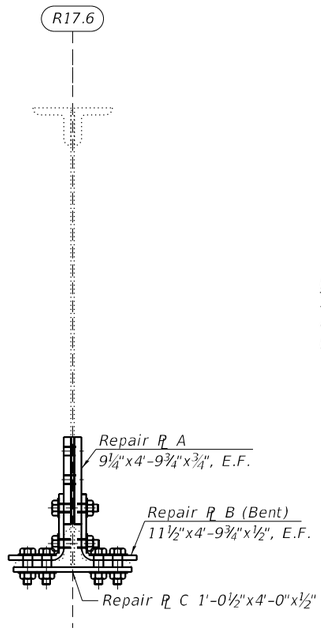
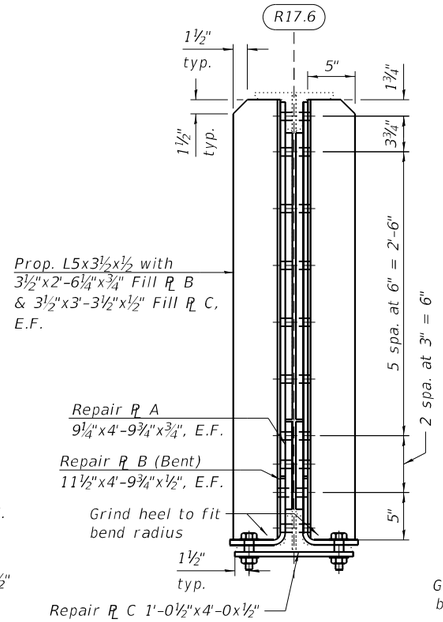
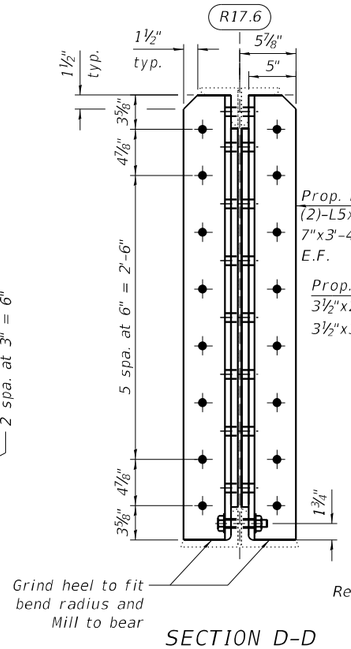


SECTION B-B



SECTION C-C



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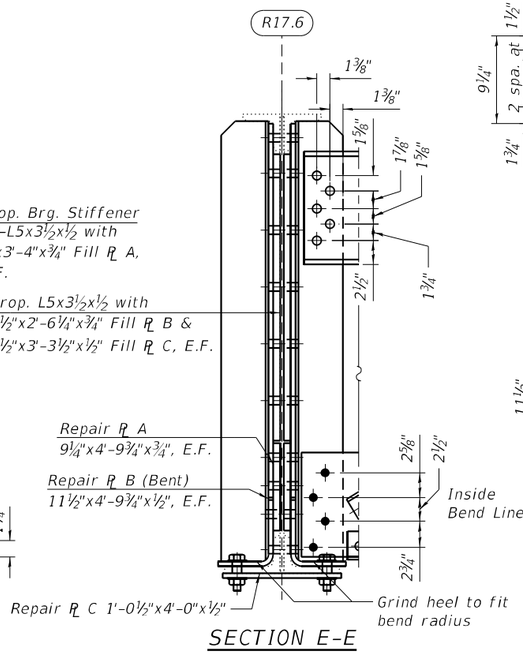
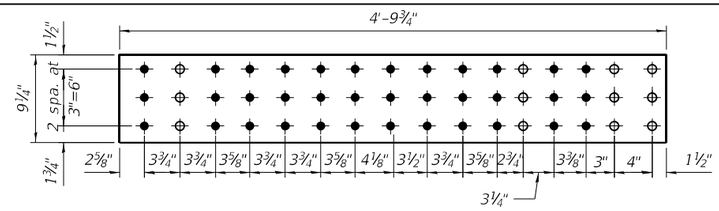
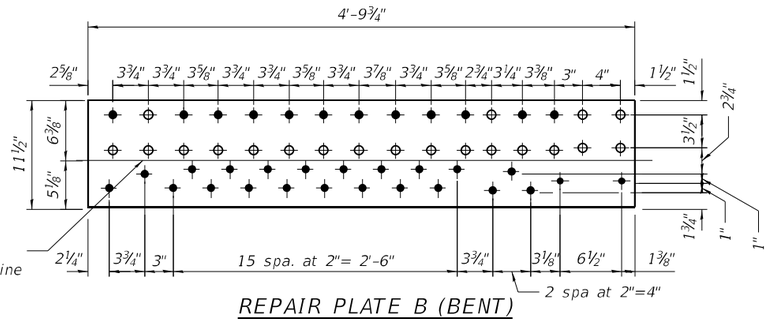


SECTION E-E



REPAIR PLATE A

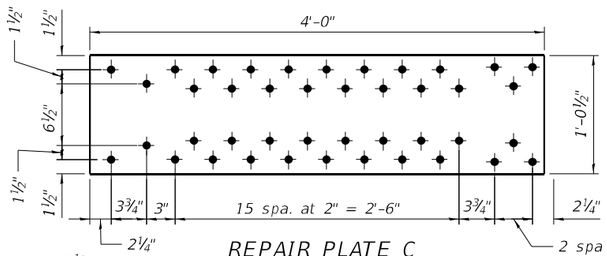
(9¼"x4'-9¾"x¾" PL)



REPAIR PLATE B (BENT)

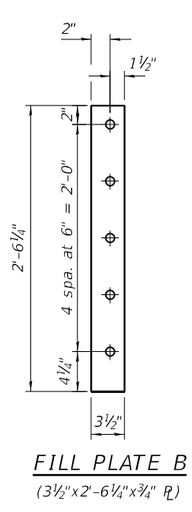
(Unfolded View)

(11½"x4'-9¾"x½" PL)



REPAIR PLATE C

(1'-0½"x4'-0"x½" PL)

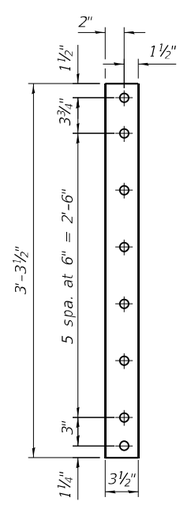


FILL PLATE A

(7"x3'-4"x¾" PL)

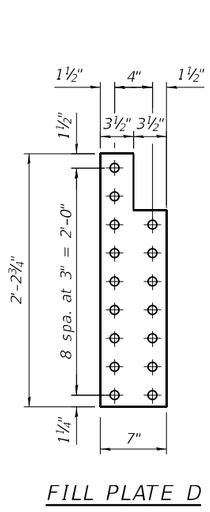
FILL PLATE B

(3½"x2'-6¼"x¾" PL)



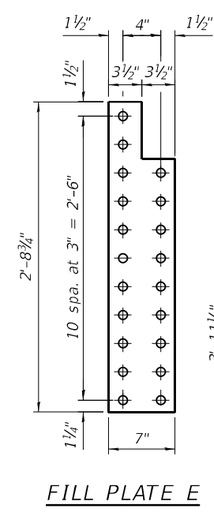
FILL PLATE C

(3½"x3'-3½"x½" PL)



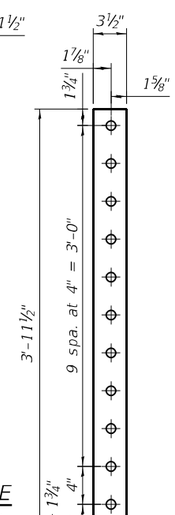
FILL PLATE D

(7"x2'-2¾"x¾" PL)



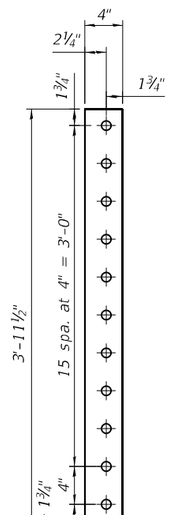
FILL PLATE E

(7"x2'-8¾"x½" PL)



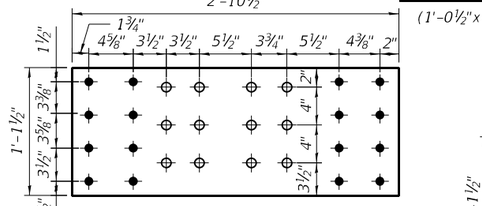
FILL PLATE F

(3½"x3'-11½"x1⅛" PL)



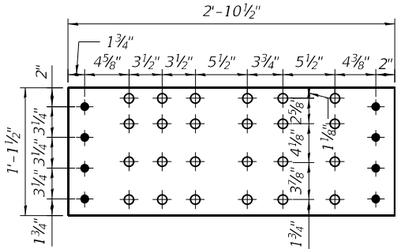
FILL PLATE G

(4"x3'-11½"x1⅛" PL)



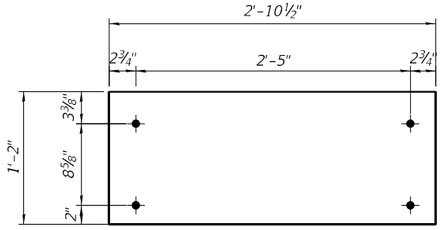
REPAIR PLATE D

(1'-1½"x2'-10½"x½" PL)



REPAIR PLATE E

(1'-1½"x2'-10½"x1⅛" PL)



SUPPORT/BRG. STIFFENER TOP PLATE

(1'-2"x2'-10½"x½" PL)

NOTE:

1. For Bill of Material, see Sheet S03B-24.

HBM ENGINEERING GROUP, LLC	USER NAME =	DESIGNED - JJS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL REPAIRS AT R17.6 (SHT. 2 OF 2) STRUCTURE NO. 016-0133 (REV)
		CHECKED - MI	REVISED -		
	PLOT SCALE =	DRAWN - JJS, EN	REVISED -		SHEET S03B-25 OF S03B-40 SHEETS
	PLOT DATE =	DATE - 4/29/2024	REVISED -		

F.A.I. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	501
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

FILE NAME:

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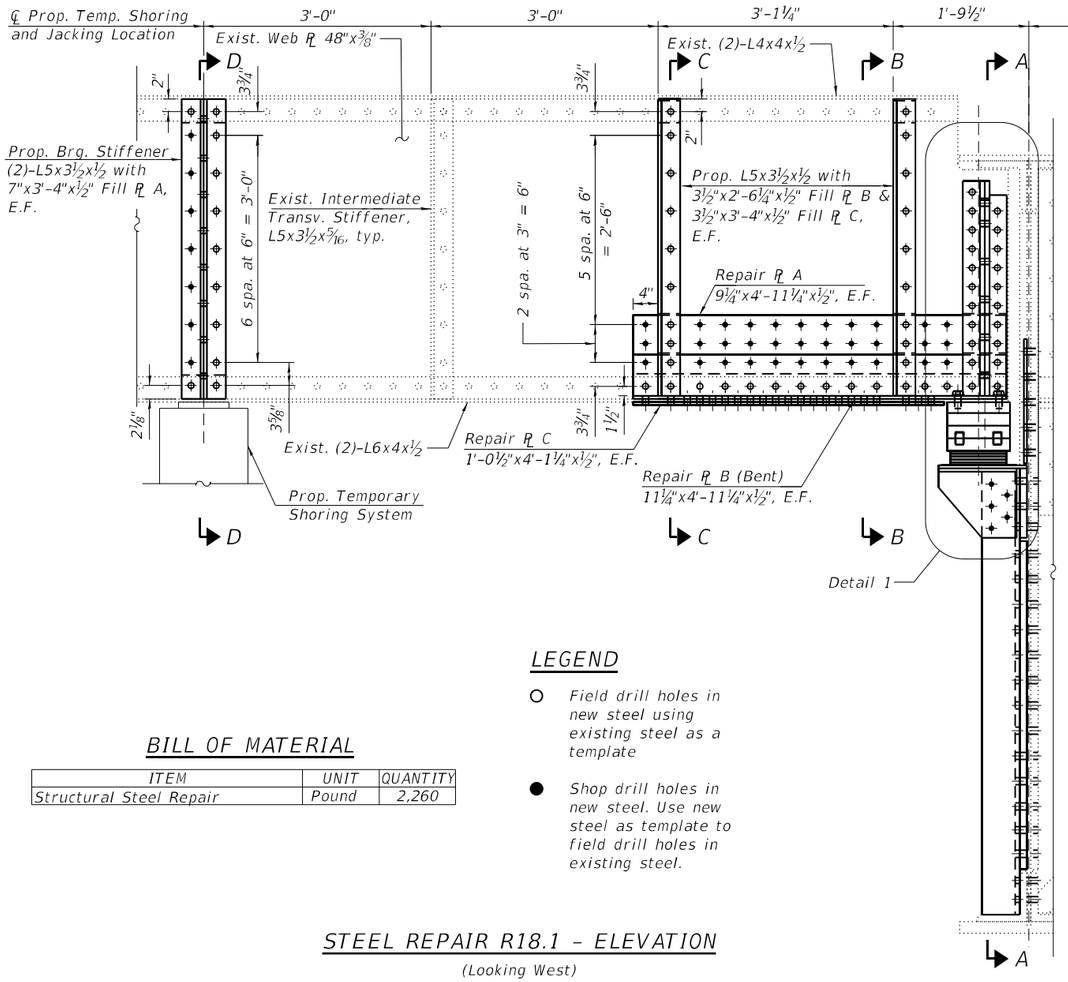


LEGEND

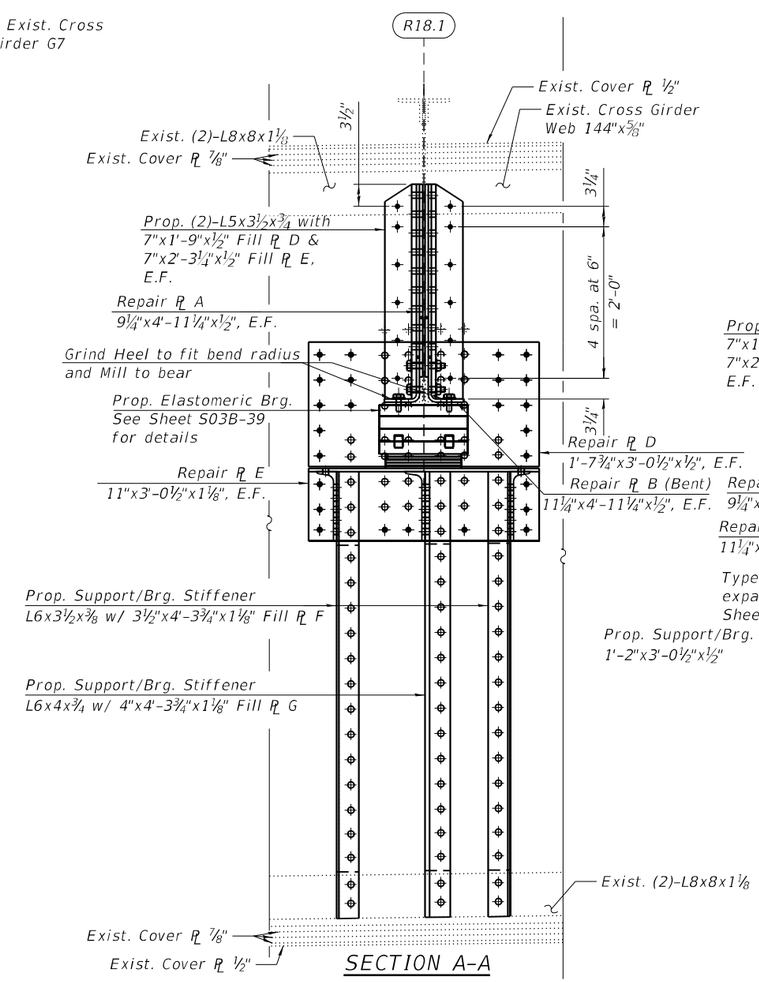
- ○ *Field drill holes in new steel using existing steel as a template*
- ● *Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.*

BILL OF MATERIAL

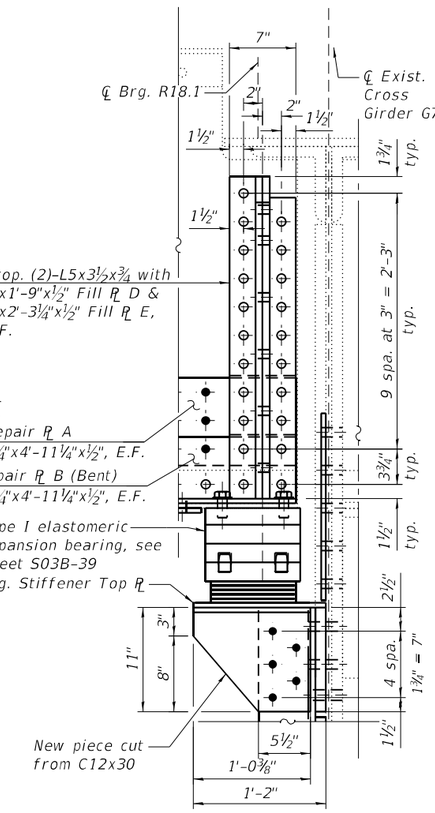
ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	2,260

STEEL REPAIR R18.1 – ELEVATION

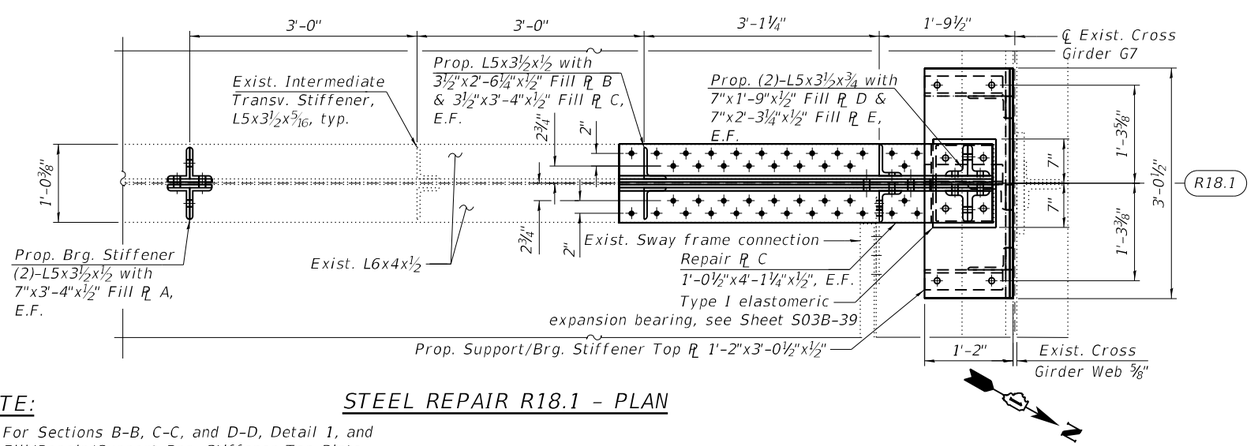
(Looking West)



SECTION A–A



DETAIL 1



STEEL REPAIR R18.1 – PLAN

NOTE:

1. *For Sections B–B, C–C, and D–D, Detail 1, and Fill/Repair/Support Brg. Stiffener Top Plate Details, see Sheet S03B-27.*

SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIR:

1. *Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in the "Steel Repair R18.1 – Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".*
2. *Install proposed Fill Plate A and bearing stiffeners at the prop. jacking/temp. shoring location indicated in the "Steel Repair R18.1 – Elevation" and erect prop. Temporary Shoring tower. See Special Provision for "Temporary Shoring."*
3. *Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.*
4. *Remove existing intermediate transverse stiffeners, cross frame gusset plates, stringer bearing stiffeners, elastomeric bearing, support bracket and associated support/bearing stiffeners within the limits of repair area. Clean/paint newly exposed faces of stringer and Girder G7 according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".*
5. *Construct templates for location of existing rivets, bolts and fabrication of fill and repair plates.*
6. *Install proposed Repair Plate at Girder G7 bottom flange, south face. Install proposed Fill Plates, Repair Plates, Support/Brg. Stiffeners and elastomeric bearing at the connection of Stringer R18.1 to Girder G7.*
7. *Install proposed Fill Plates, Repair Plates, Intermediate Transverse Stiffeners and Bearing Stiffeners at end of Stringer R18.1 as indicated in the Plans.*
8. *Remove Temporary Shoring Tower.*

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HBM ENGINEERING GROUP, LLC

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	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB, EN	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R18.1 (SHT. 1 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-26 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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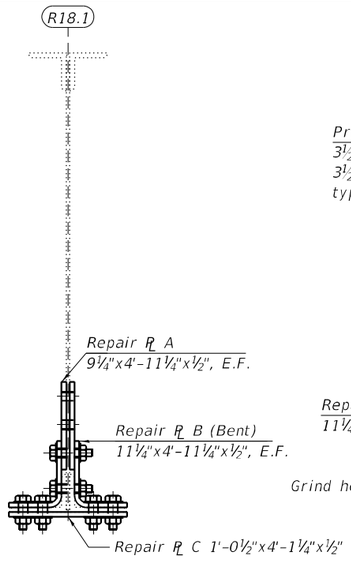
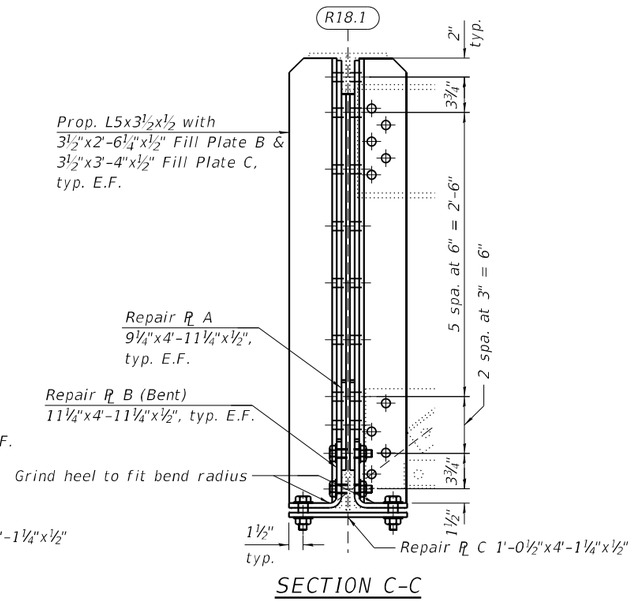
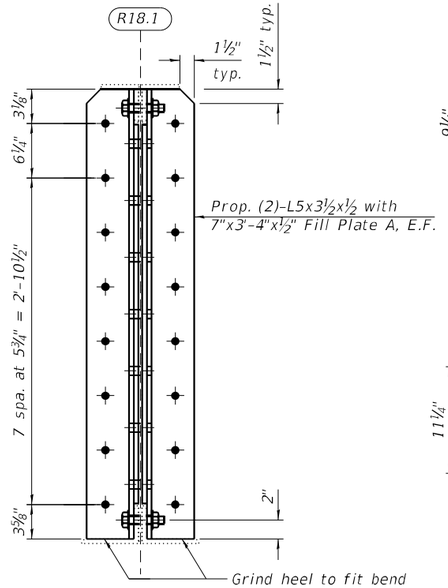
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



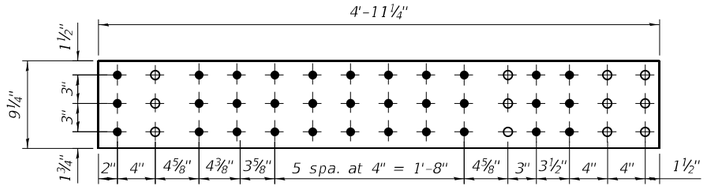
SECTION B-B



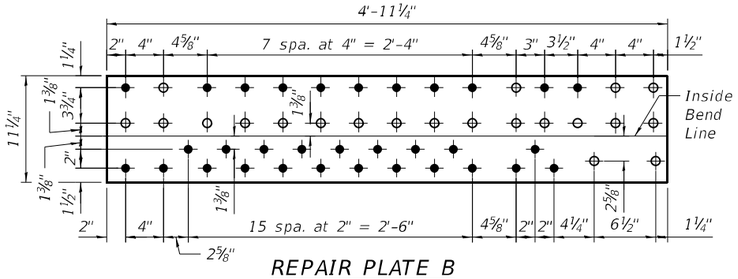
SECTION C-C



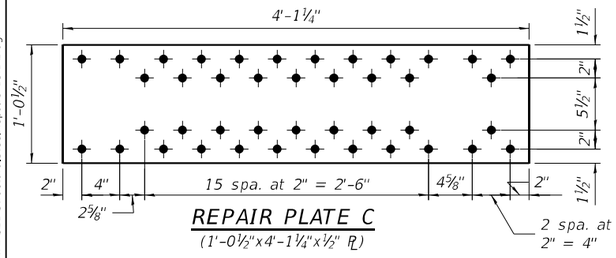
SECTION D-D



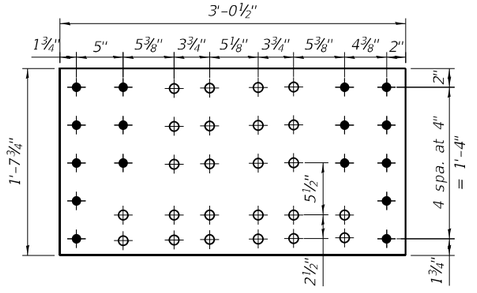
REPAIR PLATE A
(9¼"x4'-11¼"x½" PL)



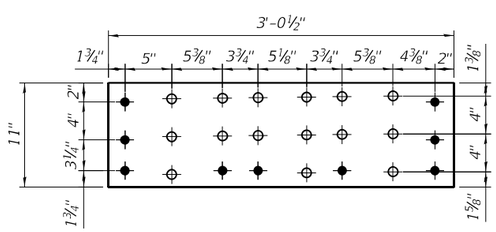
REPAIR PLATE B
(Unfolded View)
(11¼"x4'-11¼"x½" PL)



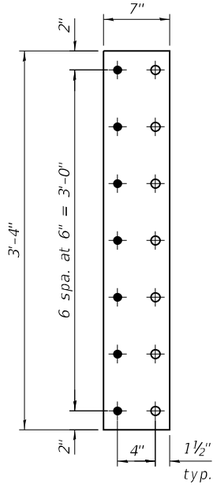
REPAIR PLATE C
(1'-0½"x4'-1¼"x½" PL)



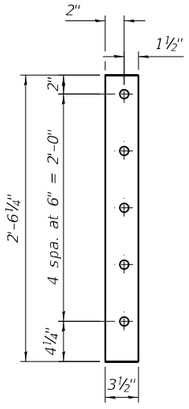
REPAIR PLATE D
(1'-7¾"x3'-0½"x½" PL)



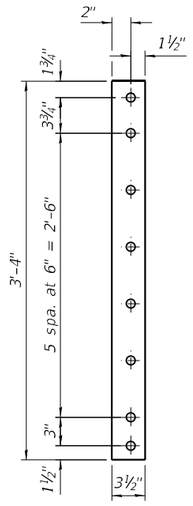
REPAIR PLATE E
(11"x3'-0½"x1⅛" PL)



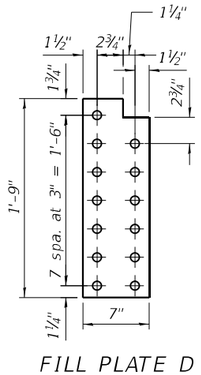
FILL PLATE A
(7"x3'-4"x½" PL)



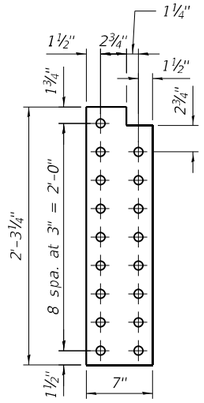
FILL PLATE B
(3½"x2'-6¼"x½" PL)



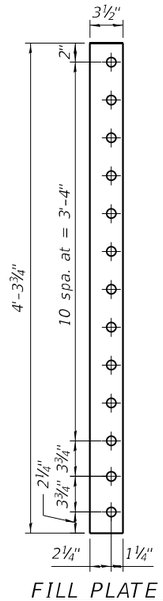
FILL PLATE C
(3½"x3'-4"x½" PL)



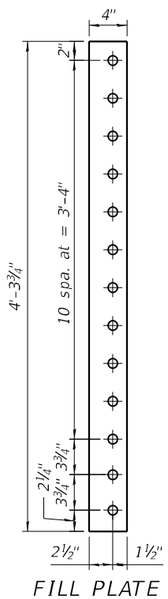
FILL PLATE D
(7"x1'-9"x½" PL)



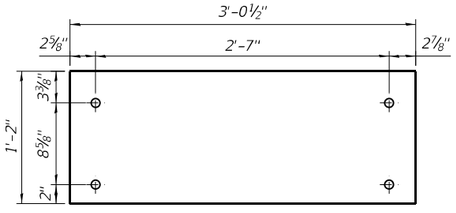
FILL PLATE E
(7"x2'-3¼"x½" PL)



FILL PLATE F
(3½"x4'-3¾"x1⅛" PL)



FILL PLATE G
(4"x4'-3¾"x1⅛" PL)



SUPPORT/BRG. STIFFENER TOP PLATE
(1'-2"x3'-0½"x½" PL)

NOTE:
1. For Bill of Material, see Sheet S03B-26.

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HBM ENGINEERING GROUP, LLC

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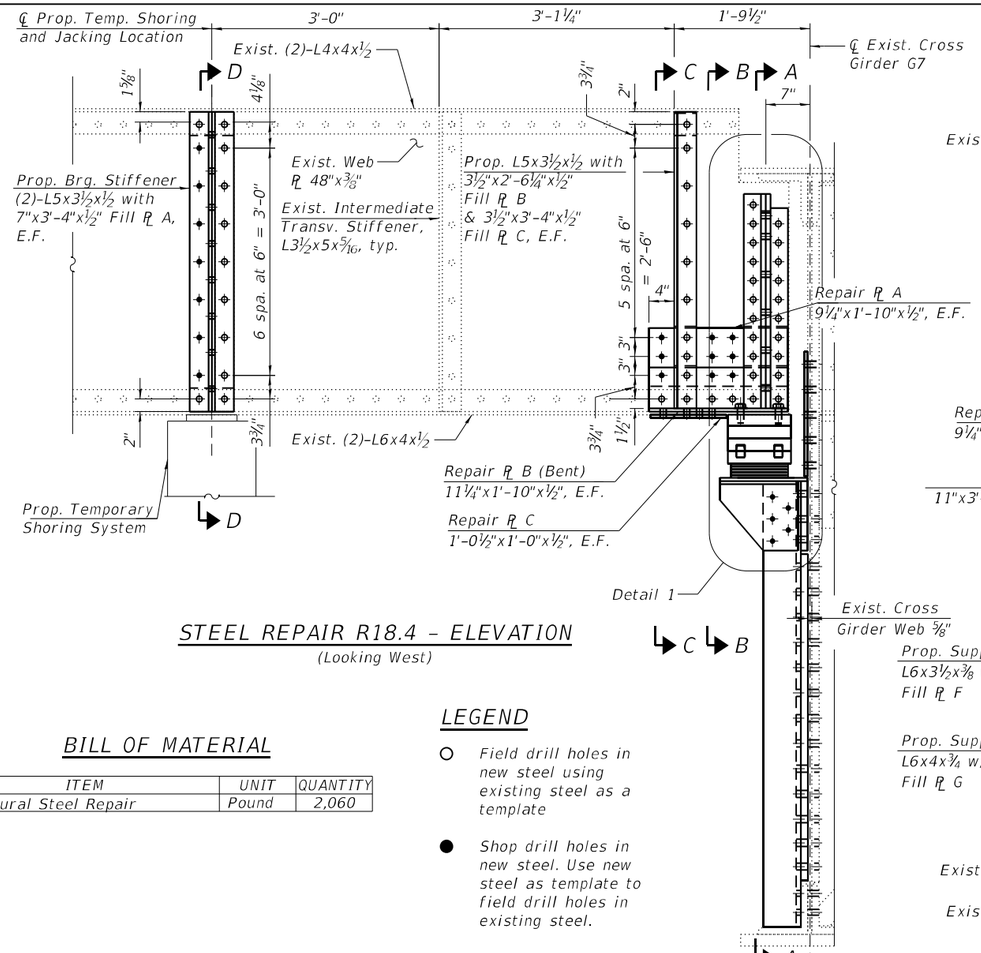
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB, EN	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R18.1 (SHT. 2 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-27 OF S03B-40 SHEETS

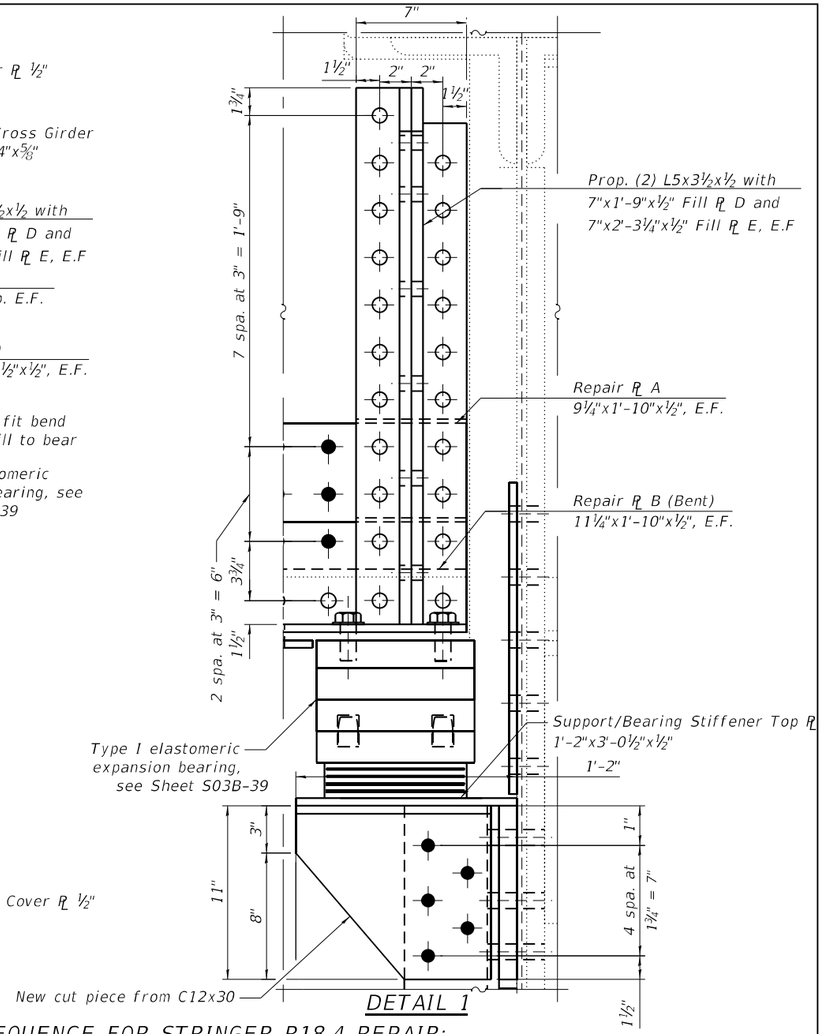
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	503
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



STEEL REPAIR R18.4 – ELEVATION

(Looking West)

SECTION A-A



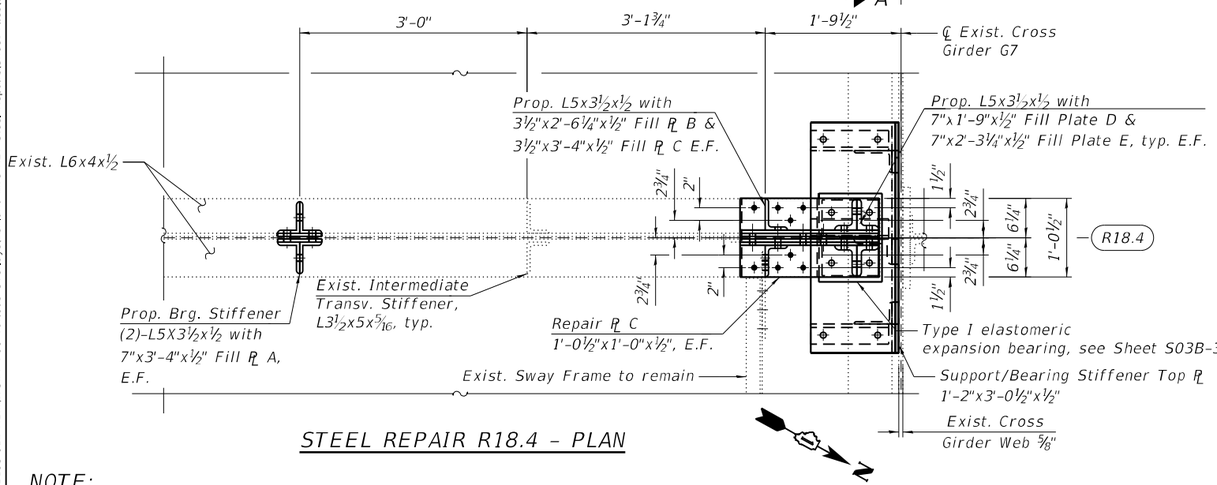
DETAIL 1

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	2,060

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- ● Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.



STEEL REPAIR R18.4 – PLAN

NOTE:

1. For Sections B-B, C-C, D-D and Fill/Repair/Support Brg. Stiffener Top Plate details, see Sheet S03B-29.

SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER R18.4 REPAIR:

1. Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in the "Steel Repair R18.4 – Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
2. Install proposed Fill Plate A and bearing stiffeners at the prop. jacking/temp. shoring location indicated in the "Steel Repair R18.4 – Elevation" and erect prop. Temporary Shoring tower. See Special Provision for "Temporary Shoring."
3. Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.
4. Remove existing intermediate transverse stiffeners within the limits of repair area. Clean/paint newly exposed faces of stringer according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
5. Construct templates for location of existing rivets, botls and fabrication of fill and repair plates.
6. Install proposed Repair Plate at Girder G7 bottom flange, south face. Install proposed Fill Plates, Repair Plates, Support/Brg. Stiffeners and elastomeric bearing at the connection of Stringer R18.4 to Girder G7.
7. Install proposed Fill Plates, Repair Plates, Intermediate Transverse Stiffeners at end of Stringer R18.4 as indicated in the Plans.
8. Remove Temporary Shoring Tower.

MODEL: Default
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HBM ENGINEERING GROUP, LLC

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	CHECKED - MI	REVISED -	
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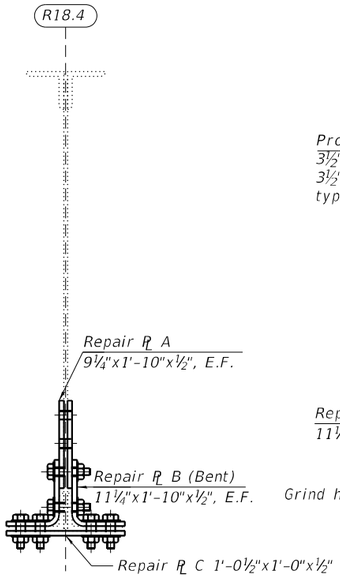
PLOT DATE =	DATE - 4/29/2024	REVISED -	

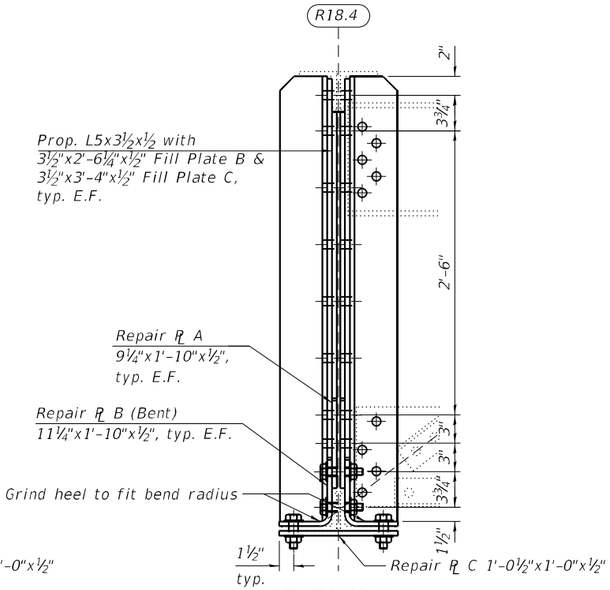
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R18.4 (SHT. 1 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-28 OF S03B-40 SHEETS

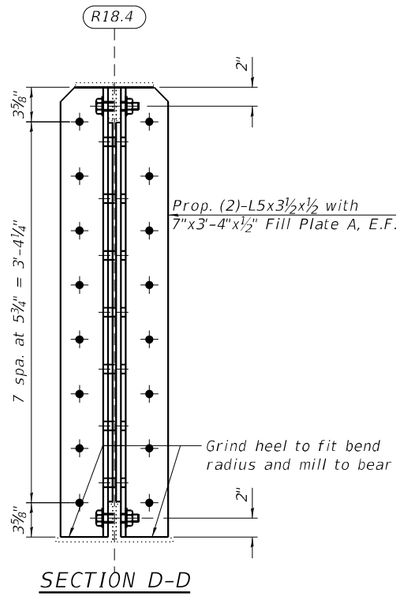
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	504
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



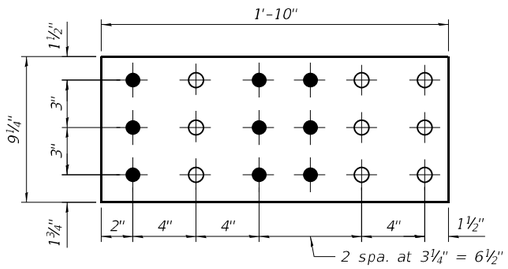
SECTION B-B



SECTION C-C

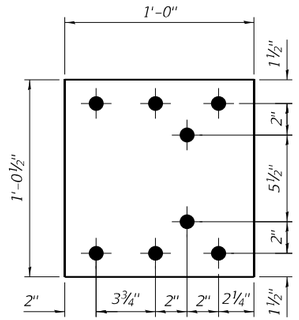


SECTION D-D



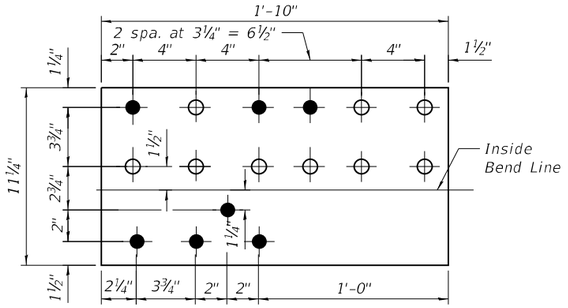
REPAIR PLATE A

(9¼"x1'-10"x½" PL)



REPAIR PLATE C

(1'-0½"x1'-0"x½" PL)



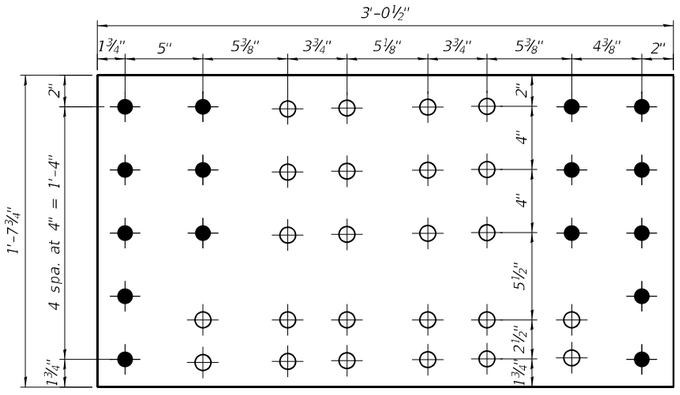
REPAIR PLATE B (BENT)

(Unfolded View)

(11¼"x1'-10"x½" PL)

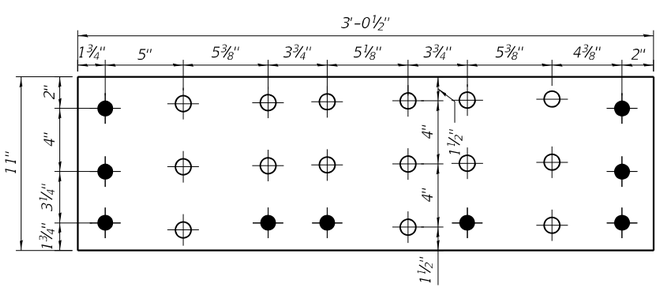
NOTE:

1. For Bill of Material, see Sheet S03B-28.



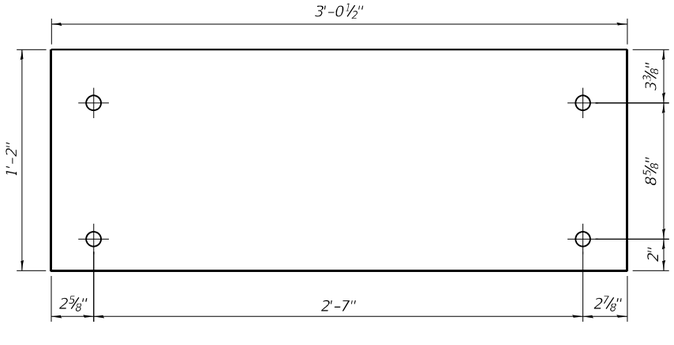
REPAIR PLATE D

(1'-7¾"x3'-0½"x½" PL)



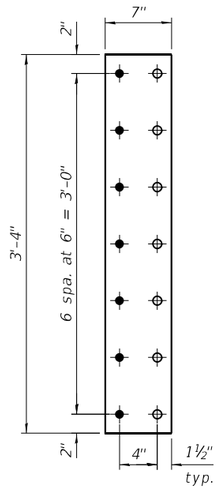
REPAIR PLATE E

(11"x3'-0½"x1⅛" PL)



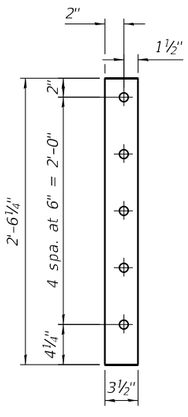
SUPPORT/BEARING STIFFENER TOP PL

(1'-2"x3'-0½"x½" PL)



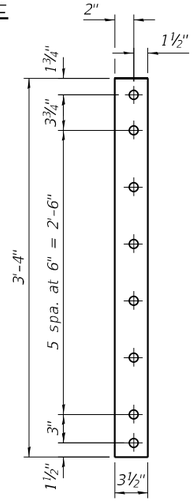
FILL PLATE A

(7"x3'-4"x½" PL)



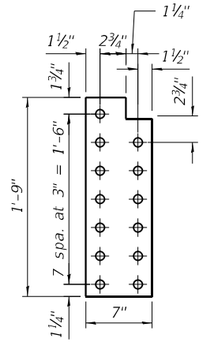
FILL PLATE B

(3½"x2'-6¼"x½" PL)



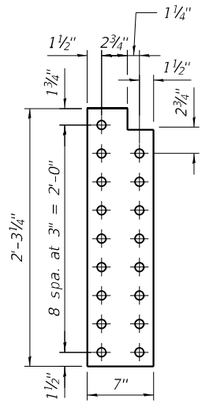
FILL PLATE C

(3½"x3'-4"x½" PL)



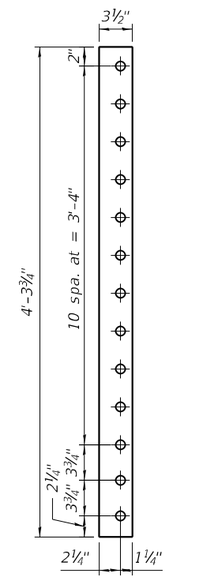
FILL PLATE D

(7"x1'-9"x½" PL)



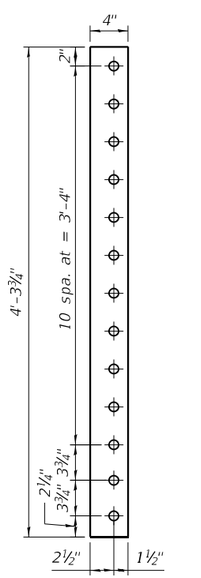
FILL PLATE E

(7"x2'-3¼"x½" PL)



FILL PLATE F

(3½"x4'-3¾"x1⅛" PL)



FILL PLATE G

(4"x4'-3¾"x1⅛" PL)

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4/30/2024 10:22:32 AM

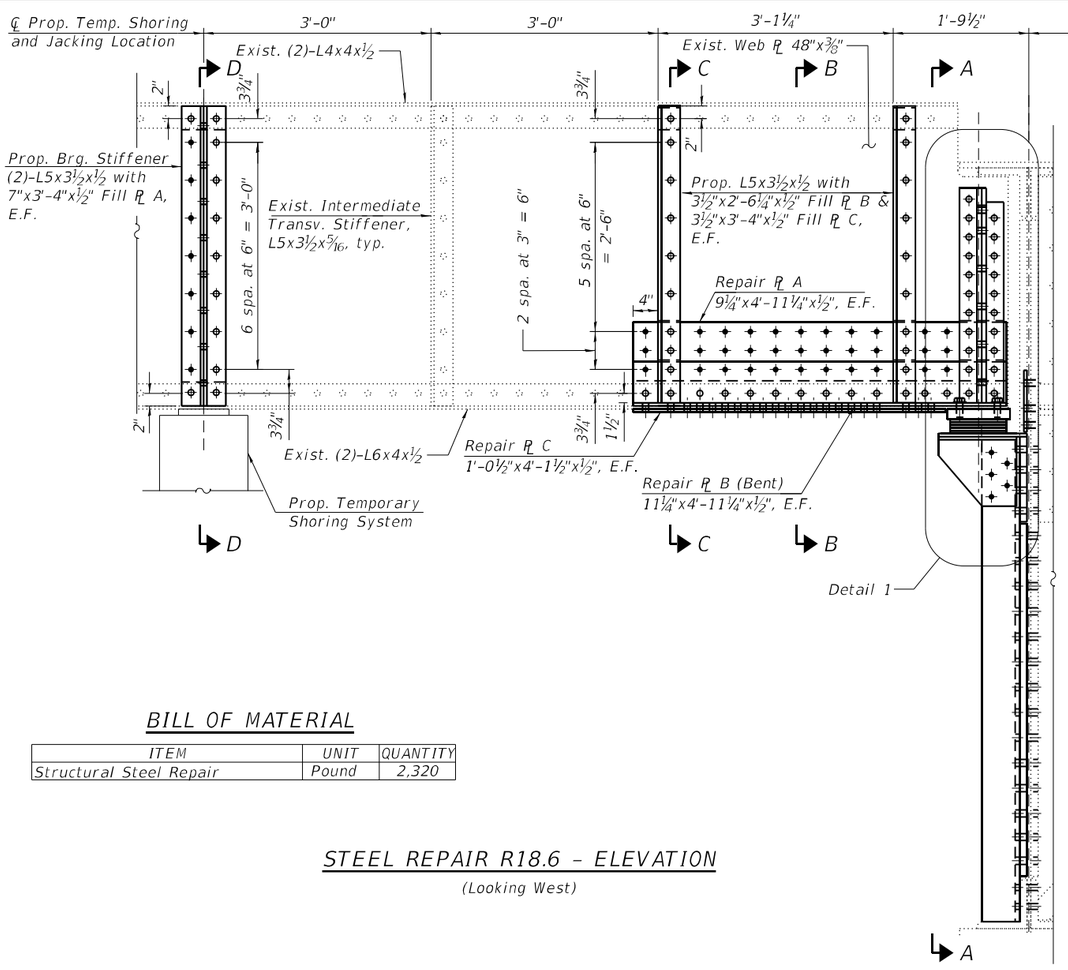
HBM ENGINEERING GROUP, LLC	USER NAME =	DESIGNED - LAB, JJS	REVISED -	
		CHECKED - MI	REVISED -	
	PLOT SCALE =	DRAWN - EN	REVISED -	
	PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R18.4 (SHT. 2 OF 2)
STRUCTURE NO. 016-0133 (REV)

SHEET S03B-29 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	505
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

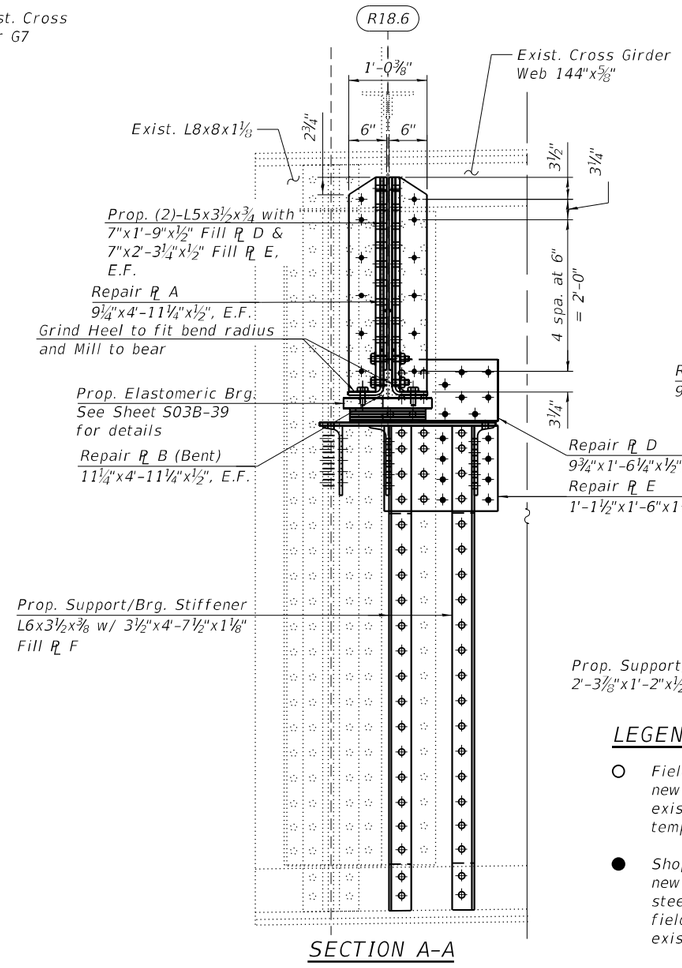


BILL OF MATERIAL

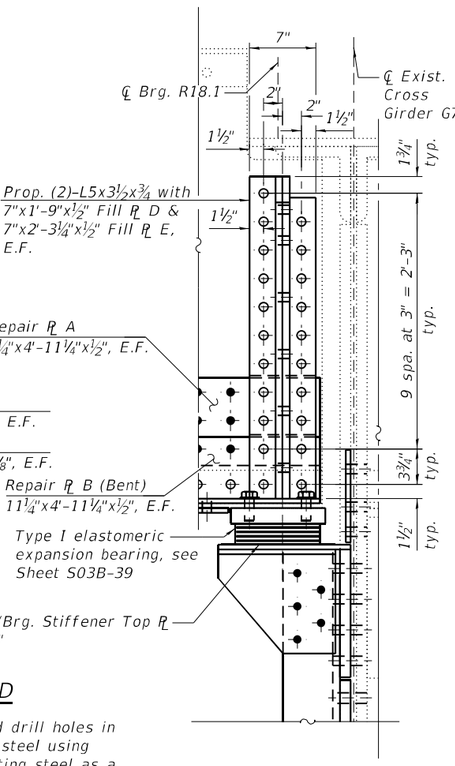
ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	2,320

STEEL REPAIR R18.6 – ELEVATION

(Looking West)



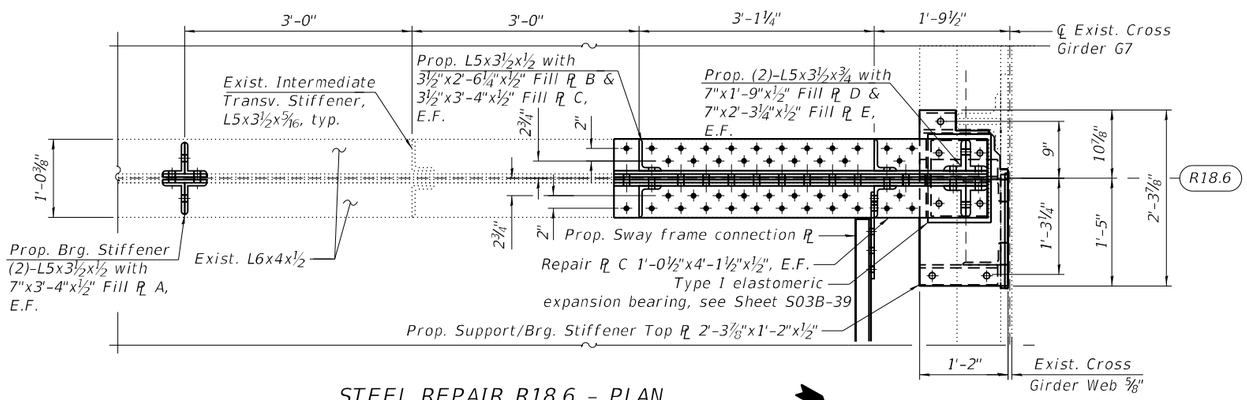
SECTION A–A



DETAIL 1

LEGEND

- ○ *Field drill holes in new steel using existing steel as a template*
- ● *Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.*



STEEL REPAIR R18.6 – PLAN

NOTE:

1. *For Sections B-B thru D-D, and Fill/Repair/Support Brg. Stiffener Top Plate Details, see Sheet S03B-31.*

SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIR:

1. *Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in the "Steel Repair R18.6 – Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".*
2. *Install proposed Fill Plate A and bearing stiffeners at the prop. jacking/temp. shoring location indicated in the "Steel Repair R18.6 – Elevation" and erect prop. Temporary Shoring tower. See Special Provision for "Temporary Shoring."*
3. *Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.*
4. *Remove existing intermediate transverse stiffeners, cross frame gusset plates, stringer bearing stiffeners, elastomeric bearing, support bracket and associated support/bearing stiffeners within the limits of repair area. Clean/paint newly exposed faces of stringer and Girder G7 according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".*
5. *Construct templates for location of existing rivets, bolts and fabrication of fill and repair plates.*
6. *Install proposed Repair Plate at Girder G7 bottom flange, south face. Install proposed Fill Plates, Repair Plates, Support/Brg. Stiffeners and elastomeric bearing at the connection of Stringer R18.6 to Girder G7.*
7. *Install proposed Fill Plates, Repair Plates, Intermediate Transverse Stiffeners and Bearing Stiffeners at end of Stringer R18.6 as indicated in the Plans.*
8. *Remove Temporary Shoring Tower.*

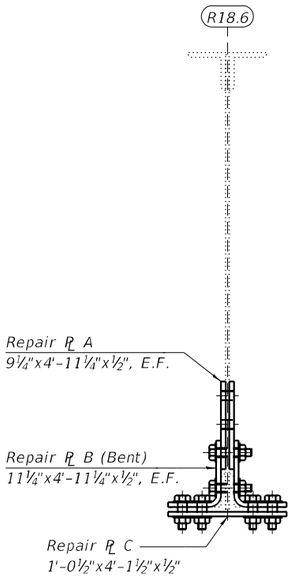
HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - LAB, JJS	REVISED -	
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB, EN	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

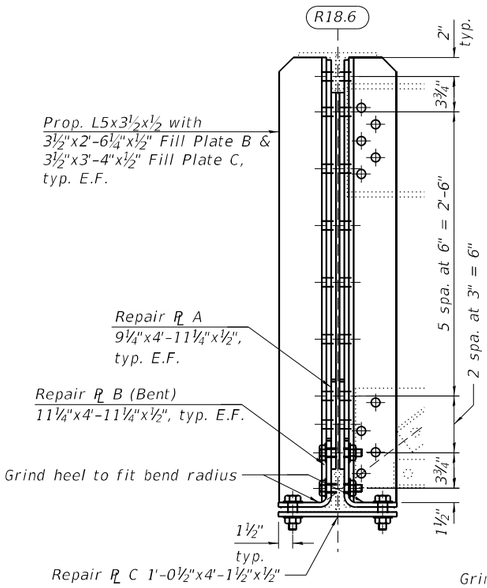
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R18.6 (SHT. 1 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-30 OF S03B-40 SHEETS

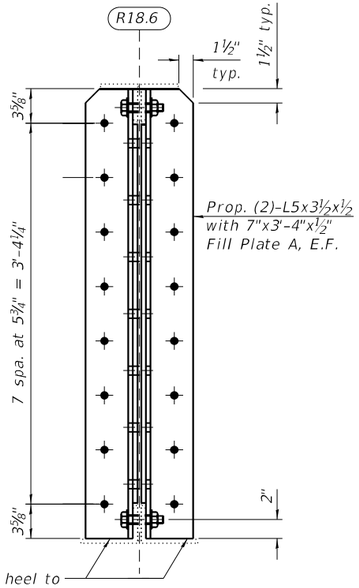
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	506
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



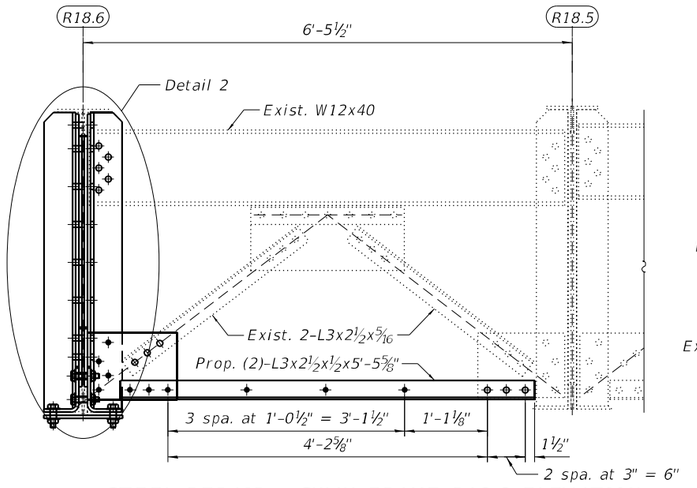
SECTION B-B



SECTION C-C

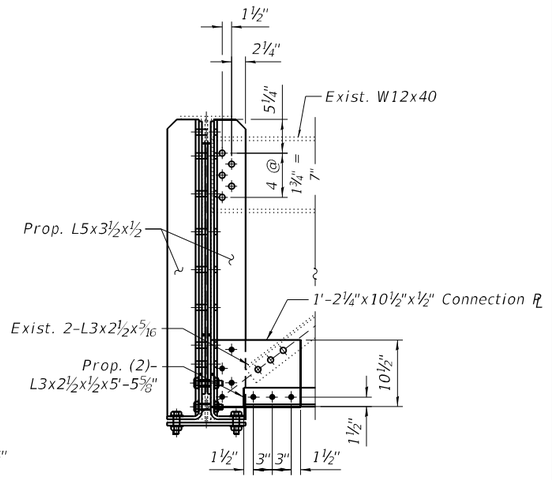


SECTION D-D

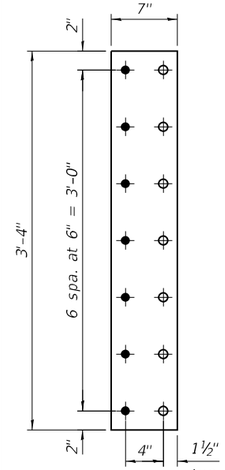


STEEL REPAIR - SWAY FRAME R18.6 ELEVATION

(Looking North)

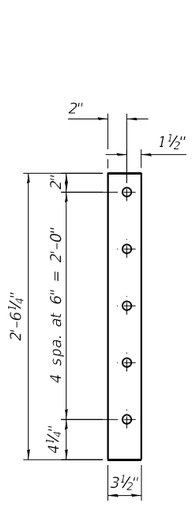


DETAIL 2



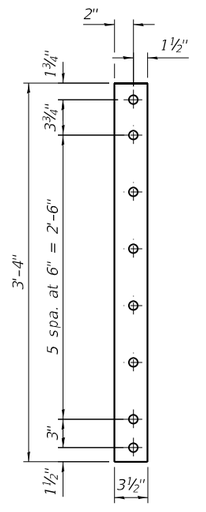
FILL PLATE A

(7"x3'-4"x½" PL)



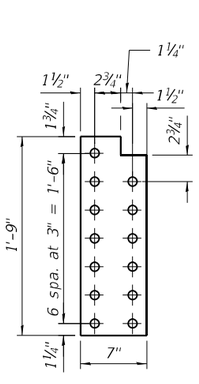
FILL PLATE B

(3½"x2'-6¼"x½" PL)



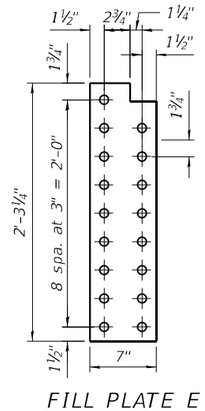
FILL PLATE C

(3½"x3'-4"x½" PL)



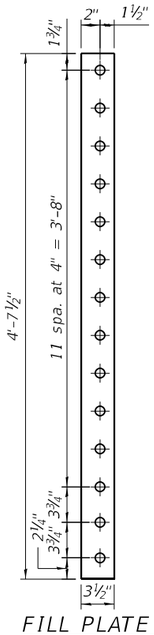
FILL PLATE D

(7"x1'-9"x½" PL)



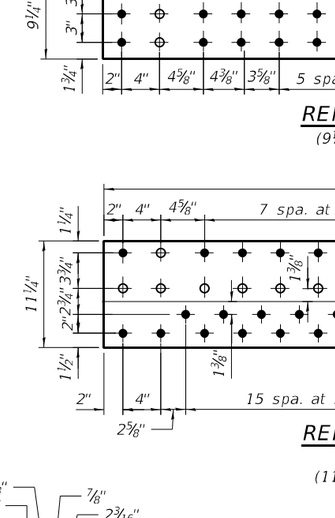
FILL PLATE E

(7"x2'-3¼"x½" PL)



FILL PLATE F

(3½"x4'-7½"x1⅛" PL)



REPAIR PLATE A

(9¼"x4'-11¼"x½" PL)

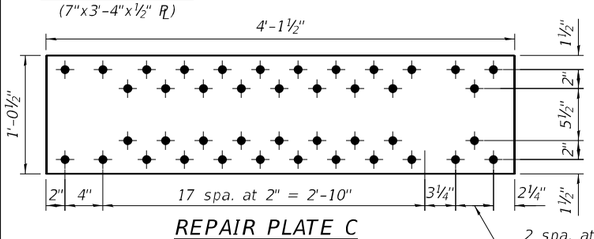
REPAIR PLATE B

(Unfolded View)

(11¼"x4'-11¼"x½" PL)

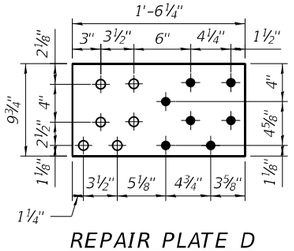
NOTE:

1. For Bill of Material, see Sheet S03B-30.



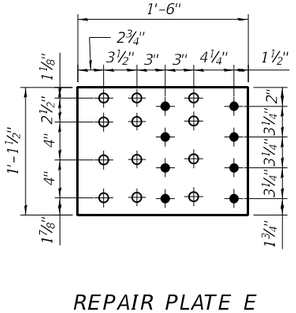
REPAIR PLATE C

(1'-0½"x4'-1½"x½" PL)



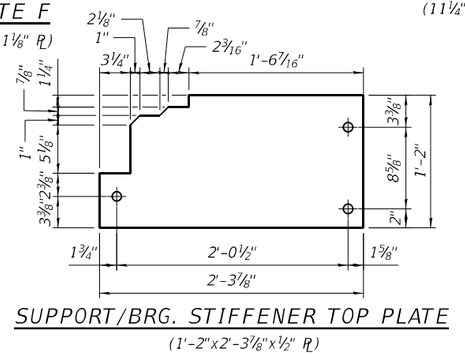
REPAIR PLATE D

(9¾"x1'-6¼"x½" PL)



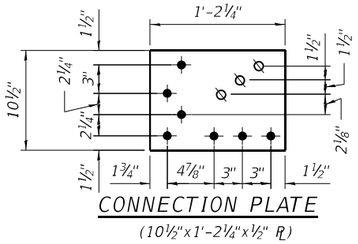
REPAIR PLATE E

(1'-1½"x1'-6"x1⅛" PL)



SUPPORT/BRG. STIFFENER TOP PLATE

(1'-2"x2'-3⅞"x½" PL)



CONNECTION PLATE

(10½"x1'-2¼"x½" PL)

HBM ENGINEERING GROUP, LLC	USER NAME =	DESIGNED - LAB, JJS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STRUCTURAL STEEL REPAIRS AT R18.6 (SHT. 2 OF 2) STRUCTURE NO. 016-0133 (REV)
		CHECKED - MI	REVISED -		SHEET S03B-31 OF S03B-40 SHEETS
	PLOT SCALE =	DRAWN - LAB, EN	REVISED -		
	PLOT DATE =	DATE - 4/29/2024	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	507
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

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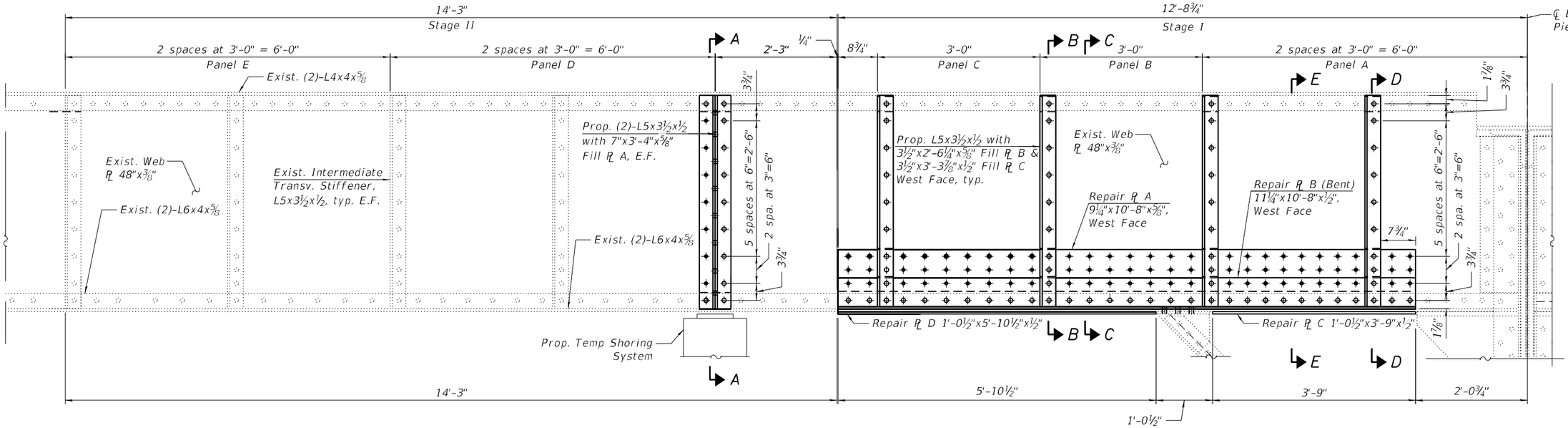
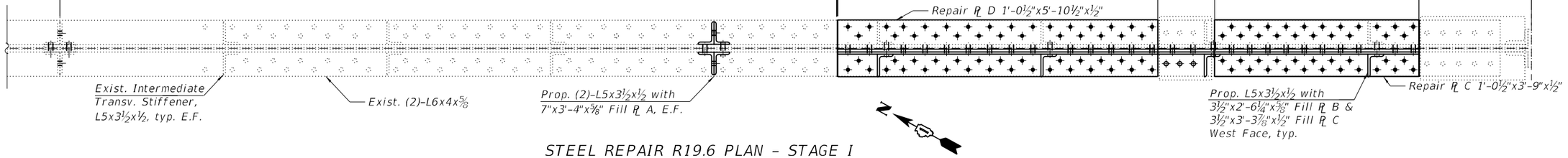


STEEL REPAIR R19.6 ELEVATION – STAGE I

(Looking East)



STEEL REPAIR R19.6 PLAN – STAGE I

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	3,220

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

NOTE:

1. For Sections A-A thru E-E, and Fill and Repair Plates details, see Sheet S03B-33.

SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIR – STAGE I:

1. Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in Stage I of the "Steel Repair R19.6 – Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
2. Install proposed Fill Plate A, B & C and bearing stiffeners at the prop. jacking/temp. shoring location indicated in Stage I of the "Steel Repair R19.6 – Elevation" and erect prop. Temporary Shoring tower as indicated in the Plans. See Special Provision for "Temporary Shoring."
3. Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.
4. Remove existing intermediate transverse stiffeners on west face within the limits of repair area. Clean/paint newly exposed faces of stringer according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
5. Construct templates for location of existing rivets, bolts and fabrication of fill and repair plates.
6. Install proposed Fill Plates, Repair Plates, and Intermediate Transverse Stiffeners on west face and bottom of stringer at south end of Stringer R19.6 as indicated in the Plans.
7. Remove Temporary Shoring Tower and proposed transverse stiffeners and fill plates at the Temporary Shoring System.

MODEL: Default
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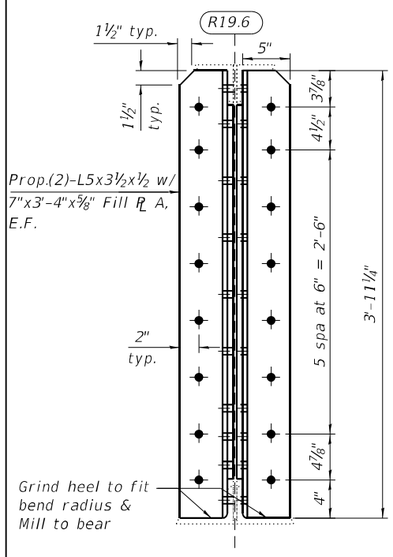
HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - LAB	REVISED -	
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

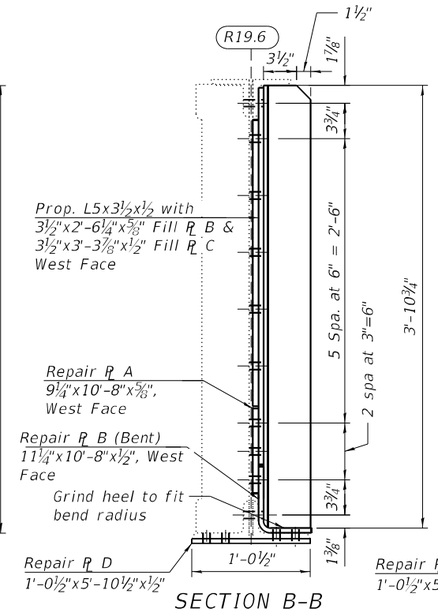
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R19.6 SOUTH END (SHT. 1 OF 4)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-32 OF S03B-40 SHEETS

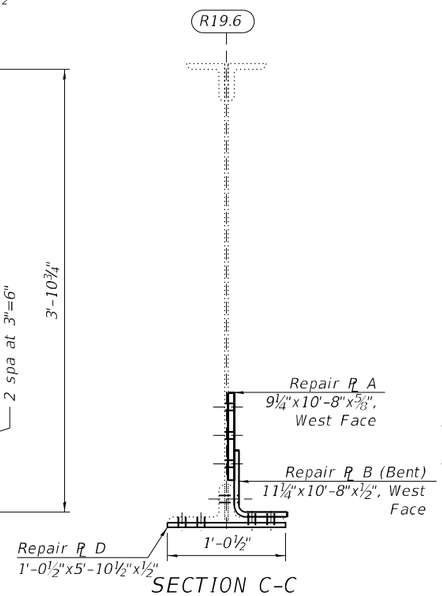
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	508
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



SECTION A-A



SECTION B-B



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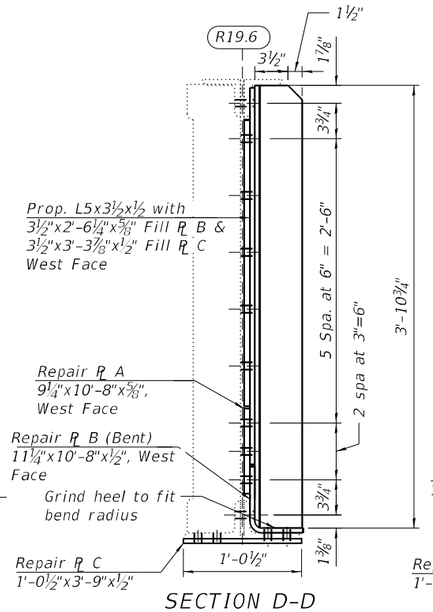

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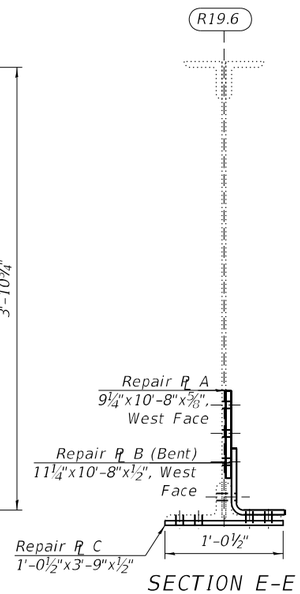

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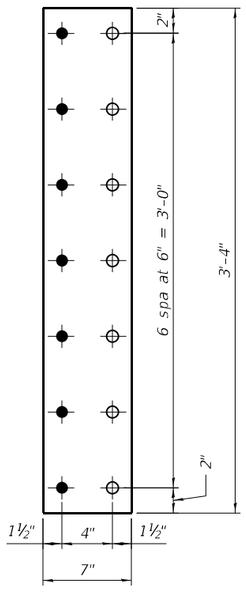
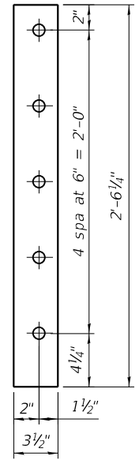


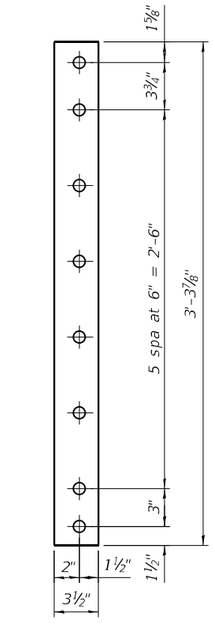
FILL PLATE A

(7"x3'-4"x⅝" PL)



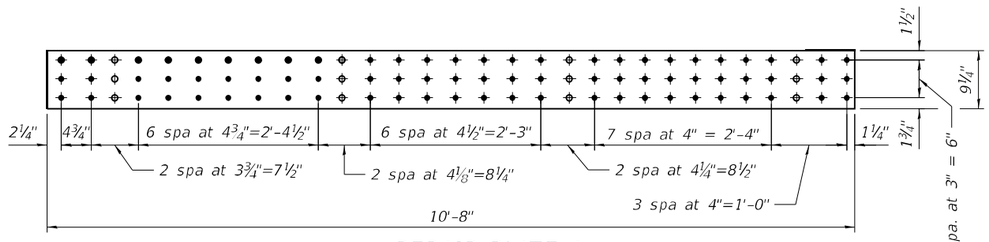
FILL PLATE B

(3½"x2'-6¼"x⅝" PL)



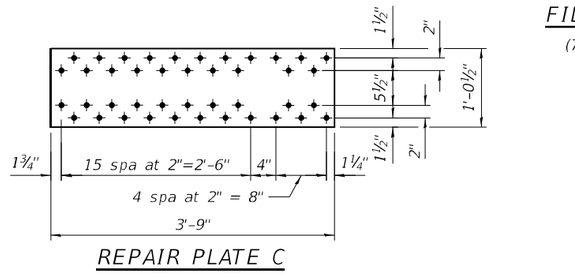
FILL PLATE C

(3½"x3'-3⅞"x½" PL)



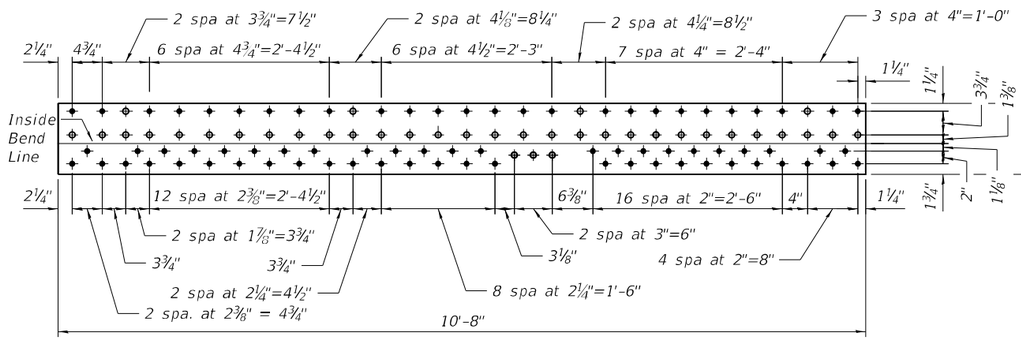
REPAIR PLATE A

(9¼"x10'-8"x⅝" PL)



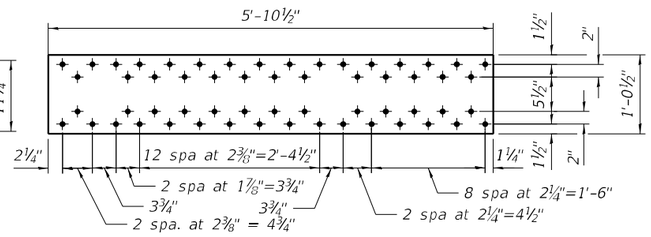
REPAIR PLATE C

(1'-0½"x3'-9"x½" PL)



REPAIR PLATE B

(11¼"x10'-8"x½" PL)



REPAIR PLATE D

(1'-0½"x5'-10½"x½" PL)

NOTE:

1. For Bill of Material, see Sheet S03B-32.

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

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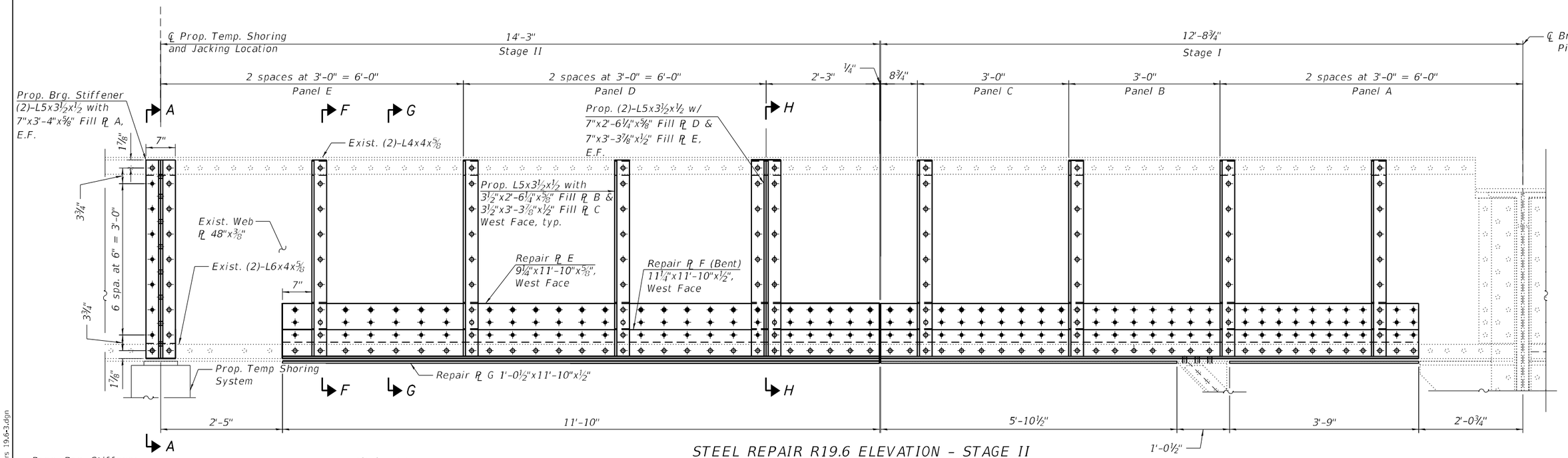
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT R19.6 SOUTH END (SHT. 2 OF 4)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-33 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	509
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIR - STAGE II:

1. Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in Stage II of the "Steel Repair R19.6 - Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
2. Install proposed Fill Plates A, B, C, D & E and bearing stiffeners at the prop. jacking/temp. shoring location indicated in Stage II of the "Steel Repair R19.6 - Elevation" and erect prop. Temporary Shoring tower as indicated in the Plans. See Special Provision for "Temporary Shoring."
3. Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.
4. Remove existing intermediate transverse stiffeners on west face within the limits of repair area. Clean/paint newly exposed faces of stringer according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
5. Construct templates for location of existing rivets, bolts and fabrication of fill and repair plates.
6. Install proposed Fill Plates, Repair Plates, and Intermediate Transverse Stiffeners on west face and bottom of stringer at south end of Stringer R19.6 as indicated in the Plans.
7. Remove Temporary Shoring Tower.

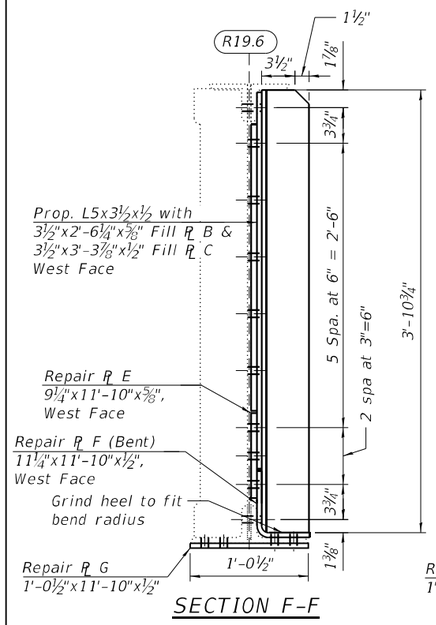
STEEL REPAIR R19.6 PLAN - STAGE II

LEGEND

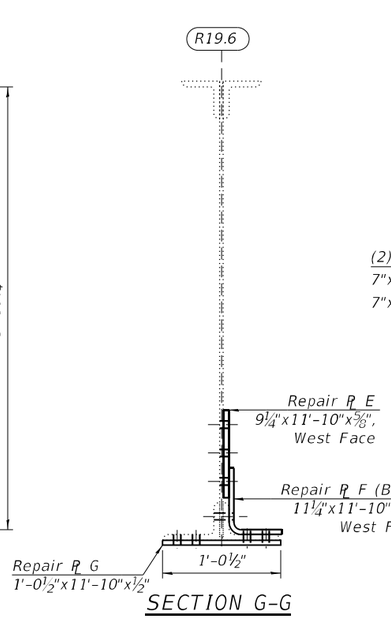
- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

NOTES:

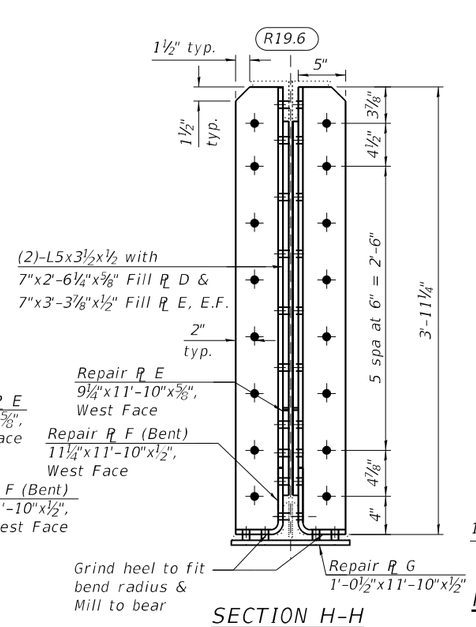
1. For Bill of Material, see Sheet S03B-32.
2. For Section A-A, and Fill Plates A, B and C, see Sheet S03B-33.
3. For Sections F-F thru H-H, Fill Plates D and E, and Repair Plates E thru G, see Sheet S03B-35.



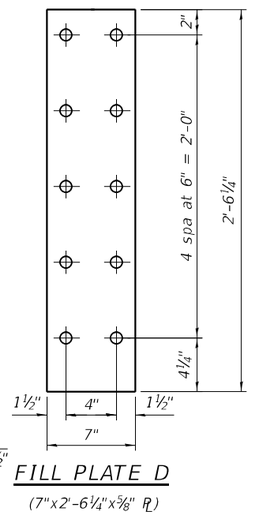
SECTION F-F



SECTION G-G

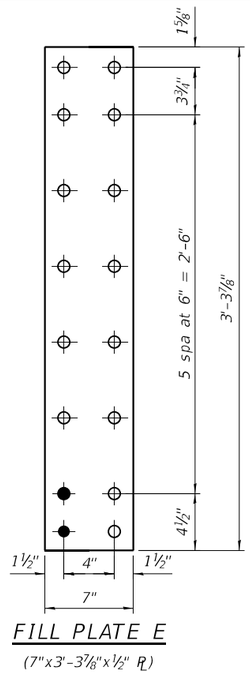


SECTION H-H



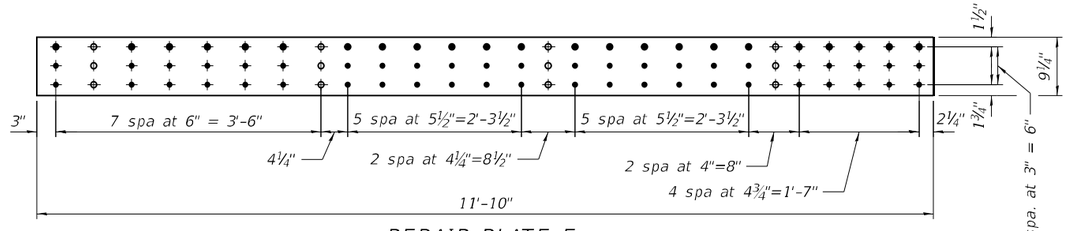
FILL PLATE D

(7"x2'-6¼"x⅝" PL)



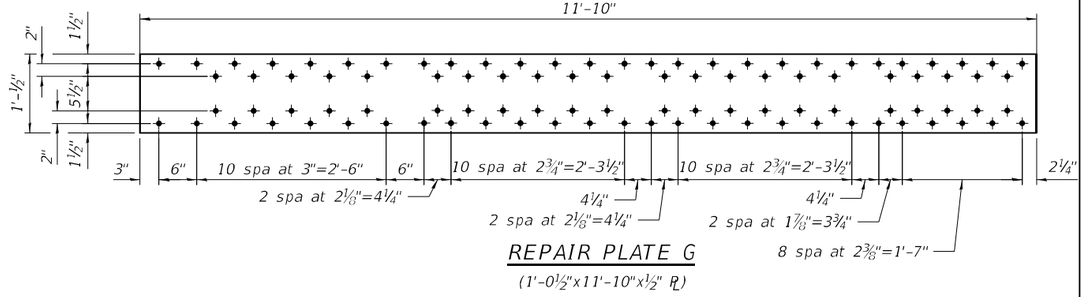
FILL PLATE E

(7"x3'-3⅞"x½" PL)



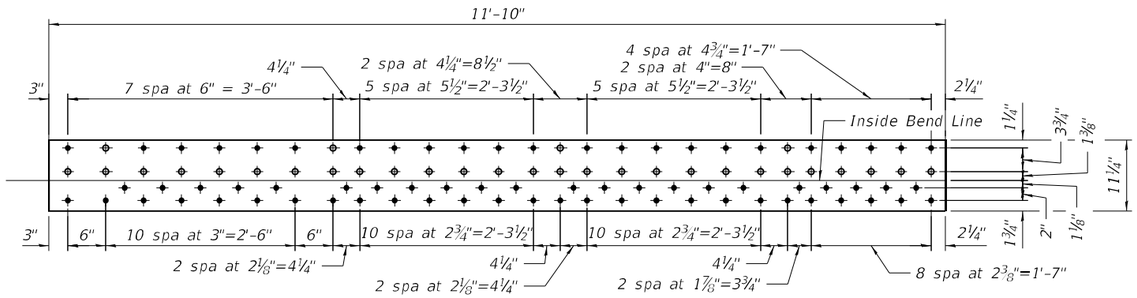
REPAIR PLATE E

(9¼"x11'-10"x⅝" PL)



REPAIR PLATE G

(1'-0½"x11'-10"x½" PL)



REPAIR PLATE F (BENT)

(Unfolded View)

(11¼"x11'-10"x½" PL)

NOTE:

1. For Bill of Material, see Sheet S03B-34.

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

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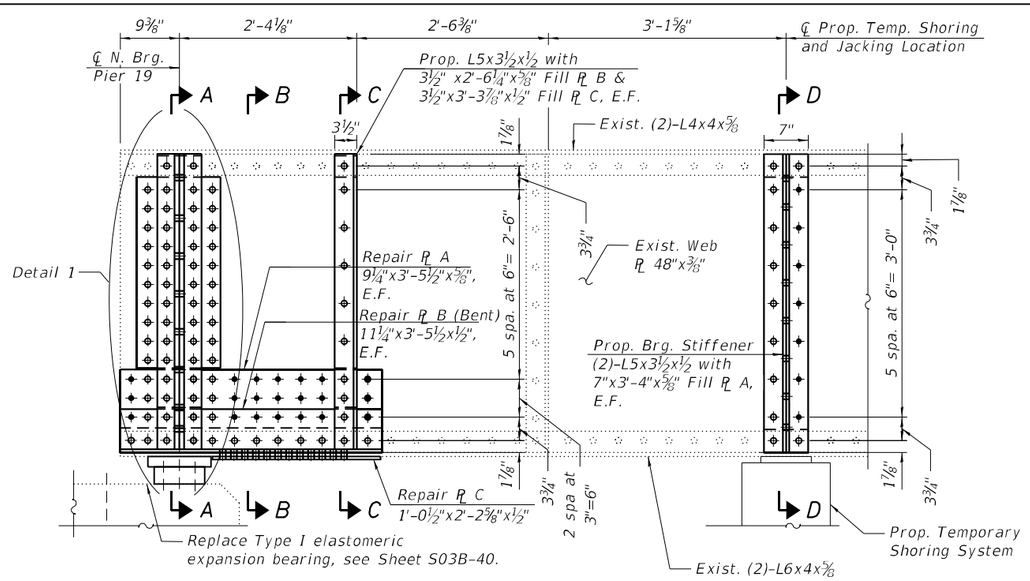
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

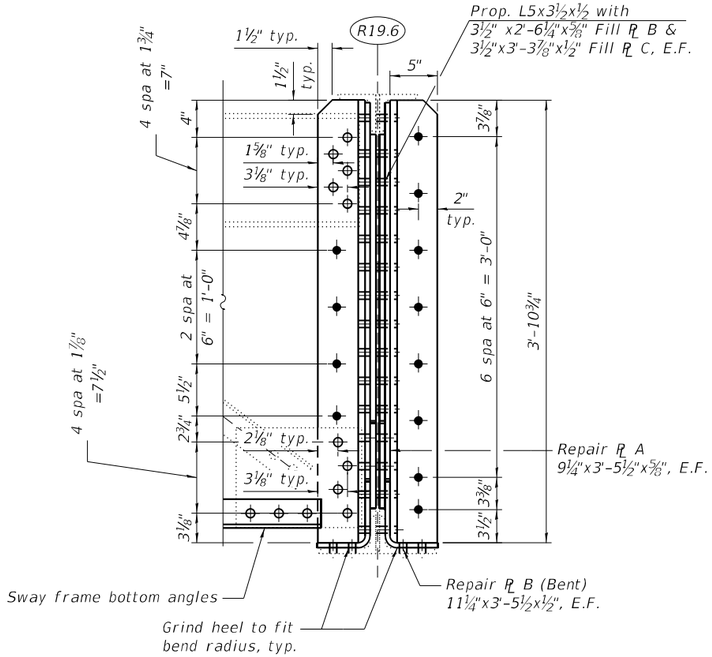
STRUCTURAL STEEL REPAIRS AT R19.6 SOUTH END (SHT. 4 OF 4)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-35 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	511
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

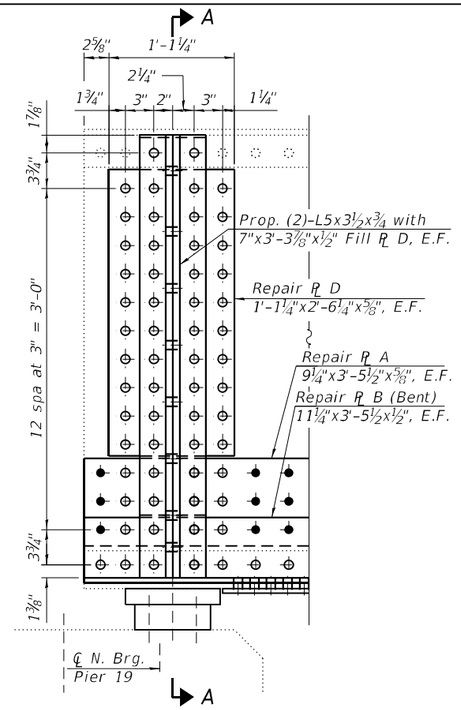


STEEL REPAIR R19.6 - ELEVATION

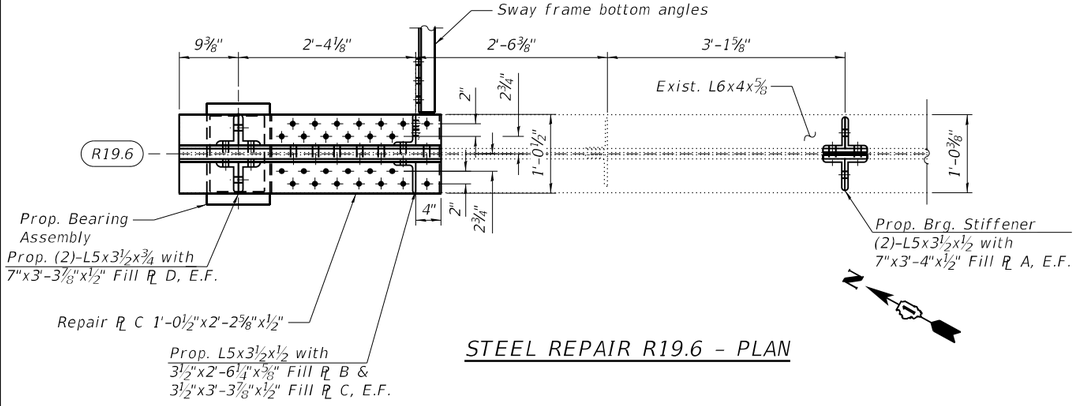
(Looking East)



SECTION A-A



DETAIL 1



STEEL REPAIR R19.6 - PLAN

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

BILL OF MATERIAL

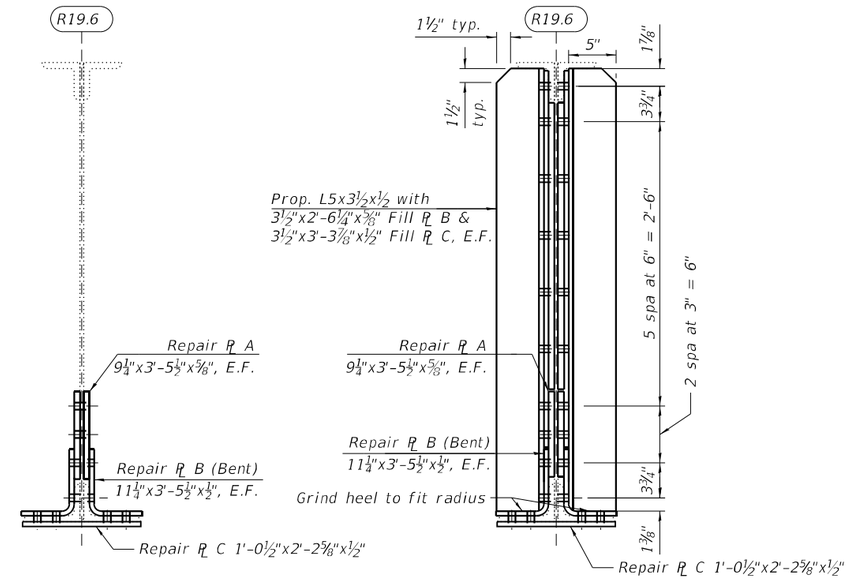
ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	1,540

NOTES:

1. For Sections B-B, C-C and D-D, and Fill and Repair Plate details, see Sheet S03B-37.
2. For Sway Frame angle replacement, see Sheet S03B-38.

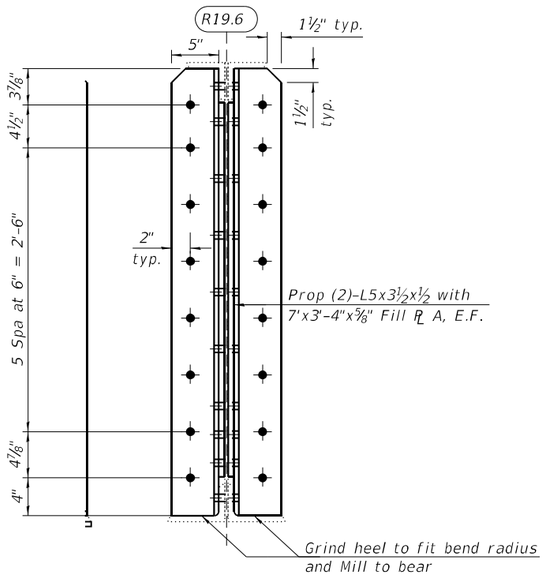
SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIR:

1. Remove existing intermediate transverse stiffeners at the proposed jacking/temp. shoring location indicated in the "Steel Repair R19.6 - Elevation" and clean/paint newly exposed faces of stringer web according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
2. Install proposed Fill Plate A and bearing stiffeners at the prop. jacking/temp. shoring location indicated in the "Steel Repair R19.6 - Elevation" and erect prop. Temporary Shoring tower. See Special Provision for "Temporary Shoring."
3. Jack stringer to relieve pressure at existing bearing. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.
4. Remove existing intermediate transverse stiffeners, stringer bearing stiffeners and elastomeric bearing within the limits of repair area. Clean/paint newly exposed faces of stringer according to the Special Provision for "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
5. Construct templates for location of existing rivets, bolts and fabrication of fill and repair plates.
6. Install proposed Fill Plates, Repair Plates, Intermediate Transverse Stiffeners, Elastomeric Bearing and Bearing Stiffeners at north end of Stringer R19.6 as indicated in the Plans.
7. Remove Temporary Shoring Tower.

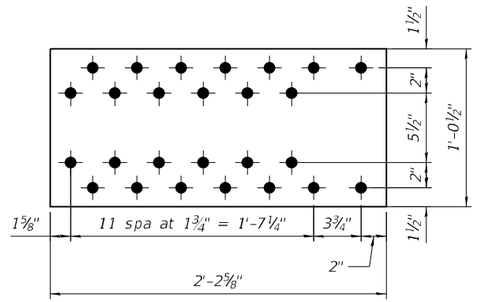


SECTION B-B

SECTION C-C



SECTION D-D

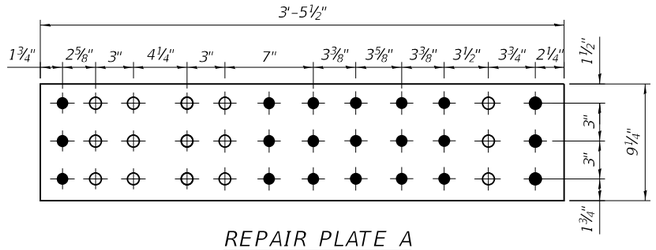


REPAIR PLATE C

(1'-0½"x2'-2⅝"x½" PL)

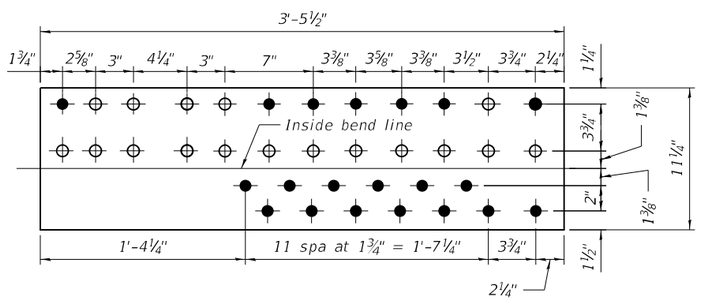
NOTE:

1. For Bill of Material, see Sheet S03B-36.



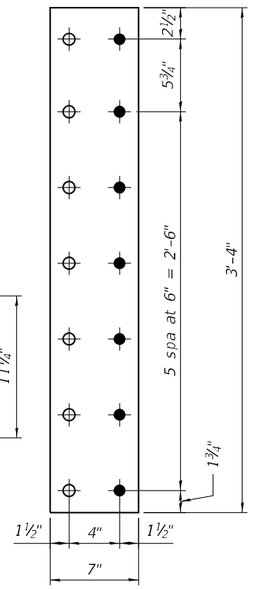
REPAIR PLATE A

(9¼"x3'-5½"x⅝" PL)



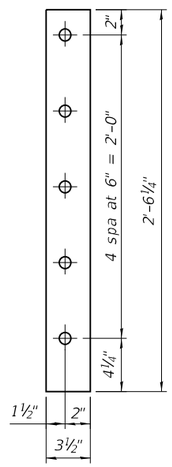
REPAIR PLATE B

(11¼"x3'-5½"x½" PL)



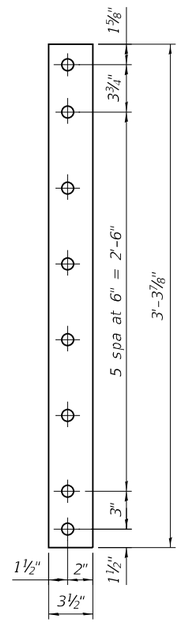
FILL PLATE A

(7"x3'-4"x⅜" PL)



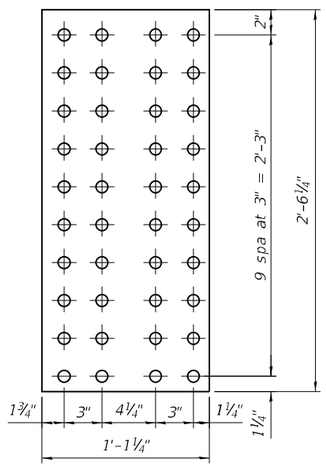
FILL PLATE B

(3½"x2'-6¼"x⅝" PL)



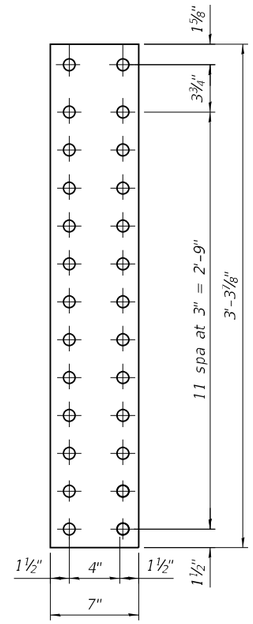
FILL PLATE C

(3½"x3'-3⅞"x½" PL)



REPAIR PLATE D

(1'-1¼"x2'-6¼"x⅜" PL)



FILL PLATE D

(7"x3'-3⅞"x½" PL)

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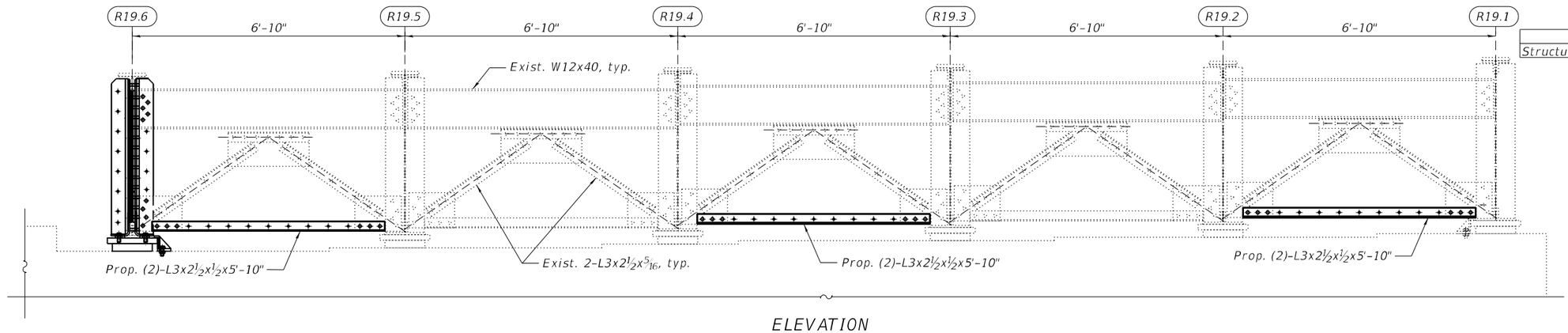
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

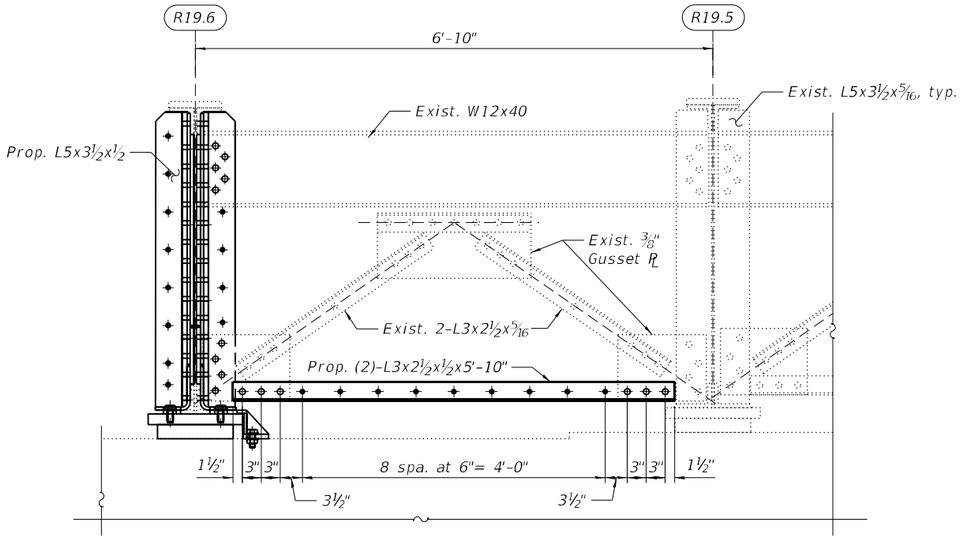
STRUCTURAL STEEL REPAIRS AT R19.6 NORTH END (SHT. 2 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-37 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	513
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



ELEVATION

(Looking North)



TYPICAL PARTIAL ELEVATION

(Looking North)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	350

LEGEND

- ○ Field drill holes in new steel using existing steel as a template
- • Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

NOTE:

1. For Stringer R19.6 repairs at north end, see Sheets S03B-36 and S03B-37.

SUGGESTED CONSTRUCTION SEQUENCE FOR BOTTOM ANGLE REPLACEMENT OF SWAY FRAME BETWEEN STRINGERS:

1. Remove existing bottom chord angle (2-L3x2½x5/16) and rivets of the sway frame and clean/paint newly exposed faces of gusset plates according to the special provision for Cleaning and Painting Contact Surface Areas of Existing Steel Structures.
2. Construct templates for location of existing rivets, bolts and fabrication of new angles.
3. Install newly fabricated angles using H.S. bolts.

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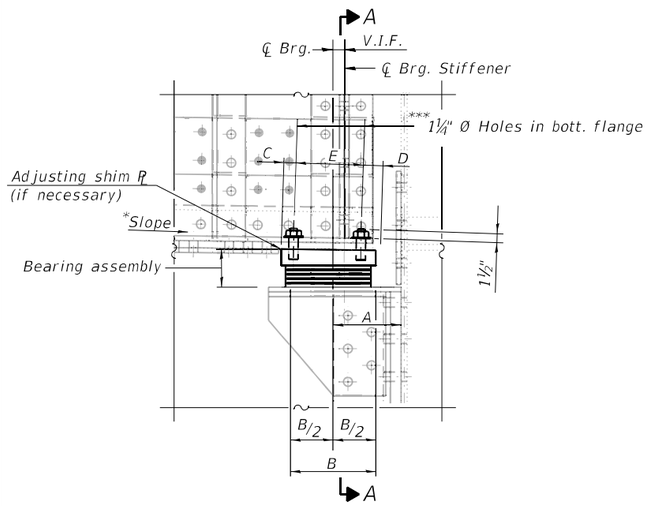
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

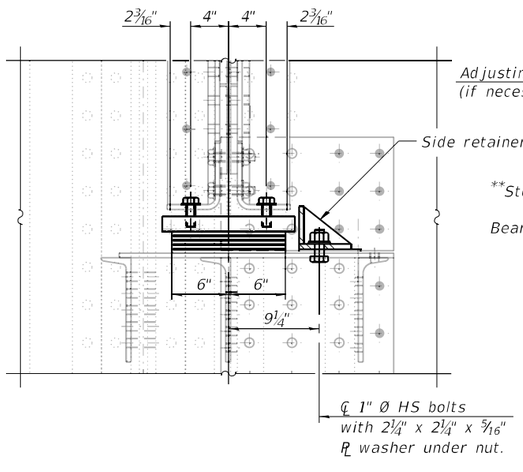
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS AT SWAY FRAMES (PIER 19)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-38 OF S03B-40 SHEETS

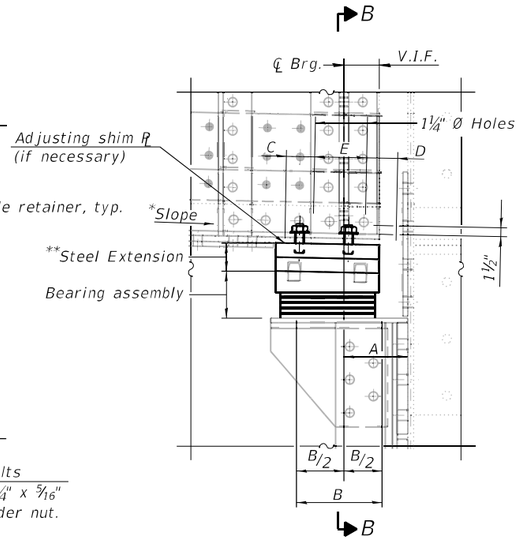
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	514
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



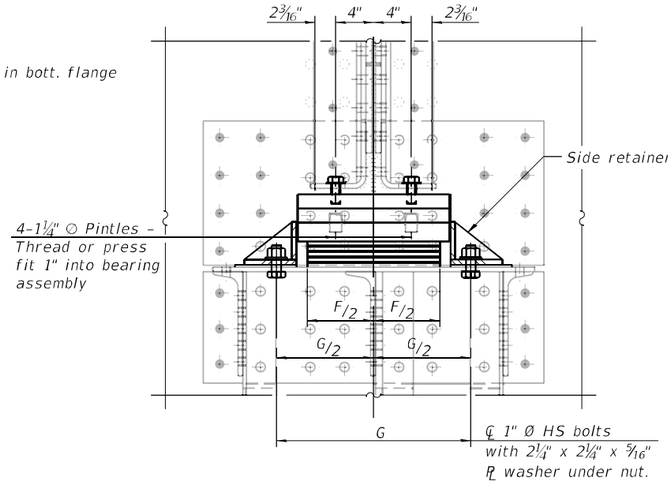
ELEVATION AT STEEL CROSS-GIRDER



SECTION A-A



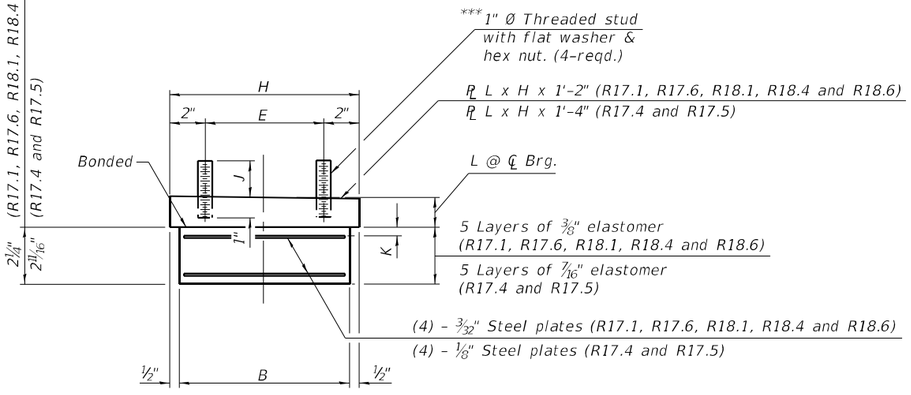
ELEVATION AT STEEL CROSS-GIRDER



SECTION B-B

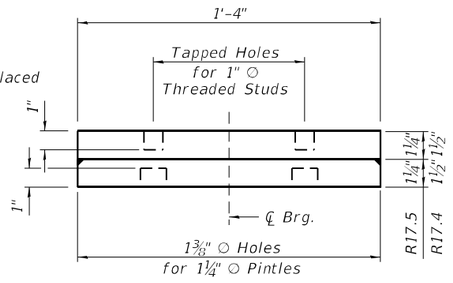
TYPE I ELASTOMERIC EXP. BRG.

(R17.1 at Pier 16)
(R18.6 at Pier 18)



BEARING ASSEMBLY

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



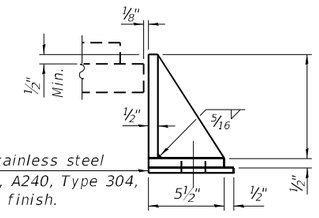
ELEVATION STEEL EXTENSION

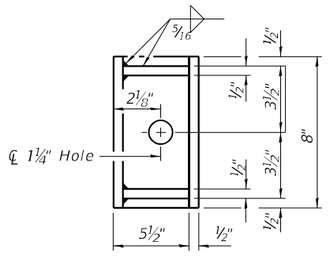
(R17.4 and R17.5)

*Slope shall be as follows:
1.9% at R17.1 and R17.4 thru R17.6
2.0% at R18.1, R18.4 and R18.6

**At R17.4, R17.5, R18.1 and R18.4 only

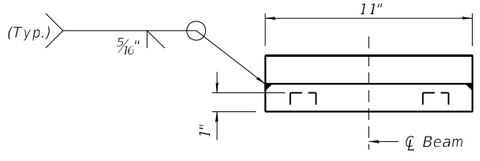
***Omit threaded studs and holes in bottom flange located south of bearing stiffeners at stringers R17.1 and R17.4 thru R17.6





SIDE RETAINER

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



END VIEW STEEL EXTENSION

(R17.4 and R17.5)

TYPE I ELASTOMERIC EXP. BRG.

(R17.4 thru R17.6 at Pier 16)
(R18.1 and R18.4 at Pier 18)

BEARING DATA TABLE

	Location						
	R17.1	R17.4	R17.5	R17.6	R18.1	R18.4	R18.6
A	7 11/16"	8½"	8½"	8½"	7 11/16"	7 11/16"	7 11/16"
B	9"	10"	10"	9"	9"	9"	9"
C	1 5/16"	2½"	2¼"	1 5/8"	1¾"	2"	2"
D	–	–	–	–	1¾"	2"	2"
E	–	–	–	–	6½"	6"	6"
F	12"	14"	14"	12"	12"	12"	12"
G							
H	10"	11"	11"	10"	10"	10"	10"
J	2¾"	2 5/8"	2 5/8"	2¾"	2½"	2½"	2½"
K	¾"	7/16"	7/16"	⅜"	⅜"	¾"	¾"
L	1 7/8"	2"	2"	1 7/8"	1 7/8"	2"	2"

NOTES:

1. For Steel Extension Details at R18.1 and R18.4, see Sheet S03B-40.
2. Side retainers, stainless steel plates and 1" ○ H.S. bolts with associated nuts and washers, shall be included in the cost of Elastomeric Bearing Assembly, Type I.
3. Anchor bolts and side retainers at all supports shall be installed as each bearing is replaced unless an equivalent temporary means of lateral restraint is used.
4. The Structural steel plates of the Bearing Assembly, steel extensions and pintles shall conform to the requirements of AASHTO M270 Grade 50.
5. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
6. All (embedded and separate) bearing plates, side retainers, anchor bolts, HS bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
7. Steel extensions and pintles shall be included in the cost of Furnishing and Erecting Structural Steel.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	770
Elastomeric Bearing Assembly, Type I	Each	9
Anchor Bolts, 1"	Each	8
Removal Of Existing Bearings	Each	9

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HBM ENGINEERING GROUP, LLC

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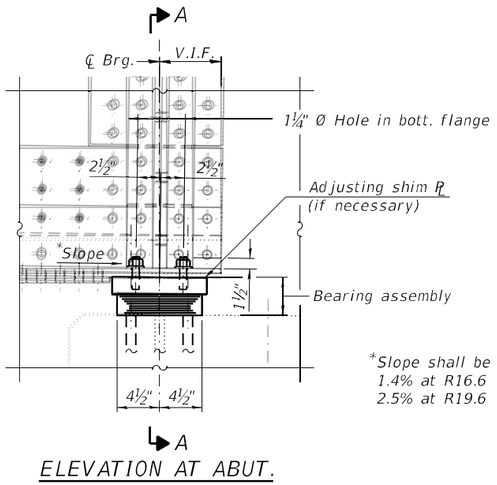
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - JJS	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

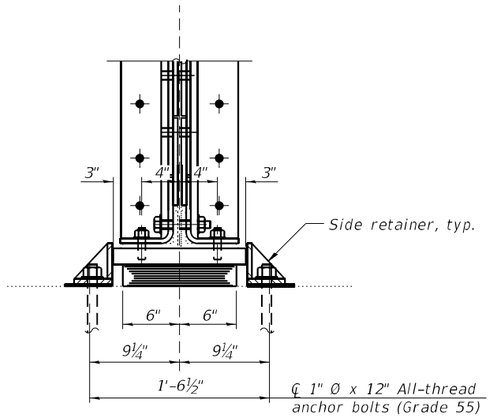
ELASTOMERIC BEARING DETAILS (SHT. 1 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-39 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	515
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



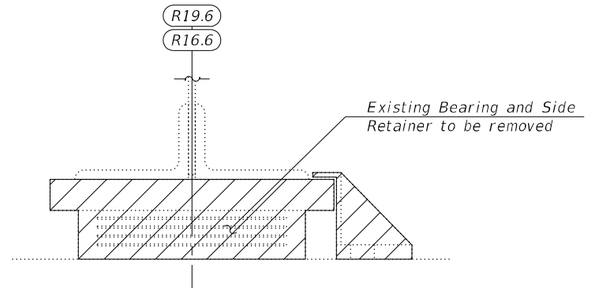
*Slope shall be as follows:
1.4% at R16.6
2.5% at R19.6

ELEVATION AT ABUT.



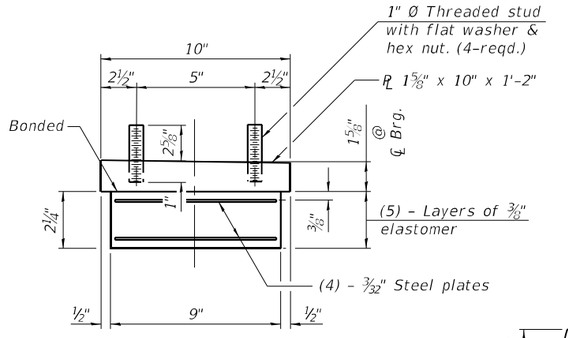
℄ 1" Ø x 12" All-thread anchor bolts (Grade 55) with 2¼" x 2¼" x 5/16" PL washer under nut.

SECTION A-A



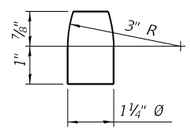
EXIST. TYPE I BEARING
(R16.6 at Pier 15)
(R19.6 at Pier 19)

TYPE I ELASTOMERIC EXP. BRG.
(R16.6 at Pier 15)
(R19.6 at Pier 19)

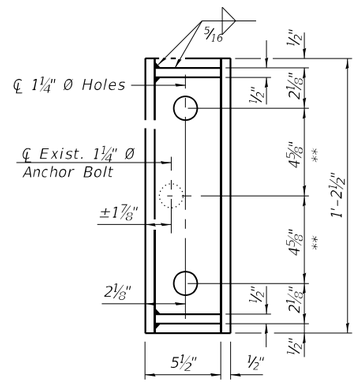


BEARING ASSEMBLY

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

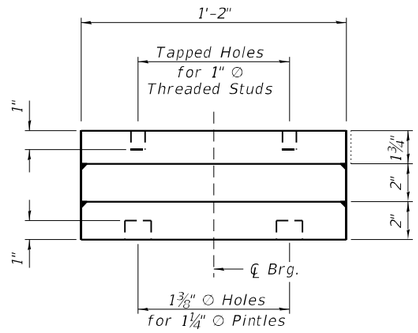


PINTLE

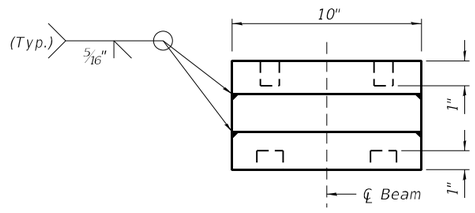


SIDE RETAINER
(R16.6 at Pier 15)
(R19.6 at Pier 19)

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



ELEVATION STEEL EXTENSION
(R18.1 and R18.4)



END VIEW STEEL EXTENSION
(R18.1 and R18.4)

NOTE:

1. For Bill of Material and additional notes, see Sheet S03B-39.

**The proposed anchor bolts have been located to miss existing pier cap main reinforcement per information obtained from existing plans. The Contractor shall locate the existing pier cap main reinforcement using non-destructive methods and confirm acceptability of proposed anchor bolt locations as presented in the plans or propose an alternate location for approval by the Engineer. Such measurements and approvals shall be obtained prior to fabrication of the bearing side retainers.

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HBM ENGINEERING GROUP, LLC

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	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - JJS	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

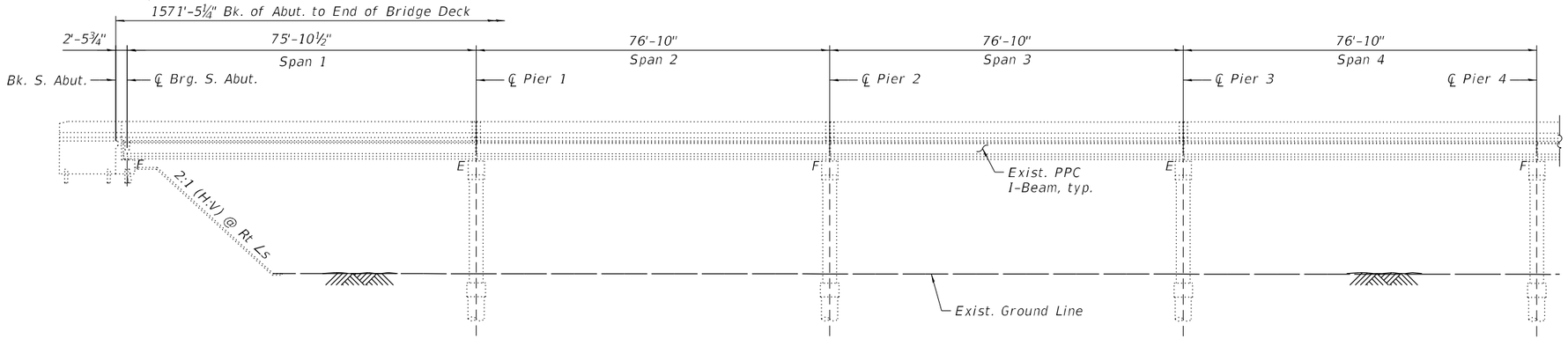
ELASTOMERIC BEARING DETAILS (SHT. 2 OF 2)
STRUCTURE NO. 016-0133 (REV)
SHEET S03B-40 OF S03B-40 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	516
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

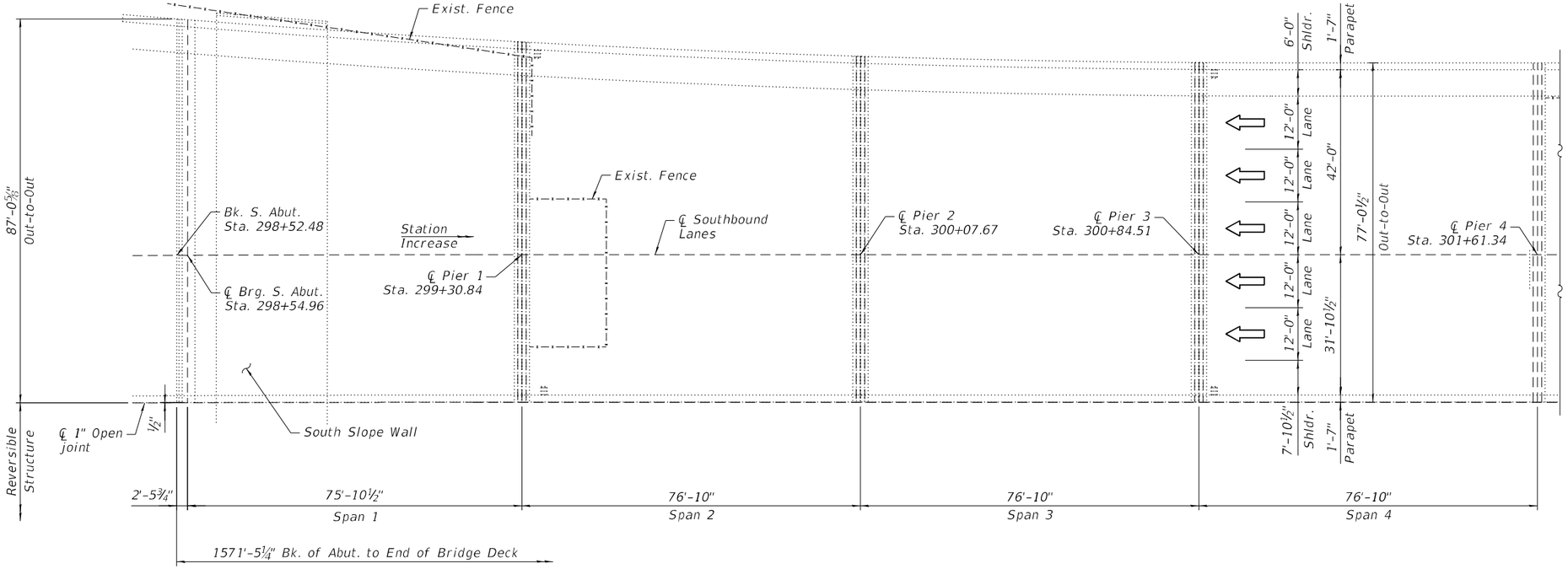
Existing Structure: S.N. 016-0133 was originally built in 1959 from BCR. In 1990, the existing substructures were repaired and widened. The superstructure and deck were widened in 1992, and in 2013 PPC I-Beam repairs, steel beam repairs, and expansion joint repairs were performed. The bridge consists of a total of 25 spans, typically comprised of a 7½" thick reinforced concrete deck supported on PPC I-beam simple spans, and steel girders with floorbeams and stringers in spans over Ashland Ave and Cortland St. The structure has a back-to-back abutment length of 1,571'-5¼" and an out-to-out deck width varying from 77'-0½" to 96'-7⅛". The superstructure is supported by reinforced concrete piers founded on cassions, and abutments founded on concrete piles.

The southbound lanes will remain open to traffic during construction.

No salvage.



ELEVATION
(Looking West)



PLAN

SCOPE OF WORK

1. Perform temporary shoring and cribbing at locations shown in the plans.
2. Perform Structural Steel Repair for girders, stringers and bearings.

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specification for Highway Bridges, 17th Edition

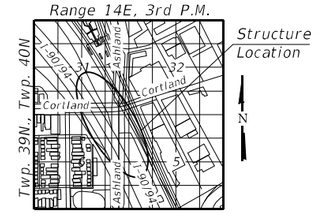
NOTE:

1. All stations are to the ℄ I-90/94 SB Roadway and taken from existing plans.
2. No Future Wearing Surface is allowed.

KEVIN WOOD
081-006515
LICENSED STRUCTURAL ENGINEER OF ILLINOIS

Kevin Wood

Engineer Full Name: Kevin Wood Date: 04-29-2024
Illinois Registered Engineer No. 081-006515
Registration Expires 11. 30, 2024



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
SB I-90/94 OVER ASHLAND AVE
FAI 90/94 SEC 2020-005-BR
COOK COUNTY
STATION: 308+28.51
STRUCTURE NO. 016-0133 (SB)

MODEL: $MODELNAME$
FILE NAME: $FILE$

GRAEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

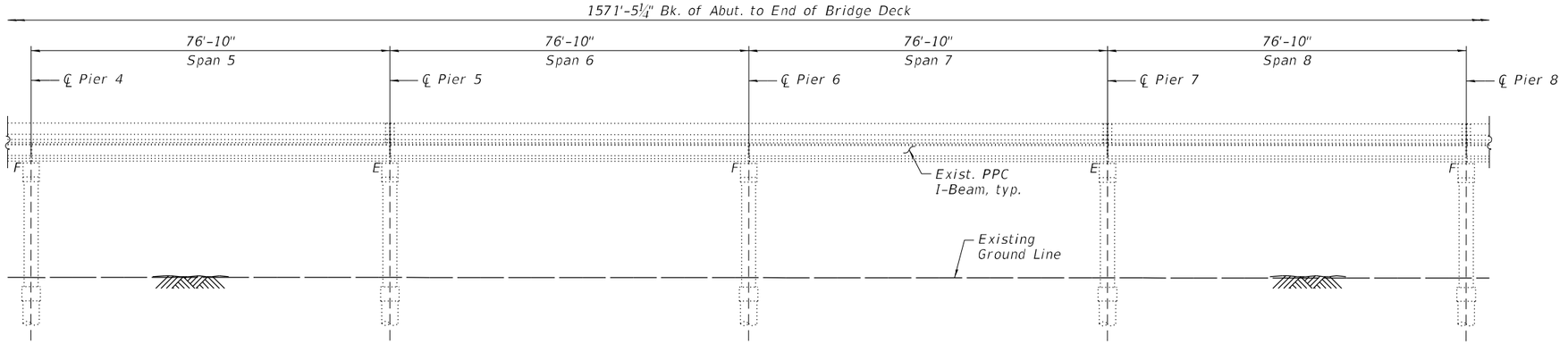
$DATE$ $TIME$

USER NAME =	DESIGNED - J.T.B.	REVISED	
	CHECKED - H.A.	REVISED	
PLOT SCALE =	DRAWN - D.C.P.	REVISED	
PLOT DATE =	CHECKED - K.G.W.	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

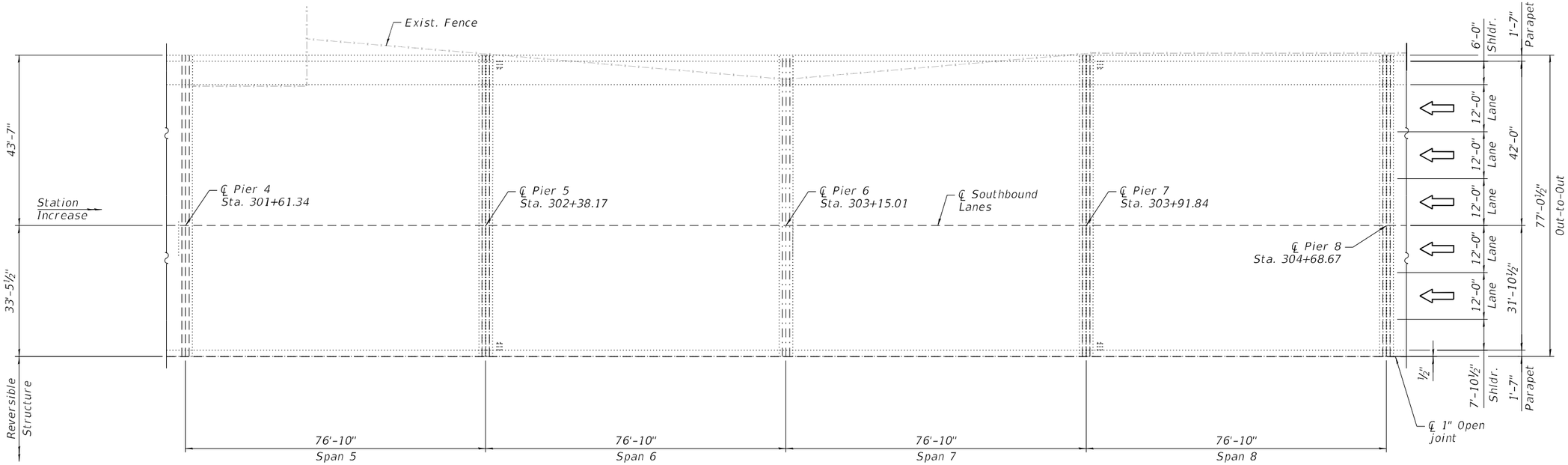
SHEET S03C-01 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	517
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking West)

N



PLAN

MODEL: $MODELNAME$
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GRÄEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

$DATE$ $TIME$

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PLOT SCALE =	DRAWN - D.C.P.	REVISED	
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
SN 016-0133 (SB)
SHEET S03C-02 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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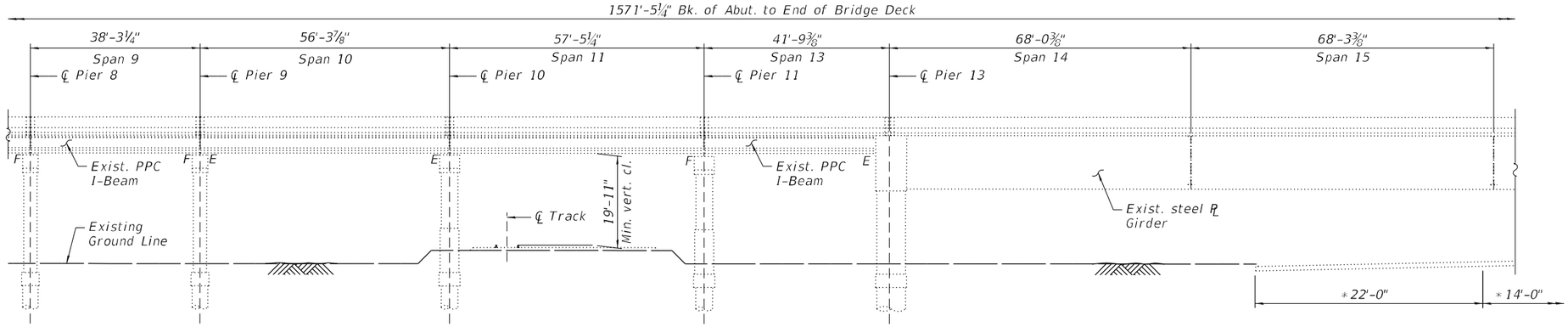
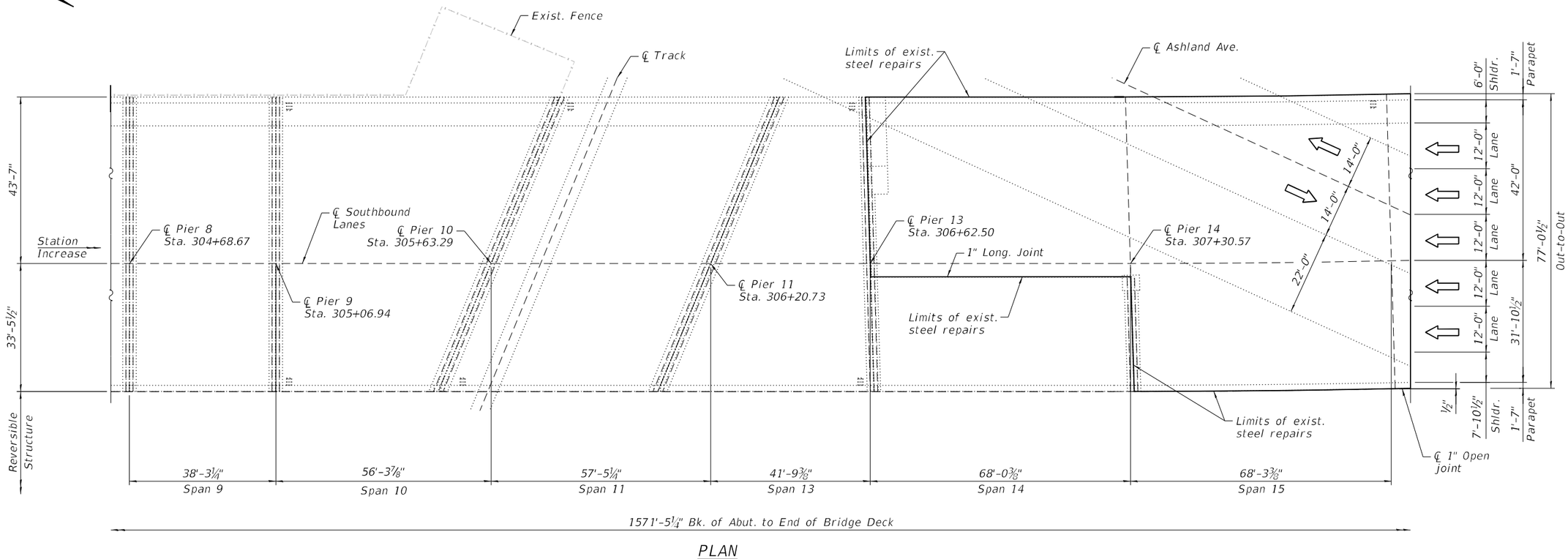
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



*Dimension at right angle

ELEVATION
(Looking West)

N



PLAN

MODEL: $MODELNAME$
FILE NAME: $FILE$

$DATE$ $TIME$

GRÄEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631 (773) 399-0112

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	CHECKED -	H.A.	REVISED
PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
SN 016-0133 (SB)
SHEET S03C-03 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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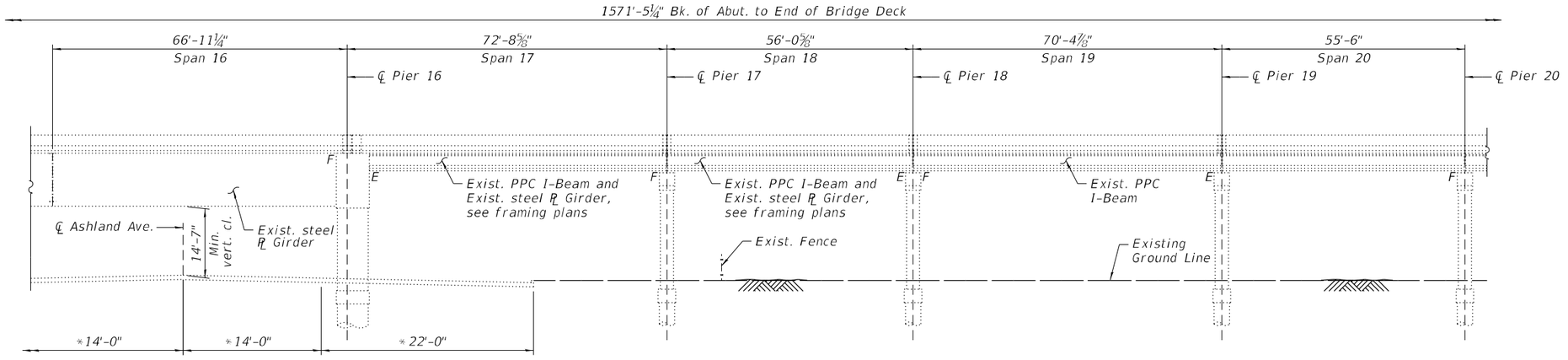
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



ELEVATION
(Looking West)

*Dimension at right angle

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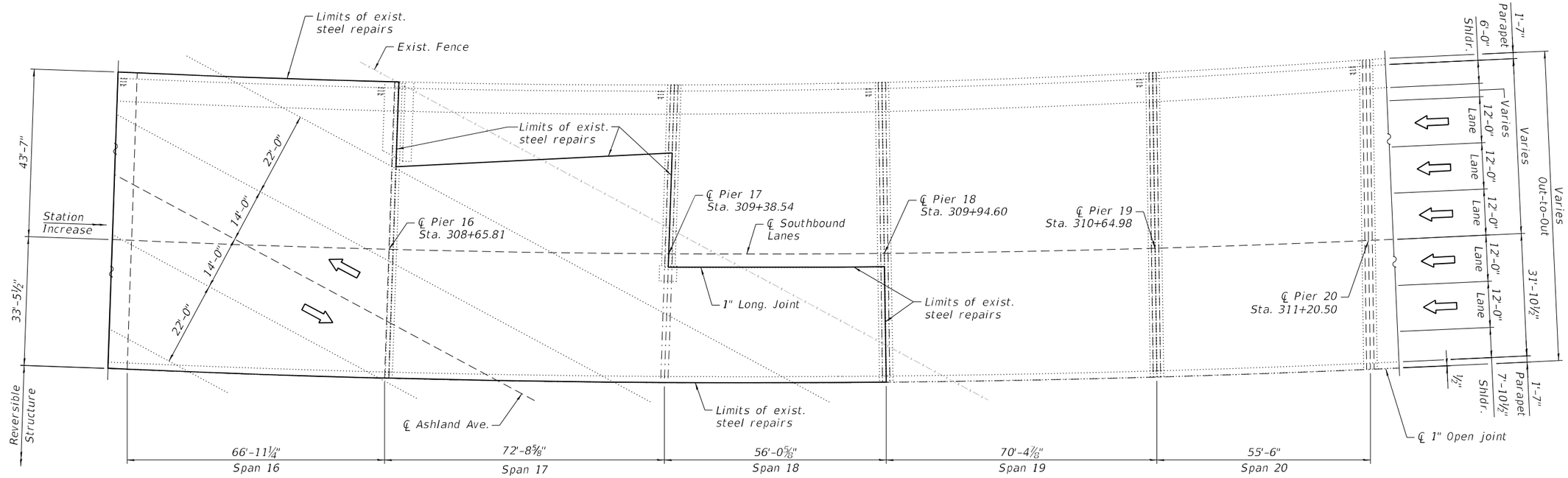

PLAN

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GRAEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

$DATE$ $TIME$

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	CHECKED - H.A.	REVISED	
PLOT SCALE =	DRAWN - D.C.P.	REVISED	
PLOT DATE =	CHECKED - K.G.W.	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
SN 016-0133 (SB)

SHEET S03C-04 OF S03C-21 SHEETS

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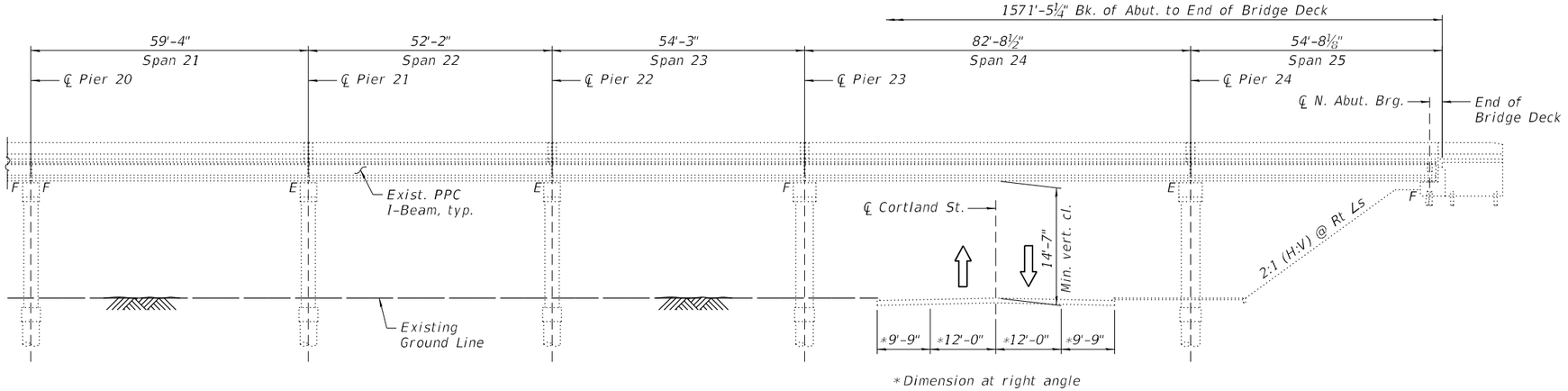
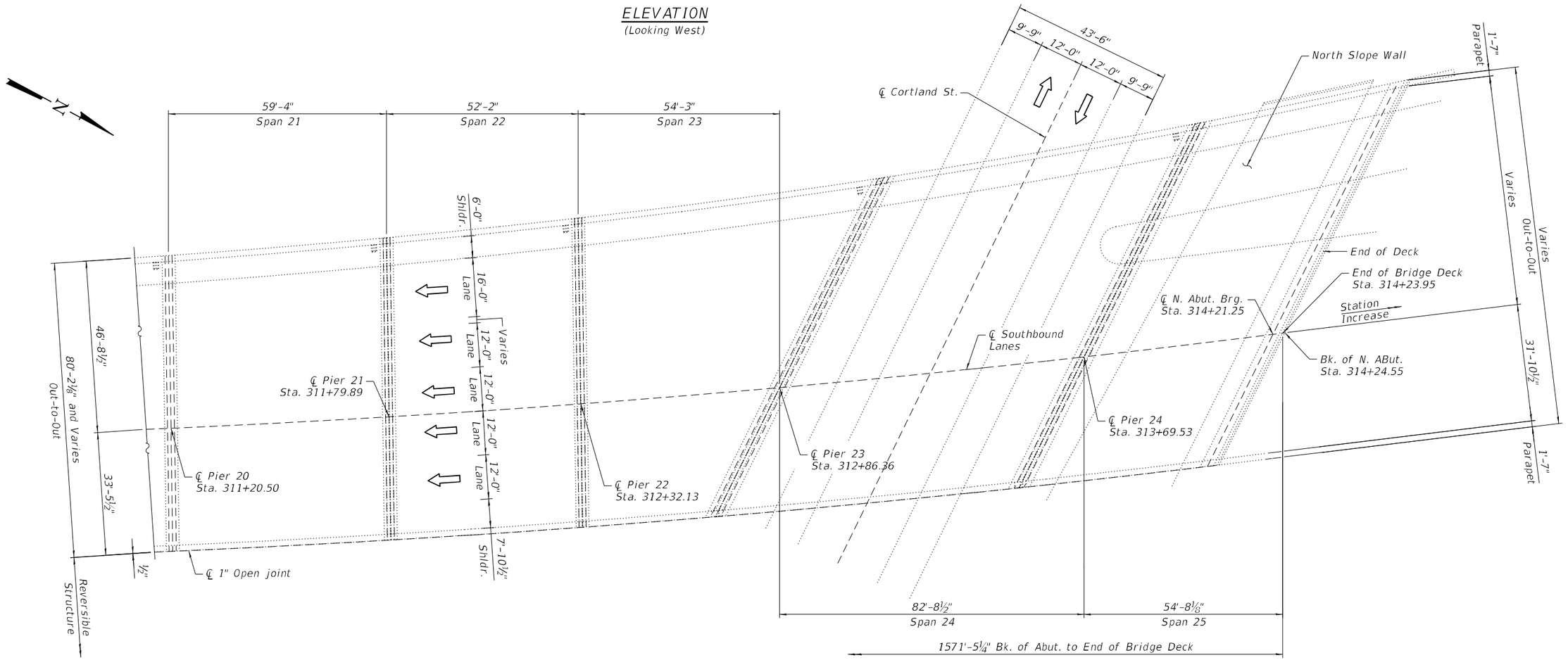


ELEVATION
(Looking West)



PLAN

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GRAEF
8501 W. Higgins Road Suite 280
Chicago, Illinois 60631 (773) 399-0112

USER NAME =	DESIGNED - J.T.B.	REVISED	
	CHECKED - H.A.	REVISED	
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PLOT DATE =	CHECKED - K.G.W.	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
SN 016-0133 (SB)
SHEET S03C-05 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	521
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

GENERAL NOTES

1. Fasteners shall be ASTM F 3125 Grade A325 Type 1, hot-dip galvanized bolts. Bolts 7/8" dia., holes 15/16" dia. unless otherwise noted.

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

3. 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 be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity furnished at the unit price bid for the work.

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

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

7. All new structural steel, connection bolts, nuts and washers shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanized for Structural Steel".

8. 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.

9. 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".

10. The Contractor shall contact Chandra Libby, the Director of City of Chicago Department of Family Support Services (DFSS) at 312-746-5443 or Chandra.Libby@cityofchicago.org to coordinate the relocation of persons and their personal belongings under the bridges.

11. Where existing structural steel is shown to be removed, the Contractor shall exercise care during removal of existing structural steel to ensure that the adjacent structural steel will not be detrimentally impacted. The Contractor shall repair any damage to the existing structural steel caused by his operation as directed by the Engineer at no additional cost to the Department.

12. Where removal of existing rivets is required to facilitate the work, remove rivets and replace with the same diameter high strength bolts, unless noted otherwise.

13. Burning of existing rivets or bolts will not be permitted when the subject fasteners are installed in existing structural steel to remain in place. Such rivets and bolts shall have the head of the fastener sheared off and the shank driven or drilled out. Care shall be exercised when removing such fasteners so as not to damage the existing structural steel to remain. Removal of such fasteners will not be measured for payment but shall be included in the cost of the associated work. Any damage to the existing structural steel to remain in place due to the removal of such fasteners shall be repaired or replaced as directed by the Engineer at no additional cost to the Department.

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

15. Ends of stiffener angle fill plates shall be clipped and/or ground to match top and bottom flange angle fillets. Cost included in Structural Steel Repair.

16. Anchor rods shall be ASTM F1554, Grade 55.

17. Anchor rods shall be installed according to Article 521.06 of the Standard Specifications.

21. Repairs and replacements shown are based on field inspection. Conditions in the field may have changed. Contractor to verify all components for repair or replacement as directed by the Engineer.

22. Contractor shall field verify the required bolt length of thread necessary to install all bolts in accordance with the Standard Specifications and Section 8.2.1 of the 2004 RCSC "Specification for Structural Joints using ASTM A325 or A490 Bolts."

23. Prior to ordering any material, the Contractor shall verify in the field all proposed steel dimensions, rivet and bolt spacing, bearing heights and shim plate thickness dimensions.

INDEX OF SHEETS

SUGGESTED CONSTRUCTION SEQUENCE FOR STRINGER REPAIRS

1. Prior to removal of bearing and intermediate stiffeners, the existing stringer shall be temporary supported. See Special Provision for Temporary Shoring and Cribbing.

2. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.

3. Clean exterior faces of existing steel (angles, plates and gusset plates) according to the special provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".

4. Construct template for location of existing rivets/bolts and fabrication of fill and repair plates and angles.

5. Place proposed bearing/intermediate stiffener angles with holes centered with centerline of existingrivets/bolts.

6. Field drill holes as required and secure proposed stiffener angles to stringer using erection pins/rods.

7. Starting at one end, remove one rivet/bolt/erection pin/rod at a time and replace with a 7/8" diameter H.S. bolt. Proceed until all rivets/bolts/erection pins (or rods) are replaced.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Elastomeric Bearing Assembly, Type I	Each	7		7
Elastomeric Bearing Assembly, Type III	Each	1		1
Anchor Bolts, 1¼"	Each	4		4
Jack and Remove Existing Bearings	Each	8		8
Structural Steel Repair	Pound	5,430		5,430
Protect and Maintain Existing Underpass Luminaire	L Sum	0.08		0.08
Temporary Shoring and Cribbing	Each	13		13

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
SN 016-0133 (SB)
SHEET S03C-06 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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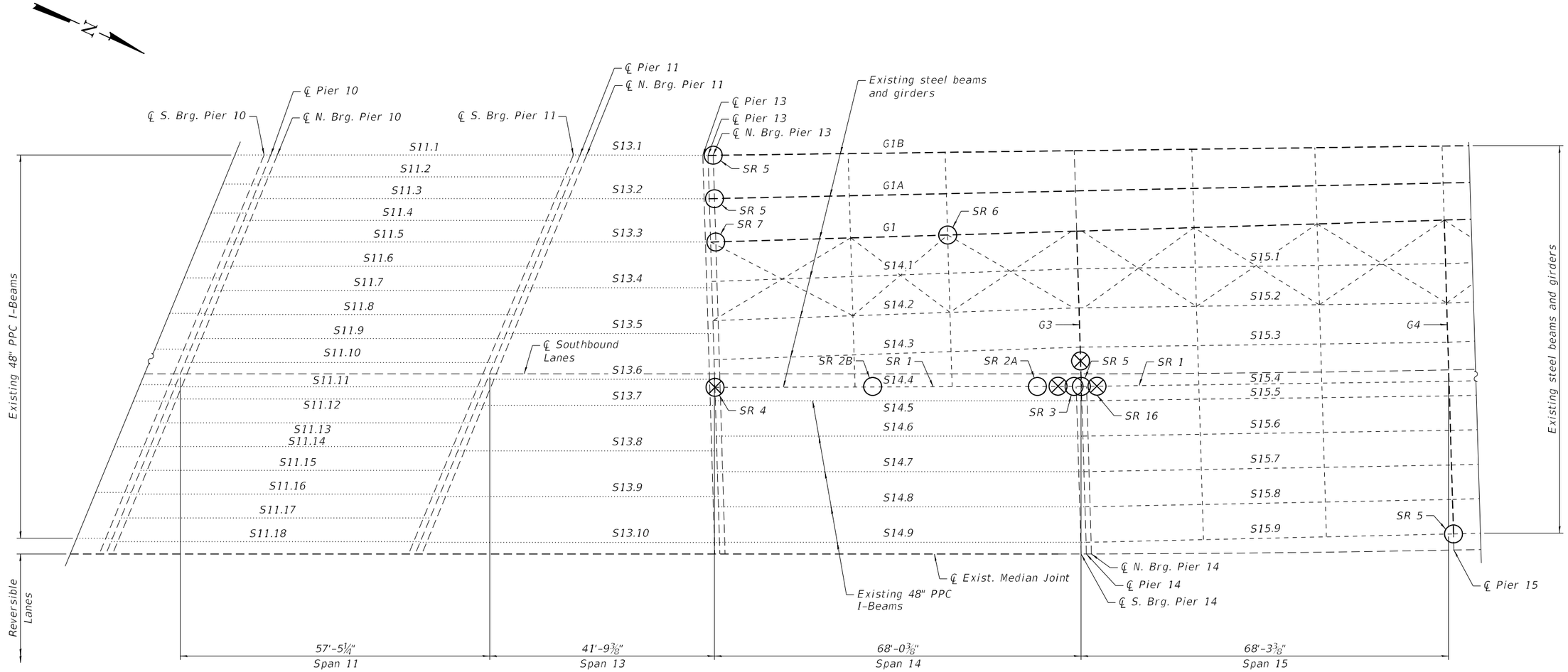
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



PARTIAL FRAMING PLAN

NOTES:

1. For Steel Repair 1, see Sheet S03C-09 and S03C-13.
2. For Steel Repair 2A, see Sheet S03C-09.
3. For Steel Repair 2B, see Sheet S03C-11.
4. For Steel Repair 3, see Sheet S03C-10.
5. For Steel Repair 4, see Sheet S03C-11.
6. For Steel Repair 5, see Sheet S03C-12.
7. For Steel Repair 6, see Sheet S03C-12.
8. For Steel Repair 7, see Sheet S03C-12.
9. For Steel Repair 16, see Sheet S03C-13.

BEAM REACTION TABLE

LOADS	STRINGER		GIRDER
	S14.4	S15.4	G3
R DL (k)	22.5	28.2	165.2
R LL (k)	35.7	39.1	185.1
R IM (k)	9.3	10.1	44.8
R Total (k)	67.5	77.4	395.1

LEGEND

- ..... Existing PPC I-Beam
- - - - - Existing steel beam, cross frame & lateral bracing
- — — — Existing steel girder
- SR xx Steel Repair
- ⊗ Temporary Shoring and Cribbing

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PARTIAL FRAMING PLAN I
SN 016-0133 (SB)
SHEET S03C-07 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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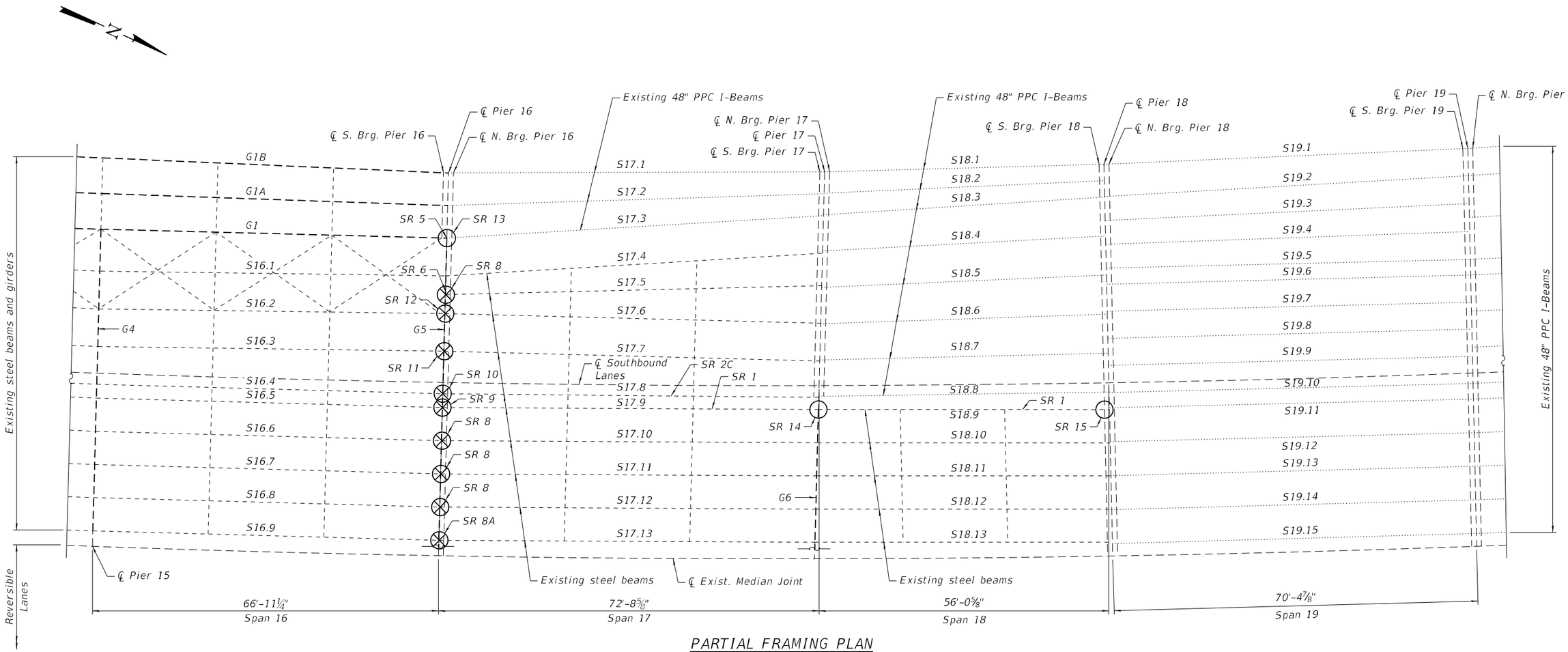

PARTIAL FRAMING PLAN

NOTES:

1. For Steel Repair 1, see Sheets S03C-13, S03C-18 and S03C-19.
2. For Steel Repair 2C, see Sheet S03C-17.
3. For Steel Repair 8 and 8A, see Sheet S03C-15.
4. For Steel Repair 9, see Sheet S03C-15.
5. For Steel Repair 10, see Sheet S03C-15.
6. For Steel Repair 11, see Sheet S03C-15.
7. For Steel Repair 12, see Sheet S03C-15.
8. For Steel Repair 13, see Sheet S03C-16.
9. For Steel Repair 14, see Sheet S03C-16.
10. For Steel Repair 15, see Sheet S03C-19.

BEAM REACTION TABLE

STRINGER REACTION TABLE	STRINGER NUMBER						
	S17.5	S17.6	S17.7	S17.8	S17.9	S17.10 S17.11 S17.12	S17.13
R DL (k)	32.6	36.5	40.9	32.9	31.1	37.8	33.3
R LL (k)	43.4	46.3	49.1	39.4	38.1	45.9	35.9
R IM (k)	11.1	11.8	12.5	10.0	9.7	11.7	9.1
R Total (k)	87.1	94.6	102.5	82.3	78.9	95.4	78.3

LEGEND

- Existing PPC I-Beam
- Existing steel beam, cross frame & lateral bracing
- Existing steel girder
- SR xx — Steel Repair
- ⊗ — Temporary Shoring and Cribbing

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PARTIAL FRAMING PLAN II
SN 016-0133 (SB)
SHEET S03C-08 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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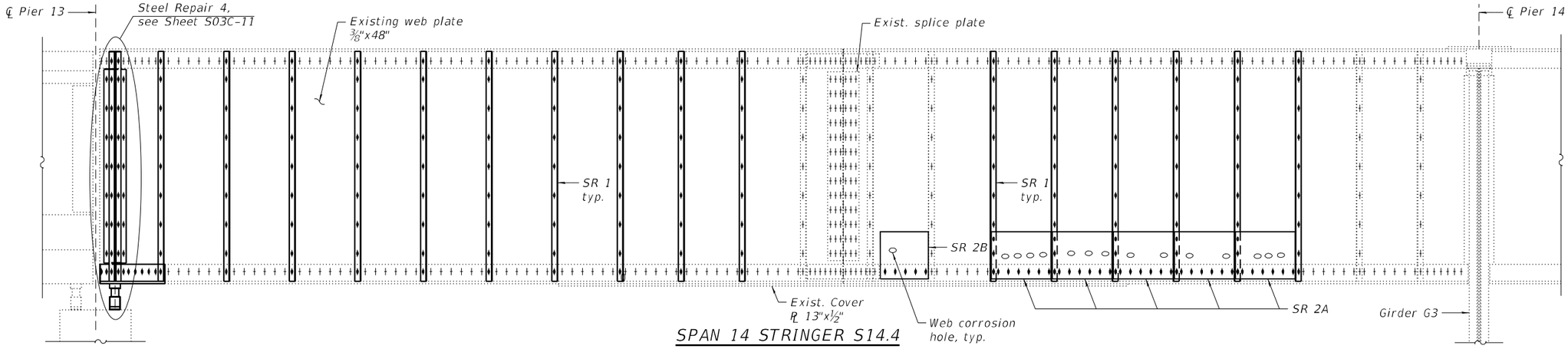
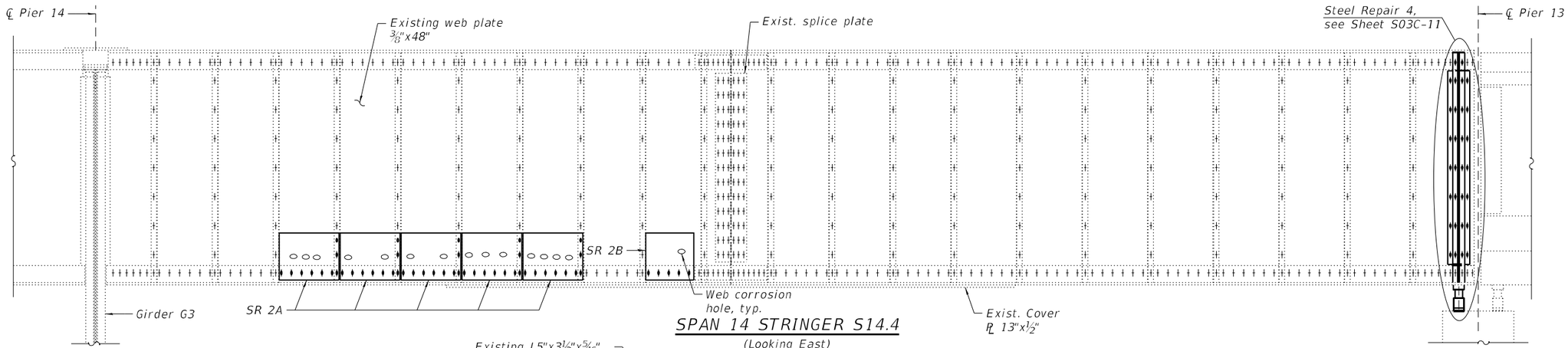


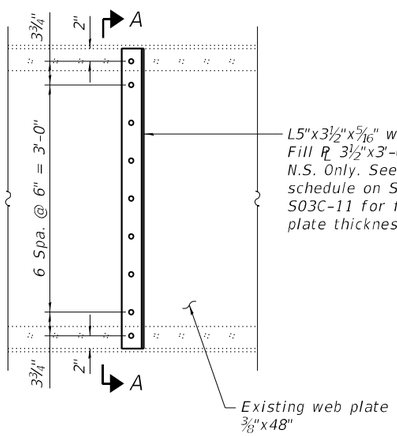
SPAN 14 STRINGER S14.4

(Looking West)



SPAN 14 STRINGER S14.4

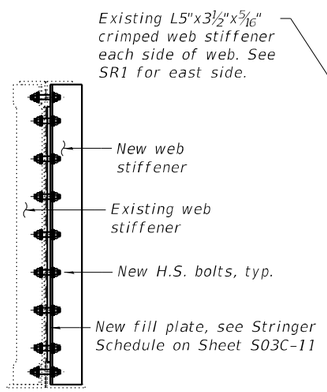
(Looking East)

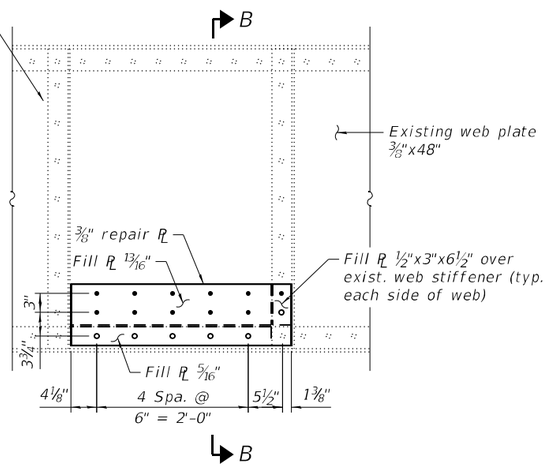


STEEL REPAIR 1

Stringer web stiffener replacement
(16 Req'd)

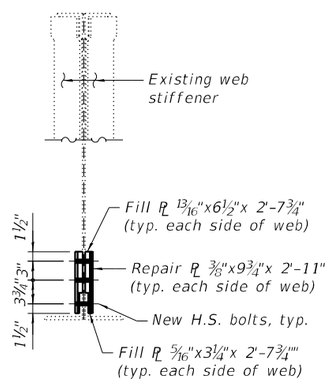
SECTION A-A





STEEL REPAIR 2A

Web Corrosion Hole Repair
(5 Req'd)



SECTION B-B

NOTES

1. For Steel Repair 2B see Sheet S03C-11.

LEGEND

SR Steel Repair

Existing Bolt/Rivet to Remain

Remove Existing Bolt/Rivet and Install New Bolt

Drill New Bolt hole and Install New Bolt

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STATE OF ILLINOIS
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STRUCTURAL STEEL REPAIRS I
SN 016-0133 (SB)

SHEET S03C-09 OF S03C-21 SHEETS

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

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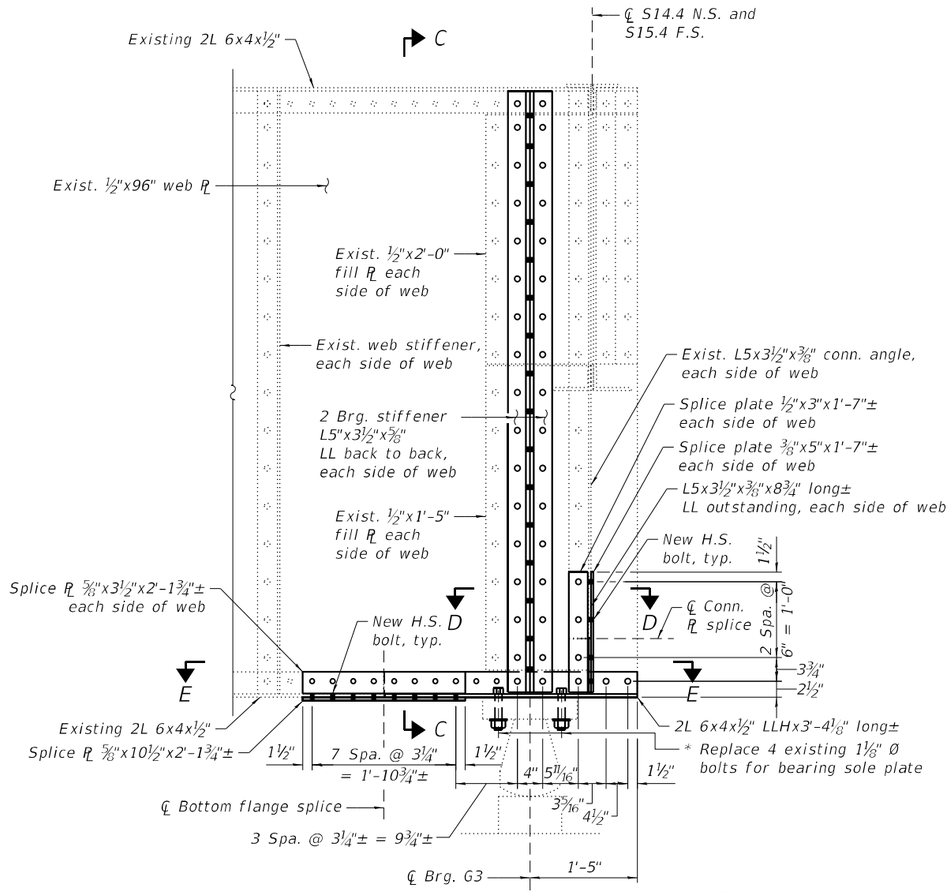
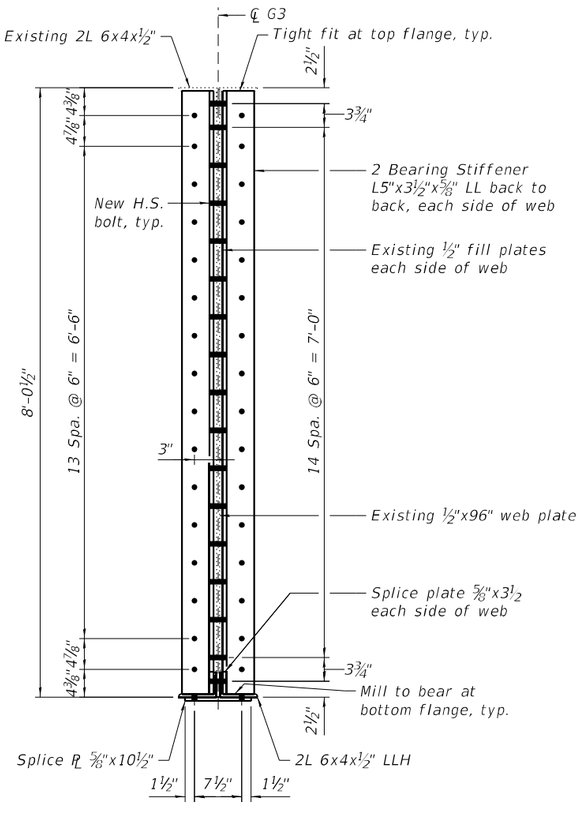
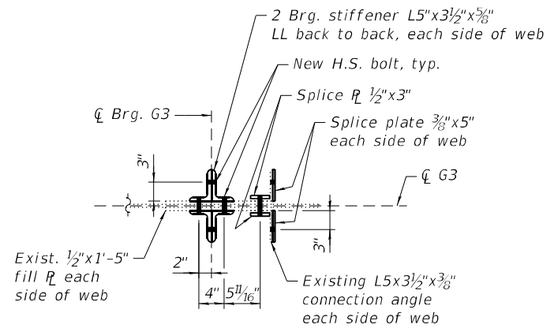


STEEL REPAIR 3
SPAN 14/15 – GIRDER G3
(South Face, Looking North)

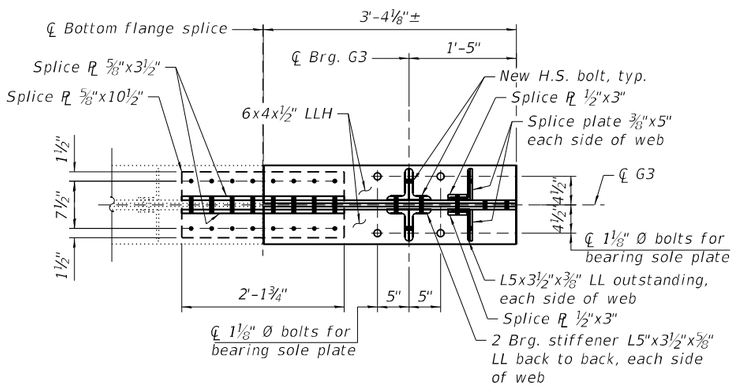
* Cost included in Structural Steel Repair



SECTION C-C



SECTION D-D
(Bottom flange angles not shown for clarity)



SECTION E-E

SUGGESTED CONSTRUCTION SEQUENCE FOR GIRDER G3 REPAIRS

1. Prior to removal of bearing stiffners, the existing girder and stringers S14.4 and S15.4 shall be temporary supported. See Special Provision for Temporary Shoring and Cribbing.
2. The jack capacities for lifting should be based on maximum expected load present during the lift derived from the reactions shown in the Beam Reaction Table included with the plans. The jack capacity provided should be between 50% and 100% greater than the maximum expected load.
3. Clean exterior faces of existing steel (angles, plates and gusset plates) according to the special provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
4. Construct template for location of existing rivets/bolts and fabrication of fill and repair plates and angles.
5. Place proposed bearing stiffener angles with holes centered with centerline of existingrivets/bolts.
6. Field drill holes as required and secure proposed bearing stiffener angles to girder using erection pins/rods.
7. Starting at one end, remove one rivet/bolt/erection pin/rod at a time and replace with a ⅞" diameter H.S. bolt. Proceed until all rivets/bolts/erection pins (or rods) are replaced.

LEGEND

◌	Existing Bolt/Rivet to Remain
○	Remove Existing Bolt/Rivet and Install New Bolt
●	Drill New Bolt hole and Install New Bolt
F.S.	Indicates Far Side
N.S.	Indicates Near Side
LL	Indicates Long Leg
LLH	Indicates Long Leg Horizontal
SL	Indicates Short Leg

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STRUCTURAL STEEL REPAIRS II
SN 016-0133 (SB)
SHEET S03C-10 OF S03C-21 SHEETS

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

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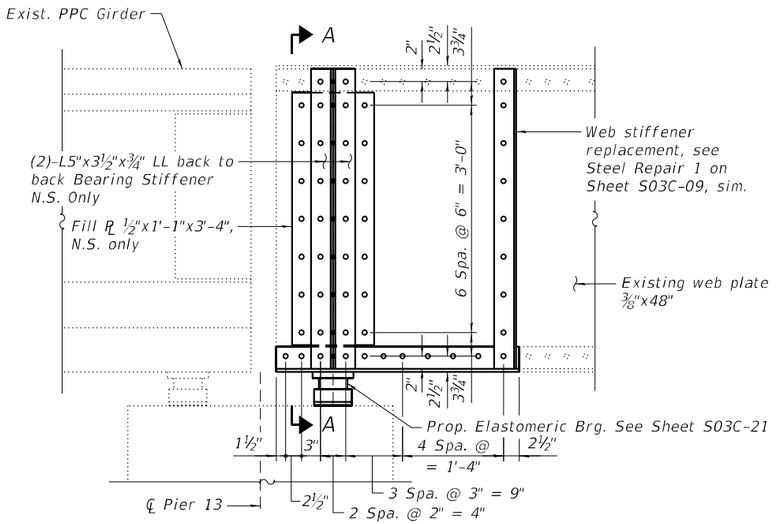
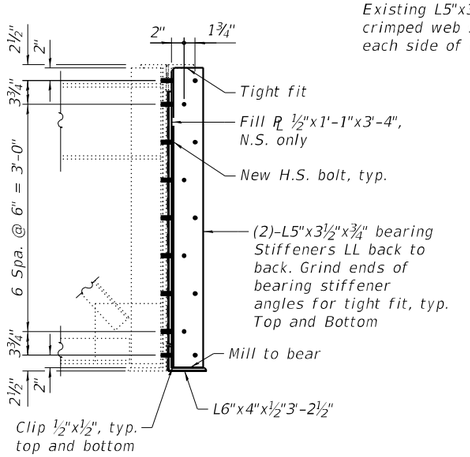
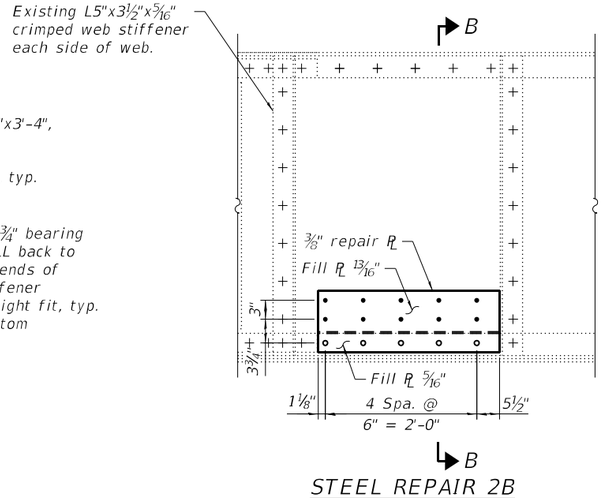


STEEL REPAIR 4
SPAN 14 – STRINGER S14.4

(Looking West)

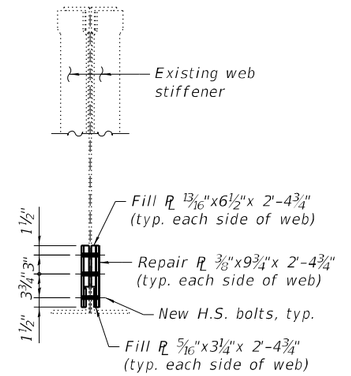


SECTION A–A



STEEL REPAIR 2B

Web Corrosion Hole Repair
(1 Req'd)



SECTION B–B

STRINGER SCHEDULE

Stringer No.	Top Flange Angle sizes	Bottom Flange Angle sizes	Fill Plate Thickness
S14.4	L4x4x½	L6x4x½	½"
S15.4	L4x4x⅝	L6x4x⅝	⅝"
S17.4 – S17.8	L4x4x⅝	L6x4x⅝	⅝"
S17.9 – S17.12	L4x4x½	L6x4x½	½"
S17.13	L4x4x⅝	L6x4x⅝	⅝"
S18.9	L4x4x½	L6x4x½	½"

NOTES

1. The contractor shall submit, for approval by the Engineer, plans for jacking existing beams and removing the existing bearings prior to commmencing any related work.
2. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I or Type III.
3. The cost of temporary shoring and cribbing of the existing beam at the bearing replacment shall be included in the cost of Jack and Remove Existing Bearings.
4. The cost of existing bearing removal shall be included in the cost of Jack and Remove Existing Bearings.
5. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

LEGEND

- ◌ Existing Bolt/Rivet to Remain
- ○ Remove Existing Bolt/Rivet and Install New Bolt
- ● Drill New Bolt hole and Install New Bolt
- N.S. Indicates Near Side
- LL Indicates Long Leg

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STRUCTURAL STEEL REPAIRS III
SN 016-0133 (SB)

SHEET S03C-11 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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STEEL REPAIR 5

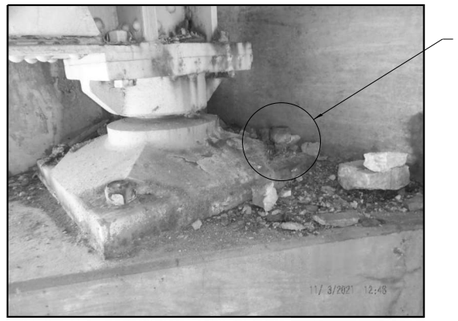
(Girder G1A, Looking Southeast)

STEEL REPAIR 5

(Girder G1B, Looking South)

STEEL REPAIR 5

(Girder G4 at Pier 15, Looking North)



STEEL REPAIR 5

(Girder G1 at Pier 16, Looking Northwest)

STEEL REPAIR 6

(Girder G1, Looking North)

STEEL REPAIR 6

(Girder G5, Looking Northwest)

STEEL REPAIR 7

(Girder G1 at Pier 13, Looking South)

STEEL REPAIR 5

(Girder G3 at Pier 14, Looking South)

NOTES

1. The cost of Steel Repair 5, Steel Repair 6 and Steel Repair 7 will not be paid separately and shall be included with Structural Steel Repair.

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DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS IV
SN 016-0133 (SB)

SHEET S03C-12 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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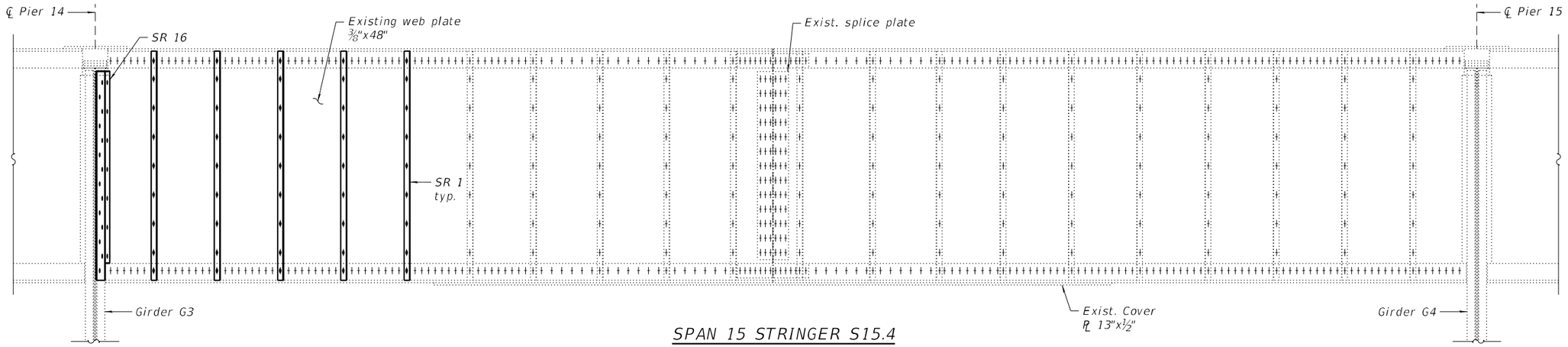
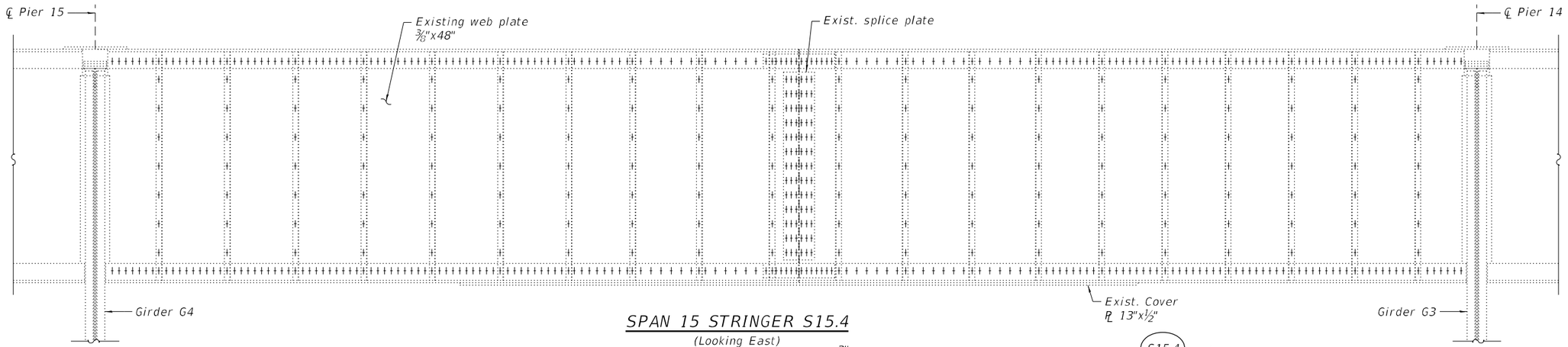
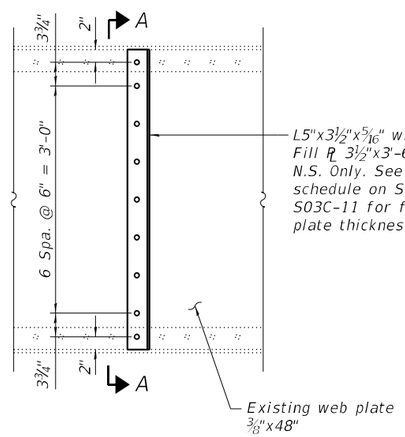


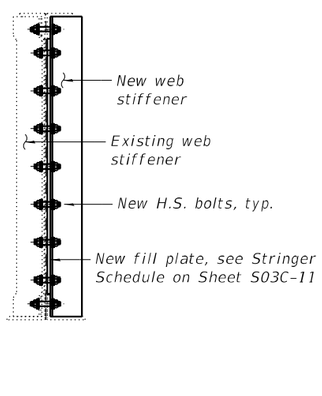
SPAN 15 STRINGER S15.4
(Looking West)



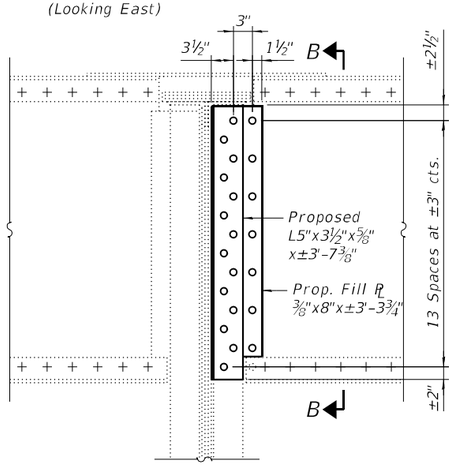
SPAN 15 STRINGER S15.4
(Looking East)



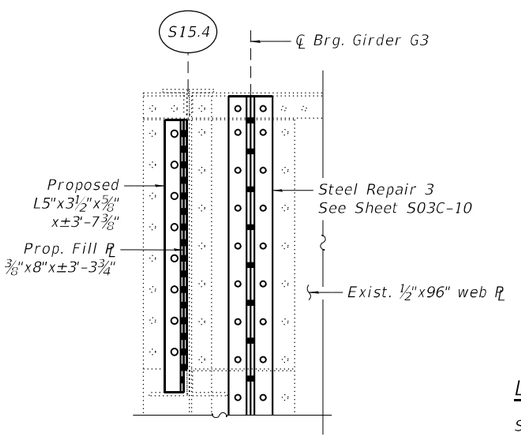
STEEL REPAIR 1
Stringer web stiffener replacement
(5 Req'd)



SECTION A-A



STEEL REPAIR 16



SECTION B-B

LEGEND

SR XX Steel Repair

- Existing Bolt/Rivet to Remain
- Remove Existing Bolt/Rivet and Install New Bolt
- Drill New Bolt hole and Install New Bolt

GRAEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	J.T.B.	REVISED
	CHECKED -	H.A.	REVISED
PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS V
SN 016-0133 (SB)
SHEET S03C-13 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	529
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

MODEL: SMODELNAMES
FILE NAME: X:\DH\2020\20200221-03\Design\Structural\Design Files\CADD\SHT\016-0133_AshlandSteel Repairs SB\0160133-62K74-S013-SDTS.dgn
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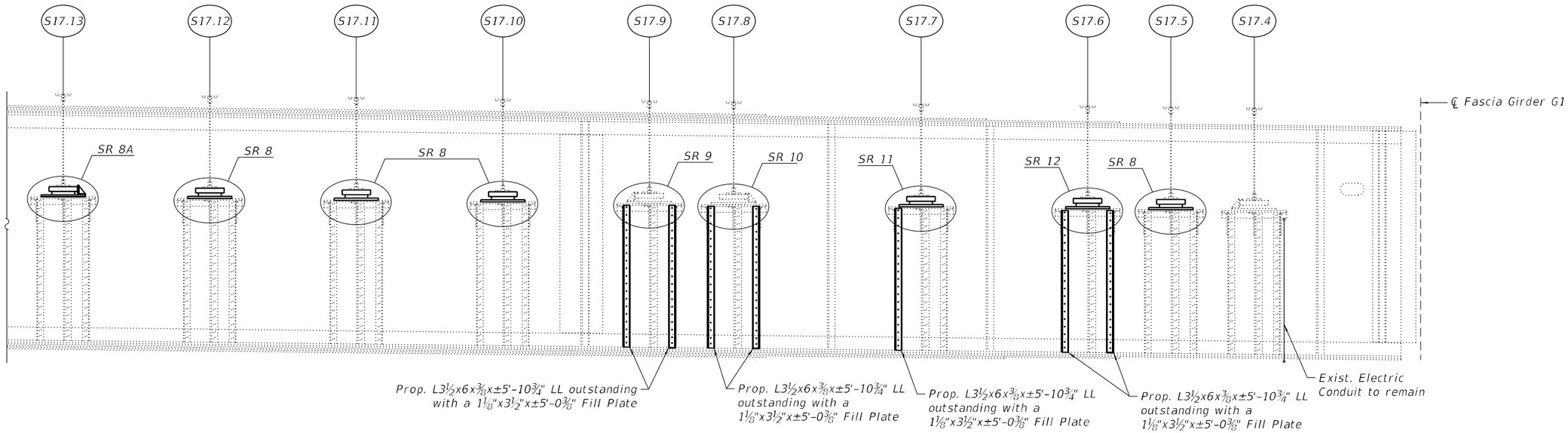

SPAN 17 GIRDER G5

(North Face, Looking South)

NOTES:

1. Cross frames between S17.4–S17.8 and S17.9–S17.13 not shown for clarity.
2. For Steel Repair 8, Steel Repair 8A, Steel Repair 9, Steel Repair 10, Steel Repair 11 and Steel Repair 12, see Sheet S03C-15.
3. The contractor shall submit, for approval by the Engineer, plans for jacking existing beams and removing the existing bearings prior to commmencing any related work.
4. The cost of existing bearing removal shall be included in the cost of Jack and Remove Existing Bearings.
5. Ends of bearing seat stiffener angles shall be crimped and/or ground to match top and bottom flange angle fillets. Cost included in Structural Steel Repair.
6. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

LEGEND

SR XX Steel Repair

○ Existing Bolt/Rivet to Remain

○ Remove Existing Bolt/Rivet and Install New Bolt

● Drill New Bolt hole and Install New Bolt

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Chicago, Illinois 60631; (773) 399-0112

USER NAME =		DESIGNED -	J.T.B.	REVISED
		CHECKED -	H.A.	REVISED
PLOT SCALE =		DRAWN -	D.C.P.	REVISED
PLOT DATE =		CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS VI
SN 016-0133 (SB)

SHEET S03C-14 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	530
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

MODEL: sMODELNAMES
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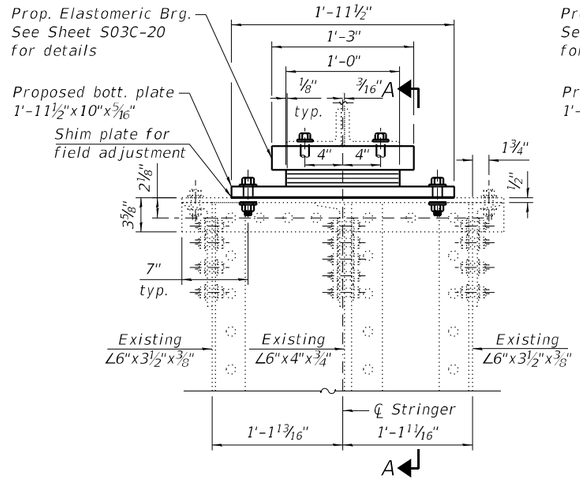
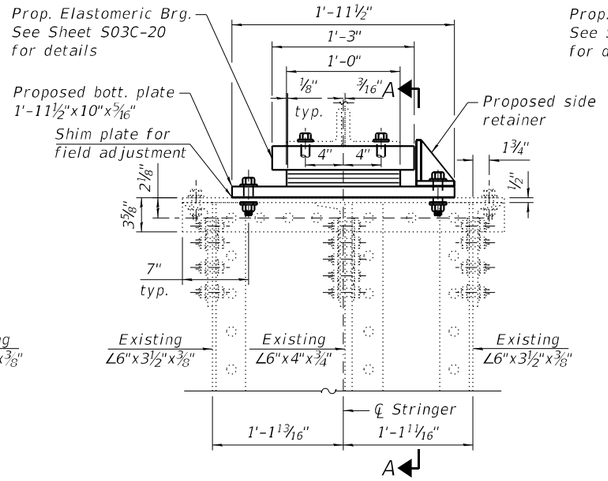
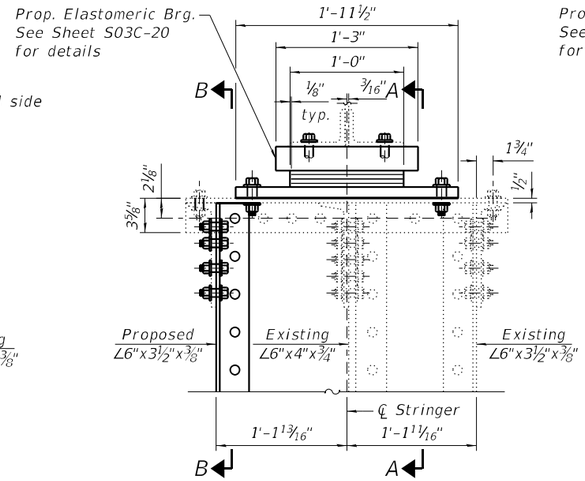


STEEL REPAIR 8

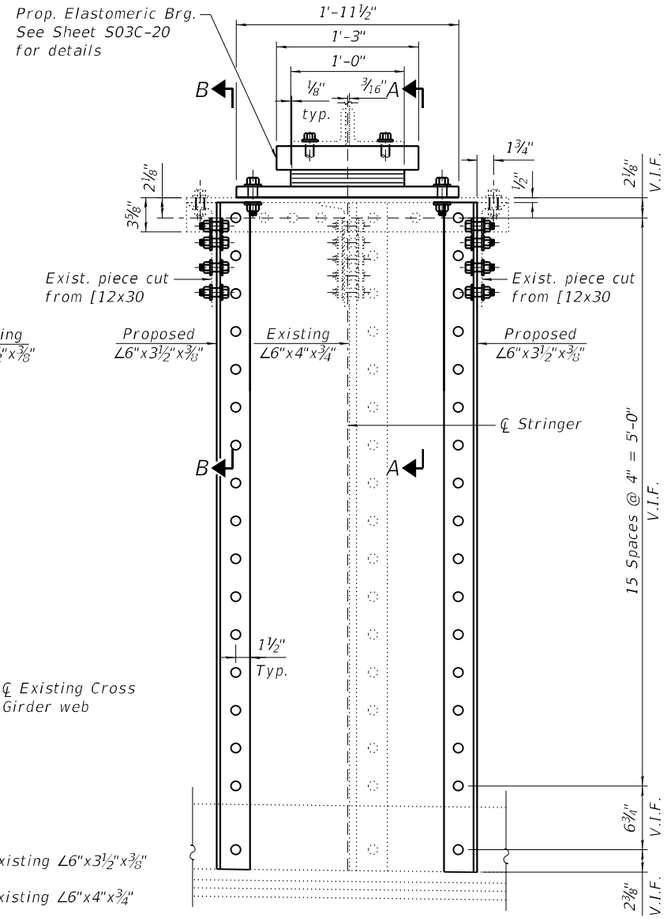


STEEL REPAIR 8A



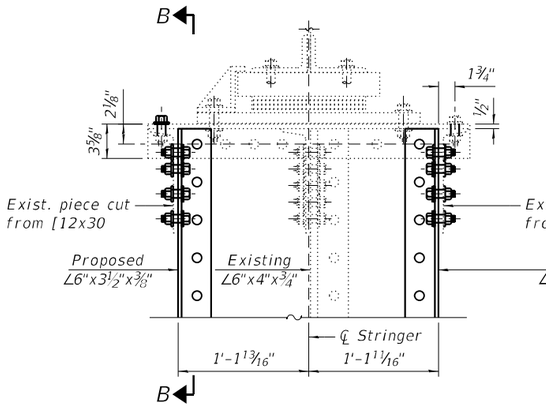
STEEL REPAIR 11

(For additional dimensions and bolt spacing see steel repairs 8, 8A and 12)



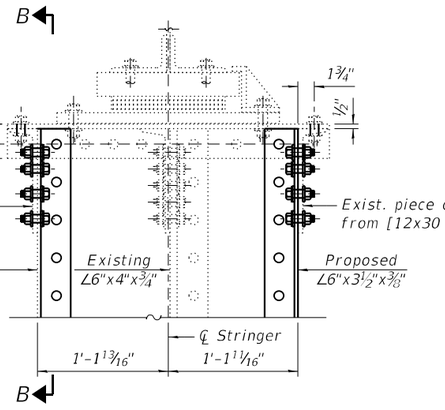
STEEL REPAIR 12

(For additional dimension see steel repair 8 and 8A)



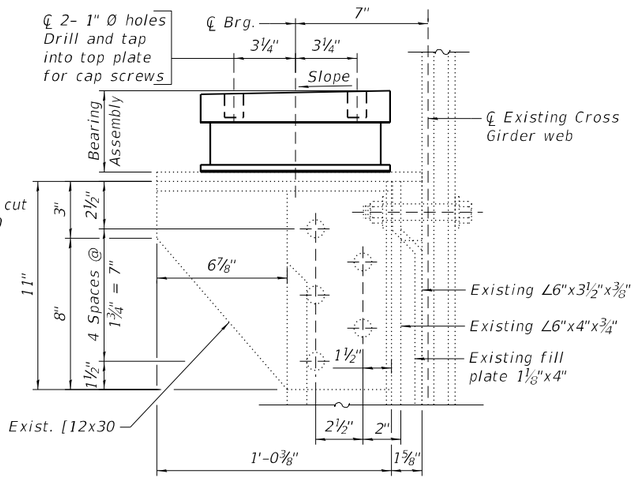
STEEL REPAIR 9

(For additional dimensions and bolt spacing see steel repair 12)

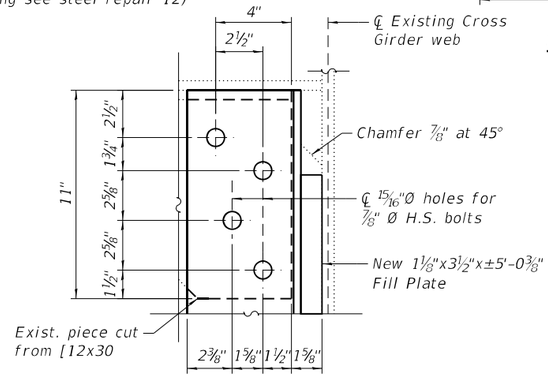


STEEL REPAIR 10

(For additional dimensions and bolt spacing see steel repair 12)



SECTION A-A



SECTION B-B

NOTES:

1. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
2. For repair locations, see Sheet S03C-14.

LEGEND

SR XX Steel Repair

- ◌ Existing Bolt/Rivet to Remain
- ○ Remove Existing Bolt/Rivet and Install New Bolt
- ● Drill New Bolt hole and Install New Bolt

GRÄEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	J.T.B.	REVISED
	CHECKED -	H.A.	REVISED
PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS VII
SN 016-0133 (SB)
SHEET S03C-15 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	531
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

MODEL: sMODELNAME
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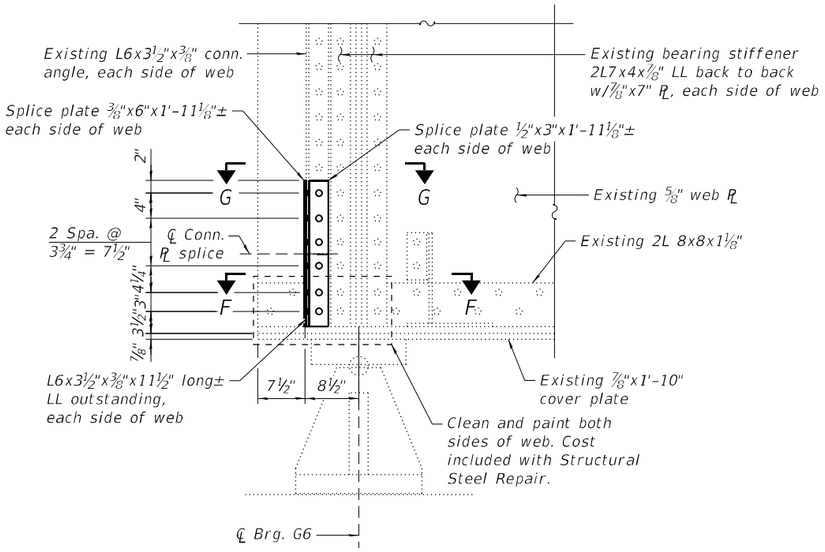
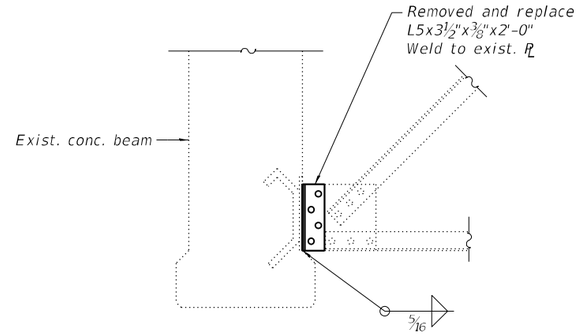
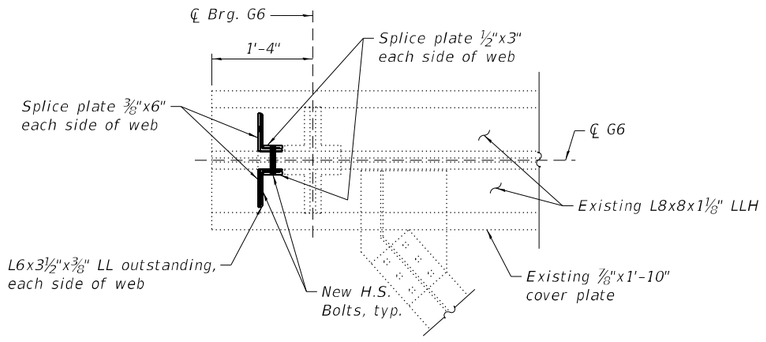


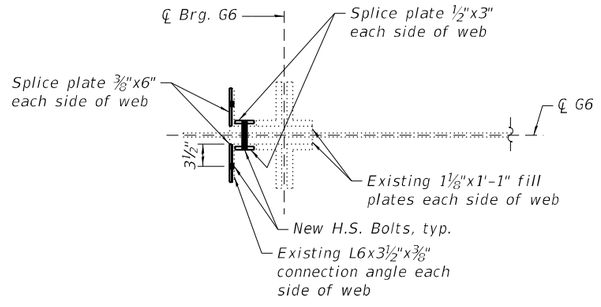
STEEL REPAIR 14
SPAN 17/18 – GIRDER G6
(South Face, Looking North)



STEEL REPAIR 13
SPAN 17 – BEAM 17.3
(South Face, Looking North)



SECTION F-F



SECTION G-G
(Bottom flange angles and cover plate not shown for clarity)

LEGEND

◌	Existing Bolt/Rivet to Remain
○	Remove Existing Bolt/Rivet and Install New Bolt
●	Drill New Bolt hole and Install New Bolt
F.S.	Indicates Far Side
N.S.	Indicates Near Side
LL	Indicates Long Leg
LLH	Indicates Long Leg Horizontal
SL	Indicates Short Leg

GRÄEF
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PLOT SCALE =	DRAWN -	D.C.P.	REVISED
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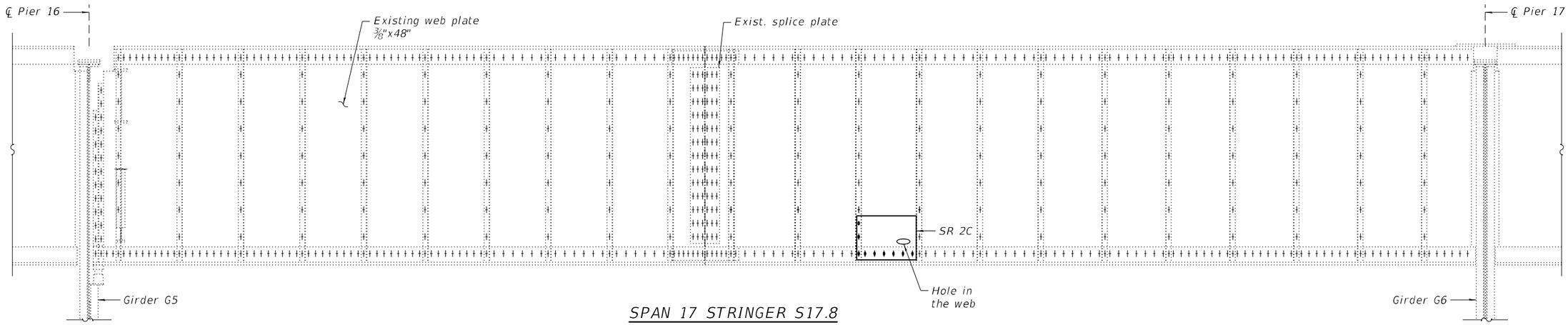
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

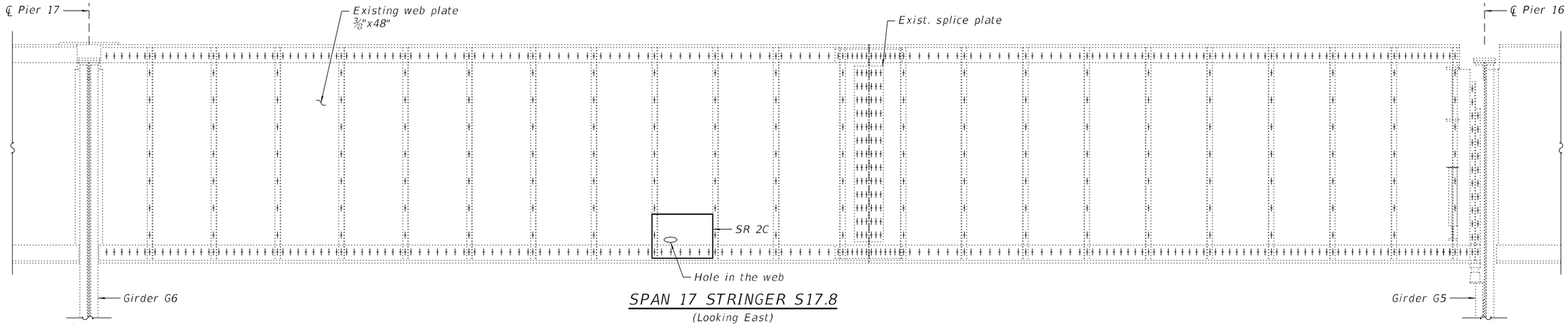
STRUCTURAL STEEL REPAIRS VIII
SN 016-0133 (SB)
SHEET S03C-16 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	532
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



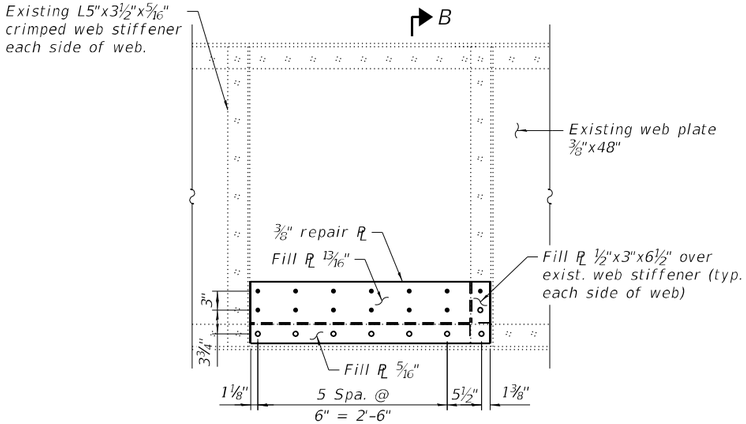
SPAN 17 STRINGER S17.8

(Looking West)



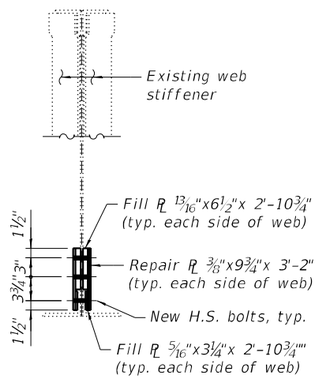
SPAN 17 STRINGER S17.8

(Looking East)



STEEL REPAIR 2C

Web Corrosion Hole Repair
(1 Req'd)



SECTION B-B

LEGEND

SR XX Steel Repair

- Existing Bolt/Rivet to Remain
- Remove Existing Bolt/Rivet and Install New Bolt
- Drill New Bolt hole and Install New Bolt

MODEL: sMODELNAME
FILE NAME: X:\OH\2020\20200221-03\Design\Structural\Design Files\CADD\SHT\0160133_AsHandSteel Repairs SB\0160133-62K74-S017-SDTS.dgn
5/3/2024 12:52:42 PM

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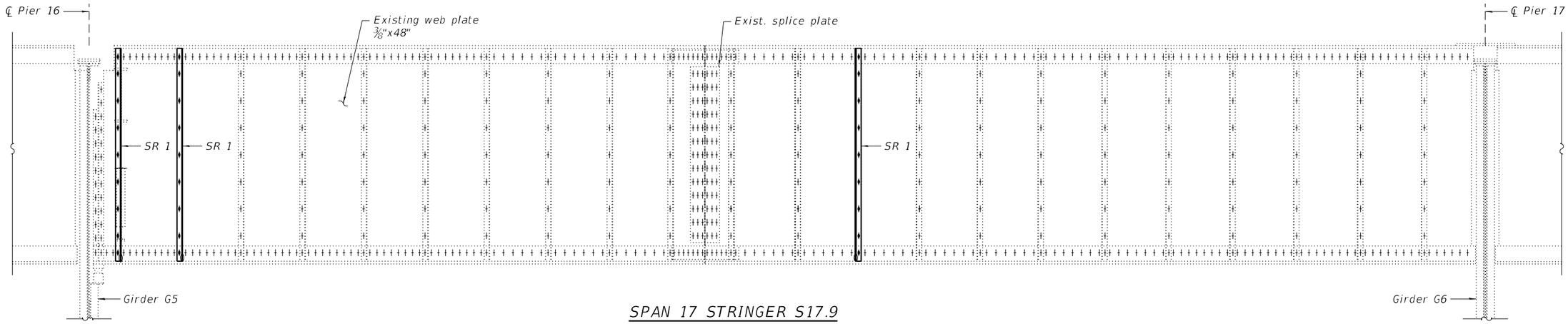
PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

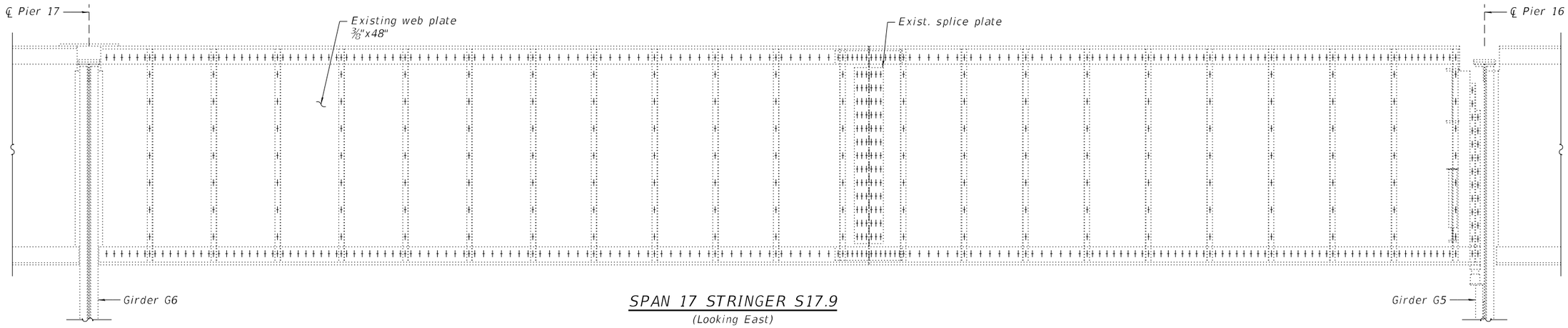
STRUCTURAL STEEL REPAIRS IX
SN 016-0133 (SB)
SHEET S03C-17 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	533
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



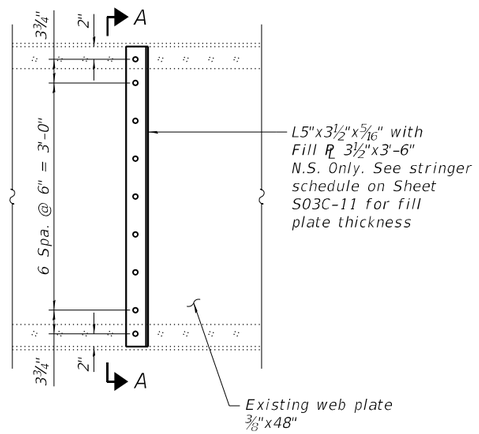
SPAN 17 STRINGER S17.9

(Looking West)



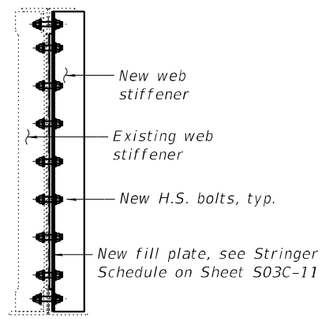
SPAN 17 STRINGER S17.9

(Looking East)



STEEL REPAIR 1

Stringer web stiffener replacement
(3 Req'd)



SECTION A-A

LEGEND

SR XX Steel Repair

- Existing Bolt/Rivet to Remain
- Remove Existing Bolt/Rivet and Install New Bolt
- Drill New Bolt hole and Install New Bolt

GRAEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

USER NAME =	DESIGNED -	J.T.B.	REVISED
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PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS X
SN 016-0133 (SB)

SHEET S03C-18 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	534
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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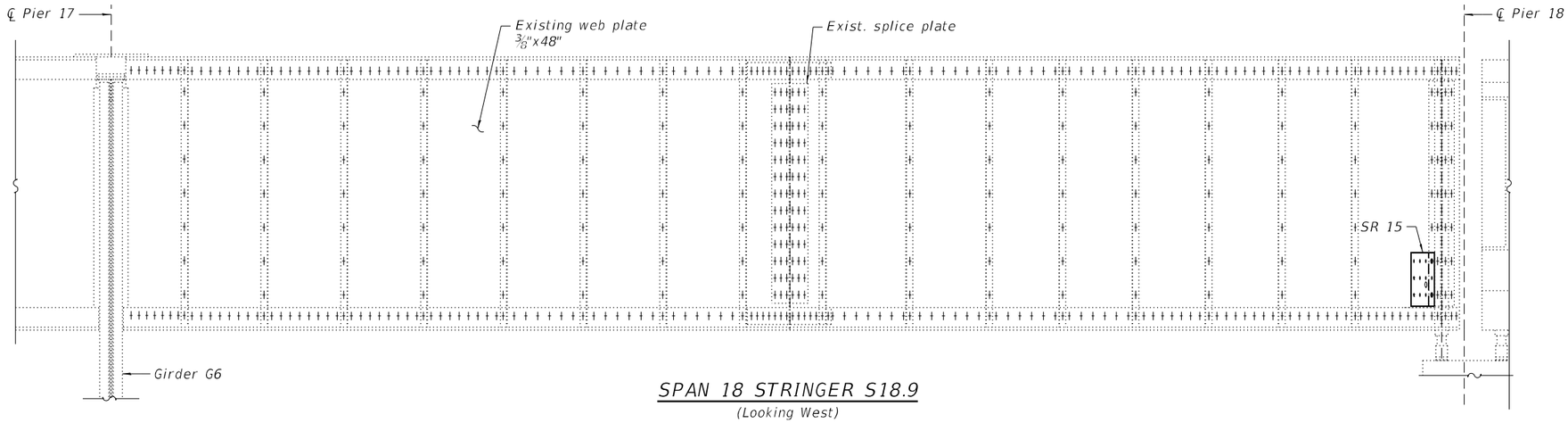
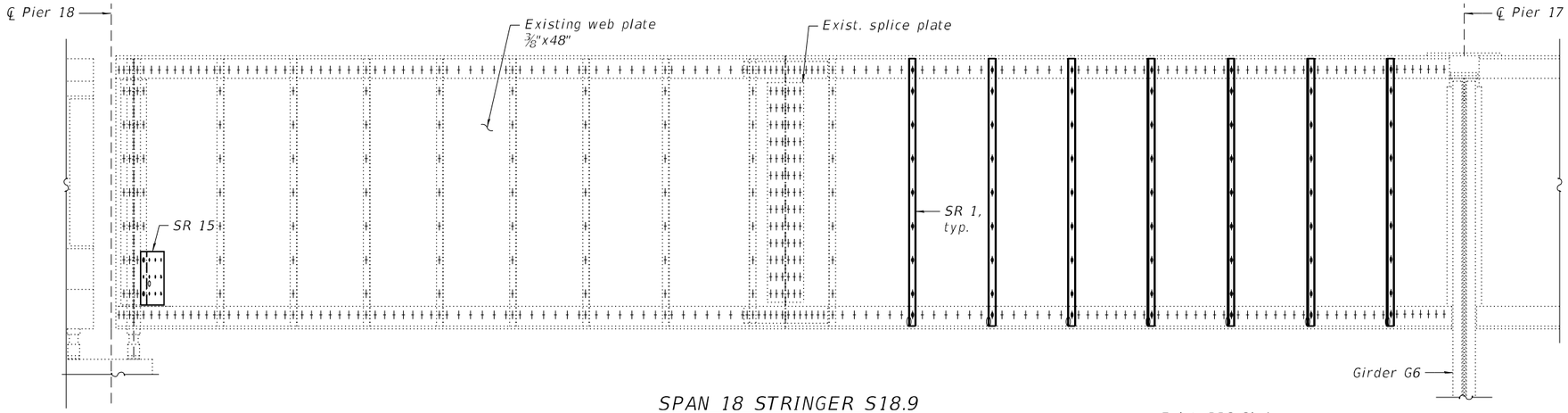


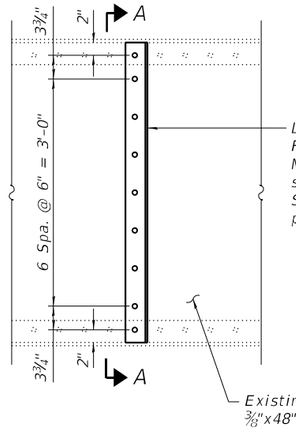
SPAN 18 STRINGER S18.9

(Looking West)



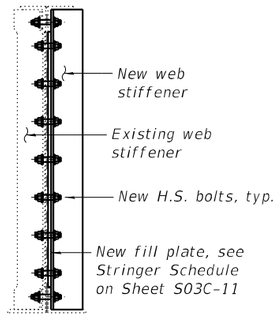
SPAN 18 STRINGER S18.9

(Looking East)

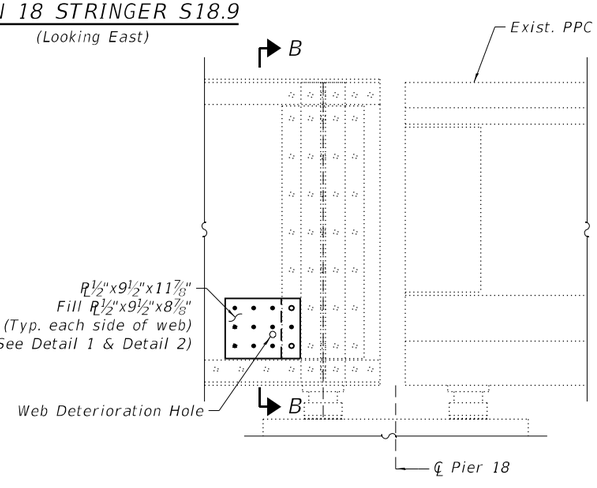


STEEL REPAIR 1

Stringer web stiffener replacement
(7 Req'd)

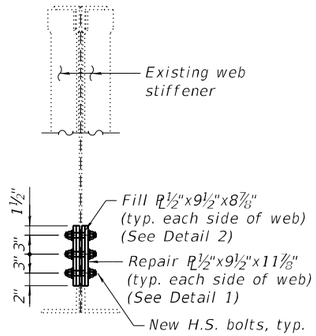


SECTION A-A

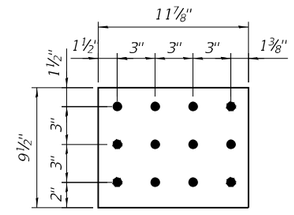


STEEL REPAIR 15

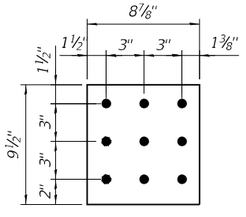
(Looking West)



SECTION B-B



DETAIL 1



DETAIL 2

LEGEND

SR XX Steel Repair

- Existing Bolt/Rivet to Remain
- Remove Existing Bolt/Rivet and Install New Bolt
- Drill New Bolt hole and Install New Bolt

GRAEF
8501 W. Higgins Road; Suite 280
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USER NAME =	DESIGNED -	J.T.B.	REVISED
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PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIRS XI
SN 016-0133 (SB)

SHEET S03C-19 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	535
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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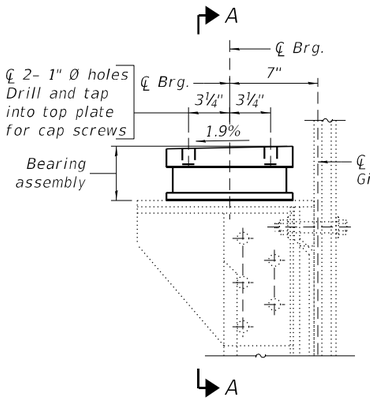
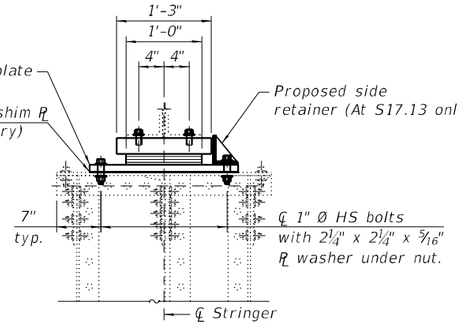
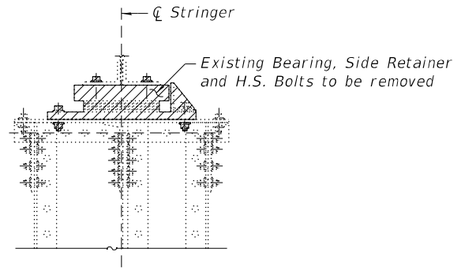


ELEVATION AT CROSS-GIRDER G5

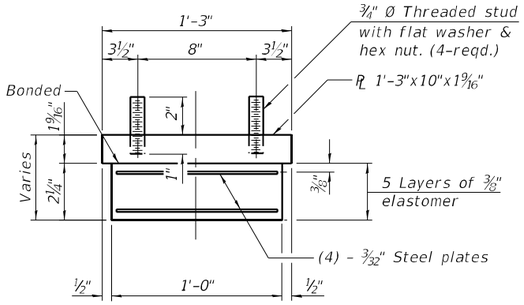


SECTION A–A



EXIST. TYPE I BEARING

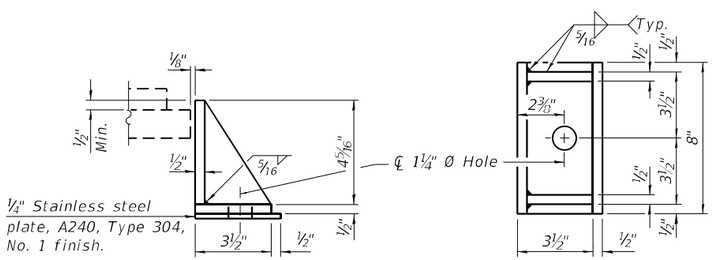
TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Notes:
Side retainers and stainless steel plates shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

Note:
Shim plates shall not be placed under elastomer bearing assembly.



SIDE RETAINER

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

GRÄEF
8501 W. Higgins Road; Suite 280
Chicago, Illinois 60631; (773) 399-0112

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	CHECKED -	H.A.	REVISED
PLOT SCALE =	DRAWN -	D.C.P.	REVISED
PLOT DATE =	CHECKED -	K.G.W.	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS I
SN 016-0133 (SB)
SHEET S03C-20 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	536
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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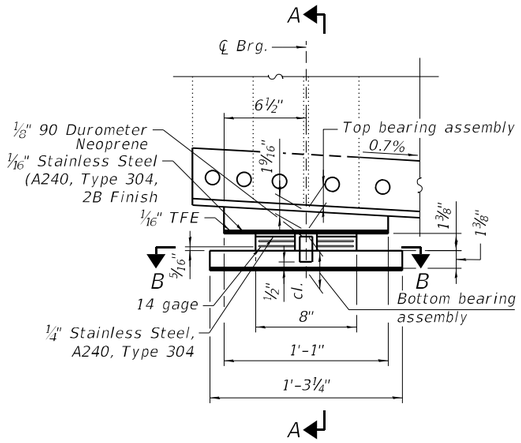
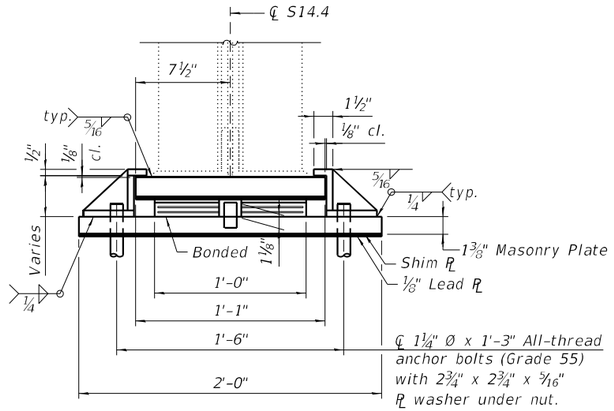
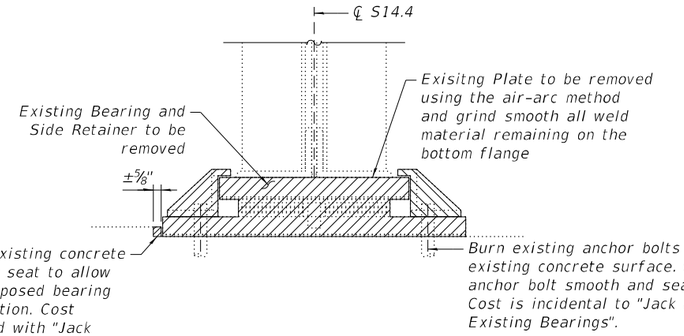


ELEVATION AT PIER 13



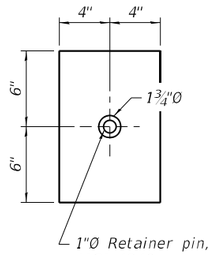
SECTION A-A

The ⅛" Lead Plate for the Type III replacement bearing shall have the same plan dimensions as the bottom plate. Slots are not required.

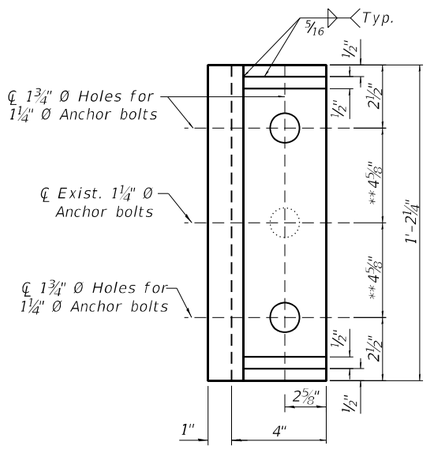


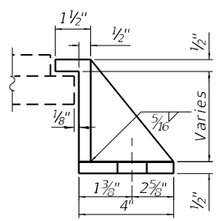
EXIST. TYPE III BEARING

TYPE III ELASTOMERIC EXPANSION BEARING



SECTION B-B





SIDE RETAINER

**The proposed anchor bolts have been located to miss existing pier cap main reinforcement per information obtained from existing plans. The Contractor shall locate the existing pier cap main reinforcement using non-destructive methods and confirm acceptability of proposed anchor bolt locations as presented in the plans or propose an alternate location for approval by the Engineer. Such measurements and approvals shall be obtained prior to fabrication of the bearing side retainers

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PLOT SCALE =	DRAWN - D.C.P.	REVISED	
PLOT DATE =	CHECKED - K.G.W.	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS II
SN 016-0133 (SB)
SHEET S03C-21 OF S03C-21 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	537
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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Existing Structure: S.N. 016-0132 was originally built in 1958. The bridge was widened between 1990 and 1993, and expansion joint repairs were performed in 2013. The structure has a back-to-back abutment length of 263'-7⅛" along the local tangent and an out-to-out deck width of 71'-0½". The superstructure consists of a 7½" thick reinforced concrete deck supported on three span continuous steel beams of span lengths 72'-6⅝", 113'-0⅞" and 72'-6⅝" (measured along local tangent). The substructure consists of reinforced concrete abutments and piers supported on reinforced concrete drilled shafts.

Traffic is to be maintained utilizing stage construction.

No salvage.

NOTES:

1. All stations are to the ℄ I-90/94 NB Roadway and taken from existing plans.
2. No future wearing surface is allowed.

DESIGN SPECIFICATIONS

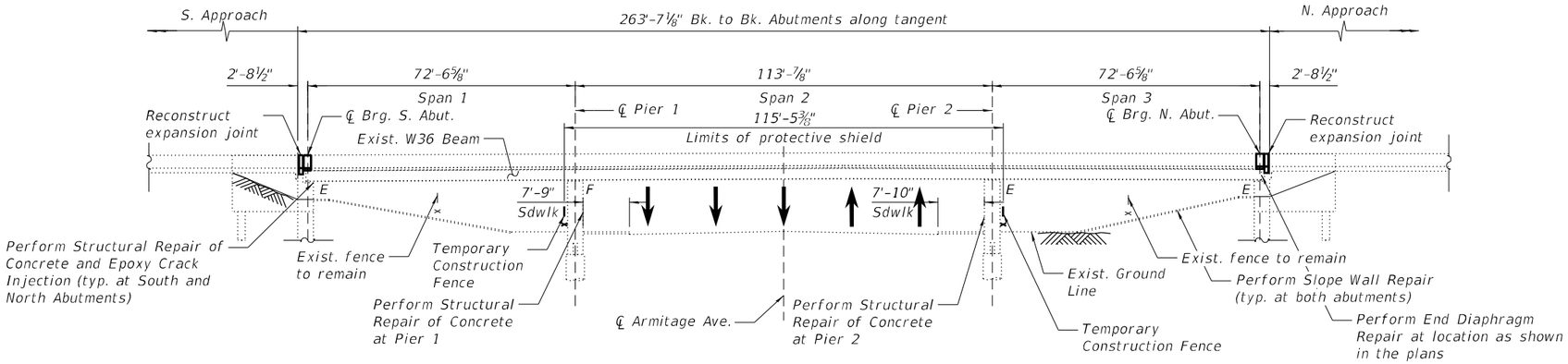
2002 AASHTO Standard Specifications for Highway Bridges (17th Edition)

RECONSTRUCTION 2013

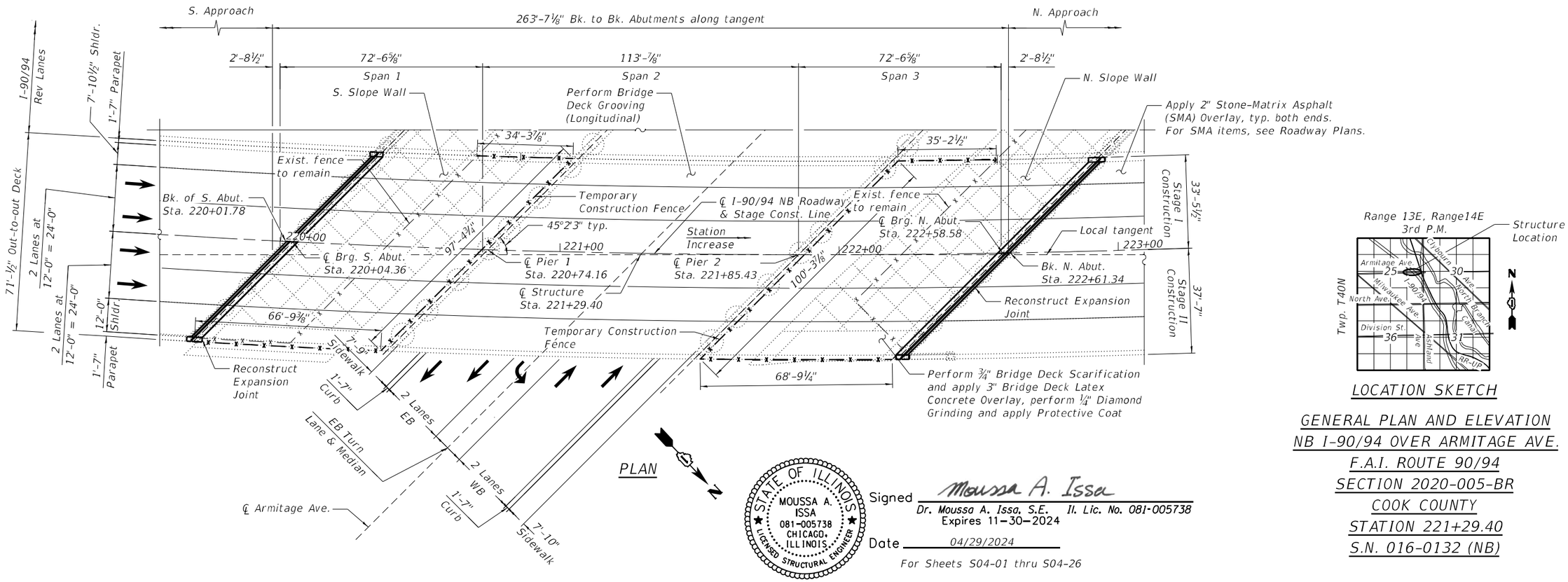
2002 AASHTO Standard Specifications for Highway Bridges

RECONSTRUCTION 1993

1989 AASHTO Standard Specifications for Highway Bridges with 1990 & 1991 Interim Specifications



ELEVATION



PLAN

LOCATION SKETCH

GENERAL PLAN AND ELEVATION
NB I-90/94 OVER ARMITAGE AVE.
F.A.I. ROUTE 90/94
SECTION 2020-005-BR
COOK COUNTY
STATION 221+29.40
S.N. 016-0132 (NB)

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 11-30-2024

Date 04/29/2024

For Sheets S04-01 thru S04-26

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PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 016-0132 (NB)
SHEET S04-01 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	538
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

GENERAL NOTES

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

2. Calculated weight of Structural Steel = 10,220 lb (M270 Grade 36)
   = 160 lb (M270 Grade 50)

3. 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 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.

4. Bars noted thus, 3x2-#5, indicates 3 lines of #5 bars with 2 lengths of bars per line.

5. All exposed concrete edges shall have a ¾"x45° chamfer except where shown otherwise.

6. 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. Cost included with Concrete Removal.

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

8. Protective Coat shall be applied to the top of reconstructed transverse joint areas, top and inside faces of parapets, and top of Latex Concrete Overlay.

9. 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.

10. Prior to pouring the new concrete deck for expansion joint reconstruction and deck slab repairs, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete. 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" deep shall be identified and reported to the Bureau of Bridges and Structures for further dispositions. 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.

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

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

13. All new structural steel shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanizing for Structural Steel".

14. Fasteners shall be ASTM F 3125 Grade A325 Type 1. Fasteners shall be hot dip galvanized. See Special Provision for "Hot Dip Galvanizing for Structural Steel." Bolts ¾ in. diameter, holes 13/16 in. diameter, unless otherwise noted.

15. No field welding is permitted expected as specified in the contract documents.

16. Adjacent I-90/94 reversible bridge is not shown throughout the plans for clarity.

17. 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.

18. 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".

19. 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.

20. 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 his or her expense at no charge to IDOT.

21. 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.

22. 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 including in the cost of Protective Shield.

INDEX OF SHEETS

SCOPE OF WORK

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

2. Scarify ¾" from the bridge deck slab.

3. Perform Deck Slab Repairs.

4. Reconstruct Expansion Joints at the South and North abutments 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 hatched block.

7. Apply 2" Stone-Matrix Asphalt (SMA) Overlay on the Approach Slabs, see Roadway Plans.

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

9. Apply protective coat to the top of reconstructed transverse joint areas, top and inside faces of parapets, and top of Latex Concrete Overlay.

10. Repair diaphragm as shown on the plans.

11. Perform structural concrete repairs and epoxy crack injection for the abutments and piers as noted on the plans.

12. Perform Slope Wall repairs.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	-	38	38
Concrete Removal	Cu Yd	27.9	-	27.9
Slope Wall Removal	Sq Yd	-	113	113
Protective Shield	Sq Yd	912	-	912
Concrete Superstructure	Cu Yd	31.3	-	31.3
Protective Coat	Sq Yd	2,225	-	2,225
Furnishing And Erecting Structural Steel	Pound	10,220	-	10,220
Reinforcement Bars, Epoxy Coated	Pound	5,700	-	5,700
Bar Splicers	Each	32	-	32
Slope Wall 4 Inch	Sq Yd	-	113	113
Preformed Joint Seal 2 1/2"	Foot	261	-	261
Preformed Joint Strip Seal	Foot	196	-	196
Concrete Sealer	Sq Ft	-	778	778
Epoxy Crack Injection	Foot	-	60	60
Slope Wall Crack Sealing	Foot	-	25	25
Bridge Deck Grooving (Longitudinal)	Sq Yd	1,851	-	1,851
Protect And Maintain Existing Underpass	L Sum	-	0.04	0.04
Approach Slab Repair (Full Depth)	Sq Yd	48	-	48
Approach Slab Repair (Partial Depth)	Sq Yd	48	-	48
Structural Steel Removal	Pound	8,220	-	8,220
Structural Steel Repair	Pound	160	-	160
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1,891	-	1,891
Bridge Deck Scarification 3/4"	Sq Yd	1,891	-	1,891
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	-	79	79
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	-	6	6
Deck Slab Repair (Full Depth, Type II)	Sq Yd	34	-	34
Diamond Grinding (Bridge Section)	Sq Yd	1,949	-	1,949
Temporary Construction Fence	Foot	-	403	403
Temporary Shoring And Cribbing	Each	-	2	2
Locks For Gates	Each	-	4	4

GENERAL NOTES (CONT.)

23. The Contractor shall contact Chandra Libby, the Director of City of Chicago Department of Family Support Services (DFSS) at 312-746-5443 or Chandra.Libby@cityofchicago.org to coordinate the relocation of persons and their personal belongings under the bridges within the areas bounded by the temporary chain-link-fence.

24. The intent of the temporary fence is to deny access of any unauthorized personnel under the bridge during construction. Actual fence installations may vary from what is shown on the plans. All fence installations must be approved by the Engineer.

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

26. 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.

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PLOT DATE =	DATE - 4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS & TBOM
STRUCTURE NO. 016-0132 (NB)
SHEET S04-02 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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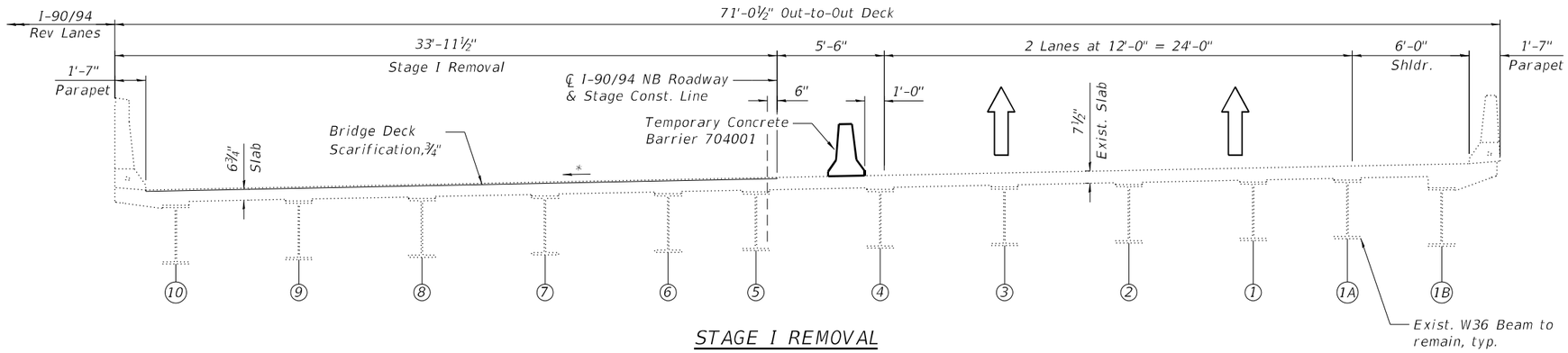
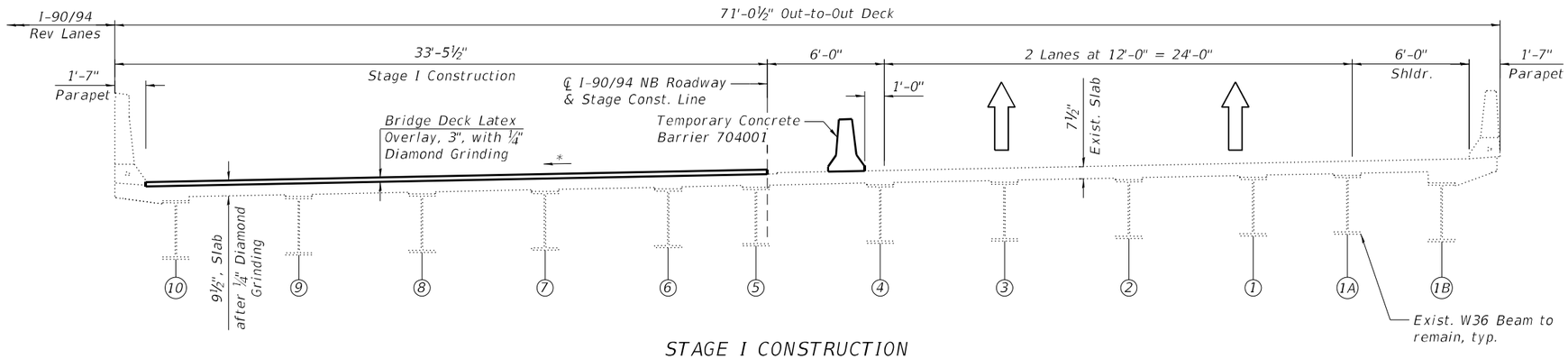
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



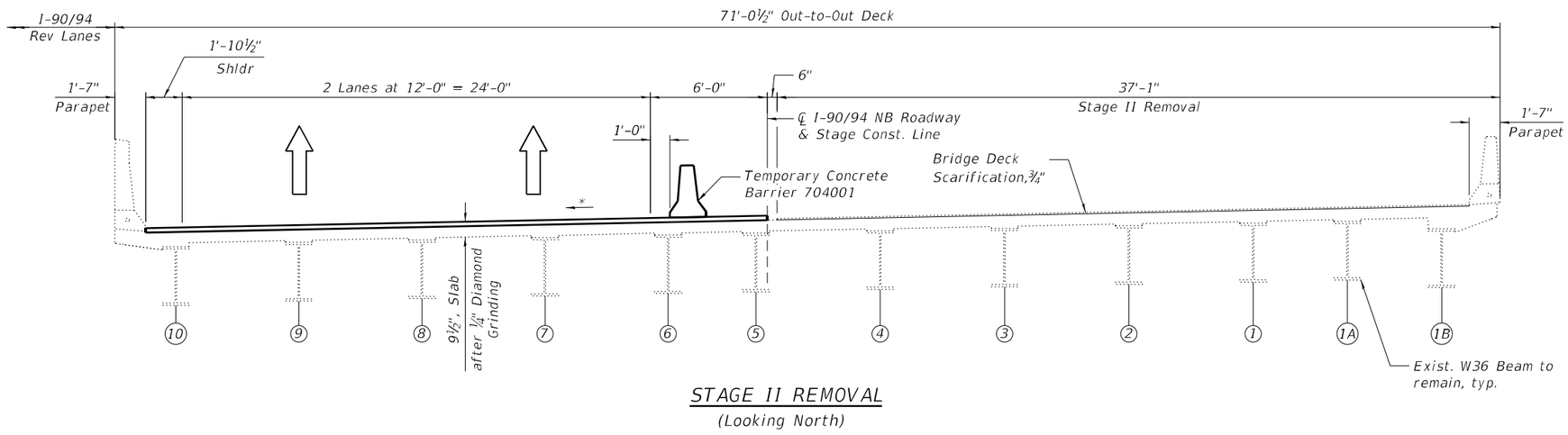
STAGE I REMOVAL

(Looking North)



STAGE I CONSTRUCTION

(Looking North)



STAGE II 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 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 concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.
5. Perform temporary shoring and cribbing at locations shown on the plans within the limits of Stage I removal.
6. Remove existing longitudinal preformed joint seal between west parapet and reversible lane parapet.

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct expansion joints and install new preformed joint strip seals within the limits of Stage I 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 hatched block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" Bridge Deck Latex Concrete Overlay and reconstructed abutment 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 west parapet, reconstructed abutment expansion joints and to the surfaces of the new overlay.
9. Perform slope wall repairs as shown on the plans.
10. Replace existing longitudinal preformed joint seal between west parapet and reversible lane parapet.

STAGE II REMOVAL

1. Install 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 concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.
5. Perform temporary shoring and cribbing at locations shown on the plans within the limits of Stage II removal.

*Match existing cross slopes

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PLOT DATE =	DATE - 4/29/2024	REVISED -	

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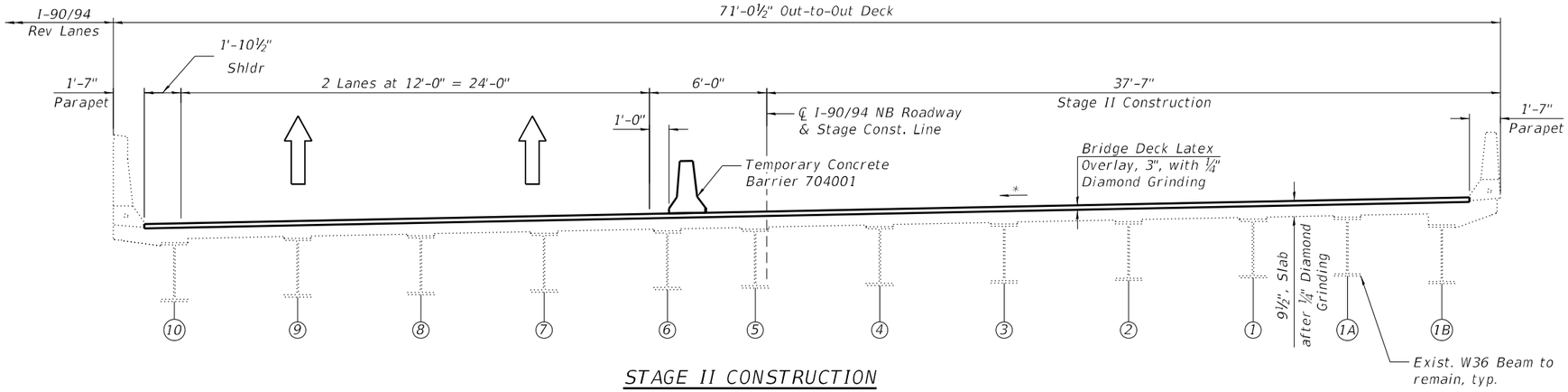
STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0132 (NB)

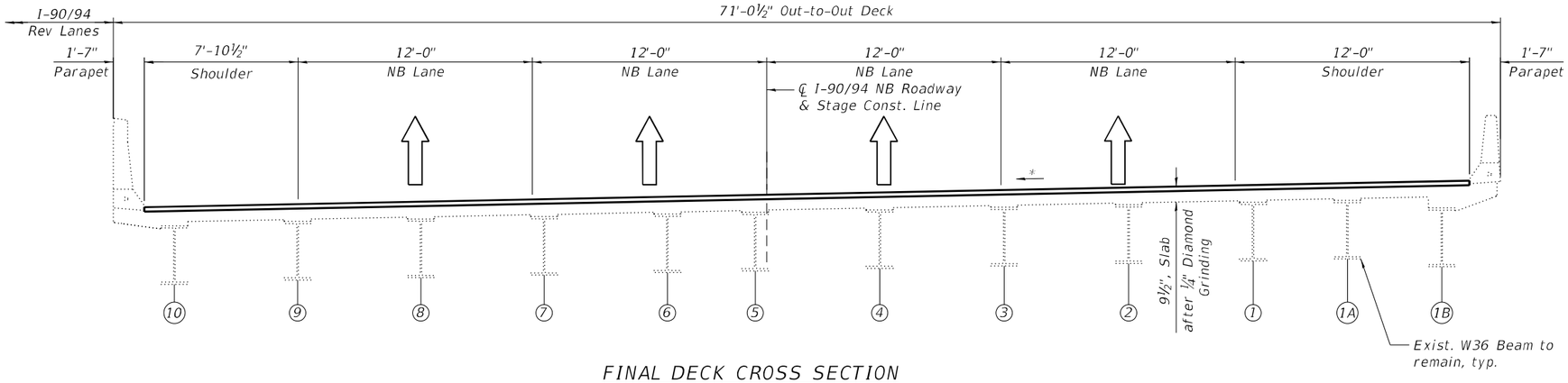
SHEET S04-03 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	540
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



STAGE II CONSTRUCTION

(Looking North)



FINAL DECK CROSS SECTION

(Looking North)

STAGE II CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct 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 hatched block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" Bridge Deck Latex Concrete Overlay and reconstructed abutment 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 east parapet, reconstructed abutment expansion joints and to the surfaces of the new overlay.
9. Repair diaphragm as shown on the plans.
10. Perform slope wall repairs as shown on the plans.

*Match existing cross slopes

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0132 (NB)

SHEET S04-04 OF S04-26 SHEETS

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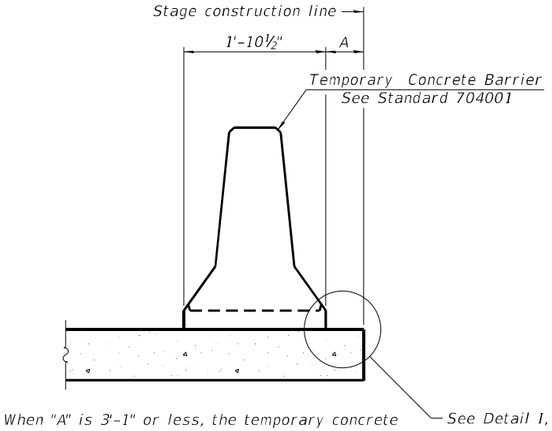
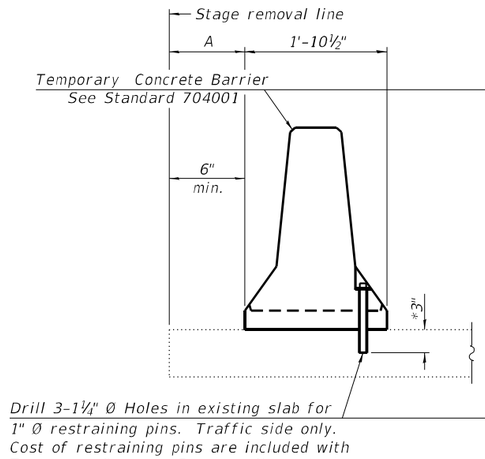


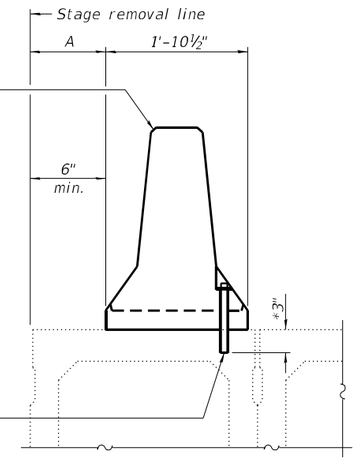
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

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".

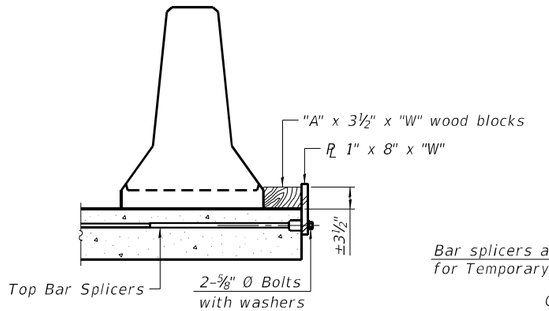
EXISTING SLAB



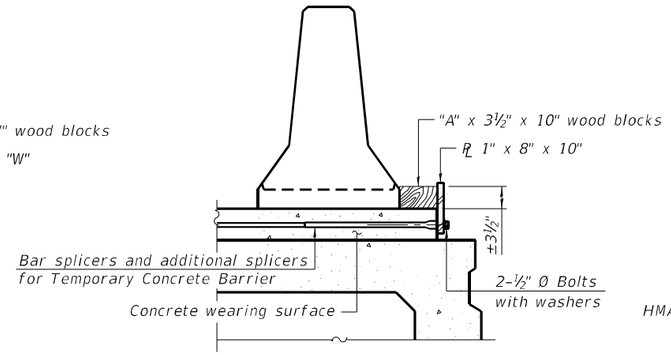
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

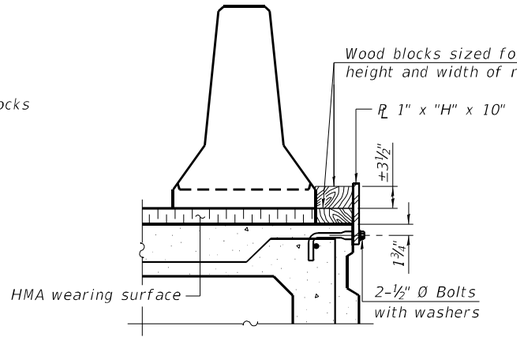
SECTIONS THRU SLAB OR DECK BEAM



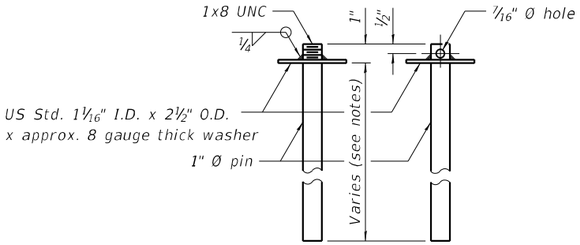
DETAIL I



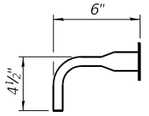
DETAIL II



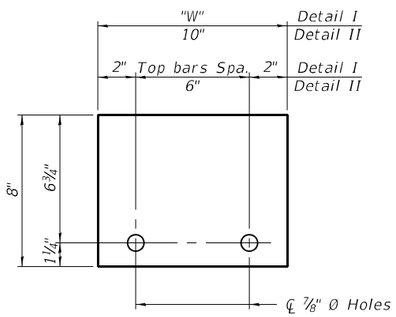
DETAIL III



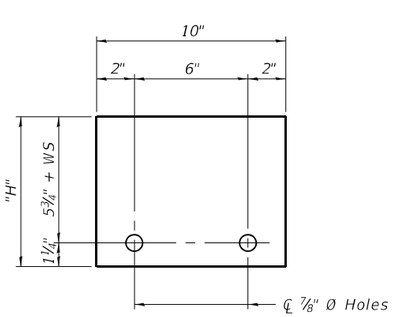
RESTRAINING PIN



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)

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

10-12-2021

MODEL: Default
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4/30/2024 11:55:47 AM

HBM ENGINEERING GROUP, LLC

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	CHECKED - MI	REVISED -
PLOT SCALE =	DRAWN - LAB, HMI	REVISED -
PLOT DATE =	DATE - 4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

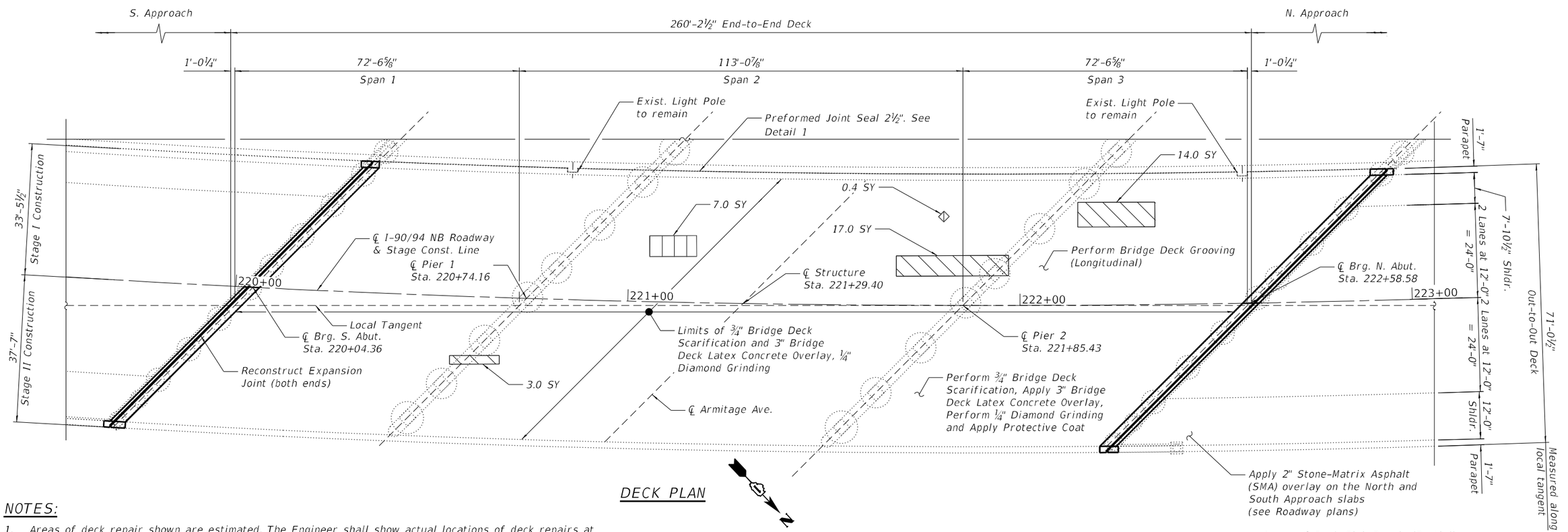
TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0132 (NB)

SHEET S04-05 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	542
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Coat	Sq Yd	2155
Preformed Joint Seal 2 1/2"	Foot	261
Bridge Deck Grooving (Longitudinal)	Sq Yd	1851
Approach Slab Repair (Full Depth)	Sq Yd	48
Approach Slab Repair (Partial Depth)	Sq Yd	48
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1891
Bridge Deck Scarification 3/4"	Sq Yd	1891
Deck Slab Repair (Full Depth, Type II)	Sq Yd	34
Diamond Grinding (Bridge Section)	Sq Yd	1949



DECK PLAN

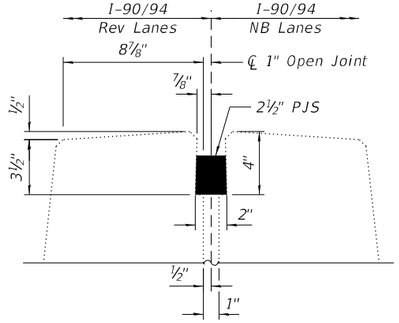
*Areas of Deck Slab Repair (Partial) are provided for information only and shall be included in the cost of Bridge Deck Latex Concrete Overlay, 3"

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 and South transverse joint removal and reconstruction, see Sheets S04-07thru S04-12.
4. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatched block.
5. Perform Bridge Deck Grooving (Longitudinal) on traffic lanes.
6. Protective Coat shall be applied to the top of reconstructed transverse joints, top and inside face of parapets and top of latex concrete overlay.
7. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.
8. 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.
9. Removal of the existing preformed joint seal is included in the cost of Preformed Joint Seal 2½".

NOTES (CONT.):

10. Approach Slab Repair (Full Depth) and Approach Slab Repair (Partial Depth) quantities have been estimated (based on a nominal 3% of bridge approach area) for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will determined by the Engineer in the field at the time of construction.



DETAIL 1

(Reinforcement not shown for clarity)

LEGEND:

*Deck Slab Repair (Partial Depth)

Deck Slab Repair (Full Depth, Type II)

SY Square Yard

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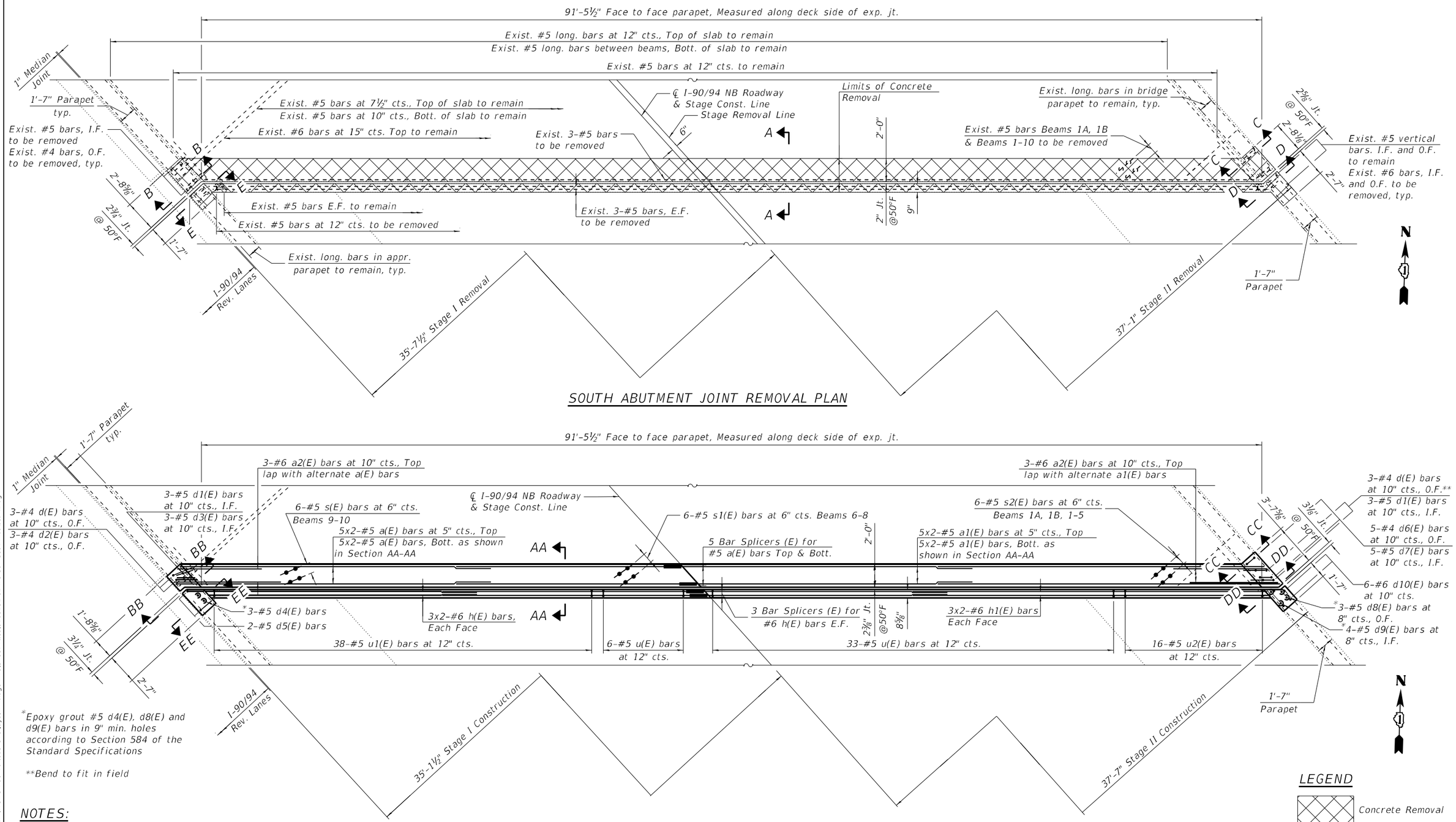
PLOT DATE =		DATE -	4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN
STRUCTURE NO. 016-0132 (NB)
SHEET S04-06 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	543
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



SOUTH ABUTMENT JOINT REMOVAL PLAN

SOUTH ABUTMENT JOINT RECONSTRUCTION PLAN

*Epoxy grout #5 d4(E), d8(E) and d9(E) bars in 9" min. holes according to Section 584 of the Standard Specifications

**Bend to fit in field

NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S04-08.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, additional Notes and Bill of Material, see Sheet S04-09.

LEGEND

Concrete Removal

E.F. Each Face

I.F. Inside Face

O.F. Outside Face

MODEL: Default
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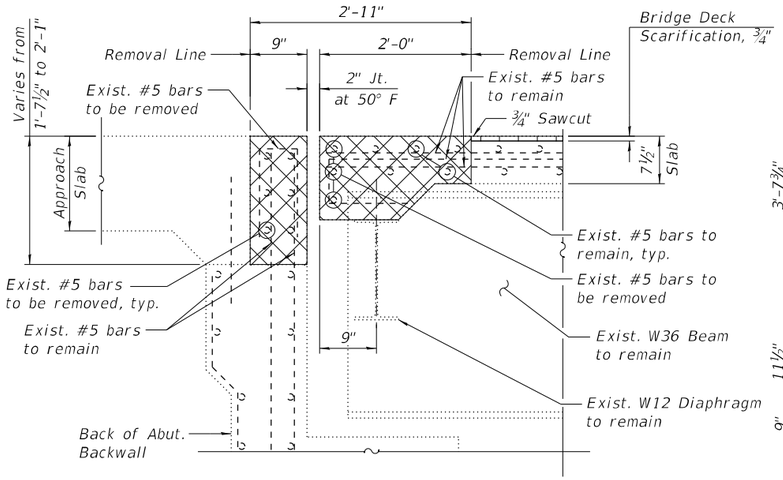
PLOT DATE =	DATE - 4/29/2024	REVISED -	

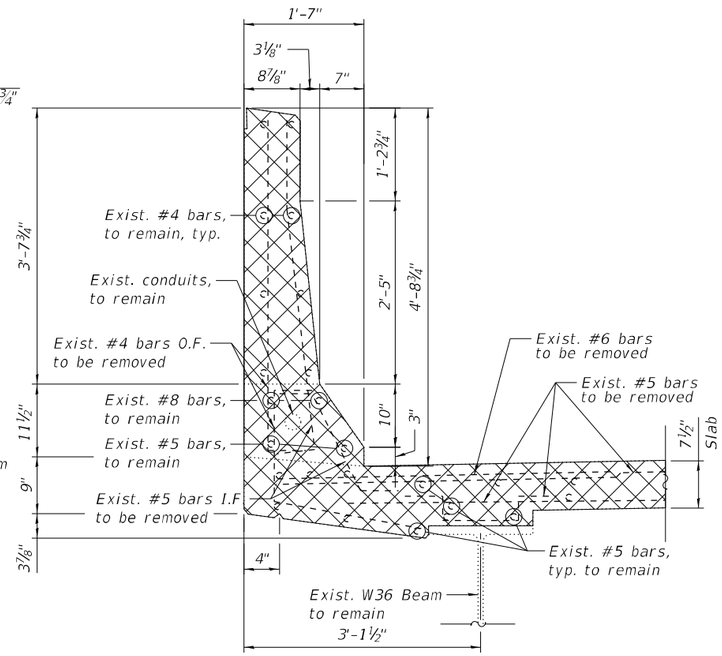
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-07 OF S04-26 SHEETS

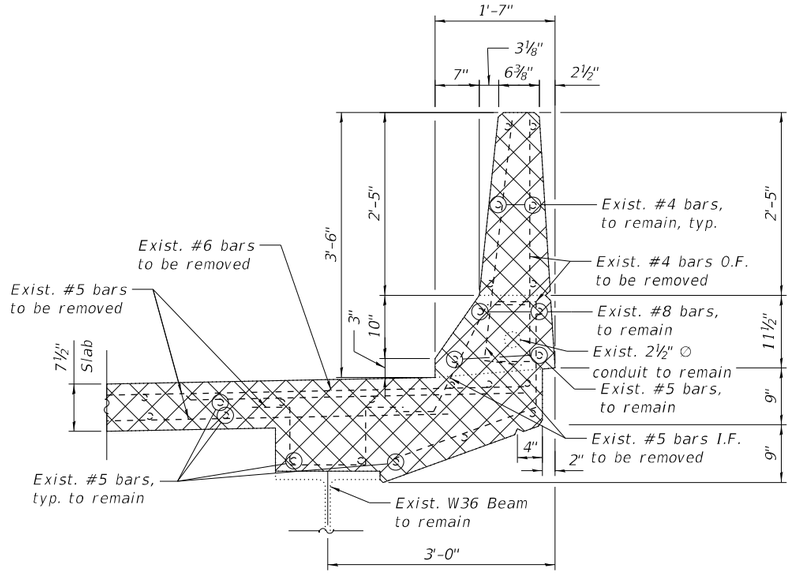
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	544
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



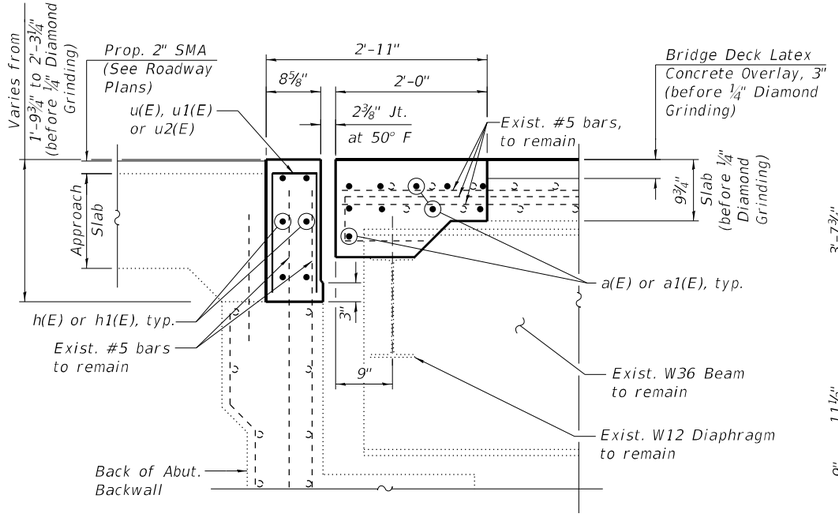
SECTION A-A



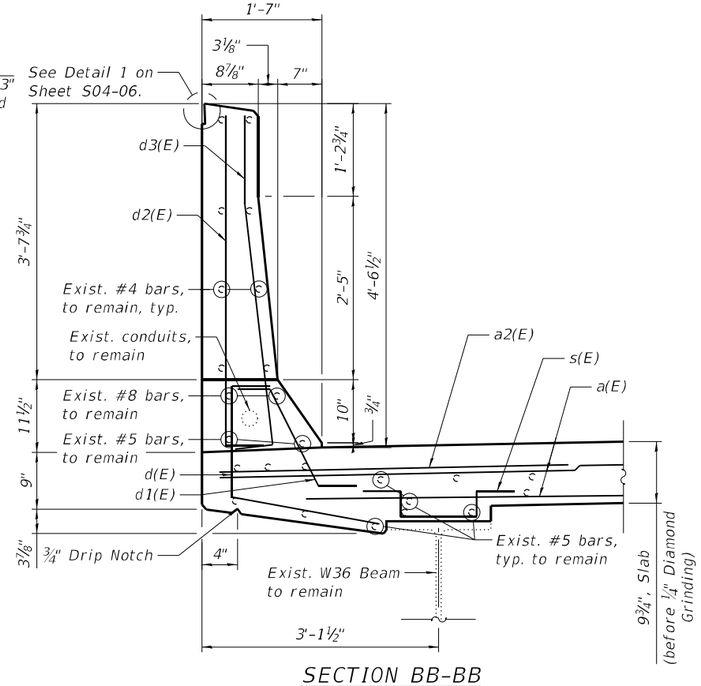
SECTION B-B



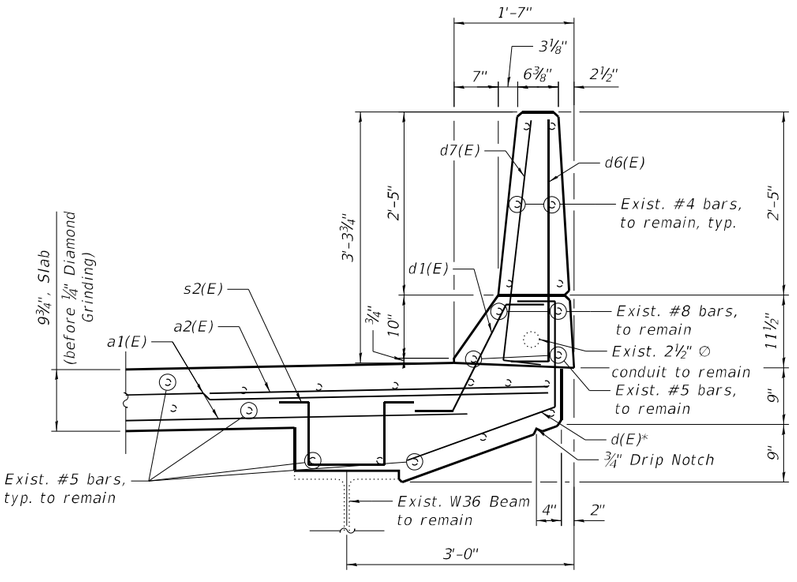
SECTION C-C



SECTION AA-AA



SECTION BB-BB



SECTION CC-CC

*Bend to fit in field

NOTES:

1. For legend, see Sheet S04-07.

2. For Bar Diagrams, additional Notes and Bill of Material, see Sheet S04-09.

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PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 2 OF 3)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-08 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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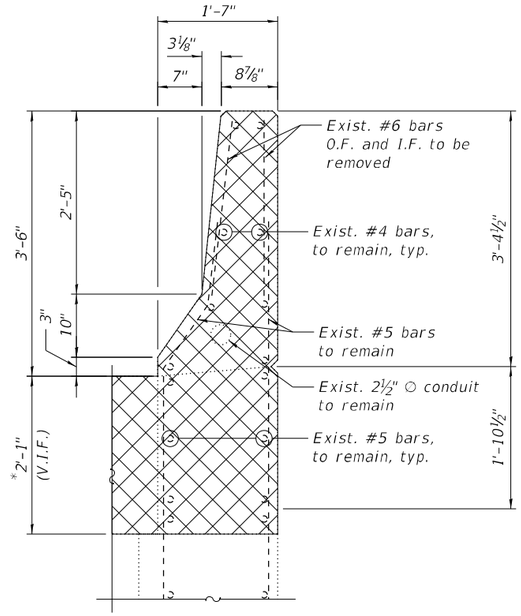
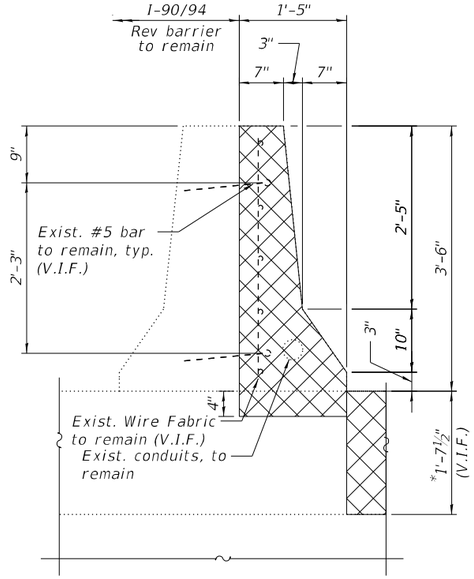
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



SECTION D-D

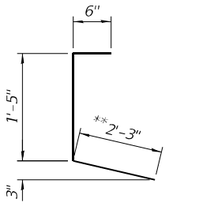
(Reinforcement in the pour strip not shown for clarity)

*Dimension is taken at the Back of Abut.



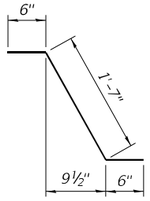
SECTION E-E

(Reinforcement in the pour strip not shown for clarity)

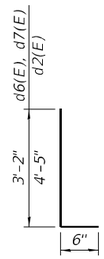


BAR d(E)

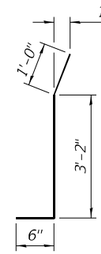
**Bend & cut to fit in field



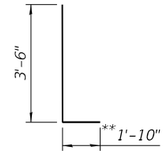
BAR d1(E)



BARS d2(E), d6(E) & d7(E)

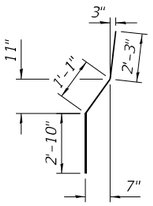


BAR d3(E)



BAR d5(E)

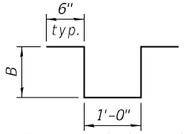
**Cut in field to fit



BAR d9(E)

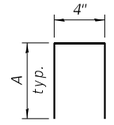
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	20	#5	24'-0"	
a1(E)	20	#5	26'-7"	
a2(E)	6	#6	6'-6"	
d(E)	6	#4	4'-2"	
d1(E)	6	#5	2'-7"	
d2(E)	3	#4	4'-11"	
d3(E)	3	#5	4'-8"	
d4(E)	2	#5	2'-9"	
d5(E)	3	#5	5'-4"	
d6(E)	5	#4	3'-8"	
d7(E)	5	#5	3'-8"	
d8(E)	3	#5	6'-1"	
d9(E)	4	#5	6'-2"	
d10(E)	6	#6	2'-0"	
h(E)	12	#6	23'-3"	
h1(E)	12	#6	25'-10"	
s(E)	12	#5	3'-8"	
s1(E)	18	#5	4'-0"	
s2(E)	42	#5	3'-4"	
u(E)	39	#5	3'-10"	
u1(E)	38	#5	3'-4"	
u2(E)	16	#5	4'-0"	
Concrete Removal			Cu Yd	13.6
Concrete Superstructure			Cu Yd	15.1
Protective Coat			Sq Yd	34
Reinforcement Bars, Epoxy Coated			Pound	2,790



BARS s(E), s1(E) & s2(E)

BARS	B
s(E)	10"
s1(E)	1'-0"
s2(E)	8"



BARS u(E), u1(E) & u2(E)

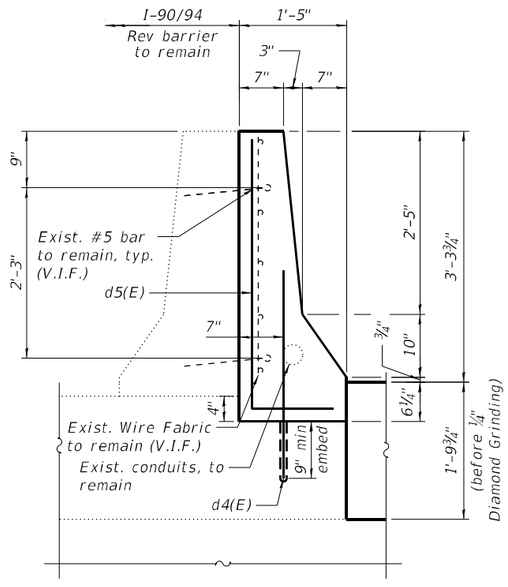
BARS	A
u(E)	1'-9"
u1(E)	1'-6"
u2(E)	1'-10"

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

NOTES:

1. For legend, see Sheet S04-07.
2. For preformed joint strip seal details, see Sheet S04-13.
3. For bar splicer assembly details, see Sheet S04-26.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E), d8(E) and d9(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

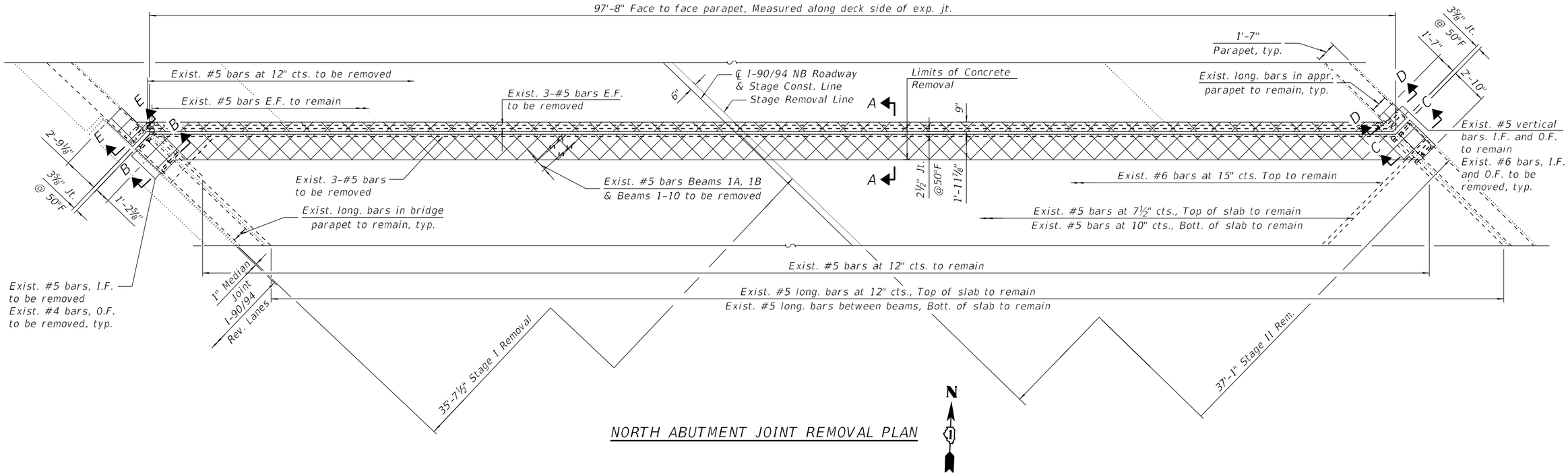


SECTION DD-DD

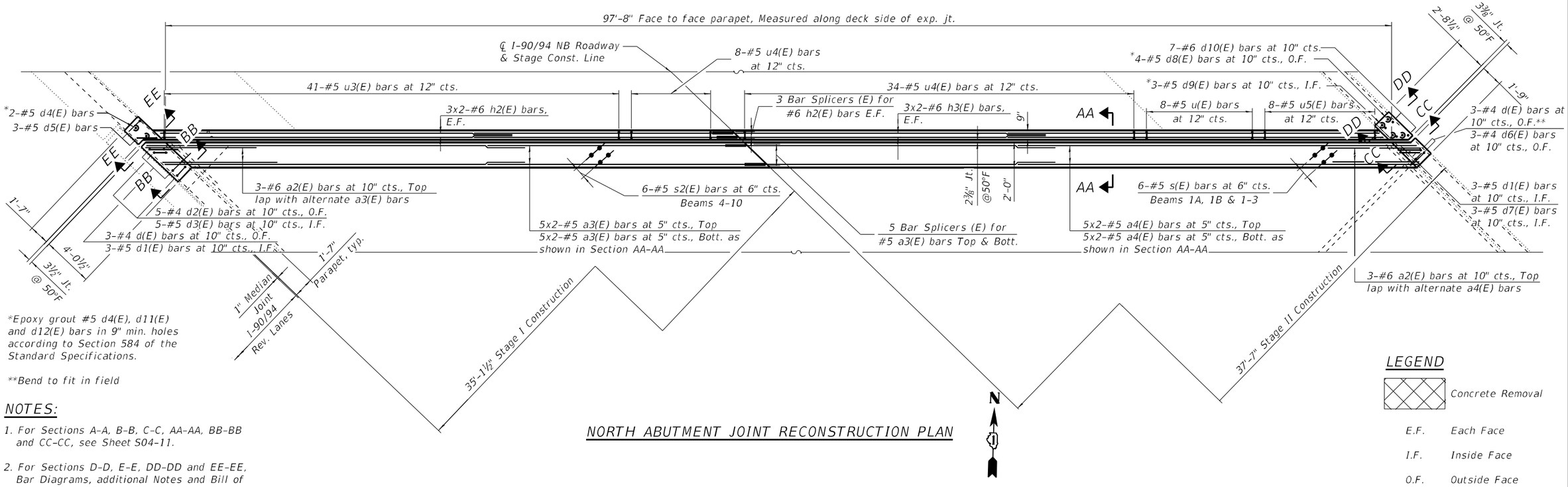
(Reinforcement in the pour strip not shown for clarity)

SECTION EE-EE

(Reinforcement in the pour strip not shown for clarity)



NORTH ABUTMENT JOINT REMOVAL PLAN



NORTH ABUTMENT JOINT RECONSTRUCTION PLAN

*Epoxy grout #5 d4(E), d11(E) and d12(E) bars in 9" min. holes according to Section 584 of the Standard Specifications.

**Bend to fit in field

NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S04-11.
2. For Sections D-D, E-E, DD-DD and EE-EE, Bar Diagrams, additional Notes and Bill of Material, see Sheet S04-12.

LEGEND

Concrete Removal

E.F. Each Face

I.F. Inside Face

O.F. Outside Face

HBM ENGINEERING GROUP, LLC

USER NAME =	DESIGNED - LAB, HMI	REVISED -	
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB, HMI	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

N. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-10 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	547
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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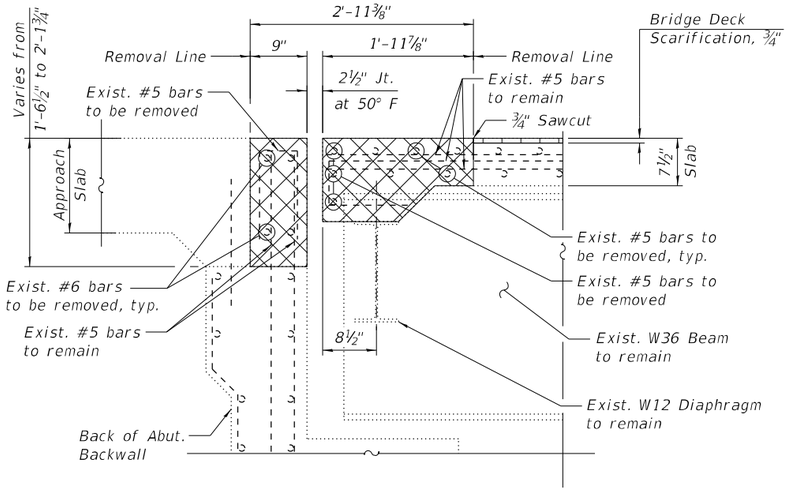
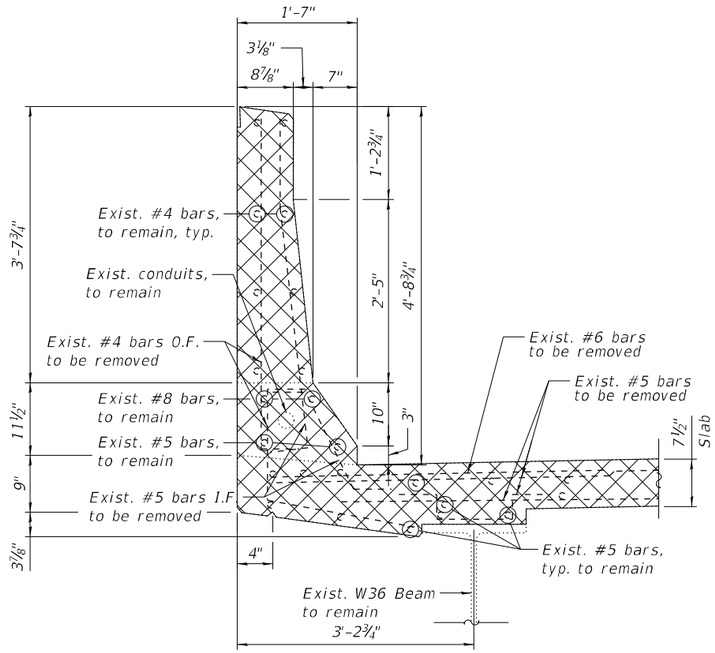
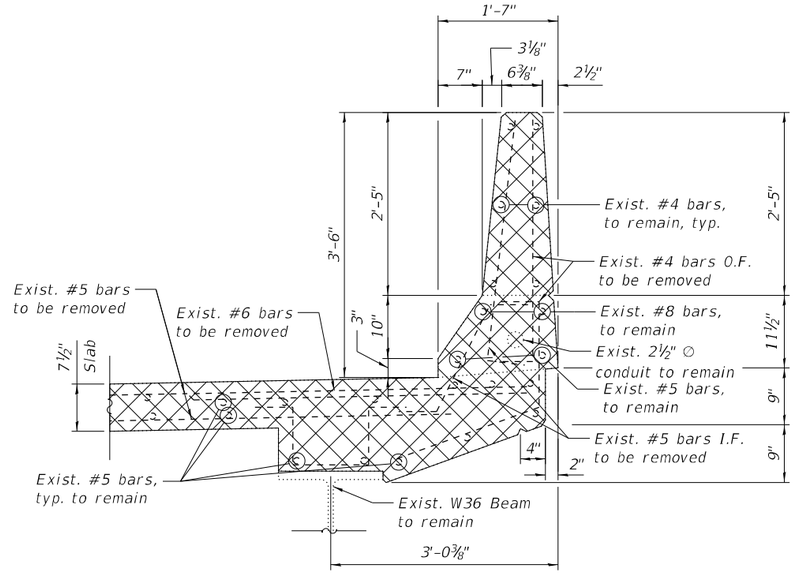


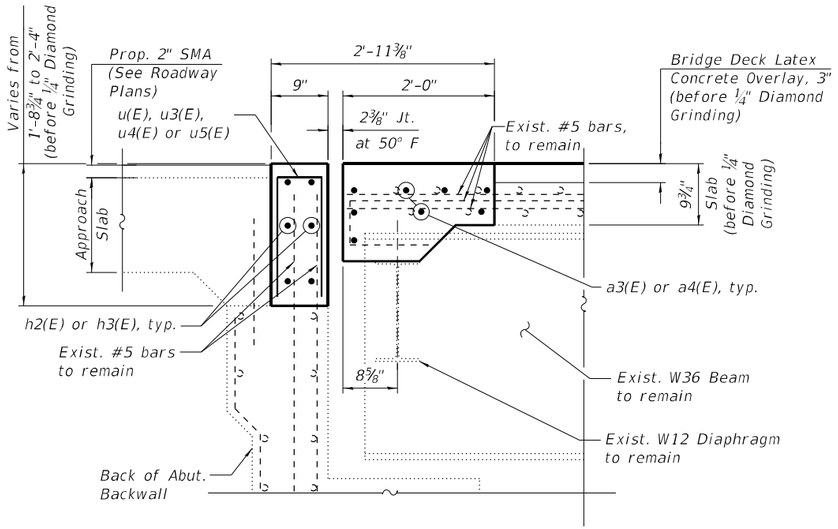
SECTION A-A



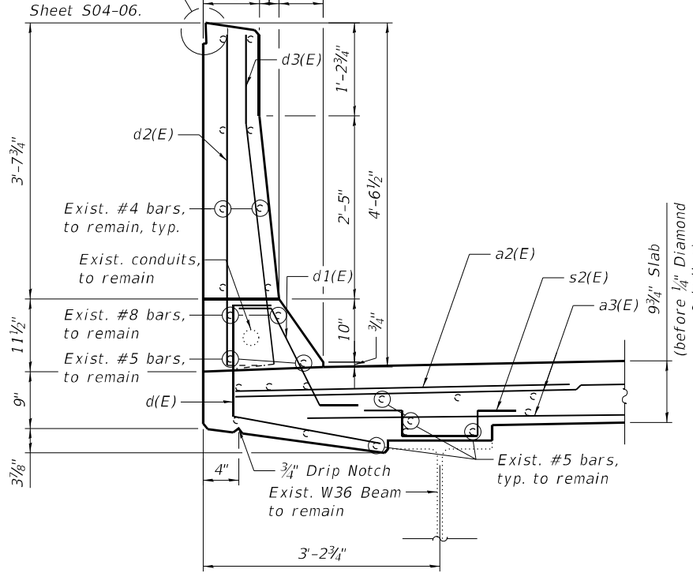
SECTION B-B



SECTION C-C



SECTION AA-AA



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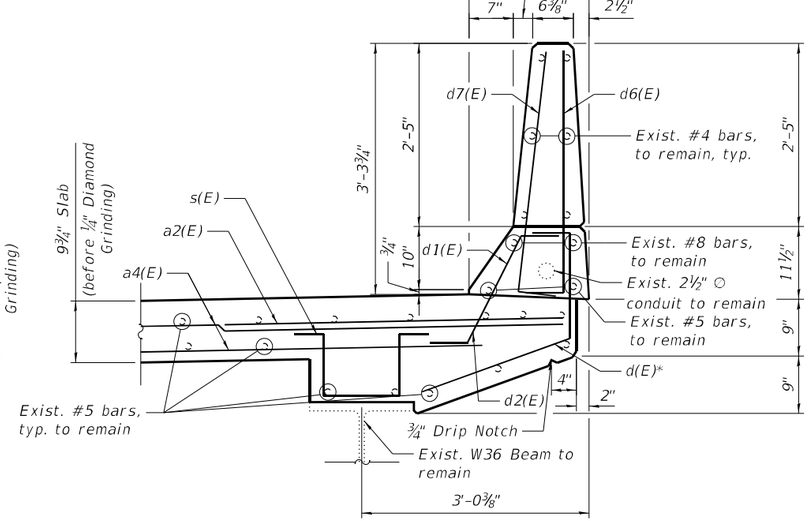

SECTION CC-CC

*Bend to fit in field

NOTES:

1. For legend, see Sheet S04-10.

2. For Bar Diagrams, Notes and Bill of Material, see Sheet S04-12.

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STATE OF ILLINOIS
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N. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 2 OF 3)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-11 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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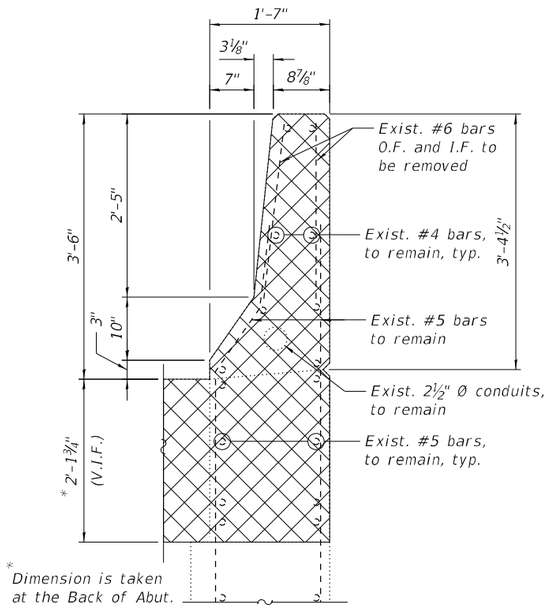
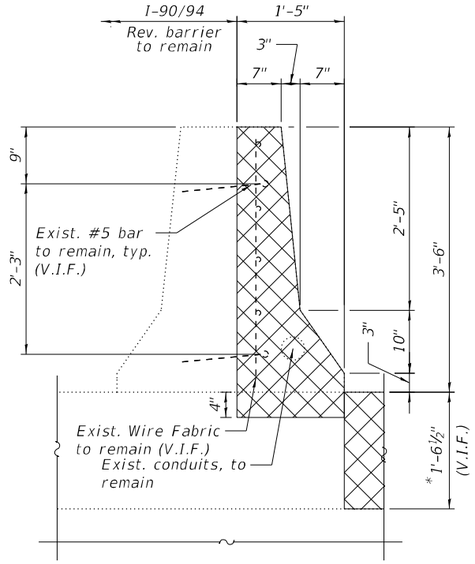
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



SECTION D-D

(Reinforcement in the pour strip not shown for clarity)



SECTION E-E

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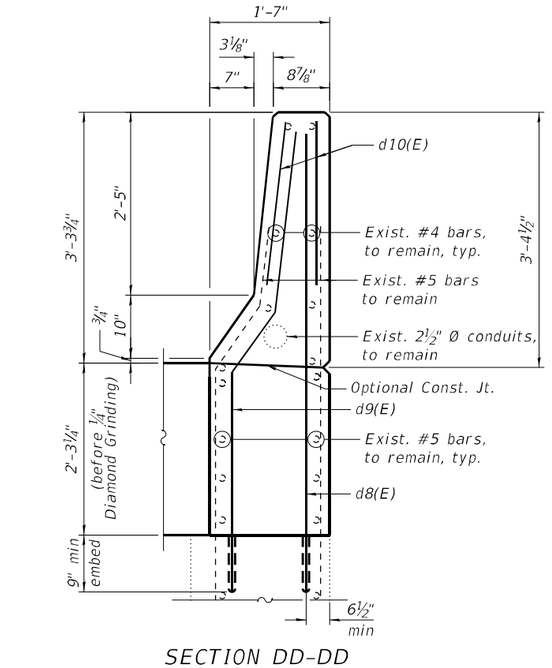

SECTION DD-DD

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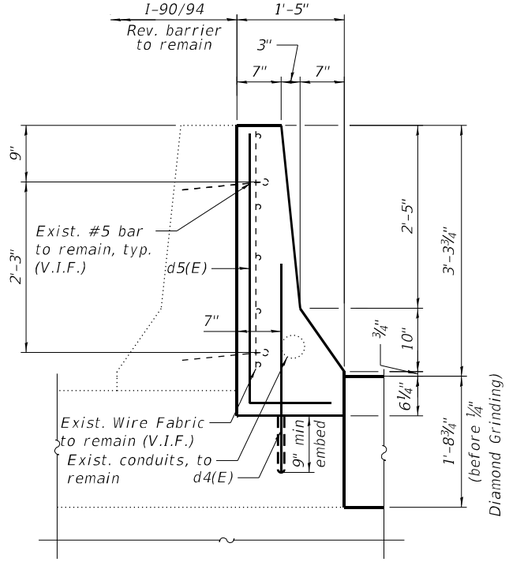

SECTION EE-EE

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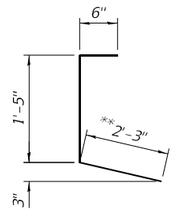
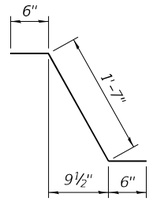
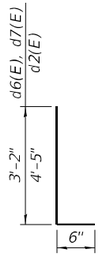


BAR d(E)

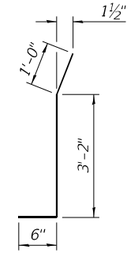
**Bend and cut to fit in field



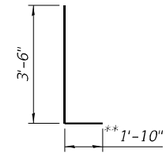
BAR d1(E)



BARS d2(E), d6(E) & d7(E)

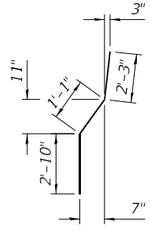


BAR d3(E)

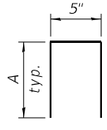


BAR d5(E)

**Cut in field to fit

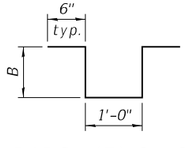


BAR d9(E)



BARS u(E), u3(E) u4(E) & u5(E)

BARS	A
u(E)	1'-9"
u3(E)	1'-4"
u4(E)	1'-7"
u5(E)	1'-11"



BARS s(E) & s2(E)

BARS	B
s(E)	10"
s2(E)	8"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a2(E)	6	#6	6'-6"	
a3(E)	20	#5	25'-6"	
a4(E)	20	#5	28'-2"	
d(E)	6	#4	4'-2"	
d1(E)	6	#5	2'-7"	
d2(E)	5	#4	4'-11"	
d3(E)	5	#5	4'-8"	
d4(E)	2	#5	2'-9"	
d5(E)	3	#5	4'-8"	
d6(E)	3	#4	3'-8"	
d7(E)	3	#5	3'-8"	
d8(E)	4	#5	6'-1"	
d9(E)	3	#5	6'-2"	
d10(E)	7	#6	2'-0"	
h2(E)	12	#6	24'-9"	
h3(E)	12	#6	27'-5"	
s(E)	30	#5	3'-8"	
s2(E)	42	#5	3'-4"	
u(E)	8	#5	3'-10"	
u3(E)	41	#5	3'-1"	
u4(E)	42	#5	3'-7"	
u5(E)	8	#5	4'-3"	
Concrete Removal			Cu Yd	14.3
Concrete Superstructure			Cu Yd	16.2
Protective Coat			Sq Yd	36
Reinforcement Bars, Epoxy Coated			Pound	2,910

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

NOTES:

1. For legend, see Sheet S04-07.
2. For preformed joint strip seal details, see Sheet S04-10.
3. For bar splicer assembly details, see Sheet S04-26.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E), d8(E), and d9(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

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N. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 3 OF 3)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-12 OF S04-26 SHEETS

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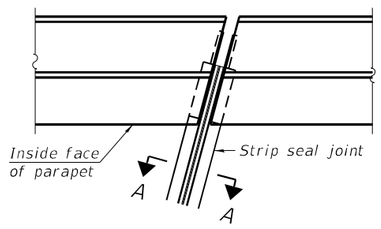
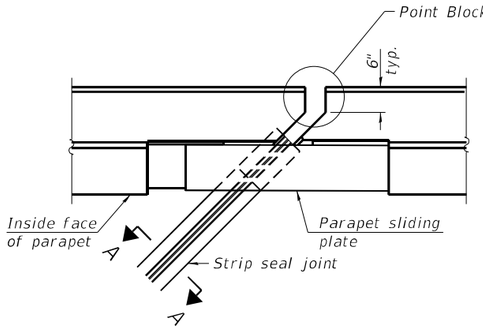
	ILLINOIS FED. AID PROJECT			

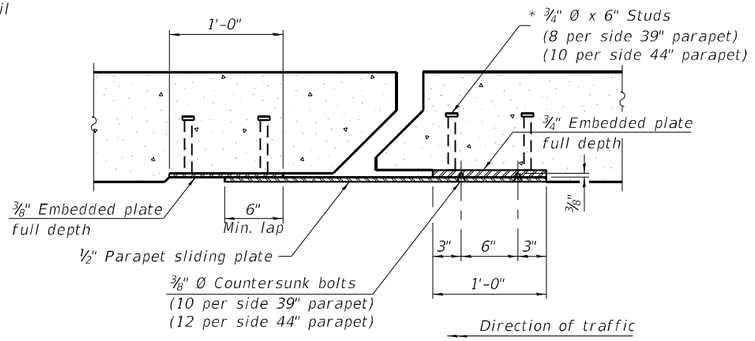


FOR SKEWS ≤ 30°



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.

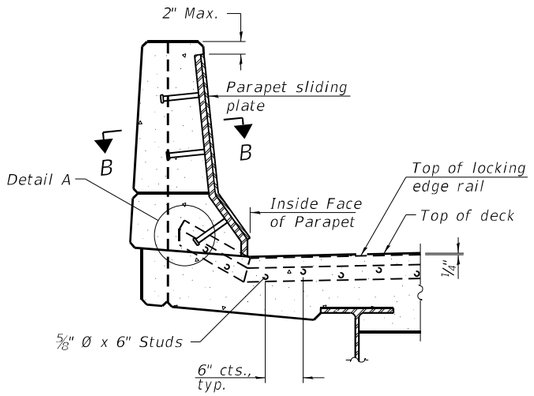
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

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.

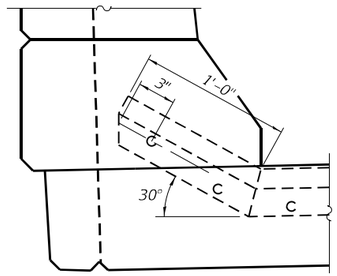
34" F-shape barrier shown, 42" F-shape similar as noted.

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.

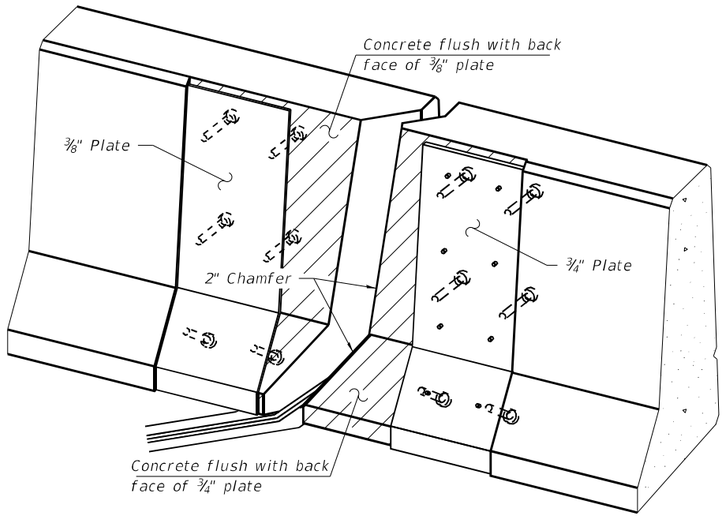


ELEVATION AT PARAPET

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

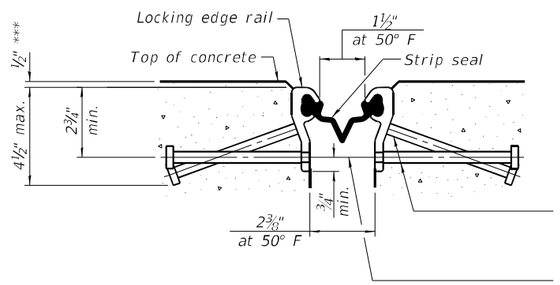


DETAIL A



TRIMETRIC VIEW

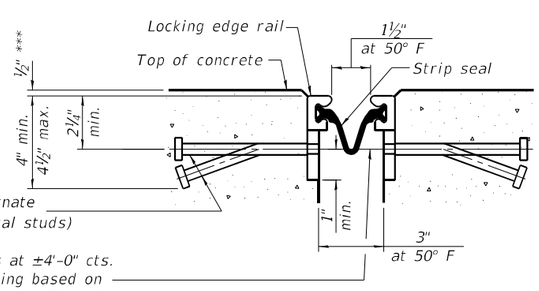
(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT

* ⅜" 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.

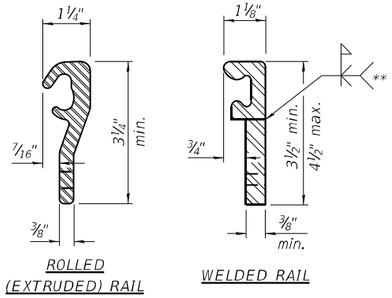


SHOWING WELDED RAIL JOINT

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*

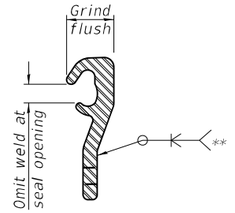


ROLLED (EXTRUDED) RAIL

WELDED RAIL

LOCKING EDGE RAILS

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



LOCKING EDGE RAIL SPLICE

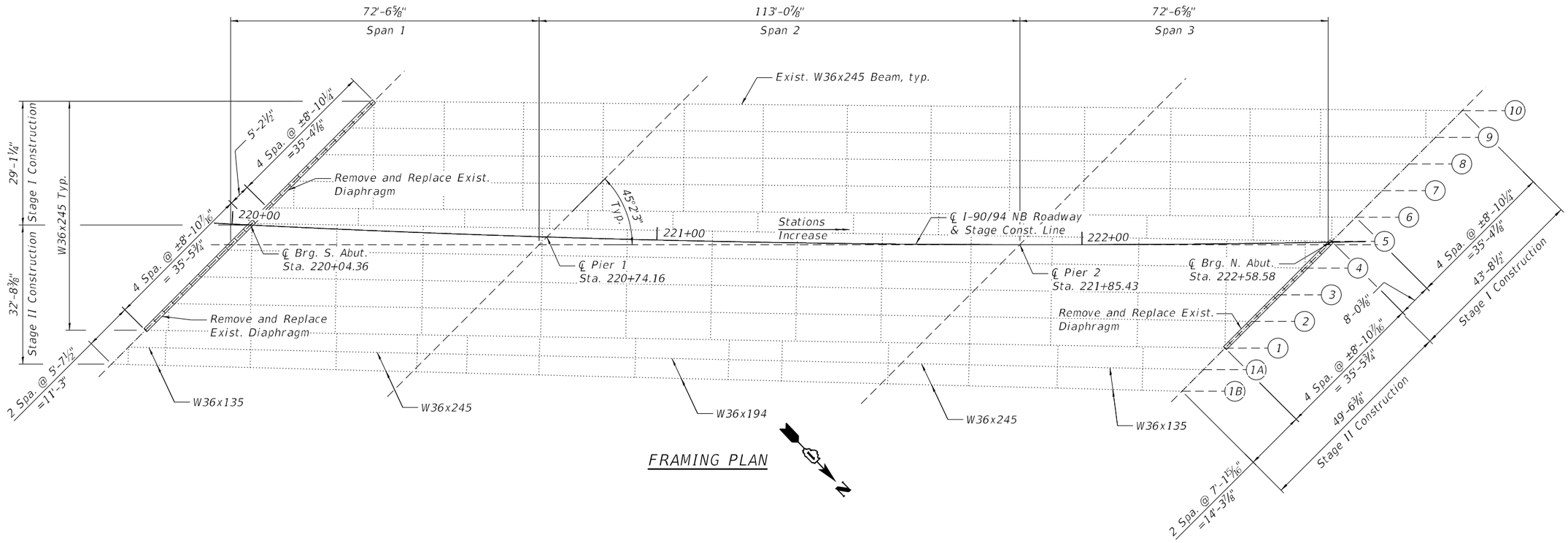
The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	196

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	10,220
Structural Steel Removal	Pound	8,220
Structural Steel Repair	Pound	160



FRAMING PLAN

NOTES:

1. All work is to be performed utilizing staged construction. See Sheets S04-03 and S04-04 for details.
2. For Diaphragms Replacement Details, see Sheets S04-15 thru S04-20.

LEGEND

Remove and Replace Exist. Diaphragm

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	PLOT DATE =	DATE - 4/29/2024	REVISED -	

FRAMING PLAN
STRUCTURE NO. 016-0132 (NB)
SHEET S04-14 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	551
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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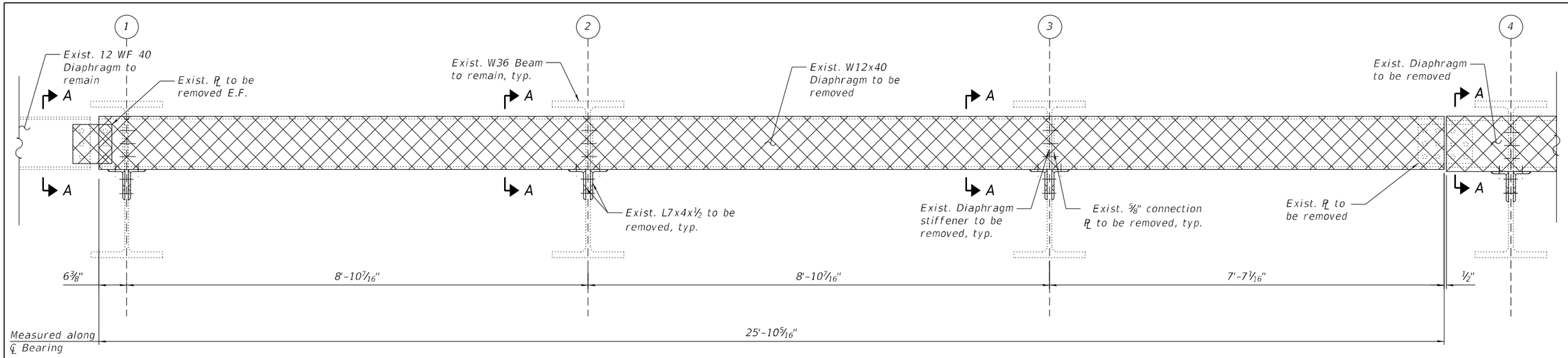
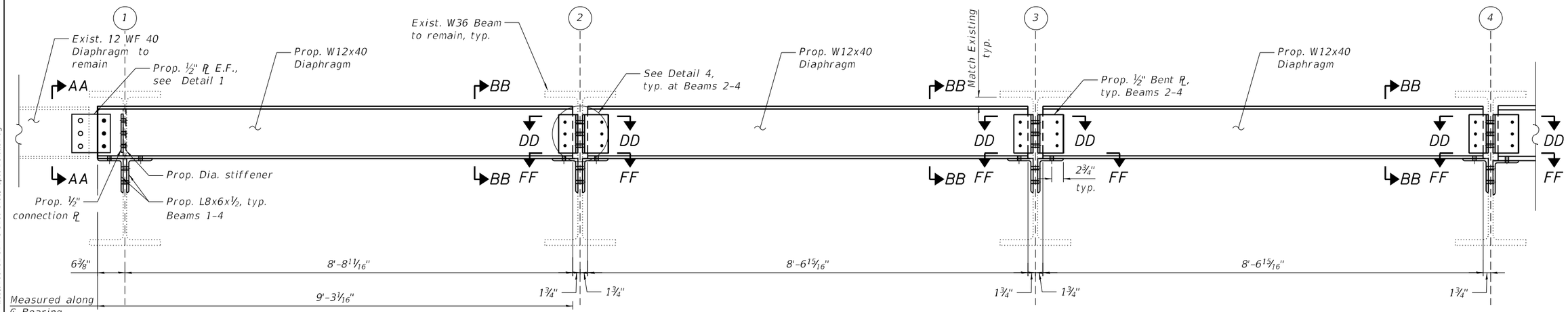


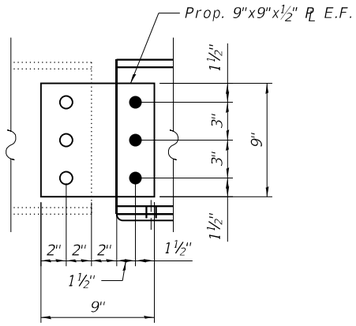
EXISTING CONTINUOUS END DIAPHRAGM REMOVAL AT SOUTH ABUTMENT



PROPOSED END DIAPHRAGMS AT SOUTH ABUTMENT

NOTES:

1. For location of Diaphragm Removal/Replacement and Bill of Material, see Sheet S04-14.
2. All structural steel for web repair plates shall be AASHTO M270 Grade 50. All structural steel for diaphragms and associated connection plates and angles may be AASHTO M270 Grade 36.
3. Diaphragm repair plate holes shall be 1¹⁄₁₆" for ⅞" bolts. Two hardened washers shall be required at diaphragm connections and be ASTM A325 Type 1, mechanically galvanized bolts.
4. Cost of field drilling, bolts, nuts and washers shall be included in the cost of Furnishing and Erecting Structural Steel.
5. No field welding shall be permitted.
6. For Sections A-A and DD-DD, see Sheet S04-16.
7. All proposed web repair plates, bolts, nuts, washers and associated field-drilling shall be paid for as Structural Steel Repairs. The proposed diaphragm and associated connection plates and angles shall be paid for as Furnishing and Erecting Structural Steel.
8. For Section FF-FF, see Sheet S04-17.
9. For Sections AA-AA and BB-BB and Detail 4, see Sheet S04-18.



DETAIL 1

LEGEND:

Structural Steel Removal

Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

Field drill holes in new steel using existing steel as template

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STRUCTURAL STEEL REPAIR DETAILS (SHEET 1 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-15 OF S04-26 SHEETS

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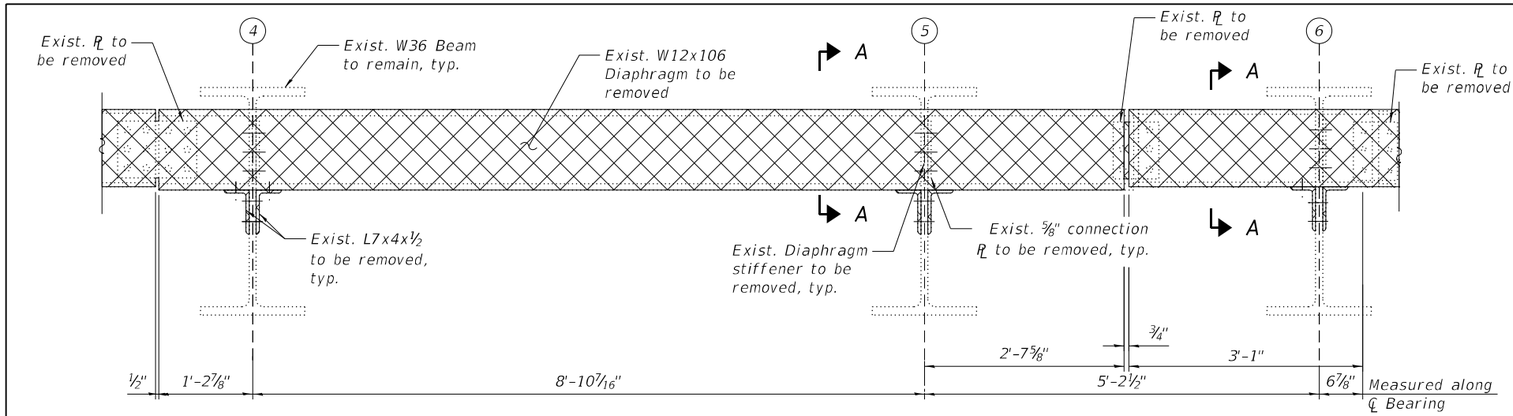
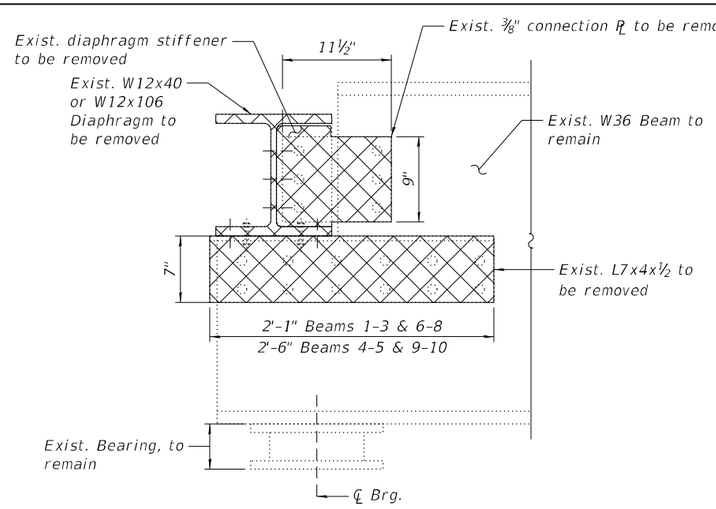
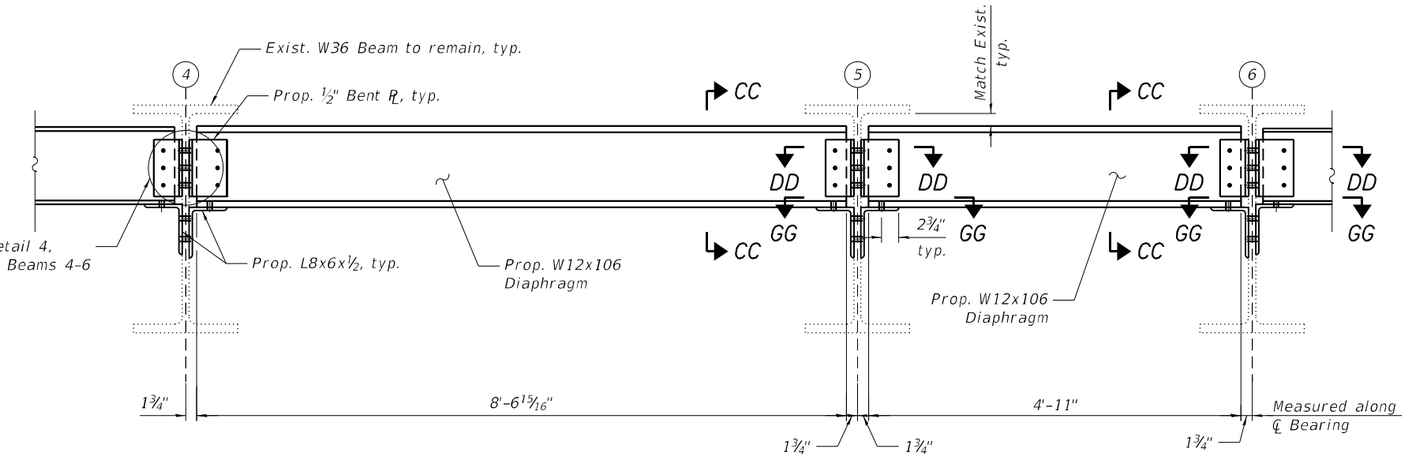


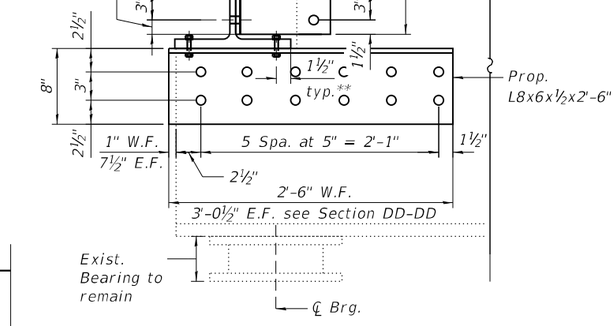
EXISTING CONTINUOUS END DIAPHRAGM REMOVAL AT SOUTH ABUTMENT



SECTION A-A

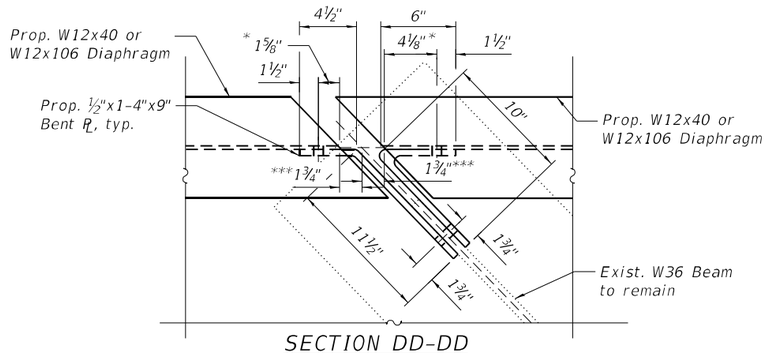


PROPOSED END DIAPHRAGMS AT SOUTH ABUTMENT



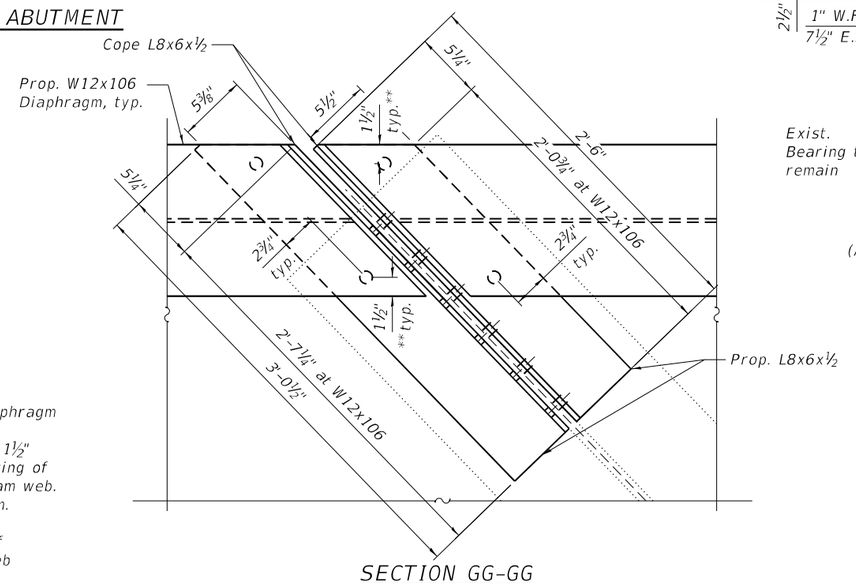
SECTION CC-CC

(At W12x106 Diaphragms, see Note 3)



SECTION DD-DD

(L8x6x½ not shown for clarity)



SECTION GG-GG

NOTES:

1. For notes, see Sheet S04-15.
2. For Detail 4, see Sheet S04-18.
3. In Section CC-CC, E.F. and W.F. refer to East Face and West Face, respectively at the South Abutment. North Abutment opposite hand.

*Measured to end of diaphragm

**Contractor may revise 1½" dimension based on spacing of bolts connecting L to beam web. Not less than 1" minimum.

***Measured from end of diaphragm to ℄ Beam Web

LEGEND:

E.F.	East Face
W.F.	West Face
	Structural Steel Removal
•	Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.
○	Field drill holes in new steel using existing steel as template

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS (SHEET 2 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-16 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	553
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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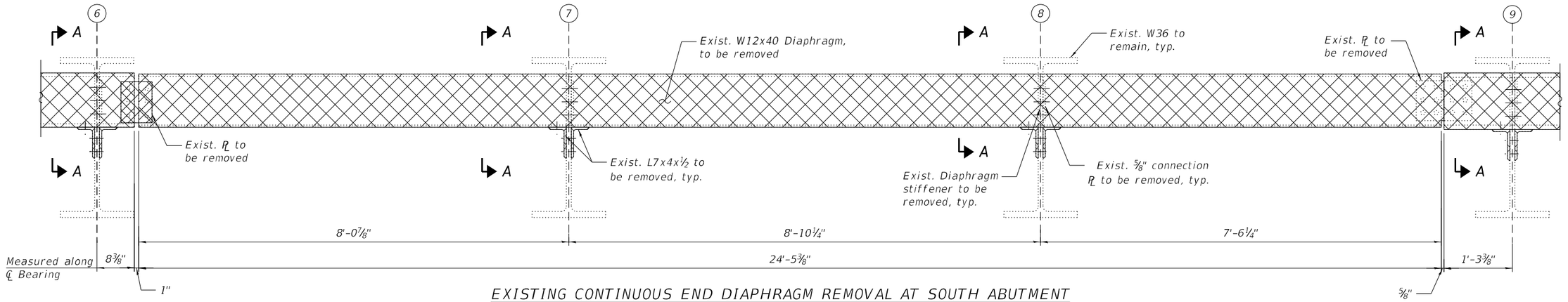
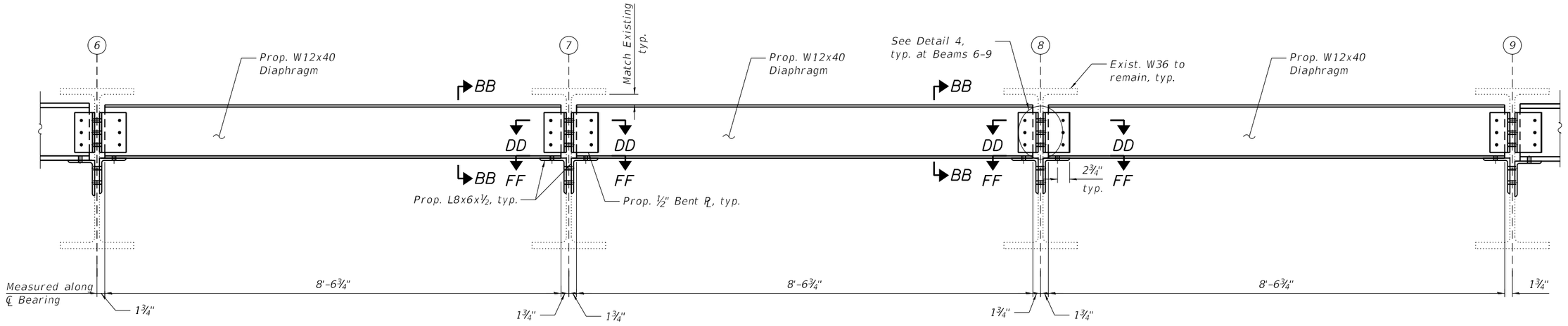
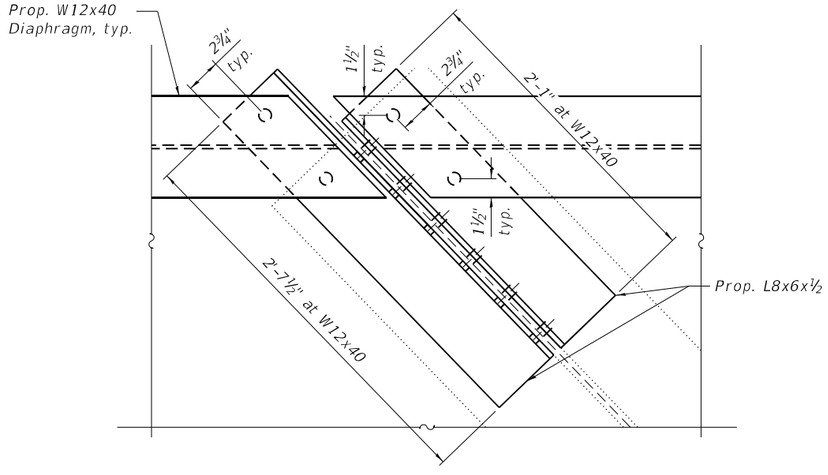


EXISTING CONTINUOUS END DIAPHRAGM REMOVAL AT SOUTH ABUTMENT



PROPOSED END DIAPHRAGMS AT SOUTH ABUTMENT



SECTION FF-FF

NOTES:

1. For notes, See Sheet S04-15.
2. For Sections A-A and DD-DD, see Seet S04-16.
3. For Section BB-BB and Detail 4, see Sheet S04-18.

LEGEND:

Structural Steel Removal

• Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

○ Field drill holes in new steel using existing steel as template

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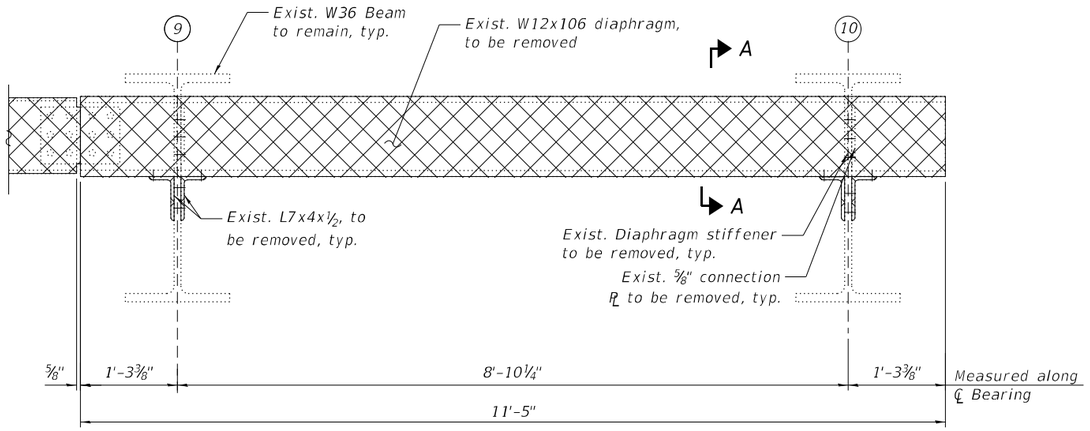
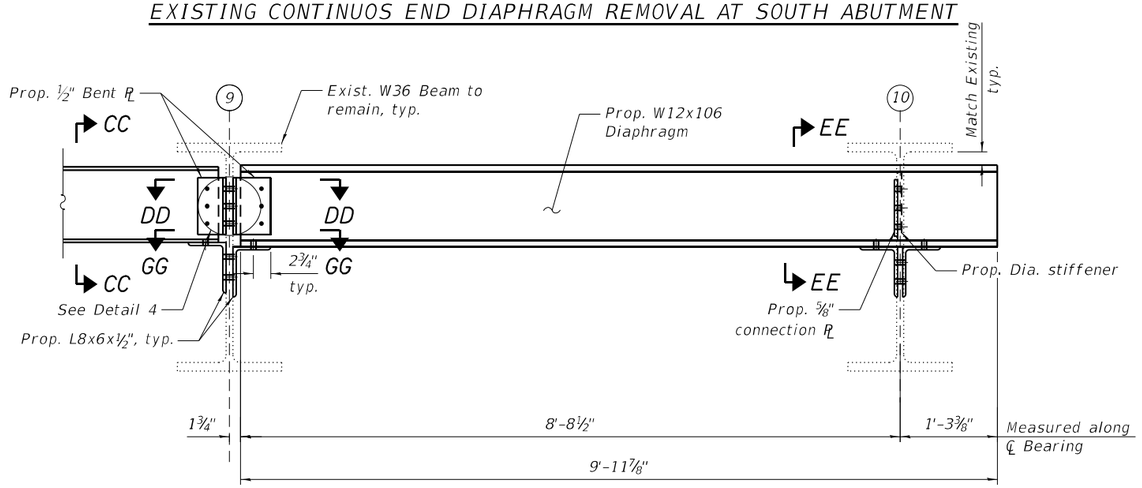
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS (SHEET 3 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-17 OF S04-26 SHEETS

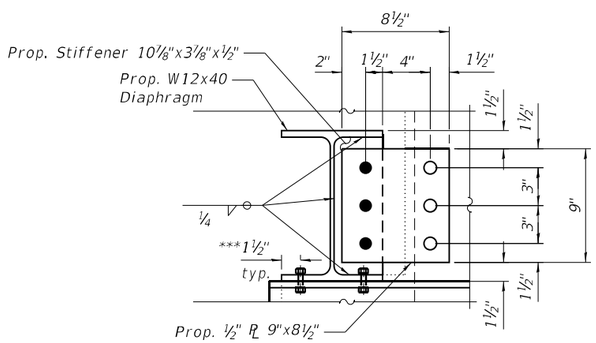
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	554
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



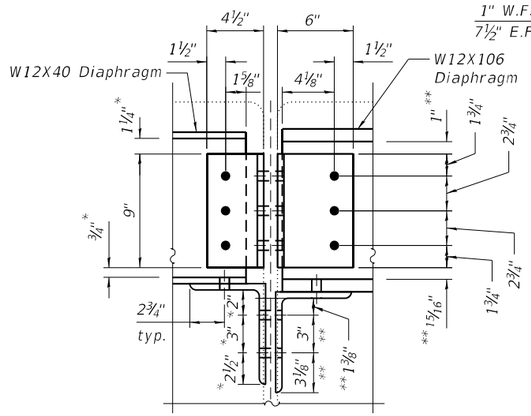
EXISTING CONTINUOS END DIAPHRAGM REMOVAL AT SOUTH ABUTMENT



PROPOSED END DIAPHRAGMS AT SOUTH ABUTMENT

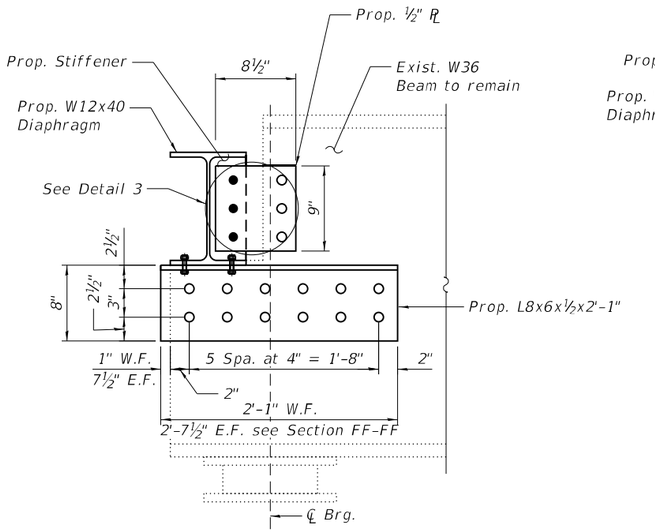


DETAIL 3



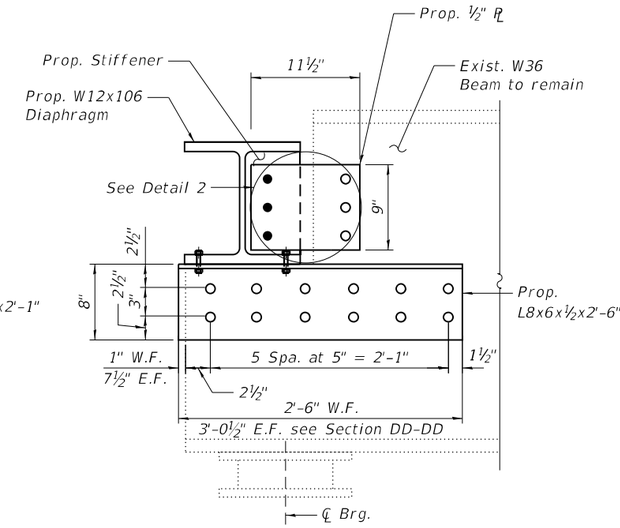
DETAIL 4

(Shown at Beam 9, other Beams similar)



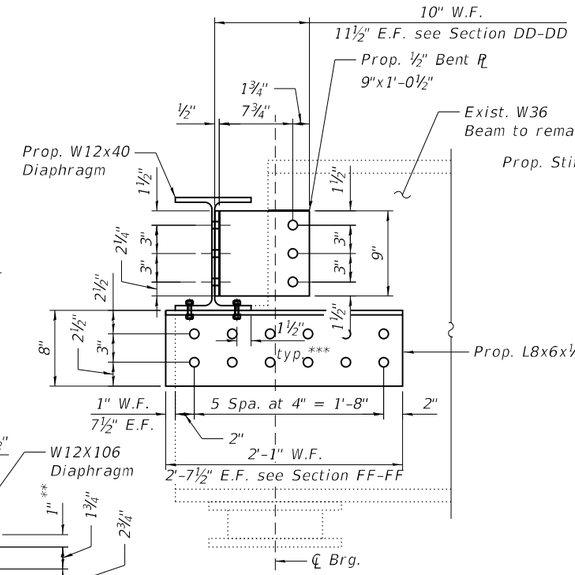
SECTION AA-AA

(At Beam 1, see Note 3)



SECTION EE-EE

(At Beam 10, see Note 3)

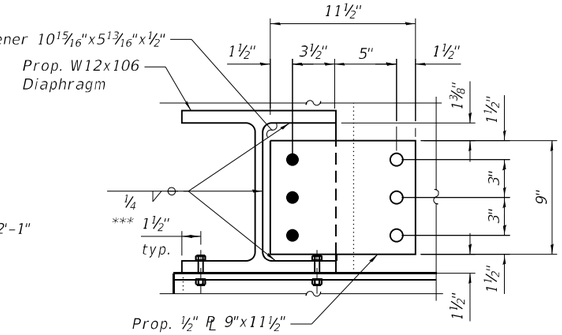


SECTION BB-BB

(At W12x40 Diaphragms, see Note 3)

* At W12x40 Diaphragms
** At W12x106 Diaphragms

*** Contractor may revise 1½" dimension based on spacing of bolts connecting L to beam web. Not less than 1" minimum.



DETAIL 2

LEGEND:

E.F.	East Face
W.F.	West Face
	Structural Steel Removal
•	Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.
○	Field drill holes in new steel using existing steel as template

NOTES:

1. For notes, see Sheet S04-15.
2. For Sections A-A, CC-CC, DD-DD and GG-GG, see Sheet S04-16.
3. In Sections AA-AA, BB-BB and EE-EE, E.F. and W.F. refer to East Face and West Face, respectively at the South Abutment. North Abutment opposite hand.

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STATE OF ILLINOIS
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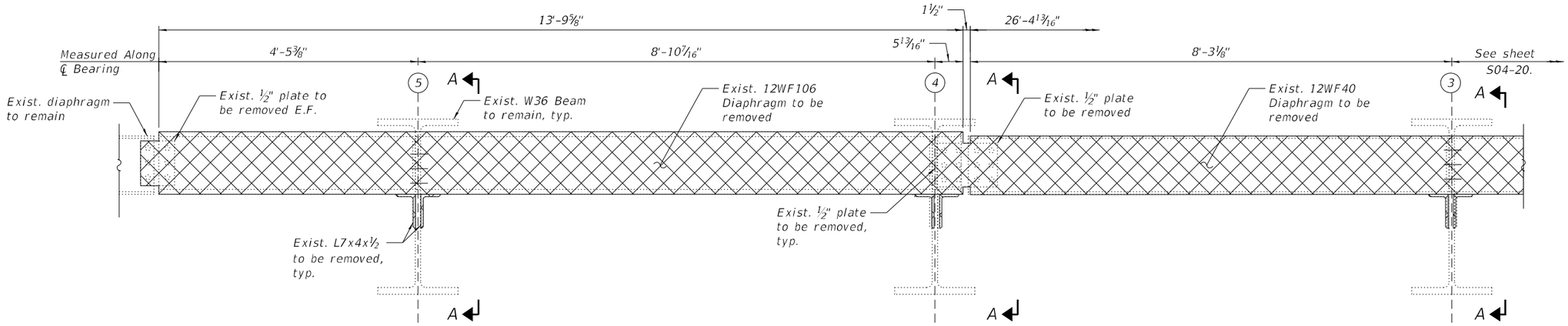
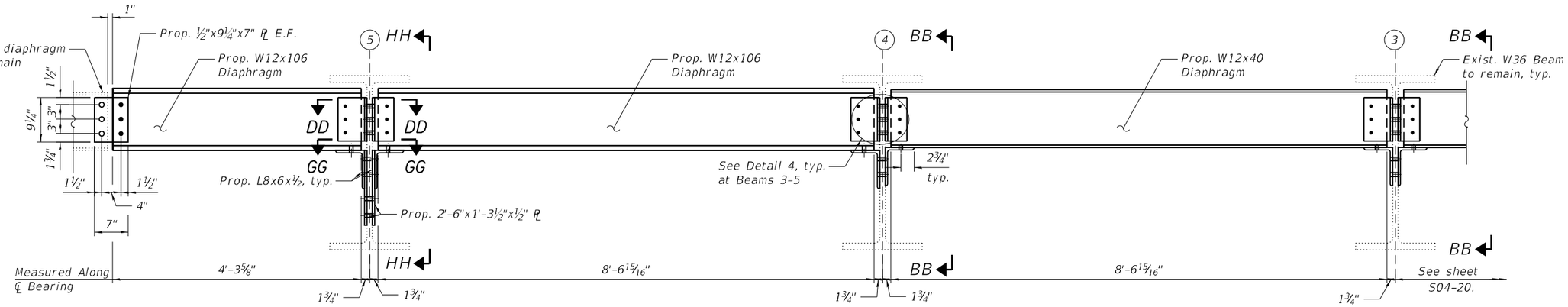
STRUCTURAL STEEL REPAIR DETAILS (SHEET 4 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-18 OF S04-26 SHEETS

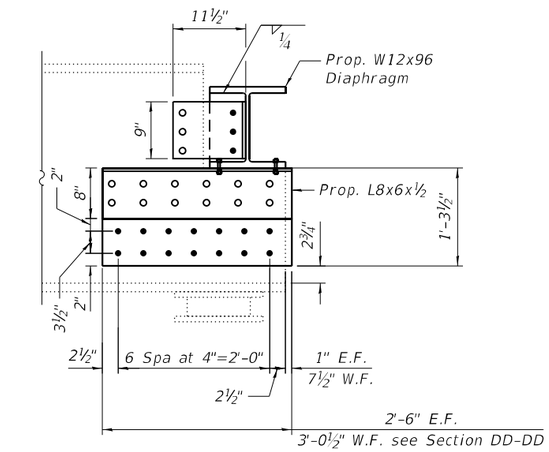
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	555
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



EXISTING CONTINUOUS END DIAPHRAGM REMOVAL AT NORTH ABUTMENT



PROPOSED END DIAPHRAGM AT NORTH ABUTMENT



SECTION HH-HH

(For dimensions not shown, see Section CC-CC)

NOTES:

1. For Notes, see Sheet S04-15.
2. For Sections A-A, DD-DD, and GG-GG, see Sheet S04-16.
3. For Section BB-BB and Detail 4, see Sheet S04-18.

LEGEND:

Structural Steel Removal

Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

Field drill holes in new steel using existing steel as template

MODEL: Default
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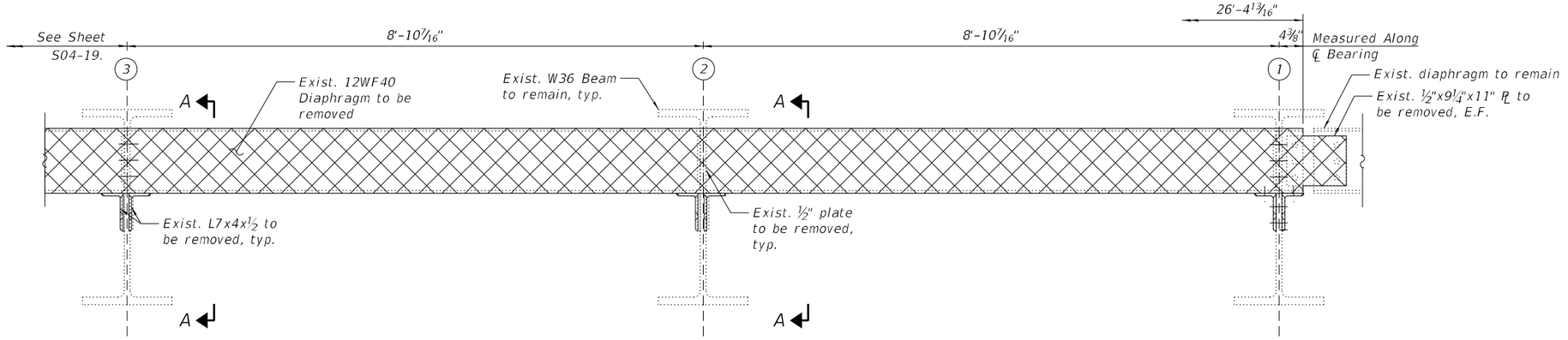
PLOT DATE =	DATE - 4/29/2024	REVISED -	

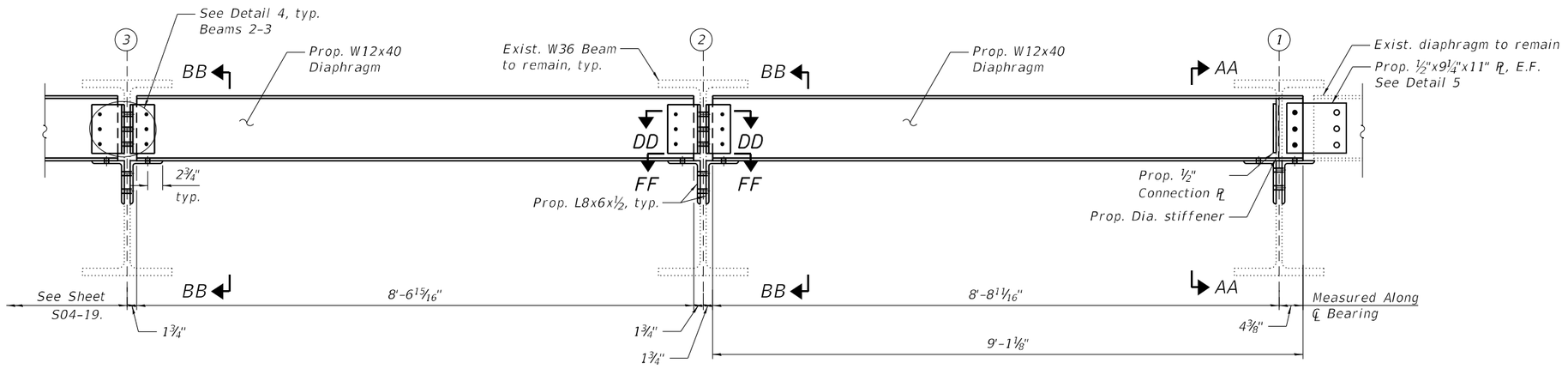
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS (SHEET 5 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-19 OF S04-26 SHEETS

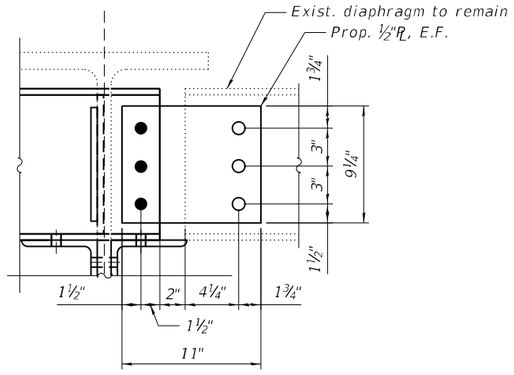
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	556
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



EXISTING CONTINUOUS END DIAPHRAGM REMOVAL AT NORTH ABUTMENT



PROPOSED END DIAPHRAGM AT NORTH ABUTMENT



DETAIL 5

NOTES:

1. For Notes, see Sheet S04-15.
2. For Sections A-A and DD-DD, see Sheet S04-16.
3. For Section FF-FF, see Sheet S04-17.
4. For Sections AA-AA, BB-BB and Detail 4, see Sheet S04-18.

LEGEND:

Structural Steel Removal

• Shop drill holes in new steel. Use new steel as template to field drill holes in existing steel.

○ Field drill holes in new steel using existing steel as template.

MODEL: Default
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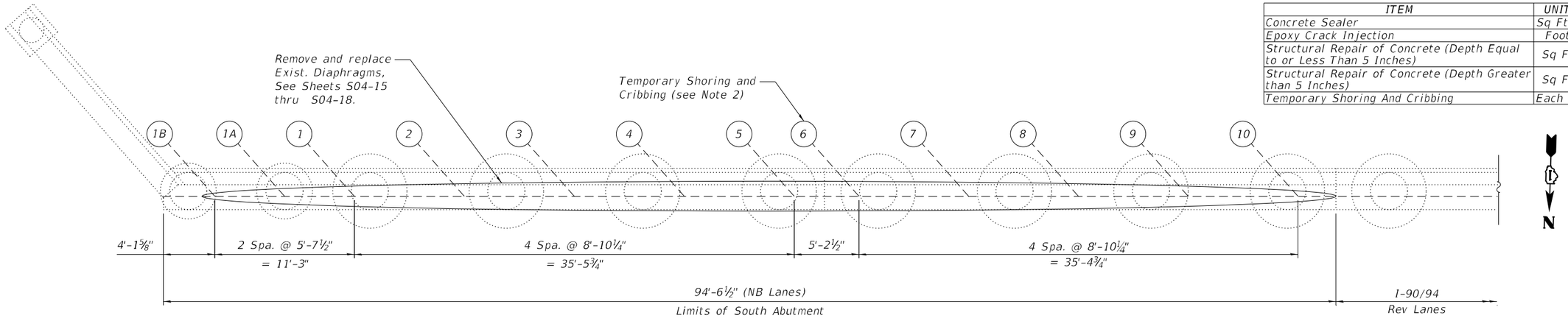
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS (SHEET 6 OF 6)
STRUCTURE NO. 016-0132 (NB)
SHEET S04-20 OF S04-26 SHEETS

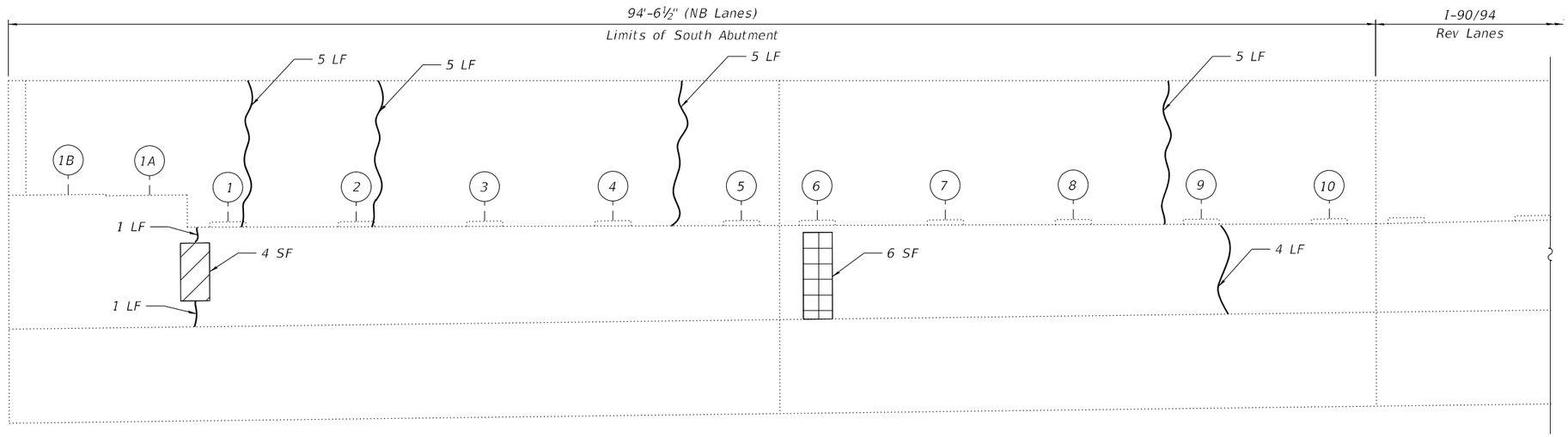
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	557
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	368
Epoxy Crack Injection	Foot	26
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	4
Structural Repair of Concrete (Depth Greater than 5 Inches)	Sq Ft	6
Temporary Shoring And Cribbing	Each	1



SOUTH ABUTMENT PLAN



SOUTH ABUTMENT 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. 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.
3. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.
4. For Slope Wall repairs, see Sheet S04-25.

SUMMARY OF REACTIONS SOUTH ABUTMENT BEAM 6		
R DL	(k)	29.1
R LL	(k)	39.8
R IM	(k)	10.1
R Total	(k)	79.0

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

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DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0132 (NB)
SHEET S04-21 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	558
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

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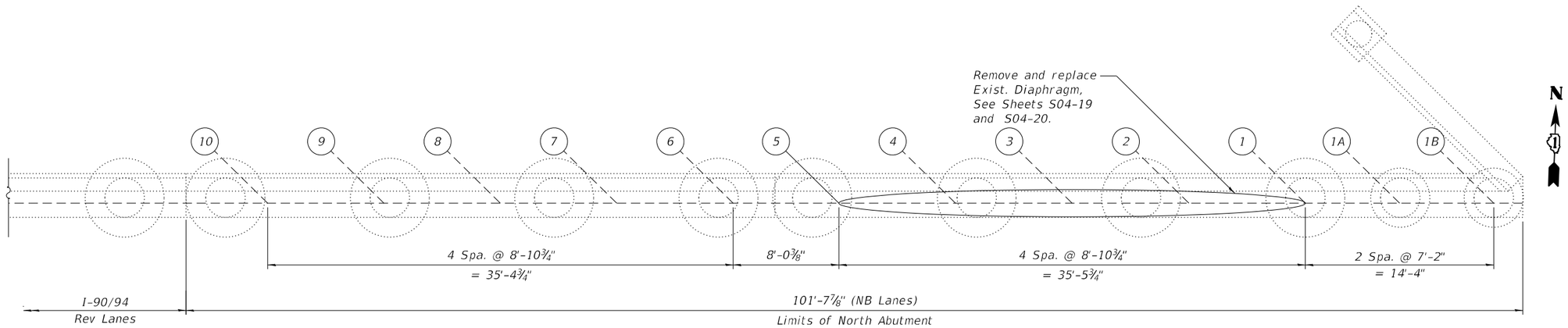
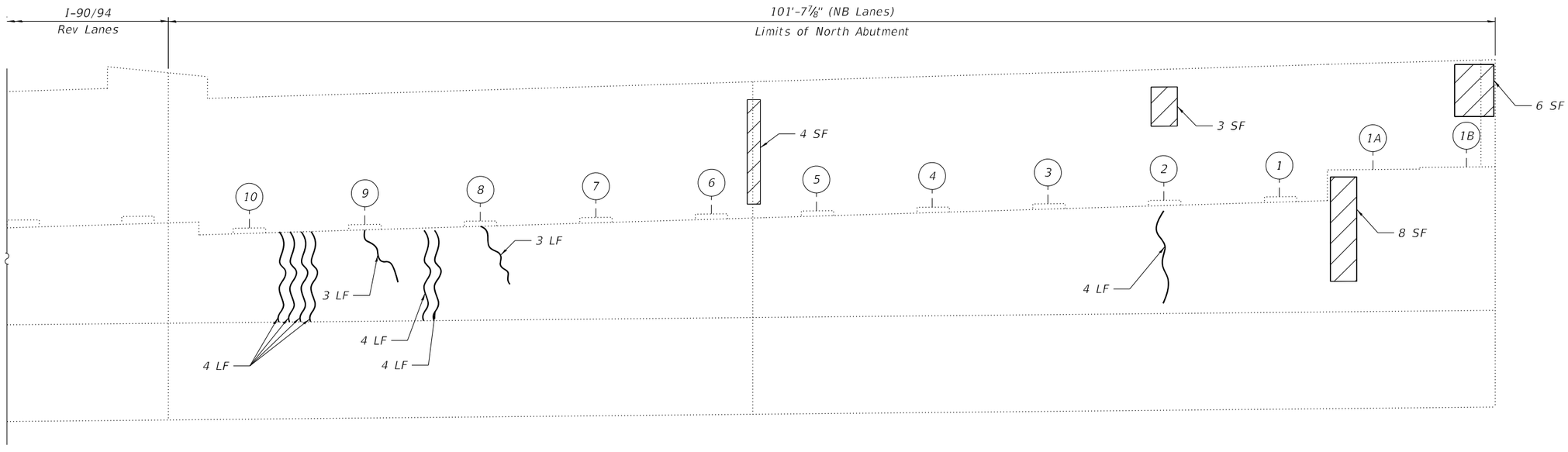
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	410
Epoxy Crack Injection	Foot	34
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	21



NORTH ABUTMENT PLAN



NORTH ABUTMENT 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. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.
3. For Slope Wall repairs, see Sheet S04-25.

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

MODEL: Default
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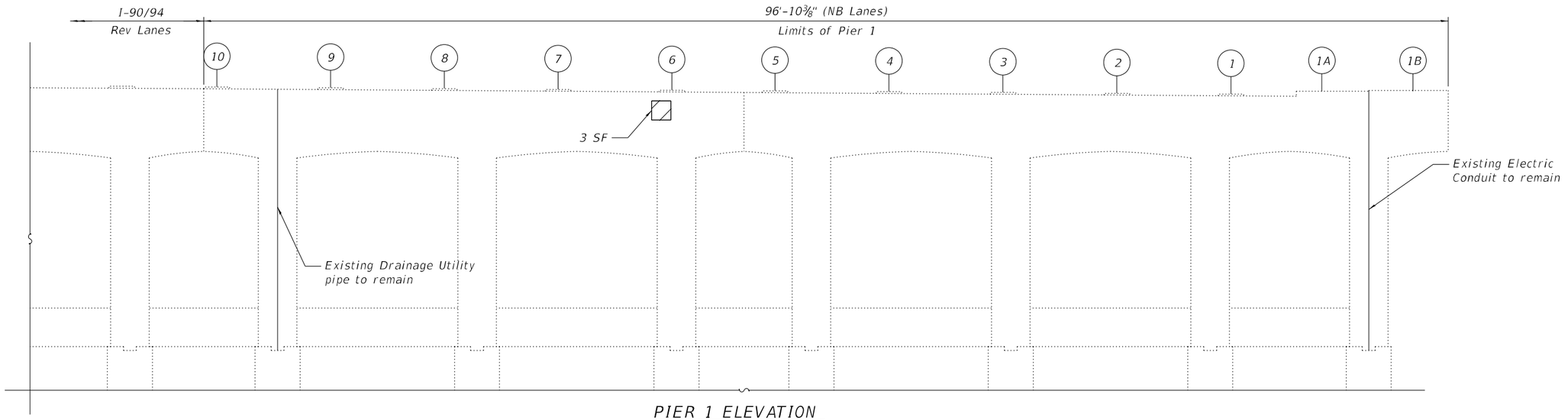
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0132 (NB)
SHEET S04-22 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	559
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

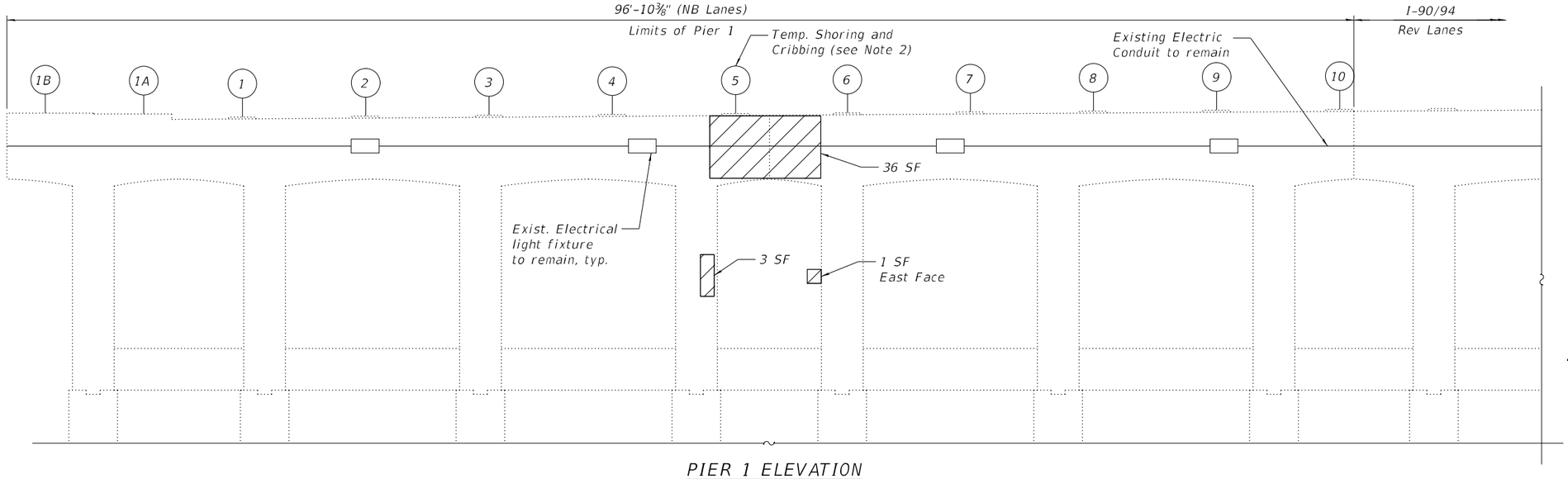
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Repair of Concrete (Depth Equal To or Less Than 5 Inches)	Sq Ft	43
Temporary Shoring and Cribbing	Each	1



PIER 1 ELEVATION

(Looking North)



PIER 1 ELEVATION

(Looking South)

EXISTING LIGHTING: PIER 1

(Looking Southeast)

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.

SUMMARY OF REACTIONS PIER 1 BEAM 5		
R DL	(k)	131.5
R LL	(k)	58.4
R IM	(k)	13.5
R Total	(k)	203.4

LEGEND

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

SF – Square Foot

MODEL: Default
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PLOT DATE =	DATE - 4/29/2024	REVISED -	

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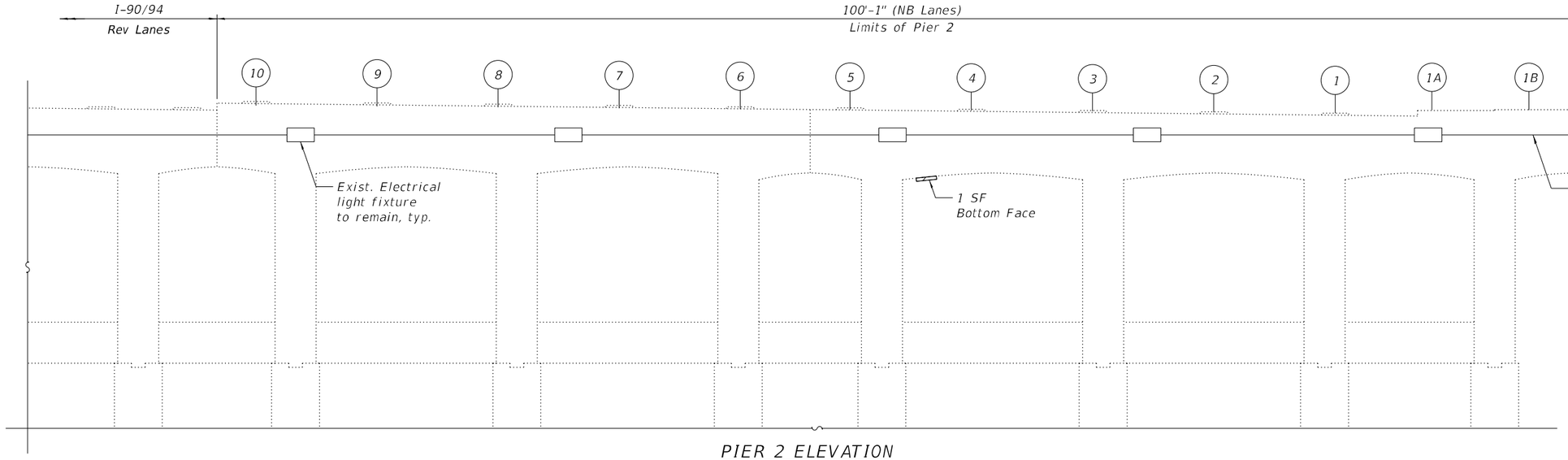
PIER 1 REPAIRS
STRUCTURE NO. 016-0132 (NB)
SHEET S04-23 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	560
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

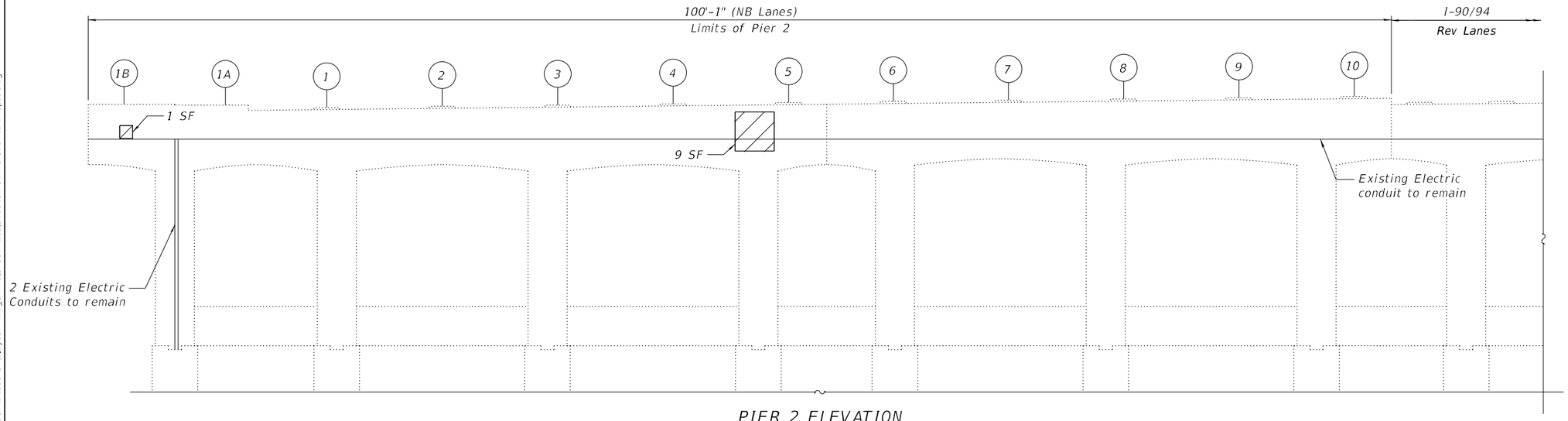
BILL OF MATERIAL

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



PIER 2 ELEVATION
(Looking North)

EXISTING LIGHTING: PIER 2
(Looking North)



PIER 2 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

MODEL: Default
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PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
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PIER 2 REPAIRS
STRUCTURE NO. 016-0132 (NB)
SHEET S04-24 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	561
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Porous Granular Embankment	Cu Yd	38
Slope Wall Removal	Sq Yd	113
Slope Wall 4 Inch	Sq Yd	113
Slope Wall Crack Sealing	Foot	25

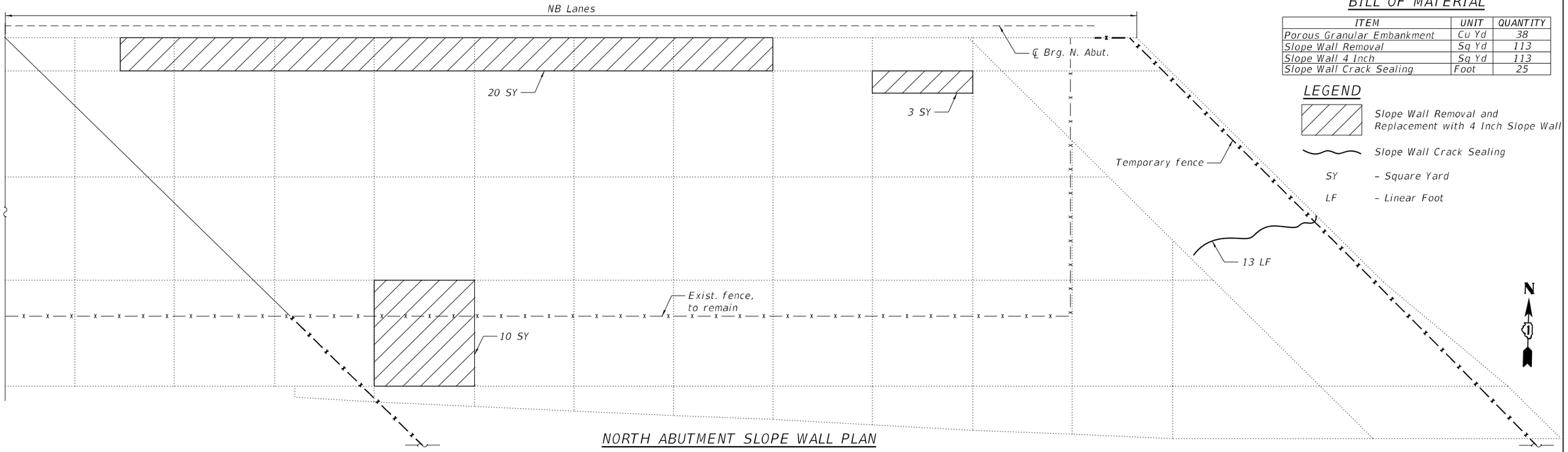
LEGEND

Slope Wall Removal and Replacement with 4 Inch Slope Wall

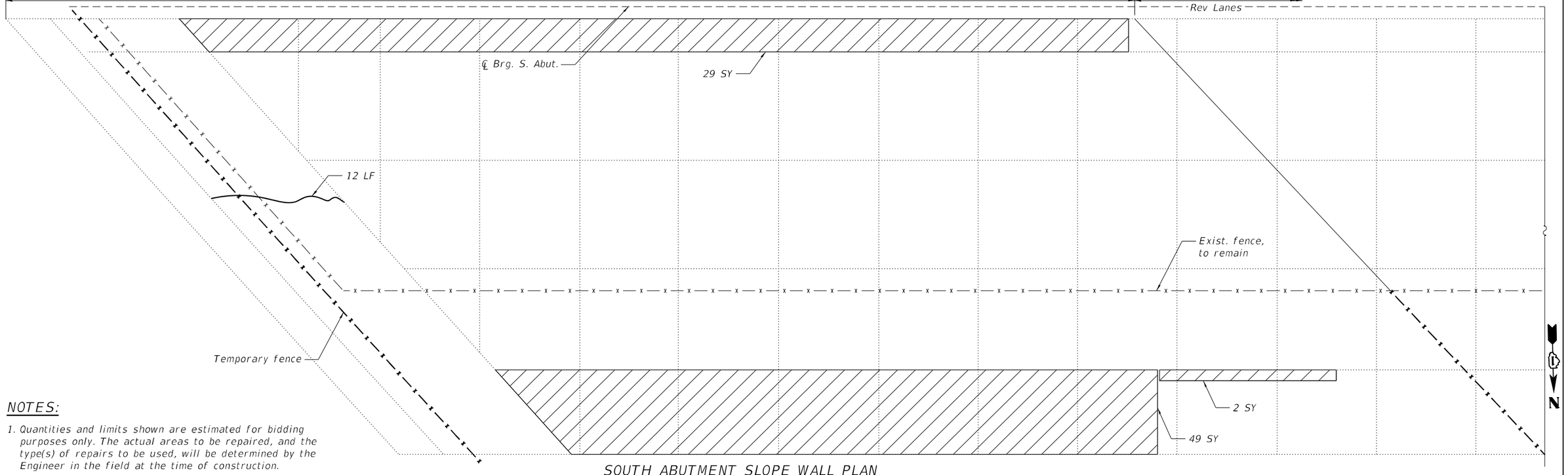
Slope Wall Crack Sealing

SY – Square Yard

LF – Linear Foot



NORTH ABUTMENT SLOPE WALL PLAN



SOUTH ABUTMENT SLOPE WALL PLAN

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. Slope wall shall be reinforced with welded wire fabric, 6 in. x 6 in. W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.

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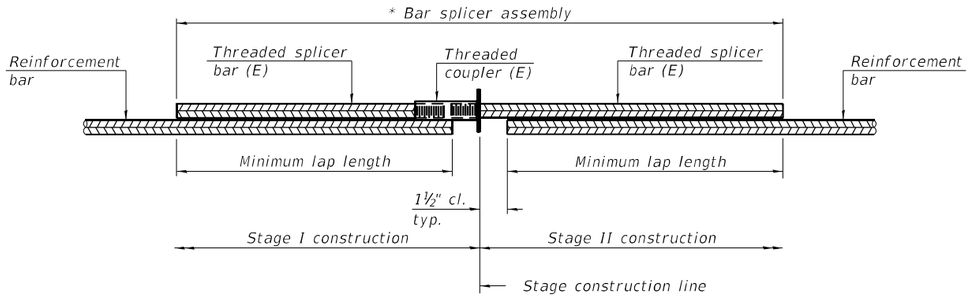
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPE WALL REPAIRS
STRUCTURE NO. 016-0132 (NB)

SHEET S04-25 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	562
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



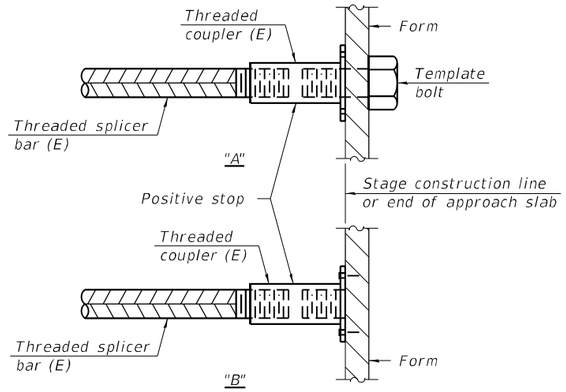
STANDARD BAR SPLICER ASSEMBLY PLAN

(All components shall be provided from one supplier)

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

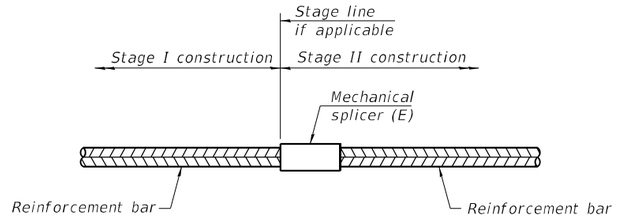
** Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.*

Location	Bar size	No. assemblies required	Minimum lap length
South Abutment Exp. Jt.	#5	10	3'-6"
	#6	6	4'-0"
North Abutment Exp. Jt.	#5	10	3'-6"
	#6	6	4'-0"



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 *1-1-2020*

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PLOT DATE =		DATE -	4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 016-0132 (NB)
SHEET S04-26 OF S04-26 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	563
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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Existing Structure: S.N. 016-0131 (I-90/94 over Webster Ave.) was originally built in 1959. The bridge was widened between 1990 and 1993 and expansion joint repairs were performed in 2013. The structure has a back-to-back abutment length of 236'-2½" and an out-to-out width varying from 79'-8¾" to 102'-8". The superstructure consist of a 7½" thick reinforced concrete deck supported on 3-span continuous steel beams of span lengths 68'-0", 93'-0" and 68'-0". The substructure consist of reinforced concrete piers and abutments founded on concrete piles.

Traffic is to be maintained utilizing stage construction.

No salvage.

DESIGN SPECIFICATIONS

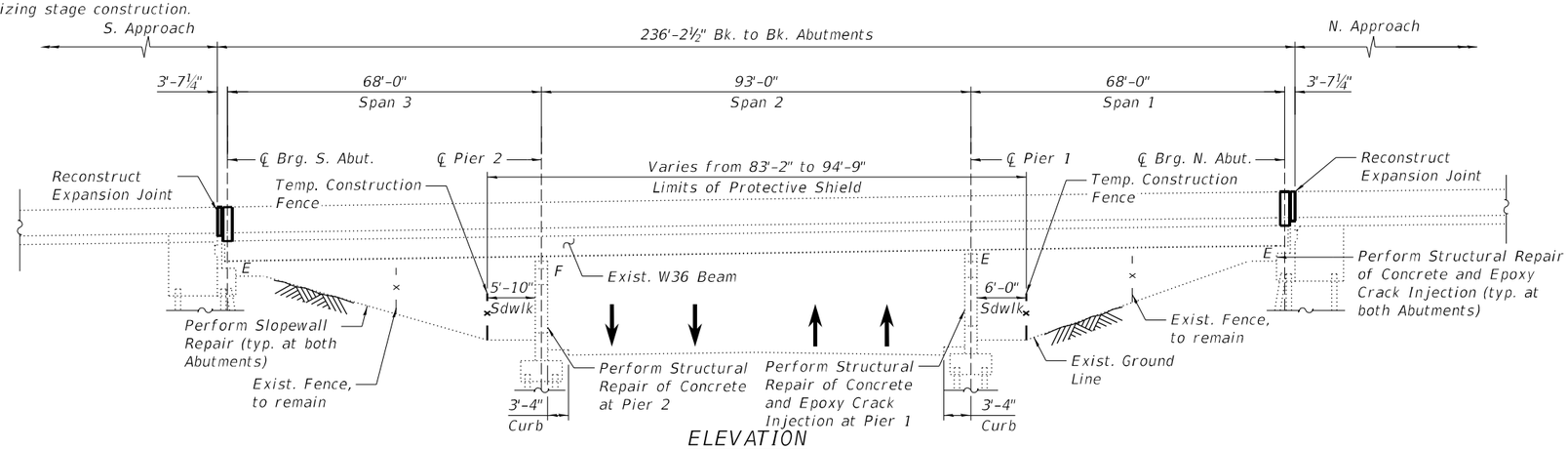
2002 AASHTO Standard Specification for Highway Bridges, 17th Edition

RECONSTRUCTION 1993

1989 AASHTO Standard Specifications with 1990 & 1991 Interim

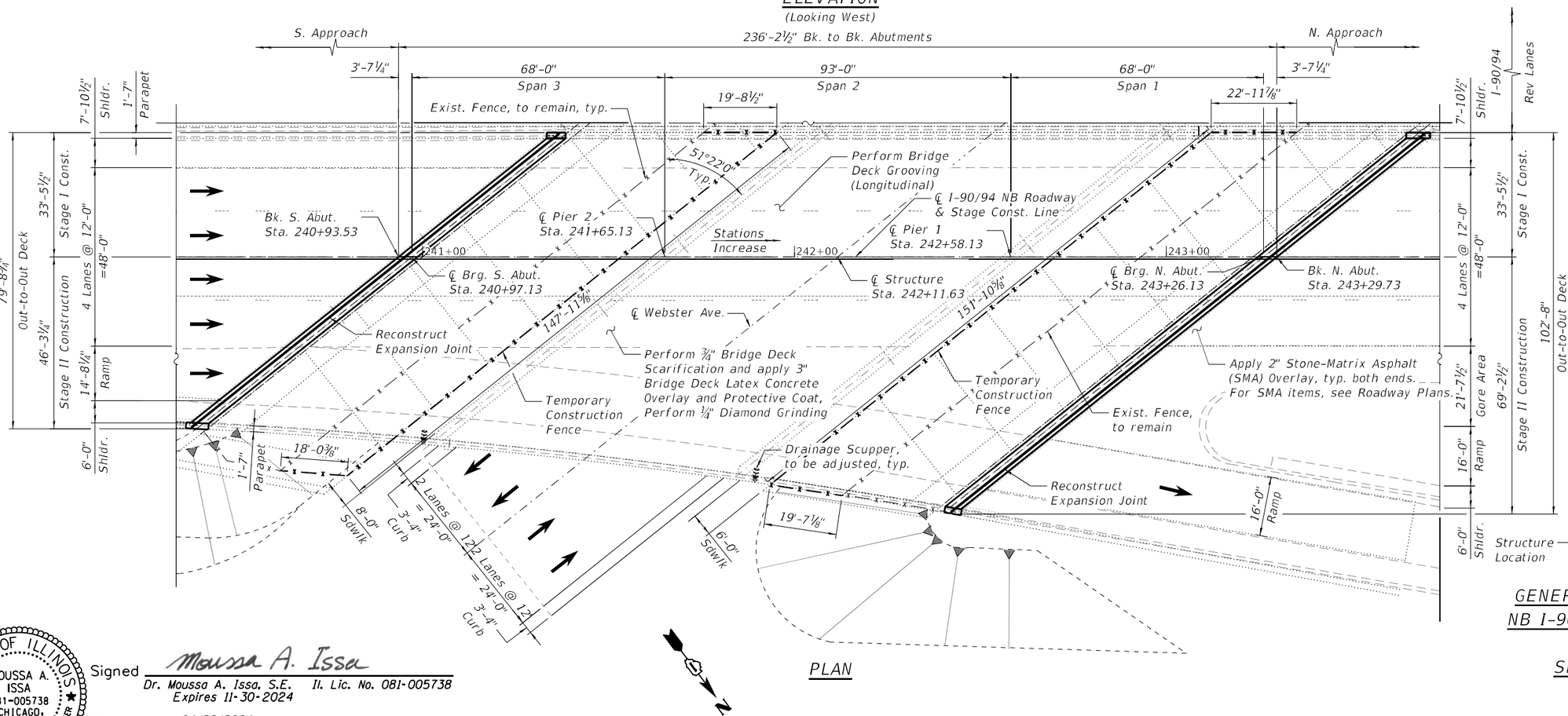
NOTES:

1. All stations are to the ℄ I-90/94 NB Roadway and taken from existing plans.
2. No future wearing surface is allowed.

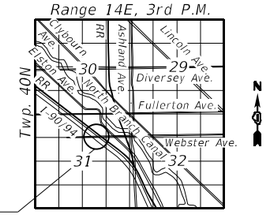


ELEVATION

(Looking West)



PLAN



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
NB I-90/94 OVER WEBSTER AVE.
F.A.I. ROUTE 90/94
SECTION 2020-005-BR
COOK COUNTY
STATION 242+11.63
S.N. 016-0131 (NB)

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 11-30-2024

Date 04/29/2024

For Sheets S05-01 thru S05-22

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DEPARTMENT OF TRANSPORTATION

STRUCTURE NO. 016-0131 (NB)

SHEET S05-01 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	564
		CONTRACT NO. 62K73		
		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 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.

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

4. All exposed concrete edges shall have a ¾"x45° chamfer except where shown otherwise.

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. Cost included with Concrete Removal.

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

7. Protective Coat shall be applied to the top of reconstructed transverse joint areas, top and inside faces of parapets and top of Latex Concrete Overlay.

8. 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.

9. Prior to pouring the new concrete deck for expansion joint reconstruction and deck slab repairs, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete. 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" deep shall be identified and reported to the Bureau of Bridges and Structures for further dispositions. 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.

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

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

12. All new structural steel shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanizing for Structural Steel".

13. Fasteners shall be ASTM F 3125 Grade A325 Type 1. Fasteners shall be hot dip galvanized. See Special Provision for "Hot Dip Galvanizing for Structural Steel." Bolts ¾ in. diameter, holes 13/16 in. diameter, unless otherwise noted.

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

15. Adjacent I-90/94 reversible bridge is not shown throughout the plans for clarity.

16. 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.

17. 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".

18. 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.

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

20. 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.

21. 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 including in the cost of Protective Shield.

22. The Contractor shall contact Chandra Libby, the Director of City of Chicago Department of Family Support Services (DFSS) at 312-746-5443 or Chandra.Libby@cityofchicago.org to coordinate the relocation of persons and their personal belongings under the bridges within the areas bounded by the temporary chain-link-fence.

INDEX OF SHEETS

SCOPE OF WORK

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

2. Scarify ¾" from the bridge deck slab.

3. Perform Deck Slab Repairs and adjust existing scuppers and inlets as required.

4. Reconstruct Expansion Joints at the South and North abutments 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 hatched block.

7. Apply 2" Stone-Mix Asphalt (SMA) Overlay on the Approach Slabs, see Roadway Plans.

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

9. Apply protective coat to the top of reconstructed transverse joint areas and top and inside faces of parapets and top of Latex Overlay.

10. Perform structural concrete repairs and epoxy crack injection for the abutments and piers as noted on the plans.

11. Perform Slope Wall repairs.

12. Repair the existing drainage system, as shown on the plans.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	-	4	4
Concrete Removal	Cu Yd	40.7	-	40.7
Slope Wall Removal	Sq Yd	-	11	11
Protective Shield	Sq Yd	1149	-	1149
Concrete Superstructure	Cu Yd	46.7	-	46.7
Protective Coat	Sq Yd	2466	-	2466
Furnishing And Erecting Structural Steel	Pound	330	-	330
Reinforcement Bars, Epoxy Coated	Pound	7630	-	7630
Bar Splicers	Each	32	-	32
Slope Wall 4 Inch	Sq Yd	-	11	11
Preformed Joint Seal 2 1/2"	Foot	237	-	237
Preformed Joint Strip Seal	Foot	289	-	289
Concrete Sealer	Sq Ft	-	1131	1131
Epoxy Crack Injection	Foot	-	33	33
Slope Wall Crack Sealing	Foot	-	163	163
Bridge Drainage System Repair	Foot	-	22	22
Bridge Deck Grooving (Longitudinal)	Sq Yd	1653	-	1653
Protect And Maintain Existing Underpass	L Sum	-	0.04	0.04
Approach Slab Repair (Full Depth)	Sq Yd	52	-	52
Approach Slab Repair (Partial Depth)	Sq Yd	52	-	52
Structural Steel Removal	Pound	330	-	330
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2163	-	2163
Cleaning Drainage System	L Sum	0.063	-	0.063
Bridge Deck Scarification 3/4"	Sq Yd	2163	-	2163
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	-	117	117
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	-	14	14
Deck Slab Repair (Full Depth, Type II)	Sq Yd	2	-	2
Drainage Scuppers To Be Adjusted	Each	2	-	2
Diamond Grinding (Bridge Section)	Sq Yd	2163	-	2163
Temporary Construction Fence	Foot	-	381	381
Temporary Shoring And Cribbing	Each	-	1	1
Locks For Gates	Each	-	4	4

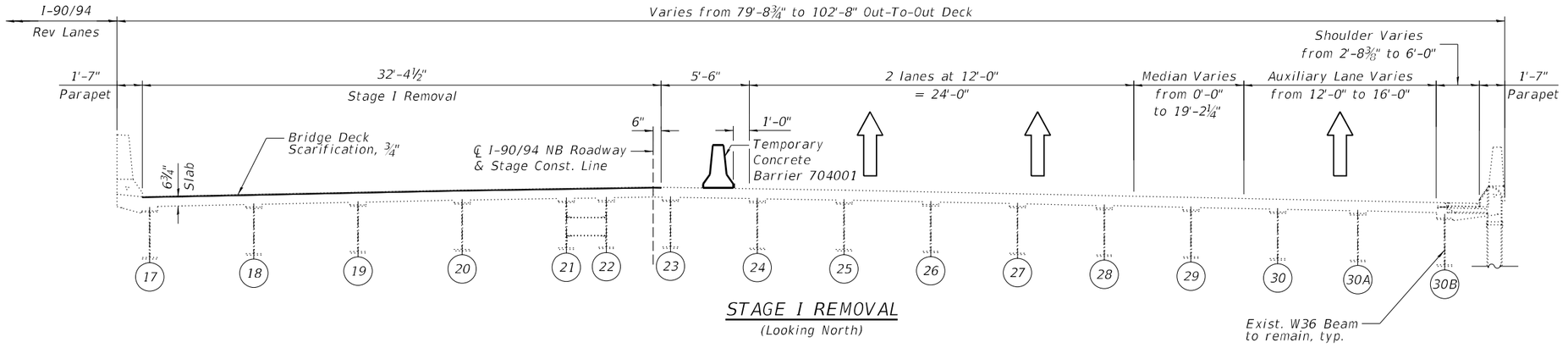
GENERAL NOTES (CONT.):

23. The intent of the temporary fence is to deny access of any unauthorized personnel under the bridge during construction. Actual fence installations may vary from what is shown on the plans. All fence installations must be approved by the Engineer.

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

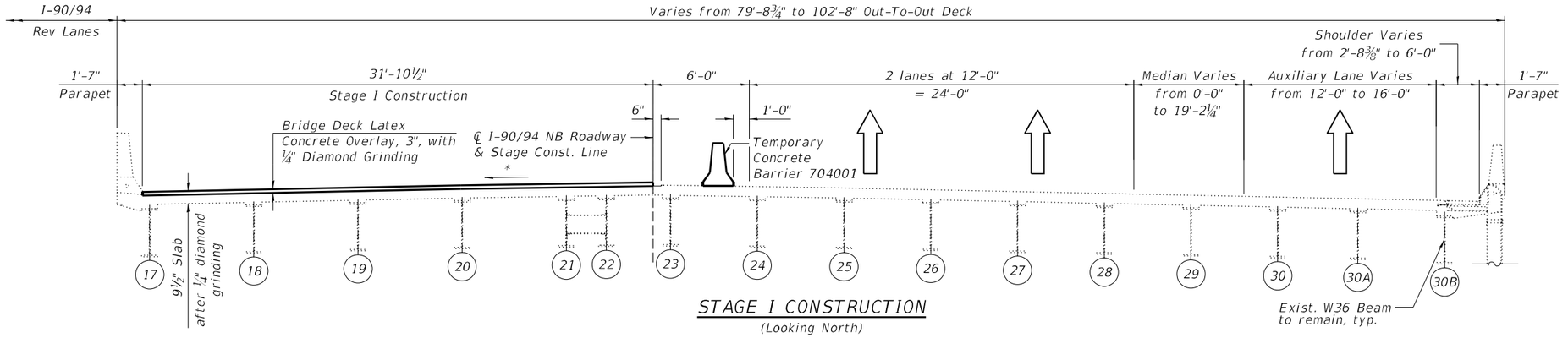
25. Prior to the application of the Concrete Sealer, the Contractor shall clean all existing debris from the abutment seats. The method of debris removal shall not damage the existing concrete and shall be approved by the Engineer. See special provision for Debris Removal.

26. Calculated weight of Structural Steel = 330 lb (M270 Grade 36)



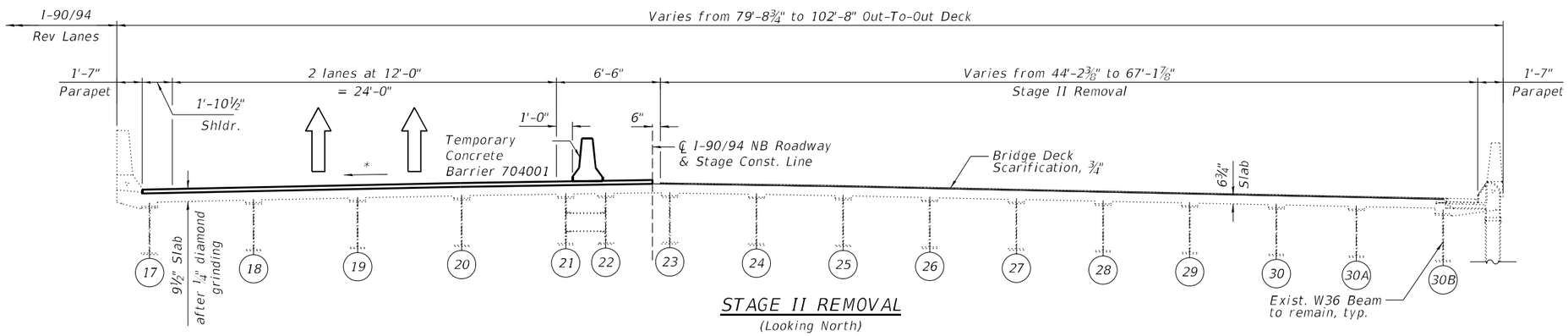
STAGE I REMOVAL

(Looking North)



STAGE I CONSTRUCTION

(Looking North)



STAGE II REMOVAL

(Looking North)

STAGE I REMOVAL

1. Install 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 concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.
5. Remove existing longitudinal preformed joint seal between north parapet and reversible lane parapet.

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct expansion joints and install new preformed joint strip seals within the limits of Stage I 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 hatched block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" Bridge Deck Latex Concrete Overlay and reconstructed abutment 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 abutment expansion joint areas, and to the surfaces of the new overlay.
9. Perform Slope wall repairs as shown on the plans.
10. Replace existing longitudinal preformed joint seal between north parapet and reversible lane parapet.

STAGE II 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 areas of existing deck for full-depth deck slab repairs at locations shown in the plans.
4. Remove portions of bridge concrete deck/approach slab adjacent to expansion joints at the North and South Abutments.
5. Perform temporary shoring and cribbing at locations shown on the plans within the limits of Stage II Removal.

* Match Existing Cross-Slopes.

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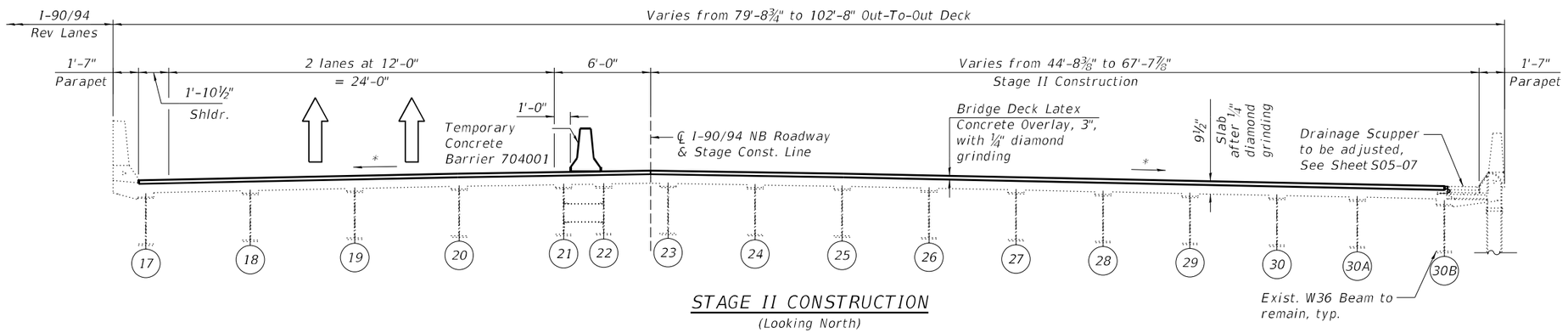
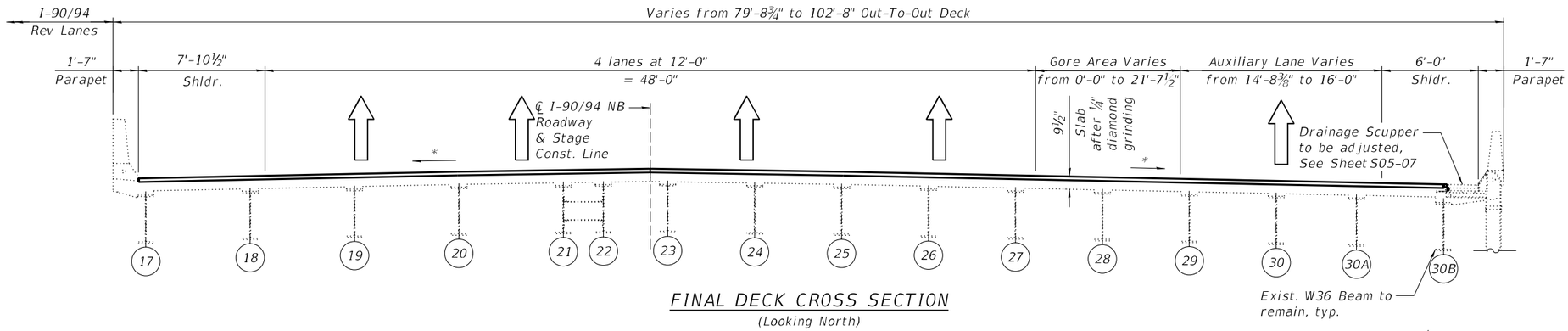
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0131 (NB)
SHEET S05-03 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	566
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



STAGE II CONSTRUCTION
(Looking North)



FINAL DECK CROSS SECTION
(Looking North)

* Match Existing Cross-Slopes.

STAGE II CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct 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 hatched block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" Bridge Deck Latex Concrete Overlay and reconstructed abutment expansion joint areas.
7. Adjust drainage scuppers.
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 and reconstructed abutment expansion joint areas, and to the surfaces of the new overlay.
10. Perform Slope wall repairs as shown on the plans.

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	CHECKED - MI	REVISED -	
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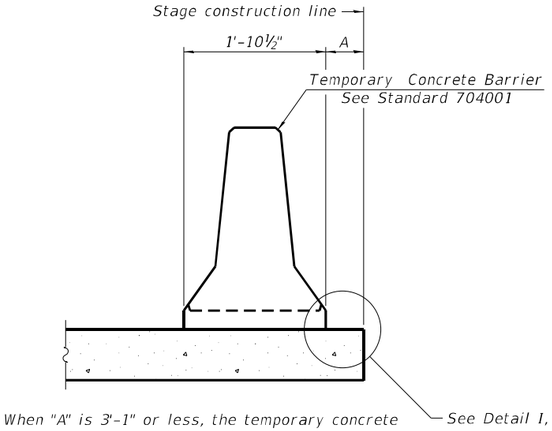
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

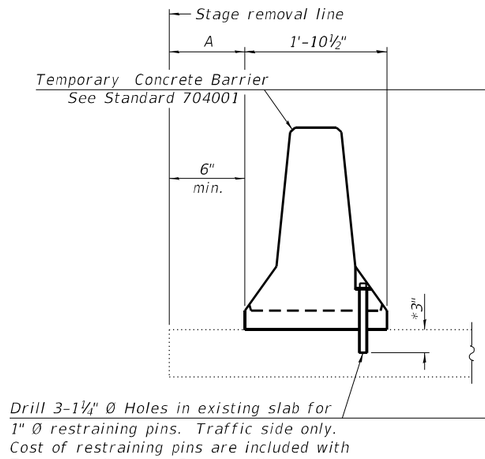
STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0131 (NB)
SHEET S05-04 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	567
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



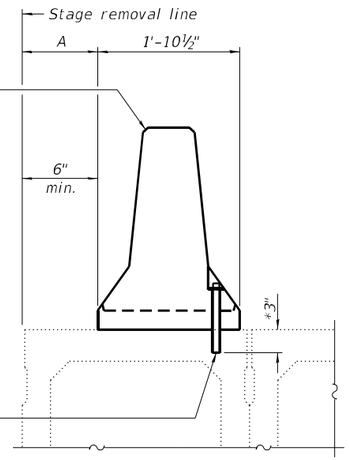
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

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".

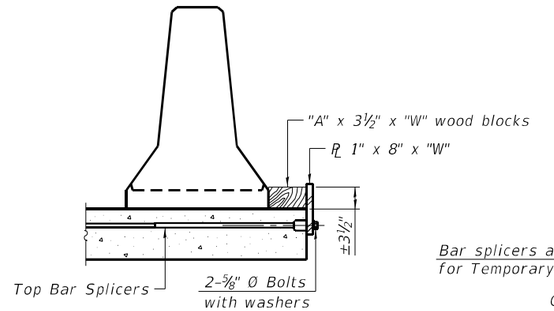
EXISTING SLAB



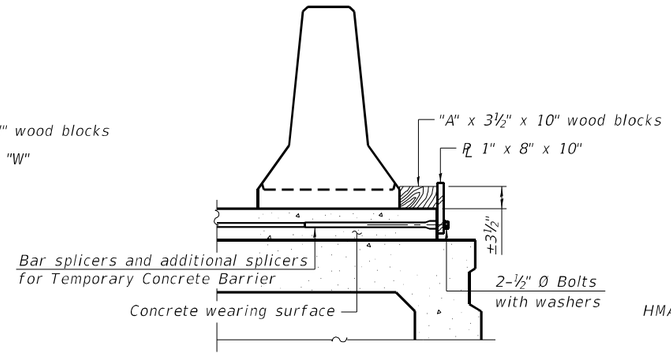
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

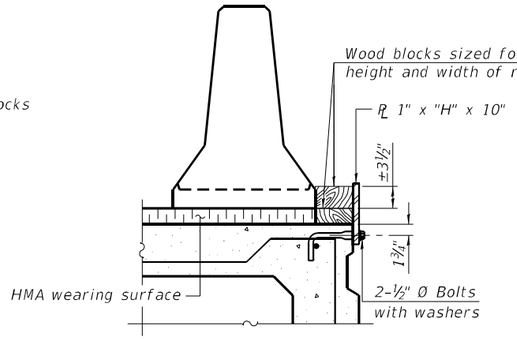
SECTIONS THRU SLAB OR DECK BEAM



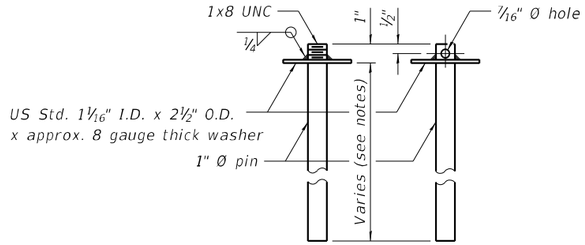
DETAIL I



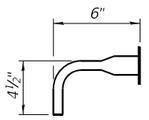
DETAIL II



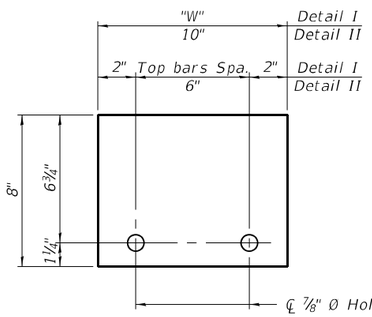
DETAIL III



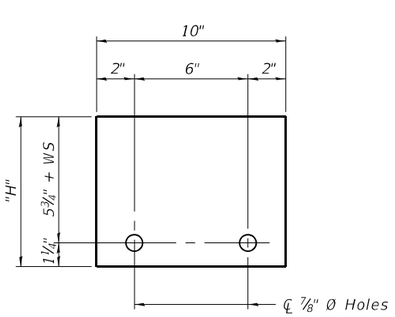
RESTRAINING PIN



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)

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

10-12-2021

MODEL: Default
FILE NAME: P:\2004-825 PTB195-014 HBM\WO#8 I-90 Various Overlays\Webster Ave\Sheet Files\160131-62K73-505-Temporary Concrete Barrier.dgn

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

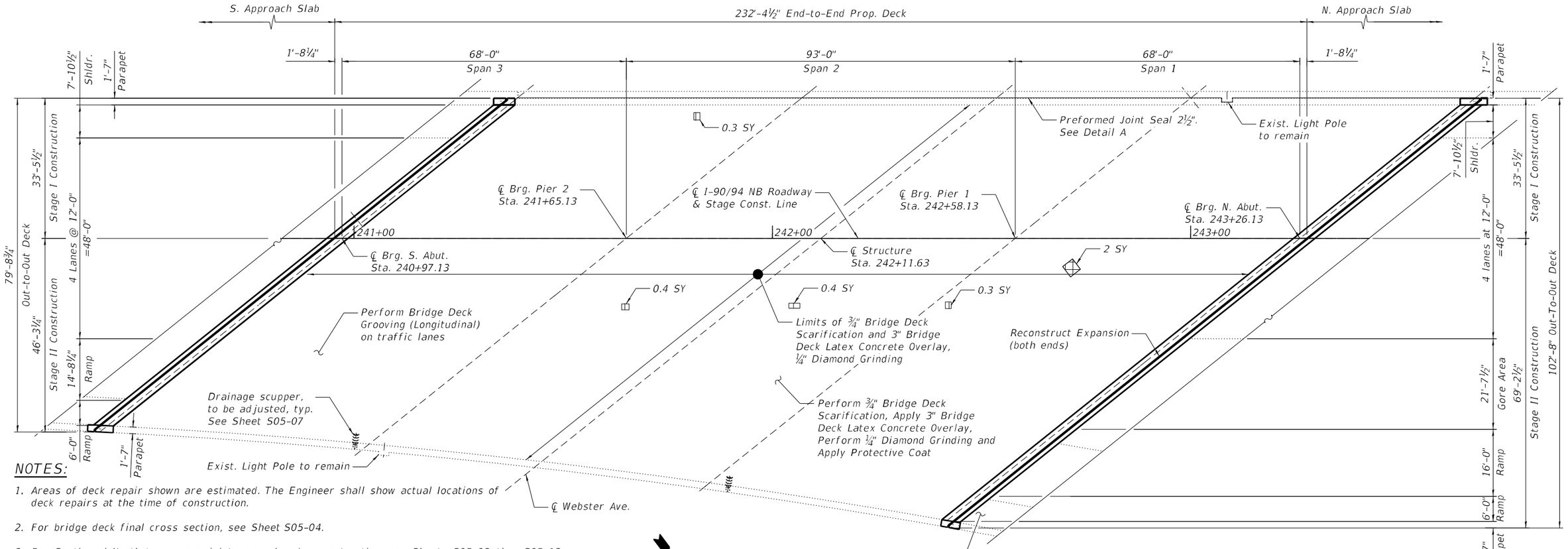
TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0131 (NB)

SHEET S05-05 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	568
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Shield	Sq Yd	1149
Protective Coat	Sq Yd	2,360
Preformed Joint Seal 2 1/2"	Foot	237
Bridge Deck Grooving (Longitudinal)	Sq Yd	1,653
Approach Slab Repair (Full Depth)	Sq Yd	52
Approach Slab Repair (Partial Depth)	Sq Yd	52
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	2,163
Bridge Deck Scarification 3/4"	Sq Yd	2,163
Deck Slab Repair (Full Depth, Type II)	Sq Yd	2
Diamond Grinding (Bridge Section)	Sq Yd	2163



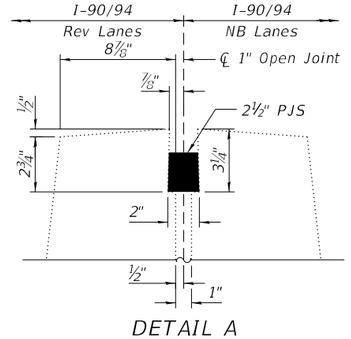
NOTES:

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 S05-04.
3. For South and North transverse joint removal and reconstruction, see Sheets S05-08 thru S05-13.
4. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatched block.
5. Perform Bridge Deck Grooving (Longitudinal) on traffic lanes.
6. Protective Coat shall be applied to the top of reconstructed transverse joints, top and inside face of parapets, and top of latex concrete overlay.
7. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.
8. 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.
9. Removal of the existing preformed joint seal is included in the cost of Preformed Joint Seal 2½".

DECK PLAN

NOTES (CONT.):

10. Approach Slab Repair (Full Depth) and Approach Slab Repair (Partial Depth) quantities have been estimated (based on a nominal 3% of bridge approach area) for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will determined by the Engineer in the field at the time of construction.



DETAIL A

(Reinforcement not shown for clarity)
(Looking Upstation)

*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 Depth)

Deck Slab Repair (Full Depth, Type II)

SY Square Yard

MODEL: Default
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK REPAIR PLAN
STRUCTURE NO. 016-0131 (NB)
SHEET S05-06 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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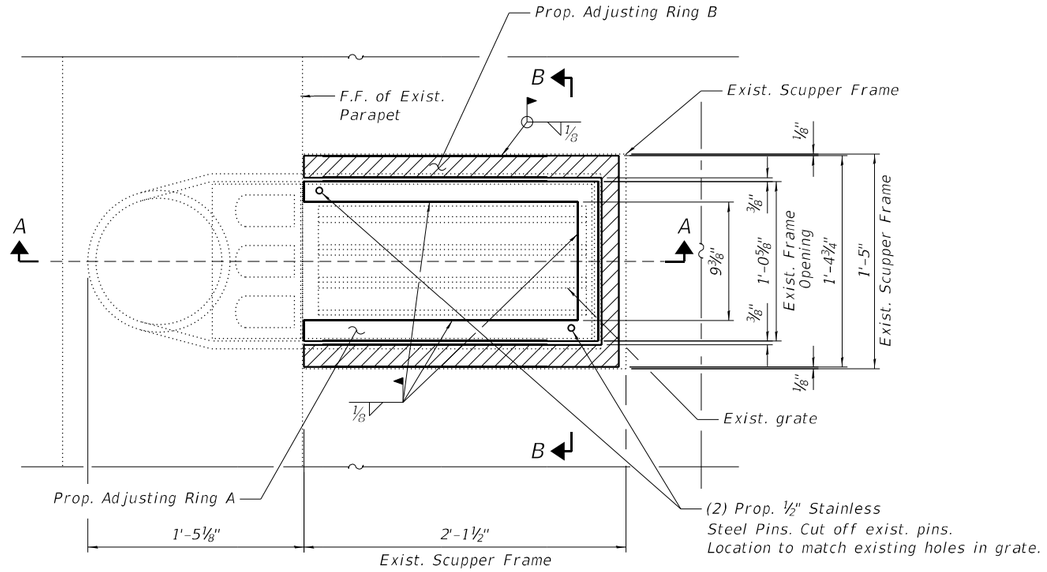
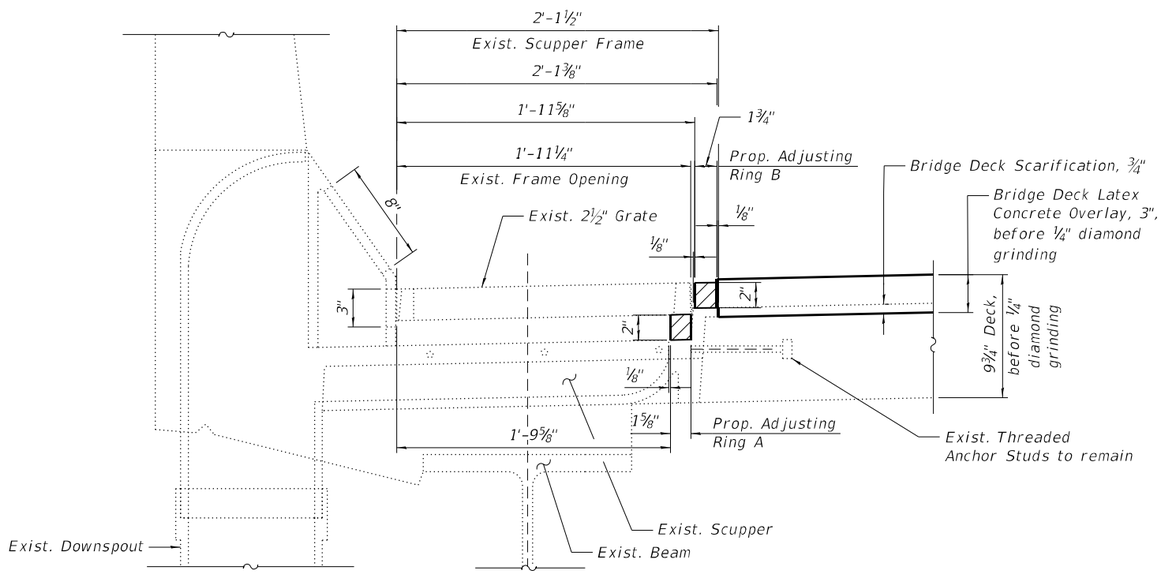
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

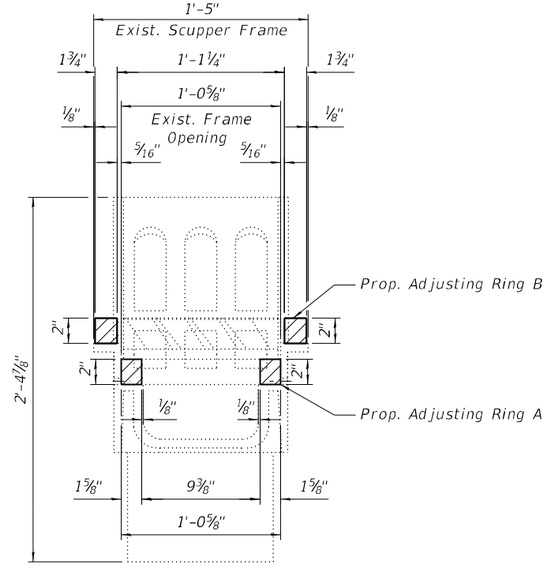


TYPICAL SCUPPER TYPE A PLAN

(2 Locations at exterior parapet)



SECTION A-A



SECTION B-B

NOTES

1. The Contractor shall field verify Existing Dimensions and Details of the Existing Scuppers and make necessary adjustments prior to construction of New Adjusting Rings or ordering of material for Adjusting Drainage Scuppers.
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. The Contractor shall take appropriate measures to ensure that Protective Coat is not applied to the scuppers.
5. Adjusting Rings shall be from Neenah or approved equal. Structural steel weldments or equal section 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.
6. Provide a ⅛" Fillet Weld around perimeter of new Adjusting Rings to secure to existing Scupper.
7. Cost of all labor and materials necessary to clean all existing floor drains and scuppers, install adjusting scupper rings, remove and reinstall grates is included in the cost for Drainage Scupper to be Adjusted.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scuppers To Be Adjusted	Each	2

MODEL: Default
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DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER TYPE A ADJUSTMENT DETAILS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-07 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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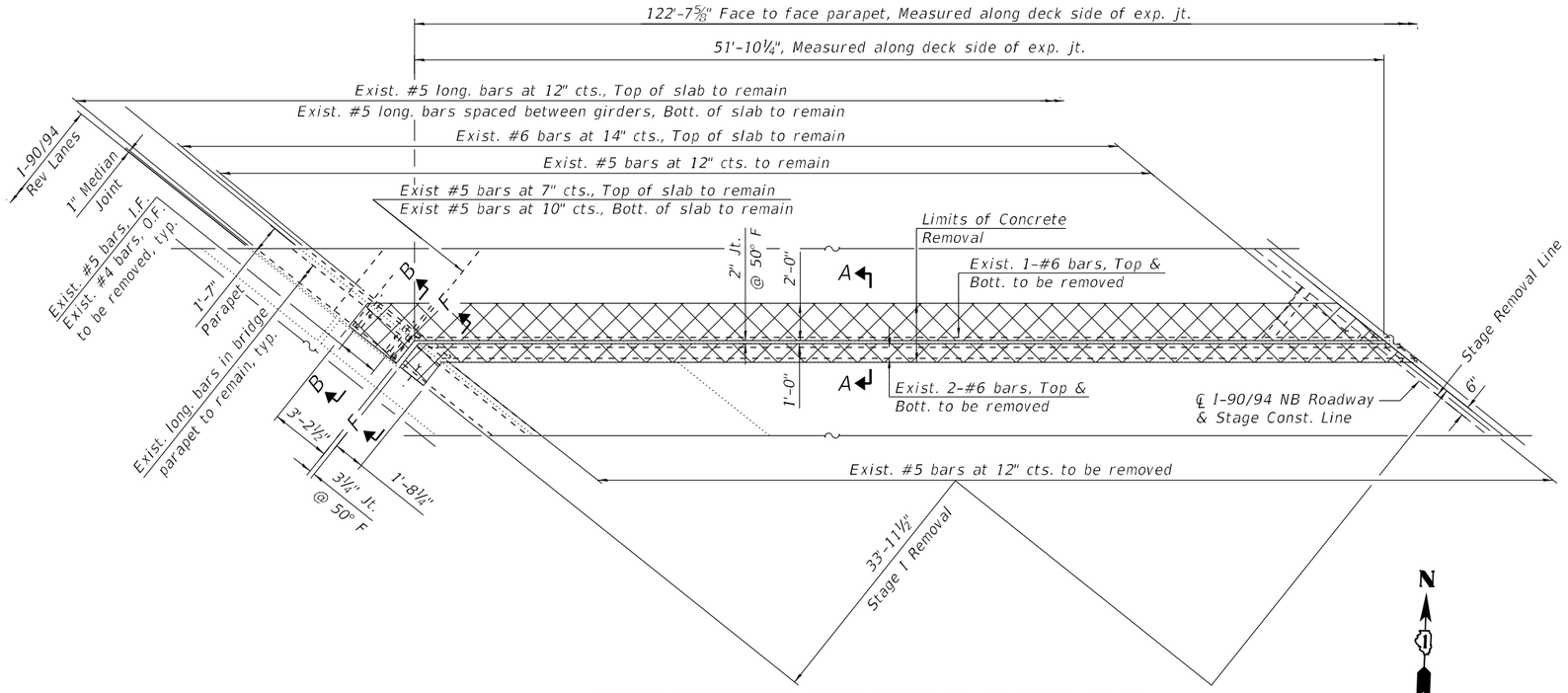
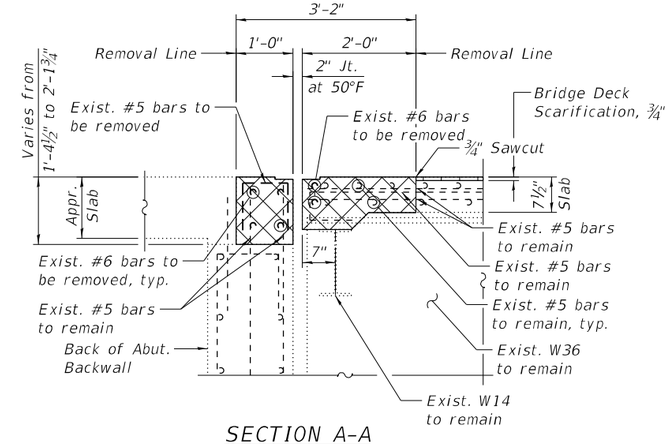
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

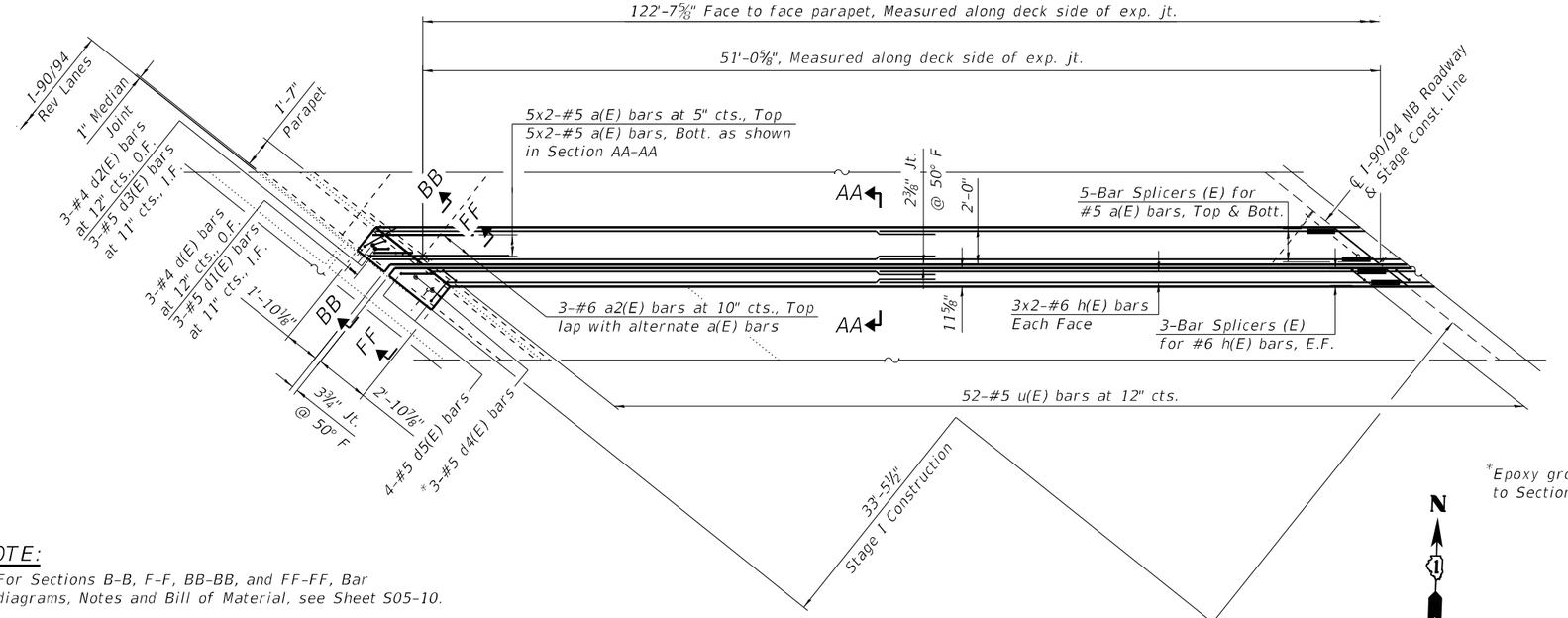


SOUTH ABUTMENT JOINT REMOVAL PARTIAL PLAN

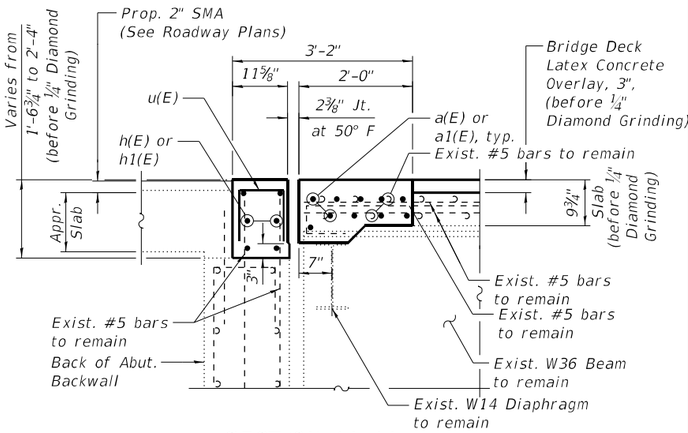


SECTION A-A

(For Beams 17-21, 30A & 30B)



SOUTH ABUTMENT JOINT RECONSTRUCTION PARTIAL PLAN



SECTION AA-AA

(For Beams 17-21, 30A & 30B)

NOTE:

1. For Sections B-B, F-F, BB-BB, and FF-FF, Bar diagrams, Notes and Bill of Material, see Sheet S05-10.

*Epoxy grout #5 d4(E) in 9" min. holes according to Section 584 of the Standard Specifications

LEGEND:

Concrete Removal

E.F. Each Face

I.F. Inside Face

O.F. Outside Face

MODEL: Default
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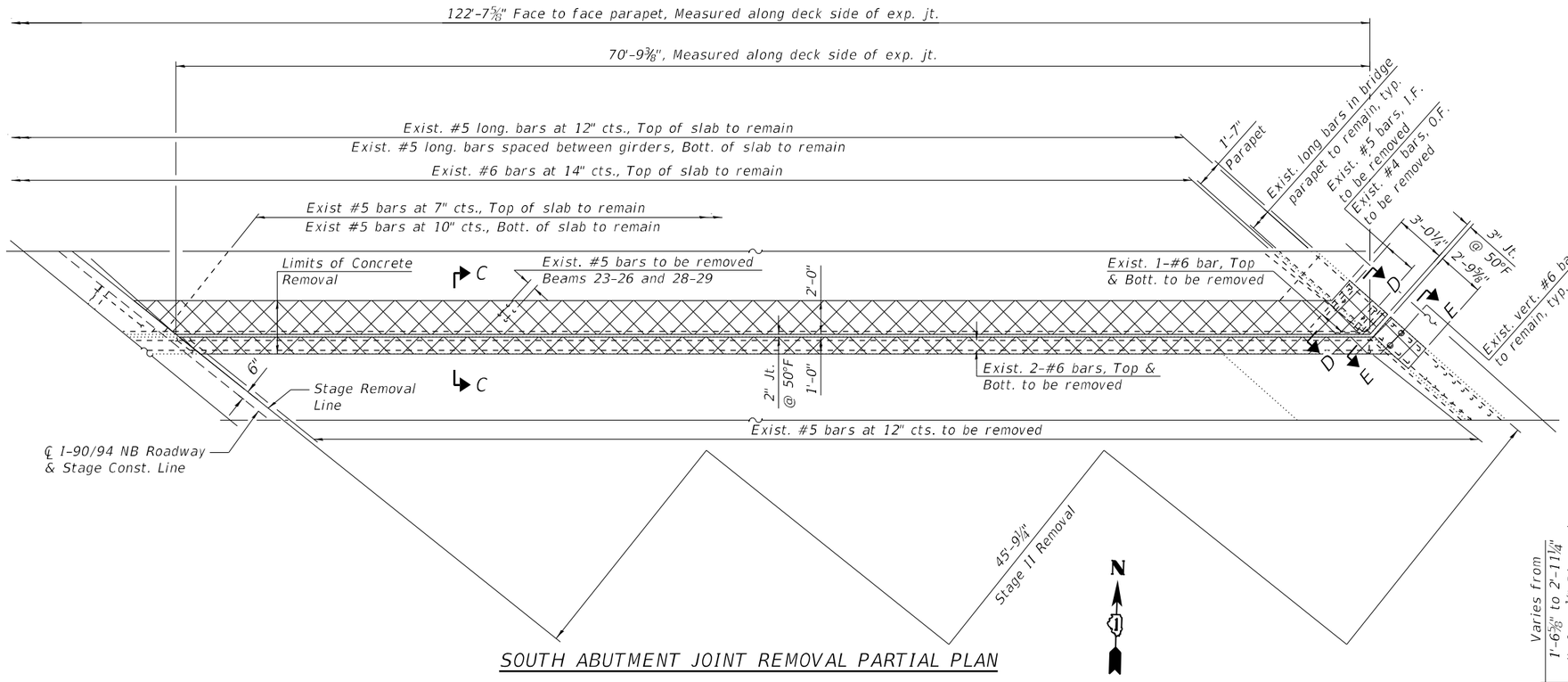
DEPARTMENT OF TRANSPORTATION

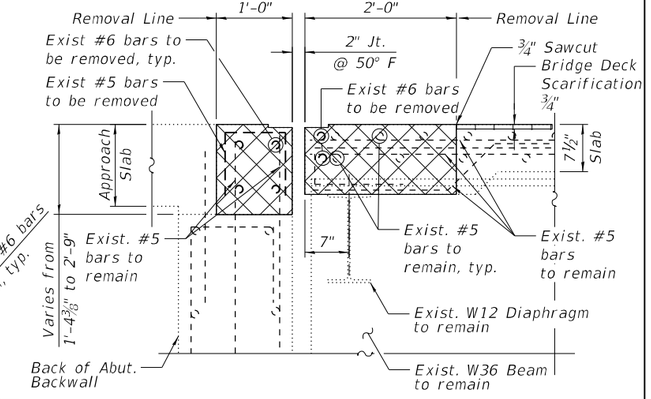
S. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0131 (NB)

SHEET S05-08 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	571
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

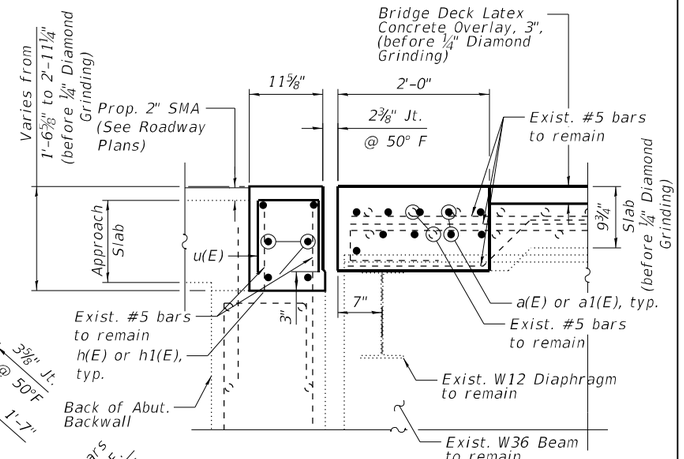


SOUTH ABUTMENT JOINT REMOVAL PARTIAL PLAN



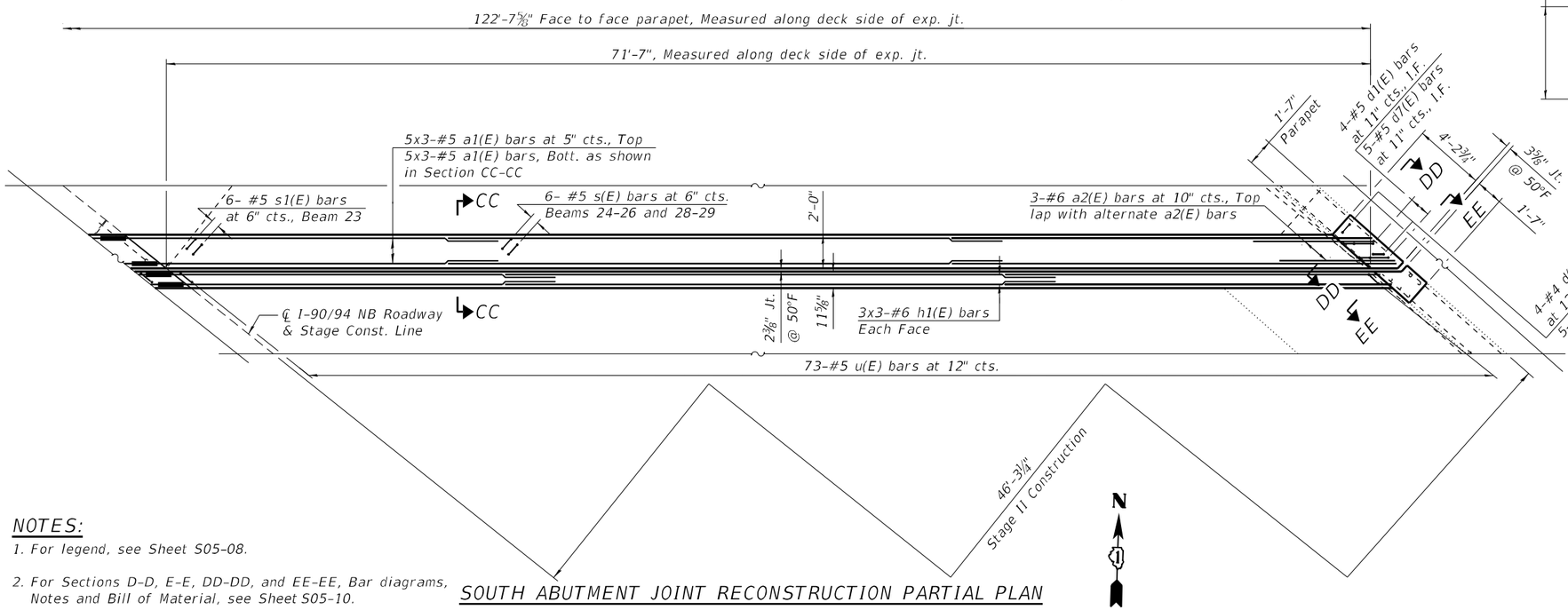
SECTION C–C

(For Beams 22–30A)



SECTION CC–CC

(For Beams 22–30A)



SOUTH ABUTMENT JOINT RECONSTRUCTION PARTIAL PLAN

NOTES:

1. For legend, see Sheet S05–08.
2. For Sections D–D, E–E, DD–DD, and EE–EE, Bar diagrams, Notes and Bill of Material, see Sheet S05–10.

MODEL: Default
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DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 2 OF 3)
STRUCTURE NO. 016-0131 (NB)
SHEET S05-09 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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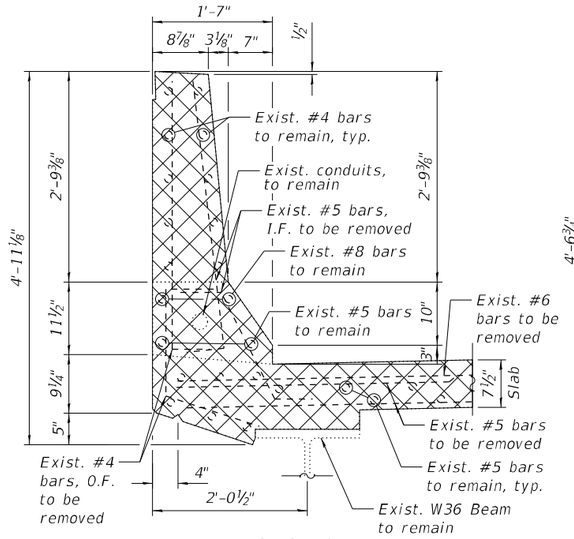
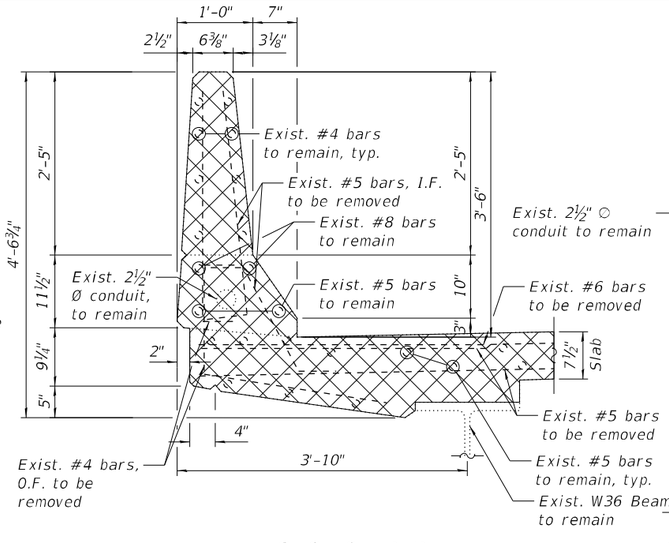
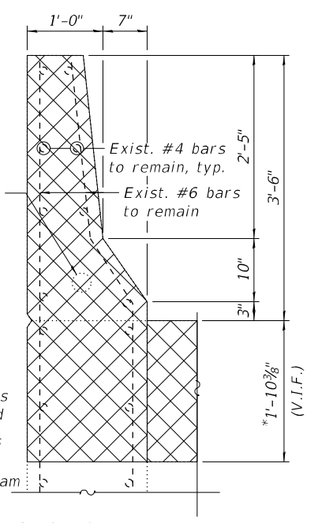
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



SECTION B-B

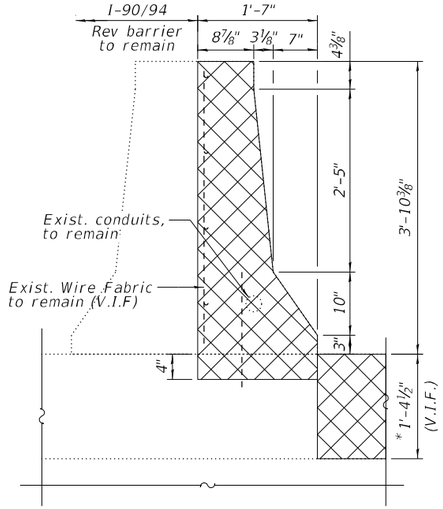


SECTION D-D



SECTION E-E

(Reinforcement in the pour strip not shown for clarity)



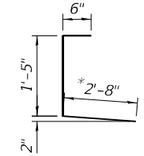
SECTION F-F

(Reinforcement in the pour strip not shown for clarity)

*Dimension is taken at the Back of Abut.

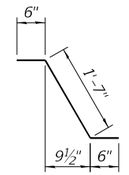
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	20	#5	27'-11"	
a1(E)	30	#5	26'-8"	
a2(E)	6	#6	6'-6"	
d(E)	7	#4	4'-7"	
d1(E)	7	#5	2'-7"	
d2(E)	3	#4	4'-0"	
d3(E)	3	#5	4'-0"	
d4(E)	3	#5	2'-9"	
d5(E)	4	#5	5'-8"	
d6(E)	5	#4	3'-8"	
d7(E)	5	#5	3'-8"	
h(E)	12	#6	27'-2"	
h1(E)	18	#6	26'-2"	
s(E)	30	#5	3'-5"	
s1(E)	6	#5	3'-9"	
u(E)	125	#5	2'-11"	
Concrete Removal		Cu Yd	18.5	
Concrete Superstructure		Cu Yd	21.0	
Protective Coat		Sq Yd	47	
Reinforcement Bars, Epoxy Coated		Pound	3,300	

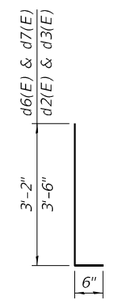


BAR d(E)

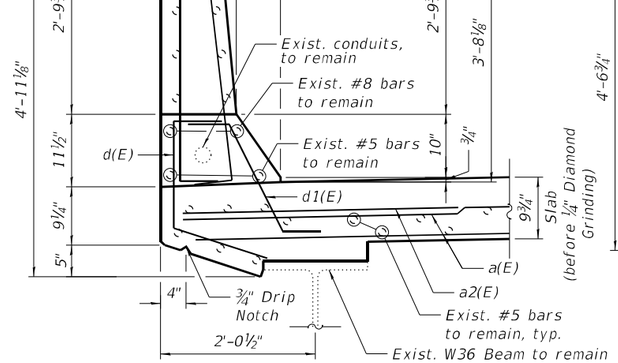
*Cut end bar in the field to fit



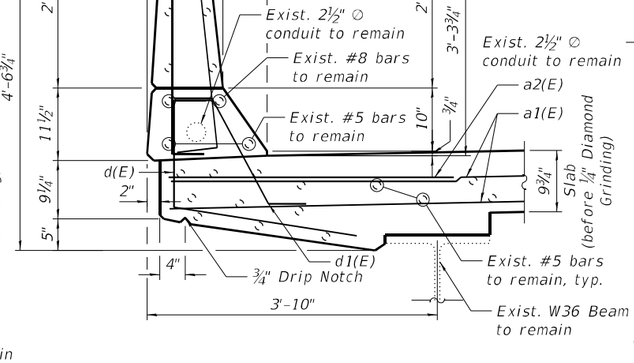
BAR d1(E)



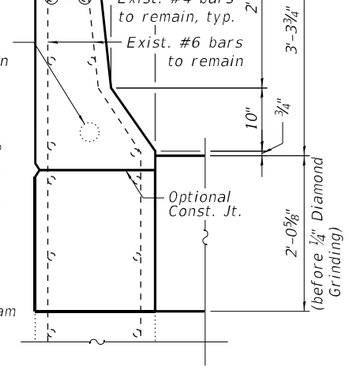
BARS d2(E), d3(E), d6(E) & d7(E)



SECTION BB-BB



SECTION DD-DD



SECTION EE-EE

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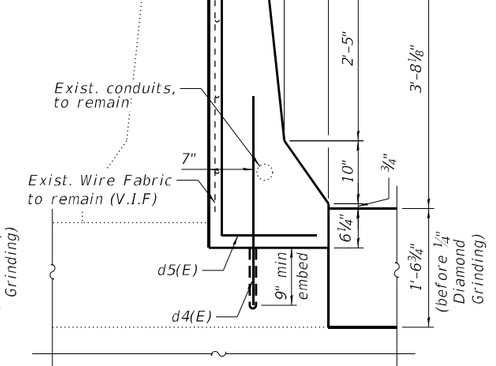

SECTION FF-FF

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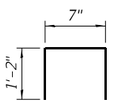
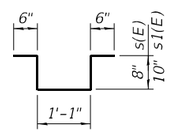
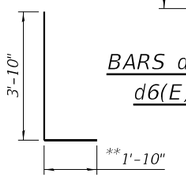


BAR u(E)



BARS s(E) & s1(E)



BAR d5(E)

**Cut in field to fit

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

NOTES:

1. For legend, see Sheet S05-08.
2. For preformed joint strip seal details, see Sheet S05-14.
3. For bar splicer assembly, see Sheet S05-22.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

MODEL: Default
FILE NAME: P:\2004-825 PTB 195-014 HBM\WO#8 I-90 Various Overlays\Webster Ave\Sheet Files\160131-62K73-S09b-South Abutment Joint Removal and Reconstruction (Sheet 3 of 3).dgn
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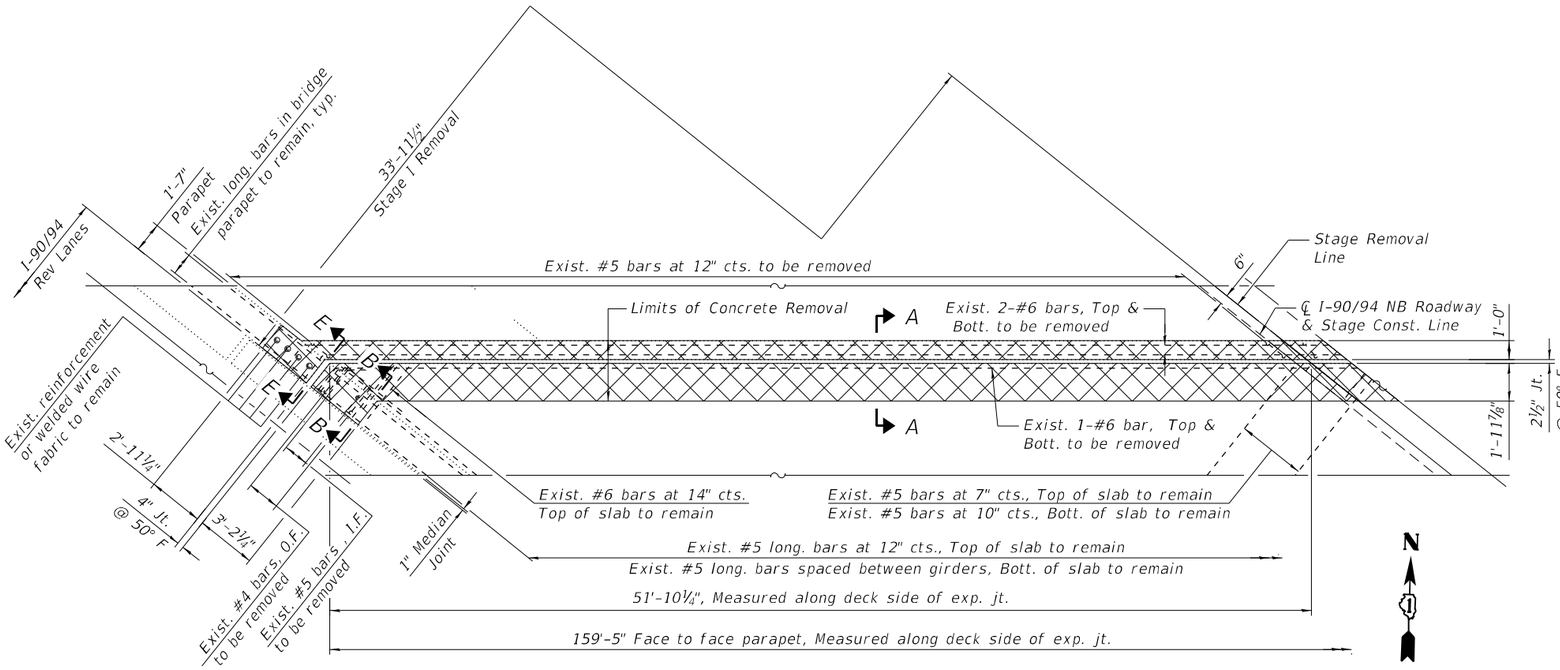
		CHECKED -	MI	REVISED -	
PLOT SCALE =		DRAWN -	AMS, FL	REVISED -	
PLOT DATE =		DATE -	4/29/2024	REVISED -	

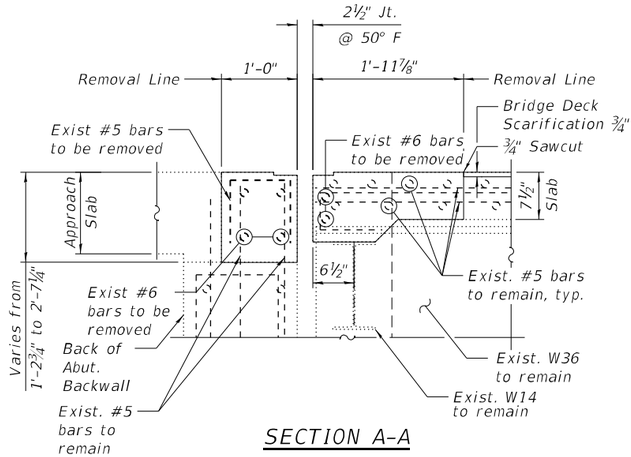
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

S. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 3 OF 3)
STRUCTURE NO. 016-0131 (NB)
SHEET S05-10 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	573
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

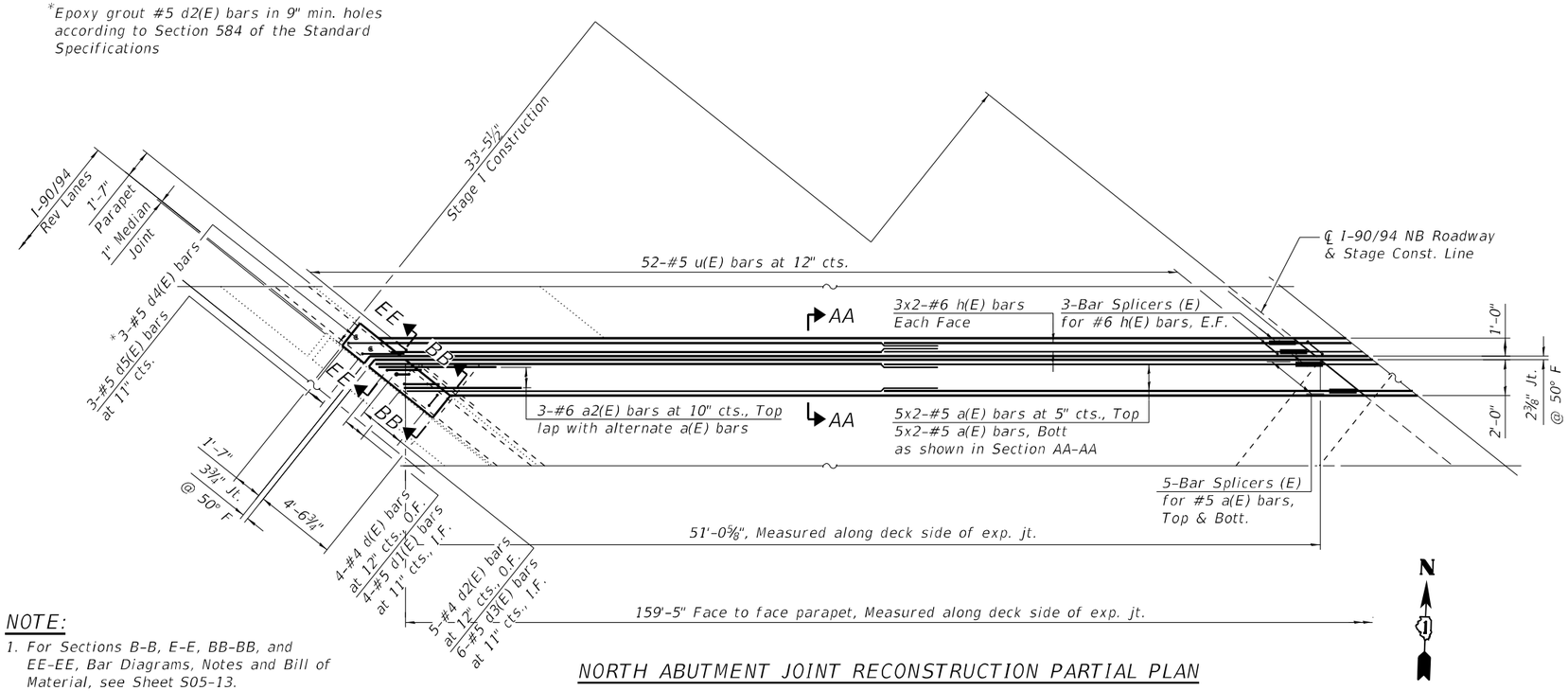


NORTH ABUTMENT JOINT REMOVAL PARTIAL PLAN

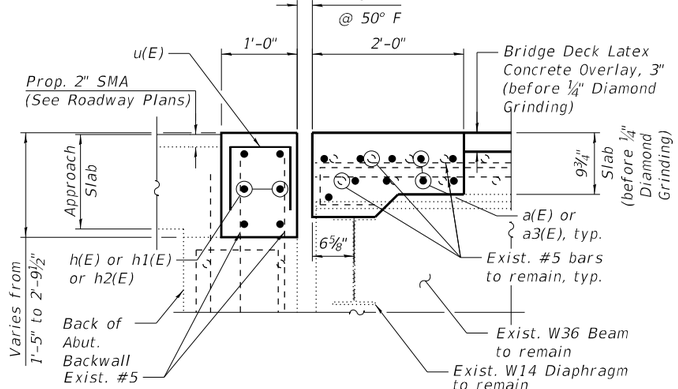


SECTION A-A

*Epoxy grout #5 d2(E) bars in 9" min. holes according to Section 584 of the Standard Specifications



NORTH ABUTMENT JOINT RECONSTRUCTION PARTIAL PLAN



SECTION AA-AA

NOTE:

1. For Sections B-B, E-E, BB-BB, and EE-EE, Bar Diagrams, Notes and Bill of Material, see Sheet S05-13.

LEGEND:

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

MODEL: Default
FILE NAME: P:\2004-825 PTB195-014 HBM\WO#8 I-90 Various Overlays\Webster Ave\Sheet Files\160131-62K73-S10-North Abutment Joint Removal and Reconstruction (Sheet 1 of 3).dgn

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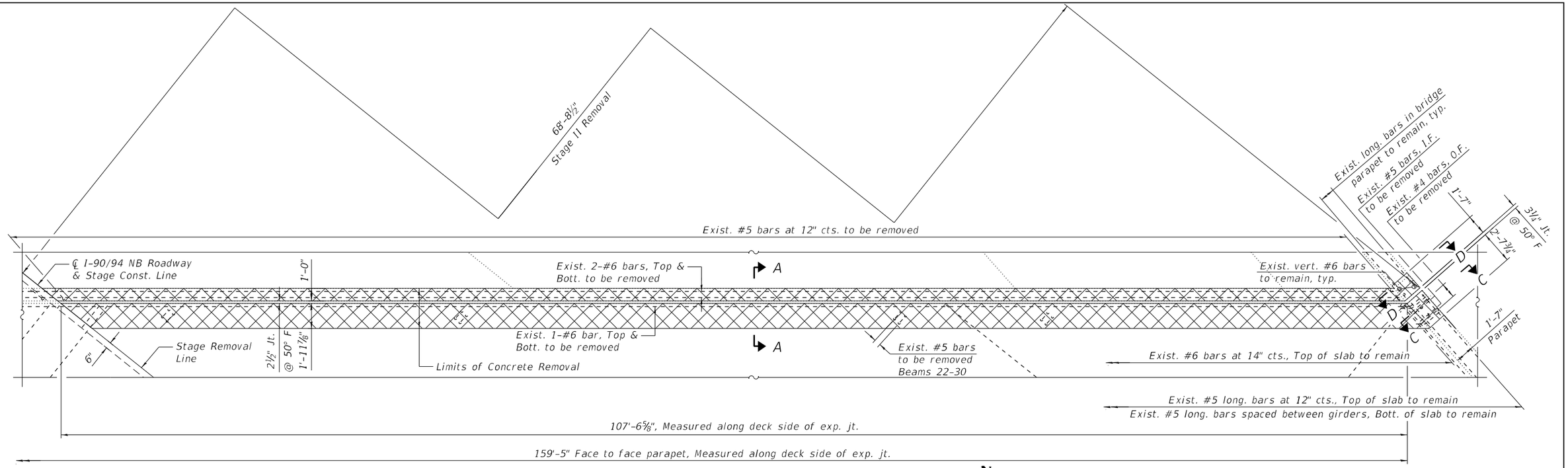
PLOT DATE =	DATE - 4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

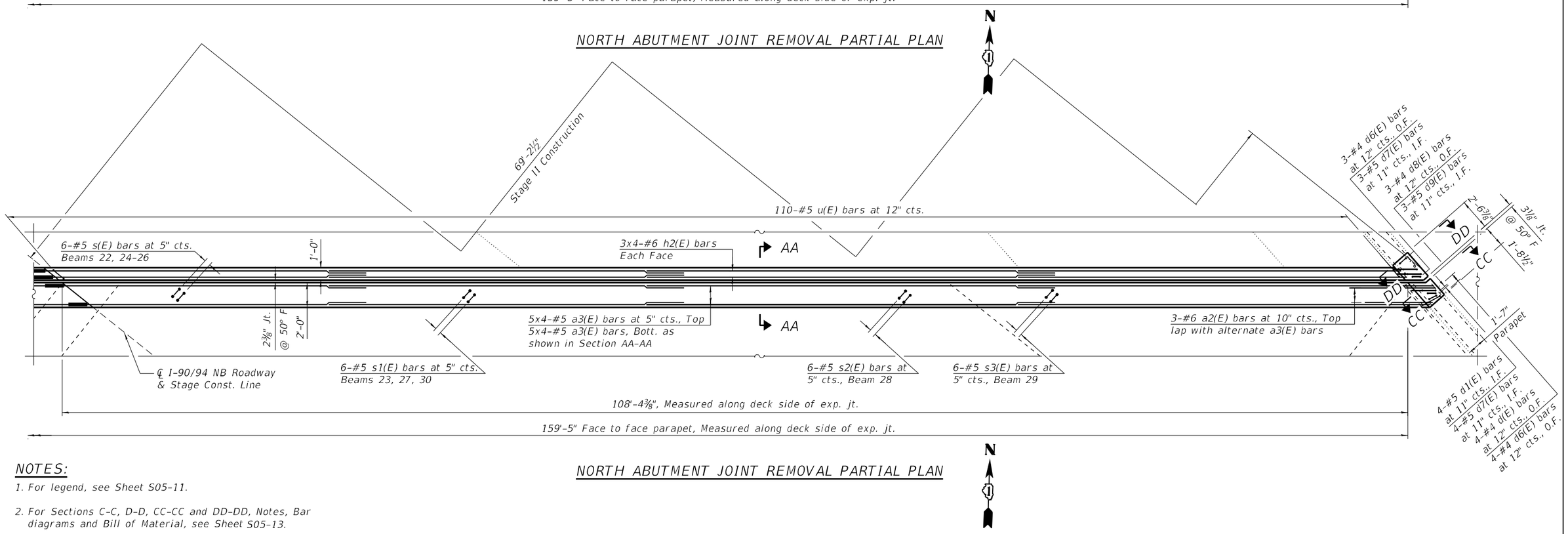
N. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0131 (NB)

SHEET S05-11 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	574
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



NORTH ABUTMENT JOINT REMOVAL PARTIAL PLAN

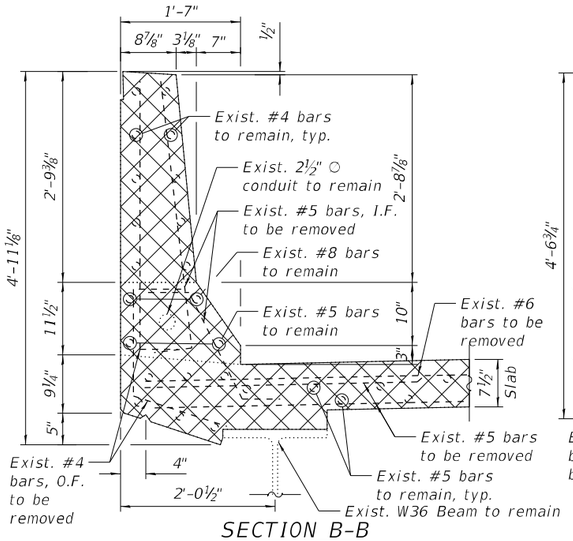


NORTH ABUTMENT JOINT REMOVAL PARTIAL PLAN

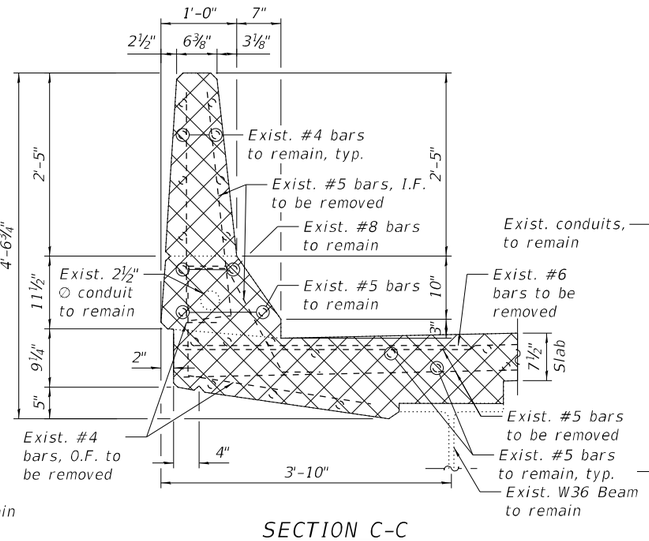
N

NOTES:

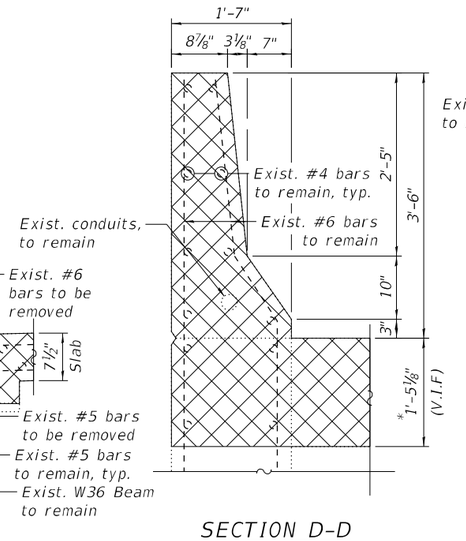
1. For legend, see Sheet S05-11.
2. For Sections C-C, D-D, CC-CC and DD-DD, Notes, Bar diagrams and Bill of Material, see Sheet S05-13.



SECTION B-B

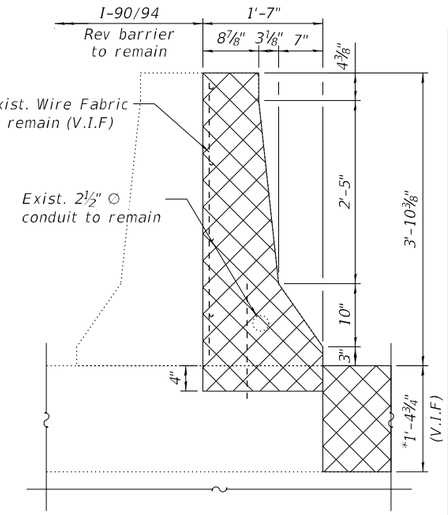


SECTION C-C



SECTION D-D

(Reinforcement in the pour strip not shown for clarity)



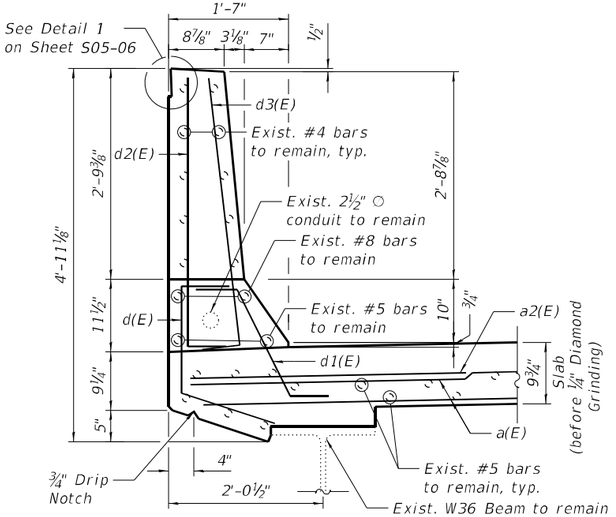
SECTION E-E

(Reinforcement in the pour strip not shown for clarity)

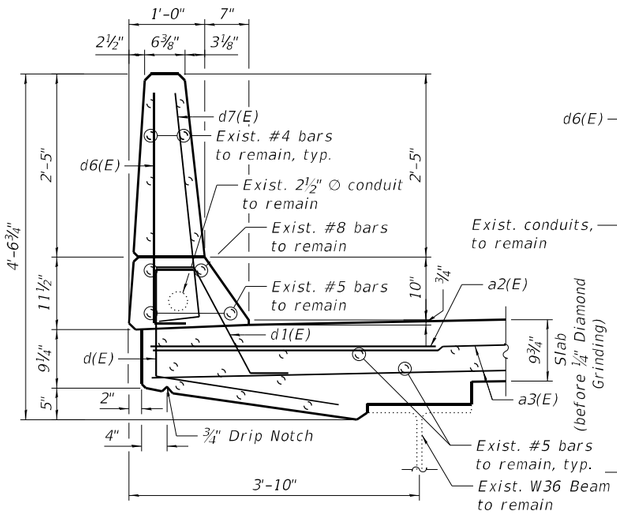
*Dimension is taken at the Back of Abut.

BILL OF MATERIAL

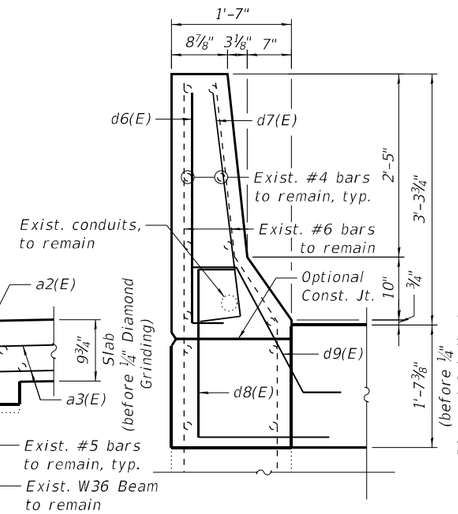
Bar	No.	Size	Length	Shape
a(E)	20	#5	27'-11"	
a2(E)	6	#6	6'-6"	
a3(E)	40	#5	30'-1"	
d(E)	8	#4	4'-7"	
d1(E)	8	#5	2'-7"	
d2(E)	5	#4	4'-0"	
d3(E)	6	#5	4'-0"	
d4(E)	3	#5	2'-9"	
d5(E)	3	#5	5'-8"	
d6(E)	7	#4	3'-8"	
d7(E)	7	#5	3'-8"	
d8(E)	3	#4	4'-9"	
d9(E)	3	#5	3'-4"	
h(E)	12	#6	27'-2"	
h2(E)	24	#6	29'-9"	
s(E)	24	#5	3'-0"	
s1(E)	18	#5	3'-4"	
s2(E)	6	#5	3'-8"	
s3(E)	6	#5	4'-2"	
u(E)	162	#5	3'-0"	
Concrete Removal			Cu Yd	22.2
Concrete Superstructure			Cu Yd	25.7
Protective Coat			Sq Yd	59
Reinforcement Bars, Epoxy Coated			Pound	4,330



SECTION BB-BB

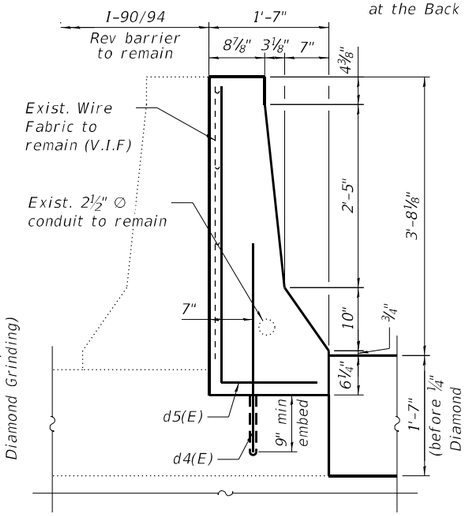


SECTION CC-CC



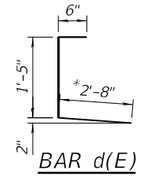
SECTION DD-DD

(Reinforcement in the pour strip not shown for clarity)



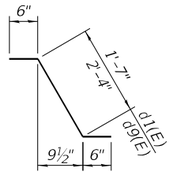
SECTION EE-EE

(Reinforcement in the pour strip not shown for clarity)

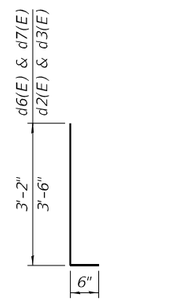


BAR d(E)

*Cut end bar in the field to fit



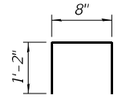
BAR d1(E) & d9(E)



BARS d2(E), d3(E), d6(E) & d7(E)

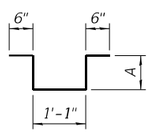
NOTES:

1. For legend, see Sheet S05-11.
2. For preformed joint strip seal details, see Sheet S05-14.
3. For bar splicer assembly, see Sheet S05-22.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E), d8(E), and d9(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

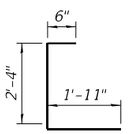


BAR u(E)

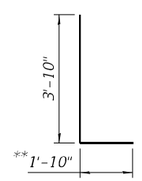
Bar	A
s(E)	8"
s1(E)	10"
s2(E)	1'-0"
s3(E)	1'-3"



BARS s(E) thru s3(E)



BAR d8(E)



BAR d5(E)

**Cut in field to fit

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

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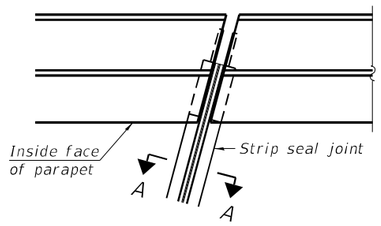
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

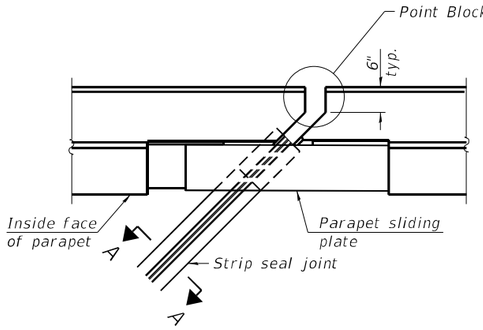
N. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 3 OF 3)
STRUCTURE NO. 016-0131 (NB)

SHEET S05-13 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	576
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

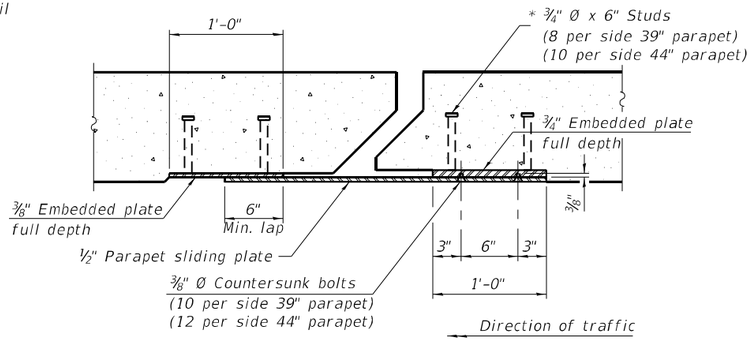


FOR SKEWS ≤ 30°



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.

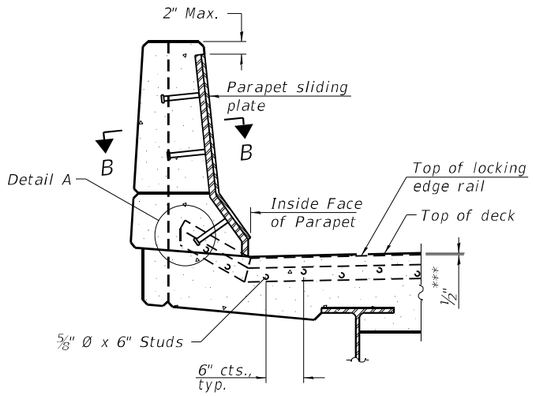
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

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.

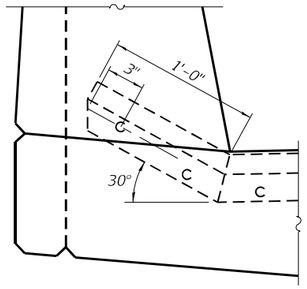
34" F-shape barrier shown, 42" F-shape similar as noted.

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.

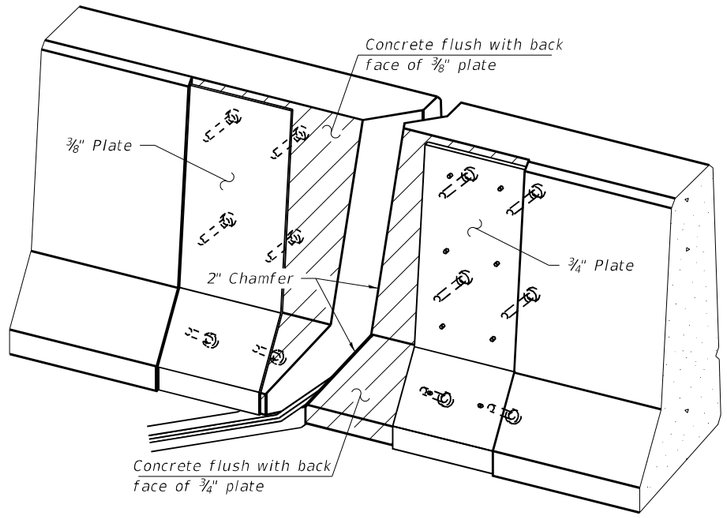


SECTION AT PARAPET

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

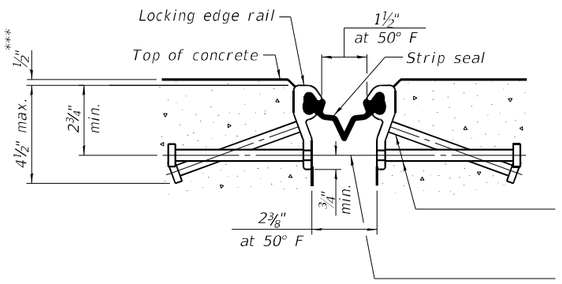


DETAIL A



TRIMETRIC VIEW

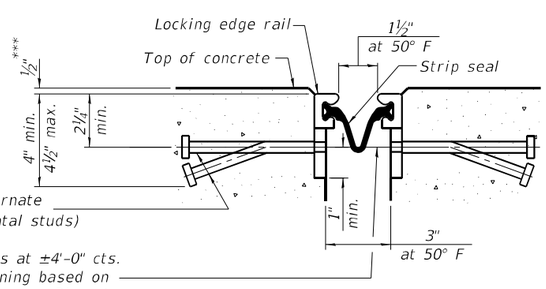
(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT

* ⅜" 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.

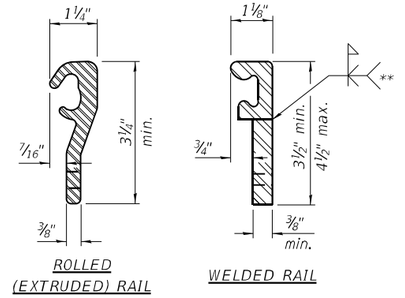


SHOWING WELDED RAIL JOINT

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*

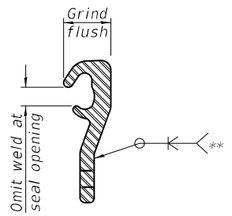


ROLLED (EXTRUDED) RAIL

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	Total
Preformed Joint Strip Seal	Foot	289

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USER NAME =	DESIGNED - AMS, FL	REVISED -	
	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - AMS, FL	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

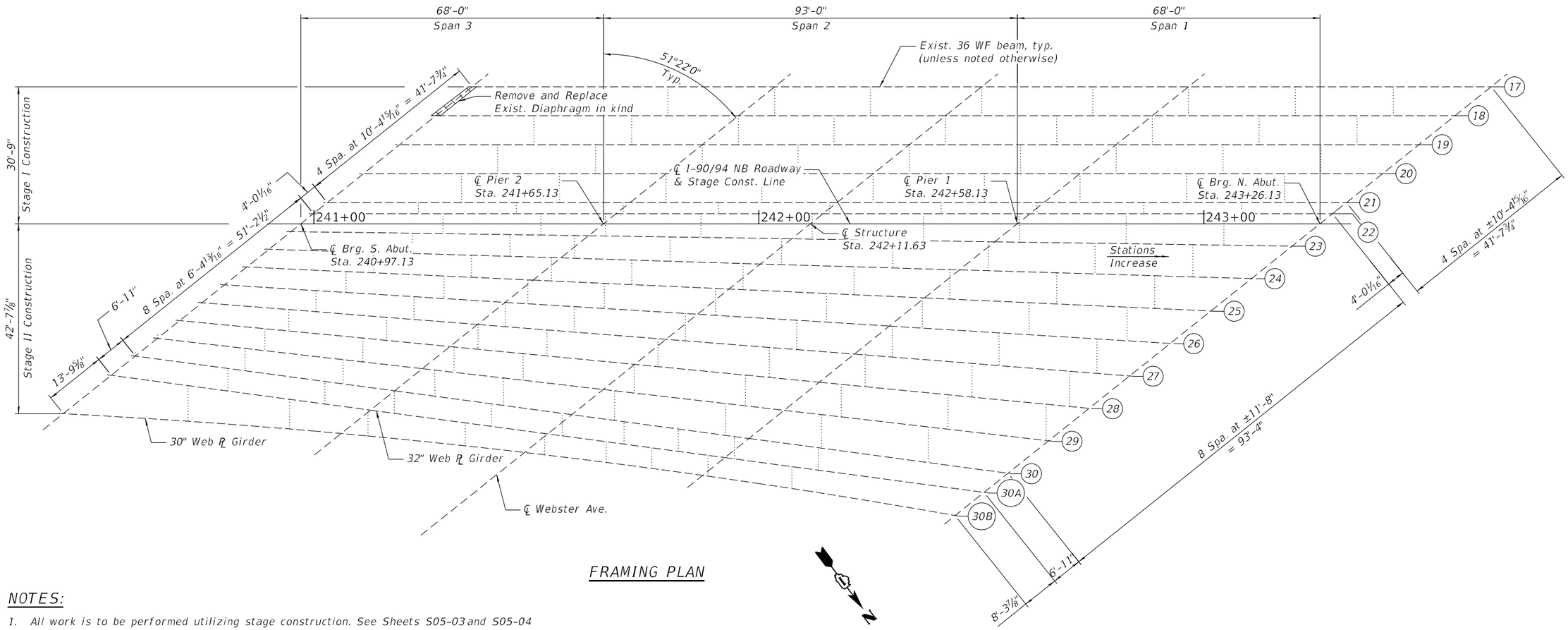
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0131 (NB)

SHEET S05-14 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	577
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	330
Structural Steel Removal	Pound	330



FRAMING PLAN

NOTES:

1. All work is to be performed utilizing stage construction. See Sheets S05-03 and S05-04 for details.
2. For Diaphragm Removal and Replacement Details, see Sheet S05-16.
3. All proposed diaphragms shall conform to the requirements of AASHTO M270 Grade 36.
4. Diaphragm connection holes shall be 1 1/16" for 7/8" bolts. Two hardened washers shall be required at diaphragm connections. Fasteners shall be high strength bolts.
5. Cost of field drilling, bolts, nuts and washers shall be included in the cost of Furnishing and Erecting Structural Steel.

LEGEND

Remove and Replace Exist. Diaphragm

MODEL: Default
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4/30/2024 2:42:38 PM

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PLOT SCALE =		DRAWN -	LAB	REVISED -	
PLOT DATE =		DATE -	4/29/2024	REVISED -	

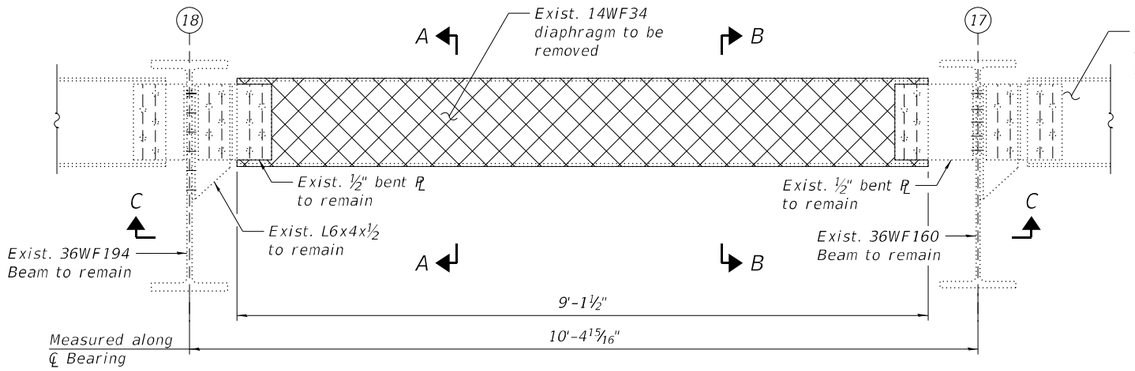
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN STEEL REPAIRS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-15 OF S05-22 SHEETS

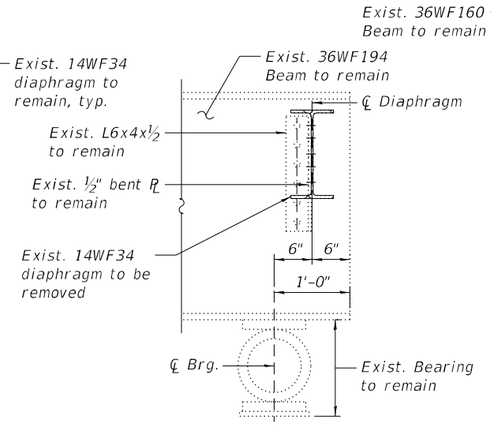
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	578
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

NOTE:

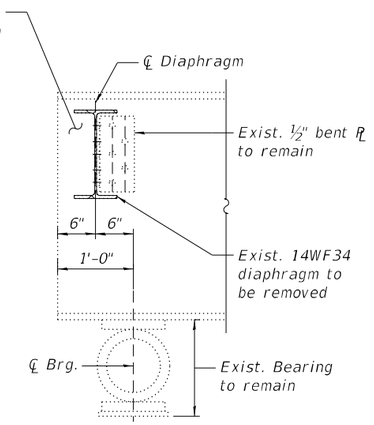
1. For location of Diaphragm Removal/Replacement and Bill of Material, see Sheet S05-15.



EXISTING END DIAPHRAGM REMOVAL



SECTION A-A



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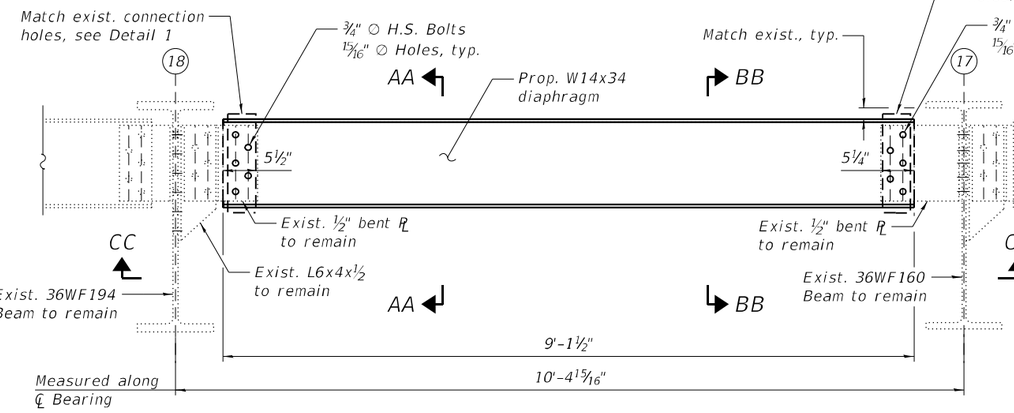
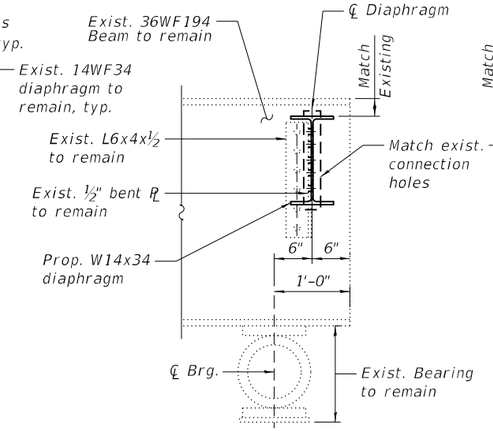


PROPOSED END DIAPHRAGM



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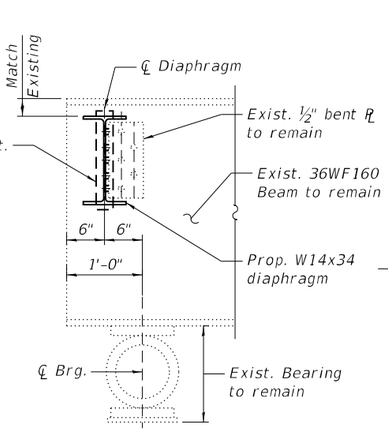

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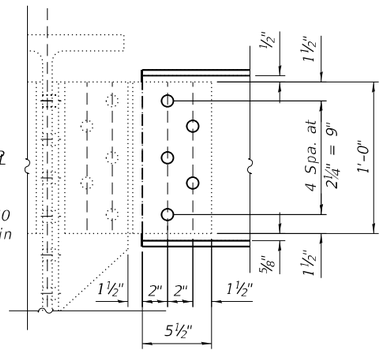
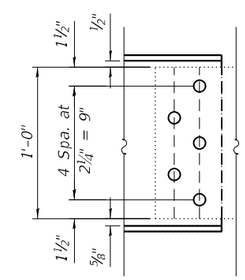


DETAIL 1



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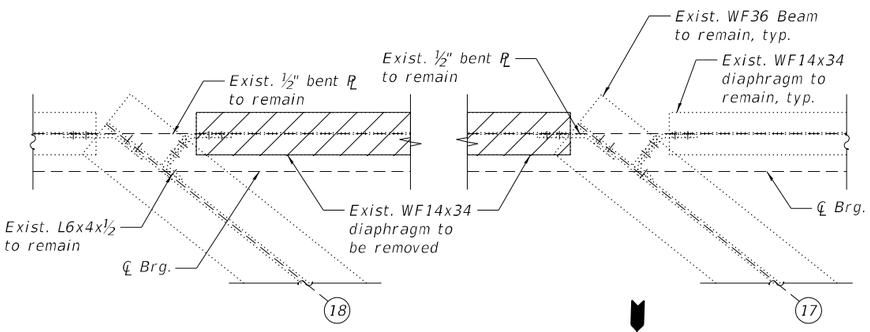
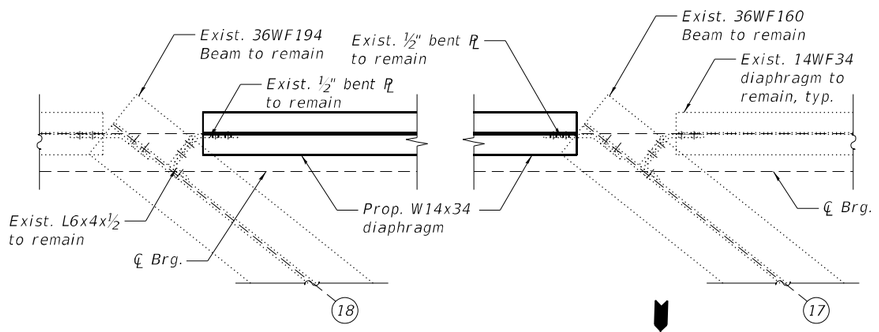


SECTION C-C



SECTION CC-CC

LEGEND:

Structural Steel Removal

Field drill holes in new steel using existing steel as a template

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		CHECKED - MI	REVISED -
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	PLOT DATE =	DATE - 4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-16 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	579
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

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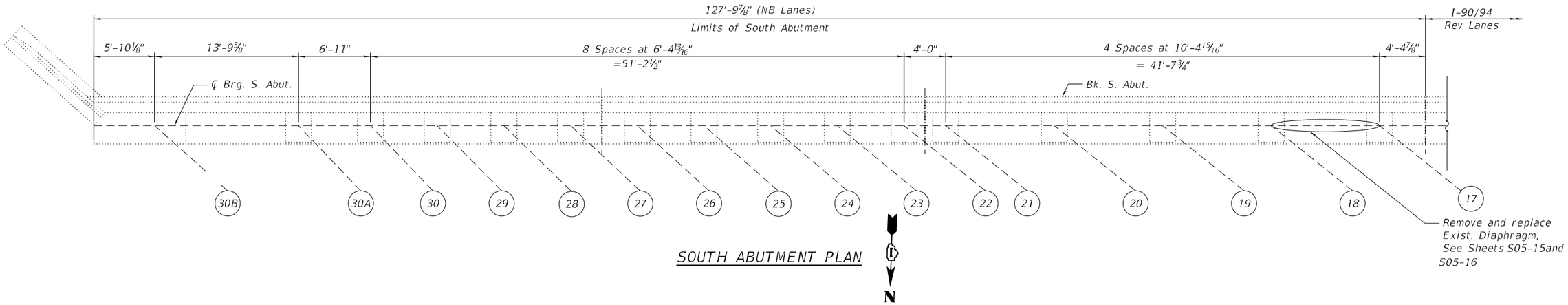
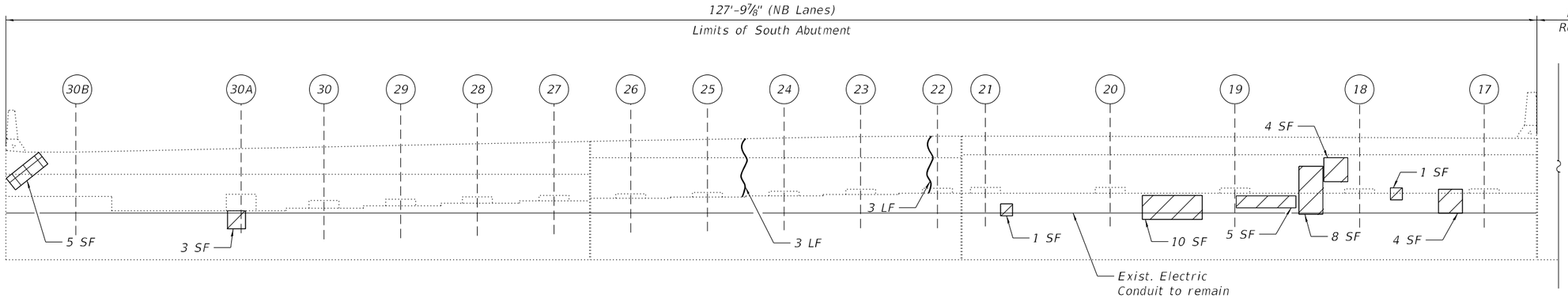
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	640
Epoxy Crack Injection	Foot	6
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	36
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	5



SOUTH ABUTMENT PLAN



SOUTH ABUTMENT 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. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.
3. For Slope wall repairs, see Sheet S05-21.

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

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STATE OF ILLINOIS
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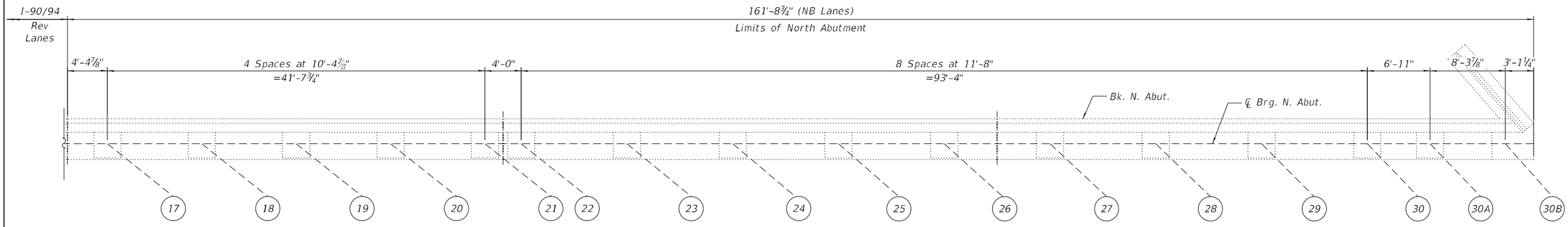
SOUTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0131 (NB)

SHEET S05-17 OF S05-22 SHEETS

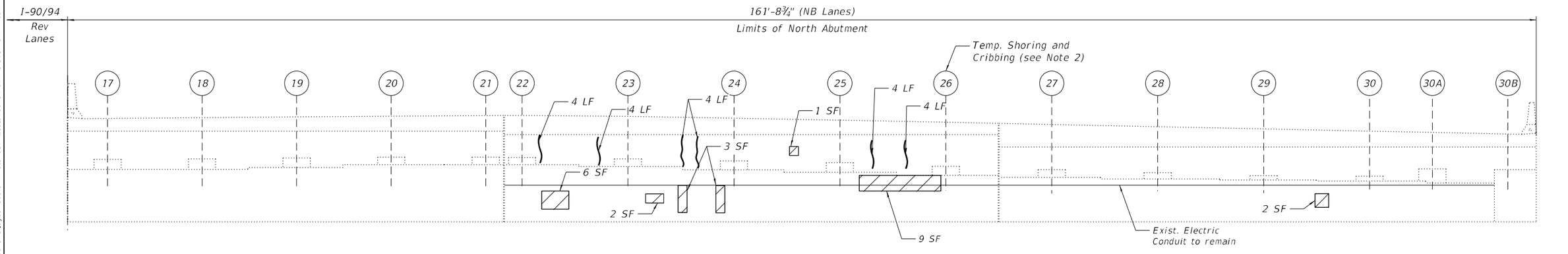
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	580
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Concrete Sealer	Sq Ft	491
Epoxy Crack Injection	Foot	24
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	26
Temporary Shoring And Cribbing	Each	1



NORTH ABUTMENT PLAN



NORTH ABUTMENT 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. 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.
3. Concrete Sealer is to be applied to the abutment seats and the bottom 2 feet of the abutment backwall.
4. For Slope Wall repairs, see Sheet S05-21.

SUMMARY OF REACTIONS SOUTH ABUTMENT BEAM 6		
R DL	(k)	24.7
R LL	(k)	42.9
R IM	(k)	11.4
R Total	(k)	79.0

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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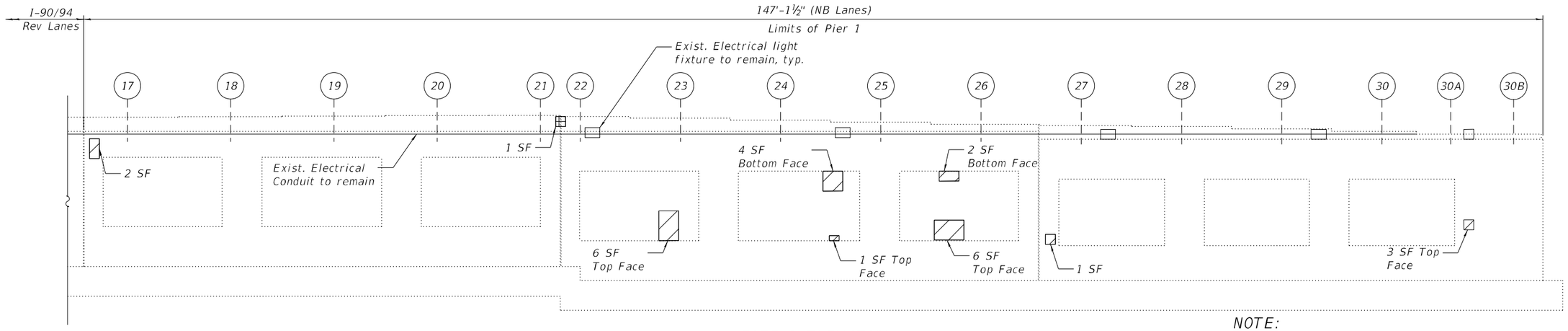
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT REPAIRS
STRUCTURE NO. 016-0131 (NB)

SHEET S05-18 OF S05-22 SHEETS

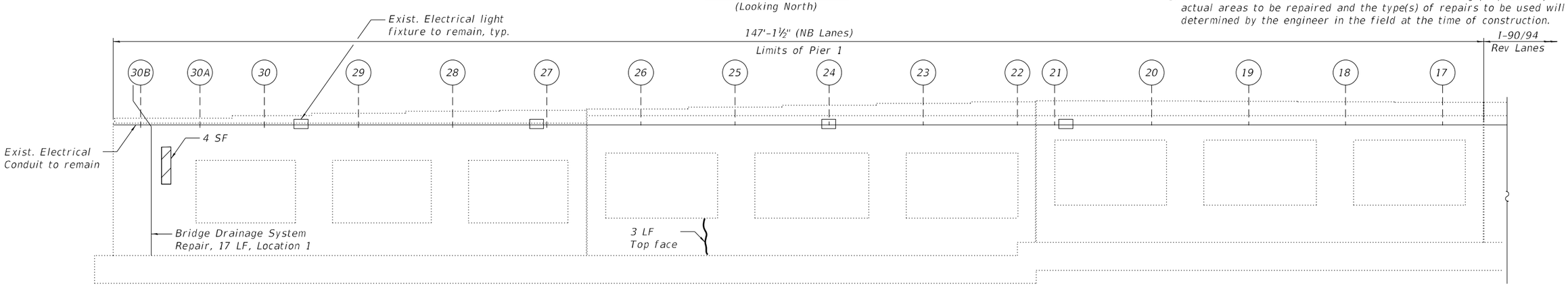
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	581
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



PIER 1 ELEVATION
(Looking North)

NOTE:

1. Quantities and limits 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.



PIER 1 ELEVATION
(Looking South)

EXISTING LIGHTING: PIER 1
(Looking North)

EXISTING LIGHTING: PIER 1
(Looking South)

EXIST. DRAINAGE SYSTEM REPAIR: LOCATION 1 – PIER 1
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Epoxy Crack Injection	Foot	3
Bridge Drainage System Repair	Foot	17
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq Ft	29
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	1

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

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PLOT DATE =		DATE -	4/29/2024	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 REPAIRS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-19 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	582
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	

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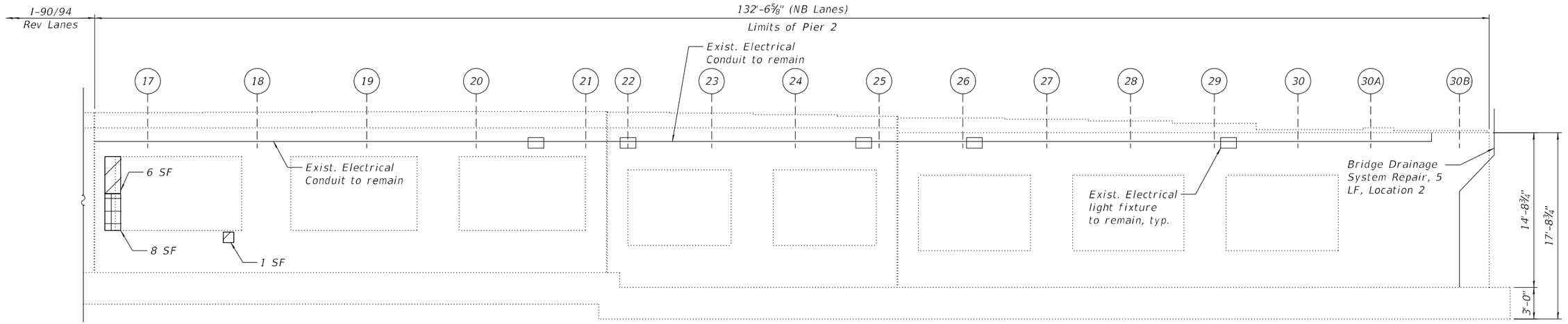
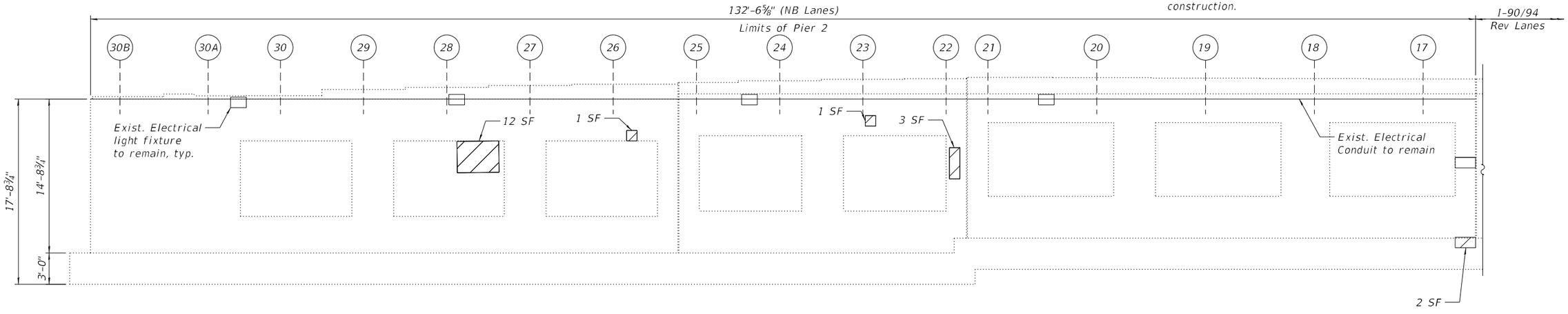


PIER 2 ELEVATION
(Looking North)

NOTE:

1. Quantities and limits 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.



PIER 2 ELEVATION
(Looking South)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Bridge Drainage System Repair	Foot	5
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	26
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	8

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

EXISTING LIGHTING: PIER 2
(Looking North)

EXISTING LIGHTING: PIER 2
(Looking South)

EXIST. DRAINAGE SYSTEM REPAIR: LOCATION 2 - PIER 2
(Looking North)

MODEL: Default
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DEPARTMENT OF TRANSPORTATION

PIER 2 REPAIRS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-20 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	583
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

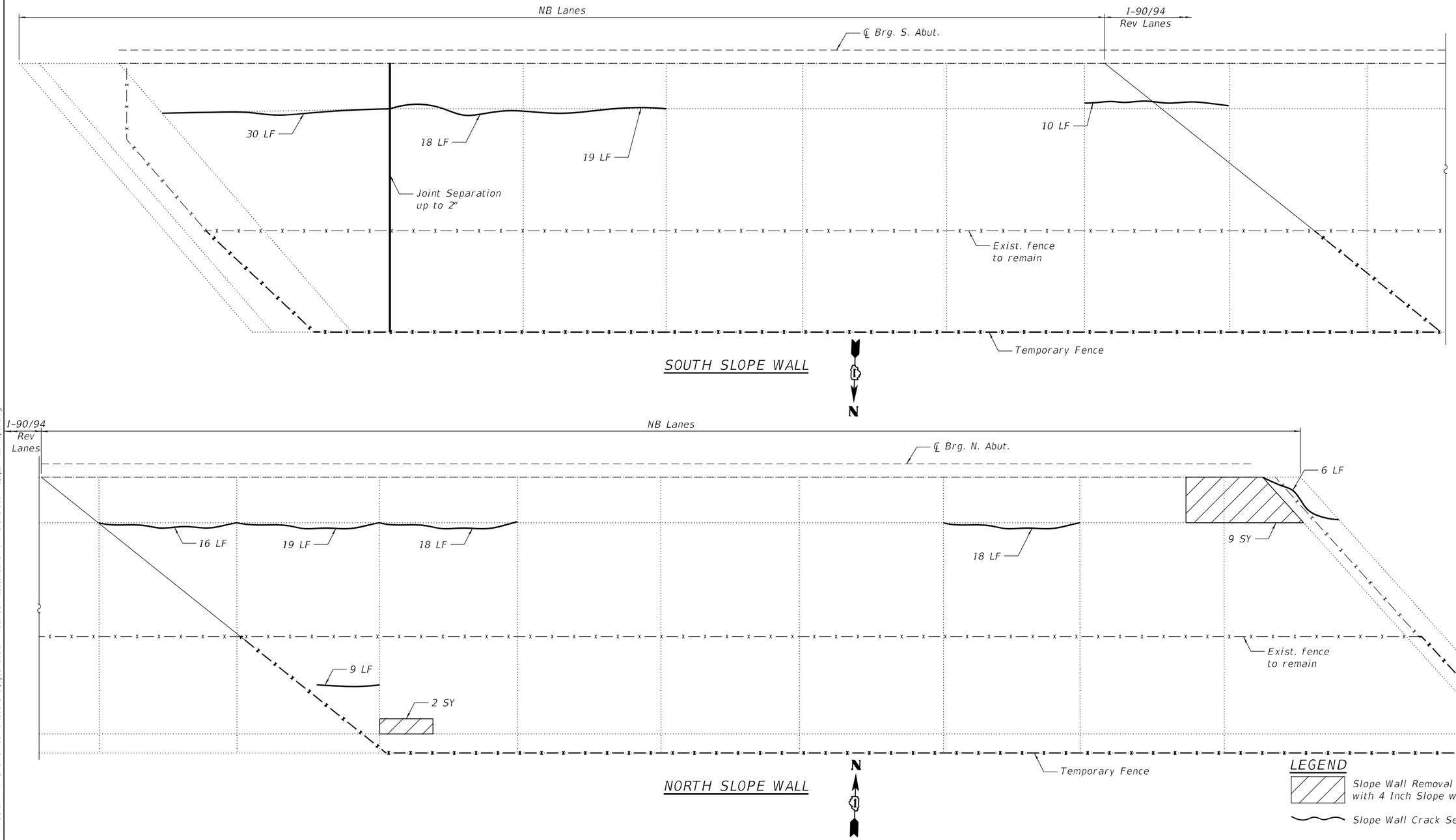
NOTES:

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. Slope wall shall be reinforced with welded wire fabric, 6 in. x 6 in. – W4.0 x W4.0, weighing 58 lbs. per 100 sq. ft.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Porous Granular Embankment	Cu Yd	4
Slope Wall Removal	Sq Yd	11
Slope Wall 4 Inch	Sq Yd	11
Slope Wall Crack Sealing	Foot	163



SOUTH SLOPE WALL

NORTH SLOPE WALL

LEGEND

Slope Wall Removal and Replacement with 4 Inch Slope wall

Slope Wall Crack Sealing

SY Square Yard

LF Linear Foot

MODEL: Default
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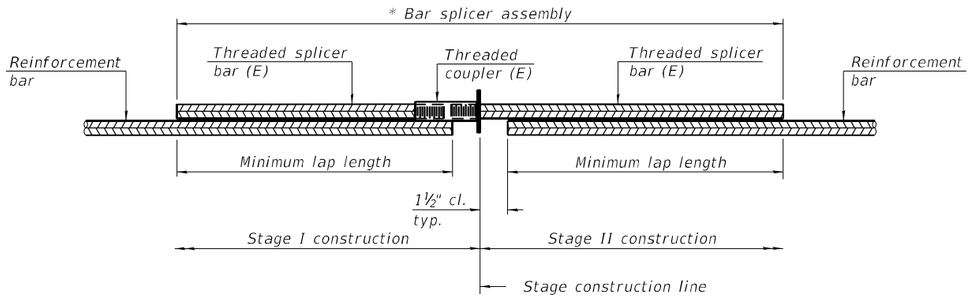
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SLOPE WALL REPAIRS
STRUCTURE NO. 016-0131 (NB)

SHEET S05-21 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	584
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



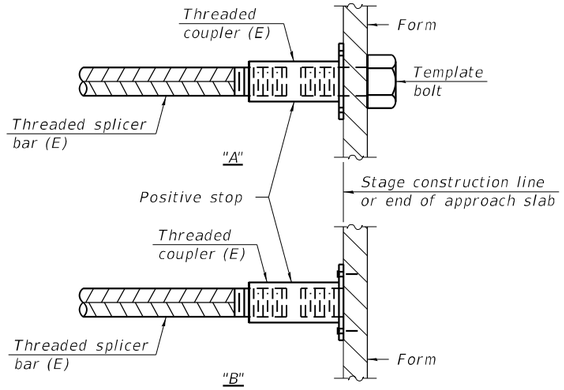
STANDARD BAR SPLICER ASSEMBLY PLAN

(All components shall be provided from one supplier)

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

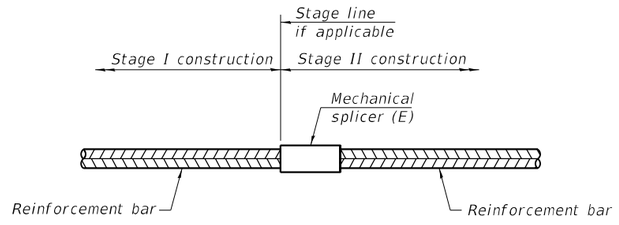
** Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.*

Location	Bar size	No. assemblies required	Minimum lap length
South Abutment	#5	10	3'-6"
	#6	6	4'-0"
North Abutment	#5	10	3'-6"
	#6	6	4'-0"



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 DETAILS
STRUCTURE NO. 016-0131 (NB)
SHEET S05-22 OF S05-22 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	585
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

Existing Structure: S.N. 016-0130 was originally built in 1958. The bridge was widened between 1990 and 1993, and expansion joint repairs were performed in 2013. The structure has a back-to-back abutment length of 200'-4½" and an out-to-out deck width varying from 71'-0½" to 71'-11⅜". The superstructure consists of a 7½" thick reinforced concrete deck supported on three span continuous steel beams of span lengths 54'-6", 83'-8", and 54'-6". The substructure consists of reinforced concrete abutments and piers supported on reinforced concrete piles.

Traffic is to be maintained utilizing stage construction.

No salvage.

NOTES:

1. All stations are to the ℄ I-90/94 NB Roadway and taken from existing plans.
2. No future wearing surface is allowed.

DESIGN SPECIFICATIONS

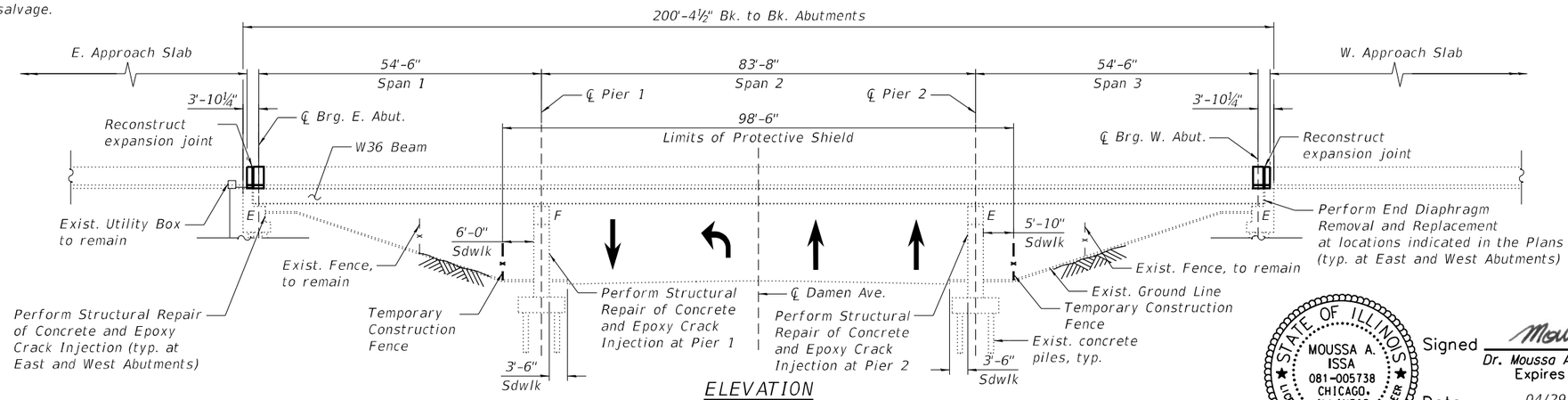
2002 AASHTO Standard Specifications for Highway Bridges (17th Edition)

RECONSTRUCTION 2013

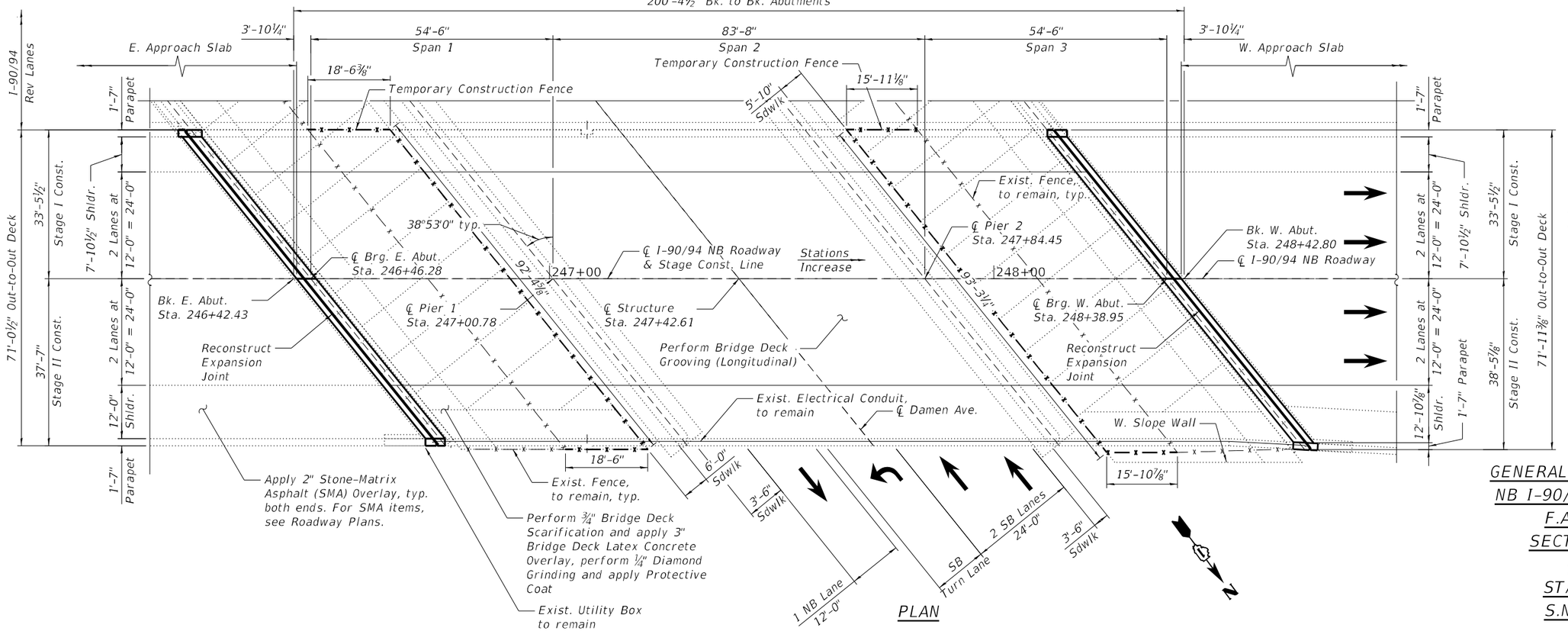
2002 AASHTO Standard Specifications for Highway Bridges

RECONSTRUCTION 1993

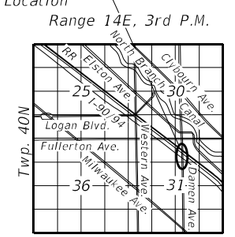
1989 AASHTO Standard Specifications for Highway Bridges with 1990 & 1991 Interim Specifications



ELEVATION



PLAN



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
NB I-90/94 OVER DAMEN AVE.
F.A.I. ROUTE 90/94
SECTION 2020-005-BR
COOK COUNTY
STATION 247+42.61
S.N. 016-0130 (NB)

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 11-30-2024

Date 04/29/2024

For Sheets S06-01 thru S06-23

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STRUCTURE NO. 016-0130 (NB)

SHEET S06-01 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	586
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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 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.

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

4. All exposed concrete edges shall have a ¾"x45° chamfer except where shown otherwise.

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. Cost included with Concrete Removal.

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

7. Protective Coat shall be applied to the top of reconstructed transverse joint areas, top and inside faces of parapets, and top of Latex Concrete Overlay.

8. 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.

9. Prior to pouring the new concrete deck for expansion joint reconstruction and deck slab repairs, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete. 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" deep shall be identified and reported to the Bureau of Bridges and Structures for further dispositions. 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.

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

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

12. All new structural steel shall be hot-dip galvanized. See Special Provisions for "Hot Dip Galvanizing for Structural Steel".

13. Fasteners shall be ASTM F 3125 Grade A325 Type 1. Fasteners shall be hot dip galvanized. See Special Provision for "Hot Dip Galvanizing for Structural Steel." Bolts ¾ in. diameter, holes 13/16 in. diameter, unless otherwise noted.

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

15. Adjacent I-90/94 reversible bridge is not shown throughout the plans for clarity.

16. 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.

17. 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".

18. 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.

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

20. 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.

21. 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 including in the cost of Protective Shield.

22. Calculated weight of Structural Steel = 2,990 lb (M270 Grade 36)

INDEX OF SHEETS

SCOPE OF WORK

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

2. Scarify ¾" from the bridge deck slab.

3. Perform Deck Slab Repairs.

4. Reconstruct Expansion Joints at the East and West abutments and install new preformed joint strip seals.

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

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

7. Apply 2" Stone-Matrix Asphalt (SMA) Overlay on the approach Slabs, see Roadway Plans.

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

9. Apply protective coat to the top of reconstructed transverse joint areas, top and inside faces of parapets, and top of Latex Overlay.

10. Replace diaphragms as shown on the plans.

11. Perform structural concrete repairs and epoxy crack injection for the abutments and piers as noted on the plans.

12. Perform Slope Wall repairs.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu Yd	-	2	2
Concrete Removal	Cu Yd	32.4	-	32.4
Slope Wall Removal	Sq Yd	-	4	4
Protective Shield	Sq Yd	755	-	755
Concrete Superstructure	Cu Yd	35.8	-	35.8
Protective Coat	Sq Yd	1,690	-	1,690
Furnishing And Erecting Structural Steel	Pound	2,990	-	2,990
Reinforcement Bars, Epoxy Coated	Pound	5,240	-	5,240
Bar Splicers	Each	32	-	32
Slope Wall 4 Inch	Sq Yd	-	4	4
Preformed Joint Seal 2 1/2"	Foot	196	-	196
Preformed Joint Strip Seal	Foot	183	-	183
Concrete Sealer	Sq Ft	-	833	833
Epoxy Crack Injection	Foot	-	85	85
Slope Wall Crack Sealing	Foot	-	63	63
Bridge Deck Grooving (Longitudinal)	Sq Yd	1,042	-	1,042
Protect And Maintain Existing Underpass Luminaire	L Sum	-	0.04	0.04
Approach Slab Repair (Full Depth)	Sq Yd	49	-	49
Approach Slab Repair (Partial Depth)	Sq Yd	49	-	49
Structural Steel Removal	Pound	2,990	-	2,990
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1,436	-	1,436
Bridge Deck Scarification 3/4"	Sq Yd	1,436	-	1,436
Structural Repair Of Concrete (Depth Equal To Or Less Than 5 Inches)	Sq Ft	-	561	561
Structural Repair Of Concrete (Depth Greater Than 5 Inches)	Sq Ft	-	14	14
Deck Slab Repair (Full Depth, Type I)	Sq Yd	0.4	-	0.4
Deck Slab Repair (Full Depth, Type II)	Sq Yd	53	-	53
Diamond Grinding (Bridge Section)	Sq Yd	1,499	-	1,499
Temporary Construction Fence	Foot	-	255	255
Temporary Shoring And Cribbing	Each	-	3	3
Locks For Gates	Each	-	4	4

GENERAL NOTES (CONT.):

23. The Contractor shall contact Chandra Libby, the Director of City of Chicago Department of Family Support Services (DFSS) at 312-746-5443 or Chandra.Libby@cityofchicago.org to coordinate the relocation of persons and their personal belongings under the bridges within the areas bounded by the temporary chain-link-fence.

24. The intent of the temporary fence is to deny access of any unauthorized personnel under the bridge during construction. Actual fence installations may vary from what is shown on the plans. All fence installations must be approved by the Engineer.

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

26. 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.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, INDEX OF SHEETS & TBOM
STRUCTURE NO. 016-0130 (NB)
SHEET S06-02 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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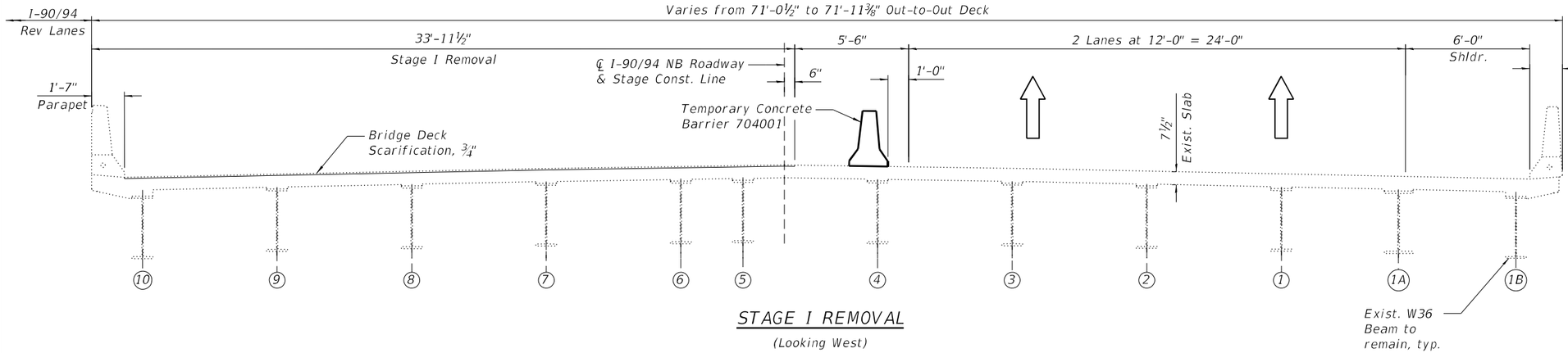
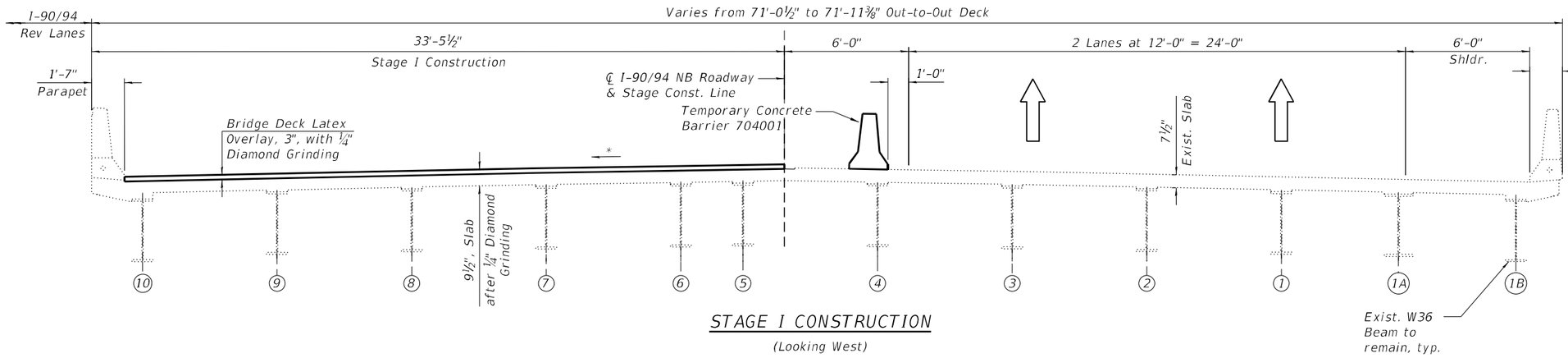
		CONTRACT NO. 62K73		
		ILLINOIS	FED. AID PROJECT	



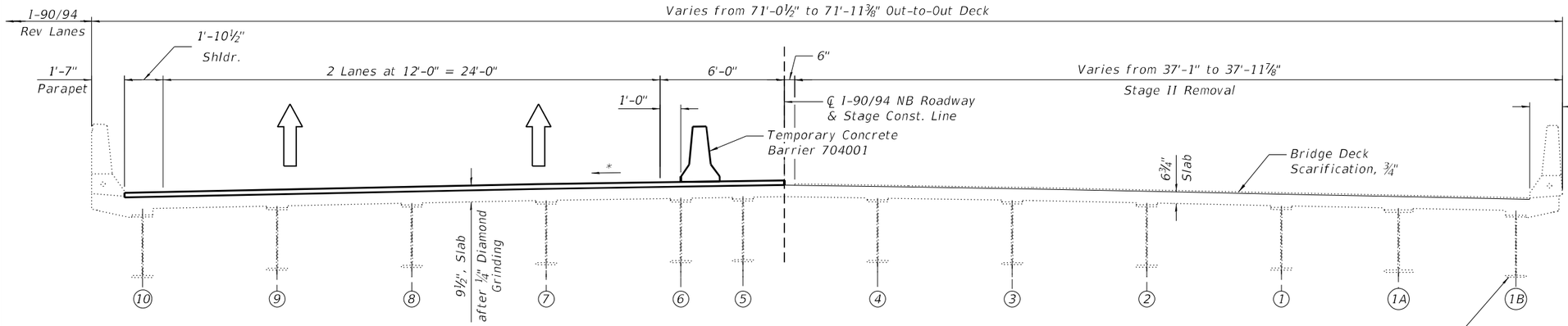
STAGE I REMOVAL

(Looking West)



STAGE I CONSTRUCTION

(Looking West)



STAGE II REMOVAL

(Looking West)

*Match existing cross slopes

STAGE I REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the north 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 concrete deck/approach slab adjacent to expansion joints at the abutments.
5. Perform temporary shoring and cribbing at locations shown on the plans with the limits of stage I removal.
6. Remove existing longitudinal preformed joint seal between north parapet and reversible lane parapet.

STAGE I CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct expansion joints and install new preformed joint strip seals within the limits of Stage I 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 hatched block.
6. Perform Bridge Deck Grooving (Longitudinal) for the 3" Bridge Deck Latex Concrete Overlay and reconstructed abutment 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 south parapet, reconstructed abutment expansion joints and to the surfaces of the new overlay.
9. Perform slope wall repairs as shown on the plans.
10. Replace existing longitudinal preformed joint seal between north parapet and reversible lane parapet.

STAGE II REMOVAL

1. Install temporary concrete barrier as shown to locate traffic on the south 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 concrete deck/approach slab adjacent to expansion joints at the abutments.
5. Perform temporary shoring and cribbing at locations shown on the plans with the limits of stage II removal.

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STAGE CONSTRUCTION (SHEET 1 OF 2)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-03 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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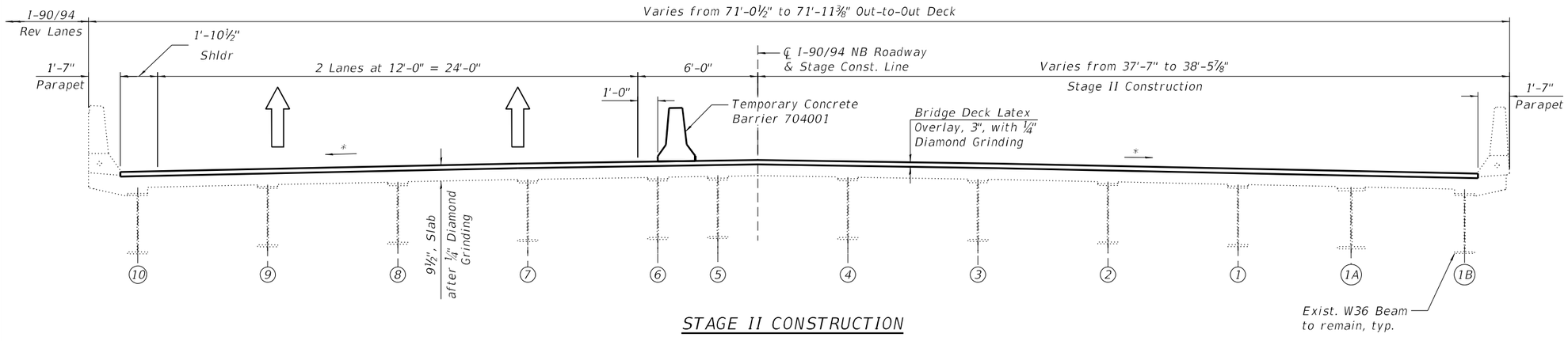
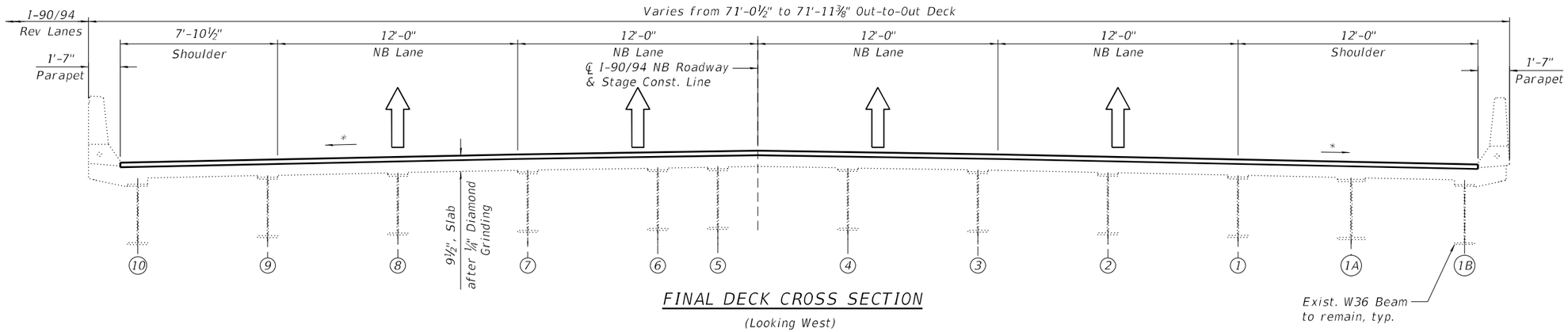
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



STAGE II CONSTRUCTION

(Looking West)



FINAL DECK CROSS SECTION

(Looking West)

STAGE II CONSTRUCTION

1. Perform bridge deck slab repairs.
2. Reconstruct 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 hatched block.
6. Perform bridge deck grooving (longitudinal) for the 3" bridge deck latex concrete overlay and reconstructed abutment 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 north parapet, reconstructed abutment expansion joints and to the surfaces of the new overlay.
9. Perform slope wall repairs as shown on the plans.

*Match existing cross slopes

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DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION (SHEET 2 OF 2)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-04 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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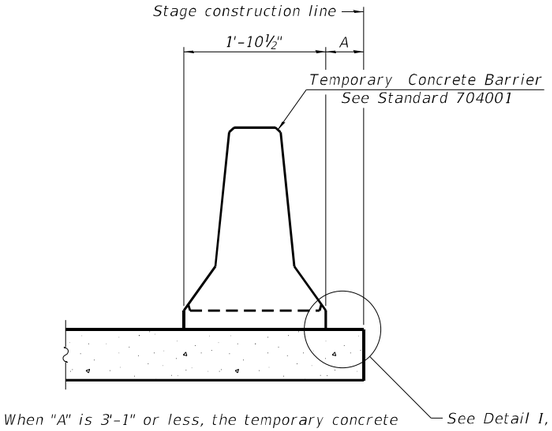
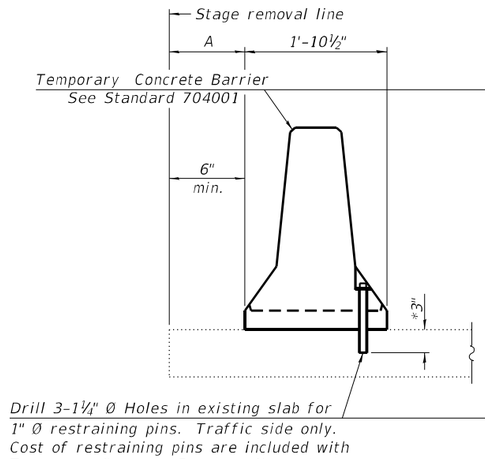
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



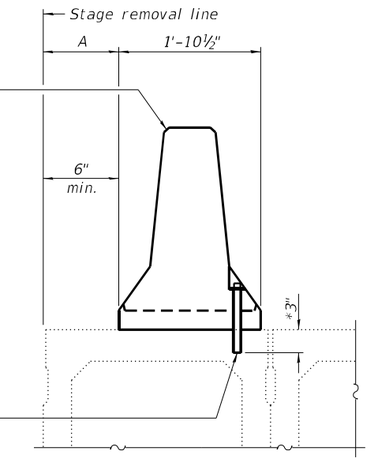
When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

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".

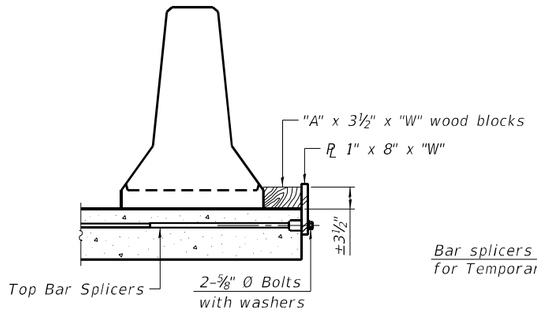
EXISTING SLAB



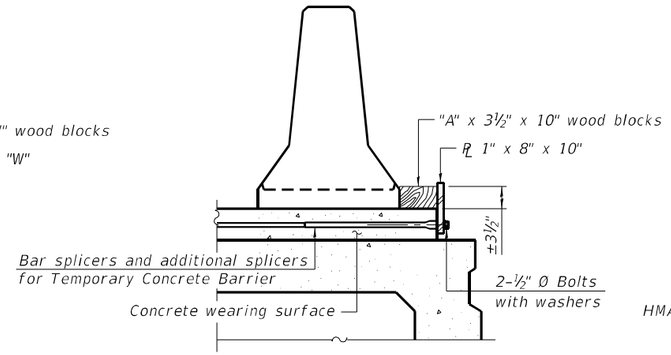
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

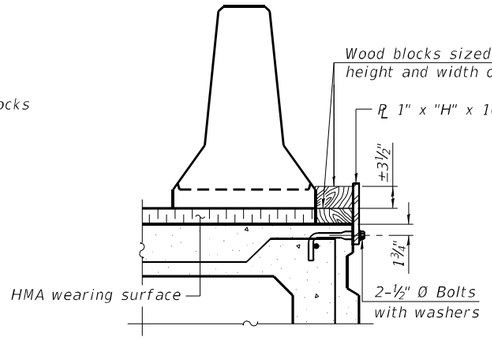
SECTIONS THRU SLAB OR DECK BEAM



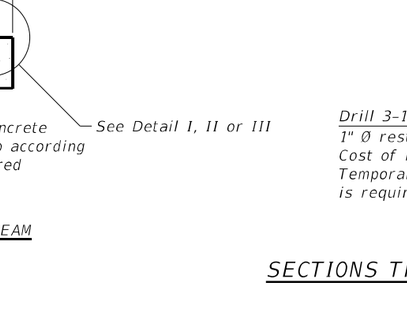
DETAIL I



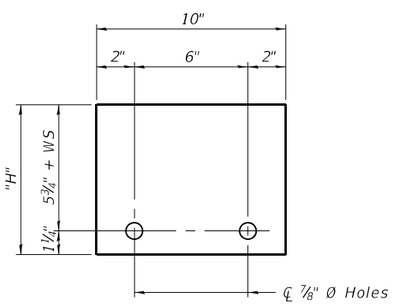
DETAIL II



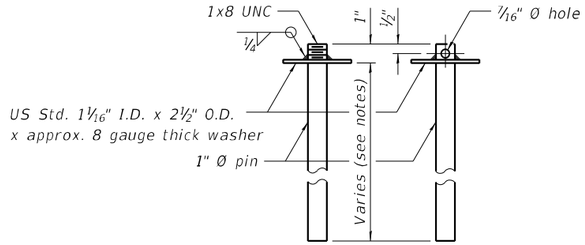
DETAIL III



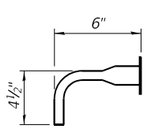
STEEL RETAINER ℄ 1" x 8" x "W"
(Detail I and II)



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

10-12-2021

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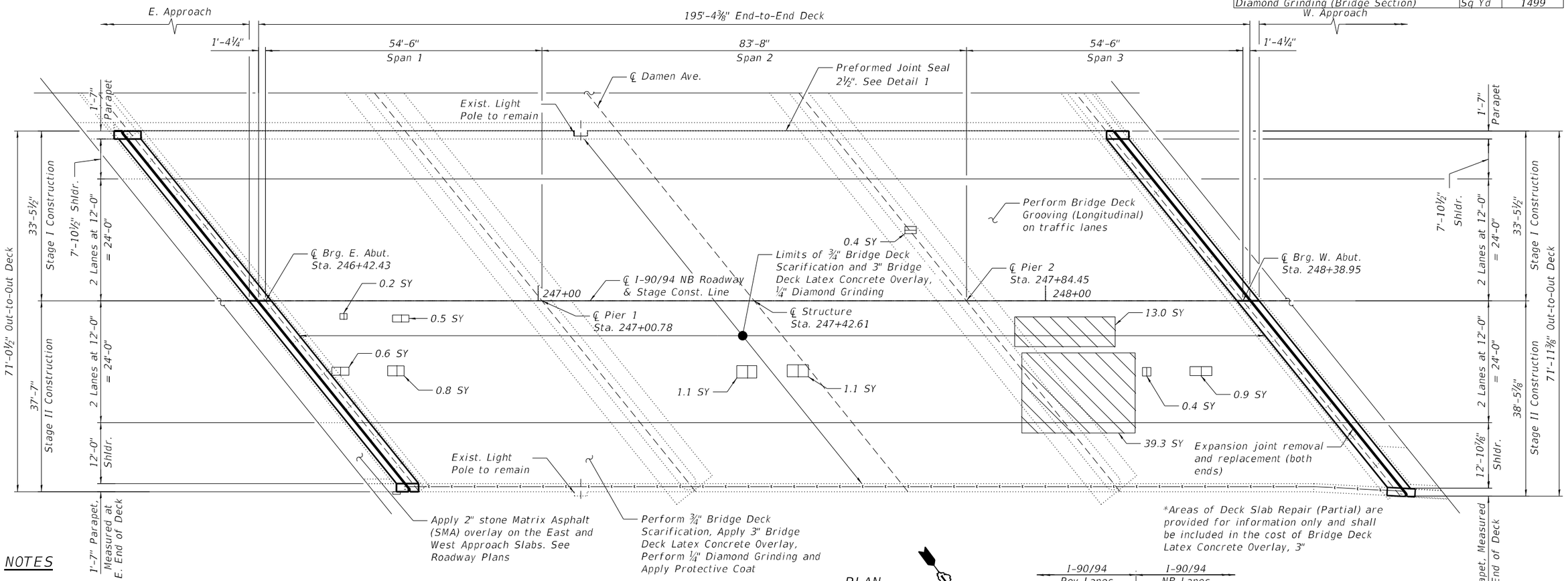
TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 016-0130 (NB)
SHEET S06-05 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	590
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Protective Shield	Sq Yd	755
Protective Coat	Sq Yd	1618
Preformed Joint Seal 2 1/2"	Foot	196
Bridge Deck Grooving (Longitudinal)	Sq Yd	1042
Approach Slab Repair (Full Depth)	Sq Yd	49
Approach Slab Repair (Partial Depth)	Sq Yd	49
Bridge Deck Latex Concrete Overlay, 3 Inches	Sq Yd	1436
Bridge Deck Scarification 3/4"	Sq Yd	1436
Deck Slab Repair (Full Depth, Type I)	Sq Yd	0.4
Deck Slab Repair (Full Depth, Type II)	Sq Yd	53
Diamond Grinding (Bridge Section)	Sq Yd	1499



*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"

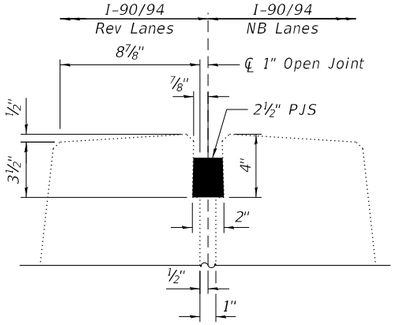
NOTES

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 S06-04.
3. For East and West transverse joint removal and reconstruction, see Sheets S06-07 thru S06-12.
4. Perform ¼" Diamond Grinding to top of bridge deck and abutment hatched block.
5. Perform Bridge Deck Grooving (Longitudinal) on traffic lanes.
6. Protective coat shall be applied to the top and inside face of parapets and top of latex Concrete Overlay.
7. The Contractor shall exercise extreme caution during Concrete Removal to avoid damaging to 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.
8. Any reinforcement bars that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost incidental to Concrete Removal.
9. Removal of the existing preformed joint seal is included in the cost of Preformed Joint Seal 2½".

PLAN

NOTES (CONT.):

10. Approach Slab Repair (Full Depth) and Approach Slab Repair (Partial Depth) quantities have been estimated (based on a nominal 3% of bridge approach area) for bidding purposes only. The actual areas to be repaired, and the type(s) of repairs to be used, will determined by the Engineer in the field at the time of construction.



DETAIL 1

(Reinforcement not shown for clarity)

LEGEND

- *Deck Slab Repair (Partial Depth)
- Deck Slab Repair (Full Depth, Type I)
- Deck Slab Repair (Full Depth, Type II)

SY Square Yard

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		CHECKED - MI	REVISED -	DECK REPAIR PLAN STRUCTURE NO. 016-0130 (NB)
	PLOT SCALE =	DRAWN - LAB	REVISED -	SHEET S06-06 OF S06-23 SHEETS
	PLOT DATE =	DATE - 4/29/2024	REVISED -	

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

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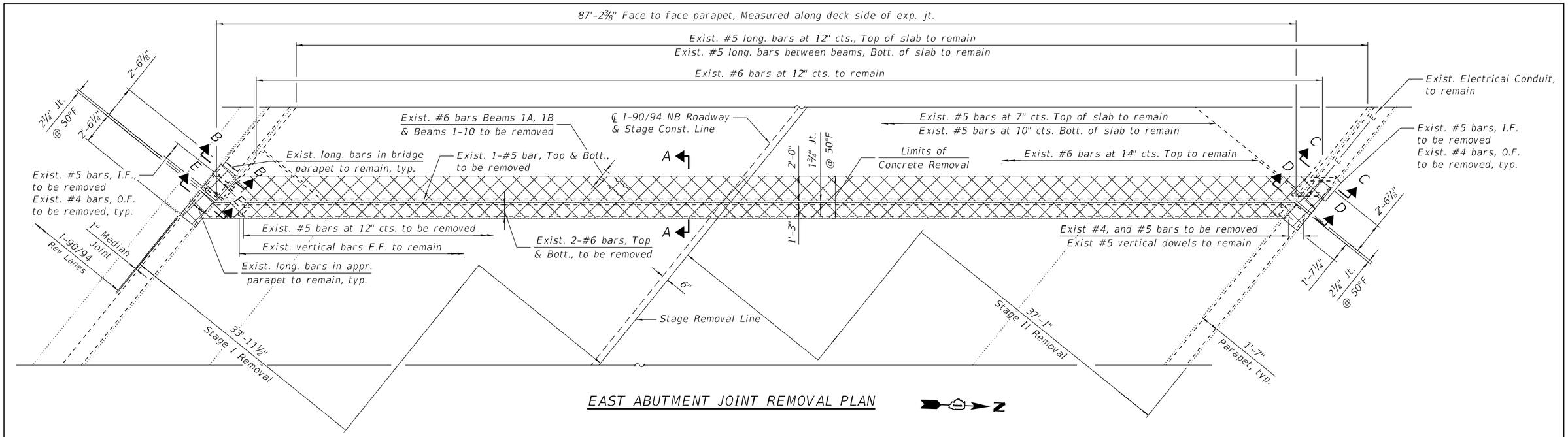

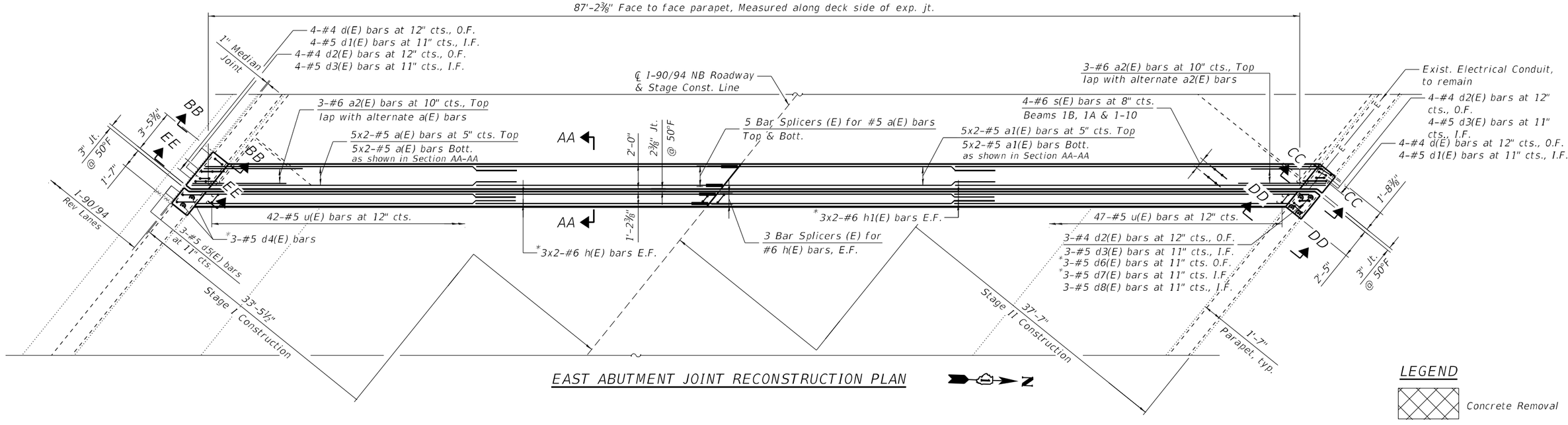

LEGEND

Concrete Removal

*Epoxy grout #5 d4(E), d6(E) and d7(E) bars in 9" min. holes according to Section 584 of the Standard Specifications

E.F. Each Face

I.F. Inside Face

O.F. Outside Face

NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S06-08.
2. For Sections D-D, E-E, DD-DD, and EE-EE, additional Notes, Bar Diagrams and Bill of Material, see Sheet S06-09.

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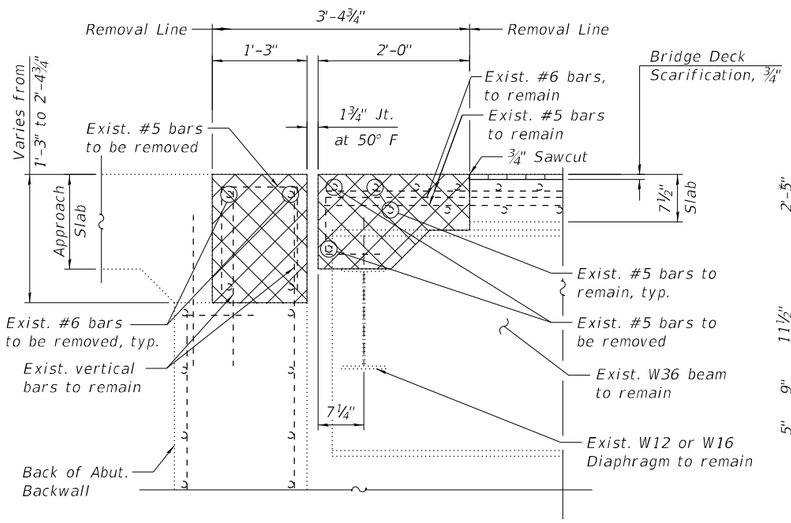
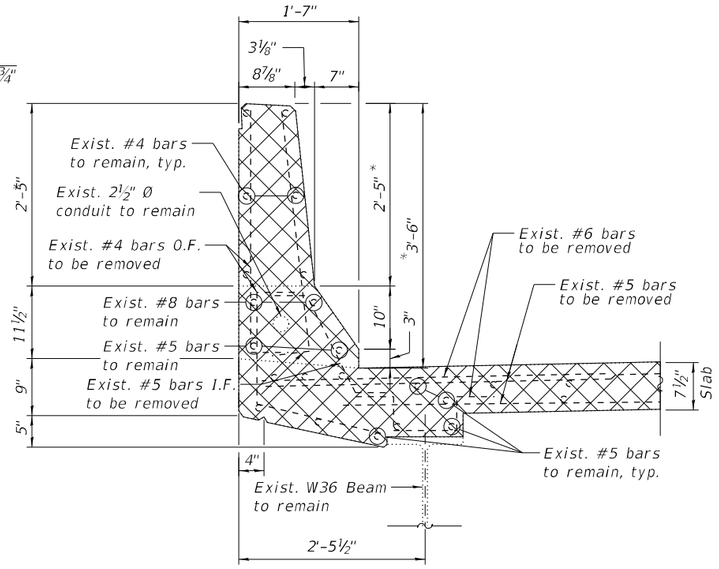
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-07 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	592
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



SECTION A-A



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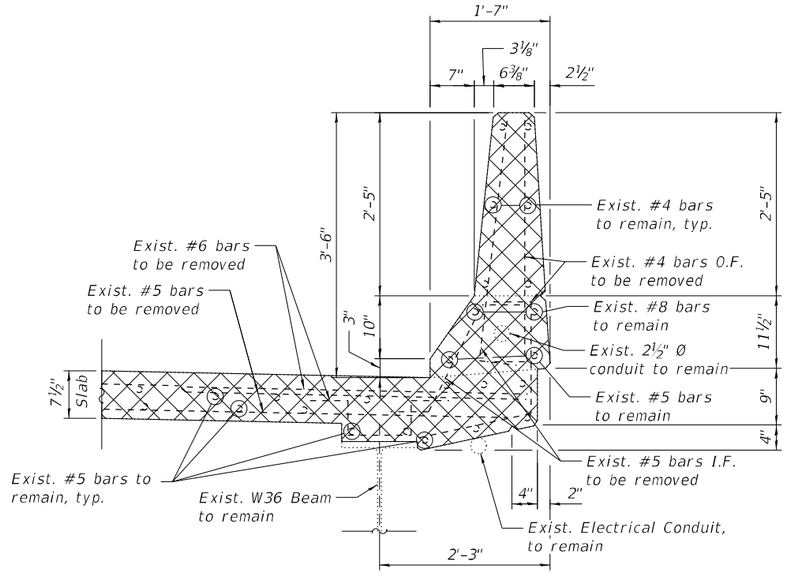

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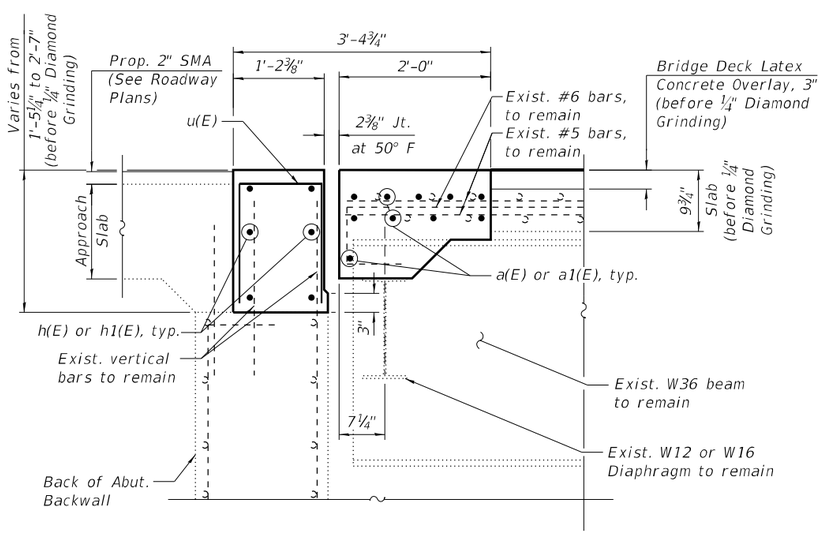

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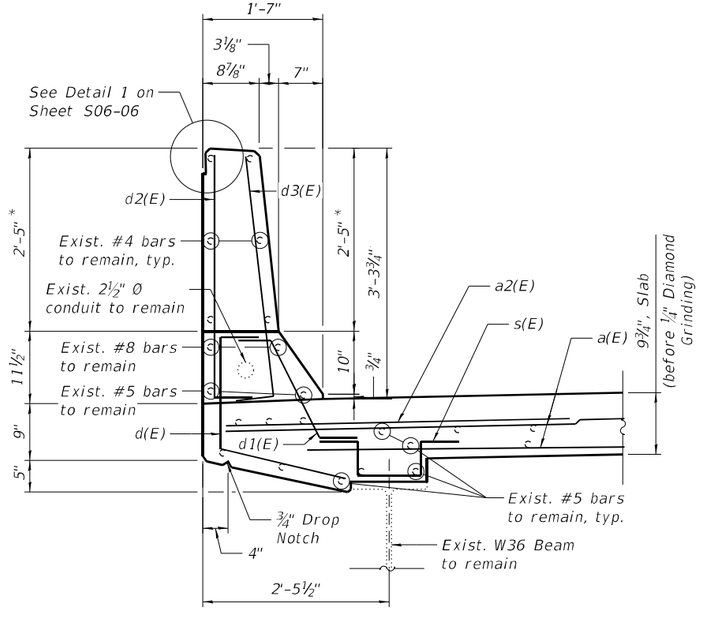

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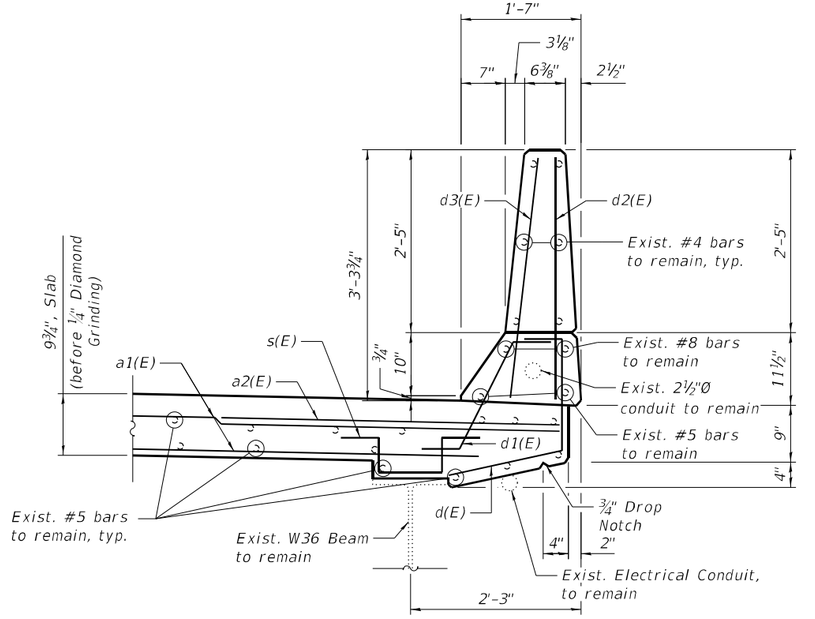

SECTION CC-CC

NOTES:

1. For legend, see Sheet S06-07.

2. For Bar Diagrams, addtional Notes and Bill of Material, see Sheet S06-09.

*Adjust height as required to match reversible lane parapet

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PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

E. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 2 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-08 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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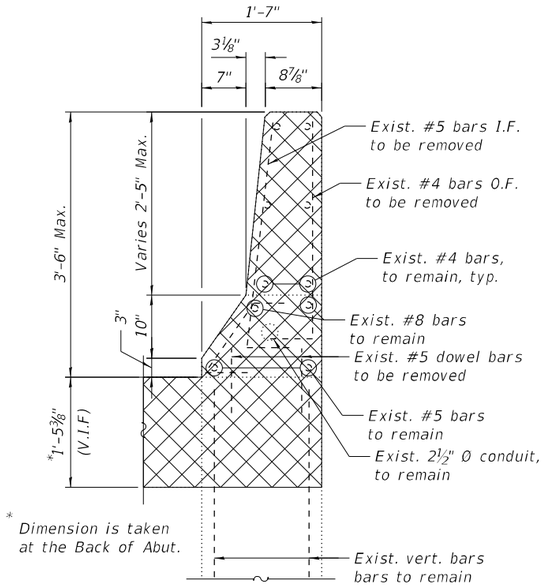
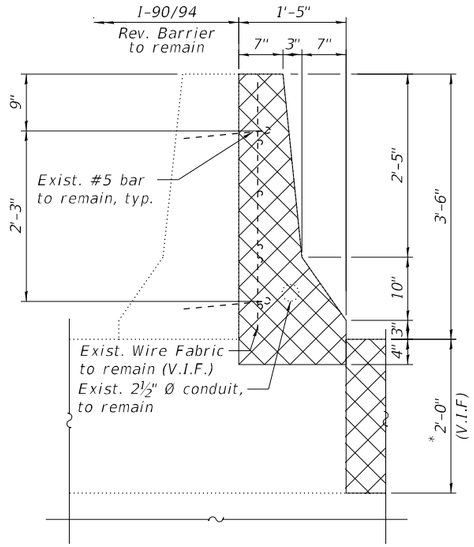
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



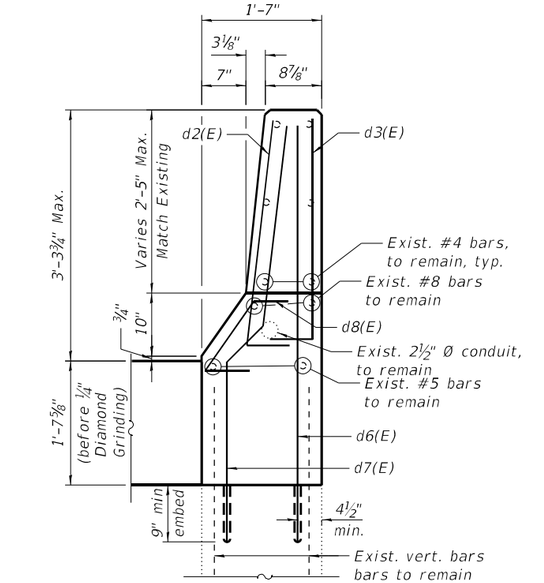
SECTION D-D

(Reinforcement in pour strip not shown for clarity)



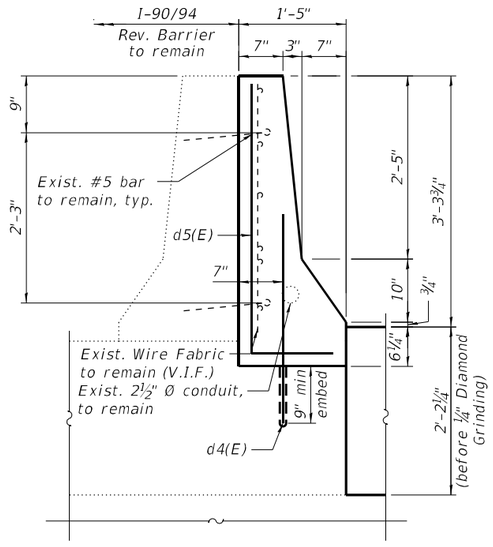
SECTION E-E

(Reinforcement in pour strip not shown for clarity)



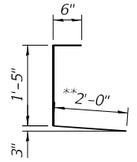
SECTION DD-DD

(Reinforcement in pour strip not shown for clarity)



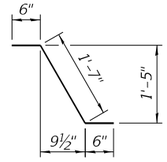
SECTION EE-EE

(Reinforcement in pour strip not shown for clarity)



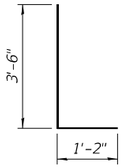
BAR d(E)

**Cut end bar in the field to fit

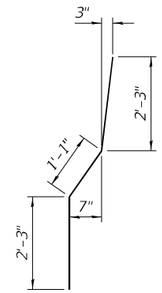


BAR d1(E)

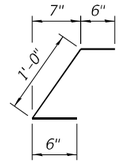
BARS d2(E) & d3(E)



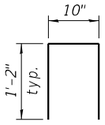
BAR d5(E)



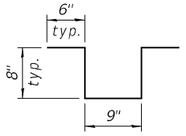
BAR d7(E)



BAR d8(E)



BAR u(E)



BAR s(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	20	#5	22'-11"	
a1(E)	20	#5	25'-9"	
a2(E)	6	#6	6'-6"	
d(E)	8	#4	3'-11"	
d1(E)	8	#5	2'-7"	
d2(E)	11	#4	3'-8"	
d3(E)	11	#5	3'-8"	
d4(E)	3	#5	2'-9"	
d5(E)	3	#5	4'-8"	
d6(E)	3	#5	5'-5"	
d7(E)	3	#5	5'-7"	
d8(E)	3	#5	2'-0"	
h(E)	12	#6	22'-2"	
h1(E)	12	#6	24'-10"	
s(E)	48	#6	3'-1"	
u(E)	89	#5	3'-2"	
Concrete Removal			Cu Yd	16.0
Concrete Superstructure			Cu Yd	17.8
Protective Coat			Sq Yd	36
Reinforcement Bars, Epoxy Coated			Pound	2,610

NOTES:

1. For legend, see Sheet S06-07.
2. For preformed joint strip seal details, see Sheet S06-13.
3. For bar splicer assembly details, see Sheet S06-23.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E), d6(E) and d7(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

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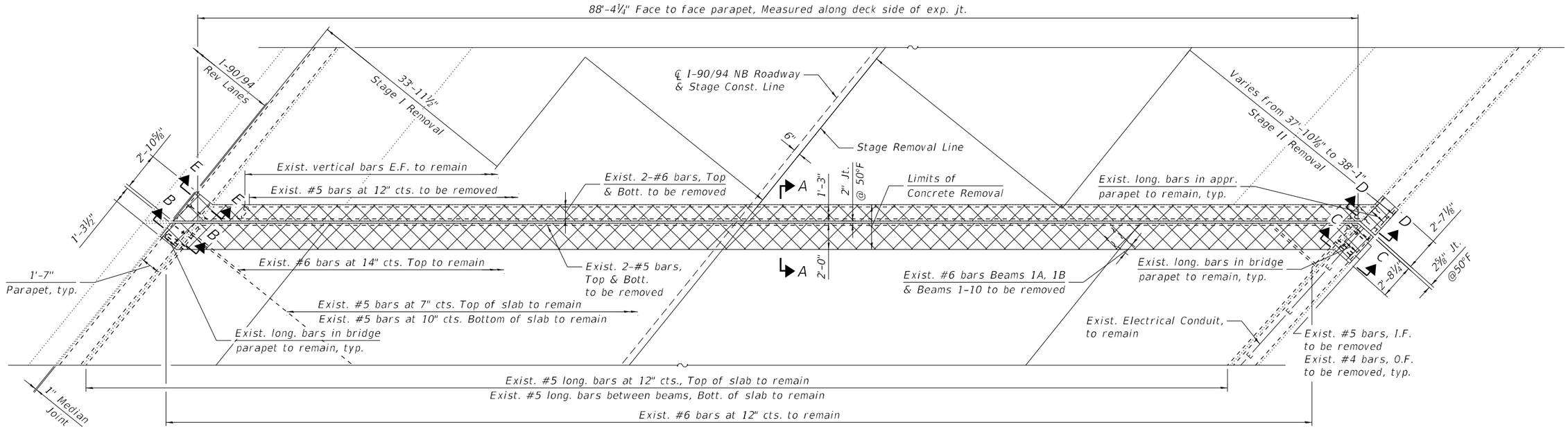
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

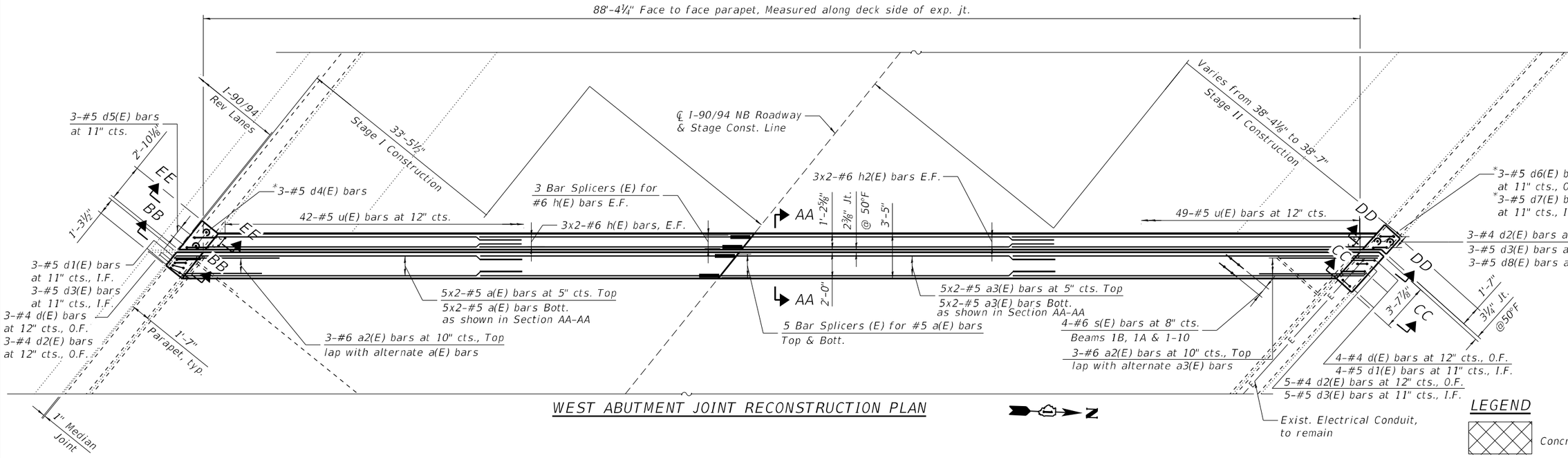
E. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 3 OF 3)
STRUCTURE NO. 016-0130 (NB)

SHEET S06-09 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	594
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			



WEST ABUTMENT JOINT REMOVAL PLAN



WEST ABUTMENT JOINT RECONSTRUCTION PLAN

NOTES:

1. For Sections A-A, B-B, C-C, AA-AA, BB-BB and CC-CC, see Sheet S06-11.
2. For Sections D-D, E-E, DD-DD, and EE-EE, Bar Diagrams, additional Notes and Bill of Material, see Sheet S06-12.

*Epoxy grout #5 d4(E), d6(E) and d7(E) bars in 9" min. holes according to Section 584 of the Standard Specifications

LEGEND

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

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STATE OF ILLINOIS
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W. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 1 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-10 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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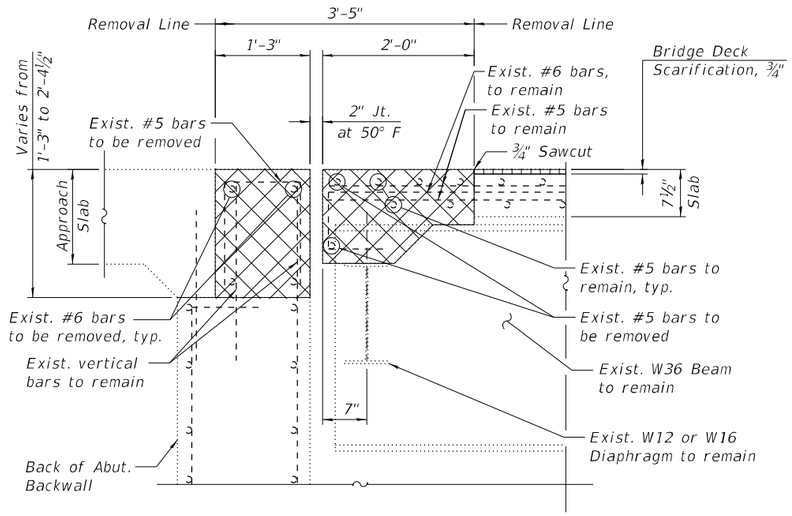
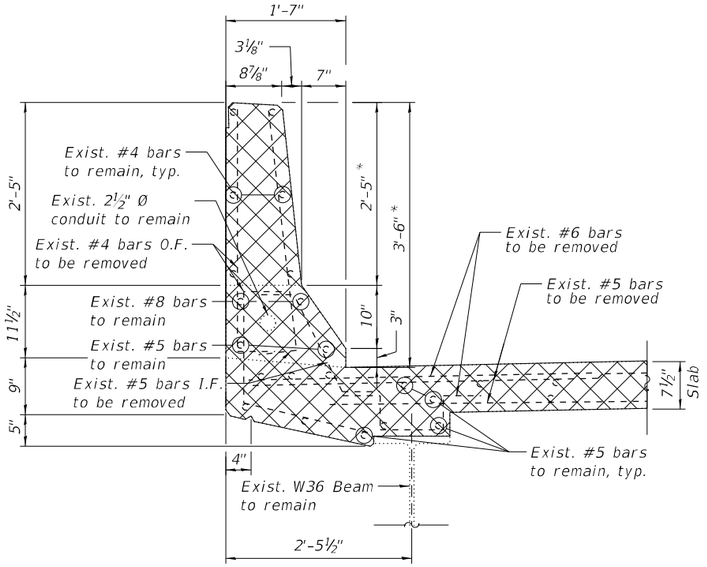
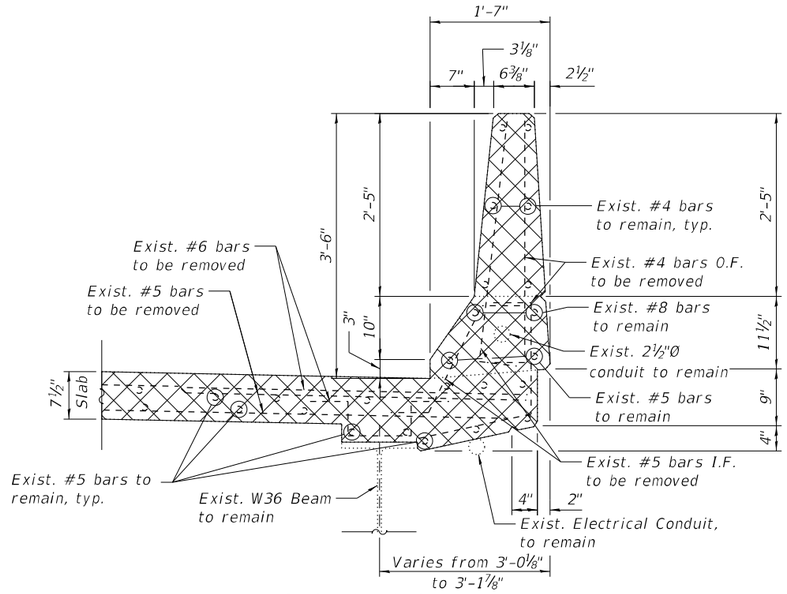
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



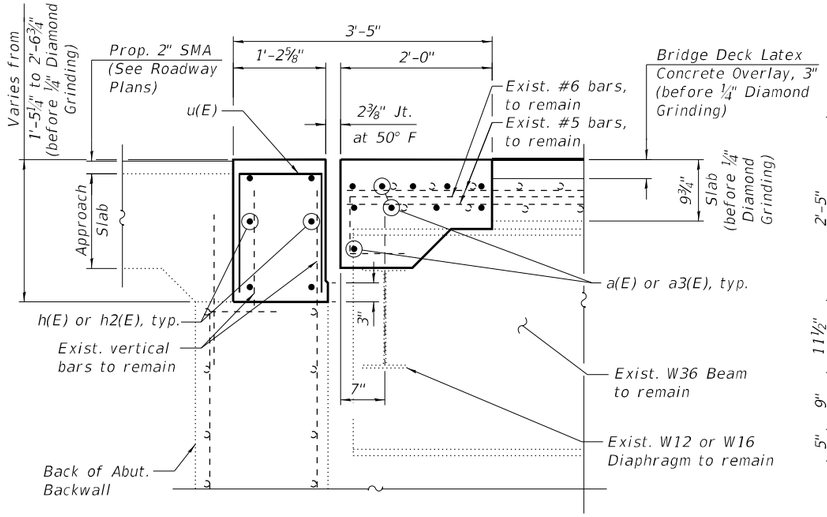
SECTION A-A



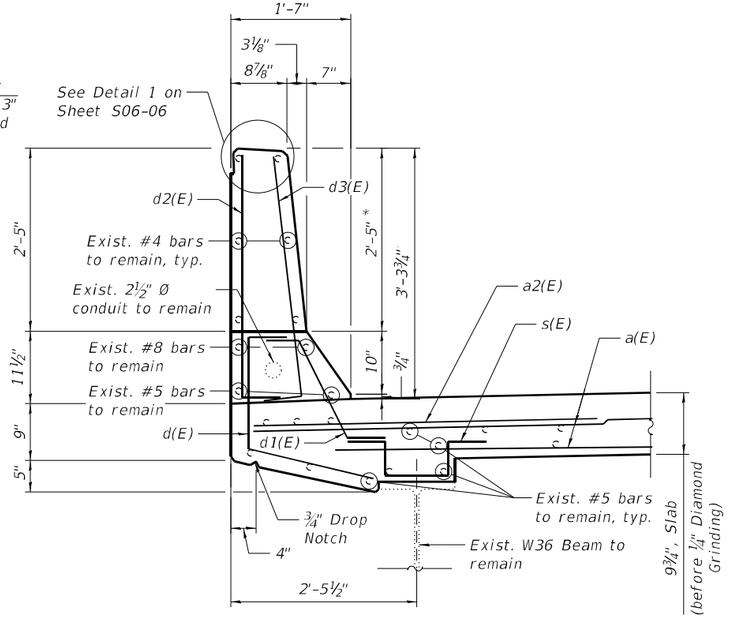
SECTION B-B



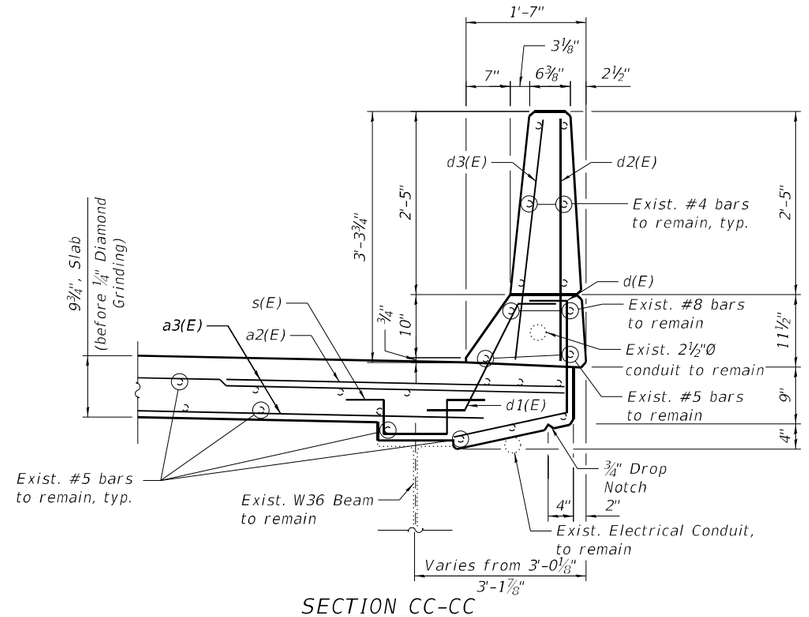
SECTION C-C



SECTION AA-AA



SECTION BB-BB



SECTION CC-CC

NOTES:

1. For legend, see Sheet S06-10.
2. For Bar Diagrams, additional Notes and Bill of Material, see Sheet S06-12.

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W. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 2 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-11 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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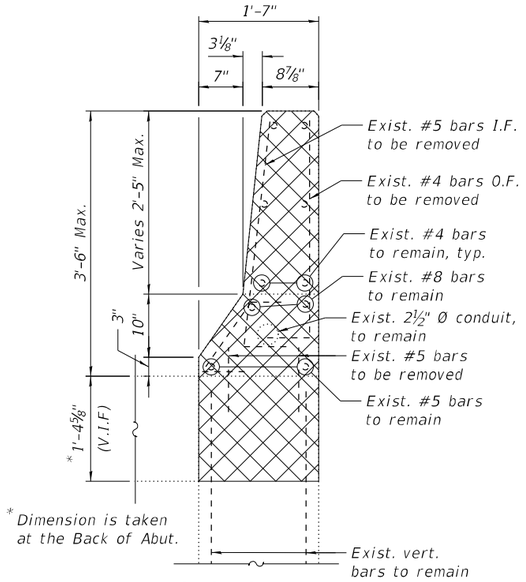
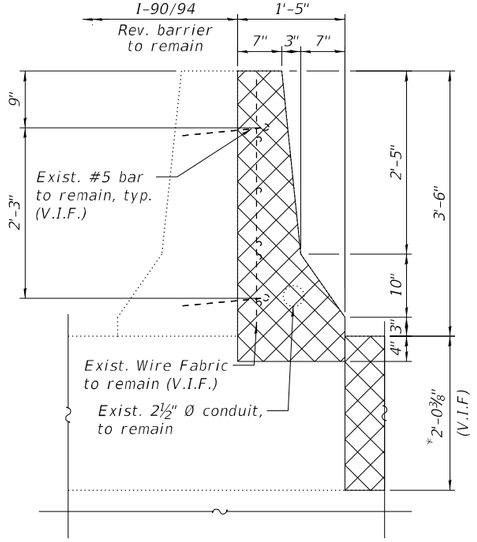
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		



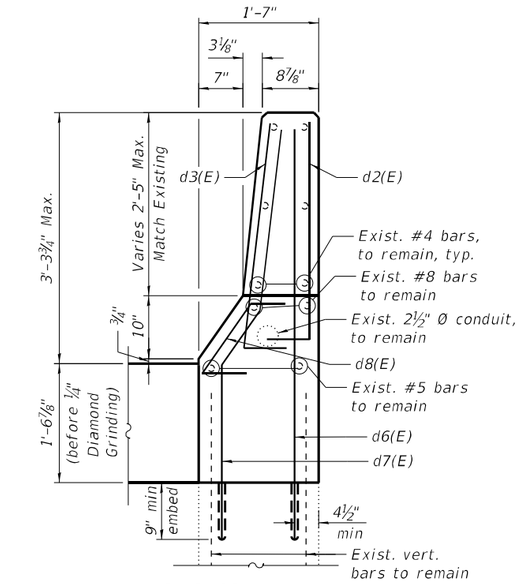
* Dimension is taken at the Back of Abut.

SECTION D-D

(Reinforcement in pour strip not shown for clarity)



SECTION E-E



SECTION DD-DD

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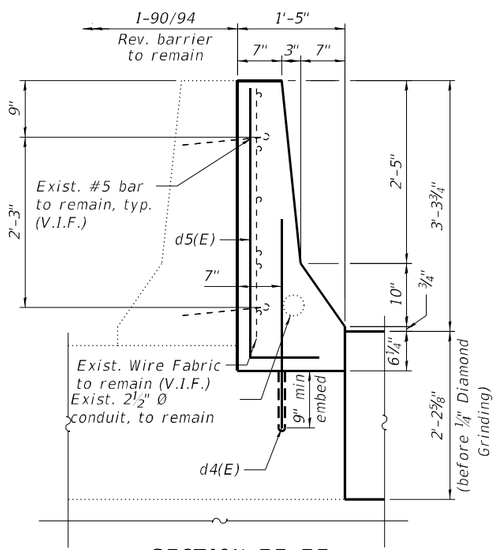
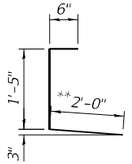
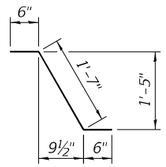


SECTION EE-EE

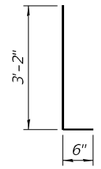


BAR d(E)

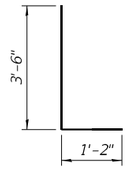
**Cut end bar in the field to fit



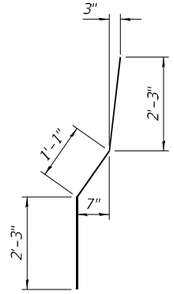
BAR d1(E)



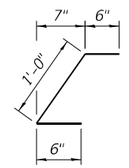
BARS d2(E) & d3(E)



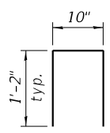
BAR d5(E)



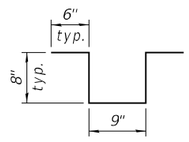
BAR d7(E)



BAR d8(E)



BAR u(E)



BAR s(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	20	#5	22'-11"	
a2(E)	6	#6	6'-6"	
a3(E)	20	#5	26'-1"	
d(E)	7	#4	3'-11"	
d1(E)	7	#5	2'-7"	
d2(E)	11	#4	3'-8"	
d3(E)	11	#5	3'-8"	
d4(E)	3	#5	2'-9"	
d5(E)	3	#5	4'-8"	
d6(E)	3	#5	5'-5"	
d7(E)	3	#5	5'-7"	
d8(E)	3	#5	2'-9"	
h(E)	12	#6	22'-2"	
h2(E)	12	#6	25'-5"	
s(E)	48	#6	3'-1"	
u(E)	91	#5	3'-2"	
Concrete Removal			Cu Yd	16.4
Concrete Superstructure			Cu Yd	18.0
Protective Coat			Sq Yd	36
Reinforcement Bars, Epoxy Coated			Pound	2,630

NOTES:

1. For legend, see Sheet S06-10.
2. For preformed joint strip seal details, see Sheet S06-13.
3. For bar splicer assembly details, see Sheet S06-23.
4. Removal and disposal of the existing expansion joints is included with Concrete Removal.
5. Epoxy grout d4(E), d6(E), and d7(E) bars according to Article 584 of the Standard Specifications. Drill to miss existing reinforcement. Cost included with Concrete Superstructure.

MIN BAR LAPS

#5	3'-6"
#6	4'-0"

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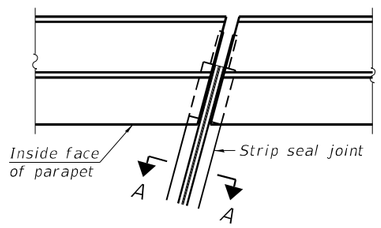
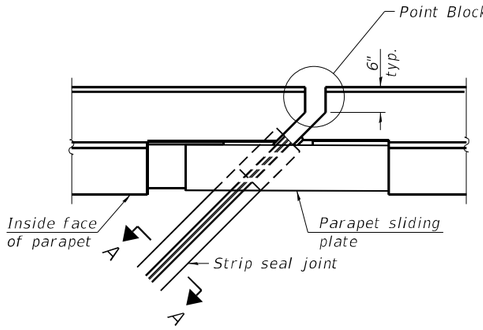
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

W. ABUT. JOINT REMOVAL & RECONSTRUCTION (SHT. 3 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-12 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	597
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

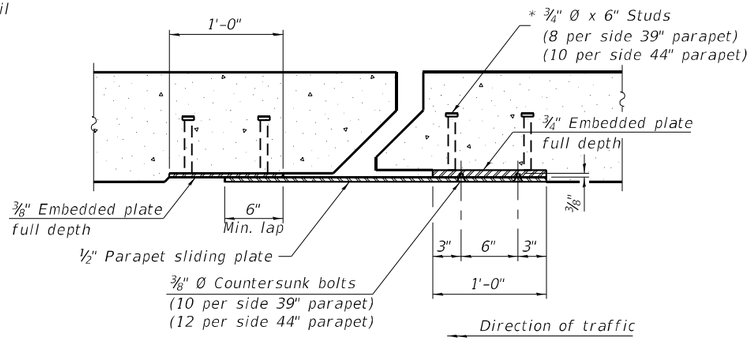


FOR SKEWS ≤ 30°



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.

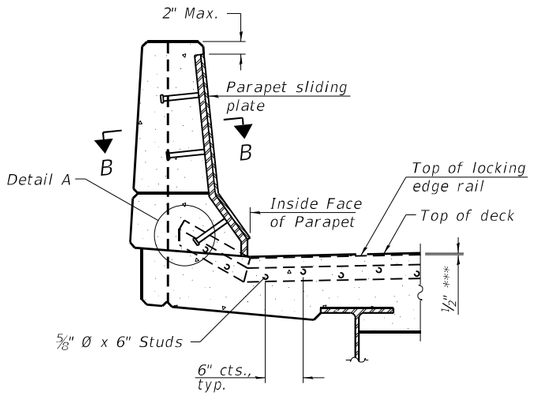
All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

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.

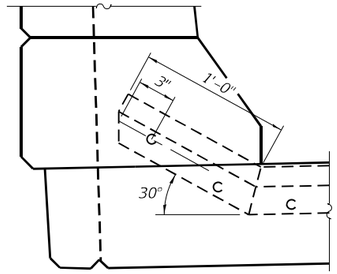
34" F-shape barrier shown, 42" F-shape similar as noted.

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.

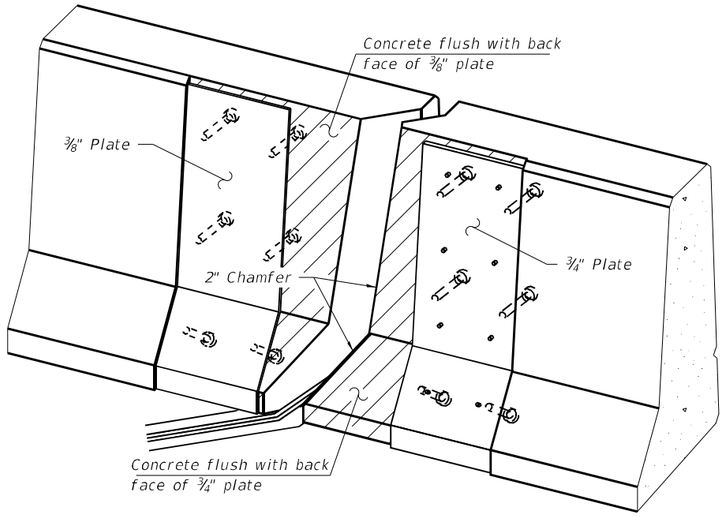


ELEVATION AT PARAPET

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

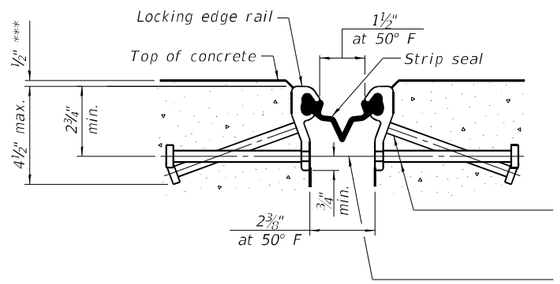


DETAIL A

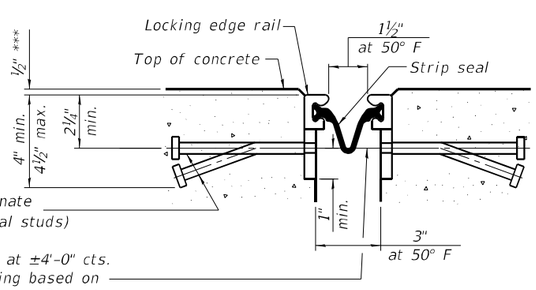


TRIMETRIC VIEW

(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT



SHOWING WELDED RAIL JOINT

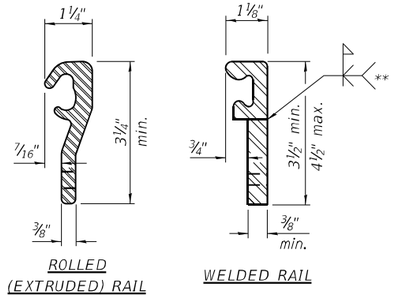
* ⅜" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

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*

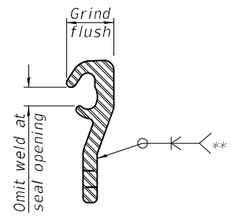


ROLLED (EXTRUDED) RAIL

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	183

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HBM ENGINEERING GROUP, LLC

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	CHECKED - MI	REVISED -	
PLOT SCALE =	DRAWN - LAB, AMS	REVISED -	
PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

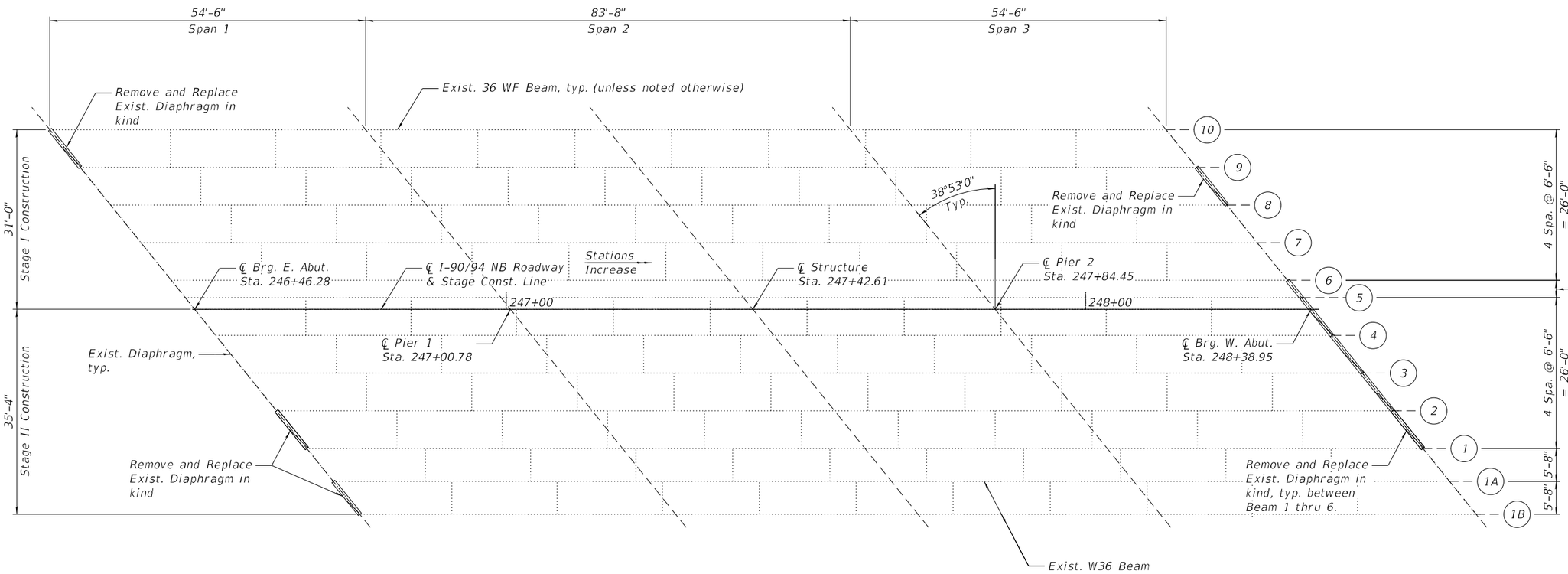
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 016-0130 (NB)

SHEET S06-13 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	598
		CONTRACT NO. 62K73		
	ILLINOIS FED. AID PROJECT			

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	2,990
Structural Steel Removal	Pound	2,990



FRAMING PLAN

NOTES:

1. All work is to be performed utilizing staged construction. See Sheets S06-03 and S06-04 for details.
2. For Diaphragms Removal and Replacement Details, see Sheets S06-15 thru S06-17.
3. All proposed diaphragms and associated connection plates and angles shall conform to the requirements of AASHTO M270 Grade 36.
4. Diaphragm connection holes shall be 1 1/16" for 7/8" bolts. Two hardened washers shall be required at diaphragm connections, fastners shall be high strength bolts.
5. Cost of field drilling, bolts, nuts and washers shall be included in the cost of Furnishing And Erecting Structural Steel.

LEGEND

Remove and Replace Exist. Diaphragm

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PLOT DATE =	DATE - 4/29/2024	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN
STRUCTURE NO. 016-0130 (NB)
SHEET S06-14 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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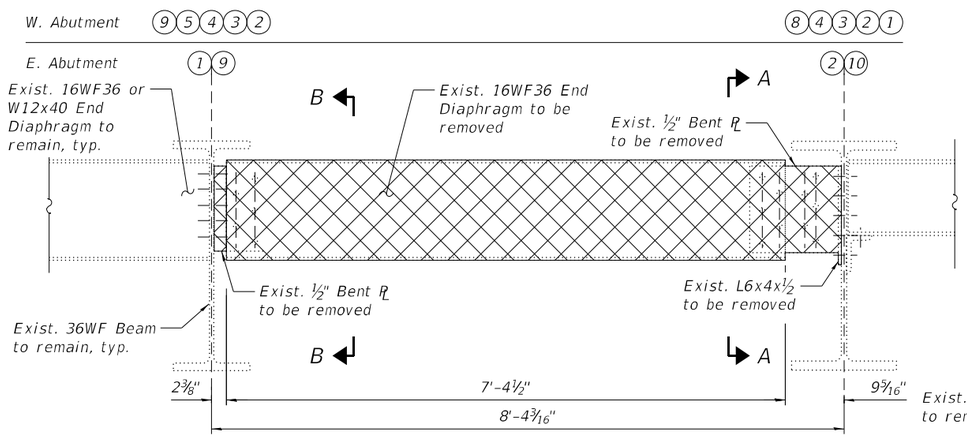
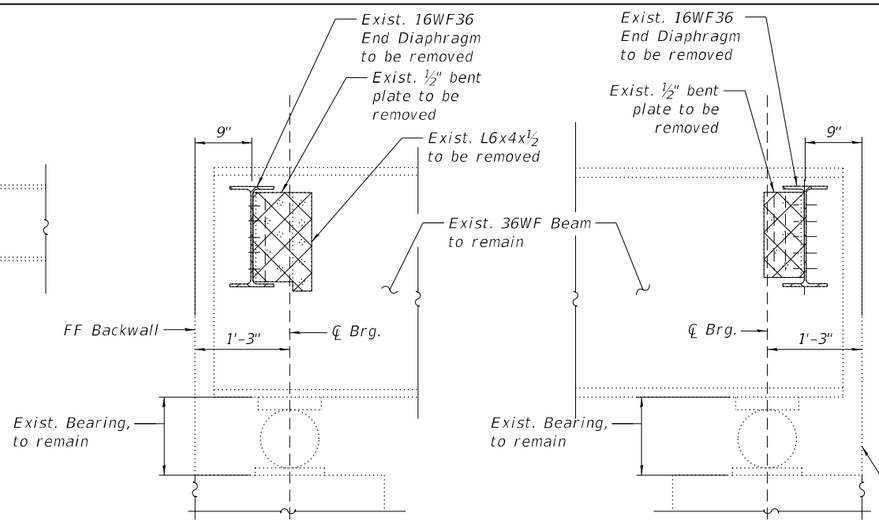
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		

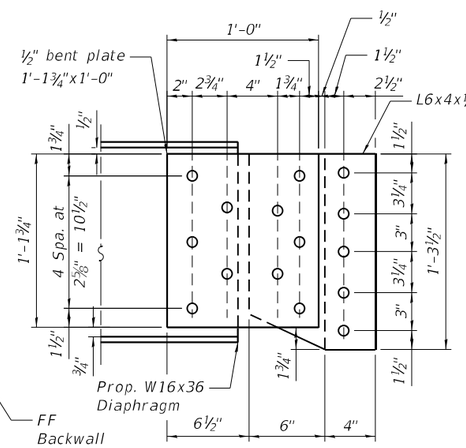


EXISTING END DIAPHRAGM REMOVAL



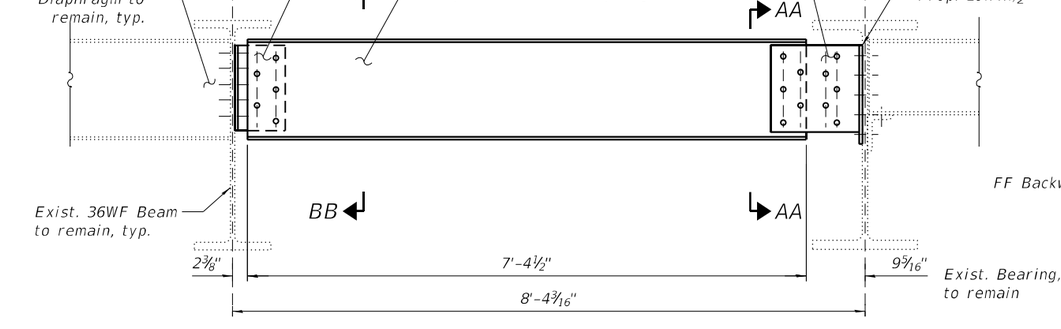
SECTION A-A

SECTION B-B

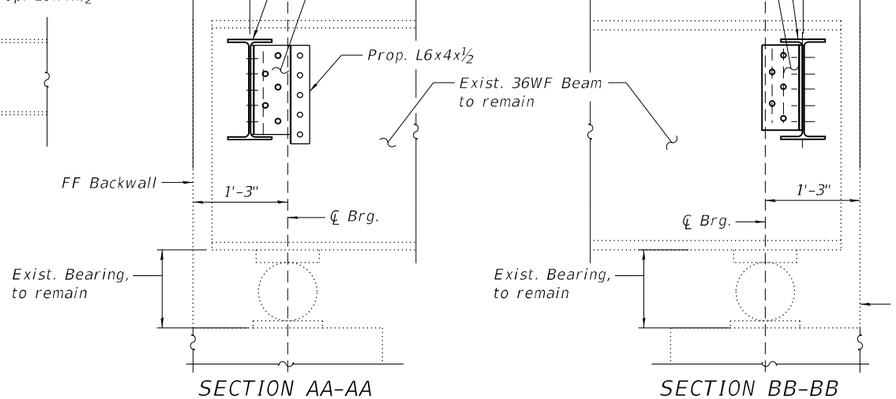


*DETAIL 1

Detail shown at West Abutment, East Abutment Similar opposite hand

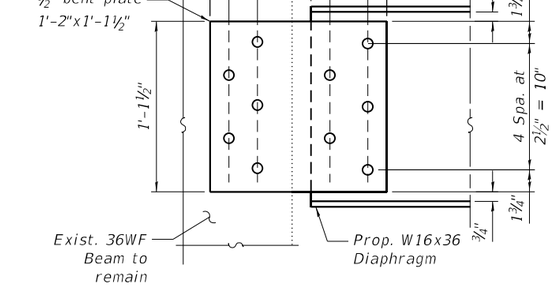


PROPOSED END DIAPHRAGM



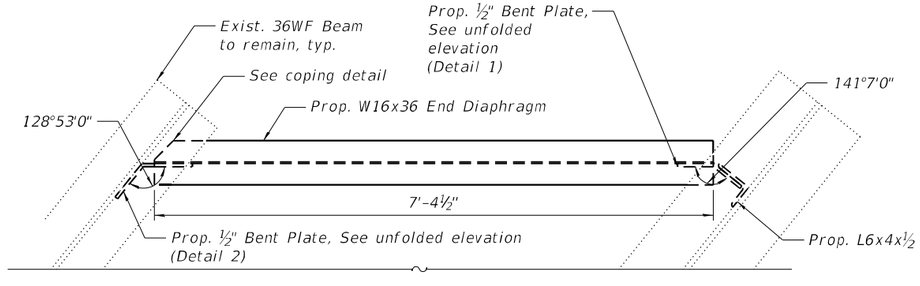
SECTION AA-AA

SECTION BB-BB

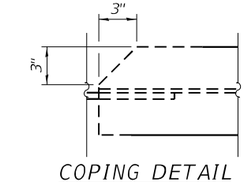


*DETAIL 2

Detail shown at West Abutment, East Abutment Similar opposite hand



PROPOSED PLAN



COPING DETAIL

(Exist. Beam not shown for clarity)

*Dimensions provided along inside face of connection.

NOTE:

1. For location of diaphragm removal/replacement and Bill of Material, see Sheet S06-14.

LEGEND

Structural Steel Removal

Field drill holes in new steel using existing steel as a template

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS (SHEET 1 OF 3)
STRUCTURE NO. 016-0130 (NB)
SHEET S06-15 OF S06-23 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	2020-005-BR	COOK	908	600
		CONTRACT NO. 62K73		
	ILLINOIS	FED. AID PROJECT		