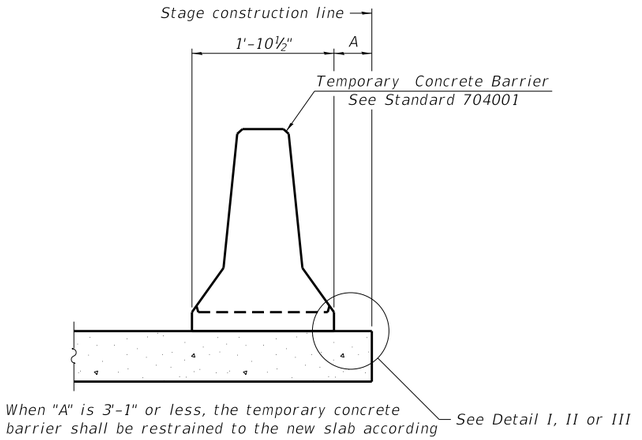
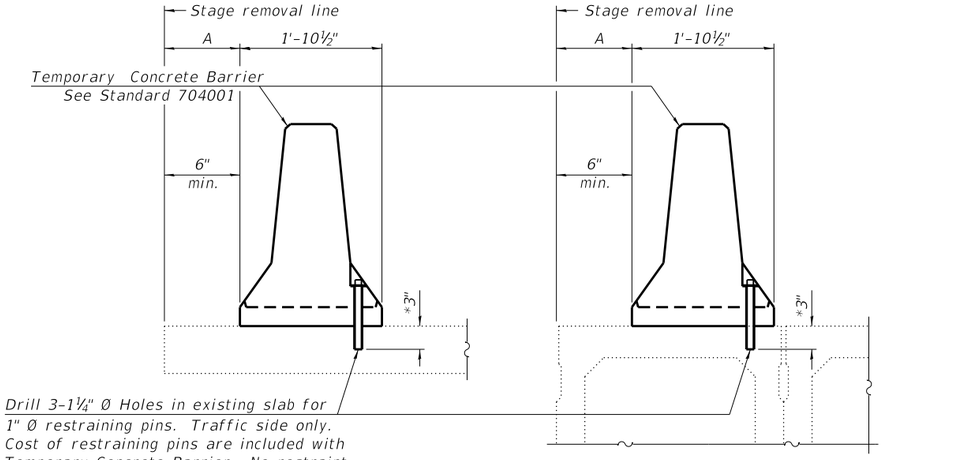


When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



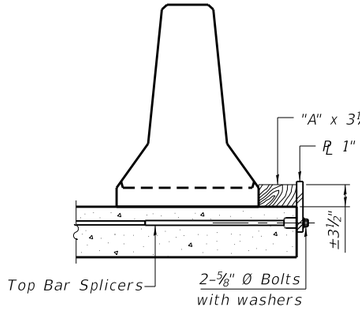
Drill 3-1¼" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

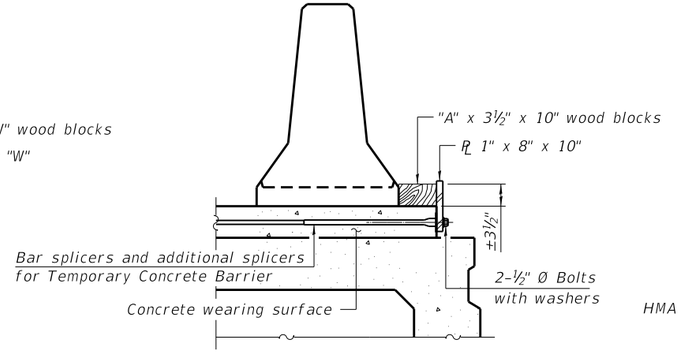
*When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

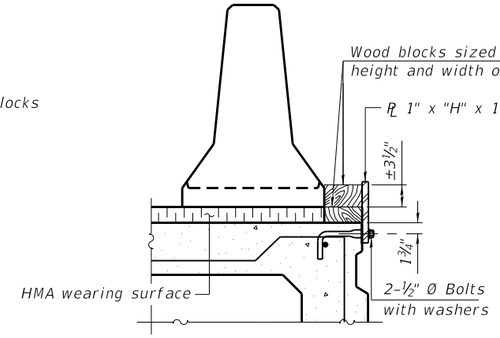
SECTIONS THRU SLAB OR DECK BEAM



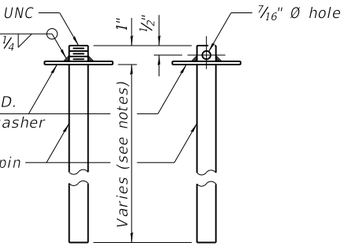
DETAIL I



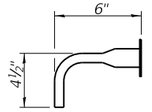
DETAIL II



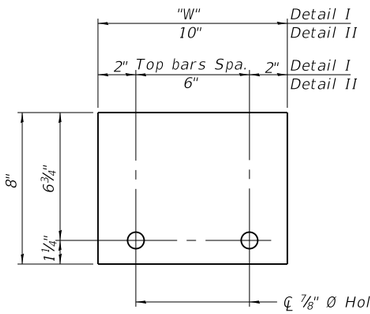
DETAIL III



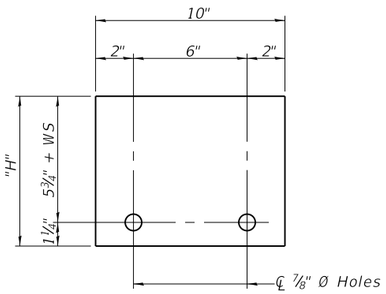
RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER ℄ 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER ℄ 1" x "H" x 10"
(Detail III)

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

5-15-2023

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.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0158
SHEET S02-05 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	501
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

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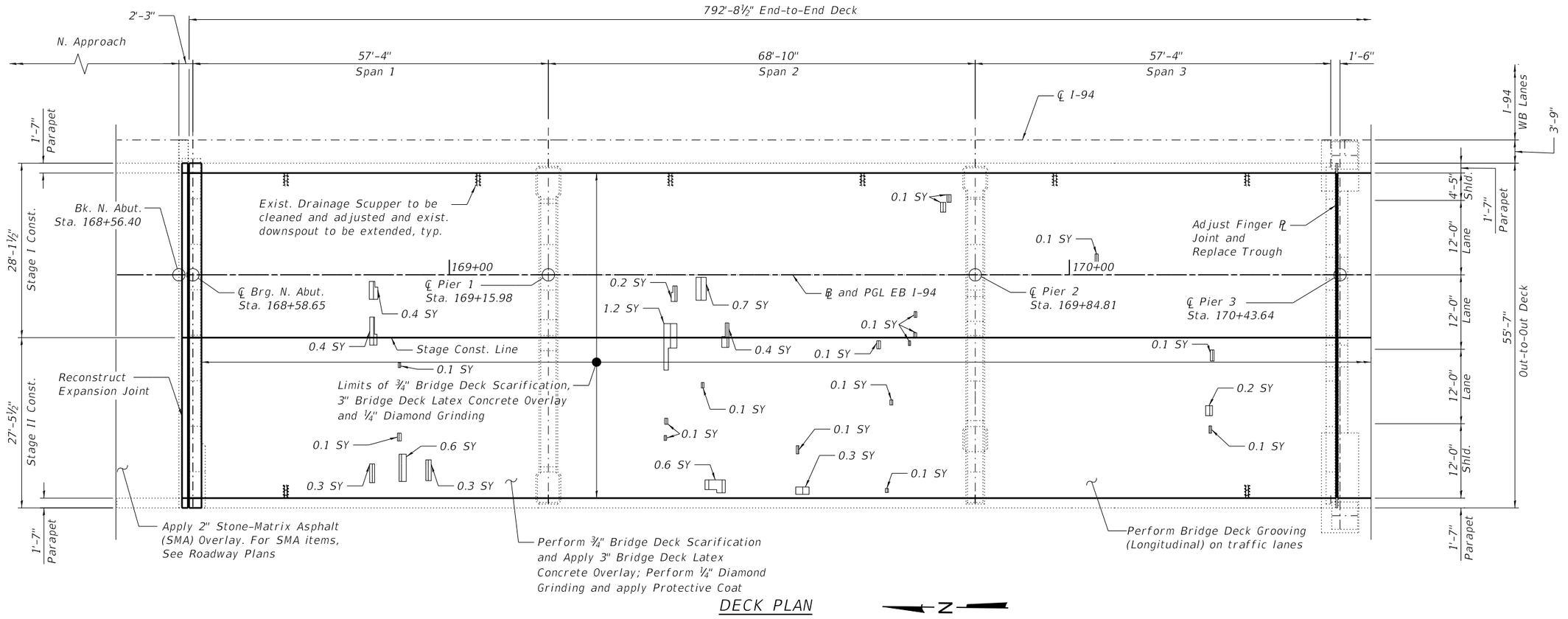
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	1,319
Bridge Deck Grooving (Longitudinal)	Sq Yd	743
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1,054
Bridge Deck Scarification 3/4"	Sq Yd	1,054
Diamond Grinding (Bridge Section)	Sq Yd	995



DECK PLAN

N

NOTES:

1. Areas of deck repair shown are estimated. The Engineer shall show actual locations of deck repairs at the time of construction.
2. For bridge deck final cross section, see Sheet S02-04.
3. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatch block.
4. For North Abutment expansion joint removal and reconstruction, see Sheets S02-11 thru S02-13.
5. For Pier 3 finger plate joint adjustment and trough replacement details, see Sheets S02-14 and S02-15.
6. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.

LEGEND

*Deck Slab Repair (Partial Depth)

SY Square Yard

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN (SHEET 1 OF 4)
STRUCTURE NO. 016-0158
SHEET S02-06 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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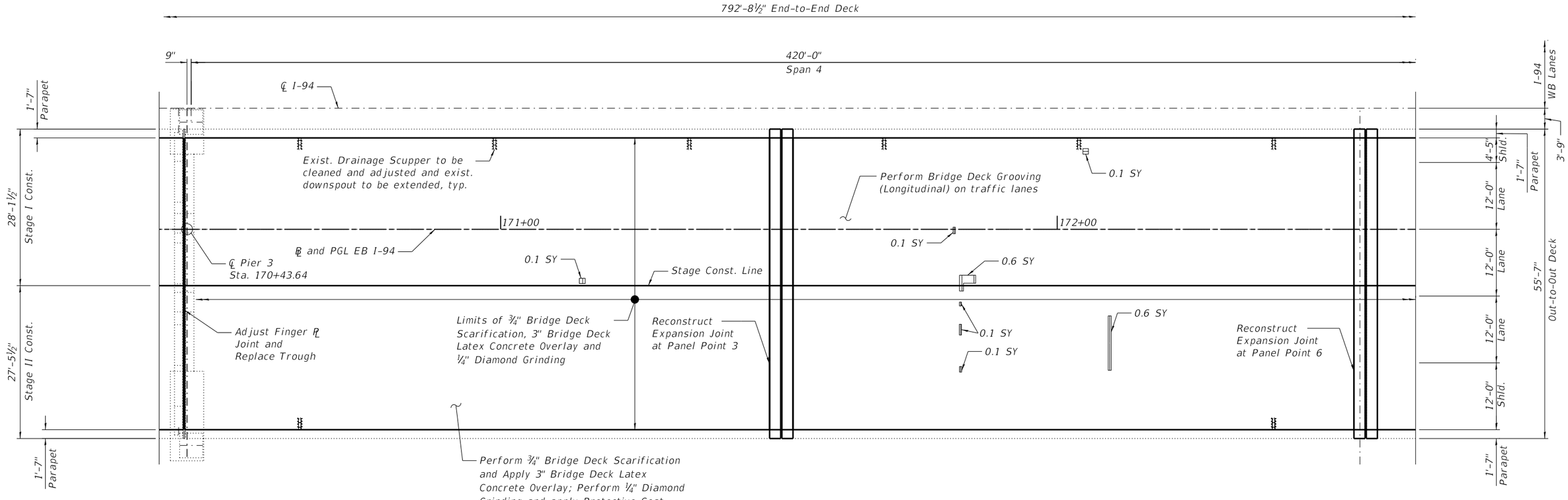
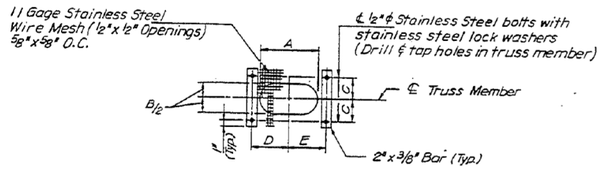
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



DECK PLAN



BIRD SCREEN DATA					
HANDHOLE TYPE	HANDHOLE SIZE A	HANDHOLE SIZE B	C	D	E
A	16"	8"	5"	9 1/16"	9 1/16"
B	11"	5½"	2½"	5⅛"	5 3/16"
C	12"	6"	4 1/16"	6⅛"	6⅛"
D	6"	6"	4 1/16"	4 1/16"	4 1/16"

BIRD SCREEN DETAIL

NOTES:

1. For expansion joint removal and reconstruction at truss Panel Point 3, see Sheets S02-16 and S02-17.
2. For expansion joint removal and reconstruction at truss Panel Point 6, see Sheets S02-18 and S02-19.
3. For Bill of Material, see Sheet S02-08.
4. For additional notes, see Sheet S02-06.
5. Any missing or damaged bird screens shall be replaced in accordance with the Bird Screen Detail. Cost included with Protective Shield.

LEGEND

*Deck Slab Repair (Partial Depth)

Deck Slab Repair (Full Depth, Type I)

SY Square Yard

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

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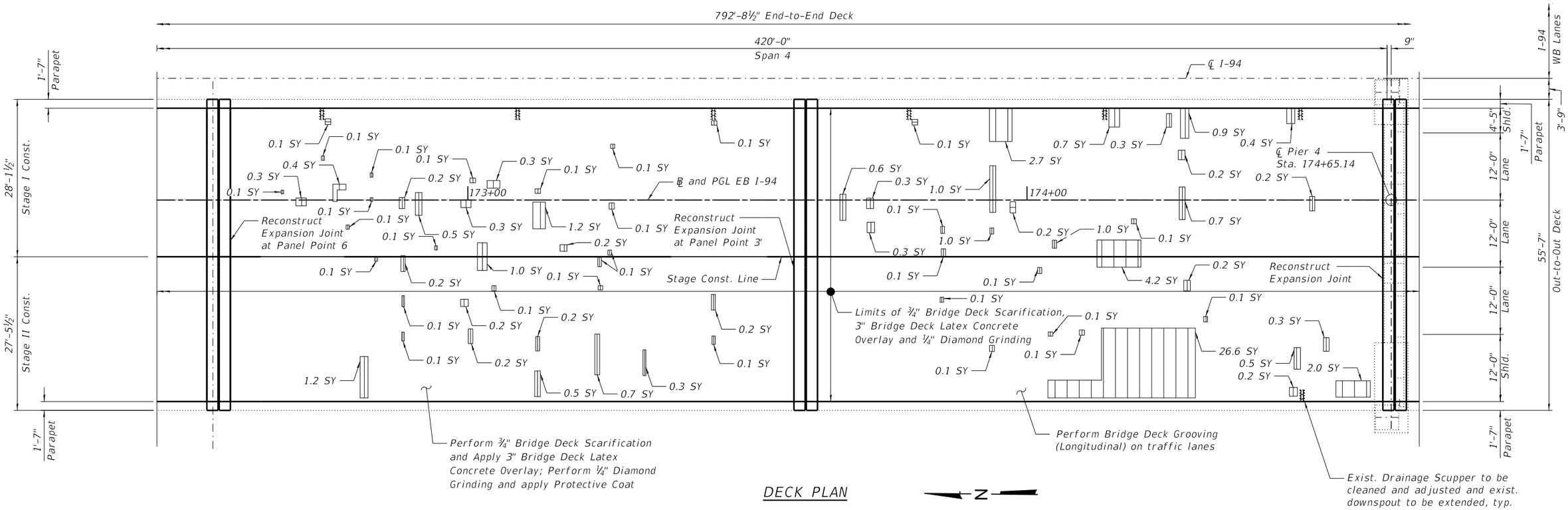
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	503
		CONTRACT NO. 62W87		
		ILLINOIS FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Shield	Sq Yd	2,594
Protective Coat	Sq Yd	2,746
Bridge Deck Grooving (Longitudinal)	Sq Yd	1,686
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,364
Bridge Deck Scarification 3/4"	Sq Yd	2,364
Deck Slab Repair (Full Depth, Type I)	Sq Yd	0.5
Diamond Grinding (Bridge Section)	Sq Yd	2,273



DECK PLAN

N

LEGEND

*Deck Slab Repair (Partial Depth)

Deck Slab Repair (Full Depth, Type I)

SY Square Yard

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

NOTES:

1. For expansion joint removal and reconstruction at truss Panel Point 6, see Sheets S02-18 and S02-19.
2. For expansion joint removal and reconstruction at truss Panel Point 3', see Sheets S02-20 and S02-21.
3. For expansion joint removal and reconstruction at Pier 4, see Sheets S02-22 and S02-23.
4. For additional notes, see Sheet S02-06.

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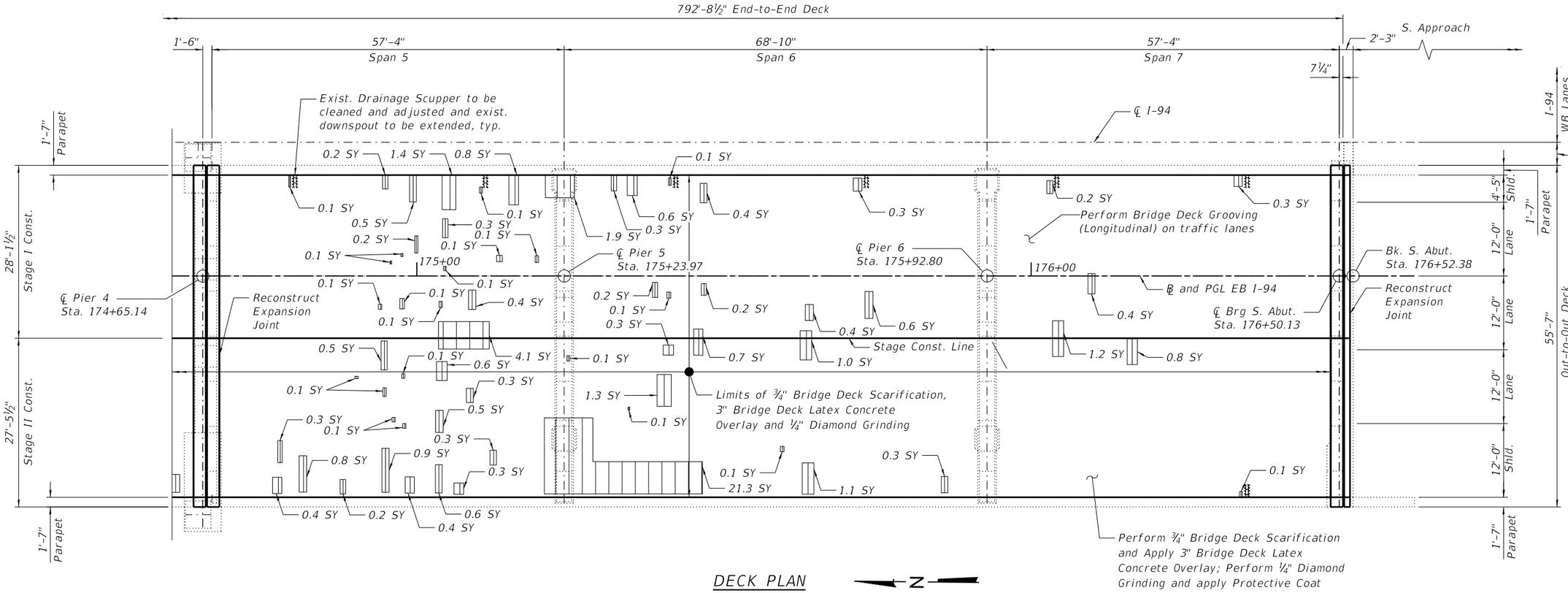
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN (SHEET 3 OF 4)
STRUCTURE NO. 016-0158
SHEET S02-08 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	504
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	1,319
Bridge Deck Grooving (Longitudinal)	Sq Yd	743
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1,054
Bridge Deck Scarification 3/4"	Sq Yd	1,054
Diamond Grinding (Bridge Section)	Sq Yd	995



DECK PLAN

NOTES:

1. For expansion joint removal and reconstruction at Pier 4, see Sheets S02-22 and S02-23.
2. For South Abutment expansion joint removal and reconstruction, see Sheets S02-24 thru S02-26.
3. For additional notes, see Sheet S02-06.

LEGEND

*Deck Slab Repair (Partial Depth)

SY Square Yard

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN (SHEET 4 OF 4)
STRUCTURE NO. 016-0158
SHEET S02-09 OF S02-36 SHEETS

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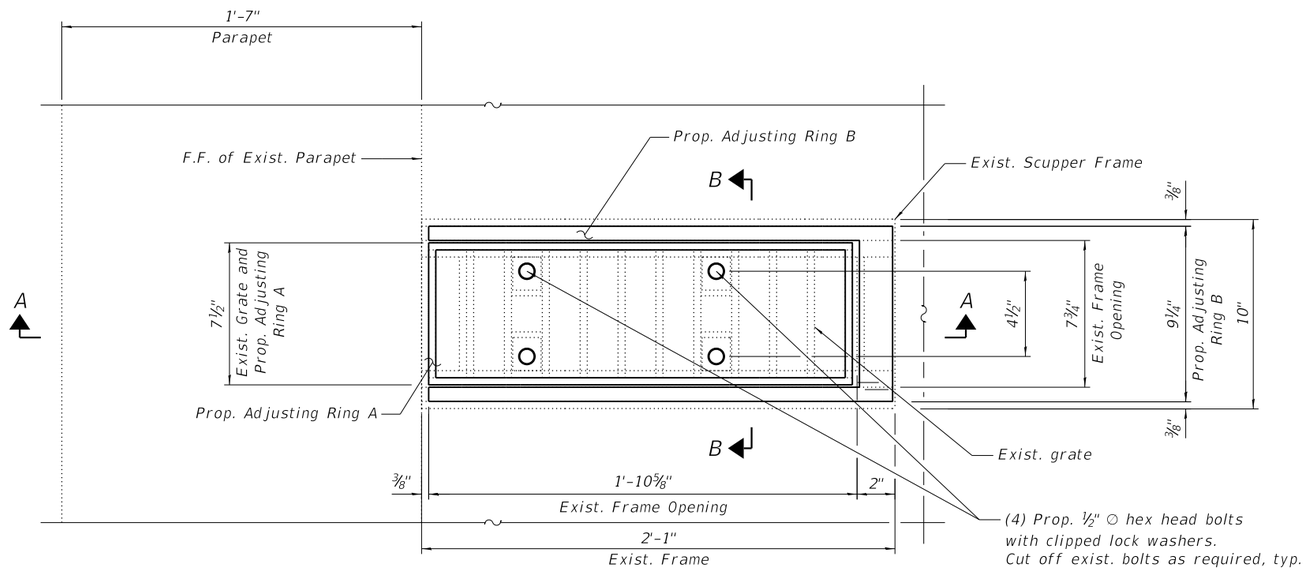
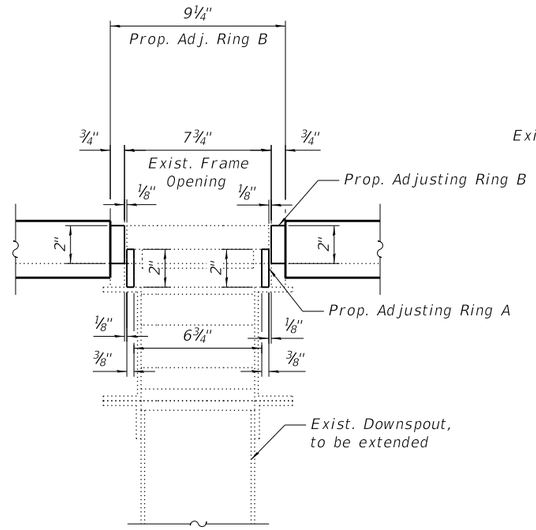
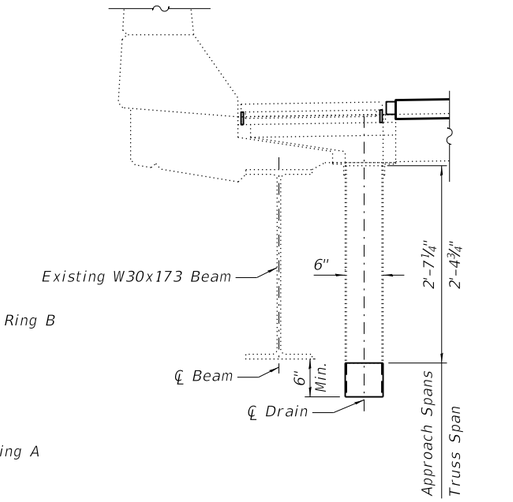
		ILLINOIS	FED. AID PROJECT	



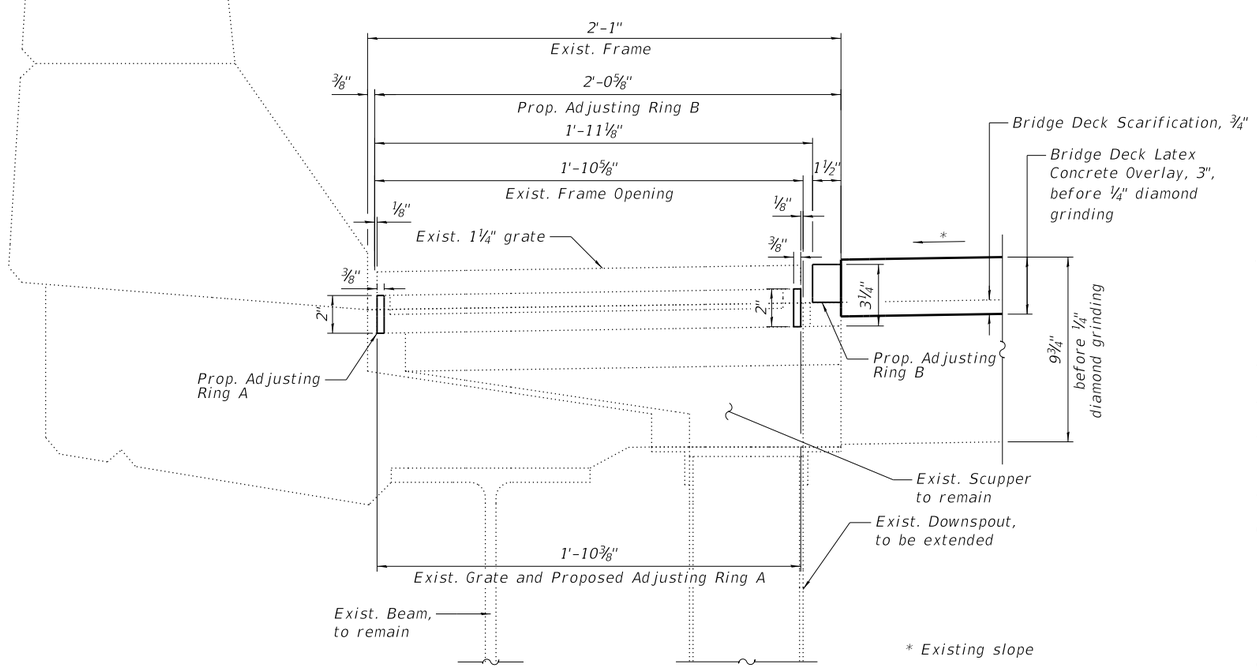
TYPICAL SCUPPER PLAN



SECTION B-B



DRAIN EXTENSION DETAIL



SECTION A-A

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	28
Drainage Scuppers To Be Adjusted	Each	28

NOTES:

1. The Contractor shall field-verify Existing Dimensions and Details of the Existing Scuppers, grates and downspouts, and make necessary approved adjustments, prior to construction or ordering of material for Drainage Scuppers to be Adjusted and downspout extensions.
2. All Cast Iron Parts shall be Grey Iron conforming to the requirements of AASHTO M 105, Class 30.
3. Cast Iron Parts shall be unfinished.
4. Bolts, washers and nuts shall conform to the requirements of ASTM A307 and be galvanized according to the requirements of AASHTO M232.
5. The Contractor shall take appropriate measures to ensure that Protective Coat is not applied to the scuppers.
6. Adjusting Rings shall be from Neenah or approved equal. Structural steel weldments or equal sections and of the same configuration may be submitted in place of Cast Iron. Fillet or full penetration welds may be used for weldments. Details shall be submitted to the Engineer for approval.
7. Provide ⅛" Fillet Weld around perimeter of new Adjusting Rings to secure to existing Scupper. Electrode shall be compatible with cast iron if existing scupper elements are cast iron construction.
8. Cost of all labor and materials necessary to clean all existing floor drains and scuppers, fabricate and install adjusting scupper rings, remove and reinstall grates is included in the cost of Drainage Scuppers to be Adjusted

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER ADJUSTMENT DETAILS
STRUCTURE NO. 016-0158
SHEET S02-10 OF S02-36 SHEETS

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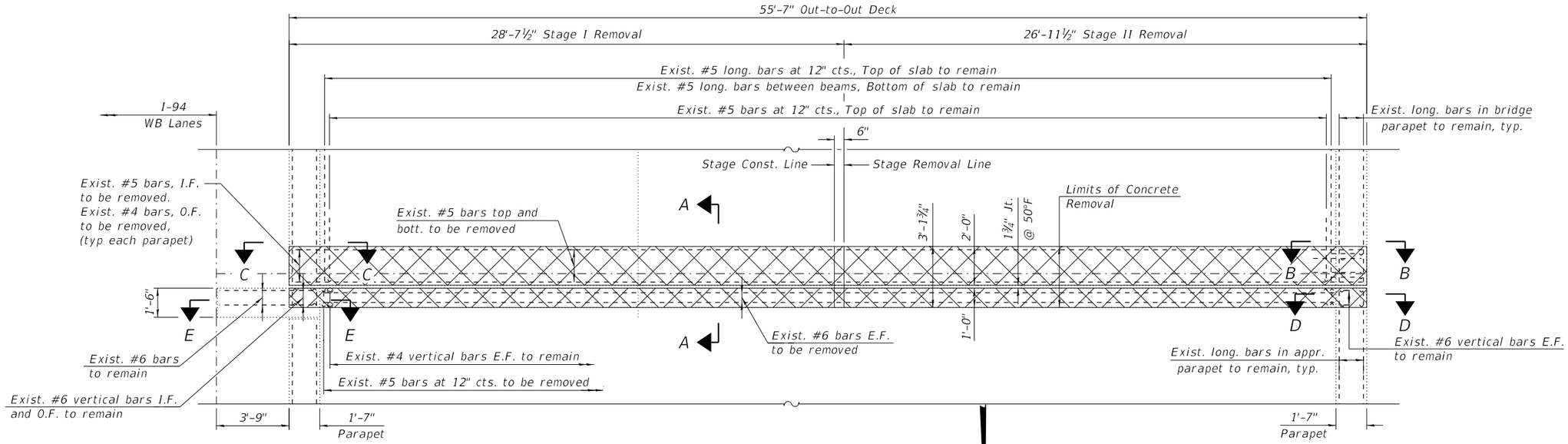
	ILLINOIS	FED. AID PROJECT		



*Cut in field to fit

NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S02-12.
5. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, additional Notes and Bill of Material, see Sheet S02-13.
6. For preformed joint strip seal details, see Sheet S02-27.
7. For bar splicer assembly details, see Sheet S02-36.
8. Removal and disposal of existing expansion joint shall be included with Concrete Removal.
9. Epoxy grout v200(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0158
SHEET S02-11 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62W87		
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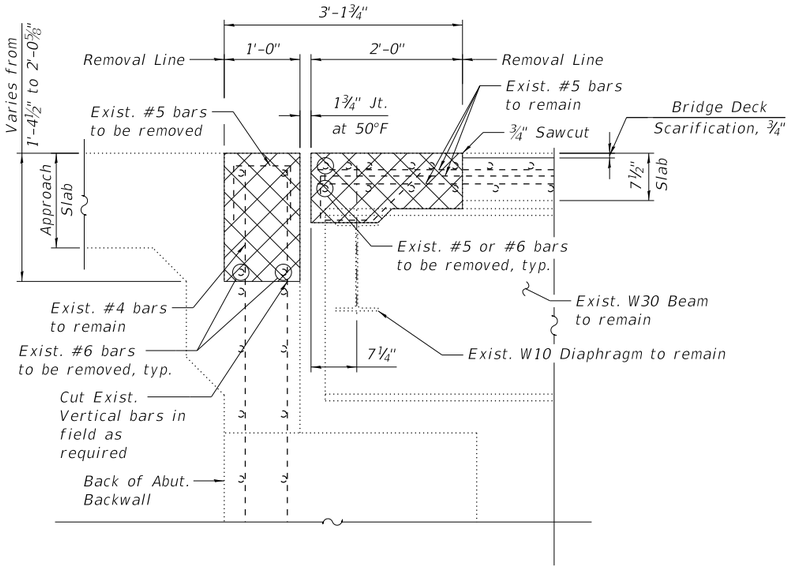
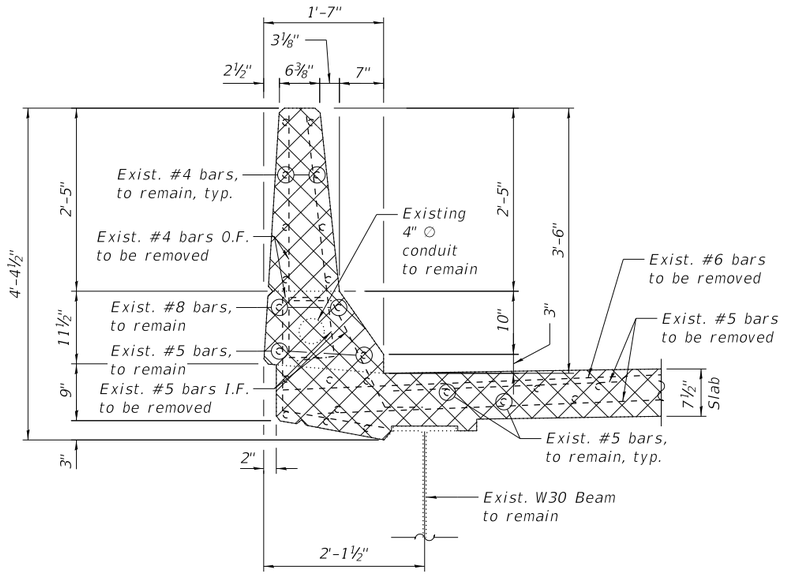


SECTION A-A



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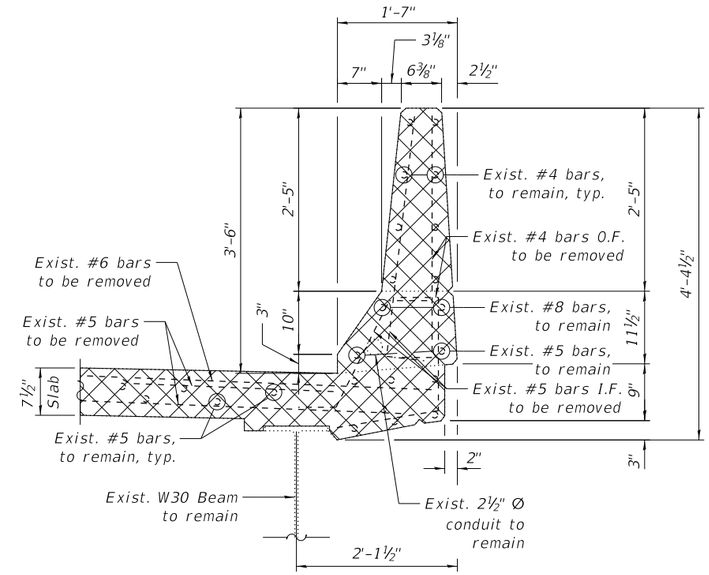

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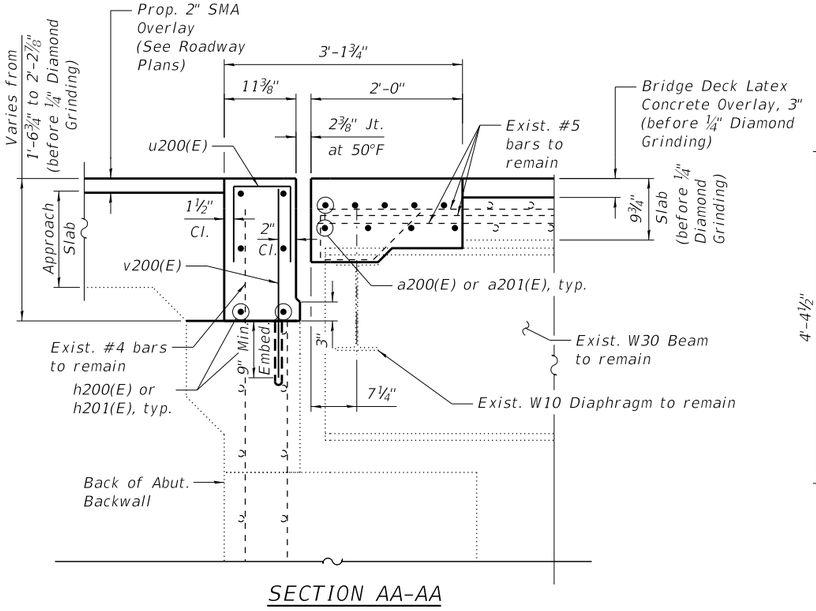

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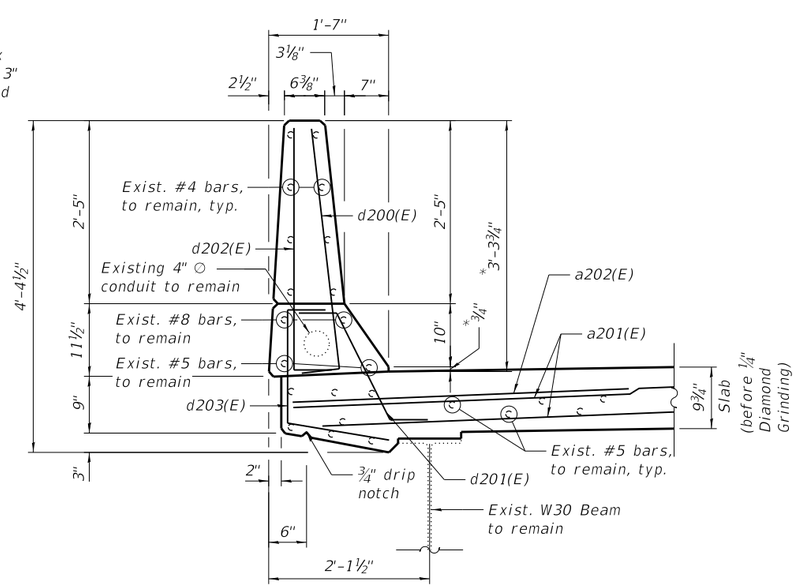
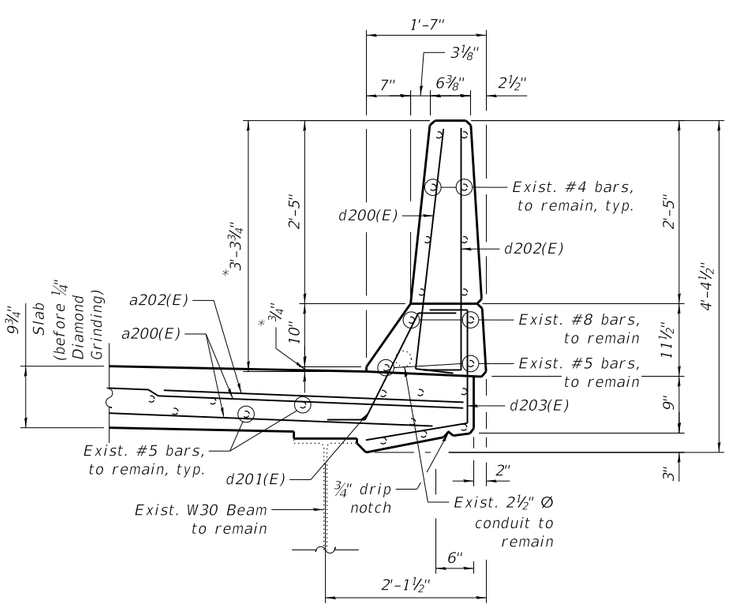


SECTION BB-BB



SECTION CC-CC

*Before ¼" Diamond Grinding

NOTES:

1. For legend and additional notes, see Sheet S02-11.
2. For Bar Diagrams and Bill of Material, see Sheet S02-13.
3. It shall be the Contractor's responsibility to provide adequate temporary support for existing conduits during joint reconstruction. Cost included with Concrete Superstructure.

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HBM ENGINEERING GROUP, LLC

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0158
SHEET S02-12 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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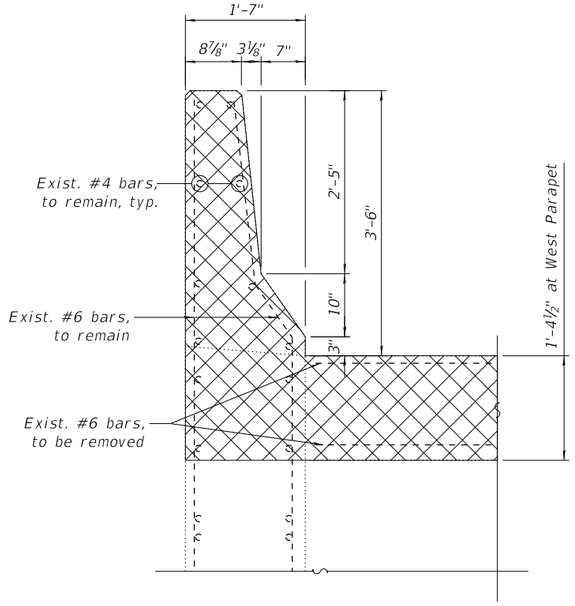
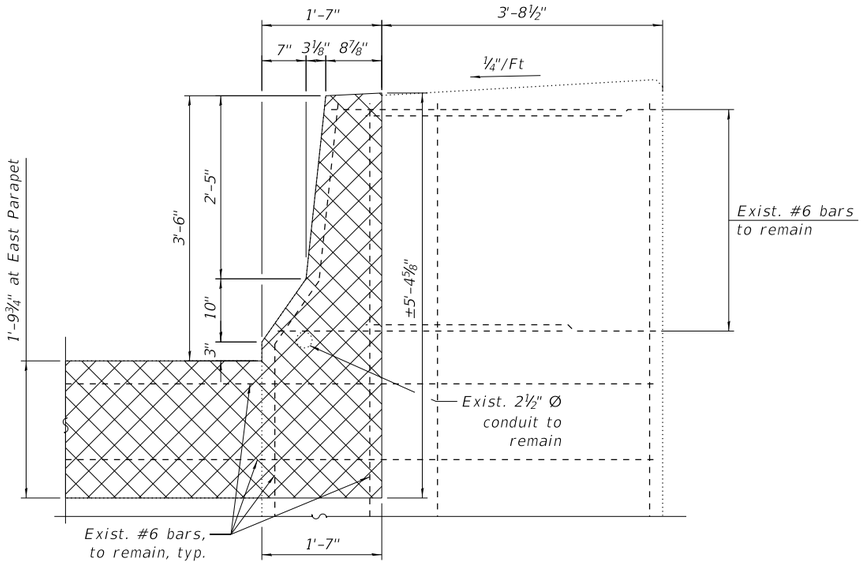
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



SECTION D-D

(Reinforcement in abutment hatch block is not shown for clarity)

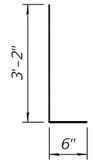


SECTION E-E

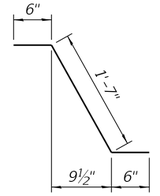
(Reinforcement in abutment hatch block is not shown for clarity)

BILL OF MATERIAL

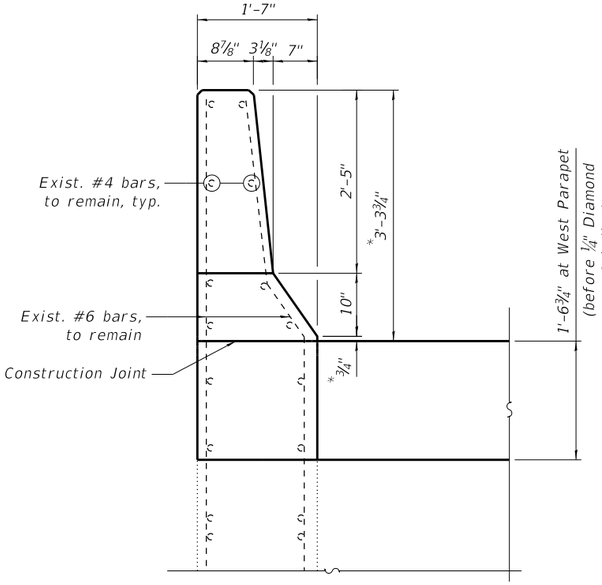
Bar	No.	Size	Length	Shape
a200(E)	9	#5	27'-10"	
a201(E)	9	#5	27'-1"	
a202(E)	6	#6	6'-0"	
d200(E)	6	#5	3'-8"	L
d201(E)	6	#5	2'-7"	
d202(E)	6	#4	3'-8"	L
d203(E)	6	#4	3'-5"	
h200(E)	6	#6	26'-3"	
h201(E)	6	#6	25'-9"	
u200(E)	54	#5	3'-0"	
v200(E)	54	#5	2'-1"	
Concrete Removal			Cu Yd	8.0
Concrete Superstructure			Cu Yd	9.0
Protective Coat			Sq Yd	20
Reinforcement Bars, Epoxy Coated			Pound	1,400



BAR d200(E) & d202(E)

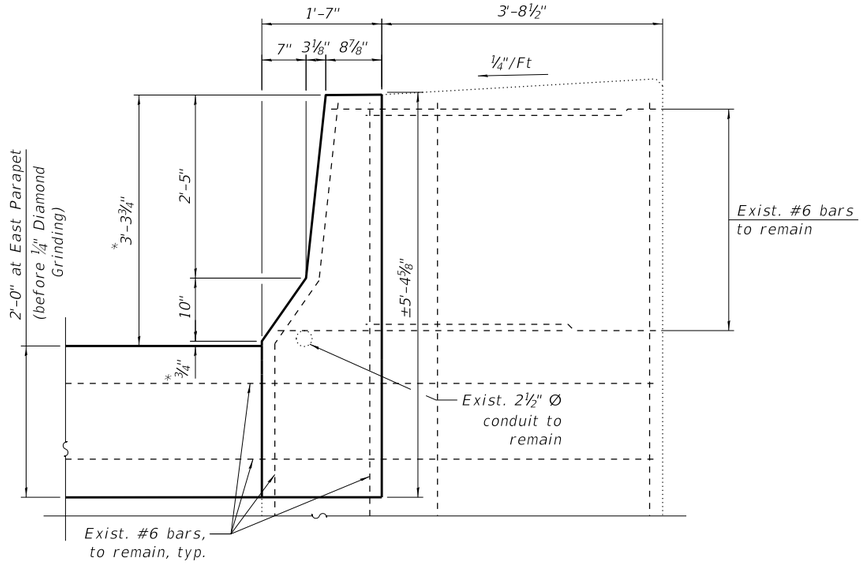


BAR d201(E)



SECTION DD-DD

(Reinforcement in abutment hatch block is not shown for clarity)



SECTION EE-EE

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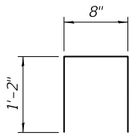
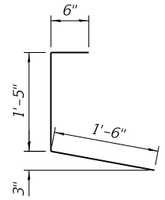


Bar u200(E)



BAR d203(E)

*Before ¼" Diamond Grinding

NOTE:

1. For legend and additional notes, see Sheet S02-11.

HBM ENGINEERING GROUP, LLC

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		DRAWN - LAB		REVISED -	
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PLOT DATE = 12/6/2024		DATE - 12/9/2024		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0158
SHEET S02-13 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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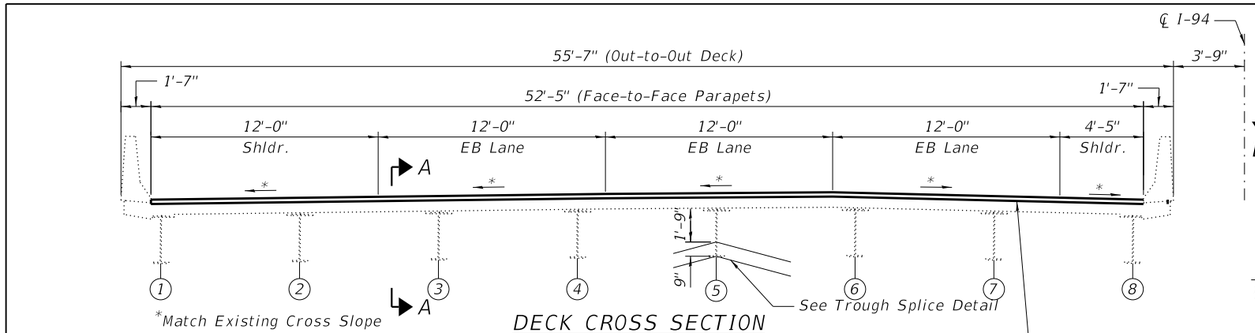
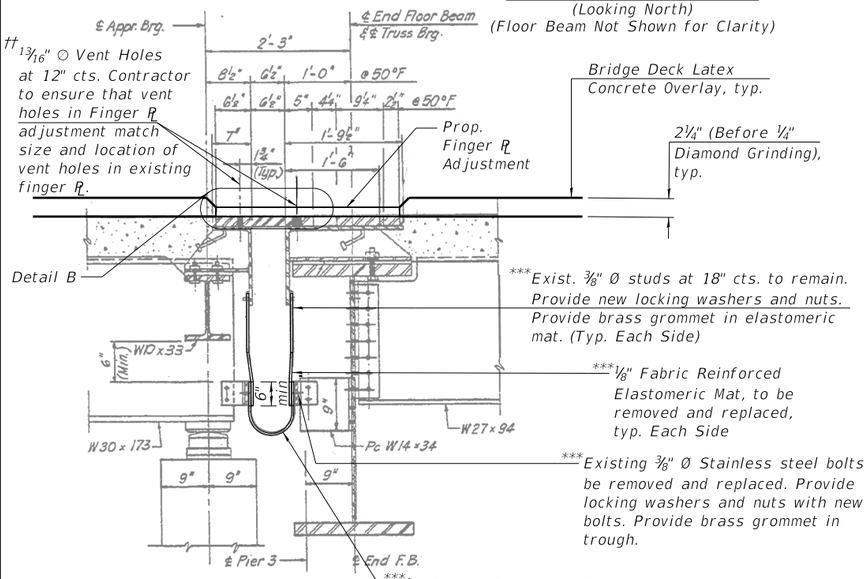
		CONTRACT NO.		62W87
	ILLINOIS	FED. AID PROJECT		



DECK CROSS SECTION

(Looking North)
(Floor Beam Not Shown for Clarity)



†† 13/16" ∅ Vent Holes at 12" cts. Contractor to ensure that vent holes in Finger ℄ adjustment match size and location of vent holes in existing finger ℄.

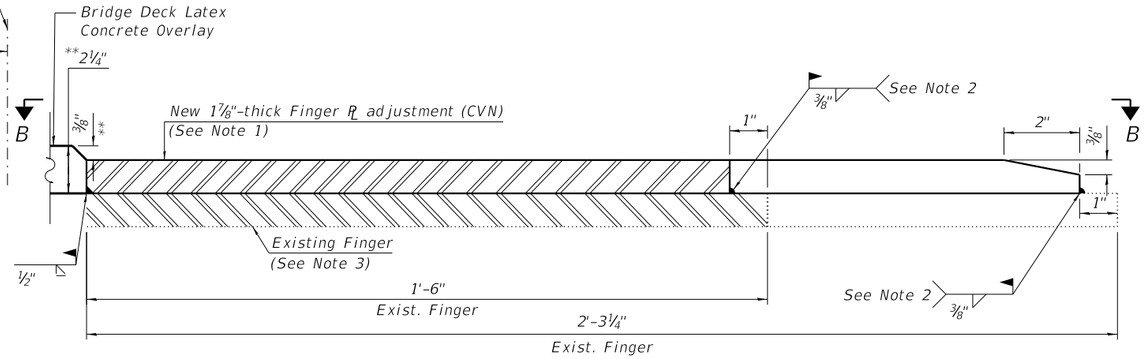
*** Exist. ⅜" Ø studs at 18" cts. to remain. Provide new locking washers and nuts. Provide brass grommet in elastomeric mat. (Typ. Each Side)

***⅛" Fabric Reinforced Elastomeric Mat, to be removed and replaced, typ. Each Side

***Existing ⅜" Ø Stainless steel bolts to be removed and replaced. Provide locking washers and nuts with new bolts. Provide brass grommet in trough.

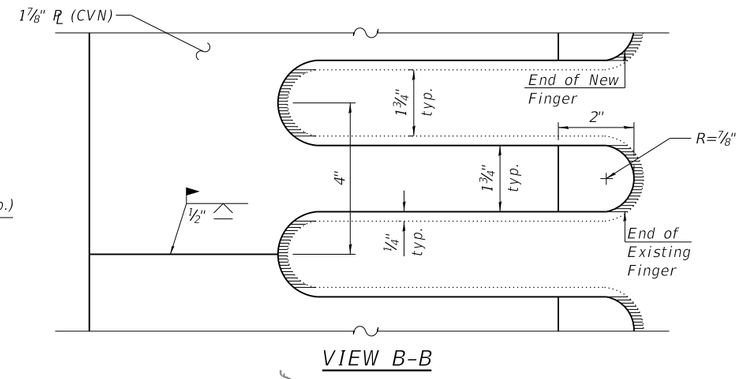
***⅛" Fabric Reinforced Elastomeric Trough to be removed and replaced

SECTION A-A



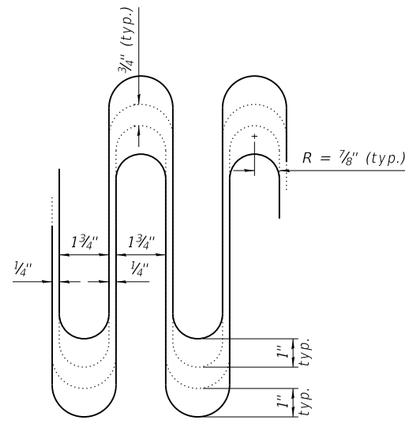
DETAIL B

(Only one side of finger ℄ adjustment shown for clarity, remaining side similar but opposite hand)



**Before ¼" Diamond Grinding
***Included in the cost of Fabric Reinforced Elastomeric Trough

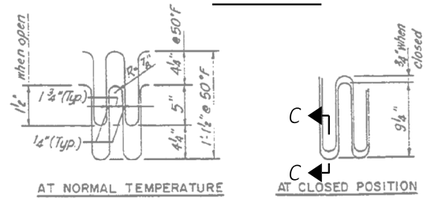
VIEW B-B



DETAIL A

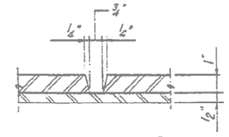
†Contractor shall coordinate construction joint locations with Fabricator and proposed Maintenance of Traffic/Stage Constr. joints

††Provide slotted 13/16" ∅ Vent holes in ℄ Match existing locations to allow for expansion and contraction.



EXIST. FINGER DETAILS

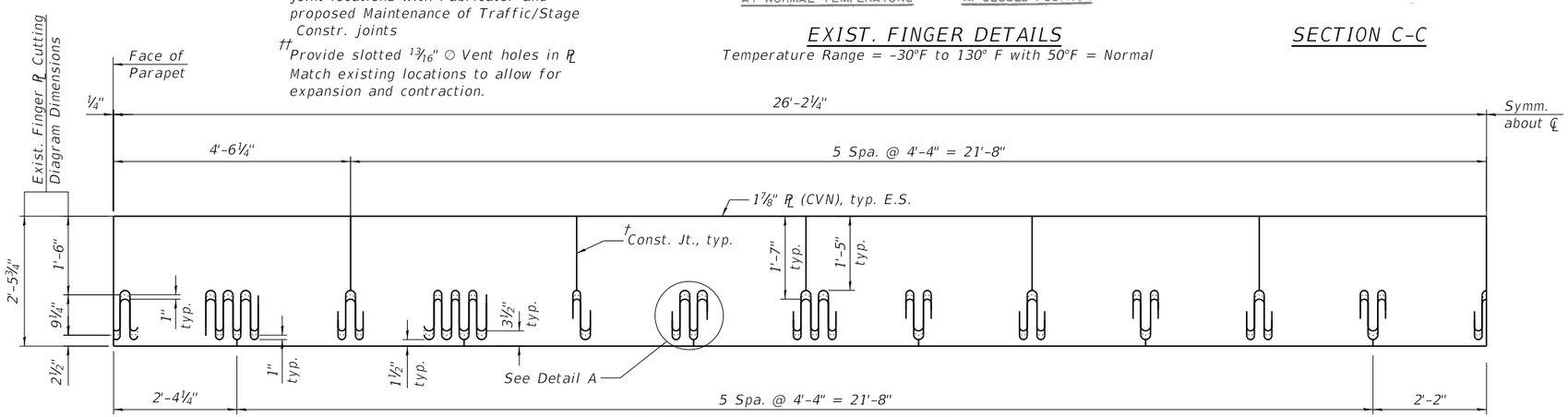
Temperature Range = -30°F to 130° F with 50°F = Normal



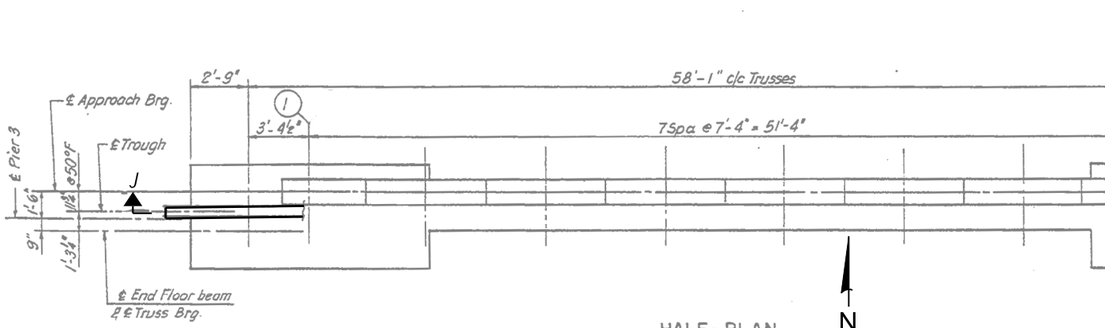
SECTION C-C

NOTES:

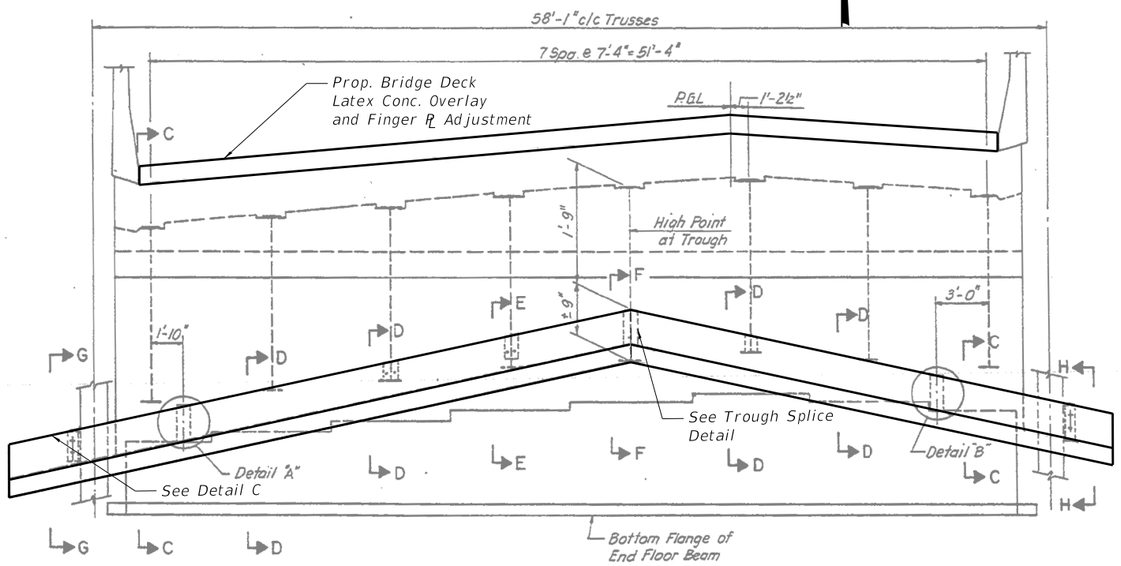
1. New Finger shall be blast cleaned to SSPC SP 10 and shop painted with the inorganic zinc rich primer.
2. Fillet weld sizes at ends (tips) and crotches of fingers shall vary from ⅜" near centers to 3/16" minimum near edges as new and existing plates converge.
3. Existing Finger widths and exact locations must be field-verified. A template shall be made to ensure alignment. Remove foreign material that would prevent uniform contact between new and existing plates by method approved by the Engineer.
4. All steel for the finger plate joint adjustment shall conform to AASHTO M270 Grade 50 (CVN).
5. "CVN" denotes Charpy V-Notch Impact Energy Requirements, Zone 2.
6. All steel components of the finger plate adjustment, including hardware assembled with the trough system, shall be galvanized after fabrication according to Section 520.03 of the Standard Specifications, unless noted otherwise.
7. For Fabric Reinforced Elastomeric Trough sections, details and Bill of Material, see Sheet S02-15.

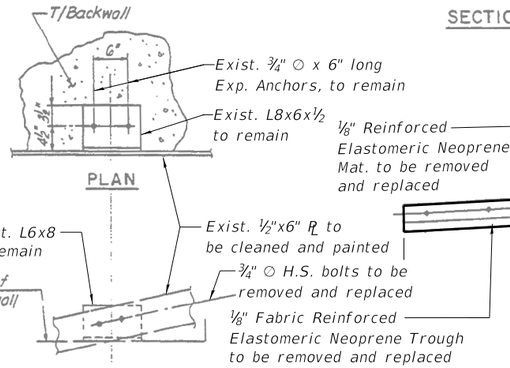


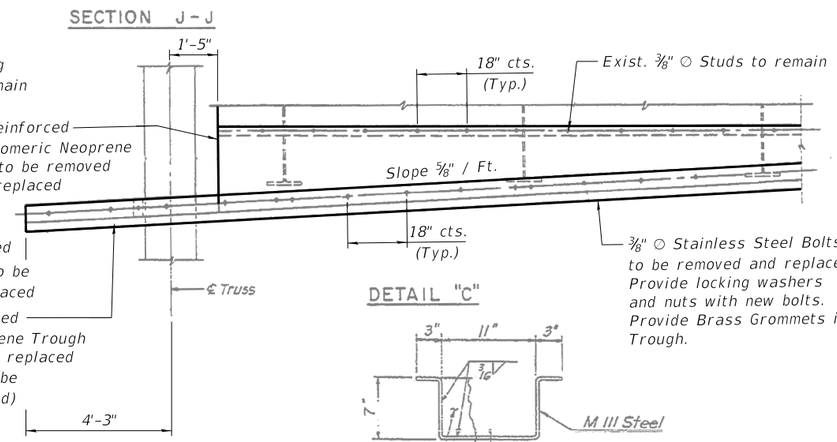
FINGER PLATE CUTTING DIAGRAM

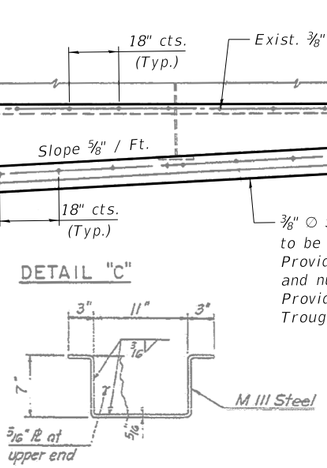


HALF-PLAN
PIER 3



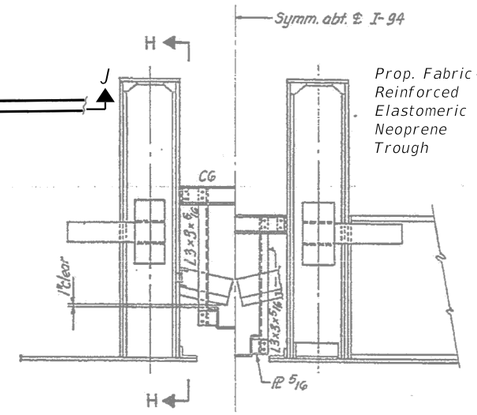


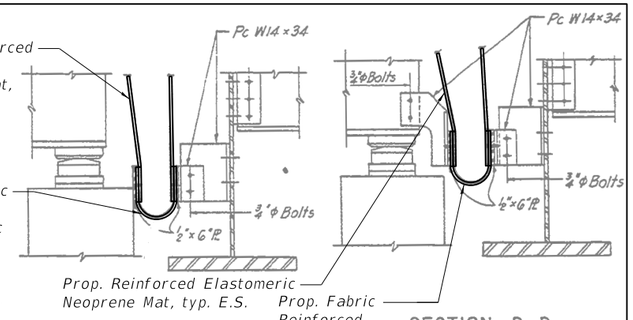


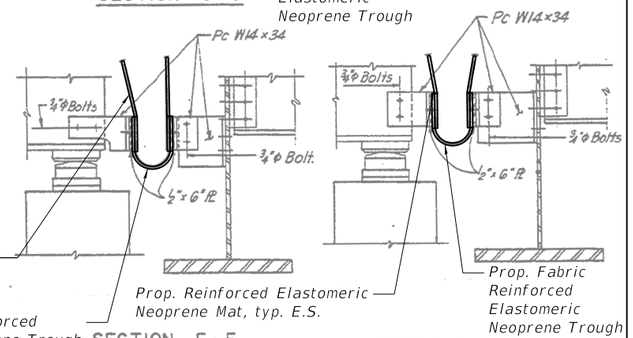


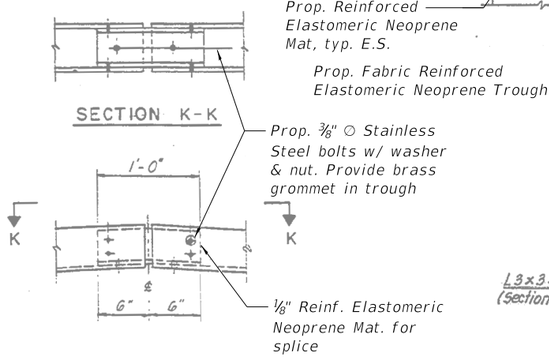
BILL OF MATERIAL

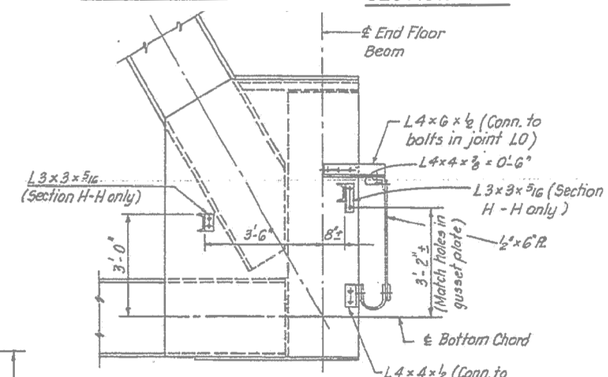
ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	10,120
Fabric Reinforced Elastomeric Trough	Foot	56



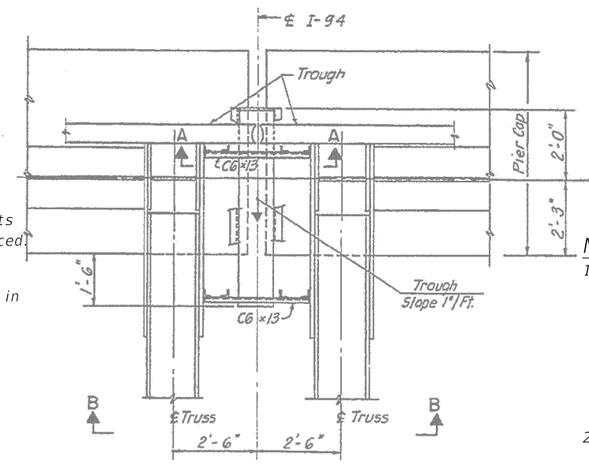








TROUGH SPLICE DETAIL



NOTES:

1. The Contractor shall replace the Fabric Reinforced Elastomeric Trough and associated hardware according to Section 520 of the Standard Specifications, unless otherwise specified on this sheet. Removal and replacement of the elastomeric trough, elastomeric mat and all associated hardware, as well as removal of existing debris within the trough, shall be included in the cost of "Fabric Reinforced Elastomeric Trough."
2. For additional notes, see Sheet S02-14.
3. Sections A-A thru H-H provided for information only.
4. Re-use existing holes in existing steel members to remain.

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HBM ENGINEERING GROUP, LLC

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	DRAWN - AWD	REVISED -			
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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		SHEET S02-15 OF S02-36 SHEETS	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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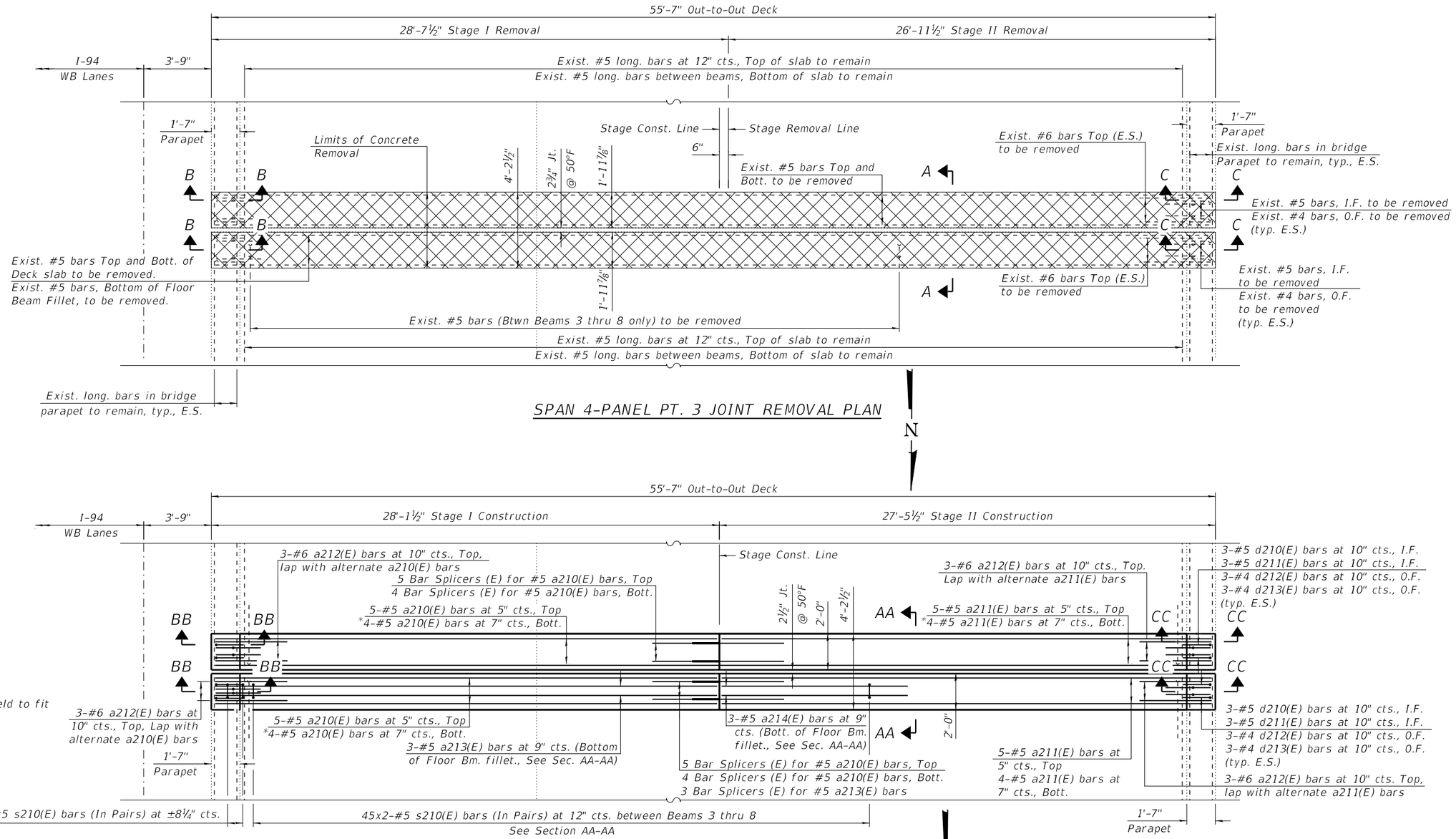
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



SPAN 4-PANEL PT. 3 JOINT REMOVAL PLAN

SPAN 4-PANEL PT. 3 JOINT RECONSTRUCTION PLAN

NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB, and CC-CC, Bar Diagrams and Bill of Material, see Sheet S02-17.
5. For preformed joint strip seal details, see Sheet S02-27.
6. For bar splicer assembly details, see Sheet S02-36.
7. Removal and disposal of existing expansion joint shall be included with Concrete Removal.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face
E.S.	Each Side
E.E.	Each End

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PLOT DATE = 12/6/2024		DATE - 12/9/2024		REVISED -			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPAN 4 PANEL PT. 3 JT. REM. & REPL. (SHT. 1 OF 2)
STRUCTURE NO. 016-0158
SHEET S02-16 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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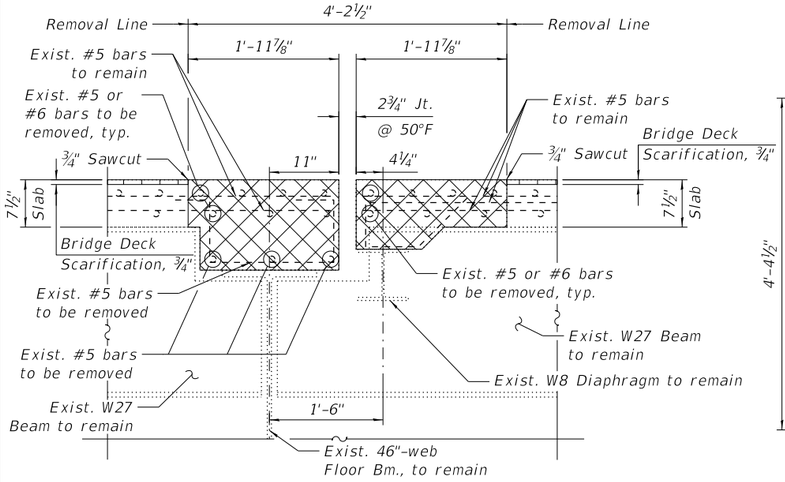
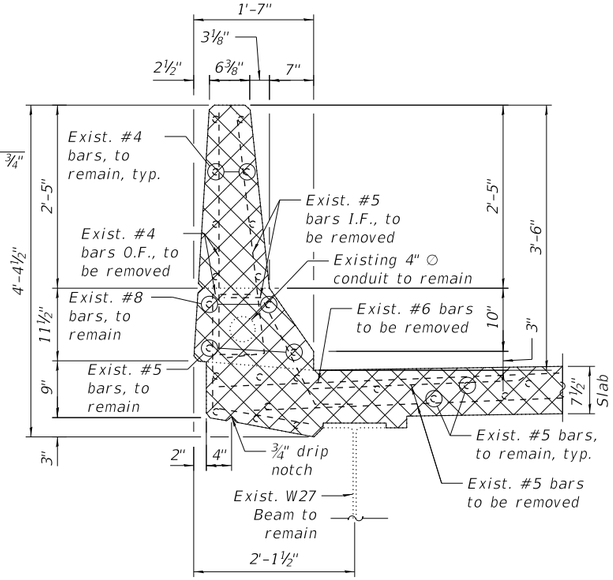
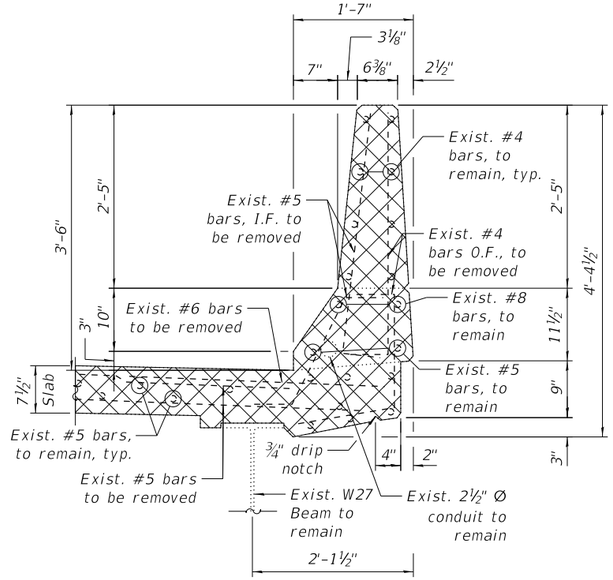
		CONTRACT NO. 62W87		
		ILLINOIS FED. AID PROJECT		



SECTION A-A



SECTION B-B

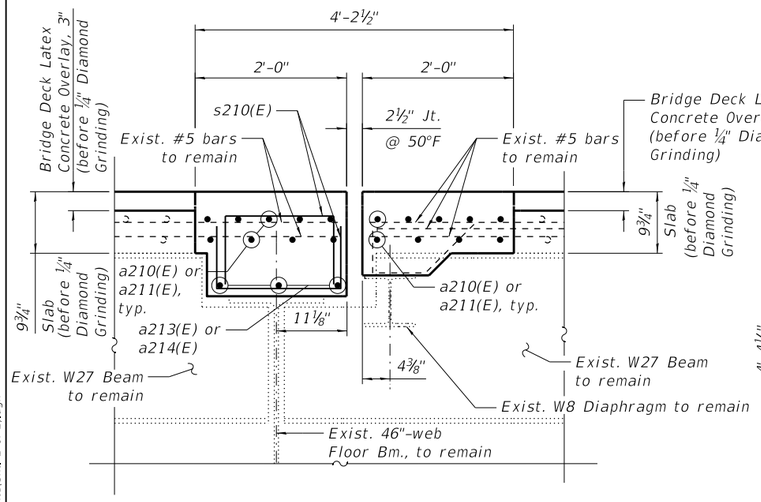


SECTION C-C

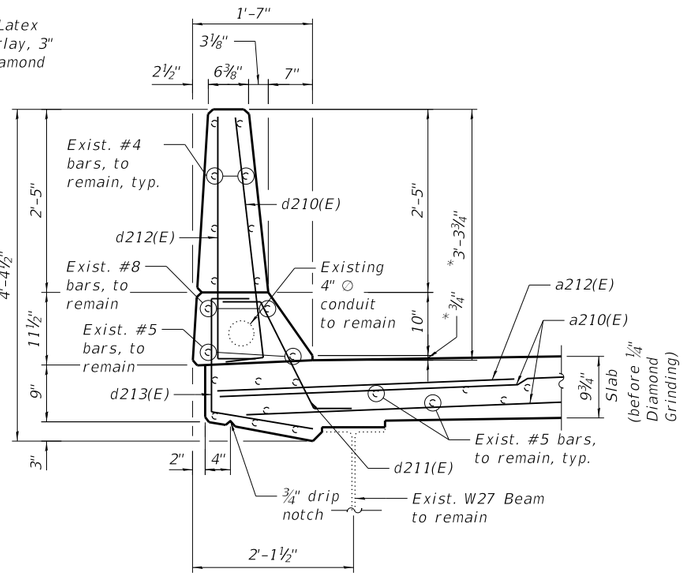
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a210(E)	18	#5	27'-10"	——
a211(E)	18	#5	27'-1"	——
a212(E)	12	#6	6'-0"	——
a213(E)	3	#5	27'-10"	——
a214(E)	3	#5	11'-0"	——
d210(E)	12	#5	3'-8"	L
d211(E)	12	#5	2'-7"	⌐
d212(E)	12	#4	3'-8"	L
d213(E)	12	#4	3'-5"	⌐
s210(E)	96	#5	2'-10"	⊓
Concrete Removal			Cu Yd	9.0
Concrete Superstructure			Cu Yd	10.0
Protective Coat			Sq Yd	27
Reinforcement Bars, Epoxy Coated			Pound	1,680

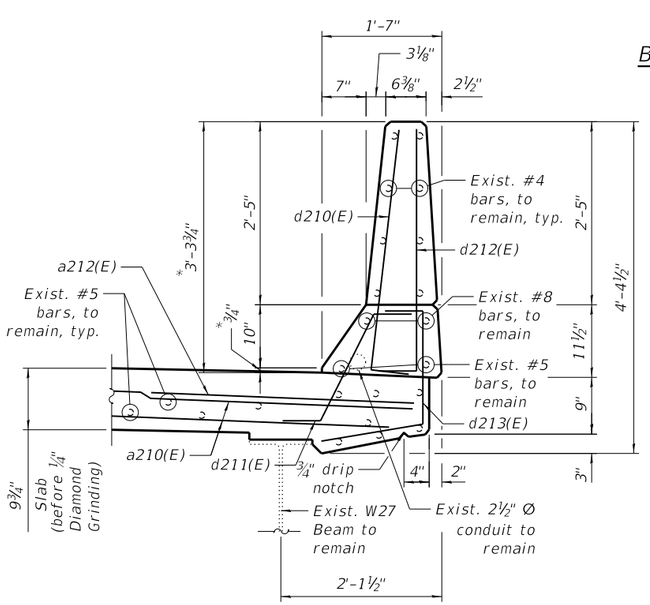
BAR d210(E) & d212(E)



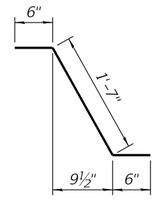
SECTION AA-AA



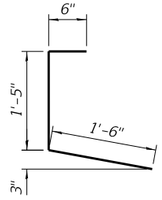
SECTION BB-BB



SECTION CC-CC



BAR d211(E)



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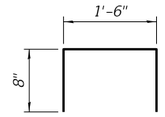
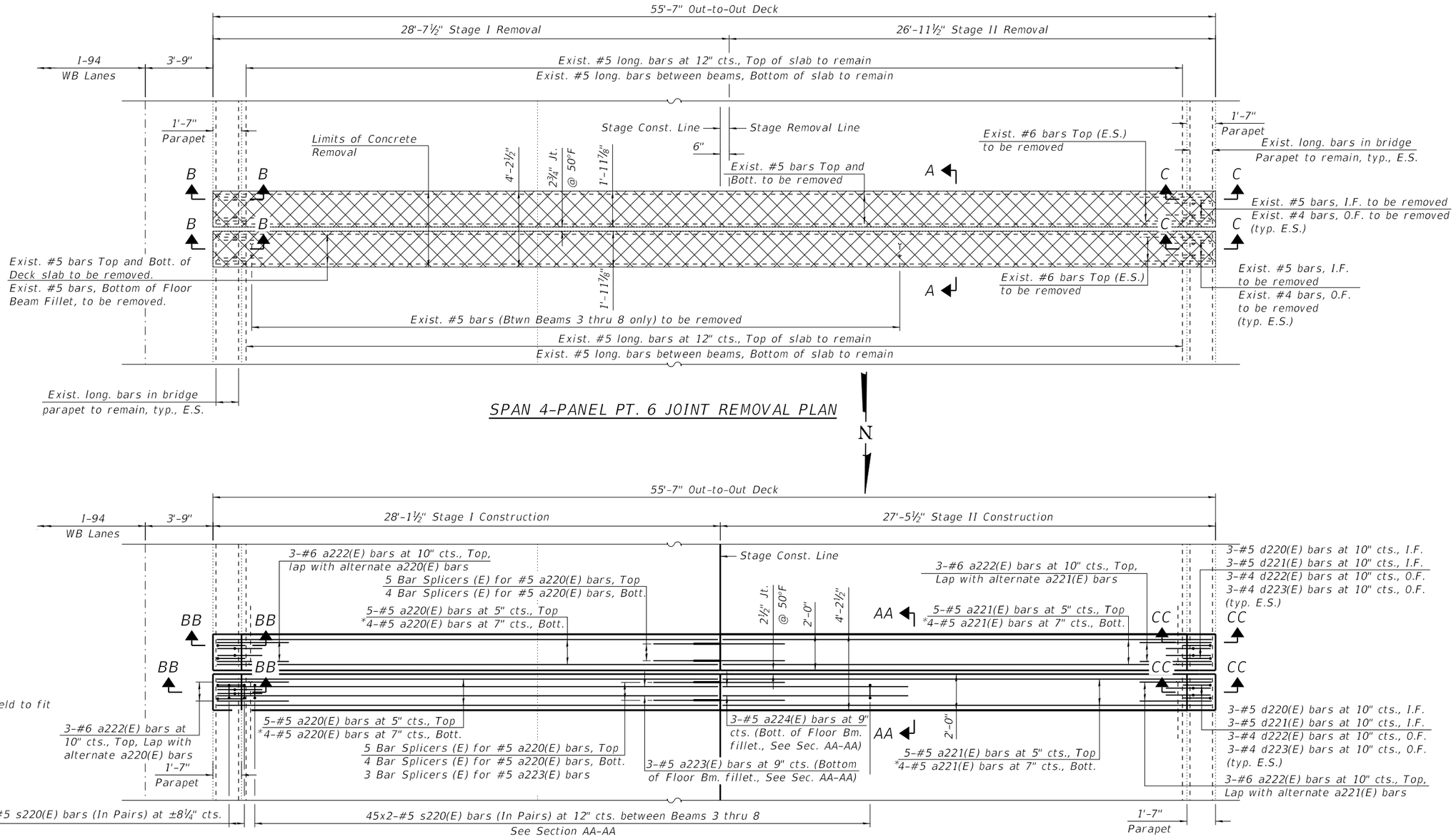


BAR s210(E)

NOTE:

1. For legend and additional Notes, see Sheet S02-16.



SPAN 4-PANEL PT. 6 JOINT REMOVAL PLAN

SPAN 4-PANEL PT. 6 JOINT RECONSTRUCTION PLAN

NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB, and CC-CC, Bar Diagrams and Bill of Material, see Sheet S02-19.
5. For preformed joint strip seal details, see Sheet S02-27.
6. For bar splicer assembly details, see Sheet S02-36.
7. Removal and disposal of existing expansion joint shall be included with Concrete Removal.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face
E.S.	Each Side
E.E.	Each End

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HBM ENGINEERING GROUP, LLC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPAN 4 PANEL PT. 6 JT. REM. & REPL. (SHT. 1 OF 2)
STRUCTURE NO. 016-0158
SHEET S02-18 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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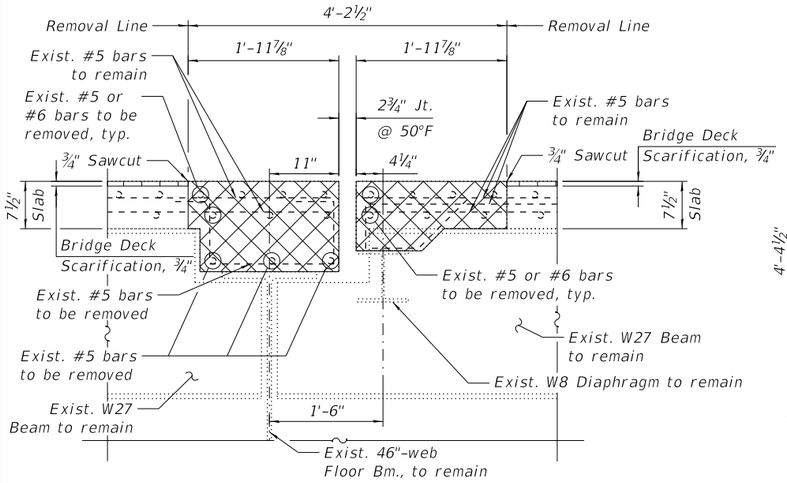
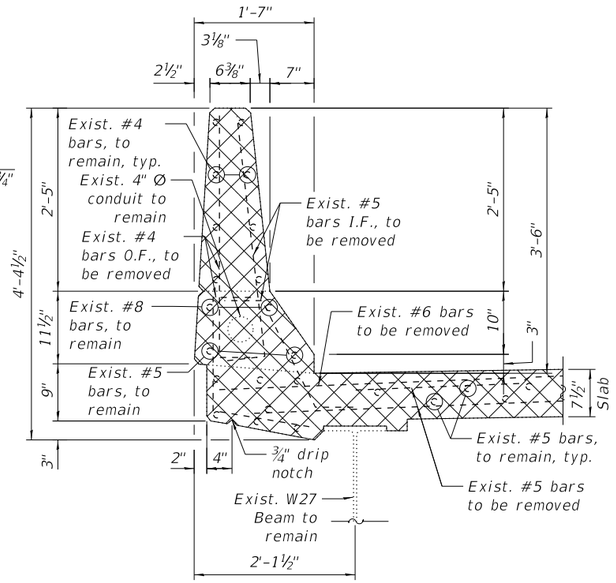
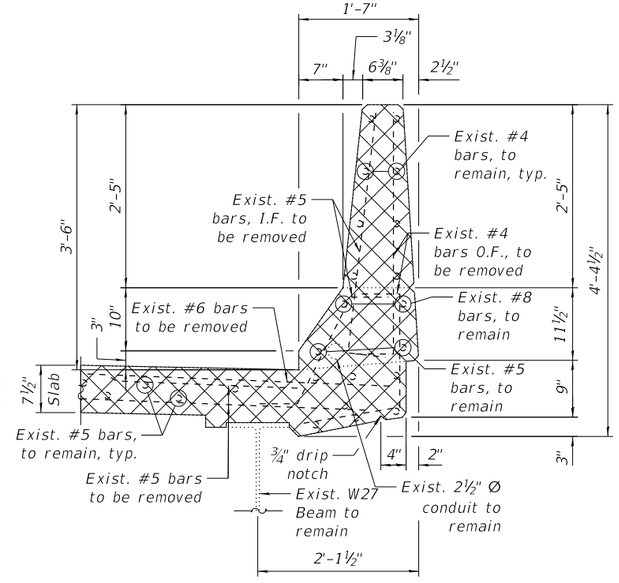
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



SECTION A-A



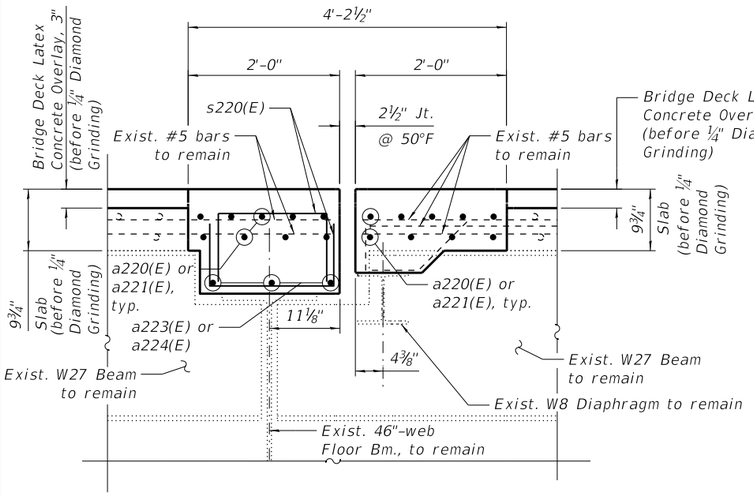
SECTION B-B



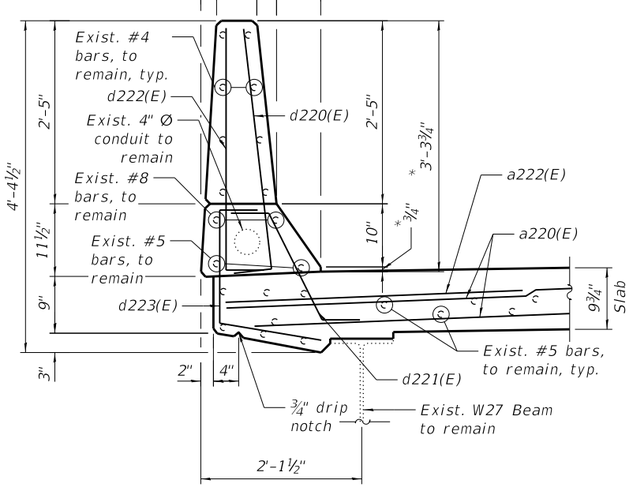
SECTION C-C

BILL OF MATERIAL

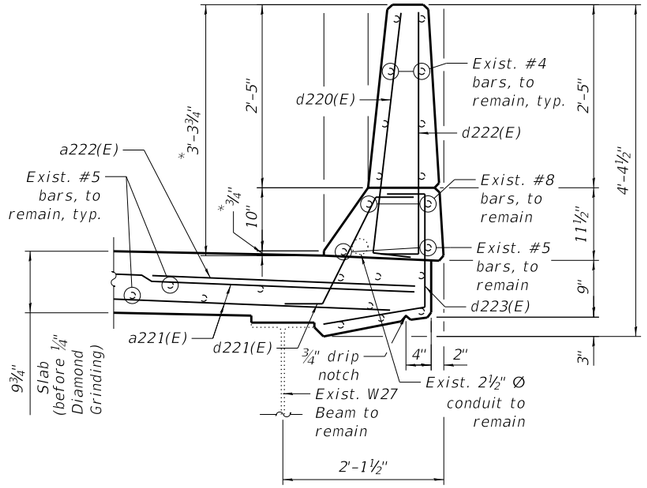
Bar	No.	Size	Length	Shape
a220(E)	18	#5	27'-10"	—
a221(E)	18	#5	27'-1"	—
a222(E)	12	#6	6'-0"	—
a223(E)	3	#5	27'-10"	—
a224(E)	3	#5	11'-0"	—
d220(E)	12	#5	3'-8"	L
d221(E)	12	#5	2'-7"	⌐
d222(E)	12	#4	3'-8"	L
d223(E)	12	#4	3'-5"	⌐
s220(E)	96	#5	2'-10"	⊓
Concrete Removal			Cu Yd	9.0
Concrete Superstructure			Cu Yd	10.0
Protective Coat			Sq Yd	27
Reinforcement Bars, Epoxy Coated			Pound	1,680



SECTION AA-AA

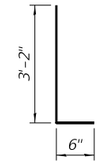


SECTION BB-BB

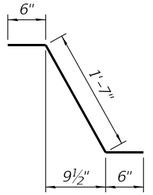


SECTION CC-CC

*Before ¼" Diamond Grinding



BAR d220(E) & d222(E)



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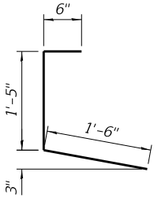

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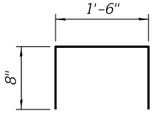

BAR s220(E)

NOTE:

1. For legend and additional Notes, see Sheet S02-18.

HBM ENGINEERING GROUP, LLC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPAN 4 PANEL PT. 6 JT. REM. & REPL. (SHT. 2 OF 2)
STRUCTURE NO. 016-0158
SHEET S02-19 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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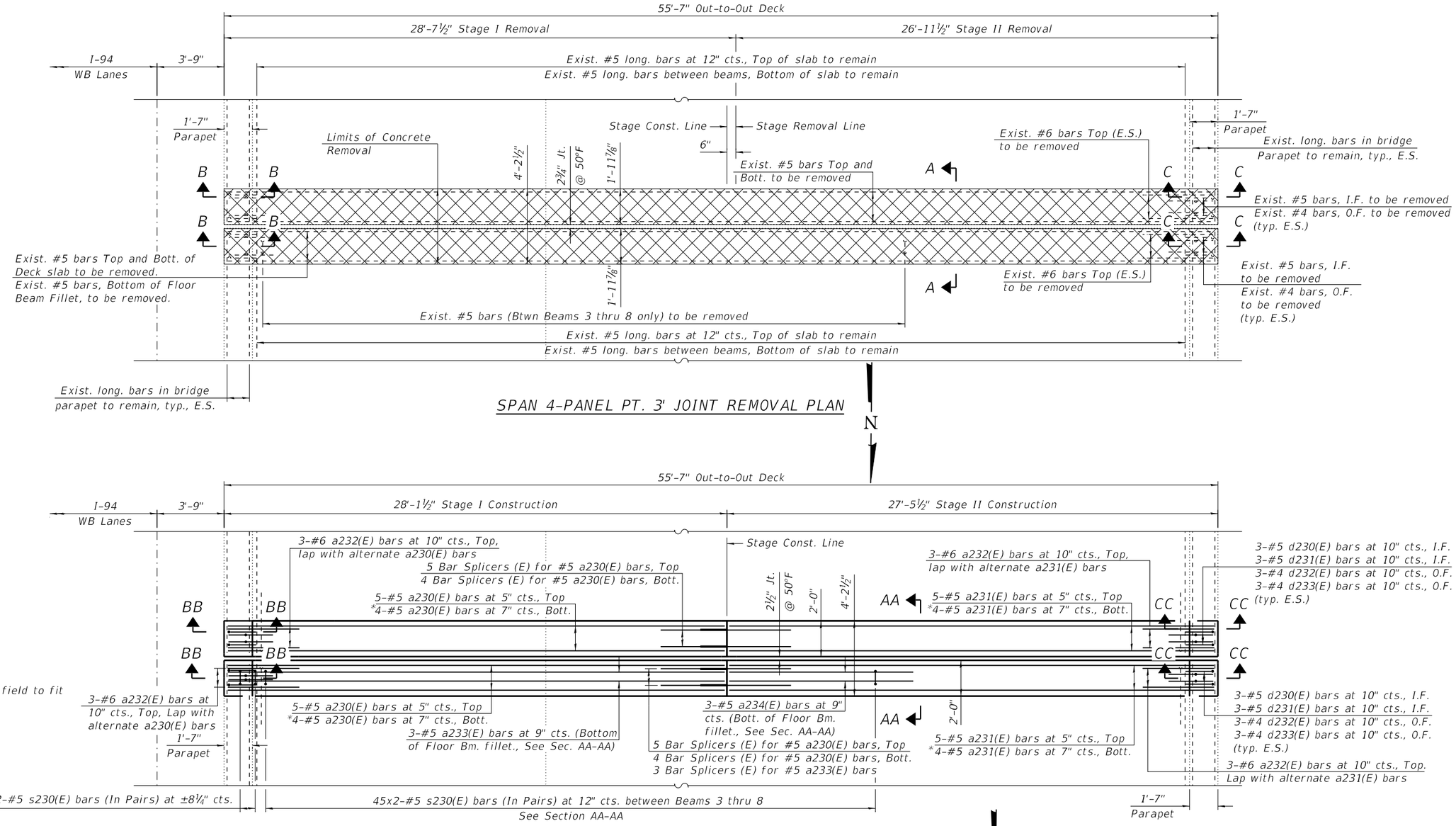
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB, and CC-CC, Bar Diagrams and Bill of Material, see Sheet S02-21.
5. For preformed joint strip seal details, see Sheet S02-27.
6. For bar splicer assembly details, see Sheet S02-36.
7. Removal and disposal of existing expansion joint shall be included with Concrete Removal.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face
E.S.	Each Side
E.E.	Each End

HBM ENGINEERING GROUP, LLC

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SPAN 4 PANEL PT. 3' JT. REM. & REPL. (SHT. 1 OF 2)
STRUCTURE NO. 016-0158

SHEET S02-20 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	516
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	

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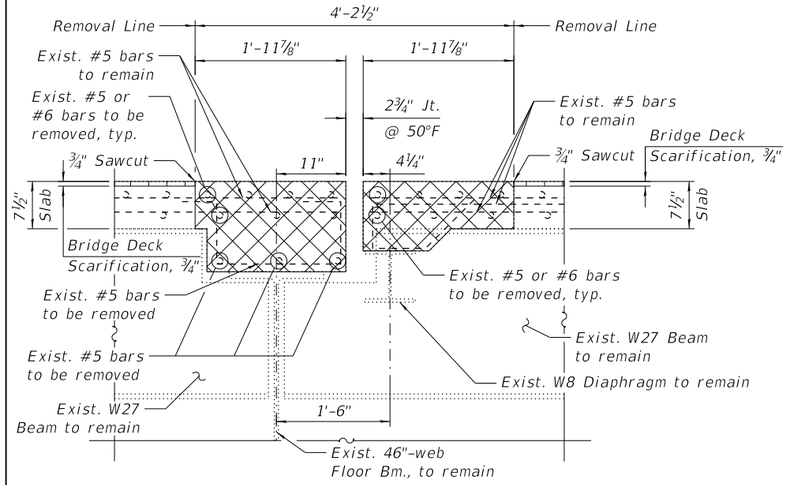
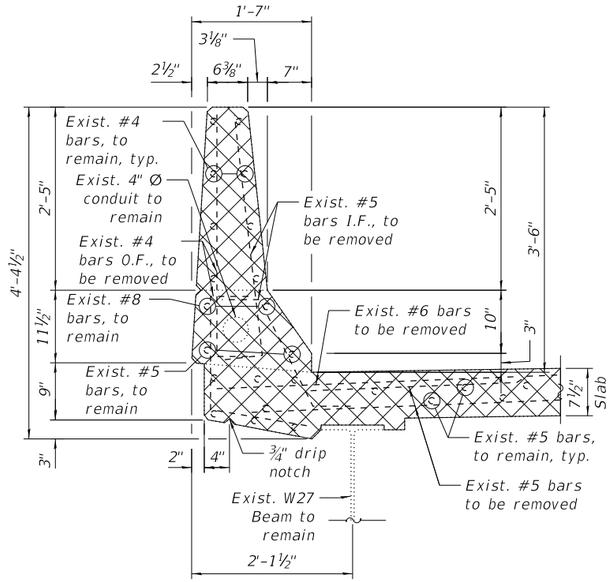
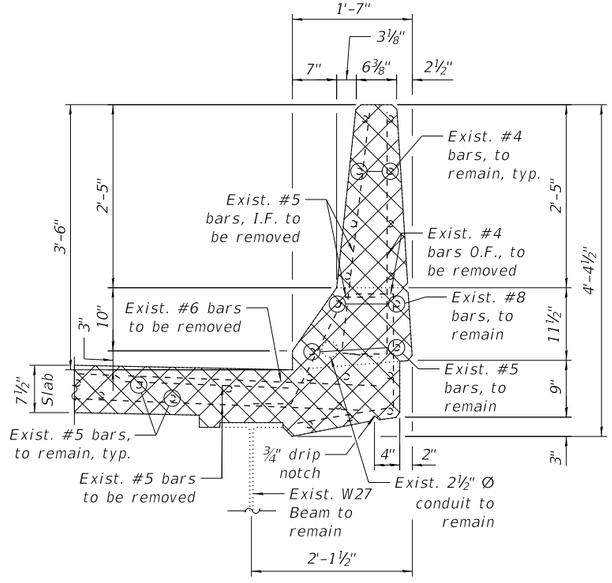


SECTION A-A



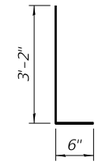
SECTION B-B



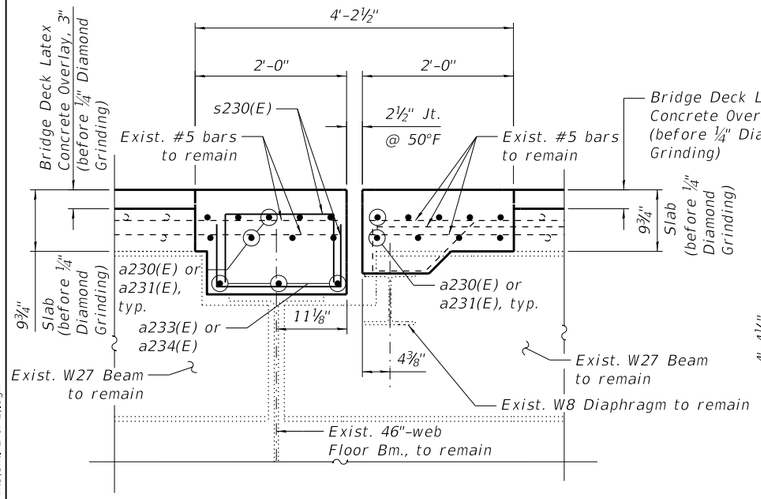
SECTION C-C

BILL OF MATERIAL

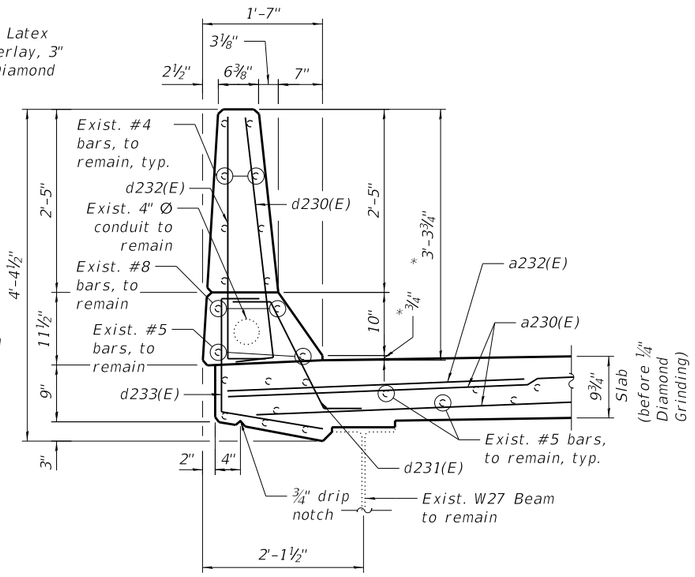
Bar	No.	Size	Length	Shape
a230(E)	18	#5	27'-10"	——
a231(E)	18	#5	27'-1"	——
a232(E)	12	#6	6'-0"	——
a233(E)	3	#5	27'-10"	——
a234(E)	3	#5	11'-0"	——
d230(E)	12	#5	3'-8"	L
d231(E)	12	#5	2'-7"	⌒
d232(E)	12	#4	3'-8"	L
d233(E)	12	#4	3'-5"	⊏
s230(E)	96	#5	2'-10"	⊓
Concrete Removal		Cu Yd	9.0	
Concrete Superstructure		Cu Yd	10.0	
Protective Coat		Sq Yd	27	
Reinforcement Bars, Epoxy Coated		Pound	1,680	



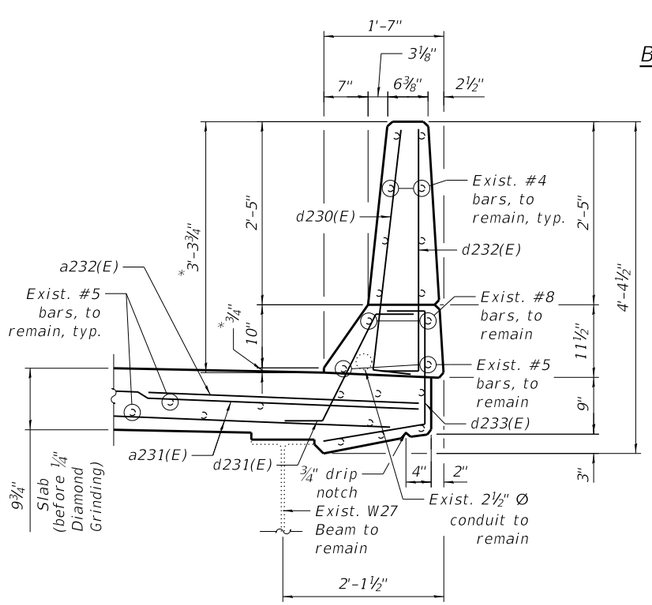
BAR d230(E) & d232(E)



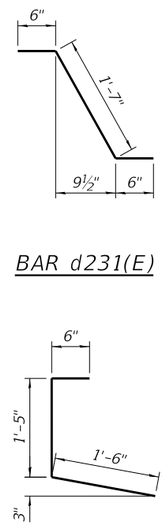
SECTION AA-AA



SECTION BB-BB

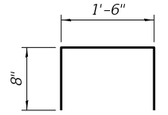


SECTION CC-CC



BAR d231(E)

BAR d233(E)

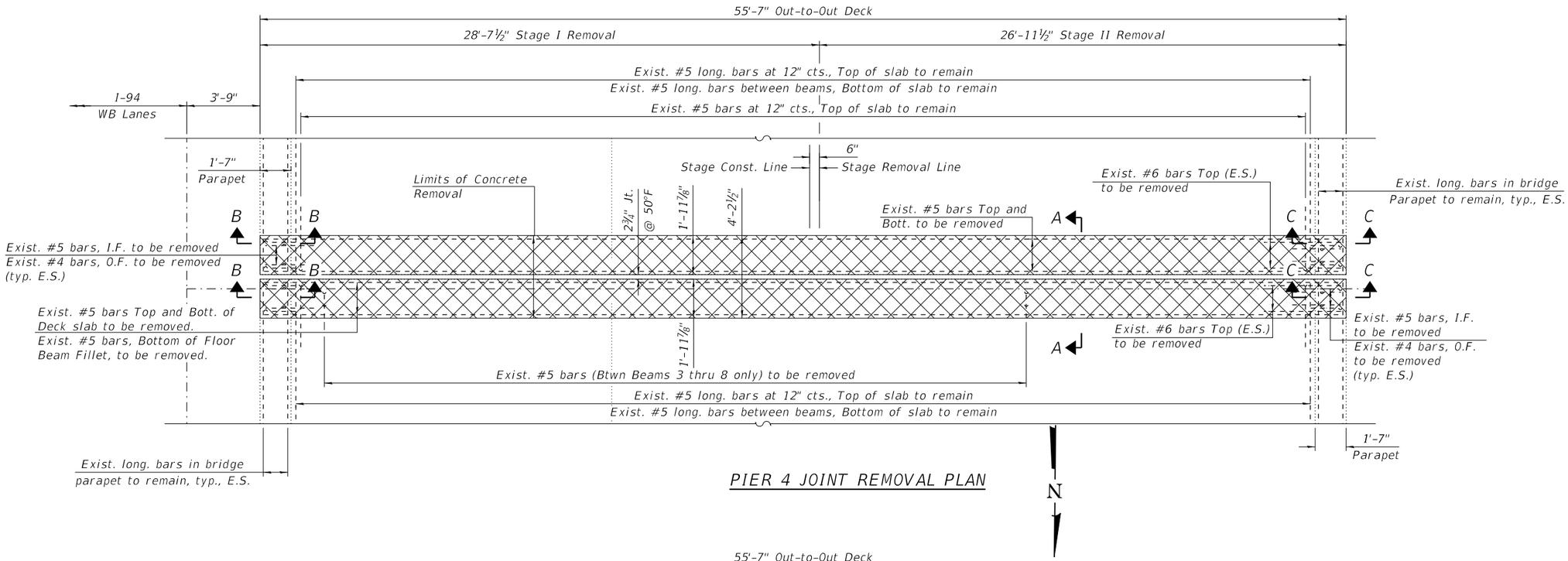


BAR s230(E)

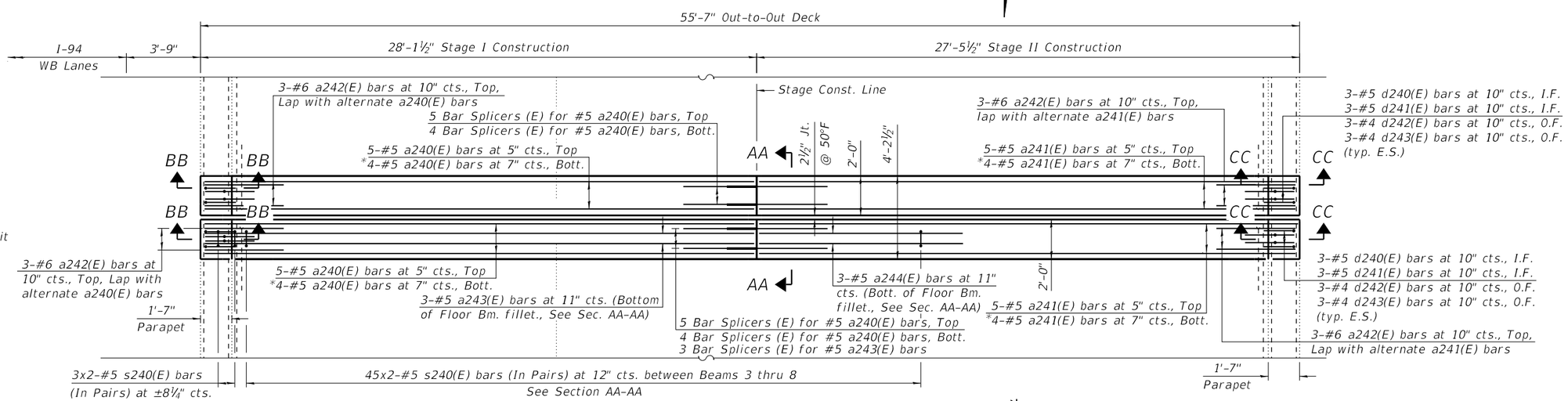
*Before ¼" Diamond Grinding

NOTE:

1. For legend and additional Notes, see Sheet S02-20.



PIER 4 JOINT REMOVAL PLAN



PIER 4 JOINT RECONSTRUCTION PLAN

NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB, and CC-CC, Bar Diagrams and Bill of Material, see Sheet S02-23.
5. For preformed joint strip seal details, see Sheet S02-27.
6. For bar splicer assembly details, see Sheet S02-36.
7. Removal and disposal of existing expansion joint shall be included with Concrete Removal.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face
E.S.	Each Side
E.E.	Each End

HBM ENGINEERING GROUP, LLC

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		DRAWN - LR		REVISED -	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 2)
STRUCTURE NO. 016-0158
SHEET S02-22 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	518
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

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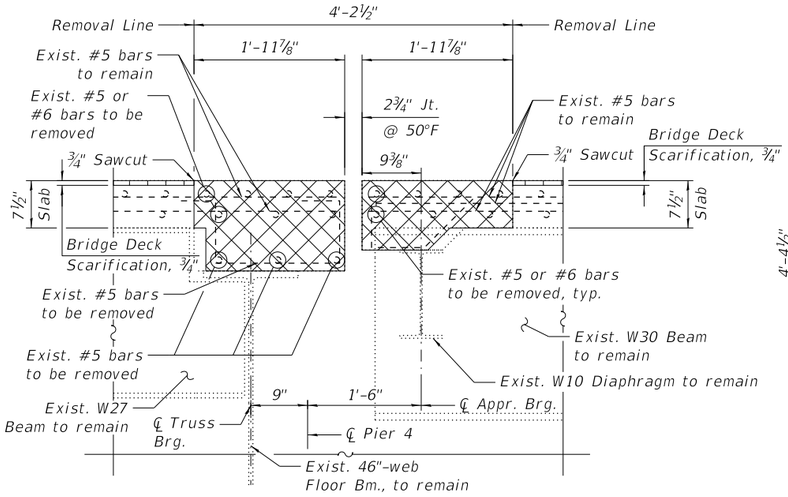
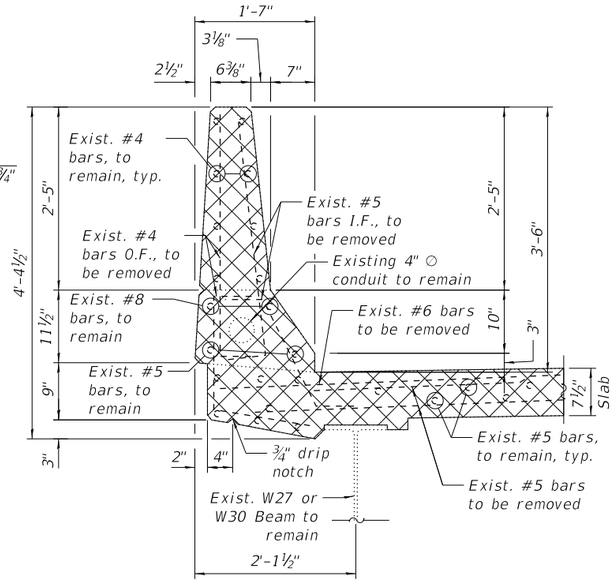
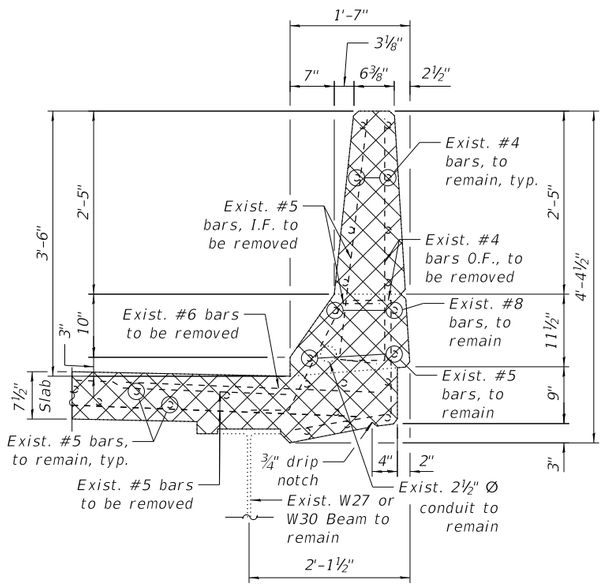


SECTION A-A



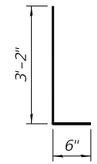
SECTION B-B



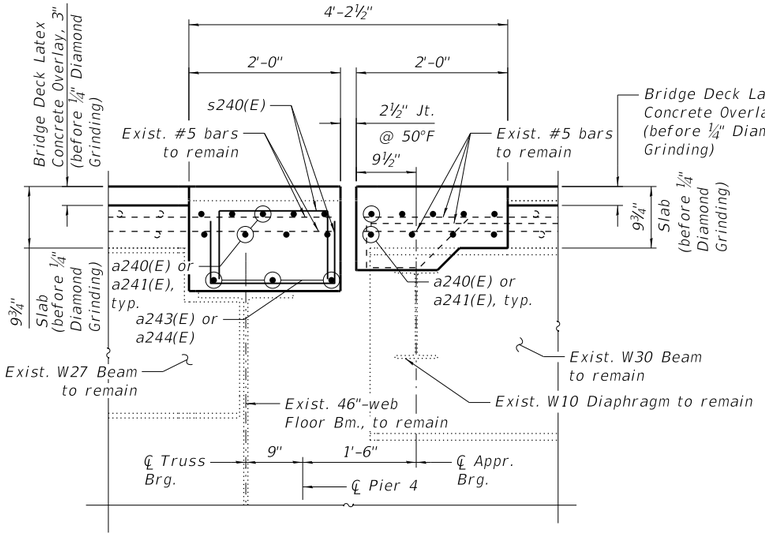
SECTION C-C

BILL OF MATERIAL

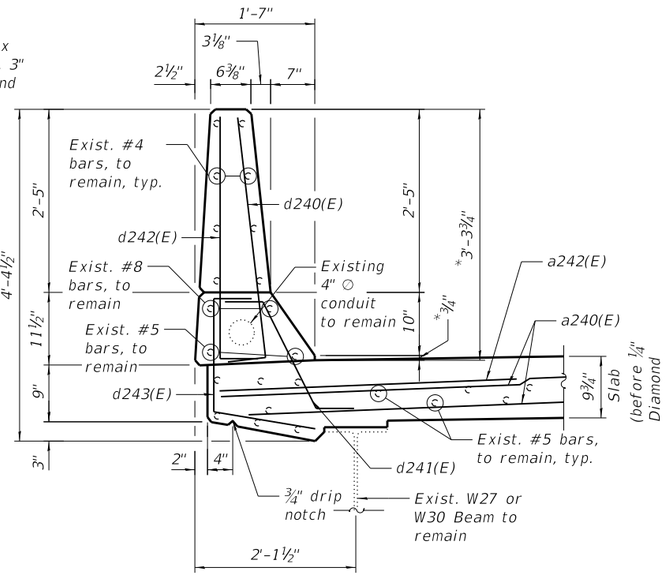
Bar	No.	Size	Length	Shape
a240(E)	18	#5	27'-10"	———
a241(E)	18	#5	27'-1"	———
a242(E)	12	#6	6'-0"	———
a243(E)	3	#5	27'-10"	———
a244(E)	3	#5	11'-0"	———
d240(E)	12	#5	3'-8"	L
d241(E)	12	#5	2'-7"	⌐
d242(E)	12	#4	3'-8"	L
d243(E)	12	#4	3'-5"	L
s240(E)	96	#5	3'-2"	⊓
Concrete Removal		Cu Yd	9.0	
Concrete Superstructure		Cu Yd	10.0	
Protective Coat		Sq Yd	27	
Reinforcement Bars, Epoxy Coated		Pound	1,720	



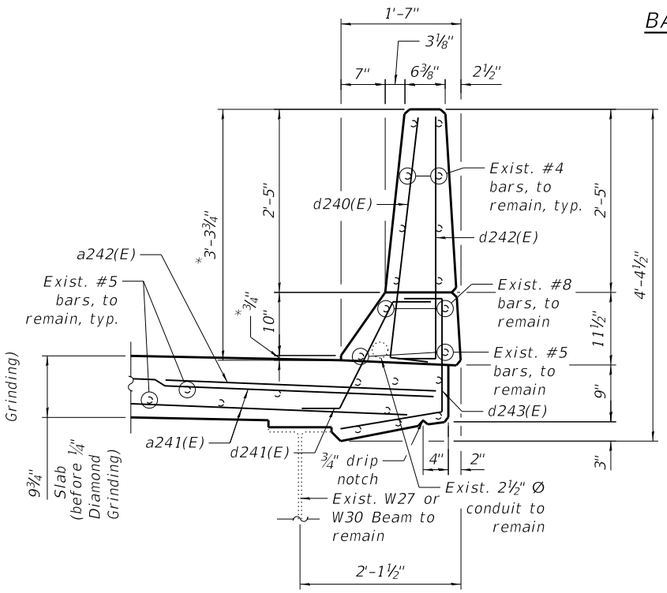
BAR d240(E) & d242(E)



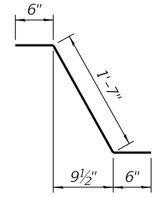
SECTION AA-AA



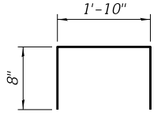
SECTION BB-BB



SECTION CC-CC



BAR d241(E)



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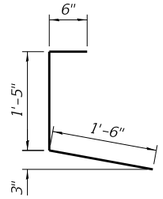
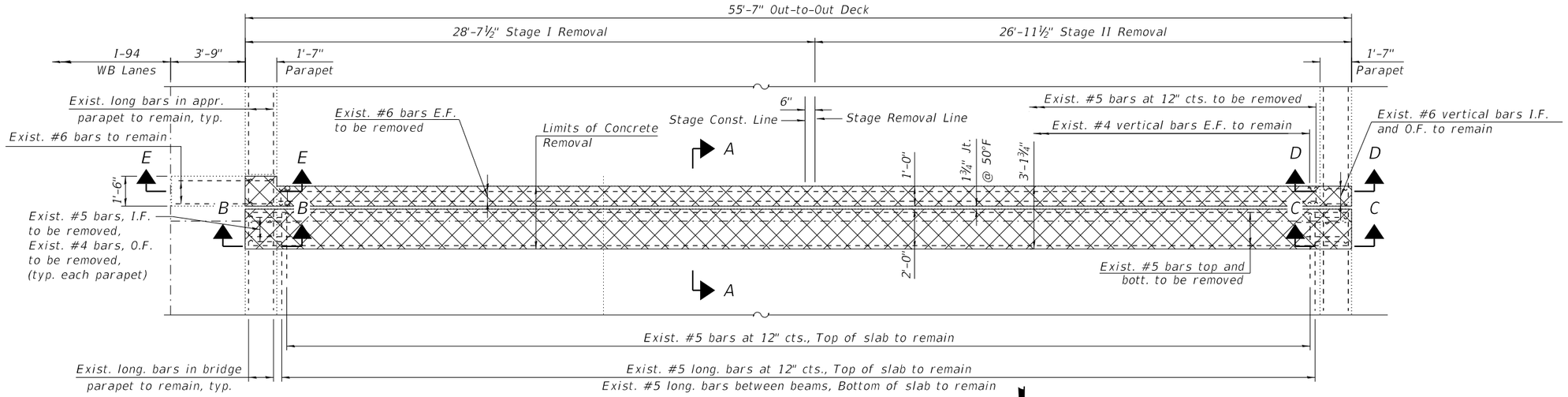


BAR d243(E)

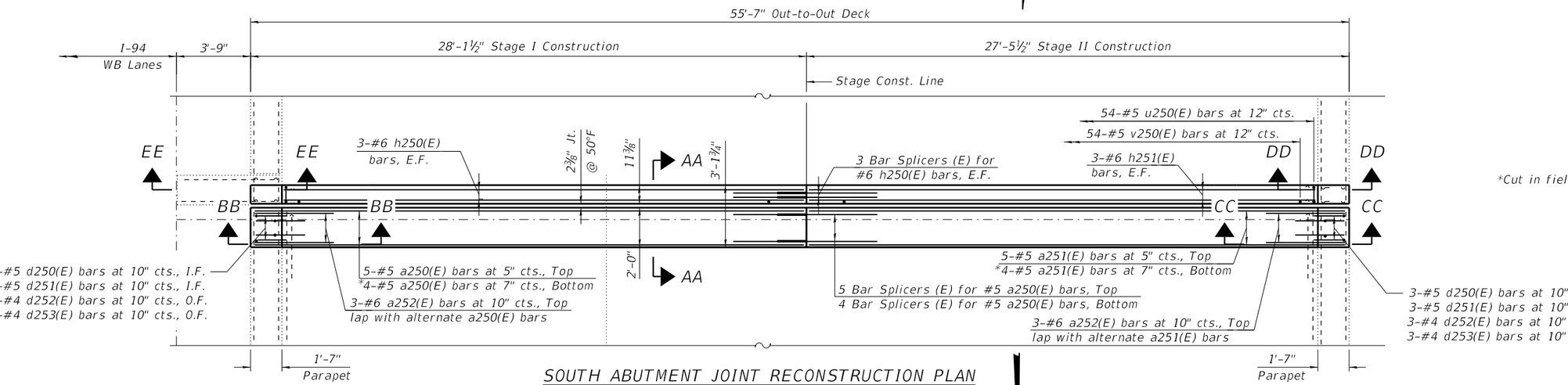
NOTE:

1. For legend and additional Notes, see Sheet S02-22.

*Before ¼" Diamond Grinding



SOUTH ABUTMENT JOINT REMOVAL PLAN



*Cut in field to fit

SOUTH ABUTMENT JOINT RECONSTRUCTION PLAN

NOTES:

1. Existing reinforcement shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.
2. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
3. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S02-27.
4. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S02-25.
5. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, and Bill of Material, see Sheet S02-26.
6. For preformed joint strip seal details, see Sheet S02-27.
7. For bar splicer assembly details, see Sheet S02-36.
8. Removal and disposal of existing expansion joint shall be included with Concrete Removal.
9. Epoxy grout v250(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

HBM ENGINEERING GROUP, LLC

USER NAME = adam.daoud		DESIGNED - HMI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3) STRUCTURE NO. 016-0158	
		DRAWN - HMI	REVISED -			
PLOT SCALE = 6:0.0000 ':' / in.		CHECKED - MI, JJS	REVISED -		SHEET S02-24 OF S02-36 SHEETS	
PLOT DATE = 12/6/2024		DATE - 12/9/2024	REVISED -			

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	520
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

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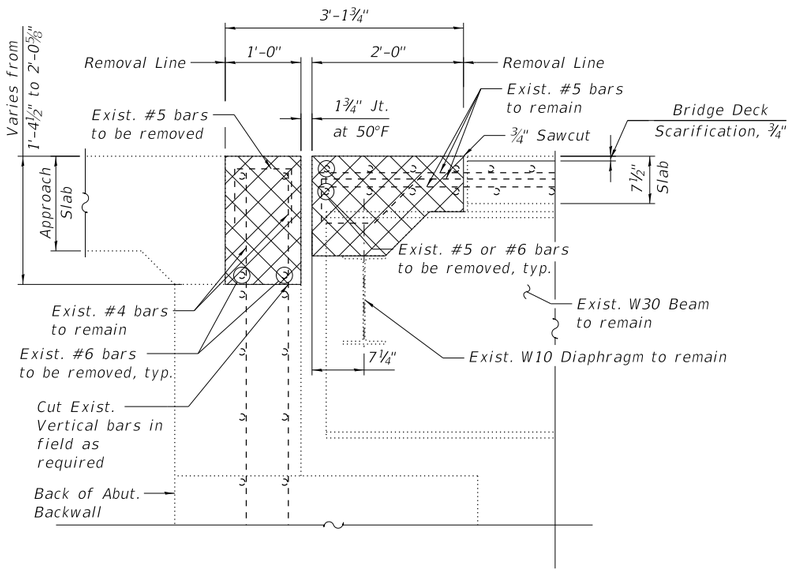
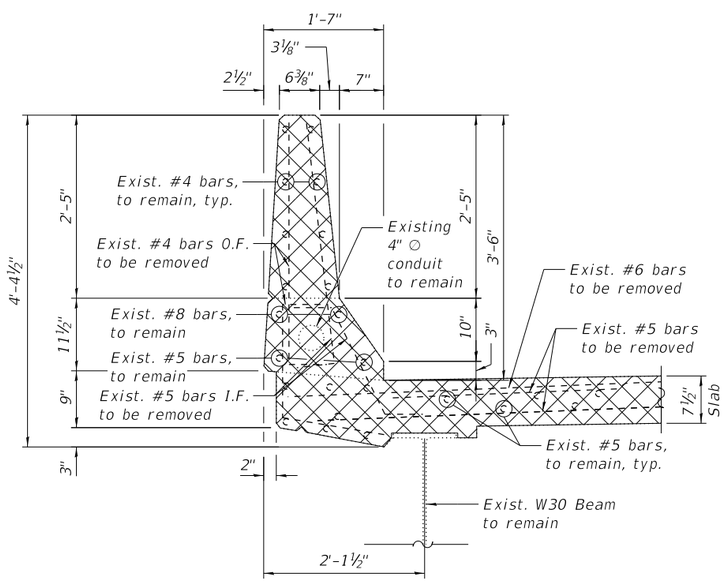
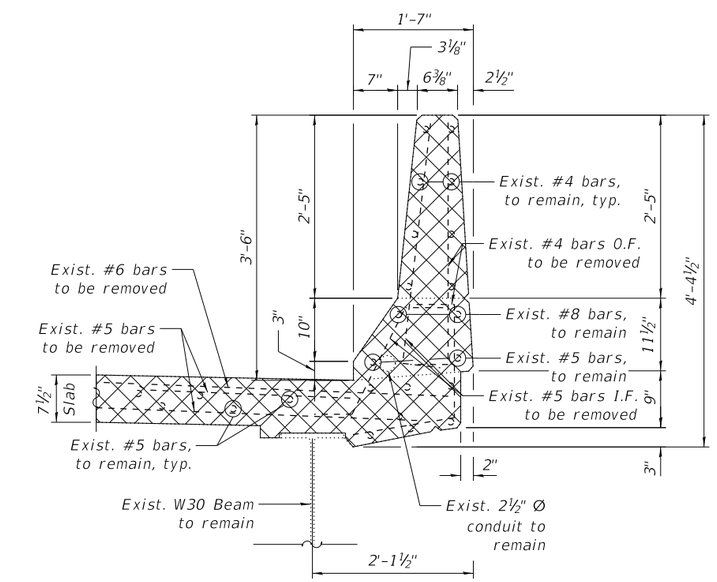


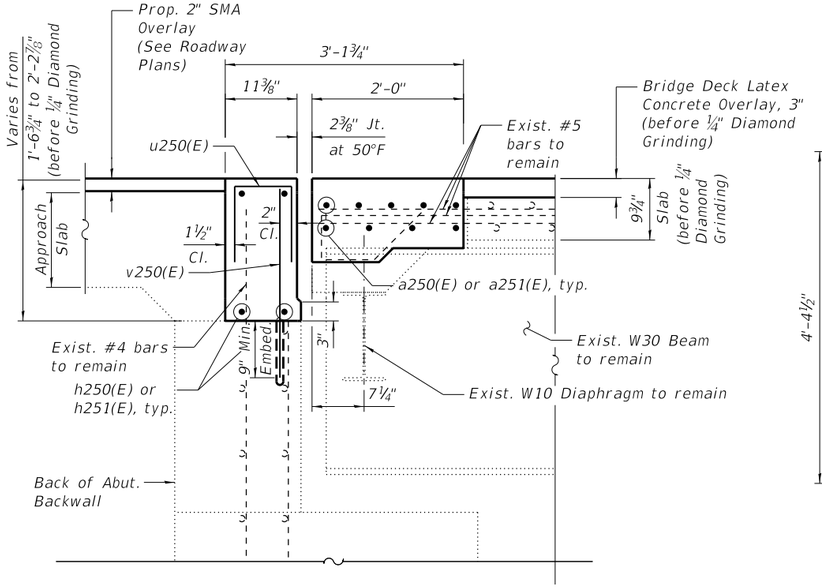
SECTION A-A



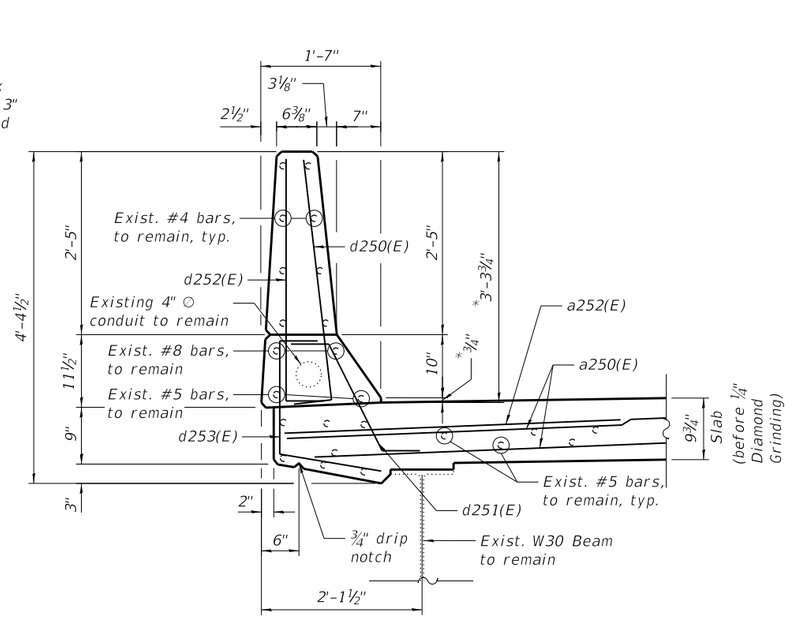
SECTION B-B



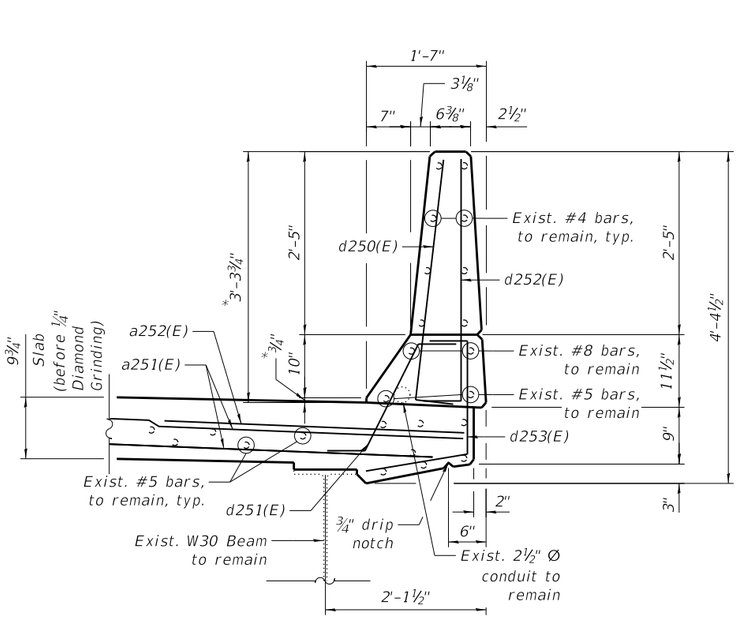
SECTION C-C



SECTION AA-AA



SECTION BB-BB



SECTION CC-CC

*Before ¼" Diamond Grinding

NOTES:

1. For legend and additional Notes, see Sheet S02-24.
2. For Bar Diagrams and Bill of Material, see Sheet S02-26.
3. It shall be the Contractor's responsibility to provide adequate temporary support for existing conduits during joint reconstruction. Cost included with Concrete Superstructure.

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HBM ENGINEERING GROUP, LLC

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0158
SHEET S02-25 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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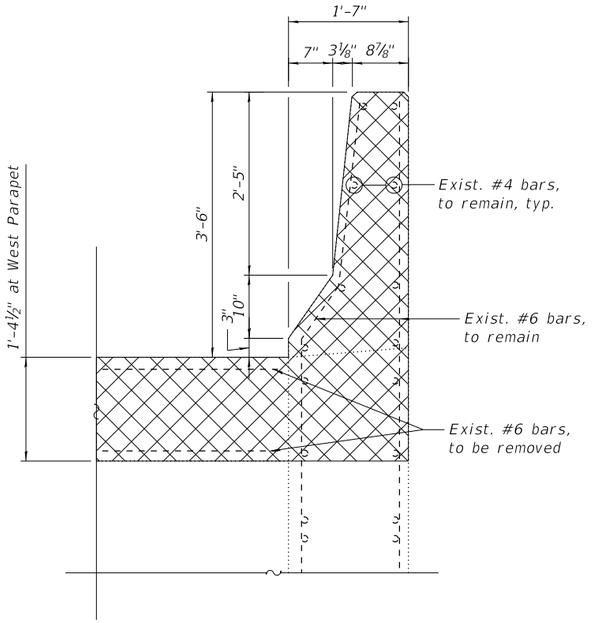
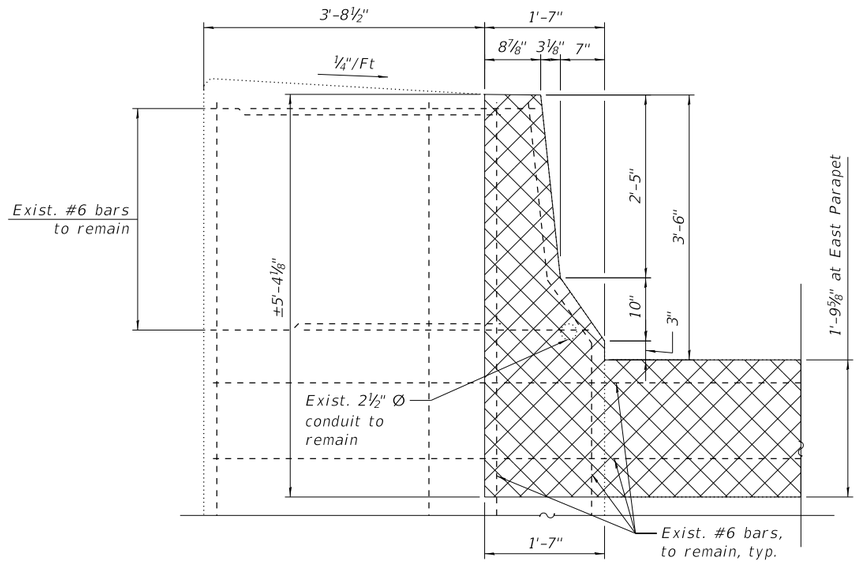
		CONTRACT NO.		62W87
	ILLINOIS	FED. AID PROJECT		



SECTION D-D

(Reinforcement in abutment hatch block is not shown for clarity)

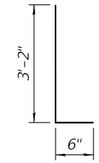


SECTION E-E

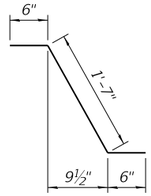
(Reinforcement in abutment hatch block is not shown for clarity)

BILL OF MATERIAL

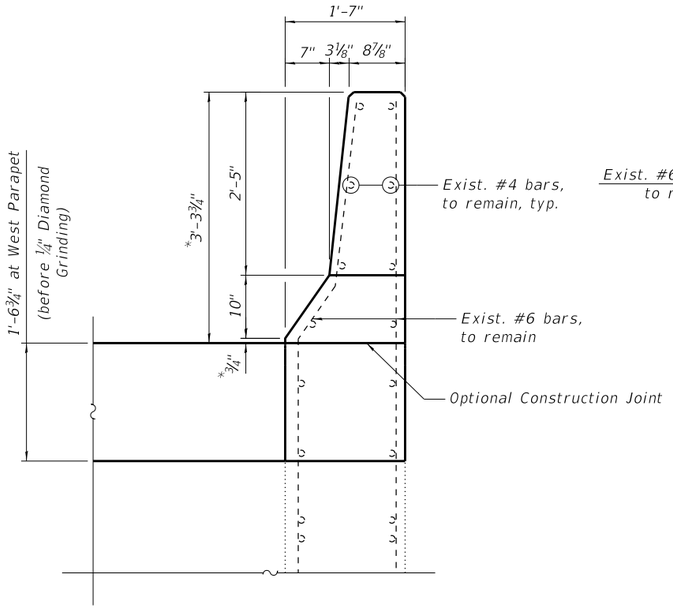
Bar	No.	Size	Length	Shape
a250(E)	9	#5	27'-10"	
a251(E)	9	#5	27'-1"	
a252(E)	6	#6	6'-0"	
d250(E)	6	#5	3'-8"	
d251(E)	6	#5	2'-7"	
d252(E)	6	#4	3'-8"	
d253(E)	6	#4	3'-5"	
h250(E)	6	#6	26'-3"	
h251(E)	6	#6	25'-9"	
u250(E)	54	#5	3'-0"	
v250(E)	54	#5	2'-1"	
Concrete Removal			Cu Yd	8.0
Concrete Superstructure			Cu Yd	9.0
Protective Coat			Sq Yd	20
Reinforcement Bars, Epoxy Coated			Pound	1,400



BAR d250(E) & d252(E)

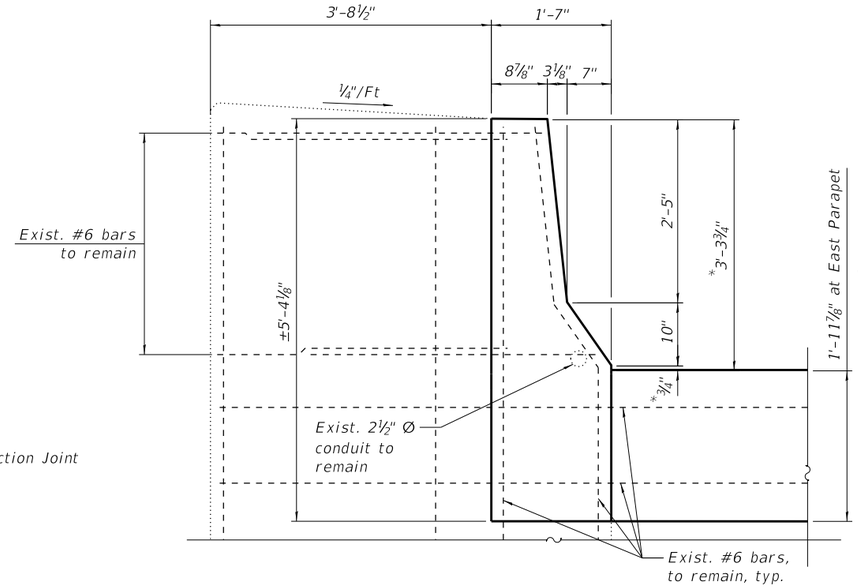


BAR d251(E)



SECTION DD-DD

(Reinforcement in abutment hatch block is not shown for clarity)



SECTION EE-EE

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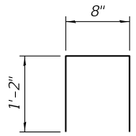
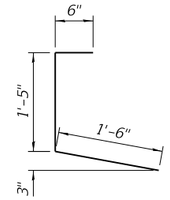


BAR u250(E)

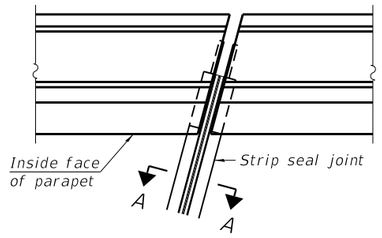


BAR d253(E)

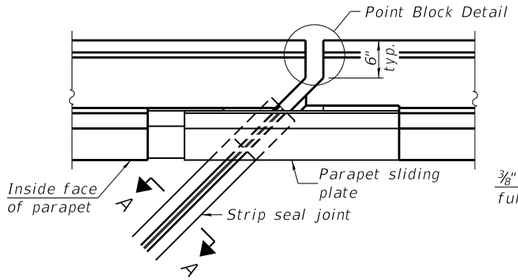
*Before ¼" Diamond Grinding

NOTE:

1. For legend, see Sheet S02-24.

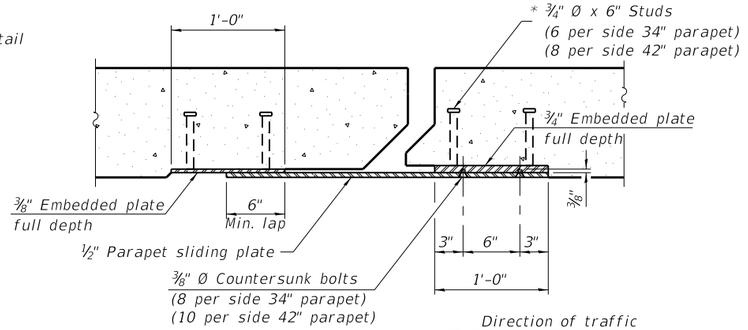


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

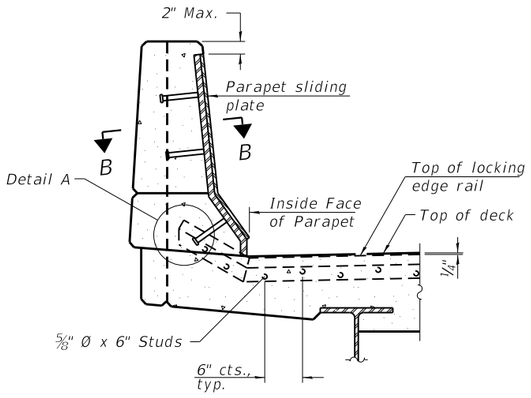
PLAN AT PARAPET



SECTION B-B

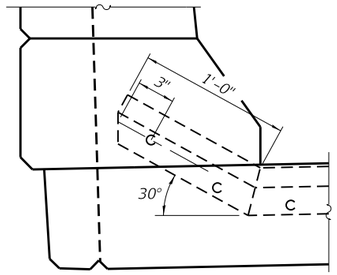
Notes:

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, anchorage studs, and expansion anchors 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.

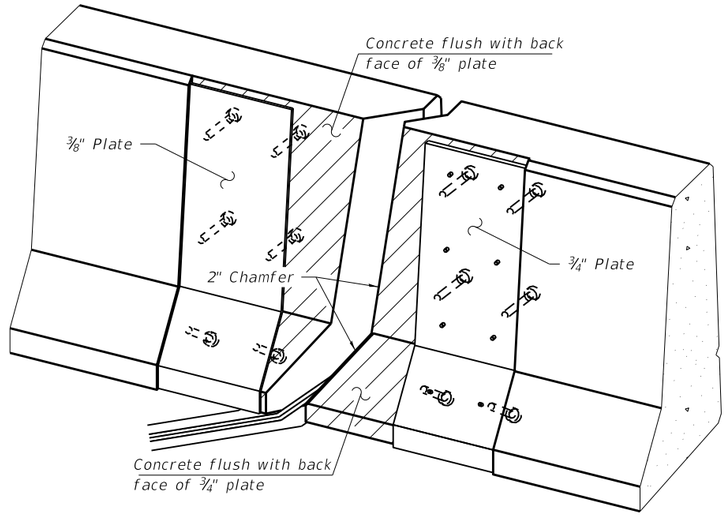


ELEVATION AT PARAPET

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

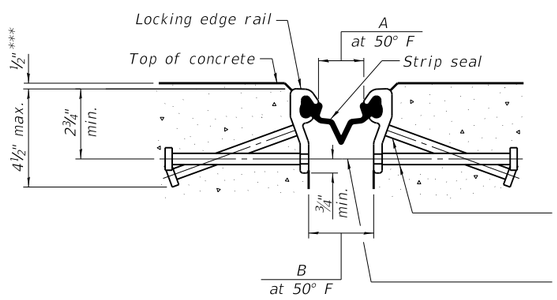


DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)

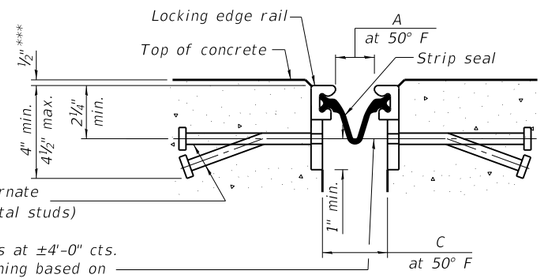


* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

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.

SHOWING ROLLED RAIL JOINT

Joint	A	B	C
North Abut.	1½"	2⅜"	3"
Span 4 P.P. 3 Jt.	1⅝"	2½"	3⅛"
Span 4 P.P. 6 Jt.	1⅞"	2½"	3⅛"
Span 4 P.P. 3' Jt.	1⅜"	2½"	3⅛"
Pier 4	1⅜"	2½"	3⅛"
South Abut.	1½"	2⅜"	3"

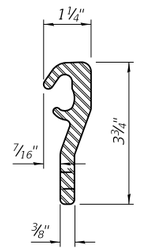


SHOWING WELDED RAIL JOINT

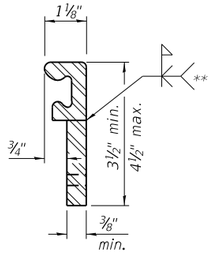
SECTION A-A

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

*** Before ¼" Diamond Grinding



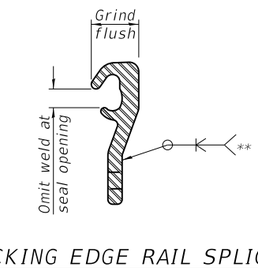
ROLLED
(EXTRUDED) RAIL



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	QUANTITY
Preformed Joint Strip Seal	Foot	330

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HBM ENGINEERING GROUP, LLC

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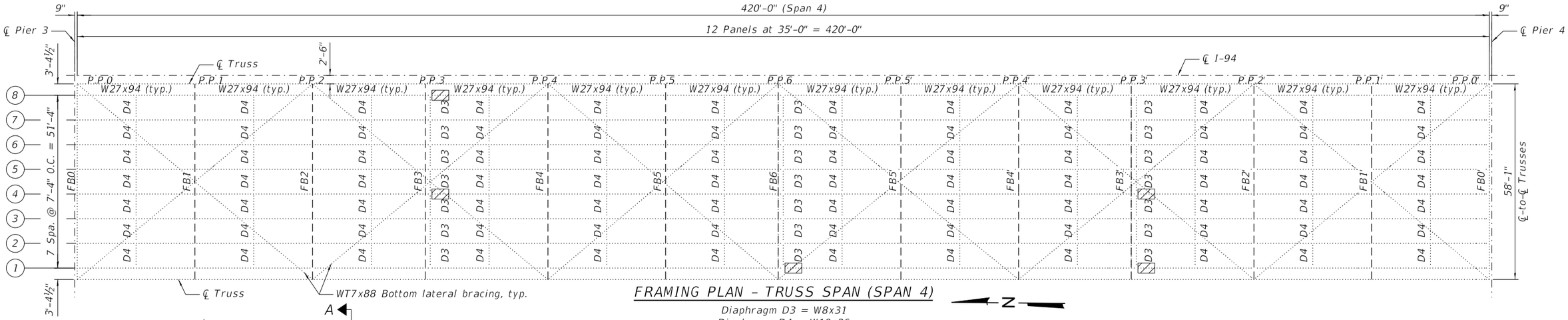
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

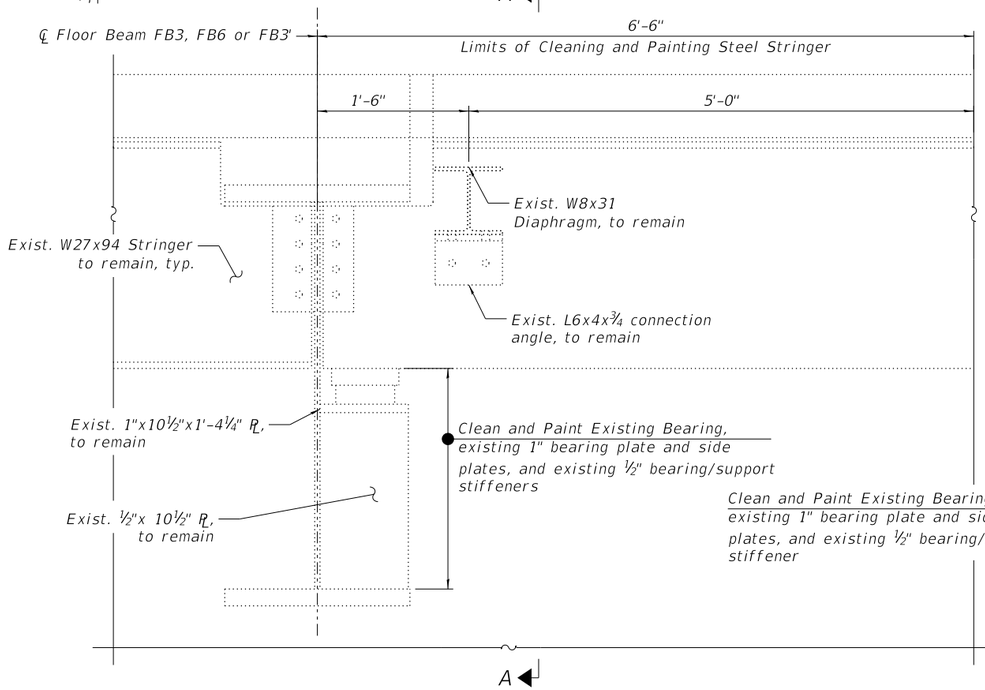
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0158
SHEET S02-27 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	523
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



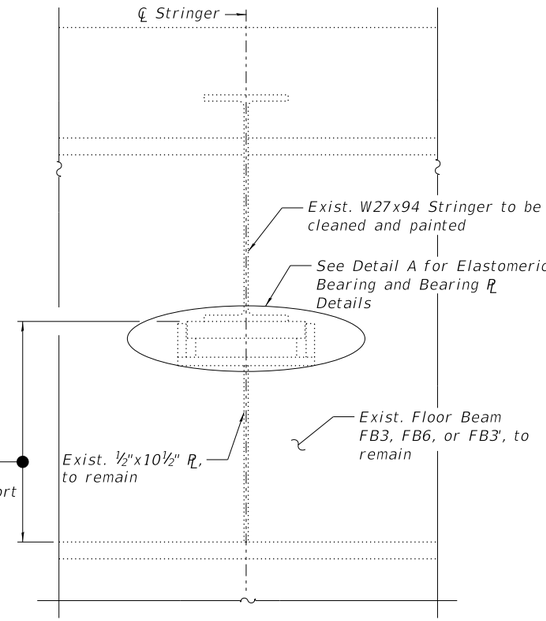
FRAMING PLAN – TRUSS SPAN (SPAN 4)

Diaphragm D3 = W8x31
Diaphragm D4 = W10x26

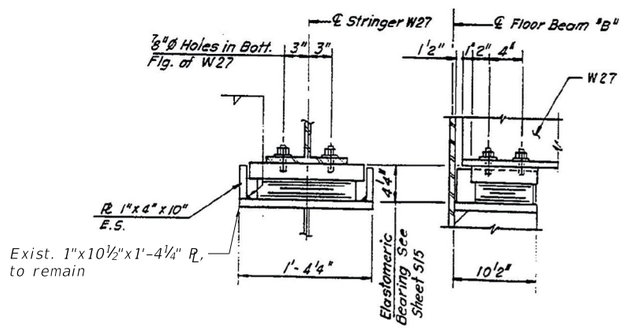


PARTIAL STRINGER ELEVATION – AT FLOORBEAM

(Looking East)
(Stringers 4 and 8 at Floor Beam FB3)
(Stringer 1 at Floor Beam FB6)
(Stringers 1 and 4 at Floor Beam FB3')



SECTION A-A



DETAIL A

(For information only)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Cleaning And Painting Structural Steel, Location 1	L Sum	1
Containment And Disposal Of Non-Lead Paint Cleaning Residues No. 1	L Sum	1

LEGEND

Cleaning and Painting Structural Steel

NOTE:

1. For Paint Notes, see Sheet S02-02.

HBM ENGINEERING GROUP, LLC

USER NAME = hbmepw11ics01$	DESIGNED - HMI	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PARTIAL FRAMING PLAN & STEEL PAINTING DETAILS STRUCTURE NO. 016-0158	
	DRAWN - HMI	REVISED -			
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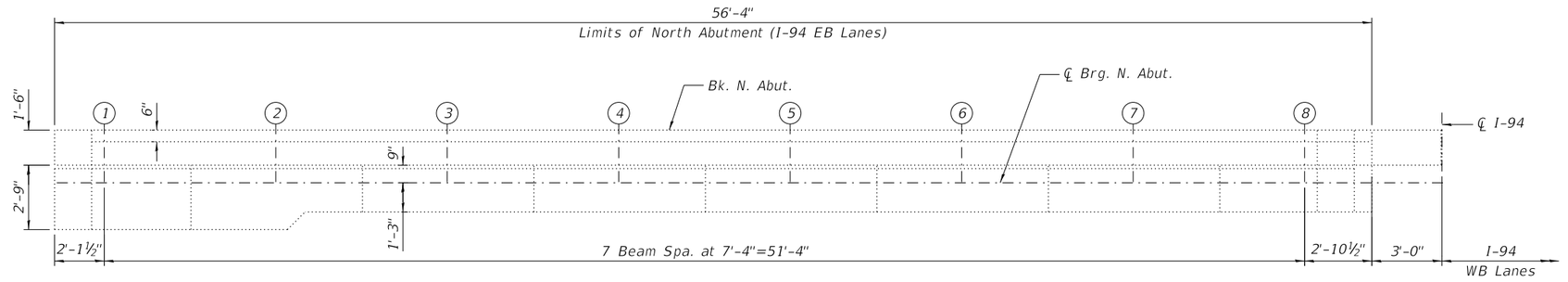
PLOT DATE = 1/21/2025	DATE - 1/14/2025	REVISED -		SHEET S02-27A OF S02-36 SHEETS	

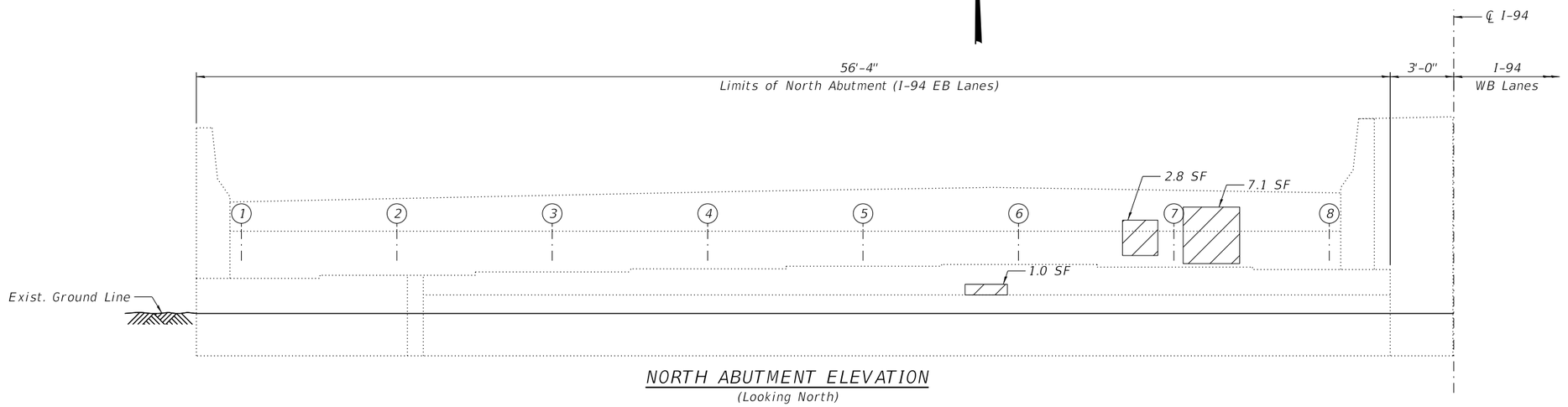
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	523A
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	232
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	11

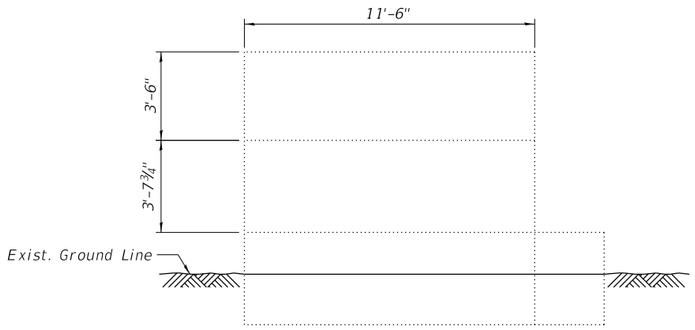


NORTH ABUTMENT PLAN



NORTH ABUTMENT ELEVATION

(Looking North)



NORTHWEST WING WALL ELEVATION

(Looking East)

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 ft. of the abutment backwall.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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HBM ENGINEERING GROUP, LLC

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PLOT DATE =	12/6/2024	DATE -	12/9/2024	REVISED -	

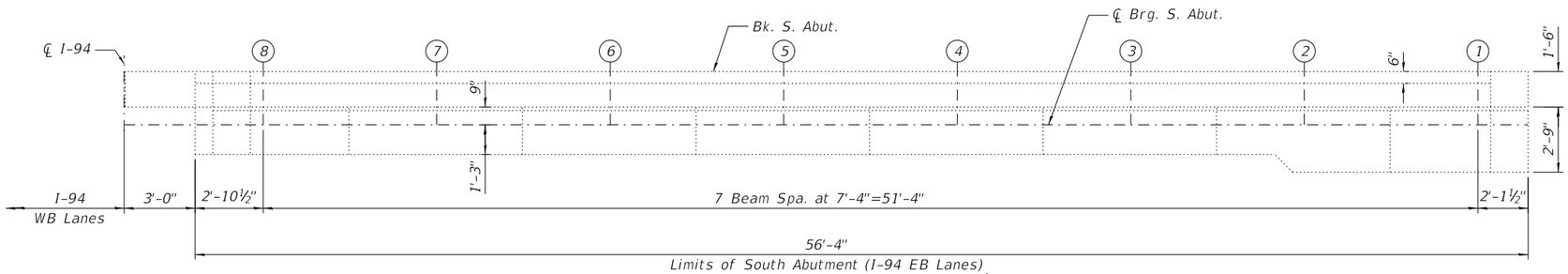
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0158
SHEET S02-28 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	524
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

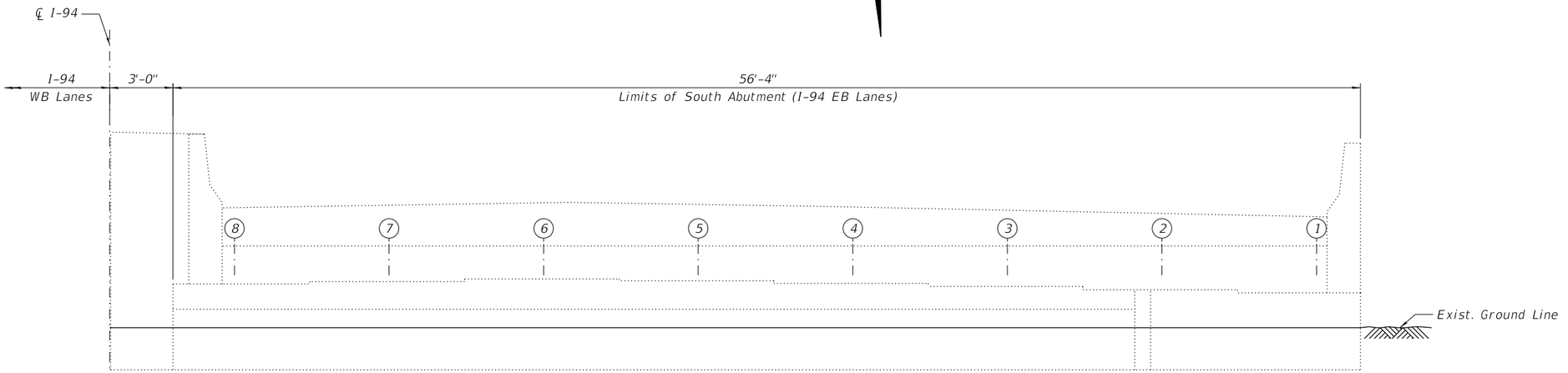
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	232



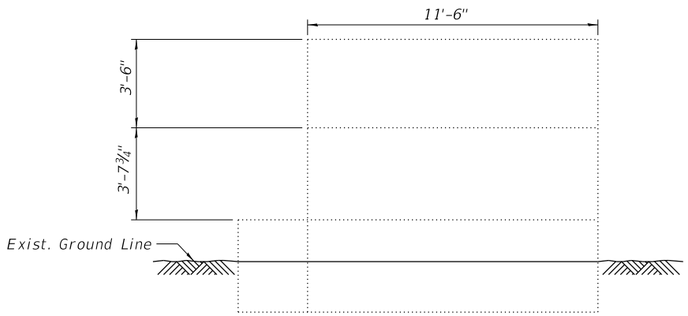
SOUTH ABUTMENT PLAN

N



SOUTH ABUTMENT ELEVATION

(Looking South)



SOUTHWEST WING WALL ELEVATION

(Looking East)

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 ft. of the abutment backwall.

HBM ENGINEERING GROUP, LLC

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	DRAWN - LR, AWD	REVISED -
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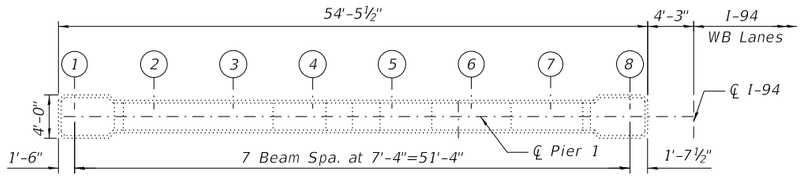
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

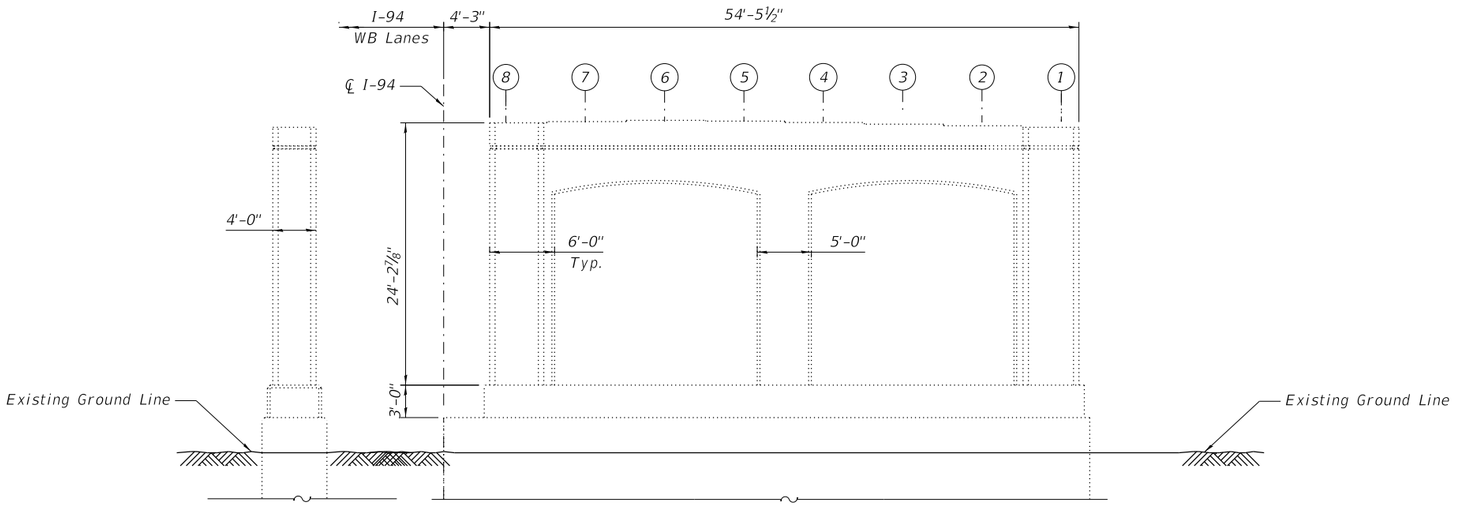
SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0158

SHEET S02-29 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	525
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

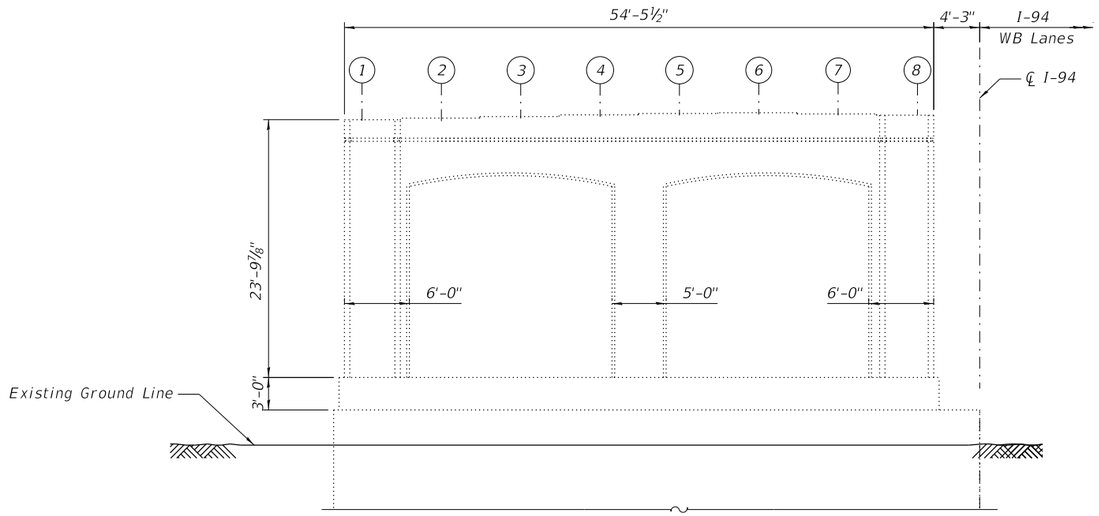


PIER 1 PLAN



END VIEW

PIER 1 ELEVATION
(Looking South)



PIER 1 ELEVATION
(Looking North)

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
SF	Square Foot

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HBM ENGINEERING GROUP, LLC

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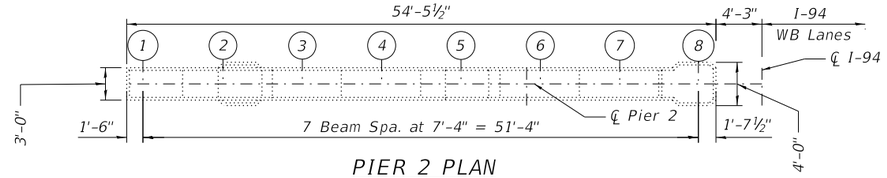
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 REPAIRS
STRUCTURE NO. 016-0158
SHEET S02-30 OF S02-36 SHEETS

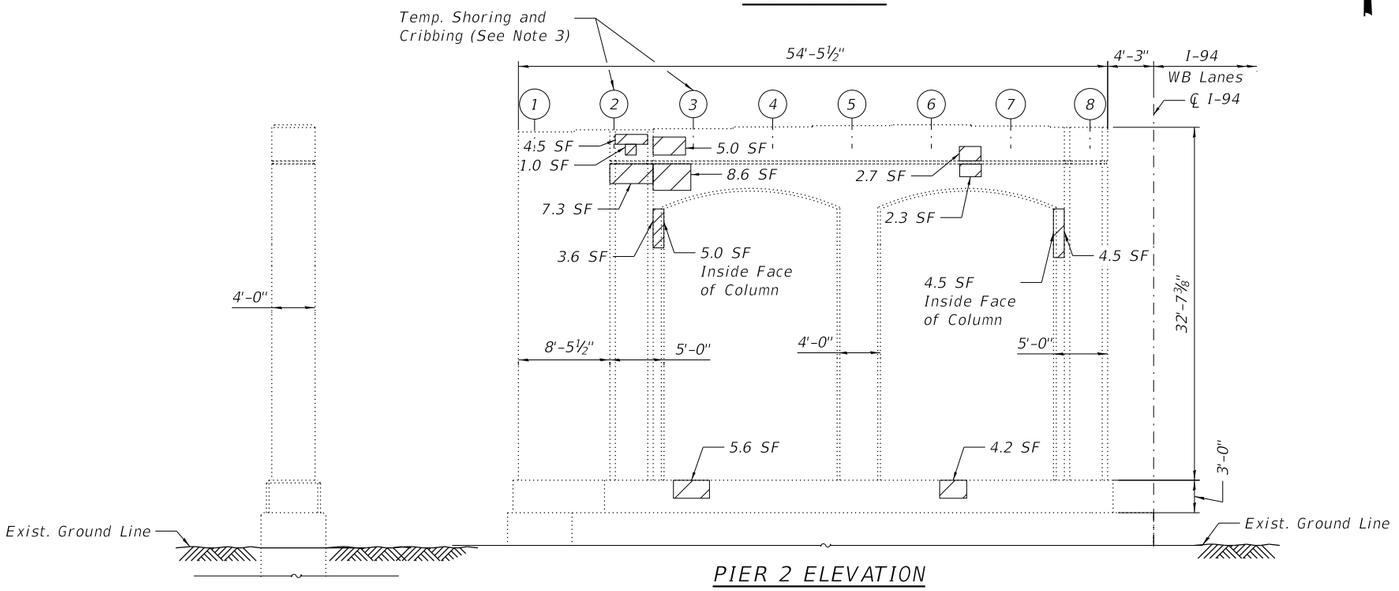
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	526
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



PIER 2 PLAN

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	88
Temporary Shoring And Cribbing	Each	2



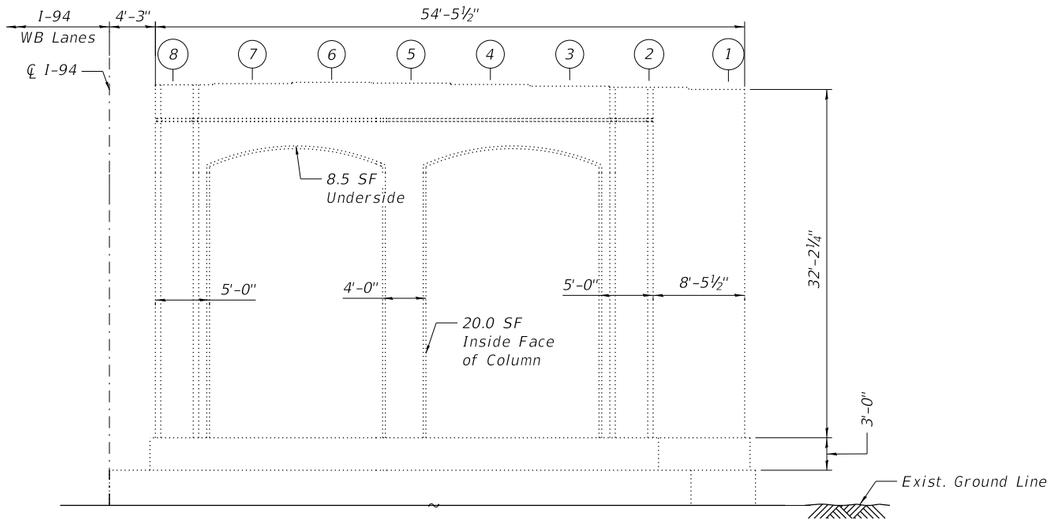
END VIEW

PIER 2 ELEVATION

(Looking North)

*SUMMARY OF REACTIONS		
		Pier 2, Beams 2 & 3
R DL	(k)	91.0
R LL	(k)	54.0
R IM	(k)	14.6
R Total	(k)	159.6

*Taken from Existing Plans



PIER 2 ELEVATION

(Looking South)

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").
3. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
SF	Square Foot

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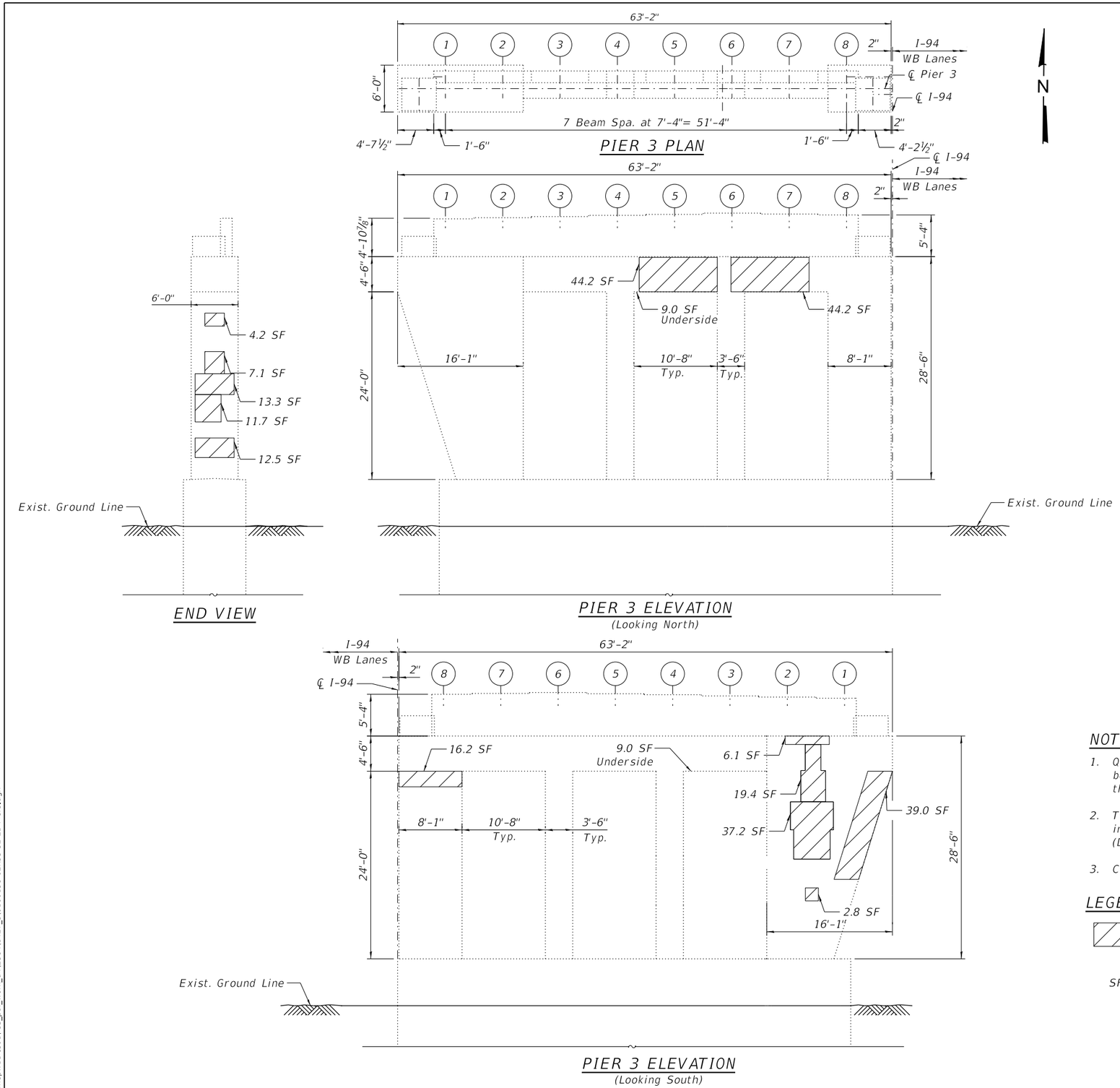
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 REPAIRS
STRUCTURE NO. 016-0158
SHEET S02-31 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	527
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



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BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	1586
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	276

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").
3. Concrete Sealer shall be applied to the beam seats and the faces of the pier cap.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF — Square Foot

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HBM ENGINEERING GROUP, LLC

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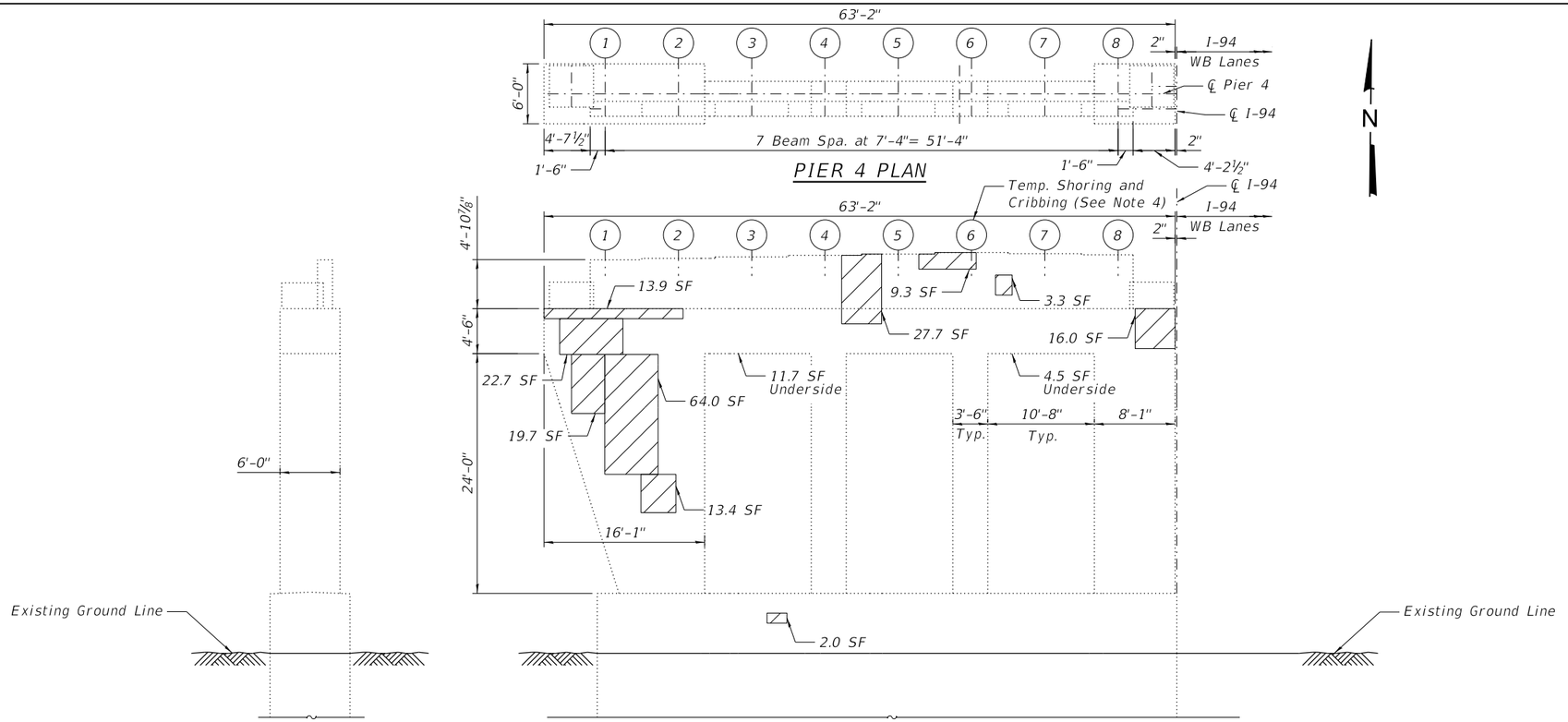
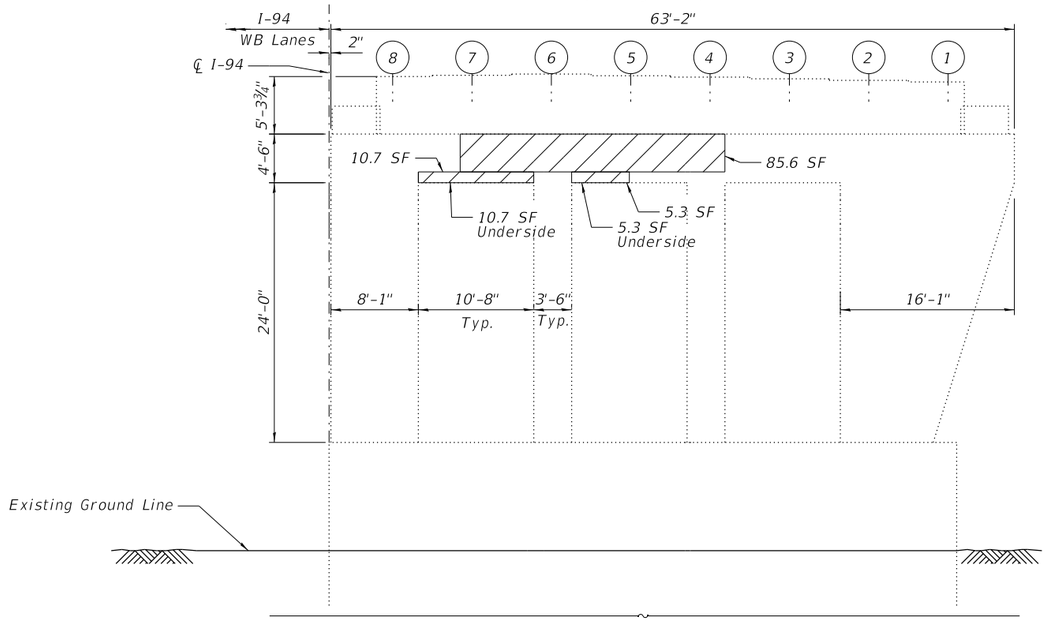
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	528
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	





BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	1,586
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	326
Temporary Shoring And Cribbing	Each	1

*SUMMARY OF REACTIONS		
		Pier 4, Beam 6
R DL	(k)	28.2
R LL	(k)	43.6
R IM	(k)	11.8
R Total	(k)	83.6

*Taken from Existing Plans

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").
3. Concrete Sealer shall be applied to the beam seats and the faces of the pier cap.
4. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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HBM ENGINEERING GROUP, LLC

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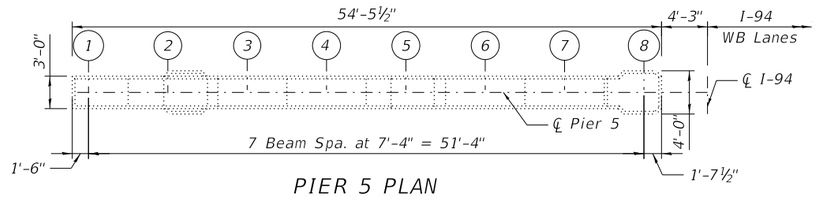
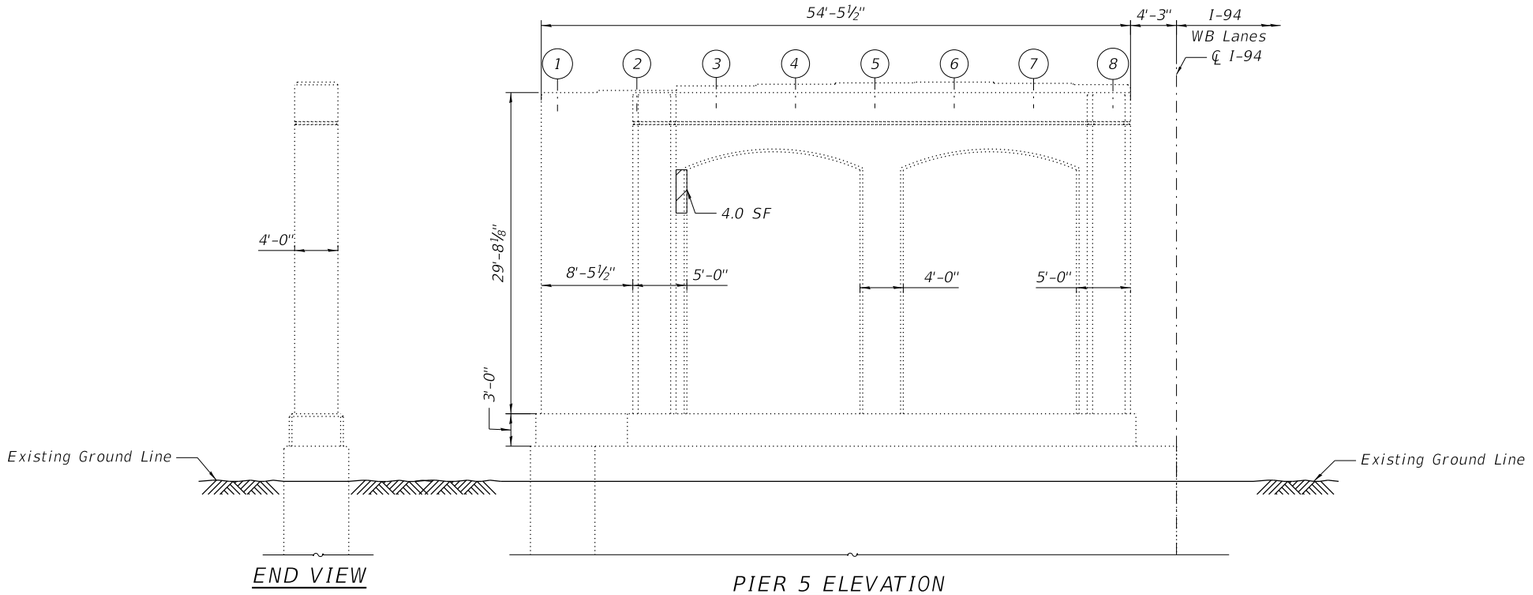
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		SHEET S02-33 OF S02-36 SHEETS	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	529
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



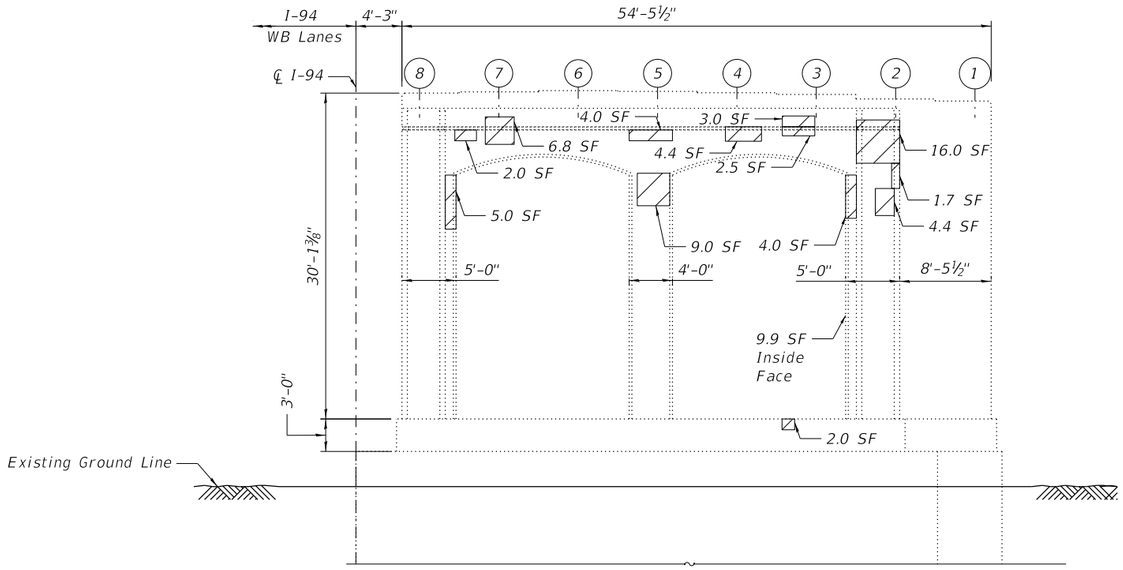
PIER 5 PLAN



END VIEW

PIER 5 ELEVATION

PIER 5 ELEVATION
(Looking North)



PIER 5 ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	79

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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HBM ENGINEERING GROUP, LLC

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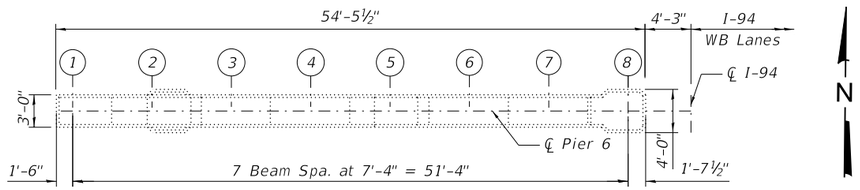
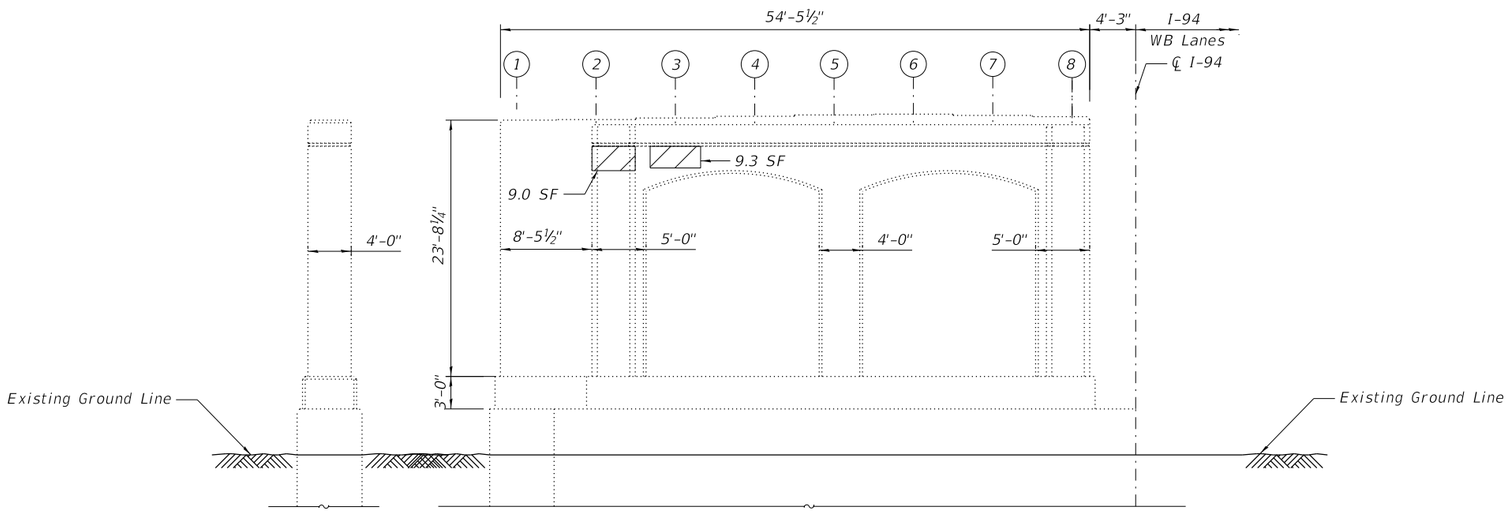
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	530
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			



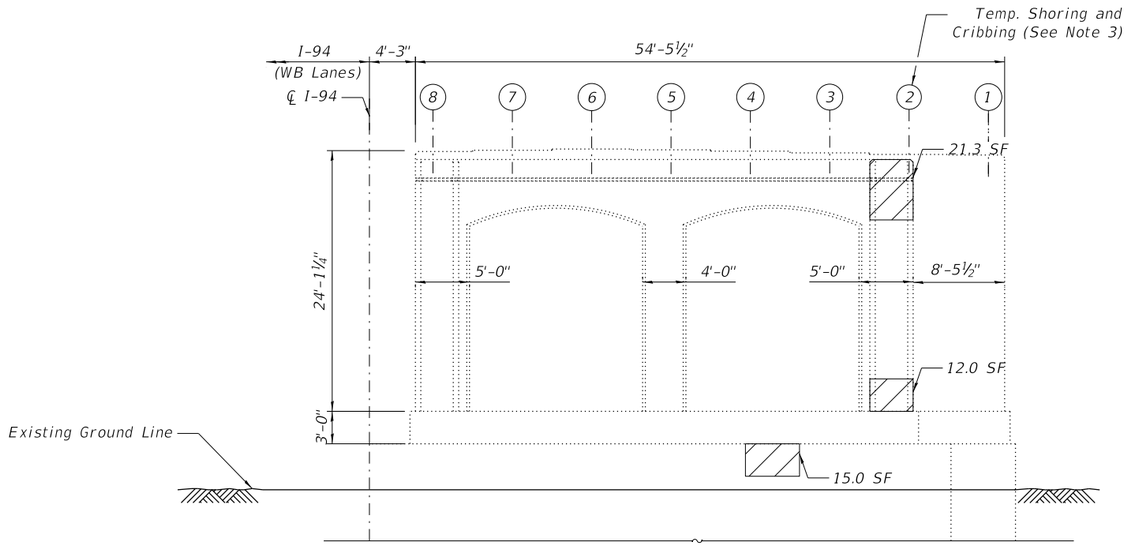
PIER 6 PLAN

N



END VIEW

PIER 6 ELEVATION
(Looking North)



PIER 6 ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	67
Temporary Shoring And Cribbing	Each	1

*SUMMARY OF REACTIONS		
		Pier 6, Beam 2
R DL	(k)	91.0
R LL	(k)	54.0
R IM	(k)	14.6
R Total	(k)	159.6

*Taken from Existing Plans

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. The Contractor is responsible to remove, support, and reinstall all existing utilities interfering with the work. Cost shall be included with Structural Repair of Concrete (Depth Equal To or Less Than 5").
3. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 6 REPAIRS
STRUCTURE NO. 016-0158
SHEET S02-35 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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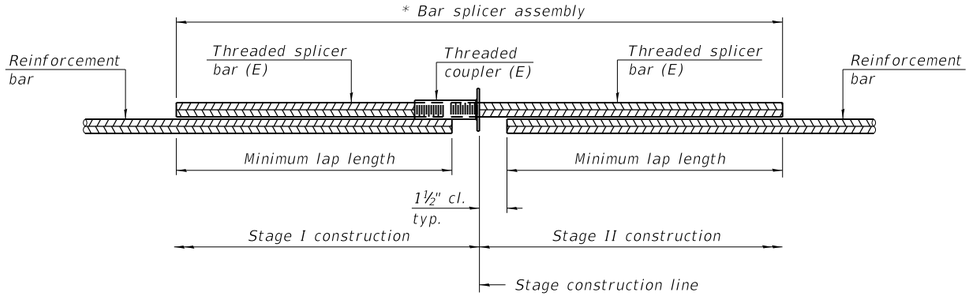
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



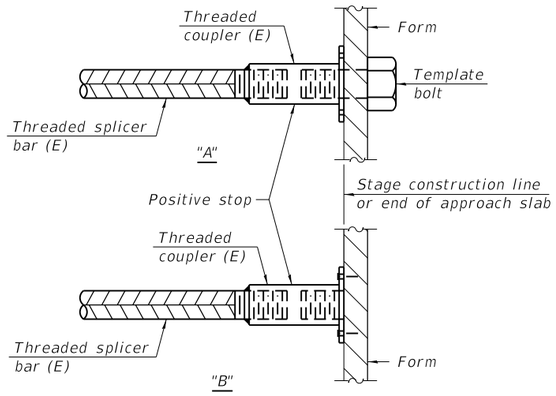
STANDARD BAR SPLICER ASSEMBLY PLAN

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

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

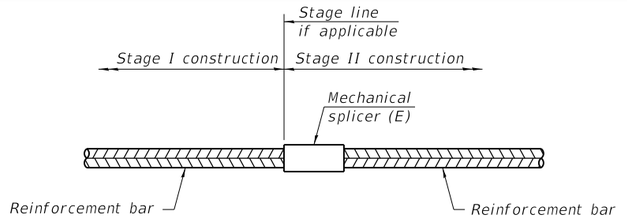
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar Size	No. assemblies required	Minimum lap length
North Abut.	#5	9	3'-6"
	#6	6	5'-6"
Span 4 P.P. 3 Jt.	#5	21	3'-6"
Span 4 P.P. 6 Jt.	#5	21	3'-6"
Span 4 P.P. 3' Jt.	#5	21	3'-6"
Pier 4	#5	21	3'-6"
South Abut.	#5	9	3'-6"
	#6	6	5'-6"



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

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

5-15-2023

HBM ENGINEERING GROUP, LLC

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PLOT DATE =	12/6/2024	DATE -	12/9/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAIL
STRUCTURE NO. 016-0158
SHEET S02-36 OF S02-36 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	532
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

Existing Structure: *S.N. 016-0160 (WB) was originally built in 1949 and was reconstructed in 1993. Structural steel repairs were performed in 2023. The bridge is a six-span structure (six rolled beam spans) carrying four lanes of WB I-94 over three railroads (IHB, Conrail, and Baltimore and Ohio Chicago Terminal). The structure has a back-to-back abutment length of 416'-7⅝" and an out-to-out deck width of 61'-6½". The superstructure consists of a 7½"-thick reinforced concrete deck supported on noncomposite W36x160 and W36x210 beams at 6'-6" spacing. The substructure consists of reinforced concrete abutments and multi-column piers on concrete piles.*

Traffic is to be maintained utilizing staged construction.

No salvage.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges (17th Edition)

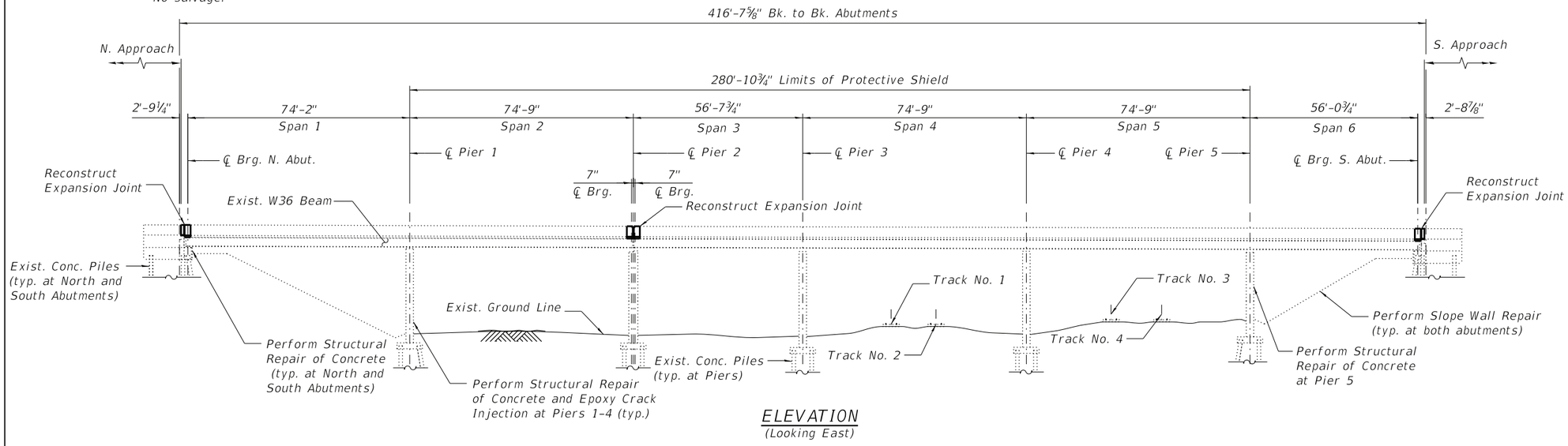
RECONSTRUCTION 1992

1983 AASHTO Standard Specifications for Highway Bridges with 1984 thru 1988 Interims

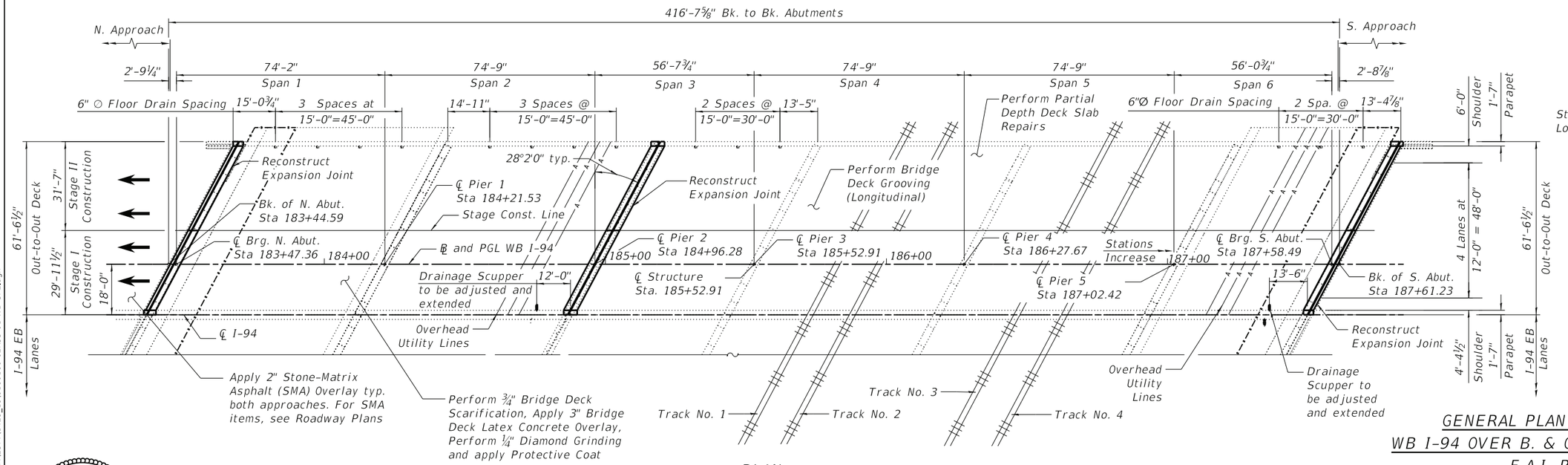
1983 Guide Specifications for Seismic Design of Highway Bridges with 1985 & 1988 Interim Specifications

NOTES:

1. *All stations are to the I-94 WB P.G.L. and taken from existing plans.*
2. *No future wearing surface is allowed.*

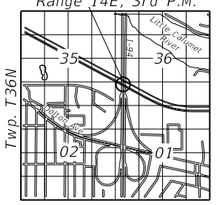


ELEVATION
(Looking East)



PLAN

Structure Location
Range 14E, 3rd P.M.



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
WB I-94 OVER B. & O.C.T. R.R. & I.H.B. R.R.
F.A.I. ROUTE 94
SECTION 2019-180-RS&T
COOK COUNTY
STATION 185+52.91
S.N. 016-0160 (WB)

STATE OF ILLINOIS
MOUSSA A. ISSA
081-005738
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed Moussa A. Issa

Dr. Moussa A. Issa, S.E. IL. Lic. No. 081-005738
Expires 11-30-2026

Date 12/06/2024 *For Sheets S03-01 thru S03-26.*

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 016-0160 (WB)
SHEET S03-01 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	533
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

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GENERAL NOTES:

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

2. Plan dimensions and details relative to the existing structure have been taken from existing plans and 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 cause for additional compensation for a change in the scope of the work; however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

3. The Contractor may request copies of existing construction plans that are currently on file with the Illinois Department of Transportation (IDOT). The request shall be in writing with the understanding that any reproduction cost will be the Contractors expense and at no additional cost to the Department.

4. All exposed concrete edges shall have a ¾" x 45° chamfer except where shown otherwise.

5. Protective coat shall be applied to the top of reconstructed transverse joint areas, top of new latex concrete overlay, and top and inside faces of parapets.

6. 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.

7. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose detrimental foreign material shall be removed from the surfaces in contact with concrete (SSPC-SP3 standards). 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 paid for according to Article 109.04 of the Standard Specifications. As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding ¼ inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

8. The Contractor shall take all necessary precautions for the protection of passing vehicles and pedestrians from falling objects and/or materials until completion of the work.

9. It shall be the Contractors responsibility to locate and protect any utilities or facilities on, within or under the bridge deck including but not limited to under deck lighting, traffic signals or signs attached to the structure. Any damage to existing utilities caused by the Contractor in the performance of the work shall be repaired by the Contractor, to the satisfaction of the Engineer, at no cost to the Department.

10. The Contractor shall exercise extreme caution during Concrete Removal to avoid damaging the steel beams and diaphragms to remain. Any damage to existing elements to remain cause by the Contractor in the performance of the work shall be repaired by the Contractor, to the satisfaction of the Engineer, at no cost to the Department.

11. Cleaning and field painting of structural steel shall be done under a separate painting contract.

12. For SMA overlay on Approach Slab, see Civil Sheets.

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

14. Adjacent I-94 EB bridge is not shown throughout the plans for clarity.

15. The Contractor is responsible to protect the existing conduit and junction box embedded in the parapet during removal and construction. Any damage to the existing conduit and junction box shall be repaired by the Contractor at no additional cost to the Department.

16. Concrete Sealer shall be applied to the designated areas of the abutments and piers.

17. Prior to the application of the Concrete Sealer, the Contractor shall clean all existing debris from the abutment seats. The method of debris removal shall not damage the existing concrete and shall be approved by the Engineer. See special provision for Debris Removal.

18. The Engineer shall show actual locations and size of deck repairs on As-built Plans.

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	–	1	1
Concrete Removal	Cu Yd	33.2	–	33.2
Protective Shield	Sq Yd	1,921	–	1,921
Concrete Superstructure	Cu Yd	37.3	–	37.3
Protective Coat	Sq Yd	3,099	–	3,099
Reinforcement Bars, Epoxy Coated	Pound	5,020	–	5,020
Bar Splicers	Each	48	–	48
Preformed Joint Strip Seal	Foot	210	–	210
Concrete Sealer	Sq Ft	–	4,189	4,189
Epoxy Crack Injection	Foot	–	16	16
Chain Link Fence, 5'	Foot	–	5	5
Bridge Deck Grooving (Longitudinal)	Sq Yd	2,217	–	2,217
Slope Wall Crack Sealing	Foot	–	84	84
Deck Drain Extensions	Each	16	–	16
Drainage Scuppers To Be Adjusted	Each	2	–	2
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,617	–	2,617
Bridge Deck Scarification 3/4"	Sq Yd	2,617	–	2,617
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	–	160	160
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	–	19	19
Diamond Grinding (Bridge Section)	Sq Yd	2,511	–	2,511
Temporary Shoring And Cribbing	Each	–	2	2

PROPOSED SCOPE OF WORK

1. Provide Protective shield within limits indicated on the plans.

2. Perform Deck Slab Repairs and adjust and extend existing scuppers and floor drains as required.

3. Perform ¾" Bridge Deck Scarification.

4. Reconstruct Expansion Joints at the North and South abutments and Pier 2 and install new preformed joint strip seals.

5. Apply 3" Bridge Deck Latex Concrete Overlay on Bridge Deck.

6. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatch block.

7. Perform Bridge Deck Grooving (Longitudinal) on traffic lanes.

8. Apply protective coat to the top of reconstructed transverse joint areas, top of new latex concrete overlay and top and inside faces of parapets.

9. Perform structural repair of concrete to all spalled and delaminated areas, and perform low pressure epoxy injection to all open cracks (⅛"-wide and wider), for the abutments and piers as noted on the plans.

10. Perform Slope Wall repairs.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS & TBOM
STRUCTURE NO. 016-0160 (WB)
SHEET S03-02 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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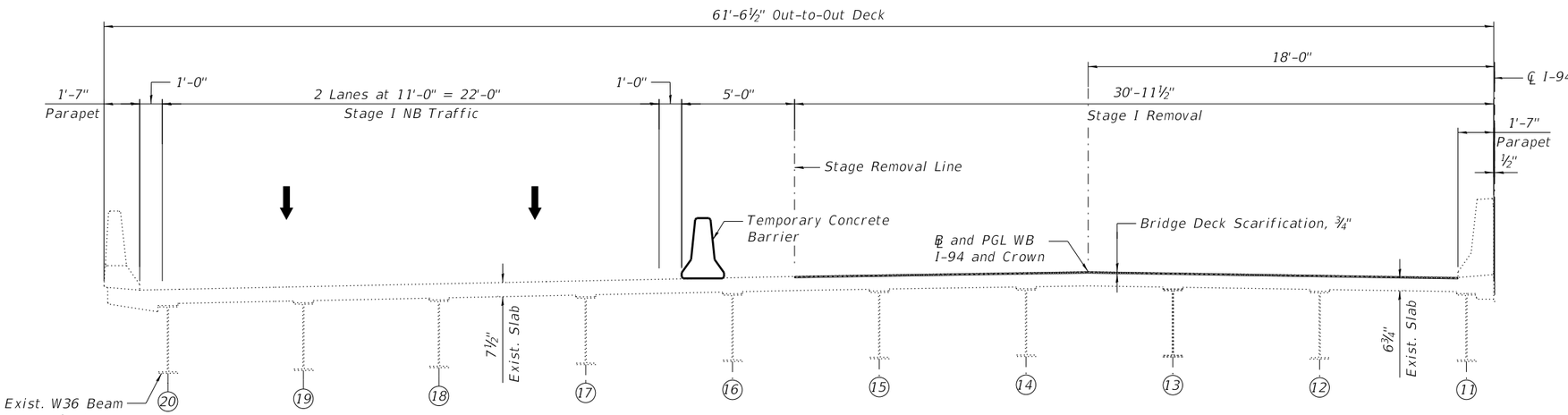
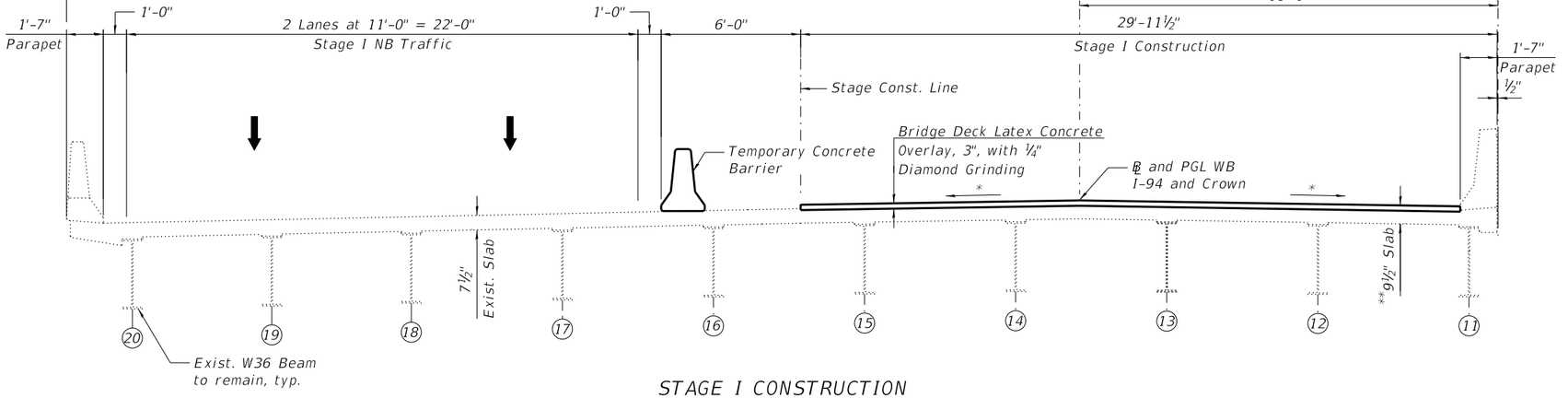
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



STAGE I REMOVAL

(Looking South)



STAGE I CONSTRUCTION

(Looking South)

STAGE I REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the west side of the existing structure.
2. Perform ¾" bridge deck scarification.
3. Remove portions of bridge deck/approach slab adjacent to expansion joints at the North and South Abutments, and remove portions of bridge deck slab adjacent to expansion joint at Pier 2.

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct transverse expansion joints and install new preformed joint strip seals within the limits of Stage I Construction.
3. Adjust existing drainage scuppers per the details shown in the plans.
4. Perform structural repair of concrete and epoxy crack injection for the abutments and piers.
5. Apply 3" bridge deck latex concrete overlay.
6. Perform ¼" diamond grinding to bridge deck and abutment hatch block.
7. Perform Bridge Deck Grooving (Longitudinal) for the 3" bridge deck latex concrete overlay and reconstructed expansion joint areas.
8. Apply 2" Stone-Matrix Asphalt (SMA) Overlay to the approach slab and taper into existing roadway. See Roadway Plans.
9. Apply protective coat to top and inside faces of parapets, reconstructed transverse expansion joint areas and to the surface of the new overlay.
10. Perform slope wall repairs as shown on the plans.

NOTES:

1. For Temporary Concrete Barrier details, see Sheet S03-05.
2. For quantity of Temporary Concrete Barrier, see Roadway Plans.

*Match Existing Cross-slopes

**After grinding

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0160 (WB)
SHEET S03-03 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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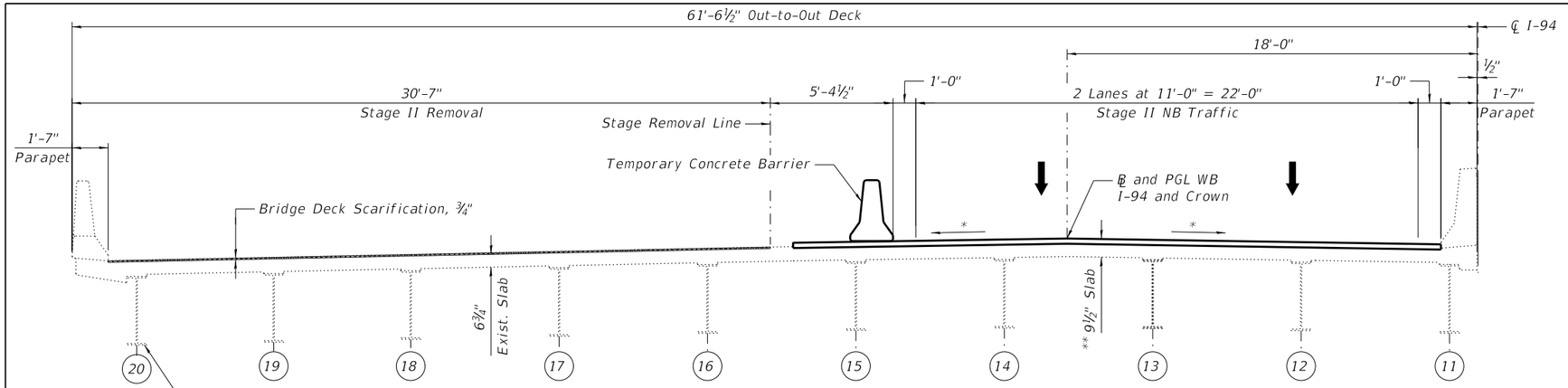
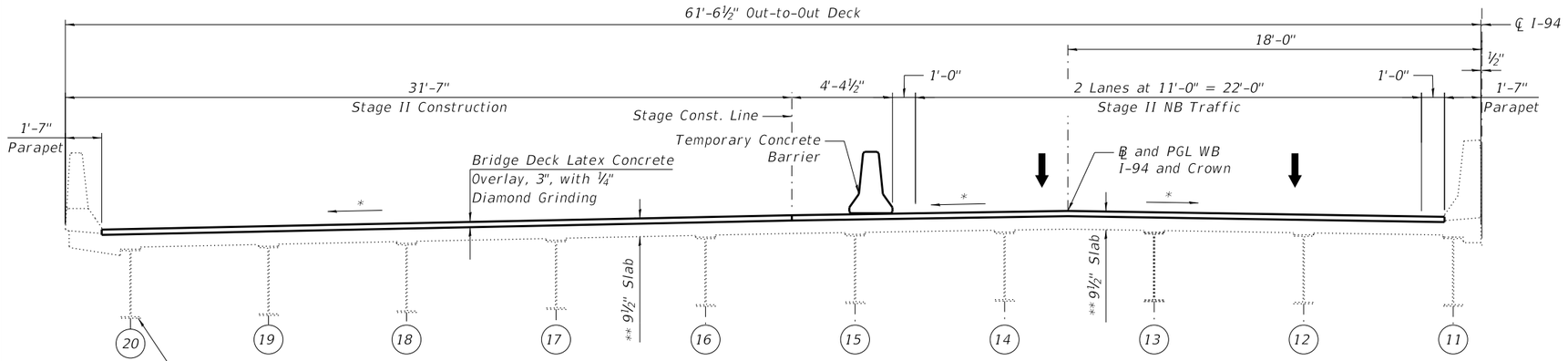
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



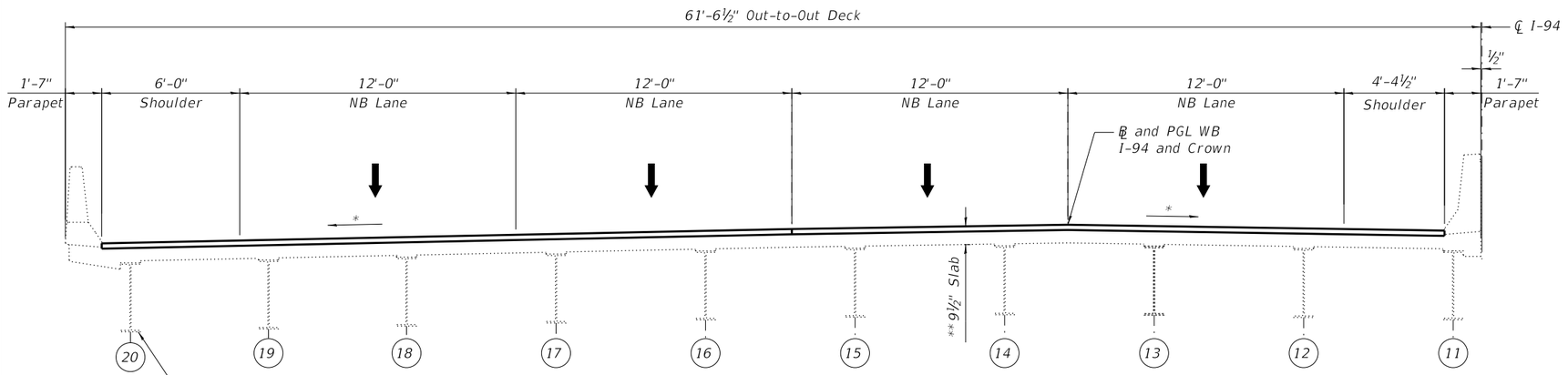
STAGE II REMOVAL

(Looking South)



STAGE II CONSTRUCTION

(Looking South)



FINAL DECK CROSS SECTION

(Looking South)

STAGE II REMOVAL

1. Relocate temporary concrete barrier as shown to locate traffic on the west side of the existing structure.
2. Perform ¾" bridge deck scarification.
3. Remove portions of bridge deck/approach slab adjacent to expansion joints at the North and South Abutments, and remove portions of bridge deck slab adjacent to expansion joint at Pier 2.

STAGE II CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct transverse expansion joints and install new preformed joint strip seals within the limits of Stage II Construction.
3. Perform structural repair of concrete and epoxy crack injection for the abutments and piers.
4. Apply 3" bridge deck latex concrete overlay.
5. Perform ¼" diamond grinding to bridge deck and abutment hatch block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" bridge deck latex concrete overlay and reconstructed expansion joint areas.
7. Apply 2" Stone-Matrix Asphalt (SMA) Overlay to the approach slab and taper into existing roadway. See Roadway Plans.
8. Apply protective coat to top and inside faces of parapets, reconstructed transverse expansion joint areas, and to the surface of the new overlay.
9. Perform slope wall repairs as shown on the plans.

NOTES:

1. For Temporary Concrete Barrier details, see Sheet S03-05.
2. For quantity of Temporary concrete Barrier, see Roadway Plans.

*Match Existing Cross-slopes

**After grinding

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0160 (WB)

SHEET S03-04 OF S03-26 SHEETS

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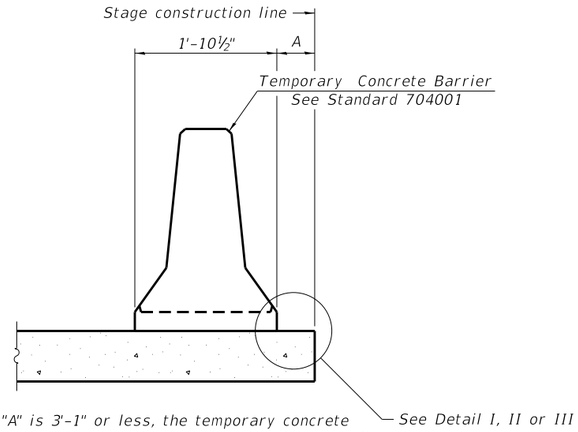
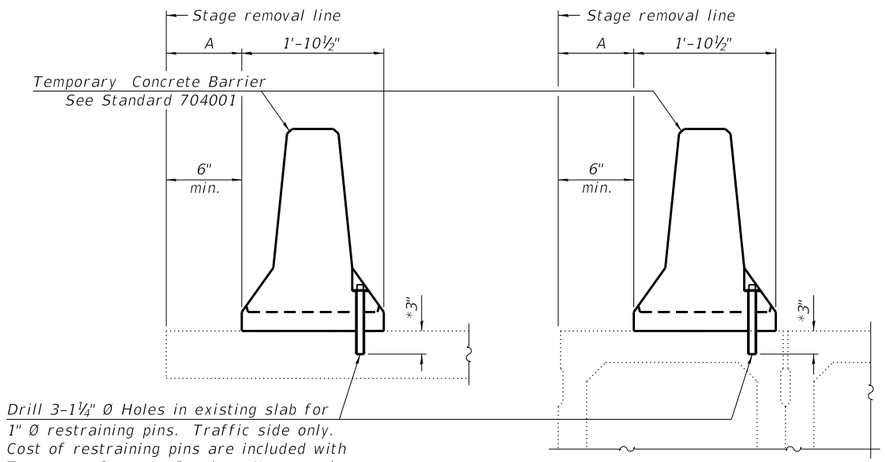
		ILLINOIS	FED. AID PROJECT	



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



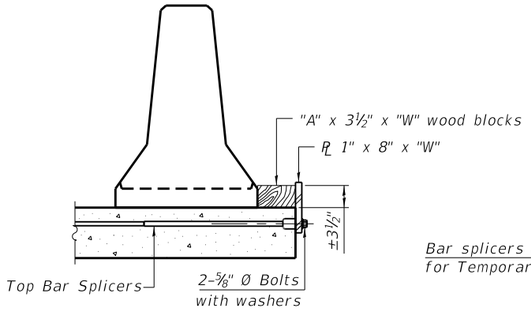
Drill 3-1¼" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

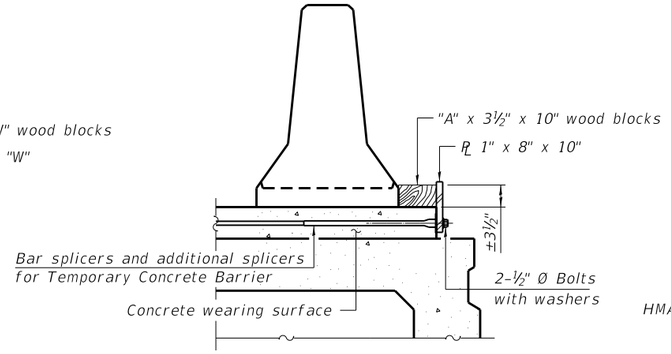
*When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

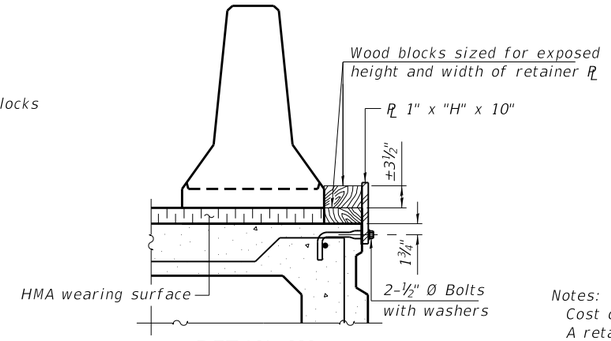
SECTIONS THRU SLAB OR DECK BEAM



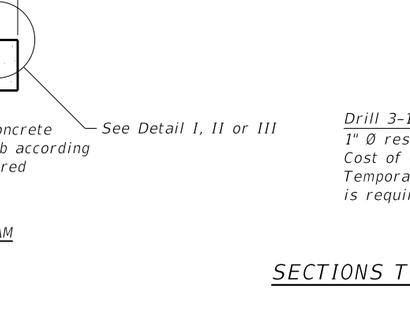
DETAIL I



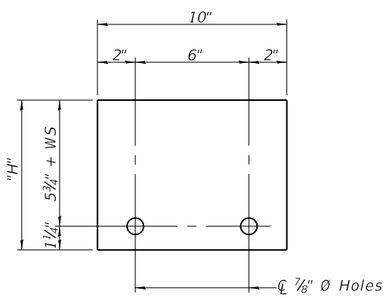
DETAIL II



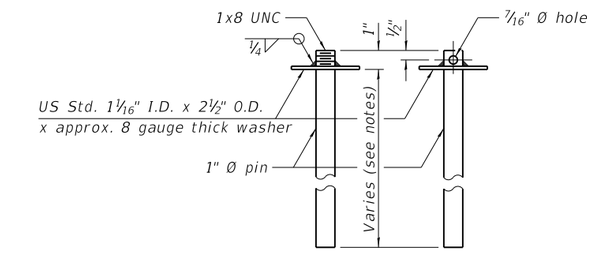
DETAIL III



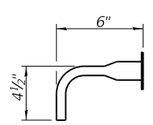
STEEL RETAINER PL 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER PL 1" x "H" x 10"
(Detail III)



RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III

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.

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0160 (WB)

SHEET S03-05 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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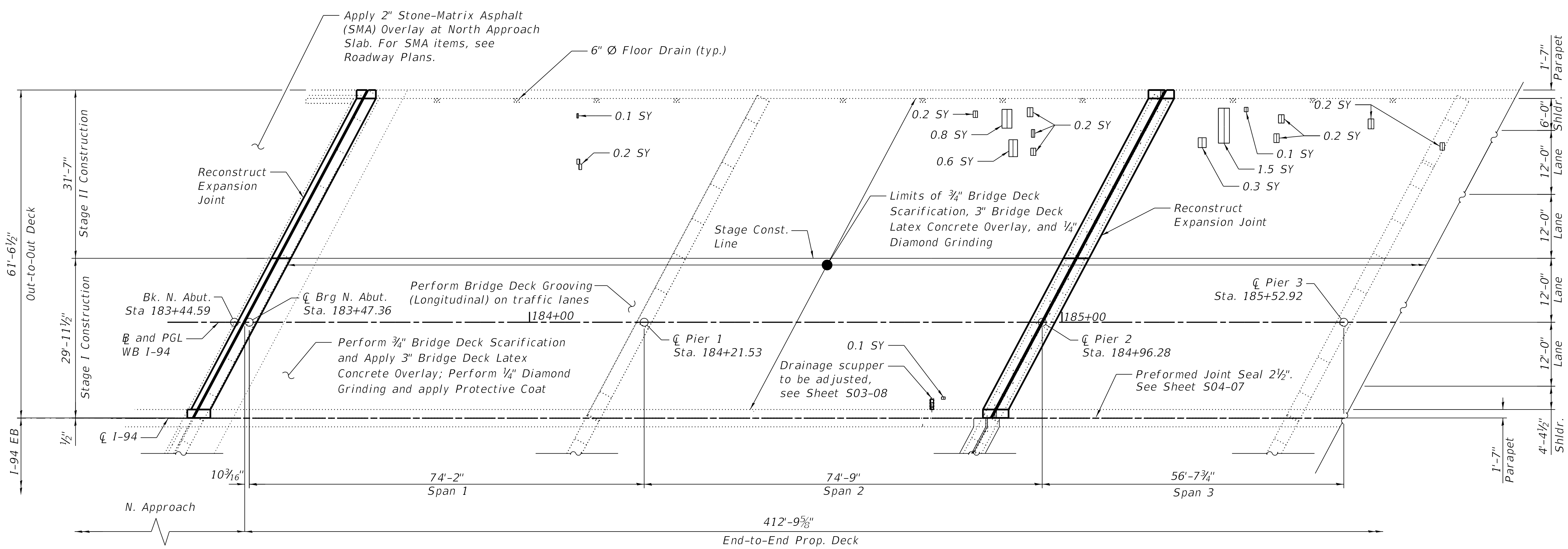
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



DECK PLAN

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*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

LEGEND

[symbol]	Deck Slab Repair (Partial)*
SY	Square Yard

NOTE:

1. For Notes and Bill of Material, see Sheet S03-07.

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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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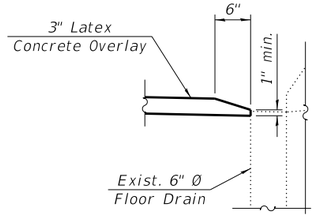
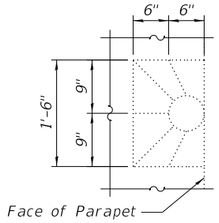


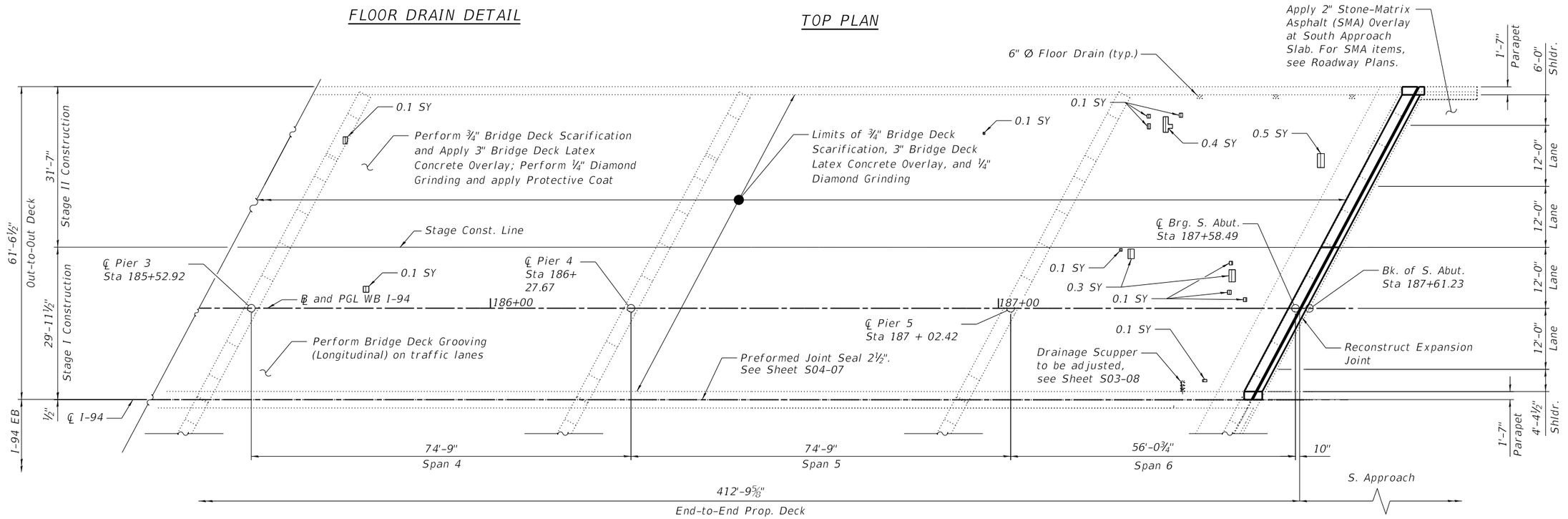
FLOOR DRAIN DETAIL



TOP PLAN

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	3,019
Bridge Deck Grooving (Longitudinal)	Sq Yd	2,217
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,617
Bridge Deck Scarification 3/4"	Sq Yd	2,617
Diamond Grinding (Bridge Section)	Sq Yd	2,511



DECK PLAN

NOTES:

1. Areas of deck repair shown are estimated. The Engineer shall show actual locations of deck repairs at the time of construction.
2. For bridge deck final cross section, see Sheet S03-04.
3. For North Abutment, Pier 2, and South Abutment transverse joint removal and reconstruction, see Sheets S03-09 thru S03-16.
4. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatch block.
5. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

LEGEND

Deck Slab Repair (Partial)*

SY Square Yard

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		SHEET S03-07 OF S03-26 SHEETS	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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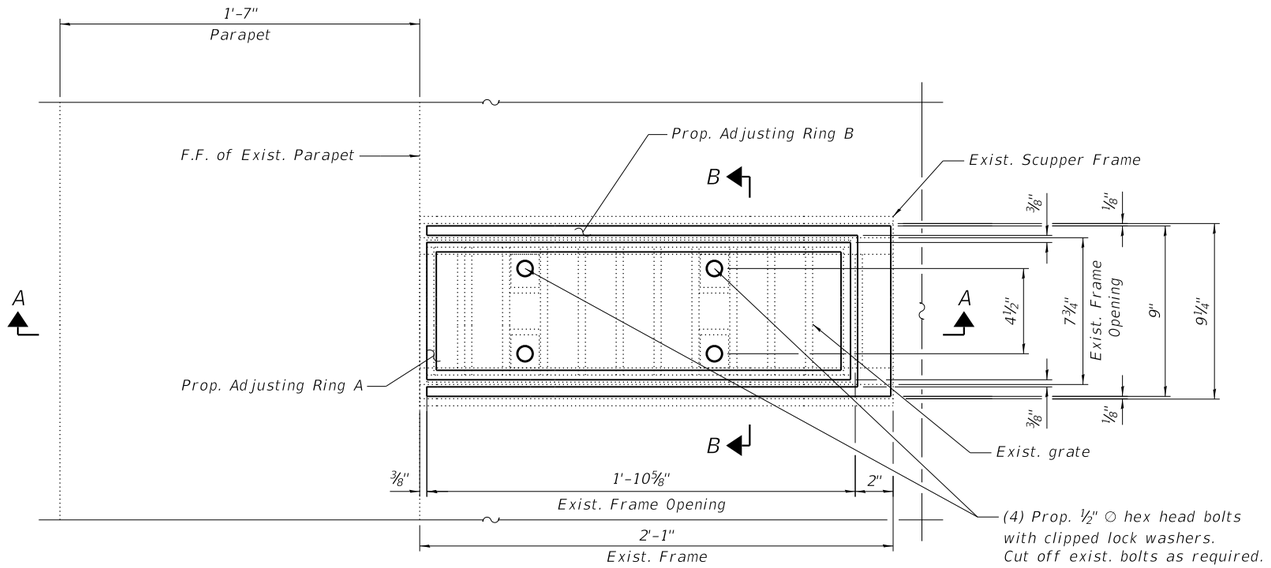
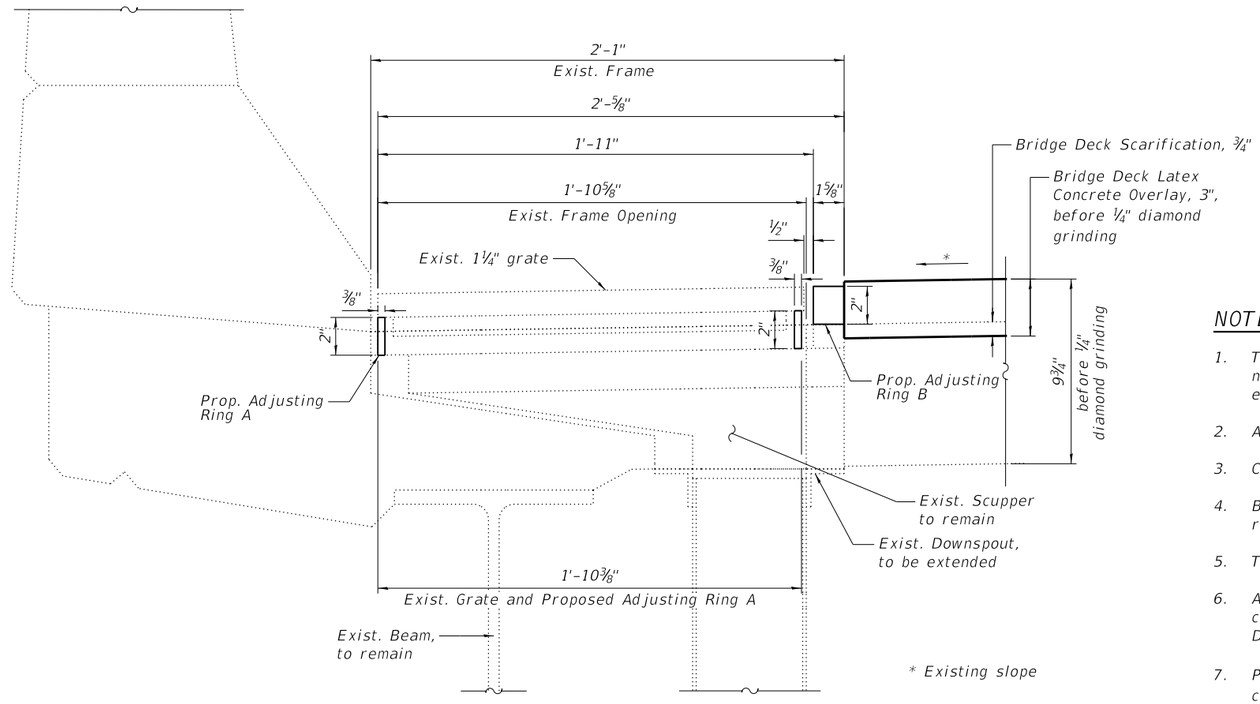
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



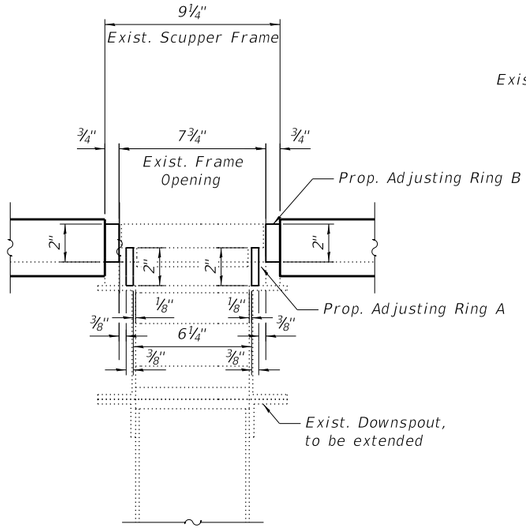
TYPICAL SCUPPER PLAN



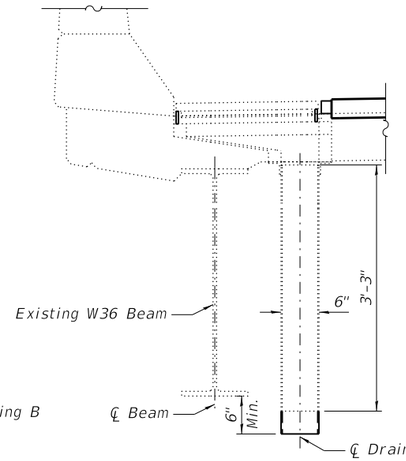
SECTION A-A

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	16
Drainage Scuppers To Be Adjusted	Each	2



SECTION B-B



DRAIN EXTENSION DETAIL

NOTES:

1. The Contractor shall field-verify Existing Dimensions and Details of the Existing Scuppers and downspouts and make necessary approved adjustments prior to construction or ordering of material for Adjusting Drainage Scuppers and extending downspouts.
2. All Cast Iron Parts shall be Grey Iron conforming to the requirements of AASHTO M 105, Class 35B.
3. Cast Iron Parts shall be unfinished.
4. Bolts, washers and nuts shall conform to the requirements of ASTM A307 and be galvanized according to the requirements of AASHTO M232.
5. The Contractor shall take appropriate measures to ensure that Protective Coat is not applied to the scuppers.
6. Adjusting Rings shall be from Neenah or approved equal. Structural steel weldments or equal sections and of the same configuration may be submitted in place of Cast Iron. Fillet or full penetration welds may be used for weldments. Details shall be submitted to the Engineer for approval.
7. Provide 1/8" Fillet Weld around perimeter of new Adjusting Rings to secure to existing Scupper. Electrode shall be compatible with cast iron if existing scupper elements are cast iron construction.
8. Cost of all labor and materials necessary to clean all existing floor drains and scuppers, fabricate and install adjusting scupper rings, remove and reinstall grates is included in the cost of Drainage Scuppers to be Adjusted.

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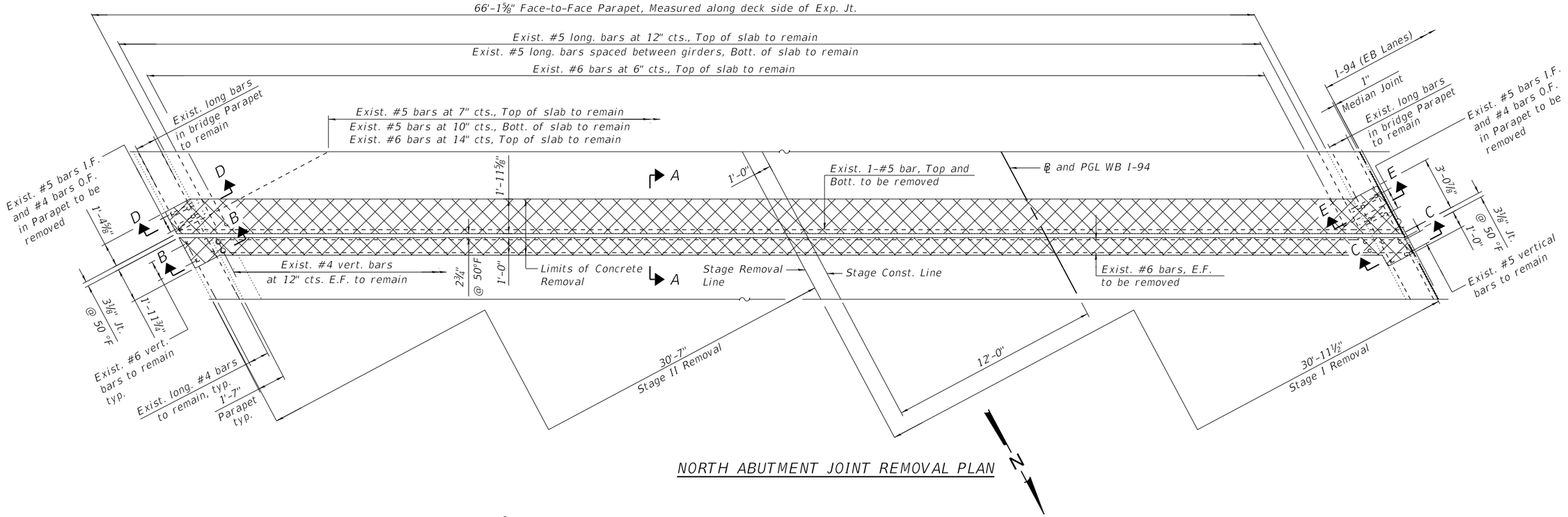
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER ADJUSTMENT DETAILS
STRUCTURE NO. 016-0160 (WB)
SHEET S03-08 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	540
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, Legend and additional notes, see Sheet S03-10.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, and Bill of Material, see Sheet S03-11.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0160 (WB)

SHEET S03-09 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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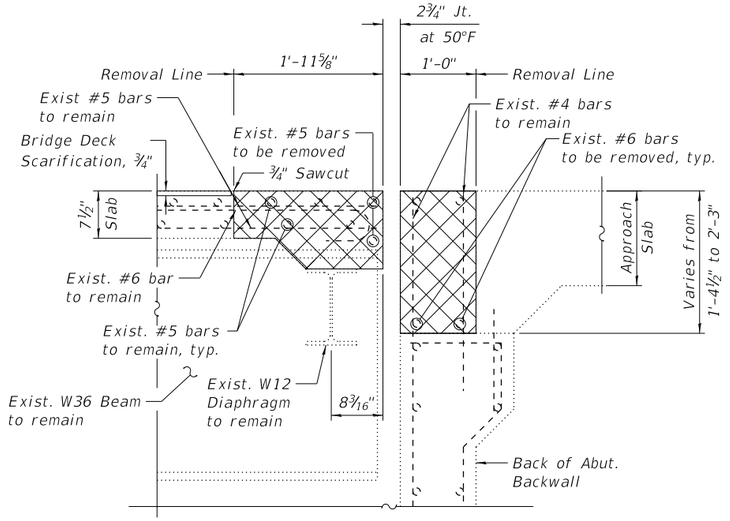
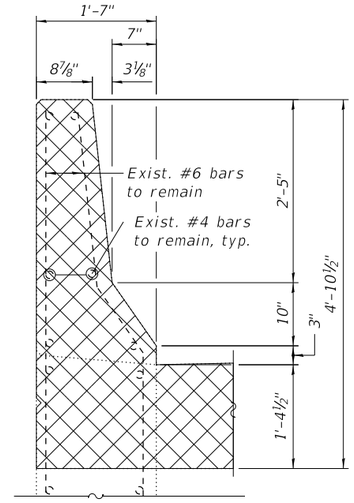
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

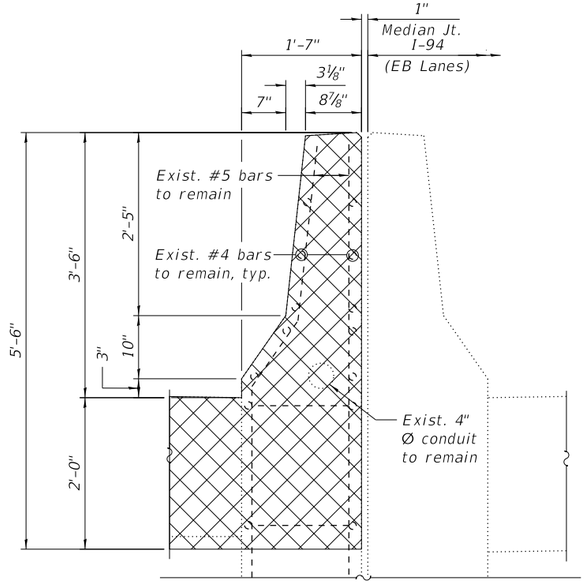


SECTION A-A



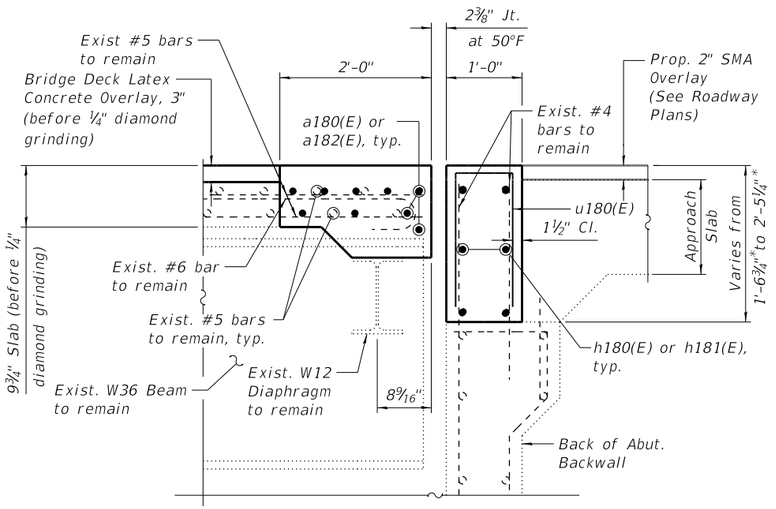
SECTION B-B

(Reinforcement in the pour strip not shown for clarity)



SECTION C-C

(Reinforcement in the pour strip not shown for clarity)



SECTION AA-AA

SECTION BB-BB

(Reinforcement in the pour strip not shown for clarity)

SECTION CC-CC

(Reinforcement in the pour strip not shown for clarity)

*Before ¼" Diamond Grinding

NOTES:

1. For preformed joint strip seal details, see Sheet S03-17.
2. For bar splicer assembly details, see Sheet S03-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. Epoxy grout d180(E), d181(E), d184(E) and d185(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.
5. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
6. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
7. Dimensions are based on Roller Rail Strip Seal joint. If the Contractor elects to use the Welded Rail Strip Seal joint, deck dimensions may require adjustments to satisfy the details on Sheet S03-17.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

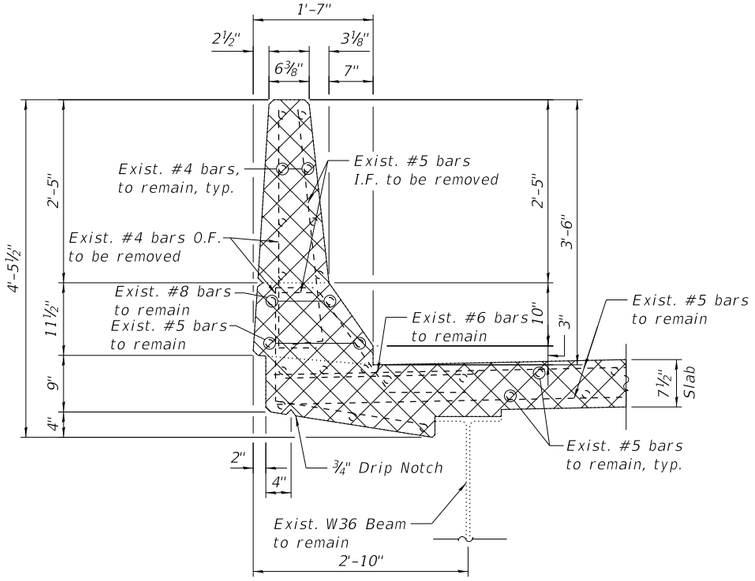
N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0160 (WB)

SHEET S03-10 OF S03-26 SHEETS

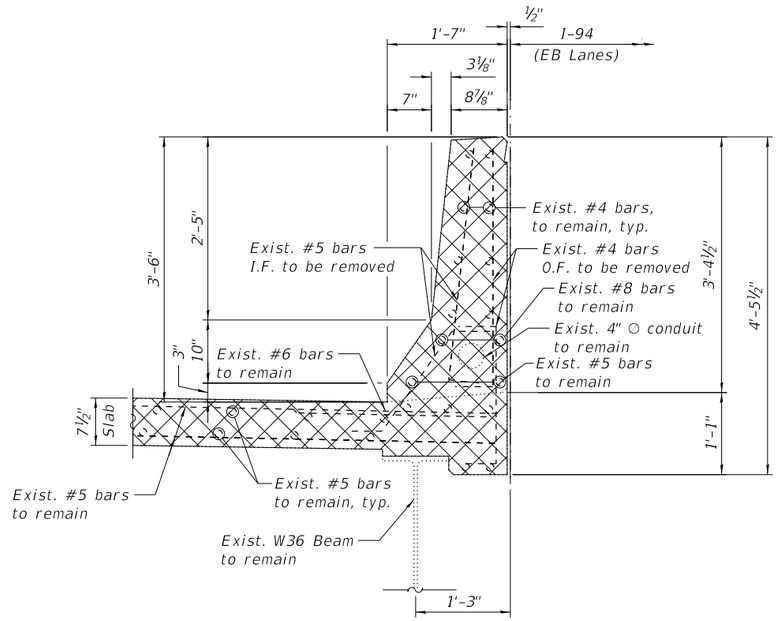
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	542
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a180(E)	9	#5	35'-5"	
a181(E)	6	#6	6'-6"	
a182(E)	9	#5	33'-7"	
d180(E)	3	#5	5'-6"	
d181(E)	3	#5	5'-9"	
d182(E)	7	#4	3'-8"	
d183(E)	7	#5	3'-8"	
d184(E)	2	#5	6'-1"	
d185(E)	2	#5	6'-4"	
d186(E)	3	#4	3'-11"	
d187(E)	7	#5	2'-7"	
d188(E)	4	#4	2'-7"	
h180(E)	6	#6	33'-8"	
h181(E)	6	#6	31'-10"	
u180(E)	68	#5	3'-0"	
Concrete Removal			Cu Yd	10.4
Concrete Superstructure			Cu Yd	11.9
Protective Coat			Sq Yd	23
Reinforcement Bars, Epoxy Coated			Pound	1,650



SECTION D-D



SECTION E-E

BARS d186(E)

BAR d187(E)

SECTION DD-DD

SECTION EE-EE

BARS d182(E) & d183(E)

BARS d181(E) & d185(E)

BARS u180(E)

BARS d188(E)

*Before ¼" Diamond Grinding

NOTE:

1. For Legend and Notes, see Sheet S03-10.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0160 (WB)

SHEET S03-11 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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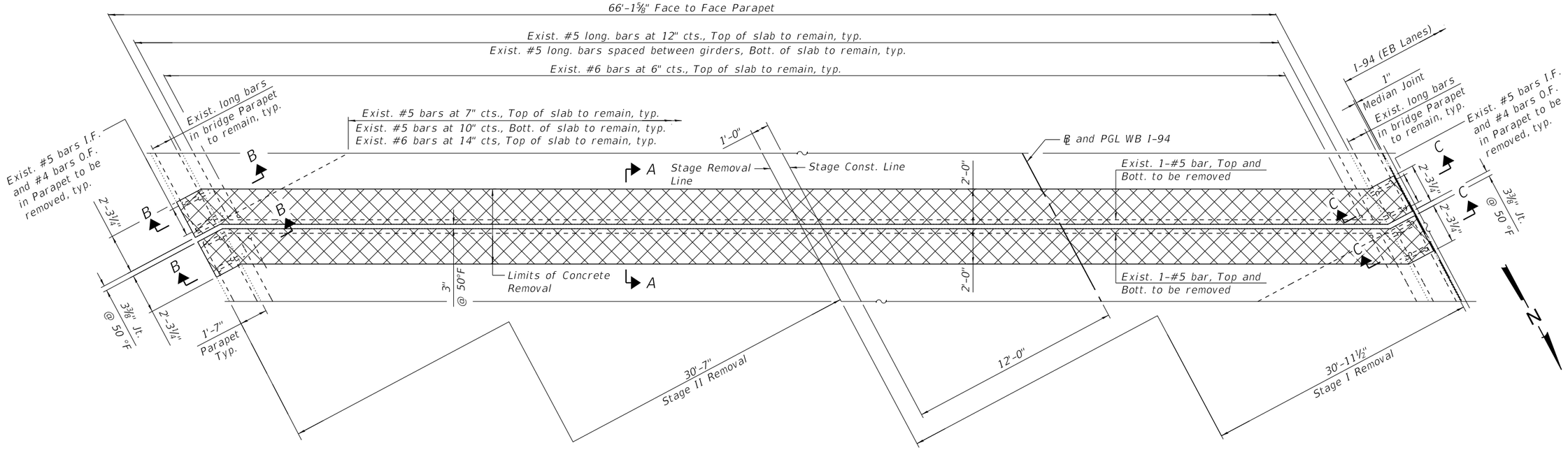
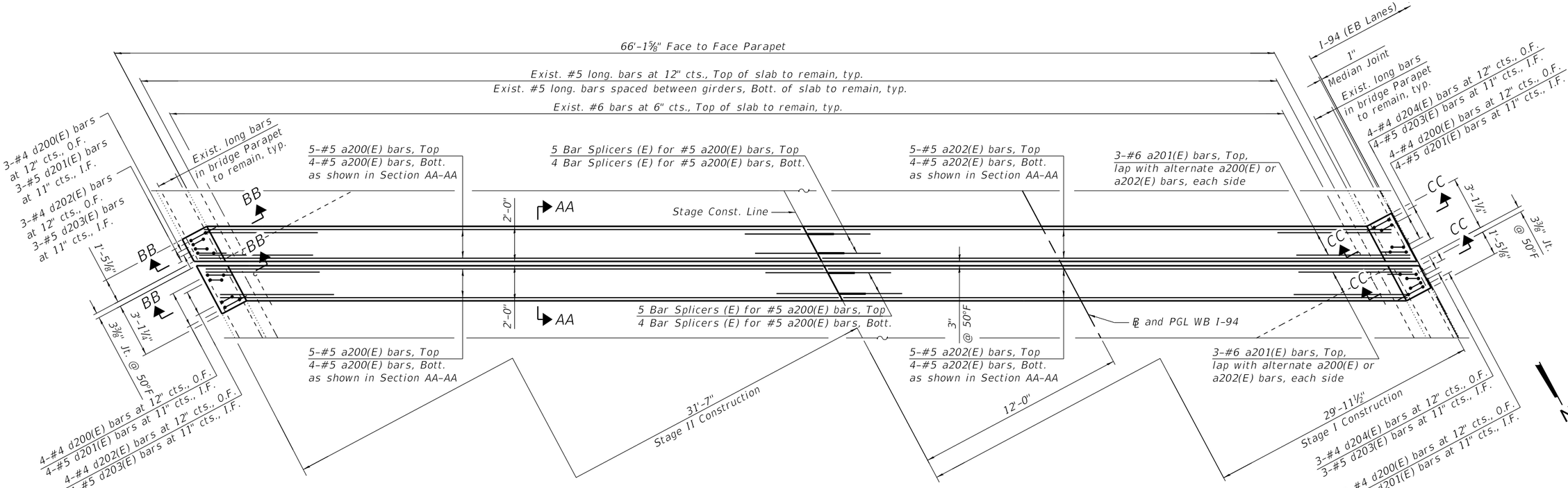
		CONTRACT NO.		62W87
	ILLINOIS FED. AID PROJECT			



PIER 2 JOINT REMOVAL PLAN



PIER 2 JOINT RECONSTRUCTION PLAN

NOTE:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, Bar Diagrams, Bill of Material, Legend, and additional notes, see Sheet S03-13.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 2)
STRUCTURE NO. 016-0160 (WB)
SHEET S03-12 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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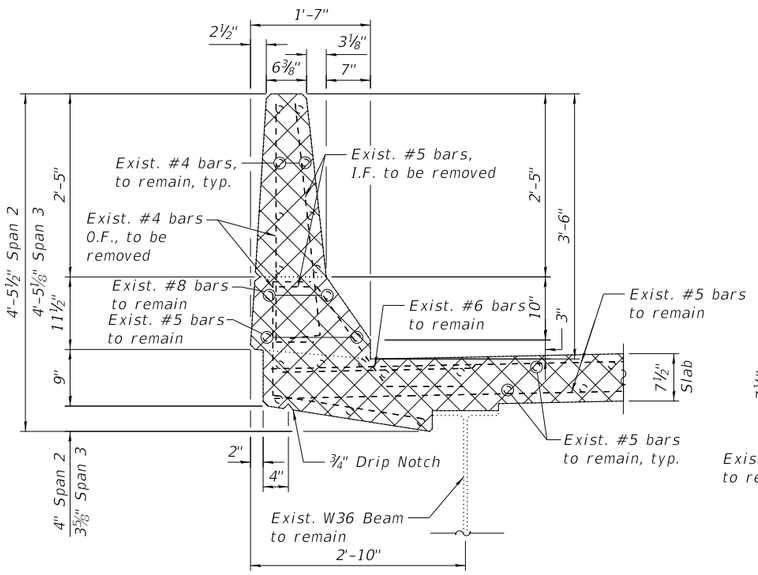
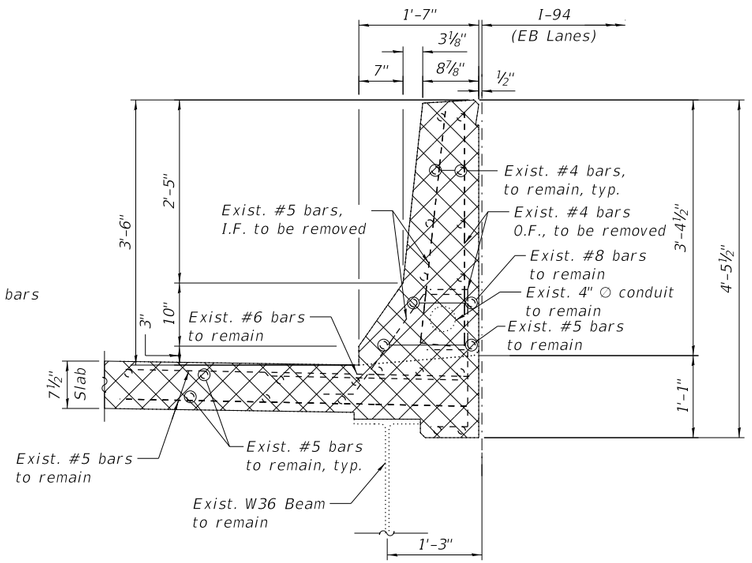
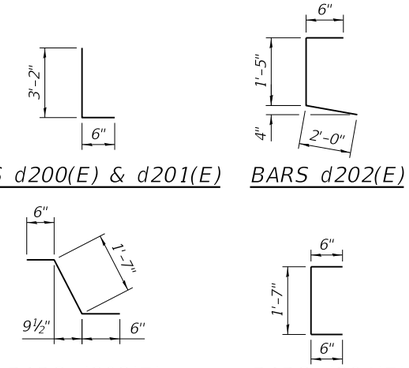
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



SECTION B-B



SECTION C-C



BARS d200(E) & d201(E)

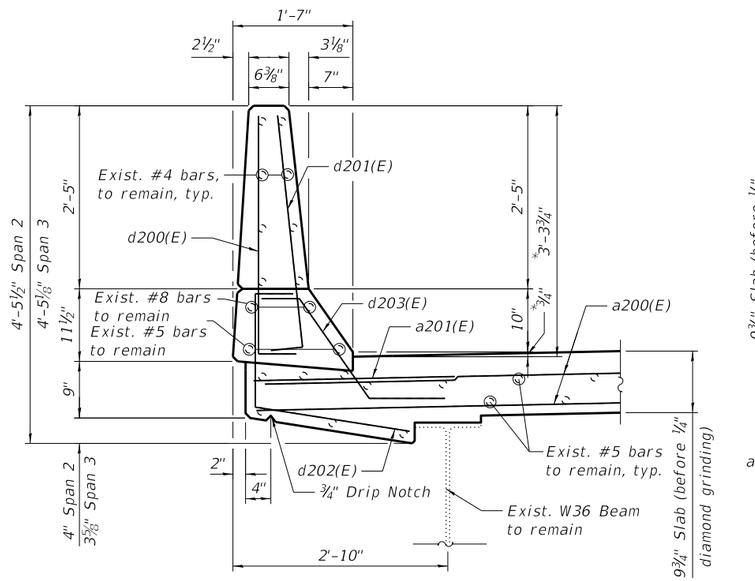
BARS d202(E)

BARS d203(E)

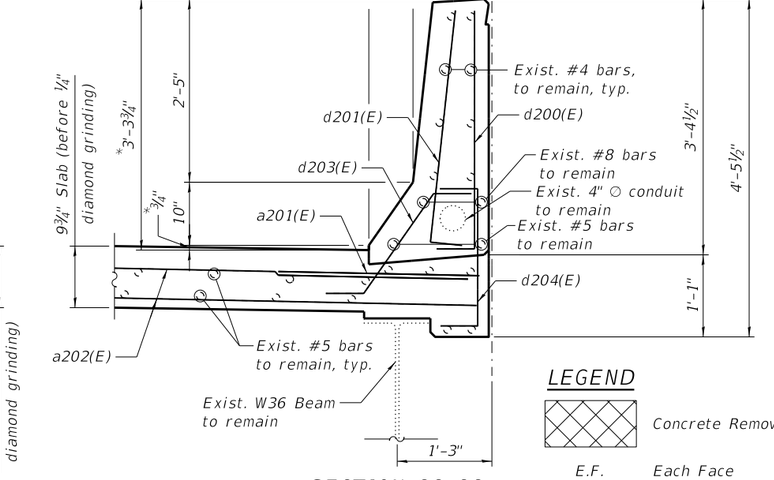
BARS d204(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a200(E)	18	#5	35'-5"	—
a201(E)	12	#6	6'-6"	—
a202(E)	18	#5	33'-7"	—
d200(E)	14	#4	3'-8"	L
d201(E)	14	#5	3'-8"	L
d202(E)	7	#4	3'-11"	⌐
d203(E)	14	#5	2'-7"	⌐
d204(E)	7	#4	2'-7"	⌐
Concrete Removal		Cu Yd	12.0	
Concrete Superstructure		Cu Yd	13.9	
Protective Coat		Sq Yd	34	
Reinforcement Bars, Epoxy Coated		Pound	1,570	



SECTION BB-BB

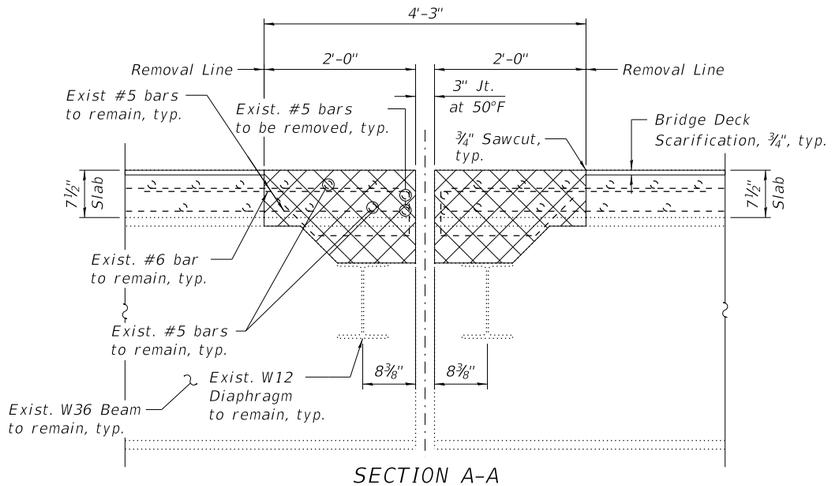


SECTION CC-CC

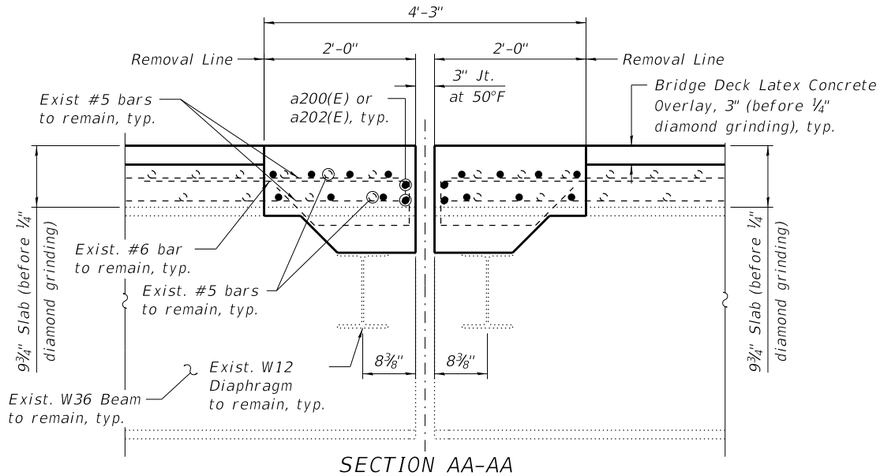
LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

*Before ¼" Diamond Grinding



SECTION A-A



SECTION AA-AA

NOTES:

1. For preformed joint strip seal details, see Sheet S03-17.
2. For bar splicer assembly details, see Sheet S03-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
5. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
6. Dimensions are based on Roller Rail Strip Seal joint. If the Contractor elects to use the Welded Rail Strip Seal joint, deck dimensions may require adjustments to satisfy the details on Sheet S03-17.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 2)
STRUCTURE NO. 016-0160 (WB)
SHEET S03-13 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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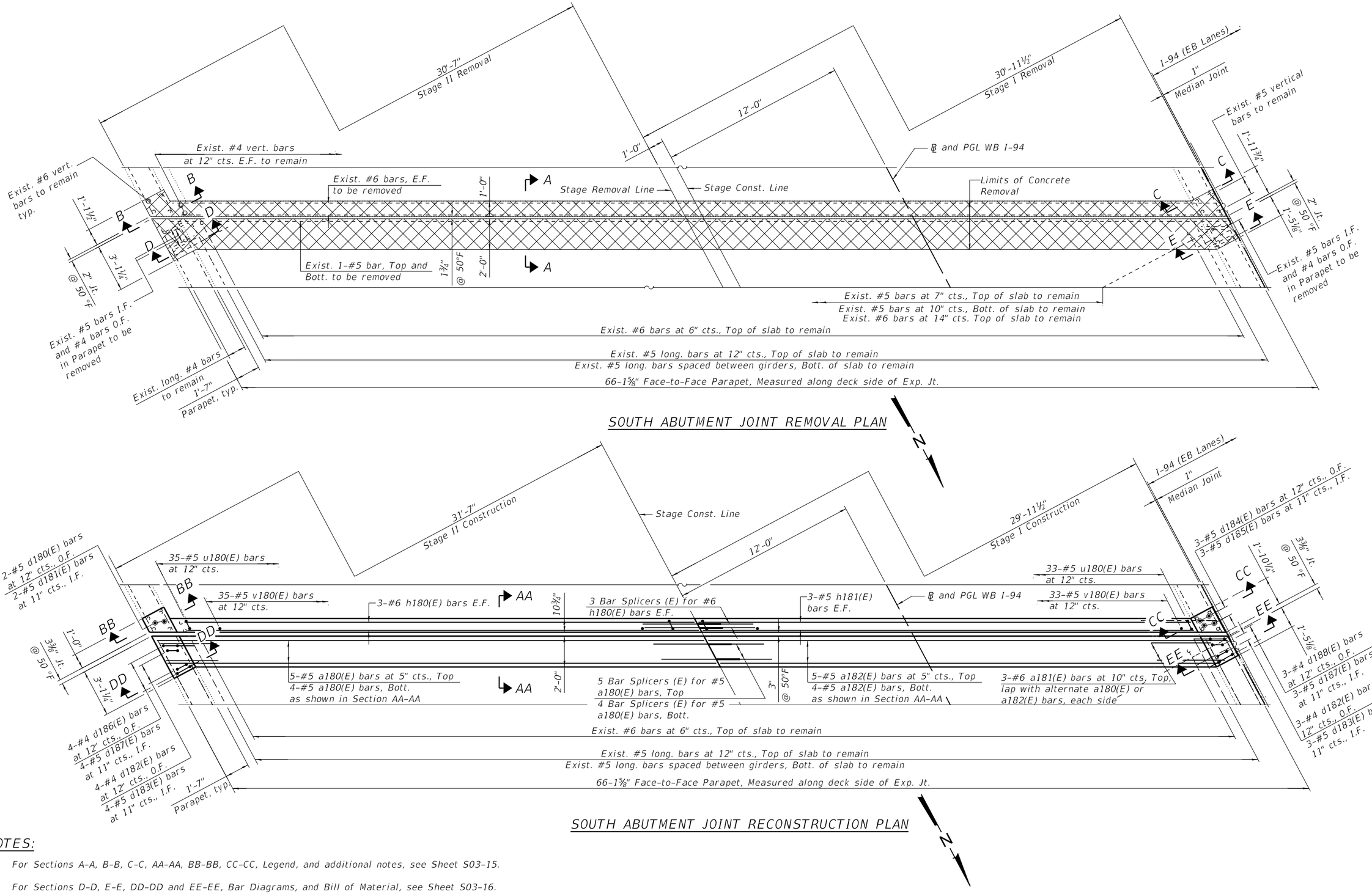
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB, CC-CC, Legend, and additional notes, see Sheet S03-15.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, and Bill of Material, see Sheet S03-16.

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S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0160 (WB)
SHEET S03-14 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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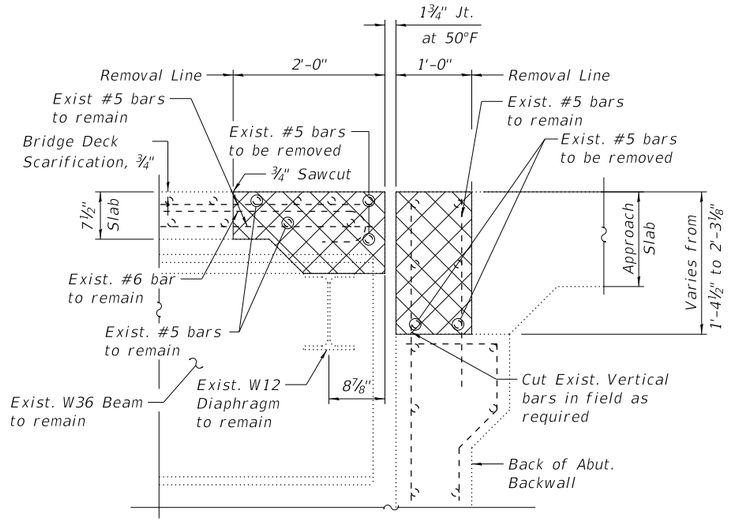
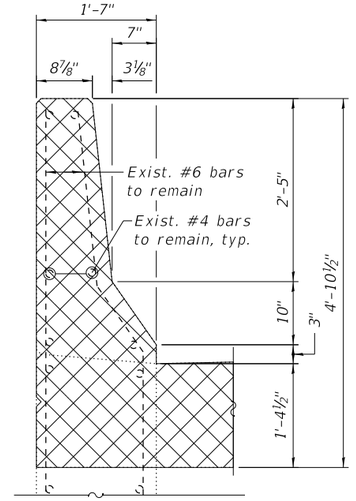
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

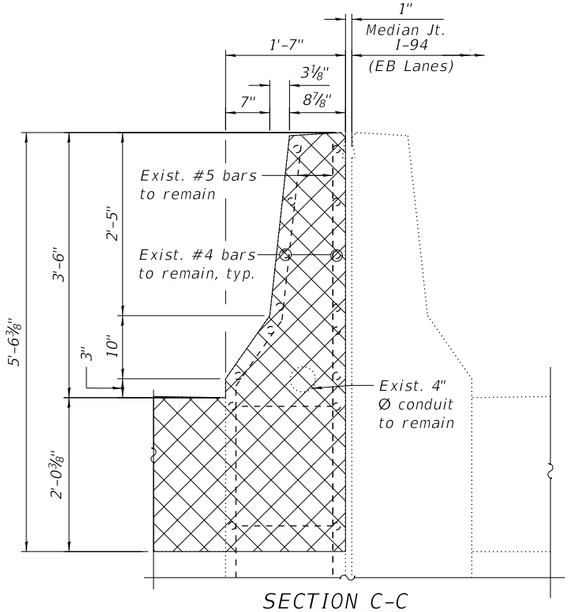


SECTION A–A



SECTION B–B

(Reinforcement in the pour strip not shown for clarity)



SECTION C–C

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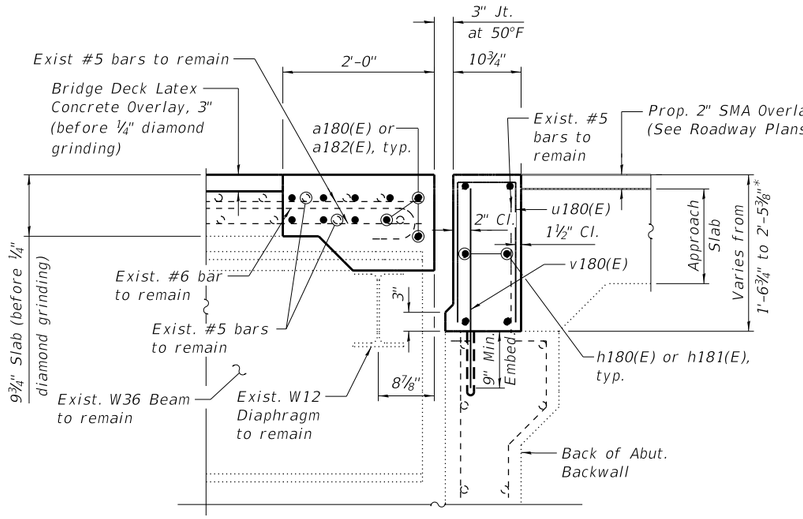
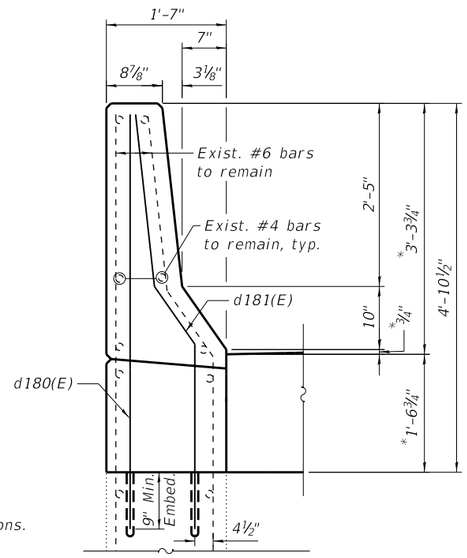


SECTION AA–AA



SECTION BB–BB

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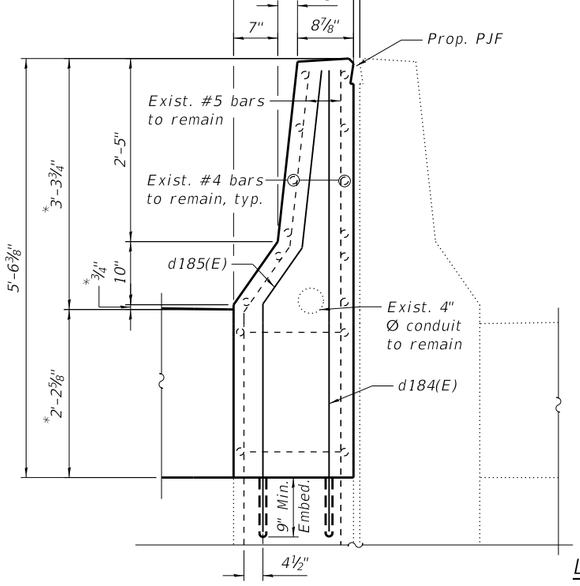

SECTION CC–CC

(Reinforcement in the pour strip not shown for clarity)

*Before ¼" Diamond Grinding

NOTES:

1. For preformed joint strip seal details, see Sheet S03-17.
2. For bar splicer assembly details, see Sheet S03-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. Epoxy grout d180(E), d181(E), d184(E), d185(E) and v180(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.
5. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
6. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
7. Dimensions are based on a Roller Rail Strip Seal joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S03-17.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

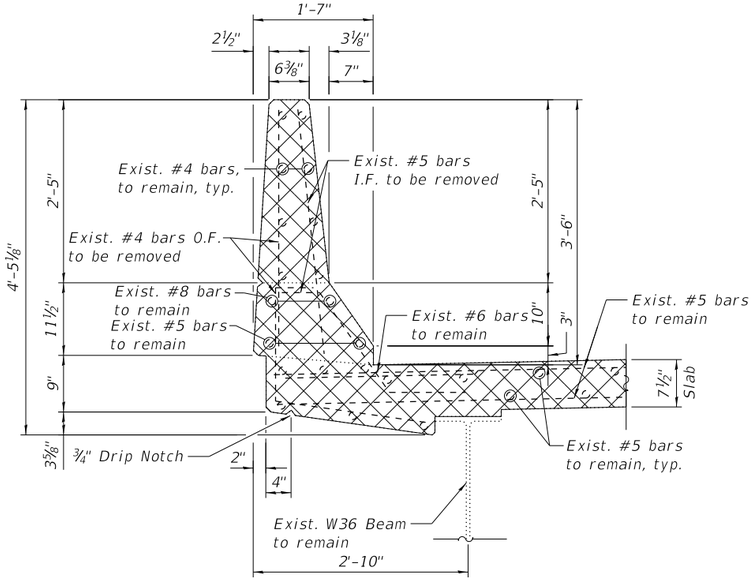
S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0160 (WB)

SHEET S03-15 OF S03-26 SHEETS

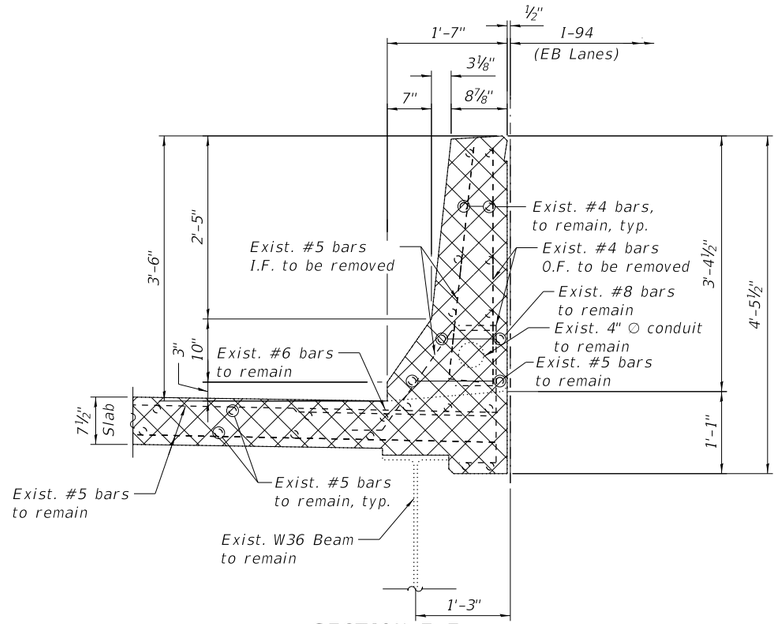
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	547
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

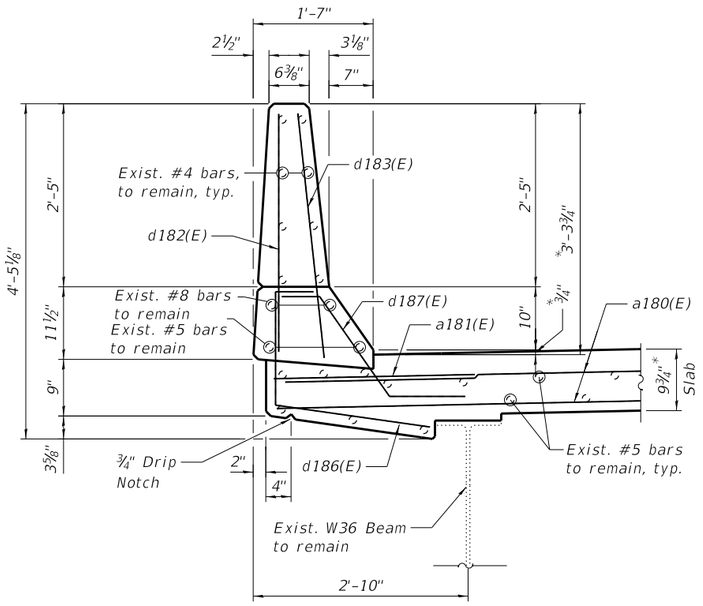
Bar	No.	Size	Length	Shape
a180(E)	9	#5	35'-5"	——
a181(E)	6	#6	6'-6"	——
a182(E)	9	#5	33'-7"	——
d180(E)	2	#5	5'-6"	——
d181(E)	2	#5	5'-9"	⌐
d182(E)	7	#4	3'-8"	⌐
d183(E)	7	#5	3'-8"	⌐
d184(E)	3	#5	6'-1"	——
d185(E)	3	#5	6'-4"	⌐
d186(E)	4	#4	3'-11"	⌐
d187(E)	7	#5	2'-7"	⌐
d188(E)	3	#4	2'-7"	⌐
h180(E)	6	#6	33'-8"	——
h181(E)	6	#6	31'-10"	——
u180(E)	68	#5	3'-0"	⊐
v180(E)	68	#5	2'-1"	——
Concrete Removal			Cu Yd	10.8
Concrete Superstructure			Cu Yd	11.5
Protective Coat			Sq Yd	23
Reinforcement Bars, Epoxy Coated			Pound	1,800



SECTION D-D



SECTION E-E



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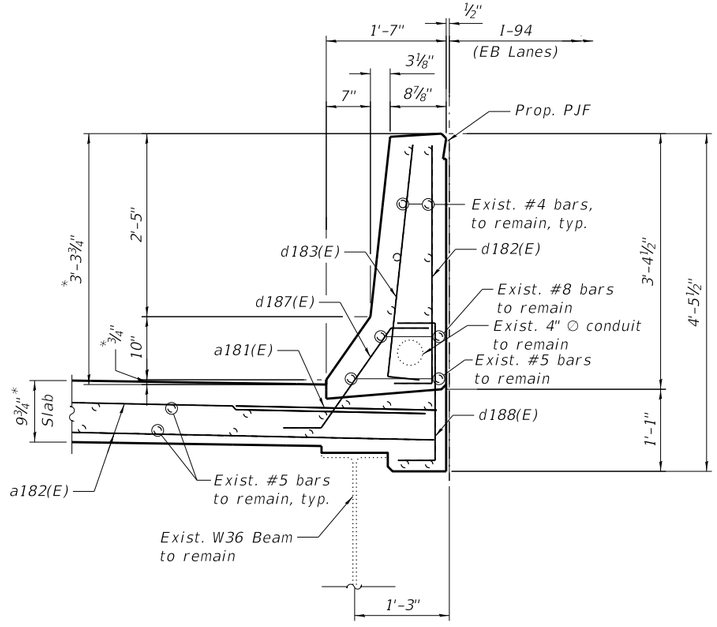

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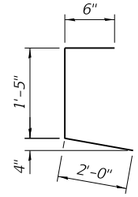
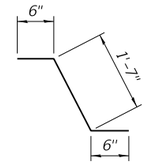
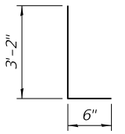


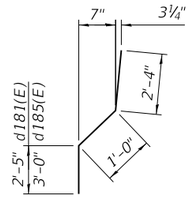
BARS d186(E)



BAR d187(E)



BARS d182(E) & d183(E)



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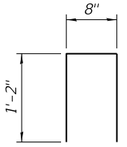
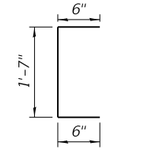


BARS u180(E)



BARS d188(E)

NOTE:

1. For Legend and Notes, see Sheet S03-15.

*Before ¼" Diamond Grinding

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0160 (WB)
SHEET S03-16 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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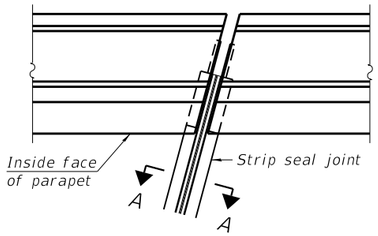
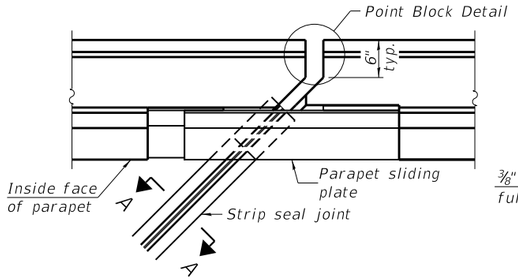
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

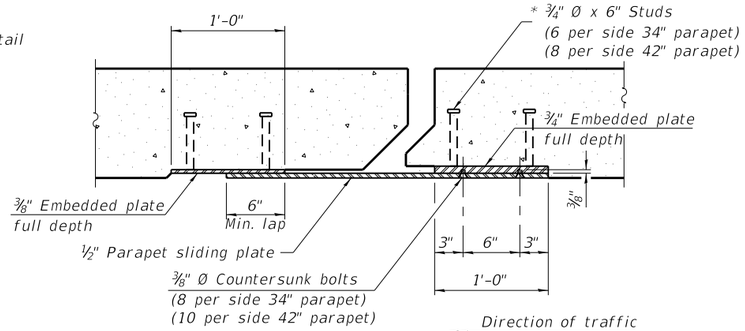


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

PLAN AT PARAPET



SECTION B–B

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.

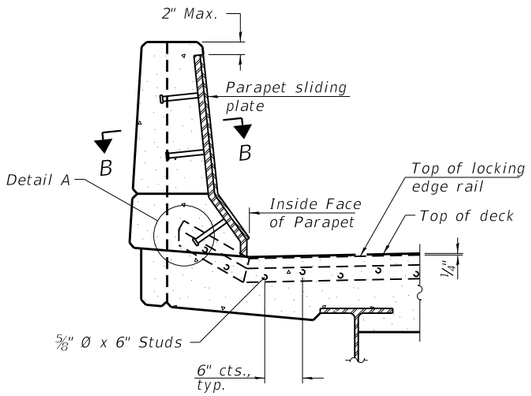
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

The top surface of sidewalk sliding plates shall have a raised pattern according to ASTM A786.

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

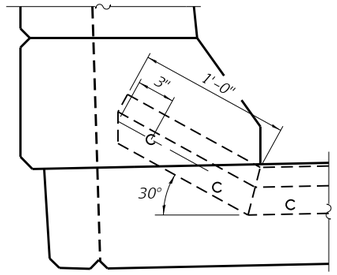
39" constant slope barrier shown, 44" constant slope barrier similar as noted.

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.

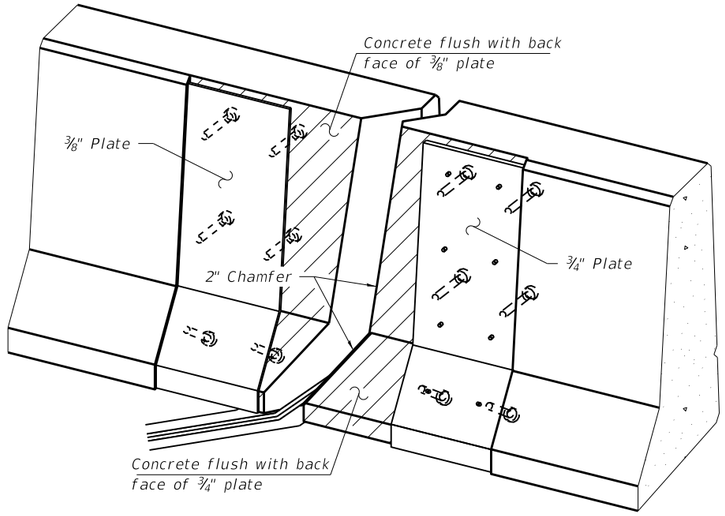


ELEVATION AT PARAPET

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

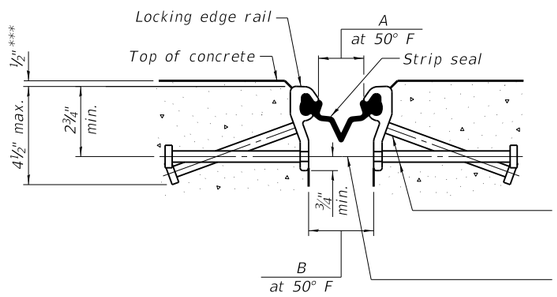


DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT

Joint	A	B	C
North Abut.	1½"	2⅞"	3"
Pier 2	2⅛"	3"	3⅜"
South Abut.	1½"	2⅜"	3"

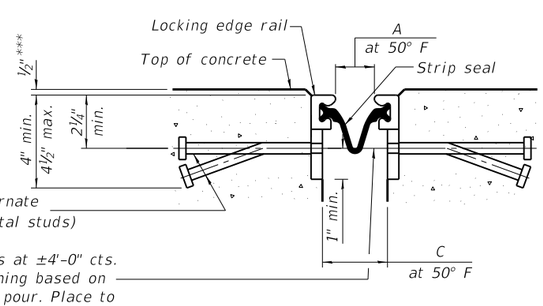
* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

⅜" 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.

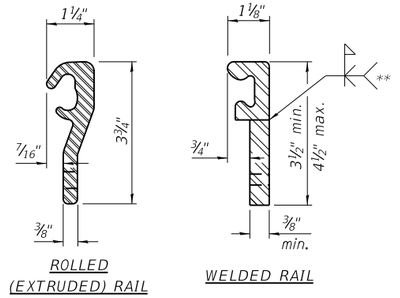
SECTION A–A

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

*** Before ¼" Diamond Grinding



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	210

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0160 (WB)

SHEET S03-17 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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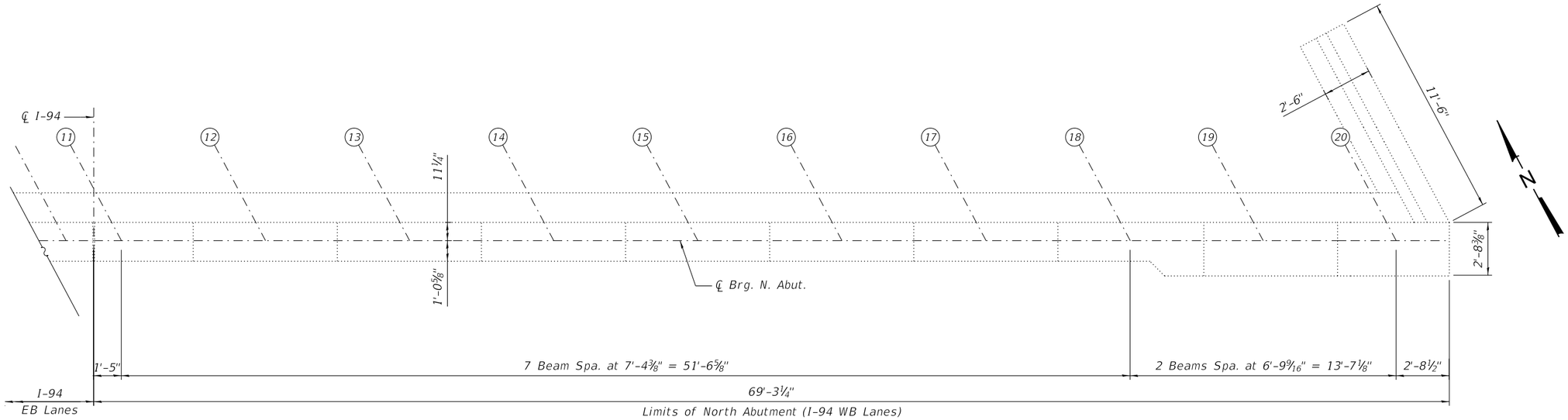
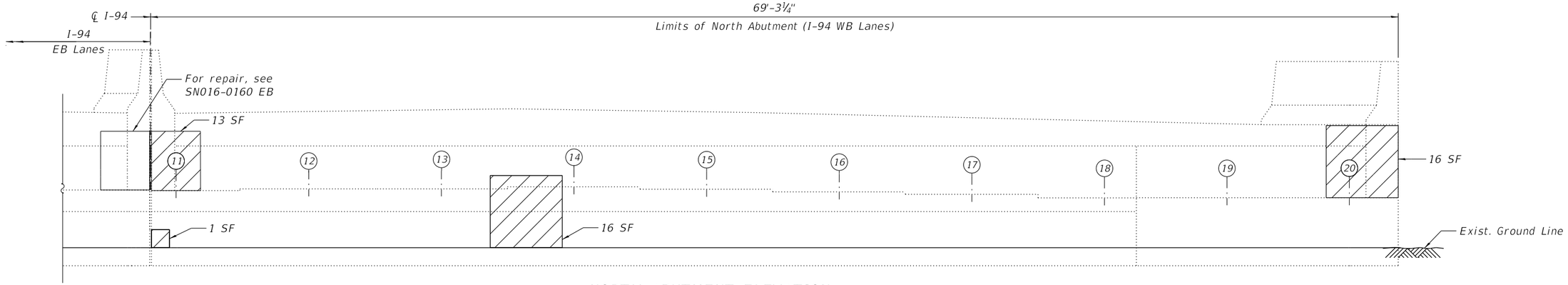
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

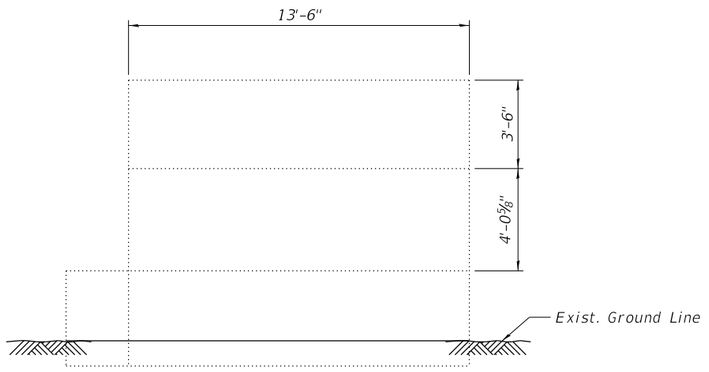


NORTH ABUTMENT PLAN



NORTH ABUTMENT ELEVATION

(Looking North)



NORTHEAST WINGWALL ELEVATION

(Looking West)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	294
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	46

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

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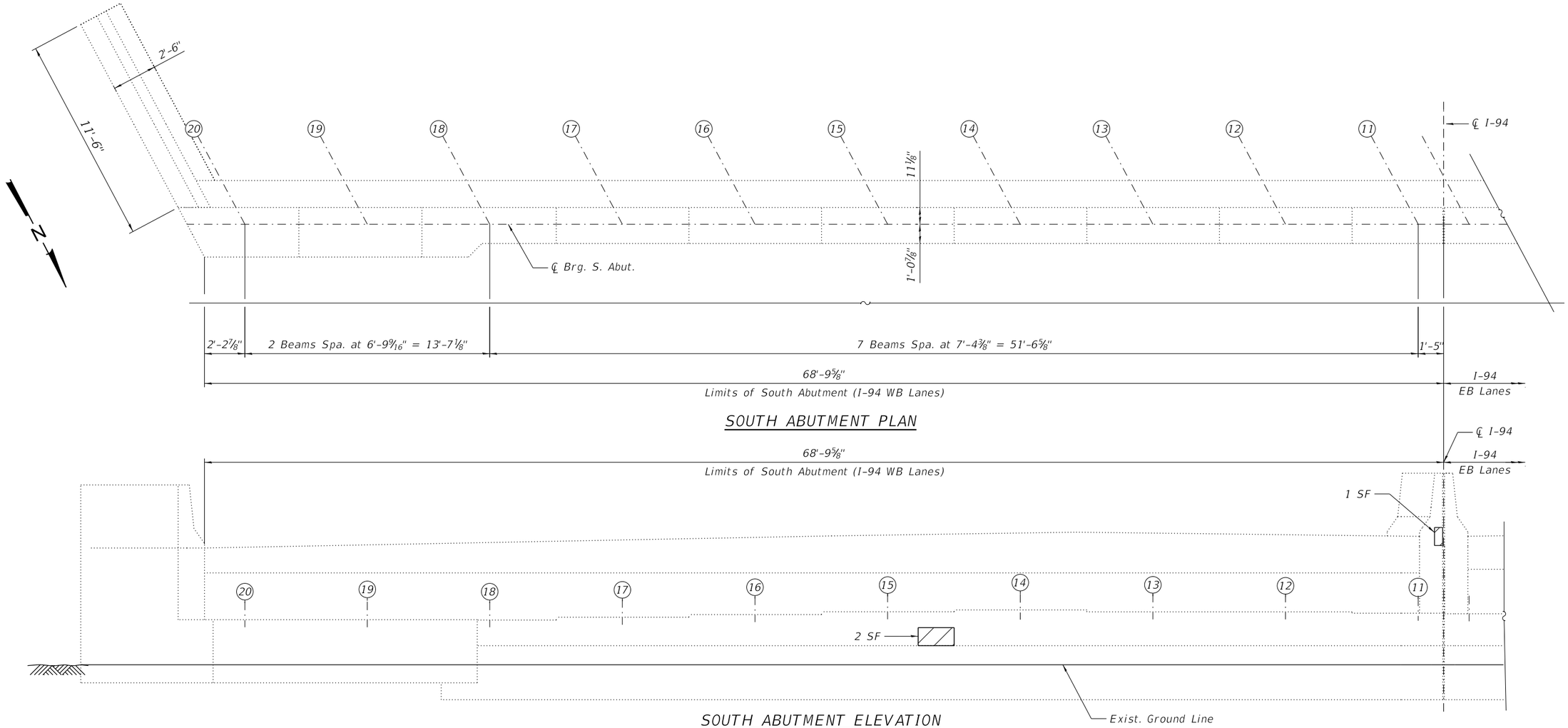
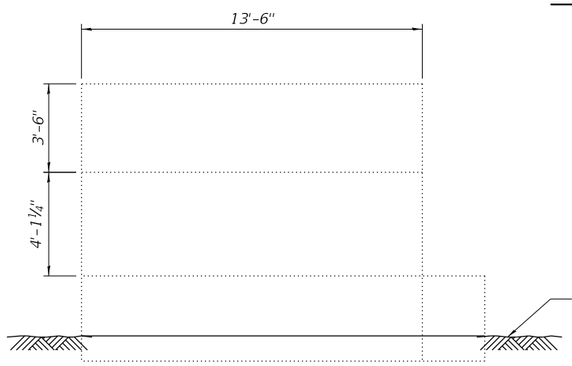
	ILLINOIS	FED. AID PROJECT		



SOUTH ABUTMENT PLAN

SOUTH ABUTMENT ELEVATION

(Looking South)



SOUTHEAST WINGWALL ELEVATION

(Looking West)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	295
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	3

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.

LEGEND

SF — Square Foot

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0160 (WB)

SHEET S03-19 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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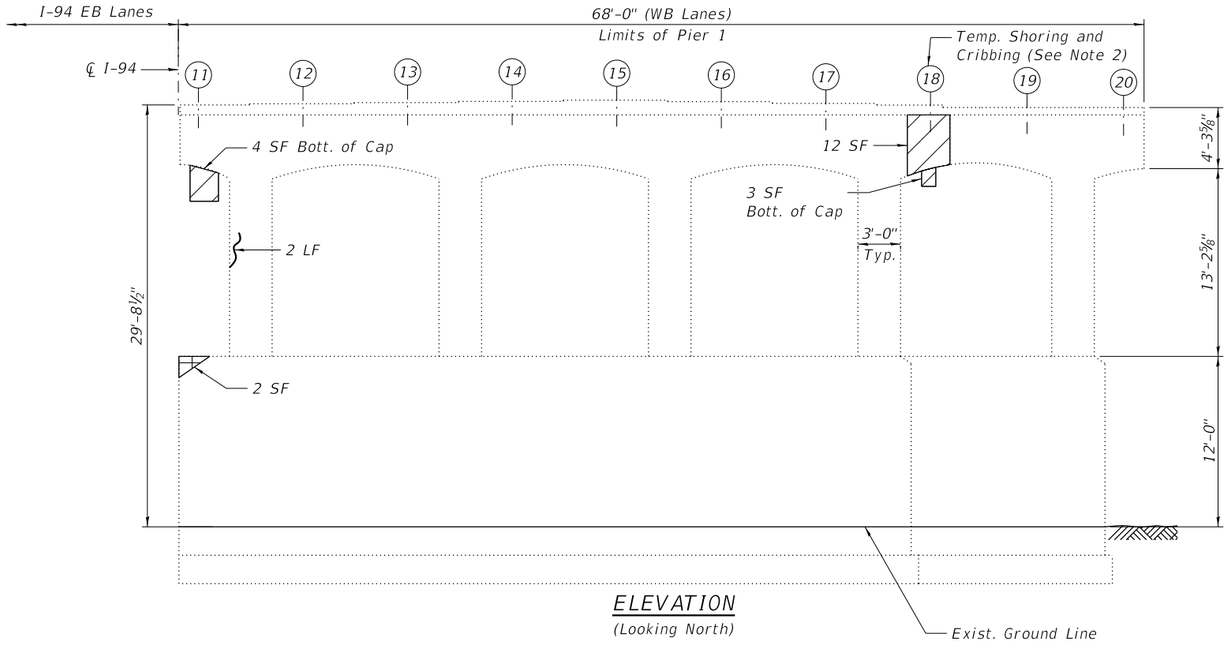
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



ELEVATION
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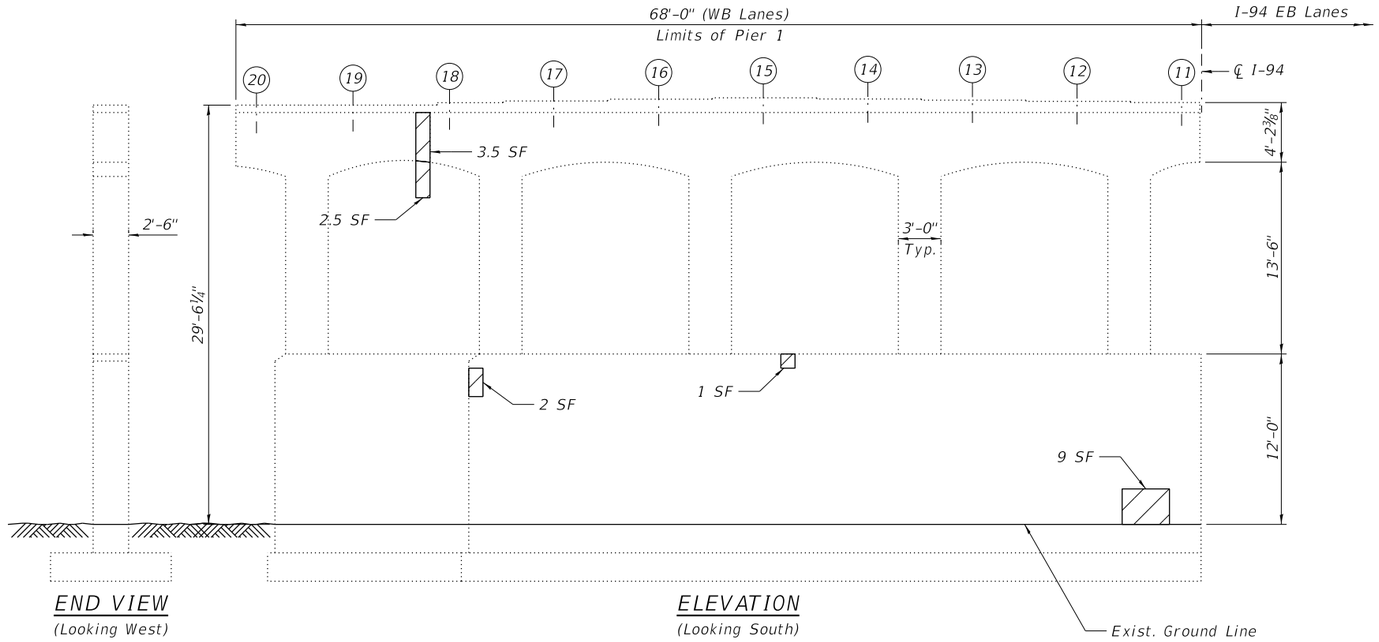

END VIEW
(Looking West)

ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	2
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	37
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	2
Temporary Shoring And Cribbing	Each	1

SUMMARY OF REACTIONS		
		Pier 1, Beam 18
R DL	(k)	100.7
R LL	(k)	53.7
R IM	(k)	13.5
R Total	(k)	167.9

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
	Structural Repair of Concrete (Depth Greater than 5 inches)
	Epoxy Crack Injection (Width > 0.06")
SF	Square Foot
LF	Linear Foot

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

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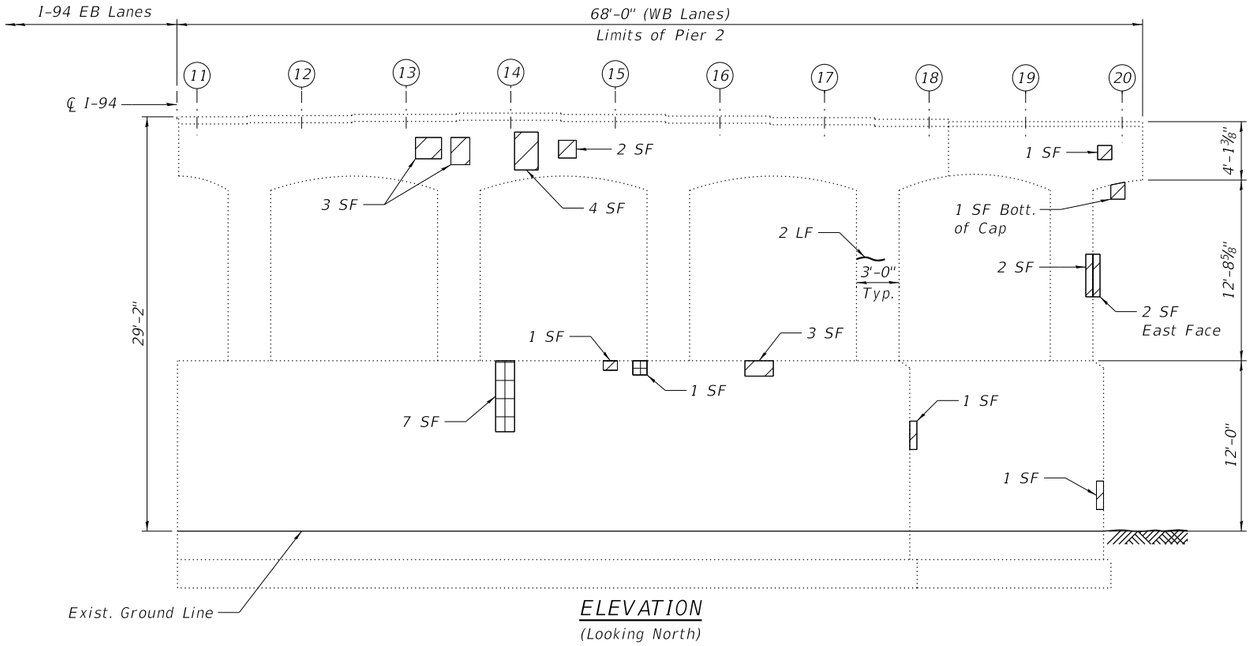
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 REPAIRS
STRUCTURE NO. 016-0160 (WB)
SHEET S03-20 OF S03-26 SHEETS

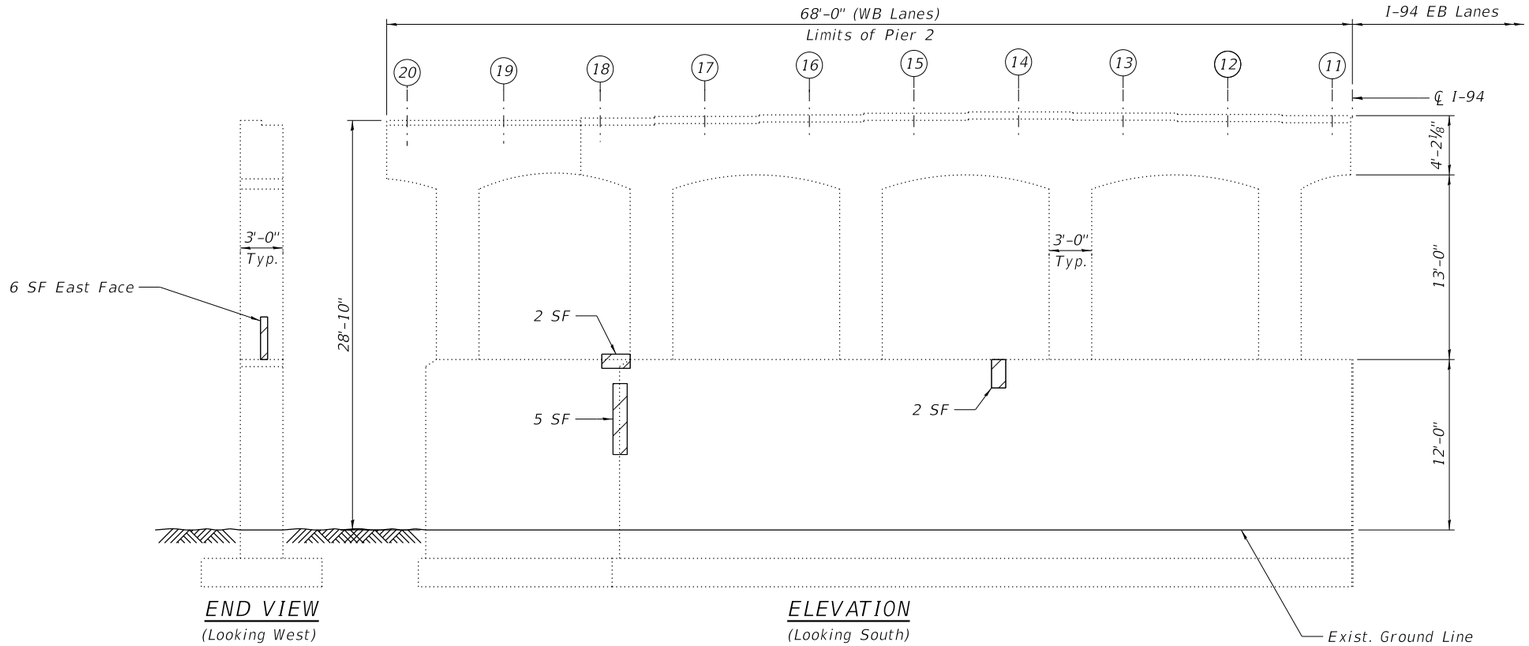
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	552
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	3600
Epoxy Crack Injection	Foot	2
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	39
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	8



ELEVATION
(Looking North)



END VIEW
(Looking West)

ELEVATION
(Looking South)

LEGEND

- Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
- Structural Repair of Concrete (Depth Greater than 5 inches)
- Epoxy Crack Injection (Width > 0.06")
- SF — Square Foot
- LF — Linear Foot

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. Concrete Sealer is to be applied to the exposed surfaces of the pier.

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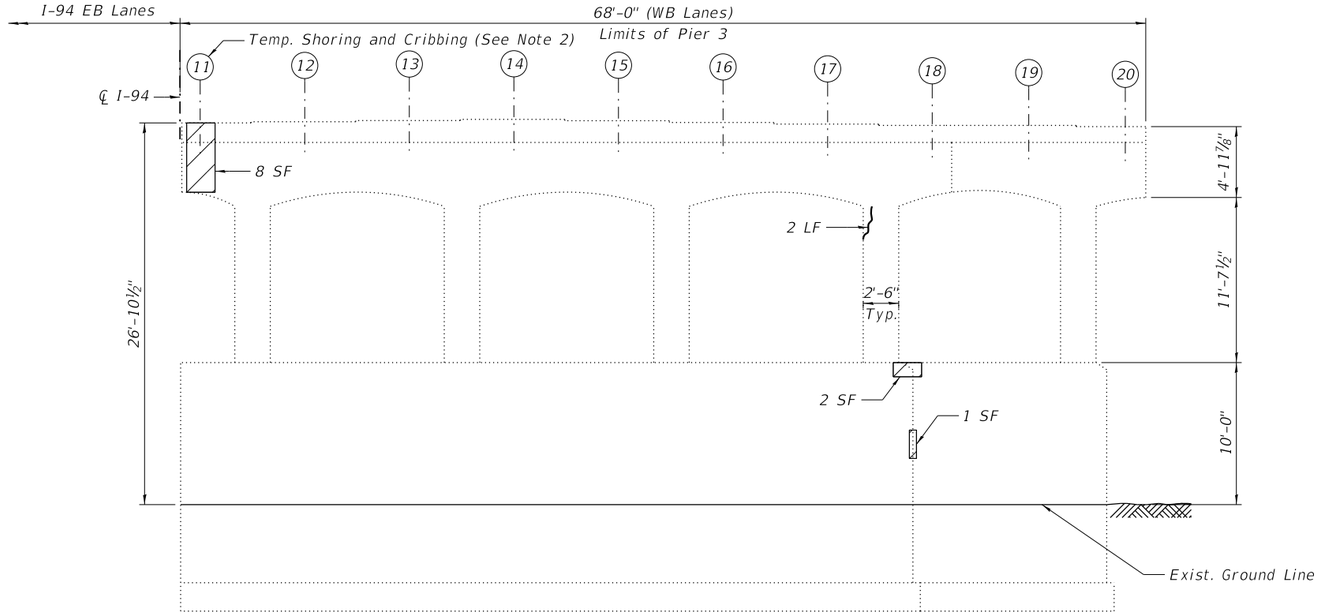
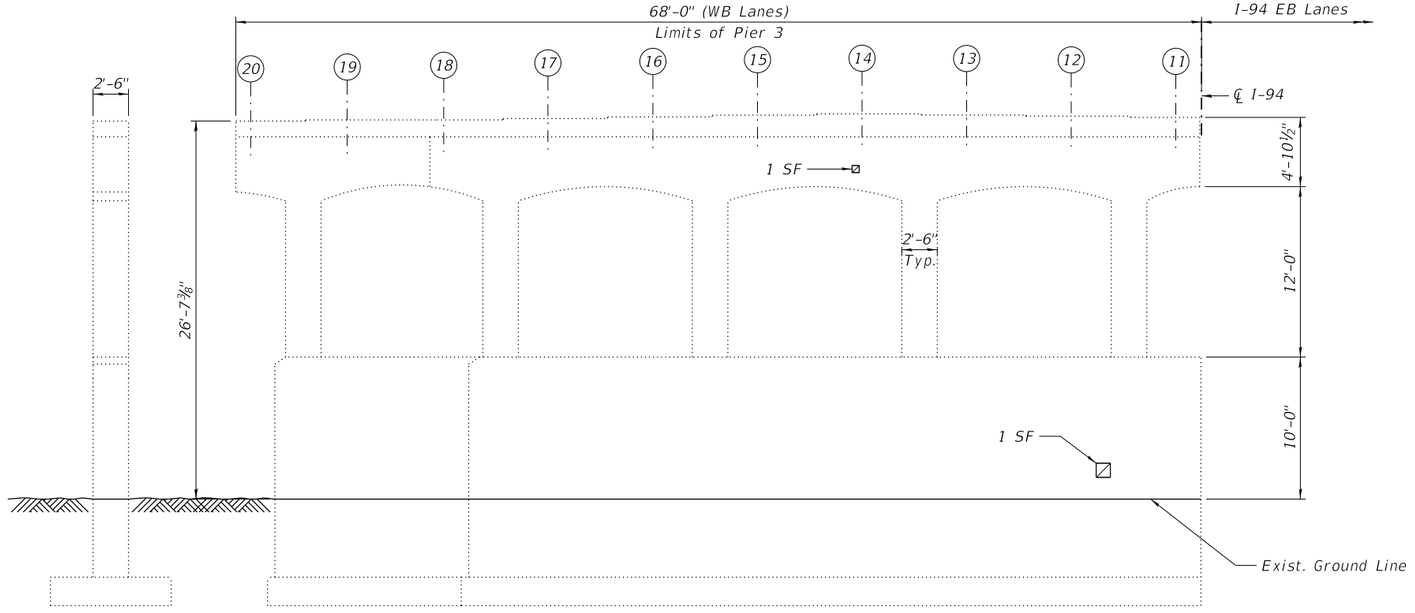
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	553
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



ELEVATION
(Looking North)



END VIEW
(Looking West)

ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	2
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	13
Temporary Shoring And Cribbing	Each	1

SUMMARY OF REACTIONS		
		Pier 3, Beam 11
R DL	(k)	74.5
R LL	(k)	48.8
R IM	(k)	12.8
R Total	(k)	136.1

LEGEND

- Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
- Epoxy Crack Injection (Width > 0.06")
- SF — Square Foot
- LF — Linear Foot

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

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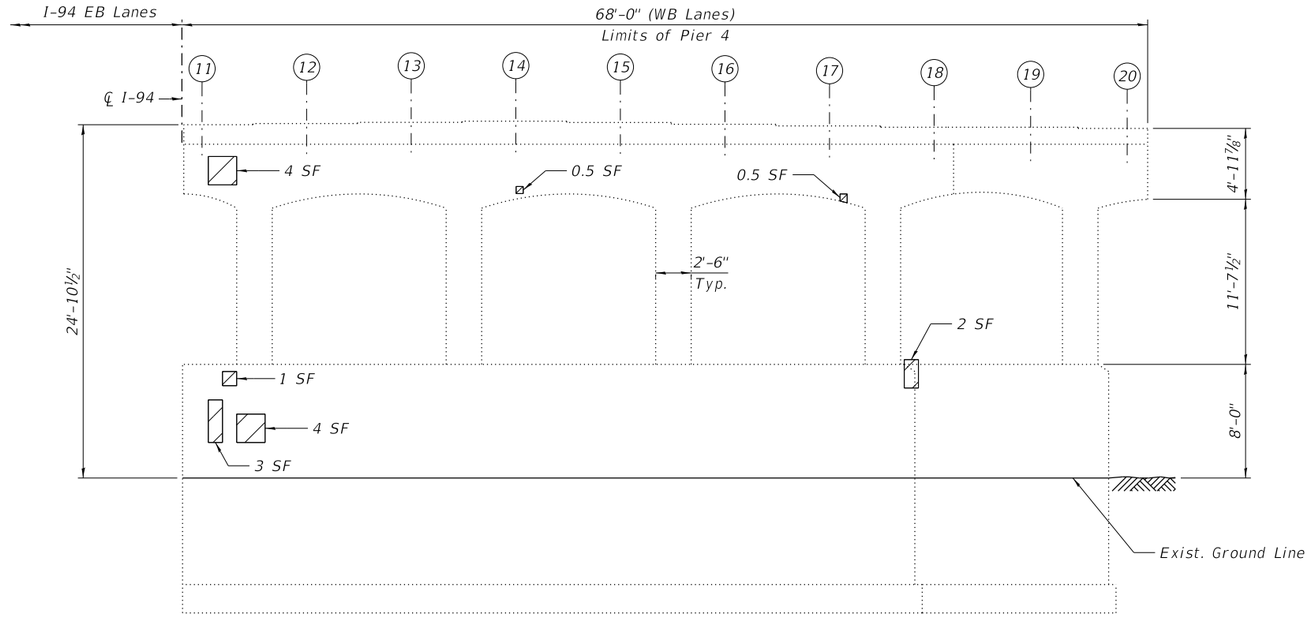
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 3 REPAIRS
STRUCTURE NO. 016-0160 (WB)
SHEET S03-22 OF S03-26 SHEETS

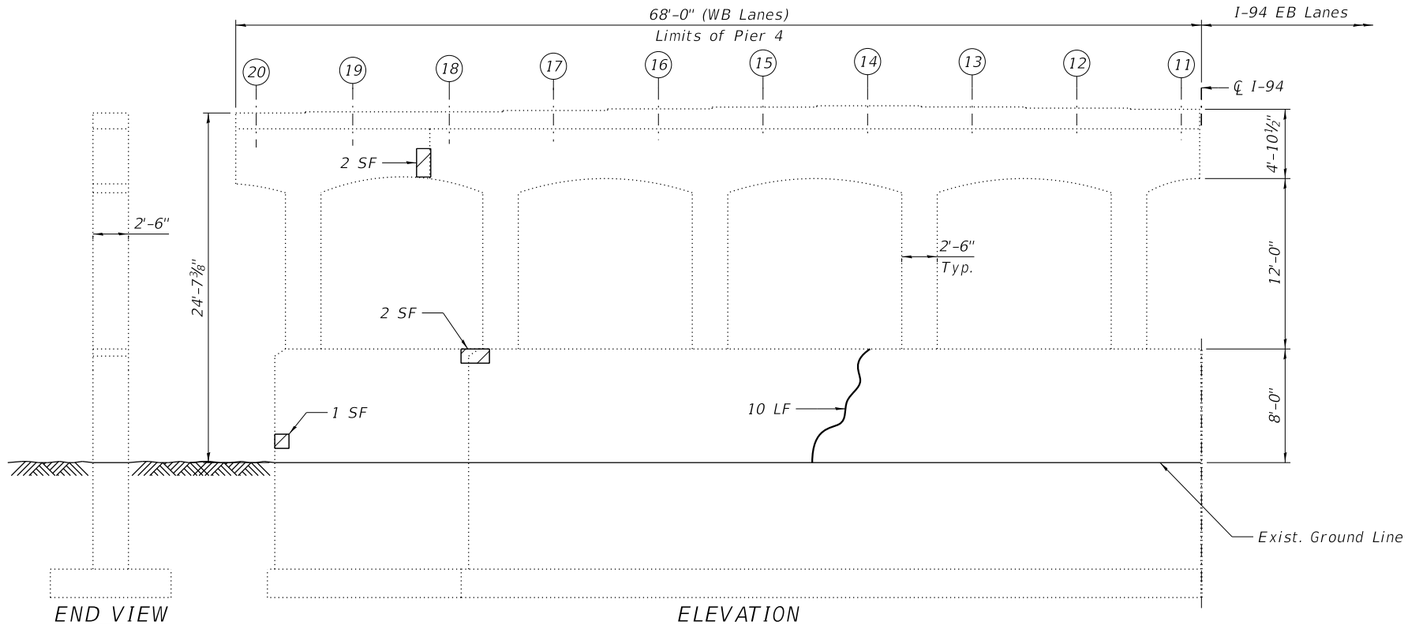
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	554
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	10
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	20



ELEVATION
(Looking North)



END VIEW
(Looking West)

ELEVATION
(Looking South)

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
	Epoxy Crack Injection (Width > 0.06")
SF	Square Foot
LF	Linear Foot

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

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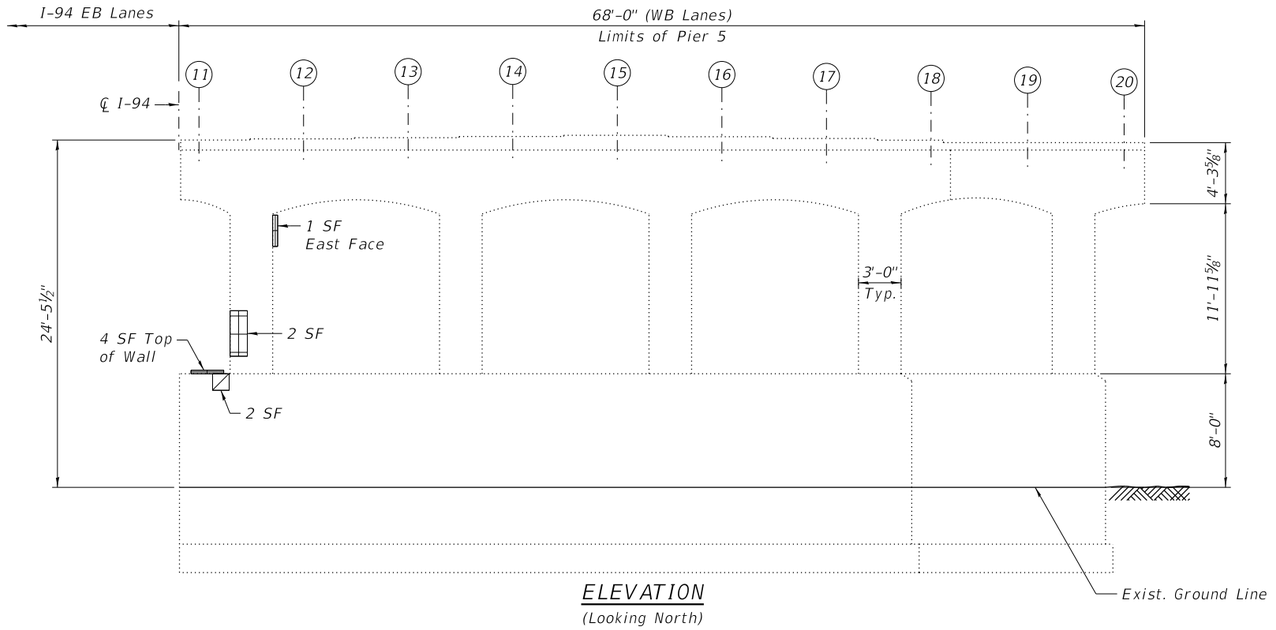
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 REPAIRS
STRUCTURE NO. 016-0160 (WB)
SHEET S03-23 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	555
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION
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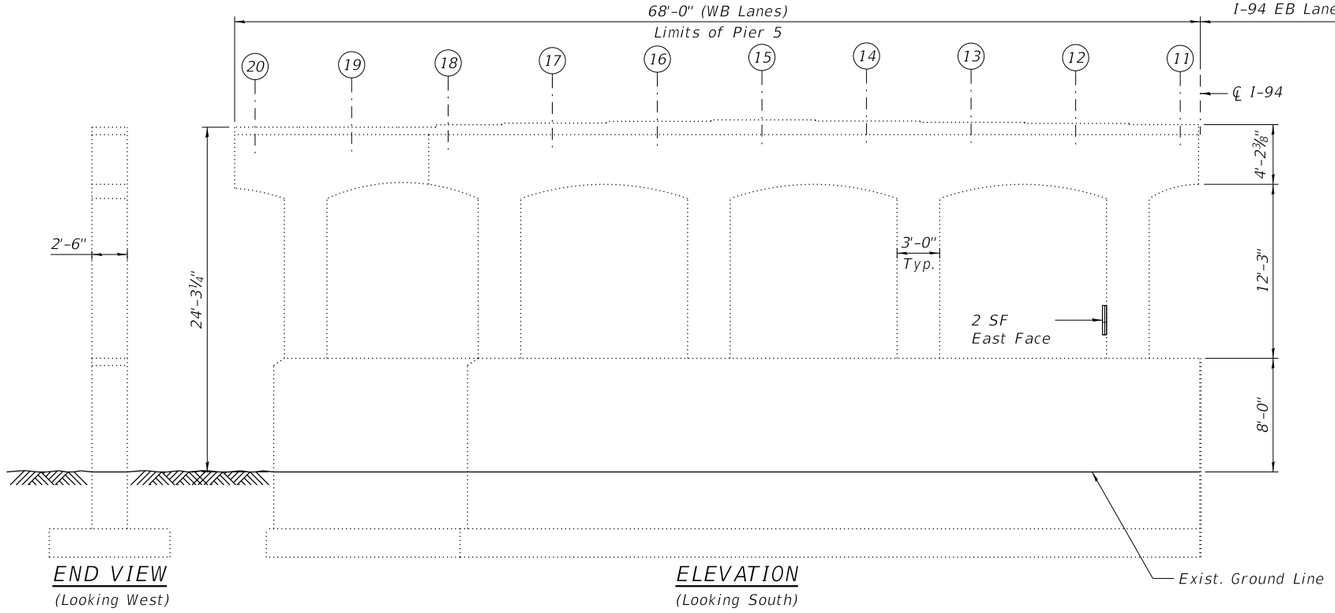

END VIEW
(Looking West)

ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	2
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	9

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
	Structural Repair of Concrete (Depth Greater than 5 inches)
SF	Square Foot

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

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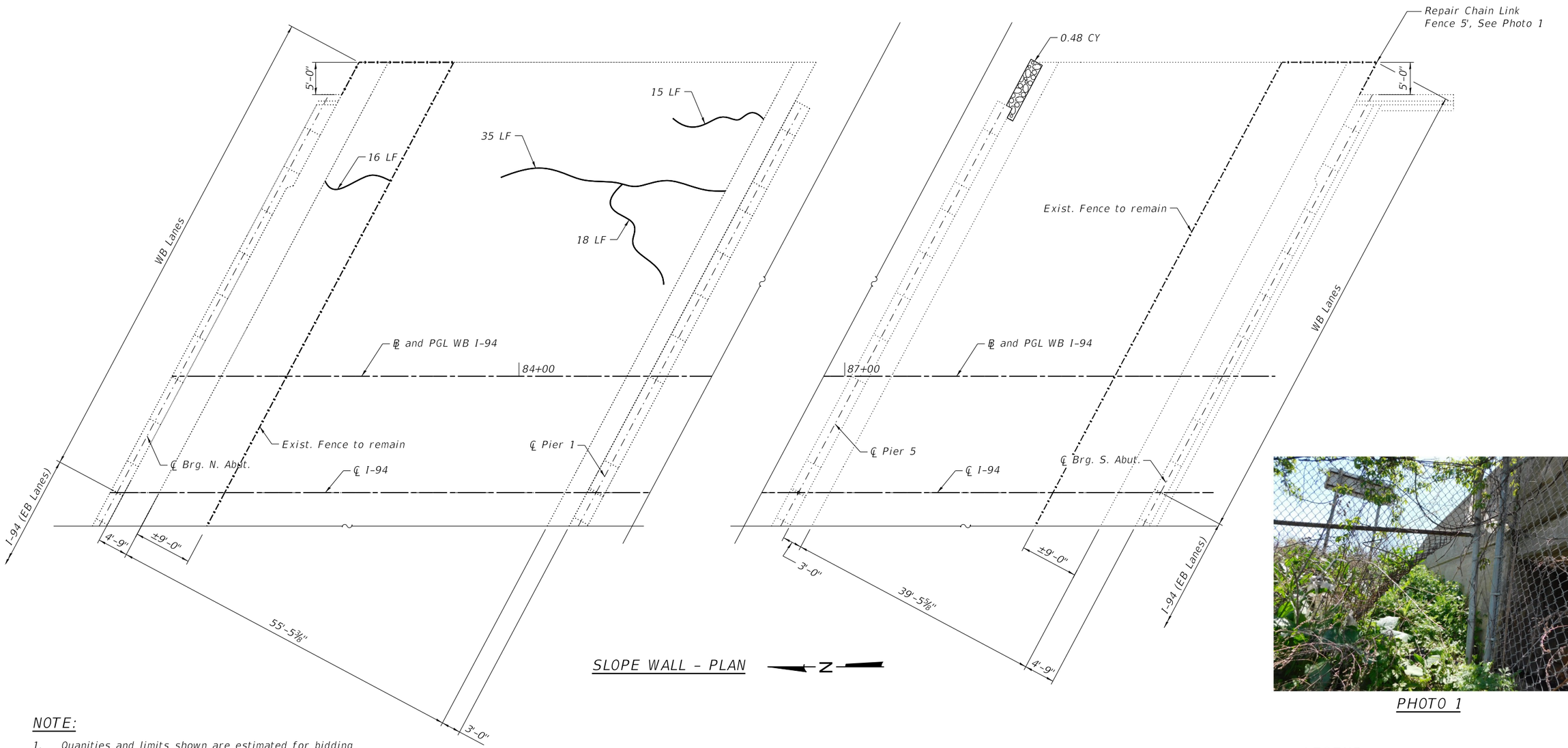
PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	556
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Porous Granular Embankment	Cu Yd	1
Chain Link Fence, 5'	Foot	5
Slope Wall Crack Sealing	Foot	84



SLOPE WALL - PLAN

PHOTO 1

NOTE:

1. Quanities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

	Porous Granular Embankment
	Slope Wall Crack Sealing
LF	Linear Foot
CY	Cubic Yard

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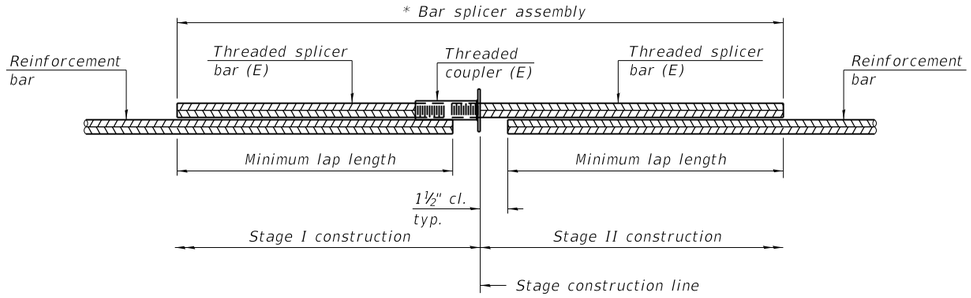
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPE WALL REPAIRS
STRUCTURE NO. 016-0160 (WB)
SHEET S03-25 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	557
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			



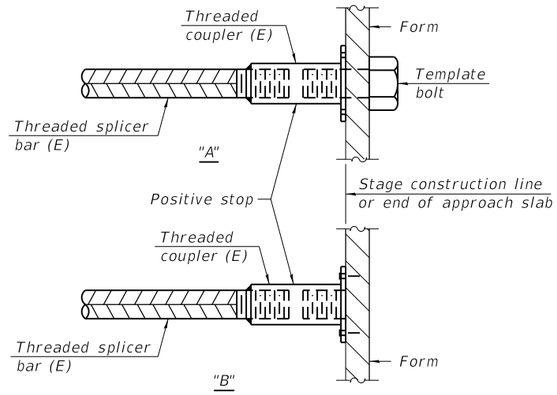
STANDARD BAR SPLICER ASSEMBLY PLAN

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

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

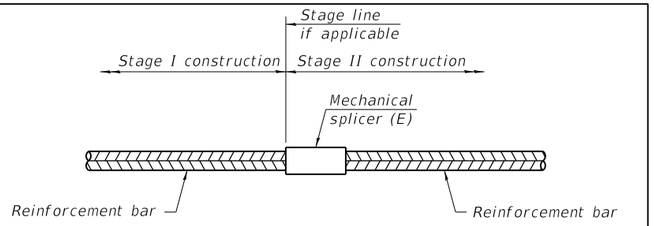
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar Size	No. assemblies	Minimum lap length
N. Abutment Jt.	#5	9	3'-0"
	#6	6	3'-7"
Pier 2 Jt.	#5	18	3'-0"
S. Abutment Jt.	#5	9	3'-0"
	#6	6	3'-7"



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

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 5-15-2023

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY & MECHANICAL SPLICER DETAIL
STRUCTURE NO. 016-0160 (WB)
SHEET S03-26 OF S03-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	558
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

Existing Structure: *S.N. 016-0160 (EB) was originally built in 1949 and was reconstructed in 1993. Structural steel repairs were performed in 2023. The bridge is a six-span structure (six rolled beam spans) carrying four lanes of EB I-94 over three railroads (IHB, Conrail, and Baltimore and Ohio Chicago Terminal). The structure has a back-to-back abutment length of 416'-7⅝" and an out-to-out deck width of 61'-6½". The superstructure consists of a 7½"-thick reinforced concrete deck supported on noncomposite W36x160 and W36x210 beams at 6'-6" spacing. The substructure consists of reinforced concrete abutments and multi-column piers on concrete piles.*

Traffic is to be maintained utilizing staged construction.

No salvage.

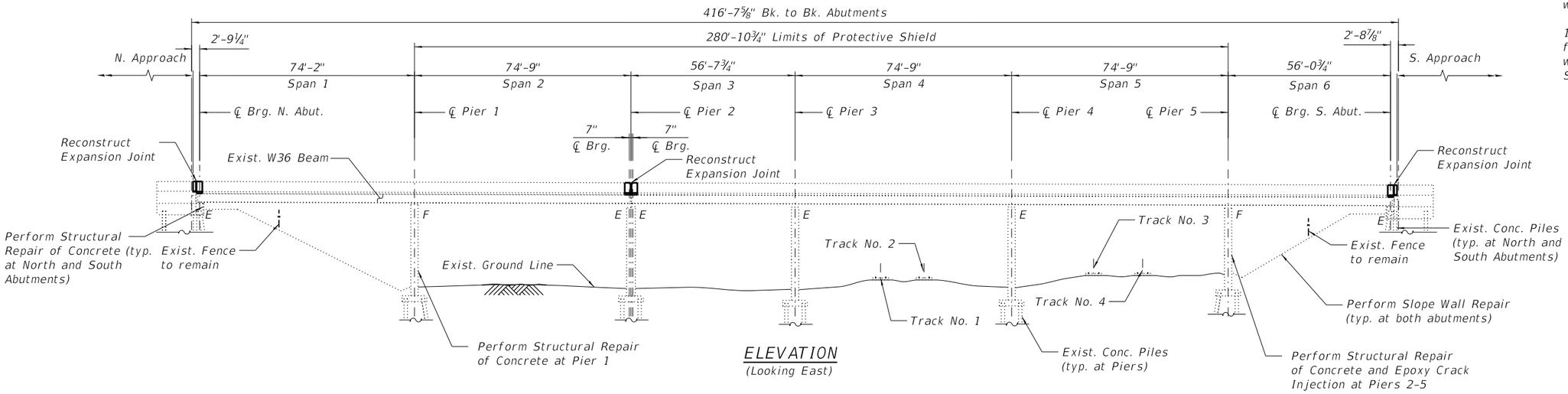
DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges (17th Edition)

RECONSTRUCTION 1992

1983 AASHTO Standard Specifications for Highway Bridges with 1984 thru 1988 Interims

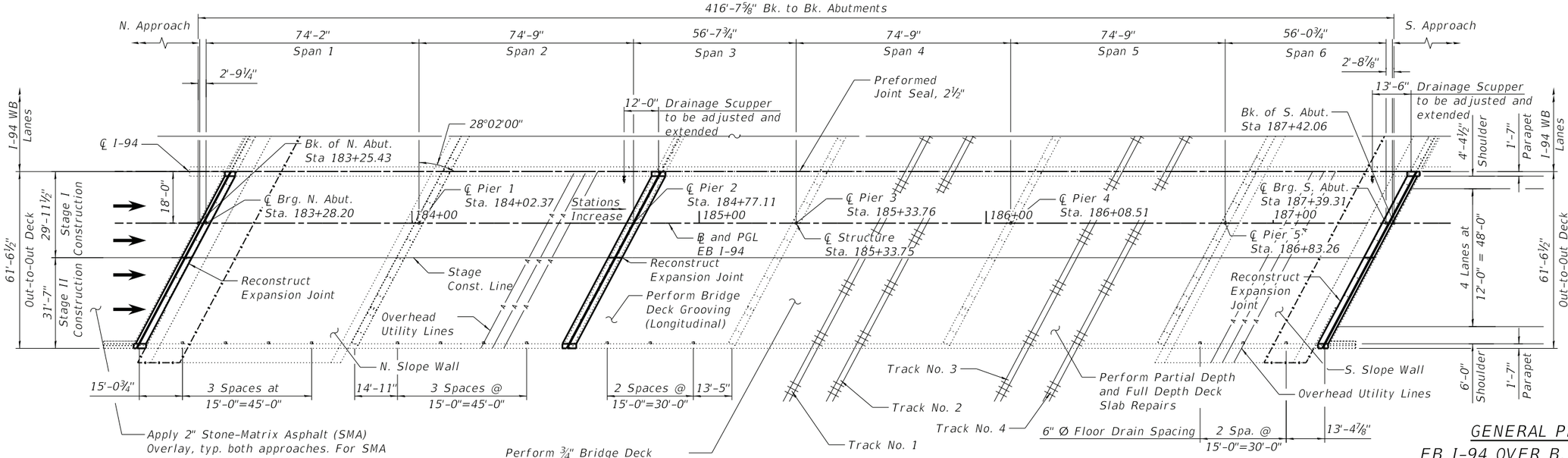
1983 Guide Specifications for Seismic Design of Highway Bridges with 1985 & 1988 Interim Specifications



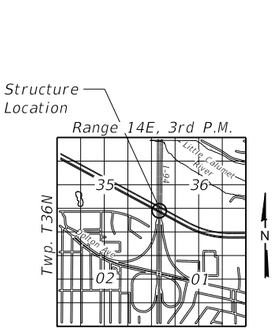
ELEVATION
(Looking East)

NOTES:

1. *All stations are to the I-94 EB PGL and taken from existing plans.*
2. *No future wearing surface is allowed.*



PLAN



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
EB I-94 OVER B. & O.C.T. R.R. & I.H.B. R.R.
F.A.I. ROUTE 94
SECTION 2019-180-RS&T
COOK COUNTY
STATION 185+33.75
S.N. 016-0160 (EB)

STATE OF ILLINOIS
MOUSSA A. ISSA
081-005738
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Signed *Moussa A. Issa*
Dr. Moussa A. Issa, S.E. IL. Lic. No. 081-005738
Expires 11-30-2026

Date *12/06/2024* *For Sheets S04-01 thru S04-26.*

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 016-0160 (EB)
SHEET S04-01 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	559
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

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GENERAL NOTES:

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

2. Plan dimensions and details relative to the existing structure have been taken from existing plans and 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 cause for additional compensation for a change in the scope of the work; however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

3. The Contractor may request copies of existing construction plans that are currently on file with the Illinois Department of Transportation (IDOT). The request shall be in writing with the understanding that any reproduction cost will be the Contractors expense and at no additional cost to the Department.

4. All exposed concrete edges shall have a ¾" x 45° chamfer except where shown otherwise.

5. Protective coat shall be applied to the top of reconstructed transverse joint areas, top of new latex concrete overlay, and top and inside faces of parapets.

6. 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.

7. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose detrimental foreign material shall be removed from the surfaces in contact with concrete (SSPC-SP3 standards). 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 paid for according to Article 109.04 of the Standard Specifications. As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding ¼ inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

8. The Contractor shall take all necessary precautions for the protection of passing vehicles and pedestrians from falling objects and/or materials until completion of the work.

9. It shall be the Contractors responsibility to locate and protect any utilities or facilities on, within or under the bridge deck including but not limited to under deck lighting, traffic signals or signs attached to the structure. Any damage to existing utilities caused by the Contractor in the performance of the work shall be repaired by the Contractor, to the satisfaction of the Engineer, at no cost to the Department.

10. The Contractor shall exercise extreme caution during Concrete Removal to avoid damaging the steel beams and diaphragms to remain. Any damage to existing elements to remain cause by the Contractor in the performance of the work shall be repaired by the Contractor, to the satisfaction of the Engineer, at no cost to the Department.

11. Cleaning and field painting of structural steel shall be done under a separate painting contract.

12. For SMA overlay on Approach Slab, see Civil Sheets.

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

14. Adjacent I-94 WB bridge is not shown throughout the plans for clarity.

15. The Contractor is responsible to protect the existing conduit and junction box embedded in the parapet during removal and construction. Any damage to the existing conduit and junction box shall be repaired by the Contractor at no additional cost to the Department.

16. Concrete Sealer shall be applied to the designated areas of the abutments and piers.

17. Prior to the application of the Concrete Sealer, the Contractor shall clean all existing debris from the abutment seats. The method of debris removal shall not damage the existing concrete and shall be approved by the Engineer. See special provision for Debris Removal.

18. The Engineer shall show actual locations and size of deck repairs on As-built Plans.

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	-	1	1
Concrete Removal	Cu Yd	32.6	-	32.6
Protective Shield	Sq Yd	1,921	-	1,921
Concrete Superstructure	Cu Yd	36.9	-	36.9
Protective Coat	Sq Yd	3,120	-	3,120
Reinforcement Bars, Epoxy Coated	Pound	5,050	-	5,050
Bar Splicers	Each	48	-	48
Preformed Joint Seal 2 1/2"	Foot	414	-	414
Preformed Joint Strip Seal	Foot	210	-	210
Concrete Sealer	Sq Ft	-	4,241	4,241
Epoxy Crack Injection	Foot	-	36	36
Bolt Replacement	Each	-	2	2
Bridge Deck Grooving (Longitudinal)	Sq Yd	2,217	-	2,217
Slope Wall Crack Sealing	Foot	-	50	50
Deck Drain Extensions	Each	16	-	16
Drainage Scuppers To Be Adjusted	Each	2	-	2
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,617	-	2,617
Bridge Deck Scarification 3/4"	Sq Yd	2,617	-	2,617
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	-	268	268
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	-	3	3
Deck Slab Repair (Full Depth, Type I)	Sq Yd	0.1	-	0.1
Diamond Grinding (Bridge Section)	Sq Yd	2,511	-	2,511
Temporary Shoring And Cribbing	Each	-	10	10

PROPOSED SCOPE OF WORK

1. Provide Protective shield within limits indicated on the plans.

2. Perform Deck Slab Repairs and adjust and extend existing scuppers and floor drains as required.

3. Perform ¾" Bridge Deck Scarification.

4. Reconstruct Expansion Joints at the North and South abutments and Pier 2 and install new preformed joint strip seals.

5. Apply 3" Bridge Deck Latex Concrete Overlay on Bridge Deck.

6. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatch block.

7. Perform Bridge Deck Grooving (Longitudinal) on traffic lanes.

8. Apply protective coat to the top of reconstructed transverse joint areas, top of new latex concrete overlay and top and inside faces of parapets.

9. Perform structural repair of concrete to all spalled and delaminated areas, and perform low pressure epoxy injection to all open cracks (⅛"-wide and wider), for the abutments and piers as noted on the plans.

10. Perform Slope Wall repairs.

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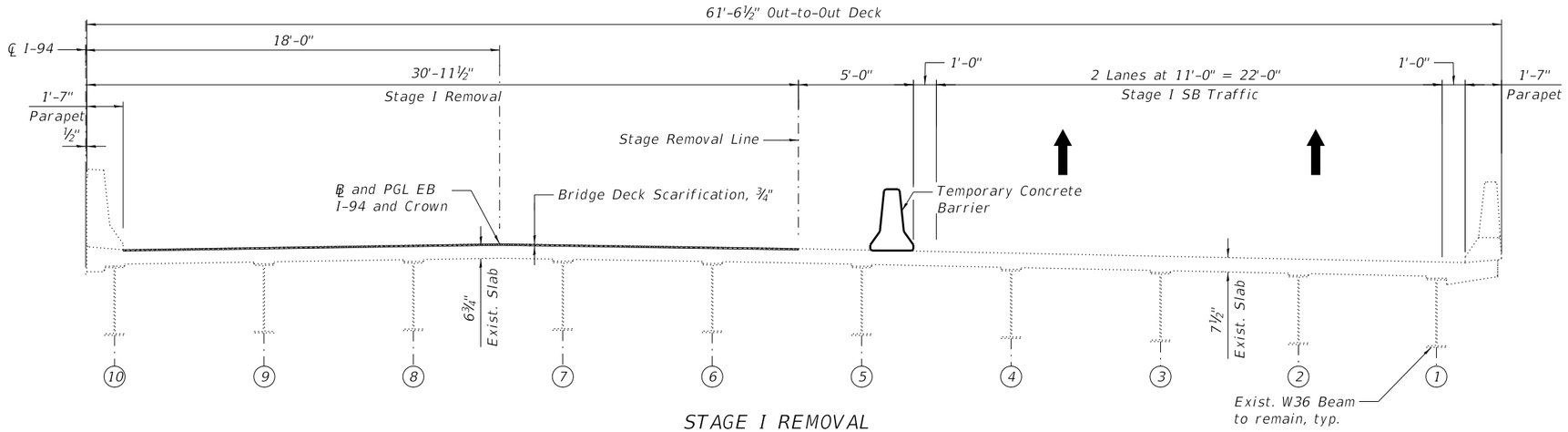
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

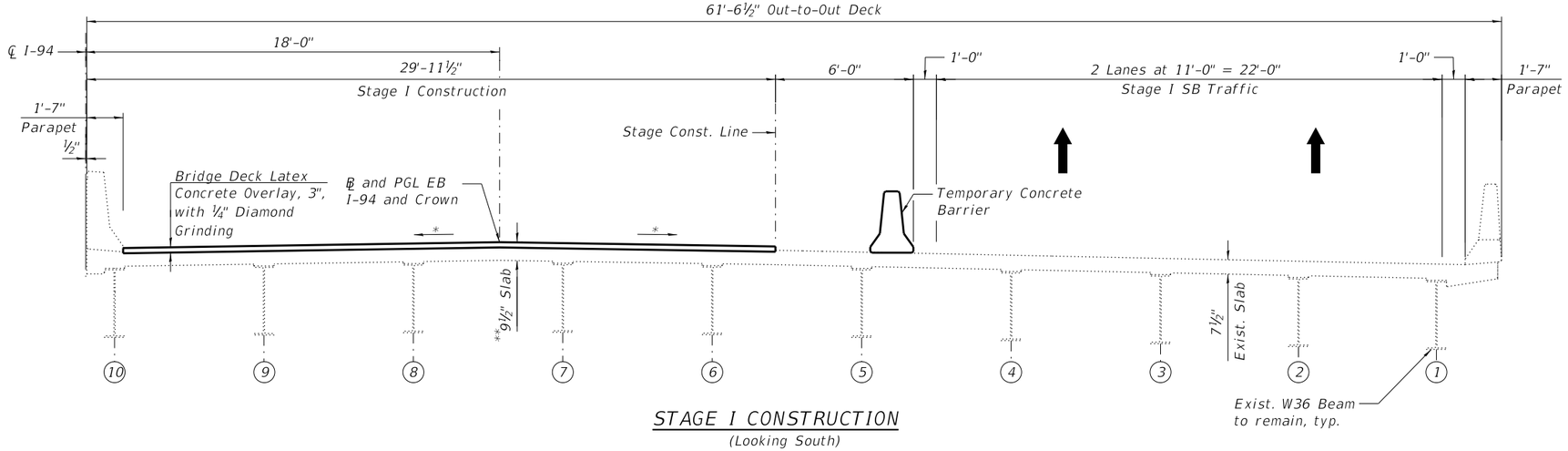
GENERAL NOTES, INDEX OF SHEETS & TBOM
STRUCTURE NO. 016-0160 (EB)

SHEET S04-02 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	560
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			



STAGE I REMOVAL
(Looking South)



STAGE I CONSTRUCTION
(Looking South)

STAGE I REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the west side of the existing structure.
2. Perform ¾" bridge deck scarification.
3. Remove portions of bridge deck/approach slab adjacent to expansion joints at the North and South Abutments, and remove portions of bridge deck slab adjacent to expansion joint at Pier 2.

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct transverse expansion joints and install new preformed joint strip seals within the limits of Stage I Construction.
3. Adjust existing drainage scuppers per the details shown in the plans.
4. Perform structural repair of concrete and epoxy crack injection for the abutments and piers.
5. Apply 3" bridge deck latex concrete overlay.
6. Perform ¼" diamond grinding to bridge deck and abutment hatch block.
7. Perform Bridge Deck Grooving (Longitudinal) for the 3" bridge deck latex concrete overlay and reconstructed expansion joint areas.
8. Apply 2" Stone-Matrix Asphalt (SMA) Overlay to the approach slab and taper into existing roadway. See Roadway Plans.
9. Apply protective coat to top and inside faces of parapets, reconstructed transverse expansion joint areas and to the surface of the new overlay.
10. Perform slope wall repairs as shown on the plans.

NOTES:

1. For Temporary Concrete Barrier details, see Sheet S04-05.
2. For quantity of Temporary Concrete Barrier, see Roadway Plans.

*Match Existing Cross-Slopes

**After grinding

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-03 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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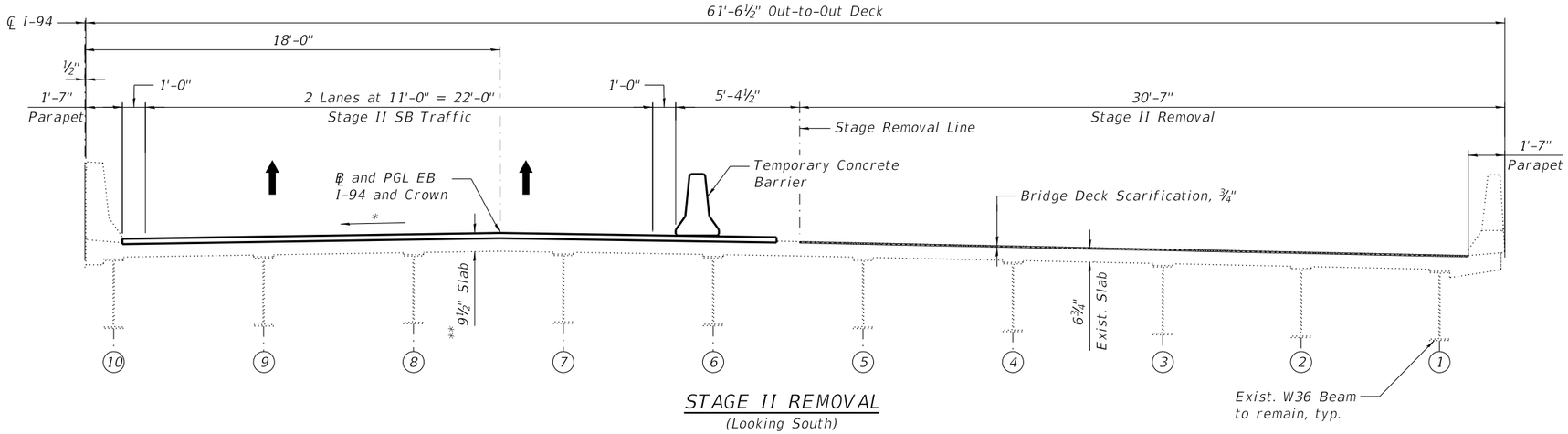
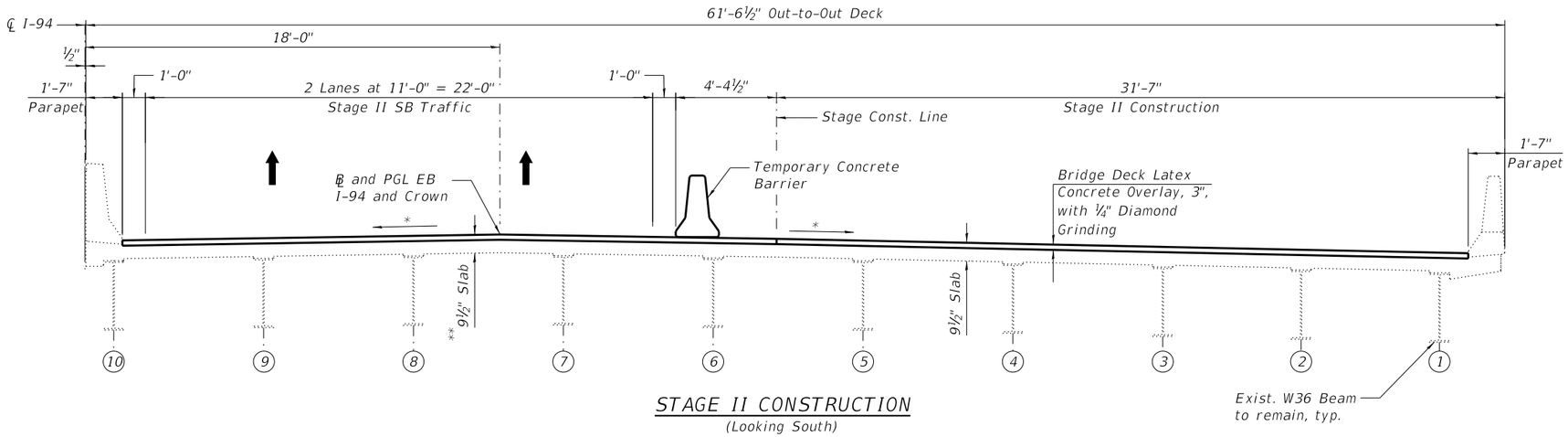
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



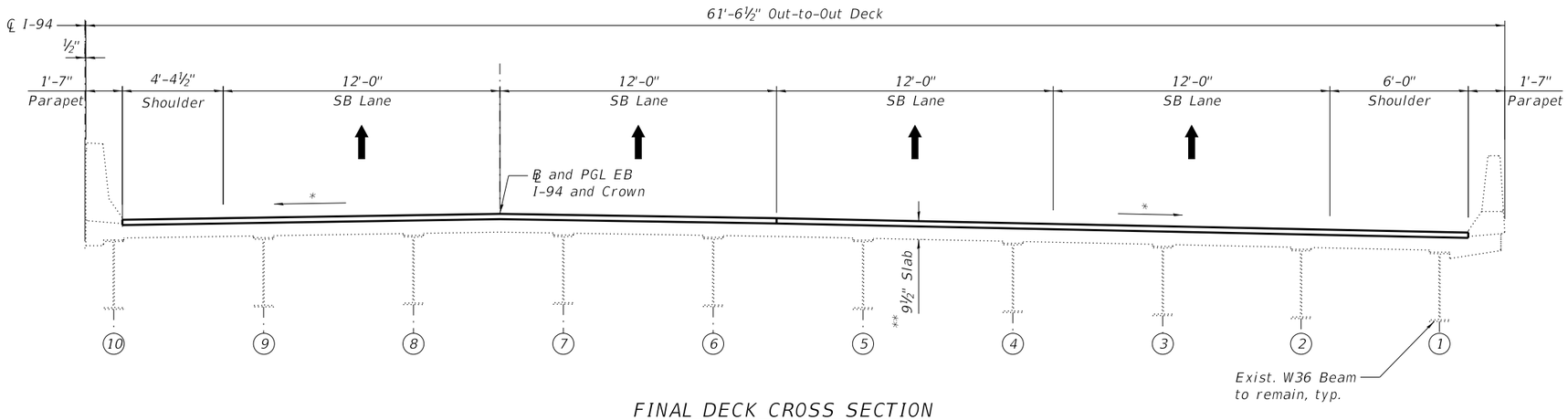
STAGE II REMOVAL

(Looking South)



STAGE II CONSTRUCTION

(Looking South)



FINAL DECK CROSS SECTION

(Looking South)

STAGE II REMOVAL

1. Relocate temporary concrete barrier as shown to locate traffic on the east side of the existing structure.
2. Perform ¾" bridge deck scarification.
3. Remove areas of existing deck for full-depth deck slab repairs at locations shown in the plans.
4. Remove portions of bridge deck/approach slab adjacent to expansion joints at the North and South Abutments and remove portions of bridge deck slab adjacent to expansion joint at pier 2.

STAGE II CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct transverse expansion joints and install new preformed joint strip seals within the limits of Stage II Construction.
3. Perform structural repair of concrete and epoxy crack injection for the abutments and piers.
4. Apply 3" bridge deck latex concrete overlay.
5. Perform ¼" diamond grinding to bridge deck and abutment hatch block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" bridge deck latex concrete overlay and reconstructed expansion joint areas.
7. Apply 2" Stone-Matrix Asphalt (SMA) Overlay to the approach slab and taper into existing roadway. See Roadway Plans.
8. Apply protective coat to top and inside faces of parapets, reconstructed transverse expansion joint areas, and to the surface of the new overlay.
9. Perform slope wall repairs as shown on the plans.

NOTES:

1. For Temporary Concrete Barrier details, see Sheet S04-05.
2. For quantity of Temporary Concrete Barrier, see Roadway Plans.

*Match Existing Cross-Slopes

**After grinding

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-04 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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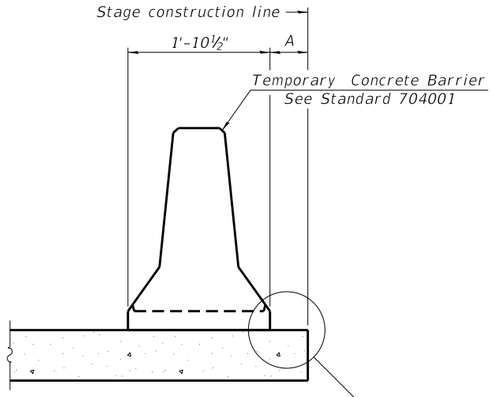
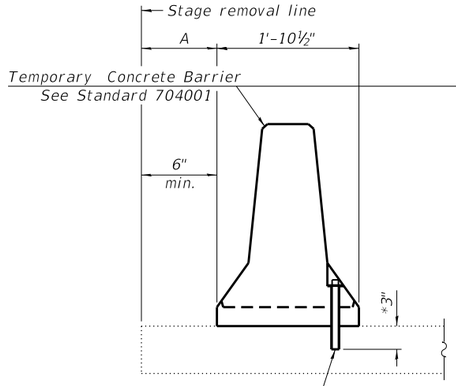
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



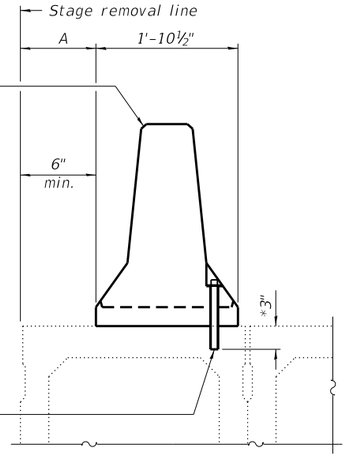
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



Drill 3-1¼" 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".

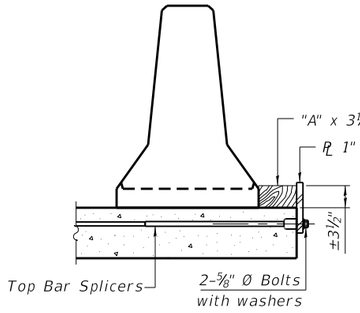
EXISTING SLAB



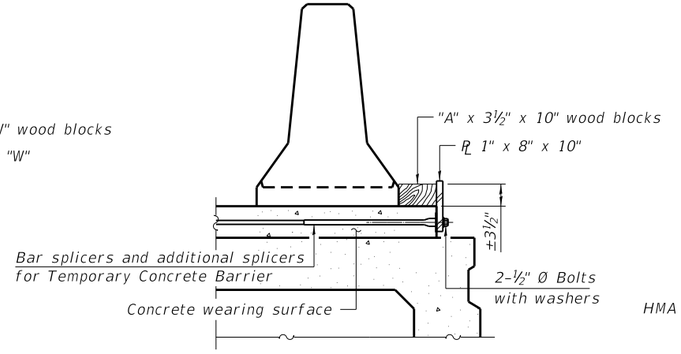
*When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

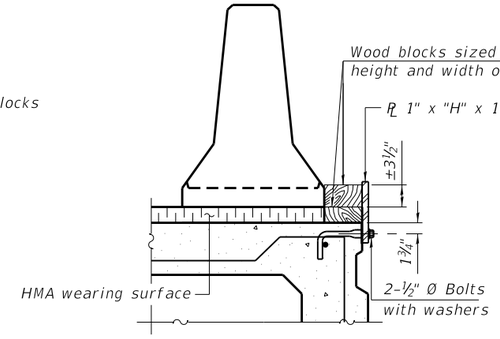
SECTIONS THRU SLAB OR DECK BEAM



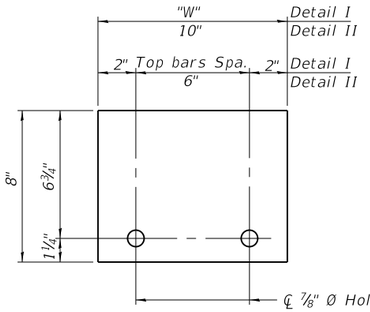
DETAIL I



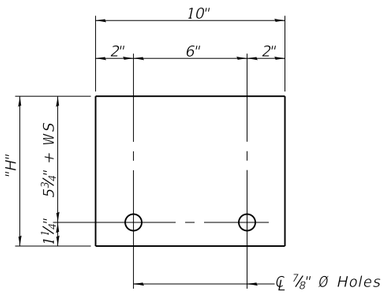
DETAIL II



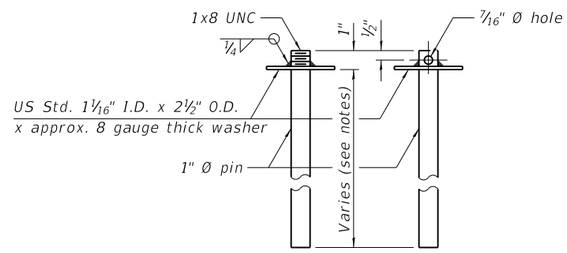
DETAIL III



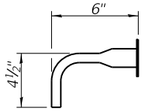
STEEL RETAINER ℄ 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER ℄ 1" x "H" x 10"
(Detail III)



RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III

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.

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0160 (EB)

SHEET S04-05 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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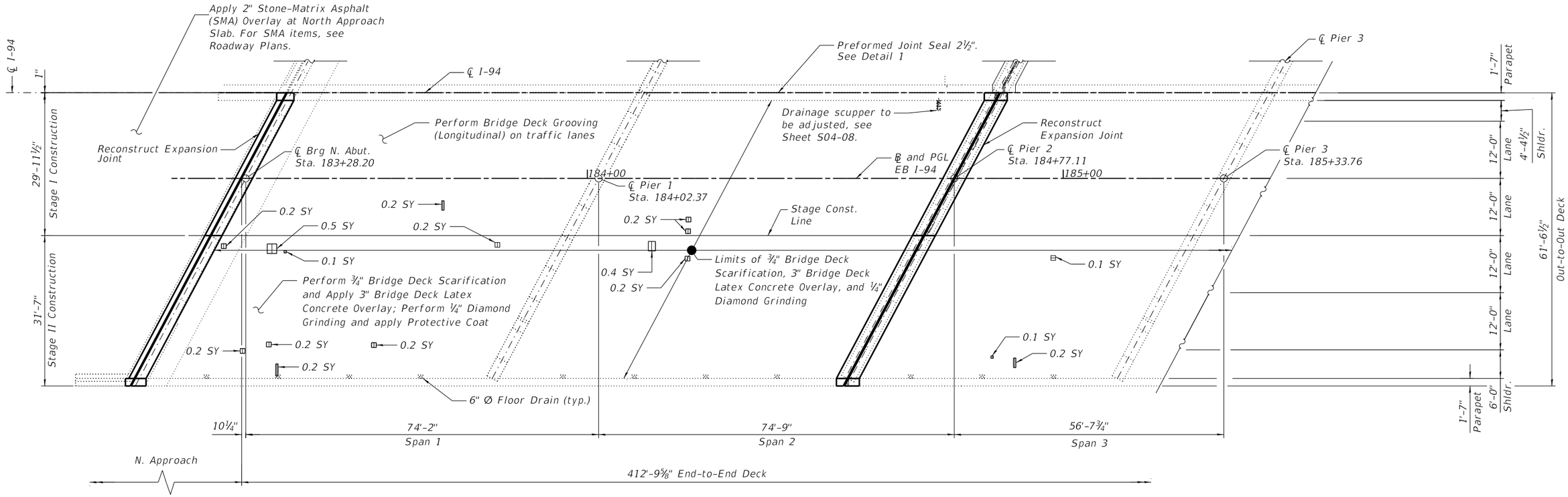
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



DECK PLAN

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

LEGEND

- Deck Slab Repair (Partial)*
- Deck Slab Repair (Full Depth, Type I)
- SY — Square Yard

NOTE:

1. For Notes, Bill of Material and Detail 1, see Sheet S04-07.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN (SHEET 1 OF 2)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-06 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.	62W87	
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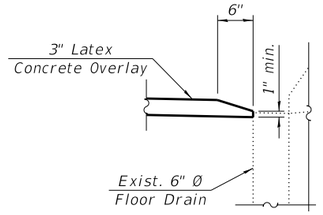
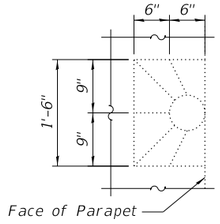


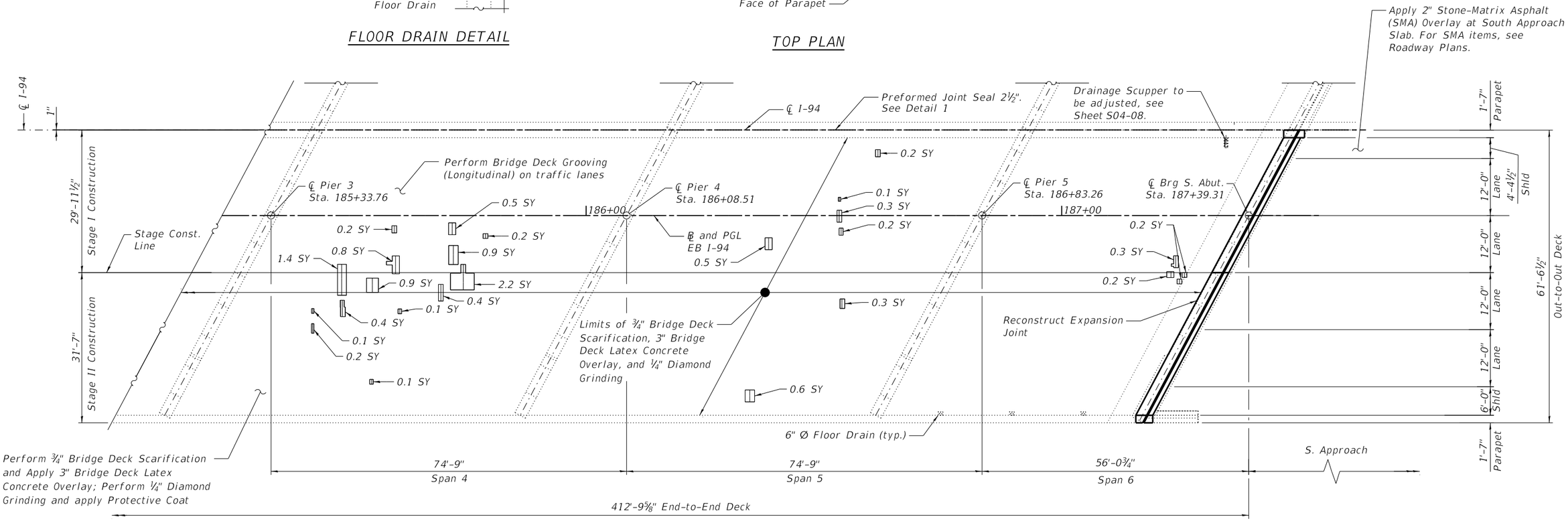
FLOOR DRAIN DETAIL



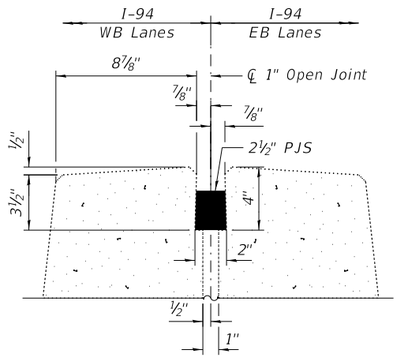
TOP PLAN

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	3,041
Preformed Joint Seal 2 1/2"	Foot	414
Bridge Deck Grooving (Longitudinal)	Sq Yd	2,217
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,617
Bridge Deck Scarification 3/4"	Sq Yd	2,617
Deck Slab Repair (Full Depth, Type I)	Sq Yd	0.1
Diamond Grinding (Bridge Section)	Sq Yd	2,511



DECK PLAN



DETAIL 1

(Reinforcement not shown for clarity)

*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

NOTES:

1. Areas of deck repair shown are estimated. The Engineer shall show actual locations of deck repairs at the time of construction.
2. For bridge deck final cross section, see Sheet S04-04.
3. For North Abutment, Pier 2, and South Abutment transverse joint removal and reconstruction, see Sheets S04-09 thru S04-16.
4. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatch block.
5. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.

LEGEND

Deck Slab Repair (Partial)*

SY Square Yard

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN (SHEET 2 OF 2)
STRUCTURE NO. 016-0160 (EB)

SHEET S04-07 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.	62W87	
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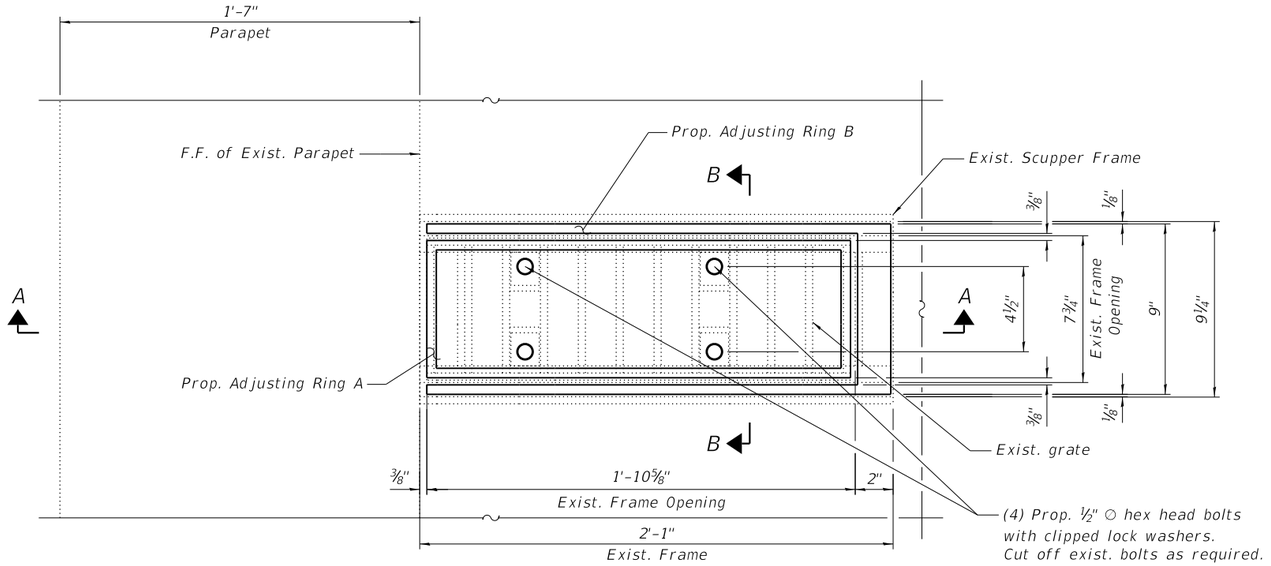
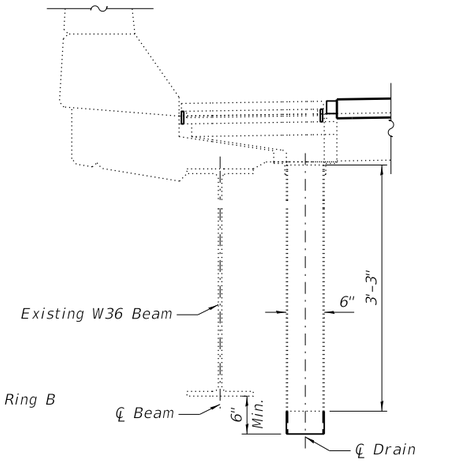


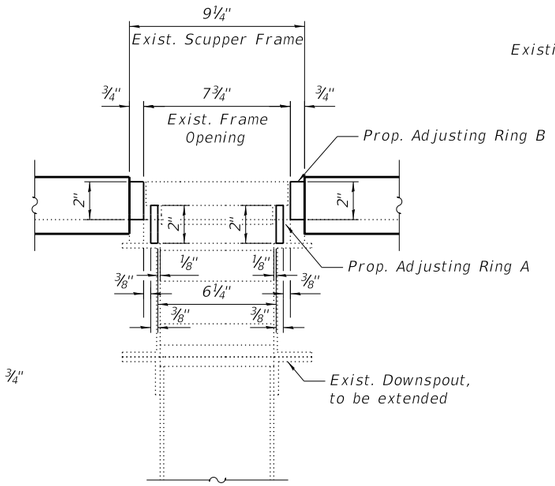
TYPICAL SCUPPER PLAN

BILL OF MATERIAL

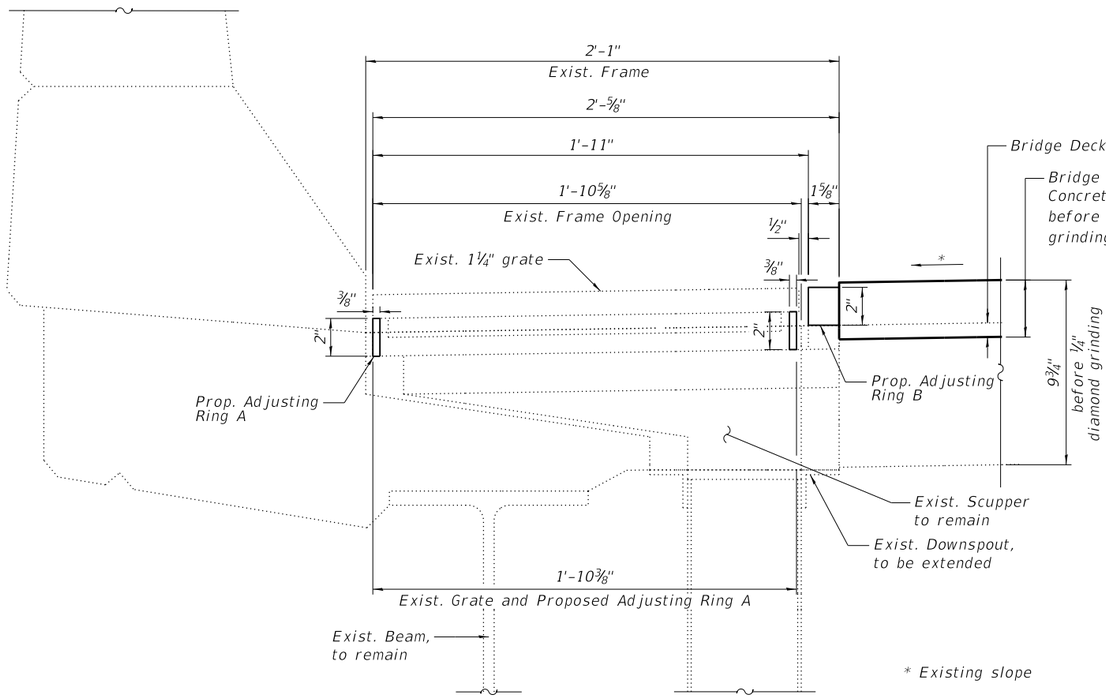
ITEM	UNIT	QUANTITY
Deck Drain Extensions	Each	16
Drainage Scuppers To Be Adjusted	Each	2



DRAIN EXTENSION DETAIL



SECTION B-B



NOTES:

1. The Contractor shall field-verify Existing Dimensions and Details of the Existing Scuppers and downspouts and make necessary approved adjustments prior to construction or ordering of material for Adjusting Drainage Scuppers and extending downspouts.
2. All Cast Iron Parts shall be Grey Iron conforming to the requirements of AASHTO M 105, Class 35B.
3. Cast Iron Parts shall be unfinished.
4. Bolts, washers and nuts shall conform to the requirements of ASTM A307 and be galvanized according to the requirements of AASHTO M232.
5. The Contractor shall take appropriate measures to ensure that Protective Coat is not applied to the scuppers.
6. Adjusting Rings shall be from Neenah or approved equal. Structural steel weldments or equal sections and of the same configuration may be submitted in place of Cast Iron. Fillet or full penetration welds may be used for weldments. Details shall be submitted to the Engineer for approval.
7. Provide 1/8" Fillet Weld around perimeter of new Adjusting Rings to secure to existing Scupper. Electrode shall be compatible with cast iron if existing scupper elements are cast iron construction.
8. Cost of all labor and materials necessary to clean all existing floor drains and scuppers, fabricate and install adjusting scupper rings, remove and reinstall grates is included in the cost of Drainage Scuppers to be Adjusted.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER ADJUSTMENT DETAILS
STRUCTURE NO. 016-0160 (EB)

SHEET S04-08 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62W87		
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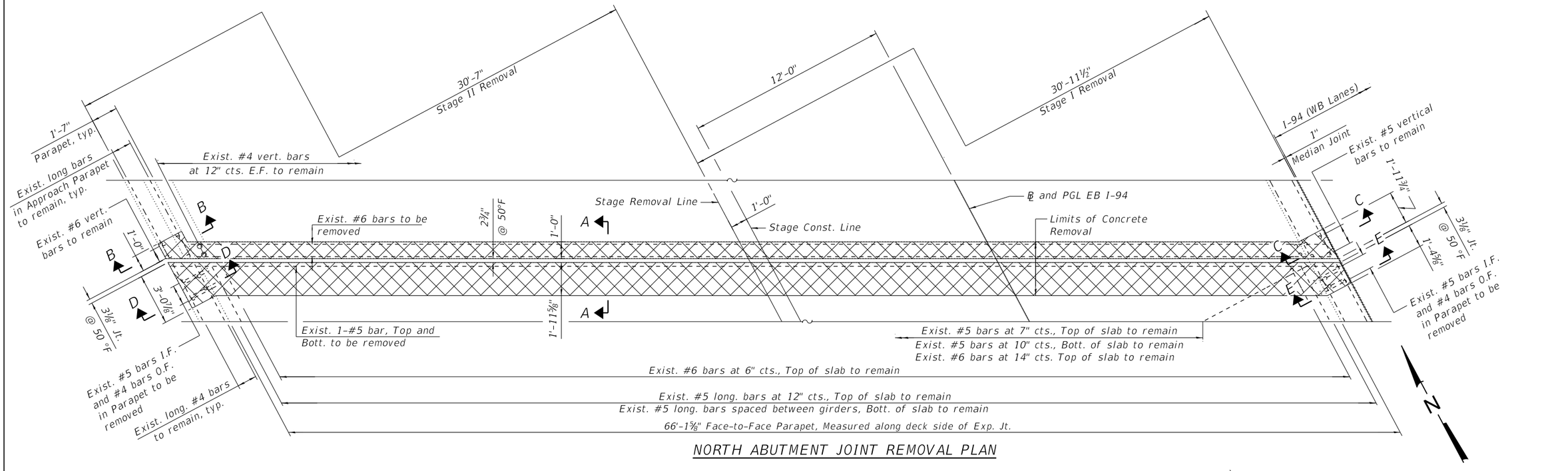
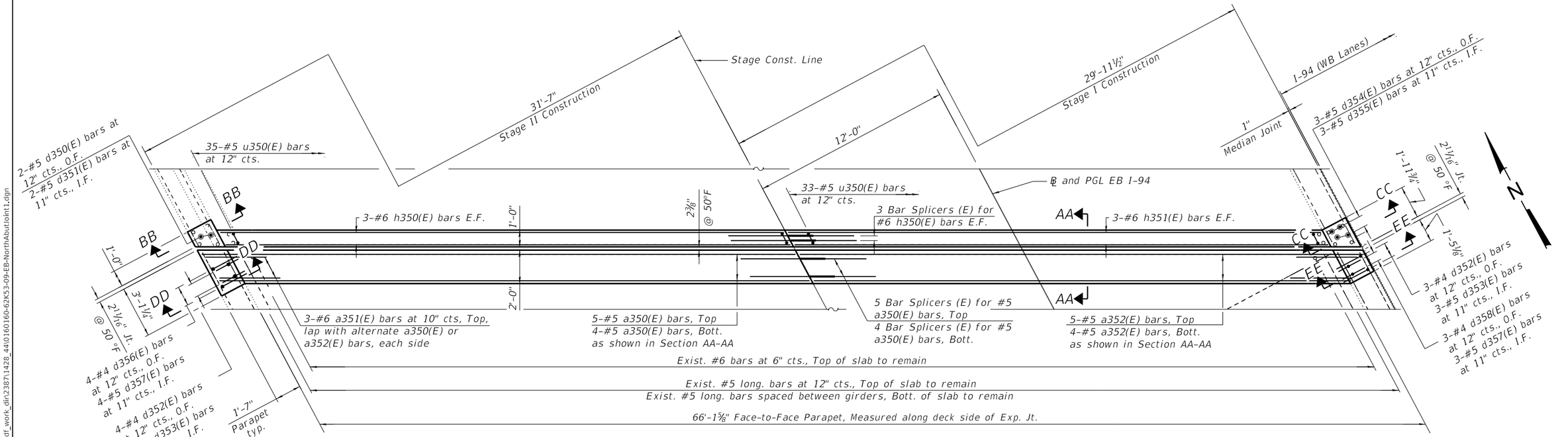


NORTH ABUTMENT JOINT REMOVAL PLAN



NORTH ABUTMENT JOINT RECONSTRUCTION PLAN

NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, Legend, and additional notes, see Sheet S04-10.

2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, and Bill of Material, see Sheet S04-11.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-09 OF S04-26 SHEETS

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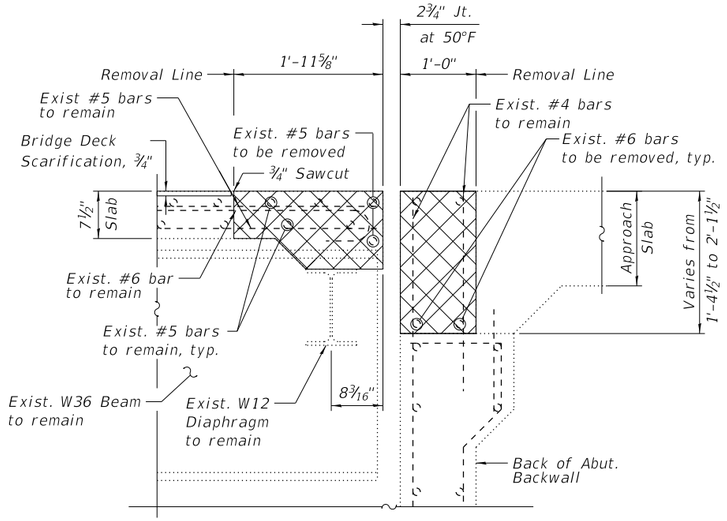
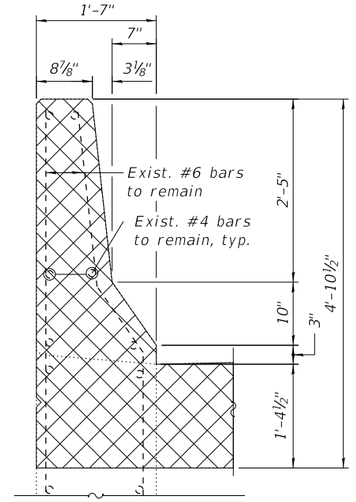
	ILLINOIS	FED. AID PROJECT		

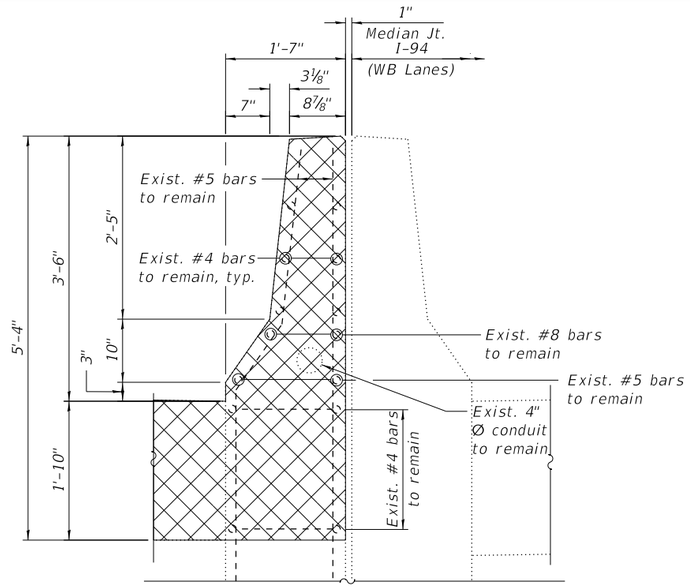


SECTION A-A



SECTION B-B

(Reinforcement in the pour strip not shown for clarity)



SECTION C-C

(Reinforcement in the pour strip not shown for clarity)

SECTION AA-AA

SECTION BB-BB

(Reinforcement in the pour strip not shown for clarity)

SECTION CC-CC

(Reinforcement in the pour strip not shown for clarity)

*Before ¼" Diamond Grinding

NOTES:

1. For preformed joint strip seal details, see Sheet S04-17.
2. For bar splicer assembly details, see Sheet S04-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. Epoxy grout d350(E), d351(E), d354(E) and d355(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.
5. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
6. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
7. Dimensions are based on a Roller Rail Strip Seal joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S04-17.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

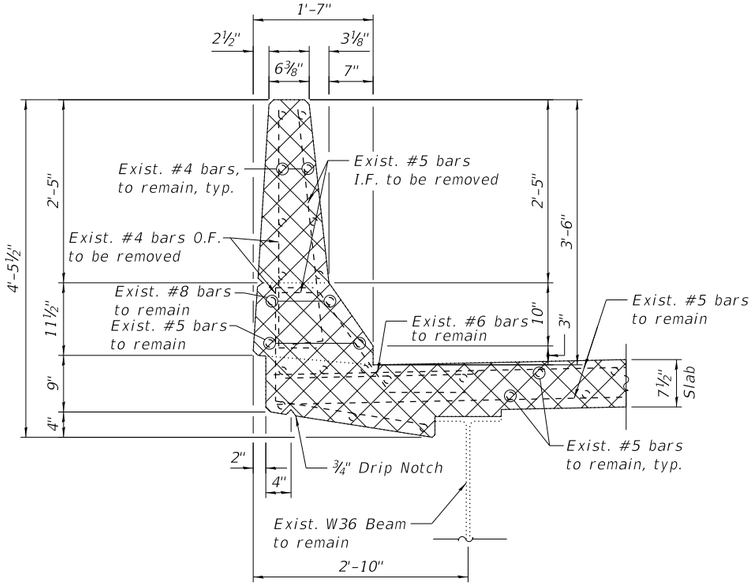
N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0160 (EB)

SHEET S04-10 OF S04-26 SHEETS

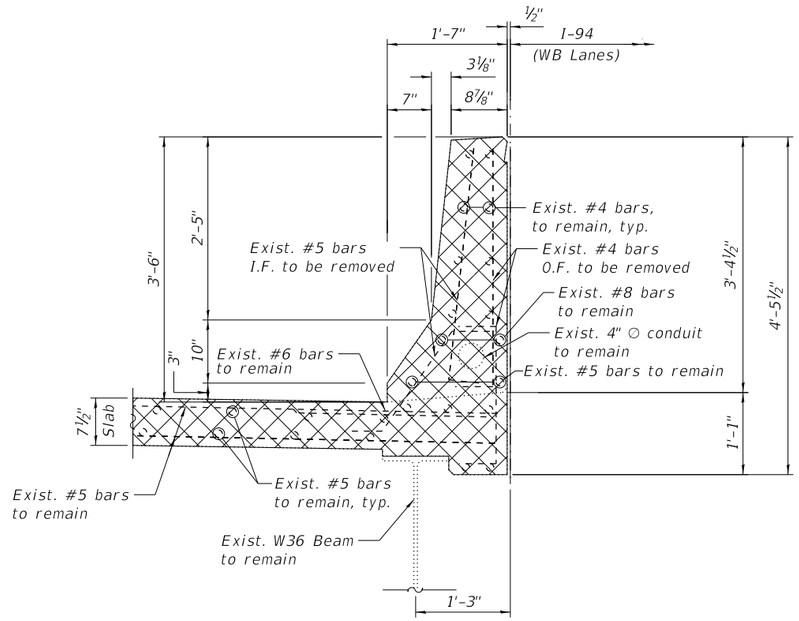
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	568
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

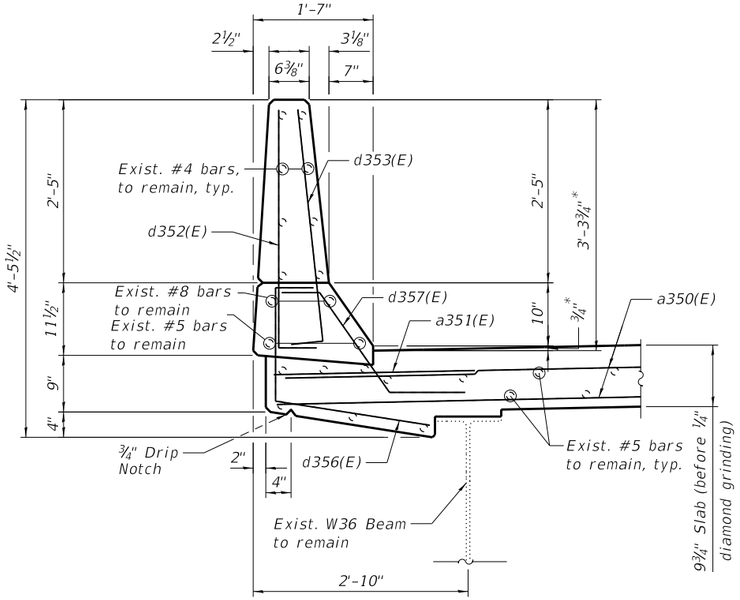
Bar	No.	Size	Length	Shape
a350(E)	9	#5	35'-5"	—
a351(E)	6	#6	6'-6"	—
a352(E)	9	#5	33'-7"	—
d350(E)	2	#5	5'-6"	—
d351(E)	2	#5	5'-9"	⌐
d352(E)	7	#4	3'-8"	⌐
d353(E)	7	#5	3'-8"	⌐
d354(E)	3	#5	6'-1"	—
d355(E)	3	#5	6'-4"	⌐
d356(E)	4	#4	3'-11"	⌐
d357(E)	7	#5	2'-7"	⌐
d358(E)	3	#4	2'-7"	⌐
h350(E)	6	#6	33'-8"	—
h351(E)	6	#6	31'-10"	—
u350(E)	68	#5	2'-8"	⊓
Concrete Removal			Cu Yd	10.1
Concrete Superstructure			Cu Yd	11.7
Protective Coat			Sq Yd	24
Reinforcement Bars, Epoxy Coated			Pound	1,620



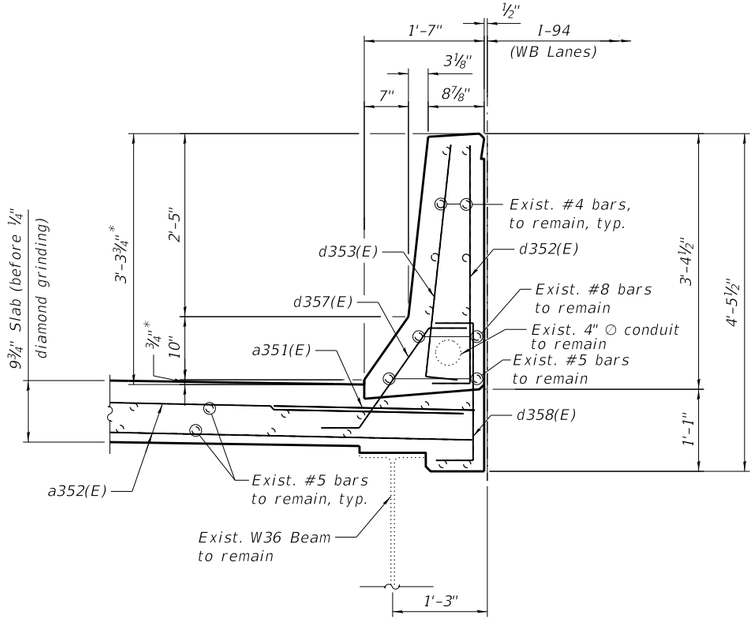
SECTION D-D



SECTION E-E

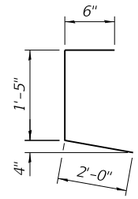


SECTION DD-DD

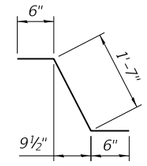


SECTION EE-EE

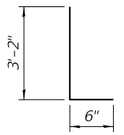
*Before ¼" Diamond Grinding



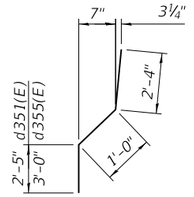
BARS d356(E)



BAR d357(E)



BARS d352(E) & d353(E)



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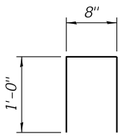
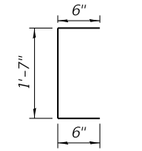


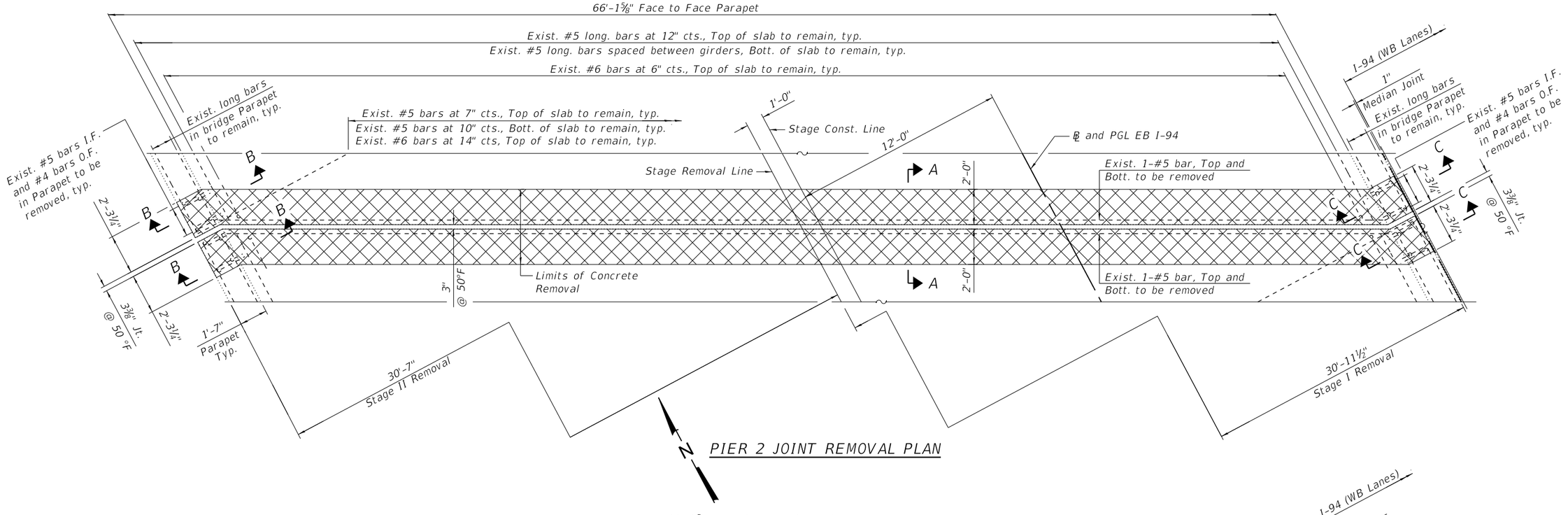
BARS u350(E)



BARS d358(E)

NOTE:

1. For Legend and Notes, see Sheet S04-10.



PIER 2 JOINT RECONSTRUCTION PLAN

NOTE:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, Bar Diagrams, Bill of Material, Legend and additional notes, see Sheet S04-13.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 2)
STRUCTURE NO. 016-0160 (EB)

SHEET S04-12 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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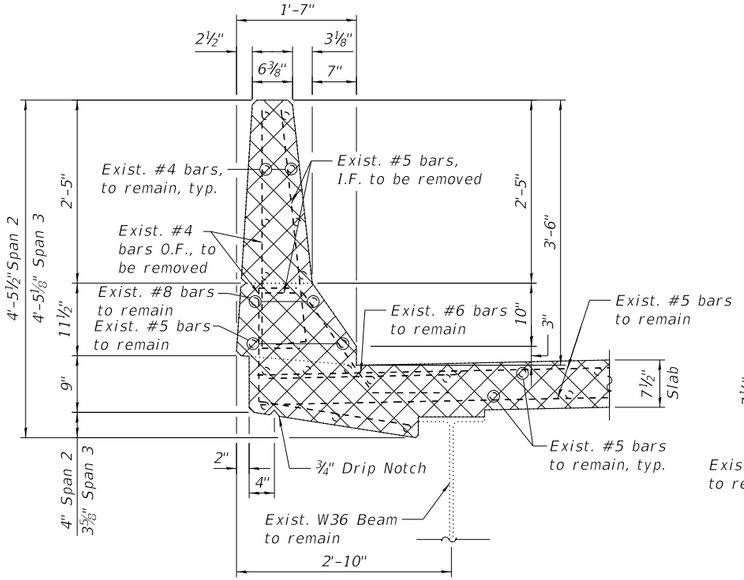
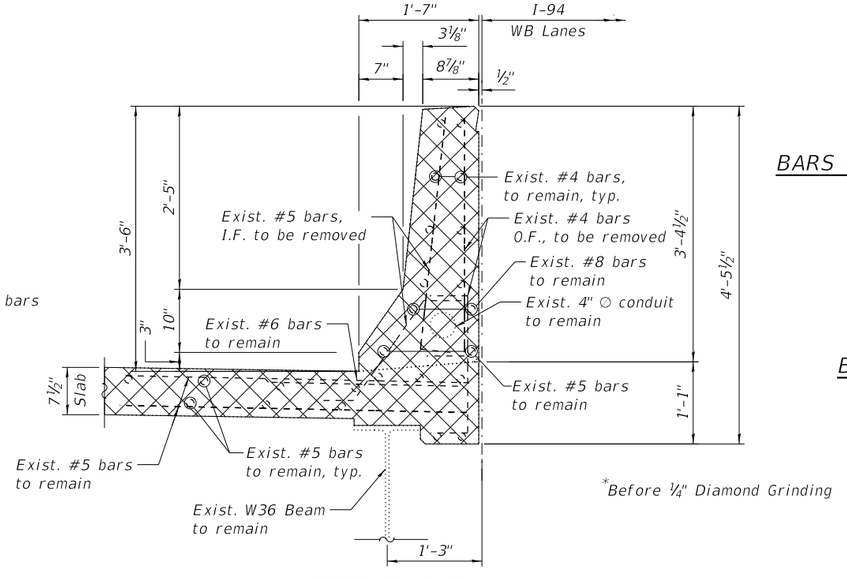
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

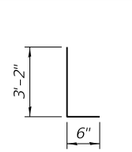


SECTION B-B

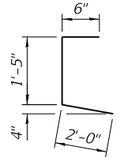


SECTION C-C

*Before ¼" Diamond Grinding



BARS d370(E) & d371(E)



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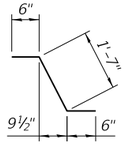
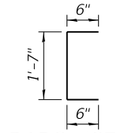


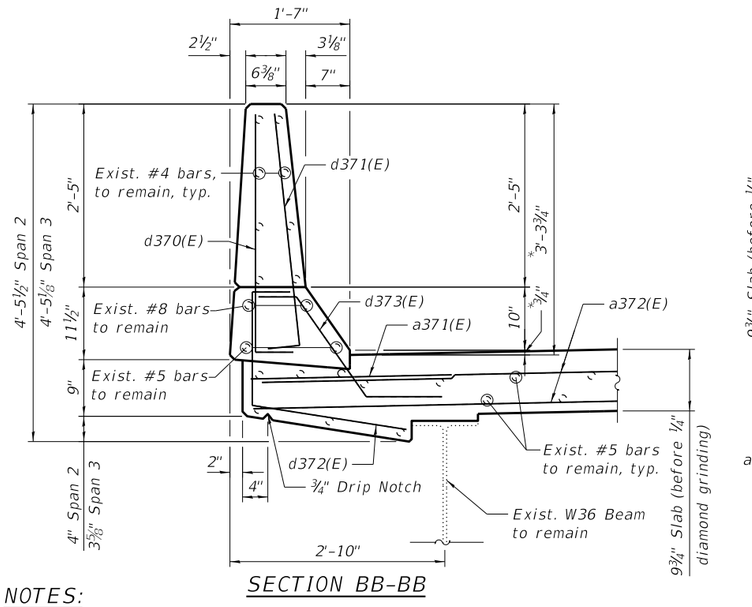
BARS d373(E)



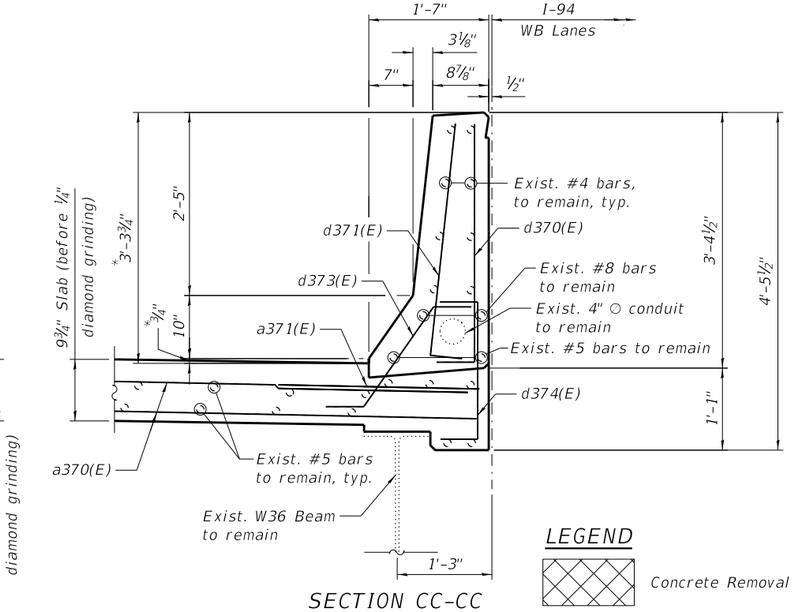
BARS d374(E)

BILL OF MATERIAL

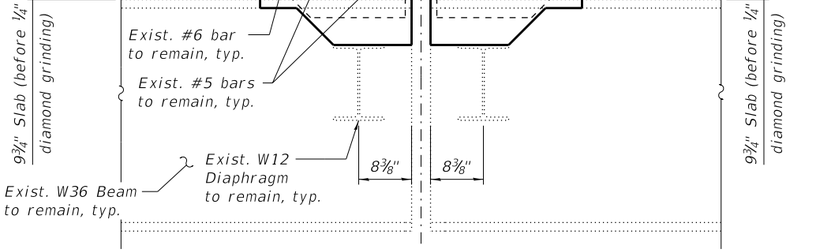
Bar	No.	Size	Length	Shape
a370(E)	18	#5	35'-5"	—
a371(E)	12	#6	6'-6"	—
a372(E)	18	#5	33'-7"	—
d370(E)	14	#4	3'-8"	L
d371(E)	14	#5	3'-8"	L
d372(E)	7	#4	3'-11"	L
d373(E)	14	#5	2'-7"	⌐
d374(E)	7	#4	2'-7"	L
Concrete Removal			Cu Yd	12.0
Concrete Superstructure			Cu Yd	13.9
Protective Coat			Sq Yd	31
Reinforcement Bars, Epoxy Coated			Pound	1,570



SECTION BB-BB



SECTION CC-CC



SECTION A-A

SECTION AA-AA

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

NOTES:

1. For preformed joint strip seal details, see Sheet S04-17.
2. For bar splicer assembly details, see Sheet S04-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
5. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
6. Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S04-17.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 2)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-13 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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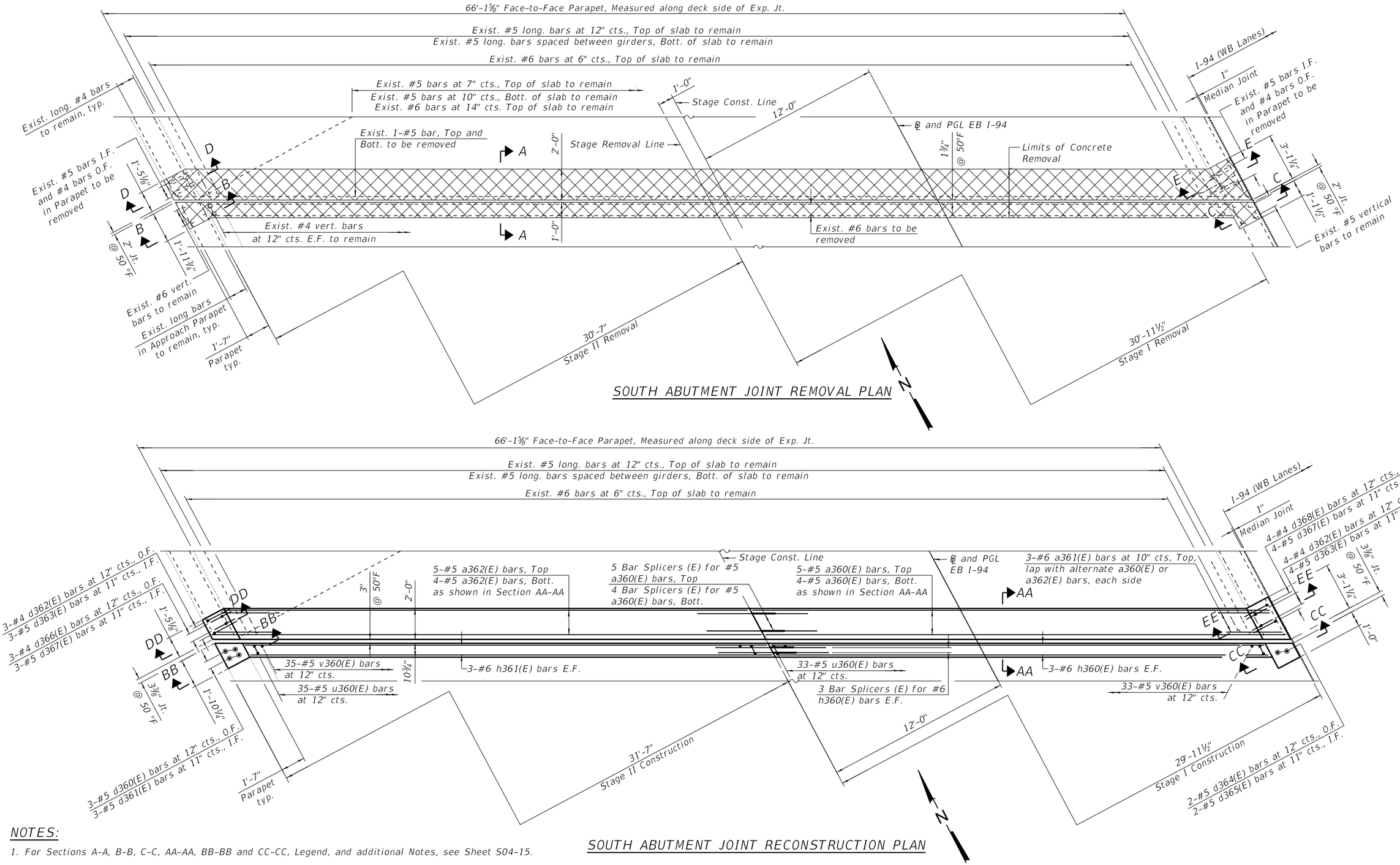
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, Legend, and additional Notes, see Sheet S04-15.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, and Bill of Material, see Sheet S04-16.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-14 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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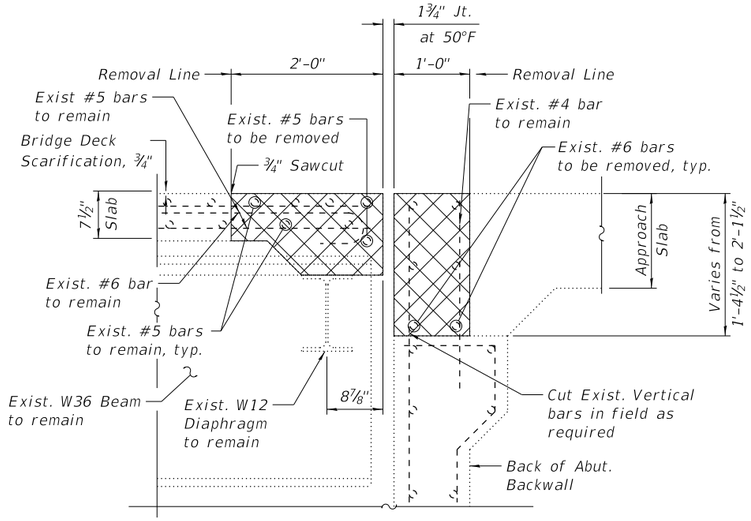
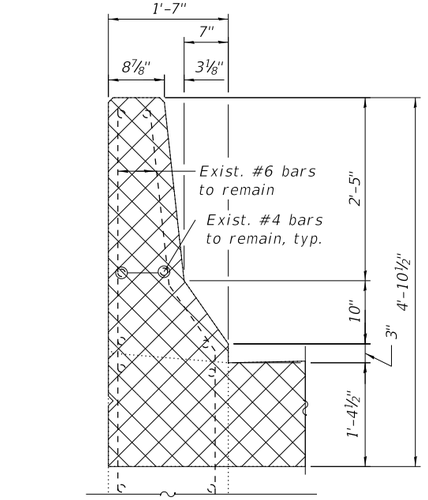
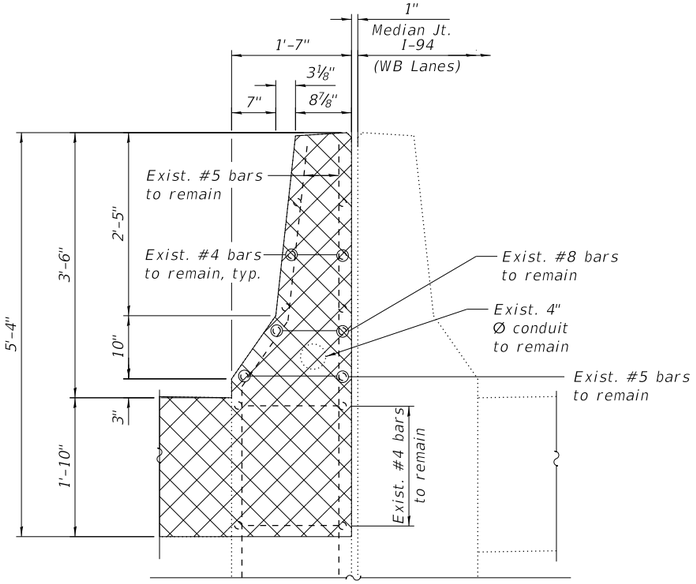
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	



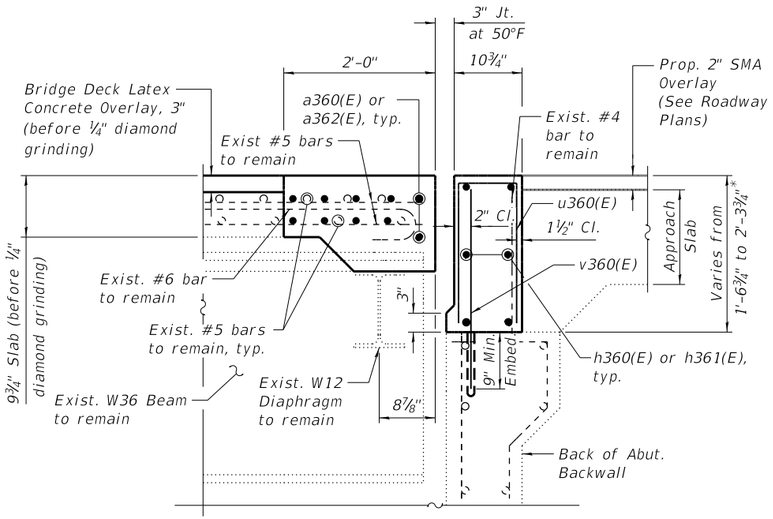
SECTION A-A



SECTION B-B
(Reinforcement in the pour strip not shown for clarity)



SECTION C-C
(Reinforcement in the pour strip not shown for clarity)



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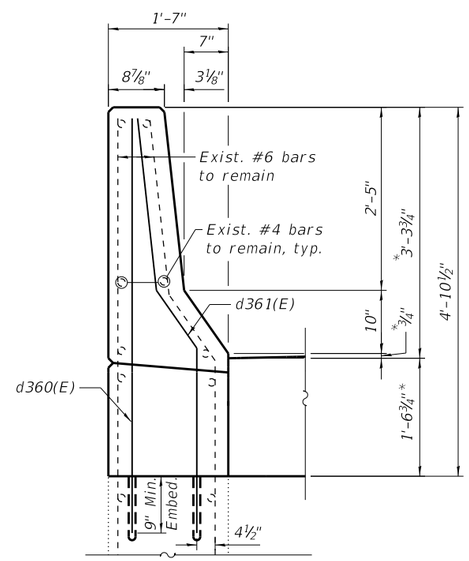

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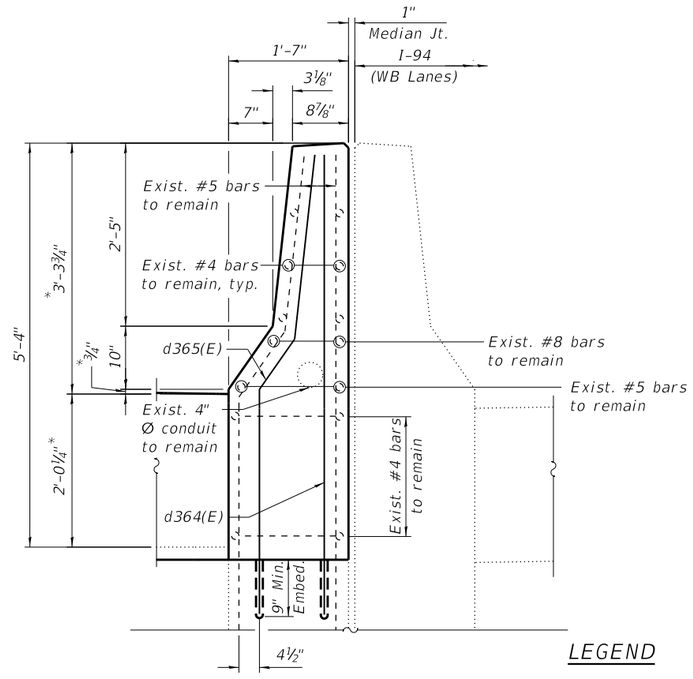

SECTION CC-CC
(Reinforcement in the pour strip not shown for clarity)

*Before ¼" Diamond Grinding

NOTES:

1. For preformed joint strip seal details, see Sheet S04-17.
2. For bar splicer assembly details, see Sheet S04-26.
3. Removal and disposal of the existing expansion joints is included with Concrete Removal.
4. Epoxy grout d360(E), d361(E), d364(E), d365(E) and v360(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.
5. 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 shall be replaced with an approved bar splicer or anchorage system at the contractor's expense.
6. Any reinforcement bars that are damaged during Concrete Removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to "Concrete Removal".
7. Dimensions are based on a Roller Rail Strip Seal joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet S04-17.

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-15 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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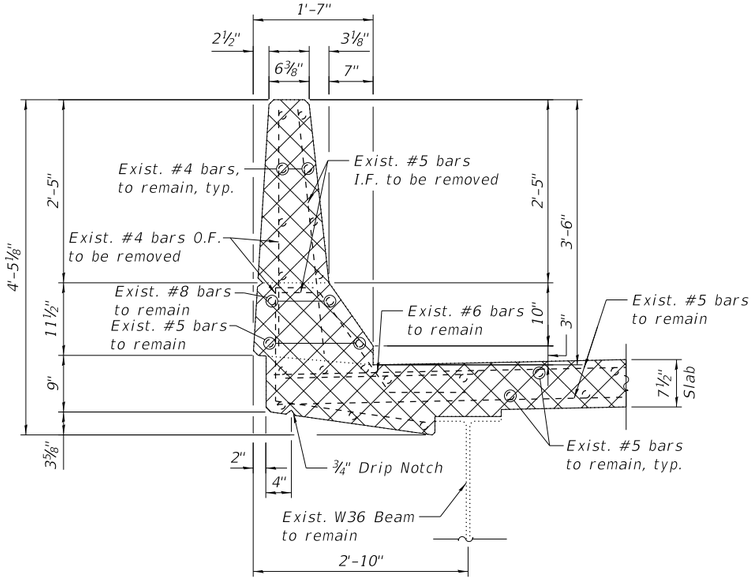
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			



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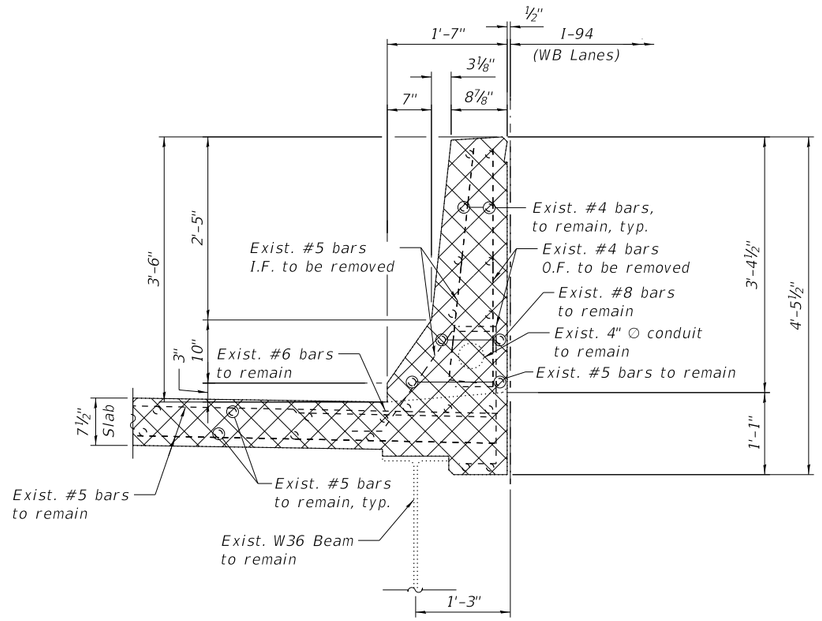
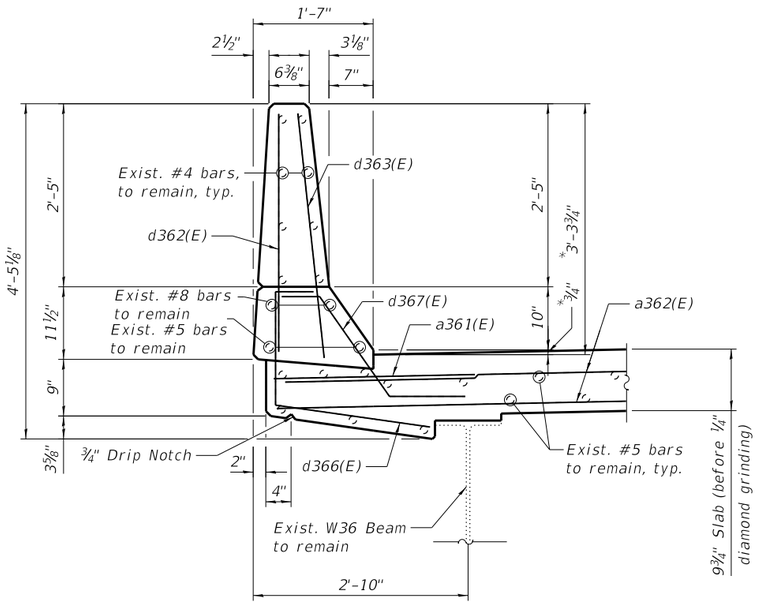


SECTION E-E



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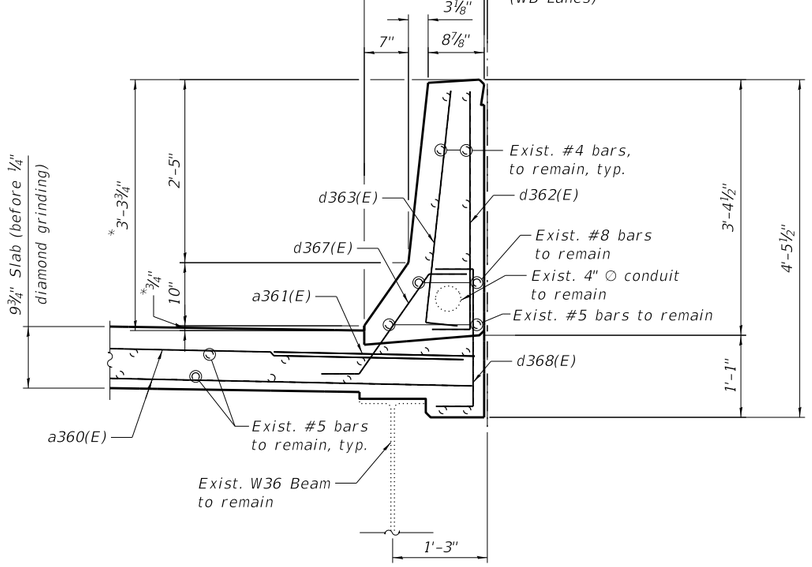
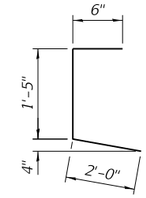


SECTION EE-EE

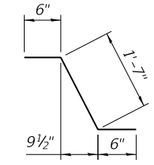
*Before ¼" Diamond Grinding

BILL OF MATERIAL

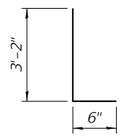
Bar	No.	Size	Length	Shape
a360(E)	9	#5	33'-7"	——
a361(E)	6	#6	6'-6"	——
a362(E)	9	#5	35'-5"	——
d360(E)	3	#5	5'-6"	——
d361(E)	3	#5	5'-9"	⌐
d362(E)	7	#4	3'-8"	L
d363(E)	7	#5	3'-8"	L
d364(E)	2	#5	6'-1"	——
d365(E)	2	#5	6'-4"	⌐
d366(E)	3	#4	3'-11"	⊏
d367(E)	7	#5	2'-7"	⌐
d368(E)	4	#4	2'-7"	⊏
h360(E)	6	#6	31'-10"	——
h361(E)	6	#6	33'-8"	——
u360(E)	68	#5	3'-0"	⊓
v360(E)	68	#5	2'-1"	——
Concrete Removal			Cu Yd	10.5
Concrete Superstructure			Cu Yd	11.3
Protective Coat			Sq Yd	24
Reinforcement Bars, Epoxy Coated			Pound	1,860



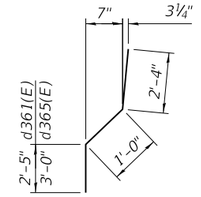
BARS d366(E)



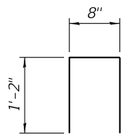
BAR d367(E)



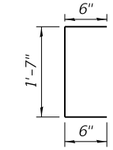
BARS d362(E) & d363(E)



BARS d361(E) & d365(E)



BARS u360(E)



BARS d368(E)

NOTE:

1. For Legend and Notes, see Sheet S04-15.

HBM ENGINEERING GROUP, LLC

USER NAME = hbmepw11ics01$		DESIGNED - JMI		REVISED -	
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PLOT SCALE = 2:0 ':" / in.		CHECKED - MI, LAB		REVISED -	
PLOT DATE = 12/6/2024		DATE - 12/9/2024		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0160 (EB)
SHEET S04-16 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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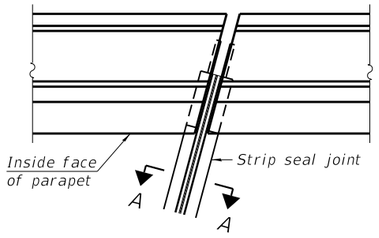
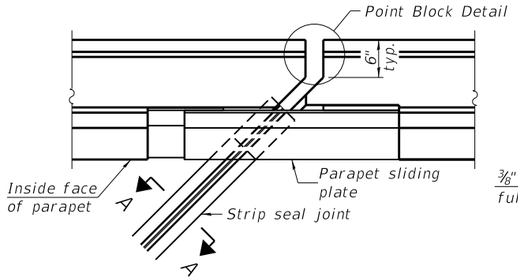
		CONTRACT NO.		62W87
	ILLINOIS	FED. AID PROJECT		

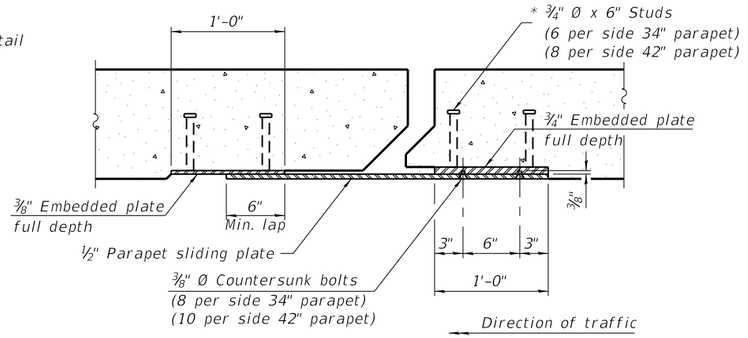


FOR SKEWS ≤ 30°

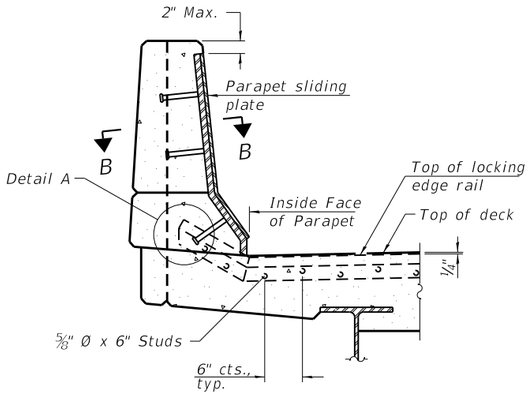


FOR SKEWS > 30°

PLAN AT PARAPET

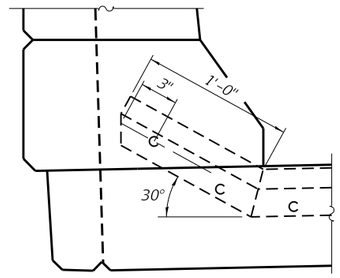


SECTION B-B

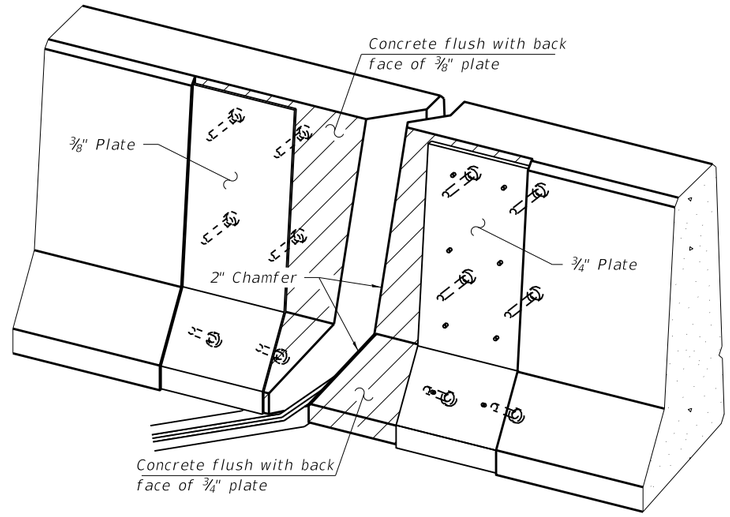


ELEVATION AT PARAPET

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



DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)

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.

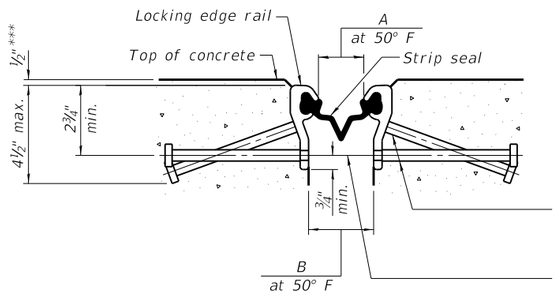
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

The top surface of sidewalk sliding plates shall have a raised pattern according to ASTM A786.

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

39" constant slope barrier shown, 44" constant slope barrier 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.



SHOWING ROLLED RAIL JOINT

Joint	A	B	C
North Abut.	1½"	2⅜"	3"
Pier 2	2⅛"	3"	3⅜"
South Abut.	1½"	2⅜"	3"

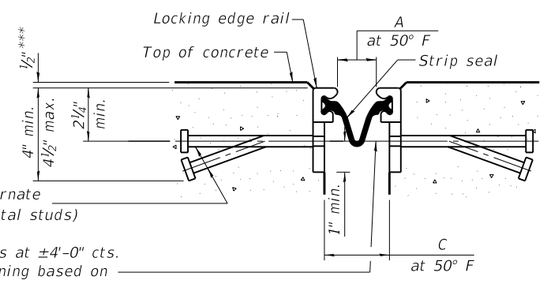
* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

⅜" 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.

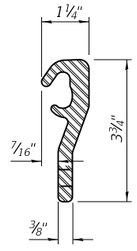
SECTION A-A

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

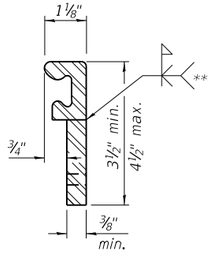
***Before ¼" Diamond Grinding



SHOWING WELDED RAIL JOINT



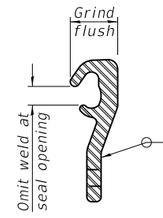
ROLLED
(EXTRUDED) RAIL



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	210

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

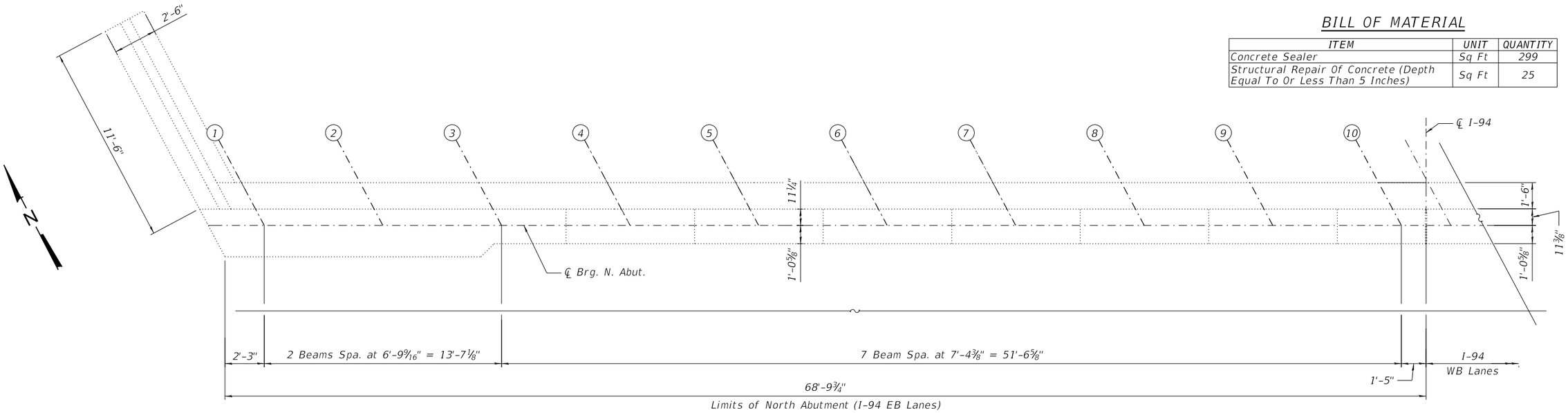
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0160 (EB)

SHEET S04-17 OF S04-26 SHEETS

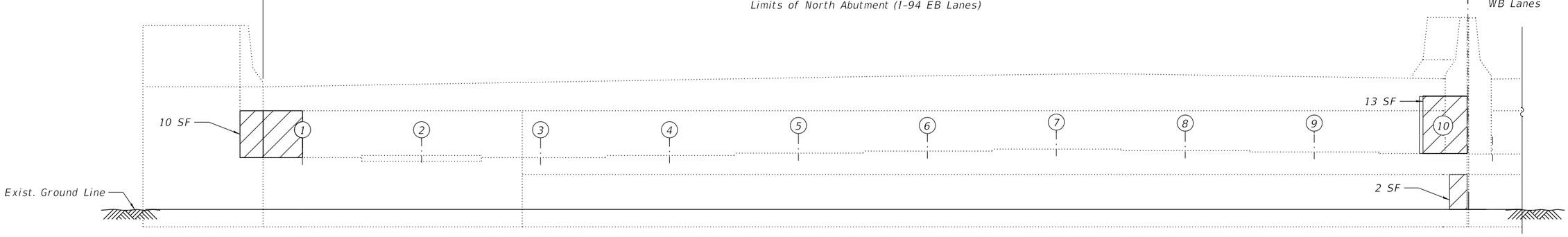
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	575
		CONTRACT NO.	62W87	
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	299
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	25

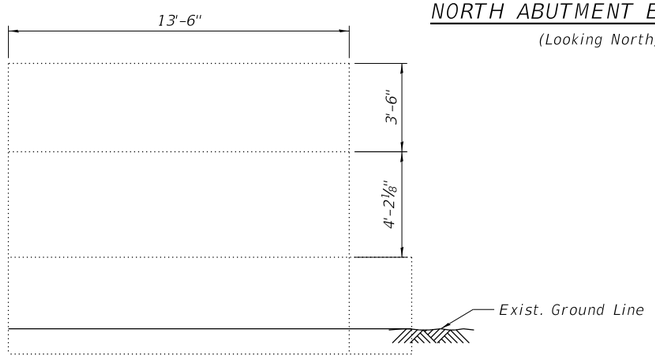


NORTH ABUTMENT PLAN



NORTH ABUTMENT ELEVATION

(Looking North)



NORTHWEST WINGWALL ELEVATION

(Looking East)

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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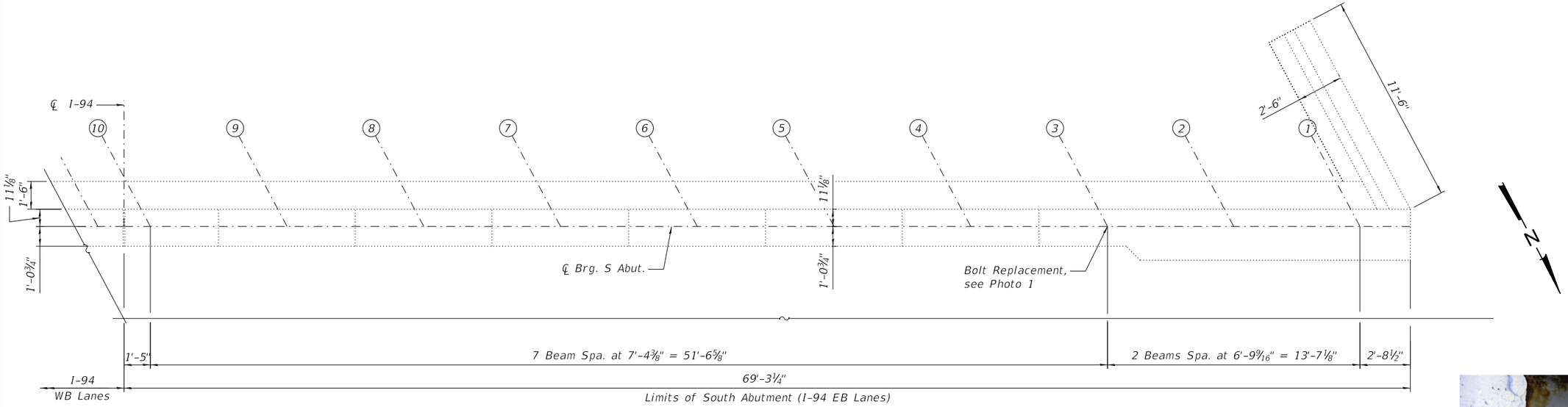
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

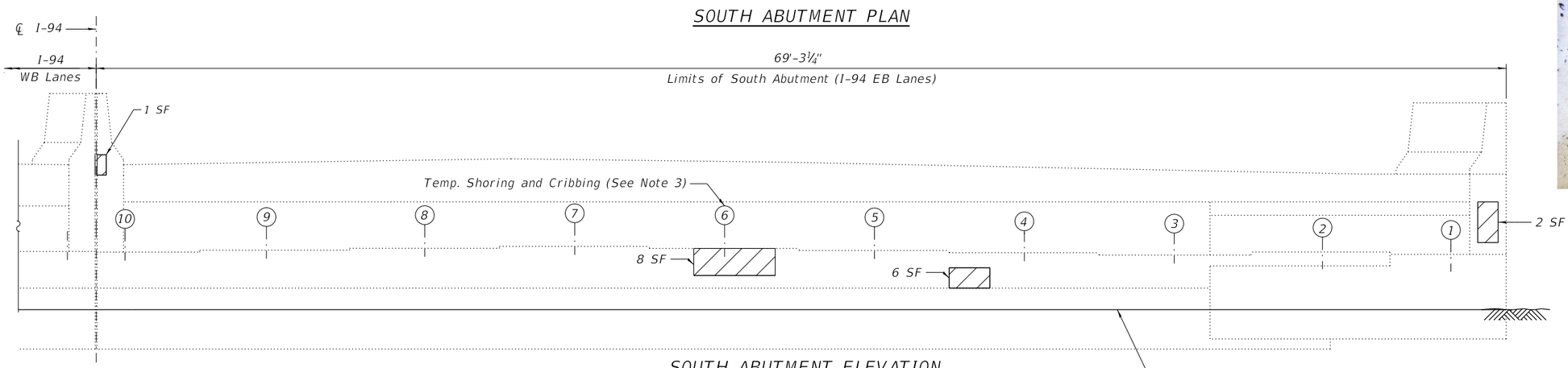
NORTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0160 (EB)

SHEET S04-18 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	576
		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

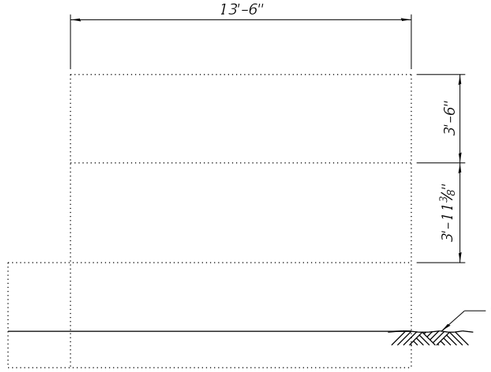


SOUTH ABUTMENT PLAN



SOUTH ABUTMENT ELEVATION

(Looking South)



SOUTHWEST WINGWALL ELEVATION

(Looking East)

PHOTO 1

SUMMARY OF REACTIONS		
		S. Abut, Beam 6
R DL	(k)	21.2
R LL	(k)	38.0
R IM	(k)	11.0
R Total	(k)	70.2

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.
3. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.
4. Fasteners shall be ASTM F 3125 Grade A325 Type 1, mechanically galvanized bolts. Bolts ¾ in. diameter, unless otherwise noted.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	294
Bolt Replacement	Each	2
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	17
Temporary Shoring And Cribbing	Each	1

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

SF Square Foot

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-19 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	577
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

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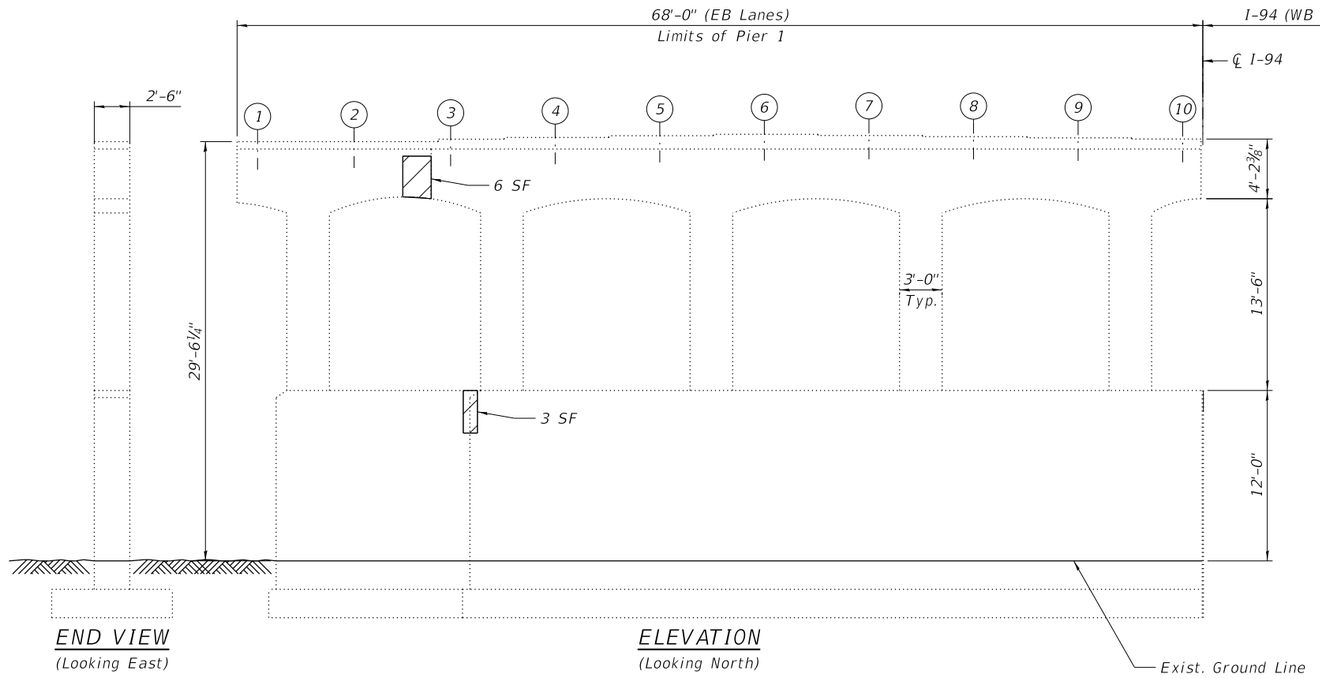
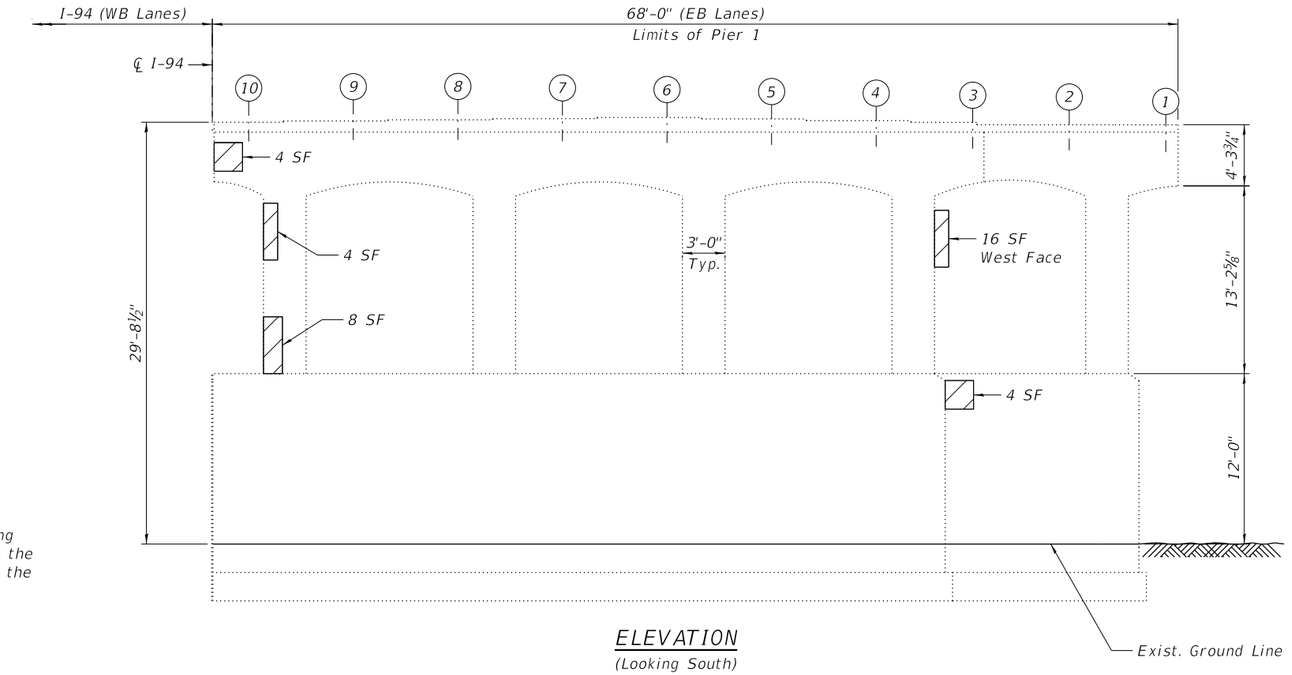


END VIEW
(Looking East)

ELEVATION
(Looking North)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	45



ELEVATION
(Looking South)

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
SF	Square Foot

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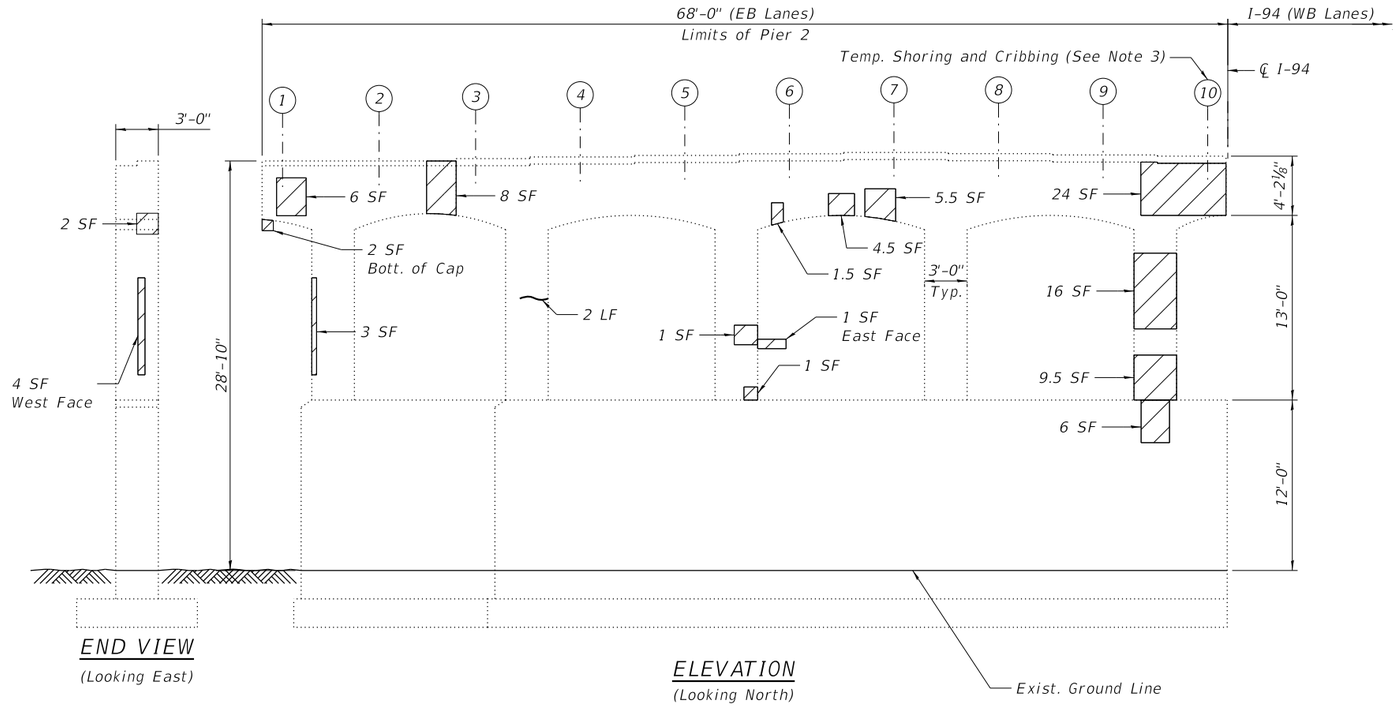
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

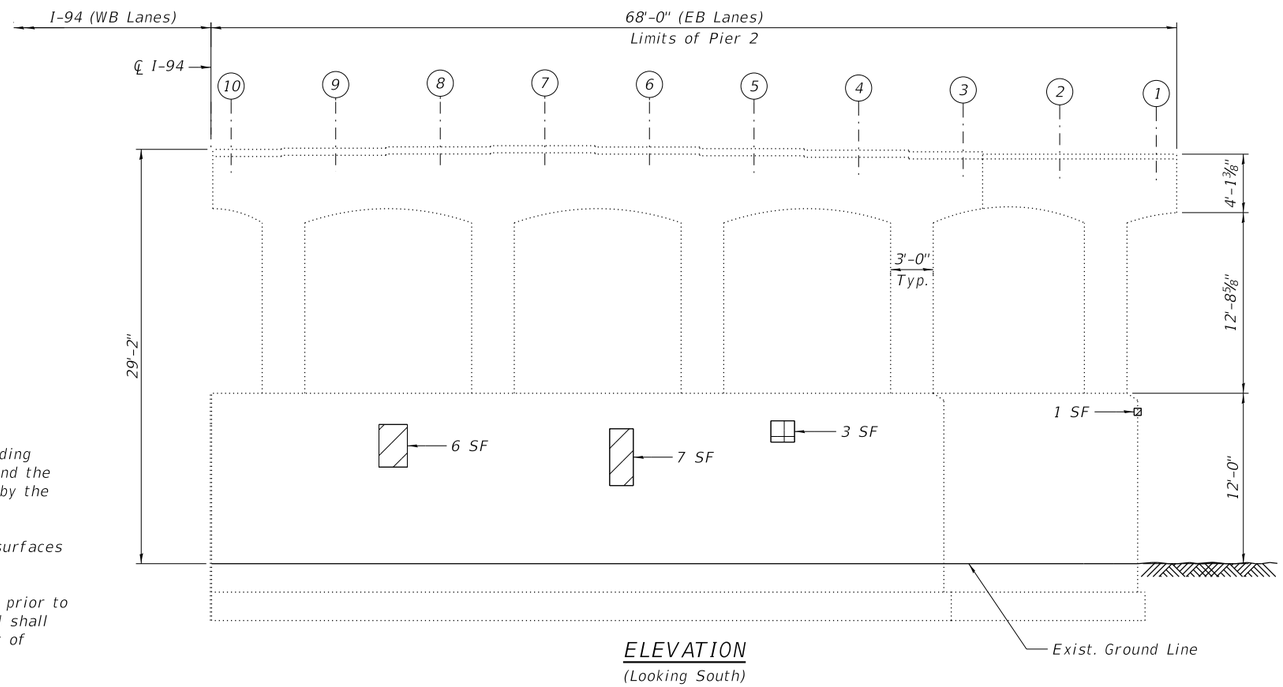
PIER 1 REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-20 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	578
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



END VIEW
(Looking East)

ELEVATION
(Looking North)



ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	3,648
Epoxy Crack Injection	Foot	2
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	109
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	3
Temporary Shoring And Cribbing	Each	1

SUMMARY OF REACTIONS		
		Pier 2, Beam 10
R DL	(k)	21.2
R LL	(k)	38.0
R IM	(k)	11.0
R Total	(k)	70.2

NOTES:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.
2. Concrete Sealer is to be applied to the exposed surfaces of the pier.
3. Temporary shoring and cribbing shall be installed prior to the start of the structural repair of concrete and shall be removed after completing the structural repair of concrete.

LEGEND

- Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
- Structural Repair of Concrete (Depth Greater than 5 inches)
- Epoxy Crack Injection (Width > 0.06")
- SF Square Foot
- LF Linear Feet

MODEL: Default
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2 REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-21 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	579
		CONTRACT NO.		62W87
	ILLINOIS	FED. AID PROJECT		

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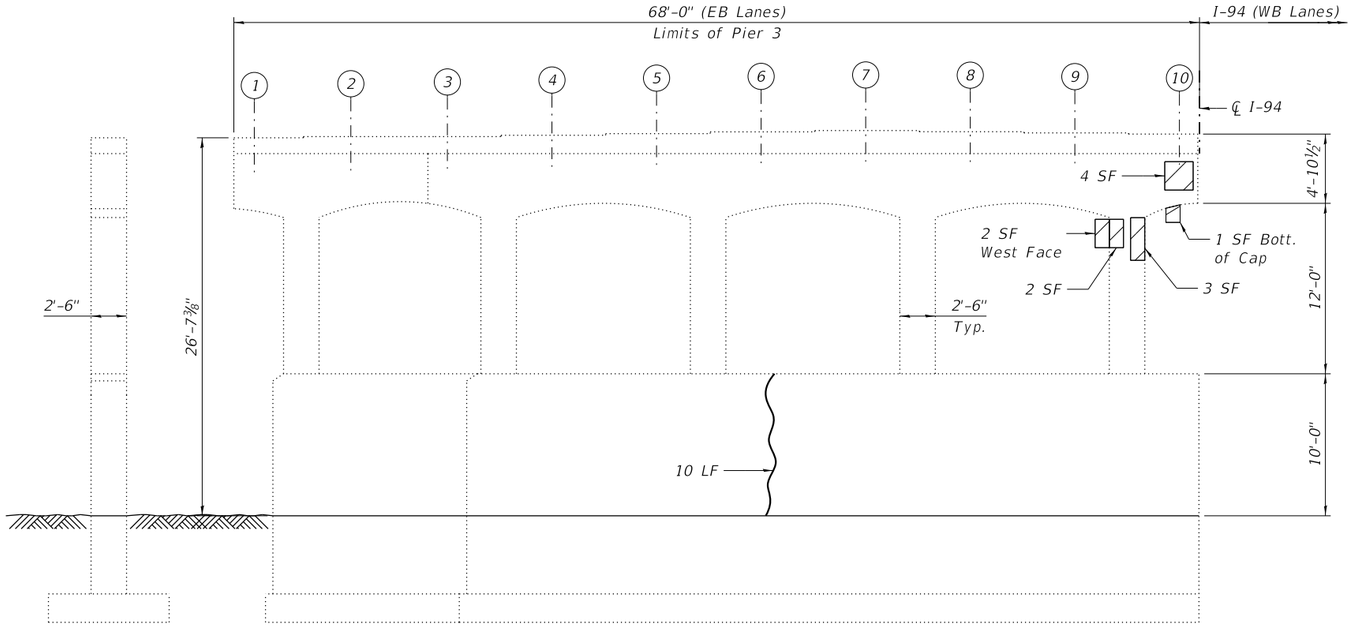
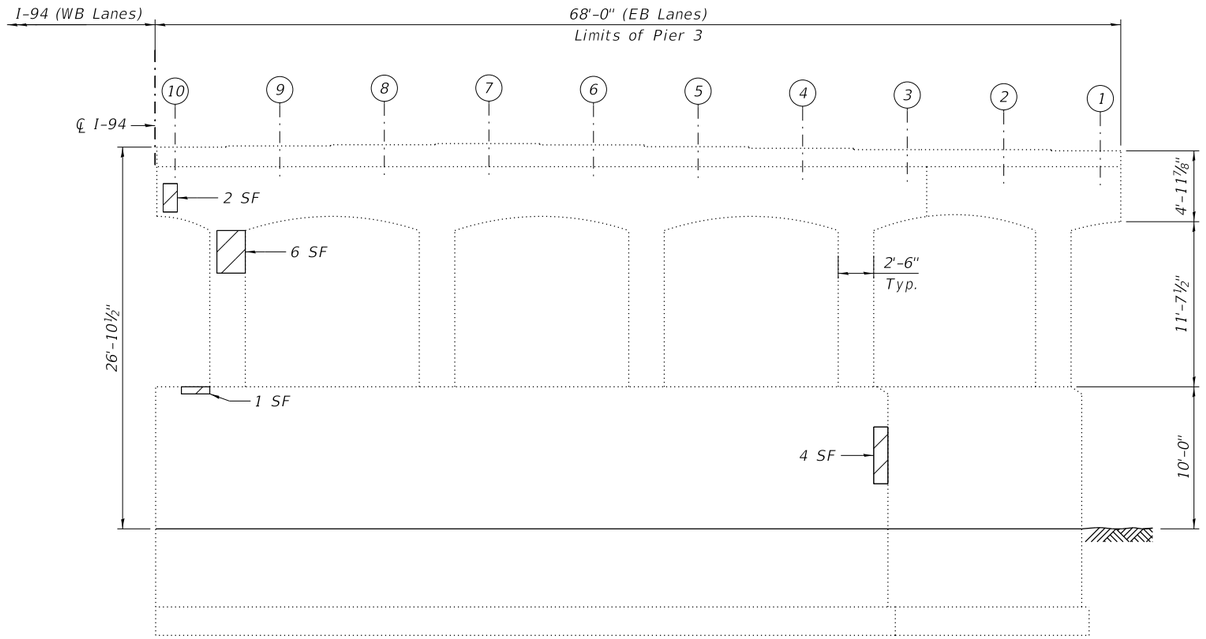
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	10
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	25



END VIEW
(Looking East)

ELEVATION
(Looking North)



ELEVATION
(Looking South)

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

Epoxy Crack Injection (Width > 0.06")

SF Square Foot

LF Linear Foot

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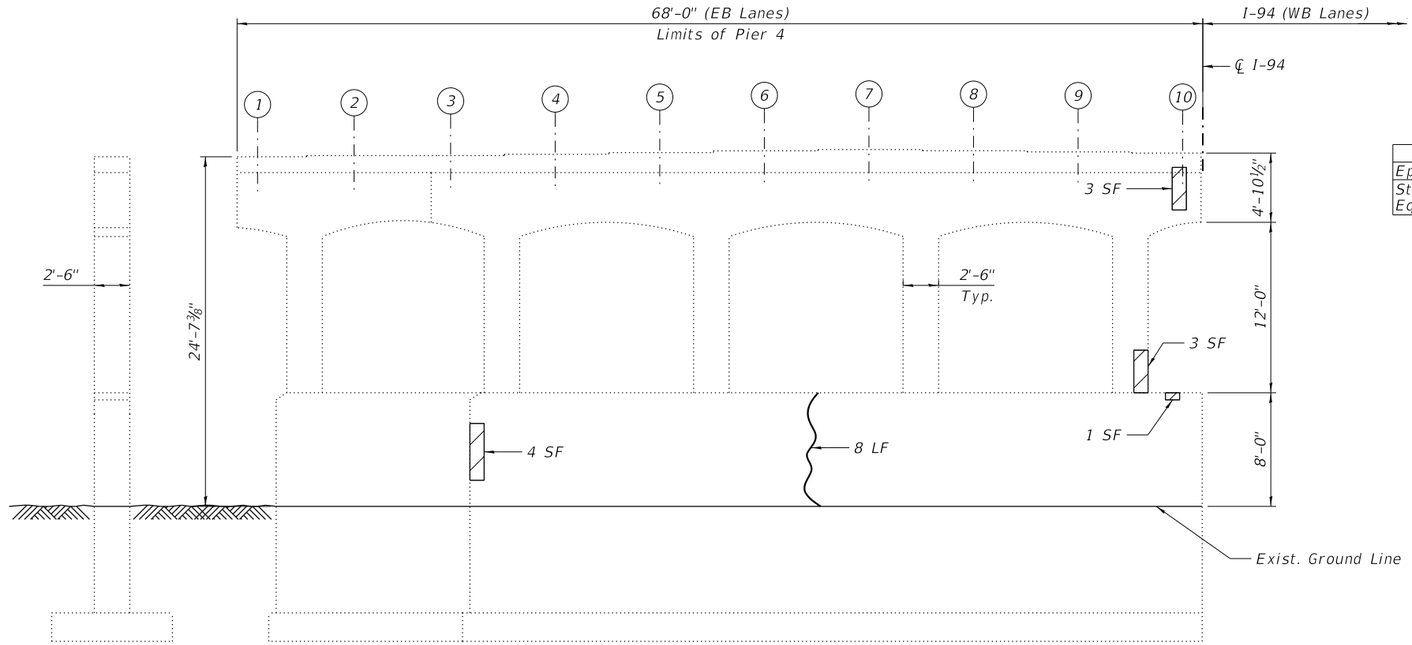
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 3 REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-22 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	580
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

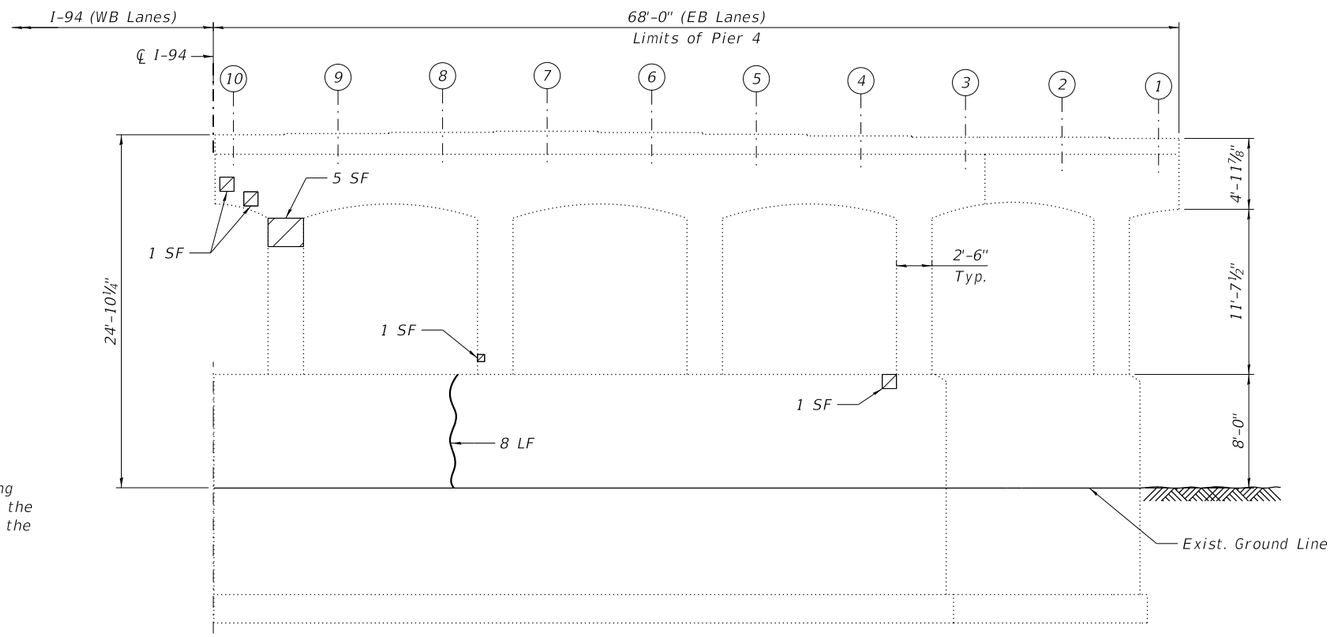


END VIEW
(Looking East)

ELEVATION
(Looking North)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	16
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	20



ELEVATION
(Looking South)

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

Structural Repair of Concrete (Depth Equal to or Less than 5 inches)

Epoxy Crack Injection (Width > 0.06")

SF Square Foot

LF Linear Foot

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PLOT DATE = 12/6/2024	DATE - 12/9/2024	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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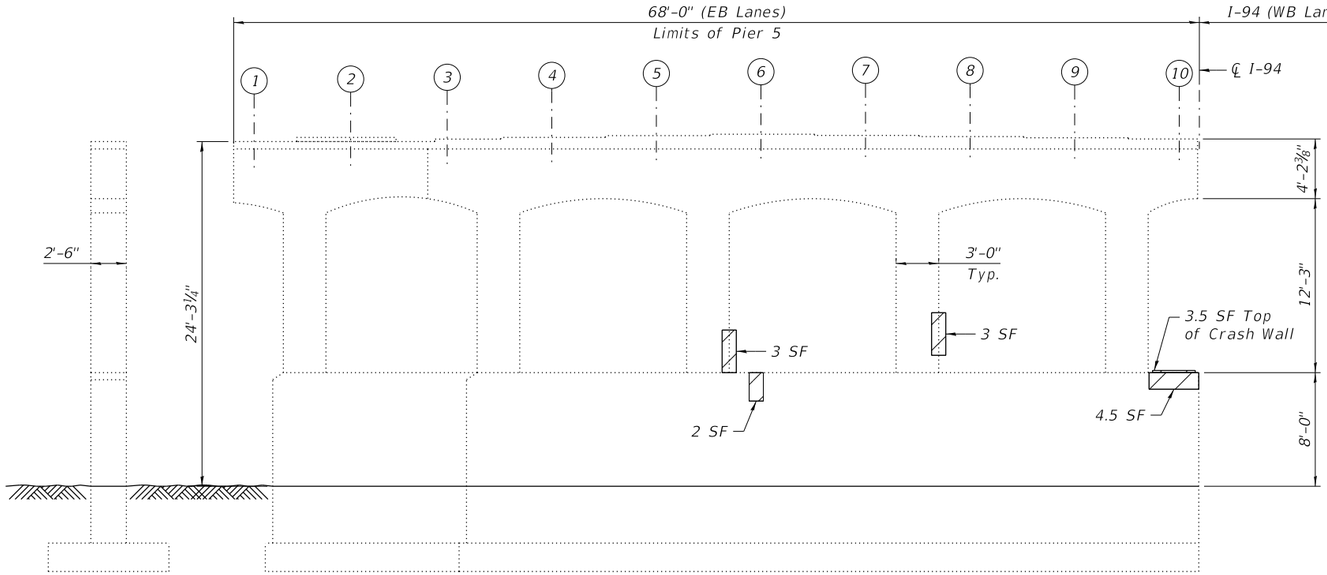
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

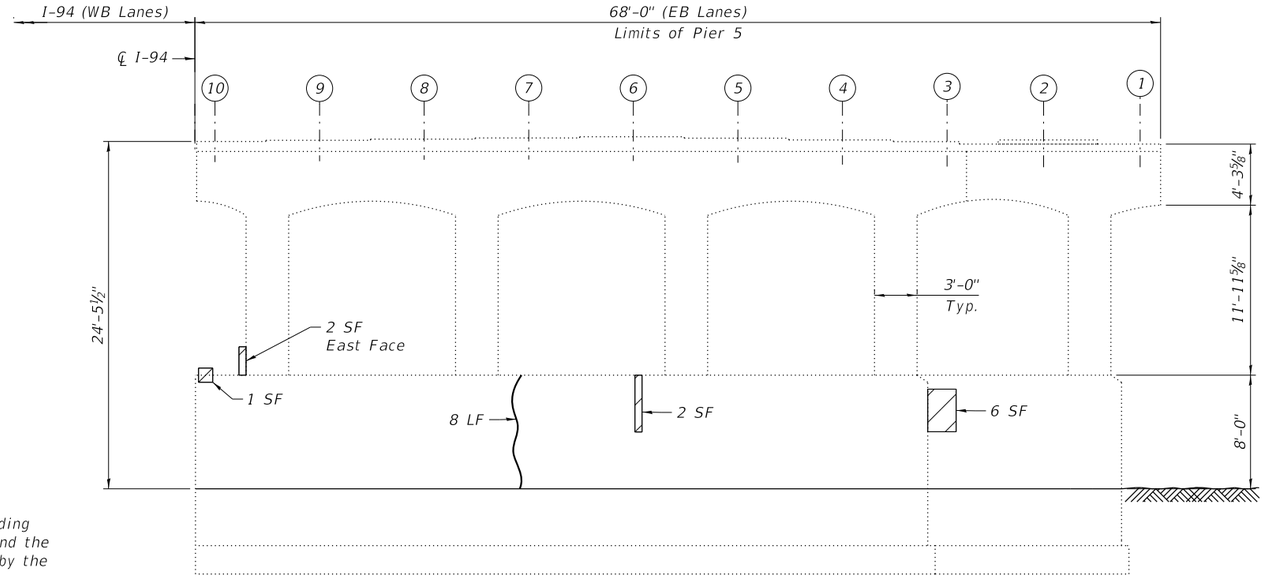


END VIEW
(Looking East)

ELEVATION
(Looking North)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	8
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	27



ELEVATION
(Looking South)

NOTE:

1. Quantities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
	Epoxy Crack Injection (Width > 0.06")
SF	Square Foot
LF	Linear Foot

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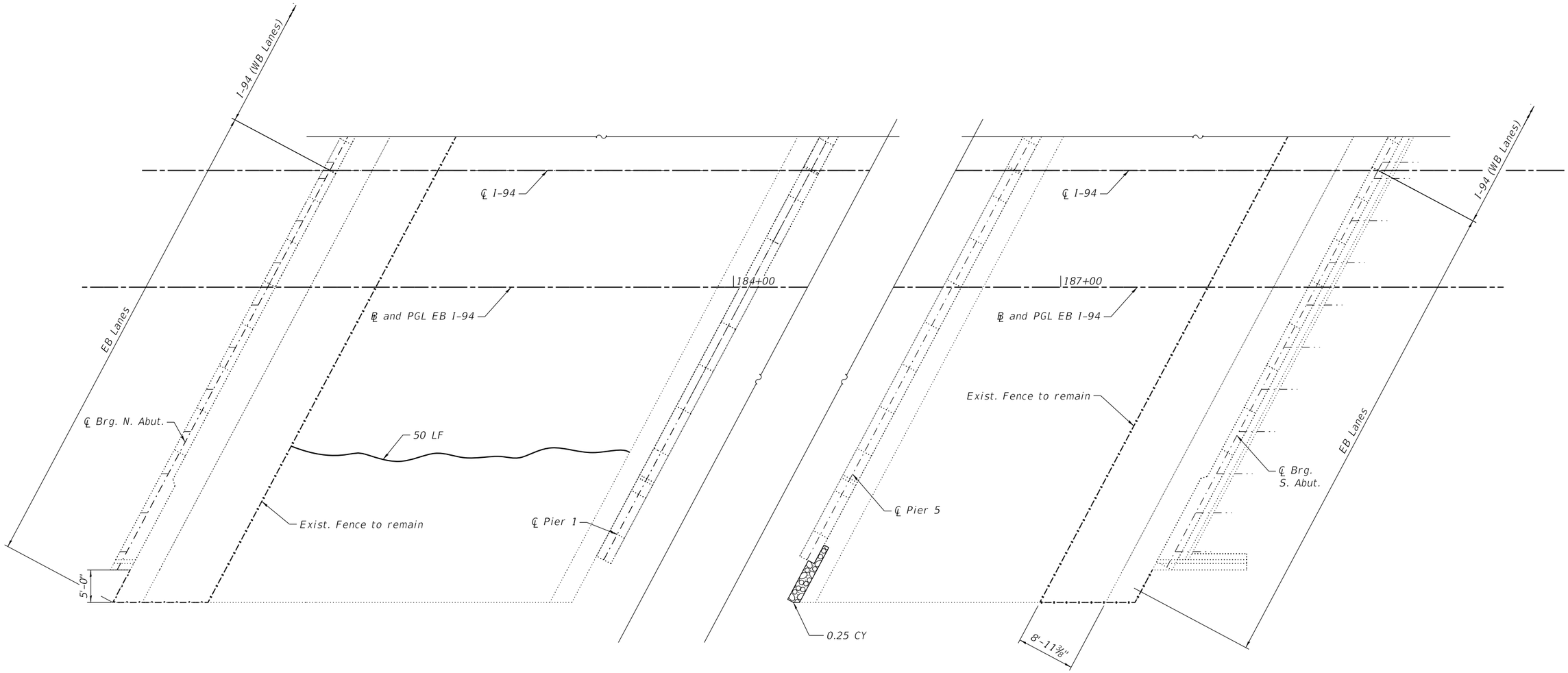
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5 REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-24 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	582
		CONTRACT NO.		62W87
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Porous Granular Embankment	Cu Yd	1
Slope Wall Crack Sealing	Foot	50



SLOPE WALL - PLAN

NOTE:

1. Quanities and limits shown are estimated for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will be determined by the Engineer in the field at the time of construction.

LEGEND

	Porous Granular Embankment
	Slope Wall Crack Sealing
LF	Linear Foot
CY	Cubic Yard

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPE WALL REPAIRS
STRUCTURE NO. 016-0160 (EB)
SHEET S04-25 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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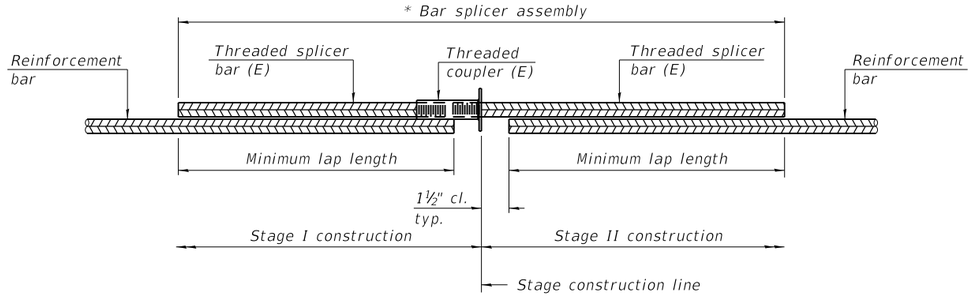
		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		



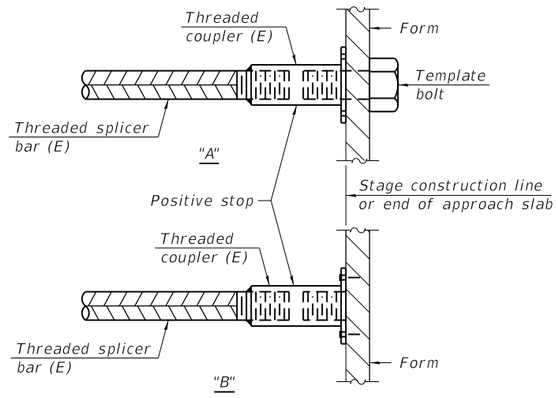
STANDARD BAR SPLICER ASSEMBLY PLAN

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

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

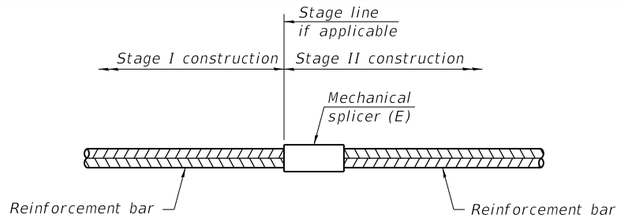
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar Size	No. assemblies required	Minimum lap length
N. Abutment Jt.	#5	9	3'-0"
	#6	6	3'-7"
Pier 2 Jt.	#5	18	3'-0"
S. Abutment Jt.	#5	9	3'-0"
	#6	6	3'-7"



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

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.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

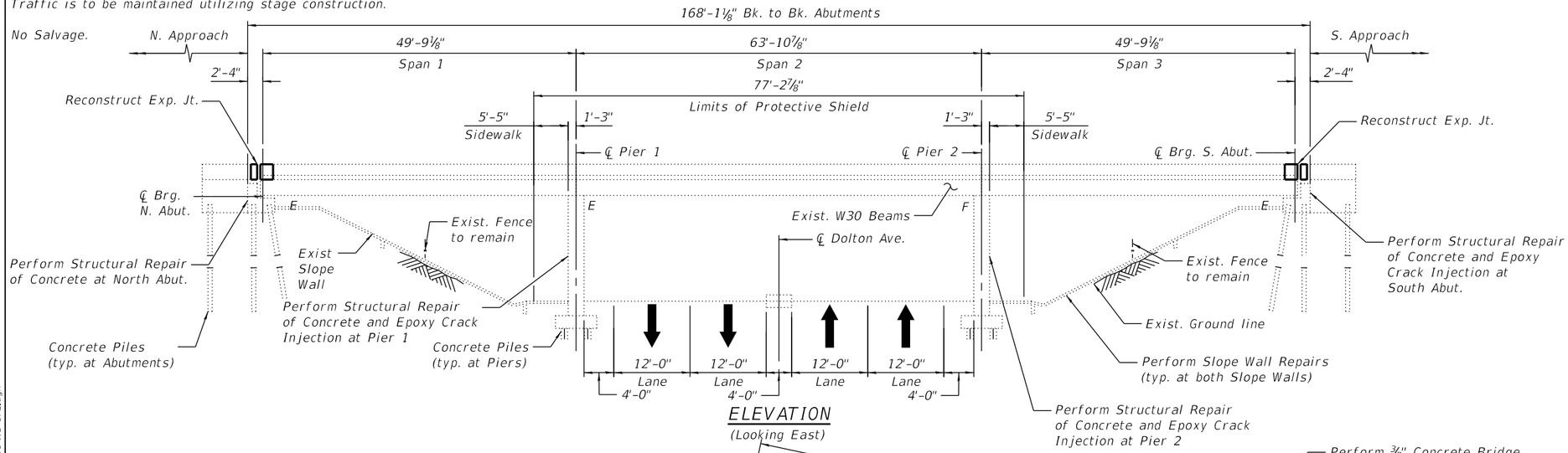
BAR SPLICER ASSEMBLY & MECHANICAL SPLICER DETAIL
STRUCTURE NO. 016-0160 (EB)
SHEET S04-26 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	584
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

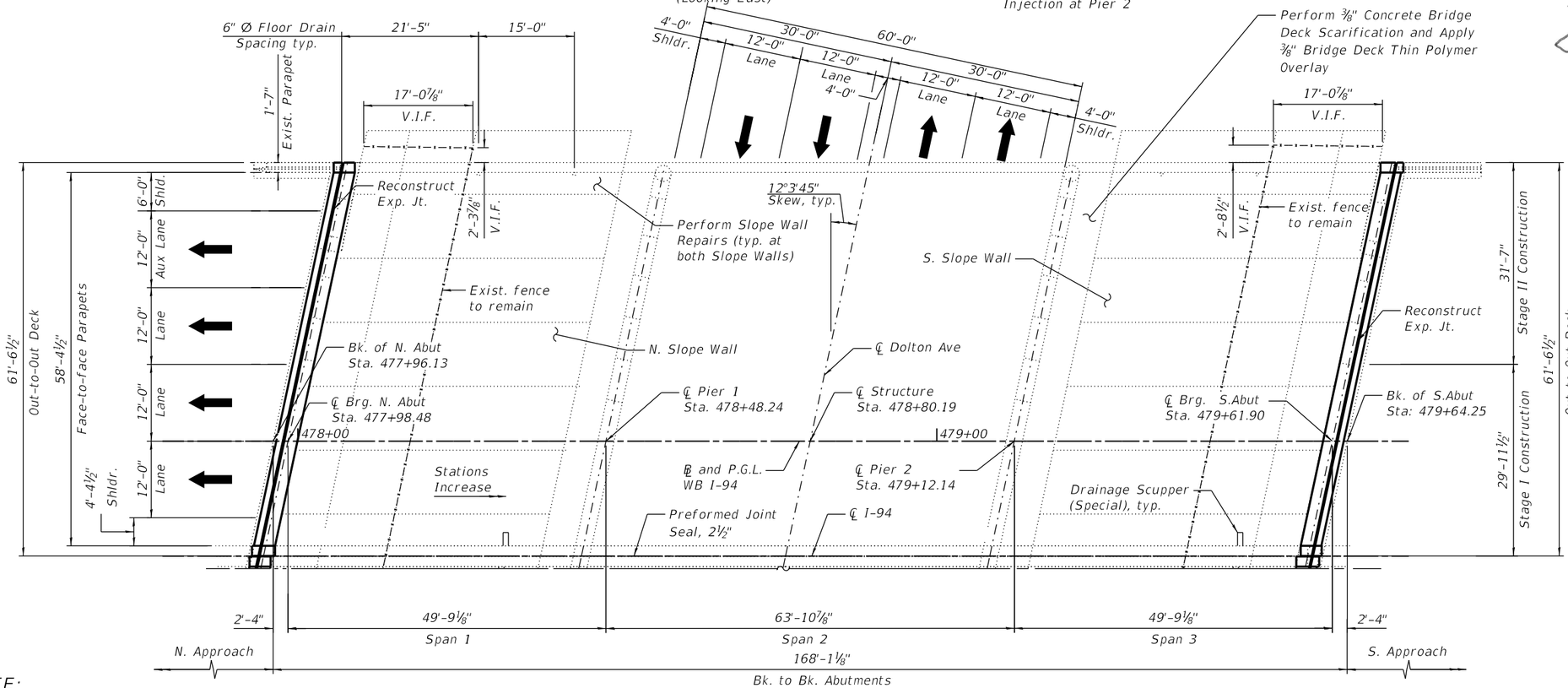
Existing Structure:
The bridge was constructed in 1948 under Section 0707.1-HB. It was widened in 1990 under Section 42 (VB 10, 12) and 0707.1 HB (B-Y-I-86). In 1992, the bridge was reconstructed under Section 42 (VB 10, 12, HB 14, B-11) and 0707.1 HB (R-3)90. This structure carries eight 12' lanes (four eastbound & four westbound) of I-94 over Dolton Avenue. The outer shoulder is 6' wide, and the inner shoulder is 4'-4½". The bridge has three spans (49-9⅛", 63'-10⅞", 49'-9⅛") and a skew of 12°-03'-45". The abutments are pile-supported stub abutments. The bridge has reinforced concrete column piers on pile foundations with an extension at each end.

Traffic is to be maintained utilizing stage construction.

No Salvage.



ELEVATION
(Looking East)



PLAN

NOTE:

1. All stations are to I-94 WB P.G.L. and taken from existing plans.

LOADING HS 20-44
No future wearing surface is allowed.

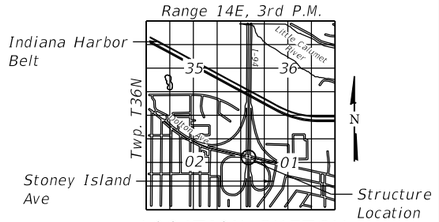
DESIGN SPECIFICATION
2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition

EXISTING DESIGN STRESSES (1992 RECONSTRUCTION)
f'c = 3500 psi (Superstructure)
fy = 60,000 psi (Reinforcement Superstructure)
fs = 24,000 psi (Structural Steel)

PROPOSED DESIGN STRESSES
f'c = 4,000 psi (Superstructure)
fy = 60,000 psi (Reinforcement)

LICENSED STRUCTURAL ENGINEER
JUNSHAN LIU
081-008224
STATE OF ILLINOIS

Exp: 11/30/2026
Date: 12/05/2024



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
WB I-94 OVER DOLTON AVE
F.A.I. ROUTE 94
SECTION 2019 180-RS & T
COOK COUNTY
STATION: 478+80.19
S.N. 016-0161

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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.	62W87	
	ILLINOIS	FED. AID PROJECT		

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GENERAL NOTES

1. 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 the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

2. During repair operations the contractor shall locate and protect any utilities or facilities including but not limited to the fiber optic and/or electrical conduits, conduits under the bridge deck, under lighting, traffic signals or signs attached to the structure. This work is to be performed to the satisfaction of the engineer and will not be paid for separately, but shall be included with the contract. It will be the contractor's responsibility to restore and replace any damage utilities or facilities to the satisfaction of the engineer and the department.

3. All exposed concrete edges shall have a ¾" x 45° chamfer except where shown otherwise.

4. Protective Coat shall be applied to the top and inside face of parapets.

5. Repairs shown are based upon inspection carried out at the time of plan preparation are for bidding purposes only. Actual area to be repaired and the type(s) of repairs to be used shall be determined by the engineer in the field at the time of construction.

6. The contractor shall take the necessary precautions for the protection of passing vehicles, bicycles, and pedestrians from falling objects and/or materials until completion of work.

7. Where underpass lighting is present on the structure, the Contractor shall adjust the Protective Shielding to ride above the existing lighting fixtures in order to maintain the existing level of lighting on the roadway underneath. Details shall be approved by the Engineer before installation.

8. Any adjustment done to the Protective Shield System must not change the load carrying capacity (or containment specifications) as indicated in the Standard Specifications, Cost of adjusting shielding is included in the cost of Protective Shield.

9. Concrete Sealer shall be applied to the designated areas of the abutments.

10. Prior to the application of the Concrete Sealer, the Contractor shall clean all existing debris from the abutment seats. The method of debris removal shall not damage the existing concrete and shall be approved by the Engineer. See Special provision for Debris Removal.

11. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose detrimental foreign material shall be removed from the surfaces in contact with concrete (SSPCSP3 standards). 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 paid for according to Article 109.04 of the Standard Specifications. As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer. Any cracks that cannot be removed by grinding ¼ inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

12. Cost of removal and re-installation of all members necessary to complete the work as detailed on the plans and as specified in the Special Provisions shall be included with Beam Straightening.

13. Existing reinforcement extended into the removal area shall be cleaned, straightened and incorporated into the new construction cost is included with concrete removal. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system at the Contractor's expense.

14. Cleaning and field painting of structural steel shall be done under a separate painting contract.

15. The Contractor is responsible to remove, support and reinstall all existing electrical conduits interfering with the work. See special provision "Protection and Maintenance of Existing Underpass Luminaires".

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

17. The Contractor is responsible to protect the existing conduit and junction box embedded in the parapet during removal and construction. Any damage to the existing conduit and junction box shall be repaired by the Contractor at no additional cost to the Department.

18. No field welding is permitted except as specified in the contract documents.

19. The Engineer shall show actual locations and size of deck repairs on As-built Plans.

20. Bars indicated thus, 3x2-#5, indicates 3 lines of #5 bars with 2 lengths of bar per line.

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

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

INDEX OF SHEETS

SCOPE OF WORK

1. Provide Protective Shield within limits indicated on the plans.

2. Scarify ⅜" from the bridge deck slab.

3. Remove and Reconstruct Expansion joints at North and South abutments and install new Preformed Joint Strip Seals.

4. Apply ⅜" Thin Polymer Overlay on Bridge Deck.

5. Refer to Roadway plans for Approach Pavement Rehabilitation.

6. Apply Protective Coat to the top of reconstructed transverse joint areas and top and inside faces of parapets.

7. Perform structural concrete repairs to abutments and piers, as noted on plans.

8. Perform structural steel repairs to beams, as noted on plans.

9. Perform Slope Wall repairs.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	–	10	10
Concrete Removal	Cu Yd	18.2	–	18.2
Slope Wall Removal	Sq Yd	–	29	29
Protective Shield	Sq Yd	529	–	529
Concrete Superstructure	Cu Yd	18.2	–	18.2
Protective Coat	Sq Yd	203	–	203
Reinforcement Bars, Epoxy Coated	Pound	3,150	–	3,150
Bar Splicers	Each	32	–	32
Slope Wall 4 Inch	Sq Yd	–	29	29
Preformed Joint Seal, 2½"	Foot	167	–	167
Preformed Joint Strip Seal	Foot	120	–	120
Concrete Sealer	Sq Ft	–	942	942
Epoxy Crack Injection	Foot	–	44	44
Slope Wall Crack Sealing	Foot	–	139	139
Beam Straightening	L Sum	0.33	–	0.33
Bridge Deck Scarification ⅜"	Sq Yd	1,042	–	1,042
Bridge Deck Thin Polymer Overlay ⅜"	Sq Yd	1,042	–	1,042
Structural Repair of Concrete (Depth Equal to or less than 5")	Sq Ft	–	79	79
Structural Repair of Concrete (Depth Greater Than 5")	Sq Ft	–	9	9

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS & TBOM
STRUCTURE NO. 016-0161 (WB)

SHEET S05-02 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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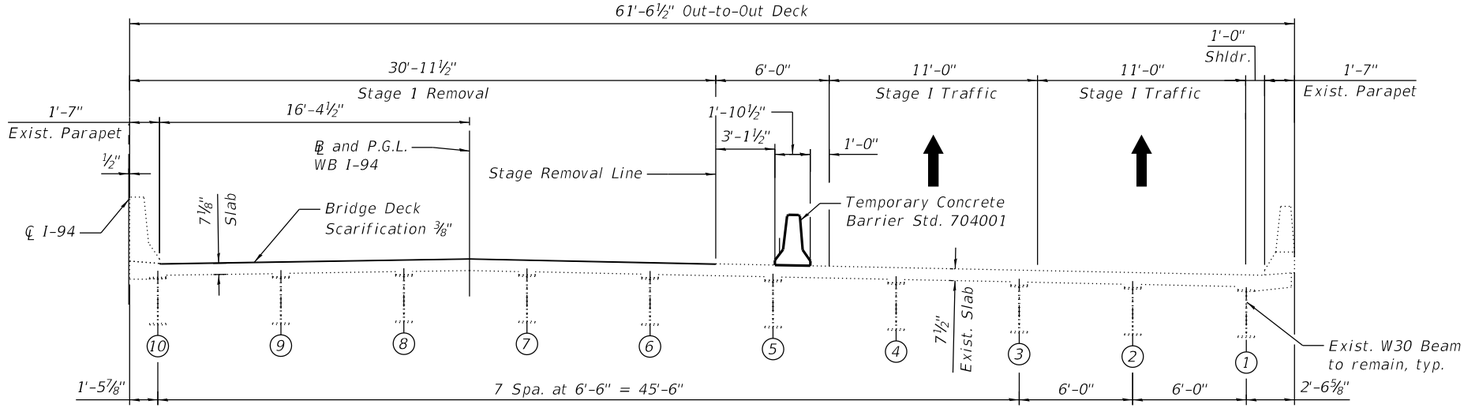
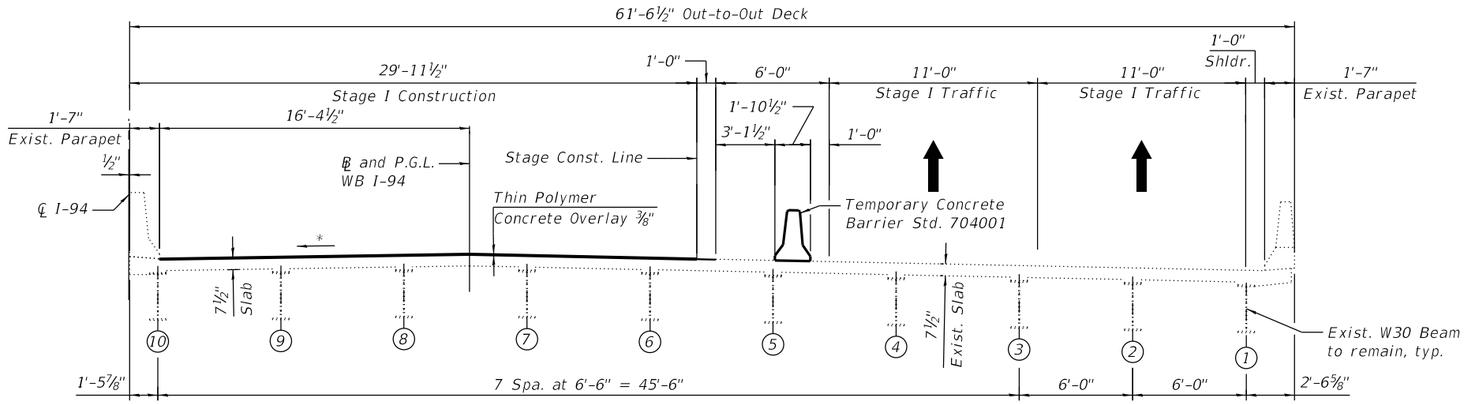
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



STAGE I REMOVAL
(Looking North)

STAGE I REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the west side of the existing structure.
2. Perform ⅜" bridge deck scarification.
3. Remove portions of bridge concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.



STAGE I CONSTRUCTION
(Looking North)

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct transverse expansion joints and install new preformed joint strip steals within the limits of Stage I Construction.
3. Perform Structural repair of concrete and epoxy crack injection for the abutments and piers.
4. Apply ⅜" Bridge Deck Thin polymer Overlay.
5. Refer to Roadway plans for Approach Pavement Rehabilitation.
6. Apply protective coat to top and inside faces of West parapet, and reconstructed transverse expansion joints.
7. Perform Slope Wall repairs as shown on the plans.
8. Replace existing longitudinal preformed joint seal between NB West parapet and SB East parapet.

*Match existing cross slopes

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0161 (WB)
SHEET S05-03 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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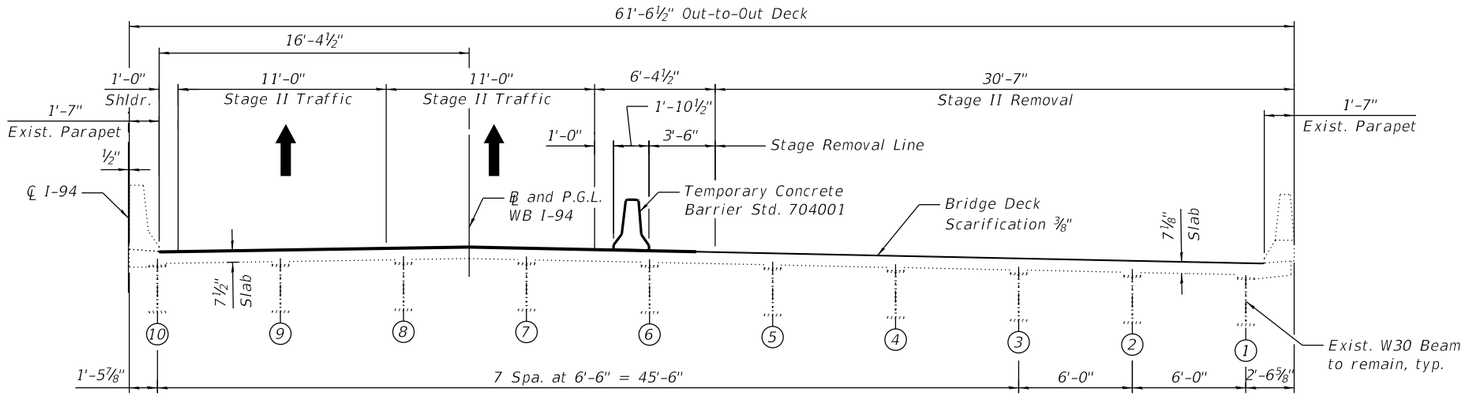
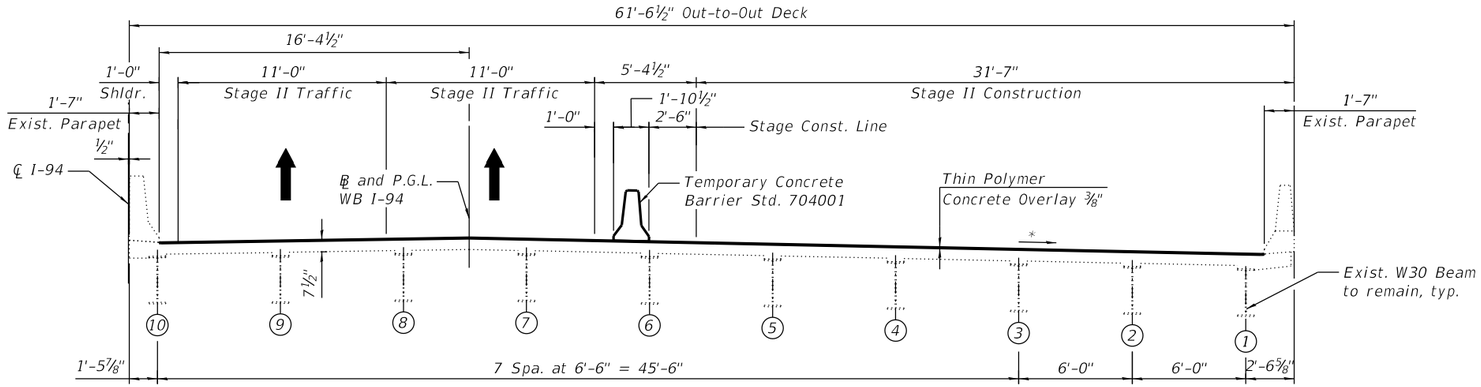
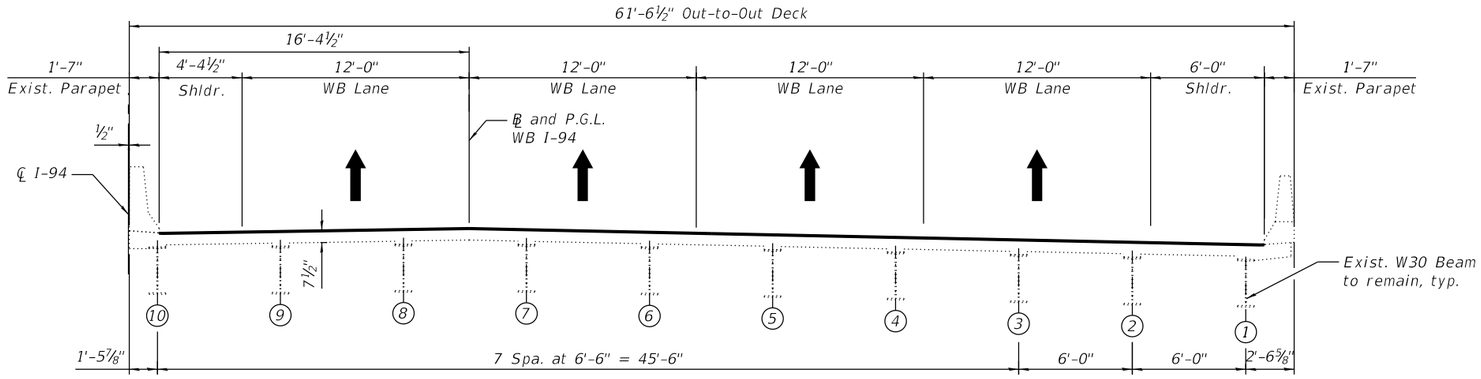
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



STAGE II REMOVAL
(Looking North)



STAGE II CONSTRUCTION
(Looking North)



FINAL CROSS SECTION
(Looking North)

STAGE II REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the East side of the existing structure.
2. Perform ⅜" bridge deck scarification.
3. Remove portions of bridge concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.

STAGE II CONSTRUCTION

1. Reconstruct expansion joints and install new preformed joint strip seal within the limits of Stage II Construction.
2. Perform structural repair of concrete and epoxy crack injection for the abutments and piers.
3. Apply ⅜" bridge deck thin polymer overlay.
4. Apply protective coat to top and inside faces of East parapet, and reconstructed abutment expansion joint areas.

*Match existing cross slopes

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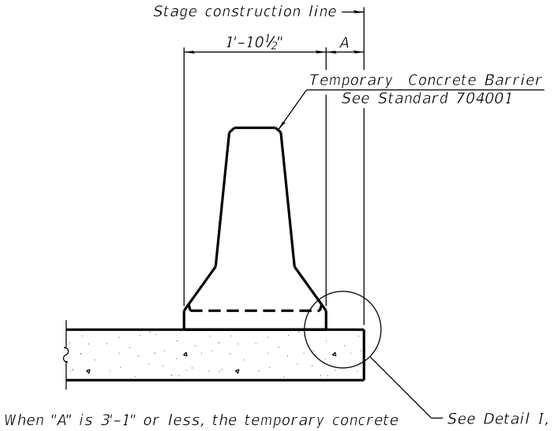
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

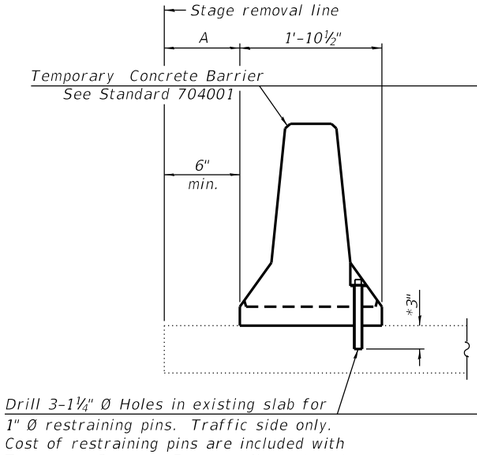
STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0161 (WB)
SHEET S05-04 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	588
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



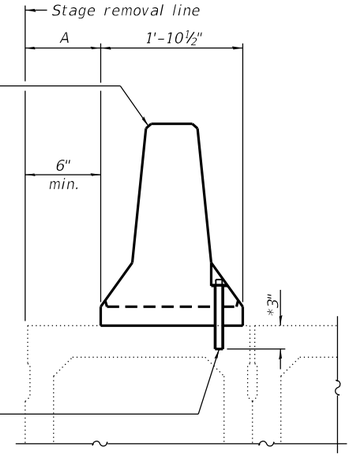
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM



Drill 3-1¼" 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".

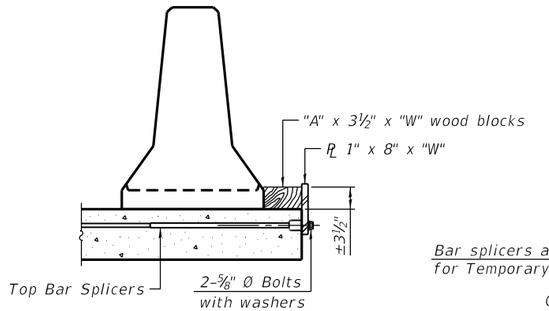
EXISTING SLAB



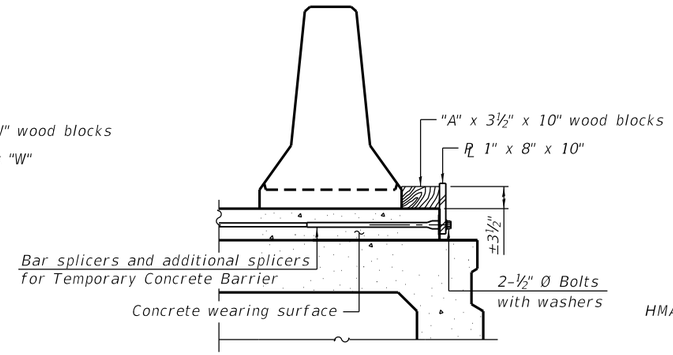
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

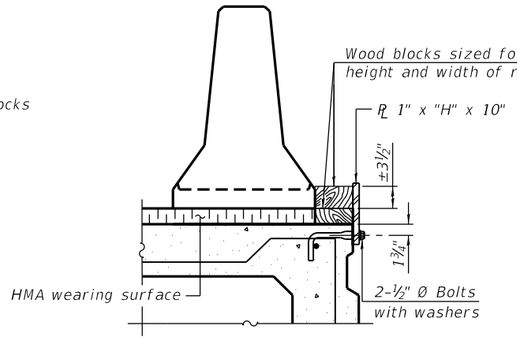
SECTIONS THRU SLAB OR DECK BEAM



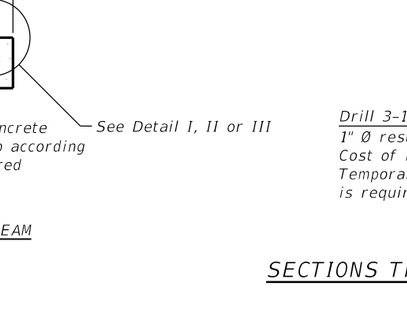
DETAIL I



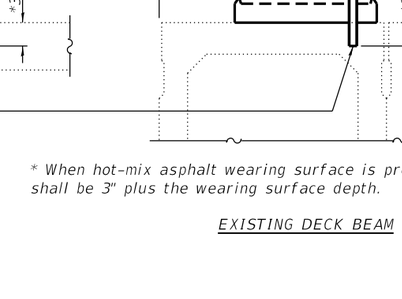
DETAIL II



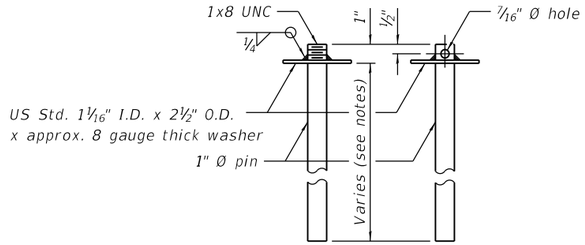
DETAIL III



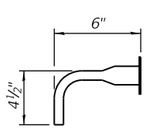
STEEL RETAINER PL 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER PL 1" x "H" x 10"
(Detail III)



RESTRAINING PIN



BAR SPLICER FOR #4 BAR - DETAIL III

NOTES:

1. Cost of retainer assembly is included with Temporary Concrete Barrier.
2. A retainer assembly shall be located at the approximate ℄ of each temporary concrete barrier.
3. 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.
4. 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.

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

05-15-2023

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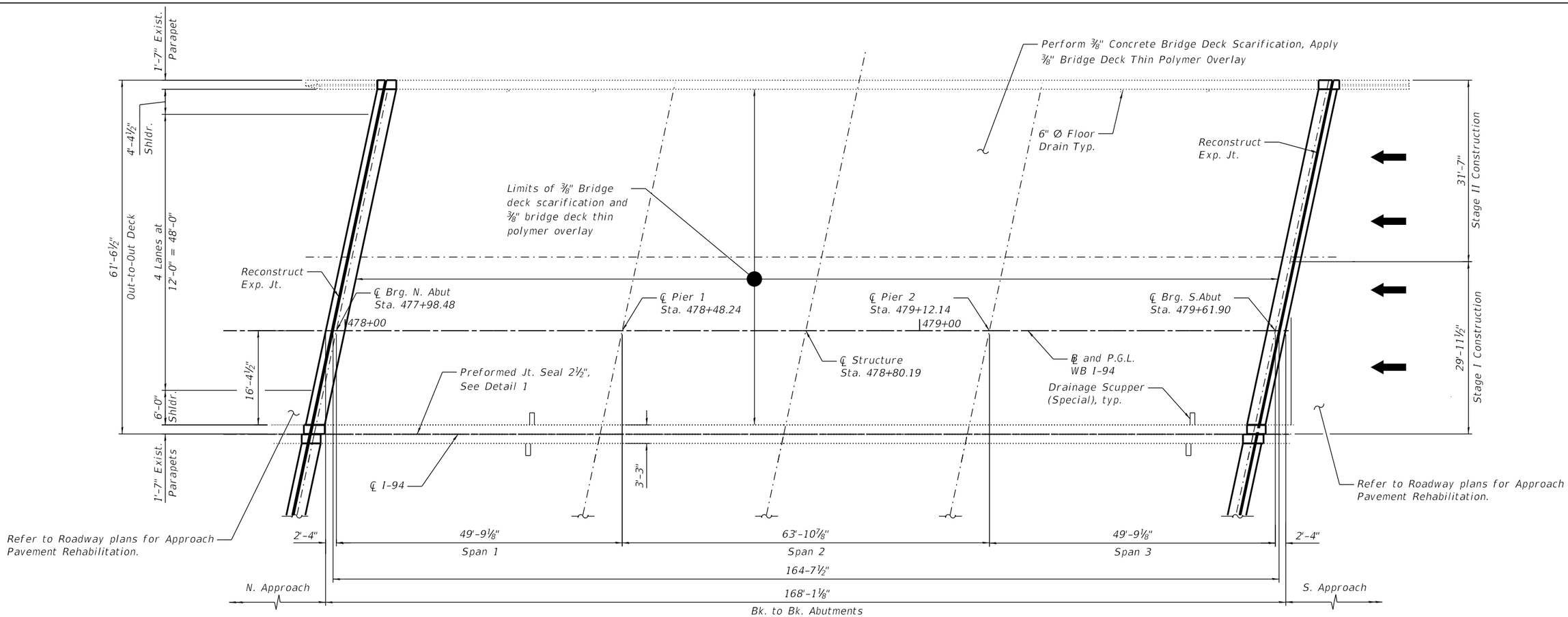
PLOT DATE = 12/9/2024		DATE - 12/6/2024		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0161 (WB)

SHEET S05-05 OF S05-27 SHEETS

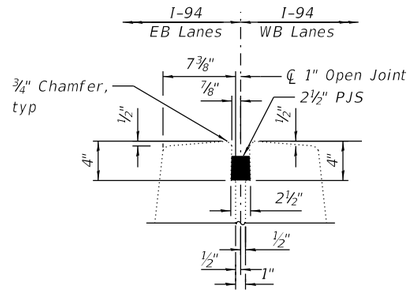
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	589
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			



DECK PLAN

NOTES:

1. No deck slab repairs required, unless otherwise directed by Engineer.
2. For bridge deck final cross section, See Sheet S05-04.
3. For North and South Joint Removal and Replacement, See Sheets S05-07 through S05-12.
4. Protective Coat shall be applied to top and inside face of parapets, and the joint areas.
5. Any reinforcement bars that are damaged during concrete removal operations shall be replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.
6. The Contractor shall exercise extreme caution during Concrete Removal to avoid damaging the steel beams and diaphragms to remain. Any damage to the existing steel beams and/or diaphragms to remain caused by the Contractor in the performance of his/her work shall be repaired by the Contractor, to the satisfaction of the Engineer, at no cost to the Department.



DETAIL 1

(Reinforcement not shown for clarity)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	149
Preformed Joint Seal 2½"	Foot	167
Bridge Deck Thin Polymer Overlay 3/8"	Sq Yd	1042
Bridge Deck Scarification ⅜"	Sq Yd	1042

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN
STRUCTURE NO. 016-0161 (WB)
SHEET S05-06 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-8-11-1) BR, BJR 24	COOK	761	590
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

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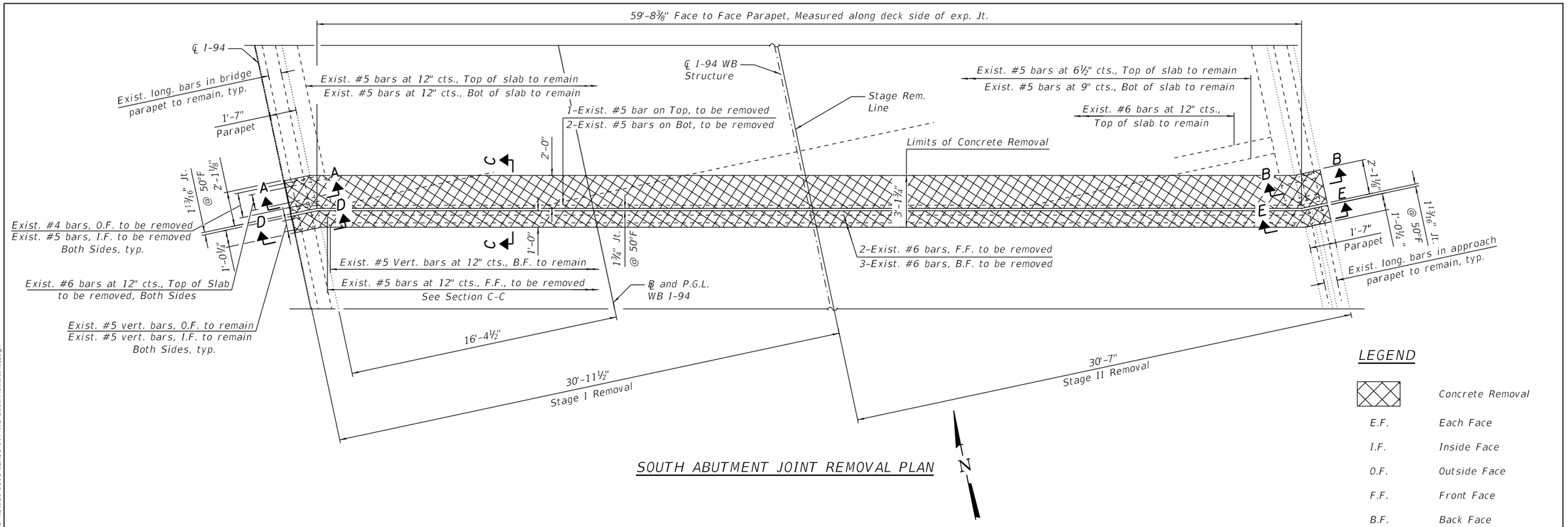
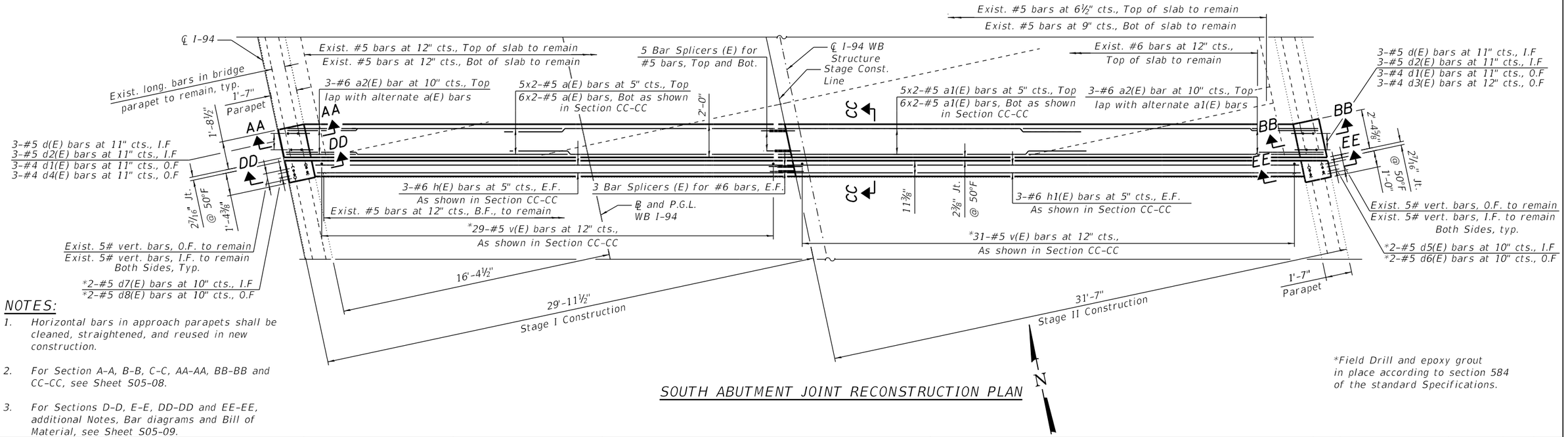


SOUTH ABUTMENT JOINT REMOVAL PLAN



SOUTH ABUTMENT JOINT RECONSTRUCTION PLAN

*Field Drill and epoxy grout in place according to section 584 of the standard Specifications.

NOTES:

1. Horizontal bars in approach parapets shall be cleaned, straightened, and reused in new construction.
2. For Section A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S05-08.
3. For Sections D-D, E-E, DD-DD and EE-EE, additional Notes, Bar diagrams and Bill of Material, see Sheet S05-09.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0161 (WB)

SHEET S05-07 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO.	62W87	
		ILLINOIS	FED. AID PROJECT	

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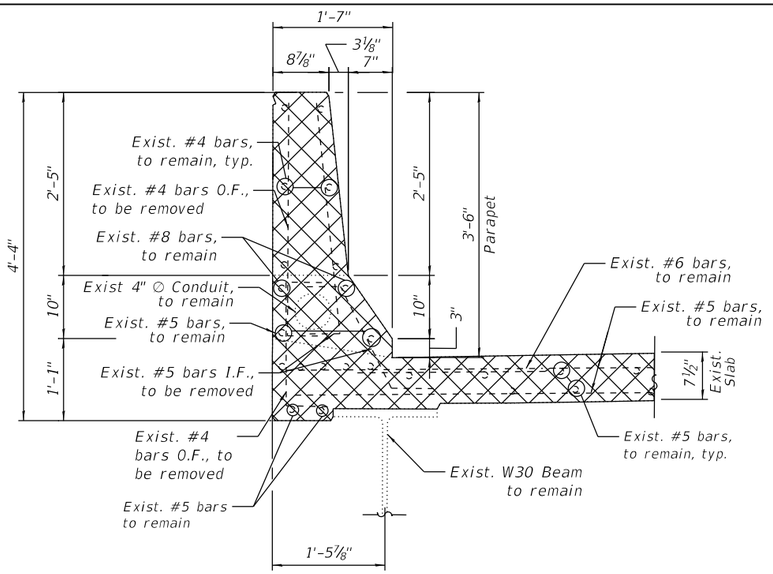
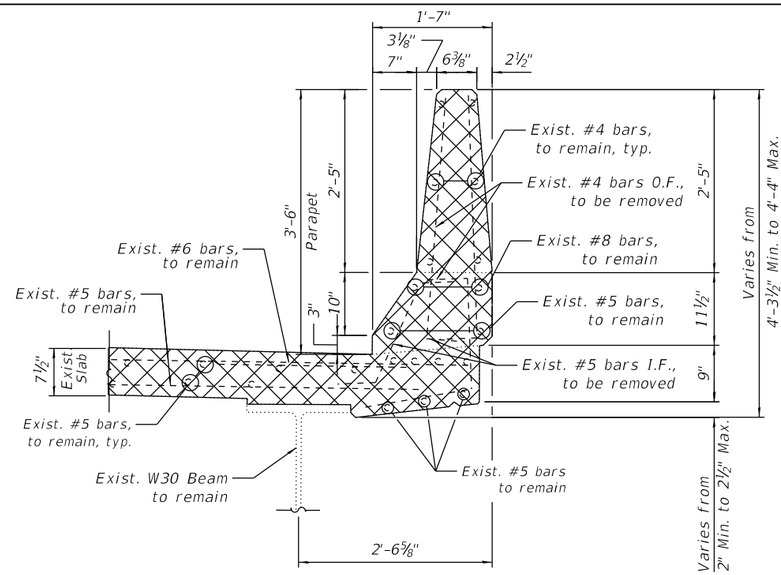


SECTION A-A



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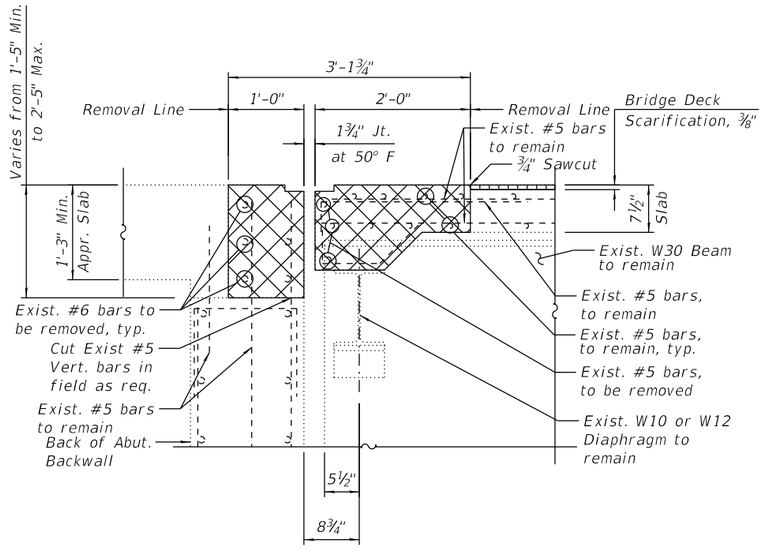
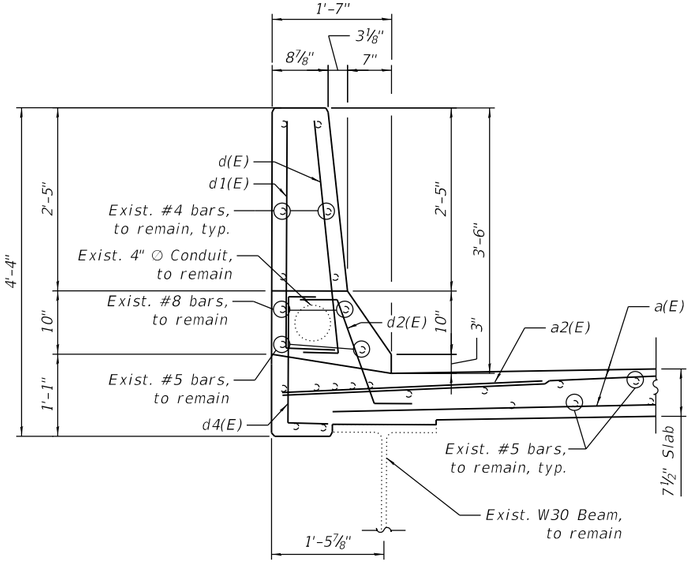
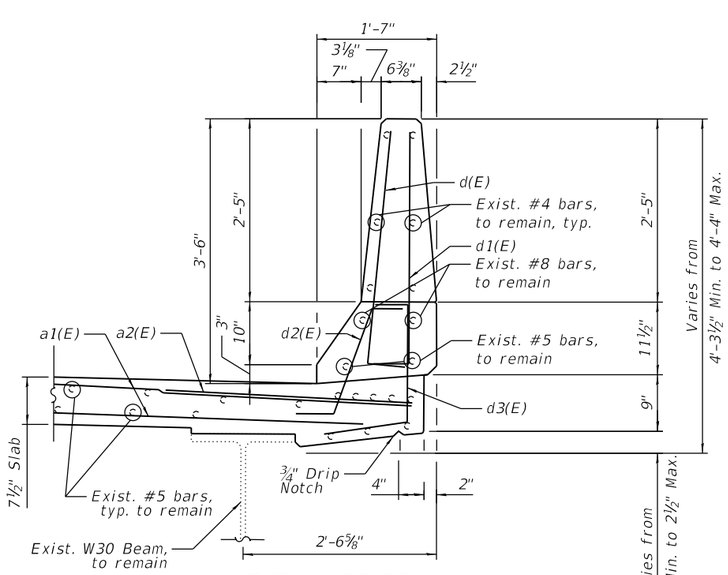


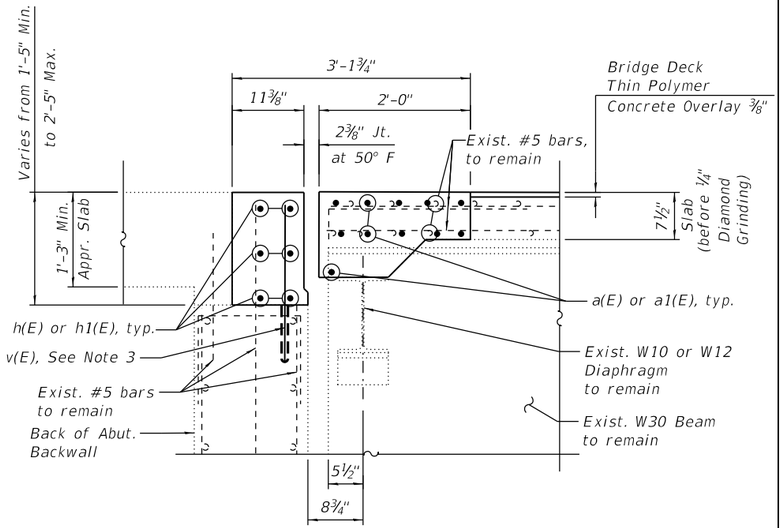
SECTION C-C



SECTION AA-AA



SECTION BB-BB



SECTION CC-CC

NOTES:

1. For Legend, see Sheet S05-07.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar diagrams, additional Notes and Bill of Material, see Sheet S05-09.
3. Epoxy grout v(E) bars in 9" min. holes in accordance with Section 584 of the Standard Specifications, Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0161 (WB)
SHEET S05-08 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

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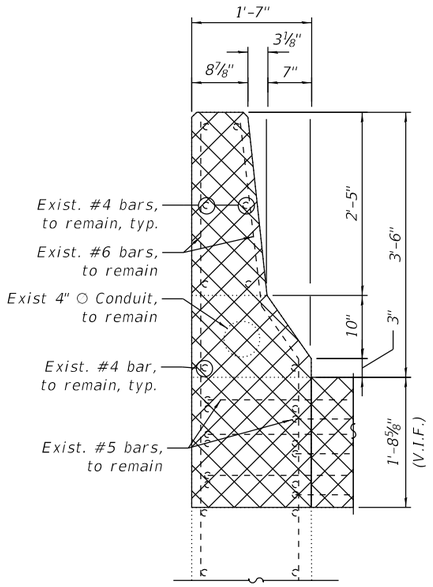
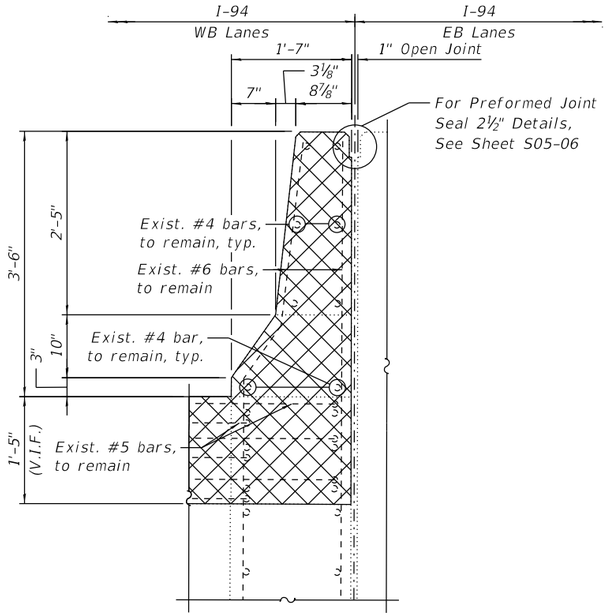
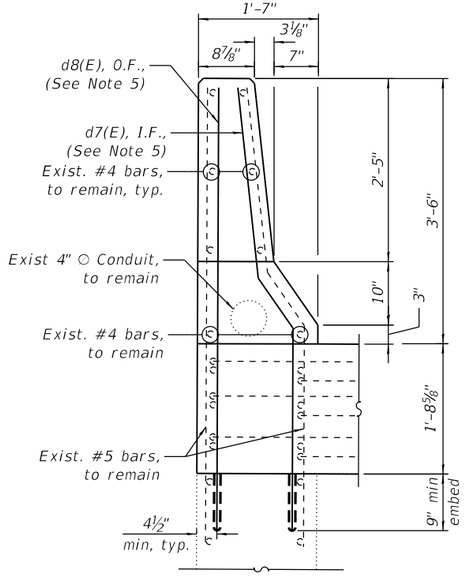


SECTION D-D



SECTION E-E



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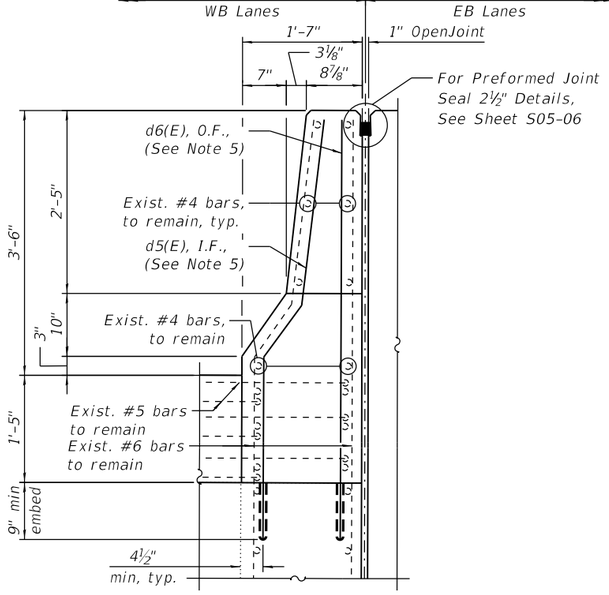


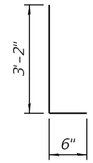
SECTION EE-EE

MIN BAR LAPS

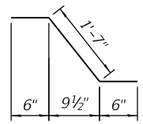
#5	3'-6"
#6	4'-10"

BILL OF MATERIAL

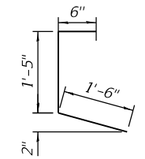
Bar	No.	Size	Length	Shape
a(E)	22	#5	17'-1"	
a1(E)	22	#5	17'-10"	
a2(E)	6	#6	6'-6"	
d(E)	6	#5	3'-8"	L
d1(E)	6	#4	3'-8"	L
d2(E)	6	#5	2'-7"	
d3(E)	3	#4	3'-5"	C
d4(E)	3	#4	2'-7"	C
d5(E)	2	#5	5'-8"	
d6(E)	2	#5	5'-6"	
d7(E)	2	#5	6'-1"	
d8(E)	2	#5	5'-10"	
h(E)	6	#6	28'-10"	
h1(E)	6	#6	30'-6"	
v(E)	60	#5	2'-0"	
Concrete Removal			Cu Yd	8.6
Concrete Superstructure			Cu Yd	8.6
Protective Coat			Sq Yd	27
Reinforcement Bars, Epoxy Coated			Pound	1,640



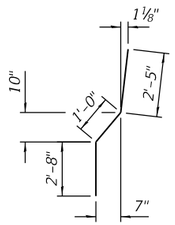
BARS d(E) & d1(E)



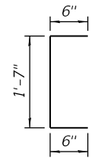
BAR d2(E)



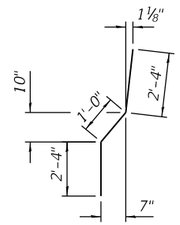
BAR d3(E)



BAR d7(E)



BAR d4(E)



BAR d5(E)

NOTES:

1. For Legend, see Sheet S05-07.
2. For Preformed Joint Strip Seal Details, see Sheet S05-13.
3. For Bar Splicer Assembly Details, see Sheet S05-21.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d5(E), d6(E), d7(E) and d8(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

Accurate GROUP, INC.

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DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0161 (WB)

SHEET S05-09 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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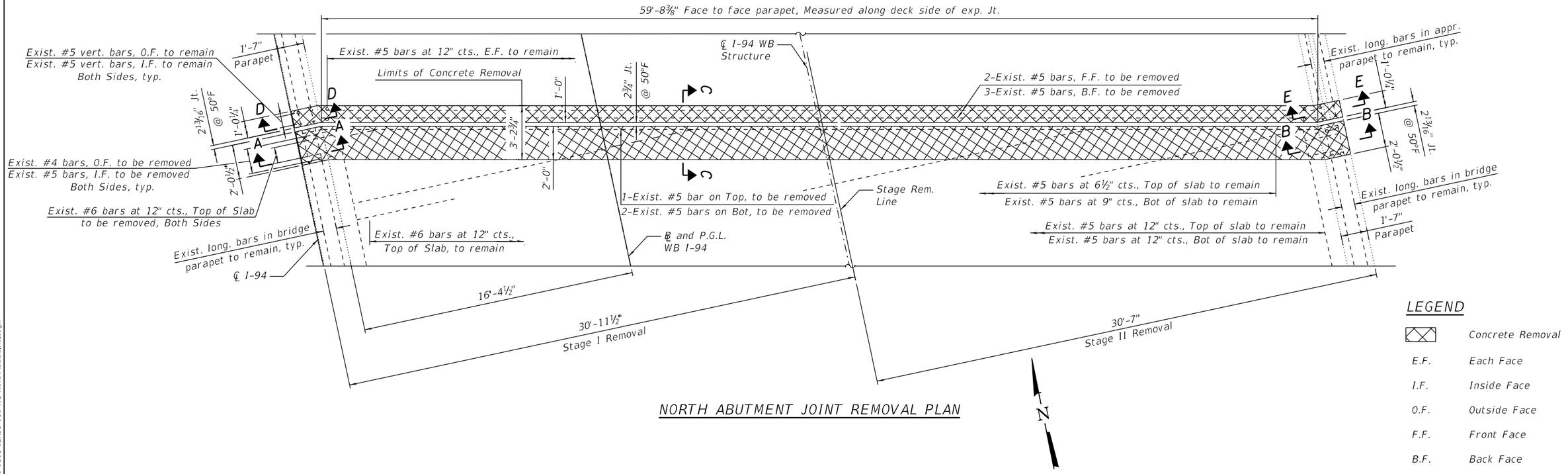
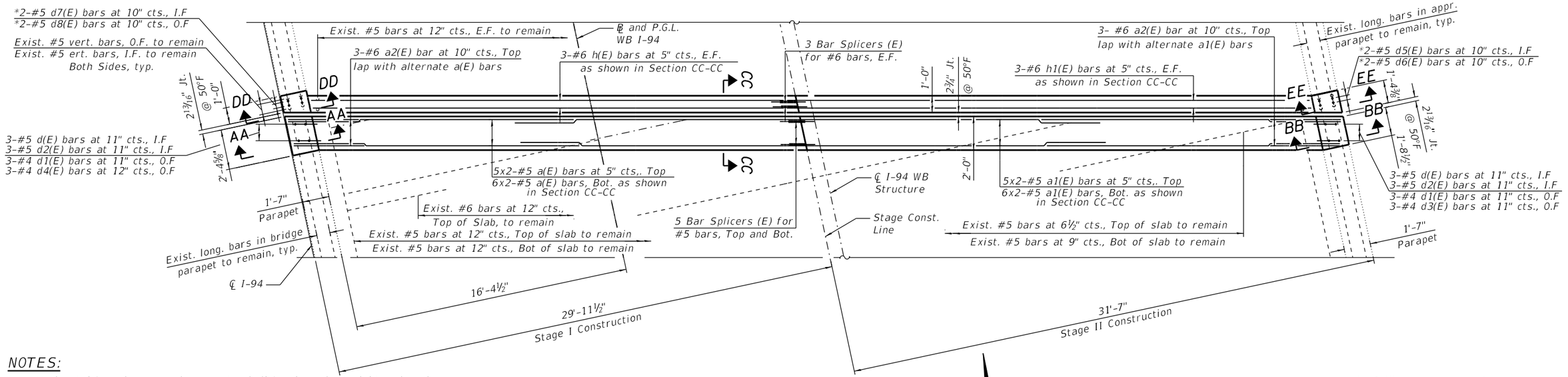
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



NORTH ABUTMENT JOINT REMOVAL PLAN

LEGEND

	Concrete Removal
E.F.	Each Face
I.F.	Inside Face
O.F.	Outside Face
F.F.	Front Face
B.F.	Back Face



NORTH ABUTMENT JOINT RECONSTRUCTION PLAN

*Field Drill and epoxy grout in place according to section 584 of the standard Specifications.

NOTES:

1. Horizontal bars in approach parapets shall be cleaned, straightened, and reused in new construction.
2. For Section A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S05-11
3. For Sections D-D, E-E, DD-DD and EE-EE, additional Notes, Bar diagrams and Bill of Material, see Sheet S05-12.

Accurate GROUP, INC.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 1 OF 3)
STRUCTURE NO. 016-0161 (WB)
SHEET S05-10 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	594
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	

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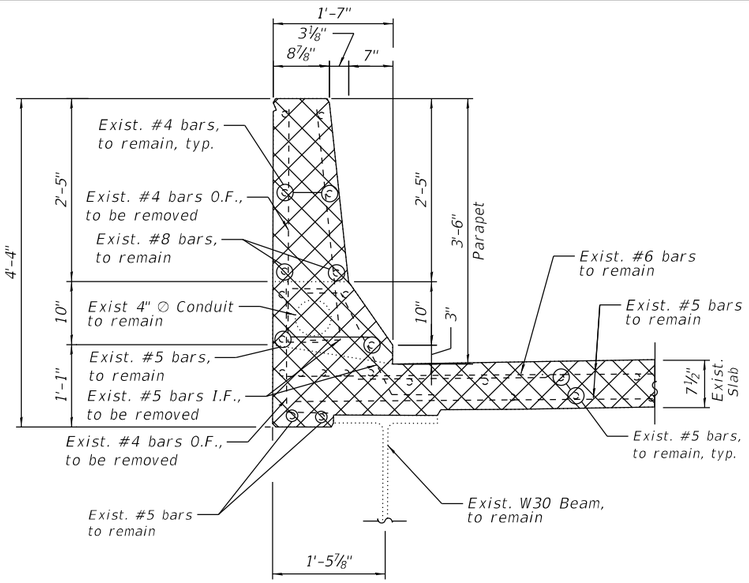
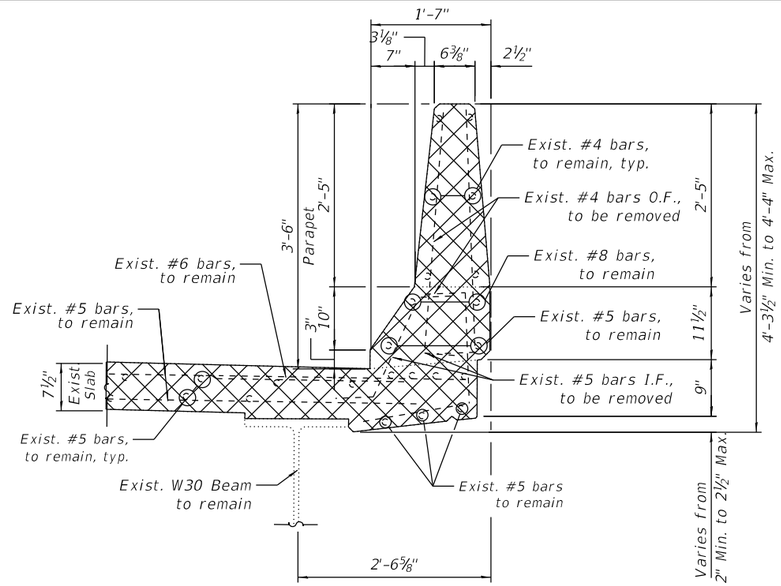


SECTION A–A



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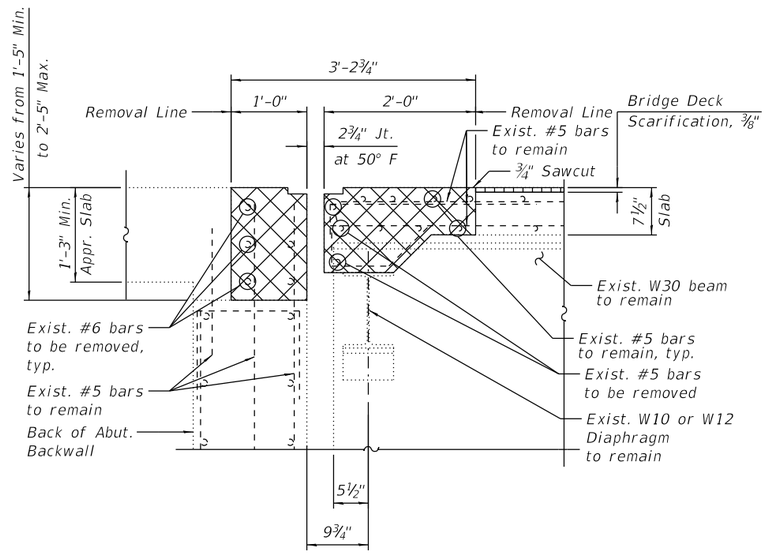

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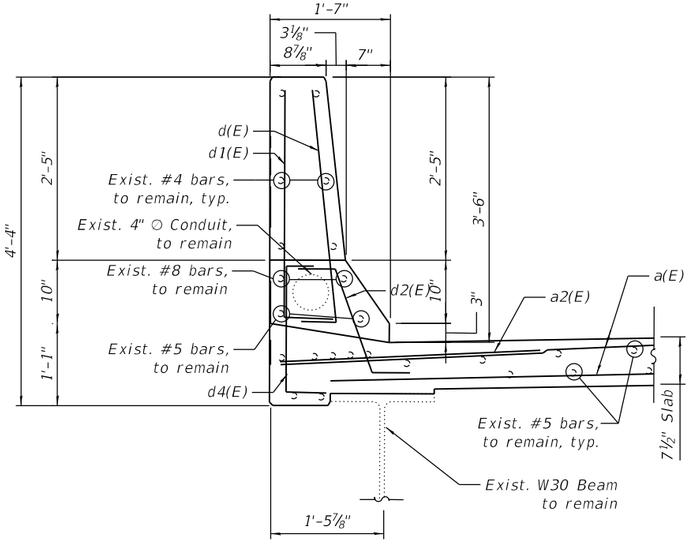

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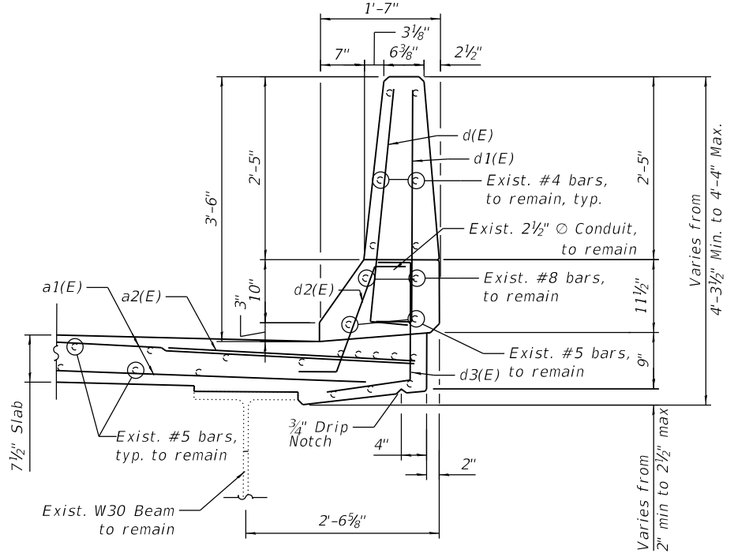

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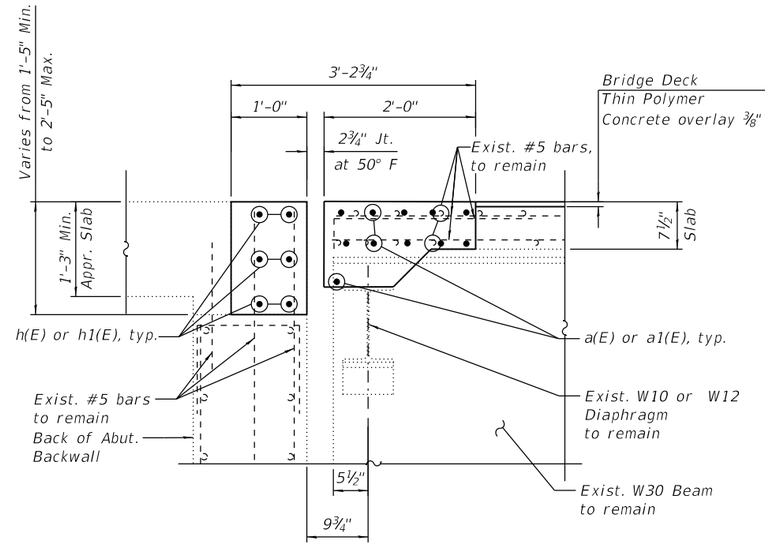

SECTION CC–CC

NOTES:

1. For Legend, see Sheet S05-10.
2. For Sections D–D, E–E, DD–DD and EE–EE, Bar diagrams, additional Notes and Bill of Material, see Sheet S05-12.

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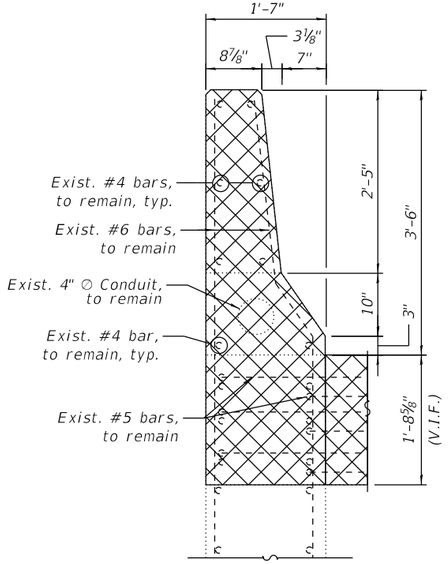
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

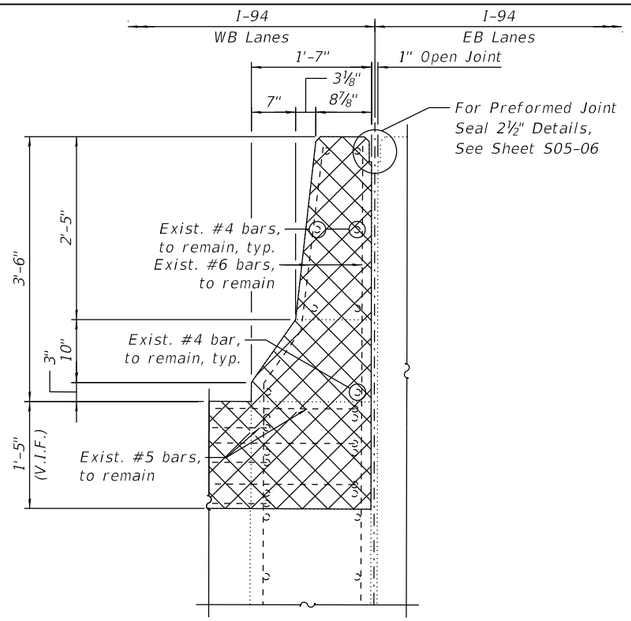
N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 2 OF 3)
STRUCTURE NO. 016-0161 (WB)

SHEET S05-11 OF S05-27 SHEETS

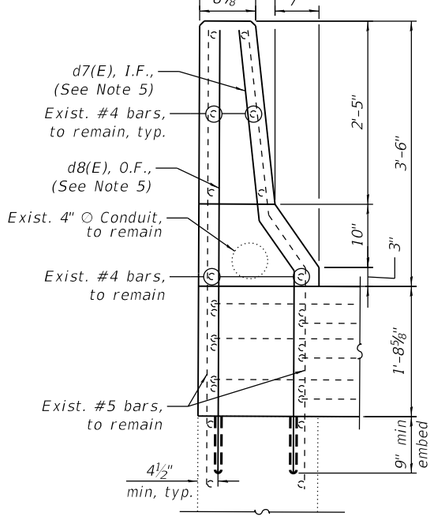
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	595
		CONTRACT NO. 62W87		
		ILLINOIS	FED. AID PROJECT	



SECTION D-D



SECTION E-E



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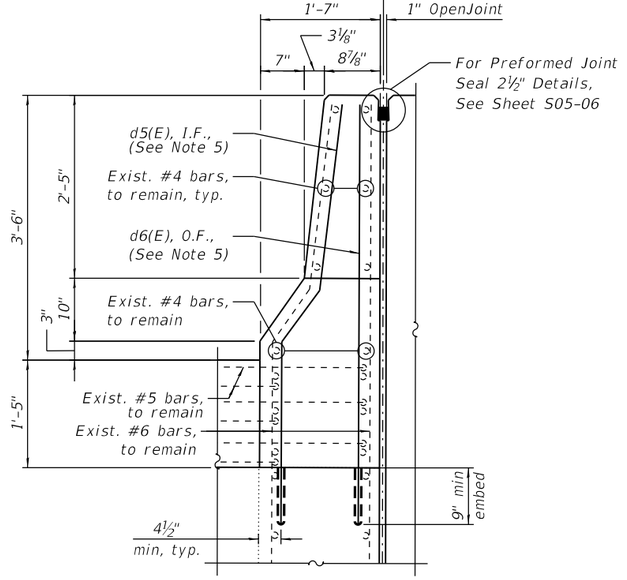


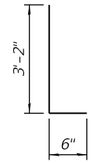
SECTION EE-EE

MIN BAR LAPS

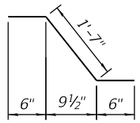
#5	3'-6"
#6	4'-10"

BILL OF MATERIAL

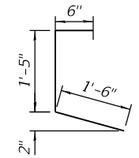
Bar	No.	Size	Length	Shape
a(E)	22	#5	17'-1"	
a1(E)	22	#5	17'-10"	
a2(E)	6	#6	6'-6"	
d(E)	6	#5	3'-8"	L
d1(E)	6	#4	3'-8"	L
d2(E)	6	#5	2'-7"	
d3(E)	3	#4	3'-5"	C
d4(E)	3	#4	2'-7"	C
d5(E)	2	#5	5'-8"	
d6(E)	2	#5	5'-6"	
d7(E)	2	#5	6'-1"	
d8(E)	2	#5	5'-10"	
h(E)	6	#6	28'-10"	
h1(E)	6	#6	30'-6"	
Concrete Removal			Cu Yd	9.6
Concrete Superstructure			Cu Yd	9.6
Protective Coat			Sq Yd	27
Reinforcement Bars, Epoxy Coated			Pound	1,510



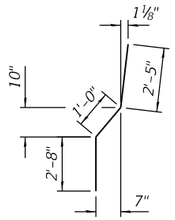
BARS d(E) & d1(E)



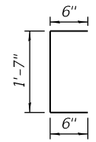
BAR d2(E)



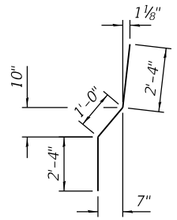
BAR d3(E)



BAR d7(E)



BAR d4(E)



BAR d5(E)

NOTES:

1. For Legend, see Sheet S05-10.
2. For Preformed Joint Strip Seal Details,see Sheet S05-13.
3. For Bar Splicer Assembly Details, see Sheet S05-21.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E) and d5(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

Accurate GROUP, INC.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & REPLACEMENT (SHT. 3 OF 3)
STRUCTURE NO. 016-0161 (WB)

SHEET S05-12 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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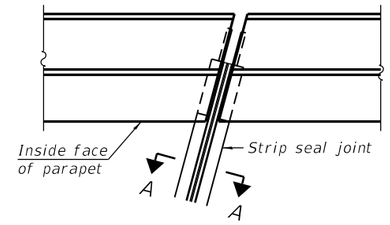
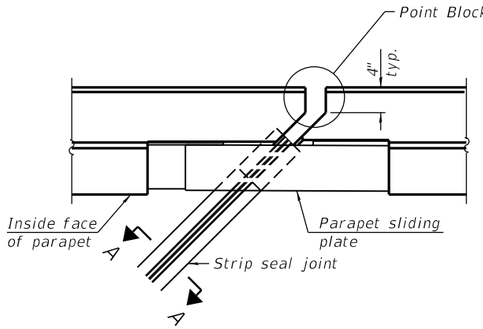
		CONTRACT NO. 62W87		
	ILLINOIS FED. AID PROJECT			

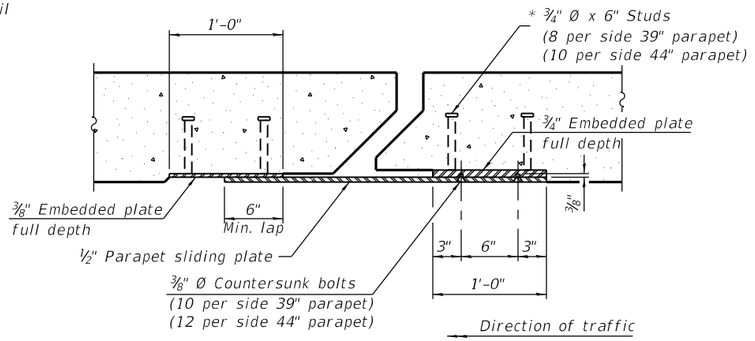


FOR SKEWS ≤ 30°



FOR SKEWS > 30°

PLAN AT PARAPET



SECTION B-B

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.

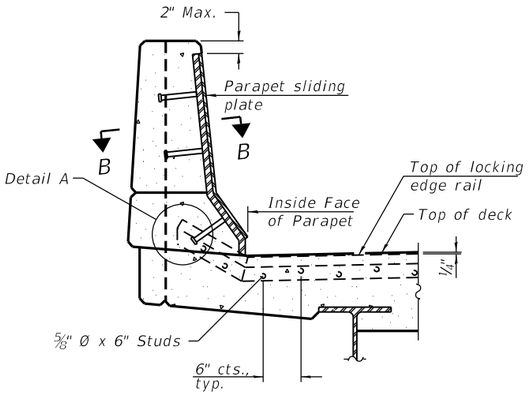
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

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.

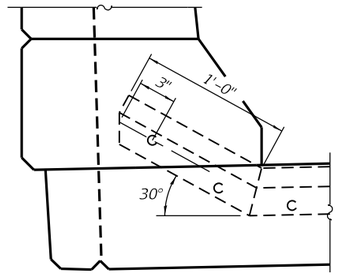
39" constant slope barrier shown, 44" constant slope barrier similar as noted.

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.

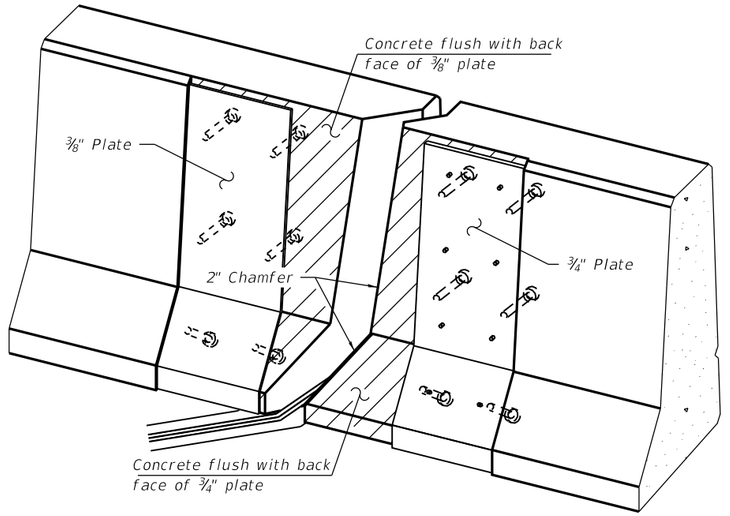


ELEVATION AT PARAPET

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

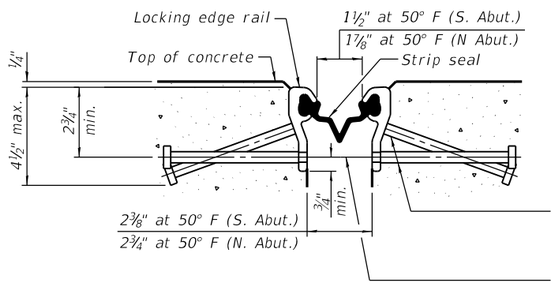


DETAIL A

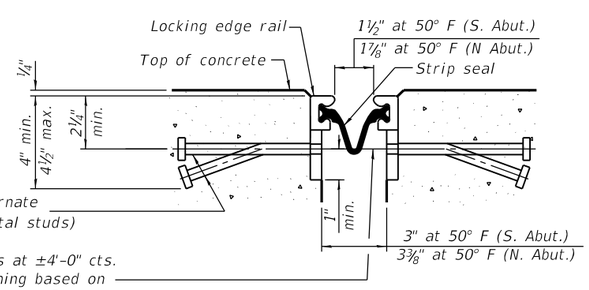


TRIMETRIC VIEW

(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT



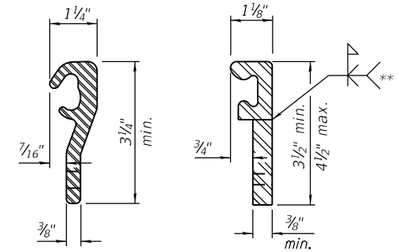
SHOWING WELDED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

3/8" 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 A-A

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



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	120

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0161 (WB)
SHEET S05-13 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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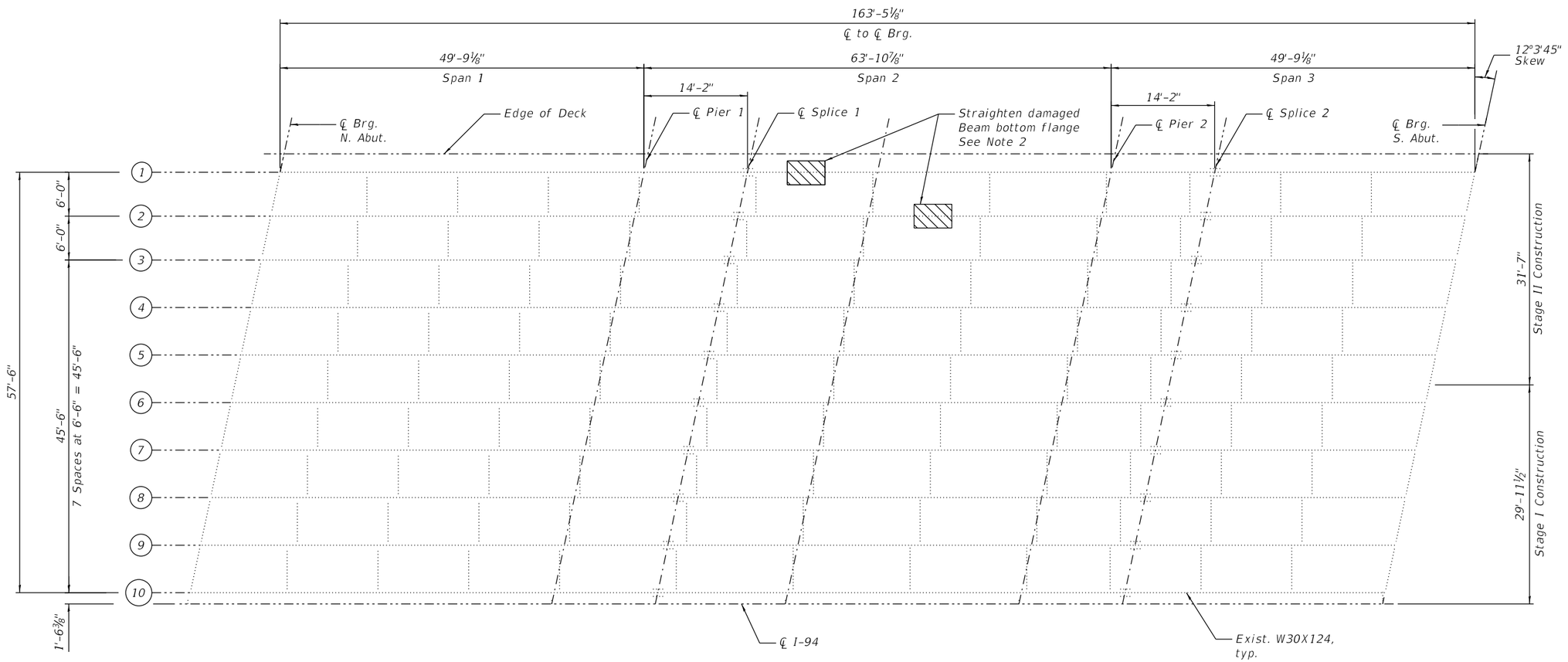
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		



FRAMING PLAN

N

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Beam Straightening	L Sum	0.33

NOTES:

1. All work is to be performed utilizing stage construction, See sheets S05-03 and S05-04 for details.

2. Gouges caused by the impact should be ground to eliminate sharp or sudden irregularities in the beam surface. Grinding should be done in such a way as to provide a smooth transition with a maximum slope of 3:1 between the damaged and undamaged surfaces. Cost included in Beam straightening.

LEGEND

Straighten Damaged Beam Flange

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	DRAWN - SUR	REVISED -		
PLOT SCALE = 16:0 ':' / in.	CHECKED - JL	REVISED -		
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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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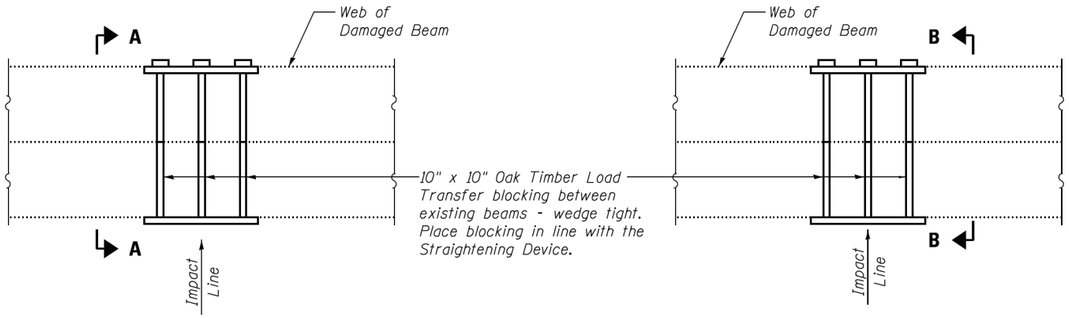
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

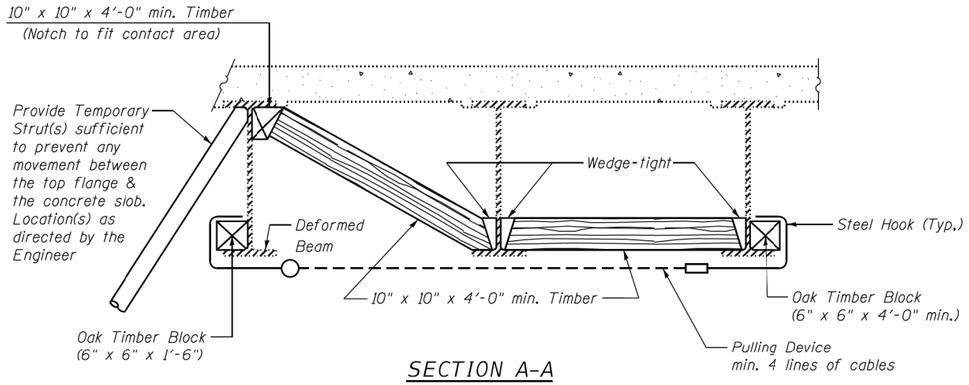


(PULLING DEVICE)

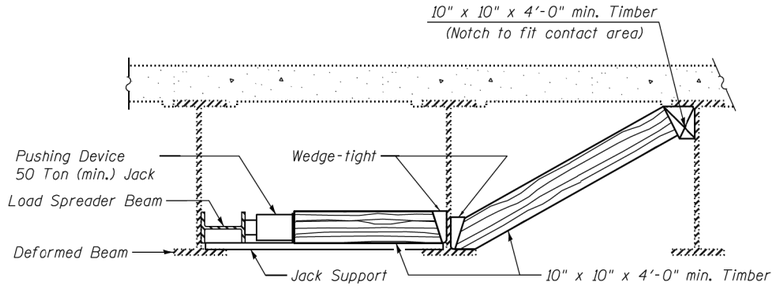
(PUSHING DEVICE)

PARTIAL PLAN
SUGGESTED BEAM STRAIGHTENING METHODS

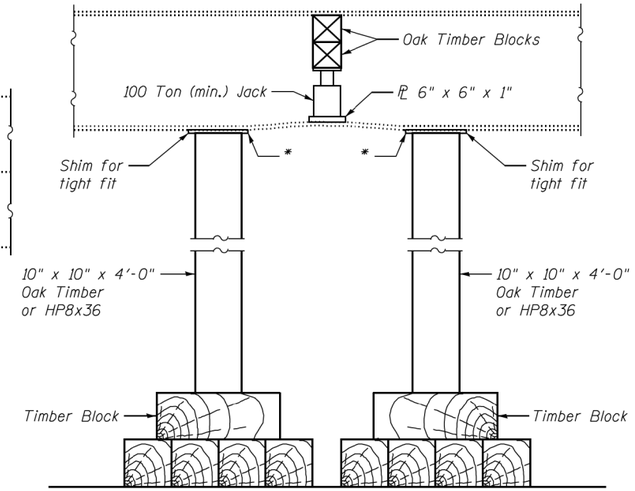
NOTE: Straightening force shall be maintained on all load transfer blocking during beam straightening.



SECTION A-A



SECTION B-B

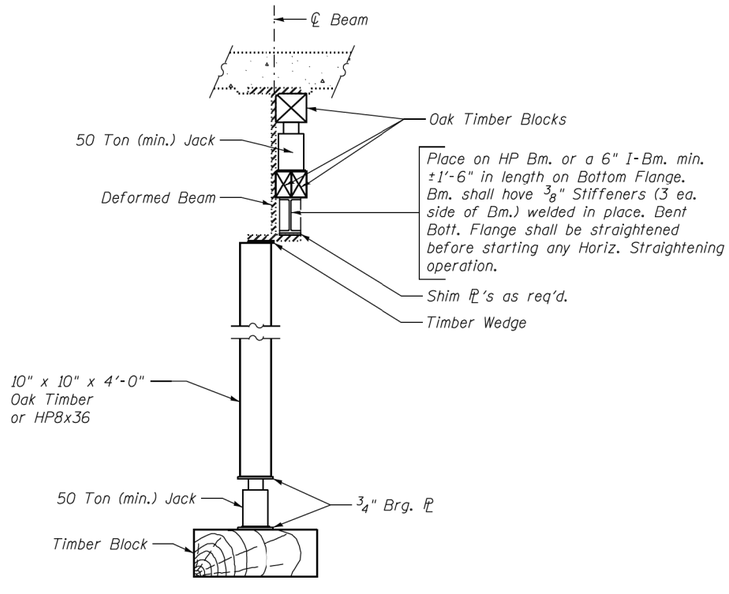


SUGGESTED VERTICAL STRAIGHTENING DETAIL

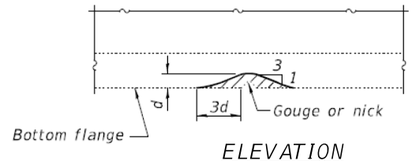
(To correct localized vertical flange deformations.)

* Edge of plate shall line up with edge of deformation.

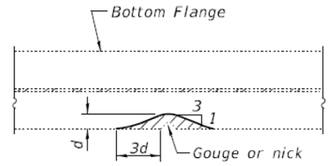
NOTE:
Braces and jack assembly shall be placed on same side of web.
Bent bottom flange shall be straightened before starting any horizontal straightening operations.



VERTICAL STRAIGHTENING DETAIL



ELEVATION



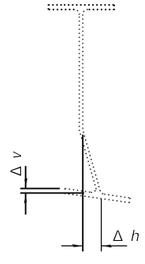
PLAN

GRINDING DETAILS

Grind existing nicks, gouges and shallow cracks in the damaged beams as detailed. Grinding shall be done parallel to the longitudinal axis of member. Ground surfaces shall be inspected for cracks using dye penetrant or magnetic particle testing prior to initiating any beam straightening operations. Any cracks that cannot be removed by grinding approximately ¼" deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. Ground surfaces shall be spot cleaned and painted with an aluminum epoxy mastic primer followed by a finish coat to match the color of the existing beam. Cost of grinding, testing and spot painting is included with Beam Straightening.

Δ h: Measure in Field

Δ v: Measure in Field



EXISTING DEFORMATION TO BE STRAIGHTENED

(Looking North)
(Approximate max. deflections)
Deflected length of beam to be straightened is approximately 4'-0".

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PLOT DATE = 12/9/2024		DATE - 12/6/2024	REVISED -	

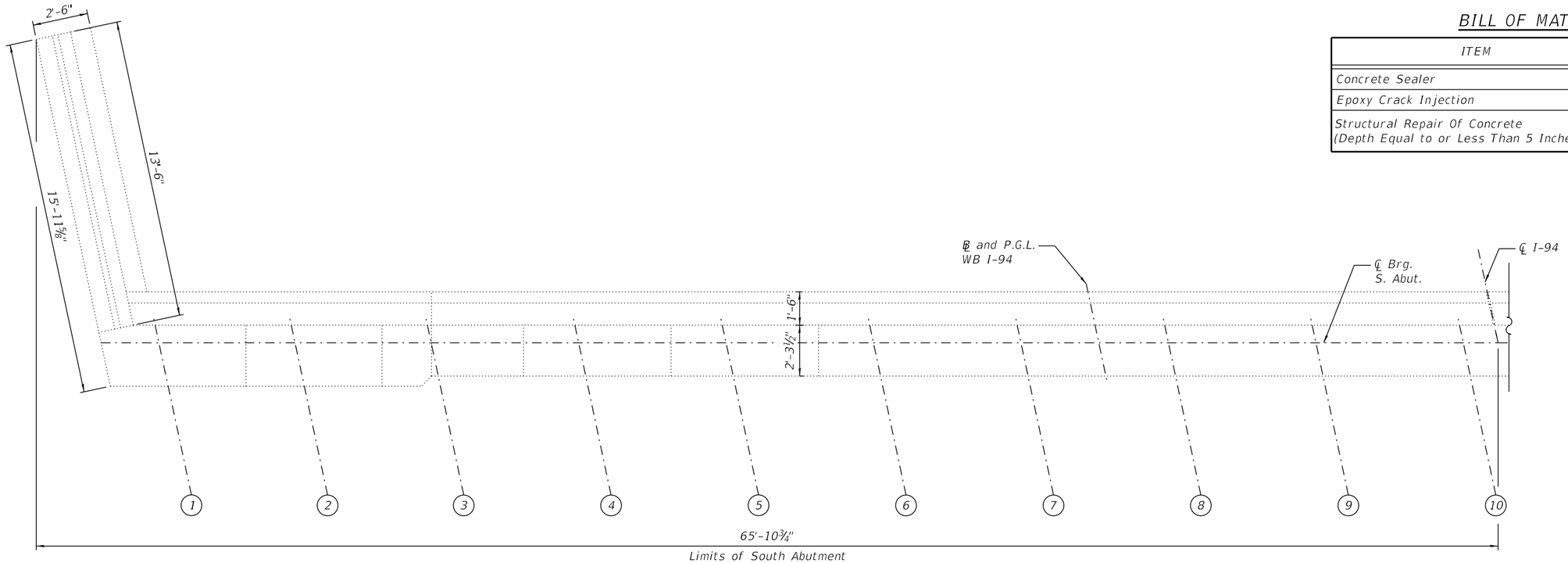
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEAM STRAIGHTENING DETAILS
STRUCTURE NO. 016-0161 (WB)
SHEET S05-15 OF S05-27 SHEETS

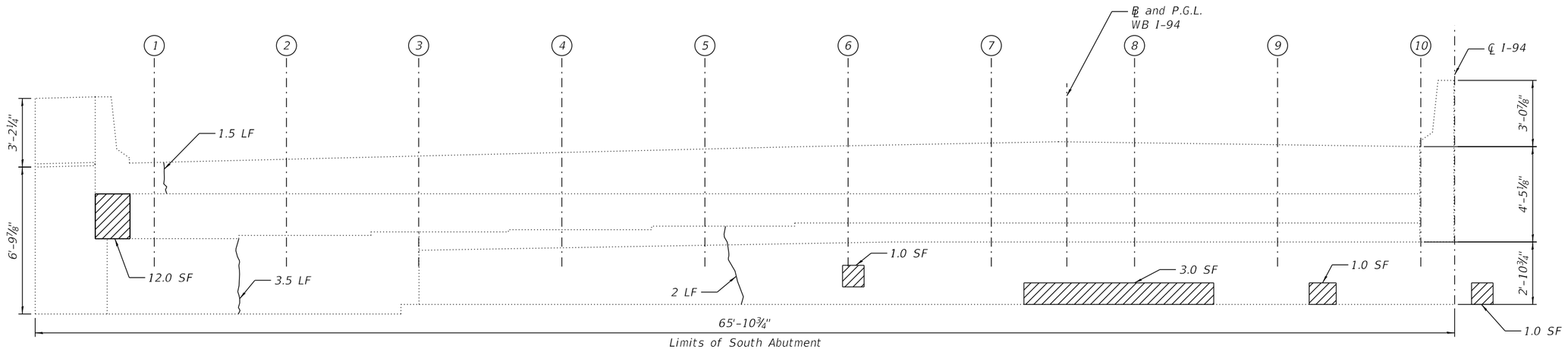
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	599
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	471
Epoxy Crack Injection	Foot	7
Structural Repair Of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	18



SOUTH ABUTMENT PLAN



SOUTH ABUTMENT EVELATION

(Looking South)

NOTES:

1. Quantities and limit shown are estimated for bidding purpose only. The actual areas to be repaired and the type(s) of repairs to be used will be determined by the engineer in the field at the time of construction.
2. For slope wall repairs, see sheet S05-20.
3. Concrete Sealer is to be applied to the Abutment seats and the bottom 2 feet of the Abutment Backwall.

LEGEND

	Structural Repair of Concrete (Depth Equal to or Less than 5 inches)
	Epoxy Crack Injection
LF	Linear Foot
SF	Square Foot

MODEL: Default
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12/9/2024 2:53:06 PM

Accurate GROUP, INC.

USER NAME = imranh		DESIGNED - SUR		REVISED -	
		DRAWN - ME		REVISED -	
PLOT SCALE = 5:4 ":" / in.		CHECKED - JL		REVISED -	
PLOT DATE = 12/9/2024		DATE - 12/6/2024		REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0161 (WB)
SHEET S05-16 OF S05-27 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94	(42-B-11-1) BR, BJR 24	COOK	761	600
		CONTRACT NO. 62W87		
	ILLINOIS	FED. AID PROJECT		