F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	1
	ILLINOIS	CONTRACT NO. 74B41		

12-13-2024 SPECIAL LETTING ITEM 011

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED
HIGHWAY PLANS

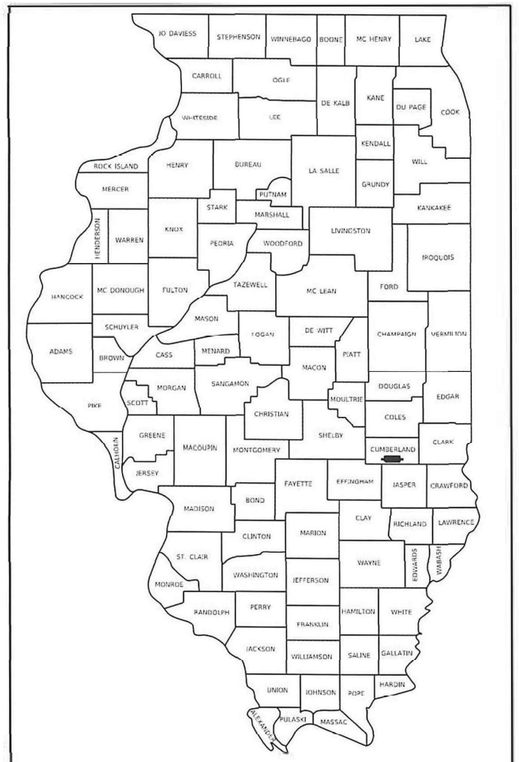
FAI ROUTE 70 (I–70)
SECTION D7 BRIDGE REPAIRS 2024–12
PROJECT NHPP–KFMZ(873)
BRIDGE DECK OVERLAY, BRIDGE JOINT REPLACE/REPAIR, BRIDGE APPROACH ROADWAY, BRIDGE DECK REPAIRS
CUMBERLAND COUNTY

C–97–110–22

FOR INDEX OF SHEETS, SEE SHEET NO. 2

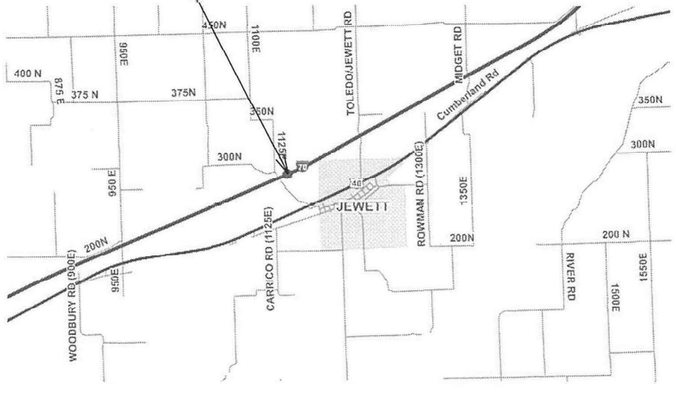
ADT 13,200 (2021) EASTBOUND
ADT 12,800 (2021) WESTBOUND

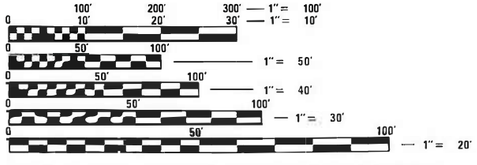
D-97-062-22



LOCATION OF SECTION INDICATED THUS: – ■ –

S.N. 018-0044 WESTBOUND
S.N. 018-0054 EASTBOUND
STA 359+25.00





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: MATT BOWER
PROJECT MANAGER: LEVI LUND

CONTRACT NO. 74B41

GROSS LENGTH = 437.00 FT. = 0.083 MILE
NET LENGTH = 437.00 FT. = 0.083 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED August 16 20 23
Jeffrey P Myers
REGIONAL ENGINEER

October 4, 2024
ENGINEER OF DESIGN AND ENVIRONMENT

October 4, 2024
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

REV. - MS

GENERAL NOTES

THE PROPOSED PROJECT IS LOCATED ON I-70 AT COTTONWOOD CREEK 0.1 MILES EAST OF CR 1125E (OVERHEAD)

THE WORK IN THIS SECTION CONSISTS OF BRIDGE DECK OVERLAY, BRIDGE JOINT REPLACE/REPAIR, BRIDGE APPROACH ROADWAY, BRIDGE DECK REPAIRS, PAVEMENT CONNECTORS, REMOVE AND RE-ERECT TYPE 6 TRAFFIC BARRIER TERMINALS, SHOULDER REMOVAL, PCC SHOULDER, PAVEMENT MARKING, AND ANY OTHER WORK NEEDED TO COMPLETE THIS SECTION.

PAVEMENT MARKING TAPE SHALL BE USED FOR SHORT TERM PAVEMENT MARKINGS ON HMA SURFACES.

FINAL PAVEMENT MARKINGS ON PAVEMENT SURFACES SHALL BE AS FOLLOWS.
PAVEMENT MARKINGS ON HOT-MIX ASPHALT SURFACE, PCC APPROACH PAVEMENTS AND BRIDGE DECK OVERLAY SHALL BE PREFORMED PLASTIC MARKING, TYPE D - LINE 6"

INDEX OF SHEETS

THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE TO THIS PROJECT:									
LOCATION(S)	MIXTURE USE(S)	PG	DESIGN AIR VOIDS	MIXTURE COMPOSITION	FRICTION AGGREGATE	MIXTURE WEIGHT	QUALITY MANAGEMENT PROGRAM	SUBLOT SIZE	MATERIAL TRANSFER DEVICE (REQUIRED?)
MAINLINE	POLYMERIZED HMA SURFACE COURSE, IL-9.5, MIX "D", N90	SBS PG 70-22	4.0% @ N=90	IL - 9.5	MIXTURE D	N90	QC/QA	3000	N/A
SHOULDERS	POLYMERIZED HMA SURFACE COURSE, IL-9.5, MIX "D", N90	SBS PG 70-22	4.0% @ N=90	IL - 9.5	MIXTURE D	N90	QC/QA	3000	N/A
CONNECTOR	POLYMERIZED HMA SURFACE COURSE, IL-9.5, MIX "D", N90 (TOP LIFTS)	SBS PG 70-22	4.0% @ N=90	IL - 9.5	MIXTURE D	N90	QC/QA	3000	N/A
CONNECTOR	HMA BINDER COURSE, IL-19.0, N90 (BOTTOM LIFTS)	SBS PG 70-22	4.0% @ N=90	IL - 19.0	N/A	N90	QC/QA	3000	N/A

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED FOLLOWING THE LAST NUMBERED SHEET OF THE PLANS

STANDARD NO.	DESCRIPTION
000001-08	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
420406	PAVEMENT CONNECTOR (HMA) FOR BRIDGE APPROACH SLAB
420701-03	PAVEMENT WELDED WIRE REINFORCEMENT
483001-06	PCC SHOULDER
631031-18	TRAFFIC BARRIER TERMINAL, TYPE 6
642001-03	SHOULDER RUMBLE STRIPS, 16 INCH
701101-05	OFF-ROAD OPERATIONS, MULTILANE, 15' TO 24" FROM PAVEMENT EDGE
701106-02	OFF-ROAD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701400-12	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-13	LANE CLOSURE, FREEWAY/EXPRESSWAY
701402-12	LANE CLOSURE, FREEWAY/EXPRESSWAY, WITH BARRIER
701406-13	LANE CLOSURE, FREEWAY/EXPRESSWAY, DAY OPERATIONS ONLY
701901-09	TRAFFIC CONTROL DEVICES
704001-08	TEMPORARY CONCRETE BARRIER

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS & GENERAL NOTES

SCALE: _____ | SHEET ___ OF ___ SHEETS | STA. _____ TO STA. _____

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	2
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

90% FED
10% STATE

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
20700220	POROUS GRANULAR EMBANKMENT	CU YD	28	28		
40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	1240	1240		
40604164	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE,	TON	60	60		
	IL-9.5, MIX "D", N90					
42000070	PAVEMENT CONNECTOR (HMA) FOR BRIDGE APPROACH	SQ YD	108	108		
	SLAB					
44000100	PAVEMENT REMOVAL	SQ YD	108	108		
48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	4	4		
48203003	HOT-MIX ASPHALT SHOULDERS, 1 1/2"	SQ YD	544	544		
50102400	CONCRETE REMOVAL	CU YD	43.2	43.2		
50200100	STRUCTURE EXCAVATION	CU YD	12	12		
50300225	CONCRETE STRUCTURES	CU YD	42.8	42.8		
50300255	CONCRETE SUPERSTRUCTURE	CU YD	41.6	41.6		
50300300	PROTECTIVE COAT	SQ YD	2146	2146		
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	137.6	137.6		

90% FED
10% STATE

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	60200	60200		
50800515	BAR SPLICERS	EACH	620	620		
52000110	PREFORMED JOINT STRIP SEAL	FOOT	182	182		
64200116	SHOULDER RUMBLE STRIPS, 16 INCH	FOOT	1414	1414		
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	5	5		
67100100	MOBILIZATION	L SUM	1	1		
70100205	TRAFFIC CONTROL AND PROTECTION, STANDARD	EACH	2	2		
	701401					
70100207	TRAFFIC CONTROL AND PROTECTION, STANDARD	EACH	2	2		
	701402					
70100701	TRAFFIC CONTROL AND PROTECTION, STANDARD	EACH	2	2		
	701406					
70107007	PAVEMENT MARKING BLACKOUT TAPE, 7"	FOOT	210	210		
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	28	28		
70300100	SHORT TERM PAVEMENT MARKING	FOOT	178	178		
70300150	SHORT TERM PAVEMENT MARKING REMOVAL	SQ FT	136	136		

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITES

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	3
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

90% FED
10% STATE

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
70300241	TEMPORARY PAVEMENT MARKING - LINE 6"- PAINT	FOOT	2870	2870		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	1005	1005		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	1005	1005		
70600250	IMPACT ATTENUATORS, TEMPORARY (NON-	EACH	2	2		
	REDIRECTIVE), TEST LEVEL 3					
70600350	IMPACT ATTENUATORS, RELOCATE (NON-	EACH	2	2		
	REDIRECTIVE), TEST LEVEL 3					
* 78004630	PREFORMED PLASTIC PAVEMENT MARKING, TYPE D -	FOOT	2870	2870		
	STANDARD - LINE 6"					
78011035	GROOVING FOR RECESSED PAVEMENT MARKING 7"	FOOT	2870	2870		
78300202	PAVEMENT MARKING REMOVAL - WATER BLASTING	SQ FT	1270	1270		
X4060995	TEMPORARY RAMP (SPECIAL)	SQ YD	216	216		
X4201510	P.C. CONCRETE BRIDGE APPROACH SHOULDER	SQ YD	216	216		
	PAVEMENT (SPECIAL)					
X5030250	BRIDGE DECK GROOVING (LONGITUDINAL)	SQ YD	1284	1284		
X6420002	FILLING EXISTING RUMBLE STRIP	FOOT	1414	1414		

90% FED
10% STATE

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	TOTAL QUANTITIES	CONSTRUCTION TYPE CODE 0047		
Z0001495	BRIDGE APPROACH SHOULDER REMOVAL	SQ YD	216	216		
Z0001905	STRUCTURAL STEEL REPAIR	POUND	70	70		
Z0004552	APPROACH SLAB REMOVAL	SQ YD	320	320		
Z0012111	BRIDGE DECK FLY ASH OR GGBF SLAG CONCRETE	SQ YD	1488	1488		
	OVERLAY, 2 1/2"					
Z0012130	BRIDGE DECK SCARIFICATION 3/4"	SQ YD	1488	1488		
Z0016001	DECK SLAB REPAIR (FULL DEPTH, TYPE I)	SQ YD	12	12		
Z0016002	DECK SLAB REPAIR (FULL DEPTH, TYPE II)	SQ YD	3	3		
Z0018051	DRAINAGE SCUPPERS TO BE ADJUSTED	EACH	4	4		
Z0029090	DIAMOND GRINDING (BRIDGE SECTION)	SQ YD	1902	1902		

* SPECIALTY ITEM

USER NAME = Mona.Steffen	DESIGNED -	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITES

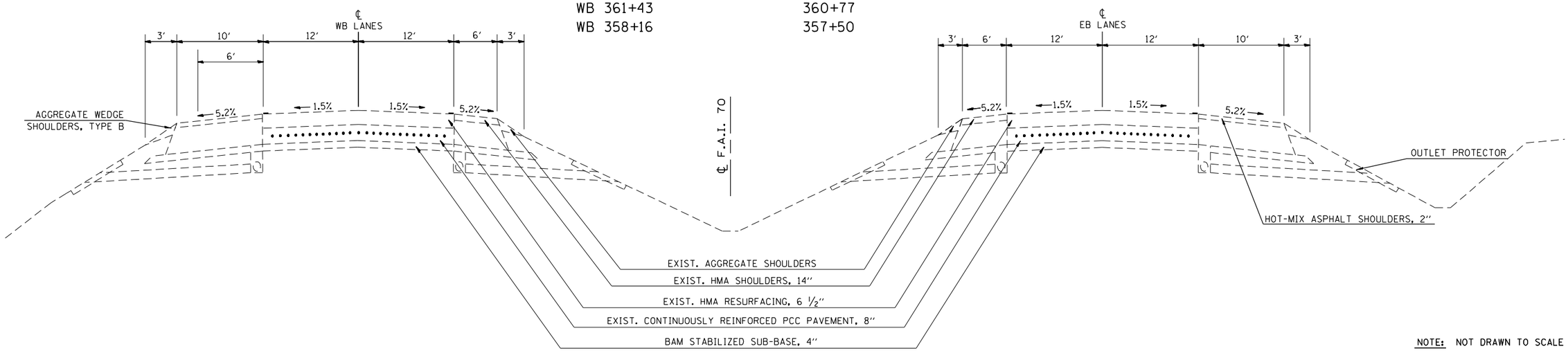
SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	4
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

EXISTING TYPICAL CROSS SECTION

F.A.I. 70

	STATION	TO	STATION
EB	357+06		357+72
EB	360+33		360+99
WB	361+43		360+77
WB	358+16		357+50

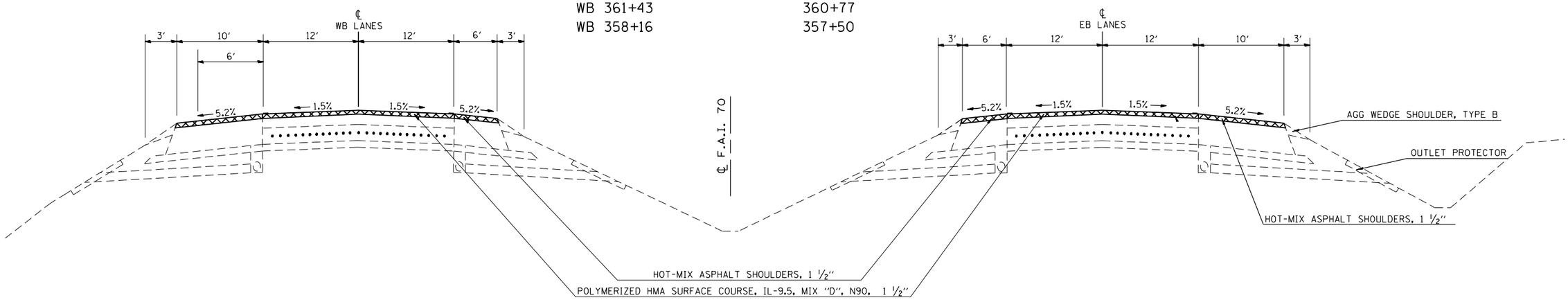


NOTE: NOT DRAWN TO SCALE

PROPOSED TYPICAL CROSS SECTION

F.A.I. 70

	STATION	TO	STATION
EB	357+06		357+72
EB	360+33		360+99
WB	361+43		360+77
WB	358+16		357+50



NOTE: NOT DRAWN TO SCALE

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

SCALE: | SHEET OF SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	5
		CONTRACT NO. 74B41		
		ILLINOIS	FED. AID PROJECT	

POLYMERIZED HMA SURFACE COURSE, IL-9.5, MIX "D", N90						
				LENGTH	WIDTH	
BRIDGE NO.	STATION	TO	STATION	(FOOT)	(FOOT)	(TON)
018-0044	361+43	TO	360+78	65	24	15
018-0044	358+16	TO	357+51	65	24	15
018-0054	357+07	TO	357+72	65	24	15
018-0054	360+33	TO	360+98	65	24	15
					TOTAL	60

PAVEMENT CONNECTOR (HMA) FOR BRIDGE APPROACH SLAB						
BRIDGE NO.	STATION	TO	STATION	LENGTH	WIDTH	AREA SQ YD
018-0044	360+74	TO	360+64	10	24	27
	358+26	TO	358+16	10	24	27
018-0054	357+72	TO	357+82	10	24	27
	360+23	TO	360+33	10	24	27
					TOTAL	108

PAVEMENT REMOVAL						
BRIDGE NO.	STATION	TO	STATION	LENGTH	WIDTH	SQ YD
018-0044	360+74	TO	360+64	10	24	27
018-0044	358+26	TO	358+16	10	24	27
018-0054	357+72	TO	357+82	10	24	27
018-0054	360+23	TO	360+33	10	24	27
					TOTAL	108

TEMPORARY RAMP, SPECIAL							
BRIDGE NO.		STATION	TO	STATION	LENGTH	WIDTH (FT)	SQ YD
018-0044	STAGE 2 TRAFFIC	361+03		360+73	30	16	54
018-0044	STAGE 2 TRAFFIC	358+33		358+03	30	16	54
018-0054	STAGE 2 TRAFFIC	357+76		357+46	30	16	54
018-0054	STAGE 2 TRAFFIC	360+18		360+48	30	16	54
						TOTAL:	216

P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL)						
BRIDGE NO.	STATION	TO	STATION	LENGTH	WIDTH	SQ YD
018-0044	358+20	TO	358+50	30	6	20
	358+31	TO	358+61	30	10	34
	360+32	TO	360+62	30	6	20
	360+43	TO	360+73	30	10	34
018-0054	357+76	TO	358+06	30	10	34
	357+90	TO	358+20	30	6	20
	359+84	TO	360+04	30	10	34
	359+99	TO	360+29	30	6	20
					TOTAL:	216

HOT-MIX ASPHALT SURFACE REMOVAL- BUTT JOINT (MAINLINE)						
	LOCATION			LENGTH	WIDTH	AREA
BRIDGE NO.	STATION	TO	STATION	(FOOT)	(FOOT)	(SQ YD)
018-0044	361+43	TO	360+78	65.0	24.0	174
018-0044	358+16	TO	357+51	65.0	24.0	174
018-0054	357+07	TO	357+72	65.0	24.0	174
018-0054	360+33	TO	360+98	65.0	24.0	174
					TOTAL:	696

HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT (SHOULDER)						
	LOCATION			LENGTH	WIDTH	AREA
BRIDGE NO.	STATION	TO	STATION	(FOOT)	(FOOT)	(SQ YD)
018-0044 DL	361+43	TO	360+74	69	10	77
	358+33	TO	357+50	83	10	93
018-0044 PL	361+43	TO	360+60	83	6	56
	358+19	TO	357+50	69	6	46
018-0054 DL	357+06	TO	357+75	69	10	77
	360+16	TO	360+99	83	10	93
018-0054 PL	357+06	TO	357+89	83	6	56
	360+30	TO	360+99	69	6	46
					TOTAL	544

HOT-MIX ASPHALT SHOULDERS, 1 1/2 INCH						
	LOCATION			LENGTH	WIDTH	AREA
BRIDGE NO.	STATION	TO	STATION	(FOOT)	(FOOT)	(SQ YD)
018-0044 DL	361+43	TO	360+74	69	10	77
	358+33	TO	357+50	83	10	93
018-0044 PL	361+43	TO	360+60	83	6	56
	358+19	TO	357+50	69	6	46
018-0054 DL	357+06	TO	357+75	69	10	77
	360+16	TO	360+99	83	10	93
018-0054 PL	357+06	TO	357+89	83	6	56
	360+30	TO	360+99	69	6	46
					TOTAL	544

STAGE CONSTRUCTION SCHEDULE							
	TEMPORARY CONCRETE BARRIER	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTING), TEST LEVEL 3	RELOCATE TEMPORARY CONCRETE BARRIER	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTING), TEST LEVEL 3	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	TRAFFIC CONTROL AND PROTECTION, STANDARD 701402	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406
BRIDGE NO.	FOOT	EACH	FOOT	EACH	EACH	EACH	EACH
018-0044	502.5	1	502.5	1	1	1	1
018-0054	502.5	1	502.5	1	1	1	1
TOTAL	1005	2	1005	2	2	2	2

PAVEMENT MARKING SCHEDULE											
					PREFORMED PLASTIC PAVEMENT MARKING, TYPE D - STANDARD-LINE 6"	GROOVING FOR RECESSED PAVEMENT MARKING 7"	SHORT TERM PAVEMENT MARKING	PAVEMENT MARKING REMOVAL-WATER BLASTING	PAVEMENT MARKING BLACKOUT TAPE, 7"	SHORT TERM PAVEMENT MARKING REMOVAL	TEMPORARY PAVEMENT MARKING - LINE 6"-PAINT
BRIDGE NO.	DL/PL/CL	STATION		STATION	FOOT	FOOT	FOOT	SQ FT	FOOT	SQ FT	FOOT
018-0044	CL	363+68	TO	360+67	80	80	30		80	10	80
	DL	364+00	TO	360+74	326	326	7	163		2	326
	DL	360+74	TO	358+35	239	239	5	120		2	239
	DL	358+35	TO	357+49	86	86	2	43		1	86
	CL	360+67	TO	358+26	60	60	24			8	60
	PL	363+68	TO	360+61	307	307	6	154		2	307
	PL	360+61	TO	358+20	241	241	5	121		2	241
	PL	358+20	TO	357+50	70	70	1	35		0	70
	CL	358+26	TO	357+50	20	20	8		20	15	20
018-0054	CL	354+51	TO	357+82	90	90	33		90	64	90
	DL	354+51	TO	357+76	325	325	7	163		2	325
	DL	357+73	TO	360+14	241	241	5	121		2	241
	DL	360+14	TO	361+00	86	86	2	43		1	86
	CL	357+82	TO	360+23	60	60	24			8	60
	PL	354+81	TO	357+87	306	306	6	153		2	306
	PL	357+87	TO	360+29	242	242	5	121		2	242
	PL	360+29	TO	361+00	71	71	1	36		0	71
	CL	360+23	TO	361+00	20	20	8		20	15	20
				TOTAL	2870	2870	178	1270	210	136	2870

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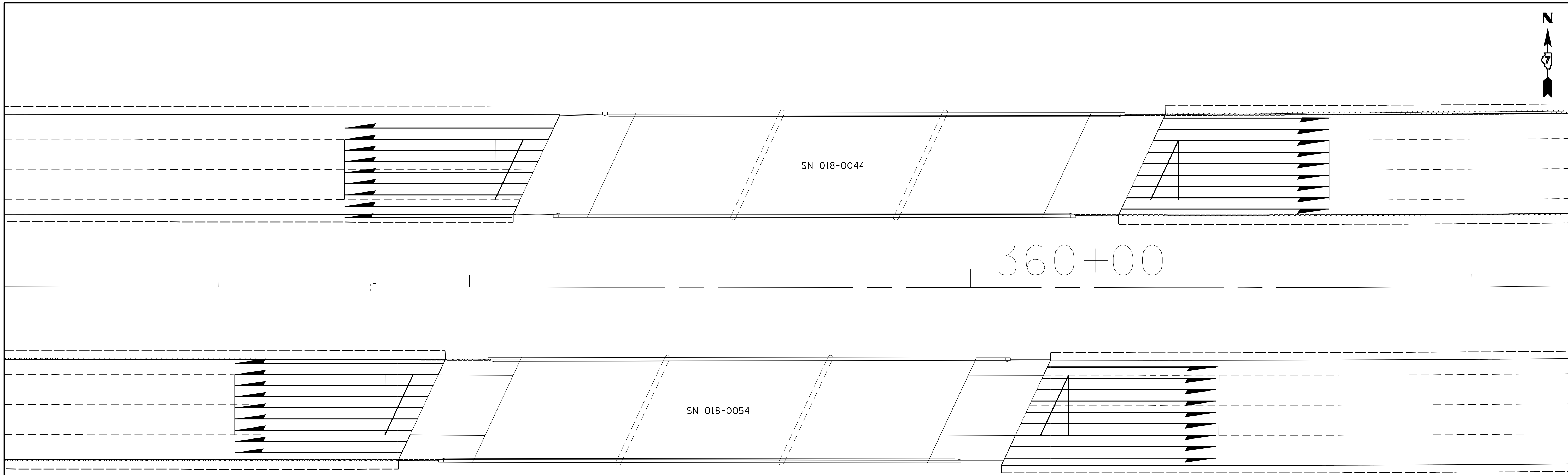
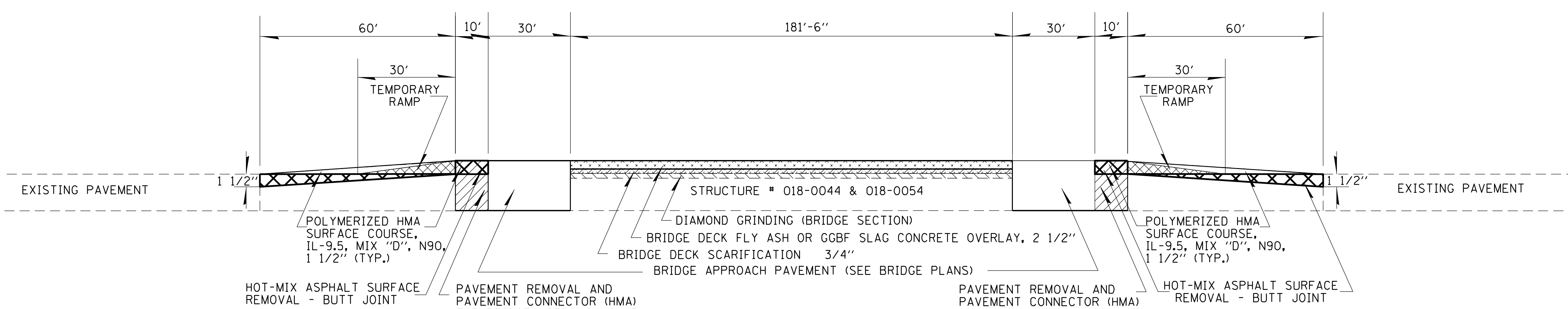
SCHEDULE OF QUANTITES

SCALE: _____ SHEET __ OF __ SHEETS STA. _____ TO STA. _____

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	6
		CONTRACT NO. 74B41		
		ILLINOIS FED. AID PROJECT		





SECTION A-A

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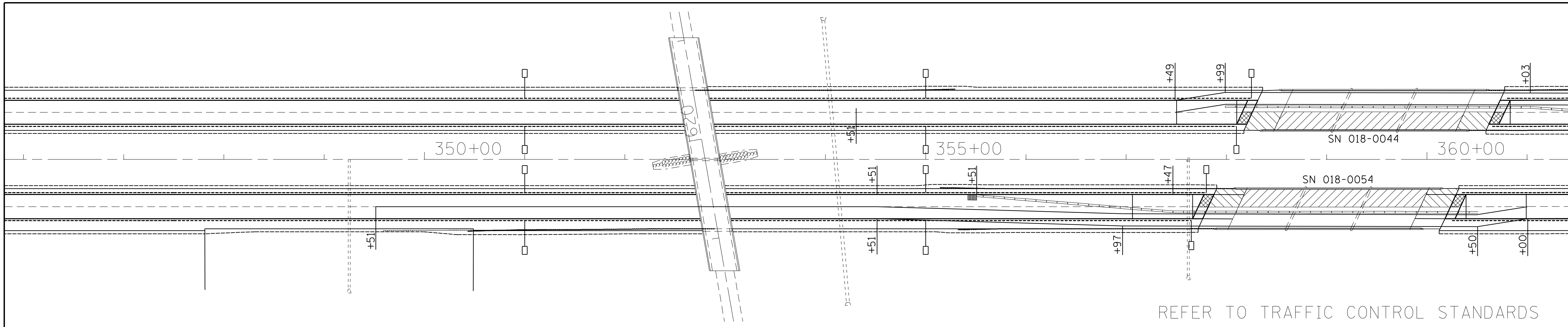
PLOT DATE = 8/18/2023	DATE -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE PROFILE TRANSITION

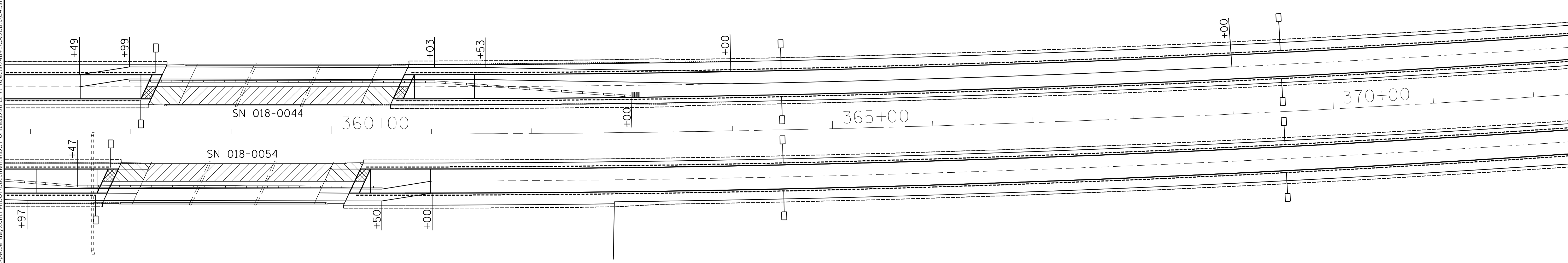
SCALE: | SHEET | OF | SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	7
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

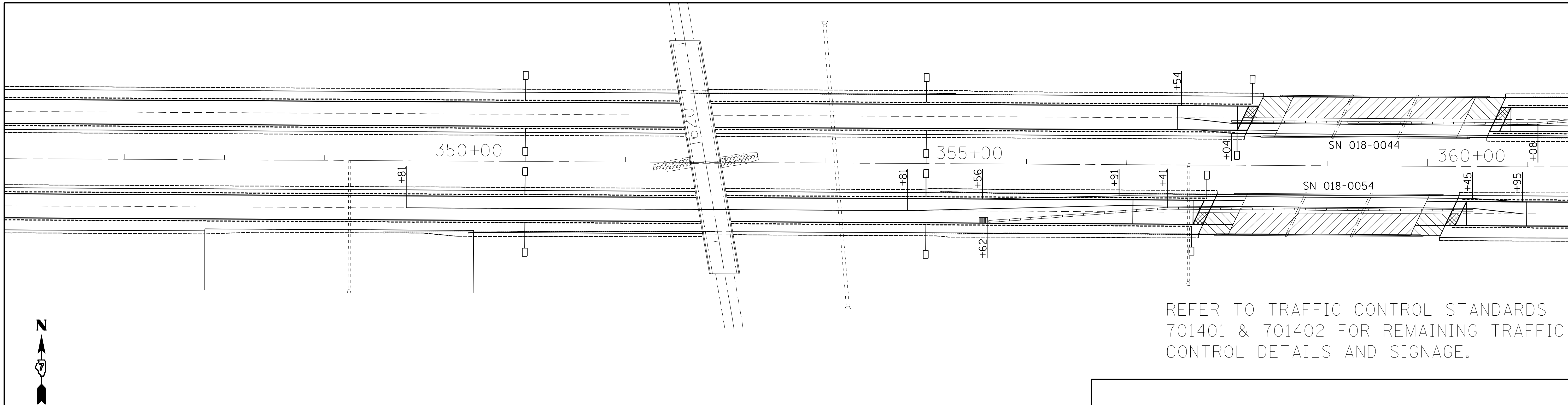


REFER TO TRAFFIC CONTROL STANDARDS 701401 & 701402 FOR REMAINING TRAFFIC CONTROL DETAILS AND SIGNAGE.

Legend	
(symbol)	TEMPORARY CONCRETE BARRIER
(symbol)	IMPACT ATTENUATOR
(symbol)	BRIDGE APPROACH PAVEMENT REMOVAL
(symbol)	PAVEMENT REMOVAL
(symbol)	BRIDGE CONSTRUCTION AREA



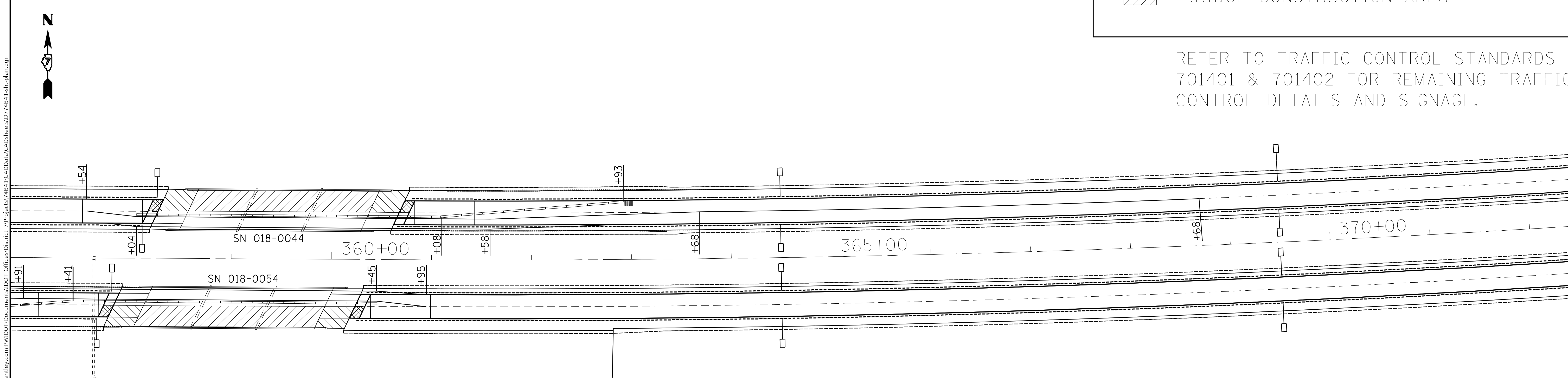
REFER TO TRAFFIC CONTROL STANDARDS 701401 & 701402 FOR REMAINING TRAFFIC CONTROL DETAILS AND SIGNAGE.



REFER TO TRAFFIC CONTROL STANDARDS 701401 & 701402 FOR REMAINING TRAFFIC CONTROL DETAILS AND SIGNAGE.

- TEMPORARY CONCRETE BARRIER
- IMPACT ATTENUATOR
- BRIDGE APPROACH PAVEMENT REMOVAL
- PAVEMENT REMOVAL
- BRIDGE CONSTRUCTION AREA

REFER TO TRAFFIC CONTROL STANDARDS 701401 & 701402 FOR REMAINING TRAFFIC CONTROL DETAILS AND SIGNAGE.



USER NAME = Mona,Steffen	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 8/18/2023	DATE -	REVISED -	

PHASE II DETAILS

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	9
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

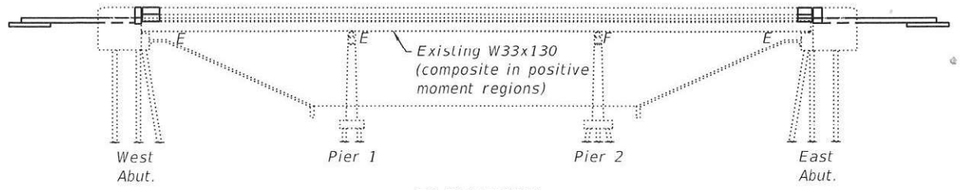
EXISTING STRUCTURE:
The existing three-span continuous steel beam structures were constructed in 1968 as F.A.I. 70 Section 18-46B at Station 359+25.00. SN 018-0044 carries I-70 Westbound over Cottonwood Creek. SN 018-0054 carries I-70 Eastbound over Cottonwood Creek. In 2002, the concrete deck was replaced, and the joints, bearings, abutment backwalls and wingwalls were replaced. New bridge approach slabs were included in the 2002 project. The concrete stub abutments are supported on steel piles, and the piers are supported on creosoted timber piles. Each bridge is 181'-6" back-to-back of abutments. The superstructures are 42'-7¾" out-to-out and are skewed 25 degrees left-forward.

The proposed project consists of new expansion joints, new concrete overlays, bridge deck repairs, structural steel repair, and new concrete approaches. Traffic is to be maintained utilizing stage construction.

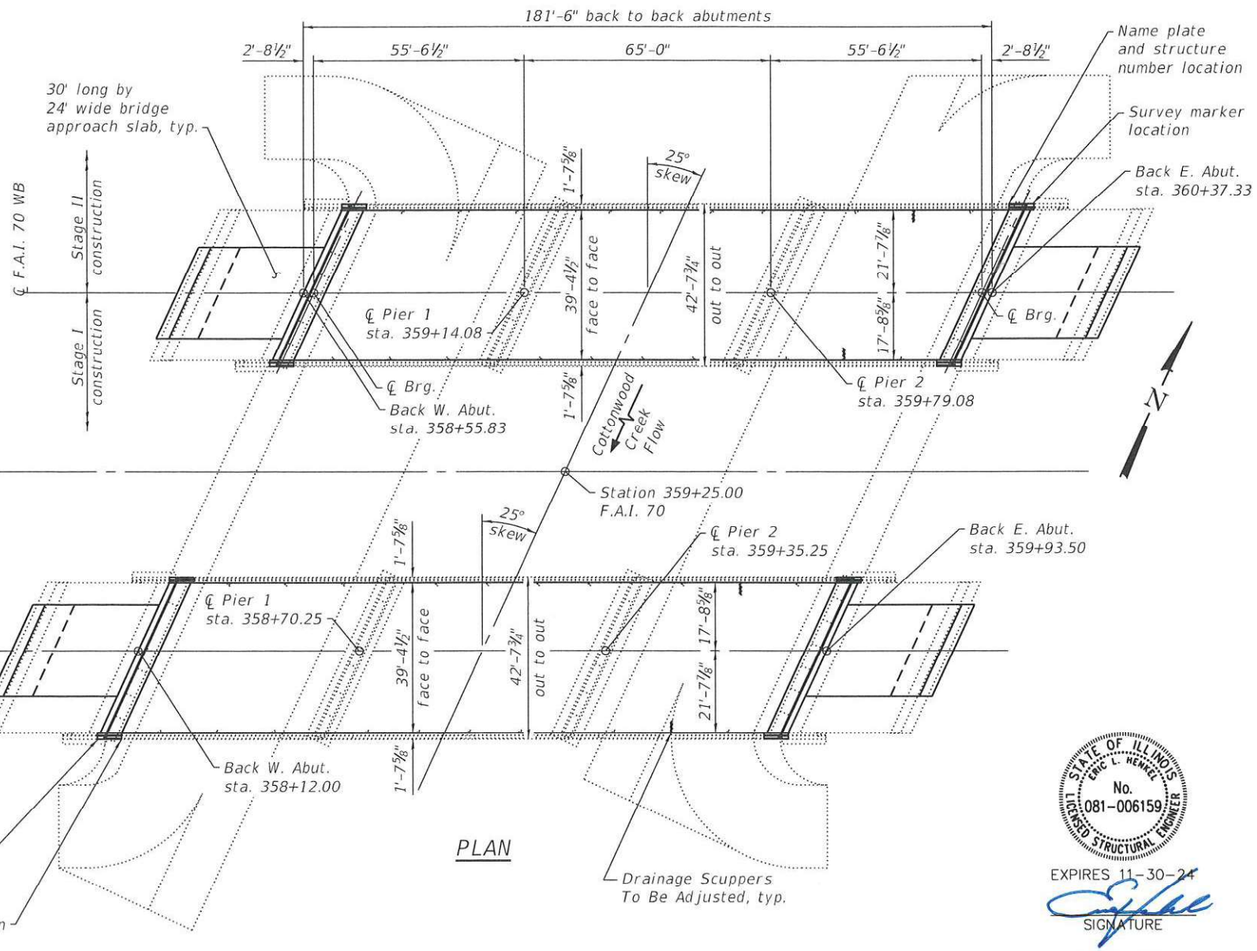
SCOPE OF WORK

1. Construct structural steel repair.
2. Remove existing neoprene expansion joints at the abutments and install Preformed Joint Strip Seal expansion joints.
3. Construct corbels at the abutment backwalls to widen the approach seats.
4. Remove and replace bridge approach slabs.
5. Perform Bridge Deck Scarification ¾".
6. Perform bridge deck patching.
7. Modify drains to accommodate new wearing surface.
8. Construct Bridge Deck Fly Ash or GGBF Slag Concrete Overlay, 2 ½" wearing surface.
9. Perform Diamond Grinding (Bridge Section).
10. Perform Bridge Deck Grooving (Longitudinal).

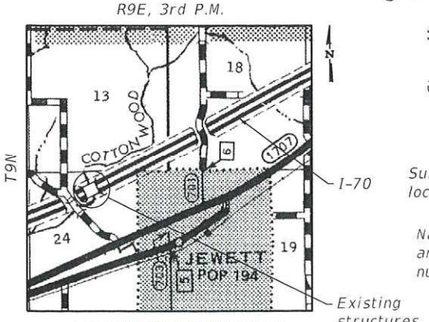
STRUCTURE INDEX OF SHEETS



ELEVATION



PLAN



LOCATION SKETCH

DESIGN SPECIFICATIONS (new const.)

2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition

LOADING HS20-44 & ALT. (new const.)

No allowance for future wearing surface

DESIGN STRESSES

FIELD UNITS

EXISTING CONSTRUCTION

f'c = 3,500 psi (concrete superstructure, abutment backwalls and wings)
fy = 60,000 psi (reinforcement for superstructure, abutment backwalls and wings)
fc = 1,400 psi (other concrete substructure)
fs = 20,000 psi (other substructure reinforcement)

NEW CONSTRUCTION

f'c = 4,000 psi (concrete)
fy = 60,000 psi (reinforcement)

STATE OF ILLINOIS
ERIC L. REMKE
No. 081-006159
LICENSED STRUCTURAL ENGINEER

EXPIRES 11-30-24

SIGNATURE

08-11-2023
DATE

GENERAL PLAN & ELEVATION
I-70 OVER COTTONWOOD CREEK
F.A.I. ROUTE 70
SECTION D7 BRIDGE REPAIRS 2024-12
CUMBERLAND COUNTY
STATION 359+25.00
STRUCTURE NO. 018-0044 (WB)
STRUCTURE NO. 018-0054 (EB)

REV - MS

ESCA CONSULTANTS, INC.

USER NAME = nhc	DESIGNED - ELH	02/23	REVISED -		
ESCA PROJECT NO. 1363.04	CHECKED - CTJ	02/23	REVISED -		
PLOT SCALE = 0.2 ' / in.	DRAWN - NHC	08/23	REVISED -		
PLOT DATE = 8/21/2023	CHECKED - ELH	08/23	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE REPAIR PLANS

SHEET 1 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	10
		CONTRACT NO. 74B41		
		ILLINOIS	FED. AID PROJECT	

MODEL: PLOT
FILE NAME: Y:\IDOT\1363-04_74B41\CADD\SP SN 018-0044\0180044-74B41-01-GenPlan.dgn
8/21/2023 3:06:18 PM

GENERAL NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.

2. Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of work; however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

3. Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system. Cost included in Concrete Removal.

4. Areas of deck repairs shown are estimated. The Engineer shall show actual locations of deck repairs on as-built plans.

5. Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the deck is poured at an ambient temperature other than 50° F.

6. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

7. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surface in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

8. Bridge Deck Grooving (Longitudinal) shall be completed only after Diamond Grinding (Bridge Section) is complete.

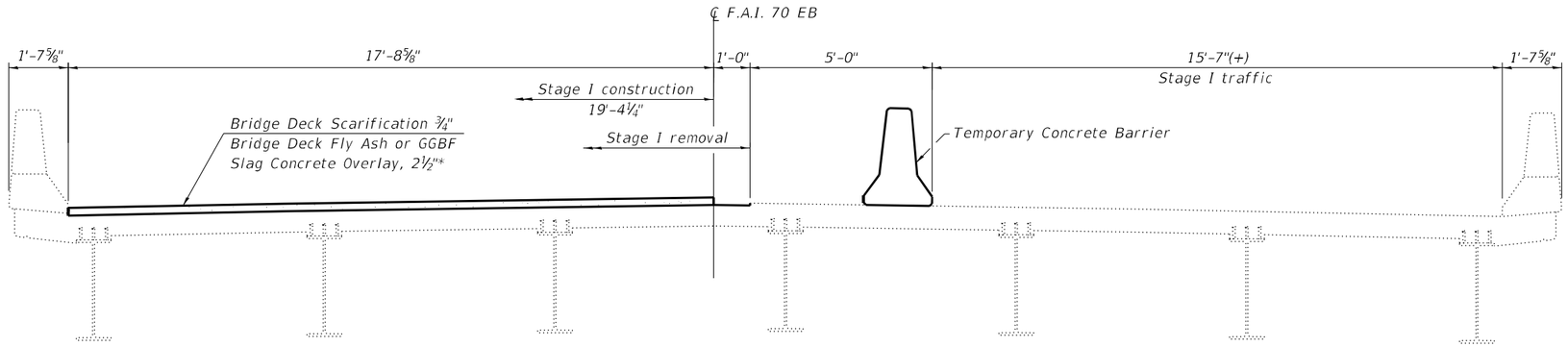
9. Protective Coat shall be applied to areas of Concrete Superstructure consisting of the front faces and tops of the parapets and wingwalls and the top surfaces of the expansion joint blockouts. Protective Coat shall be applied to the top of the new concrete overlays and to the areas of Concrete Superstructure (Approach Slab) and approach shoulder pavements including the front faces and tops of the curbs.

10. The existing name plates and structure number signs are located within the limits of concrete removal at the bridge parapets. The name plates and signs shall be cleaned and re-installed in the bridge parapet reconstruction. Cost is included in Concrete Superstructure.

11. There is a survey marker located on the top of a wingwall on each bridge and is within the limits of concrete removal. These survey markers shall be cleaned and re-installed in the bridge wingwall reconstruction. Cost is included in Concrete Superstructure. The Engineer shall notify the IDOT District 7 Chief of Surveys once the survey markers are re-installed. The District 7 Survey Unit will resurvey the elevations and coordinates of the markers.

TOTAL BILL OF MATERIAL

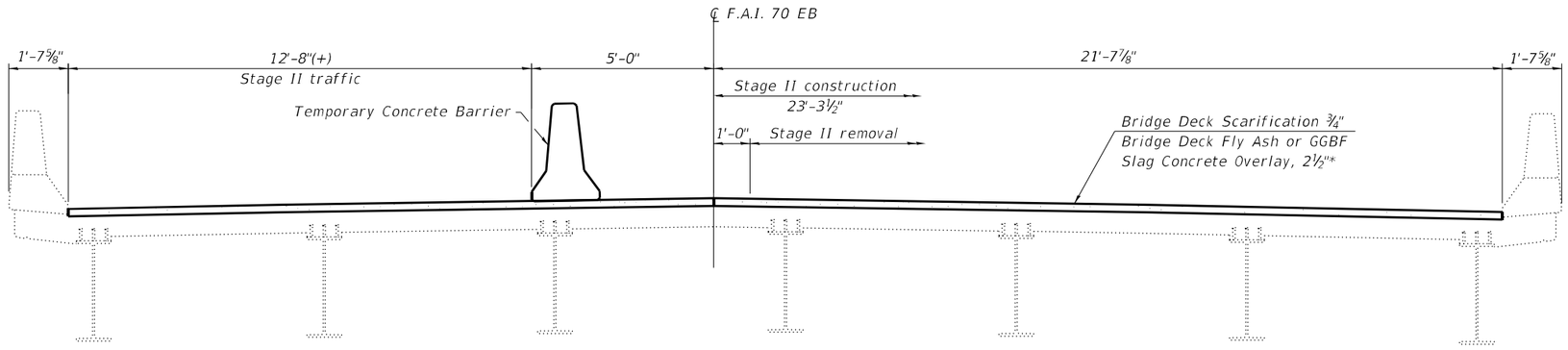
ITEM	UNIT	SN 018-0044	SN 018-0054	TOTAL
Porous Granular Embankment	Cu. Yd.	14	14	28
Concrete Removal	Cu. Yd.	21.6	21.6	43.2
Structure Excavation	Cu. Yd.	6	6	12
Concrete Structures	Cu. Yd.	21.4	21.4	42.8
Concrete Superstructure	Cu. Yd.	20.8	20.8	41.6
Protective Coat	Sq. Yd.	1,073	1,073	2,146
Concrete Superstructure (Approach Slab)	Cu. Yd.	68.8	68.8	137.6
Reinforcement Bars, Epoxy Coated	Pound	30,100	30,100	60,200
Bar Splicers	Each	310	310	620
Preformed Joint Strip Seal	Foot	91	91	182
Bridge Deck Grooving (Longitudinal)	Sq. Yd.	642	642	1,284
Bridge Deck Fly Ash or GGBF Slag Concrete Overlay, 2½"	Sq. Yd.	744	744	1,488
Bridge Deck Scarification ¾"	Sq. Yd.	744	744	1,488
Deck Slab Repair (Full Depth, Type I)	Sq. Yd.	6	6	12
Deck Slab Repair (Full Depth, Type II)	Sq. Yd.	2	1	3
Drainage Scuppers To Be Adjusted	Each	2	2	4
Structural Steel Repair	Pound	70	-	70
Diamond Grinding (Bridge Section)	Sq. Yd.	951	951	1,902



STAGE I - EASTBOUND LOOKING EAST

(STAGE I - WESTBOUND LOOKING WEST SIMILAR)

*Prior to grinding



STAGE II - EASTBOUND LOOKING EAST

(STAGE II - WESTBOUND LOOKING WEST SIMILAR)

MODEL: PLOT
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ESCA CONSULTANTS, INC.

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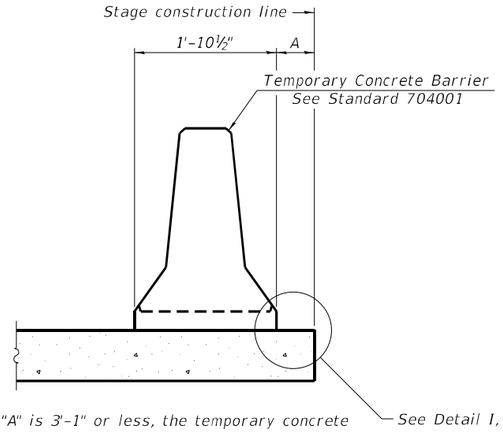
PLOT SCALE = 0:2 ':' / in.	DRAWN - NHC 03/23	REVISED -	
PLOT DATE = 8/21/2023	CHECKED - ELH 03/23	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

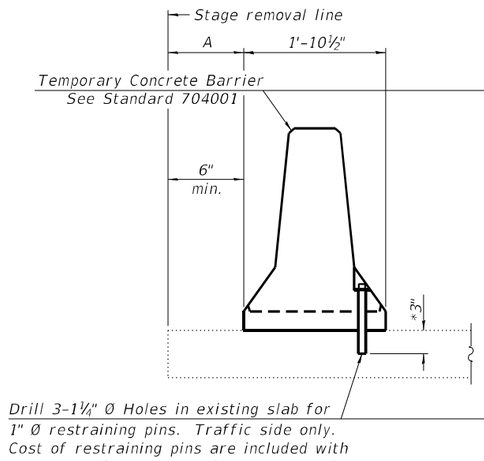
STAGE CONSTRUCTION
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 3 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	12
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		



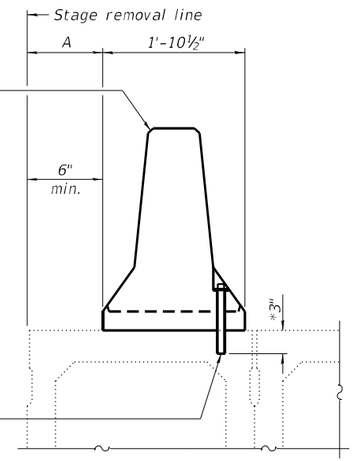
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II, or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



Drill 3-1⅛" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

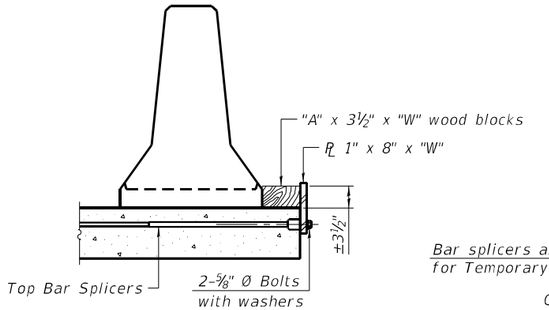
EXISTING SLAB



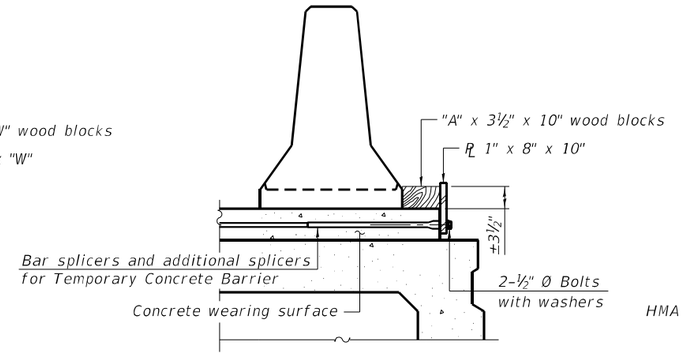
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

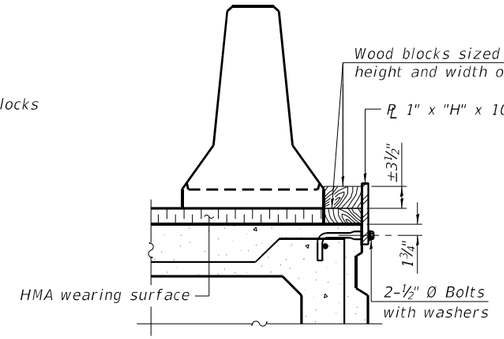
SECTIONS THRU SLAB OR DECK BEAM



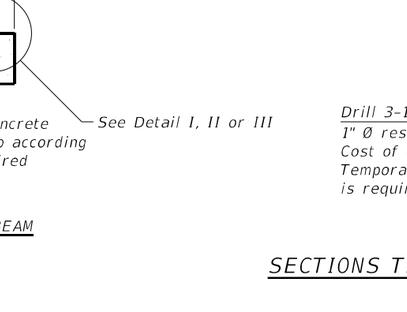
DETAIL I



DETAIL II

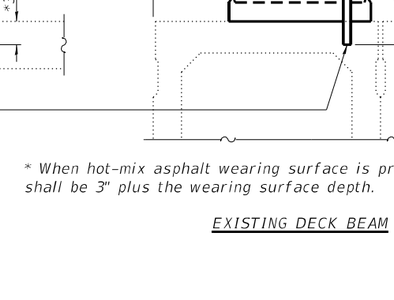


DETAIL III



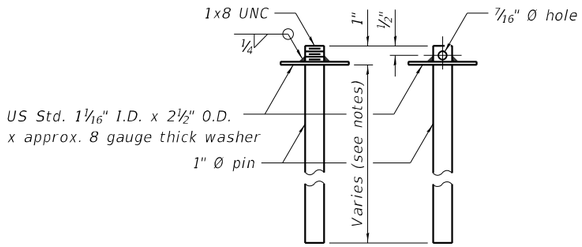
STEEL RETAINER ℄ 1" x 8" x "W"

(Detail I and II)

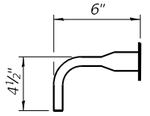


STEEL RETAINER ℄ 1" x "H" x 10"

(Detail III)



RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

10-12-2021

Notes:

Cost of retainer assembly is included with Temporary Concrete Barrier.

A retainer assembly shall be located at the approximate ℄ of each temporary concrete barrier.

The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.

When the 'A' dimension is less than 1½", the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

Detail I - Installation for a new bridge deck or bridge slab.

Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.

Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

MODEL: PLOT
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ESCA CONSULTANTS, INC.

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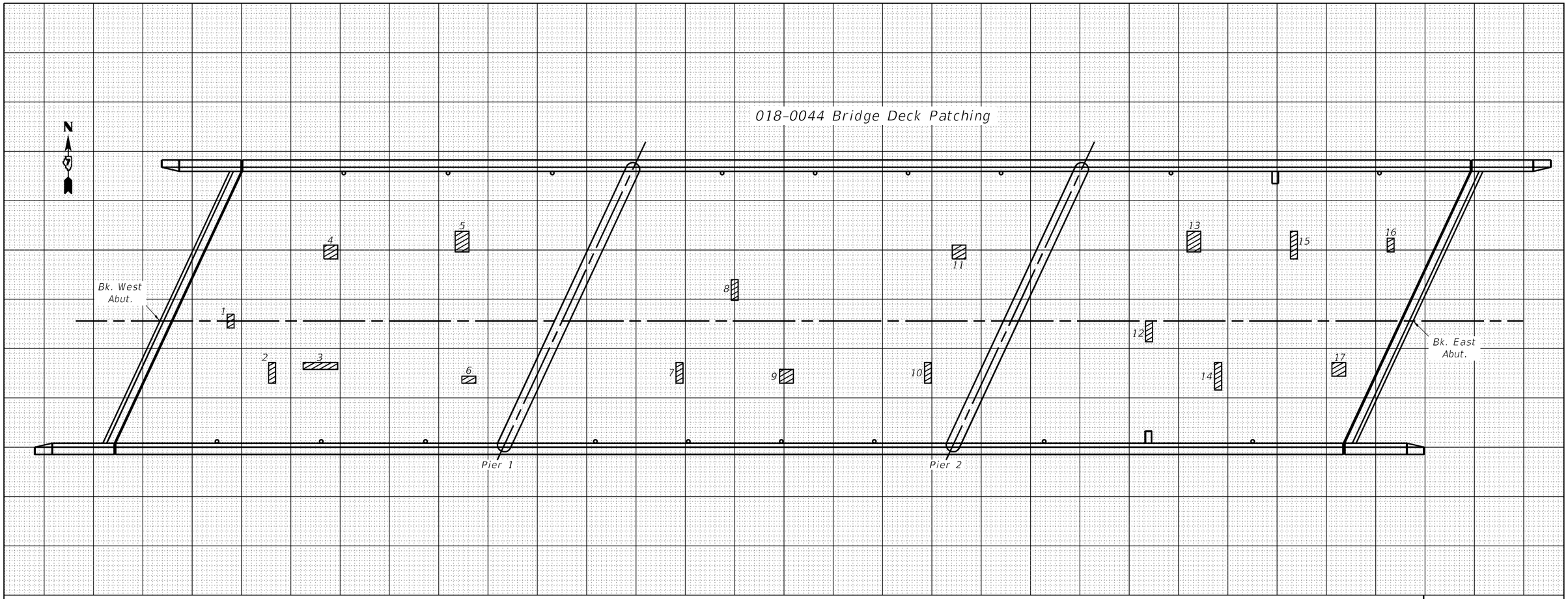
PLOT SCALE = 0:2 '' / in.	DRAWN - ZTC	02/23	REVISED -
PLOT DATE = 8/21/2023	CHECKED - ELH	02/23	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
SN 018-0044 (WB) & SN 018-0054 (EB)

SHEET 4 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	13
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		



PATCH	SIZE		DECK SLAB REPAIR (FD TY I)	DECK SLAB REPAIR (FD TY II)
NO.	LENGTH	WIDTH	SQ YD	SQ YD
1	1.0	2.0	0.2	
2	1.0	3.0	0.3	
3	5.0	1.0	0.6	
4	2.0	2.0	0.4	
5	2.0	3.0		0.7
6	2.0	1.0	0.2	
7	1.0	3.0	0.3	
8	1.0	3.0	0.3	
9	2.0	2.0	0.4	
10	2.0	2.0	0.4	
11	1.0	3.0	0.3	
12	1.0	3.0	0.3	
13	2.0	3.0		0.7
14	1.0	4.0	0.4	
15	1.0	4.0	0.4	
16	1.0	2.0	0.2	

PATCH	SIZE		DECK SLAB REPAIR (FD TY I)	DECK SLAB REPAIR (FD TY II)
NO.	LENGTH	WIDTH	SQ YD	SQ YD
17	2.0	2.0	0.4	
TOTAL ROUNDS TO:			6.0	2.0

THE LOCATIONS AND SIZES SHOWN GRAPHICALLY ABOVE ARE APPROXIMATE. SEE THIS TABLE FOR ACTUAL SIZES.

DECK REPAIR FULL DEPTH TY 1 & TY 2

DATE OF SURVEY: 11-9-22
SURVEY BY: DPM & TMW
METHOD OF SURVEY: VISUAL

ESTIMATED PAY QUANTITIES:

DECK SLAB REPAIR (FULL DEPTH TYPE I) 6.0 SQ YD

DECK SLAB REPAIR (FULL DEPTH TYPE II) 2.0 SQ YD

MODEL: Default
FILE NAME: Y:\IDOT\1363-04_74B41\CAD\DSF SN 018-0044\018004474B41-05-Deck Patching Sheets.cgn

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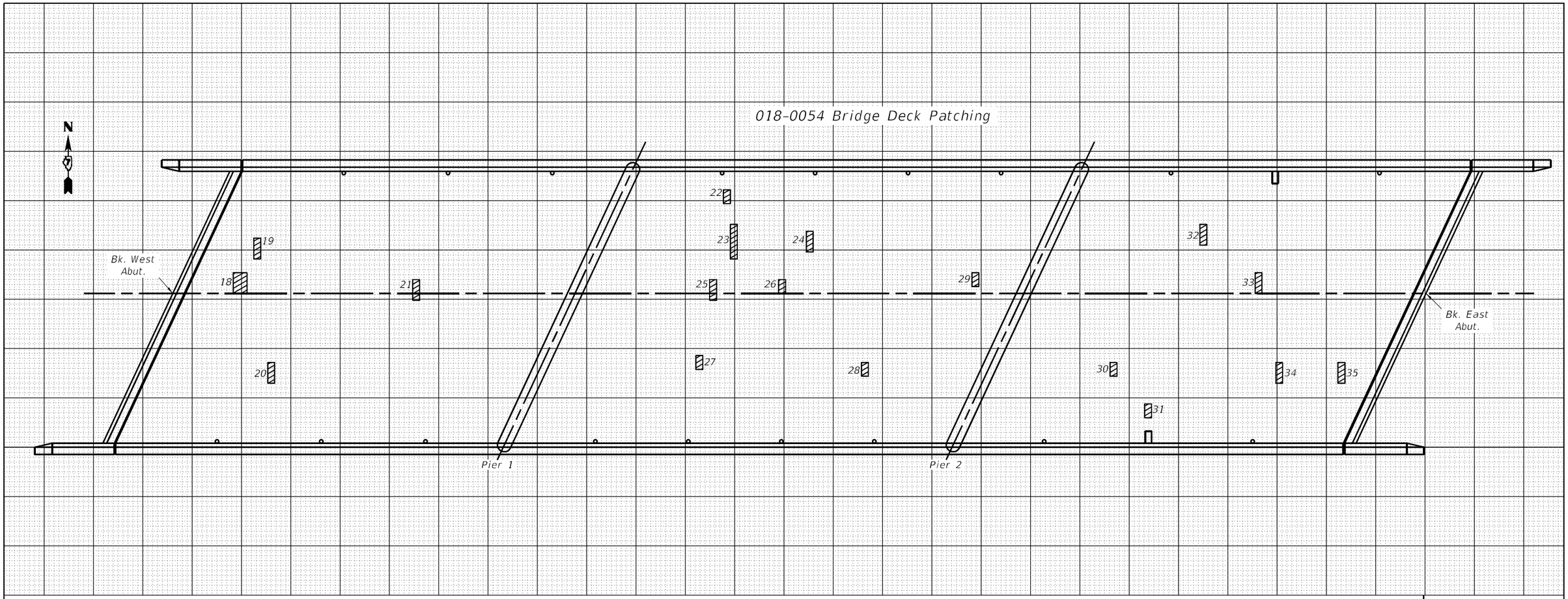
PLOT SCALE = 100.0000 ' / in.	CHECKED - D. Macklin	REVISED -	
PLOT DATE = 8/21/2023	DATE - November 2022	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK PATCHING
SN 018-0044 (WB)
SHEET 5 OF 18 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	14
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			



PATCH	SIZE		DECK SLAB REPAIR (FD TY I)	DECK SLAB REPAIR (FD TY II)
NO.	LENGTH	WIDTH	SQ YD	SQ YD
18	2.0	3.0		0.7
19	1.0	3.0	0.3	
20	1.0	3.0	0.3	
21	1.0	3.0	0.3	
22	1.0	2.0	0.2	
23	1.0	5.0	0.6	
24	1.0	3.0	0.3	
25	1.0	3.0	0.3	
26	1.0	2.0	0.2	
27	1.0	2.0	0.2	
28	1.0	2.0	0.2	
29	1.0	2.0	0.2	
30	1.0	3.0	0.3	
31	1.0	3.0	0.3	
32	1.0	2.0	0.2	
33	1.0	2.0	0.2	

PATCH	SIZE		DECK SLAB REPAIR (FD TY I)	DECK SLAB REPAIR (FD TY II)
NO.	LENGTH	WIDTH	SQ YD	SQ YD
34	1.0	3.0	0.4	
35	1.0	3.0	0.4	
TOTAL ROUNDS TO:			6.0	1.0

THE LOCATIONS AND SIZES SHOWN GRAPHICALLY ABOVE ARE APPROXIMATE. SEE THIS TABLE FOR ACTUAL SIZES.

DECK REPAIR FULL DEPTH TY 1 & TY 2

DATE OF SURVEY: 11-9-22
SURVEY BY: DPM & TMW
METHOD OF SURVEY: VISUAL

ESTIMATED PAY QUANTITIES:

DECK SLAB REPAIR (FULL DEPTH TYPE I) 6.0 SQ YD

DECK SLAB REPAIR (FULL DEPTH TYPE II) 1.0 SQ YD

MODEL: Default
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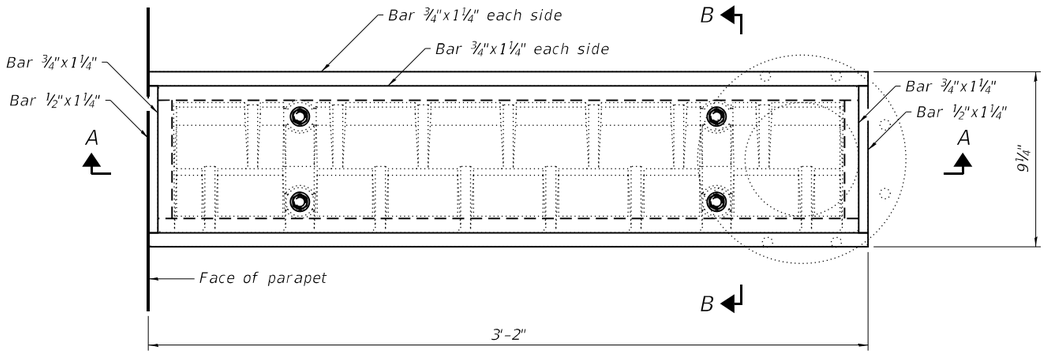
	DRAWN - T. Walk	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED - D. Macklin	REVISED -	
PLOT DATE = 8/21/2023	DATE - November 2022	REVISED -	

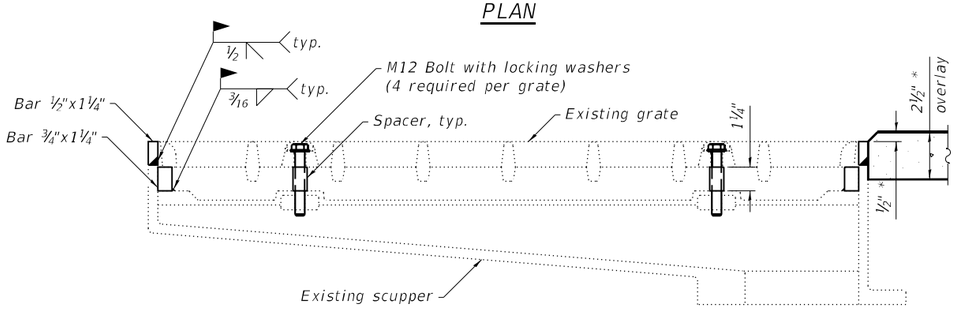
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK PATCHING
SN 018-0054 (EB)
SHEET 6 OF 18 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	15
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

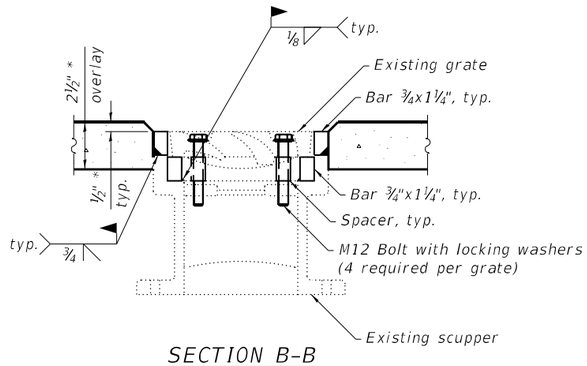


PLAN



*Prior to grinding

SECTION A-A



SECTION B-B

Notes:

The Contractor shall field verify dimensions and details of the existing scupper and make necessary adjustments prior to construction of new adjusting ring or ordering material for adjusting drainage scupper.

All structural steel shall conform to AASHTO M-270, Grade 36.

The adjusting bars shall be galvanized according to AASHTO M111 and ASTM A385.

All cast iron parts shall be grey iron conforming to the requirements of AASHTO M105, Class 35B, and AASHTO M306.

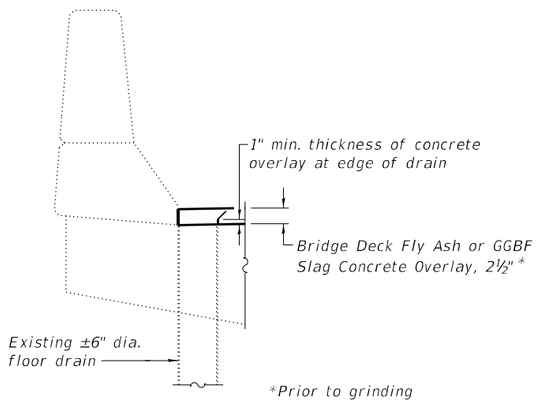
Bolts, anchor studs, washers, and nuts shall conform to the requirements of ASTM A307 and shall be galvanized according to the requirements of AASHTO M232.

Cast iron parts shall be unfinished.

Adjusting ring shall be from Neenah or approved equal.

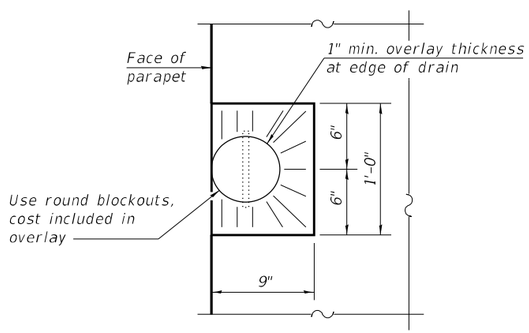
Structural steel weldments or equal sections of the same configuration may be submitted for cast iron. Fillet or full penetration welds may be used for weldments. Details shall be submitted to the Engineer for approval.

All labor and materials necessary to remove the existing grate, clean the existing scupper, install the adjusting bars, and reinstall the existing grate are included in the cost of Drainage Scuppers To Be Adjusted.



*Prior to grinding

SECTION AT FLOOR DRAINS



OVERLAY TREATMENT AT FLOOR DRAINS

BILL OF MATERIAL

Item	Unit	Total
Drainage Scupper To Be Adjusted	Each	4

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ESCA CONSULTANTS, INC. CIVIL & STRUCTURAL ENGINEERS

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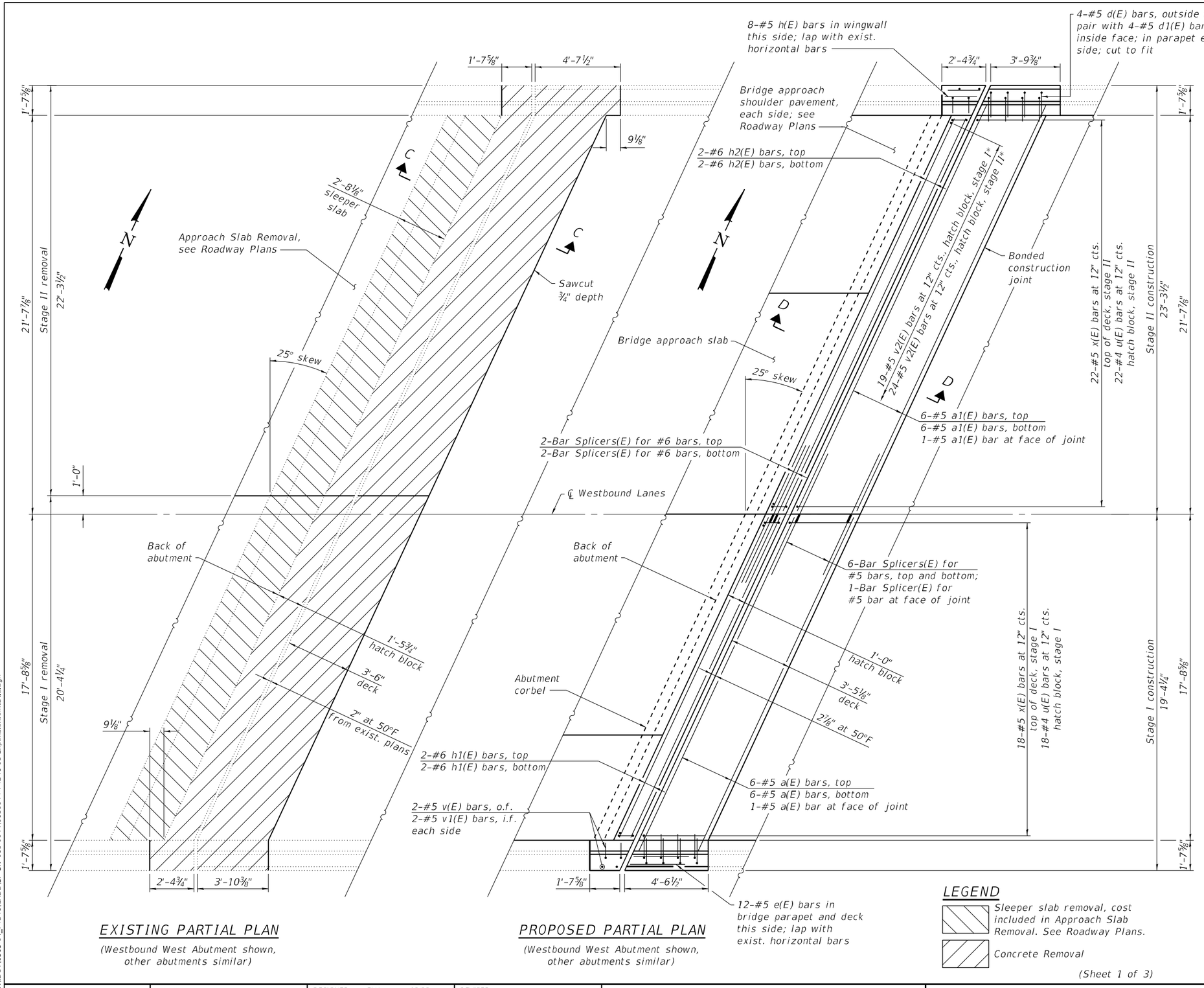
PLOT DATE = 8/21/2023	CHECKED - ELH	02/23	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK DRAINS AND SCUPPERS
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 7 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	16
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

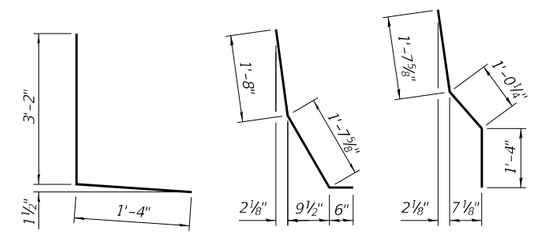


BILL OF MATERIAL

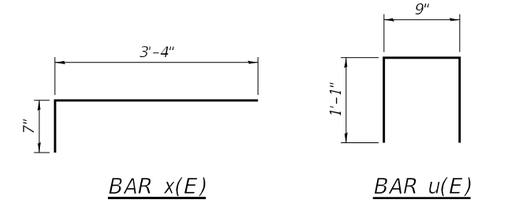
Per Abutment

Bar	Number Stage I	Number Stage II	Total	Size	Length	Shape
a(E)	13	–	13	#5	20'-0"	
a1(E)	–	13	13	#5	24'-4"	
d(E)	4	4	8	#5	4'-6"	
d1(E)	4	4	8	#5	3'-10"	
e(E)	12	–	12	#5	3'-0"	
h(E)	–	8	8	#5	1'-9"	
h1(E)	4	–	4	#6	19'-3"	
h2(E)	–	4	4	#6	23'-7"	
u(E)	18	22	40	#4	2'-11"	
v(E)	2	2	4	#5	3'-10"	
v1(E)	2	2	4	#5	4'-0"	
v2(E)	19	24	43	#5	2'-6"	
x(E)	18	22	40	#5	3'-11"	

Reinforcement Bars, Epoxy Coated	Pound	1,370
Concrete Removal	Cu. Yd.	10.8
Concrete Superstructure	Cu. Yd.	10.4
Bar Splicers	Each	17



BAR d(E) BAR d1(E) BAR v1(E)



BAR x(E) BAR u(E)

*Use epoxy adhesive in 9" holes for v2(E) bars according to Section 584 of the Standard Specifications.

Notes:
For Section C-C and Section D-D see Sheet 9 of 18.
Trim ends of existing longitudinal reinforcement in deck, parapets, and wingwalls to provide minimum clearance for the expansion joint. Cost is included in Concrete Removal.
Hatch block to be poured after bridge deck false work has been removed.

LEGEND

Sleeper slab removal, cost included in Approach Slab Removal. See Roadway Plans.

Concrete Removal

(Sheet 1 of 3)

MODEL: PLOT
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS
SN 018-0044 (WB) & SN 018-0054 (EB)

SHEET 8 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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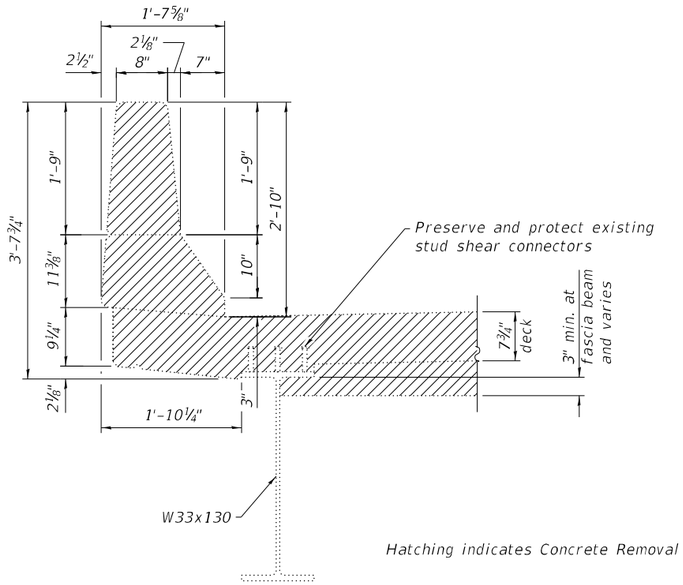
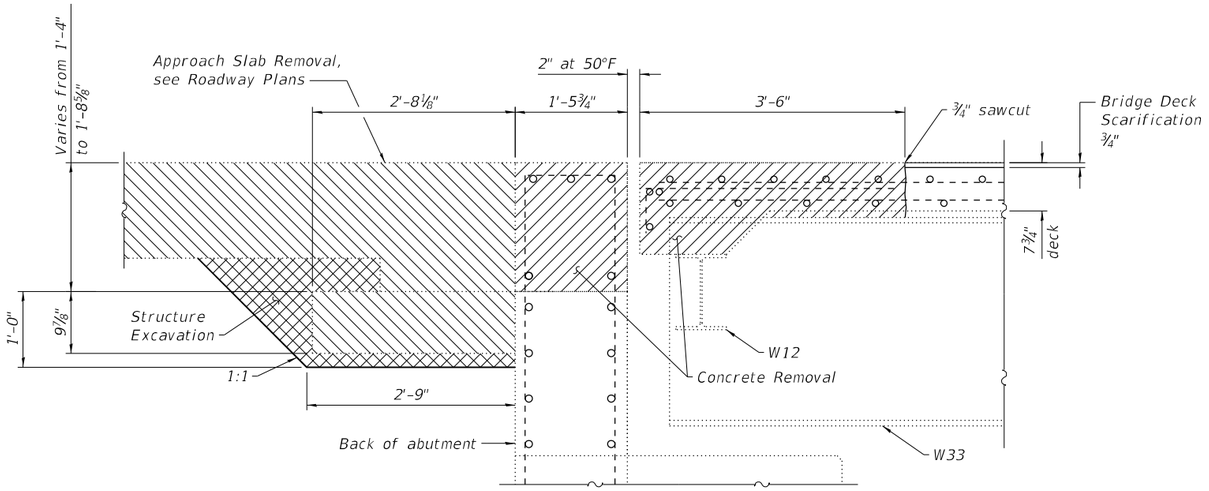
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

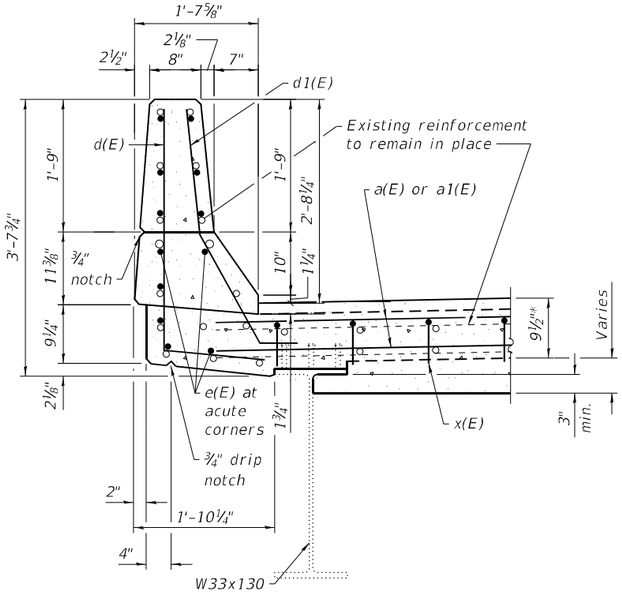


SECTION THRU EXISTING PARAPET

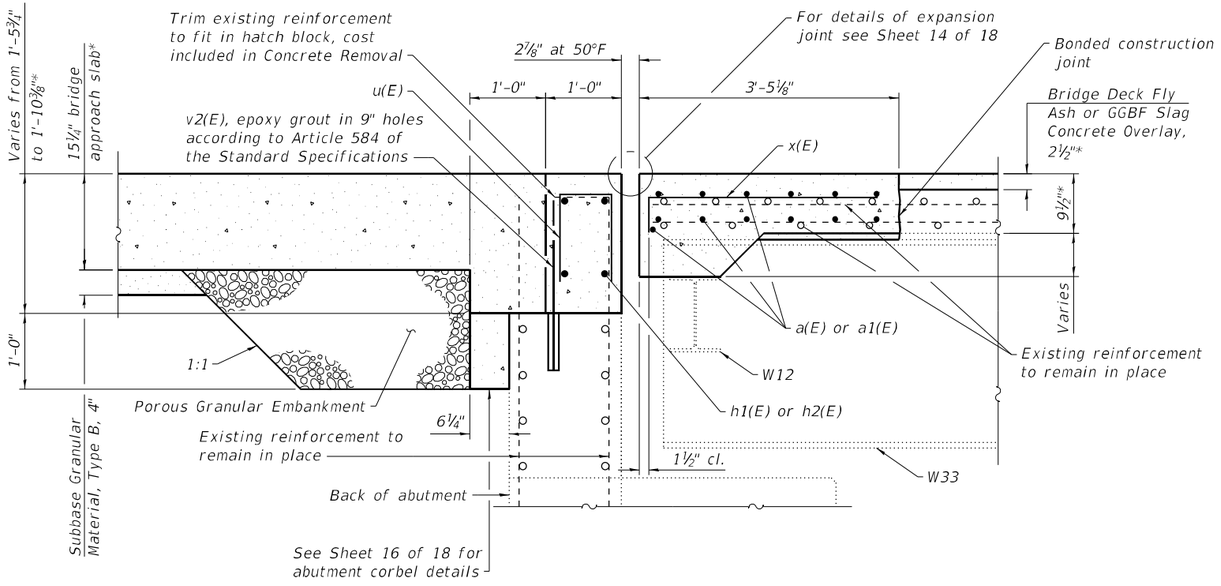


SECTION C-C

(Horizontal dimensions at rt. L's)



SECTION THRU PROPOSED PARAPET



SECTION D-D

(Horizontal dimensions at rt. L's)

*Prior to grinding

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ESCA CONSULTANTS, INC. CIVIL & STRUCTURAL ENGINEERS

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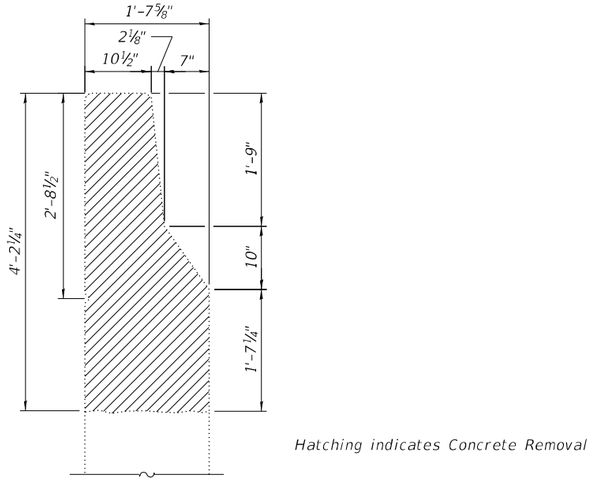
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS
SN 018-0044 (WB) & SN 018-0054 (EB)

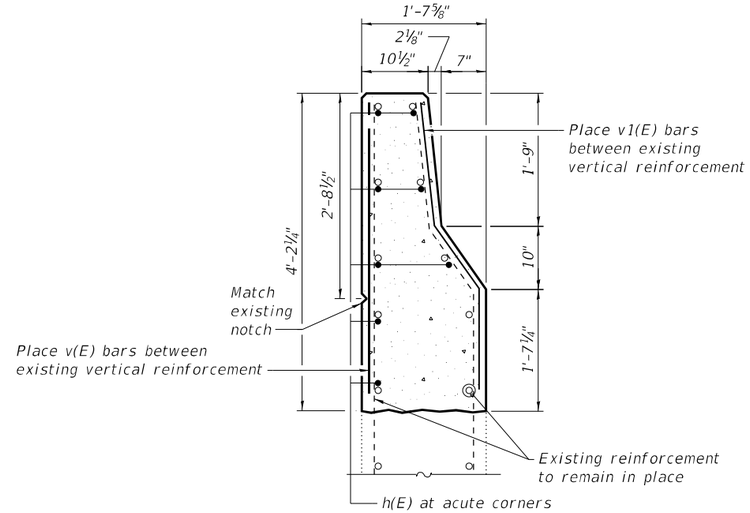
SHEET 9 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	18
		CONTRACT NO. 74B41		
		ILLINOIS FED. AID PROJECT		

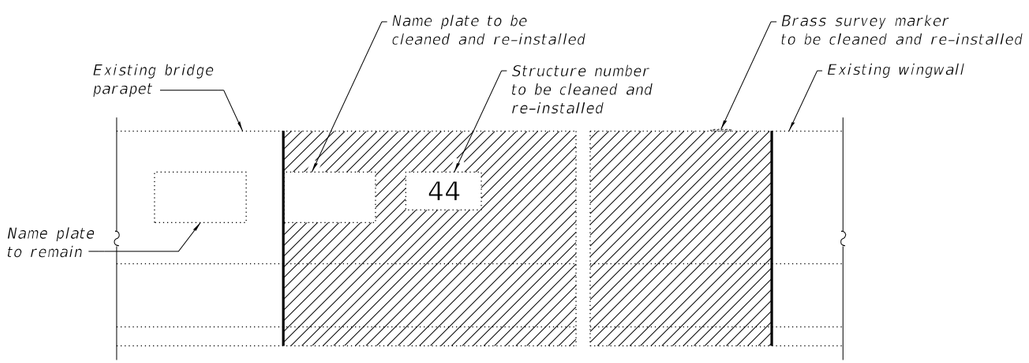


Hatching indicates Concrete Removal

SECTION THRU EXISTING WINGWALL



SECTION THRU PROPOSED WINGWALL



ELEVATION SHOWING NAME PLATES

(Two locations)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT REPLACEMENT DETAILS
SN 018-0044 (WB) & SN 018-0054 (EB)

SHEET 10 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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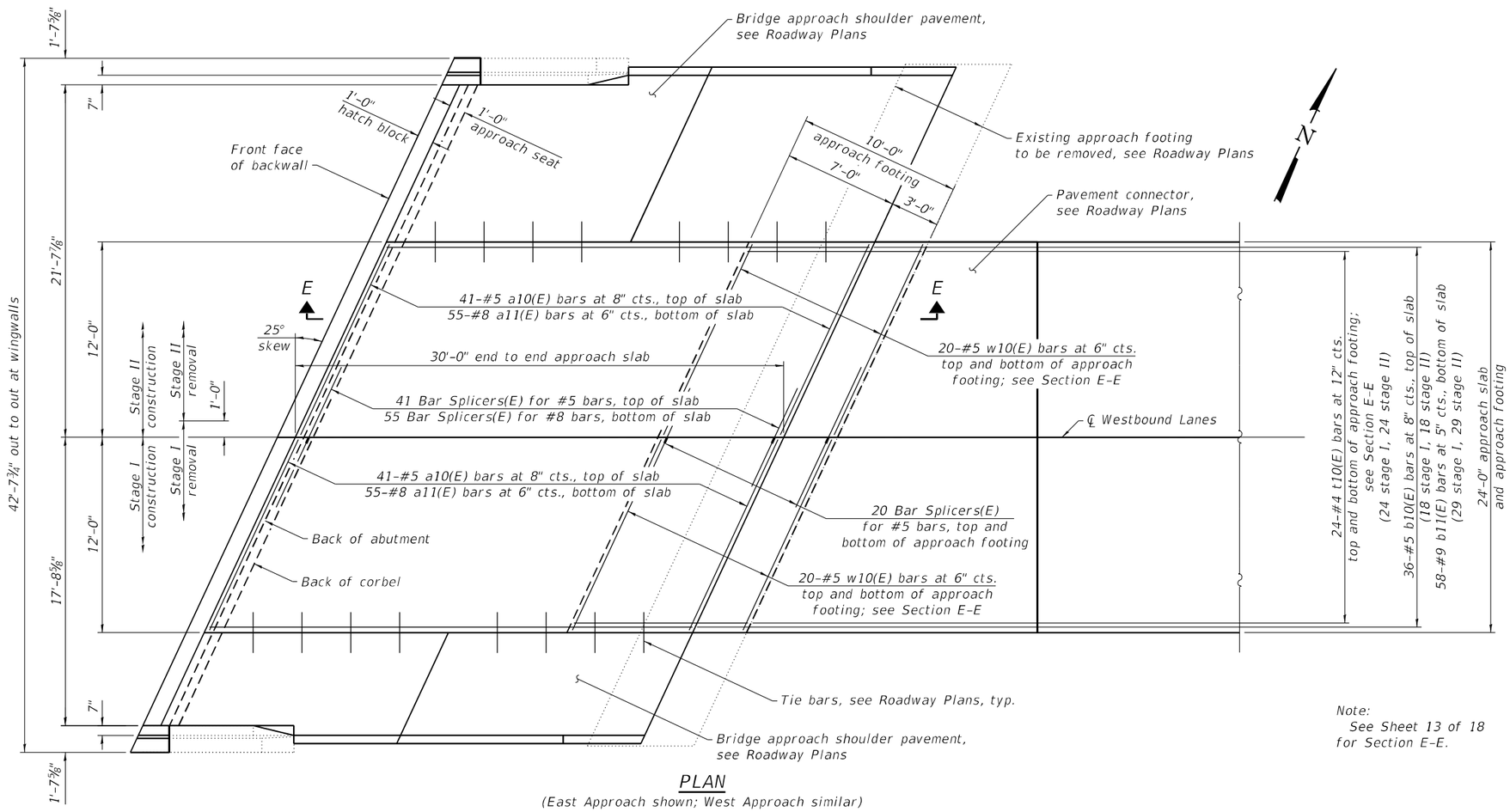
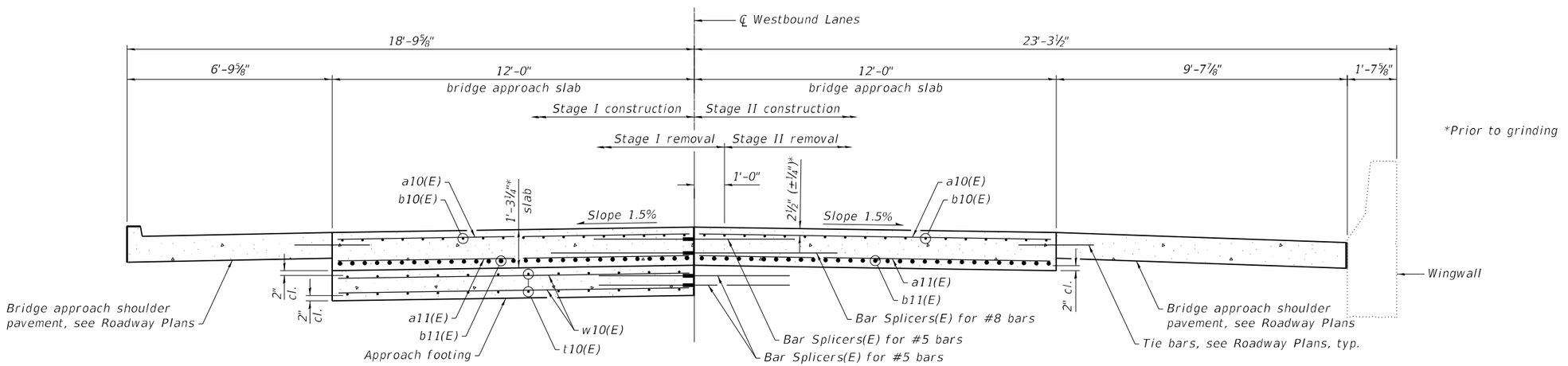
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		



PLAN

(East Approach shown; West Approach similar)

Note:
See Sheet 13 of 18 for Section E-E.



CROSS SECTION

(Looking West)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
SN 018-0044 (WB)

SHEET 11 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 74B41		
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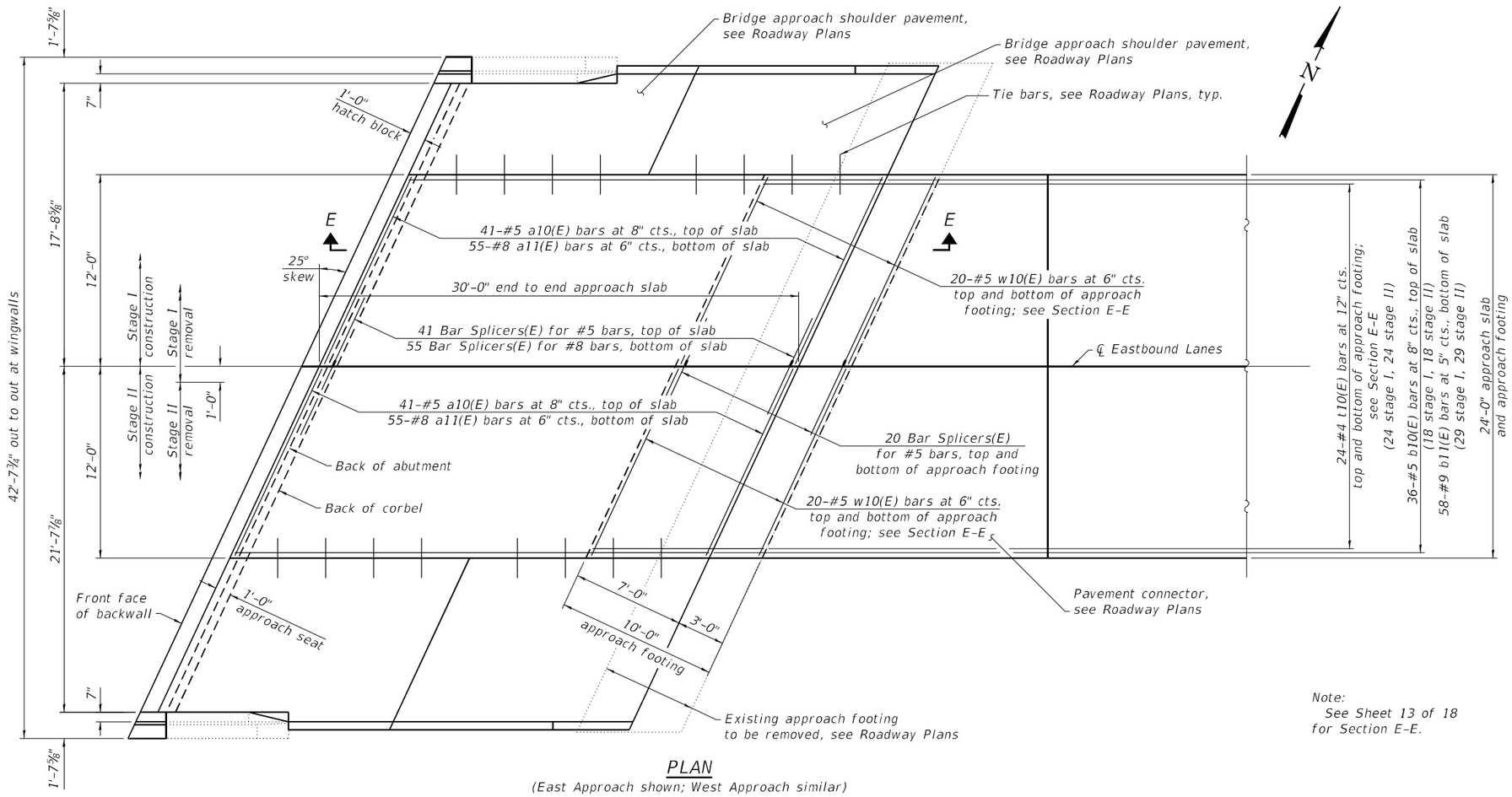
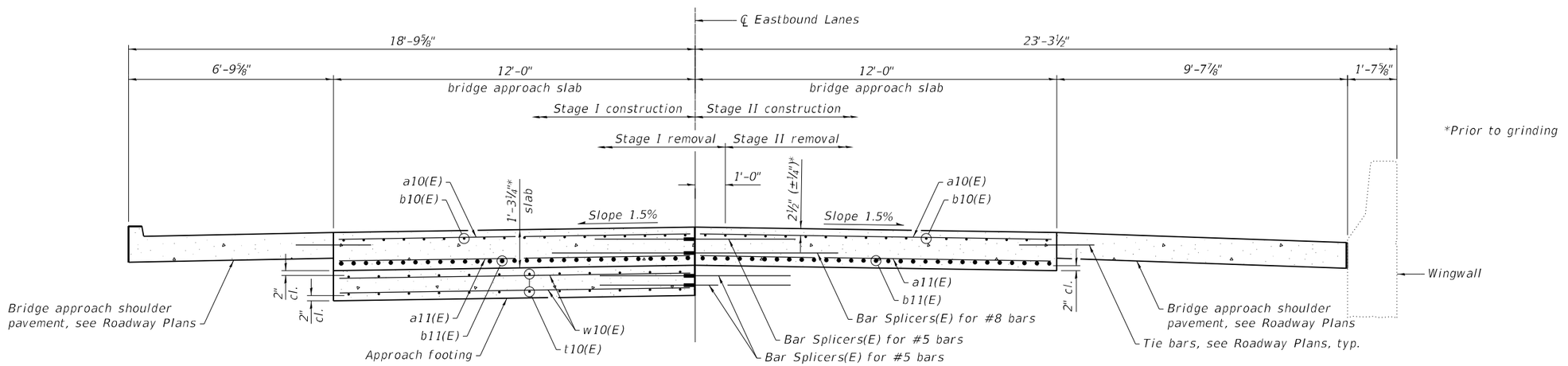


Note:
See Sheet 13 of 18 for Section E-E.

PLAN

(East Approach shown; West Approach similar)



AT APPROACH FOOTING — NEAR ABUTMENT

CROSS SECTION

(Looking East)

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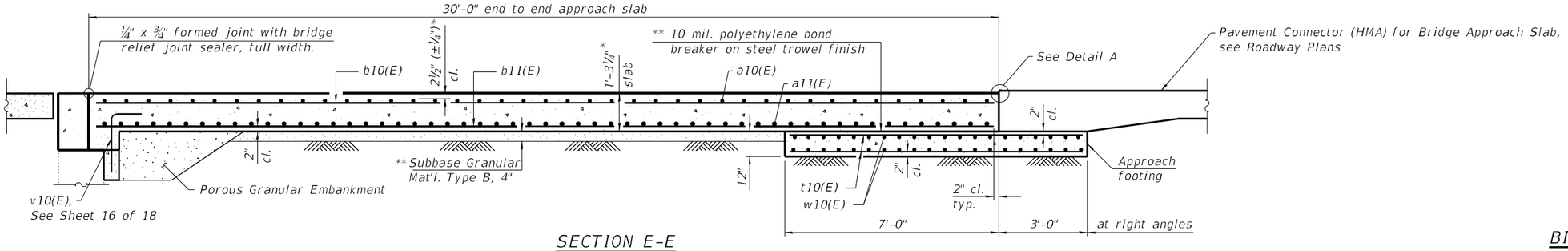
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
SN 018-0054 (EB)

SHEET 12 OF 18 SHEETS

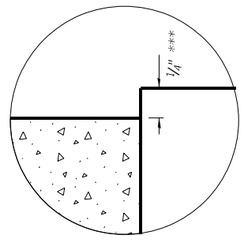
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	21
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

Notes:
Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
Approach footing concrete shall be paid for as Concrete Structures.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
Cost of excavation for approach footing is included with Concrete Structures.
Cost of excavation, grading, and trimming for Subbase Granular Material, Type B, 4" is included with Concrete Superstructure (Approach Slab).



SECTION E-E

* Prior to grinding
** Cost included with Concrete Superstructure (Approach Slab)
*** After grinding



DETAIL A

BILL OF MATERIAL
Per Bridge Approach Slab

Bar	Number		Total	Size	Length	Shape
	Stage I	Stage II				
a10(E)	41	41	82	#5	12'-11"	———
a11(E)	55	55	110	#8	12'-11"	———
b10(E)	18	18	36	#5	29'-8"	———
b11(E)	29	29	58	#9	29'-8"	———
t10(E)	24	24	48	#4	10'-8"	———
w10(E)	40	40	80	#5	12'-11"	———
Concrete Superstructure (Approach Slab)					Cu. Yd.	34.4
Concrete Structures					Cu. Yd.	9.8
Reinforcement Bars, Epoxy Coated					Pound	13,290
Bar Splicers					Each	136

MODEL: PLOT
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ESCA CONSULTANTS, INC.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 13 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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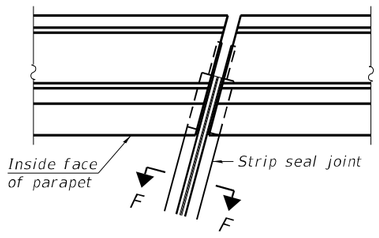
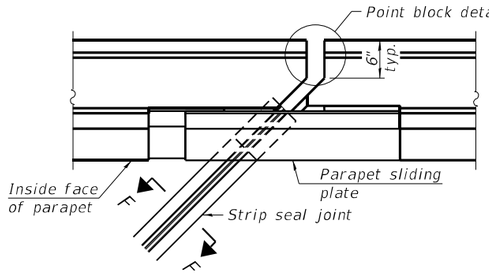
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

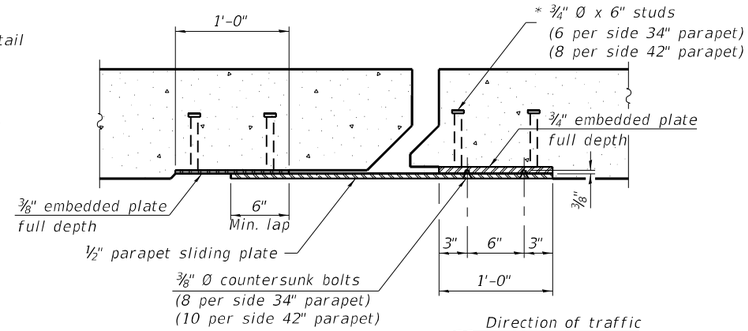


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

PLAN AT PARAPET



SECTION G-G

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4½" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

The manufacturer's recommended installation methods shall be followed.

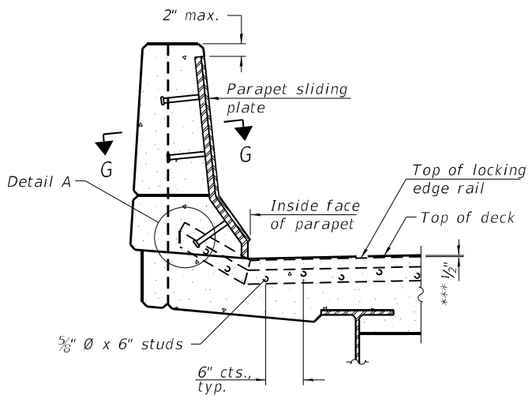
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

The maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

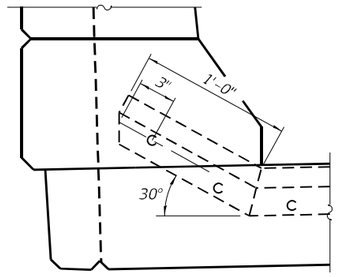
34" F-shape barrier shown, 42" F-shape similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.



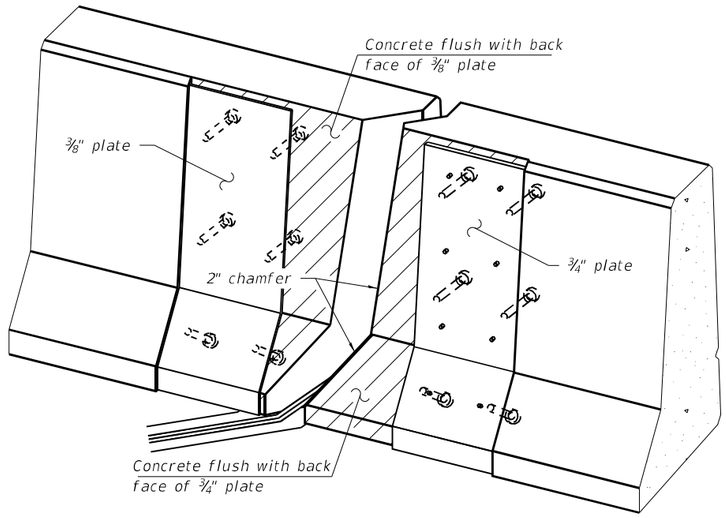
ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)



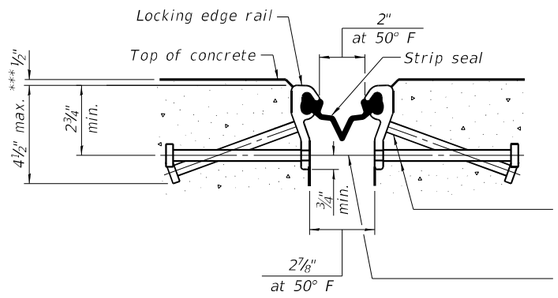
DETAIL A

*** Prior to grinding



TRIMETRIC VIEW

(Showing embedded plates only)



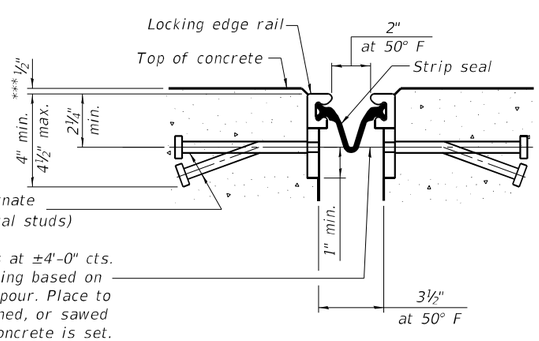
SHOWING ROLLED RAIL JOINT

* ⅜" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

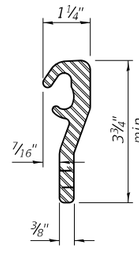
⅞" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION F-F

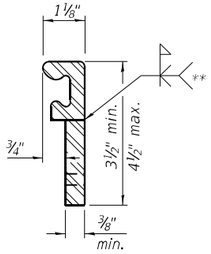
* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



SHOWING WELDED RAIL JOINT



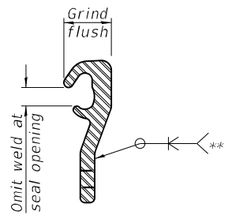
ROLLED (EXTRUDED) RAIL



WELDED RAIL

LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	182

MODEL: PLOT
FILE NAME: Y:\IDOT\1363-04_74841\CADD\SP SN 018-0044\0180044-74841-14-PJS.dgn
8/21/2023 3:06:30 PM

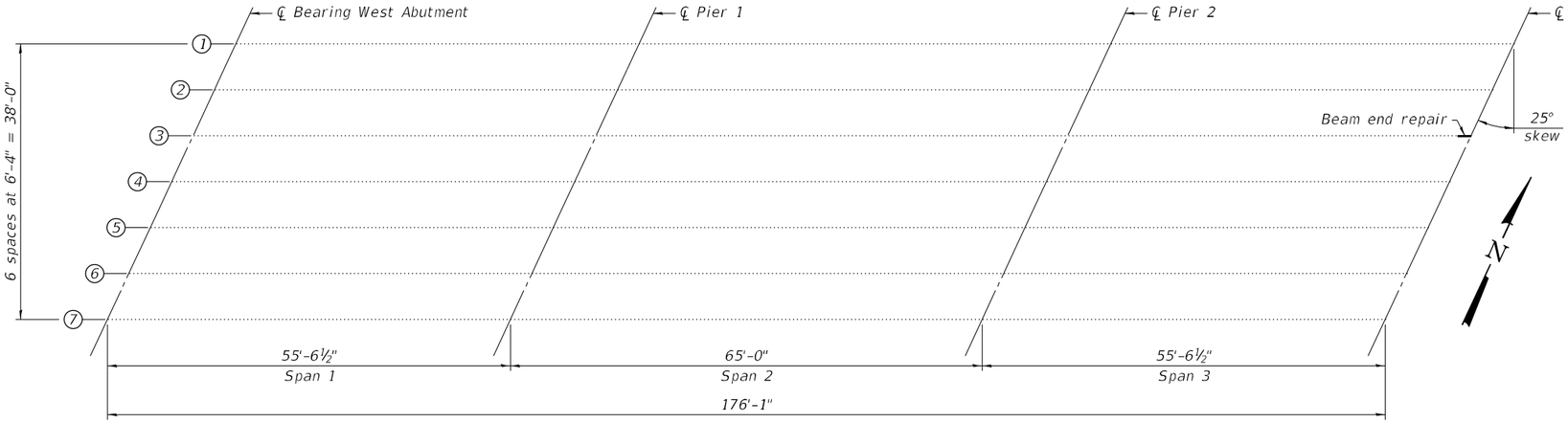
ESCA CONSULTANTS, INC.

USER NAME = nhc	DESIGNED - ELH	02/23	REVISED -		
ESCA PROJECT NO. 1363.04	CHECKED - CTJ	02/23	REVISED -		
PLOT SCALE = 0.1667 ' / in.	DRAWN - ZTC	02/23	REVISED -		
PLOT DATE = 8/21/2023	CHECKED - ELH	02/23	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 14 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	23
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			



SN 018-0044 PLAN

Notes:

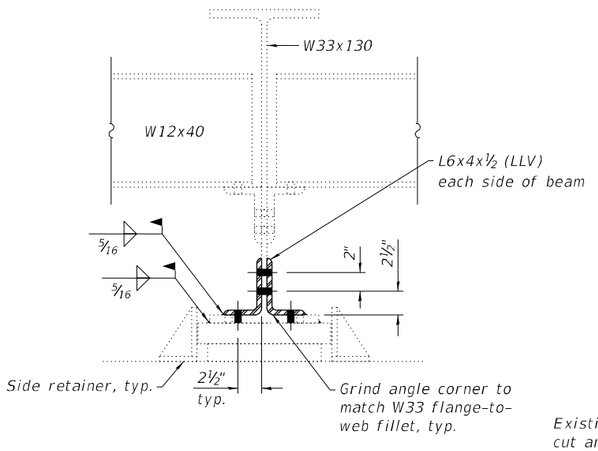
All structural steel shall conform to AASHTO Classification M-270 grade 36, unless noted otherwise.

Fasteners shall be ASTM F3125 Grade A325 Type 1, hot dip galvanized bolts. Bolts ¾" dia., holes $13/16$" dia., unless noted otherwise.

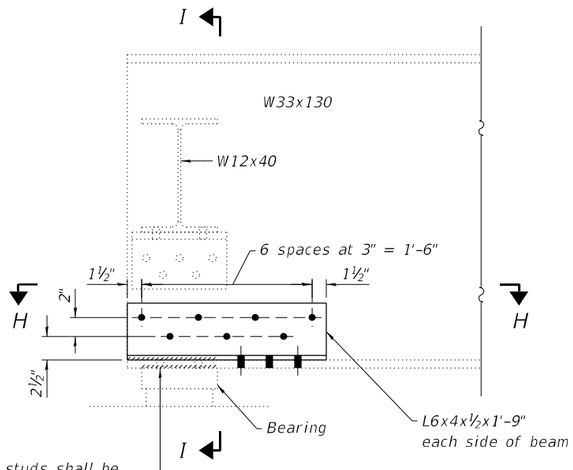
All bolt holes shall be field drilled in the existing steel using the new steel as a template.

Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the special provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures."

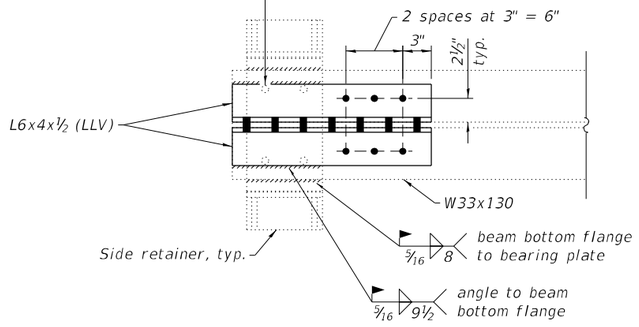
All new structural steel shall be hot dip galvanized and then field painted. See Special Provisions for "Hot Dip Galvanizing for Structural Steel."



SECTION I-I



ELEVATION



SECTION H-H

BILL OF MATERIAL

Item	Unit	Total
Structural Steel Repair	Pound	70

ESCA CONSULTANTS, INC.	USER NAME = nhc	DESIGNED - ELH 02/23	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEAM END REPAIR DETAILS SN 018-0044 (WB)
	ESCA PROJECT NO. 1363.04	CHECKED - CTJ 02/23	REVISED -		SHEET 15 OF 18 SHEETS
	PLOT SCALE = 0:2 ':' / in.	DRAWN - NHC 02/23	REVISED -		
	PLOT DATE = 8/21/2023	CHECKED - ELH 02/23	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	24
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

MODEL: PLOT
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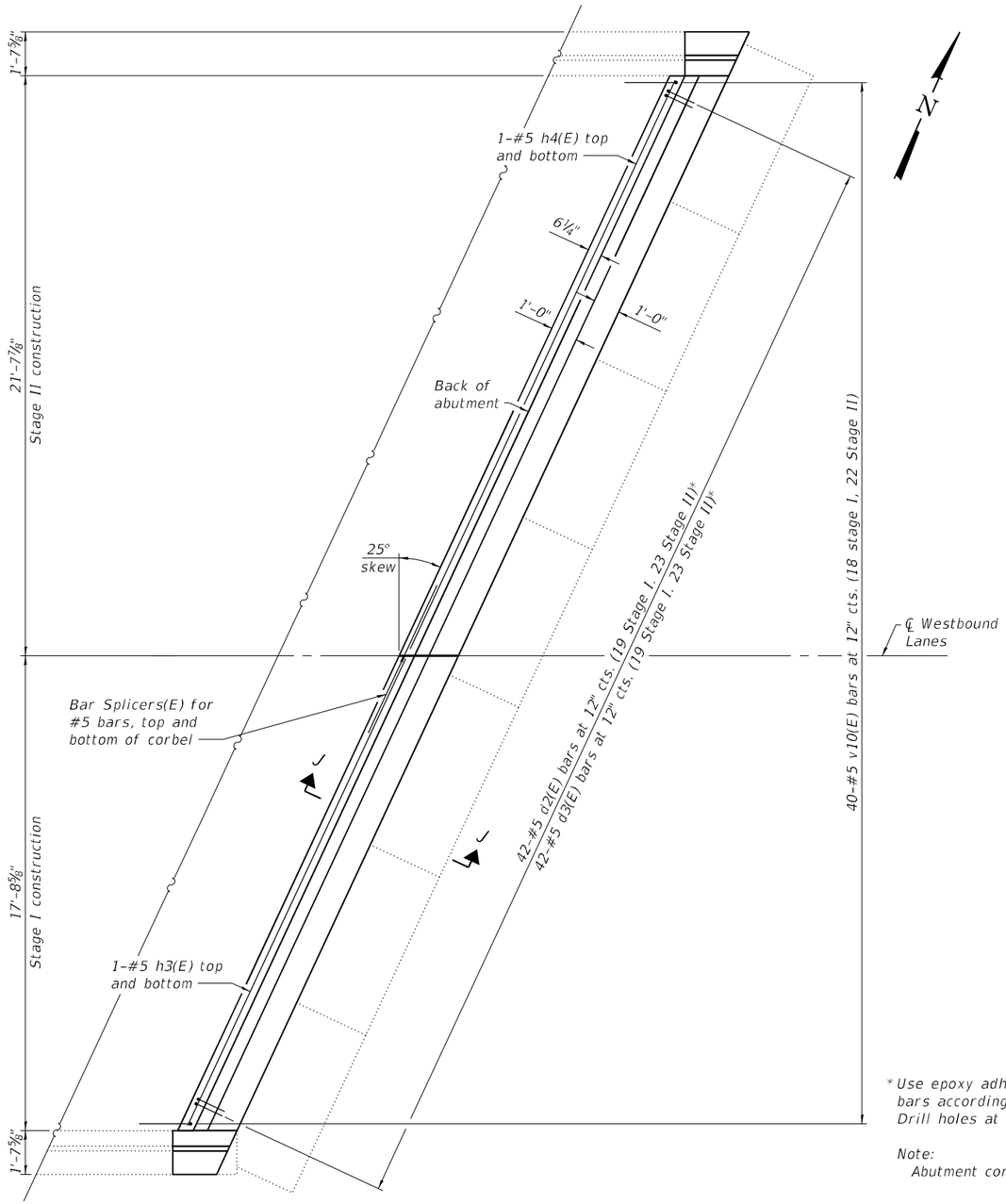
8/21/2023 3:06:32 PM



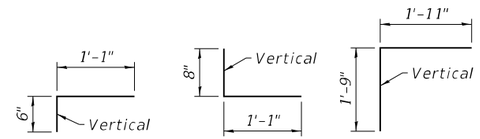
PROPOSED PARTIAL PLAN

Westbound West Abutment shown;
Eastbound East Abutment similar by rotation

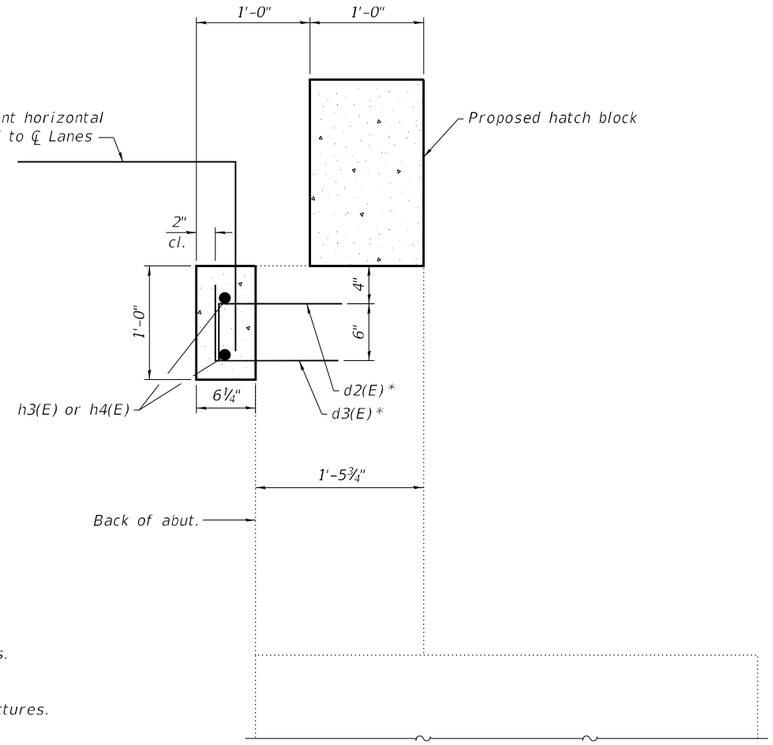
BILL OF MATERIAL

Per Abutment

Bar	Number		Total	Size	Length	Shape
	Stage I	Stage II				
d2(E)	19	23	42	#5	1'-7"	⌐
d3(E)	19	23	42	#5	1'-9"	L
h3(E)	2	-	2	#5	19'-3"	———
h4(E)	-	2	2	#5	23'-5"	———
v10(E)	18	22	40	#5	3'-8"	⌐
Reinforcement Bars, Epoxy Coated					Pound	390
Concrete Structures					Cu. Yd.	0.9
Bar Splicers					Each	2



BAR d2(E) BAR d3(E) BAR v10(E)



SECTION J-J

* Use epoxy adhesive in 9" holes for d2(E) and d3(E) bars according to Section 584 of the Standard Specifications. Drill holes at right angle to backwall. Space to miss v2(E) bars.

Note:
Abutment corbel concrete shall be paid for as Concrete Structures.

MODEL: PLOT
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9/26/2023 3:36:42 PM

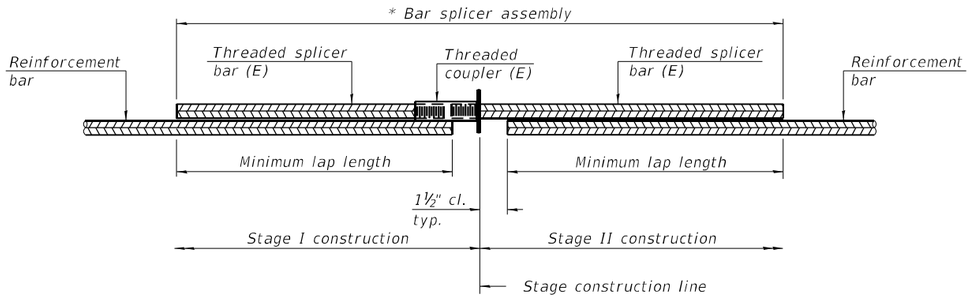
ESCA CONSULTANTS, INC. CIVIL & STRUCTURAL ENGINEERS

USER NAME = nhc	DESIGNED - ELH	02/23	REVISED -	
ESCA PROJECT NO. 1363.04	CHECKED - CTJ	02/23	REVISED -	
PLOT SCALE = 0.2 ':" / in.	DRAWN - NHC	09/23	REVISED -	
PLOT DATE = 9/26/2023	CHECKED - ELH	09/23	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT REPAIRS
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 16 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	25
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			



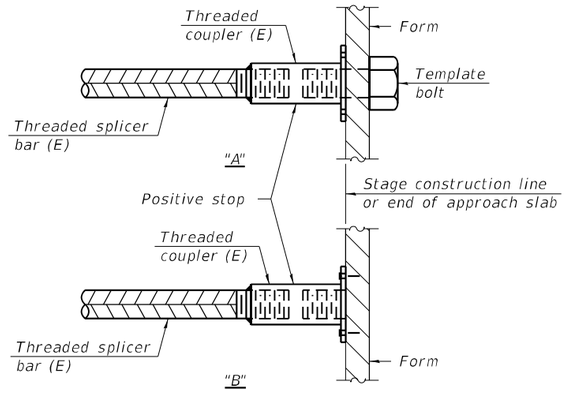
STANDARD BAR SPLICER ASSEMBLY PLAN

Only bar splicer assemblies as presented on the approved QPL list may be used.

Threaded splicer bar length = min. lap length + 1½" + thread length

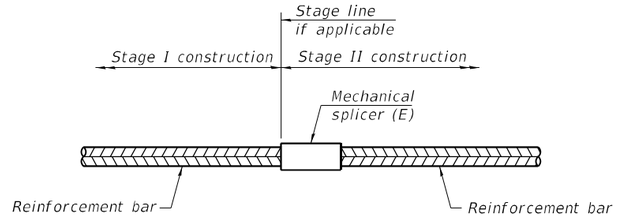
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
018-0044 Deck	#5	26	3'-6"
018-0044 Hatch Blocks	#6	8	4'-0"
018-0044 Corbels	#5	4	3'-2"
018-0044 Approach Slabs	#5	82	3'-4"
018-0044 Approach Slabs	#8	110	4'-9"
018-0044 Approach Footings	#5	80	3'-2"
018-0054 Deck	#5	26	3'-6"
018-0054 Hatch Blocks	#6	8	4'-0"
018-0054 Corbels	#5	4	3'-2"
018-0054 Approach Slabs	#5	82	3'-4"
018-0054 Approach Slabs	#8	110	4'-9"
018-0054 Approach Footings	#5	80	3'-2"



INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
NA		

Notes:
Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
All reinforcement shall be lapped and tied to the splicer bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 2-1-2023

ESCA CONSULTANTS, INC.

USER NAME = nhc	DESIGNED - ELH 02/23	REVISED -	
ESCA PROJECT NO. 1363.04	CHECKED - CTJ 02/23	REVISED -	
PLOT SCALE = 0.1667 ' / in.	DRAWN - ZTC 02/23	REVISED -	
PLOT DATE = 8/21/2023	CHECKED - ELH 02/23	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY DETAILS
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 17 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	26
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

MODEL: PLOT
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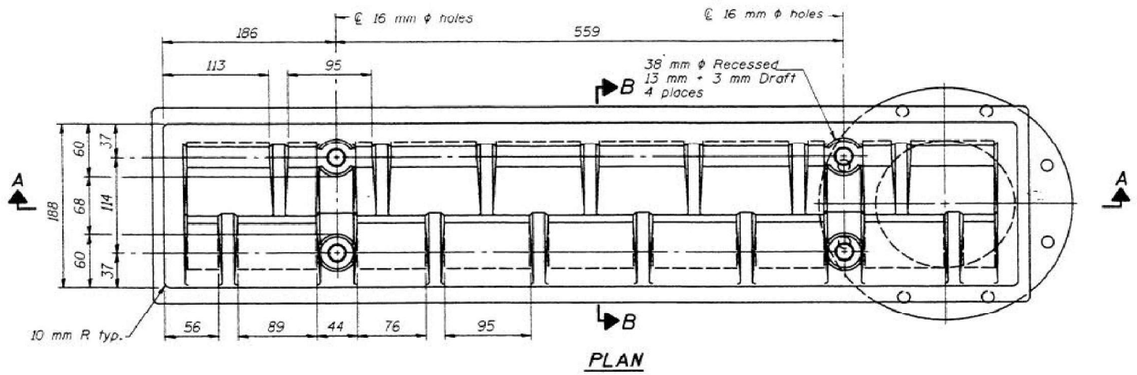
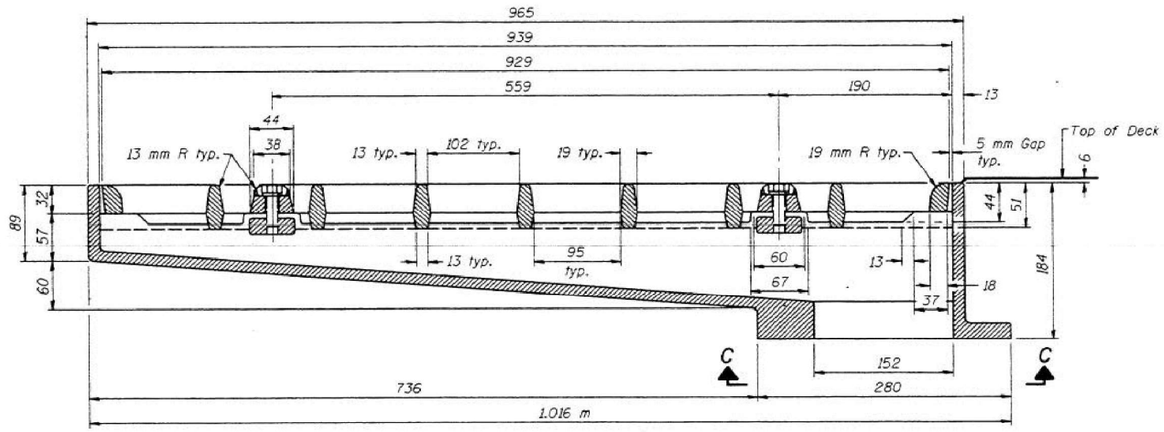
8/21/2023 3:06:34 PM

FAS RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	18-46BR	CUMBERLAND	113	84
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SHEET 26 OF 26 SHEETS

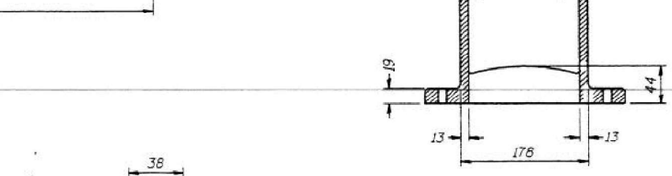


PLAN

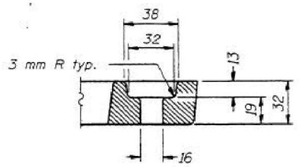


SECTION A-A

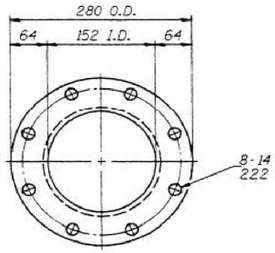
See sheet 11 of 26 for scupper location relative to parapet.



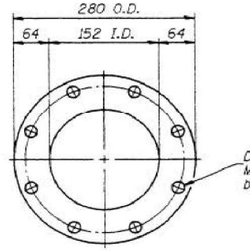
SECTION B-B



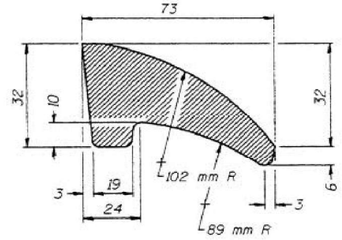
BOLT HOLE DETAIL



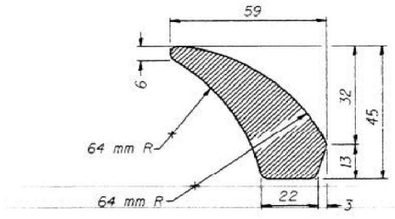
DOWNSPOUT



VIEW C-C



FIRST VANE DETAIL



SECOND VANE DETAIL

Notes: All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232M.

The grate, frame and downspout shall be galvanized according to AASHTO M 111 and ASTM A 385. Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-33.

All dimensions are in millimeters (mm) except as noted.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-33	Each	4

FOR INFORMATION ONLY

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER
F.A.I. RTE. 70 OVER COTTONWOOD CREEK
SECTION 18-46BR STA. 188+344.696
CUMBERLAND COUNTY
S.N. 018-0044 (W.B.) & S.N. 018-0054 (E.B.)

SCALE: N.T.S. DRAWN BY: LP

DATE: JULY 2000 CHECKED BY: MJS

UPCHURCH AND ASSOCIATES

DS-33 8-01-2000

ESCA CONSULTANTS, INC.

USER NAME = nhc	DESIGNED - ELH	02/23	REVISED -
ESCA PROJECT NO. 1363.04	CHECKED - CTJ	02/23	REVISED -
PLOT SCALE = 0.2 '' / in.	DRAWN - ZTC/NHC	09/23	REVISED -
PLOT DATE = 9/26/2023	CHECKED - ELH	09/23	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING SCUPPERS PLAN SHEET
SN 018-0044 (WB) & SN 018-0054 (EB)
SHEET 18 OF 18 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	27
		CONTRACT NO. 74B41		
	ILLINOIS	FED. AID PROJECT		

MODEL: PLOT
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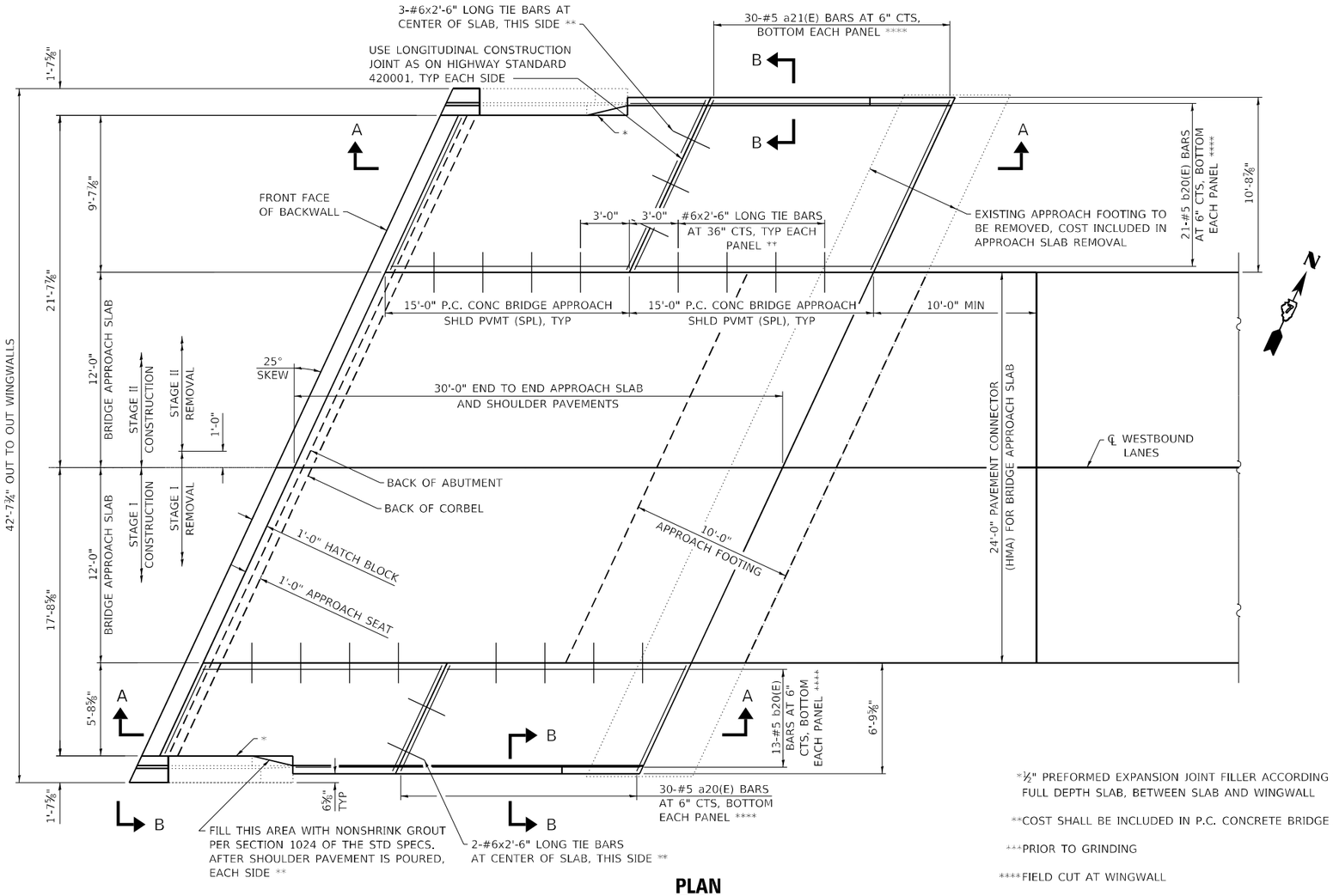
9/26/2023 1:44:52 PM



NOTE:
SEE SHEET NO. 2 OF 2 FOR SECTION A-A AND SECTION B-B

*½" PREFORMED EXPANSION JOINT FILLER ACCORDING TO ARTICLE 1051.09 OF STD SPECS., FULL DEPTH SLAB, BETWEEN SLAB AND WINGWALL

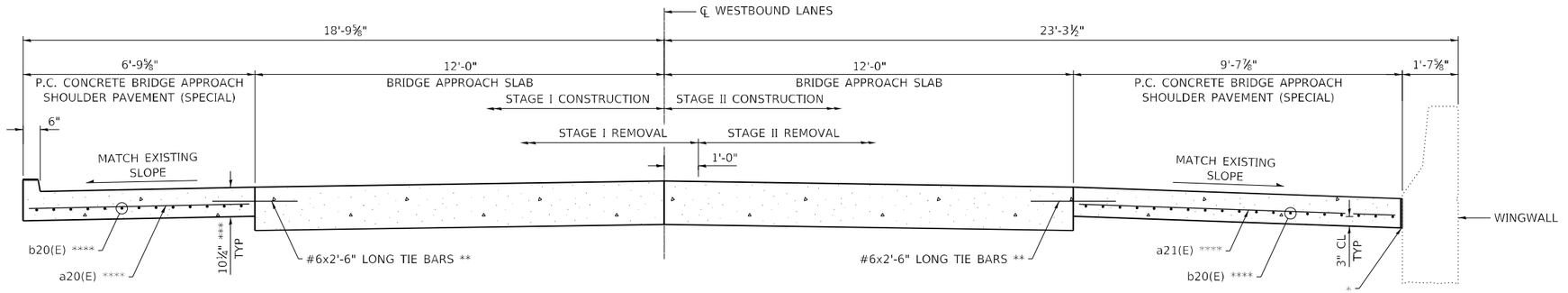
**COST SHALL BE INCLUDED IN P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL)

***PRIOR TO GRINDING

****FIELD CUT AT WINGWALL

PLAN

(EAST APPROACH WESTBOUND LANES SHOWN; OTHER APPROACHES SIMILAR)



AT CURB

NEAR ABUTMENT

CROSS SECTION

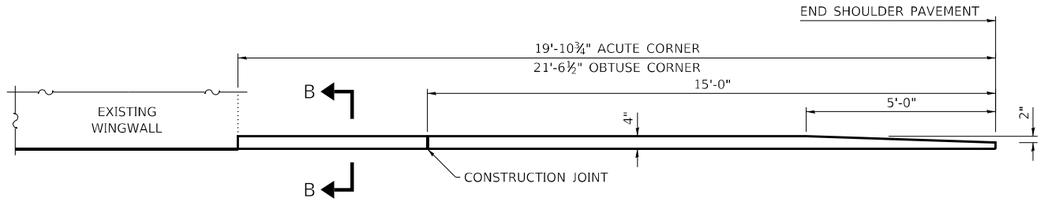
(LOOKING WEST)

MODEL: PLOT
FILE NAME: Y:\IDOT\1363-04_74B41\CADD\HighwayCADD Sheets\D774B41-ahk-cetails01.dgn

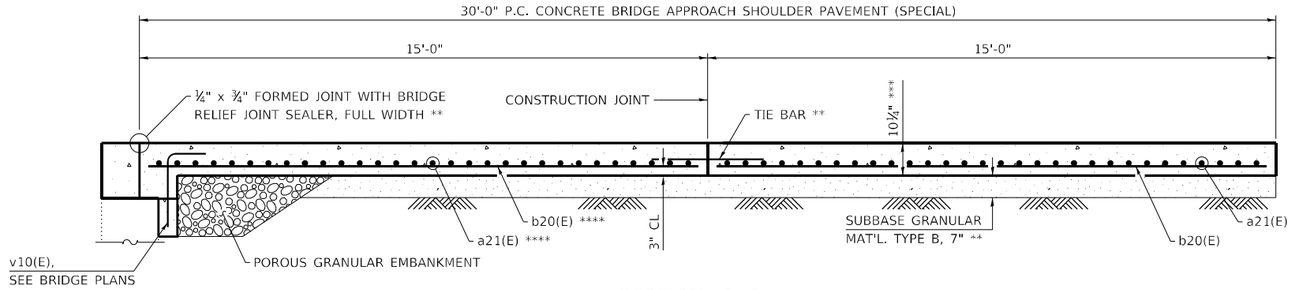
ESCA CONSULTANTS, INC.

USER NAME = nhc	DESIGNED - ELH	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BRIDGE APPROACH SHOULDER PAVEMENT	
ESCA PROJECT NO. 1363.04	DRAWN - NHC	REVISED -			
PLOT SCALE = 0.1667 ' / in.	CHECKED - CTJ	REVISED -		SCALE: NONE	SHEET NO. 1 OF 2 SHEETS STA. TO STA.
PLOT DATE = 8/21/2023	DATE - 02/23	REVISED -			

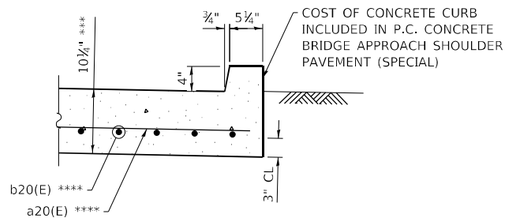
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	28
		CONTRACT NO. 74B41		
		ILLINOIS FED. AID PROJECT		



INSIDE ELEVATION OF CURB



SECTION A–A



SECTION B–B

**COST SHALL BE INCLUDED IN P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL)

***PRIOR TO GRINDING

****FIELD CUT AT WINGWALL

BILL OF MATERIAL

PER APPROACH

BAR	NUMBER		TOTAL	SIZE	LENGTH	SHAPE
	STAGE I	STAGE II				
a20(E)	60	-	60	#5	7'-1"	———
a21(E)	-	60	60	#5	11'-5"	———
b20(E)	26	42	68	#5	14'-8"	———
P.C. CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL)					SQ YD	57
REINFORCEMENT BARS, EPOXY COATED					POUND	2200

MODEL: PLOT
FILE NAME: =:\IDOT\1363-04_74841\CADD\Highway\CADD Sheets\D774841-sht-cotsll602.dgn

ESCA CONSULTANTS, INC.

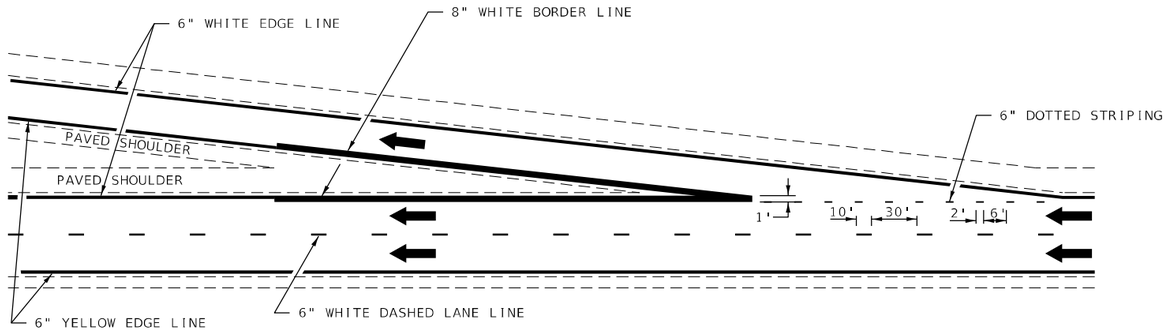
USER NAME = nhc	DESIGNED - ELH	REVISED -	
ESCA PROJECT NO. 1363.04	DRAWN - NHC	REVISED -	
PLOT SCALE = 0.1667 ' / in.	CHECKED - CTJ	REVISED -	
PLOT DATE = 8/21/2023	DATE - 02/23	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

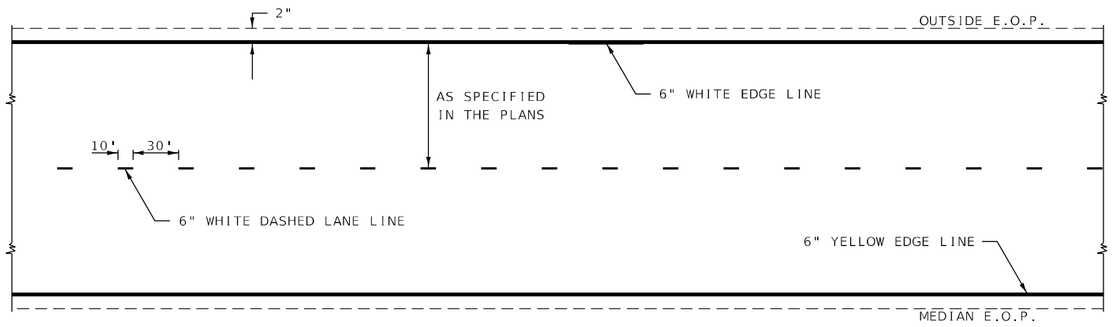
BRIDGE APPROACH SHOULDER PAVEMENT

SCALE: NONE | SHEET NO. 2 OF 2 SHEETS | STA. | TO STA.

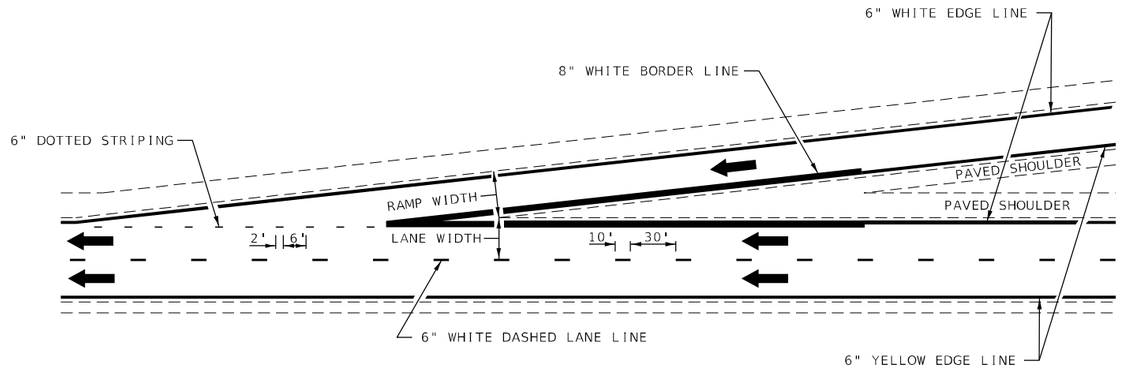
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	29
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			



TYPICAL EXIT RAMP MARKING



TYPICAL CENTERLINE & EDGELINE MARKINGS



TYPICAL ENTRANCE RAMP MARKING

NOT TO SCALE

DISTRICT 7 DETAIL NO. 78000002

USER NAME = Mona.Steffen	DESIGNED -	REVISED -	MKS 04-08
	DRAWN -	REVISED -	DRM 01-09
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	DRM 12-10
PLOT DATE = 8/18/2023	DATE -	REVISED -	MAD 01-20

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL APPLICATIONS OF FREEWAY/EXPRESSWAY PAVEMENT MARKING

SCALE: | SHEET 1 OF 2 SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	30
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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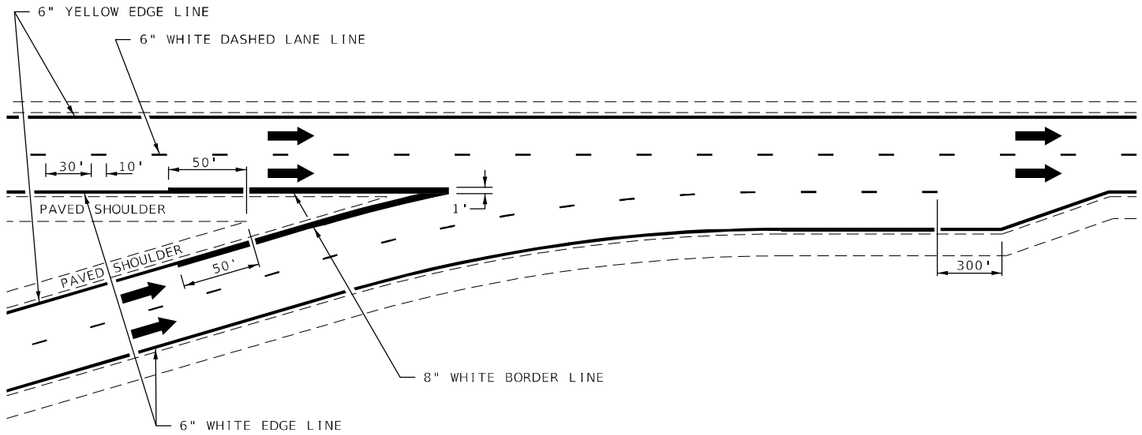
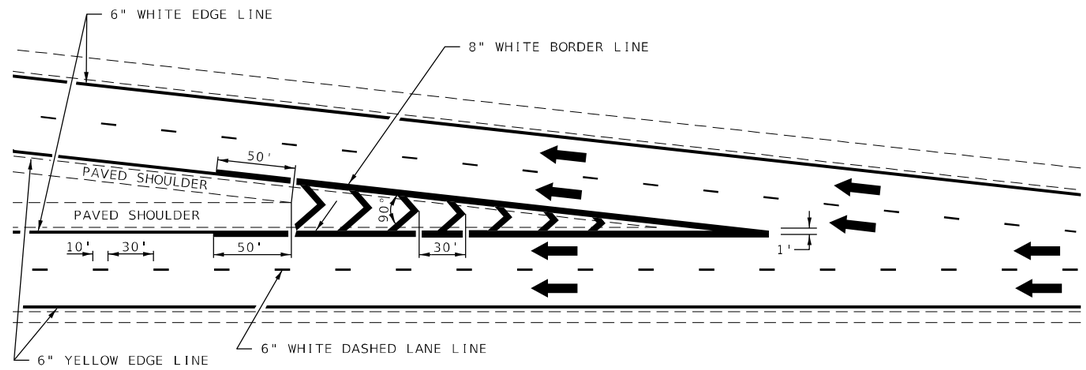
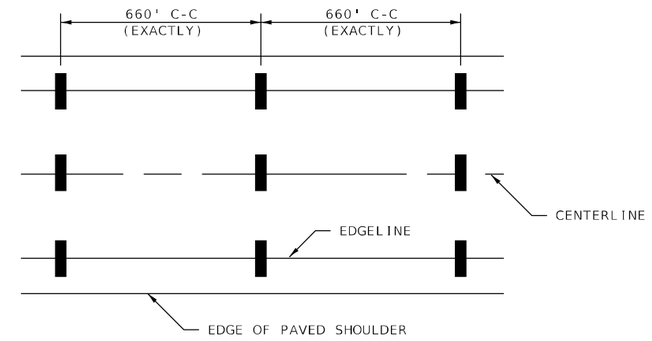


TYPICAL CONVERGENCE MARKING

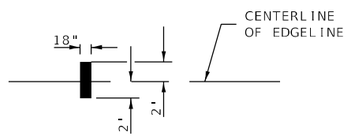


TYPICAL DIVERGENCE MARKING

AERIAL SPEED CHECK ZONES



IT WILL BE NECESSARY TO HAVE A REPRESENTATIVE OF THE STATE POLICE PRESENT SO THAT THE ACCURACY OF MEASUREMENT CAN BE ATTESTED TO IN COURT.



NOT TO SCALE

DISTRICT 7 DETAIL NO. 78000002

USER NAME = Mona.Steffen	DESIGNED -	REVISED -	MMO 12-99
	DRAWN -	REVISED -	DRM 08-04
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	MKS 04-08
PLOT DATE = 8/18/2023	DATE -	REVISED -	DRM 01-09

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL APPLICATIONS OF FREEWAY/EXPRESSWAY PAVEMENT MARKING

SCALE: | SHEET 2 OF 2 SHEETS | STA. | TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	D7 BRIDGE REPAIRS 2024-12	CUMBERLAND	31	31
		CONTRACT NO. 74B41		
	ILLINOIS FED. AID PROJECT			

MODEL: Default
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