



BRANDON MILLER

POPA LUCIAN

BRIDGE LOCATION

STJ VENTURES LLC

Emmett Rd

Middle of No Where Dr

Middle of No Where Rd

Blue Moon Rd

Middle of No Where Rd

SITE ID: 088-01-dfb75

SITE ADDRESS: 1090 EMMETT RD.,
PISGAH FOREST, NC 28768

North Carolina Emergency Management – Private Roads and Bridges
Site Information Form

Site Number: 088-01-dfb75

Site Address: 1090 Emmett Road, Pisgah Forest, NC 28768

GPS Coordinates: 35.29062,-82.65840

County: Transylvania

Bridge Type: Steel I-beam with Timber Decking or Modular Steel Bridge

Span Length: 30 ft Standard Bridge or 40 ft Modular Bridge. Refer to BSR for required waterway opening.

Bridge Width: 12'-0" Clear Width

Substructure Type: Concrete Cap on Drilled-in Piles

Geotechnical Information: See Standard Bridge Plans or the Modular Bridge Substructure Plans for Notes

Additional Notes: _____

Timber bridge railing not required for Steel I-beam with timber decking option.

Modular Steel Bridge option shall include guardrail as part of the system.

Wingwalls are not required.

The existing bridge is in place and must be removed by the Contractor prior to the start of construction.

No known debris or obstructions in the stream requiring removal.

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number088-01-dfb75Latitude35.29062Longitude-82.65840

CountyTransylvaniaAddressnear 1090 Emmet Rd.

CityPisgah Forest, NCZip Code28768

Recommended Structure1 @ 30' Steel Girder Bridge with 2'-6" Pier Caps

Recommended Width of RoadwaySkew

Recommended Location is (A) Upstream, Downstream) of Existing Crossing

Temporary Crossing



I hereby certify that that I have reviewed the existing hydraulic conveyance at this site which was a 20 ft existing bridge with the proposed conveyance provided by the proposed 30.0 ft. span bridge.

The proposed bridge low chord for the bridge shall be set in accordance with the the FEMA Disaster Specific Guidance for the Replacement of Private Roads and Bridges issued on 14 February 2025, "to provide bridge/culvert design plans certified (sealed, signed, and dated) by a Professional Engineer licensed in the State of North Carolina demonstrating that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing".

This certification demonstrates that the newly designed and installed private bridge/culvert provides conveyance greater than or equal to the original destroyed crossing. This is based on the best available data provided from post storm evaluations. Portions of the existing structures may have been destroyed, removed, modified or shifted from their original location or elevation.

Designed by

Assisted by

Date

SEAL
20646
ENGINEER
MATTHEW D. FOSTER

Signed by:
Matthew D Foster
7B1932BFAFC8472...

6/9/202612:03:38 PM EDT

Reviewed by

DateRevised06/09/2026

SITE DATA

Drainage AreaSource

River BasinFrench BroadCharacter

Stream Classification (e.g., Trout, High Quality Water)C, Tr

Debris Potential: Low ☐ Moderate ☒ High ☐

Existing Structure - Source of Available DataNCEM Private Roads and Bridges Inspection Team

Existing Structure - Description1 @ 20'+/- Timber beams and timber deck bridge (damaged by Helene)

Estimated Waterway Opening57.8ft²

Design Control ElevftSource

Gage Station NoPeriod of Records

Max DischargecfsDateFrequency

Historical Flood Information:

DateElevftEst FreqyrSourcePeriod of Knowledgeyrs

Historical Scour Info: GeneralftContractionftLocalft

Channel Slopeft/ftSourceNormal Water Surface Elevft

Manning's n: Left OBChannelRight OBSource

Flood Study / StatusNo FEMA Study (UT to Lyday Creek)

Flood Study100-yr DischargeNAcfsWS Elev: WithN/AftWithoutN/AftRiver Station

DESIGN DATA

Hydrological Method

Hydraulic Design MethodDisaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Floods Evaluated	Frequency (year)	Discharge (cfs)	Elevation (ft)	Backwater (ft)	Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elevsf100-yr WS ElevsfTotal61.4sf

Average Channel Velocity (Design)fpsAverage Overbank Velocity (Design)fps

Computed Scour: GeneralftContractionftLocalft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA

DESIGN DISCHARGE= 220 C.F.S.

FREQUENCY OF DESIGN FLOOD= 25 YRS.

DESIGN HIGH WATER ELEVATION=

DRAINAGE AREA= 0.76 SQ. MI.

BASIC DISCHARGE (Q100)= 350 C.F.S.

BASIC HIGH WATER ELEVATION=

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE= C.F.S.

FREQUENCY OF OVERTOPPING FLOOD= YRS.

OVERTOPPING FLOOD ELEVATION= *

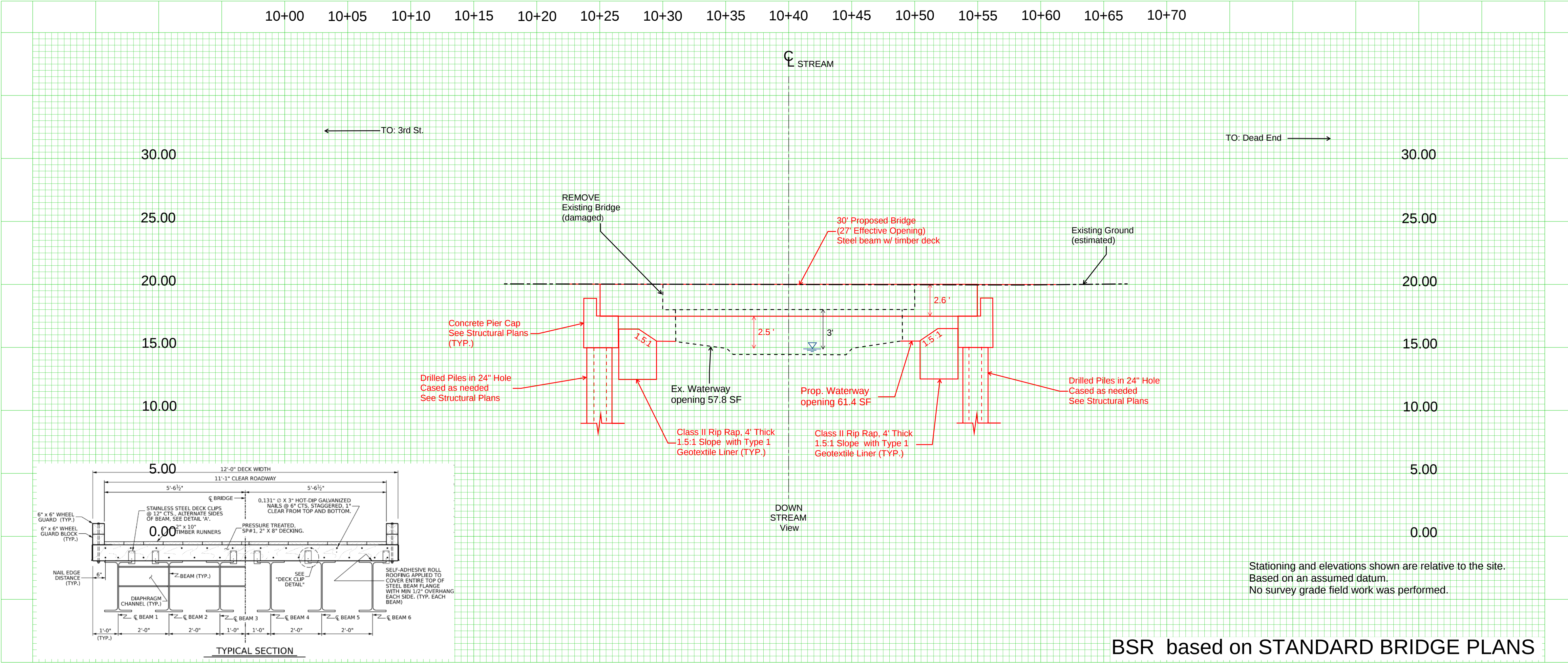
*NOTE LOCATION OF OVERTOPPING

WS EL. Taken @ River Station ?

ADDITIONAL INFORMATION AND COMPUTATIONS

General Description	Gravel road, homemade wood bridge, with temp creek crossing. Any excess rain will leave road inaccessible to EMS
Overall Condition	Collapse
Condition Other	
Site Repair Status	No Repair
Condition Description	Wood bridge is shifted laterally, sunken and out of level with evidence of bank and support erosion and collapse.
Expected Level of Effort	Full Redesign
Other Level of Effort	
Horizontal Curve	No
Number of Travel Lanes (LOS)	1
Inclination	No
Roadway Divider	No
Road/Bridge Width (ft)	10.00
Span/Gap Estimate (ft)	20.00
Surface to Water (ft)	5.00
Utility/Mechanical	No
Utility Types	
Pipe Needs Sizing	No
Depth of Pipe	
Geotechnical	Erosion/scour
Other Geotechnical	

21" W21X48 beam
+ 8" Deck
+ 2" Runner
=31" (2'-6") ft. structure depth



BSR based on STANDARD BRIDGE PLANS

BRIDGE SURVEY & HYDRAULIC DESIGN REPORT

NC DEPARTMENT OF EMERGENCY MANAGEMENT
PRIVATE ROADS AND BRIDGES PROGRAM

Site Number

088-01-dfb75

Latitude

35.29062

Longitude

-82.65840

County

Transylvania

Address

near 1090 Emmett Rd.

City

Pisgah Forest, NC

Zip Code

28768

Recommended Structure

1 @ 40' Modular Steel Bridge (30' effective flow length)

Recommended Width of Roadway

Skew

Recommended Location is

(A) Upstream, Downstream) of Existing Crossing

Temporary Crossing



I hereby certify that I have reviewed the existing hydraulic conveyance at this site which was a 20 ft existing bridge with the proposed conveyance provided by the proposed 40.0 ft. span bridge.

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Designed by

Assisted by

Date

Signed by:

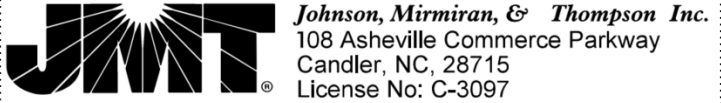
Matthew D Foster

7/24/2026

11:36:06 AM EDT

Reviewed by

Date



REVISED 7/24/2026

SITE DATA

Drainage Area

Source

River Basin

French Broad

Character

Stream Classification (e.g., Trout, High Quality Water)

C, Tr

Debris Potential: Low

☐ Moderate

☒ High

☐

Existing Structure - Source of Available Data

NCEM Private Roads and Bridges Inspection Team

Existing Structure - Description

1 @ 20' +/- private bridge (damaged by Helene)

Estimated Waterway Opening

57.8

ft²

Design Control Elev

ft

Source

Gage Station No

Period of Records

Max Discharge

cfs

Date

Frequency

Historical Flood Information:

Date

Elev

ft

Est Freq

yr

Source

Period of Knowledge

yrs

Historical Scour Info: General

ft

Contraction

ft

Local

ft

Channel Slope

ft/ft

Source

Normal Water Surface Elev

ft

Manning's n: Left OB

Channel

Right OB

Source

Flood Study / Status

No FEMA Study (UT to Lyday Creek)

Flood Study

100-yr Discharge

NA

cfs

WS Elev

With

N/A

ft

Without

N/A

ft

River Station

DESIGN DATA

Hydrological Method

Disaster Specific Guidance for the Replacement of Private Roads and Bridges 2/14/2025

Floods Evaluated

Frequency (year)

Discharge (cfs)

Elevation (ft)

Backwater (ft)

Bridge Opening Velocity (fps)

Waterway Opening Provided Below: Design WS Elev

sf

100-yr WS Elev

sf

Total

101.2

sf

Average Channel Velocity (Design)

fps

Average Overbank Velocity (Design)

fps

Computed Scour: General

ft

Contraction

ft

Local

ft

INFORMATION TO BE SHOWN ON PLANS

HYDRAULIC DATA

DESIGN DISCHARGE

= 220

C.F.S.

FREQUENCY OF DESIGN FLOOD

= 25

YRS.

DESIGN HIGH WATER ELEVATION

=

DRAINAGE AREA

= 0.76

SQ. MI.

BASIC DISCHARGE (Q100)

= 350

C.F.S.

BASIC HIGH WATER ELEVATION

=

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE

=

C.F.S.

FREQUENCY OF OVERRTOPPING FLOOD

=

YRS.

OVERTOPPING FLOOD ELEVATION

=

*NOTE LOCATION OF OVERTOPPING

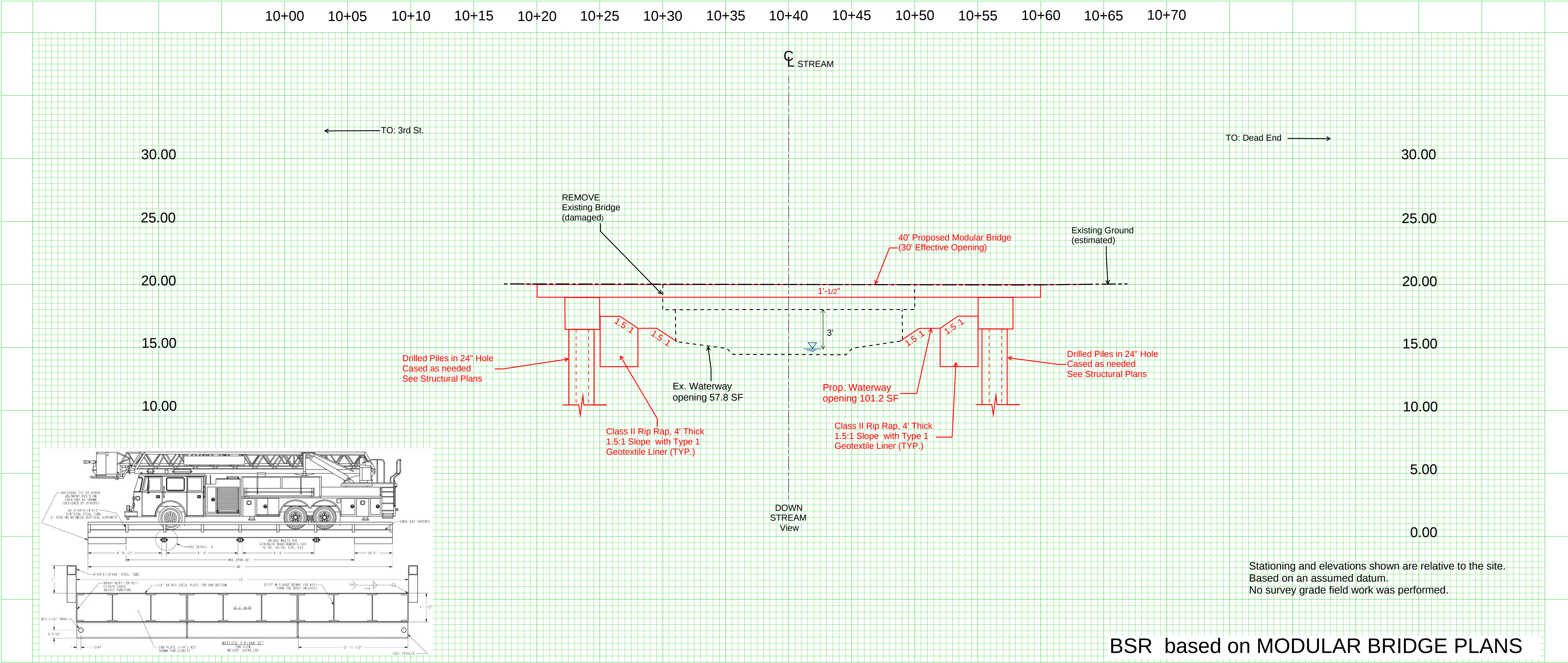
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ADDITIONAL INFORMATION AND COMPUTATIONS

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Overall Condition	Collapse
Condition Other	
Site Repair Status	No Repair
Condition Description	Wood bridge is shifted laterally, sunken and out of level with evidence of bank and support erosion and collapse.
Expected Level of Effort	Full Redesign
Other Level of Effort	
Horizontal Curve	No
Number of Travel Lanes (LOS)	1
Inclination	No
Roadway Divider	No
Road/Bridge Width (ft)	10.00
Span/Gap Estimate (ft)	20.00
Surface to Water (ft)	5.00
Utility/Mechanical	No
Utility Types	
Pipe Needs Sizing	No
Depth of Pipe	
Geotechnical	Erosion/scour
Other Geotechnical	

12" W12X22 beam
+ 0.25" Steel Plate
+ 0.25" Steel Plate
=12.5" (1'-1/2") ft structure depth)

Proposed Conveyance Area has been reduced by 0.9 sf to account for blockage created by 3 Plank Connectors as shown in Detail A of the Typical Section.



Stationing and elevations shown are relative to the site. Based on an assumed datum. No survey grade field work was performed.

BSR based on MODULAR BRIDGE PLANS

SHEET

NC DOT BORE SINGLE SITE 088-01-DFB75 TRANSYLVANIA COUNTY BORING LOGS.GPJ NC DOT.GDT 11/21/25

GEOTECHNICAL BORING REPORT
CORE LOG

SHEET

WBS 088-01-dfb75				TIP N/A		COUNTY TRANSYLVANIA				GEOLOGIST J. Baskin			
SITE DESCRIPTION Replace Bridge on Emmett Rd. over Lyday Creek										GROUND WTR (ft)			
BORING NO. EB1				STATION N/A			OFFSET N/A			ALIGNMENT N/A			0 HR. 2.1
COLLAR ELEV. 1,000.9 ft				TOTAL DEPTH 15.3 ft			NORTHING N/A			EASTING N/A			24 HR. FIAD
DRILL RIG/HAMMER EFF./DATE F&R7348 CME-750X 87% 12/20/2024							DRILL METHOD NW Casing W/SPT & Core			HAMMER TYPE Automatic			
DRILLER S. Davis				START DATE 11/20/25			COMP. DATE 11/20/25			SURFACE WATER DEPTH N/A			
CORE SIZE NQ3				TOTAL RUN 7.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	DESCRIPTION AND REMARKS	DEPTH (ft)	
992.63											Begin Coring @ 8.3 ft		
990	992.6	8.3	2.0	N=60/0.0	(1.8)	(1.8)		(6.8)	(6.4)		992.6	8.3	
	990.6	10.3	5.0	3:21/1.0	90%	90%		97%	91%		Hard to Very Hard, Fresh to Slightly Weathered, Gray PHYLLITE with Close to Moderately Close Fracture Spacing and Vertical Foliation		
				4:41/1.0									
				4:50/1.0	(5.0)	(4.6)							
				6:19/1.0	100%	92%							
				5:00/1.0									
	985.6	15.3		3:44/1.0							985.6	15.3	
				3:07/1.0							Boring Terminated at Elevation 985.6 ft in CRYSTALLINE ROCK (PHYLLITE)		
Notes: 1. 0Hr Cave Depth at 6.0' 2. Auger Refusal at 8.3'													



CORE PHOTOGRAPH (EB-1):
Replace Bridge on Emmett Rd over Lyday Creek

Begin Run 1
8.3 feet



End Run 1,
Begin Run 2
10.3 feet

End Run 2
15.3 feet

GEOTECHNICAL BORING REPORT
BORE LOG

SHEET

WBS 088-01-dfb75			TIP N/A		COUNTY TRANSYLVANIA			GEOLOGIST J. Baskin						
SITE DESCRIPTION Replace Bridge on Emmett Rd. over Lyday Creek								GROUND WTR (ft)						
BORING NO. EB2			STATION N/A		OFFSET N/A			ALIGNMENT N/A		0 HR. 13.6				
COLLAR ELEV. 1,001.6 ft			TOTAL DEPTH 18.8 ft		NORTHING N/A			EASTING N/A		24 HR. FIAD				
DRILL RIG/HAMMER EFF./DATE F&R7348 CME-750X 87% 12/20/2024					DRILL METHOD H.S. Augers			HAMMER TYPE Automatic						
DRILLER S. Davis			START DATE 11/20/25		COMP. DATE 11/20/25			SURFACE WATER DEPTH N/A						
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100		MOI		ELEV. (ft) DEPTH (ft)
1005														
	1,001.6	0.0												1,001.6 GROUND SURFACE 0.0
1000			3	3	3							M		ROADWAY EMBANKMENT
	999.6	3.5	1	6	6							M		Brown-Tan, Fine to Coarse Sandy Clayey SILT (A-4) with Trace Gravel 2.0
995														ALLUVIAL
	994.6	8.5	50	50/0.3										Gray, Fine to Coarse Sandy Silty CLAY (A-6) with Trace Gravel 7.0
990														WEATHERED ROCK
	988.1	13.5	34	66/0.4										Tan-Gray SCHIST
985														
	983.1	18.5	100/0.3											982.8 18.8
														Boring Terminated at Elevation 982.8 ft in WEATHERED ROCK (SCHIST)
														Note: 1. 0Hr Cave Depth at 14.3'

NCDOT BORE SINGLE SITE 088-01-DFB75 TRANSYLVANIA COUNTY BORING LOGS.GPJ NC_DOT.GDT 11/21/25