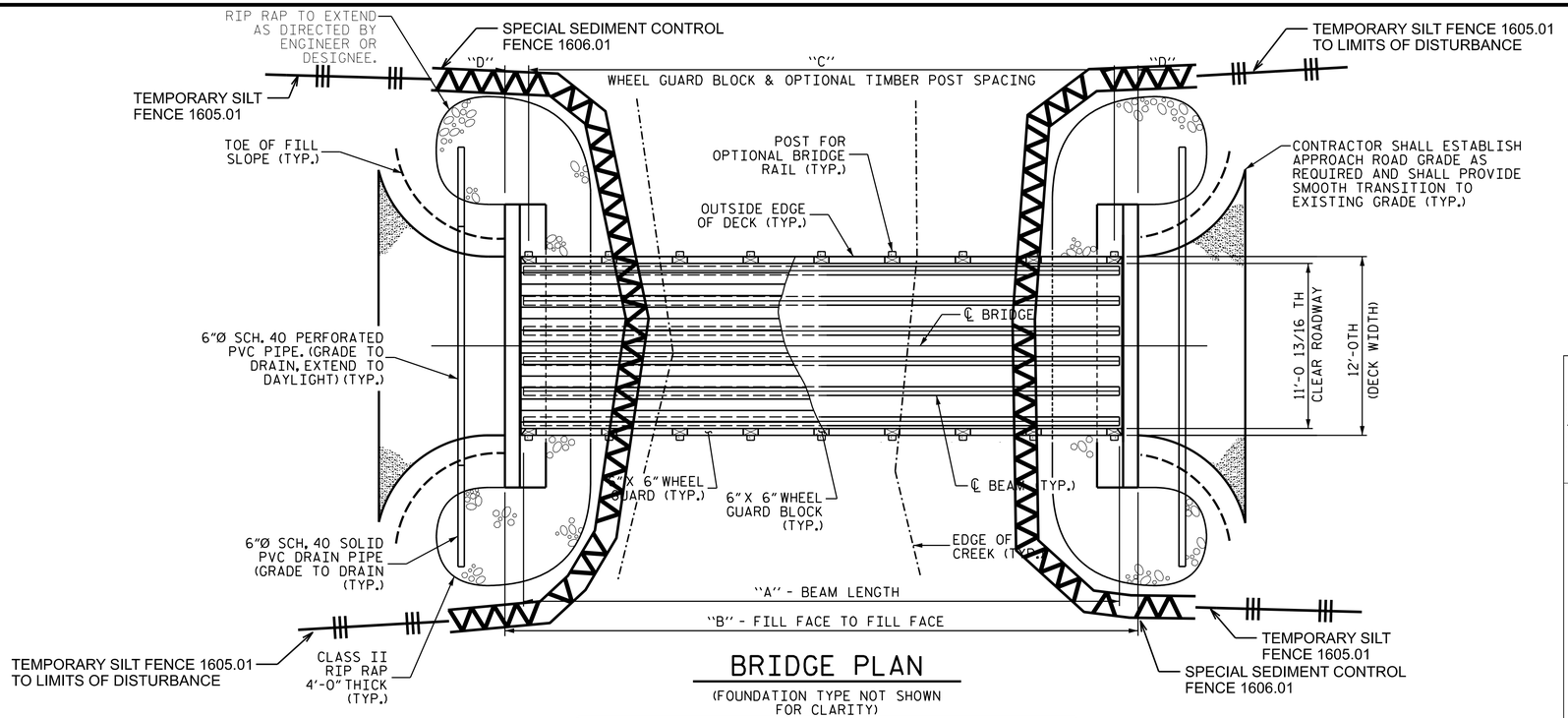


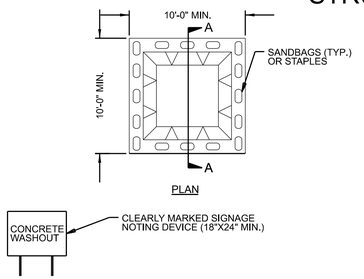
BRIDGE PLAN

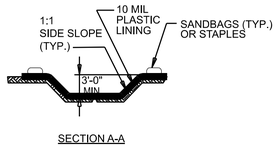
(FOUNDATION TYPE NOT SHOWN FOR CLARITY)

DIMENSIONS TABLE

SPAN	A	B	C	D	E
20'-0"	20'-0"	22'-6"	5 SPA. @ 3'-8"	2'-1"	19'-9"
30'-0"	30'-0"	32'-6"	7 SPA. @ 4'-0"	2'-3"	29'-9"
40'-0"	40'-0"	42'-6"	9 SPA. @ 4'-3"	2'-1½"	39'-9"
50'-0"	50'-0"	52'-6"	11 SPA. @ 4'-4"	2'-5"	49'-9"

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



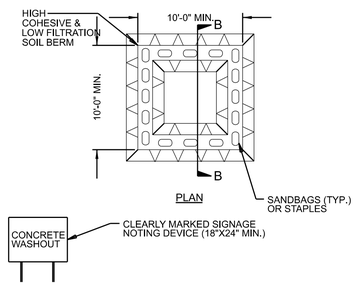


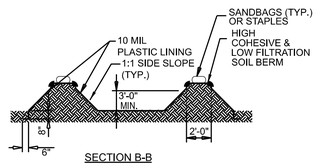
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE





NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACH 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

ESC LEGEND

Special Sediment Control Fence

Temporary Silt Fence

NOTES

FOR OPTIONAL TIMBER BRIDGE RAIL DETAILS, SEE "OPTIONAL TIMBER BRIDGE RAIL" SHEET.

CONTRACTOR SHALL LOCATE THE EXPANSION BEARING ON THE "UPHILL" END OF THE BRIDGE. THERE WILL BE ONLY ONE EXPANSION BEARING PER BRIDGE.

CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES, AS REQUIRED ACCORDING TO NCDOT STANDARD SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

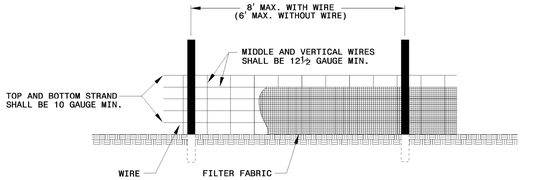
THE CONTRACTOR SHALL SET THE LOW-CHORD ELEVATION OF THE BRIDGE BASED ON EXISTING SITE CONDITIONS AND IN COORDINATION WITH THE ENGINEER, SUCH THAT THE NEW CROSSING PROVIDES CONVEYANCE GREATER THAN OR EQUAL TO THE ORIGINAL DESTROYED CROSSING. THE CONTRACTOR SHALL REFER TO THE BSR WHEN SETTING THE LOW-CHORD ELEVATION OF THE BRIDGE. NO CONSTRUCTION ACTIVITIES SHALL COMMENCE UNTIL ALL PARTIES HAVE AGREED UPON THE LOW-CHORD ELEVATION AND THE DATED PERMIT APPLICATION IS APPROVED.

TIMBER DECKING SHALL BE 2X8 BOARDS. 4X6 TIMBER DECKING (6" DIMENSION HORIZONTAL) MAY BE USED IN LIEU OF 2X8 DECKING; SEE OPTIONAL TYPICAL SECTION ON SHEET S-03 FOR DETAILS.

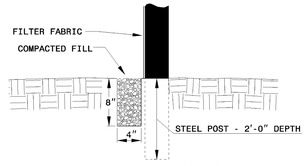
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 7-06

ENGLISH STANDARD DRAWING FOR **TEMPORARY SILT FENCE**

SHEET 1 OF 1 **1605.01**



NOTES
USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE. ANGLE STEEL TYPE.



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 7-06

ENGLISH STANDARD DRAWING FOR **SPECIAL SEDIMENT CONTROL FENCE**

SHEET 1 OF 1 **1606.01**

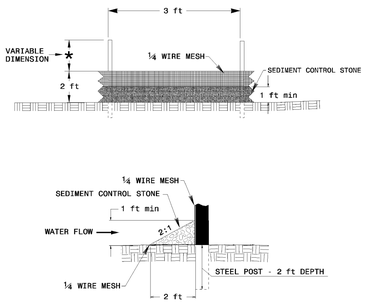
GENERAL NOTES:

USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL.

USE HARDWARE CLOTH 24 GAUGE WIRE MESH WITH ¼ INCH MESH OPENINGS.

INSTALL 5 FT. SELF FASTENER ANGLE STEEL POST 2 FT. DEEP MINIMUM.

SPACE POST A MAXIMUM OF 3 FT.



STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. 7-06

ENGLISH STANDARD DRAWING FOR **SPECIAL SEDIMENT CONTROL FENCE**

SHEET 1 OF 1 **1606.01**

Signed by: Matthew D Foster
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4/2/2026 | 6:30:17 PM EDT

NORTH CAROLINA PROFESSIONAL SEAL 20646 ENGINEER MATTHEW D. FOSTER

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

EROSION CONTROL

JMT Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
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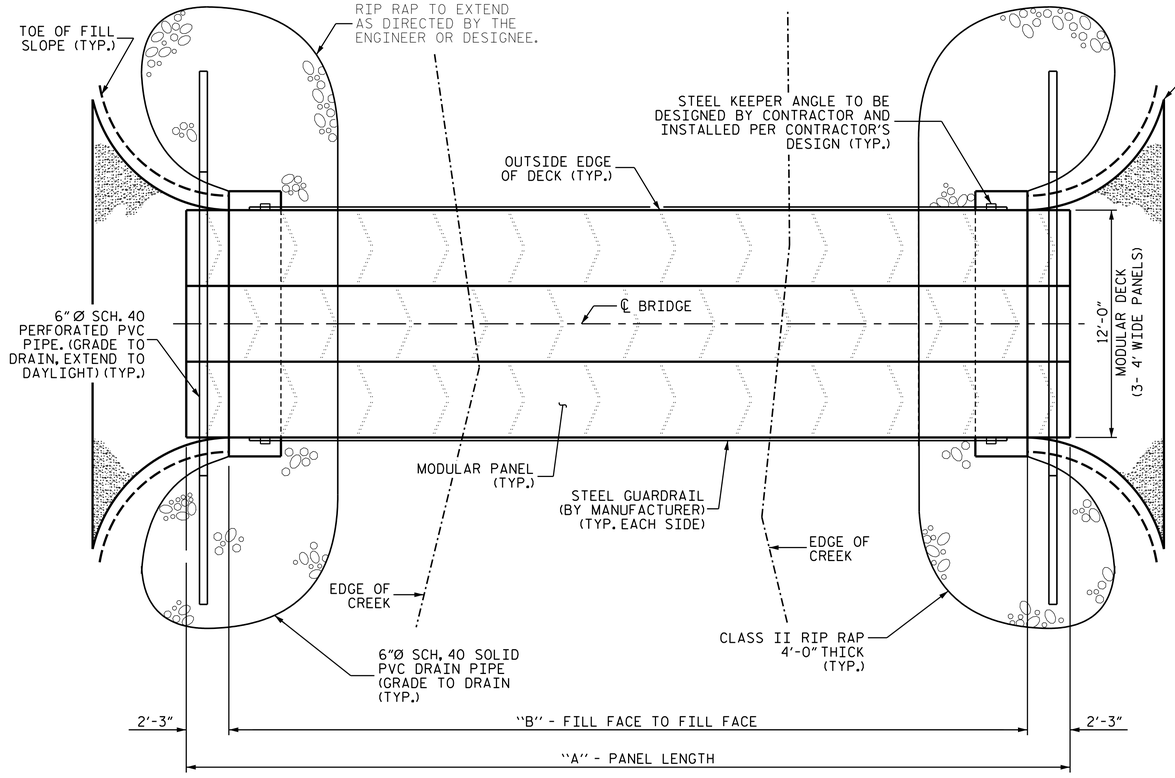
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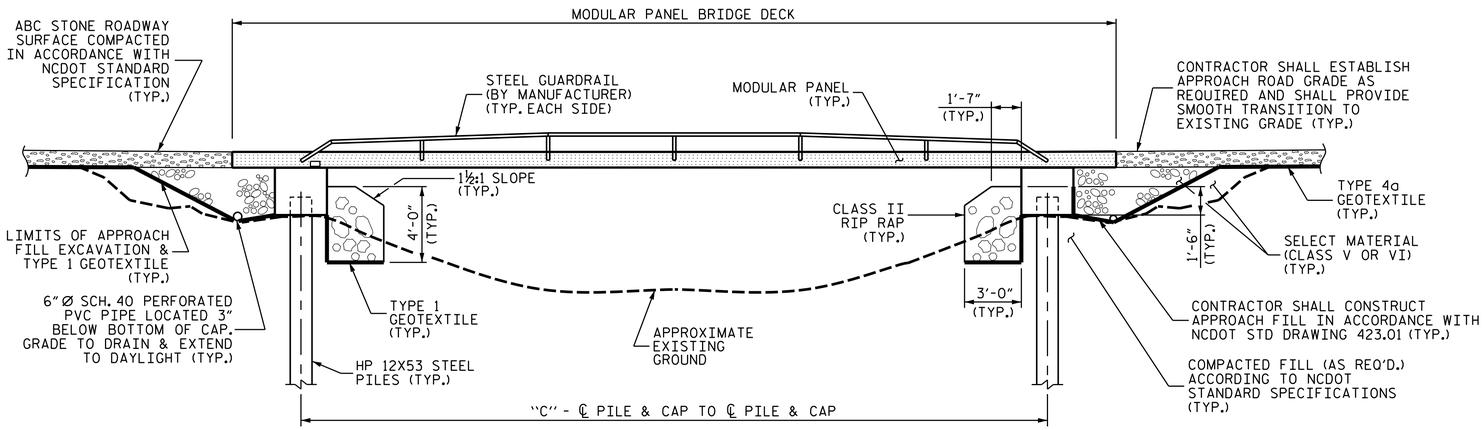
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BRIDGE PLAN

(FOUNDATION TYPE NOT SHOWN FOR CLARITY)

DIMENSIONS TABLE		
A	B	C
30'-0"	25'-6"	22'-9"
40'-0"	35'-6"	32'-9"
50'-0"	45'-6"	42'-9"
60'-0"	55'-6"	52'-9"



BRIDGE ELEVATION

(SHOWING DRIVEN 12X53 STEEL PILES FOUNDATION)

THE MODULAR BRIDGE SHALL BE POSITIONED TO PROVIDE A UNIFORM OVERHANG BEYOND THE FILL FACE OF EACH END BENT. THE OVERHANG SHALL BE SUPPORTED FULL LENGTH. THE CONTRACTOR SHALL PROVIDE A COMPACTED AGGREGATE BEARING SURFACE TO SUPPORT THE SUPERSTRUCTURE OVERHANG.

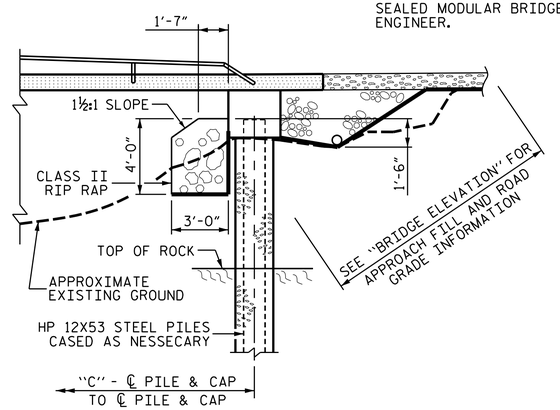
NOTES

CONTRACTOR SHALL LOCATE THE EXPANSION END OF THE SUPERSTRUCTURE ON THE "UPHILL" END OF THE BRIDGE. ONLY ONE EXPANSION END SHALL BE PERMITTED PER BRIDGE, WITH THE OPPOSITE END FUNCTIONING AS THE FIXED (RESTRAINED) END.

CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES, AS REQUIRED ACCORDING TO NCDOT STANDARD SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

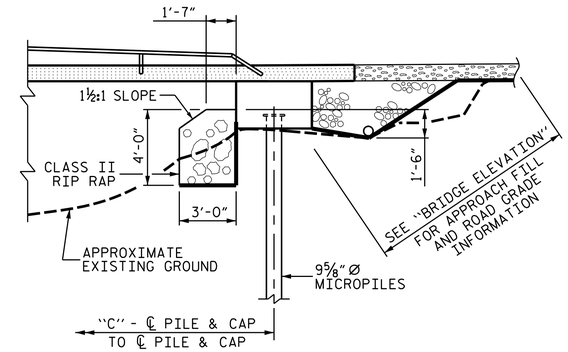
THE CONTRACTOR SHALL SET THE LOW-CHORD ELEVATION OF THE BRIDGE BASED ON EXISTING SITE CONDITIONS AND IN COORDINATION WITH THE ENGINEER, SUCH THAT THE NEW CROSSING PROVIDES CONVEYANCE GREATER THAN OR EQUAL TO THE ORIGINAL DESTROYED CROSSING. THE CONTRACTOR SHALL REFER TO THE BSR WHEN SETTING THE LOW-CHORD ELEVATION OF THE BRIDGE. NO CONSTRUCTION ACTIVITIES SHALL COMMENCE UNTIL ALL PARTIES HAVE AGREED UPON THE LOW-CHORD ELEVATION AND THE DATED PERMIT APPLICATION IS APPROVED.

MODULAR BRIDGE SUPERSTRUCTURE AND STEEL GUARDRAIL SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN, LAYOUT, GEOMETRY, AND DETAILS SHALL BE DESIGNED BY THE CONTRATOR AS PART OF THE MODULAR BRIDGE SYSTEM. THE CONTRACTOR SHALL PROVIDE SEALED MODULAR BRIDGE PLANS PREPARED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER.



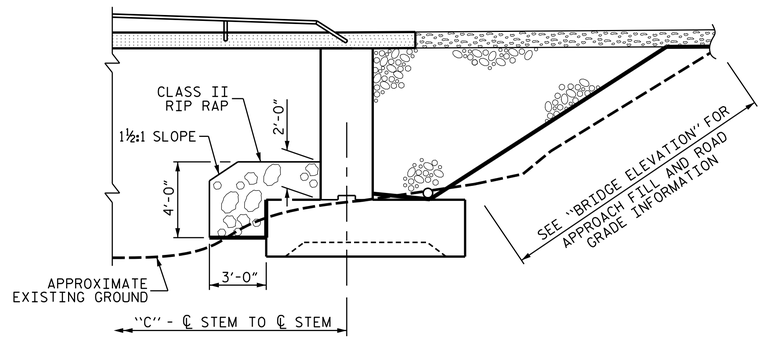
BRIDGE PARTIAL ELEVATION

(SHOWING DRILLED-IN 12X53 STEEL PILES FOUNDATION)



BRIDGE PARTIAL ELEVATION

(SHOWING MICROPILES FOUNDATION)



BRIDGE PARTIAL ELEVATION

(SHOWING SPREAD FOOTING FOUNDATION)

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

GENERAL DRAWING

Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

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CHKD. BY: GFW DATE: 05/2026
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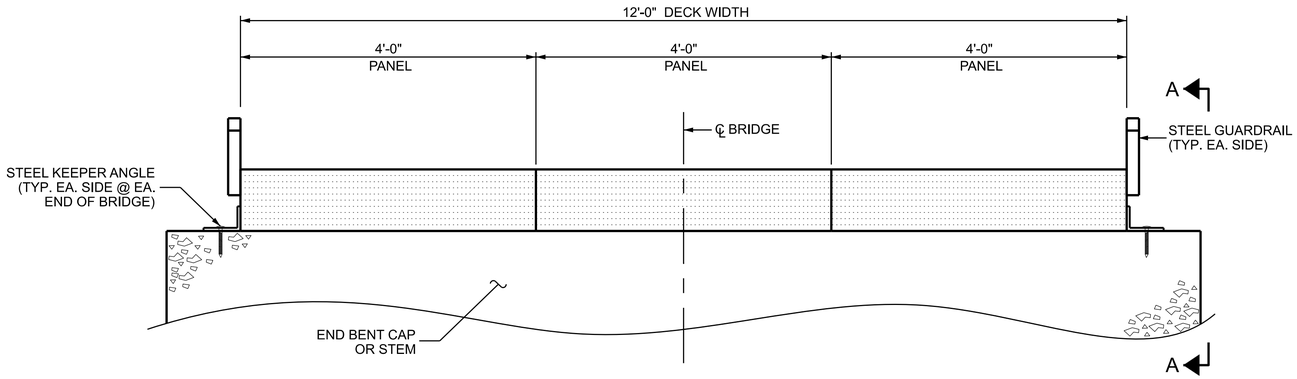
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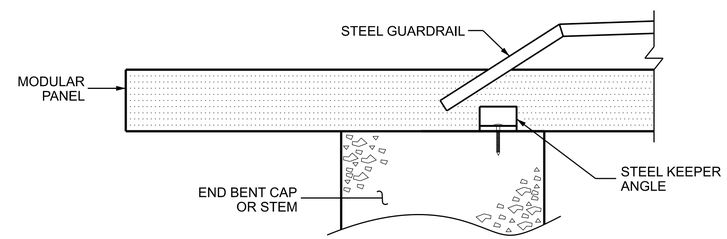
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NOTE:

THE MODULAR BRIDGE SUPERSTRUCTURE, INCLUDING GUARDRAIL, AND STEEL KEEPER ANGLES, SHALL BE DESIGNED, PROVIDED, AND INSTALLED BY THE CONTRACTOR. THE SYSTEM SHALL BE CONFIGURED WITH ONE FIXED END AND ONE EXPANSION END. SEALED DESIGN PLANS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.

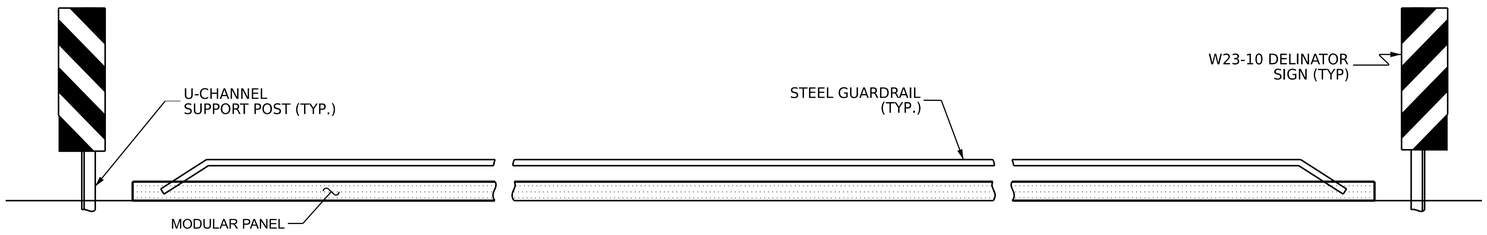


TYPICAL SECTION



VIEW A-A

THE MODULAR BRIDGE SHALL BE POSITIONED TO PROVIDE A UNIFORM OVERHANG BEYOND THE FILL FACE OF EACH END BENT. THE OVERHANG SHALL BE SUPPORTED FULL LENGTH. THE CONTRACTOR SHALL PROVIDE A COMPACTED AGGREGATE BEARING SURFACE TO SUPPORT THE SUPERSTRUCTURE OVERHANG.



STEEL GUARDRAIL ELEVATION



07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

TYPICAL SECTION & NOTES

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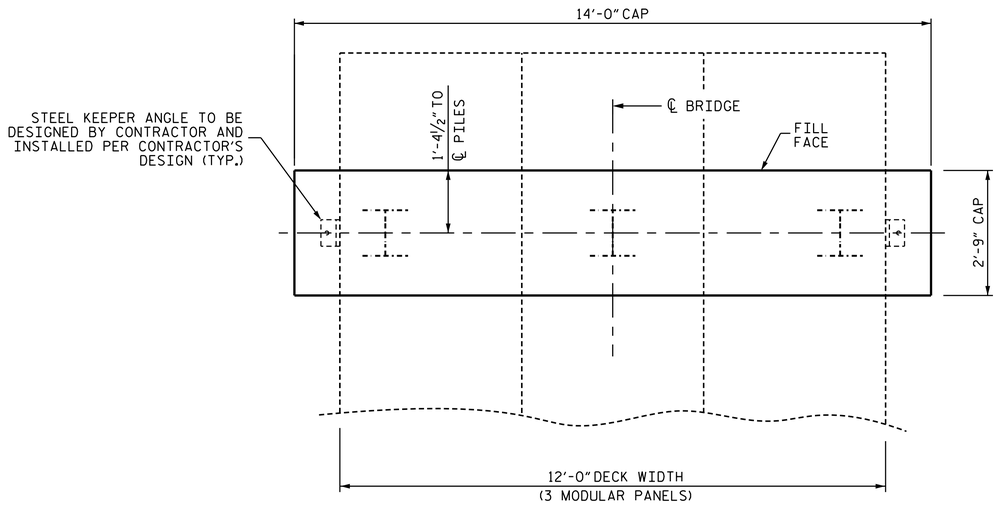
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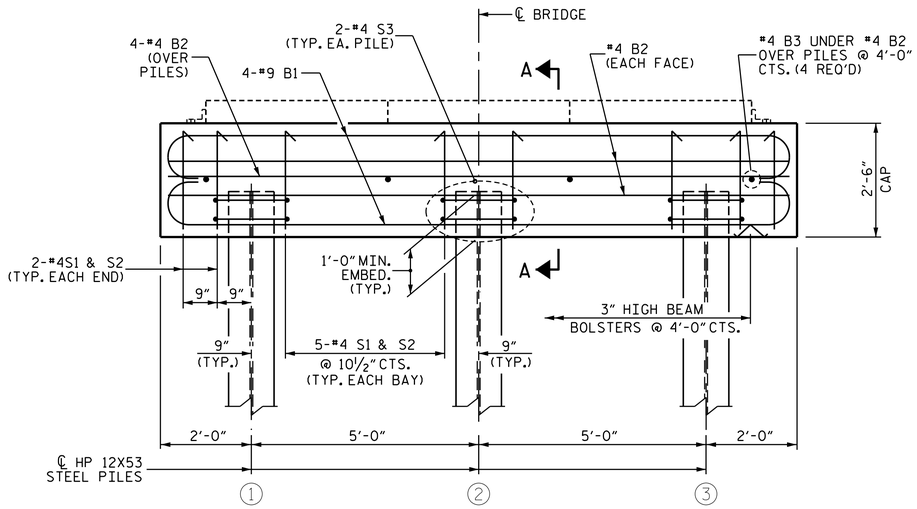
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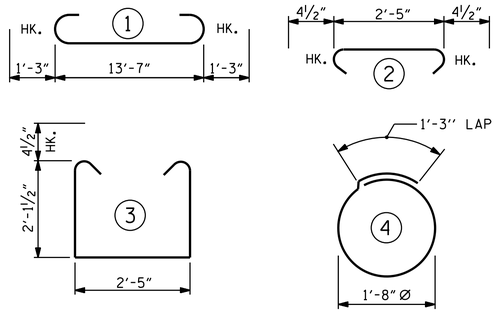


PLAN



ELEVATION

BAR TYPES

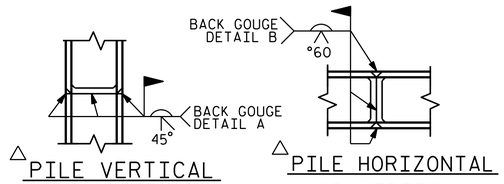


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE END BENT

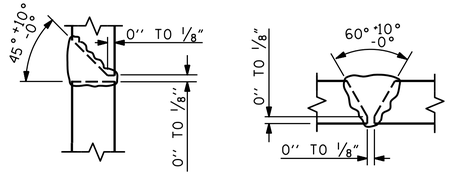
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	16'-1"	437
B2	8	#4	STR	13'-8"	73
B3	4	#4	STR	2'-5"	7
S1	14	#4	3	7'-5"	69
S2	14	#4	2	3'-2"	30
S3	6	#4	4	6'-6"	26

REINFORCING STEEL (FOR ONE END BENT)	642 LBS.
CLASS A CONCRETE (FOR ONE END BENT)	3.6 C.Y.



△PILE VERTICAL

△PILE HORIZONTAL OR VERTICAL

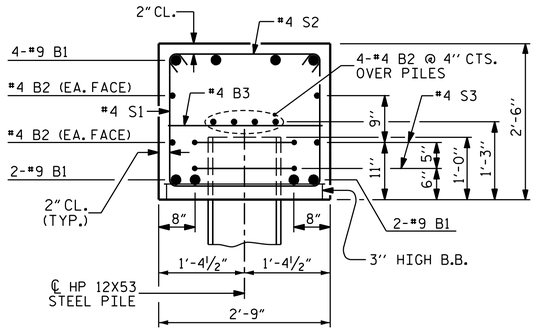


DETAIL A

DETAIL B

PILE SPLICE DETAILS

△POSITION OF PILE DURING WELDING.



SECTION A-A

GENERAL NOTES

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

FOUNDATION NOTES
DRIVEN PILES

INSTALL PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

DO NOT INSTALL PILES UNTIL FILL HAS BEEN PLACED.

DRIVE PILES TO A MINIMUM PENETRATION OF AT LEAST 10'-0" INTO NATURAL GROUND OR CHANNEL BOTTOM.

DRIVE ALL PILES TO REFUSAL BELOW MINIMUM PENETRATION.

PREDRILLING OR SPUDDING MAY BE REQUIRED TO ACHIEVE THE MINIMUM PILE PENETRATION.

SUBMIT THE PROPOSED PILE DRIVING METHODS AND EQUIPMENT FOR ACCEPTANCE BY THE ENGINEER.



07/27/2026

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CHKD. BY: GFW DATE: 05/2026
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NORTH CAROLINA OFFICE OF
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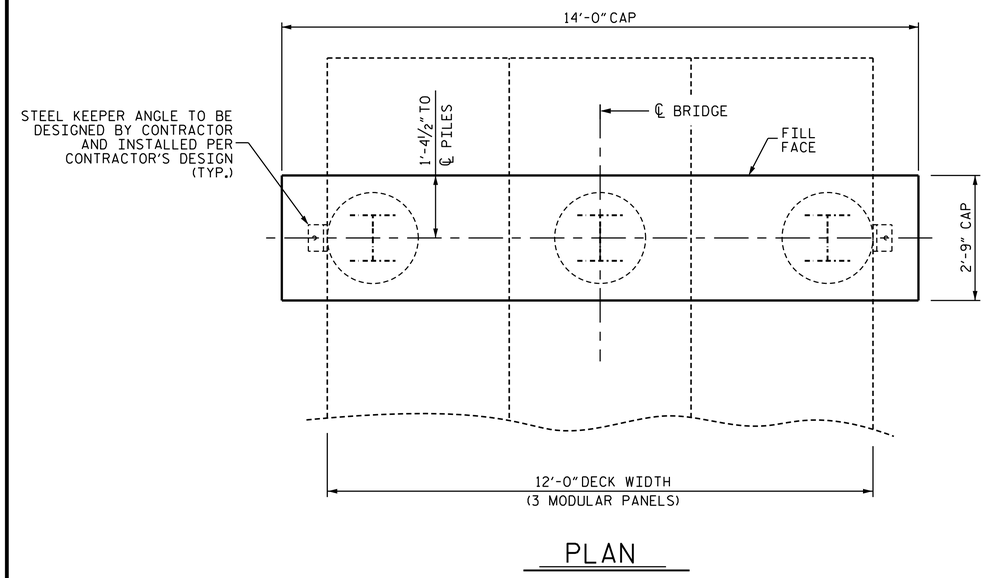
PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

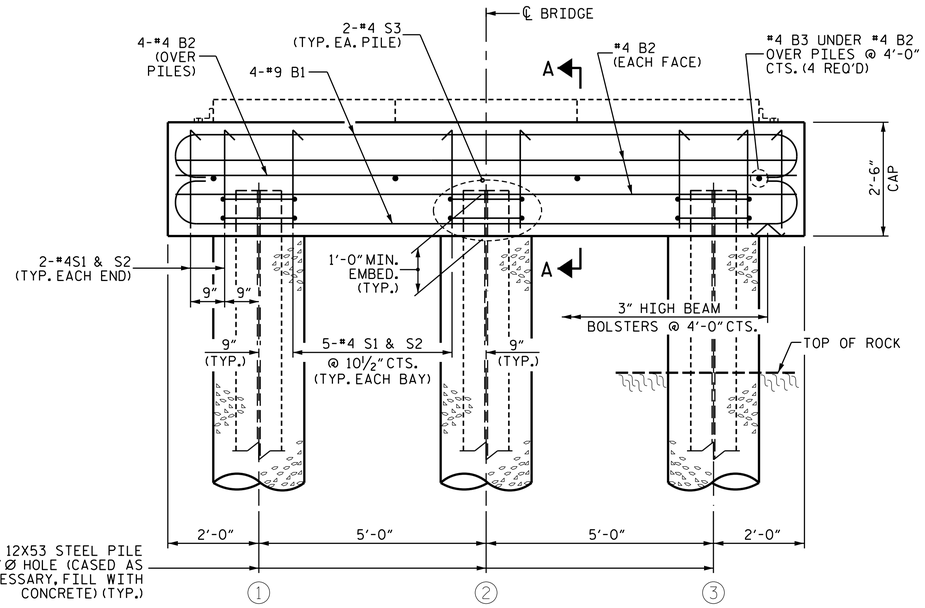
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DRIVEN PILES

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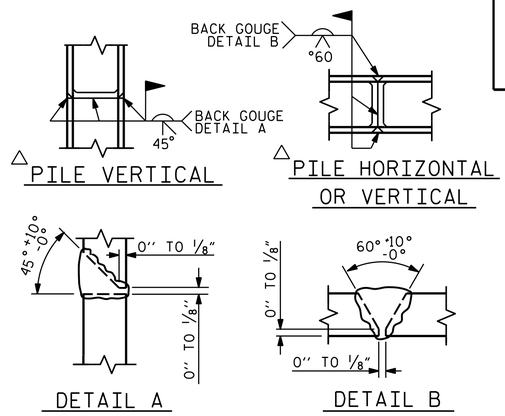
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PLAN

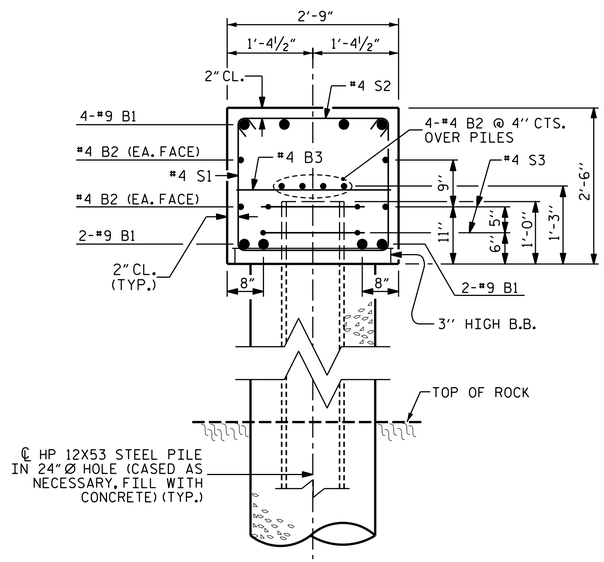


ELEVATION



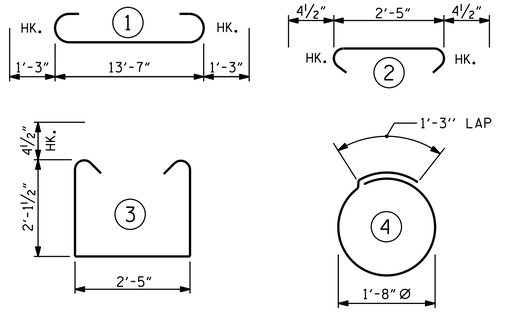
PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.



SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	16'-1"	437
B2	8	#4	STR	13'-8"	73
B3	4	#4	STR	2'-5"	7
S1	14	#4	3	7'-5"	69
S2	14	#4	2	3'-2"	30
S3	6	#4	4	6'-6"	26

REINFORCING STEEL (FOR ONE END BENT)	642 LBS.
CLASS A CONCRETE (FOR ONE END BENT)	3.6 C.Y.

GENERAL NOTES

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

FOUNDATION NOTES
DRILLED-IN PILES

ROCK QUALITY DESIGNATION (RQD)
GEOLOGICAL STRENGTH INDEX (GSI)

INSTALL DRILLED-IN PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

MINIMUM PILE PENETRATION OF 10-FT INTO NATURAL GROUND OR CHANNEL BOTTOM IS REQUIRED.

MINIMUM ROCK SOCKET DEPTHS, UNLESS OTHERWISE INDICATED ON PROJECT SPECIFIC DATA SHEET:

- 4'-0" MINIMUM (RQD >70, GSI >50)
- 6'-0" MINIMUM (RQD 30-70, GSI 30-50)
- 8'-0" MINIMUM (RQD <30, GSI <30)

REFER TO BORING LOGS FOR RQD AND GSI DATA.

PILES SHALL BE SEATED IN THE BOTTOM OF THE EXCAVATION. PILE DRIVING IS NOT REQUIRED.

BACKFILL WITH CONCRETE ONLY. DO NOT PROCEED WITH CONSTRUCTION ACTIVITIES UNTIL THE 28 DAY STRENGTH IS ACHIEVED.

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER WENDOLEN F. WILSON
07/27/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

END BENT
DRILLED IN PILES

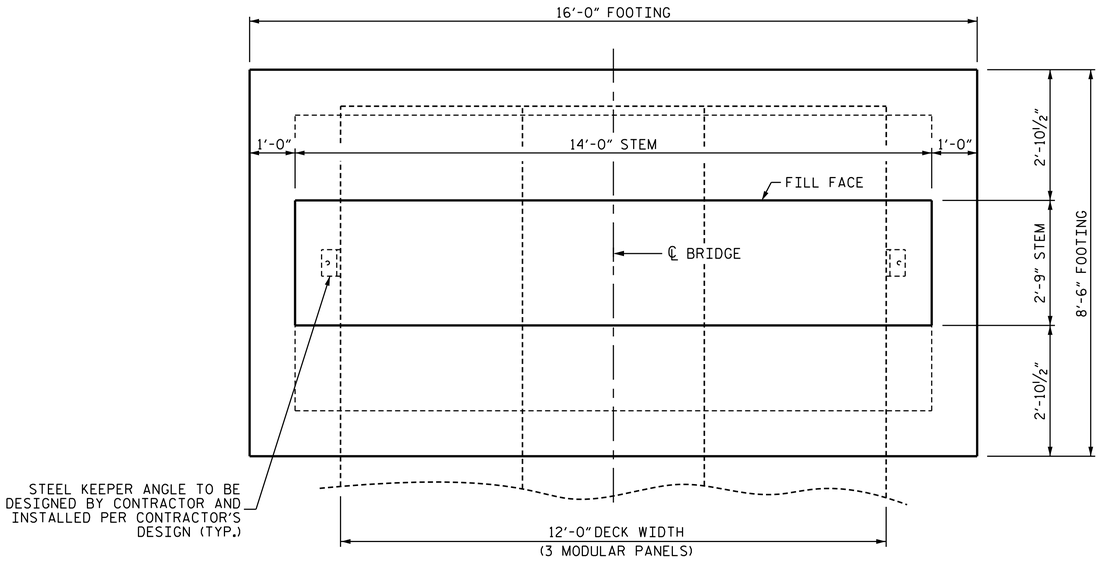
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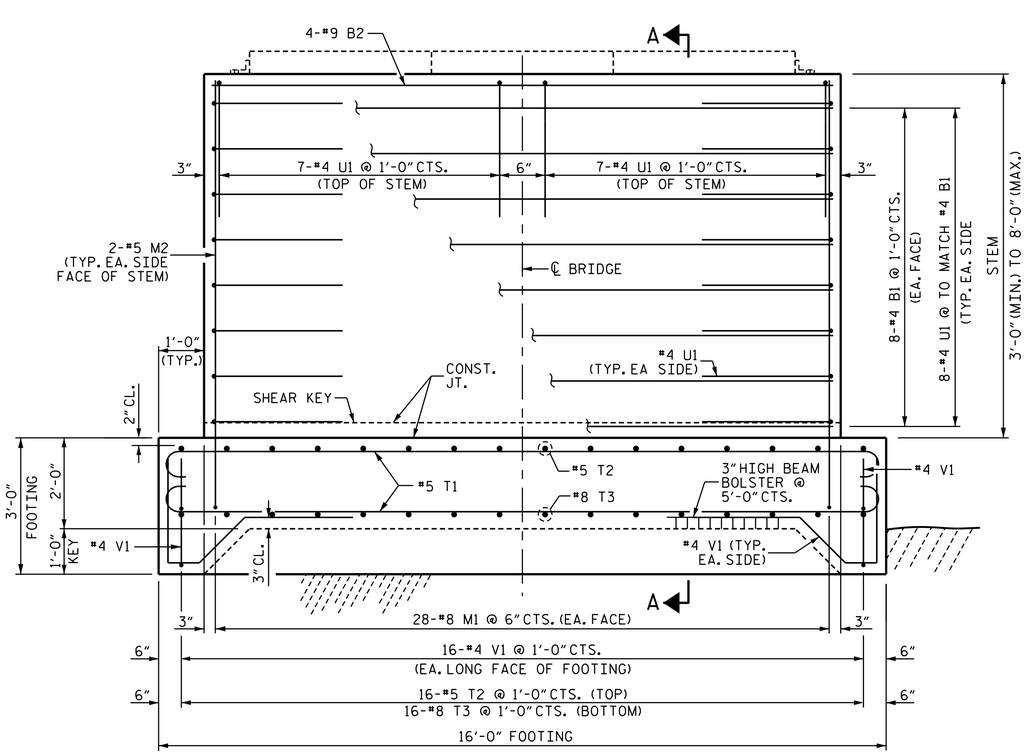
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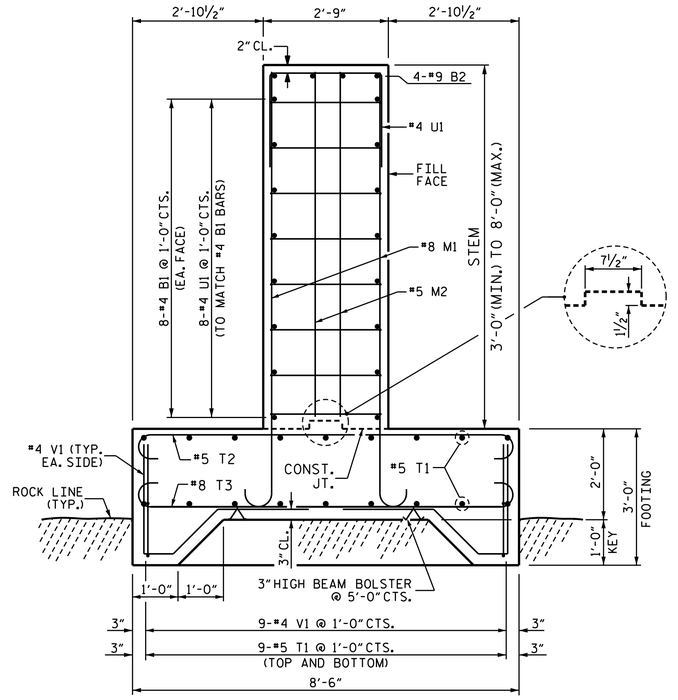
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PLAN



ELEVATION



SECTION A-A

GENERAL NOTES

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

THE FINAL STEM WALL HEIGHT SHALL BE DETERMINED IN THE FIELD BASED ON EXISTING ROCK ELEVATIONS. THE STEM WALL HEIGHT SHALL NOT BE LESS THAN 3'-0" OR GREATER THAN 8'-0.

STEM WALL REINFORCEMENT AND DETAILS ARE BASED ON A MAXIMUM STEM WALL HEIGHT OF 8'-0". THE CONTRACTOR SHALL ADJUST THE HORIZONTAL REINFORCEMENT LAYOUT TO ACCOMMODATE FIELD-VERIFIED STEM WALL HEIGHTS WHILE MAINTAINING REBAR SIZES, SPACING, LAP LENGTHS, AND THE OVERALL REINFORCING CONFIGURATION SHOWN IN THE STRUCTURAL PLANS AND DETAILS.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

FOUNDATION NOTES

SPREAD FOOTING

FOUNDATION EXCAVATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 410 OF THE STANDARD SPECIFICATIONS.

A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA SHALL OBSERVE THE BEARING SURFACE AND CONFIRM THE FOOTING IS CONSTRUCTED ON ROCK. THE ENGINEER SHALL PROVIDE A LETTER VERIFYING ACCEPTANCE OF THE BEARING SURFACE.

CLEAN ALL ROCK OF LOOSE MATERIAL AND CUT TO A FIRM SURFACE, AS DIRECTED BY THE ENGINEER AND FILL WITH CONCRETE, MORTAR OR GROUT. LEAVE ROCK SURFACE IN A ROUGH CONDITION.

BEARING SURFACE MUST RESIST A MAXIMUM APPLIED BEARING PRESSURE OF 3.0 TSF.

KEY IN FOOTINGS AT LEAST 1 FT INTO ROCK.

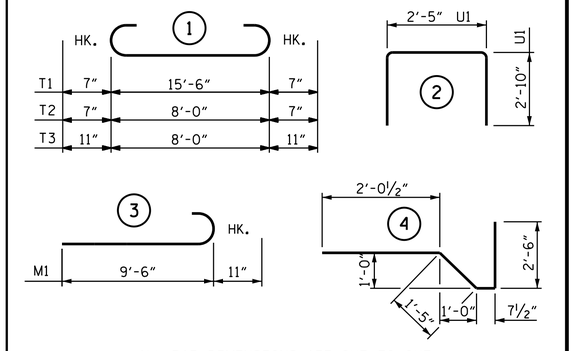
**BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#4	STR	13'-8"	146
B2	4	#9	STR	13'-8"	186
M1	56	#8	3	10'-5"	1,558
M2	4	#5	STR	7'-6"	31
T1	18	#5	1	16'-8"	313
T2	16	#5	1	9'-2"	153
T3	16	#8	1	9'-10"	420
U1	30	#4	2	8'-1"	162
V1	50	#4	4	6'-7"	220
REINFORCING STEEL					3,189 LBS.

CLASS A CONCRETE BREAKDOWN		
POUR #1	FOOTING	12.7 C.Y.
POUR #2	END BENT STEM	11.4 C.Y.
TOTAL		24.1 C.Y.

** THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE QUANTITIES AND REINFORCING BARS SHOWN IN THE BILL OF MATERIAL ARE BASED ON AN 8'-0" MAXIMUM STEM WALL HEIGHT. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL QUANTITIES BASED ON THE ACTUAL STEM WALL HEIGHT.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON

07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

END BENT
SPREAD FOOTING

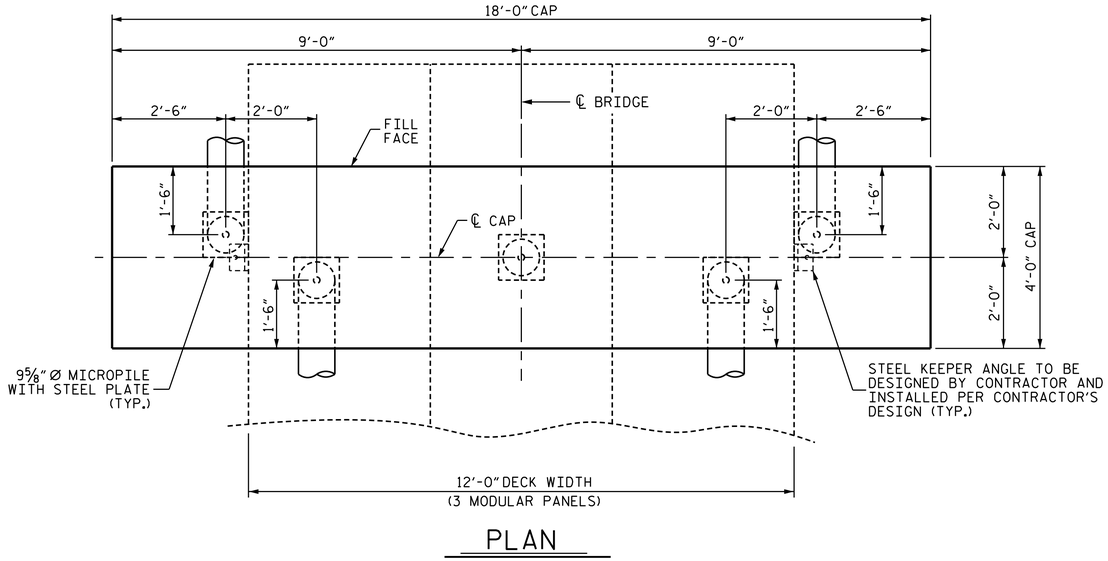
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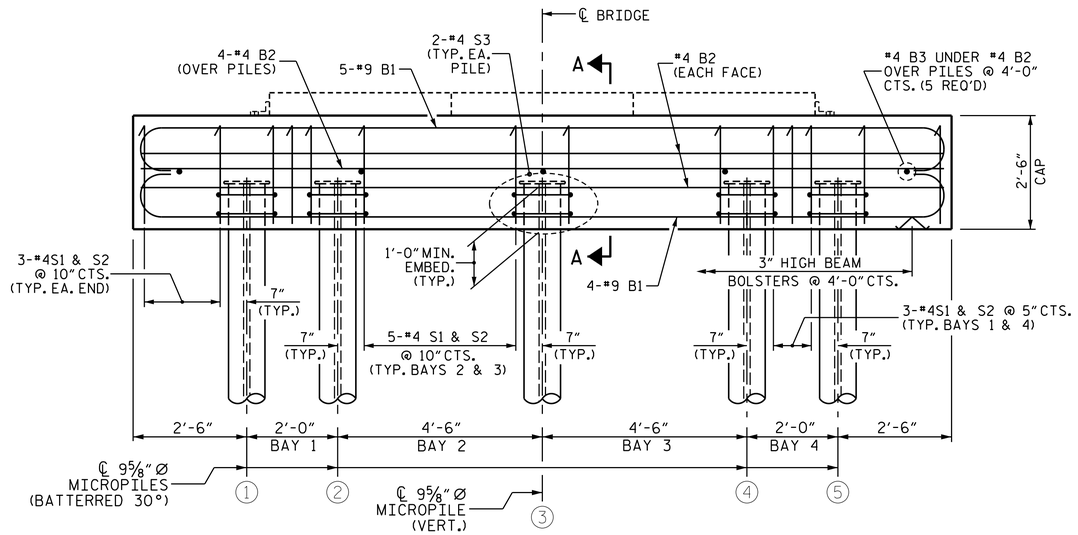
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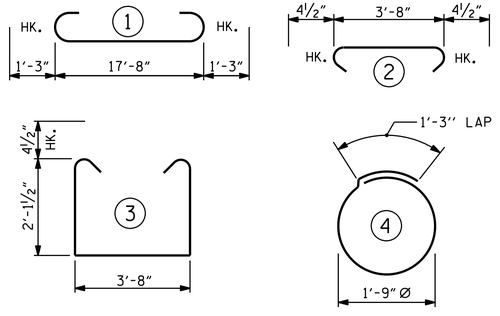


PLAN



ELEVATION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	#9	1	20'-2"	617
B2	8	#4	STR	17'-8"	94
B3	5	#4	STR	3'-8"	12
S1	22	#4	3	8'-8"	127
S2	22	#4	2	4'-5"	65
S3	10	#4	4	6'-9"	45

REINFORCING STEEL (FOR ONE END BENT) 960 LBS.

CLASS A CONCRETE (FOR ONE END BENT) 6.7 C.Y.

GENERAL NOTES

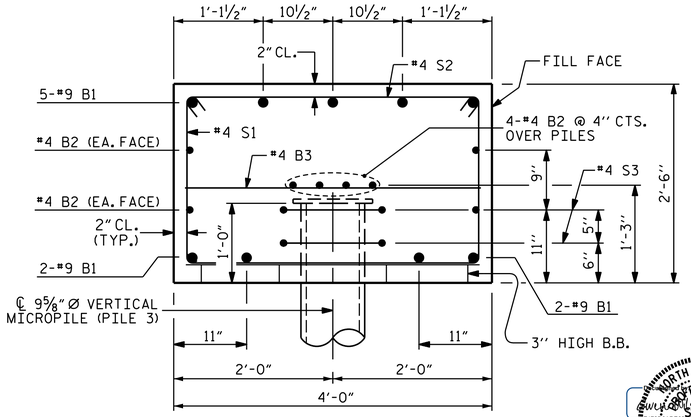
CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

MODULAR BRIDGE SUPERSTRUCTURE SHOWN IS SCHEMATIC ONLY. ACTUAL MODULAR BRIDGE SYSTEM CONFIGURATION AND MEMBER SIZING SHALL BE DETERMINED BY THE CONTRACTOR TO MEET THE SPECIFIED DESIGN LOADS.

REFER TO MICROPILE DRAWINGS FOR MICROPILE REQUIREMENTS, PROPERTIES AND OTHER DETAILS.

FOUNDATION NOTES
MICROPILES

FOR MICROPILES, SEE SPECIAL PROVISIONS.



SECTION A-A

(PILES 1, 2, 4 & 5 ARE BATTERRED 30° AND NOT SHOWN FOR CLARITY)

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

END BENT
MICROPILES

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TIME: 7/25/2026

Docusign Envelope ID: 3EF8C3D1-9B39-818D-8061-34616767B20F

STRUCTURAL STEEL / HARDWARE NOTES:

THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE PROVIDED AND DESIGNED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE SEALED MODULAR BRIDGE PLANS PREPARED BY A LICENSED PROFESSIONAL ENGINEER.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 OR GALVANIZED OF THE STRUCTURAL STEEL SHOP COATING PROGRAM AND ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

COATING APPLICATION FOR MODULAR BRIDGE STRUCTURAL STEEL SHALL NOT BE PERFORMED UNTIL SHOP FABRICATION INCLUDING CUTTING, DRILLING AND WELDING HAS BEEN COMPLETED.

HARDWARE FOR THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION, UNLESS OTHERWISE NOTED ON THE PLANS.

DAMAGED GALVANIZED SURFACES FOR THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE REPAIRED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS ARTICLE 1076-77.

DAMAGED PAINTED SURFACES FOR THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE REPAIRED IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

DESIGN LOADS:

LIVE LOAD:

TRUCK LOAD:

THIS BRIDGE WAS DESIGNED FOR:

HS20
GVWR = 72,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
- GAWR FRONT = 8,000 LBS
- GAWR INTERMEDIATE = 32,000 LBS
- GAWR REAR = 32,000 LBS

EV2
GVWR = 57,500 LBS
NUMBER OF AXLES: 2
AXLE WEIGHTS:
- GAWR FRONT = 24,000 LBS
- GAWR REAR = 33,500 LBS

EV3
GVWR = 86,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
- GAWR FRONT = 24,000 LBS
- GAWR INTERMEDIATE = 31,000 LBS
- GAWR REAR = 31,000 LBS

LIVE LOAD FACTORS:

HS-20 = 1.75
EV2 = 1.3
EV3 = 1.3

LIVE LOAD FACTORS LOAD RATING:

HS-20 = 1.35
EV2 = 1.0
EV3 = 1.0

MULTIPLE PRESENCE FACTOR:

MPF = 1.0

LANE LOAD:

NO LANE LOAD WAS APPLIED.

IMPACT:

DYNAMIC IMPACT FACTOR IS 33%.

DESIGN ASSUMPTIONS/PARAMETERS:

BRIDGE IS SINGLE SPAN.

BRIDGE WIDTH = 12'-11" OUT TO OUT.

REF.#	DESIGN VEHICLES SCHEMATIC	
HS-20	8K, 32K, 32K; 14', 14', 28'	72K 36 TON
EV2	24K, 33.5K; 15'	57.5K 28.75 TON
EV3	24K, 31K, 31K; 15', 4', 19'	86K 43 TONS

GENERAL NOTES:

THE SUBSTRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) "STRUCTURES MANAGEMENT UNIT MANUAL", DATED 6/15/23, AND THE AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 9th EDITION.

THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THE GEOMETRY AND REQUIREMENTS SHOWN IN THE PLANS. DESIGN OF SUPERSTRUCTURE IS NOT INCLUDED IN THESE PLANS.

THESE DRAWINGS ARE INTENDED ONLY FOR FOR THE DESIGN AND CONSTRUCTION OF THE BRIDGE SUBSTRUTURE AND FOR THE INSTALLATION OF CONTRACTOR-SUPPLIED SINGLE-SPAN MODULAR BRIDGE SUPERSTRUCTURE FOR PRIVATE DRIVEWAYS IN COUNTIES AS LISTED IN THE CONTRACT DOCUMENTS BY NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT IN RESPONSE TO THE DAMGE CAUSED BY HURRICANE HELENE.

BRIDGE CONSTRUCTION, WORKMANSHIP, AND MATERIALS FOR THE SUBSTRUCTURE SHALL BE IN ACCORDANCE WITH THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", 2024 EDITION.

WORK ASSOCIATED WITH THE MODULAR BRIDGE SUPERSTRUCTURE SHALL BE IN ACCORDANCE WITH THE CONTRACTOR'S DESIGN AND APPLICABLE SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

IT IS ASSUMED THAT THERE ARE NO UTILITY CONFLICTS. THE CONTRACTOR SHALL INVESTIGATE THE PRESENCE OF UTILITIES BEFORE COMMENCING WORK.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL SET BRIDGE ELEVATIONS SUCH THAT WATER WILL DRAIN AND NOT POND ON THE BRIDGE DECK AND MINIMUM LONGITUDINAL GRADE SHALL BE 0.5% AND MAXIMUM GRADE SHALL BE 6%.
FOR PILE-SUPPORTED END BENTS, PLACE APPROACH EMBANKMENT (CORE MATERIAL) PRIOR TO PILE INSTALLATION.

THIS BRIDGE HAS BEEN DESIGNED FOR ADTT < 100.

EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON SHEET EC-01 ARE FOR GENERAL GUIDANCE ONLY AND REPRESENT MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL REQUIRED EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, CONTRACT DOCUMENTS, AND APPLICABLE REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THESE MEASURES AND PROVIDING ANY ADDITIONAL DEVICES NECESSARY TO ACCOUNT FOR ACTUAL SITE CONDITIONS, INCLUDING GROUNDWATER CONDITIONS AND WEATHER EVENTS, AND TO PREVENT SEDIMENT FROM LEAVING THE PROJECT SITE.

ALL REFERENCES WITHIN THESE PLANS TO "STANDARD SPECIFICATIONS" OR "NCDOT SPECIFICATIONS" SHALL BE GOVERNED BY THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THE SPECIAL PROVISIONS, AND IN CONFORMANCE WITH THE NCDOT STANDARD SPECIFICATIONS, NCDOT ROADWAY STANDARD DRAWINGS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING, AND MAINTAINING ALL TRAFFIC CONTROL DEVICES NECESSARY TO SAFELY CONDUCT THE WORK AND PROTECT THE TRAVELING PUBLIC.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE MODULAR BRIDGE SUPERSTRUCTURE, INCLUDING ALL CONNECTIONS, BEARING DETAILS, AND INTERFACES WITH THE SUBSTRUCTURE. SEALED MODULAR BRIDGE PLANS PREPARED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR.

REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE WITH THE PLANS AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DESIGN, FABRICATION, OR CONSTRUCTION.

MATERIAL PROPERTIES:

CONCRETE: MINIMUM COMPRESSIVE STRENGTH, f'c = 3,000 psi (CLASS A).

STRUCTURAL STEEL: AASHTO M270, GRADE 50.

WELDS: SMAW, 70 KSI ELECTRODES PER NCDOT STANDARD SPECIFICATIONS.

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
GWENDOLEN F. WILSON
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

MODULAR PANEL BRIDGE

GENERAL NOTES

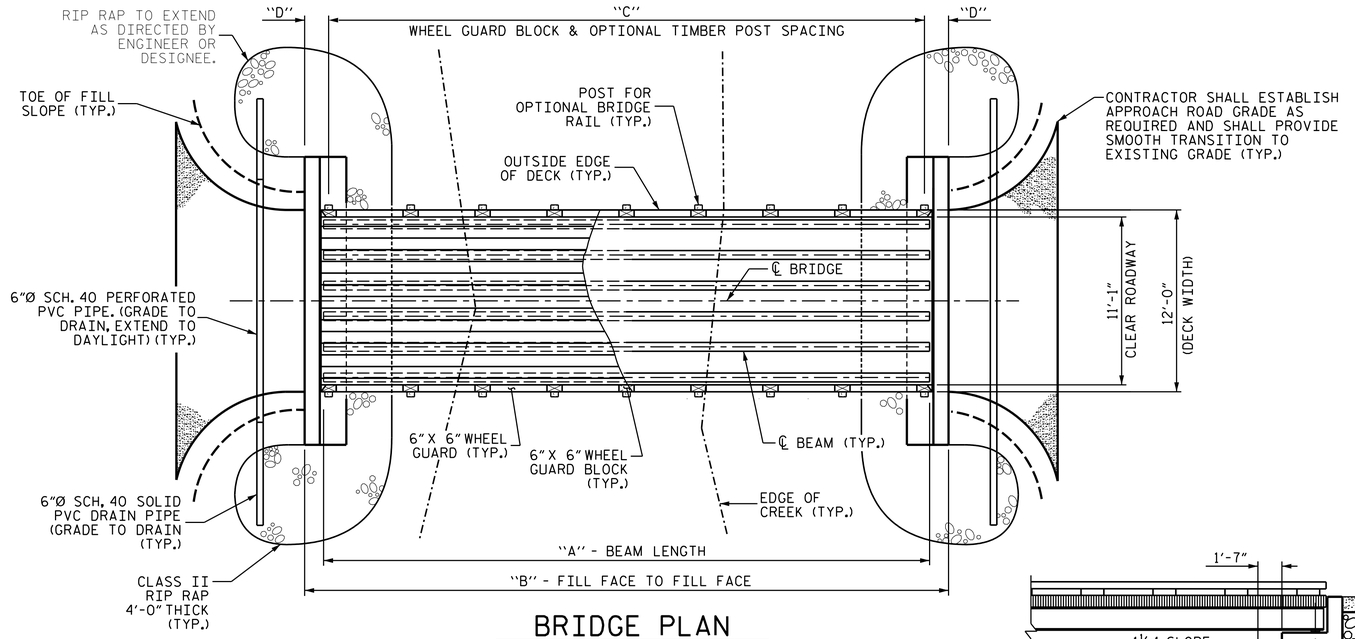
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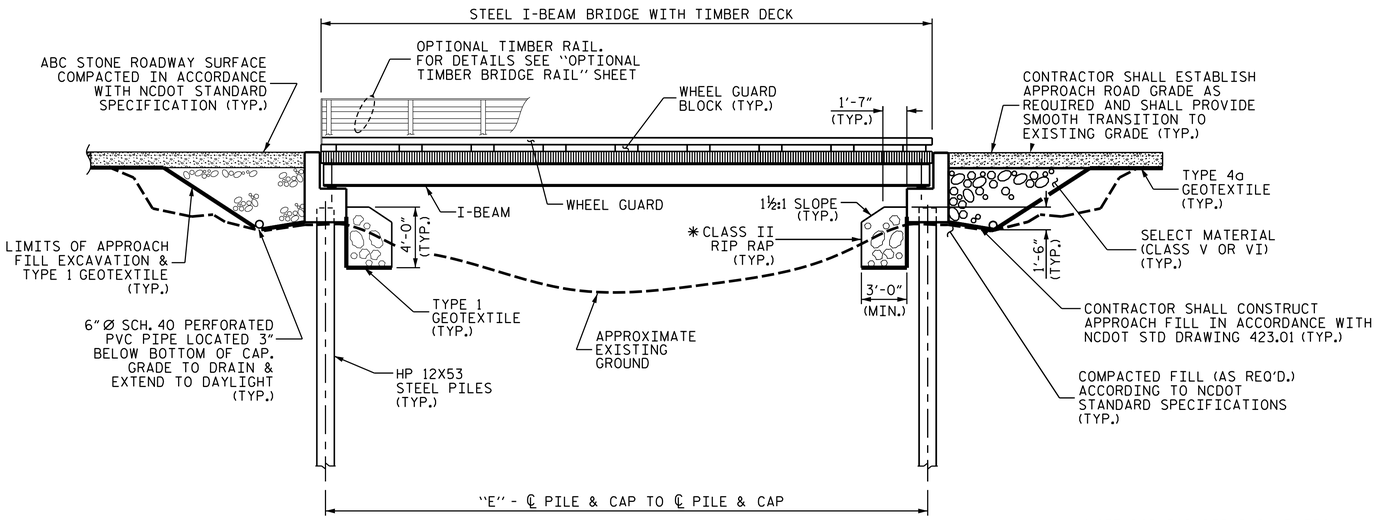
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BRIDGE PLAN

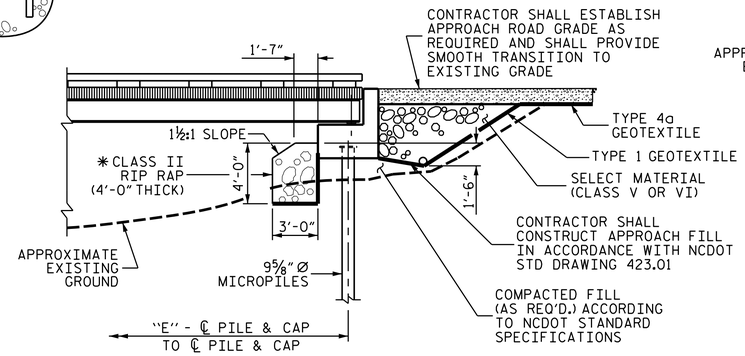
(FOUNDATION TYPE NOT SHOWN FOR CLARITY)

DIMENSIONS TABLE					
SPAN	A	B	C	D	E
20'-0"	20'-0"	22'-6"	5 SPA. @ 3'-8"	2'-1"	19'-9"
30'-0"	30'-0"	32'-6"	7 SPA. @ 4'-0"	2'-3"	29'-9"
40'-0"	40'-0"	42'-6"	9 SPA. @ 4'-3"	2'-1½"	39'-9"
50'-0"	50'-0"	52'-6"	11 SPA. @ 4'-4"	2'-5"	49'-9"
60'-0"	60'-0"	62'-6"	13 SPA. @ 4'-5½"	2'-3¼"	59'-9"
70'-0"	70'-0"	72'-6"	15 SPA. @ 4'-6"	2'-6"	69'-9"



BRIDGE ELEVATION

(SHOWING DRIVEN 12X53 STEEL PILES FOUNDATION)



BRIDGE PARTIAL ELEVATION

(SHOWING MICROPILES FOUNDATION)

NOTES

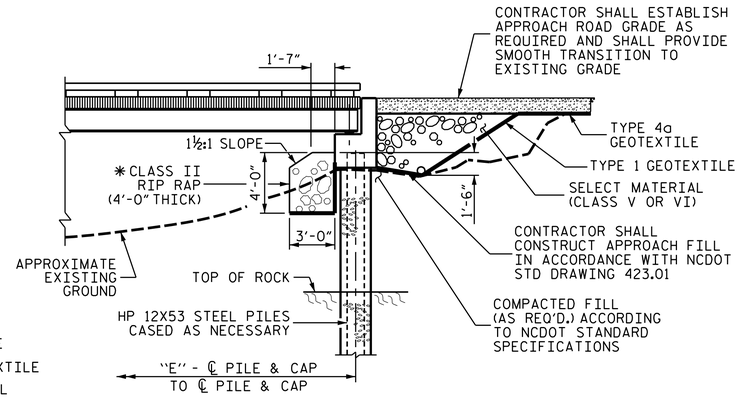
FOR OPTIONAL TIMBER BRIDGE RAIL DETAILS, SEE "OPTIONAL TIMBER BRIDGE RAIL" SHEET.

CONTRACTOR SHALL LOCATE THE EXPANSION BEARING ON THE "UPHILL" END OF THE BRIDGE. THERE WILL BE ONLY ONE EXPANSION BEARING PER BRIDGE.

CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES, AS REQUIRED ACCORDING TO NCDOT STANDARD SPECIFICATIONS AND THE CONTRACT DOCUMENTS.

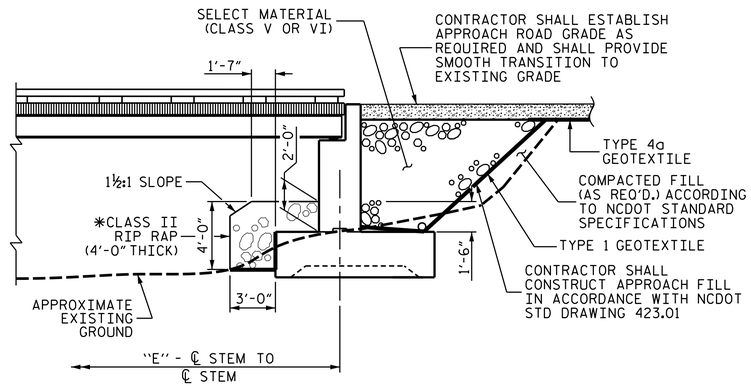
THE CONTRACTOR SHALL SET THE LOW-CHORD ELEVATION OF THE BRIDGE BASED ON EXISTING SITE CONDITIONS AND IN COORDINATION WITH THE ENGINEER, SUCH THAT THE NEW CROSSING PROVIDES CONVEYANCE GREATER THAN OR EQUAL TO THE ORIGINAL DESTROYED CROSSING. THE CONTRACTOR SHALL REFER TO THE BSR WHEN SETTING THE LOW-CHORD ELEVATION OF THE BRIDGE. NO CONSTRUCTION ACTIVITIES SHALL COMMENCE UNTIL ALL PARTIES HAVE AGREED UPON THE LOW-CHORD ELEVATION AND THE DATED PERMIT APPLICATION IS APPROVED.

TIMBER DECKING SHALL BE 2X8 BOARDS. 4X6 TIMBER DECKING (6" DIMENSION HORIZONTAL) MAY BE USED IN LIEU OF 2X8 DECKING; SEE OPTIONAL TYPICAL SECTION ON SHEET S-03 FOR DETAILS.



BRIDGE PARTIAL ELEVATION

(SHOWING DRILLED-IN 12X53 STEEL PILES FOUNDATION)



BRIDGE PARTIAL ELEVATION

(SHOWING SPREAD FOOTING FOUNDATION)

*SEE BSR FOR RIP RAP LIMITS

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
Docusigned by: Gwendolen Wilson
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

GENERAL DRAWING

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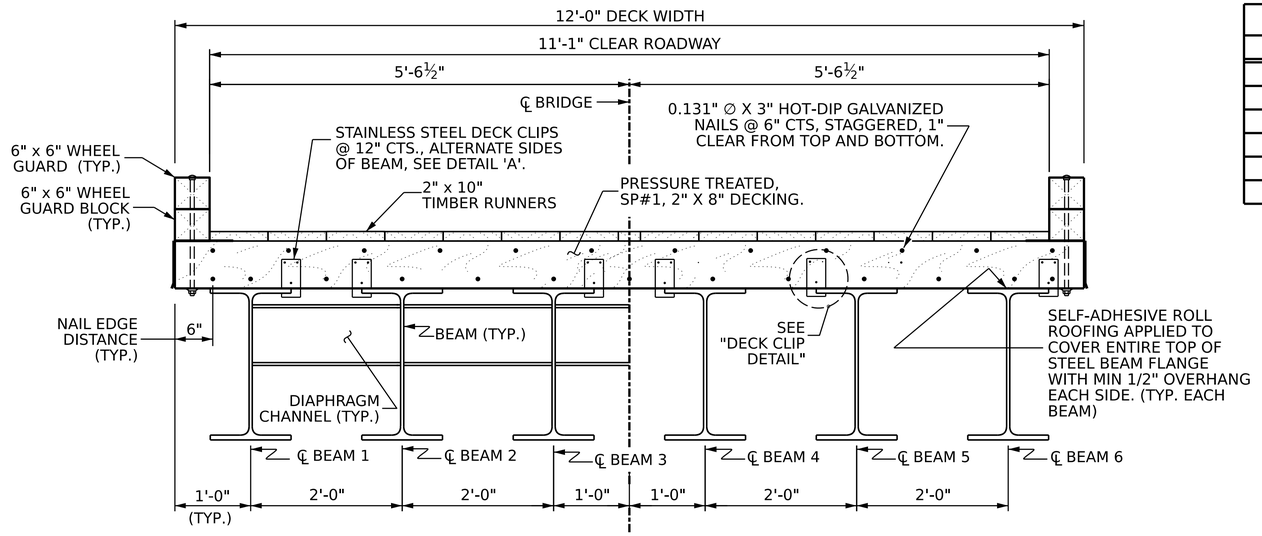
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TOTAL SHEETS 14

wdcruter
DGN: pw://jmt-pw.bentley.com/jmt-pw-01/Documents/Projects/2025/25-00529/25-00529-000/Design/Structures/NC PRB-Steel Beam with Timber Deck Standards/Single Lane Steel Beam with Timber Deck Plans/2 Standard Drawings/20-70 FT - 12 FT DECK WIDTH/001-SI_General Drawing.dgn
TIME: 7:23:20 2026

Docusign Envelope ID: 7DCAD729-896F-8434-8064-B80FB7A31D66



TYPICAL SECTION

MATERIALS TABLE				
SPAN	BEAM	DIAPHRAGM CHANNEL	DECK PLANK	DECKING SQ. FT.
20'-0"	W16X36	C12X20.7	2X8	244
30'-0"	W21X48	C12X20.7	2X8	364
40'-0"	W24X76	C12X20.7	2X8	484
50'-0"	W24X104	C12X20.7	2X8	604
60'-0"	W30X116	C12X20.7	2X8	724
70'-0"	W33X130	C12X20.7	2X8	844

NOTES

FOR TIMBER BRIDGE DECK SYSTEM DETAILS, SEE "PLAN OF SPAN" SHEET.

FOR OPTIONAL TIMBER RAILS, SEE ''OPTIONAL TIMBER BRIDGE RAIL'' SHEET.

FOR BEAM AND DIAPHRAGM DETAILS, SEE "FRAMING PLAN & BEAM DETAILS" SHEET.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

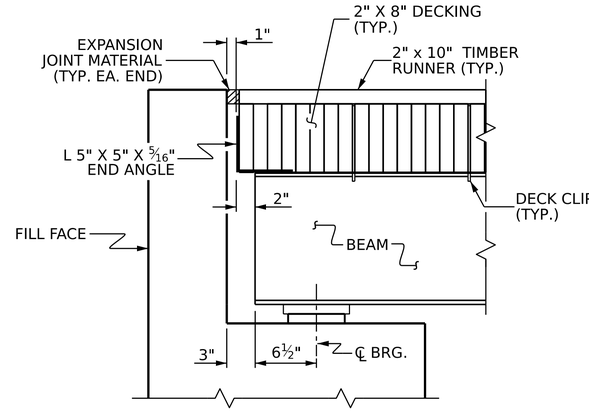
SEE ''PLAN OF SPAN'' SHEET FOR NUMBER OF WHEEL GUARDS AND WHEEL GUARD SPACING.

STAINLESS STEEL DECK CLIPS SHALL BE FABRICATED FROM 12-GAUGE STEEL.

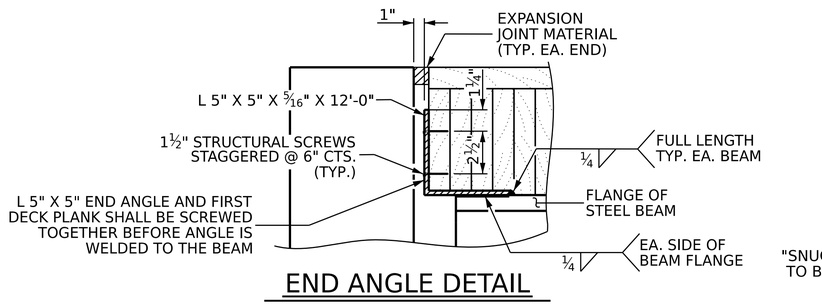
THE 2"X10" TIMBER RUNNERS SHALL BE LAID OUT SYMMETRICALLY ABOUT THE CENTERLINE OF THE BRIDGE. ANY REQUIRED WIDTH ADJUSTMENT SHALL BE MADE AT THE CENTER RUNNER.

PLACE 2X10 WEARING SURFACE BOARDS PARALLEL TO TRAFFIC WITH A UNIFORM ¼" CLEAR LONGITUDINAL GAP BETWEEN ADJACENT BOARDS. DO NOT BUTT BOARDS TIGHT. THIS GAP SHALL BE MAINTAINED TO FACILITATE SURFACE DRAINAGE AND PREVENT MOISTURE ENTRAPMENT AT THE INTERFACE OF THE STRUCTURAL DECK.

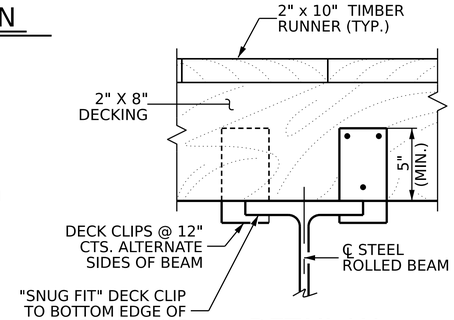
INSTALL 2X10 WEARING SURFACE BOARDS WITH GROWTH RINGS CURVING DOWNWARD TO PROMOTE DRAINAGE.



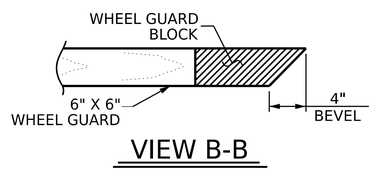
SECTION AT END BENT



END ANGLE DETAIL



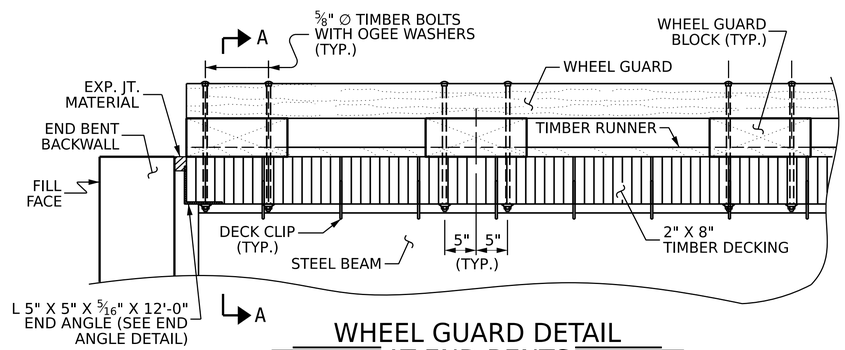
DETAIL 'A'



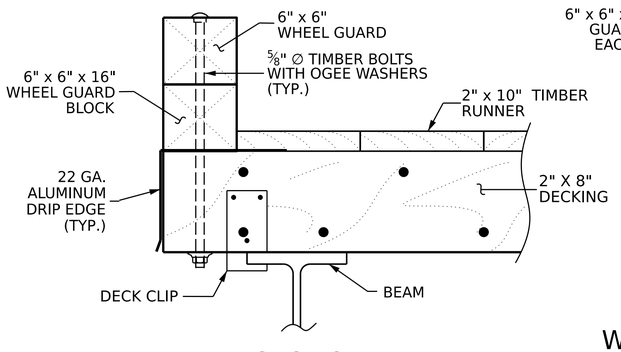
VIEW B-B

DECK CLIP DIMENSIONS		
SPAN	BEAM	*A
20'-0"	W16X36	½"
30'-0"	W21X48	½"
40'-0"	W24X76	¾"
50'-0"	W24X104	13/16"
60'-0"	W30X116	15/16"
70'-0"	W33X130	15/16"

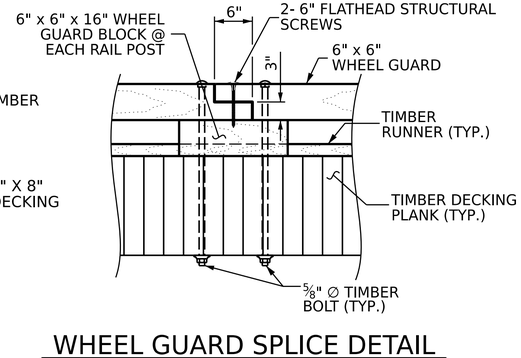
* DIMENSION A IS FOR INFORMATION ONLY. IT IS BASED ON THE FLANGE THICKNESS PLUS A 1/16" TOLERANCE. THE CONTRACTOR SHALL VERIFY THIS DIMENSION WITH DECK CLIP SUPPLIER. THE DECK CLIP SHALL HAVE A SNUG FIT TO THE BEAM FLANGE.



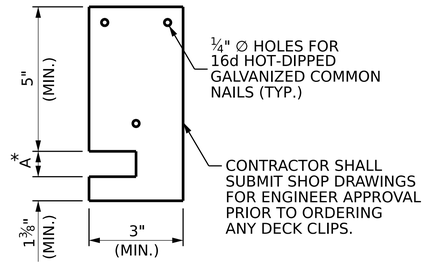
WHEEL GUARD DETAIL AT END BENTS



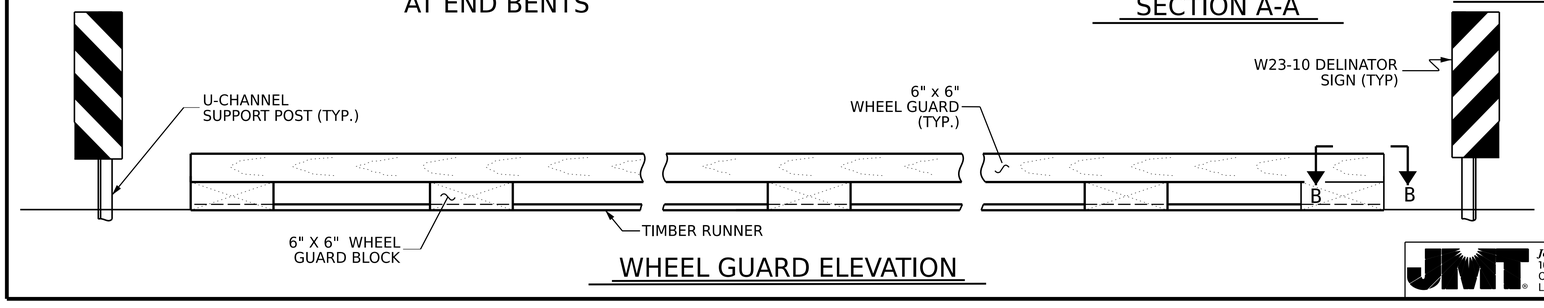
SECTION A-A



WHEEL GUARD SPLICE DETAIL



DECK CLIP DETAIL



WHEEL GUARD ELEVATION

Digitally signed by Gwendolen F. Wilson
07/27/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
2X8 TIMBER DECK

TYPICAL SECTION & RAIL DETAILS

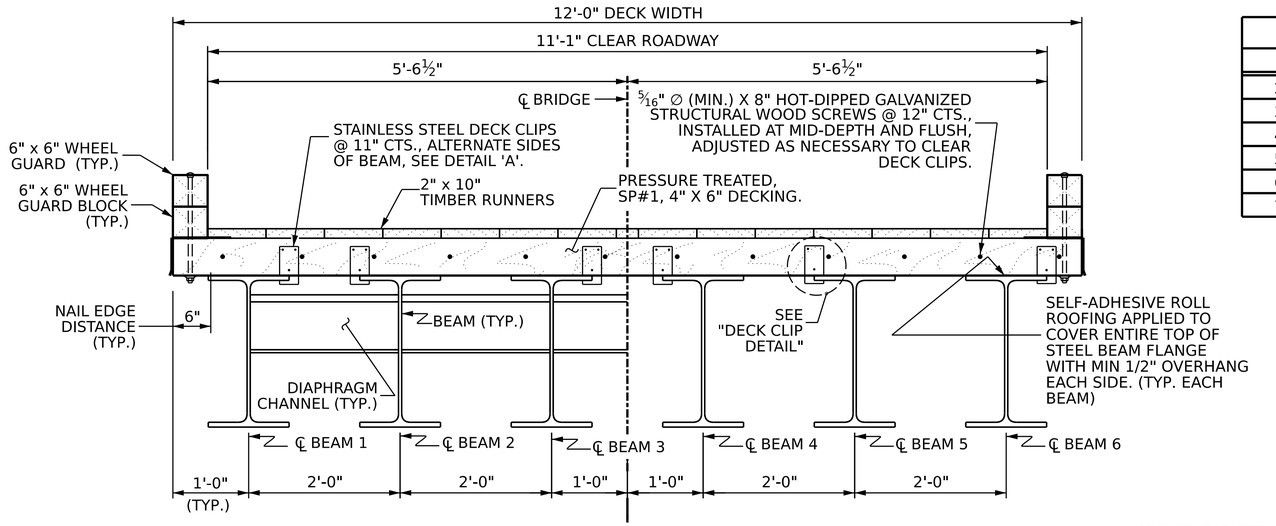
Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

DWN. BY: BC DATE: 04/2026
CHKD. BY: GFW DATE: 04/2026
DES. EGR. OF RECORD: GFW DATE: 04/2026

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-02
1			3			TOTAL SHEETS
2			4			14

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TIME: 7:25:2026

Docusign Envelope ID: 7DCAD729-896F-8434-8064-B80FB7A31D66



TYPICAL SECTION

MATERIALS TABLE				
SPAN	BEAM	DIAPHRAGM CHANNEL	DECK PLANK	DECKING SQ. FT.
20'-0"	W16X36	C12X20.7	4X6	244
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40'-0"	W24X76	C12X20.7	4X6	484
50'-0"	W24X104	C12X20.7	4X6	604
60'-0"	W30X116	C12X20.7	4X6	724
70'-0"	W33X130	C12X20.7	4X6	844

NOTES

FOR TIMBER BRIDGE DECK SYSTEM DETAILS, SEE "PLAN OF SPAN" SHEET.

FOR OPTIONAL TIMBER RAILS, SEE ''OPTIONAL TIMBER BRIDGE RAIL'' SHEET.

FOR BEAM AND DIAPHRAGM DETAILS, SEE "FRAMING PLAN & BEAM DETAILS" SHEET.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

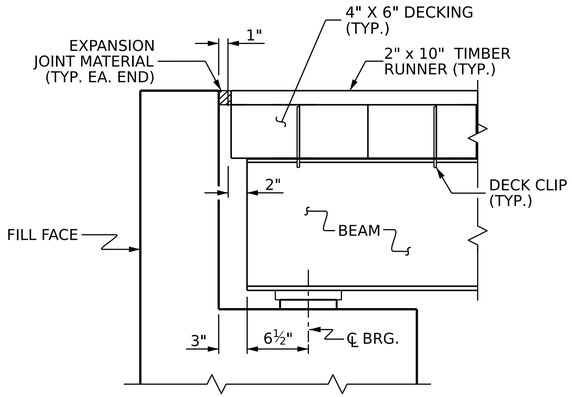
SEE ''PLAN OF SPAN'' SHEET FOR NUMBER OF WHEEL GUARDS AND WHEEL GUARD SPACING.

STAINLESS STEEL DECK CLIPS SHALL BE FABRICATED FROM 12 GAUGE STEEL.

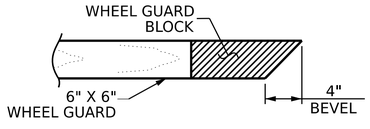
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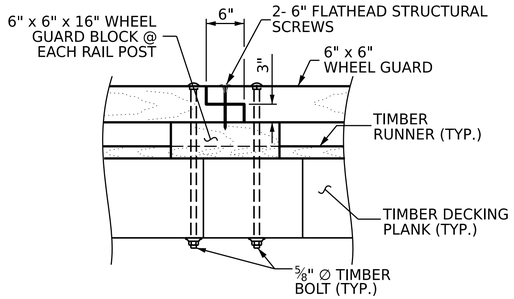
INSTALL 2X10 WEARING SURFACE BOARDS WITH GROWTH RINGS CURVING DOWNWARD TO PROMOTE DRAINAGE.



SECTION AT END BENT



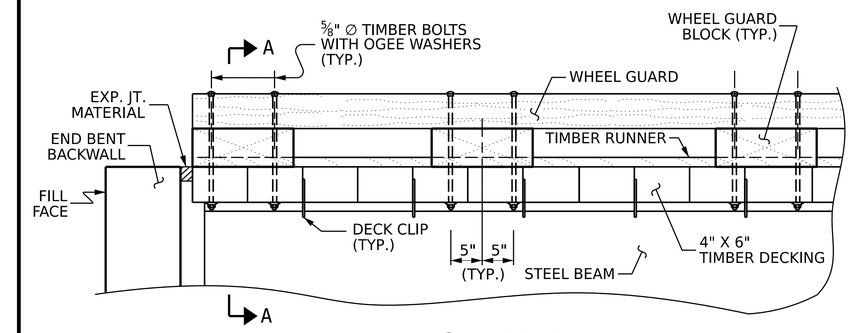
VIEW B-B



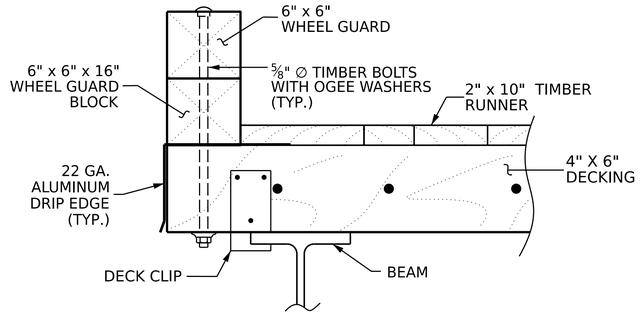
WHEEL GUARD SPLICE DETAIL

DECK CLIP DIMENSIONS		
SPAN	BEAM	*A
20'-0"	W16X36	½"
30'-0"	W21X48	½"
40'-0"	W24X76	¾"
50'-0"	W24X104	13/16"
60'-0"	W30X116	15/16"
70'-0"	W33X130	15/16"

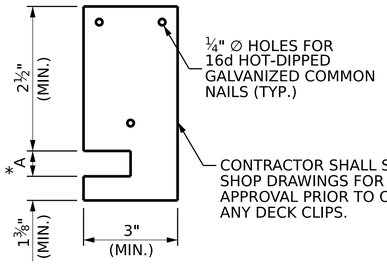
* DIMENSION A IS FOR INFORMATION ONLY. IT IS BASED ON THE FLANGE THICKNESS PLUS A 1/16" TOLERANCE. THE CONTRACTOR SHALL VERIFY THIS DIMENSION WITH DECK CLIP SUPPLIER. THE DECK CLIP SHALL HAVE A SNUG FIT TO THE BEAM FLANGE.



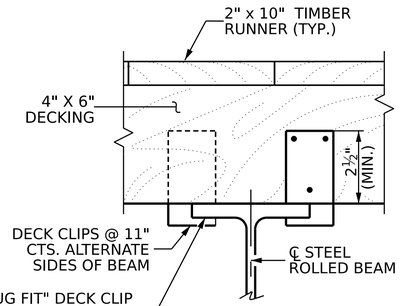
WHEEL GUARD DETAIL AT END BENTS



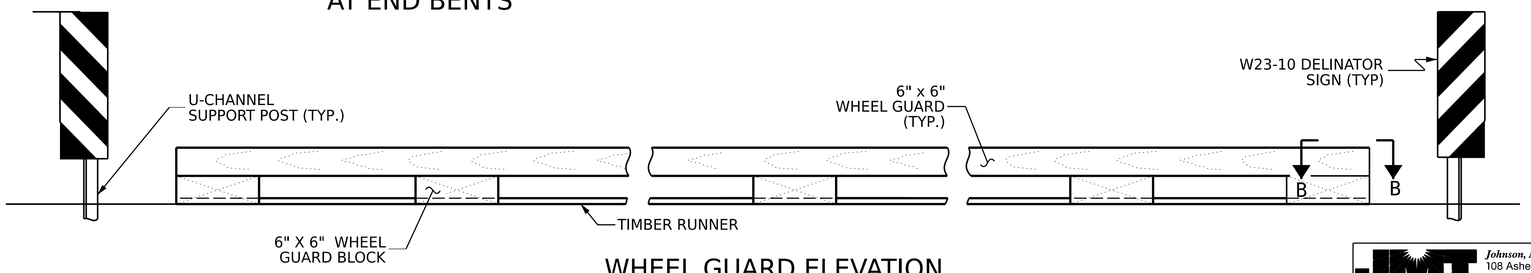
SECTION A-A



DECK CLIP DETAIL



DETAIL 'A'



WHEEL GUARD ELEVATION

Docusigned by: Gwendolen F. Wilson F1F1E4AD2E8342C...
NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
4X6 TIMBER DECK

OPTIONAL TYPICAL SECTION & RAIL DETAILS

JMT Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

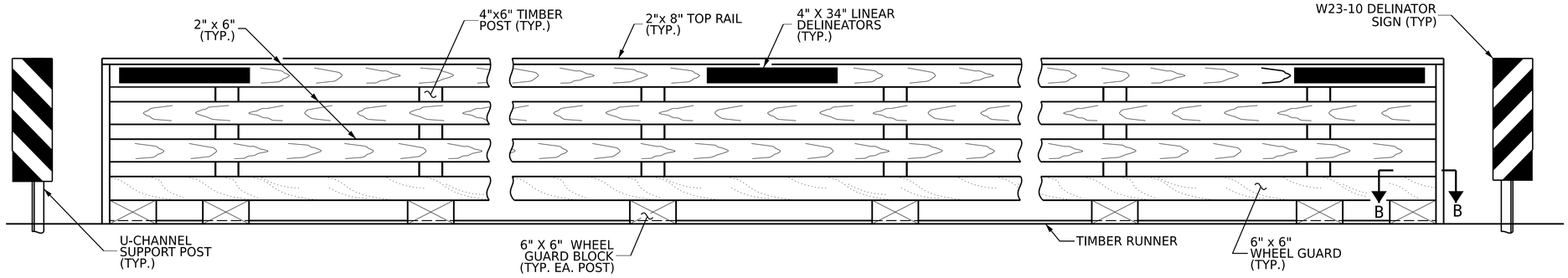
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CHKD. BY: GFW DATE: 04/2026
DES. EGR. OF RECORD: GFW DATE: 04/2026

REVISIONS					
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SHEET NO. S-03
TOTAL SHEETS 14

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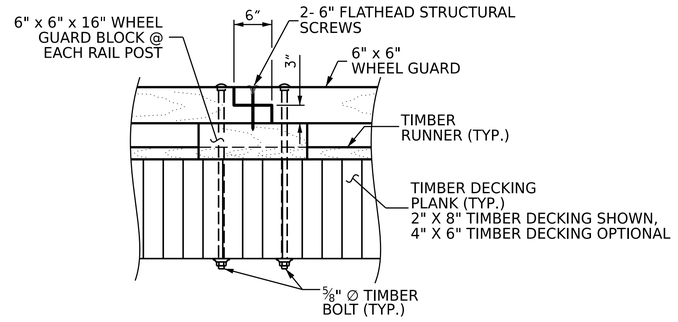
ELEVATION OF OPTIONAL BRIDGE RAIL

OPTIONAL BRIDGE RAIL NOTES

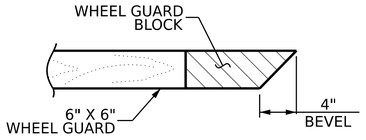
BRIDGE RAILS SHALL BE CONTINUOUS FROM END POST TO END POST WITH NO GAPS. RAIL LUMBER LENGTHS SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

TREAT ALL DRILLED OR NEWLY EXPOSED HOLES IN TIMBER MEMBERS BY PUMPING WITH BITUMINOUS ASPHALT-BASED ROOFING CEMENT, OR APPROVED PRESERVATIVE SYSTEM BEFORE INSTALLING HARDWARE.

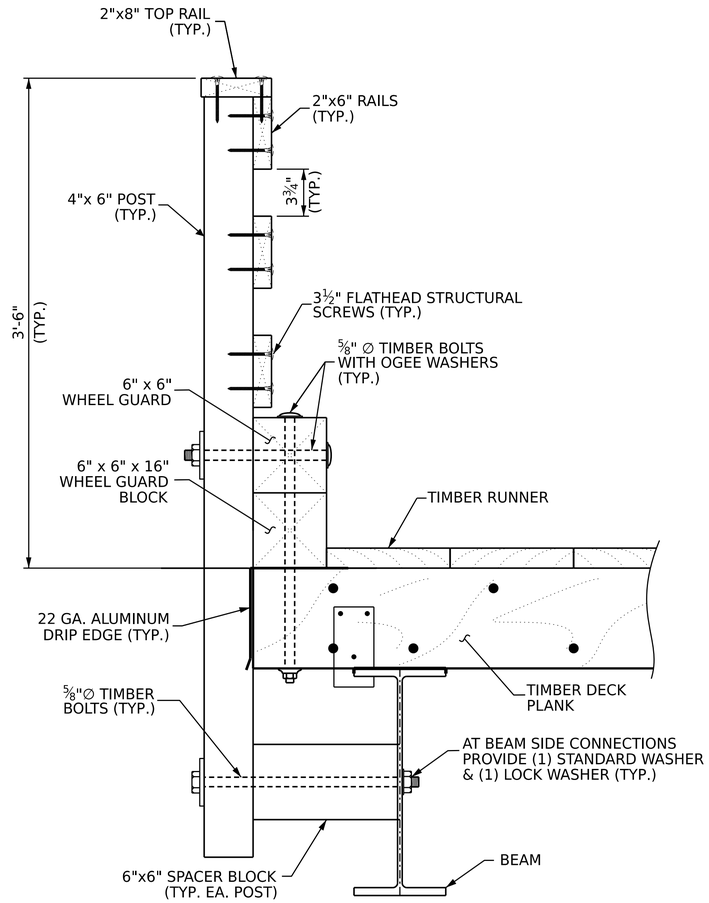
SEE ''PLAN OF SPAN'' SHEET FOR NUMBER OF POSTS AND POST SPACING.



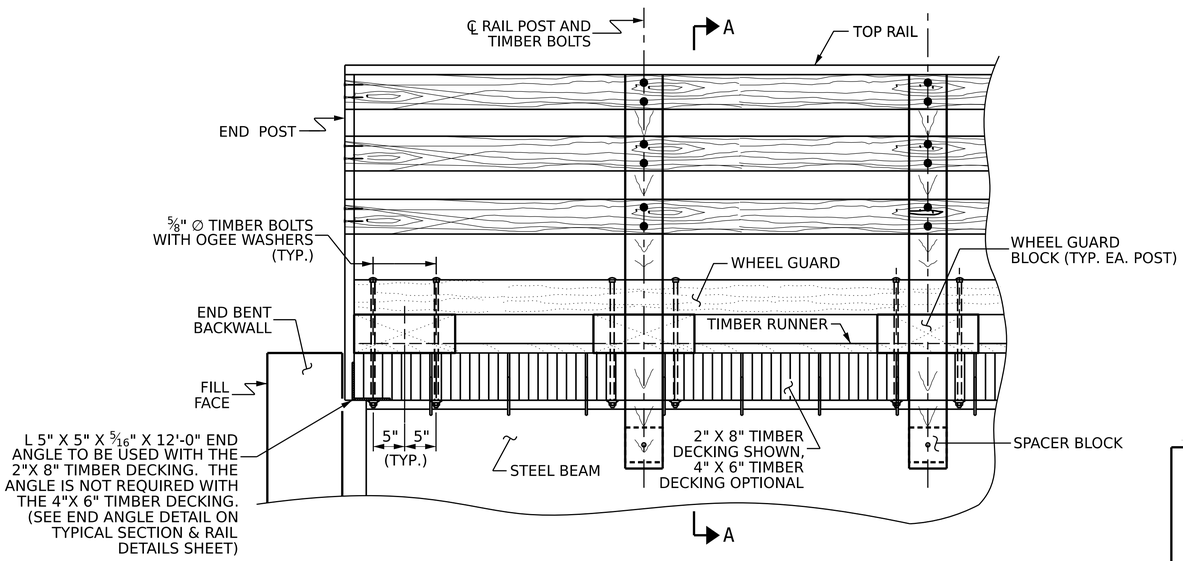
WHEEL GUARD SPLICE DETAIL



VIEW B-B



SECTION A-A



OPTIONAL RAIL DETAIL AT END BENTS

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

OPTIONAL TIMBER BRIDGE RAIL

Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

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CHKD. BY: GFW DATE: 04/2026
DES. EGR. OF RECORD: GFW DATE: 04/2026

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TOTAL SHEETS 14

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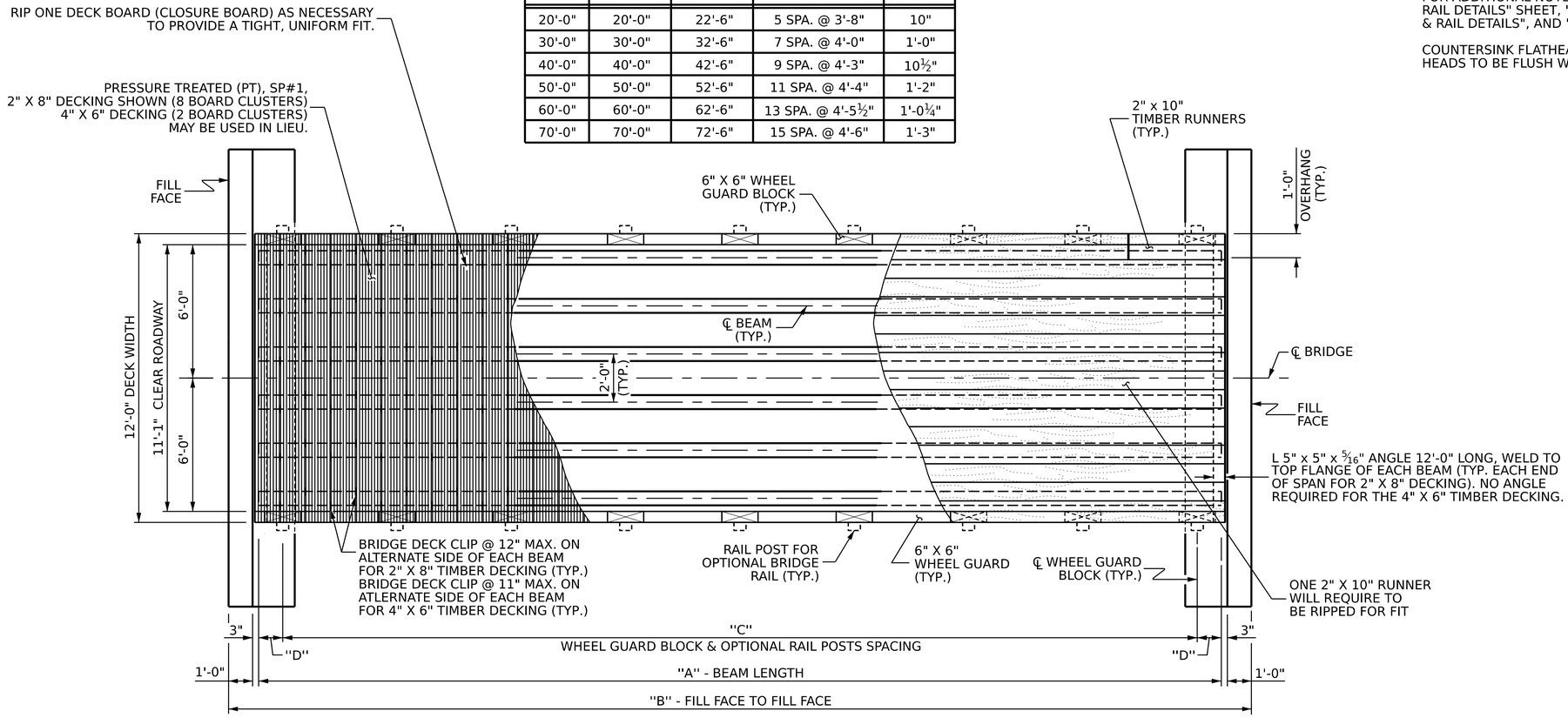
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DIMENSIONS TABLE				
SPAN	A	B	C	D
20'-0"	20'-0"	22'-6"	5 SPA. @ 3'-8"	10"
30'-0"	30'-0"	32'-6"	7 SPA. @ 4'-0"	1'-0"
40'-0"	40'-0"	42'-6"	9 SPA. @ 4'-3"	10½"
50'-0"	50'-0"	52'-6"	11 SPA. @ 4'-4"	1'-2"
60'-0"	60'-0"	62'-6"	13 SPA. @ 4'-5½"	1'-0¼"
70'-0"	70'-0"	72'-6"	15 SPA. @ 4'-6"	1'-3"

NOTES

FOR ADDITIONAL NOTES, SEE "TYPICAL SECTION & RAIL DETAILS" SHEET, "OPTIONAL TYPICAL SECTION & RAIL DETAILS", AND "GENERAL NOTES" SHEET.

COUNTERSINK FLATHEAD STRUCTURAL TIMBER SCREW HEADS TO BE FLUSH WITH TIMBER SURFACE.

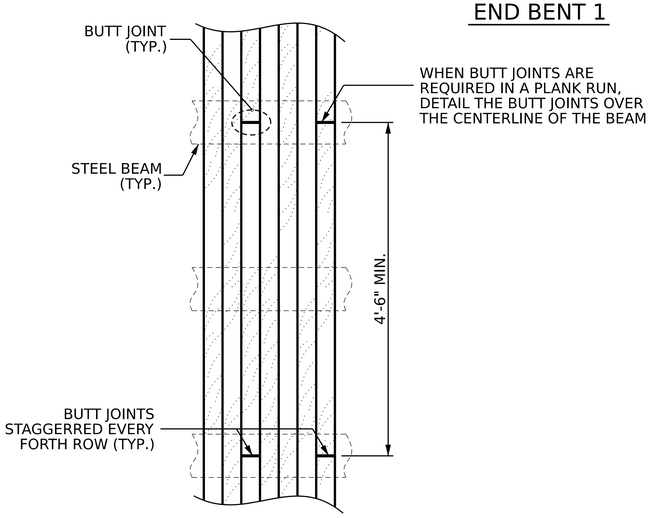


END BENT 1

END BENT 2

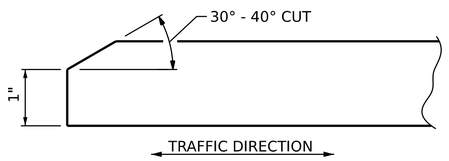
DECK LAYOUT

2" X 8" TIMBER DECKING SHOWN. 4" X 6" TIMBER DECKING (6" DIMENSION HORIZONTAL) MAY BE USED IN LIEU OF 2" X 8" DECKING.



DECKING BOARD BUTT JOINT DETAIL

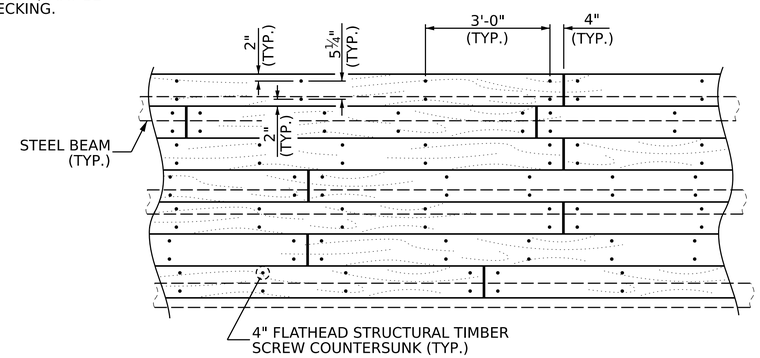
BUTT JOINTS SHALL BE OVER THE CENTERLINE OF A BEAM. JOINTS SHALL BE STAGGERED EVERY FOURTH DECK BOARD. NONE ALLOWED AT THE EXTERIOR BEAMS.



SIDE VIEW

TIMBER RUNNER BEVEL DETAIL

(TYP. AT EACH END OF BRIDGE)



TIMBER RUNNER BUTT JOINT DETAIL

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON

07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

PLAN OF SPAN

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108 Asheville Commerce Parkway
Candler, NC, 28715
License No: C-3097

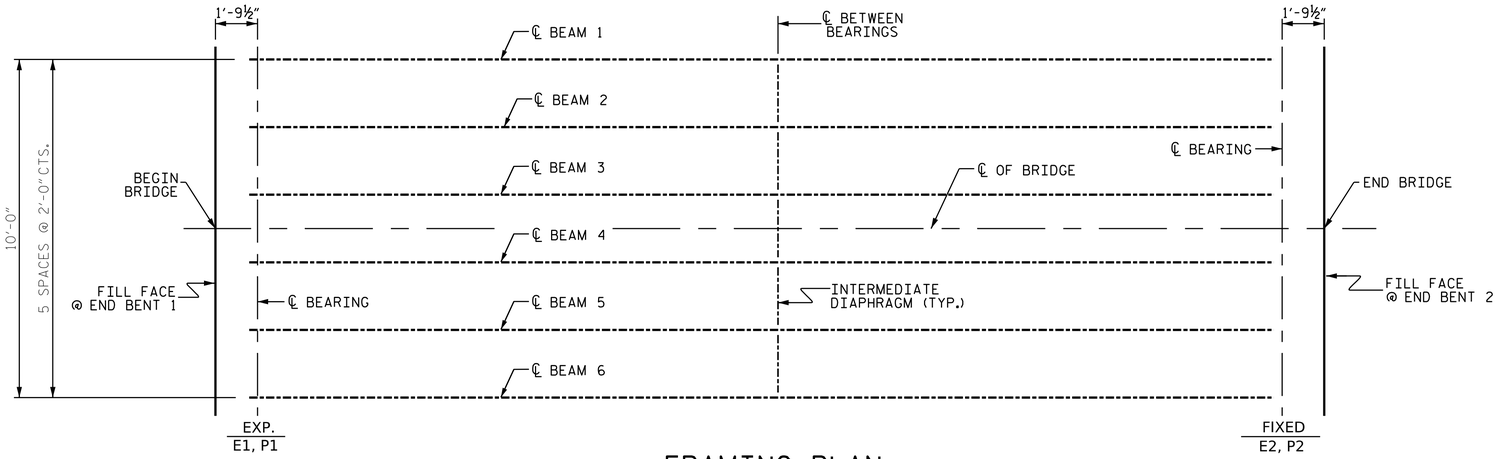
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CHKD. BY: GFW DATE: 04/2026
DES. EGR. OF RECORD: GFW DATE: 04/2026

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SHEET NO. S-05
TOTAL SHEETS 14

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TIME: 11:25:2026

Docusign Envelope ID: 7DCAD729-896F-8434-8064-B80FB7A31D66



FRAMING PLAN

EXPANSION BEARING SHALL BE PLACED ON THE "UPHILL" END OF THE BRIDGE.

BEAM FLANGE ELEVATION

SHOWING DIAPHRAGM HOLES FOR ALL BEAMS, AND RAIL POST HOLES FOR EXTERIOR BEAMS.

BEAM DIMENSION TABLE

SPAN	BEAM	CHANNEL	A	B	C	D	E
20'-0"	W16X36	C12X20.7	20'-0"	2 SPA. @ 7'-0"	3'-0"	10"	5 SPA. @ 3'-8"
30'-0"	W21X48	C12X20.7	30'-0"	2 SPA @ 12'-0"	3'-0"	1'-0"	7 SPA. @ 4'-0"
40'-0"	W24X76	C12X20.7	40'-0"	2 SPA. @ 17'-0"	3'-0"	10½"	9 SPA. @ 4'-3"
50'-0"	W24X104	C12X20.7	50'-0"	2 SPA. @ 22'-0"	3'-0"	1'-2"	11 SPA. @ 4'-4"
60'-0"	W30X116	C12X20.7	60'-0"	4 SPA. @ 13'-6"	3'-0"	1'-0¼"	13 SPA. @ 4'-5½"
70'-0"	W33X130	C12X20.7	70'-0"	4 SPA. @ 16'-0"	3'-0"	1'-3"	15 SPA. @ 4'-6"

SECTION VIEW - BRG. STIFFENER

STIFFENER DIMENSION

BEAM	F	G	H
W16X36	1'-3"	3⅜"	2"
W21X48	1'-7¾"	3⅞"	2"
W24X76	1'-10⁹⁄₁₆"	4¼"	2⁷⁄₁₆"
W24X104	1'-10⁹⁄₁₆"	6⅛"	2¾"
W30X116	2'-4¼"	5"	3¹⁄₁₆"
W33X130	2'-7⅜"	5½"	3⅛"

NOTES

NO SALVAGED BEAMS SHALL BE USED, UNLESS OTHERWISE NOTED ON THE PLANS.

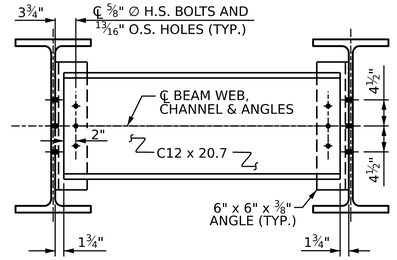
NO SHOP CAMBER REQUIRED, TURN NATURAL MILL CAMBER UP.

ALL STRUCTURAL STEEL FIELD CONNECTIONS SHALL BE ⅝" DIA. GALVANIZED HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEAMS SHALL BE PLACED PARALLEL TO THE CHORD.

CONTRACTORS OPTION TO WELD CONNECTOR TO BEAM PRIOR TO SHOP COATING.

SEE "GENERAL NOTES" SHEET FOR COATING.



DIAPHRAGM DETAILS

ANGLE DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045282 GWENDOLEN F. WILSON
07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

FRAMING PLAN & BEAM DETAILS

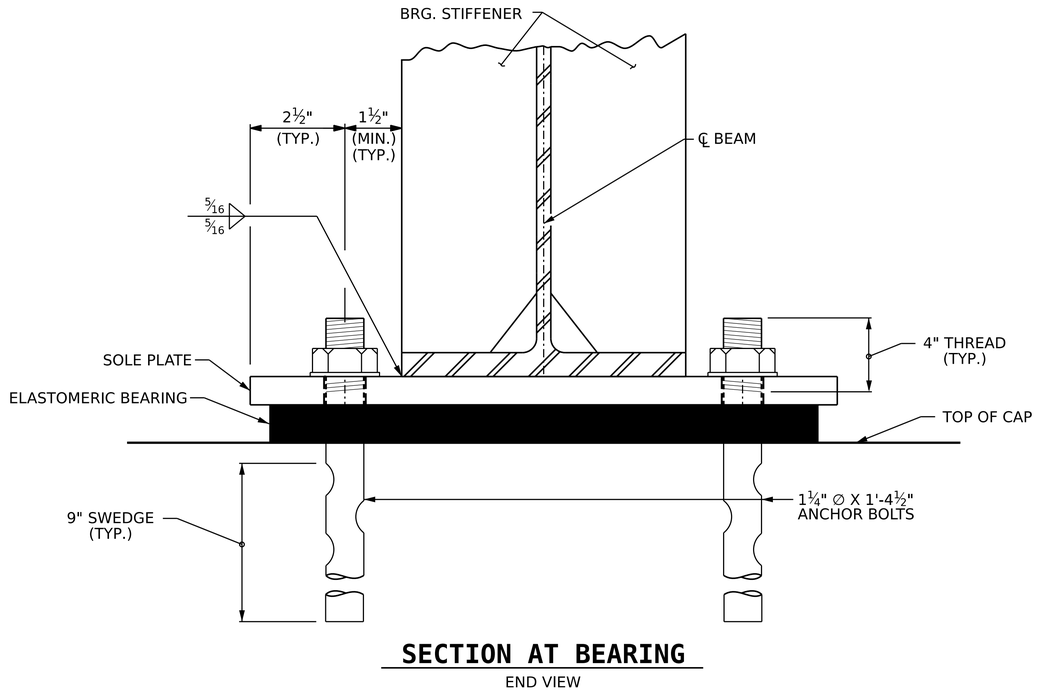
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-06
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2			4			14

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TIME: 7/25/2025

Docusign Envelope ID: 7DCAD729-896F-8434-8064-B80FB7A31D66



SECTION AT BEARING

END VIEW

NOTES

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT ALL SUPPORTS, NUTS FOR ANCHOR BOLTS ARE TO 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.

SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 36.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS, AND WASHERS. SHOP INSPECTION IS REQUIRED.

AT THE APPROVAL OF THE ENGINEER, SOLE PLATES AT THE EXPANSION END MAY BE FIELD WELDED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300° F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

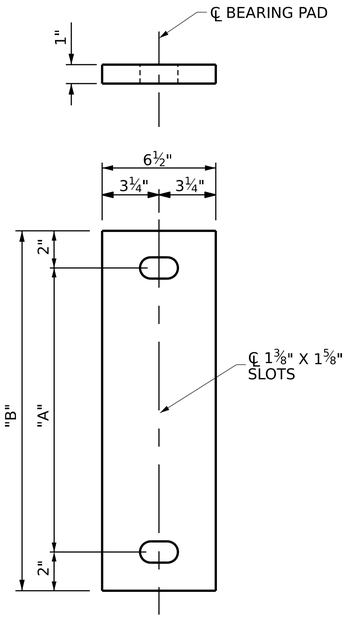
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

AT NO ADDITIONAL COST, THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CAST-IN-PLACE ANCHORS. LEVEL 1 FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ANCHOR BOLT IS 30 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

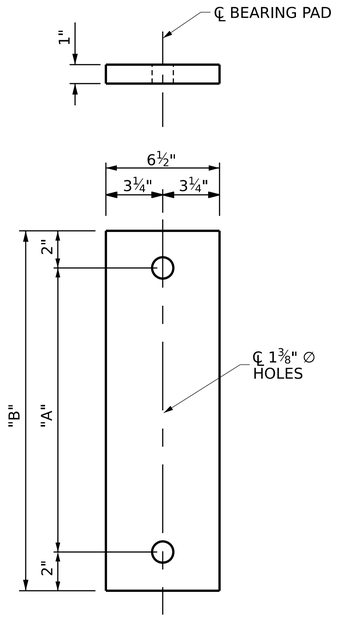
ADHESIVELY ANCHORED ANCHOR BOLTS SHALL BE THREADED FULL LENGTH.

DIMENSIONS TABLE

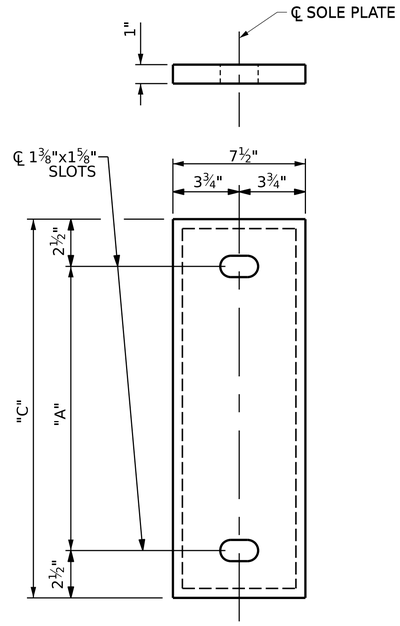
SPAN	BEAM	FLANGE WIDTH	TYPE	A	B	C
20'-0"	W16X36	7"	I	11"	1'-3"	1'-4"
30'-0"	W21X48	8⅛"	II	1'-1"	1'-5"	1'-6"
40'-0"	W24X76	9"	II	1'-1"	1'-5"	1'-6"
50'-0"	W24X104	12¾"	III	1'-4"	1'-8"	1'-9"
60'-0"	W30X116	10½"	IV	1'-3"	1'-7"	1'-8"
70'-0"	W33X130	11½"	IV	1'-3"	1'-7"	1'-8"



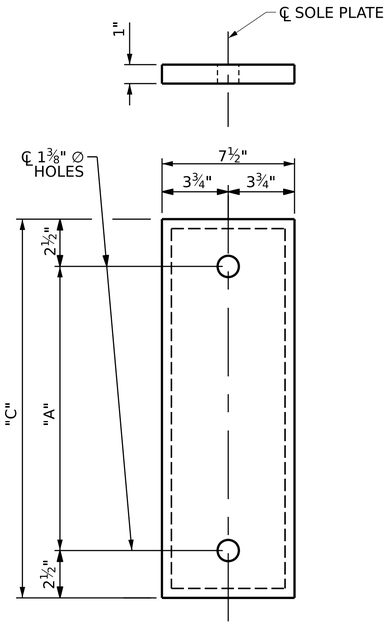
E1 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
EXPANSION



E2 ELASTOMERIC BEARING DETAILS
(6 REQ'D)
FIXED



P1 SOLE PLATE DETAILS
(6 REQ'D)
EXPANSION



P2 SOLE PLATE DETAILS
(6 REQ'D)
FIXED

NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026
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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

BEARING DETAILS

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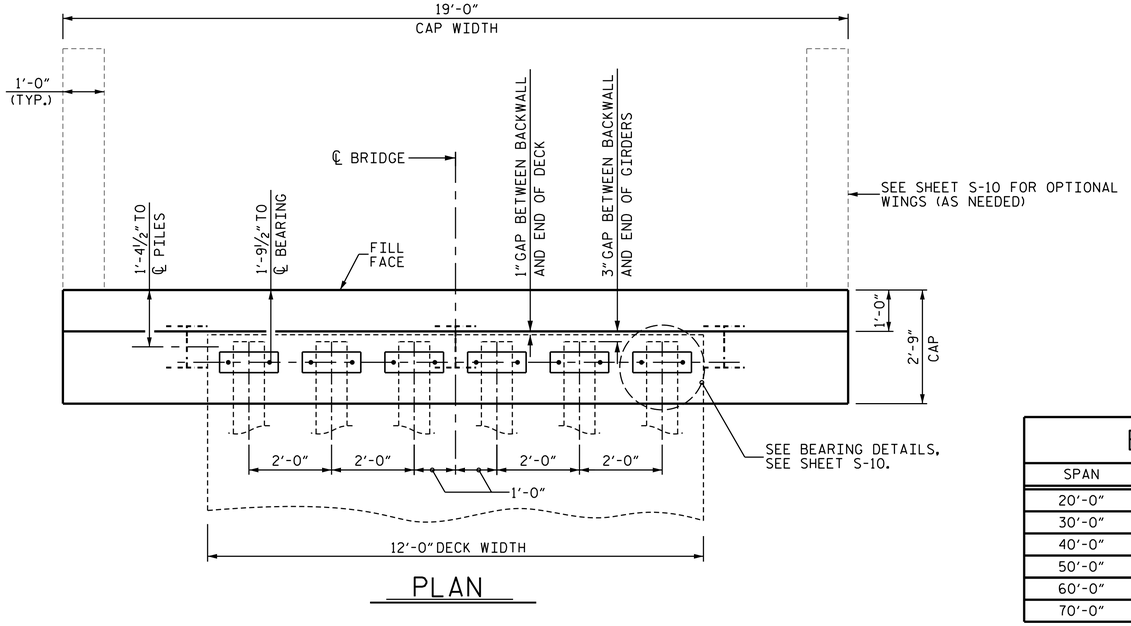
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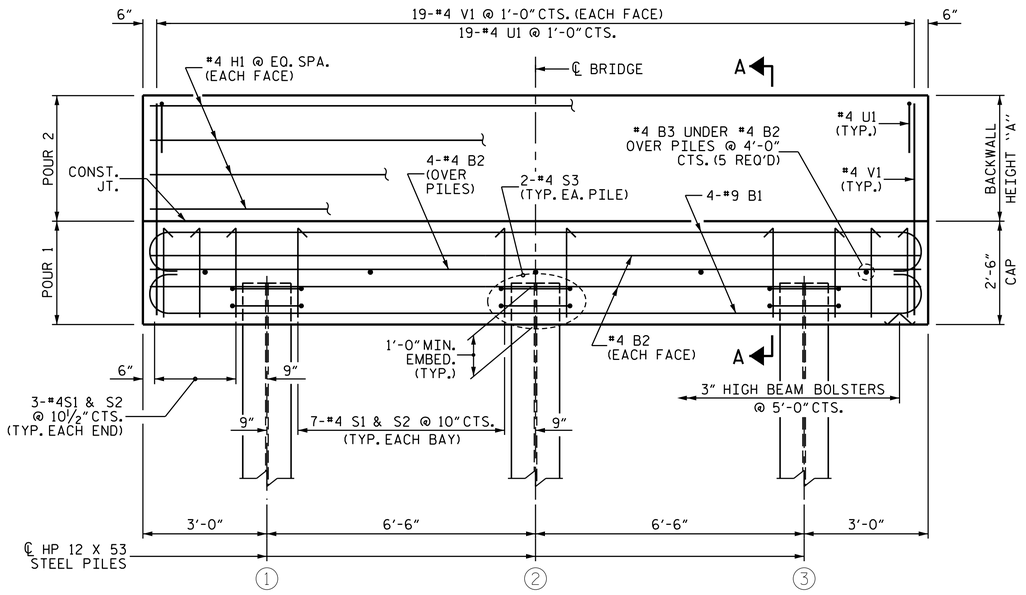
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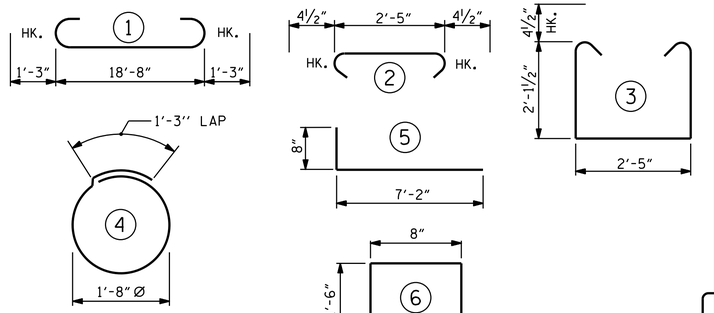
PLAN



ELEVATION

(OPTIONAL WINGS NOT SHOWN FOR CLARITY)

BAR TYPES



ADDITIONAL BARS FOR 2 OPTIONAL WINGS

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	21'-2"	576
B2	8	#4	STR	18'-8"	100
B3	5	#4	STR	2'-5"	8
H1	8	#4	STR	18'-8"	100
S1	20	#4	3	7'-5"	99
S2	20	#4	2	3'-2"	42
S3	6	#4	4	6'-6"	26
U1	19	#4	6	3'-8"	47
V1	38	#4	STR	4'-4"	110
H2	28	#4	5	7'-10"	147
V2	56	#4	STR	3'-2"	118

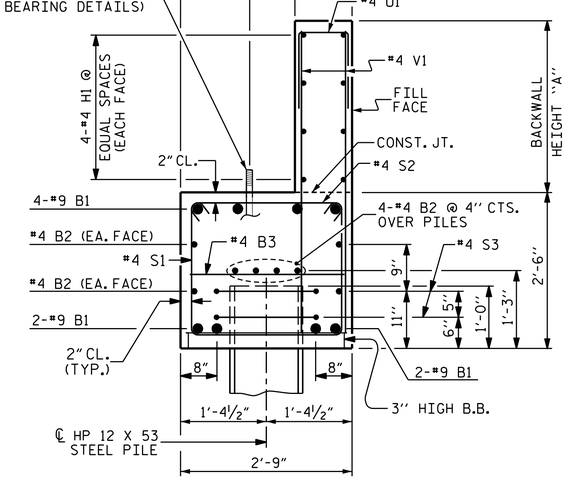
	W/O WINGS	WITH WINGS
REINFORCING STEEL (FOR ONE END BENT) (LBS.) ✳	1,108	1,373
CLASS A CONCRETE (FOR ONE END BENT) (C.Y.)		
POUR 1	4.8	6.0
POUR 2 ✳	1.7	2.8
TOTAL	6.5	8.8

✳ REINFORCING AND CONCRETE QUANTITIES ARE BASED ON THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. CONTRACTOR SHALL ADJUST FOR 4X6 DECKING OR INCREASED BACKWALL HEIGHT.

BACKWALL HEIGHT

SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2⅝"	1'-10⅞"
30'-0"	W21X48	2'-7⅜"	2'-3⅝"
40'-0"	W24X76	2'-10⅝"	2'-6⅞"
50'-0"	W24X104	2'-10¾"	2'-7"
60'-0"	W30X116	3'-4¾"	3'-1"
70'-0"	W33X130	3'-7¾"	3'-4"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.



SECTION A-A

GENERAL NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNEE.

FOR OPTIONAL WINGS FOR END BENT, SEE SHEET S-10.

FOR BEARING DETAILS, SEE SHEET S-10.

FOR PILE SPLICE DETAILS, SEE SHEET S-10.

"V" BARS BASED ON SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. ADJUST LENGTH TO MAINTAIN REQUIRED MIN. CLEARANCE AT BOTTOM OF CAP AND TOP OF BACKWALL.

FOUNDATION NOTES

DRIVEN PILES

INSTALL PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

DO NOT INSTALL PILES UNTIL FILL HAS BEEN PLACED.

DRIVE PILES TO A MINIMUM PENETRATION OF AT LEAST 10 FEET INTO NATURAL GROUND OR CHANNEL BOTTOM.

DRIVE ALL PILES TO "REFUSAL" BELOW MINIMUM PENETRATION.

PREDRILLING OR SPUDDING MAY BE REQUIRED TO ACHIEVE THE MINIMUM PILE PENETRATION.

SUBMIT THE PROPOSED PILE DRIVING METHODS AND EQUIPMENT FOR ACCEPTANCE BY THE ENGINEER.



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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

END BENT
DRIVEN PILES

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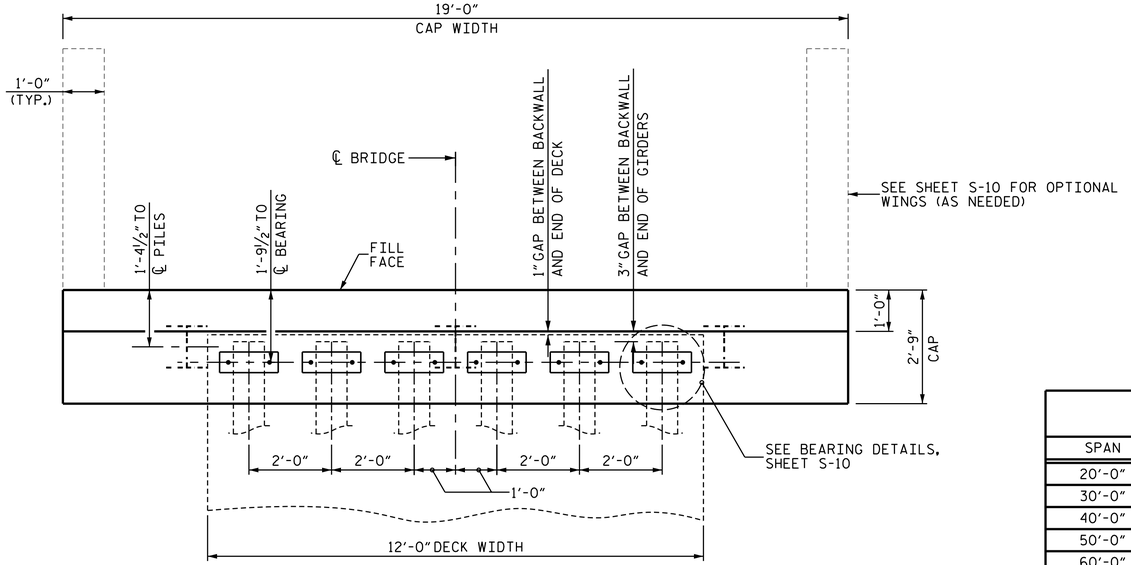
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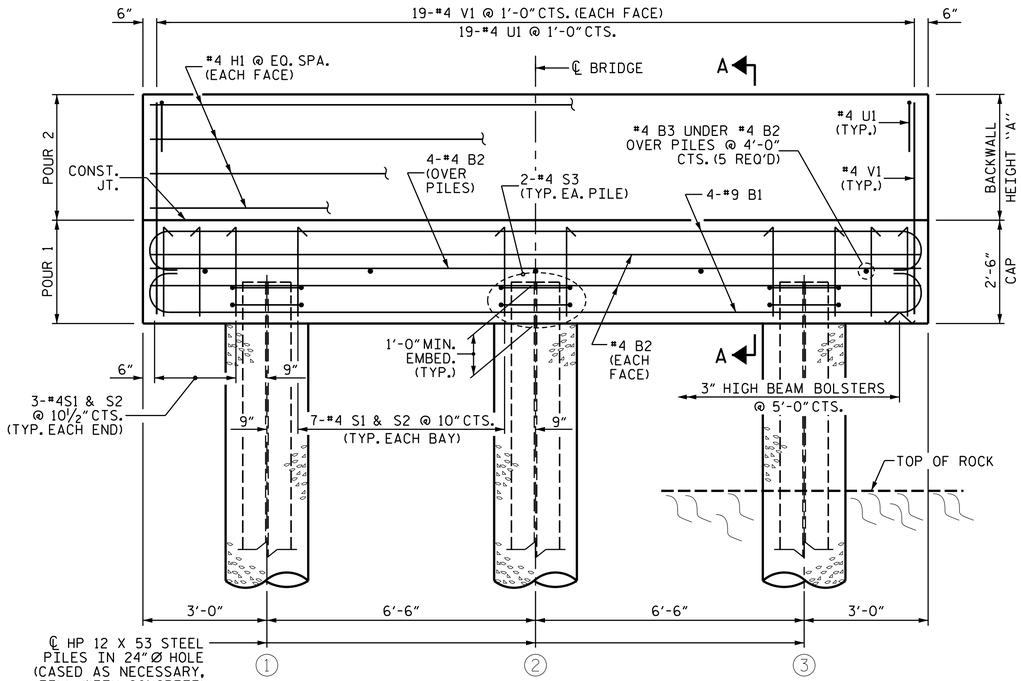
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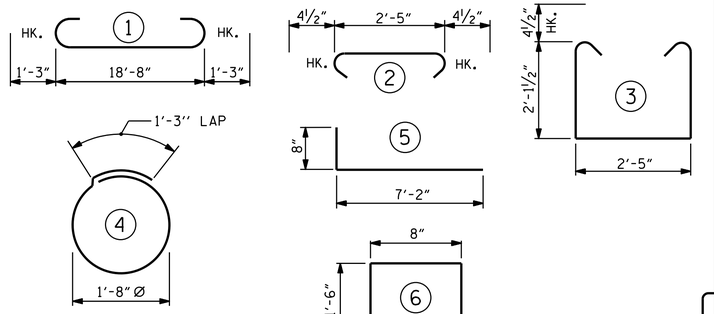
PLAN



ELEVATION

(OPTIONAL WINGS NOT SHOWN FOR CLARITY)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	21'-2"	576
B2	8	#4	STR	18'-8"	100
B3	5	#4	STR	2'-5"	8
H1	8	#4	STR	18'-8"	100
S1	20	#4	3	7'-5"	99
S2	20	#4	2	3'-2"	42
S3	6	#4	4	6'-6"	26
U1	19	#4	6	3'-8"	47
V1	38	#4	STR	4'-4"	110
H2	28	#4	5	7'-10"	147
V2	56	#4	STR	3'-2"	118

ADDITIONAL BARS FOR 2 OPTIONAL WINGS

	W/O WINGS	WITH WINGS
REINFORCING STEEL (FOR ONE END BENT) (LBS.) ✳	1,108	1,373
CLASS A CONCRETE (FOR ONE END BENT) (C.Y.)		
POUR 1	4.8	6.0
POUR 2 ✳	1.7	2.8
TOTAL	6.5	8.8

✳ REINFORCING AND CONCRETE QUANTITIES ARE BASED ON THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. CONTRACTOR SHALL ADJUST FOR 4X6 DECKING OR INCREASED BACKWALL HEIGHT.

BACKWALL HEIGHT

SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2⅝"	1'-10⅞"
30'-0"	W21X48	2'-7⅜"	2'-3⅝"
40'-0"	W24X76	2'-10⅝"	2'-6⅞"
50'-0"	W24X104	2'-10¾"	2'-7"
60'-0"	W30X116	3'-4¾"	3'-1"
70'-0"	W33X130	3'-7¾"	3'-4"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.

GENERAL NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNEE.

FOR OPTIONAL WINGS FOR END BENT, SEE SHEET S-10.

FOR BEARING DETAILS, SEE SHEET S-10.

FOR PILE SPLICE DETAILS, SEE SHEET S-10.

"V" BARS BASED ON SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. ADJUST LENGTH TO MAINTAIN REQUIRED MIN. CLEARANCE AT BOTTOM OF CAP AND TOP OF BACKWALL.

FOUNDATION NOTES

DRILLED-IN PILES

ROCK QUALITY DESIGNATION (RQD)
GEOLOGICAL STRENGTH INDEX (GSI)

INSTALL DRILLED-IN PILES IN ACCORDANCE WITH SECTION 450 OF THE STANDARD SPECIFICATIONS.

MINIMUM PILE PENETRATION OF 10-FT INTO NATURAL GROUND OR CHANNEL BOTTOM IS REQUIRED.

MINIMUM ROCK SOCKET DEPTHS, UNLESS OTHERWISE INDICATED ON PROJECT SPECIFIC DATA SHEET:

4' MINIMUM (RQD >70, GSI >50)
6' MINIMUM (RQD 30-70, GSI 30-50)
8' MINIMUM (RQD <30, GSI <30)

REFER TO BORING LOGS FOR RQD AND GSI DATA.

PILES SHALL BE SEATED IN THE BOTTOM OF THE EXCAVATION. PILE DRIVING IS NOT REQUIRED.

BACKFILL WITH CONCRETE ONLY. DO NOT PROCEED WITH CONSTRUCTION ACTIVITIES UNTIL THE 28 DAY STRENGTH IS ACHIEVED.

SECTION A-A

SHEET 1 OF 2

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07/27/2026

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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

END BENT
DRILLED-IN PILES

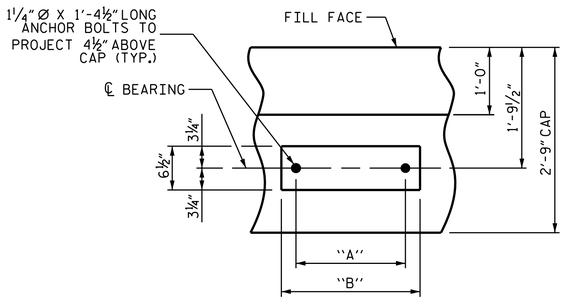
JMT Johnson, Mirmiran, & Thompson Inc.
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2			4			14

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TIME: 7/25/2026

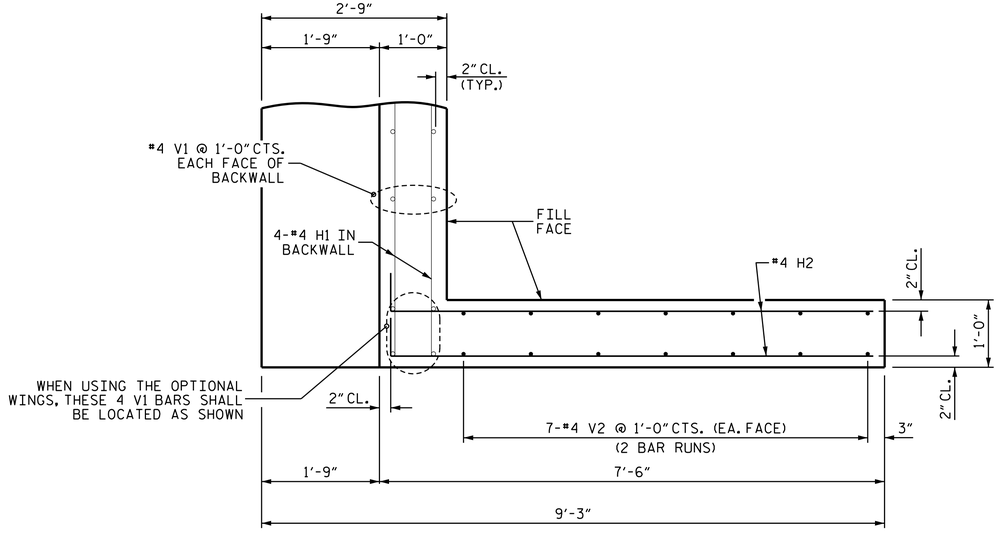
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BEARING DETAIL

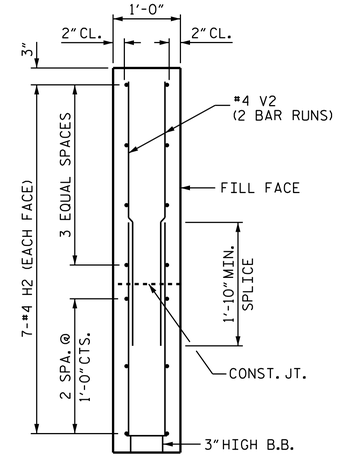
(TYP. EACH BEARING LOCATION)

REFER TO DIMENSIONS TABLE ON SHEET S-07 FOR DIMENSIONS A AND B.



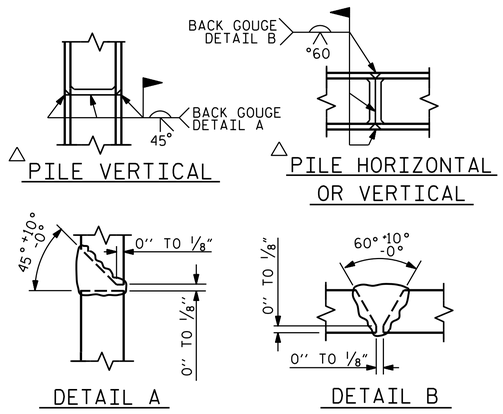
ELEVATION OF WING

(OPTIONAL)



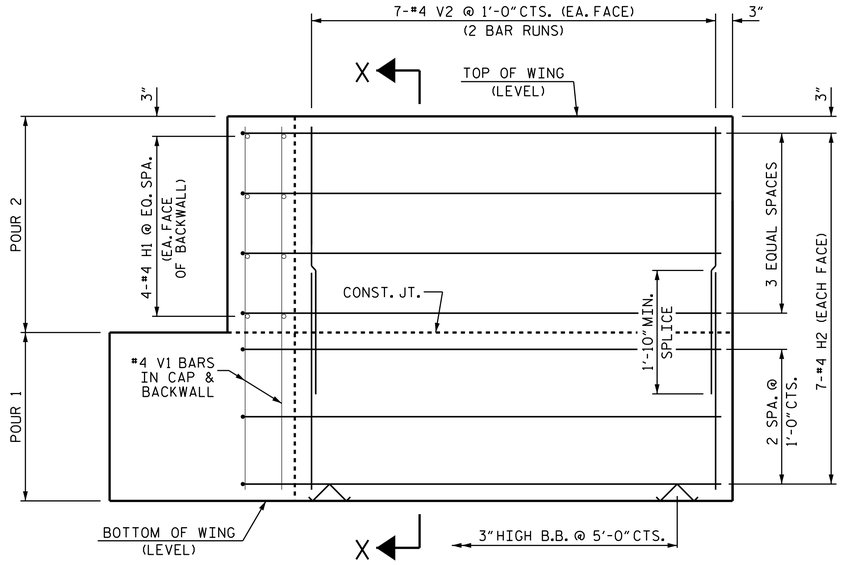
SECTION X-X

(OPTIONAL)



PILE SPLICE DETAILS

△ POSITION OF PILE DURING WELDING.



PLAN OF WING

(OPTIONAL)

RIGHT SIDE WING SHOWN, LEFT SIDE WING SIMILAR.

WING HEIGHT DEPENDENT ON BACKWALL HEIGHT.

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07/27/2026

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SHEET 2 OF 2

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

OPTIONAL WINGS FOR DRIVEN OR DRILLED-IN PILES

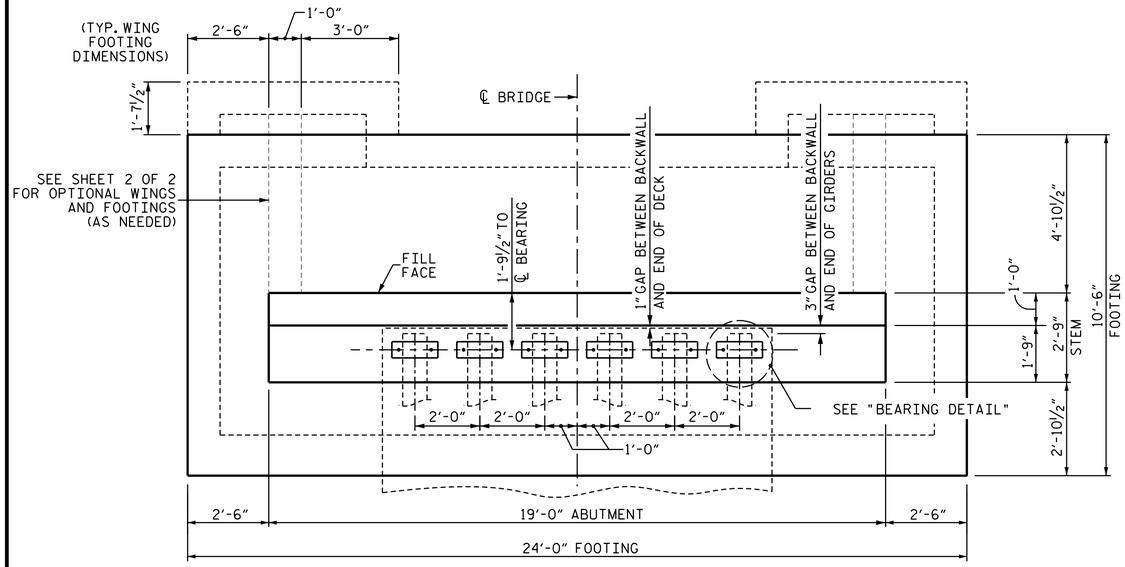
JMT Johnson, Mirmiran, & Thompson Inc.
108 Asheville Commerce Parkway
Candler, NC, 28715
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CHKD. BY: GFW DATE: 04/2026
DES. EGR. OF RECORD: GFW DATE: 04/2026

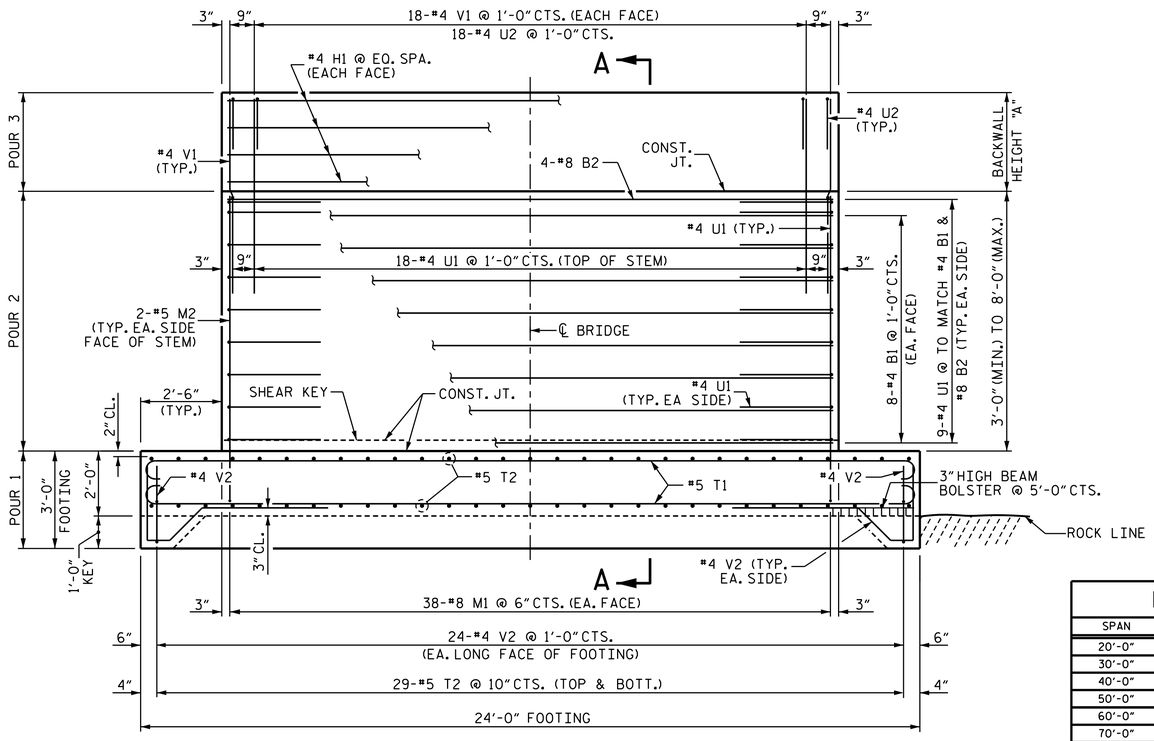
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DGN: pw://jmt-pw.bentley.com/jmt-pw-01/Documents/Projects/2025/25-00529/25-00529-001/Design/Structures/NC PRB-Steel Beam with Timber Deck Standards/Single Lane Steel Beam with Timber Deck Plans/2 Standard Drawings/20-70 FT - 12 FT DECK WIDTH/010-S10_Optional Wings_Pltes.dgn
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PLAN



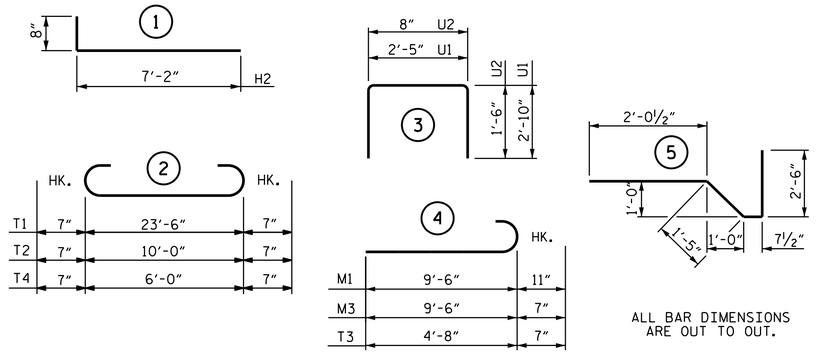
ELEVATION

(OPTIONAL WINGS NOT SHOWN FOR CLARITY)

BACKWALL HEIGHT			
SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2⅝"	1'-10⅞"
30'-0"	W21X48	2'-7⅜"	2'-3⅝"
40'-0"	W24X76	2'-10⅝"	2'-6⅞"
50'-0"	W24X104	2'-10¾"	2'-7"
60'-0"	W30X116	3'-4¾"	3'-1"
70'-0"	W33X130	3'-7¾"	3'-4"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

GENERAL NOTES

U1 BARS IN STEM MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

WINGS MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER OR DESIGNEE.

FOR OPTIONAL WINGS FOR END BENT, SEE SHEET 2 OF 2.

FOR SECTION A-A, SEE SHEET 2 OF 2.

THE FINAL STEM WALL HEIGHT SHALL BE DETERMINED IN THE FIELD BASED ON EXISTING ROCK ELEVATIONS. THE STEM WALL HEIGHT SHALL NOT BE LESS THAN 3'-0"OR GREATER THAN 8'-0.

END BENT REINFORCEMENT AND DETAILS ARE BASED ON A MAXIMUM STEM WALL HEIGHT OF 8'-0"AND THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. CONTRACTOR SHALL ADJUST REINFORCEMENT FOR FIELD-VERIFIED STEM WALL HEIGHTS AND BACKWALL HEIGHTS WHILE MAINTAINING BAR SIZES, SPACING, SPLICE LENGTHS, AND OVERALL CONFIGURATION SHOWN.

FOUNDATION NOTES

SPREAD FOOTING

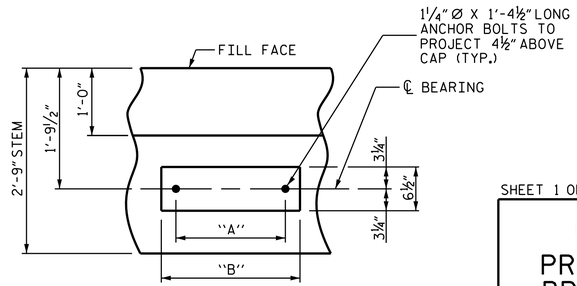
FOUNDATION EXCAVATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 410 OF THE SPECIFICATIONS.

A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA SHALL OBSERVE THE BEARING SURFACE AND CONFIRM THE FOOTING IS CONSTRUCTED ON ROCK. THE ENGINEER SHALL PROVIDE A LETTER VERIFYING ACCEPTANCE OF THE BEARING SURFACE.

CLEAN ALL ROCK OF LOOSE MATERIAL AND CUT TO A FIRM SURFACE, AS DIRECTED BY THE ENGINEER AND FILL WITH CONCRETE, MORTAR OR GROUT. LEAVE ROCK SURFACE IN A ROUGH CONDITION.

BEARING SURFACE MUST RESIST A MAXIMUM APPLIED BEARING PRESSURE OF 5.0 KSF.

KEY IN FOOTINGS AT LEAST 1 FT INTO ROCK.



BEARING DETAIL

(TYP. EACH BEARING LOCATION)
REFER TO DIMENSIONS TABLE ON SHEET S-07 FOR DIMENSIONS A AND B.

**BILL OF MATERIAL FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	16	#4	STR	18'-8"	200
B2	4	#8	STR	18'-8"	199
H1	8	#4	STR	18'-8"	100
M1	76	#8	4	10'-5"	2,114
M2	4	#5	STR	7'-6"	31
T1	26	#5	2	24'-8"	669
T2	58	#5	2	11'-2"	676
U1	38	#4	3	8'-1"	205
U2	20	#4	3	3'-8"	49
V1	40	#4	STR	6'-0"	160
V2	70	#4	5	6'-7"	308
H2	52	#4	1	7'-10"	272
M3	40	#5	4	10'-1"	421
M4	40	#5	STR	5'-4"	223
T3	32	#5	4	5'-3"	175
T4	8	#5	2	7'-2"	60
V2	22	#4	5	6'-7"	97

ADDITIONAL BARS FOR 2 OPTIONAL WINGS WITH FOOTINGS

REINFORCING STEEL (W/O WINGS)	4711 LBS.
REINFORCING STEEL (WITH WINGS)	5959 LBS.

CLASS A CONCRETE BREAKDOWN	
POUR #1 FOOTING	22.5 C.Y.
POUR #2 END BENT STEM	15.5 C.Y.
POUR #3 BACKWALL	1.6 C.Y.
WINGWALLS (OPTIONAL)	7.5 C.Y.
TOTAL CLASS A CONCRETE (W/O WINGS)	39.6 C.Y.
TOTAL CLASS A CONCRETE (WITH WINGS)	47.1 CY

**THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE QUANTITIES AND REINFORCING BARS SHOWN IN THE BILL OF MATERIAL ARE BASED ON AN 8'-0" MAXIMUM STEM WALL HEIGHT AND THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. THE CONTRACTOR IS RESPONSIBLE FOR THE FINAL QUANTITIES BASED ON THE ACTUAL STEM WALL AND BACKWALL HEIGHTS.

Docusigned by: Gene W. Nodlen F., PE
NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GENE W. NODLEN F. WILSON
07/27/2026

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SHEET 1 OF 2

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

END BENT

SPREAD FOOTING

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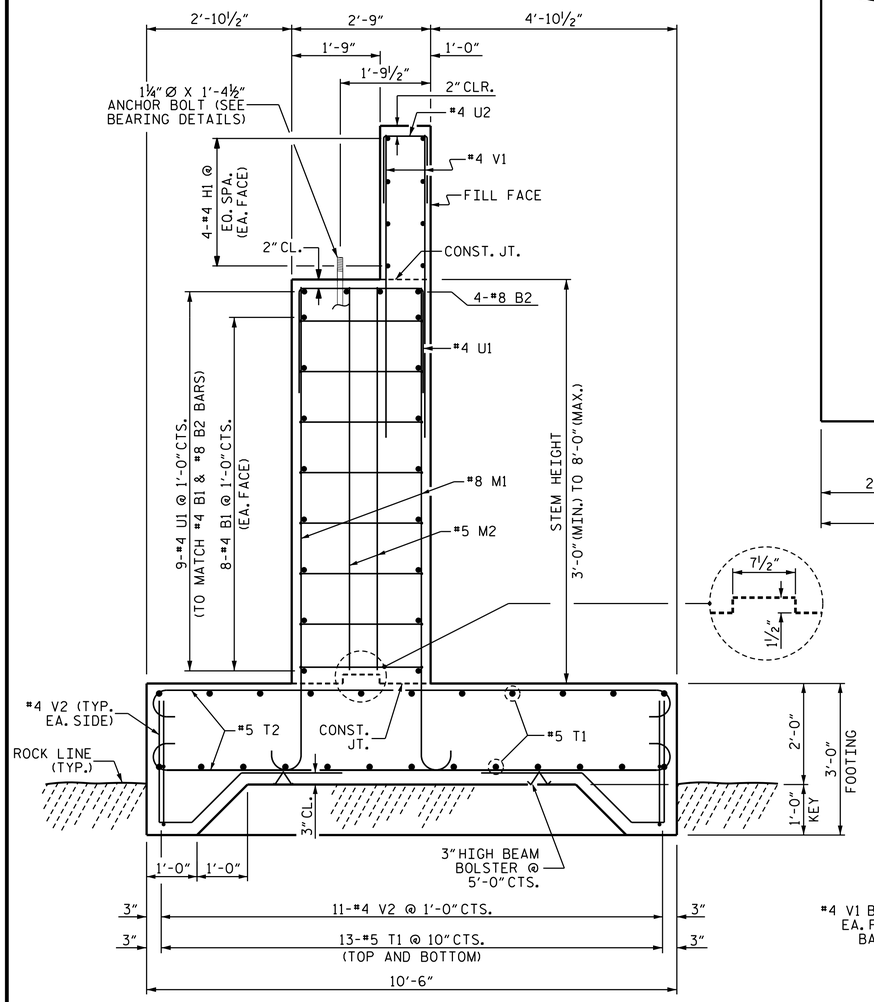
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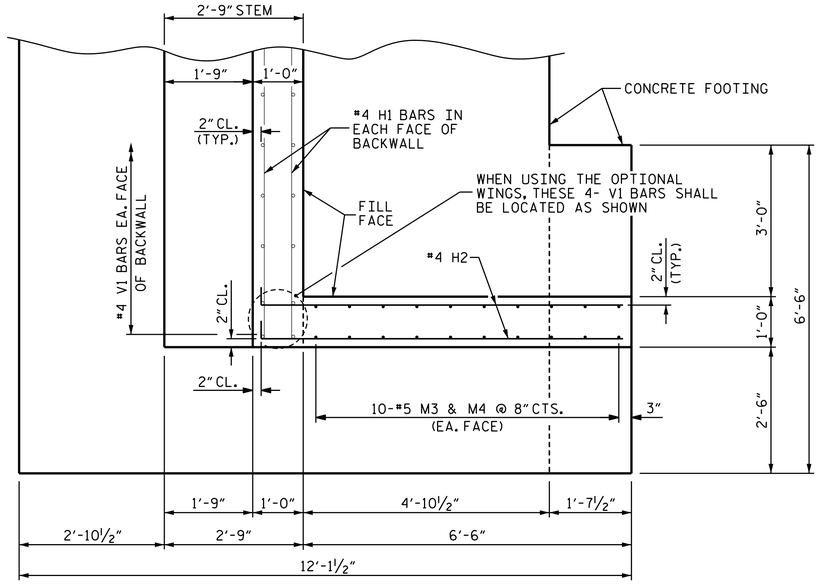
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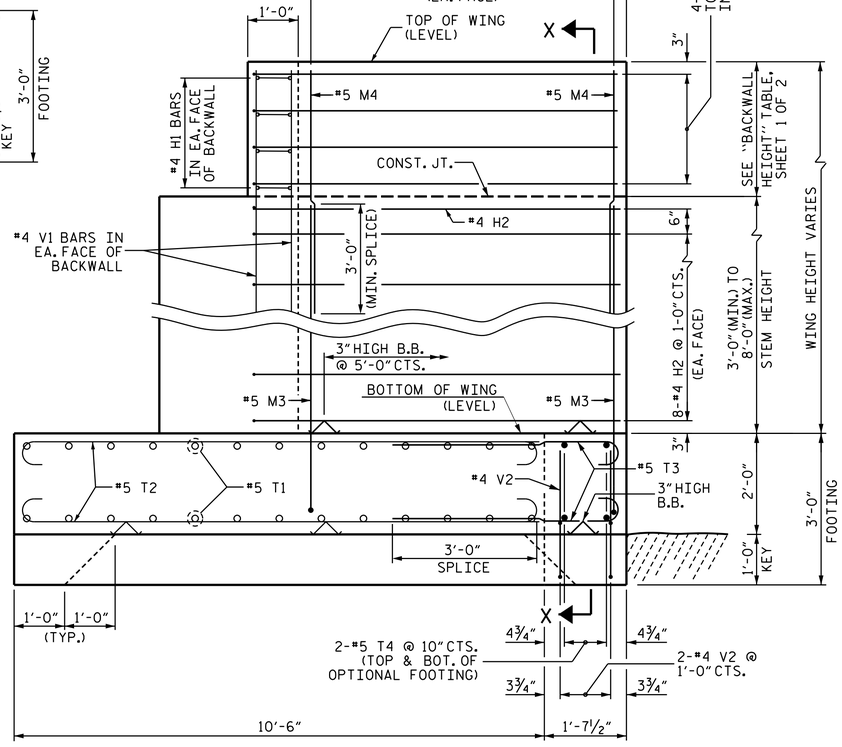
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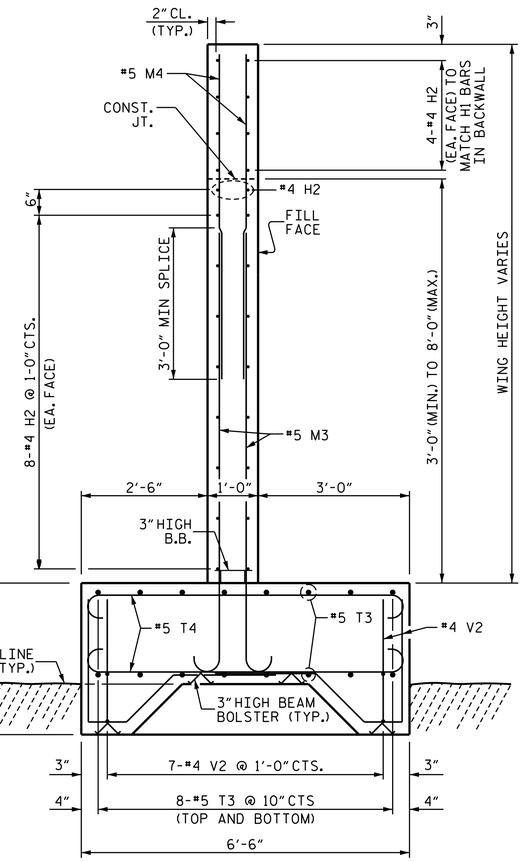
SECTION A-A



PLAN OF WING
(OPTIONAL)



ELEVATION OF WING
(OPTIONAL)



SECTION X-X
(OPTIONAL)

DocuSigned by:
NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
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07/27/2026

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SHEET 2 OF 2

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

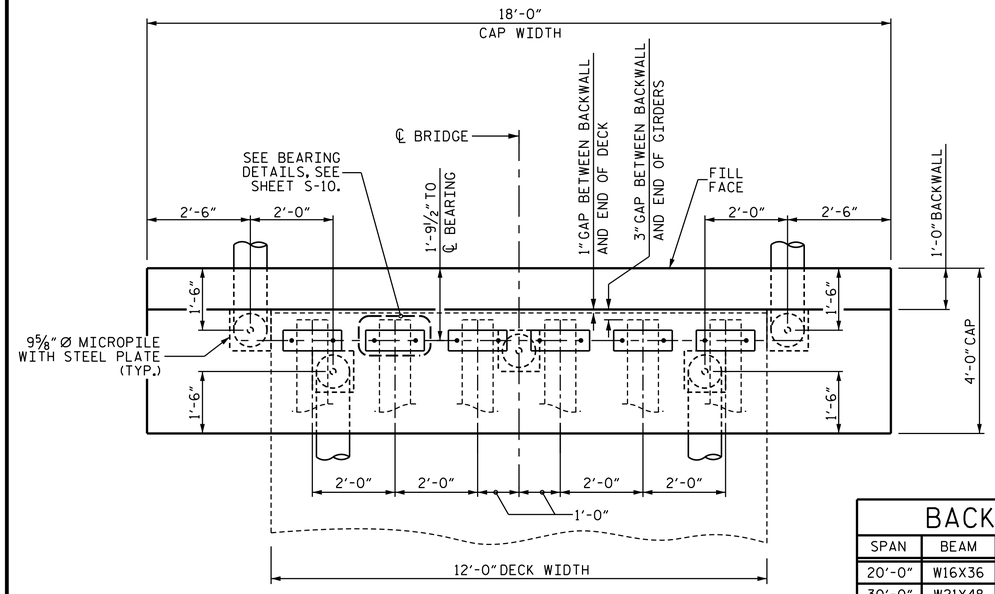
OPTIONAL WINGS & FOOTINGS

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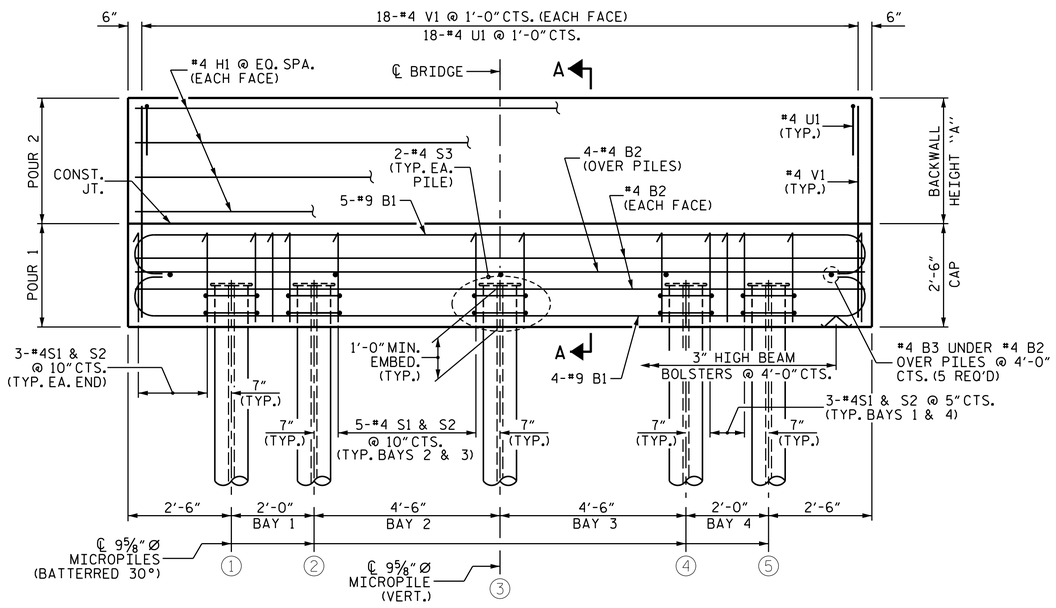
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PLAN

BACKWALL HEIGHT			
SPAN	BEAM	A (2X8 DECKING)	A (4X6 DECKING)
20'-0"	W16X36	2'-2⅝"	1'-10⅞"
30'-0"	W21X48	2'-7⅜"	2'-3⅝"
40'-0"	W24X76	2'-10⅝"	2'-6⅞"
50'-0"	W24X104	2'-10¾"	2'-7"
60'-0"	W30X116	3'-4¾"	3'-1"
70'-0"	W33X130	3'-7¾"	3'-4"

DIMENSION "A" (BACKWALL HEIGHT) VARIES BASED ON DECKING TYPE. USE VALUES CORRESPONDING TO SELECTED DECKING OPTION.



ELEVATION

GENERAL NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

CONTRACTOR SHALL SLOPE TOP OF CAP TO MATCH LONGITUDINAL GRADE OF THE BRIDGE. SLOPES SHALL MATCH ON BOTH END BENT 1 AND END BENT 2 CAPS.

FOR BEARING DETAILS, SEE SHEET S-10.

"V" BARS BASED ON SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. ADJUST LENGTH TO MAINTAIN REQUIRED MIN. CLEARANCE AT BOTTOM OF CAP AND TOP OF BACKWALL.

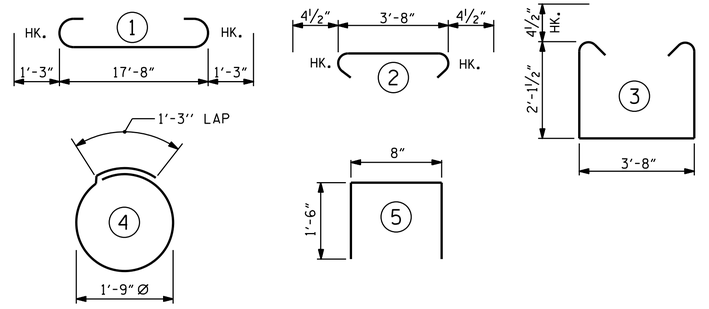
REFER TO MICROPILE DRAWINGS FOR MICROPILE REQUIREMENTS, PROPERTIES AND OTHER DETAILS.

FOUNDATION NOTES

MICROPILES

FOR MICROPILES, SEE SPECIAL PROVISIONS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
FOR ONE END BENT

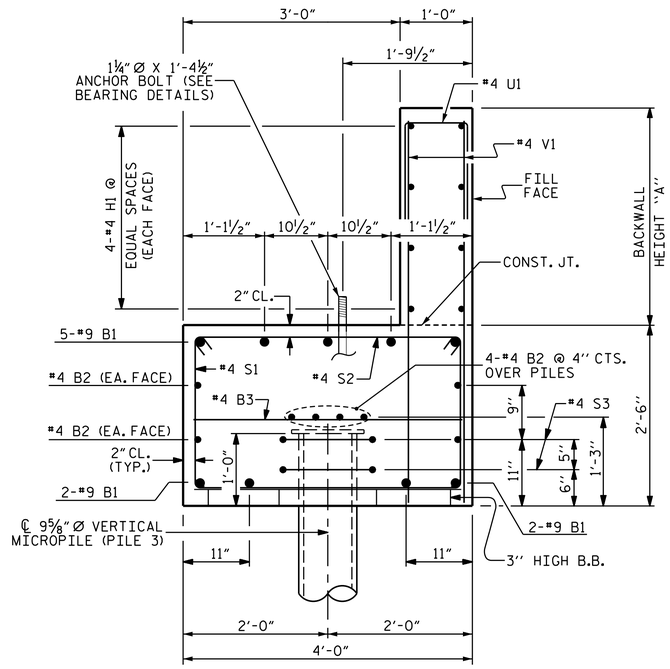
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	#9	1	20'-2"	617
B2	8	#4	STR	17'-8"	94
B3	5	#4	STR	3'-8"	12
H1	8	#4	STR	17'-8"	94
U1	18	#4	5	3'-8"	44
S1	22	#4	3	8'-8"	127
S2	22	#4	2	4'-5"	65
S3	10	#4	4	6'-9"	45
V1	36	#4	STR	4'-4"	104

REINFORCING STEEL (FOR ONE END BENT) ✱ 1,202 LBS.

CLASS A CONCRETE (FOR ONE END BENT)

POUR 1	6.7 C.Y.
POUR 2	✱ 1.5 C.Y.
TOTAL	8.2 C.Y.

✱ REINFORCING AND CONCRETE QUANTITIES ARE BASED ON THE SHORTEST BACKWALL HEIGHT USING 2X8 DECKING. CONTRACTOR SHALL ADJUST FOR 4X6 DECKING OR INCREASED BACKWALL HEIGHT.



SECTION A-A

(PILES 1, 2, 4 & 5 ARE BATTERED 30° AND NOT SHOWN FOR CLARITY)



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NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

END BENT
MICROPILES

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DGN: pw:\\jmt-pw.bentley.com:jmt-pw-01\Documents\Projects\2025\25-00529\25-00529-001\Design\Structures\NC PRB-Steel Beam with Timber Deck Standards\Single Lane Steel Beam with Timber Deck Plans\2 Standard Drawings\20-70 FT - 12 FT DECK WIDTH\013-S13_End Bent_Micropiles.dgn
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STRUCTURAL STEEL / HARDWARE NOTES:

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 OR GALVANIZED IN ACCORDANCE WITH THE STRUCTURAL STEEL COATINGS PROGRAM AND ARTICLE 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

COATING APPLICATION FOR ALL STRUCTURAL STEEL SHALL NOT BE PERFORMED UNTIL SHOP FABRICATION INCLUDING CUTTING, DRILLING AND WELDING HAS BEEN COMPLETED.

ALL HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION, UNLESS OTHERWISE NOTED ON THE PLANS.

DO NOT DRIVE LAG/STRUCTURAL SCREWS WITH A HAMMER, SCREW OR TORQUE LAG/STRUCTURAL SCREWS.

SCREWS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE FULL THREAD ENGAGEMENT INTO RECEIVING MEMBERS.

REPAIR ANY DAMAGED GALVANIZED SURFACES IN ACCORDANCE WITH STANDARD SPECIFICATION ARTICLE 1076-7.

REPAIR ANY DAMAGED PAINTED SURFACES IN ACCORDANCE WITH SECTION 442 OF THE STANDARD SPECIFICATIONS.

STRUCTURAL WOOD SCREWS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATION.

TIMBER / LUMBER NOTES:

ALL TIMBER AND LUMBER MEMBERS SHALL BE TREATED NO. 1 SOUTHERN PINE AND CONFORM TO SECTION 1082 OF THE STANDARD SPECIFICATIONS.

ALL TIMBER DIMENSIONS SHOWN ON THE PLANS ARE NOMINAL DIMENSIONS. DESIGN IS BASED ON ACTUAL DRESSED DIMENSIONS.

PRE-DRILL HOLES IN TIMBER MEMBERS RECEIVING BOLTS TO ELIMINATE SPLITTING. PRE-DRILL HOLES FOR SCREWS AS NECESSARY TO PREVENT SPLITTING IN TIMBER MEMBERS.

DESIGN LOADS:

LIVE LOAD:

TRUCK LOAD:

THIS BRIDGE WAS DESIGNED FOR:

HS20
GVWR = 72,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
GAWR FRONT = 8,000 LBS
GAWR INTERMEDIATE = 32,000 LBS
GAWR REAR = 32,000 LBS

EV2
GVWR = 57,500 LBS
NUMBER OF AXLES: 2
AXLE WEIGHTS:
GAWR FRONT = 24,000 LBS
GAWR REAR = 33,500 LBS

EV3
GVWR = 86,000 LBS
NUMBER OF AXLES: 3
AXLE WEIGHTS:
GAWR FRONT = 24,000 LBS
GAWR INTERMEDIATE = 31,000 LBS
GAWR REAR = 31,000 LBS

LIVE LOAD FACTORS:

HS-20 = 1.30
EV2 = 1.3
EV3 = 1.3

LIVE LOAD FACTORS LOAD RATING:

HS-20 = 1.35
EV2 = 1.0
EV3 = 1.0

MULTIPLE PRESENCE FACTOR:

MPF = 1.0

LANE LOAD:

NO LANE LOAD WAS APPLIED.

IMPACT:

DYNAMIC IMPACT FOR WOOD/TIMBER COMPONENTS IS ZERO. DYNAMIC IMPACT FACTOR FOR ALL OTHER COMPONENTS IS 33%.

DEAD LOADS:

WEARING SURFACES SHALL NOT BE ALLOWED.

WEIGHT OF TIMBER = 40 PCF.

DESIGN ASSUMPTIONS/PARAMETERS:

SUPERSTRUCTURE WILL BE SIX LINES OF I-BEAMS.

BRIDGE IS SINGLE SPAN.

BRIDGE WIDTH = 12'-0" OUT TO OUT.

REF.#	DESIGN VEHICLES SCHEMATIC
HS-20	8K, 32K, 32K; 14', 14', 28'; 72K 36 TON
EV2	24K, 33.5K; 15'; 57.5K 28.75 TON
EV3	24K, 31K, 31K; 15', 4', 19'; 86K 43 TONS

GENERAL NOTES:

THIS BRIDGE IS DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) "STRUCTURES MANAGEMENT UNIT MANUAL", DATED 6/15/23, 2024 NCDOT IN-KIND TIMBER BRIDGE REPLACEMENT PROGRAM, AND THE AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS", 9th EDITION.

THESE DRAWINGS ARE INTENDED ONLY FOR USAGE IN THE INSTALLATION OF SINGLE SPAN I-BEAM BRIDGES FOR PRIVATE DRIVEWAYS IN COUNTIES AS LISTED IN THE CONTRACT DOCUMENTS BY NORTH CAROLINA OFFICE OF EMERGENCY MANAGEMENT IN RESPONSE TO THE DAMAGE CAUSED BY HURRICANE HELENE.

BRIDGE CONSTRUCTION, WORKMANSHIP, AND MATERIALS SHALL BE IN ACCORDANCE WITH THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES", 2024 EDITION.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

IT IS ASSUMED THAT THERE ARE NO UTILITY CONFLICTS. THE CONTRACTOR SHALL INVESTIGATE THE PRESENCE OF UTILITIES BEFORE COMMENCING WORK.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL SET BRIDGE ELEVATIONS SUCH THAT WATER WILL DRAIN AND NOT POND ON THE BRIDGE DECK AND MINIMUM LONGITUDINAL GRADE SHALL BE 0.5% AND MAXIMUM GRADE SHALL BE 6%.

FOR PILE-SUPPORTED END BENTS, PLACE APPROACH EMBANKMENT (CORE MATERIAL) PRIOR TO PILE INSTALLATION.

THIS BRIDGE HAS BEEN DESIGNED FOR ADTT < 100.

EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON SHEET EC-01 ARE FOR GENERAL GUIDANCE ONLY AND REPRESENT MINIMUM REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL REQUIRED EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, CONTRACT DOCUMENTS, AND APPLICABLE REGULATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING THESE MEASURES AND PROVIDING ANY ADDITIONAL DEVICES NECESSARY TO ACCOUNT FOR ACTUAL SITE CONDITIONS, INCLUDING GROUNDWATER CONDITIONS AND WEATHER EVENTS, AND TO PREVENT SEDIMENT FROM LEAVING THE PROJECT SITE.

ALL REFERENCES WITHIN THESE PLANS TO "STANDARD SPECIFICATIONS" OR "NCDOT SPECIFICATIONS" SHALL BE GOVERNED BY THE NCDOT "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2024.

TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THE SPECIAL PROVISIONS, AND IN CONFORMANCE WITH THE NCDOT STANDARD SPECIFICATIONS, NCDOT ROADWAY STANDARD DRAWINGS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING, AND MAINTAINING ALL TRAFFIC CONTROL DEVICES NECESSARY TO SAFELY CONDUCT THE WORK AND PROTECT THE TRAVELING PUBLIC.

MATERIAL PROPERTIES:

CONCRETE: MINIMUM COMPRESSIVE STRENGTH, f'c = 3,000 psi (CLASS A)

STRUCTURAL STEEL: AASHTO M270, GRADE 50.

WELDS: SMAW, 70 KSI ELECTRODES PER NCDOT STANDARD SPECIFICATIONS.

ANCHOR BOLTS: ASTM F1554, GRADE 55.

BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325. PROVIDE GALVANIZED NUTS AND WASHERS COMPATIBLE WITH THE BOLTS.

TIMBER: ALL TIMBER & DIMENSIONAL LUMBER SHALL BE NO. 1 VISUALLY GRADED, SOUTHERN PINE WITH REFERENCE DESIGN VALUES OF: Fbo = 1.35 ksi AND Fvo = 0.175 ksi OR GREATER.

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS WITH A SHEAR MODULUS OF 0.110 KSI.

Docusigned by: Gwen Wilson
NORTH CAROLINA PROFESSIONAL SEAL 045282 ENGINEER GWENDOLEN F. WILSON
07/27/2026

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA OFFICE OF
EMERGENCY MANAGEMENT

PRIVATE DRIVEWAY BRIDGE STANDARDS

SINGLE LANE STEEL BEAM BRIDGE
TIMBER DECK

GENERAL NOTES

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1			3			TOTAL SHEETS
2			4			14

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DGN: pw:/jmt-pw.bentley.com/jmt-pw-01/Documents/Projects/2025/25-00529/25-00529-001/Design/Structures/NC PRB-Steel Beam with Timber Deck Standards/Single Lane Steel Beam with Timber Deck Plans/2 Standard Drawings/20-70 FT - 12 FT DECK WIDTH/014-S14_General Notes.dgn
USER: rfrye
TIME: 7/25/2026