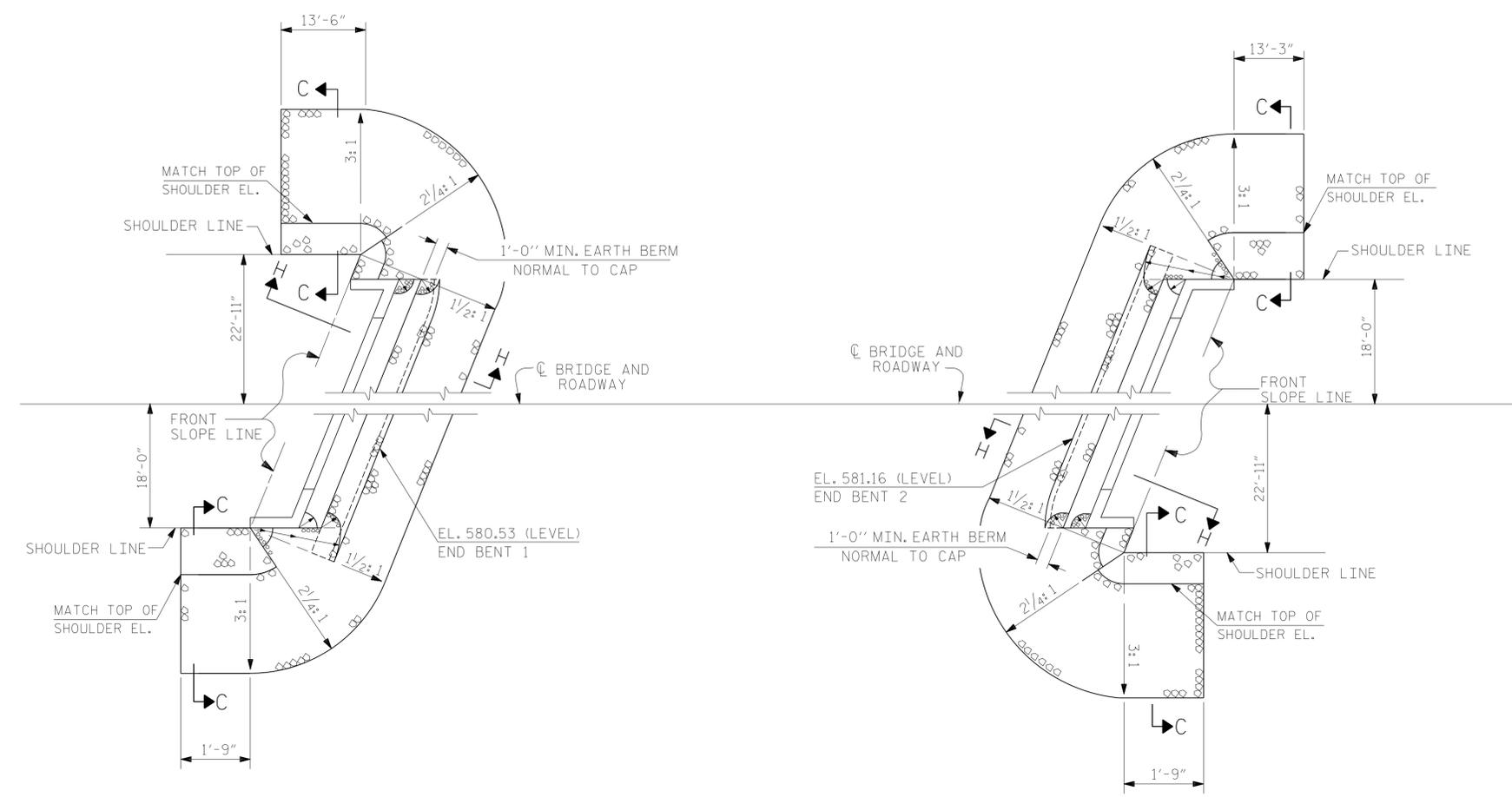
SHEET NO.	
S-13	TOTAL SHEETS 16

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**KCI Associates**  
 of North Carolina, P.A.  
 4800 Falls of Neuse Road, Suite 200, Raleigh, NC 27601-0270 Phone: (919) 783-9201

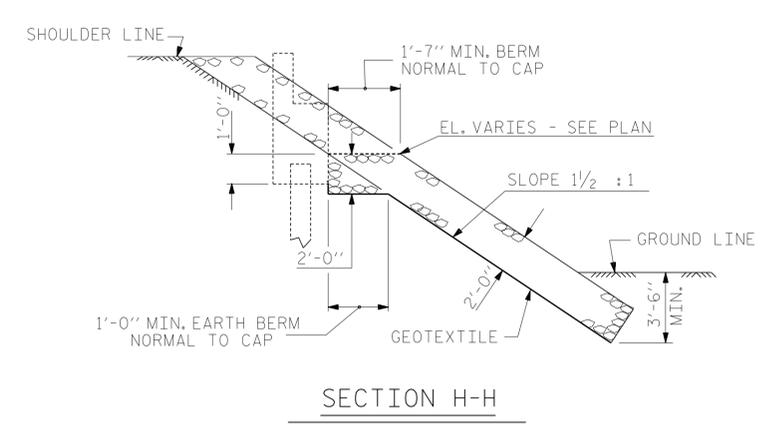
DESIGN ENGINEER OF RECORD: <b>Robert Decola</b>	DATE : <b>10/23/2025</b>
DRAWN BY : <b>C. MURPHY</b>	DATE : <b>01/27/25</b>
CHECKED BY : <b>R. DeColo</b>	DATE : <b>01/28/25</b>

NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

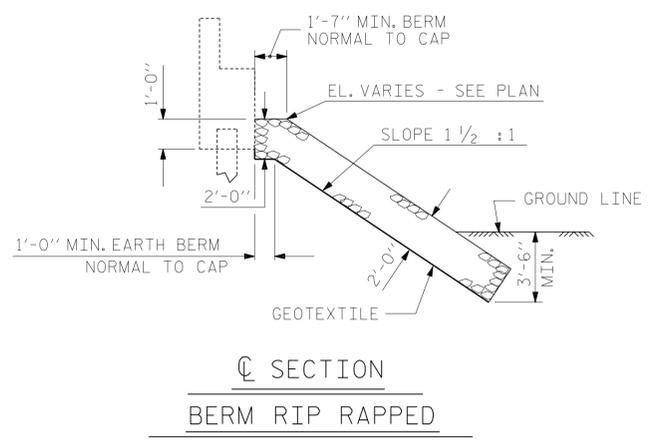


SHOULDER RIP RAP IS HIGHER THAN BERM RIP RAP

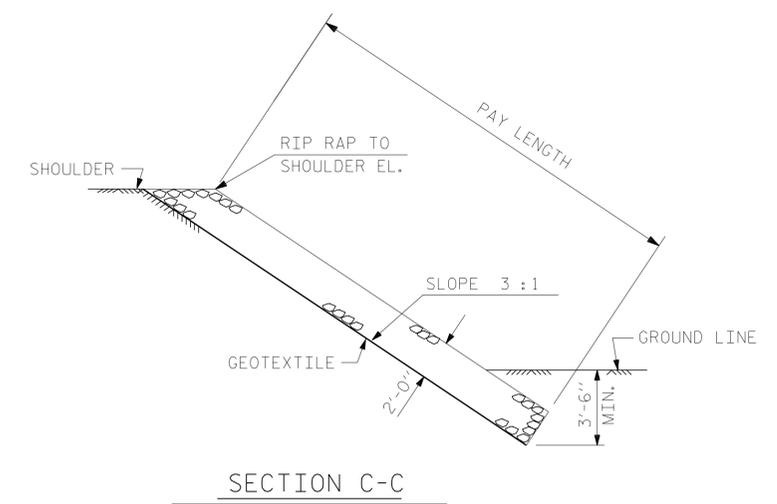
ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+10.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	108	120
END BENT 2	116	129



SECTION H-H



SECTION C-C  
BERM RIP RAPPED



SECTION C-C

PROJECT NO. BP10-R055  
CABARRUS COUNTY  
STATION: 15+10.00 -L-



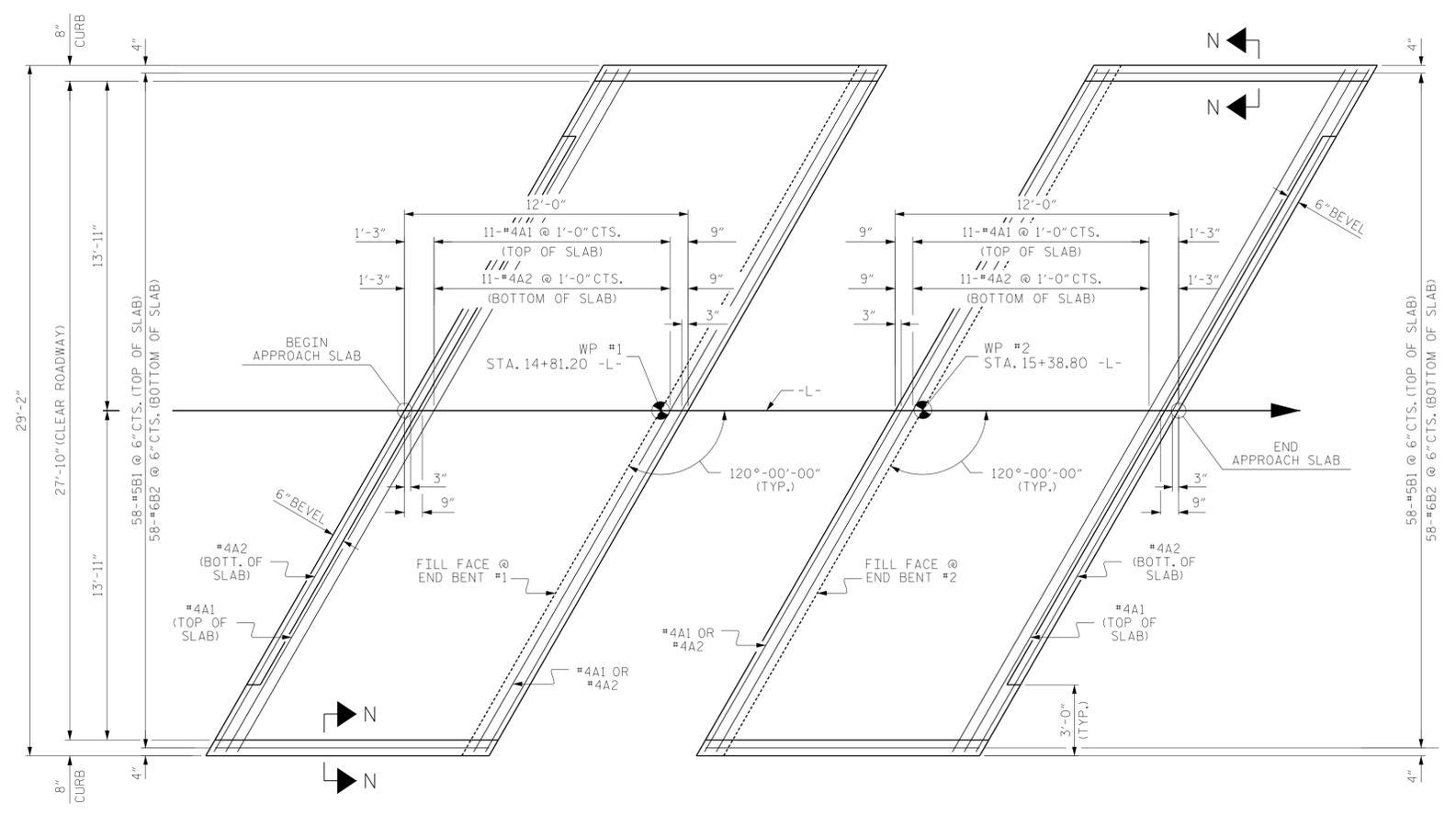
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
RIP RAP DETAILS

DESIGN ENGINEER OF RECORD: Robert DeCola DATE : 10/23/2025  
DRAWN BY : C. MURPHY DATE : 01/27/25  
CHECKED BY : R. DeCola DATE : 01/28/25

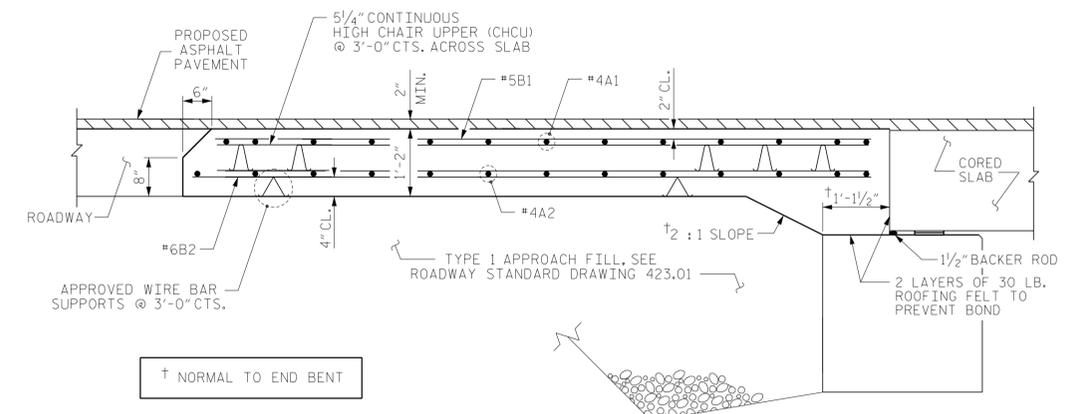
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			16
2			4			

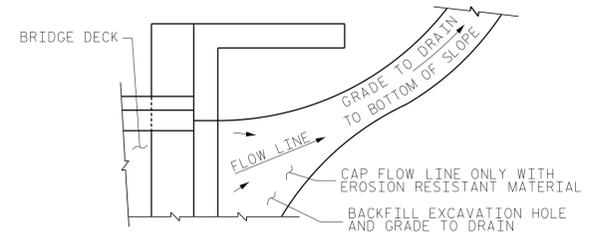


PLAN @ END BENT #1      PLAN @ END BENT #2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



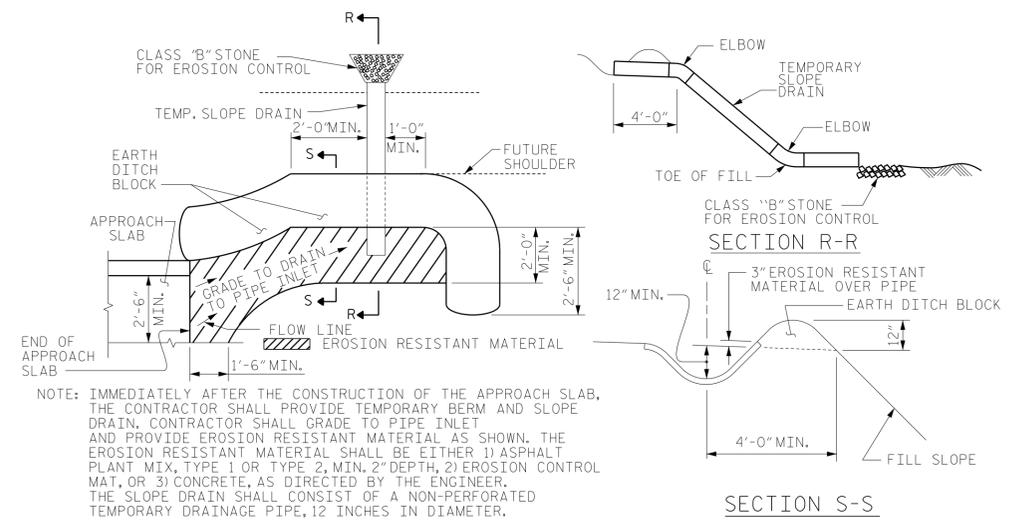
SECTION THRU SLAB

**NOTES**  
 FOR BRIDGE APPROACH FILL, SEE ROADWAY PLANS.  
 AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.  
 APPROACH SLAB GROOVING IS NOT REQUIRED.



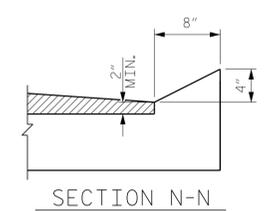
**NOTE:** IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

**TEMPORARY DRAINAGE DETAIL**



**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.

**TEMPORARY BERM AND SLOPE DRAIN DETAILS**  
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N  
**CURB DETAILS**

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	33'-3"	289	
A2	13	#4	STR	33'-3"	289	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1298
*EPOXY COATED REINFORCING STEEL					LBS.	959
CLASS AA CONCRETE				C. Y.	16.9	
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	13	#4	STR	33'-3"	289	
A2	13	#4	STR	33'-3"	289	
*B1	58	#5	STR	11'-1"	670	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1298
*EPOXY COATED REINFORCING STEEL					LBS.	959
CLASS AA CONCRETE				C. Y.	16.9	



PROJECT NO. BP10-R055  
CABARRUS COUNTY  
 STATION: 15+10.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**STANDARD  
 BRIDGE APPROACH SLAB  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)  
 120° SKEW**

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

KCI\_JOB\_NO: 2216011946.08C

DESIGN ENGINEER OF RECORD: Robert Decola      DATE: 10/23/2025  
 DRAWN BY: C. MURPHY      DATE: 01/27/25  
 CHECKED BY: R. DeColo      DATE: 01/28/25

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 4800 Falls of Neuse Road, Suite 200, Raleigh, NC 27601-0270 Phone: (919) 783-9201

# STANDARD NOTES

## DESIGN DATA:

SPECIFICATIONS .....	AASHTO (CURRENT)
LIVE LOAD .....	SEE PLANS
IMPACT ALLOWANCE.....	SEE AASHTO
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 AASHTO
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 2024 "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 1/2" 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" 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. FINIS 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.