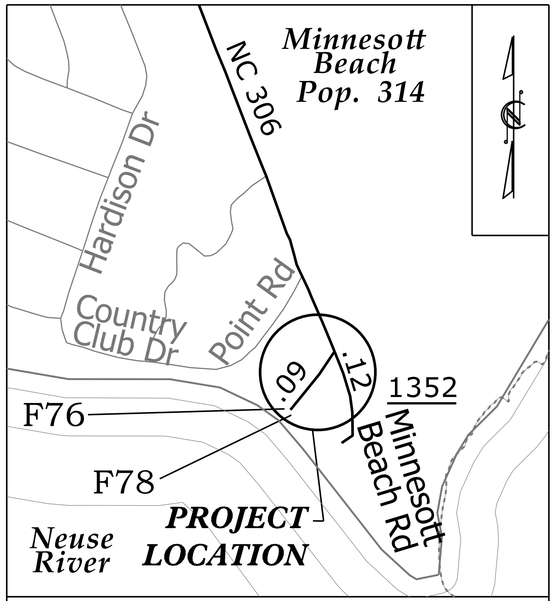
TIP PROJECT: BR-0173

CONTRACT: C205129



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

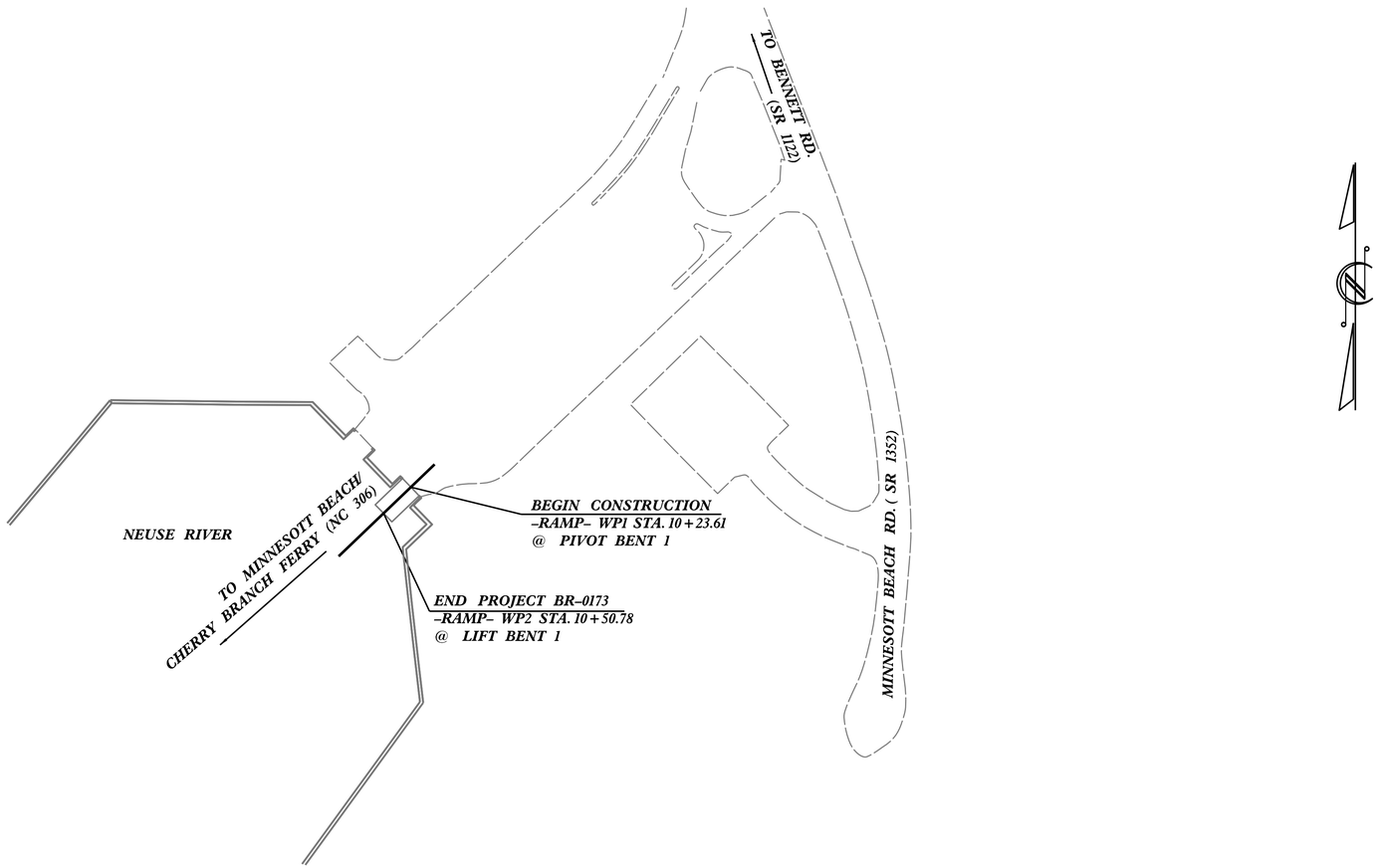
PAMLICO COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0173		

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
67173.1.1	–	P.E.
67173.2.1	–	R / W
51815.3.1	RAMP078	CONST.

LOCATION: *REPLACE STRUCTURE 680078 (FERRY RAMP) OVER THE NEUSE RIVER ON NC 306 AT THE MINNESOTT BEACH FERRY TERMINAL*

TYPE OF WORK: *FERRY RAMP, LIFT BENT, BULKHEAD, AND DOLPHINS*



STRUCTURES

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT BR-0173 = 0.052 MILES
LENGTH STRUCTURE TIP PROJECT BR-0173 = 0.005 MILES

TOTAL LENGTH TIP PROJECT BR-0173 = 0.057 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2024 STANDARD SPECIFICATIONS

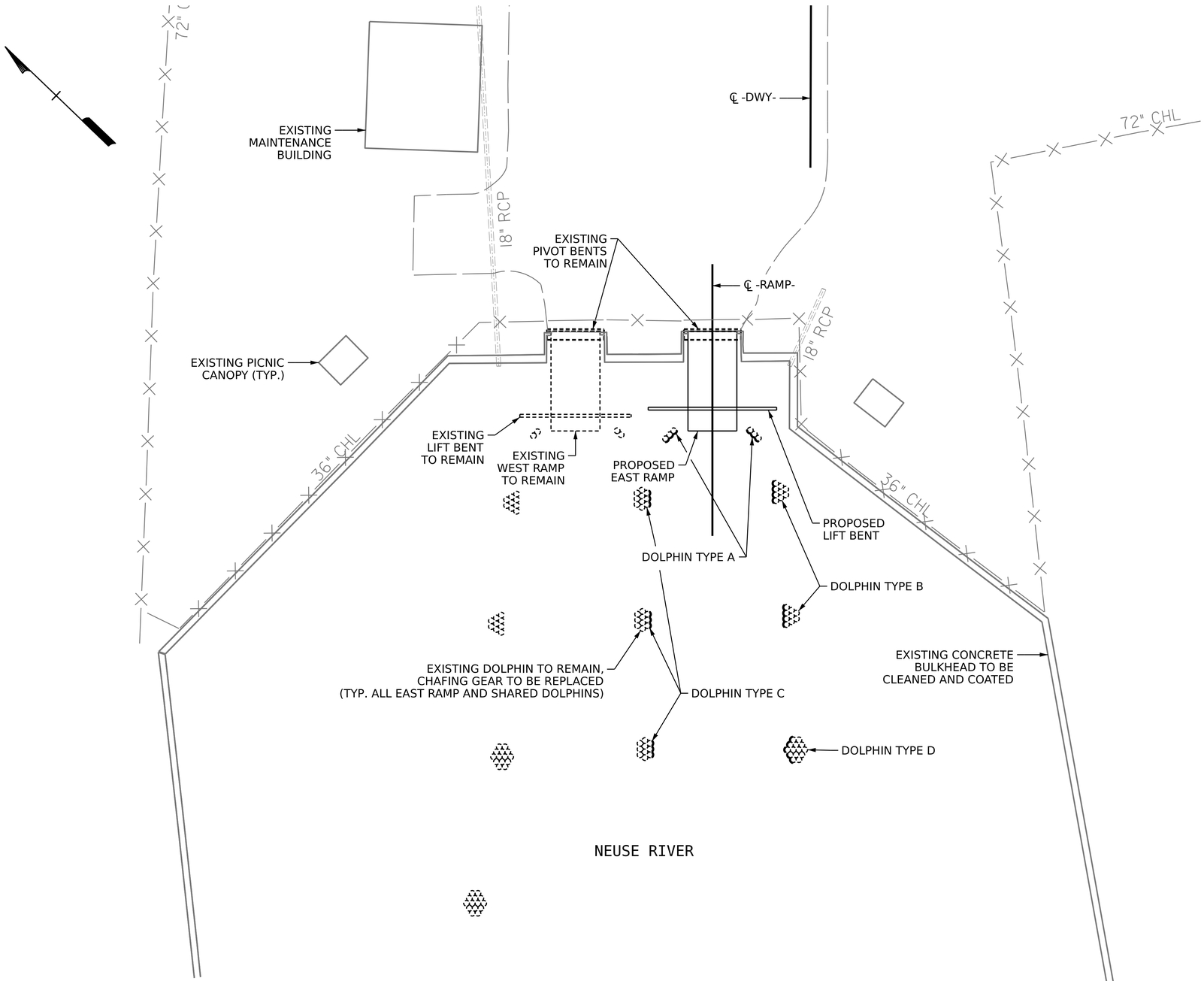
LETTING DATE :

JANUARY 20, 2026

RODGER ROCHELLE, PE
PROJECT ENGINEER

VENKATA KOLLIPARA, PE
PROJECT DESIGN ENGINEER

8/26/21



PLAN

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA
10/24/2025

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

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

Hardesty & Hanover, LLP
3100 Smoketree Court, Suite 1005
Raleigh, North Carolina 27604
Phone: 919-896-7428
License #: F-0277

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10/24/2025
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pdrye

8/26/21

10+00 10+50

25 20 15 10 5 0 -5 -10 -15 -20

2'-6" OFFSET FROM EXISTING LIFT BENT TO PROPOSED LIFT BENT

PROPOSED LIFT BENT

EXISTING LIFT BENT TO BE REPLACED

2'-6" HIGHER PROPOSED CAP BEAM RELATIVE TO EXISTING CAP BEAM

SPAN A

W.P. 2
STA. 10+50.78 -RAMP-
℄ LIFT BENT
G.P. EL. VARIES

W.P. 1 - BEGIN BRIDGE
STA. 10+23.61 -RAMP-
FILL FACE @ PIVOT BENT
G.P. EL. 6.15

APPROXIMATE LINE OF EXISTING GROUND

EXISTING PIVOT BENT TO REMAIN

EXISTING HP STEEL PILES TO REMAIN

HP 14x73 STEEL PILES

EXISTING BULKHEAD TO REMAIN

MEAN WATER LEVEL EL = 0.6

EXISTING DOLPHIN TO REMAIN (TYP.)

PIVOT BENT

LIFT BENT

EL. -15 ±

EL. -13 ±

EL. -11.5 ±

SECTION ALONG -RAMP-

(SECTION TAKEN AT RIGHT ANGLE TO PIVOT BENT AND LIFT BENT)

℄ PROPOSED LIFT BENT ℄ EXISTING LIFT BENT

22'-6½"

45'-1"

22'-6½"

EXISTING PIVOT BENT TO REMAIN

10'-0"

20'-0"

10'-0"

W.P. 1
STA. 10+23.61 -RAMP-

℄ -RAMP-

FILL FACE

EXISTING BULKHEAD TO REMAIN

W.P. 2
STA. 10+50.78 -RAMP-

27'-2" (W.P. 1 TO W.P. 2)

2'-6" OFFSET FROM EXISTING LIFT BENT TO PROPOSED LIFT BENT

EXISTING DOLPHIN TO REMAIN (TYP.)

ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER (TYP.)

PLAN

(PILES AT PIVOT BENT NOT SHOWN FOR CLARITY)

NOTES:

REMAINING DOLPHINS NOT SHOWN FOR CLARITY.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 2 OF 5 BRIDGE NO. 680078

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA

10/24/2025

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

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

10/24/2025
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pdrye

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Raleigh, North Carolina 27604
Phone: 919-896-7428
License #: F-0277

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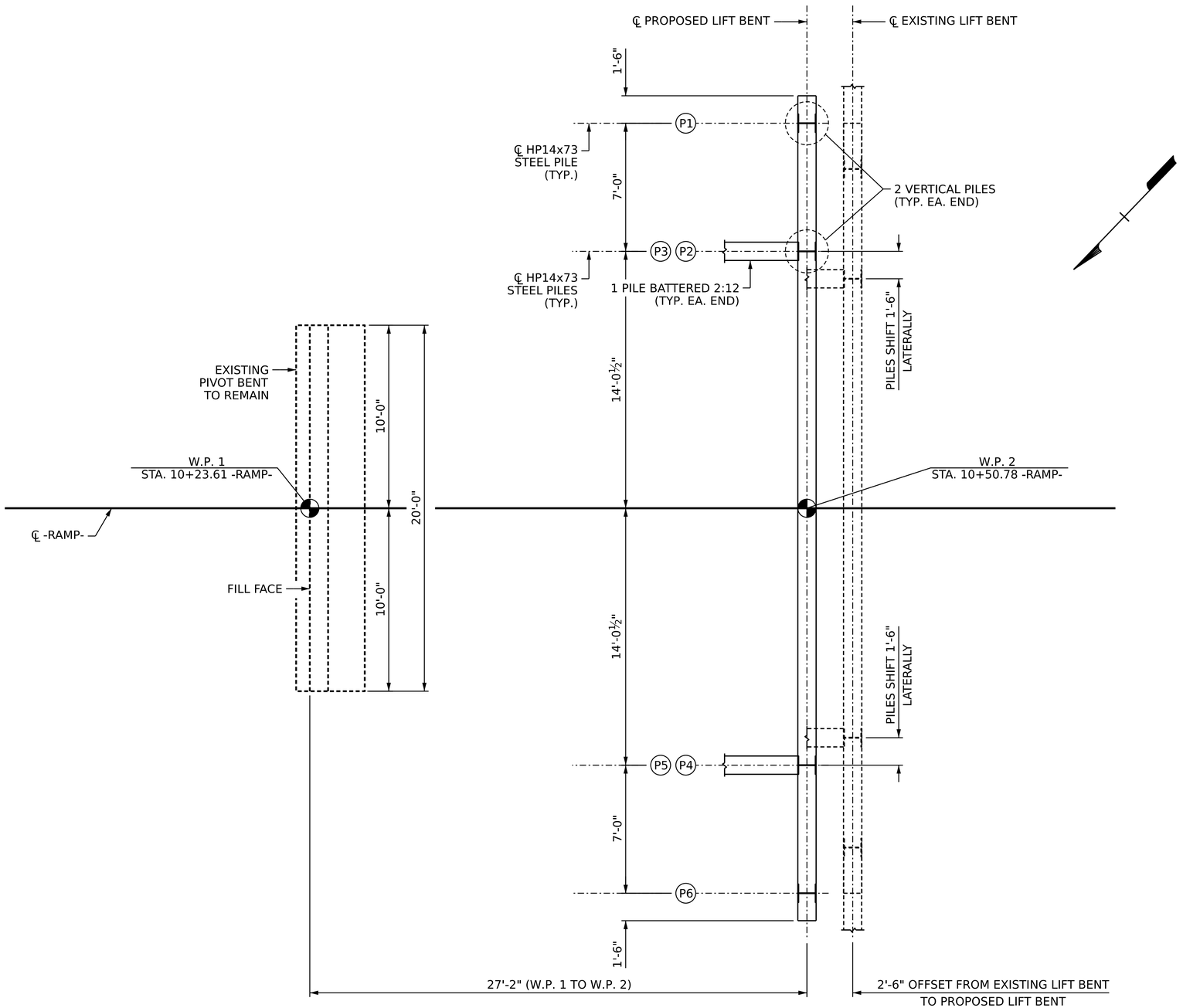
8/26/21

NOTES:
EXISTING LIFT BENT AND PILES ARE TO BE REMOVED.

PILES P3 AND P5 ARE BATTERED PILES.



FOUNDATION LAYOUT

(PILES AT PIVOT BENT NOT SHOWN FOR CLARITY)

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FOUNDATION LAYOUT

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA
10/24/2025

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

10/24/2025
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pdrye

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1			3			TOTAL SHEETS
2			4			20

8/26/21

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Number of Piles per Line	Factored Resistance per Pile KIPS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles **			Drilled-In Piles		
						Minimum Pile Tip (Tip No Higher Than) Elevation FT	Required Driving Resistance (RDR)* per pile KIPS	Pile Redrives Quantity EACH	Predrilling Length per Pile LIN FT	Predrilling Elevation (Elevation Not To Predrill Below) FT	Maximum Predrilling Diameter INCHES	Pile Excavation (Bottom of Hole) Elevation FT	Pile Excavation Not In Soil per Pile LIN FT	Pile Excavation In Soil per Pile LIN FT
Lift Bent, Piles 1,2,4,6	4	35	26.14	95	-16	-41	50	4						
Lift Bent, Piles 3,5	2	18	24.14	80	-16	-41	25	2						
TOTAL QUANTITY:								6						

$$* RDR = \frac{Factored\ Resistance + Factored\ Drag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Drag\ Load\ Resistance + Nominal\ Resistance\ from\ Scourable\ Material$$

** Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent / Bent No, Pile(s) #(-#) (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile KIPS	Factored Drag Load per Pile KIPS	Factored Dead Load * per Pile KIPS	Dynamic Resistance Factor	Nominal Drag Resistance per Pile KIPS	Nominal Scour Resistance per Pile KIPS
Lift Bent, Piles 1-6	35			0.7		

* Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF DPT/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Dynamic Pile Testing (DPT)		
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	DPT Test Pile Length FT	DPT Testing Quantity EACH
Lift Bent	100	2
TOTAL QUANTITY:		2

Pile Order Lengths for Concrete Piles	
End Bent / Bent No (e.g., "Bent 1 - Bent 3")	Pile Order Length Basis* EST or DPT

* EST = Pile order lengths from estimated pile lengths; DPT = Pile order lengths based on Dynamic Pile Testing. For groups of end bents/bents with pile order lengths based on DPT testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the DPT.

NOTES:

THE PILE FOUNDATION TABLES ARE BASED ON THE BRIDGE SUBSTRUCTURE DESIGN AND FOUNDATION RECOMMENDATIONS SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER (YINHUI LIU, #034020) ON 08-01-2025.

TOTAL PILE DRIVING EQUIPMENT SETUP QUANTITY (NOT SHOWN IN PILE FOUNDATION TABLES) EQUALS THE NUMBER OF DRIVEN PILES, I.E., THE NUMBER OF PILES WITH A REQUIRED DRIVING RESISTANCE.

THE ENGINEER MAY ADJUST THE QUANTITY FOR DPT TESTING, PIPE PILE PLATES, PERMANENT STEEL CASING, SPTs, TIPs, CSL TESTING, SID INSPECTIONS AND PITs WHEN NECESSARY.

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 10,000 TO 20,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT THE LIFT BENT. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 4 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER YINHUI LIU, PHD

10/24/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FOUNDATION TABLES

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

10/24/2025
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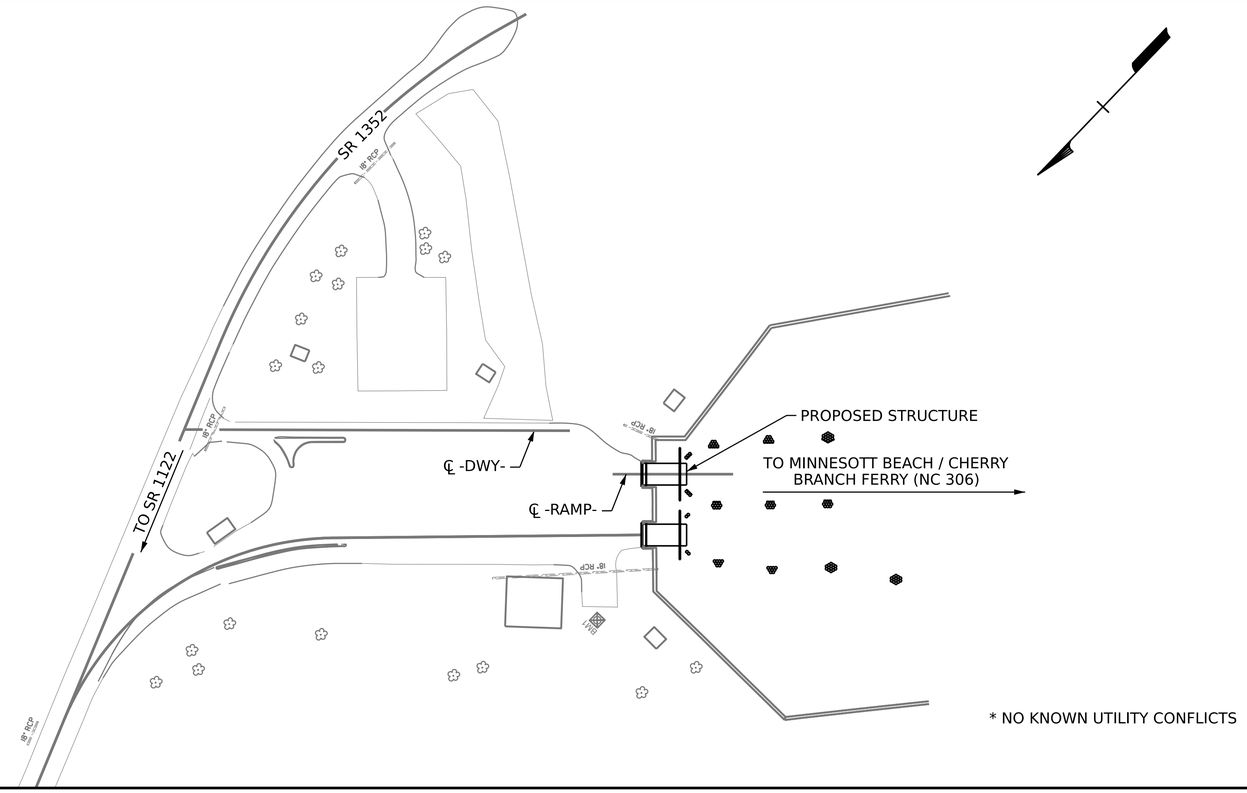
1			3			TOTAL SHEETS
2			4			20

8/26/21

BM #1, SCREW SET IN LIGHT/POWER POLE BY OFFICE BUILDING



LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STA. 10+23.61	ASBESTOS ASSESSMENT	CLASS AA CONCRETE	EPOXY COATED REINFORCING STEEL	APPROX. 53,860 LBS. STRUCTURAL STEEL	POLLUTION CONTROL	PILE DRIVING EQUIPMENT SETUP FOR HP 14x73 PILES	HP 14x73 STEEL PILES		PILE REDRIVES	DYNAMIC PILE TESTING	1¼" DIA. STEEL PIPE RAIL
	LUMP SUM	LUMP SUM	CU. YDS.	LBS.	LUMP SUM	LUMP SUM	EACH	NO.	LIN. FT.	EACH	EACH	LIN. FT.
SUPERSTRUCTURE					45,430							69
LIFT BENT			7.0	383	8,430		6	6	540	6	2	
BULKHEAD												
DOLPHINS												
TOTAL	LUMP SUM	LUMP SUM	7.0	383	LUMP SUM	LUMP SUM	6	6	540	6	2	69

TOTAL BILL OF MATERIAL

	RAMP MECHANICAL SYSTEM	RAMP ELECTRICAL SYSTEM	PAINTING BULKHEAD SHEET PILING	PAINTING STEEL PILES	PAINTING CONTAINMENT FOR BULKHEAD	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER (3½")	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER (1¼")
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.
SUPERSTRUCTURE							
LIFT BENT							
BULKHEAD			LUMP SUM		LUMP SUM		
DOLPHINS						120	223
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	120	223

GENERAL NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 9TH EDITION.

MULTIPLE PRESENCE FACTOR IS CALCULATED BASED ON THE ADTT LIMIT OF LESS THAN 100 PER AASHTO. IMPACT FACTOR WAS REDUCED TO 10% FOR LIVE LOADS DUE TO SPEEDS LESS THAN 10MPH.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

ALL BOLTS TO BE ASTM F3125, GRADE A325 (TYPE 1) WITH THREADS EXCLUDED FROM THE SHEAR PLANE UNLESS NOTED OTHERWISE.

DECK BOLTS TO BE A307 CARRIAGE BOLTS, SQUARE NECK WITH WASHER, NUT, AND JAM NUT.

ALL STEEL SHALL BE AASHTO M270 GRADE 50 UNLESS NOTED OTHERWISE.

DECK PLATE STEEL SHALL BE ASTM A786 GRADE 50.

AT FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF ½ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

DECK PLATES SHALL RECEIVE AN EPOXY SKID RESISTANT OVERLAY. FOR SKID RESISTANT COATING, SEE SPECIAL PROVISIONS.

CHARPY V-NOTCH TEST REQUIRED FOR W24 X 162 GIRDERS AND W10 X 68 FLOOR BEAMS IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS. W24 X 162 GIRDERS AND W10 X 68 FLOOR BEAMS ARE FRACTURE CRITICAL.

1¼" DIA. STEEL PIPE RAIL TO BE METALLIZED AFTER FABRICATION.

TENSION ON THE A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

ALL BOLTS, WASHERS, NUTS, AND OTHER HARDWARE TO BE GALVANIZED.

ALL DECK PLATES TO BE METALLIZED AFTER FABRICATION. ALL WELDING REQUIRED ON APRON TO BE COMPLETED BEFORE METALLIZATION.

ALL GIRDERS, BEAMS, ANGLES, CHANNELS, PLATES, RODS, PIPES, PIVOT BENT BEARINGS, AND LIFT BEAM TO BE METALLIZED.

ELASTOMERIC PADS SHOWN UNDER GIRDER ENDS AND AT END OF APRON SHALL BE ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE MEETING THE REQUIREMENTS OF THE ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER SPECIAL PROVISION. AS AN ALTERNATE, A 50 DUROMETER ELASTOMERIC PAD MAY BE USED. NO PAYMENT WILL BE MADE FOR THESE PADS AS THEY WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

FOR EPOXY FINISH PAINT FOR METALLIZED STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR 1¼" DIA. STEEL PIPE RAIL, SEE SPECIAL PROVISIONS.

FOR COORDINATION WITH FERRY DIVISION, SEE SPECIAL PROVISIONS.

FOR REMOVAL OF EXISTING FERRY RAMPS, SEE SPECIAL PROVISION FOR REMOVAL OF EXISTING STRUCTURE.

FOR RAMP ELECTRICAL SYSTEM, SEE SPECIAL PROVISIONS.

EXISTING PIVOT BENT DETAILS SHOWN ARE BASED ON THE BEST AVAILABLE FIELD SURVEY INFORMATION AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

DREDGING AND JETTING SHALL NOT BE NOT PERMITTED.

FOR WORK IN, OVER OR ADJACENT TO NAVIGABLE WATERS, SEE SPECIAL PROVISIONS.

FOR STEEL STRUCTURE WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR RAMP MECHANICAL SYSTEM, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 5 OF 5

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA

10/24/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

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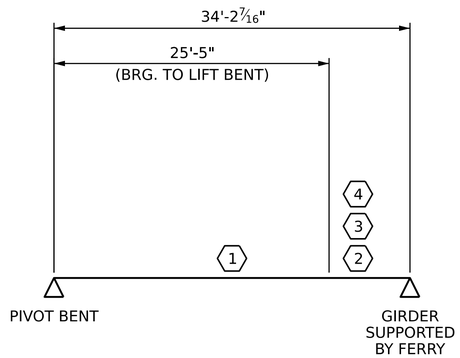
1			3			TOTAL SHEETS
2			4			20

8/26/21

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LOAD TYPE		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF MEMBER (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF MEMBER (ft)	LIVE-LOAD FACTORS (γ LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF MEMBER (ft)	
DESIGN LOAD		HL-93 (INVENTORY)	N/A	1	1.04	--	1.75	N/A	1.04	A	TG	17.42	N/A	1.53	A	CI	0.17	1.30	N/A	1.07	A	CI	2.69	1, 2
		HL-93 (OPERATING)	N/A		1.35	--	1.35	N/A	1.35	A	TG	17.42	N/A	1.99	A	CI	0.17	N/A	--	--	--	--	--	1, 2
		HS-20 (INVENTORY)	36.000	2	1.10	39.60	1.75	N/A	1.14	A	CI	2.69	N/A	1.56	A	CI	0.17	1.30	N/A	1.10	A	CI	2.69	1, 2
		HS-20 (OPERATING)	36.000		1.47	52.92	1.35	N/A	1.47	A	CI	2.69	N/A	2.02	A	CI	0.17	N/A	--	--	--	--	--	1, 2
LEGAL LOAD	SINGLE VEHICLE (SV)	SNSH	13.500		1.39	18.77	1.40	N/A	1.79	A	CI	2.69	N/A	2.83	A	CI	0.17	1.30	N/A	1.39	A	CI	2.69	1, 2
		SNGARBS2	20.000		1.30	26.00	1.40	N/A	1.68	A	CI	2.69	N/A	2.65	A	CI	0.17	1.30	N/A	1.30	A	CI	2.69	1, 2
		SNAGRIS2	22.000		1.39	30.58	1.40	N/A	1.79	A	CI	2.69	N/A	2.83	A	CI	0.17	1.30	N/A	1.39	A	CI	2.69	1, 2
		SNCOTTS3	27.250	3	1.22	33.25	1.40	N/A	1.54	A	TG	17.42	N/A	2.27	A	CI	0.17	1.30	N/A	1.22	A	CI	2.69	1, 2
		SNAGGRS4	34.925		1.49	52.04	1.40	N/A	1.49	A	TG	17.42	N/A	2.62	A	TG	34.63	1.30	N/A	1.61	A	CI	2.69	1, 2
		SNS5A	35.550		1.45	51.55	1.40	N/A	1.45	A	TG	17.42	N/A	2.67	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
		SNS6A	39.950		1.40	55.93	1.40	N/A	1.40	A	TG	17.42	N/A	2.51	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
		SNS7B	42.000		1.33	55.86	1.40	N/A	1.33	A	TG	17.42	N/A	2.56	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.39	45.87	1.40	N/A	1.79	A	TG	17.42	N/A	2.83	A	CI	0.17	1.30	N/A	1.39	A	CI	2.69	1, 2
		TNT4A	33.075		1.45	47.96	1.40	N/A	1.70	A	TG	17.42	N/A	2.69	A	CI	0.17	1.30	N/A	1.45	A	CI	2.69	1, 2
		TNT6A	41.600		1.45	60.32	1.40	N/A	1.50	A	TG	17.42	N/A	2.69	A	CI	0.17	1.30	N/A	1.45	A	CI	2.69	1, 2
		TNT7A	42.000		1.45	60.90	1.40	N/A	1.54	A	TG	20.26	N/A	2.59	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
		TNT7B	42.000		1.45	60.90	1.40	N/A	1.53	A	TG	20.26	N/A	2.58	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
		TNAGRIT4	43.000		1.39	59.77	1.40	N/A	1.53	A	TG	20.26	N/A	2.49	A	TG	34.63	1.30	N/A	1.39	A	CI	2.69	1, 2
		TNAGT5A	45.000		1.39	62.55	1.40	N/A	1.45	A	TG	17.42	N/A	2.69	A	CI	0.17	1.30	N/A	1.39	A	CI	2.69	1, 2
		TNAGT5B	45.000		1.42	63.90	1.40	N/A	1.42	A	TG	17.42	N/A	2.35	A	TG	34.63	1.30	N/A	1.45	A	CI	2.69	1, 2
EMERGENCY VEHICLE (EV)		EV2	28.750	4	1.05	30.19	1.30	N/A	1.46	A	CI	2.69	N/A	2.00	A	CI	0.17	1.30	N/A	1.05	A	CI	2.69	1, 2
		EV3	43.000		1.14	49.02	1.30	N/A	1.33	A	TG	20.26	N/A	1.97	A	CI	0.17	1.30	N/A	1.14	A	CI	2.69	1, 2
FATIGUE		HL-93 (INVENTORY)	γLL=0.80		N/A	--																		



LRFR SUMMARY

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γDC	γDW
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.

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

COMMENTS:

1. RATING IS BASED ON STRUCTURAL CAPACITY OF THROUGH GIRDERS, FLOORBEAMS, AND CHANNELS. RATINGS FOR THE DECK AND CONNECTIONS ARE NOT INCLUDED.

2. RATING IS BASED ON AN IMPACT FACTOR OF 10% FOR ALL LIVE LOADS.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)

(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING * *

(4) EMERGENCY VEHICLE LOAD RATING

* * SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

TG - THROUGH GIRDER
FB1- FLOORBEAM 1
FBI - FLOORBEAM INTERIOR
FB4- FLOORBEAM 4
CL - EXTERIOR LEFT CHANNEL
CI - INTERIOR CHANNEL
CR - EXTERIOR RIGHT CHANNEL

PROJECT NO. BR-0173
PAMLICO COUNTY
STATION: 10+23.61 -RAMP-

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: C. N. PERRY DATE : 7-3-25

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3100 Smoketree Court, Suite 1005
Raleigh, North Carolina 27604
Phone: 919-896-7426
License #: F-0277

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pdrye

8/26/21

NOTES:

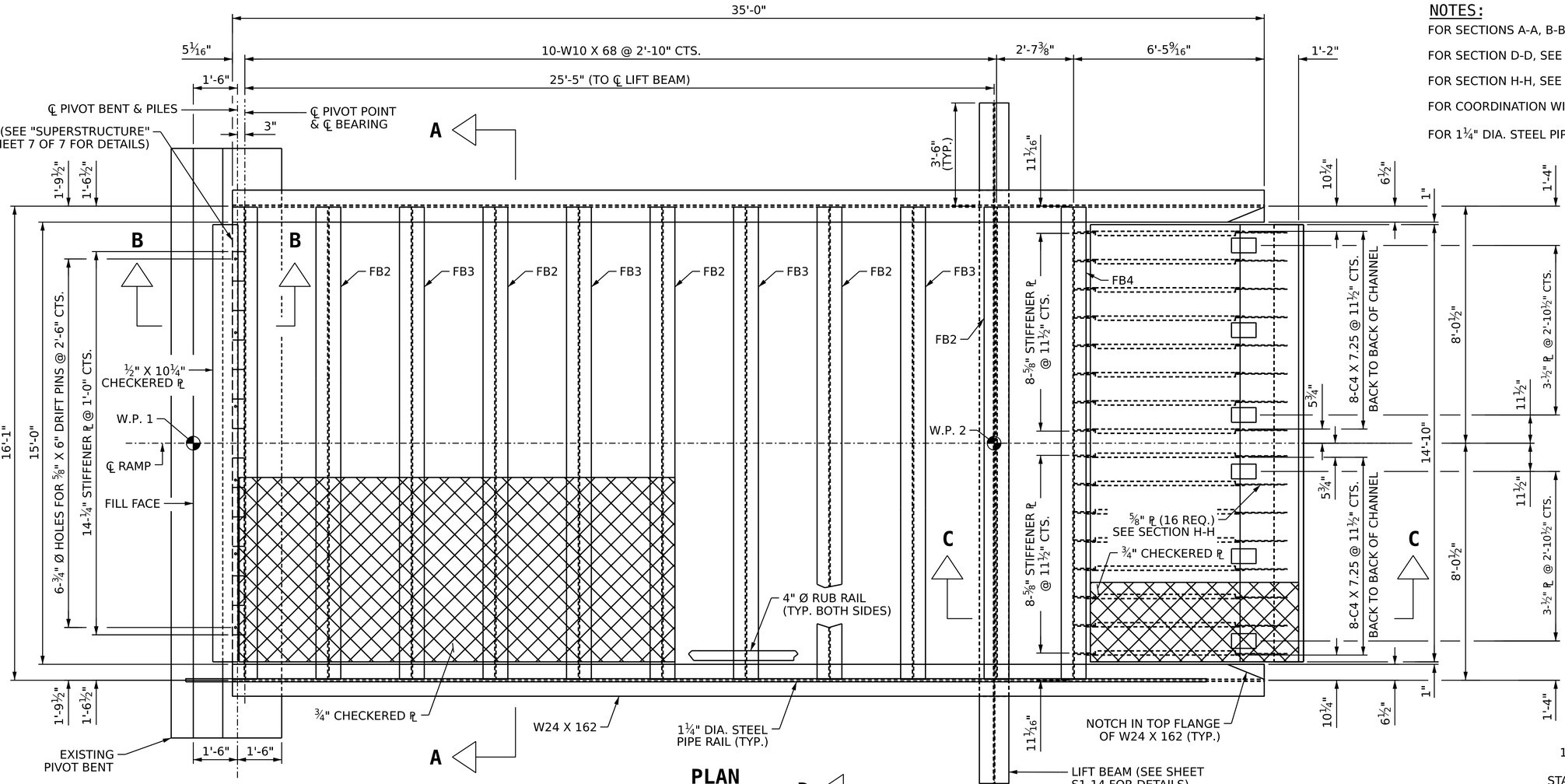
FOR SECTIONS A-A, B-B, AND C-C, SEE "SUPERSTRUCTURE" SHEET 2 OF 7.

FOR SECTION D-D, SEE "SUPERSTRUCTURE" SHEET 4 OF 7.

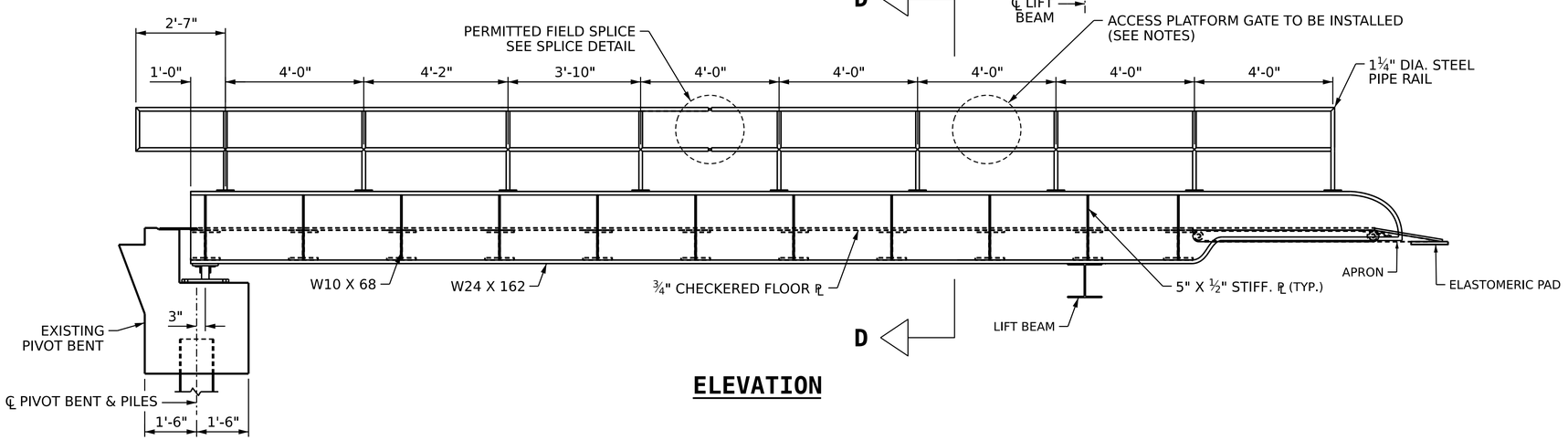
FOR SECTION H-H, SEE "SUPERSTRUCTURE" SHEET 5 OF 7.

FOR COORDINATION WITH FERRY DIVISION, SEE SPECIAL PROVISION.

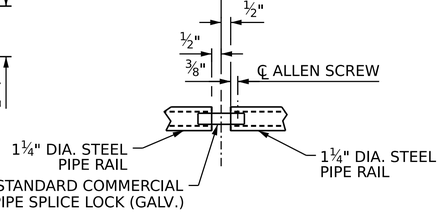
FOR 1¼" DIA. STEEL PIPE RAIL, SEE SPECIAL PROVISION.



PLAN



ELEVATION



SPLICE DETAIL

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GENERAL LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

DRAWN BY : C. A. RUIZ DATE : 7-3-25
CHECKED BY : C. N. PERRY DATE : 7-3-25
DESIGN ENGINEER OF RECORD: C. N. PERRY DATE : 7-3-25

10/24/2025
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3100 Smoketree Court, Suite 1005
Raleigh, North Carolina 27604
Phone: 919-896-7428
License #: F-0277

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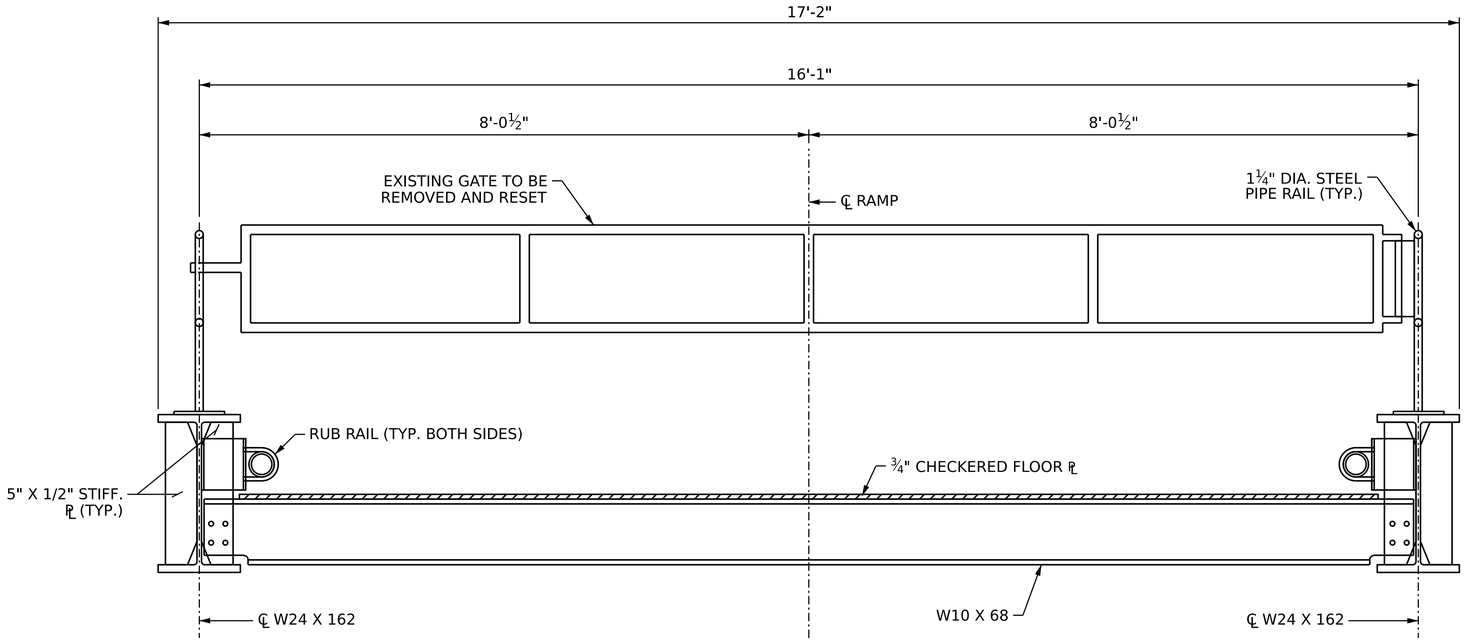
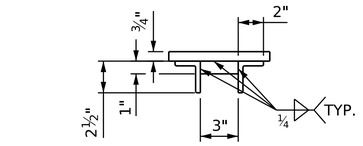
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			20

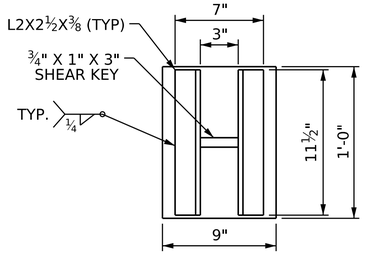
8/26/21

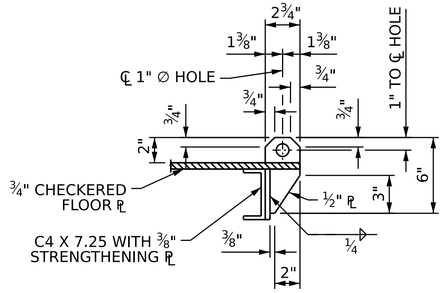


SECTION A-A

BEARINGS NOT SHOWN FOR CLARITY



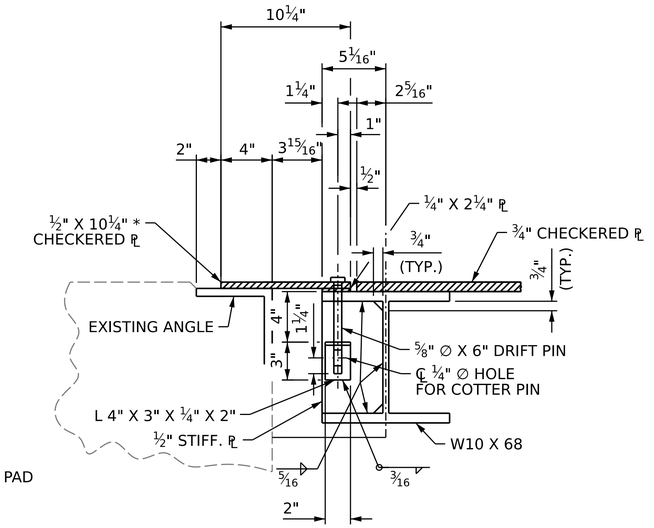




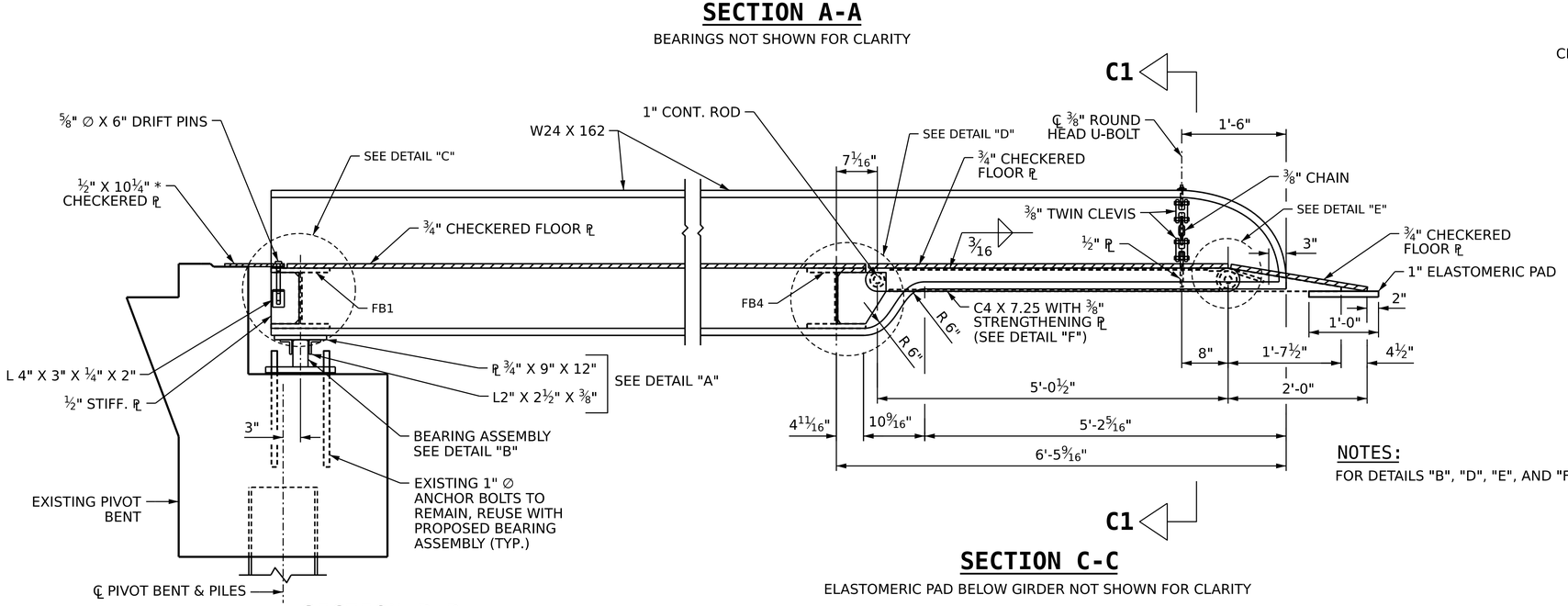
SECTION C1-C1

NOTE: ½" ₧ ON END CHANNELS ONLY

DETAIL "A"



DETAIL "C"



SECTION B-B

SECTION C-C

ELASTOMERIC PAD BELOW GIRDER NOT SHOWN FOR CLARITY

NOTES:

FOR DETAILS "B", "D", "E", AND "F", SEE "SUPERSTRUCTURE" SHEET 3 OF 7.

* PLATE DIMENSION TO BE FIELD VERIFIED.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CROSS SECTIONS

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

DRAWN BY :	C. A. RUIZ	DATE :	7-3-25
CHECKED BY :	C. N. PERRY	DATE :	7-3-25
DESIGN ENGINEER OF RECORD:	C. N. PERRY	DATE :	7-3-25

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Phone: 919-896-7428
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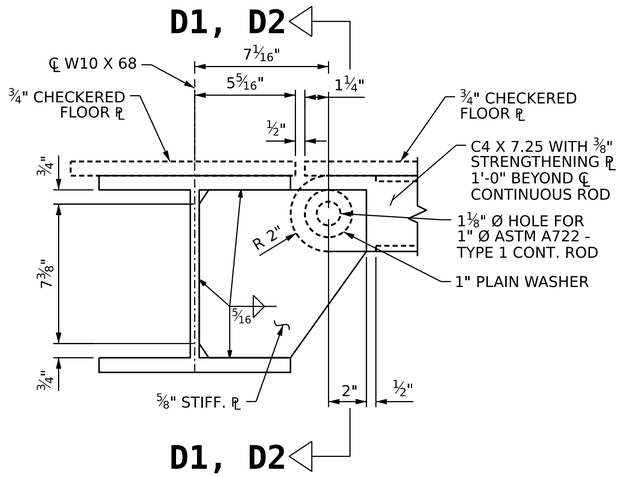
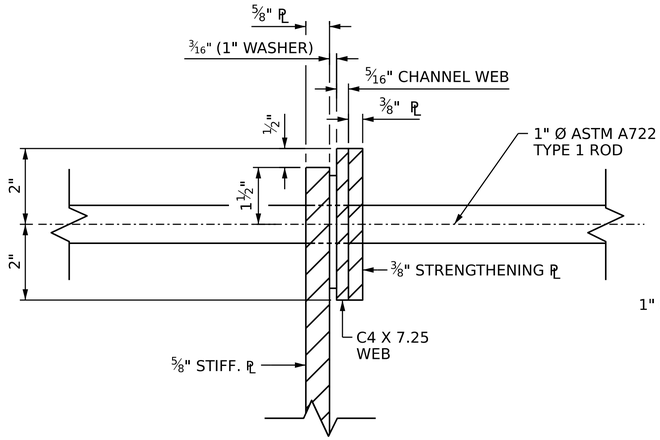
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			20

8/26/21

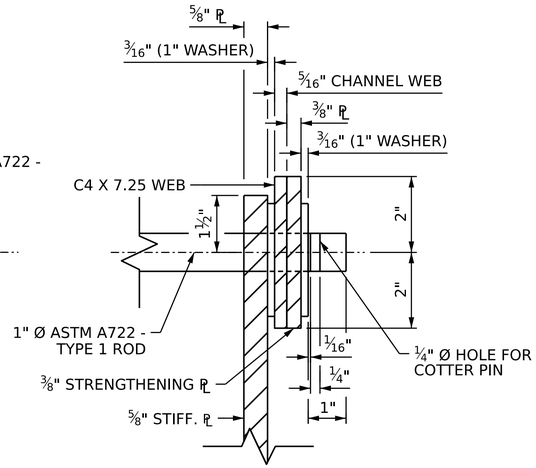


DETAIL "D"



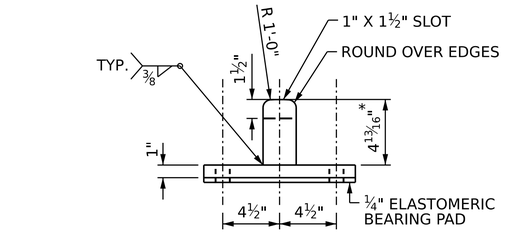
SECTION D1-D1

(INTERIOR CONNECTION)



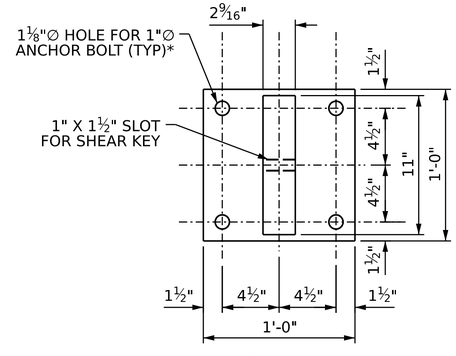
SECTION D2-D2

(END CONNECTION)



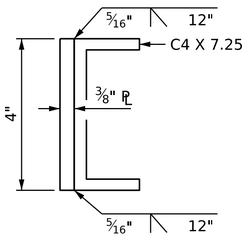
ELEVATION

ELASTOMERIC BEARING PAD SIZE & HOLE LOCATIONS SHALL MATCH THOSE OF BEARING PLATE SHOWN BELOW

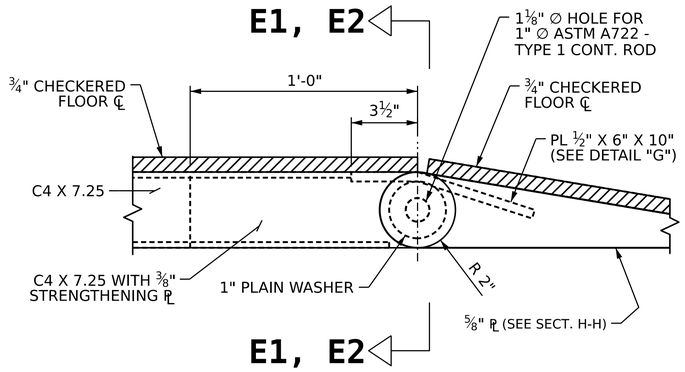


PLAN

DETAIL "B"

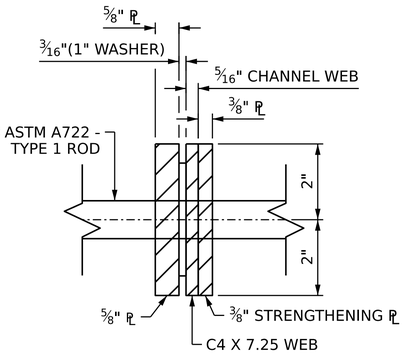


DETAIL "F"



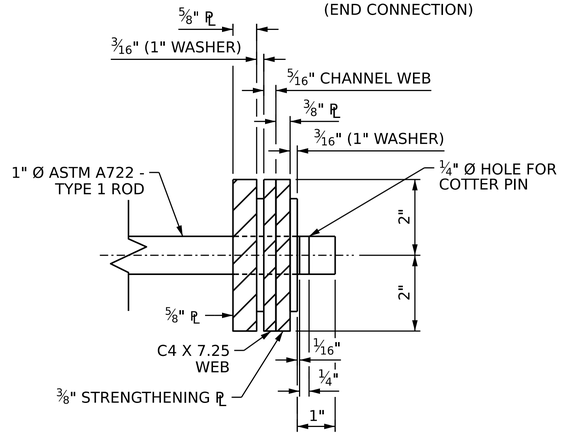
DETAIL "E"

ELASTOMERIC PAD NOT SHOWN FOR CLARITY



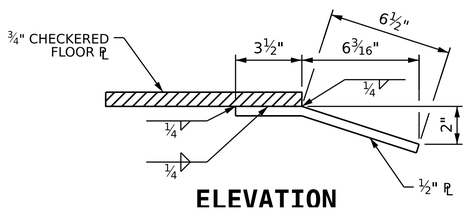
SECTION E1-E1

(INTERIOR CONNECTION)

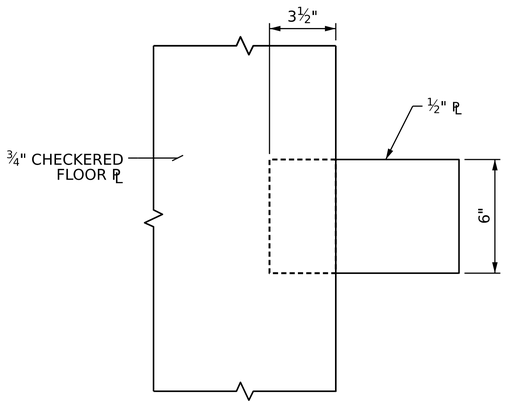


SECTION E2-E2

(END CONNECTION)



ELEVATION



PLAN

DETAIL "G"

FOR 1/2" PLATE LOCATIONS, SEE "PLAN" ON SHEET S1-07

NOTES:

FOR SECTION H-H, SEE "SUPERSTRUCTURE" SHEET 5 OF 7.

* CONTRACTOR SHALL FIELD VERIFY EXISTING BEARING ELEVATION AND ANCHOR BOLT LOCATION PRIOR TO FABRICATING NEW BEARINGS.

NORTH CAROLINA PROFESSIONAL SEAL 60651 Registered ENGINEER CHASE PERRY
10/27/2025

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

GENERAL DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			20	

DRAWN BY : C. A. RUIZ DATE : 7-3-25
CHECKED BY : C. N. PERRY DATE : 7-3-25
DESIGN ENGINEER OF RECORD: C. N. PERRY DATE : 7-3-25

Hardesty & Hanover, LLP
3100 Smoketree Court, Suite 1005
Raleigh, North Carolina 27604
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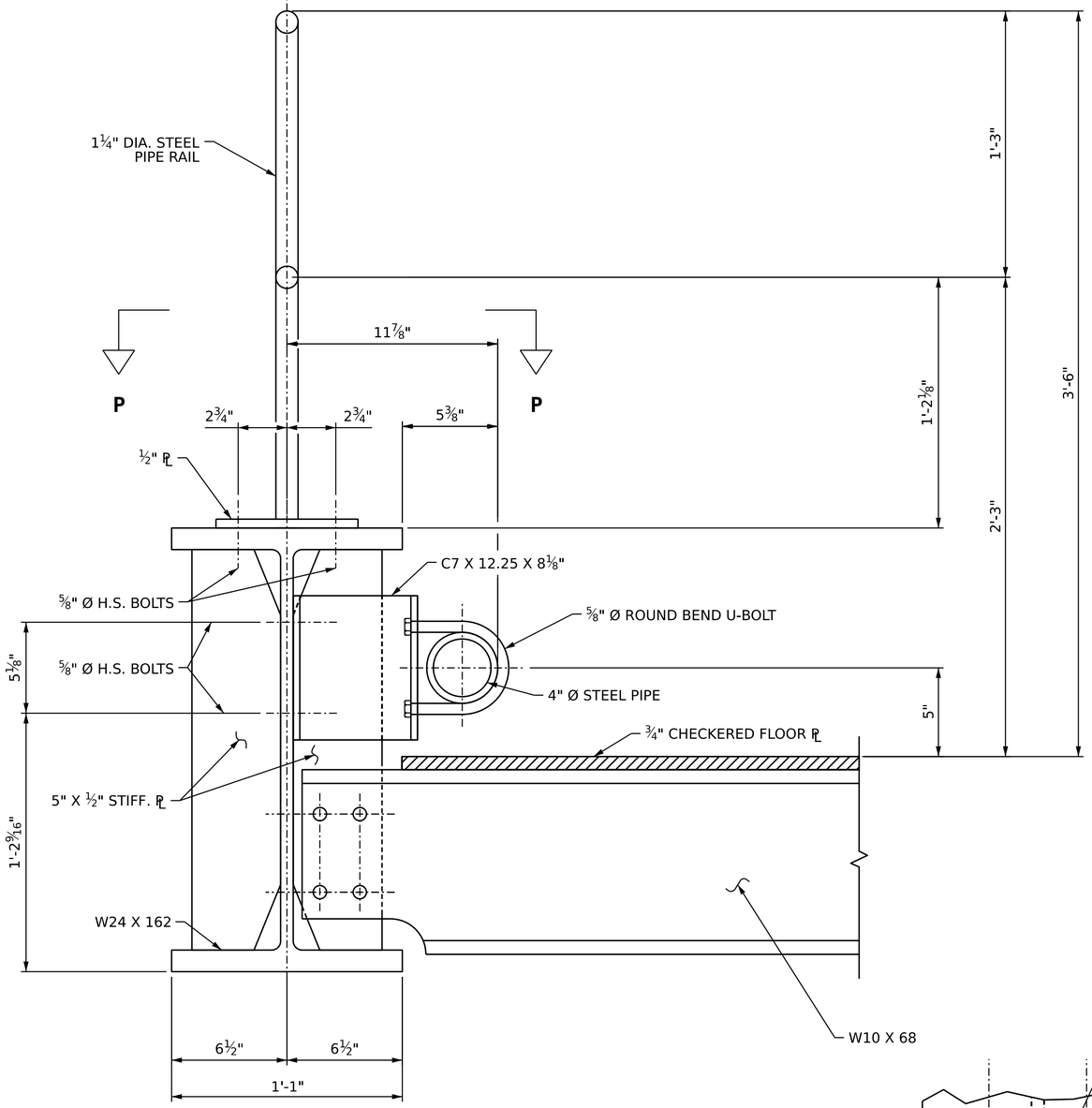
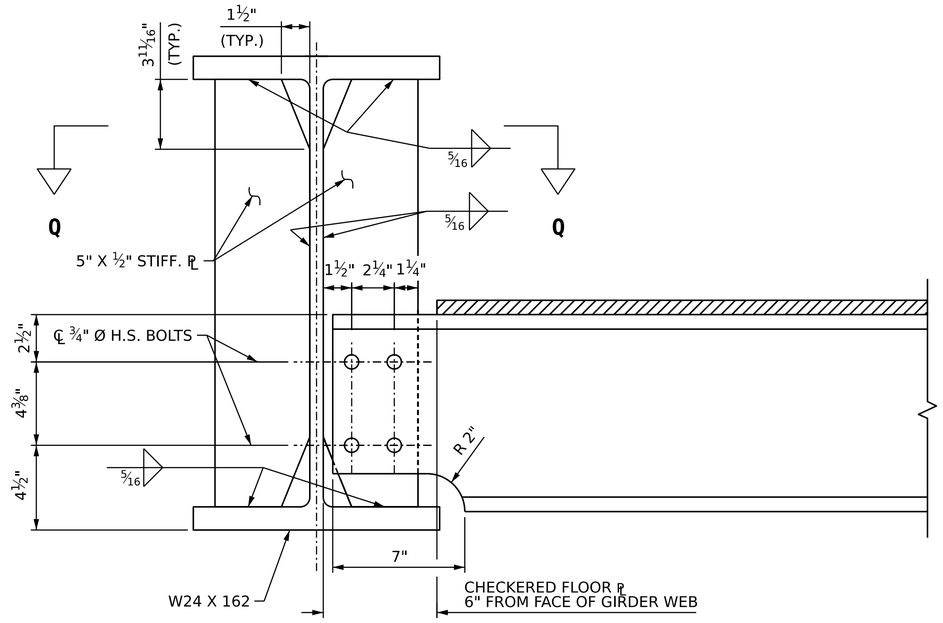
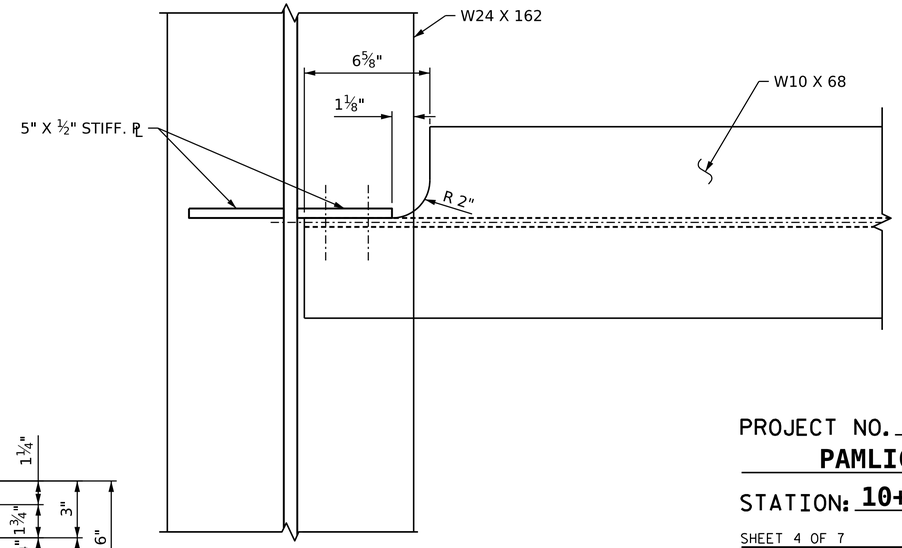


SECTION D-D

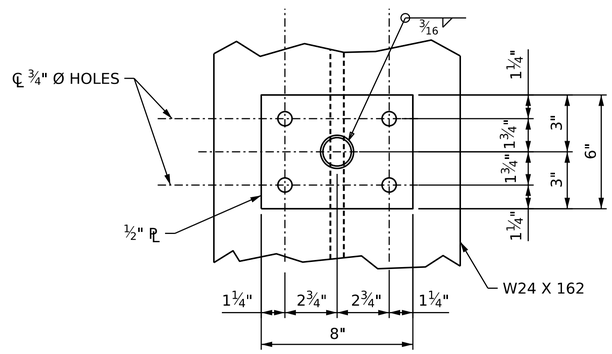


TYPICAL FLOORBEAM CONNECTIONS



VIEW Q-Q

(GIRDER TOP FLANGE NOT SHOWN)



VIEW P-P

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

THROUGH GIRDER AND STIFFENER CONNECTION

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

DRAWN BY :	C. A. RUIZ	DATE :	7-3-25
CHECKED BY :	C. N. PERRY	DATE :	7-3-25
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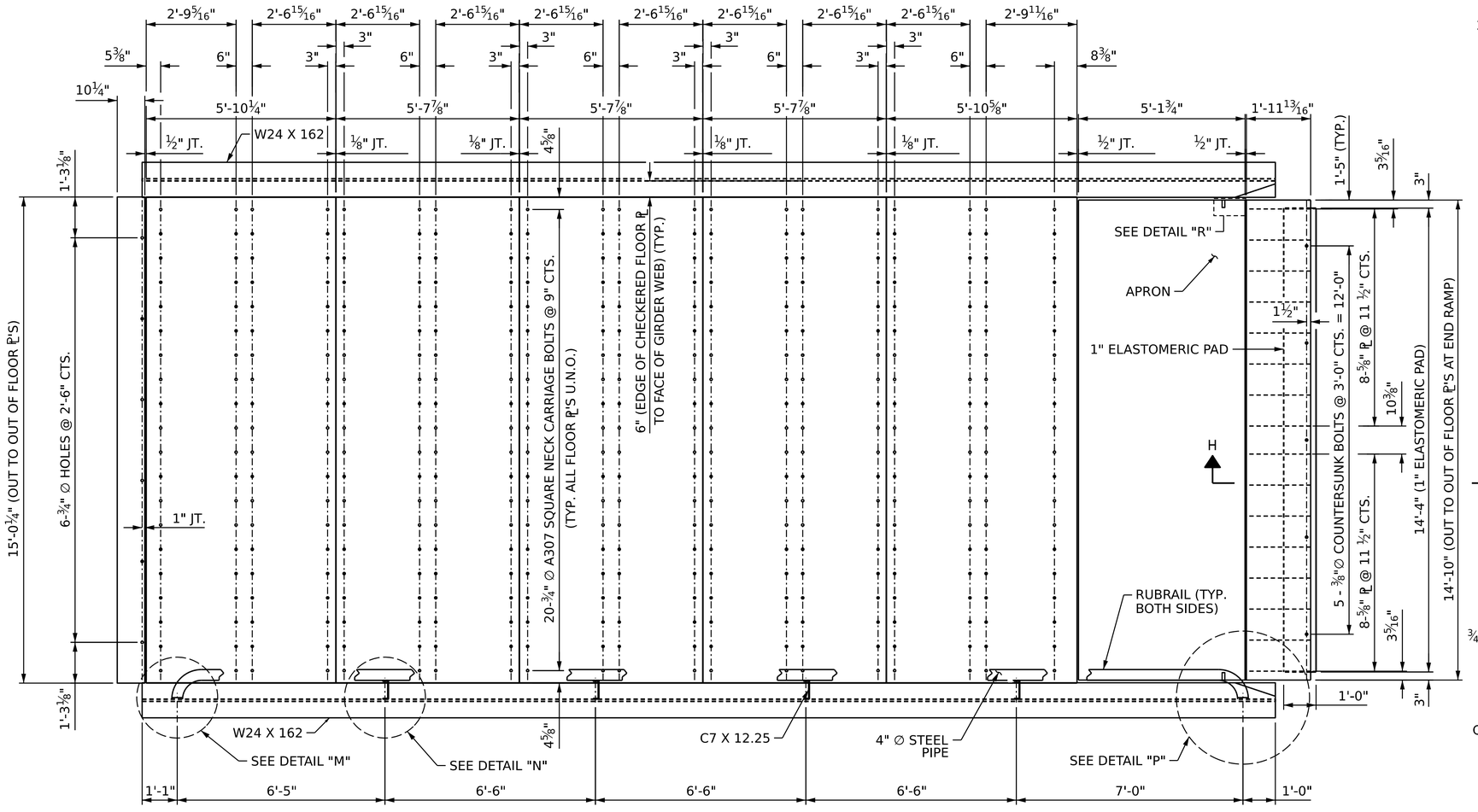
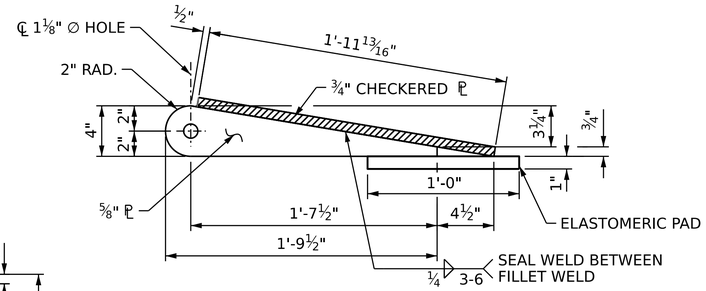
1			3			TOTAL SHEETS
2			4			20

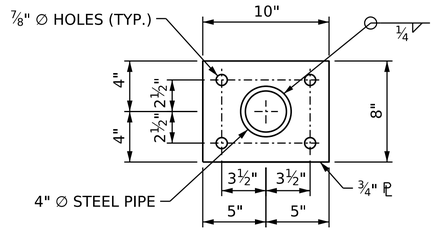
8/26/21



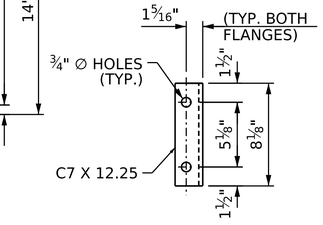
FLOOR PLATE AND RUBRAIL LAYOUT



SECTION H-H



DETAIL "M1"



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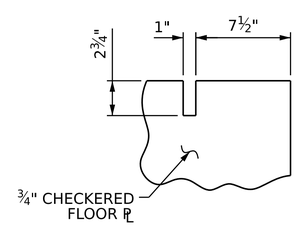
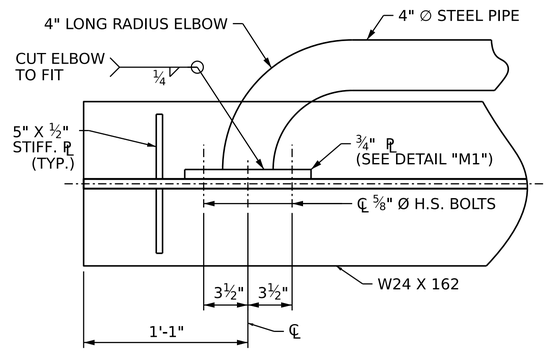


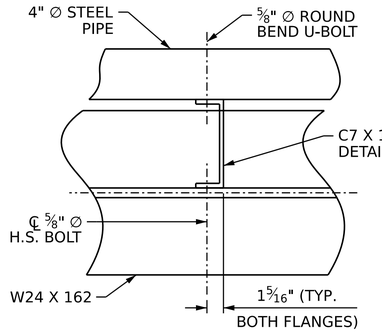
DETAIL "R"

(TYP. BOTH SIDES OF ℄)



DETAIL "M"

(TOP FLANGE NOT SHOWN)



DETAIL "N"

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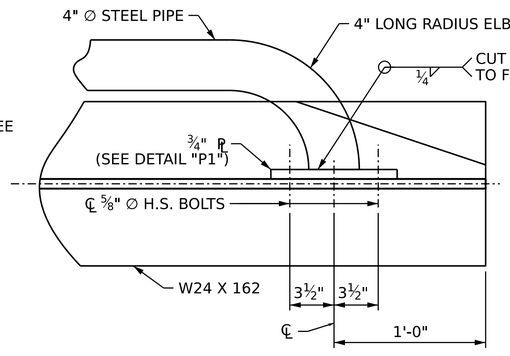
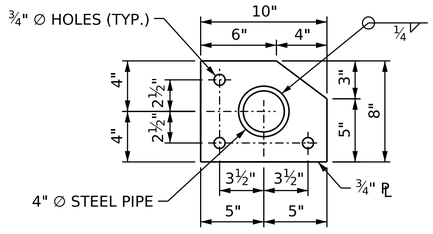


DETAIL "P"

(TOP FLANGE NOT SHOWN)



DETAIL "P1"

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CHECKERED FLOORPLATE & RUB RAIL LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

REVISIONS						SHEET NO.
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DRAWN BY : C. A. RUIZ DATE : 7-3-25
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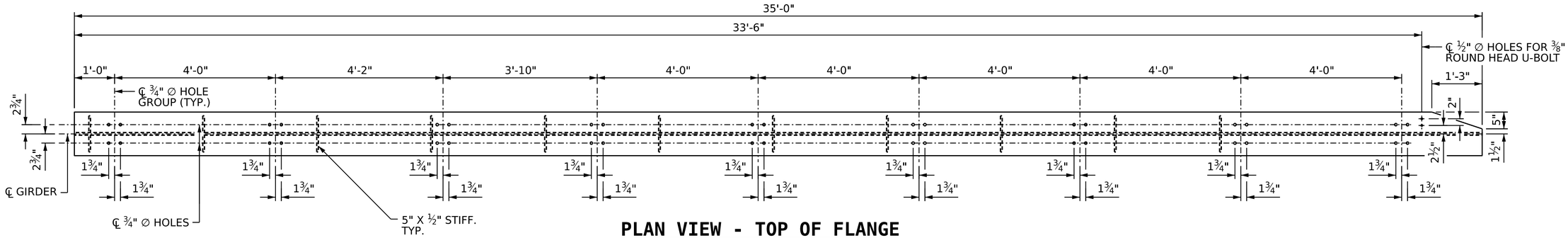
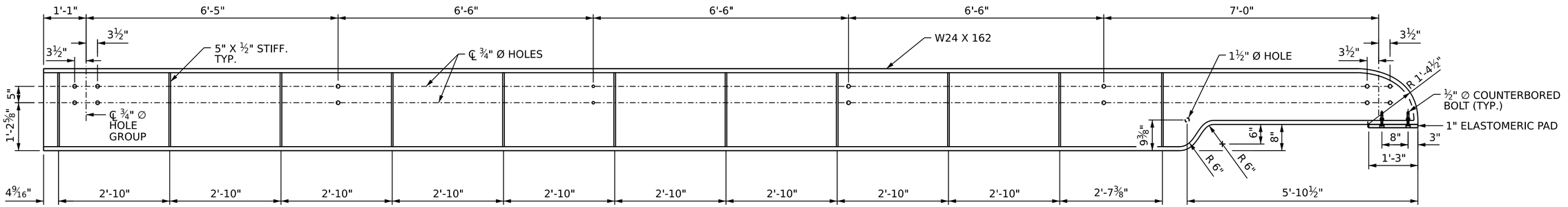
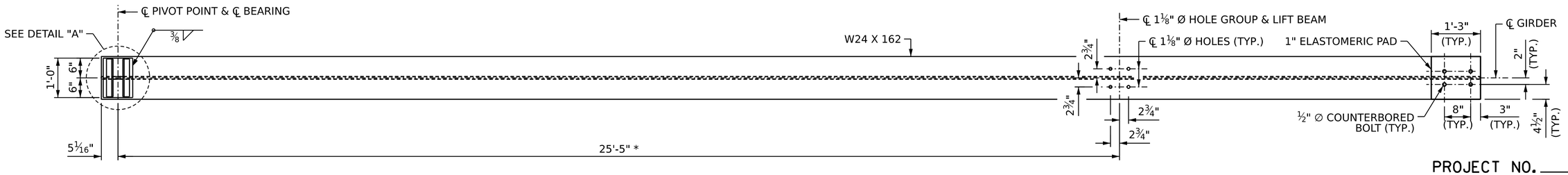


PLAN VIEW - TOP OF FLANGE

ELASTOMERIC PAD NOT SHOWN FOR CLARITY



ELEVATION



PLAN VIEW - BOTTOM FLANGE

* BEFORE DRILLING HOLES, DIMENSION SHALL BE FIELD VERIFIED AFTER LIFT BENT IS CONSTRUCTED TO ENSURE THAT BOLT HOLE GROUP ℄ IS VERTICALLY IN LINE WITH LIFT BENT ℄ ABOVE

NOTES:

FOR DETAIL "A", SEE "SUPERSTRUCTURE" SHEET 2 OF 7.

PROJECT NO. BR-0173

PAMLICO COUNTY

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SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
GIRDER LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

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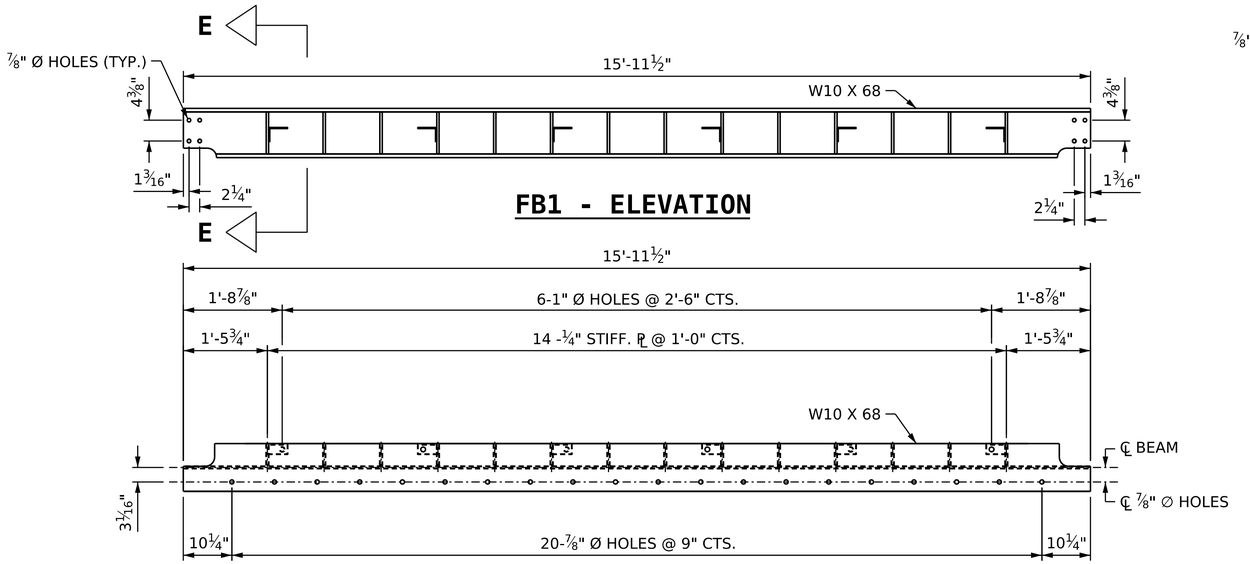
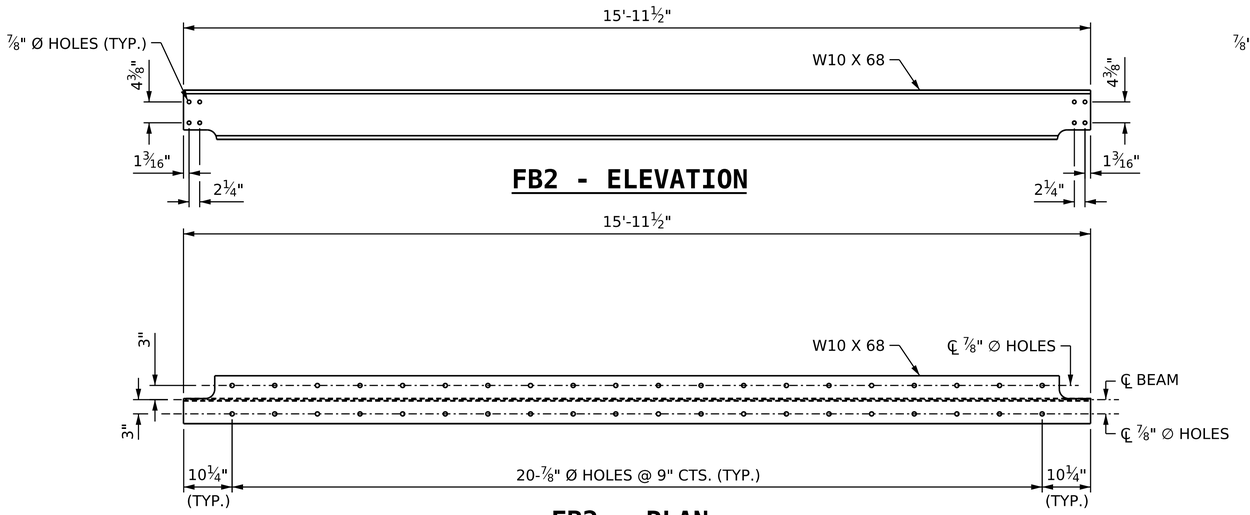


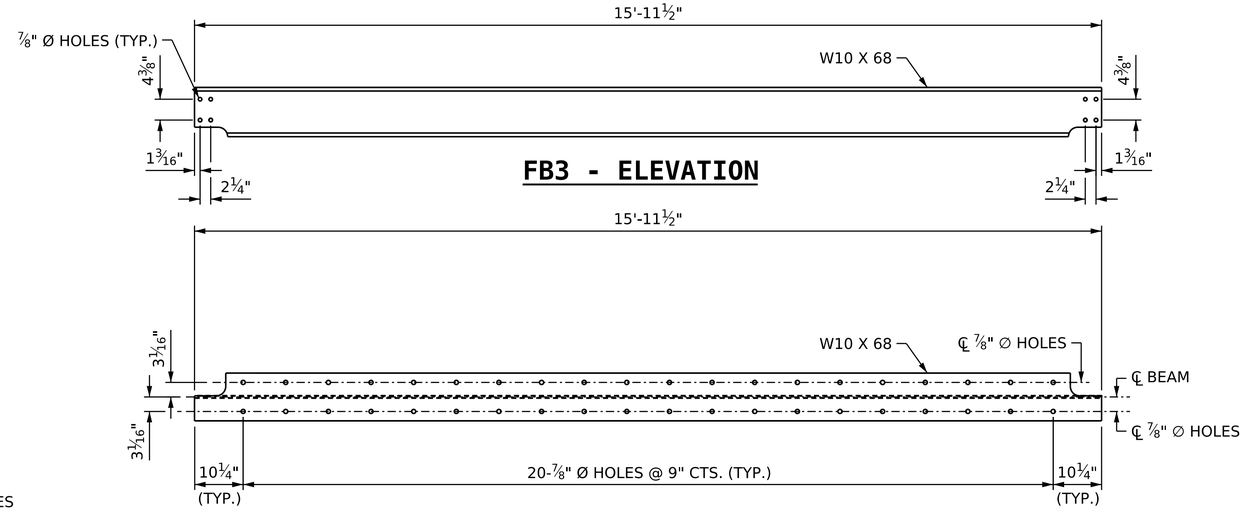
FB1 - ELEVATION

FB1 - PLAN



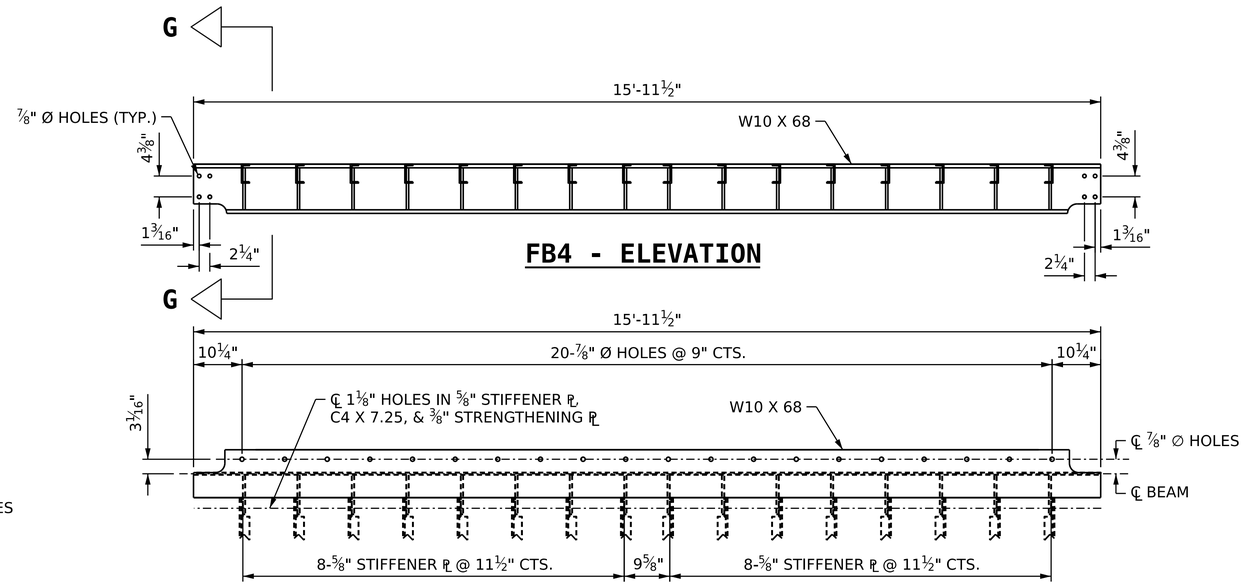
FB2 - ELEVATION

FB2 - PLAN



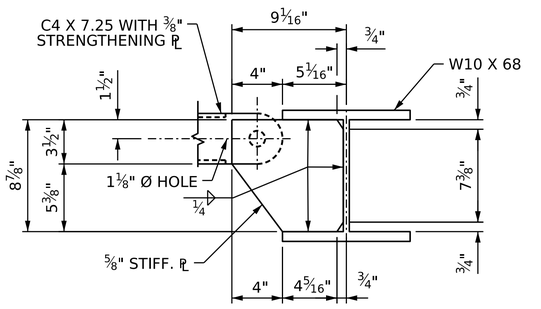
FB3 - ELEVATION

FB3 - PLAN

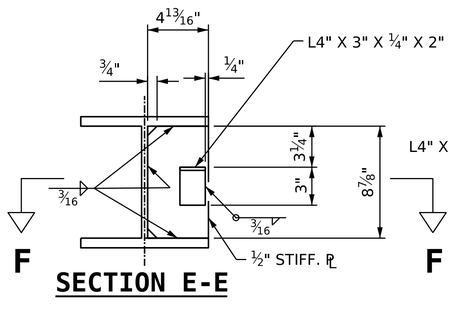


FB4 - ELEVATION

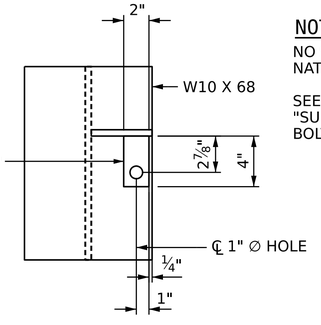
FB4 - PLAN



SECTION G-G



SECTION E-E



SECTION F-F

NOTES:

NO SHOP CAMBER REQUIRED FOR FLOORBEAMS, TURN NATURAL MILL CAMBER UP.

SEE "TYPICAL FLOORBEAM CONNECTIONS" ON "SUPERSTRUCTURE" SHEET 4 OF 7 FOR ADDITIONAL BOLT HOLE LOCATION DETAILS.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FLOORBEAM LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 60651 ENGINEER CHASE PERRY
10/27/2025

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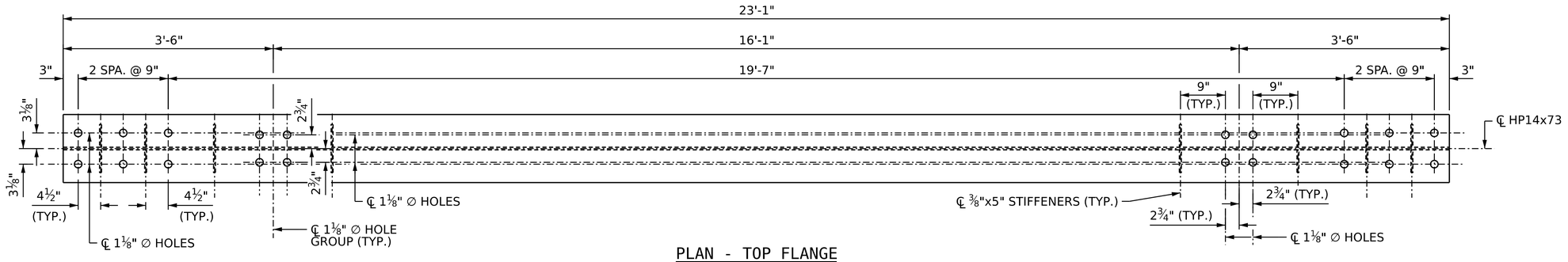
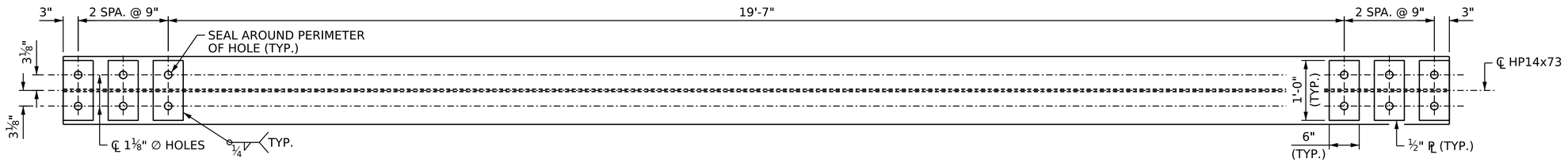


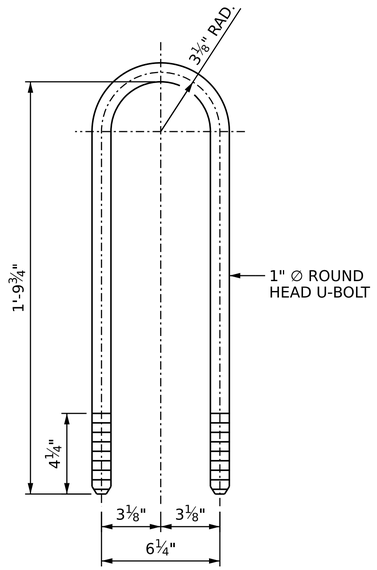
PLAN - TOP FLANGE



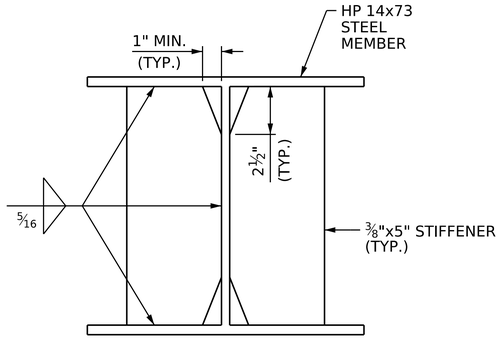
PLAN - BOTTOM FLANGE

STIFFENERS NOT SHOWN FOR CLARITY, SEE TOP FLANGE PLAN FOR LOCATIONS

LIFT BEAM DETAILS



DETAIL OF U-BOLT FOR LIFT BEAM



DETAIL OF STIFFENER

TYPICAL FOR STIFFENERS AT LIFT BEAM, CAP BEAM, AND CROSS BEAMS

NOTES:

U-BOLTS TO BE ASTM A449.

PROJECT NO. BR-0173

PAMLICO COUNTY

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STATE OF NORTH CAROLINA
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RALEIGH

LIFT BEAM DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D. KOLLIPARA
10/24/2025

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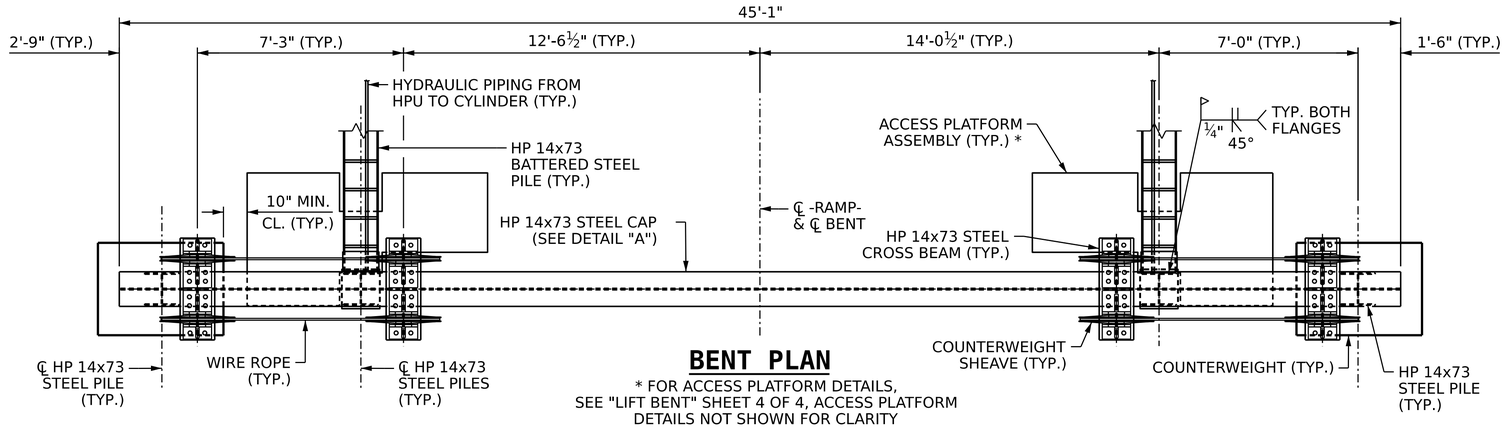
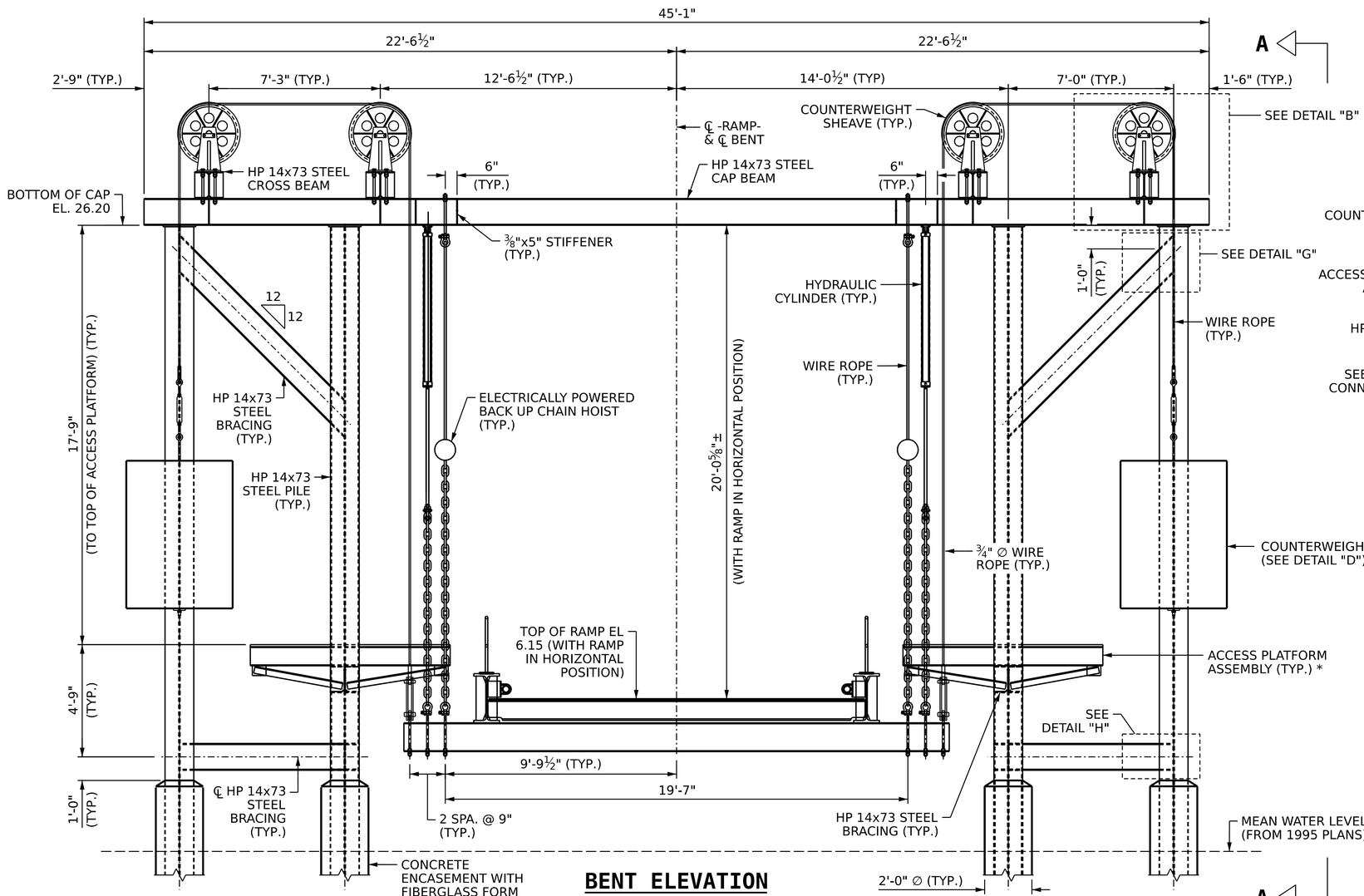


BENT PLAN

* FOR ACCESS PLATFORM DETAILS, SEE "LIFT BENT" SHEET 4 OF 4, ACCESS PLATFORM DETAILS NOT SHOWN FOR CLARITY



BENT ELEVATION

LOOKING FROM RIVER TOWARDS SHORE

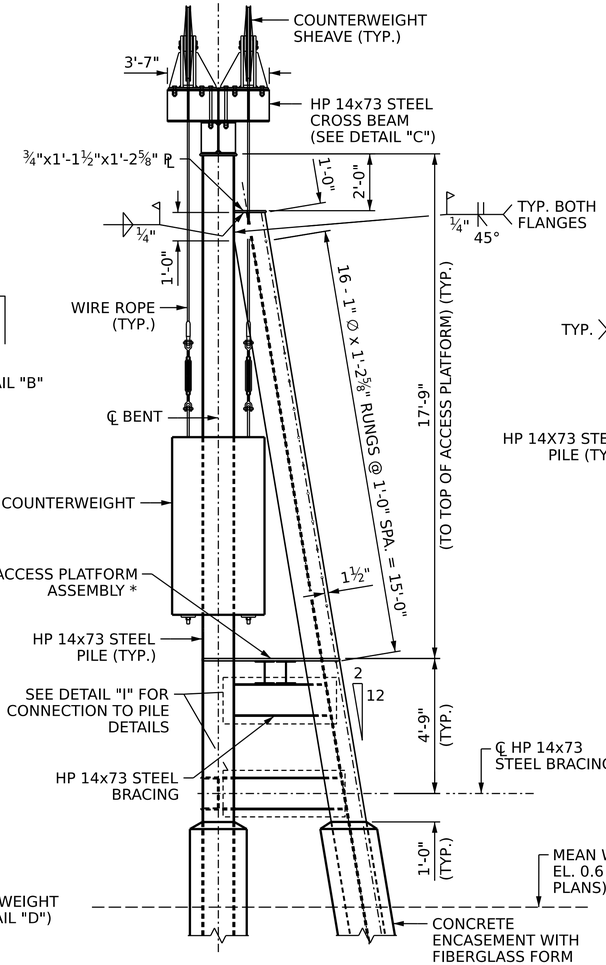
* FOR ACCESS PLATFORM CONNECTION DETAILS, SEE "LIFT BENT" SHEET 4 OF 4

NOTES:

THE HPU SHALL BE LOCATED ON THE SHORE BETWEEN THE TWO RAMPS. HYDRAULIC PIPING SHALL BE ROUTED FROM THE HPU TO THE CYLINDERS. SEE SHEET M1-04 FOR DETAILS.

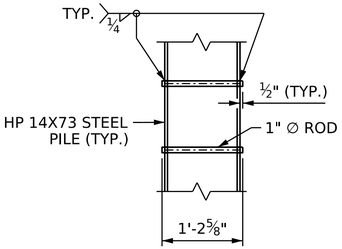
SEE MECHANICAL SHEETS FOR DETAILS OF NEW MACHINERY.

FOR DETAILS "A" THROUGH "D", SEE "LIFT BENT" SHEET 2 OF 4. FOR DETAILS "G" THROUGH "I", SEE "LIFT BENT" SHEET 3 OF 4.



VIEW A-A

* FOR ACCESS PLATFORM DETAILS, SEE "LIFT BENT" SHEET 4 OF 4, ACCESS PLATFORM DETAILS NOT SHOWN FOR CLARITY



RUNG DETAIL

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

LIFT BENT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA
10/24/2025

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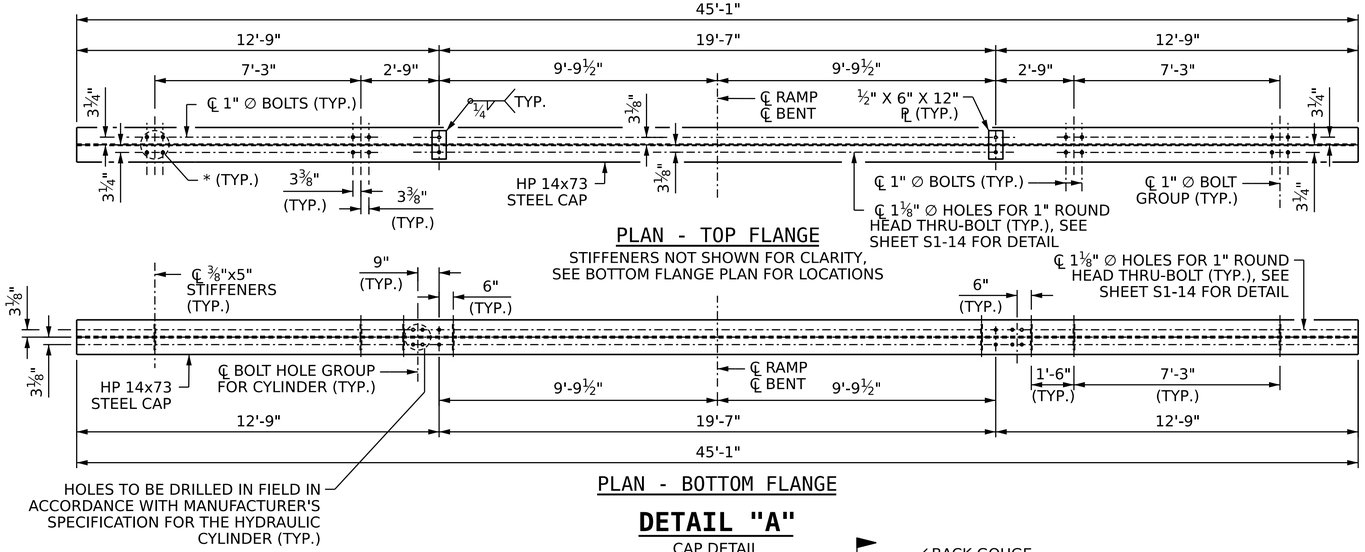


PLAN - TOP FLANGE

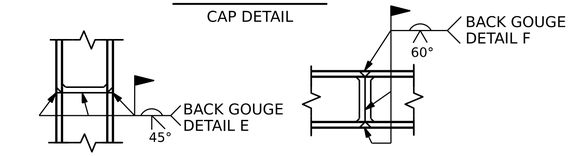
STIFFENERS NOT SHOWN FOR CLARITY, SEE BOTTOM FLANGE PLAN FOR LOCATIONS

PLAN - BOTTOM FLANGE

* BEFORE DRILLING HOLES, LOCATION SHALL BE FIELD VERIFIED AFTER LIFT BENT IS CONSTRUCTED TO ENSURE CORRECT PLACEMENT OF COUNTERWEIGHT SHEAVES

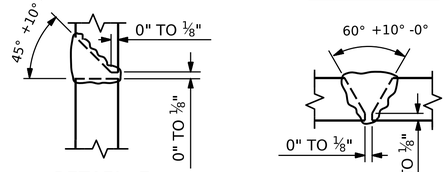
DETAIL "A"

CAP DETAIL



*PILE VERTICAL

*PILE HORIZONTAL OR VERTICAL

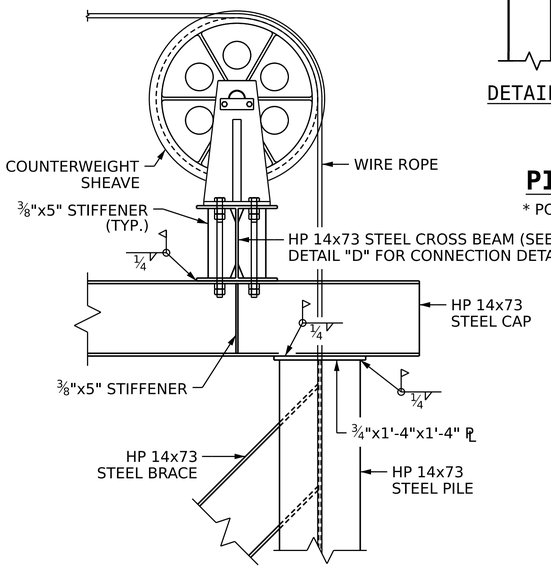


DETAIL E

DETAIL F

PILE SPLICE DETAILS

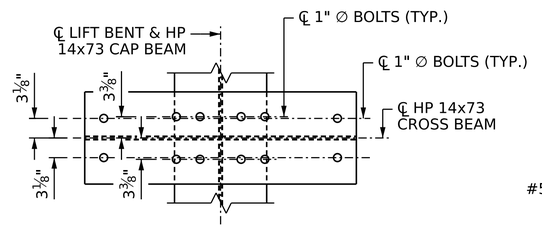
* POSITION OF PILES DURING WELDING



DETAIL "B"

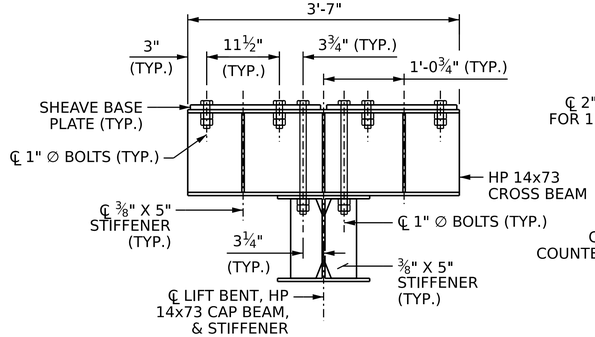
CROSS BEAM AND STIFFENER FOR STIFFENER DETAILS, SEE SHEET S1-14

BILL OF MATERIAL		
STRUCTURAL STEEL	LBS.	8,430



PLAN

STIFFENERS AND BOLTS NOT SHOWN FOR CLARITY

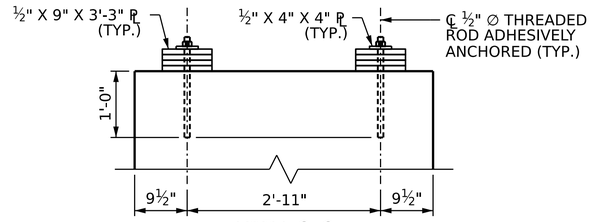


ELEVATION

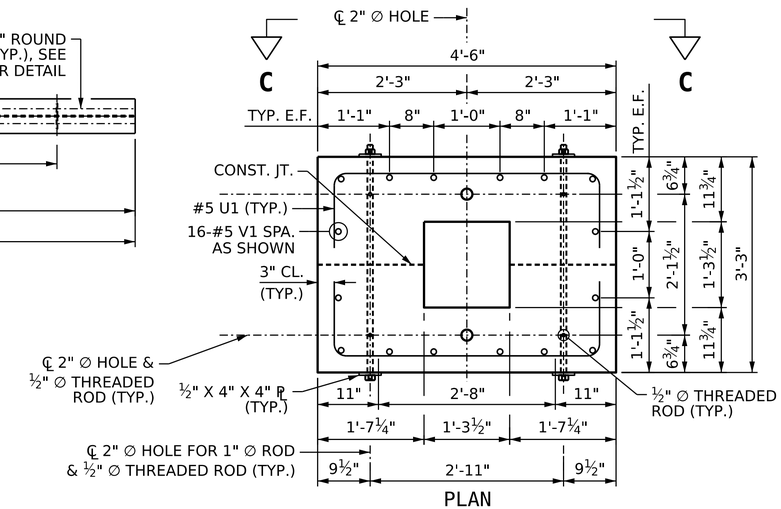
COUNTERWEIGHT SHEAVES NOT SHOWN FOR CLARITY

DETAIL "C"

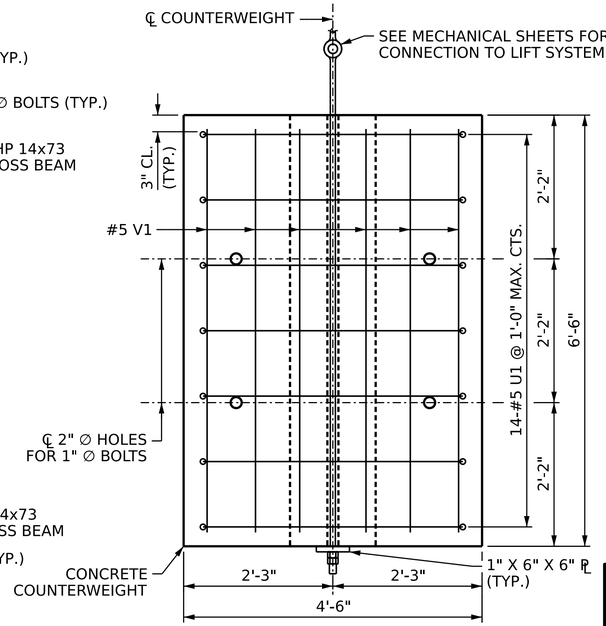
FOR STIFFENER DETAILS, SEE SHEET S1-14



VIEW C-C



PLAN



ELEVATION

DETAIL "D"

COUNTERWEIGHT DETAILS

NOTES:

SEE "FOUNDATION TABLES" SHEET S1-04 FOR NOTES FOR DRIVING PILES.

HP 14X73 MEMBERS EXCEPT LIFT BEAM INCLUDING STEEL CAP, STEEL CROSS BEAMS, STEEL BRACING, AND STEEL PILES TO BE PAINTED, SEE SPECIAL PROVISIONS FOR PAINTING STEEL PILES.

PILES SHALL BE ENCASED WITH CLASS "S" CONCRETE FROM 5 FEET BELOW EXISTING GROUND LINE AND AS SHOWN, USING AN APPROVED FIBERGLASS FORM TO REMAIN IN PLACE. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK. ALL WORK AND MATERIALS FOR ENCASEMENT TO BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR HP 14X73 STEEL PILES.

FOR CONCRETE COUNTERWEIGHTS, SEE SPECIAL PROVISIONS.

ALL STEEL SHALL BE GRADE 50 UNLESS NOTED OTHERWISE.

½ RAMP REACTION AT LIFT BENT APPROXIMATELY = 15,390 LBS.

APPROXIMATE WEIGHT OF ONE COUNTERWEIGHT (MADE UP OF CONCRETE AND STEEL PLATES) IS BASED ON CONCRETE WEIGHT OF 150 LBS. PER CUBIC FOOT = 13,166 LBS.

REACTION ON ONE HYDRAULIC CYLINDER APPROXIMATELY = 2,000 LBS.

CONNECT SHEAVE SUPPORT TO CROSS BEAM WITH 1" ∅ ASTM A449 FINISHED BODY BOLTS. REFER TO MACHINERY SPECIAL PROVISIONS FOR REQUIRED BOLT HOLE TOLERANCES AND INSTALLATION SEQUENCE. PROVIDE A WASHER AT EACH END AND DOUBLE NUTS AS SHOWN.

COUNTERWEIGHTS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH ARTICLE 1000-3 (J) & ARTICLE 1078 (H).

FURNISH MINIMUM QUANTITY TWENTY (20) BALANCE PLATES.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

LIFT BENT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER V. D. KOLLIPARA

10/24/2025

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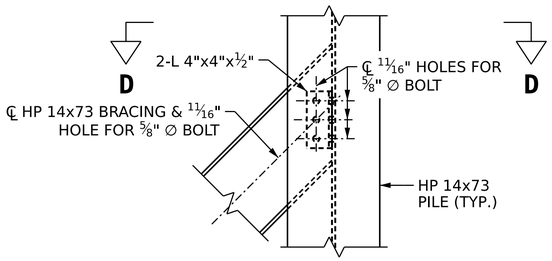
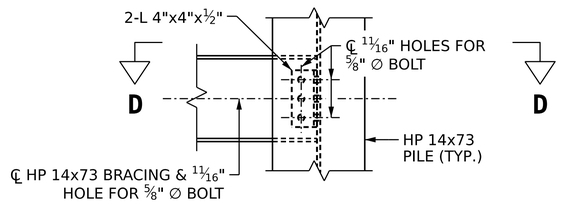


DETAIL "G"

ANGLE LENGTH AND BOLT HOLE LOCATIONS MATCH THOSE SHOWN IN DETAIL "I"

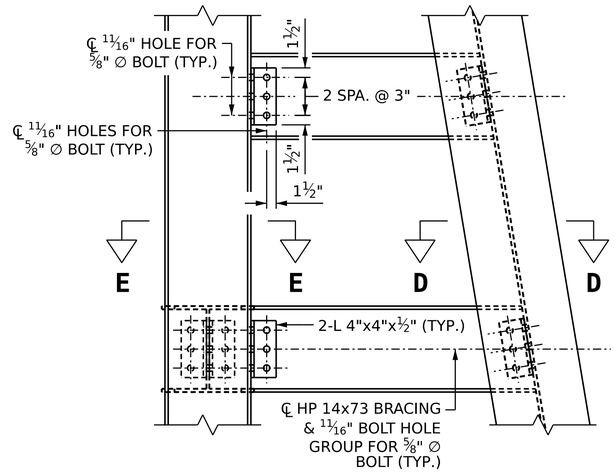
CONNECTION MIRRORED AT OPPOSITE END OF BRACING MEMBER



DETAIL "H"

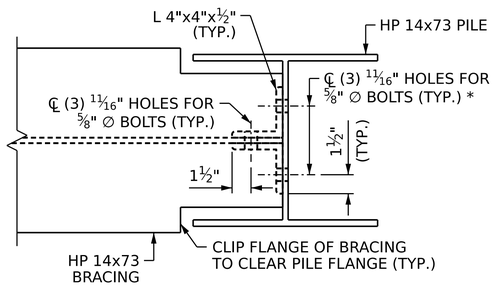
ANGLE LENGTH AND BOLT HOLE LOCATIONS MATCH THOSE SHOWN IN DETAIL "I"

CONNECTION MIRRORED AT OPPOSITE END OF BRACING MEMBER



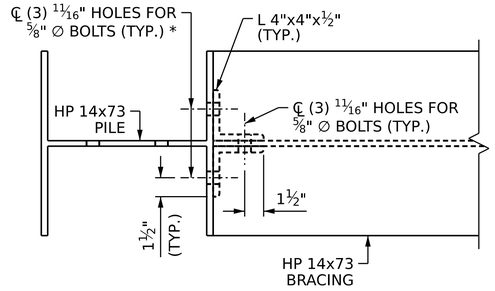
DETAIL "I"

DIMENSIONS SHOWN ARE TYPICAL AT ALL BRACE TO PILE CONNECTIONS



SECTION D-D

* HOLES IN PILES SHALL BE FIELD DRILLED AFTER PILES ARE DRIVEN TO ENSURE CORRECT LOCATION



SECTION E-E

* HOLES IN PILES SHALL BE FIELD DRILLED AFTER PILES ARE DRIVEN TO ENSURE CORRECT LOCATION

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

LIFT BENT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D. KOLLIPARA

10/24/2025

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CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

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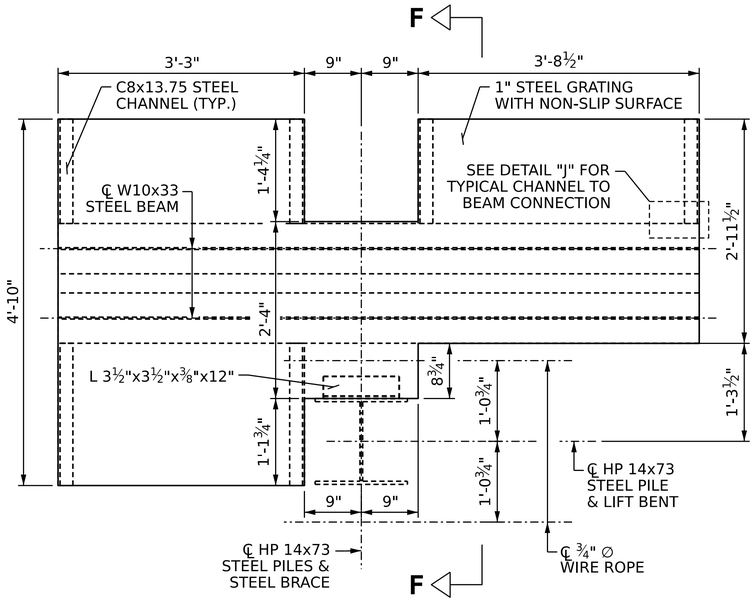
8/26/21



PLAN

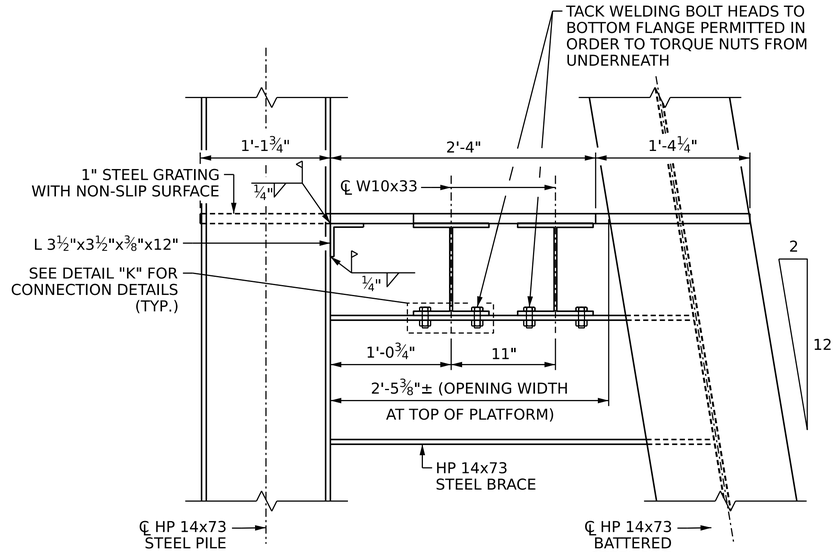
COUNTERWEIGHT SHEAVE ASSEMBLIES, STEEL CROSS BEAMS, STEEL CAP, STEEL BRACE, AND BATTERED PILE NOT SHOWN FOR CLARITY

NOTES:

CONNECTION OF THE PLATFORM GRATING TO THE W10x33 STEEL BEAMS NOT SHOWN. CONNECTION SHALL BE PER THE GRATING MANUFACTURER'S SPECIFICATIONS AND SHALL BE APPROVED BY THE ENGINEER.

ALL REINFORCING STEEL SHALL BE GRADE 60.

STEEL GRATING WITH NON-SLIP SURFACE SHALL BE 1" X ⅛" 19-W-4 GALVANIZED STEEL GRATING OR APPROVED EQUAL.



VIEW F-F

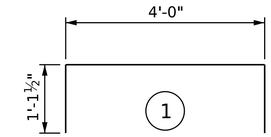
STEEL CHANNELS AND CONNECTION PLATES NOT SHOWN FOR CLARITY, SEE DETAIL "G" FOR CONNECTION OF CHANNEL TO W10x33 STEEL BEAM

BILL OF MATERIAL

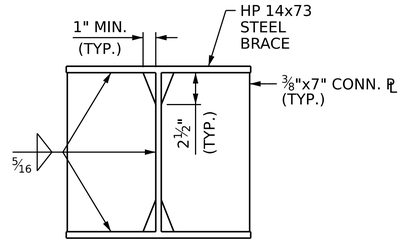
FOR TWO COUNTERWEIGHTS

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
U1	28	#5	1	6'-3"	183
V1	32	#5	STR	6'-0"	200
EPOXY COATED REINFORCING STEEL					383 LBS.
CLASS "AA" CONCRETE					7.0 CU. YDS.

BAR TYPES

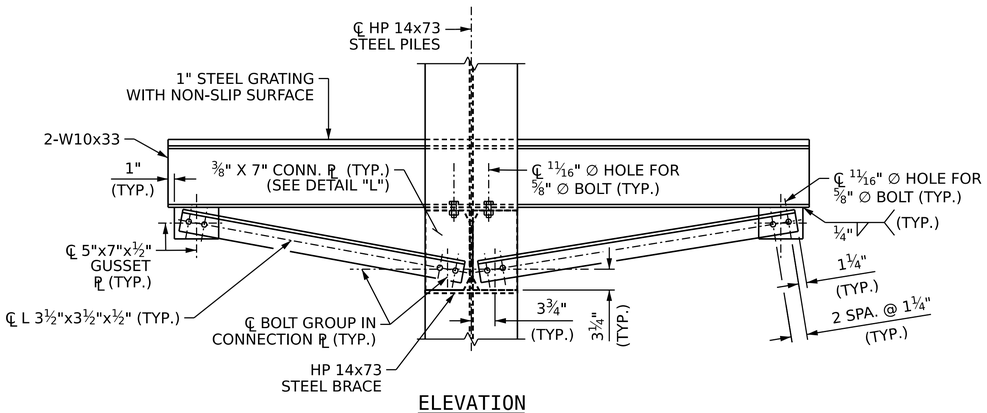


ALL BAR DIMENSIONS ARE OUT TO OUT.



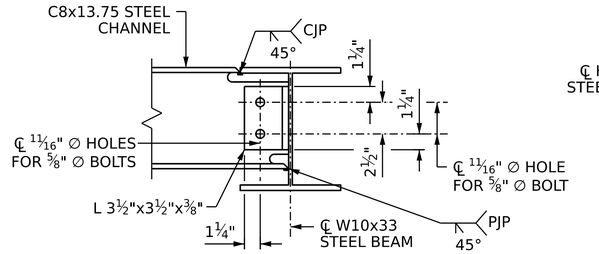
DETAIL "L"

BOLTS, BOLT HOLES, AND ANGLES NOT SHOWN FOR CLARITY

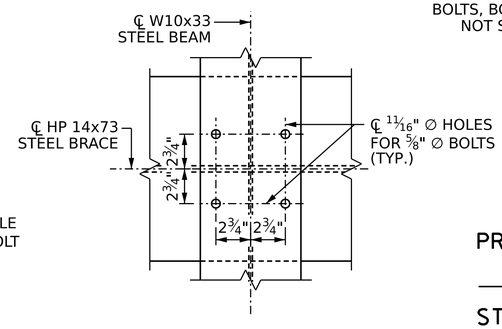


ELEVATION

STEEL CHANNELS NOT SHOWN FOR CLARITY



DETAIL "J"



DETAIL "K"

ACCESS PLATFORM DETAILS

RIGHT ACCESS PLATFORM (LOOKING FROM SHORE) SHOWN, LEFT ACCESS PLATFORM MIRRORED

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

LIFT BENT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D. KOLLIPARA

10/24/2025

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
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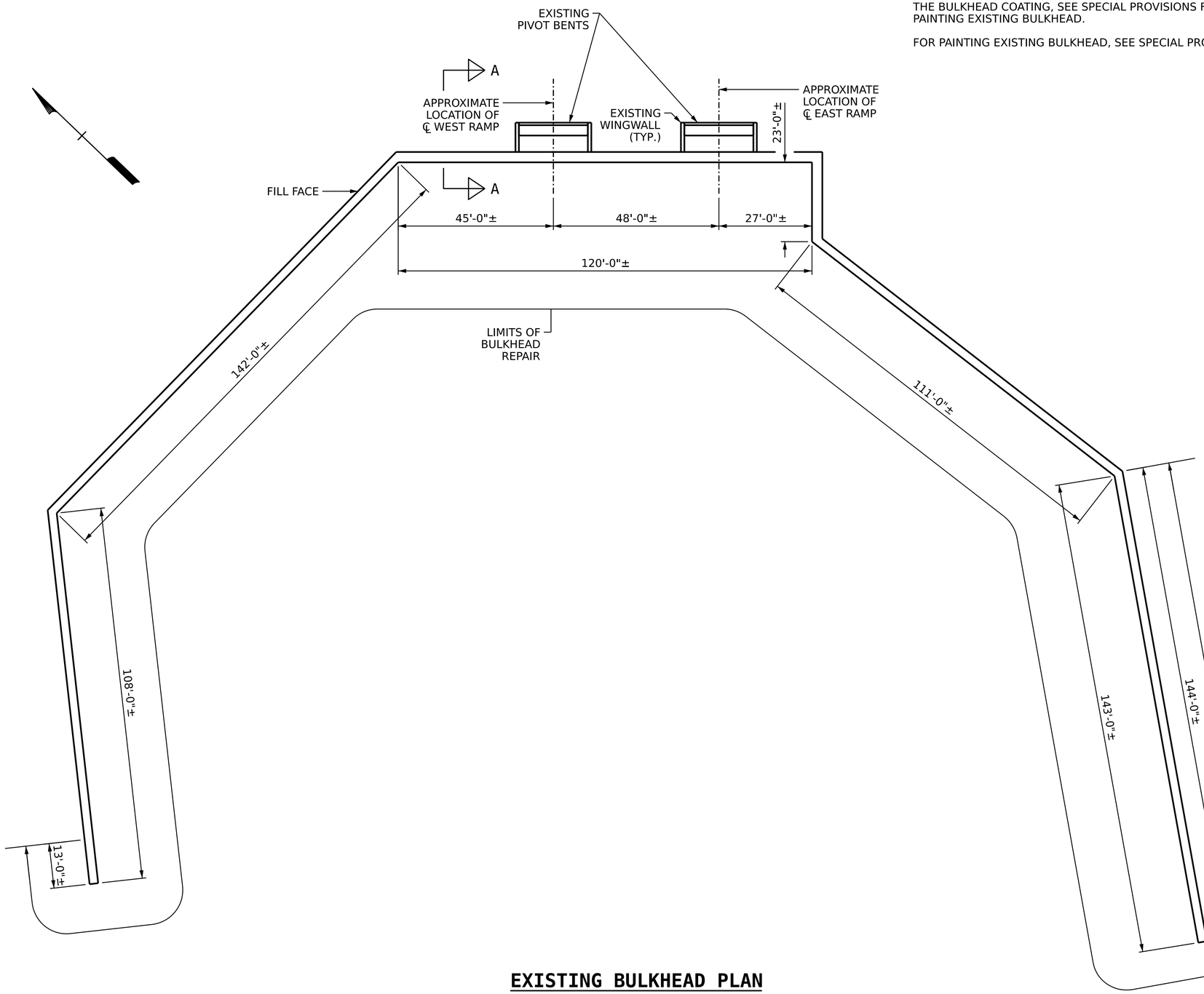
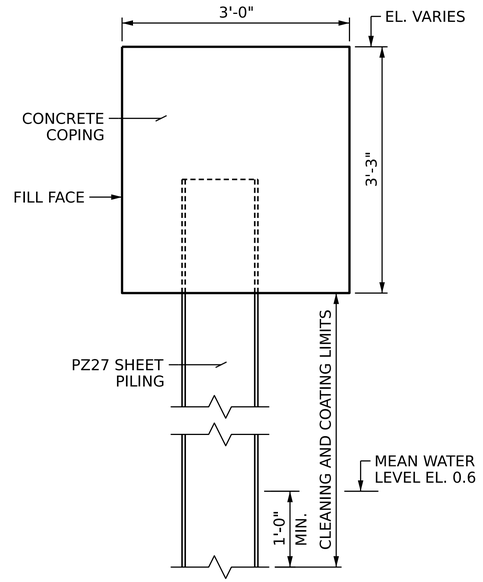
8/26/21

NOTES:

FOR DEWATERING AND CONSTRUCTION ACCESS TO PERFORM THE BULKHEAD COATING, SEE SPECIAL PROVISIONS FOR PAINTING EXISTING BULKHEAD.

FOR PAINTING EXISTING BULKHEAD, SEE SPECIAL PROVISIONS.





SECTION A-A

EXISTING BULKHEAD PLAN

PROJECT NO. BR-0173

PAMLICO COUNTY

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BULKHEAD REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA
10/24/2025

DRAWN BY : P. N. DRYE DATE : 7-3-25
CHECKED BY : V. D. KOLLIPARA DATE : 7-3-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 7-3-25

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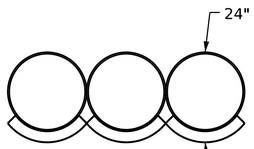
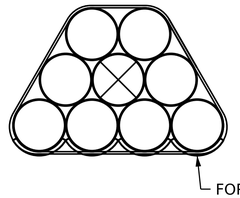
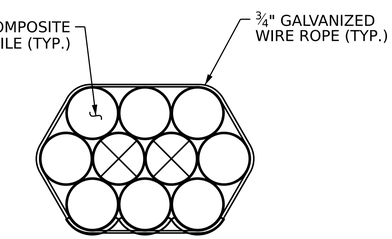


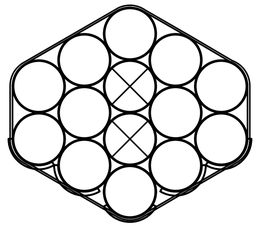
PLAN



PLAN



PLAN



PLAN

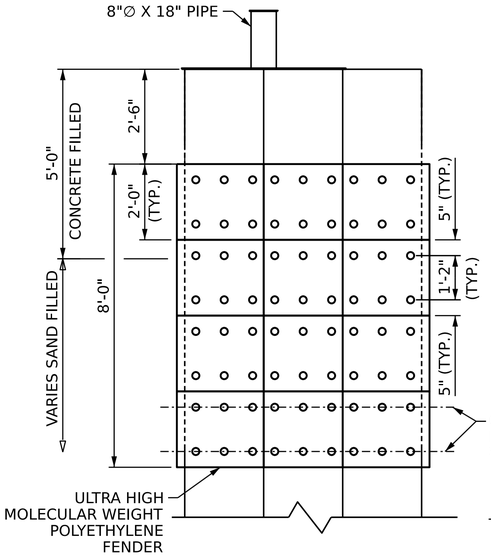
NOTES:

FOR ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER, SEE SPECIAL PROVISIONS.

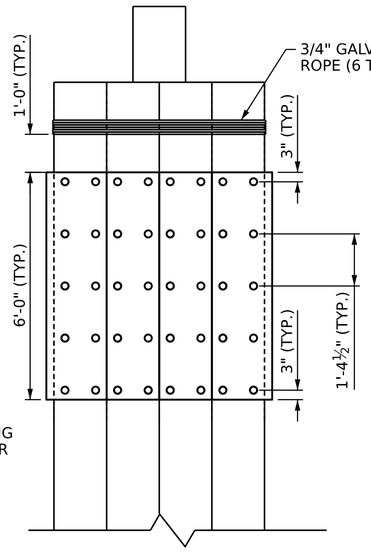
BOLTS FOR THE ATTACHMENT OF ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FENDER TO PLASTIC COMPOSITE MARINE PILES SHALL BE ¾" ∅ X 1½ " BOLTS AND IN ACCORDANCE WITH ASTM F-593 GROUP 2 (TYPE 316 STAINLESS STEEL).

BOLTS FOR 24" STEEL PILES MAY BE SHIFTED AS NECESSARY TO CLEAR EXISTING BOLT HOLES.

ALL PILES AND WIRE ROPES ARE EXISTING AND TO BE LEFT IN PLACE.

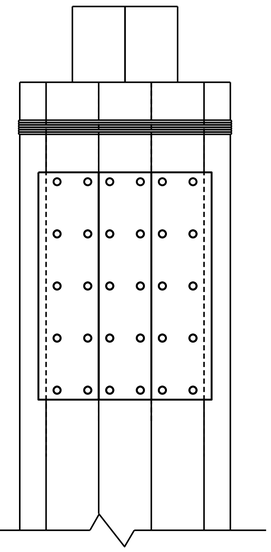


ELEVATION - TYPE A



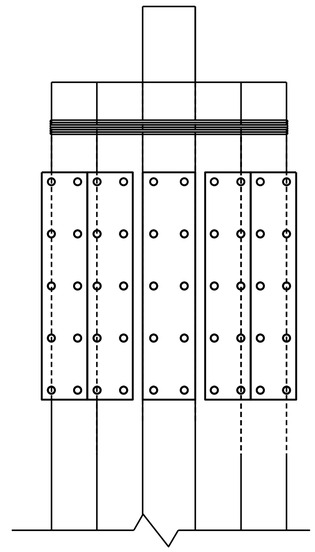
ELEVATION - TYPE B

9 - PLASTIC COMPOSITE MARINE PILES



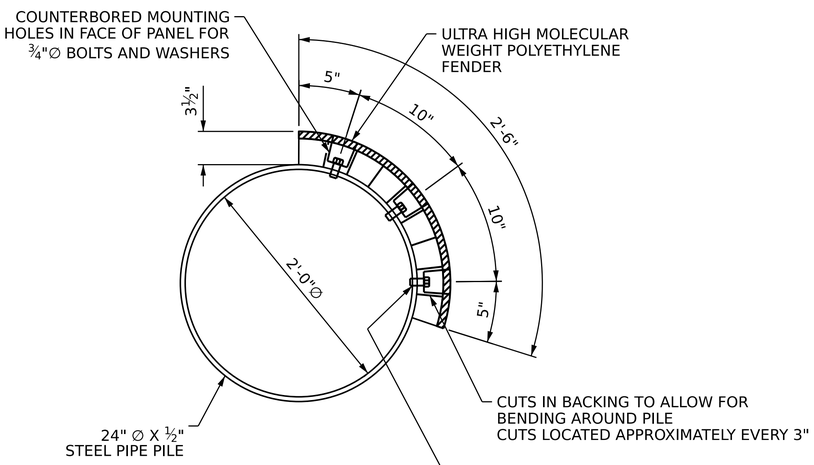
ELEVATION - TYPE C

10 - PLASTIC COMPOSITE MARINE PILES
SEE TYPE B FOR DIMENSIONS

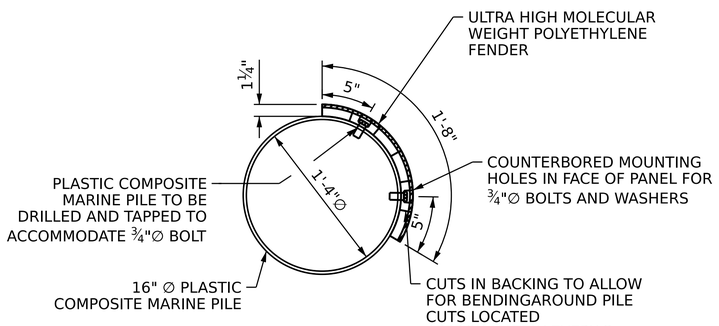


ELEVATION - TYPE D

14 - PLASTIC COMPOSITE MARINE PILES
SEE TYPE B FOR DIMENSIONS



DETAIL A



DETAIL B

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FERRY DOLPHIN DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 47117 ENGINEER VENKATA D.T. KOLLIPARA
10/24/2025

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GENERAL MACHINERY NOTES

1. REFER TO THE PROJECT SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

2. THE CONTRACTOR SHALL SUBMIT SHOP AND ASSEMBLY DRAWINGS BASED ON THE CONTRACT DRAWINGS AND SPECIFICATIONS FOR APPROVAL. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO DETAIL, COORDINATE, AND VERIFY THE RELATIONSHIP AND ASSEMBLY OF ALL PARTS FOR A COMPLETE WORKING SYSTEM. ALL REQUIRED MACHINING, RIGGING, ASSEMBLY, PAINTING LUBRICATING AND TESTING SHALL BE CONSIDERED PART OF THE WORK.

3. THE DESIGN INTENT IS FOR THE CONTRACTOR TO USE ACCEPTED METHODS TO ACHIEVE ALIGNMENT TOLERANCE FOR PROPER OPERATION OF A REPEATABLE OPERATING SYSTEM, INCLUDING COORDINATING ALL MECHANICAL, ELECTRICAL, AND STRUCTURAL INTERFACE POINTS. ALL RIGGING, SCAFFOLDING, MEASUREMENTS, ALIGNMENT, AND INSTALLATION TOOLS REQUIRED FOR THE JOB ARE CONSIDERED PART OF THE WORK. THE FINAL MACHINERY INSTALLATION SHALL RESULT IN PROPER FUNCTION THROUGHOUT THE COMPLETE RANGE OF OPERATION. MACHINERY INSTALLERS SHALL BE INVOLVED WITH THE INSTALLATION OF ANY STRUCTURAL STEEL SUPPORTS IN ORDER TO IDENTIFY AND COORDINATE ITEMS THAT WILL AFFECT THE MACHINERY INSTALLATION.

4. PROVIDE FINISHED BODY ASTM A449 HEX BOLTS AS REQUIRED TO CONNECT MACHINERY TO STRUCTURAL STEEL. ALL ASTM A449 BOLTS CONNECTING MACHINERY TO STRUCTURAL STEEL SHALL HAVE A CLEARANCE OF NOT MORE THAN 0.010 INCH BETWEEN THE BODY OF THE BOLT AND THE HOLE.

5. ALL HIGH STRENGTH FASTENERS SHALL HAVE A HARDENED PLAIN WASHER UNDER THE HEAD AND THE NUT. NEW ASTM A449 BOLTS THAT HAVE BEEN TORQUED SHALL NOT BE REUSED.

6. ALL HARDWARE NOTED AS STAINLESS STEEL (SS) SHALL BE TYPE 316.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPILING ALL CERTIFICATIONS AND TEST DATA, WHICH SHALL VERIFY AND DOCUMENT THAT ALL MACHINERY MEETS THE CONTRACT REQUIREMENTS. MATERIAL CERTIFICATIONS AND TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO SHIPMENT. THE CONTRACTOR SHALL ALLOW A MINIMUM OF TWO WEEKS FOR THE REVIEW OF THE CERTIFICATIONS AND TEST DATA PRIOR TO SHIPMENT.

8. MODEL NUMBERS AND DETAILS OF STANDARD COMPONENTS ARE BASED ON MANUFACTURERS CATALOG DATA CURRENT AT THE TIME THAT THE PLANS WERE PREPARED. EQUIVALENT MODELS FROM OTHER MANUFACTURERS MAY BE SUBSTITUTED AT THE OPTION OF THE CONTRACTOR AND WITH THE APPROVAL OF THE ENGINEER. ALL RELATED STRUCTURAL, ELECTRICAL, AND MECHANICAL DETAILS SHALL BE REVISED BY THE CONTRACTOR TO SUIT THE CERTIFIED DIMENSIONS OF THE COMPONENTS ACTUALLY FURNISHED.

9. MENTION OF A MANUFACTURERS NAME OR MODEL NUMBER DOES NOT REPRESENT A PREFERENCE, BUT IS USED TO SET A STANDARD.

10. DETAIL DRAWINGS, ASSEMBLY DRAWINGS AND ERECTION DRAWINGS SHALL BE SUBMITTED TOGETHER AS A COMPLETE PACKAGE. MACHINERY MATERIALS AND COMPONENTS SHALL NOT BE PURCHASED OR FABRICATED WITHOUT APPROVED SHOP DRAWINGS AND/OR CATALOG CUTS.

11. ALL SURFACES OF FORGINGS SHALL BE MACHINED TO DIMENSIONS SHOWN ON THE PLANS.

12. ALL TRANSITIONS OF MACHINERY SURFACES SHALL BE BLENDED SMOOTH.

13. MACHINERY DIMENSIONS SHOWN ON THE PLANS ARE DIMENSIONS AFTER ALL REQUIRED FABRICATION AND ASSEMBLY OPERATIONS.

14. THE CONTRACTOR SHALL SUBMIT A DETAILED INSTALLATION PROCEDURE.

15. ALL CHAINS, TURNBUCKLES, SHACKLES, PINS AND HARDWARE SHALL BE GALVANIZED PER ASTM A153.

GENERAL MACHINERY FITS AND FINISHES

FITS AND FINISHES FOR MACHINERY SHALL BE AS FOLLOWS:

SURFACE	FIT	FINISH (MICRO-INCH)
* MACHINERY BASE ON STEEL	-	250
* MACHINERY BASE ON MASONRY	-	500
* SHAFTS (EXPOSED SURFACES)	-	63
* SHAFTS (JOURNAL SURFACES)	RC6	8
* JOURNAL BUSHINGS	RC6	16
* SPLIT BUSHING IN BASE	LC1	125
* SOLID BUSHING IN BASE (TO ¼ INCH WALL)	FN1	63
* SOLID BUSHING IN BASE (OVER ¼ INCH WALL)	FN2	63
* HUBS ON SHAFTS (TO 2 INCH BORE)	FN2	32
* HUBS ON SHAFTS (OVER 2 INCH BORE)	FN2	63
* HUBS ON MAIN TRUNNIONS	FN2	63
* TURNED BOLTS IN FINISHED HOLES	LC6	63
* SLIDING BEARINGS	RC6	32
* KEYS AND KEYWAYS	CLASS 2	63
* MACHINERY PARTS IN FIXED CONTACT	-	125

THE ABOVE FITS FOR CYLINDRICAL PARTS SHALL ALSO APPLY TO THE MAJOR DIMENSIONS OF NON-CYLINDRICAL PARTS.

GENERAL MACHINERY DIMENSIONAL TOLERANCES

DIMENSIONAL TOLERANCES FOR MACHINERY SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS:

SURFACE	TOLERANCES
* MACHINED (TO 1 INCH)	+/- 0.015 INCH
* MACHINED (OVER 1 INCH)	+/- 0.030 INCH
* ROLLED	+/- 0.030 INCH
* NON-MACHINED CAST (TO 1 INCH)	+/- 0.030 INCH
* NON-MACHINED CAST (OVER 1 INCH)	+/- 0.060 INCH
* COMPONENT LOCATIONS	+/- 0.030 INCH
* BOLT HOLE LOCATIONS	+/- 0.030 INCH
* ANGULAR	+/- 0.5 DEGREE

SCOPE OF WORK

1. THE CONTRACTOR, EXCEPT AS NOTED OTHERWISE ON THE PLANS, OR AS SPECIFIED OTHERWISE IN THE SPECIFICATIONS, SHALL FURNISH, INSTALL, ADJUST, LUBRICATE, TEST, PAINT AND PLACE IN OPERATION NEW RAMP MACHINERY.

2. WORK ON THE RAMP MACHINERY INCLUDES INSTALLATION OF NEW MACHINERY IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. ALL SPECIAL MACHINING, TOOLING, TESTING AND INSTALLATION SHALL BE INCLUDED AS PART OF THE WORK. THIS WORK SHALL INCLUDE COORDINATION OF SPECIAL MACHINERY MANUFACTUER REQUIREMENTS, SPECIAL SHIMMING AND ALIGNMENT.

3. FOR ALL WORK ON RAMP MACHINERY, THE CONTRACTOR SHALL USE ADEQUATE NUMBERS OF SKILLED AND TRAINED MACHINISTS, MILLWRIGHTS AND HYDRAULIC SPECIALISTS OR TECHNICIANS WHO ARE THOROUGHLY FAMILIAR WITH THE REQUIREMENTS AND METHODS SPECIFIED FOR THE PROPER EXECUTION OF THE SPECIFIED WORK. THIS WORK SHALL INCLUDE, BUT NOT LIMITED TO, ALL REMOVAL, INSTALLATION, ALIGNING, ADJUSTING, SECURING AND FIELD TESTING OF MECHANICAL SYSTEMS.

PROTECTION FOR SHIPMENT:

1. FINISHED METAL SURFACES AND UNPAINTED METAL SURFACES THAT WOULD BE DAMAGED BY CORROSION SHALL BE COATED AS SOON AS PRACTICABLE AFTER FINISHING WITH A RUST-INHIBITING PRESERVATIVE. THIS COATING SHALL BE REMOVED PRIOR TO OPERATION AND FROM ALL SURFACES PRIOR TO PAINTING AFTER ERECTION.

2. MACHINERY PARTS SHALL BE COMPLETELY PROTECTED FROM WEATHER, DIRT, AND ALL OTHER INJURIOUS CONDITIONS DURING MANUFACTURE, SHIPMENT AND STORAGE.

PACKAGING AND DELIVERY OF SPARE PARTS

1. SPARE PARTS SHALL BE PROTECTED FOR SHIPMENT AND PROLONGED STORAGE BY COATING, WRAPPING, AND BOXING.

2. ALL SPARE PARTS SHALL BE DURABLY TAGGED OR MARKED WITH A CLEAR IDENTIFICATION SHOWING THE DESIGNATION USED ON THE APPROVED FABRICATION DRAWING.

3. BOXES FOR SPARE PARTS SHALL BE CLEARLY MARKED ON THE OUTSIDE TO SHOW THEIR CONTENTS.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 1 OF 8

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL MACHINERY NOTES

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

DRAWN BY : J. R. GENTILE DATE : 8-14-25
CHECKED BY : D. N. WIGGINS DATE : 8-14-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 8-14-25

8/22/2025
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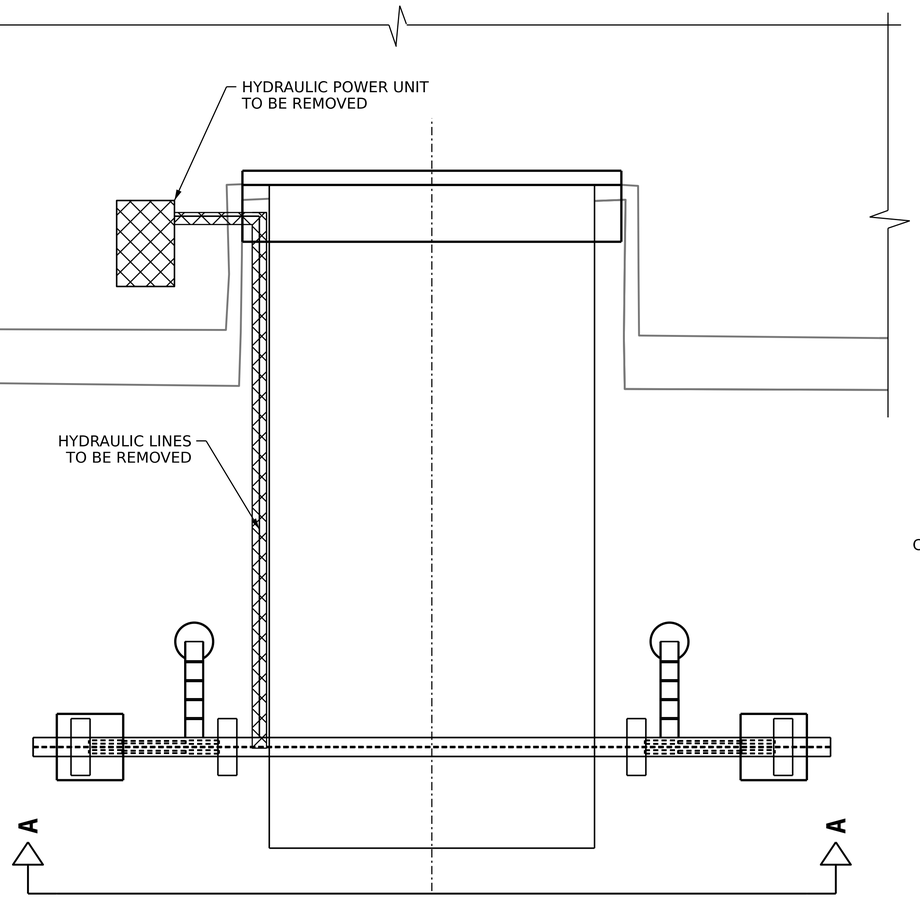
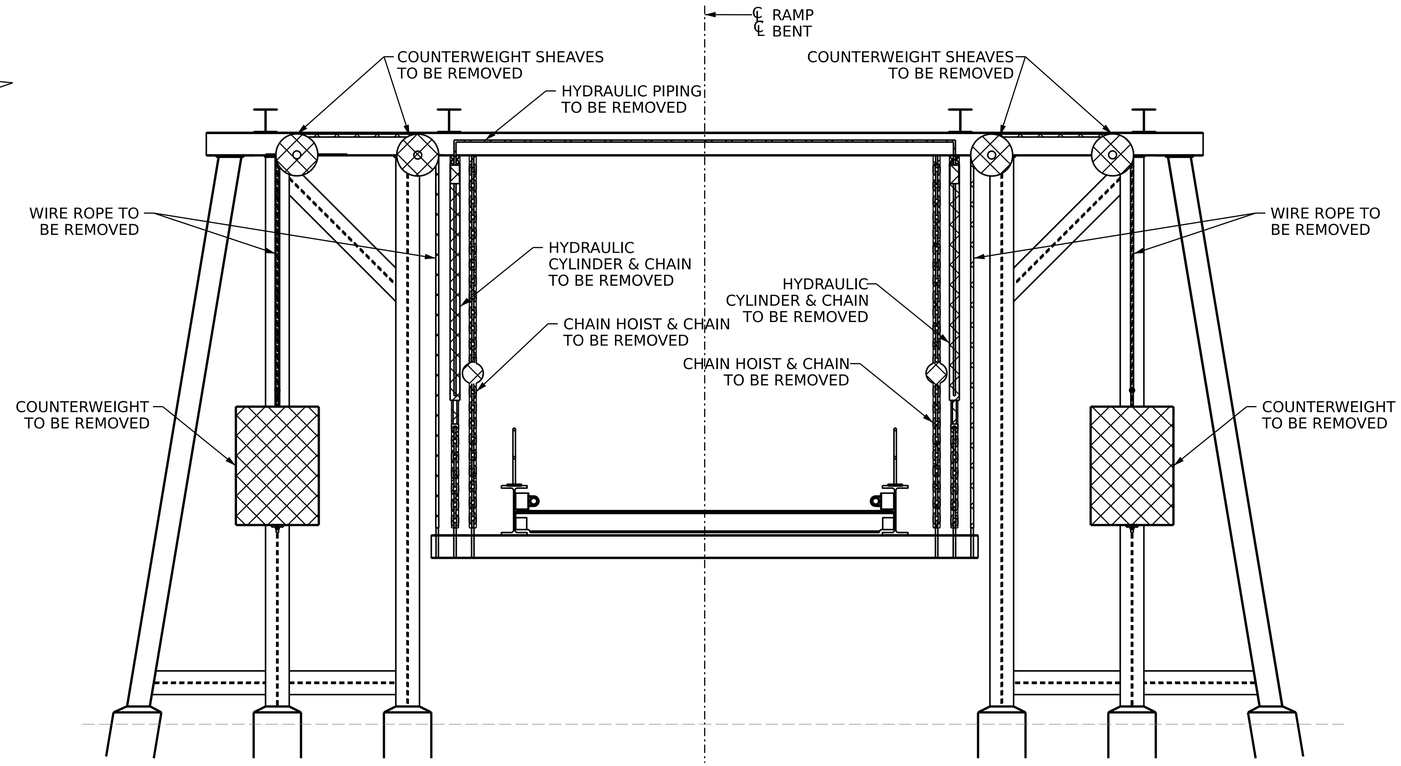


MACHINERY DEMOLITION PLAN



SECTION A-A

SUGGESTED REMOVAL SEQUENCE

1. ADJUST THE AMOUNT OF CHAIN AT THE END OF THE CYLINDER SUCH THAT FULLY RETRACTING THE CYLINDER WILL BRING THE COUNTERWEIGHTS CLOSE TO BEARING ON THE LIFT BENT CROSS BRACING.
2. RETRACT THE CYLINDERS TO THE FULLY RETRACTED POSITION AND ATTACH AN ADDITIONAL 3/4" GRADE 100 CHAIN TO EACH SIDE OF THE LIFTING BEAM, CONNECTED TO THE ATTACHMENTS USED FOR THE CHAIN HOISTS.
3. PLACE CRIBBING MATERIAL UNDER THE COUNTERWEIGHT AND JACK THE COUNTERWEIGHTS TO CREATE SLACK IN THE COUNTERWEIGHT WIRE ROPES. AT THIS POINT THE RAMP SHOULD ONLY BE SUPPORTED BY THE ADDITIONAL CHAINS THAT WERE ADDED IN STEP 2.
4. DRAIN ALL HYDRAULIC FLUID FROM HYDRAULIC CYLINDERS, HYDRAULIC POWER UNIT AND ALL HYDRAULIC LINES. DISPOSE OF USED HYDRAULIC OIL ACCORDING TO ALL RELEVANT LOCAL, STATE, AND FEDERAL REGULATIONS. CONTRACTOR TO PROVIDE CONTAINMENT OR SPILL PREVENTION TO AVOID SPILLING ANY HYDRAULIC FLUID INTO THE RIVER.
5. DISCONNECT THE HYDRAULIC CYLINDERS FROM THE RAMP AND LIFT BENT. REMOVE HYDRAULIC CYLINDERS, MOUNTS AND CHAINS AND DISPOSE ACCORDINGLY.
6. DISCONNECT THE WIRE ROPES CONNECTING THE COUNTERWEIGHTS TO THE RAMP AND DISPOSE ACCORDINGLY. REMOVE THE COUNTERWEIGHTS AND DISPOSE ACCORDINGLY.
7. REMOVE COUNTERWEIGHT ROPE SHEAVES, MOUNTING BRACKETS AND ASSOCIATED GREASE LINES AND DISPOSE ACCORDINGLY.
8. REMOVE ALL HYDRAULIC LINES FROM LIFT BENT AND DISPOSE ACCORDINGLY. REMOVE AND DISPOSE OF ALL COMPONENTS COMPRISING THE HYDRAULIC POWER UNIT IN ACCORDANCE WITH STATE, LOCAL, AND FEDERAL REGULATIONS.

GENERAL NOTES:

1. PRIOR TO ANY REMOVAL, THE HYDRAULIC SYSTEM SHALL BE DRAINED OF ALL HYDRAULIC FLUID TO AVOID ACCIDENTAL CONTAMINATION. CONTRACTOR TO SUBMIT DETAILED HYDRAULIC DEMOLITION PLAN NOTING ANY SPILL-PREVENTION MEASURES.
2. PRIOR TO BEGINNING ANY DEMOLITION WORK, THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING AVAILABLE RANGE OF MOTION OF THE FERRY RAMP BY FULLY EXTENDING AND FULLY RETRACTING THE HYDRAULIC CYLINDERS AND MEASURING THE ELEVATION OF THE BOTTOM FLANGE OF THE EXISTING LIFT BEAM WITH RESPECT TO A KNOWN SURVEYED VERTICAL DATUM.

PROJECT NO. BR-0173
PAMLICO COUNTY
STATION: 10+23.61 -RAMP-
SHEET 2 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

MECHANICAL DEMOLITION PLAN

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

REVISIONS						SHEET NO.
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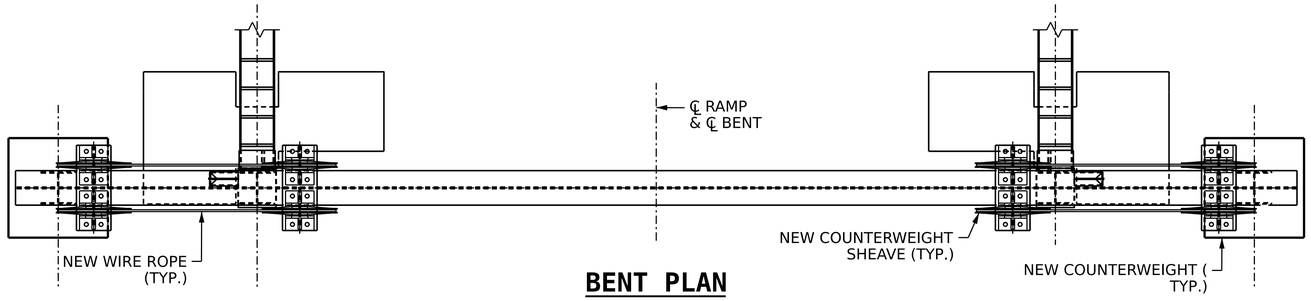

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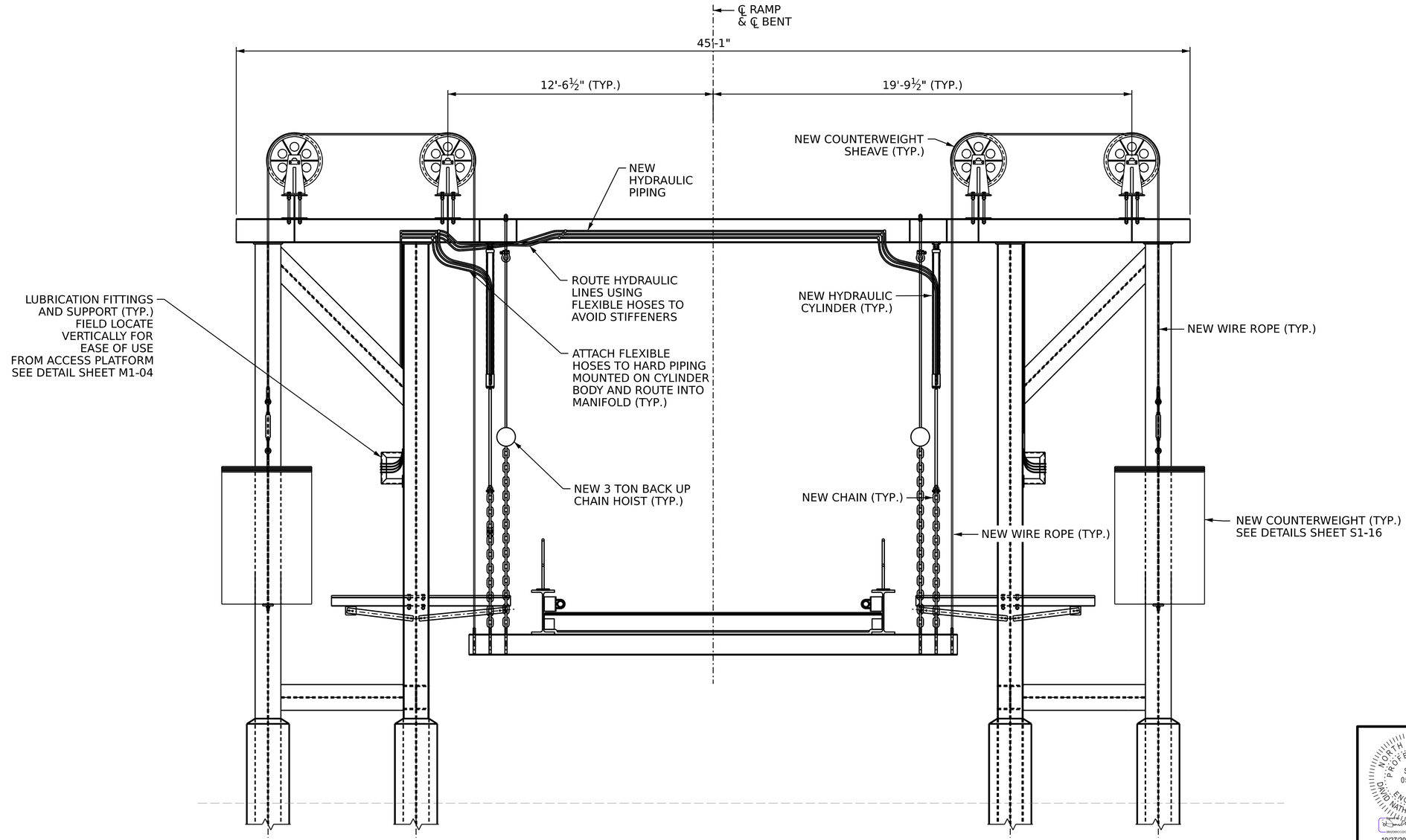

BENT ELEVATION

LOOKING FROM RIVER TOWARDS SHORE

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 3 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

NEW RAMP MACHINERY LAYOUT

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

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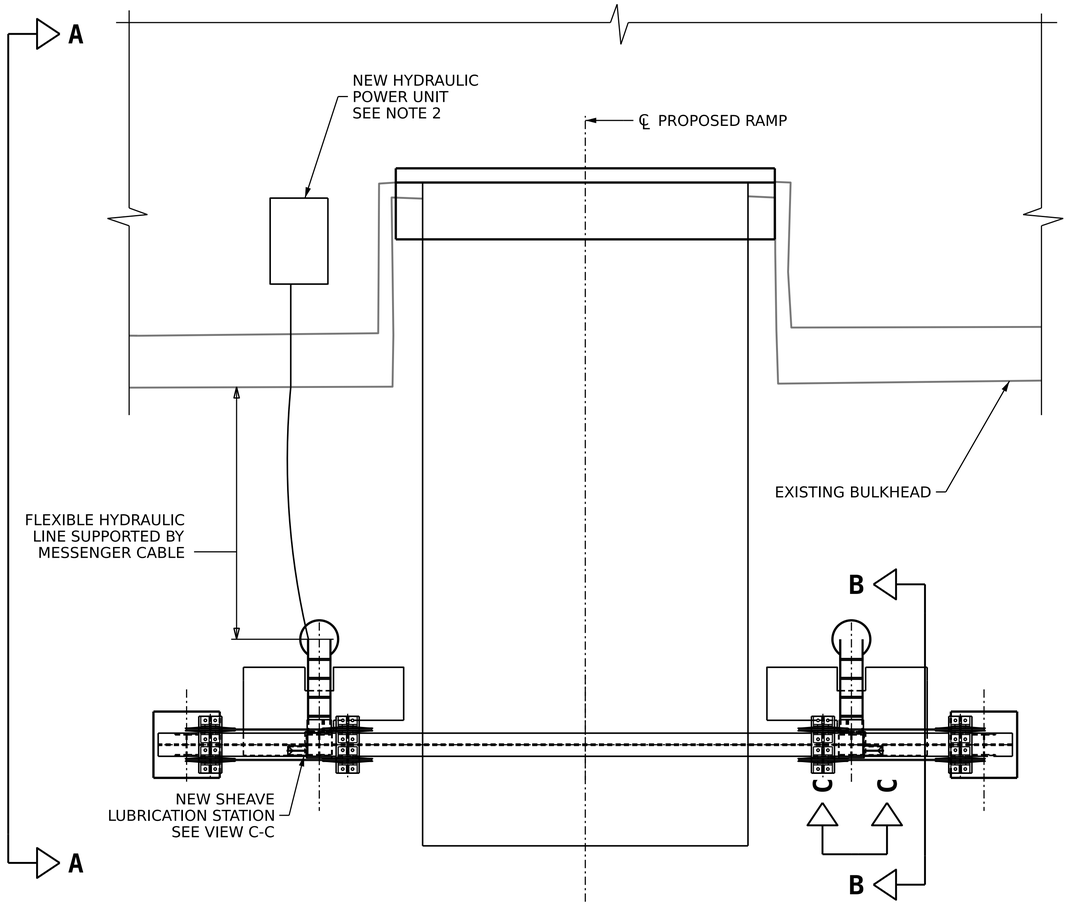
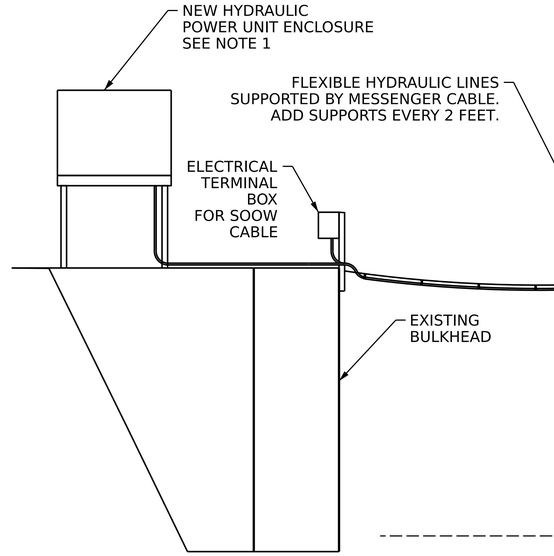
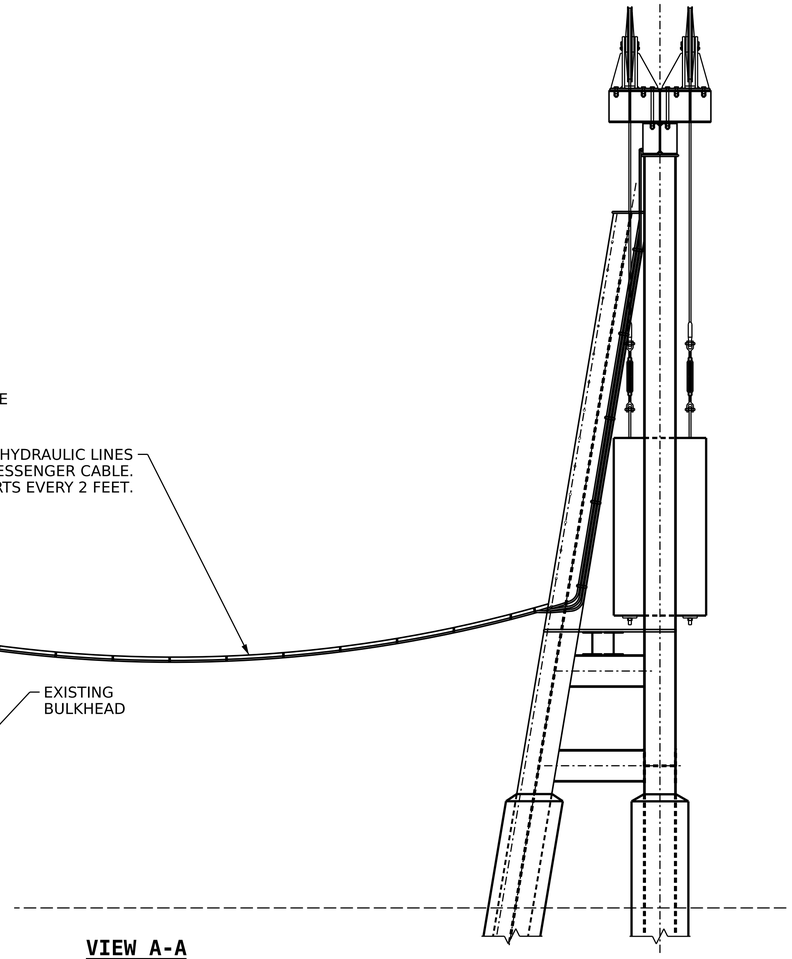
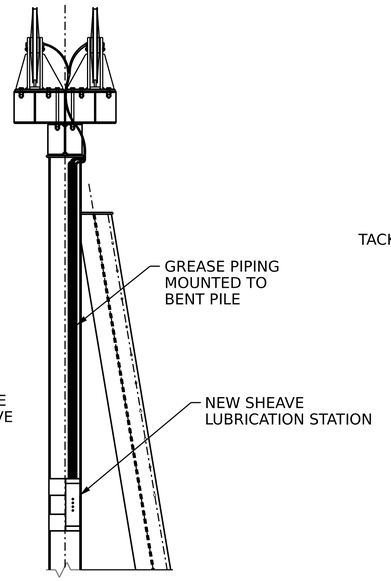


NEW MACHINERY PLAN

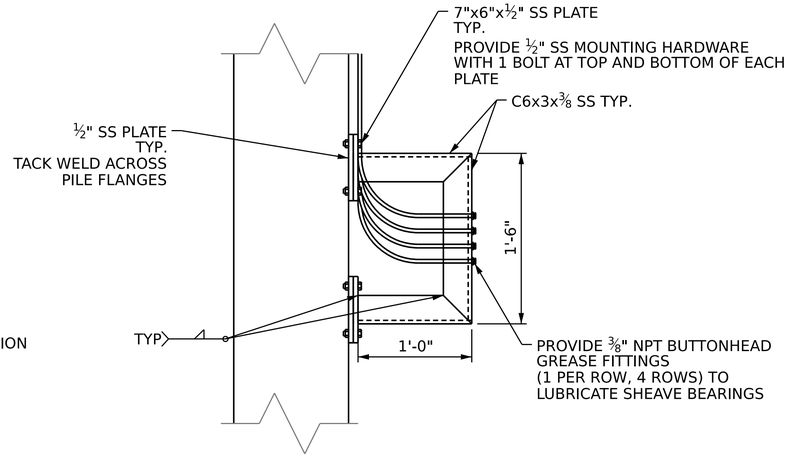




VIEW A-A



VIEW B-B



VIEW C-C

NOTES:

1. NEW HYDRAULIC POWER UNIT ENCLOSURE SHALL BE A 3'-6" WIDE X 3'-0" HIGH X 1'-6" DEEP, MINIMUM 12 GUAGE THICK STAINLESS STEEL BOX, SECURED WITH STAINLESS STEEL MACHINE SCREWS, INCLUDING A HINGED TOP PLATE AND REMOVABLE FRONT PLATE. AT EACH PANEL INTERFACE, INCLUDE A OIL-RESISTANT GASKET TO INSURE A WATERTIGHT SEAL. THE ENCLOSURE SHALL BE MOUNTED ON (4) STAINLESS STEEL ANGLES, LOCATED AT LEAST 24" ABOVE GRADE AND SUPPORTED BY (4) 4X4 TREATED LUMBER POSTS, BURIED 48" DEEP.
2. NEW HYDRAULIC POWER UNIT AND ENCLOSURE SHALL BE LOCATED IN THE SAME LOCATION AS THE EXISTING TO AVOID CONFLICTS WITH ELECTRICAL PANELS.

PROJECT NO. BR-0173
PAMLICO COUNTY
STATION: 10+23.61 -RAMP-
SHEET 4 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

MISCELLANEOUS MECHANICAL DETAILS

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

REVISIONS						SHEET NO.
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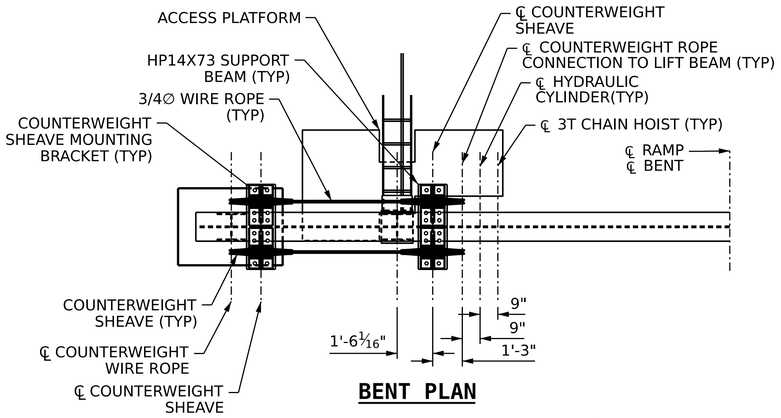
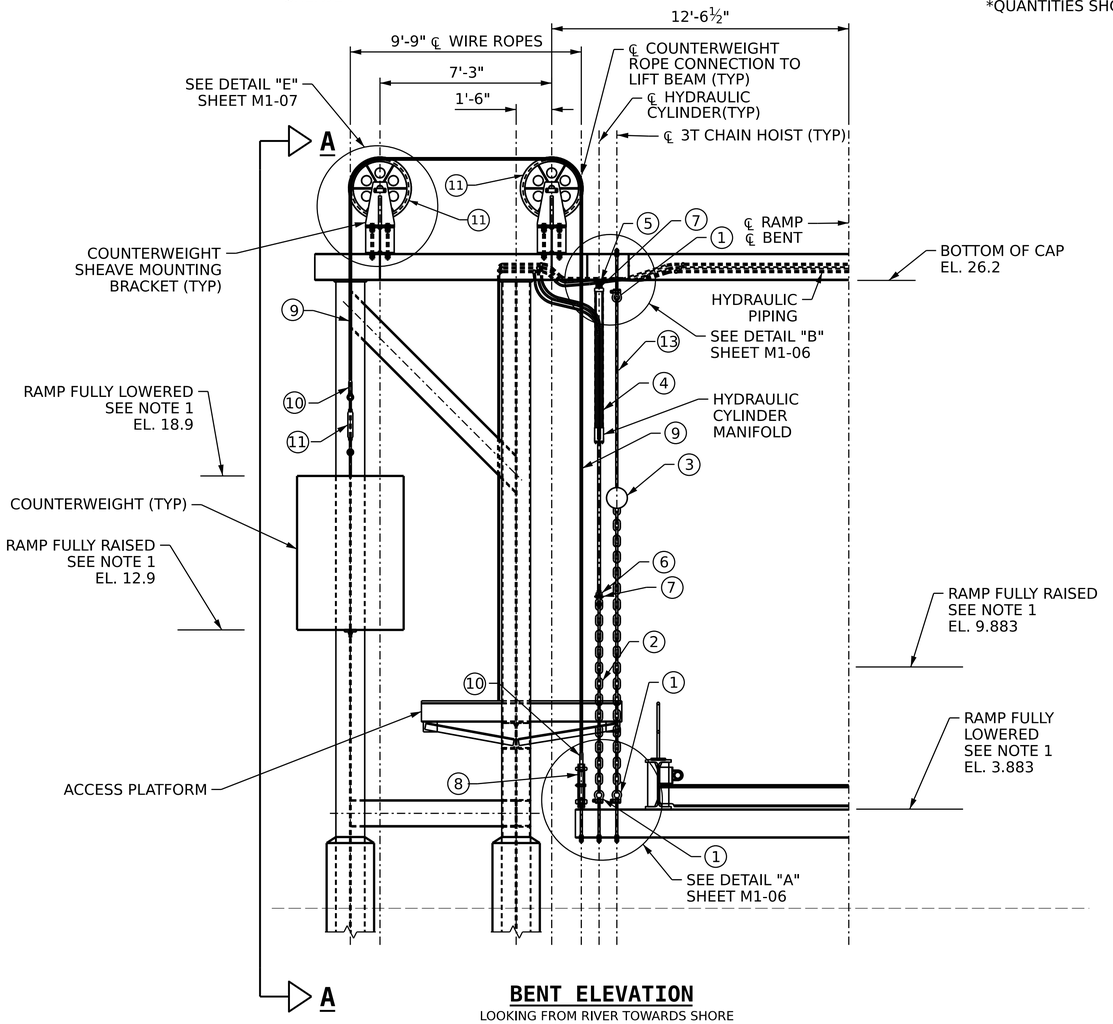


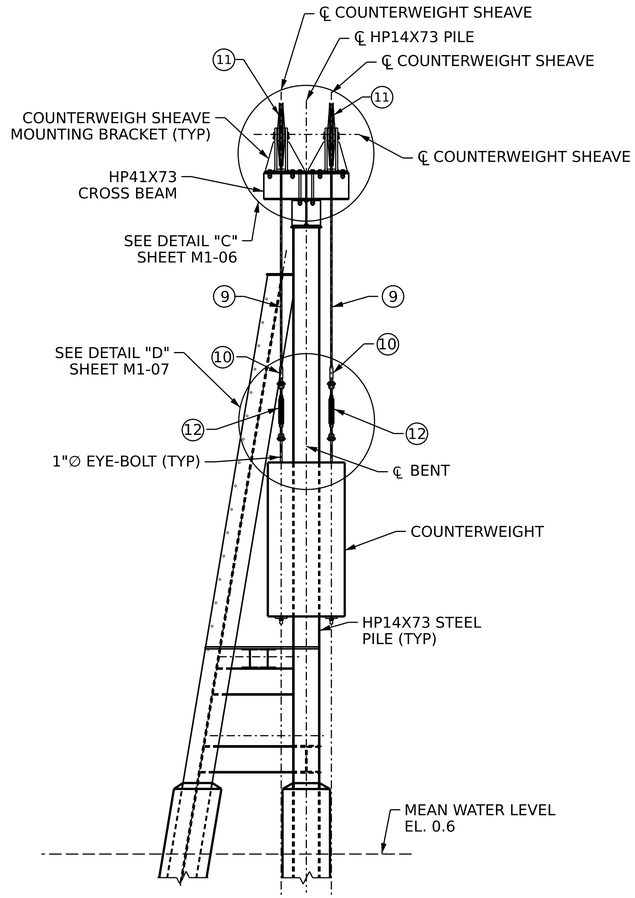
BENT PLAN



BENT ELEVATION
LOOKING FROM RIVER TOWARDS SHORE

BILL OF MATERIALS			
ITEM NUMBER	QUANTITY	DESCRIPTION	MATERIAL/MODEL NUMBER
1	10	1" SCREW PIN TYPE SHACKLE	CROSBY G-502 STOCK NO. 1018534
2	2	LENGTH OF 3/4" CHAIN (SEE NOTE 3)	CROSBY SPECTRUM 10 GRADE 100 ALLOY CHAIN
3	2	BACK-UP 3T ELECTRIC CHAIN HOIST, 10FT. STANDARD LIFT	HARRINGTON (N)ER030C
4	3	HYDRAULIC CYLINDER WITH 3.25"∅ BORE, 1.375"∅ ROD, 72" STROKE	PARKER 3.25CBBSHLU18AC72
5	3	HYDRAULIC CYLINDER MOUNTING BRACKET	PARKER 0959810100
6	3	HYDRAULIC CYLINDER ROD END CLEVIS	PARKER 1-14 ROD CLEVIS PART NUMBER 1332850000
7	6	HYDRAULIC CYLINDER 1"∅ PIVOT PIN	PARKER 1"∅ DIAMETER PIVOT PIN PART NUMBER 0683700000
8	2	COUNTERWEIGHT WIRE ROPE EQUALIZING DEVICE	SEE SHEET M1-07 FOR DETAILS
9	5	LENGTH OF 3/4"∅ WIRE ROPES	EXTRA IMPROVED PLOW STEEL, MINIMUM BREAKING FORCE 58,800LBS.
10	10	3/4" CLOSED SWAGED WIRE ROPE SOCKET	CROSBY S-502 STOCK NO. 1039469
11	8	COUNTERWEIGHT SHEAVE ASSEMBLY	SEE SHEETS M1-06 AND M1-07 FOR DETAILS
12	5	1" JAW & JAW TYPE TURNBUCKLE	CROSBY HG-228 STOCK NO. 1032812
13	2	3/4"∅ EYE & EYE SINGLE LEG WIRE ROPE SLING	CROSBY SW1-34-8-D

*QUANTITIES SHOWN INCLUDE SPARE PARTS, REFER TO THE MECHANICAL SPECIAL PROVISIONS FOR FULL LIST OF REQUIRED SPARES



VIEW A-A

NOTES:

1. RAMP ELEVATIONS SHOWN ARE BASED ON THE AVAILABLE HYDRAULIC CYLINDER STROKE AND NOAA HISTORIC WATER LEVEL DATA AND THE DESIGN LOAD WATERLINE FOR A NCDOT FERRY DIVISION RIVER CLASS VESSEL. THE FULLY LOWERED POSITION OF THE RAMP AS SHOWN IS INTENDED TO ALLOW FOR THE CYLINDERS TO FULLY EXTEND AND PROVIDE AT LEAST 2FT. OF SLACK IN THE CHAINS WITH THE RAMP RESTING OF THE DECK OF A FERRY AT THE LOWEST RECORDED TIDE YEAR TO DATE IN 2025. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATIONS PRIOR TO INSTALLATION OF THE RAMP LIFTING SYSTEM. ELEVATIONS SHOWN ARE MEASURED AT THE TOP OF THE COUNTERWEIGHTS (WITHOUT BALANCE PLATES INCLUDED) AND AT THE TOP OF THE LIFTING BEAM.

2. MANUFACTURERS AND PART NUMBERS SHOWN IN THE BILL OF MATERIALS ARE INTENDED TO ESTABLISH THE REQUIRED STANDARD FOR COMPONENTS IN THE RAMP LIFT SYSTEM AND DO NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO SUBMIT ALL NECESSARY MANUFACTURER'S INFORMATION REQUIRED FOR REVIEW. ANY DESIRED SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING. REFER TO THE MECHANICAL SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

3. PROVIDE EXCESS LENGTH OF CHAIN FOR CONNECTING THE HYDRAULIC CYLINDERS TO THE LIFTING BEAM TO ALLOW FOR THE RANGE OF MOTION OF THE RAMP TO BE ADJUSTABLE. EXCESS CHAIN SHALL ALLOW FOR A MINIMUM OF 2FT. OF ADDITIONAL LENGTH FROM THE FULLY LOWERED POSITION AND FROM THE FULLY RAISED POSITION AS DETERMINED DURING FIELD VERIFICATION PRIOR TO DEMOLITION OF THE EXISTING RAMP MACHINERY.

PROJECT NO. **BR-0173**
PAMLICO COUNTY
STATION: **10+23.61 -RAMP-**
SHEET 5 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAMP LIFT SYSTEM DETAILS I

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

REVISIONS						SHEET NO.
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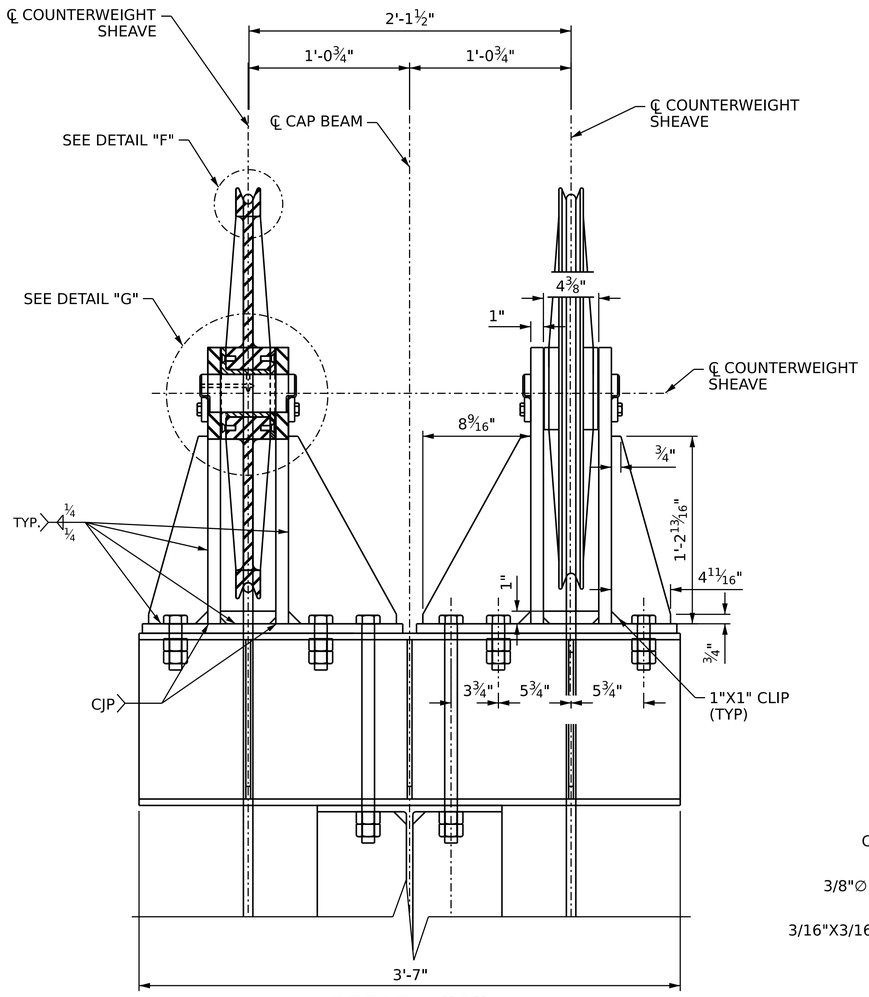
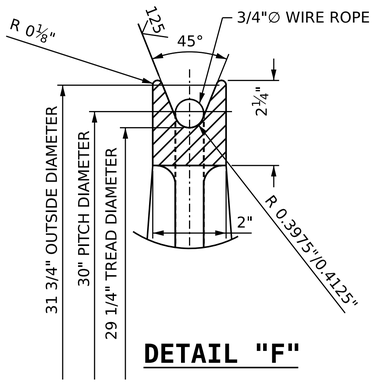


DETAIL "C"

HALF SECTION THROUGH CENTERLINE OF SHEAVE IS SHOWN ON THE LEFT



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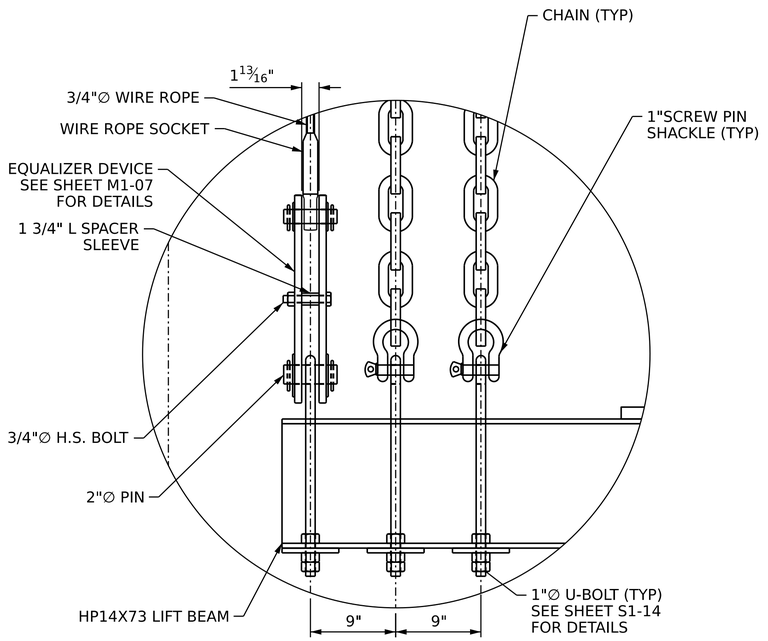

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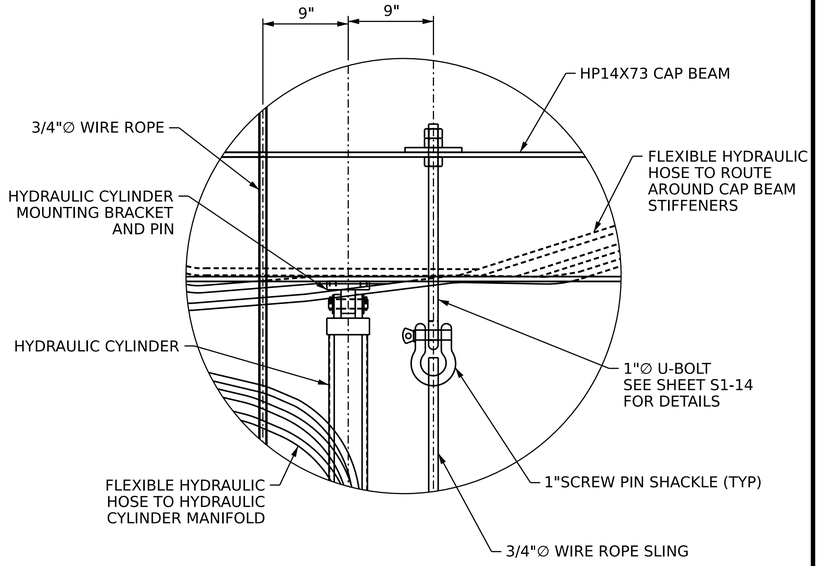

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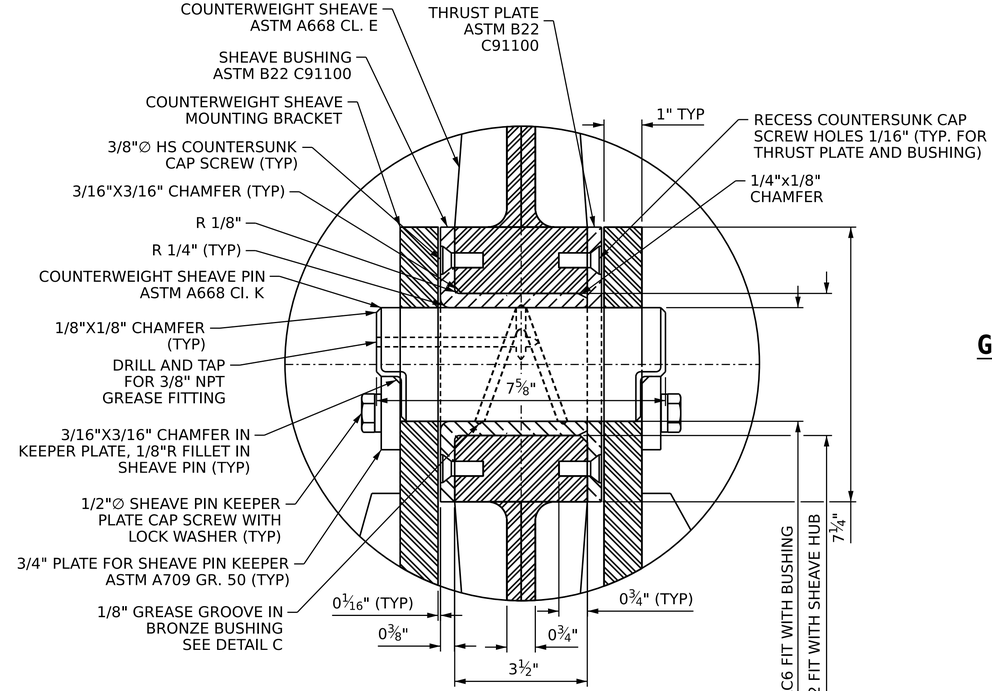

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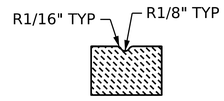

GREASE GROOVE DETAIL

NOTES:

1. PROVIDE COTTER PINS AND PLAIN WASHERS FOR ALL PINS SHOWN. PIN DIAMETERS AND CLEARANCE WITH HOLES SHALL SUIT MANUFACTURER'S REQUIREMENTS. IN THE ABSENCE OF MANUFACTURER'S REQUIREMENTS, PIN DIMENSIONS SHALL MEET THE REQUIREMENTS OF ASME B18.8.2 FOR STRAIGHT PINS AND 1/32" CLEARANCE SHALL BE PROVIDED BETWEEN PIN AND HOLE. COTTER PINS AND GAGE HOLES SHALL MEET THE REQUIREMENTS OF ASME B18.8.1.
2. COUNTERWEIGHT ROPE SHEAVE MAY BE SUPPLIED AS A WELDMENT IF DESIRED. IF THE SHEAVE IS TO BE FABRICATED AS A WELDMENT, ASTM A668 SUPPLEMENTAL REQUIREMENT S4 SHALL BE MET AND DETAILS FOR ALL WELDS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

PROJECT NO. BR-0173
PAMLICO COUNTY
STATION: 10+23.61 -RAMP-

SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAMP LIFT SYSTEM DETAILS II

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER NATHANAEL WIGGINS
10/27/2025

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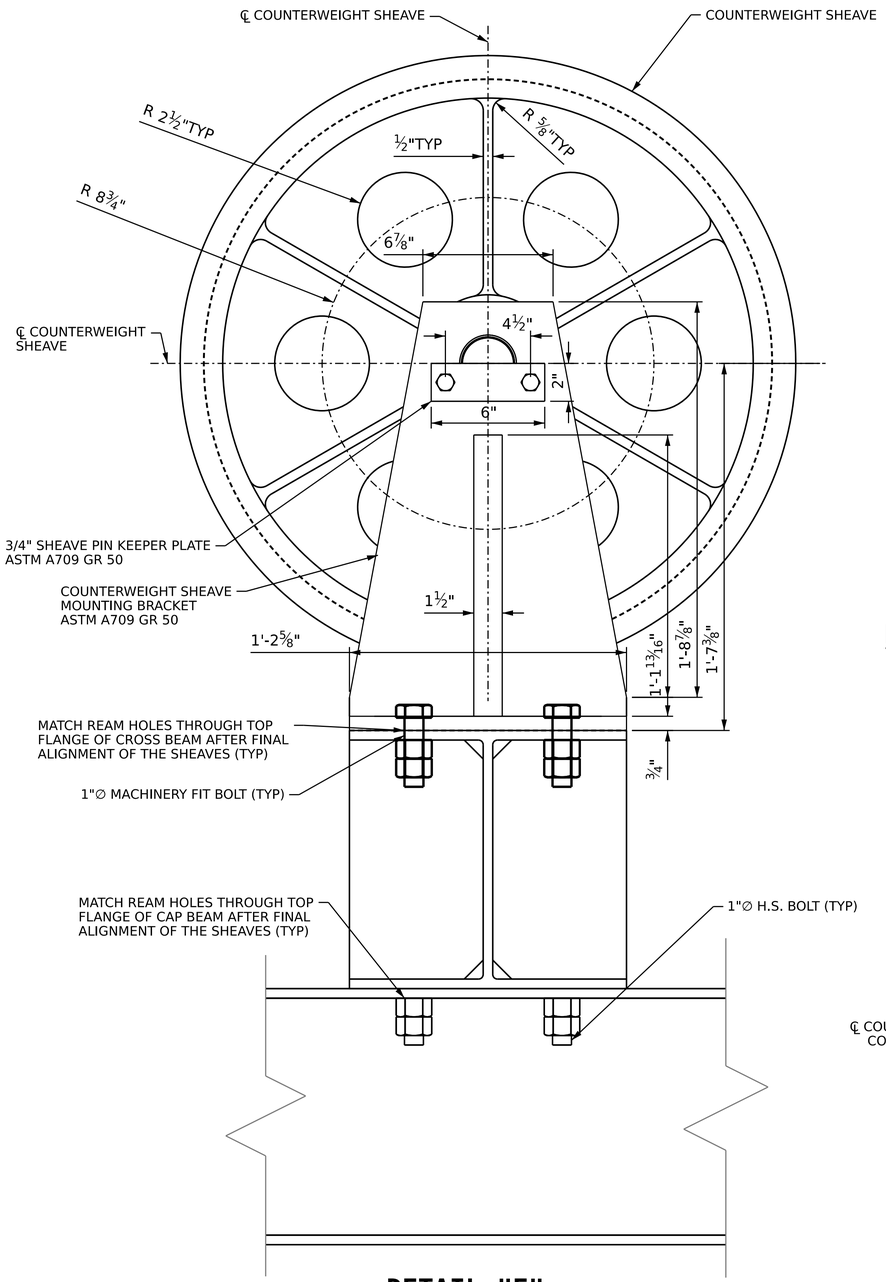

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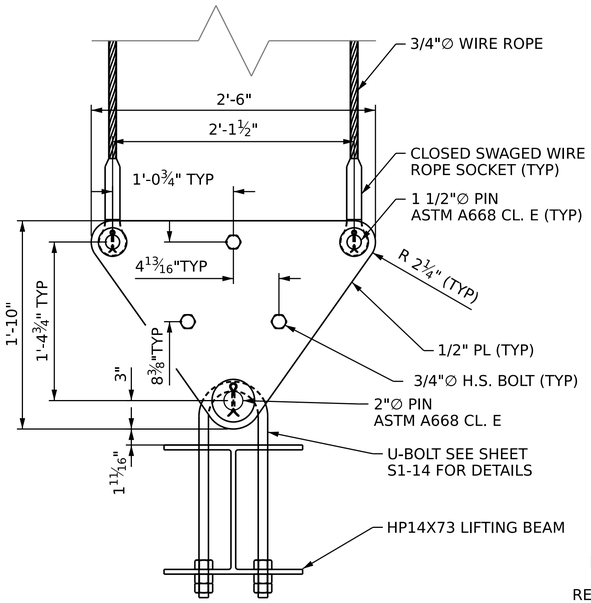
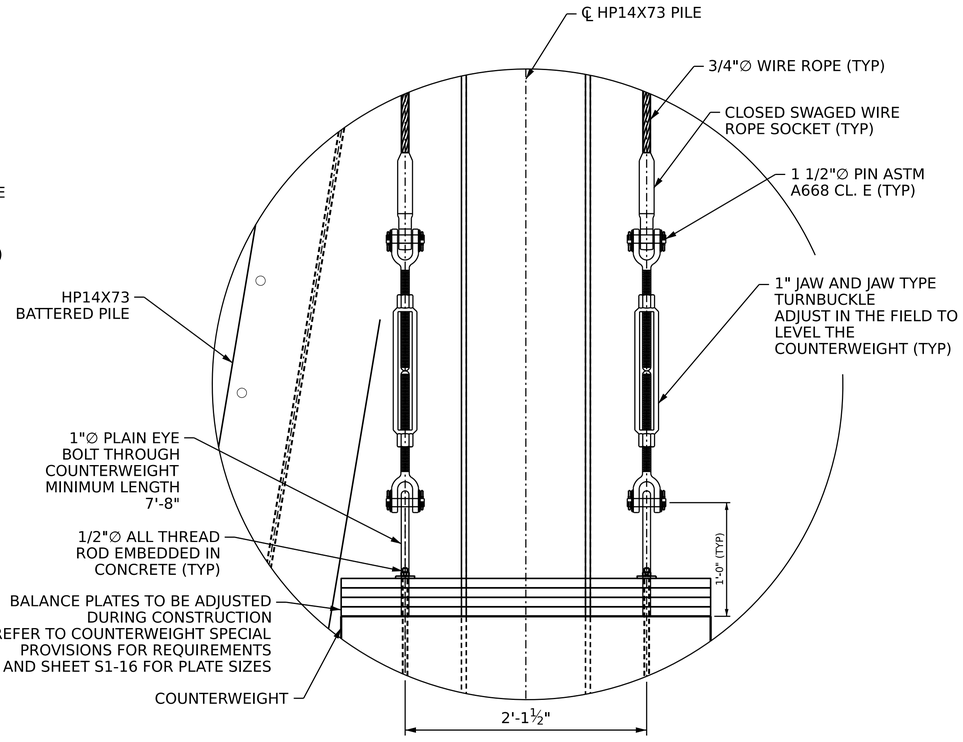


EQUALIZER DEVICE ELEVATION VIEW



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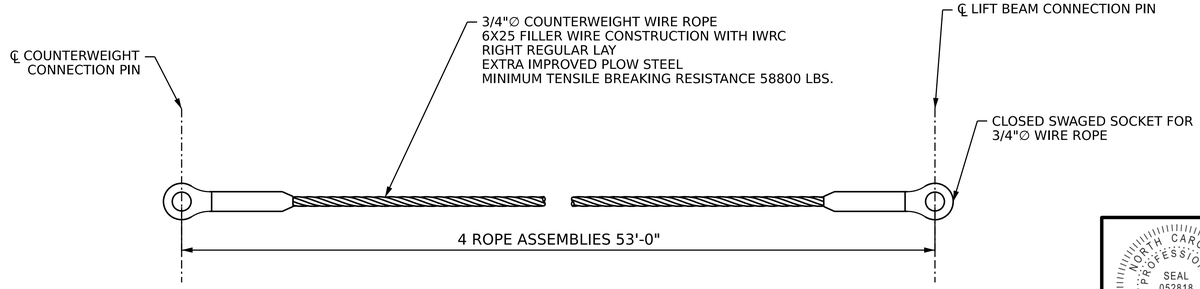

WIRE ROPE DETAILS

NOTES:

1. PROVIDE COTTER PINS AND PLAIN WASHERS FOR ALL PINS SHOWN. PIN DIAMETERS AND CLEARANCE WITH HOLES SHALL SUIT MANUFACTURER'S REQUIREMENTS. IN THE ABSENCE OF MANUFACTURER'S REQUIREMENTS, PIN DIMENSIONS SHALL MEET THE REQUIREMENTS OF ASME B18.8.2 FOR STRAIGHT PINS AND 1/32" CLEARANCE SHALL BE PROVIDED BETWEEN PIN AND HOLE. COTTER PINS AND GAGE HOLES SHALL MEET THE REQUIREMENTS OF ASME B18.8.1.

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 7 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RAMP LIFT SYSTEM DETAILS III

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DAVID NATHANAEL WIGGINS
10/27/2025

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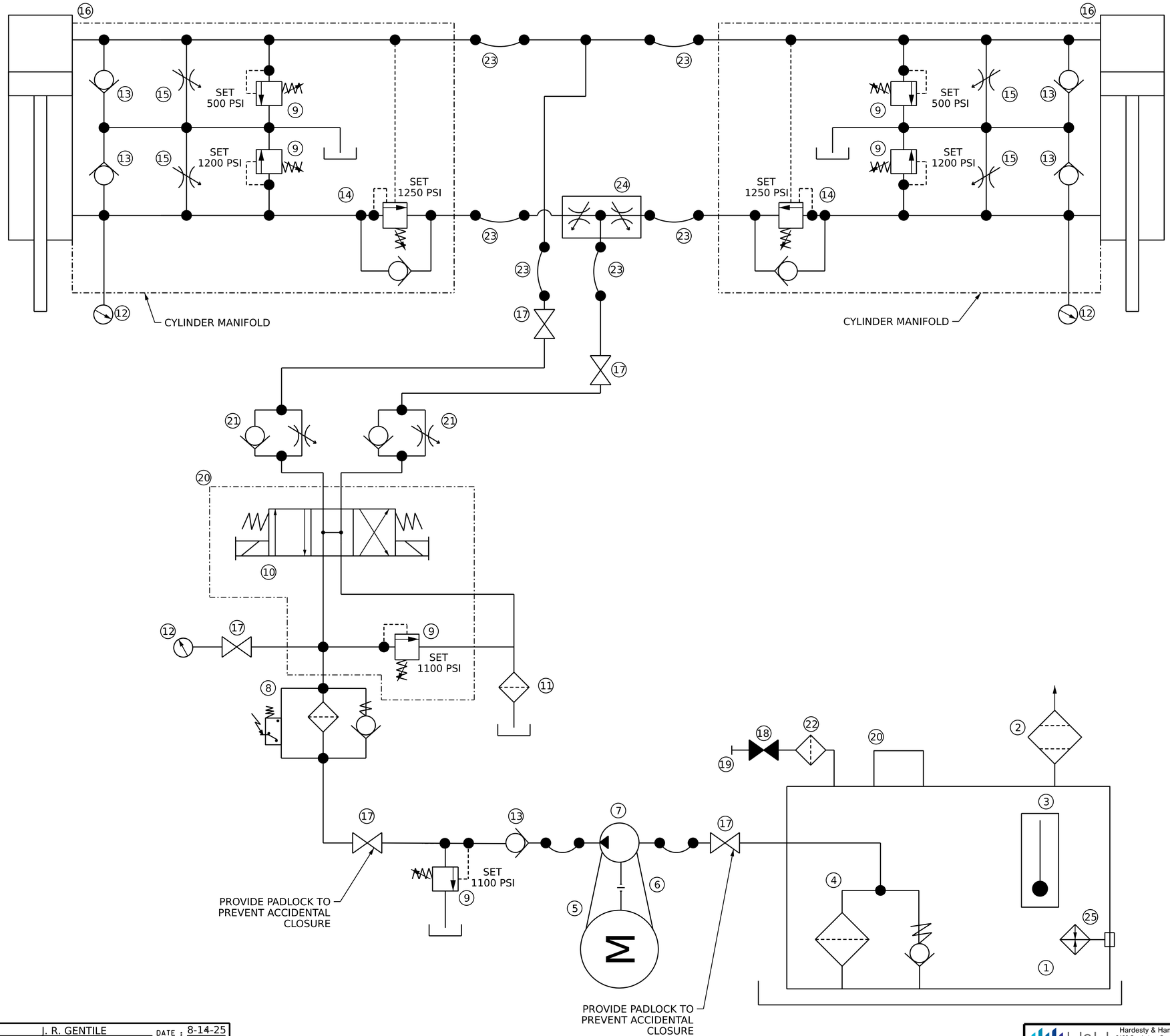

EQUIPMENT LIST

1. RESERVOIR, 30 GALLON, JIC CONFIGURATION
2. DESICCANT BREATHER FILTER, 3 MICRON ABOLUTE 99% EFFICIENT
3. LEVEL INDICATOR WITH INTEGRAL THERMOMETER
4. FLUID SUPPLY STRAINER WITH BYPASS. STRAINER AND BYPASS TO MEET PUMP OEM RECOMMENDATION
5. 5HP, 1800 RPM SINGLE PHASE ELECTRIC MOTOR
6. PUMP TO MOTOR ADAPTER
7. FIXED DISPLACEMENT UNIDIRECTIONAL SELF-PRIMING EXTERNAL GEAR PUMP, 7.5 GPM. BOSCH-REXROTH AZPF-12-016RRR12MB OR EQUAL
8. PRESSURE FILTER WITH 30PSI BYPASS, 10 MICRON ABSOLUTE (MINIMUM), LOCAL BYPASS INDICATION, 99% EFFICIENT
9. RELIEF VALVE
10. 4/3 SOLENOID OPERATED DIRECTIONAL CONTROL VALVE, OPEN CENTER
11. RETURN LINE FILTER WITH 3PSI BYPASS, 10 MICRON ABSOLUTE (MINIMUM), 99% EFFICIENT
12. PRESSURE GAUGE
13. CHECK VALVE
14. 3:1 PILOT RATIO COUNTERBALANCE VALVE, LEAK-FREE, RATED FOR LOAD HOLDING
15. FLOW CONTROL VALVE
16. 3.25" BORE, 1.375" ROD, 72" STROKE HYDRAULIC CYLINDER
17. BALL VALVE, NORMALLY OPEN
18. BALL VALVE, NORMALLY CLOSED
19. QUICK DISCONNECT COUPLING
20. CONTROL VALVE MANIFOLD
21. FLOW CONTROL VALVE WITH REVERSE CHECK
22. FILTER WITH 10 MICRON ABSOLUTE RATING (MINIIMUM), 99% EFFICIENT
23. FLEXIBLE HOSE
24. ROTARY TYPE FLOW DIVIDER
25. LOW WATT DENSITY RESERVOIR HEATER WITH INTEGRAL THERMOSTAT

NOTES

1. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS DETAILING ALL DIMENSIONS FOR THE CYLINDER MANIFOLD AND MANIFOLD MOUNTING SYSTEM FOR APPROVAL.
3. ALL PLATES, BRACKETS, ANGLES, AND FASTENING HARDWARE SHALL BE STAINLESS STEEL. NO WELDING SHALL BE PERFORMED ON CYLINDER OR TUBE AFTER FINAL INSIDE HONING OF THE TUBE HAS BEEN COMPLETED BY THE CYLINDER MANUFACTURER.
4. FLOW DIVIDER (ITEM 24) MAY BE USED TO SYNCHRONIZE THE HYDRAULIC CYLINDERS AND TO RETURN THE RAMP TO A LEVEL POSITION IN THE EVENT OF SKEW BY RAISING THE RAMP TO THE FULLY RAISED POSITION.

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 8 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

HYDRAULIC SCHEMATIC

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 052818 ENGINEER DINO NATHANAEL WIGGINS
10/27/2025

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	M1-08
1			3			TOTAL SHEETS
2			4			8

DRAWN BY : J. R. GENTILE DATE : 8-14-25
CHECKED BY : D. N. WIGGINS DATE : 8-14-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 8-14-25

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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License #: F-0277

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/26/21

ELECTRICAL SCOPE OF WORK

1. FIELD MEASURING AND VERIFICATION

THE CONTRACTOR SHALL PERFORM A FIELD SURVEY TO DETERMINE ALL EXISTING DIMENSIONS OF THE RAMP AND THE APPROACHES TO LOCATE ALL EXISTING EQUIPMENT. THE CONTRACTOR SHALL PERFORM A FIELD SURVEY TO VERIFY THE EXISTING CONDUIT AND WIRING TO VERIFY THE WIRE TAGS, AS-BUILT DOCUMENTATION, AND CONTRACT PLANS.

2. INCOMING (SHORE POWER) SERVICE

THE INCOMING POWER CONNECTED TO RAMP "B" IS SINGLE PHASE, 40A, 208VAC FED FROM PANEL "C". PANEL "C" IS 3-PHASE 120/208VAC FED FROM THE MAINTENANCE BUILDING. PANEL "C" AND ALL CONDUIT AND WIRE FROM PANEL "C" TO RAMP "B" SHALL BE REMOVED AND REPLACED WITH NEW.

PROVIDE AN ALTERNATE POWER SOURCE TO OPERATE RAMP "A" WHILE PANEL "C" IS BEING REPLACED.

3. HPU MOTOR

REMOVE AND DISPOSE OF THE EXISTING HPU UNIT AND MOTOR. FURNISH AND INSTALL A NEW HPU MOTOR CONTROL ENCLOSURE WITH NEW 5HP, SINGLE PHASE, 208VAC MOTOR TO REPLACE THE EXISTING HPU MOTOR AS SPECIFIED UNDER THE MECHANICAL SCOPE OF WORK. FURNISH AND INSTALL IN-SIGHT, NEMA-4X STAINLESS STEEL DISCONNECT SWITCH FOR THE NEW HPU.

4. HPU CONTROL PENDENT

FURNISH AND INSTALL A 4 PUSH-BUTTON (STOP, START, RAISE, AND LOWER) CONTROL PENDENT WITH RED LED POWER LIGHT AS SHOWN ON THESE PLANS.

5. PANEL "C"

THE EXISTING PANEL "C" IS A THREE (3) PHASE, 4 WIRE, 208/120 VAC DELTA, 225A SQUARE D PANEL IN A FIBERGLASS ENCLOSURE. REMOVE AND DISPOSE OF THE EXISTING PANEL.

CONTRACTOR SHALL VERIFY ALL CIRCUITS IN EXISTING PANEL C. LABEL ALL CONDUCTORS PRIOR TO DISCONNECTING THEM FROM EXISTING PANEL C.

FURNISH AND INSTALL A NEW THREE (3) PHASE, 4 WIRE, 208/120 VAC DELTA, 225A, 30 SPACE, PANEL IN A STAINLESS STEEL NEMA-4X ENCLOSURE, AS SHOWN ON THESE PLANS.

6. SHIPS POWER

FURNISH AND INSTALL A NEW 30A 208V, NEMA-4X RECEPTACLE FOR SHIPS POWER AS SHOWN ON THESE PLANS. FURNISH AND INSTALL A NEW NEMA-4X STAINLESS STEEL THREE POSITION MANUAL TRANSFER SWITCH (UTILITY, OFF, SHIPS POWER) FOR PROVIDING SHIPS POWER AS AN ALTERNATE SOURCE.

7. CONDUIT AND WIRE

FURNISH AND INSTALL, AS NEEDED, CONDUIT, BOXES, AND WIRE TO FULLY CONNECT THE NEW ELECTRICAL SYSTEM TO THE EXISTING EQUIPMENT/SYSTEMS THAT ARE TO REMAIN, AS SHOWN ON THE PLANS OR OTHERWISE REQUIRED.

FURNISH AND INSTALL, AS NEEDED, NEW FLEXIBLE DROOP CABLES, A SHORE TERMINAL BOX AND A RAMP TERMINAL BOX AND ANY OTHER BOXES REQUIRED TO FACILITATE INSTALLATION ON THE RAMP.

FURNISH AND INSTALL FLEXIBLE CONDUIT AND WIRE ON THE HYDRAULIC LINE MESSENGER CABLE, AS SHOWN ON THESE PLANS, AND OTHER BOXES REQUIRED TO FACILITATE INSTALLATION ON THE RAMP

INSTALL ALL CONDUIT SUPPORTS PER NEC AND AASHTO STANDARDS. LIMIT TOTAL ANGULAR CONDUIT BENDS BETWEEN PULL BOXES OR ACCESS POINTS TO 270 DEGREES. RADIUS OF CONDUIT BEND SHALL BE PER NEC CHAPTER 9 TABLE 2. ALL REQUIRED PULL BOXES ARE NOT NECESSARILY SHOWN ON THE DRAWINGS. INSTALL CONDUCTOR SUPPORTS IN CONDUIT RUNS PER NEC AND AASHTO STANDARDS.

8. REMOVAL OF EXISTING EQUIPMENT

ANY PIECE OF EQUIPMENT SPECIFIED TO BE REMOVED AND/OR REPLACED AS PART OF THE PLANS AND SPECIAL PROVISIONS SHALL BE DONE AT NO ADDITIONAL COST TO NCDOT.

9. LIGHTING

FURNISH AND INSTAL NEW RAMP LIGHTING AS SHOWN ON THESE PLANS.

10. BACKUP CHAIN HOISTS

THE EXISTING CHAIN HOIST RECEPTACLES ARE TO BE REMOVED AND REPLACED.

FURNISH AND INSTALL NEW CHAIN HOIST RECEPTACLES, CIRCUIT BREAKERS, AND ASSOCIATED WIRING AND CONDUIT. SEE ELECTRICAL SCHEMATIC, DRAWING E1-04 FOR ADDITIONAL INFORMATION ON INSTILLATION.

THE EXISTING BACKUP CHAIN HOISTS ,RECEPTACLES, AND ASSOCIATED CIRCUIT BREAKERS ARE 120V, SINGLE PHASE. THE NEW CHAIN HOISTS, RECEPTACLES, AND ASSOCIATED CIRCUIT BREAKERS AND WIRING IS TO BE 208V, 3 PHASE. ADJUST NEW PANEL C AS REQUIRED TO ACCOMIDATE.

ELECTRICAL SCOPE OF WORK

11. TESTING AND COMMISSIONING

THE CONTRACTOR SHALL COMPLETELY COMMISSION THE RAMP CONTROL SYSTEM IN A FACTORY TEST. FOLLOWING INSTALLATION, THE CONTRACTOR SHALL COMMISSION AND TEST TO SHOW THE EQUIPMENT IS INSTALLED ACCURATELY AND SAFELY. ALL EQUIPMENT SHALL BE OPERATED TO THE SATISFACTION OF THE ENGINEER AND A TESTING PROCEDURE SHALL BE SUBMITTED TO RECORD THE TESTING OF ALL EQUIPMENT.

12. DOCUMENTATION

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CUTSHEETS, TEST PROCEDURES AND RESULTS, OPERATION AND MAINTENANCE MANUAL, AND FINAL AS-BUILT DRAWINGS, FOR APPROVAL, AS OUTLINED IN THE SPECIAL PROVISIONS.

GENERAL ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC). COORDINATE ALL ELECTRICAL WORK WITH NCDOT AND OTHER CONTRACTORS ON THE SITE.

2. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES AND SHALL BE SCHEDULED CONSISTENT WITH THE OVERALL CONSTRUCTION STAGING SEQUENCE.

3. THE PLANS ARE DIAGRAMMATIC AND ARE NOT TO BE SCALED. THE LOCATIONS OF EQUIPMENT AND ROUTING OF CONDUITS SHOWN ON THE CONTRACT DRAWINGS ARE APPROXIMATE. EXACT LOCATIONS SHALL BE DETERMINED BASED UPON APPROVED SHOP DRAWINGS SUBMITTED BY THE CONTRACTOR.

4. THE LOCATION AND NUMBER OF RACEWAYS AND JUNCTION BOXES SHOWN ON THE PLANS ARE OF SCHEMATIC TYPE AND DO NOT PURPORT TO BE EXACT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED RACEWAYS, JUNCTION BOXES, CONDUIT FITTINGS, ELBOWS, AND HARDWARE FOR COMPLETE INSTALLATION IN ACCORDANCE WITH THE NEC WHETHER OR NOT THEY ARE EXPLICITLY SHOWN OR INDICATED ON THE CONTRACT PLANS.

5. PROVIDE EQUIPMENT GROUNDING PER NEC REQUIREMENTS RUNNING SEPARATE GROUNDING WIRE IN EACH CONDUIT. GROUND CONDUCTORS SHALL BE PROVIDED IN ALL FLEXIBLE CABLES. MINIMUM SIZE GROUND CONDUCTOR SHALL BE #12 AWG. ALL TERMINAL AND JUNCTION BOXES SHALL BE GROUNDED IN ACCORDANCE WITH THE NEC.

6. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ELECTRICAL COMPONENTS, CONDUITS, HANGERS, AND SUPPORTS, ETC. WITH THE OTHER DISCIPLINES OR AS REQUIRED BY THE ENGINEER.

7. ALL ELECTRICAL CONDUCTORS SHALL HAVE XHHW-2 INSULATIONS.

8. ALL CONDUIT SHALL BE 3/4" MINIMUM. BURIED CONDUIT SHALL BE SCHEDULE 80 PVC. ALL OTHER CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL UNLESS OTHERWISE NOTED OR REQUIRED BY NEC AND SHALL MEET ALL ADDITIONAL REQUIREMENTS FOR MATERIALS, CONSTRUCTION, AND INSTALLATION CONTAINED IN THE SPECIFICATIONS.

9. ALL CONDUCTORS SHALL BE CONNECTED TO TERMINAL BLOCKS OR DEVICES.

10. ALL ELECTRICAL ENCLOSURES SHALL BE TYPE 316L STAINLESS STEEL, DUST-TIGHT, RAIN-TIGHT, WATER-TIGHT AND OIL-TIGHT NEMA-4X.

11. ALL CONTACTORS AND STARTERS SHOWN ON THE DRAWINGS AS DE-ENERGIZED.

12. UPON COMPLETION OF ELECTRICAL INSTALLATION, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORT CIRCUITS, GROUNDS AND PROPER OPERATION IN THE PRESENCE OF THE ENGINEER.

13. NOT ALL WORK OR DETAILS MAY BE EXPLICITLY SHOWN ON THESE PLANS. WHERE DETAILS ARE NOT PROVIDED OR WORK IS NOT SHOWN, THE CONTRACTOR IS RESPONSIBLE FOR COMPLETING SUCH WORK AS SPECIFIED ELSEWHERE IN THE PLANS OR SPECIAL PROVISIONS USING HIS MEANS AND METHODS AT NO ADDITIONAL COST TO NCDOT.

14. ELECTRICAL WORK SHALL BE PAID FOR UNDER THE LUMP SUM RAMP ELECTRICAL SYSTEM.

ABBREVIATIONS

3P	3 POLE
A	AMPS
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
CB	CIRCUIT BREAKER
DIA	DIAMETER
DS	DISCONNECT SWITCH
DWG	DRAWING
EXIST.	EXISTING
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	GREEN
GALV.	GALVANIZED
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GND	GROUND
GEN	GENERATOR
HP	HORSEPOWER
HPU	HYDRAULIC POWER UNIT
L1	LINE 1
L2	LINE 2
L3	LINE 3
LED	LIGHT EMITTING DIODE
LT	LIGHTING
M1	MOTOR 1 CONTACTOR
MCP	MOTOR CIRCUIT PROTECTOR
MTS	MANUAL TRANSFER SWITCH
N	NEUTRAL
OL	OVERLOAD
PB	PUSHBUTTON
PNL	PANEL
PNLB	PANELBOARD
RECPT	RECEPTACLE
S.S	STAINLESS STEEL
W	WATTS

ELECTRICAL SYMBOLS

- CIRCUIT BREAKER
- COIL NORMALLY OPEN CONTACT
- COIL NORMALLY CLOSED CONTACT
- RELAY/CONTACTOR COIL
- PUSHBUTTON WITH NORMALLY OPEN CONTACT
- PUSHBUTTON WITH NORMALLY CLOSED CONTACT
- 3 / FVNR — STARTER (FULL VOLTAGE NON-REVERSING SIZE AS INDICATED)
- (R) — INDICATING LIGHT (WITH COLOR AS INDICATED)
- E-STOP PUSHBUTTON
- NEW EQUIPMENT LINE WEIGHT
- EXISTING EQUIPMENT LINE WEIGHT
- FIELD WIRE
- ENCLOSURE LINE TYPE

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 1 OF 5

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 053288 JASON V. AMBROS

10/28/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCOPE OF WORK, GENERAL NOTES, SYMBOLS AND LEGEND

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

DRAWN BY : J. AMBROS DATE : 10-22-25
CHECKED BY : A. NOBLE DATE : 10-22-25
DESIGN ENGINEER OF RECORD: V. D. KOLLIPARA DATE : 10-22-25

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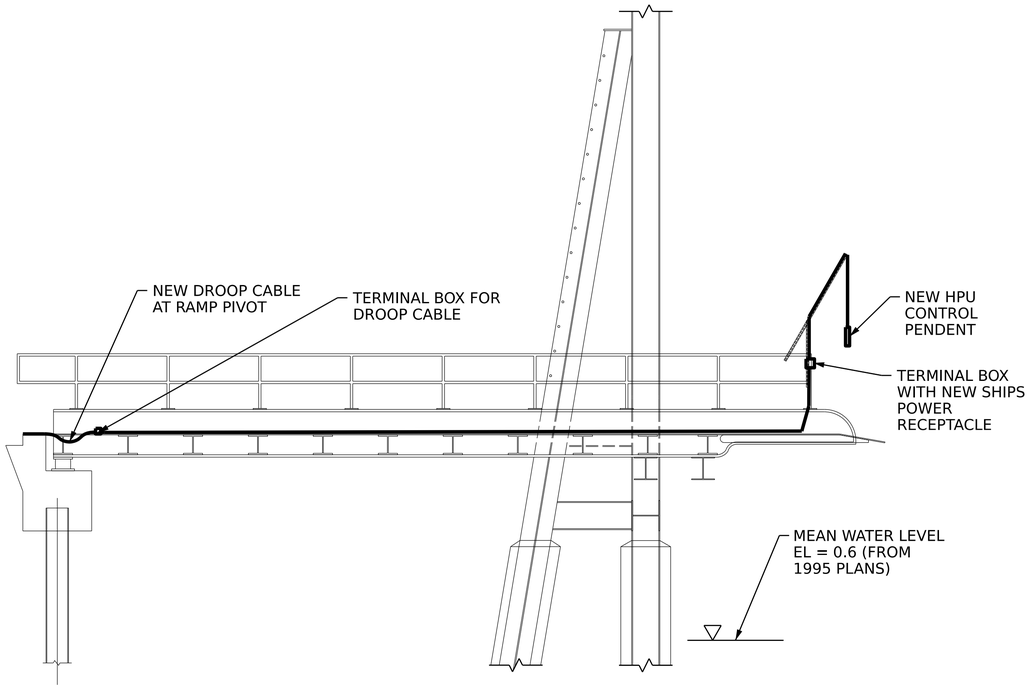
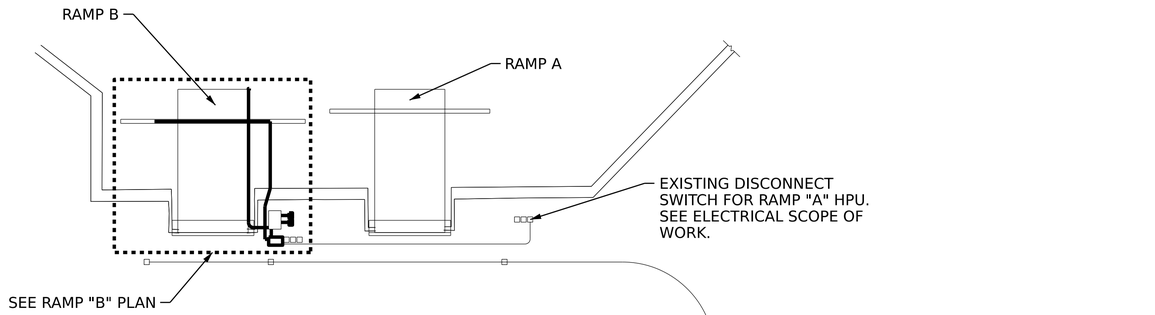
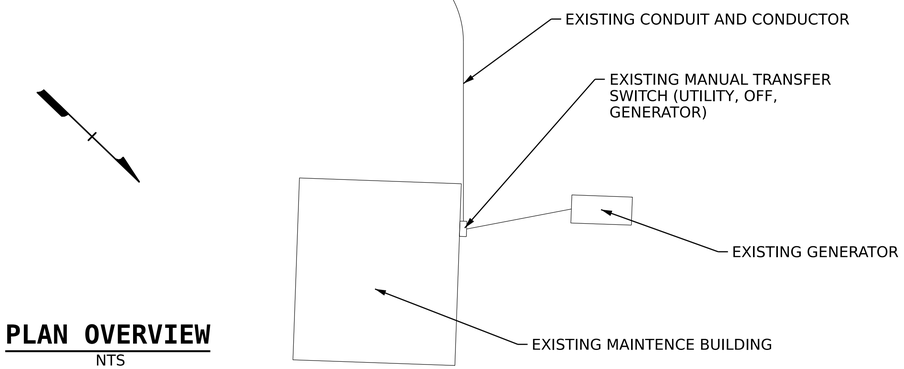
1			3			TOTAL SHEETS
2			4			5

8/26/21

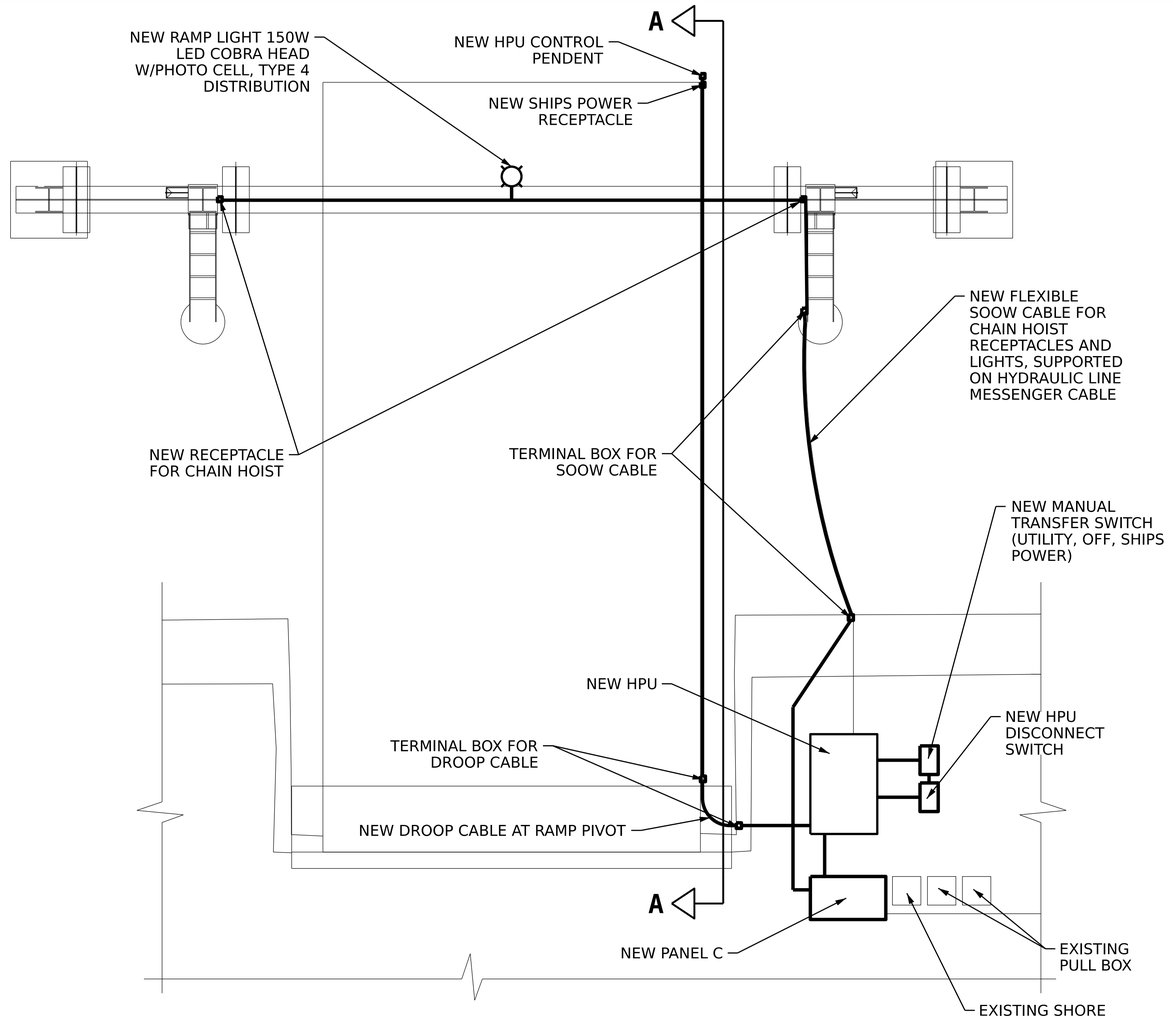


SECTION A-A
NTS





PLAN OVERVIEW
NTS



RAMP "B" PLAN
NTS

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL PLAN AND ELEVATION ELECTRICAL

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 053288 ENGINEER JASON V. AMBROS

10/28/2025

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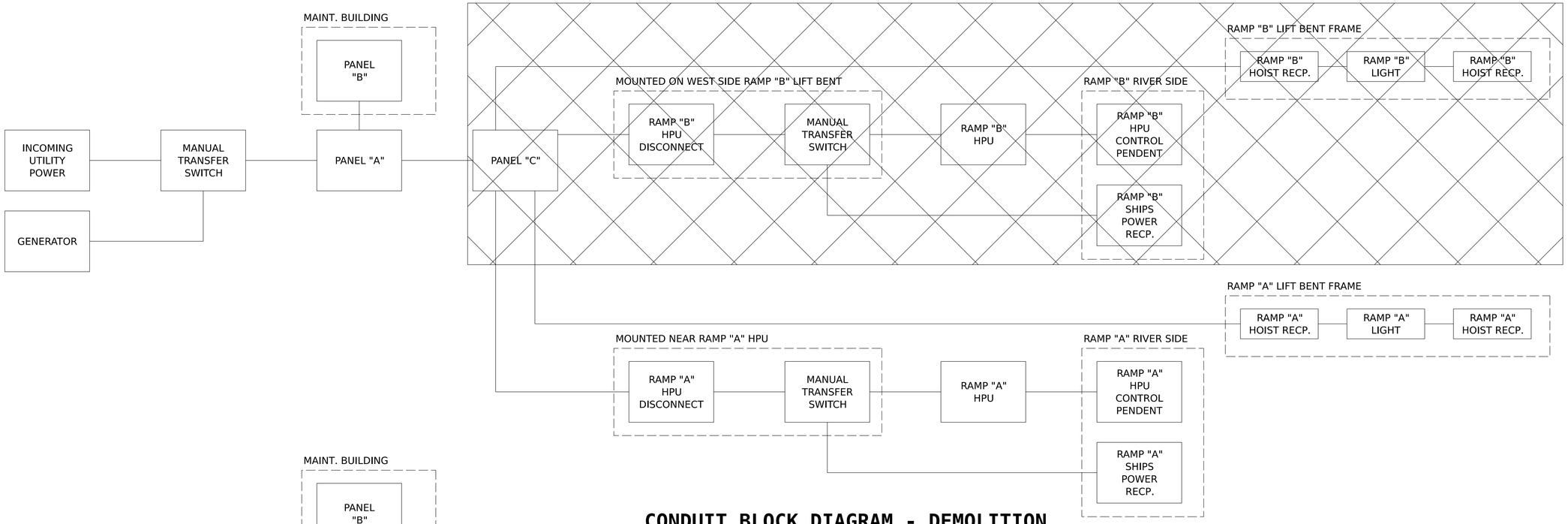
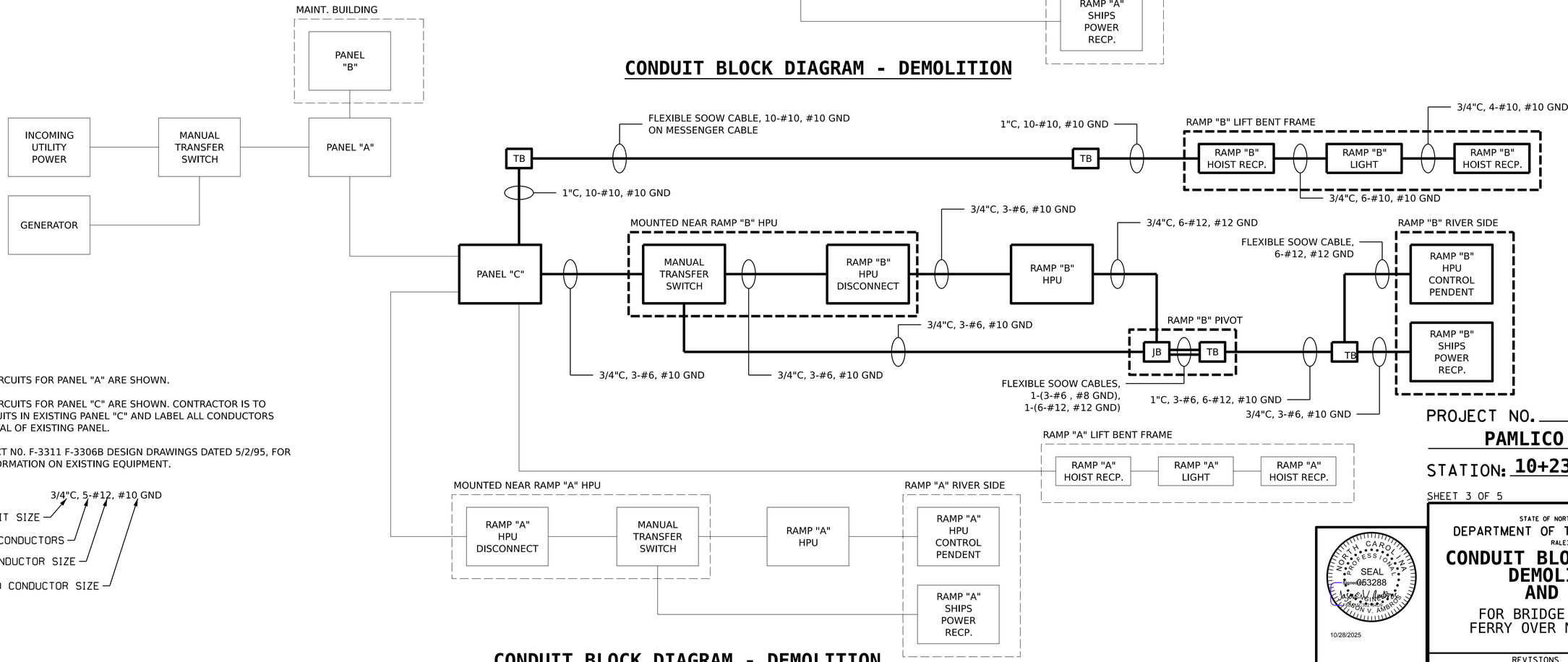


CONDUIT BLOCK DIAGRAM - DEMOLITION



CONDUIT BLOCK DIAGRAM - DEMOLITION

NOTES:

1. NOT ALL CIRCUITS FOR PANEL "A" ARE SHOWN.

2. NOT ALL CIRCUITS FOR PANEL "C" ARE SHOWN. CONTRACTOR IS TO VERIFY ALL CIRCUITS IN EXISTING PANEL "C" AND LABEL ALL CONDUCTORS PROIR TO REMOVAL OF EXISTING PANEL.

3. SEE PROJECT NO. F-3311 F-3306B DESIGN DRAWINGS DATED 5/2/95, FOR ADDITIONAL INFORMATION ON EXISTING EQUIPMENT.

PROJECT NO. BR-0173

PAMLICO COUNTY

STATION: 10+23.61 -RAMP-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONDUIT BLOCK DIAGRAM DEMOLITION AND NEW

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 053288 ENGINEER JASON V. AMBROS

10/28/2025

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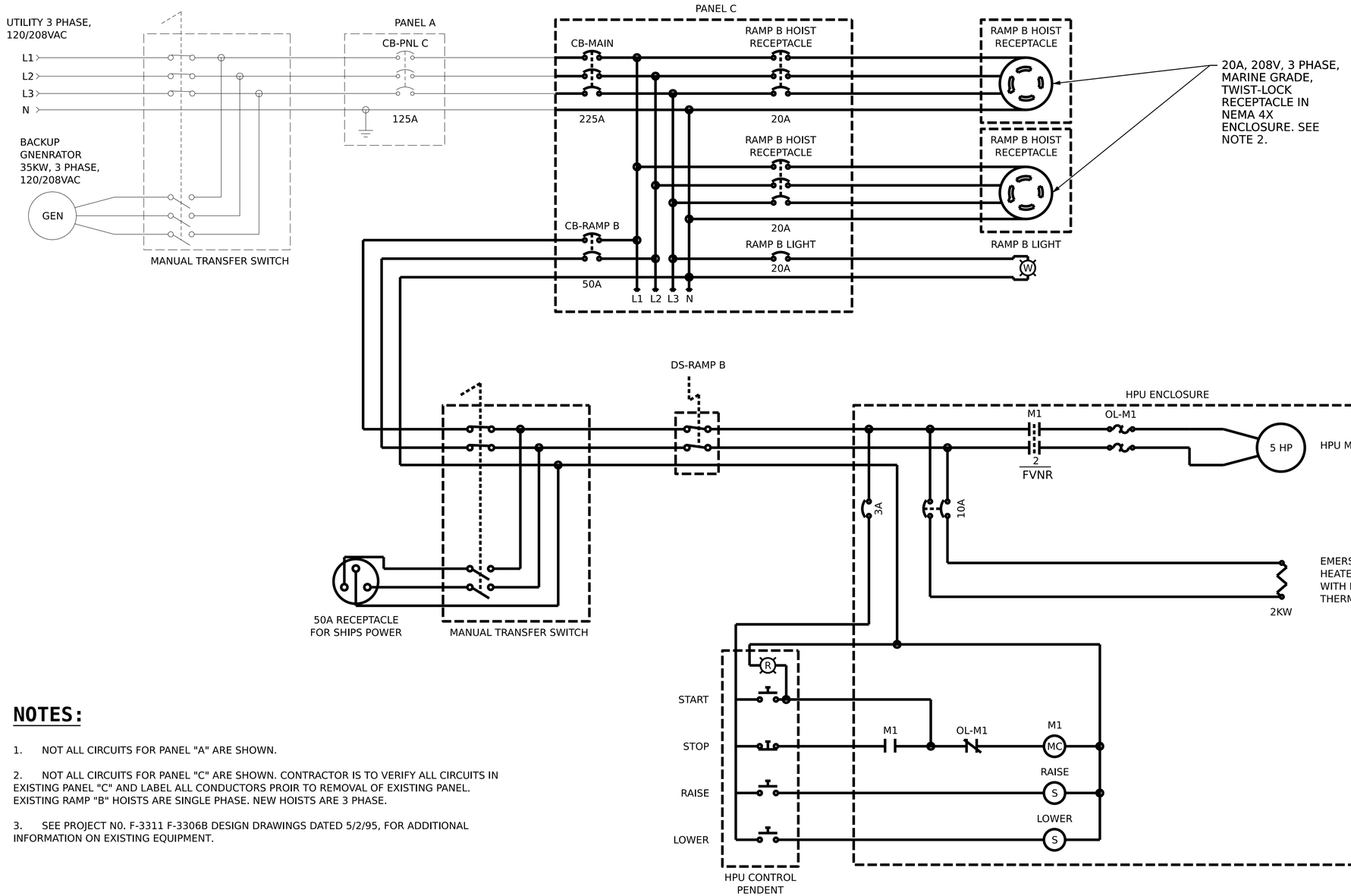

NOTES:

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2. NOT ALL CIRCUITS FOR PANEL "C" ARE SHOWN. CONTRACTOR IS TO VERIFY ALL CIRCUITS IN EXISTING PANEL "C" AND LABEL ALL CONDUCTORS PROIR TO REMOVAL OF EXISTING PANEL. EXISTING RAMP "B" HOISTS ARE SINGLE PHASE. NEW HOISTS ARE 3 PHASE.

3. SEE PROJECT N0. F-3311 F-3306B DESIGN DRAWINGS DATED 5/2/95, FOR ADDITIONAL INFORMATION ON EXISTING EQUIPMENT.

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 4 OF 5

STATE OF NORTH CAROLINA
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RALEIGH

ELECTRICAL SCHEMATIC

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 053288 ENGINEER JASON V. AMBROS
10/28/2025

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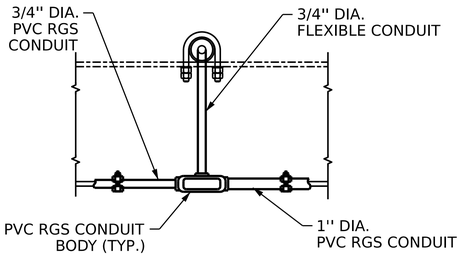
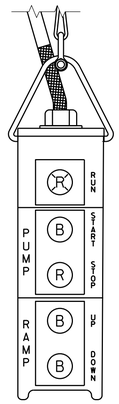


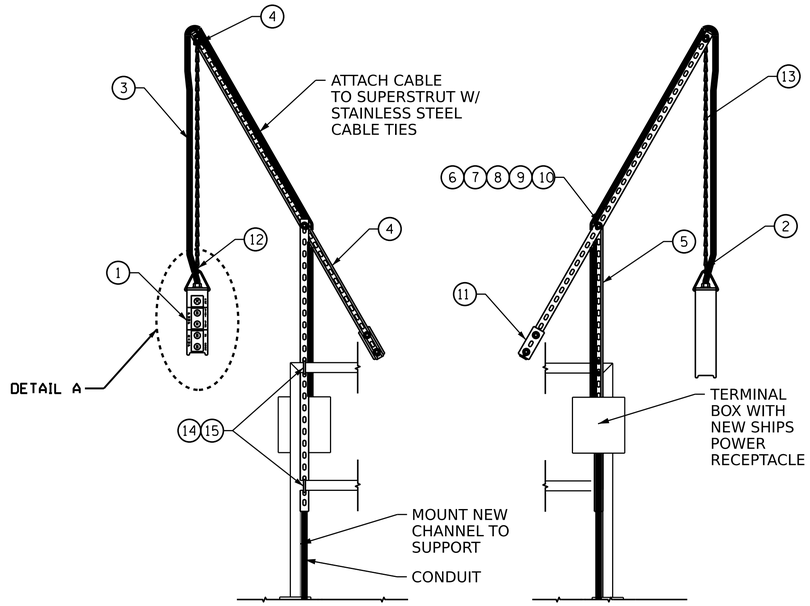
SECTION B-B

(NTS)



DETAIL A

(CONTROL PENDANT)



ELEVATION

VIEW FROM RAMP
(NTS)

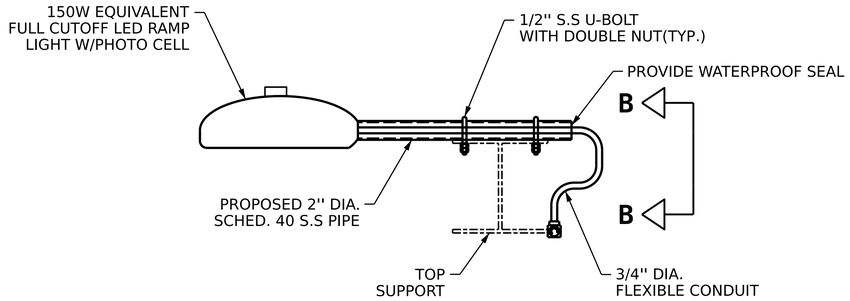
ELEVATION

VIEW FROM OUTSIDE RAMP
(NTS)

BILL OF MATERIALS

(QUANTITIES SHOWN ARE FOR SOUTHPORT RAMP, FORT FISHER RAMP THE SAME)

ITEM NO.	QUANTITY	DESCRIPTION
1	1	PENDANT STATION NEMA 4X ENCLOSURE, CLASS 9001 BY SQUARE D
	1	LEGEND PLATE (CUSTOM), CLASS 9001 BY SQUARE D, RAMP - UP - DOWN
	1	LEGEND PLATE (CUSTOM), CLASS 9001 BY SQUARE D, PUMP - START - STOP
	1	LEGEND PLATE, CLASS 9001 BY SQUARE D, RUN
	1	LED PILOT LIGHT, RED, CLASS 9001 BY SQUARE D
	1	OPERATOR PUSH BUTTON, CLASS 9001 BY SQUARE D
	3	BLACK RUBBER BOOT, CLASS 9001 BY SQUARE D
	1	RED MUSHROOM CAP HEAD, CLASS 9001 BY SQUARE D
	1	OPERATOR PUSH BUTTON, CLASS 9001 BY SQUARE D
2	1	DELUXE LIQUID-TIGHT CORD GRIP, SS/AL, BY KELLEMS
3	12 TO 16 FT	FLEXIBLE SOOW CABLE, 10 CONDUCTOR, #12 AWG, BY A.I.W CORP
4	5 TO 6 FT	STAINLESS STEEL SUPERSTRUT, 12 GA 1 - 5/8" X 13/16", BY THOMAS & BETTS
5	3 FT	STAINLESS STEEL SUPERSTRUT, 12 GA 1 - 5/8" X 13/16", BY THOMAS & BETTS
6	3 IN	1/2" IP STAINLESS STEEL PIPE
7	4 IN	1/2" IP STAINLESS STEEL PIPE
8	10 IN	THREADED ROD, STAINLESS STEEL, 5/8" - 11
9	2	HEX NUT AND LOCK WASHER, STAINLESS STEEL, 5/8" - 11
10	2	FLAT WASHER, STAINLESS STEEL, 5/8"
11	12 LBS	COUNTERWEIGHT, 2.5" X 2.5" X 7", STAINLESS STEEL TYPE 316, DRILL/TAP 2 5/16" HOLES, BY MCMASTER-CARR
12	2	3/16" SHACKLE, STAINLESS STEEL TYPE 316, BY MCMASTER-CARR
13	2 TO 3 FT	CHAIN, STAINLESS STEEL TYPE 316L, BY MCMASTER-CARR
14	AS REQUIRED	U-BOLTS, STAINLESS STEEL, 3/16" - 16, BY MCMASTER-CARR
15	AS REQUIRED	FENDER WASHERS, STAINLESS STEEL, 3/8" X 1 1/4" OD, BY MCMASTER-CARR

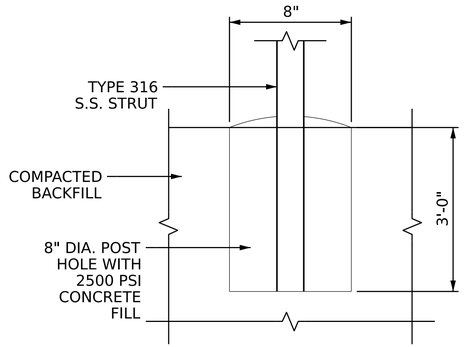


LED RAMP LIGHT DETAIL

(NTS)

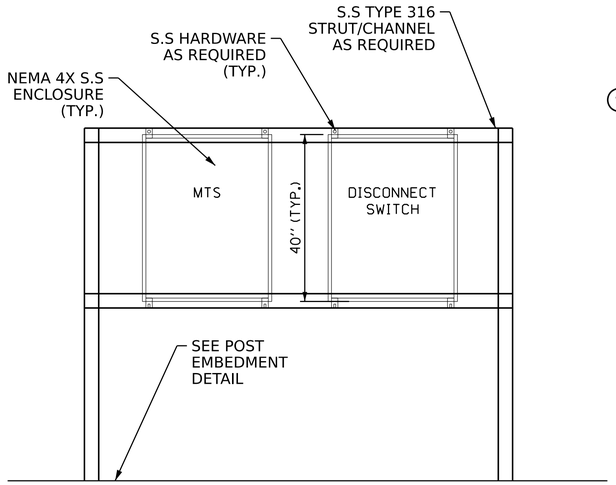
NOTES:

1. BILL OF MATERIALS IS NOT ALL INCLUSIVE, ADDITIONAL HARDWARE AND/OR COMPONENTS MAY BE REQUIRED. CONTRACTOR SHALL VERIFY ALL COMPONENTS AND DIMENSIONS.
2. ALL HARDWARE SHALL BE STAINLESS STEEL.
3. UNLESS NOTED OTHERWISE, ALL ELEMENTS DEPICTED ON THIS SHEET ARE NOT TO SCALE.
4. FOR ADDITIONAL REQUIREMENTS, SEE THE SPECIAL PROVISIONS.
5. UNLESS STATED OTHERWISE, ALL ELECTRICAL EQUIPMENT SHOWN ON THIS SHEET IS NEW.



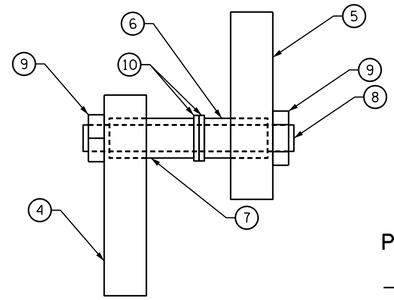
POST EMBEDMENT DETAIL

(NTS)



TYPICAL ENCLOSURE MOUNTING

(NTS)



PIVOT/HINGE DETAIL

(NTS)

PROJECT NO. **BR-0173**

PAMLICO COUNTY

STATION: **10+23.61 -RAMP-**

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SCOPE OF WORK, GENERAL NOTES, SYMBOLS AND LEGEND

FOR BRIDGE ON NC 306
FERRY OVER NEUSE RIVER

NORTH CAROLINA PROFESSIONAL SEAL 053288 ENGINEER JASON V. AMBROS
Jason V. Ambros
F8DA15C302184D9...
10/27/2025

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NO.	BY:	DATE:	NO.	BY:	DATE:	E1-05
1			3			TOTAL SHEETS
2			4			5

DRAWN BY : J. AMBROS DATE : 10-22-25
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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 $\frac{3}{4}$" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$" 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 $\frac{1}{4}$" 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 $\frac{7}{8}$" ∅ SHEAR STUDS FOR THE $\frac{3}{4}$" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$" ∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$" ∅ STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$" ∅ STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$"∅ STUDS FOR 4 - $\frac{3}{4}$" ∅ 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 $\frac{5}{16}$" 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 $\frac{1}{16}$" 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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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