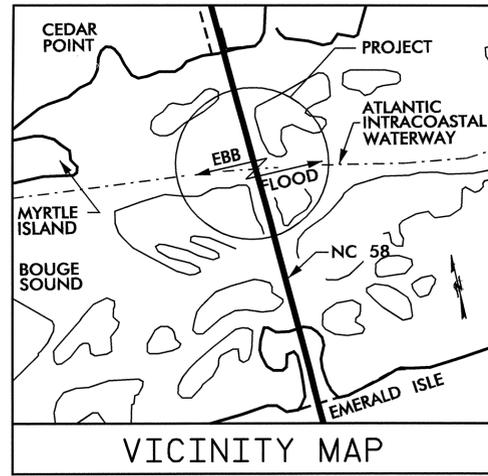


WBS ELEMENT NO.: 41732.1

CONTRACT: C202205

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.			
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41732.1			

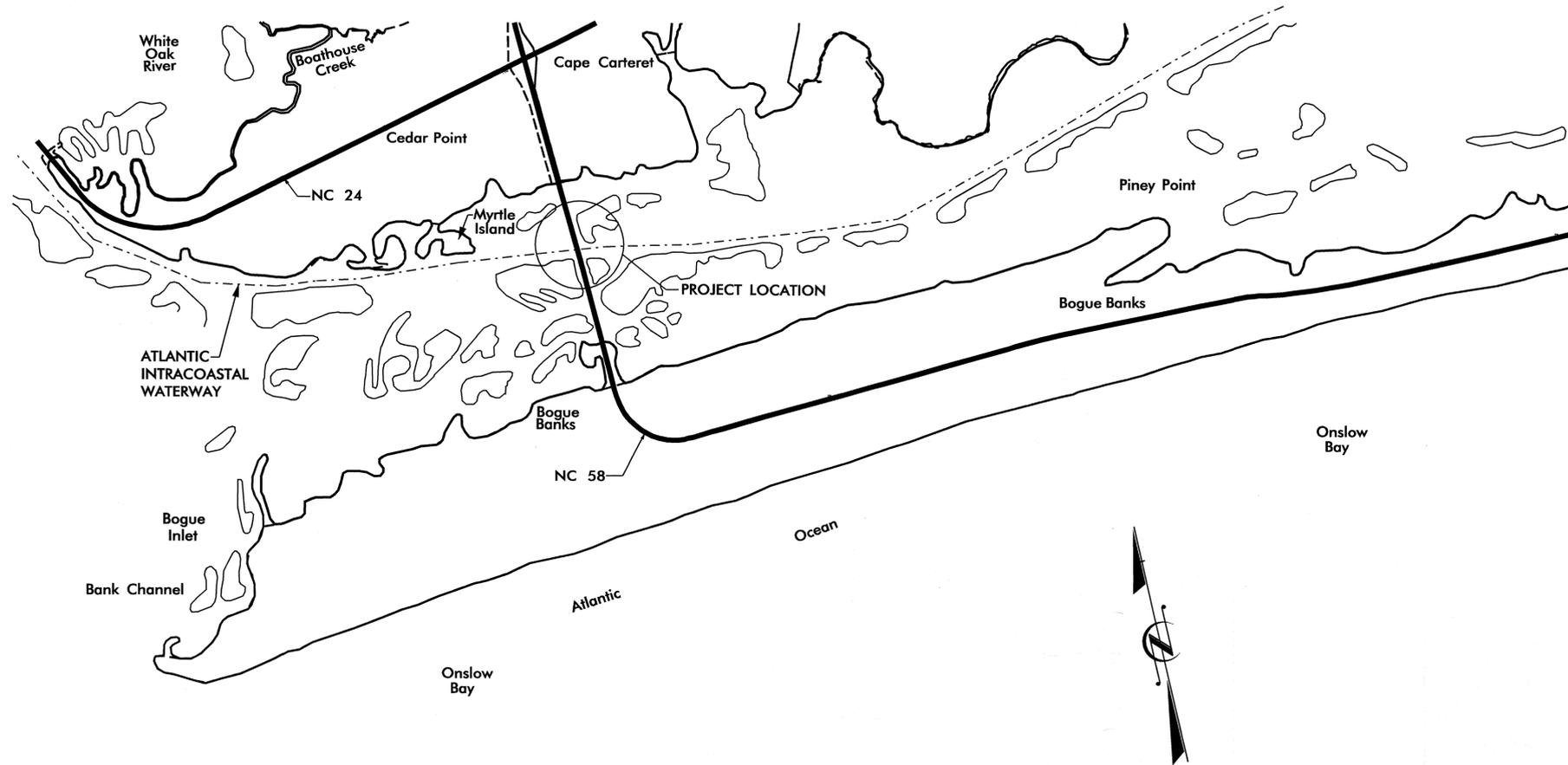


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

*LOCATION: BRIDGE NO. 6 OVER ATLANTIC INTRACOASTAL WATERWAY (AIWW)
BETWEEN NC 24 AND EMERALD ISLE*

TYPE OF WORK: REMOVAL AND REPLACEMENT OF FENDER SYSTEM



STRUCTURE



Prepared in the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
DECEMBER 15, 2009

N.N. BULLOCK, P.E.
PROJECT ENGINEER

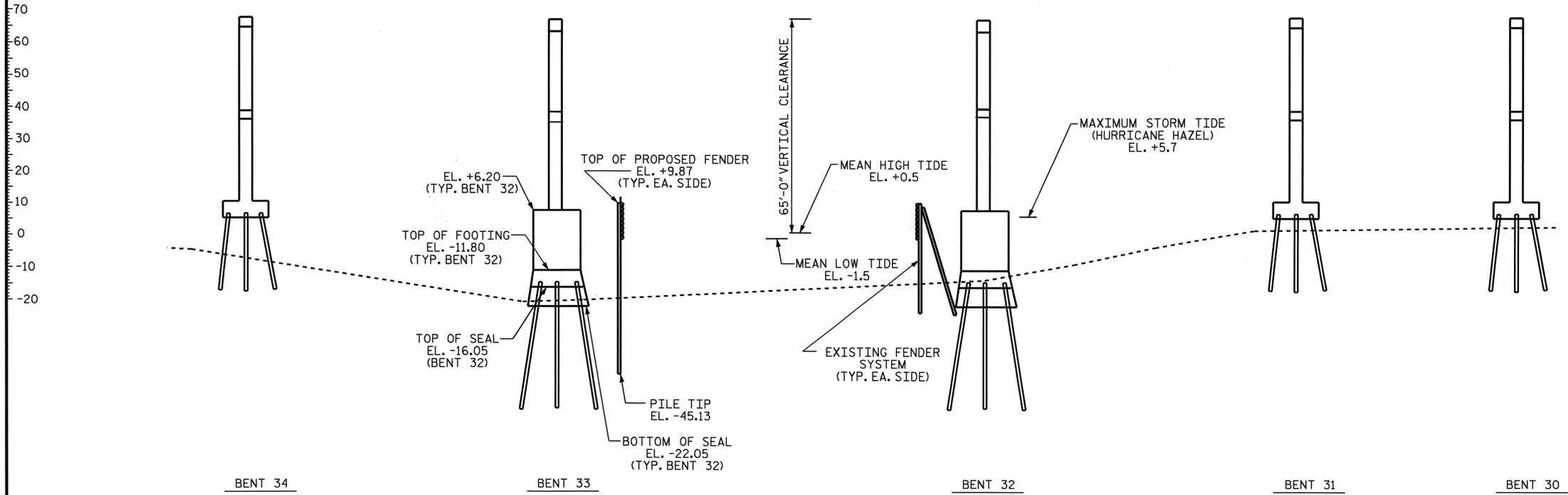
D.R. CALHOUN, P.E.
PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

APPROVED
DIVISION ADMINISTRATOR
DATE



ELEVATION

THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT THE PROPOSED FENDER SYSTEM IS IN THE SAME LOCATION AS THE EXISTING FENDER SYSTEM. THE EXISTING FENDER SHALL BE REMOVED ACCORDING TO THE SPECIAL PROVISION FOR REMOVAL OF EXISTING FENDER SYSTEM AND AS NECESSARY TO AVOID INTERFERENCE WITH CONSTRUCTION OF THE NEW FENDER SYSTEM.

TOTAL BILL OF MATERIAL		
MOBILIZATION	PLASTIC FENDER SYSTEM	REMOVAL OF EXISTING FENDER SYSTEM
LUMP SUM	LUMP SUM	LUMP SUM

NOTES:

FOR U.S. COAST GUARD NOTIFICATION, SEE SPECIAL PROVISION FOR "COORDINATION WITH THE U.S. COAST GUARD".

FOR 13" AND 16" DIAMETER COMPOSITE PLASTIC PILES, SEE SPECIAL PROVISION FOR "PLASTIC FENDER SYSTEM".

FOR PLASTIC LUMBER AND STRUCTURAL COMPOSITE LUMBER WALES, SEE SPECIAL PROVISION FOR "PLASTIC FENDER SYSTEM". WALES SHALL BE CONTINUOUS AND SPLICED ONLY AT LOCATIONS SHOWN ON THE PLANS.

FOR COORDINATION WITH THE U.S. COAST GUARD, SEE SPECIAL PROVISIONS.

FOR CLEARANCE MARKER AND NAVIGATION LIGHTING, SEE SPECIAL PROVISION FOR "COORDINATION WITH THE U.S. COAST GUARD".

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR REMOVAL OF EXISTING FENDER SYSTEM, SEE SPECIAL PROVISIONS.

FOR PILE DRIVING EQUIPMENT DATA SUBMITTAL, SEE SPECIAL PROVISION FOR "SUBMITTAL OF WORKING DRAWINGS".

THE STAINLESS STEEL BOLTS SHALL BE IN ACCORDANCE WITH ASTM F593 TYPE 316. FURNISH STAINLESS STEEL THREADED BARS IN ACCORDANCE WITH ASTM A193 GRADE B8M. FURNISH STAINLESS STEEL NUTS IN ACCORDANCE WITH ASTM F594 TYPE 316. FURNISH STAINLESS STEEL SCREWS IN ACCORDANCE WITH ASTM F593 TYPE 305. FURNISH STAINLESS STEEL WASHERS UNDER HEADS AND NUTS. TORQUE NUTS ON 1" DIAMETER BOLTS AND THREADED RODS TO 150 LB-FT. KEEP THREADS ON BOLTS, THREADED BARS, AND NUTS FREE FROM DIRT, COARSE GRIME AND SAND TO PREVENT GALLING AND SEIZING DURING TIGHTENING.

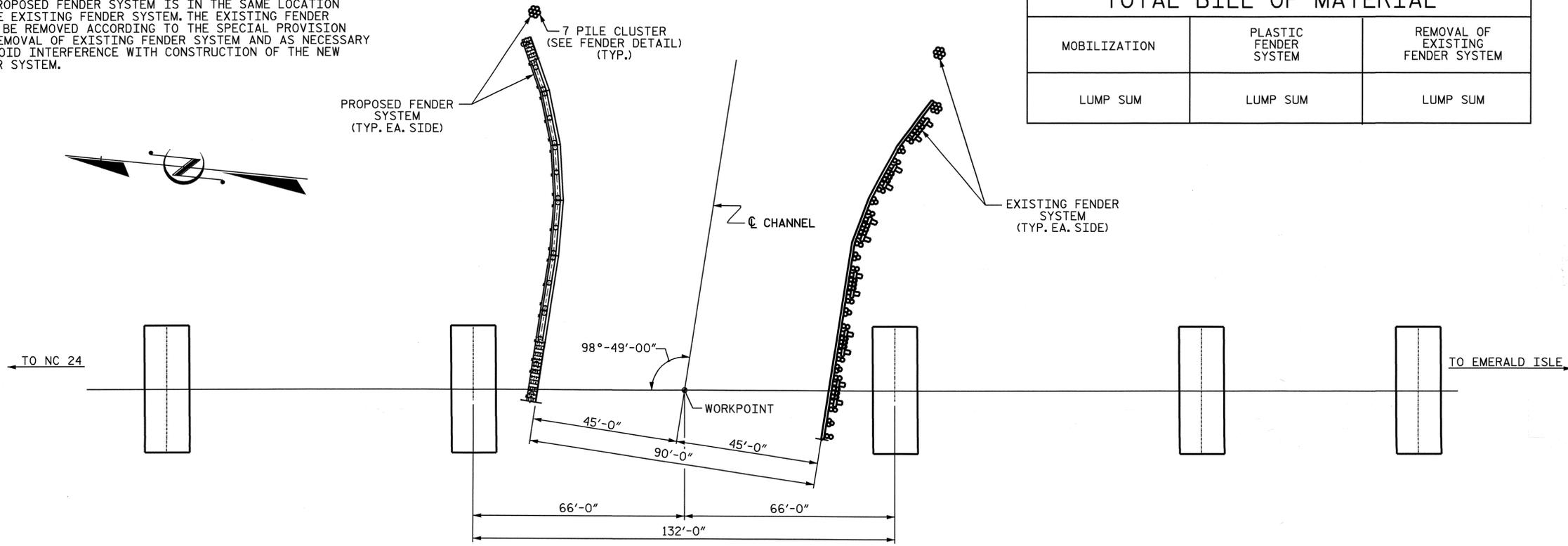
THE SPLICE PLATES SHALL BE IN ACCORDANCE WITH ASTM A240 TYPE 316.

FOR WIRE ROPE FOR FENDER PILE CLUSTER, SEE SPECIAL PROVISIONS.

THE EXISTING PILE FENDER SYSTEM INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING PILE FENDER SYSTEM SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE FENDER SYSTEM SERVES PRIMARILY AS A NAVIGATION AID TO VESSEL TRAFFIC BY DELINEATING THE SHIPPING CHANNEL BENEATH THE BRIDGE. IT IS DESIGNED TO BE ROBUST ENOUGH TO SURVIVE A MULTITUDE OF BUMPS AND SCRAPES FROM BARGE TRAFFIC, AND TO ABSORB KINETIC ENERGY WHILE REDIRECTING AN ERRANT BARGE OR OTHER VESSEL. THE FENDER SYSTEM IS NOT DESIGNED FOR FULL VESSEL IMPACT.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ANY UTILITIES THAT MAY BE AT THE PROJECT SITE AND TAKING APPROPRIATE MEASURES TO AVOID IMPACTS TO THOSE UTILITIES. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.



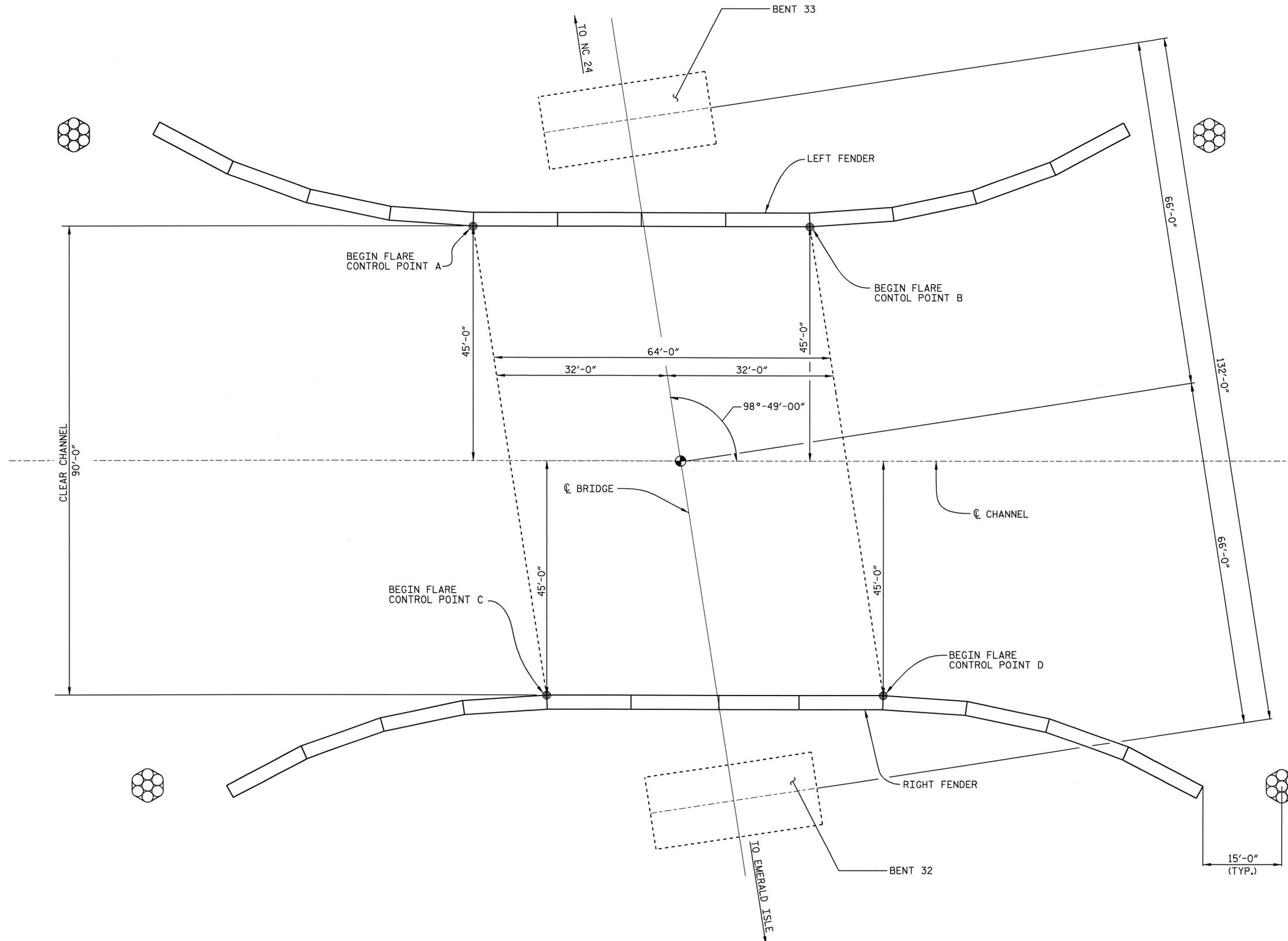
HALF PLAN OF FENDER SYSTEM
(SYMMETRICAL ABOUT CENTERLINE)

DRAWN BY : J.D. HAWK DATE : 10/20/08
CHECKED BY : D.R. CALHOUN DATE : 10/24/08

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JDHAWK

PROJECT NO. WBS 41732.1
CARTERET COUNTY
SHEET 1 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 58					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					6



FENDER SYSTEM LAYOUT

PROJECT NO. WBS 41732.1
CARTERET COUNTY
 SHEET 2 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

FENDER SYSTEM
 FOR BRIDGE OVER
 AIWW ON NC 58

DRAWN BY : J.D. HAWK DATE : 10/20/08
 CHECKED BY : D.R. CALHOUN DATE : 10/24/08

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-2
1			3			TOTAL SHEETS
2			4			6

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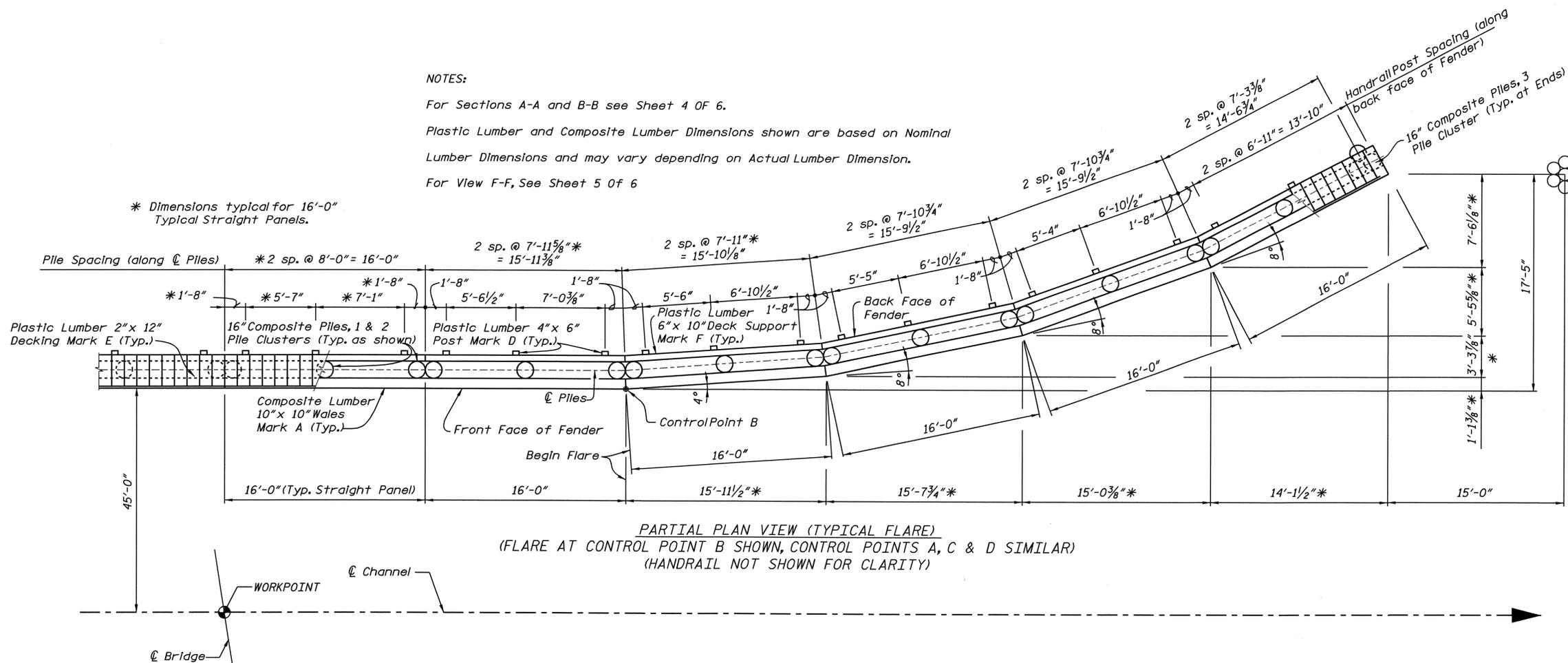
NOTES:

For Sections A-A and B-B see Sheet 4 of 6.

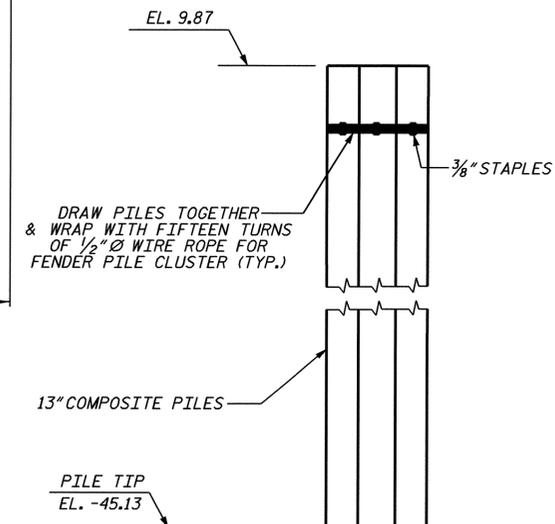
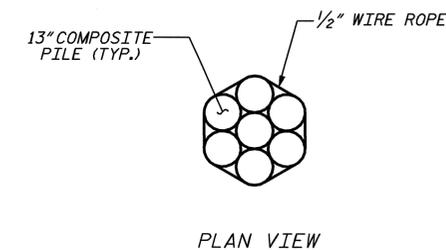
Plastic Lumber and Composite Lumber Dimensions shown are based on Nominal Lumber Dimensions and may vary depending on Actual Lumber Dimension.

For View F-F, See Sheet 5 of 6

* Dimensions typical for 16'-0" Typical Straight Panels.

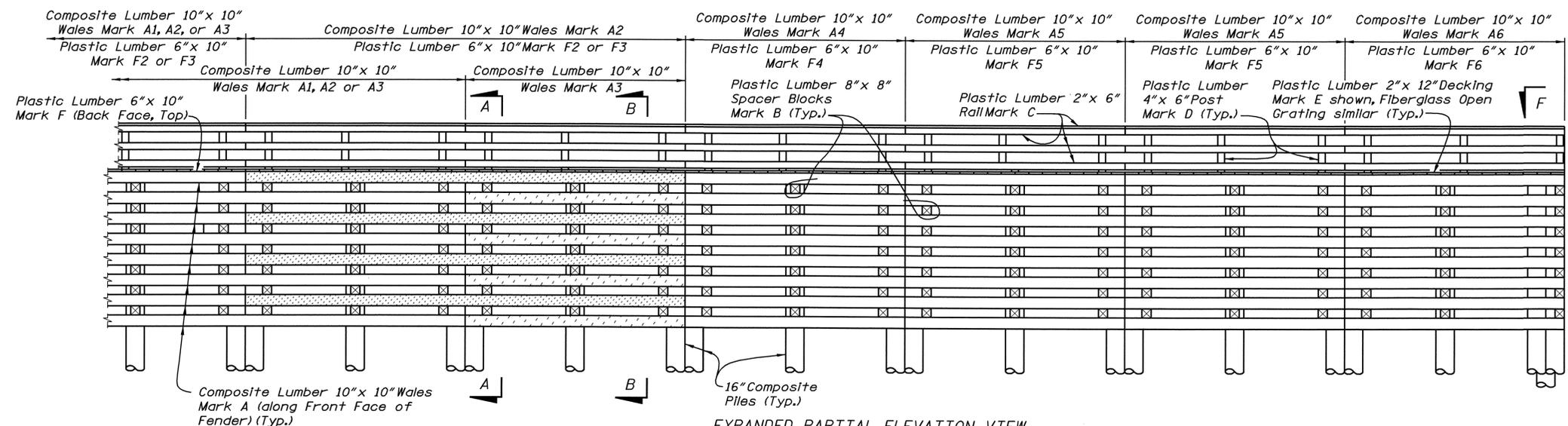


PARTIAL PLAN VIEW (TYPICAL FLARE)
(FLARE AT CONTROL POINT B SHOWN, CONTROL POINTS A, C & D SIMILAR)
(HANDRAIL NOT SHOWN FOR CLARITY)



VERTICAL 7-PILE CLUSTER
DOLPHIN PILE DETAILS

NOTE: IN THE 7-PILE CLUSTER (DOLPHINS), PILES ARE TO BE DRAWN TOGETHER AT THE TOP AND WRAPPED WITH FIFTEEN TURNS OF 1/2" DIA. WIRE ROPE FOR FENDER PILE SYSTEM. THE WIRE ROPE FOR FENDER PILE SYSTEM SHALL BE SECURED WITH 3/8" STAPLES AND TWO CABLE CLAMPS. FASTENINGS TO BE STAINLESS STEEL AND INCLUDED AS HARDWARE. ALL PILES TO BE DRIVEN VERTICALLY.



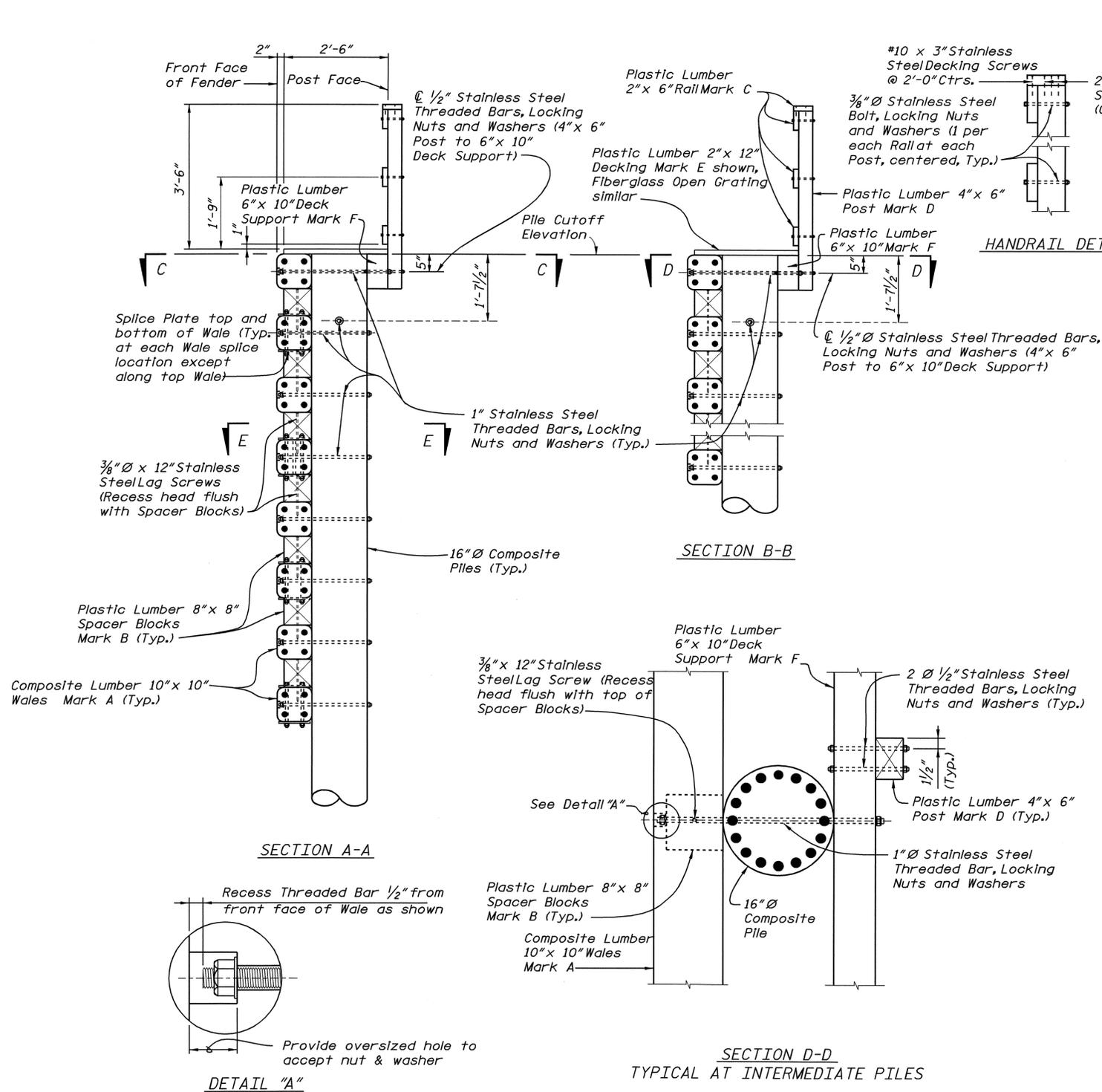
EXPANDED PARTIAL ELEVATION VIEW

PROJECT NO. **WBS 41732.1**
CARTERET COUNTY
SHEET 3 OF 6

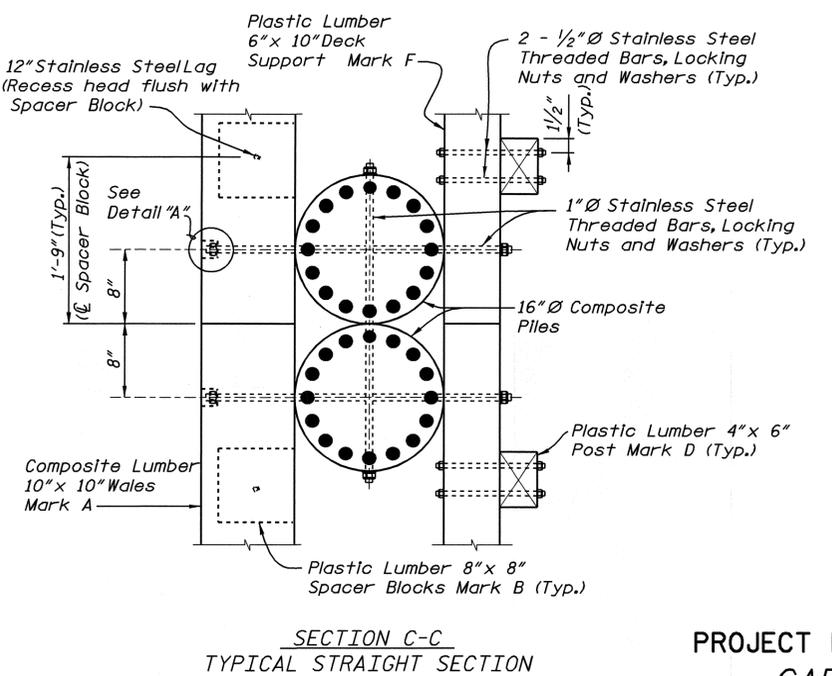
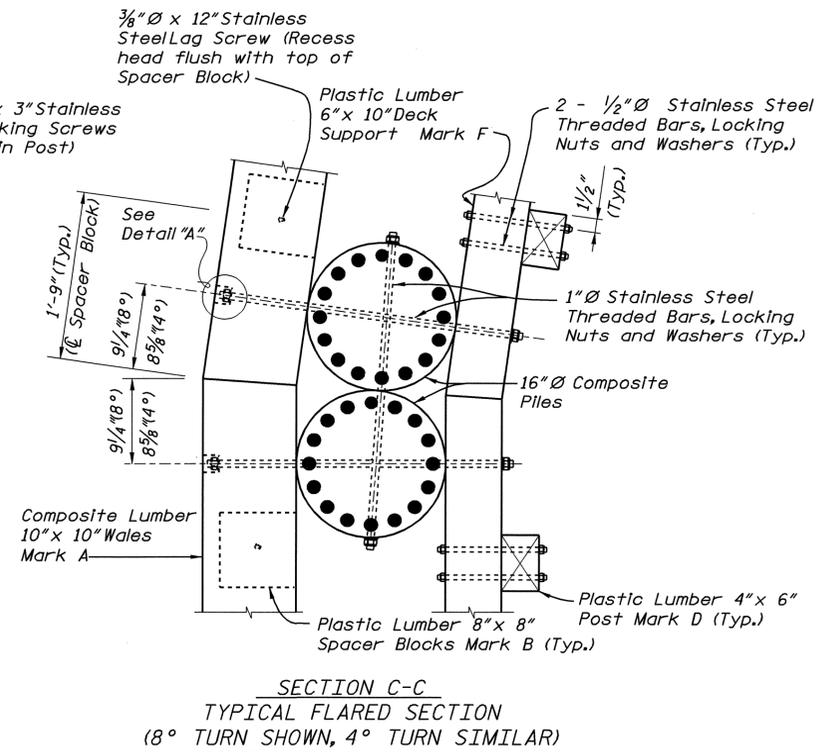
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 58

DRAWN BY : J.D. HAWK DATE : 10/20/08
CHECKED BY : D.R. CALHOUN DATE : 10/24/08

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



HANDRAIL DETAIL



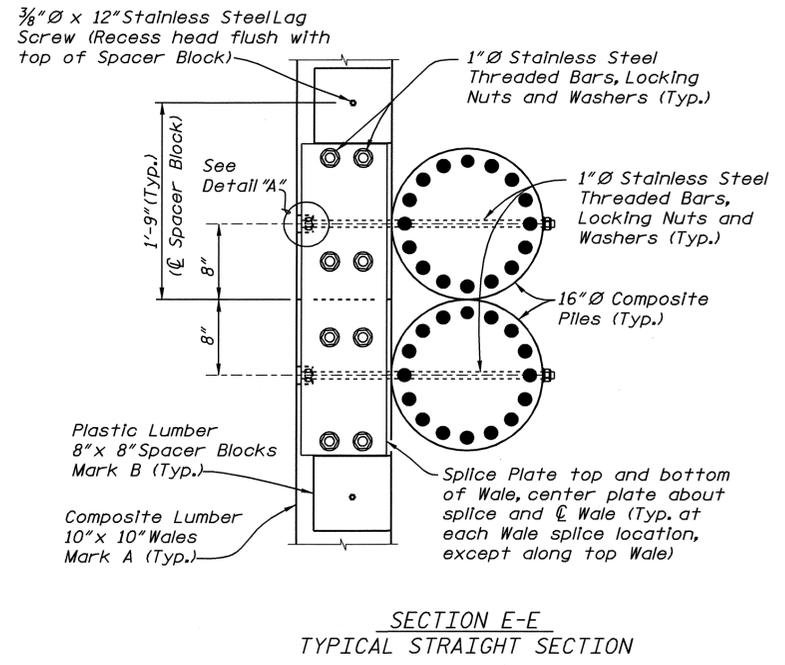
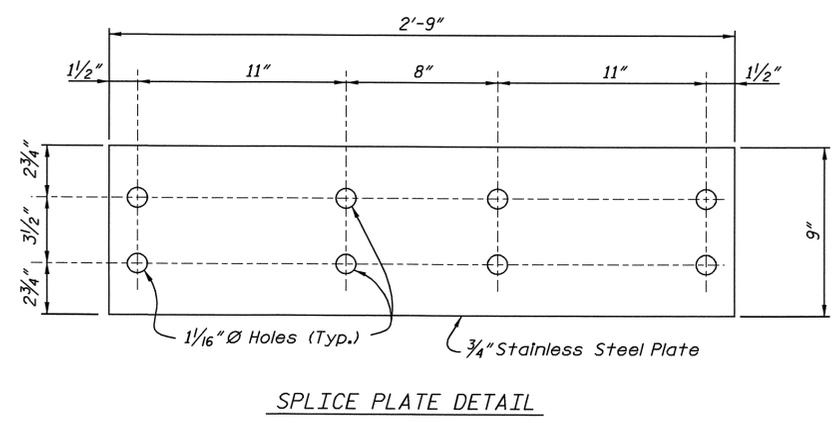
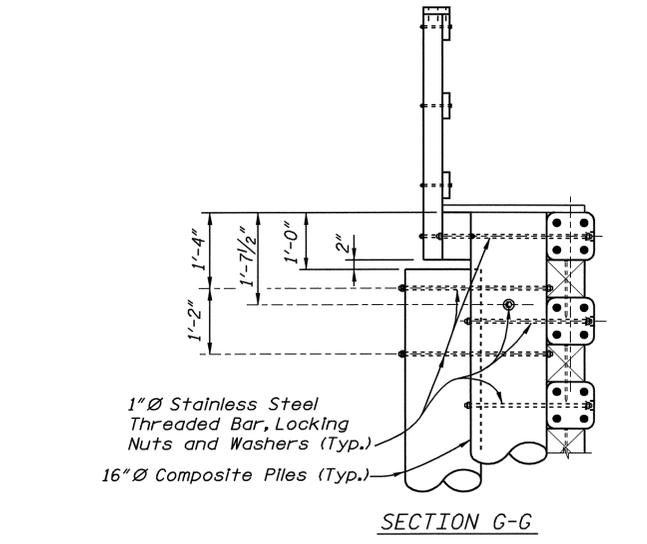
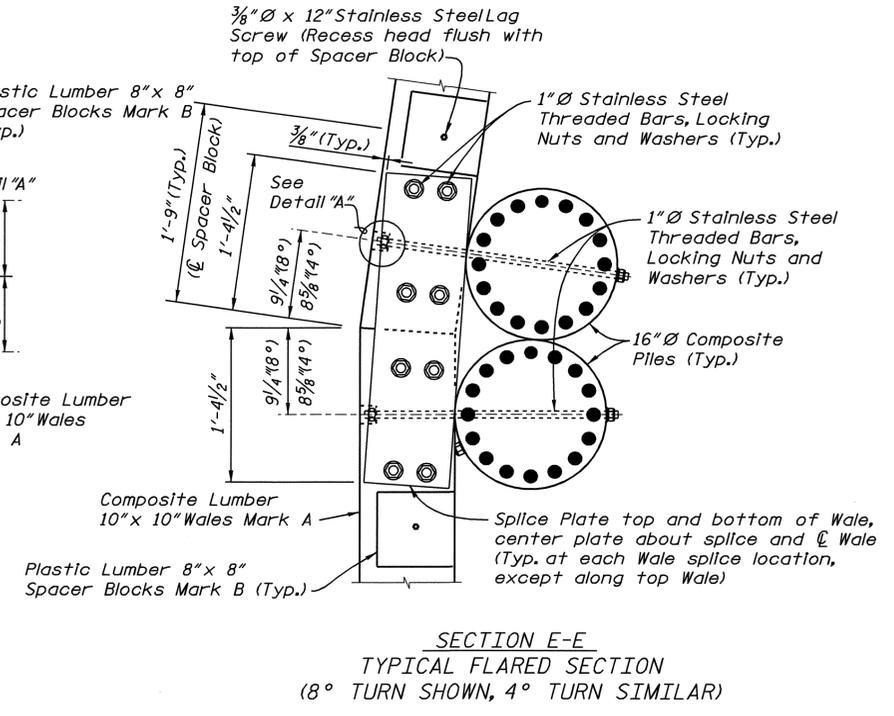
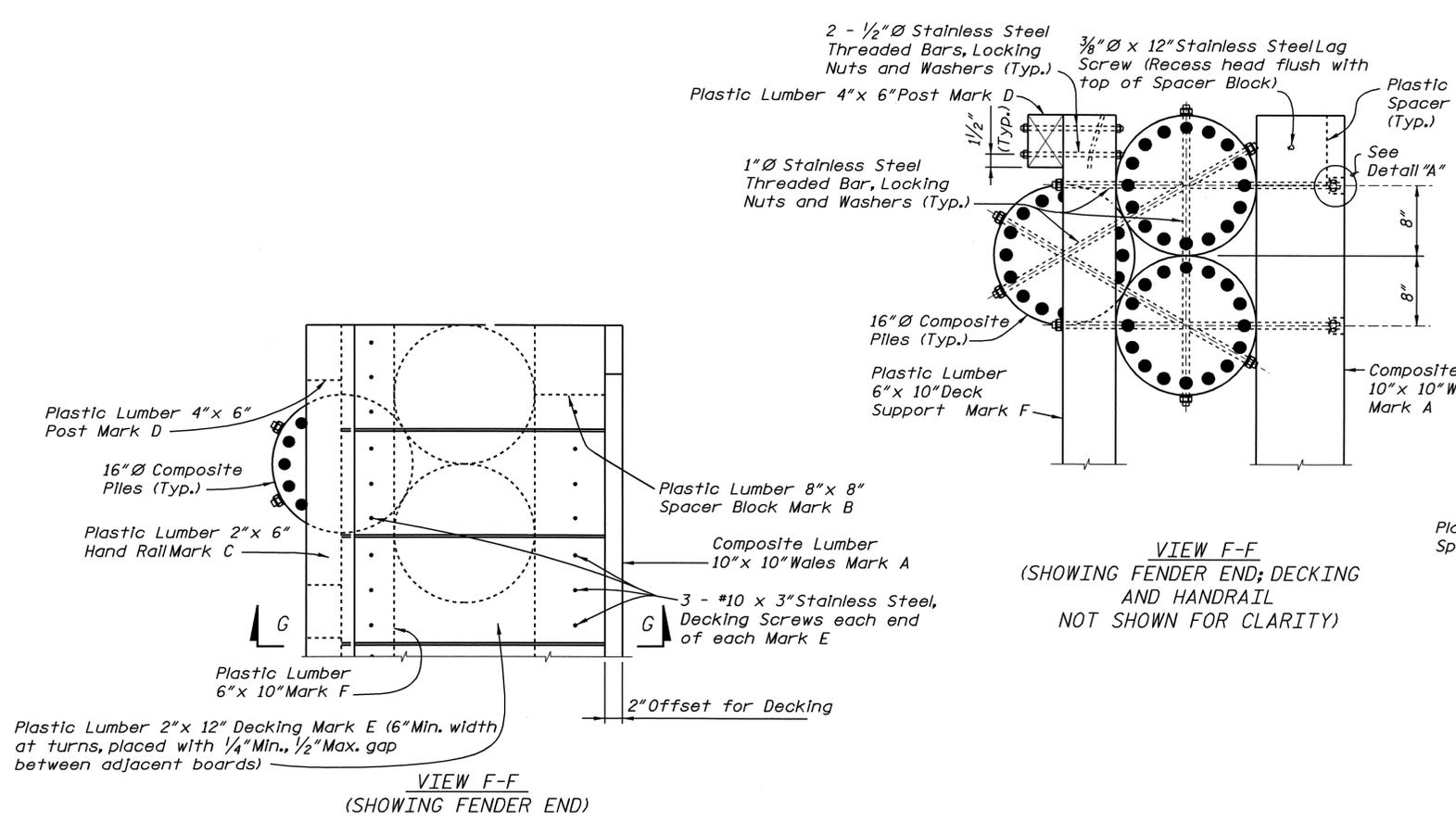
NOTES
 FOR SECTION E-E, SEE SHEET 5 OF 6.

PROJECT NO. **WBS 41732.1**
CARTERET COUNTY
 SHEET 4 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 58						TOTAL SHEETS 6
REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 6
2			4			

DRAWN BY : J.D. HAWK DATE : 10/20/08
 CHECKED BY : D.R. CALHOUN DATE : 10/24/08

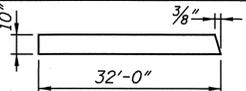
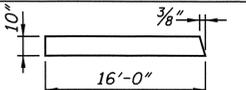
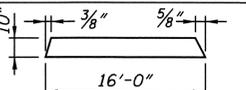
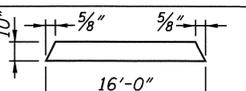
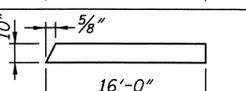
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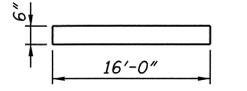
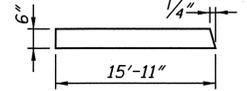
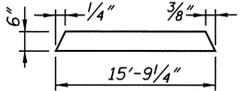
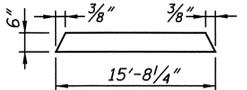
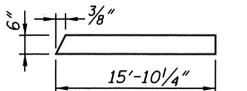


PROJECT NO. WBS 41732.1
CARTERET COUNTY
 SHEET 5 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
FENDER SYSTEM FOR BRIDGE OVER AIWW ON NC 58					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-5					TOTAL SHEETS 6

DRAWN BY : J.D. HAWK DATE : 10/20/08
 CHECKED BY : D.R. CALHOUN DATE : 10/24/08

* STRUCTURAL COMPOSITE LUMBER BILL OF MATERIALS					
MARK	SIZE (NOMINAL)	DIMENSIONS	BOARD FT. PER EACH	NO. REQD.	QUANTITY (BOARD FT.)
A1	10" X 10" COMPOSITE LUMBER	32'-0" (STRAIGHT)	266.6	8	2132.8
A2	10" X 10" COMPOSITE LUMBER		266.6	16	4265.6
A3	10" X 10" COMPOSITE LUMBER		133.3	16	2132.8
A4	10" X 10" COMPOSITE LUMBER		133.3	32	4265.6
A5	10" X 10" COMPOSITE LUMBER		133.3	64	8531.2
A6	10" X 10" COMPOSITE LUMBER		133.3	32	4265.6

* PLASTIC LUMBER BILL OF MATERIALS					
MARK	SIZE (NOMINAL)	DIMENSIONS	BOARD FT. PER EACH	NO. REQD.	QUANTITY (BOARD FT.)
B	8" X 8" PLASTIC LUMBER	8" (STRAIGHT)	3.6	504	1814.4
C	2" X 6" PLASTIC LUMBER	16'-0" (STRAIGHT) (Trim & Miter Ends as required)	16.0	96	1536.0
D	4" X 6" PLASTIC LUMBER	4'-4" (STRAIGHT)	8.7	144	1252.8
E	2" X 12" PLASTIC LUMBER	2'-6" (STRAIGHT) (Miter as required)	5.0	384	1920.0
F2	6" X 10" PLASTIC LUMBER		80.0	4	320.0
F3	6" X 10" PLASTIC LUMBER		79.6	4	318.4
F4	6" X 10" PLASTIC LUMBER		78.8	4	315.2
F5	6" X 10" PLASTIC LUMBER		78.4	8	627.2
F6	6" X 10" PLASTIC LUMBER		79.2	4	316.8

NOTES

* ALL PLASTIC LUMBER AND COMPOSITE LUMBER DIMENSIONS AND QUANTITIES SHOWN ARE BASED ON NOMINAL LUMBER DIMENSIONS AND MAY VARY DEPENDING ON ACTUAL LUMBER DIMENSIONS.

** CONTRACTOR MAY PROVIDE FIBERGLASS OPEN GRATING IN LIEU OF 2" X 12" PLASTIC LUMBER AT NO ADDITIONAL COST TO THE DEPARTMENT.

FIBERGLASS OPEN GRATING SHALL BE HEAVY DUTY DESIGN SUITABLE FOR EXTERIOR INSTALLATIONS. MAXIMUM GAP OPENING ON THE WALKWAY SURFACE SHALL BE 1/2". DESIGN LIVE LOAD AND DEFLECTIONS SHALL BE A 50 PSF UNIFORMLY DISTRIBUTED LOAD WITH A MAXIMUM DEFLECTION OF 3/8" OR L/120 AT THE CENTER OF A SIMPLE SPAN. COLOR OF FIBERGLASS OPEN GRATING SHALL BE GRAY OR BLACK.

INSTALL FIBERGLASS OPEN GRATING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS USING STAINLESS STEEL HARDWARE, SCREWS, BOLTS, NUTS, AND WASHERS. ATTACH FIBERGLASS OPEN GRATING TO WALES AND DECK SUPPORTS AT A 2'-0" MAXIMUM SPACING SO AS TO RESIST PEDESTRIAN LIVE LOADS AND UPLIFT FORCES FROM WIND, BOUYANCY AND WAVE ACTION.

STRUCTURAL PLASTIC COMPOSITE PILES BILL OF MATERIALS			
SIZE (DIAMETER)	LENGTH	NO. REQD.	TOTAL LENGTH (FT.)
13"	55'-0"	28	1540.0
16"	55'-0"	80	4400.0

PROJECT NO. WBS 41732.1

CARTERET COUNTY

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FENDER SYSTEM
FOR BRIDGE OVER
AIWW ON NC 58

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

DRAWN BY : J.D. HAWK DATE : 10/20/08
CHECKED BY : D.R. CALHOUN DATE : 10/24/08

