

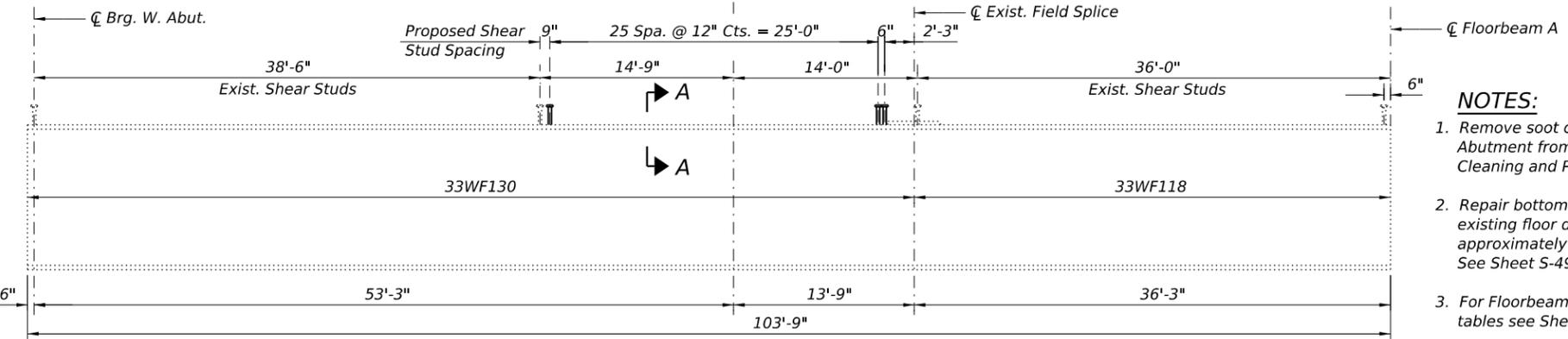
BEAM MOMENT TABLE							
		0.4 Sp. 1		Pier 1		0.6 Sp. 2	
		30WF108 EXTERIOR	33WF130 INTERIOR	30WF108 EXTERIOR	33WF130 INTERIOR	30WF108 EXTERIOR	33WF118 INTERIOR
$I_s$	(in <sup>4</sup> )	4,461	6,699	4,461	6,699	4,461	5,887
$I_c(n)$	(in <sup>4</sup> )	27,566	18,925	27,924	19,111	27,566	17,179
$I_c(3n)$	(in <sup>4</sup> )	19,878	14,805	20,936	15,313	19,878	13,527
$I_c(cr)$	(in <sup>4</sup> )	-	-	10,666	9,900	-	-
$S_s$	(in <sup>3</sup> )	299	405	299	405	299	358
$S_c(n)$	(in <sup>3</sup> )	732	602	736	604	733	543
$S_c(3n)$	(in <sup>3</sup> )	658	556	672	563	658	502
$S_c(cr)$	(in <sup>3</sup> )	-	-	510	485	-	-
$\rho$	(k/ft)	1.05	1.04	1.05	1.04	1.05	1.04
$M\rho$	(k)	218	215	-353	-356	176	170
$s\rho$	(k/ft)	0.12	0.36	0.12	0.36	0.12	0.36
$M_s\rho$	(k)	23	73	-38	-120	19	59
$M_L$	(k)	152	405	-188	-295	136	371
$M_I$	(k)	-	114	-	-83.0	-	106
$M_3 [M_L + I]$	(k)	253	865	-313	-629	226	794
$M_a$	(k)	644	1,499	-916	-1,437	548	1,330
$M_u$	(k)	-	2,603	-	-2,209	-	2,371
$f_s\rho$ non-comp	(ksi)	8.75	6.37	-14.18	-10.55	7.08	5.70
$f_s\rho$ (comp)	(ksi)	0.43	1.57	-0.89	-2.98	0.34	1.40
$f_s$ $M_3 [M_L + M_I]$	(ksi)	4.15	17.25	-7.37	-15.57	3.70	17.55
$f_s$ (Overload)	(ksi)	13.33	25.19	-22.45	-29.10	11.13	24.65
$f_s$ (Total)	(ksi)	17.33	-	-29.19	-	14.47	-
VR	(k)	4.06	23.7	18.56	60.0	4.81	19.6

BEAM REACTION TABLE							
		West Abut.		Pier 1		Pier 2	
		30WF108 EXTERIOR	33WF130 INTERIOR	30WF108 EXTERIOR	33WF130 INTERIOR	30WF108 EXTERIOR	33WF118 INTERIOR
$R\rho$	(k)	26.5	27.3	82.1	85.9	23.9	23.8
$R_L$	(k)	13.1	47.4	36.4	51.4	12.4	46.6
$R_I$	(k)	-	13.3	-	14.4	-	13.1
$R_{Total}$	(k)	39.6	88.0	118.5	151.7	36.3	83.5

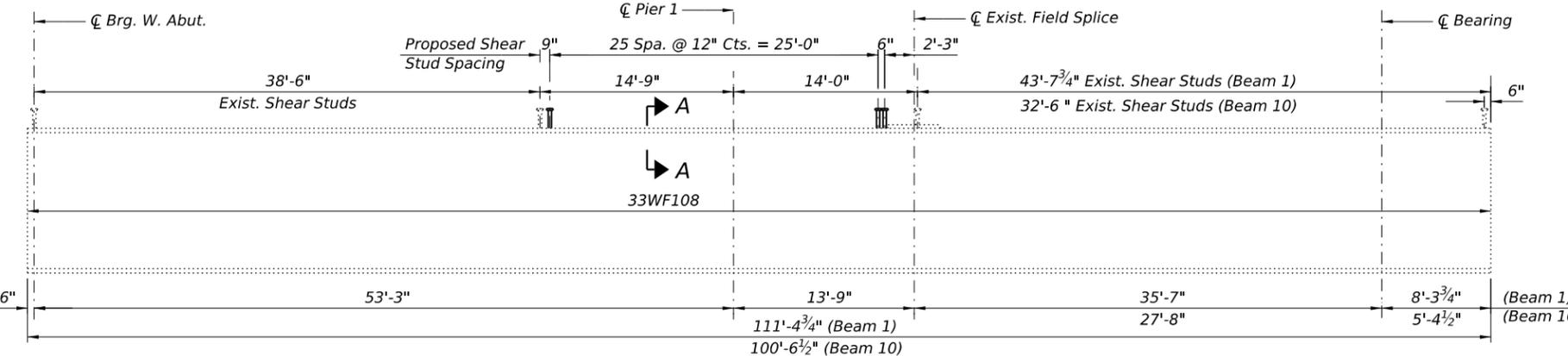
- \* Compact section  
 \*\* Braced non-compact and partially braced section
- NOTES:**
- Remove soot covering beam ends at West Abutment from fire. Cost is included with Cleaning and Painting.
  - Repair bottom flange of Beams 2 and 9 at existing floor drain locations spaced approximately at 8'-1" center to center. See Sheet S-49 for details.
  - For Floorbeam A Moment and Reaction tables see Sheet S-51.
- $I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total and Overload) due to non-composite dead loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total and Overload) due to short-term composite live loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total and Overload) due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total and Overload) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).  
 $\rho$ : Un-factored non-composite dead load (kips/ft.).  
 $M\rho$ : Un-factored moment due to non-composite dead load (kip-ft.).  
 $s\rho$ : Un-factored long-term composite (superimposed) dead load (kips/ft.).  
 $M_s\rho$ : Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).  
 $M_L$ : Un-factored live load moment (kip-ft.).  
 $M_I$ : Un-factored moment due to impact (kip-ft.).  
 $M_a$ : Factored design moment (kip-ft.).  
 $1.3 [M\rho + M_s\rho + \frac{5}{3}(M_L + M_I)]$   
 $M_u$ : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).  
 $f_s$  (Overload): Sum of stresses as computed from the moments below (ksi).  
 $M\rho + M_s\rho + \frac{5}{3}(M_L + M_I)$   
 $f_s$  (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 $1.3 [M\rho + M_s\rho + \frac{5}{3}(M_L + M_I)]$   
 $VR$ : Maximum  $L_1$  + impact shear range within the composite portion of the span for stud shear connector design (kips).

DIAPHRAGMS		
DIAPHRAGM	EXISTING	PROPOSED
D1	12WF40	-----
D2 & D3	16WF36	W16x36

SPANS 1 & 2 FRAMING PLAN



TYPICAL INTERIOR BEAM ELEVATION



TYPICAL EXTERIOR BEAM ELEVATION

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 COLLINS ENGINEERS INC.



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DATE	04/25/2023				

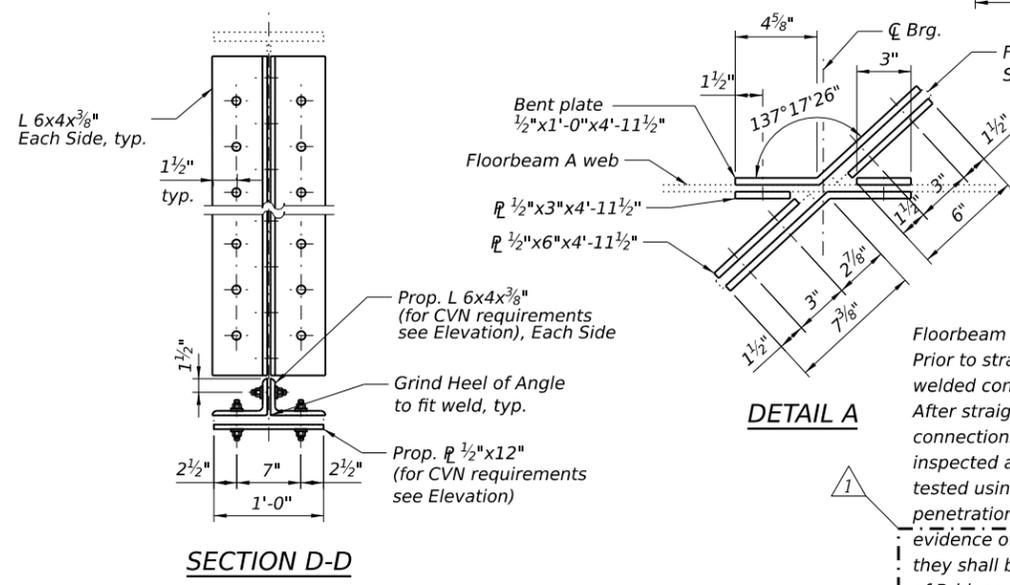
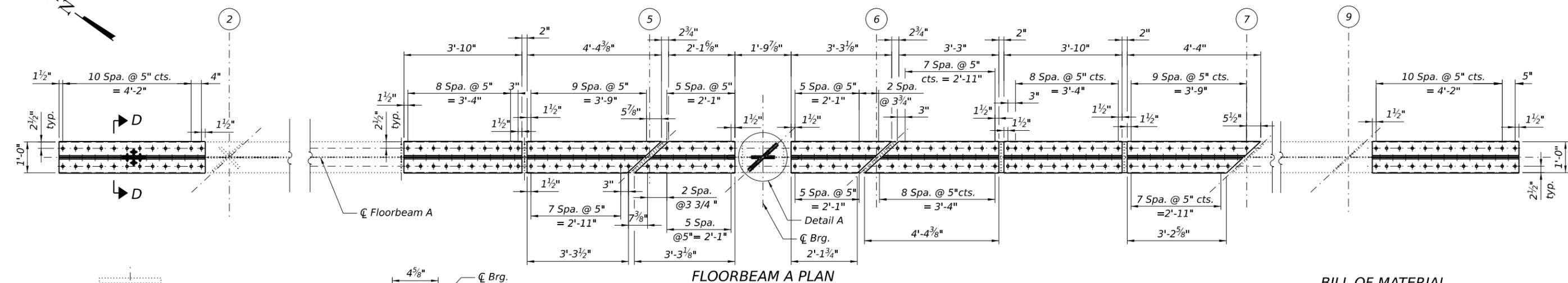
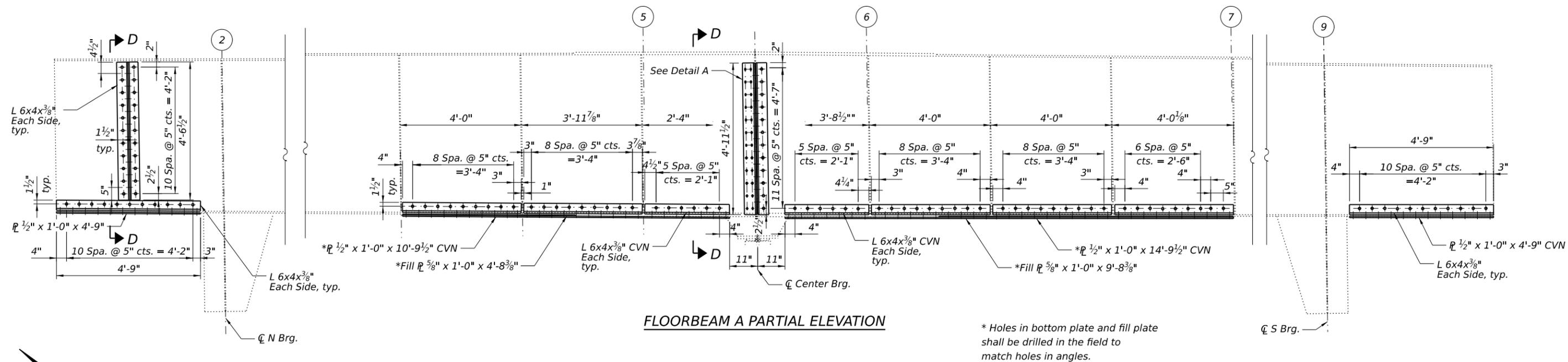
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FRAMING PLAN SPANS 1 & 2 AND DETAILS  
 STRUCTURE NO. 016-0570

SCALE: SHEET S-47 OF S-70 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
344	2018-125-B-R	COOK	141	88
CONTRACT NO. 62H52			ILLINOIS FED. AID PROJECT	

REVISED SHEET 5/25/2023



Contractor to use end of truss to support jacks and winches to push the web to plumb position. Use timber bracing as required to protect existing steel.

**Floorbeam Straightening Note:**  
Prior to straightening, Contractor shall inspect welded connections between web and flanges. After straightening operation is completed, welded connections between web and flanges shall be inspected and welds should be nondestructively tested using magnetic particle or dye penetration testing at locations where visible evidence of damage exists. If cracks are found, they shall be identified and reported to the Bureau of Bridges and Structures for further disposition.



**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	2,860
Straighten Bent Member	Each	1

- Notes:
- All dimensions shall be field verified prior to ordering any material.
  - Cost of removing existing structural steel elements for repairs shall be included in Structural Steel Repairs.
  - Cost of furnishing and erecting structural steel elements for repairs shall be included in Structural Steel Repairs.
  - Cost of removing rivets or welds and replacing with HS bolts for repairs shall be included in Structural Steel Repairs.
  - Holes in existing steel shall be field reamed to obtain diameter required for bolt installation, using holes in new elements as a template. Cost included with Structural Steel Repair.
  - Load carrying components designated "CVN" shall conform to the Impact Testing Requirement, Zone 2.
  - All connections shown on this sheet are primary connections for cleaning and painting.

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 COLLINS ENGINEERS INC.



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DATE	04/25/2023				

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

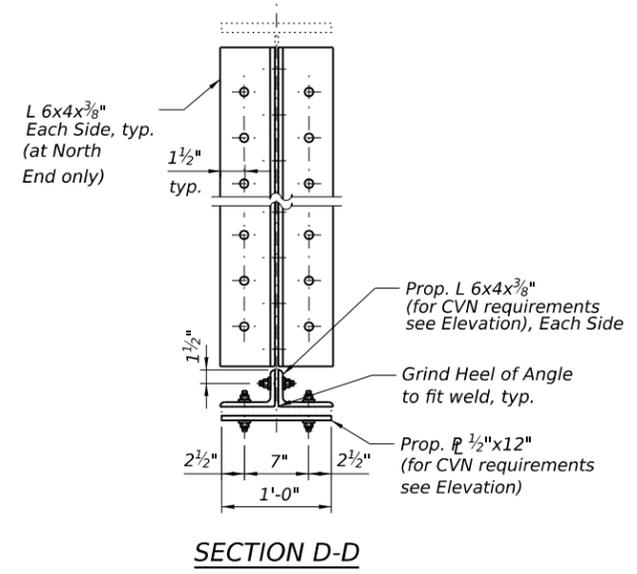
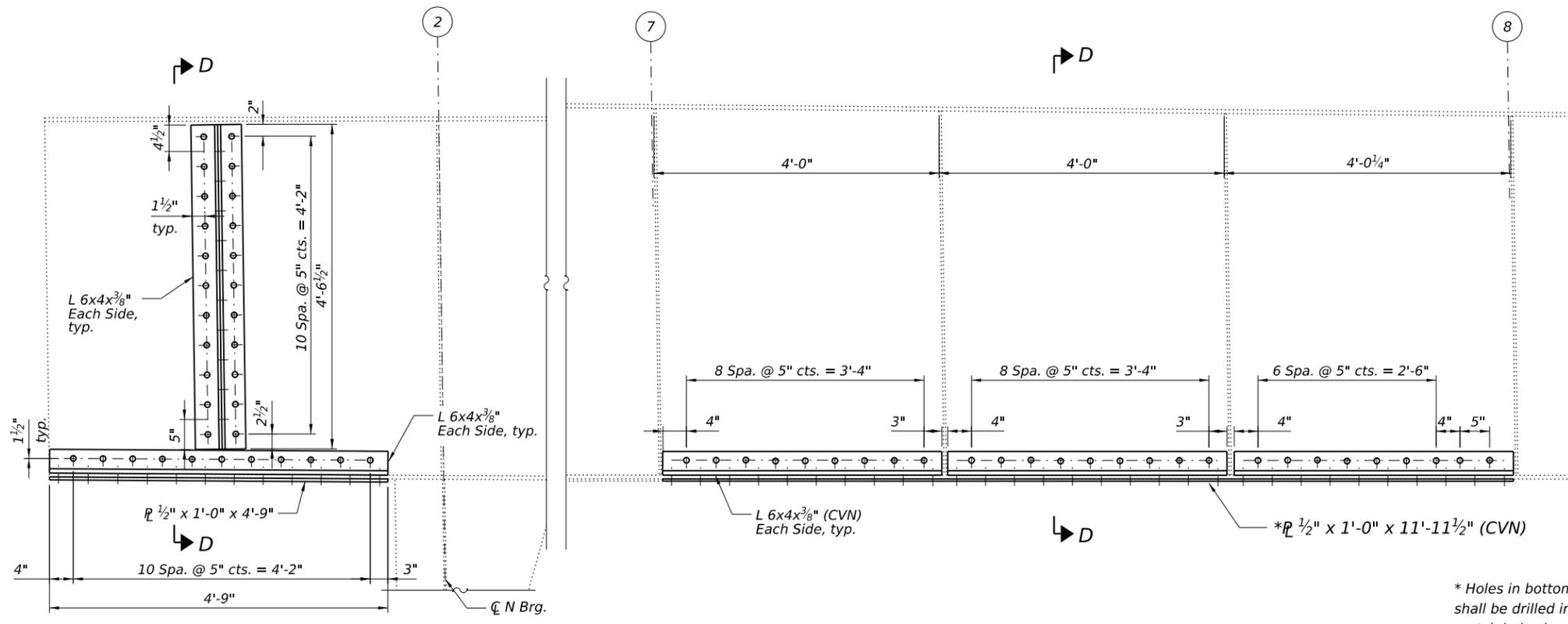
STEEL REPAIRS SPANS 1 & 2  
STRUCTURE NO. 016-0570

SCALE: SHEET S-48 OF S-70 SHEETS STA. TO STA.

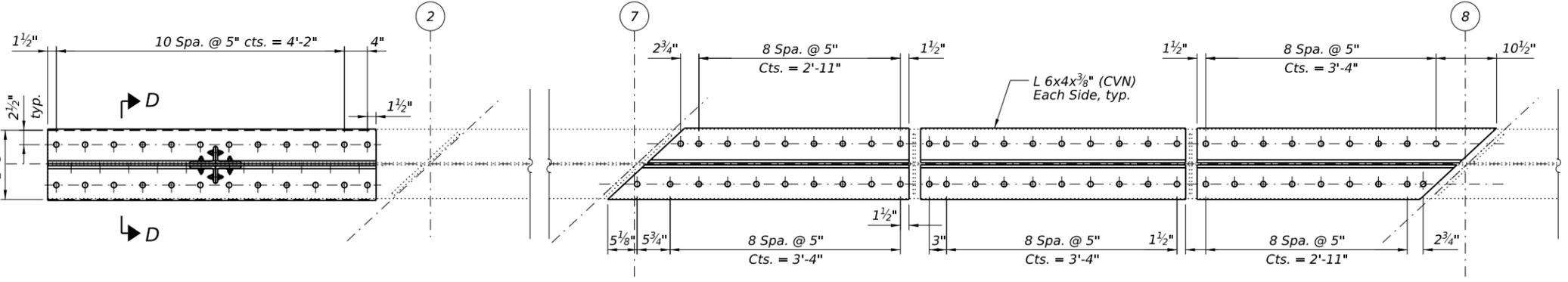
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
344	2018-125-B-R	COOK	141	89
CONTRACT NO. 62H52				
ILLINOIS FED. AID PROJECT				

REVISED SHEET 5/25/2023

(Sheet 1 of 4)



FLOORBEAM B PARTIAL ELEVATION



FLOORBEAM B PLAN

- Notes:
- All dimensions shall be field verified prior to ordering any material.
  - Cost of removing existing structural steel elements for repairs shall be included in in Structural Steel Repairs.
  - Cost of furnishing and erecting structural steel elements for repairs shall be included in in Structural Steel Repairs.
  - Cost of removing rivets or welds and replacing with HS bolts for repairs shall be included in Structural Steel Repairs.
  - Holes in existing steel shall be field reamed to obtain diameter required for bolt installation, using holes in new elements as a template. Cost included with Structural Steel Repair.
  - Load carrying components designated "CVN" shall conform to the Impact Testing Requirement, Zone 2.
  - All connections shown on this sheet are primary connections for cleaning and painting.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	1,160
Straighten Bent Member	Each	1

Floorbeam B to be straightened using mechanical methods only. After straightening operation is completed, install vertical angles as shown on the Plan and Elevation

Floorbeam Straightening Note:  
 Prior to straightening, Contractor shall inspect welded connections between web and flanges. After straightening operation is completed, welded connections between web and flanges shall be inspected and welds should be nondestructively tested using magnetic particle or dye penetration testing at locations where visible evidence of damage exists. If cracks are found, they shall be identified and reported to the Bureau of Bridges and Structures for further disposition.



FLOORBEAM B NORTH END STRAIGHTENING  
 (See Special Provision for "Straighten Bent Member")

Contractor to use end of truss to support jacks and winches to push the web to plumb position. Use timber bracing to protect existing steel as required.

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PLOT SCALE		DATE	04/25/2023	REVISI	
PLOT DATE	5/24/2023				

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

STEEL REPAIRS SPANS 4 & 5  
 STRUCTURE NO. 016-0570

SCALE: SHEET S-62 OF S-70 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
344	2018-125-B-R	COOK	141	103
CONTRACT NO. 62H52				
ILLINOIS FED. AID PROJECT				

(Sheet 2 of 2)

REVISED SHEET 5/25/2023