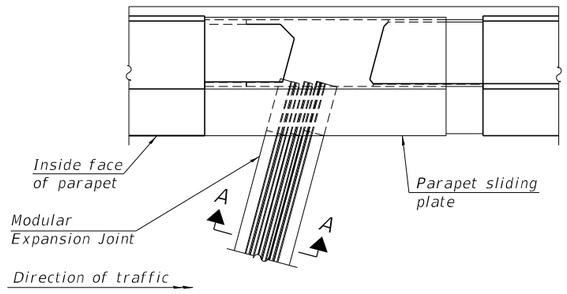
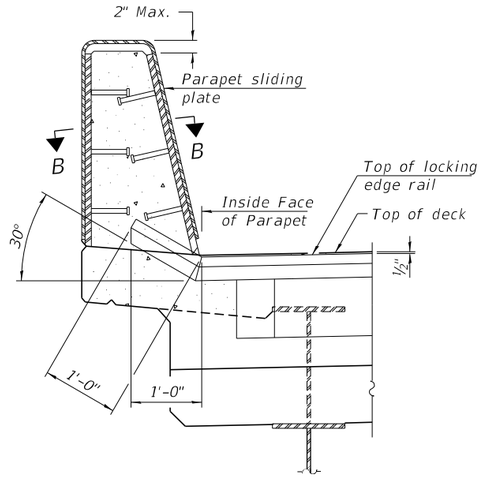
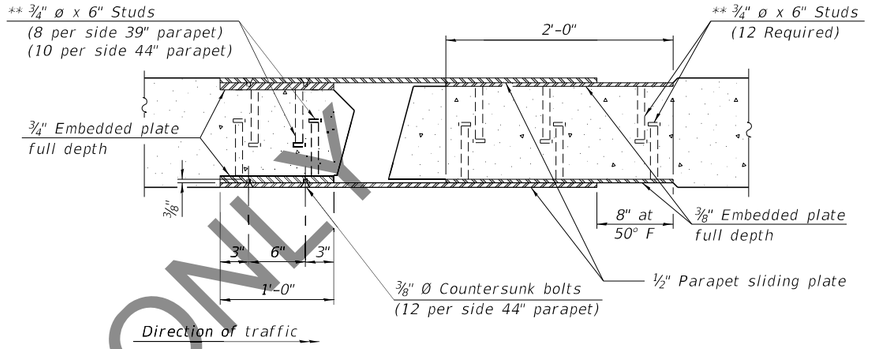


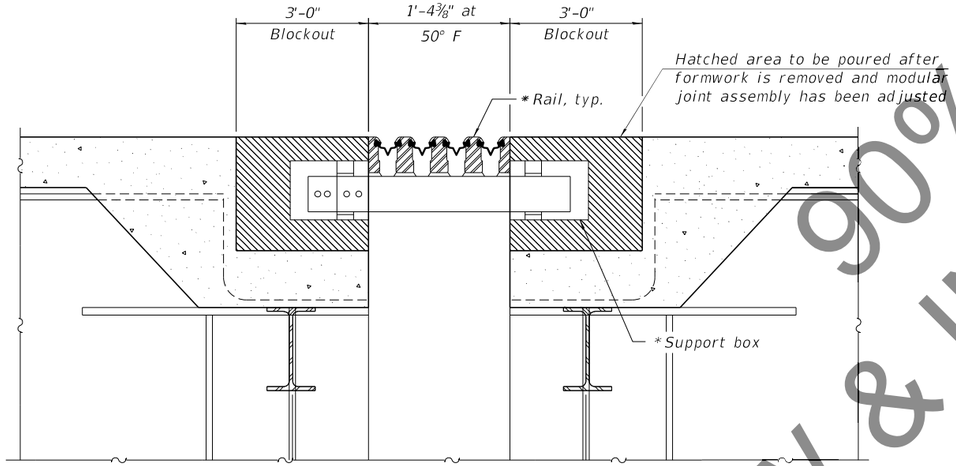
PLAN AT PARAPET



ELEVATION AT PARAPET



SECTION B-B

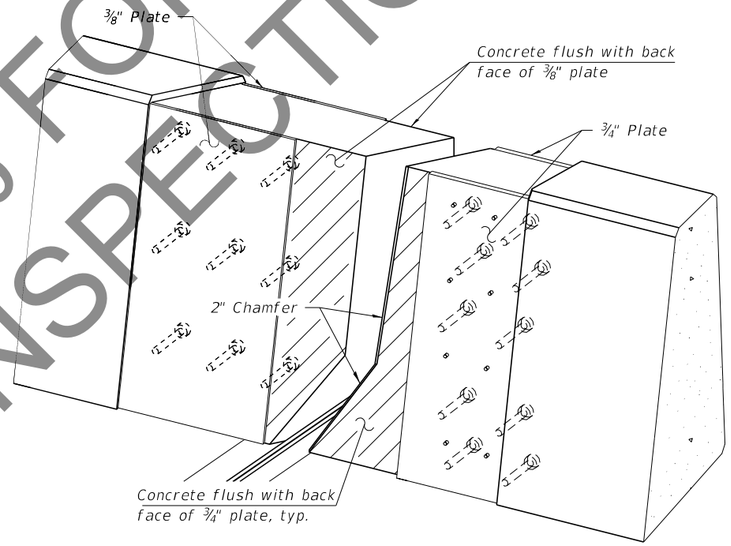


SECTION A-A

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

* Number of rails determined by manufacturer

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



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 12".

Support boxes shall be supported in blockout by adjustable brackets, stools, or shims. Cost of brackets, stools, or shims included in "Modular Expansion Joint 12".

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.

BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint 12"	Foot	66.0

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90% PS&E

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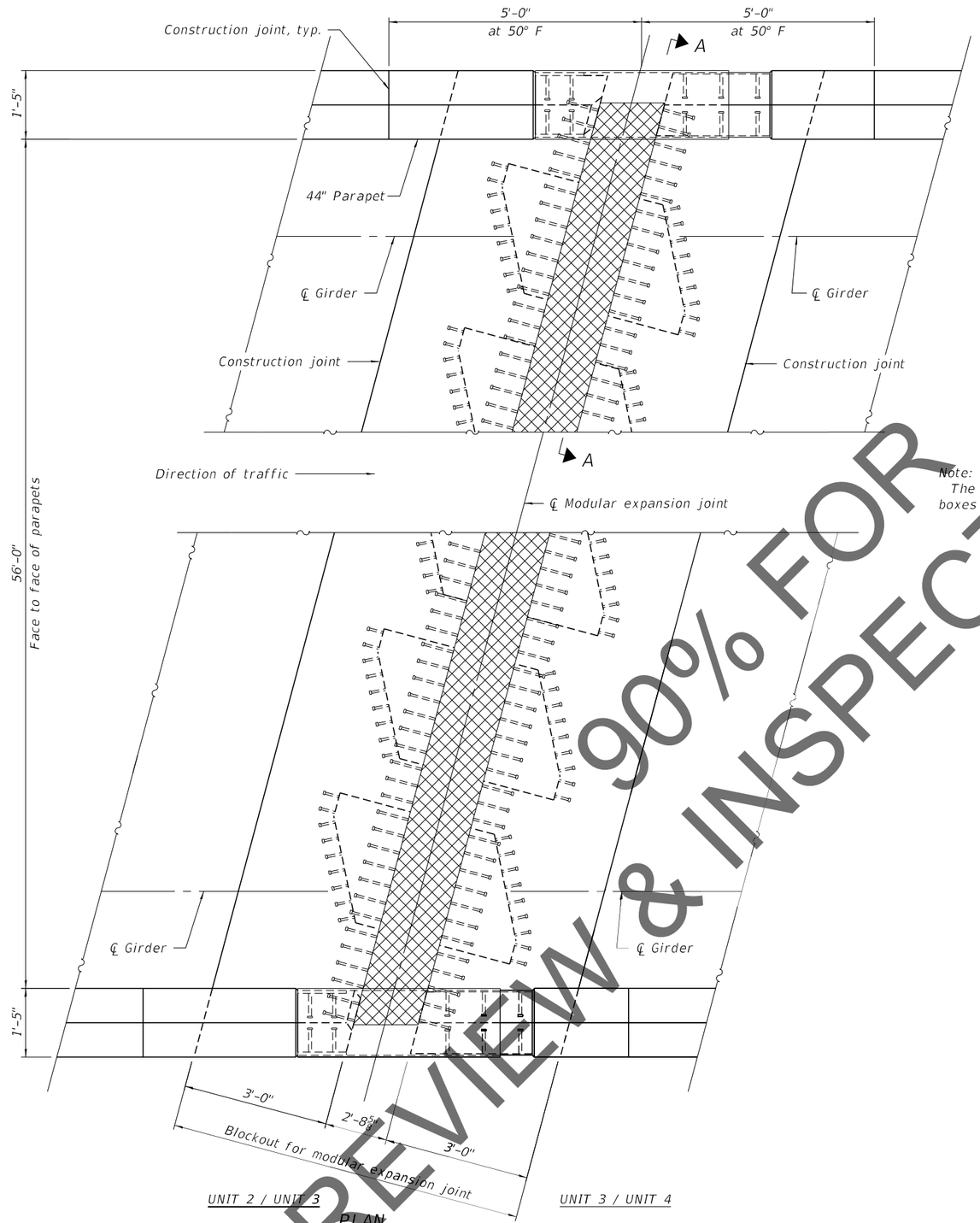
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - JJD	REVISED -	
	CHECKED - MJW	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - BTF	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

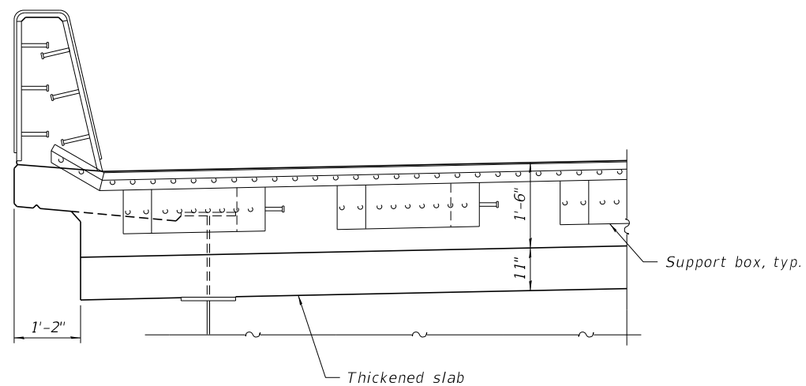
MODULAR EXPANSION JOINT – PIER 3 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 101 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	301
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



PLAN

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 67 and 73 of 292.

REVIEW & INSPECTION ONLY FOR 90% PLANS

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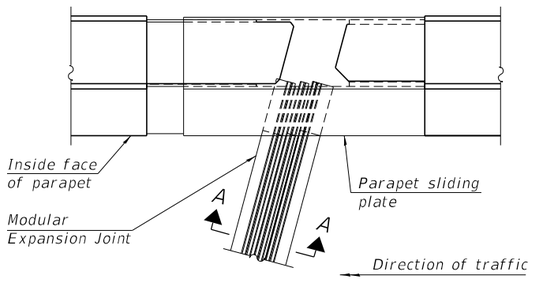
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - TBS	REVISED -
	CHECKED - VMC	REVISED -
PLOT SCALE =	DRAWN - RDF	REVISED -
PLOT DATE =	CHECKED - VMC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

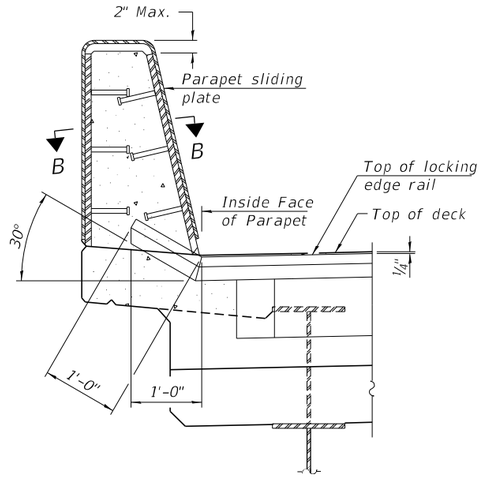
MODULAR EXPANSION JOINT – PIERS 10 & 17 – 1
STRUCTURE NO. 060-0350 (EB)
SHEET 102 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	302
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

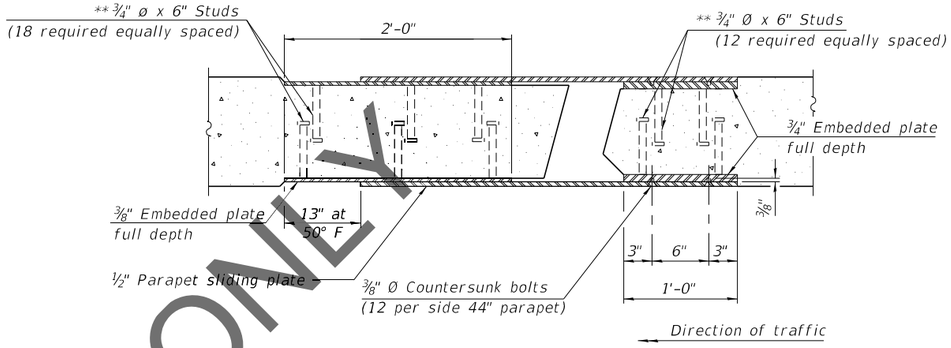


FOR SKEWS < 30°

PLAN AT PARAPET

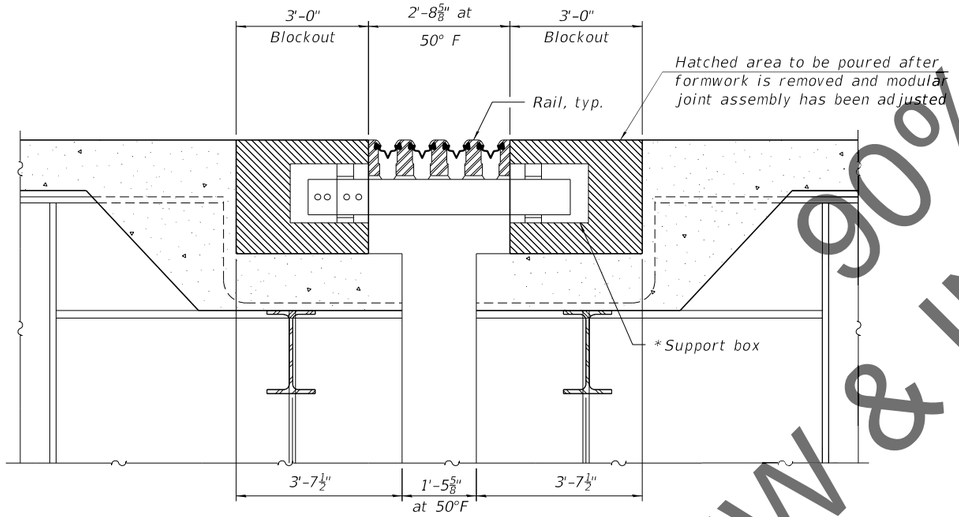


ELEVATION AT PARAPET



SECTION B-B

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

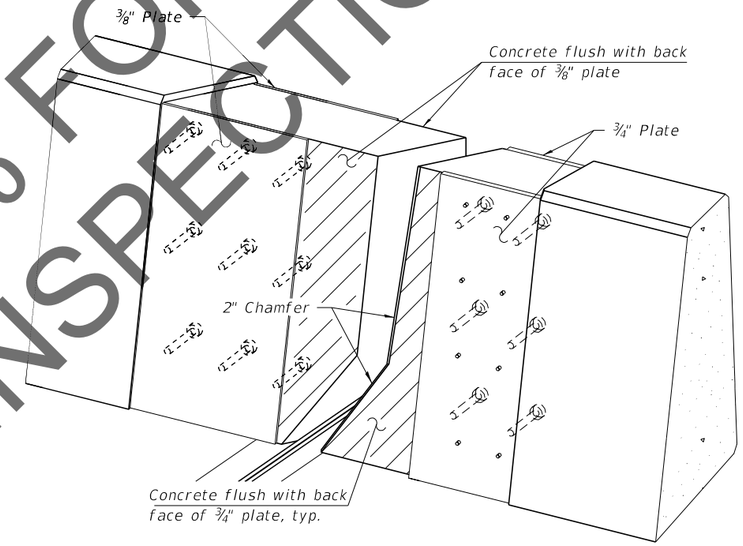


SECTION A-A

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

* Number of rails determined by manufacturer

Increase opening ⅛" per 100' of expansion for every 15°F temp. change above the normal temp. of 50°F.
Decrease opening ⅛" 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 accomodate 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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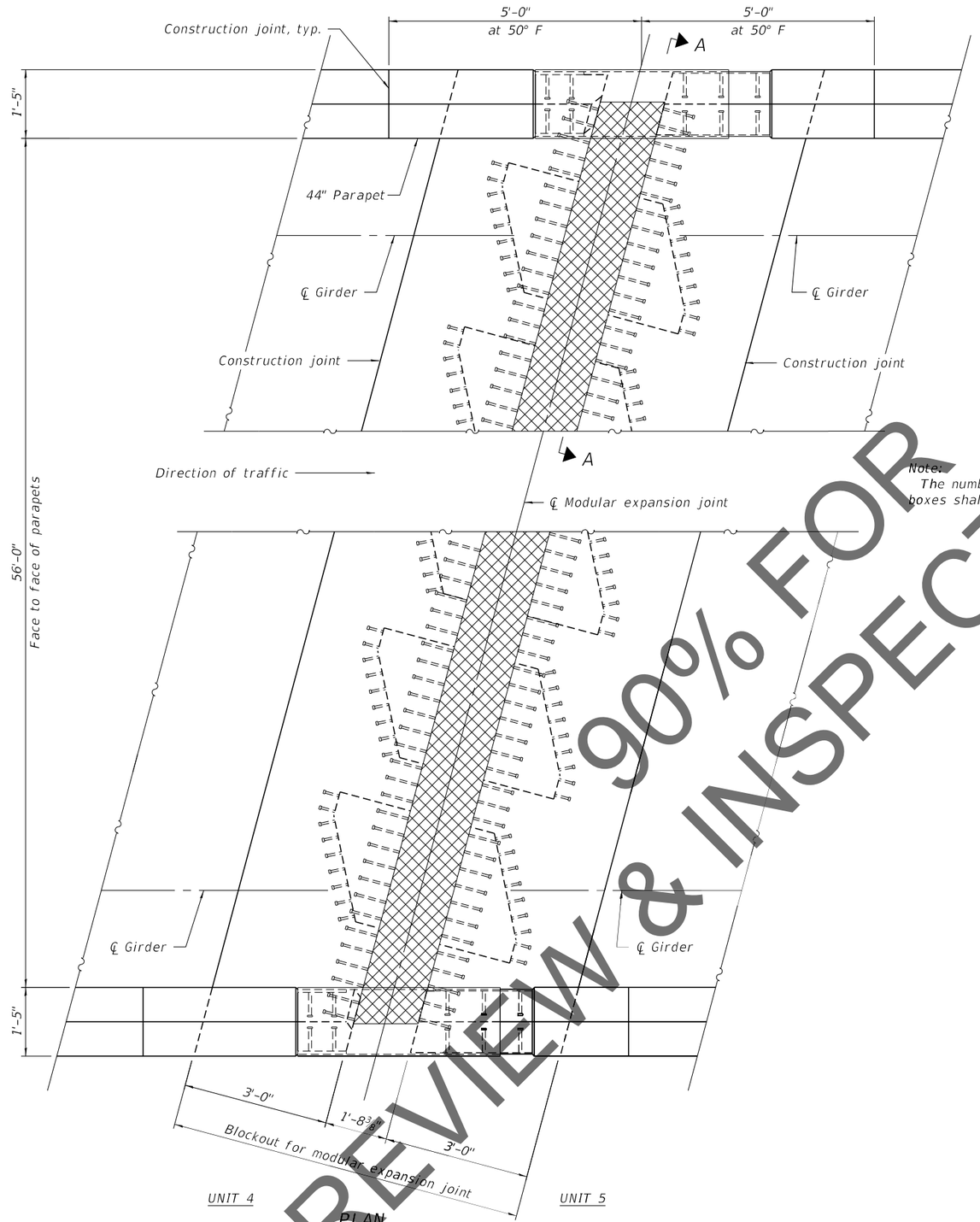
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - TBS	REVISED -	
	CHECKED - VMC	REVISED -	
PLOT SCALE =	DRAWN - RF	REVISED -	
PLOT DATE =	CHECKED - VMC	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

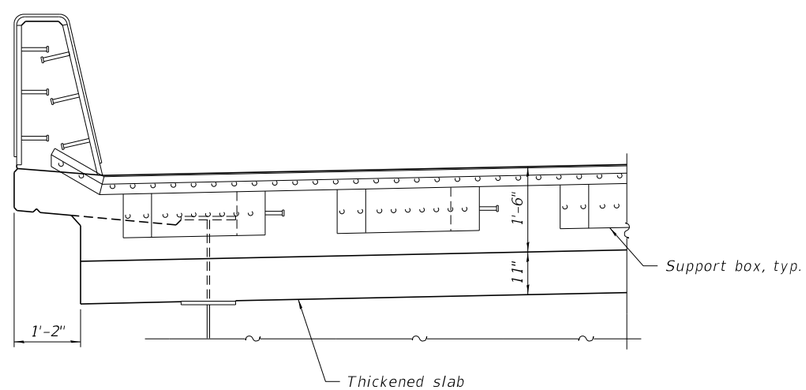
MODULAR EXPANSION JOINT – PIERS 10 & 17 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 103 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	303
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



PLAN

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 73 and 76 of 292.

REVIEW & INSPECTION ONLY FOR 90% PS&E

MODEL: Default
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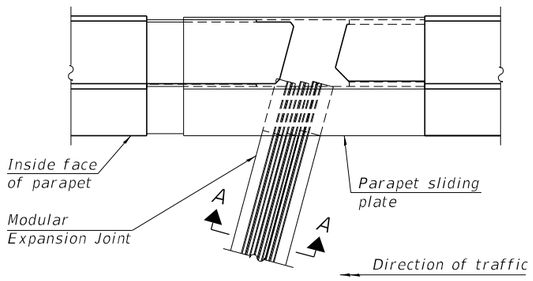
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - TBS	REVISED -
	CHECKED - VMC	REVISED -
PLOT SCALE =	DRAWN - RDF	REVISED -
PLOT DATE =	CHECKED - VMC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

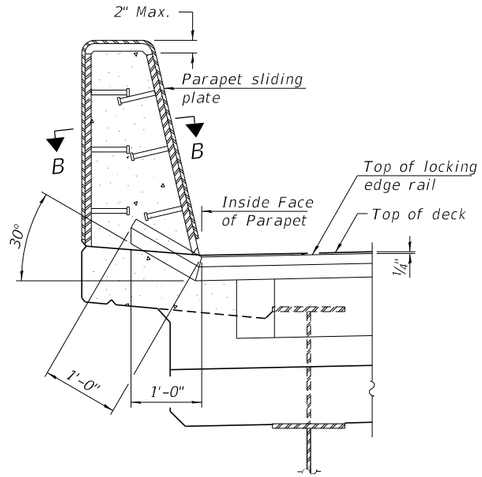
MODULAR EXPANSION JOINT – PIER 24 – 1
STRUCTURE NO. 060-0350 (EB)
SHEET 104 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	304
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

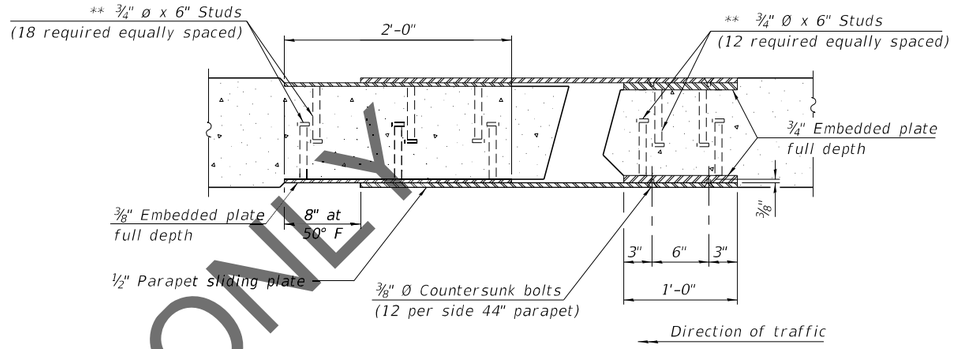


FOR SKEWS < 30°

PLAN AT PARAPET

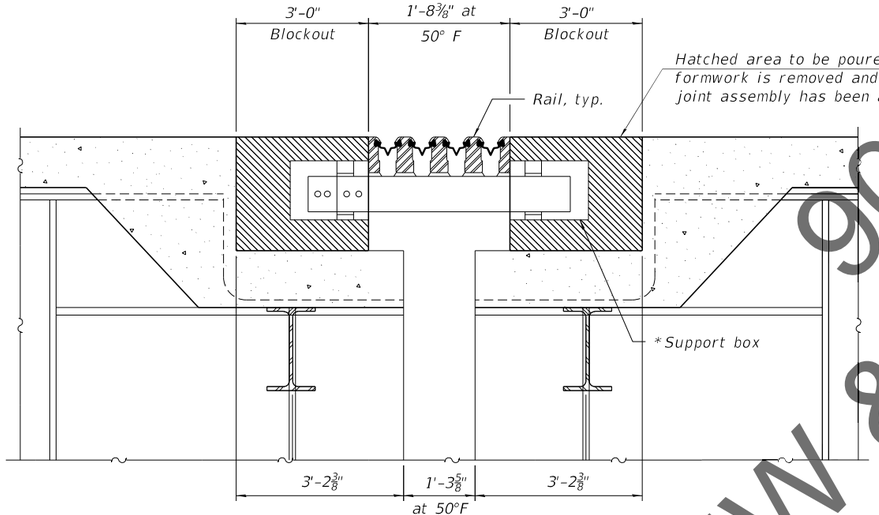


ELEVATION AT PARAPET



SECTION B-B

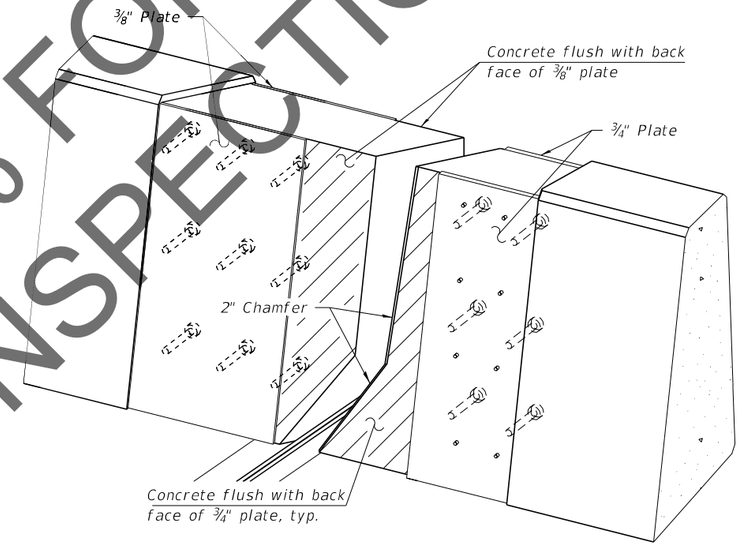
** Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.



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)

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.

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

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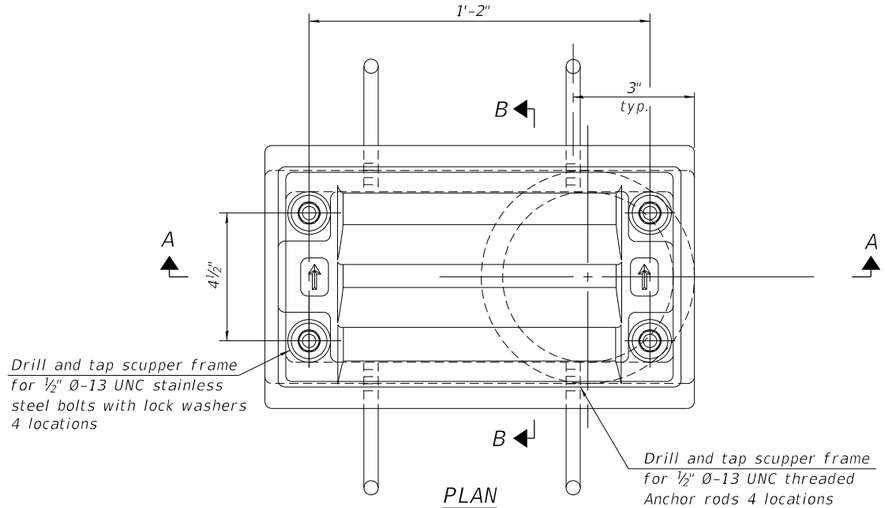
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - TBS	REVISED -	
	CHECKED - VMC	REVISED -	
PLOT SCALE =	DRAWN - RF	REVISED -	
PLOT DATE =	CHECKED - VMC	REVISED -	

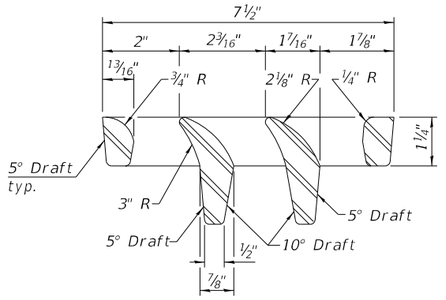
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT – PIER 24 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 105 OF 292 SHEETS

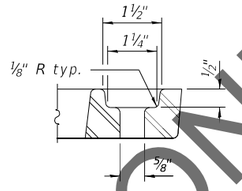
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	305
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



PLAN



VANE GRATE DETAIL



GRATE BOLT HOLE DETAIL

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.

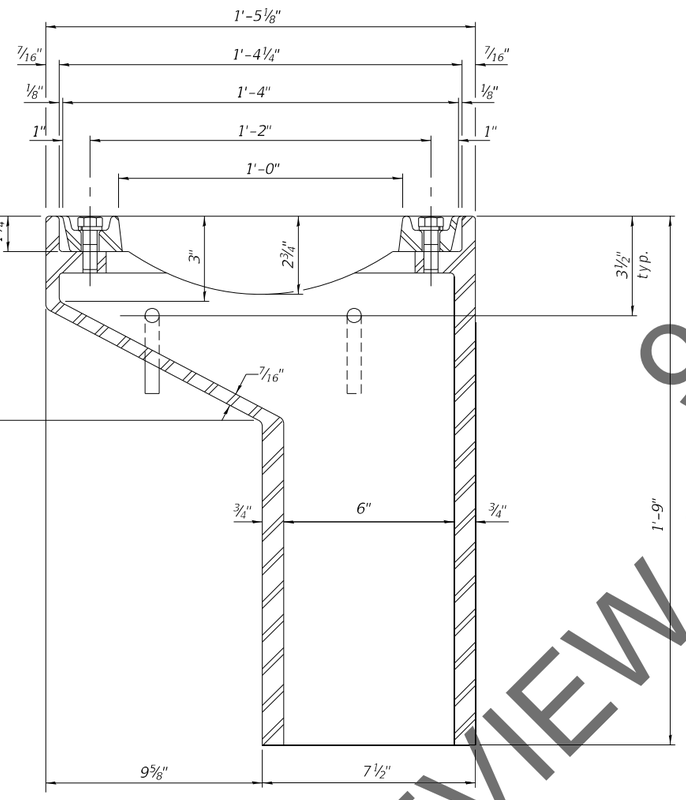
Structural steel scupper frames and downspouts, when utilized, shall be galvanized according to AASHTO M111.

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 292.

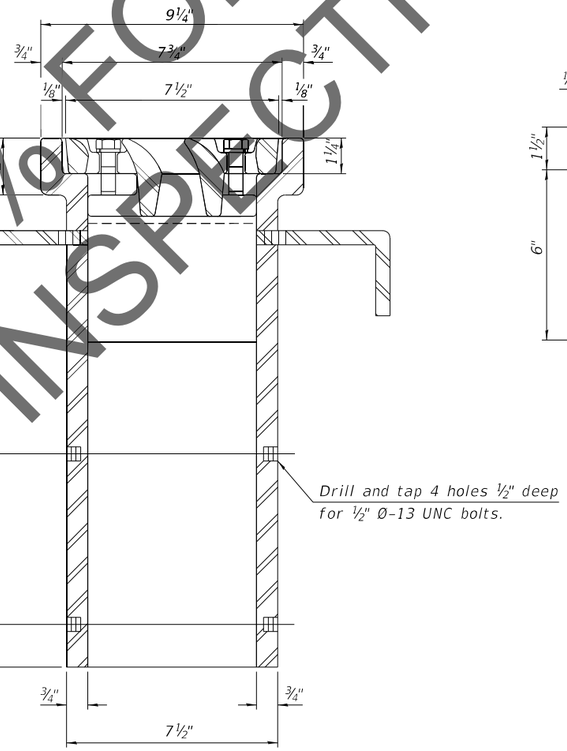
The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

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.

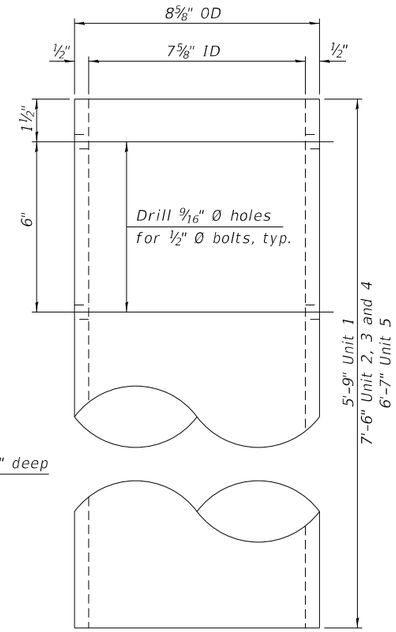


SECTION A-A

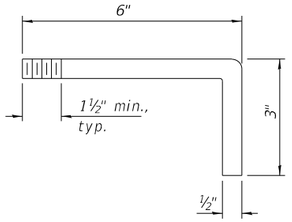
See sheet 77 of 292 for scupper location relative to parapet.



SECTION B-B



DOWNSPOUT



ANCHOR ROD DETAIL

BILL OF MATERIAL

LOCATION	ITEM	UNIT	QUANTITY
Unit 1	Drainage Scupper, DS-11	Each	11
Unit 2	Drainage Scupper, DS-11	Each	27
Unit 3	Drainage Scupper, DS-11	Each	18
Unit 4	Drainage Scupper, DS-11	Each	20
Unit 5	Drainage Scupper, DS-11	Each	8
Total			84

90% REVIEW & INSPECTION ONLY

DS-11 1-1-2020

HORNER & SHIFRIN
Teaming with: PARSONS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11
STRUCTURE NO. 060-0350 (EB)
SHEET 106 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	306
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

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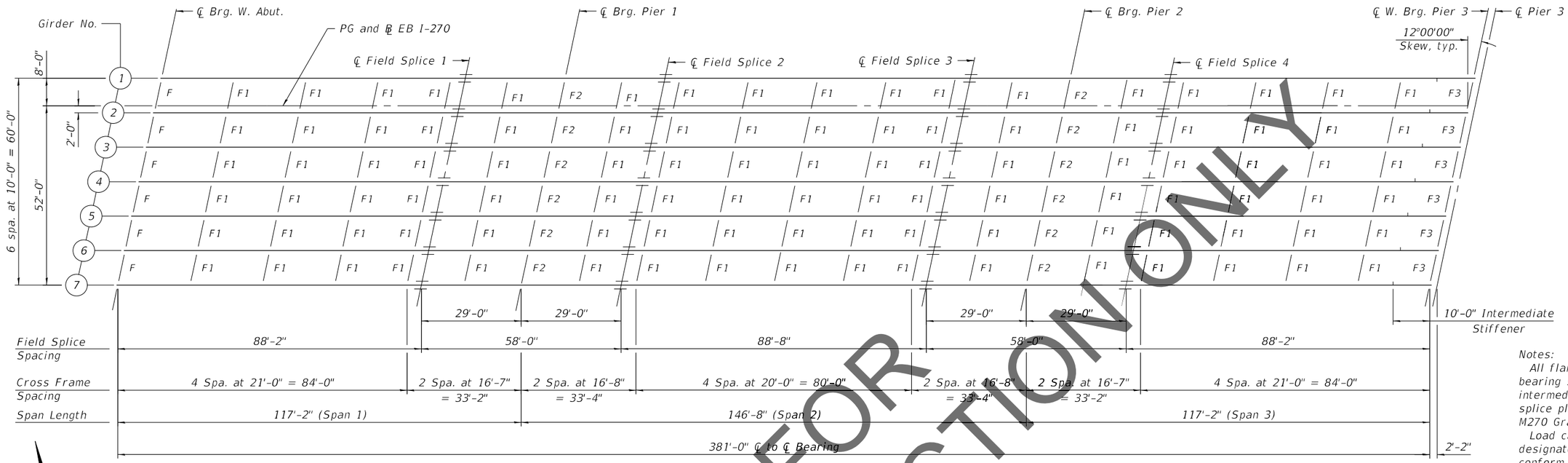


FRAMING PLAN – UNIT 1

(Spans 1 to 3)

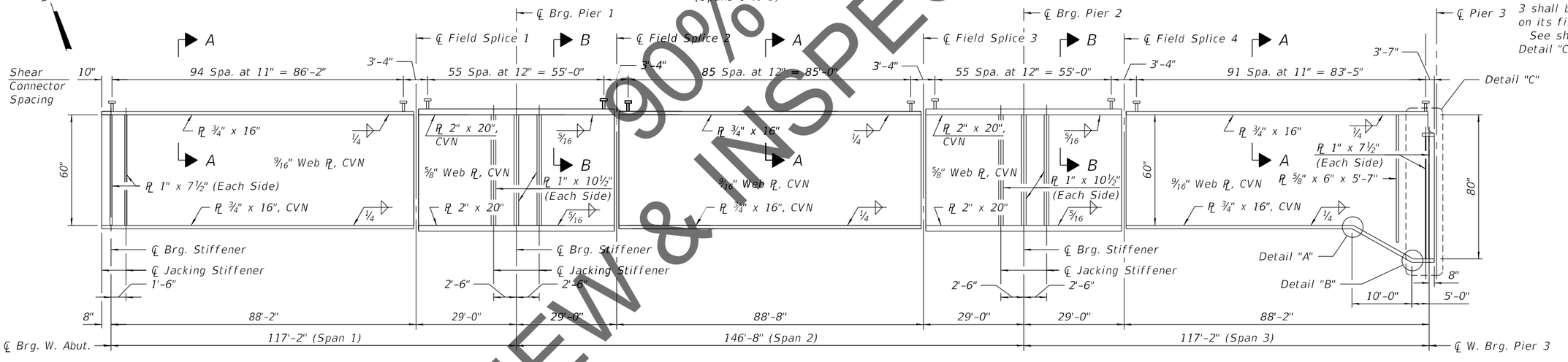
Notes:

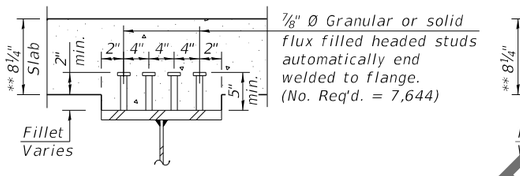
All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50.

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 109 of 292 for Detail "C".

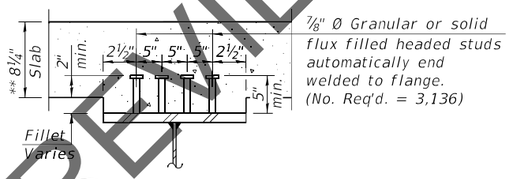




⅞" Ø Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd. = 7,644)

SECTION A-A

** Prior to grinding

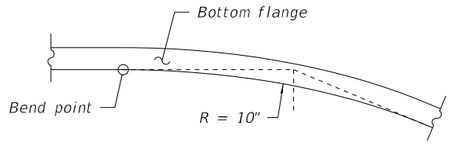


⅞" Ø Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd. = 3,136)

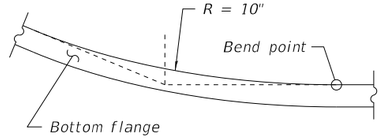
SECTION B-B

GIRDER ELEVATION

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



DETAIL "A"



DETAIL "B"

90% FOR REVIEW & INSPECTION ONLY

HORNER & SHIFRIN / Teaming with: PARSONS	USER NAME =	DESIGNED - UVK	REVISED -
		CHECKED - JJD	REVISED -
	PLOT SCALE =	DRAWN - EAT	REVISED -
	PLOT DATE =	CHECKED - SSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 1
STRUCTURE NO. 060-0350 (EB)
SHEET 107 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	307
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

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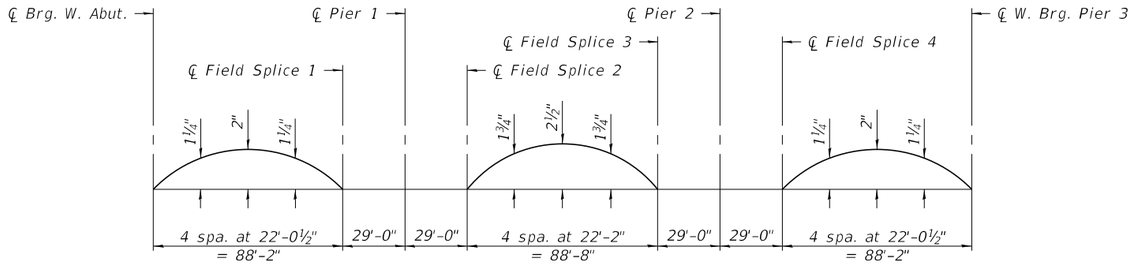
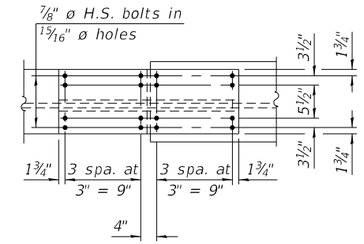
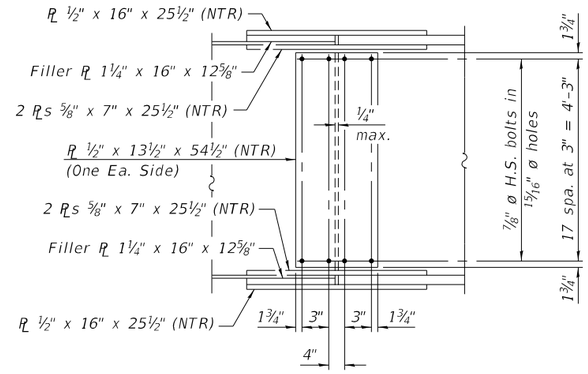
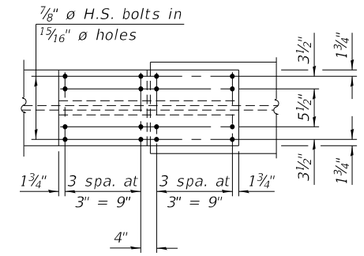


CAMBER DIAGRAM







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	451.97	452.28	452.41	452.54	452.98	453.14	453.30	453.88
Girder 2	452.16	452.47	452.60	452.73	453.18	453.34	453.50	454.06
Girder 3	452.35	452.66	452.79	452.92	453.37	453.53	453.69	454.25
Girder 4	452.14	452.45	452.58	452.71	453.15	453.32	453.48	454.04
Girder 5	451.93	452.24	452.37	452.50	452.94	453.10	453.27	453.83
Girder 6	451.72	452.03	452.16	452.29	452.73	452.89	453.05	453.62
Girder 7	451.51	451.81	451.94	452.08	452.52	452.68	452.84	453.41

*** For Fabrication only.

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

Note:
See sheet 107 of 292 for notes.

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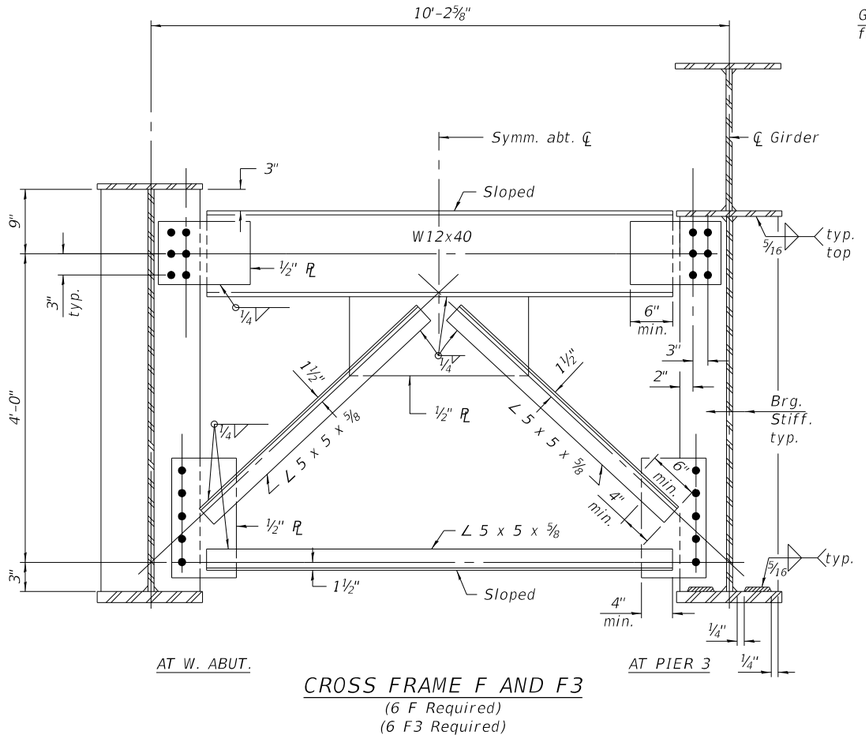
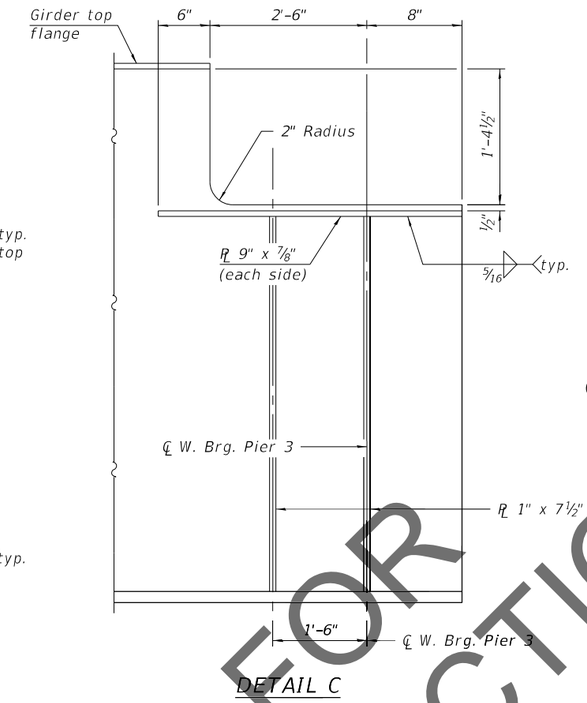
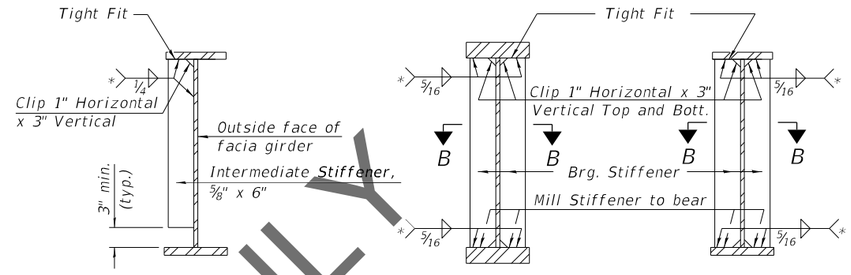


CROSS FRAME F AND F3

(6 F Required)
(6 F3 Required)



DETAIL C



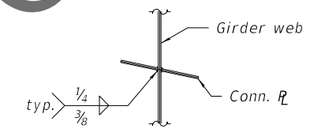
SECTION AT INT. STIFFENER

(Facia girders shown, interior girders similar)

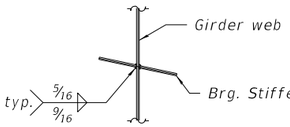
SECTION AT PIER

SECTION AT ABUTMENT

* Terminate ¼" (±⅛") from the end of plate intersects.



SECTION A-A



SECTION B-B

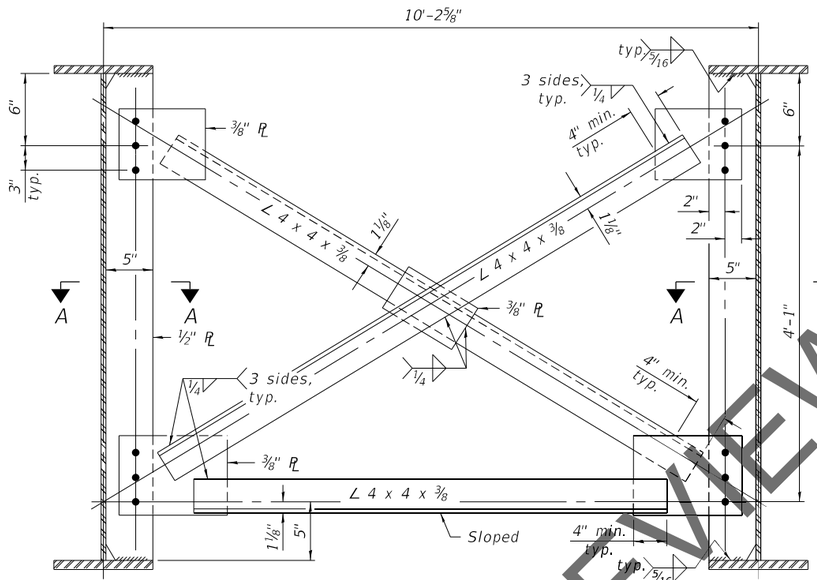
Notes:

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.

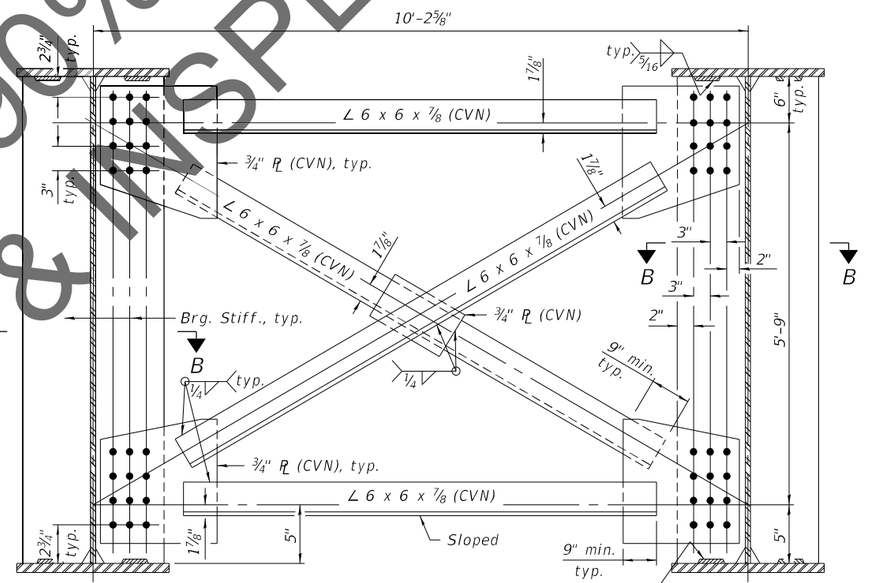
All bolts in cross frames shall be ⅞" ø in 1 1/16" ø holes.

Two hardened washers shall be required for each set of oversized holes.



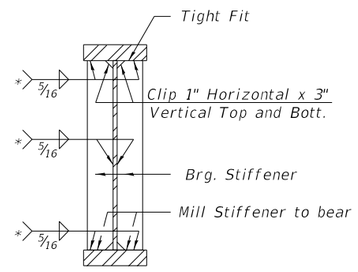
CROSS FRAME F1

(102 Required)



CROSS FRAME F2

(12 required)



SECTION AT JACKING STIFFENER

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HORNER & SHIFRIN / Teaming with: PARSONS	USER NAME =	DESIGNED - JJD	REVISED -
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	PLOT SCALE =	DRAWN - EAT	REVISED -
	PLOT DATE =	CHECKED - SSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 1 – 2
STRUCTURE NO. 060–0350 (EB)
SHEET 109 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	309
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		

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

GIRDER REACTION TABLE									
		W. Abut.		Pier 1		Pier 2		W. Brg. Pier 3	
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior
LLDF		0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952
OCF		--	1.04	--	1.04	--	1.04	--	1.04
RDC1	(k)	51.9	50.3	205.9	200.1	205.9	200.1	52.2	50.7
RDC2	(k)	6.7	6.7	24.4	24.4	24.4	24.4	6.7	6.7
RDW	(k)	19.0	19.0	68.6	68.6	68.6	68.6	19.0	19.0
R_{L+IM}	(k)	113.9	113.9	233.1	233.1	233.1	233.1	113.9	113.9
RTotal	(k)	191.5	189.9	532.0	526.2	532.0	526.2	191.8	190.3

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

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HORNER & SHIFRIN
Teaming with: PARSONS

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	CHECKED - JSR	REVISED -	
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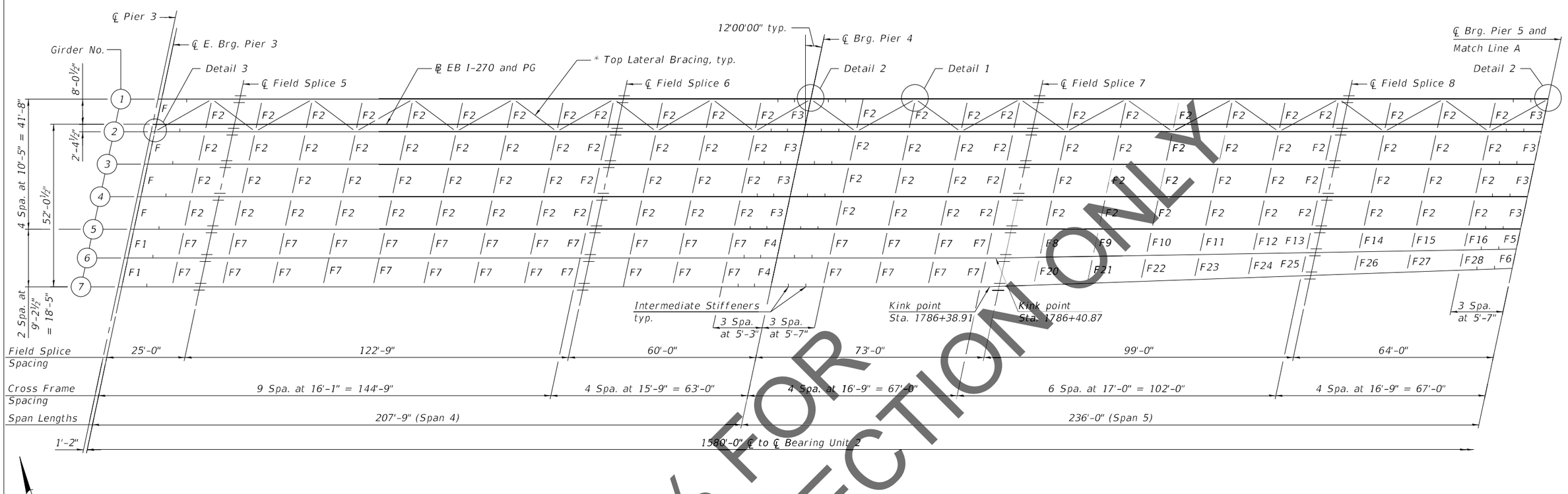
PLOT DATE =	CHECKED - SSM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

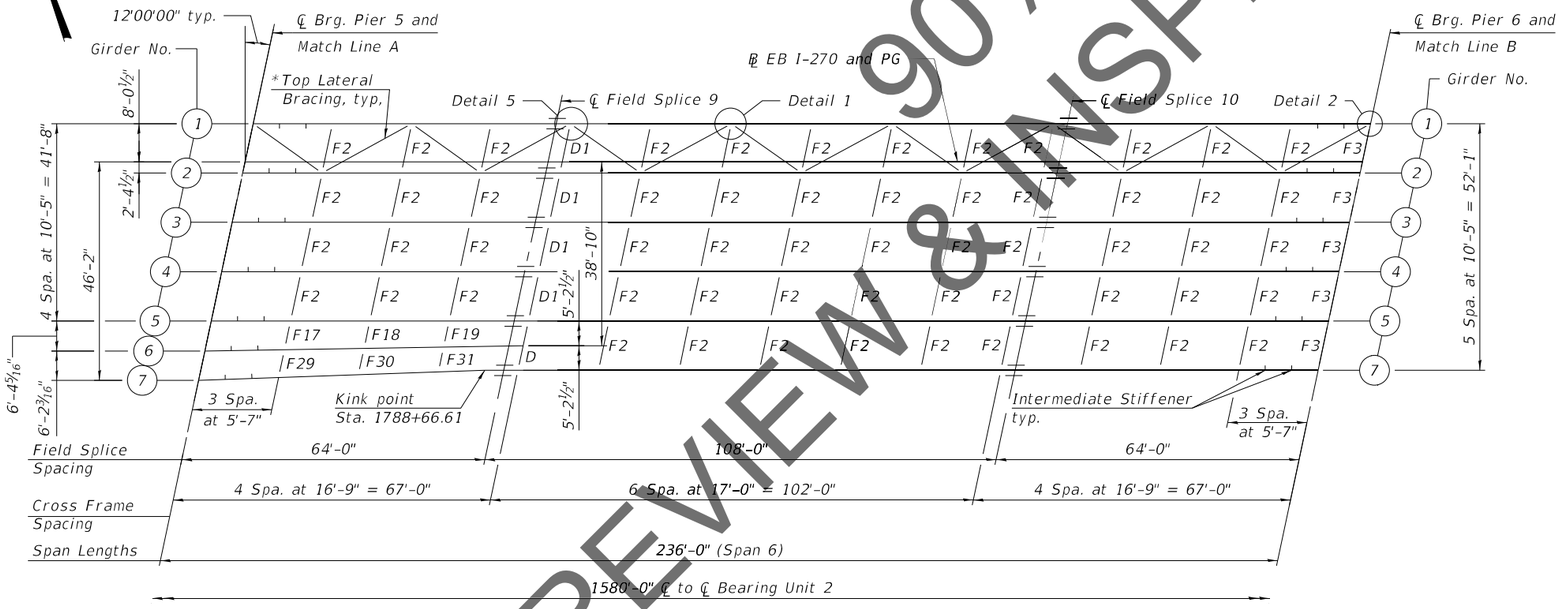
STRESS TABLES UNIT 1
STRUCTURE NO. 060-0350 (EB)
SHEET 110 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	310
		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 ℄ EB I-270 and PG.
For Match Line B, see sheet 112 of 292.
For field splice details, see sheet 117 of 292.
For cross frame details, see sheet 118 of 292.
For Details 1, 2, 3, and 5, see sheet 120 of 292.

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HORNER & SHIFRIN
Teaming with: PARSONS

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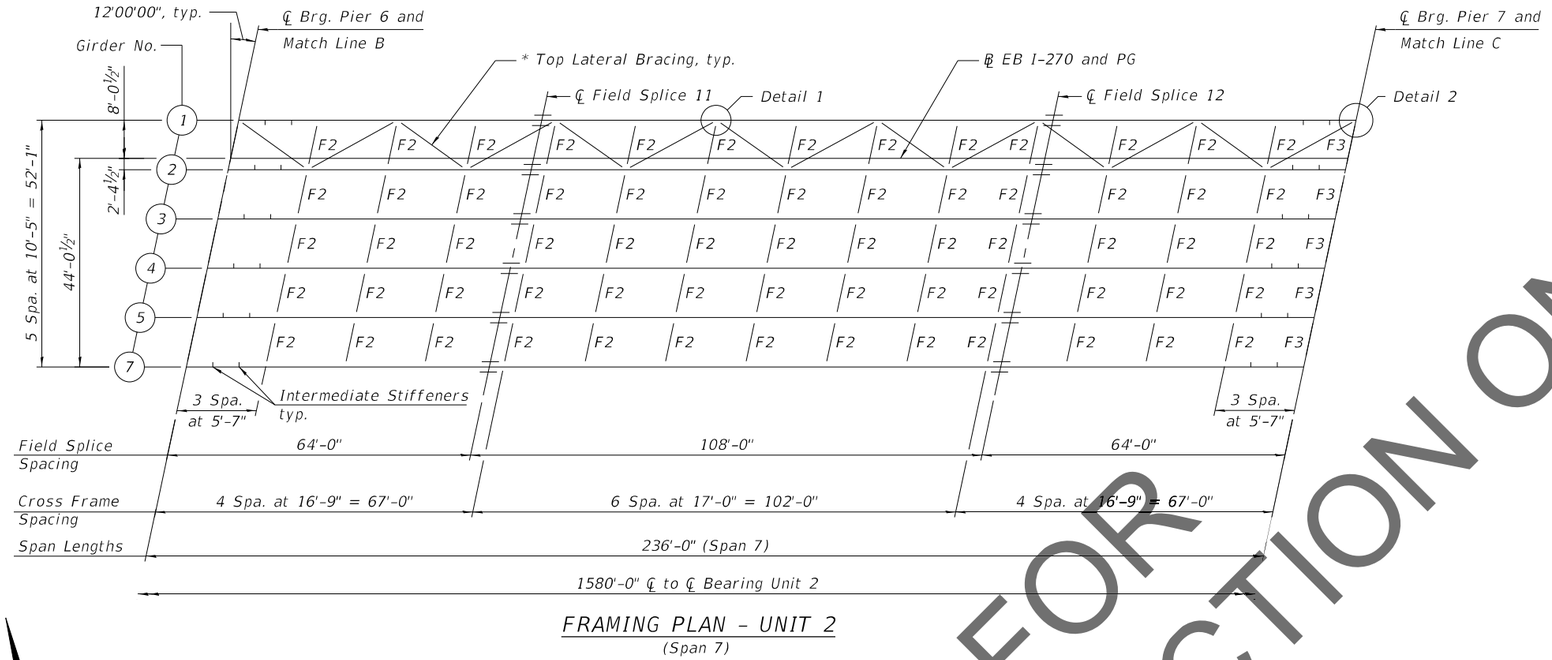
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - SSM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 2 – 1
STRUCTURE NO. 060-0350 (EB)
SHEET 111 OF 292 SHEETS

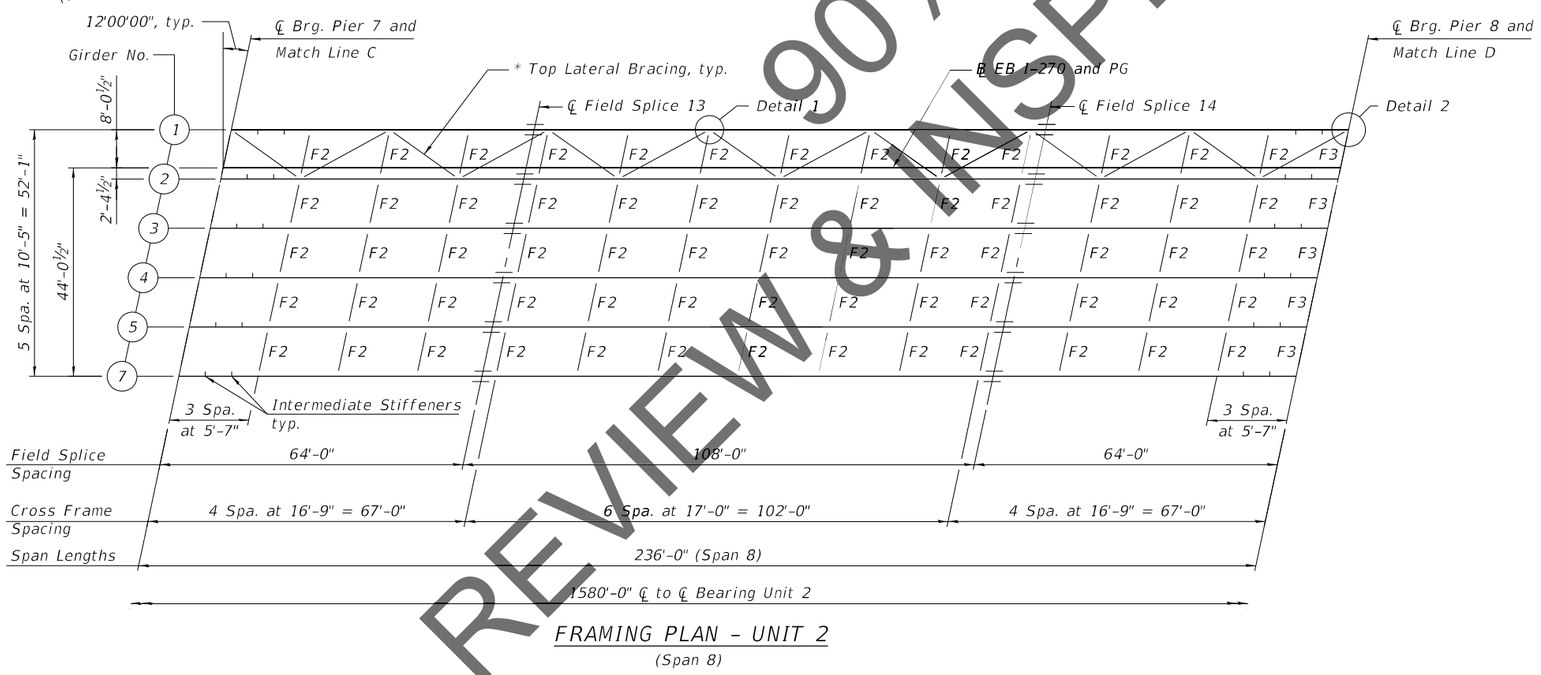
F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	311
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN - UNIT 2

(Span 7)

N



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 ℄ E.B. I-270 and PG.
For Match Line B, see sheet 111 of 292.
For Match Line D, see sheet 113 of 292.
For field splice details, see sheet 117 of 292.
For cross frame details, see sheet 118 of 292.
For Details 1 and 2, see sheet 120 of 292.

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HORNER & SHIFRIN
Teaming with: PARSONS

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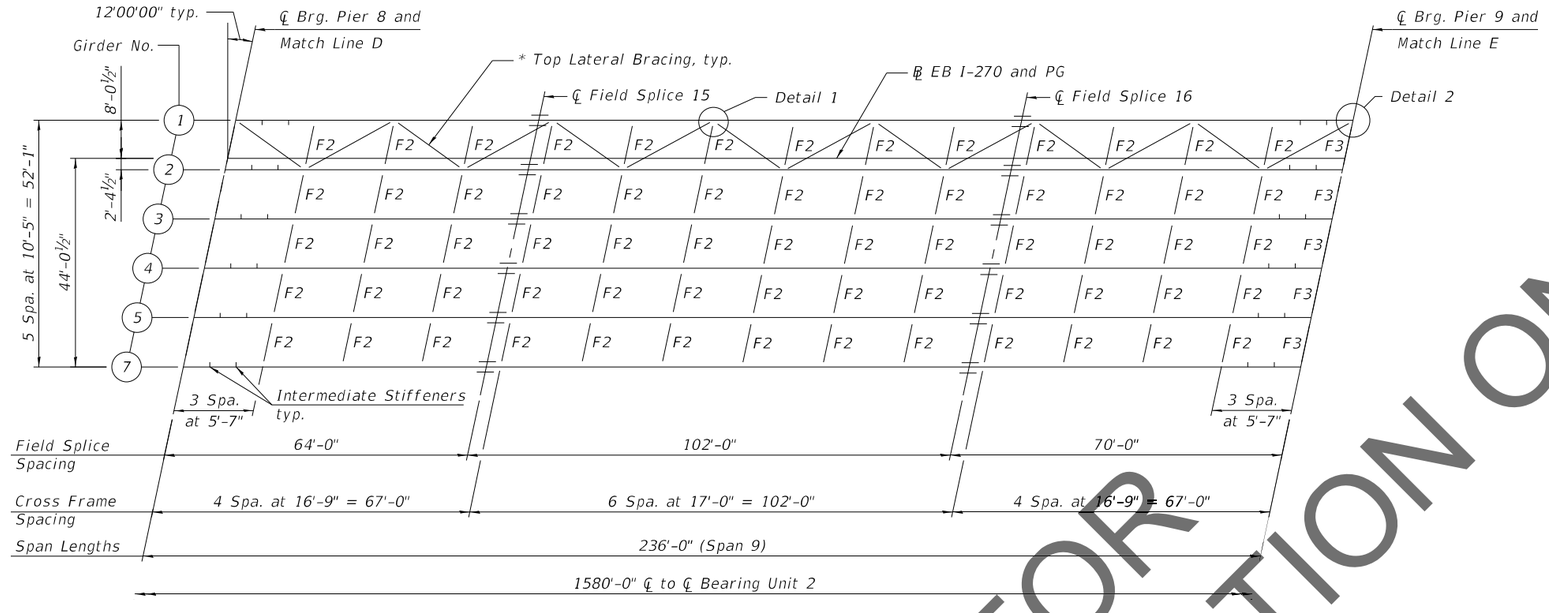
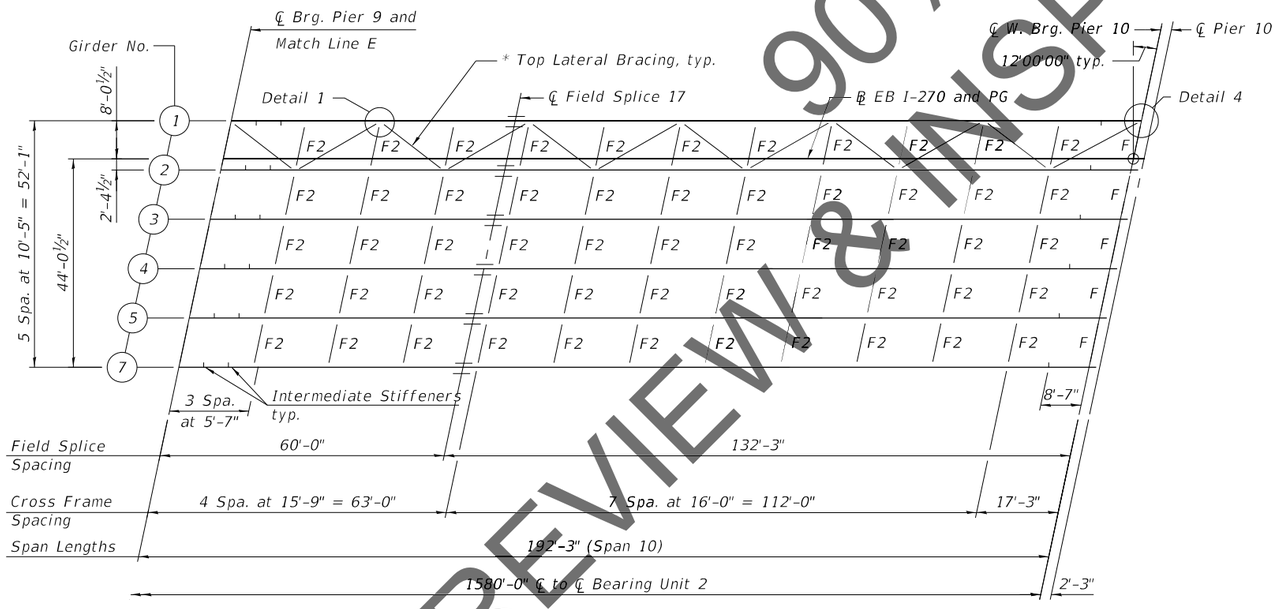
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 2 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 112 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	312
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN - UNIT 2
(Span 9)



FRAMING PLAN - UNIT 2
(Span 10)

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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 2.

Notes:
All lengths are along ℄ EB I-270 and PG.
For Match Line D, see sheet 112 of 292.
For field splice details, see sheet 117 of 292.
For cross frame details, see sheet 118 of 292.
For Details 1, 2, and 4, see sheet 120 of 292.

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HORNER & SHIFRIN
Teaming with: PARSONS

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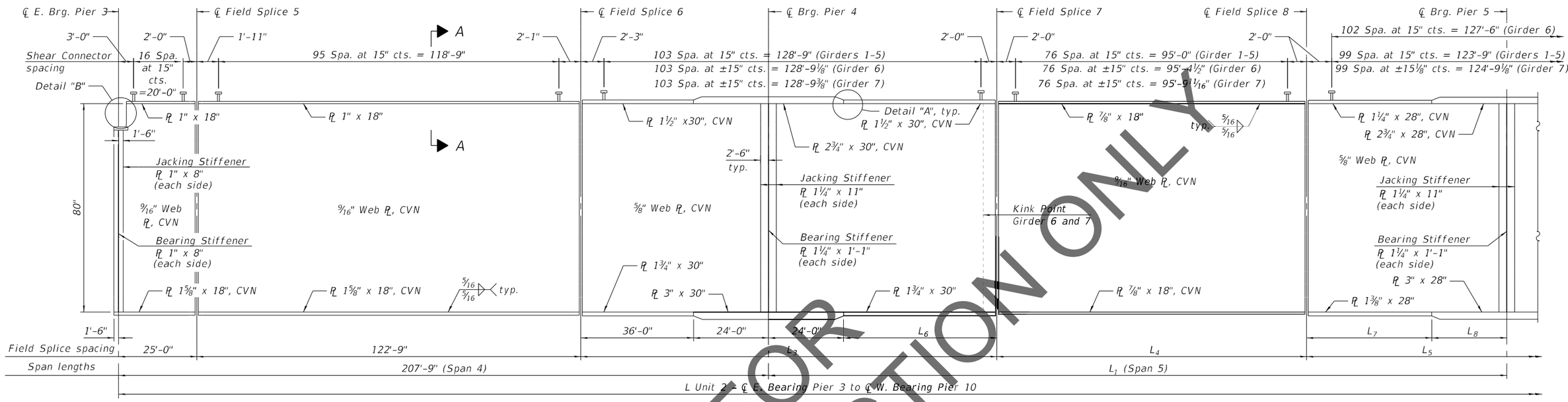
PLOT SCALE =	DRAWN -	EAT	REVISED -
PLOT DATE =	CHECKED -	SSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 2 – 3
STRUCTURE NO. 060-0350 (EB)
SHEET 113 OF 292 SHEETS

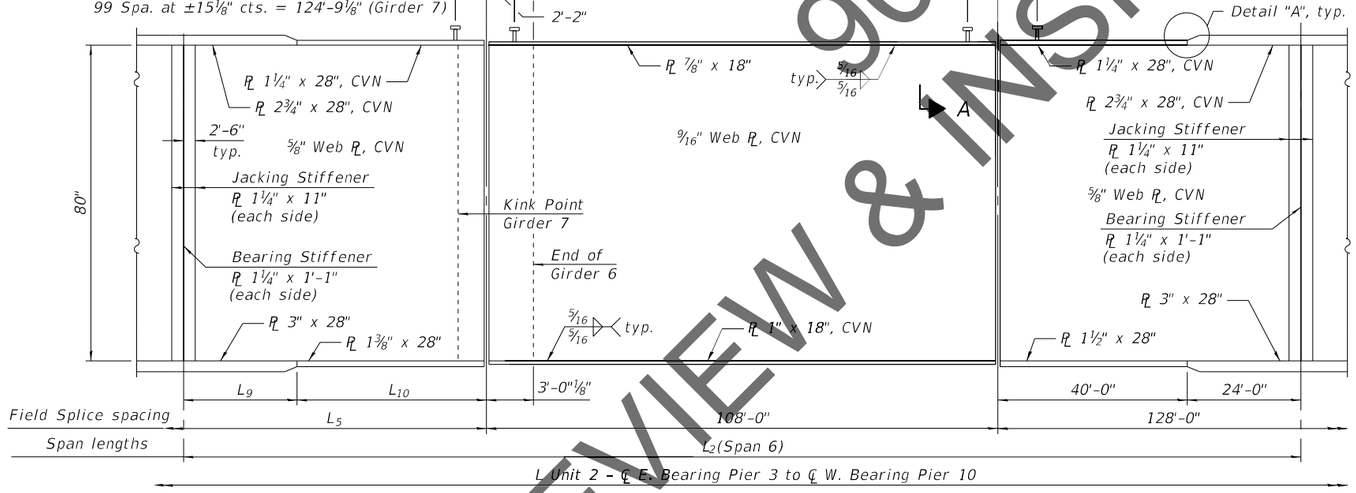
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	313
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



GIRDER ELEVATION - UNIT 2

(Spans 4 and 5)

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

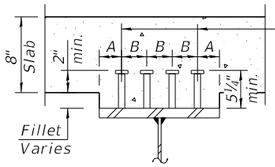


GIRDER ELEVATION - UNIT 2

(Span 6)

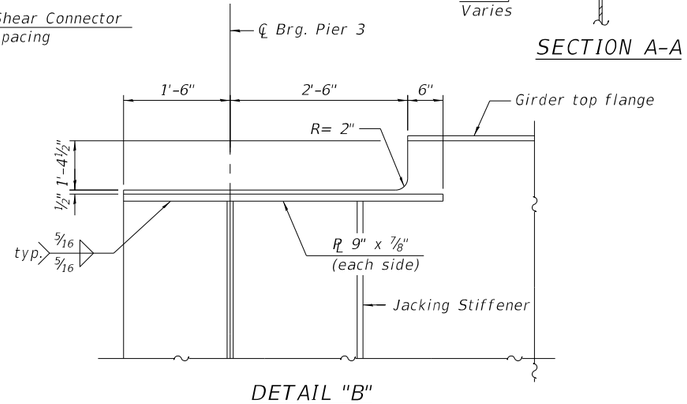
*No splice on Girder 6, see View C-C on sheet 116 of 292 .

Flange Width	A	B
18"	2¼"	4½"
28"	2"	8"
30"	3"	8"



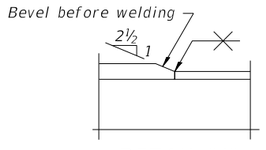
⅞" Ø Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd. = 31,108)

SECTION A-A



DETAIL "B"

℄ Pier 3 shown, ℄ Pier 10 mirrored



DETAIL "A"

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 116 of 292 .

For Table of "L" Dimensions, see sheet 116 of 292 .

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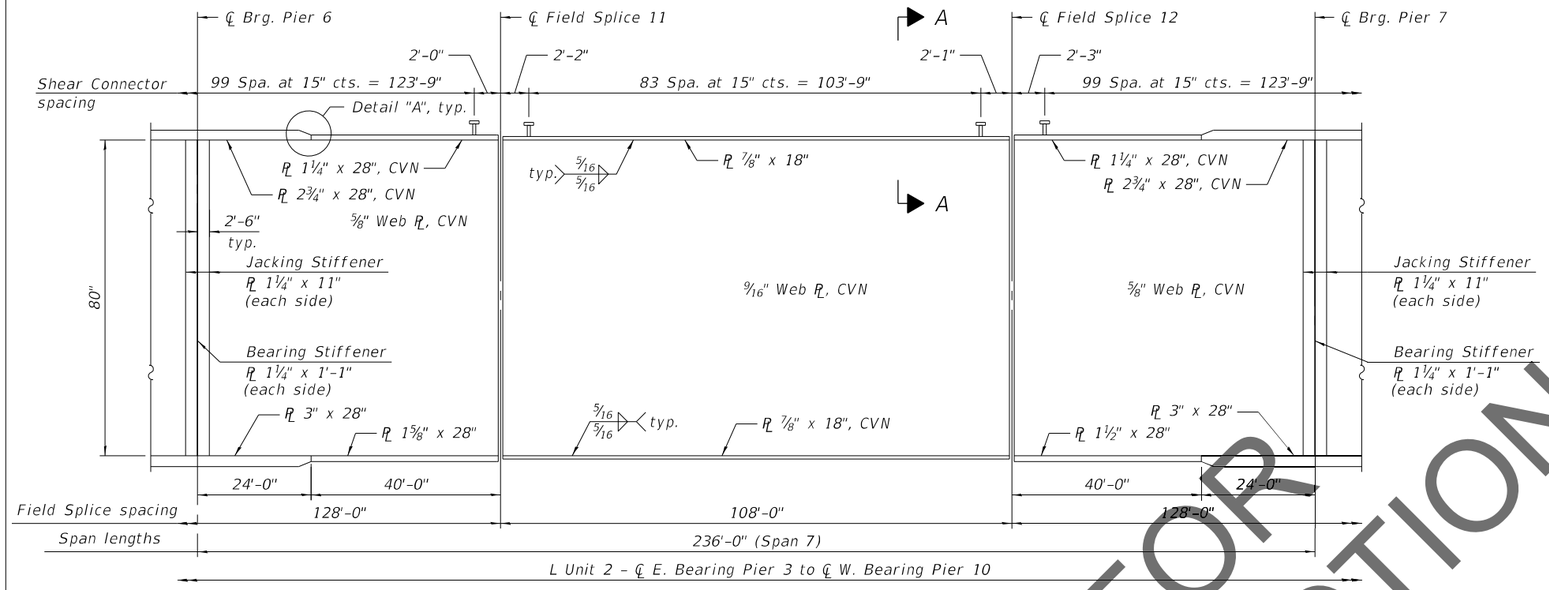
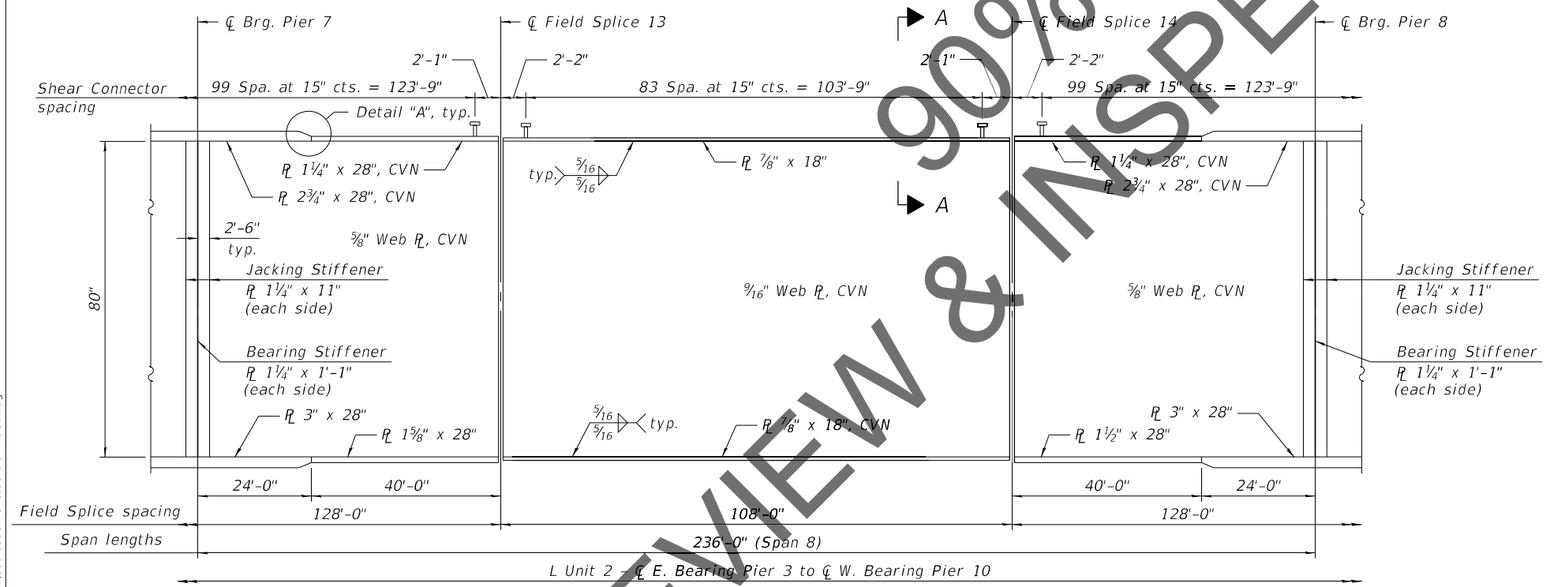


GIRDER ELEVATION - UNIT 2

(Span 7)

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



GIRDER ELEVATION - UNIT 2

(Span 8)

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 114 of 292 .

For Table of "L" Dimensions, see sheet 116 of 292 .

REVIEW & INSPECTION ONLY 90% PLAN FOR

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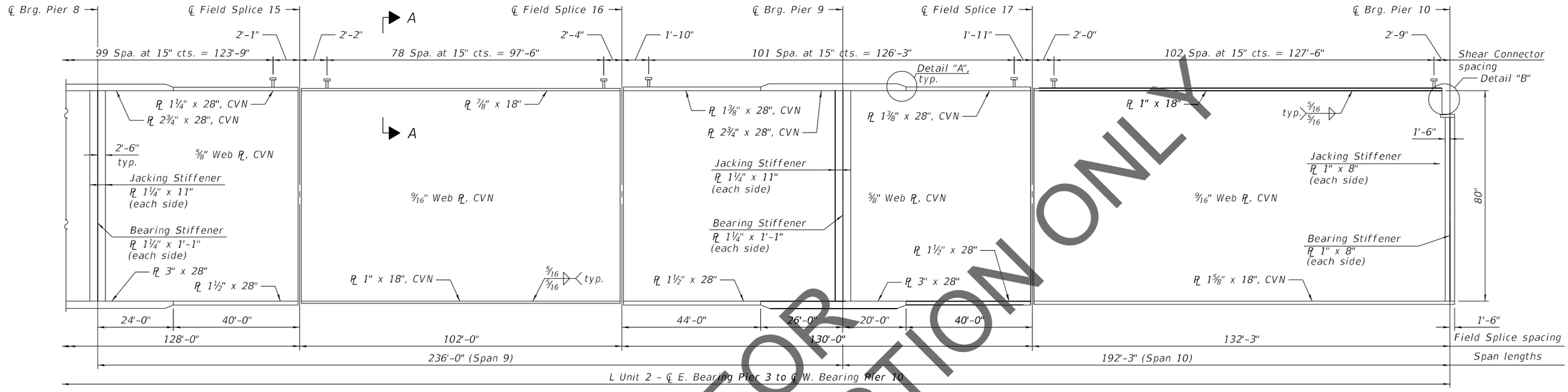
HORNER & SHIFRIN
Teaming with: PARSONS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 2 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 115 OF 292 SHEETS

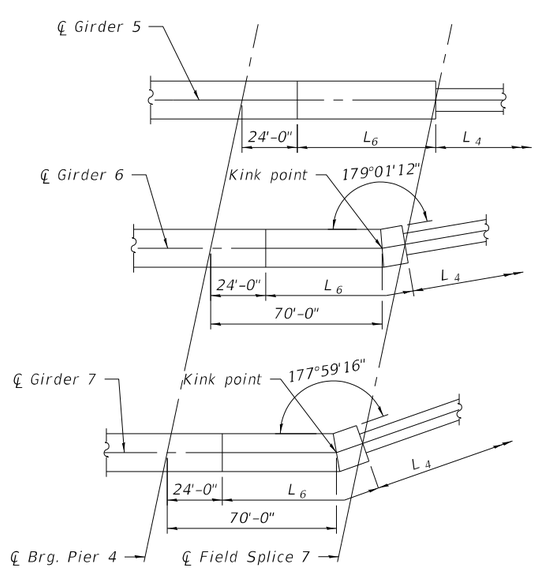
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	315
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



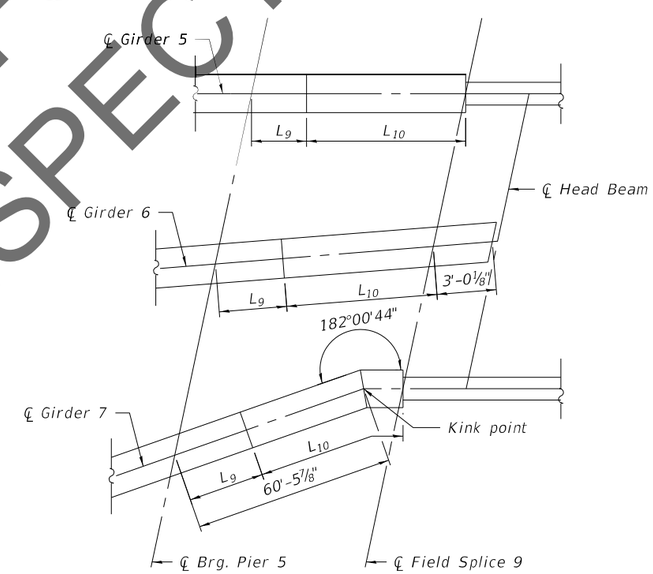
GIRDER ELEVATION – UNIT 2

(Spans 9 and 10)

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



VIEW B-B



VIEW C-C

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	L_{10}
1	1,580'-0"	236'-0"	236'-0"	133'-0"	99'-0"	128'-0"	49'-0"	40'-0"	24'-0"	24'-0"	40'-0"
2	1,580'-0"	236'-0"	236'-0"	133'-0"	99'-0"	128'-0"	49'-0"	40'-0"	24'-0"	24'-0"	40'-0"
3	1,580'-0"	236'-0"	236'-0"	133'-0"	99'-0"	128'-0"	49'-0"	40'-0"	24'-0"	24'-0"	40'-0"
4	1,580'-0"	236'-0"	236'-0"	133'-0"	99'-0"	128'-0"	49'-0"	40'-0"	24'-0"	24'-0"	40'-0"
5	1,580'-0"	236'-0"	236'-0"	133'-0"	99'-0"	128'-0"	49'-0"	40'-0"	24'-0"	24'-0"	40'-0"
6	511'-7⅜"	236'-7⅜16"	- - -	133'-0⅛"	99'-4½"	128'-5¾"	49'-0⅛"	40'-1 13/16"	24'-1 1/16"	24'-1 1/16"	40'-1 13/16"
7	1,581'-10 1/16"	237'-4¼"	236'-5⅞"	133'-0 5/16"	99'-9 7/16"	129'-0⅛"	49'-0 5/16"	40'-3 15/16"	24'-2⅜"	24'-2⅜"	40'-3½"

Notes:

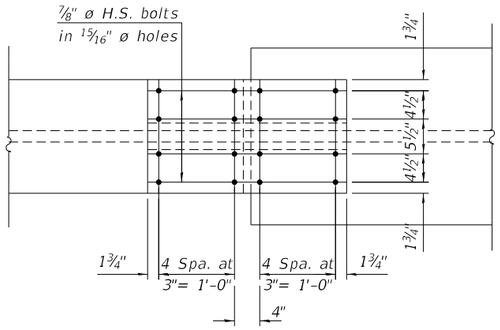
All flanges, web plates, bearing stiffeners, intermediate stiffeners, and splice plates shall be AASHTO M270 Grade 50.

Load carrying components designated as "CVN" shall conform to the Impact Testing Requirement, Zone 2.

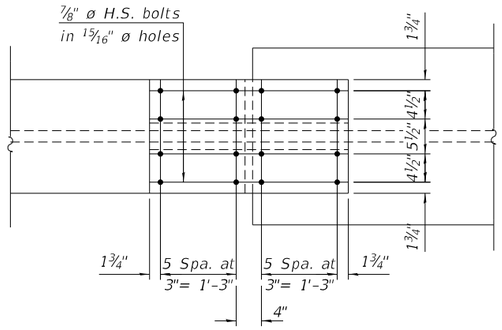
Girder ends and bearing stiffeners at Pier 3 and Pier 10 shall be fabricated vertically on its final position.

For Section A-A and Detail A and Detail B, see sheet 114 of 292 .

90% PLAN REVIEW & INSPECTION ONLY



TOP FLANGE



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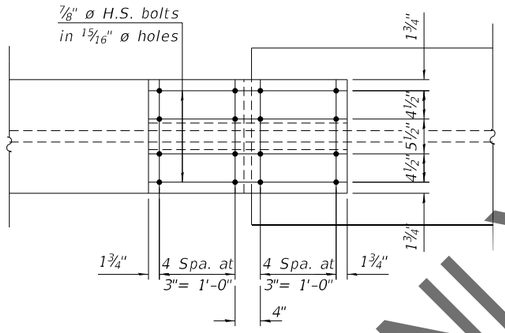
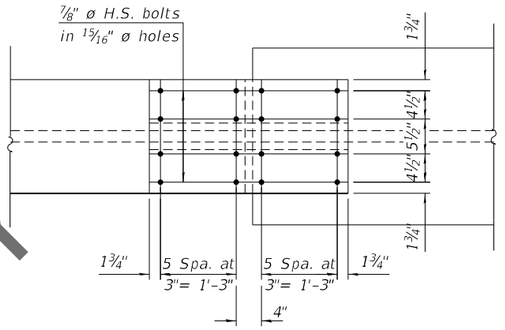
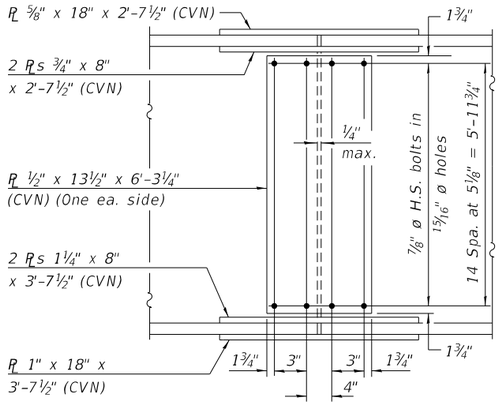


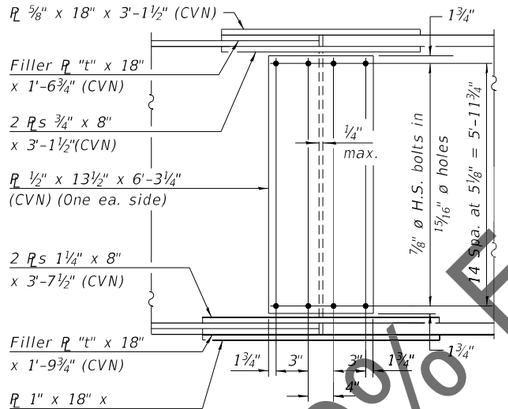
TOP FLANGE



TOP FLANGE



ELEVATION



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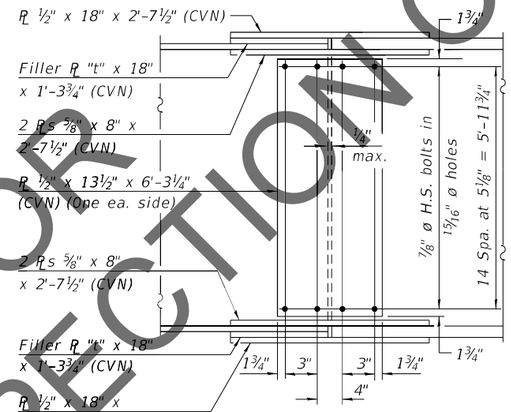

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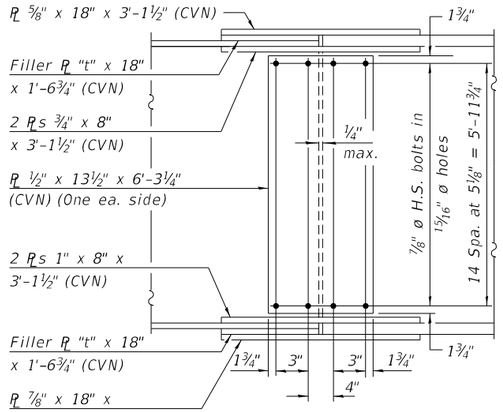
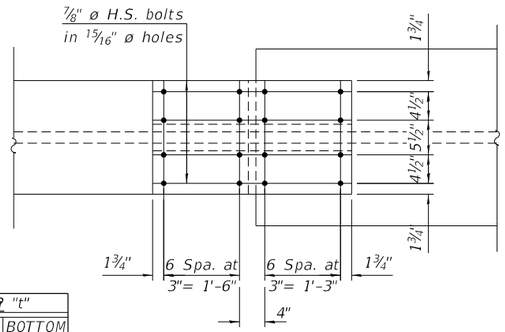


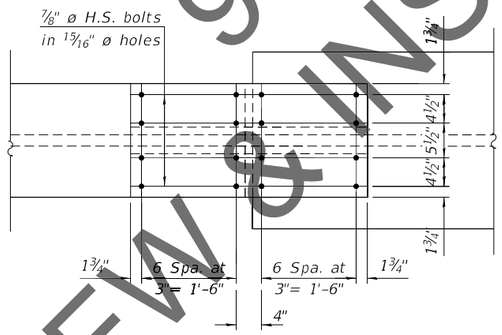
ELEVATION



BOTTOM FLANGE

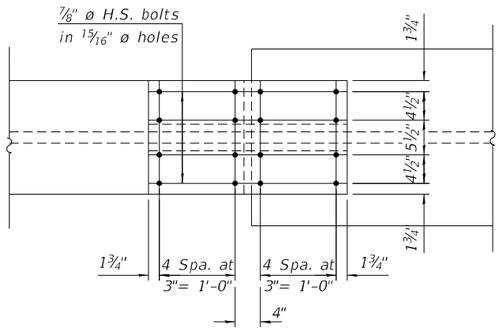
Filler PL "t"		
FS	TOP	BOTTOM
6	1/2"	1/8"
7	5/8"	7/8"
8	3/8"	1/2"
9	3/8"	3/8"
10	3/8"	1/2"
11	3/8"	3/4"
12	3/8"	5/8"
13	3/8"	3/4"
14	3/8"	5/8"
15	3/8"	1/2"
16	1/2"	1/2"
17	3/8"	1/8"

FIELD SPLICE 5 DETAIL



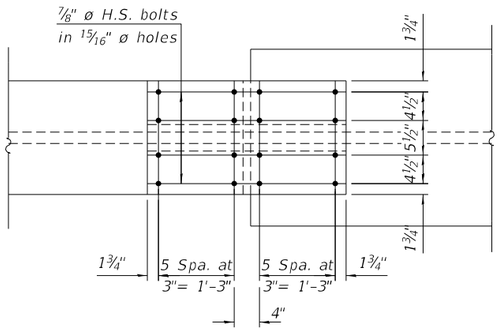
BOTTOM FLANGE

FIELD SPLICE 6 AND 17 DETAIL



BOTTOM FLANGE

FIELD SPLICE 7, 8, 11 TO 14 DETAIL



BOTTOM FLANGE

FIELD SPLICE 9, 10, 15 AND 16 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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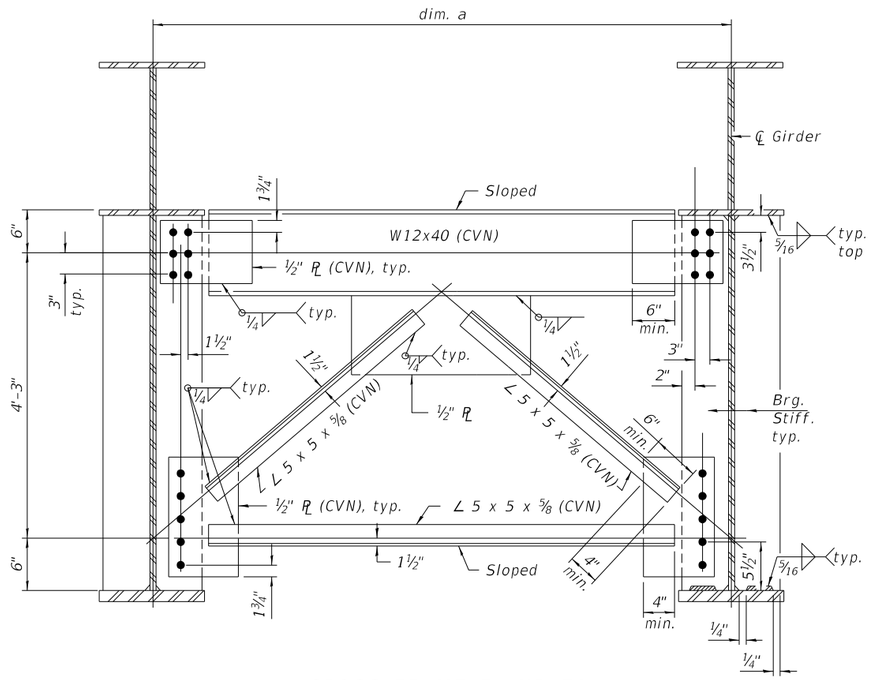
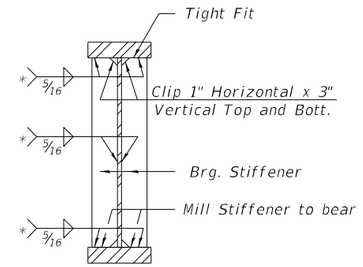
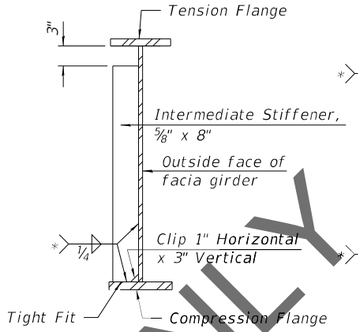


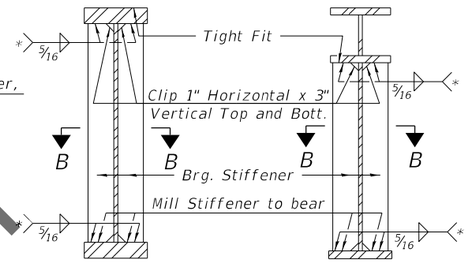
CROSS FRAME F AND F1



SECTION AT JACKING STIFFENER



SECTION AT INT. STIFFENER

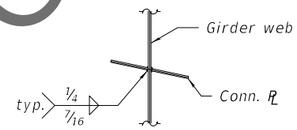


SECTION AT PIER

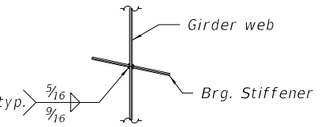
SECTION AT GRIDER END

(Facia girders shown, interior girders similar)

* Terminate ¼" (±⅛") from the end of plate intersects.



SECTION A–A



SECTION B–B

Notes:

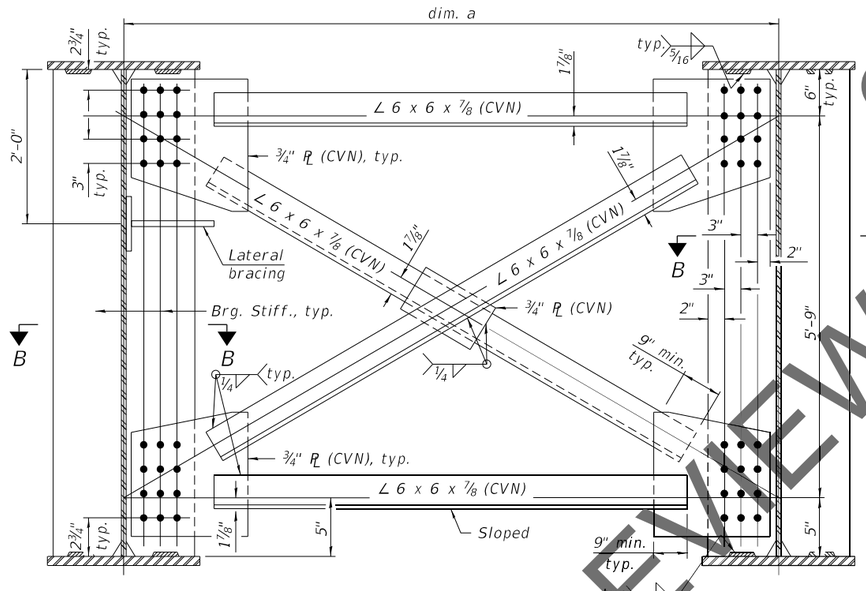
All cross frames or diaphragms between beams or girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.

All structural steel shall be AASHTO M270 Grade 50.

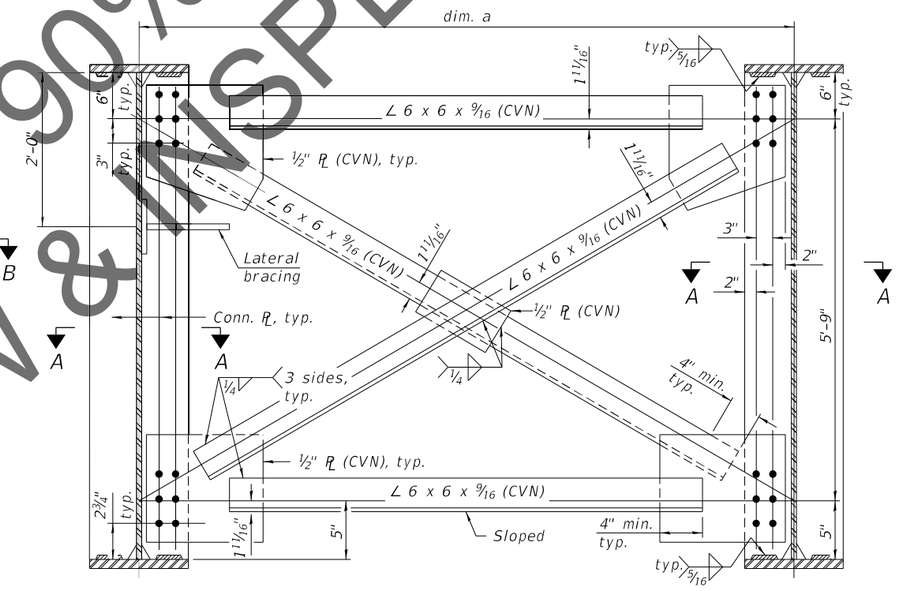
All bolts in cross frames shall be 1" ø in 1 3/16" ø holes.

Two hardened washers shall be required for each set of oversized holes.

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



CROSS FRAMES F3 THRU F6



CROSS FRAMES F2, F7 THRU F31

CROSS FRAME DIM. a TABLE

Cross Frame	Dim. a	No. Required
F	10'-7 13/16"	9
F1	9'-4 15/16"	2
F2	10'-7 13/16"	407
F3	10'-7 13/16"	28
F4	9'-4 15/16"	2
F5	6'-6"	1
F6	6'-3 3/16"	1
F7	9'-4 15/16"	32
F8	9'-2"	1
F9	8'-10 7/16"	1
F10	8'-6⅞"	1
F11	8'-3¼"	1
F12	7'-11 11/16"	1
F13	7'-8⅛"	1
F14	7'-4 9/16"	1
F15	7'-1 1/16"	1
F16	6'-9 9/16"	1
F17	6'-2½"	1
F18	5'-10 15/16"	1
F19	5'-7 7/16"	1
F20	9'-1 13/16"	1
F21	8'-10 1/16"	1
F22	8'-6¼"	1
F23	8'-2 7/16"	1
F24	7'-10⅝"	1
F25	7'-6 13/16"	1
F26	7'-3 1/16"	1
F27	6'-11 5/16"	1
F28	6'-7 9/16"	1
F29	6'-0⅛"	1
F30	5'-8⅜"	1
F31	5'-4⅝"	1

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PLOT DATE =	CHECKED - SSM	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 2 – 2
STRUCTURE NO. 060–0350 (EB)
SHEET 118 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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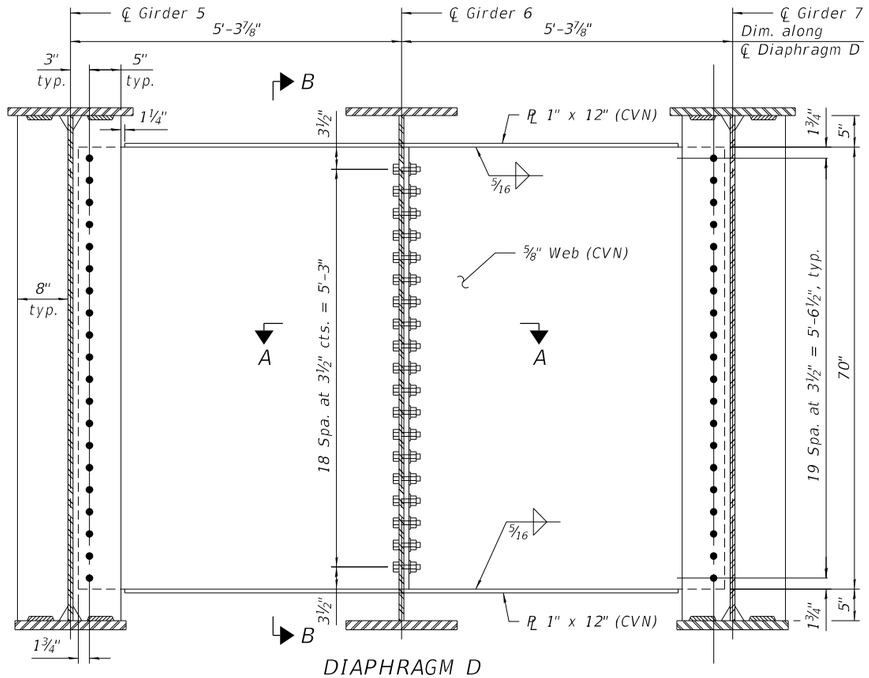
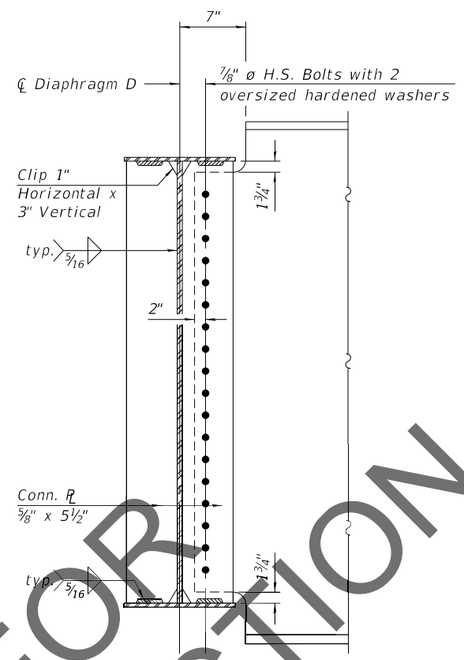
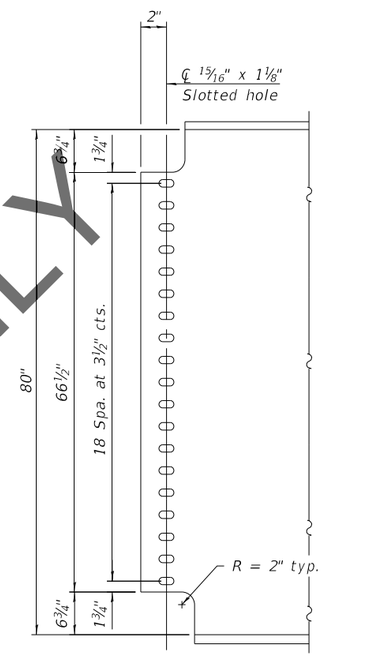
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



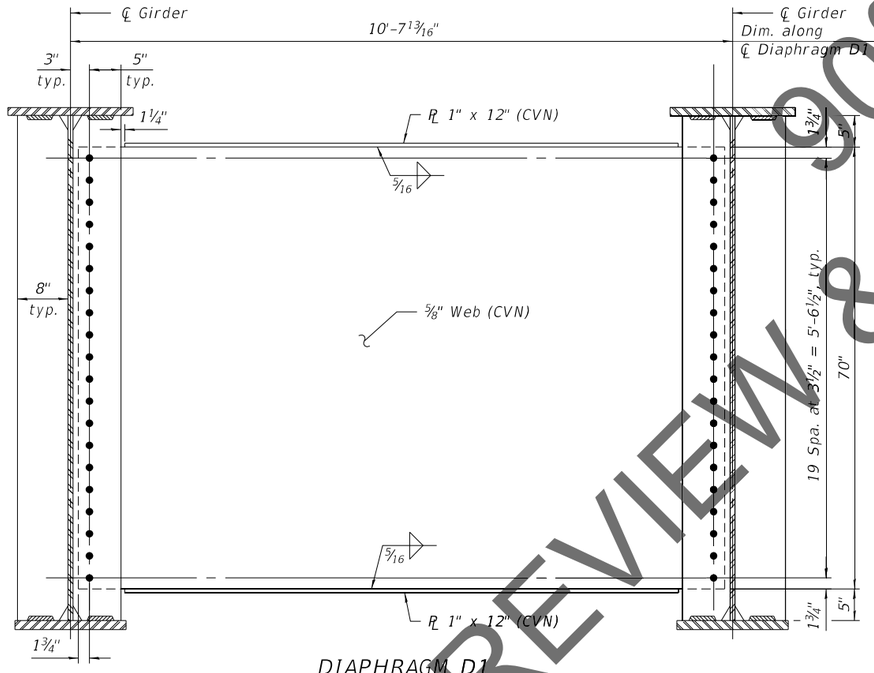
DIAPHRAGM D
(Looking East)
(1 required)



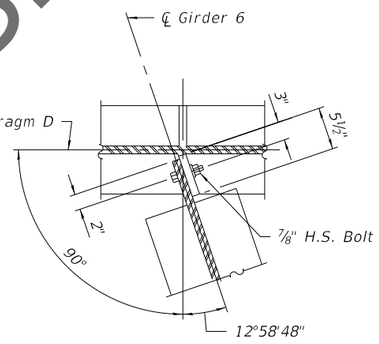
SECTION B-B



GIRDER 6 END AT DIAPHRAGM D



DIAPHRAGM D1
(4 required)



SECTION A-A

Notes:
All bolts in diaphragms are ⅞" ø in 15/16" 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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	CHECKED - SSM	REVISED -	
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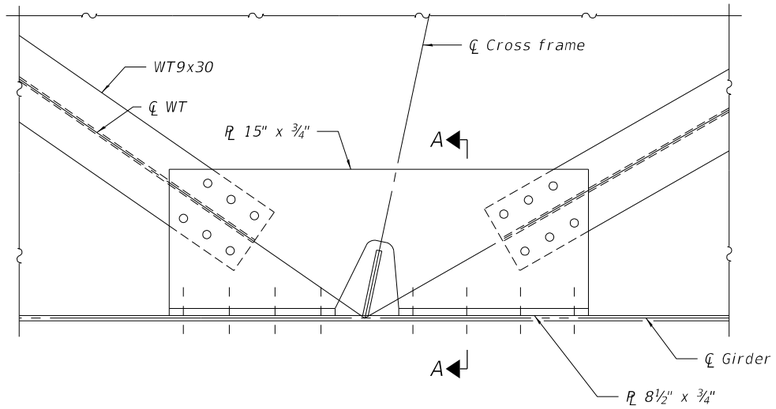
PLOT DATE =	CHECKED - SSM	REVISED -	

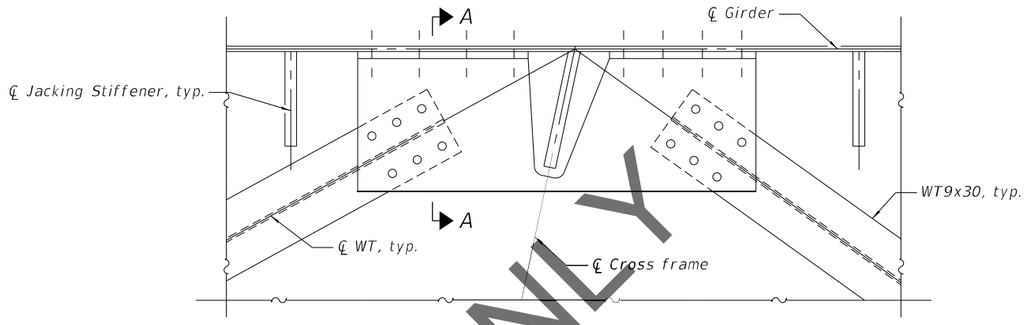
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 2 – 3
STRUCTURE NO. 060–0350 (EB)
SHEET 119 OF 292 SHEETS

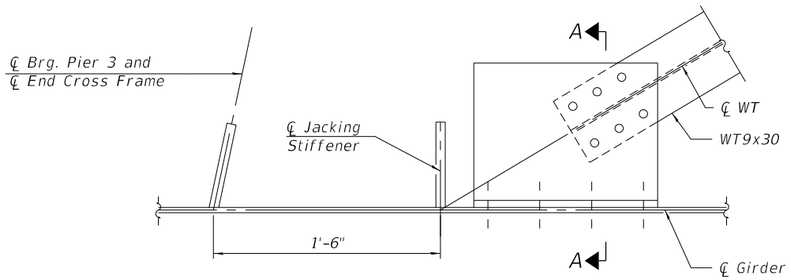
F.AJ. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	319
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



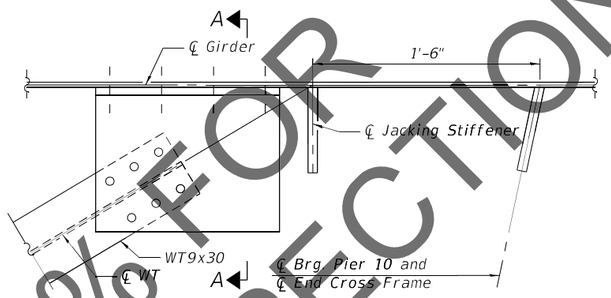
DETAIL 1
(Lateral bracing connection at cross frame)
(See connection detail)



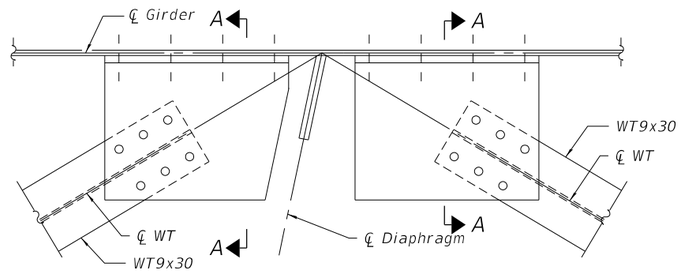
DETAIL 2
(Lateral bracing connection at pier cross frame)
(See connection detail)



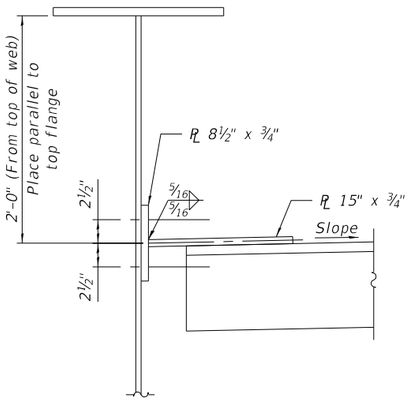
DETAIL 3
(Lateral bracing connection at Pier 3)
(See connection detail)



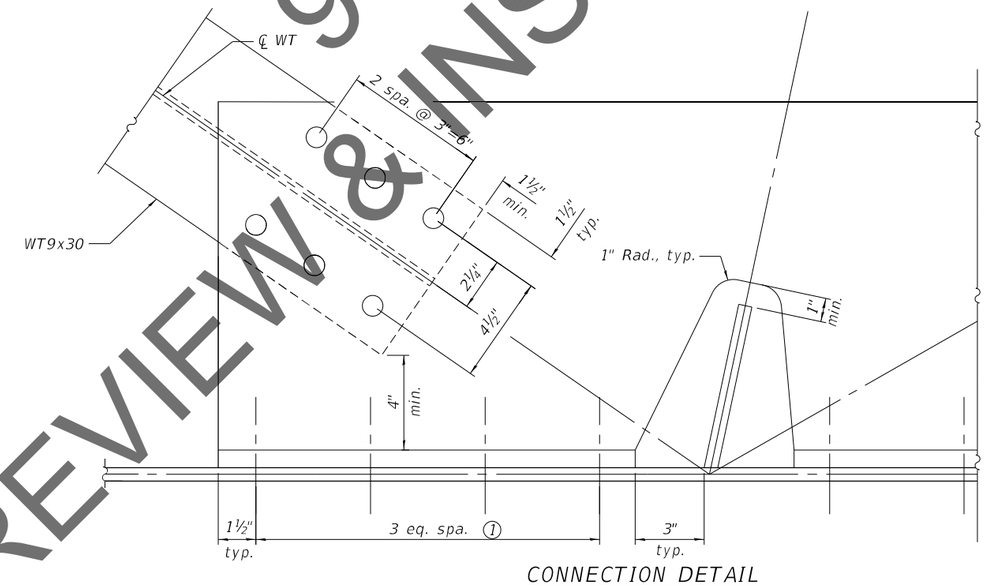
DETAIL 4
(Lateral bracing connection at Pier 10)
(See connection detail)



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 ⅞" Ø in 1 1/16" Ø holes.
Provide 1½" 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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	CHECKED - UVK	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - SSM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 2 – 4
STRUCTURE NO. 060–0350 (EB)
SHEET 120 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	320
		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)	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
Ic(3n)	(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
Ic(cr)	(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
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)	3,651	---	2,569	---	2,749	---	2,569	---	2,569	---	2,749	---	3,651
Sc(3n)	(in^3)	3,340	---	2,333	---	2,501	---	2,333	---	2,333	---	2,501	---	3,340
Sc(cr)	(in^3)	---	7,898	---	7,422	---	7,422	---	7,422	---	7,422	---	7,422	---
DC1	(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
MDC1	('k)	3,948	9,657	1,756	7,860	2,323	8,328	2,043	8,049	2,102	7,968	2,064	8,421	3,194
DC2	(k/')	0.174	0.213	0.165	0.220	0.195	0.235	0.178	0.225	0.180	0.232	0.182	0.228	0.192
MDC2	('k)	474	1,272	234	1,134	316	1,240	283	1,164	283	1,223	298	1,210	432
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,259	2,713	683	2,352	772	2,349	722	2,293	720	2,352	752	2,367	1,013
LLDF		0.706	0.683	0.607	0.689	0.490	0.651	0.468	0.654	0.483	0.692	0.615	0.691	0.717
M_{L+IM}	('k)	4,590	5,830	3,274	5,856	2,845	5,735	2,656	5,752	2,719	5,947	3,394	5,455	4,240
Mu (Strength I)	('k)	15,447	27,931	9,242	25,019	9,435	25,520	8,639	25,022	8,818	25,425	10,018	25,137	13,472
Øf Mn	('k)	17,315	31,263	12,628	29,381	13,247	29,381	12,430	29,381	12,393	29,381	13,415	29,381	17,778
fs DC1	(ksi)	21.82	15.88	11.40	13.76	14.80	14.58	13.27	14.09	13.65	13.95	13.14	14.74	17.66
fs DC2	(ksi)	1.70	1.93	1.20	1.83	1.52	2.00	1.45	1.88	1.45	1.98	1.43	1.96	1.55
fs DW	(ksi)	4.52	4.12	3.51	3.80	3.70	3.80	3.71	3.71	3.70	3.80	3.61	3.83	3.64
fs (L+IM)	(ksi)	15.09	8.86	15.30	9.47	12.42	9.27	12.41	9.30	12.70	9.62	14.81	8.82	13.94
fs (Service II)	(ksi)	47.66	33.45	36.00	31.70	36.16	32.43	34.57	31.77	35.31	32.23	37.44	31.99	40.97
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)	62.59	43.94	47.80	41.76	47.67	42.65	45.69	41.80	46.66	42.44	49.55	42.05	53.86
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	50.00	50.00
Vf	(k)	67.3	88.9	66.3	99.7	61.1	103.0	62.1	103.1	62.9	102.0	66.8	98.6	61.9

GIRDER 2 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	1,884	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	1.353	1.648	1.409
MDC1	('k)	3,902	9,635	1,733	7,657	2,246	8,268	2,056	8,047	2,100	8,012	2,065	8,458	3,200
DC2	(k/')	0.175	0.167	0.181	0.174	0.206	0.184	0.200	0.184	0.201	0.184	0.201	0.184	0.193
MDC2	('k)	478	996	256	898	334	973	316	953	315	967	329	978	433
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,319	2,838	703	2,405	791	2,459	759	2,453	753	2,492	789	2,507	1,075
LLDF		0.621	0.594	0.541	0.600	0.429	0.557	0.412	0.536	0.424	0.598	0.541	0.595	0.628
M_{L+IM}	('k)	4,040	5,065	2,914	5,100	2,487	4,905	2,338	4,713	2,389	5,138	2,985	4,699	3,715
Mu (Strength I)	('k)	14,524	26,409	8,641	23,225	8,764	23,823	8,194	23,178	8,329	23,954	9,400	23,779	12,656
Øf Mn	('k)	17,485	31,368	12,775	29,486	13,427	29,486	12,542	29,486	12,514	29,486	13,546	29,486	17,934
fs DC1	(ksi)	21.57	15.84	11.26	13.40	14.31	14.47	13.35	14.09	13.64	14.02	13.15	14.81	17.69
fs DC2	(ksi)	1.69	1.51	1.29	1.45	1.57	1.57	1.60	1.54	1.59	1.56	1.55	1.58	1.53
fs DW	(ksi)	4.66	4.30	3.55	3.87	3.72	3.96	3.83	3.95	3.80	4.01	3.72	4.04	3.80
fs (L+IM)	(ksi)	13.12	7.67	13.44	8.22	10.72	7.90	10.78	7.59	11.02	8.28	12.87	7.57	12.07
fs (Service II)	(ksi)	44.97	31.62	33.57	29.40	33.54	30.27	32.79	29.44	33.35	30.36	35.14	30.26	38.70
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)	59.02	41.56	44.53	38.75	44.19	39.82	43.29	38.74	44.02	39.98	46.46	39.78	50.83
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	50.00	50.00
Vf	(k)	56.5	71.9	56.4	74.7	54.0	78.9	68.1	76.0	53.3	76.1	59.4	71.8	55.6

GIRDER 1 REACTION TABLE								
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.861	0.758	0.772	0.739	0.741	0.794	0.804	0.716
OCF		1.04	---	---	---	---	---	---	1.04
RDC1	(k)	107.7	417.2	369.2	375.7	369.5	367.9	387.5	96.7
RDC2	(k)	23.4	74.1	72.4	73.1	72.7	72.5	74.6	21.2
RDW	(k)	36.4	107.7	102.2	100.2	99.7	98.3	105.0	29.1
R_{IM}	(k)	19.2	31.2	31.7	30.3	30.4	32.6	32.9	15.9
R_{L}	(k)	111.1	218.5	222.7	216.9	216.8	229.6	226.3	89.7
RTotal	(k)	297.8	848.7	798.2	796.2	789.1	800.9	826.3	252.6

GIRDER 2 REACTION TABLE									
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.724	0.723	0.712	0.696	0.697	0.722	0.720	0.813
OCF		---	---	---	---	---	---	---	---
RDC1	(k)	109.8	415.1	362.2	375.0	371.4	369.1	388.8	99.0
RDC2	(k)	9.1	37.1	34.0	36.1	35.6	35.7	37.8	8.8
RDW	(k)	35.4	123.6	111.8	113.9	113.4	113.4	117.3	32.4
R_{IM}	(k)	16.2	29.8	29.2	28.6	28.6	29.6	29.5	18.1
R_{L}	(k)	93.4	208.5	205.6	204.4	204.2	208.8	202.6	101.9
RTotal	(k)	263.9	814.1	742.8	758.0	753.2	756.6	776.0	260.2

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_{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

REVIEW & INSPECTION ONLY
90% FOR

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)	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	1,848	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	1.353	1.648	1.409
MDC1	('k)	3,856	9,490	1,712	7,441	2,174	8,186	2,069	8,101	2,099	8,033	2,067	8,464	3,208
DC2	(k/')	0.164	0.137	0.164	0.145	0.189	0.158	0.191	0.160	0.191	0.160	0.191	0.160	0.186
MDC2	('k)	447	815	233	746	306	836	302	831	300	842	312	851	418
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,307	2,827	692	2,345	772	2,464	762	2,495	755	2,528	791	2,538	1,078
LLDF		0.498	0.481	0.453	0.492	0.354	0.475	0.336	0.450	0.356	0.519	0.466	0.496	0.522
M_{L+IM}	('k)	3,237	4,102	2,441	4,180	2,057	4,181	1,910	3,960	2,007	4,457	2,572	3,920	3,087
Mu (Strength I)	('k)	13,003	24,299	7,739	21,067	7,858	22,290	7,448	21,836	7,642	22,686	8,661	22,309	11,551
Øf Mn	('k)	17,518	31,367	12,795	29,485	13,481	29,485	12,535	29,485	12,517	29,485	13,547	29,485	17,932
fs DC1	(ksi)	21.31	15.60	11.12	13.02	13.85	14.33	13.43	14.18	13.63	14.06	13.17	14.81	17.73
fs DC2	(ksi)	1.58	1.23	1.17	1.20	1.44	1.35	1.52	1.34	1.51	1.36	1.47	1.37	1.48
fs DW	(ksi)	4.61	4.28	3.49	3.78	3.63	3.97	3.85	4.02	3.81	4.07	3.72	4.09	3.81
fs (L+IM)	(ksi)	10.51	6.21	11.26	6.73	8.87	6.73	8.81	6.38	9.26	7.18	11.09	6.31	10.03
fs (Service II)	(ksi)	41.17	29.19	30.42	26.76	30.45	28.40	30.25	27.83	30.98	28.82	32.77	28.48	36.05
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)	53.93	38.34	40.30	35.23	40.08	37.33	39.88	36.59	40.84	37.95	43.28	37.41	47.26
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	50.00	50.00
Vf	(k)	54.6	58.7	59.5	68.6	64.9	71.2	53.5	74.2	62.1	73.3	68.4	71.4	54.9

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)	250,190	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	1,848	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	1.353	1.648	1.409
MDC1	('k)	3,805	9,472	1,689	7,105	2,109	8,082	2,081	8,124	2,097	8,025	2,069	8,472	3,209
DC2	(k/')	0.159	0.128	0.162	0.135	0.184	0.156	0.191	0.160	0.191	0.158	0.190	0.160	0.186
MDC2	('k)	433	763	229	698	299	826	303	827	300	835	311	849	419
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,293	2,811	679	2,238	753	2,475	765	2,496	754	2,523	791	2,538	1,079
LLDF		0.466	0.456	0.431	0.480	0.373	0.476	0.360	0.480	0.376	0.551	0.497	0.529	0.558
M_{L+IM}	('k)	3,030	3,889	2,323	4,085	2,166	4,191	2,046	4,225	2,115	4,738	2,740	4,176	3,299
Mu (Strength I)	('k)	12,539	23,814	7,480	20,260	7,929	22,183	7,706	22,328	7,830	23,151	8,956	22,767	11,925
Øf Mn	('k)	17,551	31,367	12,813	29,485	13,529	29,485	12,527	29,485	12,518	29,485	13,546	29,485	17,931
fs DC1	(ksi)	21.03	15.57	10.97	12.44	13.43	14.15	13.51	14.22	13.62	14.05	13.18	14.83	17.74
fs DC2	(ksi)	1.53	1.15	1.15	1.12	1.41	1.33	1.53	1.33	1.51	1.34	1.46	1.37	1.48
fs DW	(ksi)	4.56	4.26	3.42	3.61	3.54	3.99	3.86	4.02	3.81	4.06	3.72	4.09	3.81
fs (L+IM)	(ksi)	9.84	5.89	10.72	6.58	9.34	6.75	9.44	6.81	9.76	7.63	11.81	6.73	10.71
fs (Service II)	(ksi)	39.92	28.64	29.48	25.72	30.52	28.24	31.16	28.42	31.62	29.38	33.72	29.03	36.95
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)	52.27	37.60	39.04	33.88	40.20	37.14	41.10	37.38	41.70	38.69	44.56	38.15	48.48
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)	54.6	58.7	59.5	68.6	64.9	73.3	53.5	74.2	62.1	73.3	68.4	68.4	54.9

GIRDER 3 REACTION TABLE									
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.678	0.644	0.641	0.627	0.630	0.646	0.645	0.737
OCF		---	---	---	---	---	---	---	---
RDC1	(k)	108.0	415.2	353.6	375.2	373.7	371.1	390.5	98.9
RDC2	(k)	7.6	24.7	22.8	26.2	26.1	26.1	27.7	8.4
RDW	(k)	35.4	126.1	111.0	116.8	117.0	116.9	120.4	32.5
R_{IM}	(k)	15.2	26.5	26.3	25.7	25.9	26.5	26.4	16.4
R_{L}	(k)	87.4	185.9	185.1	184.2	184.3	186.8	181.5	92.4
RTotal	(k)	166.2	592.5	513.7	543.9	542.7	540.6	565.0	156.2

GIRDER 4 REACTION TABLE									
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.609	0.590	0.578	0.626	0.626	0.647	0.644	0.674
OCF		---	---	---	---	---	---	---	---
RDC1	(k)	106.7	410.9	340.1	373.5	374.2	371.1	390.3	99.1
RDC2	(k)	6.9	21.1	19.5	26.0	26.1	26.0	27.6	7.9
RDW	(k)	35.2	124.6	105.8	116.3	117.0	116.9	120.4	32.5
R_{IM}	(k)	13.6	24.3	23.7	25.7	25.7	26.5	26.4	15.0
R_{L}	(k)	78.6	170.3	167.0	183.9	183.3	187.2	181.4	84.4
RTotal	(k)	162.4	580.9	489.1	541.5	543.0	540.5	564.7	154.5

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

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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	(in⁴)	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)	(in⁴)	246,540	515,368	180,762	473,528	196,142	498,756	184,877	498,756	184,877	498,756	196,142	498,756	250,193
Ic(3n)	(in⁴)	179,804	407,638	135,063	376,595	146,669	391,362	139,098	391,362	139,098	391,362	146,669	391,362	183,096
Ic(cr)	(in⁴)	126,167	346,780	95,695	323,594	102,453	328,387	97,589	328,387	97,589	328,387	102,453	328,387	127,604
Ss	(in³)	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)	(in³)	3,681	---	2,584	---	2,784	---	2,601	---	2,601	---	2,784	---	3,694
Sc(3n)	(in³)	3,382	---	2,355	---	2,549	---	2,379	---	2,379	---	2,549	---	3,400
Sc(cr)	(in³)	---	7,916	---	7,419	---	7,449	---	7,449	---	7,449	---	7,449	---
DC1	(k/')	1.349	1.643	1.250	1.434	1.361	1.650	1.353	1.650	1.353	1.646	1.353	1.648	1.409
MDC1	('k)	3,750	9,310	1,667	6,687	2,047	8,005	2,091	8,128	2,094	7,995	2,069	8,456	3,206
DC2	(k/')	0.157	0.136	0.159	0.140	0.192	0.179	0.201	0.184	0.201	0.182	0.199	0.183	0.192
MDC2	('k)	427	811	225	722	312	945	319	954	315	959	326	973	431
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,254	2,717	645	2,012	732	2,427	766	2,469	753	2,490	790	2,505	1,078
LLDF		0.489	0.472	0.446	0.508	0.470	0.603	0.465	0.612	0.483	0.679	0.612	0.671	0.713
M_{L+IM}	('k)	3,179	4,028	2,405	4,322	2,727	5,316	2,641	5,388	2,718	5,838	3,374	5,297	4,216
Mu (Strength I)	('k)	12,665	23,775	7,541	19,844	8,819	24,132	8,784	24,486	8,897	25,143	10,083	24,813	13,540
Øf Mn	('k)	17,542	31,334	12,761	29,368	13,571	29,486	12,517	29,486	12,518	29,486	13,544	29,486	17,931
fs DC1	(ksi)	20.73	15.31	10.82	11.70	13.04	14.01	13.58	14.23	13.60	13.99	13.18	14.80	17.72
fs DC2	(ksi)	1.52	1.23	1.15	1.17	1.47	1.52	1.61	1.54	1.59	1.54	1.53	1.57	1.52
fs DW	(ksi)	4.45	4.12	3.29	3.25	3.45	3.91	3.86	3.98	3.80	4.01	3.72	4.04	3.80
fs (L+IM)	(ksi)	10.36	6.11	11.17	6.99	11.75	8.56	12.18	8.68	12.54	9.40	14.54	8.53	13.70
fs (Service II)	(ksi)	40.16	28.59	29.77	25.21	33.23	30.58	34.89	31.03	35.28	31.77	37.34	31.50	40.85
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)	52.61	37.53	39.44	33.21	43.87	40.27	46.10	40.86	46.62	41.90	49.42	41.45	53.72
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)	54.6	62.8	59.5	68.6	64.9	73.3	53.5	74.2	62.1	73.3	68.4	68.4	54.9

GIRDER 6 MOMENT TABLE						
		0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.2 Sp. 6
Is	(in⁴)	99,934	322,555	75,532	302,836	148,007
Ic(n)	(in⁴)	242,621	507,677	175,941	442,252	254,067
Ic(3n)	(in⁴)	176,383	403,206	130,598	359,983	194,843
Ic(cr)	(in⁴)	124,714	345,355	93,701	318,480	161,347
Ss	(in³)	2,171	7,298	1,848	6,856	3,489
Sc(n)	(in³)	3,667	---	2,564	---	4,383
Sc(3n)	(in³)	3,362	---	2,327	---	4,055
Sc(cr)	(in³)	---	7,907	---	7,470	3,801
DC1	(k/')	1.288	1.583	1.144	1.221	0.998
MDC1	('k)	3,697	9,173	1,626	6,429	1,398
DC2	(k/')	0.158	0.159	0.163	0.148	-0.179
MDC2	('k)	430	948	230	763	150
DW	(k/')	0.477	0.477	0.464	0.434	0.420
MDW	('k)	1,216	2,610	606	1,834	399
LLDF		0.581	0.564	0.513	0.542	0.161
M_{L+IM}	('k)	3,777	4,815	2,767	4,607	932
Mu (Strength I)	('k)	13,593	24,992	8,071	19,802	4,163
Øf Mn	('k)	17,526	31,300	12,706	29,567	15,044
fs DC1	(ksi)	20.44	15.08	10.56	11.25	4.81
fs DC2	(ksi)	1.54	1.44	1.19	1.23	0.44
fs DW	(ksi)	4.34	3.96	3.13	2.95	1.18
fs (L+IM)	(ksi)	12.36	7.31	12.95	7.40	2.55
fs (Service II)	(ksi)	42.38	29.98	31.70	25.05	9.75
0.95Rh Fyf	(ksi)	47.50	47.50	47.50	47.50	47.50
fs (Total)(Strength I)	(ksi)	55.61	39.38	42.03	32.97	12.80
Øf Fn	(ksi)	50.00	50.00	50.00	49.65	47.78
Vf	(k)	52.7	64.8	51.2	63.5	43.6

GIRDER 5 REACTION TABLE								
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.689	0.628	0.593	0.751	0.756	0.783	0.787	0.751
OCF		---	---	---	---	---	---	---	---
RDC1	(k)	104.7	403.3	313.2	369.4	372.5	369.0	388.3	99.9
RDC2	(k)	8.0	24.8	23.6	35.4	35.8	35.6	37.4	9.1
RDW	(k)	34.0	120.2	94.2	112.3	113.6	113.5	116.8	32.3
R IM	(k)	15.4	25.9	24.3	30.8	31.0	32.1	32.2	16.7
RL	(k)	89.0	181.1	171.1	220.7	221.2	226.4	221.7	94.1
RTotal	(k)	251.1	755.3	626.4	768.6	774.1	776.6	796.4	252.1

GIRDER 6 REACTION TABLE				
		Pier 3	Pier 4	Pier 5
LLDF		0.702	0.665	0.614
OCF		---	---	---
RDC1	(k)	102.3	394.9	297.0
RDC2	(k)	9.2	36.5	31.0
RDW	(k)	32.8	114.0	83.0
R IM	(k)	15.7	27.4	25.2
RL	(k)	90.6	191.7	177.4
RTotal	(k)	250.6	764.5	613.6

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_{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

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HORNER & SHIFRIN
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PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - MAB	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRESS TABLES UNIT 2-3
STRUCTURE NO. 060-0350 (EB)
SHEET 123 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	323
		CONTRACT NO. 76J90		
	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
Is	(in⁴)	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)	(in⁴)	233,681	490,880	171,582	446,155	187,623	476,274	177,040	476,274	177,040	476,274	187,623	476,274	238,249
Ic(3n)	(in⁴)	168,983	393,905	126,786	361,636	138,627	378,139	131,592	378,139	131,592	378,139	138,627	378,139	172,696
Ic(cr)	(in⁴)	121,696	342,428	92,079	318,976	98,801	324,084	94,136	324,084	94,136	324,084	98,801	324,084	123,189
Ss	(in³)	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)	(in³)	3,633	---	2,545	---	2,749	---	2,569	---	2,569	---	2,749	---	3,651
Sc(3n)	(in³)	3,318	---	2,302	---	2,501	---	2,333	---	2,333	---	2,501	---	3,340
Sc(cr)	(in³)	---	7,889	---	7,490	---	7,422	---	7,422	---	7,422	---	7,422	---
DC1	(k/')	1.288	1.583	1.095	1.242	1.178	1.467	1.170	1.467	1.170	1.463	1.170	1.464	1.226
MDC1	('k)	3,644	9,001	1,601	6,189	1,983	7,900	2,103	8,103	2,092	7,937	2,070	8,409	3,201
DC2	(k/')	0.154	0.199	0.146	0.178	0.174	0.227	0.179	0.227	0.177	0.224	0.176	0.226	0.191
MDC2	('k)	421	1,187	207	919	282	1,195	283	1,177	279	1,179	288	1,203	430
DW	(k/')	0.477	0.477	0.464	0.434	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490	0.490
MDW	('k)	1,153	2,448	580	1,747	679	2,274	734	2,329	720	2,342	755	2,364	1,015
LLDF		0.650	0.641	0.571	0.608	0.572	0.757	0.566	0.751	0.586	0.816	0.735	0.825	0.869
M_{L+IM}	('k)	4,229	5,466	3,077	5,174	3,319	6,672	3,214	6,605	3,300	7,011	4,054	6,515	5,140
Mu (Strength I)	('k)	14,212	25,972	8,515	20,561	9,657	26,456	9,708	26,654	9,817	27,177	11,174	26,961	15,056
Ø f Mn	('k)	17,445	31,229	12,648	29,647	13,482	29,381	12,390	29,381	12,400	29,381	13,412	29,381	17,775
fs DC1	(ksi)	20.14	14.80	10.40	10.83	12.63	13.83	13.65	14.18	13.58	13.89	13.18	14.72	17.69
fs DC2	(ksi)	1.52	1.80	1.08	1.47	1.35	1.93	1.46	1.90	1.43	1.91	1.38	1.94	1.54
fs DW	(ksi)	4.17	3.72	3.02	2.80	3.26	3.68	3.78	3.77	3.70	3.79	3.62	3.82	3.65
fs (L+IM)	(ksi)	13.97	8.31	14.51	8.29	14.48	10.79	15.01	10.68	15.42	11.34	17.69	10.53	16.90
fs (Service II)	(ksi)	43.99	31.14	33.36	25.88	36.07	33.46	38.41	33.74	38.76	34.32	41.19	34.18	44.85
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)	57.78	40.89	44.28	34.09	47.71	44.09	50.83	44.45	51.30	45.26	54.60	44.99	59.08
Ø f Fn	(ksi)	50.00	50.00	50.00	49.63	50.00	49.67	50.00	49.67	50.00	49.67	50.00	49.67	50.00
Vf	(k)	56.3	91.9	68.2	105.4	81.0	121.9	79.8	126.6	83.7	123.4	83.7	110.3	84.7

GIRDER 7 REACTION TABLE									
		Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Pier 9	Pier 10
LLDF		0.674	0.744	0.804	0.929	0.943	0.980	0.990	1.114
OCF		1.04	1.04	---	---	---	---	---	1.04
RDC1	(k)	100.5	390.8	291.8	366.2	371.4	367.4	387.2	96.4
RDC2	(k)	20.7	73.1	61.2	72.4	72.5	72.5	72.3	22.0
RDW	(k)	30.0	100.9	68.1	98.2	99.3	100.2	101.1	31.4
R IM	(k)	15.1	30.6	33.0	38.1	38.7	40.2	40.5	24.8
RL	(k)	86.9	214.6	232.1	272.9	276.0	283.4	278.7	139.6
RTotal	(k)	166.3	595.4	454.1	574.9	581.9	580.3	601.1	174.6

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_{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}

Ø f 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($L+IM$)

Ø f 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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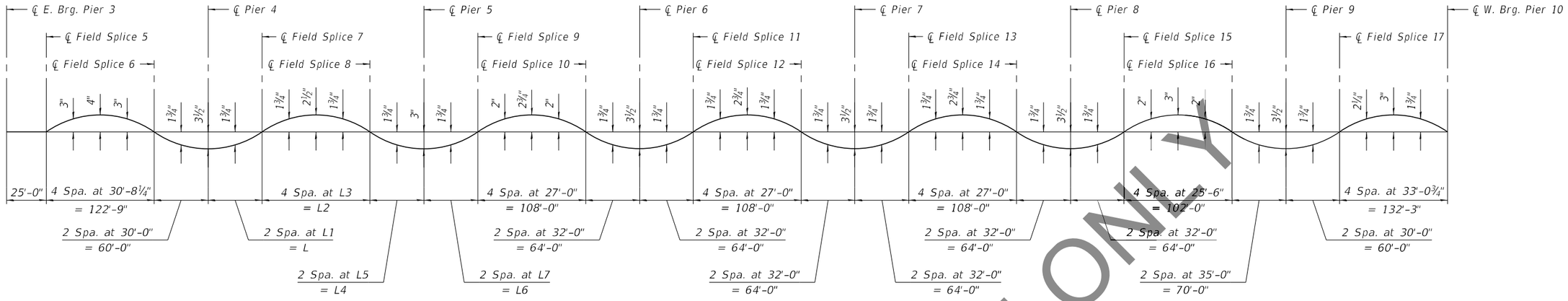
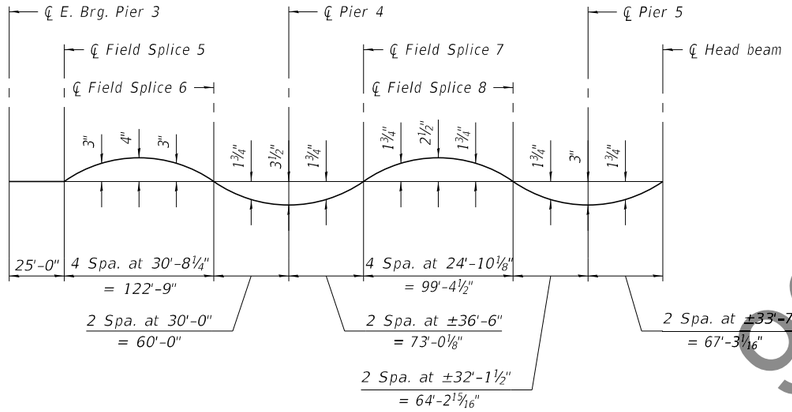


CAMBER DIAGRAM
(Girders 1 thru 5 and 7)

TABLE OF "L" DIMENSIONS

Location	L	L1	L2	L3	L4	L5	L6	L7
Girder 1	73'-0"	36'-6"	99'-0"	24'-9"	64'-0"	32'-0"	64'-0"	32'-0"
Girder 2	73'-0"	36'-6"	99'-0"	24'-9"	64'-0"	32'-0"	64'-0"	32'-0"
Girder 3	73'-0"	36'-6"	99'-0"	24'-9"	64'-0"	32'-0"	64'-0"	32'-0"
Girder 4	73'-0"	36'-6"	99'-0"	24'-9"	64'-0"	32'-0"	64'-0"	32'-0"
Girder 5	73'-0"	36'-6"	99'-0"	24'-9"	64'-0"	32'-0"	64'-0"	32'-0"
Girder 7	73'-0 5/16"	±36'-6 1/8"	99'-9 11/16"	±24'-11 3/8"	64'-6¼"	32'-3 1/8"	64'-5 7/8"	±32'-3"



CAMBER DIAGRAM
(Girder 6)

*** 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	453.87	454.18	454.81	451.53	455.29	455.81	453.18	456.54	457.07	453.87	457.67	458.24	455.05	458.87	459.43	456.22	460.01	460.54	457.40	461.20	461.77
Girder 2	454.07	454.36	455.01	451.72	455.49	456.01	453.37	456.73	457.26	454.07	457.88	458.43	455.26	459.08	459.63	456.42	460.22	460.74	457.60	461.40	461.97
Girder 3	454.23	454.54	455.17	451.89	455.65	456.18	453.53	456.87	457.41	454.23	458.05	458.60	455.42	459.24	459.79	456.59	460.38	460.91	457.76	461.57	462.15
Girder 4	454.01	454.30	454.95	451.67	455.43	455.97	453.30	456.64	457.18	454.01	457.84	458.39	455.21	459.03	459.57	456.37	460.17	460.69	457.54	461.34	461.92
Girder 5	453.79	454.09	454.72	451.44	455.21	455.75	453.07	456.40	456.96	453.79	457.62	458.18	454.99	458.80	459.36	456.15	459.94	460.47	457.33	461.13	461.72
Girder 7	453.41	453.69	454.32	451.05	454.82	455.44	452.80	456.16	456.72	453.57	457.41	457.95	454.77	458.58	459.13	455.93	459.73	460.25	457.10	460.91	461.48

Location	℄ E. Brg. Pier 3	℄ Field Splice 5	℄ Field Splice 6	℄ Pier 4	℄ Field Splice 7	℄ Field Splice 8	℄ Pier 5	℄ Head beam
Girder 6	453.60	453.89	454.52	451.24	455.01	455.60	452.94	456.29

*** 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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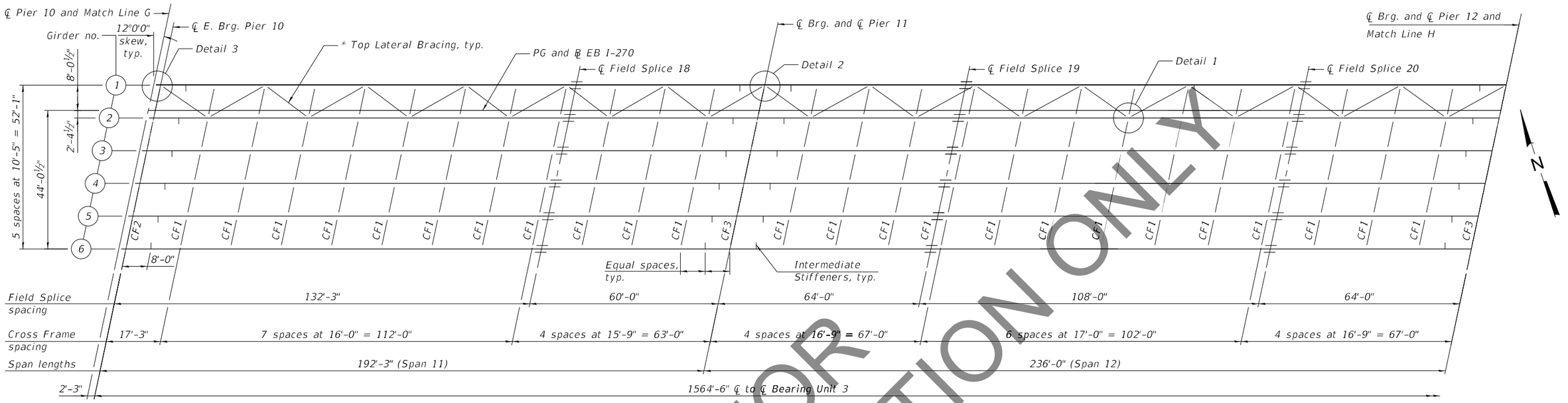
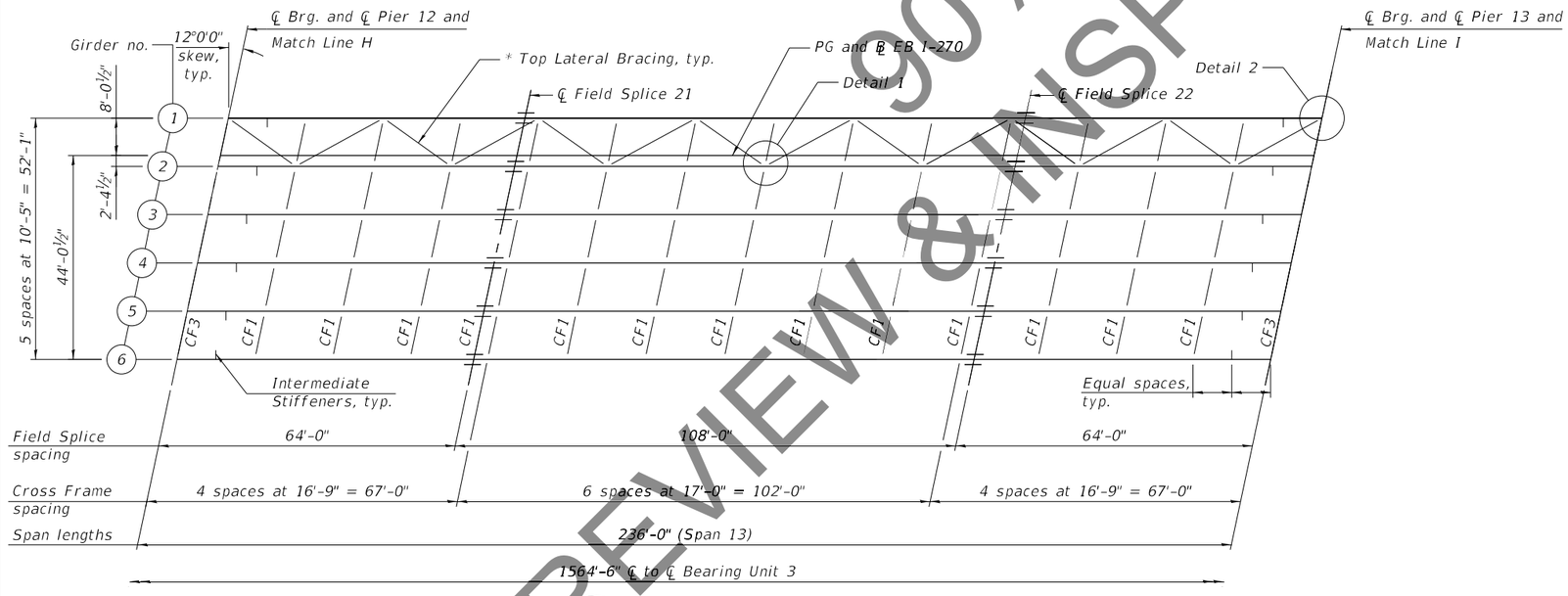


FRAMING PLAN - UNIT 3

(Spans 11 and 12)



FRAMING PLAN - UNIT 3

(Span 13)

* 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.

Notes:
For Field Splice Details, see sheet 132 of 292.
For Cross Frame Details, see sheet 133 of 292.
For Details 1, 2 and 3, see sheet 134 of 292.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 3 – 1
STRUCTURE NO. 060-0350 (EB)
SHEET 126 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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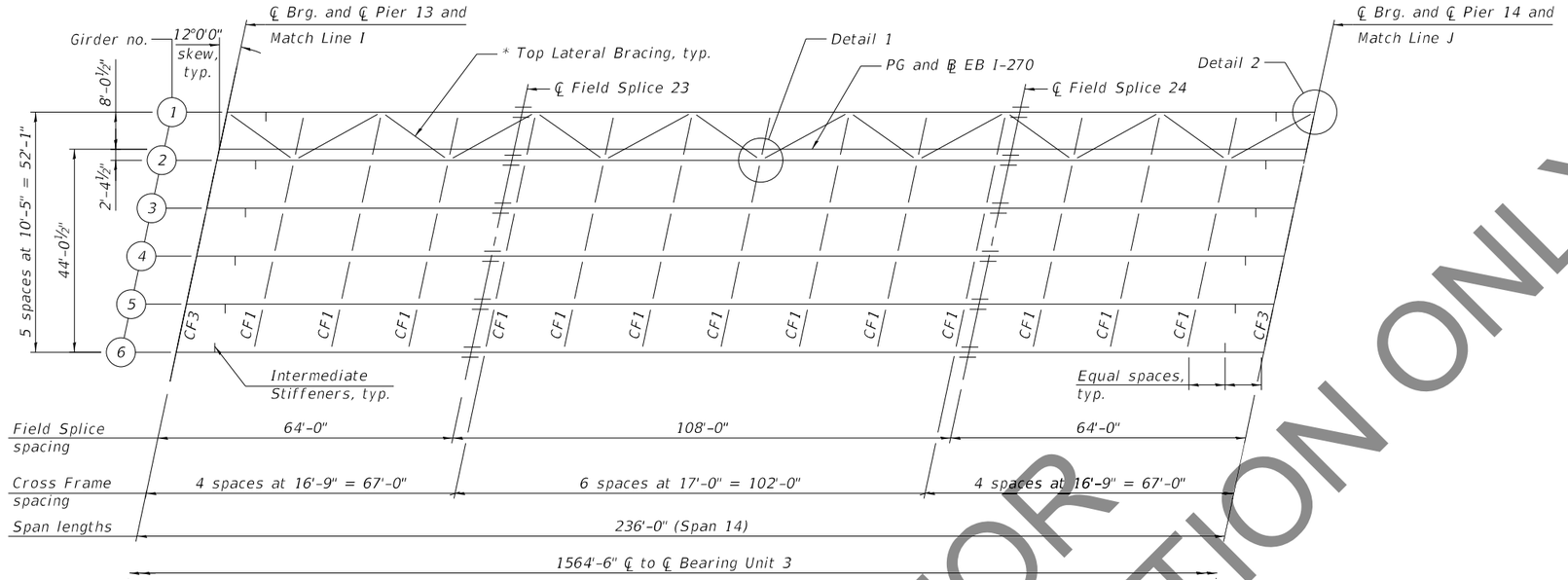
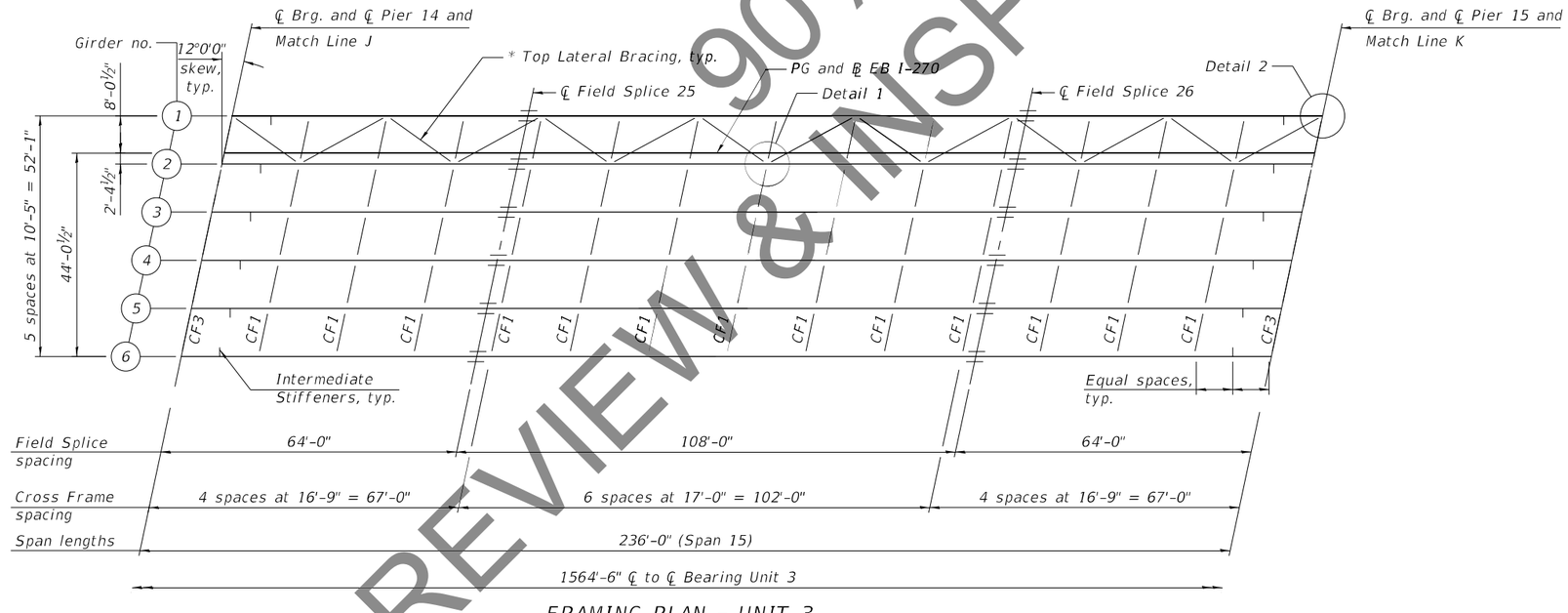
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



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.

Notes:
For Field Splice Details, see sheet 132 of 292.
For Cross Frame Details, see sheet 133 of 292.
For Details 1, 2 and 3, see sheet 134 of 292.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN UNIT 3 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 127 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 76J90		
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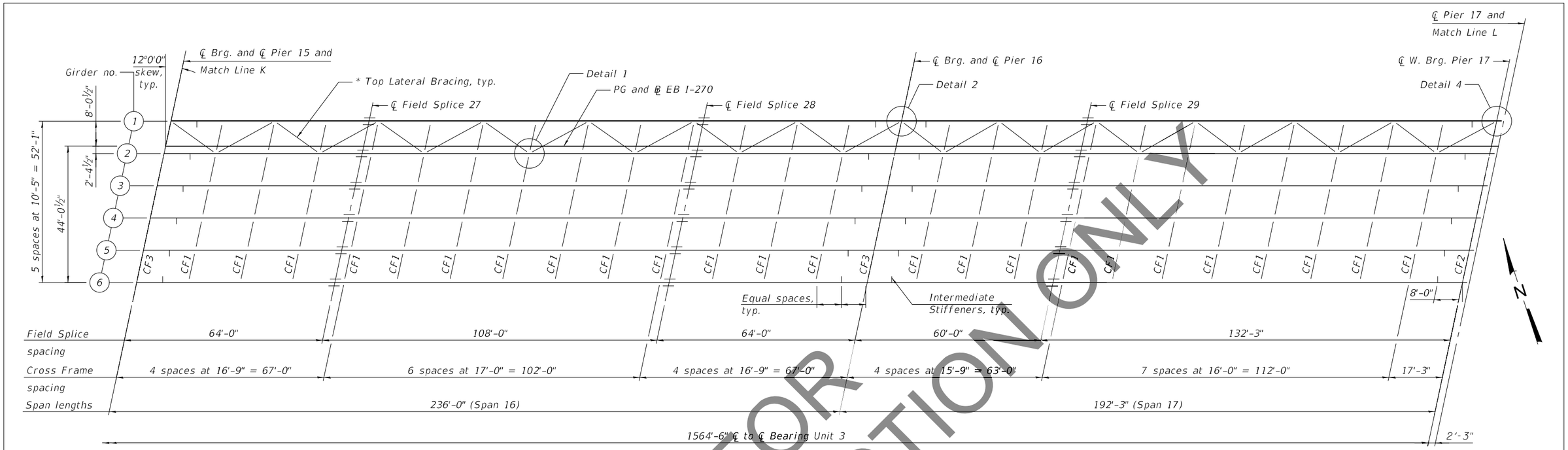

FRAMING PLAN – UNIT 3

(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.

Notes:
For Field Splice Details, see sheet 132 of 292.
For Cross Frame Details, see sheet 133 of 292.
For Details 1, 2 and 3, see sheet 134 of 292.

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HORNER & SHIFRIN Teaming with: PARSONS	USER NAME =	DESIGNED - ASP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FRAMING PLAN UNIT 3 – 3 STRUCTURE NO. 060–0350 (EB)	F.AJ. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PLOT DATE =	CHECKED - TBS	REVISED -		SHEET 128 OF 292 SHEETS			ILLINOIS FED. AID PROJECT		

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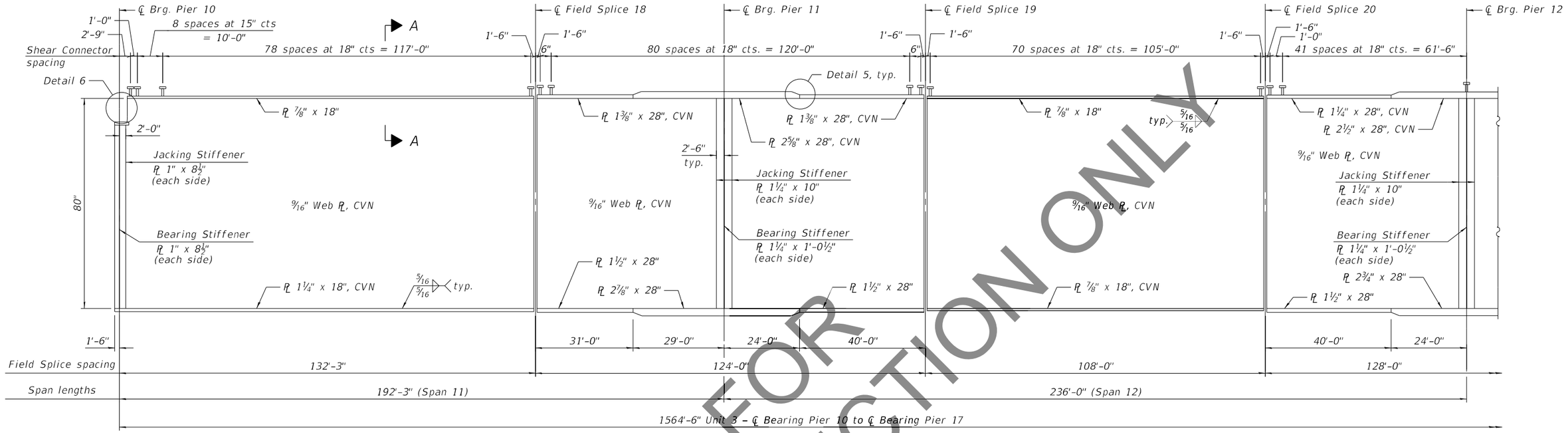
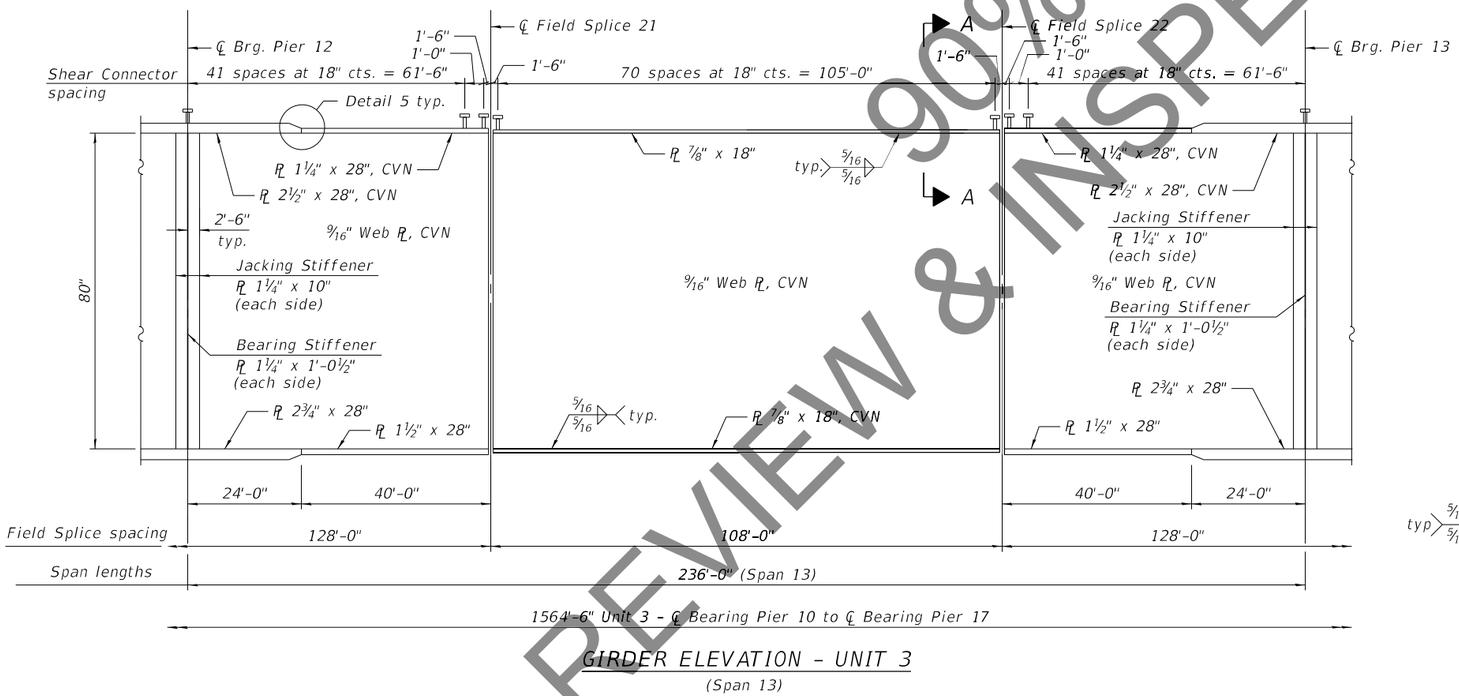


GIRDER ELEVATION - UNIT 3

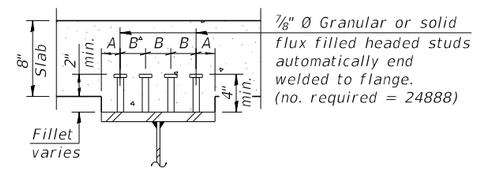
(Spans 11 and 12)



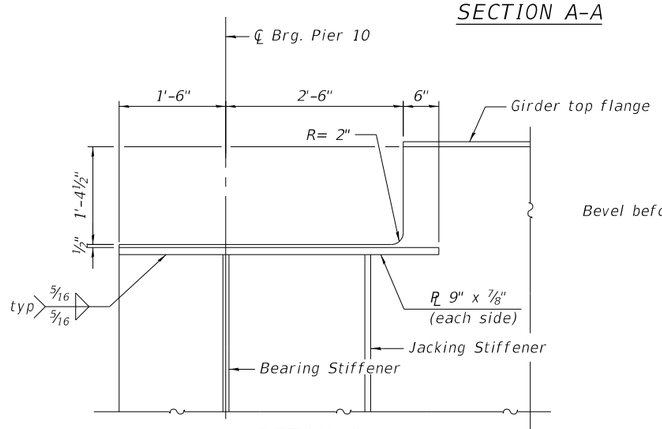
GIRDER ELEVATION - UNIT 3

(Span 13)

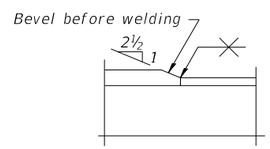
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



SECTION A-A



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



DETAIL 6

℄ Pier 10 shown, ℄ Pier 17 similar

DETAIL 5

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GIRDER ELEVATION UNIT 3 - 1
STRUCTURE NO. 060-0350 (EB)
SHEET 129 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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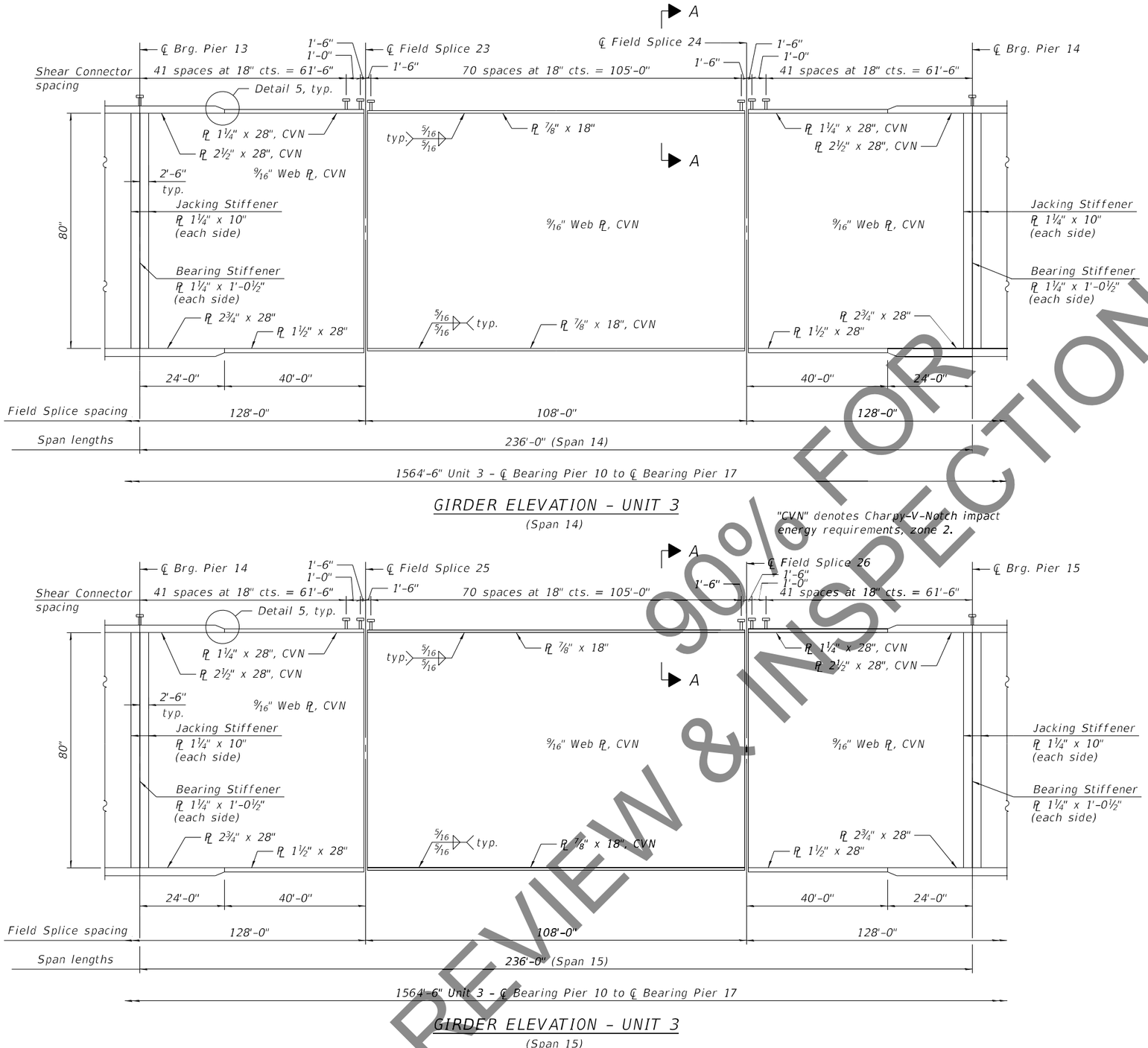
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



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 129.

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GIRDER ELEVATION UNIT 3 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 130 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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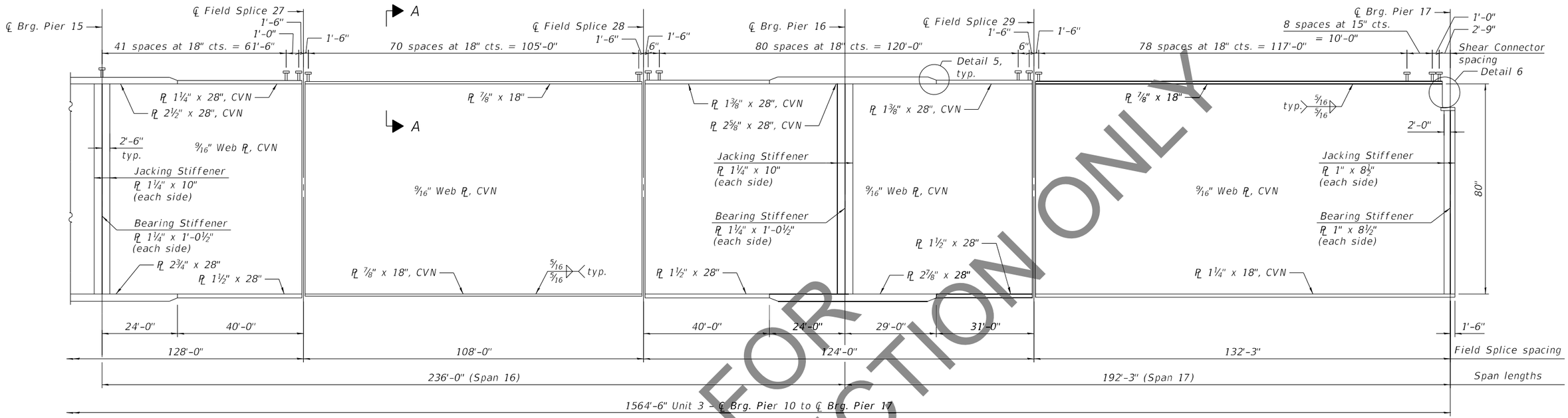
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



GIRDER ELEVATION - UNIT 3

(Spans 16 and 17)

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

Note:
For section A-A, Detail 5 and Detail 6, see sheet 129

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GIRDER ELEVATION UNIT 3 – 3
STRUCTURE NO. 060-0350 (EB)
SHEET 131 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 76J90		
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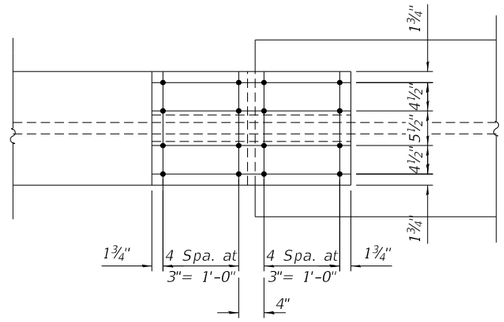
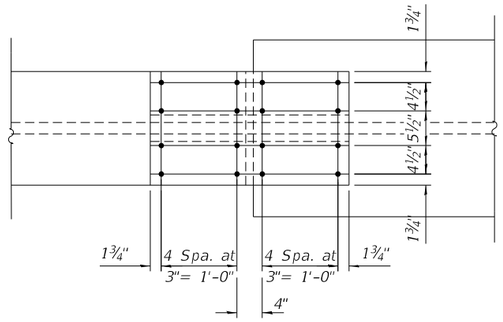
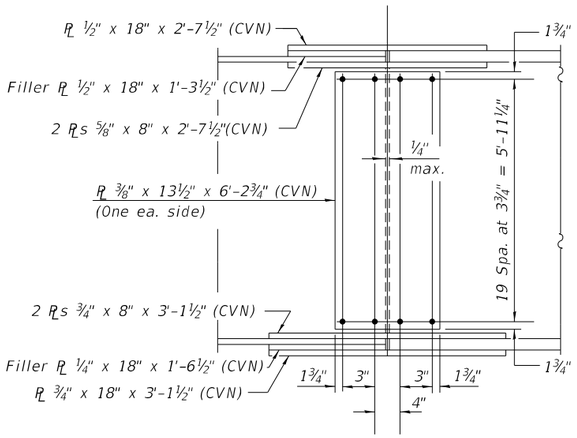


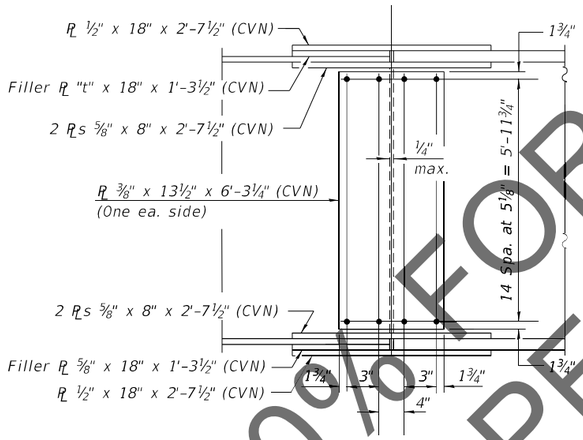
TOP FLANGE



TOP FLANGE

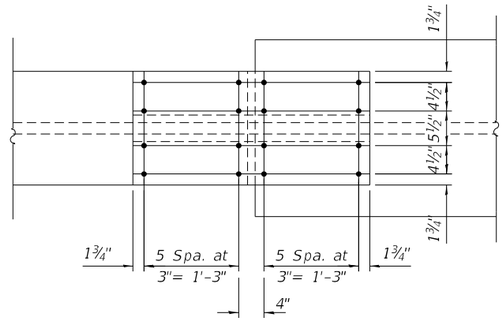


ELEVATION

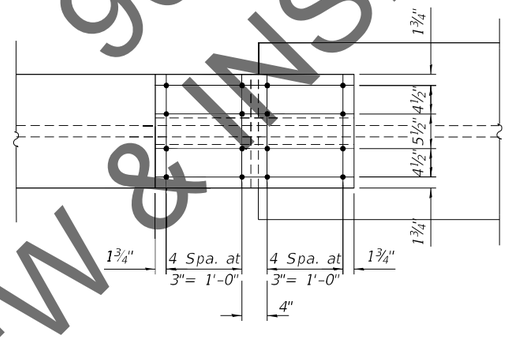


ELEVATION

Filler PL "t"
½"	FS-19 & FS-28
⅜"	FS-20 to FS-27



BOTTOM FLANGE



BOTTOM FLANGE

FIELD SPLICE 18 & 29 DETAIL

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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PLOT SCALE =	DRAWN - MLS	REVISED -	
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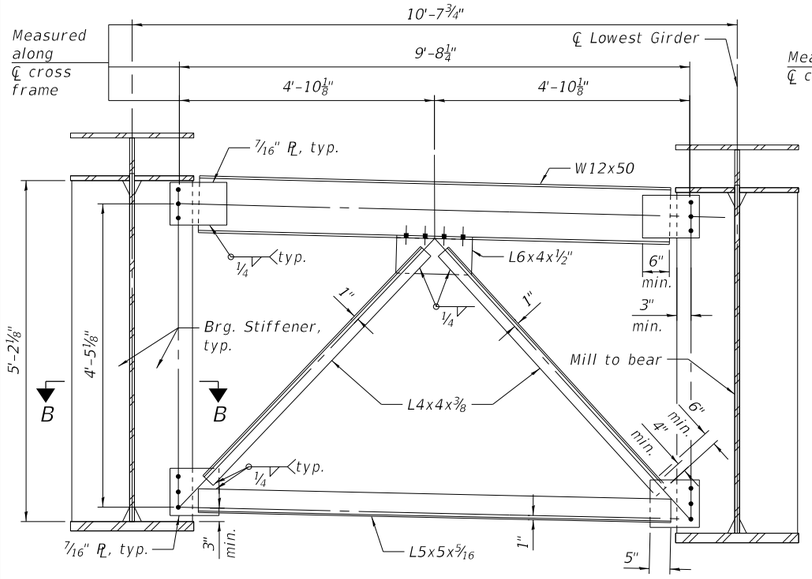
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

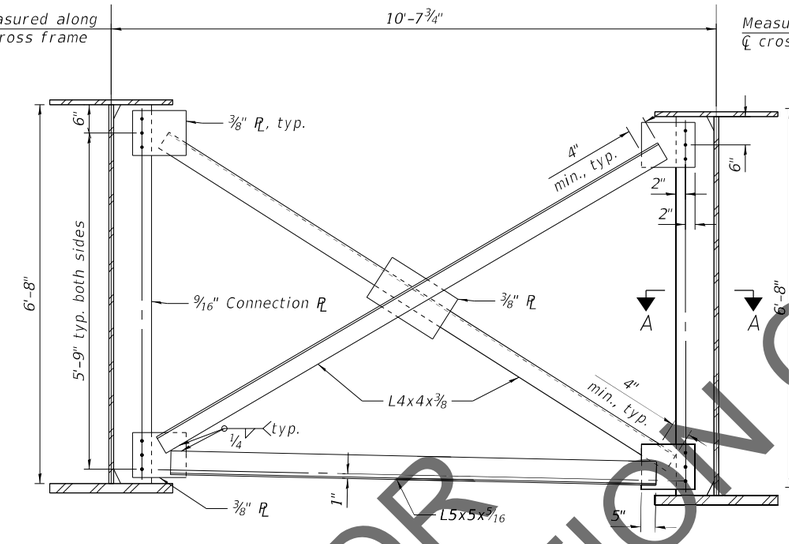
STEEL DETAILS UNIT 3 – 1
STRUCTURE NO. 060–0350 (EB)
SHEET 132 OF 292 SHEETS

F.AJ. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	332
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



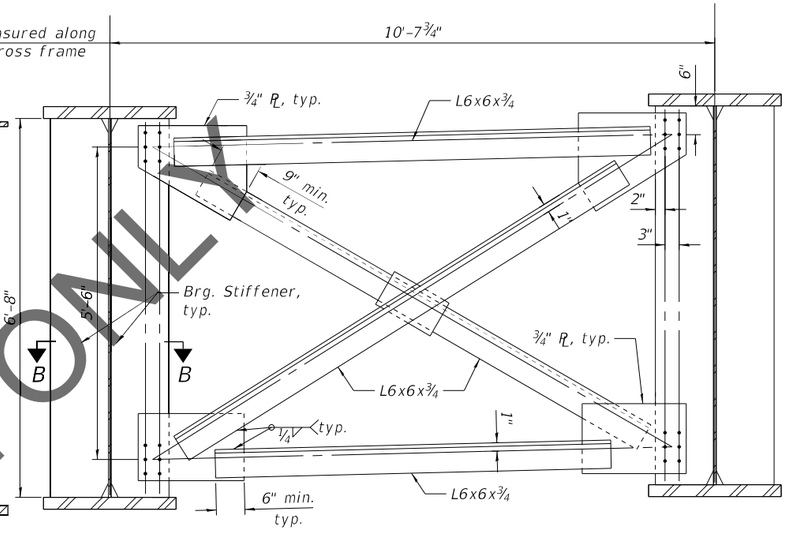
END CROSS FRAME (CF2)

(10 Required)



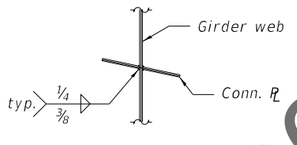
INTERIOR CROSS FRAME (CF1)

(435 Required)

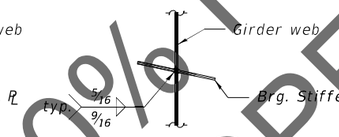


PIER CROSS FRAME (CF3)

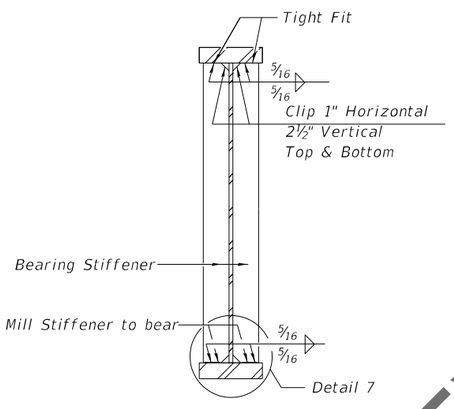
(30 Required)



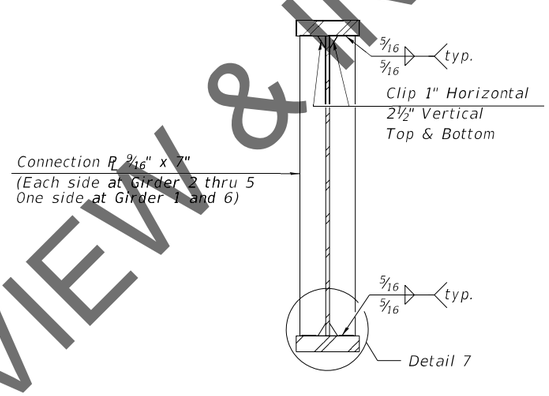
SECTION A-A



SECTION B-B

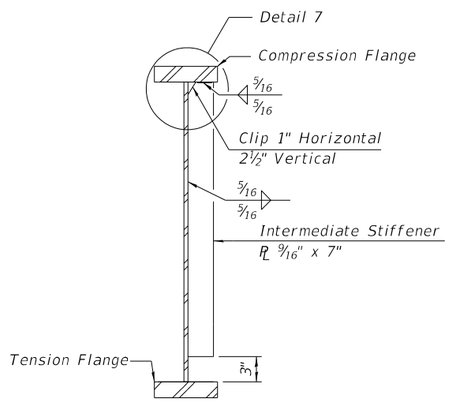


BEARING AND JACKING STIFFENER DETAILS

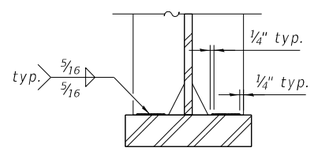


FOR CF1

CONNECTION PLATE DETAILS



INTERMEDIATE STIFFENER DETAIL



DETAIL 7

(Bottom Flange Shown, Top Flange Similar)

Notes:

All Structural Steel shall be AASHTO M 270 Grade 50.

Provide 1 1/16" ○ holes for all ⅞" ∅ 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

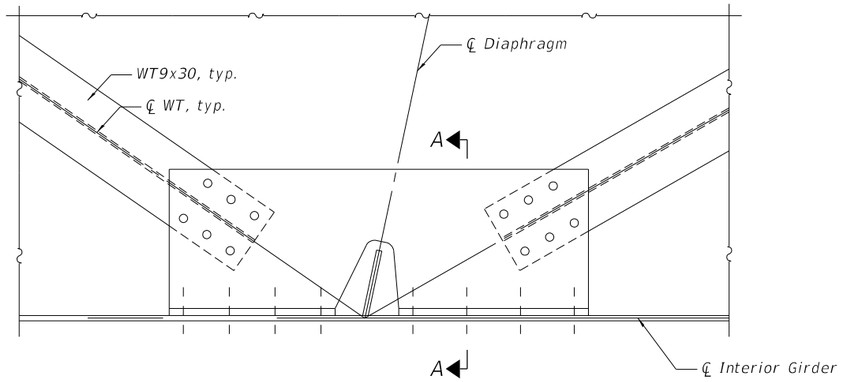
USER NAME =	DESIGNED - ASP	REVISED -	
	CHECKED - PY	REVISED -	
PLOT SCALE =	DRAWN - MLS	REVISED -	
PLOT DATE =	CHECKED - TBS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 3 – 2
STRUCTURE NO. 060-0350 (EB)

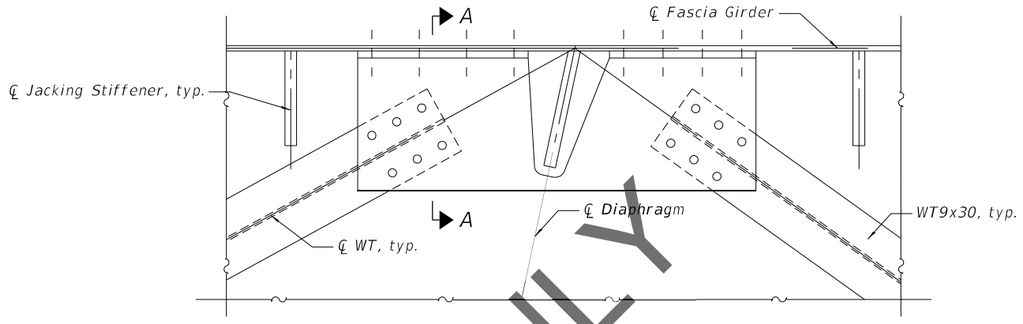
SHEET 133 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	333
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



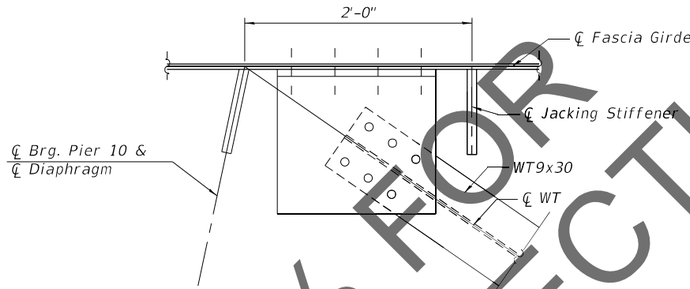
DETAIL 1

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



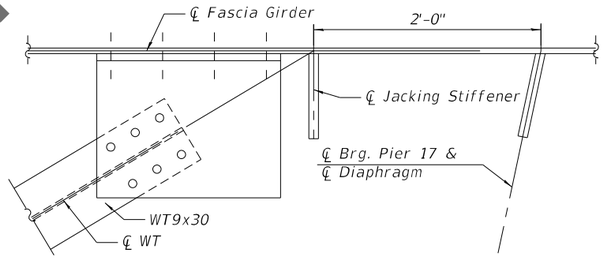
DETAIL 2

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



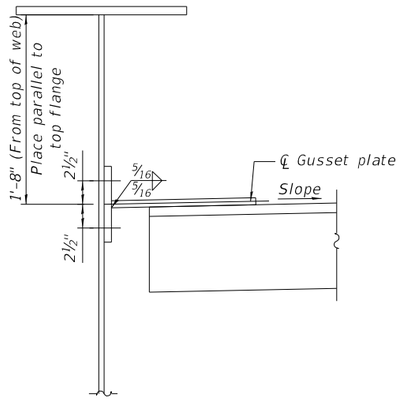
DETAIL 3

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



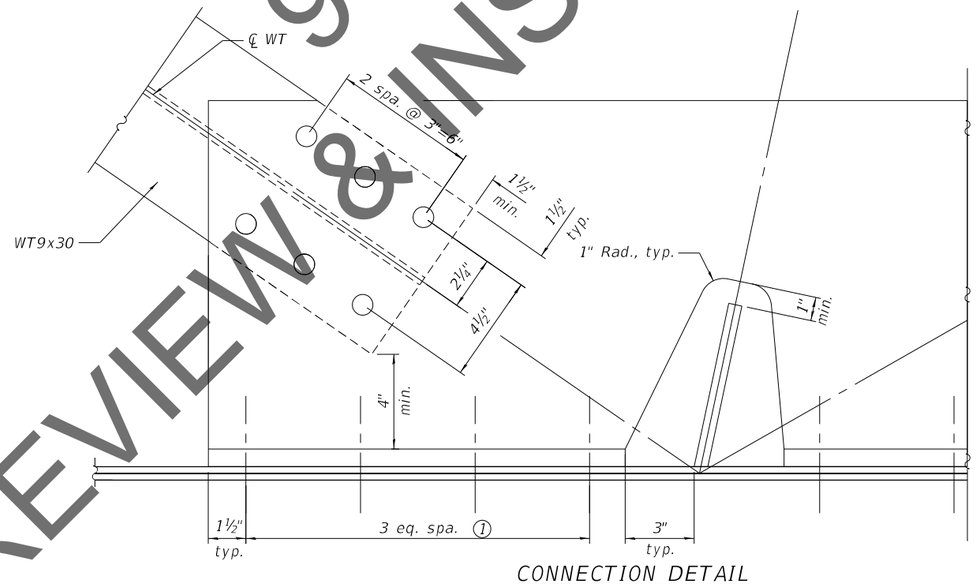
DETAIL 4

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



SECTION A-A

(Cross frame and stiffener not shown)



CONNECTION DETAIL

Notes:

All plates to be ¾".

Detail 1 1/16" dia. holes for all ⅞" dia. bolts.

Provide 1½" 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 - ASP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL DETAILS UNIT 3 – 3 STRUCTURE NO. 060–0350 (EB)
		CHECKED - PY	REVISED -		
	PLOT SCALE =	DRAWN - MLS	REVISED -		
	PLOT DATE =	CHECKED - TBS	REVISED -		SHEET 134 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	334
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER MOMENT TABLE														
		0.4 Sp. 11	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
$\varphi_f M_n$	('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
$0.95R_hF_{yf}$	(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
$\varphi_f F_n$	(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	–	99.1	–

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

$\varnothing_f M_n$: 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 (M_{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).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(LL+IM)$

$0.95R_hF_{yf}$: 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).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(LL+IM)$

$\varnothing_f F_n$: 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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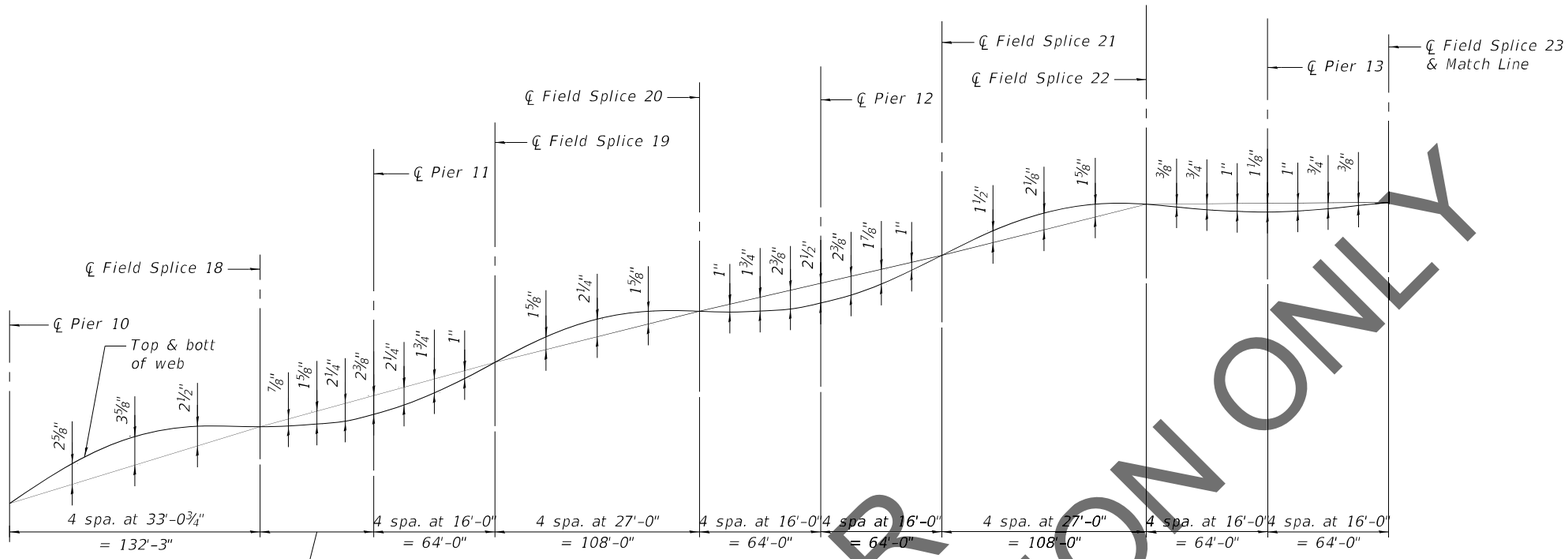
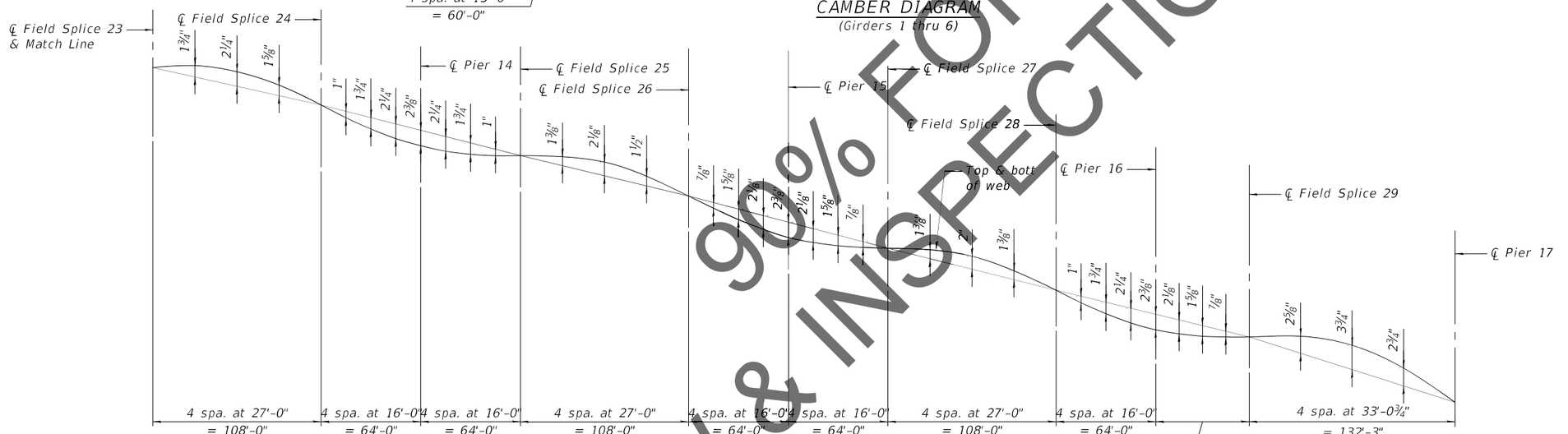


CAMBER DIAGRAM
(Girders 1 thru 6)



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 10	461.62	461.82	461.99	461.77	461.55	461.33
℄ Field Splice 18	462.51	462.72	462.89	462.67	462.45	462.22
℄ Brg. Pier 11	462.58	462.78	462.94	462.73	462.51	462.29
℄ Field Splice 19	463.14	463.37	463.53	463.31	463.10	462.85
℄ Field Splice 20	463.70	463.92	464.09	463.87	463.65	463.40
℄ Brg. Pier 12	463.76	463.96	464.12	463.90	463.68	463.47
℄ Field Splice 21	464.31	464.52	464.68	464.47	464.25	464.01
℄ Field Splice 22	464.85	465.07	465.24	465.02	464.81	464.57
℄ Brg. Pier 13	464.72	464.93	465.11	464.90	464.69	464.48

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Field Splice 23	464.86	465.09	465.27	465.07	464.87	464.65
℄ Field Splice 24	464.38	464.62	464.81	464.61	464.41	464.19
℄ Brg. Pier 14	463.82	464.04	464.23	464.03	463.83	463.64
℄ Field Splice 25	463.73	463.97	464.16	463.96	463.76	463.55
℄ Field Splice 26	463.22	463.46	463.65	463.45	463.25	463.03
℄ Brg. Pier 15	462.64	462.86	463.05	462.85	462.65	462.46
℄ Field Splice 27	462.52	462.76	462.94	462.75	462.55	462.34
℄ Field Splice 28	461.98	462.22	462.41	462.21	462.01	461.80
℄ Brg. Pier 16	461.46	461.68	461.87	461.67	461.47	461.28

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Field Splice 29	461.42	461.65	461.84	461.64	461.45	461.23
℄ Brg. Pier 17	460.50	460.72	460.91	460.71	460.51	460.32

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

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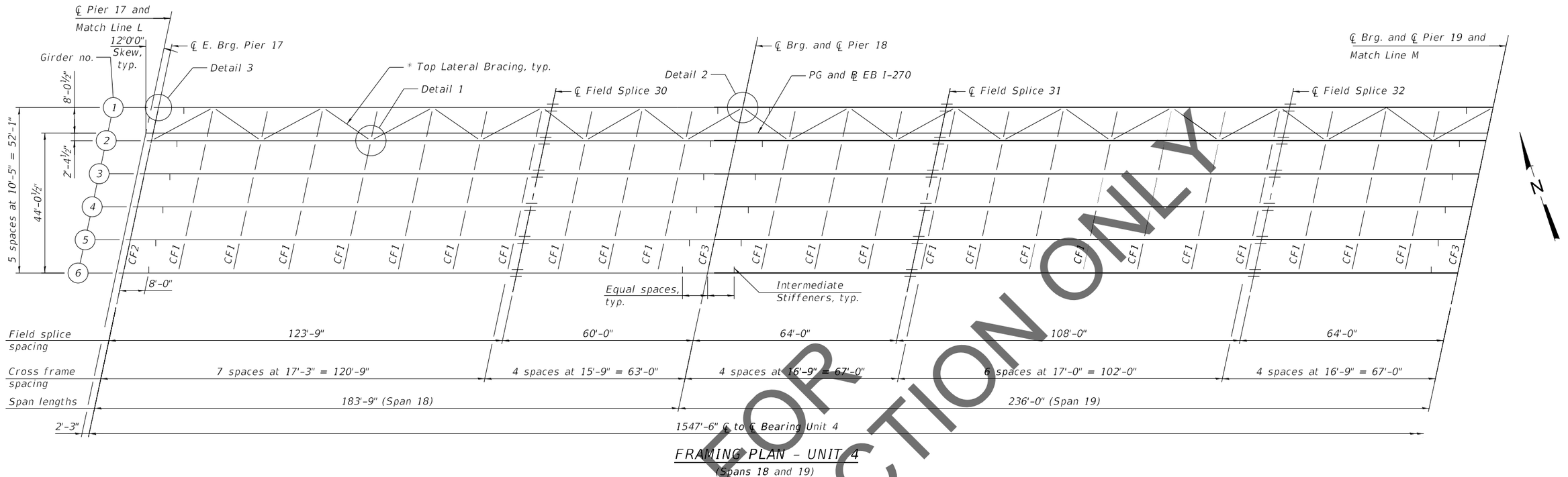
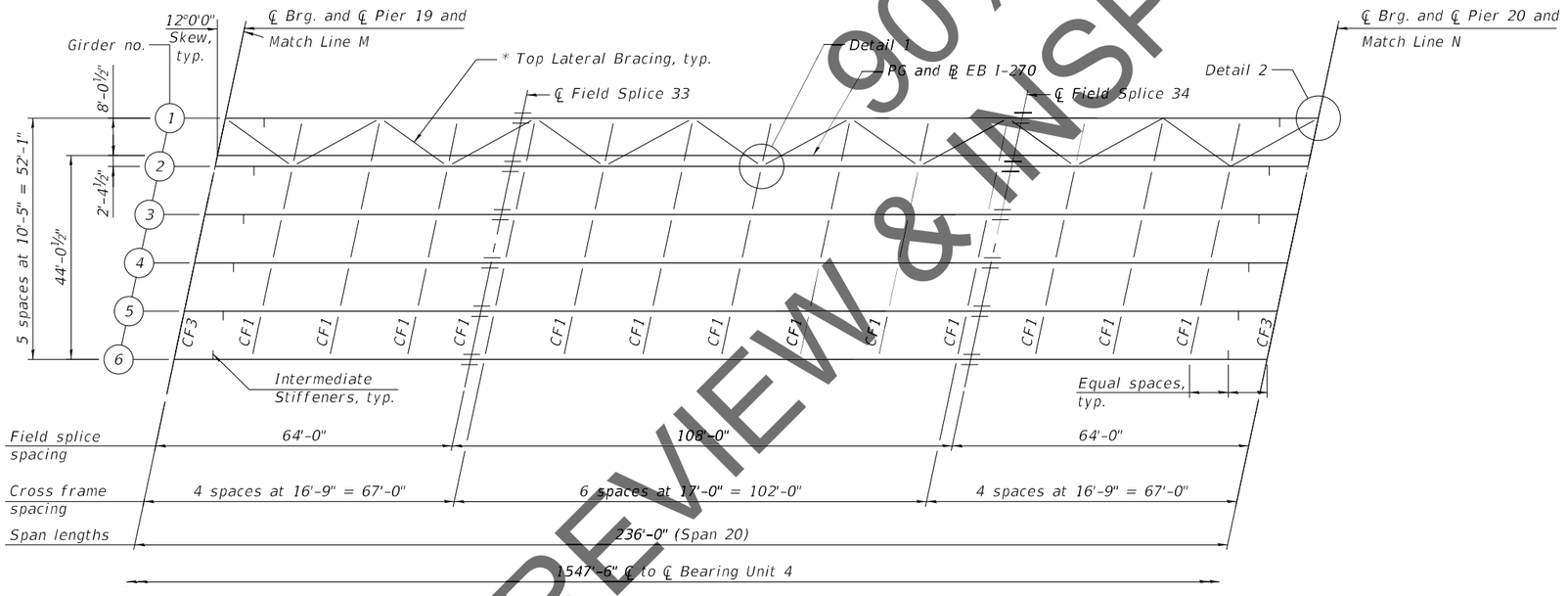


FRAMING PLAN – UNIT 4

(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.

Notes:
For Field Splice Details, see sheet 143 of 292.
For Cross Frame Details, see sheet 144 of 292.
For Details 1, 2 and 3, see sheet 145 of 292.

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HORNER & SHIFRIN
Teaming with: PARSONS

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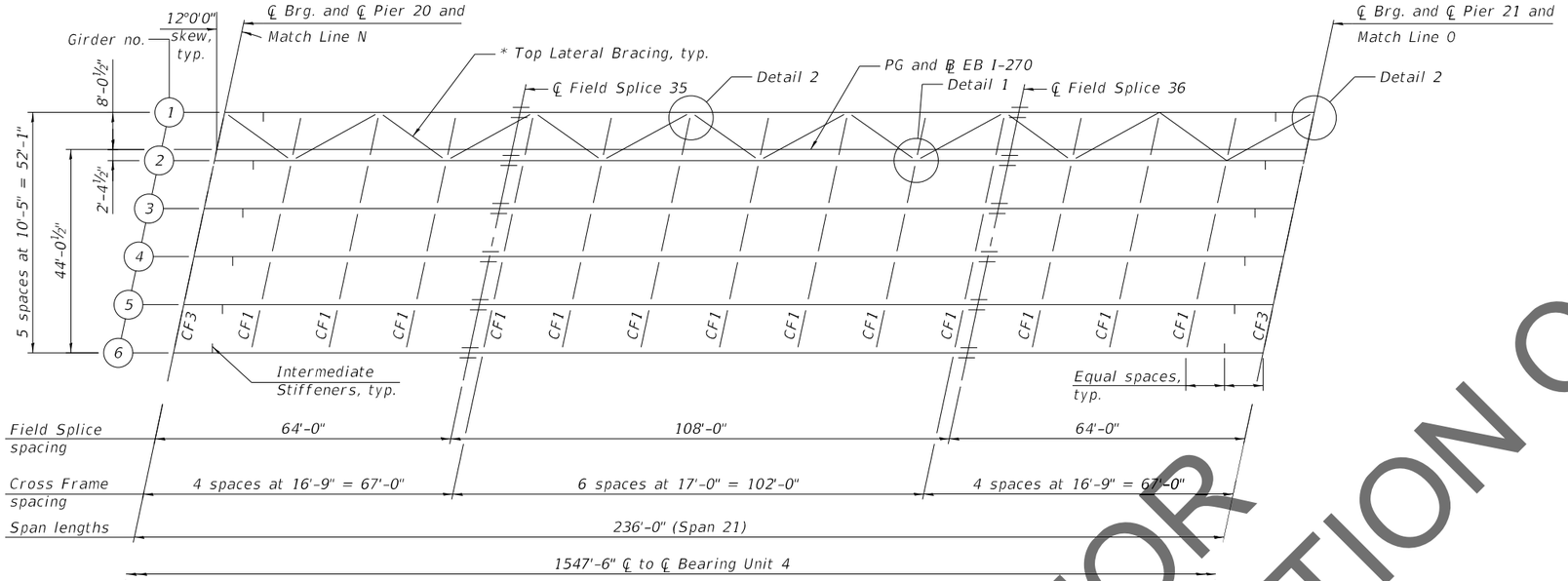
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

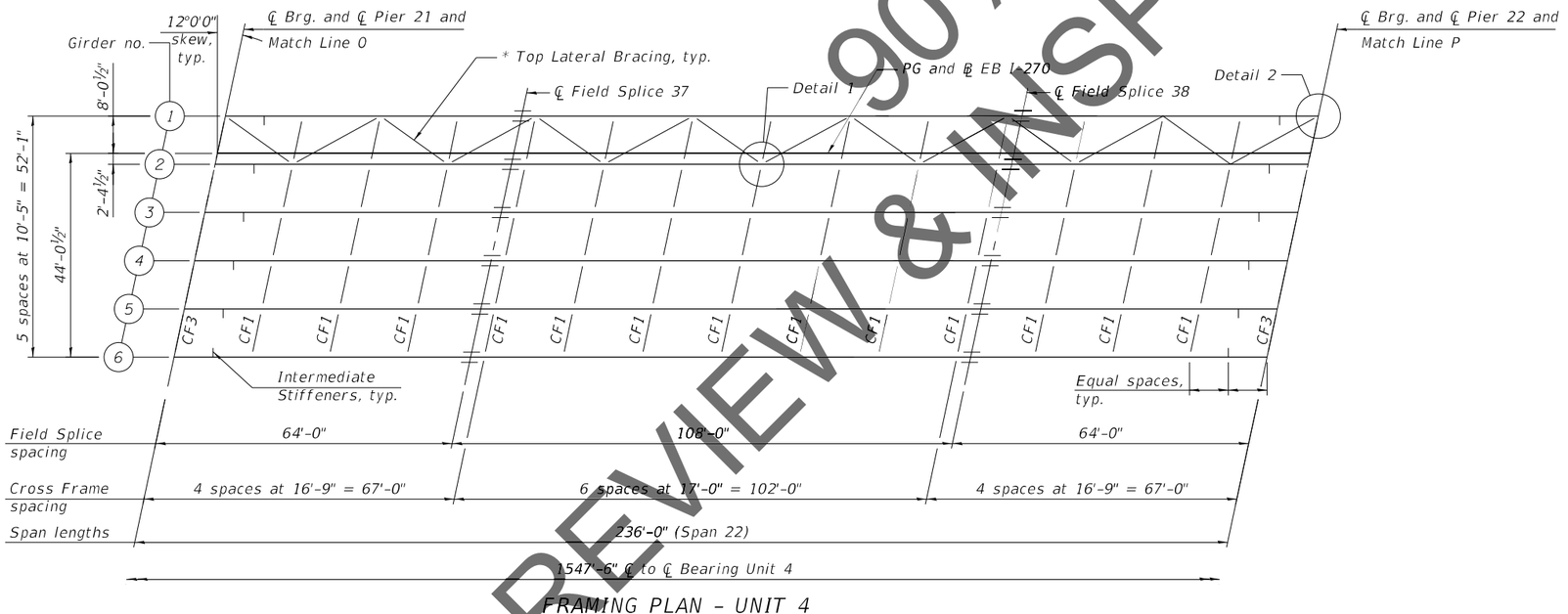
FRAMING PLAN UNIT 4 – 1
STRUCTURE NO. 060–0350 (EB)
SHEET 137 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	337
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN – UNIT 4

(Span 21)



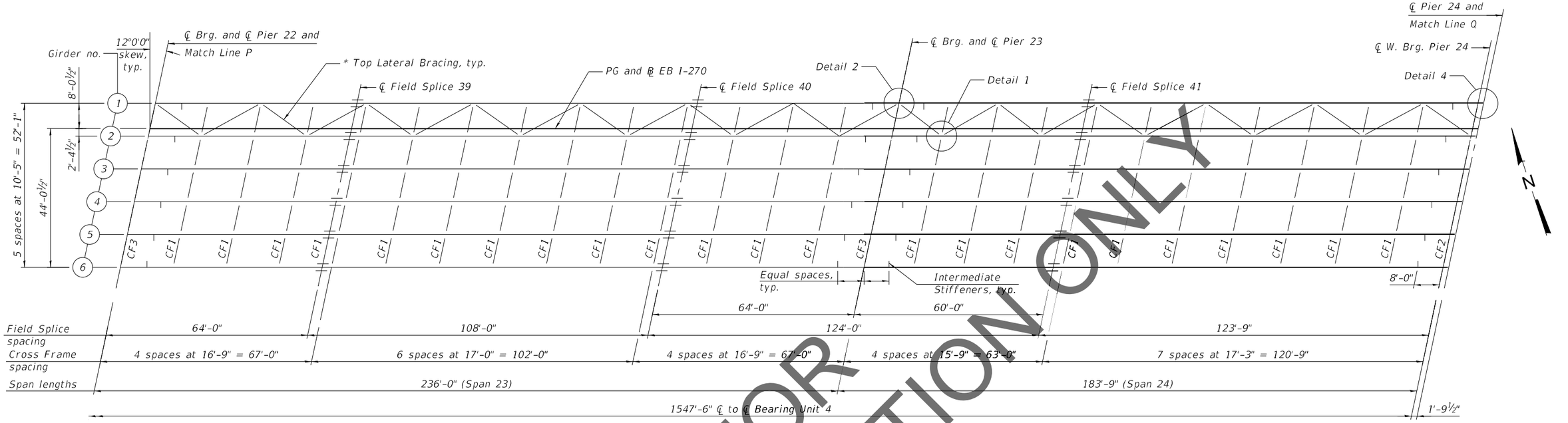
FRAMING PLAN – UNIT 4

(Span 22)

90% FOR REVIEW & INSPECTION ONLY

* 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.

Notes:
For Field Splice Details, see sheet 143 of 292 .
For Cross Frame Details, see sheet 144 of 292.
For Details 1 and 2, see sheet 145 of 292 .



FRAMING PLAN – UNIT 4

(Spans 23 and 24)

90% FOR REVIEW & INSPECTION ONLY

* 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.

Notes:
For Field Splice Details, see sheet 143 of 292 .
For Cross Frame Details, see sheet 144 of 292.
For Details 1, 2 and 4, see sheet 145 of 292 .

HORNER & SHIFRIN Teaming with: PARSONS	USER NAME =	DESIGNED - ASP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FRAMING PLAN UNIT 4 – 3 STRUCTURE NO. 060–0350 (EB)	F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - PY	REVISED -			270	60B-1	MADISON	860	339
	PLOT SCALE =	DRAWN - MLS	REVISED -					CONTRACT NO. 76J90		
	PLOT DATE =	CHECKED - TBS	REVISED -		SHEET 139 OF 292 SHEETS			ILLINOIS FED. AID PROJECT		

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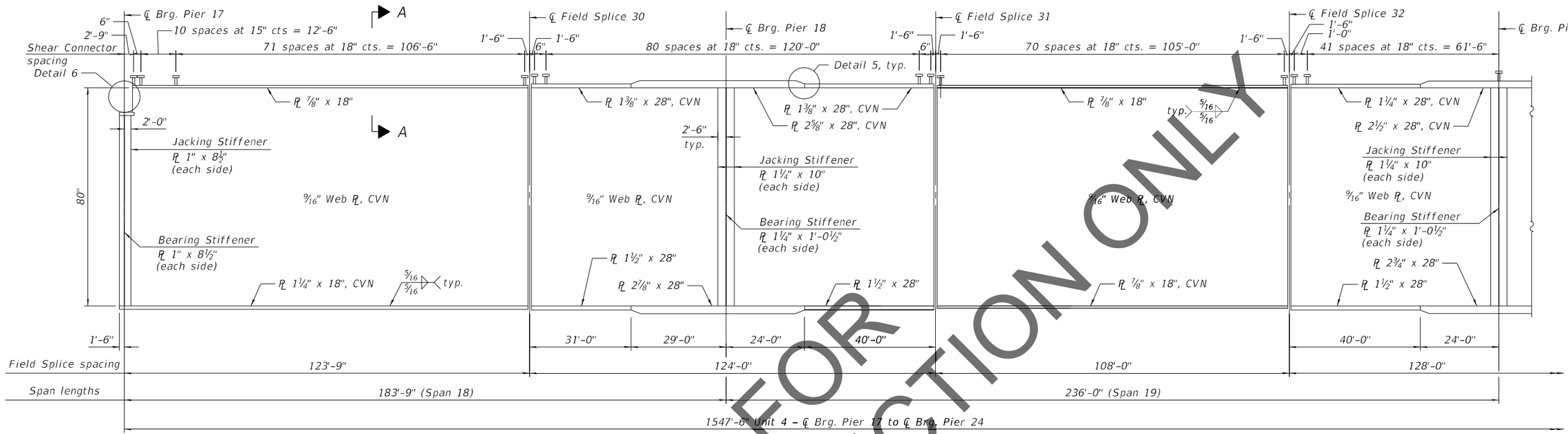
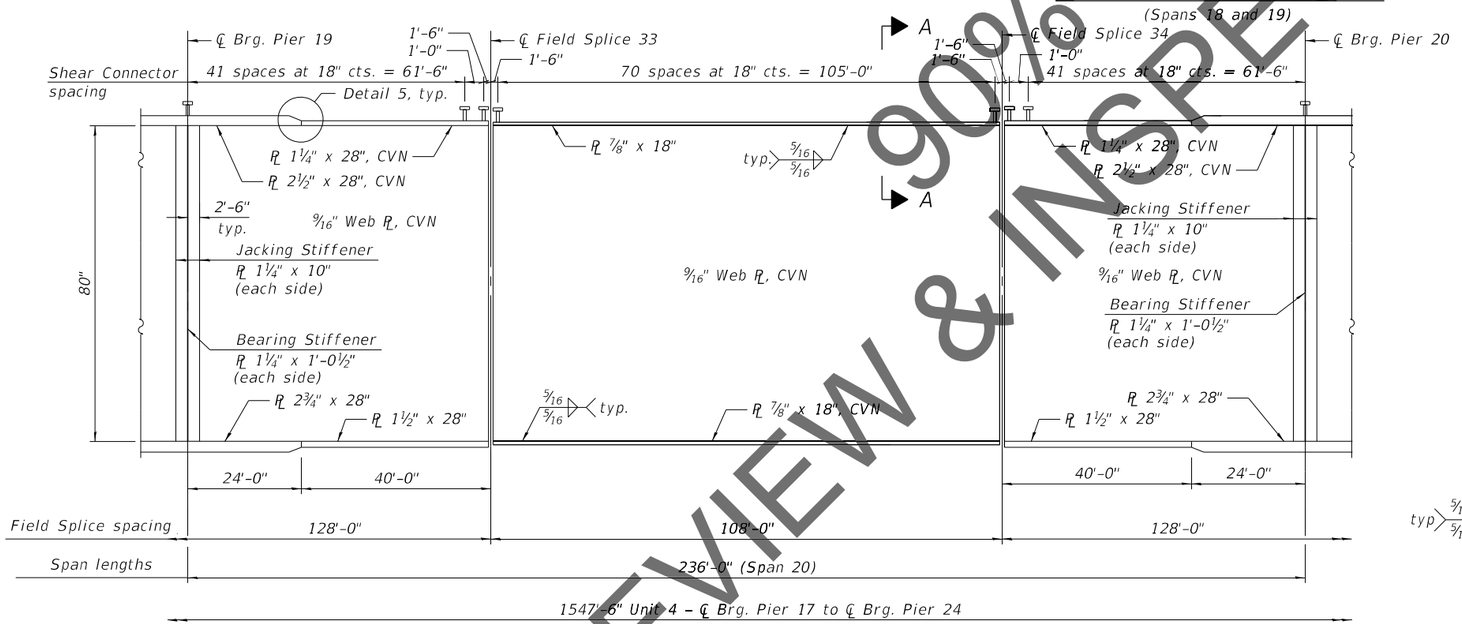
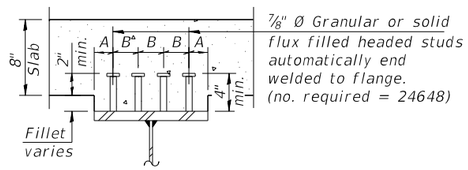


GIRDER ELEVATION – UNIT 4
(Spans 18 and 19)

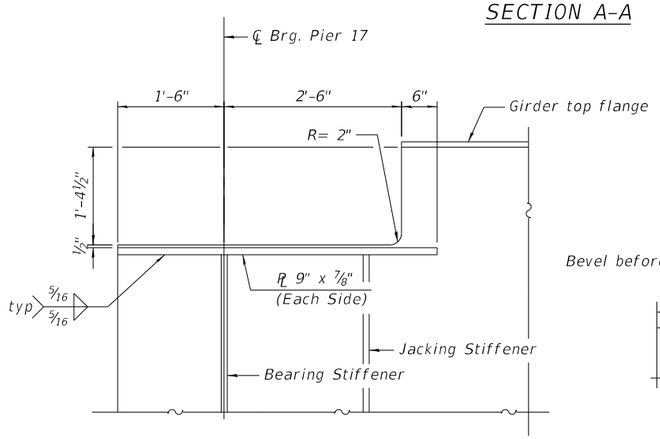


GIRDER ELEVATION – UNIT 4
(Span 20)

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



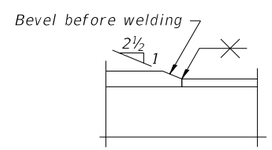
SECTION A-A



DETAIL 6

℄ Pier 17 shown, ℄ Pier 24 similar

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



DETAIL 5

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Teaming with: PARSONS

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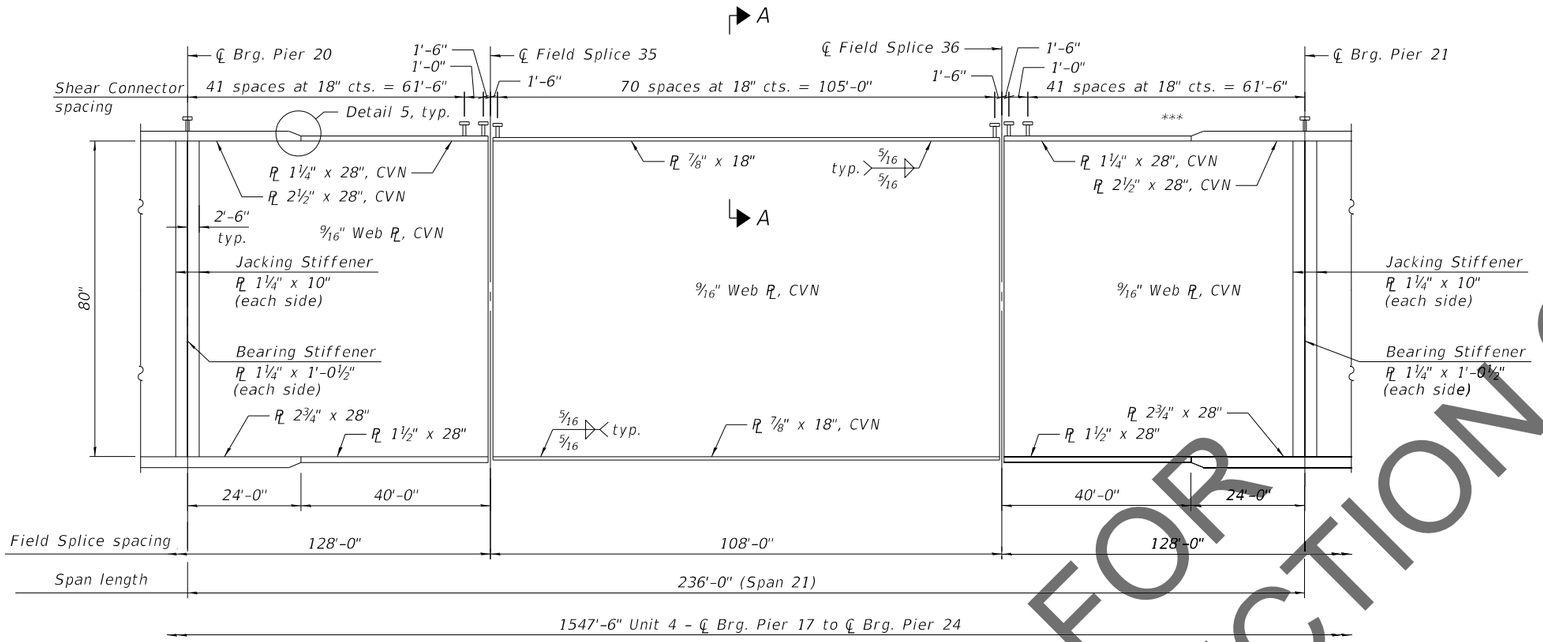
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

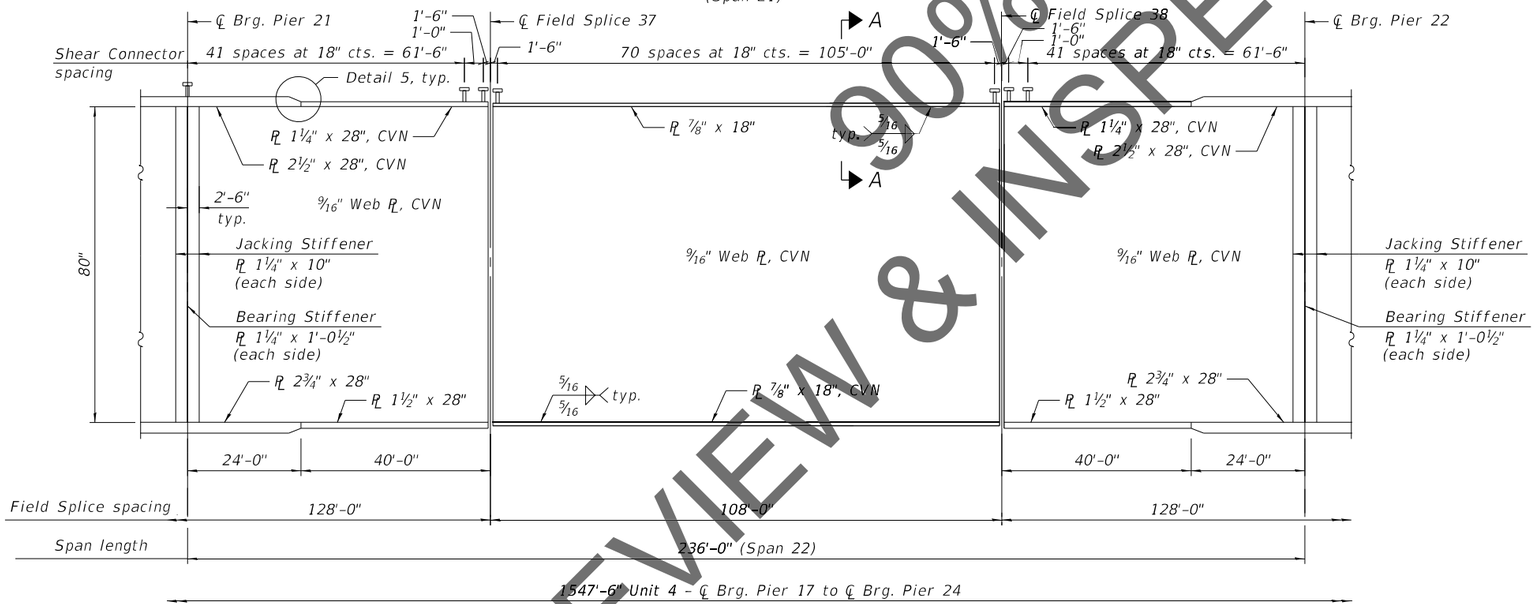
GIRDER ELEVATION UNIT 4 – 1
STRUCTURE NO. 060–0350 (EB)
SHEET 140 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	340
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



GIRDER ELEVATION - UNIT 4
(Span 21)

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



GIRDER ELEVATION - UNIT 4
(Span 22)

Note:
For section A-A and Detail 5, See sheet 140.

90% REVIEW & INSPECTION ONLY

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HORNER & SHIFRIN
Teaming with: PARSONS

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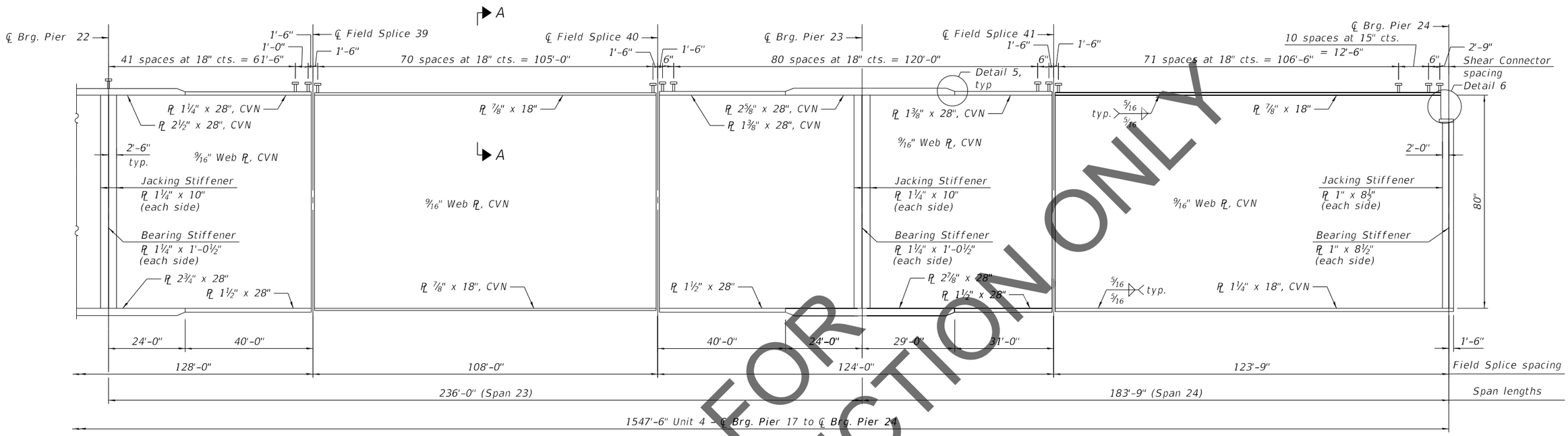
PLOT DATE =	CHECKED - TBS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 4 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 141 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	341
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



GIRDER ELEVATION - UNIT 4

(Spans 23 and 24)

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

Note:
For section A-A, Detail 5 and Detail 6, See sheet 140.

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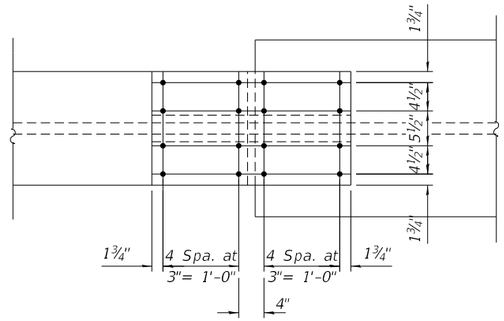
PLOT DATE =	CHECKED - TBS	REVISED -	

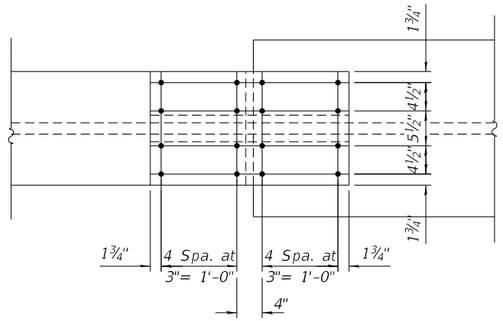
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 4 – 3
STRUCTURE NO. 060-0350 (EB)
SHEET 142 OF 292 SHEETS

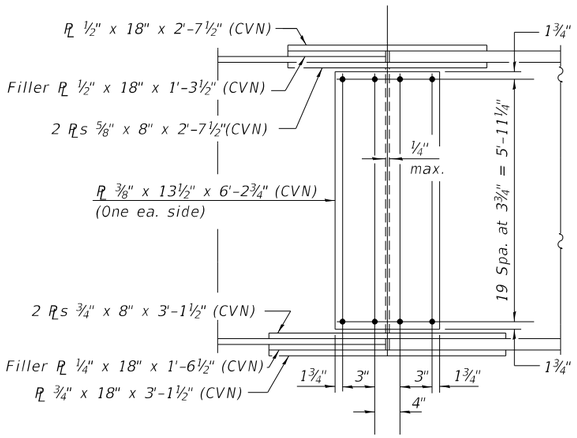
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	342
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



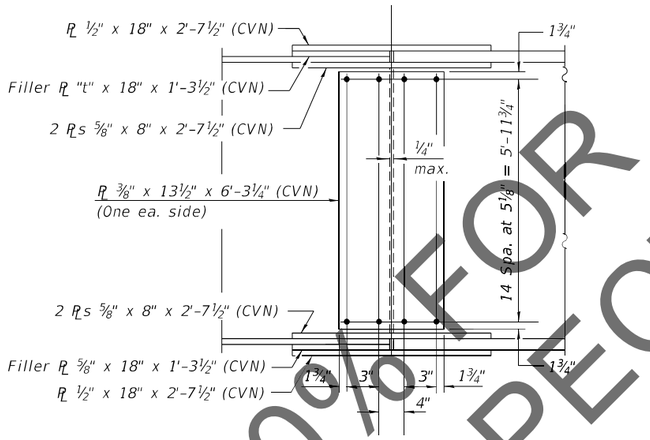
TOP FLANGE



TOP FLANGE

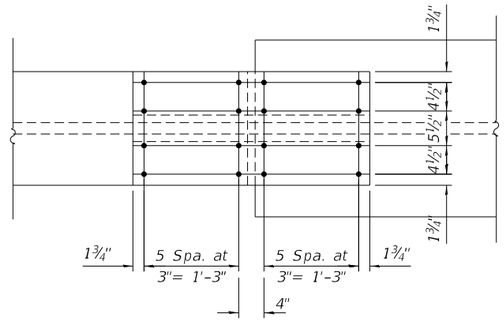


ELEVATION

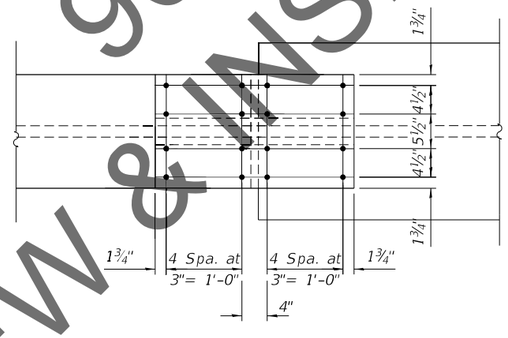


ELEVATION

Filler PL "t"	
½"	FS-31 & FS-40
⅜"	FS-32 to FS-39



BOTTOM FLANGE



BOTTOM FLANGE

FIELD SPLICE 30 & 41 DETAIL

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.

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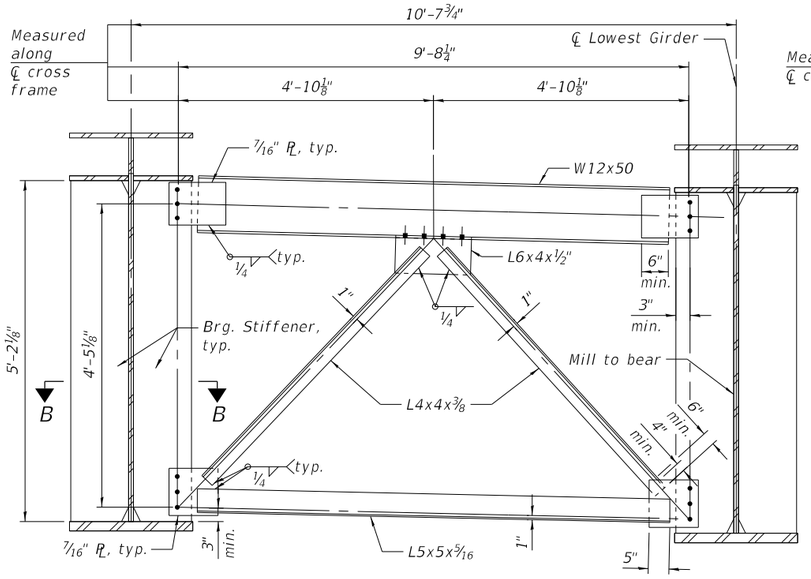
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

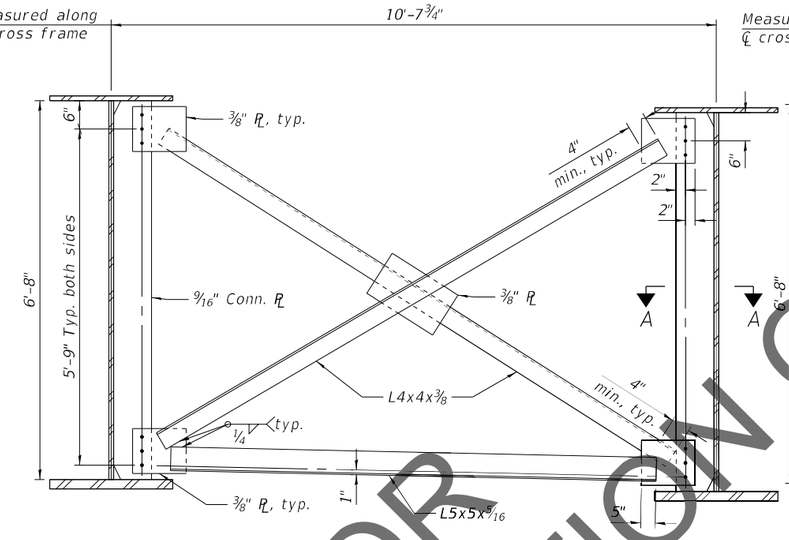
STEEL DETAILS UNIT 4 – 1
STRUCTURE NO. 060–0350 (EB)
SHEET 143 OF 292 SHEETS

F.AJ. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	343
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



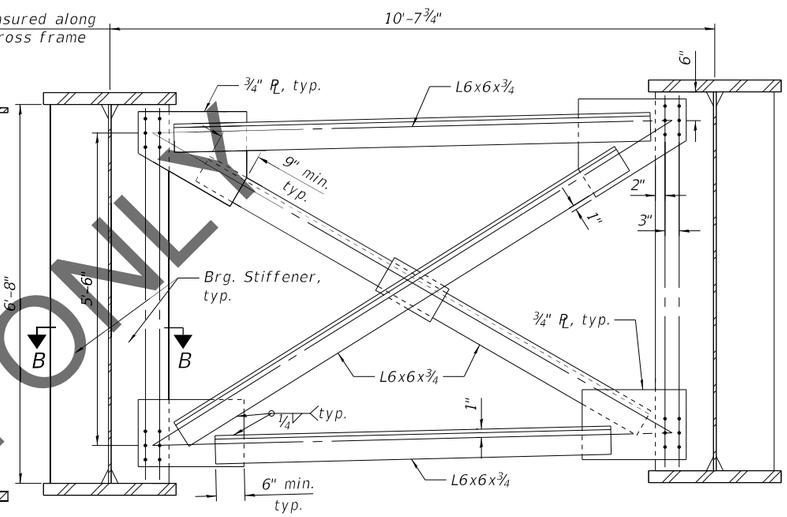
END CROSS FRAME (CF2)

(10 Required)



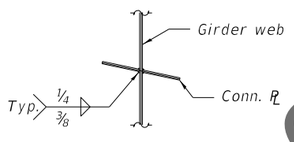
INTERIOR CROSS FRAME (CF1)

(425 Required)

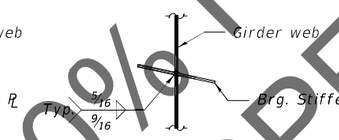


PIER CROSS FRAME (CF3)

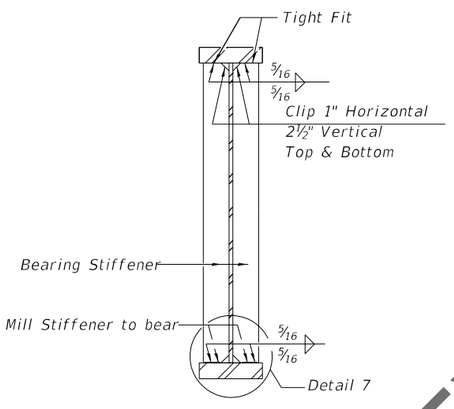
(30 Required)



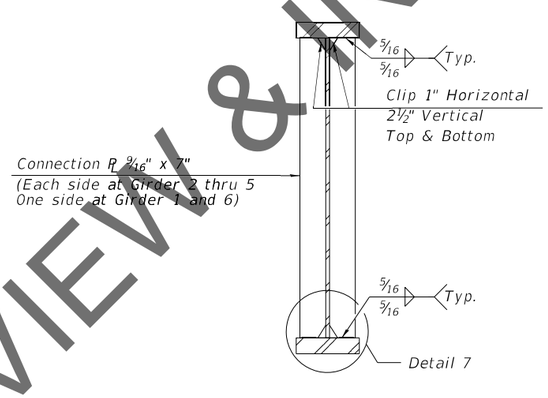
SECTION A-A



SECTION B-B

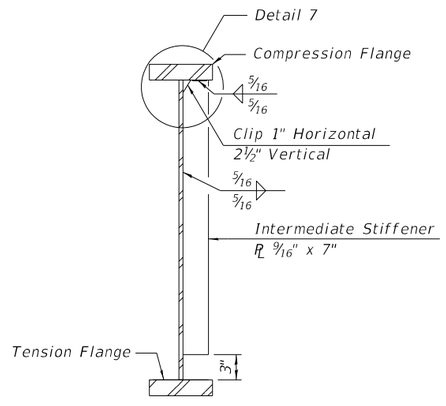


BEARING AND JACKING STIFFENER DETAILS

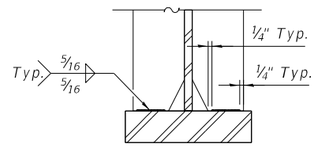


FOR CF1

CONNECTION PLATE DETAILS



INTERMEDIATE STIFFENER DETAIL



DETAIL 7

(Bottom Flange Shown, Top Flange Similar)

Notes:

All Structural Steel shall be AASHTO M 270 Grade 50.

Provide 1 1/16" ∅ holes for all ⅞" ∅ 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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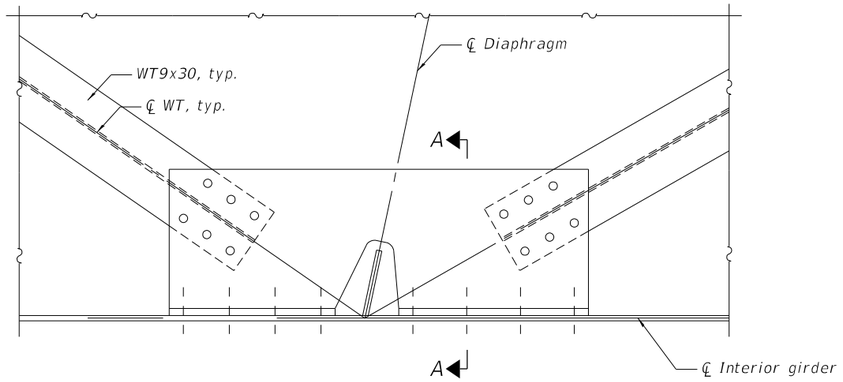
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 4 – 2
STRUCTURE NO. 060–0350 (EB)

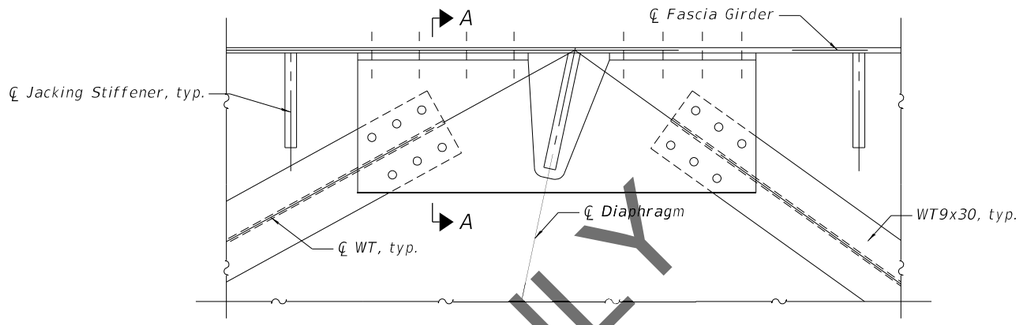
SHEET 144 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	344
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



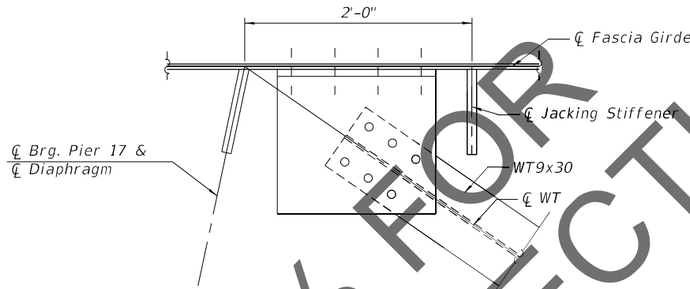
DETAIL 1

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



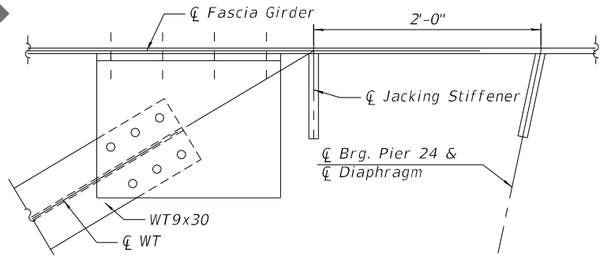
DETAIL 2

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



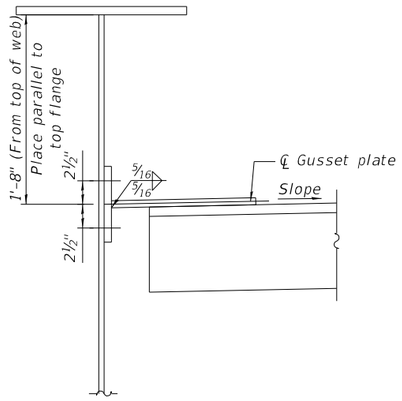
DETAIL 3

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



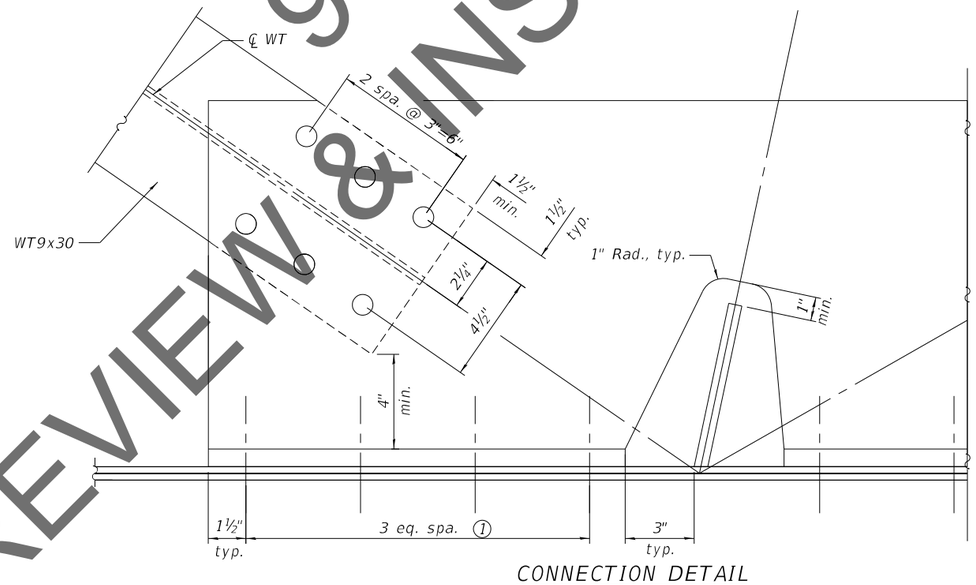
DETAIL 4

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



SECTION A-A

(Cross frame and stiffener not shown)



CONNECTION DETAIL

Notes:

All plates to be ¾".

Detail 1 1/16" dia. holes for all ⅞" dia. bolts.

Provide 1½" 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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PLOT DATE =	CHECKED - TBS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL DETAILS UNIT 4 – 3
STRUCTURE NO. 060–0350 (EB)
SHEET 145 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	345
		CONTRACT NO. 76J90		
	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
$\varphi_f M_n$	('k)	14,802	–	12,189	–	12,151	–	12,164	–	12,151	–	12,189	–	14,802
fs 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
fs 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
fs 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
fs (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
fs (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
$0.95R_hF_{yf}$	(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
fs (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
$\varphi_f F_n$	(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.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{LL+IM}$

$\varnothing_f M_n$: 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).
$f_{SDC1} + f_{SDC2} + f_{SDW} + 1.3\ f_S(LL+IM)$

$0.95R_hF_{yf}$: 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).
$1.25\ (f_{SDC1} + f_{SDC2}) + 1.5\ f_{SDW} + 1.75\ f_S(LL+IM)$

$\varnothing_f F_n$: 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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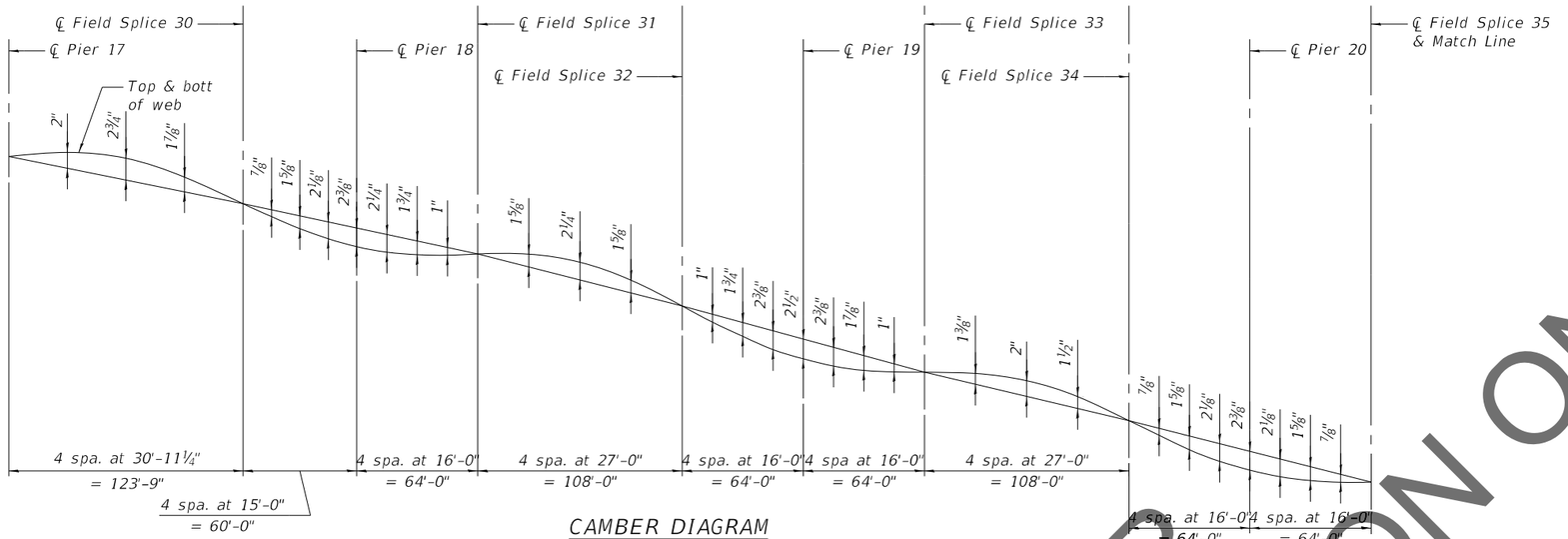
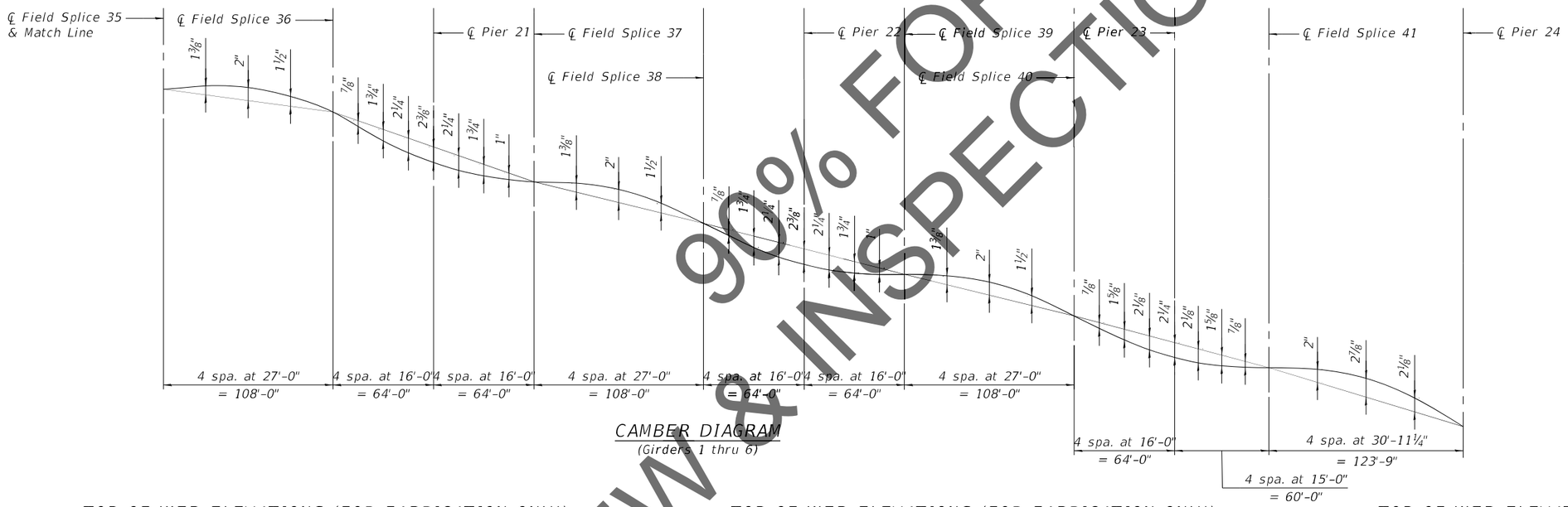


CAMBER DIAGRAM
(Girders 1 thru 6)



CAMBER DIAGRAM
(Girders 1 thru 6)

90% FOR REVIEW & INSPECTION ONLY

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Brg. Pier 17	460.48	460.70	460.89	460.69	460.49	460.30
℄ Field Splice 30	460.04	460.27	460.46	460.26	460.06	459.86
℄ Brg. Pier 18	459.56	459.78	459.97	459.77	459.57	459.37
℄ Field Splice 31	459.51	459.76	459.95	459.75	459.55	459.33
℄ Field Splice 32	458.97	459.22	459.41	459.21	459.01	458.79
℄ Brg. Pier 19	458.38	458.60	458.78	458.59	458.39	458.19
℄ Field Splice 33	458.28	458.51	458.69	458.50	458.30	458.09
℄ Field Splice 34	457.76	458.00	458.18	457.99	457.79	457.57
℄ Brg. Pier 20	457.20	457.42	457.60	457.41	457.21	457.01

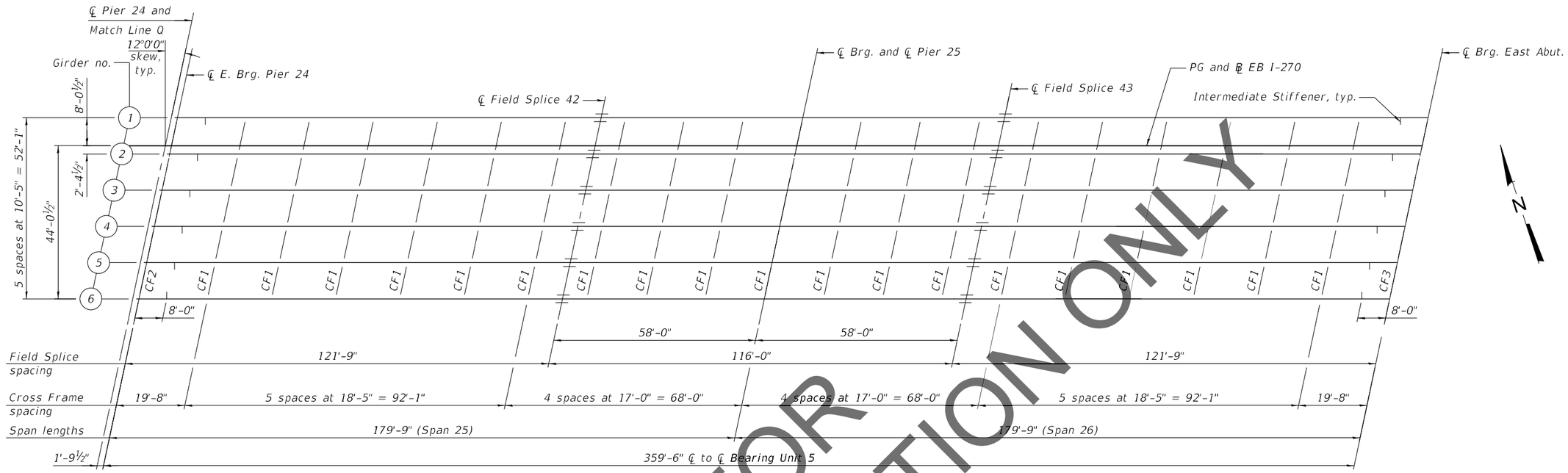
TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Field Splice 35	457.11	457.34	457.53	457.33	457.14	456.92
℄ Field Splice 36	456.58	456.82	457.01	456.81	456.62	456.40
℄ Brg. Pier 21	456.02	456.24	456.42	456.23	456.03	455.83
℄ Field Splice 37	455.93	456.16	456.35	456.16	455.96	455.74
℄ Field Splice 38	455.40	455.64	455.83	455.63	455.44	455.22
℄ Brg. Pier 22	454.84	455.06	455.24	455.05	454.85	454.65
℄ Field Splice 39	454.75	454.98	455.17	454.97	454.78	454.56
℄ Field Splice 40	454.22	454.46	454.64	454.45	454.25	454.03
℄ Brg. Pier 23	453.66	453.88	454.07	453.87	453.67	453.48

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Field Splice 41	453.56	453.79	453.98	453.78	453.59	453.38
℄ Brg. Pier 24	452.74	452.96	453.15	452.95	452.76	452.56

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



FRAMING PLAN - UNIT 5

(Spans 25 and 26)

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Notes:
For field splice details, see sheet 143 of 292 .
For cross frame details, see sheet 144 of 292 .

HORNER & SHIFRIN / Teaming with: PARSONS	USER NAME =	DESIGNED - ASP	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	FRAMING PLAN UNIT 5 STRUCTURE NO. 060-0350 (EB)	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - PY	REVISED -			270	60B-1	MADISON	860	348
	PLOT SCALE =	DRAWN - MLS	REVISED -					CONTRACT NO. 76J90		
	PLOT DATE =	CHECKED - TBS	REVISED -		SHEET 148 OF 292 SHEETS			ILLINOIS FED. AID PROJECT		

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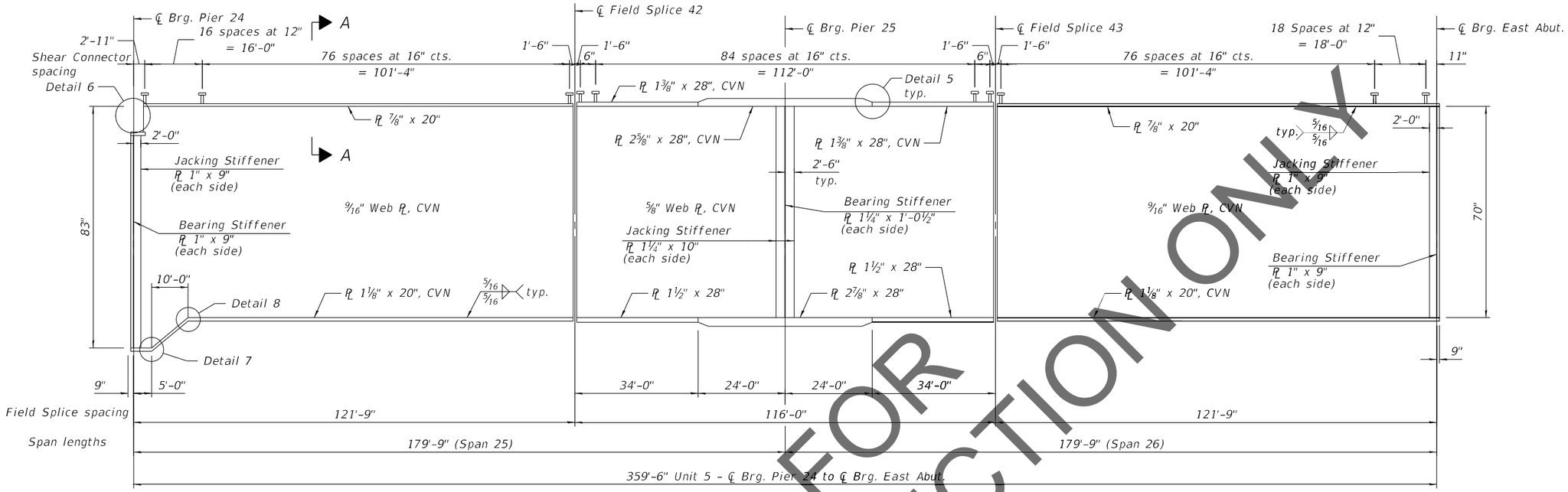
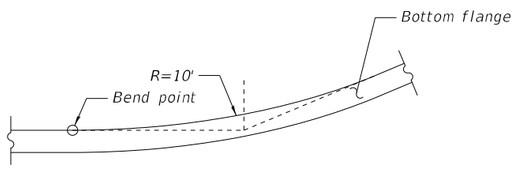
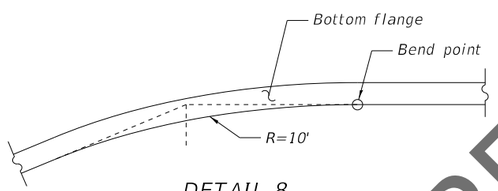


GIRDER ELEVATION - UNIT 5
(Spans 25 and 26)

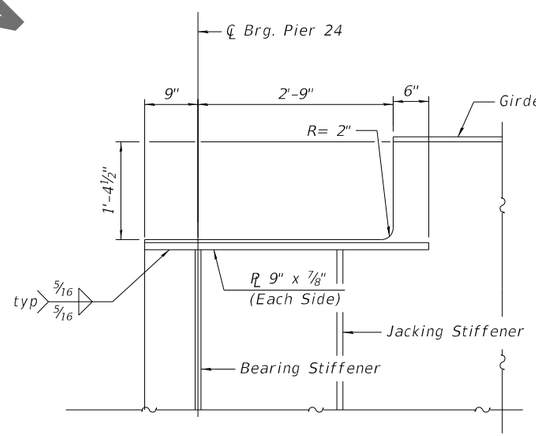
"CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.



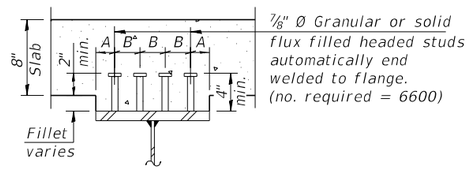
DETAIL 7



DETAIL 8

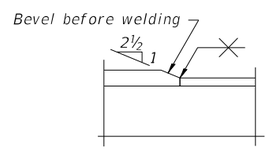


DETAIL 6



SECTION A-A

Flange Width	A	B
20"	2½"	5"
28"	2"	8"



DETAIL 5

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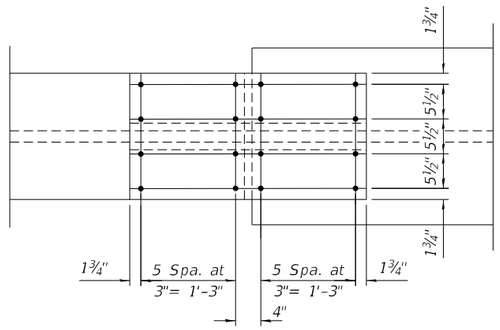
HORNER & SHIFRIN / PARSONS	USER NAME =	DESIGNED - ASP	REVISED -
		CHECKED - PY	REVISED -
	PLOT SCALE =	DRAWN - MLS	REVISED -
	PLOT DATE =	CHECKED - TBS	REVISED -

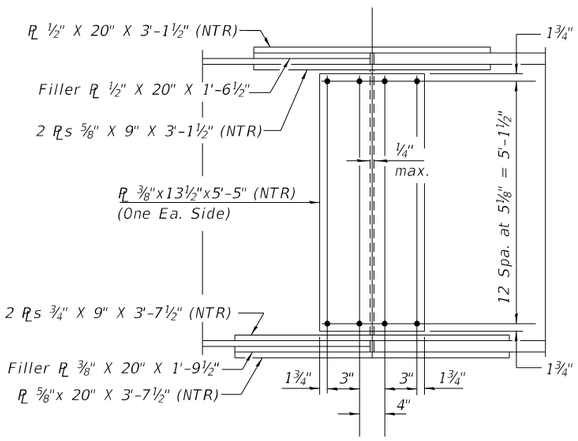
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION UNIT 5
STRUCTURE NO. 060-0350 (EB)
SHEET 149 OF 292 SHEETS

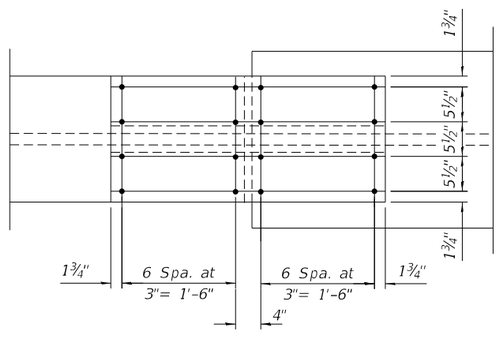
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	349
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



TOP FLANGE



ELEVATION



BOTTOM FLANGE

FIELD SPLICE 42 & 43 DETAIL

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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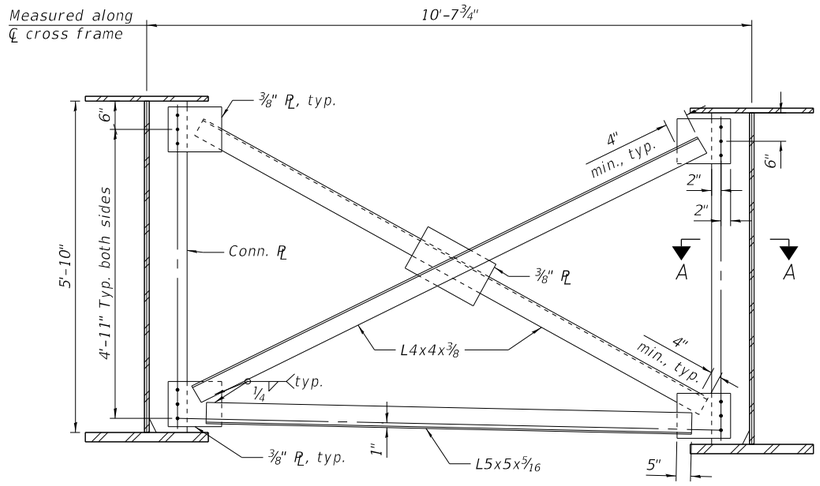
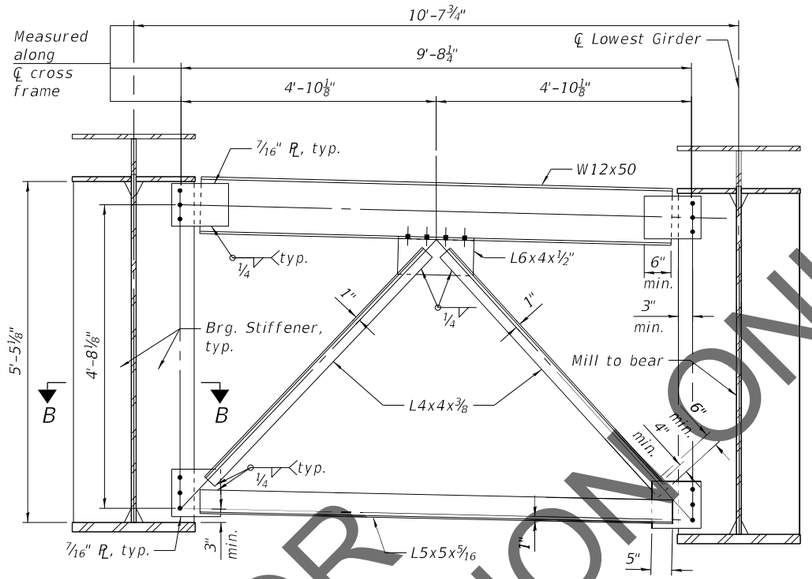


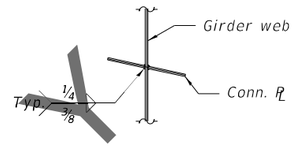
INTERIOR CROSS FRAME (CF1)

(95 Required)

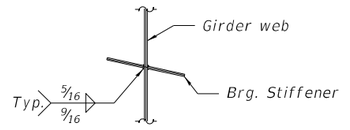


END CROSS FRAME (CF2)

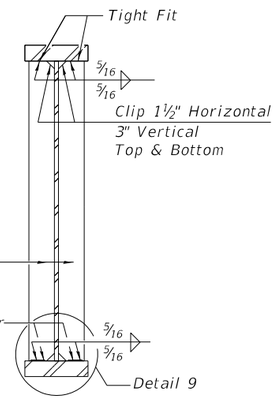
(5 Required)



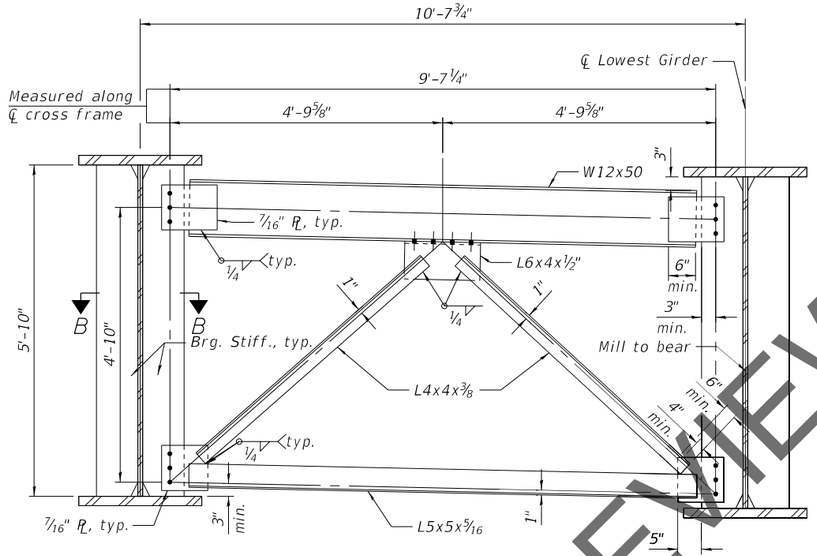
SECTION A-A



SECTION B-B

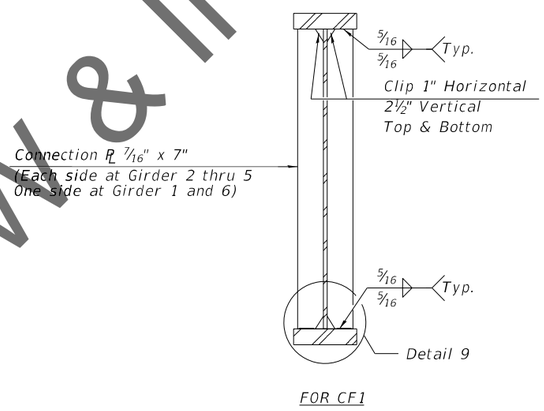


BEARING AND JACKING STIFFENER DETAILS



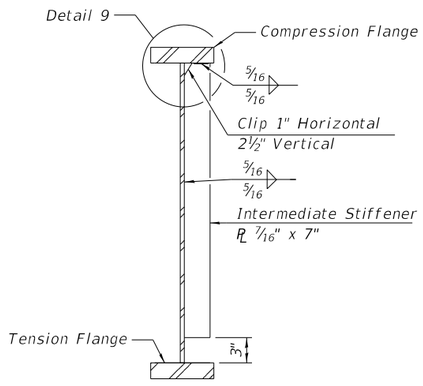
END CROSS FRAME (CF3)

(5 Required)

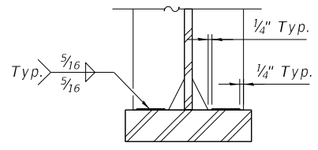


FOR CF1

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⁁16" ∅ holes for all ⅞" ∅ 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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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
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	56.3	45.7	56.3
$\phi_f F_n$	(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).
$f_{SDC1} + f_{SDC2} + f_{SDW} + 1.3\ f_S(LL + IM)$

$0.95R_hF_{yf}$: 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).
$1.25\ (f_{SDC1} + f_{SDC2}) + 1.5\ f_{SDW} + 1.75\ f_S(LL + IM)$

$\phi_f F_n$: 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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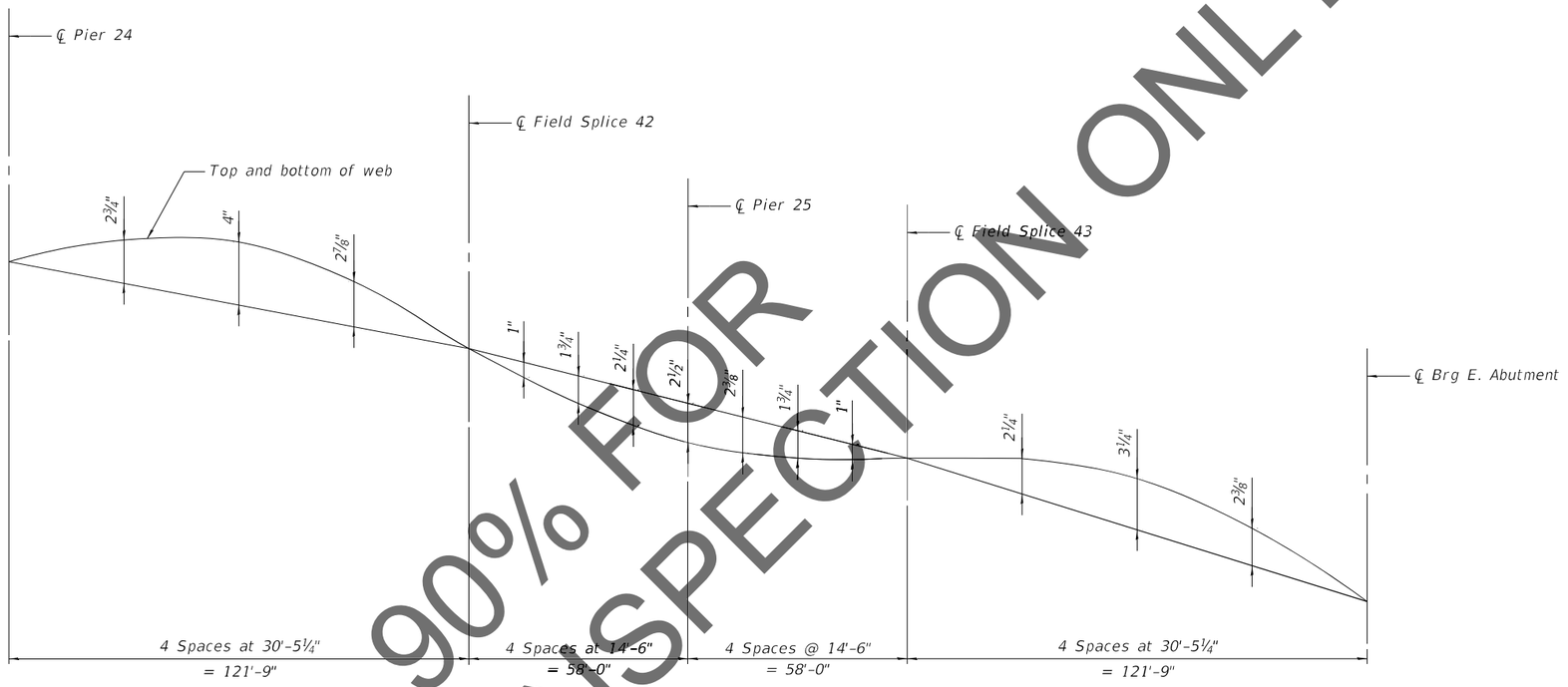

CAMBER DIAGRAM
(Girders 1 thru 6)

TOP OF WEB ELEVATIONS (FOR FABRICATION ONLY)

LOCATION	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ Brg. Pier 24	452.73	452.95	453.13	452.94	452.74	452.54
℄ Field Splice 1	452.36	452.60	452.79	452.60	452.40	452.17
℄ Brg. Pier 25	451.83	452.05	452.24	452.04	451.84	451.64
℄ Field Splice 2	451.68	451.91	452.10	451.90	451.70	451.50
℄ Brg. E. Abut.	450.93	451.15	451.34	451.14	450.94	450.74

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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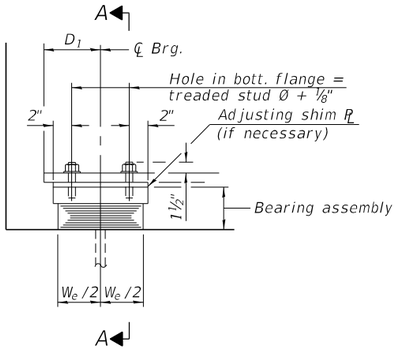
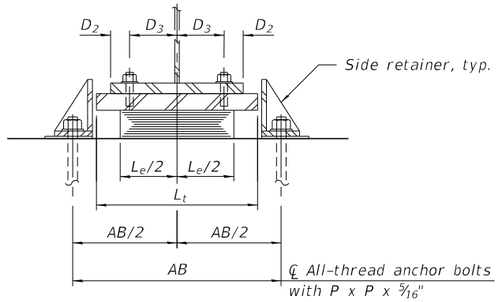
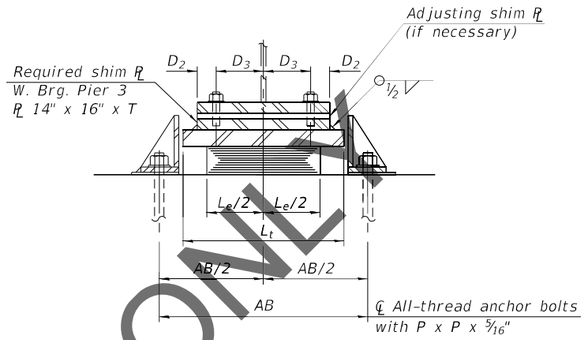


ELEVATION AT GIRDER END

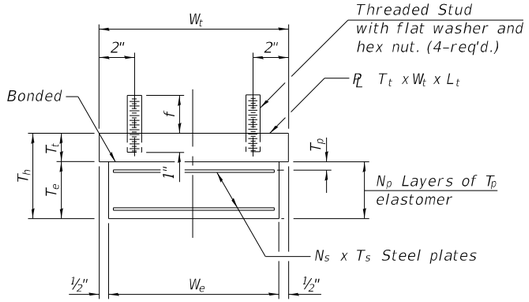


SECTION A–A
(W. Abutment)

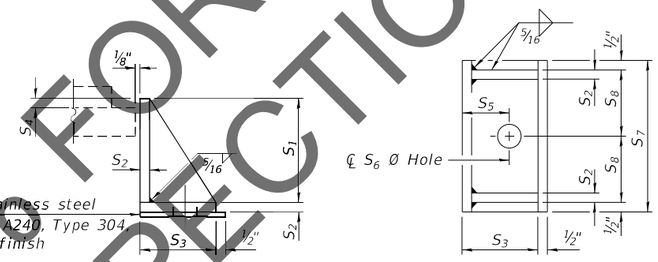


SECTION A–A
(W. Brg. Pier 3)

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY



SIDE RETAINER

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

SHIM PL

Girder	T
1	3¾"
2	3⅝"
3	4"
4	4"
5	4⅛"
6	4"
7	3¾"

GIRDER DIMENSIONS

Location	D_1	D_2	D_3	AB
W. Abut.	8"	4"	4"	27¾"
W. Brg. Pier 3	8"	4"	4"	27¾"

SIDE RETAINER DIMENSIONS

Location	S_1	S_2	S_3	S_4	S_5	S_6	S_7	S_8
W. Abut.	6¼"	⅝"	7⅞"	1 1/16"	2¾"	1¾"	12"	5½"
W. Brg. Pier 3	6¼"	⅝"	7⅞"	1 1/16"	2¾"	1¾"	12"	5½"

ELASTOMERIC BEARING ASSEMBLIES TYPE I

Location	L_e	W_e	T_p	N_p	T_s	N_s	T_e	W_t	L_t	T_t	T_h	f	Anchor Bolt	Anchor Bolt Grade	P	Threaded Stud
W. Abut.	20"	13"	⅝"	6	3/16"	5	4 1/16"	14"	22"	1¾"	6 7/16"	2¼"	1½" ø x 18"	105	3"	¾"ø
W. Brg. Pier 3	20"	13"	⅝"	6	3/16"	5	4 1/16"	14"	22"	1¾"	6 7/16"	2¼"	1½" ø x 18"	105	3"	¾"ø

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	14
Anchor Bolts, 1½"	Each	28

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

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

Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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 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 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.

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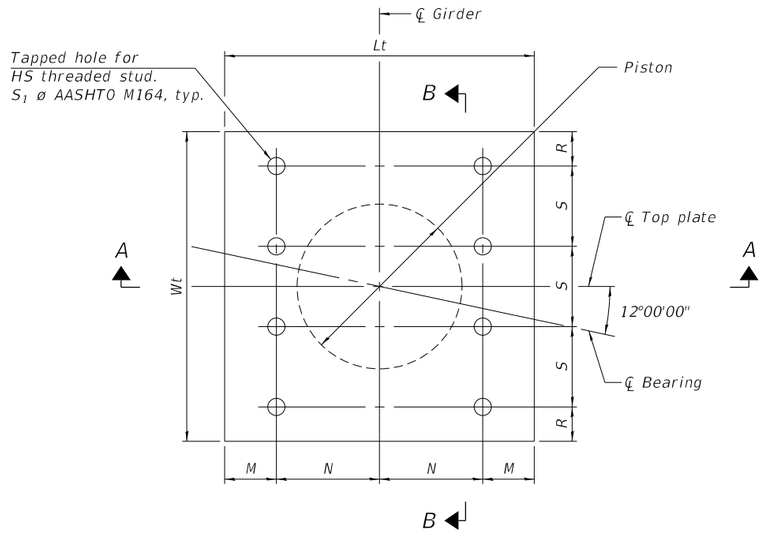
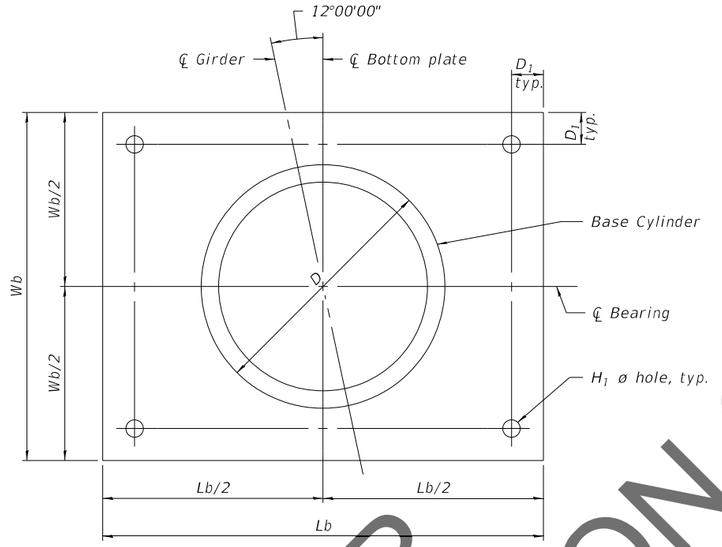
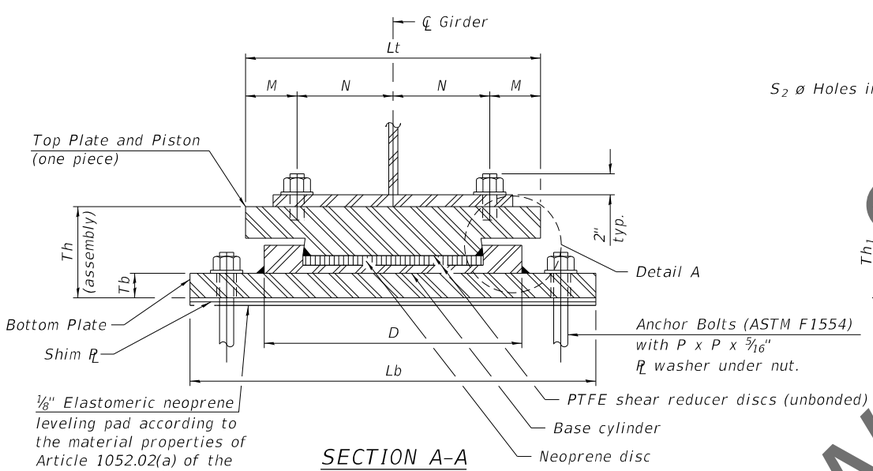


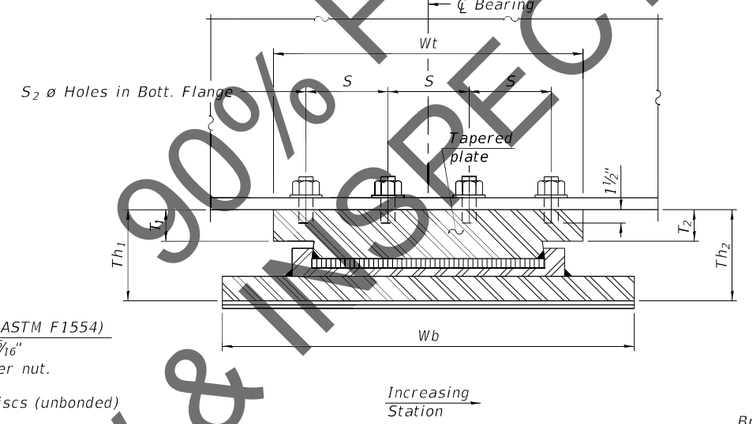
TOP BEARING ℄ AND PISTON PLAN



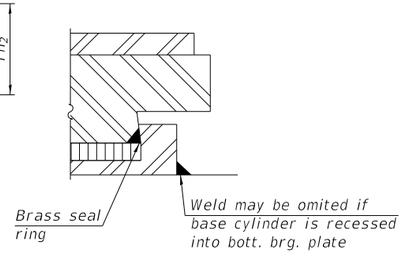
BOTTOM BEARING ℄ AND BASE CYLINDER PLAN
(Piers 1 & 2)



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 ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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-Rotation Bearings, Fixed 550k	Each	14
Anchor Bolts, 1½"	Each	56

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 1	496	148.8	0.0023	2"	32"	20"	2"	2¾"	2¼"	2¼"	21"	20"	5½"	5"	2½"	5"	¾"	12"	12"	12"	18¼"	⅞"	1½" ø x 18"	105	3"
Pier 2	496	148.8	0.0023	2"	32"	20"	2"	2¾"	2¼"	2¼"	21"	20"	5½"	5"	2½"	5"	¾"	12"	12"	12"	18¼"	⅞"	1½" ø x 18"	105	3"

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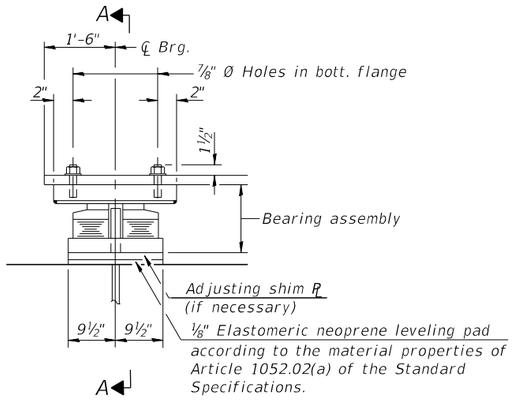
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - JJD	REVISED -	
	CHECKED - NHP	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - JSR	REVISED -	

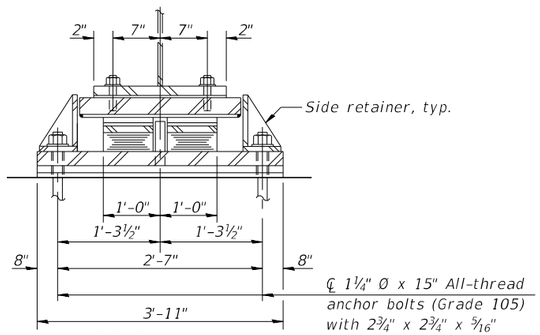
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNIT 1 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 155 OF 292 SHEETS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	355
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



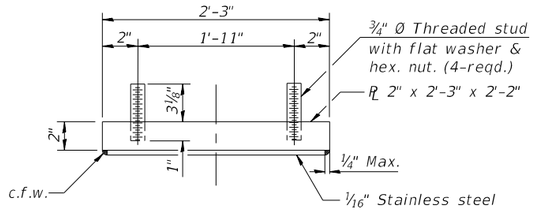
ELEVATION



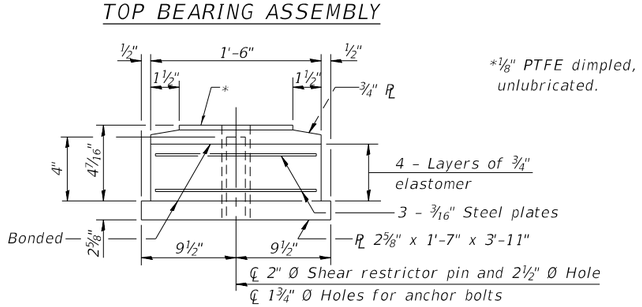
SECTION A-A

TYPE III ELASTOMERIC EXP. BRG.

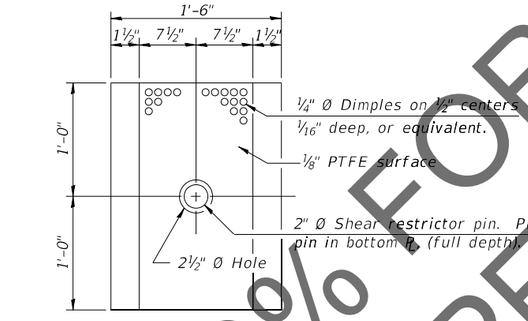
(Girders 1 thru 7 Unit 2 at Pier 3.
Girders 1 thru 5 and 7 Unit 2 at Pier 10)



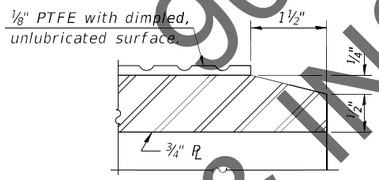
TOP BEARING ASSEMBLY



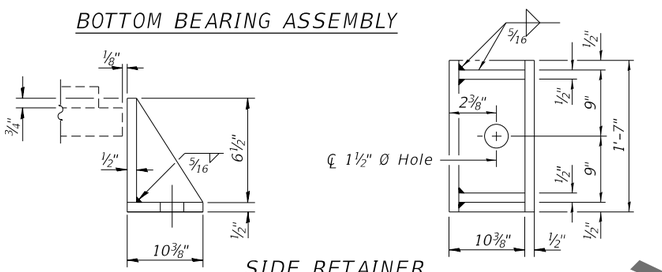
*⅛" PTFE dimpled, unlubricated.



PLAN-PTFE ELASTOMERIC BRG.



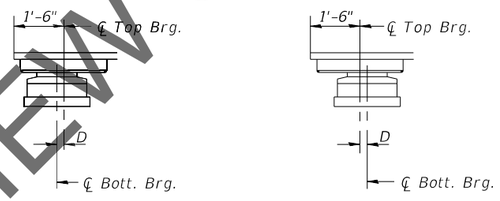
BOTTOM BEARING ASSEMBLY



SIDE RETAINER

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

SECTION THRU PTFE



BELOW 50° F. ABOVE 50° F.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F.

Contributing expansion length to Pier 3 = 742' and to Pier 10 = 838'.

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:

The ⅛" 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 ⅛" 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 ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type III	Each	13
Anchor Bolts, 1¼"	Each	26

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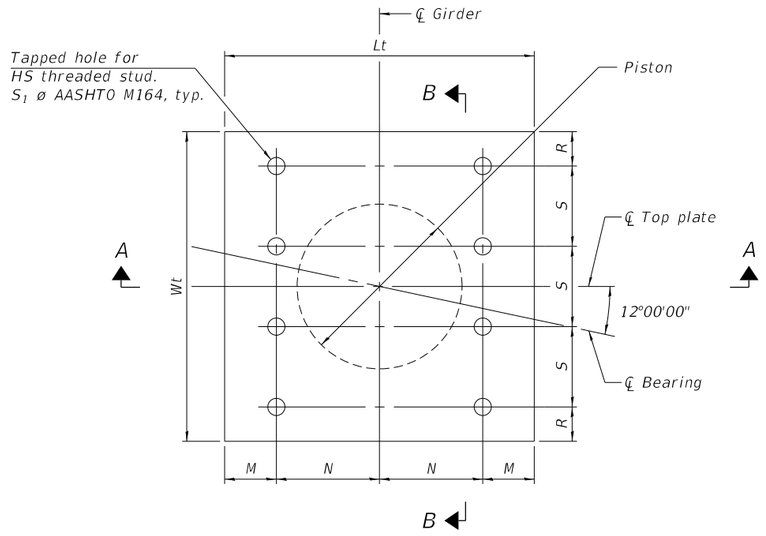
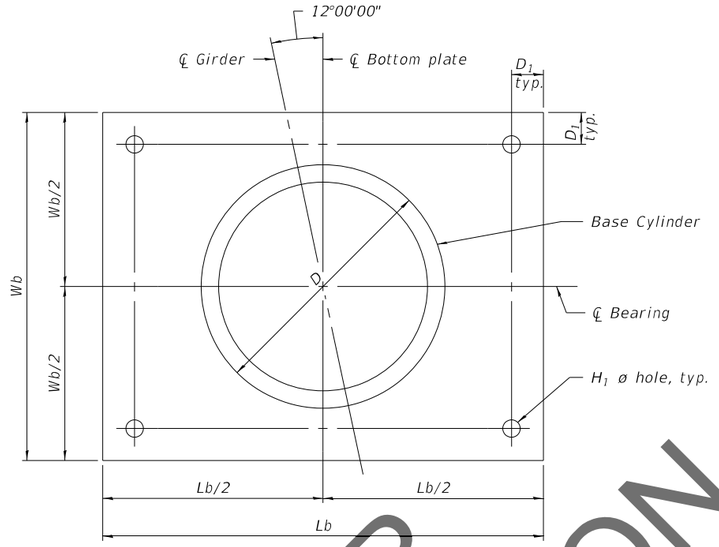
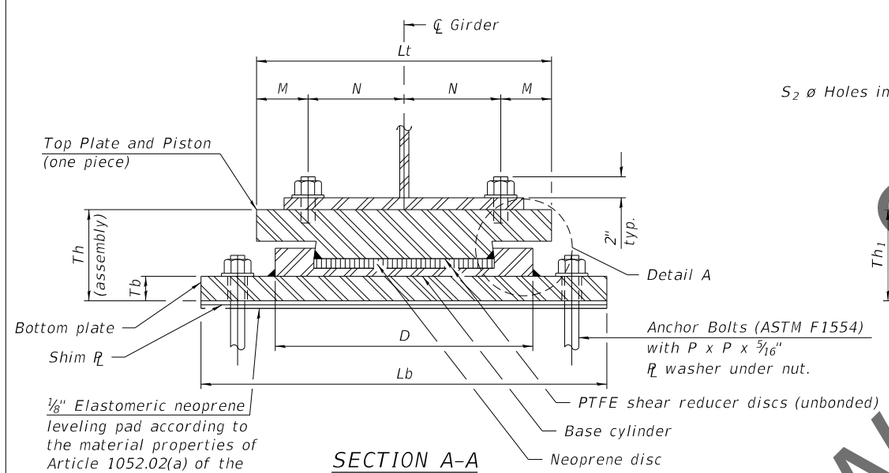


TOP BEARING ℄ AND PISTON PLAN

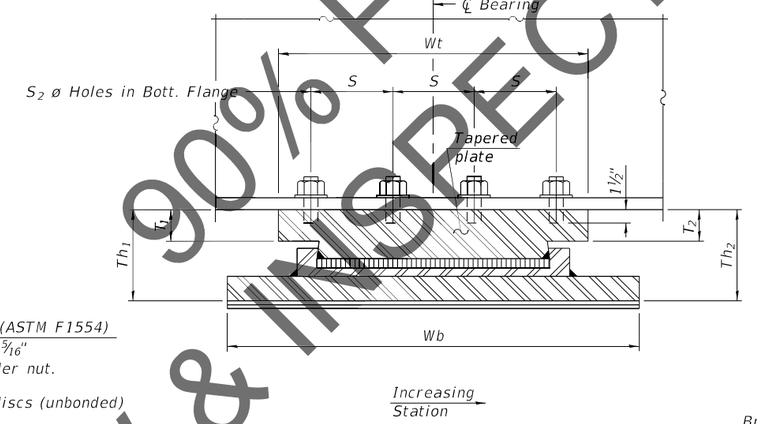


BOTTOM BEARING ℄ AND BASE CYLINDER PLAN

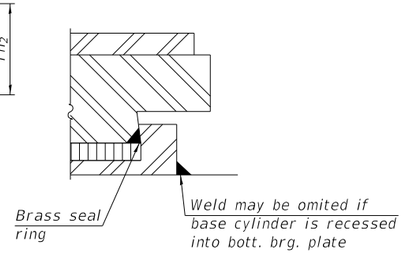
Same as on Unit 1 (Piers 5 thru 8)



SECTION A-A



SECTION B-B



DETAIL A

Notes:

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

Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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 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-Rotation Bearings, Fixed 900k	Each	25
Anchor Bolts, 2"	Each	100

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)	Tb	Lb	Wb	H_1	D_1	T_1	T_2	Lt	Wt	M	N	R	S	S_1								
Pier 5	765	229.4	0.0021	3"	49"	36"	2½"	3¼"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1⅛"	2" ø x 24"	36	3½"
Pier 6	808	242.4	0.0025	3"	49"	36"	2½"	3¼"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1⅛"	2" ø x 24"	36	3½"
Pier 7	805	241.6	0.0031	3"	49"	36"	2½"	3¼"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1⅛"	2" ø x 24"	36	3½"
Pier 8	810	242.9	0.0027	3"	49"	36"	2½"	3¼"	3"	3"	36"	30"	10"	8"	6"	6"	1"	15"	15"	15"	24"	1⅛"	2" ø x 24"	36	3½"

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HORNER & SHIFRIN
Teaming with: PARSONS

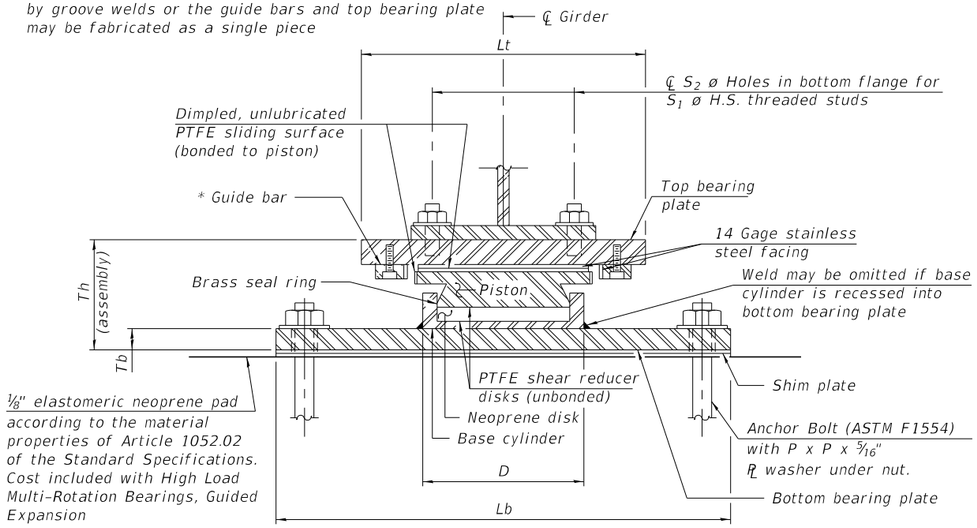
USER NAME =	DESIGNED - UVK	REVISED -	
	CHECKED - JJD	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - JSR	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNIT 2 – 2
STRUCTURE NO. 060-0350 (EB)
SHEET 157 OF 292 SHEETS

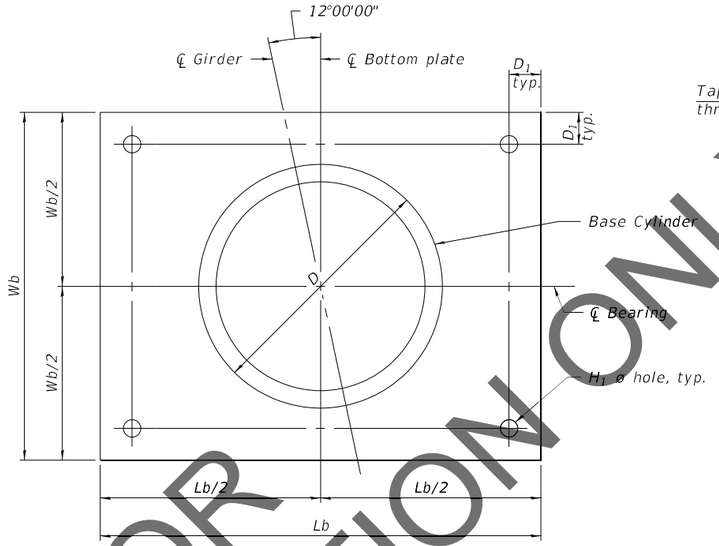
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	357
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		

* 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

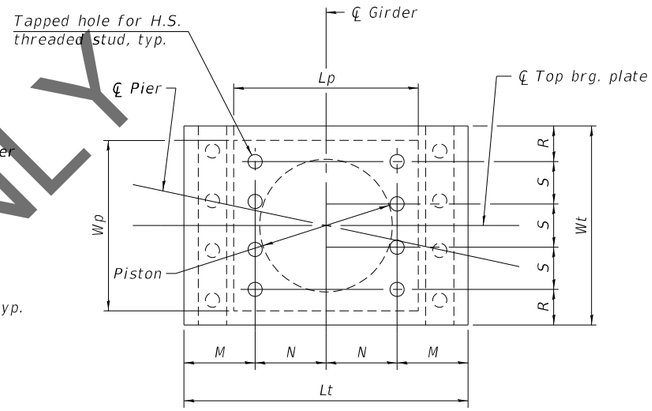


1/8" elastomeric neoprene pad according to the material properties of Article 1052.02 of the Standard Specifications. Cost included with High Load Multi-Rotation Bearings, Guided Expansion

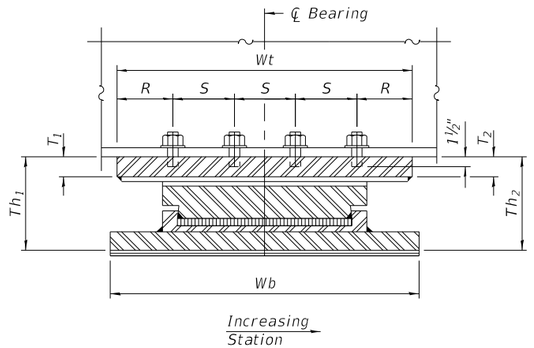
GUIDED EXPANSION BEARING



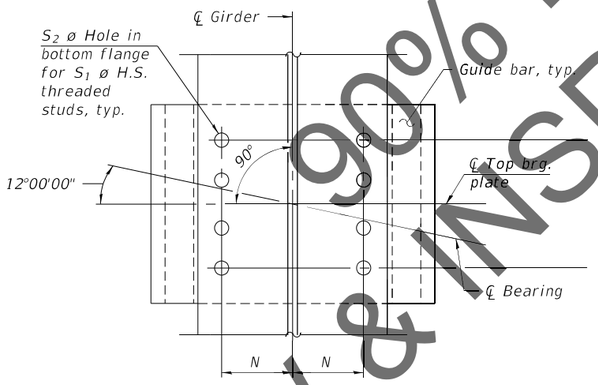
BOTTOM BEARING ℄ AND BASE CYLINDER PLAN



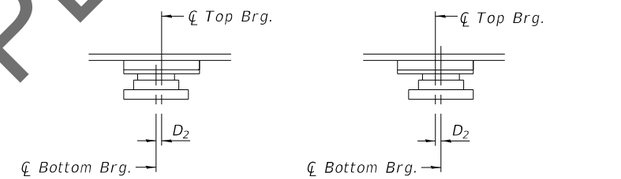
TOP BEARING ℄ AND PISTON PLAN



TOP PLATE TAPER DETAIL



BEARING ALIGNMENT



SETTING ANCHOR BOLTS AT EXP. BRG.

D_2=⅛" 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 ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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 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)	Tb	Lb	Wb	H_1	D_1	T_1	T_2	Lt	Wt	M	N	R	S	S_1	Wp	Lp								
Pier 4	807.1	242.1	0.0025	3"	49"	36"	2½"	3¼"	3"	3"	36"	40"	10"	8"	11"	6"	1"	28½"	28½"	15"	15"	15"	24"	1⅛"	2"ø x 24"	36	3½"
Pier 9	833.2	250.0	0.0028	3"	49"	36"	2½"	3¼"	3"	3"	36"	40"	10"	8"	11"	6"	1"	28½"	28½"	15"	15"	15"	24"	1⅛"	2"ø x 24"	36	3½"

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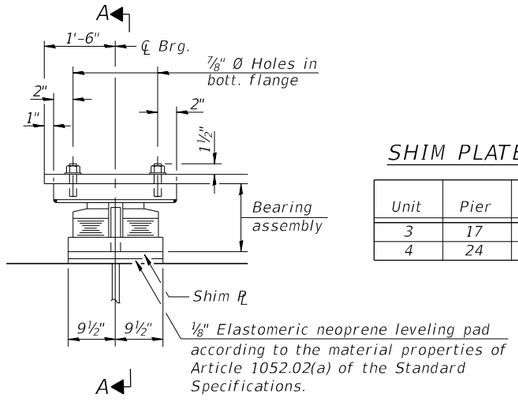
HORNER & SHIFRIN
Teaming with: PARSONS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS UNIT 2 – 3
STRUCTURE NO. 060–0350 (EB)
SHEET 158 OF 292 SHEETS

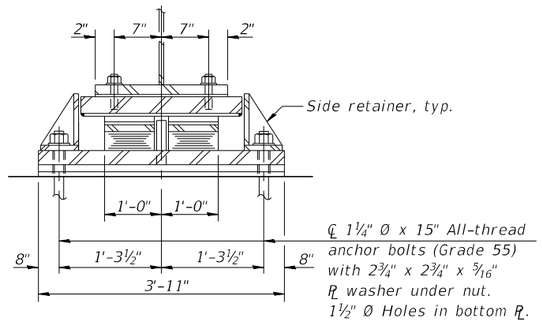
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	358
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



ELEVATION

SHIM PLATE THICKNESS

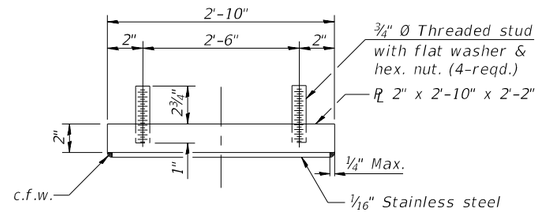
Unit	Pier	Girder	Shim Plate Thickness
3	17	1-6	¼"
4	24	1-6	⅛"



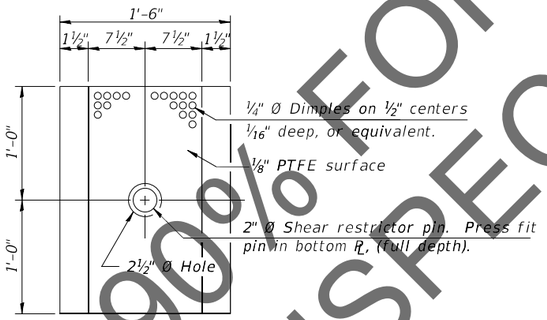
SECTION A-A

TYPE III ELASTOMERIC EXP. BRG.

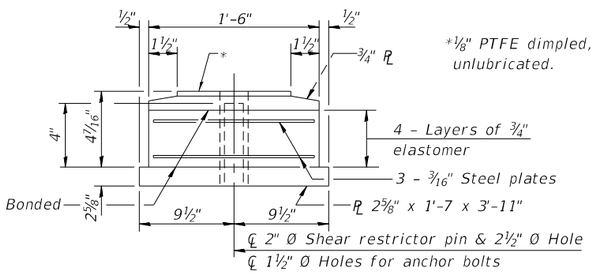
(Girders 1 thru 6 Unit 3 at Pier 10
Girders 1 thru 6 Unit 3 at Pier 17
Girders 1 thru 6 Unit 4 at Pier 17
Girders 1 thru 6 Unit 4 at Pier 24)



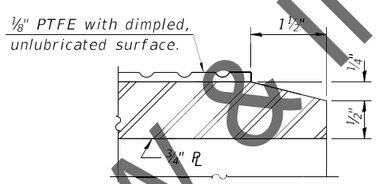
TOP BEARING ASSEMBLY



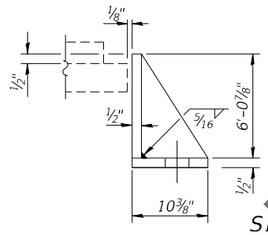
PLAN-PTFE ELASTOMERIC BRG.

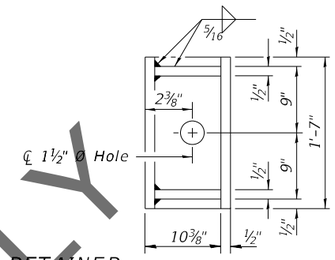


BOTTOM BEARING ASSEMBLY



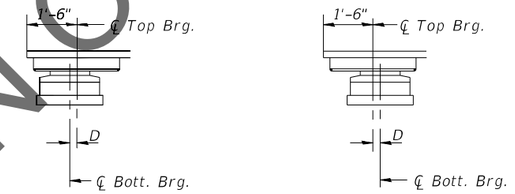
SECTION THRU PTFE





SIDE RETAINER

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



BELOW 50° F. ABOVE 50° F.
D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 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 ⅛" 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 ⅛" 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 ⅛" 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, 1¼"	Each	48

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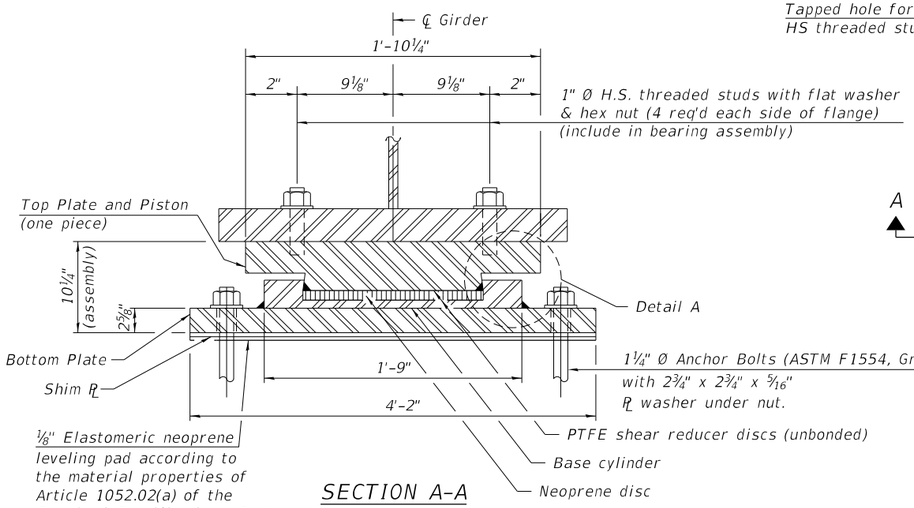
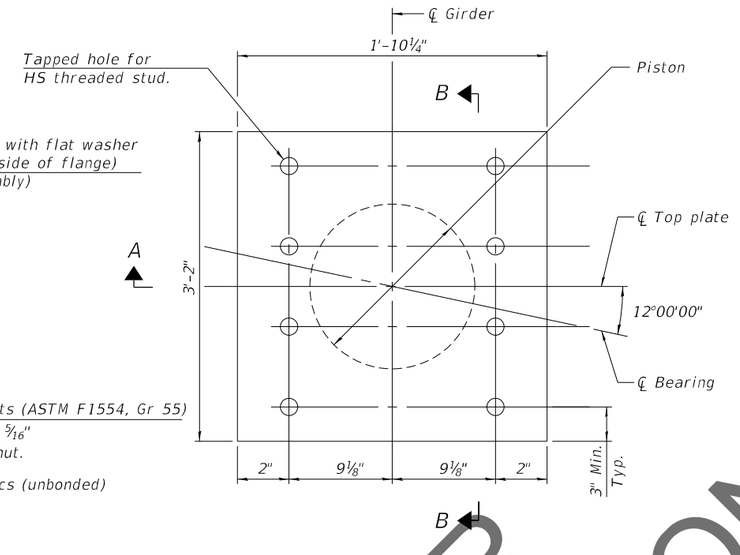
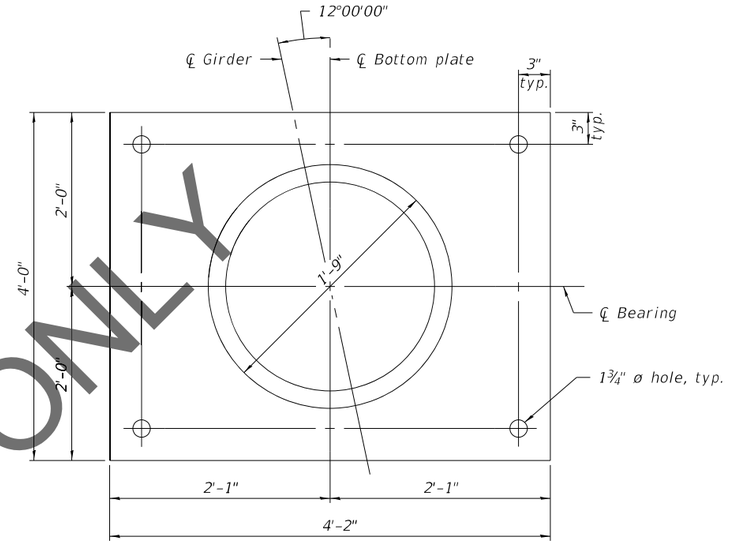


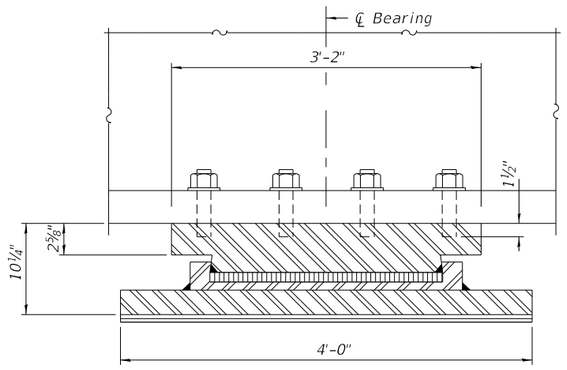
SECTION A-A



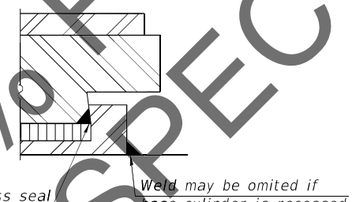
TOP BEARING PL AND PISTON PLAN



BOTTOM BEARING PL 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 ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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 confrom 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 Tb 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, 1¼"	Each	216

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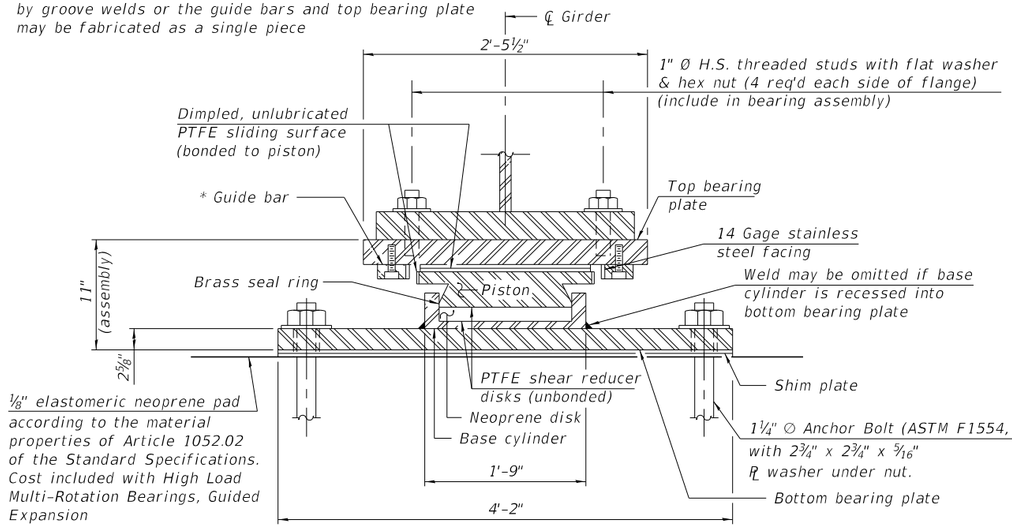
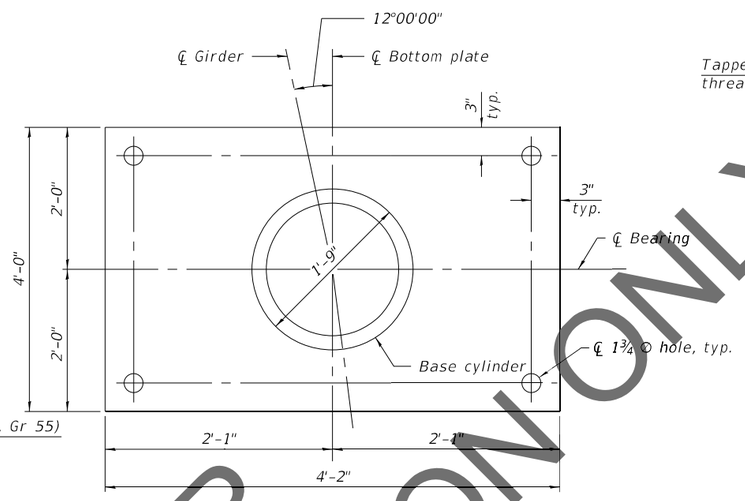
* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece

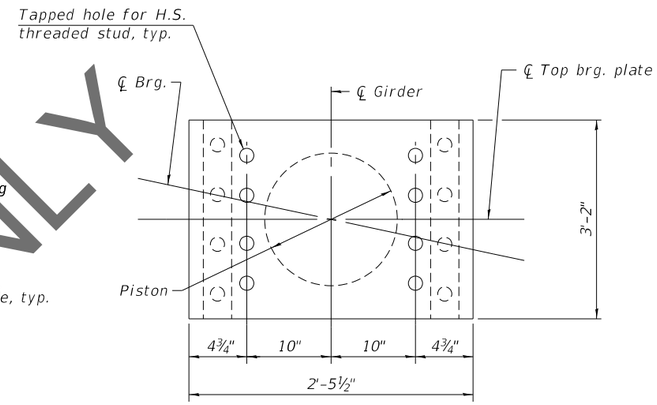


GUIDED EXPANSION BEARING

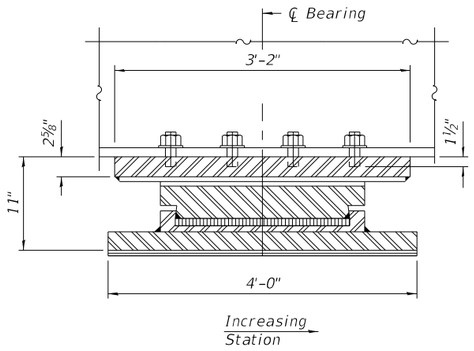
(Girders 1 thru 6 Unit 3 at Piers 11 & 16
Girders 1 thru 6 Unit 4 at Piers 18 & 23)



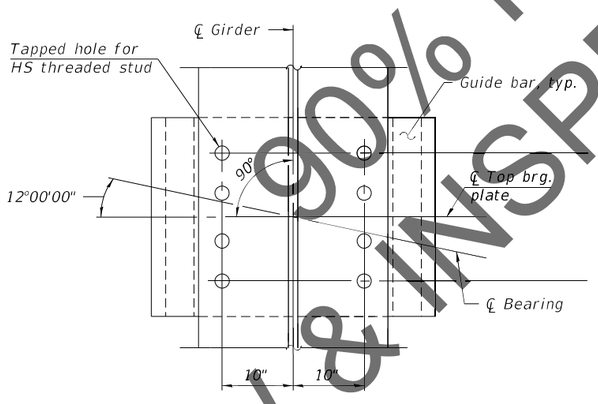
BOTTOM BEARING ℄ AND BASE CYLINDER PLAN



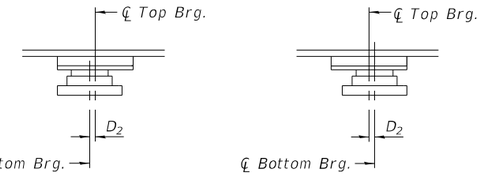
TOP BEARING ℄ AND PISTON PLAN



TOP PLATE DETAIL



BEARING ALIGNMENT



Assumed contributing expansion length = 625 ft. for Unit 3 Pier 11 and 16.
Assumed contributing expansion length = 598 ft. for Unit 4 Pier 18 and 23.

SETTING ANCHOR BOLTS AT EXP. BRG.

D = ⅛" 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

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 AASHTO M 270 Grade 50.

Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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 Tb plus the depth of the recess.

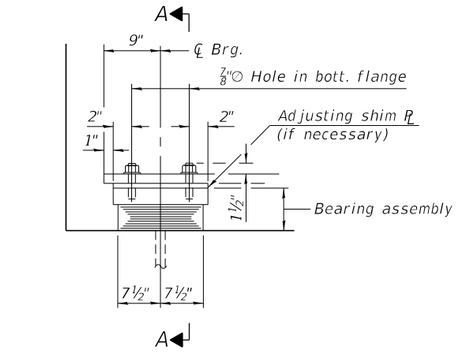
H.S. threaded studs in bearing assembly shall be galvanized according to AASHTO M298 Class 50.

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.

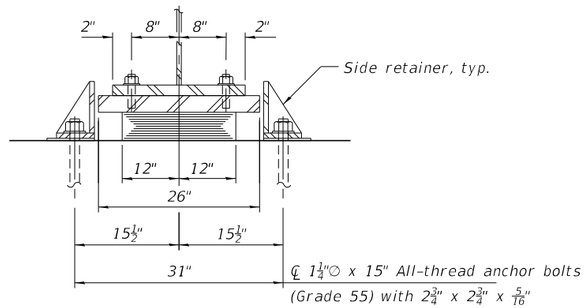
BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion, 850k	Each	24
Anchor Bolts, 1¼"	Each	96

90% REVIEW & INSPECTION ONLY



ELEVATION AT GIRDER END

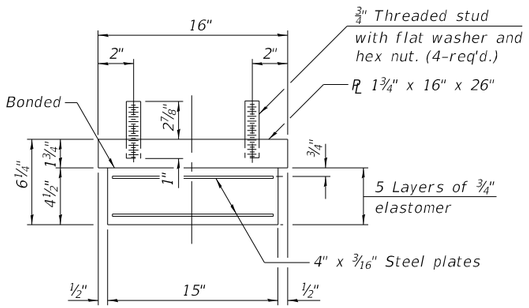


SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

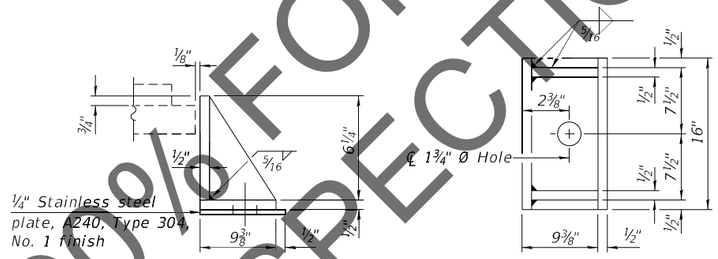
(Girders 1 thru 6 Unit 5 at Pier 24
Girders 1 thru 6 Unit 5 at E. Abut.)

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



BEARING ASSEMBLY

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



SIDE RETAINER

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

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.

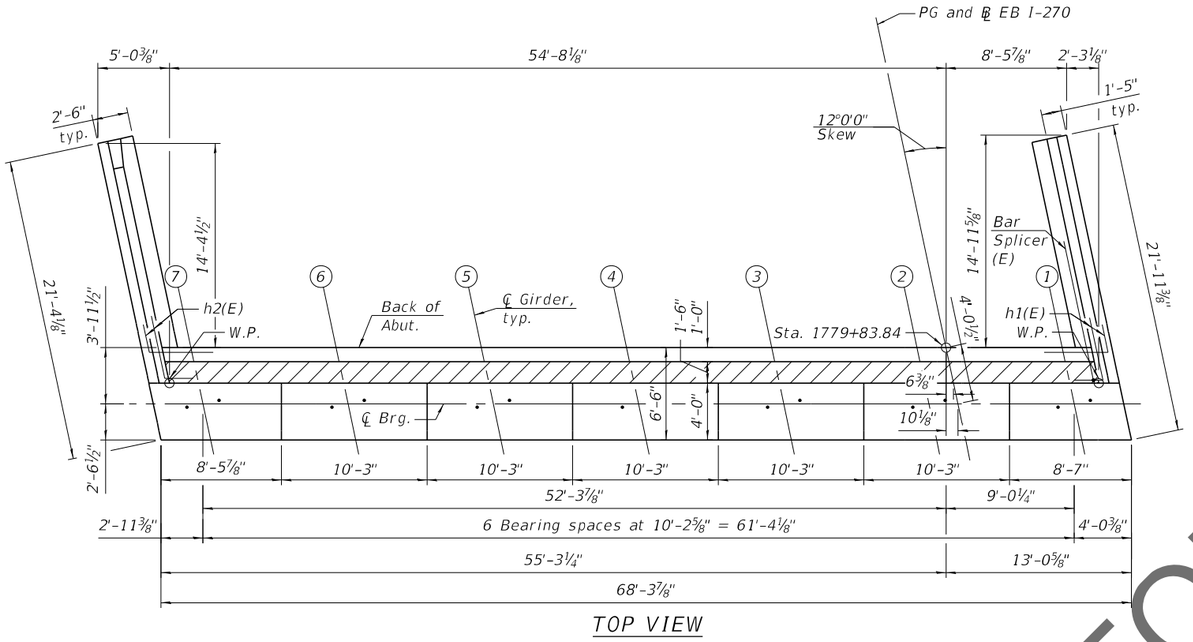
Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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.

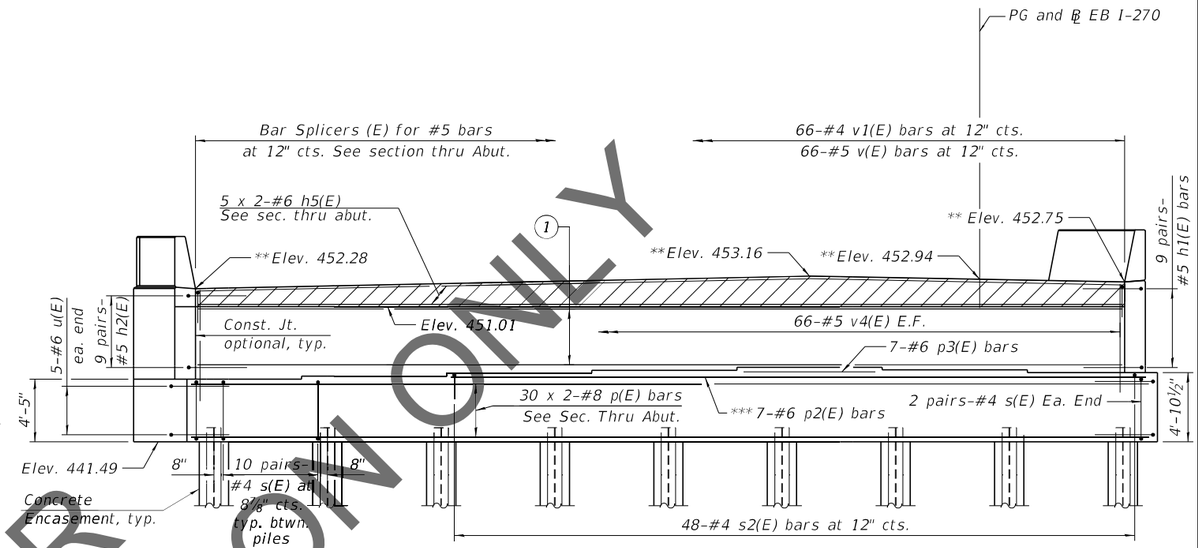
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12
Anchor Bolts, 1¼"	Each	24

90% REVIEW & INSPECTION ONLY



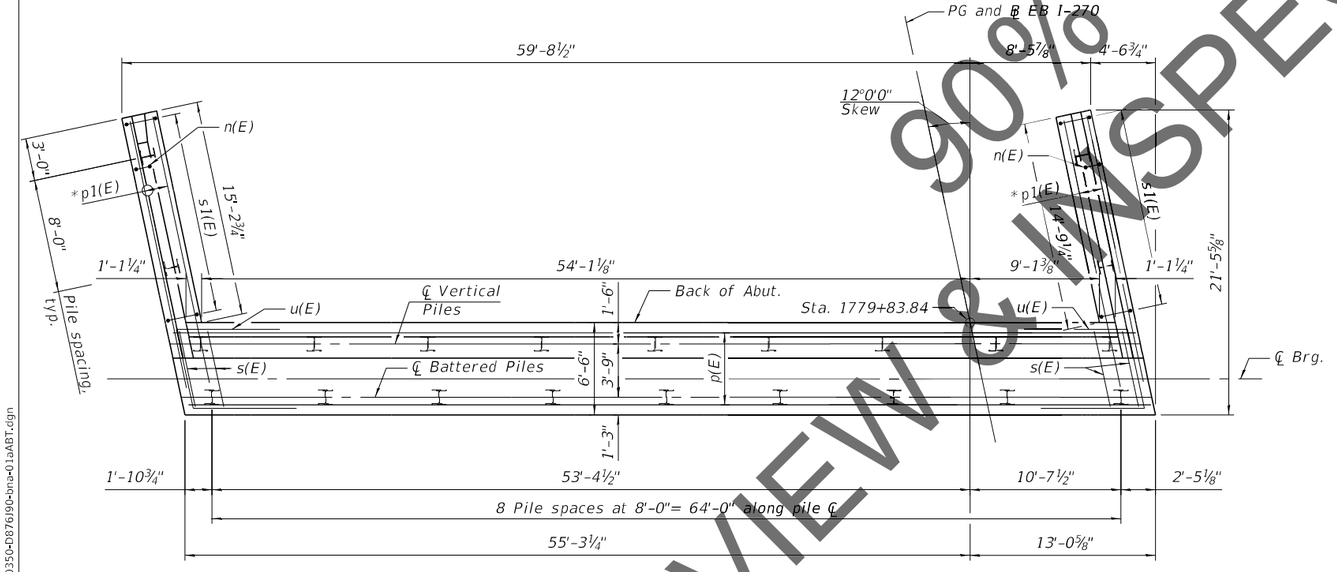
TOP VIEW



ELEVATION

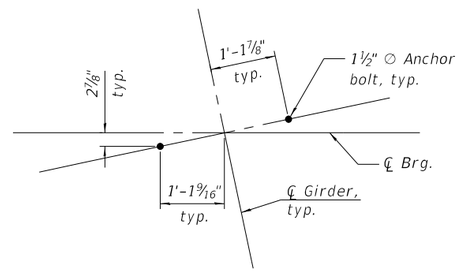
** Prior to Grinding
*** Field cut to fit skew

(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"

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 164 of 292 .

STEP HEIGHT

GIRDER	STEP HT.
1-2	2¼"
2-3	2¼"
3-4	-2½"
4-5	-2½"
5-6	-2½"
6-7	-2½"

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION
1	446.37
2	446.56
3	446.75
4	446.54
5	446.33
6	446.12
7	445.91

PILE DATA

Type: HP 12X84
Nominal Required Bearing: 638 kips
Factored Resistance Available: 178 kips
Est. Length: 57 ft
No. Production Piles: 20
No. Test Piles: 2

90% FOR REVIEW & INSPECTION ONLY

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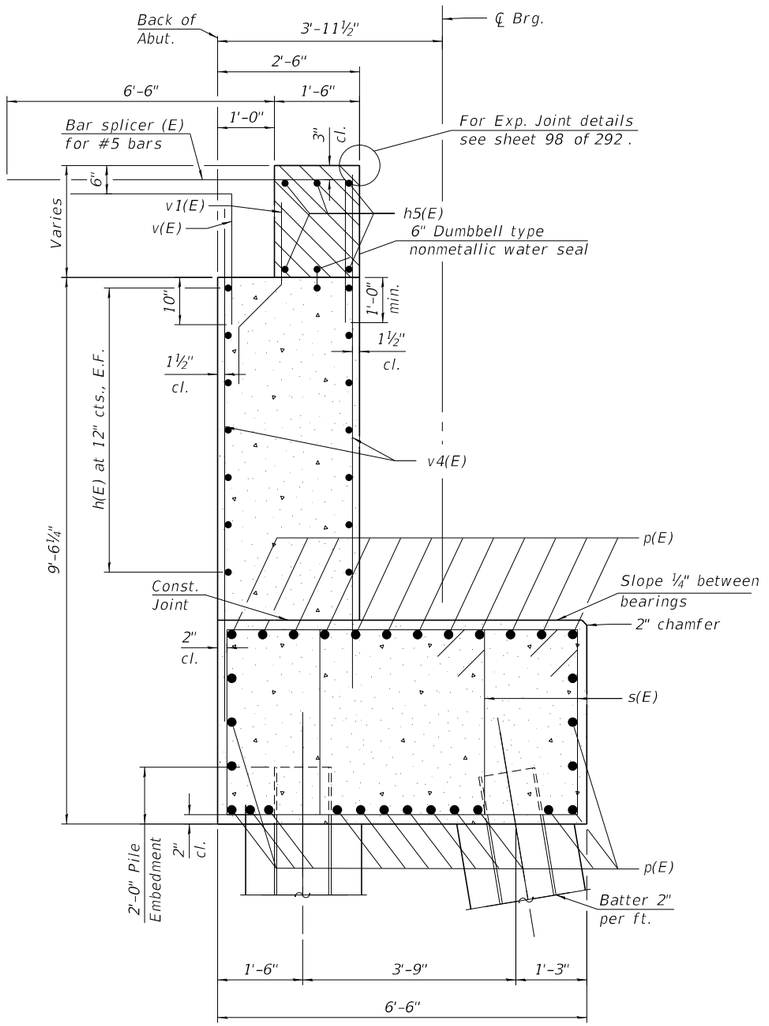
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - NHP	REVISED -	
	CHECKED - GLC	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - GLC	REVISED -	

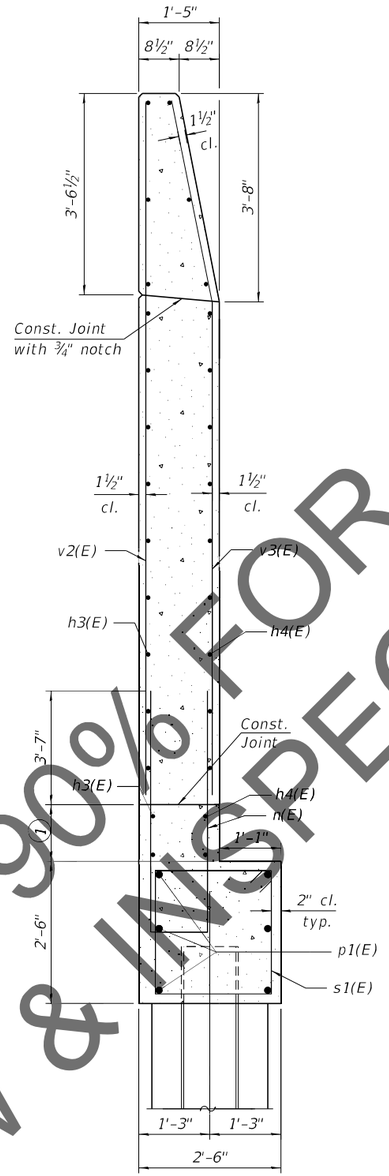
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 060-0350 (EB)
SHEET 163 OF 292 SHEETS

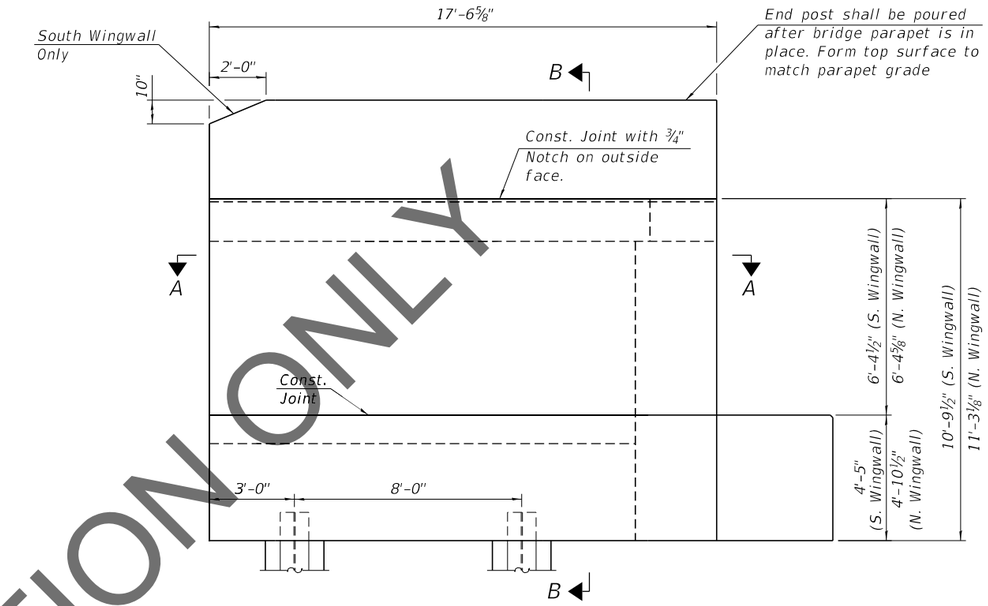
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	363
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	



SECT. THRU ABUT.

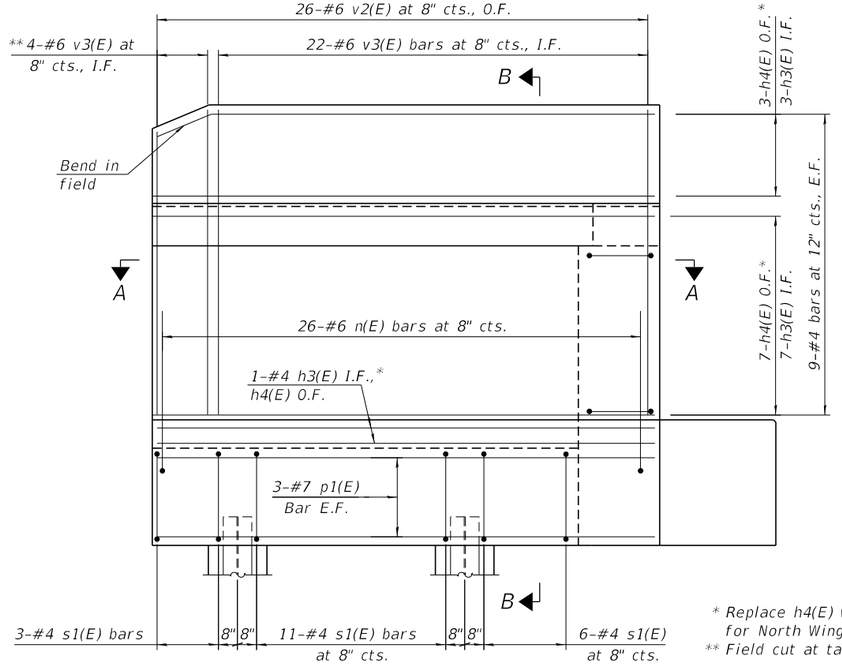


SECTION B-B



WINGWALL ELEVATION

Showing Dimensions
(South shown, North wingwall similar)



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

WINGWALL ELEVATION

Showing Reinforcement
(South shown, North wingwall similar)

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 92 of 292 .

For Concrete Encasement details, see sheet 247 of 292 .

(1) 2'-4½" for North Wingwall and 1'-11" 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.

REVIEW & INSPECTION ONLY FOR 90% PLANS

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HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - NHP	REVISED -
	CHECKED - GLC	REVISED -
PLOT SCALE =	DRAWN - EAT	REVISED -
PLOT DATE =	CHECKED - GLC	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT WINGWALL DETAILS
STRUCTURE NO. 060-0350 (EB)
SHEET 164 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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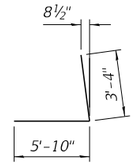
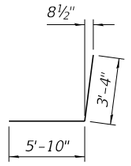
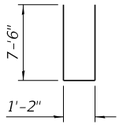
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



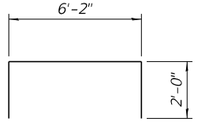
BAR h1(E)



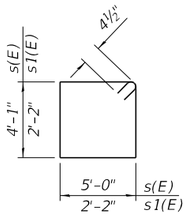
BAR h2(E)



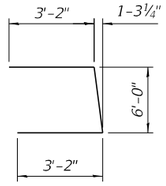
BAR n(E)



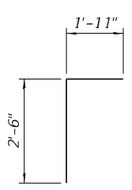
BAR s2(E)



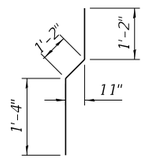
BARS s(E) AND s1(E)



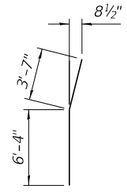
BAR u(E)



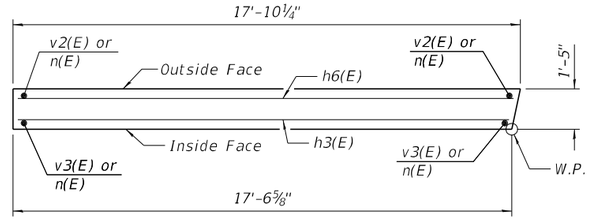
BAR v(E)



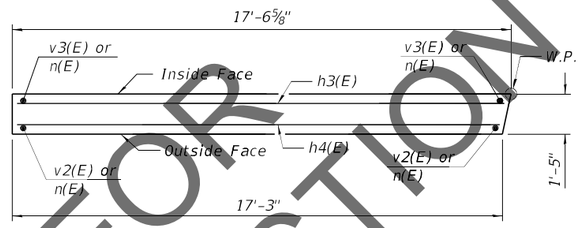
BAR v1(E)



BAR v3(E)



SECTION A-A
(North Wall)



SECTION A-A
(South Wall)

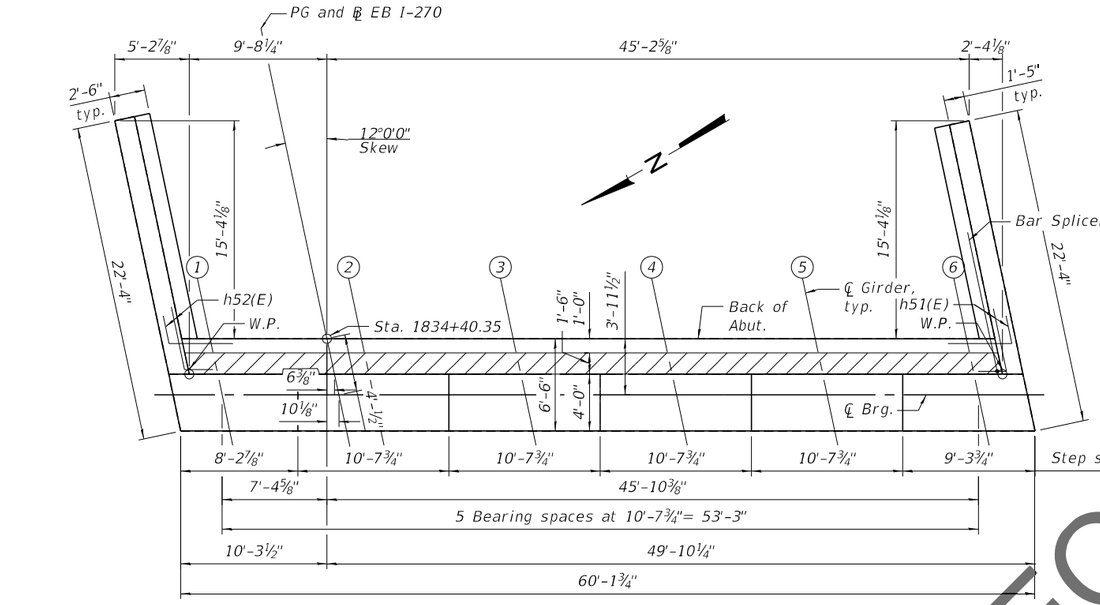
WEST ABUTMENT
BILL OF MATERIAL

	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"	

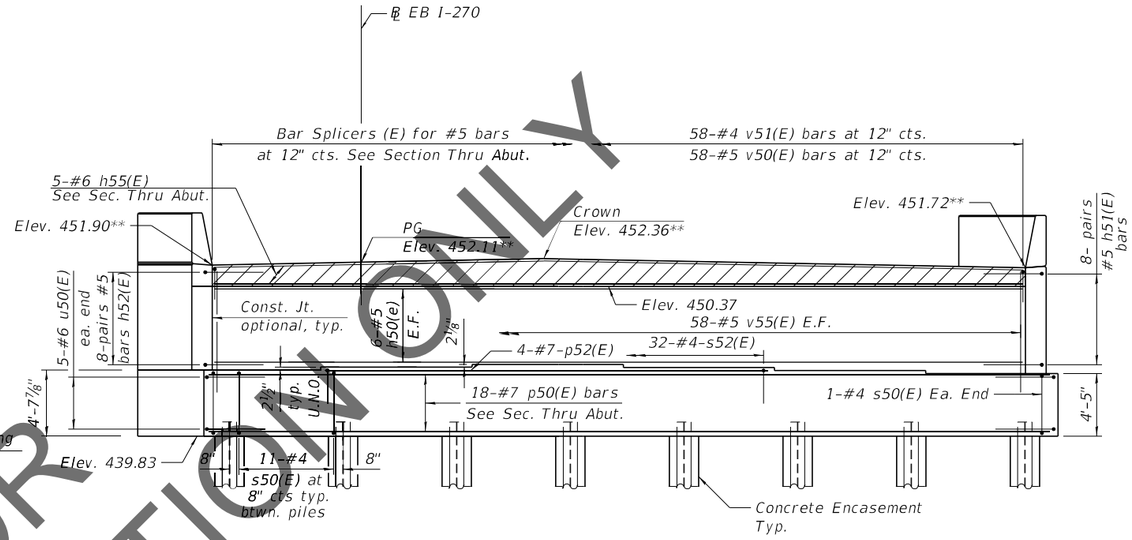
Structure Excavation	Cu. Yd.	273
Concrete Structures	Cu. Yd.	130.4
Concrete Encasement	Cu. Yd.	7.7
Reinforcement Bars, Epoxy Coated	Pound	16,940
Furnishing Steel Piles HP 12x84	Foot	1,140
Driving Piles	Foot	1,140
Test Pile Steel HP 12X84	Each	2
Pile Shoes	Each	22
Concrete Sealer	Sq. Ft.	1,047

*Field cut to fit skew.
For details of Bar Splicer, see sheet 248 of 292 .
For details of HP Piles, see sheet 247 of 292 .

90% FOR REVIEW & INSPECTION ONLY

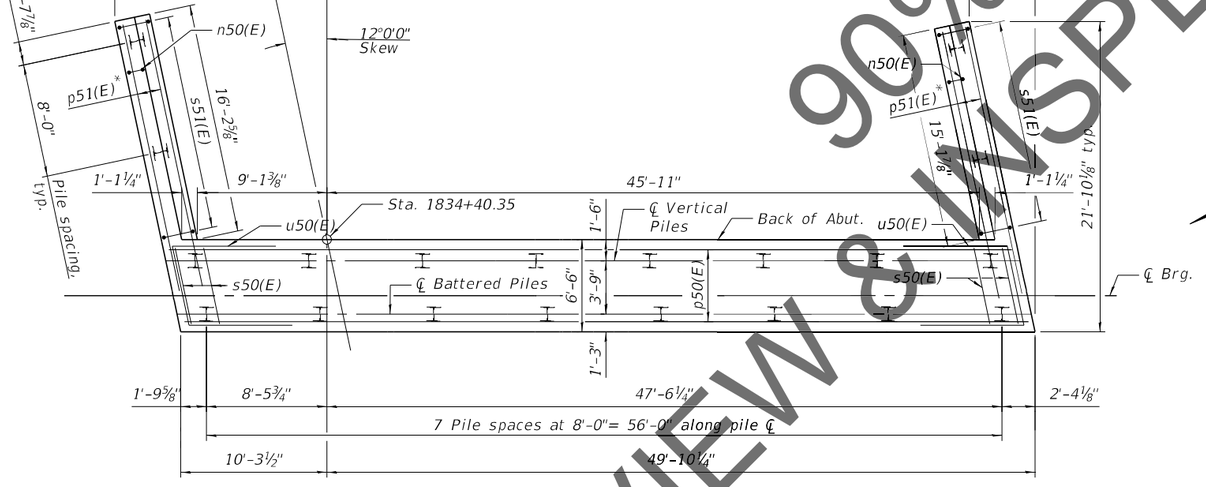


TOP VIEW



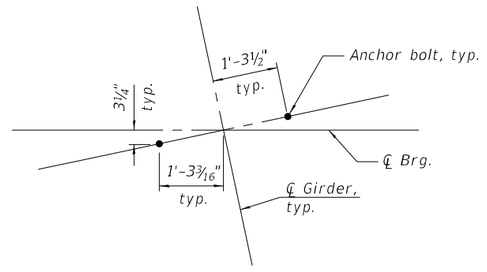
ELEVATION

** Prior to Grinding at Back of Abutment



PLAN-PILE CAP

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



ANCHOR BOLT LAYOUT

BEARING SEAT ELEVATIONS

GIRDER	ELEVATION
1	444.49
2	444.70
3	444.88
4	444.67
5	444.46
6	444.25

PILE DATA

Type: HP 12X63
Nominal Required Bearing: 354 kips
Factored Resistance Available: 195 kips
Est. Length: 110 ft
No. Production Piles: 19
No. Test Piles: 1

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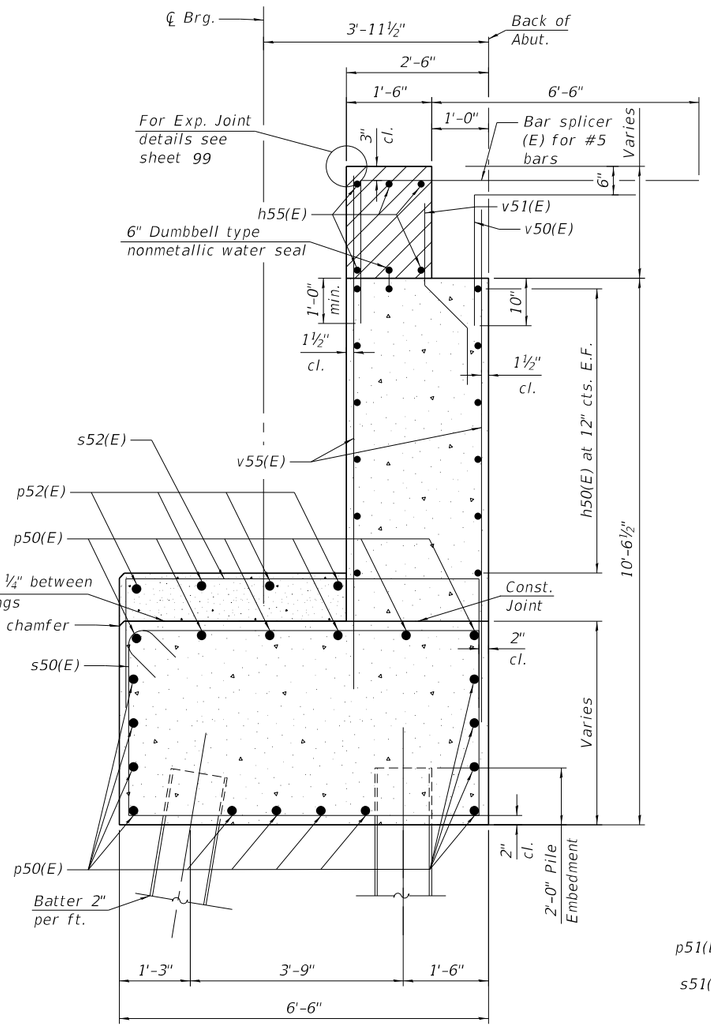
HORNER & SHIFRIN
Teaming with: PARSONS

USER NAME =	DESIGNED - ASP	REVISED -	
	CHECKED - AH	REVISED -	
PLOT SCALE =	DRAWN - RDF	REVISED -	
PLOT DATE =	CHECKED - JDS	REVISED -	

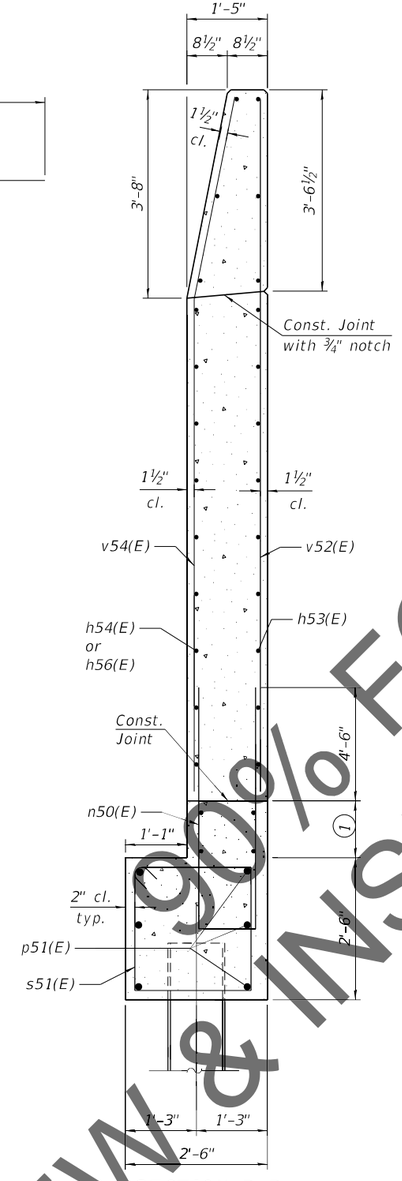
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EAST ABUTMENT PLAN AND ELEVATION
STRUCTURE NO. 060-0350 (EB)
SHEET 166 OF 292 SHEETS

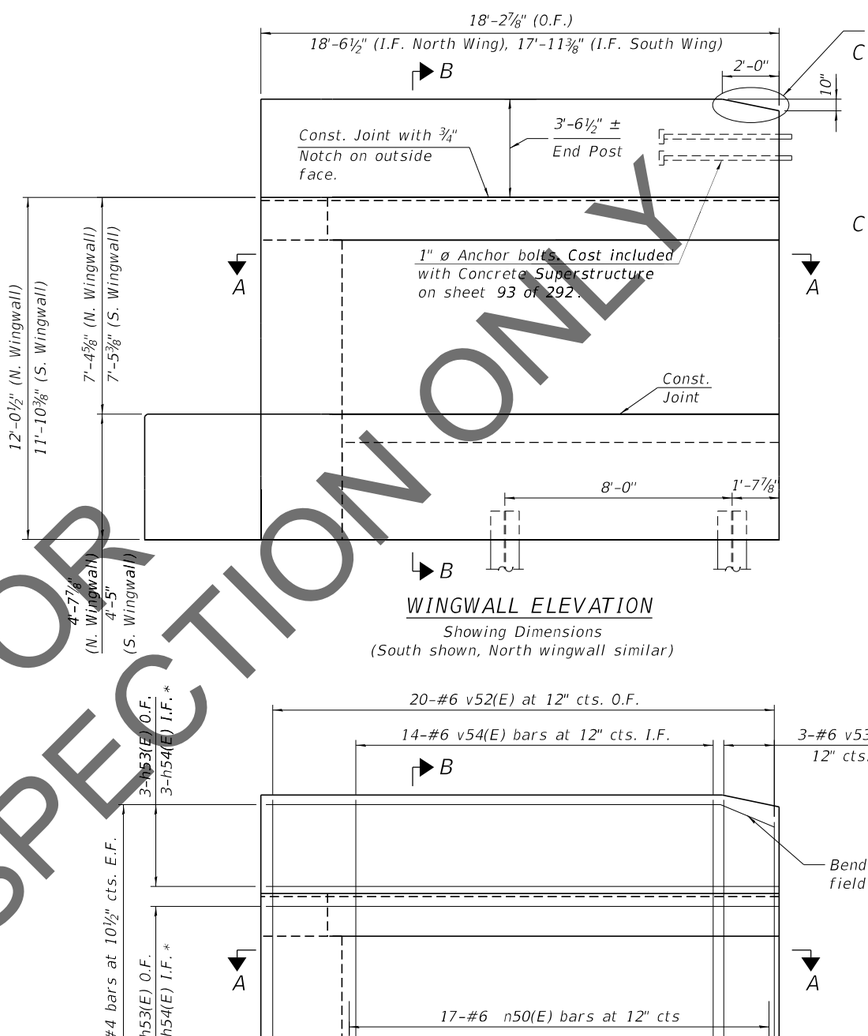
F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	366
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



SECT. THRU ABUT.

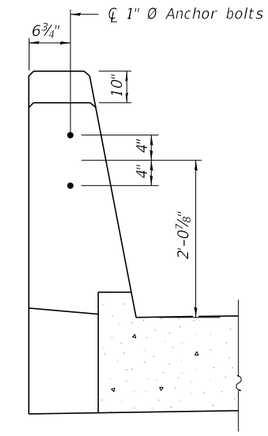


SECTION B-B



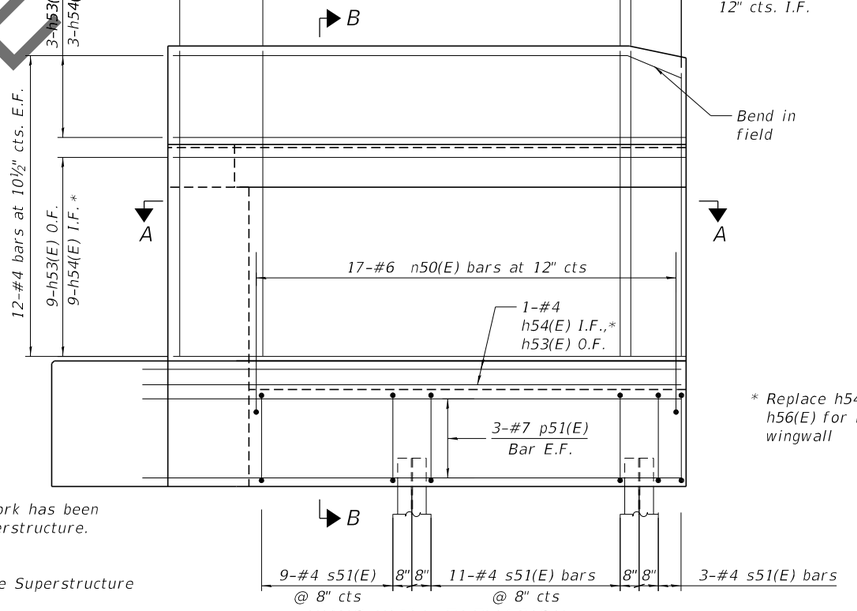
WINGWALL ELEVATION

Showing Dimensions
(South shown, North wingwall similar)



VIEW C-C

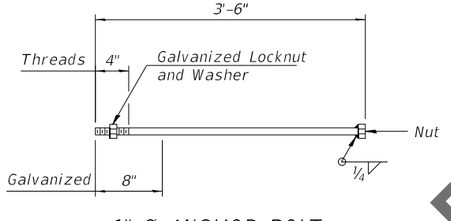
(South Wingwall Only)



WING WALL ELEVATION

Showing Reinforcement
(South shown, North wingwall similar)

* Replace h54(E) with h56(E) for North wingwall



1" Ø ANCHOR BOLT

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 93 of 292.

(1) 1'-11" for South Wingwall and 2'-1⅞" 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 168 of 292.

REVIEW & INSPECTION ONLY 90% FOR

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HORNER & SHIFRIN
Teaming with: PARSONS

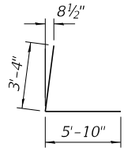
USER NAME =	DESIGNED - ASP	REVISED -	
	CHECKED - AH	REVISED -	
PLOT SCALE =	DRAWN - RDF	REVISED -	
PLOT DATE =	CHECKED - JDS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

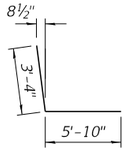
EAST ABUTMENT WINGWALL DETAILS
STRUCTURE NO. 060-0350 (EB)

SHEET 167 OF 292 SHEETS

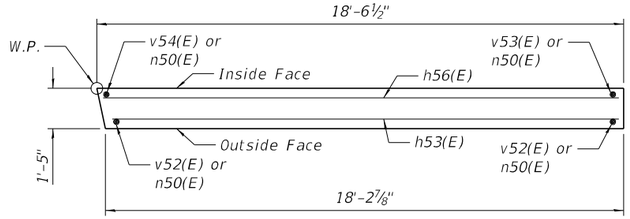
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	367
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



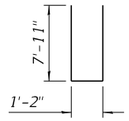
BAR h51(E)



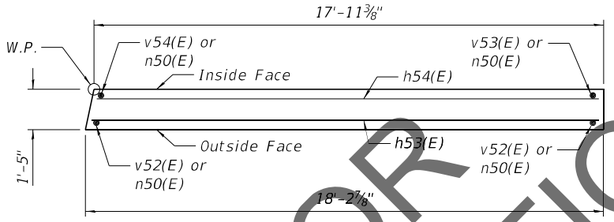
BAR h52(E)



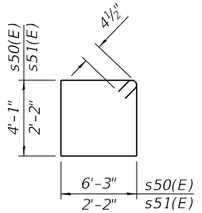
SECTION A-A
(North Wall)



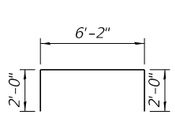
BAR n50(E)



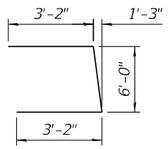
SECTION A-A
(South Wall)



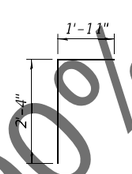
BARS s50(E) & s51(E)



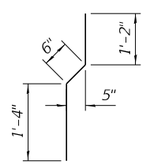
BAR s52(E)



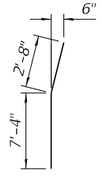
BAR u50(E)



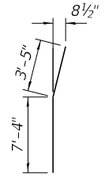
BAR v50(E)



BAR v51(E)



BAR v53(E)



BAR v54(E)

EAST ABUTMENT
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h50(E)	12	#5	56'-11"	
h51(E)	16	#5	9'-2"	
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	31'-7"	
s50(E)	79	#4	21'-3"	
s51(E)	46	#4	9'-5"	
s52(E)	32	#4	10'-2"	
u50(E)	10	#6	12'-6"	
v50(E)	58	#5	4'-3"	
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.	17
Concrete Structures	Cu. Yd.	131.3
Reinforcement bars, Epoxy Coated	Pound	10,300
Furnishing Steel Piles HP 12x63	Foot	2,097
Driving Piles	Foot	2,097
Test Pile Steel HP 12x63	Each	1
Pile Shoes	Each	20
Concrete Sealer	Sq. Ft.	1,071
Concrete Encasement	Cu. Yd.	7.0

Notes:
For details of Bar Splicer, sheet 248 of 292.
For details of HP Piles and Concrete Encasement, see sheet 247 of 292.

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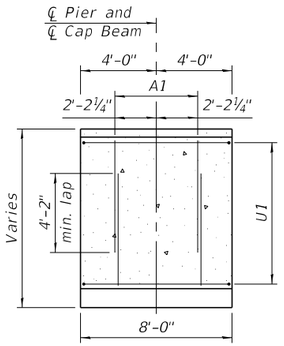
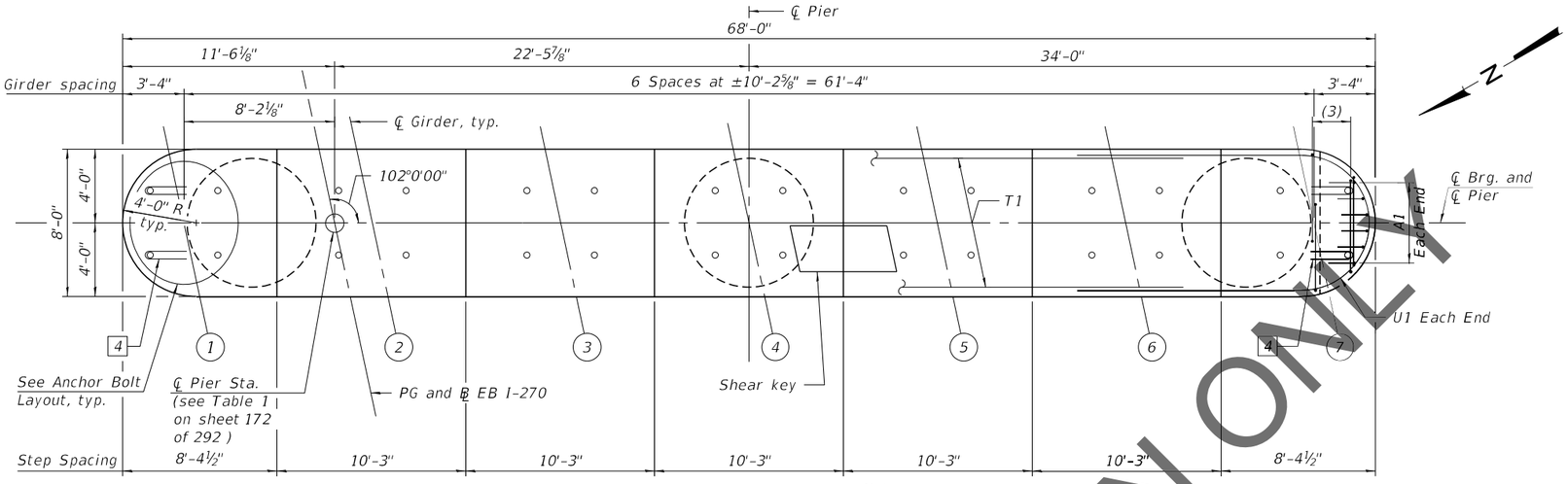


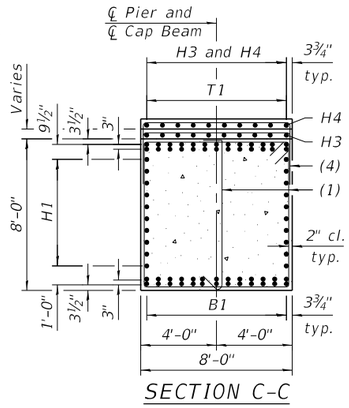
VIEW A-A

(T1 and (3) bars not shown for clarity)

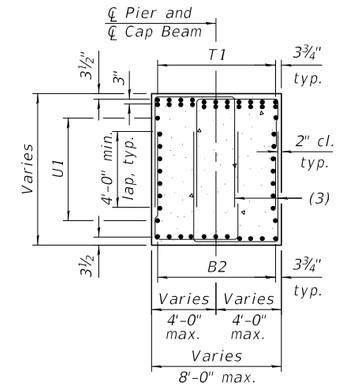


TOP PLAN

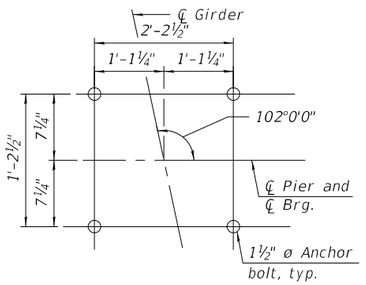
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



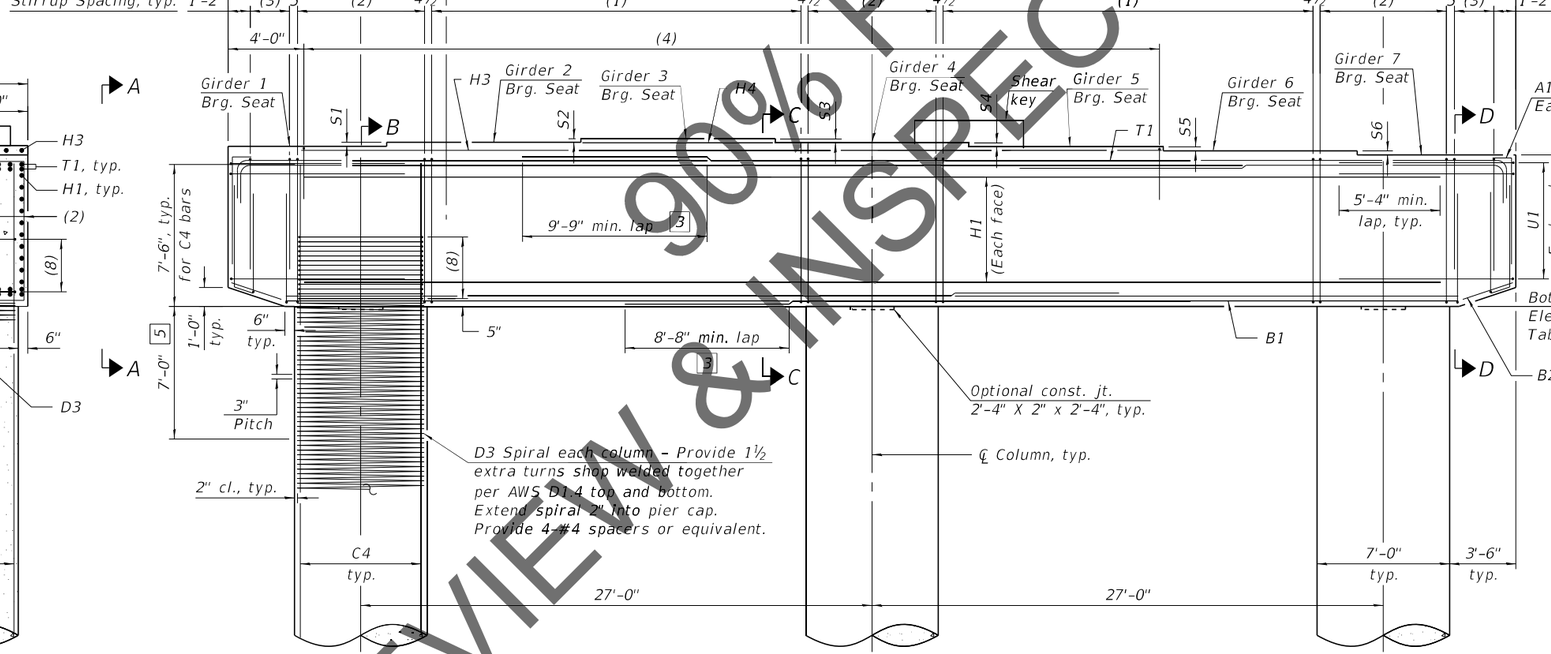
SECTION C-C



SECTION D-D

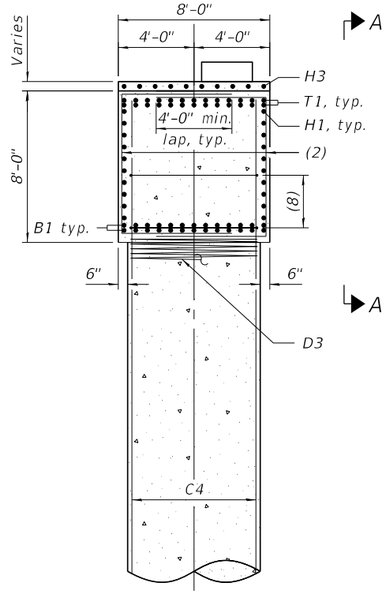


ANCHOR BOLT LAYOUT



PART ELEVATION

(Looking East)



SECTION B-B

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 173 and 174 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 172 of 292 .
For bearing details, see sheet 156 of 292 .
For bar callouts and shear key details, see sheet 172 of 292 .

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HORNER & SHIFRIN
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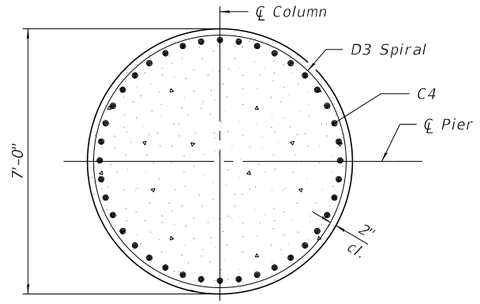
PLOT DATE =	CHECKED - SSM	REVISED -	

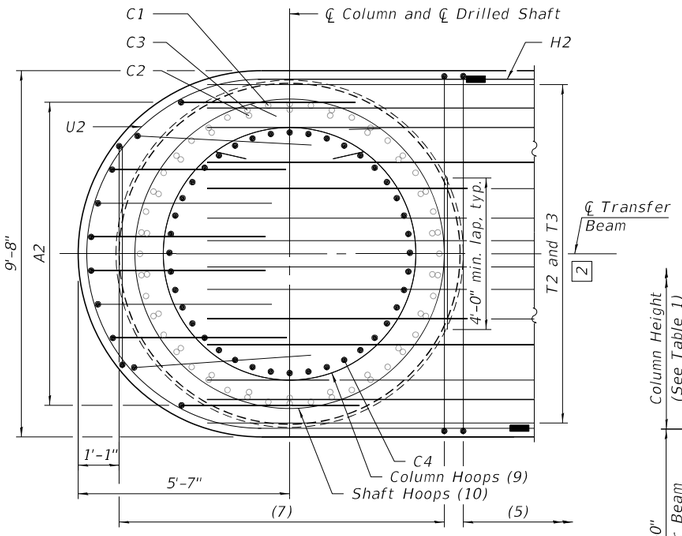
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 AND 2 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0350 (EB)
SHEET 169 OF 292 SHEETS

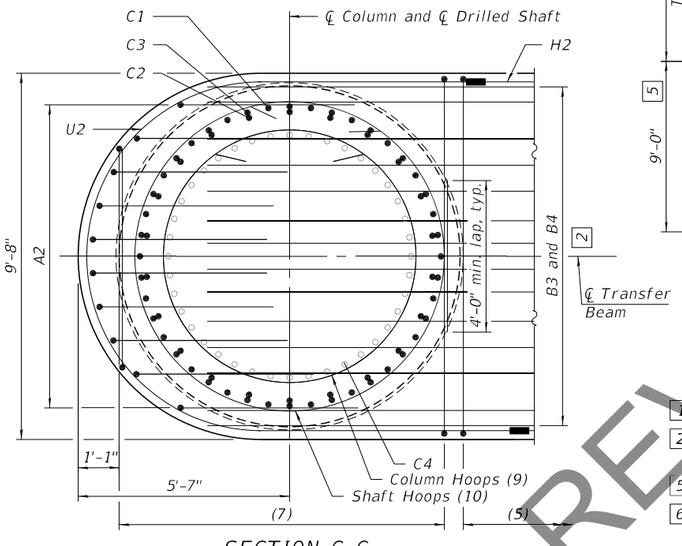
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	369
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



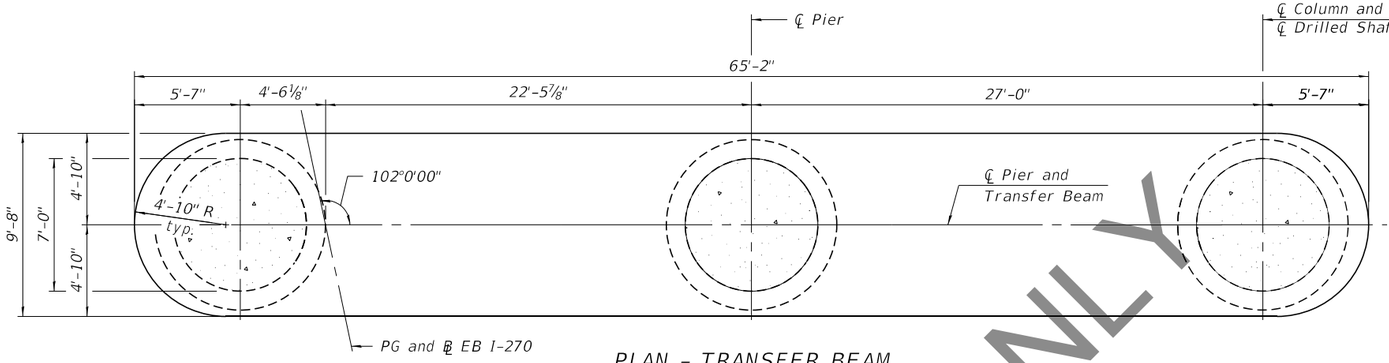
SECTION E-E



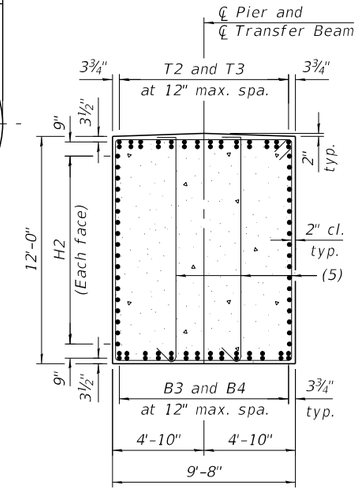
SECTION F-F



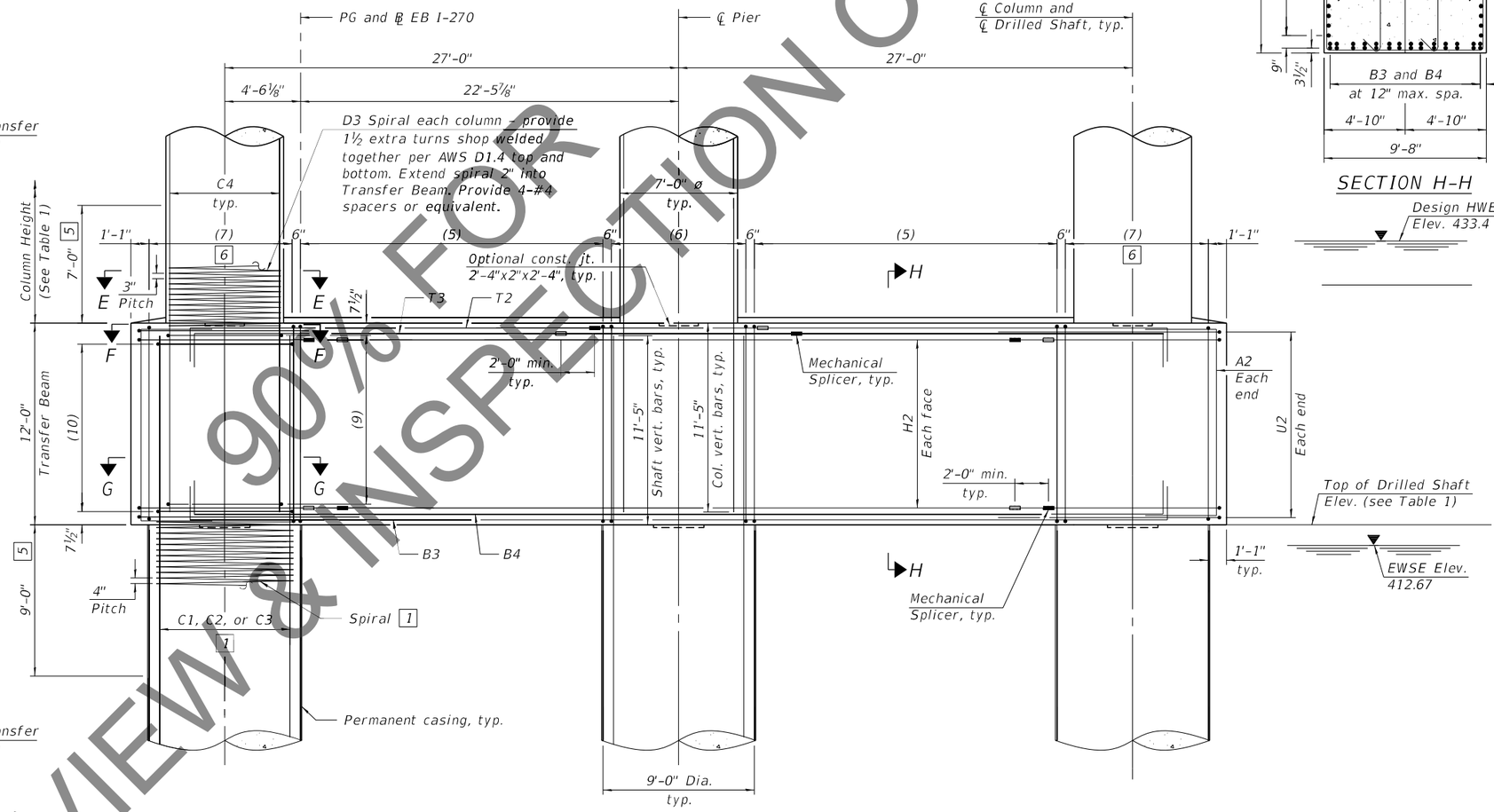
SECTION G-G



PLAN - TRANSFER BEAM



SECTION H-H



PART ELEVATION - TRANSFER BEAM

(Looking East)

Design HWE Elev. 433.4

1 See sheet 171 of 292 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 169 of 292 .
For Drilled Shaft details, see sheet 171 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 173 and 174 of 292 .
For Table 1, see sheet 172 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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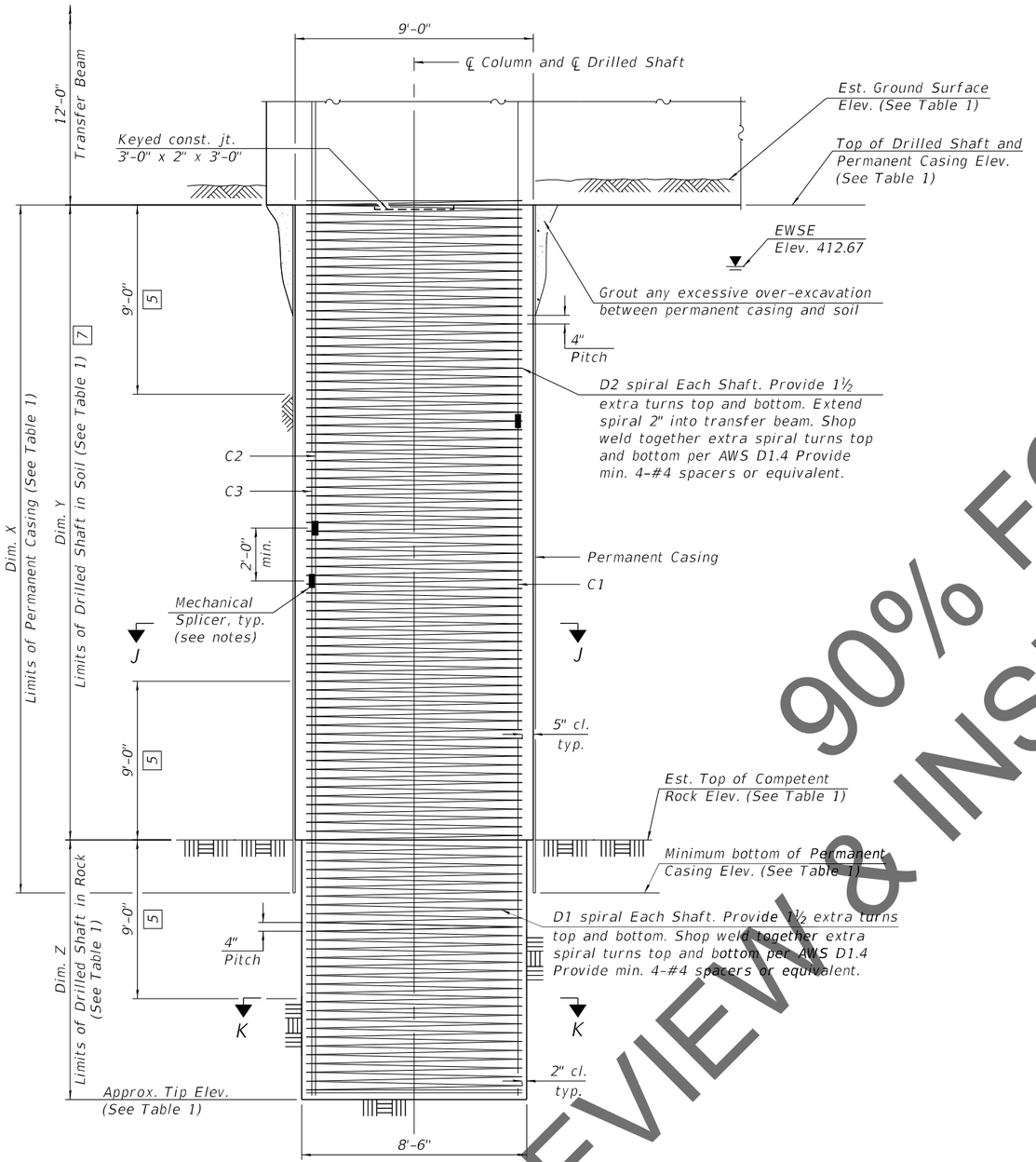
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

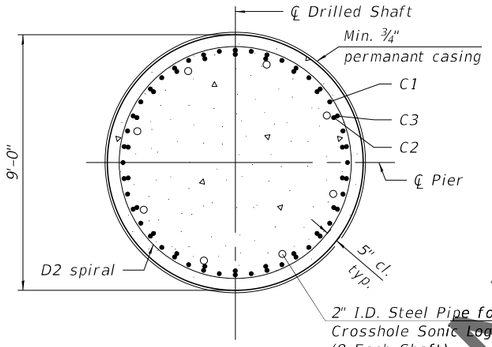
PIER 1 AND 2 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0350 (EB)
SHEET 170 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	370
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	

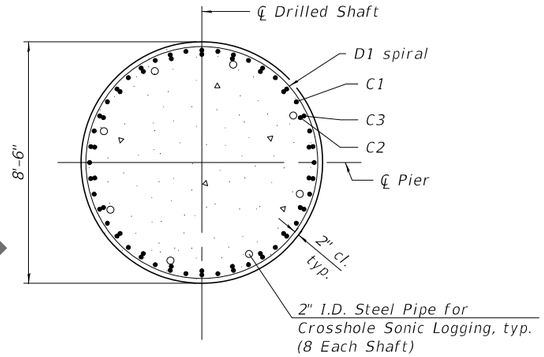


DRILLED SHAFT DETAIL

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



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 ½ 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 169 of 292 .
For Transfer Beam details, see sheet 170 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 173 and 174 of 292 .
For Table 1, see sheet 172 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1 AND 2 PLAN AND ELEVATION – 3
STRUCTURE NO. 060-0350 (EB)
SHEET 171 OF 292 SHEETS

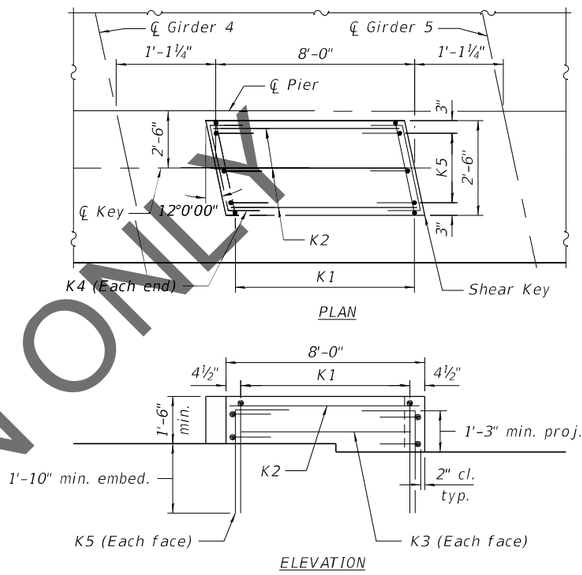
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	371
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			

TABLE 1

		Pier 1	Pier 2
℄ Pier Station		1781+05.05	1782+51.72
Bearing Seat Elevation	Girder 1	446.23	446.96
	Girder 2	446.43	447.16
	Girder 3	446.62	447.35
	Girder 4	446.40	447.14
	Girder 5	446.19	446.93
	Girder 6	445.98	446.72
	Girder 7	445.77	446.50
Top of Cap Elevation		445.77	446.50
Bottom of Cap Elevation		437.77	438.50
Column Height		7'-3¼"	5'-6"
Top of Shaft Elevation		418.50	421.00
Approx. Tip Elevation		360.50	359.50
Est. Ground Surface Elevation		419.50	422.00
Est. Top of Rock Elevation		386.00	385.00
Min. bott. of Permanent Casing Elev.		384.00	383.00
Dim. X		34'-6"	38'-0"
Dim. Y		32'-6"	36'-0"
Dim. Z		25'-6"	25'-6"

TABLE 1 (CONT.)

Step Height	Pier 1	Pier 2
S1	2⅜"	2⅜"
S2	2¼"	2¼"
S3	2½"	2½"
S4	2½"	2½"
S5	2⅝"	2⅝"
S6	2½"	2½"



SHEAR KEY DETAILS

PIER 1

Mark	Bar Callouts
(1)	48 sets of 1-#6 s101(E) and 1-#6 s105(E) at 5" cts.
(2)	11 sets of 2-#6 s102(E) at 8" cts.
(3)	6 sets of 4-#6 s107(E) at 5" cts.
(4)	68-#6 s108(E) at abt. 8" cts.
(5)	38 sets of 1-#6 s103(E) and 2-#6 s106(E) at 6" cts.
(6)	17 sets of 2-#6 s104(E) at 6" cts
(7)	17 sets of 2-#6 s104(E) at 6" cts.
(8)	14-#7 hp102(E) hoops at 3" cts.
(9)	44-#7 hp102(E) hoops at 3" cts.
(10)	33-#7 hp101(E) hoops at 4" cts.
T1	2 layers of 13-#11 p101(E) or p102(E) at 7⅜" cts.
T2	14 sets of 1-#11 p105(E) and 1-#11 p106(E) at 12" max.
T3	14 sets of 1-#11 p107(E) and 1-#11 p108(E) at 12" max.
B1	2 layers of 13-#11 p103(E) or p109(E) at 7⅜" cts.
B2	13-#7 p104(E) at 7⅜" cts.
B3	14 sets of 1-#11 p105(E) and 1-#11 p106(E) at 12" max.
B4	14 sets of 1-#11 p107(E) and 1-#11 p108(E) at 12" max.
H1	10-#8 h101(E) at 7½" cts.
H2	18-#9 h102(E) at 7" cts.
H3	13-#6 h103(E) at abt. 7⅜" cts.
H4	13-#6 h104(E) at abt. 7⅜" cts.
A1	6 sets of 1-#7 u103(E) and 1-#7 u104(E) at 10½" cts.
A2	10-#7 u105(E) at 10¾" cts.
U1	11-#8 u101(E) spaced with h101(E) and p101(E)
U2	20-#9 u102(E) splice with h102(E) and space with p105(E)
C1	22 sets of 1-#14 v101(E) and 1-#14 v102(E) (top)
C2	22 sets of 1-#14 v103(E) and 1-#14 v104(E) (Top) Bundle w/C3
C3	22 sets of 1-#14 v105(E) and 1-#14 v106(E) (Top) Bundle w/C2
C4	40-#11 v107(E) equally spaced
D1	#7 sp101(E) at 4" pitch
D2	#7 sp102(E) at 4" pitch
D3	#7 sp103(E) at 3" pitch
K1	15-#5 s109(E) spaced at 6" cts.
K2	3-#5 h105(E) spaced with n101(E)
K3	1-#5 h105(E) each face
K4	2-#5 h106(E) each face
K5	3-#5 n101(E) at 12" cts., each face
R1	#5 r101(E)

PIER 2

Mark	Bar Callouts
(1)	48 sets of 1-#6 s201(E) and 1-#6 s205(E) at 5" cts.
(2)	11 sets of 2-#6 s202(E) at 8" cts.
(3)	6 sets of 4-#6 s207(E) at 5" cts.
(4)	68-#6 s208(E) at abt. 8" cts.
(5)	38 sets of 1-#6 s203(E) and 2-#6 s206(E) at 6" cts.
(6)	17 sets of 2-#6 s204(E) at 6" cts
(7)	17 sets of 2-#6 s204(E) at 6" cts.
(8)	14-#7 hp202(E) hoops at 3" cts.
(9)	44-#7 hp202(E) hoops at 3" cts.
(10)	33-#7 hp201(E) hoops at 4" cts.
T1	2 layers of 13-#11 p201(E) or p202(E) at 7⅜" cts.
T2	14 sets of 1-#11 p205(E) and 1-#11 p206(E) at 12" max.
T3	14 sets of 1-#11 p207(E) and 1-#11 p208(E) at 12" max.
B1	2 layers of 13-#11 p203(E) or p209(E) at 7⅜" cts.
B2	13-#7 p204(E) at 7⅜" cts.
B3	14 sets of 1-#11 p205(E) and 1-#11 p206(E) at 12" max.
B4	14 sets of 1-#11 p207(E) and 1-#11 p208(E) at 12" max.
H1	10-#8 h201(E) at 7½" cts.
H2	18-#9 h202(E) at 7" cts.
H3	13-#6 h203(E) at abt. 7⅜" cts.
H4	13-#6 h204(E) at abt. 7⅜" cts.
A1	6 sets of 1-#7 u203(E) and 1-#7 u204(E) at 10½" cts.
A2	10-#7 u205(E) at 10¾" cts.
U1	11-#8 u201(E) spaced with h201(E) and p201(E)
U2	20-#9 u202(E) splice with h202(E) and space with p205(E)
C1	22 sets of 1-#14 v201(E) and 1-#14 v202(E) (top)
C2	22 sets of 1-#14 v203(E) and 1-#14 v204(E) Bundled w/C3
C3	22 sets of 1-#14 v205(E) and 1-#14 v206(E) (Top) Bundle w/C2
C4	40-#11 v207(E) equally spaced
D1	#7 sp201(E) at 4" pitch
D2	#7 sp202(E) at 4" pitch
D3	#7 sp203(E) at 3" pitch
K1	15-#5 s209(E) spaced at 6" cts.
K2	3-#5 h205(E) spaced with n201(E)
K3	1-#5 h205(E) each face
K4	2-#5 h206(E) each face
K5	3-#5 n201(E) at 12" cts., each face
R1	#5 r201(E)

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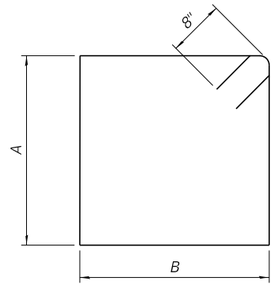
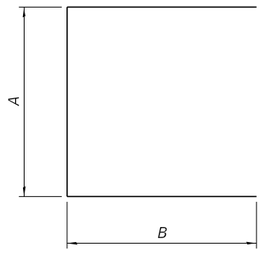


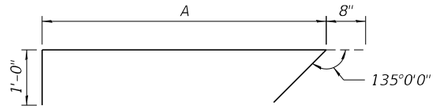
BARS s101(E) & s103(E)
BARS s201(E) & s203(E)

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



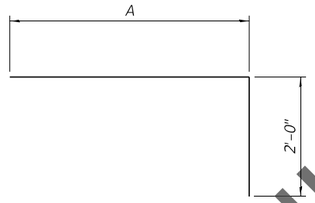
BARS s102(E), s104(E), AND s107(E)
BARS s202(E), s204(E), AND s207(E)

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)

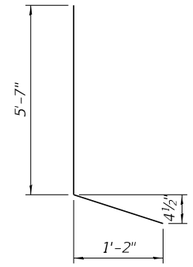
Bars	A
s105(E) & s205(E)	7'-8"
s106(E) & s206(E)	11'-8"



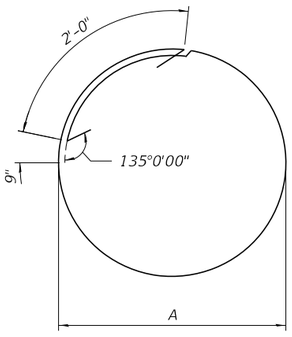
BARS p101(E) & p102(E)
BARS p105(E) & p106(E)
BARS p107(E) & p108(E)
BARS p201(E) & p202(E)
BARS p205(E) & p206(E)
BARS p207(E) & p208(E)

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 u103(E)
BARS u203(E)

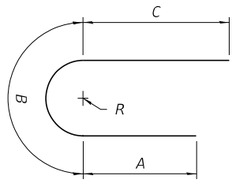


BARS u104(E)
BARS u204(E)



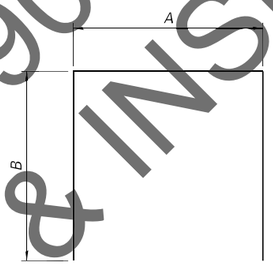
BARS hp101(E) & hp102(E)
BARS hp201(E) & hp202(E)

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



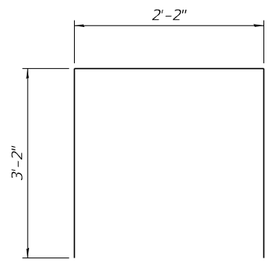
BARS u101(E) & u102(E)
BARS u201(E) & u202(E)

Bars	A	B	C	R
u101(E) & u201(E)	5'-4"	11'-9⅜"	5'-4"	3'-9"
u102(E) & u202(E)	5'-9"	14'-5"	7'-9"	4'-7"

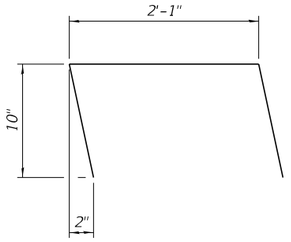


BARS u105(E) & u205E)
BARS s108(E) & s208(E)

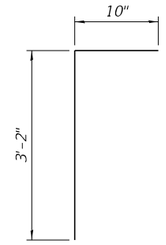
Bars	A	B
u105(E) & u205(E)	11'-6"	4'-7"
s108(E) & s208(E)	7'-8"	2'-9"



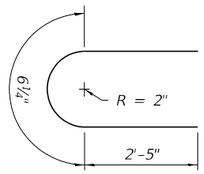
BARS s109(E)
BARS s209(E)



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"	
**	sp102(E)	3	#7	37'-8"	
**	sp103(E)	3	#7	7'-7"	
	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	29'-3"	
	v103(E)	66	#14	42'-6"	
	v104(E)	66	#14	31'-9"	
	v105(E)	66	#14	40'-0"	
	v106(E)	66	#14	34'-3"	
	v107(E)	120	#11	26'-3"	

** Length is height of spiral.

Note:
An additional 5'-0" was added to sp102(E), v102(E), v104(E), and v106(E) for possible change in drilled shaft or rock socket length if required. The additional length shall be cut off.

PIER 1
BILL OF MATERIAL (CONT.)

Structural Excavation	Cu. Yd.	35
Concrete Structures	Cu. Yd.	470.4
Reinforcement Bars, Epoxy Coated	Pound	254,930
Permanent Casing	Foot	104
Drilled Shaft in Soil	Cu. Yd.	230
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	174
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	174

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"	
**	sp202(E)	3	#7	41'-2"	
**	sp203(E)	3	#7	5'-10"	
	u201(E)	22	#8	22'-5"	
	u202(E)	40	#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	32'-9"	
	v203(E)	66	#14	42'-6"	
	v204(E)	66	#14	35'-3"	
	v205(E)	66	#14	40'-0"	
	v206(E)	66	#14	37'-9"	
	v207(E)	120	#11	24'-5"	

** Length is height of spiral.

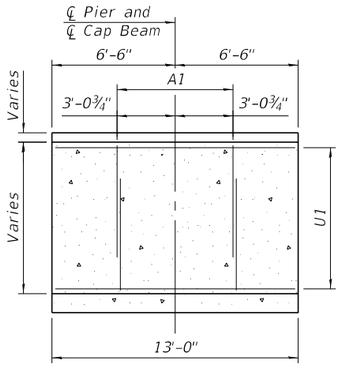
Note:
An additional 5'-0" was added to sp202(E), v202(E), v204(E), and v206(E) for possible change in drilled shaft or rock socket length if required. The additional length shall be cut off.

PIER 2
BILL OF MATERIAL (CONT.)

Structural Excavation	Cu. Yd.	35
Concrete Structures	Cu. Yd.	462.9
Reinforcement Bars, Epoxy Coated	Pound	259,820
Permanent Casing	Foot	114
Drilled Shaft in Soil	Cu. Yd.	255
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	185
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	185

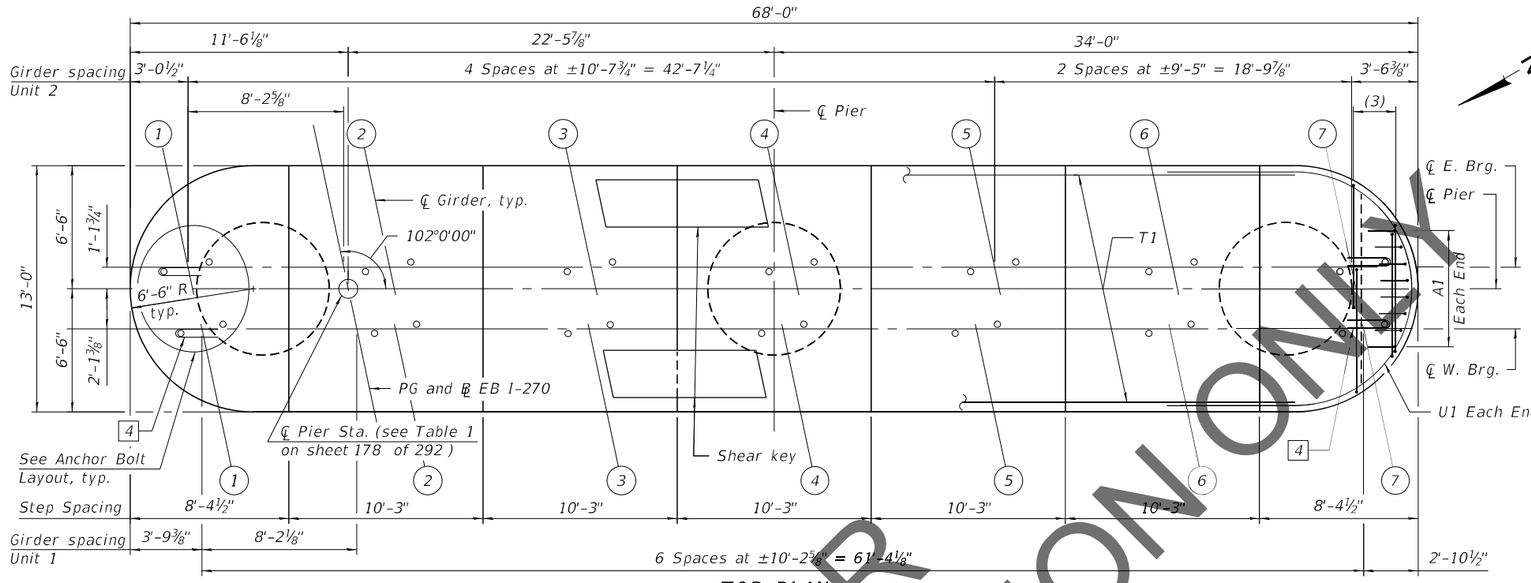
Note:
For bar details, see sheet 173 of 292 .

REVIEW & INSPECTION ONLY
90%



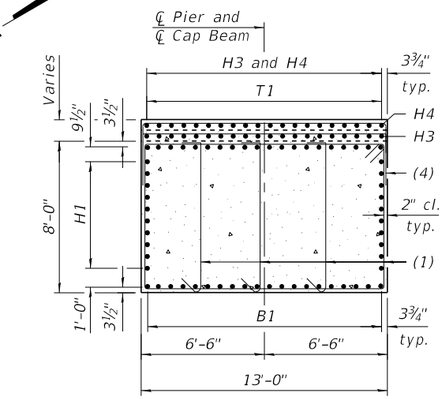
VIEW A-A

(T1 and (3) bars not shown for clarity)

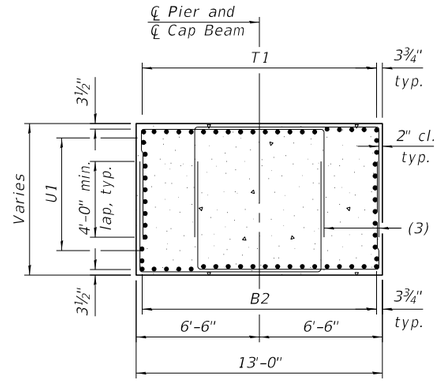


TOP PLAN

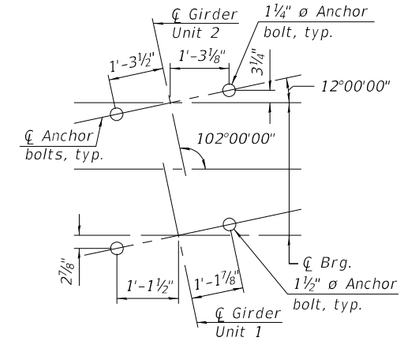
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



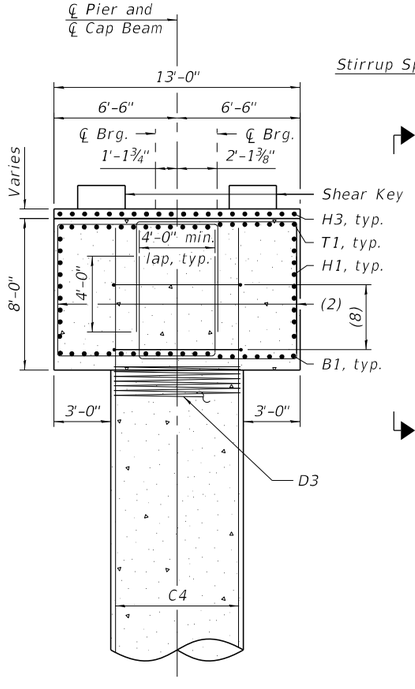
SECTION C-C



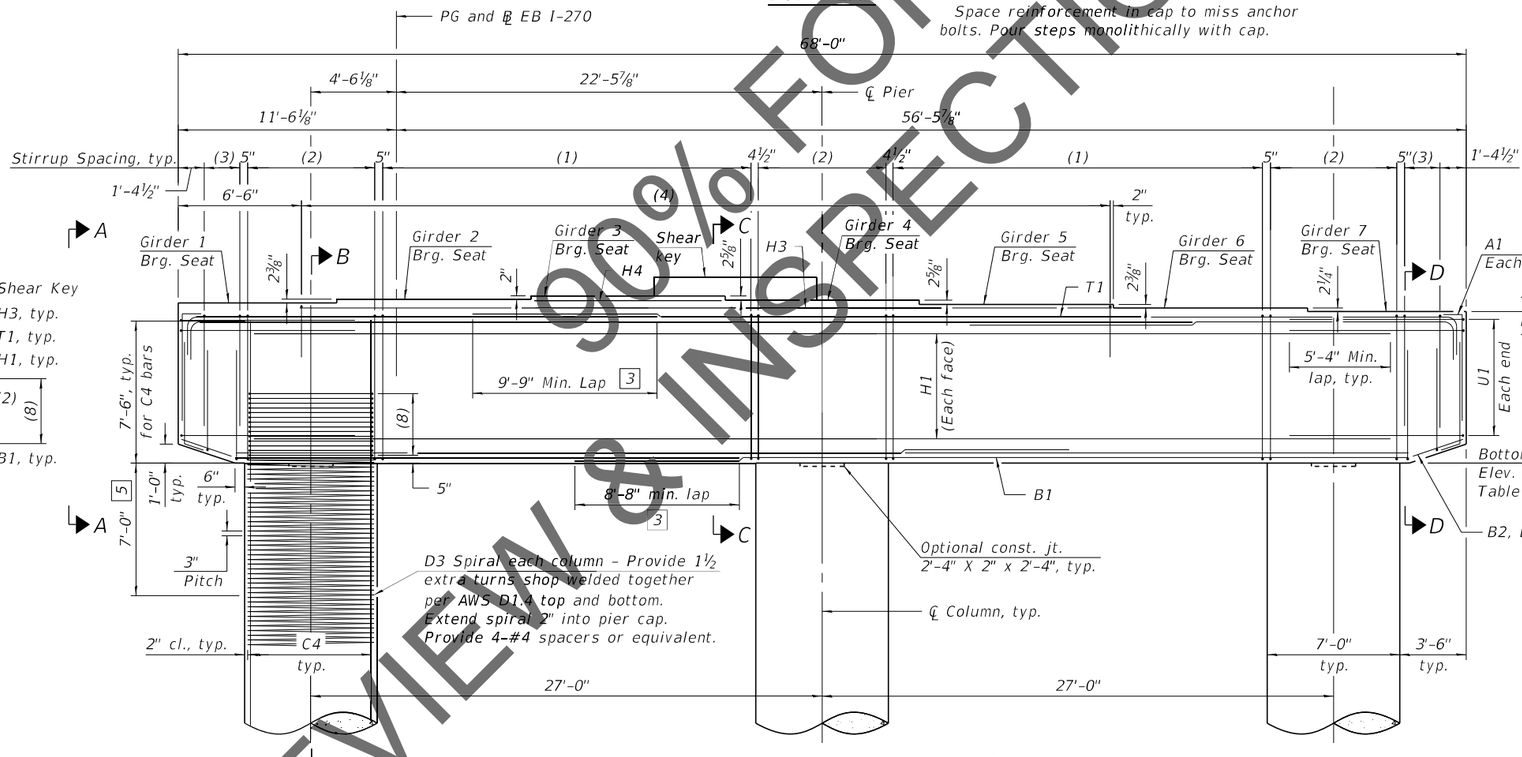
SECTION D-D



ANCHOR BOLT LAYOUT



SECTION B-B



PART ELEVATION

(Looking East)

3 Alternate placement cap top rebars to stagger the laps top and bottom

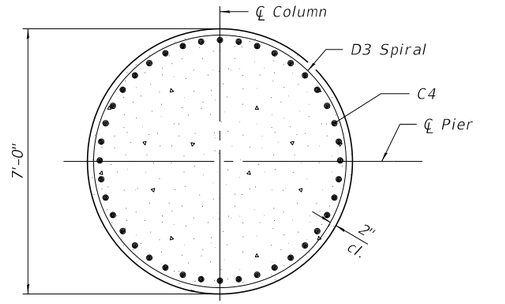
4 Provide 2 - R bar at each anchor shown. Place first R bar with top mat reinforcement and second R bar 6" below top U bar

5 No splicing of bars allowed in this region.

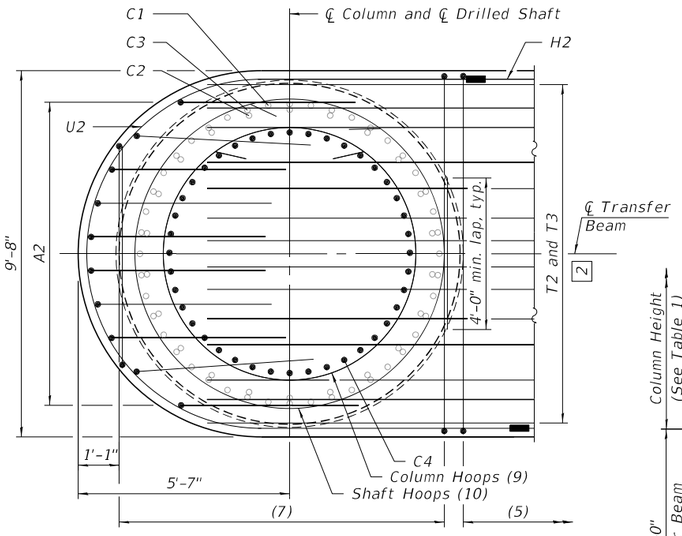
6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 179 and 180 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 178 of 292 .
For Unit 1 bearing details, see sheet 154 of 292 .
For Unit 2 bearing details, see sheet 156 of 292 .
For bar callouts and shear key details, see sheet 178 of 292 .

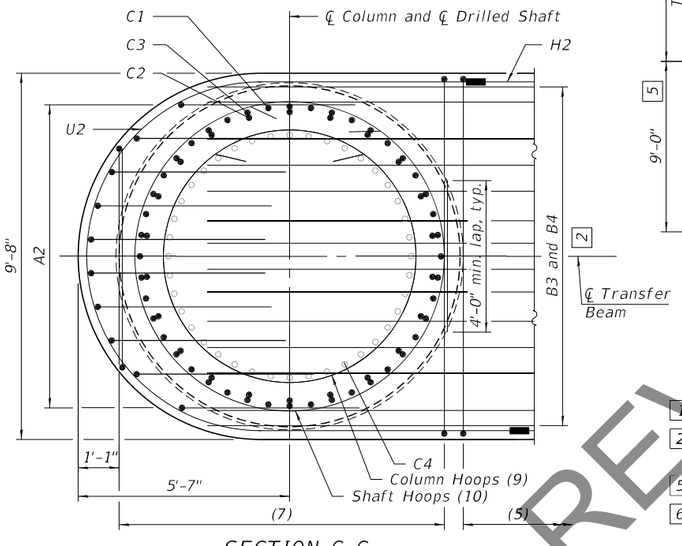
REVIEW & INSPECTION ONLY FOR 90% PS&E



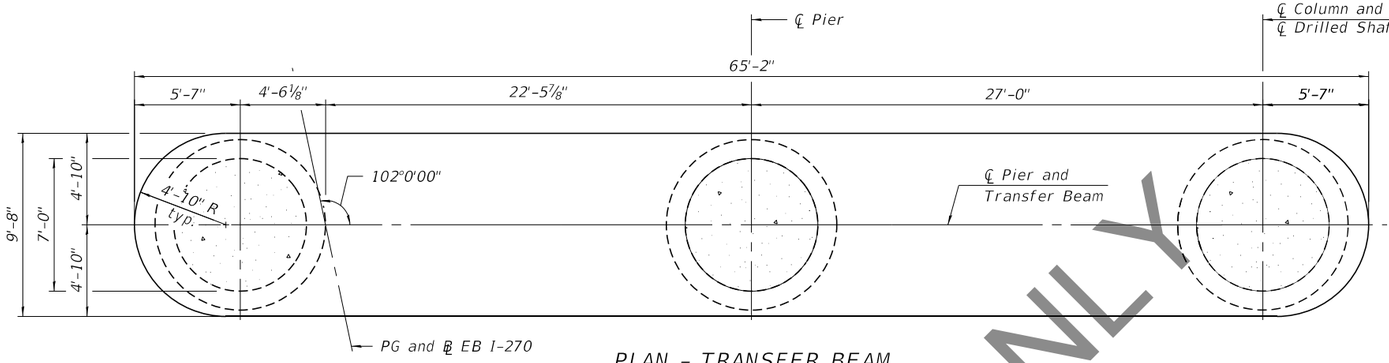
SECTION E-E



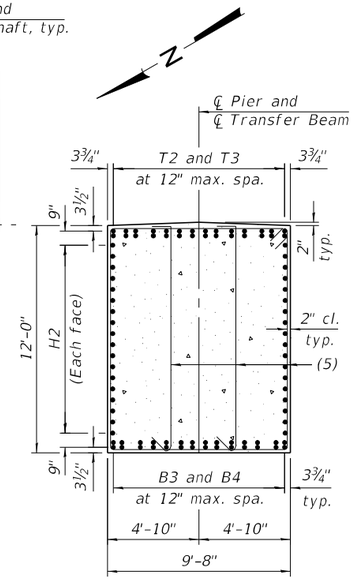
SECTION F-F



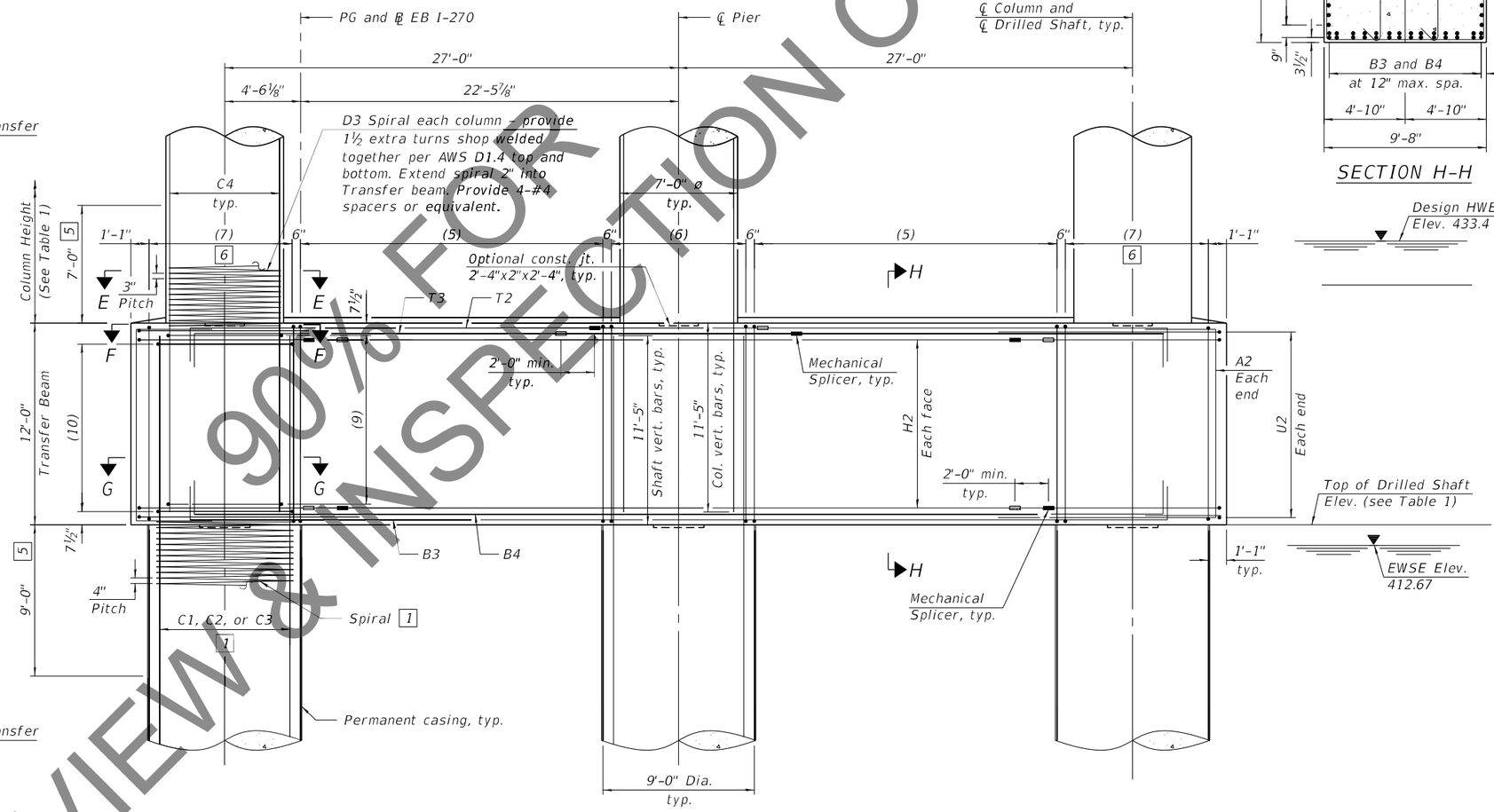
SECTION G-G



PLAN - TRANSFER BEAM



SECTION H-H



PART ELEVATION - TRANSFER BEAM

(Looking East)

1 See sheet 177 of 292 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 175 of 292 .
For Drilled Shaft details, see sheet 171 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 179 and 180 of 292 .
For Table 1, see sheet 178 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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9/10/2021 1:43:41 PM

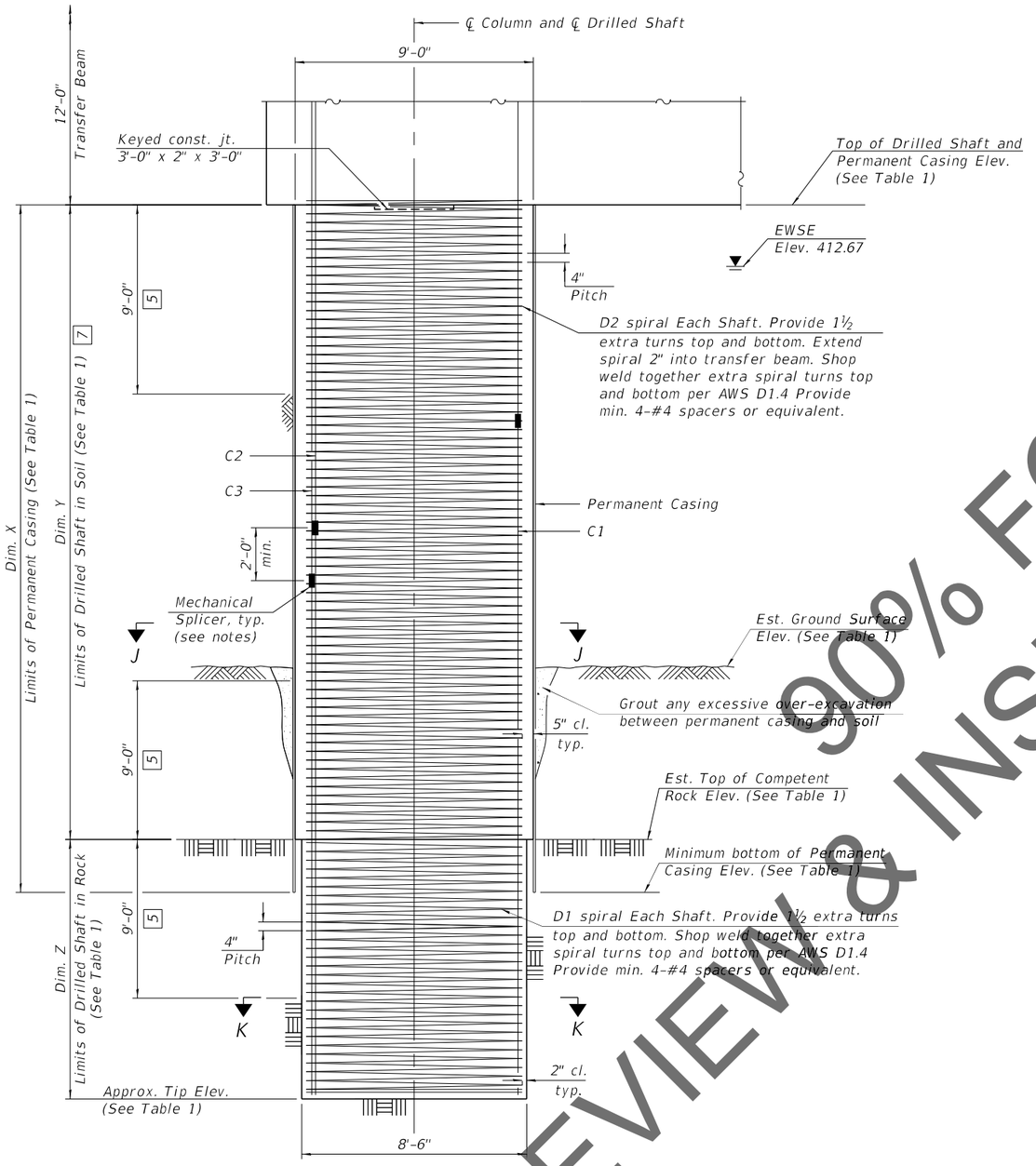
HORNER & SHIFRIN
Teaming with: PARSONS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

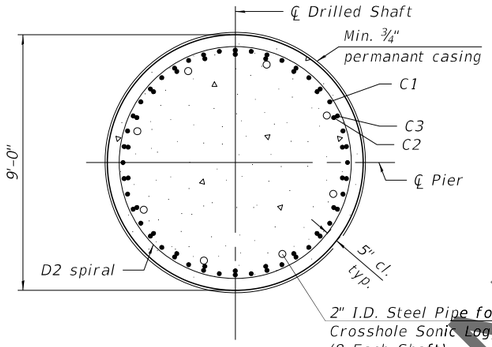
PIER 3 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0350 (EB)
SHEET 176 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	376
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	

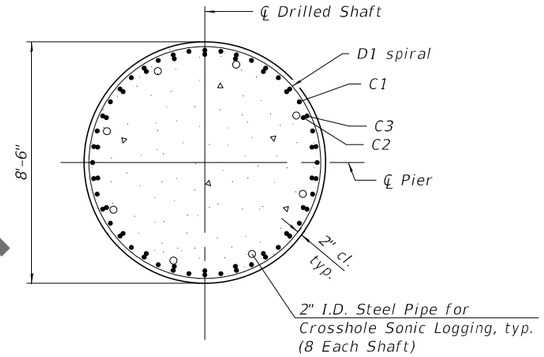


DRILLED SHAFT DETAIL

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



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 ½ 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 175 of 292 .

For Transfer Beam details, see sheet 176 of 292 .

For additional notes, bar details, and Bill of Material, see sheets 179 and 180 of 292 .

For Table 1, see sheet 178 of 292 .

For Mechanical Splicer details, see sheet 248 of 292 .

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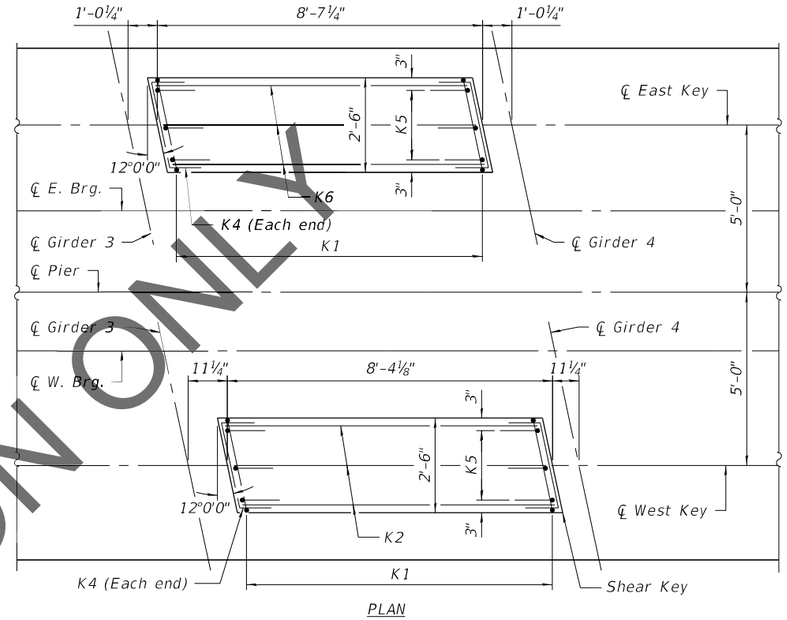
TABLE 1

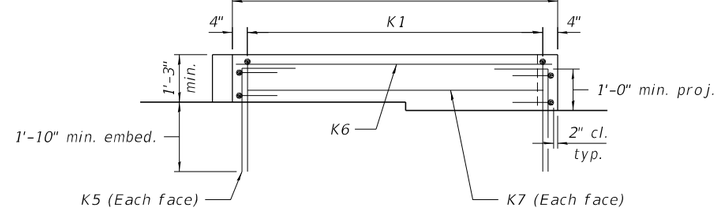
		Pier 3
℄ Pier Station		1783+71.06
Bearing Seat Elevation	Girder 1	446.30
	Girder 2	446.49
	Girder 3	446.66
	Girder 4	446.44
	Girder 5	446.22
	Girder 6	446.03
	Girder 7	445.83
Top of Cap Elevation		445.83
Bottom of Cap Elevation		437.83
Column Height		10'-10"
Top of Shaft Elevation		415.00
Approx. Tip Elevation		366.00
Est. Ground Surface Elevation		398.30
Est. Top of Rock Elevation		391.50
Min. bott. of Permanent Casing Elev.		389.50
Dim. X		25'-6"
Dim. Y		23'-6"
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 7¾" cts.
T2	14 sets of 1-#11 p305(E) and 1-#11 p306(E) at 12" max.
T3	14 sets of 1-#11 p307(E) and 1-#11 p308(E) at 12" max.
B1	20-#11 p303(E) and p109(E) at 7¾" cts.
B2	20-#7 p304(E) at 7¾" cts.
B3	14 sets of 1-#11 p305(E) and 1-#11 p306(E) at 12" max.
B4	14 sets of 1-#11 p307(E) and 1-#11 p308(E) at 12" max.
H1	10-#8 h301(E) at 7½" cts.
H2	18-#9 h302(E) at 7" cts.
H3	20-#6 h303(E) at abt. 7¾" cts.
H4	20-#6 h304(E) at abt. 7¾" cts.
A1	7 sets of 1-#7 u303(E) and 1-#7 u304(E) at 10½" cts.
A2	10-#7 u305(E) at 10¾" cts.
U1	11-#8 u301(E) spaced with h301(E) and p301(E)
U2	20-#9 u302(E) splice with h302(E) and space with 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)

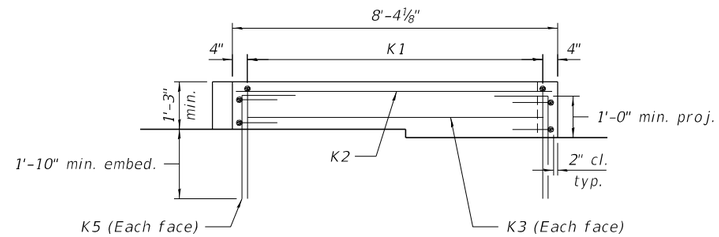


PLAN



ELEVATION

SHEAR KEY DETAILS EAST KEY



ELEVATION

SHEAR KEY DETAILS WEST KEY

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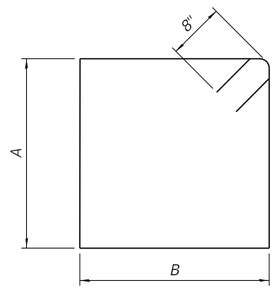
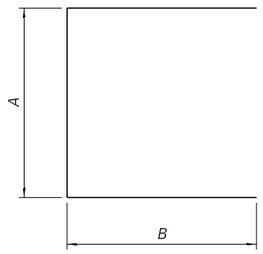


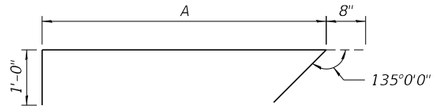
BARS s301(E) & s303(E)

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



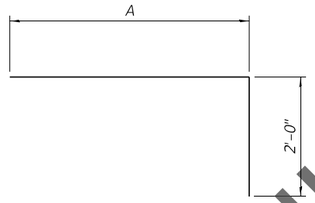
BARS s302(E), s304(E) & s307(E)

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)

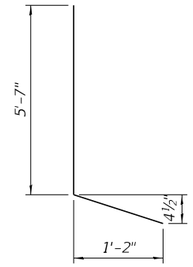
Bars	A
s305(E)	7'-8"
s306(E)	11'-8"



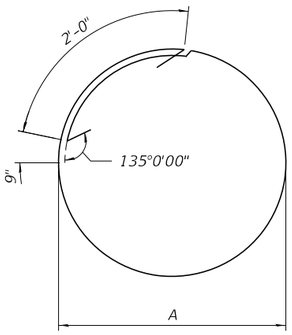
BARS p301(E) & p302(E)
BARS p305(E) & p306(E)
BARS p307(E) & p308(E)

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)

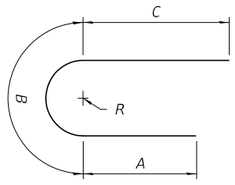


BARS u304(E)



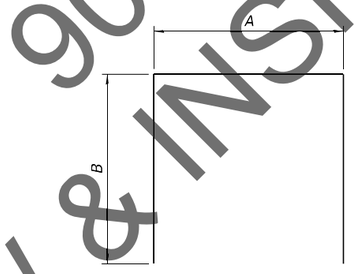
BARS hp301(E) & hp302(E)

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



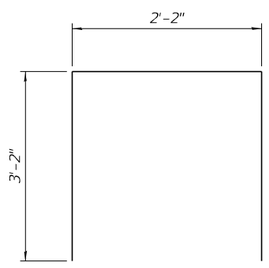
BARS u301(E) & u302(E)

Bars	A	B	C	R
u301(E)	5'-4"	19'-7⅝"	5'-4"	6'-3"
u302(E)	5'-9"	14'-5"	7'-9"	4'-7"

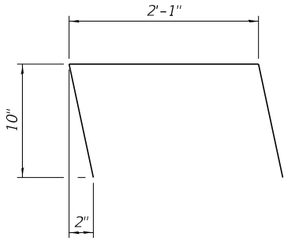


BARS u305(E) & s308(E)

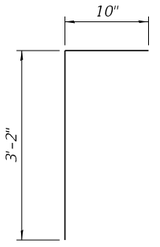
Bars	A	B
u305(E)	11'-6"	4'-7"
s308(E)	12'-8"	2'-9"



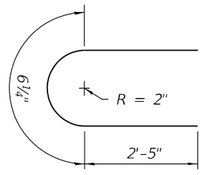
BARS s309(E)



BARS h306(E)



BARS n301(E)



BARS r301(E)

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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	42'-6"	
	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	23'-8"	
**	sp303(E)	3	#7	11'-2"	
	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	20'-3"	
	v303(E)	66	#14	37'-6"	
	v304(E)	66	#14	22'-9"	
	v305(E)	66	#14	35'-0"	
	v306(E)	66	#14	25'-3"	
	v307(E)	120	#11	29'-9"	

** Length is height of spiral.

PIER 3
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	585.5
Reinforcement Bars, Epoxy Coated	Pound	235,280
Permanent Casing	Foot	77
Drilled Shaft in Soil	Cu. Yd.	167
Drilled Shaft in Rock	Cu. Yd.	161
Concrete Sealer	Sq. Ft.	6,049
Crosshole Sonic Logging Access Ducts	Foot	147
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	147

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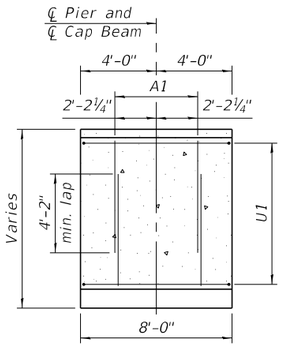
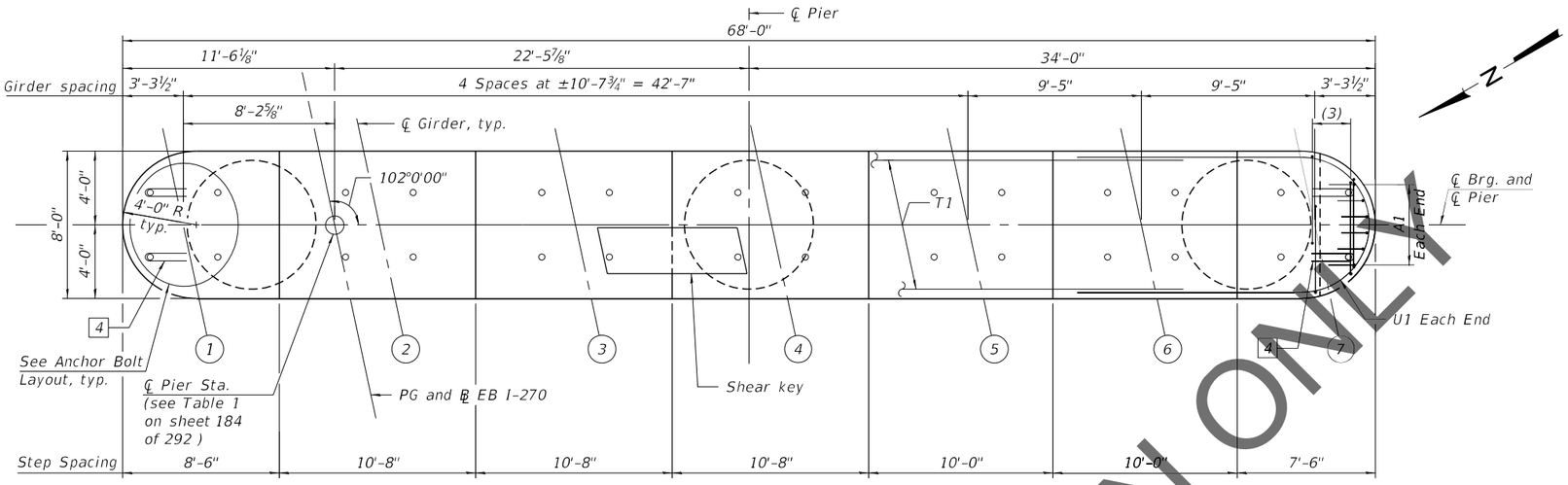
Note:
For bar details, see sheet 179 of 292 .



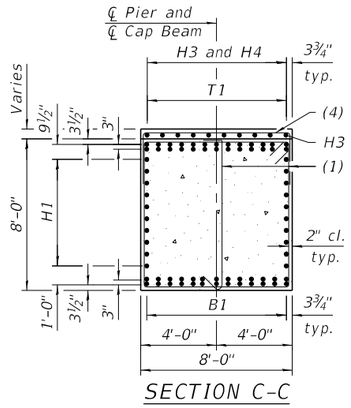
VIEW A-A

(T1 and (3) bars not shown for clarity)

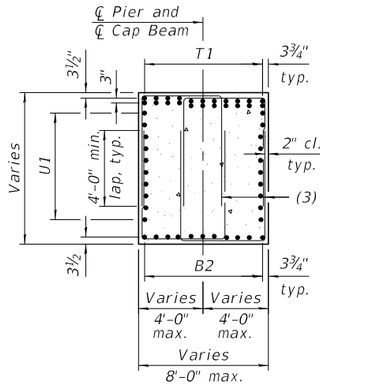


TOP PLAN

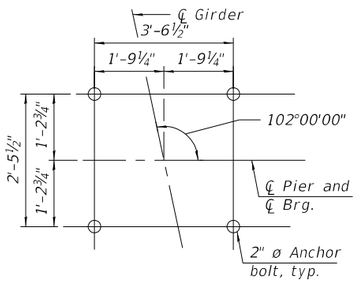
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



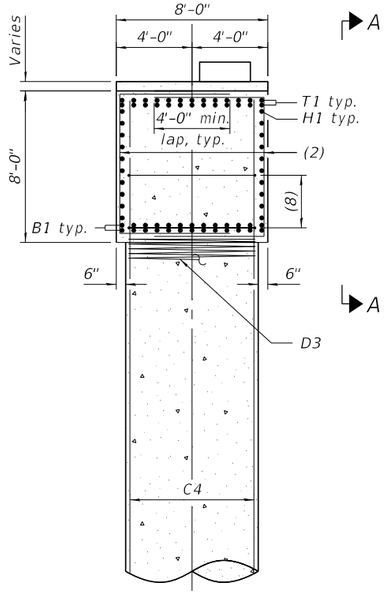
SECTION C-C



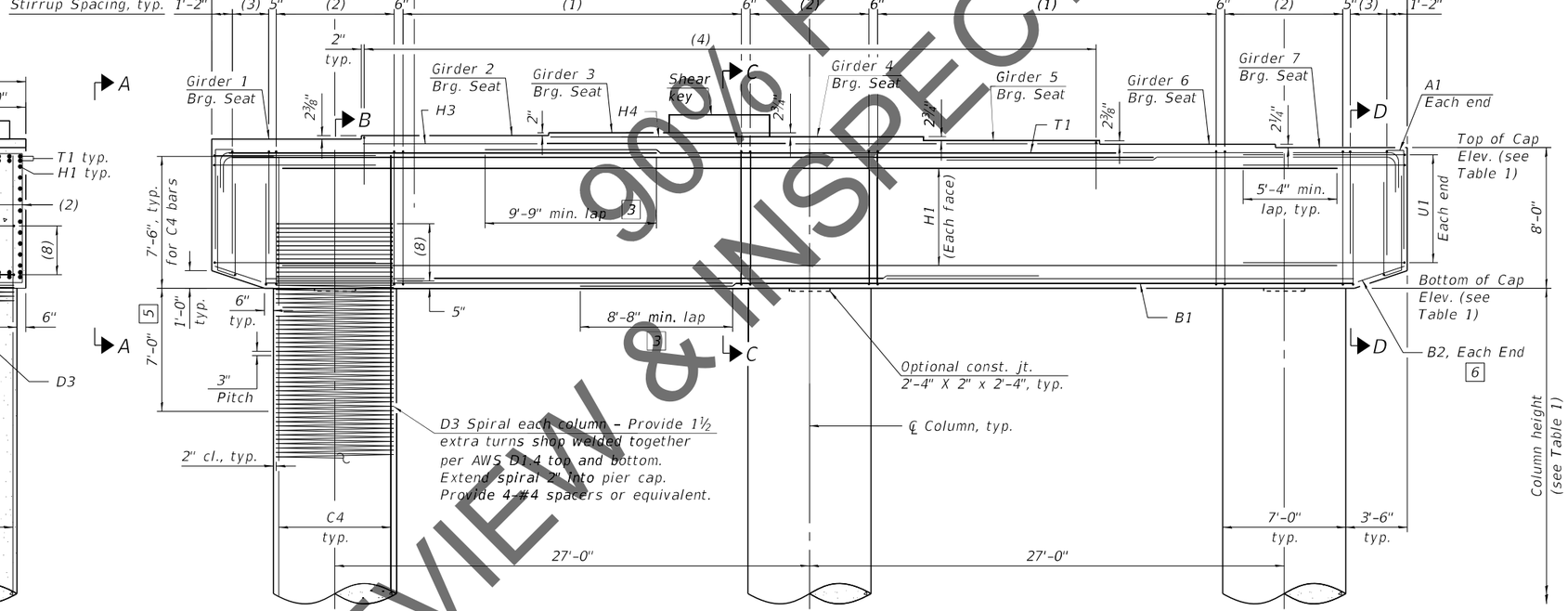
SECTION D-D



ANCHOR BOLT LAYOUT



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 185 and 186 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 184 of 292 .
For bearing details, see sheet 158 of 292 .
For bar callouts and shear key details, see sheet 184 of 292 .

REVIEW & INSPECTION ONLY FOR 90% PS&E

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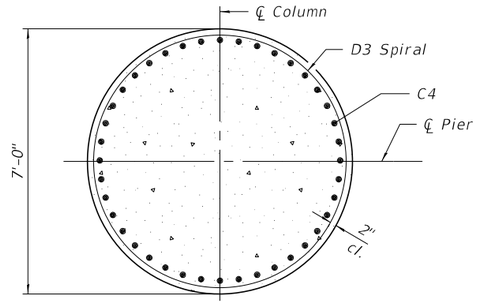
HORNER & SHIFRIN
Teaming with: PARSONS

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

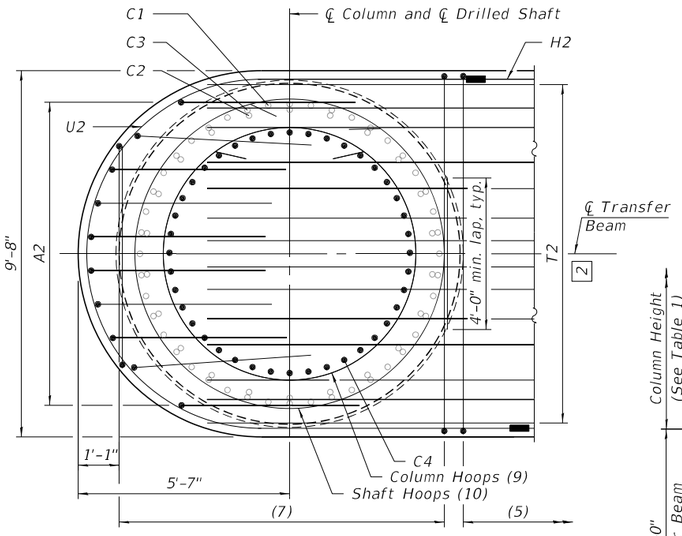
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0350 (EB)
SHEET 181 OF 292 SHEETS

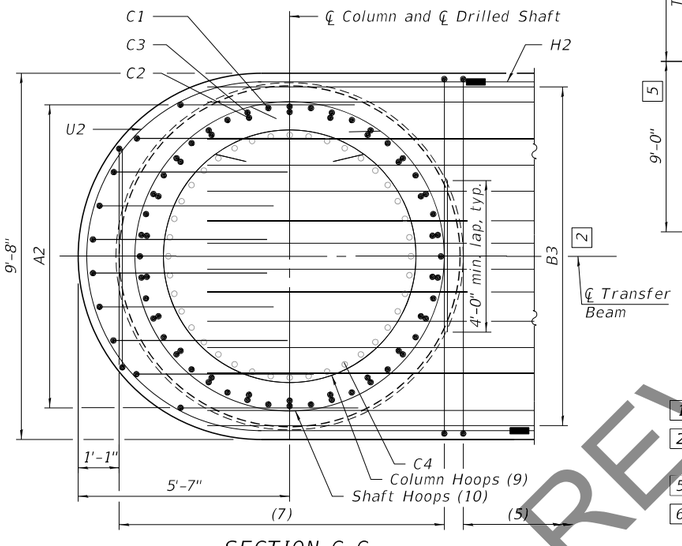
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	381
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



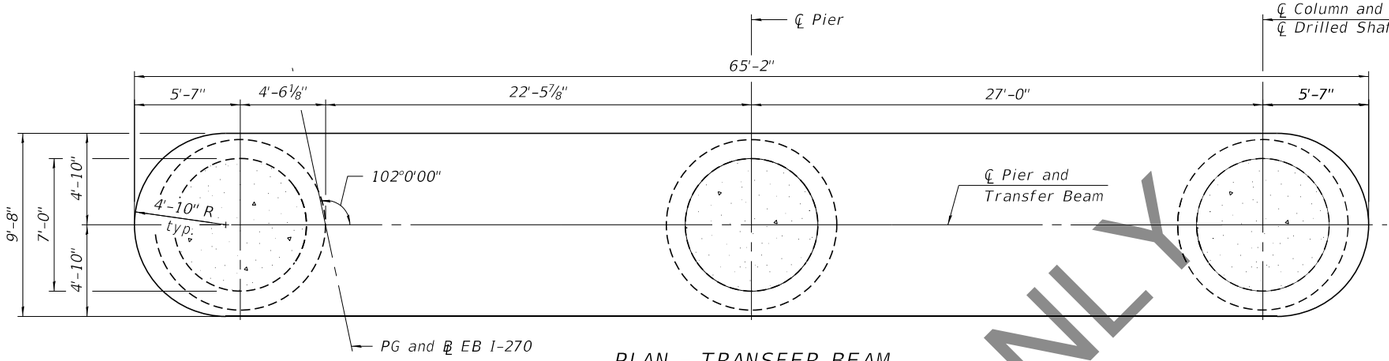
SECTION E-E



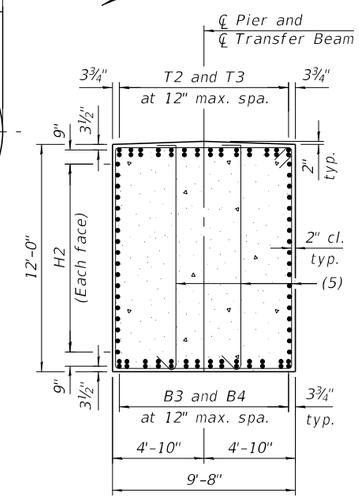
SECTION F-F



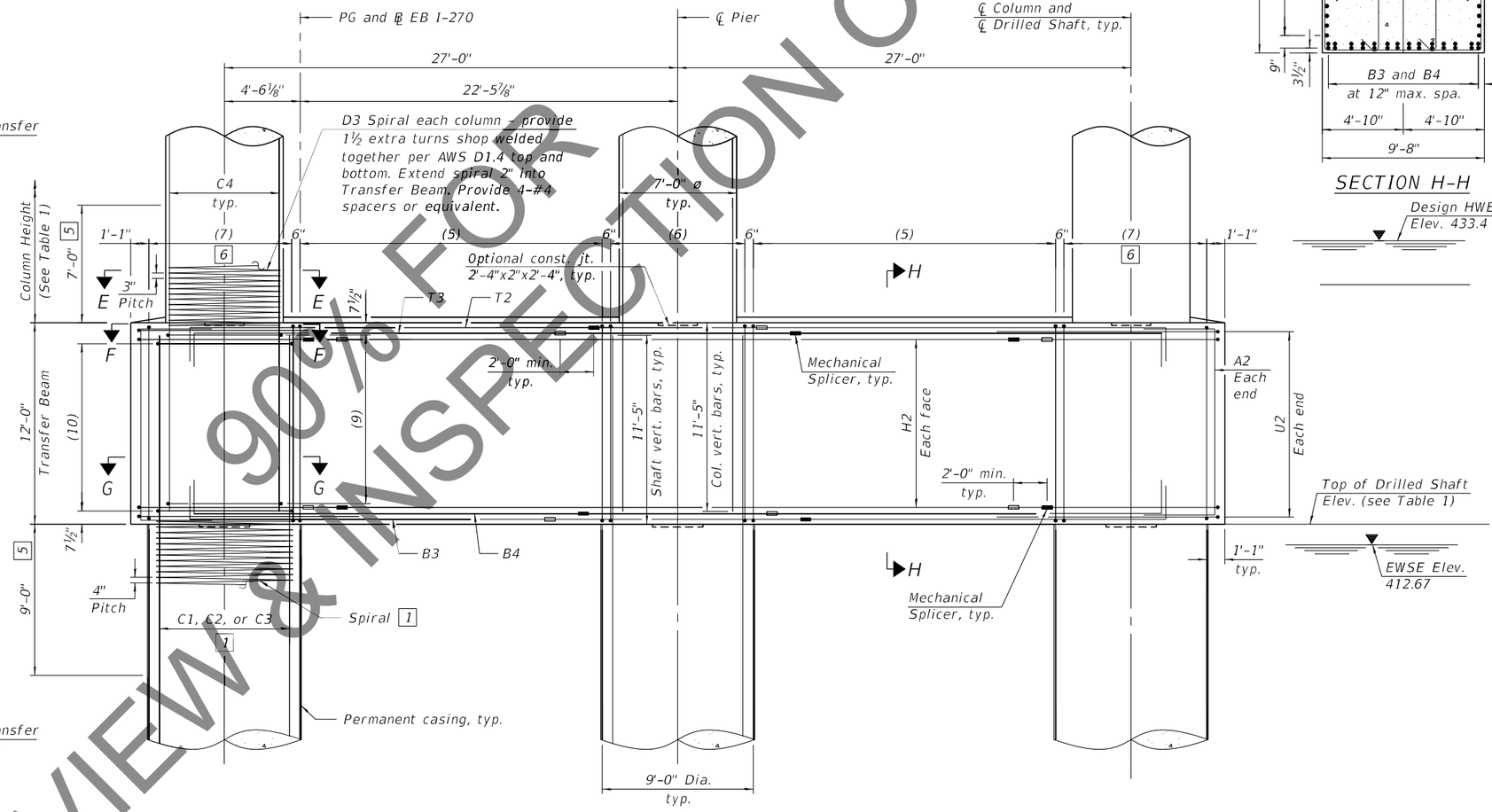
SECTION G-G



PLAN - TRANSFER BEAM



SECTION H-H



PART ELEVATION - TRANSFER BEAM

(Looking East)

1 See sheet 183 of 292 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 181 of 292 .
For Drilled Shaft details, see sheet 183 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 185 and 186 of 292 .
For Table 1, see sheet 184 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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HORNER & SHIFRIN
Teaming with: PARSONS

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0350 (EB)
SHEET 182 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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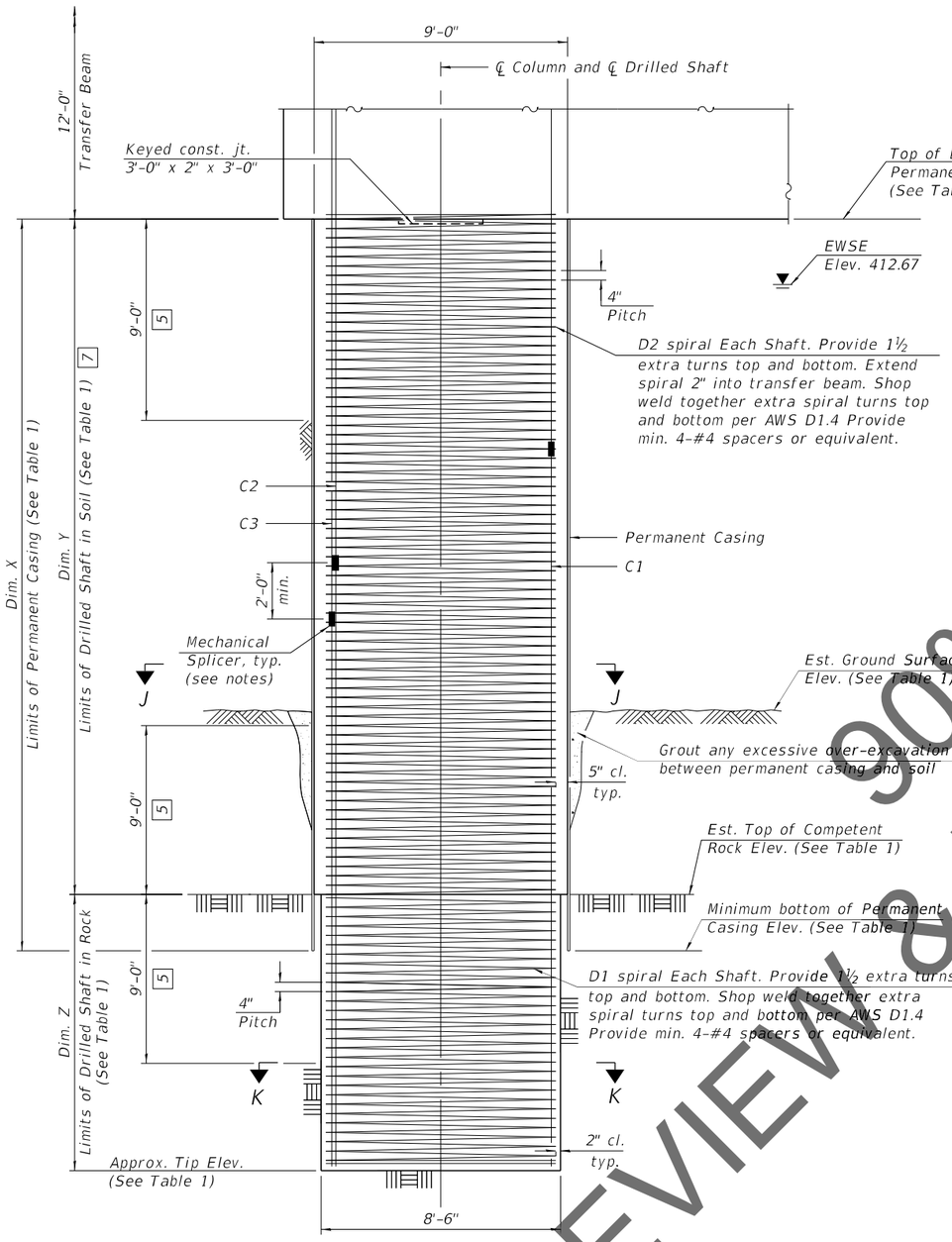
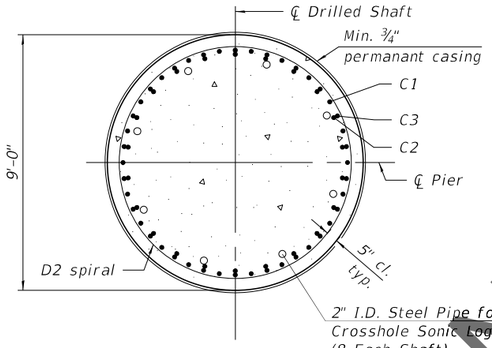
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	

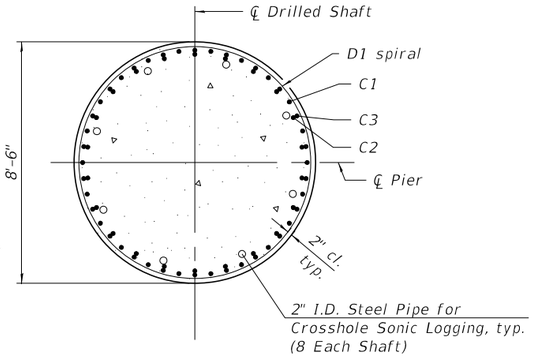


DRILLED SHAFT DETAIL

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



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 ½ 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 181 of 292 .

For Transfer Beam details, see sheet 182 of 292 .

For additional notes, bar details, and Bill of Material, see sheets 185 and 186 of 292 .

For Table 1, see sheet 184 of 292 .

For Mechanical Splicer details, see sheet 248 of 292 .

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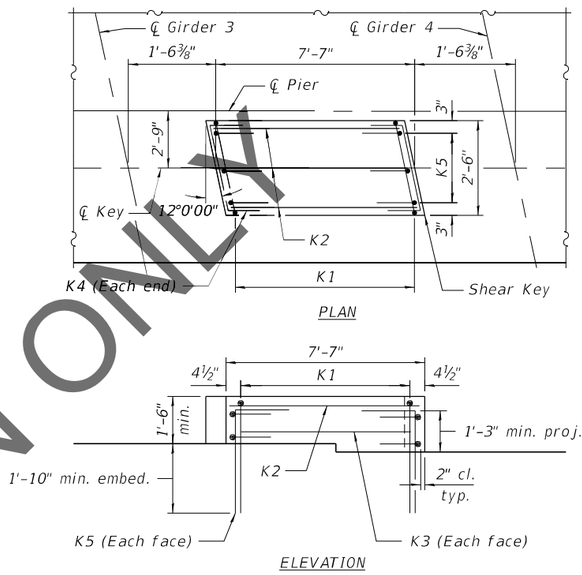
TABLE 1

		Pier 4
℄ Pier Station		1785+79.97
Bearing Seat Elevation	Girder 1	446.57
	Girder 2	446.77
	Girder 3	446.93
	Girder 4	446.71
	Girder 5	446.48
	Girder 6	446.28
	Girder 7	446.09
Top of Cap Elevation		446.09
Bottom of Cap Elevation		438.09
Column Height		11'-1⅛"
Top of Shaft Elevation		415.00
Approx. Tip Elevation		360.10
Est. Ground Surface Elevation		386.50
Est. Top of Rock Elevation		385.60
Min. bott. of Permanent Casing Elev.		383.50
Dim. X		31'-4¾"
Dim. Y		29'-4¾"
Dim. Z		25'-6"

PIER 4

Mark	Bar Callouts
(1)	48 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)	62-#6 s408(E) at abt. 8" cts.
(5)	38 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)	17 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 7⅜" cts.
T2	14 sets of 1-#11 p405(E) and 1-#11 p406(E) at 12" max.
T3	14 sets of 1-#11 p407(E) and 1-#11 p408(E) at 12" max.
B1	2 layers of 13-#11 p403(E) or p409(E) at 7⅜" cts.
B2	13-#7 p404(E) at 7⅜" cts.
B3	14 sets of 1-#11 p405(E) and 1-#11 p406(E) at 12" max.
B4	14 sets of 1-#11 p407(E) and 1-#11 p408(E) at 12" max.
H1	10 x 2-#8 h401(E) at 7½" cts.
H2	18-#9 h402(E) at 7" cts.
H3	13-#6 h403(E) at abt. 7⅜" cts.
H4	13-#6 h404(E) at abt. 7⅜" cts.
A1	6 sets of 1-#7 u403(E) and 1-#7 u404(E) at 8⅝" cts.
A2	10-#7 u405(E) at 10¾" 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	13-#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)



SHEAR KEY DETAILS

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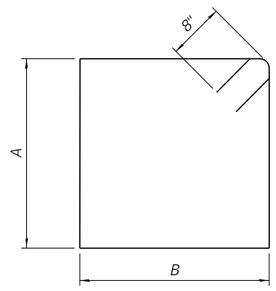
HORNER & SHIFRIN Teaming with: PARSONS	USER NAME =	DESIGNED - UVK	REVISED -
		CHECKED - BTF	REVISED -
	PLOT SCALE =	DRAWN - EAT	REVISED -
	PLOT DATE =	CHECKED - BTF	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

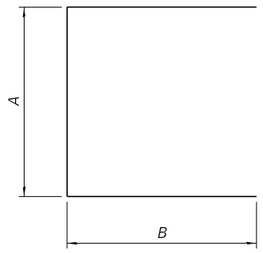
PIER 4 REINFORCEMENT TABLE – 1
STRUCTURE NO. 060–0350 (EB)
SHEET 184 OF 292 SHEETS

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	384
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



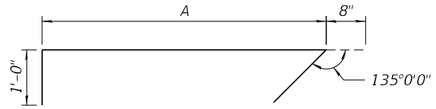
BARS s401(E) & s403(E)

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



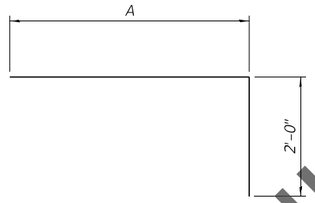
BARS s402(E) & s404(E) & s407(E)

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



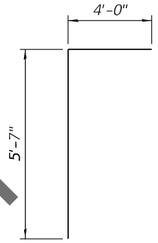
BARS s405(E) & s406(E)

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

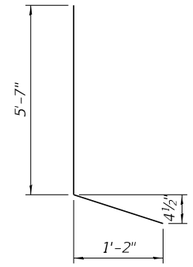


BARS p401(E) & p402(E)
BARS p405(E) & p406(E)
BARS p407(E) & p408(E)

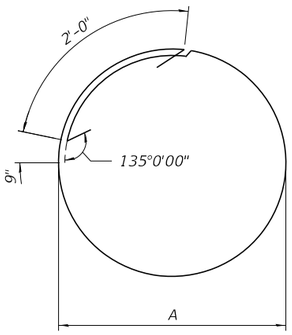
Bars	A
p401(E)	25'-9"
p402(E)	51'-6"
p405(E)	34'-3"
p406(E)	23'-3"
p407(E)	33'-9"
p408(E)	22'-9"



BARS u403(E)

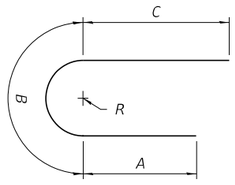


BARS u404(E)



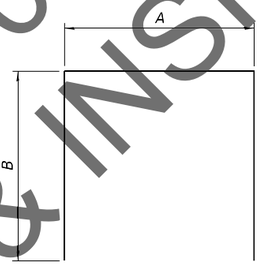
BARS hp401(E) & hp402(E)

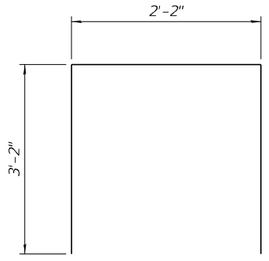
Bars	A
hp401(E)	8'-2"
hp402(E)	6'-8"



BARS u401(E) & u402(E)

Bars	A	B	C	R
u401(E)	5'-4"	11'-9⅜"	5'-4"	3'-9"
u402(E)	5'-9"	14'-5"	7'-9"	4'-7"

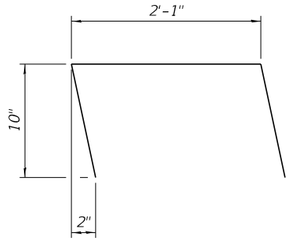




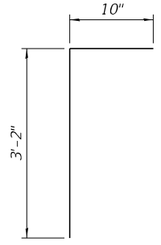
BARS u405(E) & s408(E)

Bars	A	B
u405(E)	11'-6"	4'-7"
u408(E)	7'-8"	2'-9"

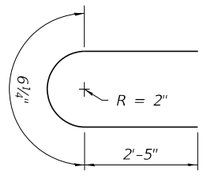
BARS s409(E)



BARS h406(E)



BARS n401(E)



BARS r401(E)

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Teaming with: PARSONS

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 4 REINFORCEMENT TABLE – 2
STRUCTURE NO. 060–0350 (EB)
SHEET 185 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	385
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		

PIER 4
BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h401(E)	20	#8	60'-0"	
	h402(E)	36	#9	42'-0"	
	h403(E)	13	#6	42'-4"	
	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	27'-9"	
	p402(E)	26	#11	53'-6"	
	p403(E)	26	#11	44'-6"	
	p404(E)	26	#7	3'-0"	
	p405(E)	28	#11	36'-3"	
	p406(E)	28	#11	25'-3"	
	p407(E)	28	#11	35'-9"	
	p408(E)	28	#11	24'-9"	
	p409(E)	26	#11	26'-2"	
	r401(E)	8	#5	5'-4"	
	s401(E)	96	#6	32'-0"	
	s402(E)	66	#6	19'-4"	
	s403(E)	76	#6	43'-4"	
	s404(E)	106	#6	25'-0"	
	s405(E)	96	#6	9'-4"	
	s406(E)	152	#6	13'-4"	
	s407(E)	48	#6	16'-6"	
	s408(E)	62	#6	13'-2"	
	s409(E)	15	#5	8'-6"	
**	sp401(E)	3	#7	25'-4"	
**	sp402(E)	3	#7	29'-7"	
**	sp403(E)	3	#7	11'-5"	
	u401(E)	20	#8	22'-5"	
	u402(E)	36	#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	21'-2"	
	v403(E)	66	#14	42'-6"	
	v404(E)	66	#14	23'-8"	
	v405(E)	66	#14	40'-0"	
	v406(E)	66	#14	26'-2"	
	v407(E)	120	#11	30'-0"	

** Length is height of spiral.

PIER 4
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	486.8
Reinforcement Bars, Epoxy Coated	Pound	242,770
Permanent Casing	Foot	95
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

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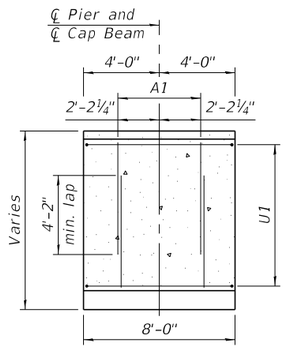
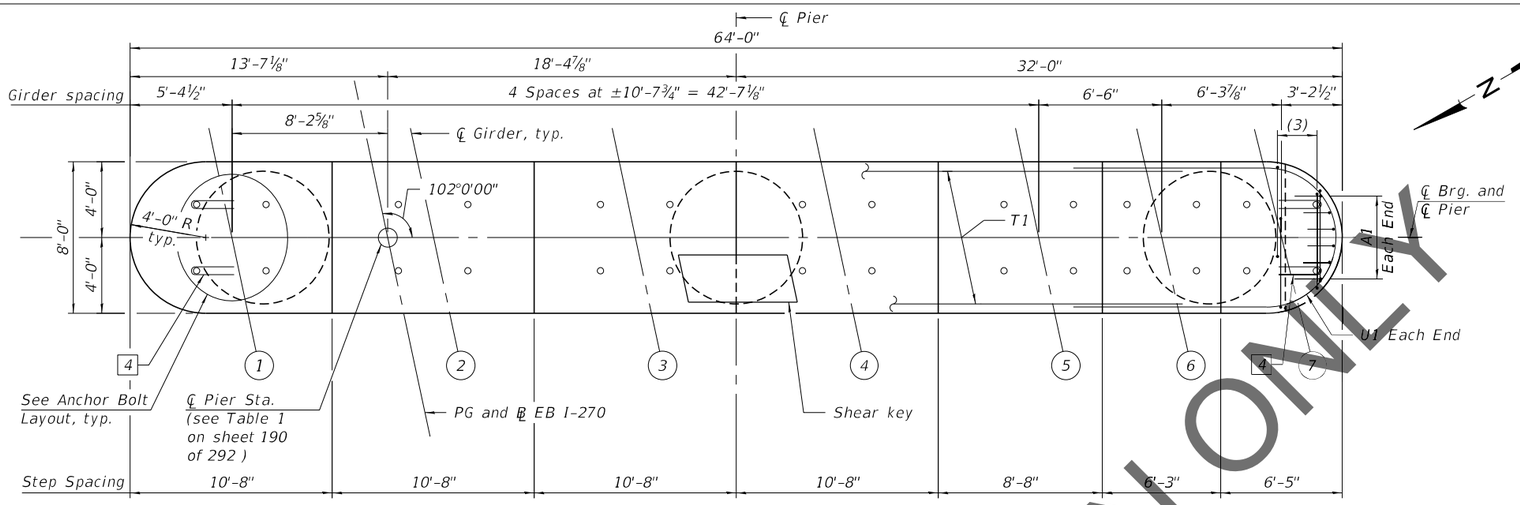
Note:
For bar details, see sheet 185 of 292 .



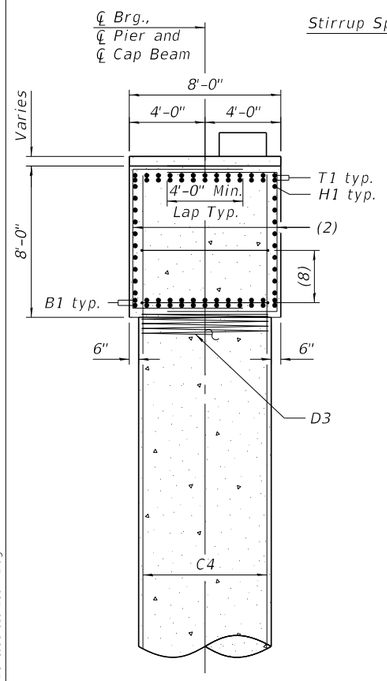
VIEW A-A

(T1 and (3) bars not shown for clarity)

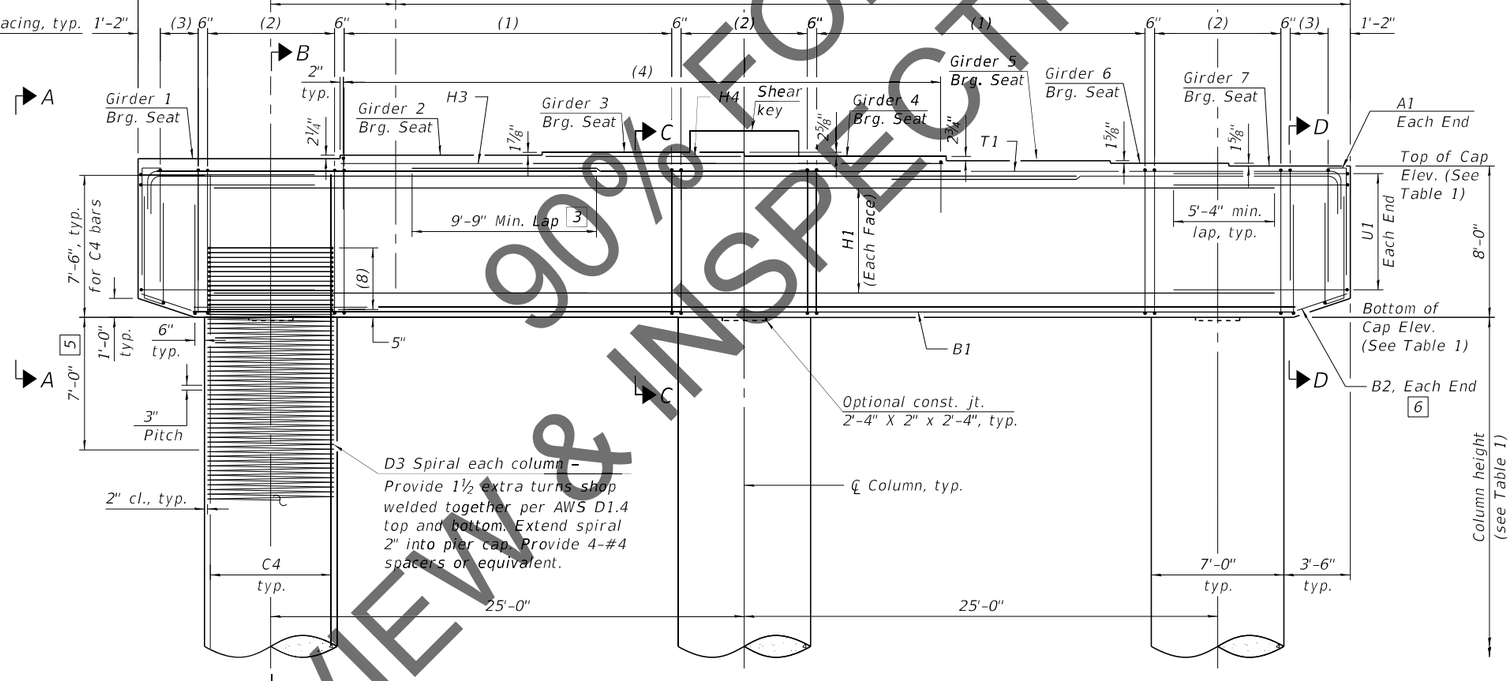


TOP PLAN

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



SECTION B-B



PART ELEVATION

(Looking East)

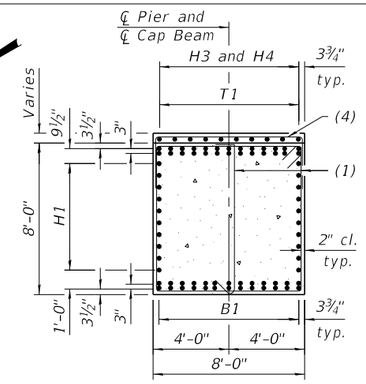
3 Alternate placement cap top rebars to stagger the laps top and bottom

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

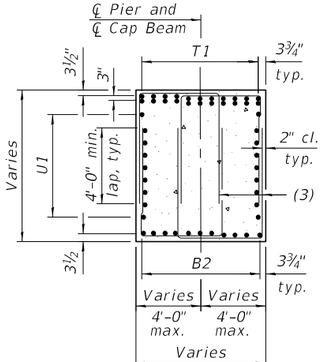
5 No splicing of bars allowed in this region.

6 Field cut bars when needed to keep 2" clear concrete cover.

Notes:
For bar details and Bill of Materials, see sheets 191 and 192 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 190 of 292 .
For bearing details, see sheet 157 of 292 .
For bar callouts and shear key details, see sheet 190 of 292 .



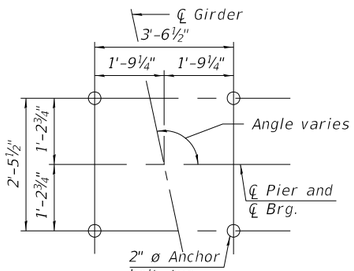
SECTION C-C



SECTION D-D

TABLE OF VARIABLE ANGLES

Location	Angle
Girder 1	102°00'00"
Girder 2	102°00'00"
Girder 3	102°00'00"
Girder 4	102°00'00"
Girder 5	102°00'00"
Girder 6	102°58'48"
Girder 7	104°00'44"



ANCHOR BOLT LAYOUT

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HORNER & SHIFRIN
Teaming with: PARSONS

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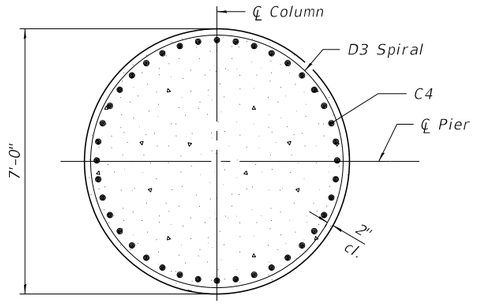
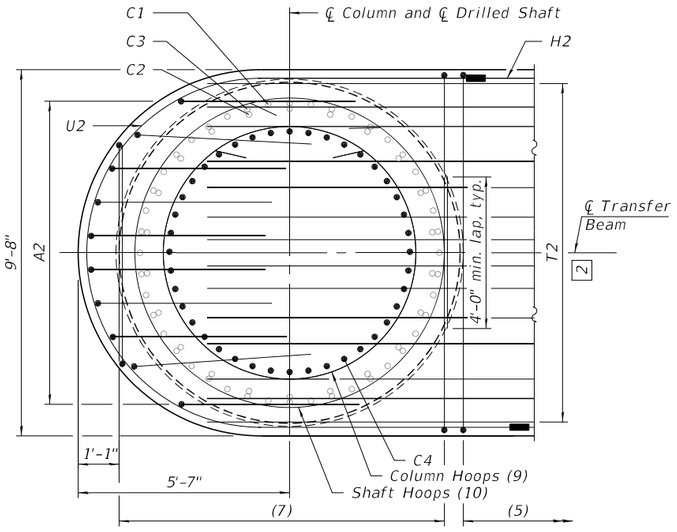
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5 PLAN AND ELEVATION – 1
STRUCTURE NO. 060-0350 (EB)
SHEET 187 OF 292 SHEETS

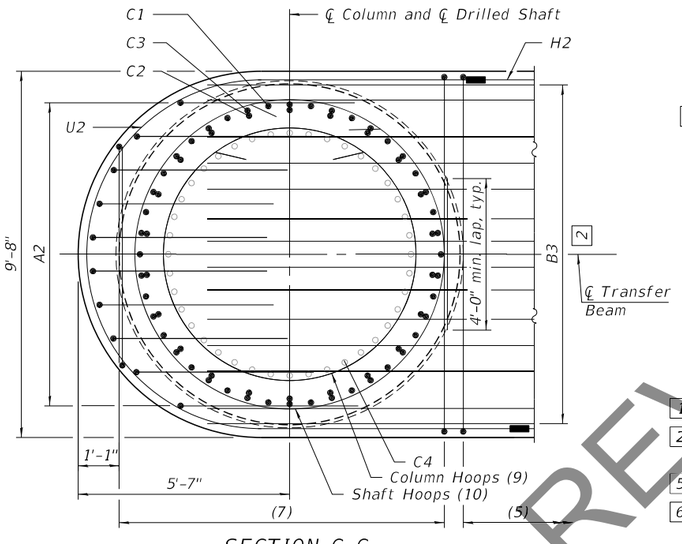
F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	387
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



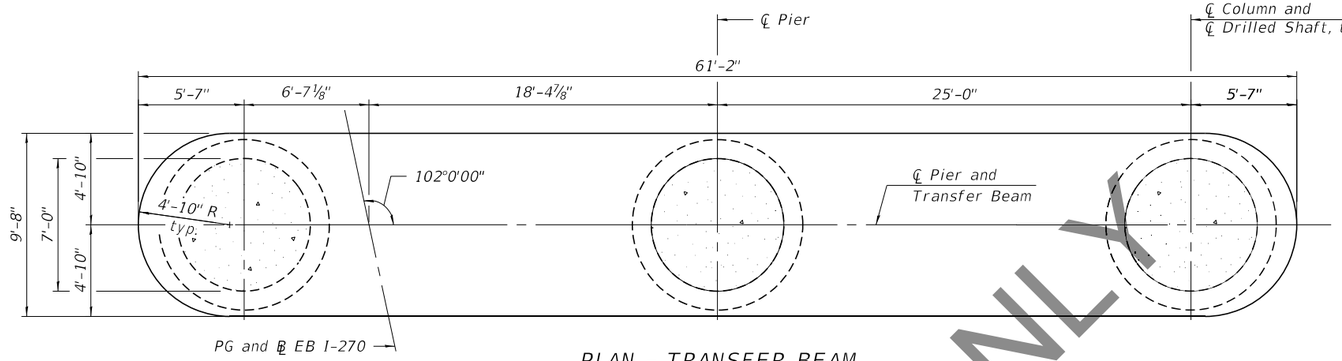
SECTION E-E



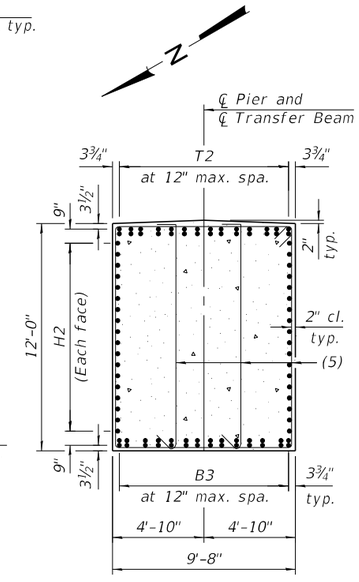
SECTION F-F



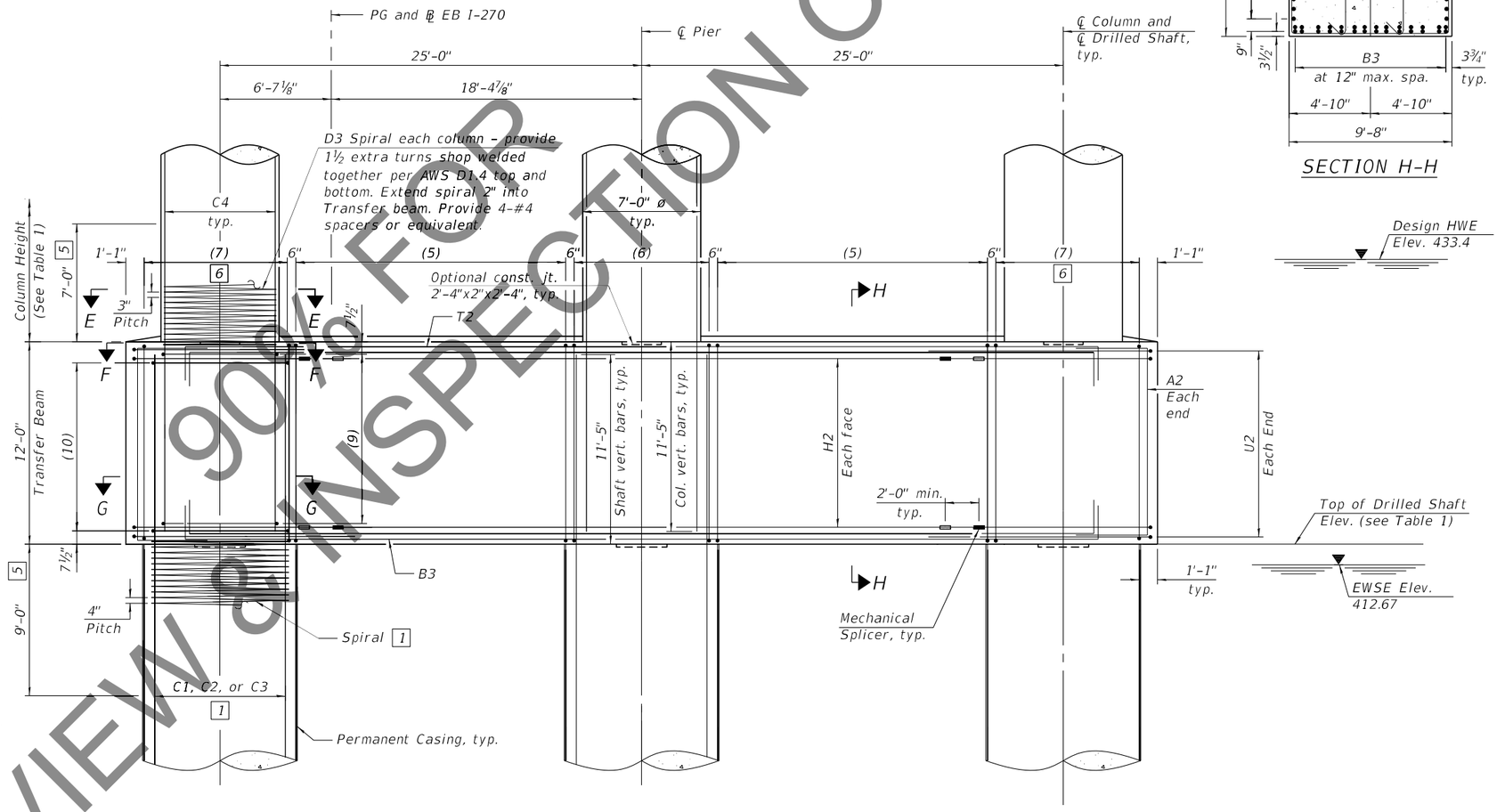
SECTION G-G



PLAN - TRANSFER BEAM



SECTION H-H



PART ELEVATION - TRANSFER BEAM

(Looking East)

1 See sheet 189 of 292 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 187 of 292 .
For Drilled Shaft details, see sheet 188 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 191 and 192 of 292 .
For Table 1, see sheet 190 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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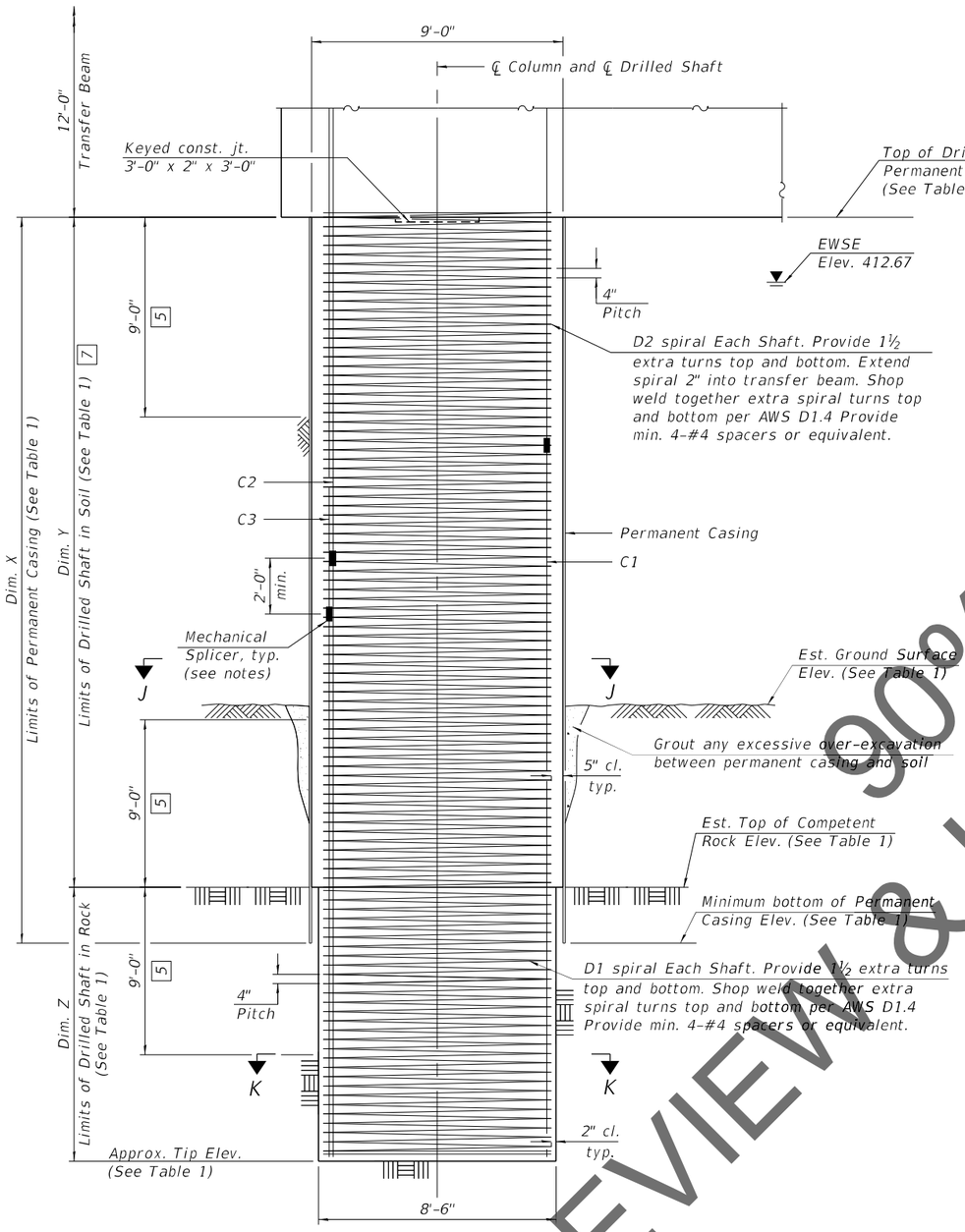
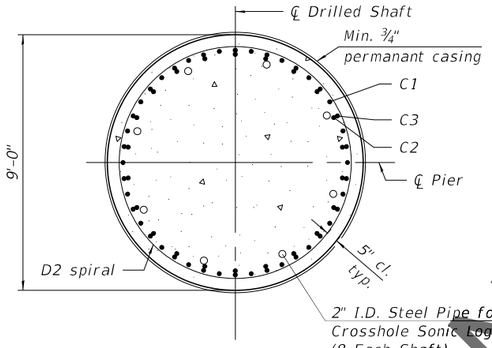
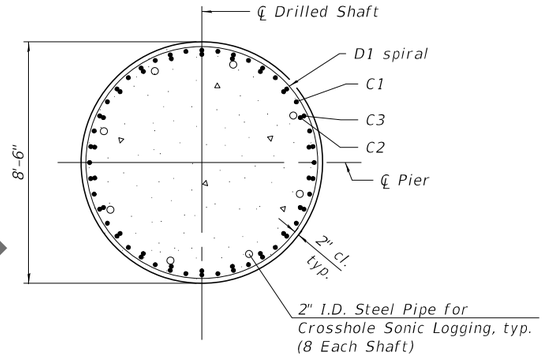


DRILLED SHAFT DETAIL

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



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 ½ 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 187 of 292 .

For Transfer Beam details, see sheet 188 of 292 .

For additional notes, bar details, and Bill of Material, see sheets 191 and 192 of 292 .

For Table 1, see sheet 190 of 292 .

For Mechanical Splicer details, see sheet 248 of 292 .

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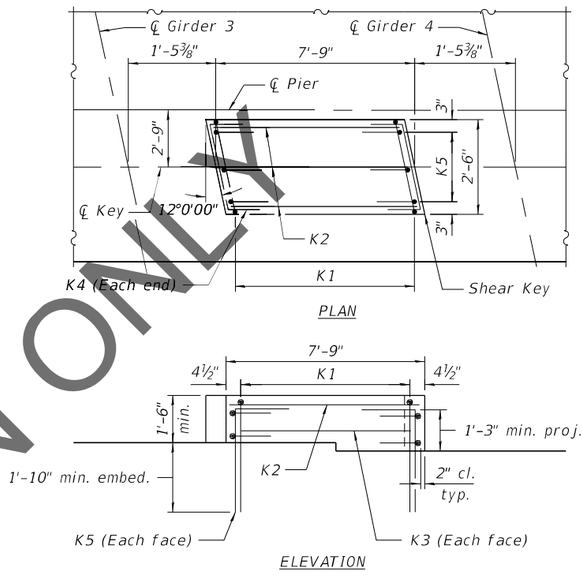
TABLE 1

		Pier 5
℄ Pier Station		1788+15.97
Bearing Seat Elevation	Girder 1	447.76
	Girder 2	447.95
	Girder 3	448.11
	Girder 4	447.89
	Girder 5	447.66
	Girder 6	447.52
	Girder 7	447.39
Top of Cap Elevation		447.39
Bottom of Cap Elevation		439.39
Column Height		12'-4⅝"
Top of Shaft Elevation		415.00
Approx. Tip Elevation		358.10
Est. Ground Surface Elevation		383.60
Est. Top of Rock Elevation		383.60
Min. bott. of Permanent Casing Elev.		381.60
Dim. X		33'-4¾"
Dim. Y		31'-4¾"
Dim. Z		25'-6"

PIER 5

Mark	Bar Callouts
(1)	43 sets of 1-#6 s501(E) and 1-#6 s505(E) at 5" cts.
(2)	14 sets of 2-#6 s502(E) at 6" cts.
(3)	6 sets of 4-#6 s507(E) at 5" cts.
(4)	48-#6 s508(E) at abt. 8" cts.
(5)	33 sets of 1-#6 s503(E) and 2-#6 s506(E) at 6" cts.
(6)	17 sets of 2-#6 s504(E) at 6" cts
(7)	18 sets of 2-#6 s504(E) at 6" cts.
(8)	14-#7 hp502(E) hoops at 3" cts.
(9)	44-#7 hp502(E) hoops at 3" cts.
(10)	33-#7 hp501(E) hoops at 4" cts.
T1	2 layers of 13-#11 p501(E) or p502(E) at 7⅜" cts.
T2	14 bundles of 1-#11 p505(E) and 1-#11 p506(E) at 12" max.
B1	2 layers of 13-#11 p503(E) at 7⅜" cts.
B2	13-#7 p504(E) at 7⅜" cts.
B3	14 bundles of 1-#11 p505(E) and 1-#11 p506(E) at 12" max.
H1	10-#8 h501(E) at 7½" cts.
H2	18-#9 h502(E) at 7" cts.
H3	13-#6 h503(E) at abt. 7⅜" cts.
H4	13-#6 h504(E) at abt. 7⅜" cts.
A1	6 sets of 1-#7 u503(E) and 1-#7 u504(E) at 10½" cts.
A2	10-#7 u505(E) at 10¾" cts.
U1	11-#8 u501(E) spaced with h501(E) and p501(E)
U2	20-#9 u502(E) splice with h502(E) and space with p505(E)
C1	22 sets of 1-#14 v501(E) and 1-#14 v502(E) (top)
C2	22 sets of 1-#14 v503(E) and 1-#14 v504(E) (top) Bundle w/ C3
C3	22 sets of 1-#14 v505(E) and 1-#14 v506(E) (top) Bundle w/ C2
C4	40-#11 v507(E) equally spaced
D1	#7 sp501(E) at 4" pitch
D2	#7 sp502(E) at 4" pitch
D3	#7 sp503(E) at 3" pitch
K1	15-#5 s509(E) spaced at 6" cts.
K2	3-#5 h505(E) spaced with n501(E)
K3	1-#5 h505(E) each face
K4	2-#5 h506(E) each face
K5	3-#5 n501(E) at 12" cts., each face
R1	#5 r501(E)



SHEAR KEY DETAILS

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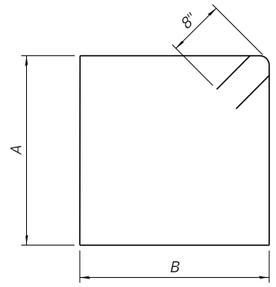
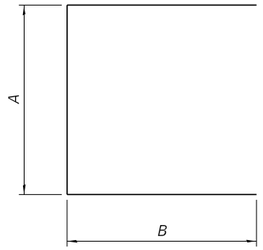


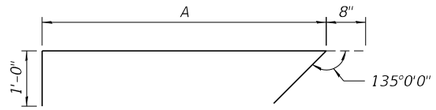
BARS s501(E) & s503(E)

Bars	A	B
s501(E)	7'-8"	7'-8"
s503(E)	11'-8"	9'-4"



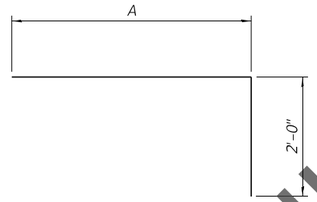
BARS s502(E), s504(E) & s507(E)

Bars	A	B
s502(E)	7'-8"	5'-10"
s504(E)	11'-8"	6'-8"
s507(E)	4'-10"	5'-10"



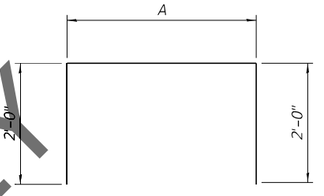
BARS s505(E) & s506(E)

Bars	A
s505(E)	7'-8"
s506(E)	11'-8"



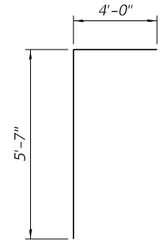
BARS p501(E) & p502(E)

Bars	A
p501(E)	22'-5"
p502(E)	51'-0"

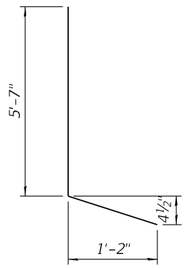


BARS p505(E) & p506(E)

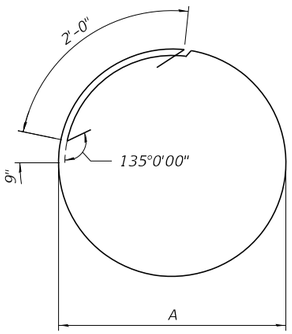
Bars	A
p505(E)	54'-0"
p506(E)	53'-6"



BARS u503(E)

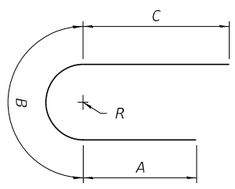


BARS u504(E)



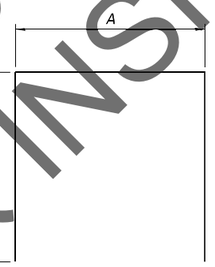
BARS hp501(E) & hp502(E)

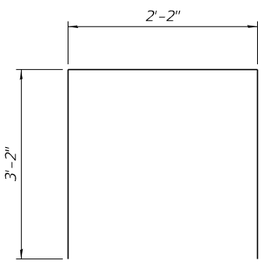
Bars	A
hp501(E)	8'-2"
hp502(E)	6'-8"



BARS u501(E) & u502(E)

Bars	A	B	C	R
u501(E)	5'-4"	11'-9⅞"	5'-4"	3'-9"
u502(E)	5'-9"	14'-5"	7'-9"	4'-7"

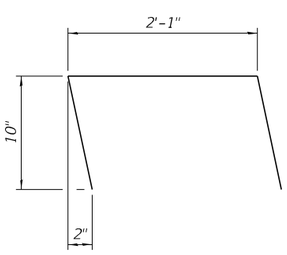




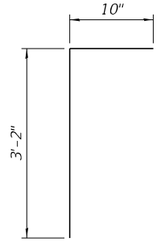
BARS u505(E) & s508(E)

Bars	A	B
u505(E)	11'-6"	4'-7"
s508(E)	7'-8"	2'-9"

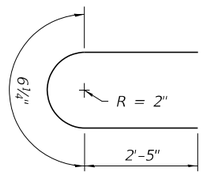
BARS s509(E)



BARS h506(E)



BARS n501(E)



BARS r501(E)

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HORNER & SHIFRIN / Teaming with: PARSONS	USER NAME =	DESIGNED - UVK	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PIER 5 REINFORCEMENT TABLE – 2 STRUCTURE NO. 060–0350 (EB)
		CHECKED - JSR	REVISED -		
	PLOT SCALE =	DRAWN - EAT	REVISED -		
	PLOT DATE =	CHECKED - JJD	REVISED -		SHEET 191 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	391
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	

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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'-3"	
	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'-8"	
	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	31'-7"	
**	sp503(E)	3	#7	12'-9"	
	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	23'-2"	
	v503(E)	66	#14	42'-6"	
	v504(E)	66	#14	25'-8"	
	v505(E)	66	#14	40'-0"	
	v506(E)	66	#14	28'-2"	
	v507(E)	120	#11	31'-4"	

** Length is height of spiral.

PIER 5
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	463.7
Reinforcement Bars, Epoxy Coated	Pound	243,150
Permanent Casing	Foot	101
Drilled Shaft in Soil	Cu. Yd.	222
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	171
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	171

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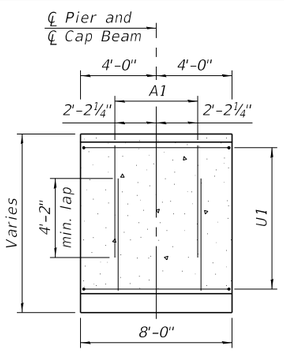
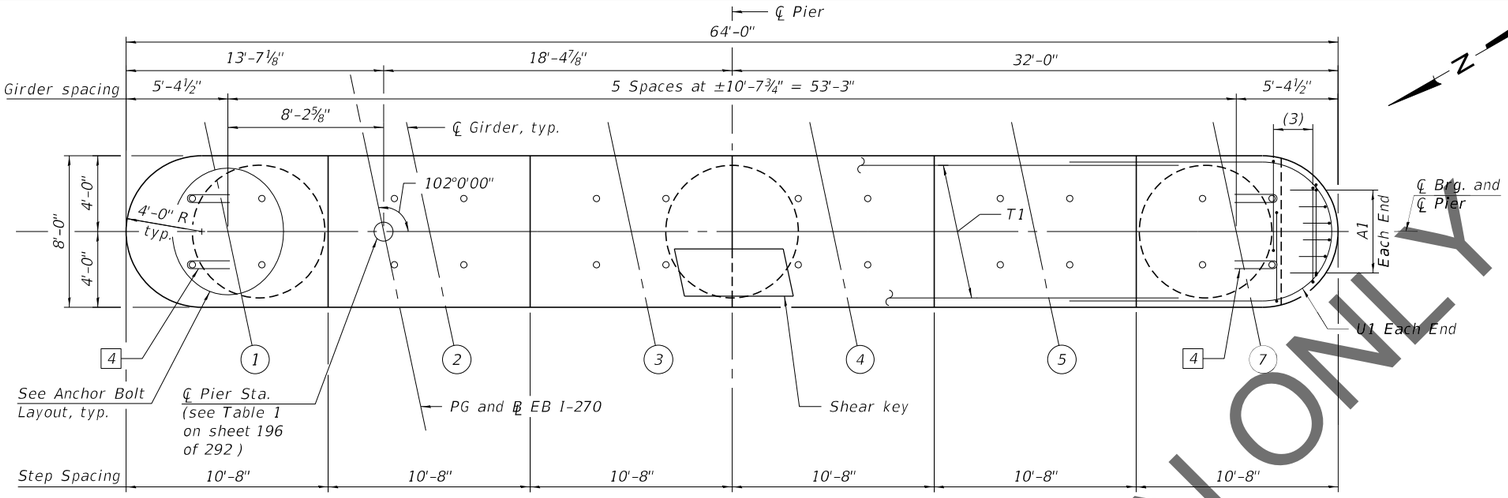
Note:
For bar details, see sheet 191 of 292 .



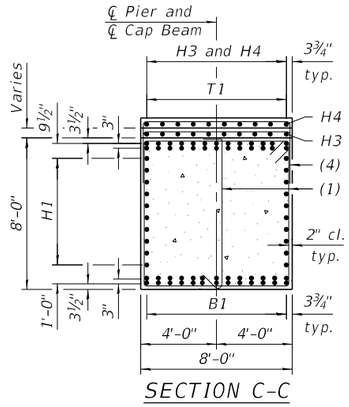
VIEW A-A

(T1 and (3) bars not shown for clarity)

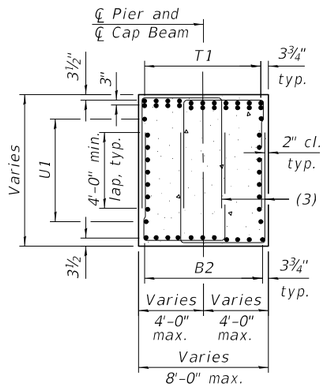


TOP PLAN

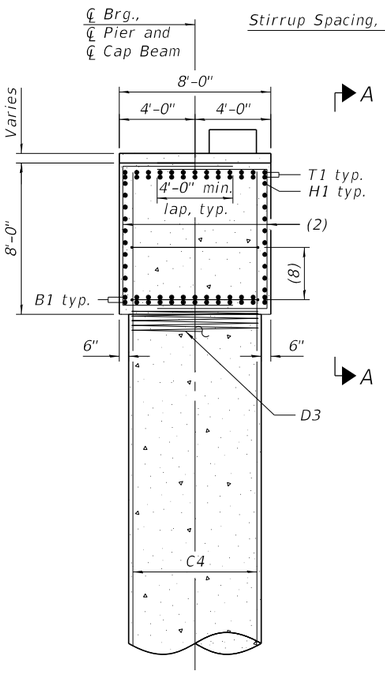
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



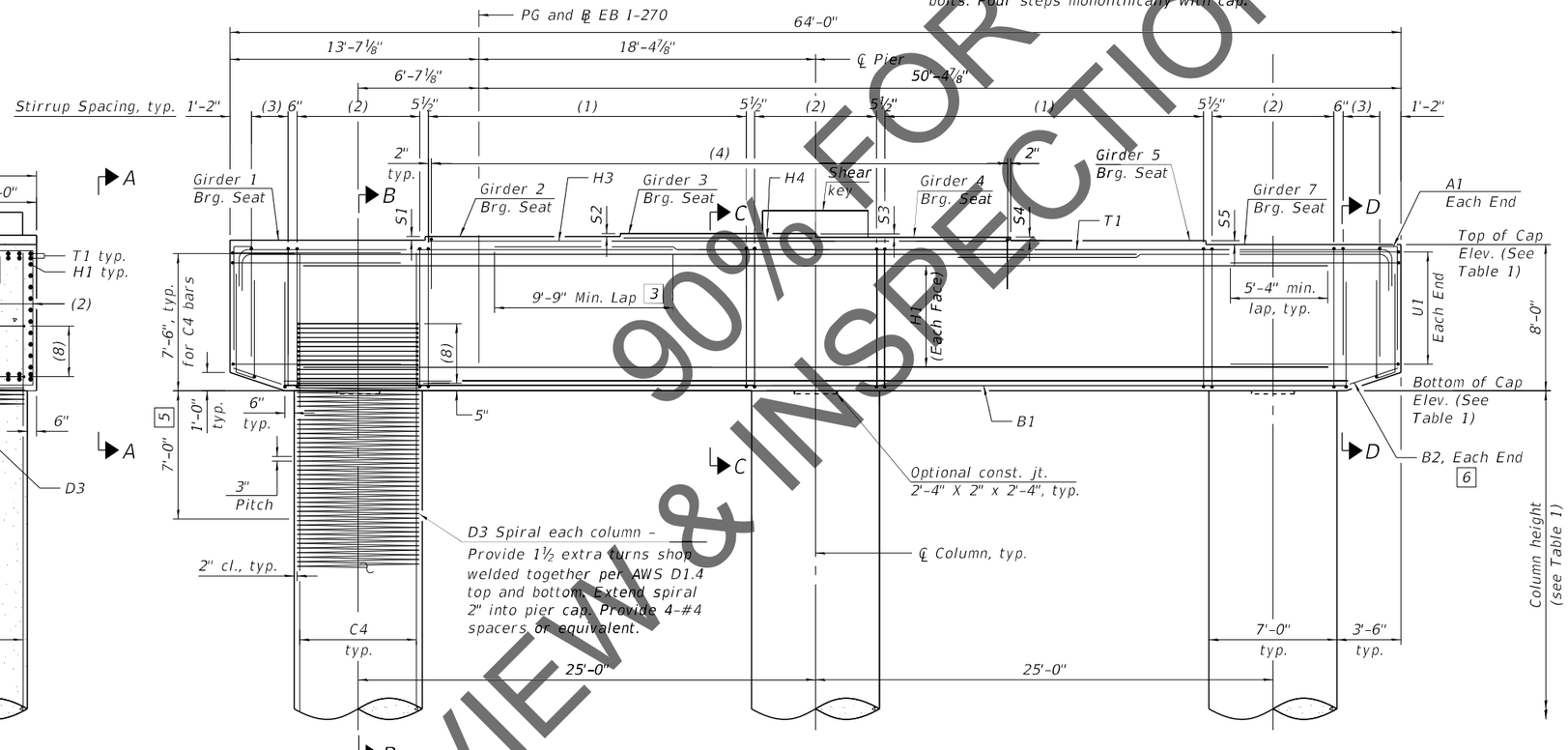
SECTION C-C



SECTION D-D

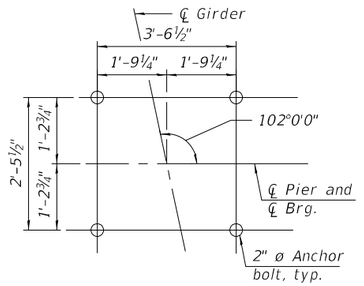


SECTION B-B



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 196 , 197 , and 198 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 196 of 292 .
For bearing details, see sheet 157 of 292 .
For bar callouts and shear key details, see sheet 196 of 292 .

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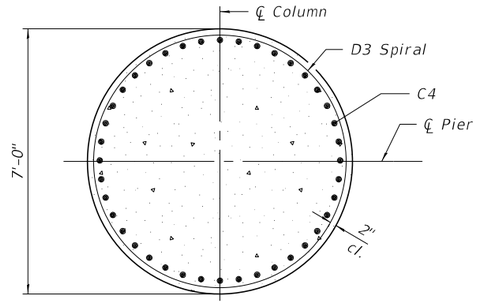
PLOT DATE =	CHECKED - NHP	REVISED -

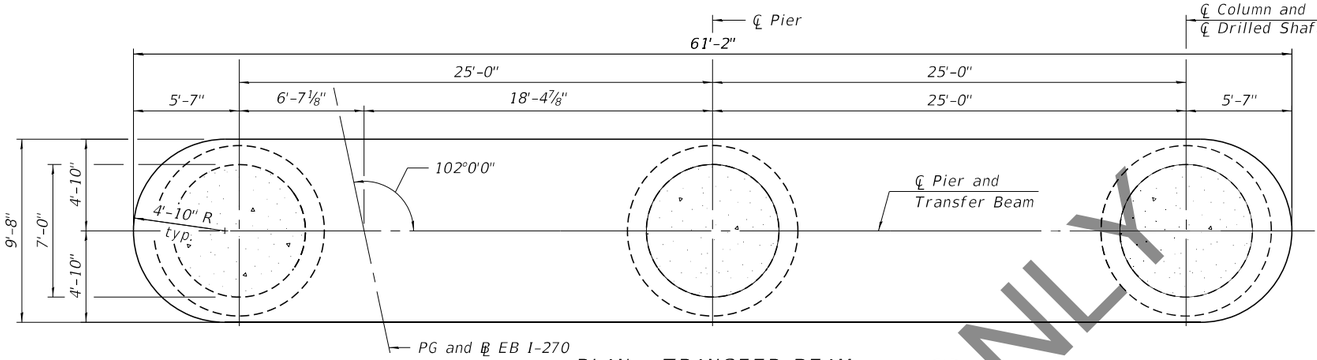
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 6 THRU 8 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0350 (EB)
SHEET 193 OF 292 SHEETS

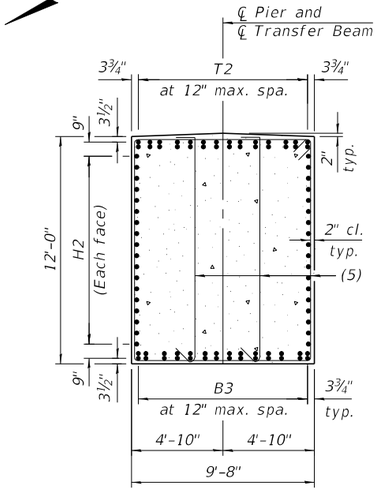
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	393
		CONTRACT NO. 76J90		
	ILLINOIS	FED. AID PROJECT		



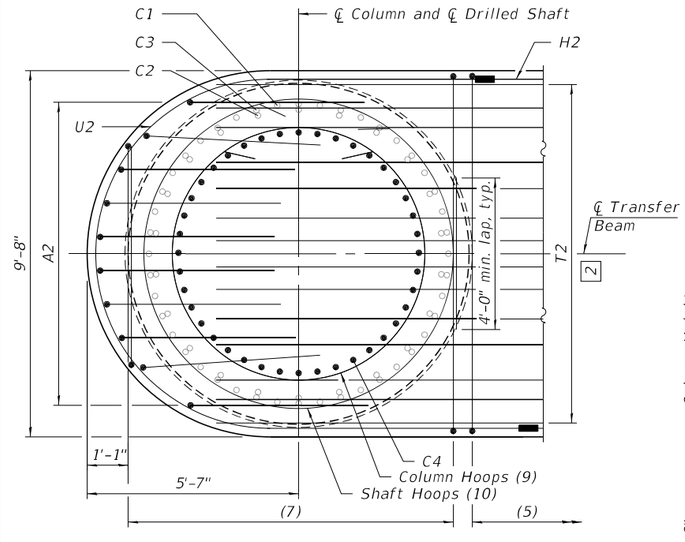
SECTION E-E



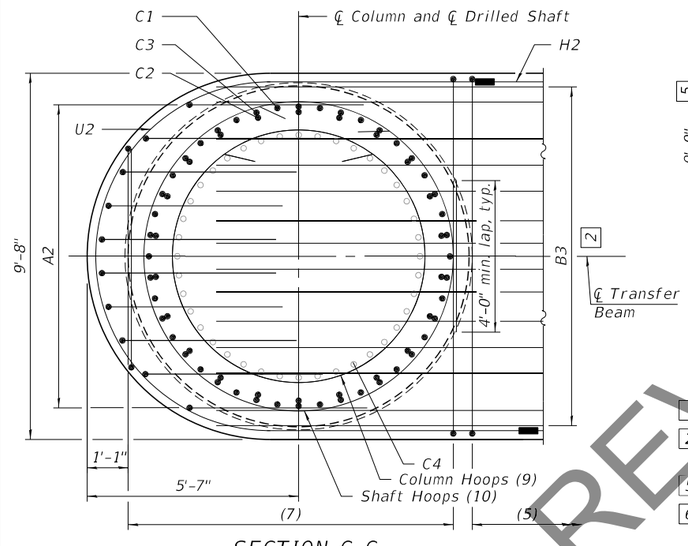
PLAN - TRANSFER BEAM



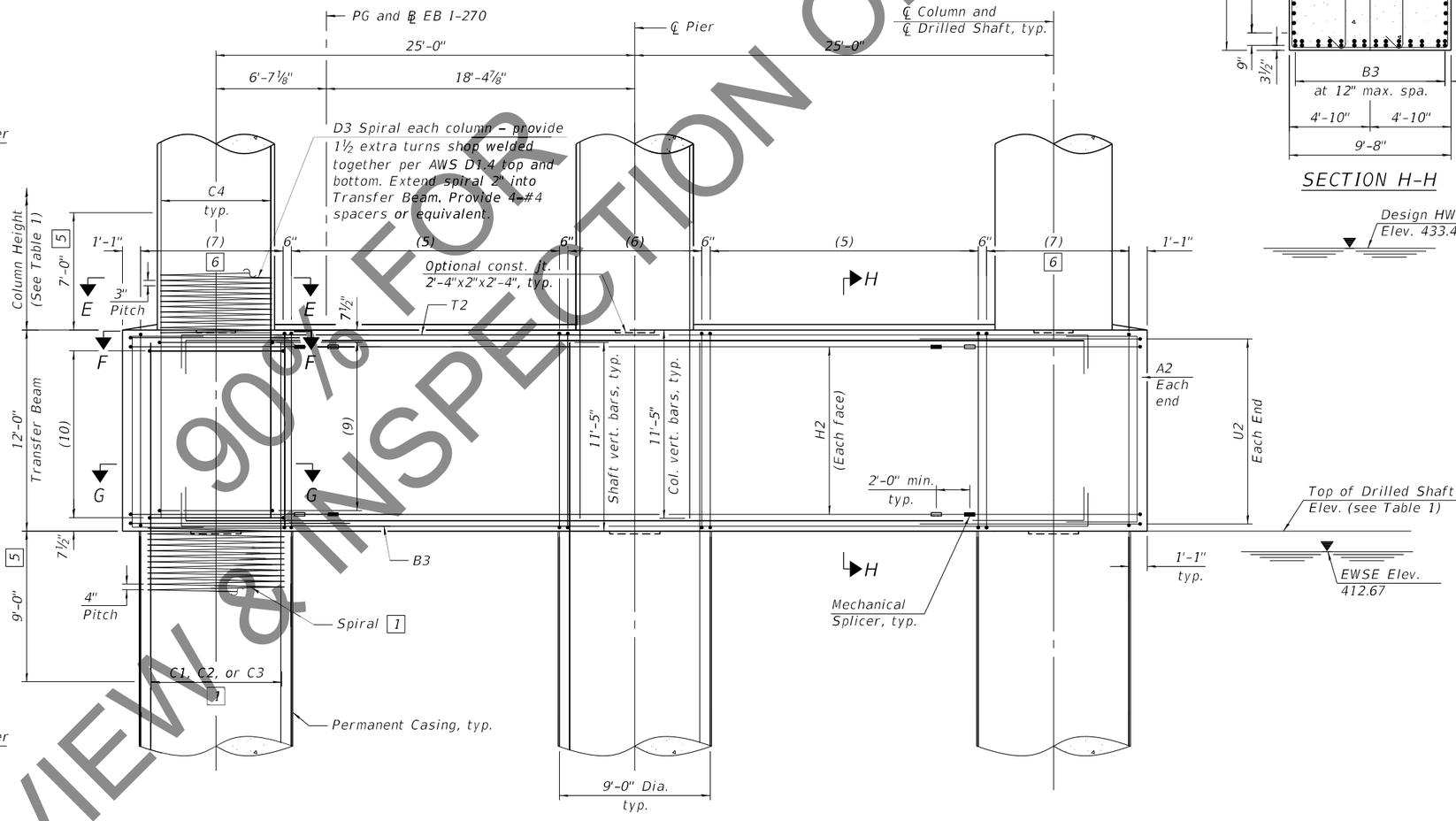
SECTION H-H



SECTION F-F



SECTION G-G



PART ELEVATION - TRANSFER BEAM

(Looking East)

1 See sheet 195 of 292 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 193 of 292 .
For Drilled Shaft details, see sheet 194 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 197 and 198 of 292 .
For Table 1, see sheet 196 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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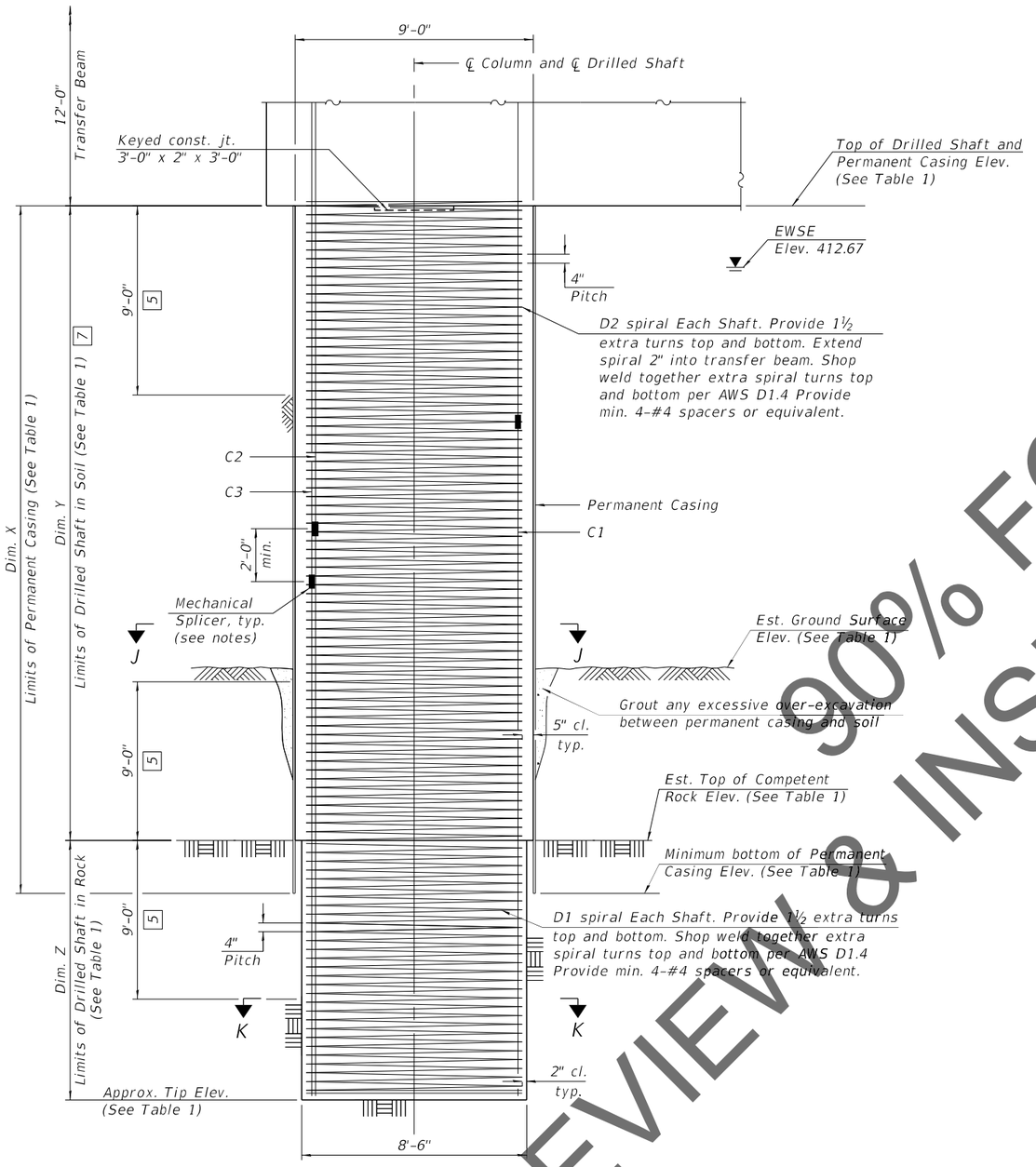
PLOT DATE =	CHECKED - NHP	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

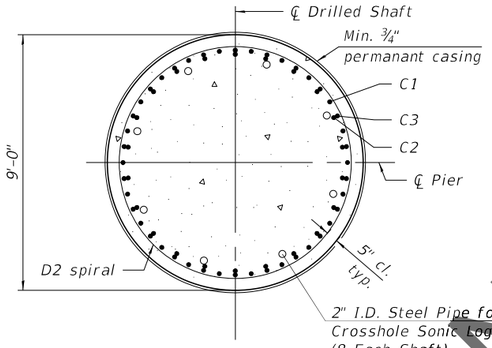
PIER 6 THRU 8 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0350 (EB)
SHEET 194 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	394
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	

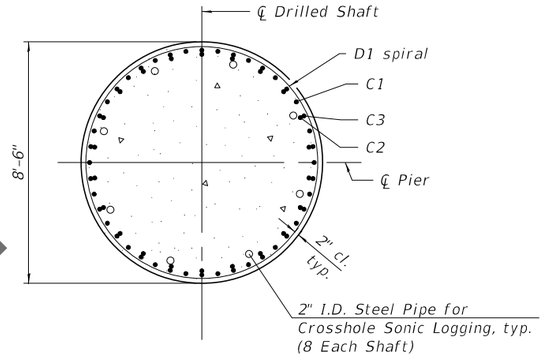


DRILLED SHAFT DETAIL

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



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 ½ 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 193 of 292 .

For Transfer Beam details, see sheet 194 of 292 .

For additional notes, bar details, and Bill of Material, see sheets 197 and 198 of 292 .

For Table 1, see sheet 196 of 292 .

For Mechanical Splicer details, see sheet 248 of 292 .

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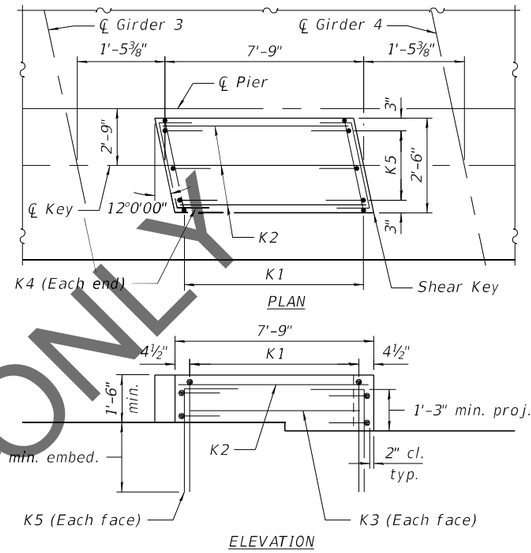
TABLE 1

		Pier 6	Pier 7	Pier 8
℄ Pier Station		1790+51.97	1792+87.97	1795+23.97
Bearing Seat Elevation	Girder 1	448.91	450.10	451.26
	Girder 2	449.11	450.30	451.46
	Girder 3	449.27	450.46	451.63
	Girder 4	449.05	450.25	451.41
	Girder 5	448.83	450.03	451.20
	Girder 7	448.61	449.81	450.97
Top of Cap Elevation		448.61	449.81	450.97
Bottom of Cap Elevation		440.61	441.81	442.97
Column Height		13'-7⅜"	14'-9¾"	15'-11⅝"
Top of Shaft Elevation		415.00	415.00	415.00
Approx. Tip Elevation		358.20	355.20	347.00
Est. Ground Surface Elevation		387.60	400.00	385.80
Est. Top of Rock Elevation		383.70	387.70	372.50
Min. bott. of Permanent Casing Elev.		381.70	385.70	370.50
Dim. X		33'-3⅝"	36'-3⅝"	44'-6"
Dim. Y		31'-3⅝"	34'-3⅝"	42'-6"
Dim. Z		25'-6"	25'-6"	25'-6"

TABLE 1 (CONT.)

Step Height	Pier 6	Pier 7	Pier 8
S1	2⅜"	2⅜"	2⅜"
S2	1⅞"	1⅞"	2"
S3	2⅝"	2½"	2⅝"
S4	2⅝"	2⅝"	2½"
S5	2⅝"	2⅝"	2¾"



SHEAR KEY DETAILS

PIER 6

PIER 7

PIER 8

Mark	Bar Callouts	Bar Callouts	Bar Callouts
(1)	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 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 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)	47-#6 s608(E) at abt. 8" cts.	47-#6 s708(E) at abt. 8" cts.	47-#6 s808(E) at abt. 8" cts.
(5)	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 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 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 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 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 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 p601(E) or p602(E) at 7⅜" cts.	2 layers of 13-#11 p701(E) or p702(E) at 7⅜" cts.	2 layers of 13-#11 p801(E) or p802(E) at 7⅜" cts.
T2	14 bundles of 1-#11 p605(E) and 1-#11 p606(E) at 12" max.	14 bundles of 1-#11 p705(E) and 1-#11 p706(E) at 12" max.	14 bundles of 1-#11 p805(E) and 1-#11 p806(E) at 12" max.
B1	2 layers of 13-#11 p603(E) at 7⅜" cts.	2 layers of 13-#11 p703(E) at 7⅜" cts.	2 layers of 13-#11 p803(E) at 7⅜" cts.
B2	13-#7 p604(E) at 7⅜" cts.	13-#7 p704(E) at 7⅜" cts.	13-#7 p804(E) at 7⅜" cts.
B3	14 bundles of 1-#11 p605(E) and 1-#11 p606(E) at 12" max.	14 bundles of 1-#11 p705(E) and 1-#11 p706(E) at 12" max.	14 bundles of 1-#11 p805(E) and 1-#11 p806(E) at 12" max.
H1	10-#8 h601(E) at 7½" cts.	10-#8 h701(E) at 7½" cts.	10-#8 h801(E) at 7½" cts.
H2	18-#9 h602(E) at 7" cts.	18-#9 h702(E) at 7" cts.	18-#9 h802(E) at 7" cts.
H3	13-#6 h603(E) at abt. 7⅜" cts.	13-#6 h703(E) at abt. 7⅜" cts.	13-#6 h803(E) at abt. 7⅜" cts.
H4	13-#6 h604(E) at abt. 7⅜" cts.	13-#6 h704(E) at abt. 7⅜" cts.	13-#6 h804(E) at abt. 7⅜" cts.
A1	6 sets of 1-#7 u603(E) and 1-#7 u604(E) at 10½" cts.	6 sets of 1-#7 u703(E) and 1-#7 u704(E) at 10½" cts.	6 sets of 1-#7 u803(E) and 1-#7 u804(E) at 10½" cts.
A2	10-#7 u605(E) at 10¾" cts.	10-#7 u705(E) at 10¾" cts.	10-#7 u805(E) at 10¾" cts.
U1	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 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 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 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 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 v607(E) equally spaced	40-#11 v707(E) equally spaced	40-#11 v807(E) equally spaced
D1	#7 sp601(E) at 4" pitch	#7 sp701(E) at 4" pitch	#7 sp801(E) at 4" pitch
D2	#7 sp602(E) at 4" pitch	#7 sp702(E) at 4" pitch	#7 sp802(E) at 4" pitch
D3	#7 sp603(E) at 3" pitch	#7 sp703(E) at 3" pitch	#7 sp803(E) at 3" pitch
K1	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 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 h605(E) each face	1-#5 h705(E) each face	1-#5 h805(E) each face
K4	2-#5 h606(E) each face	2-#5 h706(E) each face	2-#5 h806(E) each face
K5	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 r601(E)	#5 r701(E)	#5 r801(E)

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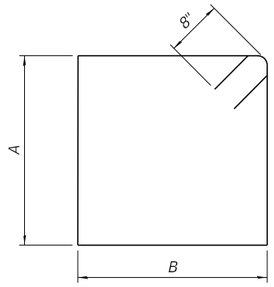
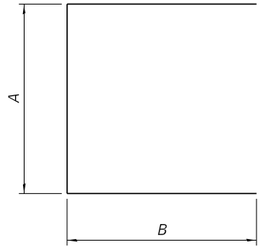
CONSTRUCTION
NOT SPEC



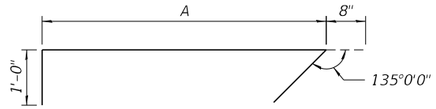
BARS s601(E) & s603(E)
BARS s701(E) & s703(E)
BARS s801(E) & s803(E)

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



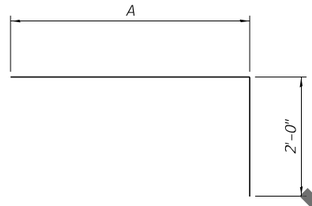
BARS s602(E) & s604(E) & s607(E)
BARS s702(E) & s704(E) & s707(E)
BARS s802(E) & s804(E) & s807(E)

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



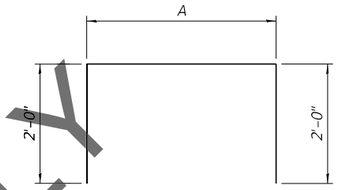
BARS s605(E) & s606(E)
BARS s705(E) & s706(E)
BARS s805(E) & s806(E)

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



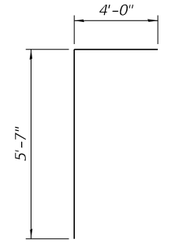
BARS p601(E) & p602(E)
BARS p701(E) & p702(E)
BARS p801(E) & p802(E)

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

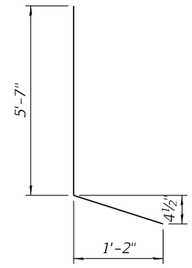


BARS p605(E) & p606(E)
BARS p705(E) & p706(E)
BARS p805(E) & p806(E)

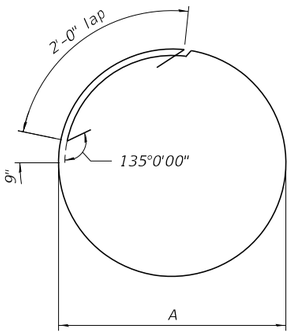
Bars	A
p605(E), p705(E) & p805(E)	54'-0"
p606(E), p706(E) & p806(E)	53'-6"



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

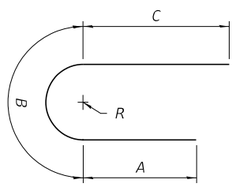


BARS u604(E)
BARS u704(E)
BARS u804(E)



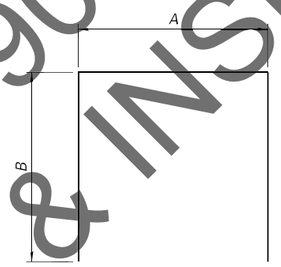
BARS hp601(E) & hp602(E)
BARS hp701(E) & hp702(E)
BARS hp801(E) & hp802(E)

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



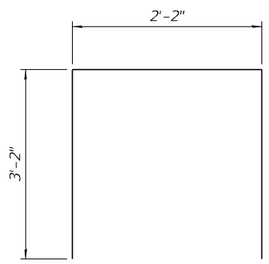
BARS u601(E) & u602(E)
BARS u701(E) & u702(E)
BARS u801(E) & u802(E)

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

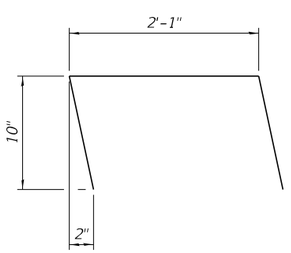


BARS u605(E) & s608(E)
BARS u705(E) & s708(E)
BARS u805(E) & s808(E)

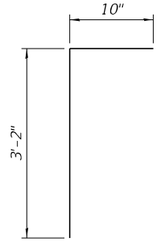
Bars	A	B
u605(E), u705(E) & u805(E)	11'-6"	4'-7"
s608(E), s708(E) & s808(E)	7'-8"	2'-9"



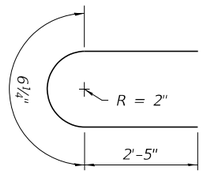
BARS s609(E)
BARS s709(E)
BARS s809(E)



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



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



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

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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)	47	#6	13'-2"	
s609(E)	15	#5	8'-6"	
** sp601(E)	3	#7	25'-4"	
** sp602(E)	3	#7	31'-6"	
** sp603(E)	3	#7	13'-11"	
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	23'-1"	
v603(E)	66	#14	42'-6"	
v604(E)	66	#14	25'-7"	
v605(E)	66	#14	40'-0"	
v606(E)	66	#14	28'-1"	
v607(E)	120	#11	32'-7"	

** Length is height of spiral.

PIER 6
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	467.9
Reinforcement Bars, Epoxy Coated	Pound	244,380
Permanent Casing	Foot	100
Drilled Shaft in Soil	Cu. Yd.	222
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	171
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	171

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)	47	#6	13'-2"	
s709(E)	15	#5	8'-6"	
** sp701(E)	3	#7	25'-4"	
** sp702(E)	3	#7	34'-6"	
** sp703(E)	3	#7	15'-2"	
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	26'-1"	
v703(E)	66	#14	42'-6"	
v704(E)	66	#14	28'-7"	
v705(E)	66	#14	40'-0"	
v706(E)	66	#14	31'-1"	
v707(E)	120	#11	33'-9"	

** Length is height of spiral.

PIER 7
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	472.9
Reinforcement Bars, Epoxy Coated	Pound	251,720
Permanent Casing	Foot	109
Drilled Shaft in Soil	Cu. Yd.	243
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	180
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	180

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)	47	#6	13'-2"	
s809(E)	15	#5	8'-6"	
** sp801(E)	3	#7	25'-4"	
** sp802(E)	3	#7	42'-8"	
** sp803(E)	3	#7	16'-4"	
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	34'-3"	
v803(E)	66	#14	42'-6"	
v804(E)	66	#14	36'-9"	
v805(E)	66	#14	40'-0"	
v806(E)	66	#14	39'-3"	
v807(E)	120	#11	34'-11"	

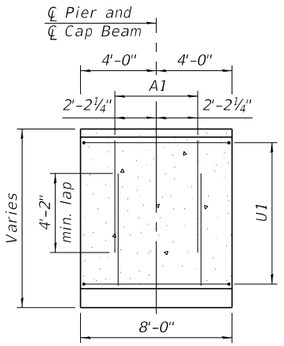
** Length is height of spiral.

PIER 8
BILL OF MATERIAL (CONT.)

Concrete Structures	Cu. Yd.	478.0
Reinforcement Bars, Epoxy Coated	Pound	269,300
Permanent Casing	Foot	134
Drilled Shaft in Soil	Cu. Yd.	301
Drilled Shaft in Rock	Cu. Yd.	161
Crosshole Sonic Logging Access Ducts	Foot	204
Crosshole Sonic Logging Testing	Each	3
Thermal Integrity Profile Testing	Each	3
Thermal Integrity Profile Data Collection	Foot	204

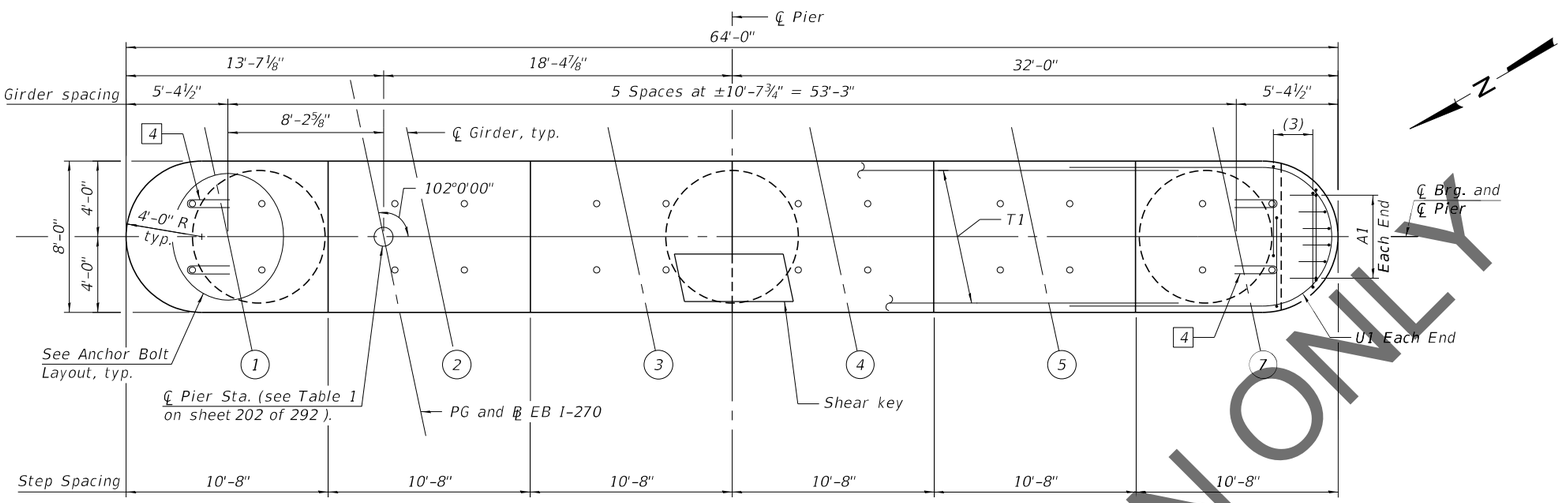
REVIEW & INSPECTION ONLY 90% FOR

Note:
For bar details, see sheet 197 of 292 .



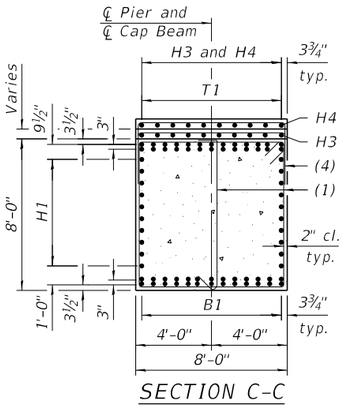
VIEW A-A

(T1 and (3) bars not shown for clarity)

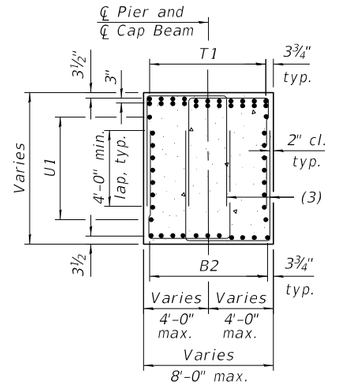


TOP PLAN

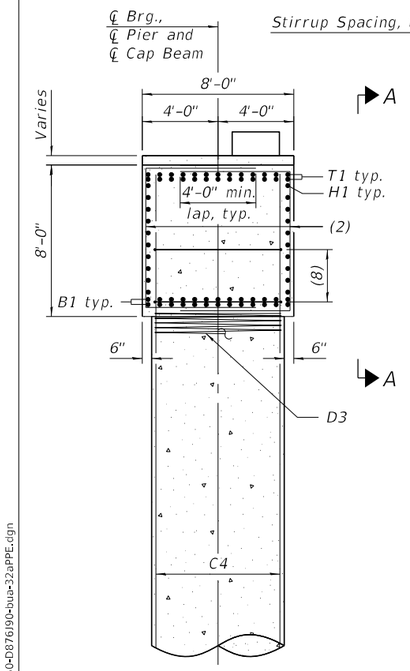
Note:
Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.



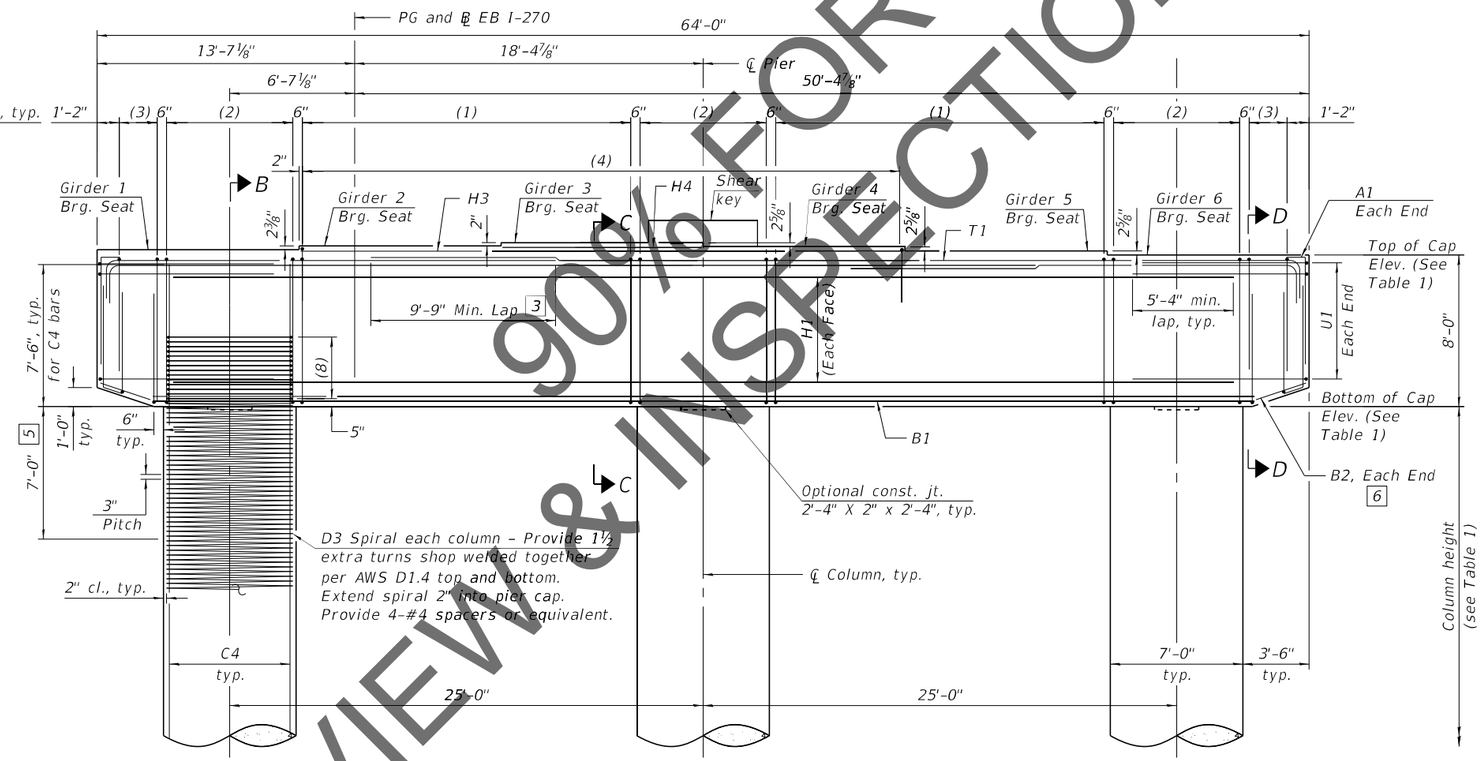
SECTION C-C



SECTION D-D

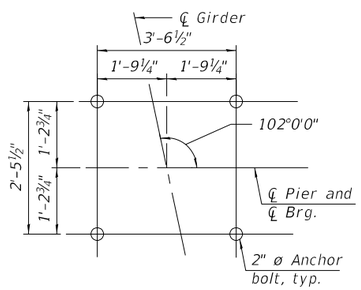


SECTION B-B



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 203 and 204 of 292 .
For column height, step height and all elevations, see Table 1 on sheet 202 of 292 .
For bearing details, see sheet 158 of 292 .
For bar callouts and shear key details, see sheet 202 of 292 .

REVIEW & INSPECTION ONLY
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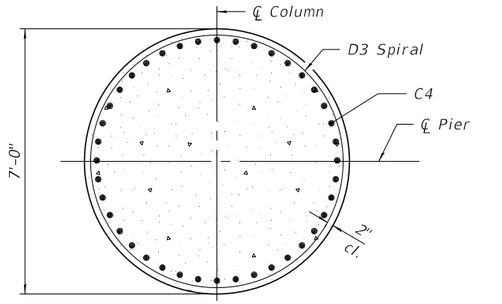
HORNER & SHIFRIN
Teaming with: PARSONS

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

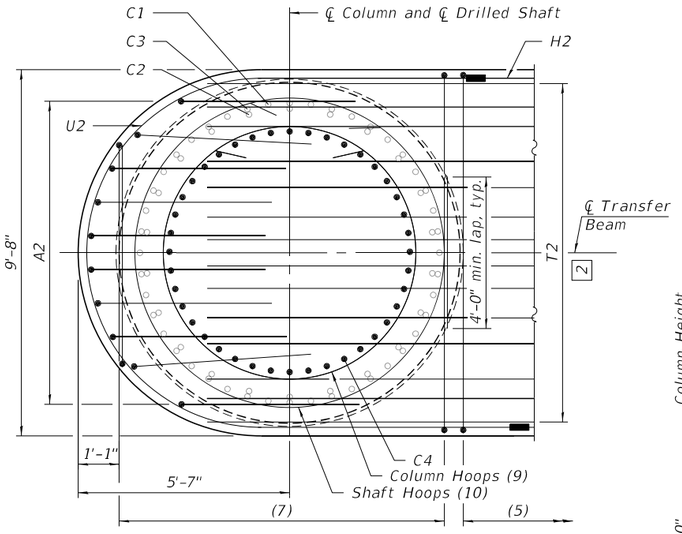
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 9 PLAN AND ELEVATION - 1
STRUCTURE NO. 060-0350 (EB)
SHEET 199 OF 292 SHEETS

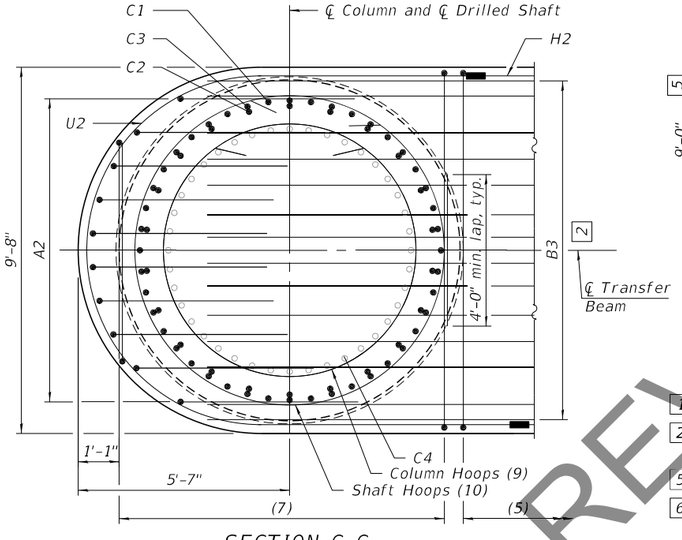
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	399
		CONTRACT NO. 76J90		
	ILLINOIS FED. AID PROJECT			



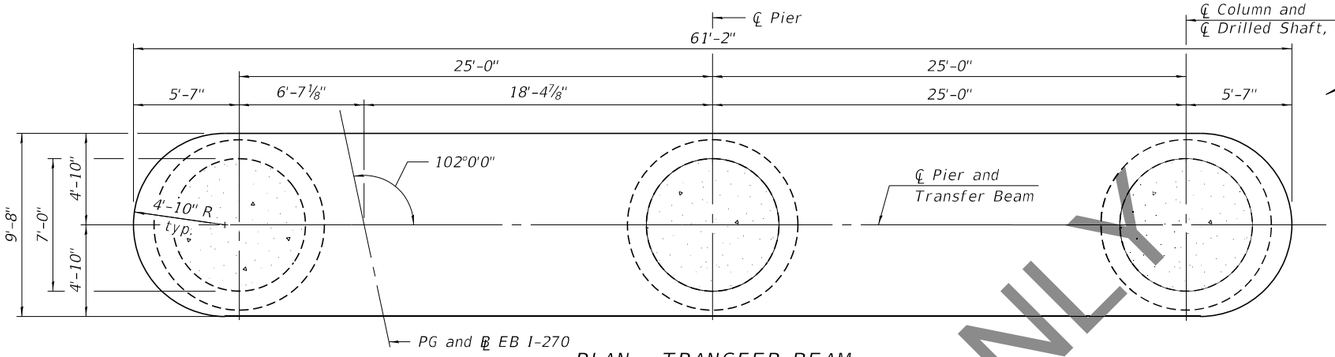
SECTION E-E



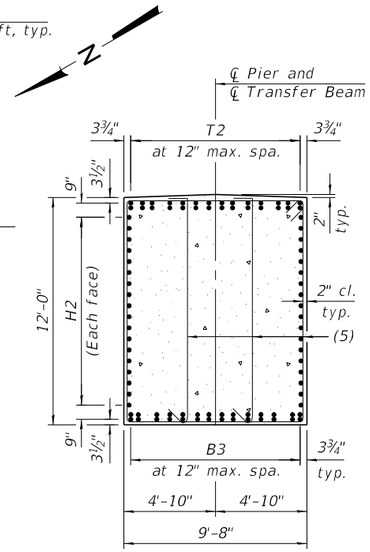
SECTION F-F



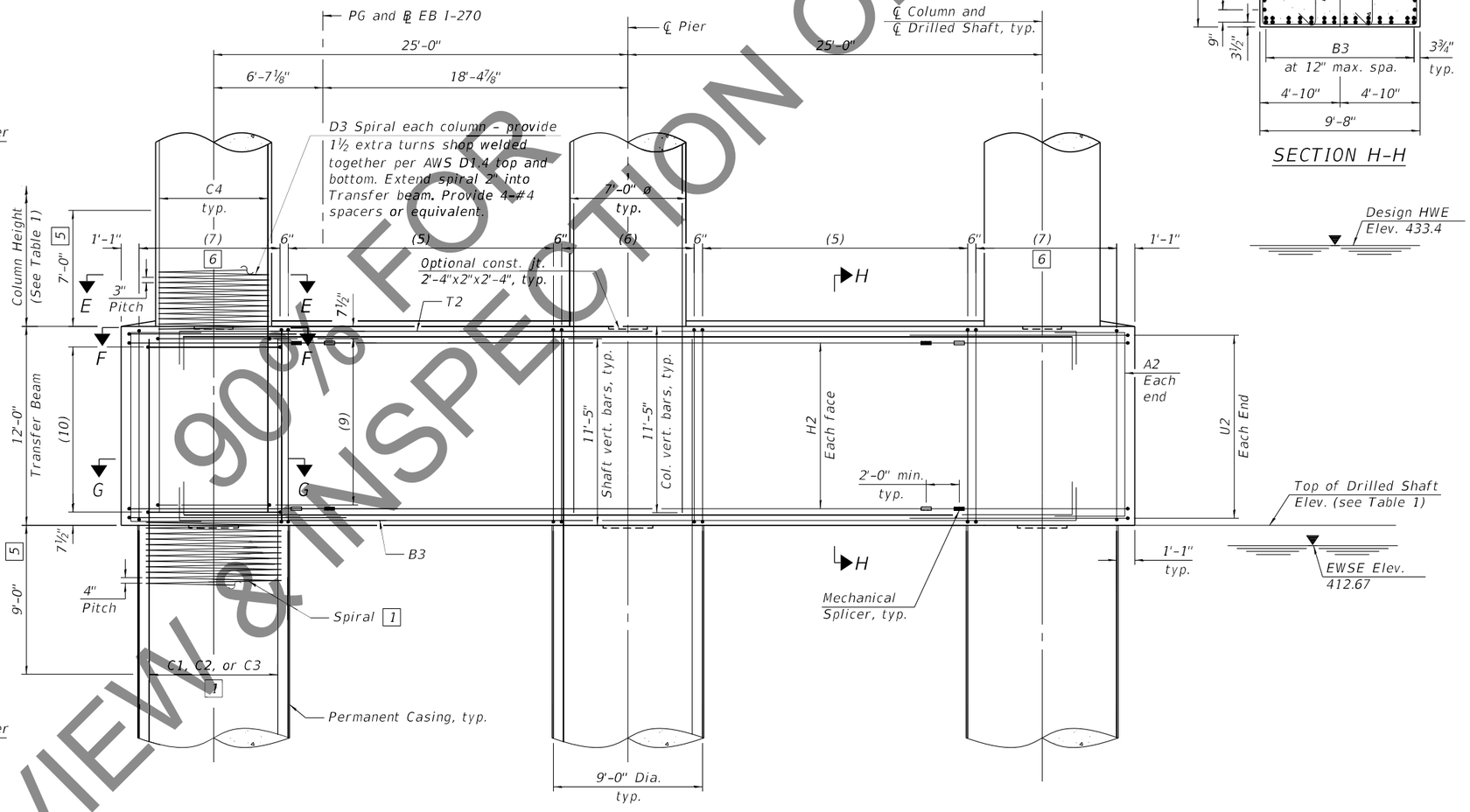
SECTION G-G



PLAN - TRANSFER BEAM



SECTION H-H



PART ELEVATION - TRANSFER BEAM

(Looking East)

Design HWE Elev. 433.4

1 See sheet 201 of 292 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 199 of 292 .
For Drilled Shaft details, see sheet 200 of 292 .
For additional notes, bar details, and Bill of Material, see sheets 203 and 204 of 292 .
For Table 1, see sheet 202 of 292 .
For Mechanical Splicer details, see sheet 248 of 292 .

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HORNER & SHIFRIN
Teaming with: PARSONS

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	CHECKED - BTF	REVISED -	
PLOT SCALE =	DRAWN - EAT	REVISED -	
PLOT DATE =	CHECKED - SSM	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 9 PLAN AND ELEVATION - 2
STRUCTURE NO. 060-0350 (EB)
SHEET 200 OF 292 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
270	60B-1	MADISON	860	400
		CONTRACT NO. 76J90		
		ILLINOIS	FED. AID PROJECT	