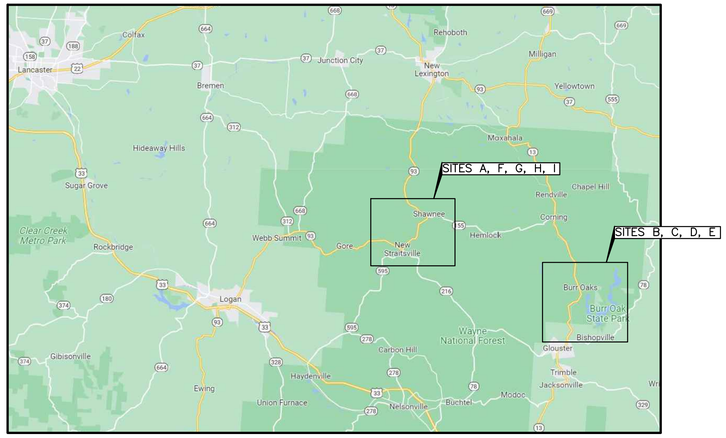
BUCKEYE TRAIL ASSOCIATION

FOREST SERVICE REGION 9
WAYNE NATIONAL FOREST
ATHENS UNIT
PERRY COUNTY, OHIO
ATHENS COUNTY, OHIO
MORGAN COUNTY, OHIO

• • •

TRAIL CONSTRUCTION PLANS FOR
WAYNE NATIONAL FOREST TRAIL BRIDGES



VICINITY MAP
SCALE: 1/2"=2 MILE

ENGINEER'S SEAL

STATE OF OHIO
10/2/24
THOMAS M. LESS
PE.78901
REGISTERED PROFESSIONAL ENGINEER

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8–1–1, or 1–800–362–2764
(Non members must be called directly)

INDEX OF SHEETS

APPROVED FOR BID (US FOREST SERVICE)
BRIDGE SITES G, H AND I

RECOMMENDED BY:

FOREST ENGINEER — DATE

DISTRICT RANGER — DATE

FOREST SUPERVISOR — DATE

R9 BRIDGE PROGRAM MANAGER — DATE

APPROVED BY:

R9 DIRECTOR OF ENGINEERING — DATE

APPROVED FOR BID (OHIO DEPARTMENT OF NATURAL RESOURCES)

GLEN COBB, Division of Parks and Watercraft

DATE

2014 USDA FOREST SERVICE SPECIFICATIONS

THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS OF THE US DEPARTMENT OF AGRICULTURE FOREST SERVICE SHALL GOVERN THIS IMPROVEMENT. THIS INCLUDES APPLICABLE SECTIONS AS REFERENCED HEREIN OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP–03 BY THE US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION.

SPECIAL PROVISIONS

NATIONWIDE PERMIT NWP 14 ELIGIBLE (NON–NOTIFYING PCN) DATED 2/12/24, SEE BID DOCUMENTS.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

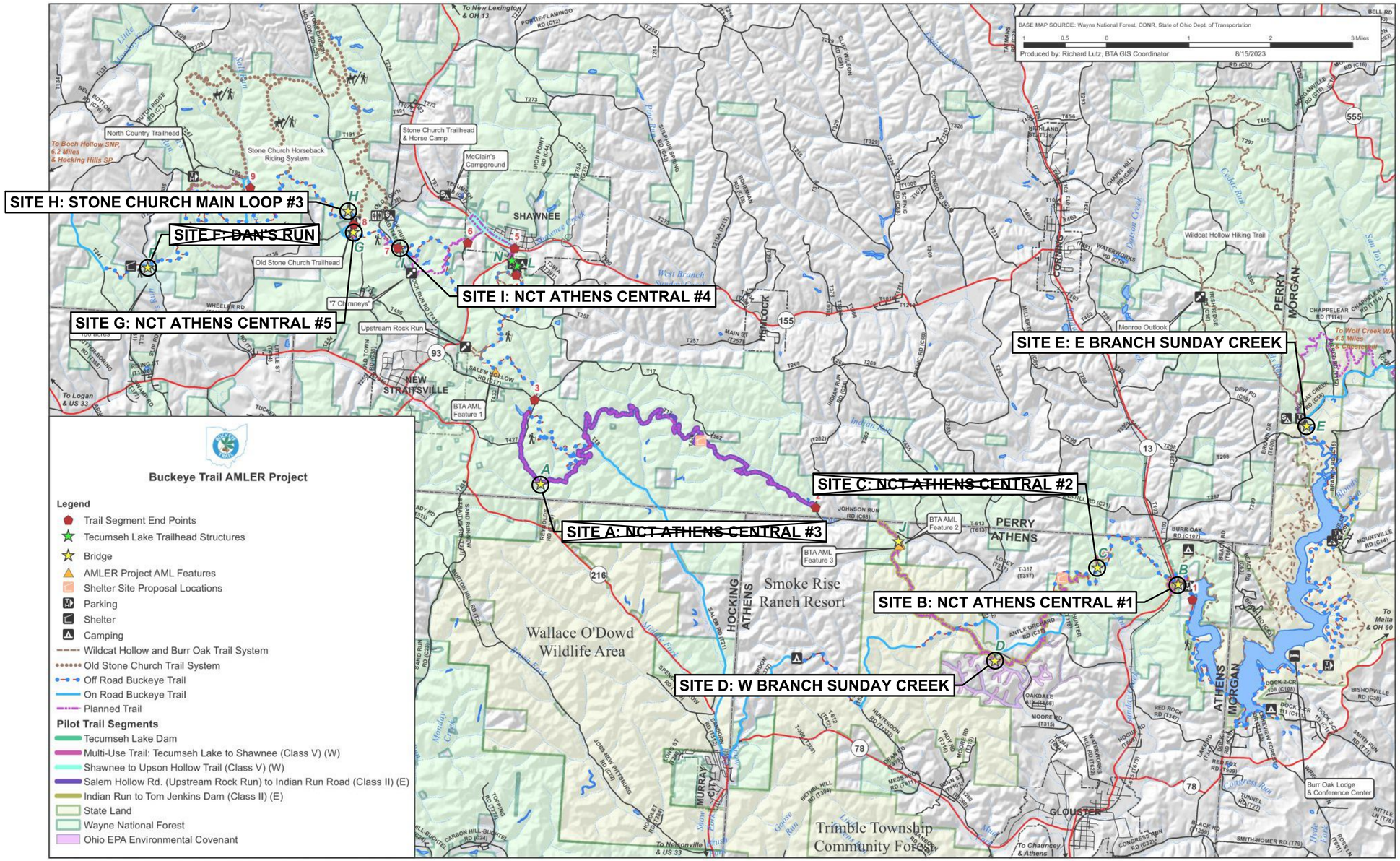
DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: TITLE SHEET
BRIDGE: GENERAL INFORMATION

REVISION DATE: 8/29/23
NOT TO SCALE

SUBSET 1 OF 5
SHEET 1 OF 49



WOOLPERT ONE EASTON OVAL SUITE 400 COLUMBUS, OH 43219 T 614-476-6000 F 614-476-6225	DESIGNED BY: TML CHECKED BY: PES REVIEWED BY: MJZ	PROJECT NAME & LOCATION WAYNE NATIONAL FOREST TRAIL BRIDGES BUCKEYE TRAILS ASSOCIATION	DRAWING NAME LOCATION MAP BRIDGE GENERAL INFORMATION

REVISION DATE	SUBSET	SHEET
8/29/23	2 OF 5	2 OF 49
NOT TO SCALE		

PROPERTY OWNERSHIP:

THE FOLLOWING LIST PROVIDES THE PROPERTY OWNERS AND CONTACTS FOR EACH SITE. THE PROPERTY OWNER IS ALSO RESPONSIBLE FOR MAINTENANCE AND INSPECTION.

SITE A, NCT ATHENS CENTRAL #3:	US FOREST SERVICE	091401-1029-X.XXXX
SITE B, NCT ATHENS CENTRAL #1:	USACE	091401-1029-X.XXXX
SITE C, NCT ATHENS CENTRAL #2:	US FOREST SERVICE	091401-1029-X.XXXX
SITE D (W BRANCH SUNDAY CREEK):	CCU/BUCKINGHAM COAL	
SITE E (E BRANCH SUNDAY CREEK):	ODNR	
SITE F (DAN'S RUN):	BUCKEYE TRAILS ASSOCIATION	
SITE G, NCT ATHENS CENTRAL #5:	WAYNE NATIONAL FOREST	091401-1029-X.XXXX
SITE H, STONE CHURCH MAIN LOOP #3:	WAYNE NATIONAL FOREST	091401-1003-11.0230
SITE I, NCT ATHENS CENTRAL #4:	WAYNE NATIONAL FOREST	091401-1029-X.XXXX

CONTACTS:

BUCKEYE TRAILS ASSOCIATION (BTA)
ANDREW BASHAW
BUCKEYE TRAIL ASSOCIATION
DIRECTOR
director@buckeyetrail.org
(740) 394-2008
127 B. WEST MAIN STREET
SHAWNEE, OHIO 43782

WAYNE NATIONAL FOREST
JASON REED
ATHENS DISTRICT RANGER
Jason.reed@usda.gov
(740) 447-3444
13700 US-33, NELSONVILLE, OH
45764

OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR)
JEFF CALHOUN
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT (DMRM)
jeff.calhoun@dnr.ohio.gov
(740) 274-4954
2045 MORSE ROAD BUILDING H2
COLUMBUS, OH 43229

OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR)
JERRY POLLOCK
BURR OAK STATE PARK
PARK MANAGER
jerry.pollock@dnr.ohio.gov

UTILITIES:

THERE ARE NO KNOWN UNDERGROUND OR OVERHEAD UTILITIES WITHIN THE PROJECT CONSTRUCTION LIMITS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH 811 SERVICES FOR UTILITY LOCATION PRIOR TO ANY WORK.

ITEM 912: CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 91203, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 91203, CLEARING AND GRUBBING.

ENDANGERED BAT HABITAT REMOVAL:

THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT (ESA). FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK 3 INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

ENVIRONMENTAL COMMITMENTS:

SEE BID DOCUMENTS, NATIONWIDE PERMIT 14 ELIGIBILITY DATED 2/12/24. ALL COMMITMENTS, ASSUMPTIONS OF IMPACTS, AND REQUIREMENTS ARE INCORPORATED HERE BY REFERENCE.

ITEM 911: EXCAVATION

THIS ITEM INCLUDES ALL EXCAVATION REQUIRED FOR THE INSTALLATION OF THE BRIDGE FOUNDATIONS, CORRESPONDING SUPERSTRUCTURE AND APPLICABLE CHANNEL PROTECTION. CARE SHALL BE TAKEN TO DISPOSE OF WASTE MATERIAL IN ACCORDANCE WITH SPECIFICATIONS AND IN A MANNER THAT DOES NOT IMPACT "THE WATERS OF THE UNITED STATES" OR ANY ISOLATED WETLANDS, UNLESS OTHERWISE ALLOWED WITHIN THE PROJECT ENVIRONMENTAL PERMITS. ITEM 911: EXCAVATION SHALL BE PAID AS INCIDENTAL TO ITEM 965.

ITEM 911: BORROW

THIS ITEM INCLUDES ALL BORROW MATERIALS NECESSARY TO CONSTRUCT THE APPROACH TRAIL UP TO THE ELEVATION OF THE BRIDGE STRUCTURE. BORROW SHALL BE ACQUIRED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS. PROPOSED BORROW SHALL NOT IMPACT "THE WATERS OF THE UNITED STATES". OR ANY ISOLATED WETLAND(S), UNLESS OTHERWISE ALLOWED WITHIN THE PROJECT ENVIRONMENTAL PERMITS.

THE CONTRACTOR SHALL NOT BORROW FROM A SITE KNOWN, OR SUSPECTED OF HAVING, CONTAMINATED SOIL OR WATER.

ITEM 911: BORROW SHALL BE PAID AS INCIDENTAL TO ITEM 965.

SURVEYING PARAMETERS:

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING PROJECTS. USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: CONVENTIONAL TOTAL STATION FOR LOCAL COORDINATES
LOCAL RTK AND CONVENTIONAL TOTAL STATION OFF OF VRS-ESTABLISHED MONUMENT 100 FOR GPS

MONUMENT TYPE: IRON PIN SET (IPS) WITH ALUMINUM/PLASTIC CAP, MAG NAILS

VERTICAL POSITIONING (FOR GPS COORDINATES)

ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID18

HORIZONTAL POSITIONING (FOR GPS COORDINATES)

REFERENCE FRAME: NAD83 (2011) EPOCH: 2010.00
ELLIPSOID: GRS 80
MAP PROJECTION: LAMBERT CONIC CONFORMAL
COORDINATE SYSTEM: OHIO SOUTH 3402
COMBINED SCALE FACTOR: 1.0000000 (NO SCALE FACTOR)
PROJECT SCALE FACTOR: 1.0000000 (NO SCALE FACTOR)
ORIGIN OF COORDINATE SYSTEM: GRID COORDINATES

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

SURVEY CONTROL

SITE	CONTROL POINT	TYPE	GRID NORTHING (US FEET)	GRID EASTING (US FEET)	ELEVATION (US FEET)	GPS OR LOCAL COORDINATES
A (NCT ATHENS CENTRAL #3)	114	IPS	5000.000	5000.000	100.000	LOCAL
	115	IPS	5062.980	5000.000	99.470	
	116	IPS	5019.435	5059.290	100.310	
B (NCT ATHENS CENTRAL #1)	200	IPS	562968.07	2092728.82	704.73	GPS
	401	MAG NAIL	562359.85	2092770.58	699.28	
	402	MAG NAIL	562716.53	2092855.59	705.89	
C (NCT ATHENS CENTRAL #2)	NOT SURVEYED					
D (WEST BRANCH SUNDAY CREEK)	100	IPS	576829.572	2054105.708	1056.709	GPS
	118	IPS	557544.953	2080784.072	691.694	
	119	IPS	557538.987	2080718.182	693.130	
	120	IPS	557585.048	2080703.674	693.224	
E (EAST BRANCH SUNDAY CREEK)	121	IPS	5000.000	5000.000	100.000	LOCAL
	122	IPS	4908.278	4970.464	99.810	
	123	IPS	4976.806	5056.720	99.990	
F (DAN'S RUN)	100	IPS	576829.572	2054105.708	1056.709	GPS
	110	IPS	582917.913	2026176.439	786.206	
	111	IPS	582943.761	2026276.381	788.181	
	112	IPS	582867.740	2026132.346	795.136	
	113	IPS	582871.829	2026206.924	785.753	
G (NCT ATHENS CENTRAL #5)	100	IPS	576829.572	2054105.708	1056.709	GPS
	107	IPS	585131.103	2039349.125	747.394	
	108	IPS	585196.406	2039362.668	746.793	
	109	IPS	585073.955	2039375.529	746.695	
H (STONE CHURCH MAIN LOOP #3)	100	IPS	576829.572	2054105.708	1056.709	GPS
	104	IPS	586497.584	2038997.466	751.127	
	105	IPS	586481.565	2038942.822	750.910	
	106	IPS	586562.477	2039004.661	751.357	
I (NCT ATHENS CENTRAL #4)	100	IPS	576829.572	2054105.708	1056.709	GPS
	101	IPS	583949.536	2042450.409	764.013	
	102	IPS	584027.594	2042497.238	763.660	
	103	IPS	584026.548	2042408.304	763.191	

ABBREVIATIONS:

ABUT.	- ABUTMENT
B/	- BOTTOM OF
BRG(S).	- BEARING(S)
C/C	- CENTER TO CENTER
C.J.	- CONSTRUCTION JOINT
℄	- CENTERLINE
CONST.	- CONSTRUCTION
DIA.	- DIAMETER
DL	- DEAD LOAD
EL.	- ELEVATION
EX.	- EXISTING
F.A.	- FORWARD ABUTMENT
F/F	- FACE TO FACE
F.S.	- FAR SIDE
FTG.	- FOOTING
HW	- HIGH WATER
IPS	- IRON PIN SET
MAX.	- MAXIMUM
MIN.	- MINIMUM
NOM.	- NOMINAL
O.C.	- ON-CENTER
O/O	- OUT TO OUT
PCPP	- PERFORATED CORRUGATED PLASTIC PIPE
PL	- PLATE
PROP.	- PROPOSED
R.A.	- REAR ABUTMENT
SQ.	- SQUARE
STA.	- STATION
T/	- TOP OF
TBD	- TO BE DETERMINED
TYP.	- TYPICAL
W/	- WITH

WOOLPERT
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SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: TML
CHECKED BY: PES
REVIEWED BY: MJZ

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
GENERAL NOTES

BRIDGE
GENERAL INFORMATION

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 3 OF 5

SHEET 3 OF 49

SHEET NUM.							ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6		14		28								
											STRUCTURE OVER 20 FOOT SPAN (SITE E – TRAIL OVER E. BRANCH SUNDAY CREEK)	
		94					565	56501	94	LF	DRILLED SHAFTS	
		12					565	56502	12	LF	ROCK SOCKET	
		LS					907	90701	LS		MOBILIZATION	
		LS					912	91203	LS		CLEARING AND GRUBBING	
		554					913	91318	554	SF	RIPRAP SURFACING, TYPE C	
		LS					936	96306	LS		STAIRWAY, TYPE STAIRCASE	
		LS					963	96302	LS		GLULAM STRINGER TRAIL BRIDGE, LENGTH 61'–6"	
		2					965	96501	EA	2	TRAIL BRIDGE SUBSTRUCTURE, TYPE: REINFORCED CONCRETE ABUTMENT ON DRILLED SHAFT	
											STRUCTURE OVER 20 FOOT SPAN (SITE I – NCT ATHENS CENTRAL #4 OVER ROCK RUN)	
		LS					907	90701	LS		MOBILIZATION	
		LS					912	91203	LS		CLEARING AND GRUBBING	
		100					913	91322	100	SF	GEOSYNTHETIC SURFACING, TYPE GEOCELL (994.04)	
		3					918	91830	3	CY	FOUNDATION PREPARATION, UNDERCUT CONTINGENCY, 3 CY	
		LS					963	96302	LS		GLULAM STRINGER TRAIL BRIDGE, LENGTH 26'–6"	
		2					965	96501	EA	2	TRAIL BRIDGE SUBSTRUCTURE, TYPE: TIMBER SILL ON GEOCELL PAD	
											STRUCTURE OVER 20 FOOT SPAN (SITE D – TRAIL OVER W. BRANCH SUNDAY CREEK)	
				102			565	56501	102	LF	DRILLED SHAFTS	
				20			565	56502	20	LF	ROCK SOCKET	
				LS			907	90701	LS		MOBILIZATION	
				LS			912	91203	LS		CLEARING AND GRUBBING	
				362			913	91318	362	SF	RIPRAP SURFACING, TYPE C	
				LS			964	96402	LS		PREFABRICATED TRAIL BRIDGE, TYPE: STEEL TRUSS, LENGTH 60'–0"	
				2			965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: REINFORCED CONCRETE ABUTMENT ON DRILLED SHAFT	
											STRUCTURE OVER 20 FOOT SPAN (SITE G – NCT ATHENS CENTRAL #5 OVER MONDAY CREEK)	
				68			565	56501	68	LF	DRILLED SHAFTS	
				12			565	56502	12	LF	ROCK SOCKET	
				LS			907	90701	LS		MOBILIZATION	
				LS			912	91203	LS		CLEARING AND GRUBBING	
				501			913	91318	501	SF	RIPRAP SURFACING, TYPE C	
				LS			964	96402	LS		PREFABRICATED TRAIL BRIDGE, TYPE: STEEL TRUSS, LENGTH 60'–0"	
				2			965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: REINFORCED CONCRETE ABUTMENT ON DRILLED SHAFT	

WOOLPERT
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REVIEWED BY: MJZ

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
GENERAL SUMMARY - BASE BIDS

BRIDGE
GENERAL INFORMATION

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 4 OF 5

SHEET 4 OF 49

SHEET NUM.							ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
6		14		28								
											STRUCTURE OVER 20 FOOT SPAN (ALTERNATE 1 – SITE H – STONE CHURCH MAIN LOOP #3 OVER OLD STONE CHURCH CREEK)	
		LS					907	90701	LS		MOBILIZATION	
		LS					912	91203	LS		CLEARING AND GRUBBING	
		137					913	91322	137	SF	GEOSYNTHETIC SURFACING, TYPE GEOCELL (994.04)	
		4					918	91830	4	CY	FOUNDATION PREPARATION, UNDERCUT CONTINGENCY, 4 CY	
		4					945	94501	4	EACH	BOLLARD, TYPE BD4	
		LS					963	96302	LS		GLULAM STRINGER TRAIL BRIDGE, LENGTH 36'–6"	
		2					965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: TIMBER SILL ON GEOCELL PAD	
											STRUCTURE OVER 20 FOOT SPAN (ALTERNATE 2 – SITE A – NCT ATHENS CENTRAL #3 OVER SNOW FORK)	
LS							907	90701	LS		MOBILIZATION	
LS							912	91203	LS		CLEARING AND GRUBBING	
69							913	91322	69	SF	GEOSYNTHETIC SURFACING, TYPE GEOCELL	
5							918	91830	5	CY	FOUNDATION PREPARATION, UNDERCUT CONTINGENCY, 5 CY	
LS							961	96105	LS		MULTIPLE LOG STRINGER TRAIL BRIDGE, TOTAL LENGTH = 36'–6"	
LS							963	96306	LS		STAIRWAY, TYPE OVERLAPPING TIMBER STEPS	
1							965	96501	1	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: TIMBER SILL ON GEOCELL PAD	
1							965	96501	1	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: TIMBER SILL ON GABION BASKET	
											STRUCTURE OVER 20 FOOT SPAN (ALTERNATE 3 – SITE F – TRAIL OVER DANS RUN)	
				57			565	56501	57	LF	DRILLED SHAFTS	
				12			565	56502	12	LF	ROCK SOCKET	
				LS			907	90701	LS		MOBILIZATION	
				LS			912	91203	LS		CLEARING AND GRUBBING	
				171			913	91318	171	SF	RIPRAP SURFACING, TYPE C	
				LS			963	96302	LS		PREFABRICATED TRAIL BRIDGE, TYPE: STEEL TRUSS, LENGTH 60'–0"	
				2			965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: REINFORCED CONCRETE ABUTMENT ON DRILLED SHAFT	
											STRUCTURE OVER 20 FOOT SPAN (ALTERNATE 4 – SITE B – NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK)	
				100			565	56501	100	LF	DRILLED SHAFTS	
				LS			907	90701	LS		MOBILIZATION	
				LS			912	91203	LS		CLEARING AND GRUBBING	
				471			913	91318	471	SF	RIPRAP SURFACING, TYPE C	
				LS			936	96306	LS		STAIRWAY, TYPE STAIRCASE	
				LS			954	96402	LS		PREFABRICATED TRAIL BRIDGE, TYPE: STEEL TRUSS, LENGTH 60'–0"	
				2			965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, CONCRETE ABUTMENT ON SPREAD FOOTING	
											STRUCTURE OVER 20 FOOT SPAN (ALTERNATE 5 – SITE C – NCT ATHENS CENTRAL #2 OVER LONG RUN)	
LS							907	90701	LS		MOBILIZATION	
LS							912	91203	LS		CLEARING AND GRUBBING	
122							913	91322	122	SF	GEOSYNTHETIC SURFACING, TYPE GEOCELL	
3							918	91830	3	CY	FOUNDATION PREPARATION, UNDERCUT CONTINGENCY, 3 CY	
LS							961	96105	LS		MULTIPLE LOG STRINGER TRAIL BRIDGE, TOTAL LENGTH 36'–0"	
LS							963	96306	LS		STAIRWAY, TYPE OVERLAPPING TIMBER STEPS	
2							965	96501	2	EACH	TRAIL BRIDGE SUBSTRUCTURE, TYPE: TIMBER SILL ON GEOCELL PAD	

WOOLPERT
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DESIGNED BY: TML
CHECKED BY: PES
REVIEWED BY: MJZ

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
GENERAL SUMMARY - ALTERNATES

BRIDGE
GENERAL INFORMATION

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 5 OF 5
SHEET 5 OF 49

STANDARD DRAWINGS:

REFER TO U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE STANDARD TRAIL PLANS:
961 – LOG STRINGER TRAIL BRIDGE
965 – TRAIL BRIDGE SUBSTRUCTURES

DESIGN SPECIFICATIONS:

THIS STRUCTURE SHALL CONFORM TO THE FOLLOWING SPACIFICATIONS:
- THE 2009 AASHTO GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGE INCLUDING THE 2015 INTERIMS
- THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATION, 9TH EDITION
- THE 2014 FSH 7709.56b– TRANSPORTATION STRUCTURES HANDBOOK, CHAPTER 80 – TRAIL BRIDGE DESIGN
- THE 2018 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS DATED 10–30–2014, AND APPLICABLE SECTIONS AS REFERENCED HEREIN OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP–03 BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION.

DESIGN LOADING:

PEDESTRIAN LOADING: 0.090 KSF

DESIGN STRESSES:

TIMBER BEAMS:
SITE A:
BENDING, Fb' = 1,778 PSI
SHEAR, Fv' = 356 PSI
MODULUS OF ELASTICITY, E' = 1,200,000 PSI

SITE C:
BENDING, Fb' = 1,182 PSI
SHEAR, Fv' = 335 PSI
MODULUS OF ELASTICITY, E' = 1,000,000 PSI

LOG MEMBERS:

SITE A:

LOGS USED FOR STRINGERS SHALL BE PINE WITH MINIMUM, PEELED, MID–SPAN LOG DIAMETER AS NOTED FOR THE INDICATED SPAN. NATIVE TREES TO BE USED FOR BRIDGE STRINGERS SHALL BE STRAIGHT, SOUND, AND FREE OF DEFECTS AND ROT. STRINGERS SHALL BE CHOSEN FROM TREES WITH RELATIVELY FEW LIMBS, AND HAVE NO KNOT GREATER THAN 3–INCH IN DIAMETER LOGS SHALL BE DAPPED AT ENDS TO CREATE A LEVEL BEARING SURFACE AT SUPPORTS TAKING CARE TO AVOID OVER CUTTING. HEWN UPPER SURFACE OF LOGS TO PROVIDE A LEVEL TREAD SURFACE REFER. TO PLANS FOR HEWN DETAILS.

SITE C:

LOGS USED FOR STRINGERS SHALL BE OAK WITH MINIMUM, PEELED, MID–SPAN LOG DIAMETER AS NOTED FOR THE INDICATED SPAN. NATIVE TREES TO BE USED FOR BRIDGE STRINGERS SHALL BE STRAIGHT, SOUND, AND FREE OF DEFECTS AND ROT. STRINGERS SHALL BE CHOSEN FROM TREES WITH RELATIVELY FEW LIMBS, AND HAVE NO KNOT GREATER THAN 3–INCH IN DIAMETER LOGS SHALL BE DAPPED AT ENDS TO CREATE A LEVEL BEARING SURFACE AT SUPPORTS TAKING CARE TO AVOID OVER CUTTING. HEWN UPPER SURFACE OF LOGS TO PROVIDE A LEVEL TREAD SURFACE REFER. TO PLANS FOR HEWN DETAILS.

TIMBER AND LUMBER:

SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING RULES AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW.

DECK PLANKS, SILLS, AND BACKING PLANKS
- SOUTHERN PINE ROUGH SAWN NO.1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

RUNNING PLANKS
- SOUTHERN PINE ROUGH SAWN NO.2 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

RAILS & POSTS
- WESTERN RED CEDAR, S4S, SELECT STRUCTURAL GRADE GRADING RULES AGENCY – WWPA, WCLIB
- HEM – FIR/DOUGLAS FIR, S4S, NO.1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB
- SOUTHERN PINE ROUGH SAWN NO.1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

TREATMENT:

PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) SPECIFICATIONS USING THE TREATMENT MATERIALS LISTED BELOW. TREATMENT WILL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WESTERN WOOD PRESERVERS INSTITUTE (WWPI) "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS".

DECKING, RUNNING PLANKS, & RAILING SYSTEM
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4C GROUND CONTACT EXTREME DUTY (UC4C), TYPE CuN, MCA, OR OTHER WATERBORNE PRESERVATIVE

STRINGERS, SILLS, BACKING PLANKS, CRIBS, & TIMBER WALLS
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4C GROUND CONTACT EXTREME DUTY (UC4C), TYPE CuN

FIELD TREATMENT:

COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS – APPROVED BY THE C.O.R. – SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED, FIELD DRILLING OF BOLT, SCREW OR NAIL HOLES IS REQUIRED. THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

THE ENDS IF UNTREATED LOG STRINGERS, SHALL ALSO RECEIVE THREE BRUSH COATS OF THE FIELD TREATMENT PRIOR TO INSTALLATION OF THE BACKING PLANKS.

HARDWARE AND STRUCTURAL STEEL:

GALVANIZED HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36, WITH NUTS AND BOLTS CONFORMING TO ASTM A307, GRADE A. USE GALVANIZED ASTM F436 WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

WHEN STRUCTURAL STEEL IS TO BE WELDED, THE WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.1 AND SHALL BE SUITABLE FOR THE GRADE OF STEEL AND INTENDED USE OR SERVICE.

FABRICATION:

SUBMIT SHOP DRAWINGS FOR ALL MANUFACTURED BRIDGE COMPONENTS (EXCEPT TIMBER RUNNING PLANKS). SHOW ALL DIMENSIONS AND FABRICATION DETAILS FOR ALL CUT OR BORED TIMBER.

TREES TO BE USED FOR STRINGERS SHALL BE PEELED AND THEN HAVE AN ADDITIONAL 1/2–INCH OF THE OUTER SAPWOOD REMOVED PRIOR TO BEING USED FOR STRINGERS.

FOUNDATION BEARING RESISTANCE:

SITE A:
ABUTMENT FOUNDATIONS, AS DESIGNED, PRODUCE A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 1.26 KIPS PER SQUARE FOOT. THE FACTORED DESIGN BEARING RESISTANCE IS 1.50 KIPS PER SQUARE FOOT.

SITE C:
ABUTMENT FOUNDATIONS, AS DESIGNED, PRODUCE A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 1.39 KIPS PER SQUARE FOOT. THE FACTORED DESIGN BEARING RESISTANCE IS 1.50 KIPS PER SQUARE FOOT.

FOUNDATION MATERIAL:

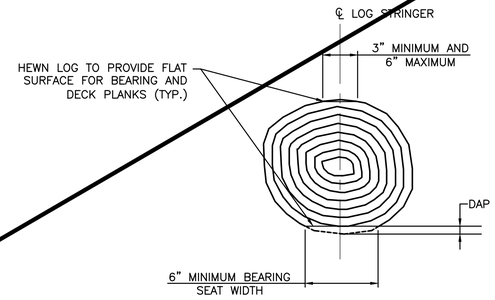
THE CONTRACTOR SHALL RETAIN THE SERVICES OF "QUALIFIED TECHNICIAN" DEFINED AS A GEOTECHNICAL ENGINEER, GEOTECHNICAL TECHNICIAN, GEOLOGIST, OR OTHER INDIVIDUAL TRAINED IN THE FIELD IDENTIFICATION AND CLASSIFICATION OF SOILS (COMPLETED THE ODOT "SOIL AND ROCK CLASSIFICATION" COURSE OR THE NHI COURSE 132079 SUBSURFACE INVESTIGATION QUALIFICATION.

AFTER EXCAVATION AND PRIOR TO THE CONSTRUCTION OF THE GABION FOUNDATIONS, THE QUALIFIED TECHNICIAN SHALL INSPECT THE BOTTOM SURFACE OF THE EXCAVATION. IF ANY AREAS OF THE SOIL ARE DETERMINED BY THE QUALIFIED TECHNICIAN TO BE UNSUITABLE, THEN THE EXCAVATION SHALL BE UNDERCUT IN 1 FOOT INCREMENTS UNTIL SUITABLE MATERIALS ARE ENCOUNTERED OR TO A MAXIMUM DEPTH OF 3 FEET AND FILLED WITH SUITABLE MATERIALS UP TO THE LEVEL OF THE PROPOSED BOTTOM OF FOUNDATION ELEVATION AND COMPACTED IN ACCORDANCE WITH SPECIFICATIONS 911.20. IF UNSUITABLE MATERIALS ARE STILL PRESENT AFTER A 3 FOOT UNDERCUT, THE ENGINEER SHALL BE CONTACTED BEFORE WORK PROCEEDS. THE QUALIFIED TECHNICIAN SHALL DOCUMENT THE SUBSURFACE CONDITION WITH PHOTOGRAPHS AND ANY FIELD TESTING RESULTS PERFORMED AND SUBMIT THE RESULTS AND PHOTOGRAPHS TO THE ENGINEER.

A QUANTITY OF 8 CY IS PROVIDED IN THE PLANS FOR UNDERCUT CONTINGENCY. PAYMENT FOR UNDERCUT SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE UNDERCUTTING, FILLING, AND COMPACTION, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS TO COMPLETE THE WORK. THIS ITEM SHALL ONLY BE USED IF DIRECTED BY THE ENGINEER AND SHALL BE PAID FOR UNDER ITEM 31830 FOUNDATION PREPARATION: UNDERCUT CONTINGENCY, ON A PER CUBIC YARD BASIS.

GEOSYNTHETIC SURFACING TYPE GEOCELL:

THE INTENT OF THIS ITEM IS TO PROVIDE A LIGHTWEIGHT SLOPE PROTECTION TO PROTECT THE EMBANKMENT AROUND THE ABUTMENTS. THE CONTRACTOR SHALL PROVIDE AND INSTALL A GEOCELL PRODUCT THAT IS SPECIFICALLY DESIGNED FOR SLOPE STABILIZATION OF EMBANKMENTS UP TO A 1:1 SLOPE. THE CONTRACTOR SHALL SUBMIT THE SUPPORTING DOCUMENTATION FROM THE MANUFACTURER INCLUDING APPROPRIATENESS FOR APPLICATION, INSTALLATION RECOMMENDATIONS, AND INFILL REQUIREMENTS. THE GEOCELL SHALL BE INSTALLED AND INFILLED PER THE MANUFACTURER RECOMMENDATIONS.



LOG STRINGER DAPPING

MAXIMUM DEPTH OF DAP SHALL NOT EXCEED 10% OF LOG DIAMETER OR 2–INCH.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: RAR
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

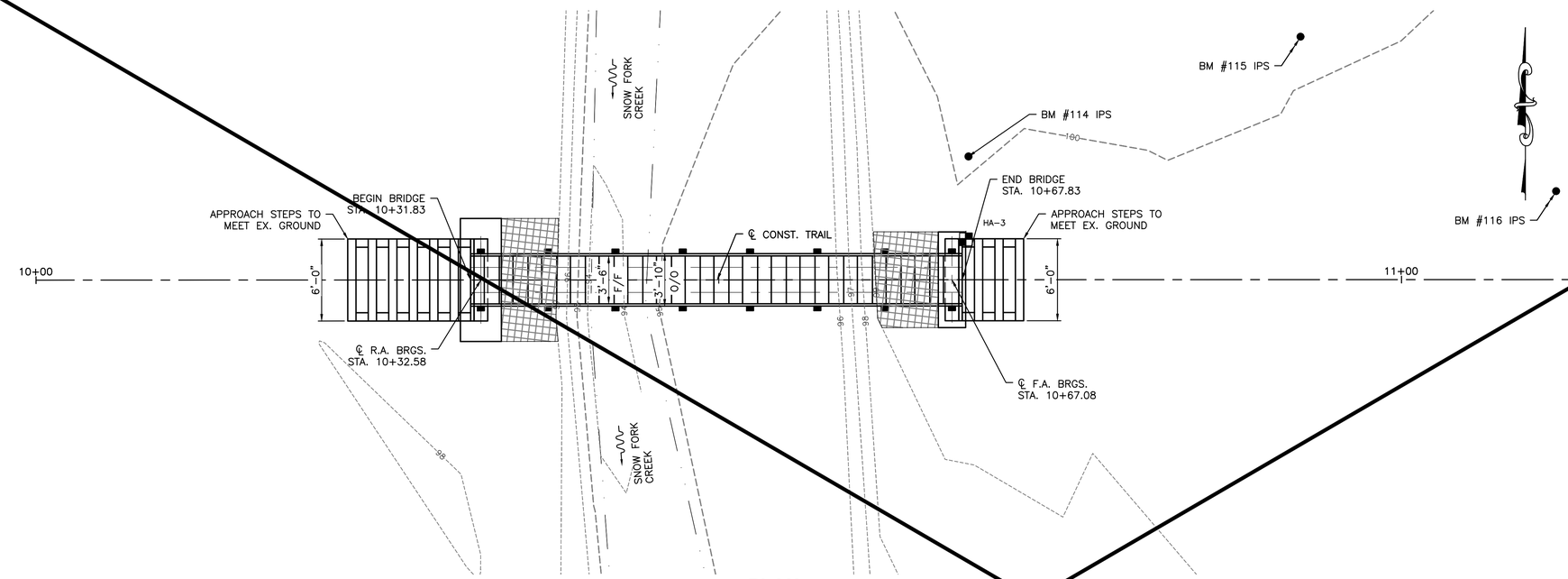
DRAWING NAME
STRUCTURE NOTES - NATURAL MATERIALS BRIDGES

BRIDGE
NATURAL MATERIALS

REVISION DATE
8/29/23

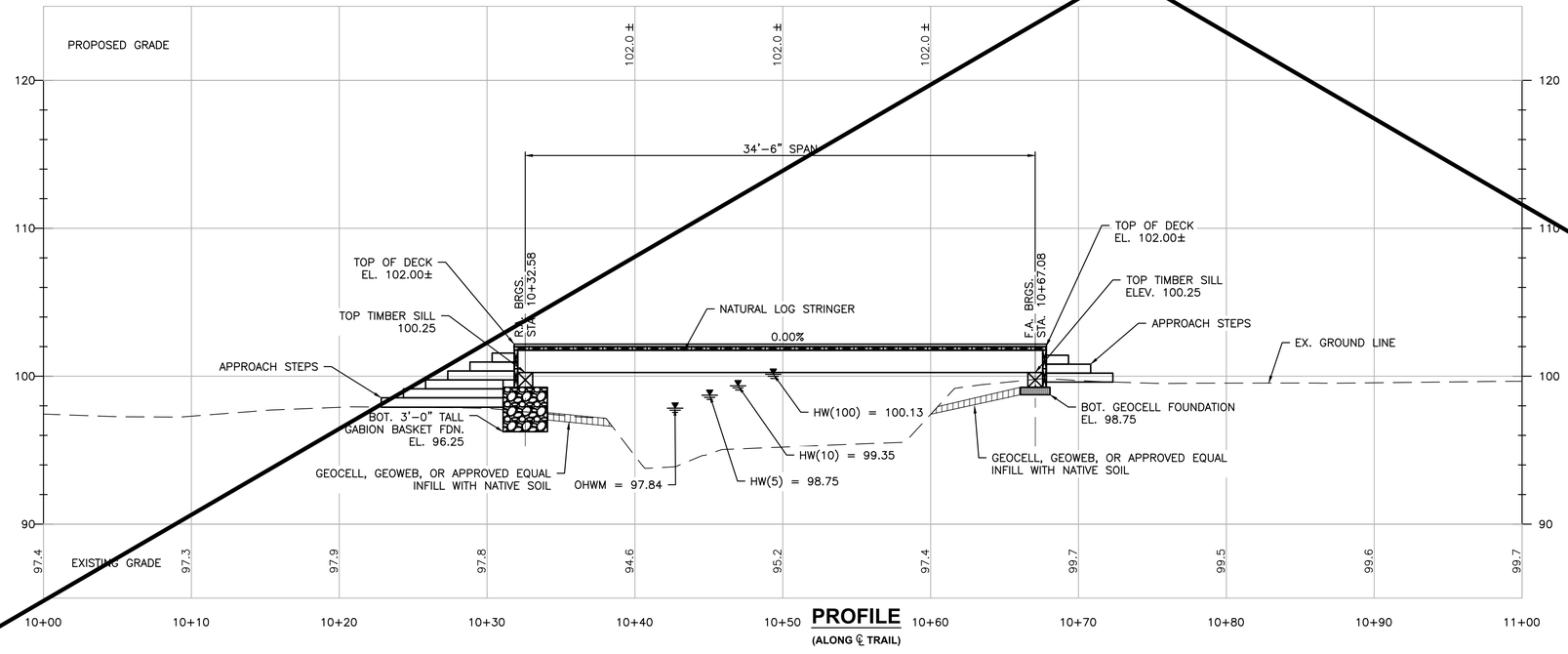
NOT TO SCALE

SUBSET 1 OF 8
SHEET 6 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT.	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#114	IRON PIN	5000	5000	100	10+68.29	9.02' LT
BM#115	IRON PIN	5062.98	5000	99.47	10+75.63	71.57' LT
BM#116	IRON PIN	5019.435	5068.29	100.91	11+29.44	21.41' LT
B.A	BEGIN ALIGNMENT	4933.2298	4983.0782	SEE PROFILE	10+00.00	0'
CL R.A.	POINT ALONG ALIGNMENT	4965.5832	4986.8758	SEE PROFILE	10+32.58	0'
CL F.A.	POINT ALONG ALIGNMENT	4999.848	4990.4977	SEE PROFILE	10+67.08	0'
E.A.	END ALIGNMENT	5082.2071	5000.5648	SEE PROFILE	11+50.00	0'

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

BORING LOCATION

6" THICK GEOCELL ARMORING, FILLED WITH NATIVE SOIL (994.04). GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

HYDRAULIC DATA

DRAINAGE AREA = 1.51 SQ. MILES

Q (5) = 324.00 CFS	V (5) = 3.72 FT/S	DESIGN
Q (10) = 449.00 CFS	V (10) = 4.18 FT/S	SCOUR DESIGN
Q (25) = 634.00 CFS	V (25) = 4.63 FT/S	SCOUR CHECK
Q (100) =960.00 CFS	V (100)= 5.13 FT/S	FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 0.12 FEET.

STRUCTURE IS NOT LOCATED IN FEMA REGULATED ZONE.

PROPOSED STRUCTURE

TYPE: 2 NATURAL LOG, LOG STRINGER TRAIL BRIDGE ON STUB GEOCELL FOOTINGS

SPANS: 34'-6" C/C TIMBER SILL

ROADWAY: 3'-6" F/F RAILING

LOADING: 0.090 KSF PEDESTRIAN

COORDINATES: LATITUDE 39° 33' 42.12" N
LONGITUDE 82° 12' 21.96" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: RAR
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

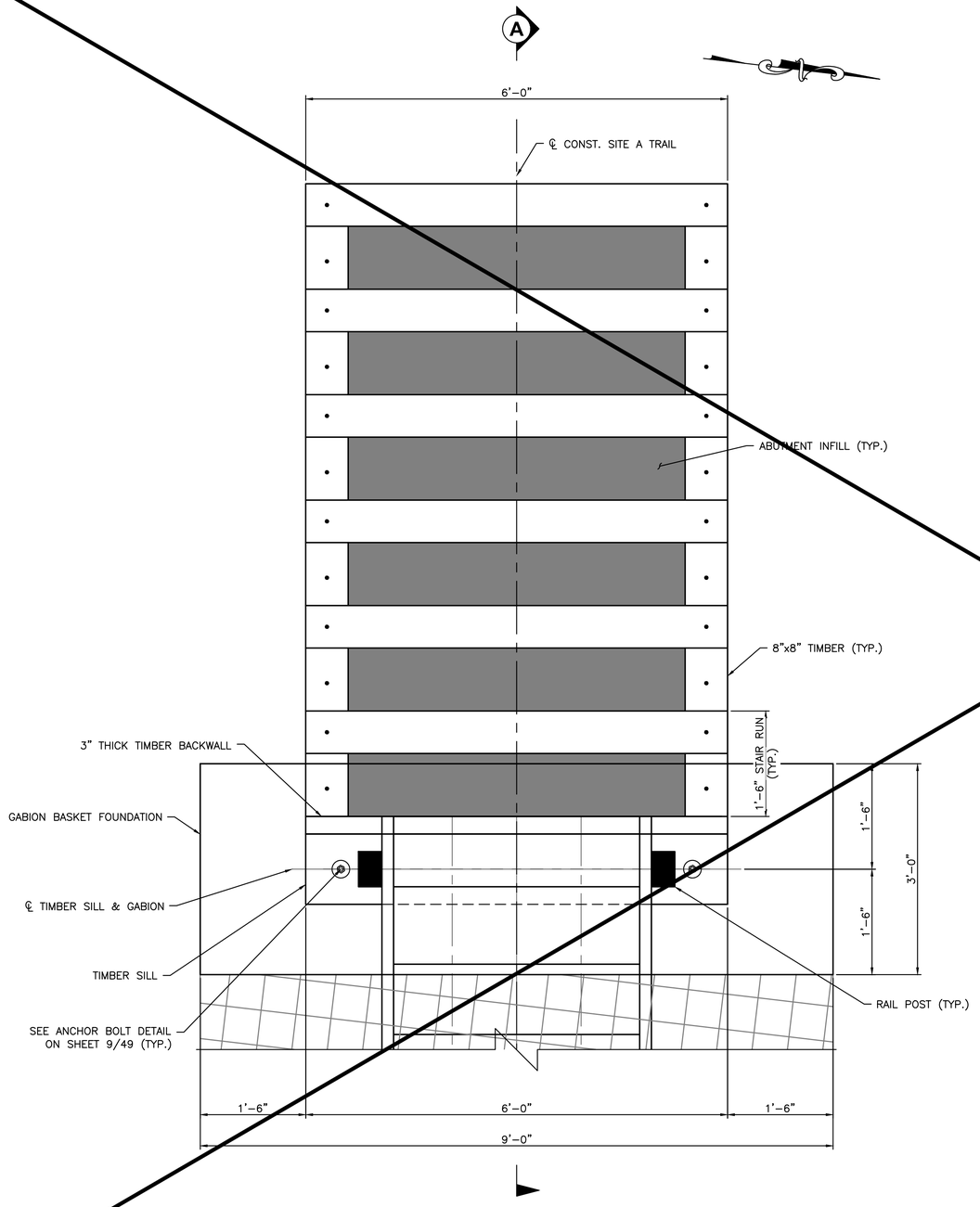
BRIDGE: SITE A - NCT ATHENS CENTRAL #3 OVER SNOW FORK

REVISION DATE: 8/29/23

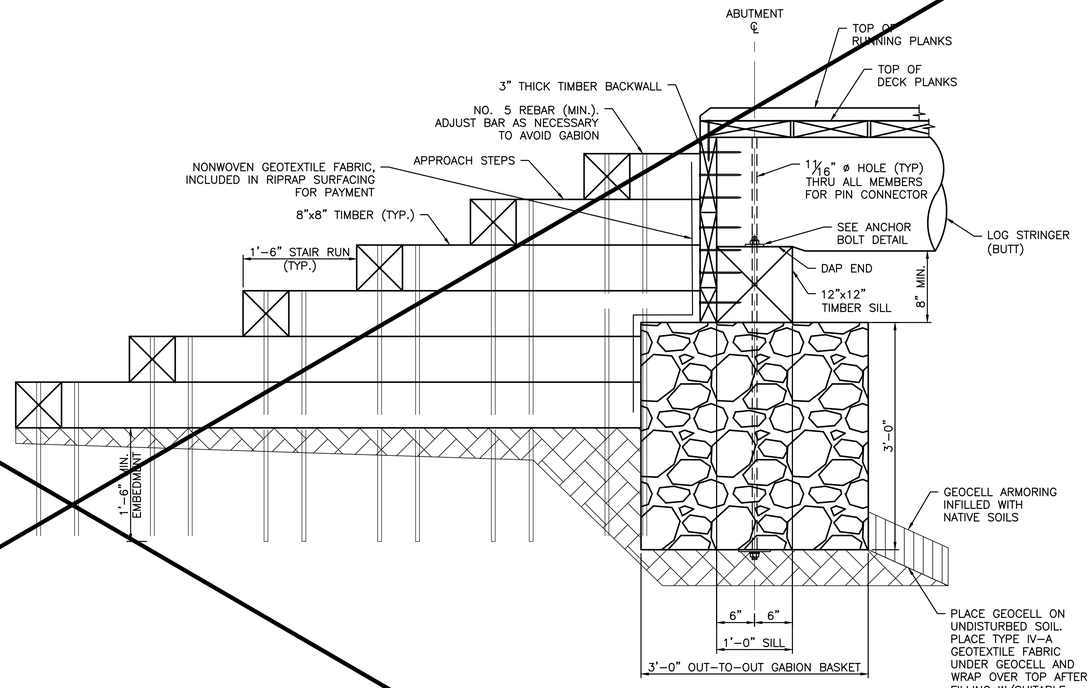
NOT TO SCALE

SUBSET 2 OF 8

SHEET 7 OF 49



REAR ABUTMENT PLAN



REAR ABUTMENT SECTION

NOTES:

1. FOR ADDITIONAL DETAILS OF THE STEPS, REFER TO STD_936–20–02 OVERLAPPING TIMBER STEPS.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING STEPS OR FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GABION FOUNDATION, REFER TO STD_965–20–01 TIMBER SILL ON GABION BASKET.
4. FOUNDATION MAY CONSIST OF GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
5. PLACE NONWOVEN GEOTEXTILE FABRIC BEHIND BACKWALLS TO PREVENT SOIL INTRUSION.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
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DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

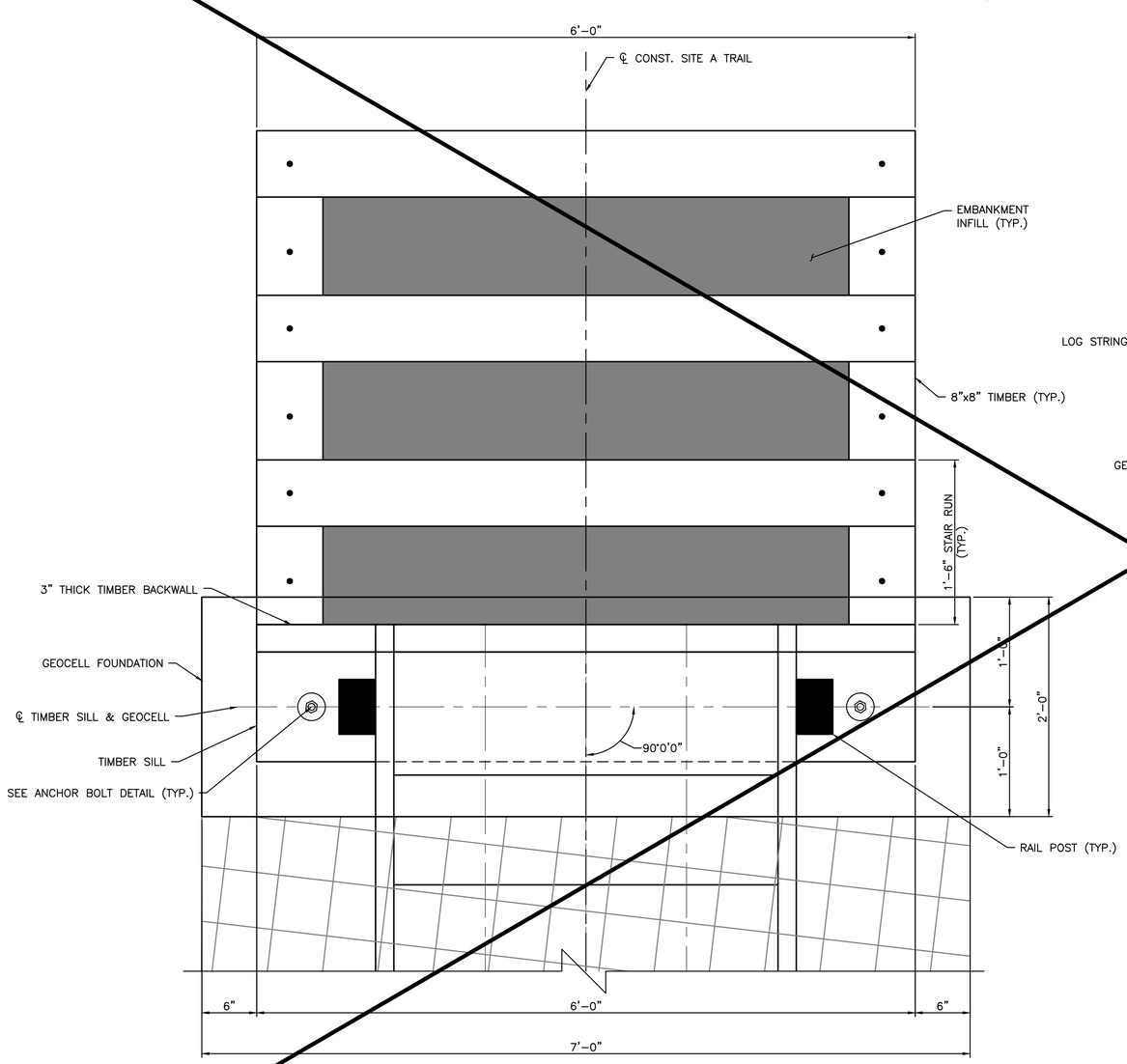
DRAWING NAME
REAR ABUTMENT ELEVATION AND SECTION

BRIDGE
SITE A - NCT ATHENS CENTRAL #3 OVER SNOW FORK

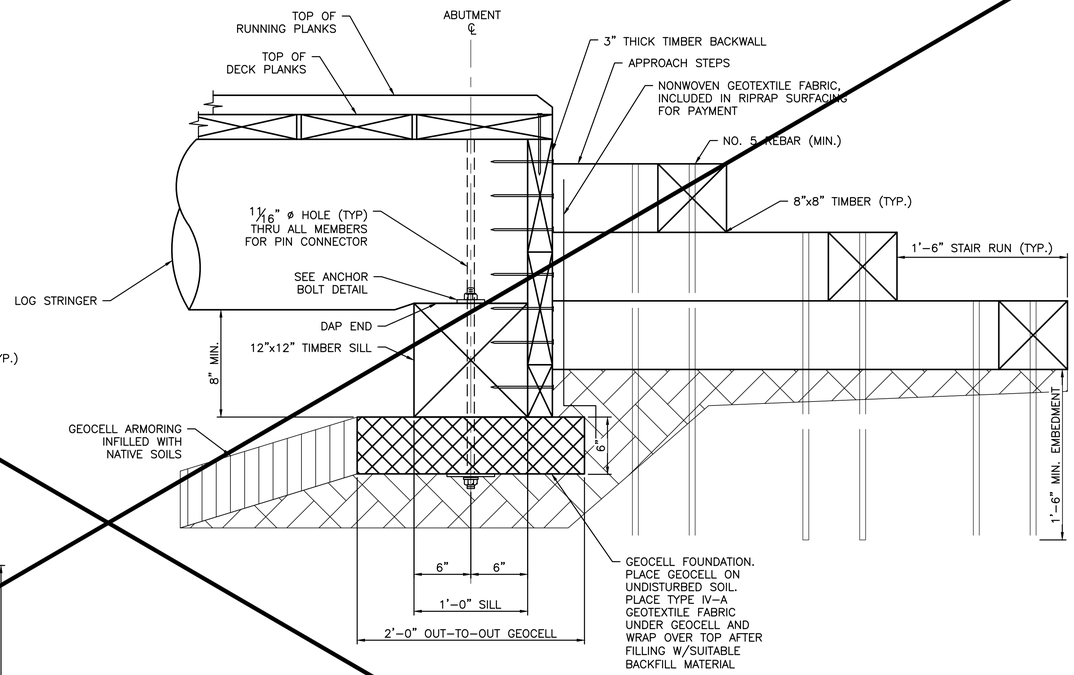
REVISION DATE
8/29/23

NOT TO SCALE

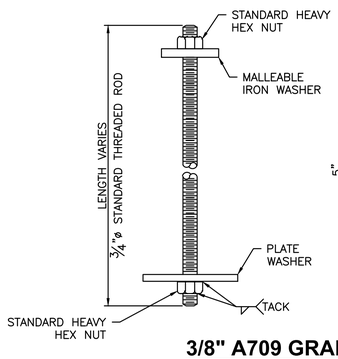
SUBSET 3 OF 8
SHEET 8 OF 49

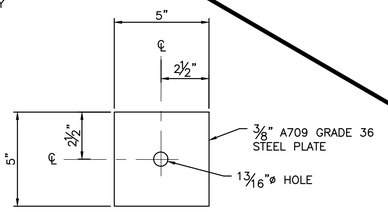


FORWARD ABUTMENT PLAN



FORWARD ABUTMENT SECTION





ELEVATION

3/8" A709 GRADE 36 STEEL PLATE WASHER DETAIL, ANCHOR BOLT DETAIL

NOTES:

1. FOR ADDITIONAL DETAILS OF THE STEPS, REFER TO STD_936–20–02 OVERLAPPING TIMBER STEPS.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING STEPS OR FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GABION FOUNDATION, REFER TO STD_965–20–01 TIMBER SILL ON GABION BASKET.
4. FOUNDATION MAY CONSIST OF GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
5. PLACE NONWOVEN GEOTEXTILE FABRIC BEHIND BACKWALLS TO PREVENT SOIL INTRUSION.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

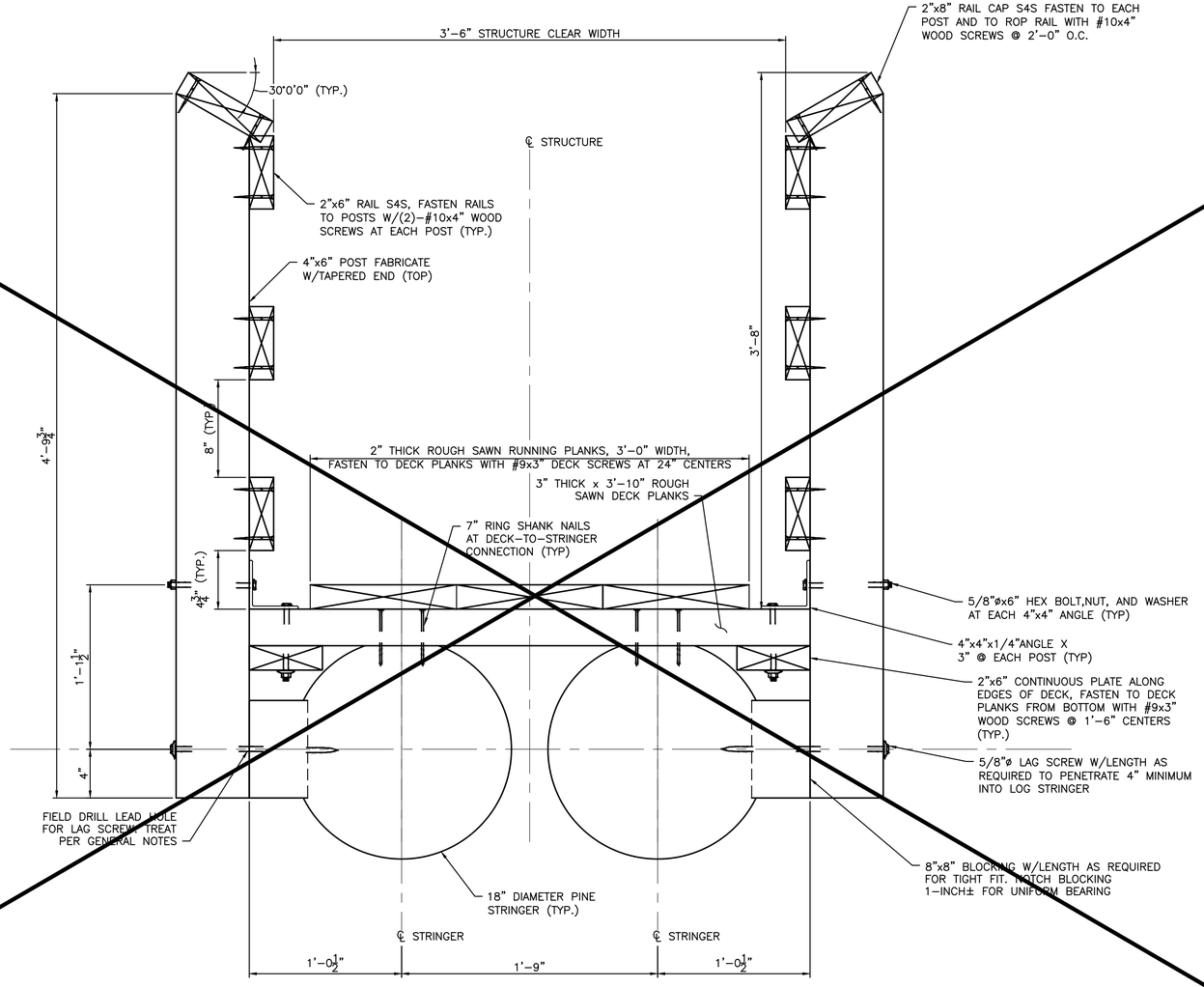
DRAWING NAME
FORWARD ABUTMENT ELEVATION AND SETION

BRIDGE
SITE A - NCT ATHENS CENTRAL #3 OVER SNOW FORK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 4 OF 8
SHEET 9 OF 49



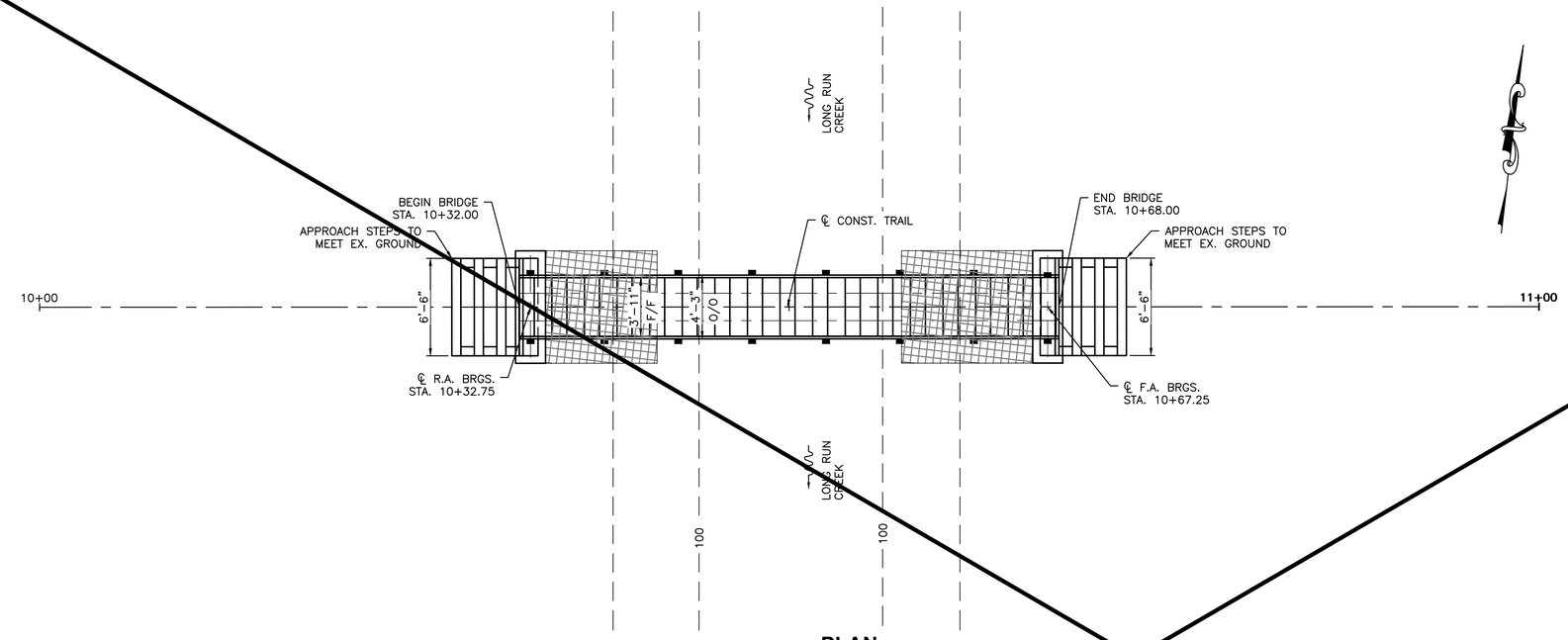
TRANSVERSE SECTION

WOOLPERT ONE EASTON OVAL SUITE 400 COLUMBUS, OH 43219 T 614-476-6000 F 614-476-6225	DESIGNED BY: RAR CHECKED BY: MJZ REVIEWED BY: TML	PROJECT NAME & LOCATION WAYNE NATIONAL FOREST TRAIL BRIDGES BUCKEYE TRAILS ASSOCIATION	DRAWING NAME TRANSVERSE SECTION BRIDGE SITE A - NCT ATHENS CENTRAL #3 OVER SNOW FORK

REVISION DATE	8/29/23
	NOT TO SCALE
SUBSET	5 OF 8
SHEET	10 OF 49

BENCHMARK DATA

DUE TO THE REMOTENESS OF THE SITE, NO FIELD SURVEY HAS BEEN COMPLETED FOR THIS SITE. THE CONTRACTOR SHALL WORK WITH THE BUCKEY TRAIL ASSOCIATION TO DETERMINE THE EXACT LOCATION OF THE STREAM CROSSING. THE FLOW LINE OF STREAM AT THE CROSSING SHALL BE SET AS ELEVATION 100 FOR CONSTRUCTION PURPOSES. THE FOUNDATIONS SHALL BE SET TO ASSURE THAT THE BRIDGE WILL CLEAR THE FLOWLINE OF THE CHANNEL BY 4.5 FEET.



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)

LEGEND

6" THICK GEOCELL ARMORING, FILLED WITH NATIVE SOIL (994.04). GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

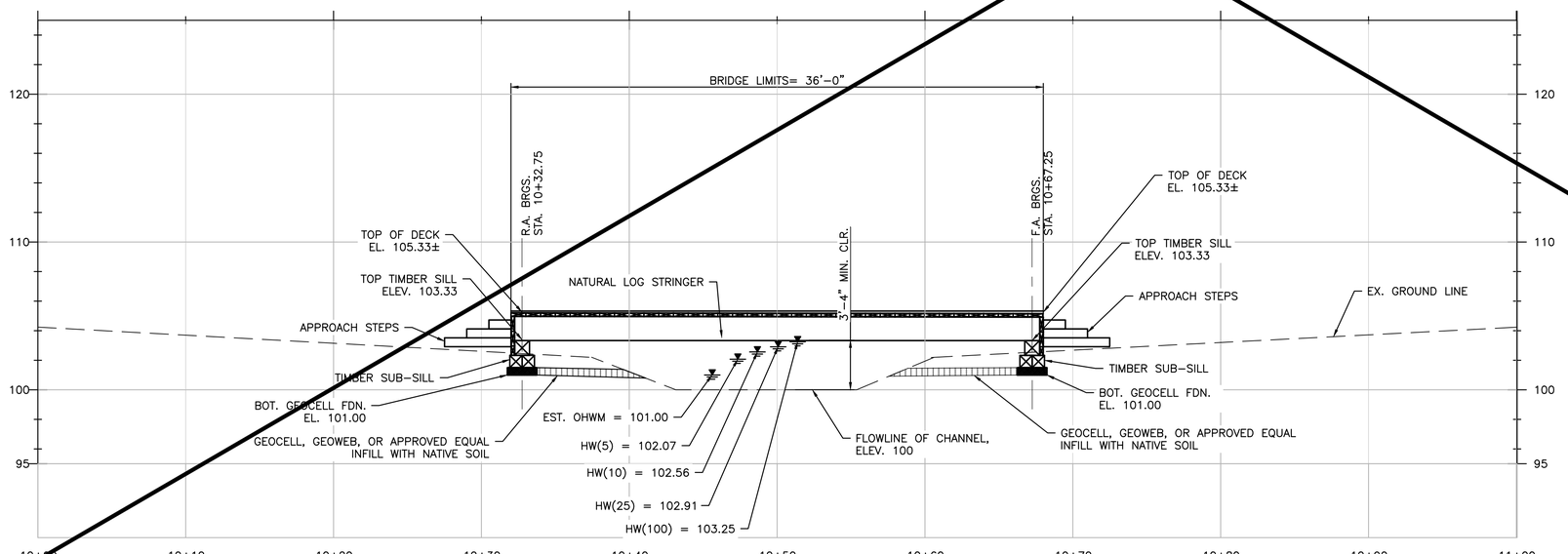
HYDRAULIC DATA

DRAINAGE AREA = 0.45 SQ. MILES

Q (5) = 195.00 CFS	V (5) = 4.92 FT/S	DESIGN
Q (10) = 280.00 CFS	V (10) = 5.48 FT/S	SCOUR DESIGN
Q (25) = 353.00 CFS	V (25) = 5.83 FT/S	SCOUR CHECK
Q (100) =432.00 CFS	V (100)= 6.12 FT/S	FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 0.08 FEET.

STRUCTURE IS NOT LOCATED IN DEFINED FEMA ZONE.



PROFILE

(ALONG ℄ TRAIL)

PROPOSED STRUCTURE

TYPE: 2 NATURAL LOG LOG STRINGER TRAIL BRIDGE ON STUB GEOCELL FOOTINGS

SPANS: 34'-6" C/C TIMBER SILL

ROADWAY: 3'-11" F/F RAILING

LOADING: 0.090 KSF PEDESTRIAN

ALIGNMENT: TANGENT
COORDINATES: LATITUDE 39° 32' 47.40" N
LONGITUDE 82° 04' 46.20" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: RAR
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

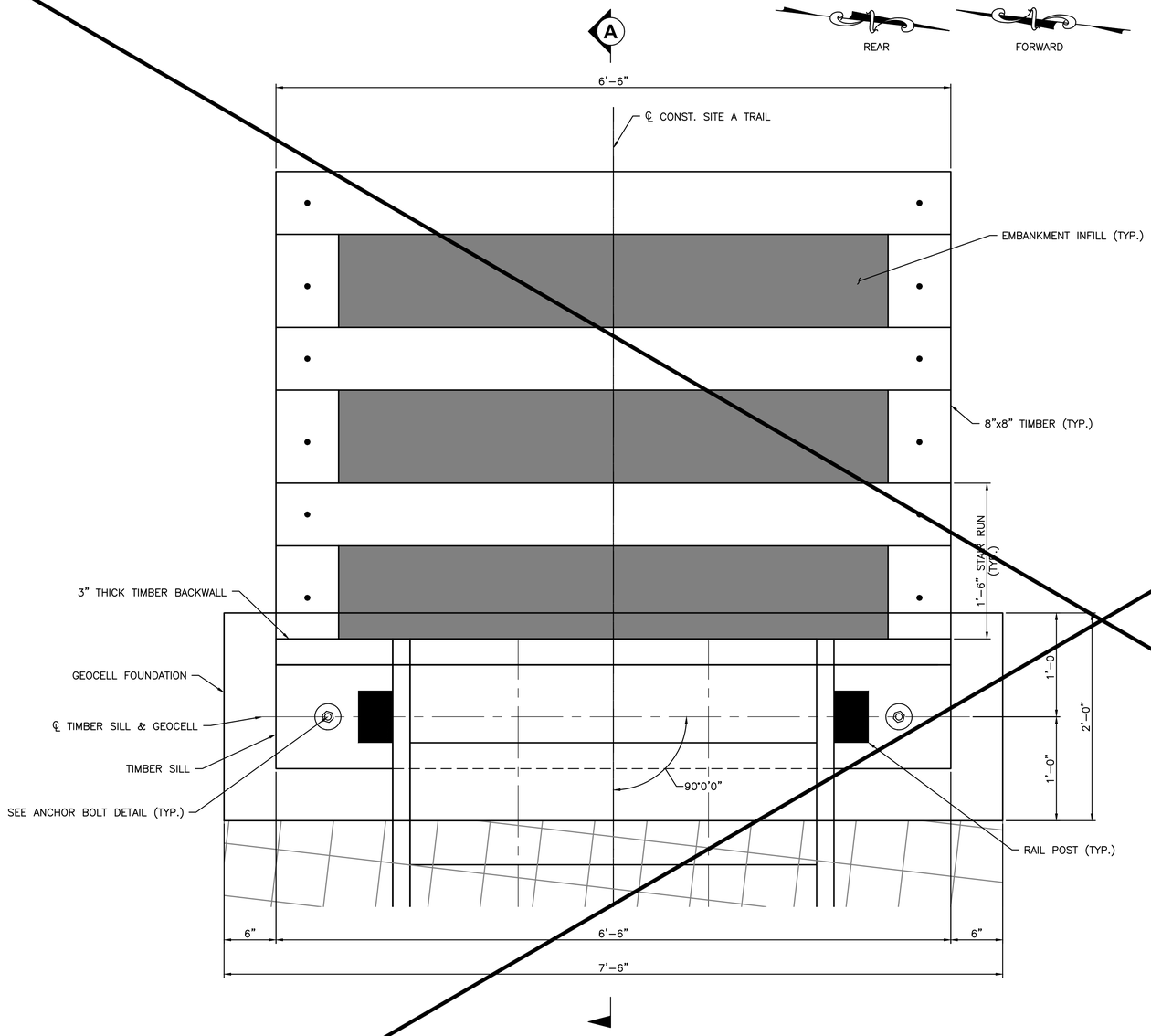
BRIDGE: SITE C - NCT ATHENS CENTRAL #2 OVER LONG RUN

REVISION DATE: 8/29/23

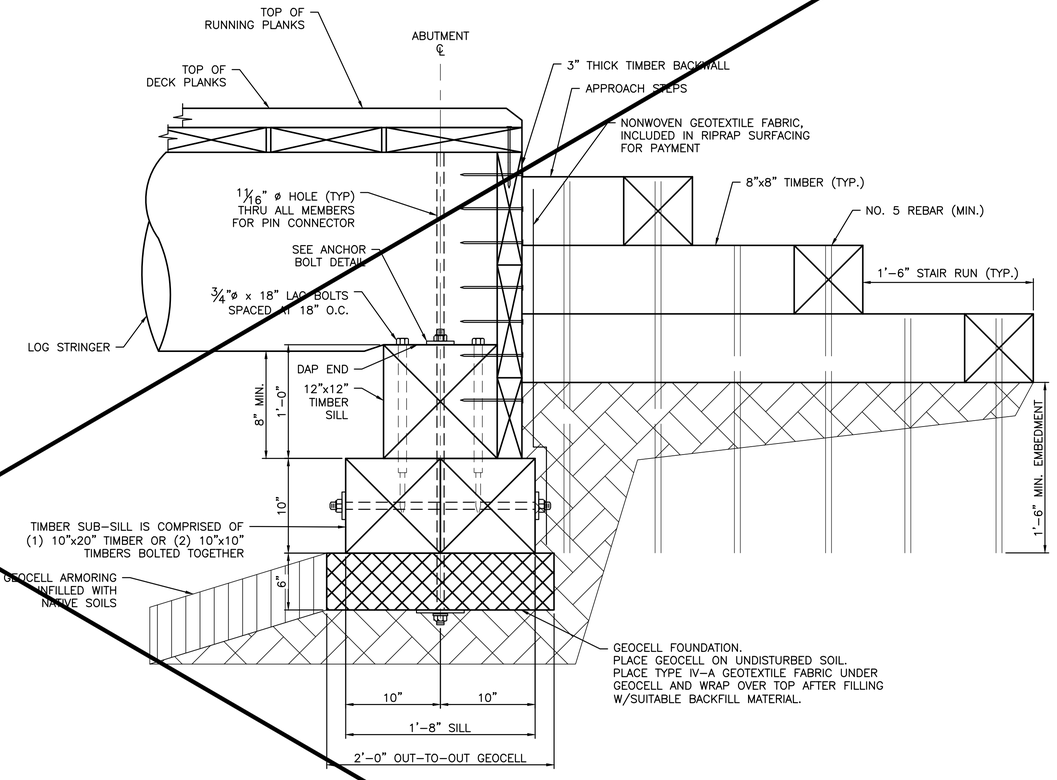
NOT TO SCALE

SUBSET 6 OF 8

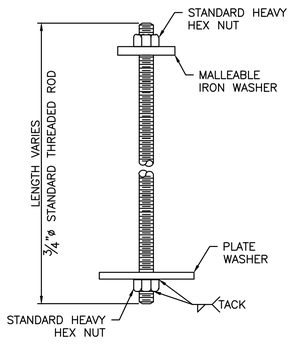
SHEET 11 OF 49

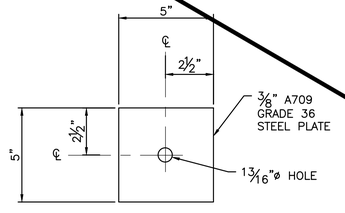


ABUTMENT PLAN



ABUTMENT SECTION





ELEVATION

NOTES:

1. FOR ADDITIONAL DETAILS OF THE STEPS, REFER TO STD_936–20–02 OVERLAPPING TIMBER STEPS.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING STEPS ON FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
4. PLACE NONWOVEN GEOTEXTILE FABRIC BEHIND BACKWALLS TO PREVENT SOIL INTRUSION.

3/8" A709 GR. 36 STEEL PLATE WASHER DETAIL, ANCHOR BOLT DETAIL

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

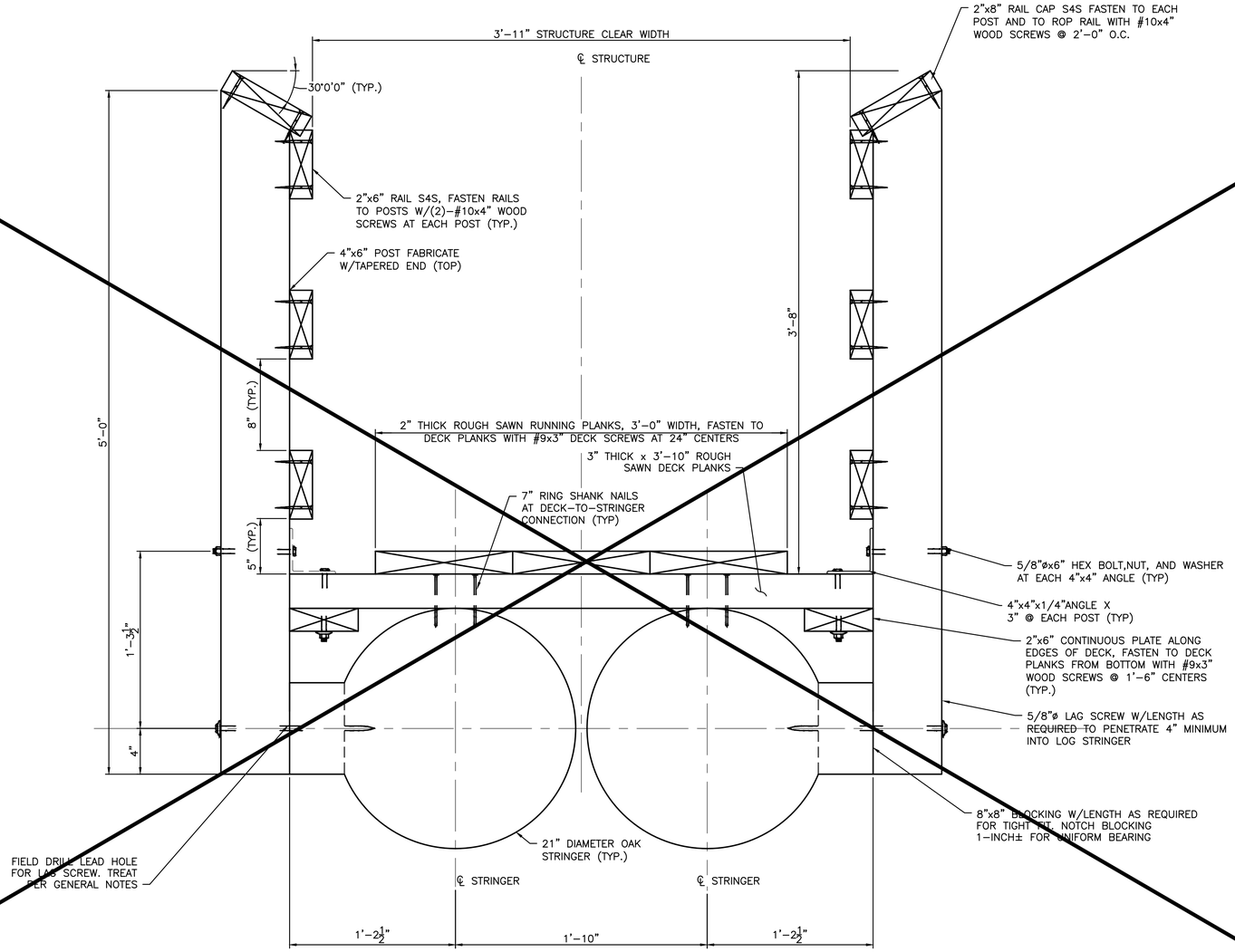
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE C - NCT ATHENS CENTRAL #2 OVER LONG RUN

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 7 OF 8
SHEET 12 OF 49



TRANSVERSE SECTION

WOOLPERT

ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY:	CHECKED BY:	REVIEWED BY:
RAR	MJZ	TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES

BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: TRANSVERSE SECTION

BRIDGE: SITE C - NCT ATHENS CENTRAL #2 OVER LONG RUN

REVISION DATE: 8/29/23

NOT TO SCALE

SUBSET: 8 OF 8

SHEET: 13 OF 49

DESIGN SPECIFICATIONS:

THIS STRUCTURE SHALL CONFORM TO THE FOLLOWING SPACIFICATIONS:
- THE 2009 AASHTO GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGE INCLUDING THE 2015 INTERIMS
- THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATION, 9TH EDITION
- THE 2014 FSH 7709.56b– TRANSPORTATION STRUCTURES HANDBOOK, CHAPTER 80 – TRAIL BRIDGE DESIGN
- THE 2018 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS DATED 10–30–2014, AND APPLICABLE SECTIONS AS REFERENCED HEREIN OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP–03 BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION.

DESIGN LOADING:

PEDESTRIAN LOADING: 0.090 KSF
EQUESTRIAN LOADING: 1,000 LBS ON A FOUR INCH SQUARE (SITE H ONLY)

DESIGN STRESSES:

CONCRETE CLASS A – COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENT)

CONCRETE CLASS A, WITH ¾" MAX. AGGREGATE SIZE – COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFTS)

CONCRETE REINFORCING:
REINFORCING STEEL – MINIMUM YIELD STRENGTH 60 KSI

TIMBER BEAMS:
SITE E:
BENDING, Fb' = 3,386 PSI
SHEAR, Fv' = 410 PSI
MODULUS OF ELASTICITY, E' = 1,416,100 PSI

SITE H:
BENDING, Fb' = 3,542 PSI
SHEAR, Fv' = 410 PSI
MODULUS OF ELASTICITY, E' = 1,416,100 PSI

SITE I:
BENDING, FB' = 3,967 PSI
SHEAR, FV' = 410 PSI
MODULUS OF ELASTICITY, E' = 1,416,100 PSI

TIMBER AND LUMBER:

SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING RULES AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW. GLULAM MEMBERS SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD, STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES (ANSI 117) FOR THE COMBINATION, SPECIES, USE, AND APPEARANCE SPECIFIED BELOW.

GLULAM BEAMS AND DIAPHRAGMS
- COMBINATION SYMBOL 24F–V3, SPECIES SP/SP, WET USE, TREATED, INDUSTRIAL APPEARANCE

DECK PLANKS, SILLS, AND BACKING PLANKS
- SOUTHERN PINE ROUGH SAWN NO. 1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

RUNNING PLANKS
- SOUTHERN PINE ROUGH SAWN NO. 1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

RAILS & POSTS
- WESTERN RED CEDAR, S4S, SELECT STRUCTURAL GRADE GRADING RULES AGENCY – WWPA, WCLIB
- HEM – FIR/DOUGLAS FIR, S4S, NO. 1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB
- SOUTHERN PINE ROUGH SAWN NO. 1 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB
- SOUTHERN PINE, S4S, NO. 2 GRADE, GRADING RULES AGENCY – SPIB

TREATMENT:

PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) SPECIFICATIONS USING THE TREATMENT MATERIALS LISTED BELOW. TREATMENT WILL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WESTERN WOOD PRESERVERS INSTITUTE (WWPI) "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS".

DECKING, RUNNING PLANKS, & RAILING SYSTEM
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4C GROUND CONTACT EXTREME DUTY (UC4C), TYPE CuN, MCA, OR OTHER WATERBORNE PRESERVATIVE

BEAMS, DIAPHRAGMS, SILLS, BACKING PLANKS, CRIBS, & TIMBER WALLS
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4C GROUND CONTACT EXTREME DUTY (UC4C) CuN

FIELD TREATMENT:

COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS – APPROVED BY THE C.O.R. – SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED, FIELD DRILLING OF BOLT, SCREW OR NAIL HOLES IS REQUIRED. THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

HARDWARE AND STRUCTURAL STEEL:

GALVANIZED HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M270, GRADE 36, WITH NUTS AND BOLTS CONFORMING TO ASTM A307, GRADE A. USE GALVANIZED ASTM F436 WASHERS AGAINST WOOD UNLESS OTHERWISE NOTED.

WHEN STRUCTURAL STEEL IS TO BE WELDED, THE WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.1 AND SHALL BE SUITABLE FOR THE GRADE OF STEEL AND INTENDED USE OR SERVICE.

FABRICATION:

SUBMIT SHOP DRAWINGS FOR ALL MANUFACTURED BRIDGE COMPONENTS (EXCEPT TIMBER RUNNING PLANKS). SHOW ALL DIMENSIONS AND FABRICATION DETAILS FOR ALL CUT OR BORED TIMBER. REFER TO SPECIFICATIONS SECTIONS 963.00.02 AND 995.05.

FOUNDATION BEARING RESISTANCE:

SITE H:
ABUTMENT FOUNDATIONS, AS DESIGNED, PRODUCE A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 1.45 KIPS PER SQUARE FOOT. THE FACTORED DESIGN BEARING RESISTANCE IS 2.00 KIPS PER SQUARE FOOT.

SITE I:
ABUTMENT FOUNDATIONS, AS DESIGNED, PRODUCE A MAXIMUM STRENGTH LIMIT STATE BEARING PRESSURE OF 0.74 KIPS PER SQUARE FOOT. THE FACTORED DESIGN BEARING RESISTANCE IS 2.00 KIPS PER SQUARE FOOT.

FOUNDATION MATERIAL:

THE CONTRACTOR SHALL RETAIN THE SERVICES OF "QUALIFIED TECHNICIAN" DEFINED AS A GEOTECHNICAL ENGINEER, GEOTECHNICAL TECHNICIAN, GEOLOGIST, OR OTHER INDIVIDUAL TRAINED IN THE FIELD IDENTIFICATION AND CLASSIFICATION OF SOILS (COMPLETED THE ODOT "SOIL AND ROCK CLASSIFICATION" COURSE OR THE NHI COURSE 132079 SUBSURFACE INVESTIGATION QUALIFICATION.

AFTER EXCAVATION AND PRIOR TO THE CONSTRUCTION OF THE GABION OR GEOCELL FOUNDATIONS, THE QUALIFIED TECHNICIAN SHALL INSPECT THE BOTTOM SURFACE OF THE EXCAVATION. IF ANY AREAS OF THE SOIL ARE DETERMINED BY THE QUALIFIED TECHNICIAN TO BE UNSUITABLE, THEN THE EXCAVATION SHALL BE UNDERCUT IN 1 FOOT INCREMENTS UNTIL SUITABLE MATERIALS ARE ENCOUNTERED OR TO A MAXIMUM DEPTH OF 3 FEET AND FILLED WITH SUITABLE MATERIALS UP TO THE LEVEL OF THE PROPOSED BOTTOM OF FOUNDATION ELEVATION AND COMPACTED IN ACCORDANCE WITH SPECIFICATIONS 911.20. IF UNSUITABLE MATERIALS ARE STILL PRESENT AFTER A 3 FOOT UNDERCUT, THE ENGINEER SHALL BE CONTACTED BEFORE WORK PROCEEDS. THE QUALIFIED TECHNICIAN SHALL DOCUMENT THE SUBSURFACE CONDITION WITH PHOTOGRAPHS AND ANY FIELD TESTING RESULTS PERFORMED AND SUBMIT THE RESULTS AND PHOTOGRAPHS TO THE ENGINEER.

A QUANTITY OF 4 CY FOR SITE H AND 3 CY FOR SITE I IS PROVIDED IN THE PLANS FOR UNDERCUT CONTINGENCY. PAYMENT FOR UNDERCUT SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE UNDERCUTTING, FILLING, AND COMPACTION, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS TO COMPLETE THE WORK. THIS ITEM SHALL ONLY BE USED IF DIRECTED BY THE ENGINEER AND SHALL BE PAID FOR UNDER ITEM 91830 FOUNDATION PREPARATION: UNDERCUT CONTINGENCY, ON A PER CUBIC YARD BASIS.

DRILLED SHAFTS:

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 17.88 KIPS AT THE SITE E ABUTMENTS. THIS LOAD IS RESISTED BY A FACTORED TIP RESISTANCE OF 601.2 KIPS PER SQUARE FOOT.

THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT IS 5.98 KIPS, AND 19.72 KIP–FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 42.77 KIP–FEET AND MAXIMUM FACTORED SHEAR OF 5.97 KIPS, WITHIN THE DRILLED SHAFT.

THE DRILLED SHAFTS SHALL BE INSTALLED IN ACCORDANCES WITH SECTION 565 OF FP–03 (STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS).

INTEGRITY TESTING AS DESCRIBED IN SECTION 565.08 IS NOT REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL PREPARE AND TEST CONCRETE CYLINDERS IN ACCORDANCE WITH 552 AND REPORT RESULTS TO THE ENGINEER.

AT THE OPTION OF THE CONTRACTOR, THE CASINGS MAY BE LEFT IN PLACE. THE CONTRACTORS MAY SUBSTITUTE ALTERNATIVE MATERIALS FOR THE CASING OTHER THAN STEEL PROVIDED THAT THEY CAN MAINTAIN A STABLE EXCAVATION AND PROVIDE AN ADEQUATE SEAL AT THE BOTTOM OF THE EXCAVATIONS. THE CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE OF THE ALTERNATIVE MATERIALS AND WILL NOT BE REIMBURSED FOR ADDITIONAL WORK CAUSED BY FAILURE OF ALTERNATIVE MATERIALS.

DRILLED SHAFTS ABOVE BEDROCK WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 56501 – DRILLED SHAFTS ROCK SOCKETS WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 56502 – ROCK SOCKET

ALL MATERIALS, EQUIPMENT, LABOR REQUIRED FOR THE INSTALLATION OF THE DRILLED SHAFTS AND ROCK SOCKETS ARE INCLUDED IN THE RELEVANT PAY ITEMS.

CONCRETE SEALER (NON-EPOXY):

THIS WORK CONSISTS OF APPLYING AN APPROVED SEALER ON NEW CONCRETE SURFACE AREAS AFTER THE CONCRETE IS CURED AND REPAIRS COMPLETED AND CURED. APPLY THE SEALER TO LOCATIONS DESCRIBED IN THE PLANS.

FURNISH MATERIALS ACCORDING TO THE OHIO DEPARTMENT OF TRANSPORTATION'S QUALIFIED PRODUCTS LIST (QPL), 705.23NE, NON–EPOXY SEALERS FOR CONCRETE AVAILABLE AT:
https://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/QPL.aspx

EQUIPMENT: USE APPLICATION EQUIPMENT RECOMMENDED BY THE SEALER MANUFACTURER. USE SPRAY EQUIPMENT, TANKS, HOSES, BROOMS, ROLLERS, COATERS, SQUEEGEES, ETC., THAT ARE CLEAN, FREE OF FOREIGN MATTER, OIL RESIDUE AND WATER.

MIXING: MIX THE SEALER ACCORDING TO THE MANUFACTURER'S RECOMMENDED PROCEDURES. FURNISH THE ENGINEER WITH THE MANUFACTURER'S APPLICATION INSTRUCTIONS. DO NOT MIX OR APPLY THE SEALER UNTIL THE MANUFACTURER'S WRITTEN RECOMMENDATIONS ARE SUPPLIED TO THE ENGINEER. MIX AND MAINTAIN MATERIALS AT A UNIFORM CONSISTENCY DURING APPLICATION.

STORAGE: STORE ALL SEALER COMPONENTS IN TIGHTLY SEALED CONTAINERS, IN A DRY LOCATION, AND AS RECOMMENDED BY THE MANUFACTURER. DELIVER UNOPENED DRUMS OR CONTAINERS OF THE SEALER OR SEALER COMPONENTS TO THE JOB SITE WITH THE MANUFACTURER'S NUMBERED SEAL INTACT.

SURFACE CONDITION: APPLY SEALERS ONLY TO SURFACES WHICH ARE DRY, FREE FROM DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, COATINGS AND OTHER FOREIGN MATERIALS. VISUALLY INSPECT ALL SURFACES BEFORE APPLYING SEALER. REMOVE ALL STRUCTURALLY UNSOUND SURFACES AND WEAK SECTIONS. PERFORM ALL CONCRETE PATCHING PRIOR TO SURFACE PROFILING. PERFORM CONCRETE PATCHING ON AREAS IDENTIFIED BY THE ENGINEER. CURE REPAIRED AREAS FOR AT LEAST SEVEN (7) DAYS. AIR DRY ALL CONCRETE SURFACES FOR AT LEAST TEN (10) DAYS AFTER COMPLETION OF REQUIRED CURING. FOR ACCELERATED CURE OF PRECAST CONCRETE, OBTAIN THE REQUIRED 28 DAY STRENGTH AND AIR DRY THE SURFACES AT LEAST TEN (10) DAYS AFTER COMPLETING ACCELERATED CURE.

SURFACE PREPARATION: REMOVE DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, COATINGS AND OTHER FOREIGN MATERIALS FROM SURFACES TO BE SEALED.

APPLICATION: DO NOT APPLY SEALER TO SURFACES WITH MOISTURE. APPLY THE SEALER BETWEEN 12 AND 48 HOURS AFTER SURFACE PREPARATION. DO NOT APPLY SEALER IF RAIN IS ANTICIPATED WITHIN SIX (6) HOURS AFTER APPLICATION. WAIT AT LEAST 12 HOURS AFTER LAST RAIN EVENT TO APPLY SEALER. CLEARLY MARK WHERE THE SEALER APPLICATION STOPS IF NOT CONTINUOUS. APPLY THE SEALER ACCORDING TO THE MANUFACTURER'S RECOMMENDED MODE OF APPLICATION.

COVERAGE: MINIMUM, ONE GALLON (3.875 LITER) FOR EACH 150 SQUARE FEET (14.0 SQUARE METERS). APPLY SEALER ON HORIZONTAL SURFACES IN A ONE–PASS OPERATION AT THE REQUIRED COVERAGE. AN ACCEPTABLE APPLICATION PROCEDURE CONSISTS OF SATURATING THE SURFACE AND WAITING A FEW SECONDS FOR THE SEALER TO COMPLETELY PENETRATE THE CONCRETE SURFACE. BROOM IN THE SEALER IF RECOMMENDED BY THE MANUFACTURER. APPLY SEALER ON VERTICAL SURFACES TO SATURATE THE SURFACE. THE SURFACE IS SATURATED WHEN RUNS OF 6 TO 12 INCHES DEVELOP. APPLY ADDITIONAL PASSES IN 10 TO 15 MINUTE INTERVALS UNTIL THE COVERAGE RATE IS ACHIEVED. APPLY SEALERS WITH BRUSH OR ROLLER IF RECOMMENDED BY THE MANUFACTURER. AFTER 10 TO 15 MINUTES, SQUEEGEE OFF EXCESS MATERIAL ON SMOOTH FINISHED OR DENSE CONCRETES WHERE THE REQUIRED COVERAGE IS NOT ABSORBED.

SAFETY PRECAUTIONS: FOLLOW PRECAUTIONS DEFINED ON THE MANUFACTURER'S SDS.

ENVIRONMENTAL REQUIREMENTS. PROTECT PLANTS AND VEGETATION FROM OVERSPRAY BY COVERING WITH DROP CLOTHS.

MEASUREMENT AND PAYMENT: PAYMENT SHALL BE INCIDENTAL TO ITEM 965.

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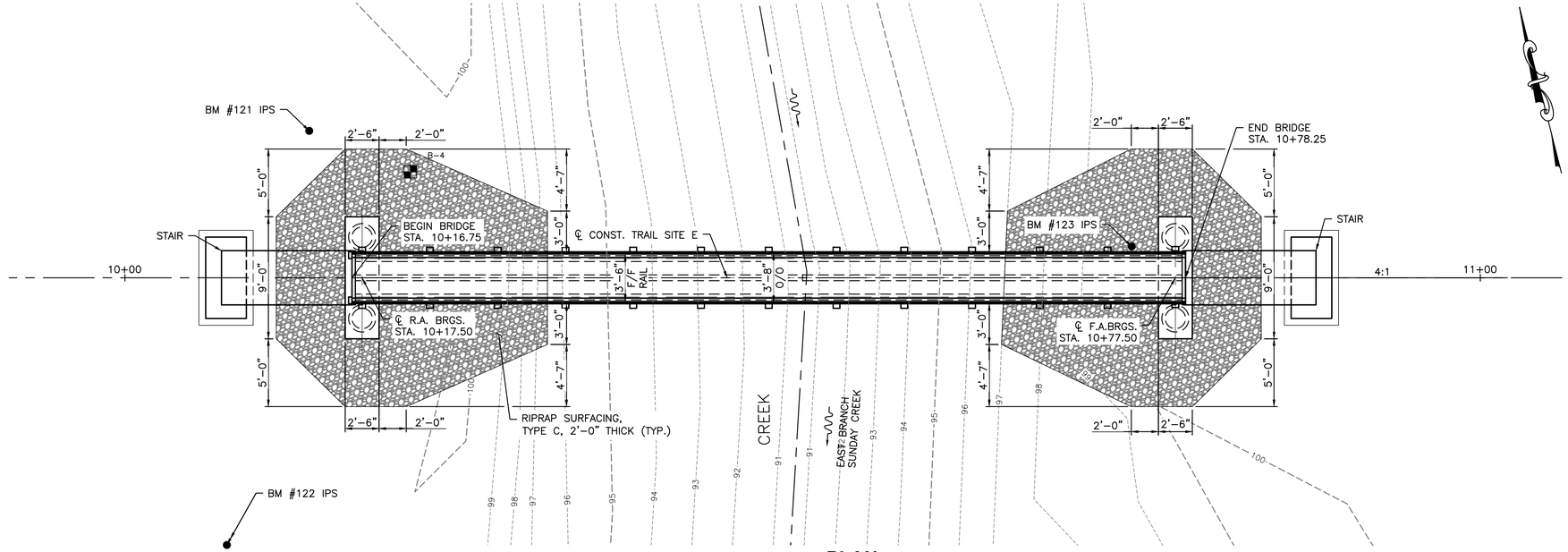
CHECKED BY: CML
REVIEWED BY: MJZ

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: STRUCTURE NOTES
BRIDGE: GLULAM BEAM BRIDGES

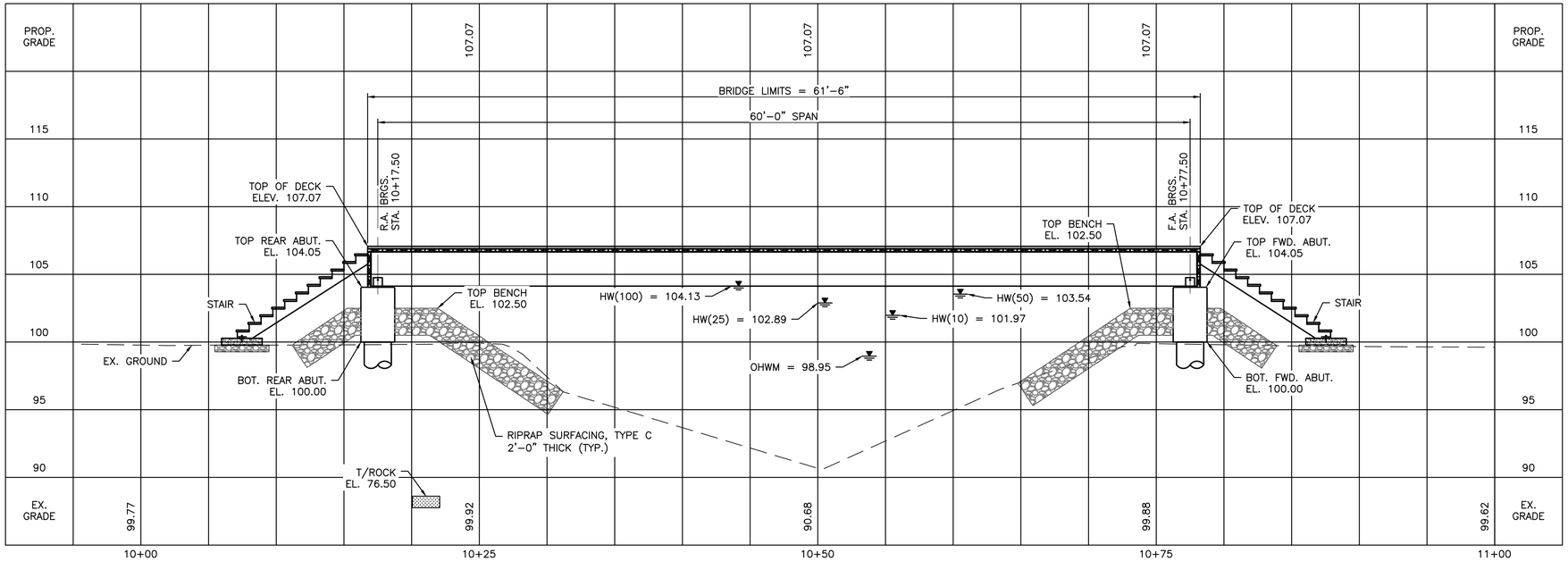
REVISION DATE: 8/29/23
NOT TO SCALE

SUBSET 1 OF 14
SHEET 14 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#121	IRON PIN	5000	5000	100	10+13.60	10.84' LT
BM#122	IRON PIN	4908.278	4970.464	99.81	10+07.53	85.33' RT
BM#123	IRON PIN	4976.806	5056.72	99.99	10+74.34	2.32' LT
B.A.	BEGIN ALIGNMENT	4992.84	4984.16	SEE PROFILE	10+00.00	0
CL R.A.	POINT ALONG ALIGNMENT	4986.69	5008.39	SEE PROFILE	10+25.00	0
CL F.A.	POINT ALONG ALIGNMENT	4974.39	5056.85	SEE PROFILE	10+75.00	0
F.A.	END ALIGNMENT	4968.24	5081.08	SEE PROFILE	11+00.00	0

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

BORING LOCATION

RIPRAP SURFACING, TYPE C, 2'–0" THICK

HYDRAULIC DATA

DRAINAGE AREA = 22.8 SQ. MILES

Q (10) = 2,580 CFS	V (10) = 6.16 FT/S	DESIGN
Q (25) = 3.480 CFS	V (25) = 6.83 FT/S	SCOUR DESIGN
Q (50) = 4,220 CFS	V (50) = 7.22 FT/S	SCOUR CHECK
Q (100) = 5,000 CFS	V (100) = 7.61 FT/S	FEMA

STRUCTURE CLEARS THE 100–YEAR HIGH WATER ELEVATION HW BY 0.01 FEET.

STRUCTURE IS LOCATED IN FEMA ZONE A.

PROPOSED STRUCTURE

TYPE: THREE GLULAM STRINGER TRAIL BRIDGE ON CONCRETE FOUNDATIONS WITH DRILLED SHAFTS.

SPANS: 60'–0" C/C BEARINGS

ROADWAY: 3'–6" F/F RAILING

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

COORDINATES: LATITUDE 39° 34' 17.04" N
LONGITUDE 82° 01' 52.68" W

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DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

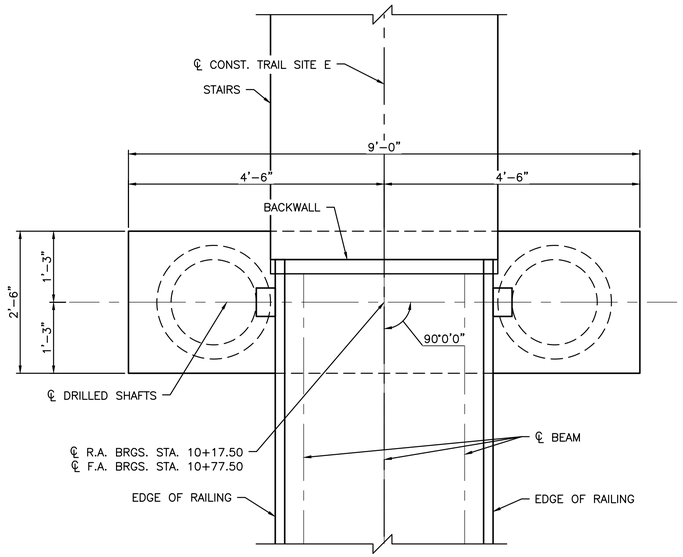
BRIDGE: SITE E - TRAIL OVER E BRANCH SUNDAY CREEK

REVISION DATE: 8/29/23

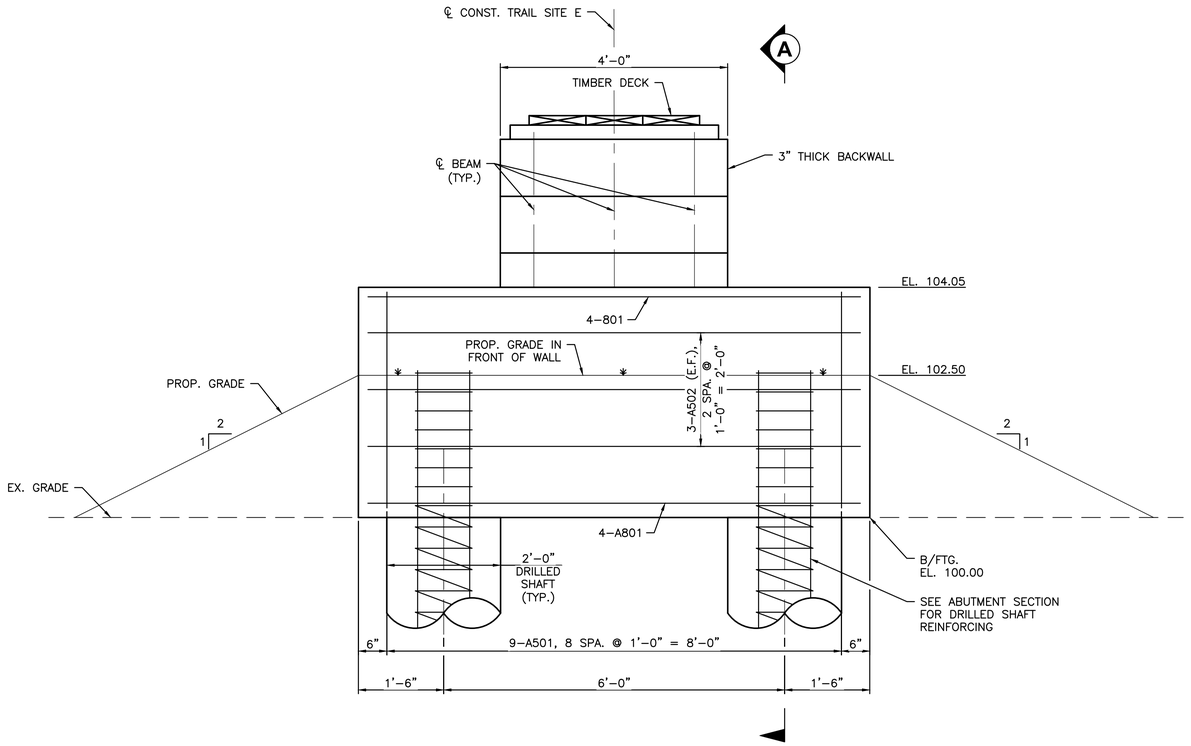
NOT TO SCALE

SUBSET 2 OF 14

SHEET 15 OF 49

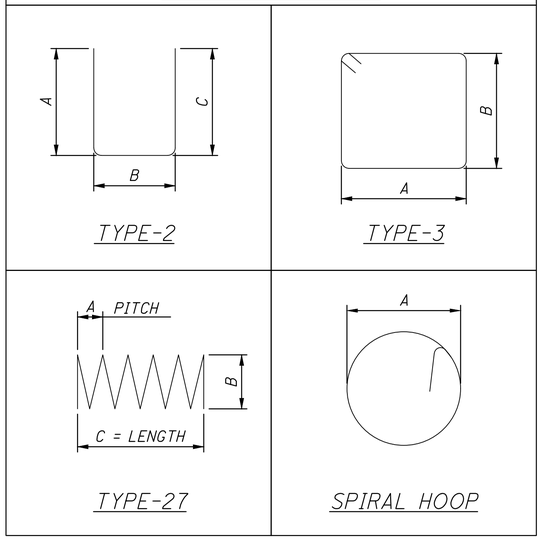


ABUTMENT PLAN



ABUTMENT ELEVATION

BAR BEND DIAGRAM



SITE E ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
A501	18	11'-6"	216	3	2'-0"	3'-6"					
A502	12	8'-6"	107	ST.							
A801	16	8'-6"	364	ST.							
DS401	28	3'-6"	66	HOOP	1'-0"						
DS702	32	28'-10"	1886	ST.							
SP401	4	221'-5"	621	27	4.5"	1'-0"	26'-5"				
TOTAL			3260								

NOTES:

1. SEE SHEET 17/49 FOR SECTION A.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT AFTER THE LETTERS WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS AFTER THE LETTERS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A NO. 5 BAR IN THE ABUTMENT. A LEGEND OF THE DESCRIPTORS IS GIVEN BELOW:

   A – ABUTMENT
   DS – DRILLED SHAFT
   SP – SPIRAL
3. BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS OTHERWISE NOTED.
4. "ST." INDICATES A STRAIGHT BAR.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

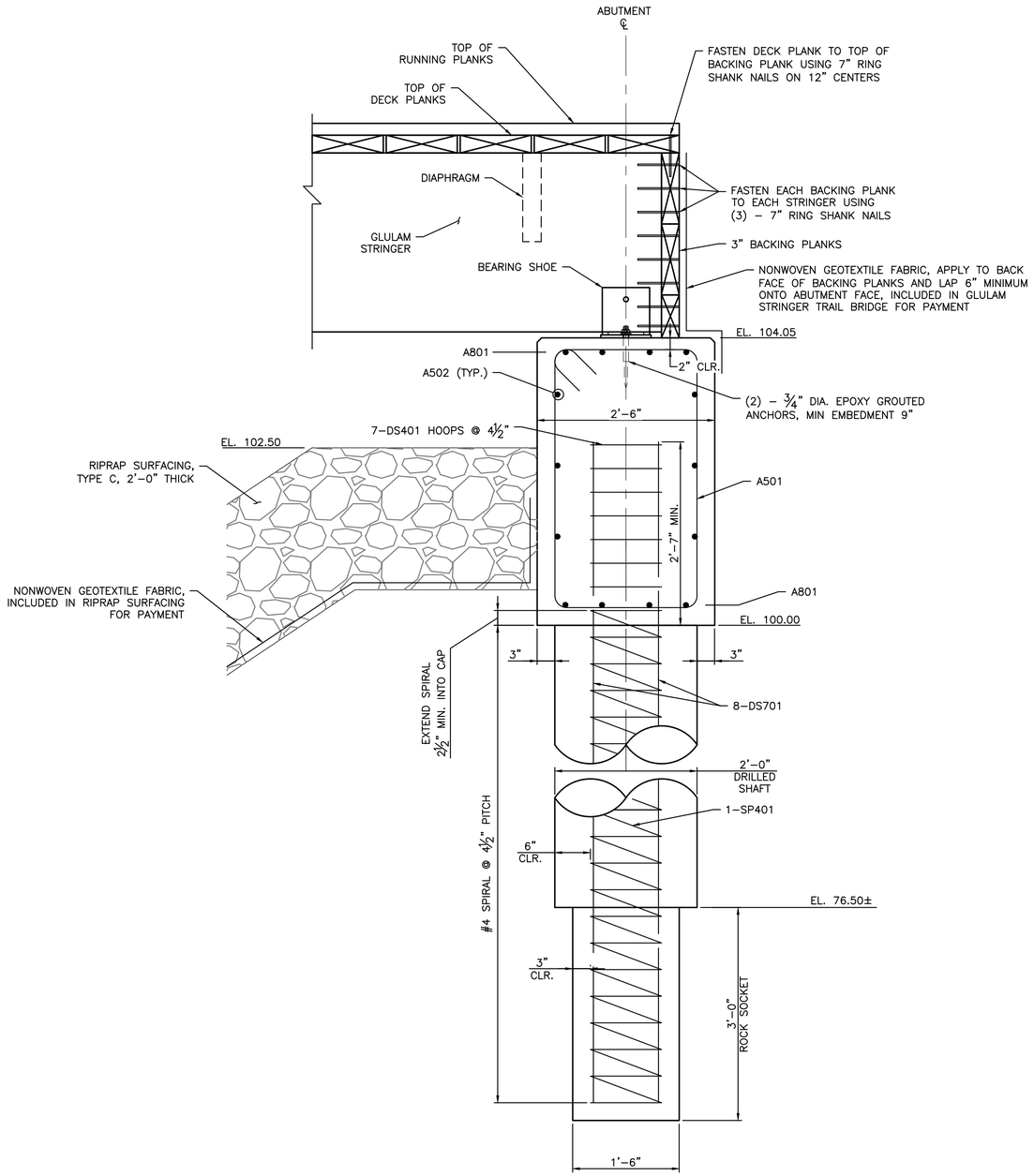
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE E - TRAIL OVER E BRANCH SUNDAY CREEK

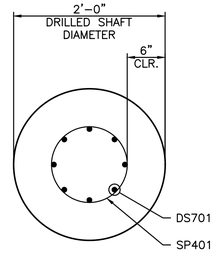
REVISION DATE
8/29/23

NOT TO SCALE

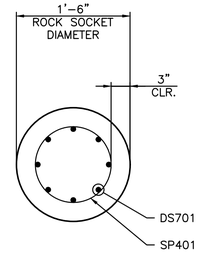
SUBSET 3 OF 14
SHEET 16 OF 49



ABUTMENT SECTION



DRILLED SHAFT SECTION



ROCK SOCKET SECTION

NOTES:

1. SEE SHEET 16/49 FOR ABUTMENT PLAN AND ELEVATION.
2. ASSUME 3" CONCRETE COVER UNLESS NOTED OTHERWISE.
3. CENTERING DEVICES SHALL BE REQUIRED DURING CONSTRUCTION TO MAINTAIN ALIGNMENT OF CAGES AND MIN. CONCRETE COVER. CENTERING DEVICES SHALL BE PLACED AT INTERVALS NOT EXCEEDING 5–FT THROUGHOUT THE LENGTH OF THE SHAFT. PROVIDE MIN. ONE SET OF CENTERING DEVICES WITHIN 2–FT TOP AND 2–FT BOTTOM OF SHAFT. PROVIDE CENTERING DEVICES MIN. 60–DEGREE INTERVALS AROUND CIRCUMFERENCE OF SHAFT.
4. PROVIDE FEET (BOTTOM SUPPORTS) AT THE BOTTOM OF THE SHAFT ON VERTICAL BARS.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

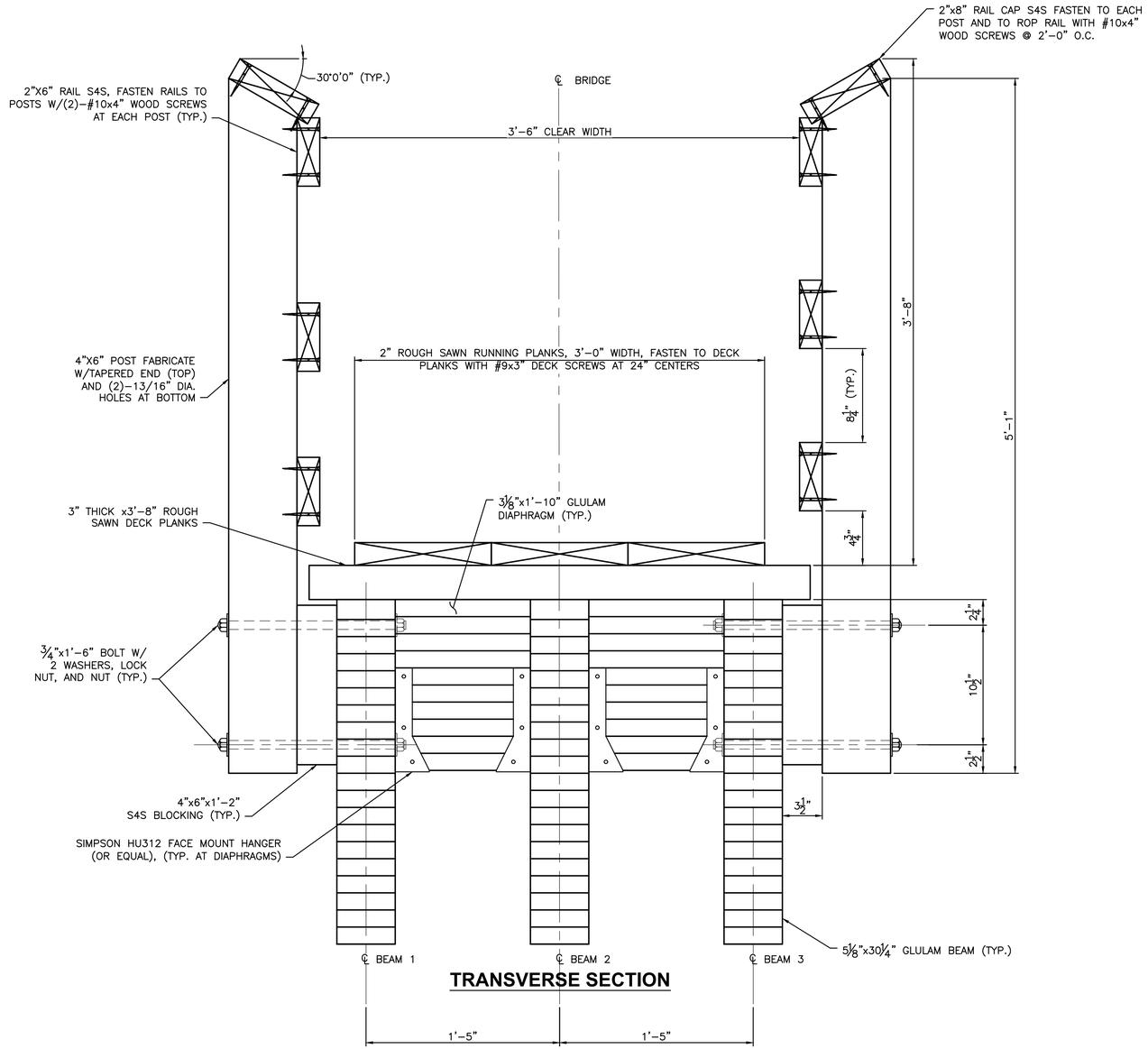
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE E - TRAIL OVER E BRANCH SUNDAY CREEK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 4 OF 14
SHEET 17 OF 49



TRANSVERSE SECTION

NOTES:

1. REFER TO USFS STD-963-10-2D AND STD-963-10-3D FOR ADDITIONAL DETAILS.

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TML	CML	MJZ

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES

BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: **TRANSVERSE SECTION**

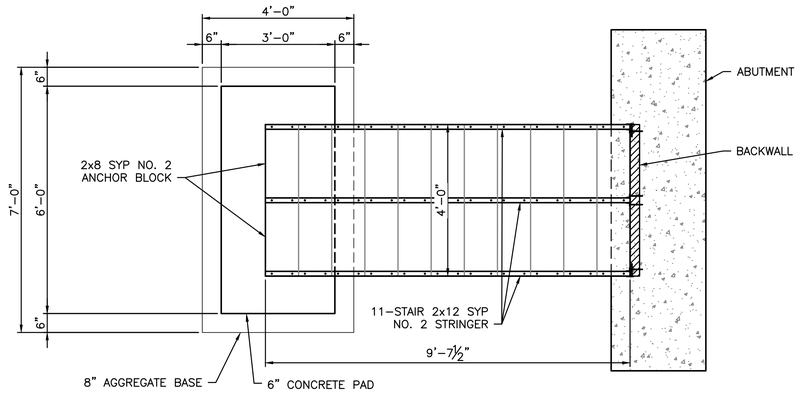
BRIDGE: **SITE E - TRAIL OVER E BRANCH SUNDAY CREEK**

REVISION DATE: **8/29/23**

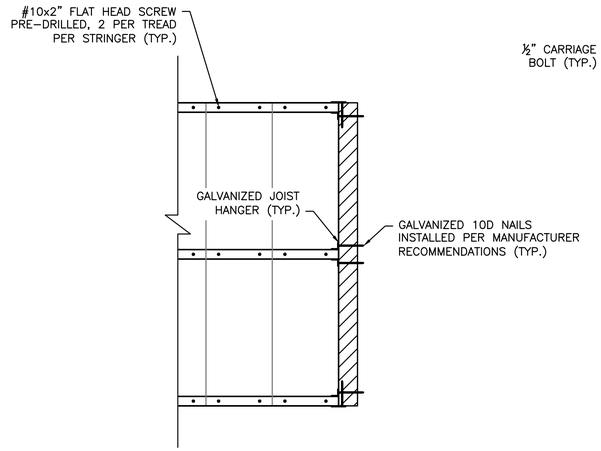
NOT TO SCALE

SUBSET: 5 OF 14

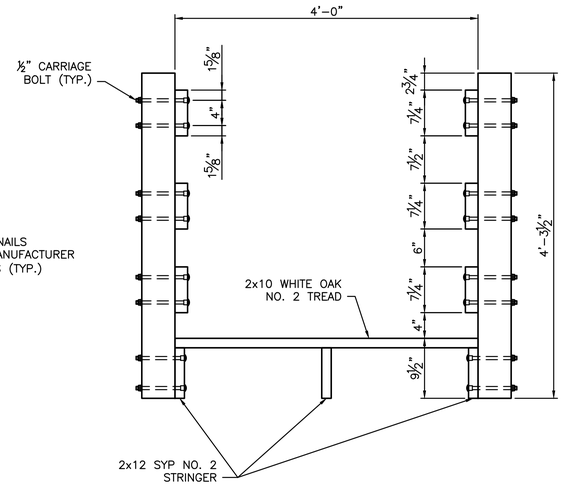
SHEET: 18 OF 49



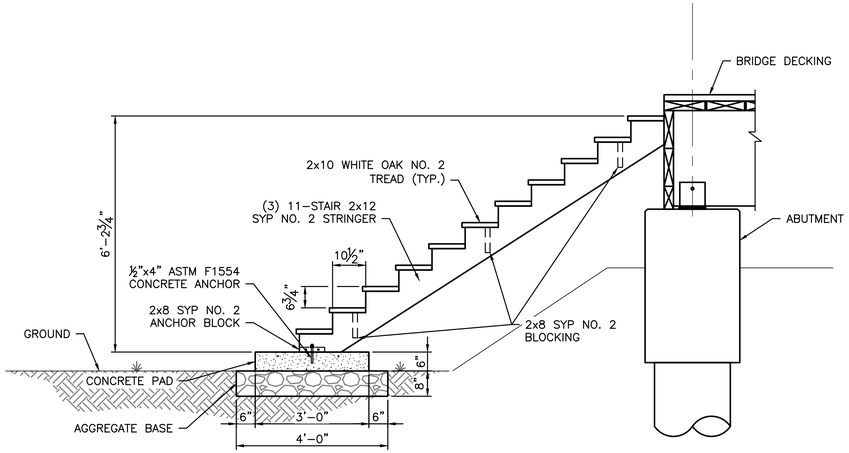
STAIR PLAN



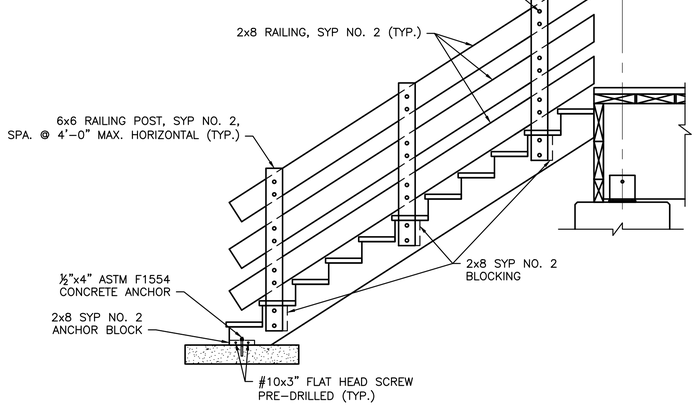
STAIR CONNECTION DETAILS



STAIR RAILING SECTION



STAIR ELEVATION



STAIR RAILING DETAILS

NOTES:

1. ALL SCREWS, CARRIAGE BOLTS, ANCHORS, NAILS, AND HARDWARE SHALL BE GALVANIZED.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

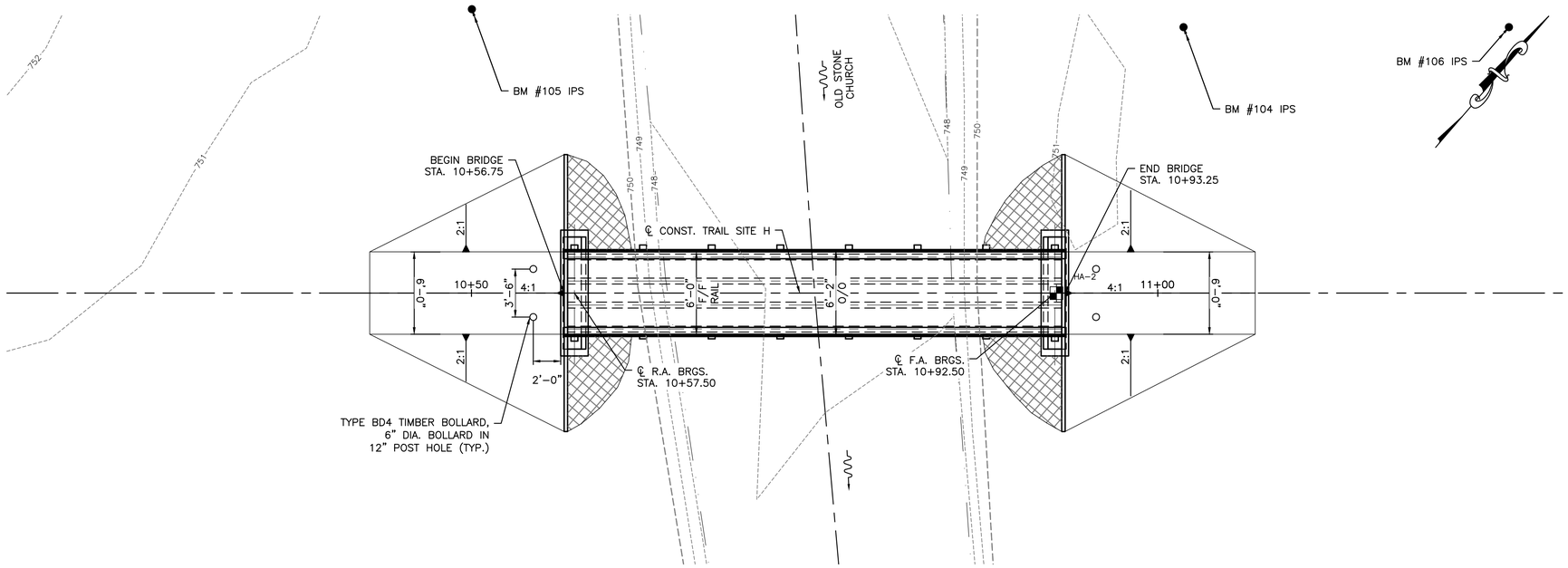
DRAWING NAME
STAIR DETAILS

BRIDGE
SITE E - TRAIL OVER E BRANCH SUNDAY CREEK

REVISION DATE
8/29/23

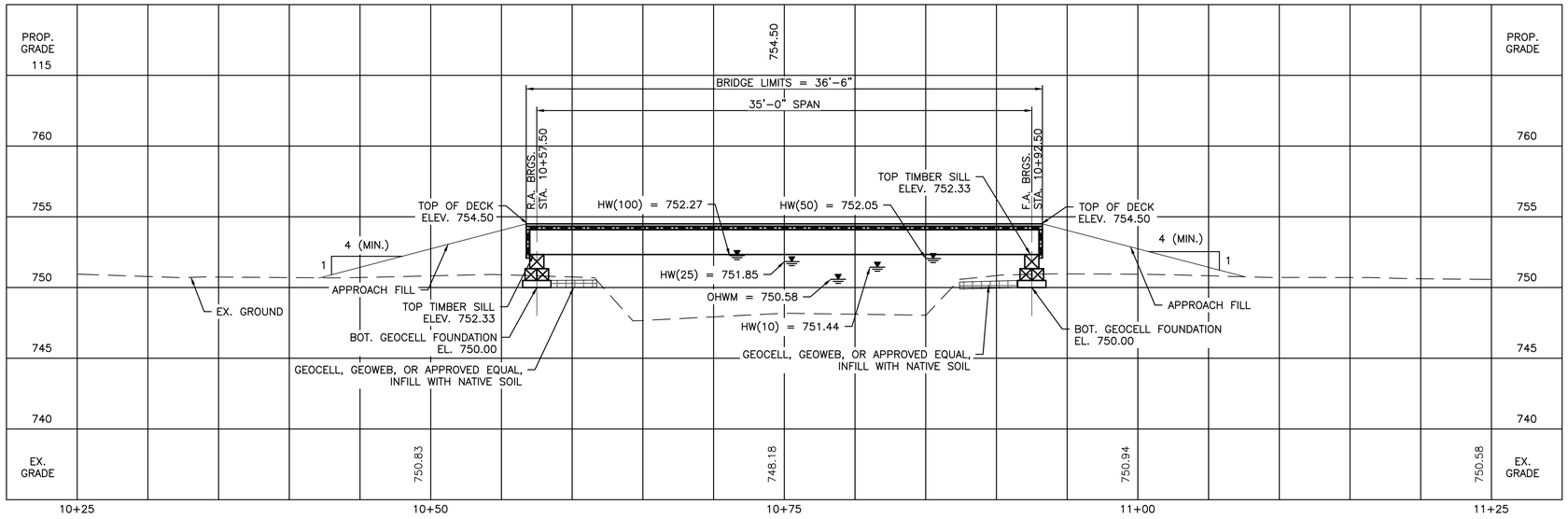
NOT TO SCALE

SUBSET 6 OF 14
SHEET 19 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#100	IRON PIN	576829.572	2054105.708	10056.709		
BM#104	IRON PIN	586497.584	2038997.466	751.127	11+01.87	25.16' LT
BM#105	IRON PIN	586481.565	2038942.822	750.91	10+50.02	48.71' LT
BM#106	IRON PIN	586562.477	2039004.661	751.357	11+49.69	69.62' LT
B.A.	BEGIN ALIGNMENT	586412.0099	2038936.734	SEE PROFILE	10+00.00	0
CL R.A.	POINT ALONG ALIGNMENT	586449.5525	2038980.286	SEE PROFILE	10+57.50	0
CL F.A.	POINT ALONG ALIGNMENT	586472.4045	2039006.797	SEE PROFILE	10+92.50	0
F.A.	END ALIGNMENT	586509.9471	2039050.349	SEE PROFILE	11+50.00	0

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

BORING LOCATION

6" THICK GEOCELL ARMORING, FILLED WITH NATIVE SOIL (994.04). GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

HYDRAULIC DATA

DRAINAGE AREA = 3.2 SQ. MILES

Q (10) = 689 CFS	V (10) = 4.95 FT/S	DESIGN
Q (25) = 953 CFS	V (25) = 5.19 FT/S	SCOUR DESIGN
Q (50) = 1,170 CFS	V (50) = 5.63 FT/S	SCOUR CHECK
Q (100) = 1,410 CFS	V (100) = 6.03 FT/S	FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 0.07 FEET.

STRUCTURE IS NOT LOCATED IN FEMA REGULATED ZONE.

PROPOSED STRUCTURE

TYPE: THREE GLULAM STRINGER TRAIL BRIDGE ON STUB GEOCELL FOUNDATIONS.

SPANS: 35'-0" C/C TIMBER SILL

ROADWAY: 6'-0" F/F RAILING

LOADING: 0.090 KSF PEDESTRIAN
1,000 LB EQUESTRIAN LOAD ON A 4"x4" SQUARE

SKEW: NONE

COORDINATES: LATITUDE 39° 36' 36.00" N
LONGITUDE 82° 14' 58.92" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

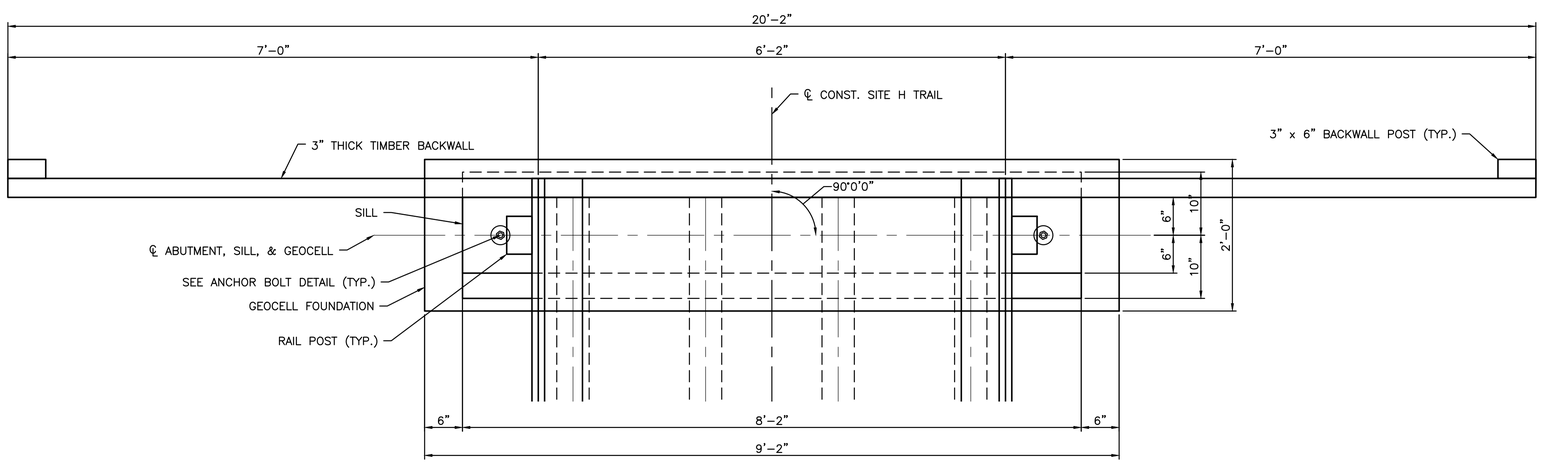
BRIDGE: SITE H - STONE CHURCH MAIN LOOP #3 OVER OLD STONE CHURCH CREEK

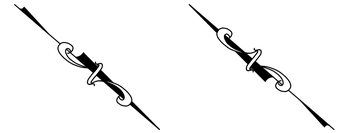
REVISION DATE: 8/29/23

NOT TO SCALE

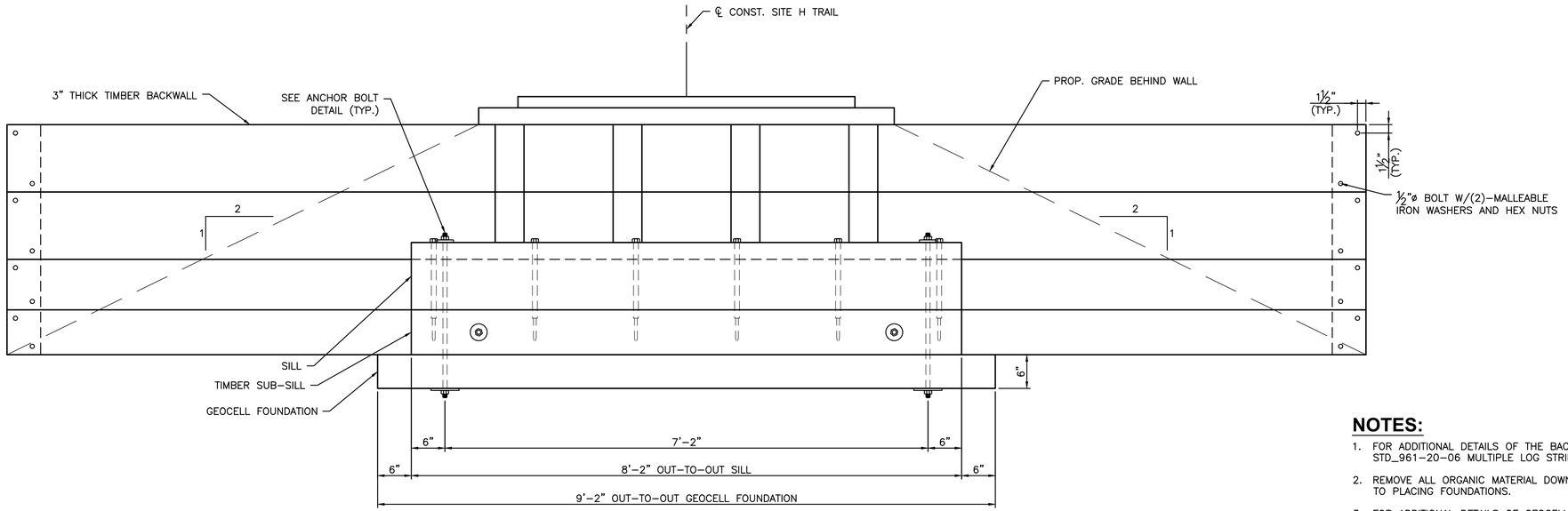
SUBSET 7 OF 14

SHEET 20 OF 49





ABUTMENT PLAN



ABUTMENT ELEVATION

NOTES:

1. FOR ADDITIONAL DETAILS OF THE BACKWALL, REFER TO STD_961–20–06 MULTIPLE LOG STRINGER TRAIL BRIDGE.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
4. PLACE NONWOVEN GEOTEXTILE FABRIC BEHIND BACKWALLS TO PREVENT SOIL INTRUSION.

WOOLPERT
ONE EASTON OVAL
SUITE 400
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REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

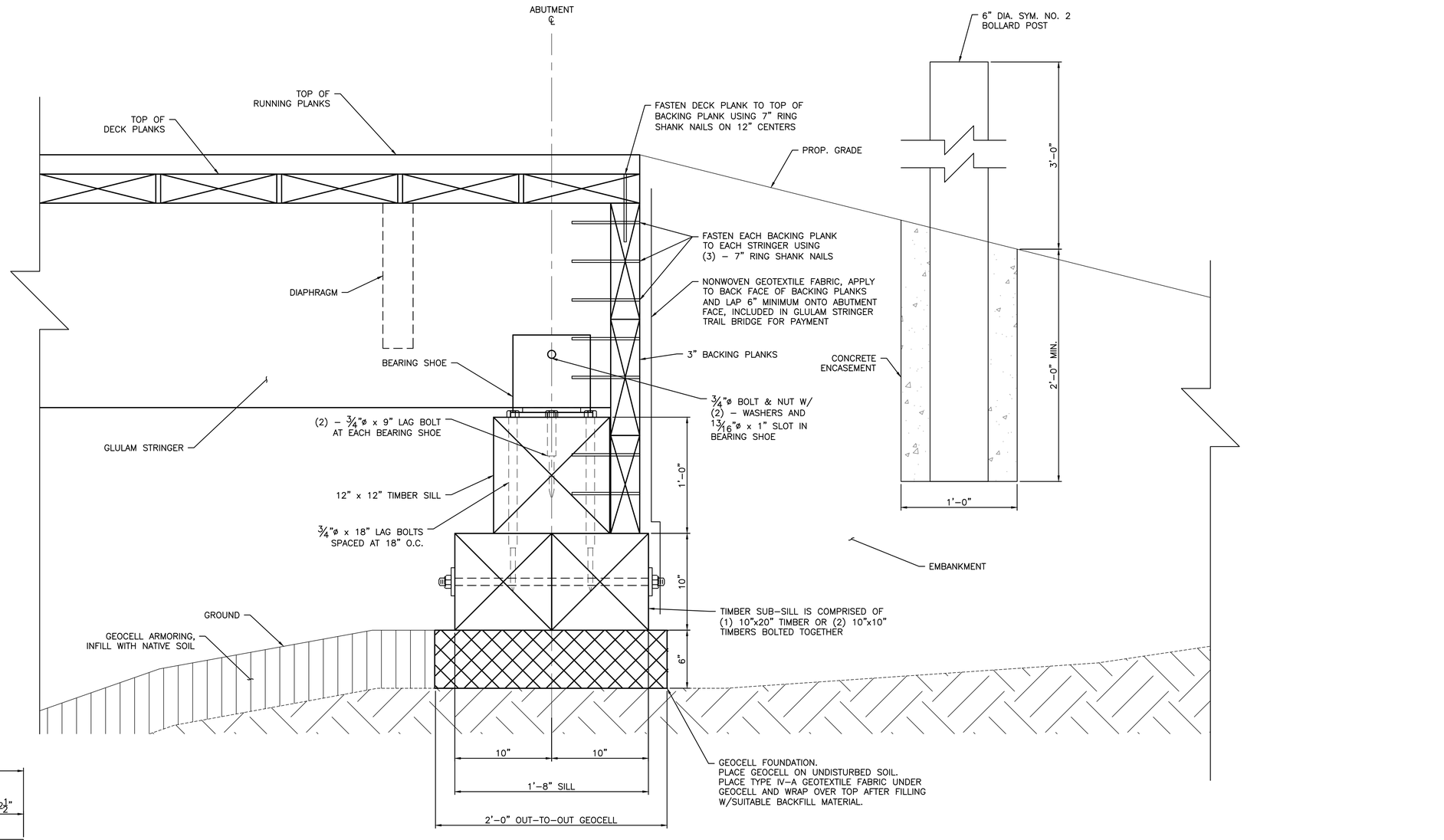
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE H - STONE CHURCH MAIN LOOP #3 OVER OLD STONE CHURCH CREEK

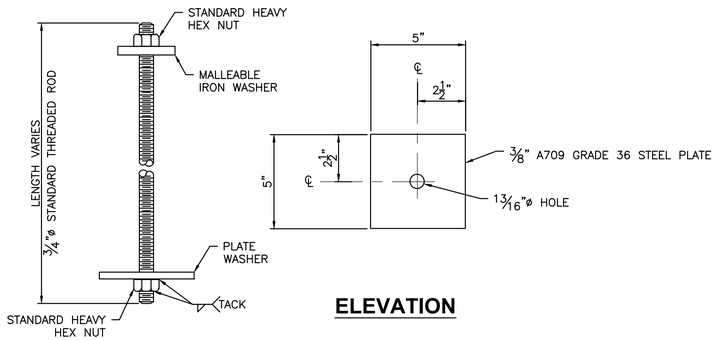
REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 8 OF 14
SHEET 21 OF 49



ABUTMENT SECTION



ELEVATION

NOTES:

1. FOR ADDITIONAL DETAILS OF THE BACKWALL, REFER TO STD_961–20–06 MULTIPLE LOG STRINGER TRAIL BRIDGE.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
4. FOR BOLLARD DETAILS, REFER TO STD_945–10–01.

3/8" A709 GR. 36 STEEL PLATE WASHER DETAIL, ANCHOR BOLT DETAIL

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: CML
CHECKED BY: MJZ
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

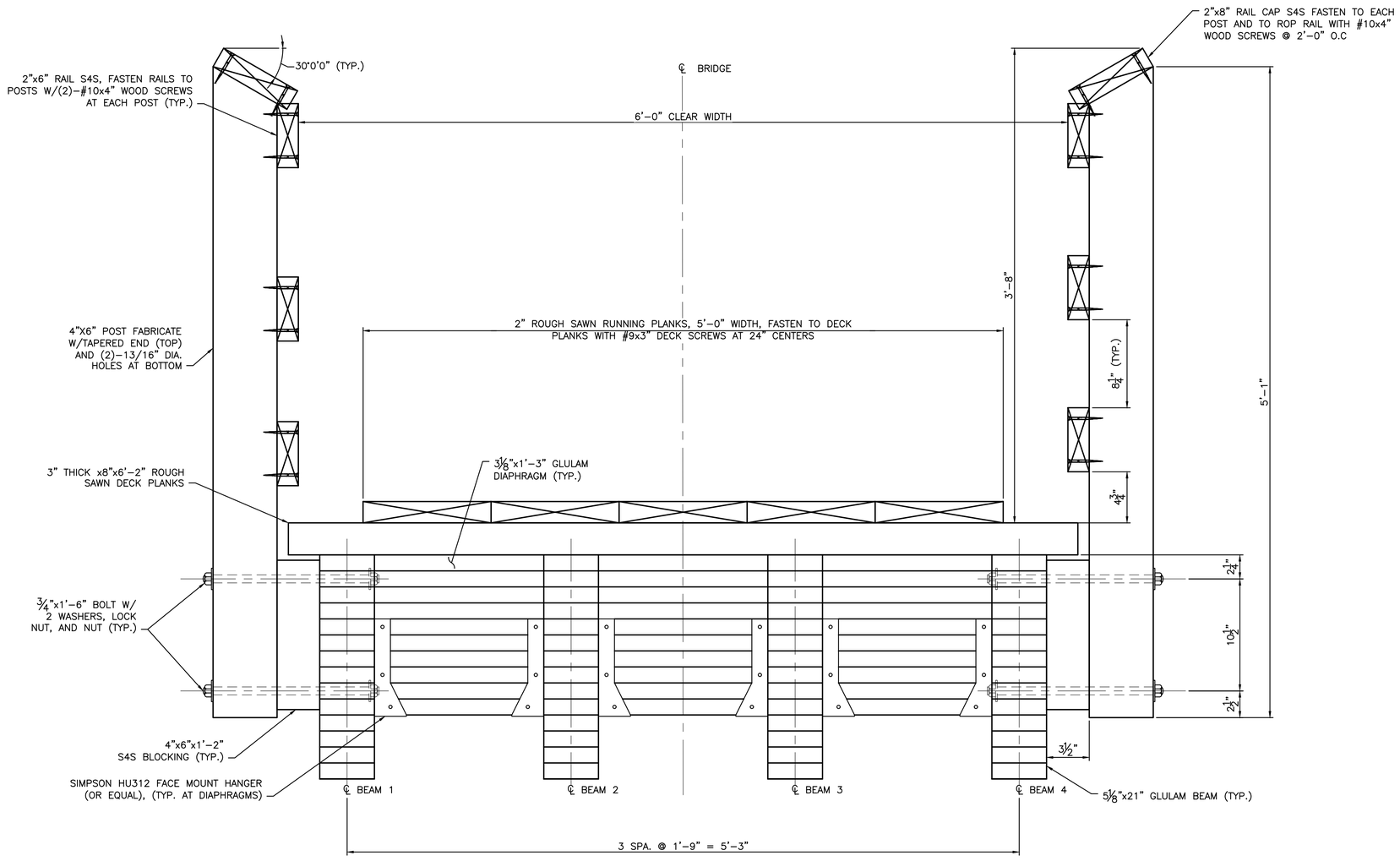
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE H - STONE CHURCH MAIN LOOP #3 OVER
OLD STONE CHURCH CREEK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 9 OF 14
SHEET 22 OF 49



TRANSVERSE SECTION

NOTES:

1. REFER TO USFS STD-963-2D AND STD-963-10-3D FOR ADDITIONAL DETAILS.

WOOLPERT
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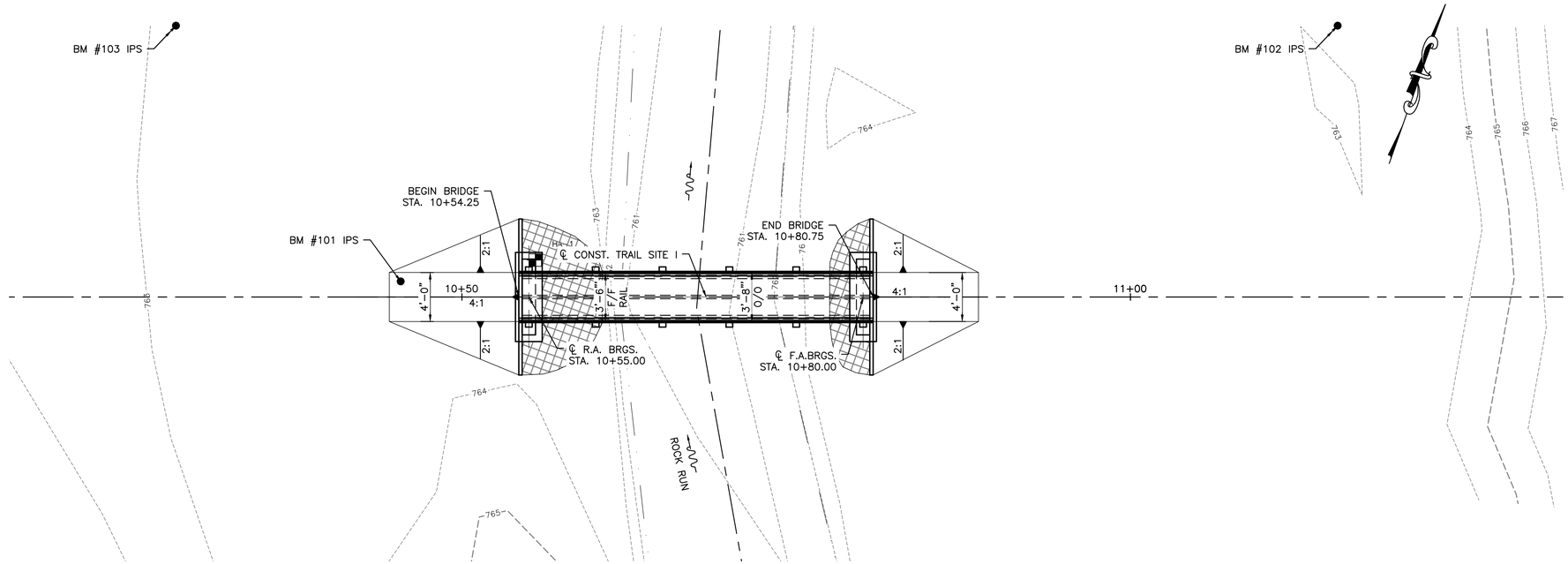
PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: TRANSVERSE SECTION
BRIDGE: SITE H - STONE CHURCH MAIN LOOP #3 OVER OLD STONE CHURCH CREEK

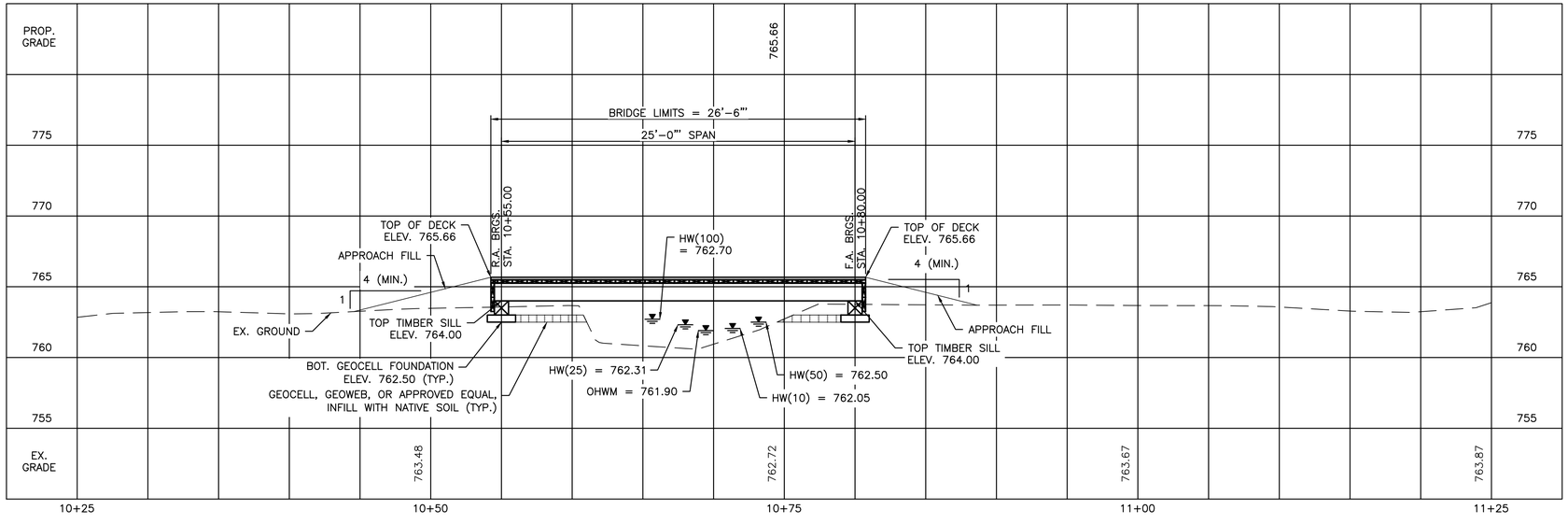
REVISION DATE: 8/29/23
NOT TO SCALE

SUBSET 10 OF 14
SHEET 23 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK DATA

CONTROL POINT	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#101	IRON PIN	583949.536	2042450.409	764.013	10+45.42	1.17' LT
BM#102	IRON PIN	584027.594	2042497.238	763.66	11+15.58	59.16' LT
BM#103	IRON PIN	584026.548	2042408.304	763.191	10+31.39	87.81' LT
B.A.	BEGIN ALIGNMENT	583933.299	2042407.977	SEE PROFILE	10+00.00	0
CL R.A.	POINT ALONG ALIGNMENT	583951.631	2042459.837	SEE PROFILE	10+55.00	0
CL F.A.	POINT ALONG ALIGNMENT	583959.963	2042483.407	SEE PROFILE	10+80.00	0
F.A.	END ALIGNMENT	583978.291	2042535.259	SEE PROFILE	11+35.00	0

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

BORING LOCATION

6" THICK GEOCELL ARMORING, FILLED WITH NATIVE SOIL (994.04). GEOCELL, GEOWEB, OR APPROVED EQUAL. INFILL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

HYDRAULIC DATA

DRAINAGE AREA = 0.0504 SQ. MILES

Q (10) = 40.2 CFS	V (10) = 3.39 FT/S	DESIGN
Q (25) = 58.6 CFS	V (25) = 3.83 FT/S	SCOUR DESIGN
Q (50) = 74.3 CFS	V (50) = 4.16 FT/S	SCOUR CHECK
Q (100) = 91.7 CFS	V (100) = 4.46 FT/S	FEMA

STRUCTURE CLEARS THE 100–YEAR HIGH WATER ELEVATION BY 0.30 FEET.

STRUCTURE IS NOT LOCATED IN FEMA REGULATED ZONE.

PROPOSED STRUCTURE

TYPE: THREE GLULAM STRINGER TRAIL BRIDGE ON STUB GEOCELL FOUNDATIONS.

SPANS: 25'–0" C/C TIMBER SILL

ROADWAY: 3'–8" F/F RAILING

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

COORDINATES: LATITUDE 39° 34' 17" N
LONGITUDE 82° 01' 53" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: CML
CHECKED BY: TML
REVIEWED BY: MJZ

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

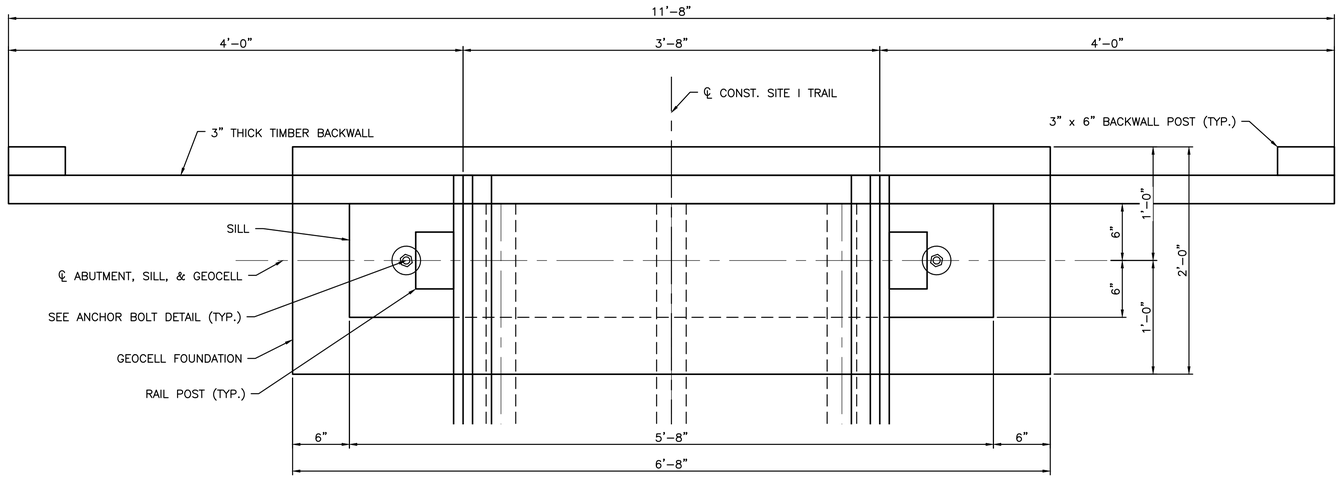
BRIDGE: SITE I - NCT ATHENS CENTRAL #4 OVER ROCK RUN

REVISION DATE: 8/29/23

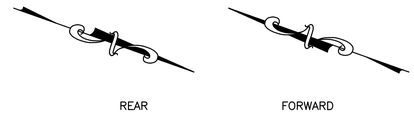
NOT TO SCALE

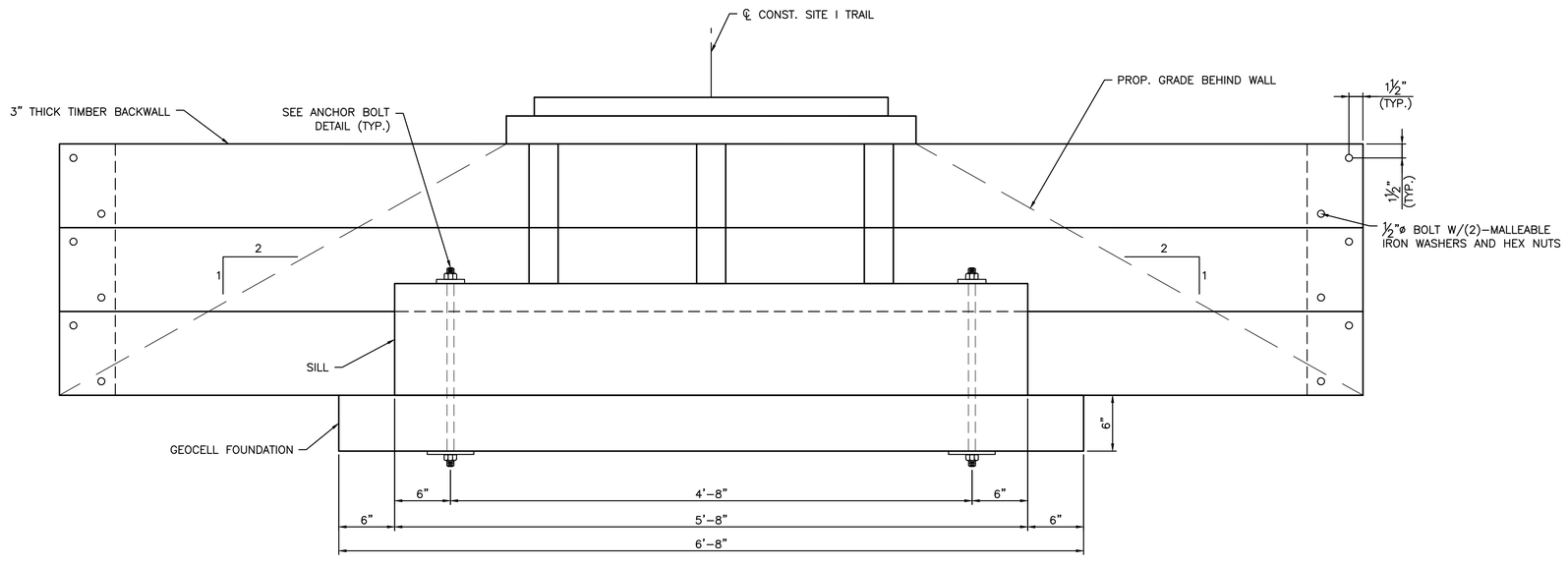
SUBSET 11 OF 14

SHEET 24 OF 49



ABUTMENT PLAN





ABUTMENT ELEVATION

NOTES:

1. FOR ADDITIONAL DETAILS OF THE BACKWALL, REFER TO STD_961–20–06 MULTIPLE LOG STRINGER TRAIL BRIDGE.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.
4. PLACE NONWOVEN GEOTEXTILE FABRIC BEHIND BACKWALLS TO PREVENT SOIL INTRUSION.

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REVIEWED BY: MJZ

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

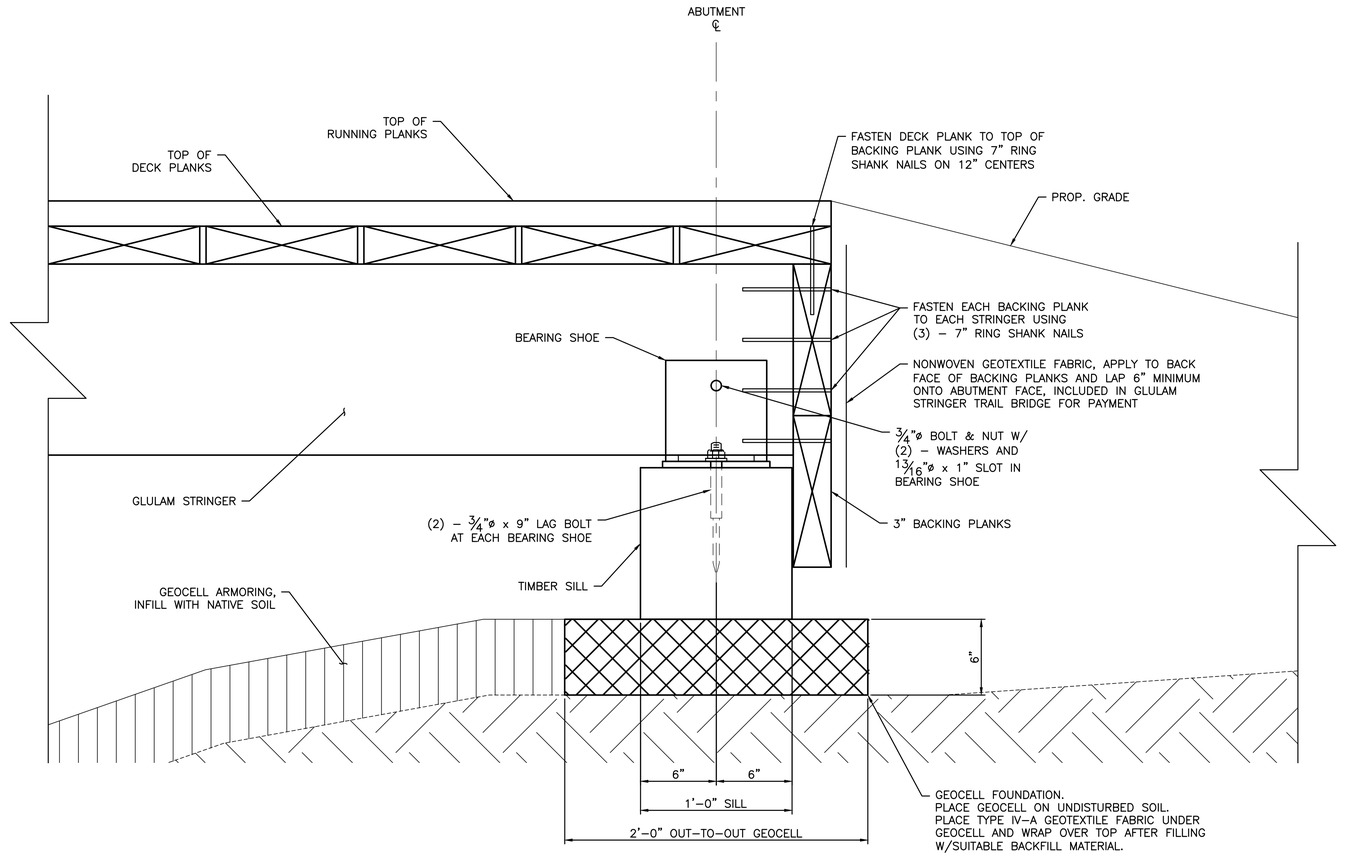
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE I - NCT ATHENS CENTRAL #4 OVER ROCK RUN

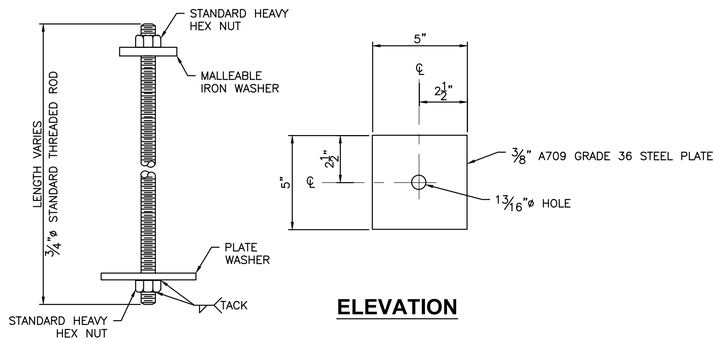
REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 12 OF 14
SHEET 25 OF 49



ABUTMENT SECTION



ELEVATION

3/8" A709 GR. 36 STEEL PLATE WASHER DETAIL, ANCHOR BOLT DETAIL

NOTES:

1. FOR ADDITIONAL DETAILS OF THE BACKWALL, REFER TO STD_961–20–06 MULTIPLE LOG STRINGER TRAIL BRIDGE.
2. REMOVE ALL ORGANIC MATERIAL DOWN TO MINERAL SOILS PRIOR TO PLACING FOUNDATIONS.
3. FOR ADDITIONAL DETAILS OF GEOCELL FOUNDATION, REFER TO STD_965–10–01 TIMBER SILL ON GEOCELL PAD.

WOOLPERT
ONE EASTON OVAL
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COLUMBUS, OH 43219
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DESIGNED BY:	CML
CHECKED BY:	TML
REVIEWED BY:	MJZ

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES

BUCKEYE TRAILS ASSOCIATION

DRAWING NAME

ABUTMENT SECTION AND BEARING DETAILS

BRIDGE

SITE I - NCT ATHENS CENTRAL #4 OVER ROCK RUN

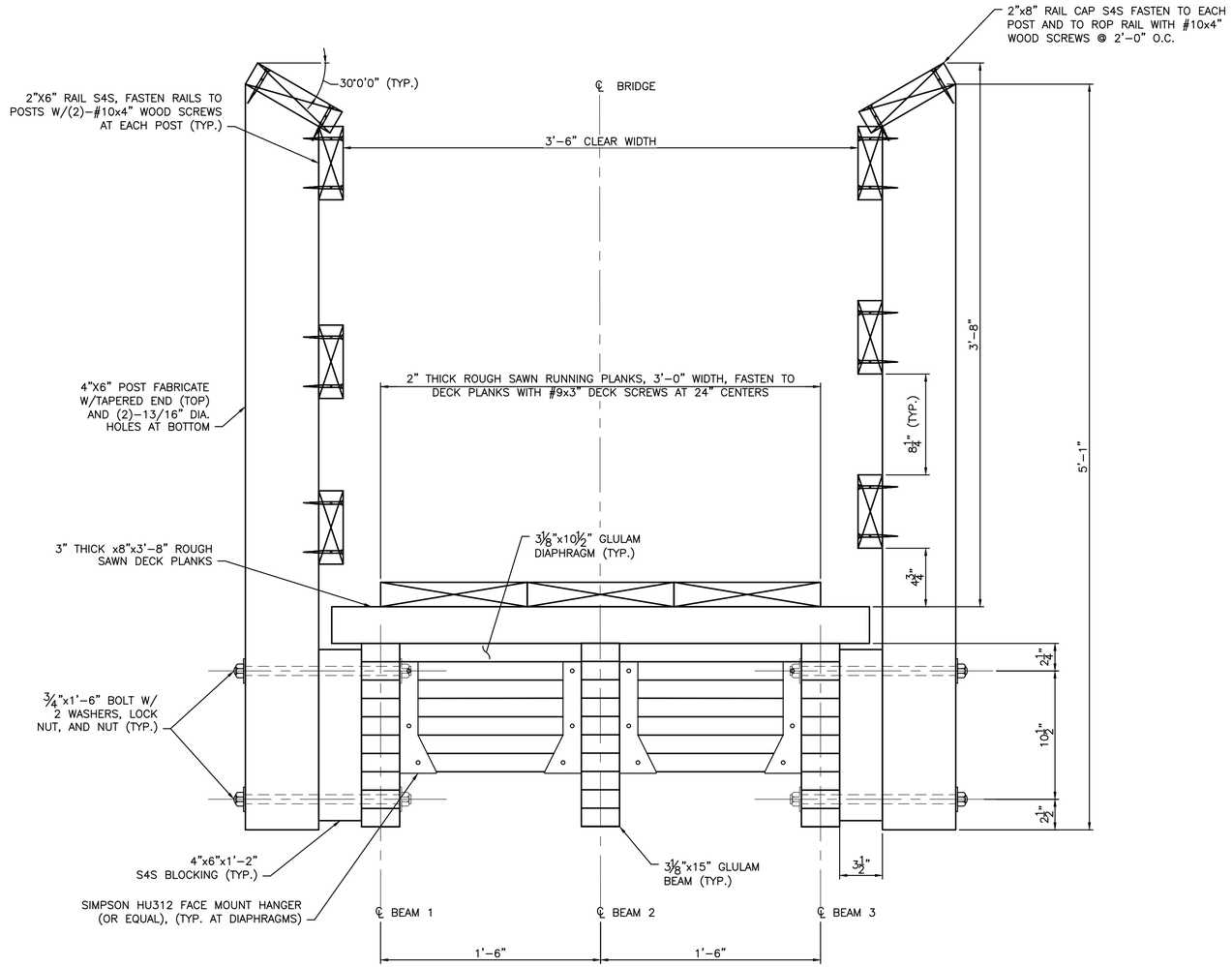
REVISION DATE

8/29/23

NOT TO SCALE

SUBSET 13 OF 14

SHEET 26 OF 49



TRANSVERSE SECTION

NOTES:

1. REFER TO USFS STD-936-10-2A AND STD-963-10-3D FOR ADDITIONAL DETAILS.

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ONE EASTON OVAL
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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
TRANSVERSE SECTION

BRIDGE
SITE I - NCT ATHENS CENTRAL #4 OVER ROCK RUN

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 14 OF 14
SHEET 27 OF 49

STANDARD DRAWINGS:

REFER TO U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE STANDARD TRAIL PLANS:

964 – PREFABRICATED TRAIL BRIDGE
965 – TRAIL BRIDGE SUBSTRUCTURES

DESIGN SPECIFICATIONS:

THIS STRUCTURE SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:
- THE 2009 AASHTO GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGE INCLUDING THE 2015 INTERIMS
- THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION
- THE 2014 FSH 7709.56b – TRANSPORTATION STRUCTURES HANDBOOK, CHAPTER 80 – TRAIL BRIDGE DESIGN

PROVIDE CAMBER FOR 100% OF THE FULL DEAD LOAD DEFLECTION PLUS 1% OF BRIDGE SPAN. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR APPROVAL AND MUST BE APPROVED BEFORE FABRICATION.

MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION FOR CONSTRUCTION OF TRAILS AND TRAIL BRIDGES ON FOREST SERVICE PROJECTS, DATED 10–30–2014.

DESIGN LOADING:

PEDESTRIAN LOADING: 0.090 KSF

DESIGN STRESSES:

CONCRETE CLASS A, – COMPRESSIVE STRENGTH 4.0 KSI (ABUTMENTS)

CONCRETE CLASS A, WITH 3/4" MAX. AGGREGATE SIZE – COMPRESSIVE STRENGTH 4.5 KSI (DRILLED SHAFTS)

CONCRETE REINFORCING:
REINFORCING STEEL – MINIMUM YIELD STRENGTH 60 KSI

USE STEEL SHAPES, PLATES AND BARS OF WEATHERING STEEL CONFORMING TO AASHTO M270.

BRIDGE MEMBERS ARE FABRICATED FROM HIGH STRENGTH, LOW ALLOY, ENHANCED ATMOSPHERIC CORROSION RESISTANT ASTM A847 COLD–FORMED WELDED SQUARE AND RECTANGULAR TUBING, AND ASTM A588, ASTM A606, OR ASTM A242 PLATE AND STRUCTURAL SHAPES (Fy = 50 KSI).

MINIMUM STEEL THICKNESS SHALL BE AS SPECIFIED IN THE GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES. USE HIGH STRENGTH BOLTS CONFORMING TO AASHTO M164, (ASTM A325), TYP 3, UNLESS NOTED OTHERWISE. USE MALLEABLE IRON WASHERS AGAINST WOOD.

PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE:

PREFABRICATED STEEL SUPERSTRUCTURE DESIGN MUST BE A TRUSS CONFIGURATION SIMILAR TO THAT SHOWN ON THE DRAWINGS. THE BRIDGE SHALL MAINTAIN THE CLEARANCES ABOVE HIGH WATER INDICATED ON THE BRIDGE ELEVATION. THE BRIDGE CROSS–SECTION SHALL BE DETERMINED BY THE CONTRACTOR BUT SHALL PROVIDE THE WIDTH AND RAILING DETAILS INDICATED ON THE BRIDGE TYPICAL SECTION. THE CONTRACTOR SHALL DETERMINE TRUSS HEIGHT AND THE LOCATION OF THE DECK WITH RESPECT TO THE TOP AND BOTTOM CHORDS (U FRAME VS. H FRAME). OVERHEAD LATERAL BRACING IS UNACCEPTABLE. U FRAMES SHALL BE ADEQUATE FOR ALL STIFFNESS AND BUCKLING CHECKS IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS INCLUDING THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES. IN PARTICULAR, REFER TO CHAPTER 7 OF THE GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES FOR U–FRAME STIFFNESS REQUIREMENTS.

ALL RELATED DETAILS SUCH AS PROFILE, ABUTMENT DETAILS, BEARINGS, AND TIMBER DECKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FINALIZE AND CONSTRUCT.

THE PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE, AND ASSOCIATED DETAILS INCLUDING TIMBER COMPONENTS SHALL BE DESIGNED UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO. THE COMPLETED DESIGN, DRAWINGS, AND SPECIFICATION PACKAGE SHALL BE SUBMITTED TO THE CONTRACTING OFFICER FOR REVIEW AND APPROVAL.

THE TOTAL UNFACTORED COMPONENT DEAD LOAD (DC) REACTION USED IN THE DESIGN WAS ASSUMED TO BE 3200 LBS PER BEARING FOR THE COMPLETE SUPERSTRUCTURE AT SITE B, SITE D, AND SITE G. IF THE DC LOAD REACTIONS ARE HIGHER THAN THE ABOVE, THE CONTRACTOR SHALL NOTE THE VARIANCE AT THE TIME OF BID TO ALLOW THE OWNER TO DETERMINE POSSIBLE COST IMPACTS TO THE SUBSTRUCTURES, WHICH WILL BE FACTORED INTO THE CONTRACTOR'S BID.

THE BRIDGE RAILING SHALL BE A MINIMUM 42 INCHES HIGH AND THE HORIZONTAL AND VERTICAL ELEMENTS SHALL BE SUCH THAT A 6 INCH SPHERE CANNOT PASS THROUGH. REFER TO THE AASHTO CODES FOR BRIDGE RAILING LOAD CAPACITY REQUIREMENTS.

STEEL FABRICATION:

THE PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE SHALL BE FABRICATED BY AN AISC CERTIFIED PLANT – SIMPLE STEEL BRIDGES OR COMPLEX STEEL STRUCTURES. FLUX CORED ARC WELDING OR GMAW PROCESS WILL BE USED. THE WELDING PROCEDURE SHALL BE IN ACCORDANCE WITH AWS D1.1 AND SHALL BE SUITABLE FOR THE GRADE OF STEEL AND INTENDED USE OR SERVICE.

ALL TOP AND BOTTOM CHORD SHOP SPLICES TO BE COMPLETE PENETRATION TYPE WELDS. WELD BETWEEN TOP CHORD AND END VERTICAL SHALL BE AS DETAILED.

UNLESS OTHERWISE NOTED, WELDED CONNECTIONS SHALL BE FILLET WELDS (OR HAVE THE EFFECTIVE THROAT OF A FILLET WELD) OF A SIZE EQUAL TO THE THICKNESS OF THE LIGHTEST GAGE MEMBER IN THE CONNECTION. WELDS SHALL BE APPLIED AS FOLLOWS:

A. BOTH ENDS OF VERTICALS, DIAGONALS, AND FLOOR BEAMS SHALL BE WELDED ALL AROUND.

B. BRACE DIAGONALS WILL BE WELDED ALL AROUND.

C. BOTTOM OF STRINGERS WILL BE STITCH WELDED TO TOP OF FLOOR BEAMS.

D. MISCELLANEOUS NON–STRUCTURAL MEMBERS WILL BE STITCH WELDED TO THEIR SUPPORTING MEMBERS.

ERECTION PLAN:

THE CONTRACTOR SHALL SUBMIT AN ERECTION PLAN FOR THE PREFABRICATED STEEL BRIDGE SUPERSTRUCTURE TO THE C.O. FOR APPROVAL 14 DAYS BEFORE ERECTION IS SCHEDULED. IF ALLOWED UNDER THE PROJECT DESIGN CRITERIA, TEMPORARY IN–STREAM SUPPORT BENTS MAY BE USED FOR THE ERECTION OF THE PREFABRICATED STEEL TRUSS BRIDGE. THE IN–STREAM BENTS SHALL BE CRIBBING, SILLS, CONCRETE BLOCKS OR OTHER SUPPORTS AND SHALL BE PLACED WITH MINIMAL DISTURBANCE WITHIN THE STREAM. ALL MATERIALS TO CONSTRUCT THE TEMPORARY IN–STREAM BENTS SHALL BE REMOVED. THE SUBMITTALS SHALL INCLUDE DRAWINGS INDICATING TEMPORARY BENT LOCATIONS AND DETAILS ALSO INCLUDED, THE CONTRACTOR SHALL INDICATE THE EQUIPMENT AND METHODS PROPOSED TO INSTALL AND REMOVE THE TEMPORARY BENTS AND ERECT THE NEW PREFABRICATED STEEL TRUSS SUPERSTRUCTURE.

TIMBER & LUMBER:

SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING RULES AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW.

DECK PLANKS
- SOUTHERN PINE ROUGH SAWN SELECT STRUCTURAL, TREATED, GRADING RULES AGENCY – WWPA, WCLIB
- HEM–FIR/DOUGLAS FIR, ROUGH SAWN, SELECT STRUCTURAL GRADE, GRADING RULES AGENCY – WWPA, WCLIB
- NOMINAL 3–INCH THICK SELECT STRUCTURAL FIR (Fb = 1500 PSI MIN.). TIMBER DECK AND RUB RAIL MATERIAL SHALL BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) OR AZOLE BIOCIDE (MCA) TO A 0.4 PCF RETENTION OR TO REFUSAL.

RUNNING PLANKS
- SOUTHERN PINE ROUGH SAWN NO.2 GRADE, TREATED, GRADING RULES AGENCY – WWPA, WCLIB

RUB RAIL
- IPE, NO.1 OR NO.2 GRADE

TREATMENT:

PRESERVATIVE TREATMENT SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) SPECIFICATIONS USING THE TREATMENT MATERIALS LISTED BELOW. TREATMENT WILL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WESTERN WOOD PRESERVERS INSTITUTE (WWPI) "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS".

DECKING, RUNNING PLANKS, & RAILING SYSTEM
- AWPA USE CATEGORY SYSTEM (U1) FOR USE CATEGORY 4C GROUND CONTACT EXTREME DUTY (UC4C), TYPE CuN, UNLESS OTHERWISE NOTED

FIELD TREATMENT:

COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS – APPROVED BY THE C.O.R. – SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED, FIELD DRILLING OF BOLT, SCREW OR NAIL HOLES IS REQUIRED. THE HOLES SHALL BE FILLED WITH PRESERVATIVE PRIOR TO INSERTING THE FASTENERS.

TIMBER FABRICATION:

SUBMIT SHOP DRAWINGS FOR ALL MANUFACTURED BRIDGE COMPONENTS (EXCEPT TIMBER RUNNING PLANKS). SHOW ALL DIMENSIONS AND FABRICATION DETAILS FOR ALL CUT OR BORED TIMBER.

DRILLED SHAFTS:

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 34.36 KIPS AT THE SITE B ABUTMENTS. THE NOMINAL CAPACITY OF THE SHAFT IS 54 KIPS COMBINED SIDE AND END BEARING. THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT IS 12.53 KIPS AND 55.04 KIP–FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 121.15 KIP–FEET AND MAXIMUM FACTORED SHEAR OF 12.52 KIPS, WITHIN THE DRILLED SHAFT.

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 43.04 KIPS AT THE SITE D ABUTMENTS. THIS LOAD IS RESISTED BY A FACTORED TIP RESISTANCE OF 493.2 KIPS PER SQUARE FOOT. THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT IS 14.02 KIPS AND 39.34 KIP–FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 106.61 KIP–FEET AND MAXIMUM FACTORED SHEAR OF 14.00 KIPS, WITHIN THE DRILLED SHAFT.

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 27.48 KIPS AT THE SITE F ABUTMENTS. THIS LOAD IS RESISTED BY A FACTORED TIP RESISTANCE OF 613.8 KIPS PER SQUARE FOOT. THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT IS 4.75 KIPS AND 13.92 KIP–FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 33.45 KIP–FEET AND MAXIMUM FACTORED SHEAR OF 9.62 KIPS, WITHIN THE DRILLED SHAFT.

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 33.48 KIPS AT THE SITE G ABUTMENTS. THIS LOAD IS RESISTED BY A FACTORED TIP RESISTANCE OF 392.4 KIPS PER SQUARE FOOT. THE MAXIMUM FACTORED LATERAL LOAD AND BENDING MOMENT TO BE SUPPORTED BY EACH DRILLED SHAFT IS 7.86 KIPS AND 22.13 KIP–FEET, RESPECTIVELY. THESE LOADS PRODUCE A MAXIMUM FACTORED BENDING MOMENT OF 52.88 KIP–FEET AND MAXIMUM FACTORED SHEAR OF 7.85 KIPS, WITHIN THE DRILLED SHAFT.

THE DRILLED SHAFTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 565 OF FP–03 (STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS).

INTEGRITY TESTING AS DESCRIBED IN SECTION 565.08 IS NOT REQUIRED FOR THIS PROJECT. THE CONTRACTOR SHALL PREPARE AND TEST CONCRETE CYLINDERS IN ACCORDANCE WITH 552 AND REPORT RESULTS TO THE ENGINEER.

AT THE OPTION OF THE CONTRACTOR, THE CASINGS MAY BE LEFT IN PLACE. THE CONTRACTORS MAY SUBSTITUTE ALTERNATIVE MATERIALS FOR THE CASING OTHER THAN STEEL PROVIDED THAT THEY CAN MAINTAIN A STABLE EXCAVATION AND PROVIDE AN ADEQUATE SEAL AT THE BOTTOM OF THE EXCAVATIONS. THE CONTRACTOR IS RESPONSIBLE FOR THE PERFORMANCE OF THE ALTERNATIVE MATERIALS AND WILL NOT BE REIMBURSED FOR ADDITIONAL WORK CAUSED BY FAILURE OF ALTERNATIVE MATERIALS.

DRILLED SHAFTS ABOVE BEDROCK WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 56501 – DRILLED SHAFTS
ROCK SOCKETS WILL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM 56502 – ROCK SOCKET

ALL MATERIALS, EQUIPMENT, LABOR REQUIRED FOR THE INSTALLATION OF THE DRILLED SHAFTS AND ROCK SOCKETS ARE INCLUDED IN THE RELEVANT PAY ITEMS.

CONCRETE SEALER (NON-EPOXY):

THIS WORK CONSISTS OF APPLYING AN APPROVED SEALER ON NEW CONCRETE SURFACE AREAS AFTER THE CONCRETE IS CURED AND REPAIRS COMPLETED AND CURED. APPLY THE SEALER TO LOCATIONS DESCRIBED IN THE PLANS.

FURNISH MATERIALS ACCORDING TO THE OHIO DEPARTMENT OF TRANSPORTATION'S QUALIFIED PRODUCTS LIST (QPL), 705.23NE, NON–EPOXY SEALERS FOR CONCRETE AVAILABLE AT:
https://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/Pages/QPL.aspx

EQUIPMENT: USE APPLICATION EQUIPMENT RECOMMENDED BY THE SEALER MANUFACTURER. USE SPRAY EQUIPMENT, TANKS, HOSES, BROOMS, ROLLERS, COATERS, SQUEEGEES, ETC., THAT ARE CLEAN, FREE OF FOREIGN MATTER, OIL RESIDUE AND WATER.

MIXING: MIX THE SEALER ACCORDING TO THE MANUFACTURER'S RECOMMENDED PROCEDURES. FURNISH THE ENGINEER WITH THE MANUFACTURER'S APPLICATION INSTRUCTIONS. DO NOT MIX OR APPLY THE SEALER UNTIL THE MANUFACTURER'S WRITTEN RECOMMENDATIONS ARE SUPPLIED TO THE ENGINEER. MIX AND MAINTAIN MATERIALS AT A UNIFORM CONSISTENCY DURING APPLICATION.

STORAGE: STORE ALL SEALER COMPONENTS IN TIGHTLY SEALED CONTAINERS, IN A DRY LOCATION, AND AS RECOMMENDED BY THE MANUFACTURER. DELIVER UNOPENED DRUMS OR CONTAINERS OF THE SEALER OR SEALER COMPONENTS TO THE JOB SITE WITH THE MANUFACTURER'S NUMBERED SEAL INTACT.

SURFACE CONDITION: APPLY SEALERS ONLY TO SURFACES WHICH ARE DRY, FREE FROM DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, COATINGS AND OTHER FOREIGN MATERIALS. VISUALLY INSPECT ALL SURFACES BEFORE APPLYING SEALER. REMOVE ALL STRUCTURALLY UNSOUND SURFACES AND WEAK SECTIONS. PERFORM ALL CONCRETE PATCHING PRIOR TO SURFACE PROFILING. PERFORM CONCRETE PATCHING ON AREAS IDENTIFIED BY THE ENGINEER. CURE REPAIRED AREAS FOR AT LEAST SEVEN (7) DAYS. AIR DRY ALL CONCRETE SURFACES FOR AT LEAST TEN (10) DAYS AFTER COMPLETION OF REQUIRED CURING. FOR ACCELERATED CURE OF PRECAST CONCRETE, OBTAIN THE REQUIRED 28 DAY STRENGTH AND AIR DRY THE SURFACES AT LEAST TEN (10) DAYS AFTER COMPLETING ACCELERATED CURE.

SURFACE PREPARATION: REMOVE DUST, DIRT, OIL, WAX, CURING COMPOUNDS, EFFLORESCENCE, LAITANCE, COATINGS AND OTHER FOREIGN MATERIALS FROM SURFACES TO BE SEALED.

APPLICATION: DO NOT APPLY SEALER TO SURFACES WITH MOISTURE. APPLY THE SEALER BETWEEN 12 AND 48 HOURS AFTER SURFACE PREPARATION. DO NOT APPLY SEALER IF RAIN IS ANTICIPATED WITHIN SIX (6) HOURS AFTER APPLICATION. WAIT AT LEAST 12 HOURS AFTER LAST RAIN EVENT TO APPLY SEALER. CLEARLY MARK WHERE THE SEALER APPLICATION STOPS IF NOT CONTINUOUS. APPLY THE SEALER ACCORDING TO THE MANUFACTURER'S RECOMMENDED MODE OF APPLICATION.

COVERAGE: MINIMUM, ONE GALLON (3.875 LITER) FOR EACH 150 SQUARE FEET (14.0 SQUARE METERS). APPLY SEALER ON HORIZONTAL SURFACES IN A ONE–PASS OPERATION AT THE REQUIRED COVERAGE. AN ACCEPTABLE APPLICATION PROCEDURE CONSISTS OF SATURATING THE SURFACE AND WAITING A FEW SECONDS FOR THE SEALER TO COMPLETELY PENETRATE THE CONCRETE SURFACE. BROOM IN THE SEALER IF RECOMMENDED BY THE MANUFACTURER. APPLY SEALER ON VERTICAL SURFACES TO SATURATE THE SURFACE. THE SURFACE IS SATURATED WHEN RUNS OF 6 TO 12 INCHES DEVELOP. APPLY ADDITIONAL PASSES IN 10 TO 15 MINUTE INTERVALS UNTIL THE COVERAGE RATE IS ACHIEVED. APPLY SEALERS WITH BRUSH OR ROLLER IF RECOMMENDED BY THE MANUFACTURER. AFTER 10 TO 15 MINUTES, SQUEEGEE OFF EXCESS MATERIAL ON SMOOTH FINISHED OR DENSE CONCRETES WHERE THE REQUIRED COVERAGE IS NOT ABSORBED.

SAFETY PRECAUTIONS: FOLLOW PRECAUTIONS DEFINED ON THE MANUFACTURER'S SDS.

ENVIRONMENTAL REQUIREMENTS. PROTECT PLANTS AND VEGETATION FROM OVERSPRAY BY COVERING WITH DROP CLOTHS.

MEASUREMENT AND PAYMENT: PAYMENT SHALL BE INCIDENTAL TO ITEM 965.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

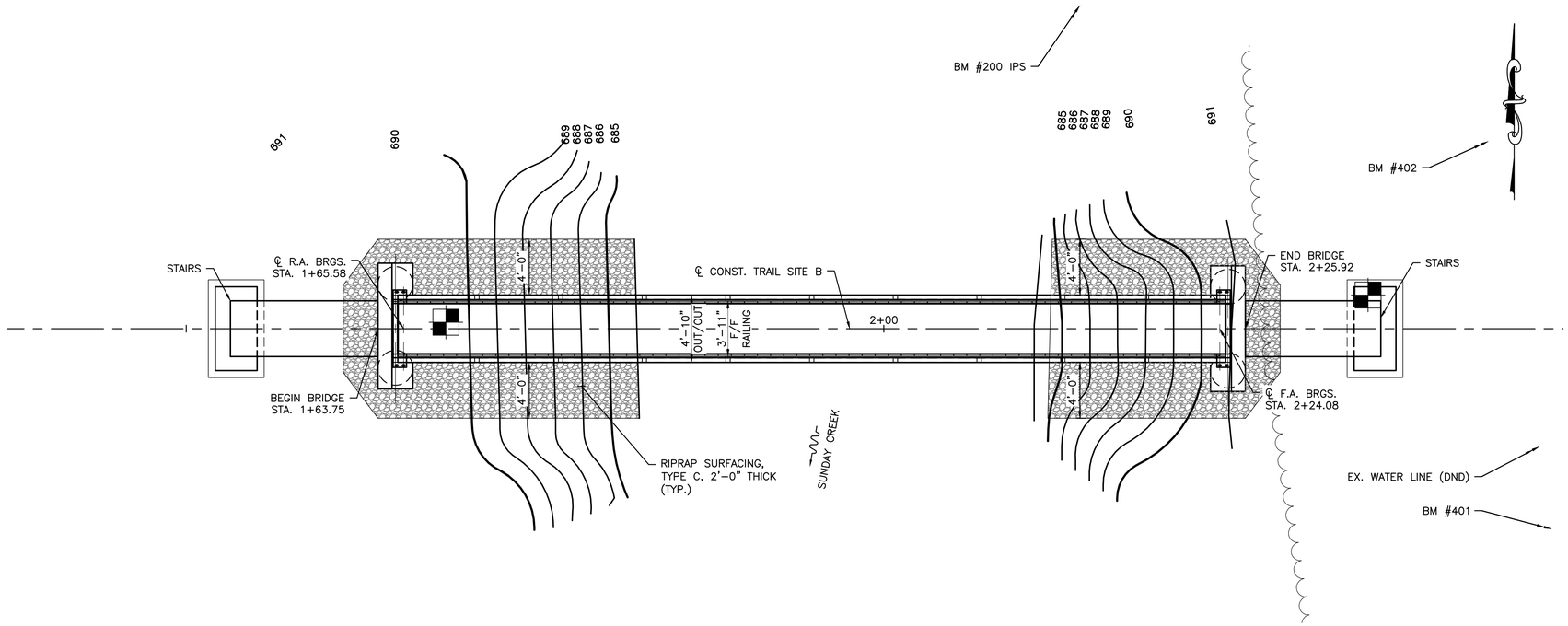
DRAWING NAME
STRUCTURE NOTES

BRIDGE
PREFABRICATED TRUSS BRIDGES

REVISION DATE
8/29/23

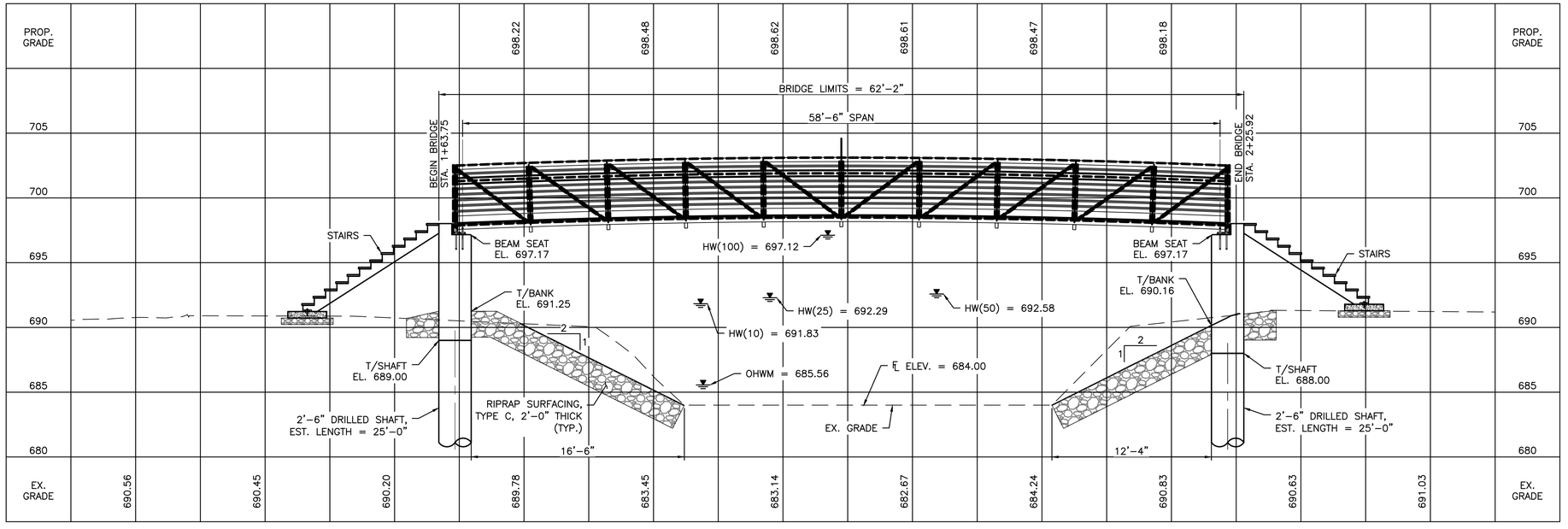
NOT TO SCALE

SUBSET 1 OF 21
SHEET 28 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT.	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#200	IRON PIN	562968.07	2092728.82	704.73	5+90.29	478.86' LT
BM#401	MAG NAIL	562359.85	2092770.58	699.28	6+32.06	129.36' RT
BM#402	MAG NAIL	562716.53	2092855.59	705.89	7+17.07	227.32' LT
B.A	BEGIN ALIGNMENT	562241.502	2092243.643	SEE PROFILE	1+00.00	0'
CL R.A.	POINT ALONG ALIGNMENT	562241.502	2092308.643	SEE PROFILE	1+65.58	0'
CL F.A.	POINT ALONG ALIGNMENT	562241.502	2092367.643	SEE PROFILE	2+24.08	0'
E.A.	END ALIGNMENT	562241.502	2092443.643	SEE PROFILE	8+00.00	0'

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

- BORING LOCATION
- RIPRAP SURFACING, TYPE C, 2'-0" THICK

HYDRAULIC DATA

DRAINAGE AREA = 24.2 SQ. MILES

Q (10) = 2,340 CFS	V (10) = 5.56 FT/S	DESIGN
Q (25) = 3,120 CFS	V (25) = 5.56 FT/S	SCOUR DESIGN
Q (50) = 3,740 CFS	V (50) = 5.59 FT/S	SCOUR CHECK
Q (100) = 4,150 CFS	V (100) = 1.29 FT/S	FEMA

STRUCTURE CLEARS THE 100 YEAR DESIGN HW BY 0.24 FEET.

STRUCTURE IS LOCATED IN FEMA ZONE AE.

PROPOSED STRUCTURE

TYPE: PREFABRICATED STEEL TRUSS ON STUB ABUTMENTS ON DRILLED SHAFTS.

SPANS: 58'-6" C/C BRGS. (INSIDE BOLTS)

TRAIL: 3'-11" CLEAR WIDTH BTW. RUB RAILS

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

ALIGNMENT: TANGENT

COORDINATES: LATITUDE 39° 32' 34.20"N
LONGITUDE 82° 03' 39.20"W

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REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES

BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

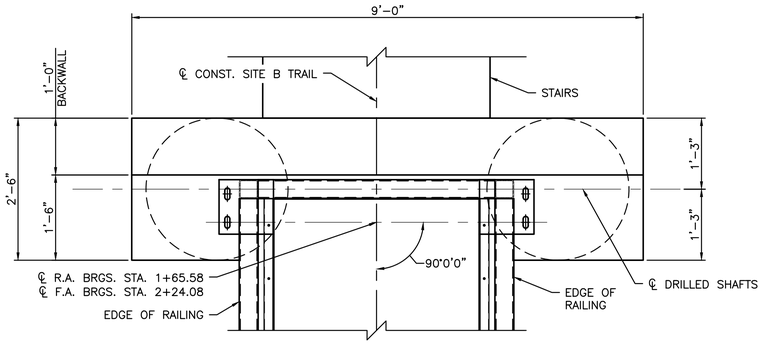
BRIDGE: SITE B - NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK MAINSTEM

REVISION DATE: 8/29/23

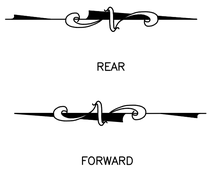
NOT TO SCALE

SUBSET 2 OF 22

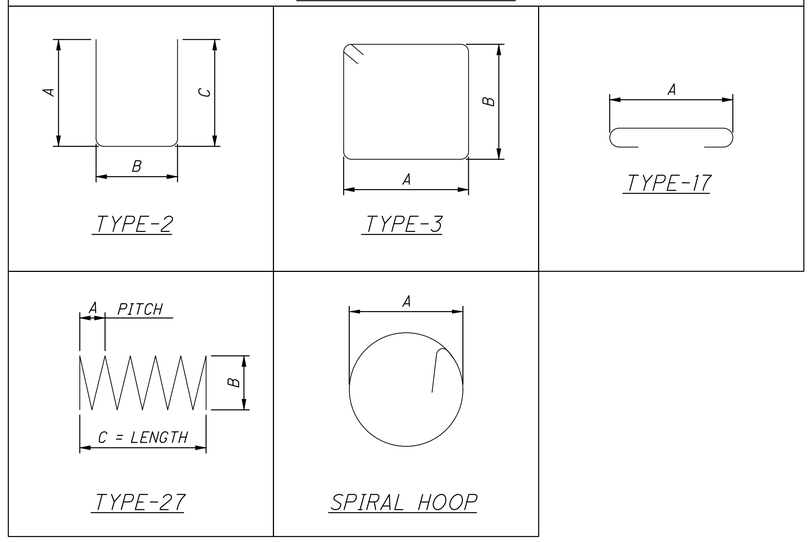
SHEET 29 OF 49

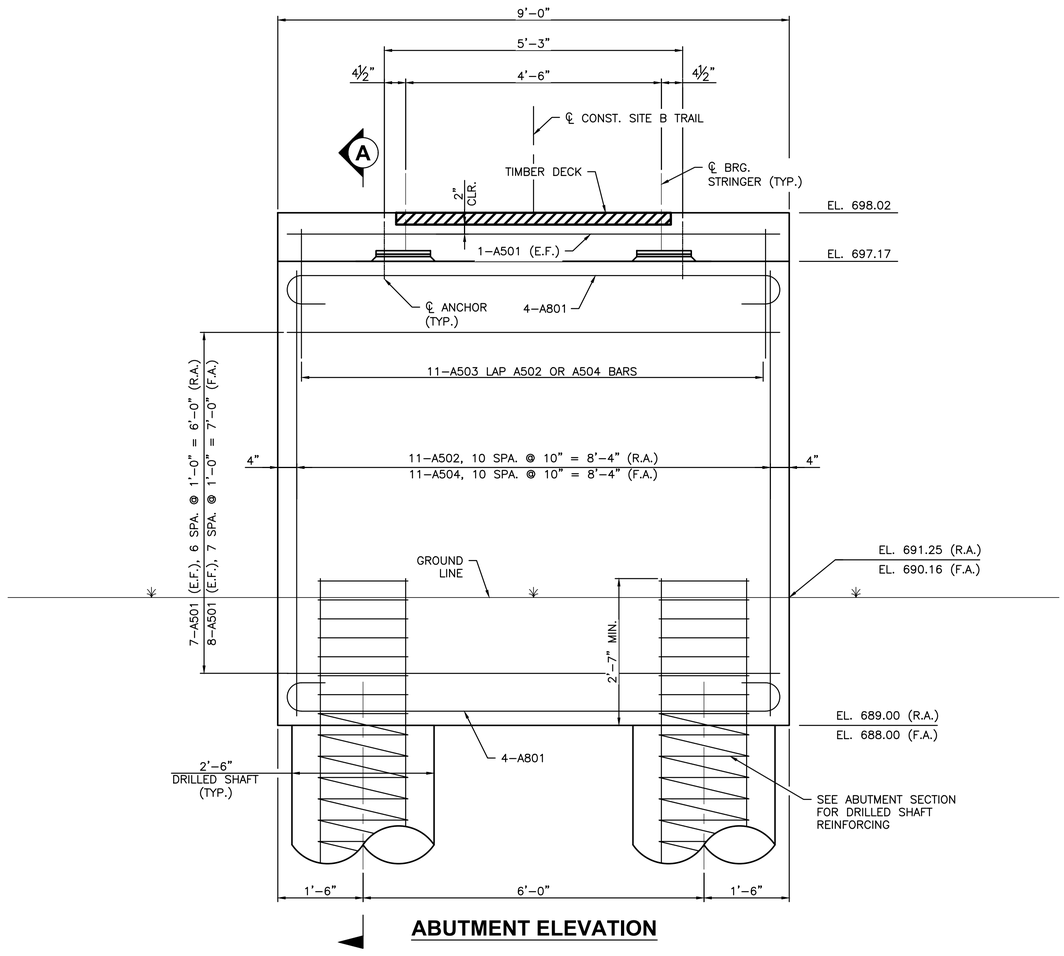


ABUTMENT PLAN



BAR BEND DIAGRAM





ABUTMENT ELEVATION

SITE B ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
A501	34	8'–8"	308	ST.							
A502	11	20'–7"	237	3	2'–2"	7'–10"					
A503	22	5'–3"	121	2	2'–5"	8"	2'–5"				
A504	11	22'–7"	260	3	2'–2"	8'–10"					
A801	16	10'–6"	449	17	8'–8"						
DS401	28	3'–6"	66	HOOP	1'–6"						
DS701	48	27'–4"	2682	ST.							
SP401	4	25'–0"	1473	27	4.5"	1'–6"	25'–0"				
TOTAL			5596								

NOTES:

1. SEE SHEET 31/49 FOR SECTION.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT AFTER THE LETTERS WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS AFTER THE LETTERS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A NO. 5 BAR IN THE ABUTMENT. A LEGEND OF THE DESCRIPTORS IS GIVEN BELOW:

   A – ABUTMENT
   DS – DRILLED SHAFT
   SP – SPIRAL
3. BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS OTHERWISE NOTED.
4. "ST." INDICATES A STRAIGHT BAR.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

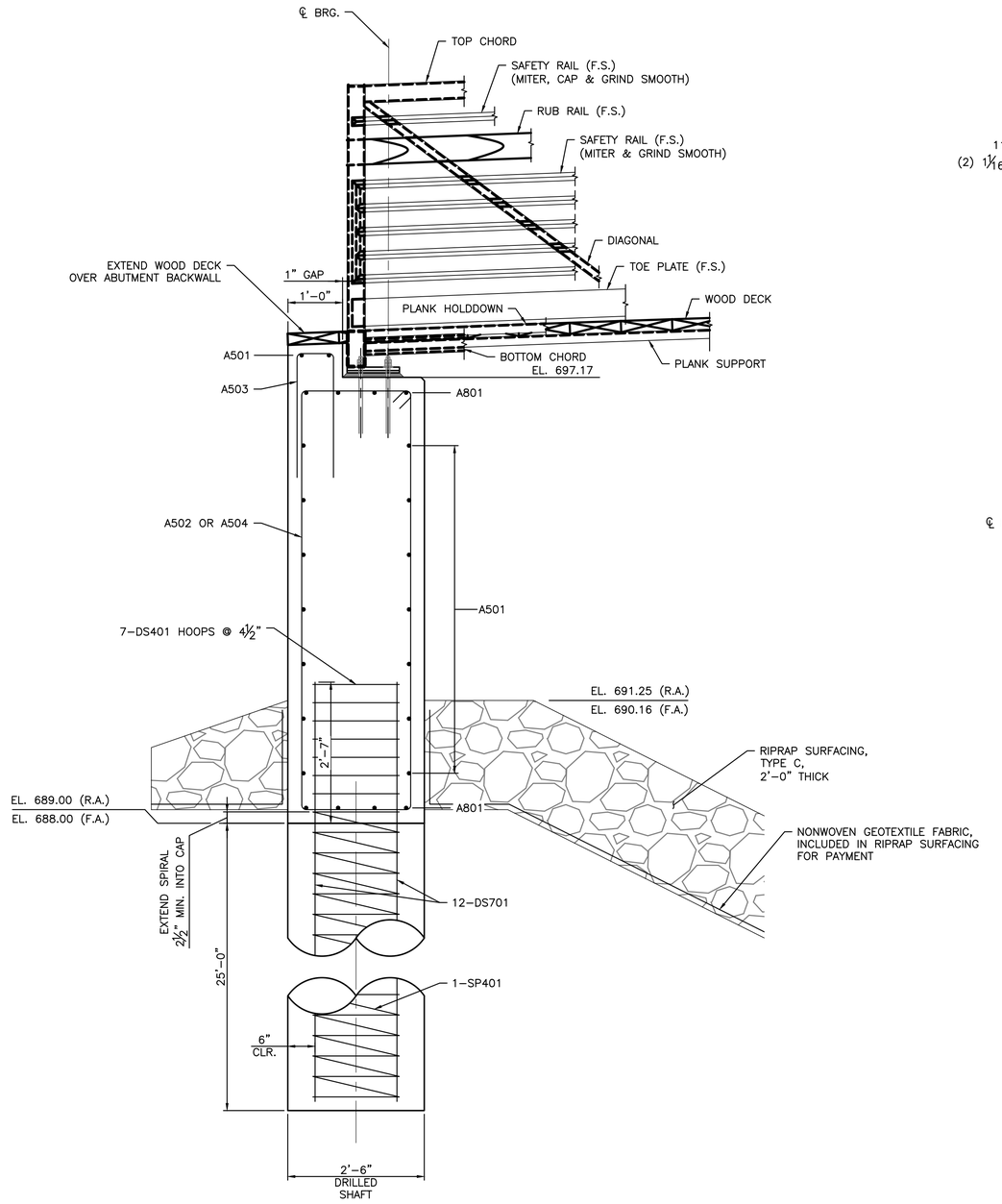
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE B - NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK MAINSTEM

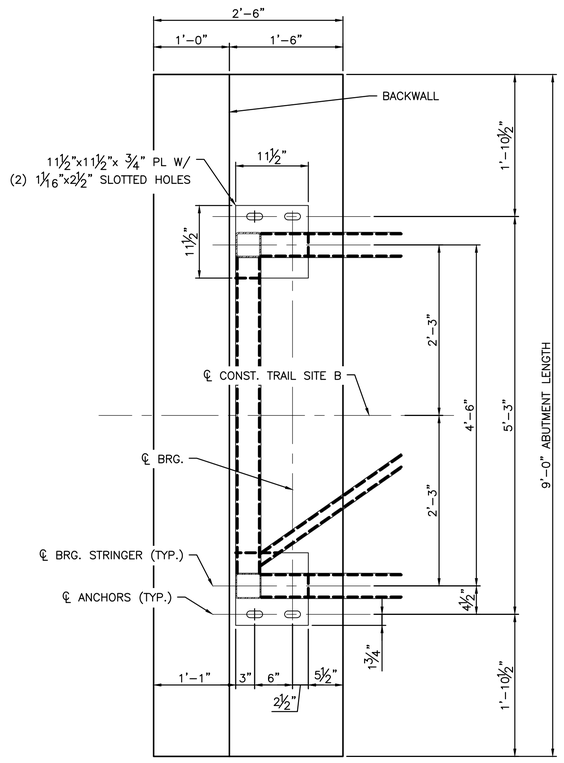
REVISION DATE
8/29/23

NOT TO SCALE

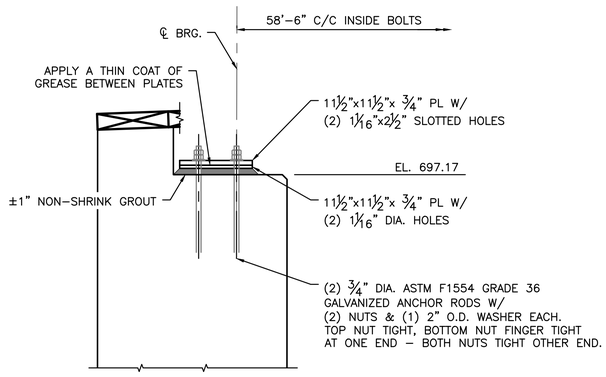
SUBSET 3 OF 22
SHEET 30 OF 49



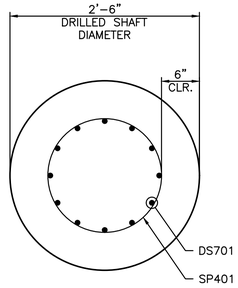
ABUTMENT SECTION



BEARING DETAILS - PLAN VIEW



BEARING DETAILS - SIDE VIEW



DRILLED SHAFT SECTION

NOTES:

1. ALL WELDS TO BE VISUALLY INSPECTED.
2. SEE SHEET 30/49 FOR ABUTMENT PLAN AND ELEVATION.
3. ASSUME 3" CONCRETE COVER UNLESS NOTED OTHERWISE.
4. CENTERING DEVICES SHALL BE REQUIRED DURING CONSTRUCTION TO MAINTAIN ALIGNMENT OF CAGES AND MIN. CONCRETE COVER. CENTERING DEVICES SHALL BE PLACED AT INTERVALS NOT EXCEEDING 5-FT THROUGHOUT THE LENGTH OF THE SHAFT. PROVIDE MIN. ONE SET OF CENTERING DEVICES WITHIN 2-FT TOP AND 2-FT BOTTOM OF SHAFT. PROVIDE CENTERING DEVICES MIN. 60-DEGREE INTERVALS AROUND CIRCUMFERENCE OF SHAFT.
5. PROVIDE FEET (BOTTOM SUPPORTS) AT THE BOTTOM OF THE SHAFT ON VERTICAL BARS.

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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

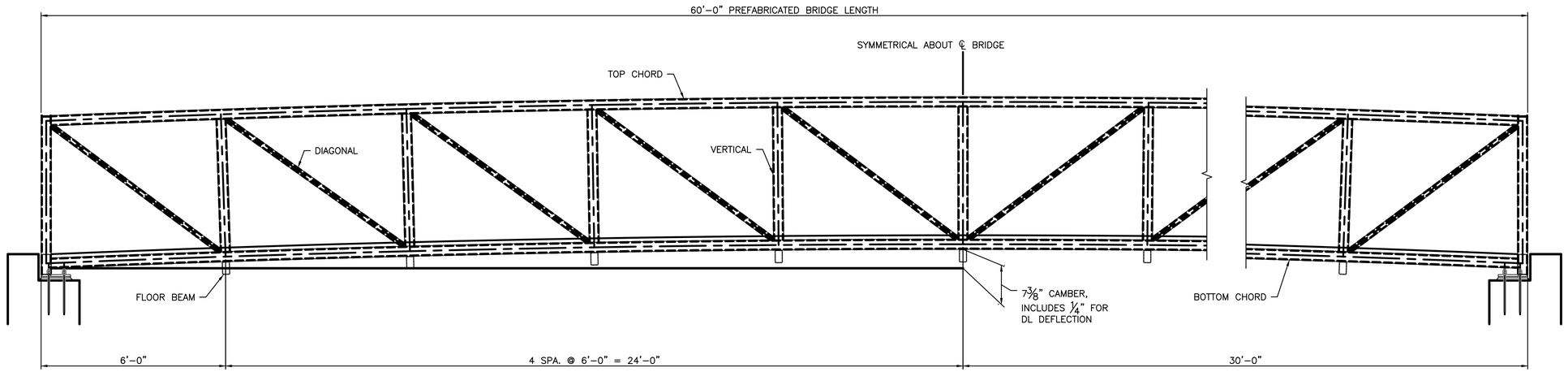
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE B - NCT ATHENS CENTRAL #1 OVER
SUNDAY CREEK MAINSTEM

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 4 OF 22
SHEET 31 OF 49



ELEVATION

(RUNNING PLANKS AND DECK PLANKS NOT SHOWN FOR CLARITY)

NOTES:

1. VERTICALS TO BE FANNED, INSTALLED PERPENDICULAR TO THE BOTTOM CHORD.
2. SAFETY RAILS, RUB RAIL, AND TOW PLATE NOT SHOWN FOR CLARITY. SEE SHEET 33 FOR TRANSVERSE SECTION.
3. SEE SHEET 31 FOR ABUTMENT SECTION.

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PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: TRUSS ELEVATION

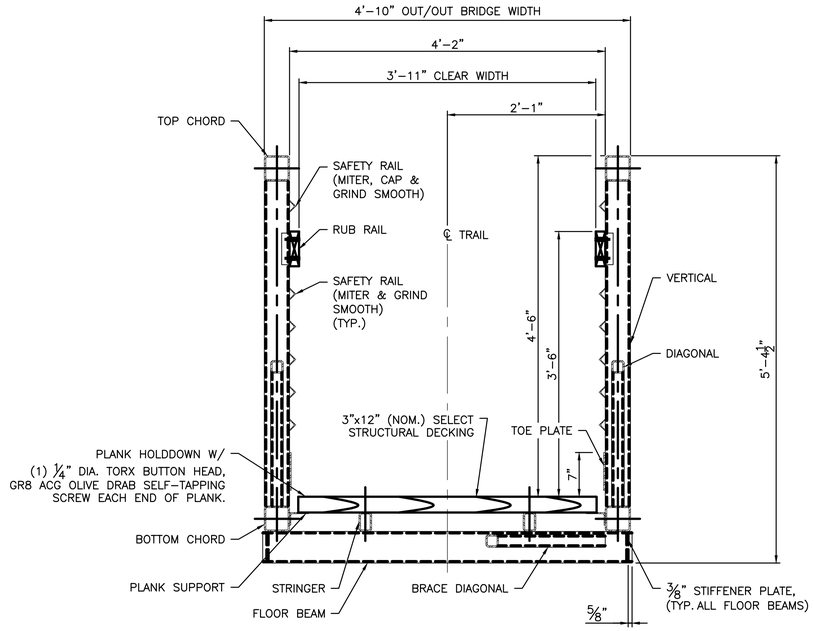
BRIDGE: SITE B - NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK MAINSTEM

REVISION DATE: 8/29/23

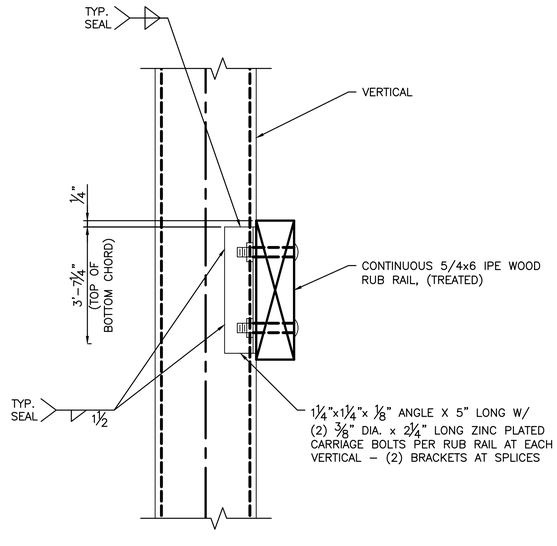
NOT TO SCALE

SUBSET 5 OF 22

SHEET 32 OF 49



TRANSVERSE SECTION



RUB RAIL DETAIL

NOTES:

1. SPACING OF SAFETY RAILS, RUB RAIL, AND TOE PLATE PRODUCE MAXIMUM OPENINGS OF LESS THAN 4", UP TO A HEIGHT OF 54".
2. REFER TO USFS STD–964–10–2A FOR ADDITIONAL DETAILS.

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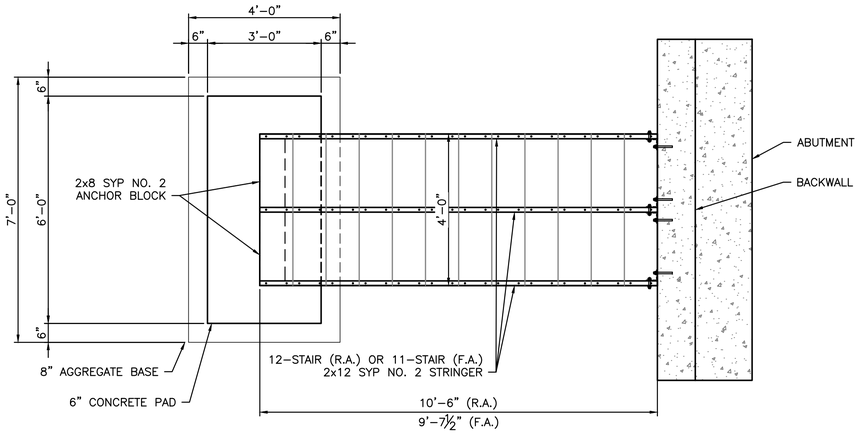
PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

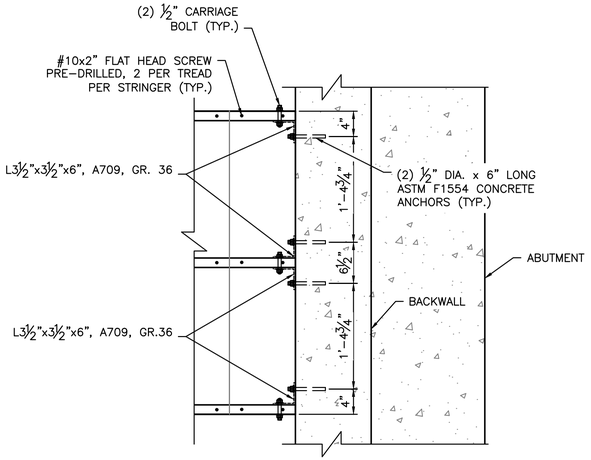
DRAWING NAME: TRANSVERSE SECTION
BRIDGE: SITE B - NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK MAINSTEM

REVISION DATE: 8/29/23
NOT TO SCALE

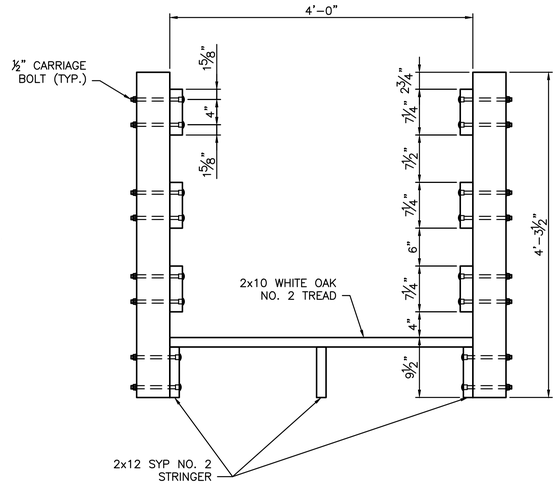
SUBSET 6 OF 22
SHEET 33 OF 49



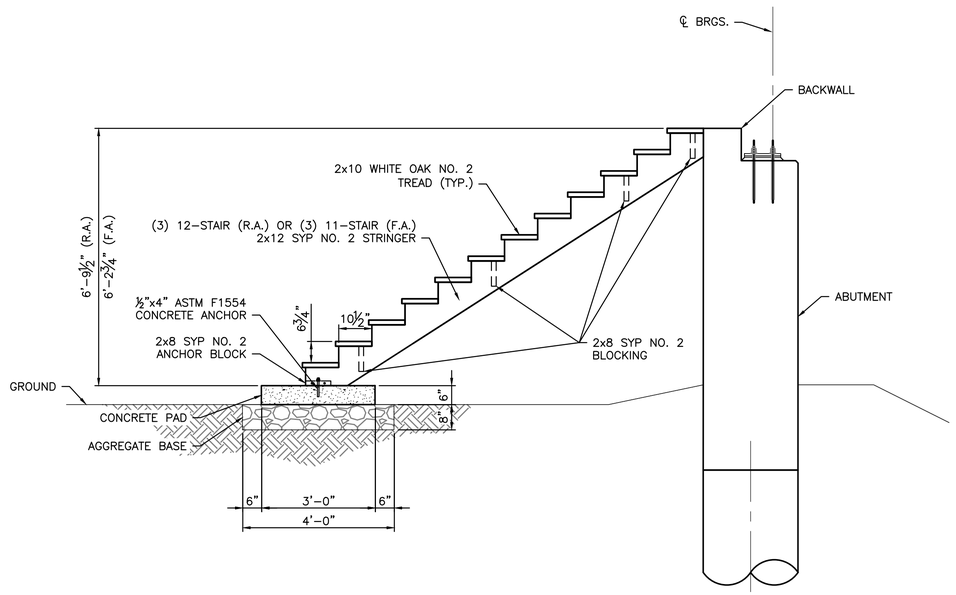
STAIR PLAN



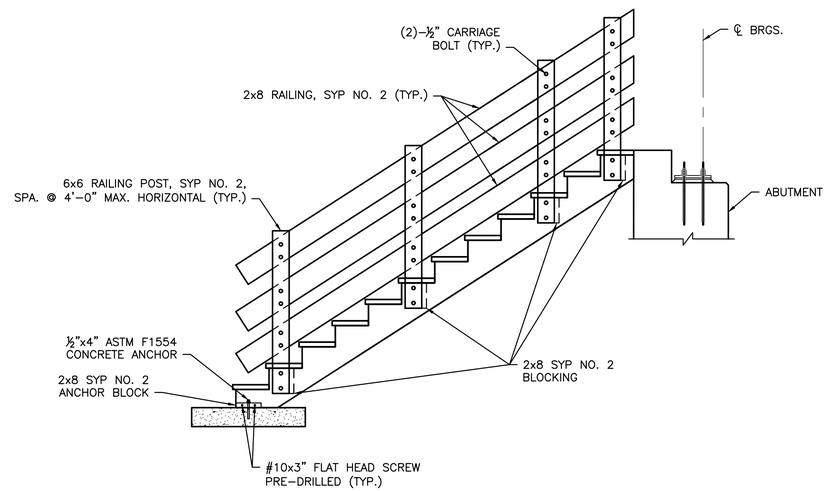
STAIR CONNECTION DETAILS



STAIR RAILING SECTION



STAIR ELEVATION



STAIR RAILING DETAILS

NOTES:

1. ALL NAILS, BOLTS, STEEL ANGLES, ANCHORS, AND STEEL HARDWARE SHALL BE GALVANIZED.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY:	CHECKED BY:	REVIEWED BY:
TML	CML	MJZ

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: STAIR DETAILS

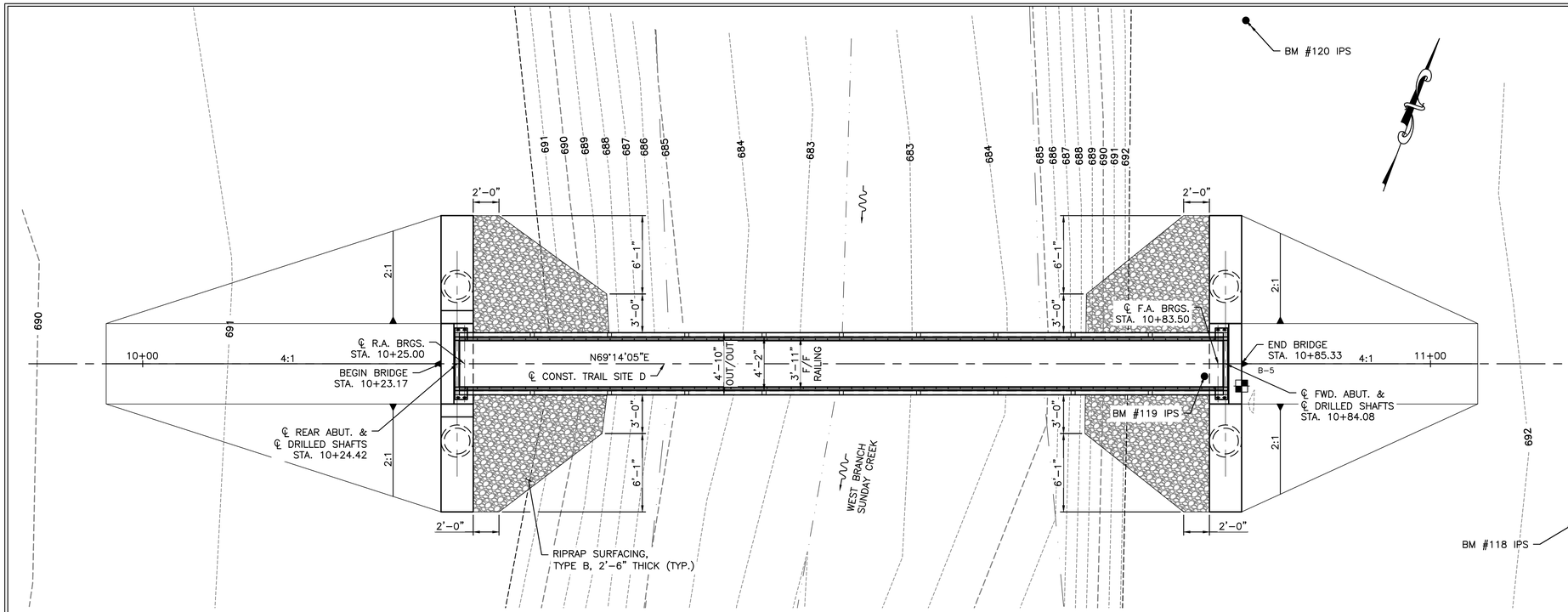
BRIDGE: SITE B - NCT ATHENS CENTRAL #1 OVER SUNDAY CREEK MAINSTEM

REVISION DATE: 8/29/23

NOT TO SCALE

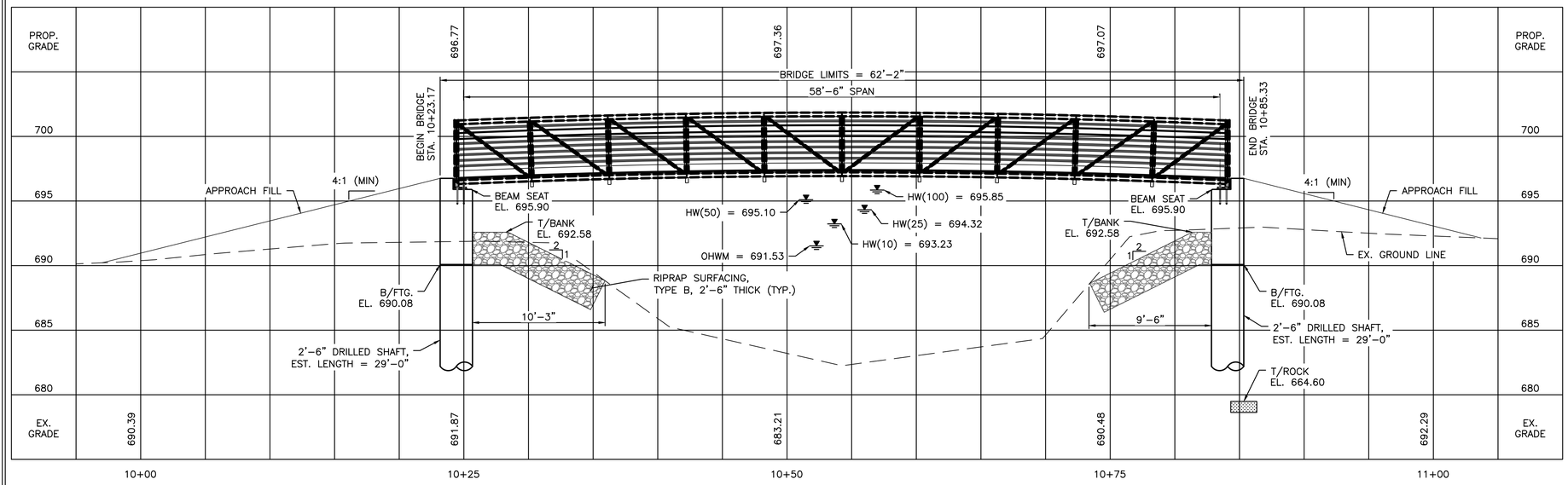
SUBSET 7 OF 22

SHEET 34 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT.	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#100	IRON PIN	576829.572	2054105.708	1056.709	--	--
BM#118	IRON PIN	557544.953	2080784.072	691.694	11+42.43	18.76' RT
BM#119	IRON PIN	557538.987	2080718.182	693.130	10+78.70	0.98' RT
BM#120	IRON PIN	557585.048	2080703.674	693.224	10+81.47	47.24' LT
B.A	BEGIN ALIGNMENT	557511.999	2080644.246	SEE PROFILE	10+00.00	0'
CL R.A.	POINT ALONG ALIGNMENT	557519.325	2080663.571	SEE PROFILE	10+20.67	0'
CL F.A.	POINT ALONG ALIGNMENT	557540.479	2080719.361	SEE PROFILE	10+80.33	0'
E.A.	END ALIGNMENT	557565.179	2080784.503	SEE PROFILE	11+50.00	0'

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

- BORING LOCATION
- RIPRAP SURFACING, TYPE B, 2'-6" THICK

HYDRAULIC DATA

DRAINAGE AREA = 32.9 SQ. MILES

Q (10) = 2760 CFS	V (10) = 7.82 FT/S		DESIGN
Q (25) = 3640 CFS	V (25) = 8.42 FT/S		SCOUR DESIGN
Q (50) = 4350 CFS	V (50) = 8.82 FT/S		SCOUR CHECK
Q (100) = 5100 CFS	V (100) = 9.22 FT/S		FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 0.24 FEET.

STRUCTURE IS LOCATED IN FEMA ZONE A.

PROPOSED STRUCTURE

TYPE: PREFABRICATED STEEL TRUSS ON STUB ABUTMENTS ON SPREAD FOOTINGS.

SPANS: 58'-6" C/C BRGS. (INSIDE BOLT)

TRAIL: 3'-11" CLEAR WIDTH BTW. RUB RAILS

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

ALIGNMENT: TANGENT

CROWN: NONE

COORDINATES: LATITUDE 39° 31' 48.72" N
LONGITUDE 82° 6' 9.36" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES

BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: **SITE PLAN**

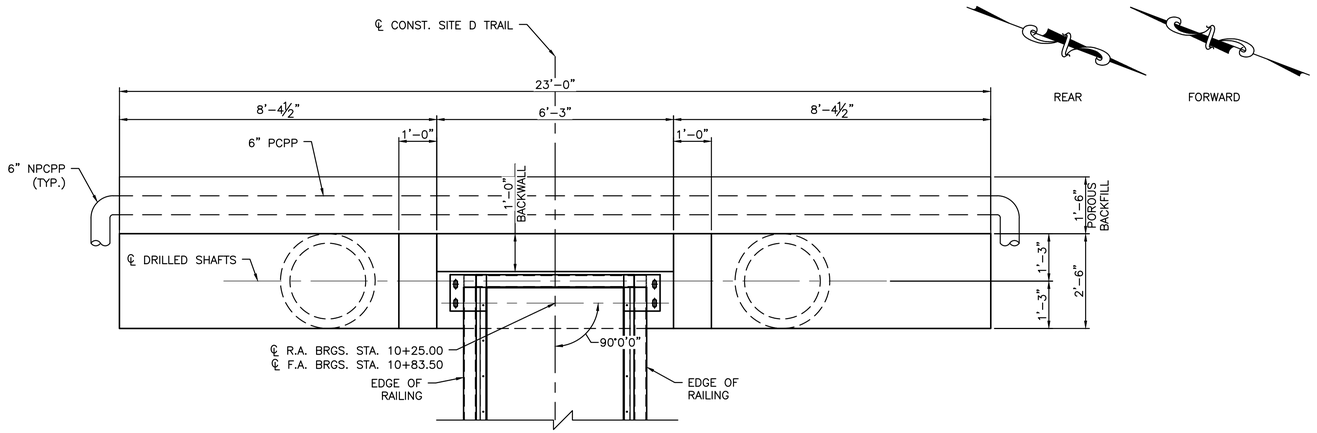
BRIDGE: **SITE D - TRAIL OVER W BRANCH SUNDAY CREEK**

REVISION DATE: **8/29/23**

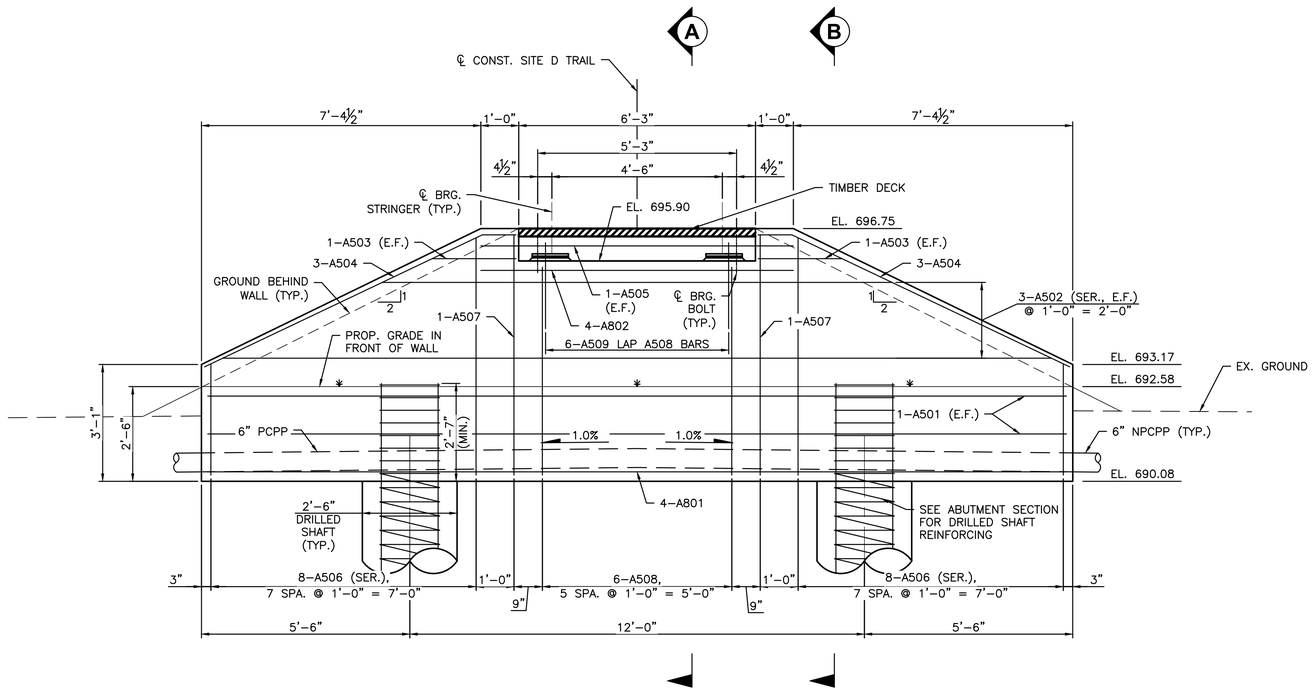
NOT TO SCALE

SUBSET: 8 OF 22

SHEET: 35 OF 49

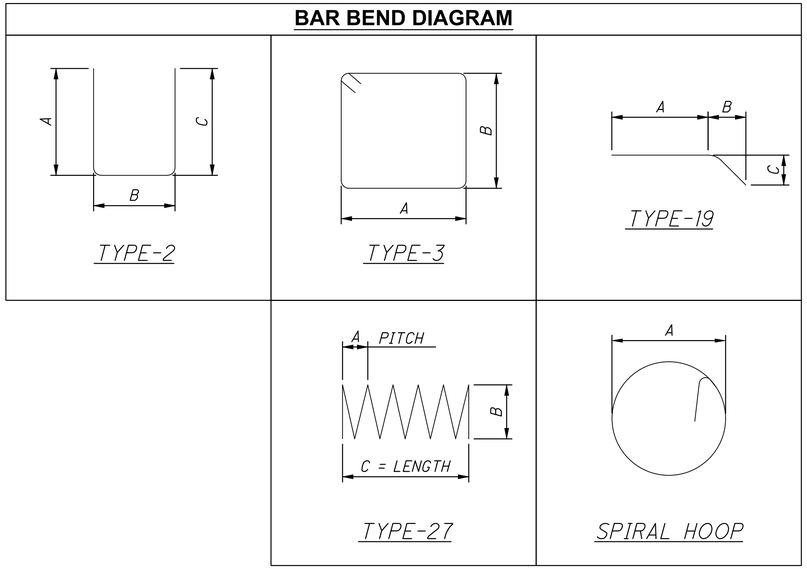


ABUTMENT PLAN



ABUTMENT ELEVATION

BAR BEND DIAGRAM



SITE D ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS						
					A	B	C	D	E	R	INC.
A501	8	22'-6"	188	ST.							
	4	13'-5"									
A502	SER. OF	TO	221	ST.							4'-2"
	3	21'-10"									
A503	8	2'-2"	19	ST.							
A504	12	8'-10"	111	19	8'-1"	9"	4"				
A505	4	8'-3"	35	ST.							
	4	10'-0"				2'-9"					
A506	SER. OF	TO	452	3	2'-0"	TO					12 1/8"
	8	17'-1"				6'-3"					
A507	4	17'-2"	72	3	2'-0"	6'-4"					
A508	12	15'-5"	193	3	2'-0"	5'-5"					
A509	12	5'-3"	66	2	2'-5"	8"	2'-5"				
A801	8	22'-6"	481	ST.							
A802	8	8'-3"	177	ST.							
DS401	28	3'-6"	66	HOOP	1'-6"						
DS701	48	32'-10"	3222	ST.							
SP401	4	30'-5"	1788	27	4.5"	1'-6"	30'-5"				
TOTAL			7091								

NOTES:

1. SEE SHEET 37/49 FOR SECTION A AND SECTION B.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT AFTER THE LETTERS WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS AFTER THE LETTERS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A NO. 5 BAR IN THE ABUTMENT. A LEGEND OF THE DESCRIPTORS IS GIVEN BELOW:

   A – ABUTMENT
   DS – DRILLED SHAFT
   SP – SPIRAL
3. BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS OTHERWISE NOTED.
4. "ST." INDICATES A STRAIGHT BAR.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

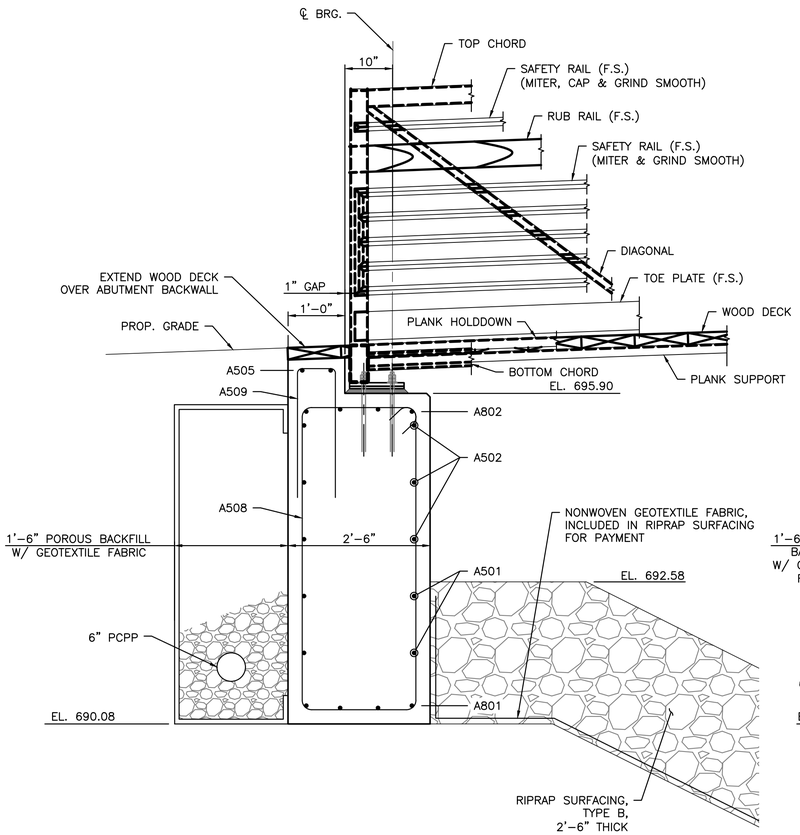
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE D - TRAIL OVER W BRANCH SUNDAY CREEK

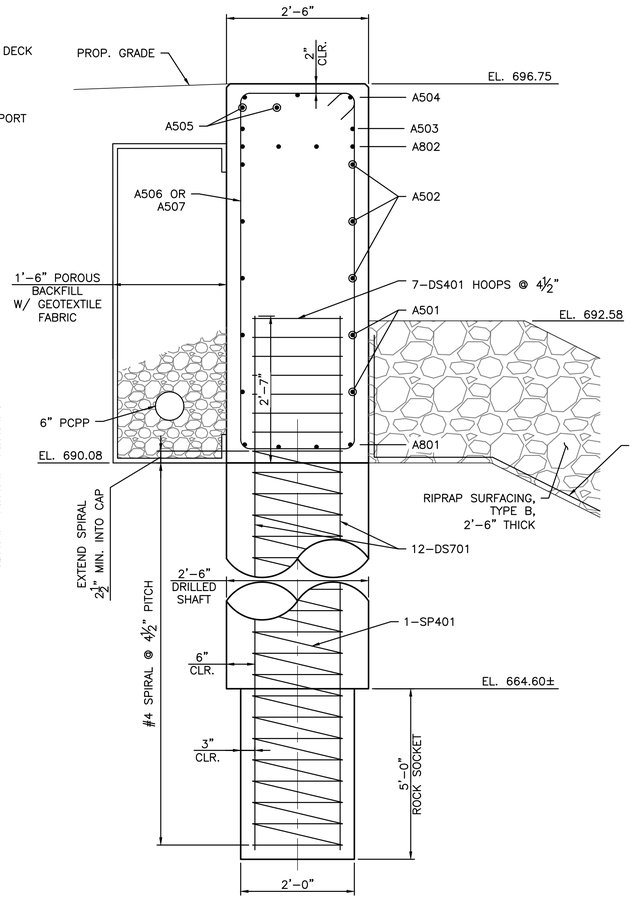
REVISION DATE
8/29/23

NOT TO SCALE

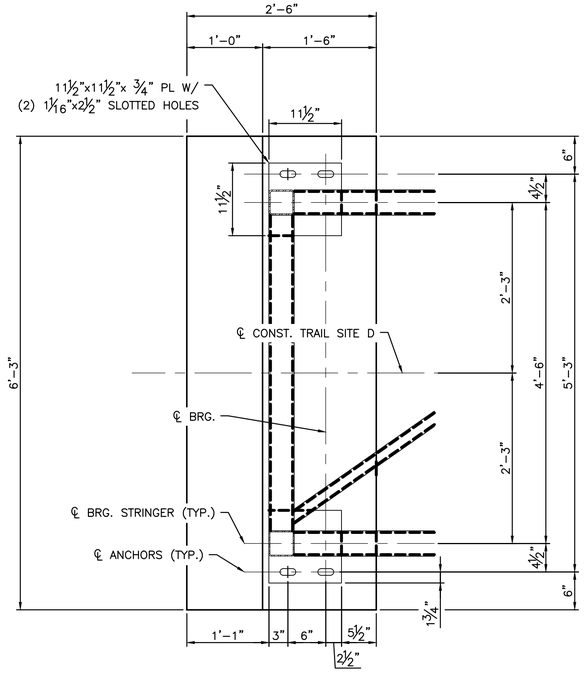
SUBSET 9 OF 22
SHEET 36 OF 49



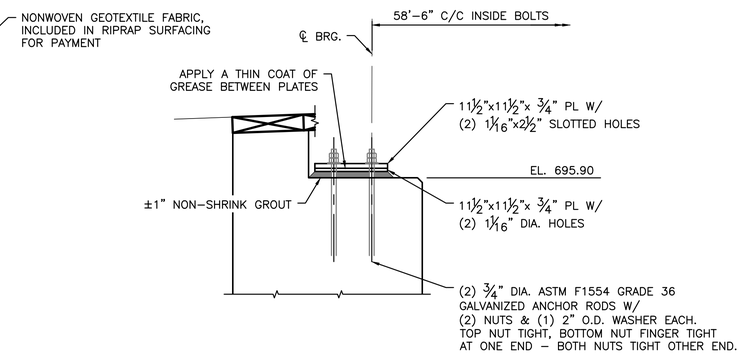
ABUTMENT SECTION A



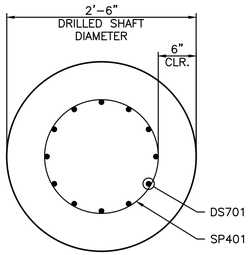
WINGWALL SECTION B



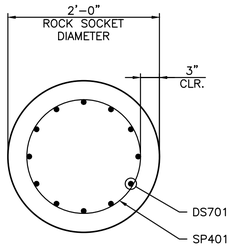
BEARING DETAILS - PLAN VIEW



BEARING DETAILS - SIDE VIEW



DRILLED SHAFT SECTION



ROCK SOCKET SECTION

NOTES:

1. ALL WELDS TO BE VISUALLY INSPECTED.
2. SEE SHEET 36/49 FOR ABUTMENT PLAN AND ELEVATION.
3. ASSUME 3" CONCRETE COVER UNLESS NOTED OTHERWISE.
4. CENTERING DEVICES SHALL BE REQUIRED DURING CONSTRUCTION TO MAINTAIN ALIGNMENT OF CAGES AND MIN. CONCRETE COVER. CENTERING DEVICES SHALL BE PLACED AT INTERVALS NOT EXCEEDING 5–FT THROUGHOUT THE LENGTH OF THE SHAFT. PROVIDE MIN. ONE SET OF CENTERING DEVICES WITHIN 2–FT TOP AND 2–FT BOTTOM OF SHAFT. PROVIDE CENTERING DEVICES MIN. 60–DEGREE INTERVALS AROUND CIRCUMFERENCE OF SHAFT.
5. PROVIDE FEET (BOTTOM SUPPORTS) AT THE BOTTOM OF THE SHAFT ON VERTICAL BARS.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

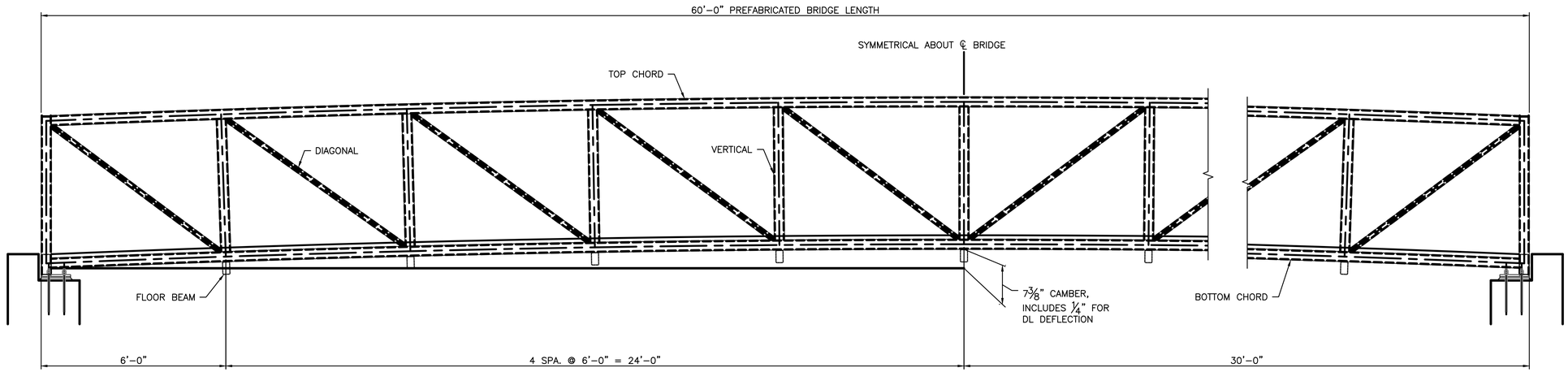
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE D - TRAIL OVER W BRANCH SUNDAY CREEK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 10 OF 22
SHEET 37 OF 49



ELEVATION

(RUNNING PLANKS AND DECK PLANKS NOT SHOWN FOR CLARITY)

NOTES:

1. VERTICALS TO BE FANNED, INSTALLED PERPENDICULAR TO THE BOTTOM CHORD.
2. SAFETY RAILS, RUB RAIL, AND TOW PLATE NOT SHOWN FOR CLARITY. SEE SHEET 39 FOR TRANSVERSE SECTION.
3. SEE SHEET 37 FOR ABUTMENT SECTION.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

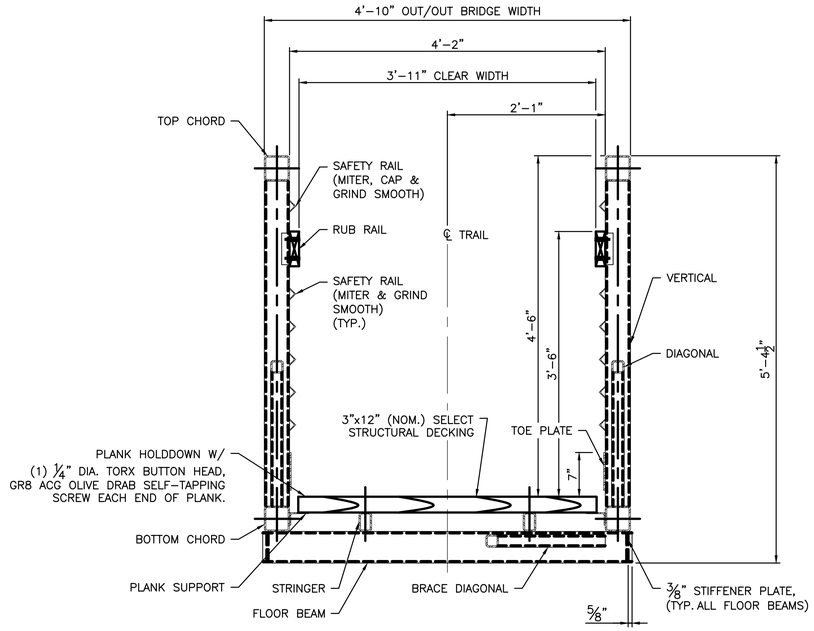
DRAWING NAME
TRUSS ELEVATION

BRIDGE
SITE D - TRAIL OVER W BRANCH SUNDAY CREEK

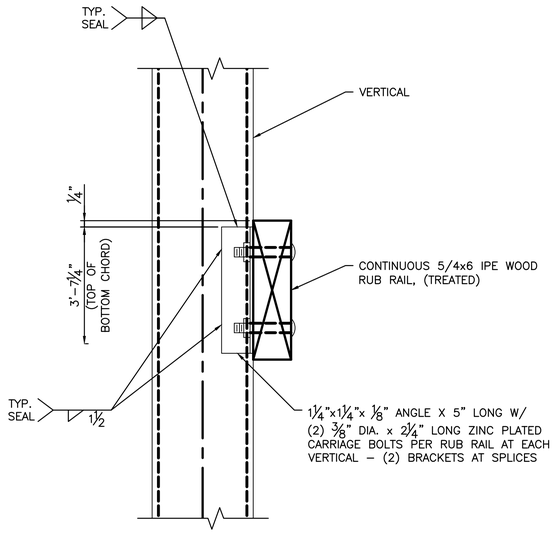
REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 11 OF 22
SHEET 38 OF 49



TRANSVERSE SECTION



RUB RAIL DETAIL

NOTES:

1. SPACING OF SAFETY RAILS, RUB RAIL, AND TOE PLATE PRODUCE MAXIMUM OPENINGS OF LESS THAN 4", UP TO A HEIGHT OF 54".
2. REFER TO USFS STD–964–10–2A FOR ADDITIONAL DETAILS.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
TRANSVERSE SECTION

BRIDGE
SITE D - TRAIL OVER W BRANCH SUNDAY CREEK

REVISION DATE
8/29/23

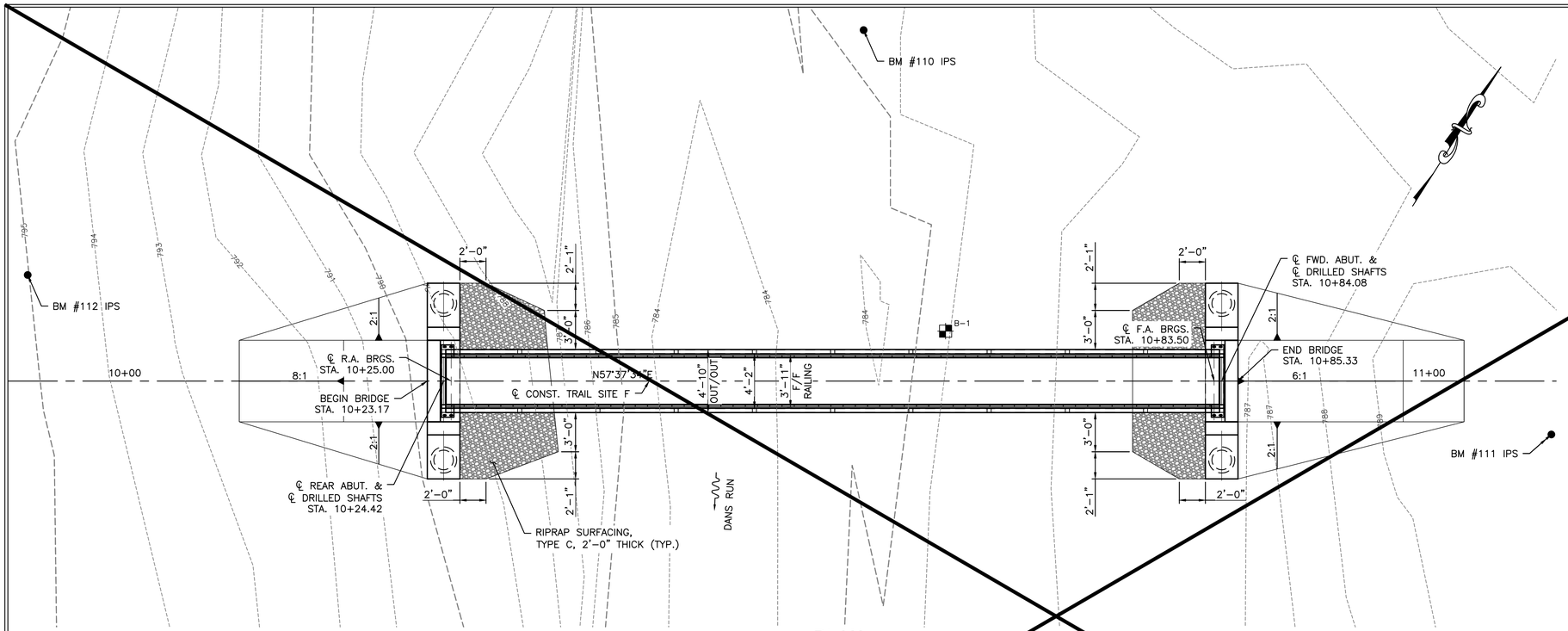
NOT TO SCALE

SUBSET 12 OF 22
SHEET 39 OF 49

BENCHMARK AND CONTROL DATA

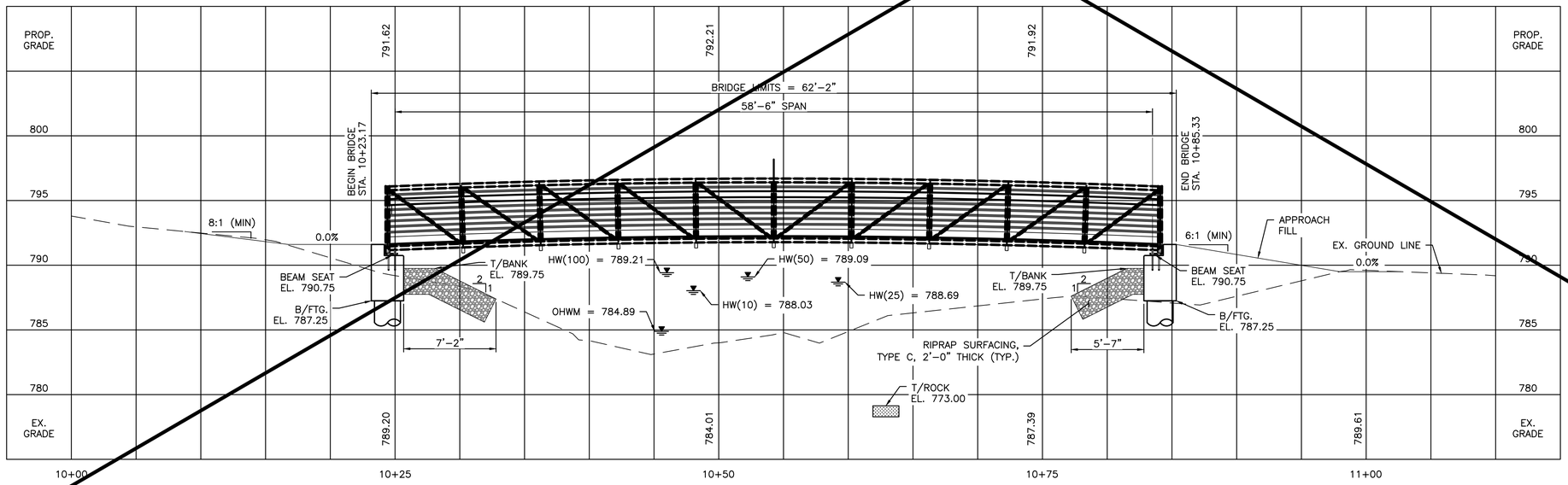
CONTROL POINT.	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#100	IRON PIN	576829.572	2054105.708	1056.709	--	--
BM#110	IRON PIN	582917.913	2026176.439	786.206	10+86.87	26.91' LT
BM#111	IRON PIN	582943.761	2026276.381	788.351	11+85.11	4.77' RT
BM#112	IRON PIN	582867.740	2026132.346	795.136	10+22.76	8.14' LT
BM#113	IRON PIN	582871.829	2026206.924	785.753	10+87.94	28.33' RT
B.A	BEGIN ALIGNMENT	582848.674	2026113.483	SEE PROFILE	10+00.00	0'
CL R.A.	POINT ALONG ALIGNMENT	582878.124	2026163.934	SEE PROFILE	10+55.00	0'
CL F.A.	POINT ALONG ALIGNMENT	582909.715	2026213.764	SEE PROFILE	11+14.00	0'
E.A.	END ALIGNMENT	582955.762	2026286.397	SEE PROFILE	12+00.00	0'

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

LEGEND

BORING LOCATION

RIPRAP SURFACING, TYPE C, 2'-0" THICK

HYDRAULIC DATA

DRAINAGE AREA = 90.3 SQ. MILES

Q (10) = 533 CFS	V (10) = 4.57 FT/S	DESIGN
Q (25) = 748 CFS	V (25) = 4.96 FT/S	SCOUR DESIGN
Q (50) = 928 CFS	V (50) = 5.37 FT/S	SCOUR CHECK
Q (100) = 1120 CFS	V (100) = 5.60 FT/S	FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 1.52 FEET.

STRUCTURE IS NOT LOCATED IN FEMA REGULATED ZONE.

PROPOSED STRUCTURE

TYPE: PREFABRICATED STEEL TRUSS ON STUB ABUTMENTS ON SPREAD FOOTINGS.

SPANS: 58'-6" C/C BRGS. (INSIDE BOLT)

TRAIL: 3'-11" CLEAR WIDTH BTW. RUB RAILS

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

ALIGNMENT: TANGENT

CROWN: NONE

COORDINATES: LATITUDE 39° 31' 48.72" N
LONGITUDE 82° 6' 9.36" W

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

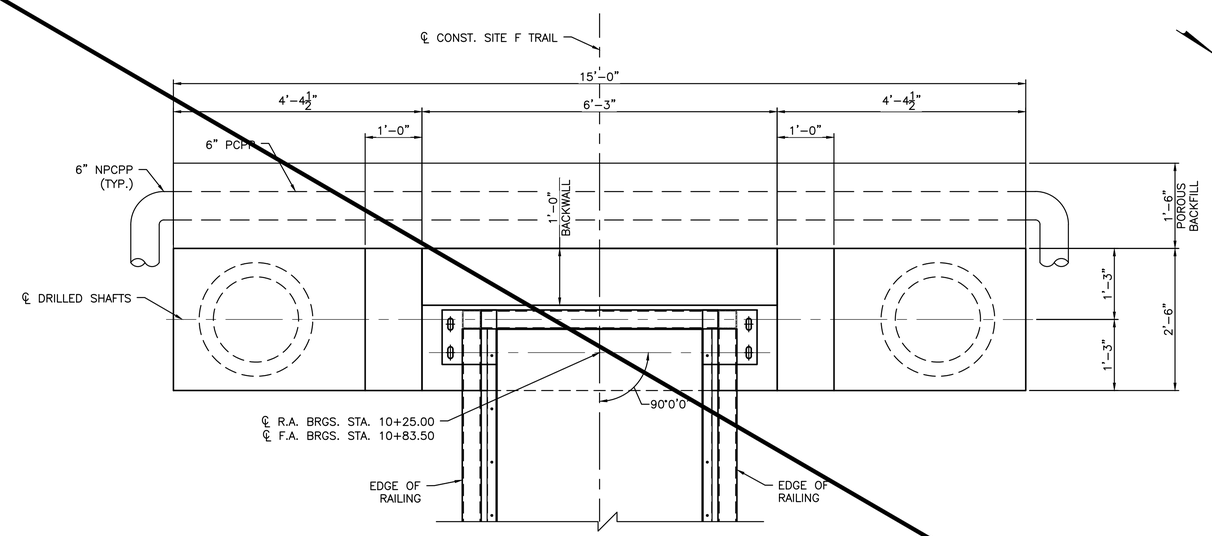
BRIDGE: SITE F - TRAIL OVER DANS RUN

REVISION DATE: 8/29/23

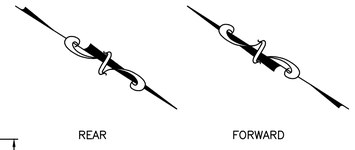
NOT TO SCALE

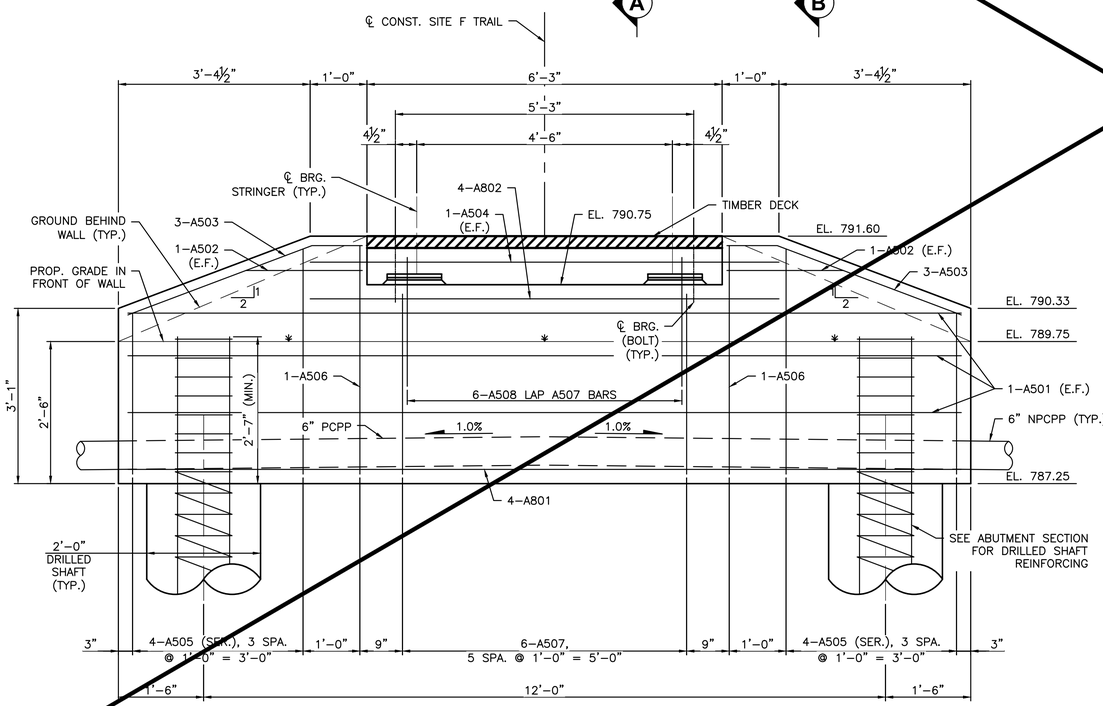
SUBSET 13 OF 22

SHEET 40 OF 49



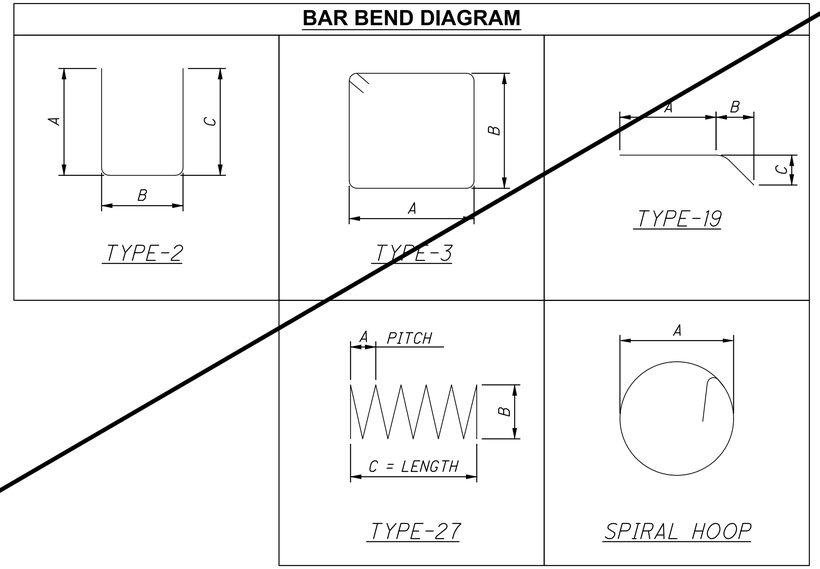
ABUTMENT PLAN





ABUTMENT ELEVATION

BAR BEND DIAGRAM



SITE F ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	12	14'-6"	182	ST.							
A502	8	2'-0"	17	ST.							
A503	12	4'-3"	54	19	3'-5"	10"	3"				
A504	4	8'-3"	35	ST.							
	4	10'-0"				2'-9"					
A505	SER. OF	TO	188	3	2'-0"	TO					9 5/8"
	4	12'-5"				3'-11"					
A506	4	12'-6"	53	3	2'-0"	4'-0"					
A507	12	10'-11"	137	3	2'-0"	3'-2"					
A508	12	5'-3"	66	2	2'-5"	8"	2'-5"				
A801	8	14'-6"	310	ST.							
A802	8	8'-3"	177	ST.							
DS401	28	3'-6"	66	HOOP	1'-0"						
DS702	32	19'-7"	1281	ST.							
SP401	4	142'-4"	412	27	4.5"	1'-0"	17'-2"				
TOTAL			2978								

NOTES:

1. SEE SHEET 42/49 FOR SECTION A AND SECTION B.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT AFTER THE LETTERS WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS AFTER THE LETTERS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A NO. 5 BAR IN THE ABUTMENT. A LEGEND OF THE DESCRIPTORS IS GIVEN BELOW:

   A – ABUTMENT
   DS – DRILLED SHAFT
   SP – SPIRAL

3. BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS OTHERWISE NOTED.
4. "ST." INDICATES A STRAIGHT BAR.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

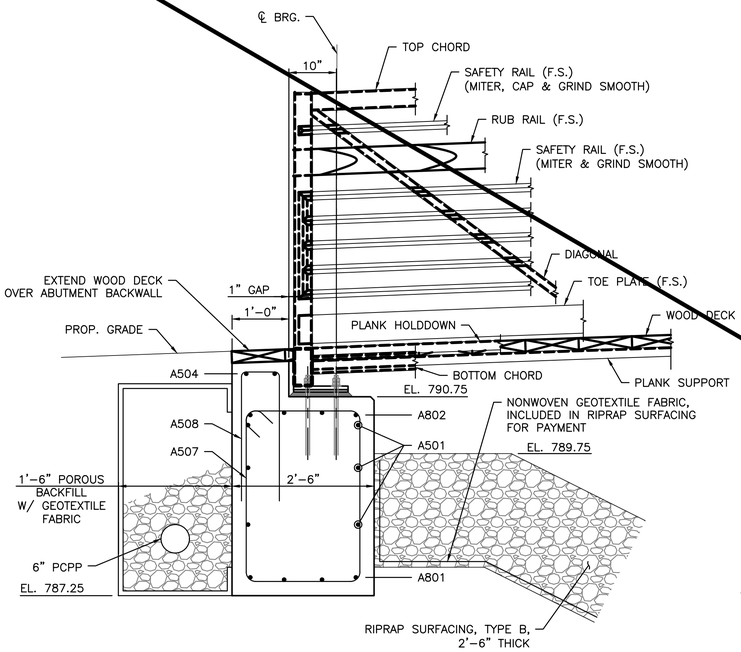
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE F - TRAIL OVER DANS RUN

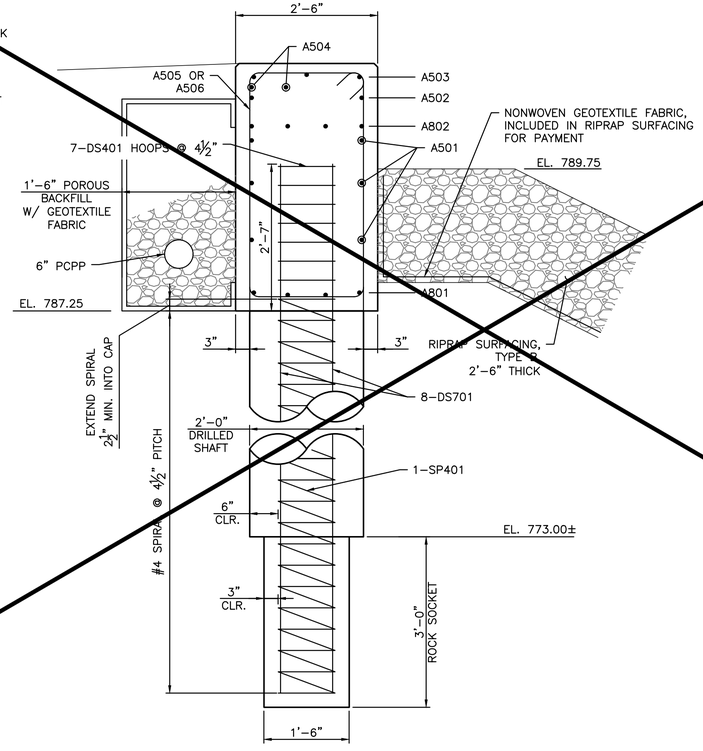
REVISION DATE
8/29/23

NOT TO SCALE

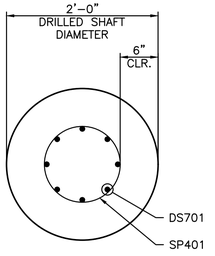
SUBSET 14 OF 22
SHEET 41 OF 49



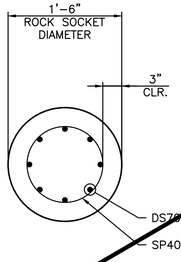
ABUTMENT SECTION A



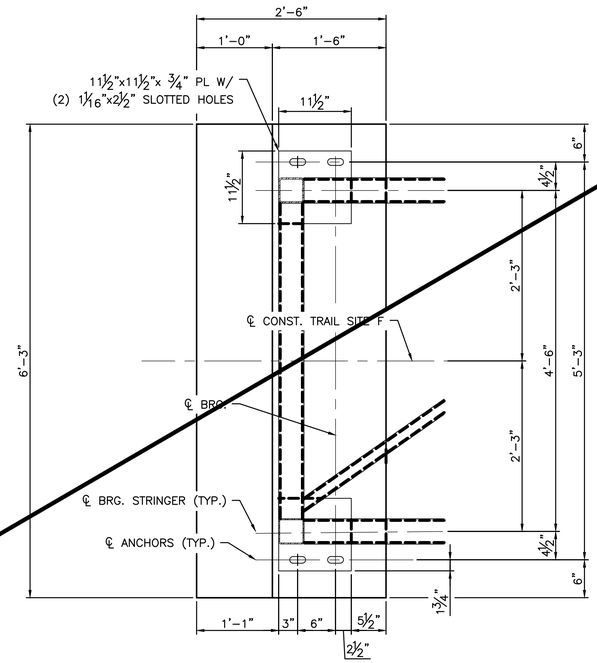
WINGWALL SECTION B



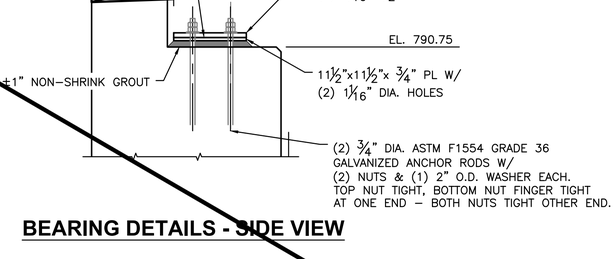
DRILLED SHAFT SECTION



ROCK SOCKET SECTION



BEARING DETAILS - PLAN VIEW



BEARING DETAILS - SIDE VIEW

NOTES:

1. ALL WELDS TO BE VISUALLY INSPECTED.
2. SEE SHEET 41/49 FOR ABUTMENT PLAN AND ELEVATION.
3. ASSUME 3" CONCRETE COVER UNLESS NOTED OTHERWISE.
4. CENTERING DEVICES SHALL BE REQUIRED DURING CONSTRUCTION TO MAINTAIN ALIGNMENT OF CAGES AND MIN. CONCRETE COVER. CENTERING DEVICES SHALL BE PLACED AT INTERVALS NOT EXCEEDING 5–FT THROUGHOUT THE LENGTH OF THE SHAFT. PROVIDE MIN. ONE SET OF CENTERING DEVICES WITHIN 2–FT TOP AND 2–FT BOTTOM OF SHAFT. PROVIDE CENTERING DEVICES MIN. 60–DEGREE INTERVALS AROUND CIRCUMFERENCE OF SHAFT.
5. PROVIDE FEET (BOTTOM SUPPORTS) AT THE BOTTOM OF THE SHAFT ON VERTICAL BARS.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY:	CHECKED BY:	REVIEWED BY:
JYM	PES	TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

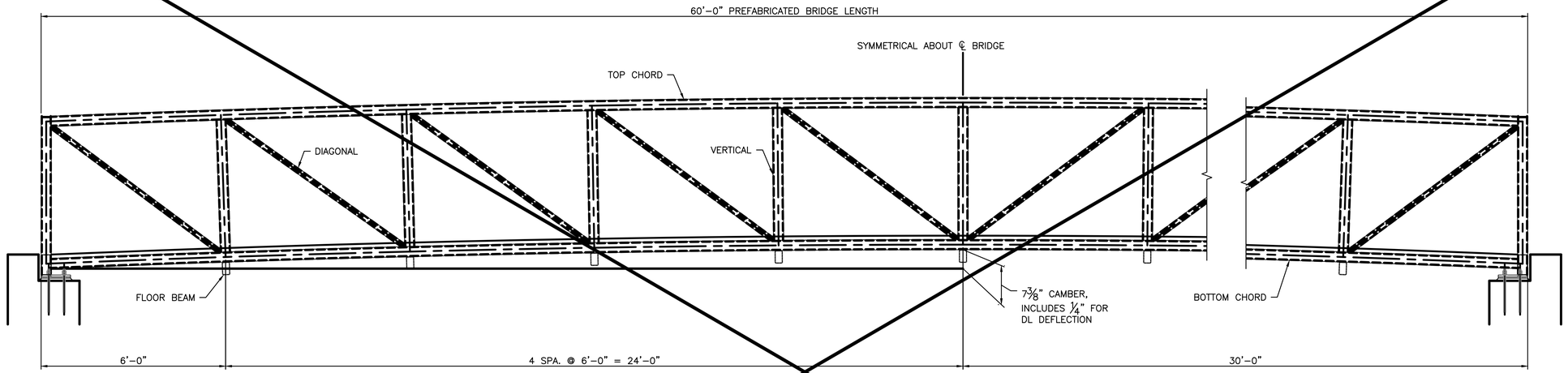
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE F - TRAIL OVER DANS RUN

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 15 OF 22
SHEET 42 OF 49



ELEVATION

(RUNNING PLANKS AND DECK PLANKS NOT SHOWN FOR CLARITY)

NOTES:

1. VERTICALS TO BE FANNED, INSTALLED PERPENDICULAR TO THE BOTTOM CHORD.
2. SAFETY RAILS, RUB RAIL, AND TOW PLATE NOT SHOWN FOR CLARITY. SEE SHEET 44 FOR TRANSVERSE SECTION.
3. SEE SHEET 42 FOR ABUTMENT SECTION.

WOOLPERT
ONE EASTON OVAL
SUITE 400
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DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

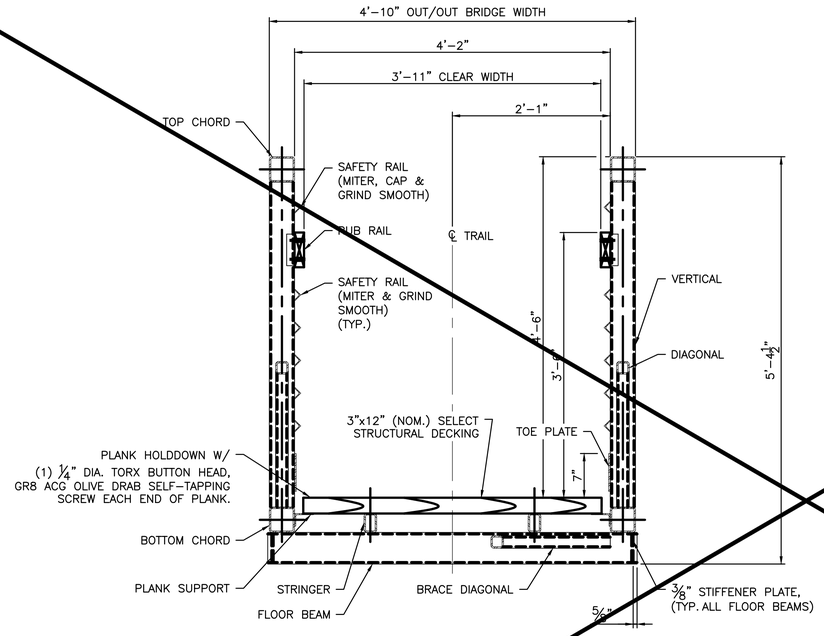
DRAWING NAME
TRUSS ELEVATION

BRIDGE
SITE F - TRAIL OVER DANS RUN

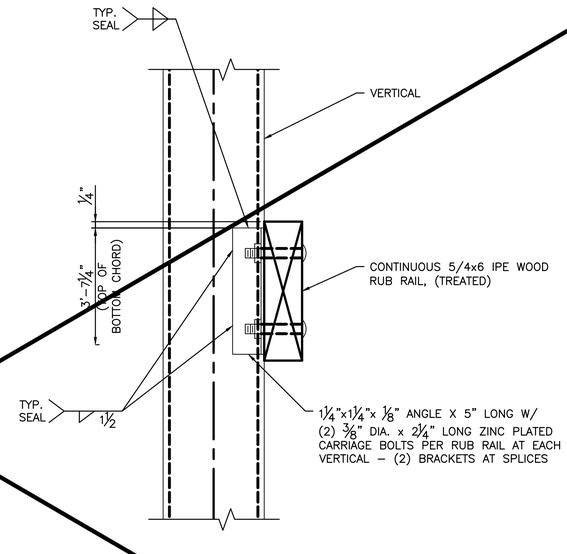
REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 16 OF 22
SHEET 43 OF 49



TRANSVERSE SECTION



RUB RAIL DETAIL

NOTES:

1. SPACING OF SAFETY RAILS, RUB RAIL, AND TOE PLATE PRODUCE MAXIMUM OPENINGS OF LESS THAN 4", UP TO A HEIGHT OF 54".
2. REFER TO USFS STD–964–10–2A FOR ADDITIONAL DETAILS.

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DESIGNED BY:	CHECKED BY:	REVIEWED BY:
JYM	PES	TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: TRANSVERSE SECTION

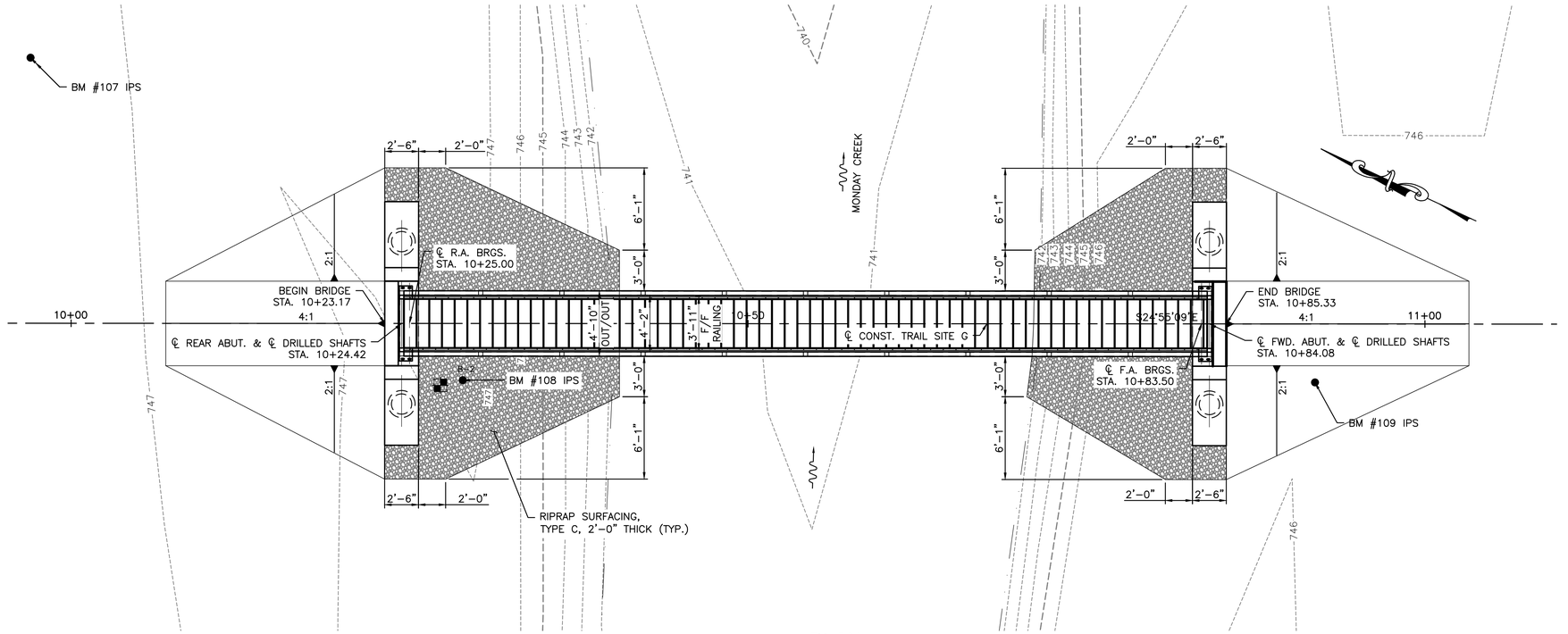
BRIDGE: SITE F - TRAIL OVER DANS RUN

REVISION DATE: 8/29/23

NOT TO SCALE

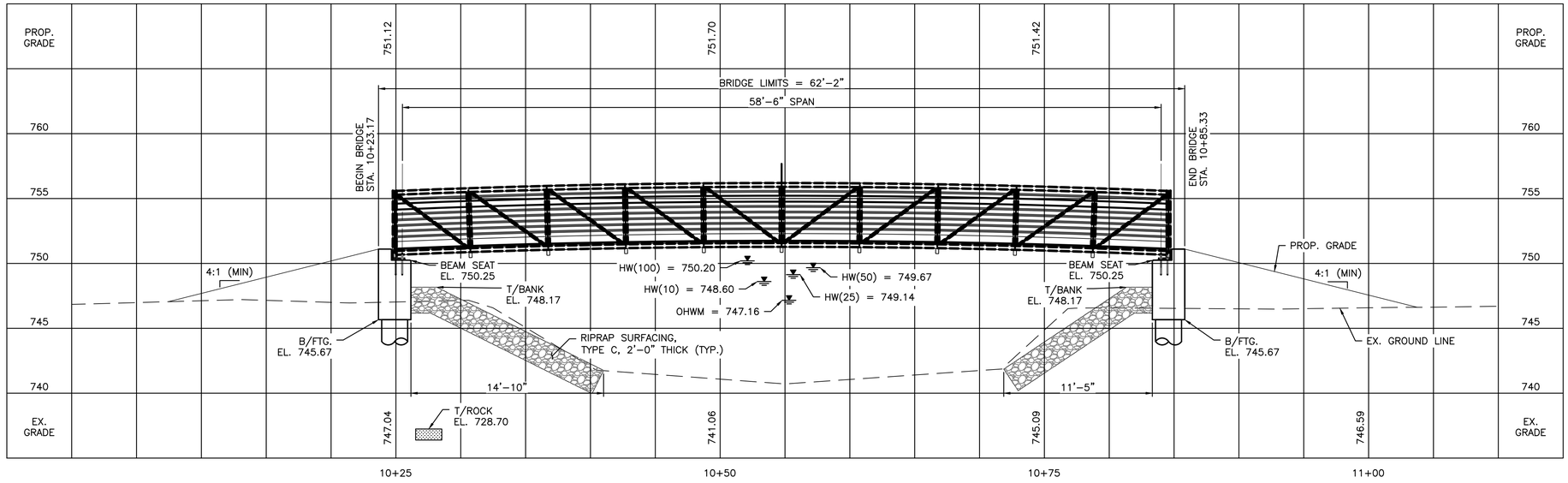
SUBSET 17 OF 22

SHEET 44 OF 49



PLAN

(RAILING AND CURB ARE NOT SHOWN FOR CLARITY)



PROFILE

(ALONG ℄ TRAIL)

BENCHMARK AND CONTROL DATA

CONTROL POINT.	DESCRIPTION	NORTHING	EASTING	ELEV.	STATION	OFFSET
BM#100	IRON PIN	576829.572	2054105.708	1056.709	--	--
BM#107	IRON PIN	585131.103	2039349.125	747.394	9+70.66	35.56' LT
BM#108	IRON PIN	585196.406	2039362.668	746.793	10+24.18	4.23' RT
BM#109	IRON PIN	585073.955	2039375.529	746.695	10+87.13	4.37' RT
B.A	BEGIN ALIGNMENT	585200.162	2039321.709	SEE PROFILE	9+50.00	0'
CL R.A.	POINT ALONG ALIGNMENT	585136.981	2039351.062	SEE PROFILE	10+19.67	0'
CL F.A.	POINT ALONG ALIGNMENT	585082.865	2039376.192	SEE PROFILE	10+79.33	0'
E.A.	END ALIGNMENT	585064.127	2039384.910	SEE PROFILE	11+00.00	0'

FOR ADDITIONAL BENCHMARK INFORMATION, SEE GENERAL NOTES SHEET 3/49.

LEGEND

- BORING LOCATION
- RIPRAP SURFACING, TYPE C, 2'-0" THICK

HYDRAULIC DATA

DRAINAGE AREA = 35.8 SQ. MILES

Q (10) = 1840 CFS	V (10) = 5.88 FT/S	DESIGN
Q (25) = 2480 CFS	V (25) = 6.93 FT/S	SCOUR DESIGN
Q (50) = 3000 CFS	V (50) = 7.44 FT/S	SCOUR CHECK
Q (100) = 3550 CFS	V (100) = 7.89 FT/S	FEMA

STRUCTURE CLEARS THE 100-YEAR HIGH WATER ELEVATION BY 0.24 FEET.

STRUCTURE IS LOCATED IN FEMA ZONE A.

PROPOSED STRUCTURE

TYPE: PREFABRICATED STEEL TRUSS ON STUB ABUTMENTS ON SPREAD FOOTINGS.

SPANS: 58'-6" C/C BRGS. (INSIDE BOLT)

TRAIL: 3'-11" CLEAR WIDTH BTW. RUB RAILS

LOADING: 0.090 KSF PEDESTRIAN

SKEW: NONE

ALIGNMENT: TANGENT

CROWN: NONE

COORDINATES: LATITUDE 39° 36' 22.68" N
LONGITUDE 82° 14' 54.96" W

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ONE EASTON OVAL
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REVIEWED BY: TML

PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

DRAWING NAME: SITE PLAN

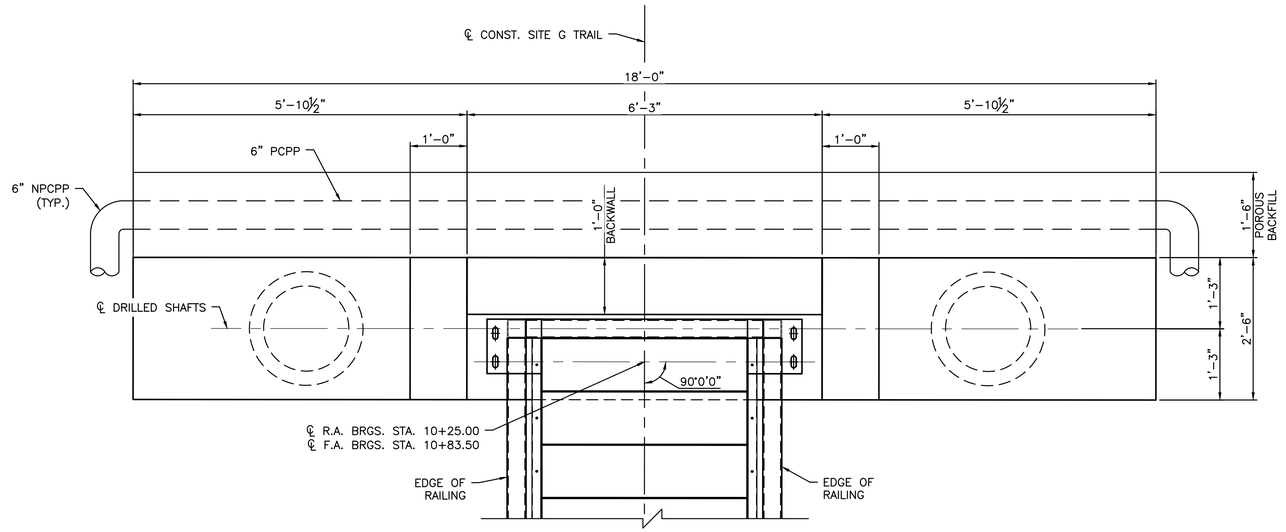
BRIDGE: SITE G - NCT ATHENS CENTRAL #5 OVER MONDAY CREEK

REVISION DATE: 8/29/23

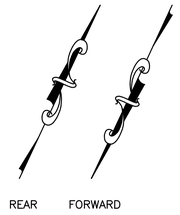
NOT TO SCALE

SUBSET 18 OF 22

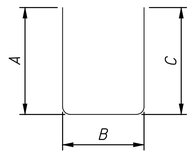
SHEET 45 OF 49



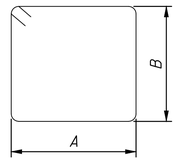
ABUTMENT PLAN



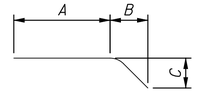
BAR BEND DIAGRAM



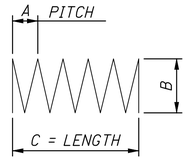
TYPE-2



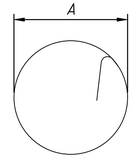
TYPE-3



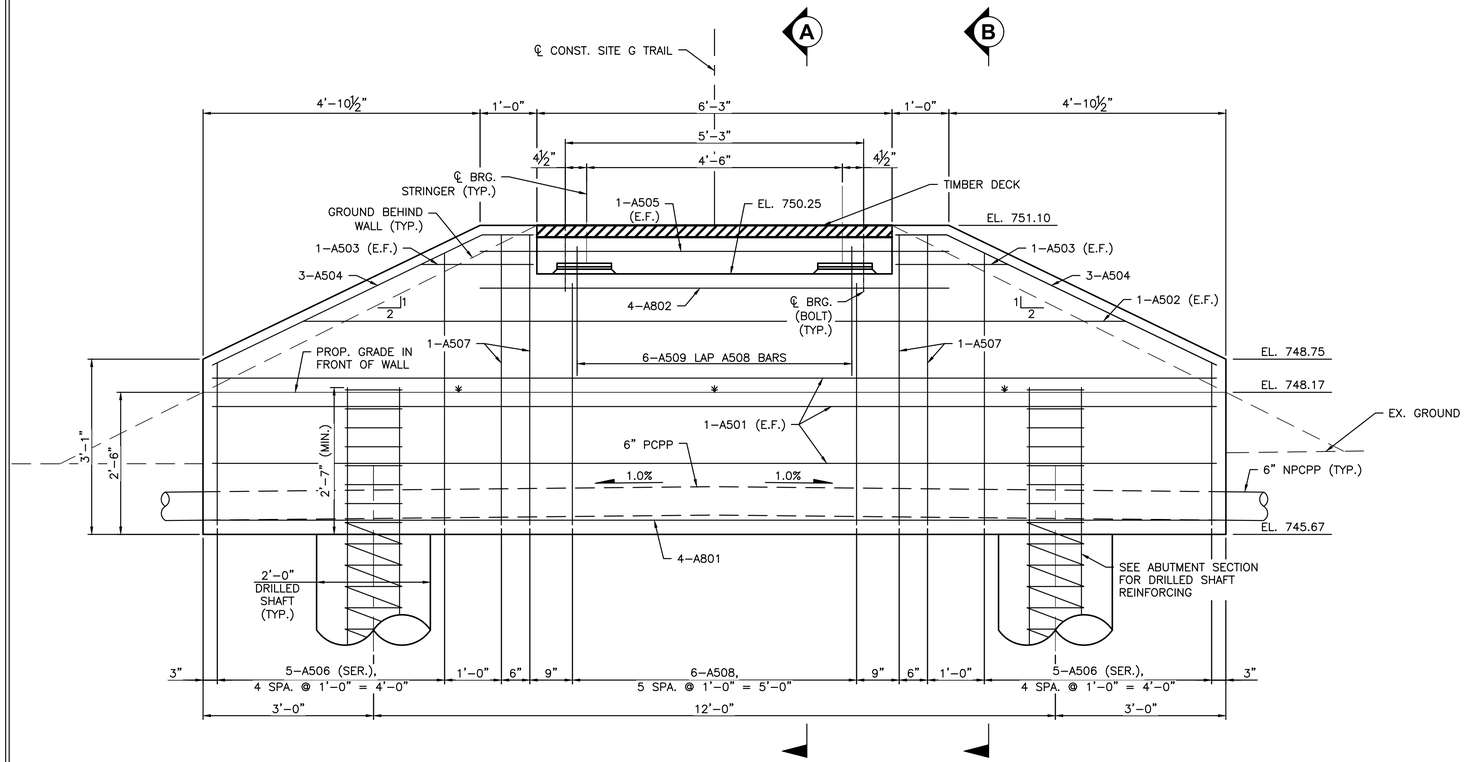
TYPE-19



TYPE-27



SPIRAL HOOP



ABUTMENT ELEVATION

SITE G ABUTMENT

MARK	NUMBER	LENGTH	WEIGHT (LBS)	TYPE	DIMENSIONS A	B	C	D	E	R	INC.
A501	12	17'-6"	220	ST.							
A502	4	14'-5"	61	ST.							
A503	8	1'-11"	16	ST.							
A504	12	6'-0"	76	19	5'-3"	9"	4"				
A505	4	8'-3"	35	ST.							
	4	10'-0"				2'-9"					
A506	SER. OF	TO	256	3	2'-0"	TO					13 1/2"
	5	14'-6"				5'-0"					
A507	8	14'-9"	124	3	2'-0"	5'-1"					
A508	12	13'-0"	163	3	2'-0"	4'-3"					
A509	12	5'-3"	66	2	2'-5"	8"	2'-5"				
A801	8	17'-6"	374	ST.							
A802	8	8'-3"	177	ST.							
DS401	28	3'-6"	66	HOOP	1'-0"						
DS702	32	22'-3"	1456	ST.							
SP401	4	167'-8"	474	27	4.5"	1'-0"	19'-11"				
TOTAL			3564								

NOTES:

1. SEE SHEET 47/49 FOR SECTION A AND SECTION B.
2. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT AFTER THE LETTERS WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS AFTER THE LETTERS WHERE FOUR ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A NO. 5 BAR IN THE ABUTMENT. A LEGEND OF THE DESCRIPTORS IS GIVEN BELOW:

   A – ABUTMENT
   DS – DRILLED SHAFT
   SP – SPIRAL
3. BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS OTHERWISE NOTED.
4. "ST." INDICATES A STRAIGHT BAR.

WOOLPERT
ONE EASTON OVAL
SUITE 400
COLUMBUS, OH 43219
T 614-476-6000
F 614-476-6225

DESIGNED BY: JYM
CHECKED BY: PES
REVIEWED BY: TML

PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

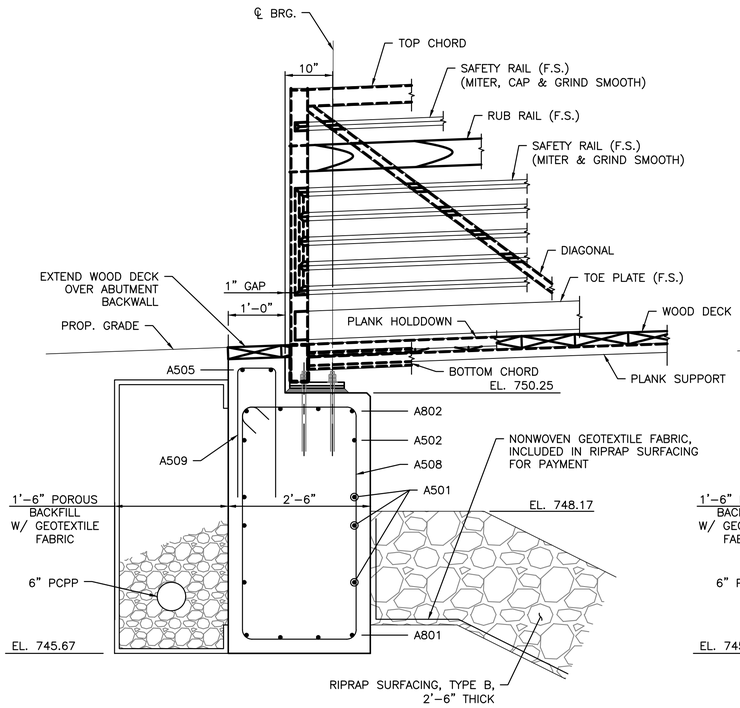
DRAWING NAME
ABUTMENT PLAN AND ELEVATION

BRIDGE
SITE G - NCT ATHENS CENTRAL #5 OVER MONDAY CREEK

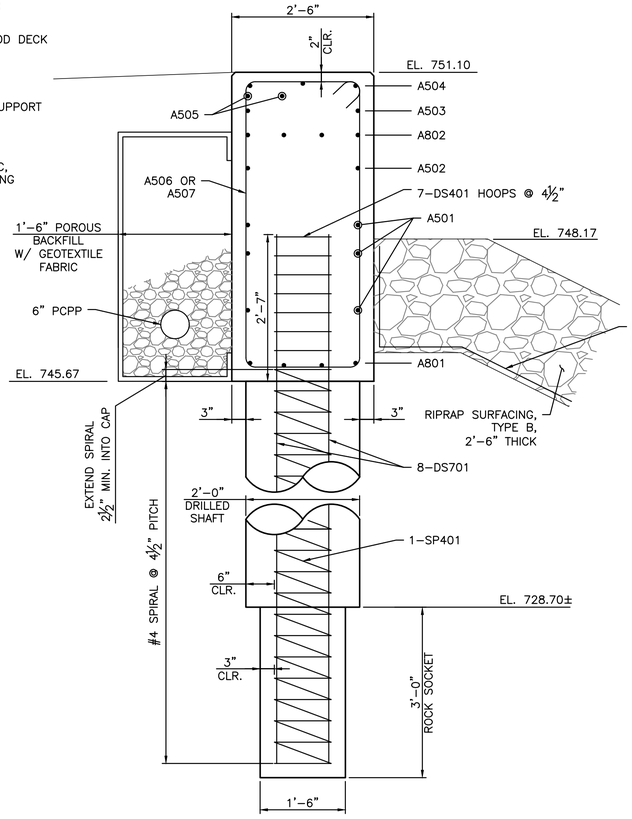
REVISION DATE
8/29/23

NOT TO SCALE

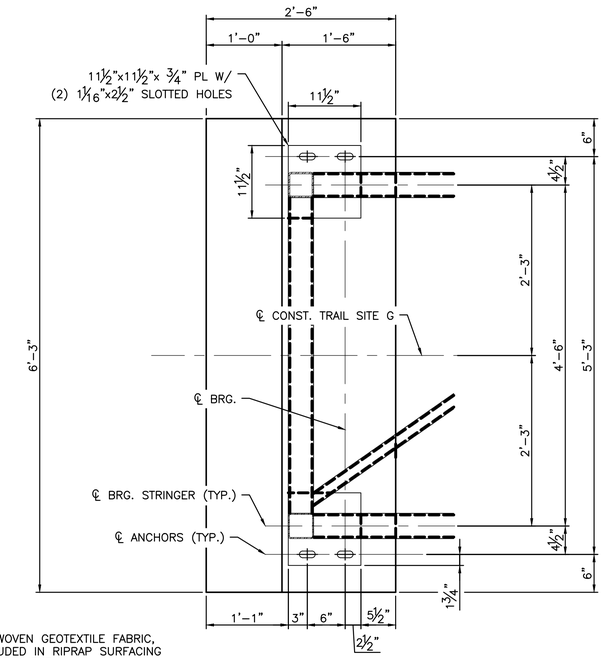
SUBSET 19 OF 22
SHEET 46 OF 49



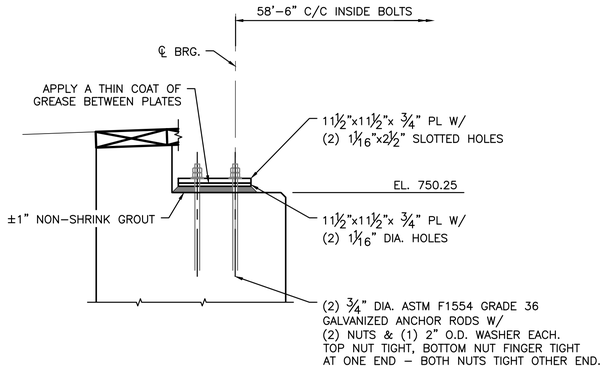
ABUTMENT SECTION A



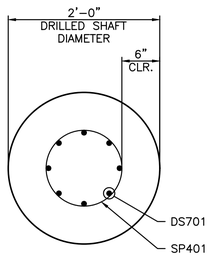
WINGWALL SECTION B



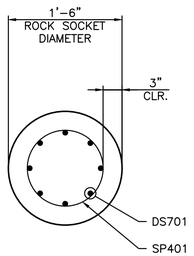
BEARING DETAILS - PLAN VIEW



BEARING DETAILS - SIDE VIEW



DRILLED SHAFT SECTION



ROCK SOCKET SECTION

NOTES:

1. ALL WELDS TO BE VISUALLY INSPECTED.
2. SEE SHEET 46/49 FOR ABUTMENT PLAN AND ELEVATION.
3. ASSUME 3" CONCRETE COVER UNLESS NOTED OTHERWISE.
4. CENTERING DEVICES SHALL BE REQUIRED DURING CONSTRUCTION TO MAINTAIN ALIGNMENT OF CAGES AND MIN. CONCRETE COVER. CENTERING DEVICES SHALL BE PLACED AT INTERVALS NOT EXCEEDING 5–FT THROUGHOUT THE LENGTH OF THE SHAFT. PROVIDE MIN. ONE SET OF CENTERING DEVICES WITHIN 2–FT TOP AND 2–FT BOTTOM OF SHAFT. PROVIDE CENTERING DEVICES MIN. 60–DEGREE INTERVALS AROUND CIRCUMFERENCE OF SHAFT.
5. PROVIDE FEET (BOTTOM SUPPORTS) AT THE BOTTOM OF THE SHAFT ON VERTICAL BARS.

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ONE EASTON OVAL
SUITE 400
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PROJECT NAME & LOCATION
WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

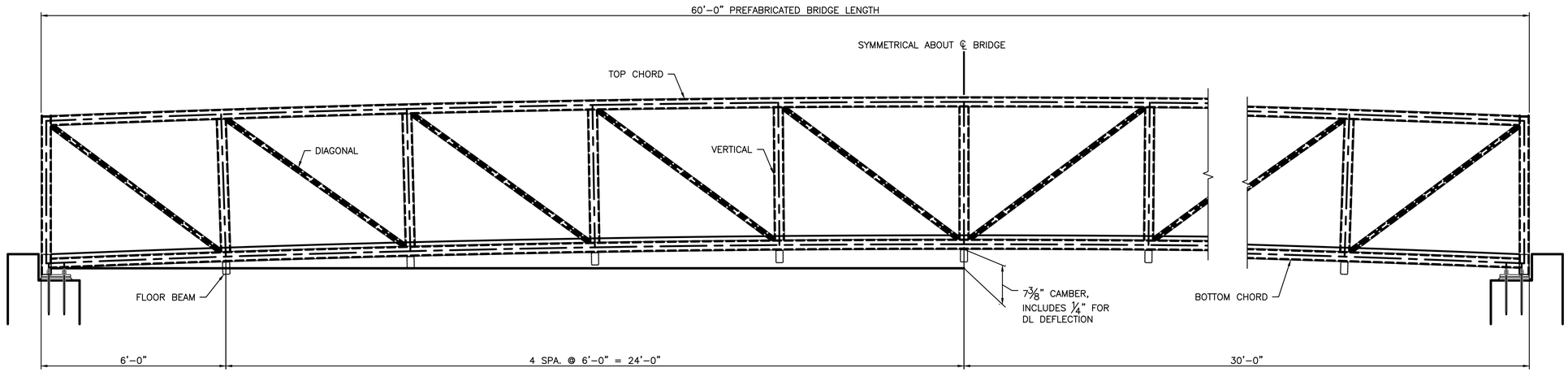
DRAWING NAME
ABUTMENT SECTION AND BEARING DETAILS

BRIDGE
SITE G - NCT ATHENS CENTRAL #5 OVER MONDAY CREEK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 20 OF 22
SHEET 47 OF 49



ELEVATION

(RUNNING PLANKS AND DECK PLANKS NOT SHOWN FOR CLARITY)

NOTES:

1. VERTICALS TO BE FANNED, INSTALLED PERPENDICULAR TO THE BOTTOM CHORD.
2. SAFETY RAILS, RUB RAIL, AND TOW PLATE NOT SHOWN FOR CLARITY. SEE SHEET 49 FOR TRANSVERSE SECTION.
3. SEE SHEET 47 FOR ABUTMENT SECTION.

WOOLPERT
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PROJECT NAME & LOCATION

WAYNE NATIONAL FOREST TRAIL BRIDGES
BUCKEYE TRAILS ASSOCIATION

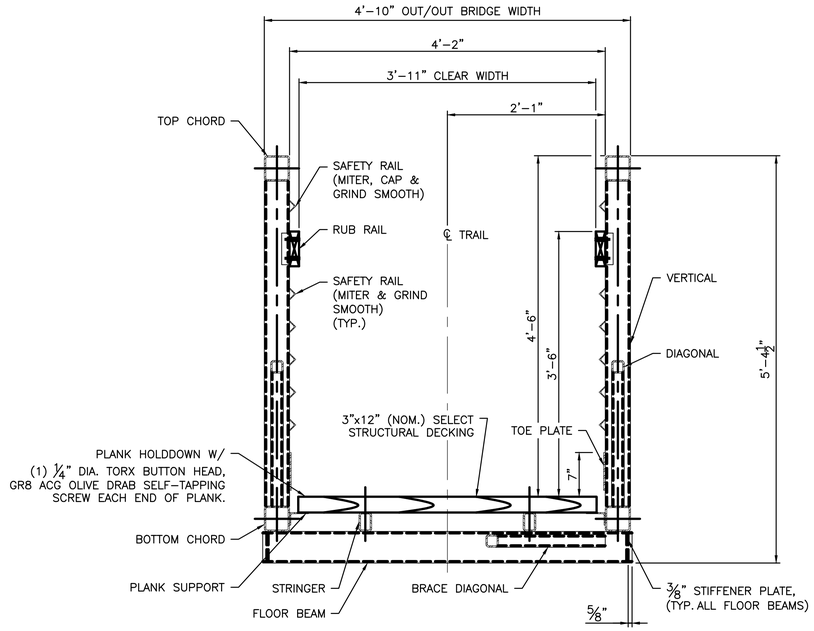
DRAWING NAME
TRUSS ELEVATION

BRIDGE
SITE G - NCT ATHENS CENTRAL #5 OVER MONDAY CREEK

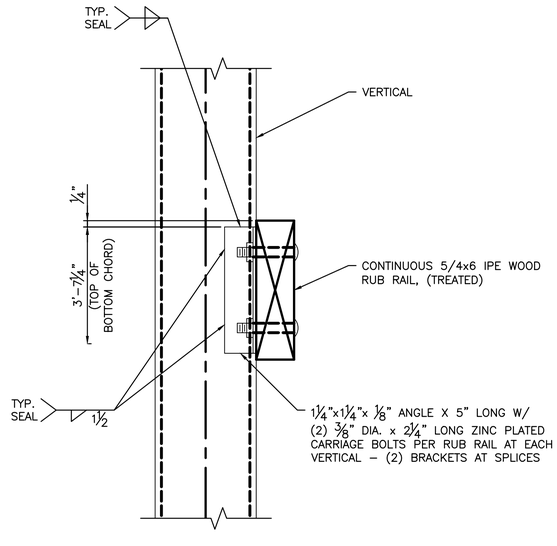
REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 21 OF 22
SHEET 48 OF 49



TRANSVERSE SECTION



RUB RAIL DETAIL

NOTES:

1. SPACING OF SAFETY RAILS, RUB RAIL, AND TOE PLATE PRODUCE MAXIMUM OPENINGS OF LESS THAN 4", UP TO A HEIGHT OF 54".
2. REFER TO USFS STD–964–10–2A FOR ADDITIONAL DETAILS.

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PROJECT NAME & LOCATION
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BUCKEYE TRAILS ASSOCIATION

DRAWING NAME
TRANSVERSE SECTION

BRIDGE
SITE G - NCT ATHENS CENTRAL #5 OVER MONDAY CREEK

REVISION DATE
8/29/23

NOT TO SCALE

SUBSET 22 OF 22
SHEET 49 OF 49