

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BRIDGE REPAIR 2010-1	ALEXANDER	10	1
		ILLINOIS		CONTRACT NO.78220

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

F.A.I. ROUTE 57 (I-57) NB & SB
SECTION D9 BRIDGE REPAIR 2010-1
STRUCTURAL STEEL AND MISC. REPAIRS
ALEXANDER COUNTY
C-99-079-10

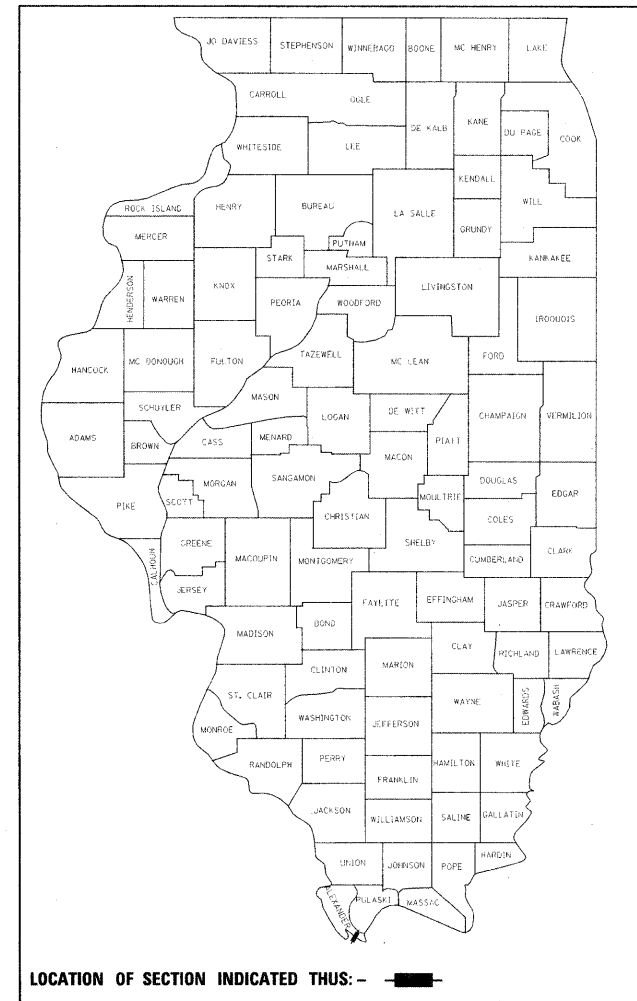
FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3

TRAFFIC DATA

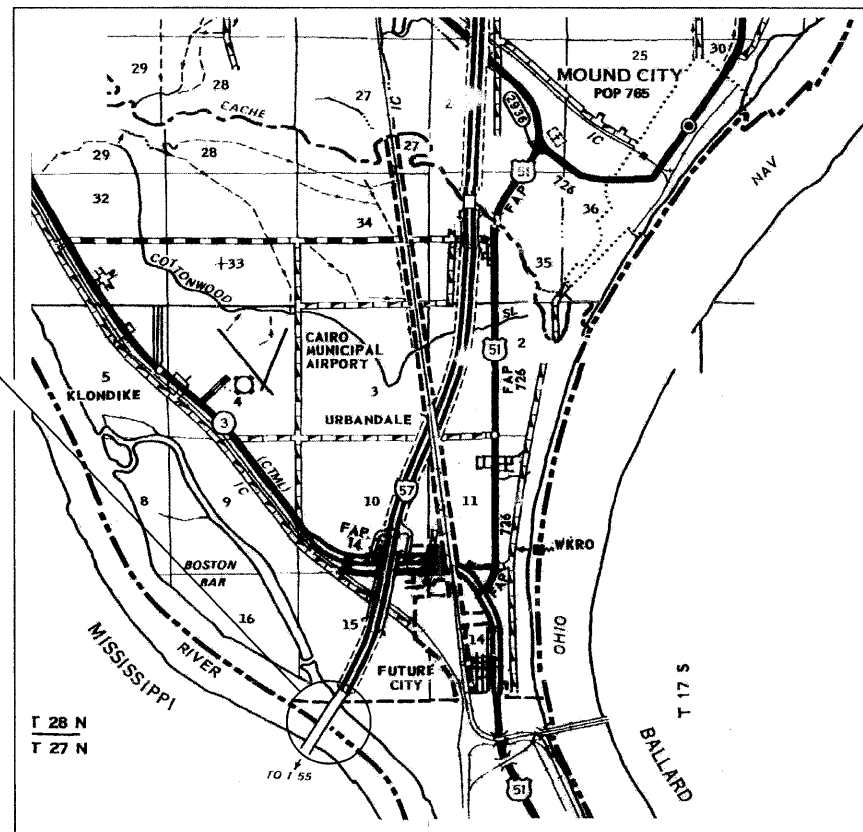
I-57 TRAFFIC DATA

2007 ADT = 10,200
37% TRUCKS

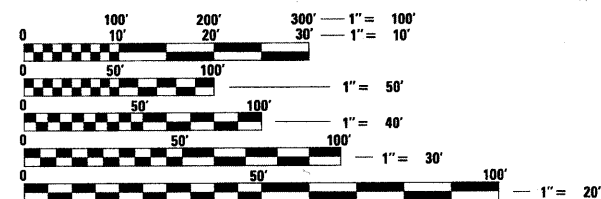
D-99-079-10



EXISTING STRUCTURE NO. 002-0022
FAI 57 (I-57 NB & SB)



SN 002-0022
NET LENGTH OF PROJECT = 4090'-6"



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: DAVID PICHE (618) 351-5227
DESIGNER: T. WAYNE HALSTEAD (618) 351-5224

CONTRACT NO. 78220



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED June 25 20 10
Ny. Ramis
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

August 13 20 10
Scott E. Stitt, P.E. /s/
ACTING ENGINEER OF DESIGN AND ENVIRONMENT

August 13 20 10
Christene M. Reed /s/
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

GENERAL NOTES

- 1) IN ADDITION TO THE REQUIREMENTS OF ARTICLE 107.16 THE CONTRACTOR SHALL PROTECT THE SURFACE OF ALL BRIDGE DECKS AND BRIDGE APPROACH PAVEMENTS IN A MANNER SATISFACTORY TO THE ENGINEER BEFORE ANY EQUIPMENT IS ALLOWED TO CROSS THE STRUCTURE. PROTECTION SHALL BE PROVIDED FOR ALL EQUIPMENT AS DEFINED IN ARTICLE 101.16 REGARDLESS IF TRACK MOUNTED OR WHEELED.
- 2) COMMITMENTS: NONE AS OF JUNE 25, 2010

STANDARDS

- 000001-05 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 701101-02 OFF-ROAD, MULTILANE 15' TO PAVEMENT EDGE
- 701400-04 APPROACH TO LANE CLOSURE FREEWAY/EXPRESSWAY
- 701401-05 LANE CLOSURE FREEWAY/EXPRESSWAY
- 701901-01 TRAFFIC CONTROL DEVICES

INDEX OF SHEETS

- 1 COVER SHEET
- 2 INDEX OF SHEETS, GENERAL NOTES, STANDARDS
- 3 SUMMARY OF QUANTITIES
- 4 DETOUR SHEET DETAILS
- 5-10 STRUCTURE REPAIR PLANS

Prepared By: Joe Zankiewicz
DISTRICT STUDIES & PLANS ENGINEER

Examined By: Paul S.
DISTRICT LAND ACQUISITION ENGINEER

Examined By: Carie Nelson
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: Douglas J. Truesdale
DISTRICT OPERATIONS ENGINEER

Examined By: K. R. [Signature]
DISTRICT CONSTRUCTION ENGINEER

Examined By: Bruce W. [Signature]
DISTRICT MATERIALS ENGINEER

Examined By: W. [Signature]
DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: Donny Clayton
ASSISTANT REGIONAL ENGINEER

Approved By: My [Signature]
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

DATE: June 25 2010

FILE NAME = c:\pwworkspace\cornell\m\0210264\02-2022-shr.misc.dgn

USER NAME = cornellm	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 50.0000' / IN.	CHECKED -	REVISED -
PLOT DATE = 6/16/2010	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**INDEX OF SHEETS, GENERAL NOTES
AND STANDARDS**

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 Bridge Repair 2010-1	ALEXANDER	10	2
CONTRACT NO. 78220				
ILLINOIS FED. AID PROJECT				

SUMMARY OF QUANTITIES

50% / 50%
ILLINOIS / MISSOURI

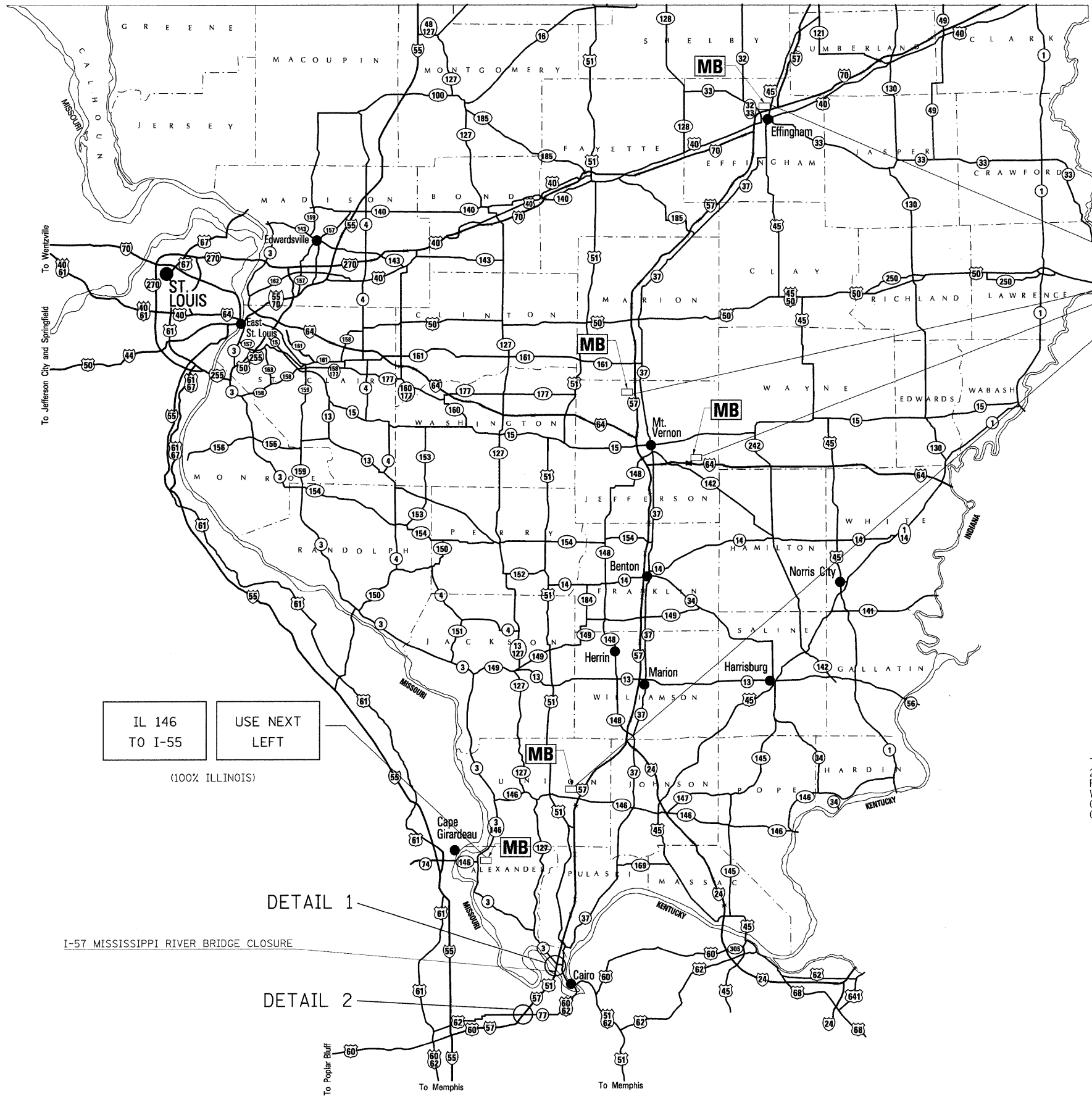
CONSTRUCTION TYPE CODE SFTY-2A

CODE NO.	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	50% / 50% ILLINOIS / MISSOURI	
				ILLINOIS	MISSOURI
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	11,650	5825	5825
<i>Z0001903</i>	STRUCTURAL STEEL REMOVAL	POUND	7890	3945	3945
<i>Z0001905</i>	STRUCTURAL STEEL REPAIR	POUND	890	445	445
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	1	.5	.5
67100100	MOBILIZATION	L SUM	1	.5	.5
70100800	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	L SUM	1	.5	.5
70103800	TRAFFIC CONTROL (SPECIAL)	L SUM	1	.5	.5
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	7	6.5	0.5
<i>Z0073500</i>	TEMPORARY SUPPORT SYSTEM	L SUM	1	.5	.5
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), <i>TEST LEVEL 3</i>	EACH	1	.5	.5

FILE NAME = c:\pwworkspace\cornell\11\m.d0212061\02-0622-rt.msk.dgn

USER NAME = cornellm	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES			F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
PLOT SCALE = 50.0000' / IN.	DRAWN -	REVISED -		SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.	57	D9 BRIDGE REPAIR 2010-1	ALEXANDER	10	3
PLOT DATE = 6/16/2010	CHECKED -	REVISED -		CONTRACT NO. 78220									
	DATE -	REVISED -		ILLINOIS FED. AID PROJECT									

Rev.



TYPE III BARRICADES WITH 2 TYPE A LOW INTENSITY FLASHING LIGHTS INSTALLED WITH EACH BARRICADE. COST INCLUDED WITH TRAFFIC CONTROL (SPECIAL).

TO IL 146 W
TO I-55 SOUTH

I-57 SOUTH
TRAFFIC USE
IL 3 NORTH

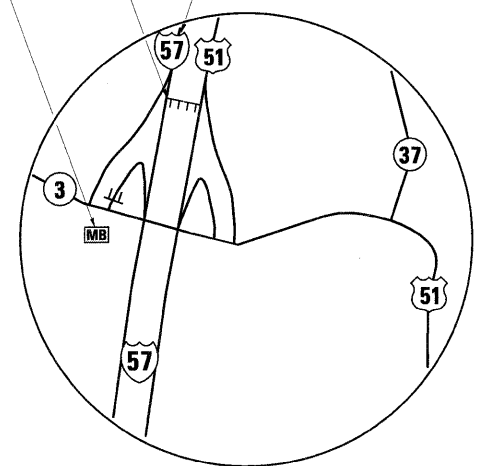
I-57 BRIDGE
TO MISSOURI
CLOSED AHEAD

USE
OTHER
ROUTES

(100% ILLINOIS)

I-57 CLOSURE (ILLINOIS)

CLOSE 2 LEFT LANES UTILIZING STANDARD 701400 AND 701401. 701401 SHALL INCLUDE A 1320' TAPER, WITHOUT USING TEMPORARY TAPE OR PAINT, INTO THE EXIT RAMP. COST INCLUDED WITH TRAFFIC CONTROL (SPECIAL).



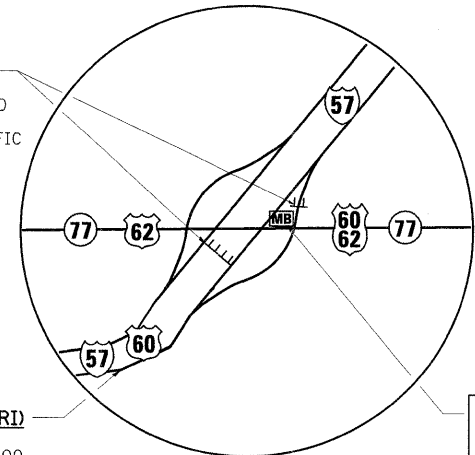
DETAIL 1
(SHARED COST)

IL 146
TO I-55

USE NEXT
LEFT

(100% ILLINOIS)

TYPE III BARRICADES WITH 2 TYPE A LOW INTENSITY FLASHING LIGHTS INSTALLED WITH EACH BARRICADE. COST INCLUDED WITH TRAFFIC CONTROL (SPECIAL).



I-57 CLOSURE (MISSOURI)
CLOSE 2 LEFT LANES UTILIZING STANDARD 701400 AND 701401. 701401 SHALL INCLUDE A 1320' TAPER, WITHOUT USING TEMPORARY TAPE OR PAINT, INTO THE EXIT RAMP. COST INCLUDED WITH TRAFFIC CONTROL (SPECIAL).

I-57 NORTH
TRAFFIC USE
I-57 SOUTH

TO I-55
NORTH

DETAIL 2
(SHARED COST)

FILE NAME =
c:\p\work\pawdot\cornellm\d0210264\alt

USER NAME = cornellm
te=detour.dgn
PLOT SCALE = 1:8000 / 1" IN
PLOT DATE = 7/20/2010

DESIGNED -
DRAWN -
CHECKED -
DATE -

REVISED -
REVISED -
REVISED -
REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

DETOUR PLAN

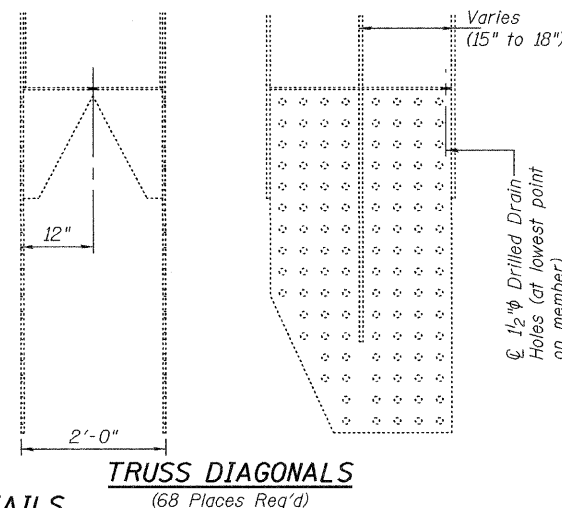
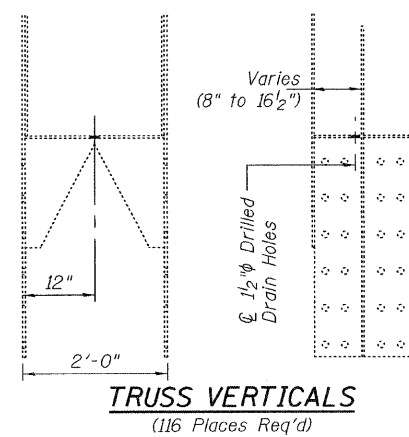
SCALE: 1"=1' SHEET NO. OF SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	D9 BRIDGE REPAIR 2010-11	ALEXANDER	10	4
CONTRACT NO. 78220				
ILLINOIS FED. AID PROJECT				

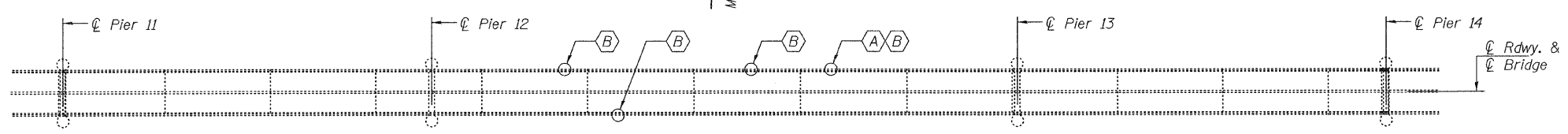
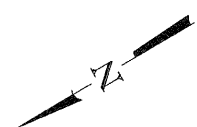
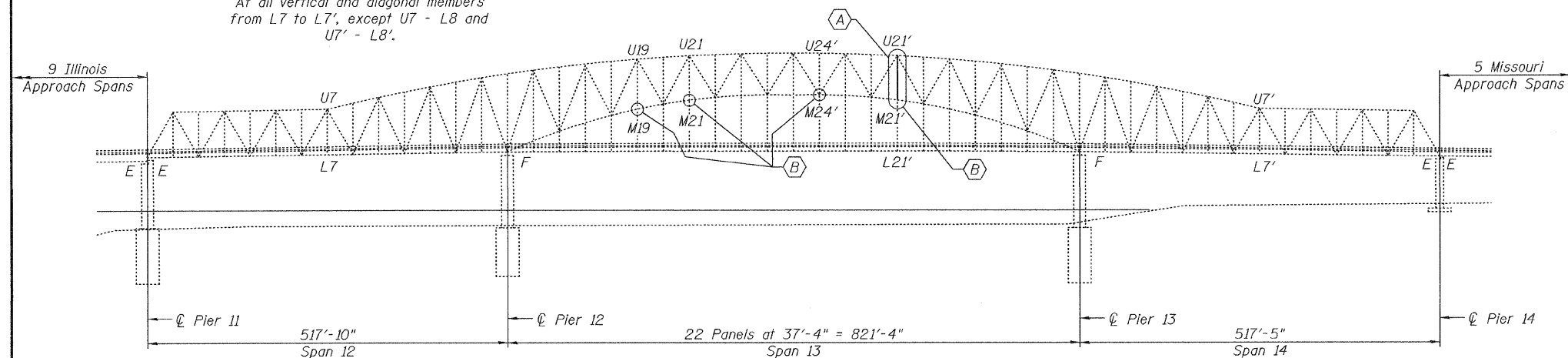
GENERAL NOTES

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.
 Fasteners shall be high strength bolts. Bolts 7/8"φ, open holes 15/16"φ, unless otherwise noted.
 Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
 Cost of removal and re-installation of all members necessary to complete the work as detailed on the plans and as specified in the Special Provisions shall be included with Furnishing and Erecting Structural Steel.
 Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures".
 The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat shall be Interstate Green, Munsell No. 7.5G 4/8 See Special Provision "Cleaning and Painting New Metal Structures".
 Cost of drilled drain holes in vertical and diagonal truss members is included with Structural Steel Repair.
 The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
 The Contractor shall submit Structural Assessment Report(s) as required for the Contractor's means and methods of construction. See Special Provisions.
 The Contractor shall retain the services of an engineering firm, prequalified in the IDOT consultant selection category of Highway Bridges (Complex), for preparation of the Structural Assessment Report. Contractor's pre-approval shall not be applicable for this project. See Special Provision.
 Inventory and Operating Ratings and Live Load Restrictions are provided for information only. Inventory and Operating Ratings are based on HS loading and configuration. Live Load Restrictions are based on Illinois legal loads and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.

CURRENT RATINGS ON FILE FOR EXISTING STRUCTURE
 Inventory: HS22.0
 Operating: HS35.1
 Live Load Restrictions: No



TYPICAL DRILLED DRAIN HOLE DETAILS
 (184 Locations Req'd)
 At all vertical and diagonal members from L7 to L7', except U7 - L8 and U7' - L8'.



SEQUENCE OF CONSTRUCTION FOR REMOVAL AND REPLACEMENT OF U21'-M21' MEMBER

1. Install Floor Beam Temporary Support System.
2. Load Cells simultaneously to 55 kips each.
3. Remove existing U21' - M21' member.
4. Install new U21' - M21' member.
5. Unload Cells.

PARTIAL DECK PLAN

- (A) Replace U21' - M21'
- (B) Sway Brace Repair

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Repair	Pound	880
Temporary Support System	L. Sum	1
Furnishing and Erecting Structural Steel	Pound	11,650
Structural Steel Removal	Pound	7,890



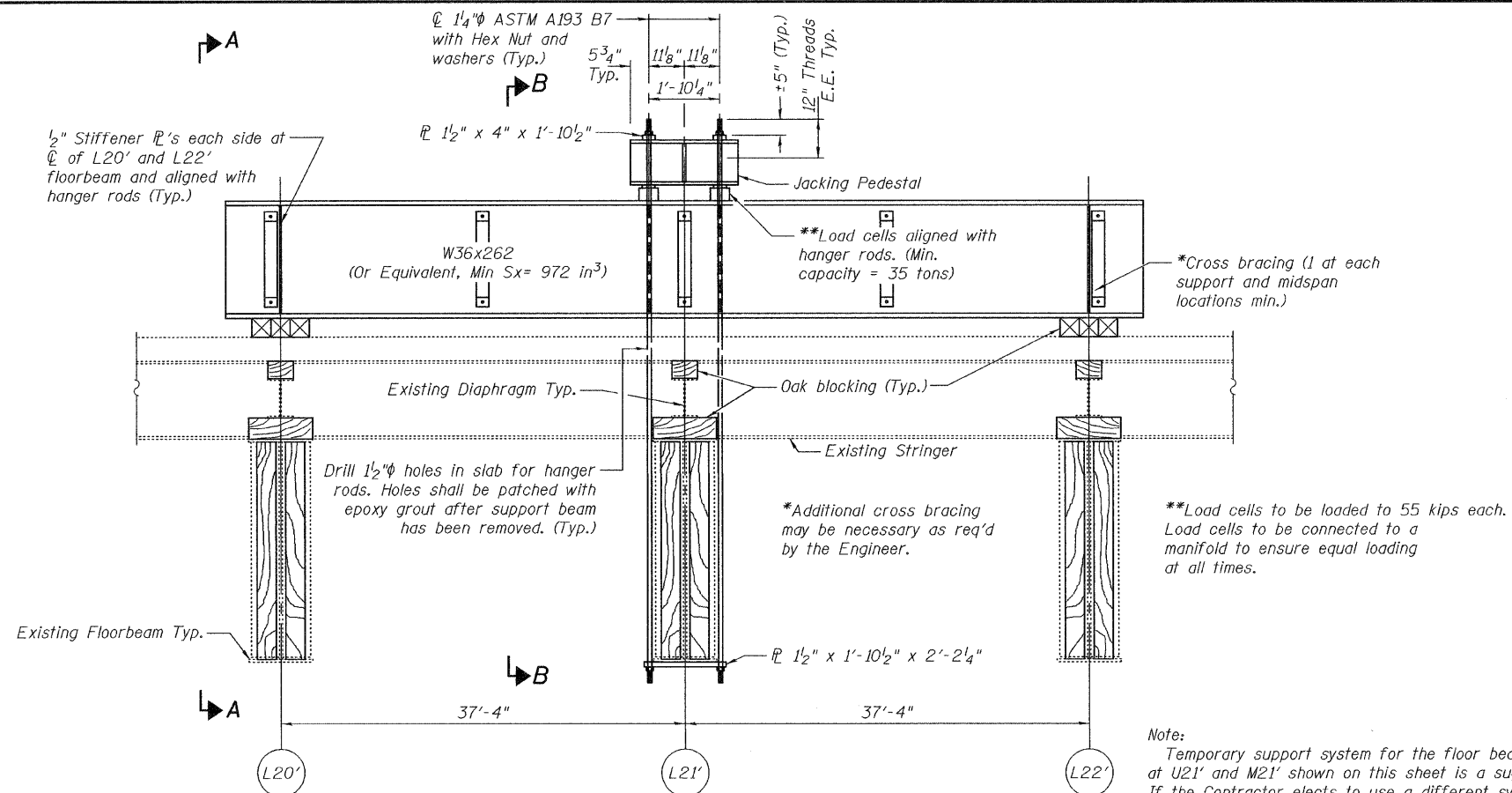
Expires: November 30, 2010

DESIGNED - <i>[Signature]</i>	EXAMINED - <i>[Signature]</i>	DATE - August 11, 2010
CHECKED - <i>[Signature]</i>	PASSED - <i>[Signature]</i>	
DRAWN - <i>[Signature]</i>		
CHECKED - <i>[Signature]</i>		

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

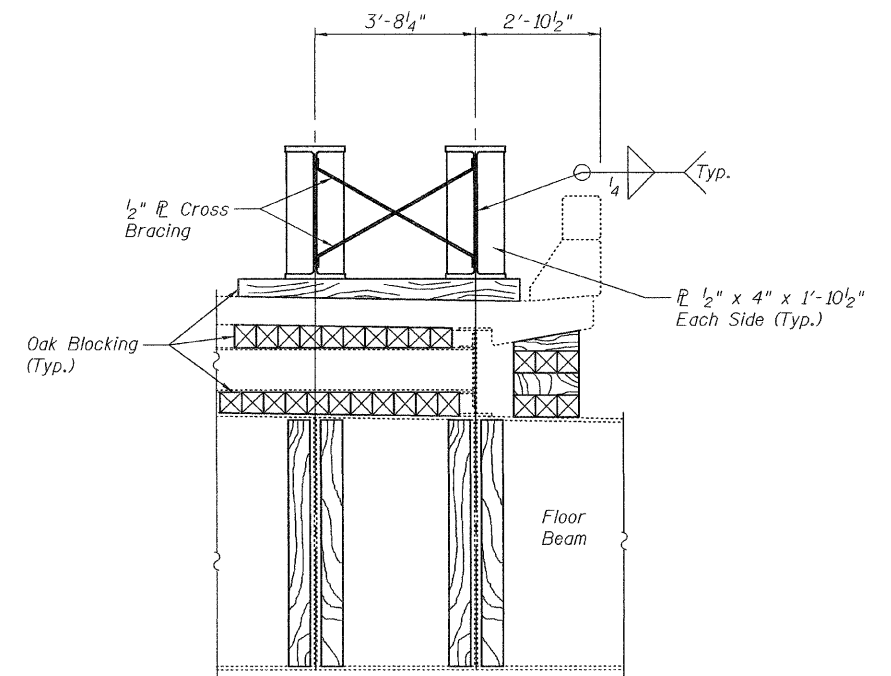
**PLAN AND ELEVATION
 SN 002-0022
 SHEET NO. 1 OF 6 SHEETS**

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	69 BRIDGE REPAIR 2010-1	Alexander	10	5
CONTRACT NO. 78220			ILLINOIS FED. AID PROJECT	

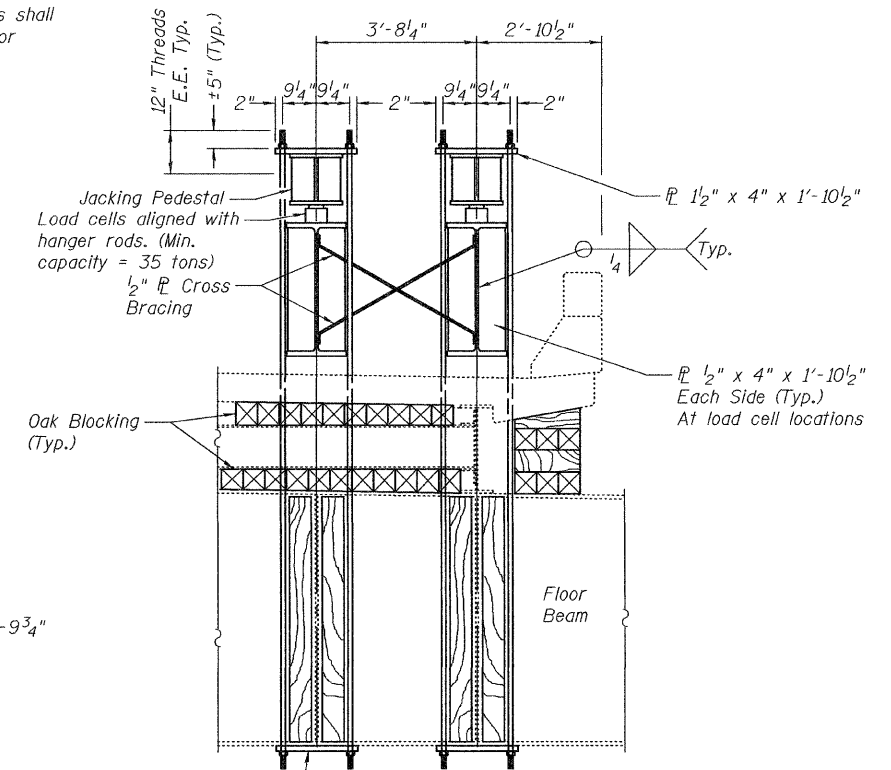


FLOORBEAM TEMPORARY SUPPORT ELEVATION
(Looking West)

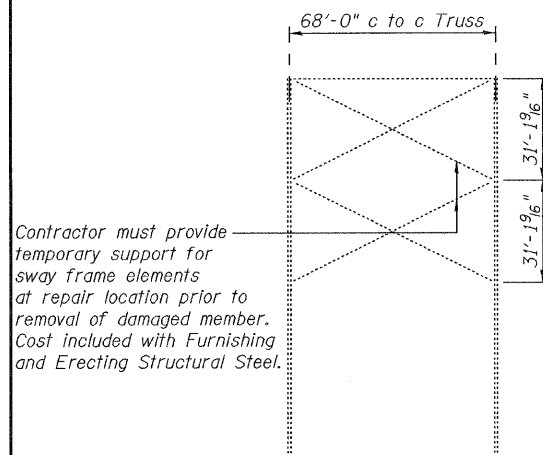
Note:
Temporary support system for the floor beam and lower chord at U21' and M21' shown on this sheet is a suggested system. If the Contractor elects to use a different system, plans shall be submitted to the Bureau of Bridges and Structures for approval prior to commencement of the removal and replacement of the damaged vertical member.



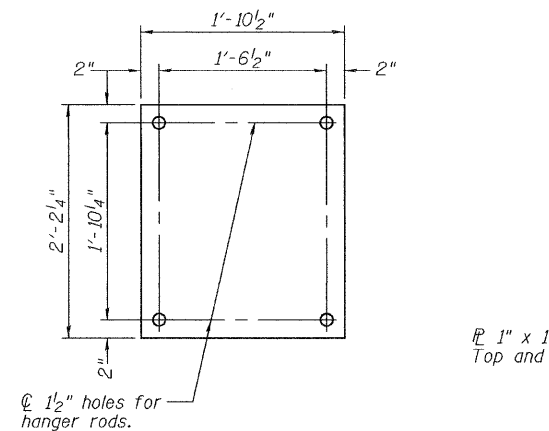
SECTION A-A
(L20' and L22')



SECTION B-B
(L21')

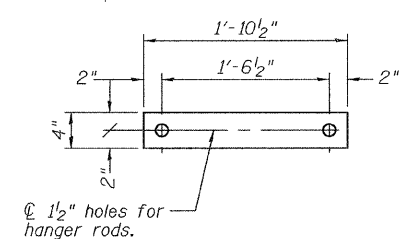


REPAIR LOCATION AT PP21'
(Looking North)

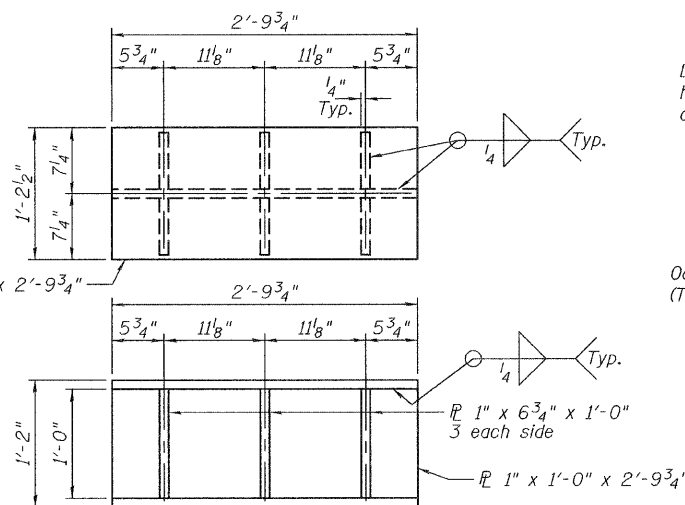


SUPPORT PLATE
(2 Req'd)

1" x 1'-2 1/2" x 2'-9 3/4"
Top and Bottom



SUPPORT PLATE
(4 Req'd)



JACKING PEDESTAL
(2 Assemblies Req'd)

DESIGNED - I.J.L.	EXAMINED - <i>Carl Proyer</i>	DATE - August 11, 2010
CHECKED - G.G.E.	ENGINEER OF STRUCTURAL SERVICES	
DRAWN - Drew Christopher	PASSED - <i>Ralph E. Anderson</i>	
CHECKED - I.J.L. G.G.E.	ENGINEER OF BRIDGES AND STRUCTURES	

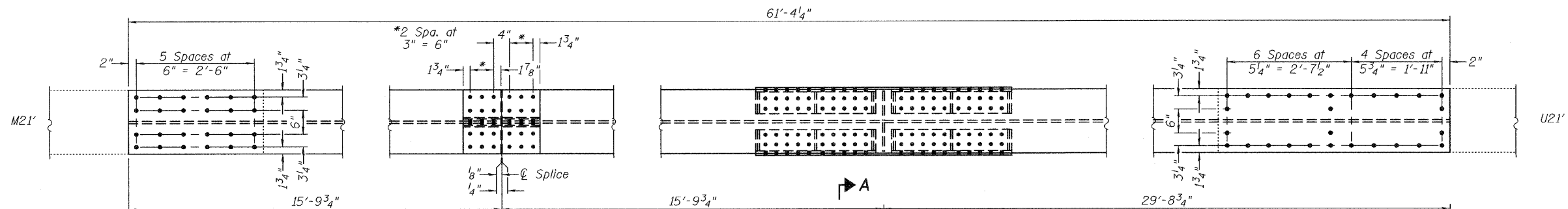
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMP SUPPORT DETAILS
SN 002-0022
SHEET NO. 2 OF 6 SHEETS

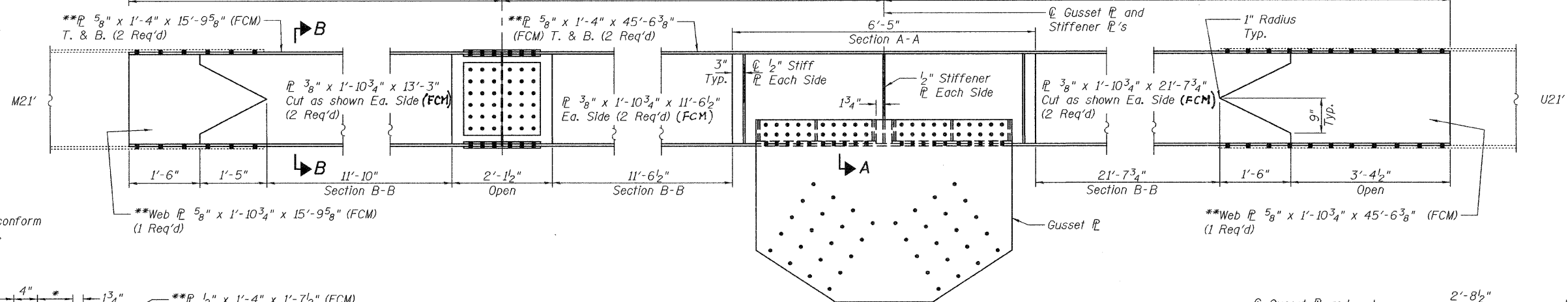
F.A. RTE. 57	SECTION 69 BRIDGE REPAIR 2010-1	COUNTY Alexander	TOTAL SHEETS 10	SHEET NO. 6
CONTRACT NO. 78220				
ILLINOIS FED. AID PROJECT				

SLT-99-001-10

TOP PLAN

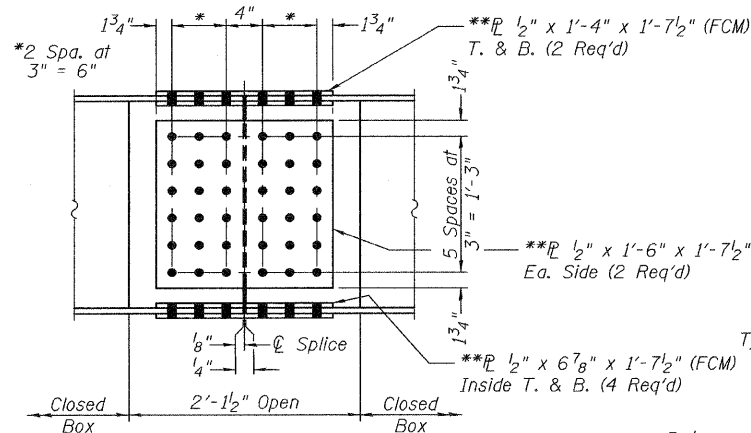


ELEVATION



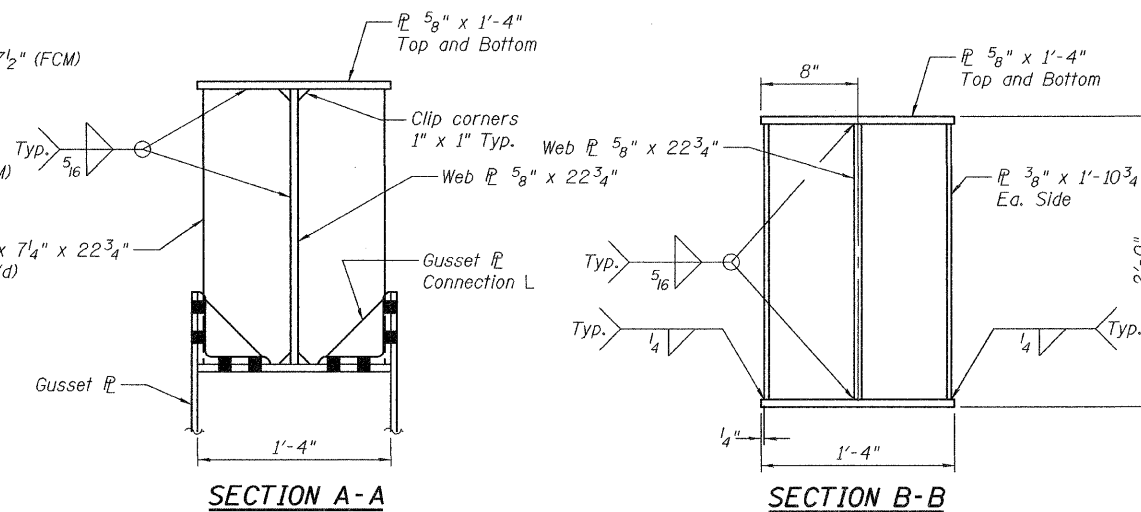
**Structural Steel shall conform to AASHTO M270 Gr. 50.

SUPPORT PLAN AND ELEVATION



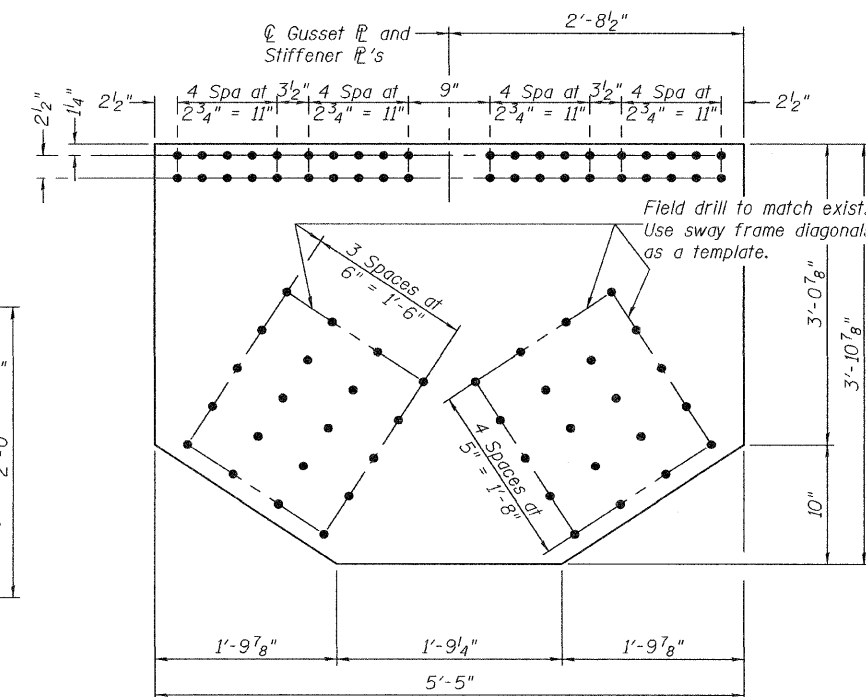
SPLICE DETAIL

Note:
The new member U21'-M21' may be installed in one piece. In order for the member to fit properly into position, the Contractor shall carefully measure the clear distance between the inside faces of the gussets at U21'-M21' and adjust fabrication dimensions of U21'-M21' to ensure a tight fit of the member between gussets. All material designated "FCM" shall conform to Notch Toughness Requirements for Zone 2 (CVN of 25 ft-lbs. at 40°F)



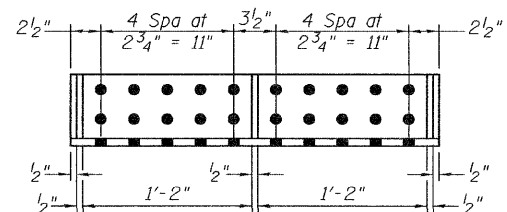
SECTION A-A

SECTION B-B



GUSSET PLATE

PL 1/2" x 3'-10 7/8" x 5'-5" (2 Req'd)



GUSSET PLATE CONNECTION L

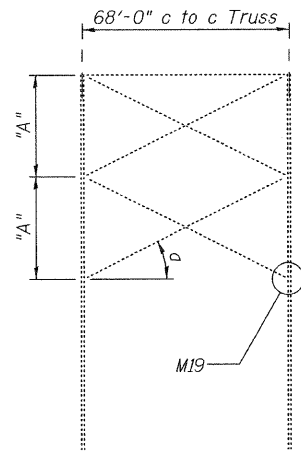
L 6x6x5/8 x 2'-6 1/2" (4 Req'd)

DESIGNED - I.J.L.	EXAMINED - <i>Carl Boyer</i>
CHECKED - G.G.E.	ENGINEER OF STRUCTURAL SERVICES
DRAWN - Drew Christopher	PASSED - <i>Ralph E. Anderson</i>
CHECKED - I.J.L. G.G.E.	ENGINEER OF BRIDGES AND STRUCTURES

DATE - August 11, 2010	STATE OF ILLINOIS
	DEPARTMENT OF TRANSPORTATION

REPAIR DETAILS	
SN 002-0022	
SHEET NO. 3 OF 6 SHEETS	

F.A. RTE. 57	SECTION 09 BRIDGE REPAIR 200-1	COUNTY Alexander	TOTAL SHEETS 10	SHEET NO. 7
			CONTRACT NO. 78220	
ILLINOIS FED. AID PROJECT				



REPAIR LOCATION AT

PP19

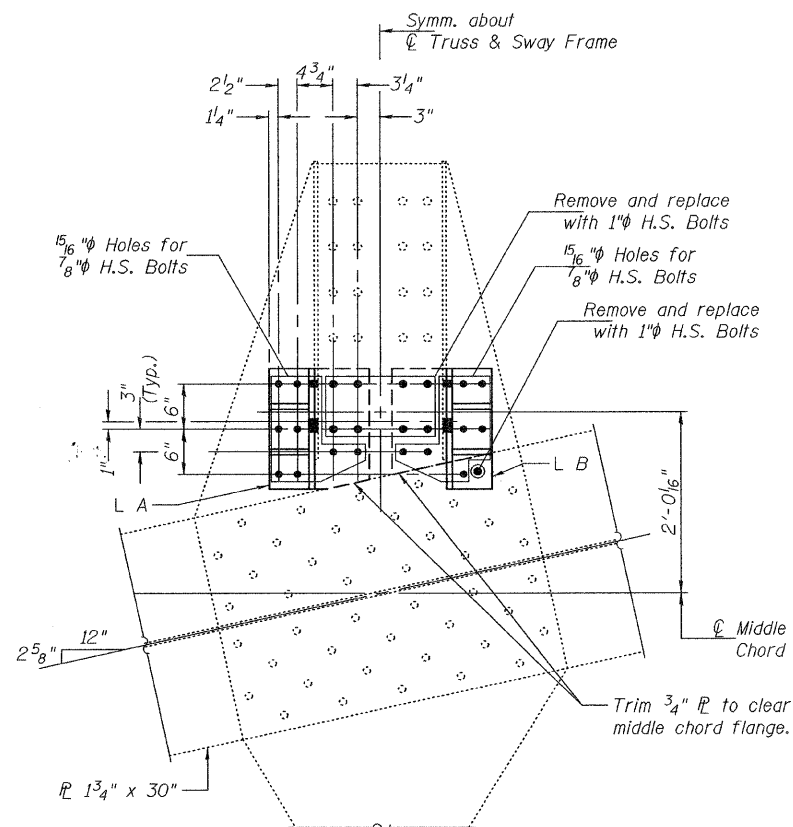
(Looking North)

DIMENSION "A"

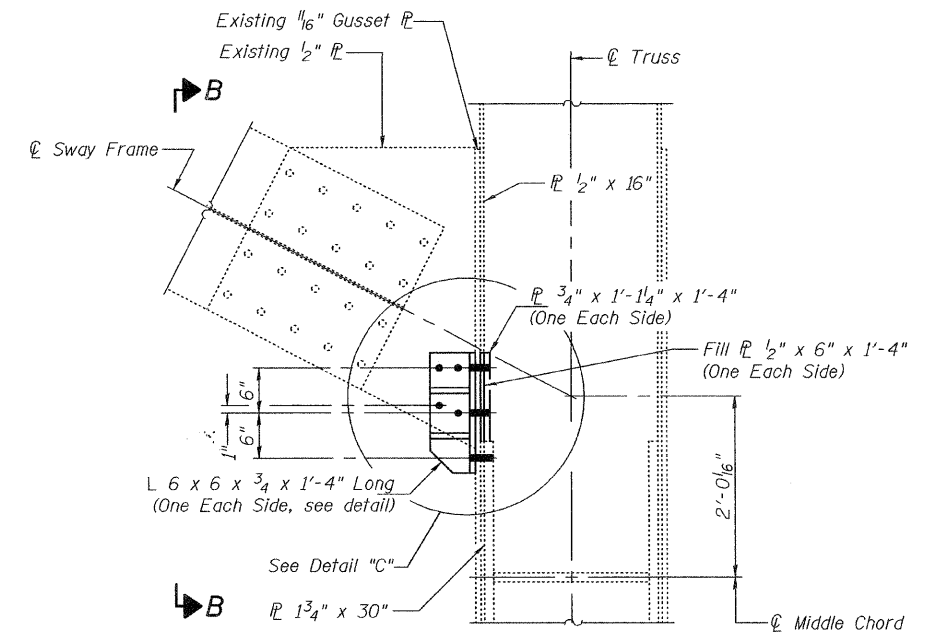
PP19 = 35'-2⁵/₁₆"

ANGLE "α"

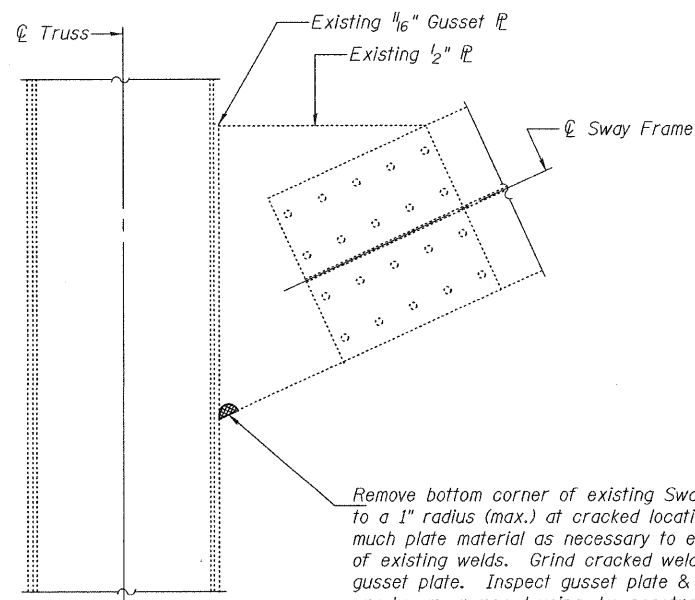
PP19 = 27.361°



VIEW B-B
(Looking East)

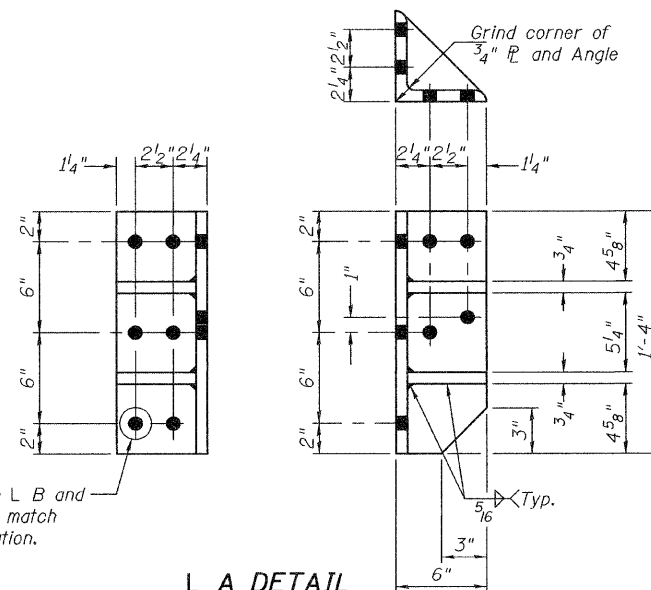


ELEVATION
(Looking North)



DETAIL "C"

Remove bottom corner of existing Sway Brace Connection \bar{P} to a 1" radius (max.) at cracked locations. Only remove as much plate material as necessary to expose cracked portion of existing welds. Grind cracked weld material smooth against gusset plate. Inspect gusset plate & connection plate to ensure cracks are removed using dye penetrant or magnetic particle testing. Cost included with Structural Steel Repairs. Any cracks found in the gusset plate or connection plate shall be identified and reported to the Bureau of Bridges and Structures for further disposition. This work is to be done prior to any installation of repair angles and plates.



L A DETAIL

(L B Opp Hand and as noted)

SWAY BRACING RETROFIT AT LOCATION M19

(East Truss, 1 location)

Notes:
The cost of plates, angles, bolts and all field drilling required for installation of the steel members is included with Structural Steel Repair.
PP = Panel Point

BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	230

DESIGNED - I.J.L.
CHECKED - G.G.E.
DRAWN - **Drew Christopher**
CHECKED - I.J.L. G.G.E.

EXAMINED *Carl Tracy*
ENGINEER OF STRUCTURAL SERVICES
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

DATE - August 11, 2010

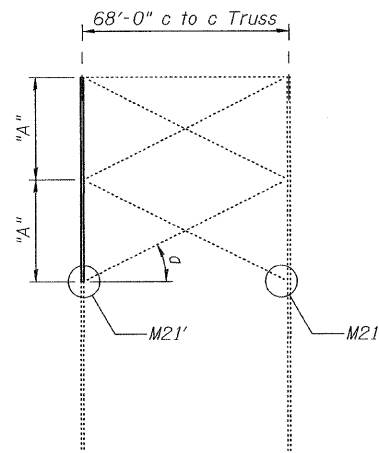
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SWAY FRAME DETAILS

SN 002-0022

SHEET NO. 4 OF 6 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	BY BRIDGE REPAIR 2010-1	Alexander	10	8
CONTRACT NO. 78220			ILLINOIS FED. AID PROJECT	

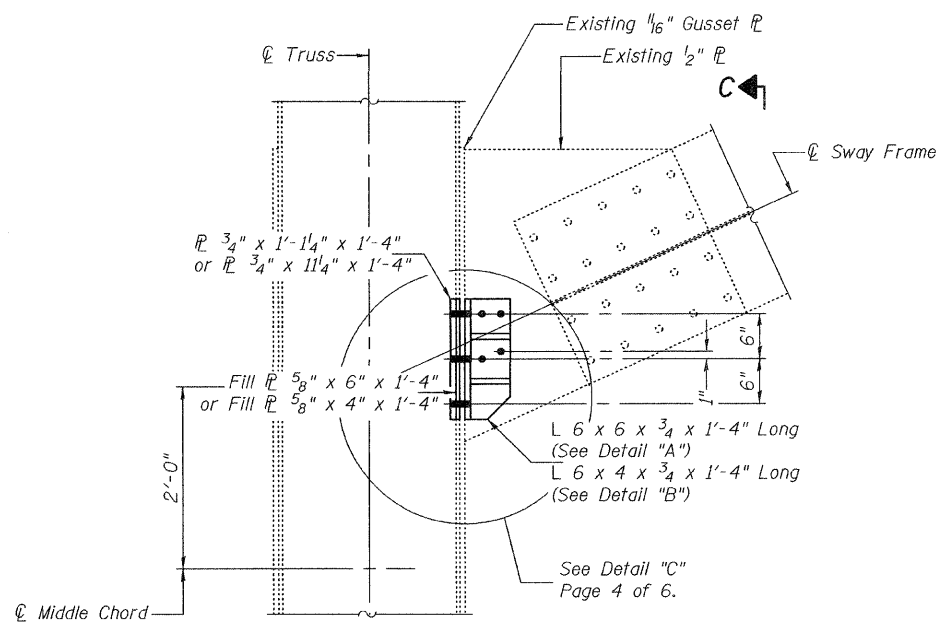


**REPAIR LOCATION AT
PP21 AND PP21'**
(Looking South)

DIMENSION "A"
PP21 = 31'-1⁹/₁₆"

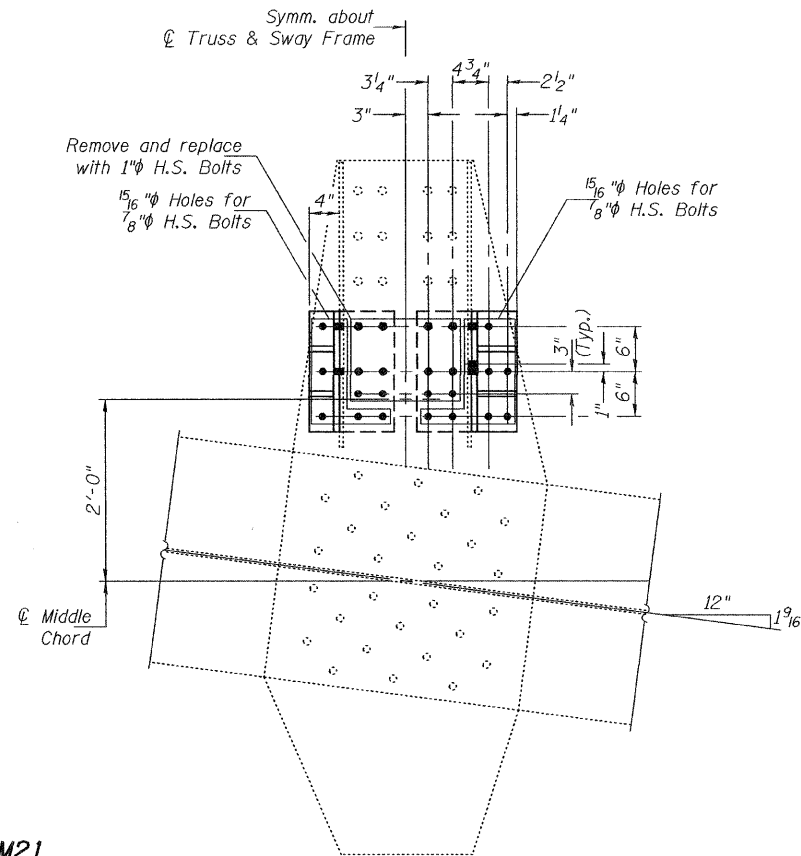
ANGLE "α"
PP21 = 24.595°

Sway bracing work at PP21' is to be done after vertical member U21'-M21' is completed.

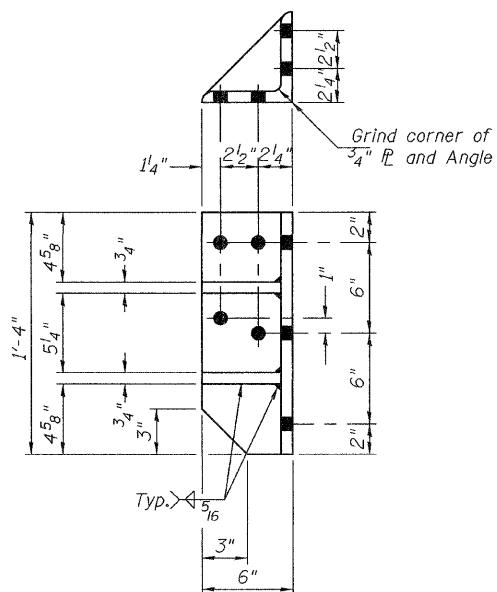


ELEVATION
Looking North at PP21
Looking South at PP21'

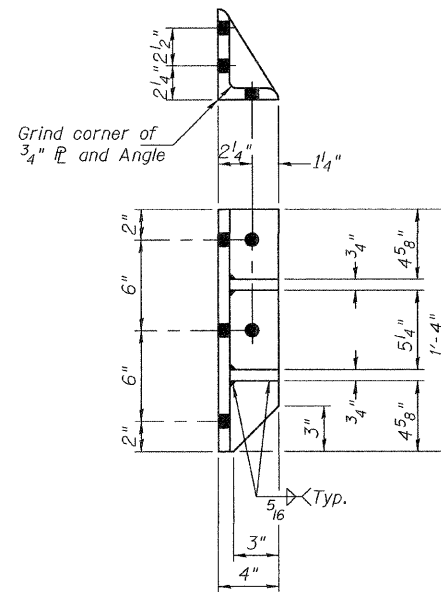
SWAY BRACING RETROFIT AT LOCATION M21
(East Truss, West Truss Similar, 2 locations)



VIEW C-C
Looking West at PP21
Looking East at PP21'



DETAIL "A"
(2 Req'd)



DETAIL "B"
(2 Req'd)

Notes:
The cost of plates, angles, bolts and all field drilling required for installation of the steel members is included with Structural Steel Repair. PP = Panel Point

BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	450

DESIGNED - I.J.L.
CHECKED - G.G.E.
DRAWN - **Drew Christopher**
CHECKED - I.J.L. G.G.E.

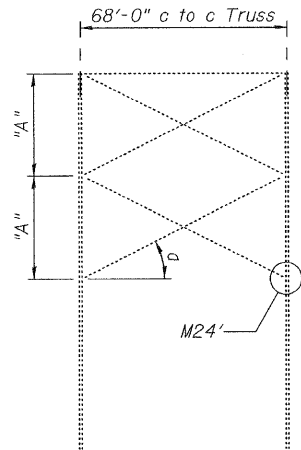
EXAMINED *A. Carl Poyner*
ENGINEER OF STRUCTURAL SERVICES
PASSED *Ralph E. Anderson*
ENGINEER OF BRIDGES AND STRUCTURES

DATE - August 11, 2010

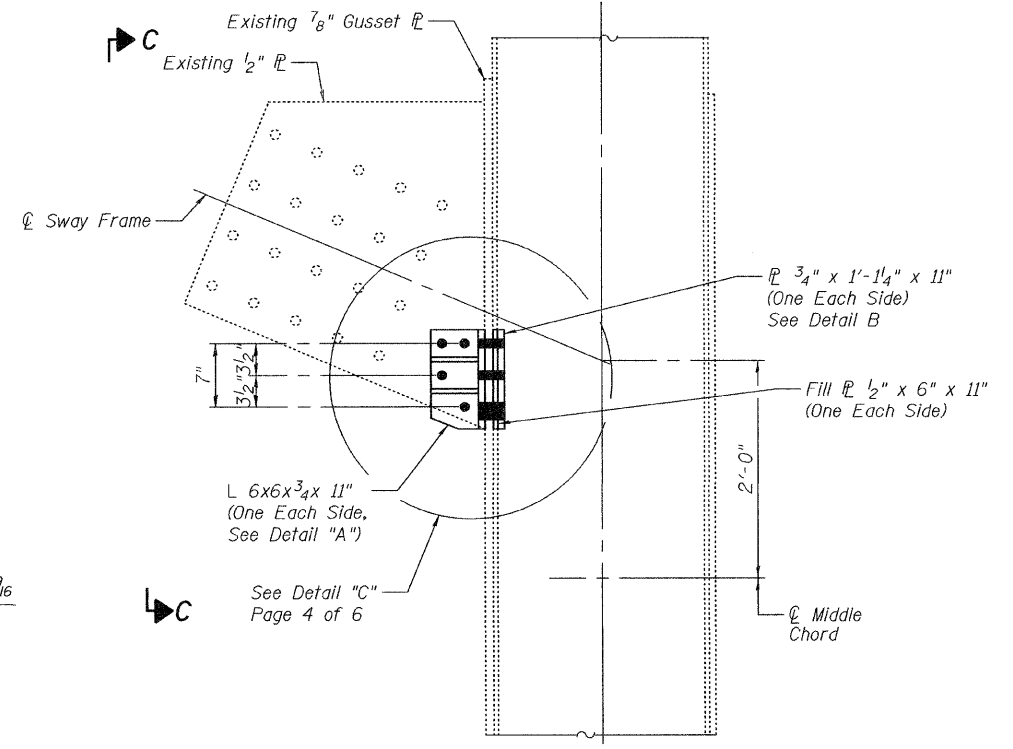
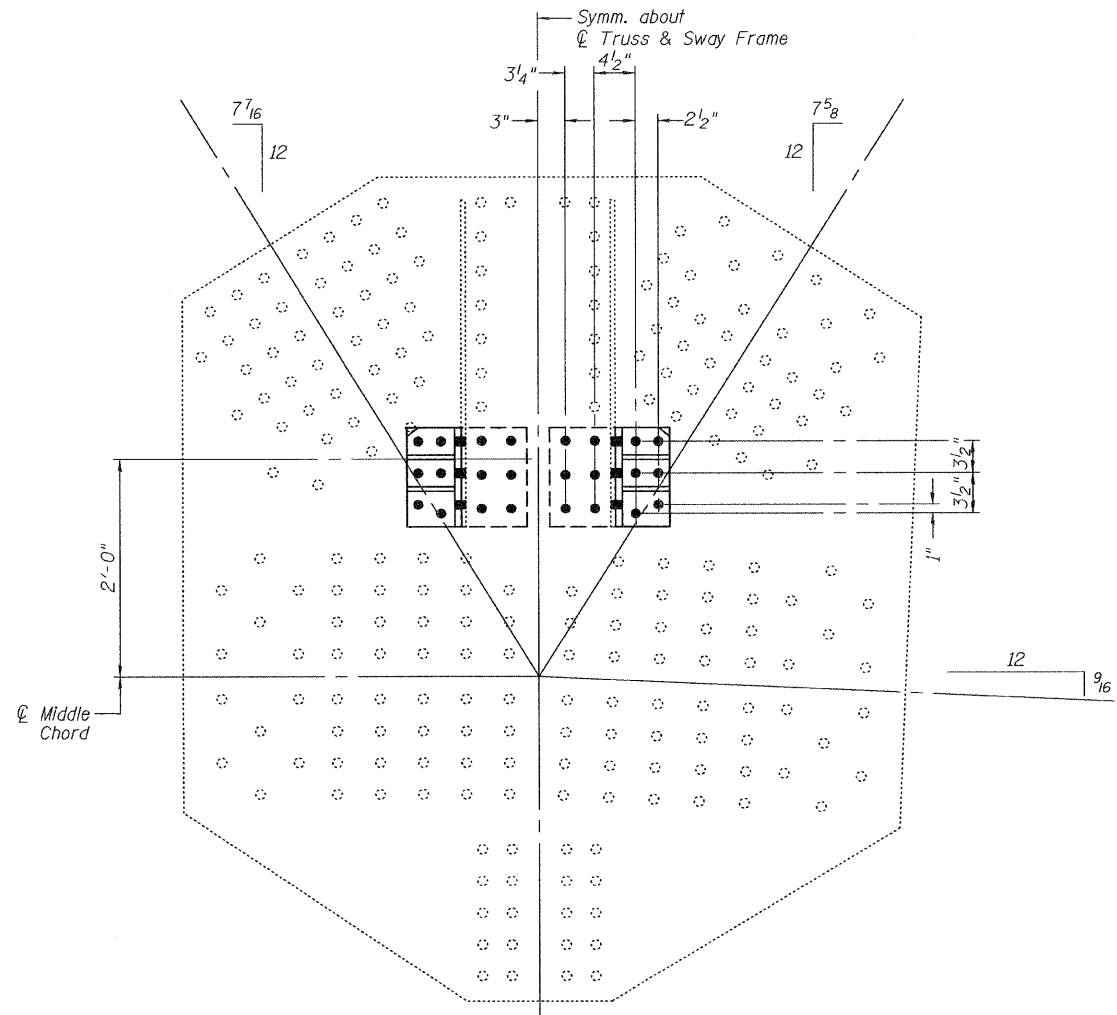
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SWAY FRAME DETAILS
SN 002-0022
SHEET NO. 5 OF 6 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	DIV BRIDGE REPAIR 2010-1	Alexander	10	9
ILLINOIS FED. AID PROJECT			CONTRACT NO. 78220	

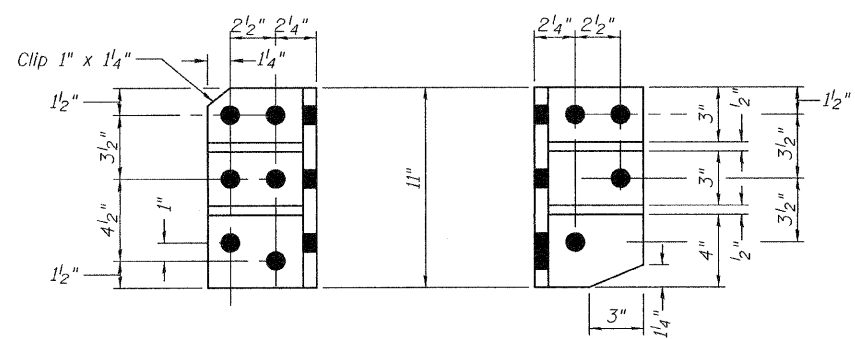


REPAIR LOCATION AT
PP24'
 (Looking North)
DIMENSION "A"
 PP24 = 28'-9"
ANGLE "a"
 PP24 = 22.874°



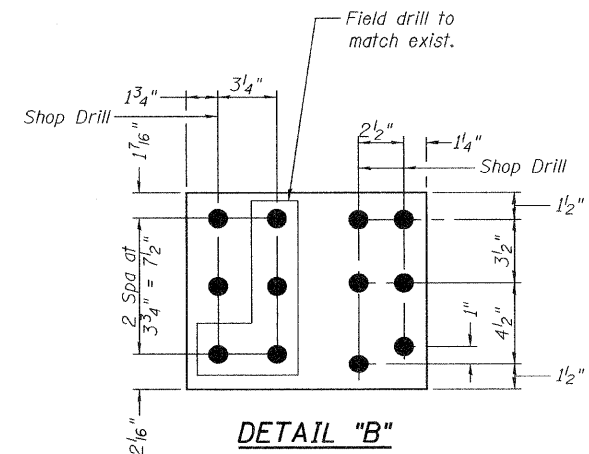
ELEVATION
 Looking North

SWAY BRACING RETROFIT AT LOCATION M24'
 (East Truss, 1 location)



DETAIL "A"

VIEW C-C
 Looking East



DETAIL "B"

Notes:
 The cost of plates, angles, bolts and all field drilling required for installation of the steel members is included with Structural Steel Repair.
 PP = Panel Point

BILL OF MATERIAL

Item	Unit	Quantity
Structural Steel Repair	Pound	200

DESIGNED - I.J.L.	EXAMINED - <i>Carl Paves</i>	DATE - August 11, 2010
CHECKED - G.G.E.	ENGINEER OF STRUCTURAL SERVICES	
DRAWN - Drew Christopher	PASSED - <i>Ralph E. Anderson</i>	
CHECKED - I.J.L. G.G.E.	ENGINEER OF BRIDGES AND STRUCTURES	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SWAY FRAME DETAILS
SN 002-0022
 SHEET NO. 6 OF 6 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	B9 BRIDGE REPAIR 200-1	Alexander	10	10
CONTRACT NO. 78220				
ILLINOIS FED. AID PROJECT				