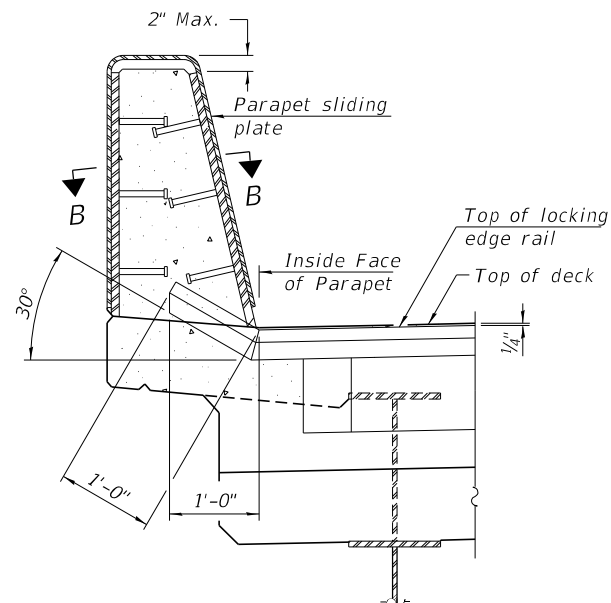
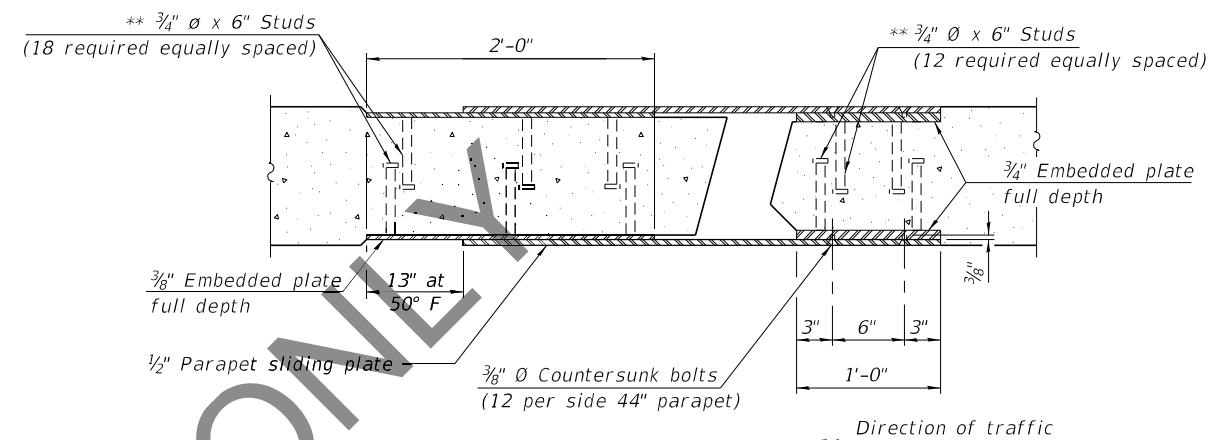


FOR SKEWS < 30°
PLAN AT PARAPET

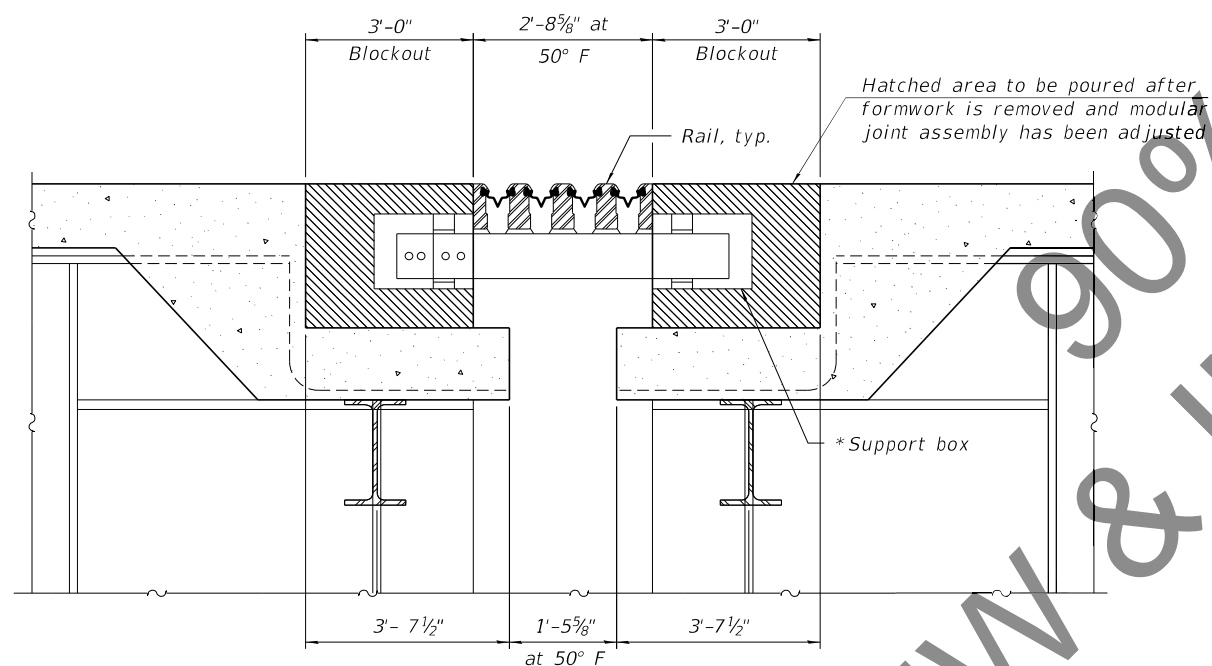


ELEVATION AT PARAPET



SECTION B-B

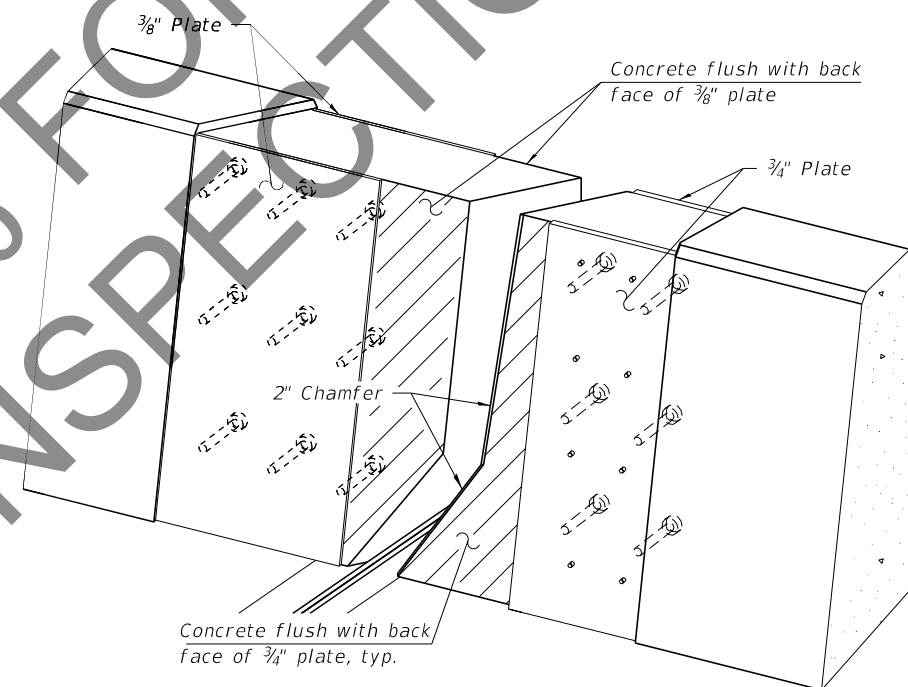
** 3/4" Ø x 6" Studs (18 required equally spaced)
** 3/4" Ø x 6" Studs (12 required equally spaced)
3/4" Embedded plate full depth
13" at 50° F
1/2" Parapet sliding plate
3/8" Ø Countersunk bolts (12 per side 44" parapet)
Direction of traffic



SECTION A-A

(Horiz. dim. at rt. angles.)
(Reinforcement not shown for clarity)
* Number of rails determined by manufacturer

Increase opening 1/8" per 100' of expansion for every 15°F temp. change above the normal temp. of 50°F.
Decrease opening 1/8" per 100' of expansion for every 15°F temp. change below the normal temp. of 50°F.



TRIMETRIC VIEW
(Showing embedded plates only)

Notes:
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.
Parapet plates and anchorage studs included in the cost of "Modular Expansion Joint 27".
Support boxes shall be supported in blockout by adjustable brackets, stools, or shims. Cost of brackets, stools, or shims included in "Modular Expansion Joint 27".
The number, location and orientation of support boxes shall be determined by the manufacturer.
Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
Prior to the placement of the joint block-out, the Contractor shall coordinate with the Modular Joint Manufacturer to ensure that the joint will be properly supported and that the reinforcement bars will not interfere with the joint components.
Any necessary adjustments to the reinforcement layout shall be submitted to the Engineer for approval.
Joint longitudinal opening shall be adjusted according to Article 520.04 of the Standard Specifications when the end of deck is cast at an ambient temperature other than 50° F.
The modular expansion joint shall accommodate 25.2" total longitudinal movement (Service I combination).

BILL OF MATERIAL

Item	Unit	Pier 10	Pier 17	Total
Modular Expansion Joint 27"	Foot	58.0	58.0	116.0

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HORNER SHIFRIN
PARSONS

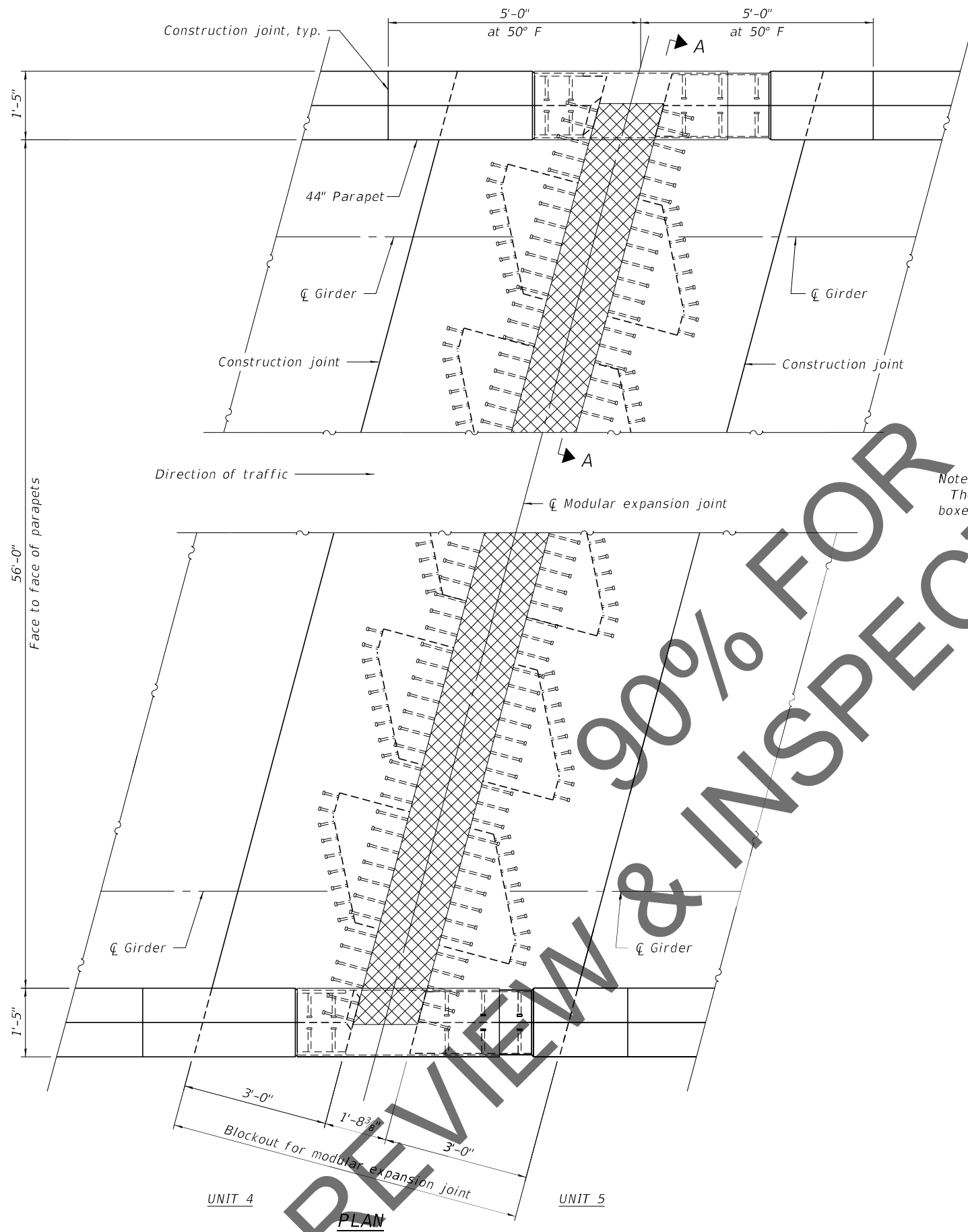
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

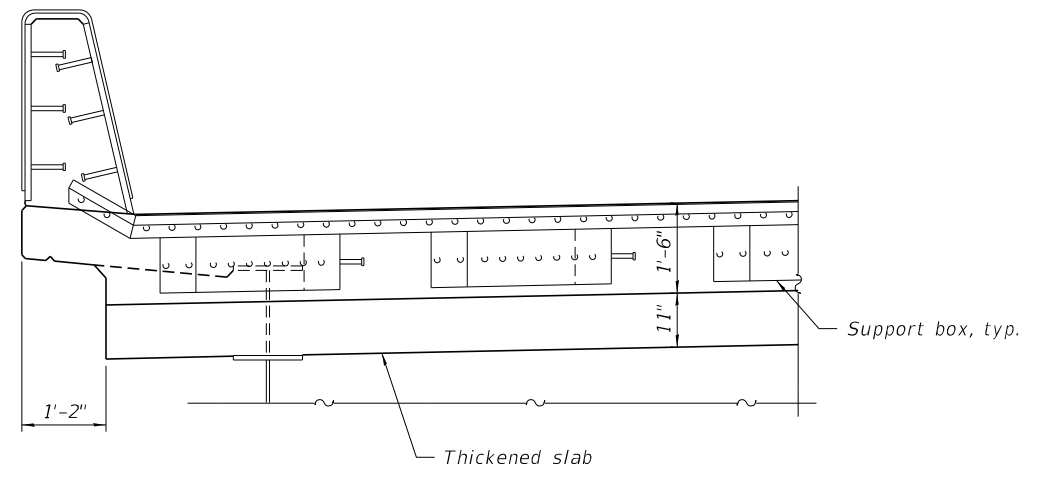
MODULAR EXPANSION JOINT - PIERS 10 & 17 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 101 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	593
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



Note:
The number, location and orientation of the support boxes shall be determined by the manufacturer.



SECTION A-A

Note:
For location of crown and cross slopes, see sheets 71 and 74 of 288.

REVIEW & INSPECTION ONLY

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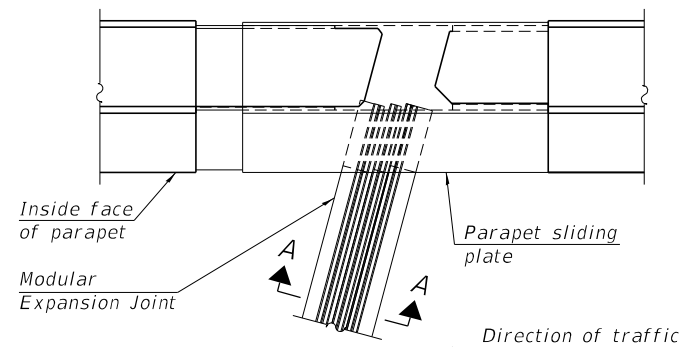
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

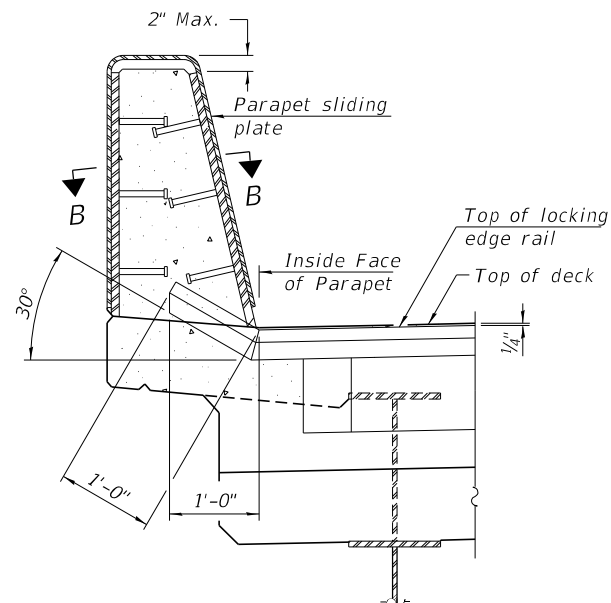
**MODULAR EXPANSION JOINT - PIER 24 - 1
STRUCTURE NO. 060-0351 (WB)**

SHEET 102 OF 288 SHEETS

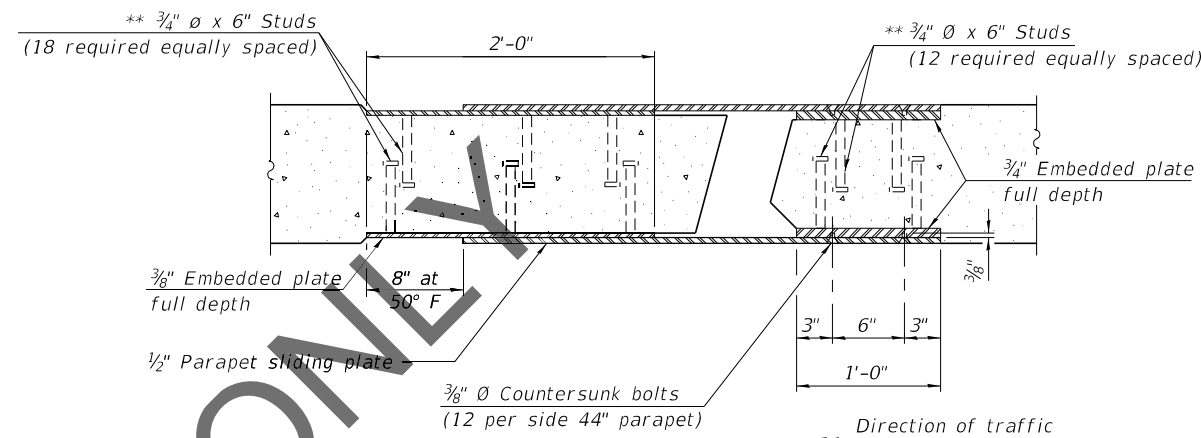
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	594
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



FOR SKEWS < 30°
PLAN AT PARAPET

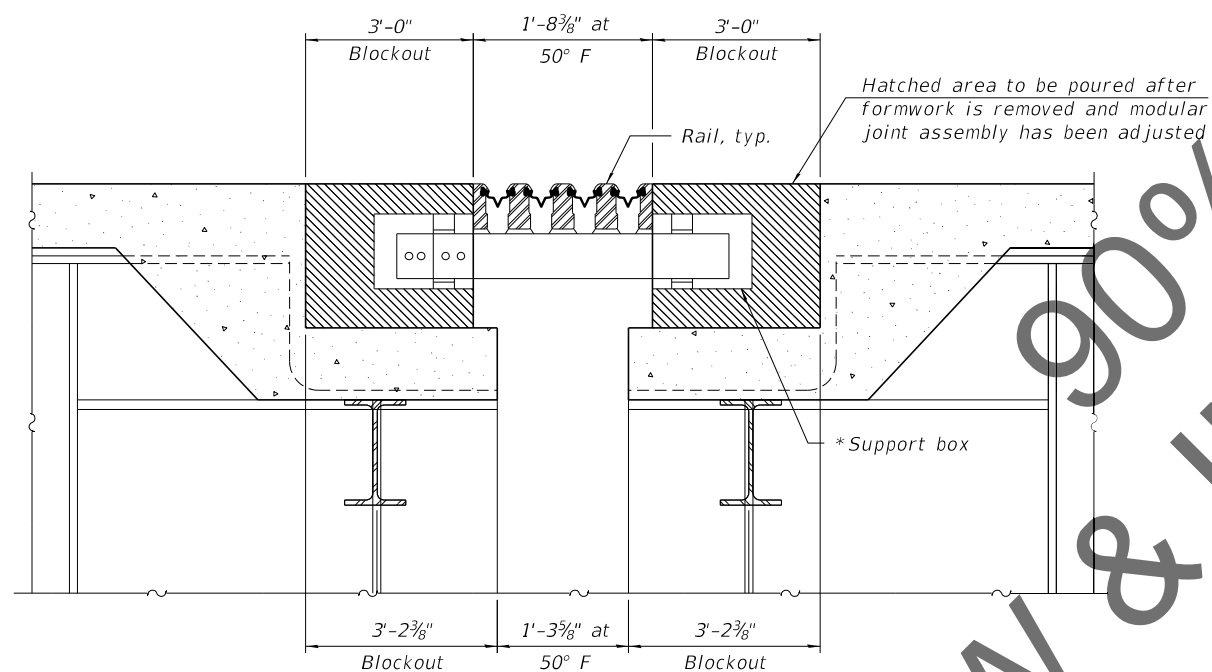


ELEVATION AT PARAPET



SECTION B-B

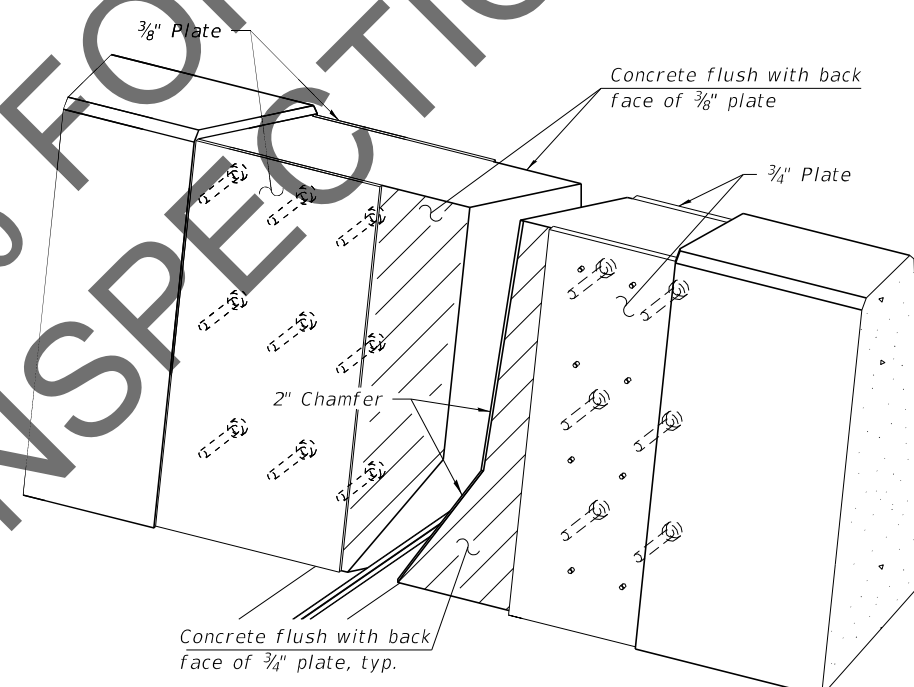
** 3/4" Ø x 6" Studs (18 required equally spaced)
** 3/4" Ø x 6" Studs (12 required equally spaced)
** Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



SECTION A-A

(Horiz. dim. at rt. angles.)
(Reinforcement not shown for clarity)

* Number of rails determined by manufacturer



TRIMETRIC VIEW
(Showing embedded plates only)

Notes:
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.
Parapet plates and anchorage studs included in the cost of "Modular Expansion Joint 18".
Support boxes shall be supported in blockout by adjustable brackets, stools, or shims. Cost of brackets, stools, or shims included in "Modular Expansion Joint 18".
The number, location and orientation of support boxes shall be determined by the manufacturer.
Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
Prior to the placement of the joint block-out, the Contractor shall coordinate with the Modular Joint Manufacturer to ensure that the joint will be properly supported and that the reinforcement bars will not interfere with the joint components. Any necessary adjustments to the reinforcement layout shall be submitted to the Engineer for approval.
Joint longitudinal opening shall be adjusted according to Article 520.04 of the Standard Specifications when the end of deck is cast at an ambient temperature other than 50° F.
The modular expansion joint shall accommodate 15.75" total longitudinal movement (Service I combination).

BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint 18"	Foot	58.0

Increase opening 1/8" per 100' of expansion for every 15°F temp. change above the normal temp. of 50°F.
Decrease opening 1/8" per 100' of expansion for every 15°F temp. change below the normal temp. of 50°F.

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HORNER SHIFRIN
PARSONS

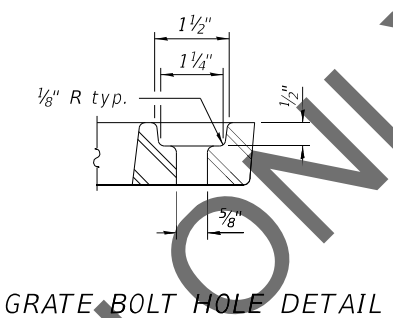
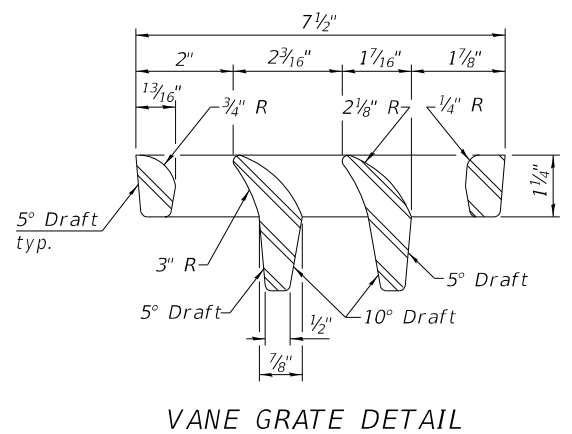
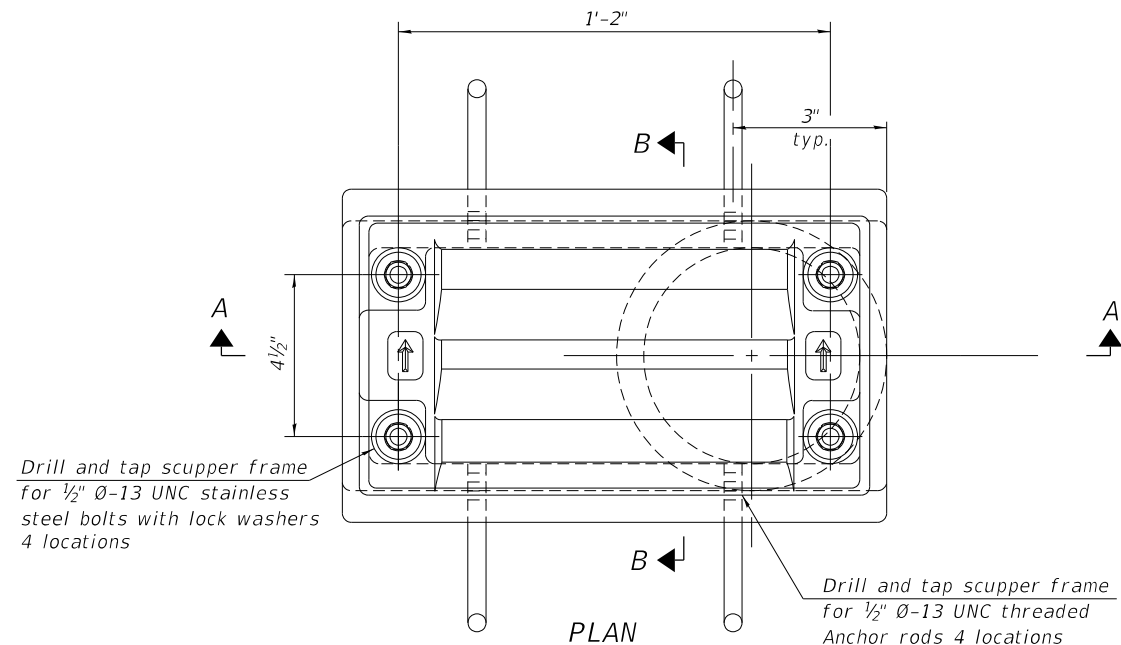
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

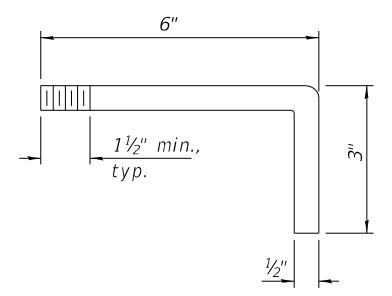
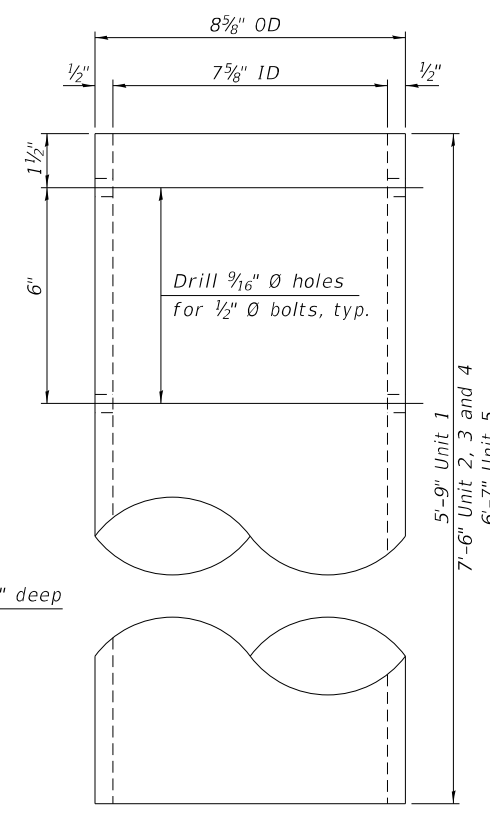
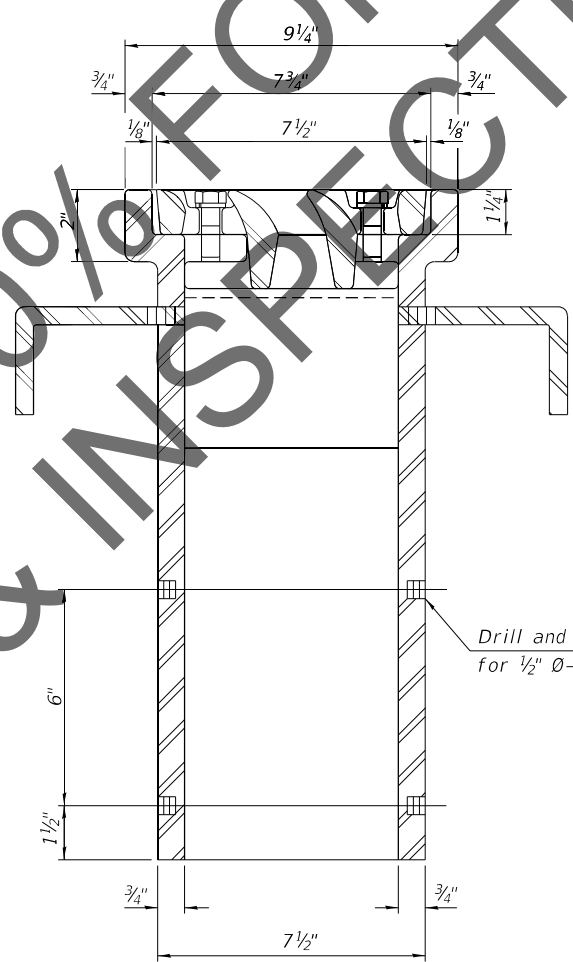
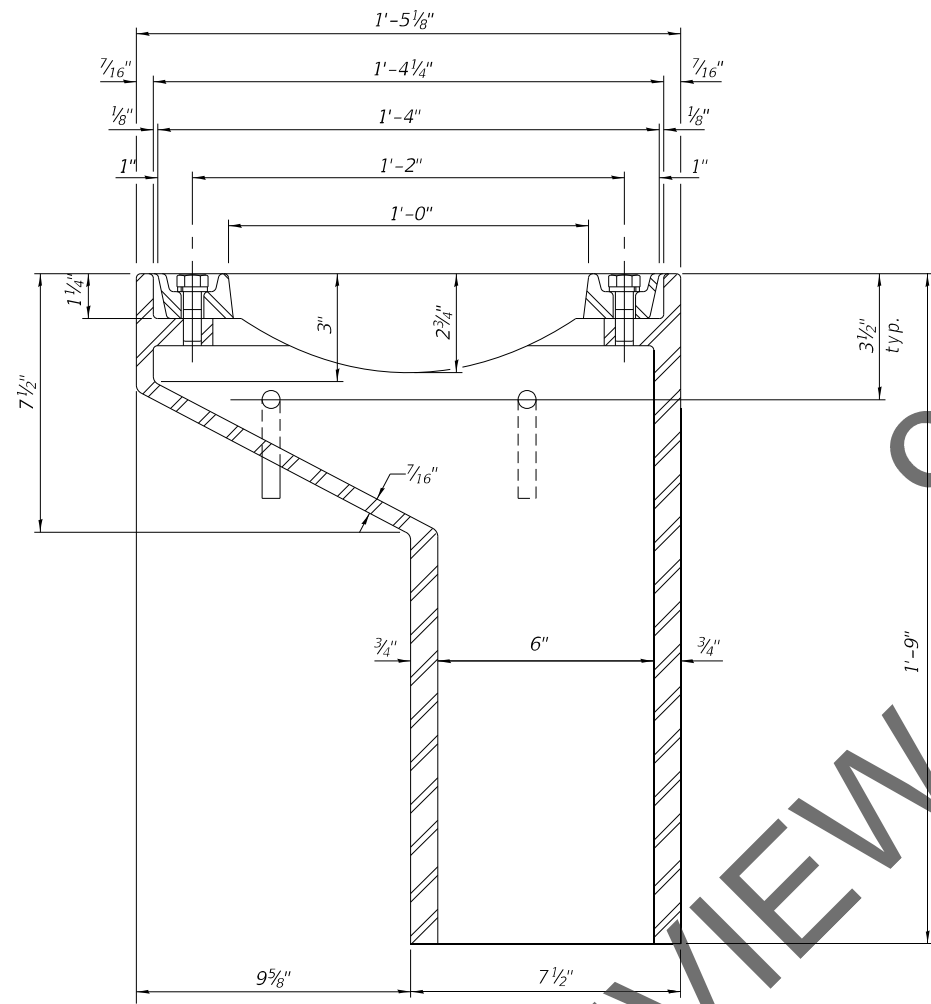
MODULAR EXPANSION JOINT - PIER 24 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 103 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	595
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



Notes:
 All cast iron parts shall be gray iron conforming to the requirements of AASHTO M105, Class 35B and AASHTO M306.
 Bolts, anchor rods, nuts and washers shall be according to ASTM A307 and shall be galvanized according to AASHTO M232. As an alternate stainless steel may be used.
 Stainless steel hardware shall be according to Article 1006.29(d) of the Standard Specifications.
 Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frames and downspouts; however, the scupper grates shall remain cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.
 Structural steel scupper frames and downspouts, when utilized, shall be galvanized according to AASHTO M111.
 As an alternate, fiberglass may be used for downspouts according to ASTM D2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. in lieu of the cast iron or structural steel.
 Exterior surfaces of downspouts and exterior exposed surfaces of the scupper frame below deck shall be treated as specified on sheet 8 of 288.
 The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.
 Cost of the grate, frame, downspout, anchor rods, nuts and washers including complete installation of the scupper shall be paid for at the contract unit price for Drainage Scupper, DS-11.



See sheet 75 of 288 for scupper location relative to parapet.

Drill and tap 4 holes 1/2" deep for 1/2" Ø-13 UNC bolts.

BILL OF MATERIAL

LOCATION	ITEM	UNIT	QUANTITY
Unit 1	Drainage Scupper, DS-11	Each	11
Unit 2	Drainage Scupper, DS-11	Each	24
Unit 3	Drainage Scupper, DS-11	Each	19
Unit 4	Drainage Scupper, DS-11	Each	20
Unit 5	Drainage Scupper, DS-11	Each	7
Total			81

DS-11 1-1-2020

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HORNER SHIFRIN
 PARSONS

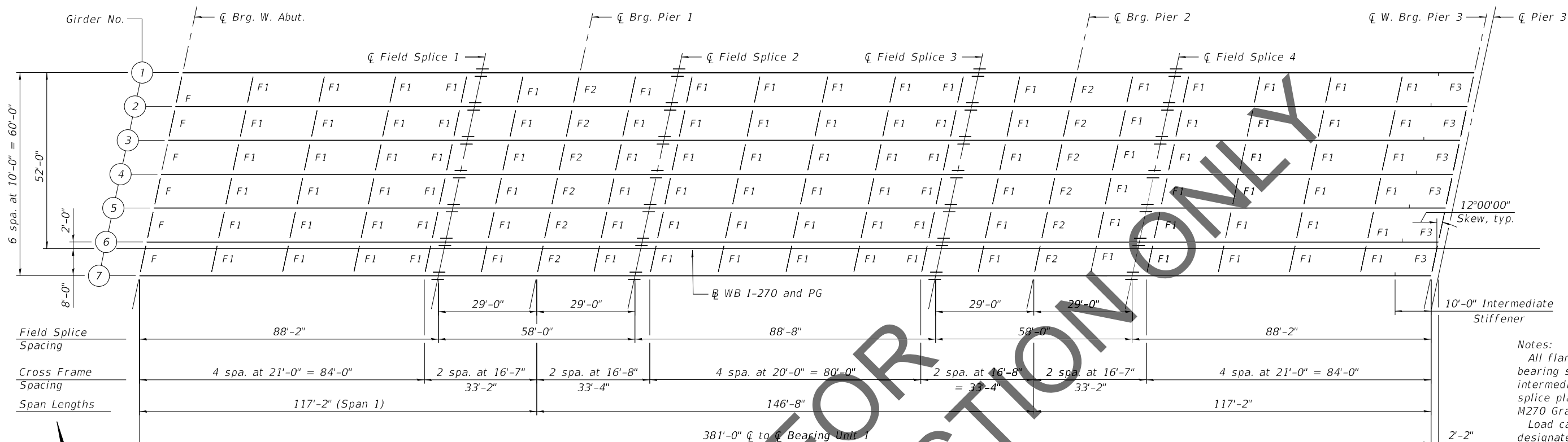
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11
 STRUCTURE NO. 060-0351 (WB)

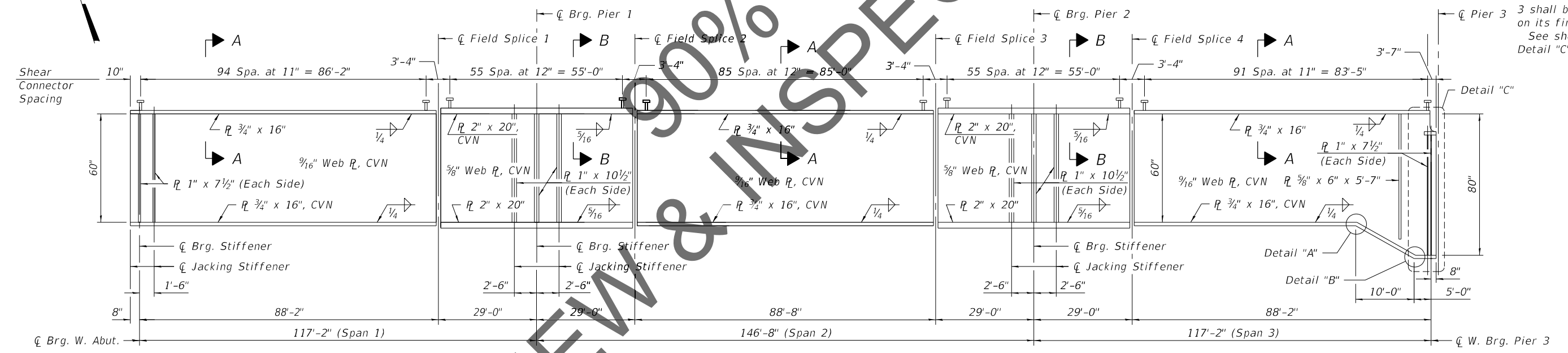
SHEET 104 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	596
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

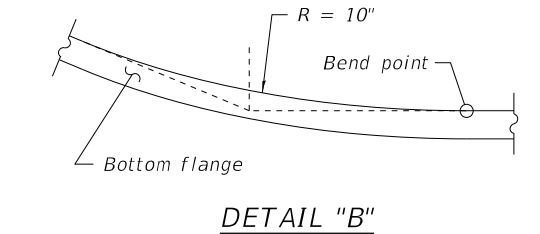
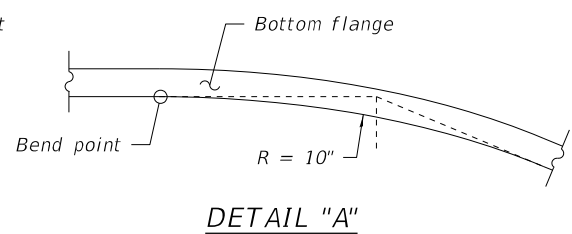
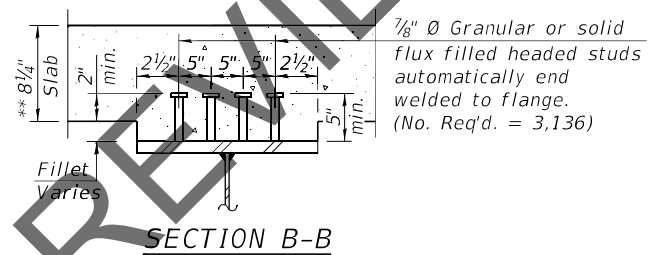
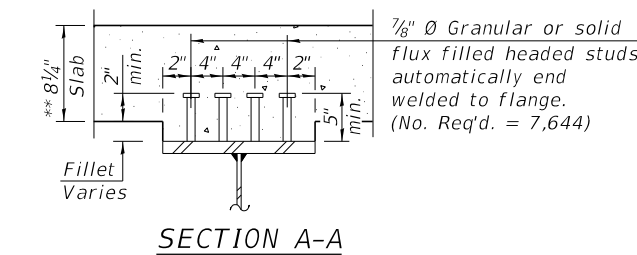


FRAMING PLAN - UNIT 1
(Spans 1 to 3)

Notes:
 All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50.
 Load carrying components designated as "CVN" shall conform to the Impact Testing Requirement, Zone 2.
 Girder ends and bearing stiffeners at W. Abut. and Pier 3 shall be fabricated vertically on its final position.
 See sheet 107 of 288 for Detail "C".



GIRDER ELEVATION
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



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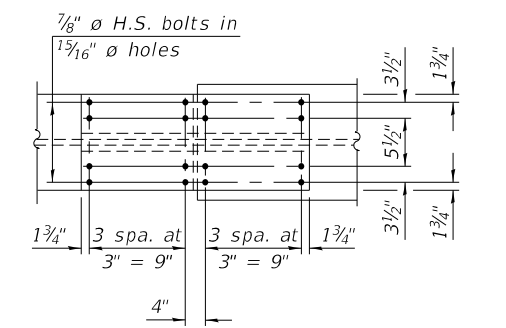
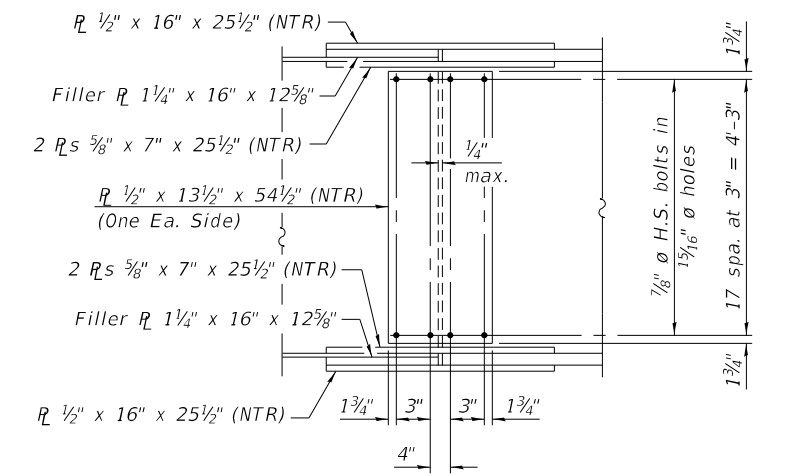
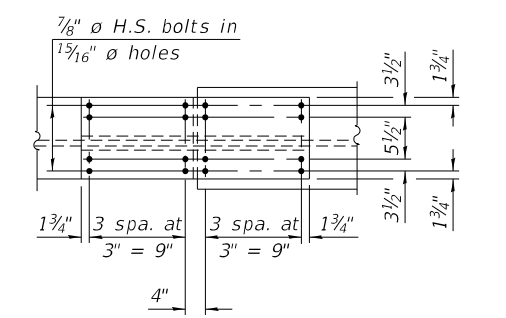
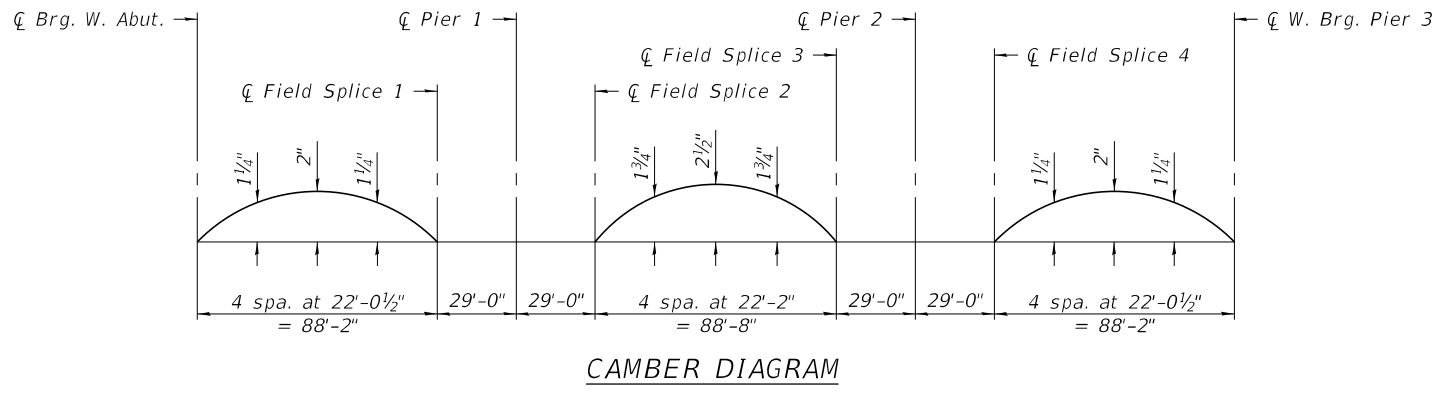
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 1
STRUCTURE NO. 060-0351 (WB)

SHEET 105 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	597
CONTRACT NO. 76J90				

ILLINOIS FED. AID PROJECT



FIELD SPLICE 1, 2, 3, AND 4 DETAIL
(28 Required)

*** TOP OF WEB ELEVATIONS

Location	☐ Brg. W. Abut.	☐ Field Splice 1	☐ Pier 1	☐ Field Splice 2	☐ Field Splice 3	☐ Pier 2	☐ Field Splice 4	*☐ W. Brg. Pier 3
Girder 1	451.66	451.96	452.10	452.23	452.67	452.83	452.99	453.56
Girder 2	451.85	452.16	452.29	452.42	452.86	453.02	453.18	453.75
Girder 3	452.04	452.35	452.48	452.61	453.05	453.21	453.37	453.94
Girder 4	452.23	452.54	452.67	452.80	453.24	453.40	453.56	454.13
Girder 5	452.41	452.73	452.86	452.99	453.43	453.59	453.75	454.32
Girder 6	452.20	452.52	452.65	452.78	453.22	453.38	453.54	454.11
Girder 7	451.99	452.30	452.43	452.56	453.01	453.16	453.32	453.90

*** For Fabrication only. *Elevation given at theoretical top of web prior to coping of web.

Note:
See sheet 105 of 288 for notes.

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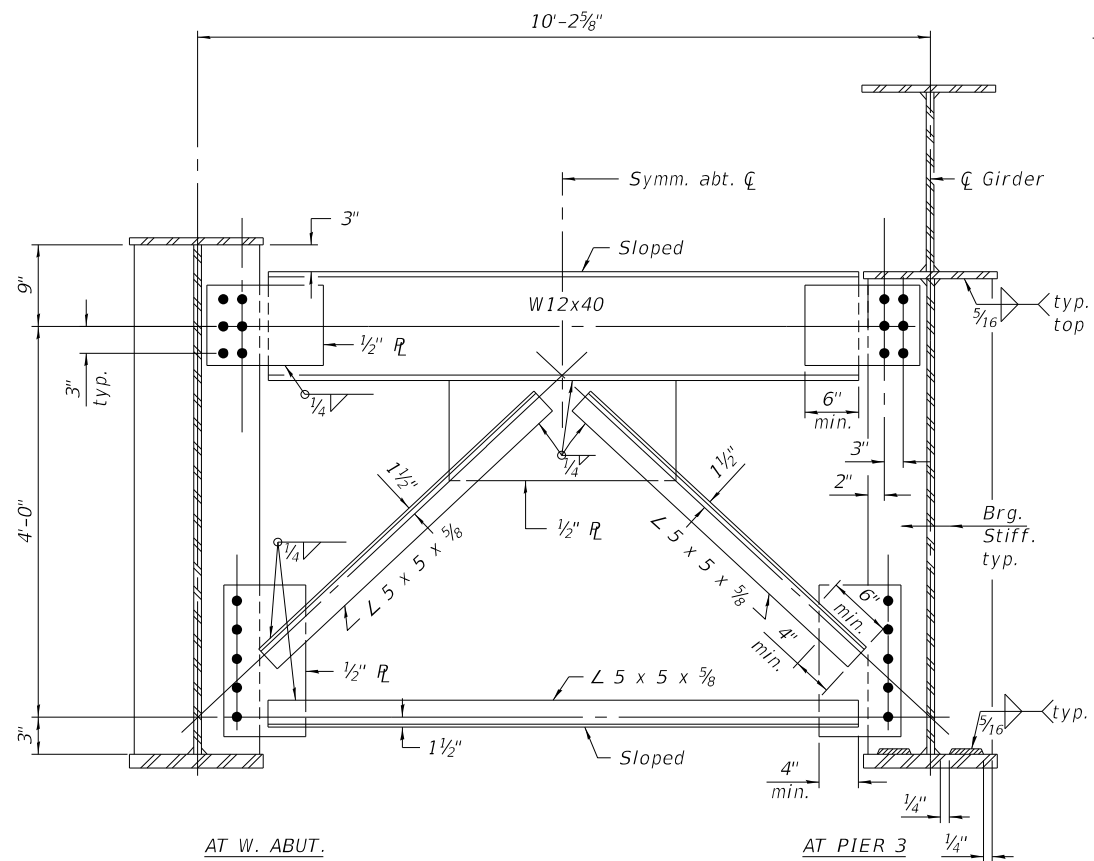
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

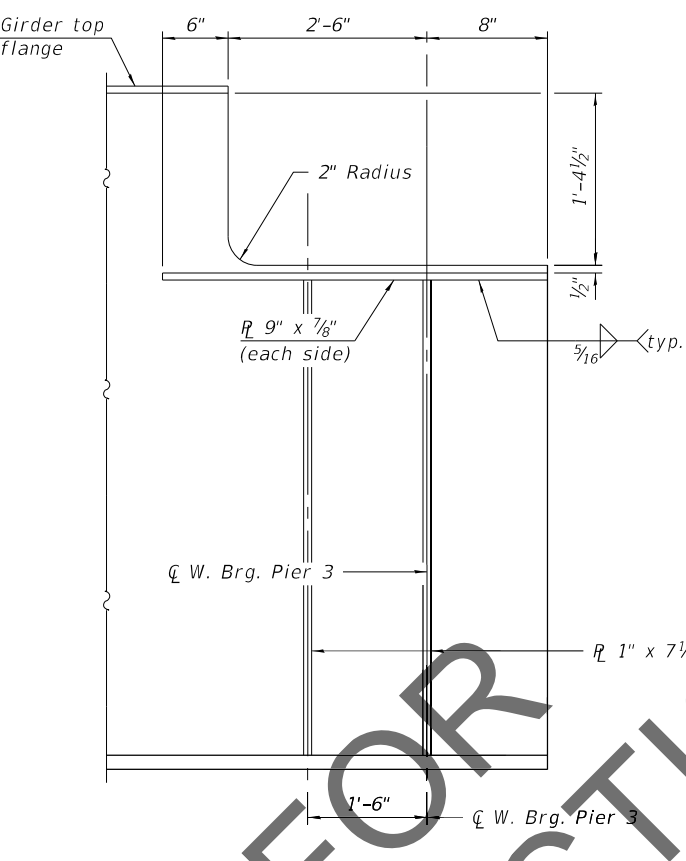
**STEEL DETAILS UNIT 1 - 1
STRUCTURE NO. 060-0351 (WB)**

SHEET 106 OF 288 SHEETS

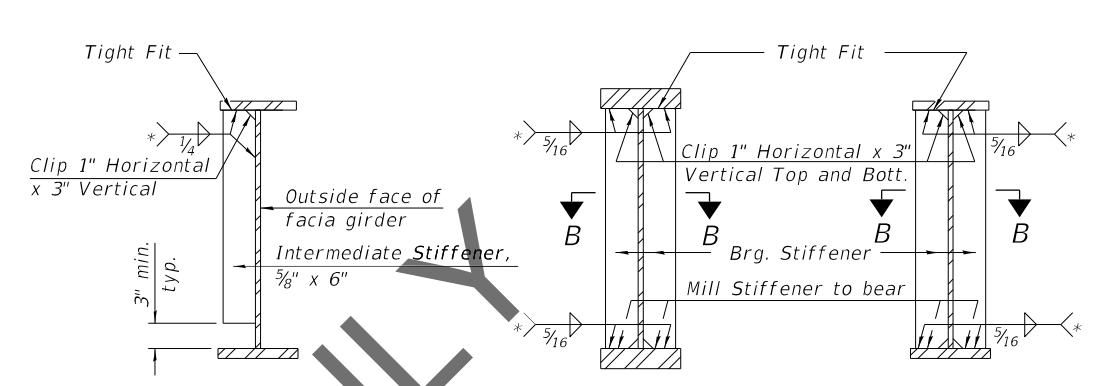
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	598
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



CROSS FRAME F AND F3
(6 F Required)
(6 F3 Required)



DETAIL C

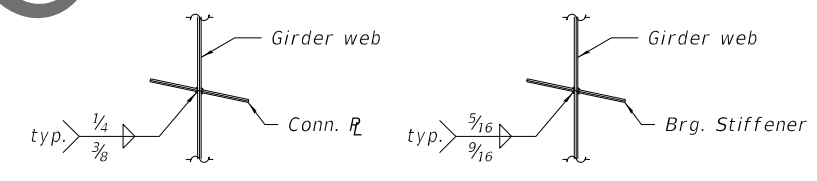


SECTION AT INT. STIFFENER
(Facia girders shown, interior girders similar)

SECTION AT PIER

SECTION AT ABUTMENT

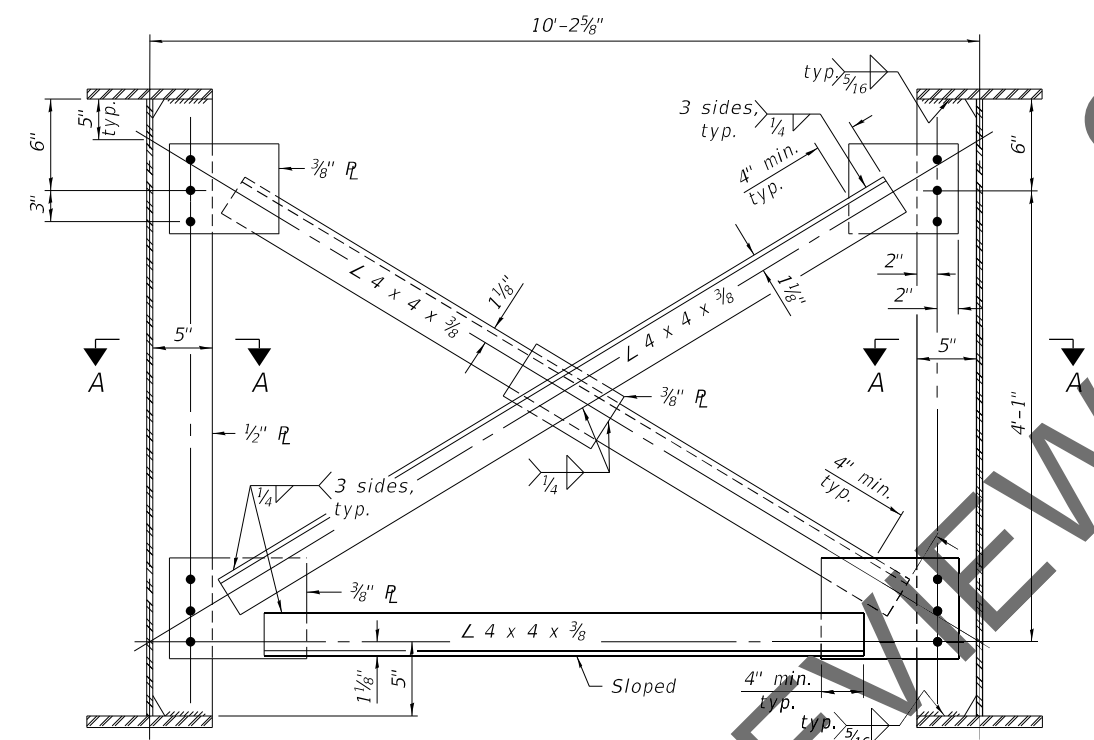
* Terminate 1/4" (±1/8") from the end of plate intersects.



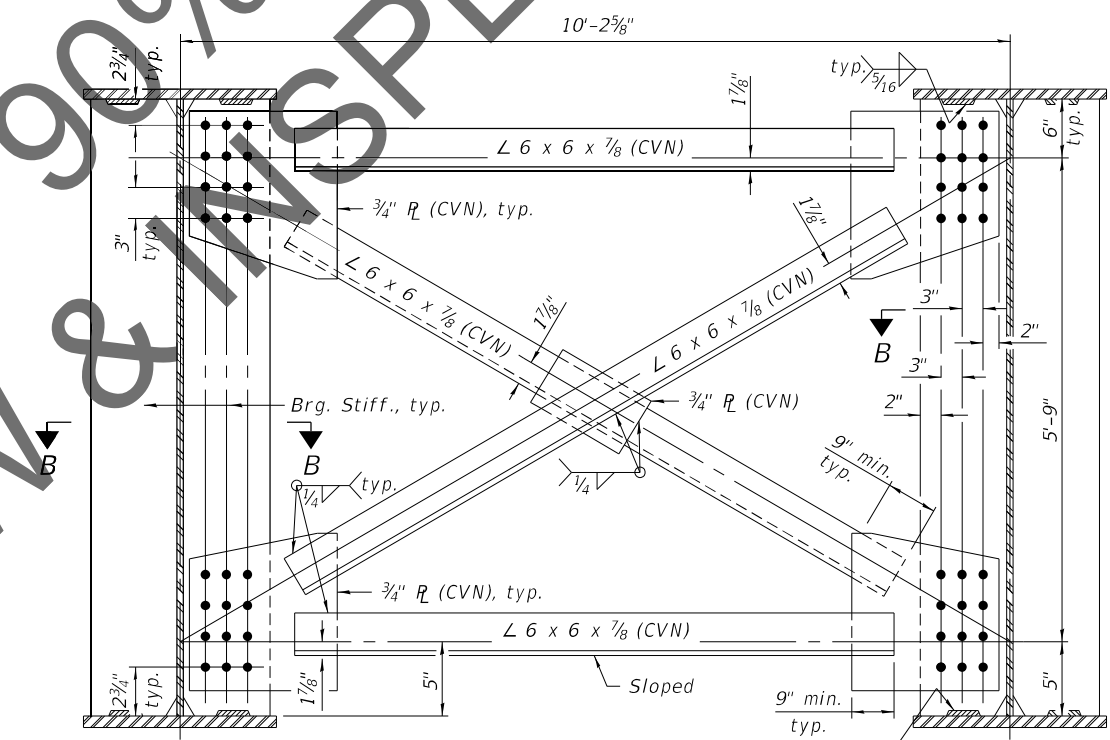
SECTION A-A

SECTION B-B

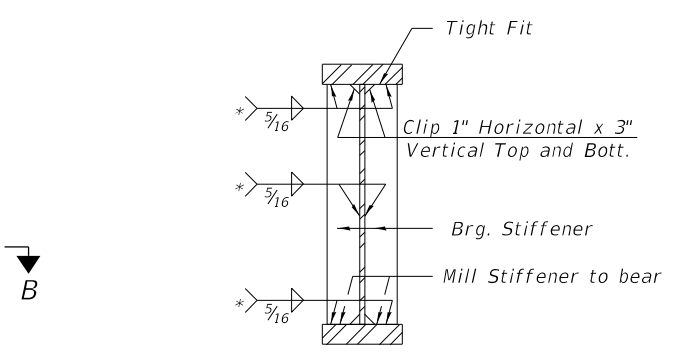
Notes:
 All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
 All structural steel shall be AASHTO M270 Grade 50.
 All bolts in cross frames shall be 7/8" ø in 1 1/16" ø holes.
 Two hardened washers shall be required for each set of oversized holes.



CROSS FRAME F1
(102 Required)



CROSS FRAME F2
(12 required)



SECTION AT JACKING STIFFENER

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 1 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 107 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	599
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

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		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3
<i>I_s</i>	(in ⁴)	32,270	88,157	32,270	88,157	32,270
<i>I_c(n)</i>	(in ⁴)	87,942	173,150	87,942	173,150	87,942
<i>I_c(3n)</i>	(in ⁴)	66,594	131,961	66,594	131,961	66,594
<i>I_c(cr)</i>	(in ⁴)	43,643	101,383	43,643	101,383	43,643
<i>S_s</i>	(in ³)	1,049	2,755	1,049	2,755	1,049
<i>S_c(n)</i>	(in ³)	1,558	---	1,558	---	1,558
<i>S_c(3n)</i>	(in ³)	1,427	---	1,427	---	1,427
<i>S_c(cr)</i>	(in ³)	---	3,502	---	3,502	---
<i>DC1</i>	(k/')	1.254	1.478	1.254	1.478	1.254
<i>MDC1</i>	(k)	1,022	2,837	718	2,832	1,026
<i>DC2</i>	(k/')	0.163	0.163	0.163	0.163	0.163
<i>MDC2</i>	(k)	136	331	107	331	136
<i>DW</i>	(k/')	0.457	0.457	0.457	0.457	0.457
<i>MDW</i>	(k)	384	935	303	934	384
<i>LLDF</i>		0.713	0.744	0.671	0.744	0.713
<i>M_l + iM</i>	(k)	1,975	2,803	1,783	2,803	1,976
<i>Mu (Strength I)</i>	(k)	5,479	10,268	4,604	10,260	5,486
<i>Øf Mn</i>	(k)	7,545	13,716	7,803	13,716	7,541
<i>fs DC1</i>	(ksi)	11.69	12.36	8.21	12.34	11.74
<i>fs DC2</i>	(ksi)	1.14	1.13	0.90	1.13	1.14
<i>fs DW</i>	(ksi)	3.23	3.2	2.55	3.2	3.23
<i>fs (l+IM)</i>	(ksi)	15.21	9.6	13.73	9.6	15.22
<i>fs (Service II)</i>	(ksi)	35.83	29.18	29.50	29.16	35.90
<i>0.95Rh Fyf</i>	(ksi)	47.50	47.50	47.50	47.50	47.50
<i>fs (Total)(Strength I)</i>	(ksi)	47.50	38.48	39.23	38.48	47.58
<i>Øf Fn</i>	(ksi)	50.00	50.00	50.00	50.00	50.00
<i>Vf</i>	(k)	59.7	92.2	65.0	92.2	59.7

		W. Abut.		Pier 1		Pier 2		W. Brg. Pier 3	
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior
<i>LLDF</i>		0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
<i>OCF</i>		--	1.04	--	1.04	--	1.04	--	1.04
<i>RDC1</i>	(k)	51.9	50.3	205.9	200.1	205.9	200.1	52.2	50.7
<i>RDC2</i>	(k)	6.7	6.7	24.4	24.4	24.4	24.4	6.7	6.7
<i>RDW</i>	(k)	19.0	19.0	68.6	68.6	68.6	68.6	19.0	19.0
<i>R_l + iM</i>	(k)	113.9	113.9	233.1	233.1	233.1	233.1	113.9	113.9
<i>RTotal</i>	(k)	191.5	189.9	532.0	526.2	532.0	526.2	191.8	190.3

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

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

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

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

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

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

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

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

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

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

LLDF: Live Load Distribution Factor

M_l + iM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).
1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_l + iM

Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
MDC1/ S_{nc}

fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
MDC2/ S_c(3n) or MDC2/ S_c(cr) as applicable.

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

fs (l+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
M_l + iM / S_c(n) or M_l + iM / S_c(cr) as applicable.

fs (Service II): Sum of stresses as computed below (ksi).
fsDC1 + fsDC2 + fsDW + 1.3 fs(l+IM)

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

fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(l+IM)

Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.

OCF: Obtuse Correction Factor

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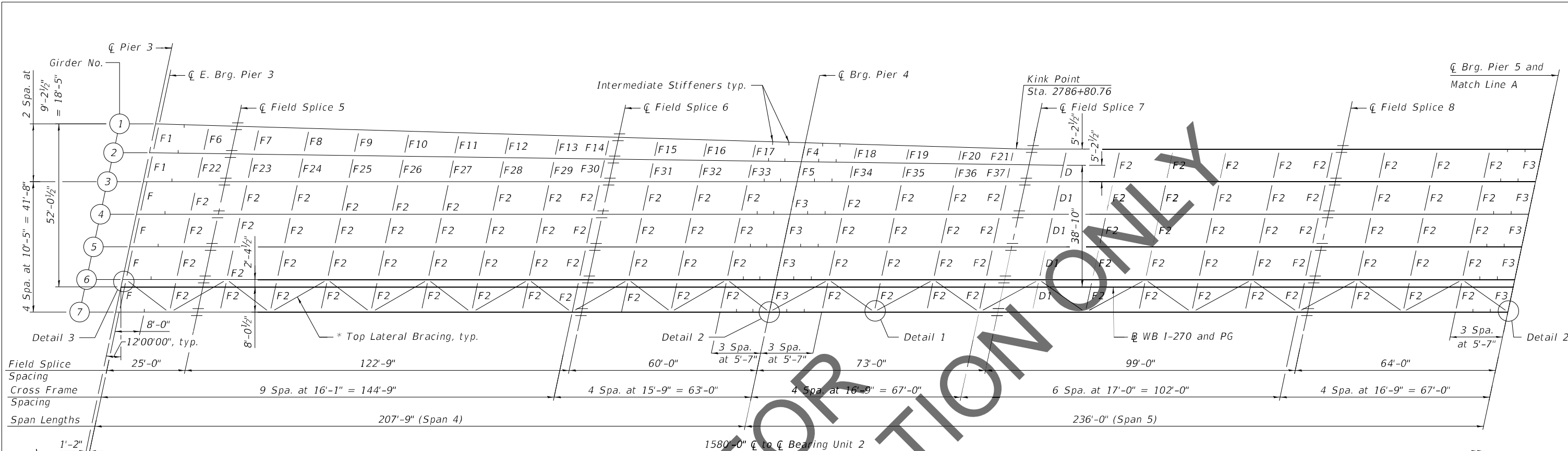
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DEPARTMENT OF TRANSPORTATION

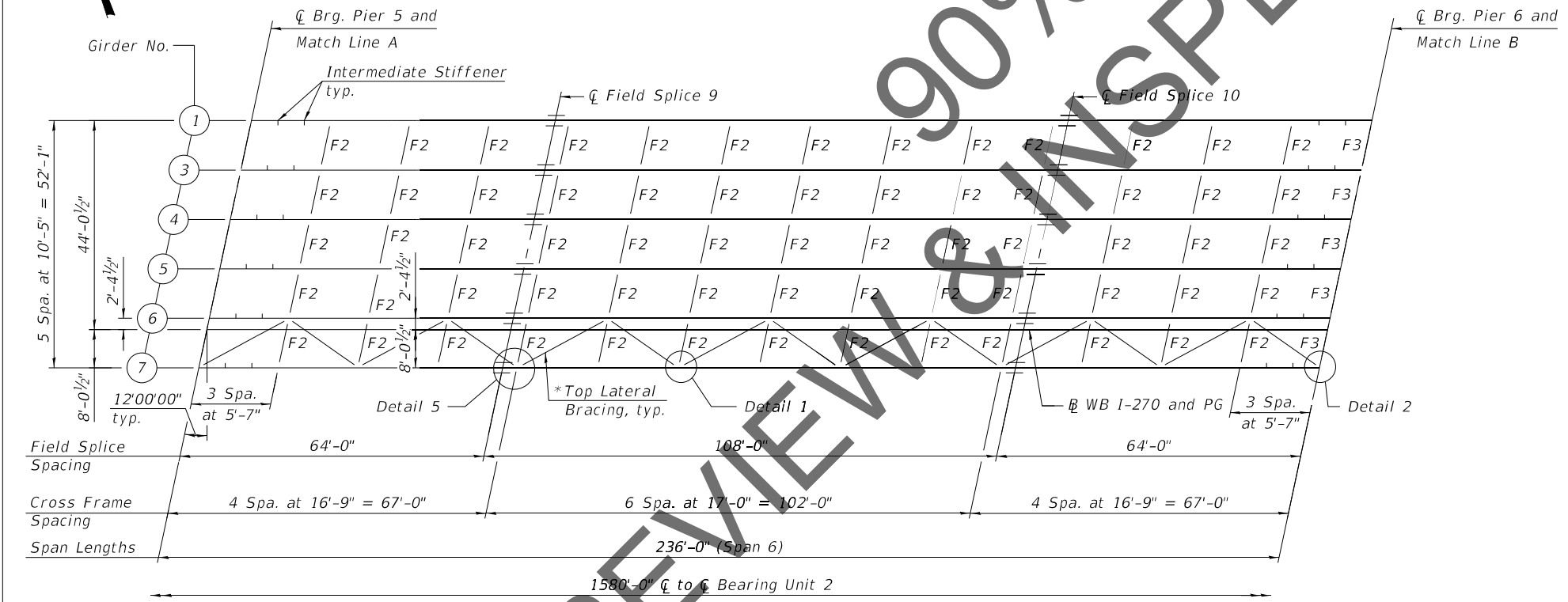
STRESS TABLES UNIT 1
STRUCTURE NO. 060-0351 (WB)

SHEET 108 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	600
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



FRAMING PLAN - UNIT 2
(Spans 4 and 5)



FRAMING PLAN - UNIT 2
(Span 6)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 2.

Notes:
All lengths are along \perp WB I-270 and PG.
For Match Line B, see sheet 110 of 288.
For field splice details, see sheet 115 of 288.
For cross frame details, see sheet 116 of 288.
For Details 1, 2, 3, and 5, see sheet 118 of 288.

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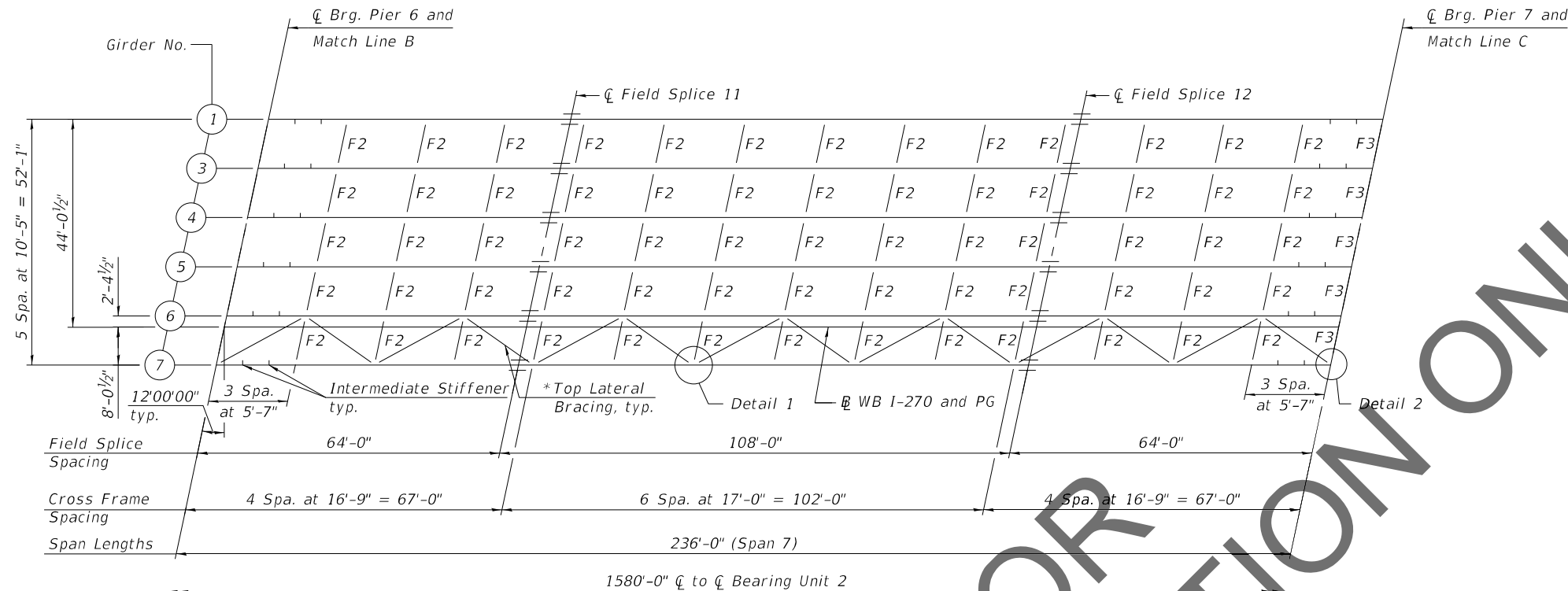
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 2 - 1
STRUCTURE NO. 060-0351 (WB)

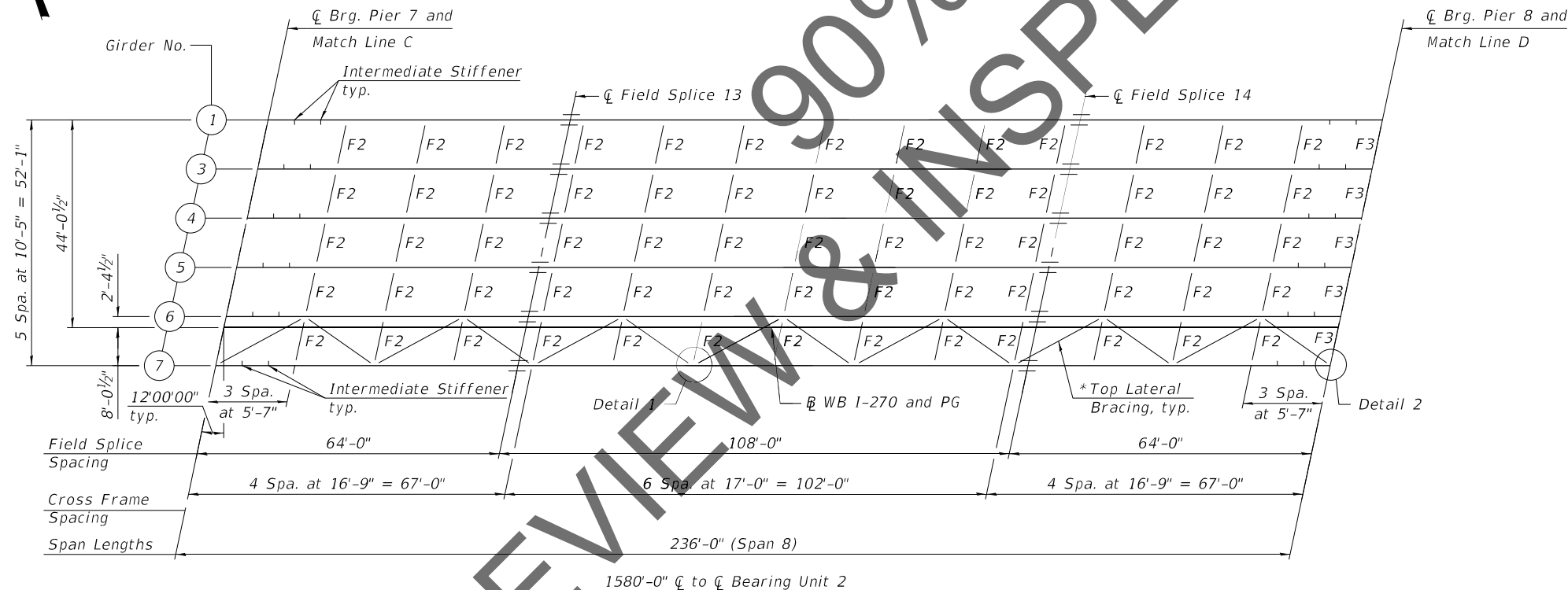
SHEET 109 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	601
CONTRACT NO. 76J90				

ILLINOIS FED. AID PROJECT



FRAMING PLAN - UNIT 2
(Span 7)



FRAMING PLAN - UNIT 2
(Span 8)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 2.

Notes:
All lengths are along @ WB I-270 and PG.
For Match Line B, see sheet 109 of 288.
For Match Line D, see sheet 111 of 288.
For field splice details, see sheet 115 of 288.
For cross frame details, see sheet 116 of 288.
For Details 1 and 2, see sheet 118 of 288.

REVIEW & INSPECTION ONLY

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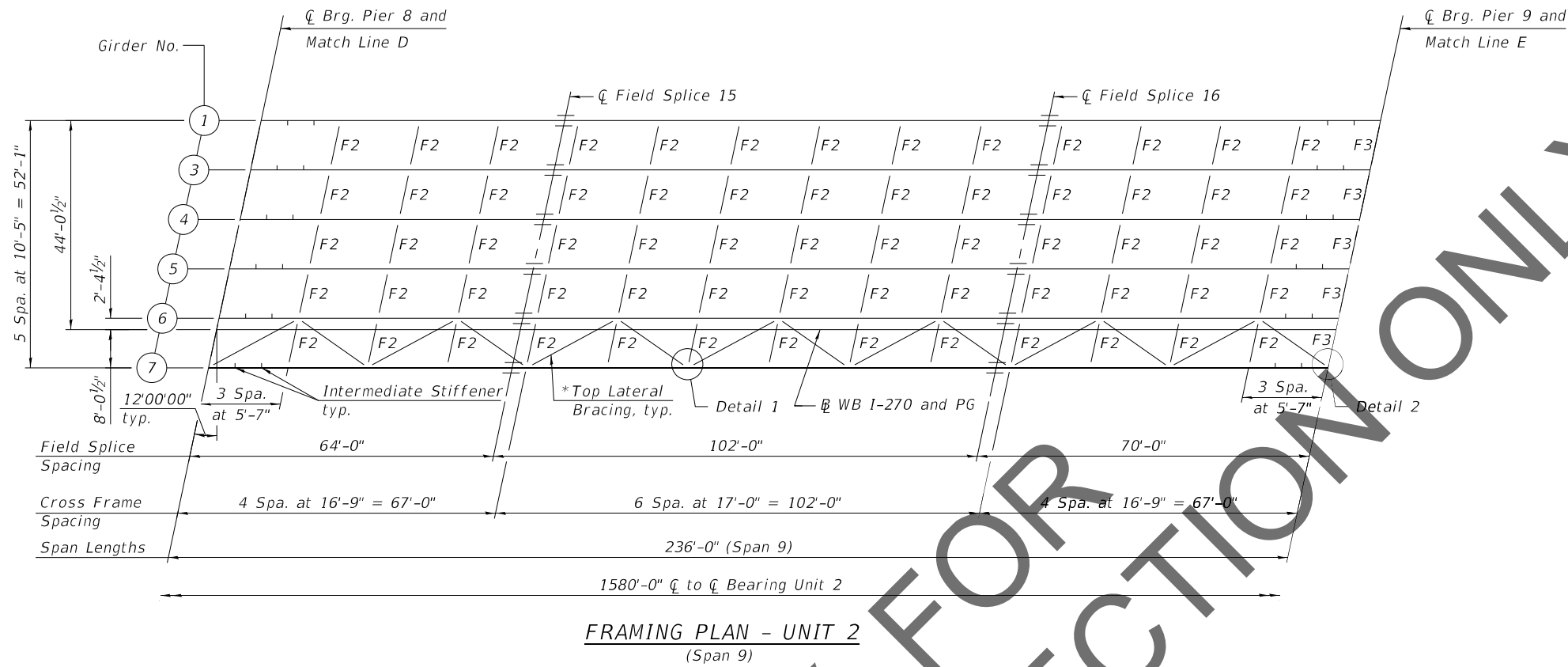
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DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 2 - 2
STRUCTURE NO. 060-0351 (WB)

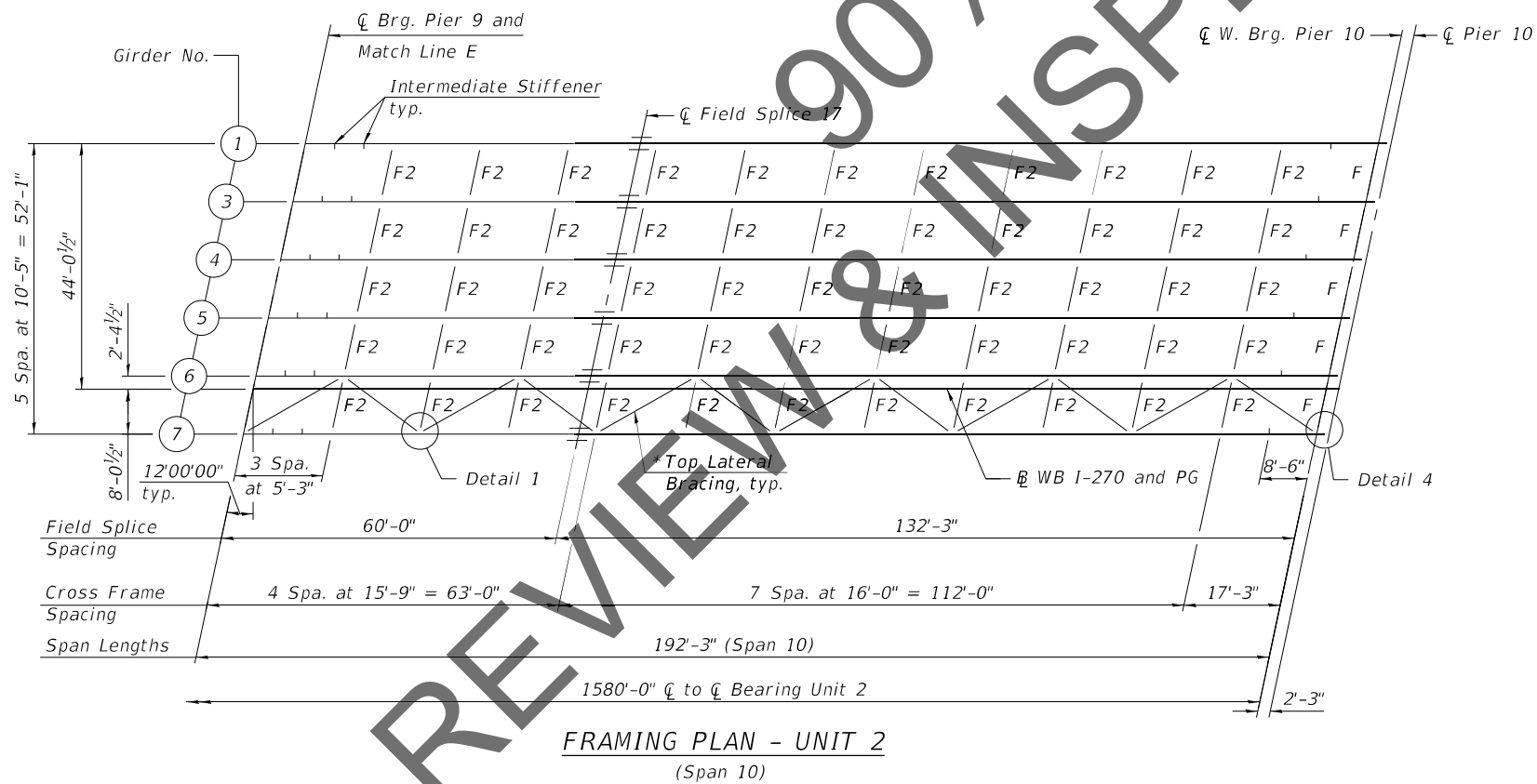
SHEET 110 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	602
CONTRACT NO. 76J90				

ILLINOIS FED. AID PROJECT



FRAMING PLAN - UNIT 2
(Span 9)



FRAMING PLAN - UNIT 2
(Span 10)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 2.

Notes:
All lengths are along \emptyset WB I-270 and PG.
For Match Line D, see sheet 110 of 288.
For field splice details, see sheet 115 of 288.
For cross frame details, see sheet 116 of 288.
For Details 1, 2, and 4, see sheet 118 of 288.

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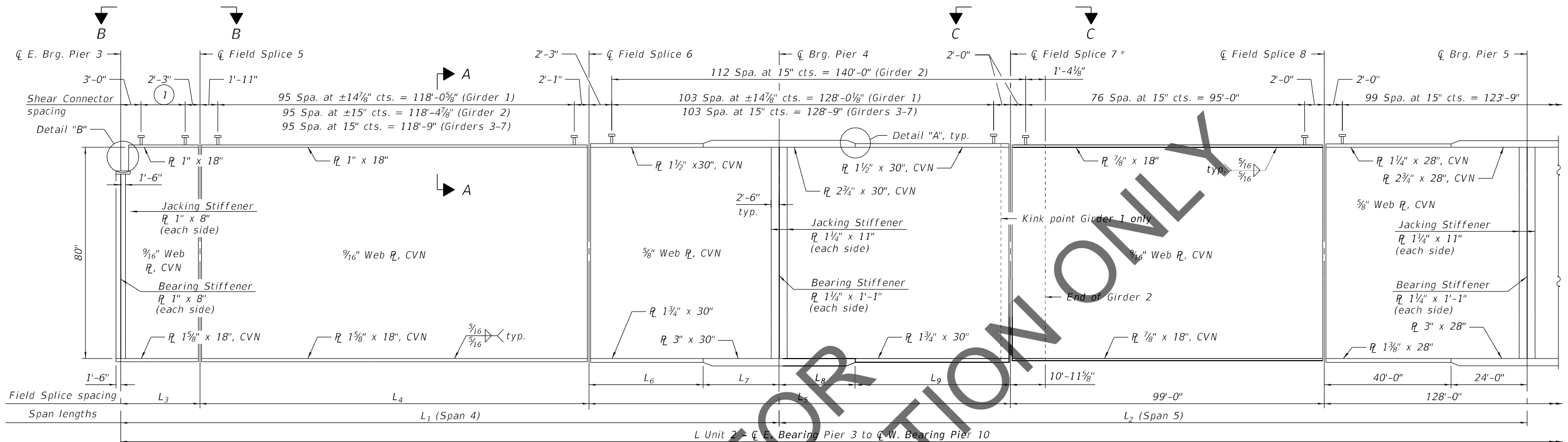
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FRAMING PLAN UNIT 2 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 111 OF 288 SHEETS

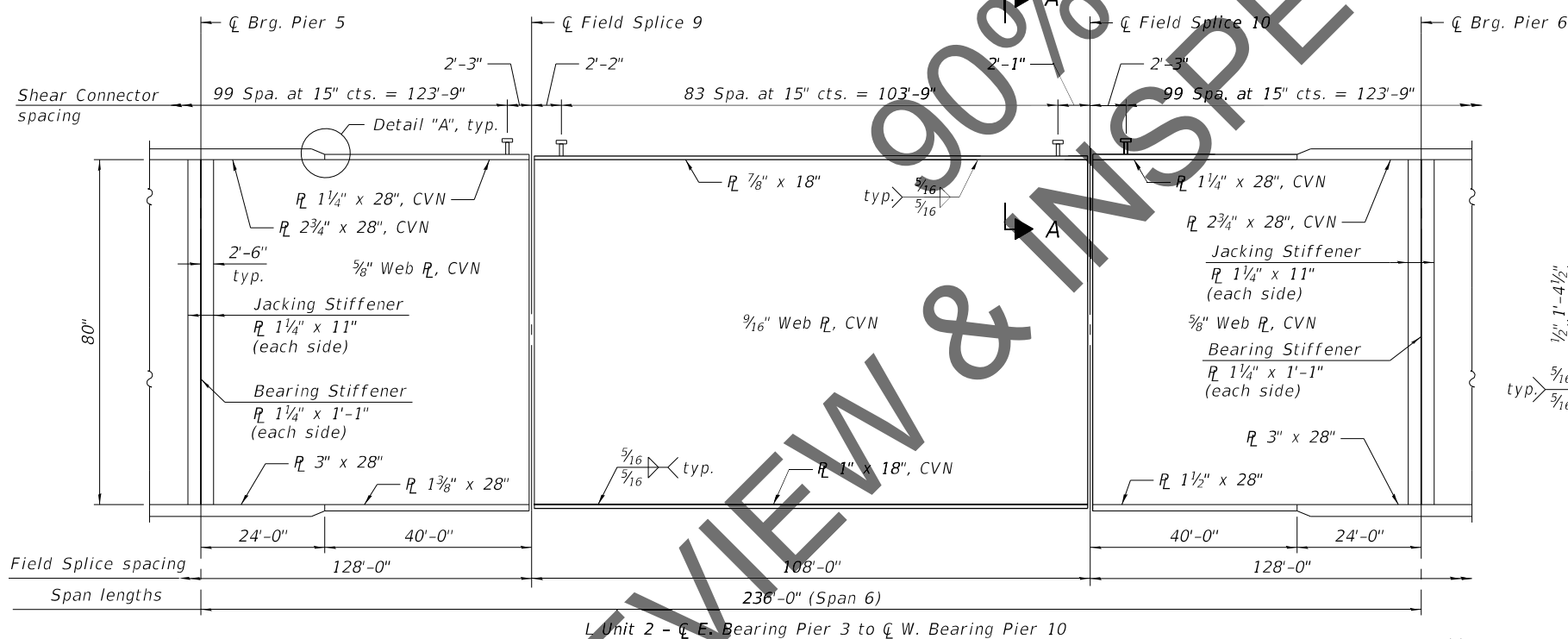
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	603
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



GIRDER ELEVATION - UNIT 2
(Spans 4 and 5)

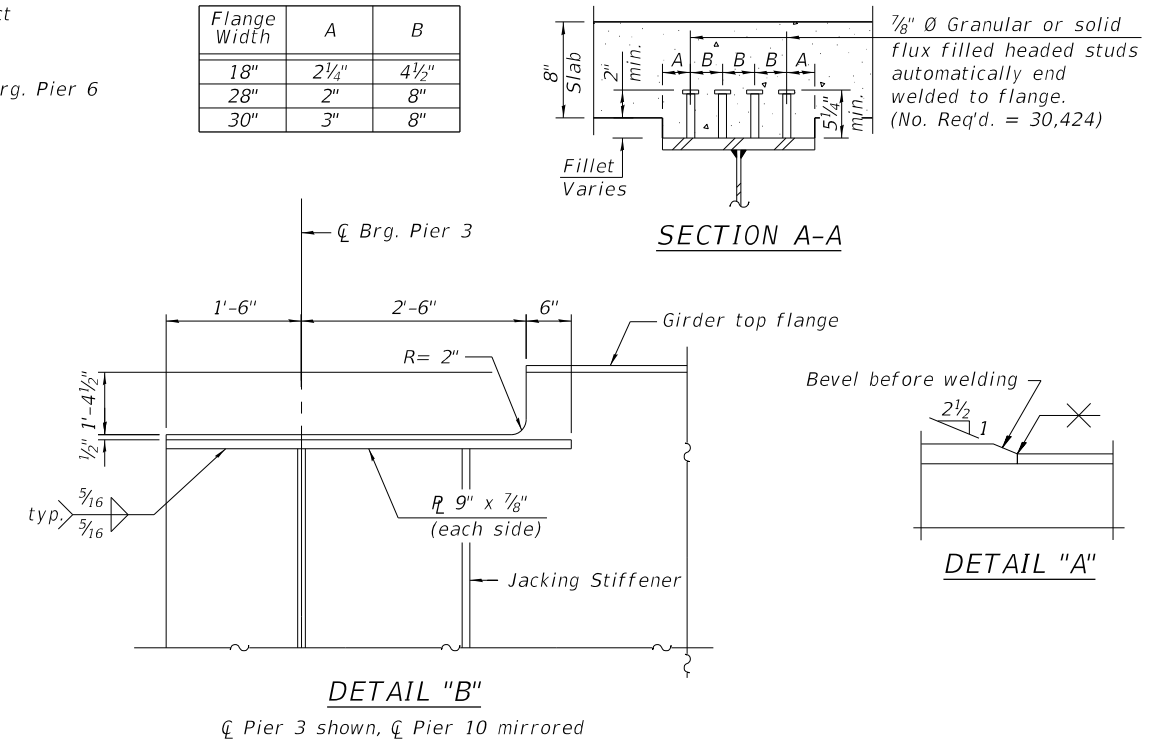
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

- ① 16 Spa. at $\pm 14\frac{3}{4}$ " cts. = 19'-7 1/4" (Girder 1)
- 16 Spa. at $\pm 14\frac{3}{4}$ " cts. = 19'-8 1/8" (Girder 2)
- 16 Spa. at $\pm 14\frac{3}{16}$ " cts. = 19'-9" (Girders 3-7)



GIRDER ELEVATION - UNIT 2
(Span 6)

*No splice on Girder 2, see View C-C on sheet 114 of 288.



Notes:
 All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50.
 Load carrying components designated as "CVN" shall conform to the Impact Testing Requirement, Zone 2.
 Girder ends and bearing stiffeners at Pier 3 and Pier 10 shall be fabricated vertically on its final position.
 For Views B-B and C-C, see sheet 114 of 288.
 For Table of "L" Dimensions, see sheet 114 of 288.

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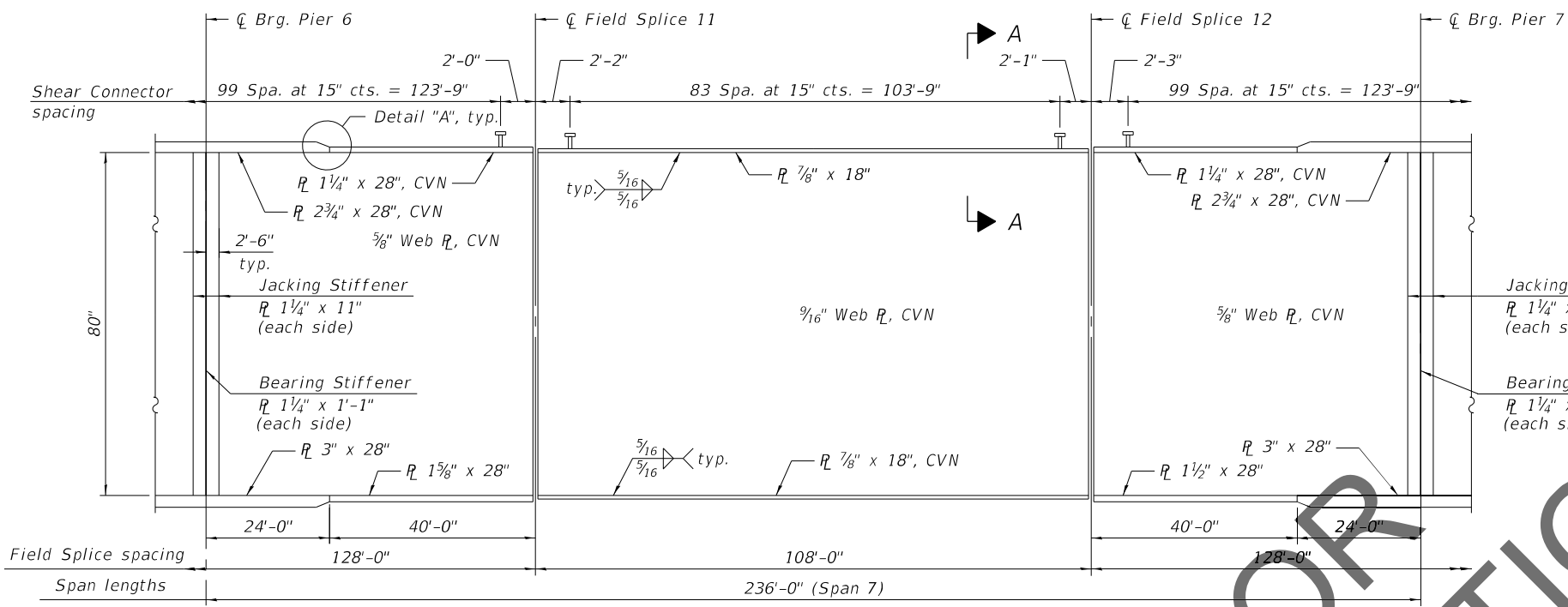
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GIRDER ELEVATION UNIT 2 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 112 OF 288 SHEETS

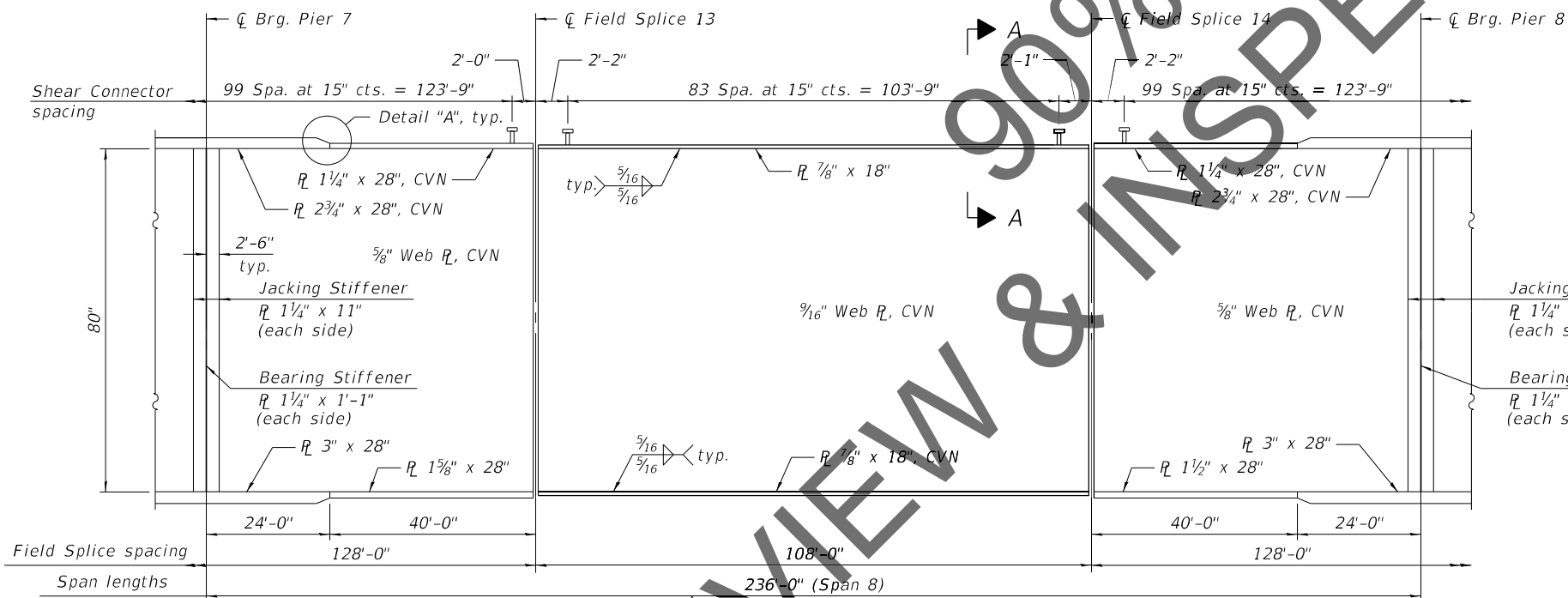
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	604
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



GIRDER ELEVATION - UNIT 2

(Span 7)

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



GIRDER ELEVATION - UNIT 2

(Span 8)

REVIEW & INSPECTION ONLY

Notes:
 All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50.
 Load carrying components designated as "CVN" shall conform to the Impact Testing Requirement, Zone 2.
 For Section A-A and Detail A, see sheet 112 of 288.
 For Table of "L" Dimensions, see sheet 114 of 288.

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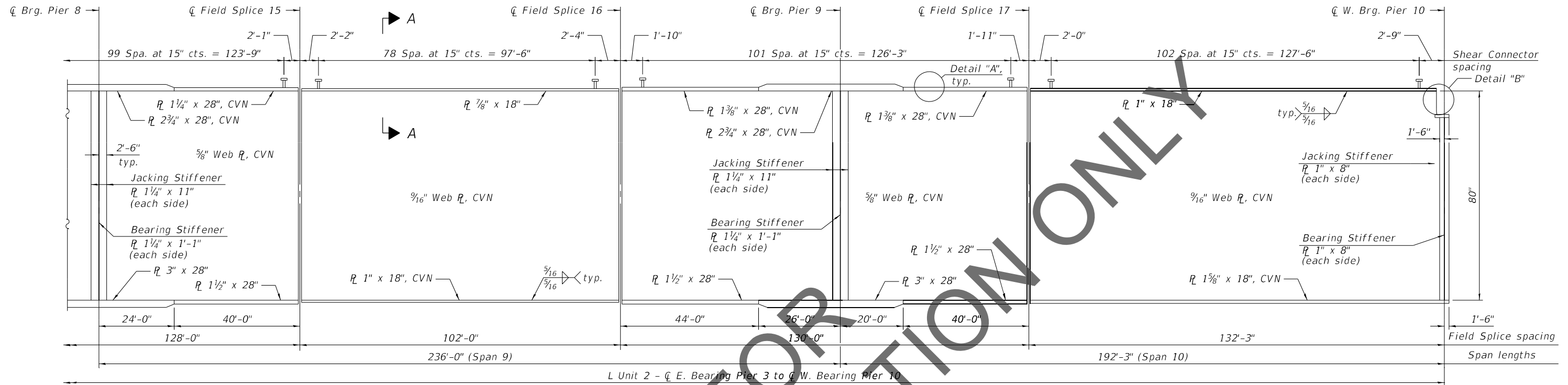
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 DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATION UNIT 2 - 2
 STRUCTURE NO. 060-0351 (WB)**

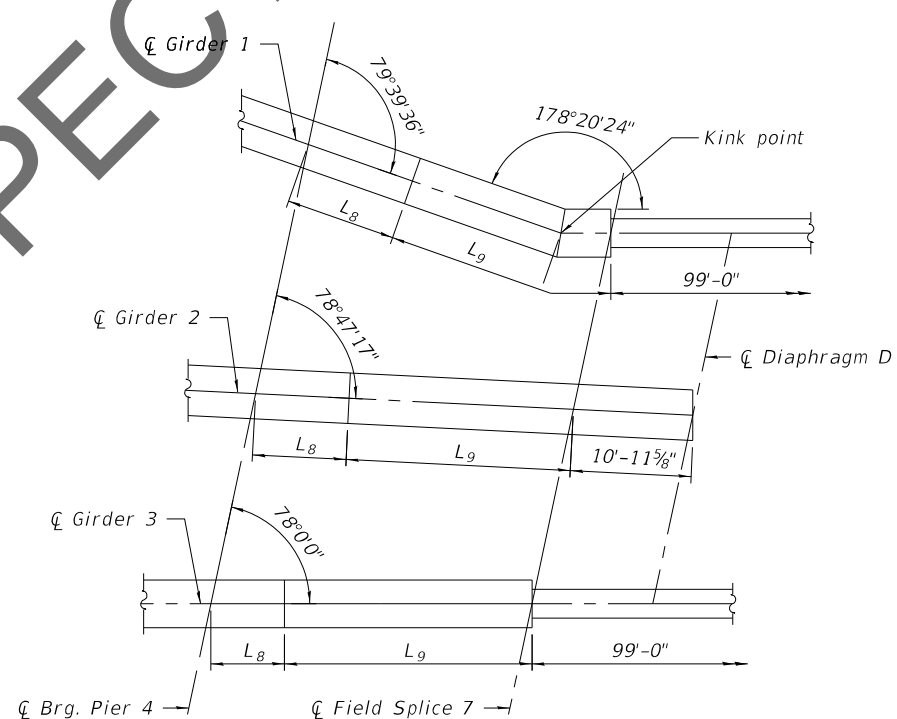
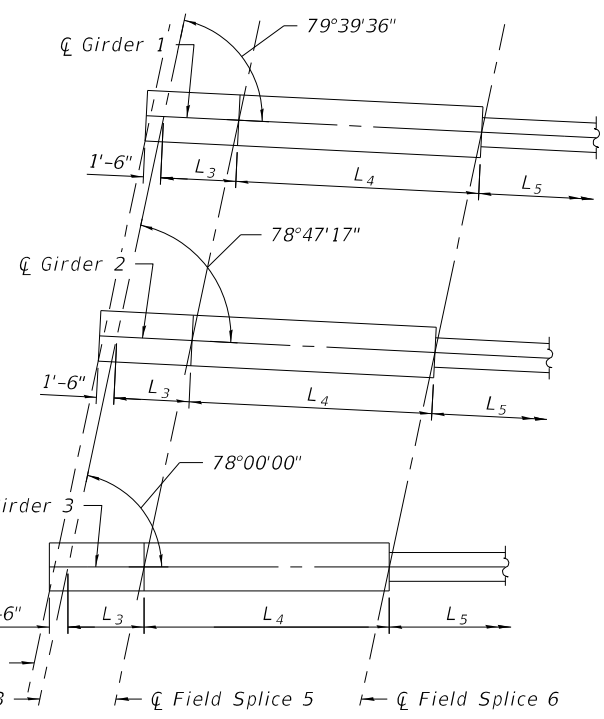
SHEET 113 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	605
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



GIRDER ELEVATION - UNIT 2

(Spans 9 and 10)
 "CVN" denotes Charpy-V-Notch impact energy requirements, Zone 2.



VIEW B-B
(Near Abutment)

TABLE OF "L" DIMENSIONS

Girder No.	L	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	L ₈	L ₉
1	1,578'-5"	206'-6 ³ / ₄ "	235'-7 ¹ / ₄ "	24'-10 ³ / ₁₆ "	122'-0 ³ / ₈ "	132'-3 ¹ / ₈ "	35'-9 ³ / ₁₆ "	23'-10 ³ / ₁₆ "	23'-10 ³ / ₈ "	48'-8 ⁷ / ₈ "
2	290'-11 ¹ / ₈ "	207'-1 ⁵ / ₁₆ "	- - -	24'-11 ¹ / ₈ "	122'-4 ⁷ / ₈ "	132'-7 ¹ / ₂ "	35'-10 ³ / ₄ "	23'-11 ³ / ₁₆ "	23'-11 ³ / ₁₆ "	48'-10 ³ / ₈ "
3	1,580'-0"	207'-9"	236'-0"	25'-0"	122'-9"	133'-0"	36'-0"	24'-0"	24'-0"	49'-0"
4	1,580'-0"	207'-9"	236'-0"	25'-0"	122'-9"	133'-0"	36'-0"	24'-0"	24'-0"	49'-0"
5	1,580'-0"	207'-9"	236'-0"	25'-0"	122'-9"	133'-0"	36'-0"	24'-0"	24'-0"	49'-0"
6	1,580'-0"	207'-9"	236'-0"	25'-0"	122'-9"	133'-0"	36'-0"	24'-0"	24'-0"	49'-0"
7	1,580'-0"	207'-9"	236'-0"	25'-0"	122'-9"	133'-0"	36'-0"	24'-0"	24'-0"	49'-0"

Notes:
 All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50. Load carrying components designated as "CVN" shall conform to the Impact Testing Requirement, Zone 2. Girder ends and bearing stiffeners at Pier 3 and Pier 10 shall be fabricated vertically on its final position. For Section A-A and Detail A and Detail B, see sheet 112 of 288.

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PARSONS

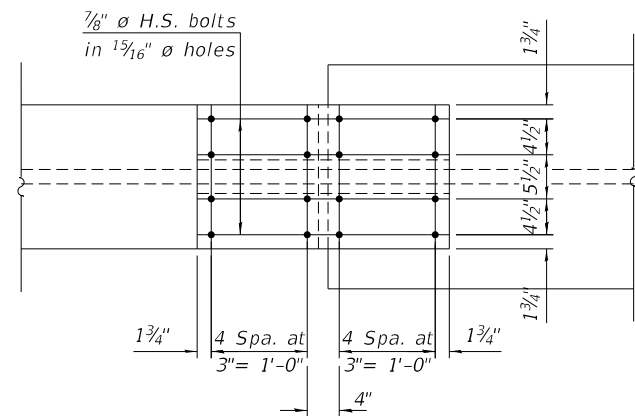
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DEPARTMENT OF TRANSPORTATION

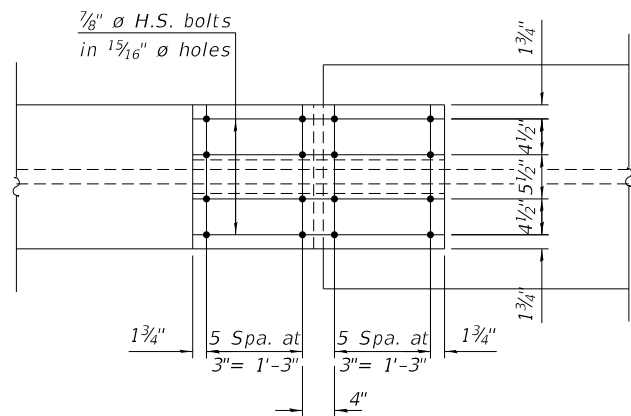
GIRDER ELEVATION UNIT 2 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 114 OF 288 SHEETS

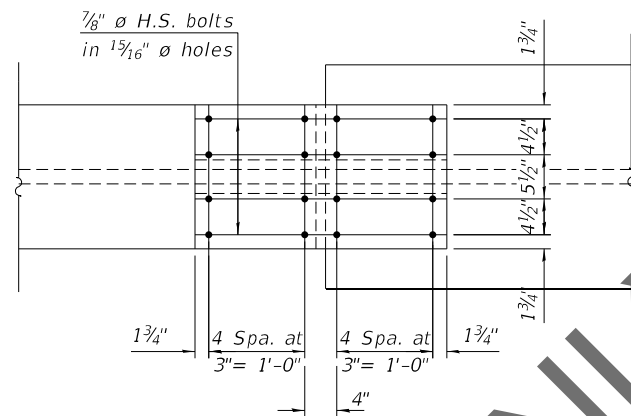
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270	60B-1	MADISON	860	606
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



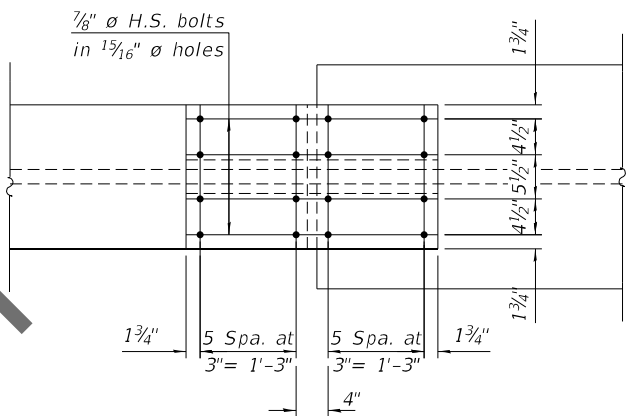
TOP FLANGE



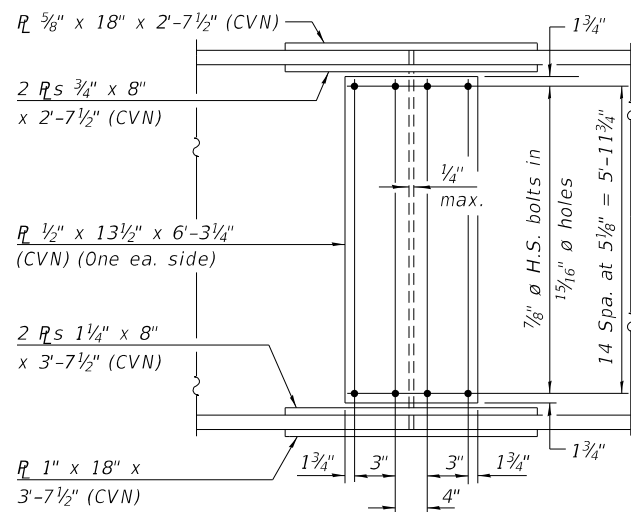
TOP FLANGE



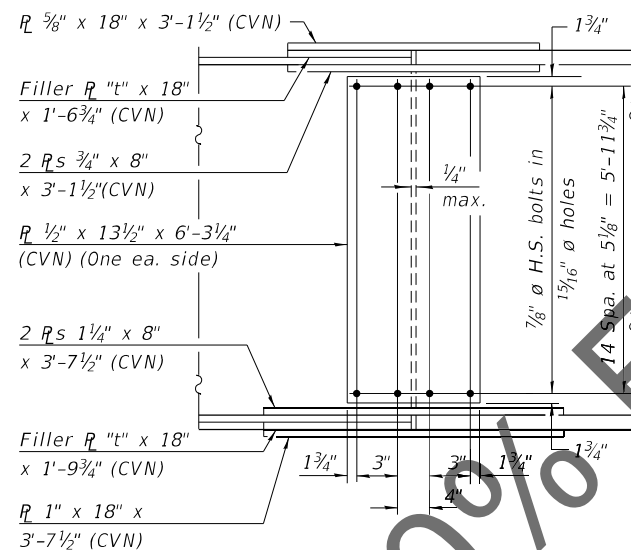
TOP FLANGE



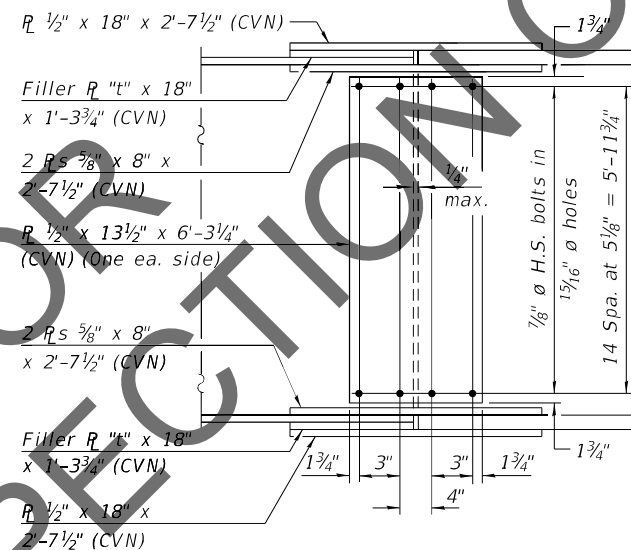
TOP FLANGE



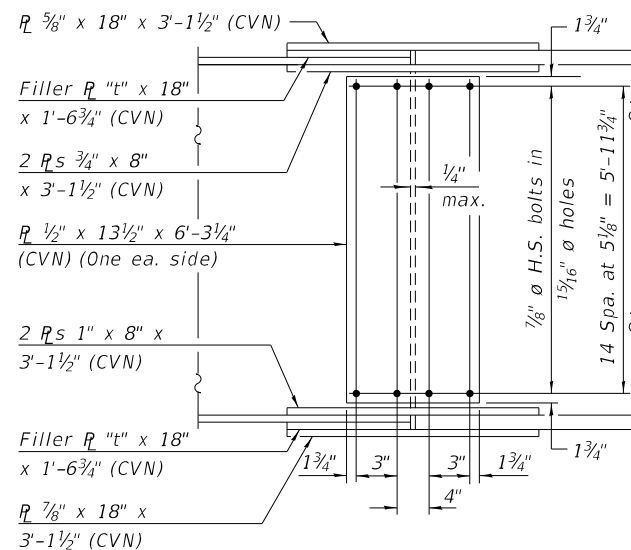
ELEVATION



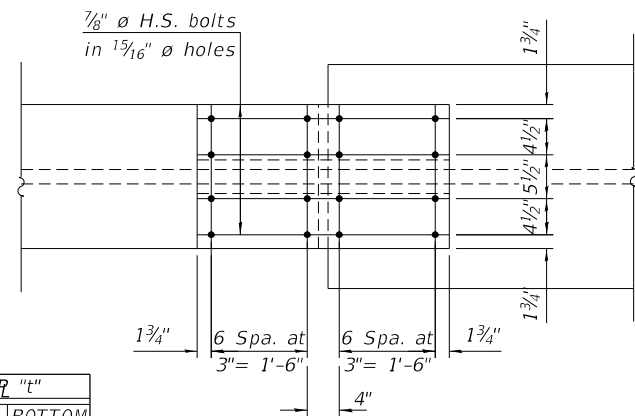
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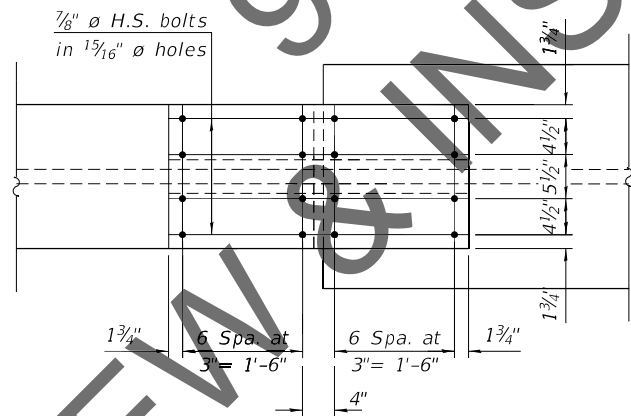
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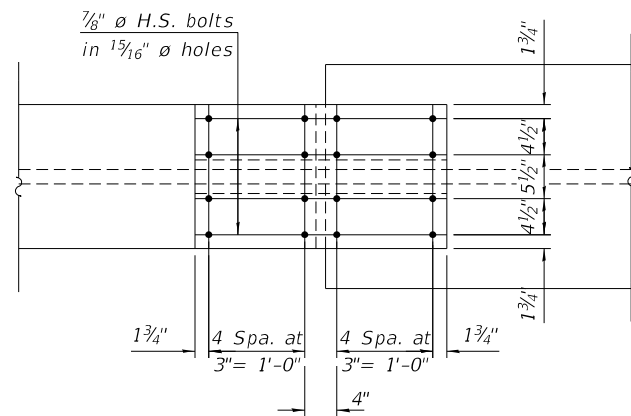
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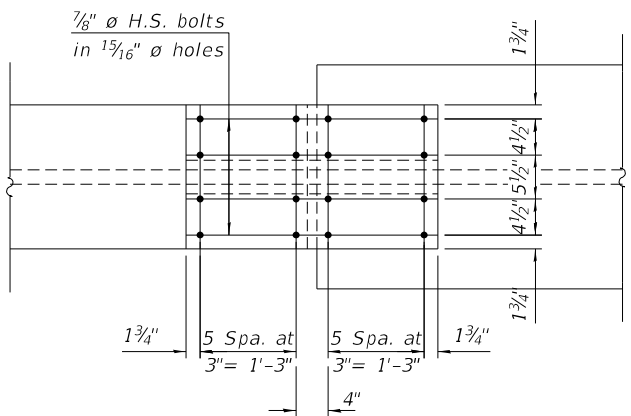
BOTTOM FLANGE



BOTTOM FLANGE



BOTTOM FLANGE



BOTTOM FLANGE

FIELD SPLICE 5 DETAIL

FIELD SPLICE 6 AND 17 DETAIL

FIELD SPLICE 7, 8, 11 TO 14 DETAIL

FIELD SPLICE 9, 10, 15 AND 16 DETAIL

Filler R "t"		
FS	TOP	BOTTOM
6	1/2"	1/8"
7	5/8"	1/8"
8	3/8"	1/2"
9	3/8"	3/8"
10	3/8"	1/2"
11	3/8"	3/4"
12	3/8"	5/8"
13	3/8"	3/4"
14	3/8"	5/8"
15	3/8"	1/2"
16	1/2"	1/2"
17	3/8"	1/8"

REVIEW & INSPECTION ONLY

Notes:
 All Structural Steel shall be AASHTO M270 Grade 50.
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

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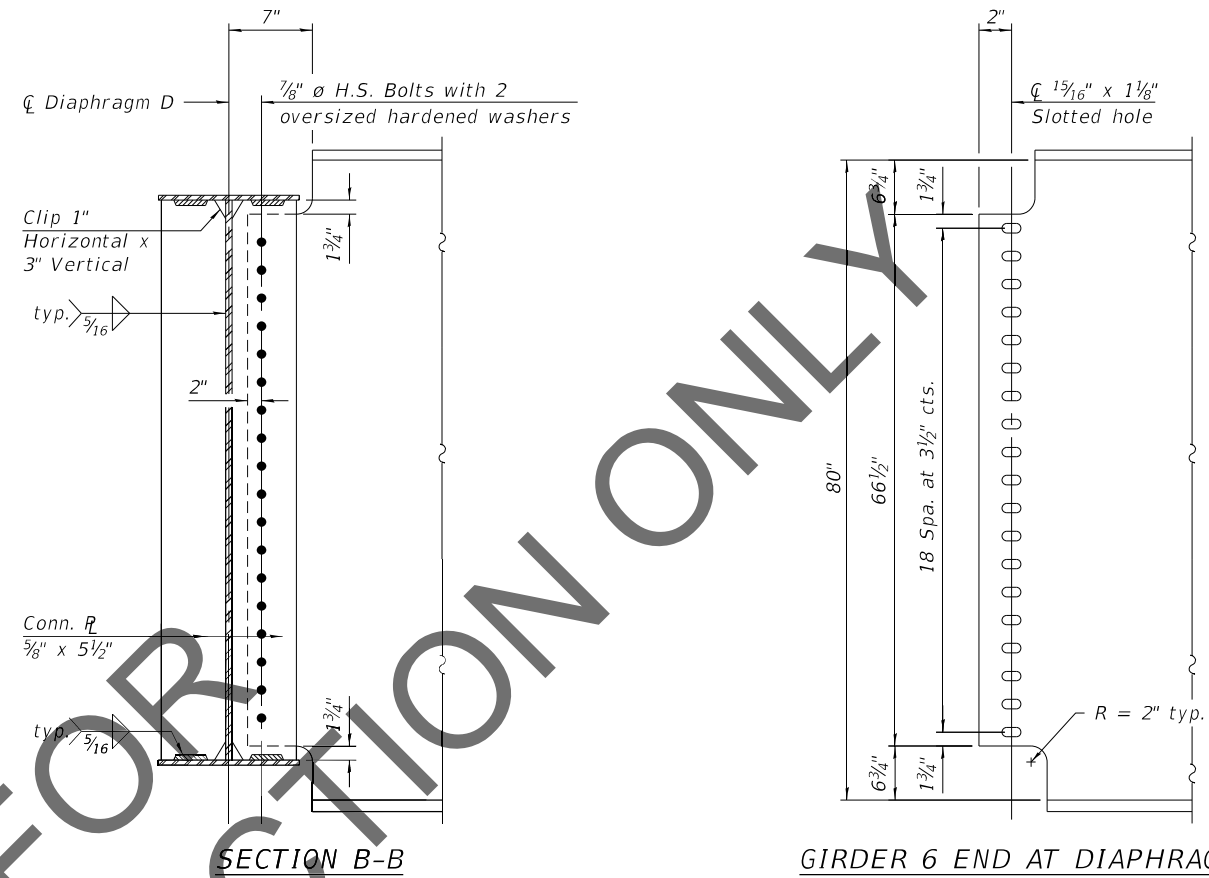
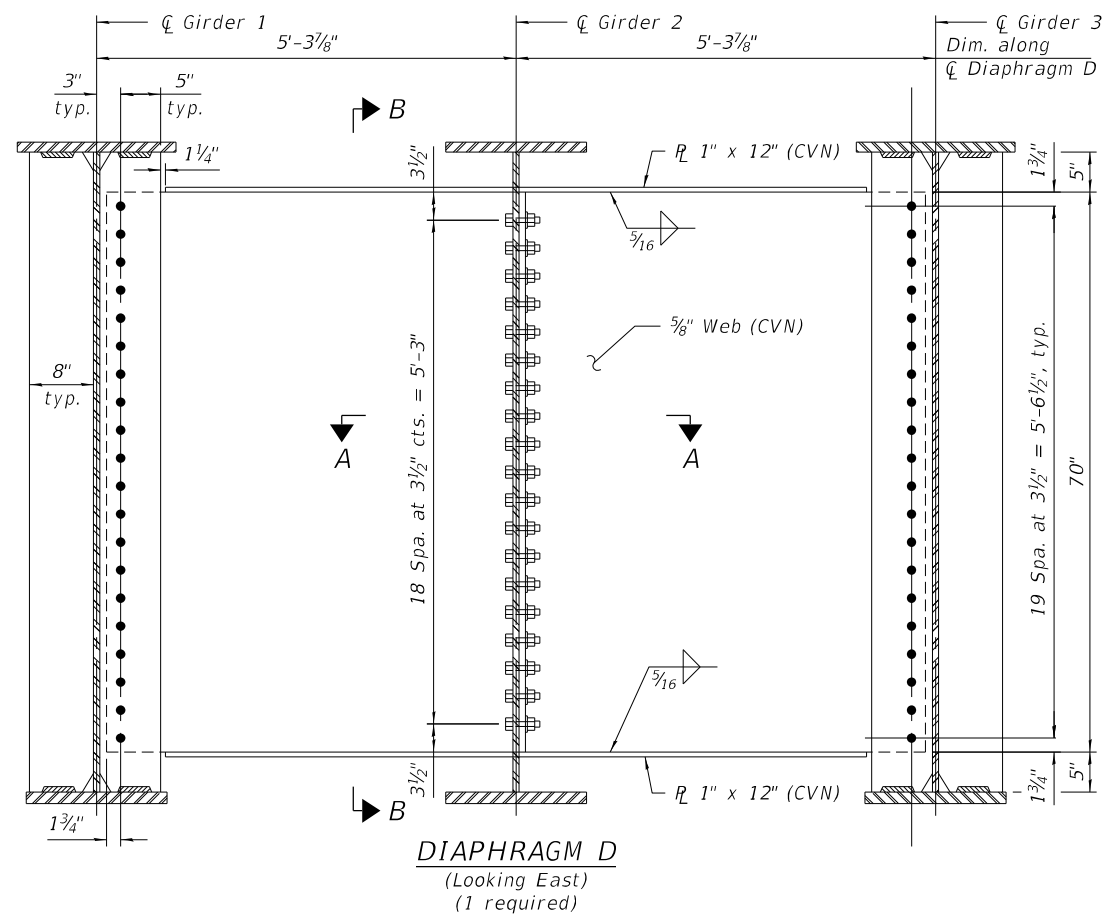
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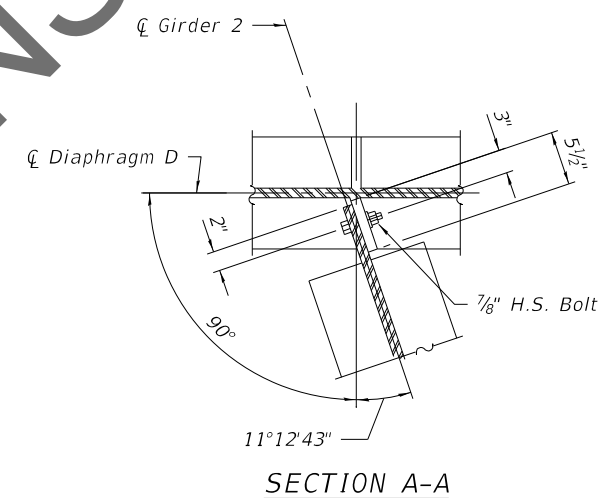
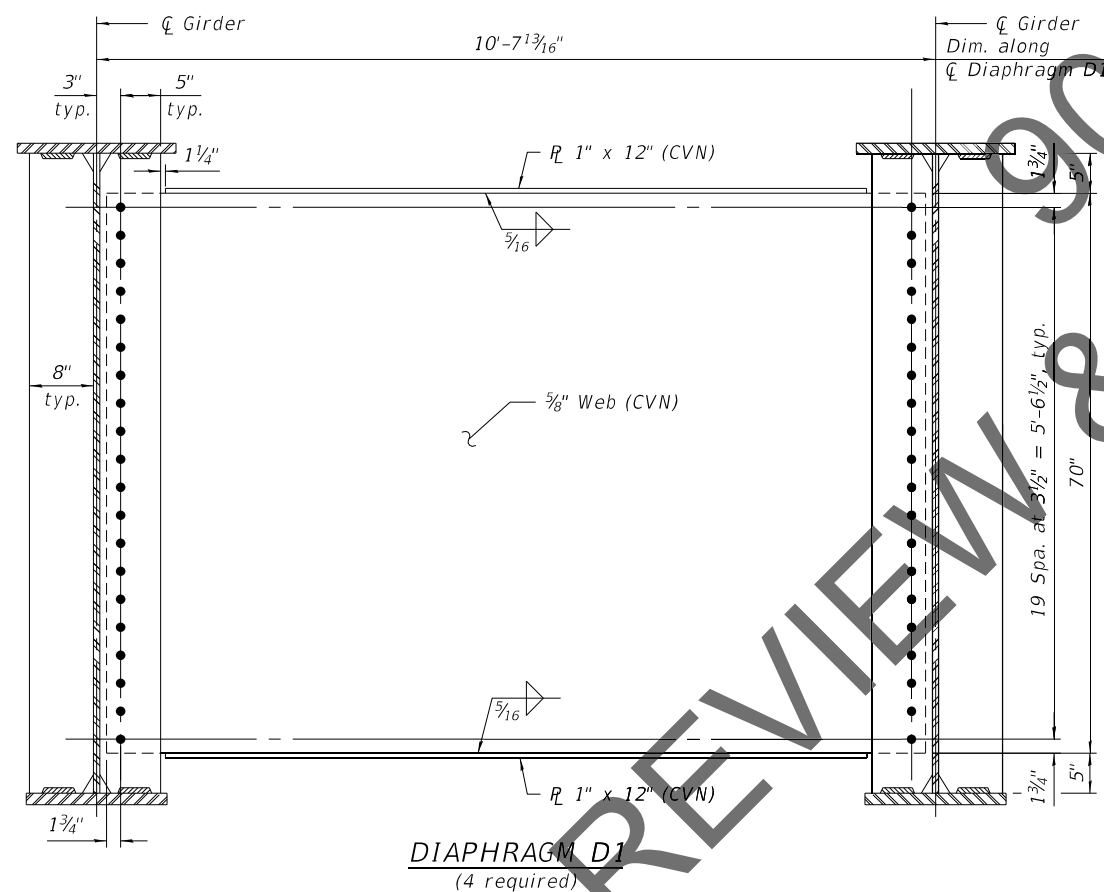
STEEL DETAILS UNIT 2 - 1
 STRUCTURE NO. 060-0351 (WB)

SHEET 115 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	607
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



GIRDER 6 END AT DIAPHRAGM D



Notes:
 All bolts in diaphragms are 7/8" ø in 1 5/16" ø holes unless noted otherwise.
 All structural steel shall be AASHTO M270 Grade 50.
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.
 Two hardened washers shall be required for each set of slotted holes.

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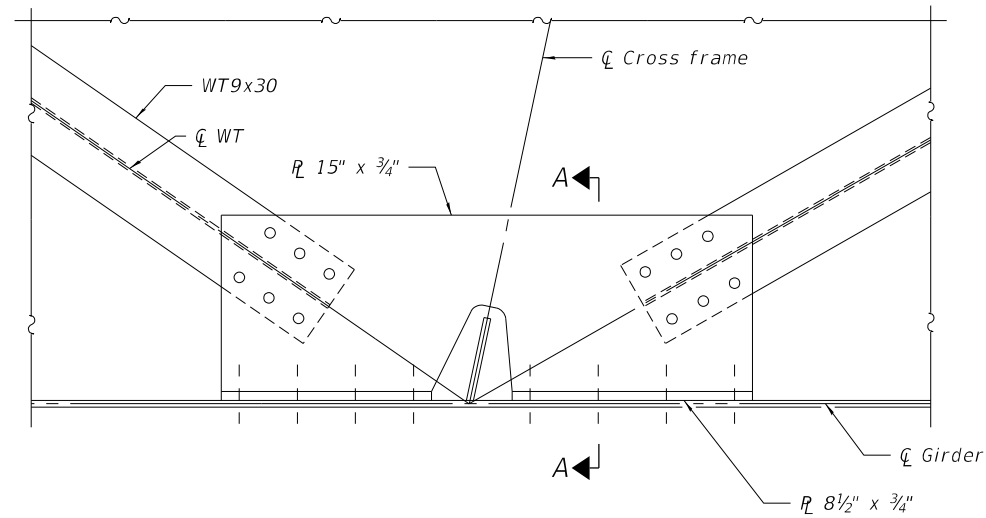
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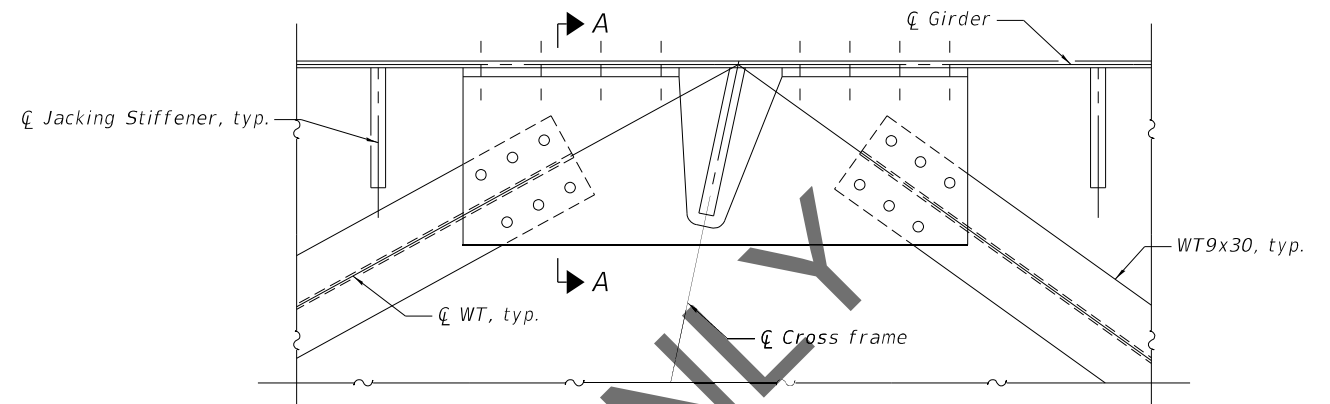
STEEL DETAILS UNIT 2 - 3
 STRUCTURE NO. 060-0351 (WB)

SHEET 117 OF 288 SHEETS

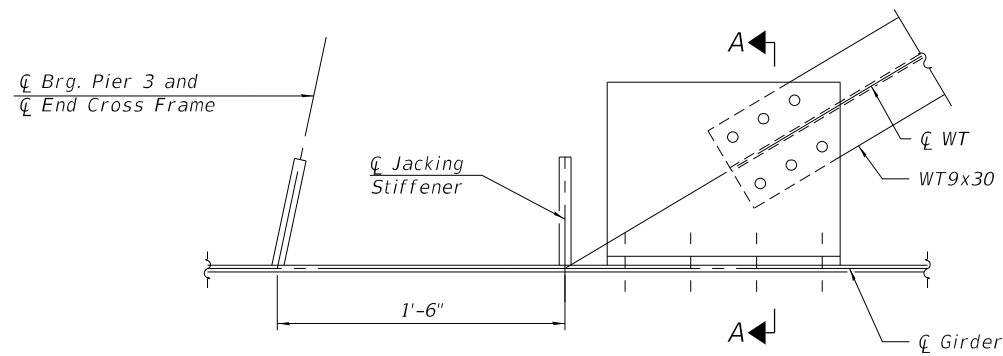
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	609
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



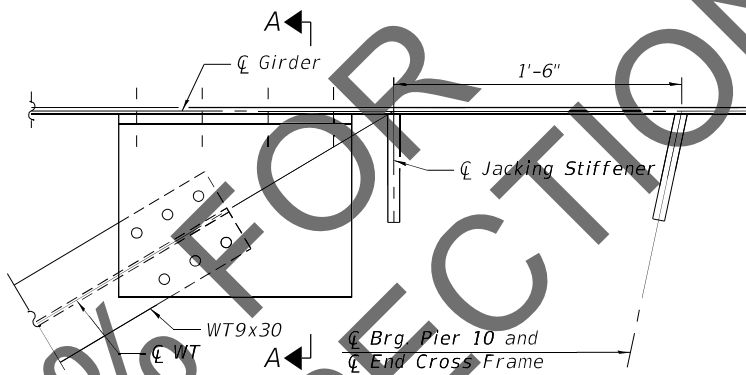
DETAIL 1
(Lateral bracing connection at cross frame)
(See connection detail)



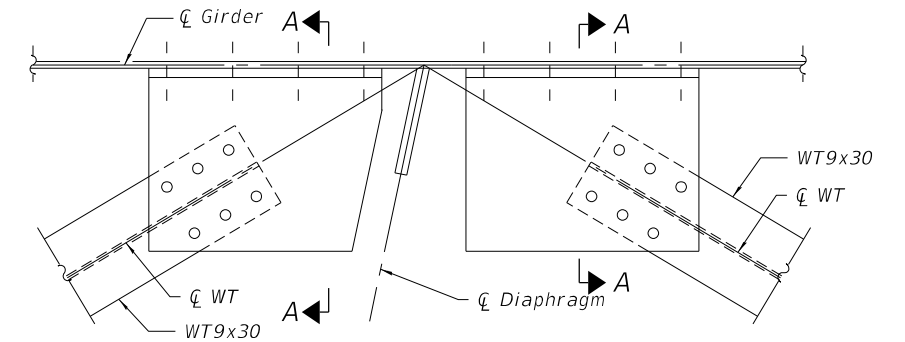
DETAIL 2
(Lateral bracing connection at pier cross frame)
(See connection detail)



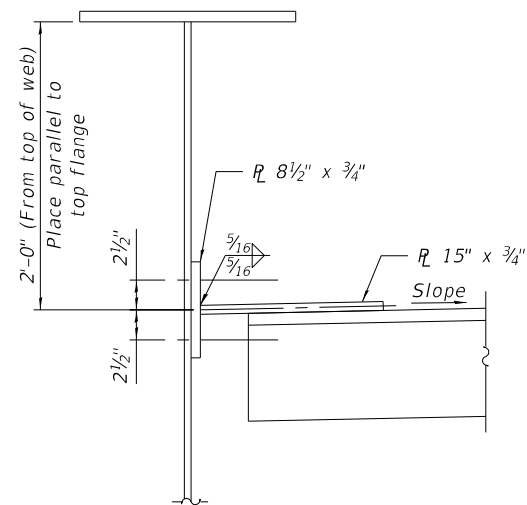
DETAIL 3
(Lateral bracing connection at Pier 3)
(See connection detail)



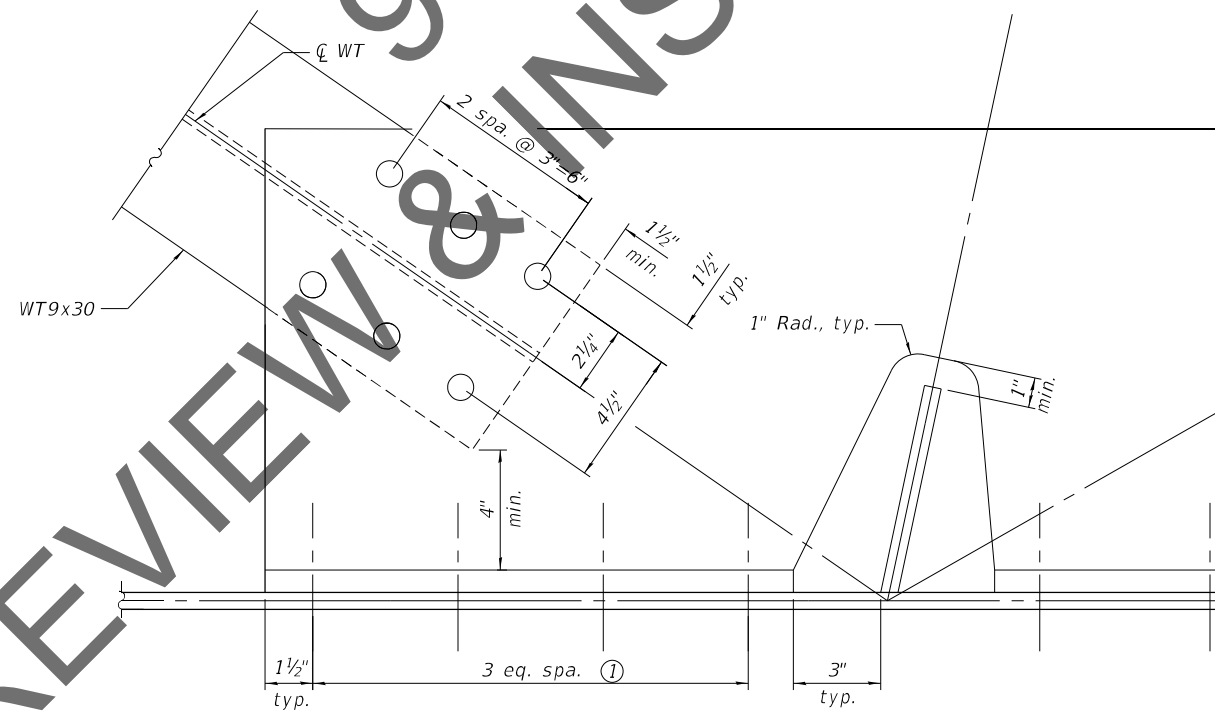
DETAIL 4
(Lateral bracing connection at Pier 10)
(See connection detail)



DETAIL 5
(Lateral bracing connection at Diaphragm)
(See connection detail)



SECTION A-A
(Cross frame and stiffener not shown)



CONNECTION DETAIL

Notes:
All bolts are 7/8" Ø in 1 1/16" Ø holes.
Provide 1 1/2" min. from center of bolt to edge of connected element in any direction
Two hardened washers required for each set of oversized holes.

① Provide additional bolts as required to limit maximum spacing to 6".

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HORNER SHIFRIN
Teaming with **PARSONS**

USER NAME =	DESIGNED - JJD	REVISED -
PLOT SCALE =	CHECKED - UVK	REVISED -
PLOT DATE =	DRAWN - EAT	REVISED -
	CHECKED - SSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 2 - 4
STRUCTURE NO. 060-0351 (WB)

SHEET 118 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	610
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

GIRDER 1 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
Is	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
Ic(n)	(in ⁴)	228,734	466,920	177,038	476,267	187,620	476,267	177,038	476,267	177,038	476,267	187,620	476,267	238,245
Ic(3n)	(in ⁴)	165,114	381,474	131,590	378,136	138,625	378,136	131,590	378,136	131,590	378,136	138,625	378,136	172,693
Ic(cr)	(in ⁴)	120,183	338,649	94,135	324,083	98,800	324,083	94,135	324,083	94,135	324,083	98,800	324,083	123,188
Ss	(in ³)	2,171	7,298	1,848	6,856	1,884	6,856	1,848	6,856	1,848	6,856	1,884	6,856	2,171
Sc(n)	(in ³)	3,613	---	2,569	---	2,749	---	2,569	---	2,569	---	2,749	---	3,650
Sc(3n)	(in ³)	3,294	---	2,333	---	2,501	---	2,333	---	2,333	---	2,501	---	3,340
Sc(cr)	(in ³)	---	7,931	---	7,422	---	7,700	---	7,422	---	7,422	---	7,422	---
DC1	(k/')	1.105	1.520	1.170	1.455	1.178	1.467	1.170	1.467	1.170	1.463	1.178	1.464	1.226
MDC1	(k)	3,996	8,678	1,563	7,794	2,589	9,303	2,291	8,851	2,355	8,845	2,310	9,346	3,564
DC2	(k/')	0.151	0.172	0.162	0.226	0.180	0.233	0.177	0.232	0.177	0.232	0.180	0.227	0.192
MDC2	(k)	405	1,034	231	1,096	298	1,221	279	1,205	278	1,223	294	1,207	432
DW	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	(k)	1,101	2,087	548	1,994	775	2,355	722	2,302	720	2,352	753	2,367	1,013
LLDF		0.680	0.608	0.712	0.825	0.589	0.777	0.574	0.758	0.582	0.825	0.731	0.829	0.859
M _l + IM	(k)	4,425	5,187	3,838	7,018	3,416	6,846	3,259	6,670	3,279	7,086	4,034	6,551	5,081
Mu (Strength I)	(k)	14,895	24,347	9,781	26,385	10,750	28,667	9,999	27,695	10,110	28,511	11,443	28,207	15,404
Øf Mn	(k)	17,203	31,394	12,777	29,379	13,083	30,479	12,273	29,379	12,233	29,379	13,262	29,379	17,576
fs DC1	(ksi)	22.09	14.27	10.15	13.64	16.49	16.28	14.88	15.49	15.29	15.48	14.71	16.36	19.70
fs DC2	(ksi)	1.47	1.56	1.19	1.77	1.43	1.90	1.44	1.95	1.43	1.98	1.41	1.95	1.55
fs DW	(ksi)	4.01	3.16	2.82	3.22	3.72	3.67	3.71	3.72	3.70	3.80	3.61	3.83	3.64
fs (l+IM)	(ksi)	14.70	7.85	17.93	11.35	14.91	10.67	15.22	10.78	15.32	11.46	17.61	10.59	16.70
fs (Service II)	(ksi)	46.68	29.19	37.46	33.39	41.03	35.72	39.82	35.18	40.34	36.15	42.62	35.91	46.60
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	61.19	38.26	49.77	43.96	54.08	46.91	52.60	46.25	53.26	47.57	56.38	47.16	61.25
Øf Fn	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
Vf	(k)	67.0	97.1	82.6	127.8	81.2	123.2	80.7	126.2	80.7	125.0	83.8	113.2	83.0

GIRDER 2 MOMENT TABLE				
	0.4 Sp. 4	Pier 4	0.3 Sp. 5	
Is	(in ⁴)	99,934	322,555	188,468
Ic(n)	(in ⁴)	234,147	463,980	302,254
Ic(3n)	(in ⁴)	169,356	380,012	236,598
Ic(cr)	(in ⁴)	121,844	338,214	201,861
Ss	(in ³)	2,171	7,298	4,321
Sc(n)	(in ³)	3,635	---	5,467
Sc(3n)	(in ³)	3,320	---	5,115
Sc(cr)	(in ³)	---	7,863	4,833
DC1	(k/')	1.176	1.285	0.832
MDC1	(k)	4,052	9,070	106
DC2	(k/')	0.153	0.147	0.106
MDC2	(k)	412	882	19
DW	(k/')	0.462	0.437	0.420
MDW	(k)	1,138	2,185	116
LLDF		0.591	0.533	0.261
M _l + IM	(k)	3,842	4,543	1,407
Mu (Strength I)	(k)	14,010	23,667	2,792
Øf Mn	(k)	17,237	31,124	23,857
fs DC1	(ksi)	22.40	14.91	0.29
fs DC2	(ksi)	1.49	1.35	0.04
fs DW	(ksi)	4.11	3.33	0.27
fs (l+IM)	(ksi)	12.68	6.93	3.09
fs (Service II)	(ksi)	44.49	28.61	4.62
0.95Rh Fyf	(ksi)	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	58.22	37.46	6.23
Øf Fn	(ksi)	50.00	50.00	50.00
Vf	(k)	53.0	62.3	53.4

GIRDER 1 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF	0.805	0.768	0.973	0.941	0.943	1.004	1.022	0.962
OCF	1.04	---	---	---	---	---	---	1.04
RDC1	(k)	97.2	341.6	350.0	376.0	369.6	367.8	387.5
RDC2	(k)	21.7	62.3	71.3	72.6	72.6	72.5	74.6
RDW	(k)	31.6	75.3	96.6	99.6	99.4	98.3	105.0
R _{IM}	(k)	18.0	31.6	39.9	38.6	38.7	41.2	41.9
R _l	(k)	103.9	221.7	280.8	276.4	276.0	290.5	287.8
RTotal	(k)	272.4	732.5	838.6	863.2	856.3	870.3	896.8

GIRDER 2 REACTION TABLE		
	Pier 3	Pier 4
LLDF	0.667	0.623
OCF	---	---
RDC1	(k)	101.6
RDC2	(k)	8.4
RDW	(k)	30.9
R _{IM}	(k)	14.9
R _l	(k)	86.1
RTotal	(k)	241.9

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

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

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

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

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

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

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

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

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

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

LLDF: Live Load Distribution Factor

M_l + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).

1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_l + IM

Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

MDC1/ Snc

fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

MDC2/ Sc(3n) or MDC2/ Sc(cr) as applicable.

fs DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

MDW/ Sc(3n) or MDW/ Sc(cr) as applicable.

fs (l+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

M_l + IM / Sc(n) or M_l + IM / Sc(cr) as applicable.

fs (Service II): Sum of stresses as computed below (ksi).

fsDC1 + fsDC2 + fsDW + 1.3 fs(l + IM)

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

fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(l + IM)

Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.

OCF: Obtuse Correction Factor

MODEL: Default
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HORNER SHIFRIN
PARSONS

USER NAME =	DESIGNED - UVK	REVISED -
PLOT SCALE =	CHECKED - MJW	REVISED -
PLOT DATE =	DRAWN - EAT	REVISED -
	CHECKED - MAB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 2-1
STRUCTURE NO. 060-0351 (WB)

SHEET 119 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	611
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

GIRDER 3 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
Is	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
Ic(n)	(in ⁴)	242,979	496,772	184,875	498,750	196,140	498,750	184,875	498,750	184,875	498,750	196,140	498,750	250,190
Ic(3n)	(in ⁴)	176,691	397,110	139,096	391,359	146,667	391,359	139,096	391,359	139,096	391,359	146,667	391,359	183,093
Ic(cr)	(in ⁴)	124,843	343,427	97,588	328,386	102,452	328,386	97,588	328,386	97,588	328,386	102,452	328,386	127,603
Ss	(in ³)	2,171	7,298	1,848	6,856	1,884	6,856	1,848	6,856	1,848	6,856	1,884	6,856	2,171
Sc(n)	(in ³)	3,668	---	2,601	---	2,784	---	2,601	---	2,601	---	2,784	---	3,694
Sc(3n)	(in ³)	3,364	---	2,379	---	2,549	---	2,379	---	2,379	---	2,549	---	3,400
Sc(cr)	(in ³)	---	7,896	---	7,449	---	7,449	---	7,449	---	7,449	---	7,449	---
DC1	(k/')	1.294	1.502	1.353	1.638	1.361	1.650	1.353	1.650	1.353	1.646	1.361	1.648	1.409
MDC1	(k)	4,106	9,350	1,655	8,025	2,568	9,363	2,294	8,972	2,354	8,953	2,310	9,443	3,575
DC2	(k/')	0.156	0.138	0.185	0.177	0.202	0.184	0.200	0.183	0.201	0.184	0.202	0.184	0.193
MDC2	(k)	419	827	263	858	334	964	316	952	315	967	329	976	433
DW	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	(k)	1,200	2,367	601	2,172	807	2,491	756	2,446	753	2,492	789	2,507	1,075
LLDF		0.503	0.489	0.599	0.655	0.486	0.626	0.467	0.605	0.483	0.607	0.673	0.711	
M _t + IM	(k)	3,269	4,168	3,230	5,572	2,821	5,512	2,649	5,322	2,722	5,765	3,350	5,312	4,203
Mu (Strength I)	(k)	13,177	23,564	8,951	24,112	9,774	26,292	9,033	25,386	9,230	26,227	10,346	26,081	13,978
Øf Mn	(k)	17,307	31,255	12,845	29,486	13,215	29,486	12,385	29,486	12,346	29,486	13,386	29,486	17,720
fs DC1	(ksi)	22.70	15.37	10.75	14.05	16.36	16.39	14.90	15.70	15.29	15.67	14.72	16.53	19.76
fs DC2	(ksi)	1.49	1.26	1.32	1.38	1.57	1.55	1.59	1.53	1.59	1.56	1.55	1.57	1.53
fs DW	(ksi)	4.28	3.60	3.03	3.50	3.80	4.01	3.82	3.94	3.80	4.01	3.72	4.04	3.79
fs (½+IM)	(ksi)	10.69	6.33	14.90	8.98	12.16	8.88	12.22	8.57	12.56	9.29	14.44	8.56	13.65
fs (Service II)	(ksi)	42.37	28.46	34.48	30.60	37.53	33.50	36.19	32.32	37.00	33.32	38.75	33.26	42.83
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	55.37	37.27	45.72	40.24	49.39	43.99	47.72	42.46	48.77	43.81	51.17	43.66	56.20
Øf Fn	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.65	50.00
Vf	(k)	49.5	53.7	55.5	78.8	53.7	72.3	54.1	70.5	70.7	75.3	56.9	69.3	55.1

GIRDER 4 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
Is	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
Ic(n)	(in ⁴)	250,193	522,726	184,877	498,756	196,142	498,756	184,877	498,756	184,877	498,756	196,142	498,756	250,193
Ic(3n)	(in ⁴)	183,096	411,987	139,098	391,362	146,669	391,362	139,098	391,362	139,098	391,362	146,669	391,362	183,096
Ic(cr)	(in ⁴)	127,604	348,199	97,589	328,387	102,453	328,387	97,589	328,387	97,589	328,387	102,453	328,387	127,604
Ss	(in ³)	2,171	7,298	1,848	6,856	1,988	6,856	1,848	6,856	1,848	6,856	1,884	6,856	2,171
Sc(n)	(in ³)	3,694	---	2,601	---	2,784	---	2,601	---	2,601	---	2,784	---	3,694
Sc(3n)	(in ³)	3,400	---	2,379	---	2,549	---	2,379	---	2,379	---	2,549	---	3,400
Sc(cr)	(in ³)	---	7,924	---	7,449	---	7,449	---	7,449	---	7,449	---	7,449	---
DC1	(k/')	1.409	1.703	1.353	1.638	1.361	1.650	1.353	1.650	1.353	1.646	1.361	1.648	1.409
MDC1	(k)	4,201	9,932	1,749	8,202	2,550	9,373	2,301	9,038	2,356	9,010	2,314	9,478	3,587
DC2	(k/')	0.161	0.135	0.180	0.155	0.192	0.160	0.191	0.159	0.191	0.160	0.191	0.160	0.186
MDC2	(k)	434	813	256	752	317	838	301	829	300	842	313	851	418
DW	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	(k)	1,269	2,617	629	2,250	804	2,522	758	2,485	755	2,529	791	2,539	1,078
LLDF		0.472	0.466	0.484	0.504	0.384	0.503	0.362	0.478	0.375	0.547	0.495	0.529	0.560
M _t + IM	(k)	3,070	3,971	2,606	4,284	2,228	4,432	2,058	4,203	2,110	4,703	2,730	4,177	3,313
Mu (Strength I)	(k)	13,069	24,307	8,010	22,066	8,688	24,302	7,991	23,416	8,145	24,340	9,246	24,028	12,422
Øf Mn	(k)	17,328	31,366	12,778	29,486	13,230	29,486	12,382	29,486	12,346	29,486	13,386	29,486	17,714
fs DC1	(ksi)	23.22	16.33	11.36	14.36	15.39	16.41	14.94	15.82	15.30	15.77	14.74	16.59	19.83
fs DC2	(ksi)	1.53	1.23	1.29	1.21	1.49	1.35	1.52	1.33	1.51	1.36	1.47	1.37	1.48
fs DW	(ksi)	4.48	3.96	3.17	3.62	3.78	4.06	3.83	4.00	3.81	4.07	3.72	4.09	3.81
fs (½+IM)	(ksi)	9.97	6.01	12.02	6.90	9.60	7.14	9.49	6.77	9.74	7.58	11.77	6.73	10.76
fs (Service II)	(ksi)	42.19	29.34	31.45	28.17	33.15	31.10	32.63	29.96	33.28	31.05	35.23	30.80	39.10
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	55.11	38.42	41.61	36.98	43.58	40.78	42.93	39.30	43.76	40.78	46.44	40.36	51.17
Øf Fn	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
Vf	(k)	50.1	57.8	54.1	64.9	50.9	68.8	50.9	63.9	52.0	63.0	51.1	64.8	52.7

GIRDER 3 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF	0.640	0.589	0.641	0.755	0.757	0.780	0.779	0.854
OCF	---	---	---	---	---	---	---	---
RDC1 (k)	102.7	364.1	354.1	376.5	371.2	369.1	388.8	99.0
RDC2 (k)	7.3	27.2	34.2	36.0	35.6	35.7	37.8	8.8
RDW (k)	31.0	104.2	109.0	114.4	113.3	113.4	117.3	32.4
R _{IM} (k)	14.3	24.3	26.3	31.0	31.1	32.0	31.9	19.0
R _t (k)	82.6	170.0	185.0	221.7	221.7	225.7	219.2	107.1
RTotal (k)	237.9	689.8	708.6	779.6	772.9	775.9	795.0	266.3

GIRDER 4 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF	0.616	0.578	0.642	0.627	0.627	0.647	0.645	0.721
OCF	---	---	---	---	---	---	---	---
RDC1 (k)	105.9	390.7	358.1	378.0	373.2	371.2	390.5	98.9
RDC2 (k)	6.9	23.1	24.8	26.3	26.0	26.1	27.7	8.4
RDW (k)	31.5	116.4	112.9	117.7	116.7	116.9	120.4	32.5
R _{IM} (k)	13.8	23.8	26.4	25.7	25.7	26.5	26.4	16.1
R _t (k)	79.4	166.8	185.4	184.1	183.6	187.2	181.6	90.3
RTotal (k)	237.5	720.8	707.6	731.8	725.2	727.9	746.6	246.2

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

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

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

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

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

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

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

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

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

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

LLDF: Live Load Distribution Factor

M_t + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).

1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_t + IM

Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

MDC1/ Snc

fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

MDC2/ Sc(3n) or MDC2/ Sc(cr) as applicable.

fs DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

MDW/ Sc(3n) or MDW/ Sc(cr) as applicable.

fs (½+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

M_t + IM / Sc(n) or M_t + IM / Sc(cr) as applicable.

fs (Service II): Sum of stresses as computed below (ksi).

fsDC1 + fsDC2 + fsDW + 1.3 fs(½ + IM)

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

fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(½ + IM)

Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.

OCF: Obtuse Correction Factor

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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 2-2
 STRUCTURE NO. 060-0351 (WB)

SHEET 120 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	612
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

GIRDER 5 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
Is	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
Ic(n)	(in ⁴)	250,190	522,720	184,875	498,750	196,140	498,750	184,875	498,750	184,875	498,750	196,140	498,750	250,190
Ic(3n)	(in ⁴)	183,093	411,984	139,096	391,359	146,667	391,359	139,096	391,359	139,096	391,359	146,667	391,359	183,093
Ic(cr)	(in ⁴)	127,603	348,198	97,588	328,386	102,452	328,386	97,588	328,386	97,588	328,386	102,452	328,386	127,603
Ss	(in ³)	2,171	7,298	1,848	6,856	1,884	6,856	1,848	6,856	1,884	6,856	1,884	6,856	2,171
Sc(n)	(in ³)	3,694	---	2,601	---	2,784	---	2,601	---	2,784	---	2,784	---	3,694
Sc(3n)	(in ³)	3,400	---	2,379	---	2,549	---	2,379	---	2,379	---	2,549	---	3,400
Sc(cr)	(in ³)	---	7,924	---	7,449	---	7,449	---	7,449	---	7,449	---	7,449	---
DC1	(k/')	1.409	1.703	1.353	1.638	1.361	1.650	1.353	1.650	1.353	1.646	1.361	1.648	1.409
MDC1	(k)	4,285	10,404	1,846	8,317	2,528	9,316	2,304	9,039	2,356	9,002	2,316	9,477	3,588
DC2	(k/')	0.166	0.147	0.188	0.158	0.190	0.158	0.191	0.158	0.191	0.158	0.190	0.160	0.186
MDC2	(k)	447	883	268	764	315	829	301	823	300	835	311	849	419
DW	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	(k)	1,293	2,737	659	2,287	799	2,512	760	2,484	755	2,524	791	2,538	1,079
LLDF		0.494	0.478	0.463	0.476	0.357	0.475	0.339	0.449	0.354	0.465	0.496	0.522	
M _t + IM	(k)	3,214	4,078	2,497	4,048	2,074	4,185	1,927	3,954	1,991	4,457	2,567	3,916	3,091
Mu (Strength I)	(k)	13,479	25,349	7,999	21,865	8,381	23,774	7,768	22,972	7,936	23,883	8,961	23,568	12,036
Øf Mn	(k)	17,274	31,366	12,707	29,486	13,245	29,486	12,380	29,486	12,347	29,486	13,385	29,486	17,713
fs DC1	(ksi)	23.69	17.11	11.99	14.56	16.10	16.31	14.96	15.82	15.30	15.76	14.75	16.59	19.83
fs DC2	(ksi)	1.58	1.34	1.35	1.23	1.48	1.34	1.52	1.33	1.51	1.34	1.46	1.37	1.48
fs DW	(ksi)	4.56	4.14	3.32	3.68	3.76	4.05	3.83	4.00	3.81	4.07	3.72	4.09	3.81
fs (½+IM)	(ksi)	10.44	6.18	11.52	6.52	8.94	6.74	8.89	6.37	9.19	7.18	11.06	6.31	10.04
fs (Service II)	(ksi)	43.40	30.62	31.63	27.95	32.97	30.45	31.87	29.43	32.56	30.50	34.32	30.25	38.17
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	56.70	40.08	41.81	36.67	43.27	39.92	41.90	38.58	42.80	40.04	45.21	39.62	49.92
Øf Fn	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
Vf	(k)	45.0	62.7	52.2	68.1	55.3	63.0	60.9	67.0	50.9	65.8	53.4	58.6	51.8

GIRDER 6 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
Is	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
Ic(n)	(in ⁴)	250,190	522,720	184,875	498,750	196,140	498,750	184,875	498,750	184,875	498,750	196,140	498,750	250,190
Ic(3n)	(in ⁴)	183,093	411,984	139,096	391,359	146,667	391,359	139,096	391,359	139,096	391,359	146,667	391,359	183,093
Ic(cr)	(in ⁴)	127,603	348,198	97,588	328,386	102,452	328,386	97,588	328,386	97,588	328,386	102,452	328,386	127,603
Ss	(in ³)	2,171	7,298	1,848	6,856	1,884	6,856	1,848	6,856	1,884	6,856	1,884	6,856	2,171
Sc(n)	(in ³)	3,694	---	2,601	---	2,784	---	2,601	---	2,784	---	2,784	---	3,694
Sc(3n)	(in ³)	3,400	---	2,379	---	2,549	---	2,379	---	2,379	---	2,549	---	3,400
Sc(cr)	(in ³)	---	7,924	---	7,449	---	7,449	---	7,449	---	7,449	---	7,449	---
DC1	(k/')	1.409	1.703	1.353	1.638	1.361	1.650	1.353	1.650	1.353	1.646	1.361	1.648	1.409
MDC1	(k)	4,363	10,774	1,952	8,384	2,504	9,215	2,304	8,994	2,352	8,948	2,314	9,434	3,582
DC2	(k/')	0.176	0.177	0.208	0.187	0.197	0.182	0.199	0.183	0.199	0.182	0.198	0.183	0.192
MDC2	(k)	474	1,064	296	907	326	953	314	950	313	959	323	973	431
DW	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	(k)	1,315	2,813	689	2,294	794	2,476	760	2,455	755	2,492	791	2,505	1,078
LLDF		0.610	0.590	0.543	0.589	0.424	0.555	0.404	0.533	0.422	0.597	0.537	0.584	0.625
M _t + IM	(k)	3,964	5,032	2,926	5,010	2,461	4,889	2,295	4,690	2,374	5,126	2,962	4,616	3,698
Mu (Strength I)	(k)	14,954	27,823	8,963	23,822	9,036	24,979	8,431	24,320	8,617	25,092	9,665	24,844	13,104
Øf Mn	(k)	17,222	31,366	12,627	29,486	13,260	29,486	12,377	29,486	12,347	29,486	13,385	29,486	17,716
fs DC1	(ksi)	24.11	17.71	12.68	14.67	15.95	16.13	14.96	15.74	15.28	15.66	14.74	16.51	19.80
fs DC2	(ksi)	1.67	1.61	1.49	1.46	1.54	1.54	1.59	1.53	1.58	1.55	1.52	1.57	1.52
fs DW	(ksi)	4.64	4.26	3.47	3.70	3.74	3.99	3.84	3.96	3.81	4.01	3.72	4.04	3.80
fs (½+IM)	(ksi)	12.88	7.62	13.50	8.07	10.61	7.88	10.59	7.56	10.95	8.26	12.77	7.44	12.01
fs (Service II)	(ksi)	47.16	33.49	35.19	30.32	35.02	31.89	34.15	31.05	34.90	31.96	36.58	31.78	40.74
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	61.72	43.88	46.54	39.84	46.03	41.85	44.97	40.75	45.94	41.98	48.25	41.66	53.38
Øf Fn	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
Vf	(k)	55.3	69.3	70.4	78.6	54.8	74.0	53.4	73.3	66.0	77.7	56.5	68.8	57.1

GIRDER 5 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF	0.709	0.639	0.642	0.628	0.630	0.639	0.646	0.691
OCF	---	---	---	---	---	---	---	---
RDC1	(k)	107.5	407.2	360.4	377.4	373.4	371.3	390.2
RDC2	(k)	8.2	26.8	25.1	26.3	26.1	26.0	27.6
RDW	(k)	31.1	122.5	113.7	117.6	116.8	117.0	120.4
R _{IM}	(k)	15.9	26.3	26.4	25.8	25.9	26.2	26.4
R _½	(k)	91.4	184.3	185.4	184.5	184.3	184.7	181.8
RTotal	(k)	254.1	767.1	711.0	731.6	726.5	725.2	746.4

GIRDER 6 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF	0.761	0.711	0.709	0.687	0.688	0.709	0.714	0.732
OCF	---	---	---	---	---	---	---	---
RDC1	(k)	108.8	418.1	360.3	374.7	371.3	369.2	388.3
RDC2	(k)	10.1	39.3	35.0	35.9	35.7	35.6	37.4
RDW	(k)	30.6	124.0	110.9	114.1	113.4	113.5	116.8
R _{IM}	(k)	17.0	29.3	29.1	28.2	28.3	29.1	29.2
R _½	(k)	98.2	205.0	204.6	201.6	201.5	205.2	200.9
RTotal	(k)	264.7	815.7	739.9	754.5	750.2	752.6	772.6

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

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

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

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

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

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

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

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

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

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

LLDF: Live Load Distribution Factor

M_t + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).

1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_t + IM

Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

MDC1/ Snc

fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

MDC2/ Sc(3n) or MDC2/ Sc(cr) as applicable.

fs DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

MDW/ Sc(3n) or MDW/ Sc(cr) as applicable.

fs (½+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

M_t + IM / Sc(n) or M_t + IM / Sc(cr) as applicable.

fs (Service II): Sum of stresses as computed below (ksi).

fsDC1 + fsDC2 + fsDW + 1.3 fs(½ + IM)

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

fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(½ + IM)

Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.

OCF: Obtuse Correction Factor

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 2-3
STRUCTURE NO. 060-0351 (WB)

SHEET 121 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	613
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

GIRDER 7 MOMENT TABLE														
	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.5 Sp. 8	Pier 8	0.5 Sp. 9	Pier 9	0.6 Sp. 10	
<i>I_s</i>	(in ⁴)	99,934	322,555	75,532	302,836	79,195	302,836	75,532	302,836	75,532	302,836	79,195	302,836	99,934
<i>I_c(n)</i>	(in ⁴)	238,249	499,337	177,040	476,274	187,623	476,274	177,040	476,274	177,040	476,274	187,623	476,274	238,249
<i>I_c(3n)</i>	(in ⁴)	172,696	398,524	131,592	378,139	138,627	378,139	131,592	378,139	131,592	378,139	138,627	378,139	172,696
<i>I_c(cr)</i>	(in ⁴)	123,189	343,871	94,136	324,084	98,801	324,084	94,136	324,084	94,136	324,084	98,801	324,084	123,189
<i>S_s</i>	(in ³)	2,171	7,298	1,848	6,856	1,884	6,856	1,848	6,856	1,848	6,856	1,884	6,856	2,171
<i>S_c(n)</i>	(in ³)	3,651	---	2,569	---	2,749	---	2,569	---	2,569	---	2,749	---	3,651
<i>S_c(3n)</i>	(in ³)	3,340	---	2,333	---	2,501	---	2,333	---	2,333	---	2,501	---	3,340
<i>S_c(cr)</i>	(in ³)	---	7,898	---	7,422	---	7,422	---	7,422	---	7,422	---	7,422	---
<i>DC1</i>	(k/')	1.226	1.520	1.170	1.455	1.178	1.467	1.170	1.467	1.170	1.463	1.178	1.464	1.226
<i>MDC1</i>	(k)	4,437	11,024	2,065	8,390	2,482	9,049	2,308	8,886	2,352	8,829	2,315	9,324	3,572
<i>DC2</i>	(k/')	0.176	0.224	0.204	0.237	0.178	0.224	0.181	0.225	0.180	0.224	0.179	0.226	0.191
<i>MDC2</i>	(k)	474	1,343	290	1,147	295	1,173	285	1,172	283	1,180	292	1,203	430
<i>DW</i>	(k/')	0.462	0.437	0.420	0.420	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
<i>MDW</i>	(k)	1,262	2,758	685	2,189	753	2,329	726	2,314	720	2,344	754	2,364	1,015
<i>LLDF</i>		0.686	0.677	0.605	0.682	0.478	0.628	0.459	0.607	0.472	0.668	0.601	0.666	0.703
<i>M_l + IM</i>	(k)	4,460	5,776	3,262	5,799	2,774	5,536	2,609	5,341	2,656	5,743	3,317	5,257	4,156
<i>Mu (Strength I)</i>	(k)	15,836	29,704	9,679	25,352	9,454	25,959	8,895	25,389	9,021	26,078	10,194	25,904	13,797
<i>Øf Mn</i>	(k)	17,047	31,263	12,422	29,379	13,155	29,379	12,261	29,379	12,235	29,379	13,259	29,379	17,572
<i>fs DC1</i>	(ksi)	24.53	18.13	13.41	14.69	15.81	15.84	14.99	15.55	15.27	15.45	14.74	16.32	19.74
<i>fs DC2</i>	(ksi)	1.70	2.04	1.49	1.85	1.41	1.90	1.46	1.89	1.45	1.91	1.40	1.94	1.54
<i>fs DW</i>	(ksi)	4.53	4.19	3.52	3.54	3.61	3.77	3.74	3.74	3.70	3.79	3.62	3.82	3.65
<i>fs (l+IM)</i>	(ksi)	14.66	8.78	15.24	9.38	12.11	8.95	12.18	8.64	12.41	9.29	14.48	8.50	13.66
<i>fs (Service II)</i>	(ksi)	49.82	35.77	38.23	32.27	36.58	33.14	36.02	32.41	36.56	33.22	38.58	33.14	42.69
<i>0.95Rh Fyf</i>	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
<i>fs (Total)(Strength I)</i>	(ksi)	65.24	46.85	50.57	42.39	48.14	43.48	47.49	42.53	48.17	43.64	50.94	43.44	55.98
<i>Øf Fn</i>	(ksi)	50.00	50.00	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
<i>Vf</i>	(k)	58.3	95.6	64.1	103.3	60.6	98.0	60.6	98.2	60.0	101.5	64.4	89.1	64.8

GIRDER 7 REACTION TABLE								
	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
<i>LLDF</i>	0.699	0.768	0.757	0.704	0.705	0.738	0.740	0.840
<i>OCF</i>	1.04	---	---	---	---	---	---	1.04
<i>RDC1</i>	(k)	108.1	426.6	361.1	372.6	370.0	367.6	387.1
<i>RDC2</i>	(k)	21.8	78.2	72.0	73.1	72.5	72.5	72.3
<i>RDW</i>	(k)	29.3	115.3	95.7	101.1	99.3	100.1	101.1
<i>R_{IM}</i>	(k)	15.6	31.6	31.1	28.9	28.9	30.3	30.3
<i>R_l</i>	(k)	90.3	221.6	218.5	206.7	206.3	213.3	208.4
<i>RTotal</i>	(k)	265.1	873.3	778.4	782.4	777.0	783.8	799.2

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

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

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

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

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

MDC1: Un-factored moment due to non-composite dead load (kip-ft.).

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

MDC2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

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

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

LLDF: Live Load Distribution Factor

M_l + IM: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

Mu (Strength I): Factored design moment (kip-ft.).
1.25 (MDC1 + MDC2) + 1.5 MDW + 1.75 M_l + IM

Øf Mn: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

fs DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
MDC1/ S_c

fs DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
MDC2/ S_c(3n) or MDC2/ S_c(cr) as applicable.

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

fs (l+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
M_l + IM / S_c(n) or M_l + IM / S_c(cr) as applicable.

fs (Service II): Sum of stresses as computed below (ksi).
fsDC1 + fsDC2 + fsDW + 1.3 fs(l + IM)

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

fs (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
1.25 (fsDC1 + fsDC2) + 1.5 fsDW + 1.75 fs(l + IM)

Øf Fn: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

Vf: Maximum factored shear range in span computed according to Article 6.10.10.

OCF: Obtuse Correction Factor

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Teaming with **PARSONS**

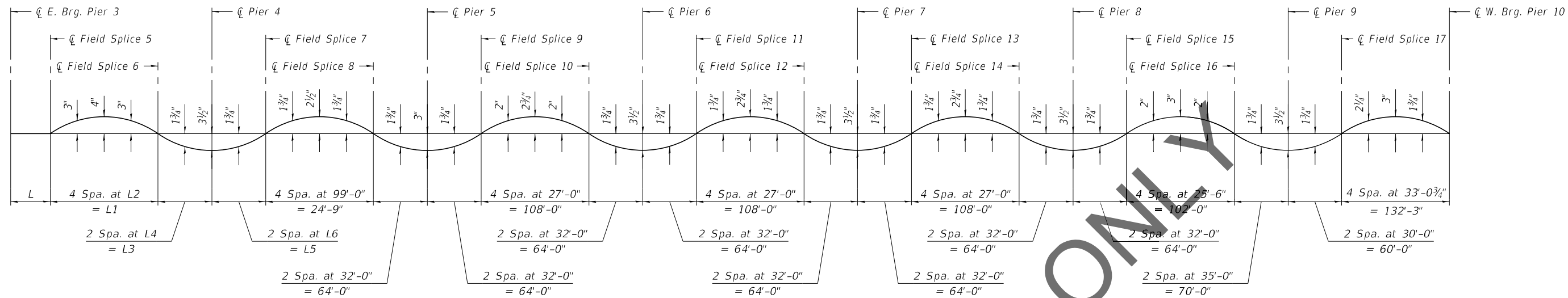
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 2-4
STRUCTURE NO. 060-0351 (WB)

SHEET 122 OF 288 SHEETS

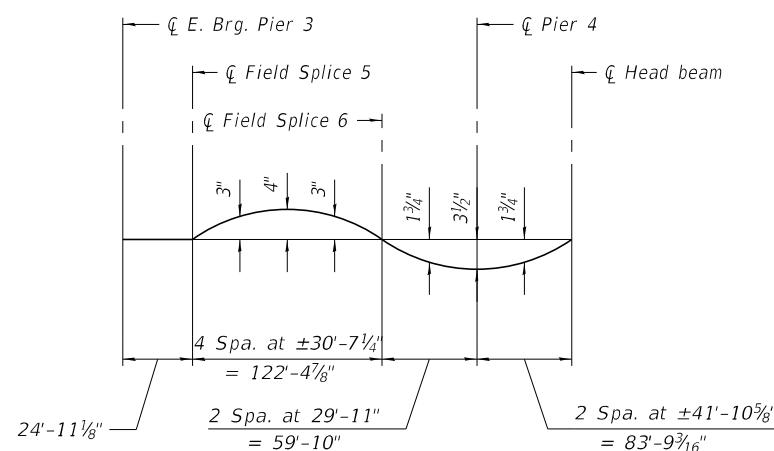
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	614
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



CAMBER DIAGRAM
(Girders 1 and 3 thru 7)

TABLE OF "L" DIMENSIONS

Location	L	L1	L2	L3	L4	L5	L6
Girder 1	24'-10 1/4"	122'-0 5/8"	±30'-6 1/8"	59'-7 7/8"	±29'-9 5/16"	72'-7 1/4"	±36'-3 5/8"
Girder 3	25'-0"	122'-9"	30'-8 1/4"	60'-0"	30'-0"	73'-0"	36'-6"
Girder 4	25'-0"	122'-9"	30'-8 1/4"	60'-0"	30'-0"	73'-0"	36'-6"
Girder 5	25'-0"	122'-9"	30'-8 1/4"	60'-0"	30'-0"	73'-0"	36'-6"
Girder 6	25'-0"	122'-9"	30'-8 1/4"	60'-0"	30'-0"	73'-0"	36'-6"
Girder 7	25'-0"	122'-9"	30'-8 1/4"	60'-0"	30'-0"	73'-0"	36'-6"



CAMBER DIAGRAM
(Girder 2)

*** TOP OF WEB ELEVATIONS

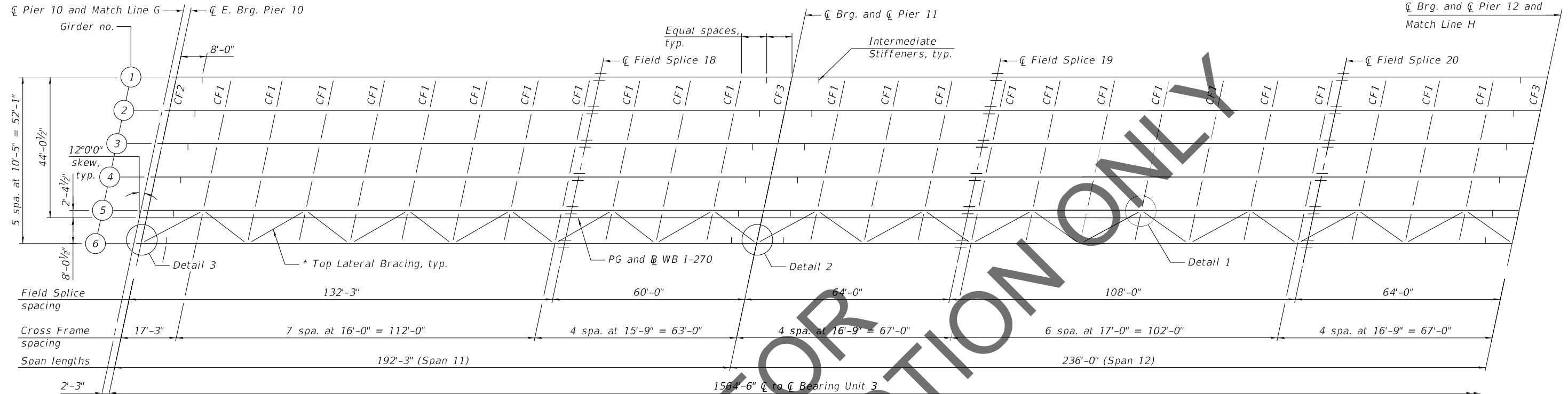
Location	℄ E. Brg. Pier 3	℄ Field Splice 5	℄ Field Splice 6	℄ Pier 4	℄ Field Splice 7	℄ Field Splice 8	℄ Pier 5	℄ Field Splice 9	℄ Field Splice 10	℄ Pier 6	℄ Field Splice 11	℄ Field Splice 12	℄ Pier 7	℄ Field Splice 13	℄ Field Splice 14	℄ Pier 8	℄ Field Splice 15	℄ Field Splice 16	℄ Pier 9	℄ Field Splice 17	℄ W. Brg. Pier 10
Girder 1	453.56	453.85	454.57	451.28	455.04	455.60	452.99	456.38	456.91	453.71	457.51	458.07	454.89	458.71	459.27	456.06	459.85	460.38	457.24	461.04	461.62
Girder 3	453.91	454.20	454.84	451.53	455.26	455.81	453.20	456.58	457.10	453.91	457.72	458.27	455.09	458.92	459.46	456.26	460.06	460.58	457.43	461.24	461.81
Girder 4	454.10	454.40	455.04	451.74	455.49	456.03	453.40	456.77	457.30	454.11	457.92	458.47	455.29	459.11	459.66	456.46	460.25	460.78	457.63	461.44	462.02
Girder 5	454.30	454.60	455.24	451.95	455.70	456.24	453.60	456.97	457.49	454.31	458.12	458.67	455.49	459.31	459.86	456.66	460.45	460.97	457.83	461.63	462.20
Girder 6	454.11	454.42	455.05	451.77	455.54	456.07	453.42	456.77	457.31	454.12	457.93	458.49	455.31	459.12	459.68	456.47	460.26	460.79	457.64	461.45	462.03
Girder 7	453.89	454.20	454.83	451.56	455.33	455.86	453.20	456.54	457.08	453.90	457.71	458.26	455.08	458.90	459.45	456.25	460.04	460.57	457.42	461.22	461.80

Location	℄ E. Brg. Pier 3	℄ Field Splice 5	℄ Field Splice 6	℄ Pier 4	℄ Head beam
Girder 2	453.73	454.01	454.70	451.42	455.21

*** For Fabrication only.

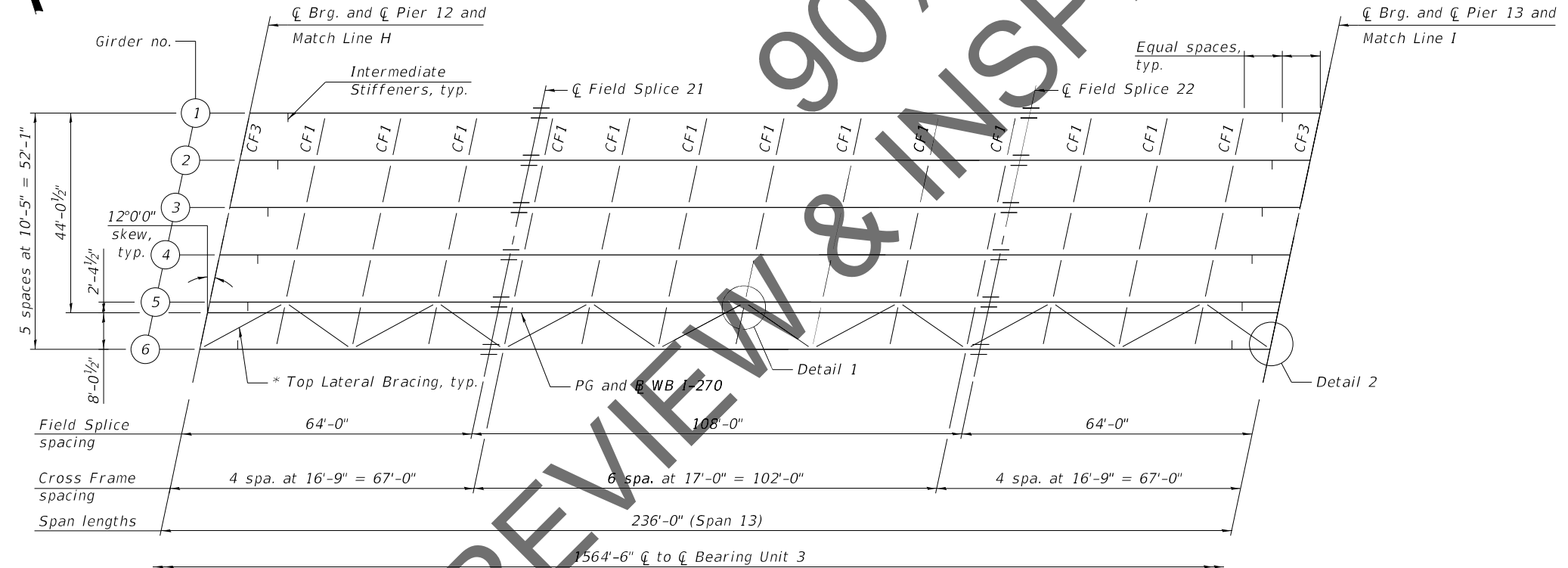
Note:
At ℄ E. Brg. Pier 3 and at ℄ W. Brg. Pier 10, the elevation given at theoretical top of web is prior to coping of web.

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FRAMING PLAN - UNIT 3
(Spans 11 and 12)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 3.



FRAMING PLAN - UNIT 3
(Span 13)

Note:
For field splice details, see sheet 130 of 288.
For cross frame details, see sheet 131 of 288.
For Details 1, 2 and 3, see sheet 132 of 288.

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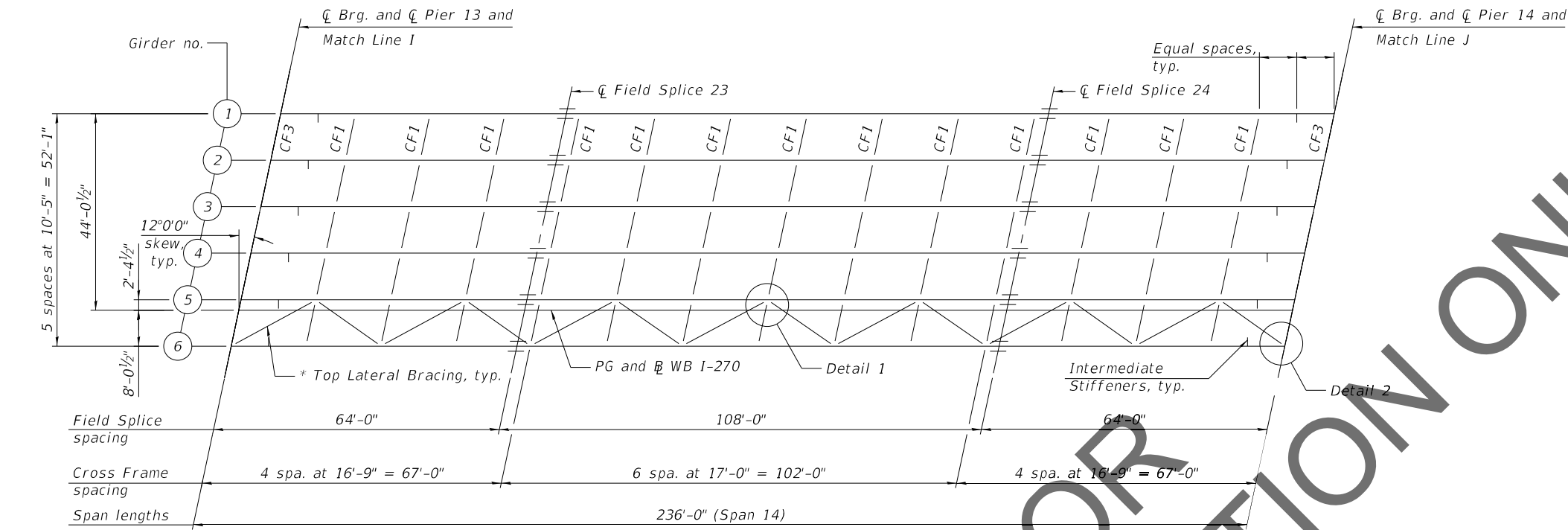
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DEPARTMENT OF TRANSPORTATION

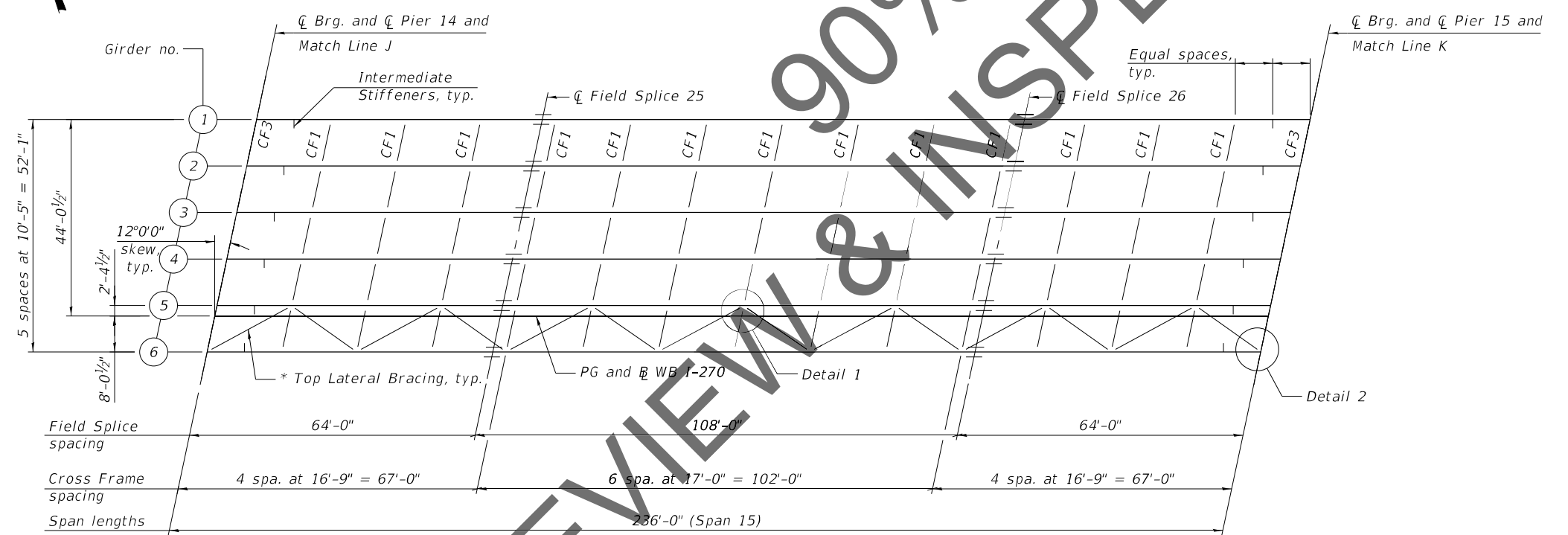
FRAMING PLAN - UNIT 3 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 124 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	616
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



FRAMING PLAN - UNIT 3
(Span 14)



FRAMING PLAN - UNIT 3
(Span 15)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 3.

Note:
For field splice details, see sheet 130 of 288.
For cross frame details, see sheet 131 of 288.
For Details 1 and 2, see sheet 132 of 288.

REVIEW & INSPECTION ONLY

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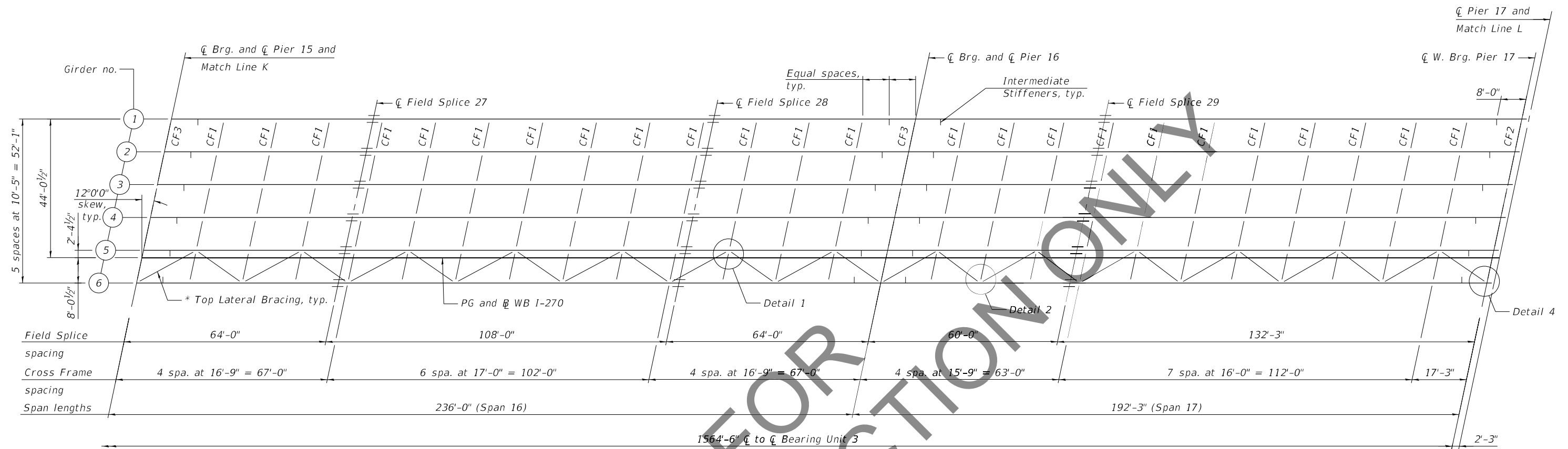
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**FRAMING PLAN - UNIT 3 - 2
STRUCTURE NO. 060-0351 (WB)**

SHEET 125 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	617
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



FRAMING PLAN - UNIT 3
(Spans 16 and 17)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 3.

Note:
For field splice details, see sheet 130 of 288.
For cross frame details, see sheet 131 of 288.
For Details 1, 2 and 4, see sheet 132 of 288.

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HORNER SHIFRIN
PARSONS

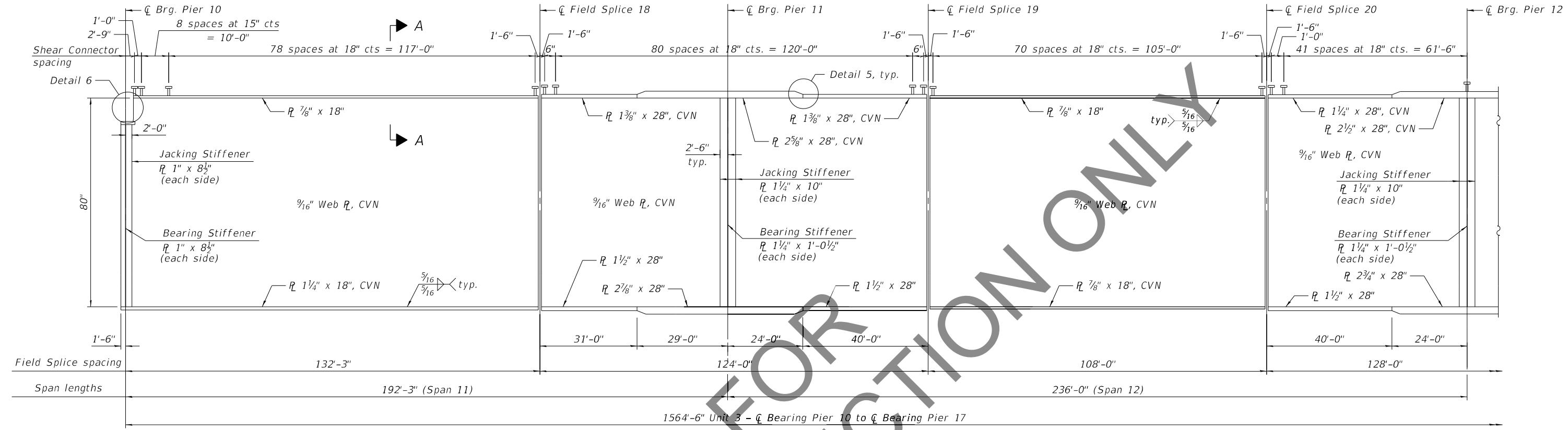
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DEPARTMENT OF TRANSPORTATION

FRAMING PLAN - UNIT 3 - 3
STRUCTURE NO. 060-0351 (WB)

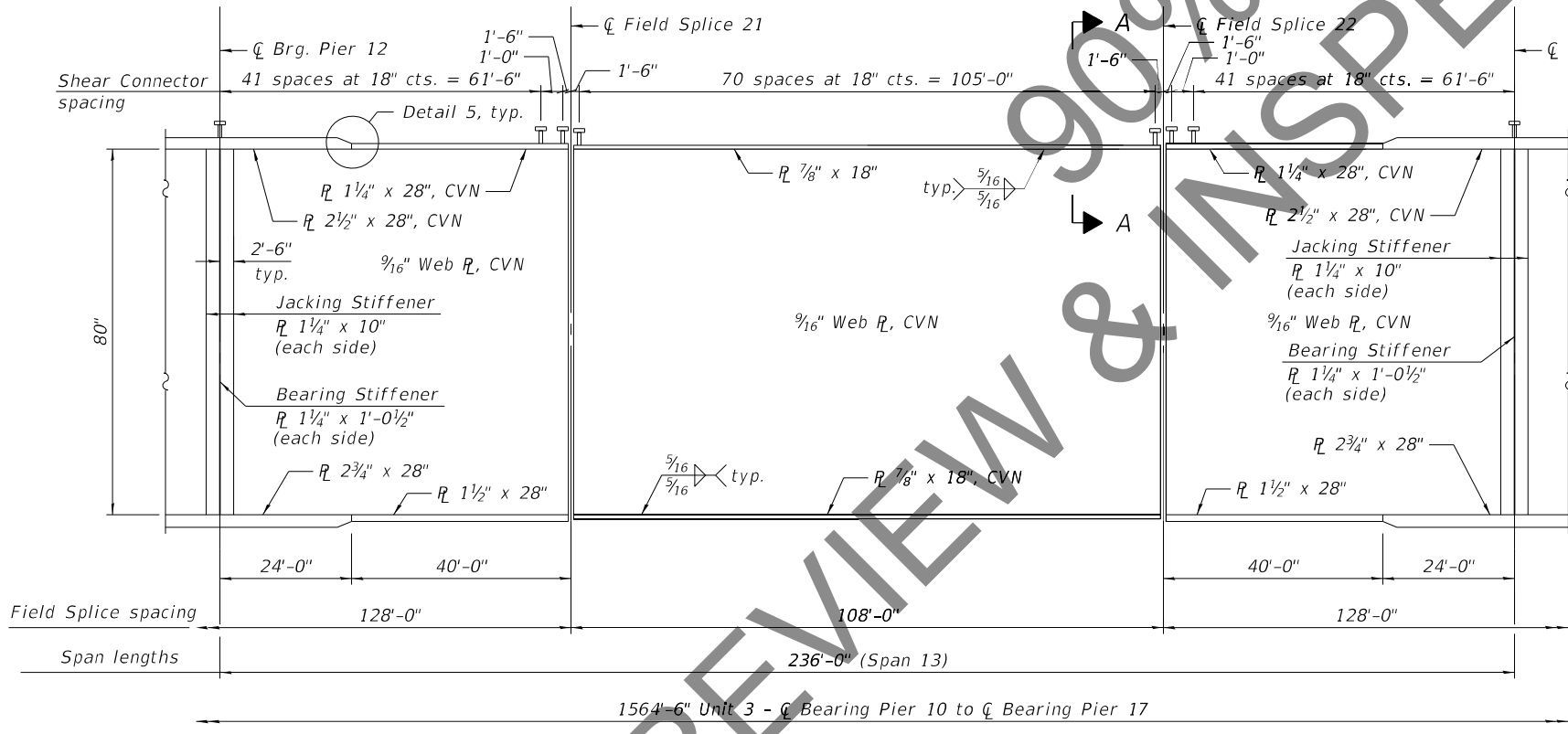
SHEET 126 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	618
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

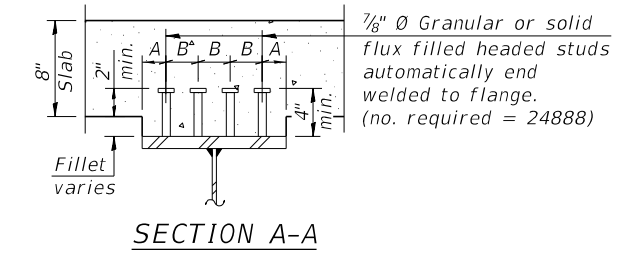


GIRDER ELEVATION - UNIT 3
(Spans 11 and 12)

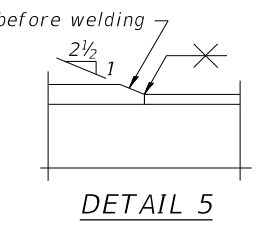
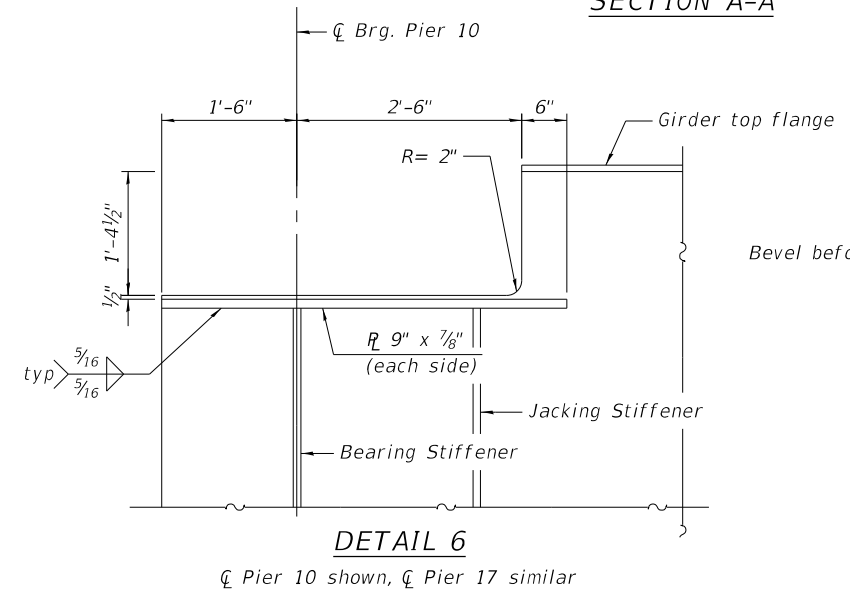
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



GIRDER ELEVATION - UNIT 3
(Span 13)



Flange Width	A	B
18"	1 1/2"	5"
28"	2"	8"



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HORNER SHIFRIN
PARSONS

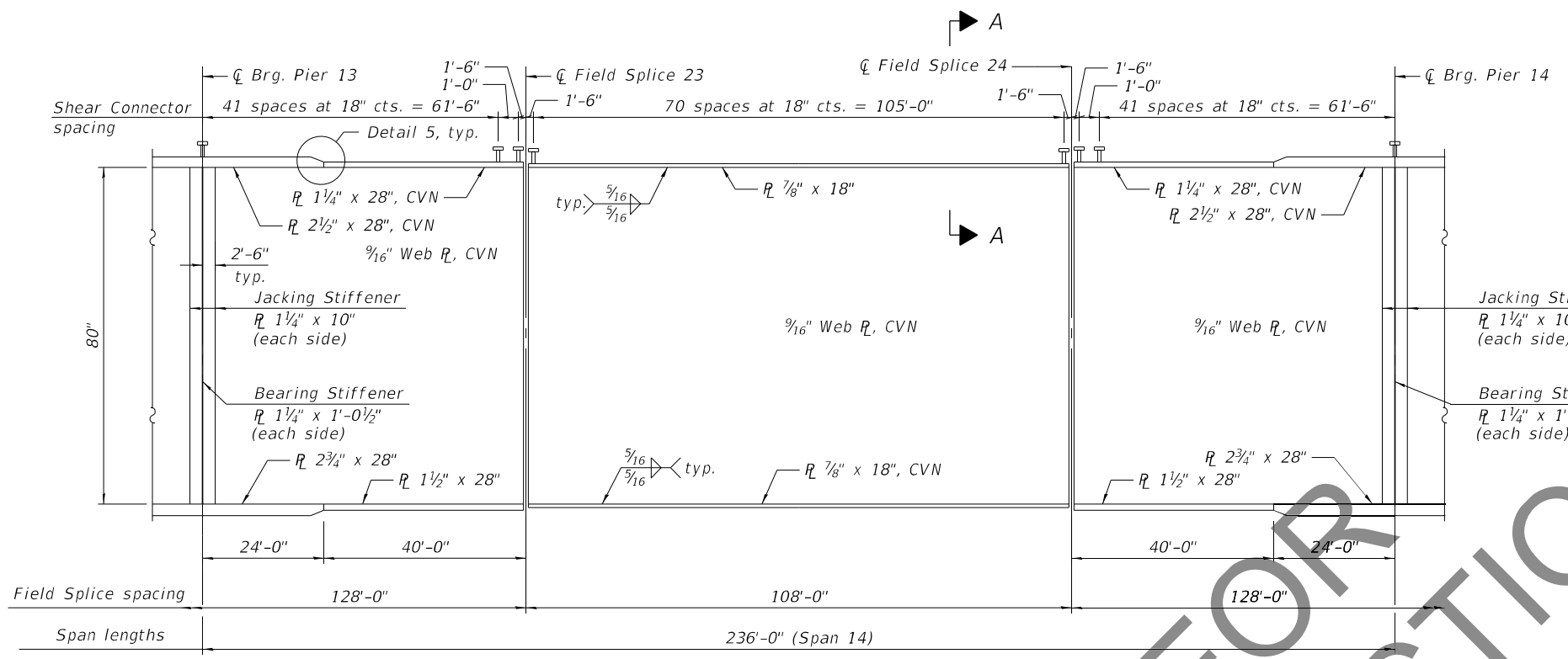
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 3 - 1
STRUCTURE NO. 060-0351 (WB)

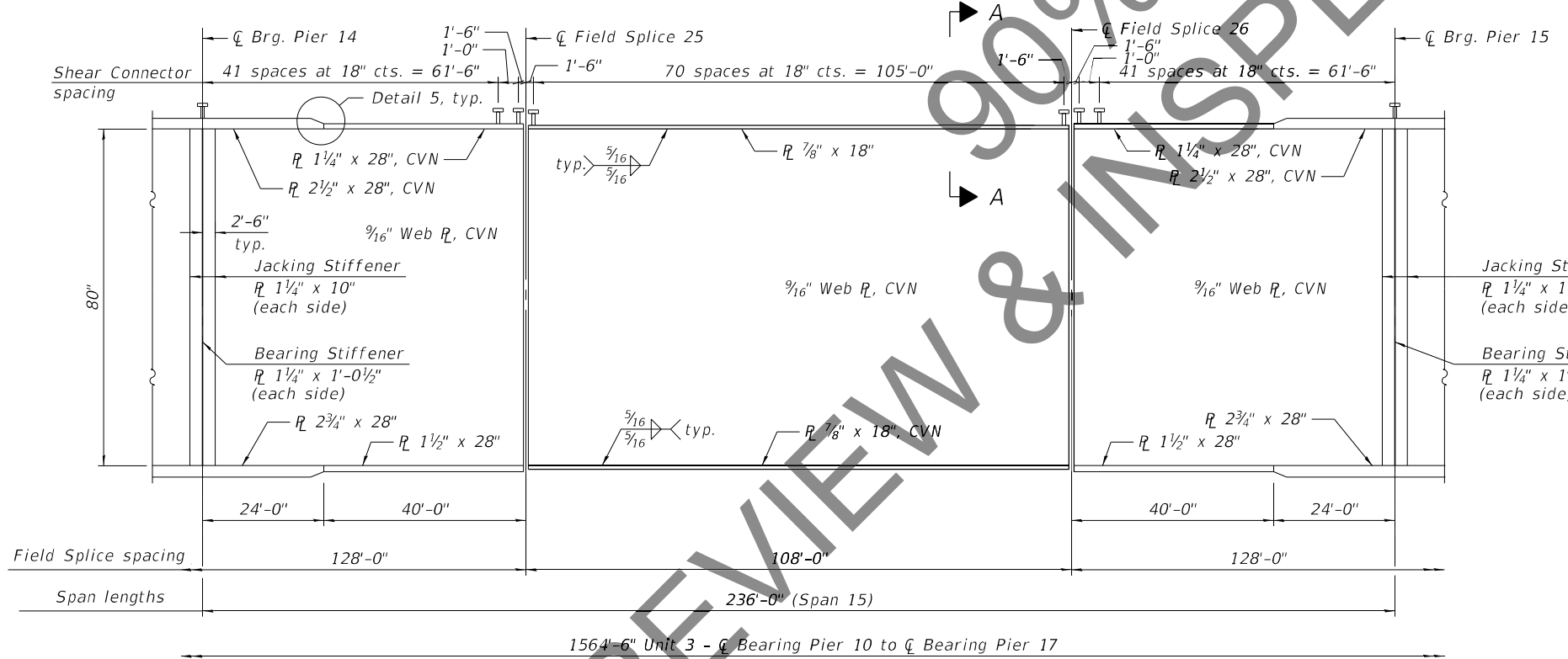
SHEET 127 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	619
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



GIRDER ELEVATION - UNIT 3
(Span 14)

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



GIRDER ELEVATION - UNIT 3
(Span 15)

Note:
For section A-A and Detail 5, see sheet 127.

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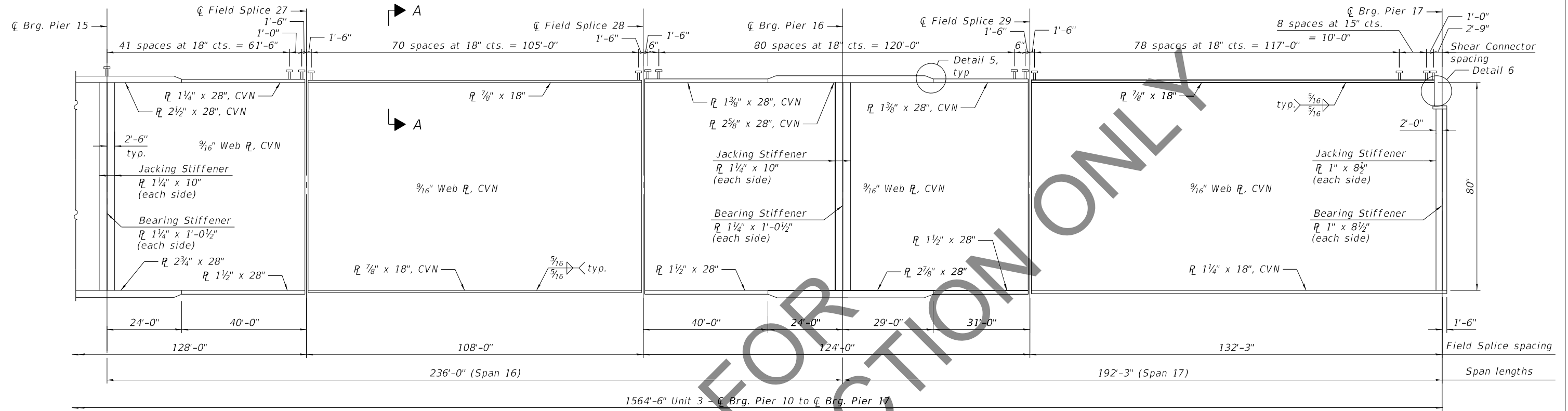
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 3 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 128 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	620
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



Note:
For section A-A, Detail 5 and Detail 6, see sheet 127.

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HORNER SHIFRIN
Teaming with: **PARSONS**

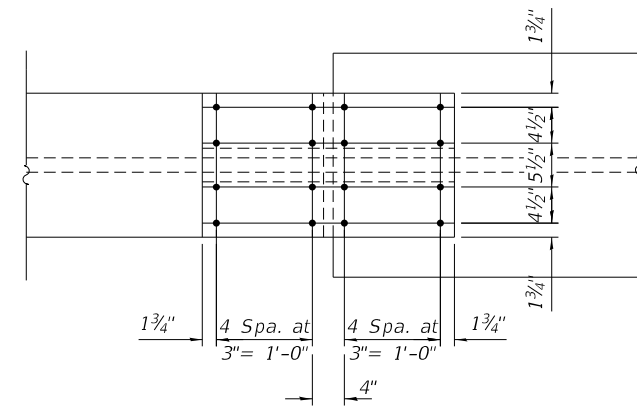
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

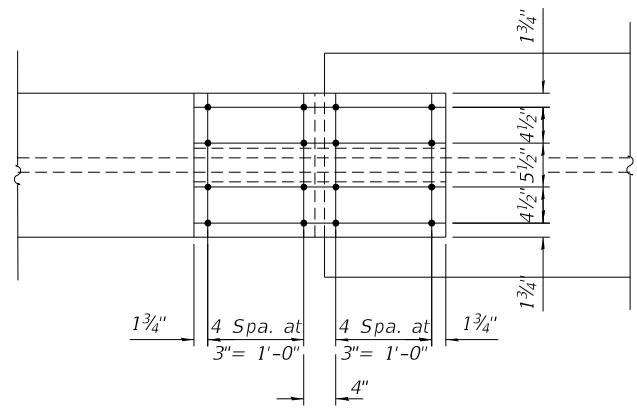
GIRDER ELEVATION UNIT 3 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 129 OF 288 SHEETS

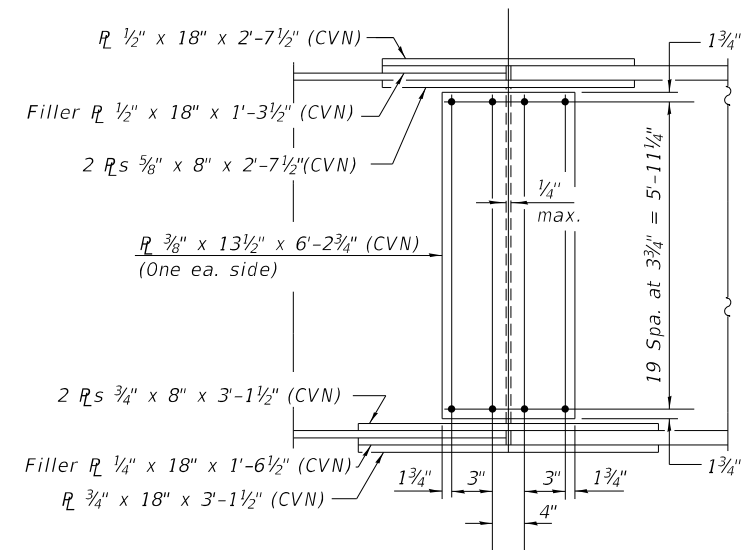
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270	60B-1	MADISON	860	621
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



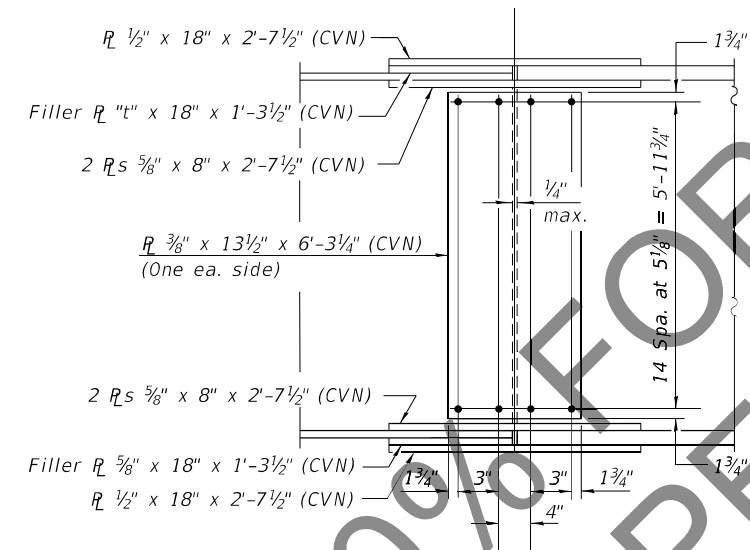
TOP FLANGE



TOP FLANGE

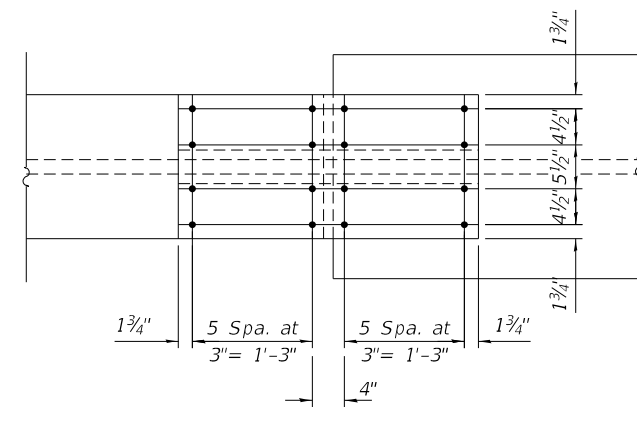


ELEVATION



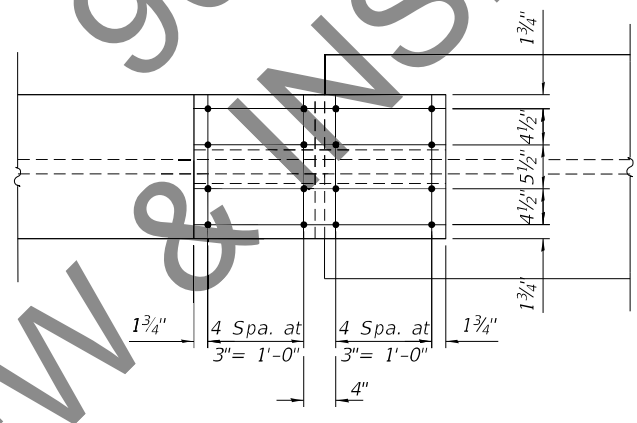
ELEVATION

Filler R "t"	
1/2"	FS-19 & FS-28
3/8"	FS-20 to FS-27



BOTTOM FLANGE

FIELD SPLICE 18 & 29 DETAIL



BOTTOM FLANGE

FIELD SPLICE 19 to 28 DETAIL

Notes:
 All Structural Steel shall be AASHTO M270 Grade 50.
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

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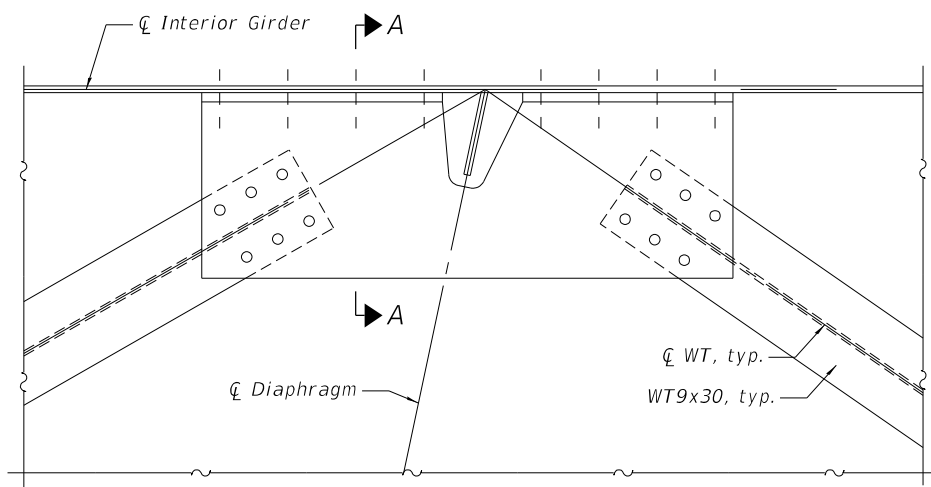
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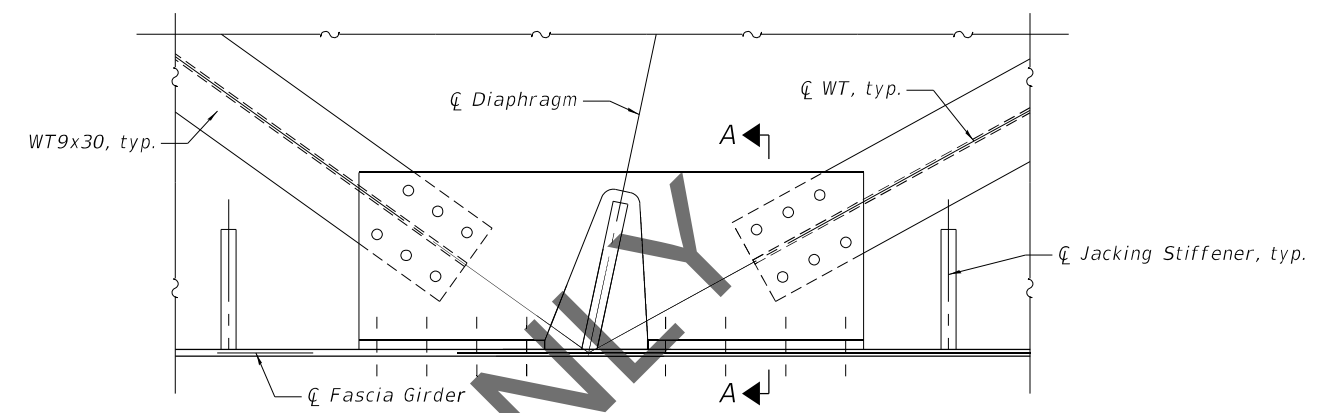
STEEL DETAILS UNITS 3 - 1
 STRUCTURE NO. 060-0351 (WB)

SHEET 130 OF 288 SHEETS

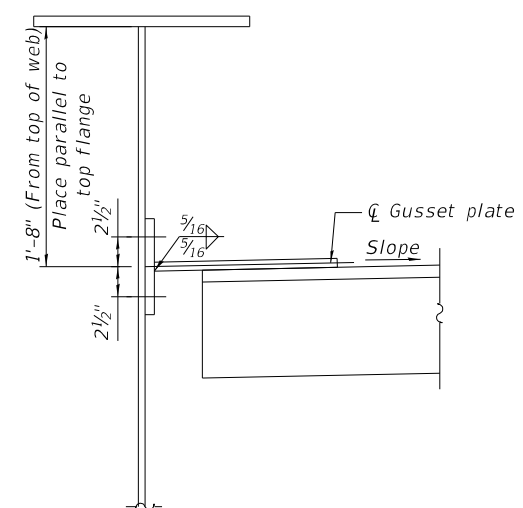
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	622
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



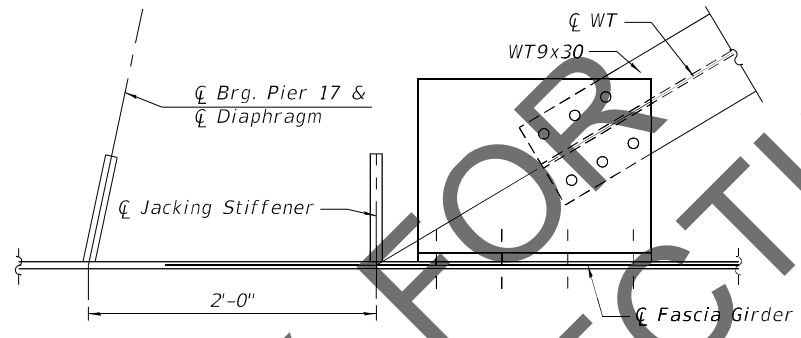
DETAIL 1
(Lateral bracing connection at intermediate diaphragm)
(See connection detail)



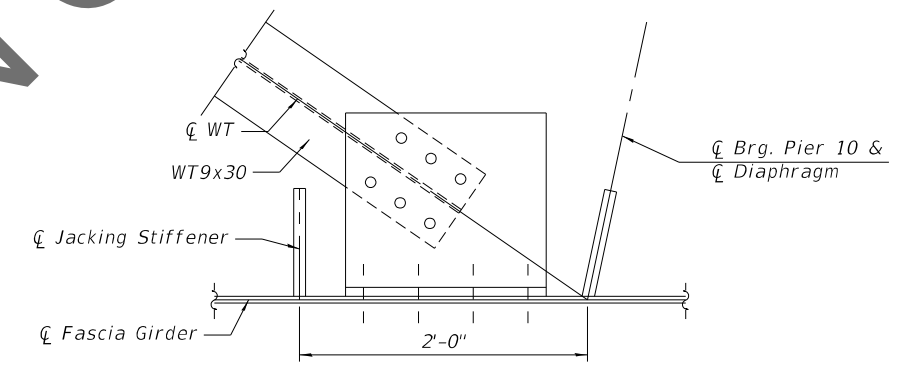
DETAIL 2
(Lateral bracing connection at pier diaphragm)
(See connection detail)



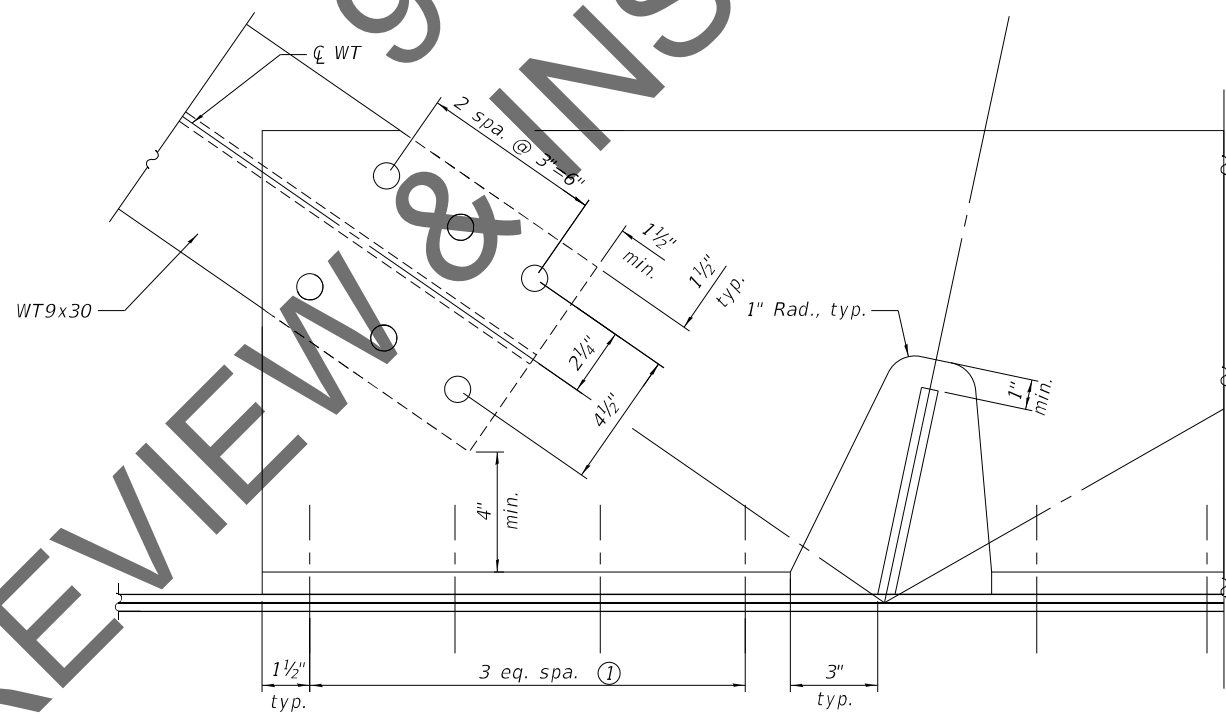
SECTION A-A
(Cross frame and stiffener not shown)



DETAIL 3
(Lateral bracing connection at pier 10)
(See connection detail)



DETAIL 4
(Lateral bracing connection at pier 17)
(See connection detail)



CONNECTION DETAIL

- Notes:
- All plates to be 3/4".
 - Detail 1 1/16" dia. holes for all 7/8" dia. bolts.
 - Provide 1 1/2" min. from center of bolt to edge of connected element in any direction
 - Two hardened washers required for each set of oversized holes.
 - ① Provide additional bolts as required to limit maximum spacing to 6".

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HORNER SHIFRIN
Teaming with: **PARSONS**

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DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNITS 3 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 132 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	624
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

INTERIOR GIRDER MOMENT TABLE														
		0.4 Sp. 1	Pier 11	0.5 Sp. 12	Pier 12	0.5 Sp. 13	Pier 13	0.5 Sp. 14	Pier 14	0.5 Sp. 15	Pier 15	0.5 Sp. 16	Pier 16	0.6 Sp. 17
I_s	(in ⁴)	85,969	287,316	75,511	274,546	75,511	274,546	75,511	274,546	75,511	274,546	75,511	287,316	85,969
$I_c(n)$	(in ⁴)	208,849	-	177,142	-	177,142	-	177,142	-	177,142	-	177,142	-	208,849
$I_c(3n)$	(in ⁴)	154,106	-	133,122	-	133,122	-	133,122	-	133,122	-	133,122	-	154,106
$I_c(cr)$	(in ⁴)	-	311,004	-	298,123	-	298,123	-	298,123	-	298,123	-	311,004	-
S_s	(in ³)	2,267	6,945	1,847	6,664	1,847	6,664	1,847	6,664	1,847	6,664	1,847	6,945	2,267
$S_c(n)$	(in ³)	3,089	-	2,549	-	2,549	-	2,549	-	2,549	-	2,549	-	3,089
$S_c(3n)$	(in ³)	2,832	-	2,330	-	2,330	-	2,330	-	2,330	-	2,330	-	2,832
$S_c(cr)$	(in ³)	-	7,107	-	6,828	-	6,828	-	6,828	-	6,828	-	7,107	-
DC1	(k/')	1.505	1.985	1.478	1.957	1.478	1.957	1.478	1.957	1.478	1.957	1.478	1.985	1.505
M_{DC1}	(k)	3,186	8,874	2,070	8,161	2,303	8,374	2,194	8,374	2,303	8,161	2,070	8,874	3,186
DC2	(k/')	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
M_{DC2}	(k)	423	1,048	297	1,002	316	1,012	310	1,012	316	1,002	297	1,048	423
DW	(k/')	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
M_{DW}	(k)	1,047	2,593	736	2,479	781	2,503	767	2,503	781	2,479	736	2,593	1,047
LLDF		0.706	0.749	0.657	0.727	0.657	0.727	0.657	0.727	0.657	0.727	0.657	0.749	0.706
M_{LL+IM}	(k)	4,154	6,067	3,567	6,225	3,743	6,368	3,770	6,368	3,743	6,225	3,567	6,067	4,154
M_u (Strength I)	(k)	13,351	26,909	10,305	26,066	10,996	26,631	10,878	26,631	10,996	26,066	10,305	26,909	13,351
ϕM_n	(k)	14,502	-	12,277	-	12,114	-	12,188	-	12,114	-	12,277	-	14,502
f_s DC1	(ksi)	16.9	15.3	13.4	14.7	15.0	15.1	14.3	15.1	15.0	14.7	13.4	15.3	16.9
f_s DC2	(ksi)	1.8	1.8	1.5	1.8	1.6	1.8	1.6	1.8	1.6	1.8	1.5	1.8	1.8
f_s DW	(ksi)	4.4	4.4	3.8	4.4	4.0	4.4	4.0	4.4	4.0	4.4	3.8	4.4	4.4
f_s (LL+IM)	(ksi)	16.1	10.2	16.8	10.9	17.6	11.2	17.7	11.2	17.6	10.9	16.8	10.2	16.1
f_s (Service II)	(ksi)	44.1	34.8	40.6	35.0	43.5	35.8	42.9	35.8	43.5	35.0	40.6	34.8	44.1
0.95R _h F _{yf}	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	58.2	45.9	53.8	46.3	57.6	47.3	56.8	47.3	57.6	46.3	53.8	45.9	58.2
ϕF_n	(ksi)	-	49.8	-	49.8	-	49.8	-	49.8	-	49.8	-	49.8	-
V_f	(k)	-	91.0	-	97.3	-	98.9	-	99.1	-	99.2	-	99.7	-

GIRDER REACTION TABLE																	
	Pier 10		Pier 11		Pier 12		Pier 13		Pier 14		Pier 15		Pier 16		Pier 17		
	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	
LLDF	1.01	1.01	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.01	1.01	
OCF	-----	1.04	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.04	
R_{DC1}	(k)	99.3	89.9	401.4	366.1	379.7	346.2	384.4	350.5	384.4	350.5	379.7	346.2	401.4	366.1	99.3	89.9
R_{DC2}	(k)	12.8	12.8	46.3	46.3	44.6	44.6	44.9	44.9	44.9	44.9	44.6	44.6	46.3	46.3	12.8	12.8
R_{DW}	(k)	31.7	31.7	114.6	114.6	110.3	110.3	111.0	111.0	111.0	111.0	110.3	110.3	114.6	114.6	31.7	31.7
R_{LL}	(k)	126.9	126.9	276.0	276.0	282.4	282.4	286.3	286.3	286.3	286.3	282.4	282.4	276.0	276.0	126.9	126.9
R_{IM}	(k)	22.6	22.6	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	22.6	22.6
R_{Total}	(k)	293.3	283.9	878.3	843.0	856.9	823.4	866.5	832.6	866.5	832.6	856.9	823.4	878.3	843.0	293.3	283.9

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

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

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

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

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

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

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

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

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

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

LLDF: Live Load Distribution Factor

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

M_u (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{LL+IM}$

ϕM_n : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

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

M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (LL+IM)$

0.95R_hF_{yf}: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (LL+IM)$

ϕF_n : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

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

OCF: Obtuse Correction Factor

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 DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 3
 STRUCTURE NO. 060-0351 (WB)

SHEET 133 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	625
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

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 DEPARTMENT OF TRANSPORTATION**

**CAMBER DATA UNIT 3
 STRUCTURE NO. 060-0351 (WB)**

SHEET 134 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	626
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Brg. Pier 10	461.46	461.66	461.86	462.05	461.87	461.65
☐ Field Splice 18	462.35	462.56	462.76	462.95	462.76	462.54
☐ Brg. Pier 11	462.42	462.62	462.81	463.01	462.82	462.61
☐ Field Splice 19	462.98	463.21	463.40	463.60	463.41	463.17
☐ Field Splice 20	463.54	463.76	463.96	464.16	463.97	463.72
☐ Brg. Pier 12	463.60	463.80	463.99	464.19	464.00	463.78
☐ Field Splice 21	464.15	464.36	464.55	464.75	464.56	464.33
☐ Field Splice 22	464.66	464.88	465.08	465.28	465.10	464.87
☐ Brg. Pier 13	464.48	464.69	464.90	465.11	464.93	464.72

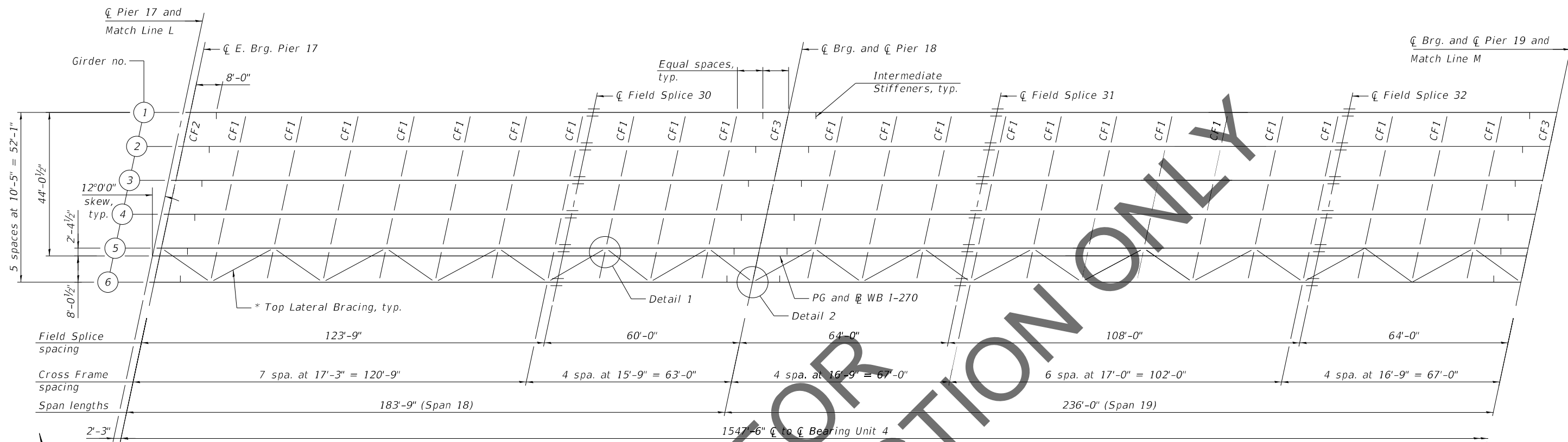
TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Field Splice 23	464.56	464.80	465.01	465.23	465.06	464.84
☐ Field Splice 24	464.06	464.30	464.52	464.74	464.57	464.35
☐ Brg. Pier 14	463.50	463.72	463.94	464.16	463.99	463.80
☐ Field Splice 25	463.41	463.65	463.87	464.09	463.92	463.71
☐ Field Splice 26	462.90	463.14	463.36	463.58	463.41	463.19
☐ Brg. Pier 15	462.32	462.54	462.76	462.98	462.81	462.62
☐ Field Splice 27	462.20	462.44	462.66	462.88	462.71	462.50
☐ Field Splice 28	461.67	461.90	462.12	462.34	462.18	461.96
☐ Brg. Pier 16	461.14	461.36	461.58	461.80	461.64	461.44

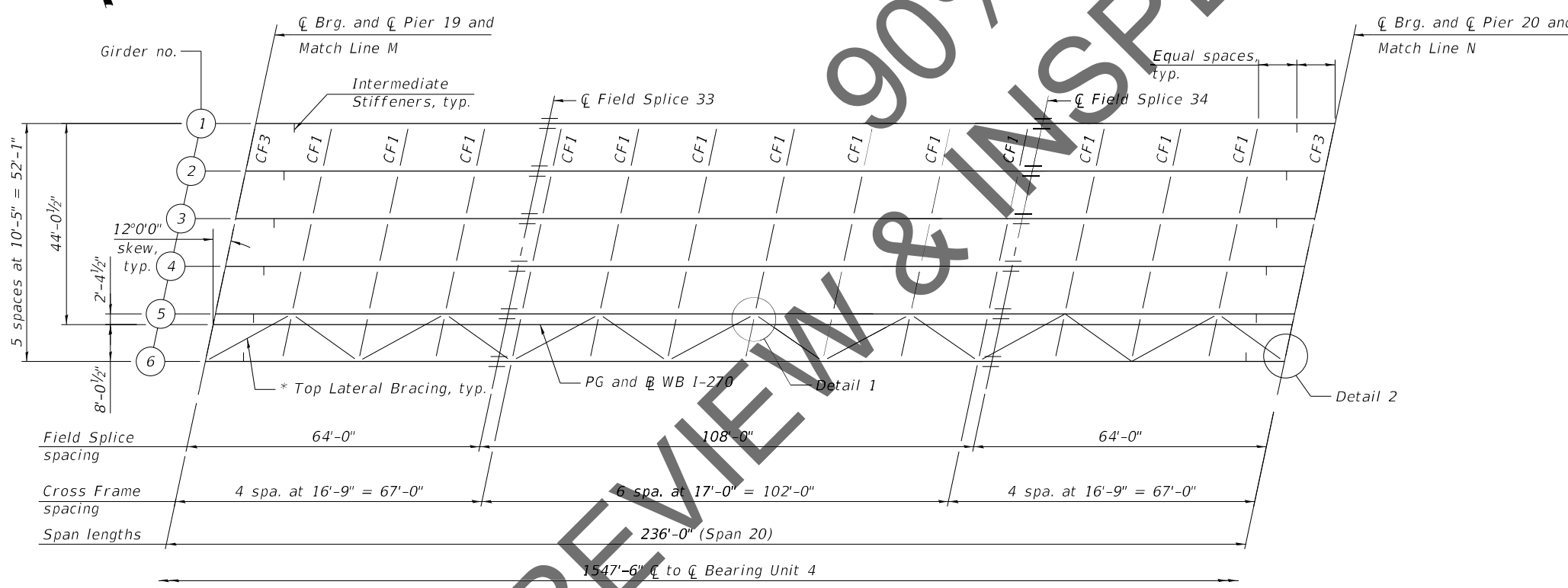
TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Field Splice 29	461.10	461.33	461.55	461.77	461.61	461.39
☐ Brg. Pier 17	460.18	460.40	460.62	460.84	460.68	460.48

Note:
 At ☐ Brg. Pier 10 and at ☐ Brg. Pier 17, the elevation given at theoretical top of web is prior to coping of web.



FRAMING PLAN - UNIT 4
(Spans 18 and 19)



FRAMING PLAN - UNIT 4
(Span 20)

* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 4.

Note:
For field splice details, see sheet 141 of 288.
For cross frame details, see sheet 142 of 288.
For Details 1 and 2, see sheet 143 of 288.

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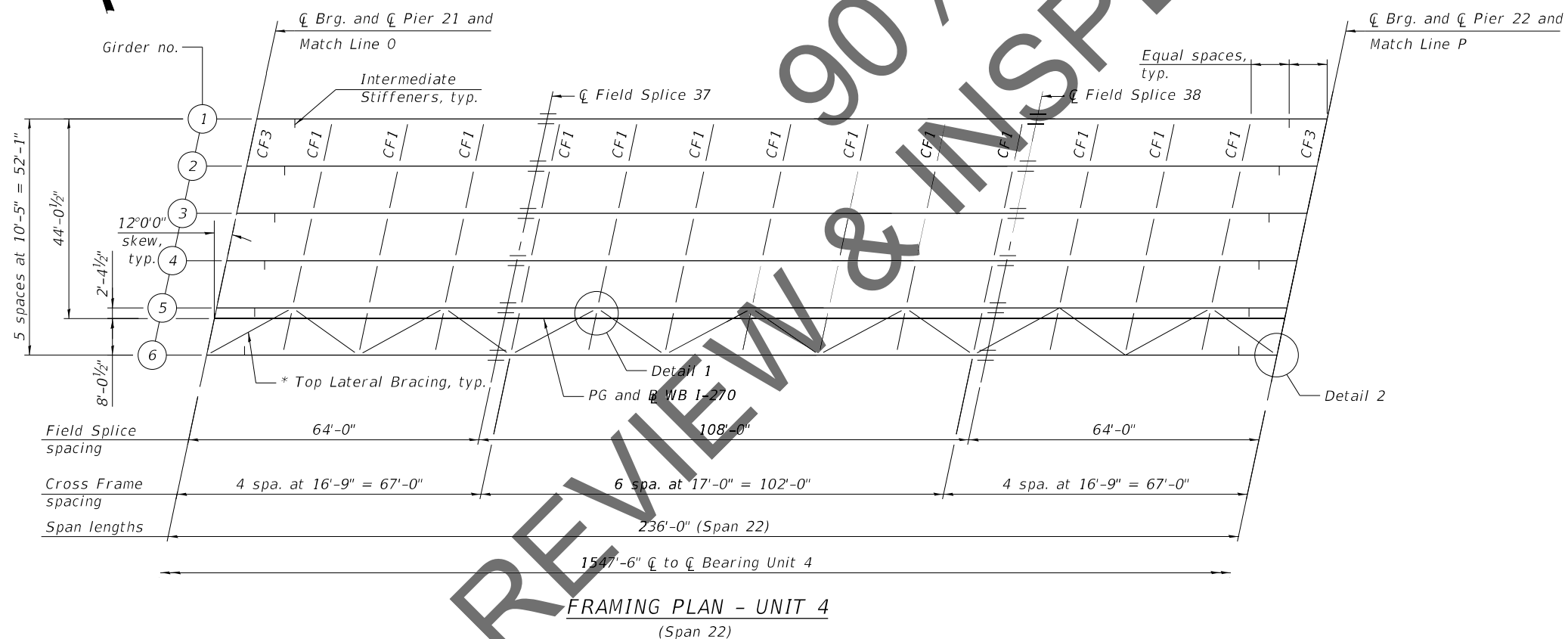
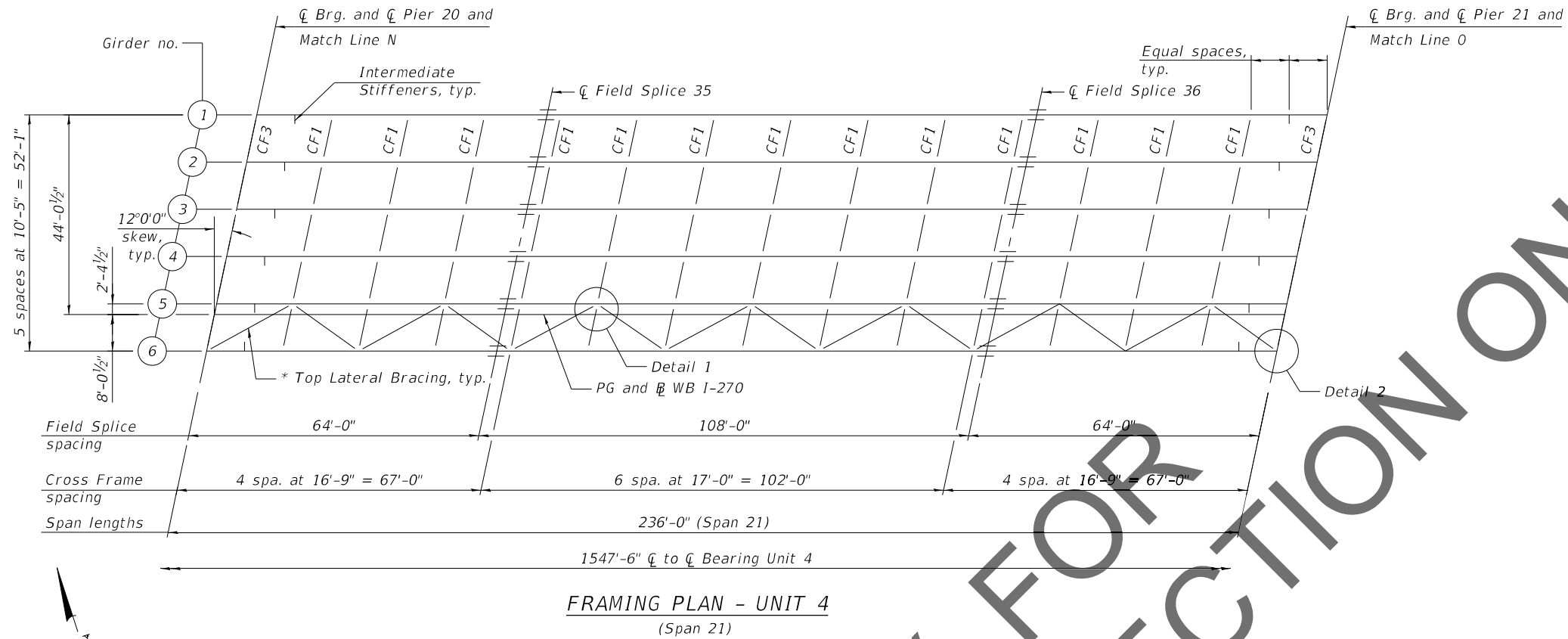
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FRAMING PLAN - UNIT 4 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 135 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	627
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 4.

Note:
For field splice details, see sheet 141 of 288.
For cross frame details, see sheet 142 of 288.
For Details 1 and 2, see sheet 143 of 288.

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HORNER SHIFRIN
Teaming with **PARSONS**

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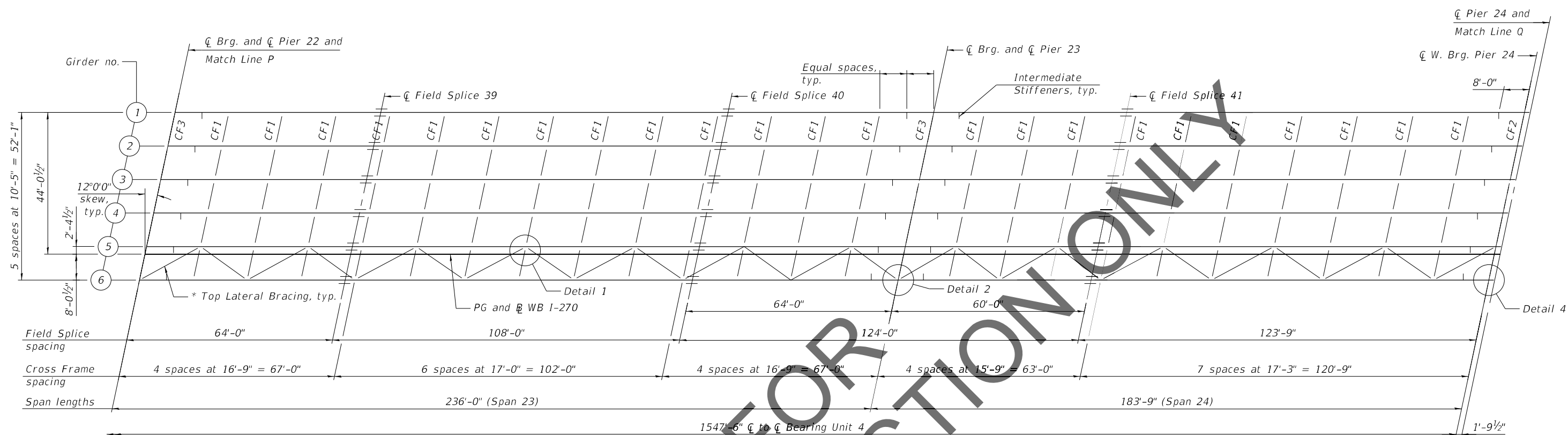
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN - UNIT 4 - 2
STRUCTURE NO. 060-0351 (WB)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	628
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

SHEET 136 OF 288 SHEETS

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* Top lateral bracing to be installed between the first and next adjacent girders erected. All lateral bracing to be in the same girder bay for full length of Unit 4.

Note:
For field splice details, see sheet 141 of 288.
For cross frame details, see sheet 142 of 288.
For Details 1, 2 and 4, see sheet 143 of 288.

REVIEW & INSPECTION ONLY

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HORNER SHIFRIN
Teaming with **PARSONS**

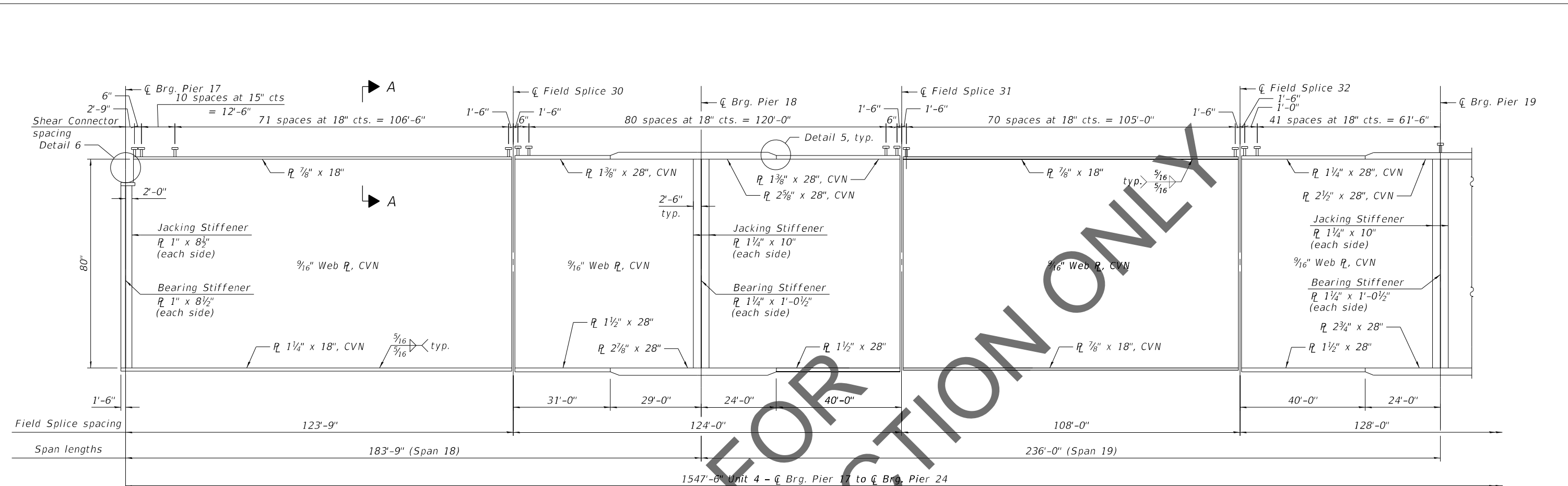
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FRAMING PLAN - UNIT 4 - 3
STRUCTURE NO. 060-0351 (WB)

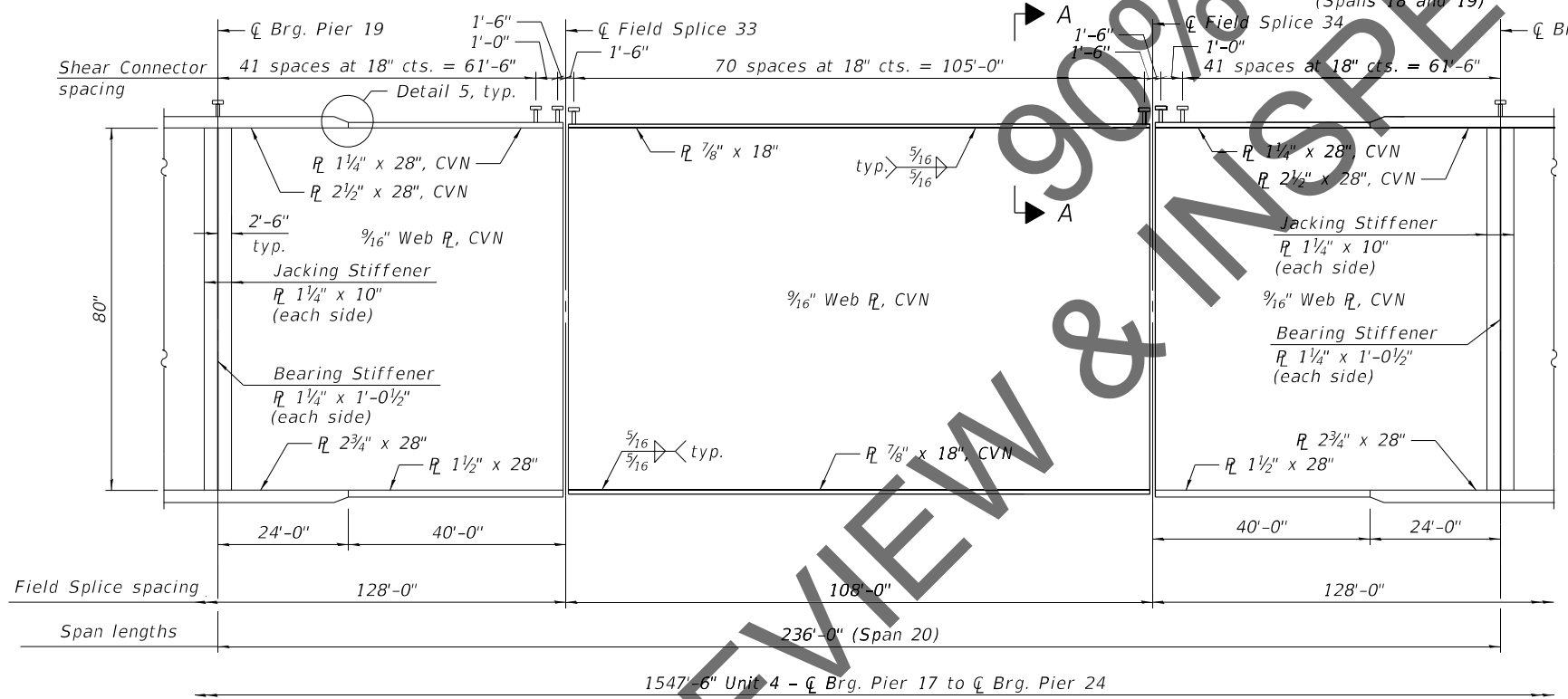
SHEET 137 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	629
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

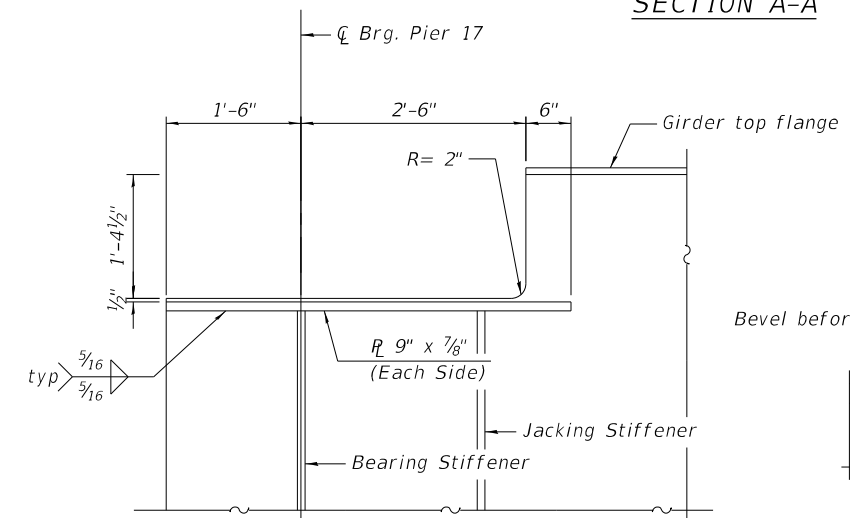
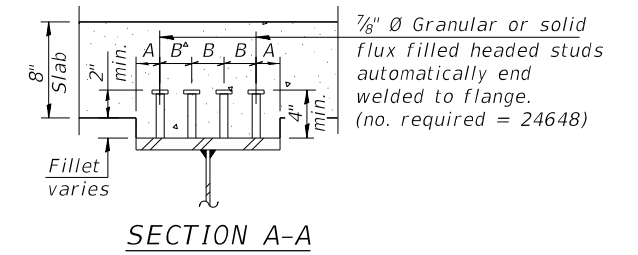


GIRDER ELEVATION - UNIT 4
(Spans 18 and 19)

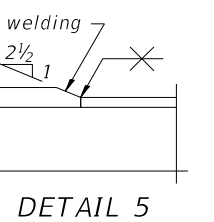
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



GIRDER ELEVATION - UNIT 4
(Span 20)



Flange Width	A	B
18"	1 1/2"	5"
28"	2"	8"



DETAIL 6
Girder top flange shown, Girder Pier 24 similar

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HORNER SHIFRIN
PARSONS

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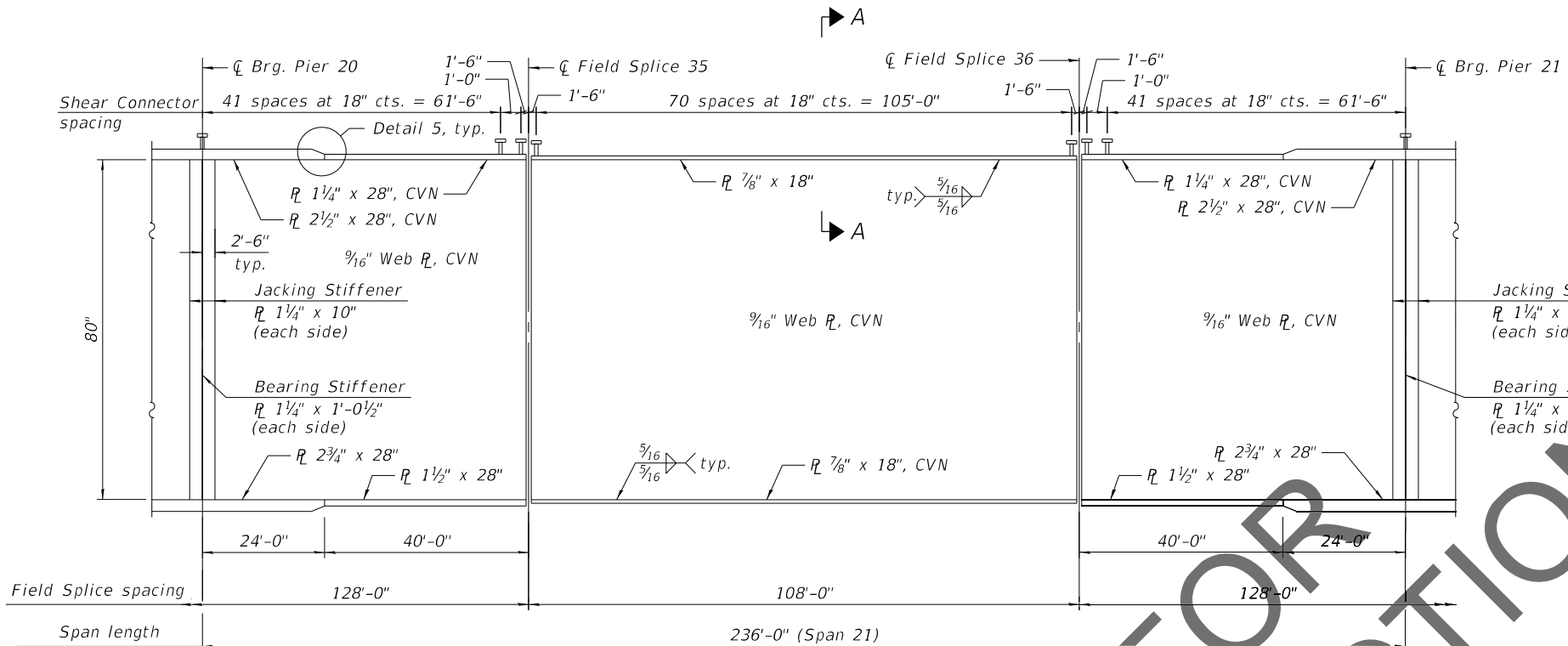
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 4 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 138 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	630
CONTRACT NO. 76190				

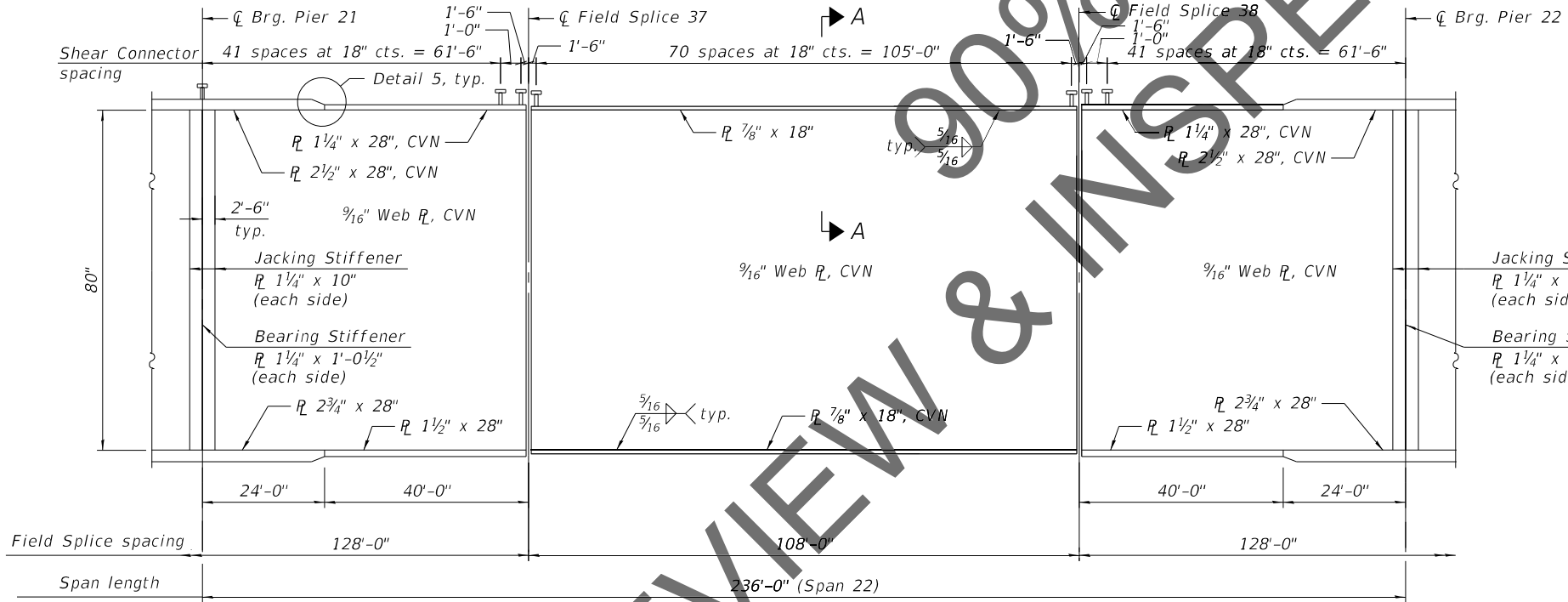
ILLINOIS FED. AID PROJECT



1547'-6" Unit 4 - \bar{C} Brg. Pier 17 to \bar{C} Brg. Pier 24

GIRDER ELEVATION - UNIT 4
(Span 21)

"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



1547'-6" Unit 4 - \bar{C} Brg. Pier 17 to \bar{C} Brg. Pier 24

GIRDER ELEVATION - UNIT 4
(Span 22)

Note:
For section A-A and Detail 5, See sheet 138.

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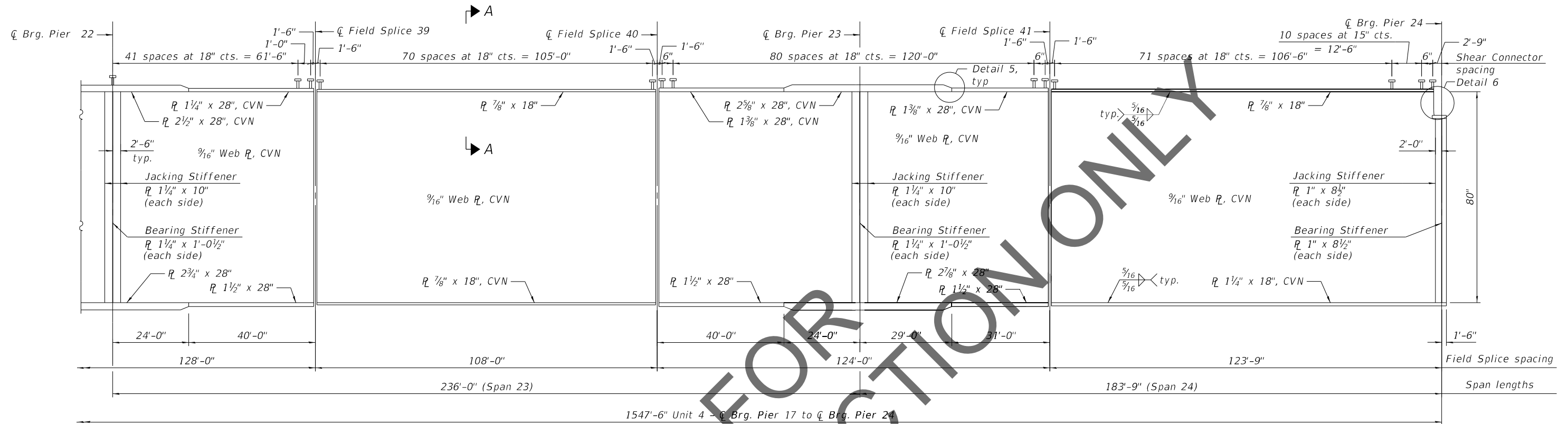
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 4 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 139 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	631
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



Note:
For section A-A, Detail 5 and Detail 6, See sheet 138

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HORNER SHIFRIN
Teaming with: **PARSONS**

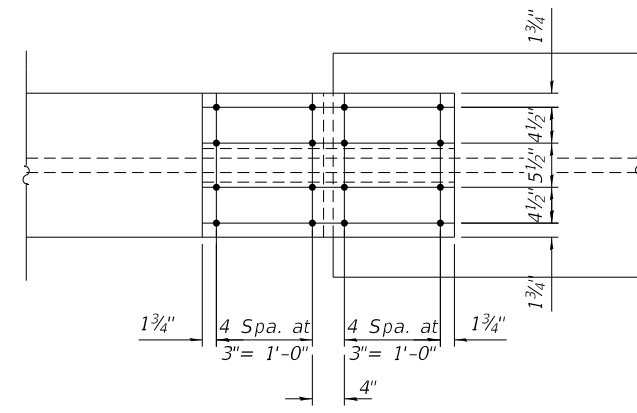
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

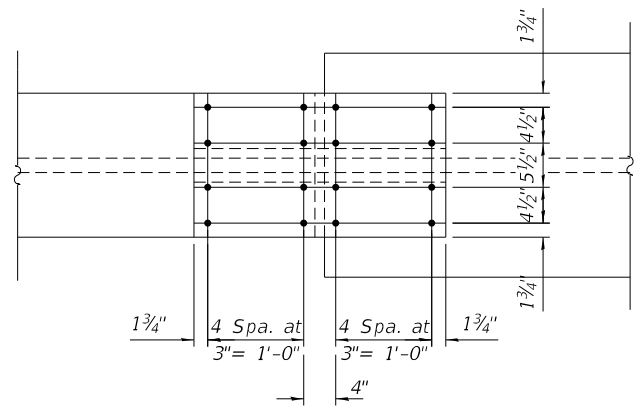
GIRDER ELEVATION UNIT 4 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 140 OF 288 SHEETS

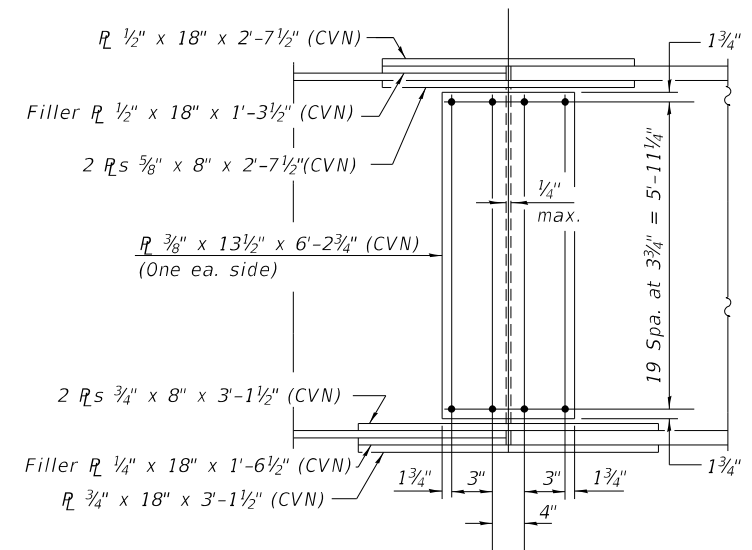
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	632
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



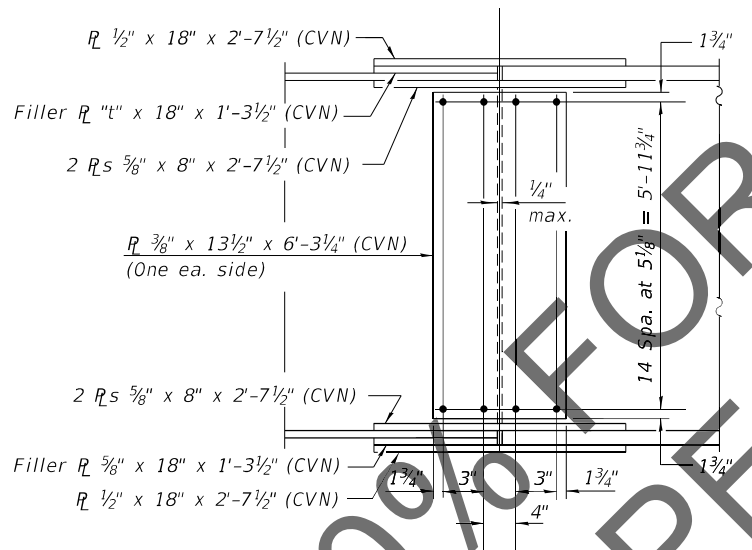
TOP FLANGE



TOP FLANGE

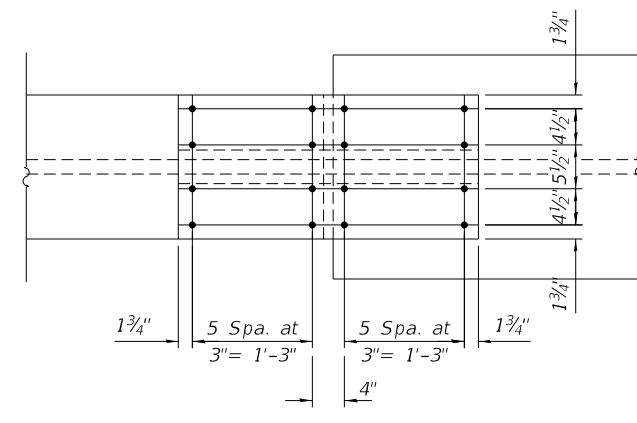


ELEVATION



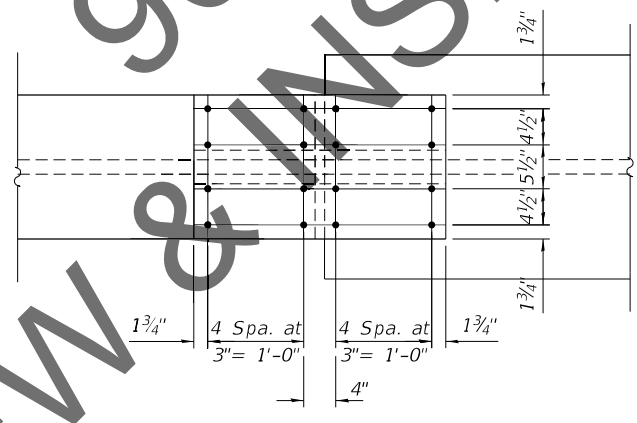
ELEVATION

Filler R "t"	
1/2"	FS-31 & FS-40
3/8"	FS-32 to FS-39



BOTTOM FLANGE

FIELD SPLICE 30 & 41 DETAIL



BOTTOM FLANGE

FIELD SPLICE 31 to 40 DETAIL

Notes:
 All Structural Steel shall be AASHTO M270 Grade 50.
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

REVIEW & INSPECTION ONLY

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HORNER SHIFRIN
 Teaming with: **PARSONS**

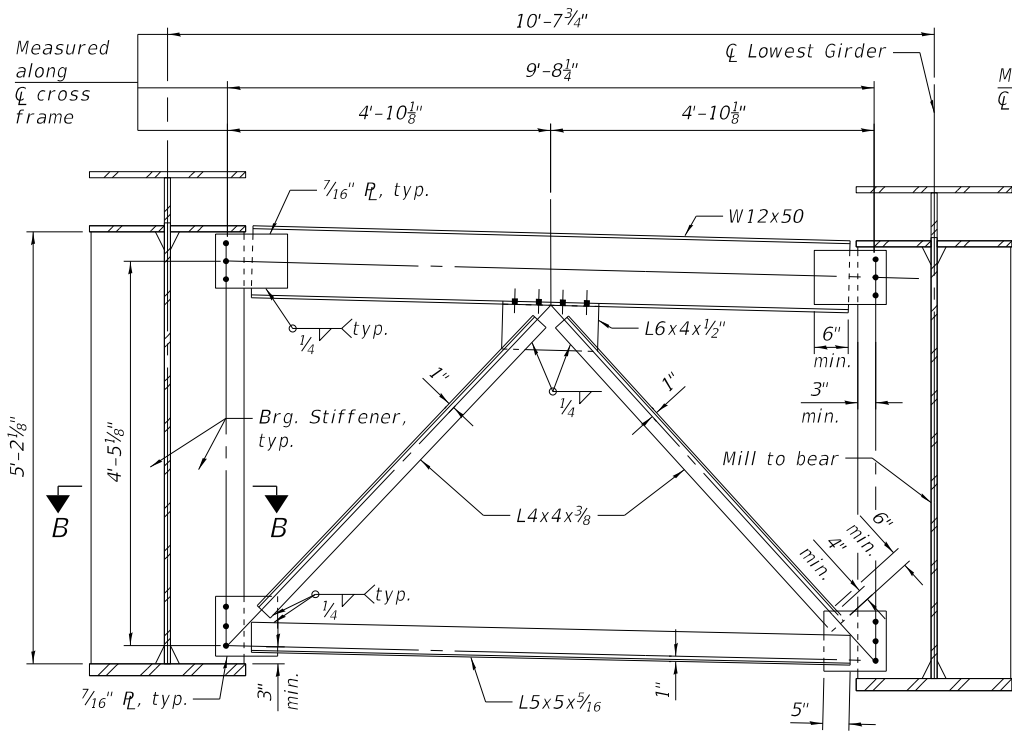
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DEPARTMENT OF TRANSPORTATION

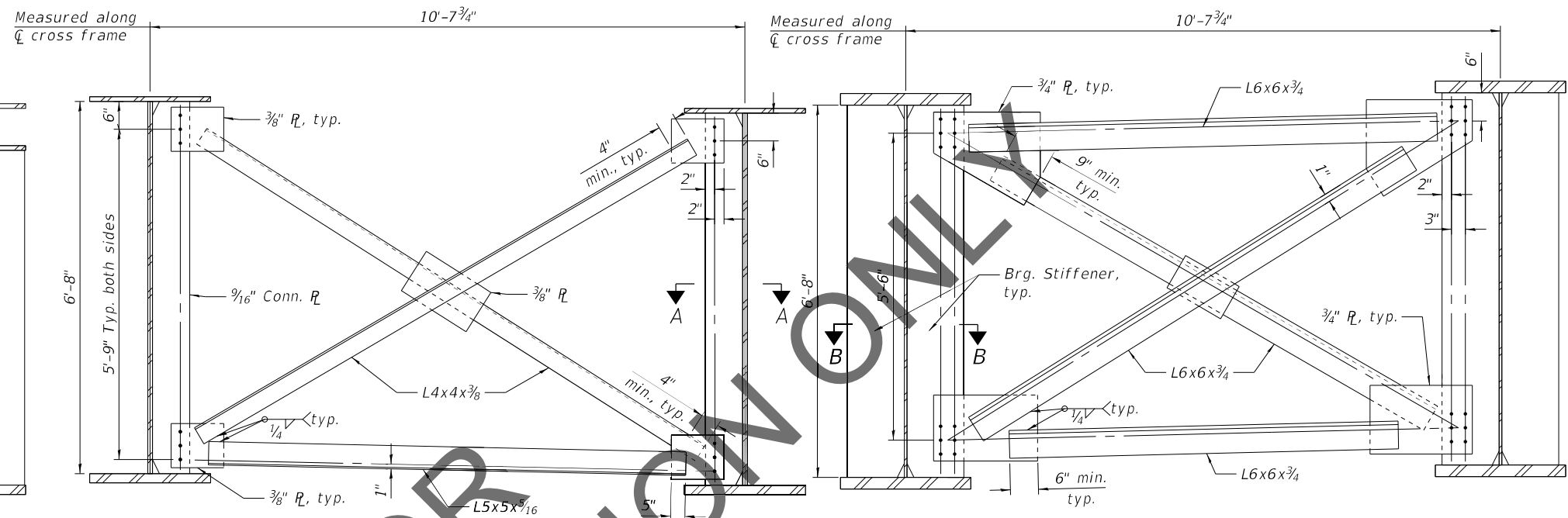
STEEL DETAILS UNITS 4 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 141 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	633
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

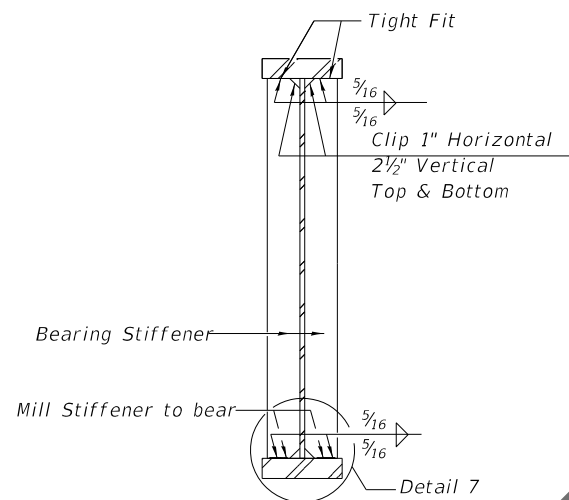
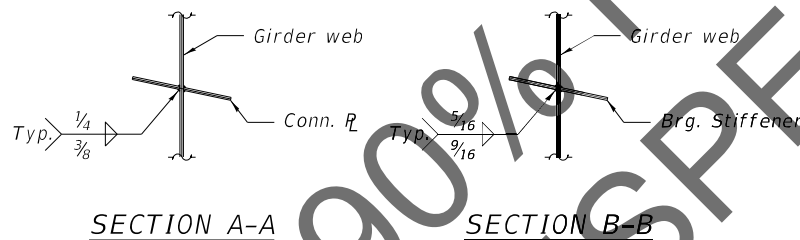


END CROSS FRAME (CF2)
(10 Required)

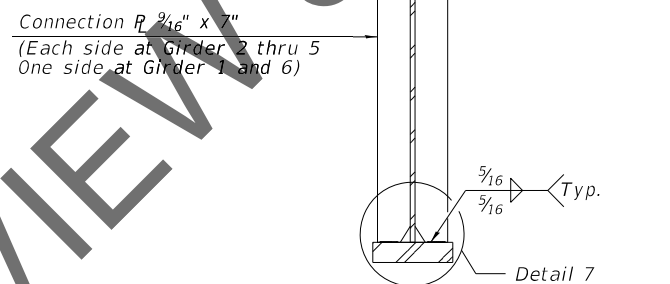


INTERIOR CROSS FRAME (CF1)
(425 Required)

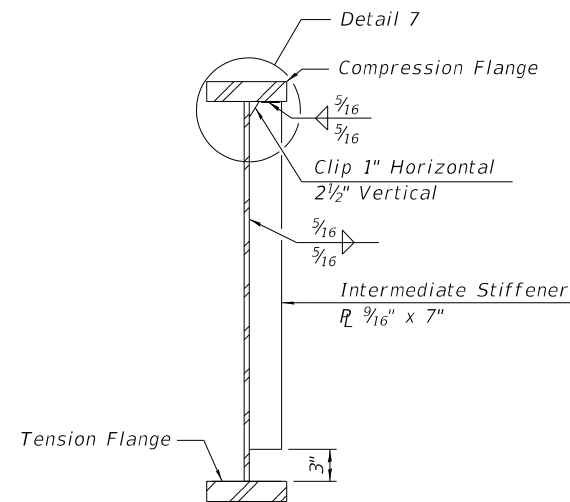
PIER CROSS FRAME (CF3)
(30 Required)



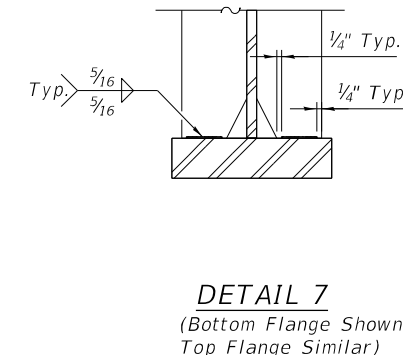
BEARING AND JACKING STIFFENER DETAILS



CONNECTION PLATE DETAILS



INTERMEDIATE STIFFENER DETAIL



Notes:
All Structural Steel shall be AASHTO M 270 Grade 50.
Provide 1 1/16" \circ holes for all 7/8" \circ HS bolts.
Two hardened washers required for each set of oversized holes.
All cross frames shall be installed as steel is erected and secured with erection pins and bolts. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

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HORNER SHIFRIN
Teaming with: **PARSONS**

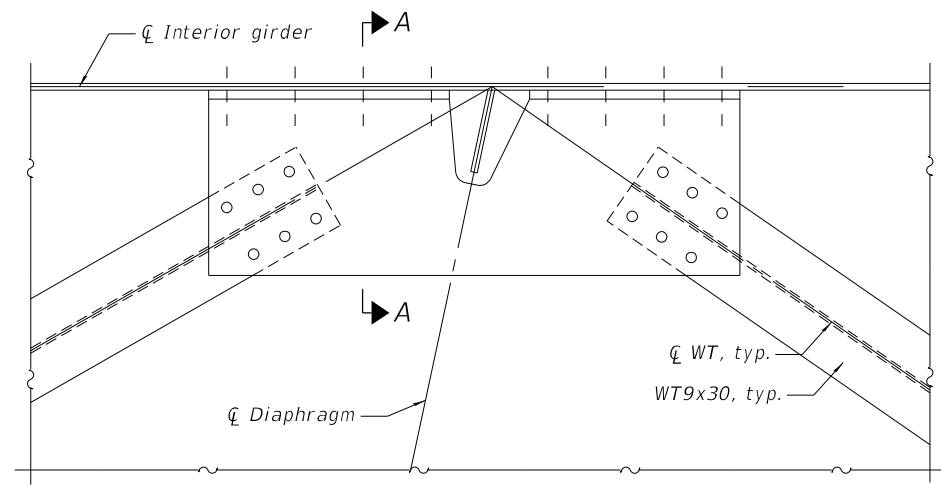
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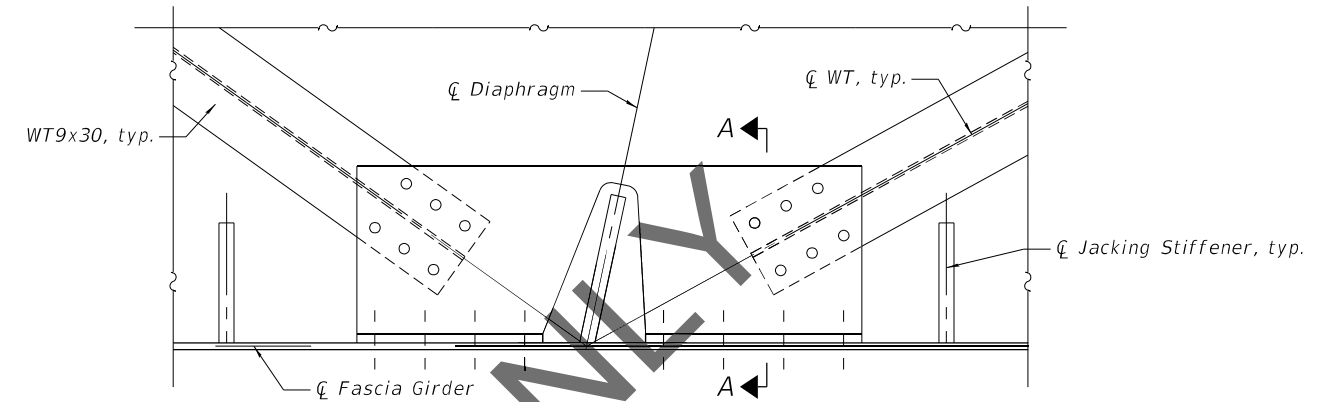
STEEL DETAILS UNITS 4 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 142 OF 288 SHEETS

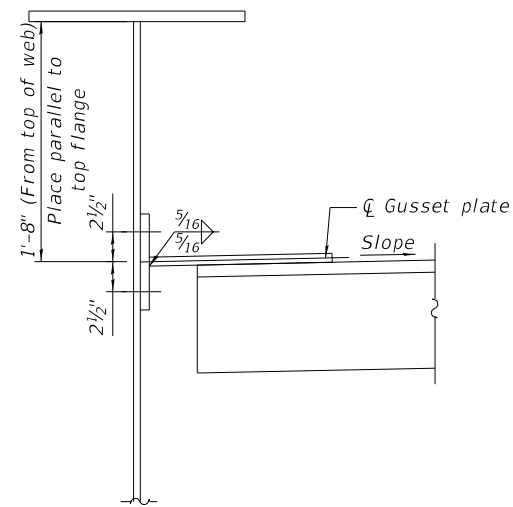
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	634
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



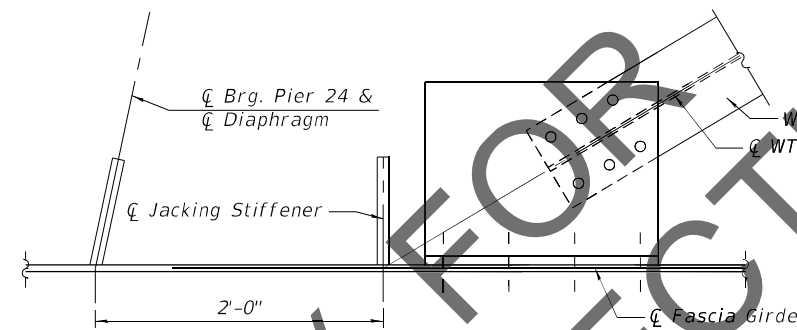
DETAIL 1
(Lateral bracing connection at intermediate diaphragm)
(See connection detail)



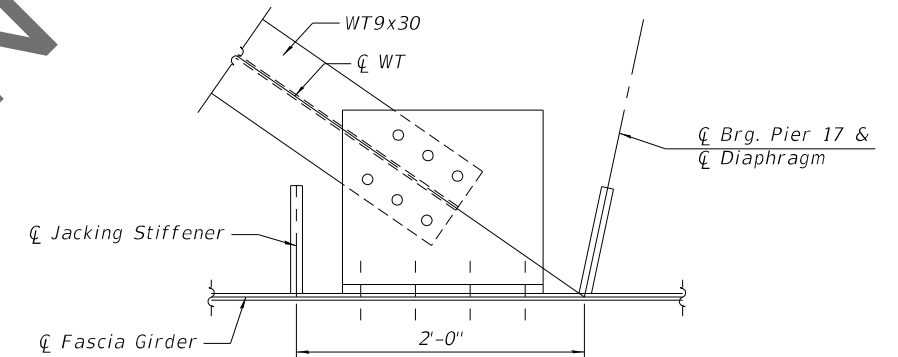
DETAIL 2
(Lateral bracing connection at pier diaphragm)
(See connection detail)



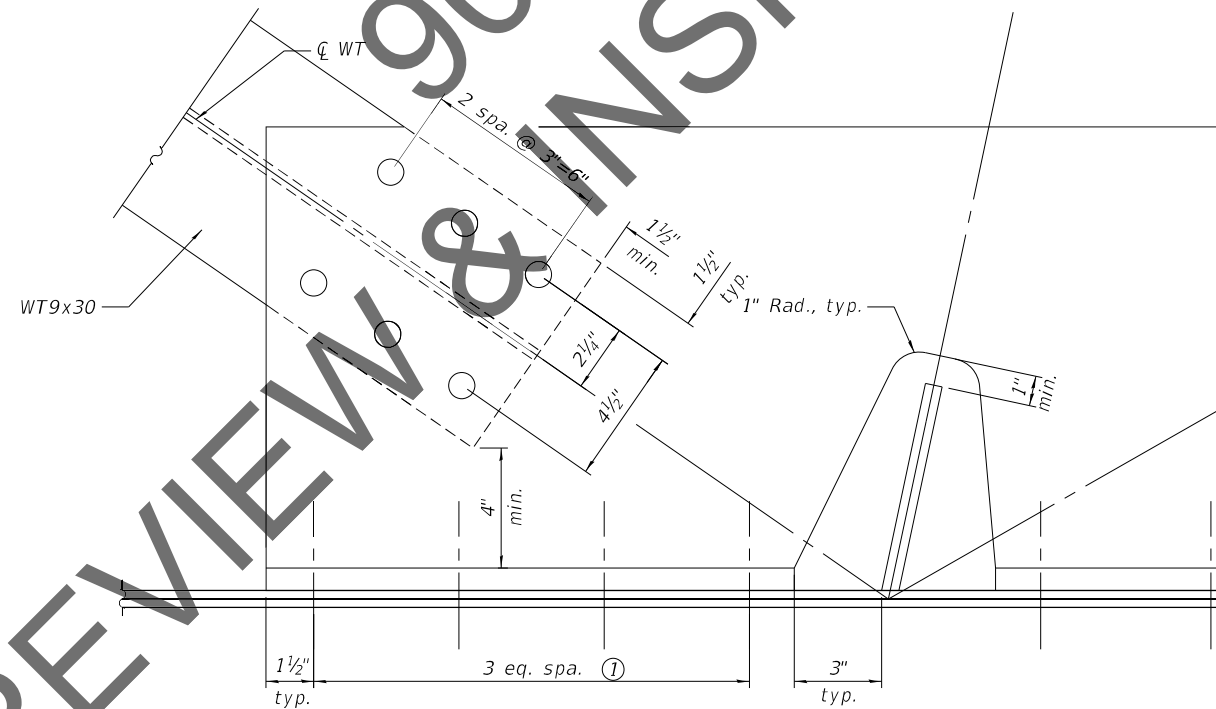
SECTION A-A
(Cross frame and stiffener not shown)



DETAIL 3
(Lateral bracing connection at pier 10)
(See connection detail)



DETAIL 4
(Lateral bracing connection at pier 17)
(See connection detail)



CONNECTION DETAIL

- Notes:
- All plates to be $\frac{3}{4}$ ".
 - Detail $\frac{1}{16}$ " dia. holes for all $\frac{7}{8}$ " dia. bolts.
 - Provide $\frac{1}{2}$ " min. from center of bolt to edge of connected element in any direction
 - Two hardened washers required for each set of oversized holes.
 - ① Provide additional bolts as required to limit maximum spacing to 6".

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HORNER SHIFRIN
Teaming with: **PARSONS**

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STATE OF ILLINOIS
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STEEL DETAILS UNITS 4 - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 143 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	635
CONTRACT NO. 76190				

ILLINOIS FED. AID PROJECT

INTERIOR GIRDER MOMENT TABLE														
		0.4 Sp. 18	Pier 18	0.5 Sp. 19	Pier 19	0.5 Sp. 20	Pier 20	0.5 Sp. 21	Pier 21	0.5 Sp. 22	Pier 22	0.5 Sp. 23	Pier 23	0.6 Sp. 24
I_s	(in ⁴)	85,969	287,316	75,511	274,546	75,511	274,546	75,511	274,546	75,511	274,546	75,511	287,316	85,969
$I_c(n)$	(in ⁴)	208,849	-	177,142	-	177,142	-	177,142	-	177,142	-	177,142	-	208,849
$I_c(3n)$	(in ⁴)	154,106	-	133,122	-	133,122	-	133,122	-	133,122	-	133,122	-	154,106
$I_c(cr)$	(in ⁴)	-	311,004	-	298,123	-	298,123	-	298,123	-	298,123	-	311,004	-
S_s	(in ³)	2,267	6,945	1,847	6,664	1,847	6,664	1,847	6,664	1,847	6,664	1,847	6,945	2,267
$S_c(n)$	(in ³)	3,089	-	2,549	-	2,549	-	2,549	-	2,549	-	2,549	-	3,089
$S_c(3n)$	(in ³)	2,832	-	2,330	-	2,330	-	2,330	-	2,330	-	2,330	-	2,832
$S_c(cr)$	(in ³)	-	7,107	-	6,828	-	6,828	-	6,828	-	6,828	-	7,107	-
DC1	(k/')	1.505	1.985	1.478	1.957	1.478	1.957	1.478	1.957	1.478	1.957	1.478	1.985	1.505
M_{DC1}	(k)	2,755	8,495	2,191	8,297	2,251	8,341	2,228	8,341	2,251	8,297	2,191	8,495	2,755
DC2	(k/')	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190	0.190
M_{DC2}	(k)	368	1,005	312	1,017	310	1,008	314	1,008	310	1,017	312	1,005	368
DW	(k/')	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467	0.467
M_{DW}	(k)	910	2,485	772	2,516	767	2,494	776	2,494	767	2,516	772	2,485	910
LLDF		0.715	0.753	0.657	0.727	0.657	0.727	0.657	0.727	0.657	0.727	0.657	0.753	0.715
M_{LL+IM}	(k)	3,983	5,960	3,543	6,210	3,725	6,350	3,766	6,350	3,725	6,210	3,543	5,960	3,983
M_u (Strength I)	(k)	12,239	26,033	10,487	26,284	10,871	26,540	10,932	26,540	10,871	26,284	10,487	26,033	12,239
ϕM_n	(k)	14,802	-	12,189	-	12,151	-	12,164	-	12,151	-	12,189	-	14,802
f_s DC1	(ksi)	14.6	14.7	14.2	14.9	14.6	15.0	14.5	15.0	14.6	14.9	14.2	14.7	14.6
f_s DC2	(ksi)	1.6	1.7	1.6	1.8	1.6	1.8	1.6	1.8	1.6	1.8	1.6	1.7	1.6
f_s DW	(ksi)	3.9	4.2	4.0	4.4	4.0	4.4	4.0	4.4	4.0	4.4	4.0	4.2	3.9
f_s (LL+IM)	(ksi)	15.5	10.1	16.7	10.9	17.5	11.2	17.7	11.2	17.5	10.9	16.7	10.1	15.5
f_s (Service II)	(ksi)	40.1	33.7	41.5	35.3	43.0	35.7	43.1	35.7	43.0	35.3	41.5	33.7	40.1
0.95R _h F _{yr}	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	53.0	44.4	55.0	46.6	56.9	47.1	57.1	47.1	56.9	46.6	55.0	44.4	53.0
ϕF_n	(ksi)	-	49.8	-	49.8	-	49.8	-	49.8	-	49.8	-	49.8	-
V_f	(k)	-	90.5	-	96.5	-	98.8	-	99.1	-	99.2	-	100.0	-

GIRDER REACTION TABLE																	
	Pier 17		Pier 18		Pier 19		Pier 20		Pier 21		Pier 22		Pier 23		Pier 24		
	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior	
LLDF	1.01	1.01	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	1.01	1.01	
OCF	-----	1.04	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.04	
R_{DC1}	(k)	92.9	84.7	392.3	361.2	382.6	352.2	383.7	353.2	383.7	353.2	382.6	352.2	392.3	361.2	92.9	84.7
R_{DC2}	(k)	12.0	12.0	45.3	45.3	44.9	44.9	44.8	44.8	44.8	44.8	44.9	44.9	45.3	45.3	12.0	12.0
R_{DW}	(k)	29.7	29.7	112.0	112.0	111.1	111.1	110.8	110.8	110.8	110.8	111.1	111.1	112.0	112.0	29.7	29.7
R_{LL}	(k)	124.9	124.9	273.2	273.2	282.1	282.1	285.8	285.8	285.8	285.8	282.1	282.1	273.2	273.2	124.9	124.9
R_{IM}	(k)	22.5	22.5	39.8	39.8	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.9	39.8	39.8	22.5	22.5
R_{Total}	(k)	281.9	273.7	862.6	831.6	860.6	830.3	865.0	834.5	865.0	834.5	860.6	830.3	862.6	831.6	281.9	273.7

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

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

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

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

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

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

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

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

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

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

LLDF: Live Load Distribution Factor

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

M_u (Strength I): Factored design moment (kip-ft.).

1.25 ($M_{DC1} + M_{DC2}$) + 1.5 M_{DW} + 1.75 M_{LL+IM}

ϕF_n : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

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

M_{DC1} / S_c

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).

f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (LL + IM)

0.95R_hF_{yr}: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (LL + IM)

ϕF_n : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

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

OCF: Obtuse Correction Factor

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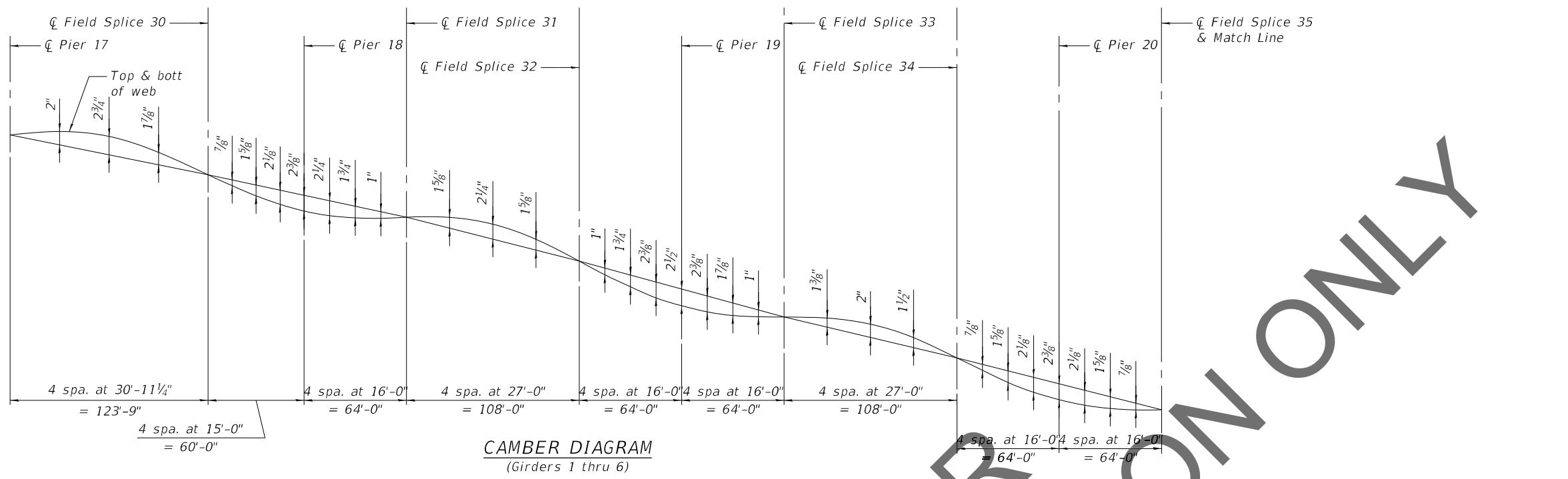
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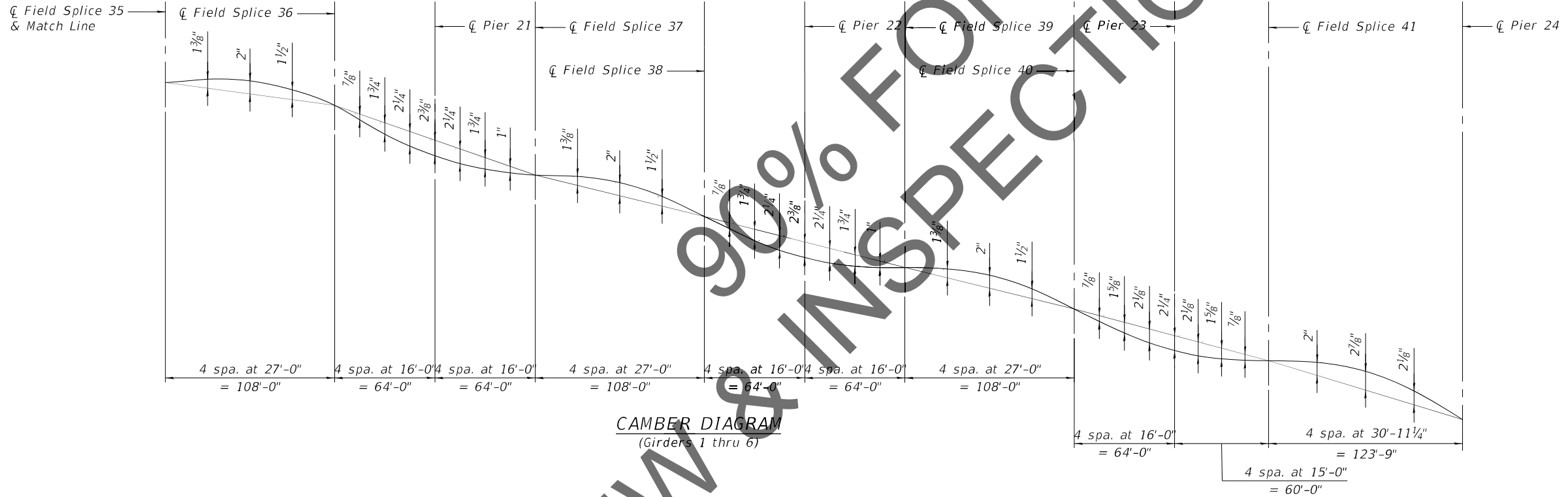
STRESS TABLES UNIT 4
 STRUCTURE NO. 060-0351 (WB)

SHEET 144 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	636
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



CAMBER DIAGRAM
(Girders 1 thru 6)



CAMBER DIAGRAM
(Girders 1 thru 6)

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Brg. Pier 17	460.16	460.38	460.60	460.82	460.65	460.46
☐ Field Splice 30	459.72	459.95	460.17	460.39	460.22	460.02
☐ Brg. Pier 18	459.24	459.46	459.68	459.90	459.73	459.54
☐ Field Splice 31	459.19	459.44	459.66	459.88	459.71	459.49
☐ Field Splice 32	458.65	458.90	459.12	459.34	459.17	458.95
☐ Brg. Pier 19	458.06	458.28	458.50	458.72	458.55	458.35
☐ Field Splice 33	457.96	458.19	458.41	458.63	458.46	458.25
☐ Field Splice 34	457.44	457.68	457.90	458.12	457.95	457.73
☐ Brg. Pier 20	456.88	457.10	457.32	457.54	457.37	457.18

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Field Splice 35	456.79	457.03	457.24	457.46	457.30	457.08
☐ Field Splice 36	456.26	456.50	456.72	456.94	456.78	456.56
☐ Brg. Pier 21	455.70	455.92	456.14	456.36	456.19	456.00
☐ Field Splice 37	455.61	455.85	456.07	456.29	456.12	455.91
☐ Field Splice 38	455.09	455.32	455.54	455.76	455.60	455.38
☐ Brg. Pier 22	454.52	454.74	454.96	455.18	455.01	454.82
☐ Field Splice 39	454.43	454.67	454.88	455.10	454.94	454.73
☐ Field Splice 40	453.90	454.14	454.36	454.58	454.41	454.19
☐ Brg. Pier 23	453.34	453.56	453.78	454.00	453.83	453.64

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Field Splice 41	453.24	453.47	453.69	453.91	453.75	453.54
☐ Brg. Pier 24	452.42	452.64	452.86	453.08	452.92	452.72

Note:
At ☐ Brg. Pier 17 and at ☐ Brg. Pier 24, the elevation given at theoretical top of web is prior to coping of web.

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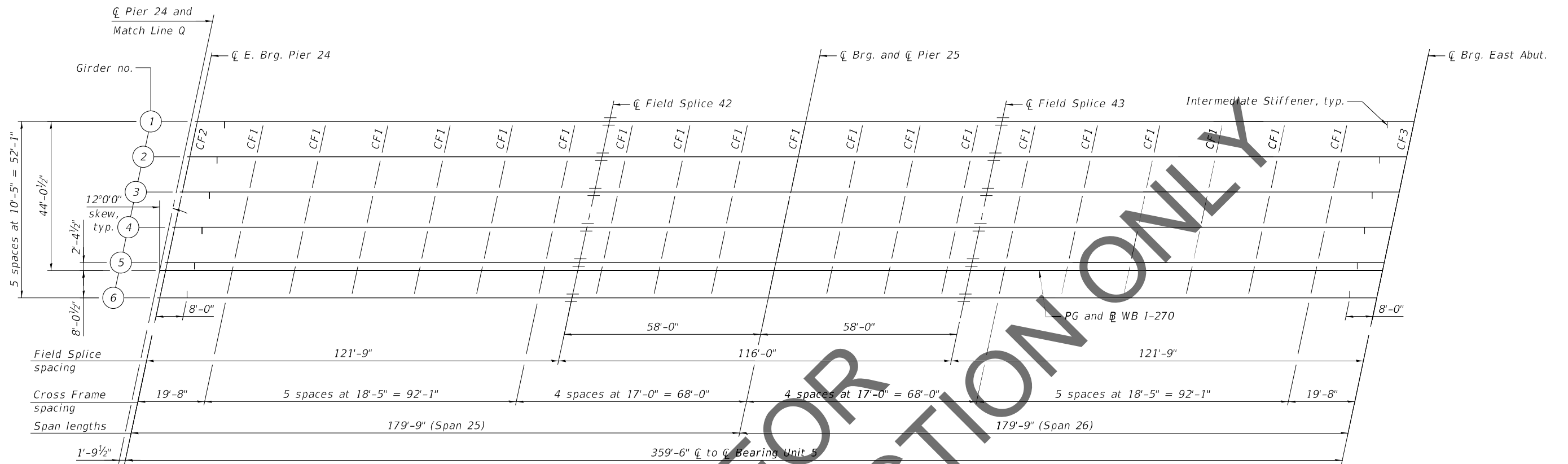
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STATE OF ILLINOIS
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CAMBER DATA UNIT 4
STRUCTURE NO. 060-0351 (WB)

SHEET 145 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	637
			CONTRACT NO. 76190	
ILLINOIS FED. AID PROJECT				



FRAMING PLAN - UNIT 5
(Spans 25 and 26)

REVIEW & INSPECTION ONLY

Notes:
For field splice details, see sheet 148 of 288.
For cross frame details, see sheet 149 of 288.

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HORNER SHIFRIN
Teaming with **PARSONS**

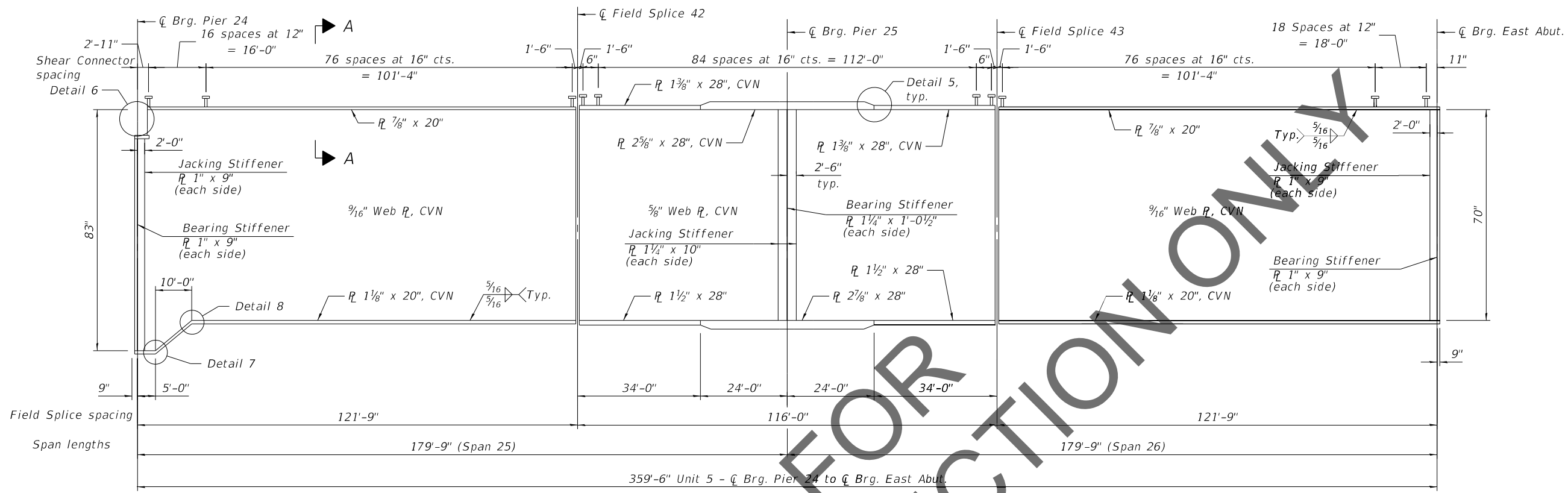
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FRAMING PLAN - UNIT 5
STRUCTURE NO. 060-0351 (WB)

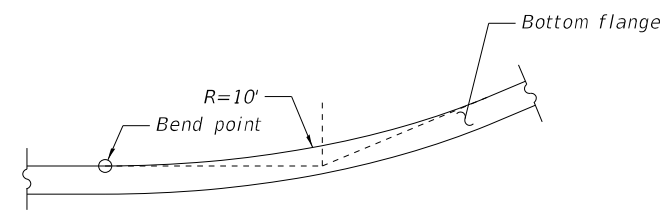
SHEET 146 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	638
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

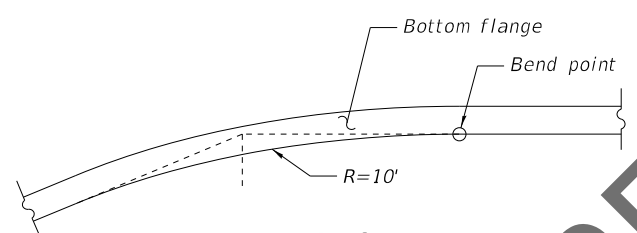


GIRDER ELEVATION - UNIT 5
(Spans 25 and 26)

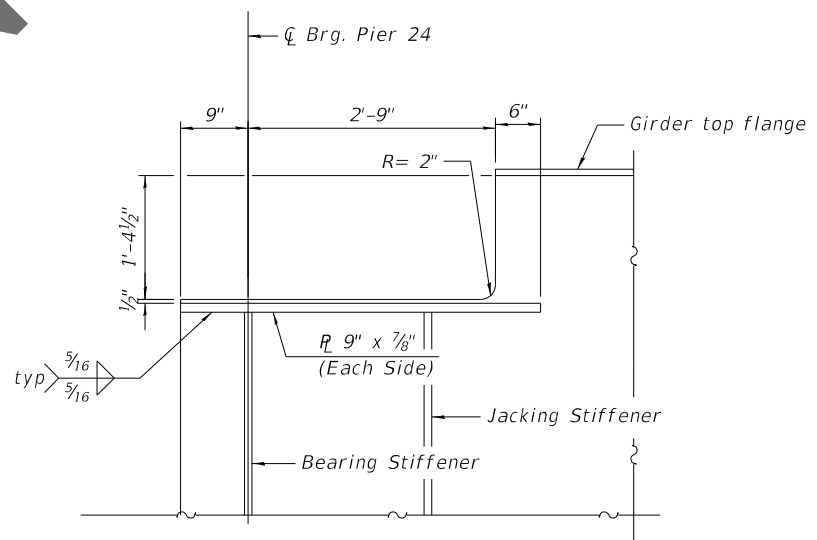
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



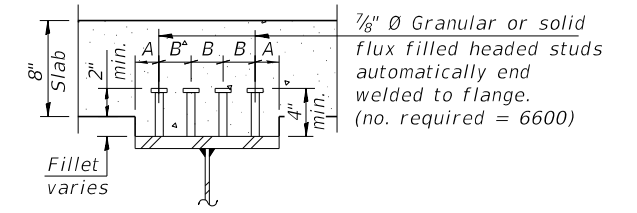
DETAIL 7



DETAIL 8

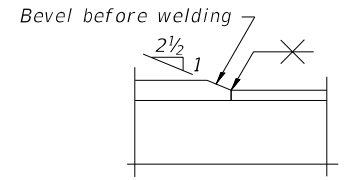


DETAIL 6



SECTION A-A

Flange Width	A	B
20"	2 1/2"	5"
28"	2"	8"



DETAIL 5

REVIEW & INSPECTION ONLY

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HORNER SHIFRIN
Teaming with: **PARSONS**

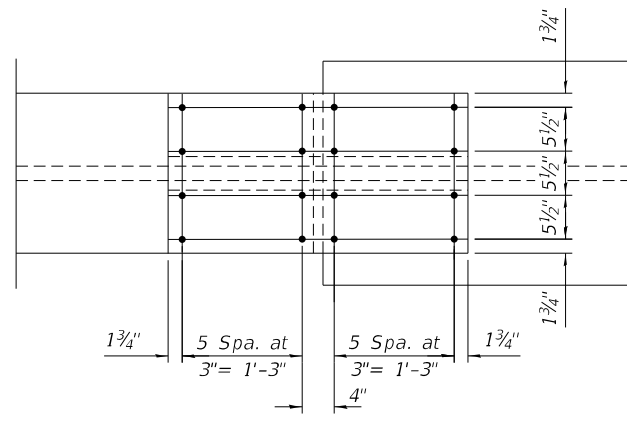
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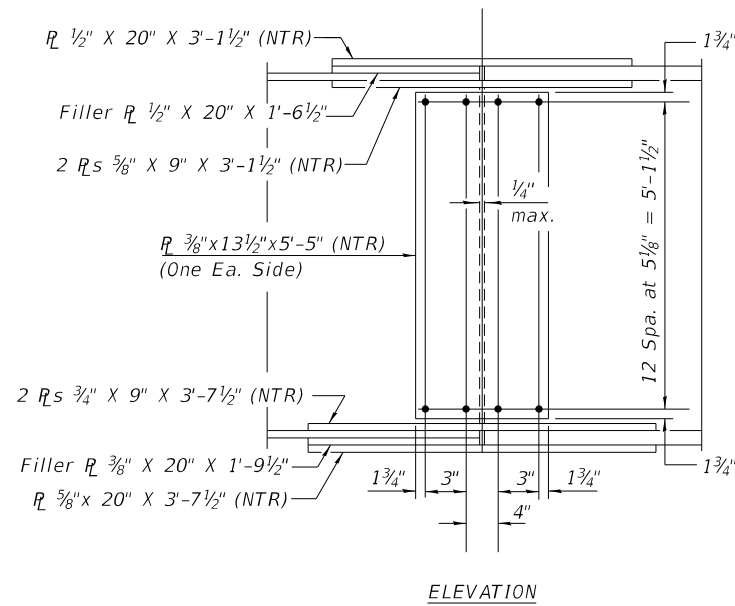
GIRDER ELEVATION UNIT 5
STRUCTURE NO. 060-0351 (WB)

SHEET 147 OF 288 SHEETS

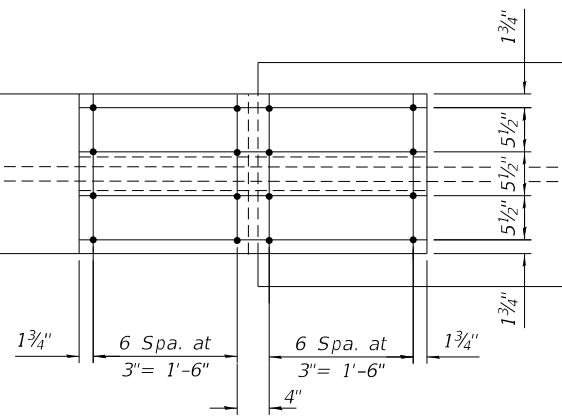
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	639
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



TOP FLANGE



ELEVATION



BOTTOM FLANGE

FIELD SPLICE 42 & 43 DETAIL

REVIEW & INSPECTION ONLY

Notes:
 All Structural Steel shall be AASHTO M270 Grade 50.
 Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

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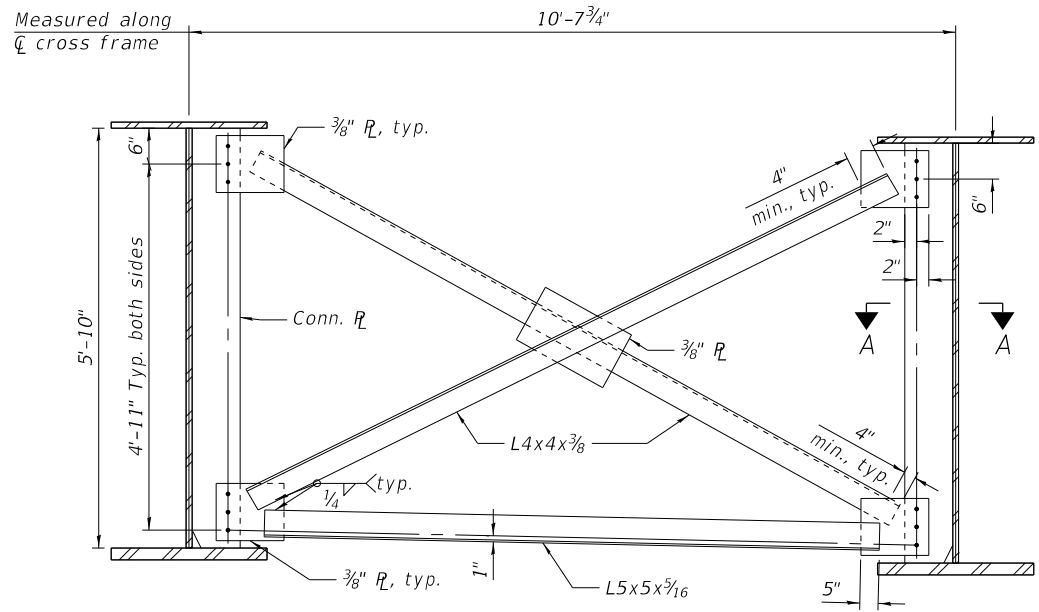
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

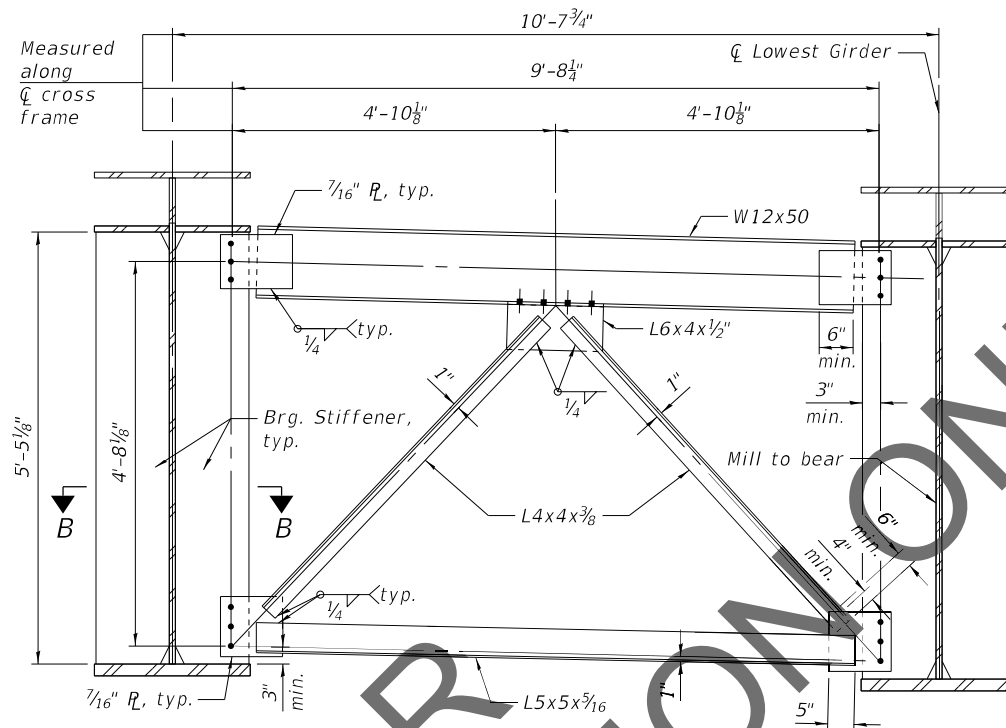
**STEEL DETAILS UNIT 5 - 1
STRUCTURE NO. 060-0351 (WB)**

SHEET 148 OF 288 SHEETS

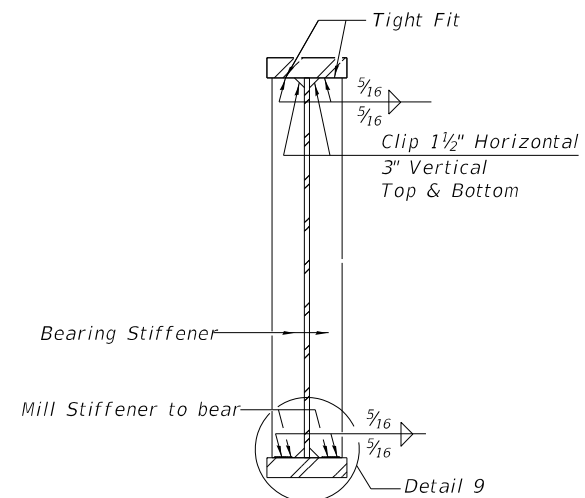
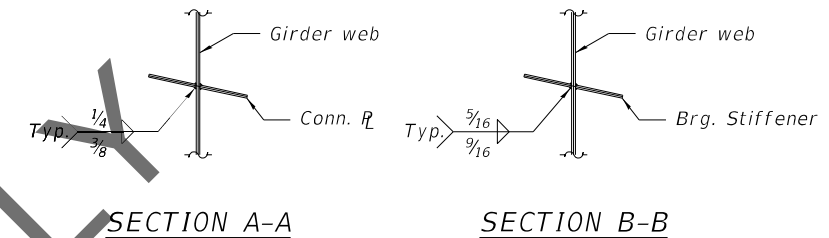
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	640
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



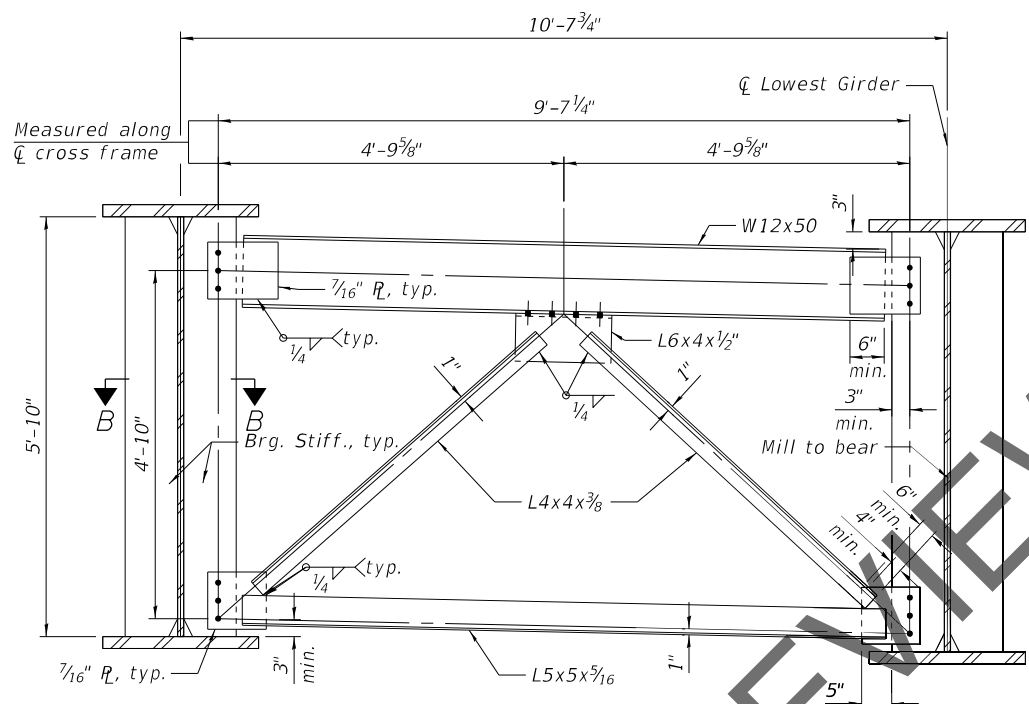
INTERIOR CROSS FRAME (CF1)
(95 Required)



END CROSS FRAME (CF2)
(5 Required)

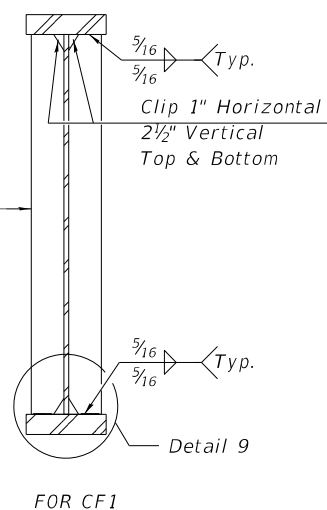


BEARING AND JACKING STIFFENER DETAILS

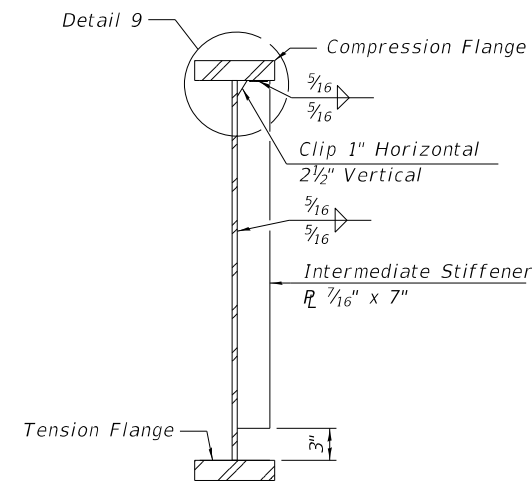


END CROSS FRAME (CF3)
(5 Required)

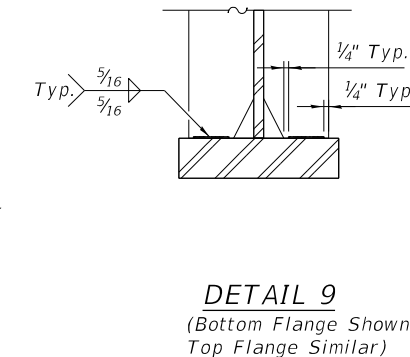
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CONNECTION PLATE DETAILS



INTERMEDIATE STIFFENER DETAIL



DETAIL 9
(Bottom Flange Shown, Top Flange Similar)

Notes:
 All Structural Steel shall be AASHTO M 270 Grade 50.
 Provide 1 1/16" Ø holes for all 7/8" Ø HS bolts.
 Two hardened washers required for each set of oversized holes.
 All cross frames shall be installed as steel is erected and secured with erection pins and bolts. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.

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HORNER SHIFRIN
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STEEL DETAILS UNIT 5 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 149 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	641
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 25	Pier 25	0.6 Sp. 26
I_s	(in ⁴)	66,106	221,404	66,106
$I_c(n)$	(in ⁴)	158,184	-	158,184
$I_c(3n)$	(in ⁴)	117,776	-	117,776
$I_c(cr)$	(in ⁴)	-	240,432	-
S_s	(in ³)	1,952	6,059	1,952
$S_c(n)$	(in ³)	2,619	-	2,619
$S_c(3n)$	(in ³)	2,414	-	2,414
$S_c(cr)$	(in ³)	-	6,214	-
DC1	(k/')	1.487	1.961	1.487
M_{DC1}	('k)	2,601	8,023	2,601
DC2	(k/')	0.190	0.190	0.190
M_{DC2}	('k)	358	948	358
DW	(k/')	0.467	0.467	0.467
M_{DW}	('k)	879	2,329	879
LLDF		0.700	0.768	0.700
M_{LL+IM}	('k)	3,435	4,963	3,435
M_u (Strength I)	('k)	11,029	23,393	11,029
$\phi_f M_n$	('k)	12,467	-	12,467
f_s DC1	(ksi)	16.0	15.9	16.0
f_s DC2	(ksi)	1.8	1.8	1.8
f_s DW	(ksi)	4.4	4.5	4.4
f_s (LL+IM)	(ksi)	15.7	9.6	15.7
f_s (Service II)	(ksi)	42.6	34.7	42.6
$0.95R_h F_{yf}$	(ksi)	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	56.3	45.7	56.3
ϕF_v	(ksi)	-	50.0	-
V_f	(k)	-	86.2	-

GIRDER REACTION TABLE							
		Pier 24		Pier 25		E. Abut.	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
LLDF		1.01	1.01	0.98	0.98	1.01	1.01
OCF		-----	1.04	-----	-----	-----	1.04
R_{DC1}	(k)	89.8	81.9	383.3	352.8	89.8	81.9
R_{DC2}	(k)	11.8	11.8	44.7	44.7	11.8	11.8
R_{DW}	(k)	29.0	29.0	109.9	109.9	29.0	29.0
R_{LL}	(k)	117.4	117.4	252.3	252.3	117.4	117.4
R_{IM}	(k)	22.4	22.4	39.6	39.6	22.4	22.4
R_{Total}	(k)	270.4	262.5	829.8	799.3	270.4	262.5

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

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

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

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

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

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

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

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

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

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

LLDF: Live Load Distribution Factor

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

M_u (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{LL+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

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

M_{DC1} / S_{nc}

$f_s DC2$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

$f_s DW$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

$f_s (LL+IM)$: Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (LL+IM)$

$0.95R_h F_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (LL+IM)$

ϕF_v : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

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

OCF: Obtuse Correction Factor

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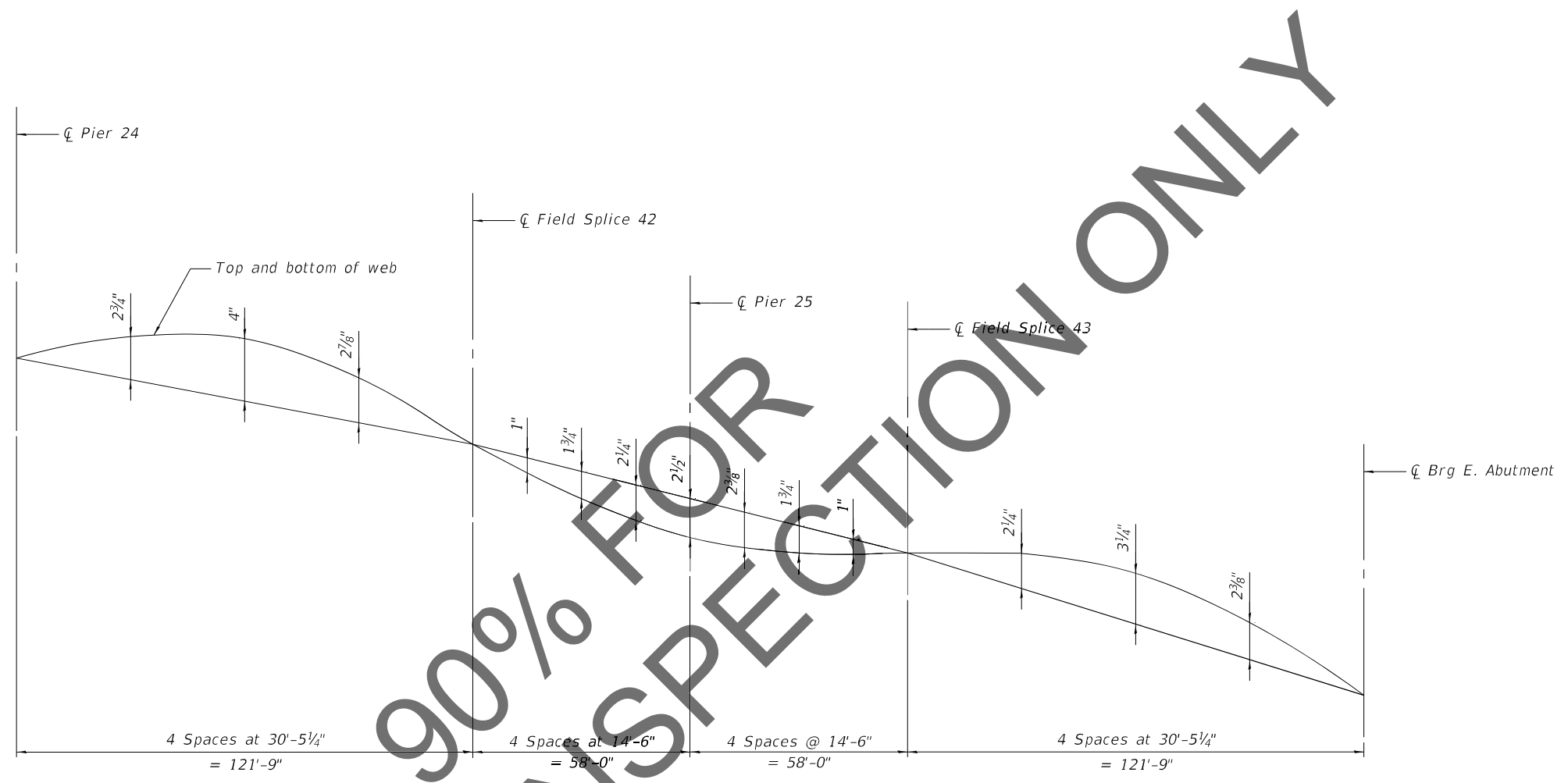
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STRESS TABLES UNIT 5
STRUCTURE NO. 060-0351 (WB)

SHEET 150 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	642
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76190	



CAMBER DIAGRAM
(Girders 1 thru 6)

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
☐ Brg. Pier 24	452.41	452.63	452.85	453.07	452.90	452.70
☐ Field Splice 1	452.04	452.29	452.51	452.73	452.56	452.34
☐ Brg. Pier 25	451.51	451.73	451.95	452.17	452.00	451.81
☐ Field Splice 2	451.36	451.59	451.81	452.03	451.86	451.66
☐ Brg. E. Abut.	450.61	450.83	451.05	451.27	451.10	450.91

Note: At ☐ Brg. Pier 24 and at ☐ Brg. East Abutment the elevation given at the theoretical top of the web is prior to coping of web.

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HORNER SHIFRIN
Teaming with: **PARSONS**

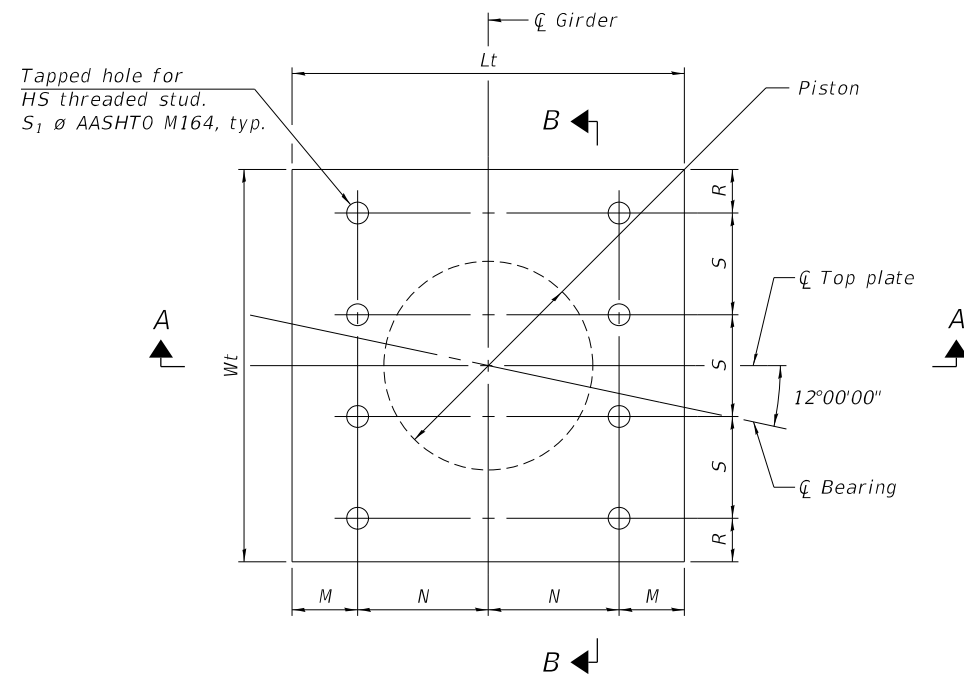
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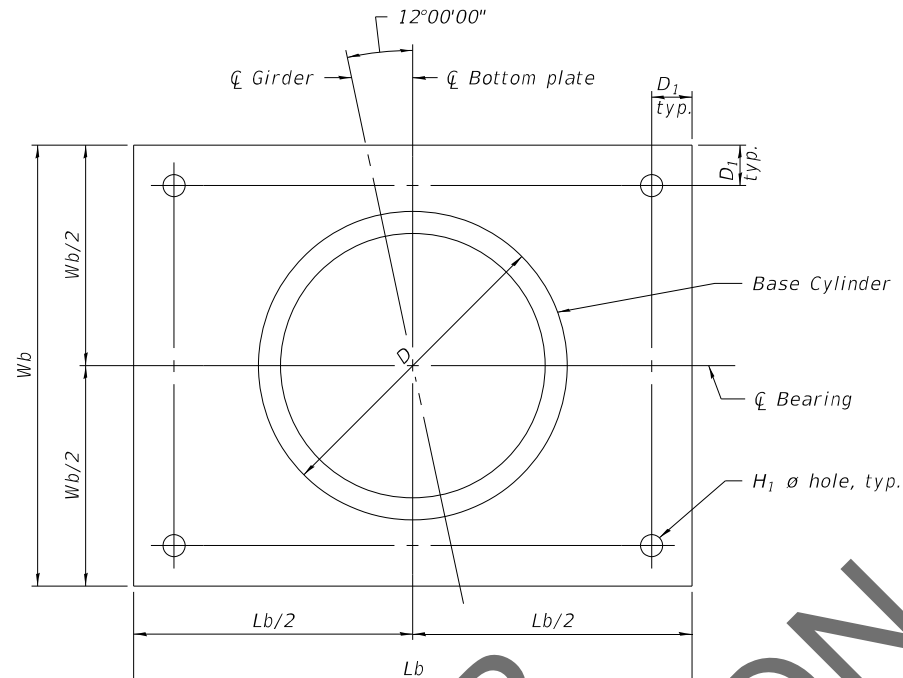
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STRUCTURE NO. 060-0351 (WB)

SHEET 151 OF 288 SHEETS

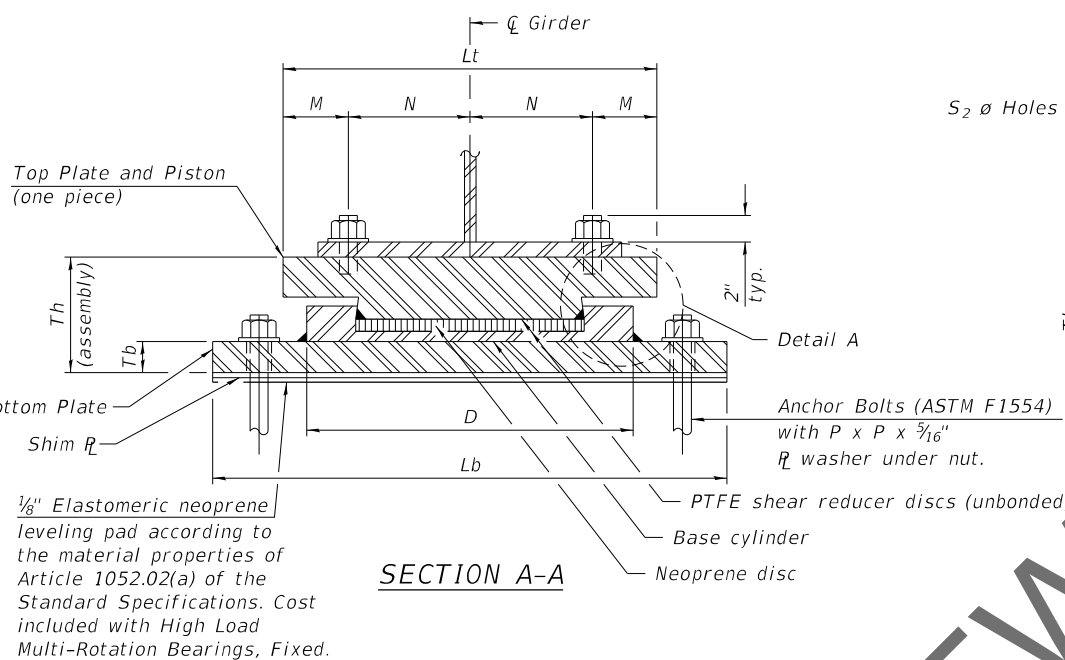
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	643
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



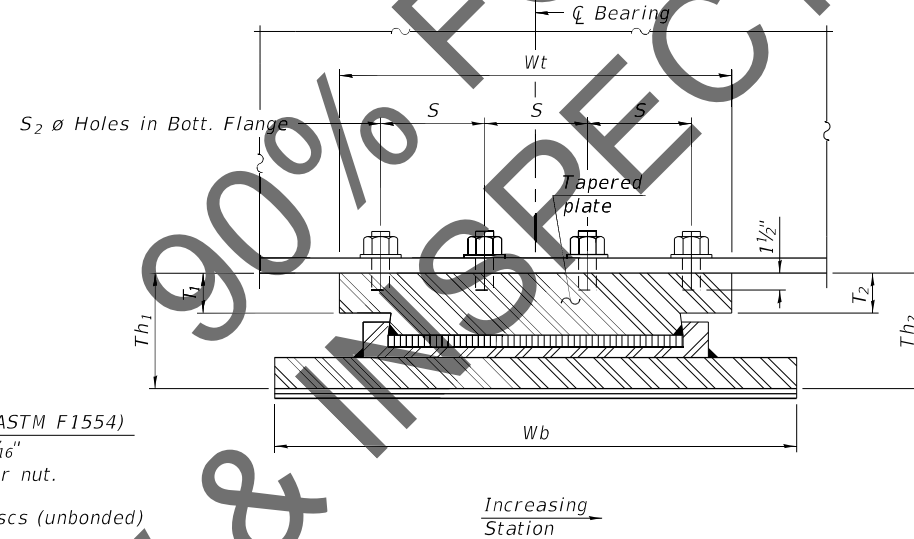
TOP BEARING P AND PISTON PLAN



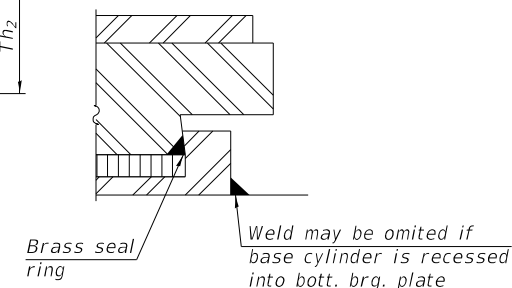
BOTTOM BEARING P AND BASE CYLINDER PLAN (Piers 1 & 2)



SECTION A-A



SECTION B-B



DETAIL A

Notes:
 The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
 Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
 Threaded studs shall conform to AASHTO M253, Type 1.
 H.S. bolts in bearing assembly shall be galvanized according to AASHTO M253 Class 50.
 All bearing plates, side retainers, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M111 or M232 as applicable.
 The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 550k	Each	14
Anchor Bolts, 1 1/2"	Each	56

FIXED BEARING DIMENSION TABLE

Brg. Location	Service I Factored			Bottom Bearing Plate				Top Bearing Plate							Th	Th ₁	Th ₂	D	S ₂	Anchor Bolt	Anchor Bolt Grade	P			
	Vertical Design Load (kips)	Lateral Design Load (kips)	Design Rotation (Radians)	T _b	L _b	W _b	H ₁	D ₁	T ₁	T ₂	L _t	W _t	M	N									R	S	S ₁
Pier 1	496	148.8	0.0023	2"	32"	20"	2"	2 3/4"	2 1/4"	2 1/4"	21"	20"	5 1/2"	5"	2 1/2"	5"	3/4"	12"	12"	12"	18 1/4"	7/8"	1 1/2" ø x 18"	105	3"
Pier 2	496	148.8	0.0023	2"	32"	20"	2"	2 3/4"	2 1/4"	2 1/4"	21"	20"	5 1/2"	5"	2 1/2"	5"	3/4"	12"	12"	12"	18 1/4"	7/8"	1 1/2" ø x 18"	105	3"

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HORNER SHIFRIN
PARSONS

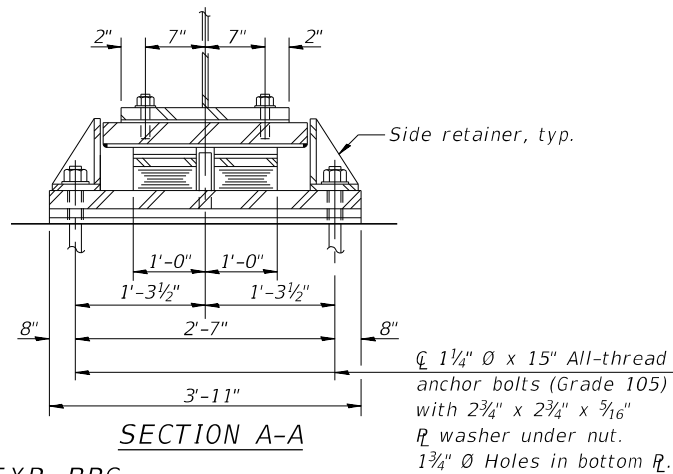
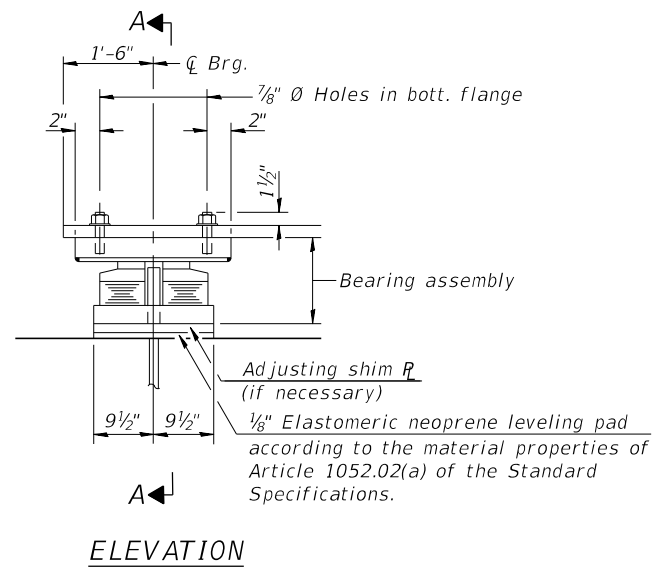
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

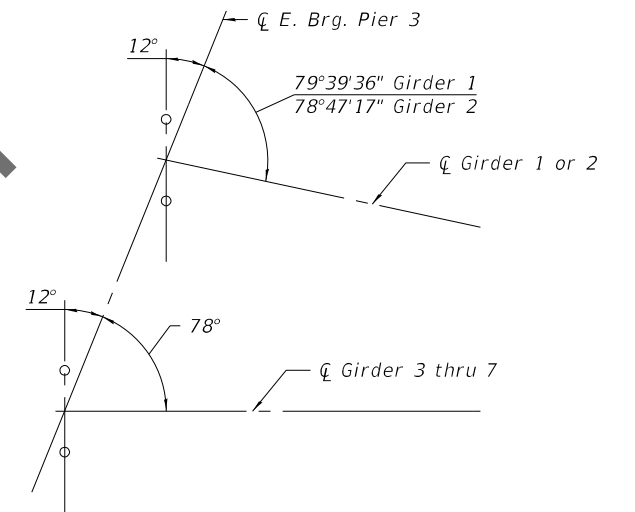
BEARING DETAILS UNIT 1 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 153 OF 288 SHEETS

F.A.1 RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	645
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



TYPE III ELASTOMERIC EXP. BRG.
(Girders 1 thru 7 Unit 2 at Pier 3.
Girders 1 thru 5 and 7 Unit 2 at Pier 10)



Notes:

The 1/8" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

All bearing plates, side retainers, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M111 or M232 as applicable.

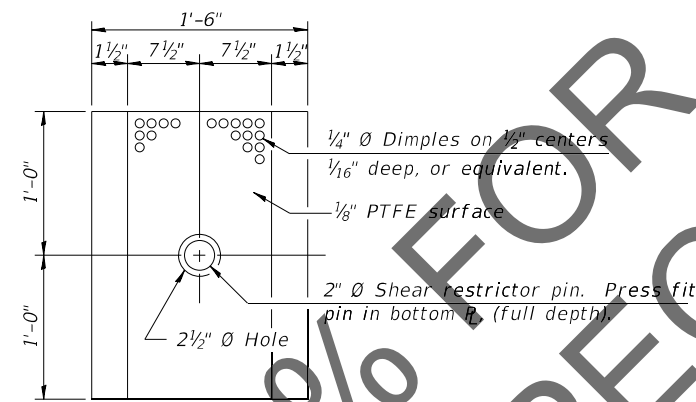
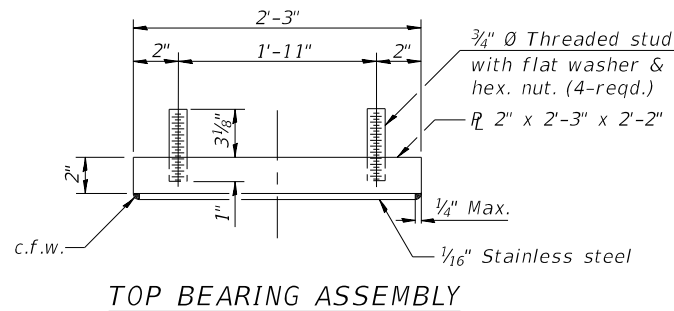
The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

Side retainers shall be included in the cost of Elastomeric Bearing Assembly, Type III.

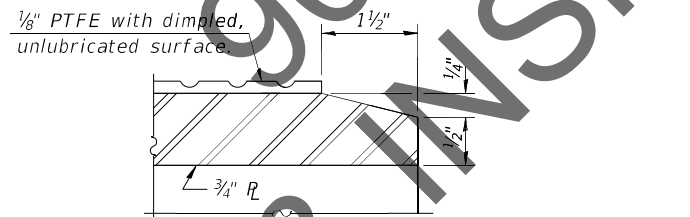
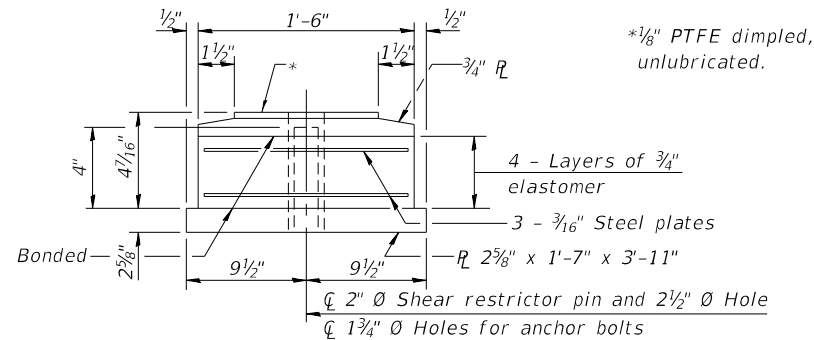
Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

The required shim plate at W. Brg. Pier 3 shall be fabricated to the specified thickness. Welding thinner plates together to the thickness in the table is not permitted.

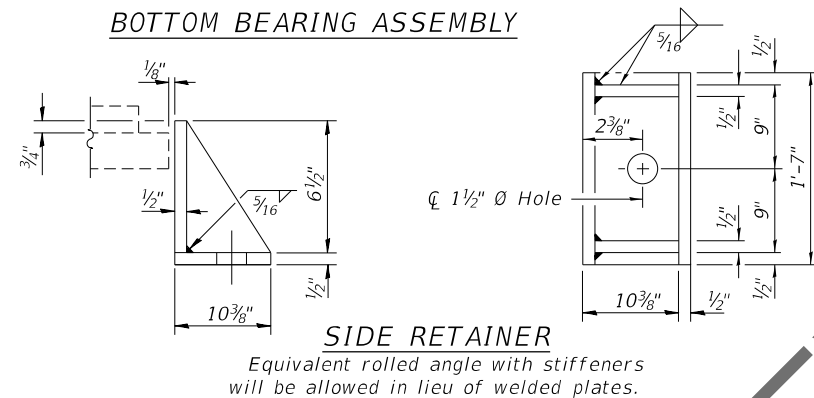
Threaded studs shall be AASHTO M253, Type I.



PLAN-PTFE ELASTOMERIC BRG.



SECTION THRU PTFE



EXPANSION BEARING ORIENTATION

BELOW 50° F. $D = 1/8"$ per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F. Contriuting expansion length to Pier 3 = 742' and to Pier 10 = 838'.

ABOVE 50° F.

The above diagrams are for informational purposes only to show the amount of expected offset "D" for the current temperature in the field.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type III	Each	13
Anchor Bolts, 1 1/4"	Each	26

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HORNER SHIFRIN
PARSONS

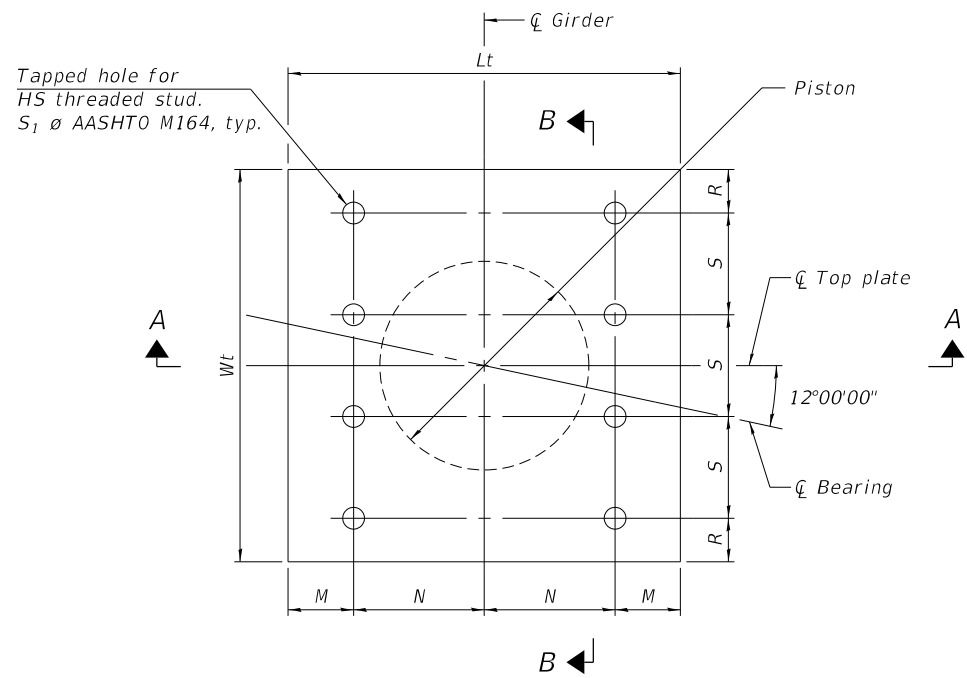
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

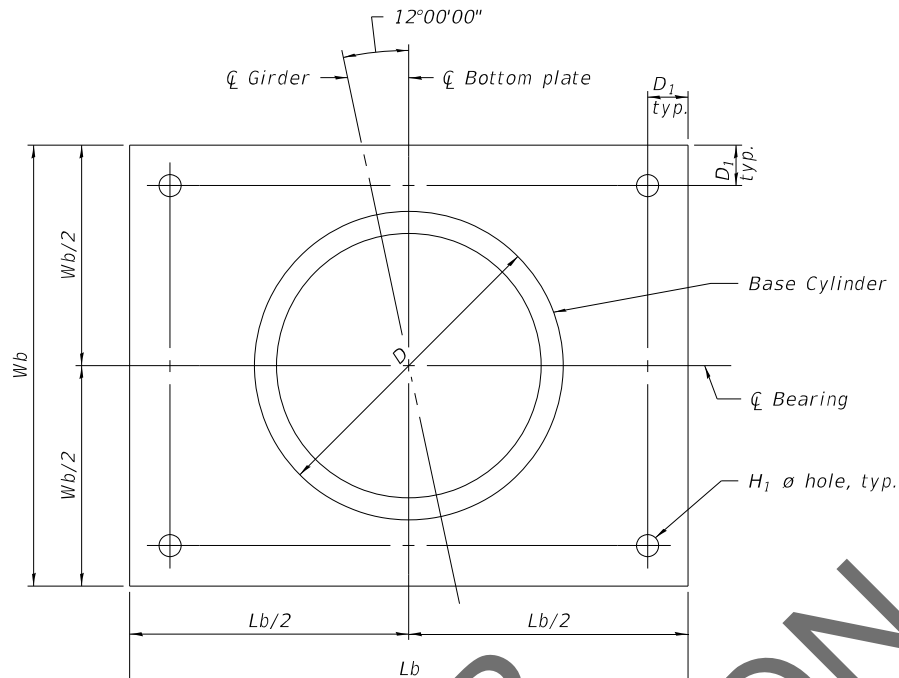
BEARING DETAILS UNIT 2 - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 154 OF 288 SHEETS

F.AJ RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	646
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

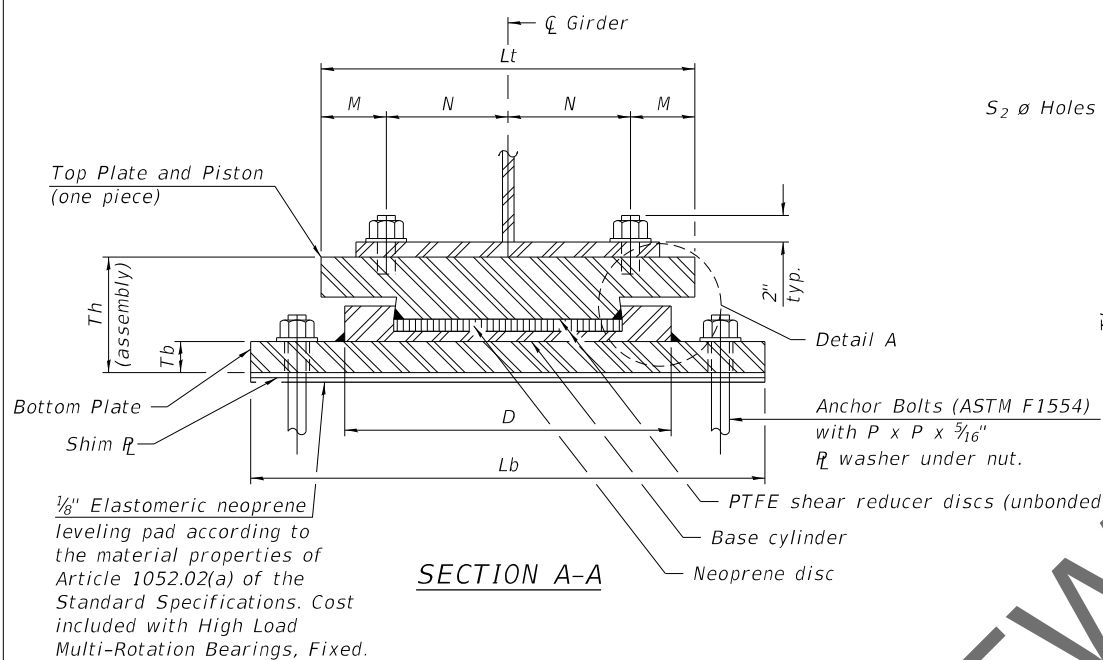


TOP BEARING P AND PISTON PLAN

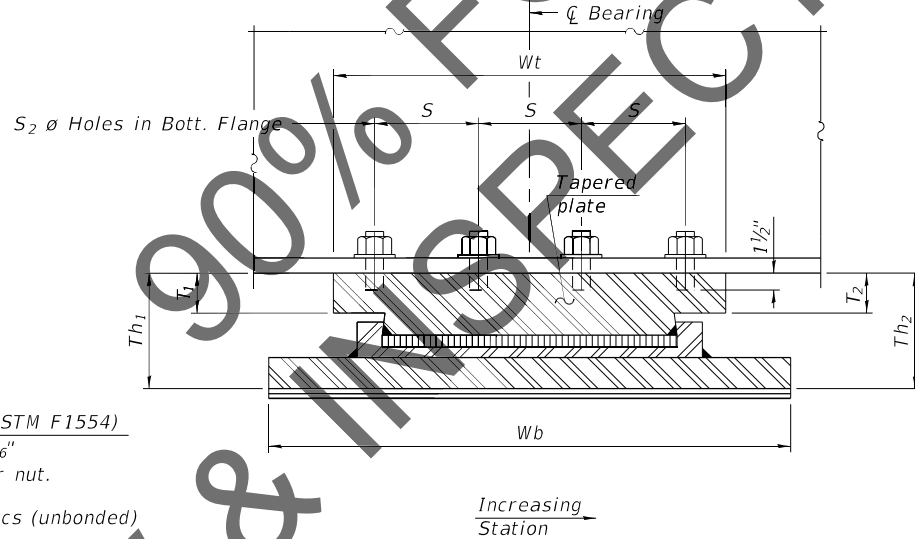


BOTTOM BEARING P AND BASE CYLINDER PLAN
Same as on Unit 1 (Piers 5 thru 8)

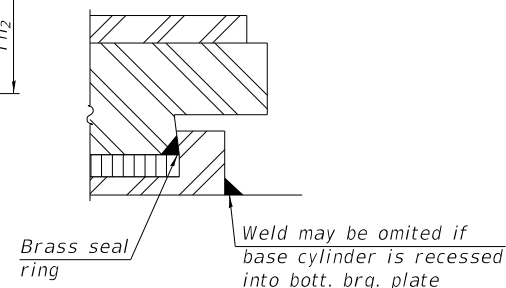
Notes:
 The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
 Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
 Threaded studs shall conform to AASHTO M253, Type I.
 H.S. bolts in bearing assembly shall be galvanized according to AASHTO M253 Class 50.
 All bearing plates, side retainers, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M111 or M232 as applicable.
 The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.



SECTION A-A



SECTION B-B



DETAIL A

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 900k	Each	24
Anchor Bolts, 2"	Each	96

FIXED BEARING DIMENSION TABLE

Brg. Location	Service I Factored			Bottom Bearing Plate					Top Bearing Plate									Th	Th1	Th2	D	S2	Anchor Bolt	Anchor Bolt Grade	P
	Vertical Design Load (kips)	Lateral Design Load (kips)	Design Rotation (Radians)	Tb	Lb	Wb	H1	D1	T1	T2	Lt	Wt	M	N	R	S	S1								
Pier 5	796.2	238.9	0.0042	3"	49"	36"	2 1/2"	3 1/4"	2 1/16"	3 1/16"	36"	30"	10"	8"	6"	6"	1"	15"	14 1/16"	15 1/16"	24"	1 1/8"	2" ø x 24"	36	3 1/2"
Pier 6	810.7	243.2	0.0022	3"	49"	36"	2 1/2"	3 1/4"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1 1/8"	2" ø x 24"	36	3 1/2"
Pier 7	804.1	241.2	0.0030	3"	49"	36"	2 1/2"	3 1/4"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1 1/8"	2" ø x 24"	36	3 1/2"
Pier 8	816.7	245.0	0.0023	3"	49"	36"	2 1/2"	3 1/4"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1 1/8"	2" ø x 24"	36	3 1/2"

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HORNER SHIFRIN
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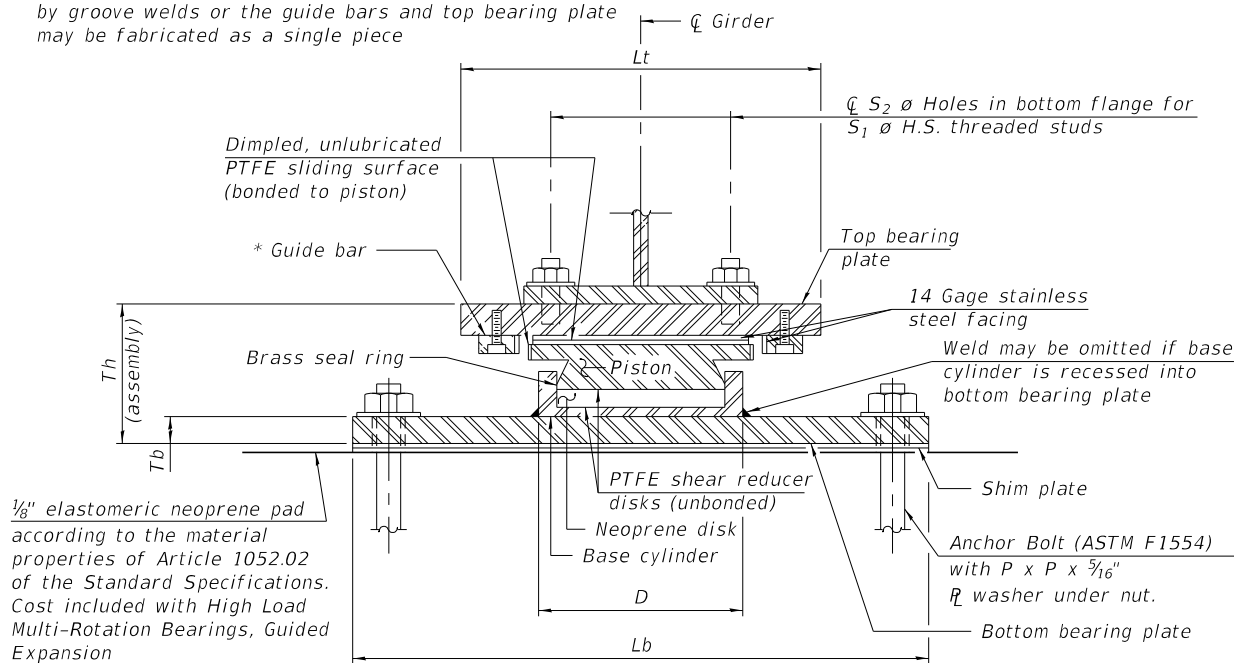
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNIT 2 - 2
 STRUCTURE NO. 060-0351 (WB)

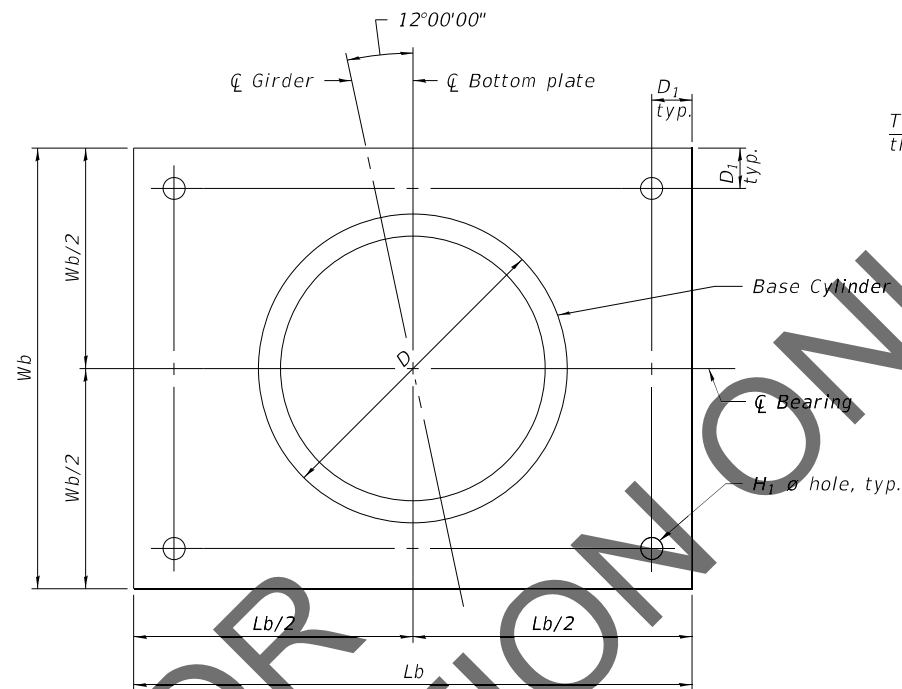
SHEET 155 OF 288 SHEETS

F.AJ RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	647
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

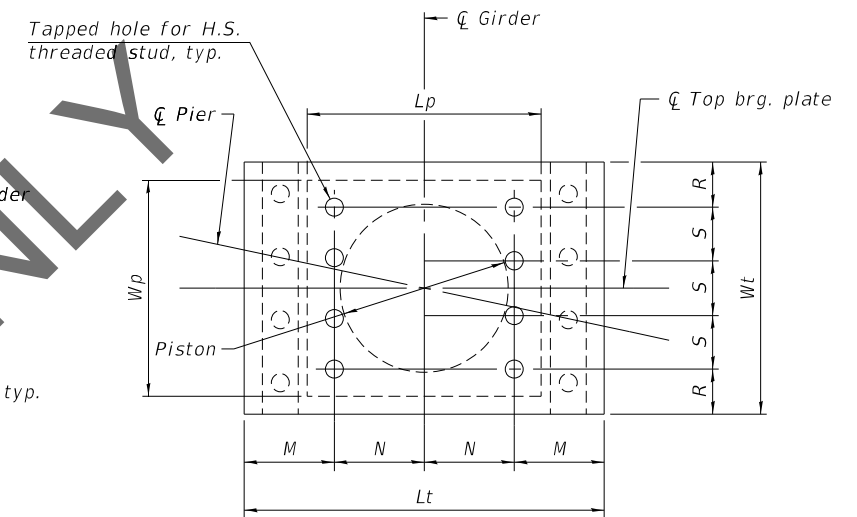
* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece



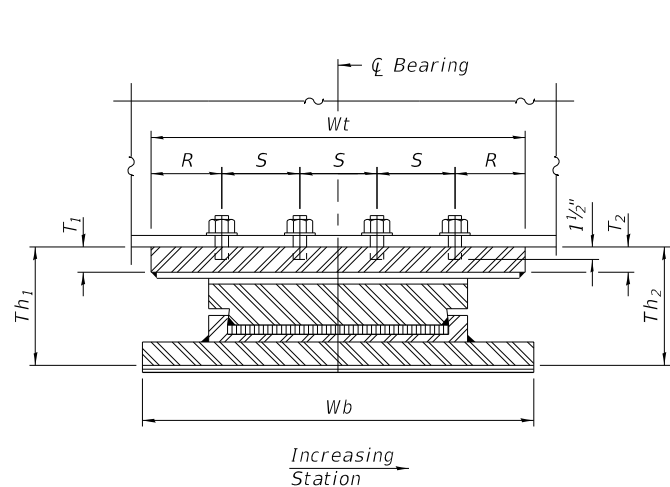
GUIDED EXPANSION BEARING



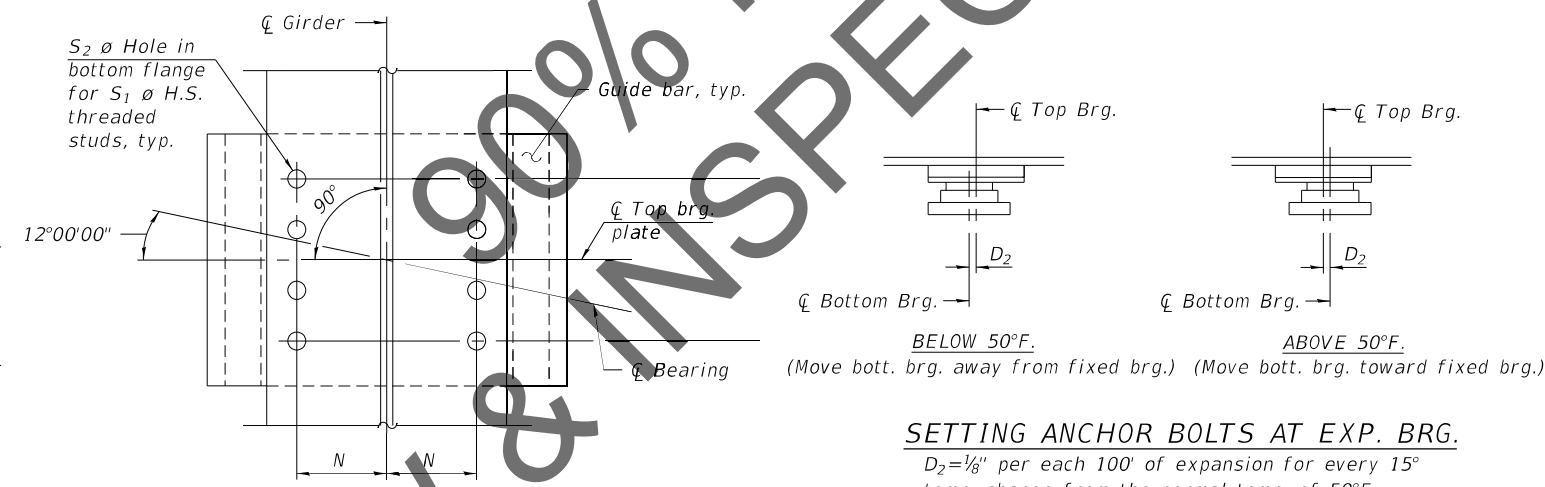
BOTTOM BEARING R AND BASE CYLINDER PLAN



TOP BEARING R AND PISTON PLAN



TOP PLATE TAPER DETAIL



BEARING ALIGNMENT

SETTING ANCHOR BOLTS AT EXP. BRG.

$D_2 = \frac{1}{8}"$ per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F. Contributing expansion length to Pier 4 = 535 and to Pier 9 = 646'.

Notes:
 The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
 Two $\frac{1}{8}$ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
 Threaded studs shall conform to AASHTO M253, Type I.
 H.S. bolts in bearing assembly shall be galvanized according to AASHTO M253 Class 50.
 All bearing plates, side retainers, anchor bolts, nuts, and washers shall be galvanized according to AASHTO M111 or M232 as applicable.
 The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion, 900k	Each	13
Anchor Bolts, 2"	Each	52

GUIDED EXPANSION BEARING DIMENSION TABLE

Brg. Location	Service / Factored			Bottom Bearing Plate					Top Bearing Plate										T_h	T_{h1}	T_{h2}	D	S_2	Anchor Bolt	Anchor Bolt Grade	P	
	Vertical Design Load (kips)	Lateral Design Load (kips)	Design Rotation (Radians)	T_b	L_b	W_b	H_1	D_1	T_1	T_2	Lt	W_t	M	N	R	S	S_1	W_p									L_p
Pier 4	831.2	249.4	0.0039	3"	49"	36"	2 1/2"	3 1/4"	3"	3"	36"	40"	10"	8"	11"	6"	1"	28 1/2"	28 1/2"	15"	15"	15"	24"	1 1/8"	2" ϕ x 24"	36	3 1/2"
Pier 9	841.9	252.6	0.0015	3"	49"	36"	2 1/2"	3 1/4"	3"	3"	36"	40"	10"	8"	11"	6"	1"	28 1/2"	28 1/2"	15"	15"	15"	24"	1 1/8"	2" ϕ x 24"	36	3 1/2"

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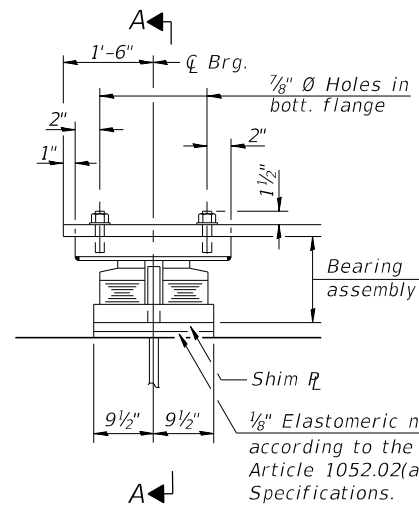
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNIT 2 - 3
 STRUCTURE NO. 060-0351 (WB)

SHEET 156 OF 288 SHEETS

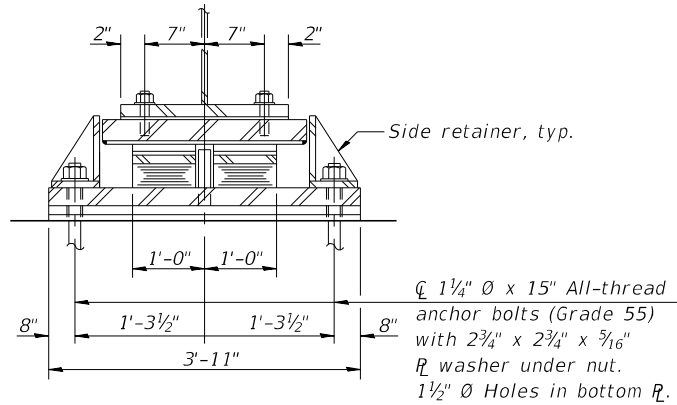
F.AJ RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	648
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



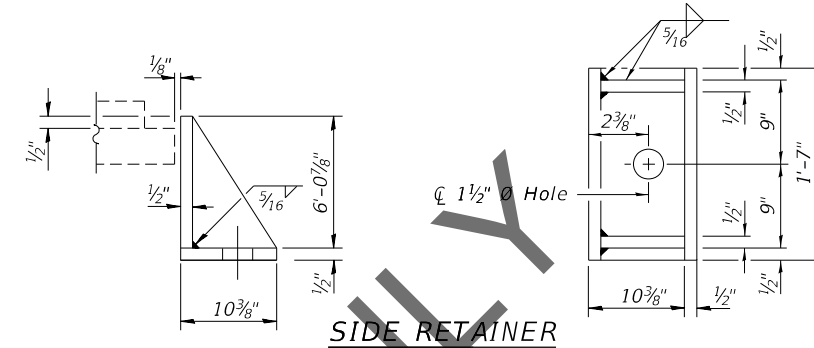
ELEVATION

SHIM PLATE THICKNESS

Unit	Pier	Girder	Shim Plate Thickness
3	10	1-6	1/4"
3	17	1-3	3/8"
3	17	4-6	1/4"
4	24	1-6	1/8"

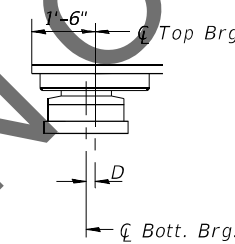


SECTION A-A



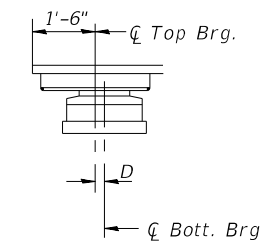
SIDE RETAINER

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



BELOW 50° F.

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.



ABOVE 50° F.

Assumed contributing expansion length = 819 ft. for Unit 3 Pier 10 and 17
Assumed contributing expansion length = 784 ft. for Unit 4 Pier 17 and 24

EXPANSION BEARING ORIENTATION

The above diagrams are for informational purposes only to show the amount of expected offset "D" for the current temperature in the field.

Notes:

Side retainers and leveling pad required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type III.

The 1/8" PTFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

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.

The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.

Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on the bearing details.

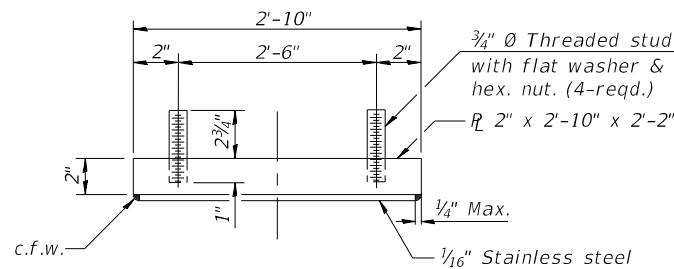
The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

BILL OF MATERIAL

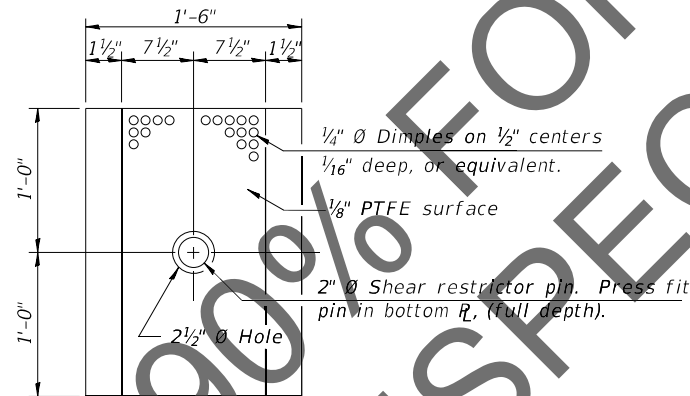
Item	Unit	Total
Elastomeric Bearing Assembly Type III	Each	24
Anchor Bolts, 1 1/4"	Each	48

TYPE III ELASTOMERIC EXP. BRG.

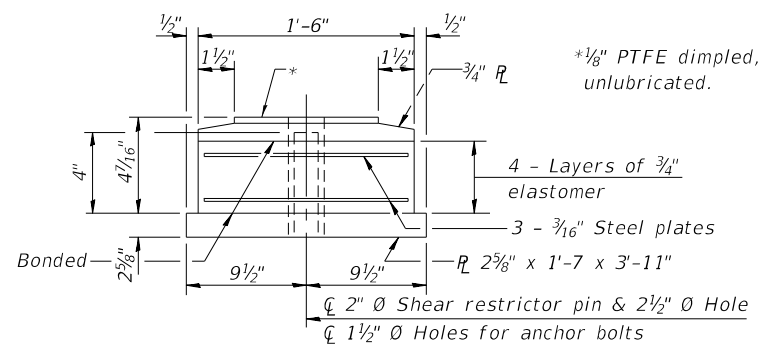
(Girders 1 thru 6 Unit 3 at Pier 10
Girders 1 thru 6 Unit 3 at Pier 17
Girders 1 thru 6 Unit 4 at Pier 17
Girders 1 thru 6 Unit 4 at Pier 24)



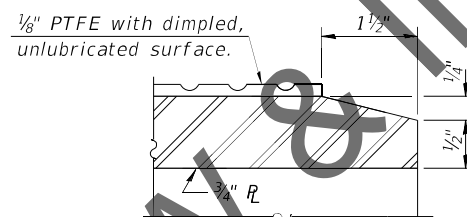
TOP BEARING ASSEMBLY



PLAN-PTFE ELASTOMERIC BRG.

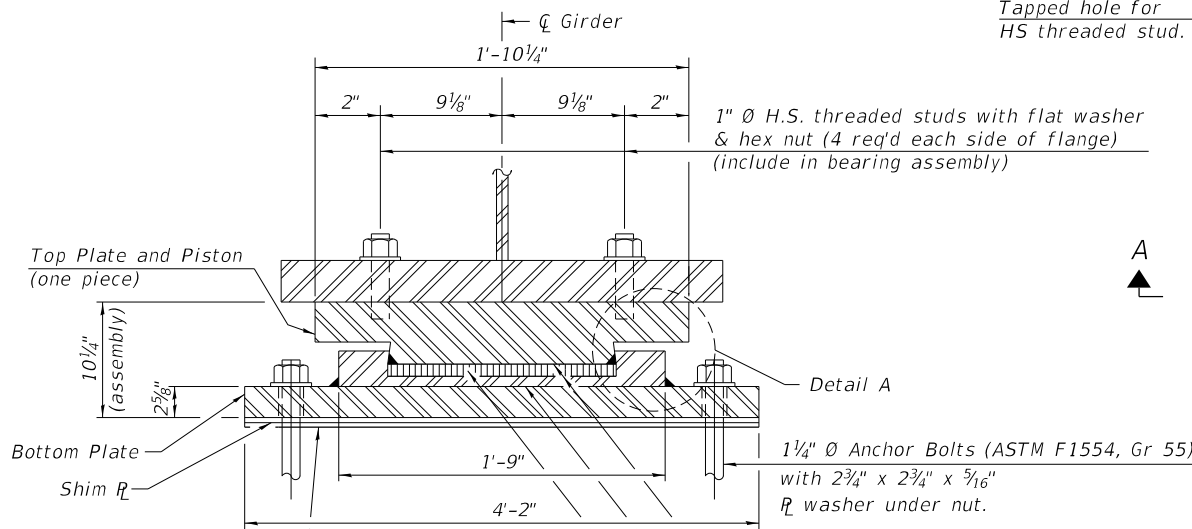


BOTTOM BEARING ASSEMBLY



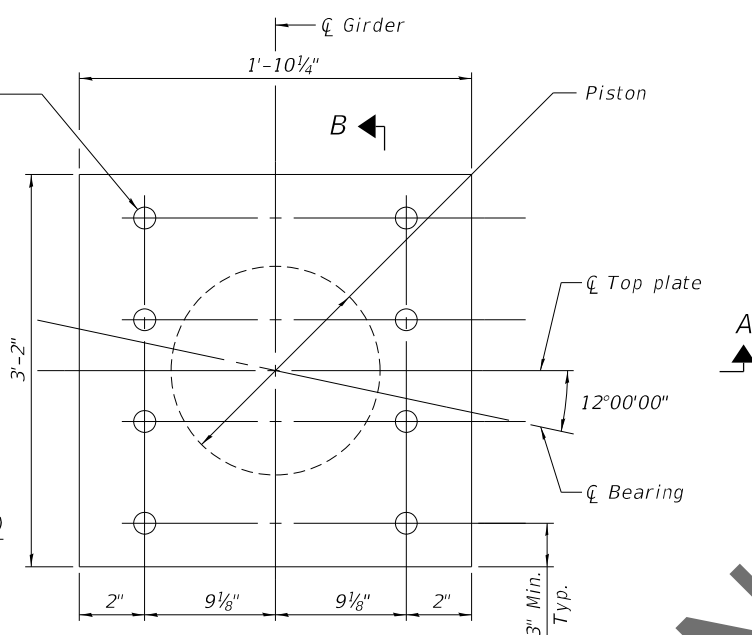
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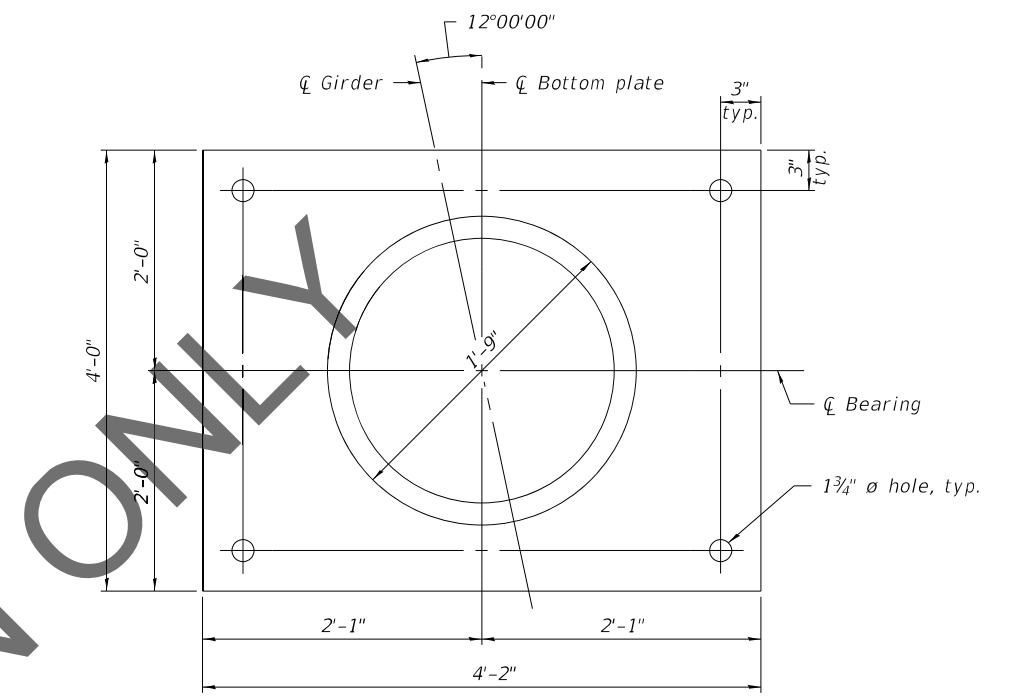


1/8" Elastomeric neoprene leveling pad according to the material properties of Article 1052.02(a) of the Standard Specifications. Cost included with High Load Multi-Rotation Bearings, Fixed.

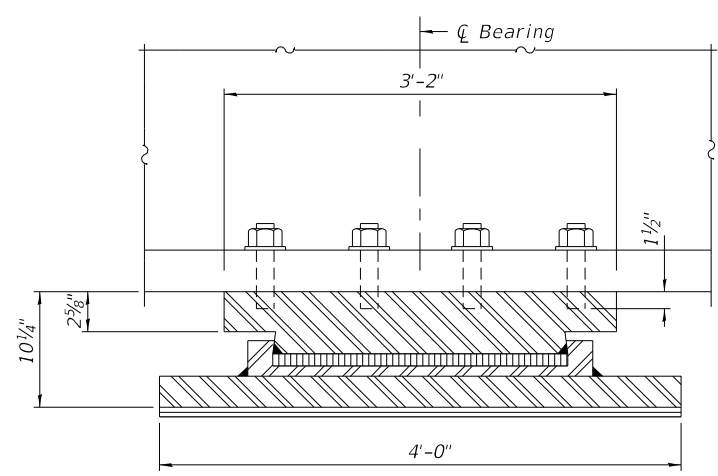
SECTION A-A



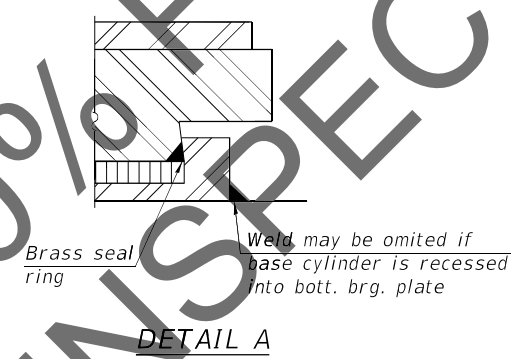
TOP BEARING PLATE AND PISTON PLAN



BOTTOM BEARING PLATE AND BASE CYLINDER PLAN



SECTION B-B



DETAIL A

Brg. Location	Service Vert. (kips)	Factored Lat. (kips)	Factored Rotation (rad.)
Pier 12 & 15	817	238	0.01
Pier 13 & 14	827	241	0.01
Pier 19 & 22	821	239	0.01
Pier 20 & 21	825	240	0.01
Pier 25	790	228	0.01

FIXED HLMR BEARINGS

(Girders 1 thru 6 Unit 3 at Piers 12 thru 15
Girders 1 thru 6 Unit 4 at Piers 19 thru 22
Girders 1 thru 6 Unit 5 at Pier 25)

Notes:
The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
Threaded studs shall conform to AASHTO M164, Type 3.
The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.
If the base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be T_b plus the depth of the recess.
H.S. threaded studs in bearing assembly shall be galvanized according to AASHTO M298 Class 50.
The cost of the elastomeric neoprene leveling pads, shim plates and threaded studs shall be included in the cost of High Load Multi-Rotational Bearings, Fixed.

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 850k	Each	54
Anchor Bolts, 1 1/4"	Each	216

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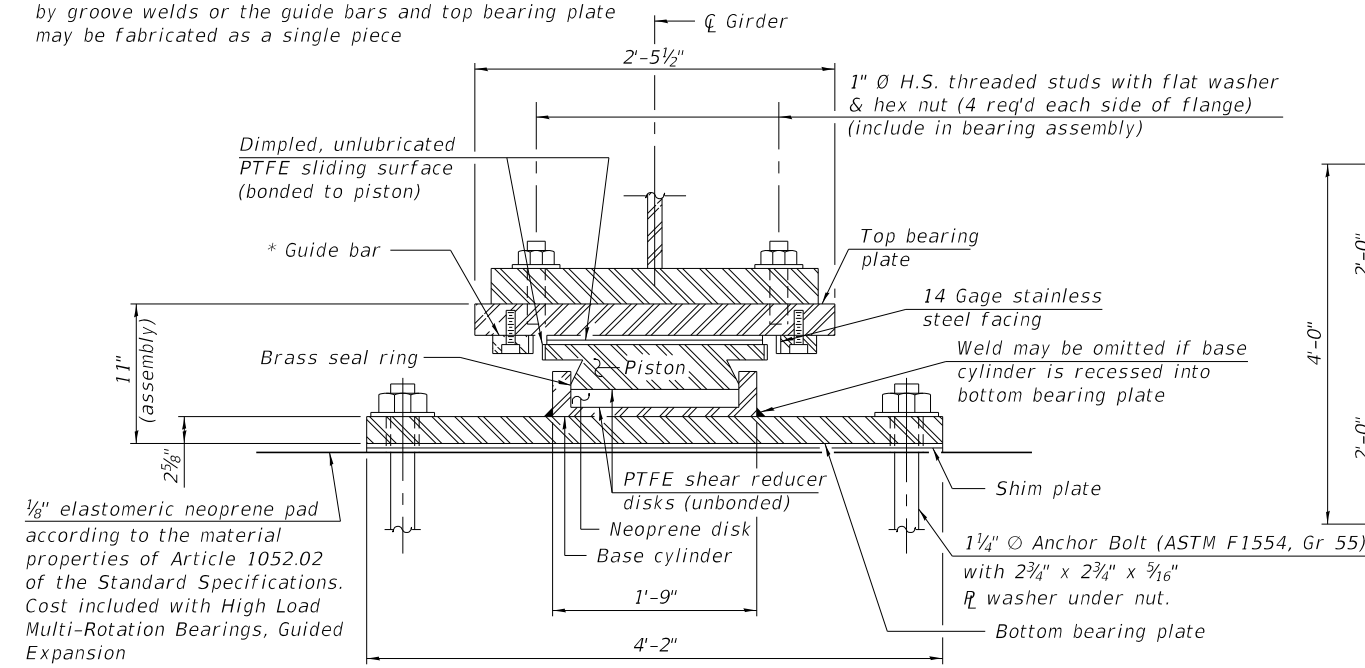
STATE OF ILLINOIS
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BEARING DETAILS UNITS 3, 4 & 5 - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 158 OF 288 SHEETS

F.A.1 RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	650
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

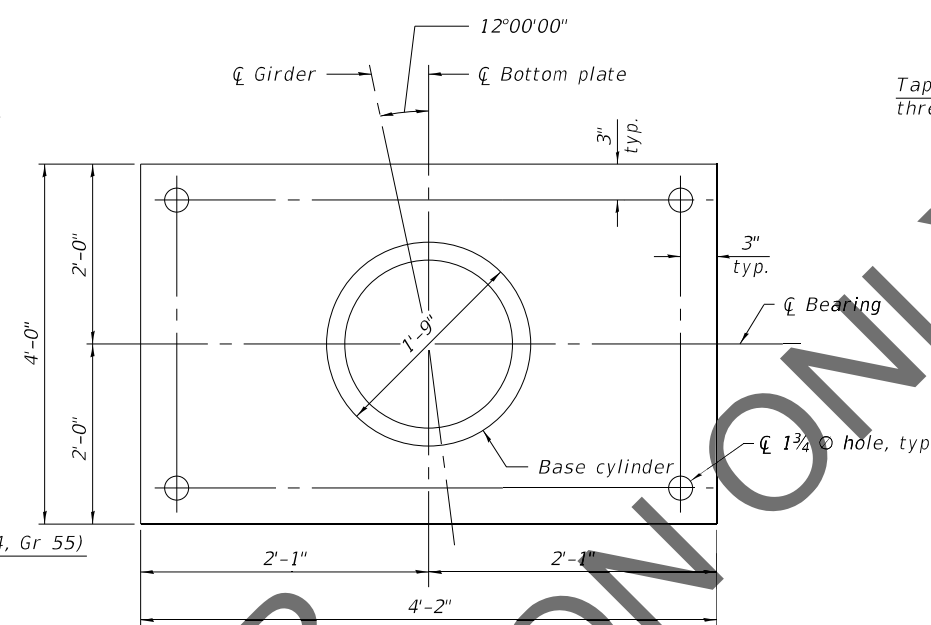
* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece



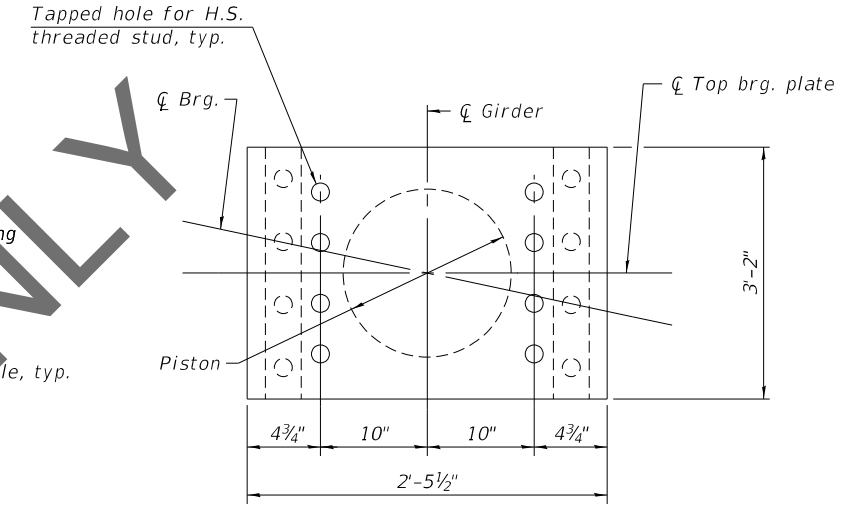
1/8" elastomeric neoprene pad according to the material properties of Article 1052.02 of the Standard Specifications. Cost included with High Load Multi-Rotation Bearings, Guided Expansion

GUIDED EXPANSION BEARING

(Girders 1 thru 6 Unit 3 at Piers 11 & 16
Girders 1 thru 6 Unit 4 at Piers 18 & 23)



BOTTOM BEARING PLATE AND BASE CYLINDER PLAN



TOP BEARING PLATE AND PISTON PLAN

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts for HLMR bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

The structural steel plates of the Bearing Assembly shall conform to the requirements of ASHTO M 270 Grade 50.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

Threaded studs shall conform to AASHTO M164, Type 3.

The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

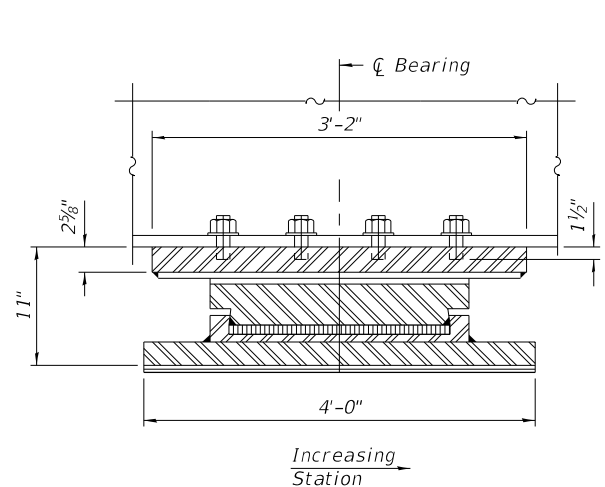
If the base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be T_b plus the depth of the recess.

H.S. threaded studs in bearing assembly shall be galvanized according to AASHTO M298 Class 50.

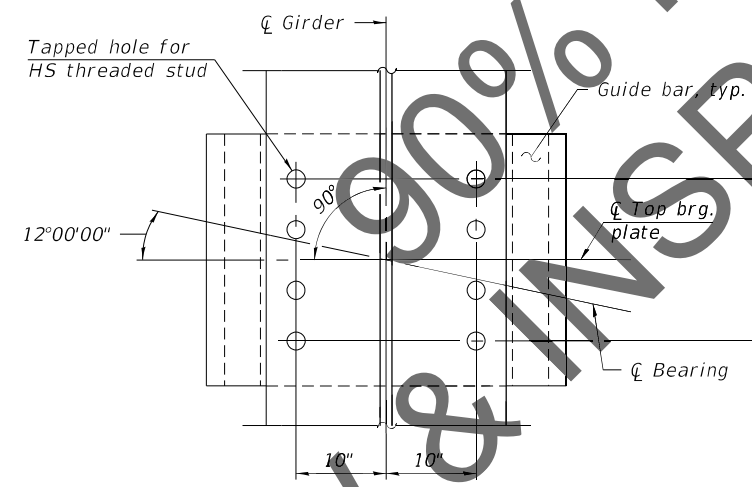
The cost of the elastomeric neoprene leveling pads, shim plates and threaded studs shall be included in the cost of High Load Multi-Rotational Bearings, Guided Expansion.

BILL OF MATERIAL

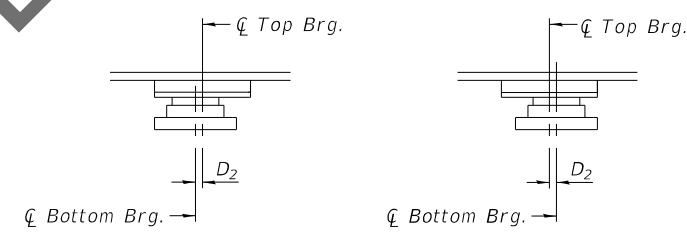
Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion, 850k	Each	24
Anchor Bolts, 1 1/4"	Each	96



TOP PLATE DETAIL



BEARING ALIGNMENT



SETTING ANCHOR BOLTS AT EXP. BRG.
 $D_2 = 1/8"$ per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

Brg. Location	Service Vert. (kip)	Factored Lat. (kip)	Req'd Mvmt. (in.)	Factored Rotation (rad.)
Pier 11 & 16	838	243	8.2	0.01
Pier 18 & 23	823	239	7.9	0.01

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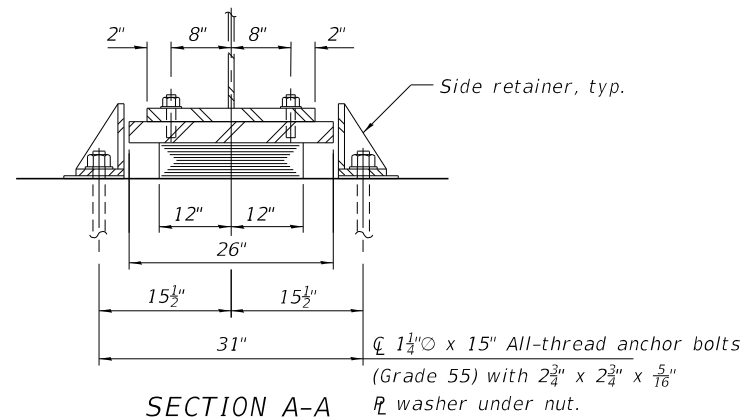
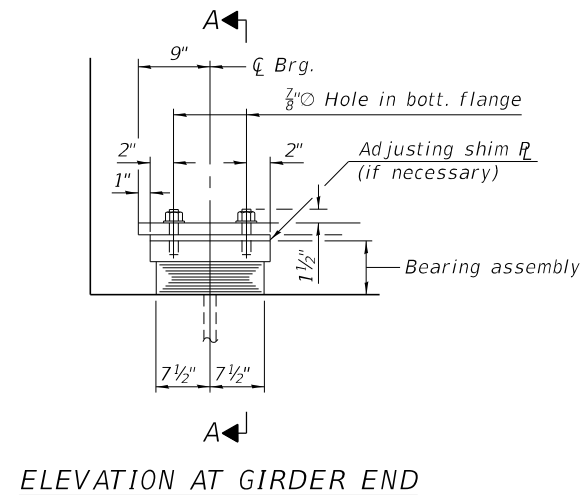
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**BEARING DETAILS UNITS 3, 4 & 5 - 3
STRUCTURE NO. 060-0351 (WB)**

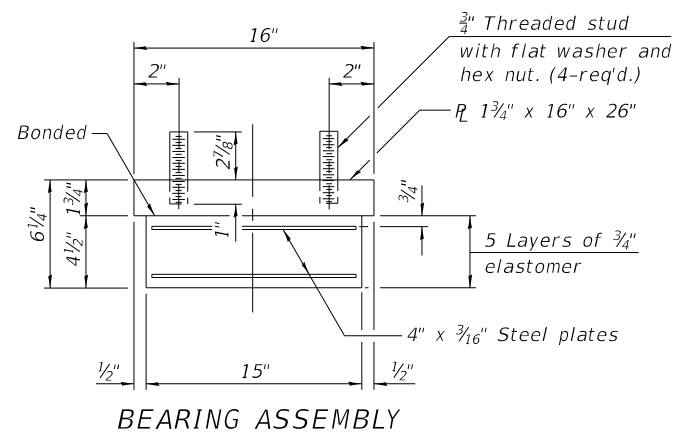
SHEET 159 OF 288 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	651
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

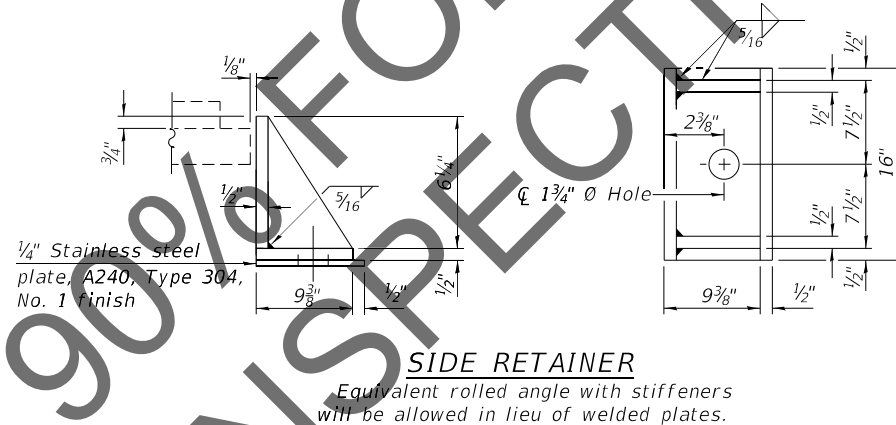


TYPE I ELASTOMERIC EXP. BRG.
 (Girders 1 thru 6 Unit 5 at Pier 24
 Girders 1 thru 6 Unit 5 at E. Abut.)

Assumed contributing expansion length = 181 ft. for Unit 5 Pier 24 and E. Abut.



Note:
 Shim plates shall not be placed under 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.
 The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.
 Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
 The anchor bolt sizes and grades shown constitute a calculated seismic structural fuse. Substitution of higher diameter and/or grade anchor bolts will not be allowed.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12
Anchor Bolts, 1 1/4"	Each	24

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 Teaming with: PARSONS

HORNER SHIFRIN
PARSONS

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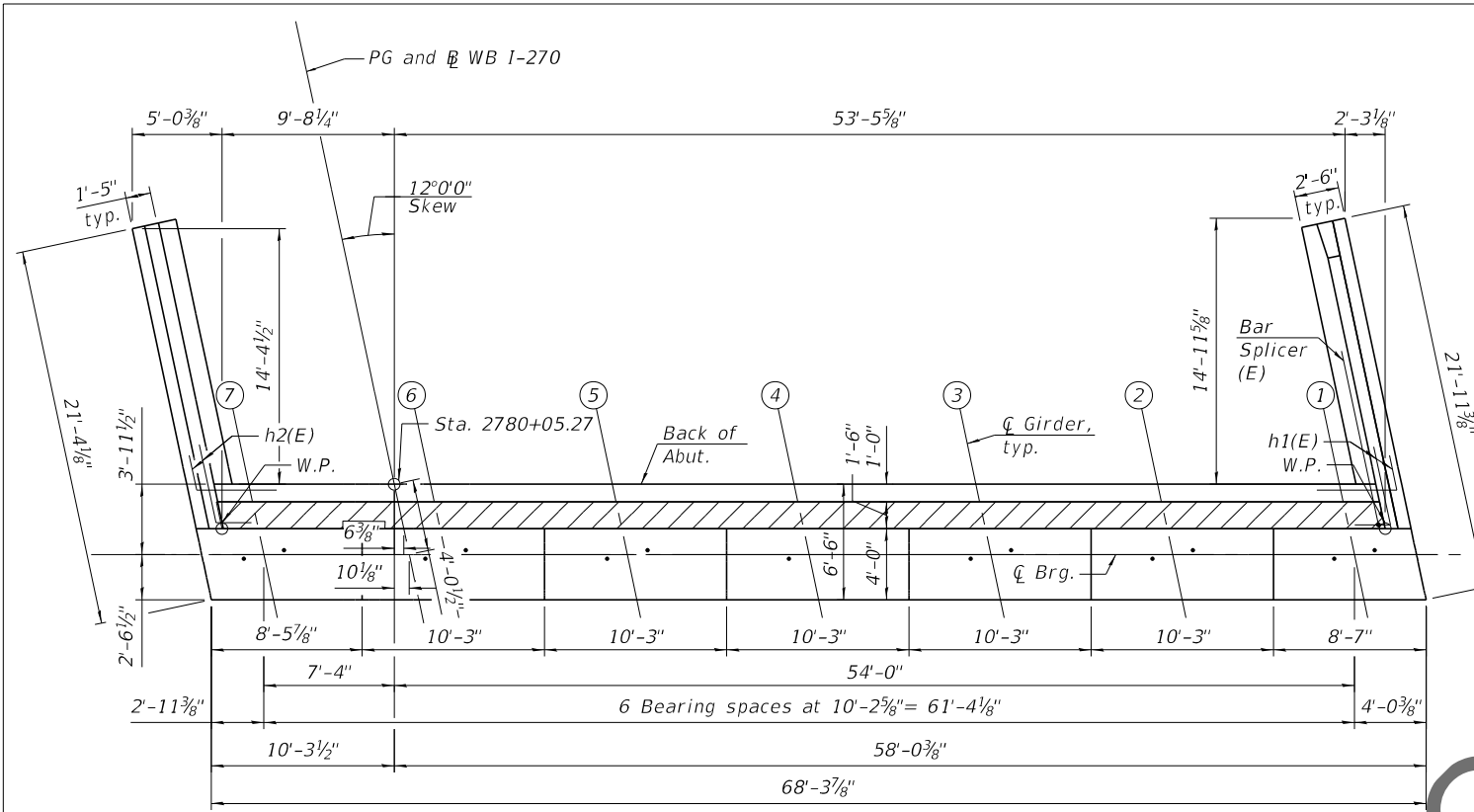
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNITS 3, 4 & 5 - 4
STRUCTURE NO. 060-0351 (WB)

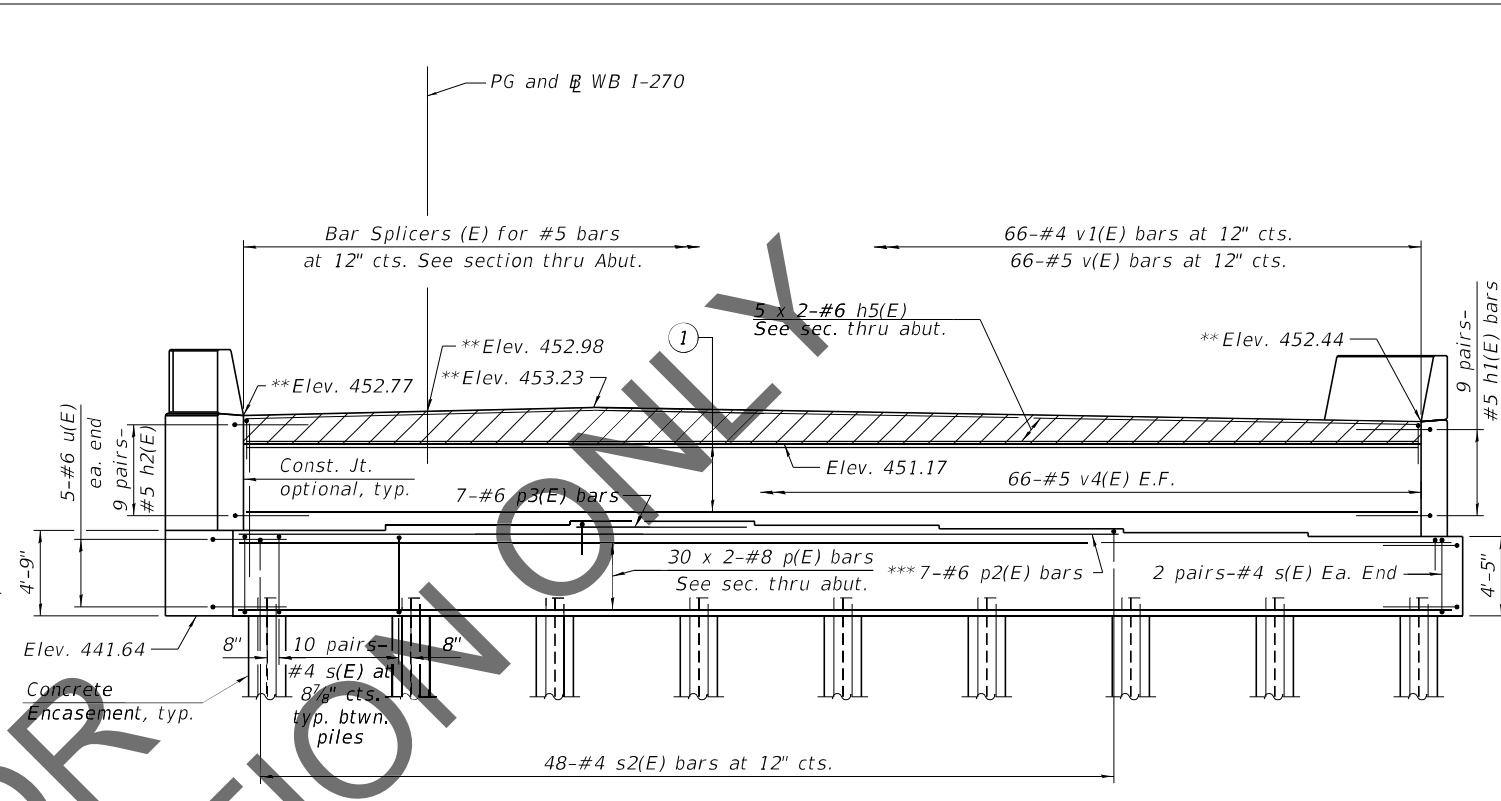
SHEET 160 OF 288 SHEETS

F.AJ RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	652
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

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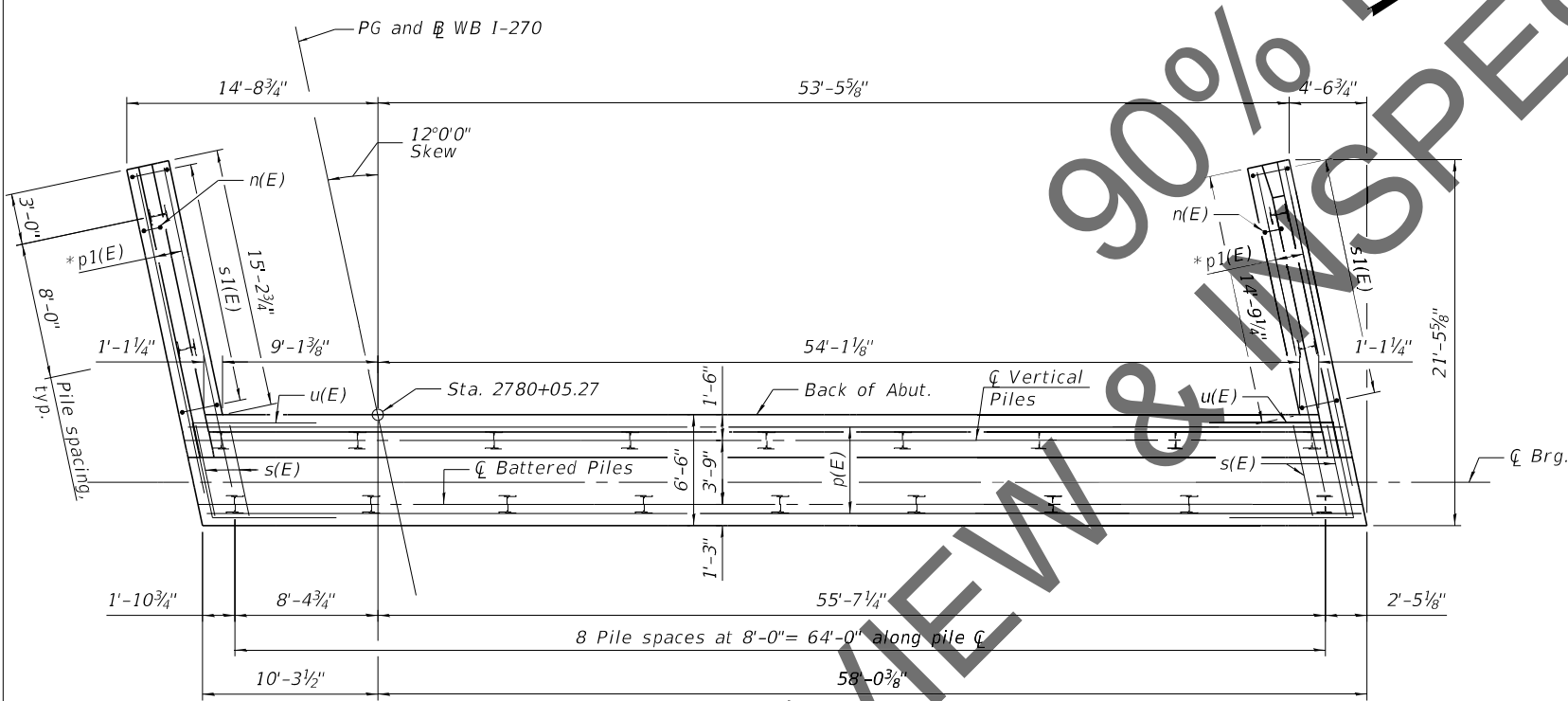


TOP VIEW



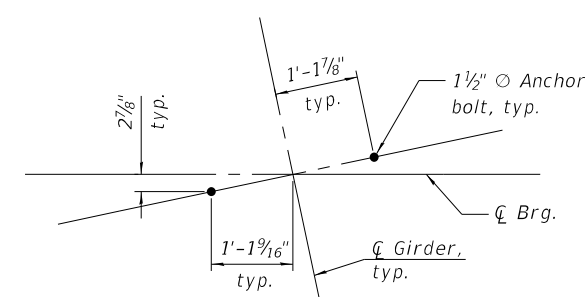
ELEVATION

** Prior to Grinding
 *** Field cut to fit skew
 ① 7 x 2-#5 h(E) bars, each face



PLAN-PILE CAP

* Field bend #7 p1(E) to clear pile.



ANCHOR BOLT DETAIL

MINIMUM BAR LAP

- #5 bar = 3'-4"
- #6 bar = 4'-0"
- #8 bar = 6'-9"

STEP HEIGHT

GIRDER	STEP HT.
1-2	2 1/4"
2-3	2 3/8"
3-4	2 1/4"
4-5	2 1/4"
5-6	-2 1/2"
6-7	-2 5/8"

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION
1	446.06
2	446.25
3	446.44
4	446.63
5	446.82
6	446.61
7	446.39

Notes:
 Bars indicated thus 5 x 2-#5 etc. indicates 5 lines of bars with 2 lengths per line.
 For Sect. thru Abut., see sheet 162 of 288.

PILE DATA

Type: HP 12X84
 Nominal Required Bearing: 634 kips
 Factored Resistance Available: 278 kips
 Est. Length: 56 ft
 No. Production Piles: 20
 No. Test Piles: 2

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN AND ELEVATION
 STRUCTURE NO. 060-0351 (WB)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	653
CONTRACT NO. 76J90				

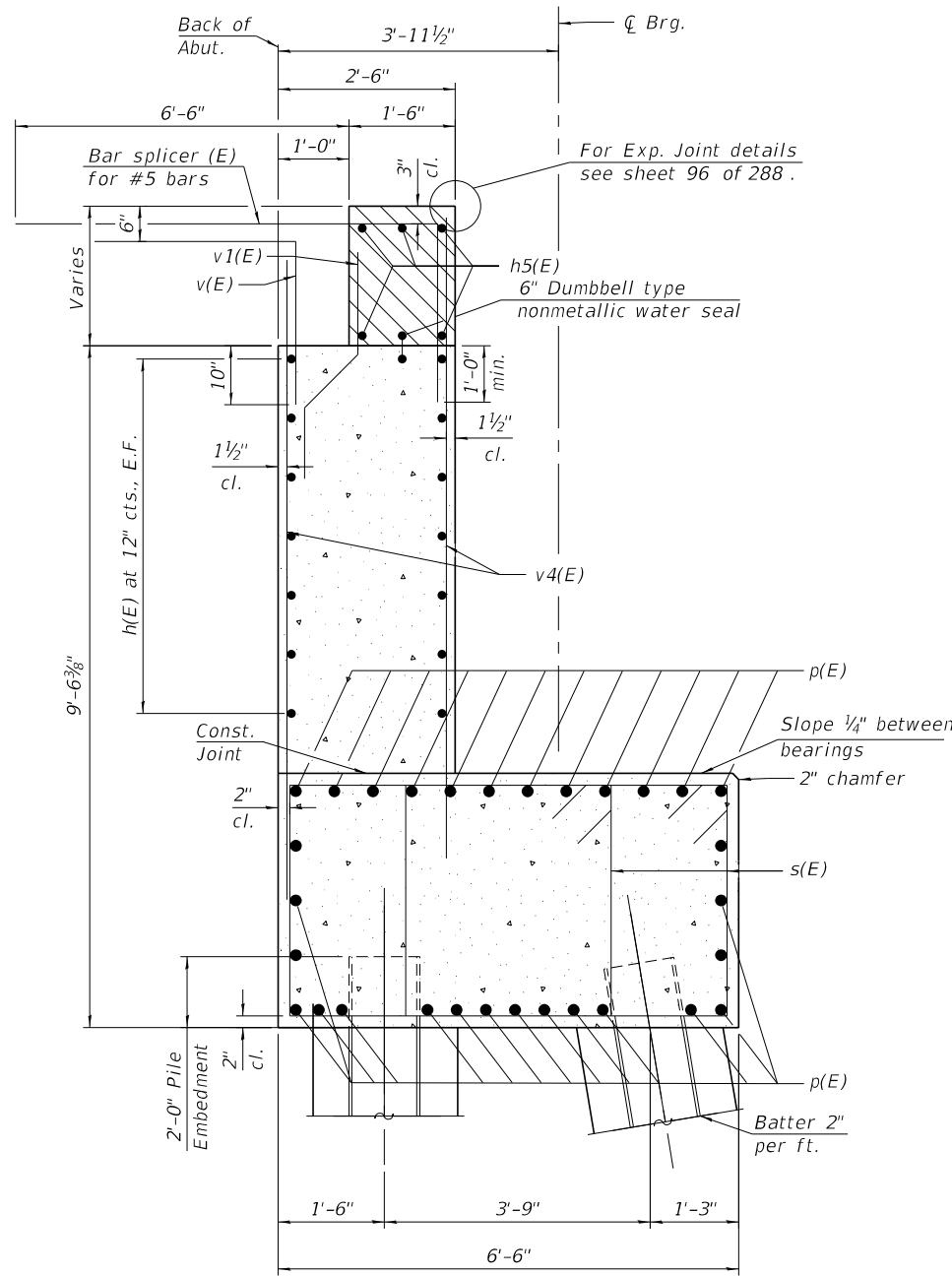
SHEET 161 OF 288 SHEETS

ILLINOIS FED. AID PROJECT

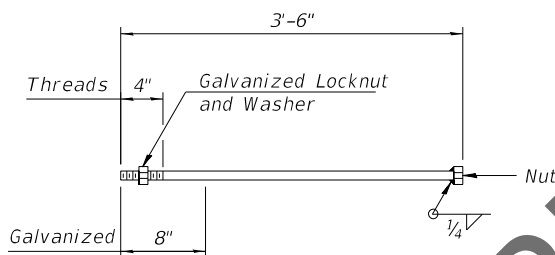
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HORNER SHIFRIN
 PARSONS

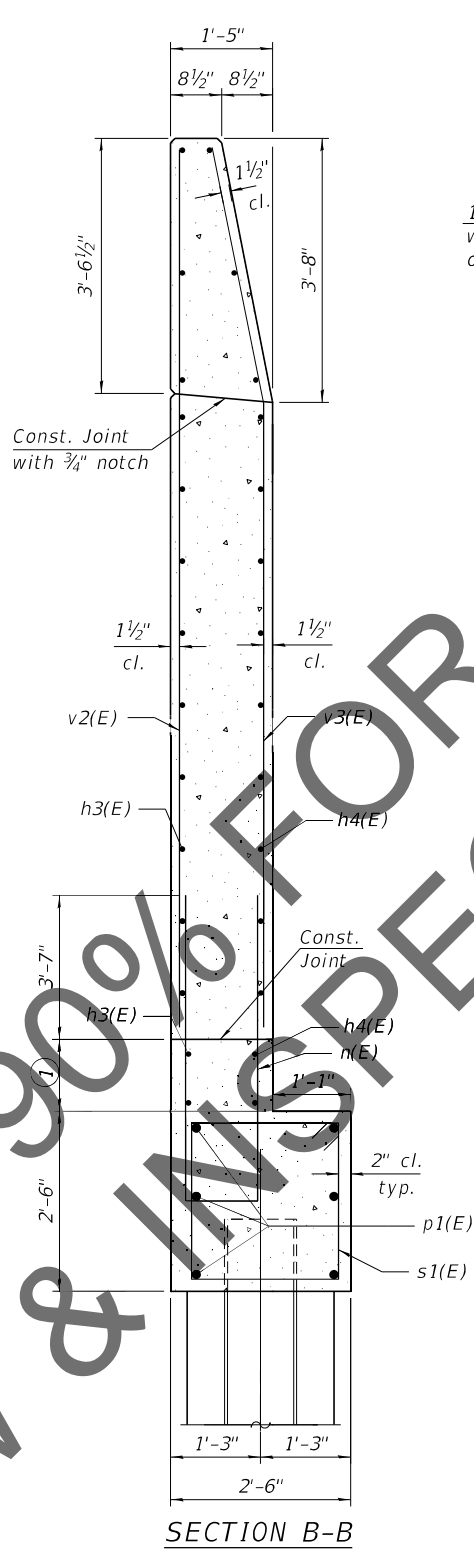
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SECT. THRU ABUT.

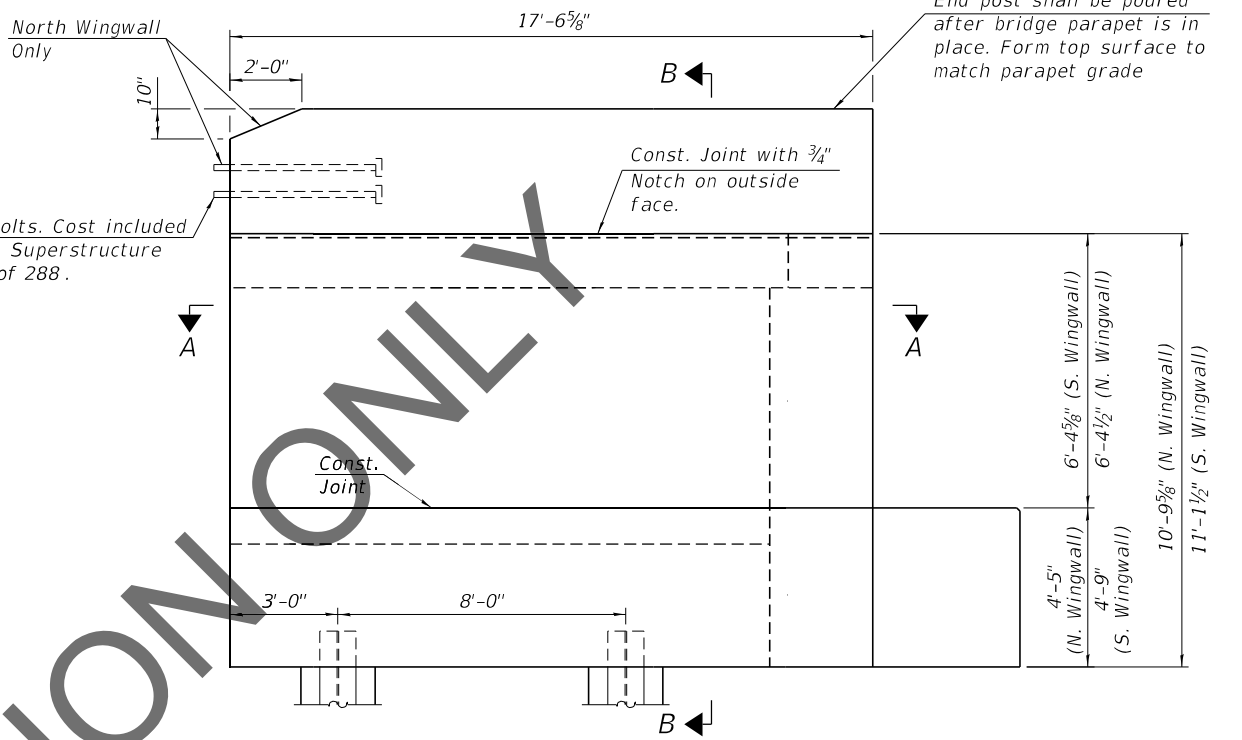


1" Ø ANCHOR BOLT

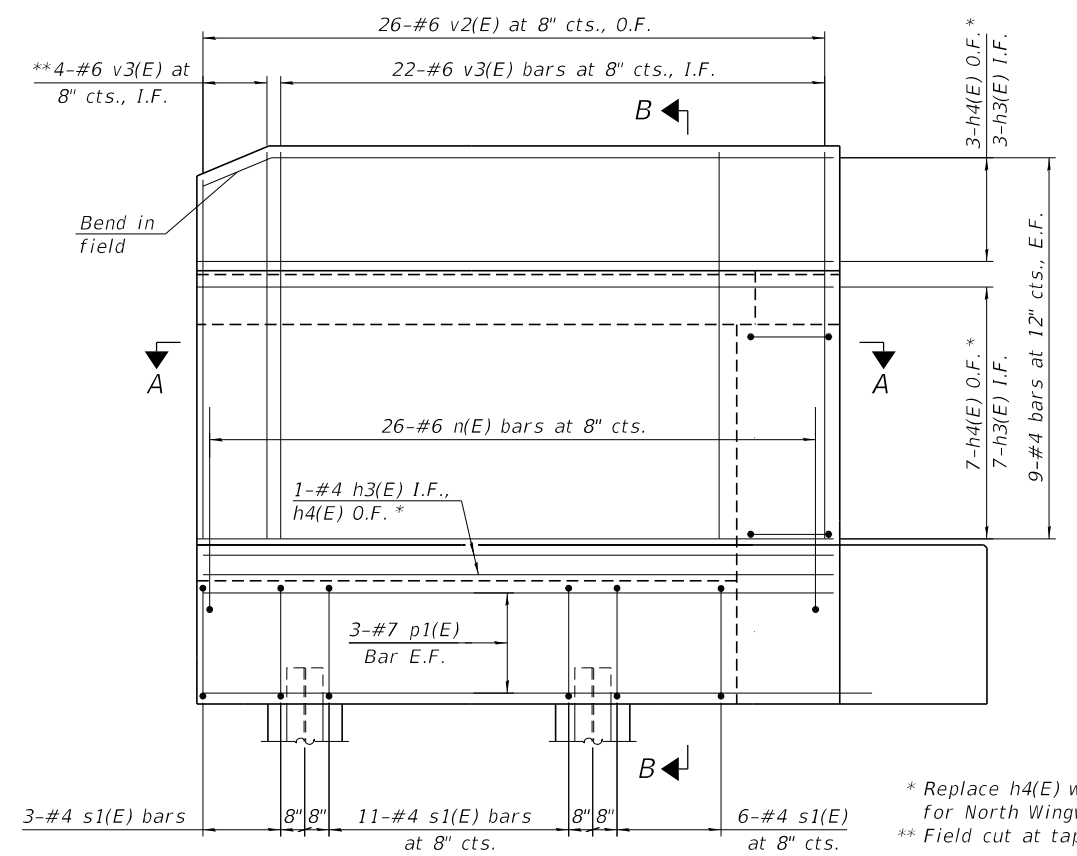


SECTION B-B

Notes:
 Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure. Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap. Quantity of concrete end post included Concrete Superstructure on sheet 90 of 288.
 For Concrete Encasement details, see sheet 241 of 288.
 1) 1'-11" for North Wingwall and 2'-3" South Wingwall
 Abutments under deck joints shall have all exposed surfaces of backwalls, bridge seats, and front faces of pile caps treated with Concrete Sealer.



WINGWALL ELEVATION
 Showing Dimensions
 (South shown, North wingwall similar)



WINGWALL ELEVATION
 Showing Reinforcement
 (South shown, North wingwall similar)

* Replace h4(E) with h6(E) for North Wingwall
 ** Field cut at taper

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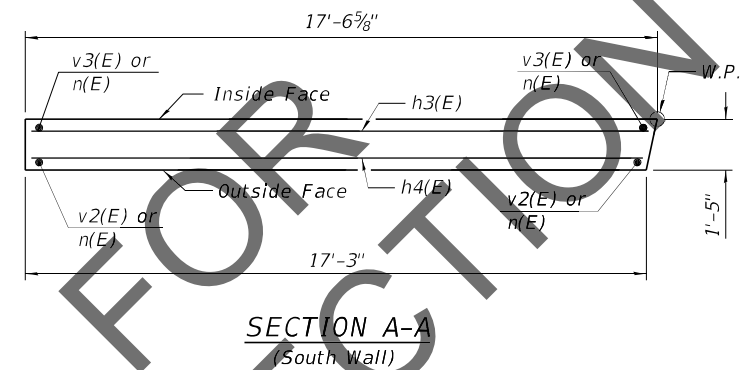
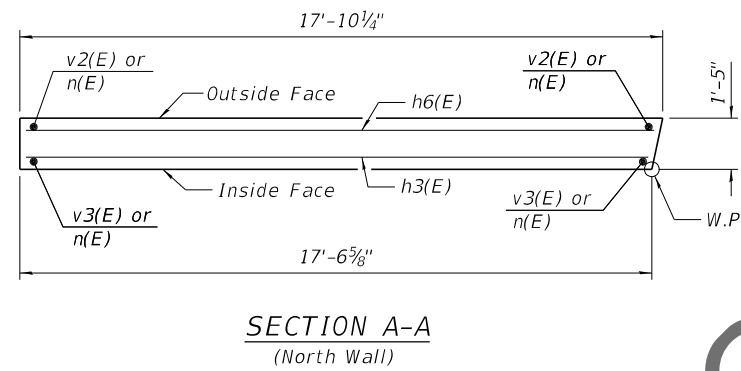
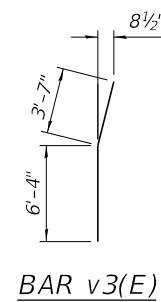
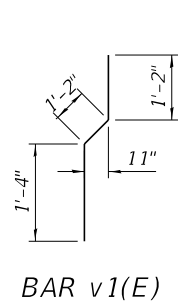
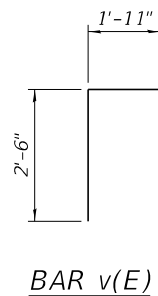
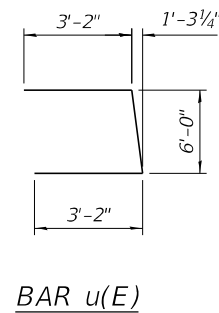
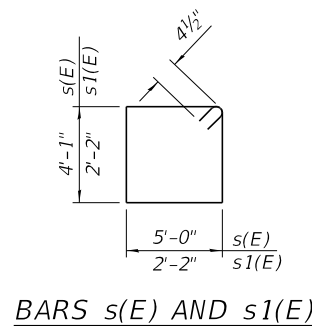
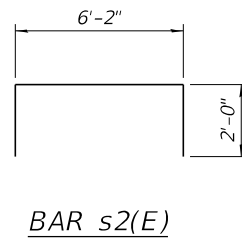
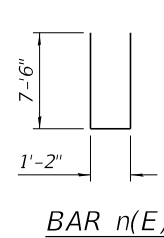
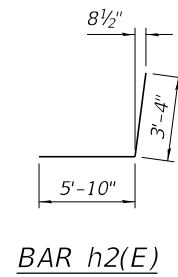
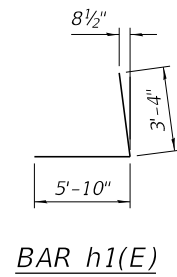
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT WINGWALL DETAILS
 STRUCTURE NO. 060-0351 (WB)

SHEET 162 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	654
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



**WEST ABUTMENT
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	28	#5	34'-3"	—
h1(E)	18	#5	9'-2"	└
h2(E)	18	#5	9'-2"	└
h3(E)	24	#4	17'-2"	—
h4(E)	12	#4	16'-11"	—
h5(E)	10	#6	34'-9"	—
h6(E)	12	#4	17'-6"	—
n(E)	52	#6	16'-2"	□
p(E)	60	#8	37'-5"	—
p1(E)	12	#7	20'-0"	—
p2(E)	7	#6	49'-0"	—
p3(E)	7	#6	9'-11"	—
s(E)	168	#4	18'-11"	□
s1(E)	40	#4	9'-5"	□
s2(E)	48	#4	10'-2"	└
u(E)	10	#6	12'-5"	└
v(E)	66	#5	4'-5"	└
v1(E)	66	#4	3'-8"	└
v2(E)	52	#6	9'-10"	—
v3(E)	52	#6	9'-11"	—
v4(E)	132	#5	9'-2"	—
Structure Excavation		Cu. Yd.	273	
Concrete Structures		Cu. Yd.	129.7	
Concrete Encasement		Cu. Yd.	7.7	
Reinforcement Bars, Epoxy Coated		Pound	16,940	
Furnishing Steel Piles HP 12x84		Foot	1,120	
Driving Piles		Foot	1,120	
Test Pile Steel HP 12X84		Each	2	
Pile Shoes		Each	22	
Concrete Sealer		Sq. Ft.	1,042	

* Field cut to fit skew.
For details of Bar Splicer, see sheet 242 of 288.
For details of HP Piles, see sheet 241 of 288.

REVIEW & INSPECTION ONLY

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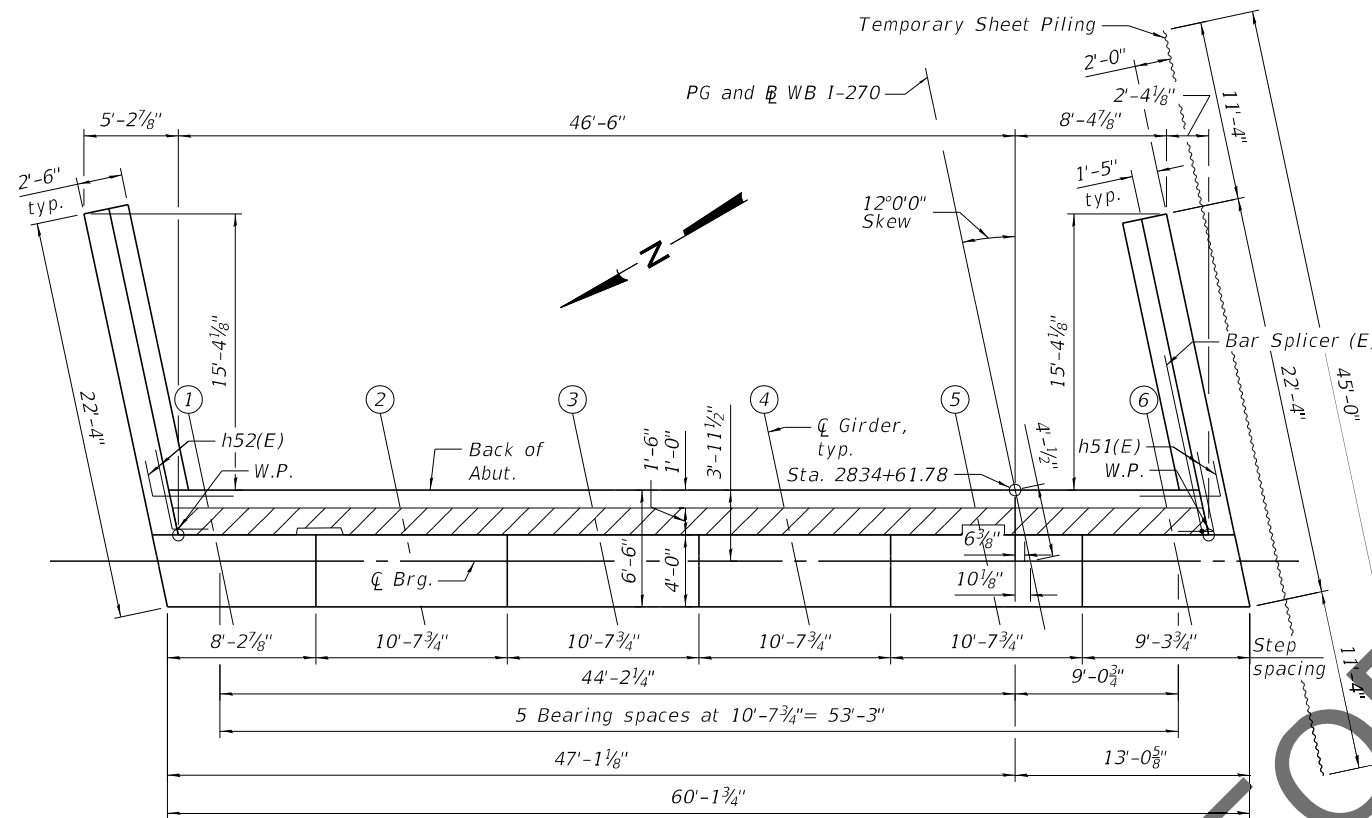
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

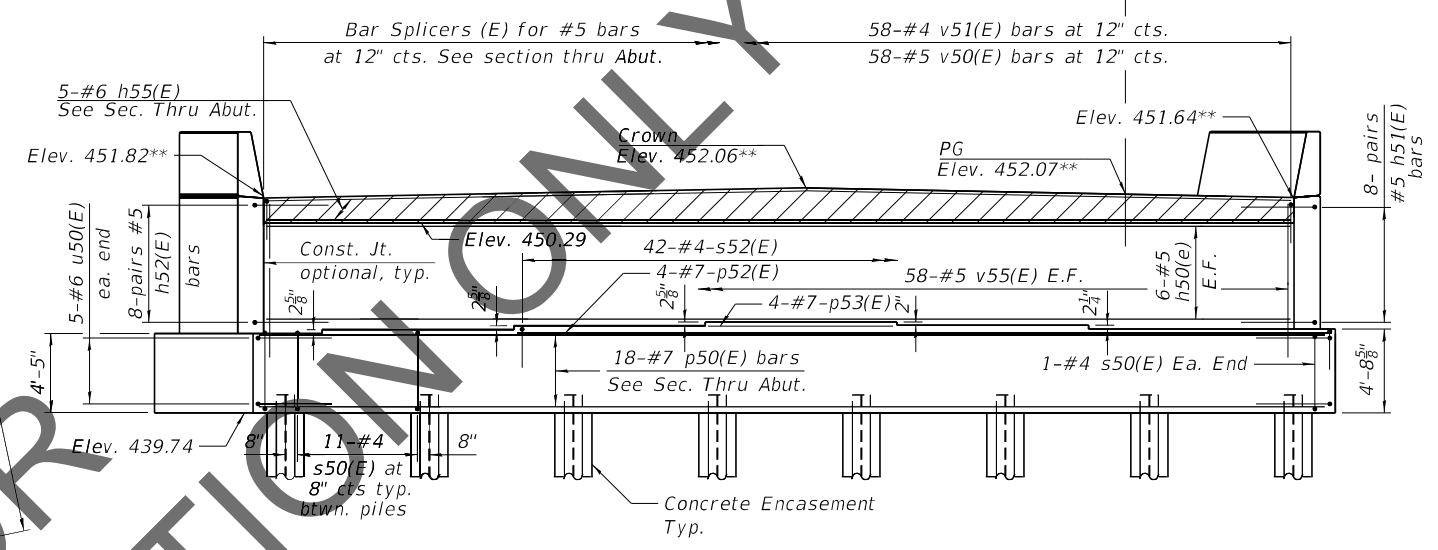
**WEST ABUTMENT DETAILS AND BOM
STRUCTURE NO. 060-0351 (WB)**

SHEET 163 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	655
			CONTRACT NO. 76190	
			ILLINOIS FED. AID PROJECT	

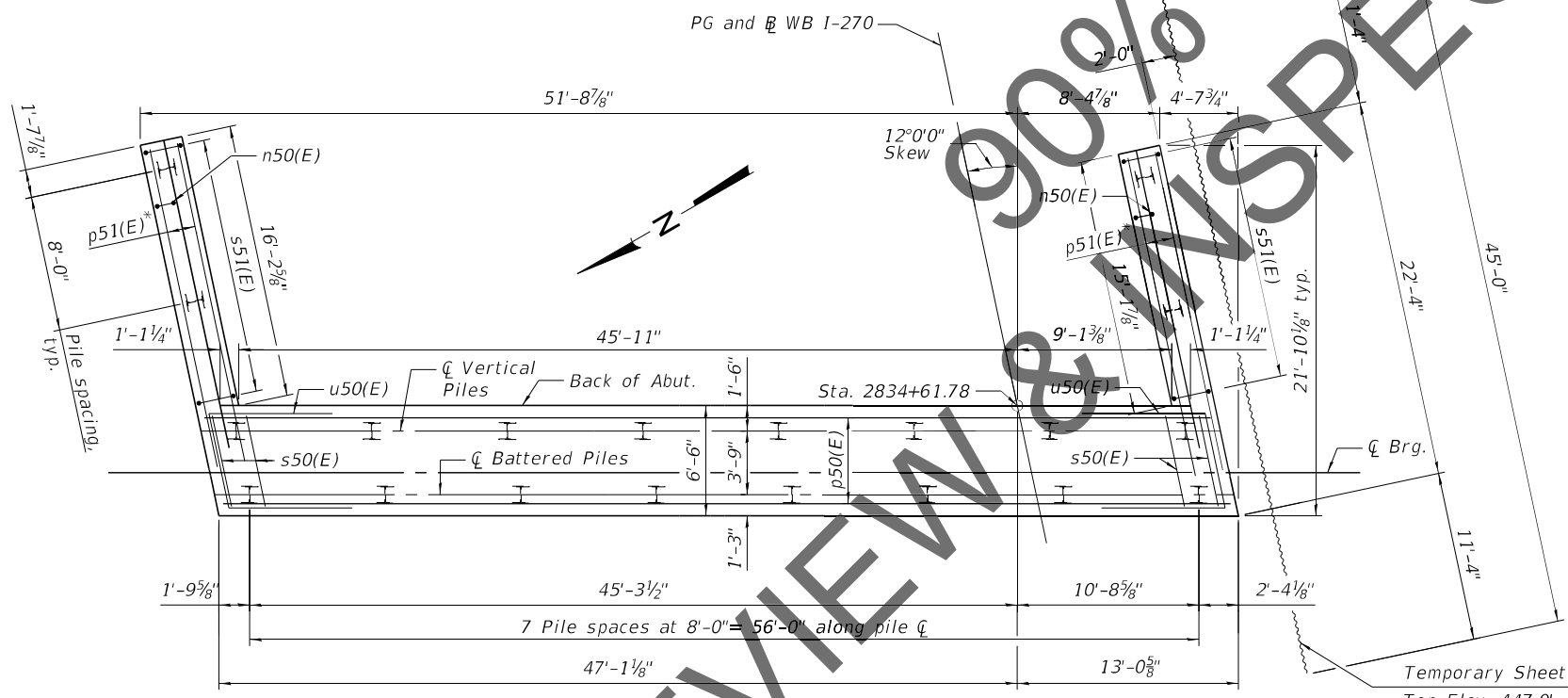


TOP VIEW



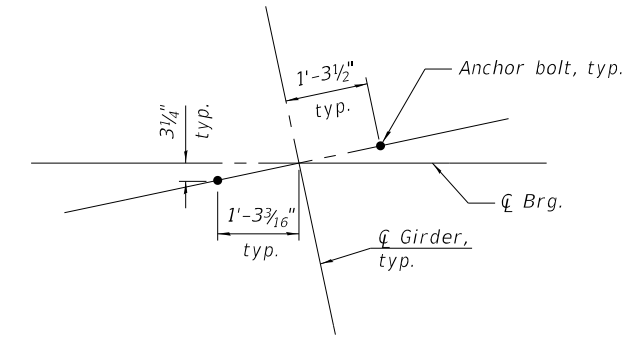
ELEVATION

** Prior to Grinding at Back of Abutment
Temporary Sheet Piling not shown in elevation.



PLAN-PILE CAP

*Field bend #7-p51(E) to clear pile.



ANCHOR BOLT LAYOUT

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION
1	444.16
2	444.38
3	444.60
4	444.82
5	444.65
6	444.46

PILE DATA

Type: HP 12X63
Nominal Required Bearing: 402 kips
Factored Resistance Available: 221 kips
Est. Length: 110 ft
No. Production Piles: 19
No. Test Piles: 1

TEMPORARY SHEET PILING AT ABUTMENT

Minimum section modulus for sheet piling = 8.2 in.³ / ft.
If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.

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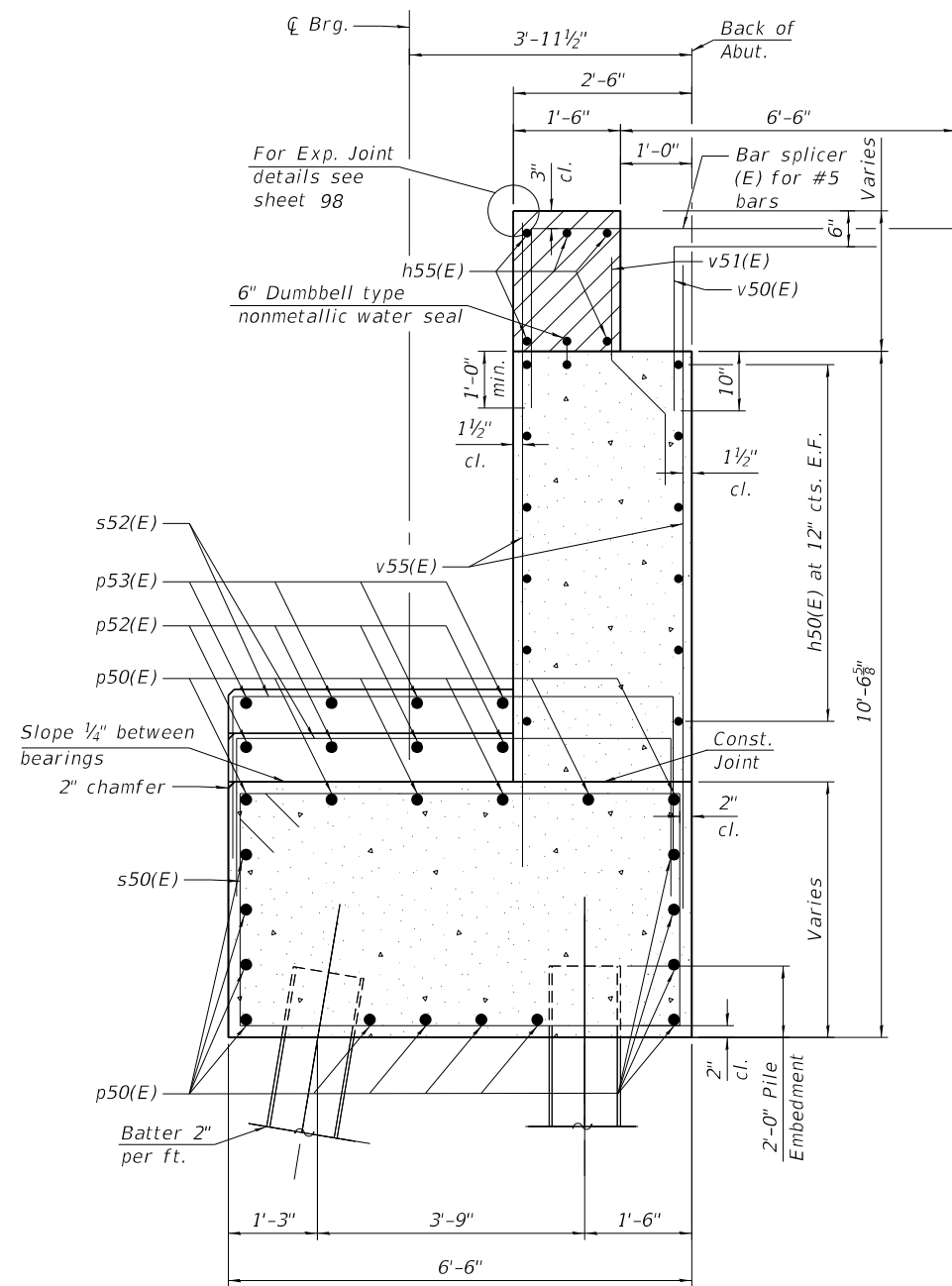
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

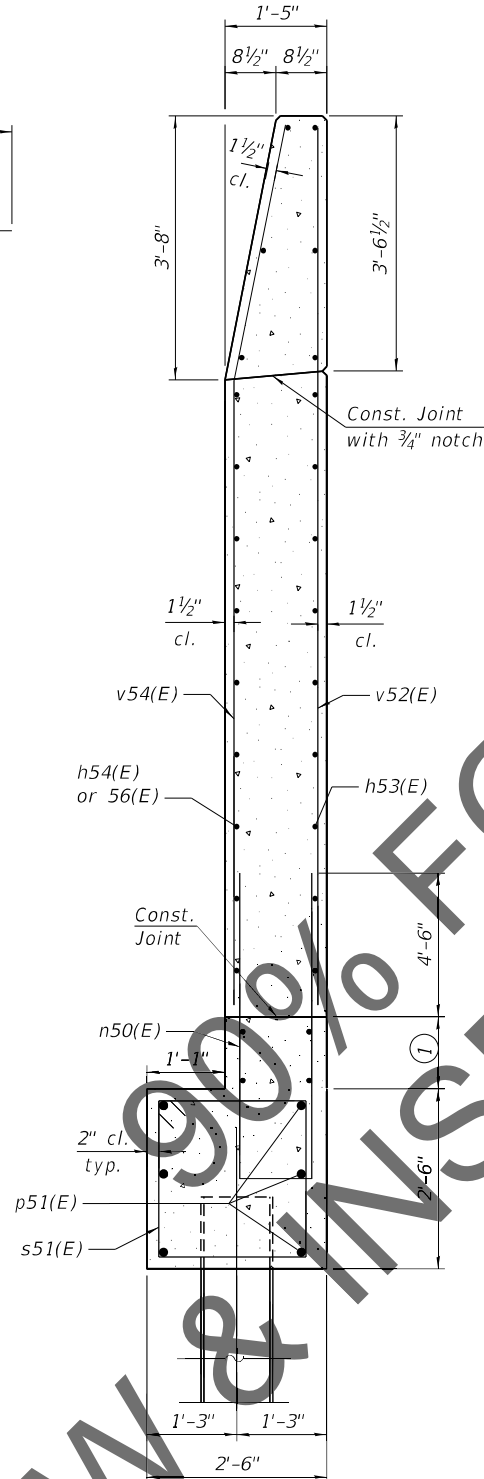
EAST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 060-0351 (WB)

SHEET 164 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	656
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



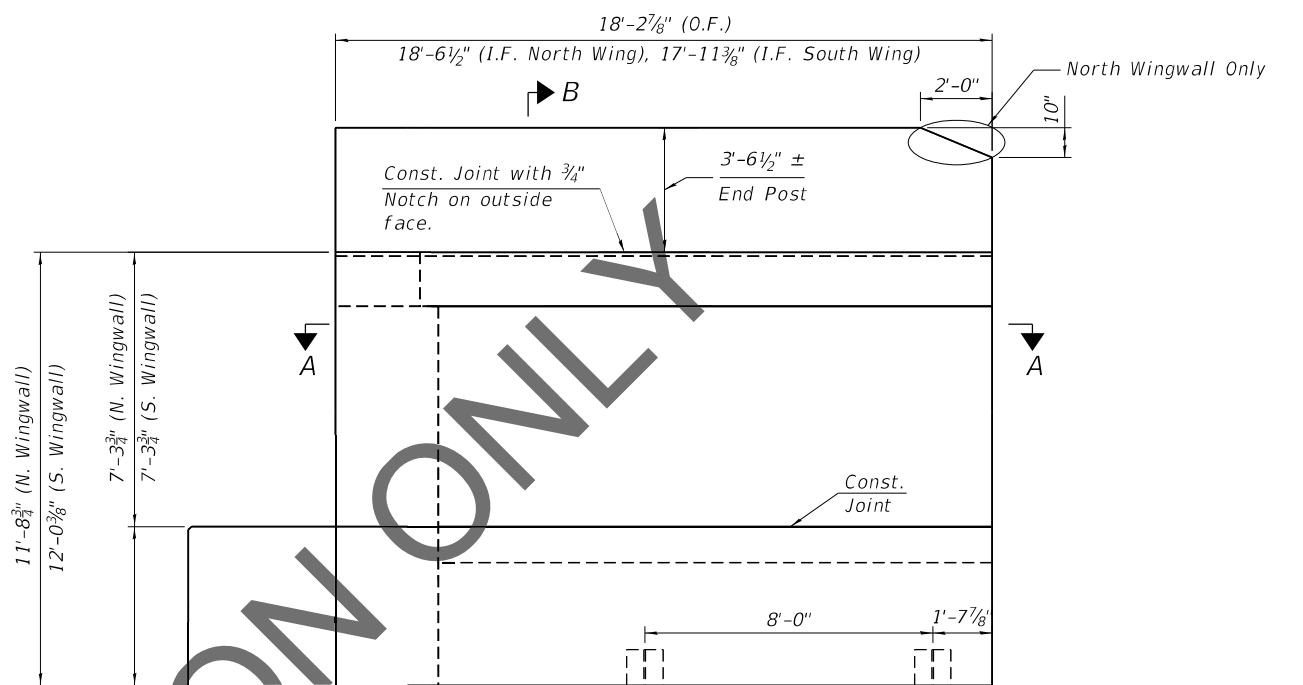
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SECTION B-B

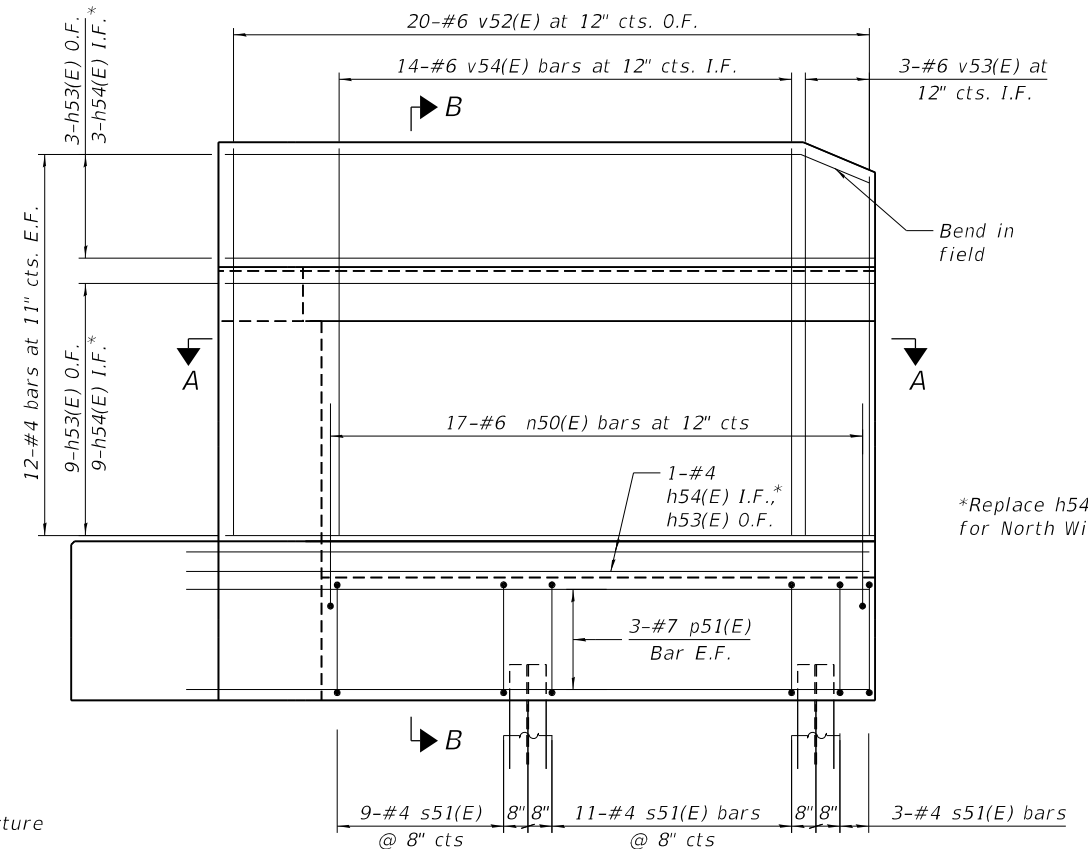
Notes:

- Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure. Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap. Quantity of concrete in end post is included with Concrete Superstructure on sheet 91 of 288.
- 1' - 11" for North Wingwall and 2' - 2 3/8" North wingwall
- Abutments under deck joints shall have all exposed surfaces of backwalls bridge seats, and front faces of pile caps treated with Concrete Sealer. For Section A-A, see sheet 166 of 288.



WINGWALL ELEVATION

Showing Dimensions (South shown, North wingwall similar)



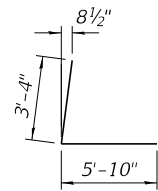
WING WALL ELEVATION

Showing Reinforcement (South shown, North wingwall similar)

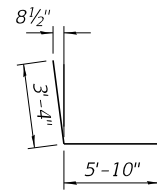
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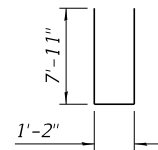
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CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



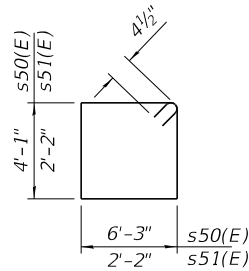
BAR h51(E)



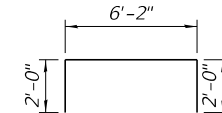
BAR h52(E)



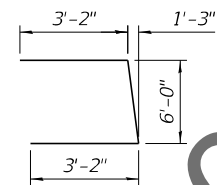
BAR n50(E)



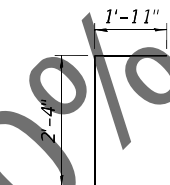
BARS s50(E) & s51(E)



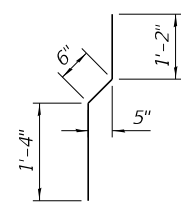
BAR s52(E)



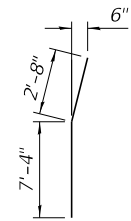
BAR u50(E)



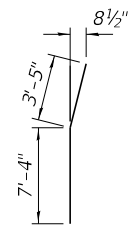
BAR v50(E)



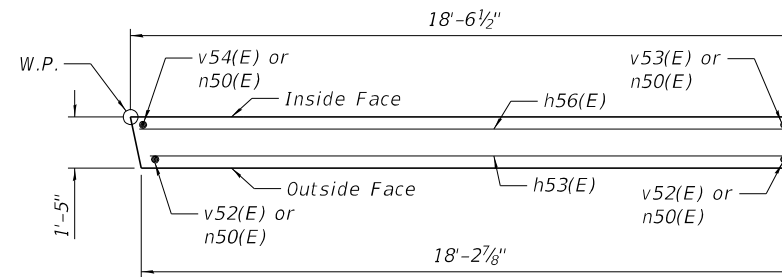
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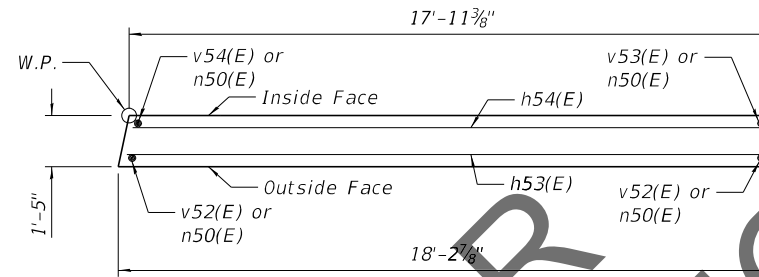
BAR v53(E)



BAR v54(E)



SECTION A-A
(NORTH WALL)



SECTION A-A
(SOUTH WALL)

EAST ABUTMENT
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h50(E)	12	#5	56'-11"	—
h51(E)	16	#5	9'-2"	L
h52(E)	16	#5	9'-2"	—
h53(E)	28	#4	18'-0"	—
h54(E)	14	#4	17'-7"	—
h55(E)	5	#6	56'-11"	—
h56(E)	14	#4	18'-2"	—
n50(E)	34	#6	17'-0"	□
p50(E)	18	#7	59'-9"	—
p51(E)	12	#7	19'-2"	—
p52(E)	4	#7	40'-11"	—
p53(E)	4	#7	10'-3"	—
s50(E)	79	#4	21'-5"	□
s51(E)	46	#4	9'-5"	□
s52(E)	42	#4	10'-2"	□
u50(E)	10	#6	12'-6"	□
v50(E)	58	#5	4'-3"	L
v51(E)	58	#4	3'-0"	—
v52(E)	40	#6	10'-7"	—
v53(E)	6	#6	10'-0"	—
v54(E)	28	#6	10'-9"	—
v55(E)	116	#5	8'-3"	—
Structure Excavation		Cu. Yd.	80	
Concrete Structures		Cu. Yd.	131.5	
Reinforcement bars, Epoxy Coated		Pound	10,530	
Furnishing Steel Piles HP 12x63		Foot	2,100	
Driving Piles		Foot	2,100	
Test Pile Steel HP 12x63		Each	1	
Pile Shoes		Each	20	
Temporary Sheet Piling		Sq. Ft.	945	
Concrete Sealer		Sq. Ft.	1,072	
Concrete Encasement		Cu. Yd.	7.0	

Notes:
For details of Bar Splicer, sheet 242 of 288.
For details of HP Piles and Concrete Encasement, see sheet 241 of 288.

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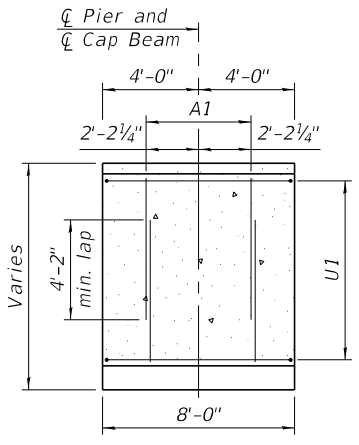
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

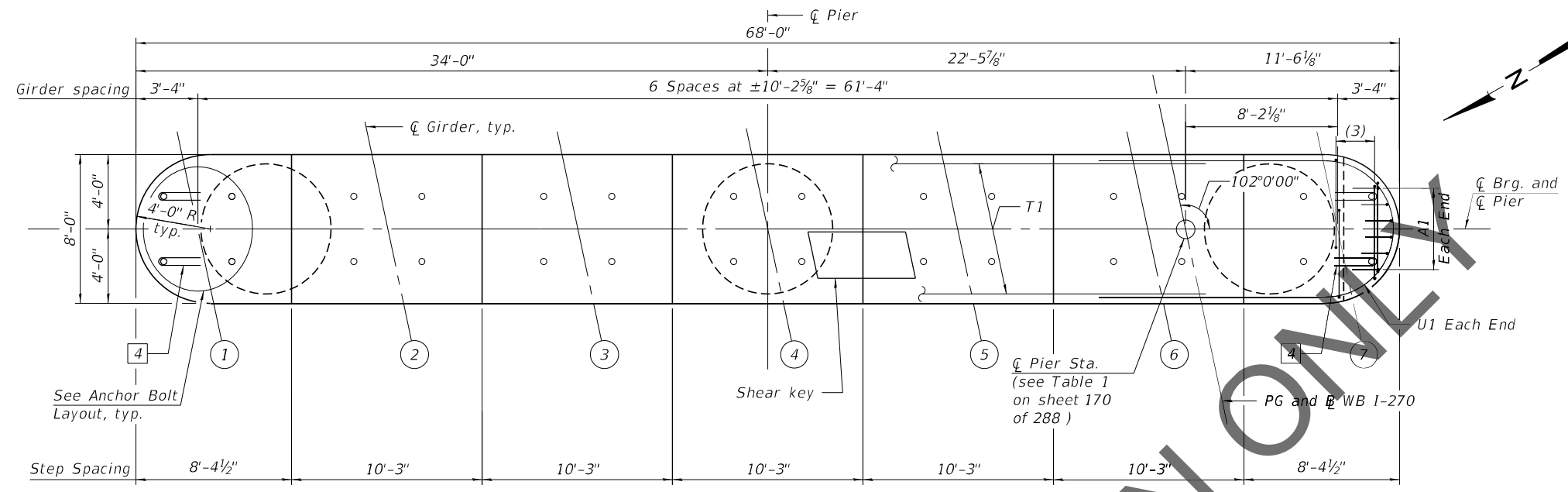
EAST ABUTMENT DETAILS AND BOM
STRUCTURE NO. 060-0351 (WB)

SHEET 166 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	658
			CONTRACT NO. 76190	
		ILLINOIS FED. AID PROJECT		

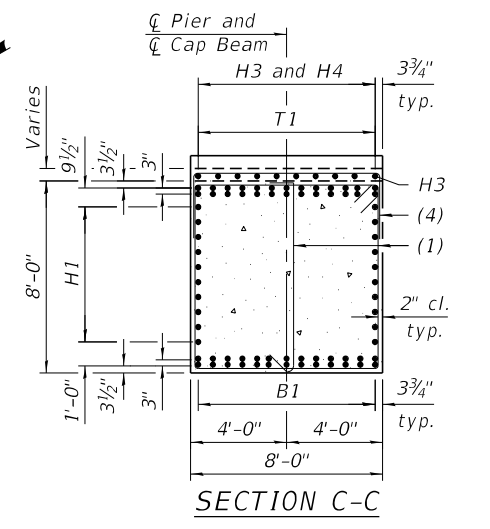


VIEW A-A
(T1 and (3) bars not shown for clarity)

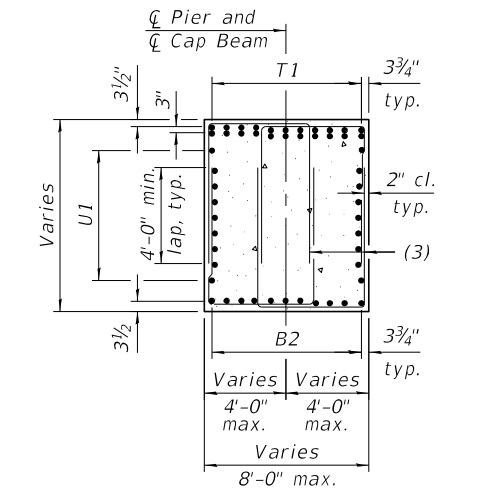


TOP PLAN

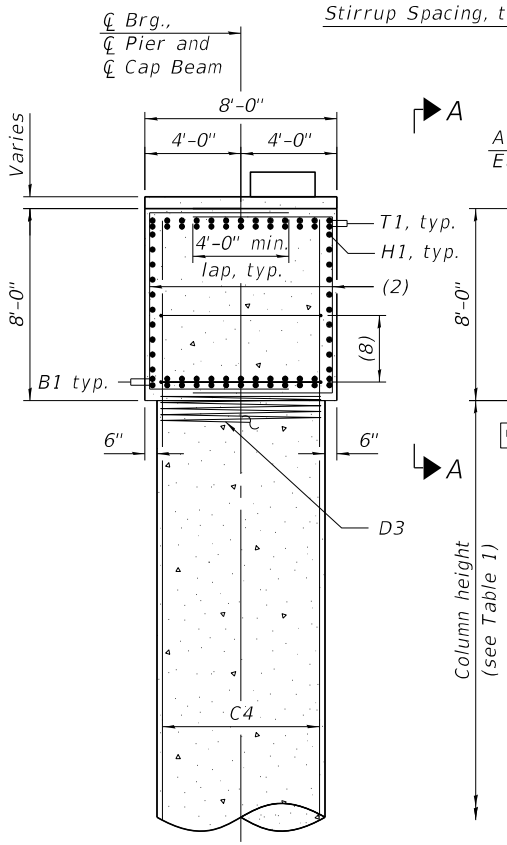
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



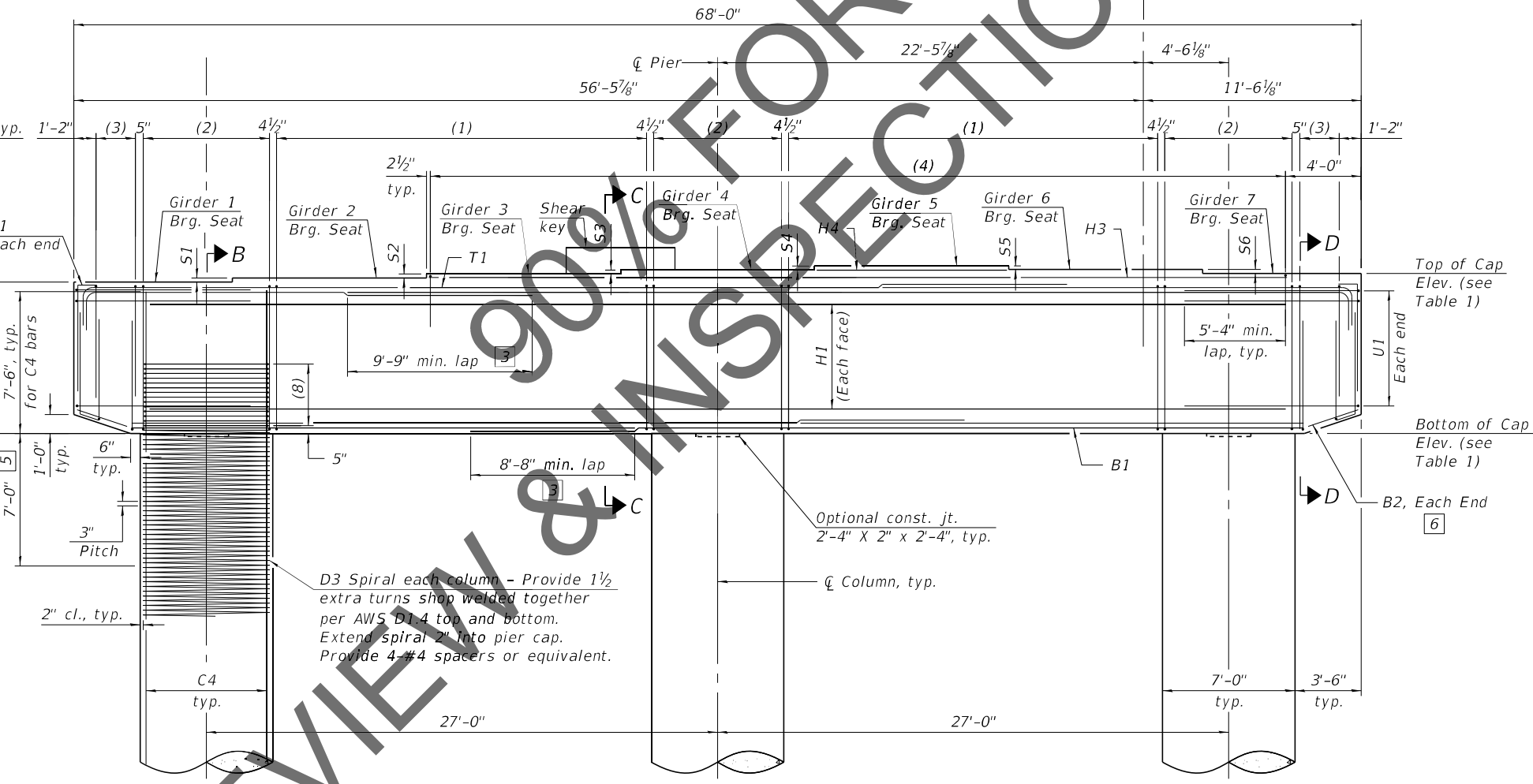
SECTION C-C



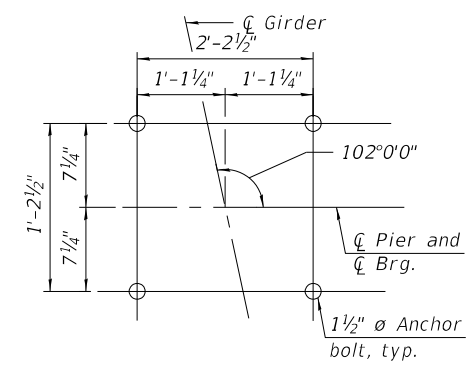
SECTION D-D



SECTION B-B



PART ELEVATION
(Looking East)



ANCHOR BOLT LAYOUT

- 3 Alternate placement cap top rebars to stagger the laps top and bottom
- 4 Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 171 and 172 of 288.
For column height, step height and all elevations, see Table 1 on sheet 170 of 288.
For bearing details, see sheet 154 of 288.
For bar callouts and shear key details, see sheet 170 of 288.

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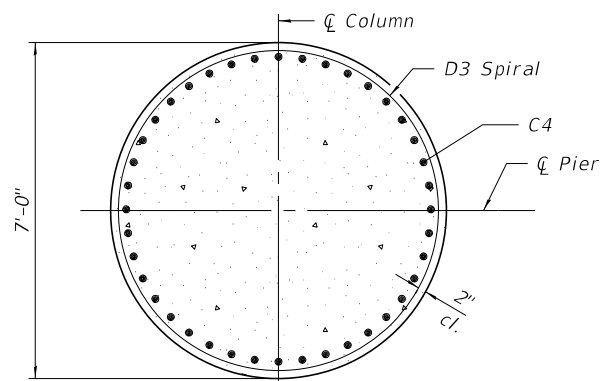
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 AND 2 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0351 (WB)

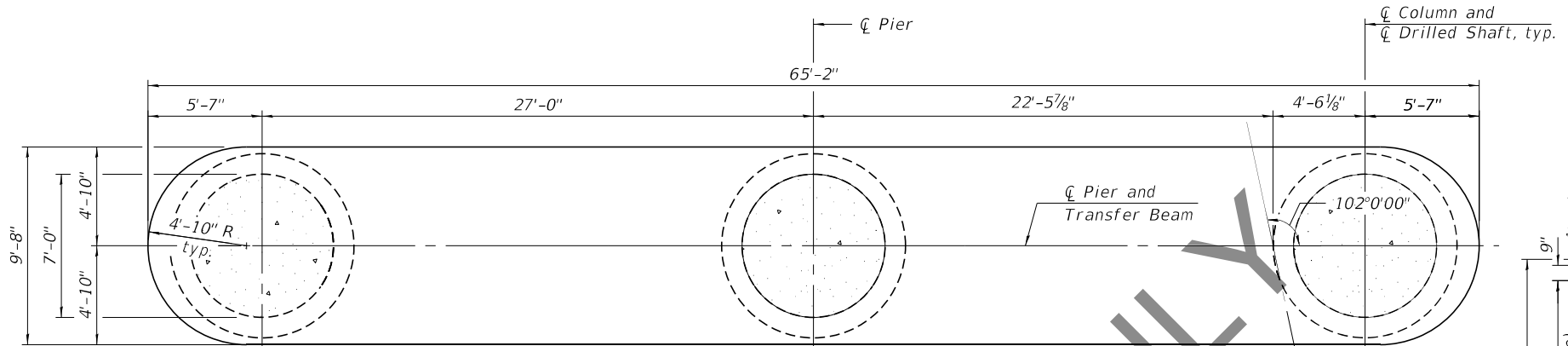
SHEET 167 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	659
CONTRACT NO. 76190				

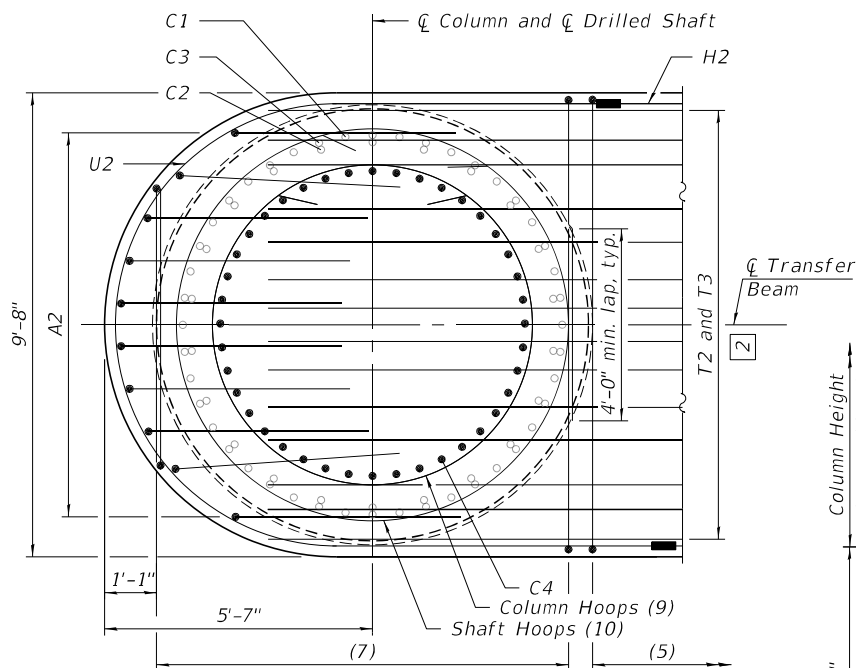
ILLINOIS FED. AID PROJECT



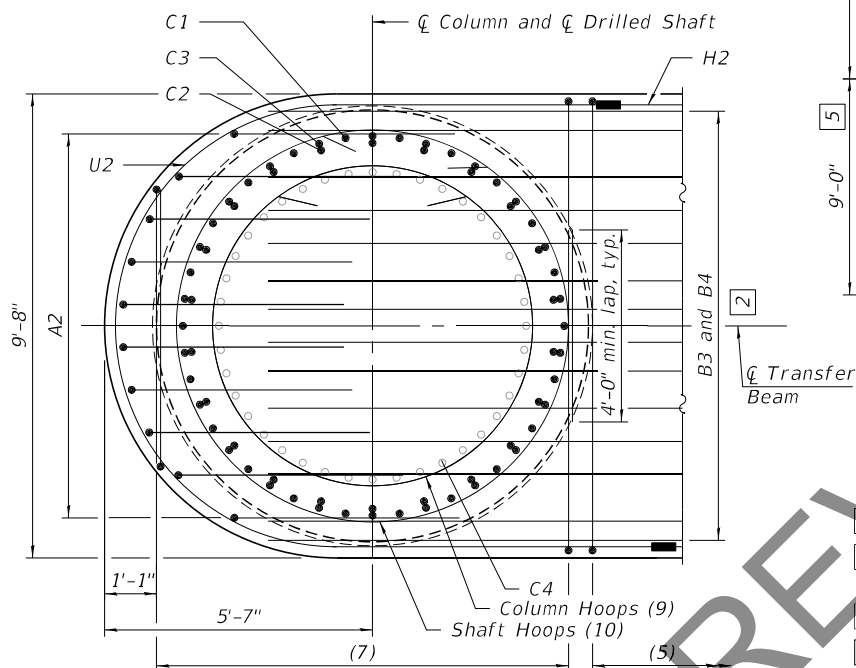
SECTION E-E



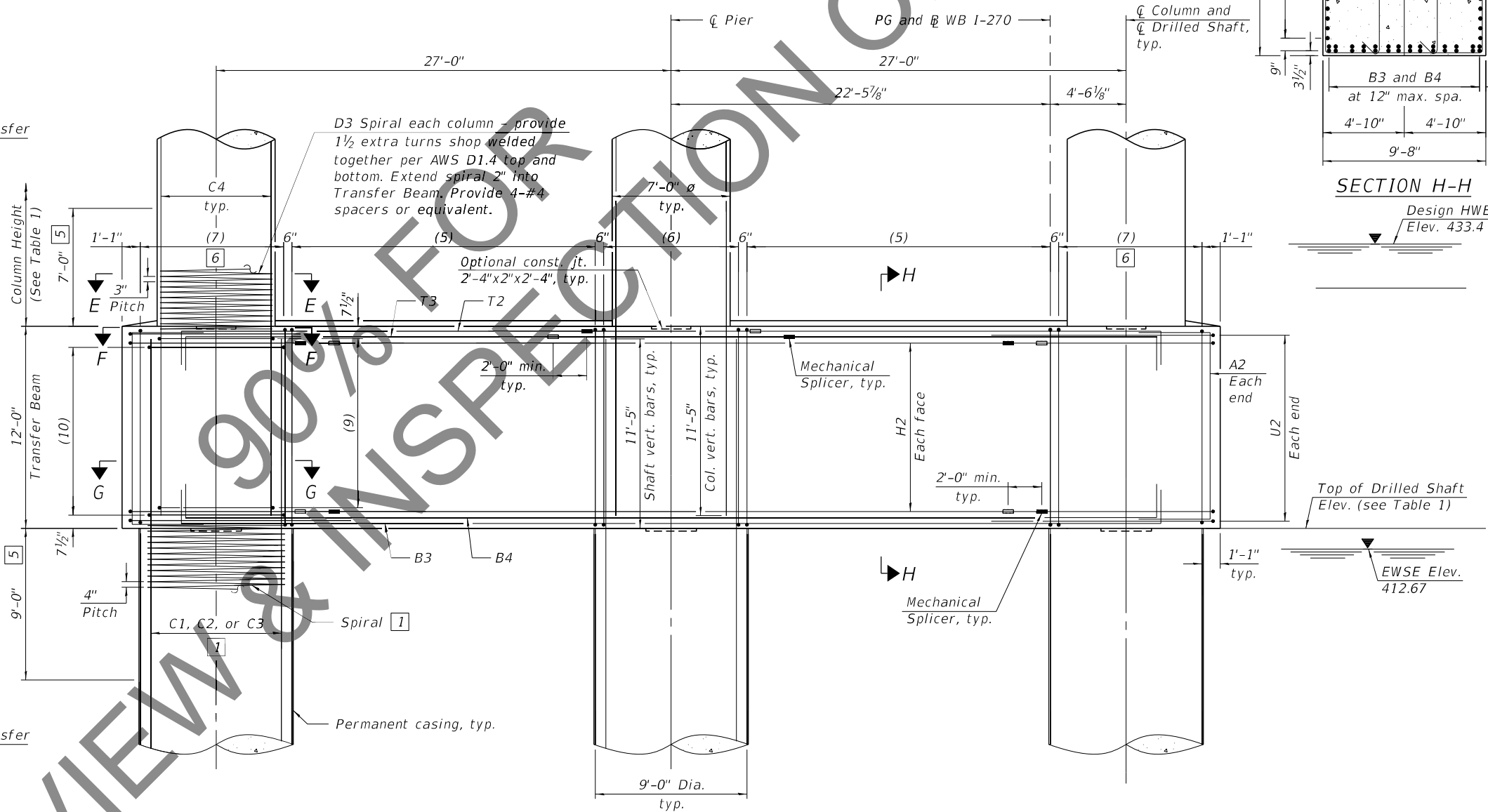
PLAN - TRANSFER BEAM



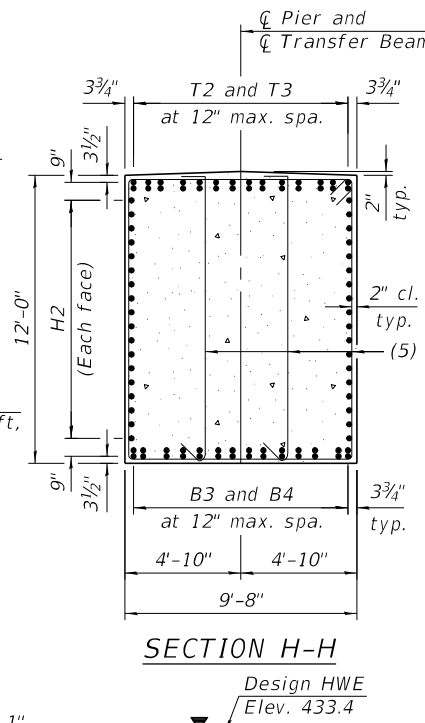
SECTION F-F



SECTION G-G



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION H-H

Design HWE
Elev. 433.4

- 1 See sheet 169 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For Top Plan and Part elevation, see sheet 167 of 288.
For Drilled Shaft details, see sheet 169 of 288.
For additional notes, bar details, and Bill of Material, see sheets 171 and 172 of 288.
For Table 1, see sheet 170 of 288.
For Mechanical Splicer details, see sheet 242 of 288.

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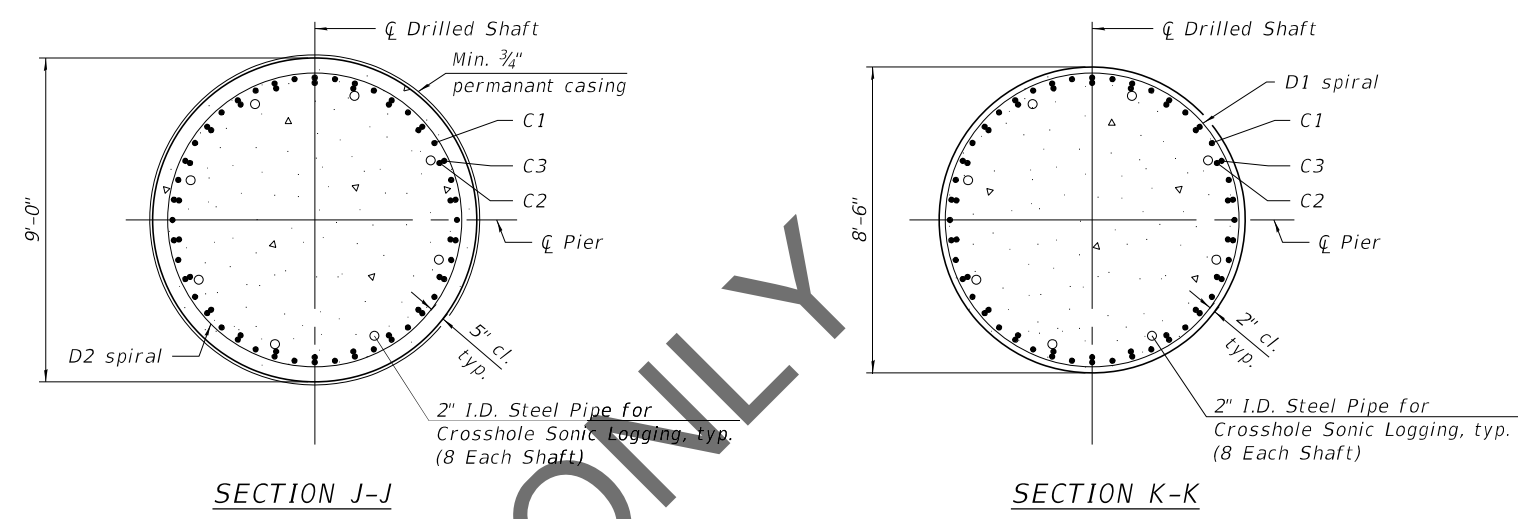
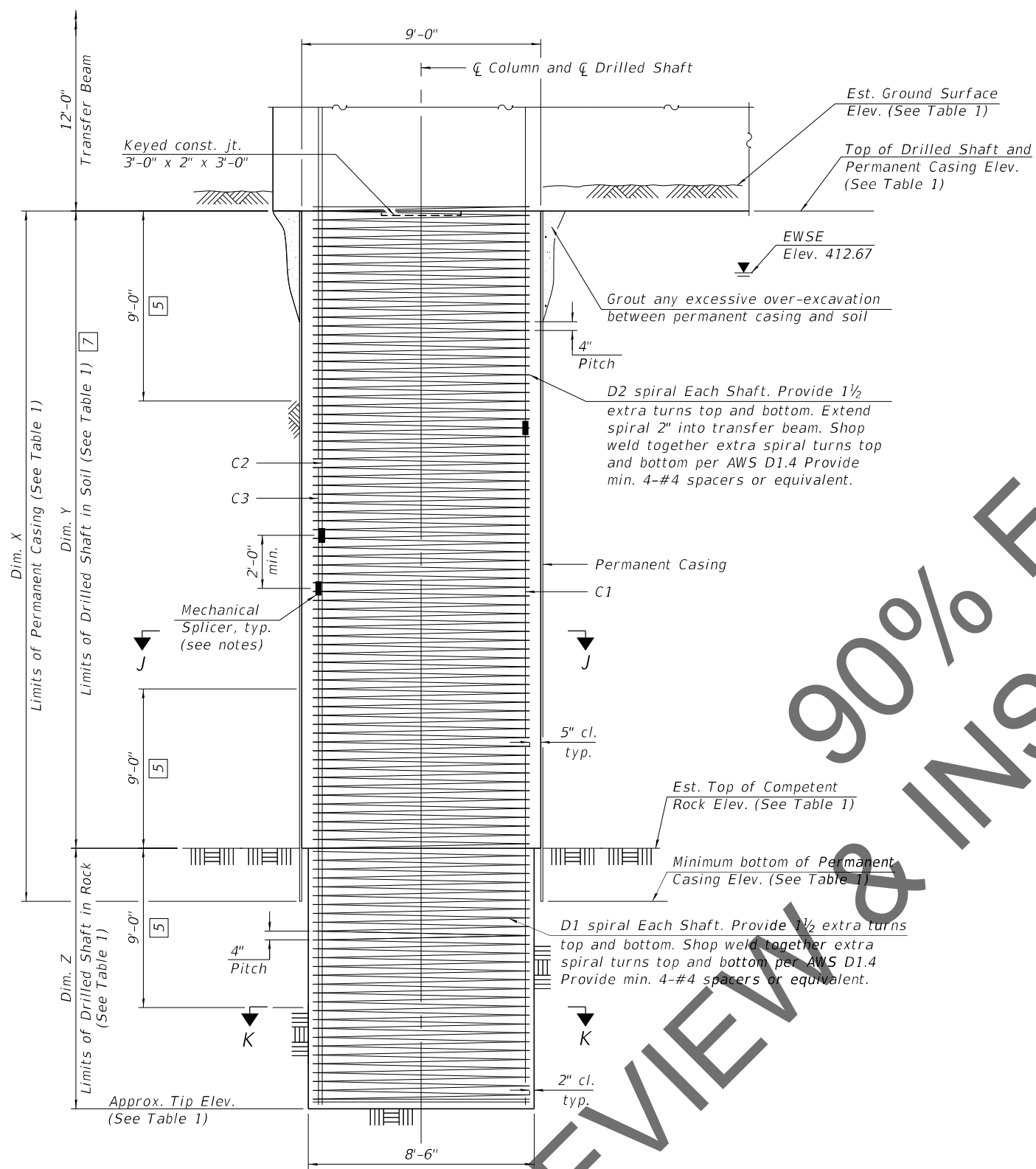
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 AND 2 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 168 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	660
CONTRACT NO. 76190				

ILLINOIS FED. AID PROJECT



- 5 No splicing of bars allowed in this region.
- 7 If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Notes:

The Contractor may propose a construction joint in the drilled shaft so separate pours can be made, if the shaft can be poured in the dry, subject to approval from the Engineer.

The Permanent Casing is shown embedded 2 ft. into rock for estimate of quantities. Pay Limits for the Permanent Casing shall be based on the minimum length shown.

Alternate every other Mechanical Splicer 2'-0" min.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.

The Contractor is responsible for determining the casing thickness and the actual tip elevation to be used. See Article 516.06(d) of the Standard Specifications. Pay limits for the Permanent Casing shall be based on minimum length shown.

Wet construction methods within the permanent casing may be required. The Contractor's installation procedure shall clearly address cleaning and inspection methods proposed for use with wet construction methods which ensure adequate end bearing on rock is achieved.

For Top Plan and Part elevation, see sheet 167 of 288.
 For Transfer Beam details, see sheet 168 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 171 and 172 of 288.
 For Table 1, see sheet 170 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

DRILLED SHAFT DETAIL
 (One shaft shown, three shafts required, one under each column)

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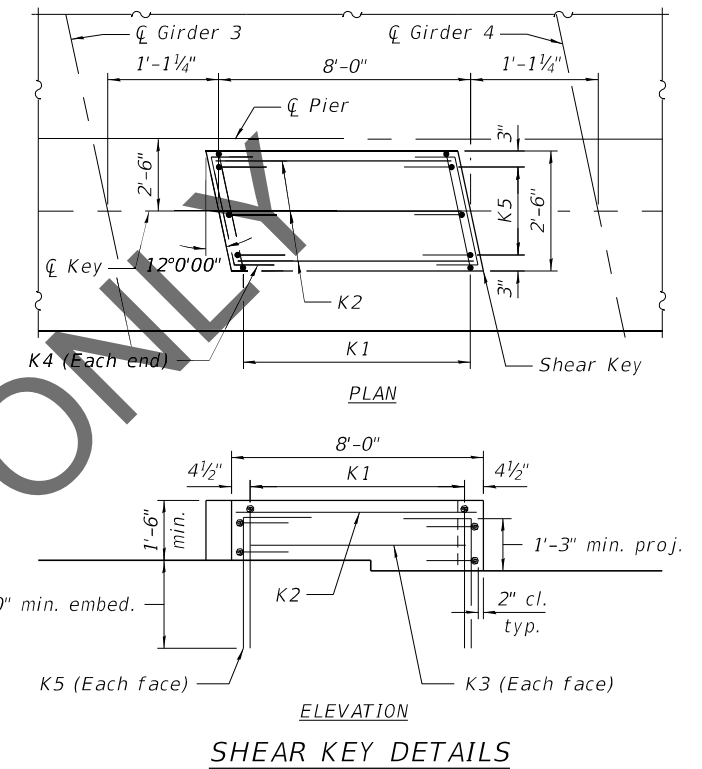
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	661
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

TABLE 1

	Pier 1	Pier 2	
☐ Pier Station	2781+26.48	2782+73.15	
Bearing Seat Elevation	Girder 1	445.92	446.65
	Girder 2	446.11	446.85
	Girder 3	446.30	447.04
	Girder 4	446.49	447.23
	Girder 5	446.68	447.41
	Girder 6	446.47	447.20
	Girder 7	446.25	446.99
Top of Cap Elevation	445.92	446.65	
Bottom of Cap Elevation	437.92	438.65	
Column Height	7'-6 1/4"	5'-3"	
Top of Shaft Elevation	418.40	421.40	
Approx. Tip Elevation	360.10	357.90	
Est. Ground Surface Elevation	419.40	422.40	
Est. Top of Rock Elevation	385.60	383.40	
Min. bott. of Permanent Casing Elev.	383.60	381.40	
Dim. X	34'-9 5/8"	40'-0"	
Dim. Y	32'-9 3/8"	38'-0"	
Dim. Z	25'-6"	25'-6"	

TABLE 1 (CONT.)

Step Height	Pier 1	Pier 2
S1	2 1/4"	2 3/8"
S2	2 1/4"	2 1/4"
S3	2 3/8"	2 3/8"
S4	2 1/4"	2 1/8"
S5	2 1/2"	2 1/2"
S6	2 3/8"	2 1/2"



PIER 1

PIER 2

Mark	Bar Callouts	Bar Callouts
(1)	48 sets of 1-#6 s101(E) and 1-#6 s105(E) at 5" cts.	48 sets of 1-#6 s201(E) and 1-#6 s205(E) at 5" cts.
(2)	11 sets of 2-#6 s102(E) at 8" cts.	11 sets of 2-#6 s202(E) at 8" cts.
(3)	6 sets of 4-#6 s107(E) at 5" cts.	6 sets of 4-#6 s207(E) at 5" cts.
(4)	68-#6 s108(E) at abt. 8" cts.	68-#6 s208(E) at abt. 8" cts.
(5)	38 sets of 1-#6 s103(E) and 2-#6 s106(E) at 6" cts.	38 sets of 1-#6 s203(E) and 2-#6 s206(E) at 6" cts.
(6)	17 sets of 2-#6 s104(E) at 6" cts	17 sets of 2-#6 s204(E) at 6" cts
(7)	17 sets of 2-#6 s104(E) at 6" cts.	17 sets of 2-#6 s204(E) at 6" cts.
(8)	14-#7 hp102(E) hoops at 3" cts.	14-#7 hp202(E) hoops at 3" cts.
(9)	44-#7 hp102(E) hoops at 3" cts.	44-#7 hp202(E) hoops at 3" cts.
(10)	33-#7 hp101(E) hoops at 4" cts.	33-#7 hp201(E) hoops at 4" cts.
T1	2 layers of 13-#11 p101(E) or p102(E) at 7 3/8" cts.	2 layers of 13-#11 p201(E) or p202(E) at 7 3/8" cts.
T2	14 sets of 1-#11 p105(E) and 1-#11 p106(E) at 12" max.	14 sets of 1-#11 p205(E) and 1-#11 p206(E) at 12" max.
T3	14 sets of 1-#11 p107(E) and 1-#11 p108(E) at 12" max.	14 sets of 1-#11 p207(E) and 1-#11 p208(E) at 12" max.
B1	2 layers of 13-#11 p103(E) or p109(E) at 7 3/8" cts.	2 layers of 13-#11 p203(E) or p209(E) at 7 3/8" cts.
B2	13-#7 p104(E) at 7 3/8" cts.	13-#7 p204(E) at 7 3/8" cts.
B3	14 sets of 1-#11 p105(E) and 1-#11 p106(E) at 12" max.	14 sets of 1-#11 p205(E) and 1-#11 p206(E) at 12" max.
B4	14 sets of 1-#11 p107(E) and 1-#11 p108(E) at 12" max.	14 sets of 1-#11 p207(E) and 1-#11 p208(E) at 12" max.
H1	10-#8 h101(E) at 7 1/2" cts.	10-#8 h201(E) at 7 1/2" cts.
H2	18-#9 h102(E) at 7" cts.	18-#9 h202(E) at 7" cts.
H3	13-#6 h103(E) at abt. 7 3/8" cts.	13-#6 h203(E) at abt. 7 3/8" cts.
H4	13-#6 h104(E) at abt. 7 3/8" cts.	13-#6 h204(E) at abt. 7 3/8" cts.
A1	6 sets of 1-#7 u103(E) and 1-#7 u104(E) at 10 1/2" cts.	6 sets of 1-#7 u203(E) and 1-#7 u204(E) at 10 1/2" cts.
A2	10-#7 u105(E) at 10 3/4" cts.	10-#7 u205(E) at 10 3/4" cts.
U1	11-#8 u101(E) spaced with h101(E) and p101(E)	11-#8 u201(E) spaced with h201(E) and p201(E)
U2	20-#9 u102(E) splice with h102(E) and space with p105(E)	20-#9 u202(E) splice with h202(E) and space with p205(E)
C1	22 sets of 1-#14 v101(E) and 1-#14 v102(E) (top)	22 sets of 1-#14 v201(E) and 1-#14 v202(E) (top)
C2	22 sets of 1-#14 v103(E) and 1-#14 v104(E) (top) Bundle w/C3	22 sets of 1-#14 v203(E) and 1-#14 v204(E) (top) Bundle w/C3
C3	22 sets of 1-#14 v105(E) and 1-#14 v106(E) (top) Bundle w/C2	22 sets of 1-#14 v205(E) and 1-#14 v206(E) (top) Bundle w/C2
C4	40-#11 v107(E) equally spaced	40-#11 v207(E) equally spaced
D1	#7 sp101(E) at 4" pitch	#7 sp201(E) at 4" pitch
D2	#7 sp102(E) at 4" pitch	#7 sp202(E) at 4" pitch
D3	#7 sp103(E) at 3" pitch	#7 sp203(E) at 3" pitch
K1	15-#5 s109(E) spaced at 6" cts.	15-#5 s209(E) spaced at 6" cts.
K2	3-#5 h105(E) spaced with n101(E)	3-#5 h205(E) spaced with n201(E)
K3	1-#5 h105(E) each face	1-#5 h205(E) each face
K4	2-#5 h106(E) each face	2-#5 h206(E) each face
K5	3-#5 n101(E) at 12" cts., each face	3-#5 n201(E) at 12" cts., each face
R1	#5 r101(E)	#5 r201(E)

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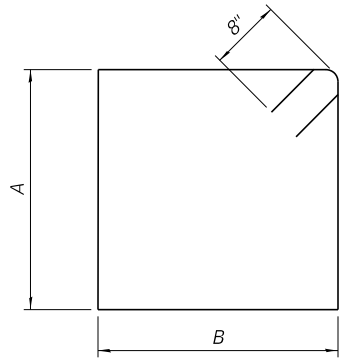
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STATE OF ILLINOIS
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PIER 1 AND 2 REINFORCEMENT TABLES - 1
 STRUCTURE NO. 060-0351 (WB)

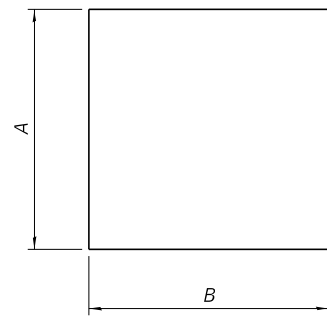
SHEET 170 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	662
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



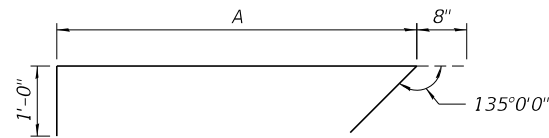
BARS s101(E) & s103(E)
BARS s201(E) & s203(E)

Bars	A	B
s101(E) & s201(E)	7'-8"	7'-8"
s103(E) & s203(E)	11'-8"	9'-4"



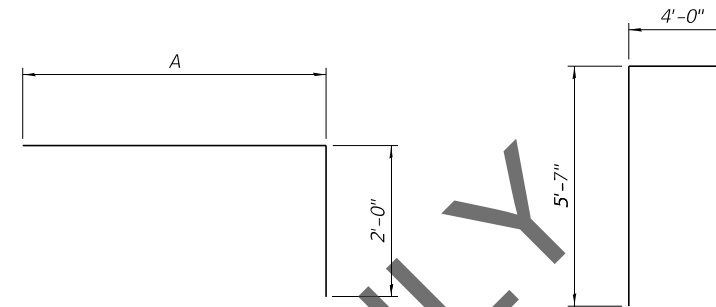
BARS s102(E), s104(E), AND s107(E)
BARS s202(E), s204(E), AND s207(E)

Bars	A	B
s102(E) & s202(E)	7'-8"	5'-10"
s104(E) & s204(E)	11'-8"	6'-8"
s107(E) & s207(E)	4'-10"	5'-10"



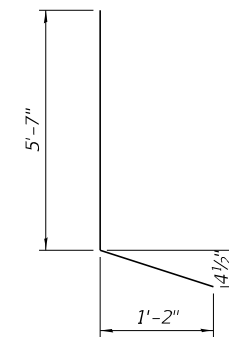
BARS s105(E) & s106(E)
BARS s205(E) & s206(E)

Bars	A
s105(E) & s205(E)	7'-8"
s106(E) & s206(E)	11'-8"

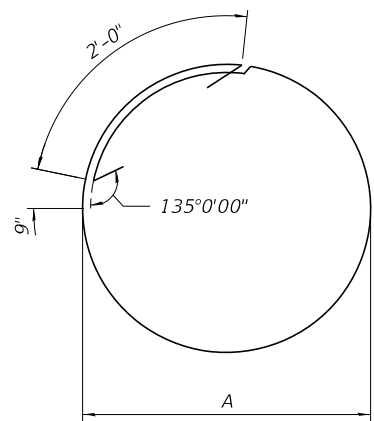


BARS p101(E) & p102(E)
BARS p105(E) & p106(E)
BARS p107(E) & p108(E)
BARS p201(E) & p202(E)
BARS p205(E) & p206(E)
BARS p207(E) & p208(E)

Bars	A
p101(E) & p201(E)	24'-0"
p102(E) & p202(E)	53'-0"
p105(E) & p205(E)	34'-3"
p106(E) & p206(E)	23'-3"
p107(E) & p207(E)	33'-9"
p108(E) & p208(E)	22'-9"

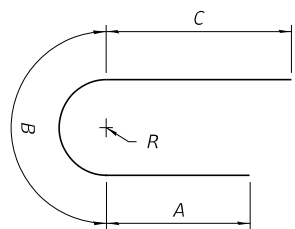


BARS u104(E)
BARS u204(E)



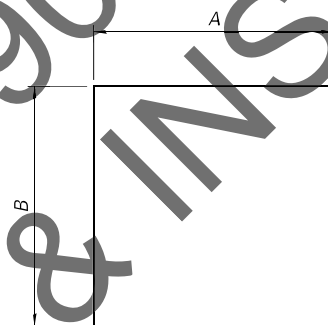
BARS hp101(E) & hp102(E)
BARS hp201(E) & hp202(E)

Bars	A
hp101(E) & hp201(E)	8'-2"
hp102(E) & hp202(E)	6'-8"



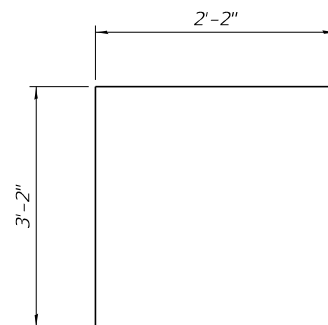
BARS u101(E) & u102(E)
BARS u201(E) & u202(E)

Bars	A	B	C	R
u101(E) & u201(E)	5'-4"	11'-9 3/4"	5'-4"	3'-9"
u102(E) & u202(E)	5'-9"	14'-5"	7'-9"	4'-7"

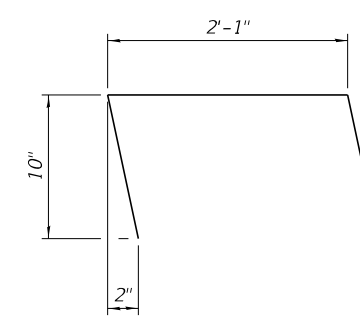


BARS u105(E) & u205(E)
BARS s108(E) & s208(E)

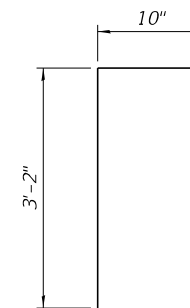
Bars	A	B
u105(E) & u205(E)	11'-6"	4'-7"
s108(E) & s208(E)	7'-8"	2'-9"



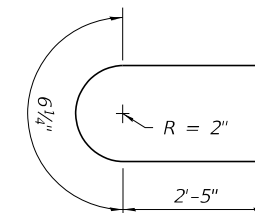
BARS s109(E)
BARS s209(E)



BARS h106(E)
BARS h206(E)



BARS n101(E)
BARS n201(E)



BARS r101(E)
BARS r201(E)

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**PIER 1
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h101(E)	20	#8	60'-0"	=====
h102(E)	36	#9	42'-0"	=====
h103(E)	13	#6	45'-0"	=====
h104(E)	13	#6	9'-11"	=====
h105(E)	5	#5	7'-8"	=====
h106(E)	4	#5	3'-9"	┌┐
hp101(E)	99	#7	29'-2"	○
hp102(E)	174	#7	24'-5"	○
n101(E)	6	#5	4'-0"	┌
p101(E)	26	#11	26'-0"	┌
p102(E)	26	#11	55'-0"	┌
p103(E)	26	#11	44'-6"	=====
p104(E)	26	#7	3'-0"	=====
p105(E)	28	#11	36'-3"	┌
p106(E)	28	#11	25'-3"	┌
p107(E)	28	#11	35'-9"	┌
p108(E)	28	#11	24'-9"	┌
p109(E)	26	#11	26'-2"	=====
r101(E)	8	#5	5'-4"	└
s101(E)	96	#6	32'-0"	□
s102(E)	66	#6	19'-4"	□
s103(E)	76	#6	43'-4"	□
s104(E)	102	#6	25'-0"	□
s105(E)	96	#6	9'-4"	┌
s106(E)	152	#6	13'-4"	┌
s107(E)	48	#6	16'-6"	□
s108(E)	68	#6	13'-2"	□
s109(E)	13	#5	8'-6"	□
** sp101(E)	3	#7	25'-4"	ㄨㄨㄨ
** sp102(E)	3	#7	33'-0"	ㄨㄨㄨ
** sp103(E)	3	#7	7'-10"	ㄨㄨㄨ
u101(E)	22	#8	22'-5"	└
u102(E)	40	#9	27'-11"	└
u103(E)	12	#7	9'-7"	┌
u104(E)	12	#7	6'-10"	└
u105(E)	20	#7	20'-8"	□
v101(E)	66	#14	45'-0"	=====
v102(E)	66	#14	24'-7"	=====
v103(E)	66	#14	42'-6"	=====
v104(E)	66	#14	27'-1"	=====
v105(E)	66	#14	40'-0"	=====
v106(E)	66	#14	29'-7"	=====
v107(E)	120	#11	26'-5"	=====

** Length is height of spiral.

**PIER 1
BILL OF MATERIAL (CONT.)**

Structure Excavation	Cu. Yd.	35
Concrete Structures	Cu. Yd.	470.2
Reinforcement Bars, Epoxy Coated	Pound	245,890
Permanent Casing	Foot	105
Drilled Shaft in Soil	Cu. Yd.	232
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	175
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	175

**PIER 2
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h201(E)	20	#8	60'-0"	=====
h202(E)	36	#9	42'-0"	=====
h203(E)	13	#6	45'-0"	=====
h204(E)	13	#6	9'-11"	=====
h205(E)	5	#5	7'-8"	=====
h206(E)	4	#5	3'-9"	┌┐
hp201(E)	99	#7	29'-2"	○
hp202(E)	174	#7	24'-5"	○
n201(E)	6	#5	4'-0"	┌
p201(E)	26	#11	26'-0"	┌
p202(E)	26	#11	55'-0"	┌
p203(E)	26	#11	44'-6"	=====
p204(E)	26	#7	3'-0"	=====
p205(E)	28	#11	36'-3"	┌
p206(E)	28	#11	25'-3"	┌
p207(E)	28	#11	35'-9"	┌
p208(E)	28	#11	24'-9"	┌
p209(E)	26	#11	26'-2"	=====
r201(E)	8	#5	5'-4"	└
s201(E)	96	#6	32'-0"	□
s202(E)	66	#6	19'-4"	□
s203(E)	76	#6	43'-4"	□
s204(E)	102	#6	25'-0"	□
s205(E)	96	#6	9'-4"	┌
s206(E)	152	#6	13'-4"	┌
s207(E)	48	#6	16'-6"	□
s208(E)	68	#6	13'-2"	□
s209(E)	13	#5	8'-6"	□
** sp201(E)	3	#7	25'-4"	ㄨㄨㄨ
** sp202(E)	3	#7	38'-2"	ㄨㄨㄨ
** sp203(E)	3	#7	5'-7"	ㄨㄨㄨ
u201(E)	22	#8	22'-5"	└
u202(E)	36	#9	27'-11"	└
u203(E)	12	#7	9'-7"	┌
u204(E)	12	#7	6'-10"	└
u205(E)	20	#7	20'-8"	□
v201(E)	66	#14	45'-0"	=====
v202(E)	66	#14	29'-9"	=====
v203(E)	66	#14	42'-6"	=====
v204(E)	66	#14	32'-3"	=====
v205(E)	66	#14	40'-0"	=====
v206(E)	66	#14	34'-9"	=====
v207(E)	120	#11	24'-2"	=====

** Length is height of spiral.

**PIER 2
BILL OF MATERIAL (CONT.)**

Structure Excavation	Cu. Yd.	35
Concrete Structures	Cu. Yd.	460.6
Reinforcement Bars, Epoxy Coated	Pound	253,190
Permanent Casing	Foot	120
Drilled Shaft in Soil	Cu. Yd.	269
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	191
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	191

REVIEW & INCORPORATION ONLY

Note:
For bar details, see sheet 171 of 288.

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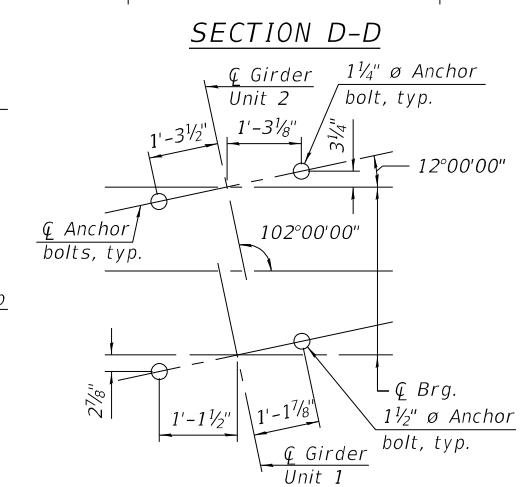
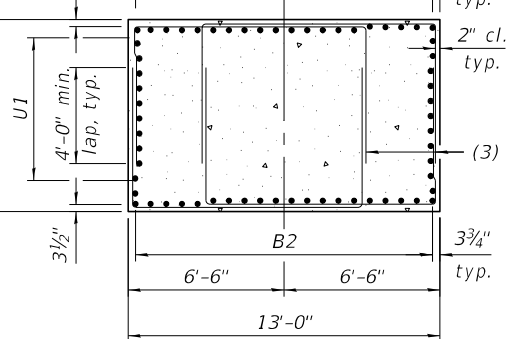
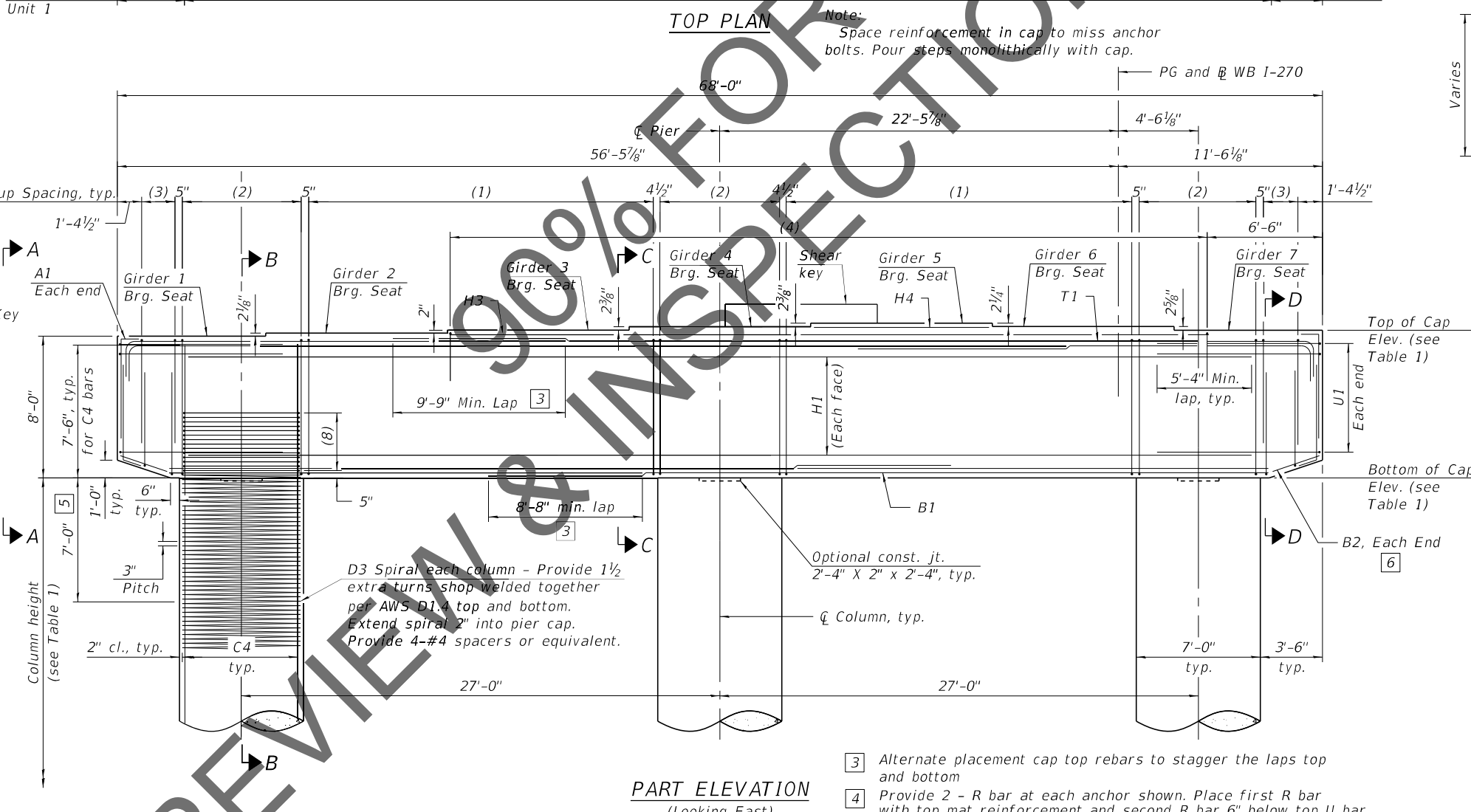
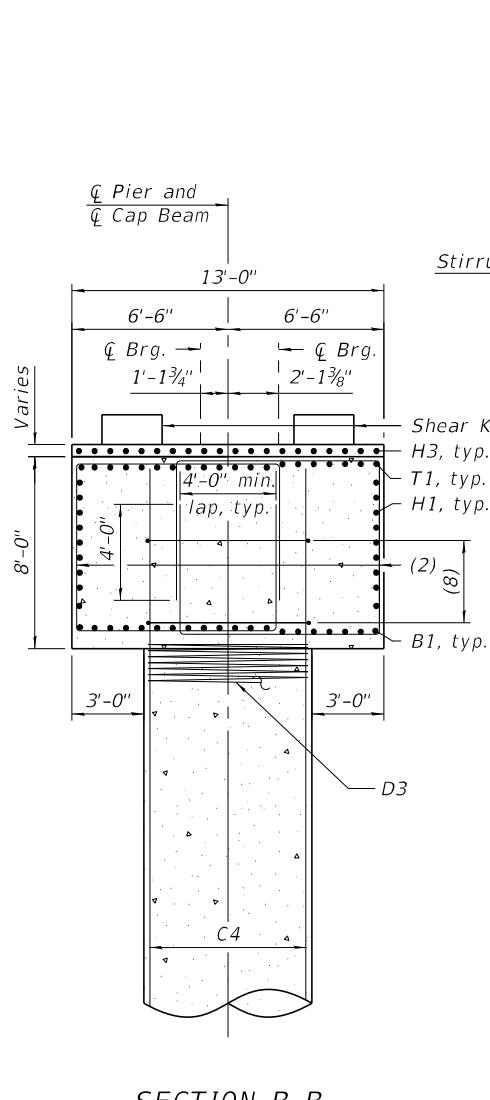
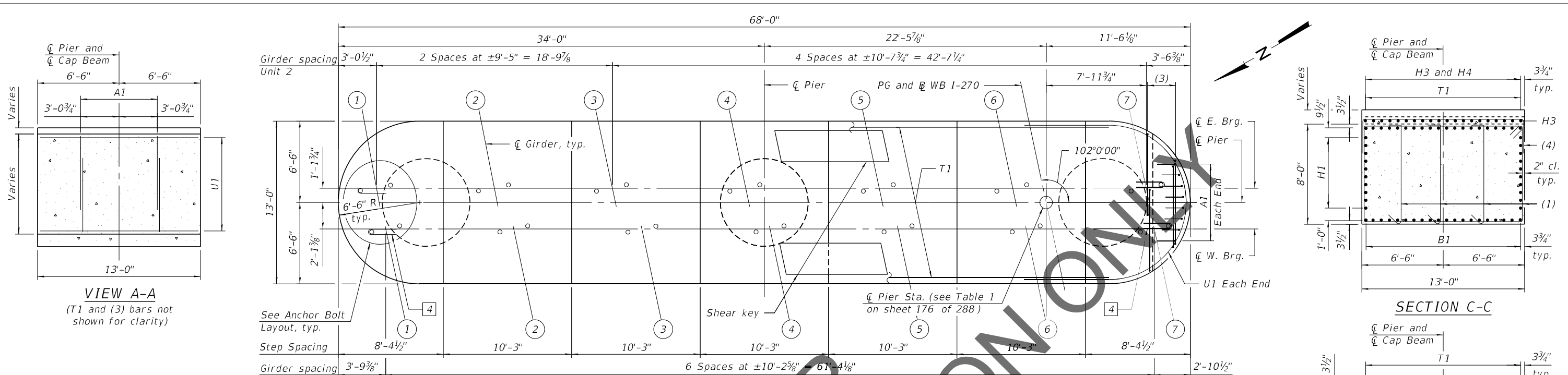
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	CHECKED - SSM	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PIER 1 AND 2 BILL OF MATERIALS
STRUCTURE NO. 060-0351 (WB)**

SHEET 172 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	664
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



TOP PLAN
 Note:
 Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.

PART ELEVATION
 (Looking East)

Notes:
 For bar details and Bill of Materials, see sheets 177 and 178 of 288.
 For column height, step height and all elevations, see Table 1 on sheet 176 of 288.
 For Unit 1 bearing details, see sheet 152 of 288.
 For Unit 2 bearing details, see sheet 154 of 288.
 For bar callouts and shear key details, see sheet 176 of 288.

- 3 Alternate placement cap top rebars to stagger the laps top and bottom
- 4 Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

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PARSONS

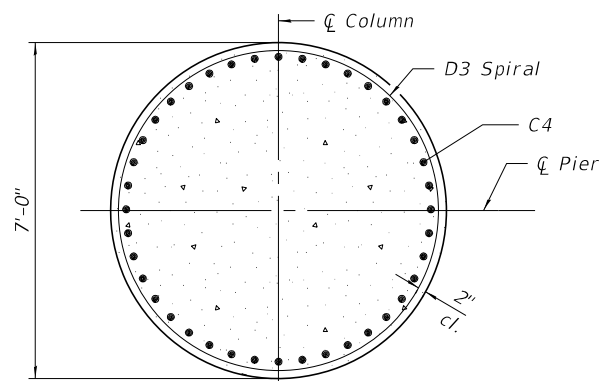
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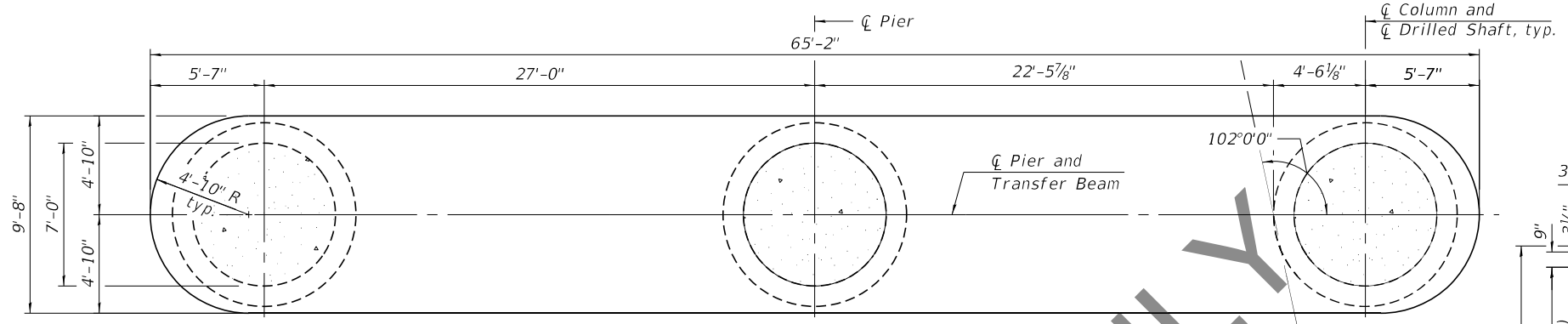
PIER 3 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 173 OF 288 SHEETS

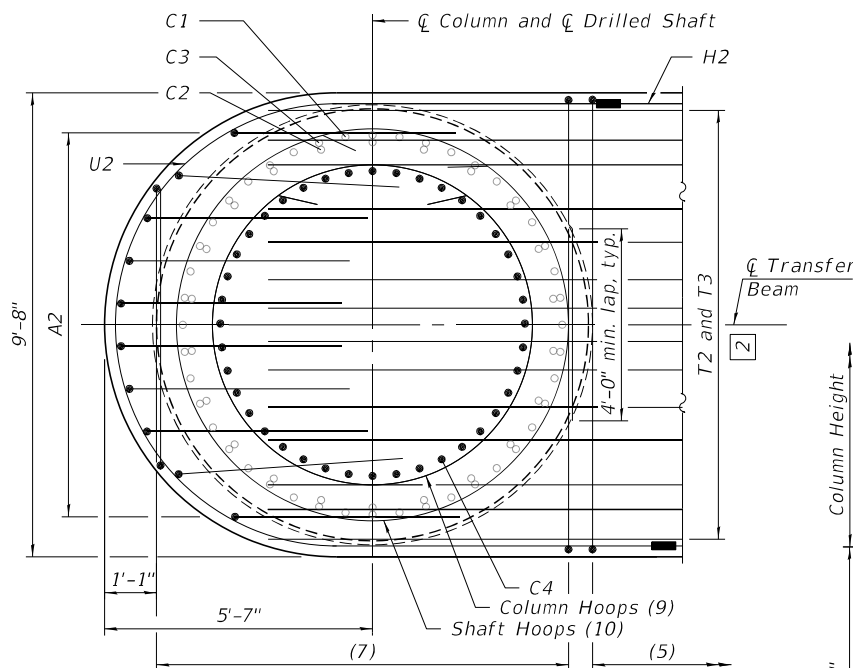
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	665
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



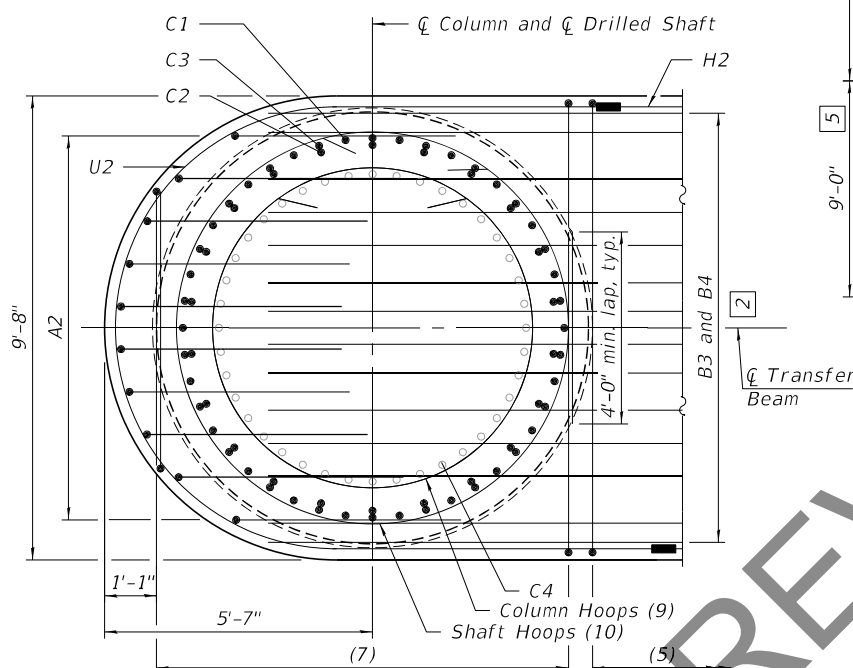
SECTION E-E



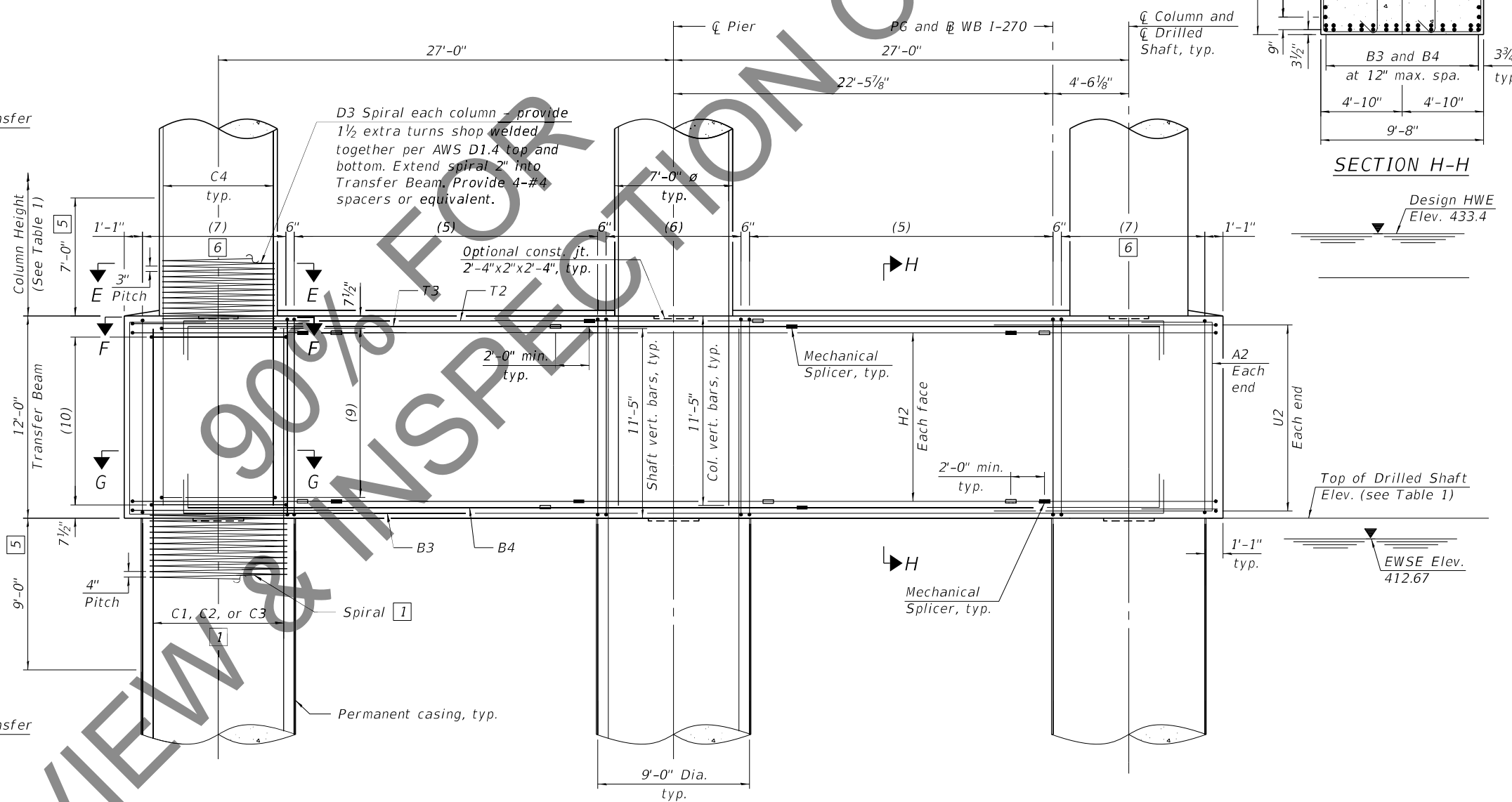
PLAN - TRANSFER BEAM



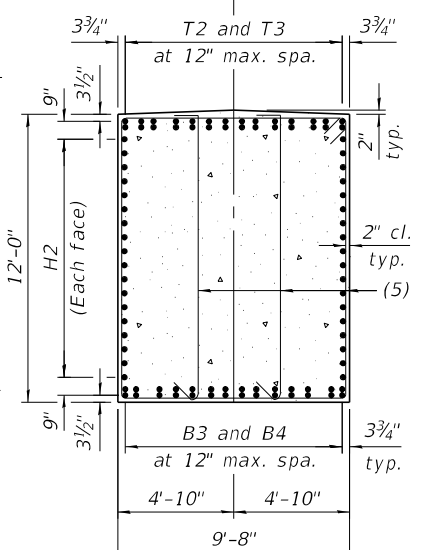
SECTION F-F



SECTION G-G



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION H-H

- 1 See sheet 175 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
 For Top Plan and Part elevation, see sheet 173 of 288.
 For Drilled Shaft details, see sheet 169 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 177 and 178 of 288.
 For Table 1, see sheet 176 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

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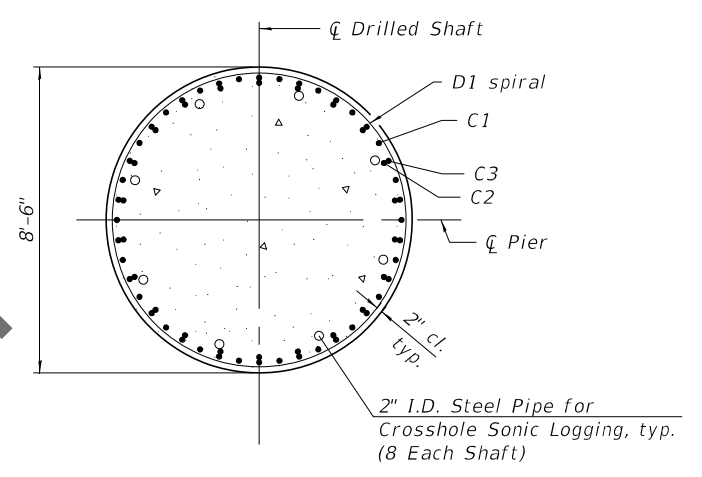
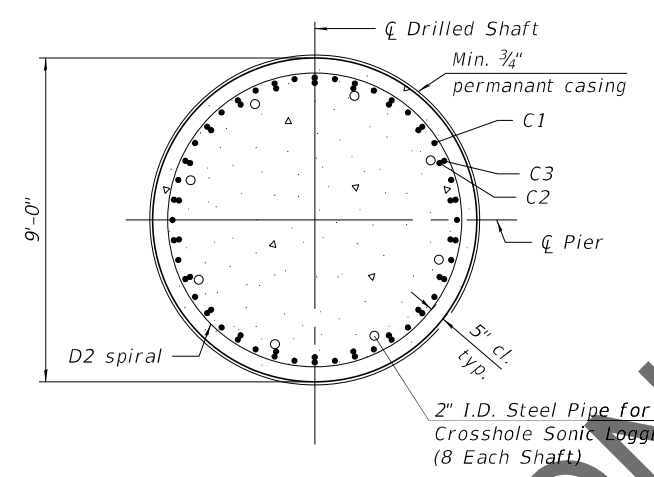
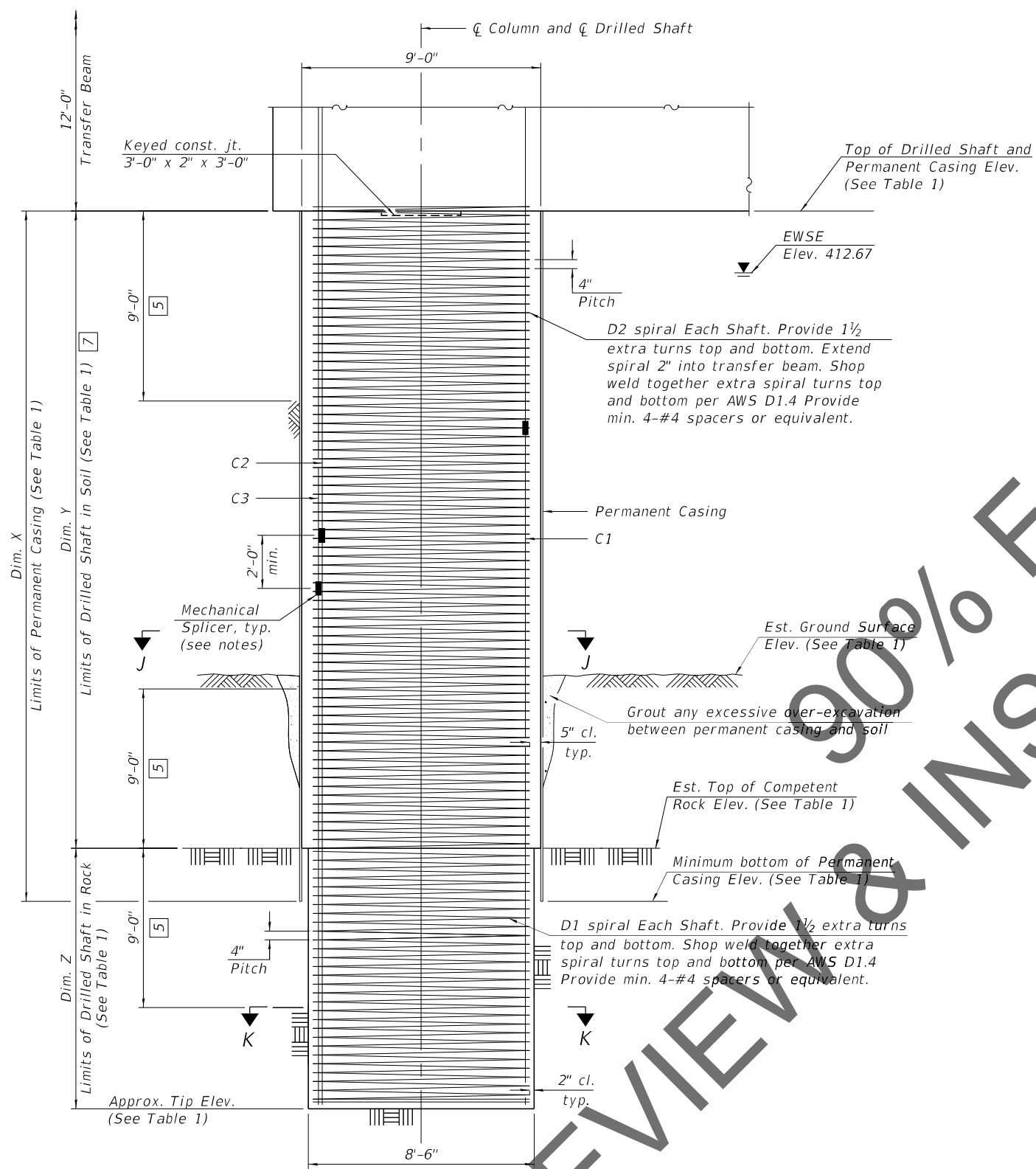
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PIER 3 PLAN AND ELEVATION - 2
 STRUCTURE NO. 060-0351 (WB)

SHEET 174 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	666
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76190	

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SECTION J-J

SECTION K-K

- 5 No splicing of bars allowed in this region.
- 7 If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Notes:

The Contractor may propose a construction joint in the drilled shaft so separate pours can be made, if the shaft can be poured in the dry, subject to approval from the Engineer.

The Permanent Casing is shown embedded 2 ft. into rock for estimate of quantities. Pay Limits for the Permanent Casing shall be based on the minimum length shown.

Alternate every other Mechanical Splicer 2'-0" min.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.

The Contractor is responsible for determining the casing thickness and the actual tip elevation to be used. See Article 516.06(d) of the Standard Specifications. Pay limits for the Permanent Casing shall be based on minimum length shown.

Wet construction methods within the permanent casing may be required. The Contractor's installation procedure shall clearly address cleaning and inspection methods proposed for use with wet construction methods which ensure adequate end bearing on rock is achieved.

For Top Plan and Part elevation, see sheet 173 of 288 .
 For Transfer Beam details, see sheet 174 of 288 .
 For additional notes, bar details, and Bill of Material, see sheets 177 and 178 of 288 .
 For Table 1, see sheet 176 of 288 .
 For Mechanical Splicer details, see sheet 242 of 288 .

DRILLED SHAFT DETAIL
 (One shaft shown, three shafts required, one under each column)

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STATE OF ILLINOIS
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PIER 3 PLAN AND ELEVATION - 3
 STRUCTURE NO. 060-0351 (WB)

SHEET 175 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	667
CONTRACT NO. 76190				

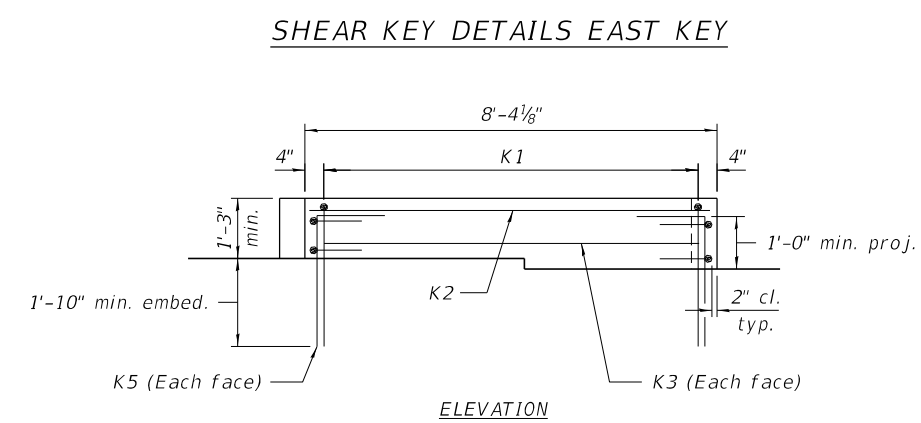
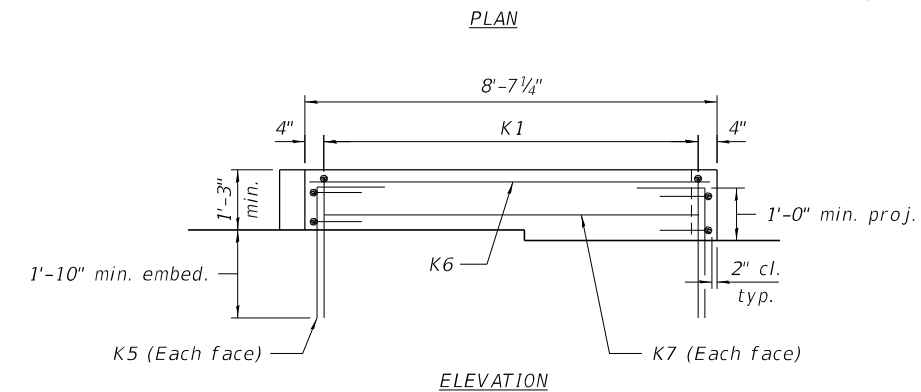
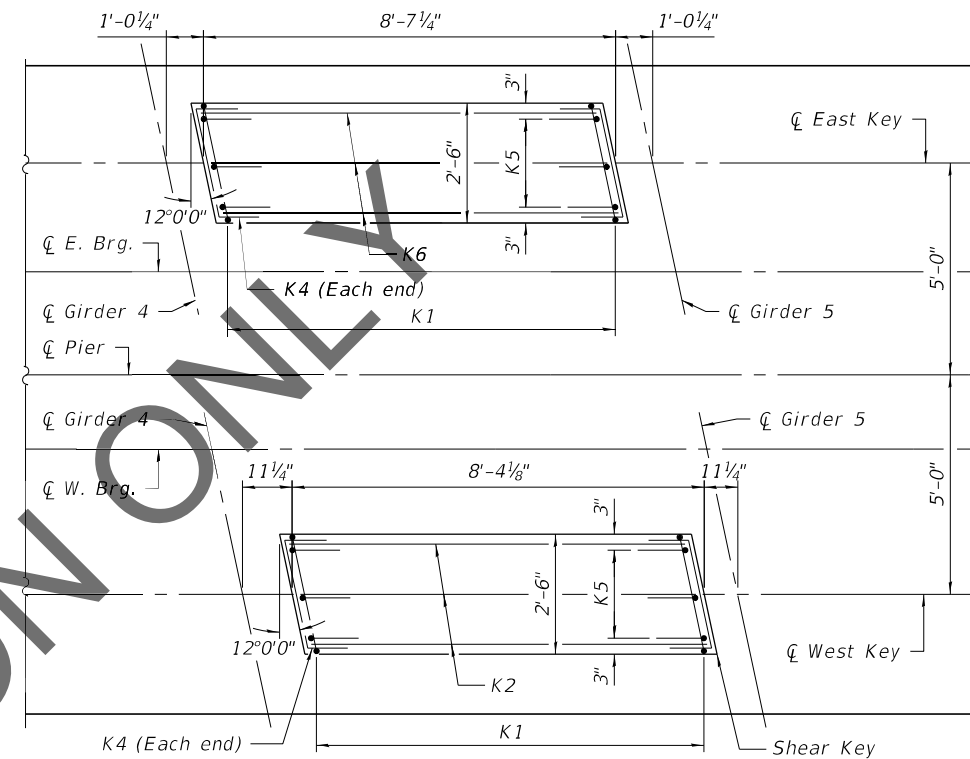
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TABLE 1

		Pier 3
☐ Pier Station		2783+92.48
Bearing Seat Elevation	Girder 1	445.98
	Girder 2	446.16
	Girder 3	446.33
	Girder 4	446.53
	Girder 5	446.73
	Girder 6	446.54
	Girder 7	446.32
Top of Cap Elevation		445.98
Bottom of Cap Elevation		437.98
Column Height		10'-11 ³ / ₄ "
Top of Shaft Elevation		415.00
Approx. Tip Elevation		363.60
Est. Ground Surface Elevation		395.00
Est. Top of Rock Elevation		389.10
Min. bott. of Permanent Casing Elev.		387.10
Dim. X		27'-10 ³ / ₄ "
Dim. Y		25'-10 ³ / ₄ "
Dim. Z		25'-6"

PIER 3

Mark	Bar Callouts
(1)	48 sets of 1-#6 s301 (E) and 3-#6 s305(E) at 5" cts.
(2)	14 sets of 4-#6 s302(E) at 6" cts.
(3)	6 sets of 4-#6 s307(E) at 5" cts.
(4)	64-#6 s308(E) at abt. 8" cts.
(5)	38 sets of 1-#6 s303(E) and 2-#6 s306(E) at 6" cts.
(6)	17 sets of 2-#6 s304(E) at 6" cts.
(7)	17 sets of 2-#6 s304(E) at 6" cts.
(8)	14-#7 hp302(E) hoops at 3" cts.
(9)	44-#7 hp302(E) hoops at 3" cts.
(10)	33-#7 hp301(E) hoops at 4" cts.
T1	20-#11 p301(E) or p302(E) at 7 ³ / ₄ " cts.
T2	14 bundles of 1-#11 p305(E) and 1-#11 p306(E) at 12" max.
T3	14 bundles of 1-#11 p307(E) and 1-#11 p308(E) at 12" max.
B1	20-#11 p303(E) and p309(E) at 7 ³ / ₄ " cts.
B2	20-#7 p304(E) at 7 ³ / ₄ " cts.
B3	14 bundles of 1-#11 p305(E) and 1-#11 p306(E) at 12" max.
B4	14 bundles of 1-#11 p307(E) and 1-#11 p308(E) at 12" max.
H1	10-#8 h301(E) at 7 ¹ / ₂ " cts.
H2	18-#9 h302(E) at 7" cts.
H3	20-#6 h303(E) at abt. 7 ³ / ₄ " cts.
H4	20-#6 h304(E) at abt. 7 ³ / ₄ " cts.
A1	7 sets of 1-#7 u303(E) and 1-#7 u304(E) at 10 ¹ / ₂ " cts.
A2	10-#7 u305(E) at 10 ³ / ₄ " cts.
U1	11-#8 u301(E) spaced with h301(E) and p301(E)
U2	20-#9 u302(E) splice with h302(E) and space w/ p305(E) thru p308(E)
C1	22 sets of 1-#14 v301(E) and 1-#14 v302(E) (top)
C2	22 sets of 1-#14 v303(E) and 1-#14 v304(E) (top) bundle w/ C3
C3	22 sets of 1-#14 v305(E) and 1-#14 v306(E) (top) bundle w/ C2
C4	22 sets of 40-#11 v307(E) equally spaced
D1	#7 sp301(E) at 4" pitch
D2	#7 sp302(E) at 4" pitch
D3	#7 sp303(E) at 3" pitch
K1	13-#5 s309(E) spaced at 6" cts.
K2	3-#5 h305(E) spaced with n301(E)
K3	1-#5 h305(E) each face
K4	2-#5 h306(E) each face
K5	3-#5 n101(E) at 12" cts., each face
K6	3-#5 h307(E) spaced with n301(E)
K7	1-#5 h307(E) each face
R1	#5 r301(E)



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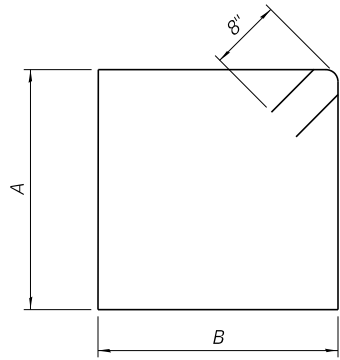
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**PIER 3 REINFORCEMENT TABLE - 1
STRUCTURE NO. 060-0351 (WB)**

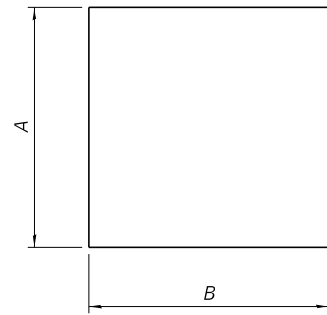
SHEET 176 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	668
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



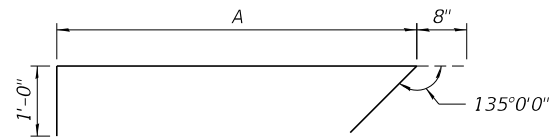
BARS s301(E) & s303(E)

Bars	A	B
s301(E)	7'-8"	12'-8"
s303(E)	11'-8"	9'-4"



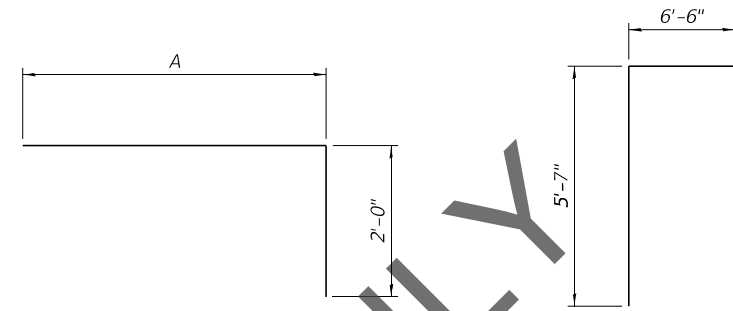
BARS s302(E), s304(E) & s307(E)

Bars	A	B
s302(E)	8'-4"	5'-10"
s304(E)	11'-8"	6'-8"
s307(E)	7'-5"	5'-10"



BARS s305(E) & s306(E)

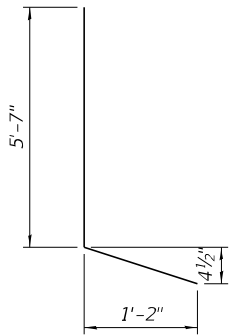
Bars	A
s305(E)	7'-8"
s306(E)	11'-8"



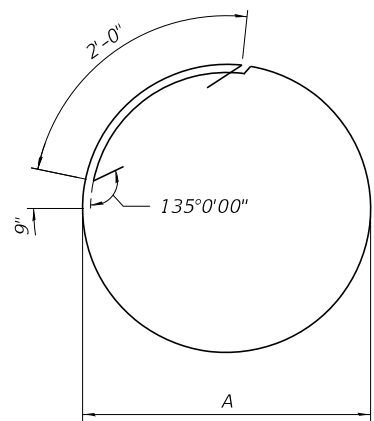
BARS p301(E) & p302(E)
BARS p305(E) & p306(E)
BARS p307(E) & p308(E)

Bars	A
p301(E)	24'-0"
p302(E)	53'-0"
p305(E)	34'-3"
p306(E)	23'-3"
p307(E)	33'-9"
p308(E)	22'-9"

BARS u303(E)

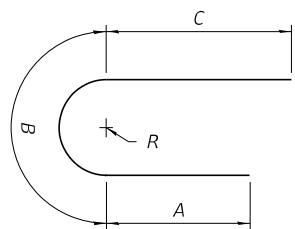


BARS u304(E)



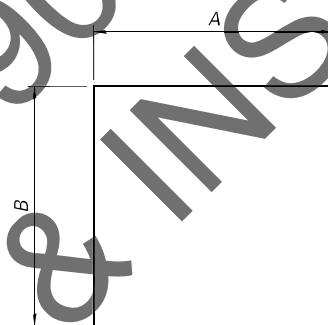
BARS hp301(E) & hp302(E)

Bars	A
hp301(E)	8'-2"
hp302(E)	6'-8"



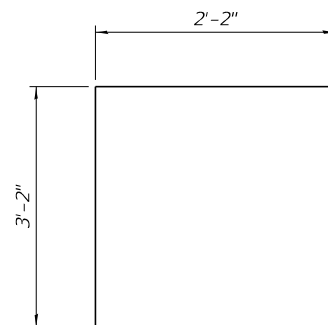
BARS u301(E) & u302(E)

Bars	A	B	C	R
u301(E)	5'-4"	19'-7 3/8"	5'-4"	6'-3"
u302(E)	5'-9"	14'-5"	7'-9"	4'-7"

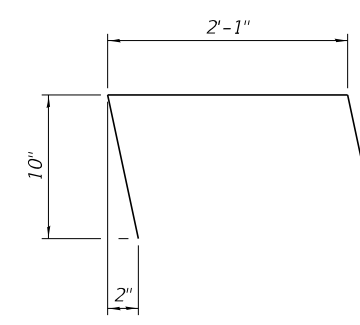


BARS u305(E) & s308(E)

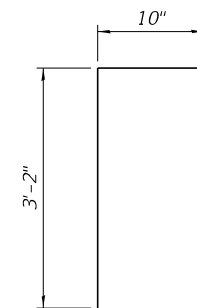
Bars	A	B
u305(E)	11'-6"	4'-7"
s308(E)	12'-8"	2'-9"



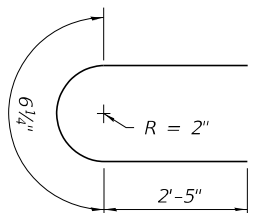
BARS s309(E)



BARS h306(E)



BARS n301(E)



BARS r301(E)

**PIER 3
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h301(E)	20	#8	55'-0"	————
h302(E)	36	#9	42'-0"	————
h303(E)	20	#6	45'-0"	————
h304(E)	20	#6	9'-11"	————
h305(E)	5	#5	8'-0"	————
h306(E)	8	#5	3'-9"	┌┐
h307(E)	5	#5	8'-3"	————
hp301(E)	99	#7	29'-2"	○
hp302(E)	174	#7	24'-5"	○
n301(E)	12	#5	4'-0"	┌
p301(E)	20	#11	26'-0"	┌
p302(E)	20	#11	55'-0"	┌
p303(E)	20	#11	44'-6"	————
p304(E)	20	#7	3'-0"	————
p305(E)	28	#11	36'-3"	┌
p306(E)	28	#11	25'-3"	┌
p307(E)	28	#11	35'-9"	┌
p308(E)	28	#11	24'-9"	┌
p309(E)	20	#11	26'-2"	————
r301(E)	8	#5	5'-4"	⊂
s301(E)	96	#6	42'-0"	□
s302(E)	168	#6	20'-0"	□
s303(E)	76	#6	43'-4"	□
s304(E)	102	#6	25'-0"	□
s305(E)	288	#6	9'-4"	┌
s306(E)	152	#6	13'-4"	┌
s307(E)	48	#6	19'-1"	□
s308(E)	64	#6	18'-2"	□
s309(E)	34	#5	8'-6"	□
** sp301(E)	3	#7	25'-4"	〰〰〰
** sp302(E)	3	#7	26'-1"	〰〰〰
** sp303(E)	3	#7	11'-4"	〰〰〰
u301(E)	22	#8	30'-4"	⊂
u302(E)	40	#9	27'-11"	⊂
u303(E)	14	#7	12'-1"	┌
u304(E)	14	#7	6'-10"	└
u305(E)	20	#7	20'-8"	┌
v301(E)	66	#14	40'-0"	————
v302(E)	66	#14	22'-8"	————
v303(E)	66	#14	37'-6"	————
v304(E)	66	#14	25'-2"	————
v305(E)	66	#14	35'-0"	————
v306(E)	66	#14	27'-8"	————
v307(E)	120	#11	29'-11"	————

** Length is height of spiral.

**PIER 3
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	584.2
Reinforcement Bars, Epoxy Coated	Pound	240,350
Permanent Casing	Foot	84
Drilled Shaft in Soil	Cu. Yd.	184
Drilled Shaft in Rock	Cu. Yd.	161
Concrete Sealer	Sq. Ft.	6,071
Crosshole Sonic Logging Access Ducts	Foot	155
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	155

REVIEW & INSPECTION ONLY

Note:
For bar details, see sheet 177 of 288.

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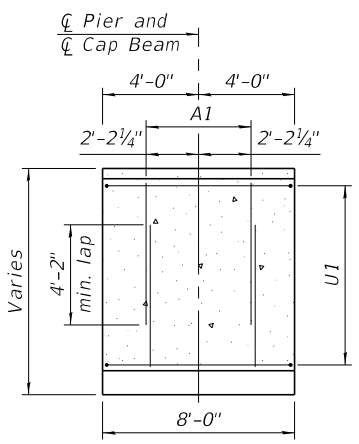
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

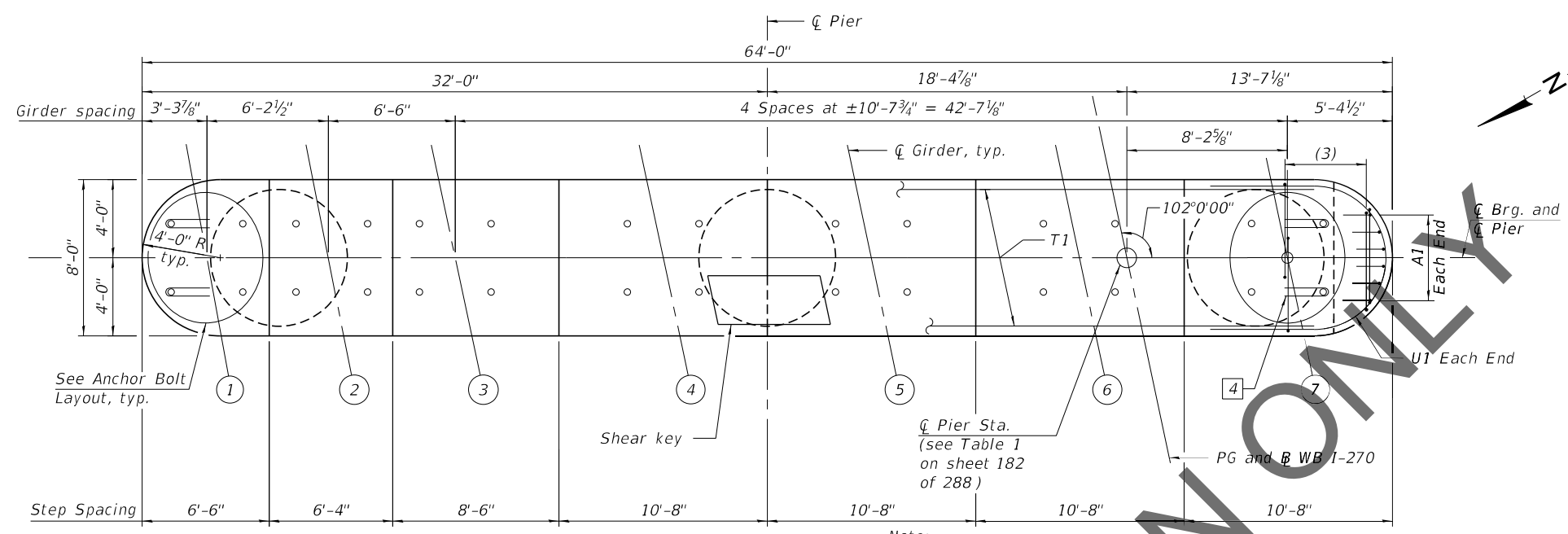
**PIER 3 BILL OF MATERIAL
STRUCTURE NO. 060-0351 (WB)**

SHEET 178 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	670
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

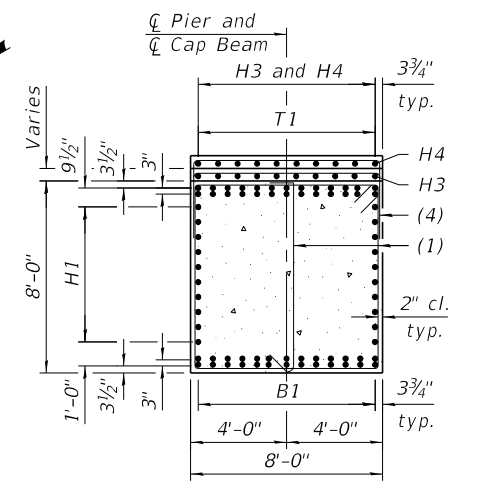


VIEW A-A
(T1 and (3) bars not shown for clarity)

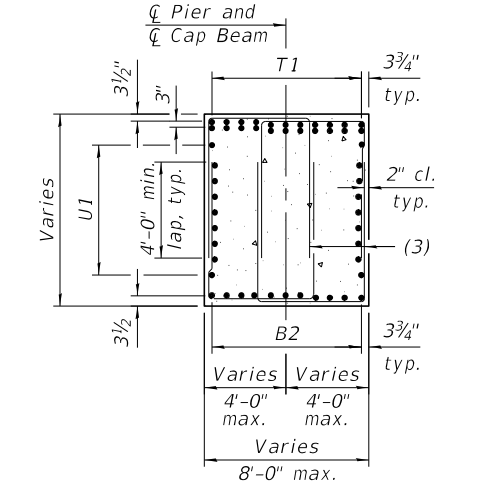


TOP PLAN

Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.
PG and B WB 1-270



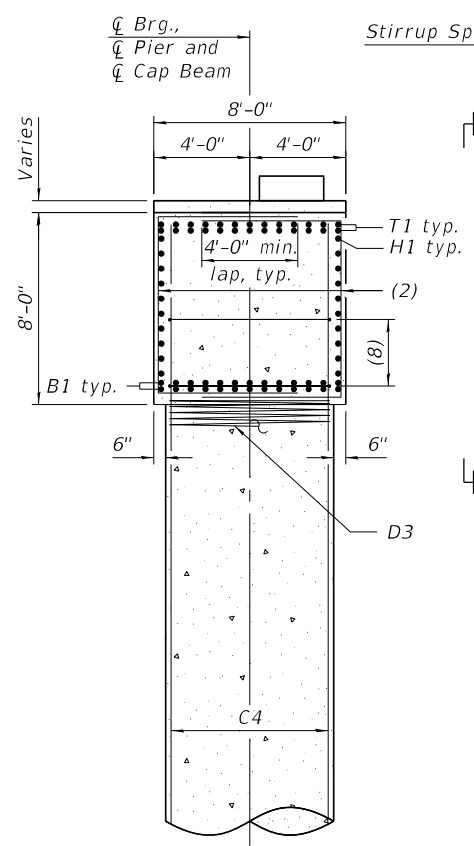
SECTION C-C



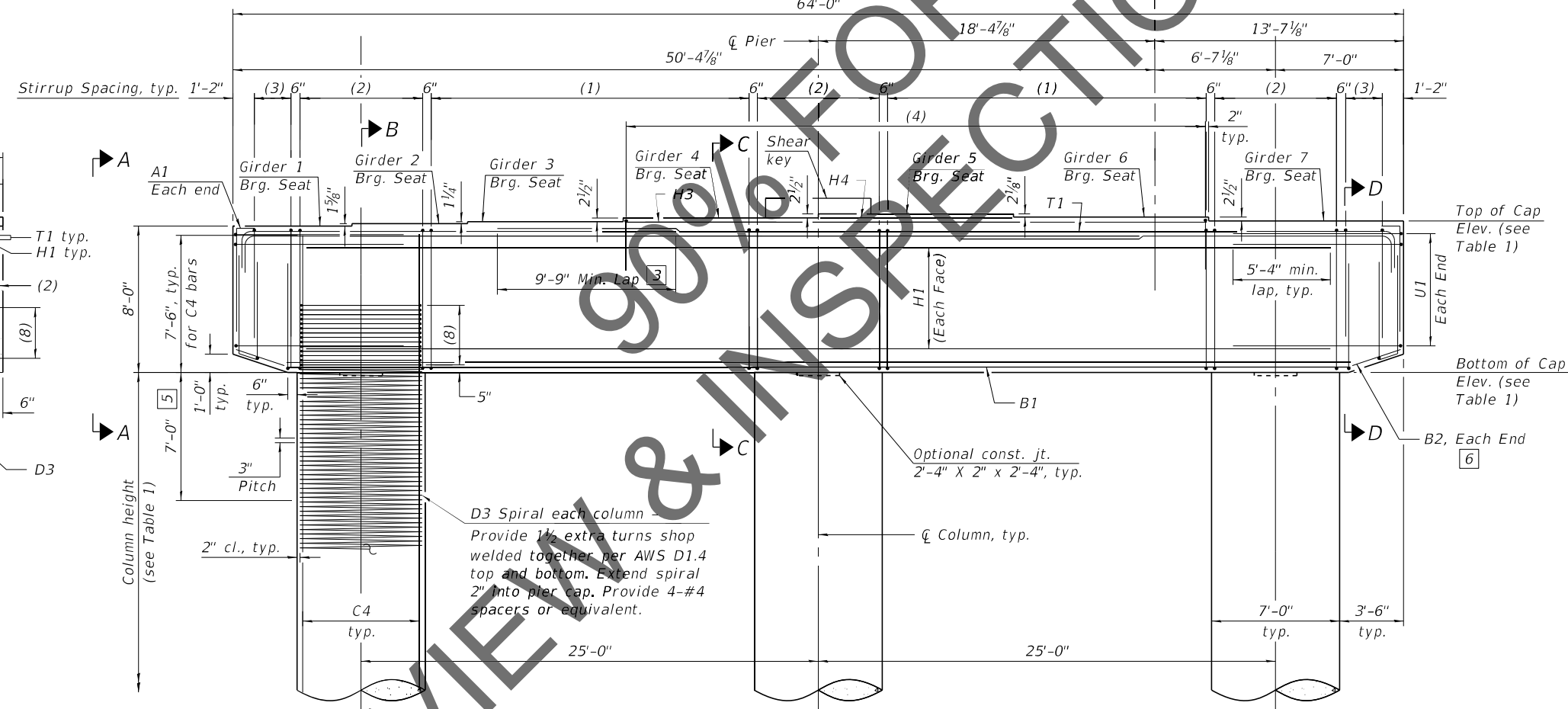
SECTION D-D

TABLE OF VARIABLE ANGLES

Location	Angle
Girder 1	100°20'24"
Girder 2	101°12'43"
Girder 3	102°00'00"
Girder 4	102°00'00"
Girder 5	102°00'00"
Girder 6	102°00'00"
Girder 7	102°00'00"



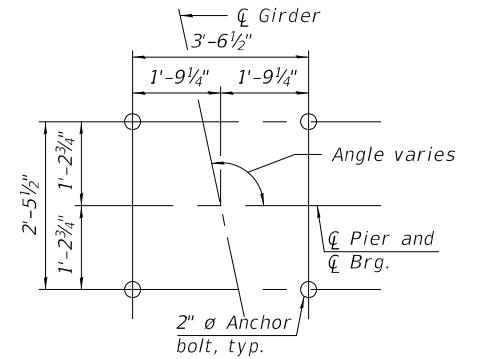
SECTION B-B



PART ELEVATION
(Looking East)

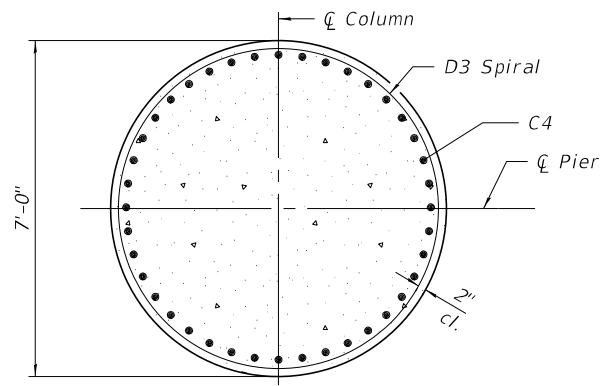
- [3] Alternate placement cap top rebars to stagger the laps top and bottom
- [4] Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar
- [5] No splicing of bars allowed in this region.
- [6] Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 183 and 184 of 288.
For column height, step height and all elevations, see Table 1 on sheet 182 of 288.
For bearing details, see sheet 156 of 288.
For bar callouts and shear key details, see sheet 182 of 288.

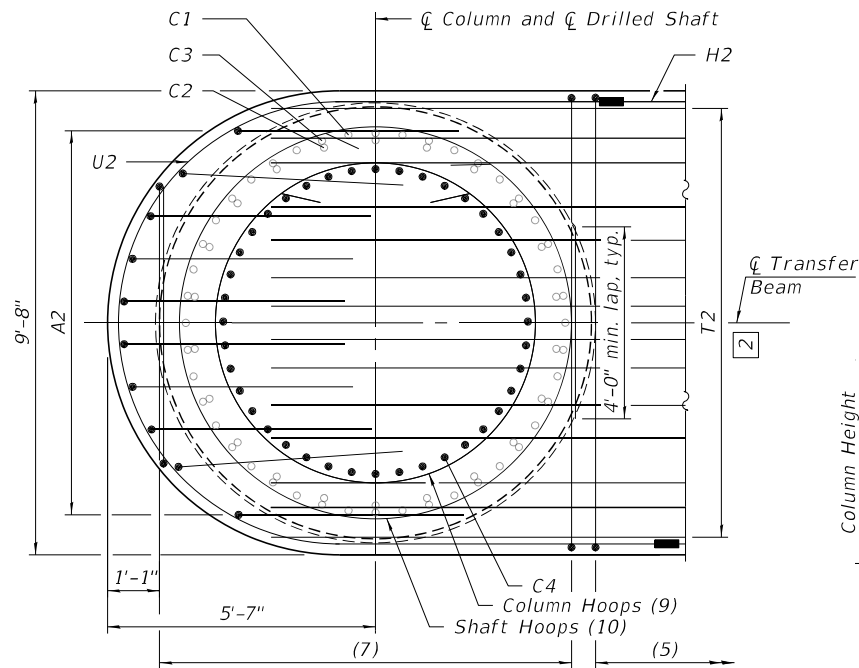


ANCHOR BOLT LAYOUT

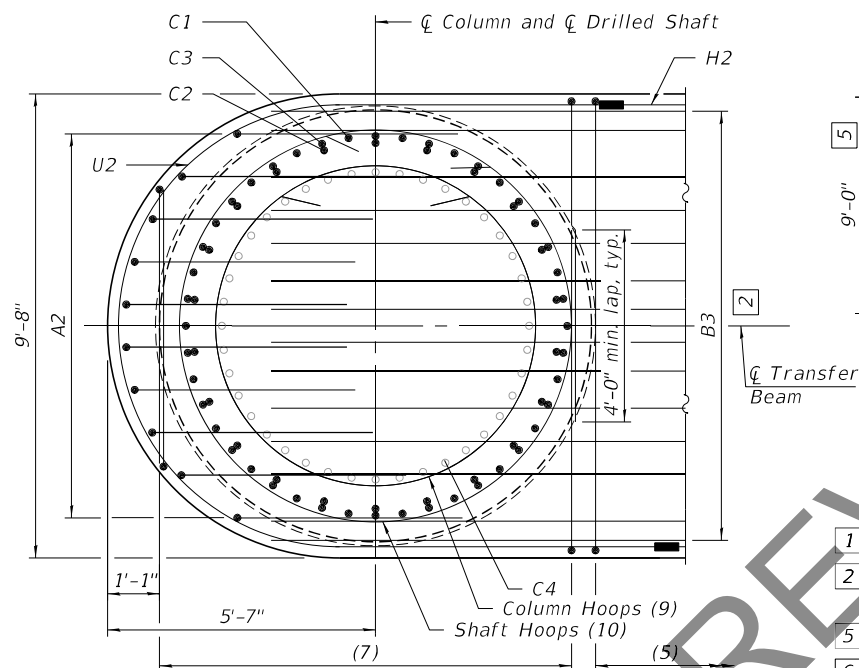
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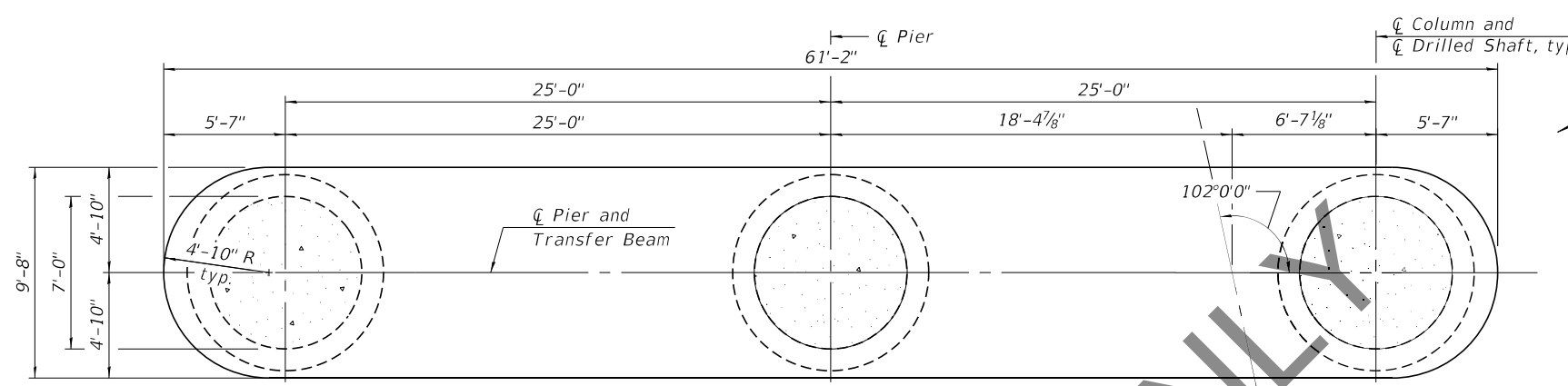
SECTION E-E



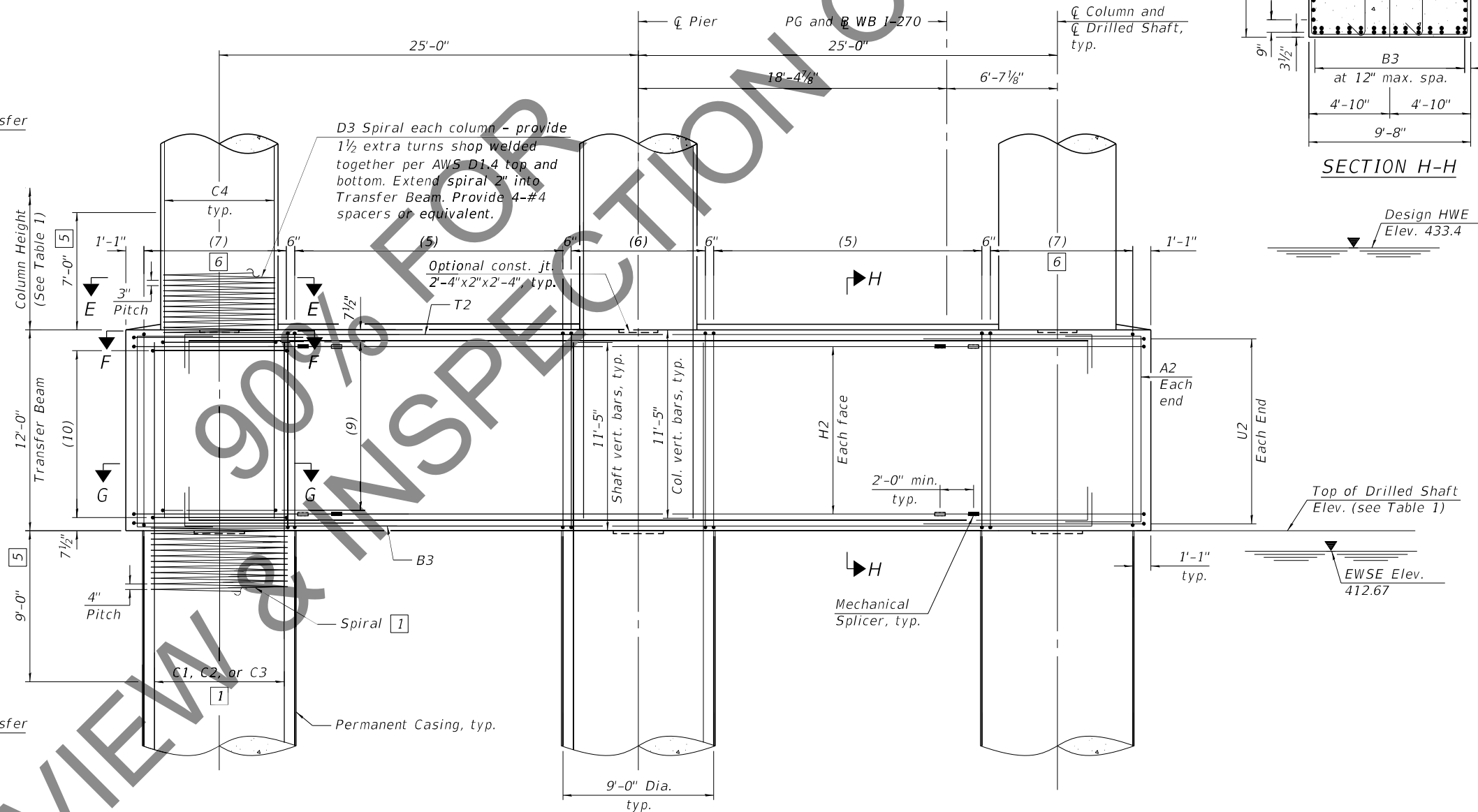
SECTION F-F



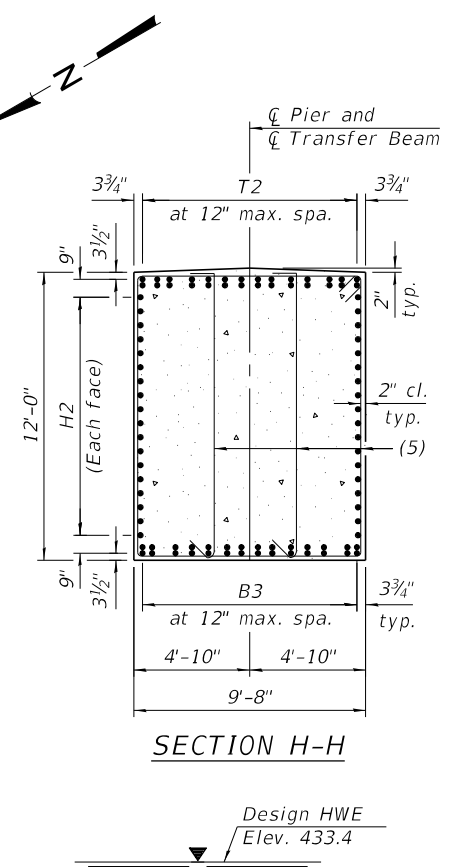
SECTION G-G



PLAN - TRANSFER BEAM



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION H-H

- 1 See sheet 181 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 3 No splicing of bars allowed in this region.
- 4 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
 For Top Plan and Part elevation, see sheet 179 of 288.
 For Drilled Shaft details, see sheet 181 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 183 and 184 of 288.
 For Table 1, see sheet 182 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

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HORNER SHIFRIN
 PARSONS

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PLOT DATE =	DRAWN - EAT	REVISED -
	CHECKED - JSR	REVISED -

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PIER 4 PLAN AND ELEVATION - 2
 STRUCTURE NO. 060-0351 (WB)

SHEET 180 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	672
CONTRACT NO. 76190				

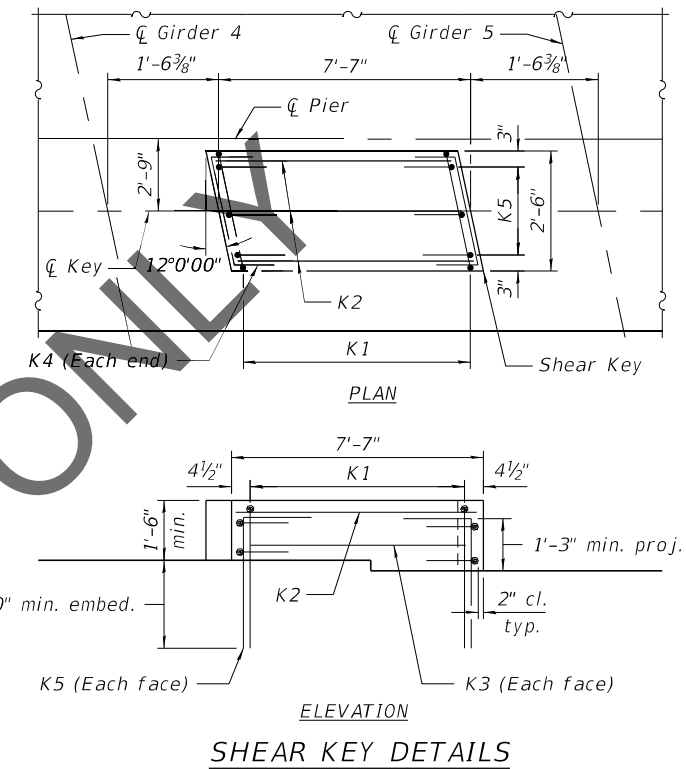
ILLINOIS FED. AID PROJECT

TABLE 1

		Pier 4
☐ Pier Station		2786+01.40
Bearing Seat Elevation	Girder 1	446.33
	Girder 2	446.46
	Girder 3	446.57
	Girder 4	446.78
	Girder 5	446.99
	Girder 6	446.81
	Girder 7	446.60
Top of Cap Elevation		446.33
Bottom of Cap Elevation		438.33
Column Height		11'-4"
Top of Shaft Elevation		415.00
Approx. Tip Elevation		355.50
Est. Ground Surface Elevation		381.00
Est. Top of Rock Elevation		381.00
Min. bott. of Permanent Casing Elev.		379.00
Dim. X		36'-0"
Dim. Y		34'-0"
Dim. Z		25'-6"

PIER 4

Mark	Bar Callouts
(1)	43 sets of 1-#6 s401(E) and 1-#6 s405(E) at 5" cts.
(2)	14 sets of 2-#6 s402(E) at 6" cts.
(3)	6 sets of 4-#6 s407(E) at 5" cts.
(4)	48-#6 s408(E) at abt. 8" cts.
(5)	33 sets of 1-#6 s403(E) and 2-#6 s406(E) at 6" cts.
(6)	17 sets of 2-#6 s404(E) at 6" cts.
(7)	18 sets of 2-#6 s404(E) at 6" cts.
(8)	14-#7 hp402(E) hoops at 3" cts.
(9)	44-#7 hp402(E) hoops at 3" cts.
(10)	33-#7 hp401(E) hoops at 4" cts.
T1	2 layers of 13-#11 p401(E) or p402(E) at 7 ³ / ₈ " cts.
T2	14 bundles of 1-#11 p405(E) and 1-#11 p406(E) at 12" max.
B1	2 layers of 13-#11 p403(E) at 7 ³ / ₈ " cts.
B2	13-#7 p404(E) at 7 ³ / ₈ " cts.
B3	14 bundles of 1-#11 p405(E) and 1-#11 p406(E) at 12" max.
H1	10-#8 h401(E) at 7 ¹ / ₂ " cts.
H2	18-#9 h402(E) at 7" cts.
H3	13-#6 h403(E) at abt. 7 ³ / ₈ " cts.
H4	13-#6 h404(E) at abt. 7 ³ / ₈ " cts.
A1	6 sets of 1-#7 u403(E) and 1-#7 u404(E) at 10 ¹ / ₂ " cts.
A2	10-#7 u405(E) at 10 ³ / ₄ " cts.
U1	11-#8 u401(E) spaced with h401(E) and p401(E)
U2	20-#9 u402(E) splice with h402(E) and space with p405(E)
C1	22 sets of 1-#14 v401(E) and 1-#14 v402(E) (top)
C2	22 sets of 1-#14 v403(E) and 1-#14 v404(E) (top) Bundle w/ C3
C3	22 sets of 1-#14 v405(E) and 1-#14 v406(E) (top) Bundle w/ C2
C4	40-#11 v407(E) equally spaced
D1	#7 sp401(E) at 4" pitch
D2	#7 sp402(E) at 4" pitch
D3	#7 sp403(E) at 3" pitch
K1	15-#5 s409(E) spaced at 6" cts.
K2	3-#5 h405(E) spaced with n401(E)
K3	1-#5 h405(E) each face
K4	2-#5 h406(E) each face
K5	3-#5 n401(E) at 12" cts., each face
R1	#5 r401(E)



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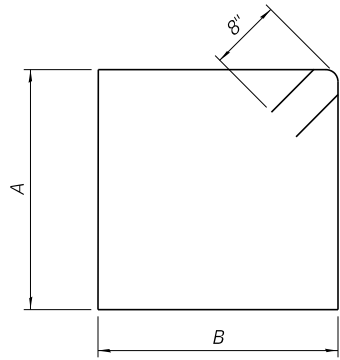
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PIER 4 REINFORCEMENT TABLE - 1
STRUCTURE NO. 060-0351 (WB)

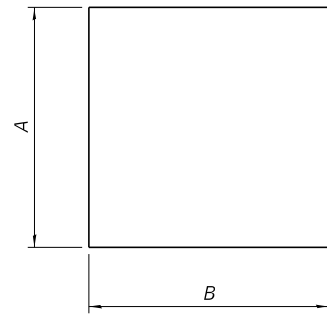
SHEET 182 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	674
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				



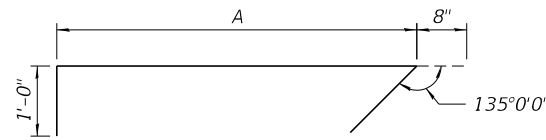
BARS s401(E) & s403(E)

Bars	A	B
s401(E)	7'-8"	7'-8"
s403(E)	11'-8"	9'-4"



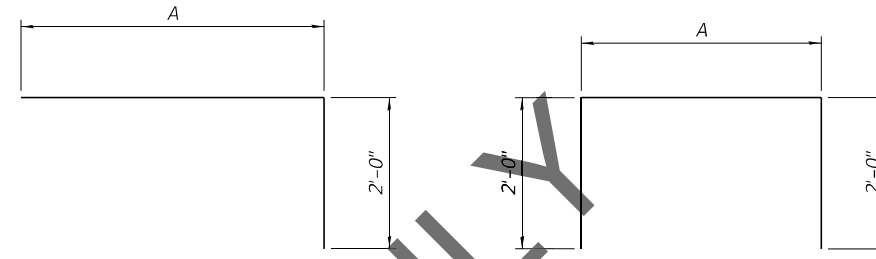
BARS s402(E), s404(E) & s407(E)

Bars	A	B
s402(E)	7'-8"	5'-10"
s404(E)	11'-8"	6'-8"
s407(E)	4'-10"	5'-10"



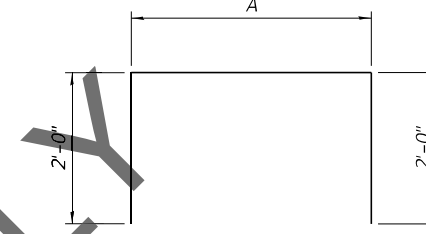
BARS s405(E) & s406(E)

Bars	A
s405(E)	7'-8"
s406(E)	11'-8"



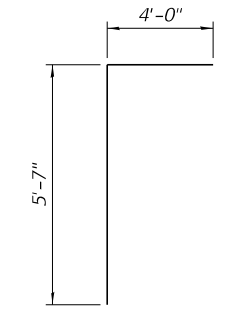
BARS p401(E) & p402(E)

Bars	A
p401(E)	22'-5"
p402(E)	51'-0"

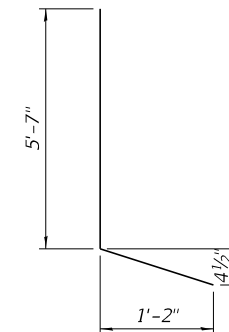


BARS p405(E) & p406(E)

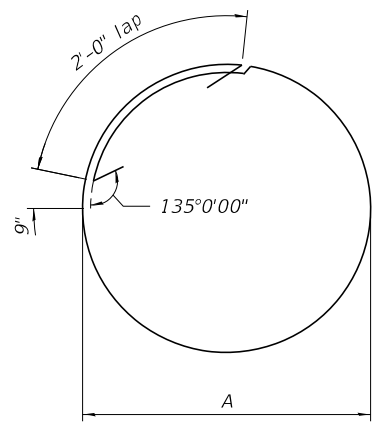
Bars	A
p405(E)	54'-0"
p406(E)	53'-6"



BARS u403(E)

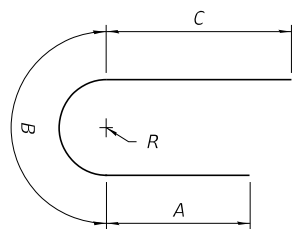


BARS u404(E)



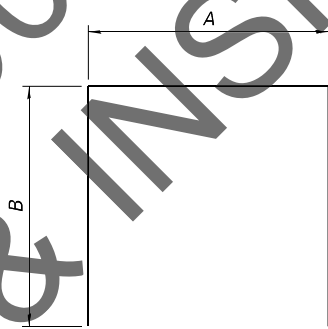
BARS hp401(E) & hp402(E)

Bars	A
hp401(E)	8'-2"
hp402(E)	6'-8"



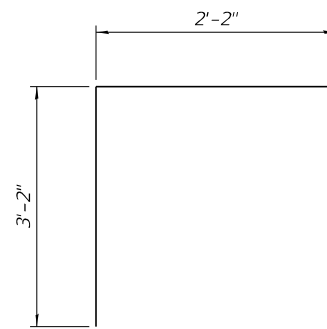
BARS u401(E) & u402(E)

Bars	A	B	C	R
u401(E)	5'-4"	11'-9 3/8"	5'-4"	3'-9"
u402(E)	5'-9"	14'-5"	7'-9"	4'-7"

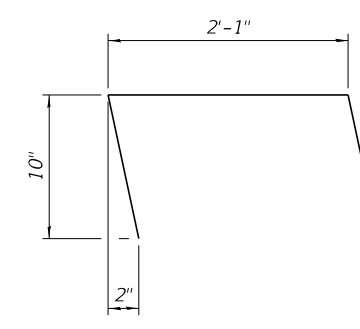


BARS u405(E) & s408(E)

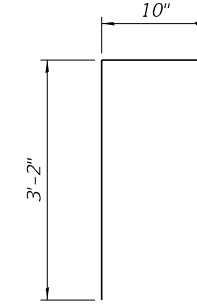
Bars	A	B
u405(E)	11'-6"	4'-7"
s408(E)	7'-8"	2'-9"



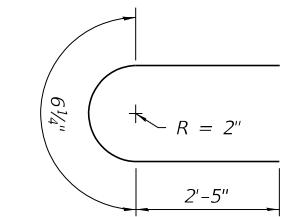
BARS s409(E)



BARS h406(E)



BARS n401(E)



BARS r401(E)

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**PIER 4
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h401(E)	20	#8	56'-0"	———
h402(E)	36	#9	38'-0"	———
h403(E)	13	#6	31'-8"	———
h404(E)	13	#6	10'-4"	———
h405(E)	5	#5	7'-3"	———
h406(E)	4	#5	3'-9"	┌
hp401(E)	99	#7	29'-2"	○
hp402(E)	174	#7	24'-5"	○
n401(E)	6	#5	4'-0"	┌
p401(E)	26	#11	24'-5"	┌
p402(E)	26	#11	53'-0"	┌
p403(E)	26	#11	57'-8"	———
p404(E)	26	#7	3'-0"	———
p405(E)	28	#11	58'-0"	┌
p406(E)	28	#11	57'-6"	┌
r401(E)	8	#5	5'-4"	┌
s401(E)	86	#6	32'-0"	□
s402(E)	84	#6	19'-4"	□
s403(E)	66	#6	43'-4"	□
s404(E)	106	#6	25'-0"	□
s405(E)	86	#6	9'-4"	┌
s406(E)	132	#6	13'-4"	┌
s407(E)	48	#6	16'-6"	□
s408(E)	48	#6	13'-2"	□
s409(E)	15	#5	8'-6"	□
** sp401(E)	3	#7	25'-4"	∩∩∩
** sp402(E)	3	#7	34'-2"	∩∩∩
** sp403(E)	3	#7	11'-8"	∩∩∩
u401(E)	22	#8	22'-5"	┌
u402(E)	40	#9	27'-11"	┌
u403(E)	12	#7	9'-7"	┌
u404(E)	12	#7	6'-10"	┌
u405(E)	20	#7	20'-8"	┌
v401(E)	66	#14	45'-0"	———
v402(E)	66	#14	25'-9"	———
v403(E)	66	#14	42'-6"	———
v404(E)	66	#14	28'-3"	———
v405(E)	66	#14	40'-0"	———
v406(E)	66	#14	30'-9"	———
v407(E)	120	#11	30'-3"	———

** Length is height of spiral.

**PIER 4
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	458.2
Reinforcement Bars, Epoxy Coated	Pound	247,040
Permanent Casing	Foot	108
Drilled Shaft in Soil	Cu. Yd.	241
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	179
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	179

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Note:
For bar details, see sheet 183 of 288.

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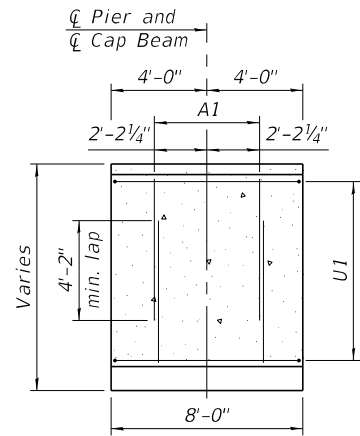
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	CHECKED - JSR	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

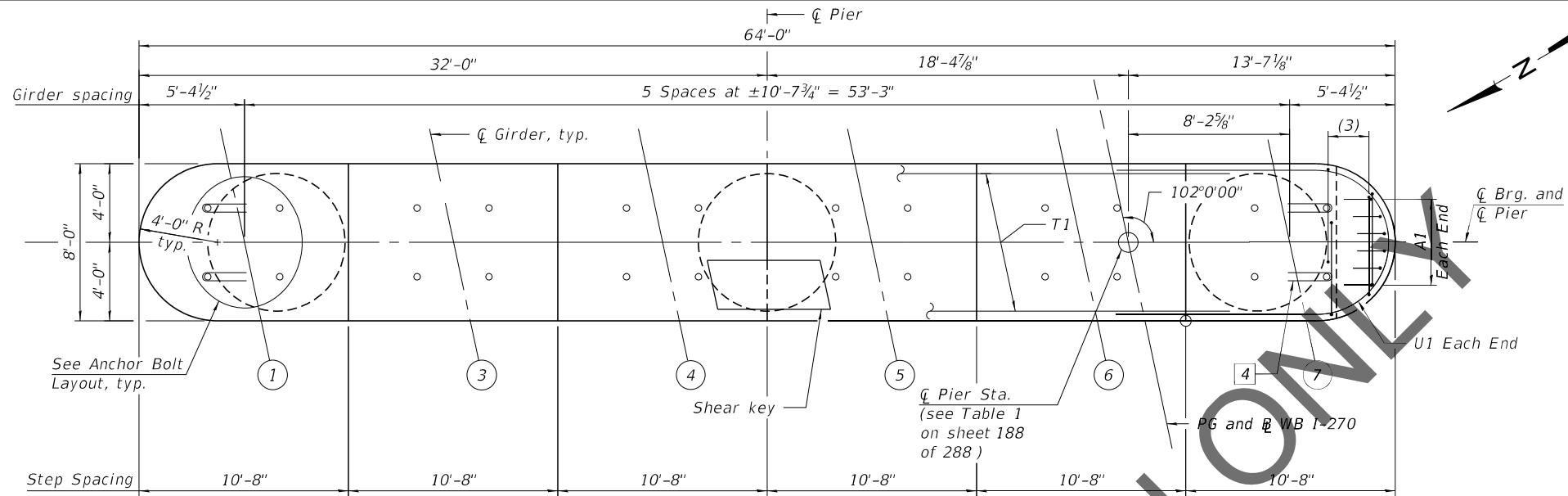
**PIER 4 BILL OF MATERIAL
STRUCTURE NO. 060-0351 (WB)**

SHEET 184 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	676
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

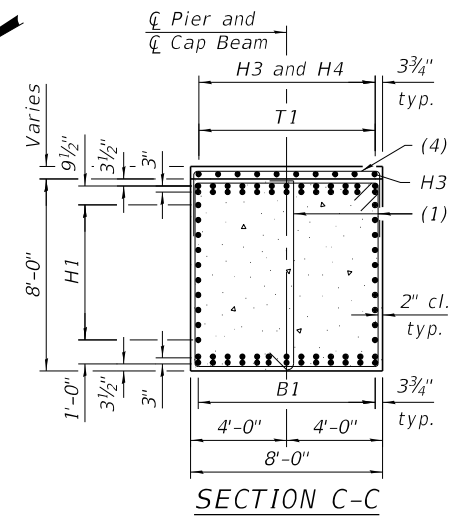


VIEW A-A
(T1 and (3) bars not shown for clarity)

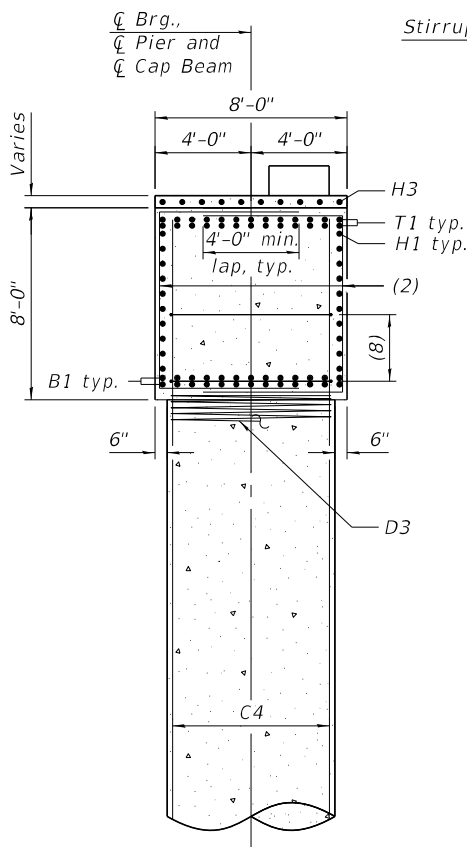


TOP PLAN

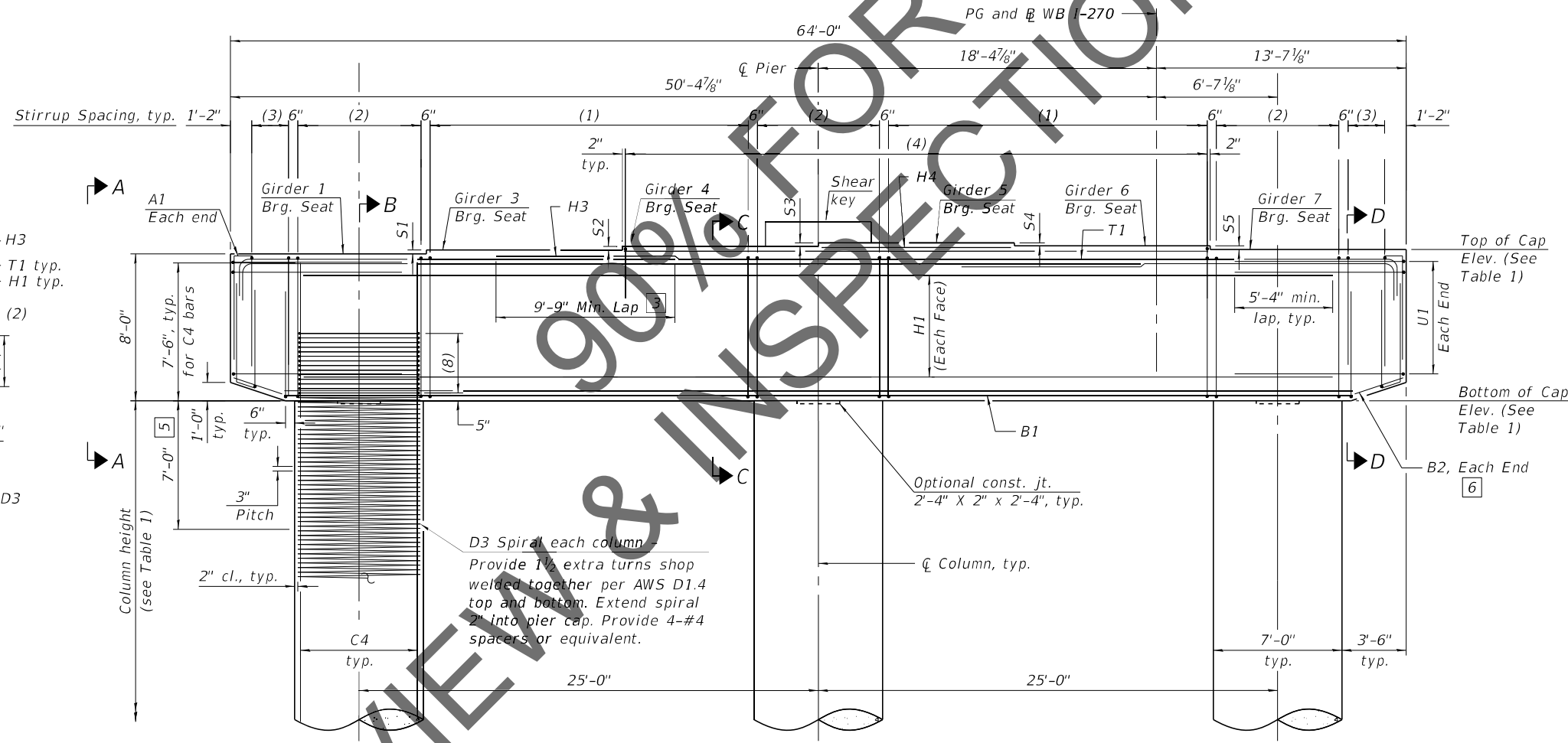
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



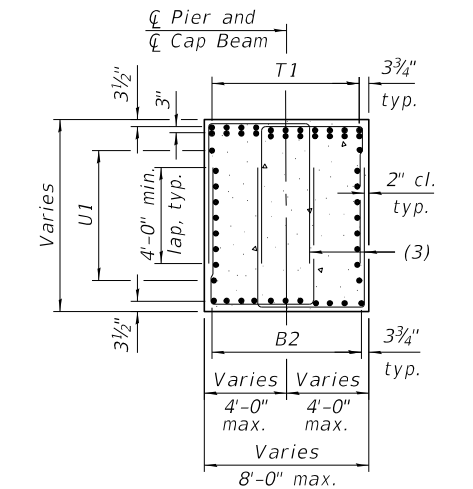
SECTION C-C



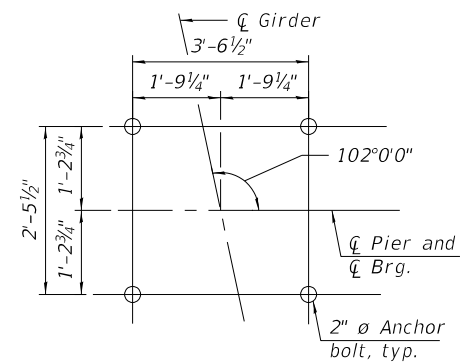
SECTION B-B



PART ELEVATION
(Looking East)



SECTION D-D



ANCHOR BOLT LAYOUT

- 3 Alternate placement cap top rebars to stagger the laps top and bottom
- 4 Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 189 and 190 of 288.
For column height, step height and all elevations, see Table 1 on sheet 188 of 288.
For bearing details, see sheet 155 of 288.
For bar callouts and shear key details, see sheet 188 of 288.

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HORNER SHIFRIN
Teaming with **PARSONS**

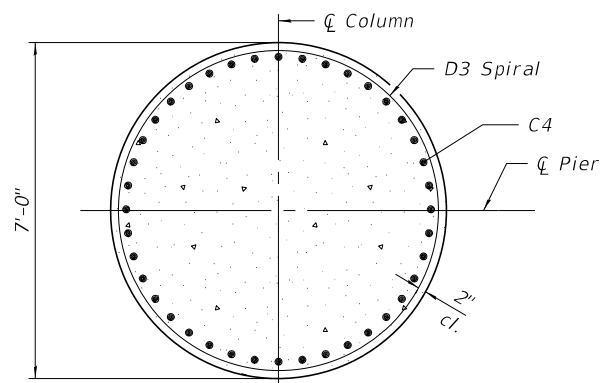
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

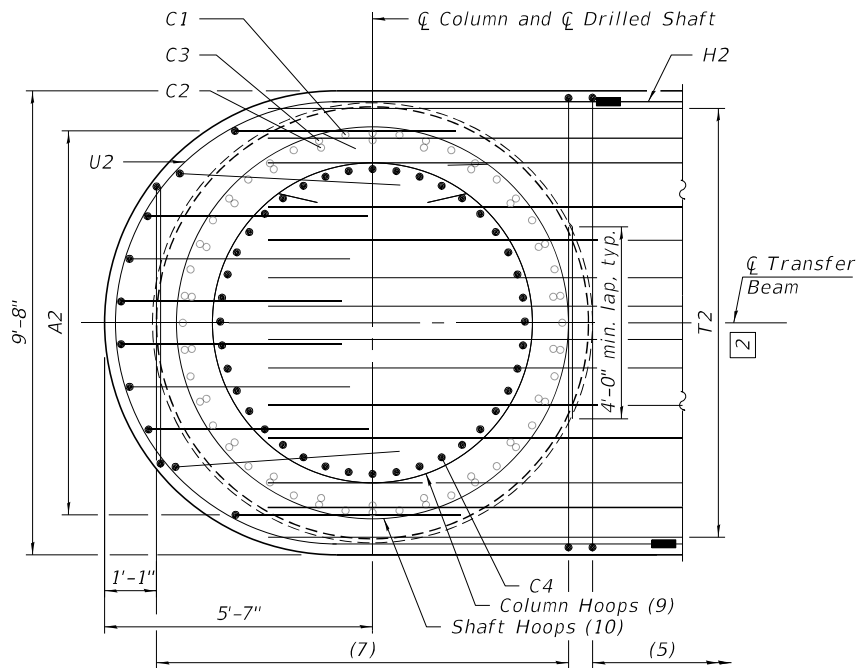
PIER 5 THRU 8 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 185 OF 288 SHEETS

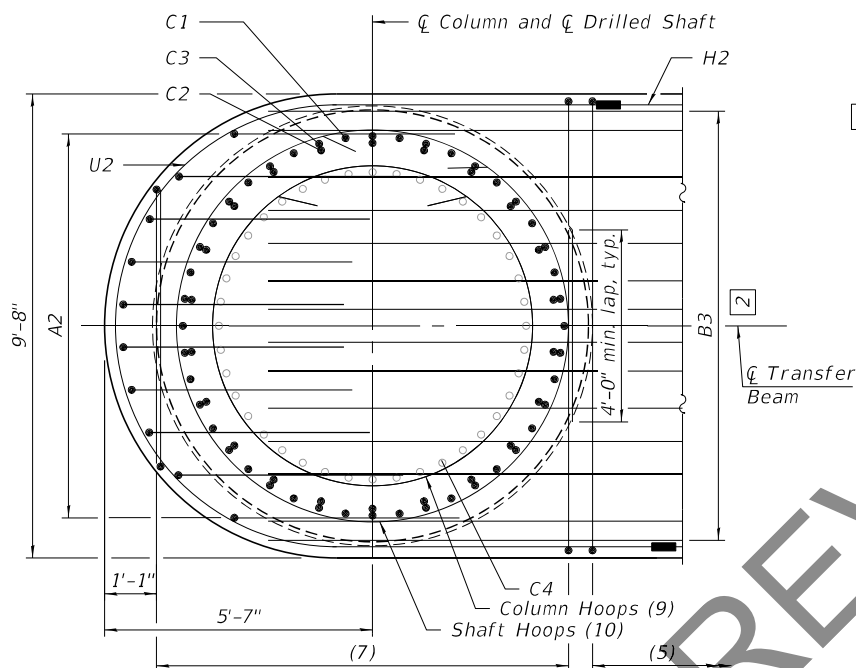
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	677
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76190	



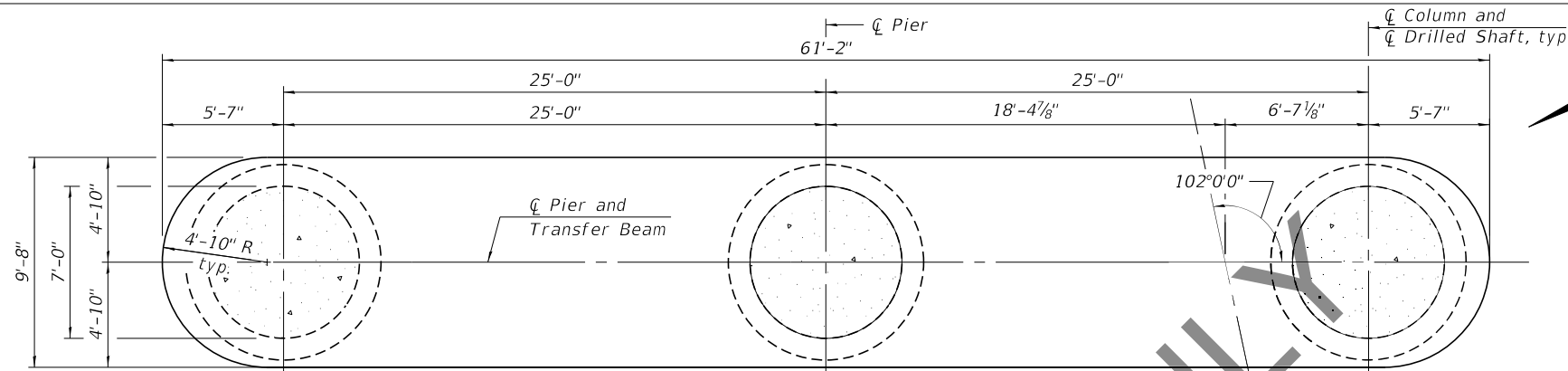
SECTION E-E



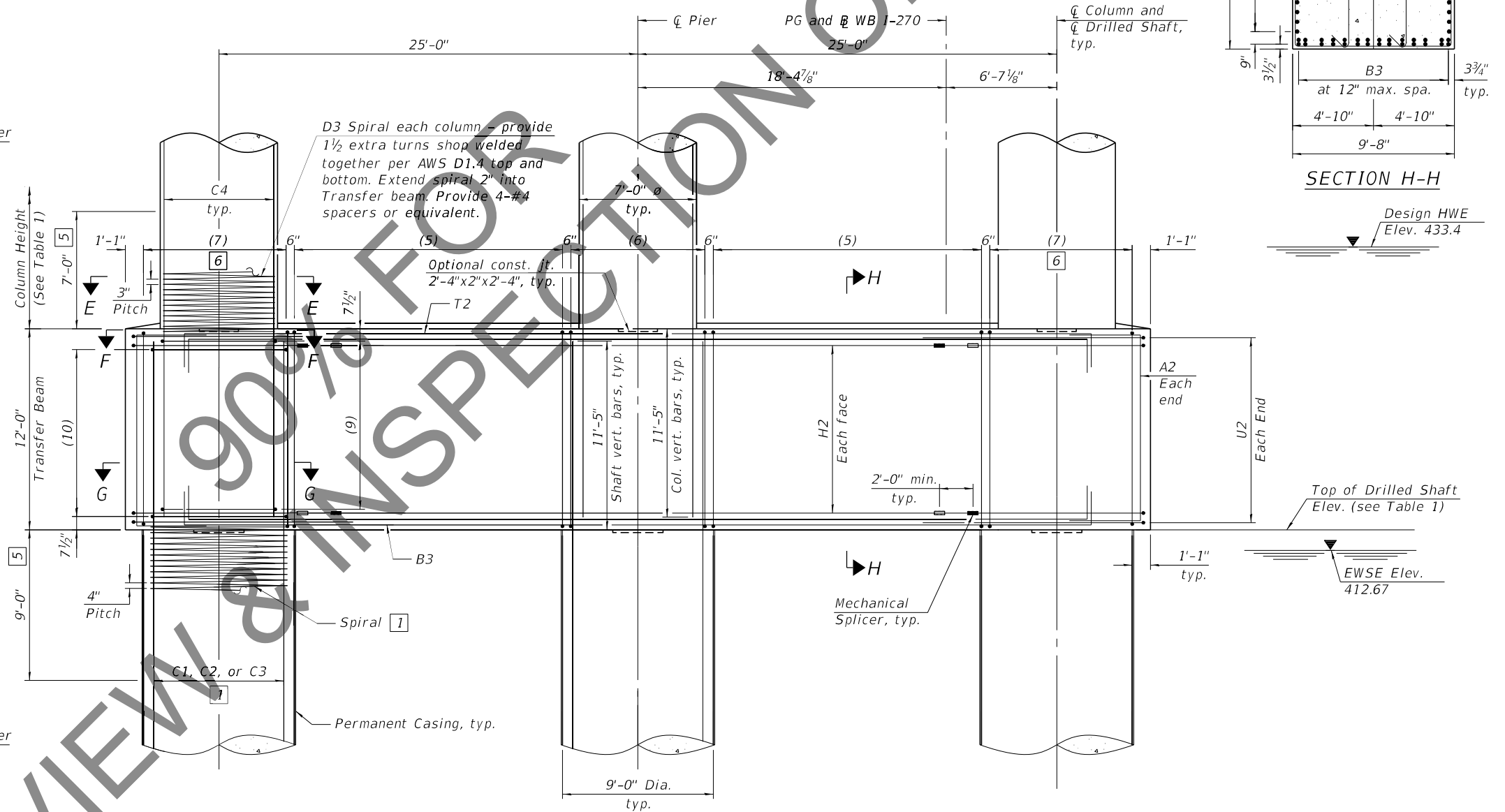
SECTION F-F



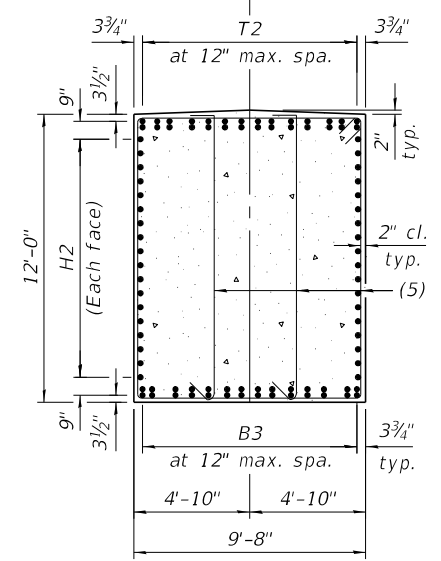
SECTION G-G



PLAN - TRANSFER BEAM



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION H-H

- 1 See sheet 187 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
 For Top Plan and Part elevation, see sheet 185 of 288.
 For Drilled Shaft details, see sheet 187 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 189, 190, and 191 of 288.
 For Table 1, see sheet 188 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

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HORNER SHIFRIN
 PARSONS

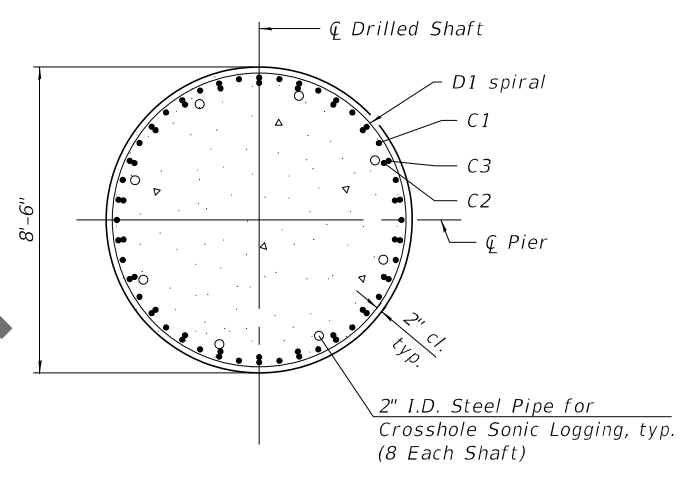
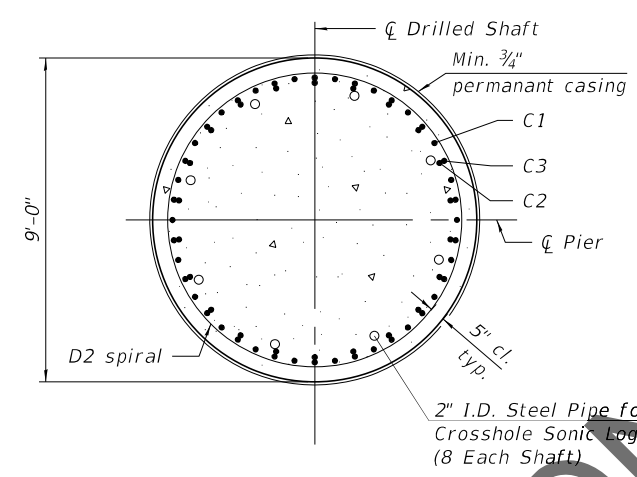
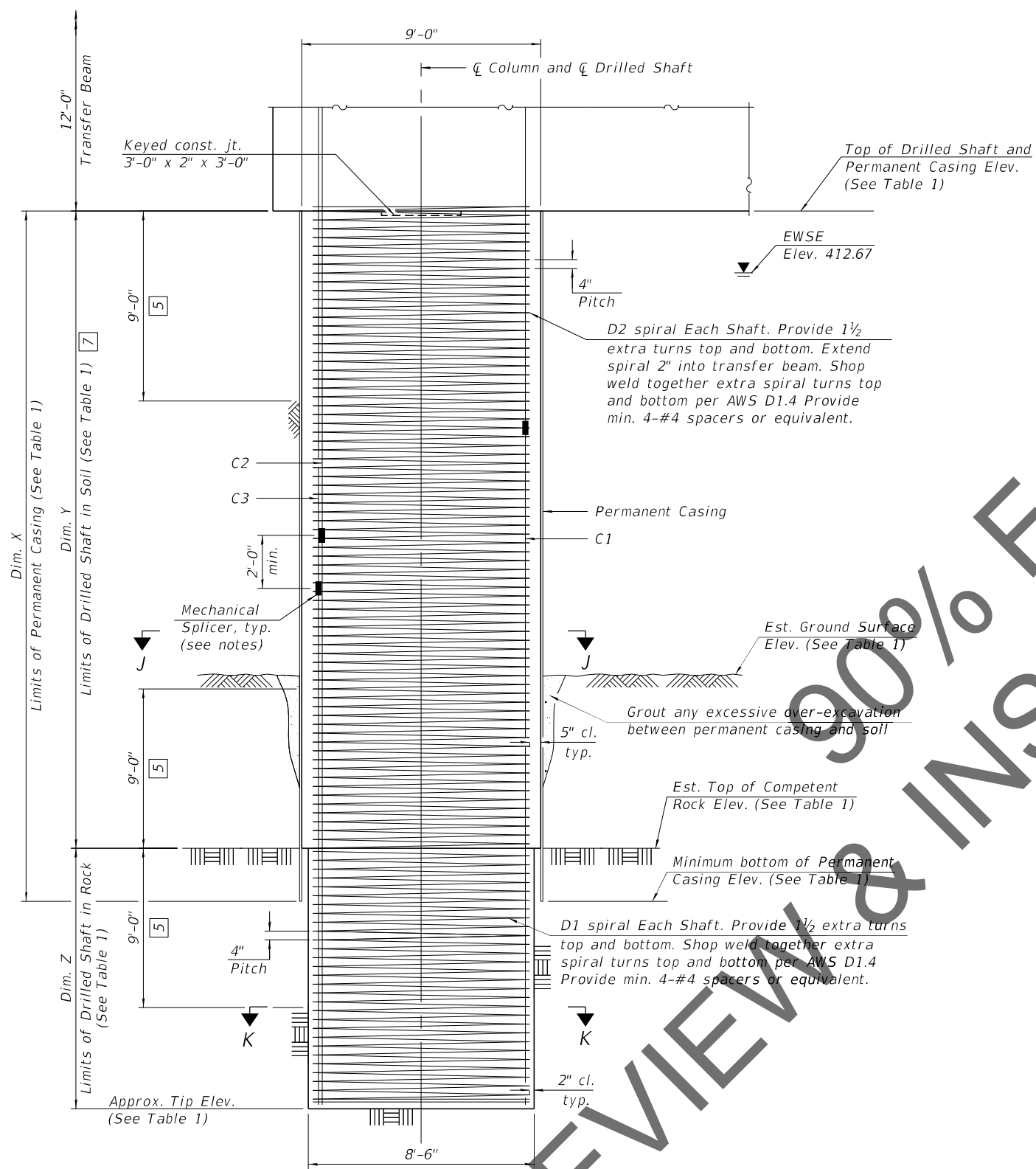
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STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PIER 5 THRU 8 PLAN AND ELEVATION - 2
 STRUCTURE NO. 060-0351 (WB)

SHEET 186 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	678
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



SECTION J-J

SECTION K-K

DRILLED SHAFT DETAIL
(One shaft shown, three shafts required, one under each column)

- 5 No splicing of bars allowed in this region.
- 7 If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Notes:

The Contractor may propose a construction joint in the drilled shaft so separate pours can be made, if the shaft can be poured in the dry, subject to approval from the Engineer.

The Permanent Casing is shown embedded 2 ft. into rock for estimate of quantities. Pay Limits for the Permanent Casing shall be based on the minimum length shown.

Alternate every other Mechanical Splicer 2'-0" min.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.

The Contractor is responsible for determining the casing thickness and the actual tip elevation to be used. See Article 516.06(d) of the Standard Specifications. Pay limits for the Permanent Casing shall be based on minimum length shown.

Wet construction methods within the permanent casing may be required. The Contractor's installation procedure shall clearly address cleaning and inspection methods proposed for use with wet construction methods which ensure adequate end bearing on rock is achieved.

For Top Plan and Part elevation, see sheet 185 of 288.
 For Transfer Beam details, see sheet 186 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 189, 190, and 191 of 288.
 For Table 1, see sheet 188 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5 THRU 8 PLAN AND ELEVATION - 3
STRUCTURE NO. 060-0351 (WB)

SHEET 187 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	679
CONTRACT NO. 76190				

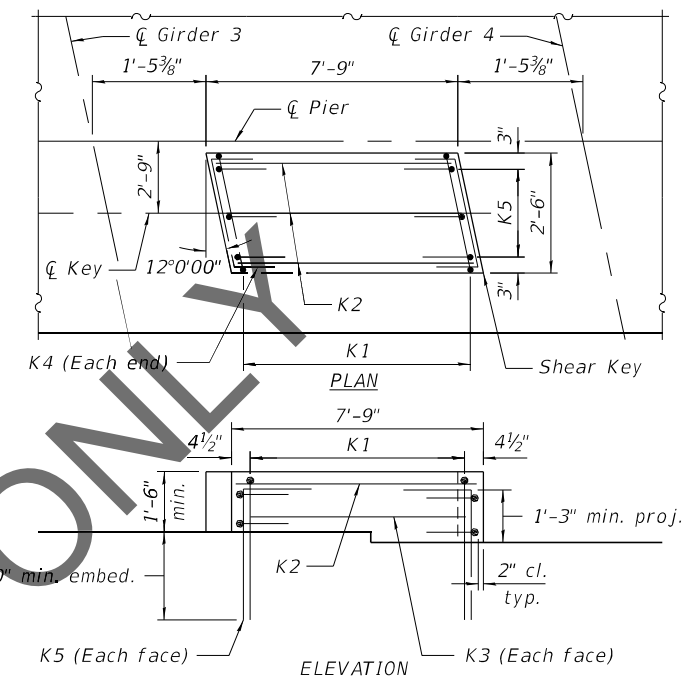
ILLINOIS FED. AID PROJECT

TABLE 1

	Pier 5	Pier 6	Pier 7	Pier 8	
Centerline Pier Station	2788+37.40	2790+73.40	2793+09.40	2795+45.40	
Bearing Seat Elevation	Girder 1	447.58	448.75	449.93	451.10
	Girder 3	447.78	448.95	450.14	451.30
	Girder 4	447.98	449.15	450.33	451.50
	Girder 5	448.19	449.35	450.53	451.70
	Girder 6	448.00	449.16	450.35	451.51
Girder 7	447.78	448.94	450.13	451.29	
Top of Cap Elevation	447.58	448.75	449.93	451.10	
Bottom of Cap Elevation	439.58	440.75	441.93	443.10	
Column Height	12'-6 1/8"	13'-9"	14'-11 1/8"	16'-1 1/4"	
Top of Shaft Elevation	415.00	415.00	415.00	415.00	
Approx. Tip Elevation	360.20	359.70	356.90	348.80	
Est. Ground Surface Elevation	387.60	394.70	400.90	387.50	
Est. Top of Rock Elevation	385.70	385.20	382.40	374.30	
Min. bott. of Permanent Casing Elev.	383.70	383.20	380.40	372.30	
Dim. X	31'-3 5/8"	31'-9 5/8"	34'-7 1/4"	42'-8 3/8"	
Dim. Y	29'-3 5/8"	29'-9 5/8"	32'-7 1/4"	40'-8 3/8"	
Dim. Z	25'-6"	25'-6"	25'-6"	25'-6"	

TABLE 1 (CONT.)

Step Height	Pier 5	Pier 6	Pier 7	Pier 8
S1	2 1/2"	2 3/8"	2 1/2"	2 3/8"
S2	2 3/8"	2 3/8"	2 1/4"	2 3/8"
S3	2 1/2"	2 3/8"	2 3/8"	2 3/8"
S4	2 1/4"	2 1/4"	2 1/8"	2 1/4"
S5	2 3/8"	2 3/8"	2 3/8"	2 3/8"



Mark	PIER 5 Bar Callouts	PIER 6 Bar Callouts	PIER 7 Bar Callouts	PIER 8 Bar Callouts
(1)	43 sets of 1-#6 s501(E) and 1-#6 s505(E) at 5" cts.	43 sets of 1-#6 s601(E) and 1-#6 s605(E) at 5" cts.	43 sets of 1-#6 s701(E) and 1-#6 s705(E) at 5" cts.	43 sets of 1-#6 s801(E) and 1-#6 s805(E) at 5" cts.
(2)	14 sets of 2-#6 s502(E) at 6" cts.	14 sets of 2-#6 s602(E) at 6" cts.	14 sets of 2-#6 s702(E) at 6" cts.	14 sets of 2-#6 s802(E) at 6" cts.
(3)	6 sets of 4-#6 s507(E) at 5" cts.	6 sets of 4-#6 s607(E) at 5" cts.	6 sets of 4-#6 s707(E) at 5" cts.	6 sets of 4-#6 s807(E) at 5" cts.
(4)	48-#6 s508(E) at abt. 8" cts.	48-#6 s608(E) at abt. 8" cts.	48-#6 s708(E) at abt. 8" cts.	48-#6 s808(E) at abt. 8" cts.
(5)	33 sets of 1-#6 s503(E) and 2-#6 s506(E) at 6" cts.	33 sets of 1-#6 s603(E) and 2-#6 s606(E) at 6" cts.	33 sets of 1-#6 s703(E) and 2-#6 s706(E) at 6" cts.	33 sets of 1-#6 s803(E) and 2-#6 s806(E) at 6" cts.
(6)	17 sets of 2-#6 s504(E) at 6" cts.	17 sets of 2-#6 s604(E) at 6" cts.	17 sets of 2-#6 s704(E) at 6" cts.	17 sets of 2-#6 s804(E) at 6" cts.
(7)	18 sets of 2-#6 s504(E) at 6" cts.	18 sets of 2-#6 s604(E) at 6" cts.	18 sets of 2-#6 s704(E) at 6" cts.	18 sets of 2-#6 s804(E) at 6" cts.
(8)	14-#7 hp502(E) hoops at 3" cts.	14-#7 hp602(E) hoops at 3" cts.	14-#7 hp702(E) hoops at 3" cts.	14-#7 hp802(E) hoops at 3" cts.
(9)	44-#7 hp502(E) hoops at 3" cts.	44-#7 hp602(E) hoops at 3" cts.	44-#7 hp702(E) hoops at 3" cts.	44-#7 hp802(E) hoops at 3" cts.
(10)	33-#7 hp501(E) hoops at 4" cts.	33-#7 hp601(E) hoops at 4" cts.	33-#7 hp701(E) hoops at 4" cts.	33-#7 hp801(E) hoops at 4" cts.
T1	2 layers of 13-#11 p501(E) or p502(E) at 7 3/8" cts.	2 layers of 13-#11 p601(E) or p602(E) at 7 3/8" cts.	2 layers of 13-#11 p701(E) or p702(E) at 7 3/8" cts.	2 layers of 13-#11 p801(E) or p802(E) at 7 3/8" cts.
T2	14 sets of 1-#11 p505(E) and 1-#11 p506(E) at 12" max.	14 sets of 1-#11 p605(E) and 1-#11 p606(E) at 12" max.	14 sets of 1-#11 p705(E) and 1-#11 p706(E) at 12" max.	14 sets of 1-#11 p805(E) and 1-#11 p806(E) at 12" max.
B1	2 layers of 13-#11 p503(E) at 7 3/8" cts.	2 layers of 13-#11 p603(E) at 7 3/8" cts.	2 layers of 13-#11 p703(E) at 7 3/8" cts.	2 layers of 13-#11 p803(E) at 7 3/8" cts.
B2	13-#7 p504(E) at 7 3/8" cts.	13-#7 p604(E) at 7 3/8" cts.	13-#7 p704(E) at 7 3/8" cts.	13-#7 p804(E) at 7 3/8" cts.
B3	14 sets of 1-#11 p505(E) and 1-#11 p506(E) at 12" max.	14 sets of 1-#11 p605(E) and 1-#11 p606(E) at 12" max.	14 sets of 1-#11 p705(E) and 1-#11 p706(E) at 12" max.	14 sets of 1-#11 p805(E) and 1-#11 p806(E) at 12" max.
H1	10-#8 h501(E) at 7 1/2" cts.	10-#8 h601(E) at 7 1/2" cts.	10-#8 h701(E) at 7 1/2" cts.	10-#8 h801(E) at 7 1/2" cts.
H2	18-#9 h502(E) at 7" cts.	18-#9 h602(E) at 7" cts.	18-#9 h702(E) at 7" cts.	18-#9 h802(E) at 7" cts.
H3	13-#6 h503(E) at abt. 7 3/8" cts.	13-#6 h603(E) at abt. 7 3/8" cts.	13-#6 h703(E) at abt. 7 3/8" cts.	13-#6 h803(E) at abt. 7 3/8" cts.
H4	13-#6 h504(E) at abt. 7 3/8" cts.	13-#6 h604(E) at abt. 7 3/8" cts.	13-#6 h704(E) at abt. 7 3/8" cts.	13-#6 h804(E) at abt. 7 3/8" cts.
A1	6 sets of 1-#7 u503(E) and 1-#7 u504(E) at 10 1/2" cts.	6 sets of 1-#7 u603(E) and 1-#7 u604(E) at 10 1/2" cts.	6 sets of 1-#7 u703(E) and 1-#7 u704(E) at 10 1/2" cts.	6 sets of 1-#7 u803(E) and 1-#7 u804(E) at 10 1/2" cts.
A2	10-#7 u505(E) at 10 3/4" cts.	10-#7 u605(E) at 10 3/4" cts.	10-#7 u705(E) at 10 3/4" cts.	10-#7 u805(E) at 10 3/4" cts.
U1	11-#8 u501(E) spaced with h501(E) and p501(E)	11-#8 u601(E) spaced with h601(E) and p601(E)	11-#8 u701(E) spaced with h701(E) and p701(E)	11-#8 u801(E) spaced with h801(E) and p801(E)
U2	20-#9 u502(E) splice with h502(E) and space with p505(E)	20-#9 u602(E) splice with h602(E) and space with p605(E)	20-#9 u702(E) splice with h702(E) and space with p705(E)	20-#9 u802(E) splice with h802(E) and space with p805(E)
C1	22 sets of 1-#14 v501(E) and 1-#14 v502(E) (top)	22 sets of 1-#14 v601(E) and 1-#14 v602(E) (top)	22 sets of 1-#14 v701(E) and 1-#14 v702(E) (top)	22 sets of 1-#14 v801(E) and 1-#14 v802(E) (top)
C2	22 sets of 1-#14 v503(E) and 1-#14 v504(E) (top) Bundle w/ C3	22 sets of 1-#14 v603(E) and 1-#14 v604(E) (top) Bundle w/ C3	22 sets of 1-#14 v703(E) and 1-#14 v704(E) (top) Bundle w/ C3	22 sets of 1-#14 v803(E) and 1-#14 v804(E) (top) Bundle w/ C3
C3	22 sets of 1-#14 v505(E) and 1-#14 v506(E) (top) Bundle w/ C2	22 sets of 1-#14 v605(E) and 1-#14 v606(E) (top) Bundle w/ C2	22 sets of 1-#14 v705(E) and 1-#14 v706(E) (top) Bundle w/ C2	22 sets of 1-#14 v805(E) and 1-#14 v806(E) (top) Bundle w/ C2
C4	40-#11 v507(E) equally spaced	40-#11 v607(E) equally spaced	40-#11 v707(E) equally spaced	40-#11 v807(E) equally spaced
D1	#7 sp501(E) at 4" pitch	#7 sp601(E) at 4" pitch	#7 sp701(E) at 4" pitch	#7 sp801(E) at 4" pitch
D2	#7 sp502(E) at 4" pitch	#7 sp602(E) at 4" pitch	#7 sp702(E) at 4" pitch	#7 sp802(E) at 4" pitch
D3	#7 sp503(E) at 3" pitch	#7 sp603(E) at 3" pitch	#7 sp703(E) at 3" pitch	#7 sp803(E) at 3" pitch
K1	15-#5 s509(E) spaced at 6" cts.	15-#5 s609(E) spaced at 6" cts.	15-#5 s709(E) spaced at 6" cts.	15-#5 s809(E) spaced at 6" cts.
K2	3-#5 h505(E) spaced with n501(E)	3-#5 h605(E) spaced with n601(E)	3-#5 h705(E) spaced with n701(E)	3-#5 h805(E) spaced with n801(E)
K3	1-#5 h505(E) each face	1-#5 h605(E) each face	1-#5 h705(E) each face	1-#5 h805(E) each face
K4	2-#5 h506(E) each face	2-#5 h606(E) each face	2-#5 h706(E) each face	2-#5 h806(E) each face
K5	3-#5 n501(E) at 12" cts., each face	3-#5 n601(E) at 12" cts., each face	3-#5 n701(E) at 12" cts., each face	3-#5 n801(E) at 12" cts., each face
R1	#5 r501(E)	#5 r601(E)	#5 r701(E)	#5 r801(E)

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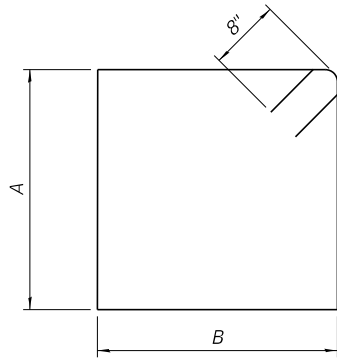
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STATE OF ILLINOIS
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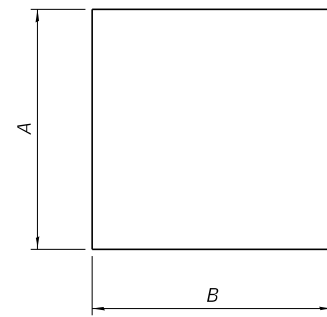
PIER 5 THRU 8 REINFORCEMENT TABLES - 1
 STRUCTURE NO. 060-0351 (WB)

SHEET 188 OF 288 SHEETS

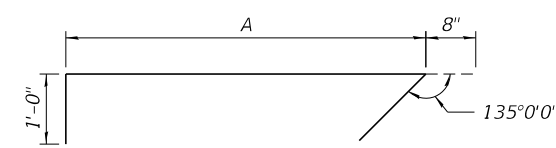
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	680
CONTRACT NO. 76190			ILLINOIS FED. AID PROJECT	



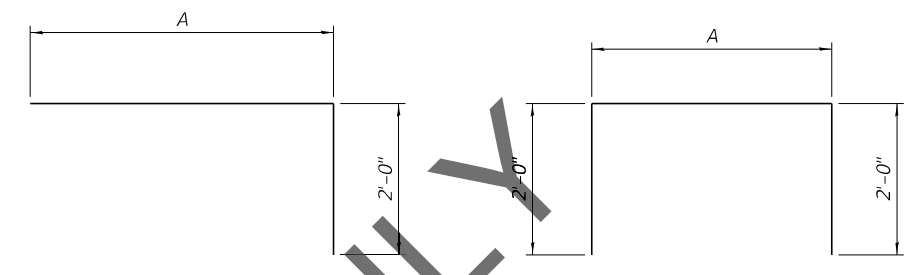
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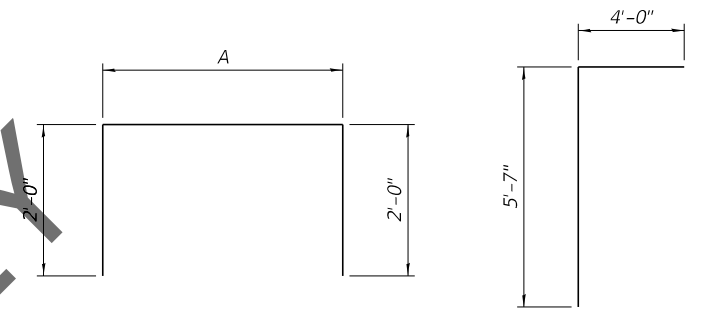
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BARS s802(E), s804(E) & s807(E)



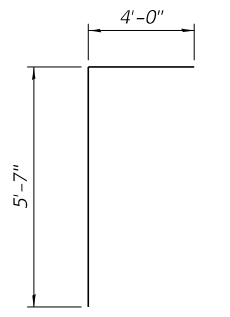
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BARS p501(E) & p502(E)
BARS p601(E) & p602(E)
BARS p701(E) & p702(E)
BARS p801(E) & p802(E)



BARS p505(E) & p506(E)
BARS p605(E) & p606(E)
BARS p705(E) & p706(E)
BARS p805(E) & p806(E)



BARS u503(E)
BARS u603(E)
BARS u703(E)
BARS u803(E)

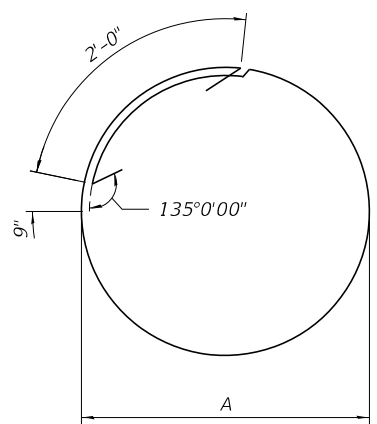
Bars	A	B
s501(E), s601(E), s701(E), and s801(E)	7'-8"	7'-8"
s503(E), s603(E), s703(E), and s803(E)	11'-8"	9'-4"

Bars	A	B
s502(E), s602(E), s702(E), and s802(E)	7'-8"	5'-10"
s504(E), s604(E), s704(E), and s804(E)	11'-8"	6'-8"
s507(E), s607(E), s707(E), and s807(E)	4'-10"	5'-10"

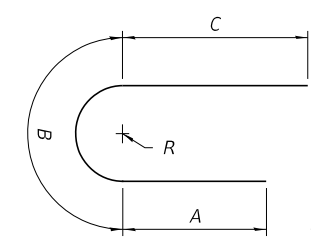
Bars	A
s505(E), s605(E), s705(E), and s805(E)	7'-8"
s506(E), s606(E), s706(E), and s806(E)	11'-8"

Bars	A
p501(E), p601(E), p701(E), and p801(E)	22'-5"
p502(E), p602(E), p702(E), and p802(E)	51'-0"

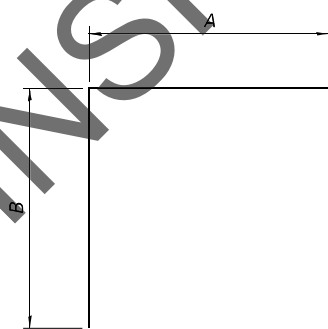
Bars	A
p505(E), p605(E), p705(E), and p805(E)	54'-0"
p506(E), p606(E), p706(E), and p806(E)	53'-6"



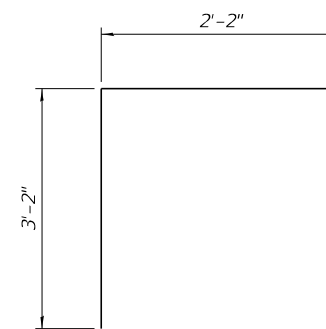
BARS hp501(E) & hp502(E)
BARS hp601(E) & hp602(E)
BARS hp701(E) & hp702(E)
BARS hp801(E) & hp802(E)



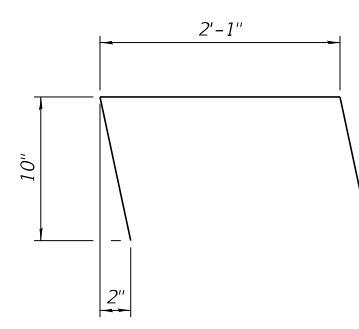
BARS u501(E) & u502(E)
BARS u601(E) & u602(E)
BARS u701(E) & u702(E)
BARS u801(E) & u802(E)



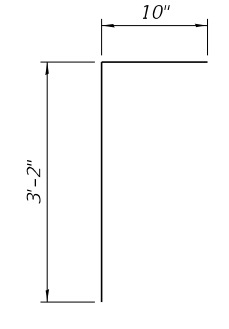
BARS u505(E) & u508(E)
BARS u605(E) & u608(E)
BARS u705(E) & u708(E)
BARS u805(E) & u808(E)



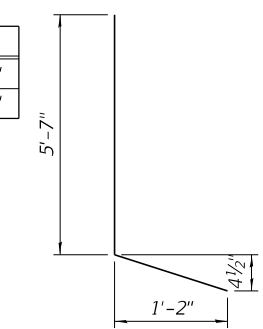
BARS s509(E)
BARS s609(E)
BARS s709(E)
BARS s809(E)



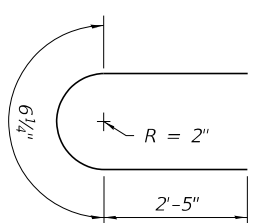
BARS h506(E)
BARS h606(E)
BARS h706(E)
BARS h806(E)



BARS n501(E)
BARS n601(E)
BARS n701(E)
BARS n801(E)



BARS u504(E)
BARS u604(E)
BARS u704(E)
BARS u804(E)



BARS r501(E)
BARS r601(E)
BARS r701(E)
BARS r801(E)

Bars	A
hp501(E), hp601(E), hp701(E), and hp801(E)	8'-2"
hp502(E), hp602(E), hp702(E), and hp802(E)	6'-8"

Bars	A	B	C	R
u501(E), u601(E), u701(E), and u801(E)	5'-4"	11'-9 3/8"	5'-4"	3'-9"
u502(E), u602(E), u702(E), and u802(E)	5'-9"	14'-5"	7'-9"	4'-7"

Bars	A	B
u505(E), u605(E), u705(E), and u805(E)	11'-6"	4'-7"
u508(E), u608(E), u708(E), and u808(E)	7'-8"	2'-9"

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PIER 5 THRU 8 REINFORCEMENT TABLES - 2
 STRUCTURE NO. 060-0351 (WB)

SHEET 189 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	681
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

**PIER 5
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h501(E)	20	#8	56'-0"	—
h502(E)	36	#9	38'-0"	—
h503(E)	13	#6	31'-8"	—
h504(E)	13	#6	10'-4"	—
h505(E)	5	#5	7'-5"	—
h506(E)	4	#5	3'-9"	┌
hp501(E)	99	#7	29'-2"	○
hp502(E)	174	#7	24'-5"	○
n501(E)	6	#5	4'-0"	┌
p501(E)	26	#11	24'-5"	┌
p502(E)	26	#11	53'-0"	┌
p503(E)	26	#11	57'-10"	—
p504(E)	26	#7	3'-0"	—
p505(E)	28	#11	58'-0"	┌
p506(E)	28	#11	57'-6"	┌
r501(E)	8	#5	5'-4"	┌
s501(E)	86	#6	32'-0"	□
s502(E)	84	#6	19'-4"	┌
s503(E)	66	#6	43'-4"	□
s504(E)	106	#6	25'-0"	┌
s505(E)	86	#6	9'-4"	┌
s506(E)	132	#6	13'-4"	┌
s507(E)	48	#6	16'-6"	┌
s508(E)	48	#6	13'-2"	┌
s509(E)	15	#5	8'-6"	┌
** sp501(E)	3	#7	25'-4"	∩
** sp502(E)	3	#7	29'-6"	∩
** sp503(E)	3	#7	12'-11"	∩
u501(E)	22	#8	22'-5"	┌
u502(E)	40	#9	27'-11"	┌
u503(E)	12	#7	9'-7"	┌
u504(E)	12	#7	6'-10"	┌
u505(E)	20	#7	20'-8"	┌
v501(E)	66	#14	45'-0"	—
v502(E)	66	#14	21'-1"	—
v503(E)	66	#14	42'-6"	—
v504(E)	66	#14	23'-7"	—
v505(E)	66	#14	40'-0"	—
v506(E)	66	#14	26'-1"	—
v507(E)	120	#11	31'-6"	—

** Length is height of spiral.

**PIER 5
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	462.6
Reinforcement Bars, Epoxy Coated	Pound	239,220
Permanent Casing	Foot	94
Drilled Shaft in Soil	Cu. Yd.	208
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	165
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	165

**PIER 6
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h601(E)	20	#8	56'-0"	—
h602(E)	36	#9	38'-0"	—
h603(E)	13	#6	31'-8"	—
h604(E)	13	#6	10'-4"	—
h605(E)	5	#5	7'-5"	—
h606(E)	4	#5	3'-9"	┌
hp601(E)	99	#7	29'-2"	○
hp602(E)	174	#7	24'-5"	○
n601(E)	6	#5	4'-0"	┌
p601(E)	26	#11	24'-5"	┌
p602(E)	26	#11	53'-0"	┌
p603(E)	26	#11	57'-10"	—
p604(E)	26	#7	3'-0"	—
p605(E)	28	#11	58'-0"	┌
p606(E)	28	#11	57'-6"	┌
r601(E)	8	#5	5'-4"	┌
s601(E)	86	#6	32'-0"	□
s602(E)	84	#6	19'-4"	┌
s603(E)	66	#6	43'-4"	□
s604(E)	106	#6	25'-0"	┌
s605(E)	86	#6	9'-4"	┌
s606(E)	132	#6	13'-4"	┌
s607(E)	48	#6	16'-6"	┌
s608(E)	48	#6	13'-2"	┌
s609(E)	15	#5	8'-6"	┌
** sp601(E)	3	#7	25'-4"	∩
** sp602(E)	3	#7	30'-0"	∩
** sp603(E)	3	#7	14'-2"	∩
u601(E)	22	#8	22'-5"	┌
u602(E)	40	#9	27'-11"	┌
u603(E)	12	#7	9'-7"	┌
u604(E)	12	#7	6'-10"	┌
u605(E)	20	#7	20'-8"	┌
v601(E)	66	#14	45'-0"	—
v602(E)	66	#14	21'-7"	—
v603(E)	66	#14	42'-6"	—
v604(E)	66	#14	24'-1"	—
v605(E)	66	#14	40'-0"	—
v606(E)	66	#14	26'-7"	—
v607(E)	120	#11	32'-8"	—

** Length is height of spiral.

**PIER 6
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	467.5
Reinforcement Bars, Epoxy Coated	Pound	241,600
Permanent Casing	Foot	96
Drilled Shaft in Soil	Cu. Yd.	211
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	166
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	166

REVIEW & INSPECTION ONLY

Note:
For bar details, see sheet 189 of 288.

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PIER 5 AND 6 BILL OF MATERIAL
STRUCTURE NO. 060-0351 (WB)**

SHEET 190 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	682
				CONTRACT NO. 76190
ILLINOIS FED. AID PROJECT				

**PIER 7
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h701(E)	20	#8	56'-0"	—
h702(E)	36	#9	38'-0"	—
h703(E)	13	#6	31'-8"	—
h704(E)	13	#6	10'-4"	—
h705(E)	5	#5	7'-5"	—
h706(E)	4	#5	3'-9"	┘
hp701(E)	99	#7	29'-2"	○
hp702(E)	174	#7	24'-5"	○
n701(E)	6	#5	4'-0"	┘
p701(E)	26	#11	24'-5"	┘
p702(E)	26	#11	53'-0"	┘
p703(E)	26	#11	57'-10"	—
p704(E)	26	#7	3'-0"	—
p705(E)	28	#11	58'-0"	┘
p706(E)	28	#11	57'-6"	┘
r701(E)	8	#5	5'-4"	┘
s701(E)	86	#6	32'-0"	□
s702(E)	84	#6	19'-4"	┘
s703(E)	66	#6	43'-4"	□
s704(E)	106	#6	25'-0"	┘
s705(E)	86	#6	9'-4"	┘
s706(E)	132	#6	13'-4"	┘
s707(E)	48	#6	16'-6"	┘
s708(E)	48	#6	13'-2"	┘
s709(E)	15	#5	8'-6"	┘
** sp701(E)	3	#7	25'-4"	〰〰〰
** sp702(E)	3	#7	32'-9"	〰〰〰
** sp703(E)	3	#7	15'-3"	〰〰〰
u701(E)	22	#8	22'-5"	┘
u702(E)	40	#9	27'-11"	┘
u703(E)	12	#7	9'-7"	┘
u704(E)	12	#7	6'-10"	┘
u705(E)	20	#7	20'-8"	┘
v701(E)	66	#14	45'-0"	—
v702(E)	66	#14	24'-4"	—
v703(E)	66	#14	42'-6"	—
v704(E)	66	#14	26'-10"	—
v705(E)	66	#14	40'-0"	—
v706(E)	66	#14	29'-4"	—
v707(E)	120	#11	33'-10"	—

** Length is height of spiral.

**PIER 7
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	472.6
Reinforcement Bars, Epoxy Coated	Pound	248,360
Permanent Casing	Foot	104
Drilled Shaft in Soil	Cu. Yd.	231
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	175
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	175

**PIER 8
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h801(E)	20	#8	56'-0"	—
h802(E)	36	#9	38'-0"	—
h803(E)	13	#6	31'-8"	—
h804(E)	13	#6	10'-4"	—
h805(E)	5	#5	7'-5"	—
h806(E)	4	#5	3'-9"	┘
hp801(E)	99	#7	29'-2"	○
hp802(E)	174	#7	24'-5"	○
n801(E)	6	#5	4'-0"	┘
p801(E)	26	#11	24'-5"	┘
p802(E)	26	#11	53'-0"	┘
p803(E)	26	#11	57'-10"	—
p804(E)	26	#7	3'-0"	—
p805(E)	28	#11	58'-0"	┘
p806(E)	28	#11	57'-6"	┘
r801(E)	8	#5	5'-4"	┘
s801(E)	86	#6	32'-0"	□
s802(E)	84	#6	19'-4"	┘
s803(E)	66	#6	43'-4"	□
s804(E)	106	#6	25'-0"	┘
s805(E)	86	#6	9'-4"	┘
s806(E)	132	#6	13'-4"	┘
s807(E)	48	#6	16'-6"	┘
s808(E)	48	#6	13'-2"	┘
s809(E)	15	#5	8'-6"	┘
** sp801(E)	3	#7	25'-4"	〰〰〰
** sp802(E)	3	#7	40'-10"	〰〰〰
** sp803(E)	3	#7	16'-5"	〰〰〰
u801(E)	22	#8	22'-5"	┘
u802(E)	40	#9	27'-11"	┘
u803(E)	12	#7	9'-7"	┘
u804(E)	12	#7	6'-10"	┘
u805(E)	20	#7	20'-8"	┘
v801(E)	66	#14	45'-0"	—
v802(E)	66	#14	32'-5"	—
v803(E)	66	#14	42'-6"	—
v804(E)	66	#14	34'-11"	—
v805(E)	66	#14	40'-0"	—
v806(E)	66	#14	37'-5"	—
v807(E)	120	#11	35'-0"	—

** Length is height of spiral.

**PIER 8
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	477.6
Reinforcement Bars, Epoxy Coated	Pound	265,770
Permanent Casing	Foot	129
Drilled Shaft in Soil	Cu. Yd.	288
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	199
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	199

REVIEW & INSPECTION ONLY

Note:
For bar details, see sheet 189 of 288.

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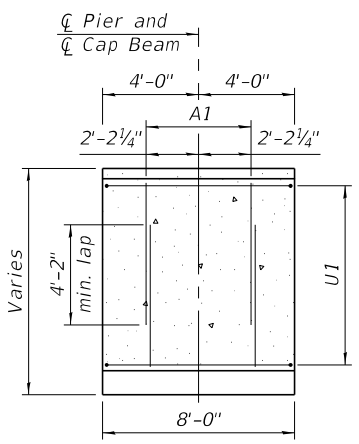
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DEPARTMENT OF TRANSPORTATION**

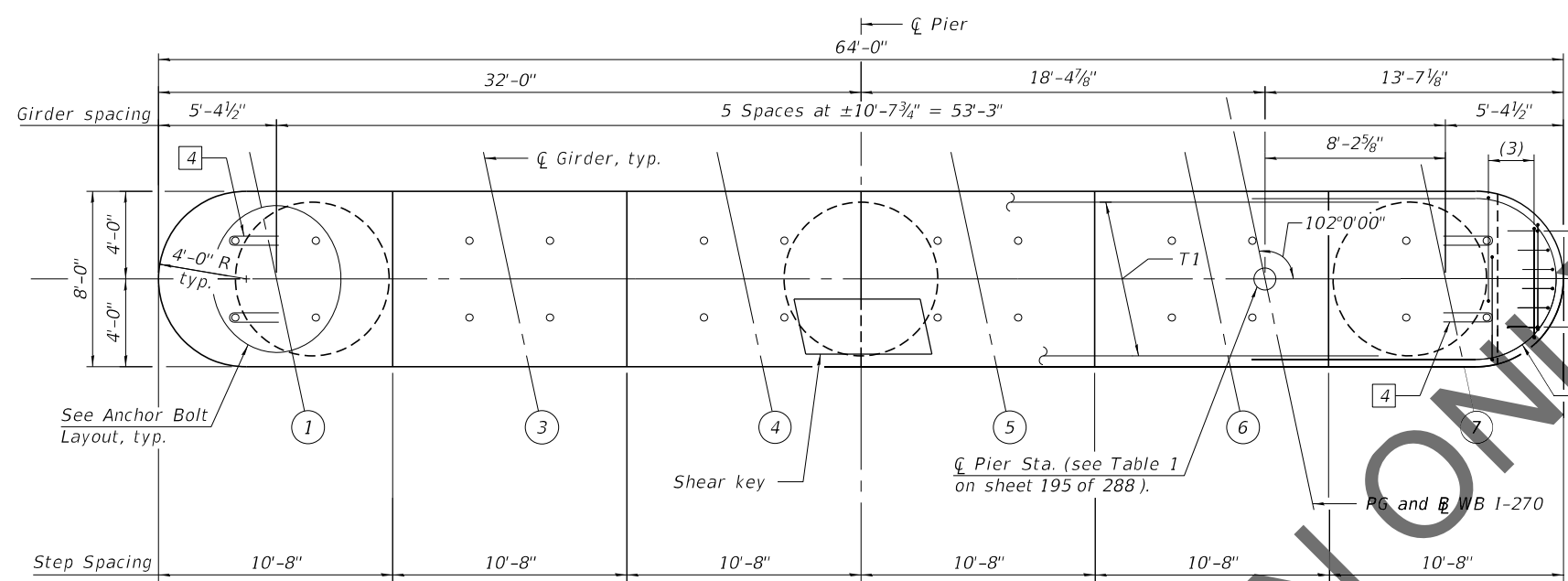
**PIER 7 AND 8 BILL OF MATERIAL
STRUCTURE NO. 060-0351 (WB)**

SHEET 191 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	683
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				

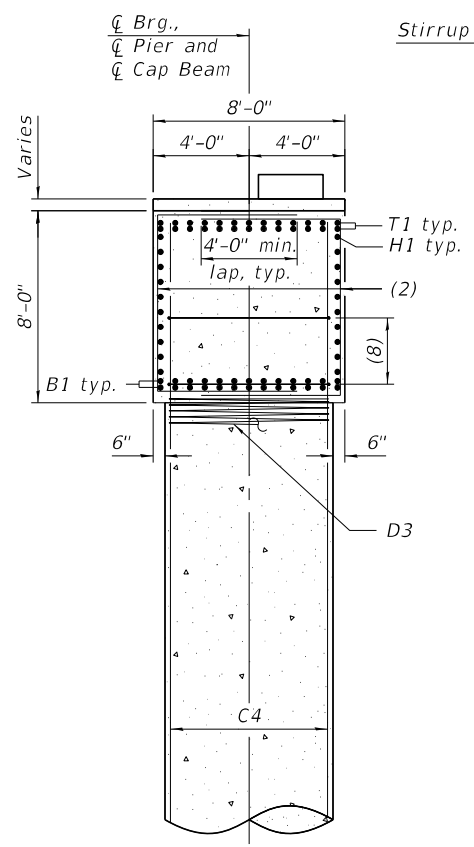


VIEW A-A
(T1 and (3) bars not shown for clarity)

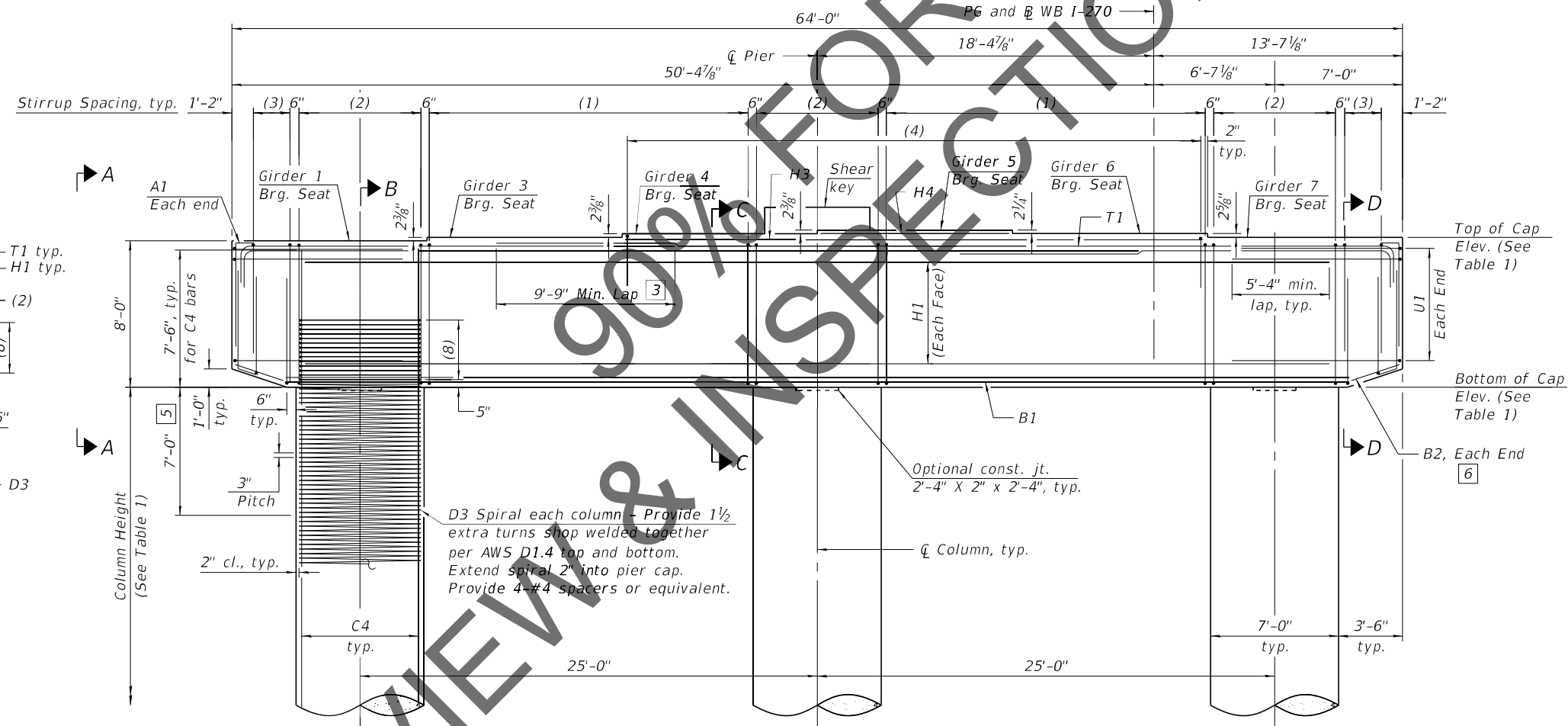


TOP PLAN

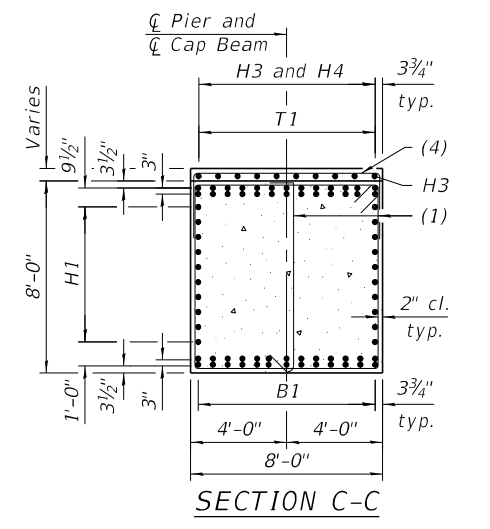
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



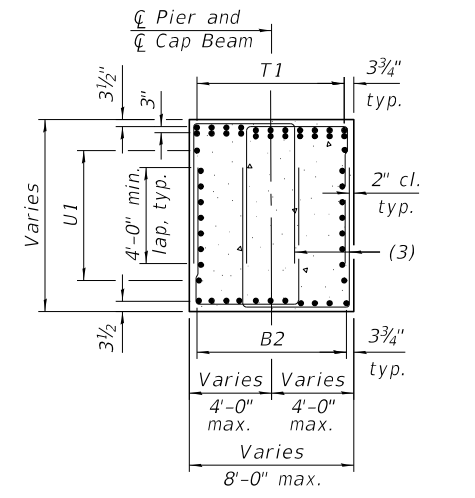
SECTION B-B



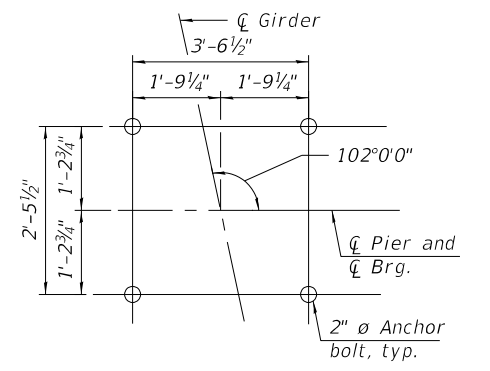
PART ELEVATION
(Looking East)



SECTION C-C



SECTION D-D



ANCHOR BOLT LAYOUT

- [3] Alternate placement cap top rebars to stagger the laps top and bottom
- [4] Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar
- [5] No splicing of bars allowed in this region.
- [6] Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 196 and 197 of 288.
For column height, step height and all elevations, see Table 1 on sheet 195 of 288.
For bearing details, see sheet 156 of 288.
For bar callouts and shear key details, see sheet 195 of 288.

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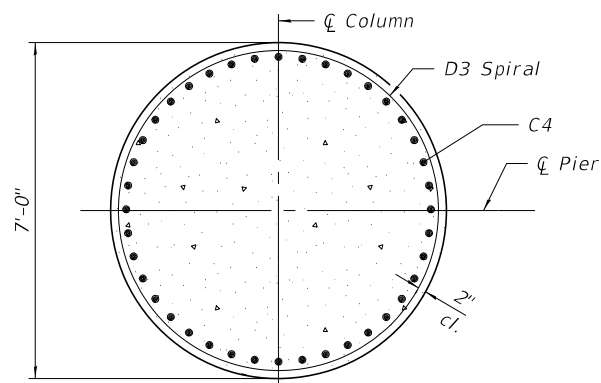
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PIER 9 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0351 (WB)

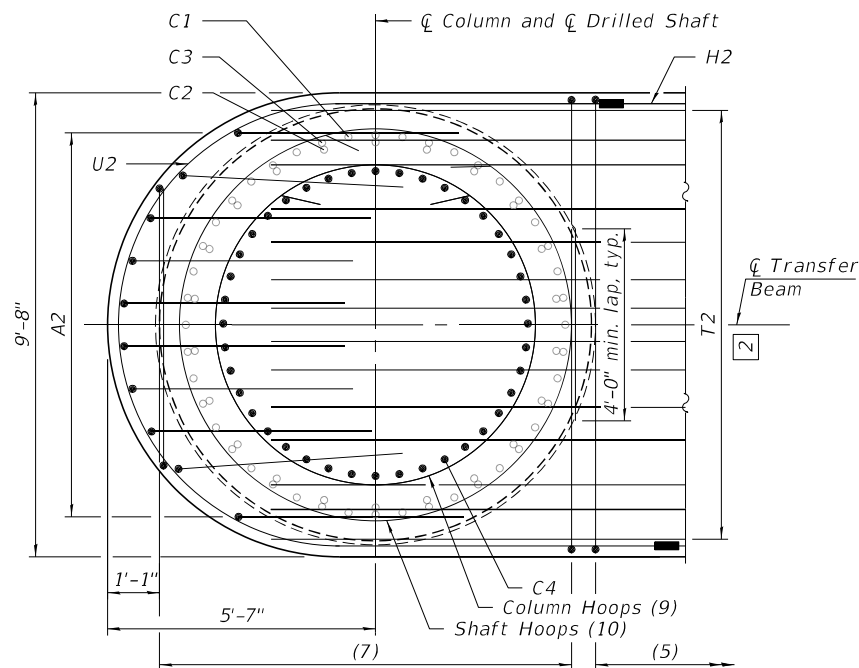
SHEET 192 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	684
CONTRACT NO. 76190				

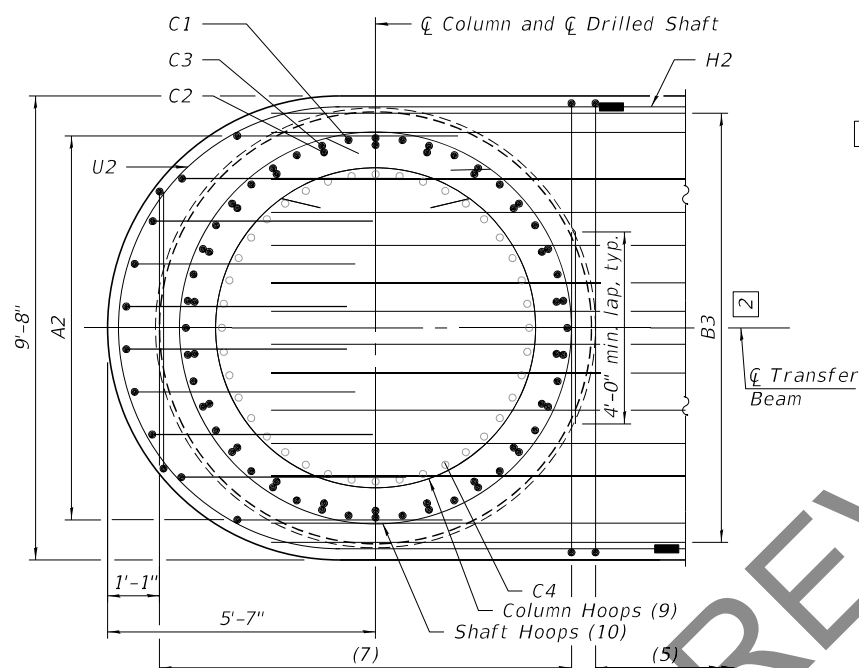
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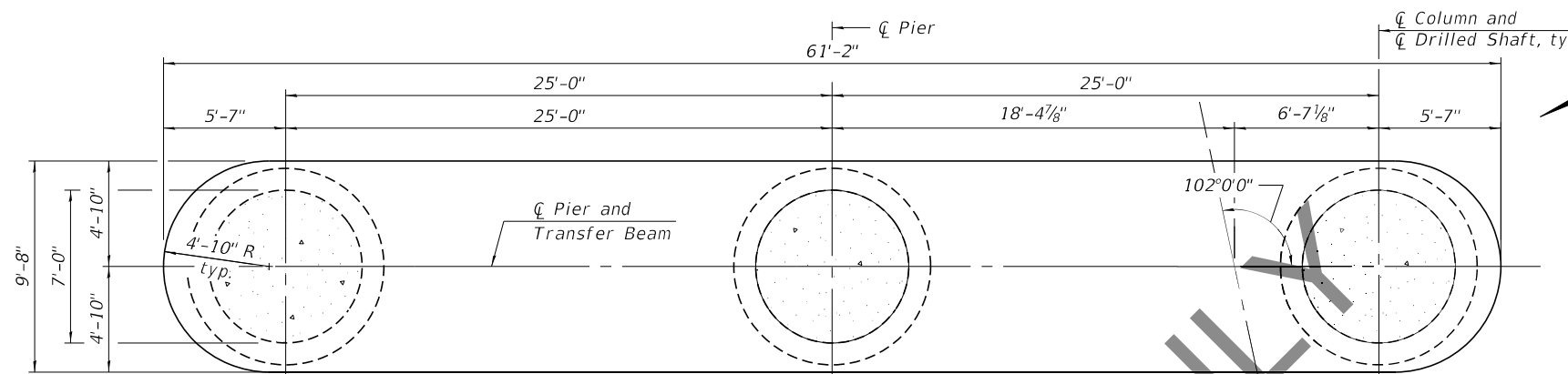
SECTION E-E



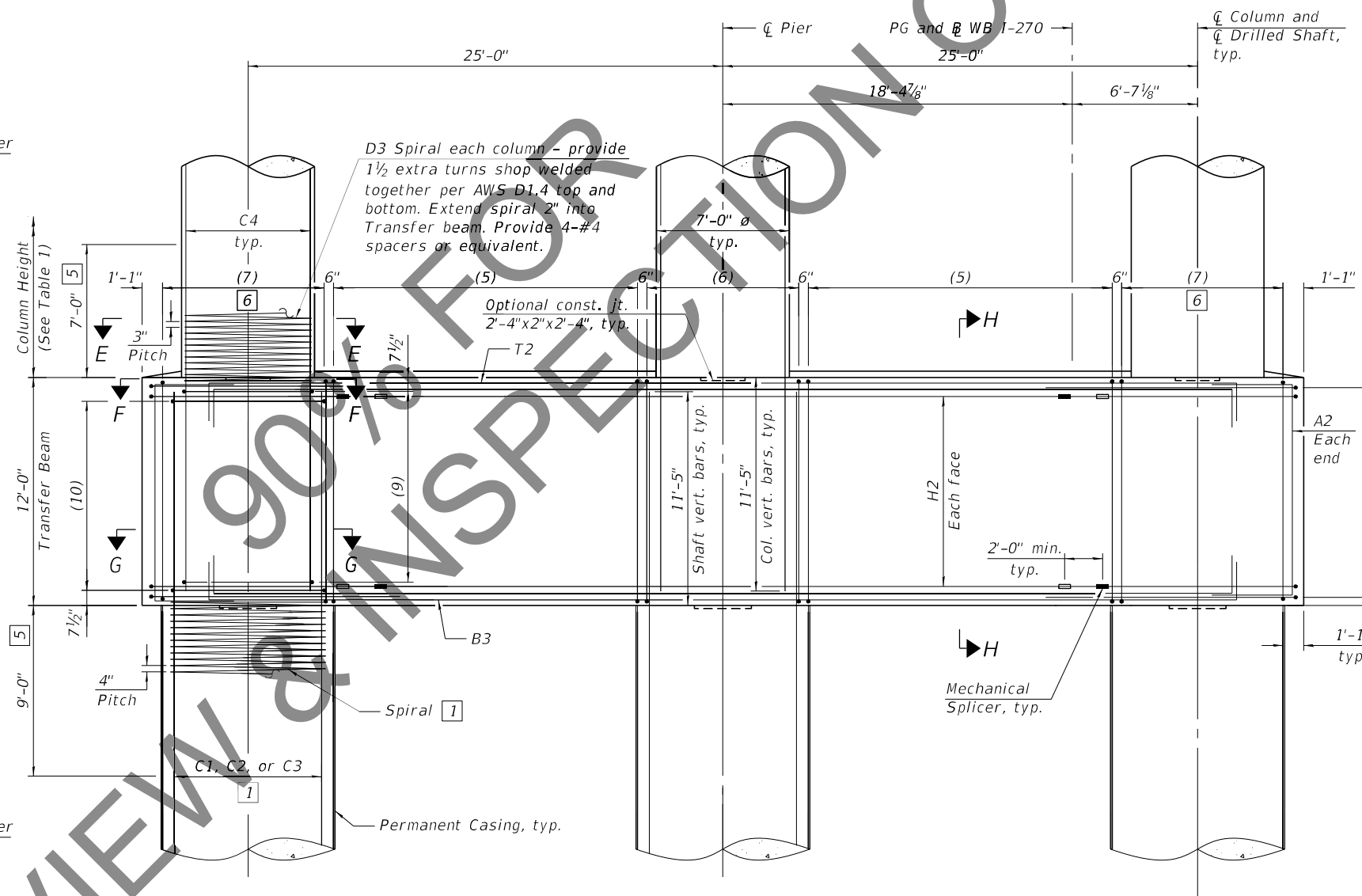
SECTION F-F



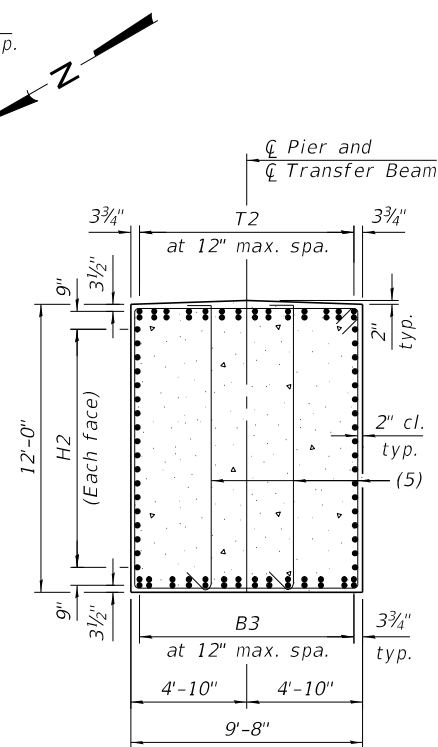
SECTION G-G



PLAN - TRANSFER BEAM



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION H-H

Design HWE
Elev. 433.4

Top of Drilled Shaft
Elev. (see Table 1)

EWSE Elev.
412.67

- 1 See sheet 194 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For Top Plan and Part elevation, see sheet 192 of 288.
For Drilled Shaft details, see sheet 193 of 288.
For additional notes, bar details, and Bill of Material, see sheets 196 and 197 of 288.
For Table 1, see sheet 195 of 288.
For Mechanical Splicer details, see sheet 242 of 288.

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HORNER SHIFRIN
PARSONS

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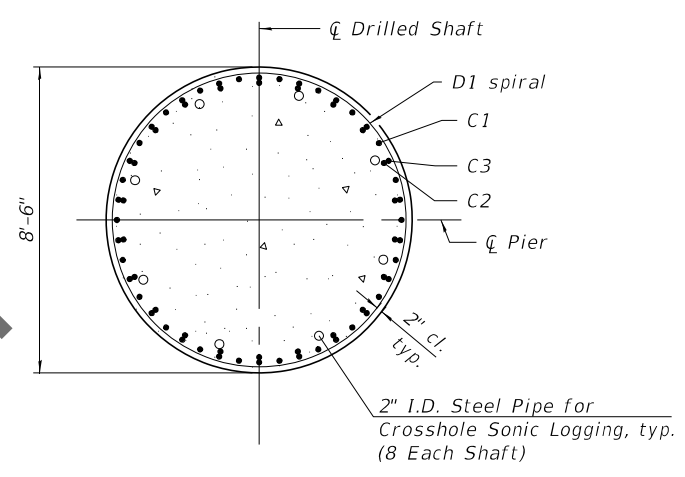
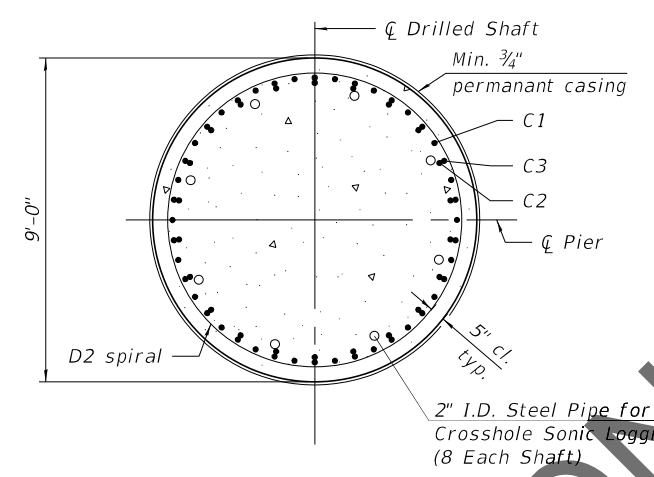
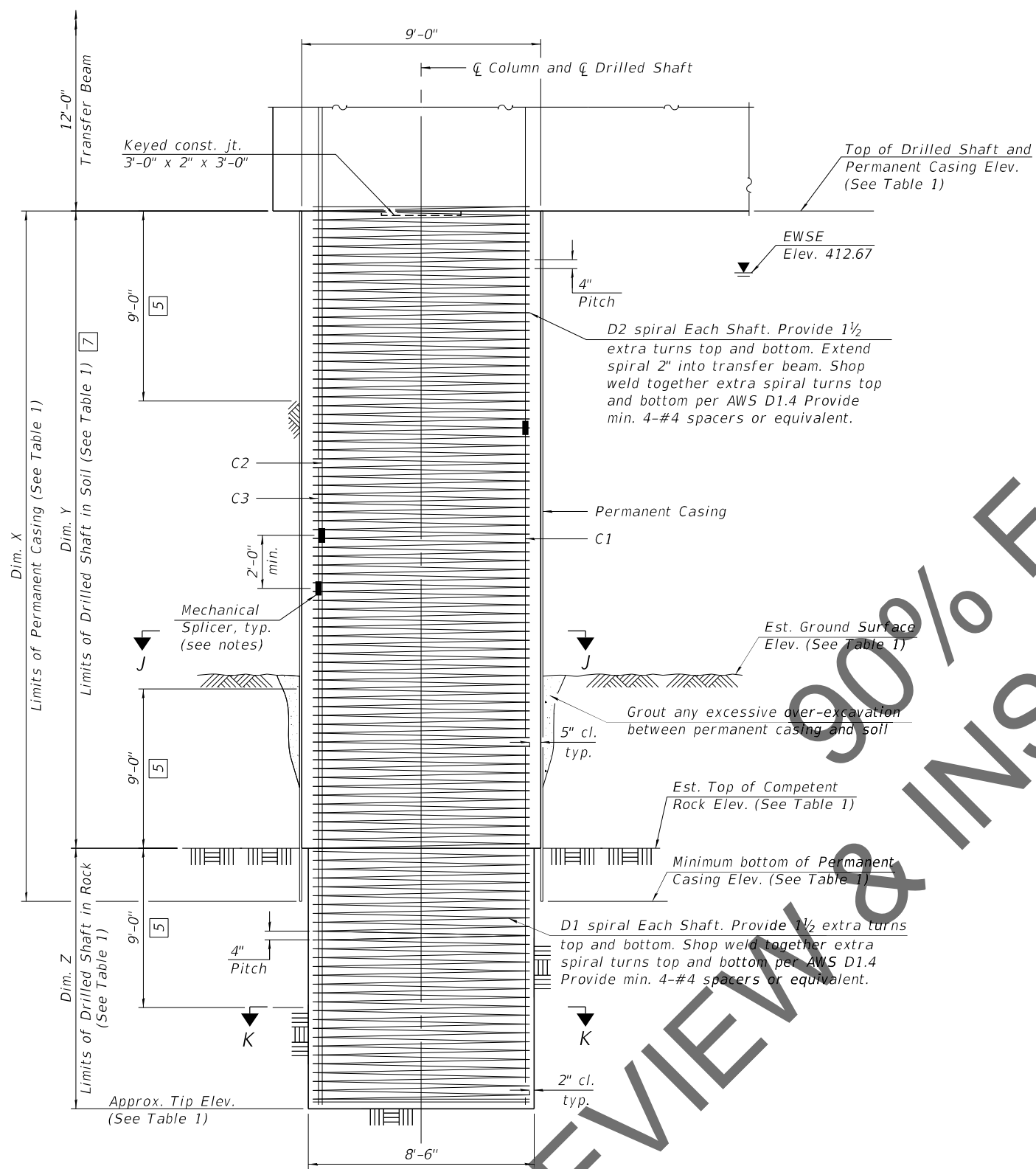
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DEPARTMENT OF TRANSPORTATION

PIER 9 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0351 (WB)

SHEET 193 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	685
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



SECTION J-J

SECTION K-K

- 5 No splicing of bars allowed in this region.
- 7 If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Notes:

The Contractor may propose a construction joint in the drilled shaft so separate pours can be made, if the shaft can be poured in the dry, subject to approval from the Engineer.

The Permanent Casing is shown embedded 2 ft. into rock for estimate of quantities. Pay Limits for the Permanent Casing shall be based on the minimum length shown.

Alternate every other Mechanical Splicer 2'-0" min.

When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.

The Contractor is responsible for determining the casing thickness and the actual tip elevation to be used. See Article 516.06(d) of the Standard Specifications. Pay limits for the Permanent Casing shall be based on minimum length shown.

Wet construction methods within the permanent casing may be required. The Contractor's installation procedure shall clearly address cleaning and inspection methods proposed for use with wet construction methods which ensure adequate end bearing on rock is achieved.

For Top Plan and Part elevation, see sheet 192 of 288.
 For Transfer Beam details, see sheet 193 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 196 and 197 of 288.
 For Table 1, see sheet 195 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

DRILLED SHAFT DETAIL
 (One shaft shown, three shafts required, one under each column)

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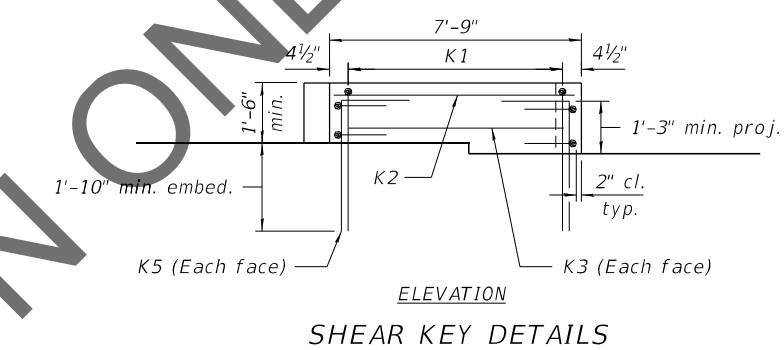
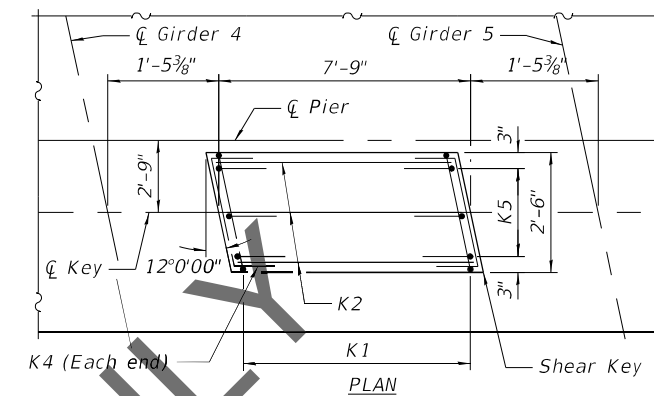
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	686
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

TABLE 1

		Pier 9
C Pier Station		2797+81.40
Bearing Seat Elevation	Girder 1	452.28
	Girder 3	452.48
	Girder 4	452.67
	Girder 5	452.87
	Girder 6	452.69
Girder 7		452.46
Top of Cap Elevation		452.28
Bottom of Cap Elevation		444.28
Column Height		17'-3 ³ / ₈ "
Top of Shaft Elevation		415.00
Approx. Tip Elevation		343.40
Est. Ground Surface Elevation		372.60
Est. Top of Rock Elevation		368.90
Min. bott. of Permanent Casing Elev.		366.90
Dim. X		48'-1 ¹ / ₄ "
Dim. Y		46'-1 ¹ / ₄ "
Dim. Z		25'-6"

PIER 9

Mark	Bar Callouts
(1)	43 sets of 1-#6 s901(E) and 1-#6 s905(E) at 5" cts.
(2)	14 sets of 2-#6 s902(E) at 6" cts.
(3)	6 sets of 4-#6 s907(E) at 5" cts.
(4)	48-#6 s908(E) at abt. 8" cts.
(5)	33 sets of 1-#6 s903(E) and 2-#6 s906(E) at 6" cts.
(6)	17 sets of 2-#6 s904(E) at 6" cts.
(7)	18 sets of 2-#6 s904(E) at 6" cts.
(8)	14-#7 hp902(E) hoops at 3" cts.
(9)	44-#7 hp902(E) hoops at 3" cts.
(10)	33-#7 hp901(E) hoops at 4" cts.
T1	2 layers of 13-#11 p901(E) or p902(E) at 7 ³ / ₈ " cts.
T2	14 bundles of 1-#11 p905(E) and 1-#11 p906(E) at 12" max.
B1	2 layers of 13-#11 p903(E) at 7 ³ / ₈ " cts.
B2	13-#7 p904(E) at 7 ³ / ₈ " cts.
B3	14 bundles of 1-#11 p905(E) and 1-#11 p906(E) at 12" max.
H1	10-#8 h901(E) at 7 ¹ / ₂ " cts.
H2	18-#9 h902(E) at 7" cts.
H3	13-#6 h903(E) at abt. 7 ³ / ₈ " cts.
H4	13-#6 h904(E) at abt. 7 ³ / ₈ " cts.
A1	6 sets of 1-#7 u903(E) and 1-#7 u904(E) at 10 ¹ / ₂ " cts.
A2	10-#7 u905(E) at 10 ³ / ₄ " cts.
U1	11-#8 u901(E) spaced with h901(E) and p901(E)
U2	20-#9 u902(E) splice with h902(E) and space with p905(E)
C1	22 sets of 1-#14 v901(E) and 1-#14 v902(E) (top)
C2	22 sets of 1-#14 v903(E) and 1-#14 v904(E) (top) Bundle w/ C3
C3	22 sets of 1-#14 v905(E) and 1-#14 v906(E) (top) Bundle w/ C2
C4	40-#11 v907(E) equally spaced
D1	#7 sp901(E) at 4" pitch
D2	#7 sp902(E) at 4" pitch
D3	#7 sp903(E) at 3" pitch
K1	15-#5 s909(E) spaced at 6" cts.
K2	3-#5 h905(E) spaced with n901(E)
K3	1-#5 h905(E) each face
K4	2-#5 h906(E) each face
K5	3-#5 n901(E) at 12" cts., each face
R1	#5 r901(E)



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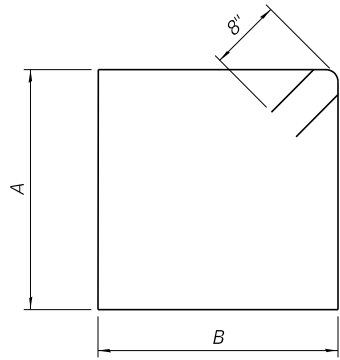


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DEPARTMENT OF TRANSPORTATION**

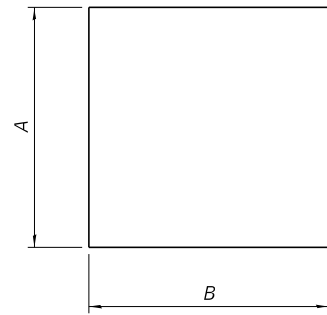
**PIER 9 REINFORCEMENT TABLES - 1
STRUCTURE NO. 060-0351 (WB)**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	687
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				



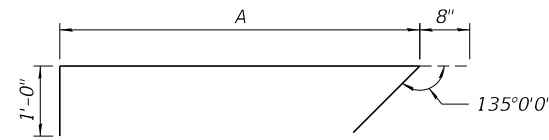
BARS s901(E) & s903(E)

Bars	A	B
s901(E)	7'-8"	7'-8"
s903(E)	11'-8"	9'-4"



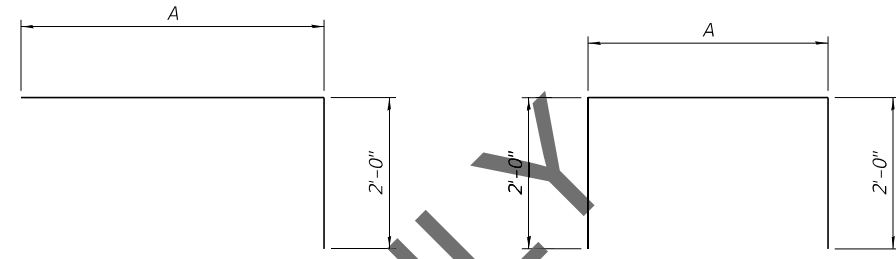
BARS s902(E) & s904(E) & s907(E)

Bars	A	B
s902(E)	7'-8"	5'-10"
s904(E)	11'-8"	6'-8"
s907(E)	4'-10"	5'-10"



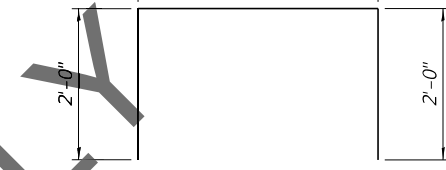
BARS s905(E) & s906(E)

Bars	A
s905(E)	7'-8"
s906(E)	11'-8"



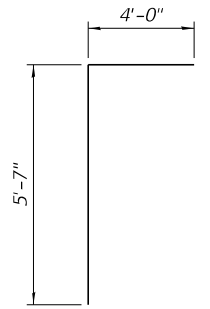
BARS p901(E) & p902(E)

Bars	A
p901(E)	22'-5"
p902(E)	51'-0"

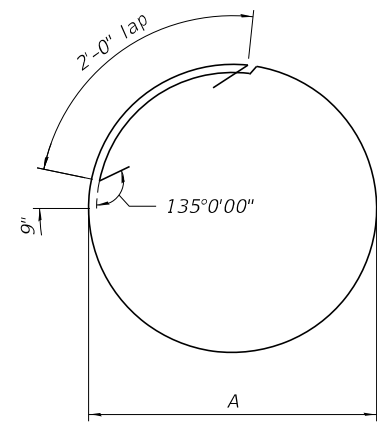


BARS p905(E) & p906(E)

Bars	A
p905(E)	54'-0"
p906(E)	53'-6"

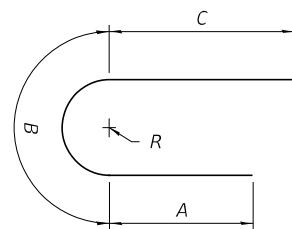


BARS u903(E)



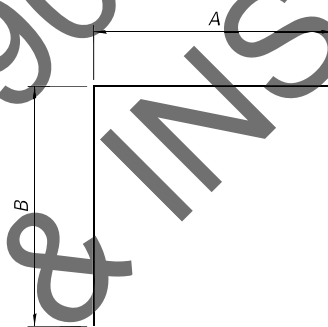
BARS hp901(E) & hp902(E)

Bars	A
hp901(E)	8'-2"
hp902(E)	6'-8"



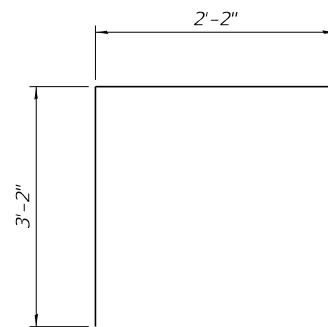
BARS u901(E) & u902(E)

Bars	A	B	C	R
u901(E)	5'-4"	11'-9 ³ / ₈ "	5'-4"	3'-9"
u902(E)	5'-9"	14'-5"	7'-9"	4'-7"

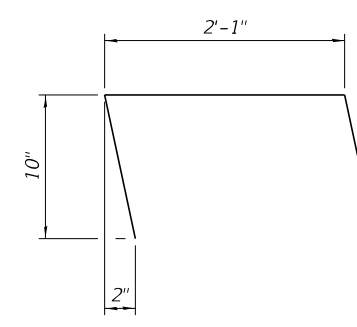


BARS u905(E) & s908(E)

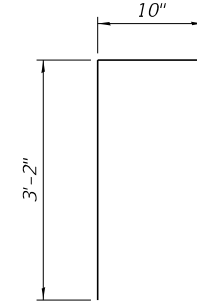
Bars	A	B
u905(E)	11'-6"	4'-7"
s908(E)	7'-8"	2'-9"



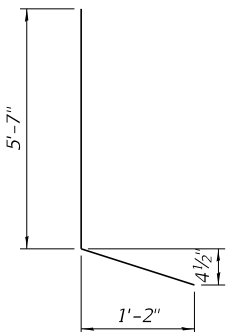
BARS s909(E)



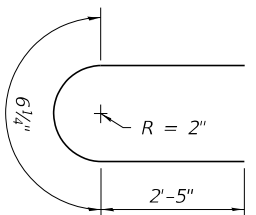
BARS h906(E)



BARS n901(E)



BARS u904(E)



BARS r901(E)

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DEPARTMENT OF TRANSPORTATION**

**PIER 9 REINFORCEMENT TABLES - 2
STRUCTURE NO. 060-0351 (WB)**

SHEET 196 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	688
			CONTRACT NO. 76190	
ILLINOIS FED. AID PROJECT				

**PIER 9
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h901(E)	20	#8	56'-0"	=====
h902(E)	36	#9	38'-0"	=====
h903(E)	13	#6	31'-8"	=====
h904(E)	13	#6	10'-4"	=====
h905(E)	5	#5	7'-5"	=====
h906(E)	4	#5	3'-9"	┌
hp901(E)	99	#7	29'-2"	○
hp902(E)	174	#7	24'-5"	○
n901(E)	6	#5	4'-0"	┌
p901(E)	26	#11	24'-5"	┌
p902(E)	26	#11	53'-0"	┌
p903(E)	26	#11	57'-8"	=====
p904(E)	26	#7	3'-0"	=====
p905(E)	28	#11	58'-0"	┌
p906(E)	28	#11	57'-6"	┌
r901(E)	8	#5	5'-4"	┌
s901(E)	86	#6	32'-0"	┌
s902(E)	84	#6	19'-4"	┌
s903(E)	66	#6	43'-4"	┌
s904(E)	104	#6	25'-0"	┌
s905(E)	86	#6	9'-4"	┌
s906(E)	132	#6	13'-4"	┌
s907(E)	48	#6	16'-6"	┌
s908(E)	48	#6	13'-2"	┌
s909(E)	15	#5	8'-6"	┌
** sp901(E)	3	#7	25'-4"	∩∩∩
** sp902(E)	3	#7	46'-3"	∩∩∩
** sp903(E)	3	#7	17'-7"	∩∩∩
u901(E)	22	#8	22'-5"	┌
u902(E)	40	#9	27'-11"	┌
u903(E)	12	#7	9'-7"	┌
u904(E)	12	#7	6'-10"	┌
u905(E)	20	#7	20'-8"	┌
v901(E)	66	#14	45'-0"	=====
v902(E)	66	#14	37'-10"	=====
v903(E)	66	#14	42'-6"	=====
v904(E)	66	#14	40'-4"	=====
v905(E)	66	#14	40'-0"	=====
v906(E)	66	#14	42'-10"	=====
v907(E)	120	#11	36'-2"	=====

** Length is height of spiral.

**PIER 9
BILL OF MATERIAL (CONT.)**

Concrete Structures	Cu. Yd.	482.5
Reinforcement Bars, Epoxy Coated	Pound	277,780
Permanent Casing	Foot	145
Drilled Shaft in Soil	Cu. Yd.	326
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	215
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	215

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Note:
For bar details, see sheet 196 of 288.

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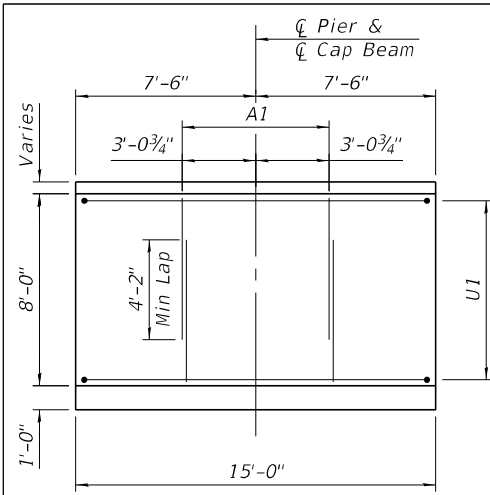
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DEPARTMENT OF TRANSPORTATION**

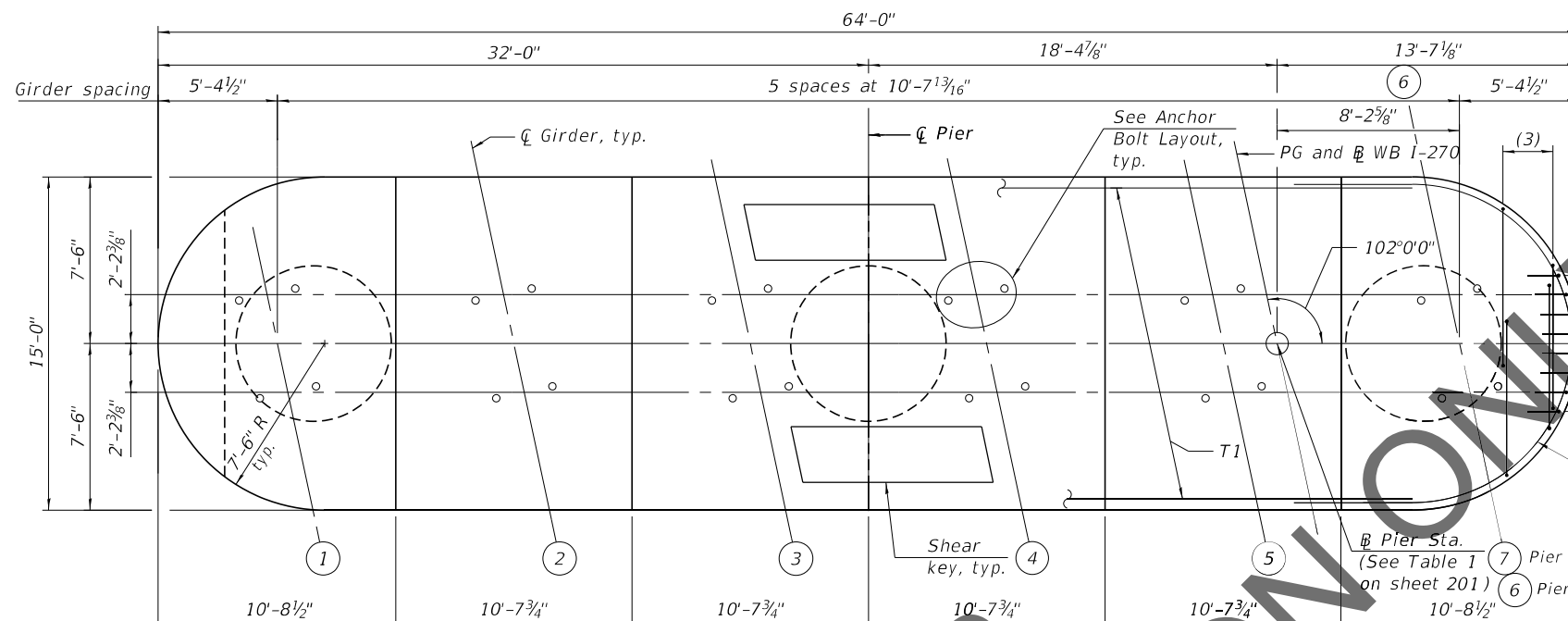
**PIER 9 BILL OF MATERIALS
STRUCTURE NO. 060-0351 (WB)**

SHEET 197 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	689
CONTRACT NO. 76190				
ILLINOIS FED. AID PROJECT				

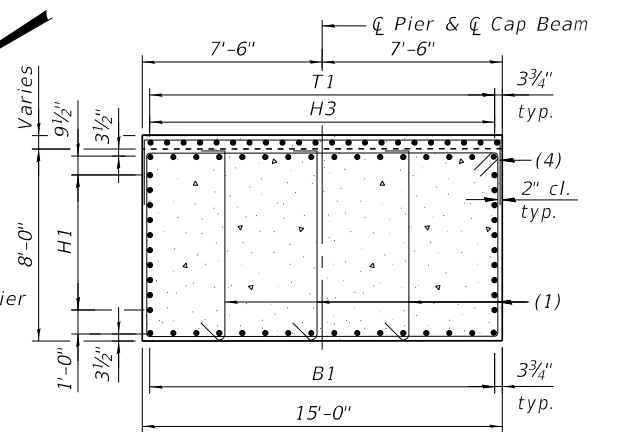


VIEW A-A
(T1 and (3) bars not shown for clarity)

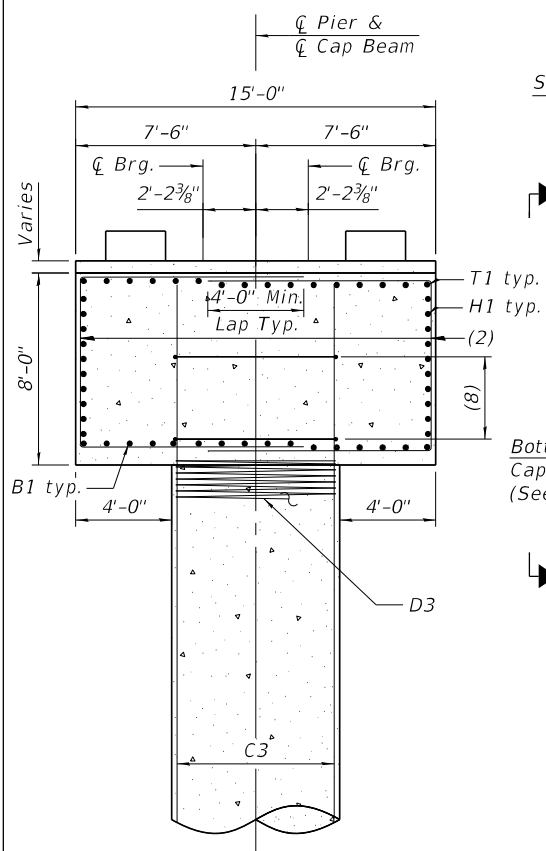


TOP PLAN

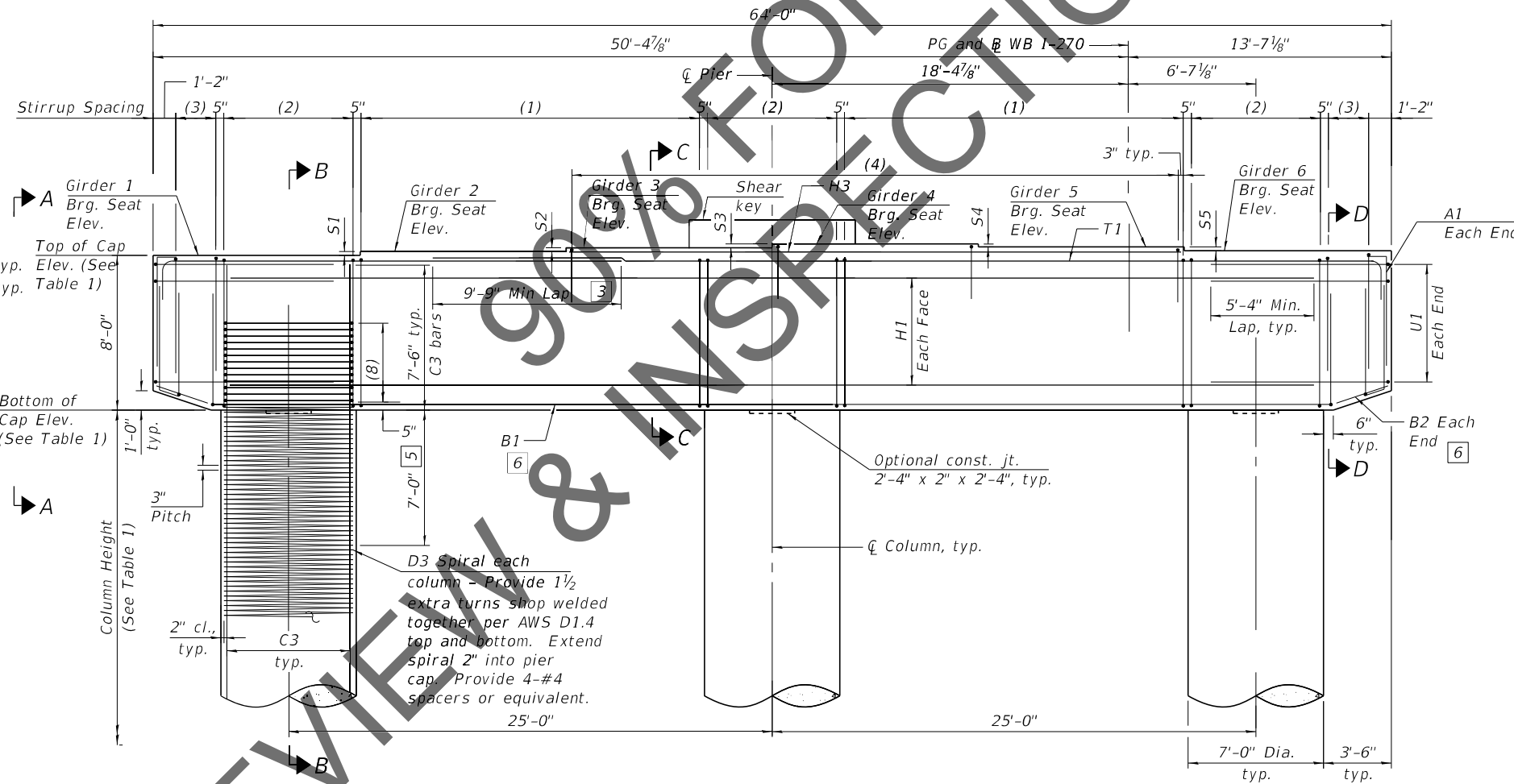
Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.



SECTION C-C

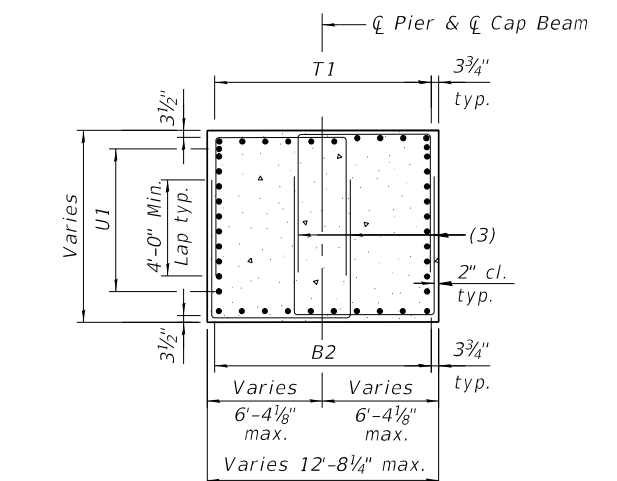


SECTION B-B

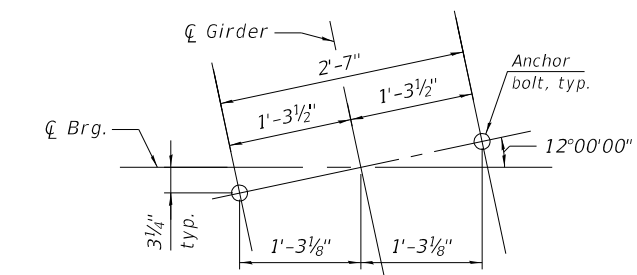


PART ELEVATION
(Looking East)

- [3] Alternate placement cap top rebars to stagger the laps.
- [5] No splicing of bars allowed in this region.
- [6] Field cut bars when needed to keep 2" clear concrete cover.



SECTION D-D



ANCHOR BOLTS LAYOUT

Notes:
For bar details and Bill of Materials see sheets 202 and 203 of 288.
For column height, step height and all elevations, See Table 1 on sheet 201 of 288.
For bar callouts and shear key details, see sheet 201 of 288.
For bearing details, Unit 2, see sheet 154 of 288.
For bearing details, Units 3 & 4, see sheet 157 of 288.

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PARSONS

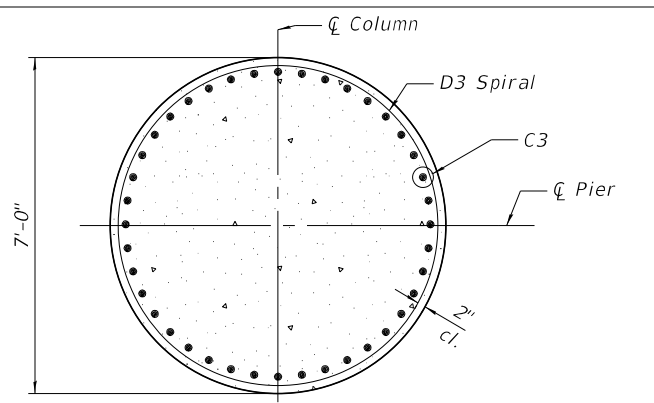
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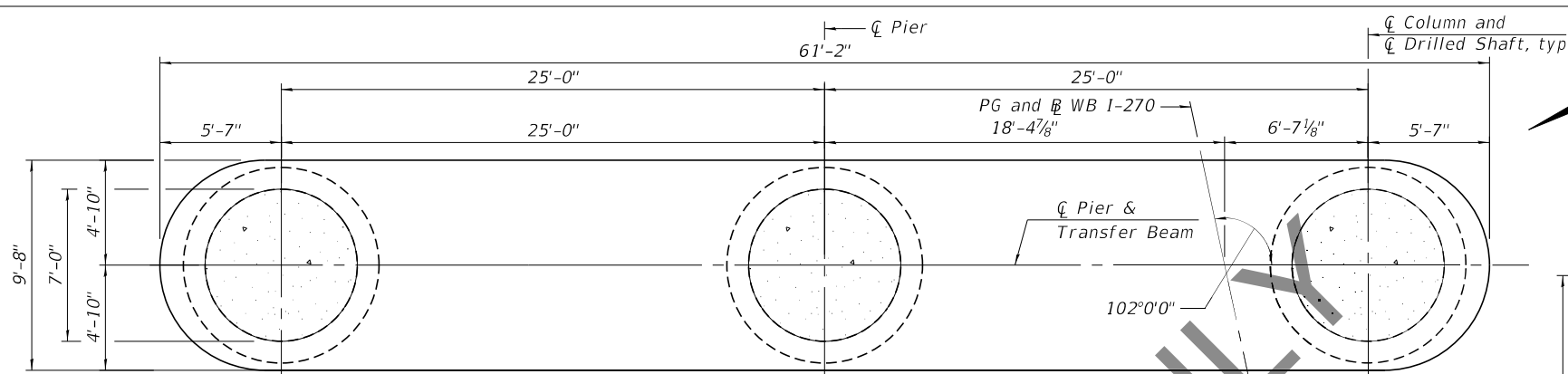
PIER 10 & 17 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0351 (WB)

SHEET 198 OF 288 SHEETS

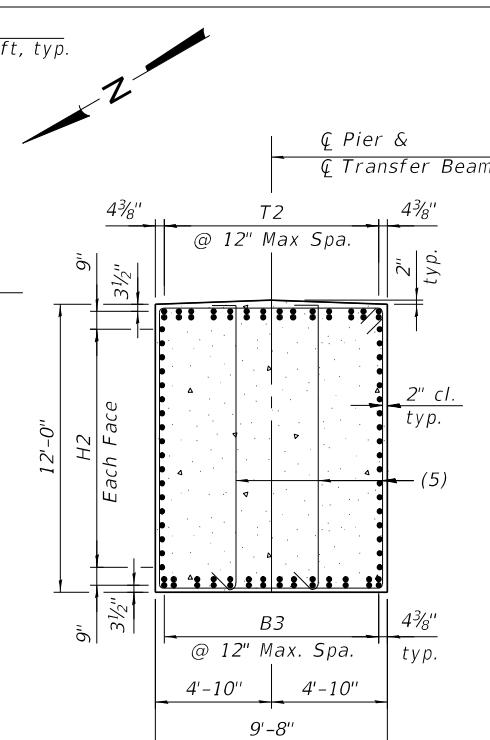
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270	60B-1	MADISON	860	690
CONTRACT NO. 76190			ILLINOIS FED. AID PROJECT	



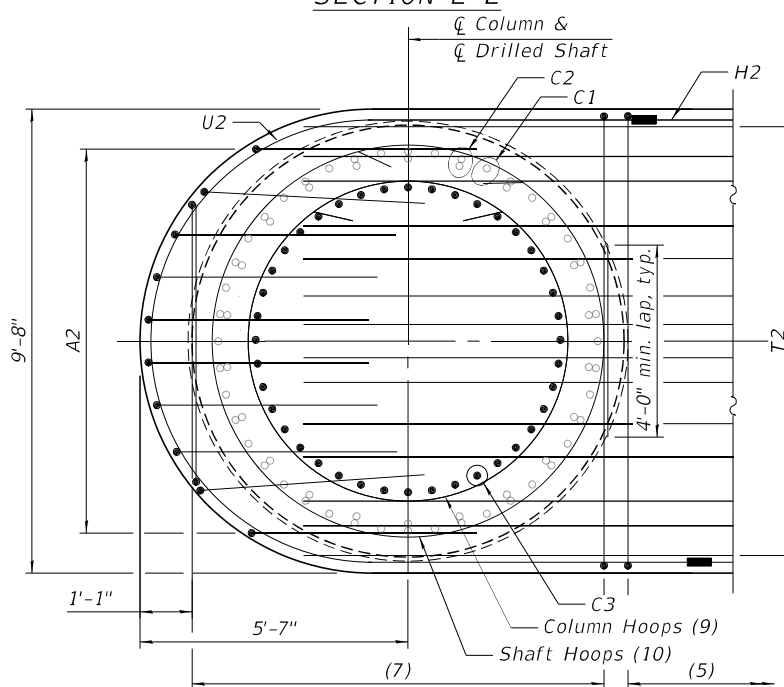
SECTION E-E



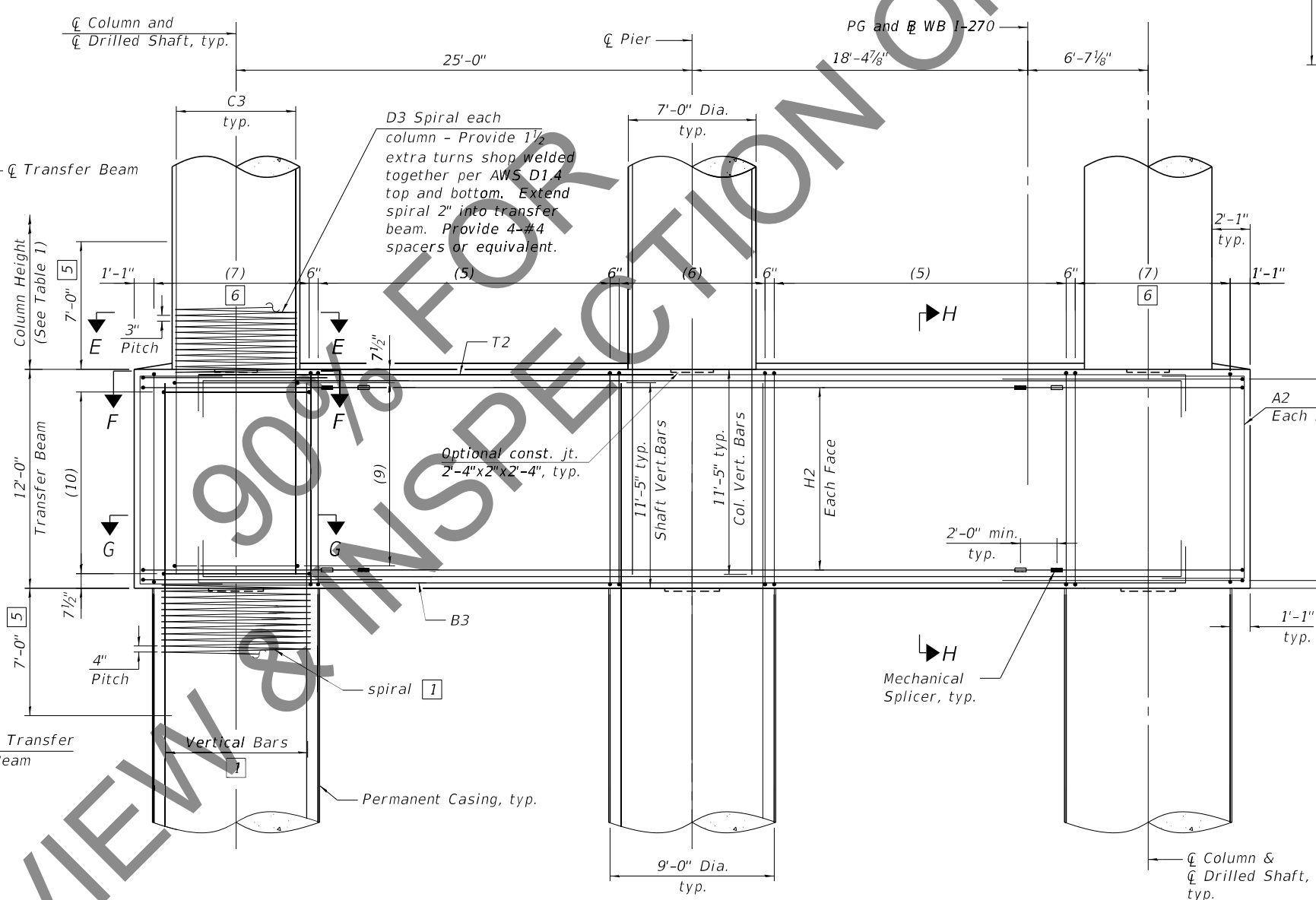
PLAN - TRANSFER BEAM



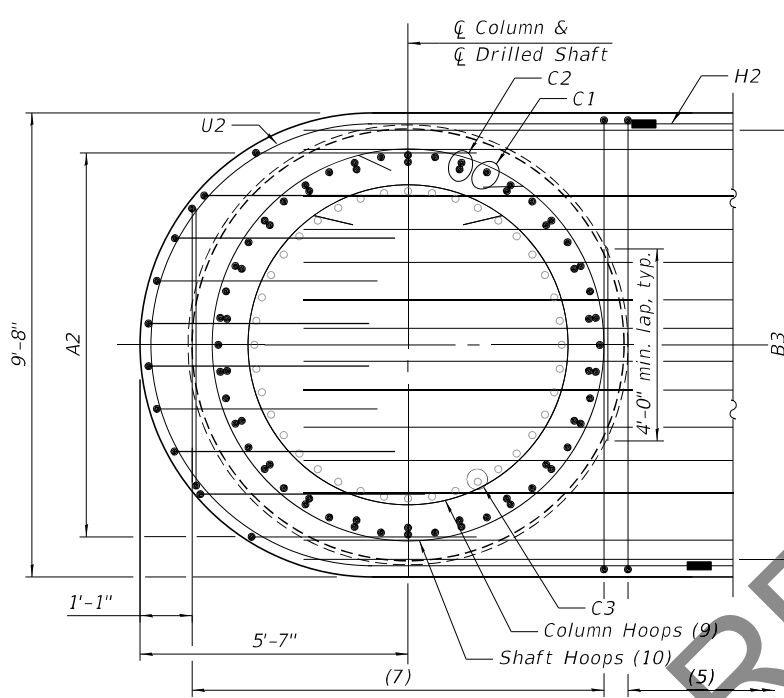
SECTION H-H



SECTION F-F



PART ELEVATION - TRANSFER BEAM
(Looking East)



SECTION G-G

- 1 See sheet 200 of 288 for additional rebar placement.
- 2 Adjust transfer beam rebar slightly when conflict with column or shaft vertical bar.
- 5 No splicing of bars allowed in this region.
- 6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
 For Top Plan and Part Elevation, see sheet 198 of 288.
 For Drilled Shaft Details, see sheet 200 of 288.
 For additional notes, bar details, and Bill of Material, see sheets 201, 202 and 203 of 288.
 For Table 1, see sheet 201 of 288.
 For Mechanical Splicer details, see sheet 242 of 288.

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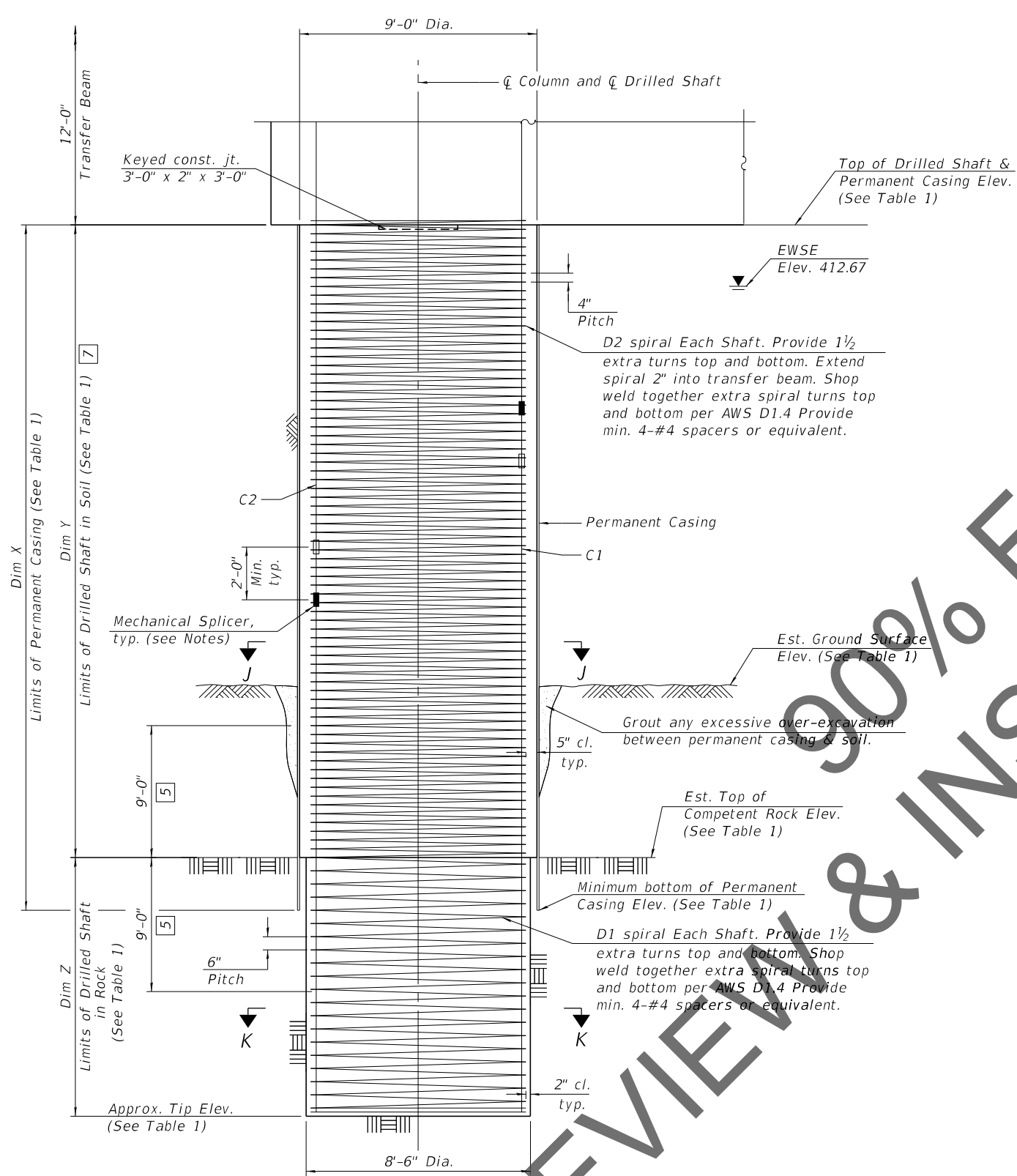
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

PIER 10 & 17 PLAN AND ELEVATION - 2
 STRUCTURE NO. 060-0351 (WB)

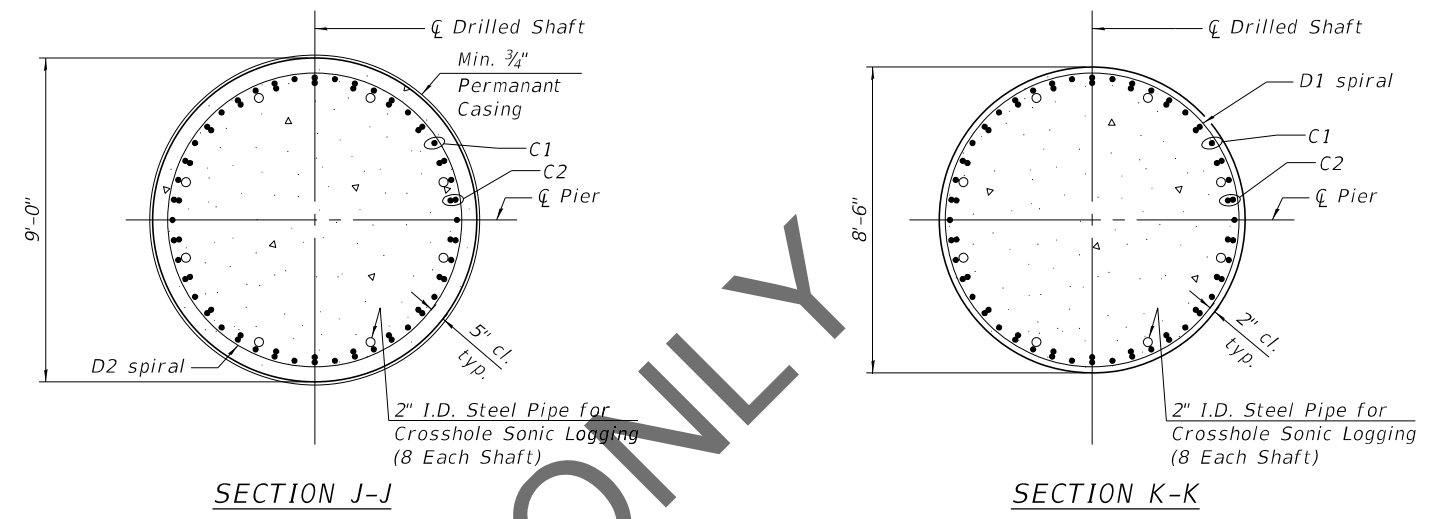
SHEET 199 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	691
CONTRACT NO. 76190				

ILLINOIS FED. AID PROJECT

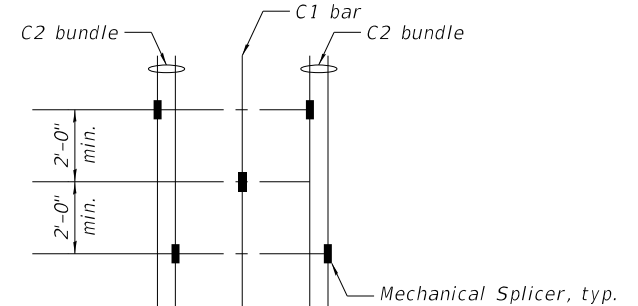


DRILLED SHAFT DETAIL
 (One shaft shown, three shafts required,
 one under each column)



- 5 No splicing of bars allowed in this region.
- 7 If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Notes:
 For Pier Plan and Elevation, see Sheets 198 and 199 of 288.
 For additional notes, bar details, and Bill of Materials, see sheets 202 and 203 of 288.
 For Table 1, see sheet 201 of 288.
 For Mechanical Splicer Details, see sheet 242 of 288.
 The Contractor may propose a construction joint in the drilled shaft so separate pours can be made, if the shaft can be poured in the dry, subject to approval from the Engineer.
 The Permanent Casing is shown embedded 2 ft. into rock for estimate of quantities. The Contractor is responsible for determining the casing thickness and the actual tip elevation to be used. See Article 516.06(d) of the Standard Specifications. Pay Limits for the Permanent Casing shall be based on the minimum length shown.
 When splicing of spiral reinforcement is necessary, the spirals shall be provided with 1 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
 Alternate location of mechanical splices of C1 bars every other bar.
 Alternate location of mechanical splices of C2 bars within each bundle.



ALTERNATE MECHANICAL SPLICERS LOCATION

MODEL: Default
 FILE NAME: C:\CS4\PDF\9071\45087_3021060-0351-D876190-bva-40aPPE.dgn
 Teaming with:
 9/10/2011 2:02:06 AM



USER NAME =	DESIGNED - GX	REVISED -
PLOT SCALE =	CHECKED - TMB	REVISED -
PLOT DATE =	DRAWN - JG	REVISED -
	CHECKED - TMB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**PIER 10 & 17 PLAN AND ELEVATION - 3
 STRUCTURE NO. 060-0351 (WB)**

SHEET 200 OF 288 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	692
CONTRACT NO. 76J90				
ILLINOIS FED. AID PROJECT				