11-08-2024 LETTING ITEM 047

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	1
	ILLINOIS	CONTRACT NO. 68J49		

* MARSHALL, PEORIA, TAZEWELL

D-94-073-24

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

(VAR) ROUTE VARIOUS
SECTION D4 BRIDGE PAINTING 2025-1
FED. PROJECT NO.: NHPP-1AKL(229)
VARIOUS COUNTIES

C-94-101-24

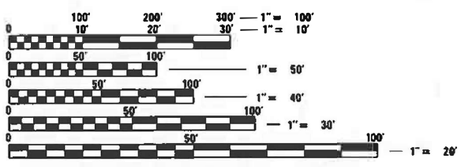
INDEX OF SHEETS

HIGHWAY STANDARDS

000001-08	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
701101-05	OFF-RD OPERATIONS, MULTILANE, 15' (4.5 m) TO 24" (600 mm) FROM PAVEMENT EDGE
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 m) AWAY
701321-18	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701400-12	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701402-12	LANE CLOSURE FREEWAY/EXPRESSWAY WITH BARRIER
701411-09	LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS ≥ 45 MPH
701423-10	LANE CLOSURE, MULTILANE, WITH BARRIER, FOR SPEEDS ≥ 45 MPH TO 55 MPH
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS ≥ 45 MPH
701801-06	SIDEWALK, CORNER OR CROSSWALK CLOSURE
701901-09	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER
780001-05	TYPICAL PAVEMENT MARKINGS
781001-04	TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

TRAFFIC DATA - ADT

LOCATION 1 - 3250 (2021)
LOCATION 2 - 5550 (2023)
LOCATION 3 - 11400 (2023)
LOCATION 4 - 21100 (2023)
LOCATION 5 - 22800 (2023)
LOCATION 6 - 22800 (2023)



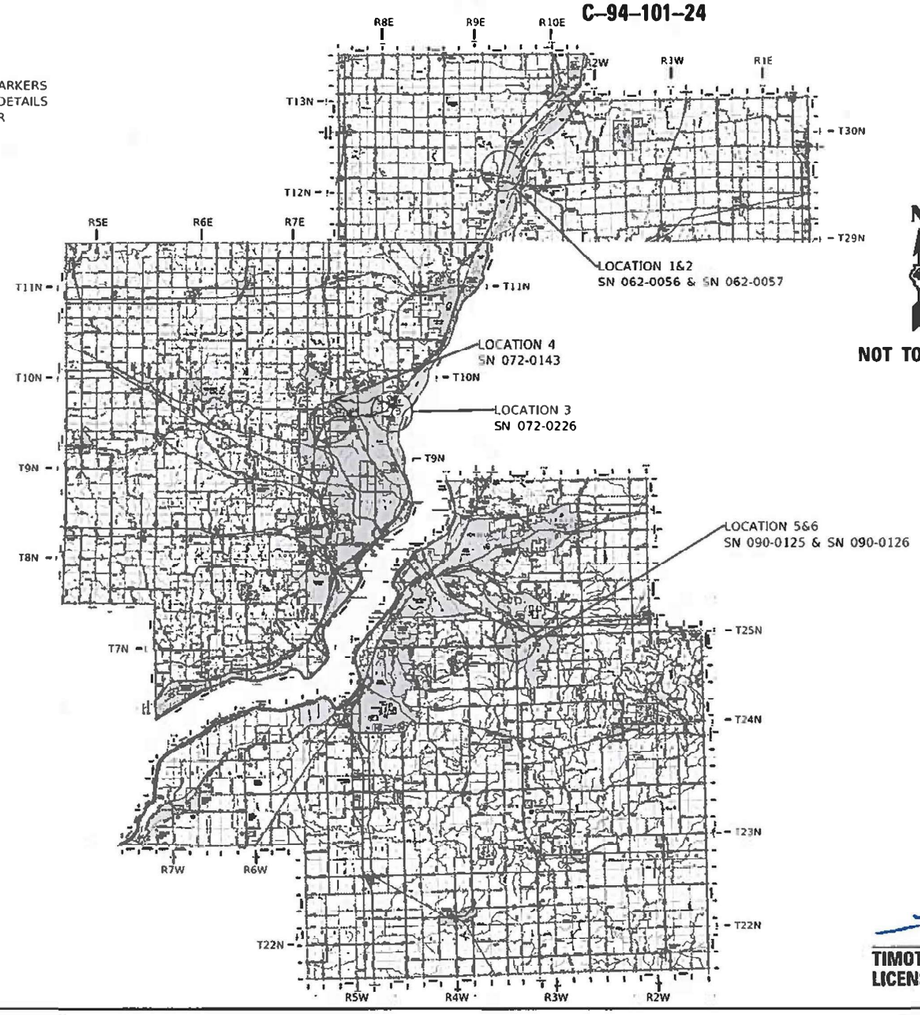
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

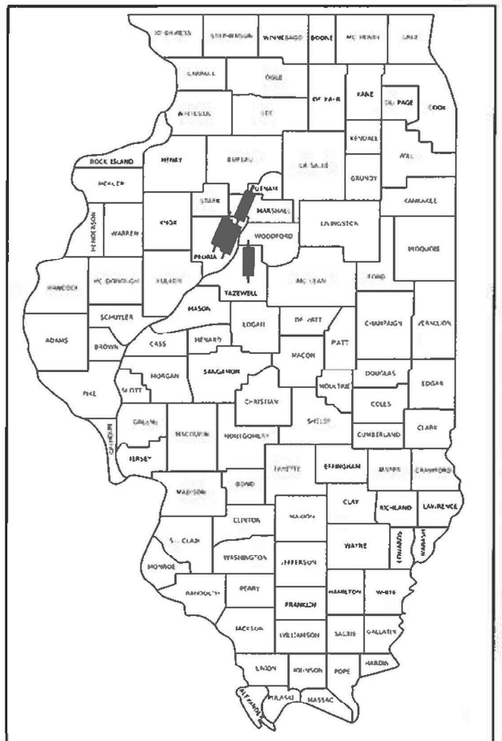
J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS
1-800-892-0123
OR 811

PROJECT ENGINEER: BEN TELLEFSON
PROJECT MANAGER: MARK ECKHOFF

CONTRACT NO. 68J49

CATALOG NO. 036554-00D





PLANS PREPARED BY:

TWM ENGINEERING GEOSPATIAL SERVICES
4940 Old Collinsville Road
Swansea, Illinois 62226
Tel: 618.624.4488
www.twm-inc.com
Illinois Professional Design Firm No. 184-001220
License Expires: 4/30/2025
ILLINOIS - MISSOURI - TENNESSEE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED August 16 20 24
Kendal A. Sanderson
REGIONAL ENGINEER

October 4, 2024
ENGINEER OF DESIGN AND ENVIRONMENT

October 4, 2024
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

LICENSED PROFESSIONAL ENGINEER TIMOTHY B. PADGETT 062-049162 STATE OF ILLINOIS

TIMOTHY B. PADGETT, P.E. EXPIRATION DATE
LICENSE NO. 062-049162 11-30-2025

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

REV. 8/27/24

COMMITMENTS

NO COMMITMENTS HAVE BEEN MADE FOR THIS PROJECT.

ADDITIONAL SUPPLEMENTAL TRAFFIC CONTROL

THE DEPARTMENT RESERVES THE RIGHT AT ANY TIME TO ADD ADDITIONAL TRAFFIC CONTROL SYSTEMS OR DEVICES WITHIN THE ACTIVE CONTRACT LIMITS, BY MEANS OF AN ADDITIONAL CONTRACT. ALL TERMS OF ARTICLE 105.08 OF THE STANDARD SPECIFICATIONS SHALL BE FOLLOWED BY EACH CONTRACTOR.

PROJECT SPECIFIC NOTES

DO NOT SCALE PLANS FOR CONSTRUCTION MEASUREMENTS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND MAKE NECCESARY APROVED ADJUSTMENTS PRIOR TO ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE.

LOCATION 1 SN 062-0056: BEAM ENDS PREVIOUSLY METALIZED. PAINT ENTIRE STRUCTURE.

LOCATION 2 SN 062-0057: PAINT ENTIRE STRUCTURE.

LOCATION 3 SN 072-0226 : PAINT ENTIRE STRUCTURE

LOCATION 4 SN 072-0143: PAINT ALL STEEL ELEMENTS FROM THE OUTSIDES OF THE WALKWAYS AND DOWN. DO NOT PAINT HANDRAIL AND TOP WALKWAY CHECKERED PLATE.

LOCATION 5 & 6 SN 090-0125 & SN 090-0126: BEAM ENDS PREVIOUSLY METALIZED. PAINT ENTIRE STRUCTURE.

THE EXISTING STRUCTURAL STEEL COATING ON LOCATION 4 CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO ADDRESS THE PRESENCE OF LEAD ON THIS STRUCTURE.

THE EXISTING STRUCTURAL STEEL COATING ON LOCATIONS 1, 2, 3, 5 & 6 DO NOT CONTAIN LEAD.

FOR EXISTING SURFACES THAT HAVE BEEN PREVIOUSLY METALIZED WITH THERMAL METALLIC SPRAY, THE INTENT IS TO PREPARE THESE AREAS FOR OVERCOATING WITH THE PROPOSED NEW PAINT SYSTEM BY BRUSH-OFF BLAST CLEANING IN ACCORDANCE WITH SSPC-SP 16. ALL OTHER ASPECTS IN THE SPECIAL PROVISION "CLEANING AND PAINTING EXISITNG STEEL STRUCTURES" STILL APPLY.

CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR “CLEANING AND PAINTING EXISTING STEEL STRUCTURES.” ALL BEAMS, BEARINGS AND OTHER STRUCTURAL STEEL, EXCEPT FOR THE METALIZED BEAM ENDS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10.

THE DESIGNATED AREAS CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SPI0 SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 OZ/E/U.

FOR LOCATIONS 1, 2, 3, 5 & 6, THE COLOR OF THE FINAL FINISH COAT FOR ALL INTERIOR AND EXTERIOR STEEL SURFACES SHALL BE LIGHT GREY (MUNSELL NO. 5B 7/1).

FOR LOCATIONS 4, THE COLOR OF THE FINAL FINISH COAT FOR INTERIOR SURFACES SHALL BE LIGHT GREY (MUNSELL NO. 5B 7/1. THE COLOR OF THE FINAL FINISH COAT FOR EXTERIOR SURFACES SHALL BE INTERSTATE GREEN (MUNSELL NO. 7.5G 4/8).

ONLY STRUCTURAL STEEL AND OTHER DESIGNATED SURFACES SHALL BE PAINTED. ALL OTHER SURFACES SHALL BE PROTECTED FROM CONTRACTOR'S BLASTING AND PAINTING OPERATIONS. ANY AREAS THAT ARE DAMAGED BY BLASTING OR OVERSPRAY WILL BE REMOVED OR REPAIRED AT THE CONTRACTOR'S EXPENSE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

CARE SHALL BE TAKEN NOT TO DAMAGE THE ELASTOMERIC BEARINGS OR JOINT COMPONENTS DURING BLASTING AND CLEANING OPERATIONS. ANY DAMAGE TO THESE COMPONENTS WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

THE SSPC-QP1 AND QP2 PAINTING CONTRACTOR CERTIFICATIONS WILL BE REQUIRED FOR THIS CONTRACT.

ALL TRASH AND PAINTING DEBRIS, EXCLUDING WASTE BARRELS OR ROLL-OFF DUMPSTERS, SHALL BE REMOVED BEFORE BEGINNING WORK AT ANOTHER LOCATION.
SEE SPECIAL PROVISION FOR CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES.

THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

CONTAINMENT OF CLEANING RESIDUE IS REQUIRED TO CONTROL NUISANCE DUST. SEE SPECIAL PROVISIONS.

AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THE FOLLOWING LOCATIONS: SEE SPECIAL REVISIONS FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES."

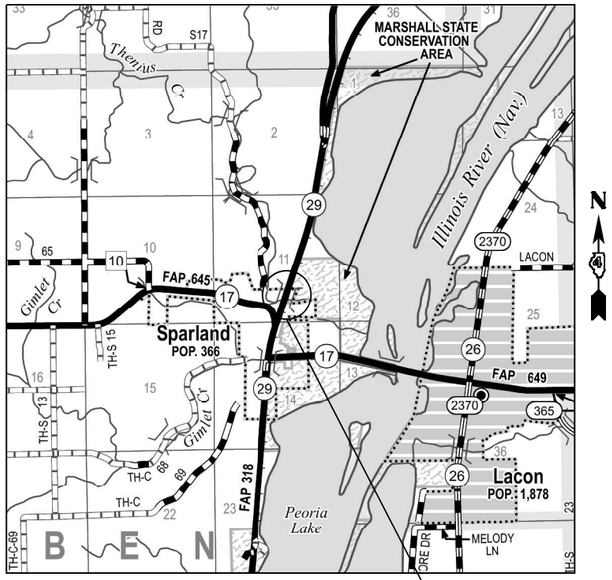
		MIN REQUIRED
LOCATION 4	SN 072-0143	1

STRUCTURES REQUIRING RAILROAD COORDINATION (SEE SPECIAL PROVISIONS):

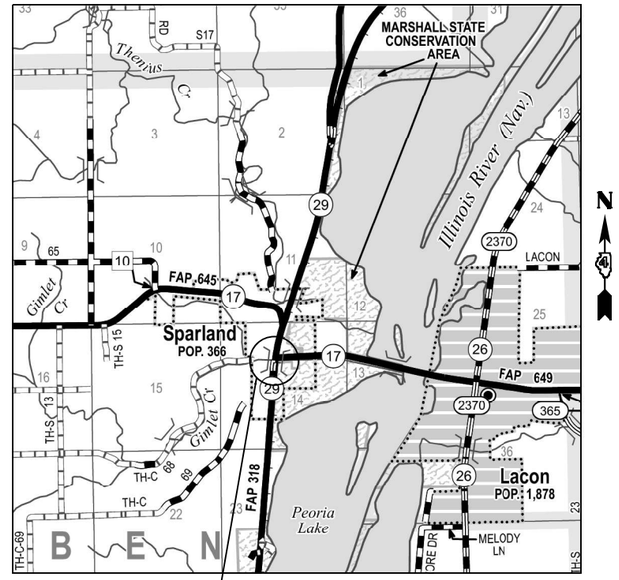
LOCATION 4 SN 072-0143
LOCATION 5 SN 090-0125
LOCATION 6 SN 090-0126

CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE				
				LOCATION 1	LOCATION 2	LOCATION 3	LOCATION 4	LOCATION 5 & 6
				IL 29	IL 29	IL 29	IL 6	I-155
				SN 062-0056	SN 062-0057	SN 072-0226	SN 072-0143	SN 090-0125/090-0126
				MARSHALL	MARSHALL	PEORIA	PEORIA	TAZEWELL
				URBAN	URBAN	URBAN	RURAL	URBAN
				80% FEDERAL	80% FEDERAL	80% FEDERAL	90% FEDERAL	90% FEDERAL
				20% STATE	20% STATE	20% STATE	10% STATE	10% STATE
				0047	0047	0047	0047	0047
67100100	MOBILIZATION	L SUM	1	0.2	0.2	0.2	0.2	0.2
70100207	TRAFFIC CONTROL AND PROTECTION, STANDARD 701402	EACH	3				1	2
70100325	TRAFFIC CONTROL AND PROTECTION, STANDARD 701423	EACH	1			1		
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH	1					1
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM	1		1			
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1				
70106700	TEMPORARY RUMBLE STRIPS	EACH	6	6				
70107005	PAVEMENT MARKING BLACKOUT TAPE, 5"	FOOT	2272	1119	733	420		
70107007	PAVEMENT MARKING BLACKOUT TAPE, 7"	FOOT	2280				1490	790
70107009	PAVEMENT MARKING BLACKOUT TAPE, 9"	FOOT	544					544
70107016	PAVEMENT MARKING BLACKOUT TAPE, 16"	FOOT	217		217			
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	334	50	46	46	126	66
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	2973	466	594	175	869	869
70400100	TEMPORARY CONCRETE BARRIER	FOOT	2100	387.5	212.5	250	575	675
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	2062.5	375	187.5	250	575	675
70600250	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	12	4	2	2	2	2
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	10	2	2	2	2	2
X5060601	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1				

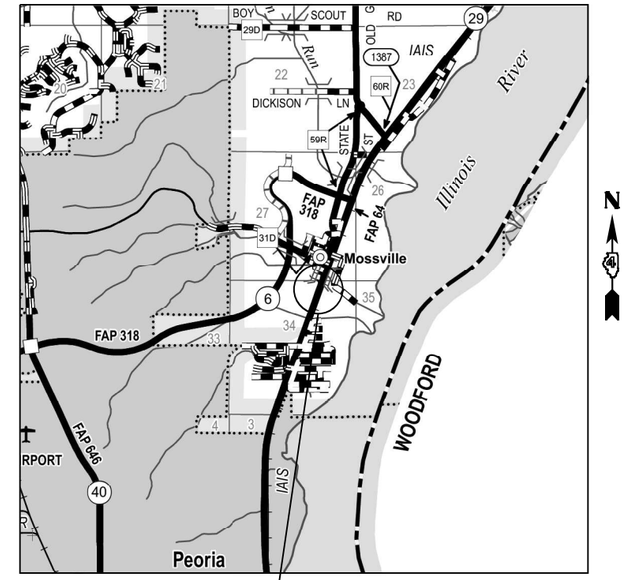
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE				
				LOCATION 1	LOCATION 2	LOCATION 3	LOCATION 4	LOCATION 5 & 6
				IL 29	IL 29	IL 29	IL 6	I-155
				SN 062-0056	SN 062-0057	SN 072-0226	SN 072-0143	SN 090-0125/090-0126
				MARSHALL	MARSHALL	PEORIA	PEORIA	TAZEWELL
				URBAN	URBAN	URBAN	RURAL	URBAN
				80% FEDERAL	80% FEDERAL	80% FEDERAL	90% FEDERAL	90% FEDERAL
				20% STATE	20% STATE	20% STATE	10% STATE	10% STATE
				0047	0047	0047	0047	0047
X5060602	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 2	L SUM	1		1			
X5060603	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 3	L SUM	1			1		
X5060605	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 5	L SUM	1					1
X5060606	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 6	L SUM	1					1
X7010202	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)	EACH	1	1				
X7010218	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	EACH	1		1			
X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1		1			
Z0007104	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 4	L SUM	1				1	
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1	1				
Z0010502	CLEANING AND PAINTING STEEL BRIDGE NO. 2	L SUM	1		1			
Z0010503	CLEANING AND PAINTING STEEL BRIDGE NO. 3	L SUM	1			1		
Z0010504	CLEANING AND PAINTING STEEL BRIDGE NO. 4	L SUM	1				1	
Z0010505	CLEANING AND PAINTING STEEL BRIDGE NO. 5	L SUM	1					1
Z0010506	CLEANING AND PAINTING STEEL BRIDGE NO. 6	L SUM	1					1
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1				0.5	0.5



LOCATION 1
SN 062-0056
IL 29 OVER THENIUS CREEK

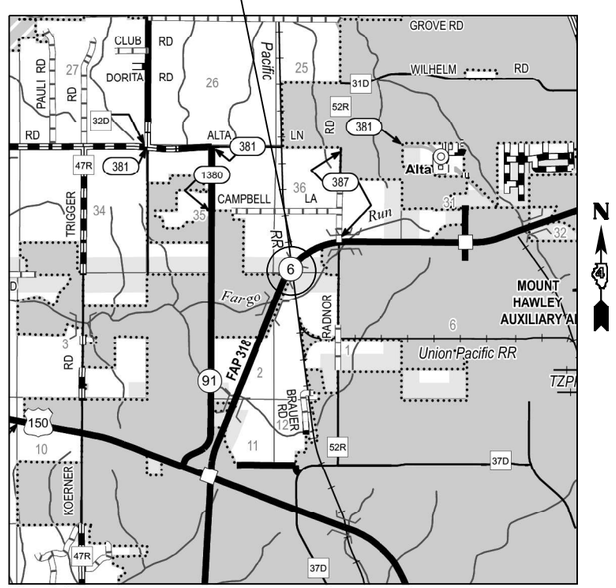


LOCATION 2
SN 062-0057
IL 29 OVER GIMLET CREEK

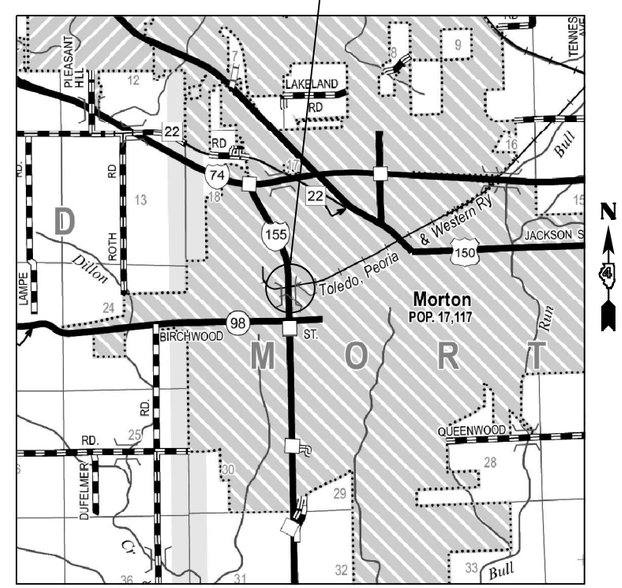


LOCATION 3
SN 072-0226
IL 29 OVER BOYD'S HOLLOW

LOCATION 4
SN 072-0143
UPRR OVER IL 6



LOCATION 5 & 6
SN 090-0125 & SN 090-0126
NB & SB I-155 OVER TP&W RR



NOT TO SCALE

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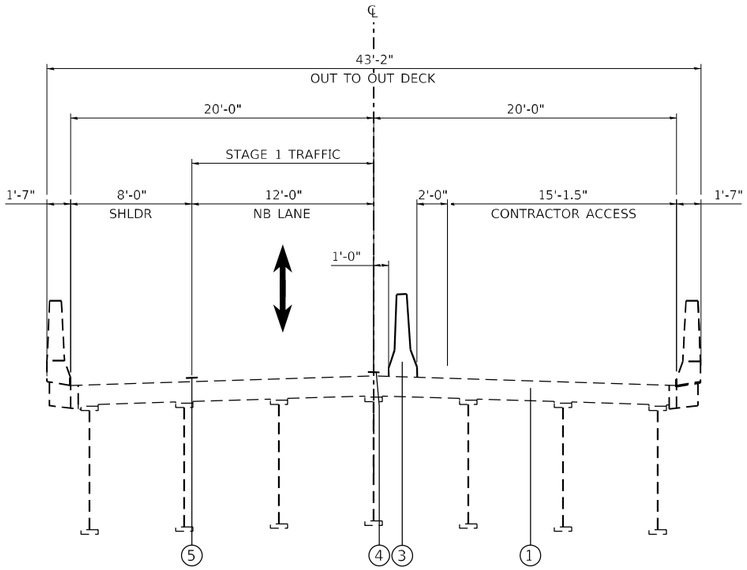
TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LOCATION MAP STRUCTURE LOCATIONS 1, 2, 3, 4, 5 & 6	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			DRAWN - JCL	REVISED -			VAR	D4 BRIDGE PAINTING 2025-1	*	43	5
		PLOT SCALE = 40.0000 ' / in.	CHECKED - TBP	REVISED -			* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -		SCALE: NTS / SHEET 1 OF 1 SHEETS / STA. TO STA.			ILLINOIS FED. AID PROJECT		

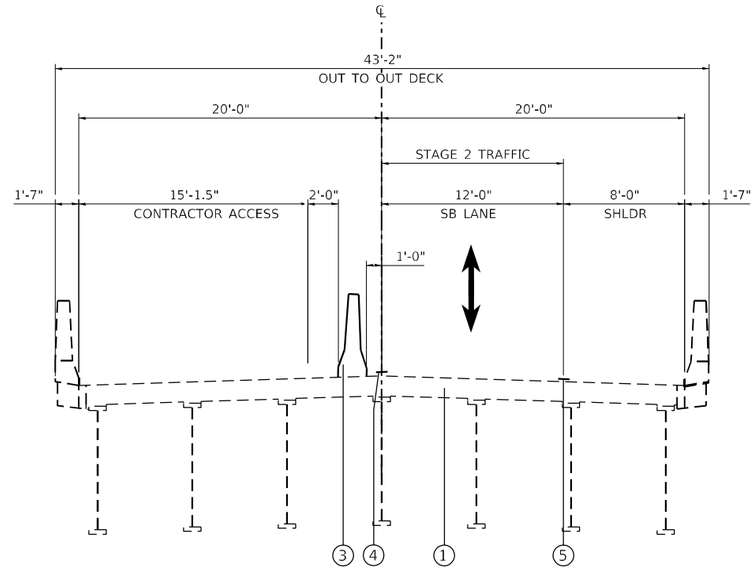
LEGEND

1. EXISTING PCC BRIDGE DECK, 8"
2. EXISTING FLOOR DRAINS
3. TEMPORARY CONCRETE BARRIER
4. WHITE TEMPORARY PAVEMENT MARKING TAPE, 5"
5. EXISTING PAVEMENT MARKING



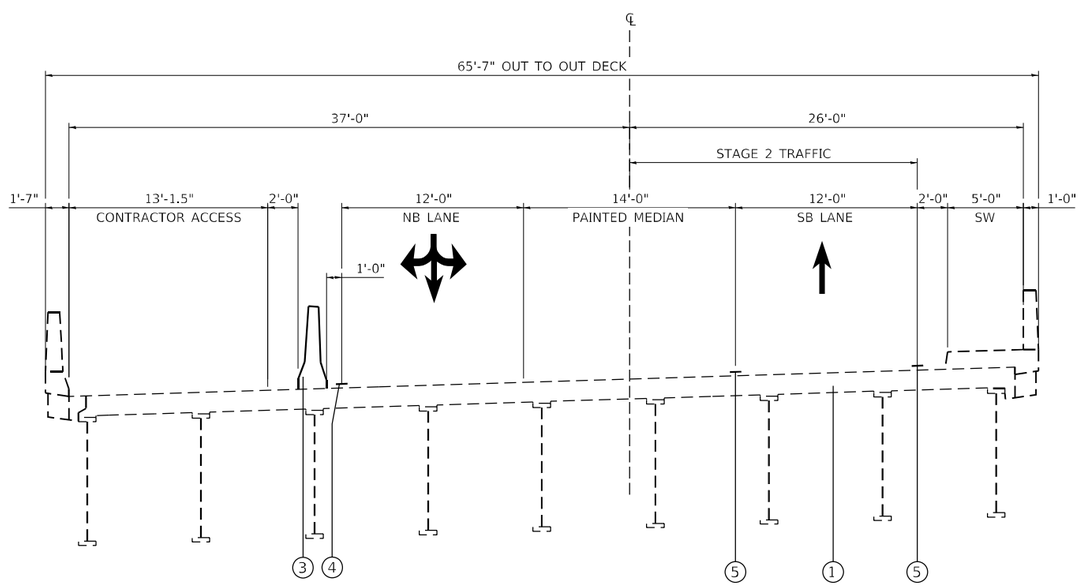
STAGE 1 TYPICAL SECTION

LOCATION 1 – IL 29 OVER THENIUS CREEK (LOOKING SOUTH)



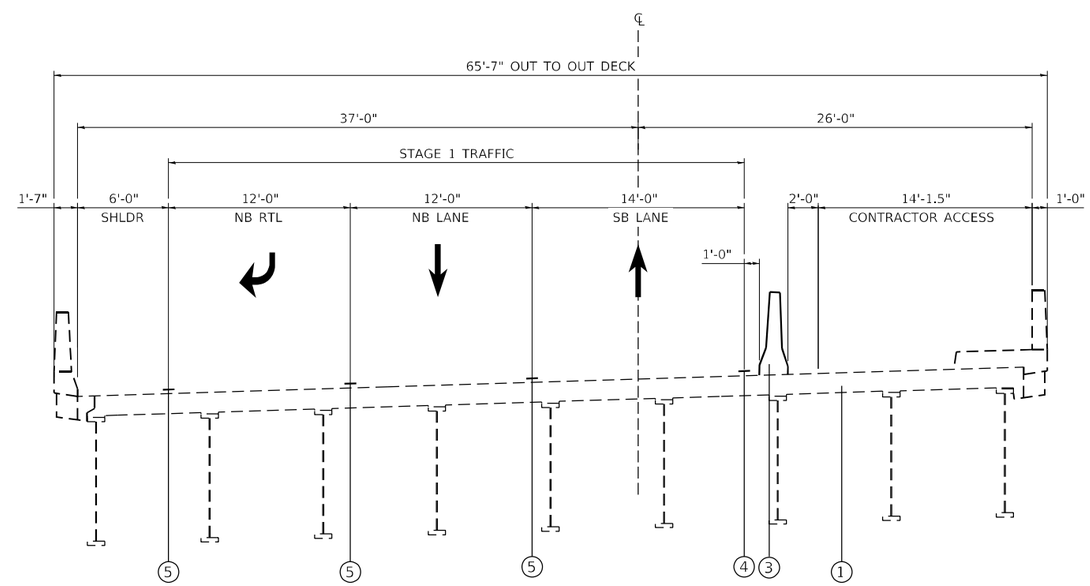
STAGE 2 TYPICAL SECTION

LOCATION 1 – IL 29 OVER THENIUS CREEK (LOOKING SOUTH)



STAGE 1 TYPICAL SECTION

LOCATION 2 – IL 29 OVER GIMLET CREEK (LOOKING SOUTH)



STAGE 2 TYPICAL SECTION

LOCATION 2 – IL 29 OVER GIMLET CREEK (LOOKING SOUTH)

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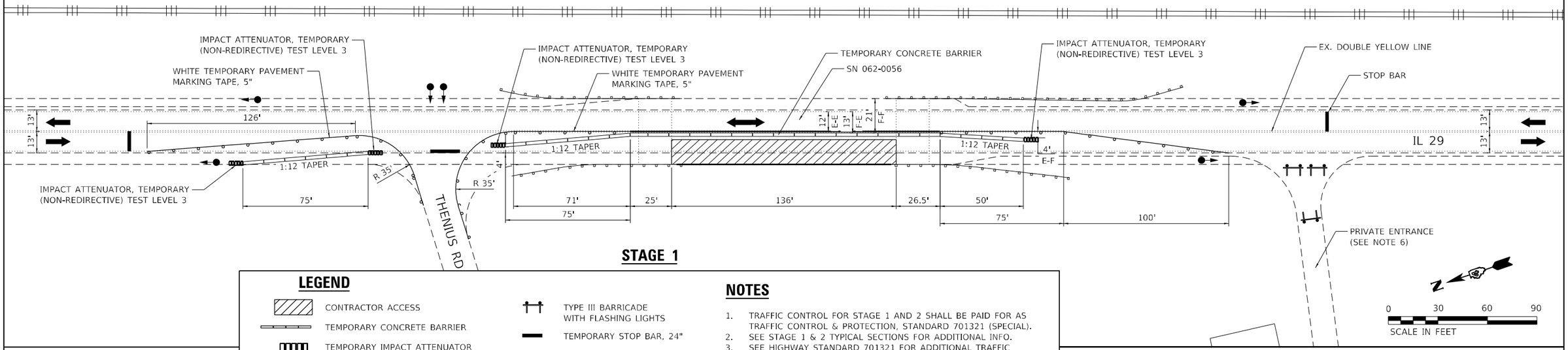
TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	IL DESIGN FIRM LICENSE NO: 184-001220		DRAWN - JCL	REVISED -	
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGE 1 & 2 – STAGING TYPICAL SECTIONS
STRUCTURE LOCATION 1 & 2

SCALE: 1"=5' | SHEET 1 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	6
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		



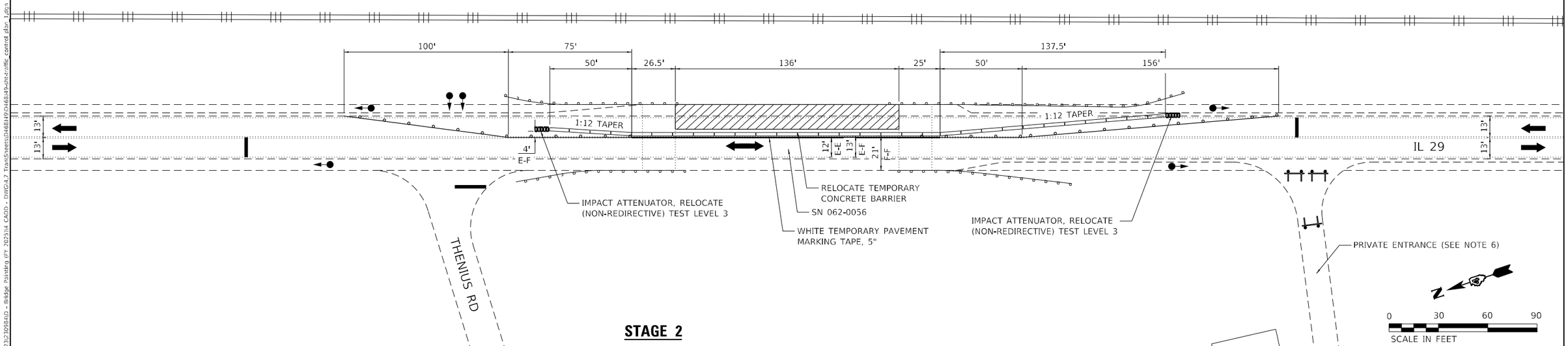
STAGE 1

LEGEND

- CONTRACTOR ACCESS
- TEMPORARY CONCRETE BARRIER
- TEMPORARY IMPACT ATTENUATOR
- DIRECTION OF TRAFFIC
- CONES, DRUMS OR BARRICADES WITH STEADY BURN MONO DIRECTIONAL LIGHT
- TRAFFIC SIGNAL
- TYPE III BARRICADE WITH FLASHING LIGHTS
- TEMPORARY STOP BAR, 24"

NOTES

1. TRAFFIC CONTROL FOR STAGE 1 AND 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701321 (SPECIAL).
2. SEE STAGE 1 & 2 TYPICAL SECTIONS FOR ADDITIONAL INFO.
3. SEE HIGHWAY STANDARD 701321 FOR ADDITIONAL TRAFFIC CONTROL DETAILS.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL ITEMS.
5. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
6. RESIDENTS CAN USE ENTRANCE ON IL 17 FOR INGRESS/EGRESS.



STAGE 2

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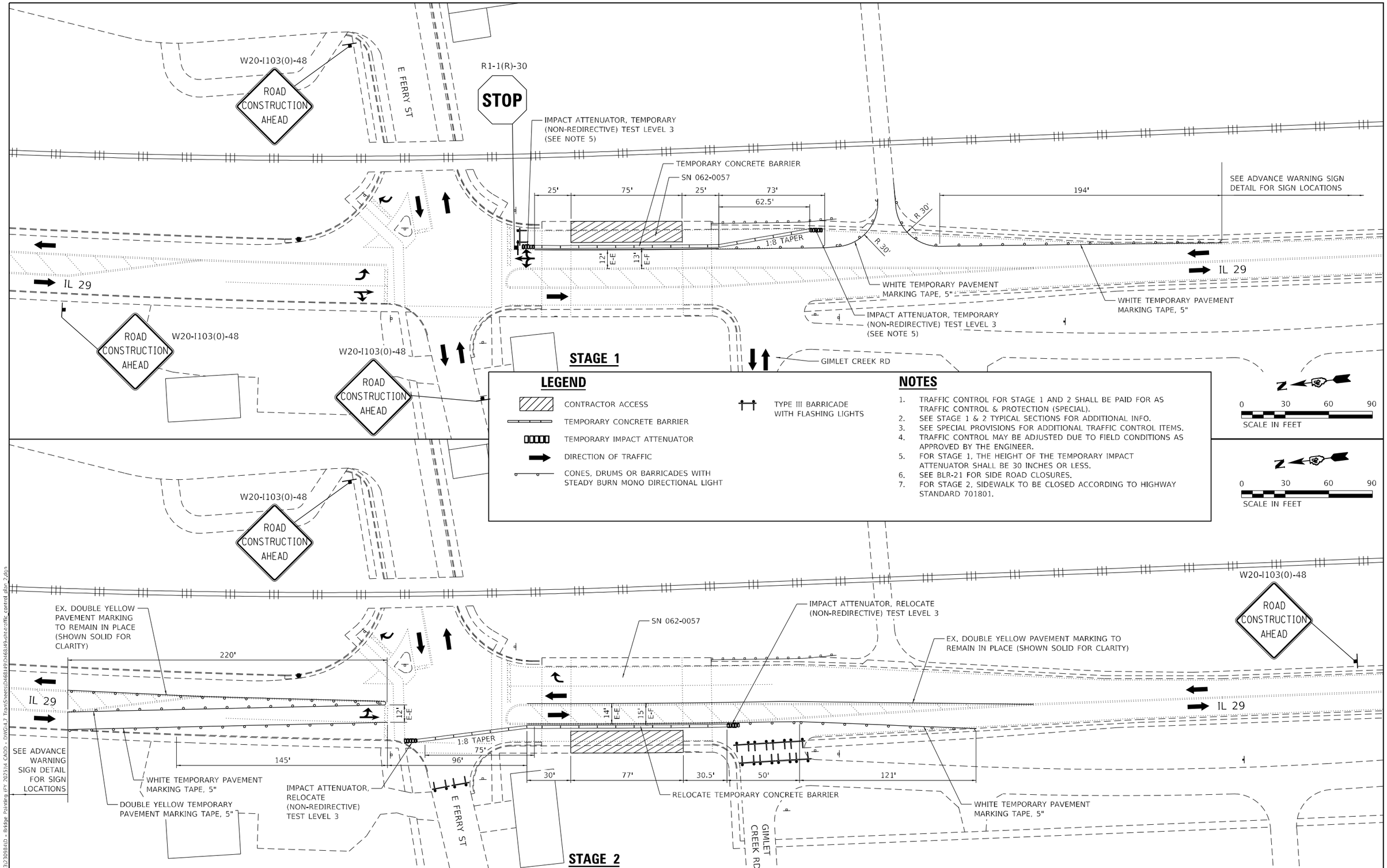
TWM ENGINEERING GEOSPATIAL SERVICES — TWM, INC. WWW.TWM-INC.COM — IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STAGE 1 & 2 – STAGING PLAN STRUCTURE LOCATION 1
		DRAWN - JCL	REVISED -		
	PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -		
	PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -		SCALE: 1"=30' SHEET 2 OF 11 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	7
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		



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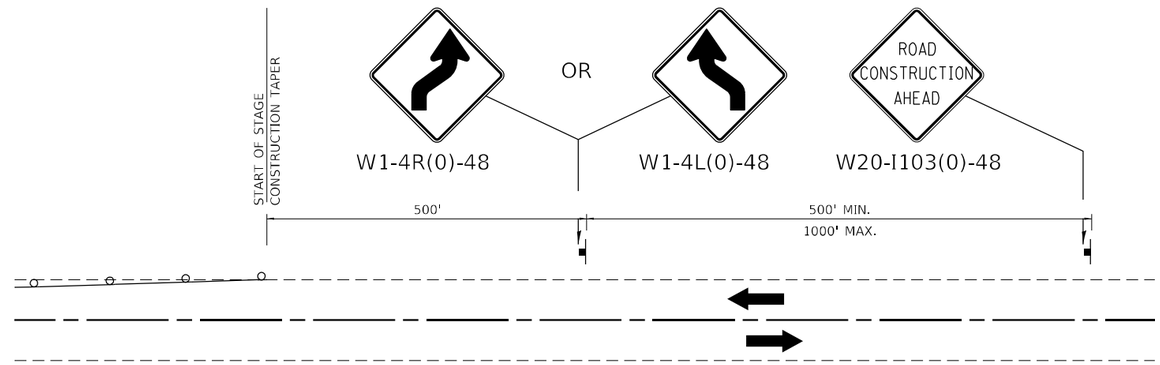
TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -
			DRAWN - JCL	REVISED -
		PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE 1 & 2 – STAGING PLAN
STRUCTURE LOCATION 2

SCALE: 1"=30' | SHEET 3 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	8
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		



ADVANCE WARNING SIGN DETAIL

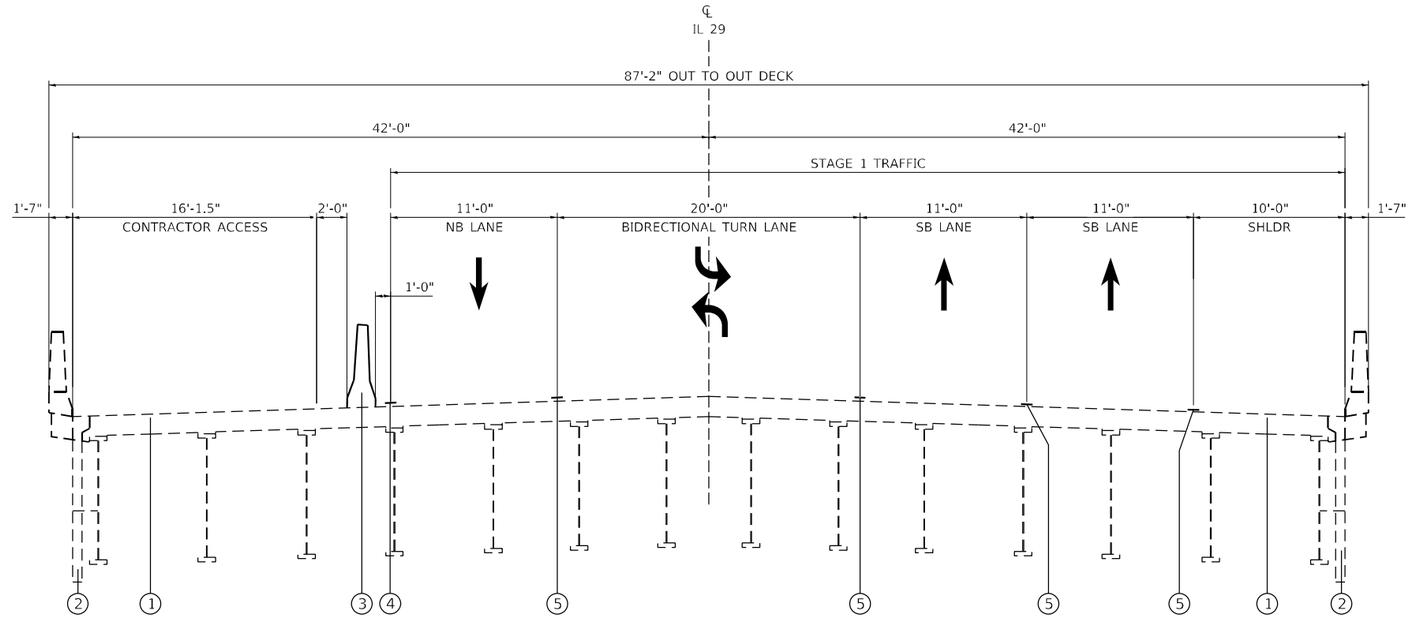
(IL 29)

MODEL: Default
FILE NAME: P:\2023\23098AID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-traffic_control_plan_2.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STAGE 1 & 2 – STAGING PLAN STRUCTURE LOCATION 2			F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			DRAWN - JCL	REVISED -					VAR	D4 BRIDGE PAINTING 2025-1	*	43	9
		PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -					* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -		SCALE: NTS	SHEET 4 OF 11 SHEETS	STA. TO STA.		ILLINOIS	FED. AID PROJECT		

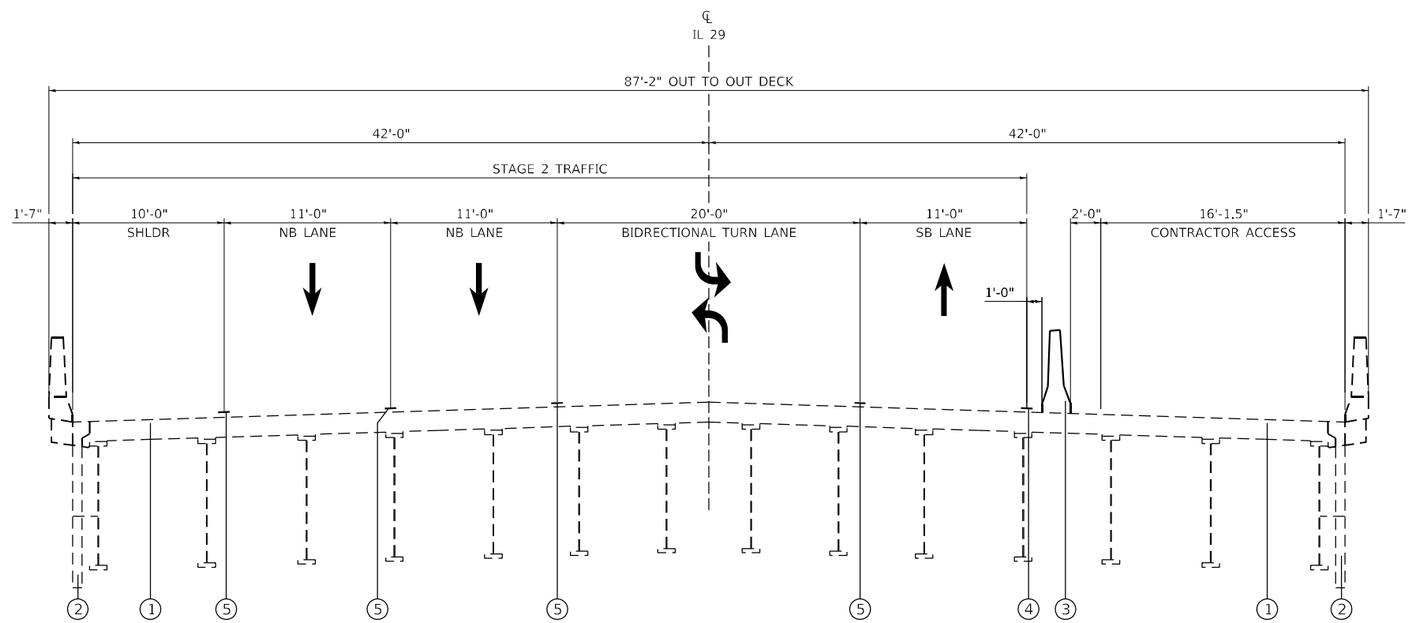
LEGEND

1. EXISTING PCC BRIDGE DECK, 8"
2. EXISTING FLOOR DRAINS
3. TEMPORARY CONCRETE BARRIER
4. WHITE TEMPORARY PAVEMENT MARKING TAPE, 5"
5. EXISTING PAVEMENT MARKING



STAGE 1 TYPICAL SECTION

LOCATION 3 – IL 29 OVER BOYD'S HOLLOW (LOOKING SOUTH)



STAGE 2 TYPICAL SECTION

LOCATION 3 – IL 29 OVER BOYD'S HOLLOW (LOOKING SOUTH)

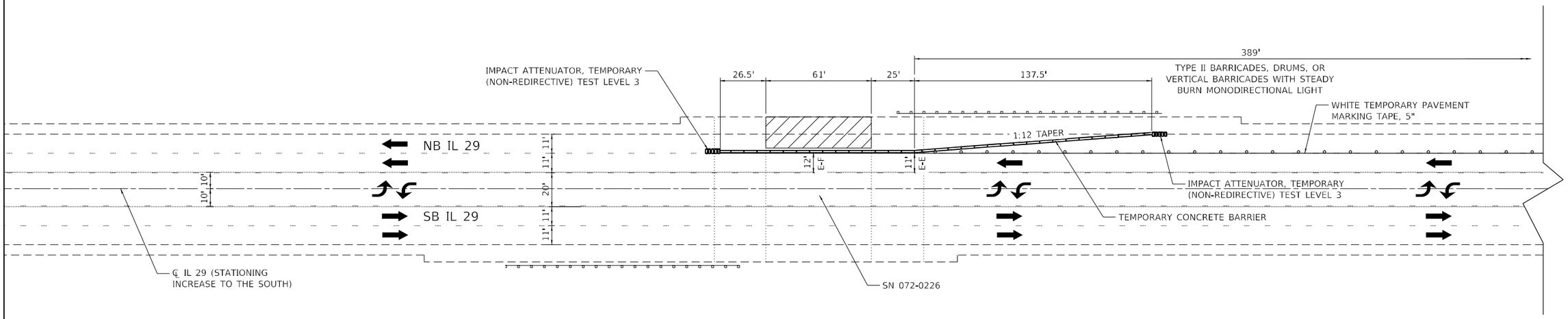
MODEL: Default
FILE NAME: P:\0232\3068AID - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 Trans\Sheets\D468J49\D468J49-sht-traffic_control_typs.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	IL DESIGN FIRM LICENSE NO: 184-001220		DRAWN - JCL	REVISED -	
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

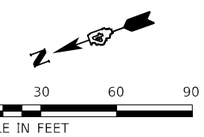
STAGE 1 & 2 – STAGING TYPICAL SECTIONS
STRUCTURE LOCATION 3

SCALE: 1"=5' | SHEET 5 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	10
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		



STAGE 1

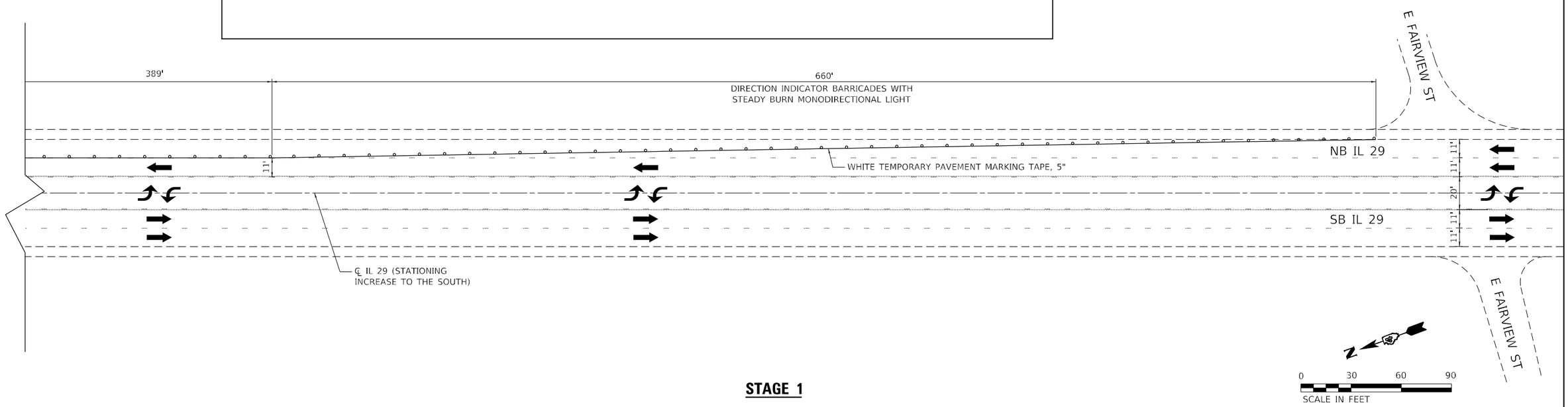


LEGEND

- CONTRACTOR ACCESS
- TEMPORARY CONCRETE BARRIER
- TEMPORARY IMPACT ATTENUATOR
- DIRECTION OF TRAFFIC

NOTES

1. TRAFFIC CONTROL FOR STAGE 1 AND 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701423.
2. SEE STAGE 1 & 2 TYPICAL SECTIONS FOR ADDITIONAL INFO.
3. SEE HIGHWAY STANDARD 701423 FOR ADDITIONAL TRAFFIC CONTROL DETAILS.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL ITEMS.
5. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.



STAGE 1

MODEL: Default
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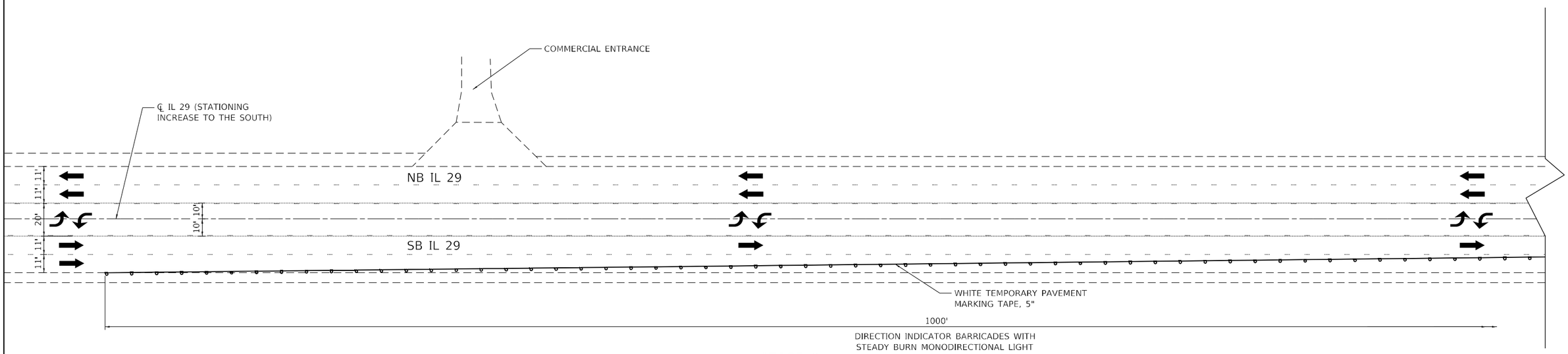
TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
			DRAWN - JCL	REVISED -	
		PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGE 1 – STAGING PLAN
STRUCTURE LOCATION 3

SCALE: 1"=30' | SHEET 6 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	11
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	



STAGE 2

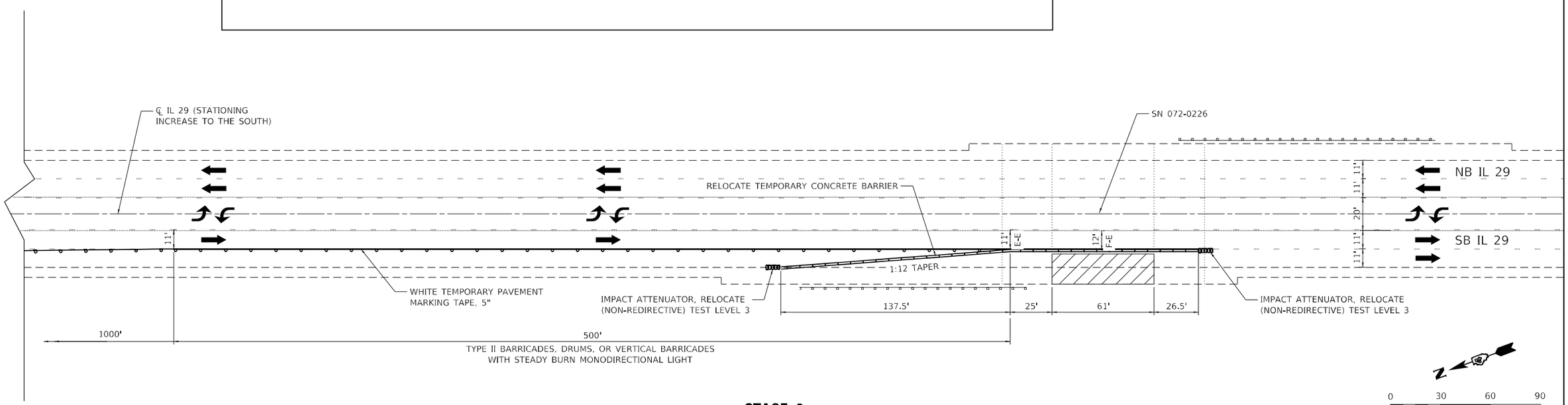
LEGEND

- CONTRACTOR ACCESS
- TEMPORARY CONCRETE BARRIER
- TEMPORARY IMPACT ATTENUATOR
- DIRECTION OF TRAFFIC

NOTES

1. TRAFFIC CONTROL FOR STAGE 1 AND 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701423
2. SEE STAGE 1 & 2 TYPICAL SECTIONS FOR ADDITIONAL INFO.
3. SEE HIGHWAY STANDARD 701423 FOR ADDITIONAL TRAFFIC CONTROL DETAILS.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL ITEMS.
5. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

0 30 60 90
SCALE IN FEET



STAGE 2

0 30 60 90
SCALE IN FEET

MODEL: Default
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TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
			DRAWN - JCL	REVISED -	
		PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGE 2 – STAGING PLAN
STRUCTURE LOCATION 3

SCALE: 1"=30' | SHEET 7 OF 11 SHEETS | STA. TO STA.

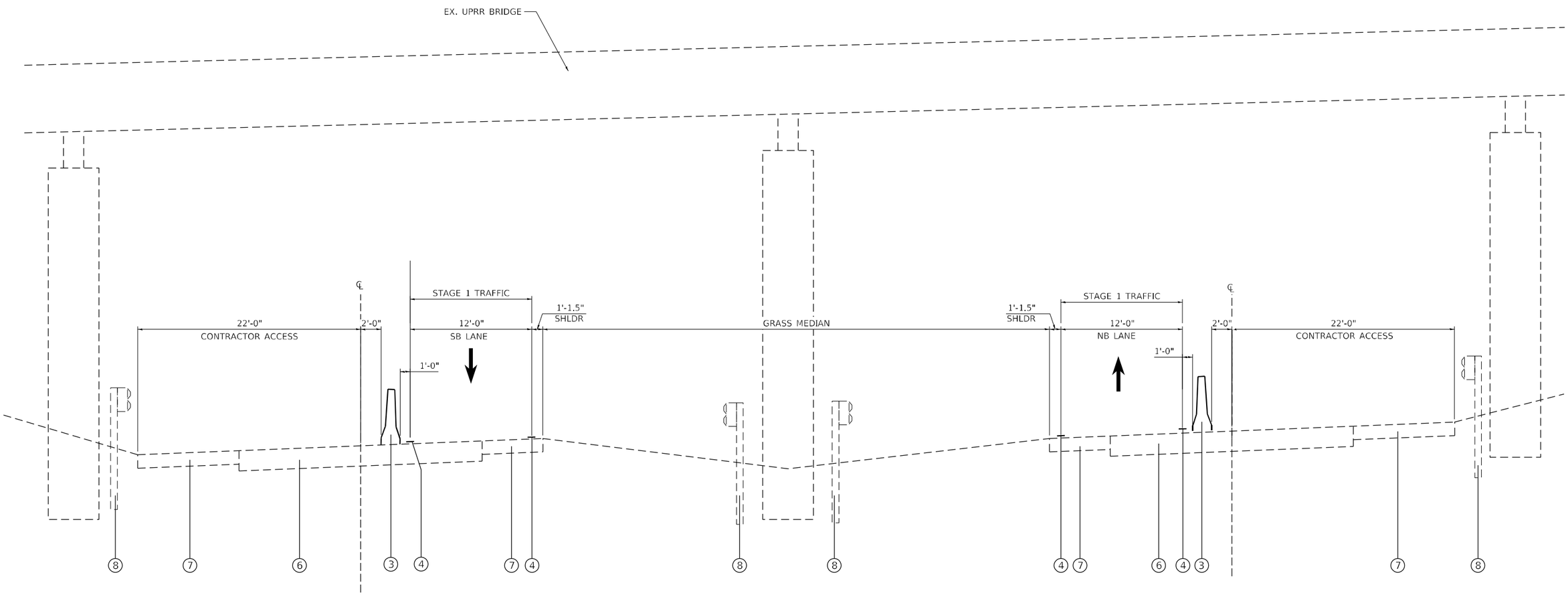
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	12
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

NOTES

1. TRAFFIC CONTROL STAGE 1 AND STAGE 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701402.
2. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

LEGEND

1. EXISTING PCC BRIDGE DECK, 7 1/2"
2. EXISTING PCC BRIDGE DECK, 8"
3. TEMPORARY CONCRETE BARRIER
4. WHITE TEMPORARY PAVEMENT MARKING TAPE, 5"
5. EXISTING PAVEMENT MARKING
6. EXISTING PAVEMENT
7. EXISTING SHOULDER
8. EXISTING GUARDRAIL



SOUTHBOUND
(LOOKING NORTH)

STAGE 1 TYPICAL SECTION

LOCATION 4 – UPRR/IL 6

NORTHBOUND
(LOOKING NORTH)

MODEL: Default
FILE NAME: P:\2023\2309BAID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-traffic_control typs.dgn

TWM ENGINEERING & GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
			DRAWN - JCL	REVISED -	
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGE 1 – STAGING TYPICAL SECTIONS
STRUCTURE LOCATION 4

SCALE: 1"=5' | SHEET 8 OF 11 SHEETS | STA. | TO STA.

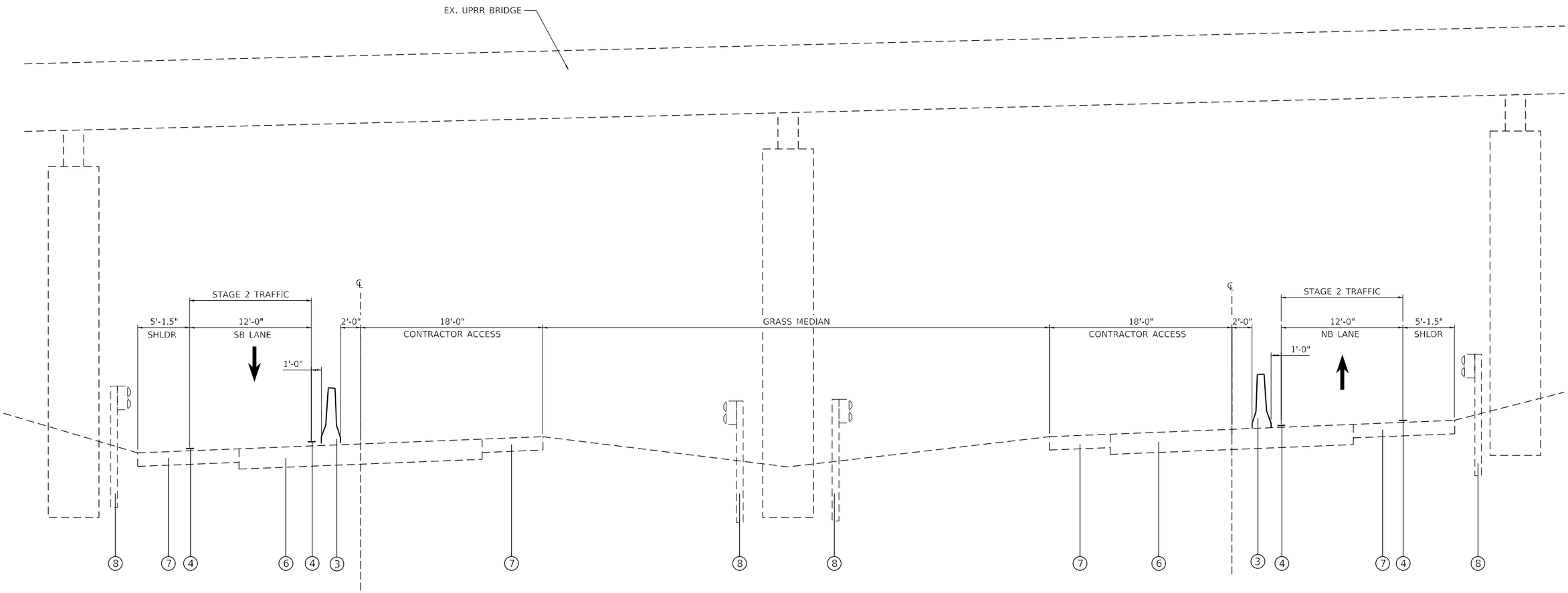
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	13
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

NOTES

1. TRAFFIC CONTROL STAGE 1 AND STAGE 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701402.
2. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

LEGEND

1. EXISTING PCC BRIDGE DECK, 7 1/2"
2. EXISTING PCC BRIDGE DECK, 8"
3. TEMPORARY CONCRETE BARRIER
4. WHITE TEMPORARY PAVEMENT MARKING TAPE, 5"
5. EXISTING PAVEMENT MARKING
6. EXISTING PAVEMENT
7. EXISTING SHOULDER
8. EXISTING GUARDRAIL



SOUTHBOUND
(LOOKING NORTH)

STAGE 2 TYPICAL SECTION

LOCATION 4 – UPRR/IL 6

NORTHBOUND
(LOOKING NORTH)

MODEL: Default
FILE NAME: P:\2023\2309840 - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\0468149\0468149-sht-2-traffic_control-typs.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
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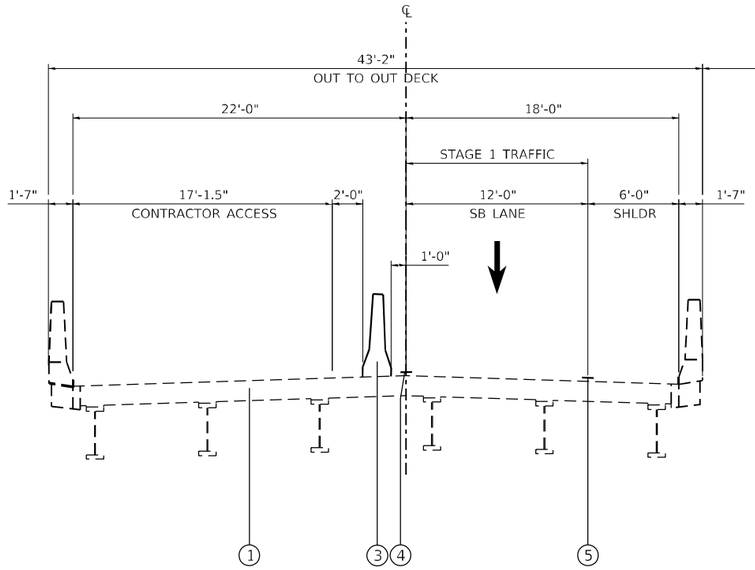
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

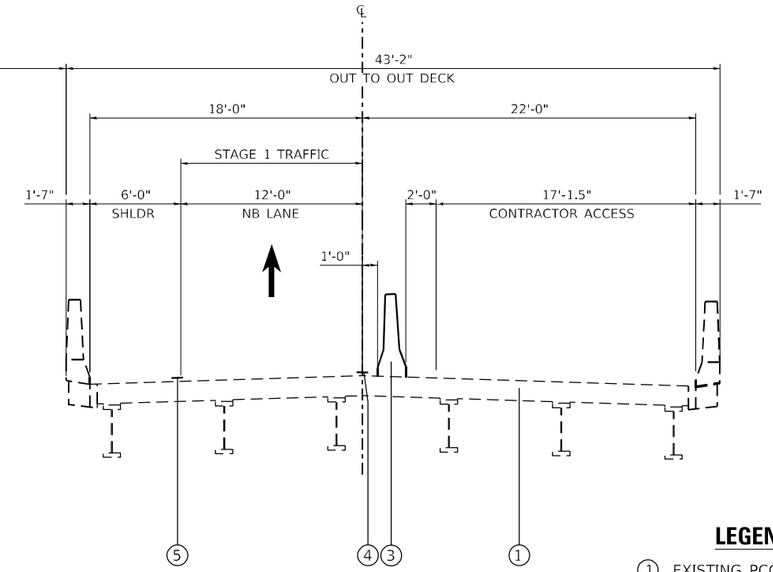
STAGE 2 – STAGING TYPICAL SECTIONS
STRUCTURE LOCATION 4

SCALE: 1"=5' | SHEET 9 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	14
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		



SOUTHBOUND
(LOOKING SOUTH)
SN 090–0125 (LOCATION 5)



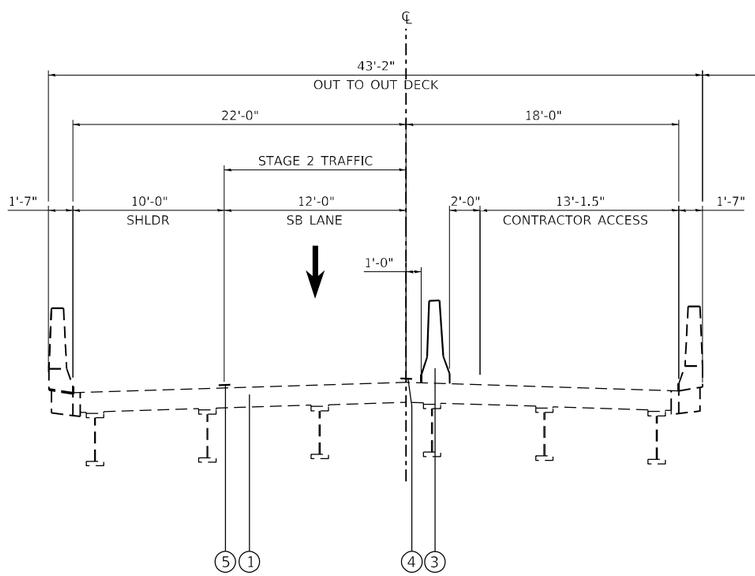
NORTHBOUND
(LOOKING SOUTH)
SN 090–0126 (LOCATION 6)

STAGE 1 TYPICAL SECTION

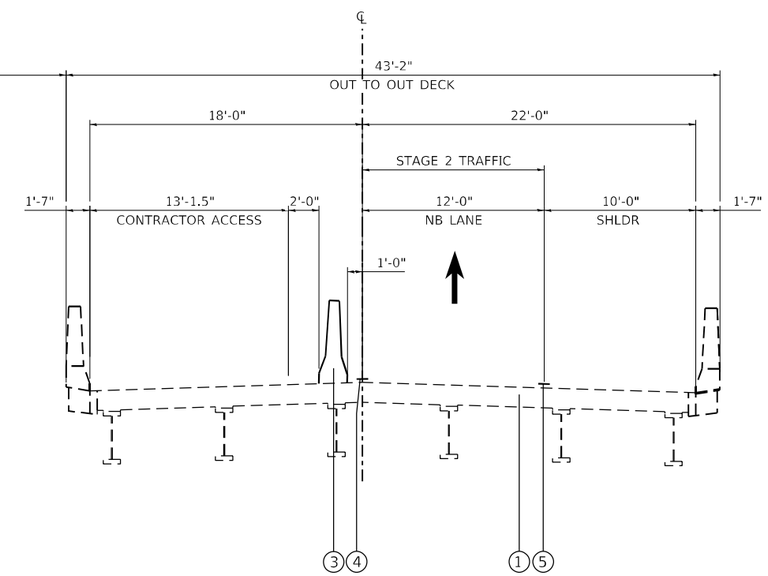
LOCATION 5 & 6 – FAI–155 / TP&W RR

LEGEND

1. EXISTING PCC BRIDGE DECK, 8"
2. EXISTING FLOOR DRAINS
3. TEMPORARY CONCRETE BARRIER
4. WHITE TEMPORARY PAVEMENT MARKING TAPE, 5"
5. EXISTING PAVEMENT MARKING



SOUTHBOUND
(LOOKING SOUTH)
SN 090–0125 (LOCATION 5)



NORTHBOUND
(LOOKING SOUTH)
SN 090–0126 (LOCATION 6)

STAGE 2 TYPICAL SECTION

LOCATION 5 & 6 – I–155 / TP&W RR

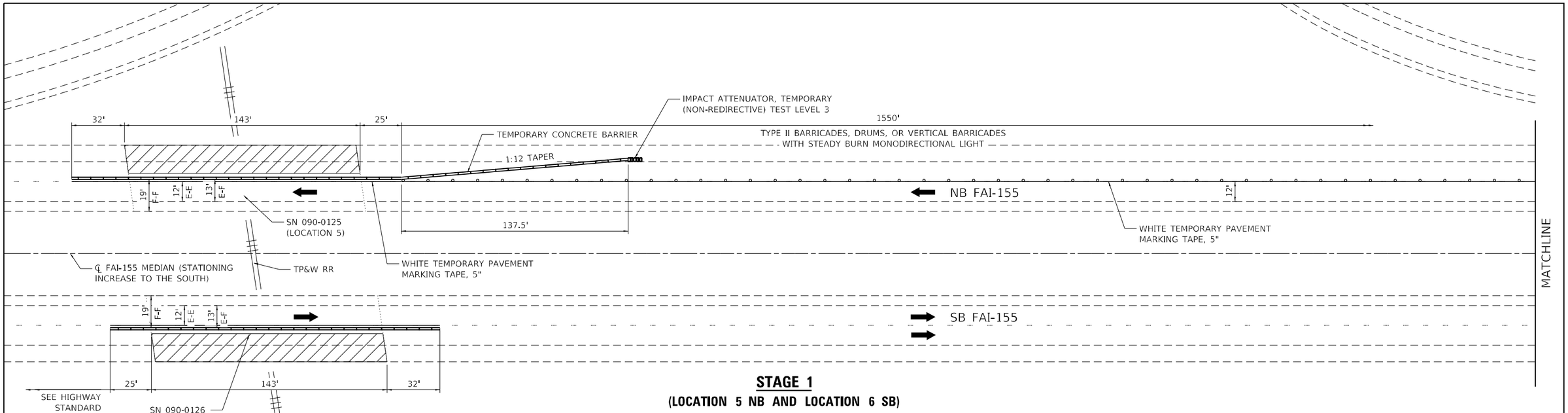
MODEL: Default
FILE NAME: P:\2023\23098AID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 Trans\Sheets\D468J49\D468J49-sht-traffic_control typs.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
			DRAWN - JCL	REVISED -	
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGE 1 & 2 – STAGING TYPICAL SECTIONS
STRUCTURE LOCATION 5 & 6

SCALE: 1"=5' | SHEET 10 OF 11 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	15
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	



STAGE 1

(LOCATION 5 NB AND LOCATION 6 SB)

LEGEND

- CONTRACTOR ACCESS
- TEMPORARY CONCRETE BARRIER
- TEMPORARY IMPACT ATTENUATOR
- DIRECTION OF TRAFFIC

NOTES FOR LOCATIONS 5 AND 6

1. SEE STAGE 1 & 2 TYPICAL SECTIONS FOR ADDITIONAL INFO.
2. SEE SPECIAL PROVISIONS FOR ADDITIONAL TRAFFIC CONTROL ITEMS.
3. TRAFFIC CONTROL MAY BE ADJUSTED DUE TO FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

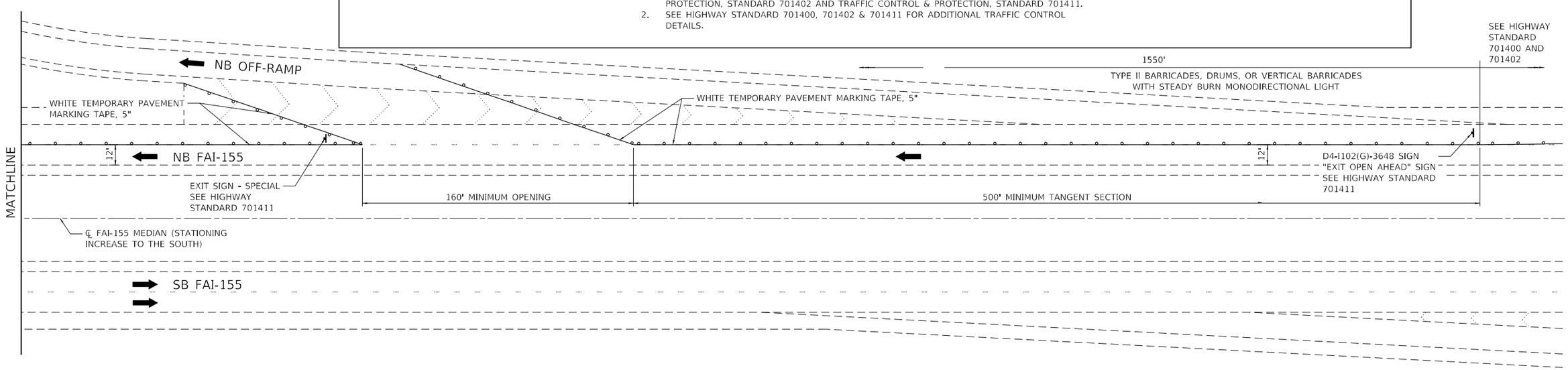
NOTES – LOCATION 5 (SN 090–0125)

1. TRAFFIC CONTROL FOR STAGE 1 AND 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701402 AND TRAFFIC CONTROL & PROTECTION, STANDARD 701411.
2. SEE HIGHWAY STANDARD 701400, 701402 & 701411 FOR ADDITIONAL TRAFFIC CONTROL DETAILS.

NOTES – LOCATION 6 (SN 090–0126)

1. TRAFFIC CONTROL FOR STAGE 1 AND 2 SHALL BE PAID FOR AS TRAFFIC CONTROL & PROTECTION, STANDARD 701402.
2. SEE HIGHWAY STANDARD 701400 AND 701402 FOR ADDITIONAL TRAFFIC CONTROL DETAILS.

0 30 60 90
SCALE IN FEET



STAGE 1

(LOCATION 5 NB)

0 30 60 90
SCALE IN FEET

MODEL: Default
FILE NAME: P:\2023\3098AID - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\D468149\D468149-sht-traffic_control_plan_5.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
			DRAWN - JCL	REVISED -	
		PLOT SCALE = 60.0000 ' / in.	CHECKED - TBP	REVISED -	
		PLOT DATE = 8/15/2024	DATE - JULY 2024	REVISED -	

STAGING PLAN
STRUCTURE LOCATION 5 AND 6

SCALE: 1"=30' | SHEET 11 OF 11 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	16
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 1 (IL 29 OVER THENIUS CREEK)
SN 062–0056

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 318	*	MARSHALL	216	98

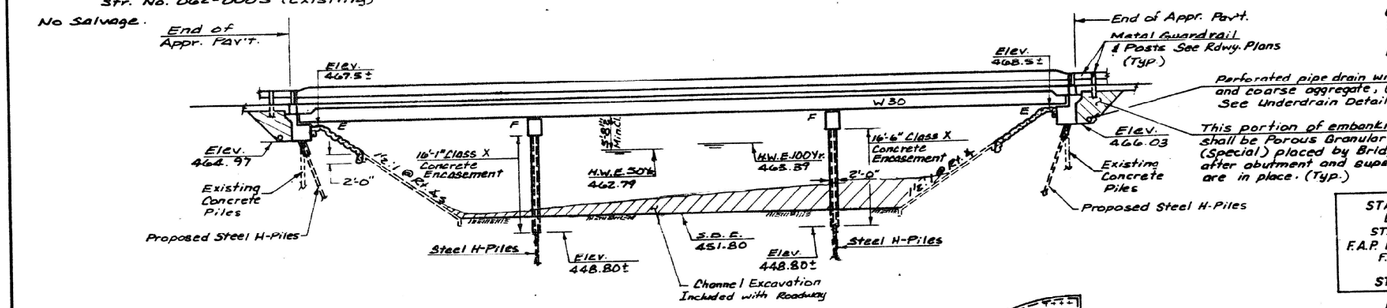
SHEET NO. 1
18 SHEETS

*(3B) BR

B.M.: "D" Northwest Abutment Thenius Creek Bridge
Elev. 472.21

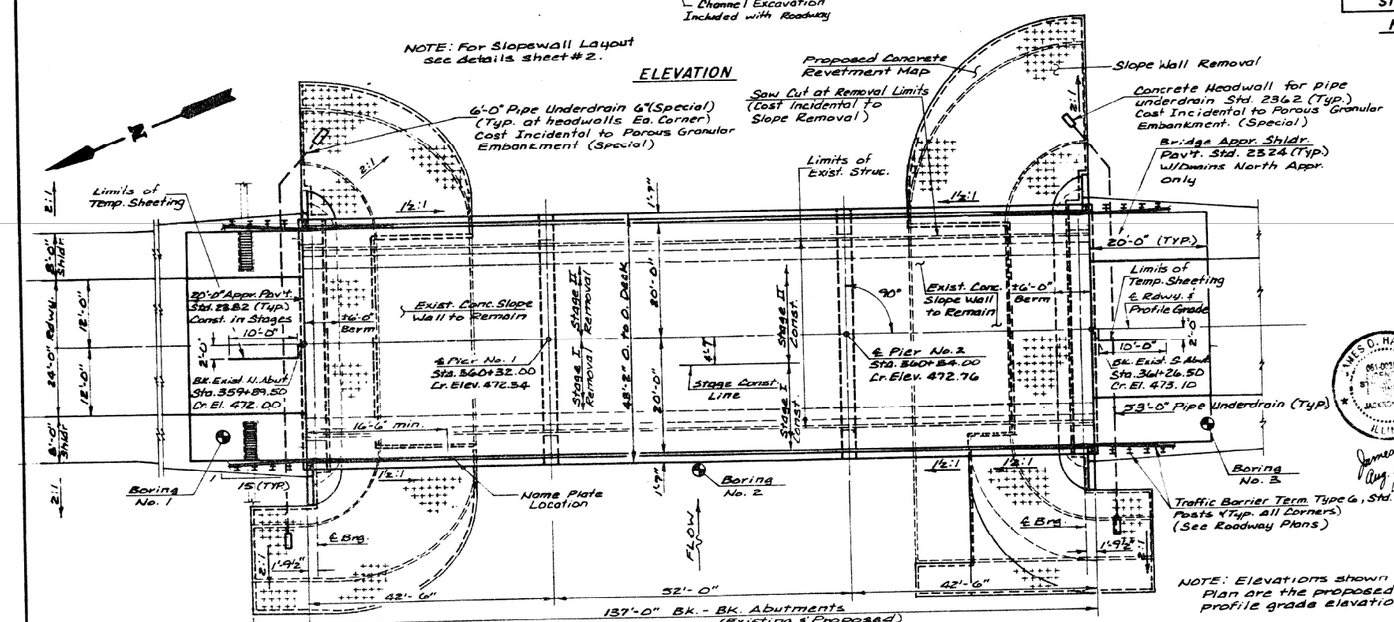
EXIST. STRUC. Three span continuous WF Beam and concrete slab superstructure, 137'-0" BK.-BK. Spill Thru Concrete Abutments, 32'-4" O.-O. Deck Width. Superstructure to be removed and structure widened. Traffic to be maintained utilizing Stage Construction.
Str. No. 062-0005 (Existing)

No Salvage.



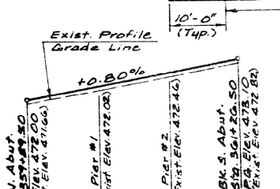
ELEVATION

NOTE: For Slopewall Layout see details sheet #2.



PLAN

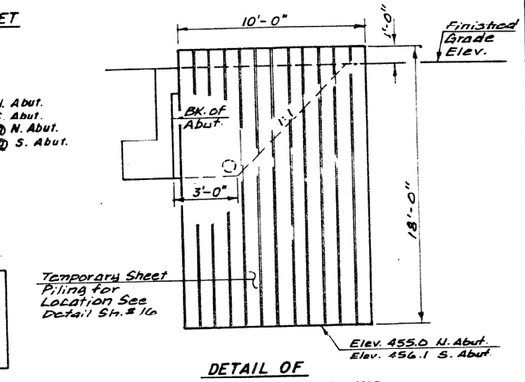
NOTE: Elevations shown in Plan are the proposed profile grade elevations.



PROFILE GRADE
@ ℄ Rdwy.

TEMPORARY SHEET PILING DATA

Quantity: 360 Sq. Ft.
Top Elev.: 473.0 @ N. Abut.
474.1 @ S. Abut.
Bottom Elev.: 455.0 @ N. Abut.
456.1 @ S. Abut.



DETAIL OF TEMPORARY SHEET PILING

The information shown for the Temporary Sheet Piling is estimated. It is the Contractors responsibility to provide a design and computations of the Temporary Sheet Piling and associated members, if required, subject to the approval of the Engineer.

STATION 360+58.00
BUILT 199 BY
STATE OF ILLINOIS
F.A.P. RTE. 318 SEC. (3B)BR
F.A. PROJ. F-31(2)
LOADING HS20
STR. NO. 062-0056

NAME PLATE
(See Std. 2113)

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB	TOTAL
	Structure Excavation	Cu. Yd.	—	72	72
*	Protective Coat	Sq. Yd.	710	—	710
	Class X Concrete	Cu. Yd.	—	77.1	77.1
	Class X Concrete Superstructure	Cu. Yd.	175.2	—	175.2
	Removal of Existing Superstructure	Each	1	—	1
	Concrete Removal	Cu. Yd.	—	48.0	48.0
	Class X Concrete Encasement	Cu. Yd.	—	6.5	6.5
	Reinforcement Bars (Epoxy Coated)	Lbs.	39,540	8,730	48,270
	Structural Steel	L. S.	0.39	—	0.39
	Steel Piles HP 10 x 42	Lin. Ft.	—	360	360
	Test Pile Steel HP 10 x 42	Each	—	2	2
	Name Plates	Each	—	1	1
	Concrete Revetment Mat	Sq. Yd	—	735	735
	Elastomeric Bearing Assembly, Type I	Each	14	—	14
	Slope Wall Removal	Sq. Yd.	—	265	265
	Bridge Seat Sealer	L. S.	—	0.33	0.33
	Porous Granular Embankment (Special)	Cu. Yd.	—	120	120
	Temporary Sheet Piling	Sq. Ft.	—	360	360
	Temporary Concrete Barrier	Lin. Ft.	135	—	135
	Preformed Joint Seal (2½")	Lin. Ft.	86	—	86
	Bridge Deck Grooving	Sq. Yd.	600	—	600

For General Notes See Sh. 2 of 18
* Quantity includes deck surface, inside face and top of the concrete parapet.
** For bridge only (See Roadway Plan)

WATERWAY INFORMATION

Drainage Area = 10.6 Sq. Mi. Low Grade Elev. = 465.04 @ Sta. 340+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	3,910	695	695	462.7	0.1	0.1	462.8	462.8
Base	100	4,500	760	760	463.3	0.1	0.1	463.4	463.4
Max. Calc.	500	5,950	910	910	464.6	0.1	0.1	464.7	464.7

DESIGN SPECIFICATIONS

1989 AASHTO and Interims

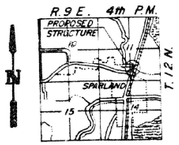
LOADING HS 20-44

Allow 25#/sq ft for future wearing surface

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (Rein.)
fy = 36,000 p.s.i. (Structural) M183

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Engineer of Bridge Design



LOCATION SKETCH

GENERAL PLAN
F.A.P. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062-0056

CASLER, HOUSER AND HUTCHISON INC.

TWM, INC. WWW.TWM-INC.COM ENGINEERING GEOSPATIAL SERVICES	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
IL DESIGN FIRM LICENSE NO: 184-001220	PLOT SCALE = 10.0000 ' / in.	DRAWN - JCL	REVISED -	
		CHECKED - TBP	REVISED -	
	PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

LOCATION 1 – STRUCTURE INFORMATION
SN 062–0056
SCALE: N/A | SHEET 1 OF 6 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	17
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

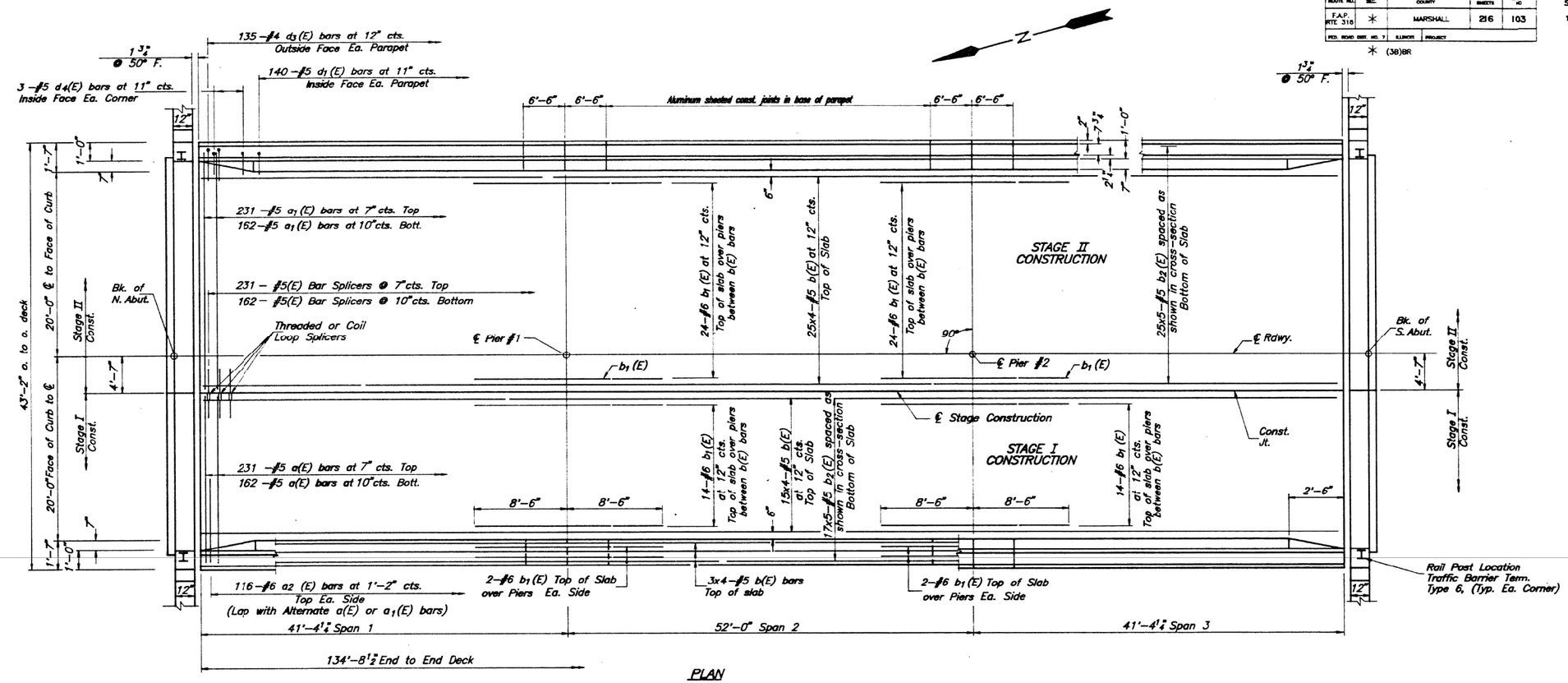
MODEL: Default
FILE NAME: P:\2023\23098410 - Bridge Painting (FY 2025)\4 CADD - D\G\4.7 TranSheets\D468J49\D468J49-sth-structural detail 1.dgn

FOR INFORMATION ONLY
LOCATION 1 (IL 29 OVER THENIUS CREEK)
SN 062-0056

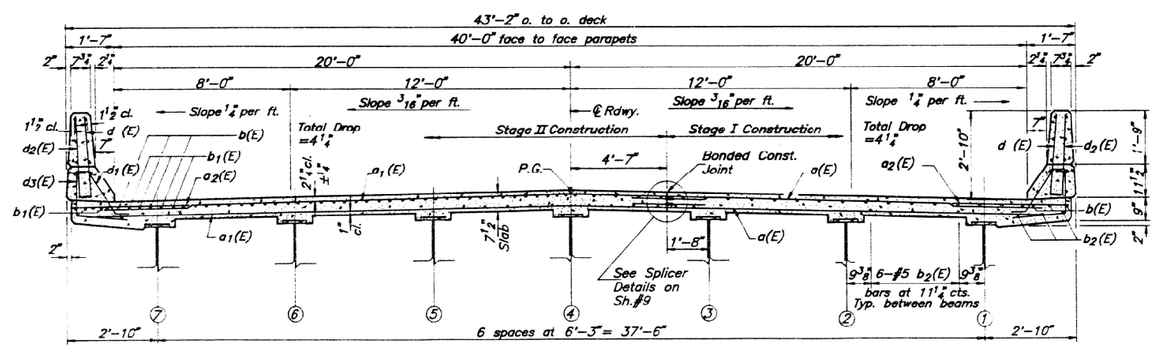
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. RTE 318	*	MARSHALL	216	103
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 6
18 SHEETS

* (3B)BR



PLAN



CROSS SECTION
(LOOKING SOUTH)

MIN. BAR LAP

#5 Bars = 2'-2"

NOTES:
See sheet #7 of 18 for parapet details and Bill of Material.
See sheet #7 for Section A-A
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

SUPERSTRUCTURE
F.A.P. RT. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062-0056

1492-044

MODEL: Default
FILE NAME: P:\2023\2309840 - Bridge Painting IFY 2025\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sth-structural detail 1.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LOCATION 1 - STRUCTURE INFORMATION SN 062-0056
			DRAWN - JCL	REVISED -		
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -		
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -		SCALE: N/A SHEET 2 OF 6 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	18
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY

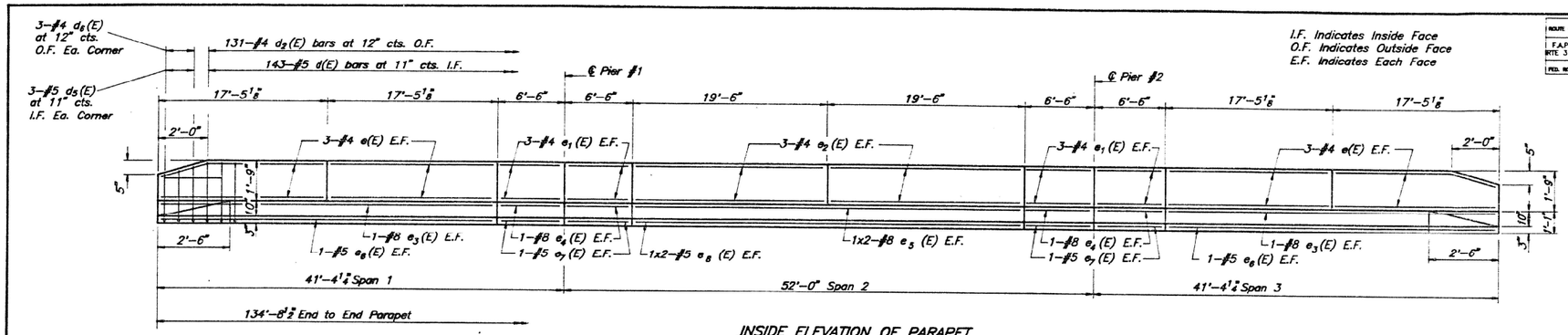
LOCATION 1 (IL 29 OVER THENIUS CREEK)

SN 062-0056

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. RTE 318	*	MARSHALL	216	104
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 7
18 SHEETS

* (3B)BR

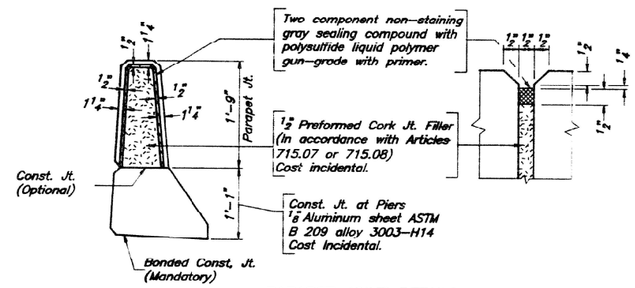


I.F. Indicates Inside Face
O.F. Indicates Outside Face
E.F. Indicates Each Face

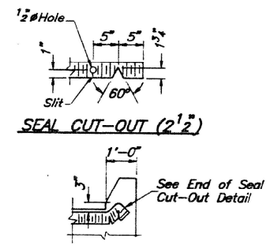
INSIDE ELEVATION OF PARAPET

MIN. BAR LAP

#5 Bars = 2'-2"
#8 Bars = 4'-6"

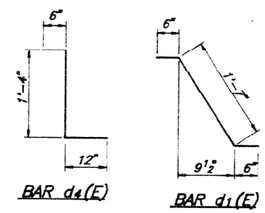


PARAPET JOINT DETAILS



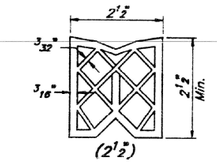
SEAL CUT-OUT (2 1/2")

END OF SEAL TREATMENT

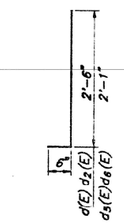


BAR d_4(E)

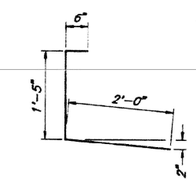
BAR d_1(E)



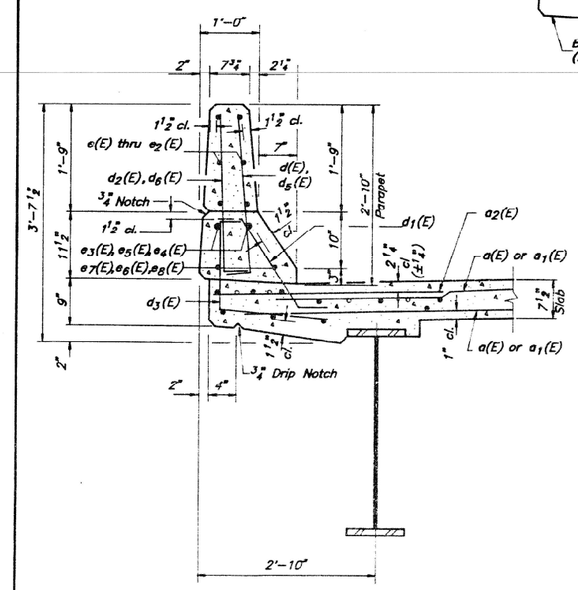
PREFORMED JOINT SEAL



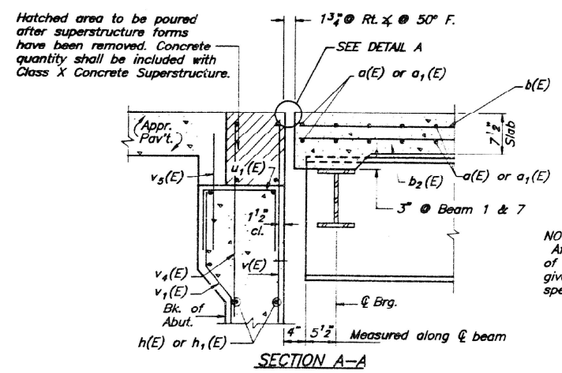
BARS d(E), d_2(E) d_5(E) or d_6(E)



BAR d_3(E)

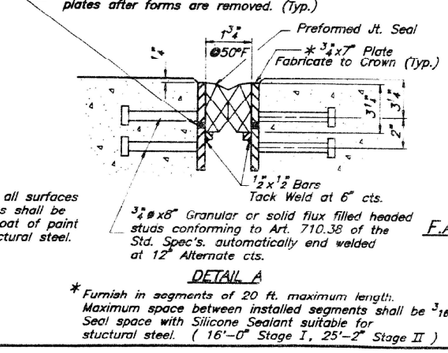


SECTION THRU PARAPET



SECTION A-A

NOTE:
After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for structural steel.



DETAIL A

* Furnish in segments of 20 ft. maximum length. Maximum space between installed segments shall be 3/16" Seal space with Silicone Sealant suitable for stuctural steel. (16'-0" Stage I, 25'-2" Stage II)

SUPERSTRUCTURE BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a (E)	393	#5	16'-2"	——
a_1(E)	393	#5	25'-2"	——
a_2(E)	232	#6	4'-0"	——
b (E)	184	#5	35'-3"	——
b_1(E)	84	#6	17'-0"	——
b_2(E)	210	#5	28'-5"	——
d (E)	286	#5	3'-0"	L
d_1(E)	280	#5	2'-7	L
d_2(E)	262	#4	3'-0"	L
d_3(E)	270	#4	3'-11"	L
d_4(E)	12	#5	2'-10"	L
d_5(E)	12	#5	2'-7"	L
d_6(E)	12	#4	2'-7"	L
e (E)	46	#4	17'-2"	——
e_1(E)	48	#4	6'-3"	——
e_2(E)	24	#4	19'-3"	——
e_3(E)	8	#8	34'-7"	——
e_4(E)	16	#8	6'-3"	——
e_5(E)	8	#8	21'-8"	——
e_6(E)	8	#5	34'-7"	——
e_7(E)	16	#5	6'-3"	——
e_8(E)	8	#5	20'-6"	——
Class X Concrete Superstructure		Cu. Yd.	175.2	
Reinforcement Bars (Epoxy Coated)		Lbs.	39,540	

Reinforcement bars designated (E) shall be epoxy coated.

Bars indicated thus 1x3-#5 etc. indicates 1 line of bars with 3 lengths per line.

SUPERSTRUCTURE DETAILS
F.A.P. RT. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062-0056

1492-045

MODEL: Default
FILE NAME: P:\2023\3098AID - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-structural detail 1.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 1 - STRUCTURE INFORMATION
SN 062-0056

SCALE: N/A | SHEET 3 OF 6 SHEETS | STA. | TO STA.

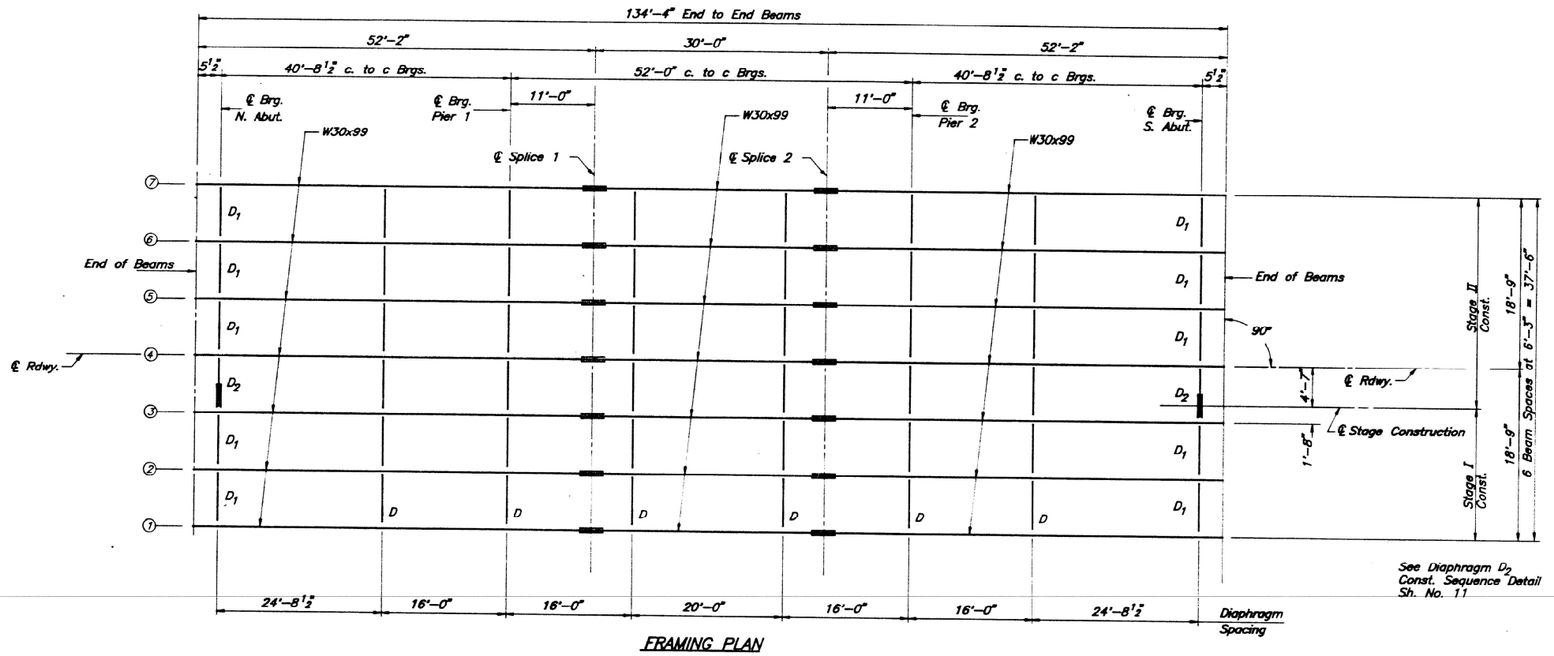
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	19
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 1 (IL 29 OVER THENIUS CREEK)
SN 062–0056

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO
F.A.P. RTE 318	*	MARSHALL	216	107
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

* (3B)BR

SHEET NO. 10
18 SHEETS



FRAMING PLAN

Note: The main load carrying components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams and all splice plate material of the wide flange beams except fill plates.

*TOP OF BEAM ELEVATIONS

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7
℄ Brg. N. Abut.	471.02	471.15	471.25	471.35	471.25	471.15	471.02
℄ Brg. Pier 1	471.30	471.43	471.53	471.62	471.53	471.43	471.30
℄ Splice 1	471.37	471.50	471.60	470.70	471.60	471.50	471.37
℄ Splice 2	471.61	471.74	471.84	471.94	471.84	471.74	471.61
℄ Brg. Pier 2	471.71	471.84	471.94	472.04	471.94	471.84	471.71
℄ Brg. S. Abut.	472.09	472.22	472.32	472.42	472.32	472.22	472.09

* Elevations are for fabrication only.

FRAMING PLAN
F.A.P. RT. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062–0056

MODEL: Default
FILE NAME: P:\2023\23098A10 - Bridge Painting (PY 2025)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-structural detail 1.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -
			DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 1 – STRUCTURE INFORMATION
SN 062–0056

SCALE: N/A | SHEET 4 OF 6 SHEETS | STA. TO STA.

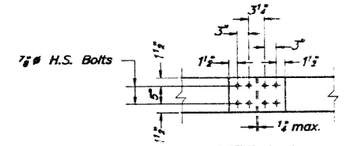
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	20
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 1 (IL 29 OVER THENIUS CREEK)
SN 062-0056

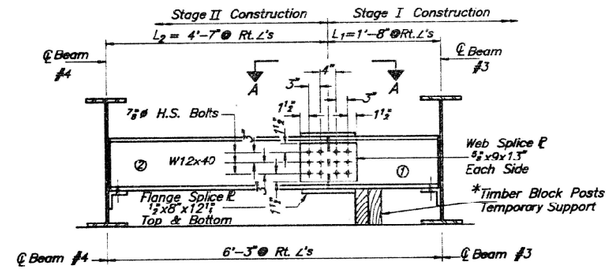
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. RTE. 318	*	MARSHALL	216	108
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 11
18 SHEETS

* (38)BR



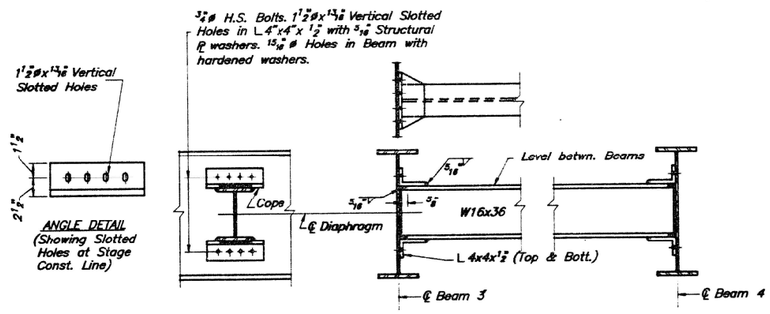
VIEW A-A



DIAPHRAGM D_2
(At Rt. ∠'s)
2 Required

*Cost of Timber Block Posts is Incidental to Structural Steel.

For details of connections to beams see diaphragm D_1.



DIAPHRAGM D CONNECTION
EAST SIDE BEAM NO. 3
(M183 Steel)

NOTE:
The bolts for the slotted holes shall only be finger-tightened prior to the deck slab pouring and then be fully-tightened after the completion of the pouring.

DIAPHRAGM D_2 CONSTRUCTION SEQUENCE

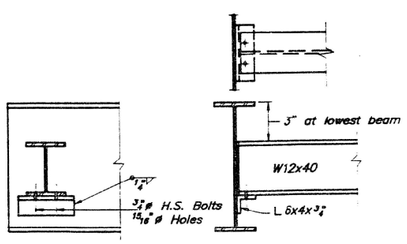
1.) Order Diaphragm D_2 in two sections with lengths of L_1 and L_2 as shown above.
2.) Attach section ① of Diaphragm to beam and top flange splice PL during Stage I Construction.
3.) Place Timber Block Posts between section ① of diaphragm and abutment bearing seat.
4.) Attach section ② of diaphragm to both Beam and section ① of diaphragm during Stage II Construction.
5.) Attach all remaining splice plates to sections ① and ② of diaphragms.
6.) Remove Timber Block Posts.

INTERIOR BEAM MOMENT TABLE

	0.4 Sp. 1	Piers 1 & 2	0.5 Sp. 2
I (in.⁴)	3,990	3,990	3,990
S (in.³)	269	269	269
PL (K/')	1.00	1.00	1.00
MPL ('K)	111.1	220.5	121.1
MIL ('K)	213.9	175.5	226.3
Mimp.('K)	64.2	51.2	64.0
5/3(MIL+I) ('K)	463.5	377.8	483.8
Ma ('K)	747.0	777.8	786.4
fsPL (k.s.i.)	4.96	9.84	5.40
fs5/3(IL+I) (k.s.i.)	20.68	16.85	21.58
fs Overload (k.s.i.)	25.64	26.69	26.98
fs Total (k.s.i.)	33.33	34.70	35.07

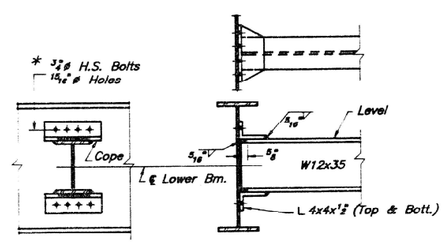
fs Overload = sum of stresses due to MPL + 5/3(MIL+I)
fs Total = sum of stresses due to 1.3[MPL + 5/3(MIL+I)]

*1 1/2" x 1 13/16" slotted holes in angles for the east side of beam #3. Use 5/16" structural plate washer.

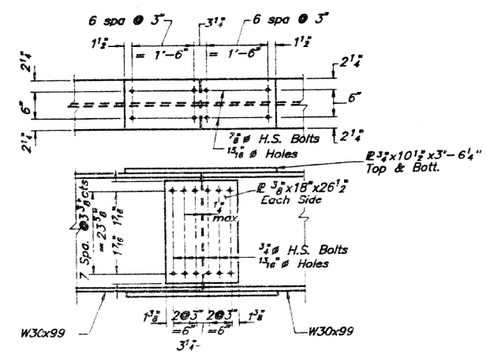


DIAPHRAGM D_1 & D_2
(10 D_1 Req'd)
(2 D_2 Req'd)

Note: Two hardened washers shall be required over all oversize holes for diaphragms.



DIAPHRAGM D
(36 Req'd)



SPLICE DETAIL

INTERIOR BEAM REACTION TABLE

	Abut.	Piers 1 & 2
RPL (K)	15.0	51.9
RIL (K)	29.9	38.4
Imp.(K)	9.0	11.1
R Total (K)	53.9	101.4

STRUCTURAL STEEL DETAILS
F.A.P. RT. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062-0056

1492-041

MODEL: Default
FILE NAME: P:\2023\2369840 - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheet\D468149\D468149-sht-structural detail 1.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -
			DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 1 - STRUCTURE INFORMATION
SN 062-0056

SCALE: N/A | SHEET 5 OF 6 SHEETS | STA. | TO STA.

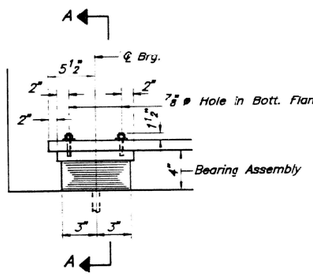
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	21
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 1 (IL 29 OVER THENIUS CREEK)
SN 062–0056

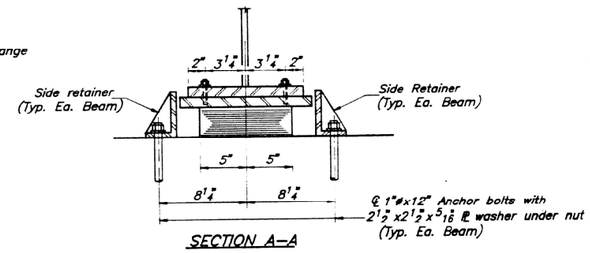
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. RTE. 318	*	MARSHALL	216	109
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

* (3B)BR

SHEET NO. 12
18 SHEETS

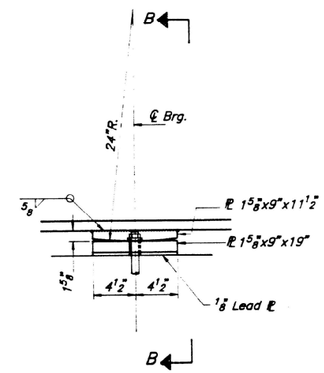


SECTION AT ABUT.

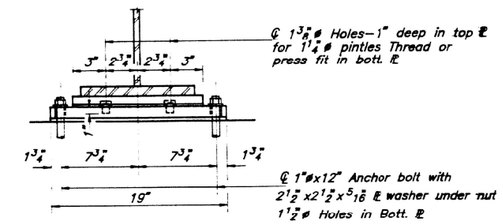


SECTION A–A

TYPE I ELASTOMERIC EXP. BRG.
ABUTMENTS
(14 Required)



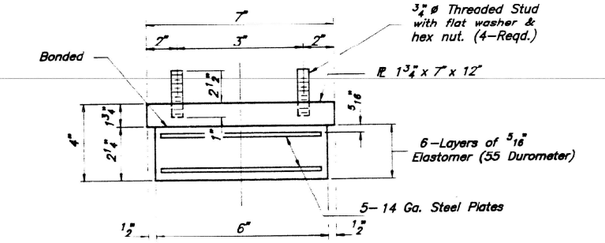
ELEVATION AT PIER 1 & 2



SECTION B–B

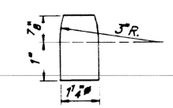
FIXED BEARING
PIERS

See Sh.# 13 for anchor bolt installation.

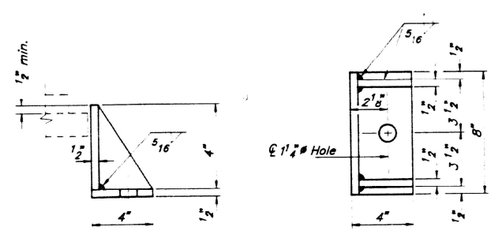


BEARING ASSEMBLY
ABUTMENT

NOTE: Shim plates shall not be placed under bearing assembly.



PINTLES



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	14

BEARING DETAILS
F.A.P. RT. 318 OVER THENIUS CREEK
SECTION (3B)BR
MARSHALL COUNTY
STATION 360+58.00
STR. NO. 062–0056

1492–04

MODEL: Default
FILE NAME: P:\2023\2309840 - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 Trans\Sheets\D468J49\D468J49-sht-structural detail 1.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. www.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -
			DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 1 – STRUCTURE INFORMATION
SN 062–0056

SCALE: N/A | SHEET 6 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	22
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062–0057

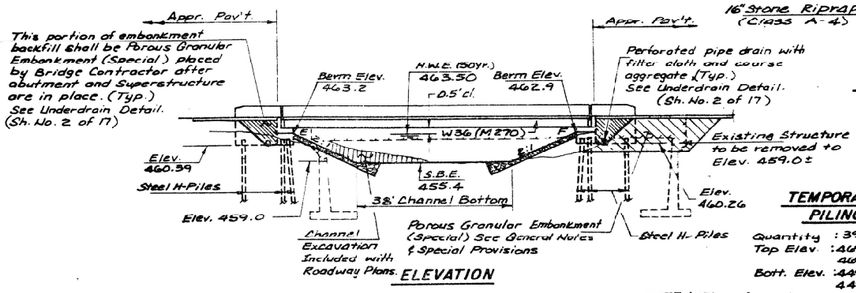
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 318	*	MARSHALL	216	117

SHEET NO. 1
17 SHEETS

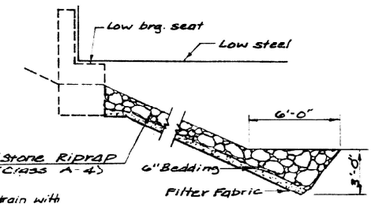
*(3B)BR-1

BENCH MARK: B.M. #22, J-233 USC&GS Northeast Abutment of Bridge over Gimlet Creek, Sta. 386+68, 30' Lt. Elev. = 468.08

EXISTING STRUCTURE: Existing S.N. 062-0006, Built in Year 1948 as S.B.I. Rte. 29 Sec. 3B-3F, Single Span riveted steel plate girder with 7" R.C. slab superstructure, 57'-10" out to out deck, ± 82'-0" face to face Closed Concrete Abutments. Existing bridge to be removed by Contractor utilizing Stage Construction so as to maintain two-way traffic at all times. No Salvage.



ELEVATION

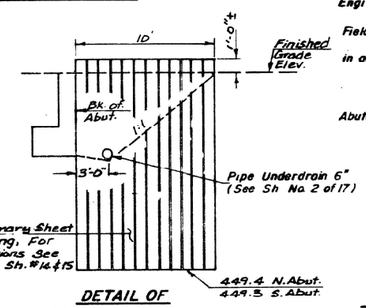


STONE RIPRAP TREATMENT

TEMPORARY SHEET PILING DATA

Quantity	: 398	Sq. Ft.
Top Elev.	: 469.5	N. Abut.
	469.0	S. Abut.
Bott. Elev.	: 449.4	N. Abut.
	449.3	S. Abut.

NOTE: The information shown for the Temporary Sheet Piling is estimated. It is the Contractor's responsibility to provide a design and computations of the Temporary Sheet Piling and associated members, if required, subject to the approval of the Engineer.



DETAIL OF TEMPORARY SHEET PILING

GENERAL NOTES

See Sh. No. 17 for Boring Data.

Fasteners shall be high strength bolts. Bolts $\frac{3}{4}$" ϕ, open holes $\frac{13}{16}$" ϕ, unless otherwise noted.

The zinc-silicate and vinyl paint system shall be used for shop and field painting of Structural Steel except where otherwise noted. The color of the vinyl finish coat shall be Munsell No. 10B3/6 BLUE.

Anchor bolts shall be set before bolting diaphragms over supports.

The main load carrying member components subject to tensile stress shall conform to the Supplement Requirements for Notch Toughness Zone 2. These components are the wide flange beams.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

Field welding of construction accessories will not be permitted to the bottom flange of beams. Field welding in other areas will be permitted only when approved by the Engineer.

All Embankment backfill above Elev. 459.0 shall be Porous Granular Embankment (Special) compacted in accordance with the specifications.

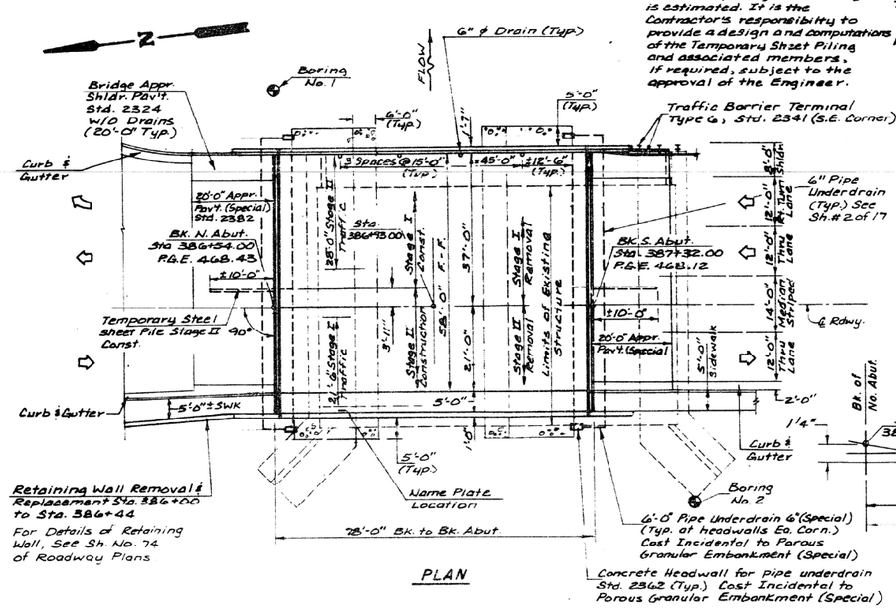
Calculated weight of Structural Steel = 100,350 Lbs. M223

Calculated weight of Structural Steel = 19,590 Lbs. M183

The Contractor shall drive two steel HP10 x 42 test piles in permanent locations, one at the North Abutment and one at the South Abutment, as directed by the Engineer before ordering the remainder of the piles.

Bridge Seat Sealer est. quantity = 361 sq. ft.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Engineer of Bridges and Structures



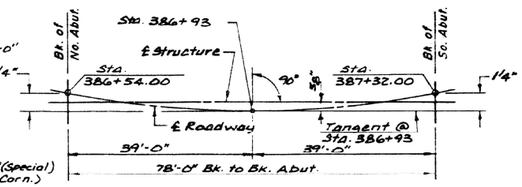
Retaining Wall Removal & Replacement Sta. 386+00 to Sta. 386+44

For Details of Retaining Wall, See Sh. No. 74 of Roadway Plans

PLAN

STATION 386+93.00
BUILT 199 BY
STATE OF ILLINOIS
F.A.P. RTE. 318 SEC. (3B)BR-1
F.A. PROJ. F-318(2)
LOADING HS20
STR. NO. 062-0057

NAME PLATE
(See Std. 2113)



OFFSET SKETCH

JAMES O. HAMILTON
081-002886
LICENSED STRUCTURAL ENGINEER
JACKSONVILLE, ILLINOIS
James O. Hamilton
9/9/91
License Expires 11/30/92

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB	TOTAL
	Structure Excavation	Cu. Yd.	—	240	240
	Floor Drains	Each	4	—	4
*	Protective Coat	Sq. Yd.	595	—	595
	Class X Concrete	Cu. Yd.	—	128.0	128.0
	Class X Concrete Superstructure	Cu. Yd.	154.6	—	154.6
	Removal of Existing Structure	Each	1	—	1
	Bridge Deck Grooving	Sq. Yd.	482	—	482
	Reinforcement Bars (Epoxy Coated)	Lbs.	32,530	11,350	43,880
	Structural Steel	L. Sum.	0.40	—	0.40
	Stud Shear Connectors	Each	1,863	—	1,863
	Steel Piles HP 10 x 42	Lin. Ft.	—	518	518
	Test Pile Steel HP 10 x 42	Each	—	2	2
**	Temporary Concrete Barrier	Lin. Ft.	78	—	78
	Name Plates	Each	—	1	1
	Elastomeric Bearing Assembly, Type I	Each	—	9	9
	Bridge Seat Sealer	L. Sum.	—	0.28	0.28
	Porous Granular Embankment (Special)	Cu. Yd.	—	535	535
	Temporary Sheet Piling	Sq. Ft.	—	398	398
	Stone Riprap Class A-4	Sq. Yd.	—	385	385
	Filter Fabric for use with Riprap	Sq. Yd.	—	385	385

* Applied to deck surface, inside face and top of concrete parapet and sidewalk.
** For Bridge only (See Rdwy. Plans)

WATERWAY INFORMATION

Drainage Area	5.7 Sq. Mi.		Low Grade Elev. 465.03				@ Sta. 405+50		
Flood	Freq.	Q	Opening Sq. Ft.		Nat.	Head - Ft.		Headwater - El.	
	Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.
Design	50	2340	360	488	465.3	0.0	0.0	463.5	463.5
Base	100	3690	360	472	466.4	1.4	0.78	465.8	465.18
Max. Calc	500	8300	360	472	465.5	2.0	1.17	467.5	466.67

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (Reinf.)
fy = 50,000 p.s.i. (Struct.) M223 Grade 50
fy = 36,000 p.s.i. (Struct.) M183

LOADING HS 20-44

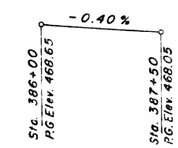
Allow 25# / Sq. Ft. for future wearing surface

DESIGN SPECIFICATIONS

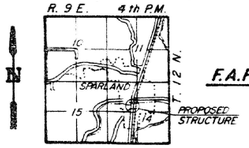
1989 AASHTO, and Interims

HORIZ. CURVE DATA

P.I. Sta. 380+75.06
Δ = 13°52'57"
D = 0°48'02"
R = 7157.32'
T = 871.36'
L = 1734.11'
E = 52.85'
S.E. = 0.0125'/'
P.C. Sta. 372+03.70
P.T. Sta. 389+37.81



PROPOSED PROFILE GRADE
(Along ℄ Roadway)



LOCATION SKETCH

GENERAL PLAN
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR-1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062-0057

CASLER HOUSER & HUTCHISON INC

MODEL: Default
FILE NAME: P:\2023\23098AID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-structural detail 2.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 – STRUCTURE INFORMATION
SN 062–0057

SCALE: N/A | SHEET 1 OF 6 SHEETS | STA. | TO STA.

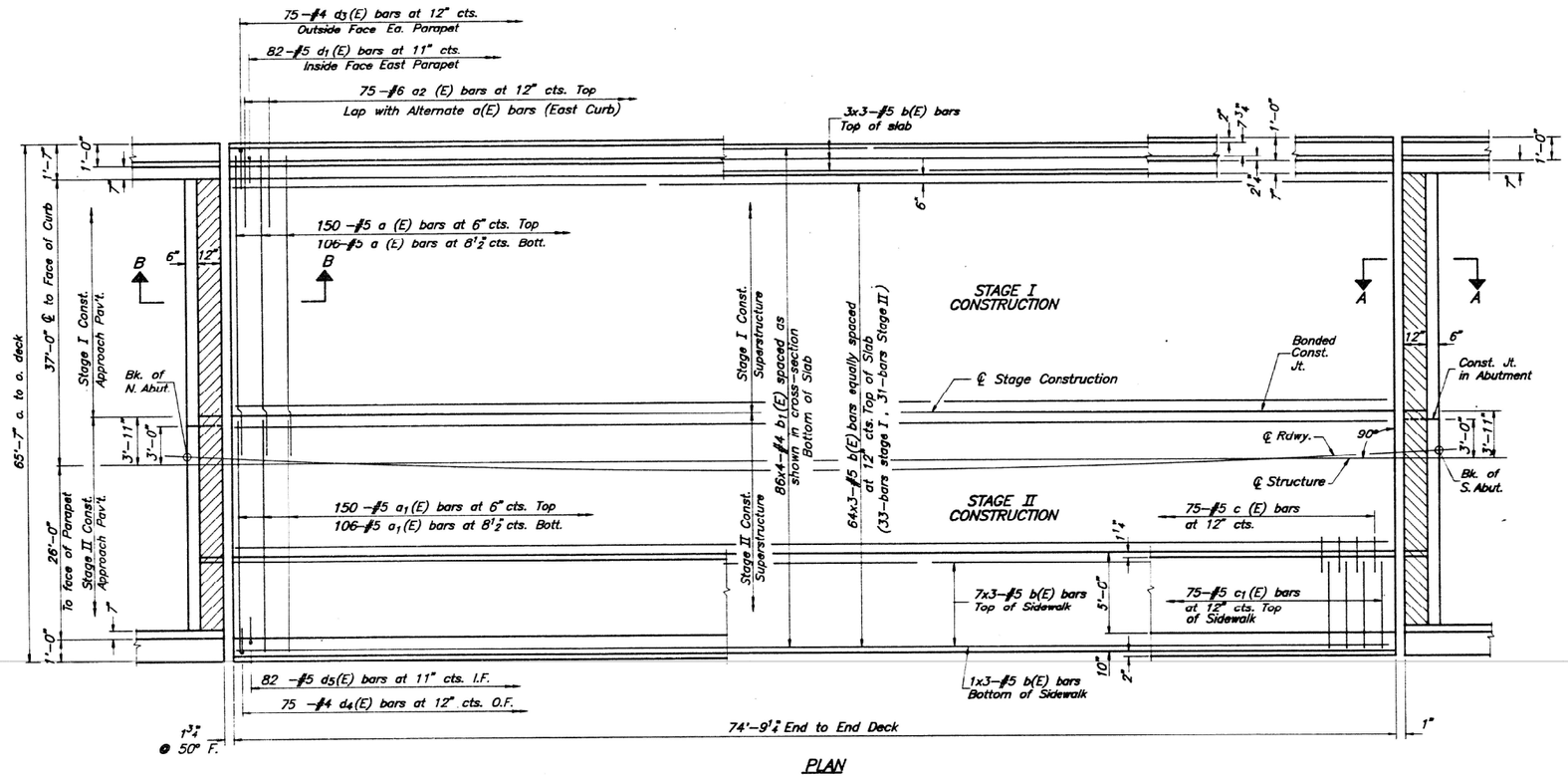
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	23
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062-0057

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 318	*	MARSHALL	216	121
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

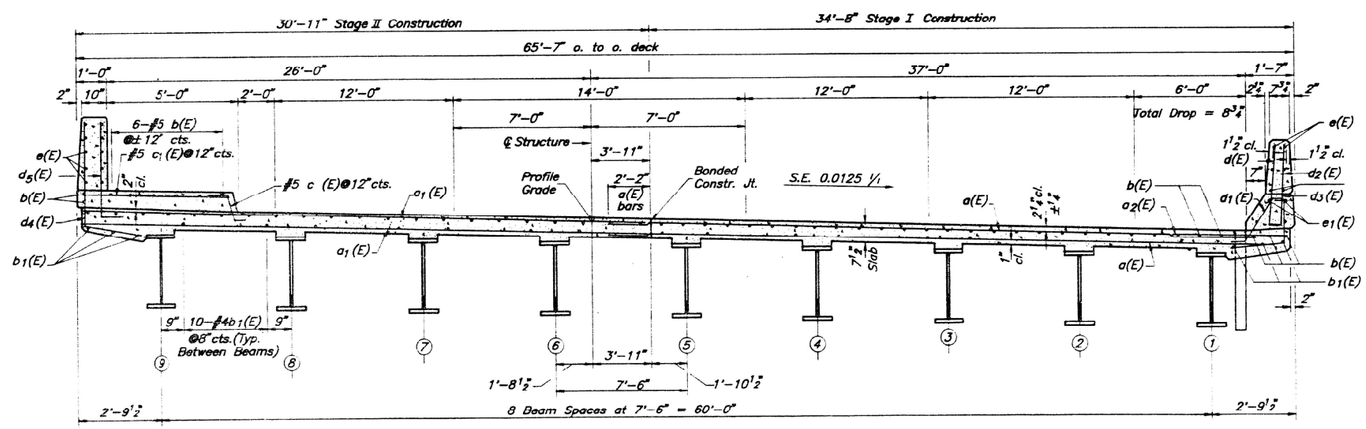
*(3B)BR-1

SHEET NO. 5
17 SHEETS



PLAN

Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with Superstructure.



CROSS SECTION
(LOOKING NORTH)

MIN. BAR LAP
#4 Bars = 1'-8"
#5 Bars = 2'-2"
#8 Bars = 4'-6"

NOTES:
See sheet #7 of 17 for Bill of Material.
See sheet #6 & #7 for Sec. A-A and Sec. B-B.
Reinforcement bars designated (E) shall be epoxy coated.
Bars indicated thus 20x3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

SUPERSTRUCTURE
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR-1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062-0057

1492-087

MODEL: Default
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			DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 – STRUCTURE INFORMATION
SN 062-0057

SCALE: N/A | SHEET 2 OF 6 SHEETS | STA. | TO STA.

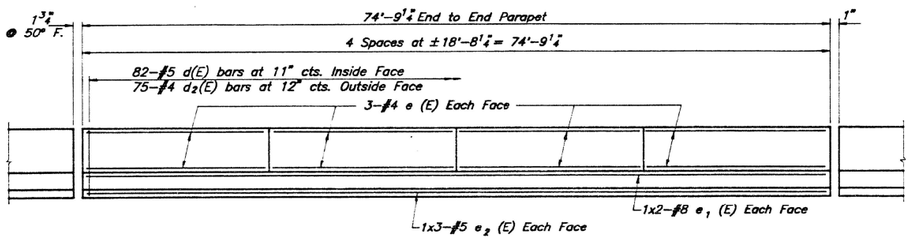
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	24
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062-0057

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 318	*	MARSHALL	216	122
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

*(3B)BR-1

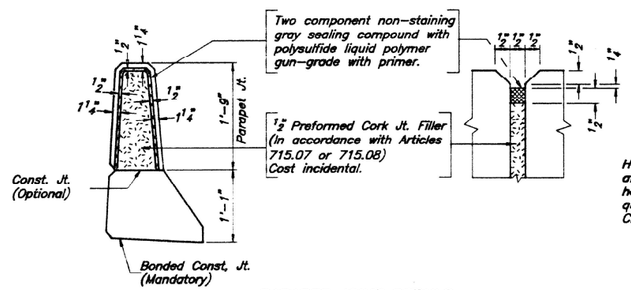
SHEET NO. 6
17 SHEETS



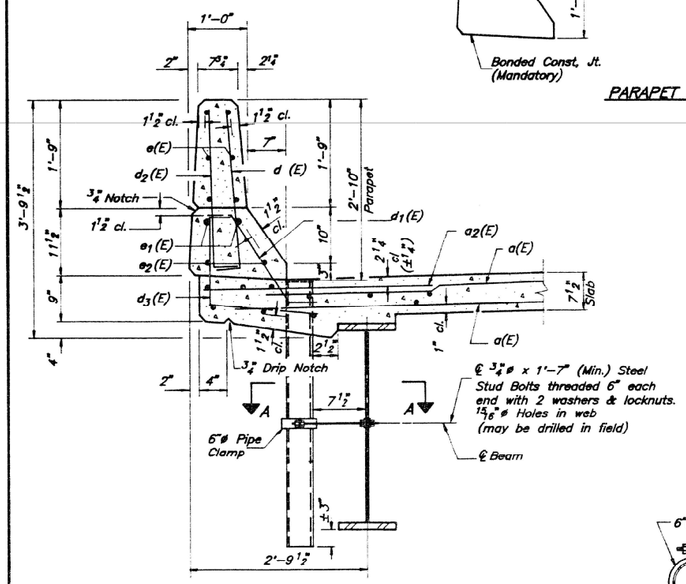
INSIDE ELEVATION OF EAST PARAPET

MIN. BAR LAP

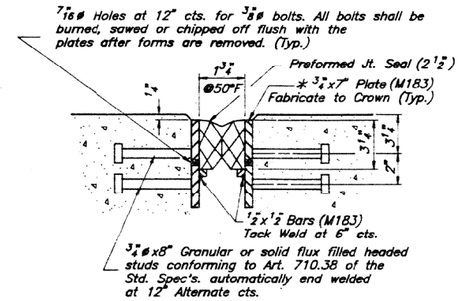
#5 Bars = 2'-2"
#8 Bars = 4'-6"



PARAPET JOINT DETAILS



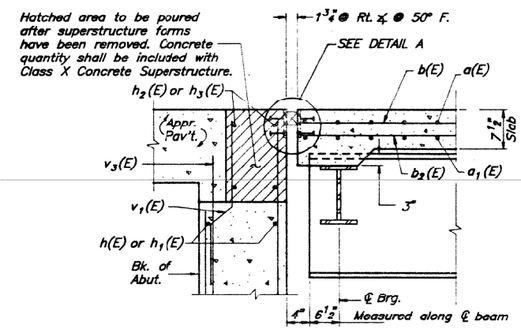
SECTION THRU PARAPET



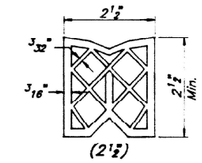
DETAIL A

*Furnish in segments of 20 ft. maximum length.
Maximum space between installed segments shall be 3/16"
Seal space with Silicone Sealant suitable for structural steel.
Length Stage I = 33'-0 3/4" (Roadway Slab)
Length Stage II = 24'-10 3/4" (Roadway Slab)
Length Stage II = 4'-10 1/2" (Sidewalk)

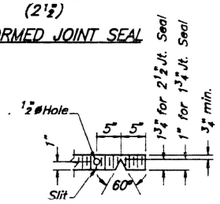
NOTE:
After fabrication all surfaces of the steel plates shall be given one shop coat of paint specified for structural steel.



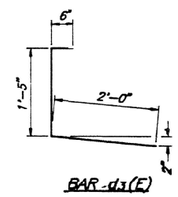
SECTION B-B
(NORTH ABUTMENT)



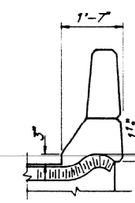
PREFORMED JOINT SEAL



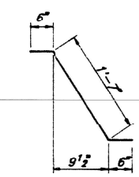
SEAL CUT-OUT
(1 3/4" & 2 1/2")



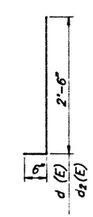
BAR d3(E)



TYP. END OF SEAL TREATMENT
EAST PARAPET



BAR d1(E)



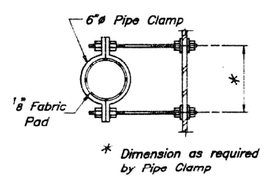
BARS d(E), or d2(E)

NOTES:
Fiberglass pipe shall conform to ASTM: D2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

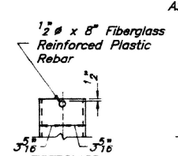
The exterior surfaces of the Floor Drain shall be painted with the vinyl enamel coat painting specified for Structural Steel. The exterior surfaces of the Aluminum tube shall be cleaned and given a washcoat pretreatment in accordance with Steel Structures Painting Council's Spec. SSPC-SP1 & SSPC-Paint 27 prior to painting. Fiberglass to have prewash as per MIL-P-15328.

NOTES:
See Sh.#7 for superstructure Bill of Material.
Reinforcement bars designated (E) shall be epoxy coated.

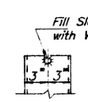
Bars indicated thus 1x2-#5 etc. indicates 1 line of bars with 2 lengths per line.



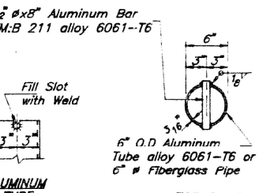
SECTION A-A



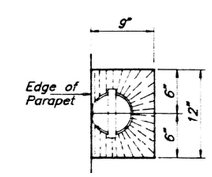
FIBERGLASS PIPE



ALUMINUM TUBE



TOP PLAN
(Showing Aluminum Tube)



TOP PLAN

EAST PARAPET
SUPERSTRUCTURE DETAILS
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR-1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062-0057

1497-08E

MODEL: Default
FILE NAME: P:\2023\3698AID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-structural detail 2.dgn

TWM ENGINEERING & GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL
			DRAWN - JCL
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP
		PLOT DATE = 8/7/2024	DATE - JULY 2024

REVISED -		
REVISED -		
REVISED -		
REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 – STRUCTURE INFORMATION
SN 062-0057

SCALE: N/A | SHEET 3 OF 6 SHEETS | STA. | TO STA.

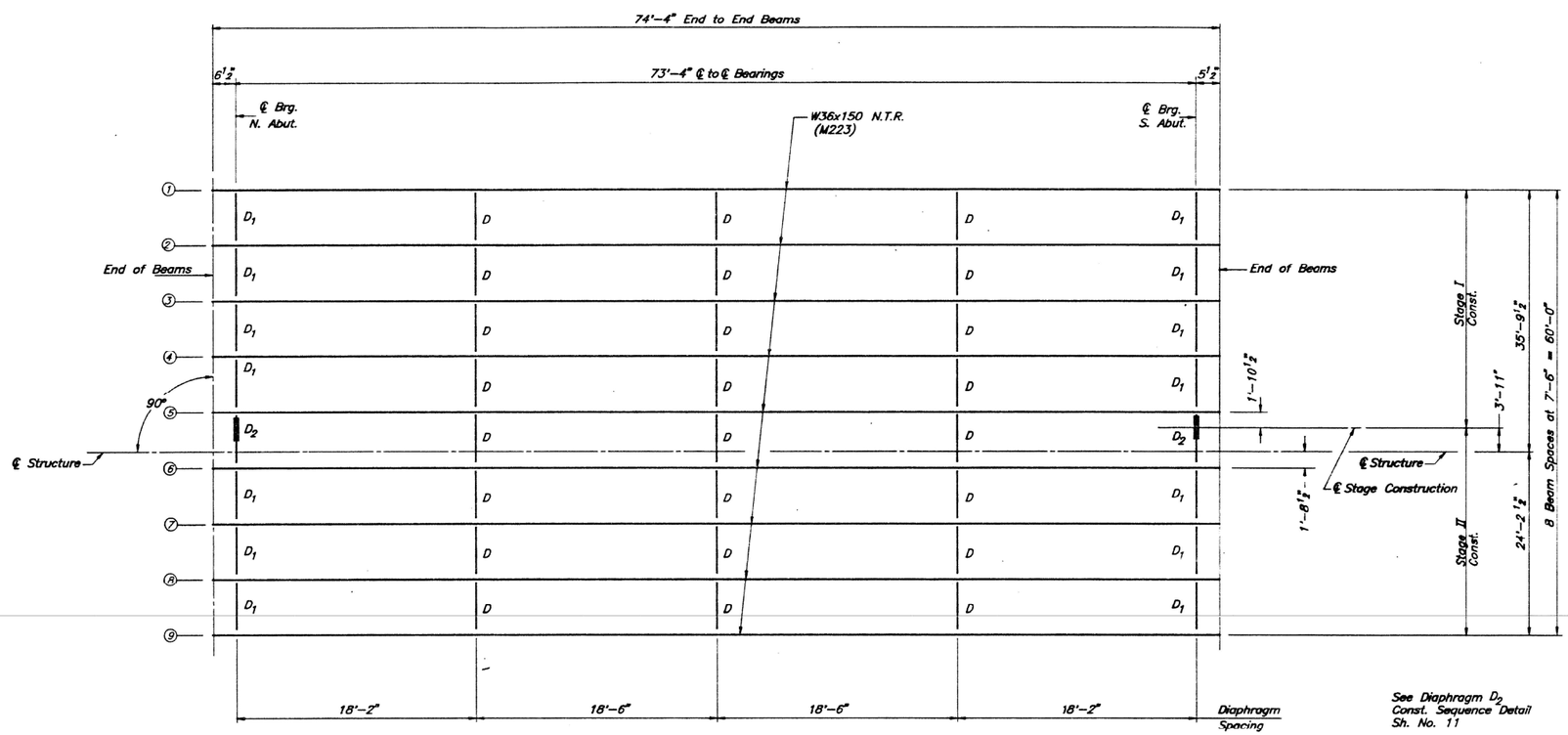
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	25
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062–0057

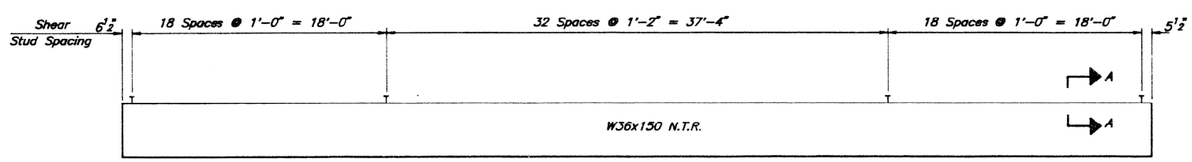
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 318	*	MARSHALL	216	126
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

*(3B)BR-1

SHEET NO.10
17 SHEETS



FRAMING PLAN



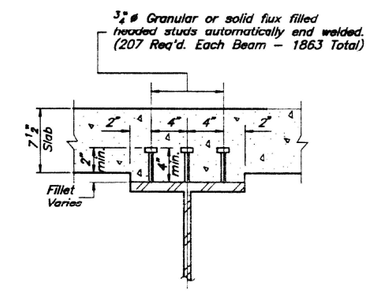
BEAM ELEVATION

*TOP OF BEAM ELEVATIONS

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7	Beam 8	Beam 9
℄ Brg. N. Abut.	467.31	467.40	467.50	467.59	467.69	467.78	467.87	467.97	468.06
℄ Brg. S. Abut.	467.02	467.11	467.20	467.30	467.39	467.49	467.58	467.67	467.77

* Elevations are for fabrication only.

Note:
The main load carrying components subject to tensile stress shall conform to the supplemental requirements for Notch Toughness Zone 2.
N.T.R. denotes Notch Toughness Requirements.



SECTION A–A

FRAMING PLAN
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR–1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062–0057

1492–08

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		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 – STRUCTURE INFORMATION
SN 062–0057

SCALE: N/A | SHEET 4 OF 6 SHEETS | STA. TO STA.

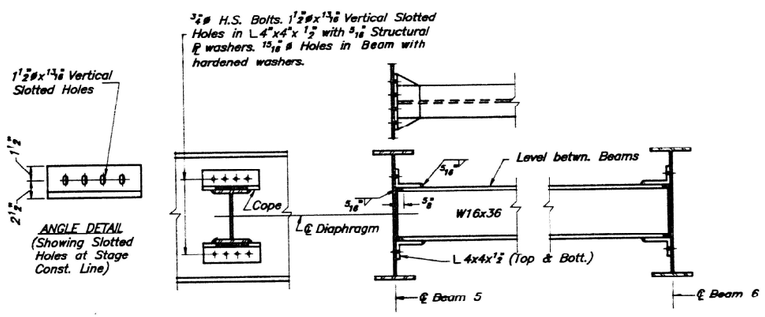
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	26
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062-0057

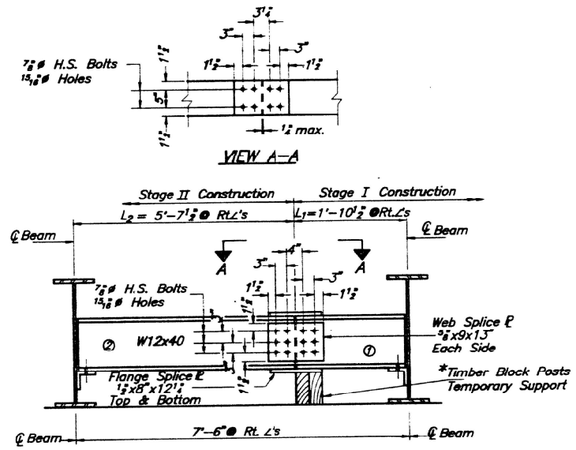
ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 318	*	MARSHALL	216	127
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 11
17 SHEETS

*(3B)BR-1



DIAPHRAGM D CONNECTION
EAST SIDE BEAM NO. 6
(M183 Steel)



DIAPHRAGM D_2
(At Rt.∠'s)
(M183 Steel)
2 Required
For details of connections to beams see diaphragm D_1.

*Cost of Timber Block Posts is Incidental to Structural Steel.

DIAPHRAGM D_2 CONSTRUCTION SEQUENCE

1.) Order Diaphragm D_2 in two sections with lengths of L_1 and L_2 as shown above.
2.) Attach section ① of Diaphragm to beam and top flange splice ℄ during Stage I Construction.
3.) Place Timber Block Posts between section ① of diaphragm and abutment bearing seat.
4.) Attach section ② of diaphragm to both Beam and section ① of diaphragm during Stage II Construction.
5.) Attach all remaining splice plates to sections ① and ② of diaphragms.
6.) Remove Timber Block Posts.

NOTE: The bolts for the slotted holes shall only be finger-tightened prior to the deck slab pouring and then be fully-tightened after the completion of the pouring.

INTERIOR BEAM MOMENT TABLE

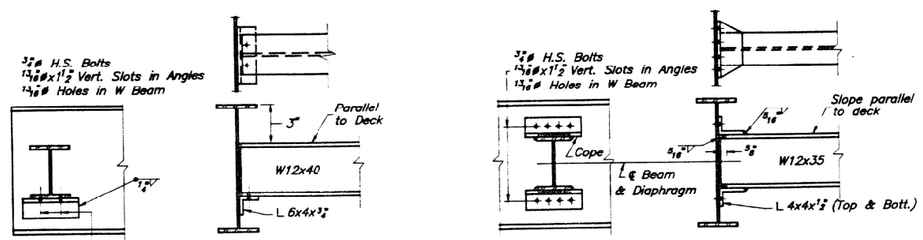
	0.5 Sp.
Is (in.4)	9,040
Ic (in.4)	22,456
Ss (in.3)	504
Sc (in.3)	712
℄ (K/')	0.90
M℄ ('K)	605.0
s℄ (K/')	0.48
Ms℄ ('K)	322.7
ML ('K)	712.8
Mtmp. ('K)	178.2
5/3(ML+T) ('K)	1,485
Ma ('K)	3,135
* Mu ('K)	3,627.1
fs℄ non-comp (k.s.i.)	14.4
fs℄ (comp) (k.s.i.)	5.4
fs 5/3(L+T) (k.s.i.)	25.0
fs (Overload) (k.s.i.)	44.8
VR (K)	53.7

* Mu = Full Plastic Moment Capacity for Compact, Braced Section.

Ma (Applied Moment) = 1.3 [M℄+Ms℄+5/3(ML+T)]

INTERIOR BEAM REACTION TABLE

	Abut.
R℄ (K)	50.6
RL (K)	47.7
rmp. (K)	12.0
R Total (K)	110.3



DIAPHRAGM D_1 & D_2
(M183 Steel)
(14 D_1 Req'd)
(2 D_2 Req'd)

Note: Two hardened washers shall be required over all oversize holes for diaphragms.

DIAPHRAGM D
(M183 Steel)
(24 Req'd)

STRUCTURAL STEEL DETAILS
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR-1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062-0057

1493-082

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			DRAWN - JCL	REVISED -
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		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 - STRUCTURE INFORMATION
SN 062-0057

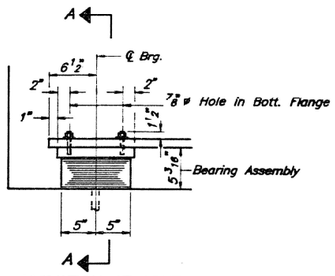
SCALE: N/A | SHEET 5 OF 6 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	27
*	MARSHALL, PEORIA, TAZEWELL	CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

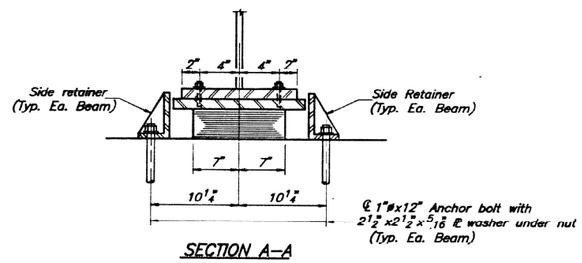
FOR INFORMATION ONLY
LOCATION 2 (IL 29 OVER GIMLET CREEK)
SN 062-0057

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 318	*	MARSHALL	216	128
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

SHEET NO. 12
17 SHEETS
*(3B)BR-1

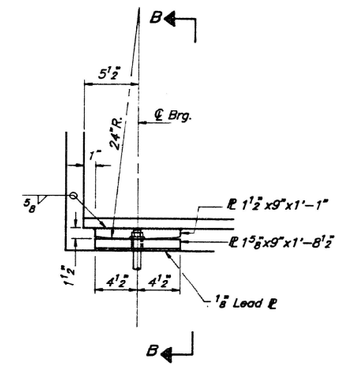


ELEVATION AT ABUT.



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.
NORTH ABUTMENT
(9 Required)



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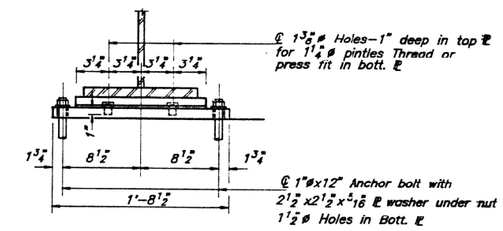
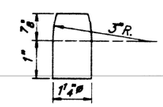


SECTION B-B

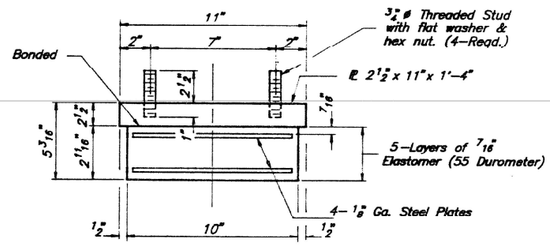
FIXED BEARING
SOUTH ABUTMENT

See Sh. # 13 for anchor bolt installation. Anchor bolts at fixed bearings may be built into the masonry.



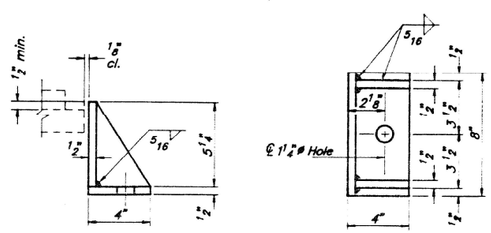
PINTLES

Note: All bearing plates, shim plates and side retainers shall be M18.3 steel.



BEARING ASSEMBLY
ABUTMENT

NOTE: Shim plates shall not be placed under bearing assembly.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	9

BEARING DETAILS
F.A.P. 318 OVER GIMLET CREEK
SECTION (3B)BR-1
MARSHALL COUNTY
STATION 386+93.00
STR. NO. 062-0057

1492-08

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IL DESIGN FIRM LICENSE NO: 184-001220

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	DRAWN - JCL	REVISED -	
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PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 2 - STRUCTURE INFORMATION
SN 062-0057

SCALE: N/A | SHEET 6 OF 6 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	28
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY

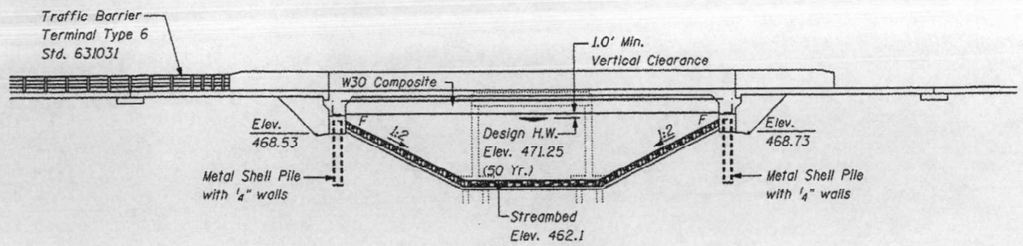
LOCATION 3 (IL 29 OVER BOYD'S HOLLOW)

SN 072–0226

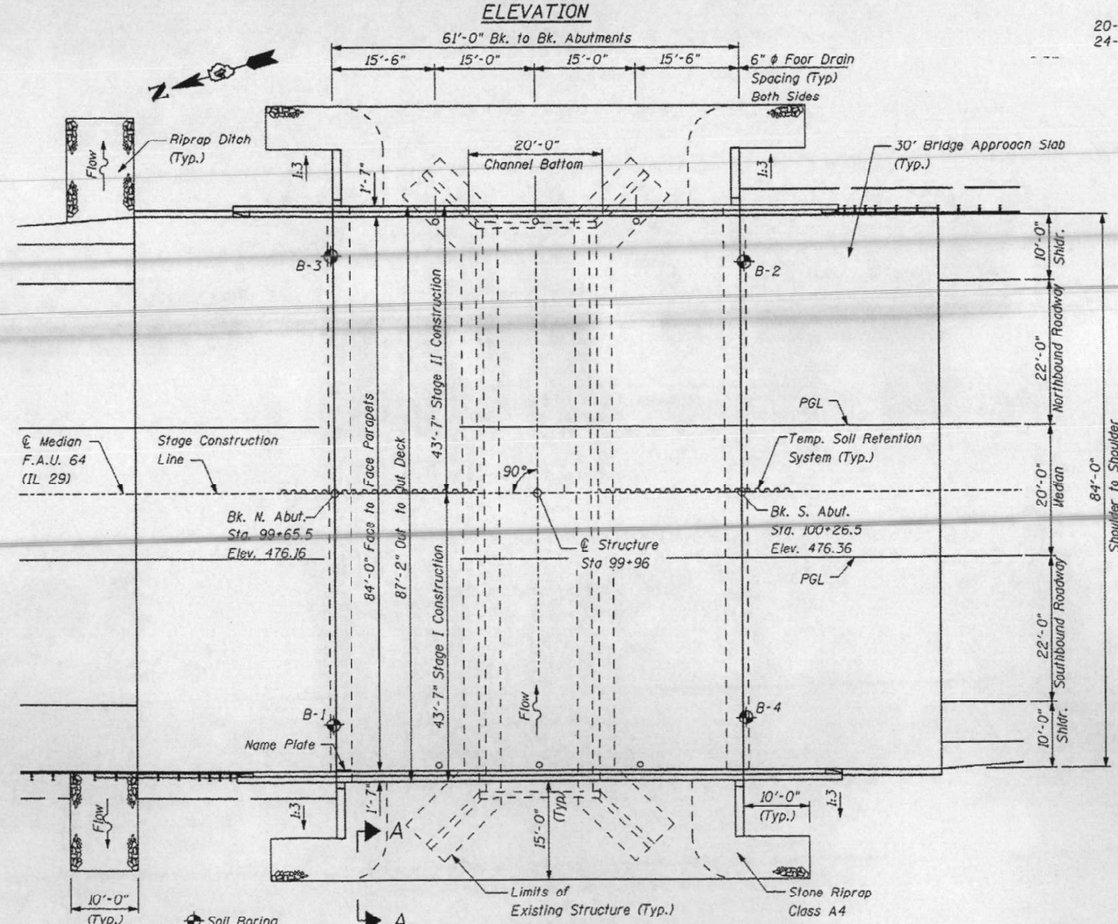
BENCHMARK: chiseled "□" on N.E. Wingwall of SN 072-0072 Elev=476.06

EXISTING STRUCTURE: S.N. 072-0072 to be removed. Built in 1953 as SBI 29, Section 10-B2, at Station 99+96. Single span, Reinforced Concrete Slab. 18'-0" back to back of abutments, 87'-4" deck width. Reinforced Concrete Closed Abutments on Timber Piles. Bridge to be removed. No salvage.

One lane of traffic to be maintained in each direction utilizing Crossovers and Stage Construction.



ELEVATION



INDEX OF SHEETS

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi

f_y = 60,000 psi Reinforcement

F_y = 50,000 psi (M270 Grade 50W)

LOADING HL-93

Allow 50 #/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2007 AASHTO LFRD Bridge Design Specifications with 2008 and 2009 Interims

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2

Design Spectral Accelaration at 1.0 sec. (S_{D1}) = 0.159 g

Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.266 g

Soil Site Class = E

STATION 99+96.00
BUILT 20 BY
STATE OF ILLINOIS
F.A. RT. 64 - SEC. (10B)BR
LOADING HL-93
STR. NO. 072-0226

NAME PLATE
See Std. 515001

WATERWAY INFORMATION

Drainage Area = 1.22 sq mi Low Grade Elev. 475.20 @ Sta. 99+00

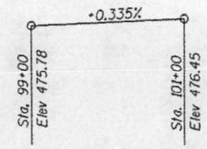
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	655	101	197	469.95	0.90	0.00	470.85	469.95
Design	50	1082	122	257	471.25	1.99	0.00	473.24	471.25
Base	100	1283	134	291	471.95	2.50	0.00	474.45	471.95
Overtopping									
Max. Calc.	500	1777	145	301	472.66	2.90	0.70	475.56	473.36

10 Year Velocity through Ex Bridge = 5.8 fps

10 Year Velocity through Pr Bridge = 3.3 fps

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	N. Abut.	S. Abut.
	468.53	468.73



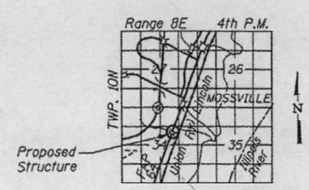
PROFILE GRADE
(along Profile Grade Line)

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

03-01-2013
MARTIN J. SILVESTER
STRUCTURAL ENGINEER
LICENSE EXP. DATE 11-30-14

MARTIN J. SILVESTER 081-004873 LICENSED STRUCTURAL ENGINEER OF ILLINOIS

Note:
See sheet 2 of 27 for Section A-A.



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
ILLINOIS ROUTE 29 OVER BOYDS HOLLOW
F.A.U. RTE. 64 - SEC. (10B)BR
PEORIA COUNTY
STATION 99+96.00
STRUCTURE NO. 072-0226

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THE UPCHURCH GROUP, INC.	PLOT DATE * 3/1/2013 12:03:52 PM	CHECKED - LP	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 072–0226
SHEET NO. 1 OF 27 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
64	(10B) BR	PEORIA	77	29
		CONTRACT NO. 68481		
		ILLINOIS FED. AID PROJECT		

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IL DESIGN FIRM LICENSE NO: 184-001220

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PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 3 – STRUCTURE INFORMATION
SN 072–0226

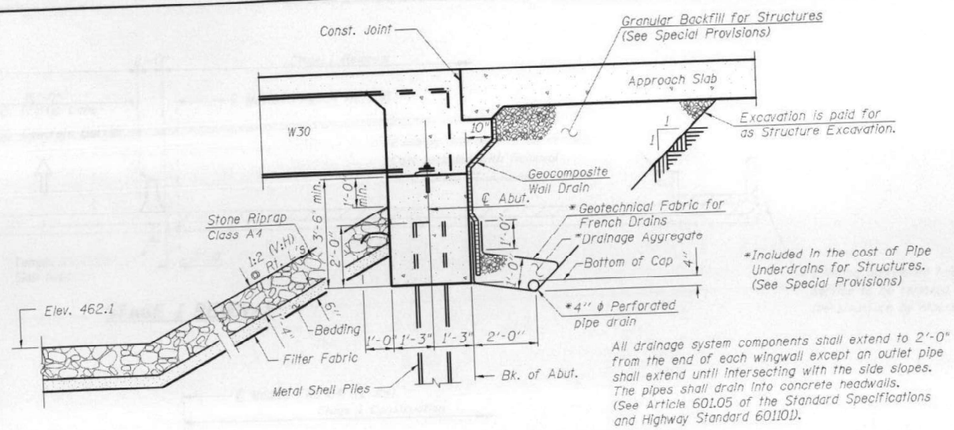
SCALE: N/A SHEET 1 OF 5 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	29
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY

LOCATION 3 (IL 29 OVER BOYD'S HOLLOW)

SN 072-0226

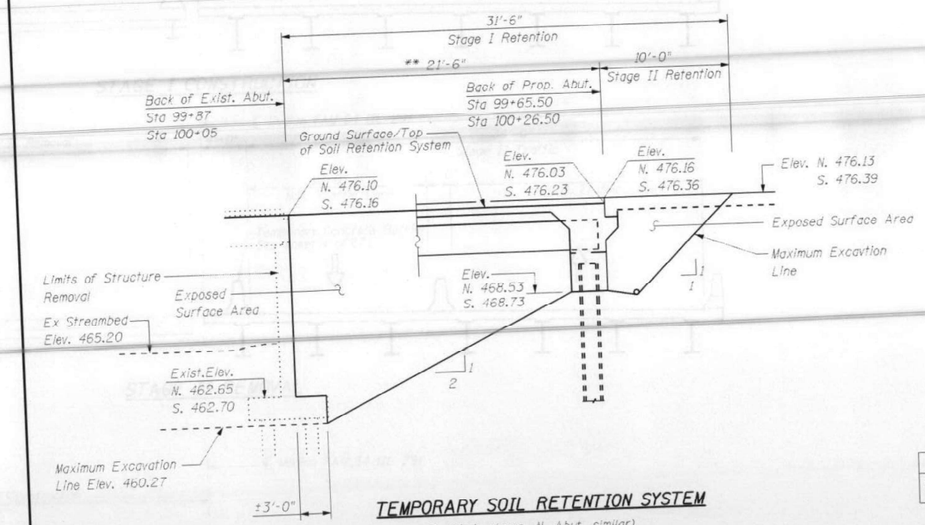


*Included in the cost of Pipe Underdrains for Structures. (See Special Provisions)

All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

SECTION THRU INTEGRAL ABUTMENT

(Horiz. Dim @ Rt. L's)



TEMPORARY SOIL RETENTION SYSTEM

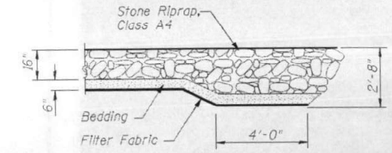
(S. Abut. shown, N. Abut. similar)

A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

All horizontal dimensions are given along centerline of roadway.

** This Portion of Temporary Soil Retention System shall be removed after completion of Stage I Construction.

Item	Unit	Qty
Temporary Soil Retention System	Sq. Ft.	588



SECTION A-A

GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1. mechanically galvanized bolts in painted areas and M164, Type 3. in unpainted areas Bolts 7/8" diameter. open holes 15/16" diameter, unless otherwise noted.
2. Calculated weight of Structural Steel = 103650 lbs.
3. All Structural steel shall be AASHTO M270. GRADE 50W.
4. No field welding is permitted except as specified in the contract documents.
5. Reinforcement bars shall conform to the requirements of ASTM A706 Grade 60. See Special Provisions.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Structural steel shall only be painted, for a distance equal to the depth of embedment into the concrete cap plus 3 inches. Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.
8. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
9. Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.
10. Slipforming of the parapet is not allowed.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB	TOTAL
	Granular Backfill for Structures	Cu. Yd.		216	216
	Stone Riprap, Class A4	Sq. Yd.		829	829
	Filter Fabric	Sq. Yd.		829	829
	Removal of Existing Structures	Each		1	1
	Structure Excavation	Cu. Yd.		344	344
	Floor Drains	Each	6		6
	Concrete Structures	Cu. Yd.		123.6	123.6
	Concrete Superstructure	Cu. Yd.	277.6		277.6
	Bridge Deck (Shrinkage Compensating Concrete)	Cu. Yd.	191.7		191.7
*	Bridge Deck Grooving	Sq. Yd.	1106		1106
*	Protective Coat	Sq. Yd.	1214		1214
	Furnishing and Erecting Structural Steel	L. Sum	1		1
	Stud Shear Connectors	Each	3612		3612
	Reinforcement Bars, Epoxy Coated	Pound	96070	19040	115110
	Bar Splicers	Each	425	204	629
	Furnishing Metal Shell Piles, 14" x 0.250"	Foot		1196	1196
	Driving Piles	Foot		1196	1196
	Test Pile Metal Shells	Each		2	2
	Pile Shoes	Each		26	26
	Temporary Soil Retention System	Sq. Ft.		588	588
	Name Plates	Each	1		1
	Anchor Bolts, 1"	Each		56	56
	Geocomposite Wall Drain	Sq. Yd.		160	160
	Pipe underdrains for Structures 4 inch	Foot		263	263
	Temporary Support System	L. Sum		1	1

* Includes Bridge Approach Slabs.

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		CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 072-0226
SHEET NO. 2 OF 27 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
64	(10B) BR	PEORIA	77	30
		CONTRACT NO. 68481		
		ILLINOIS FED. AID PROJECT		

MODEL: Default
FILE NAME: P:\2023\2309340 - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\0468149\0468149-sht-structural detail 3.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

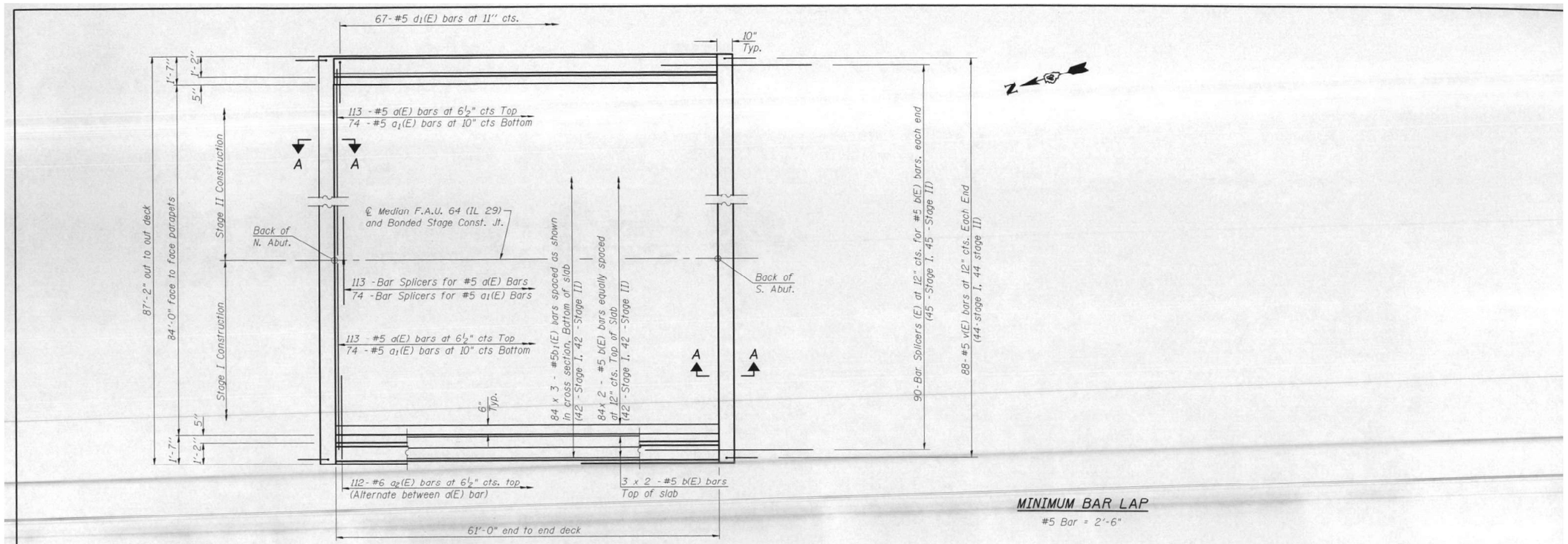
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 3 – STRUCTURE INFORMATION
SN 072-0226

SCALE: N/A | SHEET 2 OF 5 SHEETS | STA. TO STA.

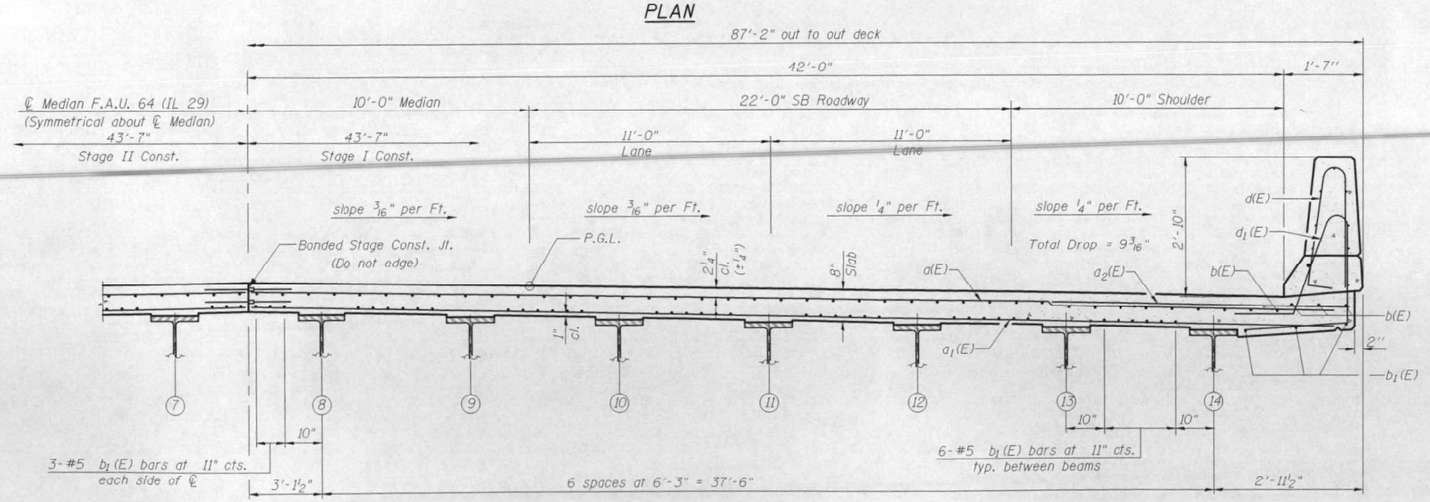
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	30
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 3 (IL 29 OVER BOYD'S HOLLOW)
SN 072–0226



PLAN

MINIMUM BAR LAP
#5 Bar = 2'-6"



CROSS SECTION
(Looking South)

Notes:
See Sheet 10 of 27 for superstructure details and Bill of Material.

Bars indicated thus 84 x 3 - #5 etc. indicates 84 lines of bars with 3 lengths per line.

See Sheet 10 of 27 for parapet reinforcement.

Reinforcement bars shown on this sheet are included in Bill of Material on sheet 10 of 27.

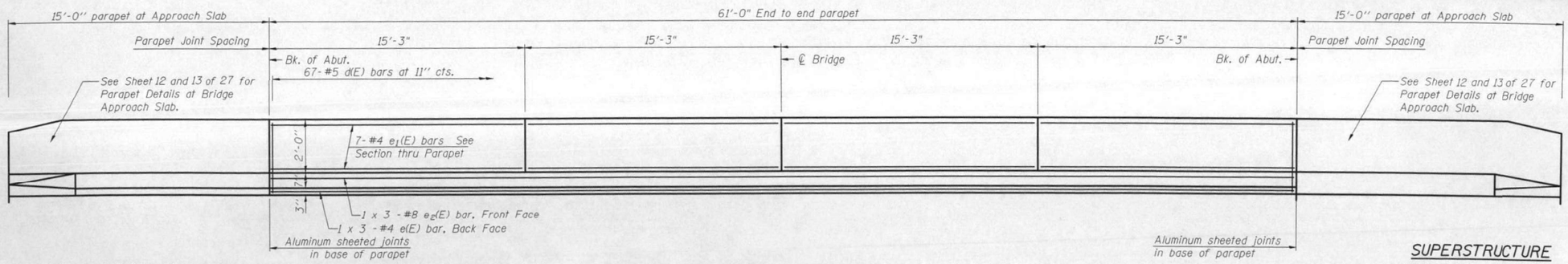
See Sheet 11 of 27 for Section A-A

FILE NAME = ...\072D226-68481-009-SuperStr.dgn	USER NAME = .USER.	DESIGNED - AB	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUPERSTRUCTURE STRUCTURE NO. 072–0226	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
	PLOT SCALE = #SCALE#	CHECKED - MJS	REVISED -			64	(10B) BR	PEORIA	77 / 37
THE UPCHURCH GROUP, INC.	PLOT DATE = 12/17/2012 9:59:43 AM	DRAWN - RMH	REVISED -		SHEET NO. 9 OF 27 SHEETS			CONTRACT NO. 68481	
		CHECKED - LP	REVISED -					ILLINOIS FED. AID PROJECT	

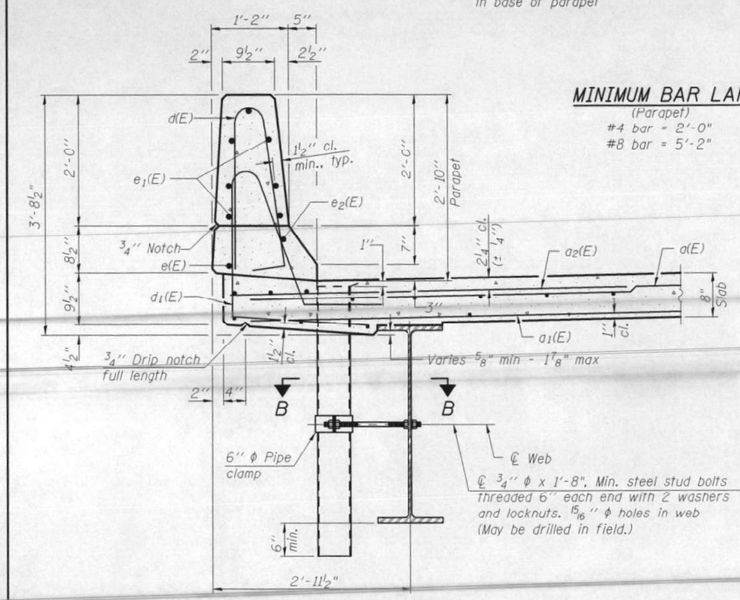
TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LOCATION 3 – STRUCTURE INFORMATION SN 072–0226	F.A. RTE.	SECTION	COUNTY / TOTAL SHEETS / SHEET NO.
			DRAWN - JCL	REVISED -			VAR	D4 BRIDGE PAINTING 2025-1	* / 43 / 31
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -			* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -		SCALE: N/A SHEET 3 OF 5 SHEETS STA. TO STA.		ILLINOIS FED. AID PROJECT	

MODEL: Default
FILE NAME: P:\2023\3698AID - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468J49\D468J49-sht-structural detail 3.dgn

FOR INFORMATION ONLY
LOCATION 3 (IL 29 OVER BOYD'S HOLLOW)
SN 072–0226

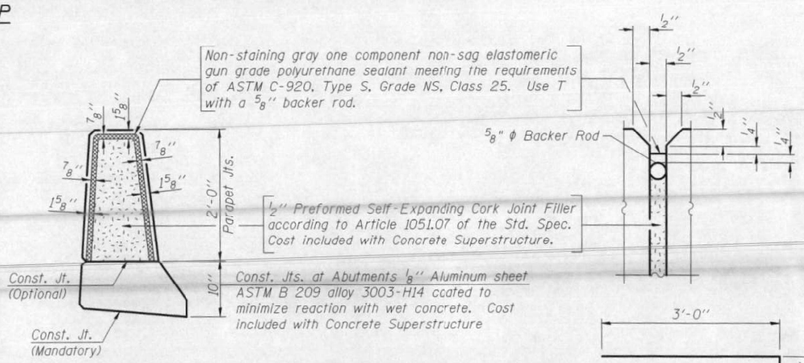


INSIDE ELEVATION OF PARAPET



MINIMUM BAR LAP
(Parapet)
#4 bar = 2'-0"
#8 bar = 5'-2"

SECTION THRU PARAPET

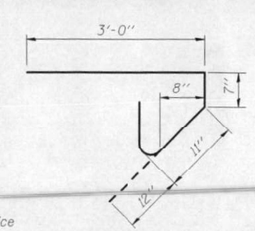


PARAPET JOINT DETAILS

Notes:
Floor Drains need not to be painted.

Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.

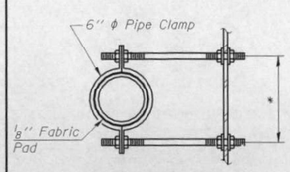


BAR s(E)

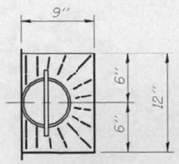
SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	226	#5	43'-0"	
a1(E)	148	#5	43'-0"	
a2(E)	224	#6	6'-6"	
b(E)	180	#5	31'-8"	
b1(E)	252	#5	21'-11"	
d(E)	134	#5	5'-7"	
d1(E)	134	#5	7'-9"	
e(E)	6	#4	21'-8"	
e1(E)	56	#4	14'-11"	
e2(E)	6	#8	23'-8"	
m(E)	40	#6	23'-4"	
m1(E)	56	#6	9'-0"	
m2(E)	24	#6	6'-0"	
m3(E)	4	#6	2'-8"	
m4(E)	4	#6	2'-10"	
s(E)	168	#5	5'-6"	
s1(E)	168	#4	9'-2"	
v(E)	176	#5	4'-0"	
Reinforcement Bars, Epoxy Coated		Pound	38690	
Concrete Superstructure		Cu. Yds.	13.6	
Bridge Deck (Shrinkage Compensating Concrete)		Cu. Yds.	191.7	

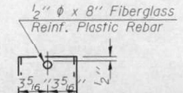
Bars indicated thus 1 x 3 -#8 etc. indicates 1 line of bars with 3 lengths per line.



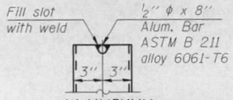
SECTION B-B
*Dimension as required by Pipe Clamp



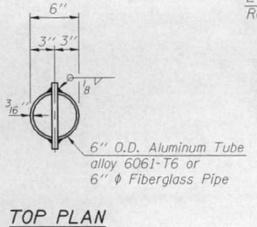
TOP PLAN



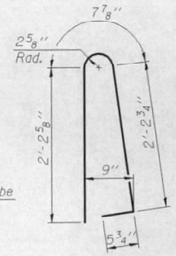
FIBERGLASS PIPE



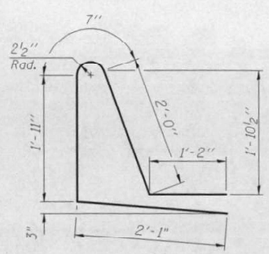
ALUMINUM TUBE



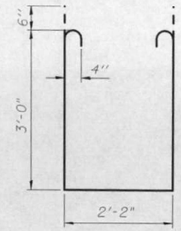
TOP PLAN
(Showing Aluminum Tube)



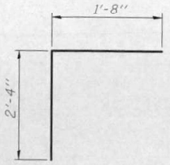
BAR d(E)



BAR d1(E)



BAR s1(E)



BAR v(E)

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SUPERSTRUCTURE DETAILS
STRUCTURE NO. 072–0226
SHEET NO. 10 OF 27 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
64	(10B) BR	PEORIA	77	38
		CONTRACT NO. 68481		
		ILLINOIS FED. AID PROJECT		

MODEL: Default
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TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
www.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

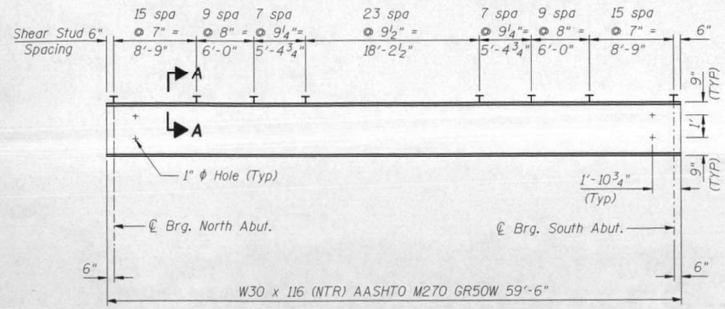
USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

LOCATION 3 – STRUCTURE INFORMATION
SN 072–0226

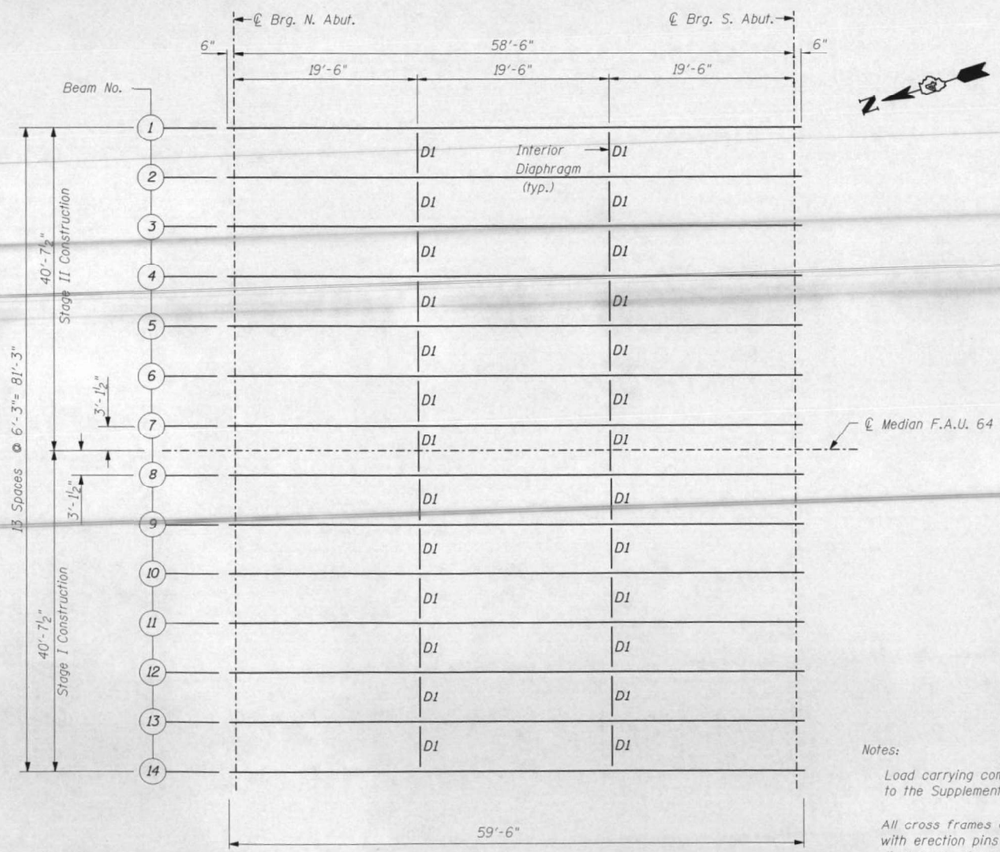
SCALE: N/A | SHEET 4 OF 5 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	32
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 3 (IL 29 OVER BOYD'S HOLLOW)
SN 072–0226



ELEVATION



FRAMING PLAN

INTERIOR GIRDER MOMENT TABLE		
		0.5 Span
I_s	(in^4)	4930
$I_c(n)$	(in^4)	13147
$I_c(3n)$	(in^4)	9909
$I_c(cr)$	(in^4)	-
S_s	(in^3)	329
$S_c(n)$	(in^3)	477
$S_c(3n)$	(in^3)	440
$S_c(cr)$	(in^4)	-
Z	(in^3)	378
DC1	(k/')	0.780
M_{DC1}	('k)	334
DC2	(k/')	0.064
M_{DC2}	('k)	27
DW	(k/')	0.300
M_{DW}	('k)	128
M_{LL+IM}	('k)	691
M_u (Strength I)	('k)	1853
$\phi_f M_n$	('k)	2466
f_s DC1	(ksi)	12.2
f_s DC2	(ksi)	0.8
f_s DW	(ksi)	3.4
f_s (LL+IM)	(ksi)	17.4
f_s (Service II)	(ksi)	39.0
$0.95R_hF_{yf}$	(ksi)	45.5
f_s (Total)(Strength I)	(ksi)	-
$\phi_f F_n$	(ksi)	-
V_f	(k)	41.1

INTERIOR GIRDER REACTION TABLE		
		Abut.
R_{DC1}	(k)	23.79
R_{DC2}	(k)	1.95
R_{DW}	(k)	9.15
R_{LL+IM}	(k)	68.34
R_{Total}	(k)	103.23

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads ($in.^4$ and $in.^3$).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections, due to short-term composite live loads ($in.^4$ and $in.^3$).

$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads ($in.^4$ and $in.^3$).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_{LL+IM}: Un-factored live load moment plus dynamic load allowance (impact) ((kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{LL+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(LL+IM)$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_{sLL+IM}$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

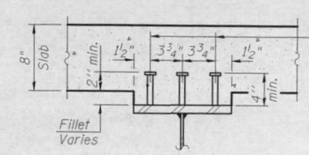
V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

TOP OF BEAM ELEVATIONS (For Fabrication Only)														
Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6	Beam 7	Beam 8	Beam 9	Beam 10	Beam 11	Beam 12	Beam 13	Beam 14
℄ Brg. N. Abut.	474.71	474.84	474.97	475.10	475.19	475.29	475.39	475.39	475.29	475.19	475.10	474.97	474.84	474.71
℄ Brg. S. Abut.	474.91	475.04	475.17	475.30	475.39	475.49	475.59	475.59	475.49	475.39	475.30	475.17	475.04	474.91

Notes:

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness Zone 2.

All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.



SECTION A-A

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THE UPCHURCH GROUP, INC.	PLOT SCALE = $SCALE$	CHECKED - MJS	REVISED -		SHEET NO. 14 OF 27 SHEETS			CONTRACT NO. 68481		
	PLOT DATE = 12/17/2012 10:01:28 AM	DRAWN - RMH	REVISED -					ILLINOIS FED. AID PROJECT		
		CHECKED - LP	REVISED -							

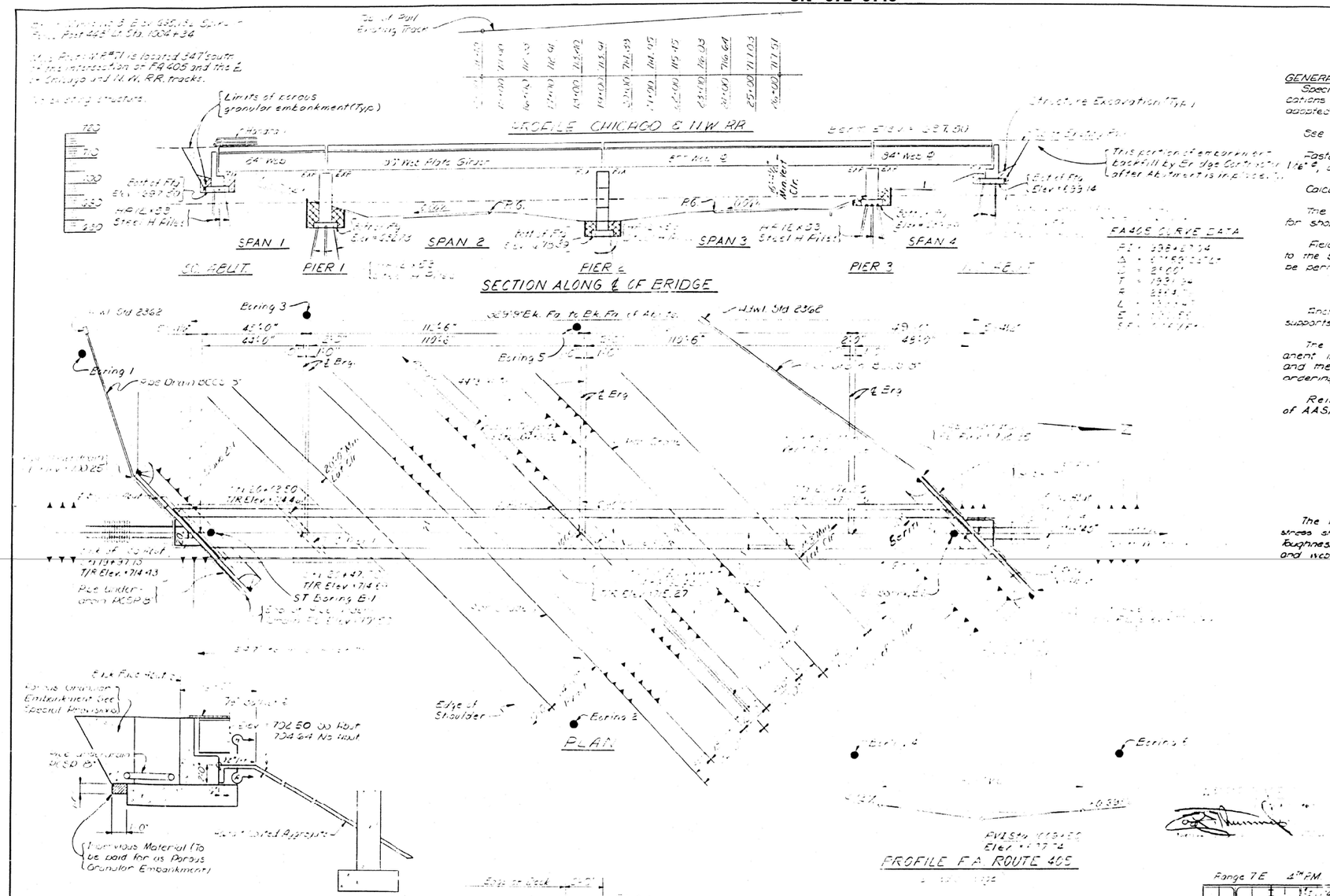
MODEL: Default
FILE NAME: P:\0232\3068AID - Bridge Painting (FY 2025)\4. CADD - DWG\4.7 Trans\Sheets\0468\49\0468\49-str-structural detail 3.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LOCATION 3 – STRUCTURE INFORMATION SN 072–0226	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			DRAWN - JCL	REVISED -			VAR	D4 BRIDGE PAINTING 2025-1	*	43	33
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -			* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		PLOT DATE = 8/13/2024	DATE - JULY 2024	REVISED -		SCALE: N/A SHEET 5 OF 5 SHEETS STA. TO STA.			ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072–0143

Sheet 1 of 11

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FA 405	72-7SB	PEORIA		
FED. ROAD DIST NO 4	ILLINOIS	FED AID PROJ		



FA 405 CURVE DATA

P.I. =	33+67.34
Δ =	0°16'00.00"
D =	2°00'
T =	19.91'
R =	2863.7'
L =	39.91'
E =	0.07'
S.E. =	0.04'

GENERAL NOTES:

Specifications for workmanship and material: "Standard Specifications for Road and Bridge Construction of the State of Illinois" adopted Oct. 1, 1979 and the "Supplemental Specifications."

See Proposal for Boring Data

Fasteners shall be high strength bolts. Bolts 7/8" ø, oben holes 1 1/16" ø, unless otherwise noted

Calculated weight of Structural Steel - 600900 Lbs

The lead silica chromate paint system shall be used for shop and field painting of structural steel

Field welding of construction accessories will not be permitted to the bottom flange of girders. Field welding in other areas will be permitted only when approved by the Engineer

Anchor bolts shall be set before bolting diaphragms over supports

The contractor shall drive one steel test pile in a permanent location at the South Abutment, Pier 2, and the North Abutment as directed by the Engineer before ordering the remainder of the piles

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-53, Grade 60.

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges and webs of the steel girders

TOTAL BILL OF MATERIAL

ITEM	UNIT	Superstr	Substr	TOTAL
Pipe Handrail	Lin Ft	652		652
Structure Excavation	Cu Yd		507	507
Class "A" Concrete	Cu Yd		493.8	493.8
Structural Steel	Lump Sum	1		1
Reinforcement Bars	Lb		50870	50870
Steel Piles (HP 12 x 53)	Lin Ft		2985	2985
Test Pile Steel (HP 12 x 53)	Each		3	3
Name Plate	Each		1	1
Pipe Drain Bitum Coated Corr Steel 8"	Lin Ft		192	192
Pipe Underdrain Perf Corr Steel 8"	Lin Ft		148	148
Slope Wall (6")	Sq Yd		387	387
Membrane Waterproofing	Sq Ft	5170		5170
Porous Granular Embankment	Cu Yd		322	322
Deck Drain	Lin Ft	664		664
Removing & Reinstalling Track Work	Lin Ft		440	440
Ballast	Cu Yd		161	161
Sand Backfill	Cu Yd		18.4	18.4

DESIGN LOADING

Loaders E-80 with Diesel Impact

DESIGN STRESSES

f'_c = 4,000 psi Substructure
n = 8
f_s = 30,000 psi Struct. Steel (A36, AASHTO M183)
f_s = 24,000 psi Reinforcement
v = 75 psi

DESIGN SPECIFICATIONS

1975 AREA Specifications with modifications for C.B.N.W. RR. & 1977 AASHTO with 1978 & 1979 Interims as applicable.

C.B.N.W. RR.
BUILT 198__ BY
STATE OF ILLINOIS
FA RT. 405 SEC. 72-7SB
F.A. PROJ. FFD - 4C5-1(22)
STA. 1004+97.92 LOADING E-80
STR. NO. 072-0143

NAME PLATE
(See Std. 2113)

SECTION THRU ABUTMENT AND SLOPEWALL

Designed	HBQ
Checked	DLH
Drawn	Rahrer
Checked	RJH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
GENERAL PLAN & ELEVATION
PROJECT: FA 405
C.B.N.W. R.R. OVER FA ROUTE 405
FA 405 SECTION 72-7SB
PEORIA COUNTY
STA 1004+37.92

ROBERT B. QUISENBERRY 81-4147 REGISTERED STRUCTURAL ENGINEER STATE OF ILLINOIS

Robert B. Quisenberry

MODEL: Default
FILE NAME: P:\2023\23098\4D - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 Tran\Sheets\D468149\D468149sht-structural detail 4.dgn

TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM	USER NAME = dlee	DESIGNED - JCL	REVISED -
	IL DESIGN FIRM LICENSE NO: 184-001220		DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 4 – STRUCTURE INFORMATION
SN 072–0143

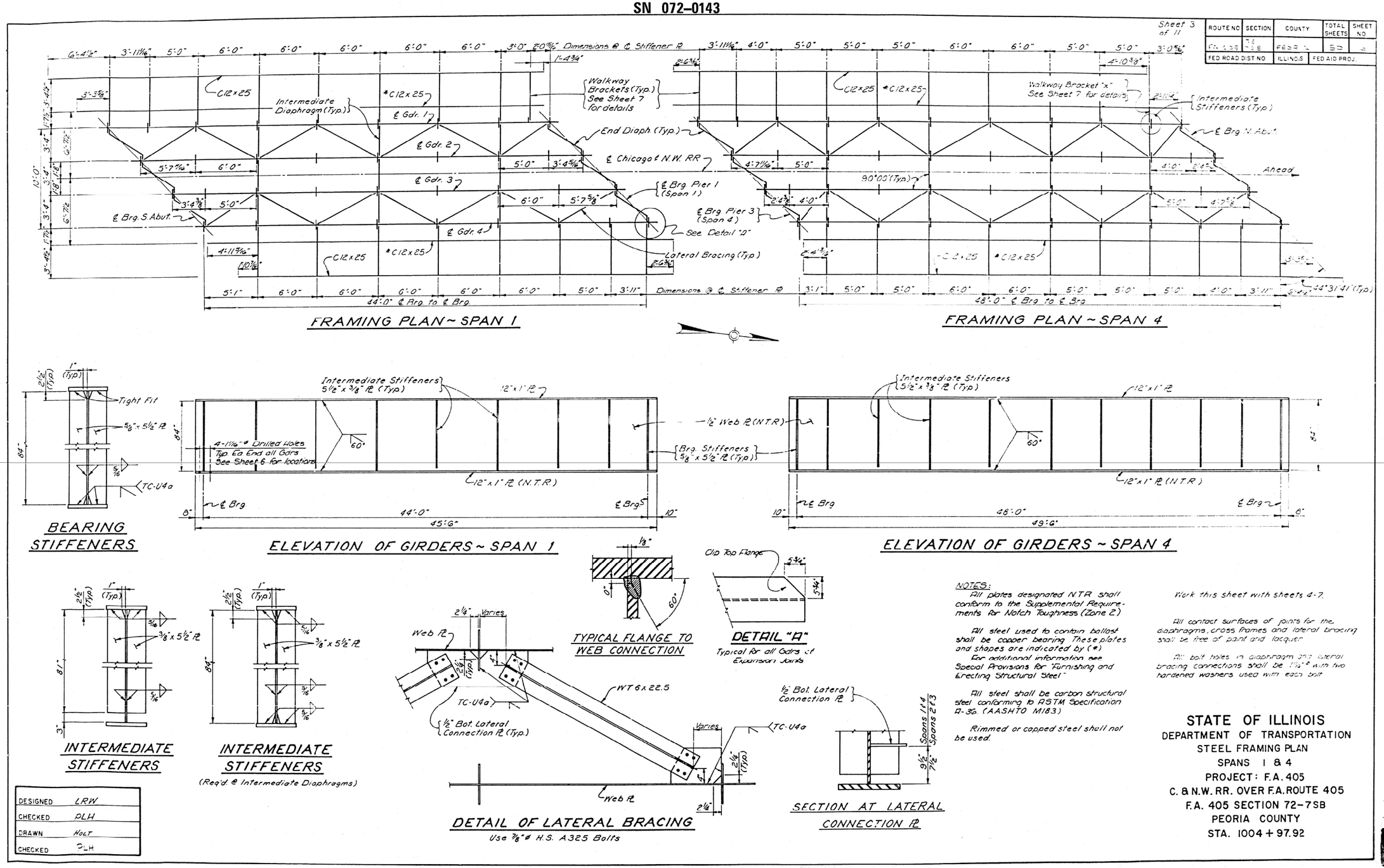
SCALE: N/A | SHEET 1 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	34
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072-0143

Sheet 3 of 11

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FA 405	72-7SB	PEORIA	35	3
FED ROAD DIST NO	ILLINOIS	FED AID PROJ.		



DESIGNED	LRW
CHECKED	PLH
DRAWN	HOLT
CHECKED	PLH

NOTES:

All plates designated N.T.R. shall conform to the Supplemental Requirements for Notch Toughness (Zone 2)

All steel used to contain ballast shall be copper bearing. These plates and shapes are indicated by (*)

For additional information see Special Provisions for "Furnishing and Erecting Structural Steel"

All steel shall be carbon structural steel conforming to ASTM Specification A-36. (AASHTO M183)

Rimmed or capped steel shall not be used.

Work this sheet with sheets 4-7.

All contact surfaces of joints for the diaphragms, cross frames and lateral bracing shall be free of paint and lacquer

All bolt holes in diaphragm and lateral bracing connections shall be 1 1/16" ø with two hardened washers used with each bolt.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
STEEL FRAMING PLAN
SPANS 1 & 4
PROJECT: F.A. 405
C. & N.W. RR. OVER F.A. ROUTE 405
F.A. 405 SECTION 72-7SB
PEORIA COUNTY
STA. 1004 + 97.92

MODEL: Default
FILE NAME: P:\2023\2369840 - Bridge Painting (FY 2023)\4 CADD - DWG\4.7 TranSheets\D468149\D468149-sht-structural detail 4.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC. WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 4 – STRUCTURE INFORMATION
SN 072-0143

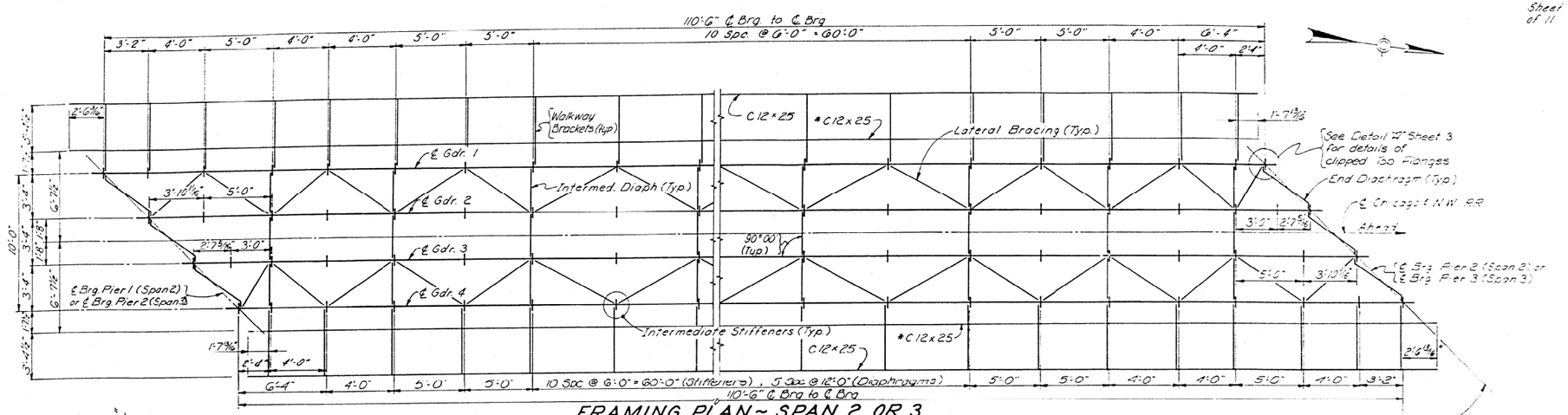
SCALE: N/A | SHEET 2 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	35
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

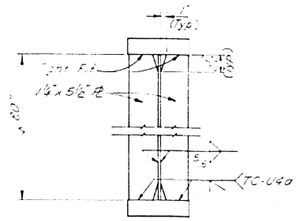
FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072–0143

Sheet 4 of 11

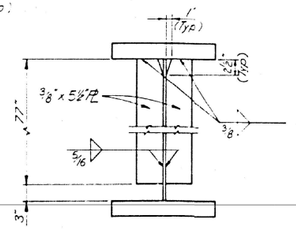
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 405	72-7SB	PEORIA	60	-
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJ.		



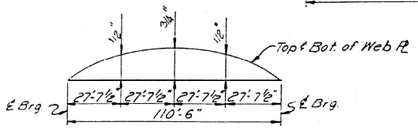
FRAMING PLAN ~ SPAN 2 OR 3



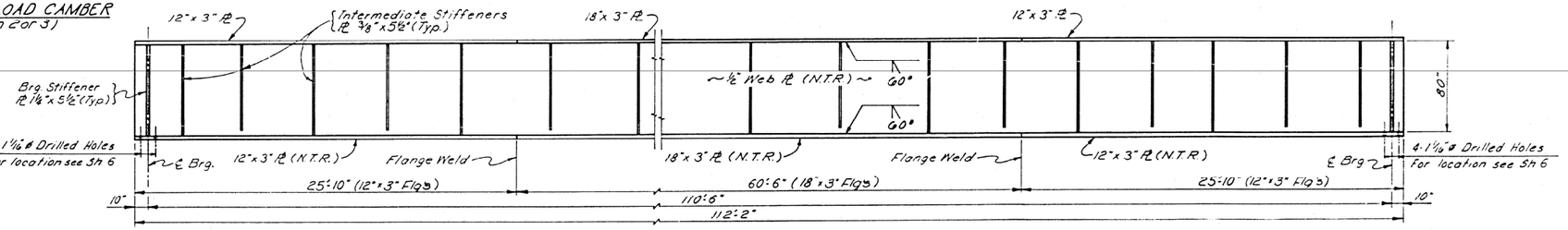
BEARING STIFFENER



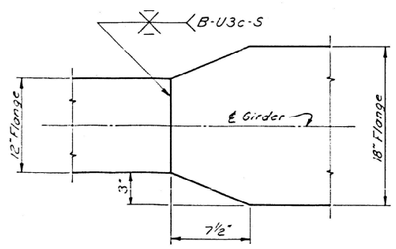
INTERMEDIATE STIFFENER
(For stiffeners at Intermediate Diaph, see "Typical Intermediate Diaph.")



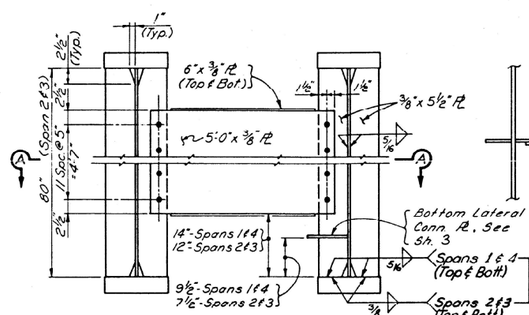
DEAD LOAD CAMBER
(Span 2 or 3)



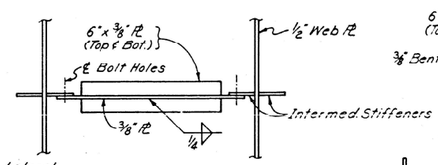
ELEVATION OF GIRDERS



PLAN OF FLANGE WELD

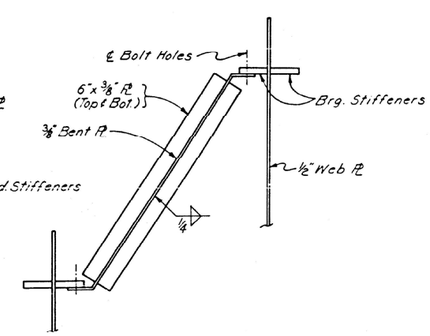


TYPICAL INTERMEDIATE OR END DIAPHRAGM



SECTION "A-A"
INTERMEDIATE DIAPH.
(81-Intermed. Diaph. Req'd; 24-End Diaph. Req'd.)

Use ⅞" ø H.S. A325 Bolts (81-Intermed Diaph. Req'd; 24-End Diaph. Req'd)



SECTION "A-A"
END DIAPHRAGM

NOTE: Work this sheet with sheets 3-7.

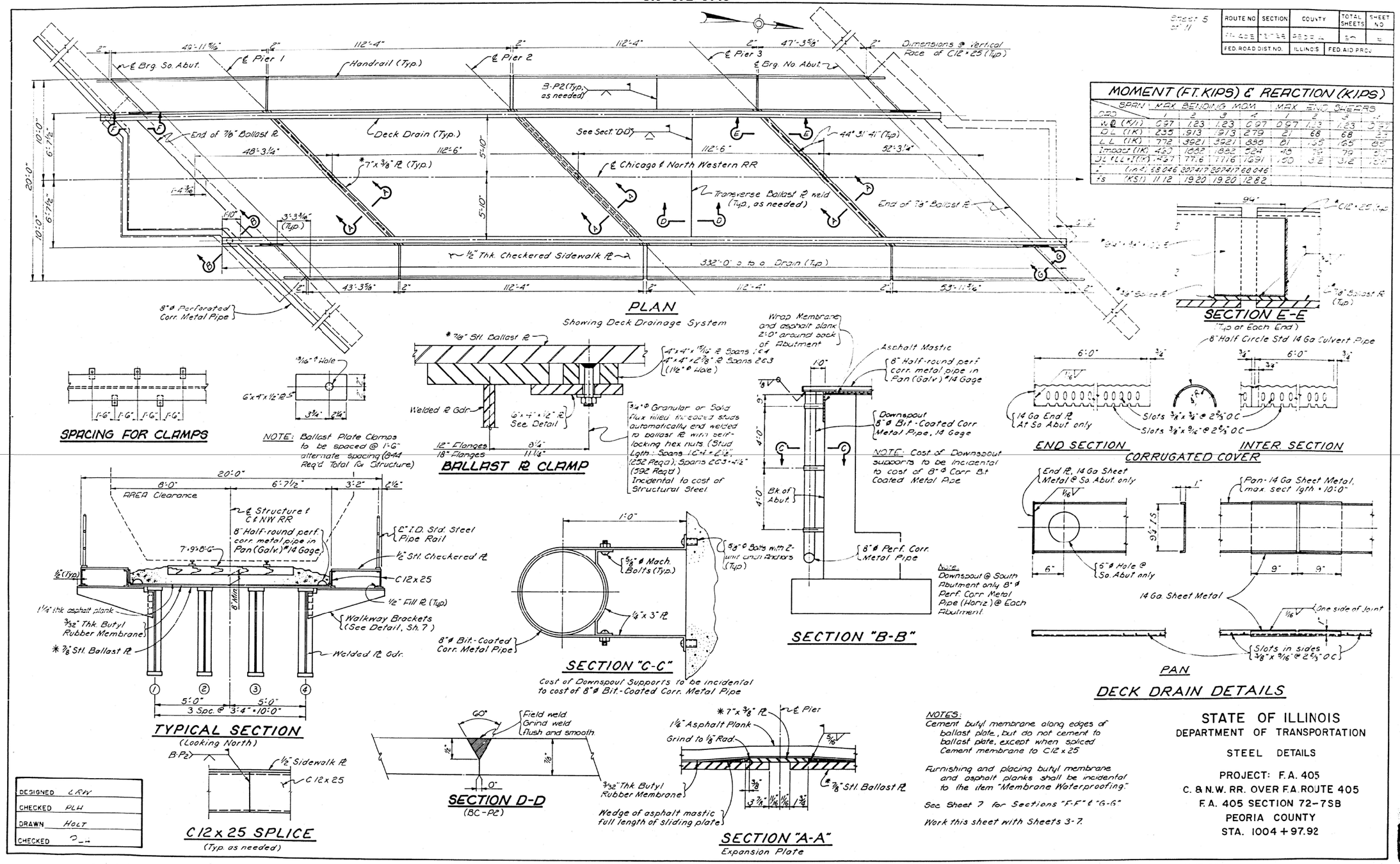
DESIGNED	LRW
CHECKED	PLH
DRAWN	HOLT
CHECKED	PLH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
STEEL FRAMING PLAN
SPANS 2 & 3
PROJECT: F.A. 405
C. & N.W. RR. OVER F.A. ROUTE 405
F.A. 405 SECTION 72-7SB
PEORIA COUNTY
STA. 1004 + 97.92

FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072-0143

Sheet 5 of 11

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
FA 405	72-7SB	PEORIA	50	5
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJ.		



MOMENT (FT. KIPS) & REACTION (KIPS)

SPAN	MAX. BENDING MOM.				MAX. END SHEARS			
	1	2	3	4	1	2	3	4
D.L. (K/L)	0.97	1.23	1.23	0.97	0.97	1.23	1.23	0.97
D.L. (1K)	235	913	913	279	21	68	68	23
L.L. (1K)	772	1921	1921	1888	81	155	165	85
Impact (1K)	432	1082	1082	1064	48	92	92	50
DL+LL+I (1K)	1437	3916	3916	3231	150	315	325	158
I	(in.4)	68046	307417	307417	68046			
fs	(KSI)	11.12	19.20	19.20	12.82			

DESIGNED	LRW
CHECKED	PLH
DRAWN	HOLT
CHECKED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS

PROJECT: F.A. 405
C. & N.W. RR. OVER F.A. ROUTE 405
F.A. 405 SECTION 72-7SB
PEORIA COUNTY
STA. 1004 + 97.92

NOTES:
Cement butyl membrane along edges of ballast plate, but do not cement to ballast plate, except when spliced. Cement membrane to C12 x 25.

Furnishing and placing butyl membrane and asphalt planks shall be incidental to the item "Membrane Waterproofing."

See Sheet 7 for Sections "F-F" & "G-G".

Work this sheet with Sheets 3-7.

MODEL: Default
FILE NAME: P:\2023\3598410 - Bridge Painting IFY 2025\4 CADD - DWG\4.7 Trans\Sheets\D468149\D468149-sht-structural detail 4.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -
	DRAWN - JCL	REVISED -
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 4 – STRUCTURE INFORMATION
SN 072-0143

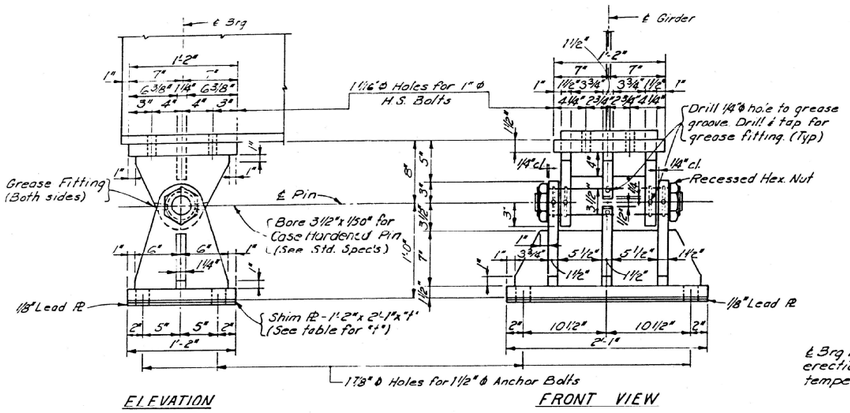
SCALE: N/A | SHEET 4 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	37
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072–0143

ROUTE NO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA 405	72-7SB	PEORIA	43	7
FED. ROAD DIST. NO	ILLINOIS	FED. AID PROJ.		

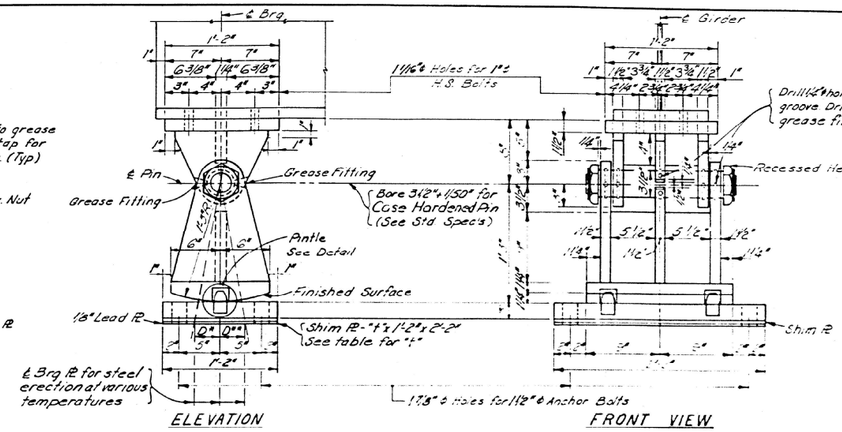
Sheet 6 of 11



ELEVATION — FRONT VIEW

FIXED BEARINGS AT N. & S. ABUTMENTS

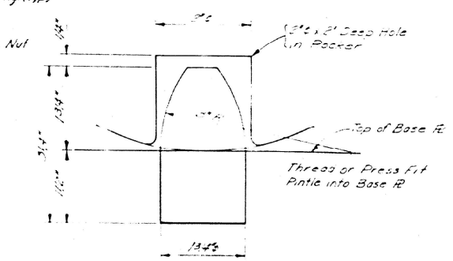
TYPE A (8-REQ'D)



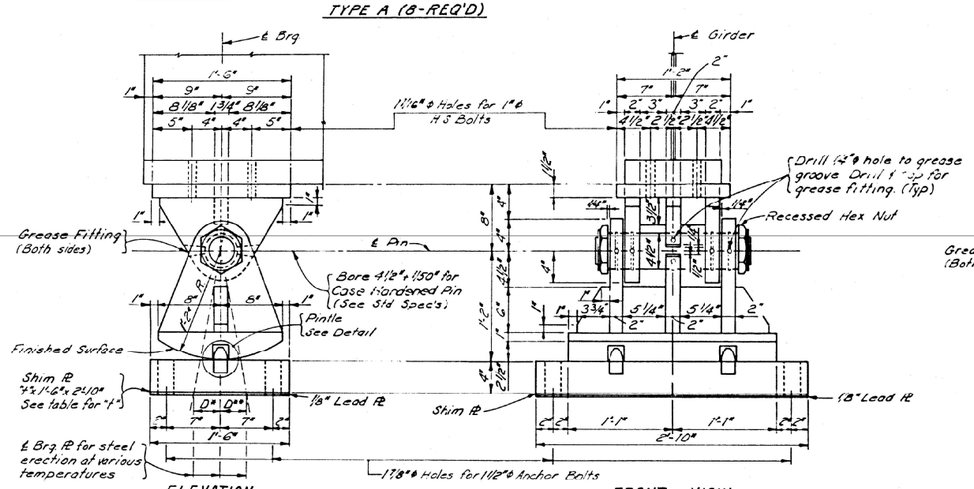
ELEVATION — FRONT VIEW

EXPANSION BEARINGS AT PIER 1 (SPAN 1) & PIER 3 (SPAN 4)

TYPE B (8-REQ'D)



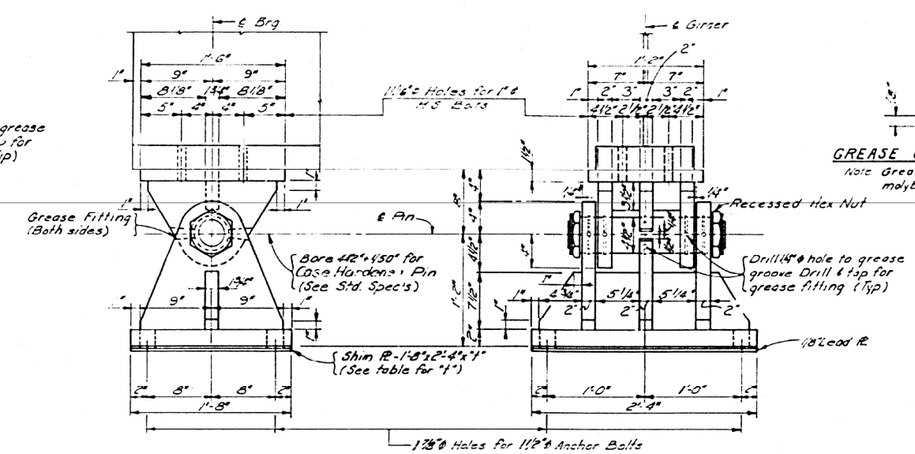
PINTLE DETAIL



ELEVATION — FRONT VIEW

EXPANSION BEARINGS AT PIER 1 (SPAN 2) & PIER 3 (SPAN 3)

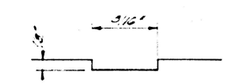
TYPE C (8-REQ'D)



ELEVATION — FRONT VIEW

FIXED BEARING AT PIER 2

TYPE D (8-REQ'D)



GREASE GROOVE ON SADDLE

Note Grease bearing assembly with molybdenum grease before installation

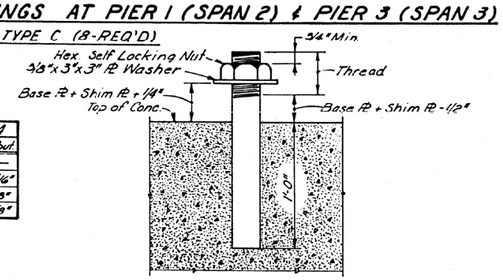
NOTE: Steel Castings of equal sections may be substituted for steel weldments shown. Use AASHTO M192 Grade 70 for this substitution.

NOTE: 1/2" Continuous fillet welds for all Bearings

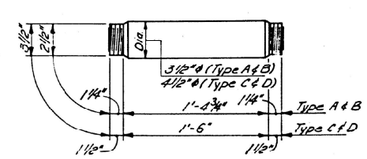
Work this sheet with Sheets 3-7.

SHIM PL'S — DIMENSION "t"

GIRDER	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	S.Abut.	Pier 1	Pier 1	Pier 2	Pier 2	Pier 3	Pier 3	N.Abut.
1	—	—	1/8"	—	1/8"	—	1/8"	—
2	3/16"	3/16"	5/16"	3/16"	5/16"	3/16"	5/16"	3/16"
3	3/8"	3/8"	1/2"	3/8"	1/2"	3/8"	1/2"	3/8"
4	5/8"	5/8"	3/4"	5/8"	3/4"	5/8"	3/4"	5/8"



ANCHOR BOLT DETAIL



PIN DETAIL

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50° F.
D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.

b) After girders have been erected and dimensions D* or D** determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

DESIGNED	LRW
CHECKED	DLH
DRAWN	JRJ
CHECKED	LRW

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS

PROJECT: F.A. 405
C. & N.W. RR. OVER F.A. ROUTE 405
F.A. 405 SECTION 72-7SB
PEORIA COUNTY
STA. 1004 + 97.92

MODEL: Default
FILE NAME: P:\2023\23098AID - Bridge Painting LFY 2023\4 CADD - DWG\4.7 Tran\Sheets\D468149\D468149-sht-structural detail 4.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 4 – STRUCTURE INFORMATION
SN 072–0143

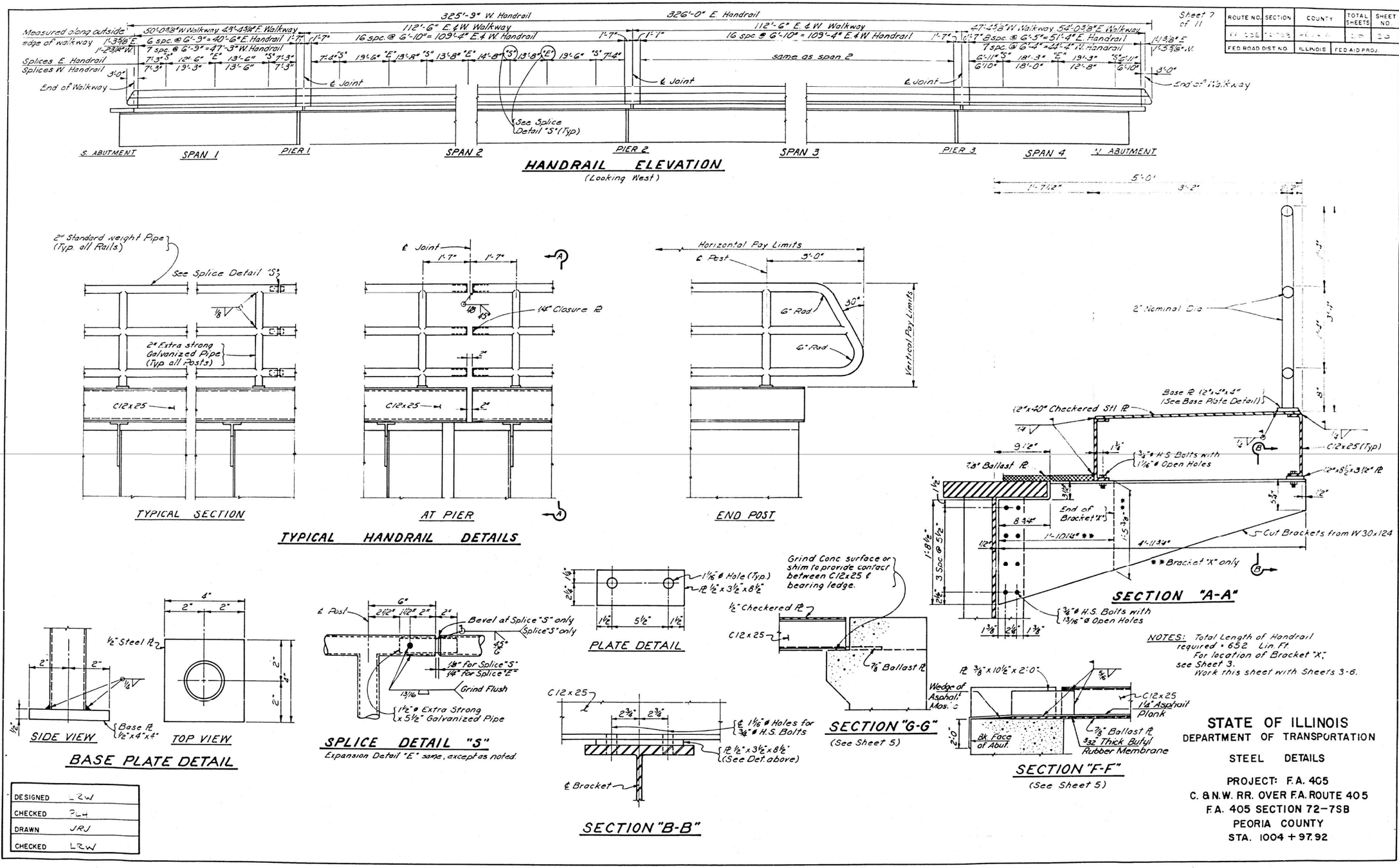
SCALE: N/A | SHEET 5 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	38
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS	FED. AID PROJECT	

FOR INFORMATION ONLY
LOCATION 4 (IL 6 OVER UPRR)
SN 072–0143

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	39
FED ROAD DIST. NO.	ILLINOIS	FED AID PROJ.		

Sheet 7 of 11



NOTES: Total Length of Handrail required = 652 Lin. Ft.
For location of Bracket "X", see Sheet 3.
Work this sheet with Sheets 3-6.

DESIGNED	LRW
CHECKED	TLH
DRAWN	JRJ
CHECKED	LRW

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS

PROJECT: F.A. 405
C. & N.W. RR. OVER F.A. ROUTE 405
F.A. 405 SECTION 72-7SB
PEORIA COUNTY
STA. 1004 + 97.92

MODEL: Default
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TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -	
	DRAWN - JCL	REVISED -	
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -	
PLOT DATE = 8/13/2024	DATE - JULY 2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 4 – STRUCTURE INFORMATION
SN 072–0143

SCALE: N/A | SHEET 6 OF 6 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	39
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 5 & 6 (NB/SB I-155 OVER TP&W RR)
SN 090-0125 & SN 090-0126

F.A. ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
406	90-106X-VB	TAZEWELL	189	74
ILLINOIS PROJECT				

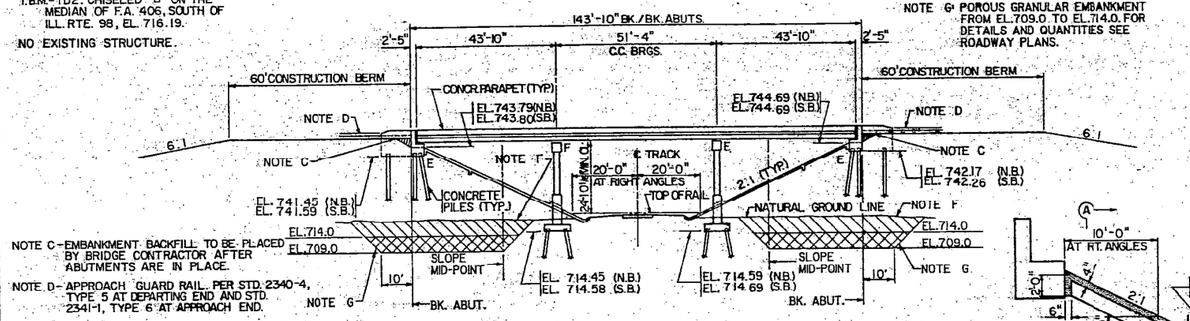
SHEET 1 OF 20

T.B.M.-TD2: CHISELED "a" ON THE MEDIAN OF F.A. 406, SOUTH OF I.L.RTE. 98, EL. 716.19.

NO EXISTING STRUCTURE.

NOTE F: REMOVE AND REPLACE UNSUITABLE MATERIALS TO EL.709.0.

NOTE G: POROUS GRANULAR EMBANKMENT FROM EL.709.0 TO EL.714.0. FOR DETAILS AND QUANTITIES SEE ROADWAY PLANS.

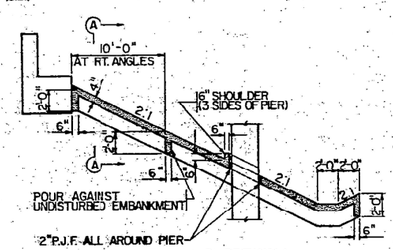


NOTE C-EMBANKMENT BACKFILL TO BE PLACED BY BRIDGE CONTRACTOR AFTER ABUTMENTS ARE IN PLACE.

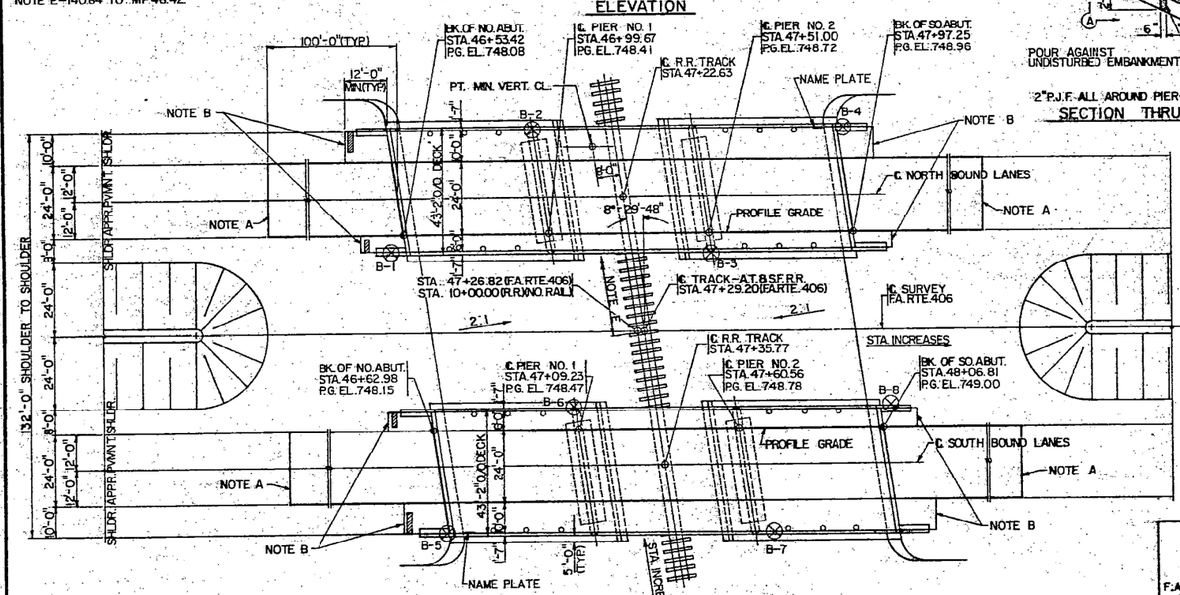
NOTE D-APPROACH GUARD RAIL, PER STD. 2340-4, TYPE 5 AT DEPARTING END AND STD. 2341-1, TYPE 6 AT APPROACH END.

NOTE E-140.84' TO MP 46.42.

ELEVATION



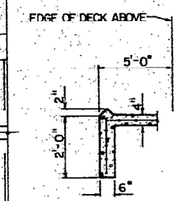
SECTION THRU SLOPEWALL



NOTE A: 24'-0" WIDE APPROACH PAVEMENT PER STANDARD 2353-5.

NOTE B: APPROACH SHOULDER PAVEMENT PER STANDARD 2324-6. AT NORTH END USE TYPE C INLET BOX ON 6' SHOULDER AND TYPE D INLET BOX ON 10' SHOULDER.

PLAN



SECTION A-A
(TYP. EACH ABUTMENT)

A.T. & S.F. R.R.
BUILT 19 BY
STATE OF ILLINOIS
F.A. RTE. 406 SEC. 90-106X-VB
PROJ. ECT DE-67(BCI)
STA. 47+29.20 LOADING HS-20
STR. NO. 090-0125(N.B.)
STR. NO. 090-0126(S.B.)

LETTERING FOR NAME PLATE
(SEE STD. 2113)

0125 - 1988
0126 - 1989

GENERAL NOTES

1. SEE PROPOSAL FOR BORING DATA.
2. FASTENERS SHALL BE HIGH STRENGTH BOLTS. BOLTS 3/4"ϕ, OPEN HOLES 13/16"ϕ, UNLESS OTHERWISE NOTED.
3. CALCULATED WEIGHT OF STRUCTURAL STEEL = 152,370 LBS. (M223)
   36,140 LBS. (M183)
4. THE ZINC-SILICATE AND VINYL PAINT SYSTEM SHALL BE USED FOR SHOP AND FIELD PAINTING OF STRUCTURAL STEEL EXCEPT WHERE OTHERWISE NOTED.
5. FIELD WELDING OF CONSTRUCTION ACCESSORIES WILL NOT BE PERMITTED TO THE BOTTOM FLANGE OF BEAMS OR GIRDERS NOR TO THE TOP FLANGE FOR A DISTANCE EQUAL TO ONE-FOURTH THE SPAN LENGTH EACH WAY FROM THE PIER SUPPORTS. FIELD WELDING IN OTHER AREAS WILL BE PERMITTED ONLY WHEN APPROVED BY THE ENGINEER.
6. ANCHOR BOLTS SHALL BE SET BEFORE BOLTING DIAPHRAGMS OVER SUPPORTS.
7. THE MAIN LOAD CARRYING MEMBER COMPONENTS SUBJECT TO TENSILE STRESS SHALL CONFORM TO THE SUPPLEMENTAL REQUIREMENTS FOR NOTCH TOUGHNESS ZONE 2. THESE COMPONENTS ARE THE TENSION FLANGES, WEBS AND SPLICE PLATE MATERIAL OF THE WIDE FLANGE BEAMS.
8. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE 60.
9. SLOPE WALL SHALL BE REINFORCED WITH WELDED WIRE FABRIC, 6"x6" - W4.0 x W4.0, WEIGHING 58 LBS. PER 100 SQ. FT.
10. THE EMBANKMENT CONFIGURATION SHOWN SHALL BE THE MINIMUM EMBANKMENT THAT MUST BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE ABUTMENTS.
11. BEARING SEAT SURFACES SHALL BE CONSTRUCTED OR ADJUSTED TO THE DESIGNATED ELEVATIONS WITHIN A TOLERANCE OF 1/8 INCH. ADJUSTMENTS SHALL BE MADE EITHER BY GRINDING THE SURFACE OR BY SHIMMING THE BEARING. TWO 1/8" ADJUSTING SHIMS, OF THE DIMENSIONS OF THE BOTTOM BEARING PLATE, SHALL BE PROVIDED FOR EACH BEARING IN ADDITION TO ALL OTHER PLATES OR SHIMS. FOR TYPE I ELASTOMERIC BEARINGS, SHIMS OF DIMENSIONS OF THE TOP PLATE SHALL BE PROVIDED AND PLACED AS DETAILED.

(GENERAL NOTES CONTINUED ON SHEET NO. 2)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
STRUCTURE EXCAVATION	CU.YD.	—	431	431
FLOOR DRAINS	EACH	24	—	24
* PROTECTIVE COAT	SQ.YD.	1425	—	1425
PREFORMED JOINT SEAL 2 1/2"	LIN.FT.	87	—	87
PREFORMED JOINT SEAL 4"	LIN.FT.	87	—	87
ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	—	24	24
CLASS X CONCRETE	CU.YD.	—	473.4	473.4
CLASS X CONCRETE SUPERSTRUCTURE	CU.YD.	356.4	—	356.4
STRUCTURAL STEEL	L. SUM	3	—	3
STUD SHEAR CONNECTORS	EACH	5544	—	5544
REINFORCEMENT BARS	LB	—	50,780	50,780
REINFORCEMENT BARS (EPOXY COATED)	LB.	90,440	—	90,440
TEST PILE CONCRETE	EACH	—	4	4
CONCRETE PILES	LIN.FT.	—	5622	5622
NAME PLATES	EACH	2	—	2
SLOPE WALL, 4 INCH	SQ.YD.	—	1546	1546
ELASTOMERIC BEARING ASSEMBLY TYPE II	EACH	—	12	12

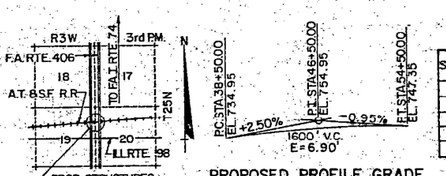
*QUANTITY INCLUDES BRIDGE DECK SURFACE. SEE SPECIAL PROVISIONS FOR CURING AND TEXTURING.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
James T. Rayburn
Engineer of Bridges and Structures

JOHN C. LAMB 2529 REGISTERED STRUCTURAL ENGINEER OF ILLINOIS

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (REINF.)
n = 9
fy = 50,000 p.s.i. (STR. STEEL-M223 GRADE 50)
fy = 36,000 p.s.i. (STR. STEEL-M183)
LOADING HS 20-44 (+25 PSF FOR FUTURE WEARING SURFACE)
DESIGN SPECIFICATIONS: A.A.S.H.T.O. 1983 & 1984 THRU 1986 INTERIMS.



LOCATION PLAN

PROPOSED PROFILE GRADE
F.A. RTE. 406

STATION	TOP OF RAIL ELEVATIONS NO. RAIL	SO. RAIL
9+00	720.67	720.66
9+50	720.77	720.81
10+00	720.78	720.78
10+50	720.76	720.77
11+00	720.55	720.57

EXISTING PROFILE GRADE
A.T. & S.F. R.R.

REV. NO.	DESCRIPTION	BY	DATE	APPROVAL
1	BRIDGE OFFICE REVIEW	JCC	10-5-87	

GENERAL PLAN AND ELEVATION

Design KWB, Detailed 4-24-87, Drawn JCC/JR, Checked JCC, Date 4-24-87, Approved, Date, Approved, Date

F.A. RTE. 406 OVER A.T. & S.F. R.R.
F.A. RTE. 406 SEC. 90-106X)VB
TAZEWELL COUNTY
STA. 47+29.20 (F.A. RTE. 406)
STR. NO. 090-0125 (N.B.)
STR. NO. 090-0126 (S.B.)

SCALE NONE
BPC PROJECT NO. 034-8601-01
CLIENT PROJECT NO. P-94-144-85
F.A. Control No.

BLANK, WESSELINK, COOK & ASSOCIATES, INC.
ENGINEERS • CONSULTANTS

MODEL: Default
FILE NAME: P:\2023\3098AID - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\D468149\D468149-sht-structural detail 566.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -
	DRAWN - JCL	REVISED -
PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 5 & 6 – STRUCTURE INFORMATION
SN 090-0125 & SN 090-0126

SCALE: N/A | SHEET 1 OF 4 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	40
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

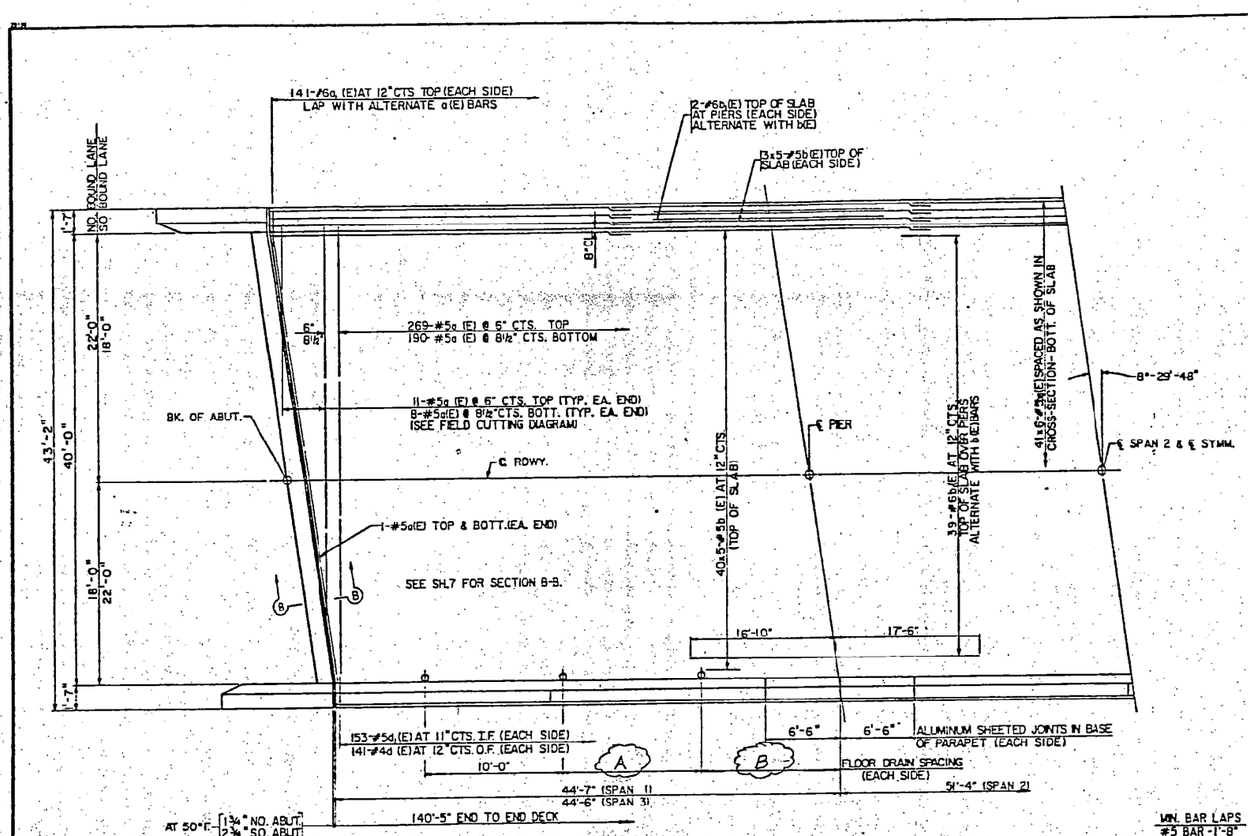
FOR INFORMATION ONLY
LOCATION 5 & 6 (NB/SB I-155 OVER TP&W RR)
SN 090-0125 & SN 090-0126

F.A. ROUTE NO	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
406	90-106-0,0V8	TAZEWELL	189	79A
ILLINOIS PROJECT				

SHEET 6A OF 20

NOTES: REINFORCEMENT BARS DESIGNATED "(E)" SHALL BE EPOXY COATED.

BARS INDICATED THUS 40x5-#5 ETC. INDICATES 40 LINES OF BARS WITH 5 LENGTHS PER LINE.

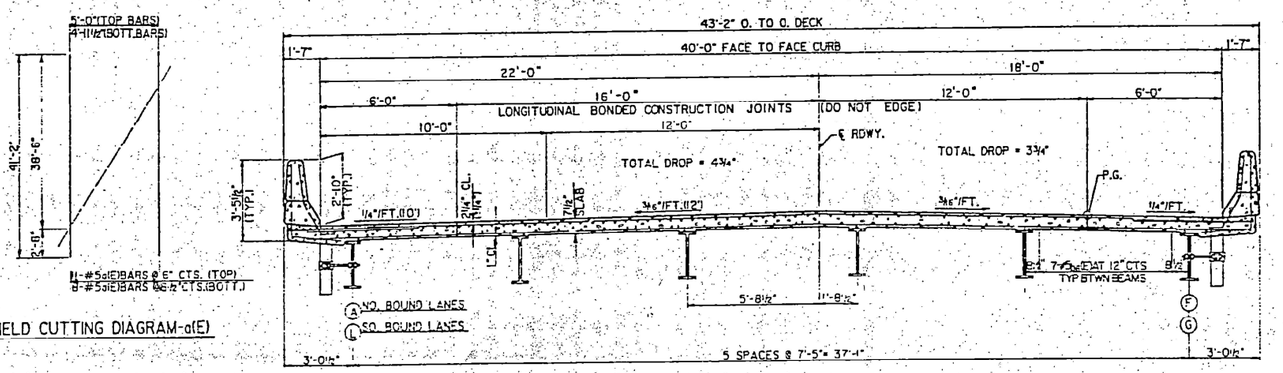


HALF PLAN

Table of Dimensions	A	B
Span 1	11'-0"	10'-0"
Span 3	12'-0"	9'-0"

AS REVISED

SEE SH. 7 FOR BILL OF MATERIALS.



FIELD CUTTING DIAGRAM-a(E)

NEAR PIERS

CROSS SECTION

NEAR MID SPAN

REV NO	DESCRIPTION	BY	DATE	APPROVAL
1	BRIDGE OFFICE REVIEW	JCC	10-5-87	

SUPERSTRUCTURE

F.A. RTE. 406 OVER A.T. & S.F. R.R.
F.A. RTE. 406 SEC. 90-106-0,0V8
TAZEWELL COUNTY
STA. 47+23.20 (F.A. RTE. 406)
STR. NO. 090-0125 (NB)
STR. NO. 090-0126 (SB)

SCALE: NONE
F.A.P. PROJECT NO. 734-8601-01
CLIENT PROJECT NO. P-94-144-85
DRAWING NO.

BLANK WESSELINK COOK & ASSOCIATES, INC. ENGINEERS & CONSULTANTS

Revised 5-19-88 M.H.B.

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TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC. WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

USER NAME = dlee	DESIGNED - JCL	REVISED -
	DRAWN - JCL	REVISED -
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PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 5 & 6 – STRUCTURE INFORMATION
SN 090-0125 & SN 090-0126

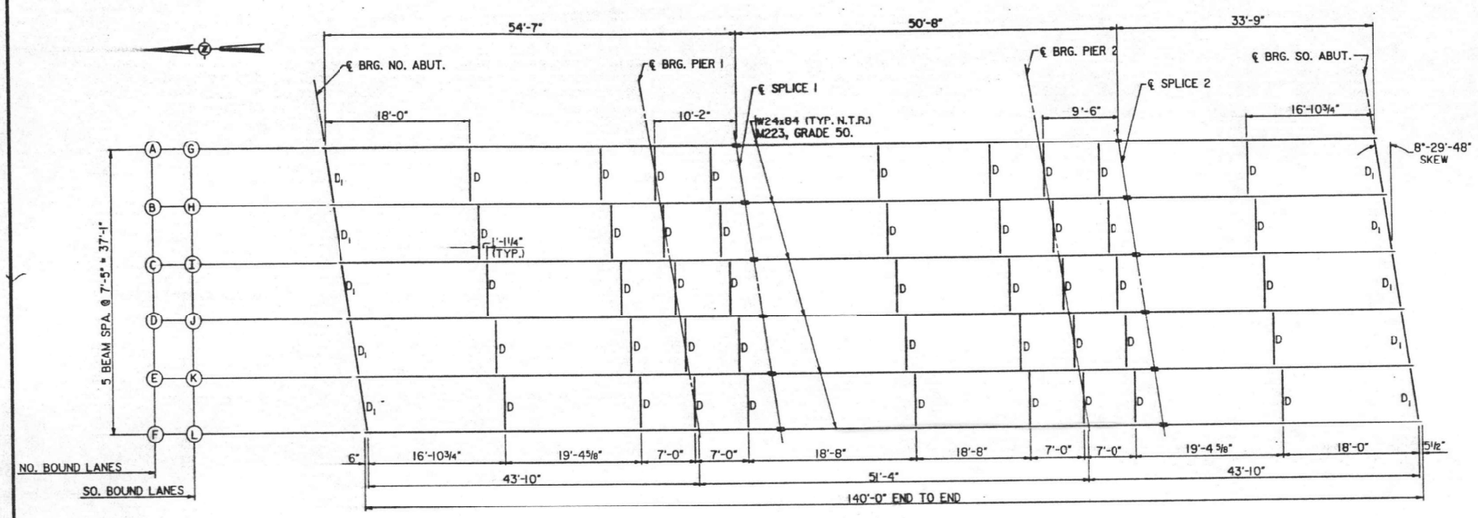
SCALE: N/A | SHEET 2 OF 4 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	41
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
	ILLINOIS	FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 5 & 6 (NB/SB I-155 OVER TP&W RR)
SN 090-0125 & SN 090-0126

F. A.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
406	90-8060VB	TAZEWELL	189	82
ILLINOIS PROJECT				

SHEET 9 OF 20



FRAMING PLAN
N.T.R. DENOTES NOTCH TOUGHNESS REQUIREMENT

INTERIOR BEAM MOMENT TABLE				
		0.4 SPAN 1	PIER	0.5 SPAN 2
IS	(in⁴)	2370	2370	2370
IC	(in⁴)	7947	—	7947
Ss	(in³)	197	197	197
Sc	(in³)	322	—	322
Z	(in³)	—	224	—
D	(K/I)	0.802	1.109	0.802
MD	('K)	112	233	82
SD	(K/I)	0.307	—	0.307
MSD	('K)	50	—	50
ML	('K)	279	240	271
MIMP	('K)	84	72	81
5/3(ML+I)	('K)	664	326	682
Mo	('K)	1074	727	1058
Mu	('K)	1929	933	1929
fs D non-comp.	(ksi)	6.8	12.5	5.0
fs D (comp.)	(ksi)	1.9	—	1.9
fc 5/3 (L + I)	(ksi)	24.7	17.5	25.4
fs (OVERLOAD)	(ksi)	33.4	30.0	32.3
VR	(K)	52.4	—	48.0

NOTE A: Is AND Ss ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE STEEL SECTION USED IN COMPUTING fs (TOTAL & OVERLOAD).

Ic AND Sc ARE THE MOMENT OF INERTIA AND SECTION MODULUS OF THE COMPOSITE SECTION USED IN COMPUTING fc (TOTAL & OVERLOAD).

VR IS THE MAXIMUM L+IMPACT SHEAR RANGE IN SPAN.

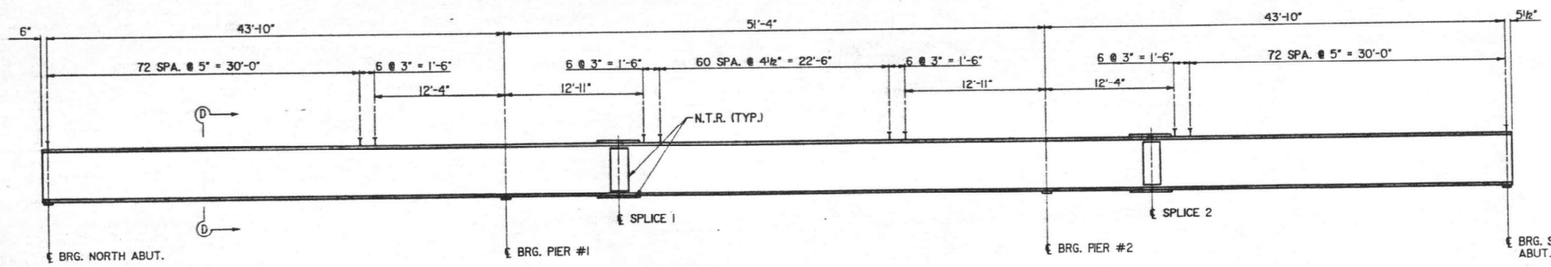
Z IS THE PLASTIC SECTION MODULUS USED IN DETERMINING THE FULLY PLASTIC MOMENTS IN THE NON-COMPOSITE AREAS.

Mo (APPLIED MOMENT)=1.3 (M D+5/3(M L+I))

Mu IS THE FULL PLASTIC MOMENT CAPACITY FOR COMPACT, BRACED SECTIONS.

fs (OVERLOAD) IS THE SUM OF THE STRESSES DUE TO M D+5/3(M L+I).

THE FULL PLASTIC MOMENT CAPACITY IS COMPUTED IN ACCORDANCE WITH AASHTO 10.48.1 & 10.50.1.1 .



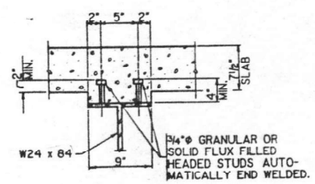
BEAM ELEVATION
(SHOWING SHEAR STUD SPACING)

INTERIOR BEAM REACTION TABLE			
		ABUT.	PIER
R D	(K)	19.0	58.1
R L	(K)	37.2	43.8
IMP	(K)	11.3	12.6
R TOTAL	(K)	67.5	114.5

TOP OF BEAM ELEVATIONS*

	NORTH BOUND LANES						SOUTH BOUND LANES					
	BEAM A	BEAM B	BEAM C	BEAM D	BEAM E	BEAM F	BEAM G	BEAM H	BEAM I	BEAM J	BEAM K	BEAM L
℄ BRG.NO.ABUT	747.21	747.38	747.51	747.58	747.47	747.34	747.40	747.55	747.67	747.62	747.50	747.36
℄ BRG. PIER 1	747.45	747.61	747.74	747.81	747.70	747.57	747.62	747.77	747.89	747.84	747.72	747.57
℄ SPLICE 1	747.50	747.66	747.79	747.86	747.75	747.62	747.67	747.82	747.94	747.88	747.77	747.62
℄ BRG. PIER 2	747.75	747.91	748.04	748.10	747.99	747.86	747.91	748.05	748.17	748.12	748.00	747.85
℄ SPLICE 2	747.80	747.96	748.09	748.16	748.05	747.92	747.96	748.10	748.23	748.17	748.05	747.90
℄ BRG.SO.ABUT	748.08	748.24	748.37	748.43	748.32	748.19	748.23	748.37	748.49	748.43	748.32	748.17

*FOR FABRICATION ONLY, DOES NOT INCLUDE DEAD LOAD DEFLECTIONS.



SECTION D-D
(5544 STUDS REQD)

ALL STRUCTURAL STEEL FABRICATORS PERFORMING WORK ON THE MAIN LOAD CARRYING COMPONENTS OF STEEL STRUCTURES SHALL BE CERTIFIED UNDER CATEGORY I (AISC) OF THE QUALITY CERTIFICATION PROGRAM.

REV. NO.	DESCRIPTION	BY	DATE	APPROVAL
1	BRIDGE OFFICE REVIEW	JCC	10-5-87	

STRUCTURAL STEEL

Design KWB 4-24-87
Drawn JCC,JR 4-24-87
Checked JCC 4-24-87
Approved
Date
Chief Engr.
Date

FA RTE. 406 OVER AT&SF RR
FA RTE. 406 SEC.90-(06X)VB
TAZEWELL COUNTY
STA. 47+29.20 (FA RTE. 406)
STR.NO. 090-0125 (NB)
STR.NO. 090-0126 (SB)

SCALE NONE
STATE PROJECT NO. 034-8601-01
DISTRICT PROJECT NO. P-94-144-85
DRAWING NO.

BLANK, WESSELINK, COOK & ASSOCIATES, INC.
ENGINEERS ● CONSULTANTS

86030)

MODEL: Default
FILE NAME: P:\2023\23098AID - Bridge Painting IFY 2025\14 CADD - DWG\4.7 TransSheets\D468149\D468149-sht-structural detail 5&6.dgn

TWM ENGINEERING GEOSPATIAL SERVICES
TWM, INC.
WWW.TWM-INC.COM
IL DESIGN FIRM LICENSE NO: 184-001220

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	DRAWN - JCL	REVISED -
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PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 5 & 6 – STRUCTURE INFORMATION
SN 090-0125 & SN 090-0126

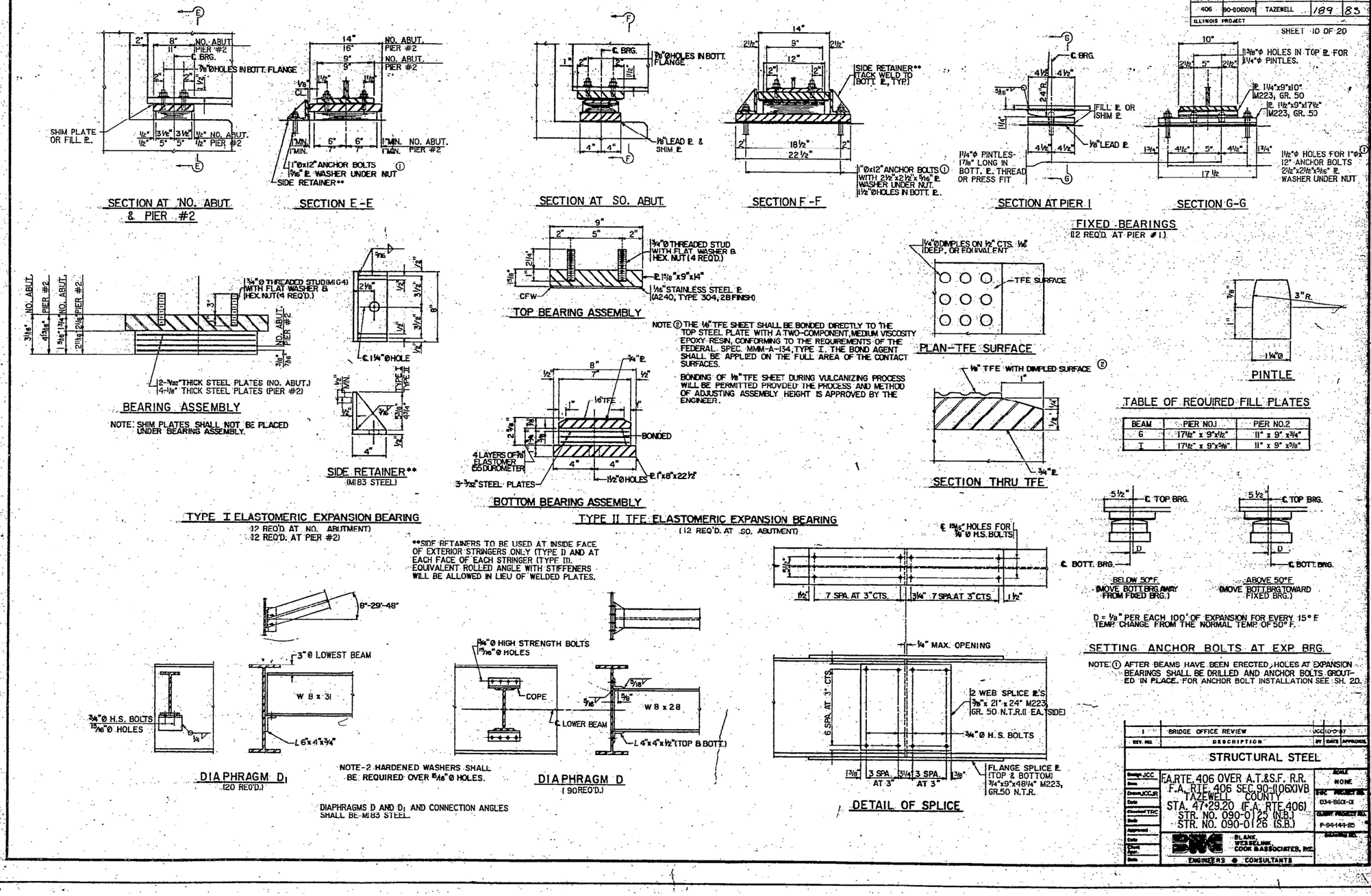
SCALE: N/A | SHEET 3 OF 4 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	42
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

FOR INFORMATION ONLY
LOCATION 5 & 6 (NB/SB I-155 OVER TP&W RR)
SN 090-0125 & SN 090-0126

F.A. ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
406	90-0106XVB	TAZEWELL	189	83
ILLINOIS PROJECT				

SHEET 10 OF 20



TWM ENGINEERING GEOSPATIAL SERVICES	TWM, INC. WWW.TWM-INC.COM IL DESIGN FIRM LICENSE NO: 184-001220	USER NAME = dlee	DESIGNED - JCL	REVISED -
			DRAWN - JCL	REVISED -
		PLOT SCALE = 10.0000 ' / in.	CHECKED - TBP	REVISED -
		PLOT DATE = 8/7/2024	DATE - JULY 2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION 5 & 6 – STRUCTURE INFORMATION
SN 090-0125 & SN 090-0126

SCALE: N/A | SHEET 4 OF 4 SHEETS | STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 BRIDGE PAINTING 2025-1	*	43	43
* MARSHALL, PEORIA, TAZEWELL		CONTRACT NO. 68J49		
		ILLINOIS FED. AID PROJECT		

MODEL: Default
FILE NAME: P:\2023\2309840 - Bridge Painting (FY 2025)\4 CADD - DWG\4.7 TranSheets\0468J49\0468J49-sht-structural detail 5&6.dgn