

TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

DAVIESS COUNTY

US 231 OVER OHIO RIVER

WILLIAM H. NATCHER BRIDGE

030B00164N

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SPECIAL NOTES

Special Note for Remedial Grouting of the Lower Connection Sleeves (LCS) and Upper Connection Sleeves (UCS) Voids

Special Note for Repair of Lower Connection Sleeve (LCS) and Upper Connection Sleeve (UCS) Extérieurs

Special Note for Replacement of Grease in the Lower Anchorage Caps (LAC) and Upper Anchorage Caps (UAC)

Special Note for Stay Cable Protective Tape Repair

Special Note for Replacement of Upper Neoprene Boots

Special Note for Free Length Repair

Special Note for Friction Damper Retrofit

Special Note for Traffic Control

Special Note for Pre-Bid Conference

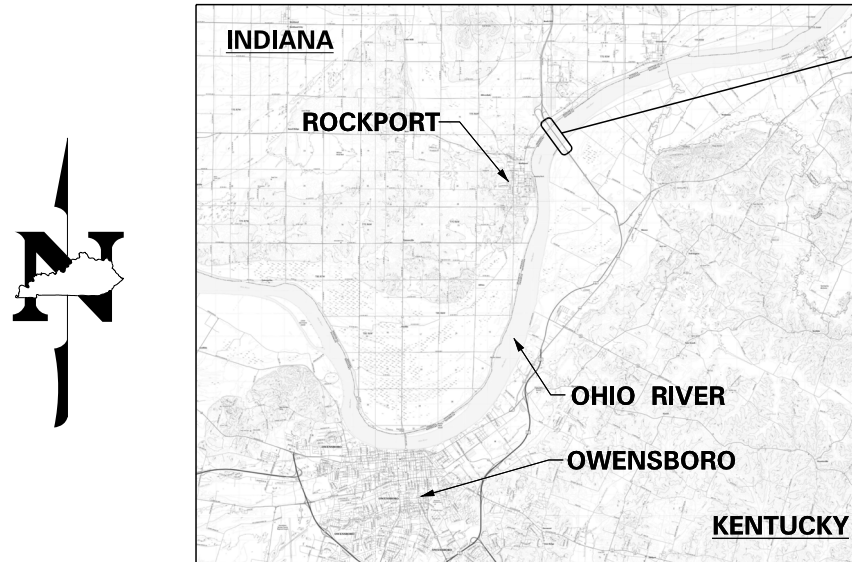
Special Note for Contract Completion Date and Liquidated Damages on Bridge Repair Contracts

ESTIMATE OF QUANTITIES

BID ITEM CODE	02003	02562	02568	02569	02650	02775	02898	03171	03225	06514	06550	06551	06556	06557	08903	26214EC	26214EC	26215EC	26216EC	26216EC	26217EC	26217EC	26217EC	26217EC	26217EC	26218EC	26218EC	26218EC	26219EC	26220EC	26221ED
BID ITEM	Relocate Temp Conc Barrier	Temporary Signs	Mobilization	Demobilization	Maintain and Control Traffic	Arrow Panel	Relocate Crash Cushion	Concrete Barrier Wall Type 9T	Tubular Markers	Pave Striping - Perm Paint - 4 IN	Pave Striping - Temp Rem Tape - W	Pave Striping - Temp Rem Tape - Y	Pave Striping - DUR TY 1 - 6 IN W	Pave Striping - DUR TY 1 - 6 IN Y	Crash Cushion TY VI Class BT TL3	Stay Cable Free Length Repair - Type A	Stay Cable Free Length Repair - Type B	Friction Damper	Void Repair LCS	Void Repair UCS	Connection Sleeve Repair LCS	Connection Sleeve Repair UCS	Connection Sleeve Repair LCS Couplers Only	Connection Sleeve Repair UCS Couplers Only	Grease Replacement LAC	Grease Replacement UAC	Neoprene Boot Replacement	Stay Cable Protective Tape Repair	Wind Tie Removal		
UNIT	L.F.	S.F.	L.S.	L.S.	L.S.	EACH	EACH	L.F.	EACH	L.F.	L.F.	L.F.	L.F.	L.F.	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	L.S.	L.S.		
BRIDGE TOTALS	480	765	1	1	1	3	1	860	182	7371	23926	39063	3628	13875	1	2	2	96	96	96	3	2	93	94	96	96	96	1	1		

① Estimated Length of Stay Cable Protective Tape Repair = 34,700 LF

US 231 OVER THE OHIO RIVER PROPOSED WORK: WILLIAM H. NATCHER BRIDGE REPAIR PLANS



SPECIAL PROVISIONS

STANDARD DRAWINGS

TTC-115-03	Lane Closure Multi-Lane Highway Case 1
TTC-160-02	Temporary Pavement Marker Arrangements for Lane Closures

SPECIFICATIONS

2019 Standard Specifications for Road and Bridge Construction with Current Supplemental Specifications

9th Edition AASHTO LRFD Bridge Design Specifications (2020)

Digitally signed by Scott Ribble
DN: cn=Scott Ribble, o=Burgess & Niple, ou=
email=scott.ribble@burgessniple.com, c=US
Date: 2023.11.09 10:45:46 -0500



BY Scott Ribble
DATE November 6, 2023



REVISION	DATE

PREPARED BY
BURGESS & NIPL
Engineers ■ Architects ■ Planners

DATE: November 6, 2023	CHECKED BY
DESIGNED BY: D. Montgomery	S. Ribble
DETAILED BY: L. Bridwell	S. Ribble

TITLE
CROSSING
Ohio River

ROUTE
US 231

ITEM NO.
SHEET NO.
S1

COUNTY OF
DAVIESS
DRAWING NUMBER
28860

SPECIFICATION NOTES

SPECIFICATIONS: References to the specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, Including any current supplemental specifications. All references to the AASHTO Specifications are to the AASHTO LRFD Bridge Design Specifications, 9th Ed.

GENERAL SPECIFICATION NOTES

QUALIFICATIONS: The Contractor that works on any portion of the stay cable system of the structure shall submit references that they have successfully completed two (2) prior cable stay rehabilitation projects over navigable waterways of similar or greater complexities than this project within the past ten (10) years.

ON SITE INSPECTION: Each contractor submitting a bid for this work shall make a thorough inspection of the bridge and the work site prior to submitting a bid and shall be thoroughly familiarized with existing conditions so that work can be expeditiously performed after a contract is awarded. A suitable method of performing the work described herein should be investigated. Submission of a bid will be considered evidence of this inspection having been made. Any claims from site conditions will not be honored by the Department of Highways.

INCIDENTAL ITEMS: The Contractor is required to complete the proposed work in accordance with the plans and specifications. Material and labor not otherwise specified are to be considered incidental to the contract.

COMPLETION OF THE STRUCTURE: The Contractor is required to complete the construction in accordance with the plans and specifications. Material, labor, or construction operations, not otherwise specified, are to be included in the bid item most appropriate to the work involved. This may include but not be limited to incidental materials, disposal of waste off the right-of-way, incidental labor, or anything else that may be required to complete the construction.

BRIDGE PLANS: A copy of the available existing bridge plans (Drawing Number 22537), shop drawings, William H. Natcher Cable Stay Bridge Inspection and Testing Report, and RWDI Wind Data Analysis Report will be made available to prospective bidders upon their written request to the Division of Maintenance. The completeness of these documents is not guaranteed.

FIELD VERIFICATION: The Contractor shall verify elevations and dimensions, including thickness of components and diameters of stay cable components, with field measurement prior to ordering materials or fabricating steelwork. Any discrepancies shall be brought to the attention of the Engineer. New material that is unsuitable because of variations in the existing structure shall be replaced at the Contractor's expense.

DAMAGE TO THE STRUCTURE: The Contractor is responsible for any and all damage to the existing structure during the construction should damage result from the Contractor's actions. After the completion of construction, the structure and site shall receive a final cleaning up. The Contractor shall clear the right-of-way and all ground the Contractor occupies in connection with the work of all rubbish, equipment, and excess materials. Place rubbish and all waste of whatever nature, other than hazardous materials, on either public or private property in a location out of the view from the roadway and in a manner to the Department that does not present an unsightly appearance. Restore to its original condition all property, both public and private, that was damaged in the prosecution of the work.

DIMENSIONS: Dimensions shown on these plans are taken from the drawings listed under "Bridge Plans" above and do not necessarily reflect revisions made during construction. All plan dimensions are for a normal temperature of 60°F. Layout dimensions are horizontal dimensions. Deck width is measured at the top of the concrete deck below the overlay.

SHOP DRAWINGS: The Contractor is to submit detailed shop drawings and material specifications for any details or materials that vary from these plans to the Department for approval in accordance with Section 607.03.01 of the Standard Specifications. When any changes are proposed by the fabricator or supplier, the shop drawings reflecting these changes shall be submitted to the Department through the Contractor.

MAINTAINING TRAFFIC: Traffic shall be maintained at all times in accordance with the Special Note for Traffic Control.

UTILITY PROTECTION: If present, any active utility ducts and electrical conduits shall be adequately protected. Any damage to utilities caused by the Contractor shall be repaired at the Contractor's expense.

REMOVED MATERIALS: All existing material removed from the structure that will not be reinstalled on the structure will be considered waste material. This will include, but not be limited to, connection sleeves, fusion couplers, void debris, excess grout, excess protective tape wrap, and existing anchorage cap grease. All material removed shall become the property of the Contractor and shall be removed from the bridge site. The cost of removal shall be incidental to the most applicable bid items.

CONSTRUCTION SEQUENCE: The Contractor shall follow the construction and phasing sequences detailed in the plans and Special Notes. The Contractor may propose alternate construction sequences to the Engineer for approval no later than five working days prior to the start of work on a given work item.

MATERIAL SPECIFICATION NOTES

MATERIALS: ASTM, AASHTO, or PTI Specifications, current edition, as designated in the Special Notes and plan notes shall govern the materials furnished.

SUPERSTRUCTURE NOTES

CLEANING EXISTING STEEL: All areas of existing steel that are to be in contact with new steel shall be cleaned of all dirt, rust, paint, and other foreign matter before installing the new steel. The cost of this cleaning is to be incidental to the unit price bid for the most appropriate bid item.

PROHIBITED FIELD WELDING: Except as noted in these plans and in the Special Notes, no welding of any nature shall be performed on the load carrying members of the bridge without the written consent of the Director, Division of Structural Design, and then only in the manner and at the locations designated in the authorization.

WELDING: No welding shall be permitted without written permission of the Engineer. All welding shall conform to Section 607.03.07 of the current Standard Specifications for Road and Bridge Construction. Modifications and additions as stated in the plans and special notes shall supersede the AASHTO/AWS Specifications. Welding procedures shall be submitted to the Engineer and approved prior to the start of fabrication and repairs. Work shall be completed by an AWS certified welder. The cost of the welding and welding materials is to be incidental to the unit price bid for the most appropriate bid items.

RIVER NAVIGATION: Continuous maintenance of safety of river navigation throughout the term of the project shall be a prime consideration. All work involving the installation or removal of structural elements beneath the bridge deck shall cease when there is approaching river traffic. This work shall not resume until the river traffic is clear of the bridge area.

The Contractor must advise the Coast Guard of the Contractor's proposed schedule of work at least 10 days prior to the commencement of any field operations.

Commander
2nd Coast Guard District
1430 Olive Street
St. Louis, Missouri 63103
(314) 425-4607

WIND DATA ANALYSIS:

Data was copied from the report referenced below:

Company Name: RWDI
Report Number: 2305459
Wind Data Analysis Information
Date: 9/7/2023
Authors: Mark Istvan, M.A.Sc., P.E.
Guy Larose, Ph.D., P.E.
Ben Riley, P.E.
Address: 600 Southgate Drive
Guelph, ON N1G 4P6
T: 519-823-1311

CONSTRUCTION SEQUENCE

- Contractor shall field verify all dimensions and existing conditions and inform the Engineer of any variance from the plans and existing shop drawings three (3) weeks prior to construction.
- Contractor shall repair all existing connection sleeves per Special Note for the Repair of Lower Connection Sleeve (LCS) and Upper Connection Sleeve (UCS) Exteriors.
- Contractor shall perform repairs to the connection sleeves voids per Special Note for the Remedial Grouting of Lower Connection Sleeves (LCS) and Upper Connection Sleeves (UCS).
- Contractor shall perform repairs to the stay cable free length if necessary per Special Note for Free Length Repair.
- Contractor shall install the protective tape wrap on the stay cable per Special Note for Stay Cable Protective Tape Repair. Contractor shall remove existing wind ties before commencing installation of the protective tape.
- Contractor shall install upper neoprene boots per Special Note for Replacement of Upper Neoprene Boot.
- Contractor shall install friction damper per Special Note for Friction Damper Retrofit.
- Contractor shall replace grease in the lower and upper anchorage caps per Special Note for the Replacement of Grease in the Lower Anchorage Caps (LAC) and Upper Anchorage Caps (UAC).

ABBREVIATIONS

The following abbreviations may have been used in the preparation of these plans:

CL	Center Line
Dia.	Diameter
HDPE	High Density Polyethylene
LCS	Lower Connection Sleeve
Typ.	Typical
UCS	Upper Connection Sleeve



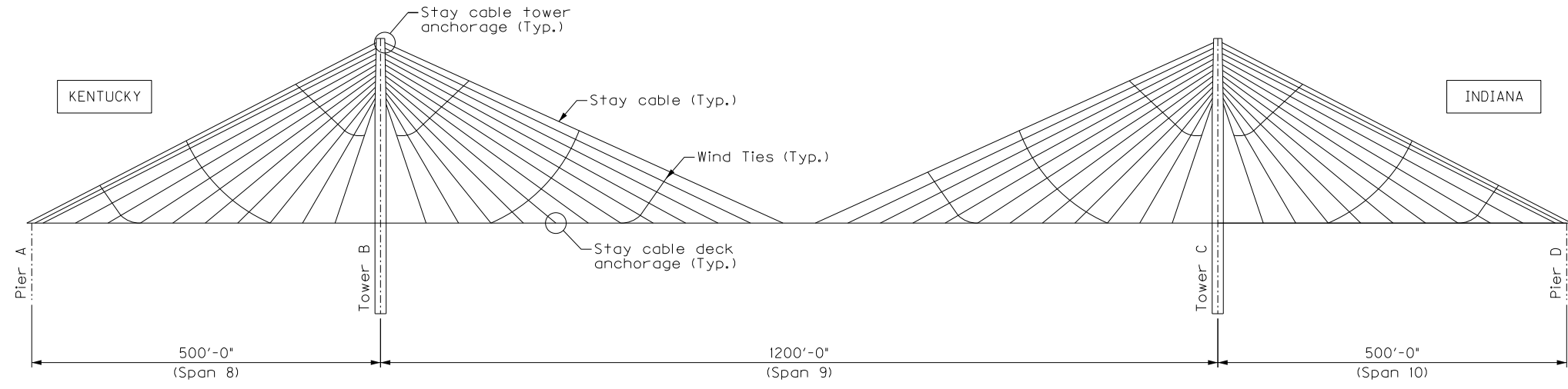
REVISION	DATE

PREPARED BY
BURGESS & NIPLÉ
Engineers ■ Architects ■ Planners

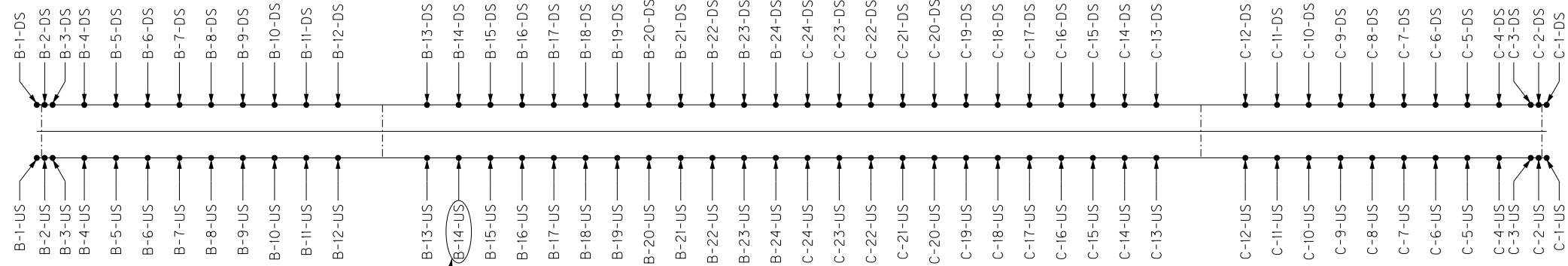
DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: D. Montgomery	S. Ribble
DETAILED BY: L. Bridwell	S. Ribble

GENERAL NOTES
CROSSING
Ohio River

ROUTE	ITEM NO.	COUNTY OF
US 231	SHEET NO.	DAVIESS
	S2	DRAWING NUMBER
		28860



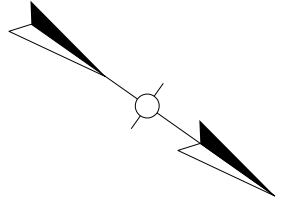
**ELEVATION
MAIN CABLE STAYED SPANS**

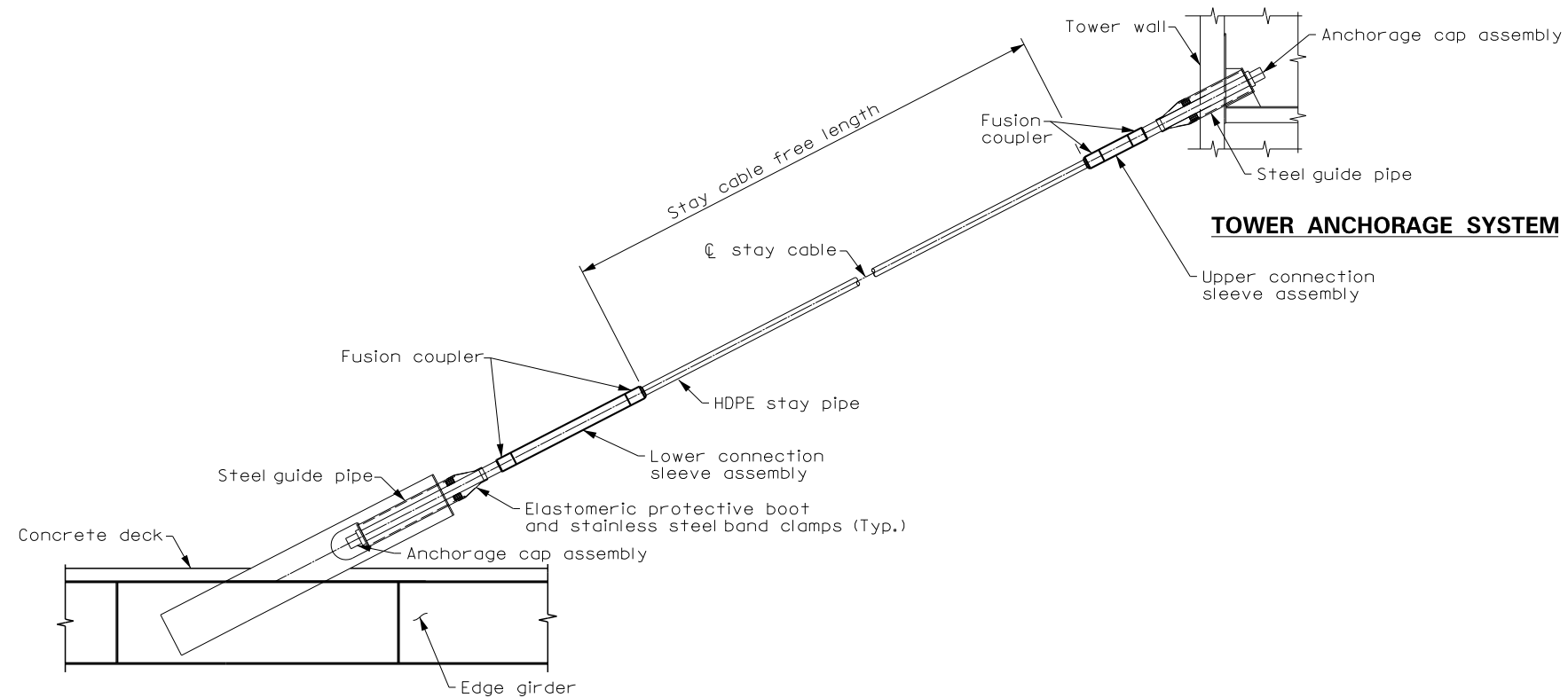


**PLAN
MAIN CABLE STAYED SPANS**



**PLAN
MAIN CABLE STAYED SPANS**
Cables not shown for clarity

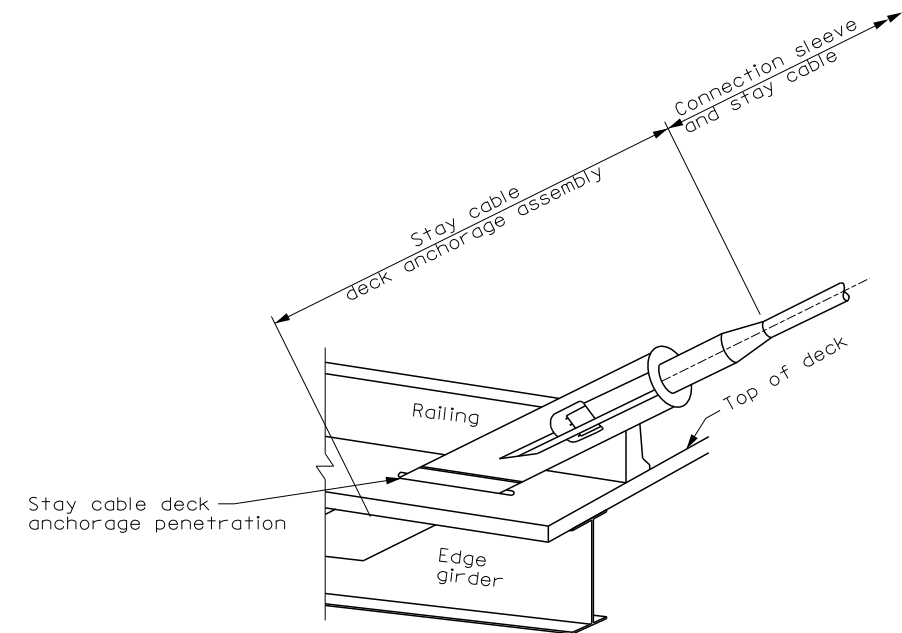




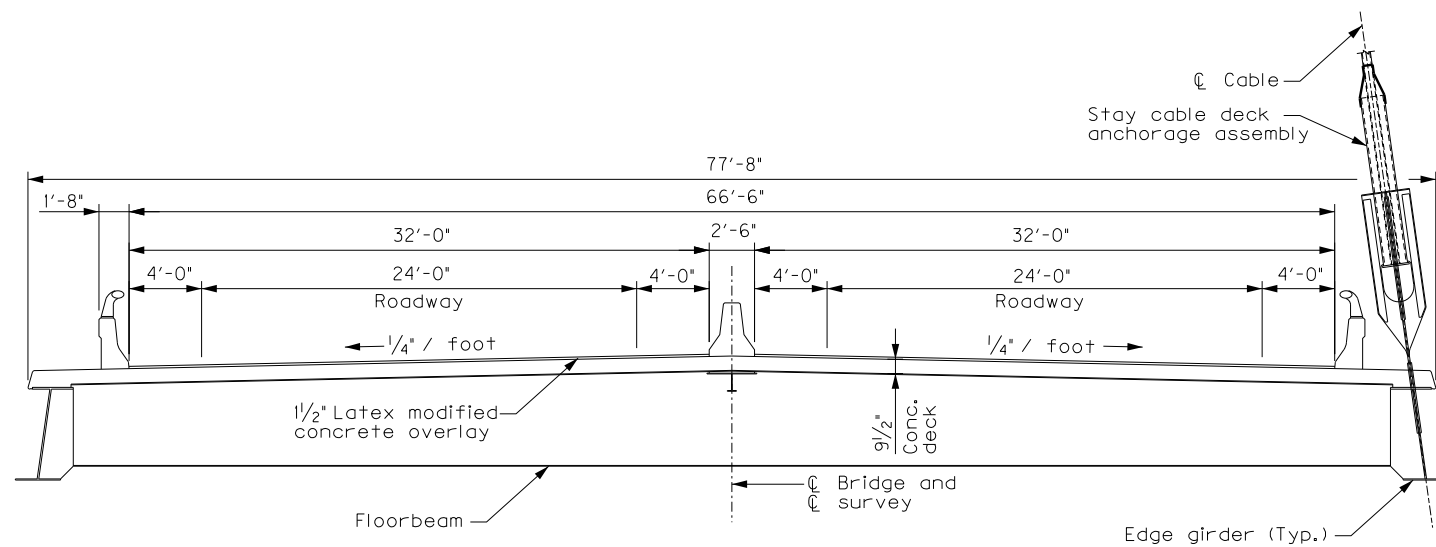
TOWER ANCHORAGE SYSTEM

DECK ANCHORAGE SYSTEM
(Railing not shown for clarity)

EXISTING STAY CABLE ELEVATION



STAY CABLE DECK ANCHORAGE



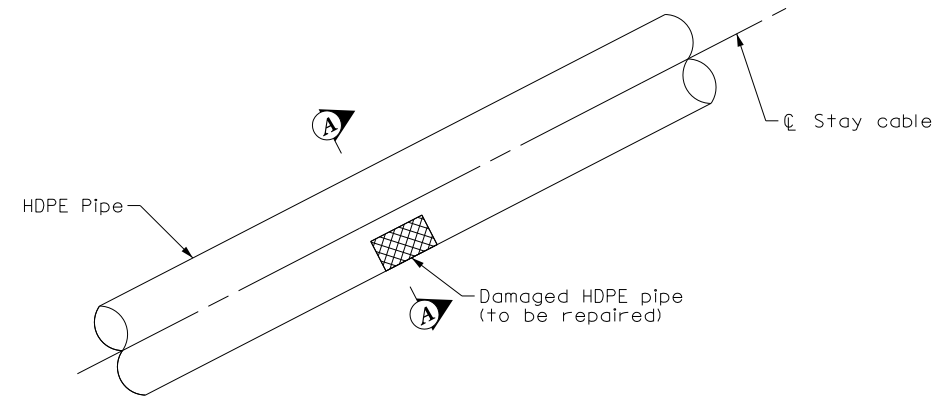
Between Cables

At Cables

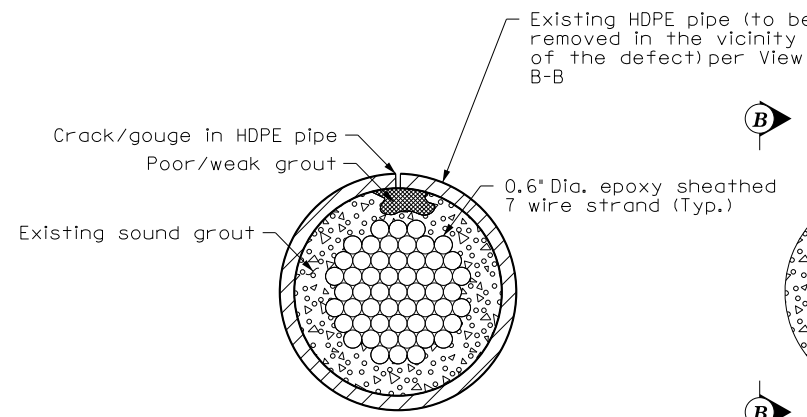
TYPICAL SECTION
Main Spans

NOTES:

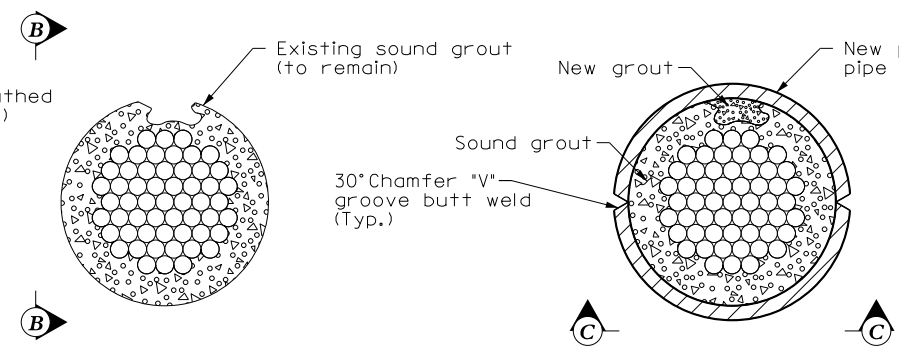
1. Details shown on this sheet are schematic. The actual number of strands, strand bundle configuration, strand bundle location relative to existing HDPE pipe, damage limits, and annular space vary by location.
2. The HDPE pipe shall not be subjected to additional loads or forces not specified due to the Contractor's operations during the repair.
3. Additional repair locations may be required as directed by the Engineer. Payment for additional locations shall be per the unit bid price for Stay Cable Free Length Repair.
4. The upper and lower limits of HDPE pipe removal shall be positioned not less than four (4) inches beyond limits of damaged HDPE pipe or unsound grout. Repair limits shall be approved by the Engineer prior to performing work.
5. It is recommended to assume existing grout between the HDPE pipe and strand bundle will be removed over the full circumference of the stay cable. The actual limits of existing grout removal shall be determined by the Engineer after inspection of the exposed repair area.
6. All work associated with cable repairs shall be paid for under the unit bid price for Stay Free Length Repair. It is recommended to assume three (3) LF of the existing HDPE pipe will be removed. The actual length may vary from two (2) to four (4) LF. Grout pumped beyond the three (3) LF shall be incidental to "Special Note for Free Length Repair."



HDPE PIPE REPAIR



EXISTING DAMAGED CONDITION

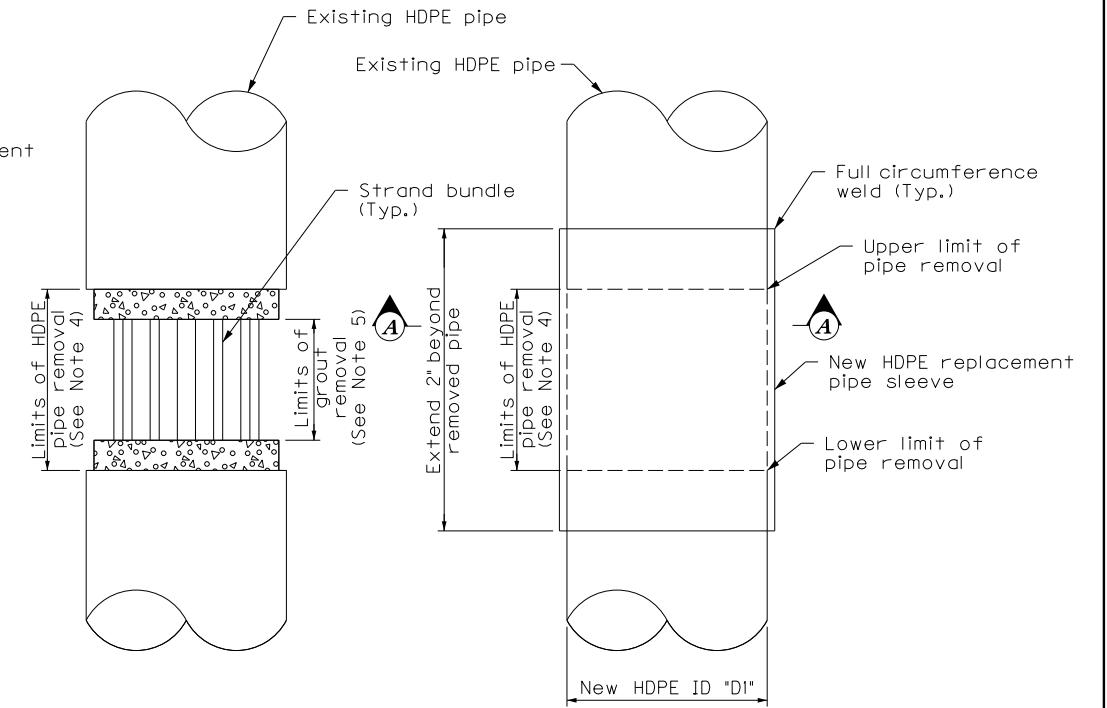


REPAIR STAGE 1

REPAIR STAGE 2

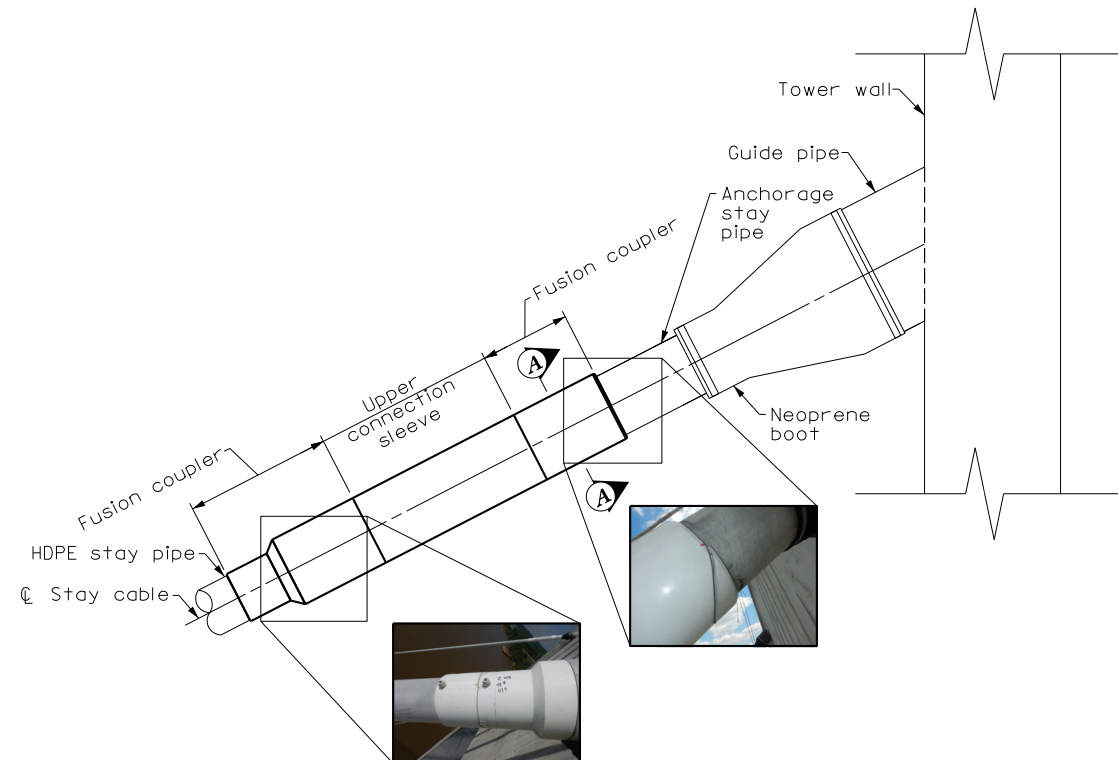
SECTION A-A

TYPE B REPAIR

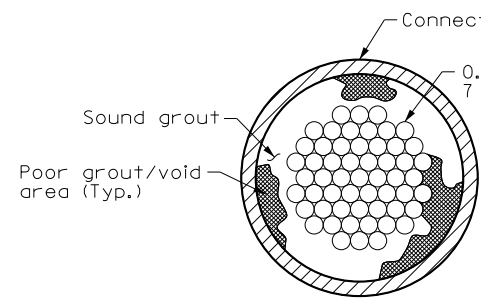


VIEW B-B

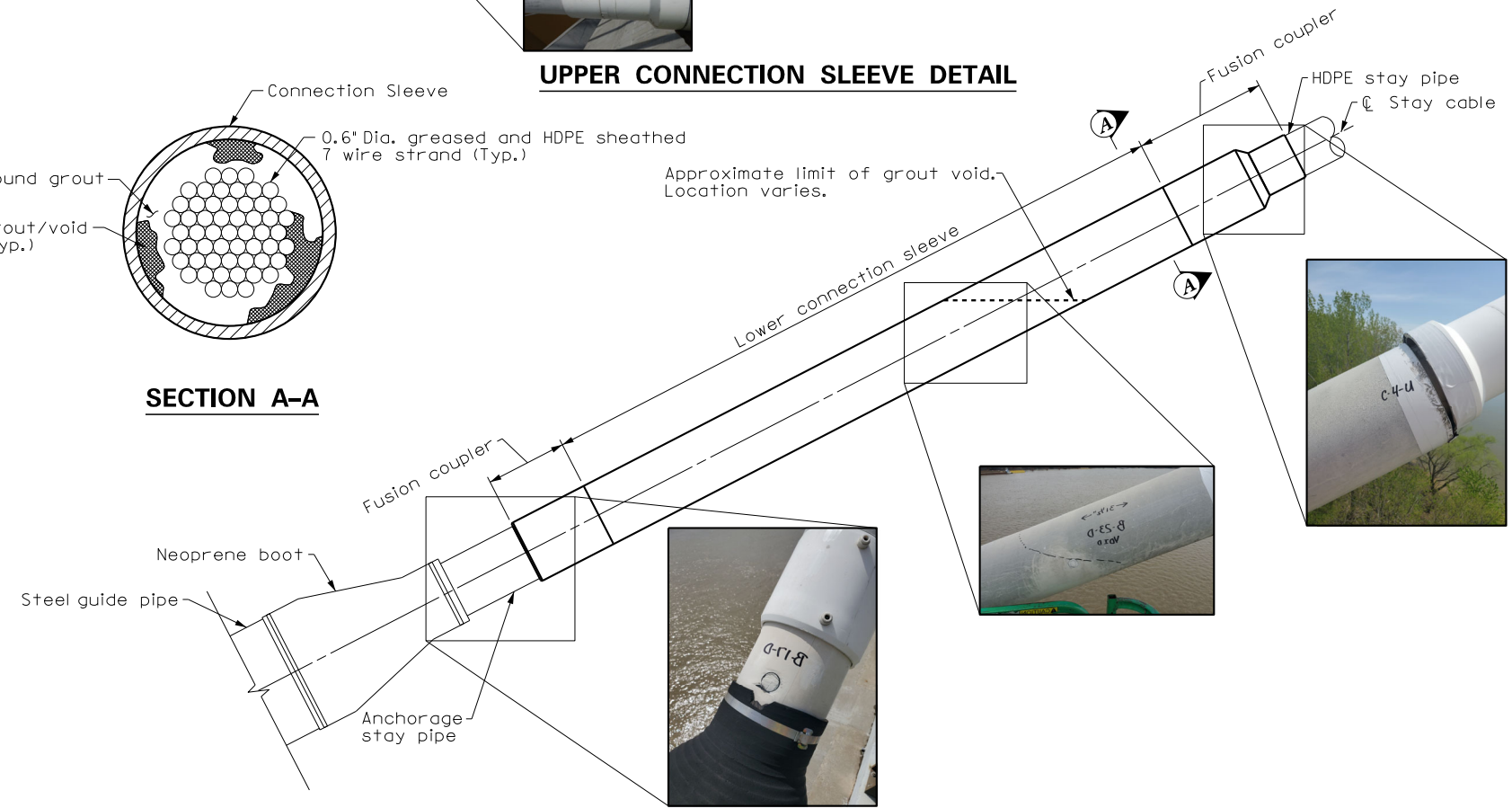
VIEW C-C



UPPER CONNECTION SLEEVE DETAIL



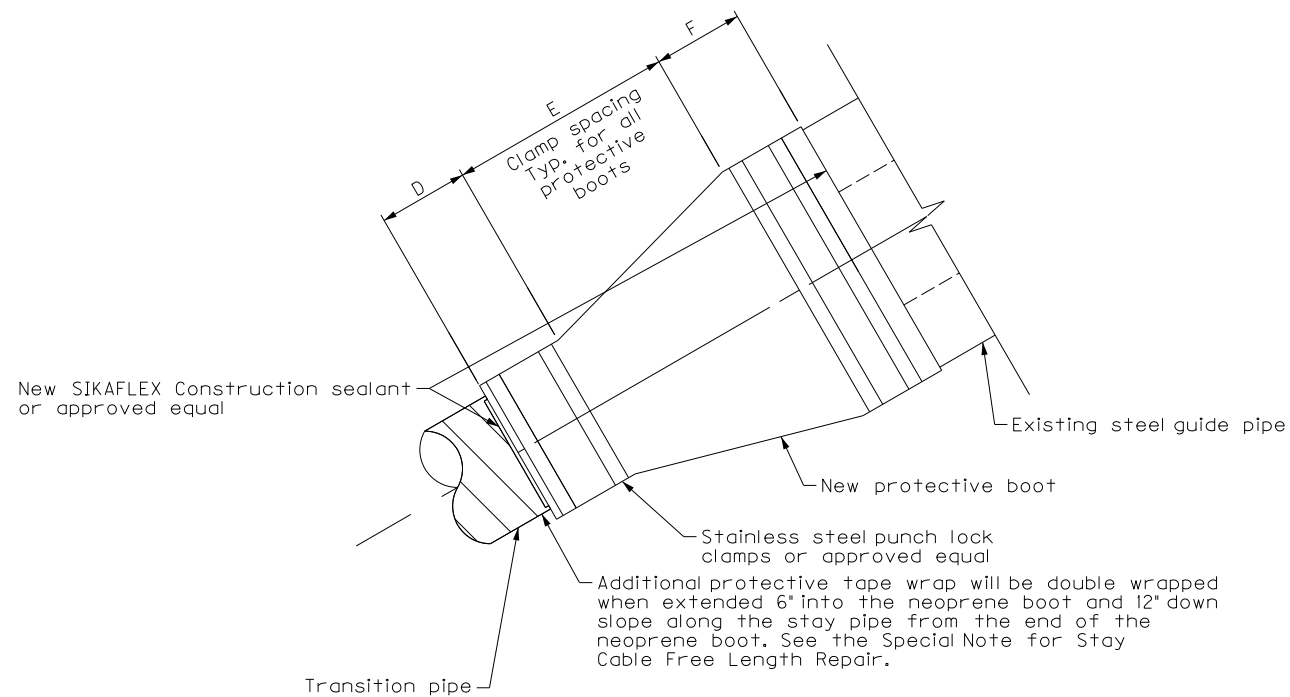
SECTION A-A



LOWER CONNECTION SLEEVE DETAIL

TYPICAL CONNECTION SLEEVE DEFICIENCIES

1. These deficiencies consist of cracks in the HDPE connection sleeves, failed fusion welds, failed fusion couplers, failed grout port plugs, and other potential deficiencies.
2. The lower connection sleeves (LCSs) at deck level are cracked at 94 of 96 locations, primarily at the upper and lower fusion couplers.
3. At the tower level, 94 of 96 upper connection sleeves (UCSs) are cracked, primarily at the upper and lower fusion couplers.
4. The adjacent photographs are indicative of the serious type of typical deficiencies that are to be repaired.
5. The majority of the cracked upper and lower fusion couplers have been caused by voids near the upper portion of the HDPE LCS, as well as voids near the upper portion of the HDPE UCS, as shown in the adjacent photographs.
6. See Special Note for the Repair of Lower Connection Sleeve (LCS) and Upper Connection Sleeve (UCS) Exteriors for additional information.
7. Upon completion of the connection sleeve repairs, the existing voids will be cleaned and remedial grouted per Special Note for the Remedial Grouting of the Lower Connection Sleeves (LCS) and Upper Connection Sleeves (UCS) Voids.

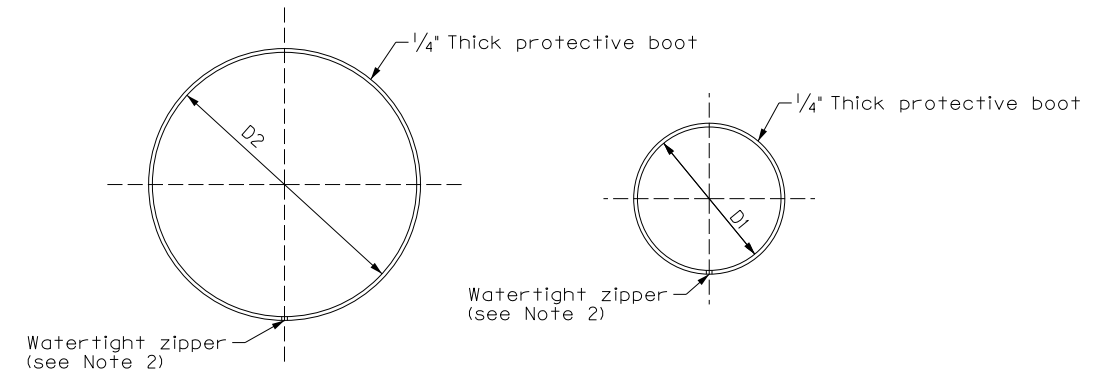
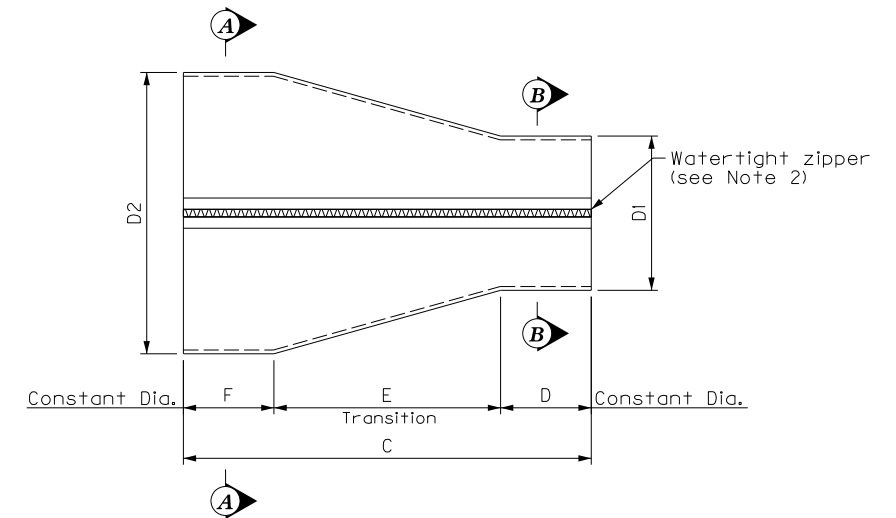


UPPER NEOPRENE BOOT REPLACEMENT DETAIL

NOTES:

This retrofit shall be performed after the exterior protective tape is installed.

1. The protective boots shall have dimensions "D1" and "D2" as shown in the table after completely zipping the watertight zipper.
2. See the Special Note for Replacement of Upper Neoprene Boots for additional information.



SECTION A-A

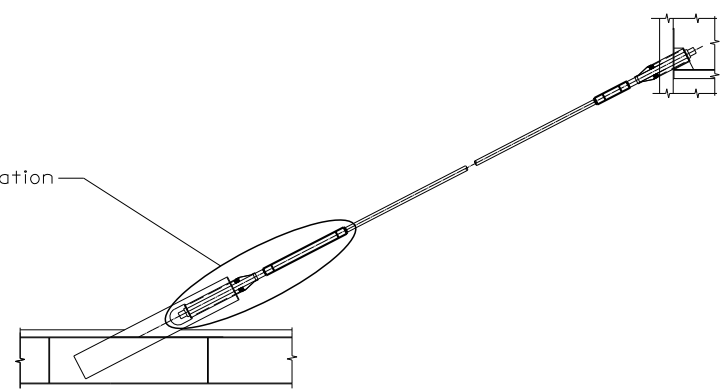
SECTION B-B

NEW PROTECTIVE BOOT DETAIL

Table - Dimensions for new protective boots								
Protective Boot Type	Cables		Internal Dia. (in.)		Neoprene Boot Dimensions (in.)			
	ID	# of Locations	D1	D2	C	D	E	F
Type I	11,14	(8)	7 3/16"	10 7/8"	2'-3"	6"	1'-3"	6"
Type II	8-10,12,13,15-18	(36)	8 3/4"	12 7/8"	2'-3"	6"	1'-3"	6"
Type III	4-7,19,20	(24)	9 15/16"	14 1/8"	2'-3"	6"	1'-3"	6"
Type IV	1,2,21-23	(20)	10 7/8"	16 1/8"	2'-3"	6"	1'-3"	6"
Type V	3,24	(8)	12 1/2"	18 1/8"	2'-3"	6"	1'-3"	6"

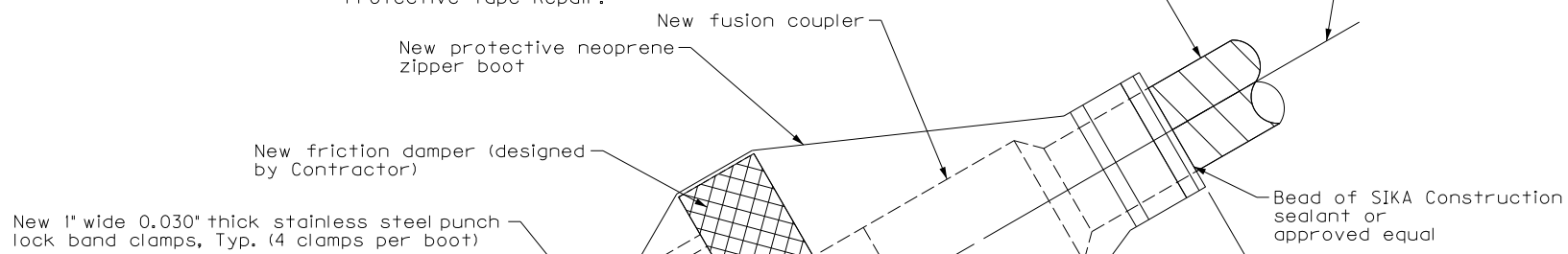
Contractor shall verify all dimensions in field.

Approximate friction damper location



STAY CABLE ELEVATION

The additional protective tape will be double wrapped when extended 6' into the neoprene boot and 12' up slope along the stay pipe from the end of the neoprene boot. See the Special Note for Stay Cable Protective Tape Repair.



Existing repaired/replaced connection sleeve

New split steel guide pipe. Designed by Contractor.

Existing neoprene boot (to be removed)

Existing steel guide pipe (to remain)

Bearing plate (to remain)

Existing VSL SSI 200 cable stay anchorage system (to remain)

Existing damper (to remain)

Drain hole

Designed by Contractor. Contractor shall mechanically fasten guide pipe to bearing plate. No welding shall be permitted.

NOTES:

- Contractor shall use data provided here and from the wind analysis data sheets to generate shop drawings for review and approval by the Engineer.
- See the Special Note for Friction Damper Retrofit for additional information.

NEW FRICTION DAMPER RETROFIT SCHEMATIC DRAWING

	REVISION	DATE	PREPARED BY	DATE: November 6, 2023	CHECKED BY	New Friction Damper Retrofit Schematic	ROUTE	ITEM NO.	COUNTY OF
			BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DESIGNED BY: D. Montgomery	S. Ribble		CROSSING	US 231	DAVIESS
				DETAILED BY: L. Bridwell	S. Ribble	Ohio River		SHEET NO.	DRAWING NUMBER
								S9	28860

Cable ID	Angle (deg)	Length (ft)	Outer Cable Dia. (in.)	Steel Area (in ²)	Weight (lb/ft)	Tension (kips)	Expected Sc $\xi=0.03\%$	Estimated frequencies (Hz)						Required ξ (%) to reach			Recommended min. damping, ξ (%)	Governing excitation source
								f1	f2	f3	f4	f5	f6	Sc=2.5	Sc=5.0	Sc=10.0		
B-1-DS	27.8	563.1	8.63	8.6	59.8	778	0.45	0.58	0.60	1.16	1.16	1.74	1.74	0.17	0.33	0.66	0.66	Ice Galloping
B-2-DS	27.8	546.1	8.63	8.39	59.3	886	0.45	0.70	0.71	1.33	1.33	1.92	1.92	0.17	0.33	0.67	0.67	RWIV
B-3-DS	27.8	529.2	8.63	12.47	79.7	1337	0.61	0.73	0.74	1.47	1.47	2.17	2.17	0.12	0.25	0.50	0.50	RWIV
B-4-DS	29.3	486.0	6.63	6.45	47.1	649	0.61	0.73	0.74	1.43	1.43	2.14	2.14	0.12	0.25	0.49	0.49	Ice Galloping
B-5-DS	31.1	443.3	6.63	7.31	49.3	715	0.63	0.81	0.82	1.59	1.59	2.41	2.41	0.12	0.24	0.47	0.47	Ice Galloping
B-6-DS	33.3	400.8	6.63	6.88	48.2	630	0.62	0.85	0.87	1.68	1.68	2.53	2.53	0.12	0.24	0.48	0.48	Ice Galloping
B-7-DS	35.9	358.9	6.63	6.45	47.1	743	0.61	1.05	1.06	2.05	2.05	3.08	3.08	0.12	0.25	0.49	0.49	RWIV
B-8-DS	39.2	317.1	6.63	6.02	39.6	529	0.51	1.10	1.11	2.17	2.17	3.24	3.24	0.15	0.29	0.59	0.59	RWIV
B-9-DS	43.4	277.7	6.63	5.59	38.5	429	0.50	1.16	1.17	2.29	2.29	3.39	3.39	0.15	0.30	0.61	0.61	RWIV
B-10-DS	48.8	238.9	6.63	5.16	37.4	500	0.48	1.50	1.50	2.90	2.90	4.18	4.18	0.16	0.31	0.62	0.62	RWIV
B-11-DS	56.1	203.7	6.63	3.87	28.4	324	0.37	1.65	1.65	3.24	3.24	4.52	4.52	0.21	0.41	0.82	0.82	RWIV
B-12-DS	65.8	172.9	6.63	5.38	37.9	407	0.49	1.92	1.93	3.60	3.60	5.07	5.07	0.15	0.31	0.61	0.61	Ice Galloping
B-13-DS	65.4	170.4	6.63	5.38	37.9	419	0.49	1.98	1.99	3.72	3.72	5.22	5.22	0.15	0.31	0.61	0.61	Ice Galloping
B-14-DS	55.4	200.1	6.63	3.87	28.4	348	0.37	1.74	1.74	3.30	3.30	4.58	4.58	0.21	0.41	0.82	0.82	RWIV
B-15-DS	47.9	234.0	6.63	5.16	37.4	385	0.48	1.34	1.35	2.63	2.63	3.82	3.82	0.16	0.31	0.62	0.62	RWIV
B-16-DS	42.3	272.4	6.63	5.38	37.9	497	0.49	1.28	1.29	2.53	2.53	3.72	3.72	0.15	0.31	0.61	0.61	RWIV
B-17-DS	37.9	311.2	6.63	5.81	39.0	501	0.50	1.10	1.11	2.20	2.20	3.30	3.30	0.15	0.30	0.60	0.60	RWIV
B-18-DS	34.5	352.5	6.63	6.24	40.1	599	0.52	1.04	1.04	2.01	2.01	3.02	3.02	0.15	0.29	0.58	0.58	RWIV
B-19-DS	31.8	394.3	6.63	6.88	48.2	702	0.62	0.92	0.92	1.77	1.77	2.66	2.66	0.12	0.24	0.48	0.48	RWIV
B-20-DS	29.6	436.3	6.63	7.31	49.3	769	0.63	0.85	0.86	1.65	1.65	2.47	2.47	0.12	0.24	0.47	0.47	Ice Galloping
B-21-DS	27.7	479.1	8.63	7.74	57.6	733	0.44	0.70	0.72	1.43	1.43	2.11	2.11	0.17	0.34	0.69	0.69	RWIV
B-22-DS	26.2	521.9	8.63	8.39	59.3	980	0.45	0.73	0.74	1.39	1.39	2.08	2.08	0.17	0.33	0.67	0.67	RWIV
B-23-DS	24.8	564.9	8.63	8.17	58.7	877	0.45	0.64	0.65	1.28	1.28	1.89	1.89	0.17	0.34	0.67	0.67	Ice Galloping
B-24-DS	23.7	608.8	8.63	10.75	75.3	1071	0.57	0.58	0.60	1.11	1.11	1.77	1.77	0.13	0.26	0.52	0.52	Ice Galloping
C-24-DS	23.7	608.8	8.63	10.75	75.3	960	0.57	0.55	0.57	1.10	1.10	1.65	1.65	0.13	0.26	0.52	0.52	Ice Galloping
C-23-DS	24.8	564.9	8.63	8.17	58.7	849	0.45	0.64	0.66	1.25	1.25	1.89	1.89	0.17	0.34	0.67	0.67	Ice Galloping
C-22-DS	26.2	521.9	8.63	8.39	59.3	901	0.45	0.70	0.71	1.37	1.37	2.05	2.05	0.17	0.33	0.67	0.67	RWIV
C-21-DS	27.7	479.1	8.63	7.74	57.6	797	0.44	0.73	0.74	1.43	1.43	2.17	2.17	0.17	0.34	0.69	0.69	RWIV
C-20-DS	29.6	436.3	6.63	7.31	49.3	716	0.63	0.82	0.83	1.62	1.62	2.44	2.44	0.12	0.24	0.47	0.47	Ice Galloping
C-19-DS	31.8	394.3	6.63	6.88	48.2	702	0.62	0.92	0.92	1.80	1.80	2.66	2.66	0.12	0.24	0.48	0.48	RWIV
C-18-DS	34.5	352.5	6.63	6.24	40.1	599	0.52	1.04	1.04	2.08	2.08	3.05	3.05	0.15	0.29	0.58	0.58	RWIV
C-17-DS	37.9	311.2	6.63	5.81	39.0	501	0.50	1.10	1.11	2.20	2.20	3.27	3.27	0.15	0.30	0.60	0.60	RWIV
C-16-DS	42.3	272.4	6.63	5.38	37.9	427	0.49	1.19	1.20	2.38	2.38	3.48	3.48	0.15	0.31	0.61	0.61	RWIV
C-15-DS	47.9	234.0	6.63	5.16	37.4	385	0.48	1.34	1.35	2.66	2.66	3.85	3.85	0.16	0.31	0.62	0.62	RWIV
C-14-DS	55.4	200.1	6.63	3.87	28.4	414	0.37	1.89	1.89	3.54	3.54	4.88	4.88	0.21	0.41	0.82	0.82	RWIV
C-13-DS	65.4	170.4	6.63	5.38	37.9	406	0.49	1.95	1.96	3.57	3.57	5.04	5.04	0.15	0.31	0.61	0.61	Ice Galloping
C-12-DS	65.8	172.9	6.63	5.38	37.9	407	0.49	1.92	1.93	3.63	3.63	5.19	5.19	0.15	0.31	0.61	0.61	Ice Galloping
C-11-DS	56.1	203.7	6.63	3.87	28.4	324	0.37	1.65	1.65	3.17	3.17	4.46	4.46	0.21	0.41	0.82	0.82	RWIV
C-10-DS	48.8	238.9	6.63	5.16	37.4	421	0.48	1.37	1.38	2.66	2.66	3.88	3.88	0.16	0.31	0.62	0.62	RWIV
C-9-DS	43.4	277.7	6.63	5.59	38.5	500	0.5	1.25	1.26	2.50	2.50	3.66	3.66	0.15	0.30	0.61	0.61	RWIV
C-8-DS	39.2	317.1	6.63	6.02	39.6	558	0.51	1.13	1.14	2.26	2.26	3.36	3.36	0.15	0.29	0.59	0.59	RWIV
C-7-DS	35.9	358.9	6.63	6.45	47.1	560	0.61	0.92	0.93	1.80	1.80	2.72	2.72	0.12	0.25	0.49	0.49	RWIV
C-6-DS	33.3	400.8	6.63	6.88	48.2	630	0.62	0.85	0.87	1.68	1.68	2.53	2.53	0.12	0.24	0.48	0.48	Ice Galloping
C-5-DS	31.1	443.3	6.63	7.31	49.3	743	0.63	0.82	0.83	1.62	1.62	2.44	2.44	0.12	0.24	0.47	0.47	Ice Galloping
C-4-DS	29.3	486.0	6.63	6.45	47.1	645	0.61	0.73	0.74	1.43	1.43	2.14	2.14	0.12	0.25	0.49	0.49	Ice Galloping
C-3-DS	27.8	529.2	8.63	12.47	79.7	1324	0.61	0.70	0.71	1.47	1.47	2.17	2.17	0.12	0.25	0.50	0.50	RWIV
C-2-DS	27.8	546.1	8.63	8.39	59.3	928	0.45	0.72	0.73	1.36	1.36	1.95	1.95	0.17	0.33	0.67	0.67	RWIV
C-1-DS	27.8	563.1	8.63	8.6	59.8	839	0.45	0.70	0.72	1.25	1.25	1.86	1.86	0.17	0.33	0.66	0.66	RWIV

NOTES:

Data was copied from the report referenced below:

Company Name: RWDI
 Report Number: 2305459
 Wind Data Analysis Information
 Date: 9/7/2023
 Authors: Mark Istvan, M.A.Sc., P.E.
 Guy Larose, Ph.D., P.E.
 Ben Riley, P.E.
 Address: 600 Southgate Drive
 Guelph, ON N1G 4P6
 T: 519-823-1311



REVISION	DATE

PREPARED BY
BURGESS & NIPL
 Engineers ■ Architects ■ Planners

DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: D. Montgomery	S. Ribble
DETAILED BY: L. Bridwell	S. Ribble

Wind Analysis Data - Downstream
 CROSSING
 Ohio River

ROUTE	ITEM NO.	COUNTY OF
US 231	S10	DAVIESS
	DRAWING NUMBER	
	28860	

Cable ID	Angle (deg)	Length (ft)	Outer Cable Dia. (in.)	Steel Area (in ²)	Weight (lb/ft)	Tension (kips)	Expected Sc $\zeta=0.03\%$	Estimated frequencies (Hz)						Required ζ (%) to reach			Recommended min. damping, ζ (%)	Governing excitation source
								f1	f2	f3	f4	f5	f6	Sc=2.5	Sc=5.0	Sc=10.0		
B-1-US	27.8	563.1	8.63	8.6	59.8	840	0.45	0.61	0.62	1.19	1.19	1.83	1.83	0.17	0.33	0.66	0.66	Ice Galloping
B-2-US	27.8	546.1	8.63	8.39	59.3	852	0.45	0.61	0.62	1.50	1.50	1.98	1.98	0.17	0.33	0.67	0.67	Ice Galloping
B-3-US	27.8	529.2	8.63	12.47	79.7	1138	0.61	0.70	0.72	1.47	1.47	1.92	1.92	0.12	0.25	0.50	0.50	RWIV
B-4-US	29.3	486.0	6.63	6.45	47.1	677	0.61	0.73	0.74	1.43	1.43	2.11	2.11	0.12	0.25	0.49	0.49	Ice Galloping
B-5-US	31.1	443.3	6.63	7.31	49.3	689	0.63	0.79	0.80	1.59	1.59	2.35	2.35	0.12	0.24	0.47	0.47	Ice Galloping
B-6-US	33.3	400.8	6.63	6.88	48.2	677	0.62	0.89	0.89	1.74	1.74	2.59	2.59	0.12	0.24	0.48	0.48	RWIV
B-7-US	35.9	358.9	6.63	6.45	47.1	700	0.61	1.02	1.03	2.05	2.05	3.02	3.02	0.12	0.25	0.49	0.49	RWIV
B-8-US	39.2	317.1	6.63	6.02	39.6	558	0.51	1.13	1.14	2.23	2.23	3.30	3.30	0.15	0.29	0.59	0.59	RWIV
B-9-US	43.4	277.7	6.63	5.59	38.5	452	0.50	1.19	1.20	2.32	2.32	3.42	3.42	0.15	0.30	0.61	0.61	RWIV
B-10-US	48.8	238.9	6.63	5.16	37.4	440	0.48	1.40	1.41	2.75	2.75	3.97	3.97	0.16	0.31	0.62	0.62	RWIV
B-11-US	56.1	203.7	6.63	3.87	28.4	324	0.37	1.65	1.65	3.24	3.24	4.55	4.55	0.21	0.41	0.82	0.82	RWIV
B-12-US	65.8	172.9	6.63	5.38	37.9	393	0.49	1.89	1.89	3.63	3.63	5.10	5.10	0.15	0.31	0.61	0.61	Ice Galloping
B-13-US	65.4	170.4	6.63	5.38	37.9	406	0.49	1.95	1.96	3.69	3.69	5.22	5.22	0.15	0.31	0.61	0.61	Ice Galloping
B-14-US	55.4	200.1	6.63	3.87	28.4	266	0.37	1.53	1.53	2.96	2.96	4.12	4.12	0.21	0.41	0.82	0.82	RWIV
B-15-US	47.9	234.0	6.63	5.16	37.4	365	0.48	1.31	1.32	2.72	2.72	3.88	3.88	0.16	0.31	0.62	0.62	RWIV
B-16-US	42.3	272.4	6.63	5.38	37.9	497	0.49	1.28	1.29	2.53	2.53	3.82	3.82	0.15	0.31	0.61	0.61	RWIV
B-17-US	37.9	311.2	6.63	5.81	39.0	501	0.50	1.10	1.11	2.17	2.17	3.20	3.20	0.15	0.30	0.60	0.60	RWIV
B-18-US	34.5	352.5	6.63	6.24	40.1	599	0.52	1.04	1.04	2.05	2.05	3.05	3.05	0.15	0.29	0.58	0.58	RWIV
B-19-US	31.8	394.3	6.63	6.88	48.2	702	0.62	0.92	0.92	1.74	1.74	2.66	2.66	0.12	0.24	0.48	0.48	RWIV
B-20-US	29.6	436.3	6.63	7.31	49.3	827	0.63	0.89	0.89	1.71	1.71	2.56	2.56	0.12	0.24	0.47	0.47	RWIV
B-21-US	27.7	479.1	8.63	7.74	57.6	733	0.44	0.70	0.72	1.42	1.42	2.11	2.11	0.17	0.34	0.69	0.69	RWIV
B-22-US	26.2	521.9	8.63	8.39	59.3	901	0.45	0.70	0.72	1.40	1.40	2.08	2.08	0.17	0.33	0.67	0.67	RWIV
B-23-US	24.8	564.9	8.63	8.17	58.7	877	0.45	0.64	0.65	1.22	1.22	1.83	1.83	0.17	0.34	0.67	0.67	Ice Galloping
B-24-US	23.7	608.8	8.63	10.75	75.3	959	0.57	0.55	0.57	1.13	1.13	1.68	1.68	0.13	0.26	0.52	0.52	Ice Galloping
C-24-US	23.7	608.8	8.63	10.75	75.3	1128	0.57	0.60	0.61	1.18	1.18	1.76	1.76	0.13	0.26	0.52	0.52	Ice Galloping
C-23-US	24.8	564.9	8.63	8.17	58.7	877	0.45	0.64	0.65	1.25	1.25	1.89	1.89	0.17	0.34	0.67	0.67	Ice Galloping
C-22-US	26.2	521.9	8.63	8.39	59.3	901	0.45	0.70	0.71	1.31	1.31	2.08	2.08	0.17	0.33	0.67	0.67	RWIV
C-21-US	27.7	479.1	8.63	7.74	57.6	733	0.44	0.70	0.72	1.43	1.43	2.17	2.17	0.17	0.34	0.69	0.69	RWIV
C-20-US	29.6	436.3	6.63	7.31	49.3	769	0.63	0.85	0.86	1.68	1.68	2.50	2.50	0.12	0.24	0.47	0.47	Ice Galloping
C-19-US	31.8	394.3	6.63	6.88	48.2	702	0.62	0.92	0.92	1.80	1.80	2.72	2.72	0.12	0.24	0.48	0.48	RWIV
C-18-US	34.5	352.5	6.63	6.24	40.1	563	0.52	1.01	1.02	2.05	2.05	3.11	3.11	0.15	0.29	0.58	0.58	RWIV
C-17-US	37.9	311.2	6.63	5.81	39.0	473	0.50	1.07	1.08	2.11	2.11	3.17	3.17	0.15	0.30	0.60	0.60	RWIV
C-16-US	42.3	272.4	6.63	5.38	37.9	473	0.49	1.25	1.26	2.47	2.47	3.60	3.60	0.15	0.31	0.61	0.61	RWIV
C-15-US	47.9	234.0	6.63	5.16	37.4	403	0.48	1.37	1.38	2.69	2.69	3.85	3.85	0.16	0.31	0.62	0.62	RWIV
C-14-US	55.4	200.1	6.63	3.87	28.4	387	0.37	1.83	1.83	3.51	3.51	4.88	4.88	0.21	0.41	0.82	0.82	RWIV
C-13-US	65.4	170.4	6.63	5.38	37.9	380	0.49	1.89	1.89	3.54	3.54	4.94	4.94	0.15	0.31	0.61	0.61	Ice Galloping
C-12-US	65.8	172.9	6.63	5.38	37.9	393	0.49	1.89	1.89	3.57	3.57	5.04	5.04	0.15	0.31	0.61	0.61	Ice Galloping
C-11-US	56.1	203.7	6.63	3.87	28.4	375	0.37	1.77	1.77	3.33	3.33	4.64	4.64	0.21	0.41	0.82	0.82	RWIV
C-10-US	48.8	238.9	6.63	5.16	37.4	402	0.48	1.34	1.35	2.63	2.63	3.78	3.78	0.16	0.31	0.62	0.62	RWIV
C-9-US	43.4	277.7	6.63	5.59	38.5	500	0.50	1.25	1.26	2.47	2.47	3.63	3.63	0.15	0.30	0.61	0.61	RWIV
C-8-US	39.2	317.1	6.63	6.02	39.6	621	0.51	1.19	1.19	2.38	2.38	3.54	3.54	0.15	0.29	0.59	0.59	RWIV
C-7-US	35.9	358.9	6.63	6.45	47.1	486	0.61	0.85	0.87	1.68	1.68	2.53	2.53	0.12	0.25	0.49	0.49	Ice Galloping
C-6-US	33.3	400.8	6.63	6.88	48.2	586	0.62	0.82	0.84	1.71	1.71	2.59	2.59	0.12	0.24	0.48	0.48	Ice Galloping
C-5-US	31.1	443.3	6.63	7.31	49.3	688	0.63	0.79	0.80	1.56	1.56	2.35	2.35	0.12	0.24	0.47	0.47	Ice Galloping
C-4-US	29.3	486.0	6.63	6.45	47.1	677	0.61	0.73	0.74	1.47	1.47	2.20	2.20	0.12	0.25	0.49	0.49	Ice Galloping
C-3-US	27.8	529.2	8.63	12.47	79.7	1357	0.61	0.76	0.77	1.47	1.47	2.10	2.10	0.12	0.25	0.50	0.50	RWIV
C-2-US	27.8	546.1	8.63	8.39	59.3	812	0.45	0.67	0.69	1.28	1.28	1.89	1.89	0.17	0.33	0.67	0.67	RWIV
C-1-US	27.8	563.1	8.63	8.6	59.8	765	0.45	0.61	0.63	1.19	1.19	1.77	1.77	0.17	0.33	0.66	0.66	Ice Galloping

NOTES:

Data was copied from the report referenced below:

Company Name: RWDI
 Report Number: 2305459
 Wind Data Analysis Information
 Date: 9/7/2023
 Authors: Mark Istvan, M.A.Sc., P.E.
 Guy Larose, Ph.D., P.E.
 Ben Riley, P.E.
 Address: 600 Southgate Drive
 Guelph, ON N1G 4P6
 T: 519-823-1311



REVISION	DATE

PREPARED BY
BURGESS & NIPL
 Engineers ■ Architects ■ Planners

DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: D. Montgomery	S. Ribble
DETAILED BY: L. Bridwell	S. Ribble

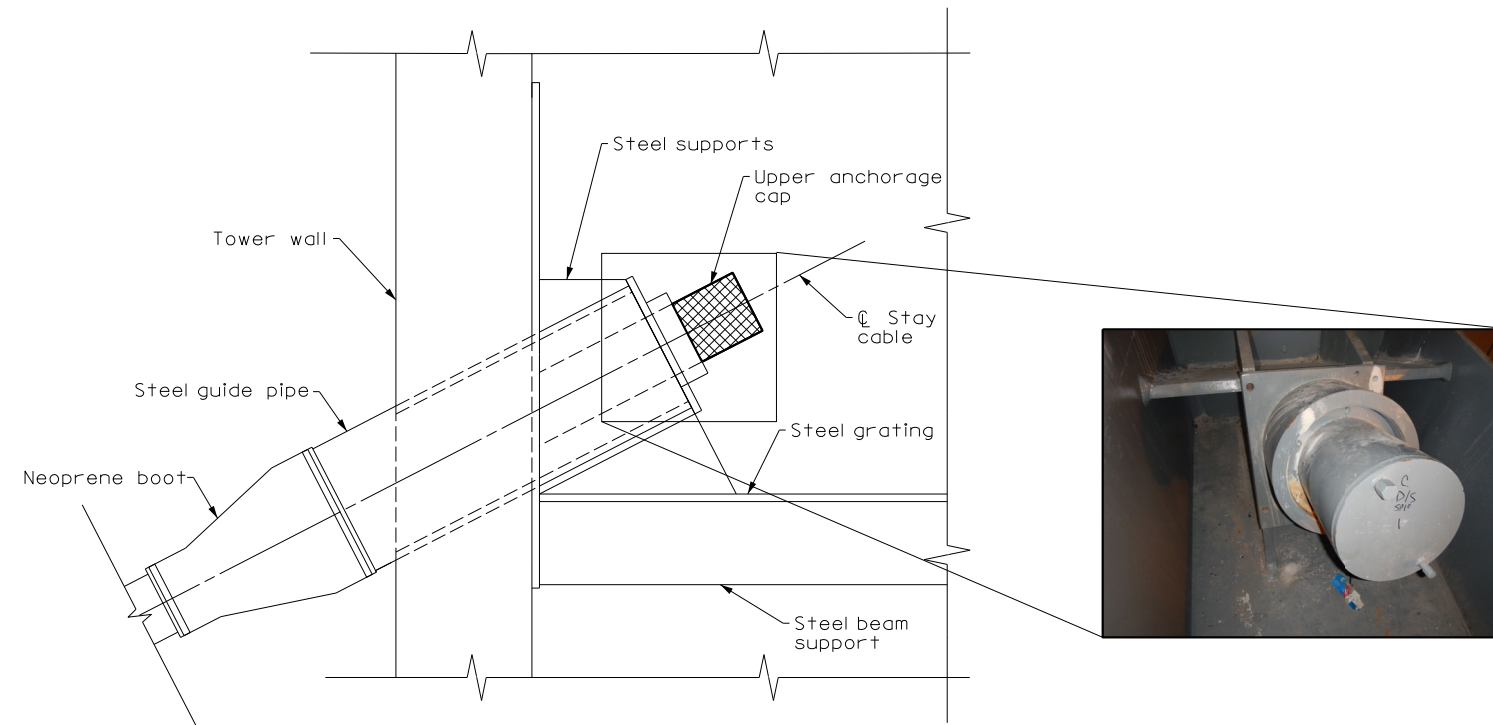
Wind Analysis Data - Upstream
 CROSSING
 Ohio River

ROUTE	ITEM NO.	COUNTY OF
US 231	S11	DAVIESS
		DRAWING NUMBER
		28860

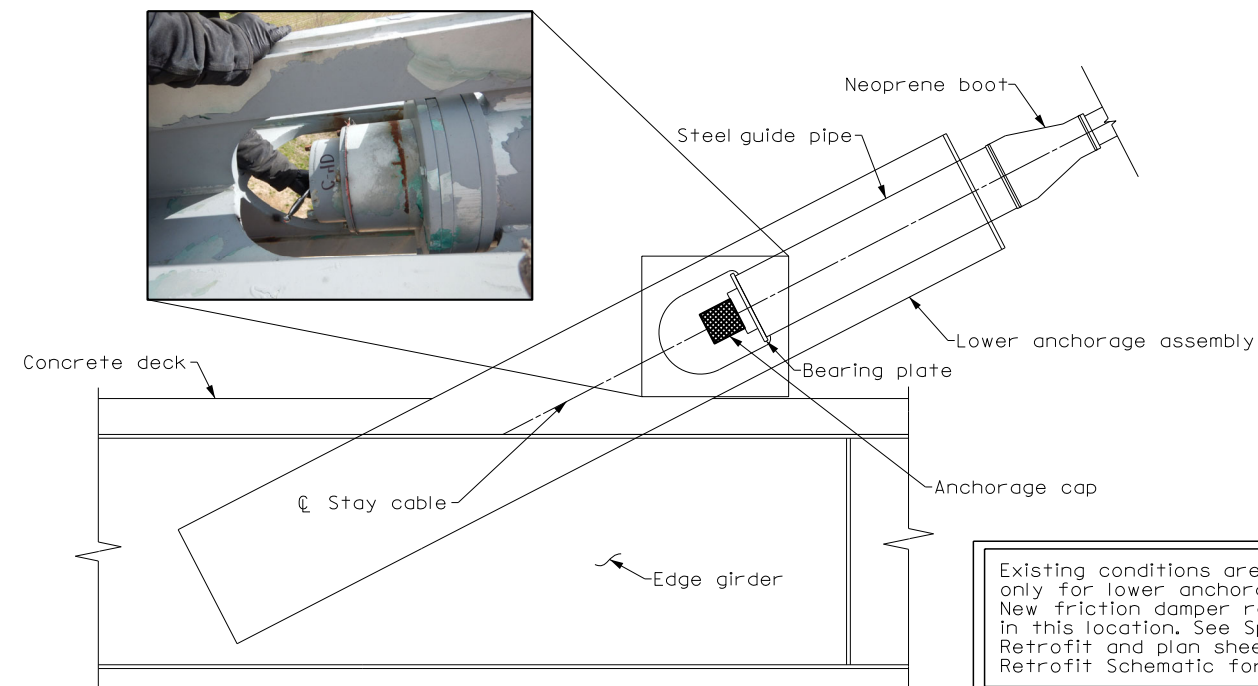
ANCHORAGE CAP GREASE REPLACEMENT

The existing stay cable system is VSL SSI 200.

1. The anchorage caps removal and new grease installation shall not commence until all of the planned repairs to the stay cable system have been completed and the stay cable exteriors are impervious to the elements.
2. See Special Note for the Replacement of Grease in the Lower Anchorage Caps (LAC) and Upper Anchorage Caps (UAC) for any additional information.



UPPER ANCHORAGE ASSEMBLY DETAIL



LOWER ANCHORAGE ASSEMBLY DETAIL

(Railing not shown for clarity)

Existing conditions are shown for illustration purposes only for lower anchorage assembly detail. New friction damper retrofit will be installed in this location. See Special Note for Friction Damper Retrofit and plan sheet S9 New Friction Damper Retrofit Schematic for more information.

TRAFFIC CONTROL GENERAL NOTES

- Except as provided herein, traffic shall be maintained in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), the Standard Specifications for Road and Bridge Construction, and the Standard Drawings, current editions.
- Except for the roadway and traffic control bid items listed, all items of work necessary to maintain and control traffic will be paid for at the lump sum bid price to "Maintain and Control Traffic," as set forth in the current Standard Specifications for Road and Bridge Construction unless otherwise provided for in these notes.
- The Contractor shall maintain a minimum of one 12 foot lane in each direction unless otherwise noted.
- Lane closures used on the project shall be in compliance with the appropriate Standard Drawings or the direction of the Engineer. Contrary to Section 112, lane closures of any type will not be measured for payment, but are considered incidental to the bid item "Maintain and Control Traffic", Lump Sum.
- Contrary to Section 106.01 of the Standard Specifications, traffic control devices used on this project may be new or used but in like-new condition at the beginning of the work and maintained in like-new condition until completion of the work. Traffic Control Devices used on this project shall conform to the current Manual on Uniform Traffic Control Devices.
- Night work is permitted on this project. Obtain approval from the Engineer for any proposed method of construction lighting.
- Reduce the speed limit in work areas to 50 miles per hour. Installation and maintenance of speed limit and other construction signs is the responsibility of the Contractor. Payment for the signs will be at the unit bid price for signs erected. Any relocation or covering of the signs shall be incidental to "Maintain and Control Traffic".
- Any lane closure or lane shift must be approved by the Engineer prior to the closure or lane shift. The Contractor must notify the Engineer at least five (5) days prior to any proposed lane closure or traffic pattern change.

SPECIAL NOTES

Signs

Traffic control signs in addition to those necessary to normal lane closure signing detailed on the Standard Drawings may be required by the Engineer. Additional signs needed for lane closures may include, but are not limited to, dual mounted

- LEFT/RIGHT LANE CLOSED 1 MILE
- LEFT/RIGHT LANE CLOSED 2 MILES
- LEFT/RIGHT LANE CLOSED 3 MILES
- SLOWED/STOPPED TRAFFIC AHEAD

All traffic control signs, including signage for reduced speed limits will be furnished, relocated as needed, and maintained by the Contractor. The Contractor will submit sign designs per MUTCD standards for the Engineer's approval prior to fabrication.

Contrary to Section 112 of the Standard Specifications, only long term signs (signs intended to be continuously in place for more than 3 days) will be measured for payment; short term signs (signs intended to be left in place for 3 days or less) will not be measured for payment but will be incidental to "Maintain and Control Traffic".

Individual signs will be measured only once for payment, regardless of how many times they are set, reset, removed, and relocated during the duration of the project. Replacements for damaged signs or signs directed to be replaced by the Engineer due to poor legibility or reflectivity, will not be measured for payment.

A quantity of signs has been included for detours, lane shifts, and "Roadwork Ahead" signs on entrance ramps to be paid only once no matter how many times they are moved or relocated.

Signs to be located along the bridge shall be clamped to the concrete bridge railings. No signs or other traffic control devices shall be attached to the stay cables or stay cable connections.

Permanent Striping

Permanent striping from the south end of the project (approximately 3085 feet south of End Bent 1) through End Bent 2 shall be 6 inch durable Type 1 tape per current KYTC policy. Permanent striping north of End Bent 2 shall be 4 inch paint to match the existing striping per INDOT specifications. Striping impacted by maintenance of traffic operations shall be replaced in kind.

SPECIAL NOTES (cont.)

Channelizing Devices

Traffic drums (barrels) shall be used and will be incidental to "Maintain and Control Traffic" according to Section 112.04.01 of the Standard Specifications. Contrary to Section 112.04.04 of the Standard Specifications, barricades used to protect removal areas and to close lanes will be incidental to "Maintain and Control Traffic".

Advance Warning Arrow Boards (Panels)

The Contractor will provide Arrow Panels as indicated in the Maintenance of Traffic Plans. The Arrow Panels shall be mounted in traffic-worthy carriages and meet the requirements as specified in the current Standard Drawings. Payment for the Arrow Panels will be based on a contract unit price of "Each" and will be full compensation for providing, placing, operating, relocating, and maintaining the Arrow Panels.

The Contractor will have available one reserve Arrow Panel to be placed into operation in the event of damage or mechanical/electrical failure. No direct payment will be allowed for the reserve unit. All Arrow Panels will remain the property of the Contractor upon completion of the Project.

Project Traffic Coordinator

Designate an employee to be the Project Traffic Coordinator (PTC). The designated PTC must be certified by the American Traffic Safety Services Association (ATSSA). The PTC shall provide for inspection of the project maintenance of traffic at a frequency determined by the Engineer during the Contractor's operations and at any time a temporary lane closure is in place. The PTC shall report all incidents throughout the work zone to the Engineer. The Contractor shall furnish to the Engineer the name and telephone number where the PTC can be contacted at all times.

During any period when a lane closure is in place, the PTC will arrange for traffic control personnel to be present on the project at all times to inspect the traffic control, and maintain the signing and devices.

The PTC must be equipped with a cellular phone and have the authority to immediately maintain and make changes in the traffic control as traffic conditions merit. The Contractor will be penalized three thousand dollars (\$3,000) per day for any incidents that the PTC is not on the project while work is actively in progress or if he is unable to respond to a traffic control issue within 20 minutes of notice. Payment for the PTC will be considered incidental to the bid item "Maintain and Control Traffic".

PROJECT PHASING

No work will be permitted on any phase of this project without lane closures according to these drawings, the Standard Drawings, and the Special Note for Traffic Control. The Contractor has the option to chose the order of the closures with the approval of the Engineer. The phasing notes assume the southbound closure will be performed first. If the northbound closure is performed first, the appropriate portions of the phasing details shall be adjusted as needed.

The phasing of this project utilizes the permanent median crossovers previously constructed on both the north and south sides of the Ohio River.

Southbound Closure

Install temporary signing along both directions of US 231 on the Indiana and Kentucky approaches and along the bridge (see drawings).

Close the entrance ramp from SR 66 to southbound US 231.

Using a temporary closure, install temporary traffic barriers, temporary pavement markings, and any additional traffic control devices to allow closing of the southbound traffic lanes from the Indiana southbound entrance ramp to beyond the bridge abutment on the Kentucky approach (see drawings).

Shift southbound traffic to the existing left lane of the northbound traffic lanes through the construction zone using median crossovers.

Perform all rehabilitation work along the southbound side of the structure.

Place temporary and permanent striping, as is appropriate, and traffic control devices as needed to allow for transition to the next phase of the project.

Remove or relocate temporary traffic control devices, as is appropriate, and open the southbound lanes to normal traffic.

Remove or relocate temporary signing, as appropriate, from the bridge and US 231 roadway on the Indiana and Kentucky approaches.

PROJECT PHASING (cont.)

Northbound Closure

Install temporary signing along both directions of US 231 on the Indiana and Kentucky approaches and along the bridge (see drawings).

Using a temporary closure, install temporary traffic barriers, temporary pavement markings, and any additional traffic control devices to allow closing of the northbound traffic lanes from the Kentucky northbound approach to beyond the bridge abutment on the Indiana approach (see drawings).

Shift northbound traffic to the existing left lane of the southbound traffic lanes through the construction zone using median crossovers.

Perform all rehabilitation work along the northbound side of the structure.

Replace any permanent striping on the bridge and approaches.

Remove any temporary traffic control devices and open the northbound lanes to normal traffic.

Remove temporary signing from the bridge and US 231 roadway on the Indiana and Kentucky approaches.



REVISION	DATE

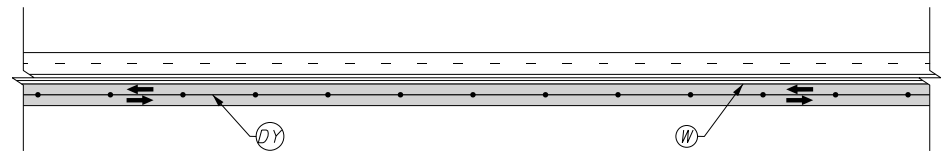
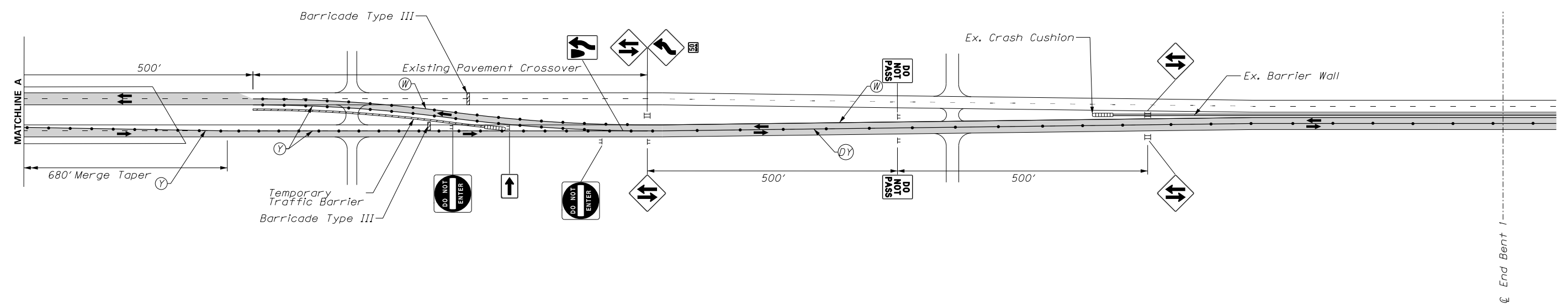
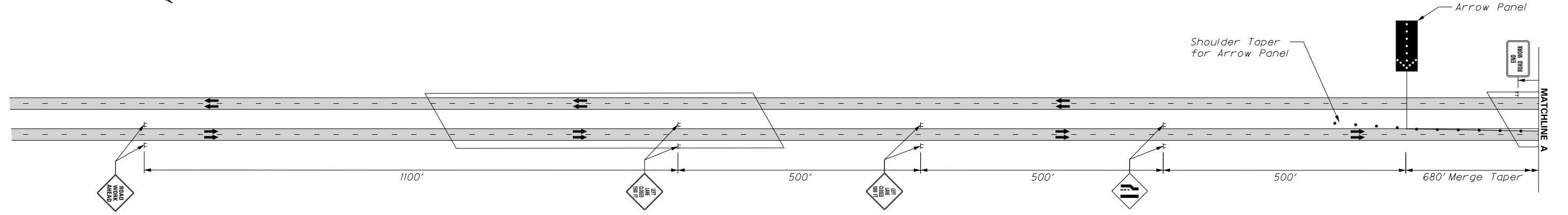
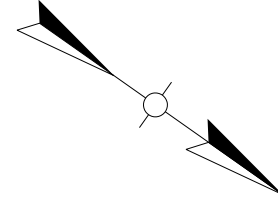
PREPARED BY
BURGESS & NIPLÉ
 Engineers ■ Architects ■ Planners

DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: C. Villier	D. Richardson
DETAILED BY: D. Richardson	C. Villier

MAINTENANCE OF TRAFFIC NOTES

CROSSING
 Ohio River

ROUTE	ITEM NO.	COUNTY OF
US 231		DAVIESS
	SHEET NO.	DRAWING NUMBER
	M13	28860

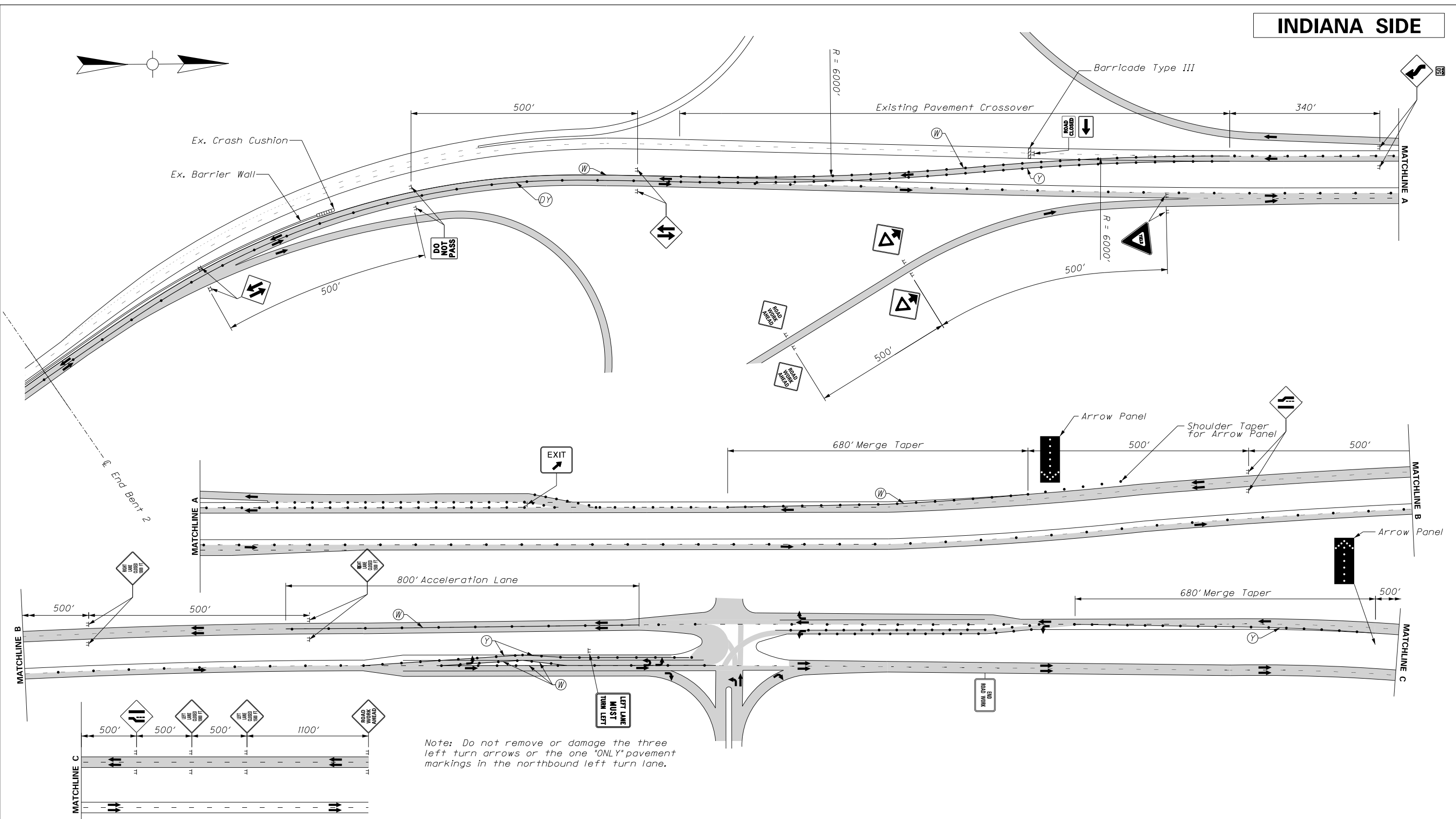
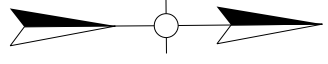


TYPICAL MOT BETWEEN CROSSOVERS

- LEGEND**
- (DY) Temporary Solid Double Yellow Line - 4 IN
 - (Y) Temporary Solid Yellow Edge Line - 4 IN
 - (W) Temporary Solid White Edge Line - 4 IN
 - Traffic Movement
 - Channelization Devices
 - ▭ Traveled Way

SB CLOSURE – SOUTH APPROACH MOT

	REVISION	DATE	PREPARED BY	DATE: November 6, 2023	CHECKED BY	MAINTENANCE OF TRAFFIC CROSSING Ohio River	ROUTE	ITEM NO.	COUNTY OF
			BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DESIGNED BY: C. Villier DETAILED BY: D. Richardson	D. Richardson C. Villier		US 231	M14	DAVISS
MicroStation v8.11.9.919 USER: Villier	DATE PLOTTED: November 2, 2023		FILE NAME: P:\PR60034\CADD\MOT\SB SIGNING 1.DGN						



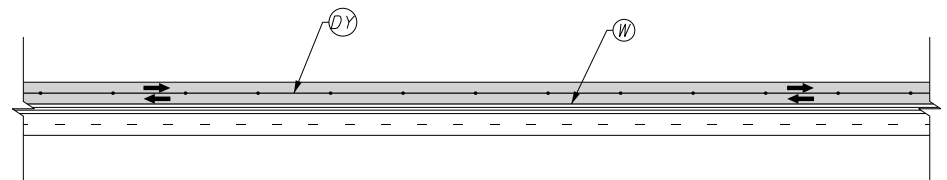
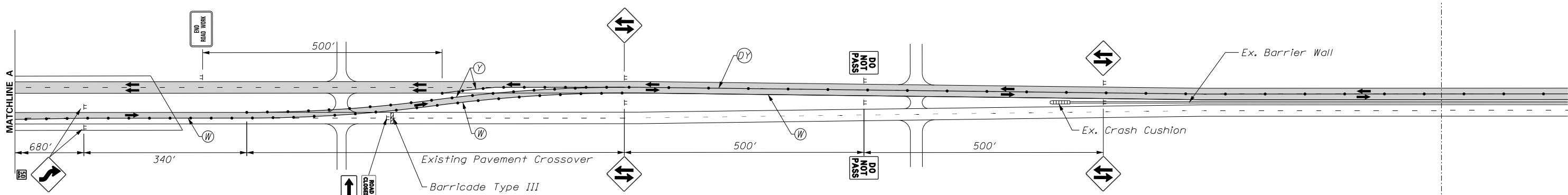
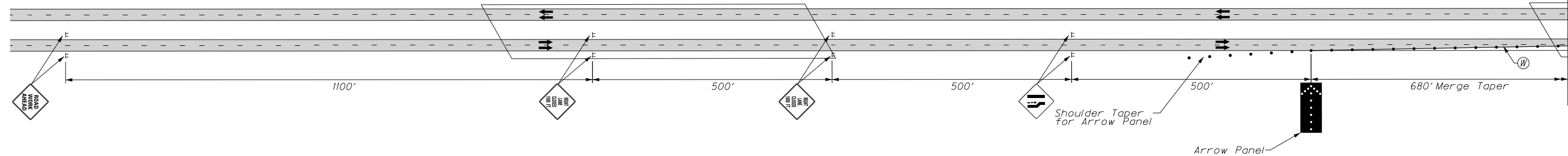
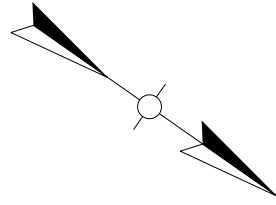
Note: Do not remove or damage the three left turn arrows or the one "ONLY" pavement markings in the northbound left turn lane.

LEGEND

- (DY) Temporary Solid Double Yellow Line - 4 IN
- (Y) Temporary Solid Yellow Edge Line - 4 IN
- (W) Temporary Solid White Edge Line - 4 IN
- Traffic Movement
- Channelization Devices
- ▬ Traveled Way

SB CLOSURE - NORTH APPROACH MOT

	REVISION	DATE	PREPARED BY	DATE: November 6, 2023	CHECKED BY	MAINTENANCE OF TRAFFIC CROSSING Ohio River	ROUTE	ITEM NO.	COUNTY OF
				BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DESIGNED BY: C. Villier		D. Richardson	US 231	M15
				DETAILED BY: D. Richardson	C. Villier				DRAWING NUMBER
									28860



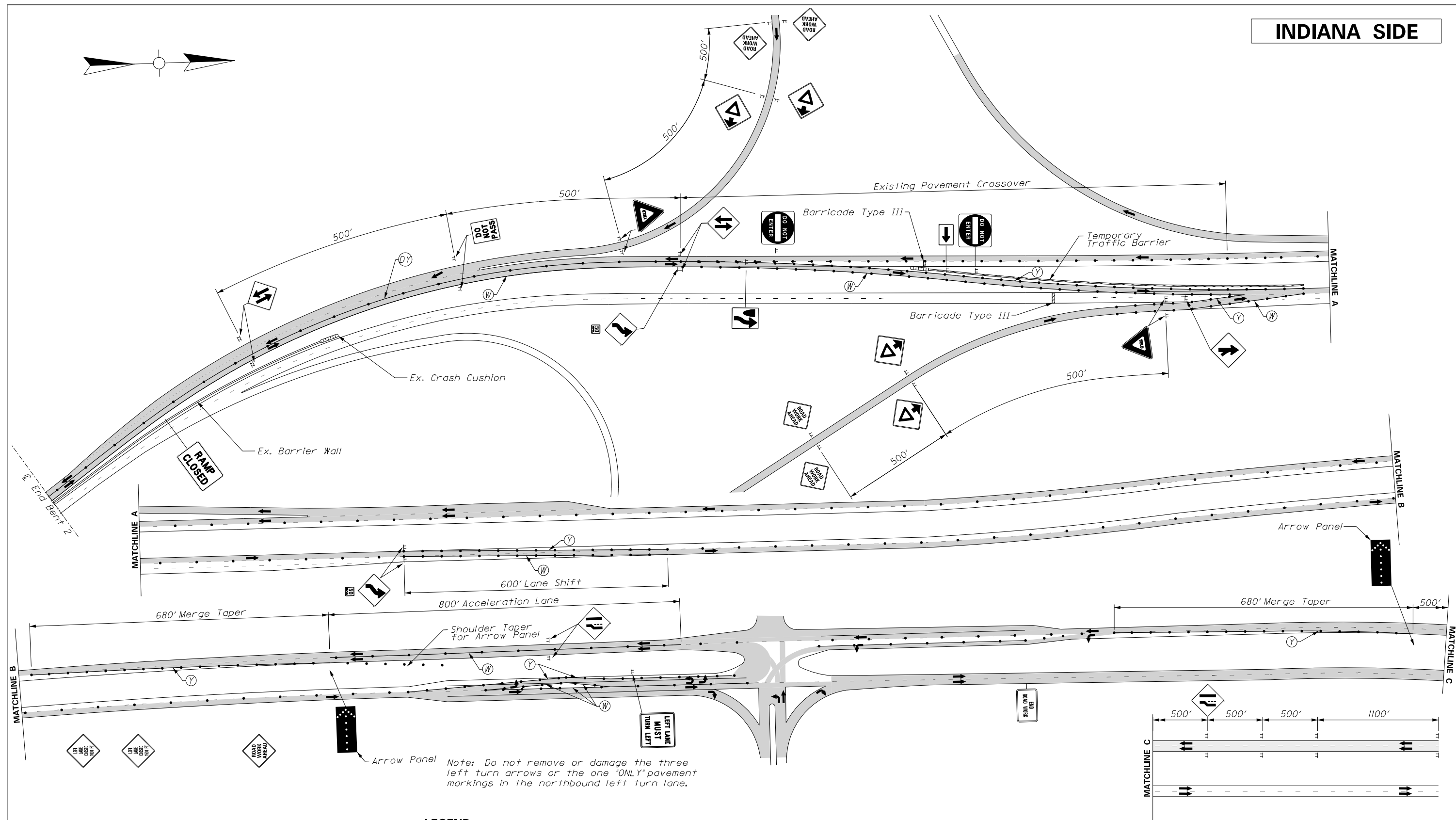
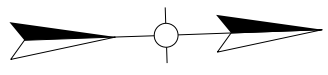
TYPICAL MOT BETWEEN CROSSOVERS

LEGEND

- (DY) Temporary Solid Double Yellow Line - 4 IN
- (Y) Temporary Solid Yellow Edge Line - 4 IN
- (W) Temporary Solid White Edge Line - 4 IN
- Traffic Movement
- Channelization Devices
- ▭ Traveled Way

NB CLOSURE - SOUTH APPROACH MOT

	REVISION	DATE	PREPARED BY	DATE: November 6, 2023	CHECKED BY	MAINTENANCE OF TRAFFIC CROSSING Ohio River	ROUTE	ITEM NO.	COUNTY OF
				BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DESIGNED BY: C. Villier DETAILED BY: D. Richardson		D. Richardson C. Villier	US 231	M16



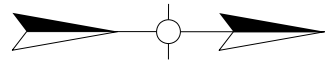
Note: Do not remove or damage the three left turn arrows or the one "ONLY" pavement markings in the northbound left turn lane.

LEGEND

- ⓪ Temporary Solid Double Yellow Line - 4 IN
- Ⓢ Temporary Solid Yellow Edge Line - 4 IN
- Ⓦ Temporary Solid White Edge Line - 4 IN
- ➔ Traffic Movement
- ⋯ Channelization Devices
- ▭ Traveled Way

NB CLOSURE - NORTH APPROACH MOT

	REVISION	DATE	PREPARED BY BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DATE: November 6, 2023 DESIGNED BY: C. Villier DETAILED BY: D. Richardson	CHECKED BY D. Richardson C. Villier	MAINTENANCE OF TRAFFIC CROSSING Ohio River	ROUTE	ITEM NO.	COUNTY OF
							US 231	M17	DAVIESS
MicroStation v8.11.9.919 USER: Villier	DATE PLOTTED: November 2, 2023		FILE NAME: P:\PR60034\CADD\MOT\NB SIGNING 2.DGN						DRAWING NUMBER 28860



1

SOUTH
231
DETOUR AHEAD

M3-3
24" x 12"
M1-4
24" x 24"
W20-2
36" x 36"

2

DETOUR
SOUTH
231
↑

M4-8
24" x 12"
M3-3
24" x 12"
M1-4
24" x 24"
M6-3
21" x 15"

3

DETOUR
SOUTH
231
↙

M4-8
24" x 12"
M3-3
24" x 12"
M1-4
24" x 24"
M6-2
21" x 15"

4

DETOUR
SOUTH
231
↻

M4-8
24" x 12"
M3-3
24" x 12"
M1-4
24" x 24"
24" x 24"

5

DETOUR
SOUTH
231
←

M4-8
24" x 12"
M3-3
24" x 12"
M1-4
24" x 24"
M6-1L
21" x 15"

6

DETOUR
SOUTH
231
→

M4-8
24" x 12"
M3-3
24" x 12"
M1-4
24" x 24"
M6-1R
21" x 15"

MOUNTED ON TYPE III BARRICADE

7

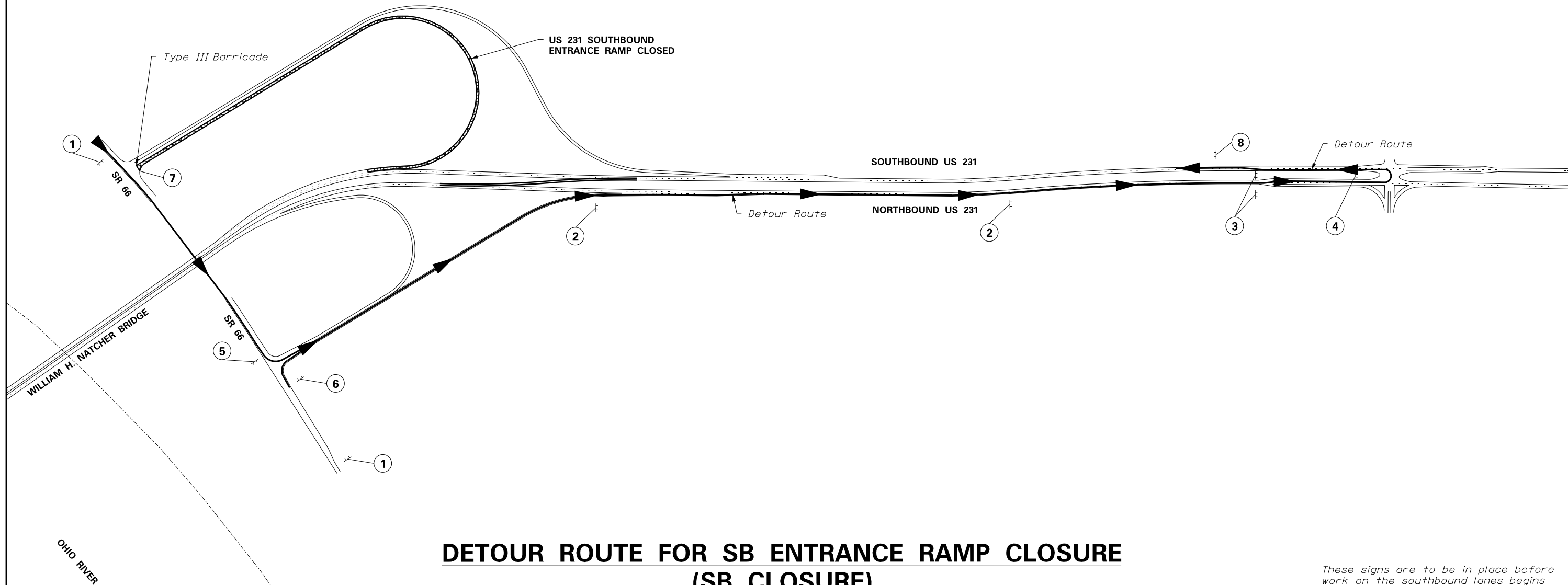
ROAD CLOSED

R11-2
48" x 30"

8

END DETOUR

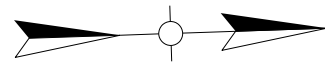
M4-8A
24" x 18"



**DETOUR ROUTE FOR SB ENTRANCE RAMP CLOSURE
 (SB CLOSURE)**

These signs are to be in place before work on the southbound lanes begins and are to remain in place until work on the southbound lanes is complete.

	REVISION	DATE	PREPARED BY	DATE: November 6, 2023	CHECKED BY	MAINTENANCE OF TRAFFIC CROSSING Ohio River	ROUTE	ITEM NO.	COUNTY OF
				BURGESS & NIPLÉ Engineers ■ Architects ■ Planners	DESIGNED BY: C. Villier		D. Richardson	US 231	SHEET NO. M18
				DETAILED BY: D. Richardson	C. Villier			DRAWING NUMBER	28860



1

INDIANA 66 M1-6 24" x 24"

W20-2 36" x 36"

DETOUR AHEAD

2

DETOUR M4-8 24" x 12"

INDIANA 66 M1-6 24" x 24"

M6-3 21" x 15"

3

DETOUR M4-8 24" x 12"

INDIANA 66 M1-6 24" x 24"

M6-2 21" x 15"

4

DETOUR M4-8 24" x 12"

INDIANA 66 M1-6 24" x 24"

M6-2 21" x 15"

5

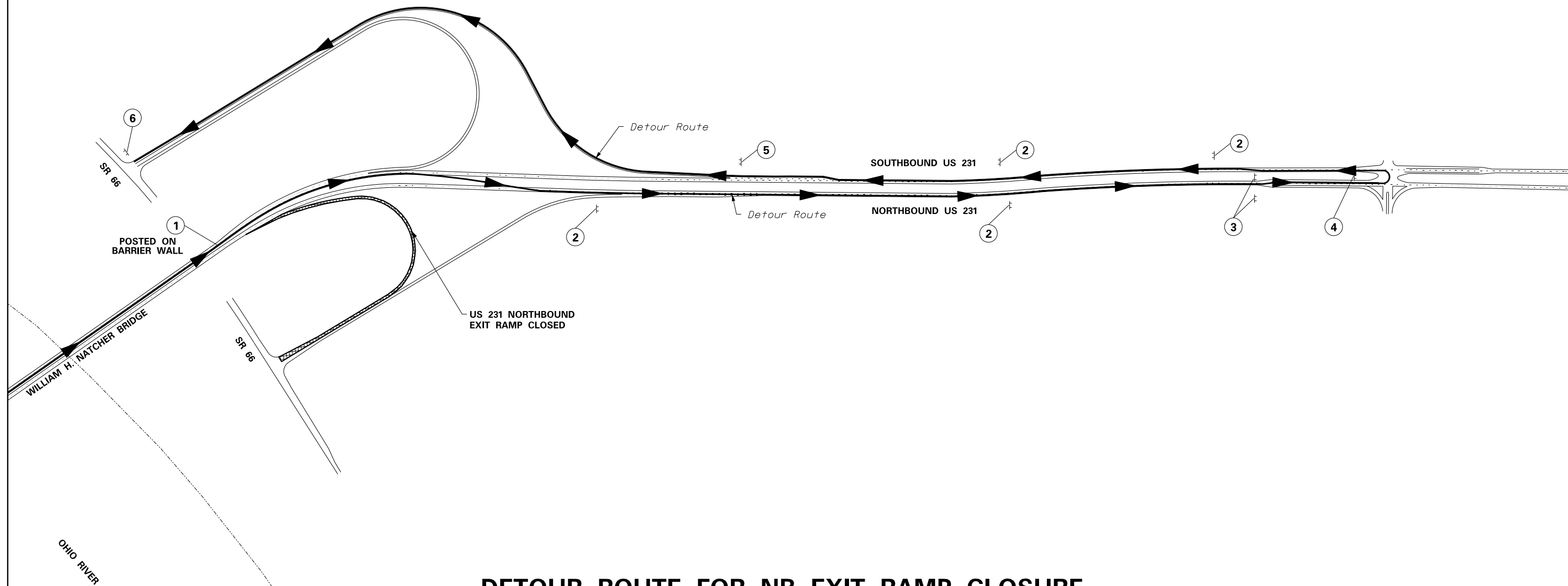
DETOUR M4-8 24" x 12"

INDIANA 66 M1-6 24" x 24"

M6-2 21" x 15"

6

END DETOUR M4-8A 24" x 18"



DETOUR ROUTE FOR NB EXIT RAMP CLOSURE (NB CLOSURE)

These signs are to be in place before work on the northbound lanes begins and are to remain in place until work on the northbound lanes is complete.



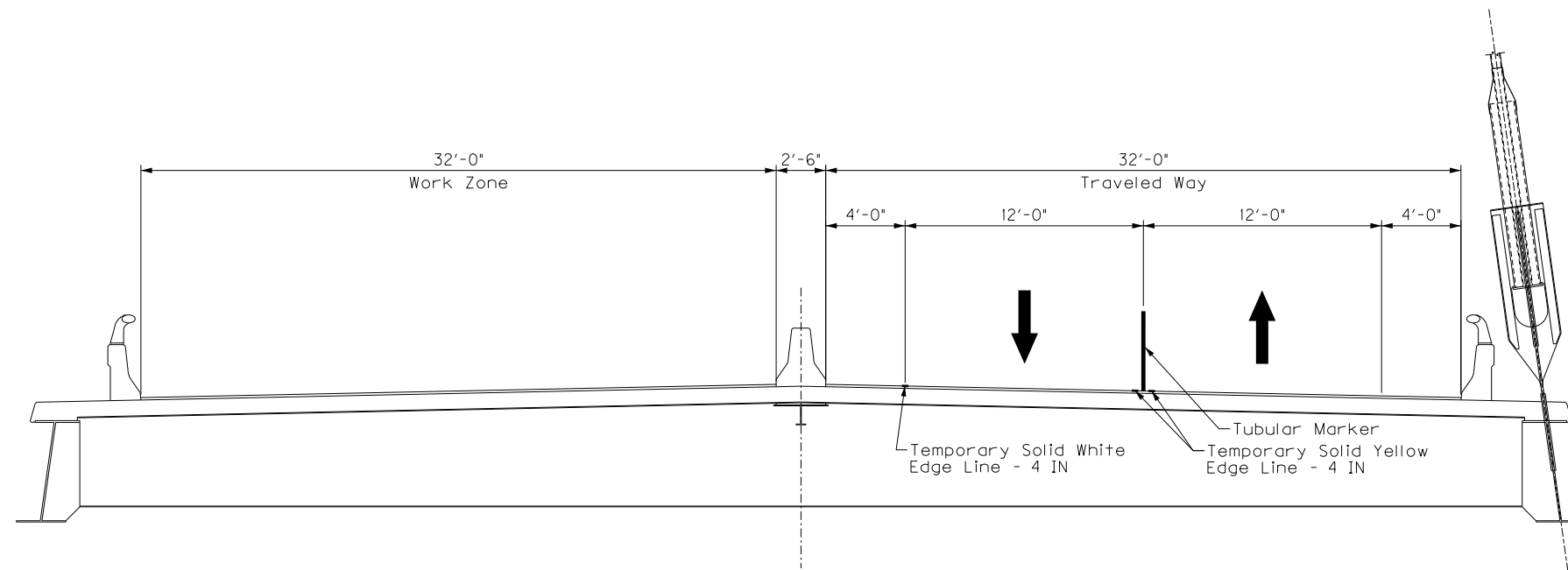
REVISION	DATE

DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: C. Villier	D. Richardson
DETAILED BY: D. Richardson	C. Villier

ROUTE
US 231

ITEM NO.
SHEET NO. M19

COUNTY OF DAVISS
DRAWING NUMBER 28860



Between Cables

At Cables

TYPICAL BRIDGE SECTION SHOWING TWO-WAY TRAFFIC

Main Spans Shown
Approach Spans Similar

REVISION	DATE

DATE: November 6, 2023	CHECKED BY:
DESIGNED BY: C. Villier	D. Richardson
DETAILED BY: D. Richardson	C. Villier