

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
64	82-1HB-HDF	ST. CLAIR	7	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 76C25		

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

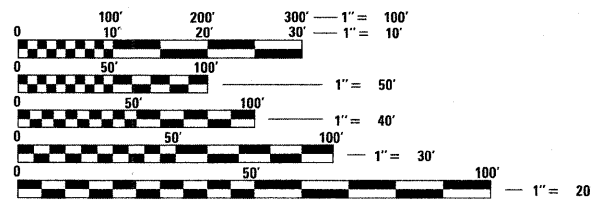
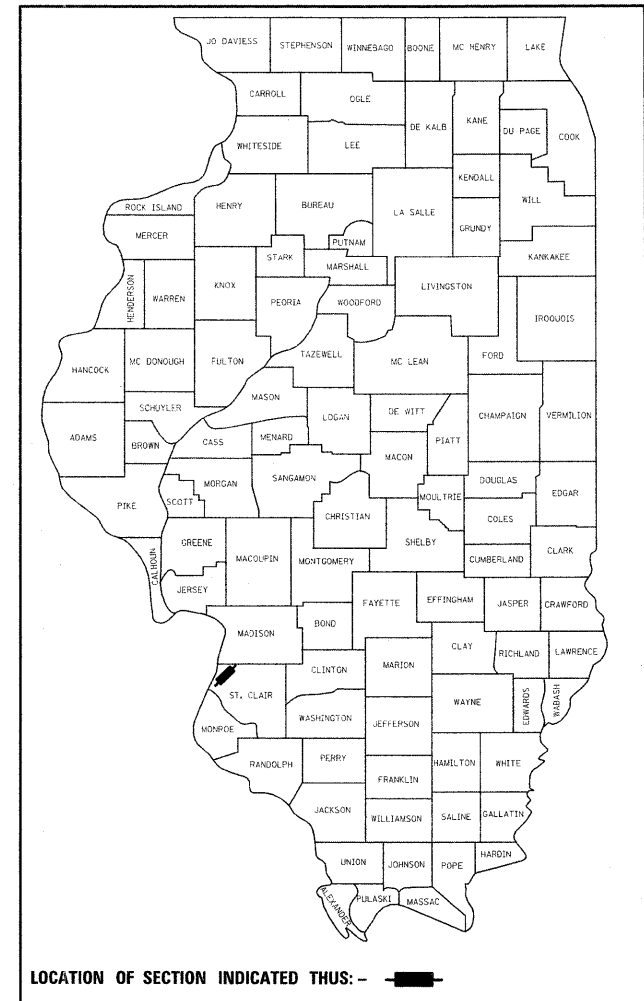
**PROPOSED  
HIGHWAY PLANS**

FAI ROUTE 64  
SECTION 82-1HB-HDF

ST. CLAIR COUNTY  
C-98-098-08

FOR INDEX OF SHEETS, SEE SHEET NO. 2

D-98-105-08

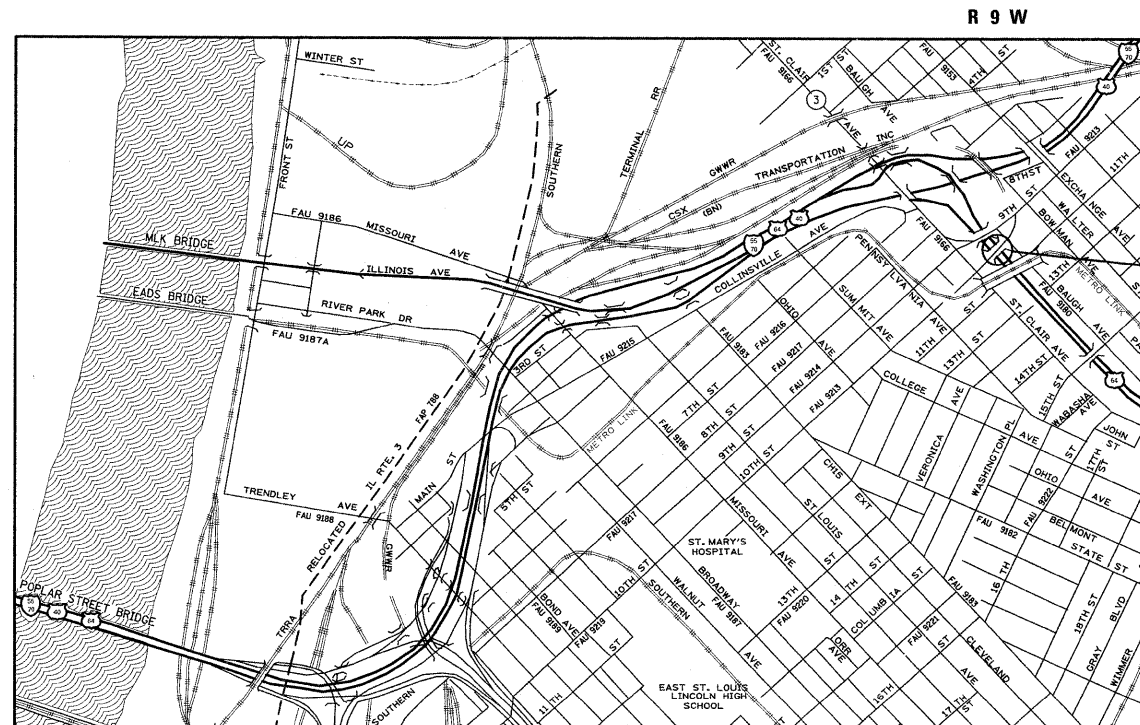


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

PROJECT ENGINEER: PATTI LeBEAU (618) 346-3179  
PROJECT MANAGER: ART MUEHLFELD (618) 346-3209

CONTRACT NO. 76C25

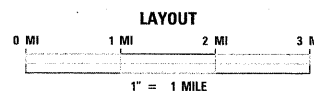


BEAM HEAT STRAIGHTENING  
ON STRUCTURE CARRYING  
10TH STREET OVER I-64  
SN 082-0150

10TH STREET  
ADT = 1650 (2008)  
ADT = 1900 (2028)  
SU = 5.5%  
MU = 3.0%

I-64 (EB ONLY)  
ADT = 32300 (2008)  
ADT = 39400 (2028)  
SU = 2.4%  
MU = 10.2%

DESIGN DESIGNATION  
NA



LATITUDE = 38.63080  
LONGITUDE = 90.14222

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED August 12 20 2008

*Mary C Jamie*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

October 3, 20 08

*Eric E. Hamm*  
ENGINEER OF DESIGN AND ENVIRONMENT

October 3, 20 08

*Christine M. Reed*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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

# SUMMARY OF QUANTITIES

MCHD

SUMMARY OF QUANTITIES			CONSTRUCTION TYPE CODE			
CODE NO	ITEM	UNIT	TOTAL QUANTITIES	100% STATE SFTY-2A URBAN		
X0326191	BEAM HEAT STRAIGHTENING	L SUM	1	1		
50501130	STRUCTURAL STEEL REPAIR	POUND	1570	1570		
67100100	MOBILIZATION	L SUM	1	1		
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	L SUM	1	1		
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	1	1		
X7010600	TRAFFIC CONTROL AND PROTECTION, STANDARD 701406, SPECIAL	L SUM	1	1		

### INDEX OF SHEETS

- 1 COVER SHEET
- 2 INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES, COMMITMENTS & SUMMARY OF QUANTITIES
- 3-4 TRAFFIC CONTROL DETAILS
- 5-7 BRIDGE REPAIR PLANS

### HIGHWAY STANDARDS

- 000001-05
- 701400-02
- 701406-04
- 701601-05
- 701901

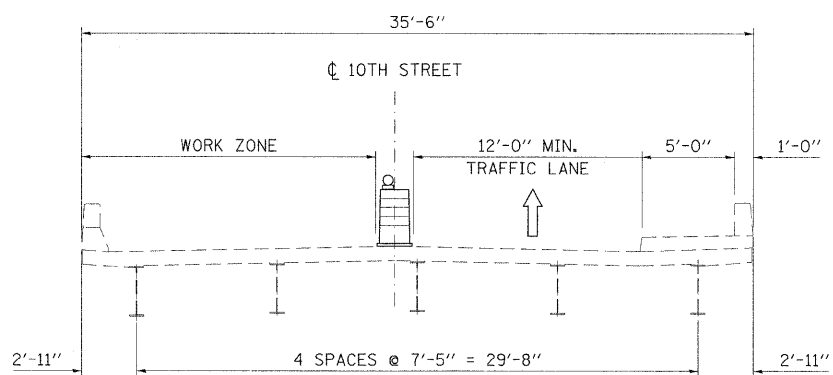
### GENERAL NOTES:

1. THE STANDARDS AND REVISION NUMBERS SHALL APPLY TO THIS PROJECT.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.
3. ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING BY CALLING J.U.L.I.E. AND BY NOTIFYING NON-J.U.L.I.E. MEMBERS INDIVIDUALLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
  - AMEREN IP
  - AMEREN UE
  - AT&T ILLINOIS
  - CITY OF EAST ST. LOUIS - SEWER
  - ILLINOIS AMERICAN WATER
  - PAETEC/MCLEOD USA TELECOMMUNICATIONS, INC.
  - METRO
 MEMBERS OF J.U.L.I.E. (800) 892-0123 OR 811 ARE INDICATED BY \*. NON-MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
4. A CHANGEABLE MESSAGE SIGN SHALL BE REQUIRED ON THIS PROJECT. THE MESSAGE SIGN SHALL BE PLACED TWO WEEKS BEFORE ANY LANE RESTRICTIONS. THE MESSAGE SIGN SHALL BE PLACED ALONG EASTBOUND I-64 BEFORE THE TRI-LEVEL.
5. NO OVERNIGHT CLOSURES WILL BE PERMITTED ON THIS PROJECT.
6. "ROAD CONSTRUCTION AHEAD" SIGNS SHALL BE PLACED AT THE BEGINNING OF THE PROJECT AND ON EASTBOUND I-64 AND SOUTHBOUND I-55/I-70 BEFORE THE TRI-LEVEL AND WILL BE INCLUDED IN THE TRAFFIC CONTROL PAY ITEMS. ALL CONSTRUCTION SIGNS SHALL BE FLUORESCENT ORANGE.
7. THERE IS AN INLET LOCATED ON THE RIGHT SHOULDER OF EASTBOUND I-64 NEAR THE STRUCTURE. THIS INLET WILL BE COVERED WITH A STEEL PLATE FOR THE DURATION OF THIS PROJECT. THE PLACEMENT AND REMOVAL OF THIS STEEL PLATE WILL BE PAID FOR ACCORDING TO ART. 109.04.

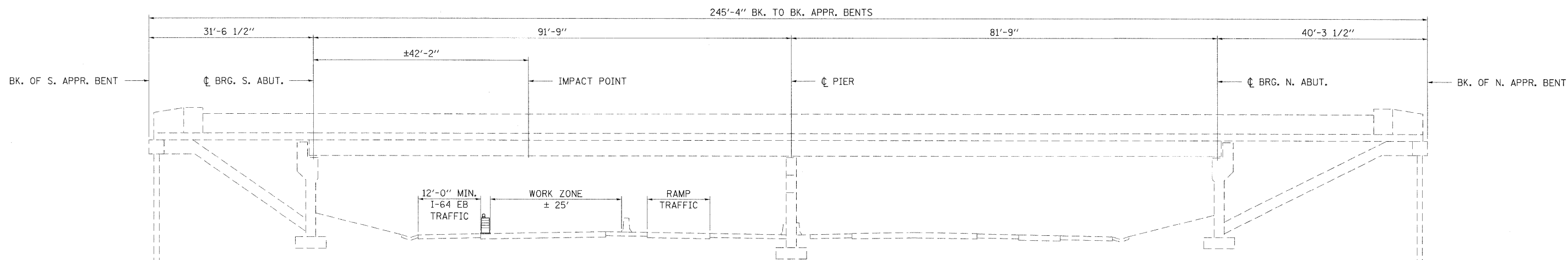
### COMMITMENTS

NONE

FILE NAME =	USER NAME = owenbj	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>INDEX OF SHEETS, HIGHWAY STANDARDS, GENERAL NOTES, COMMITMENTS &amp; SUMMARY OF QUANTITIES</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.				
g:\projects\1676c25\design\1676c25-sh-	lan.dgr	DRAWN -	REVISED -			64	82-IHB-HDF	ST. CLAIR	7	2				
	PLOT SCALE = 50,0000 / 1 IN.	CHECKED -	REVISED -											
	PLOT DATE = 8/12/2008	DATE	REVISED											
						SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT
											CONTRACT NO. 76C25			

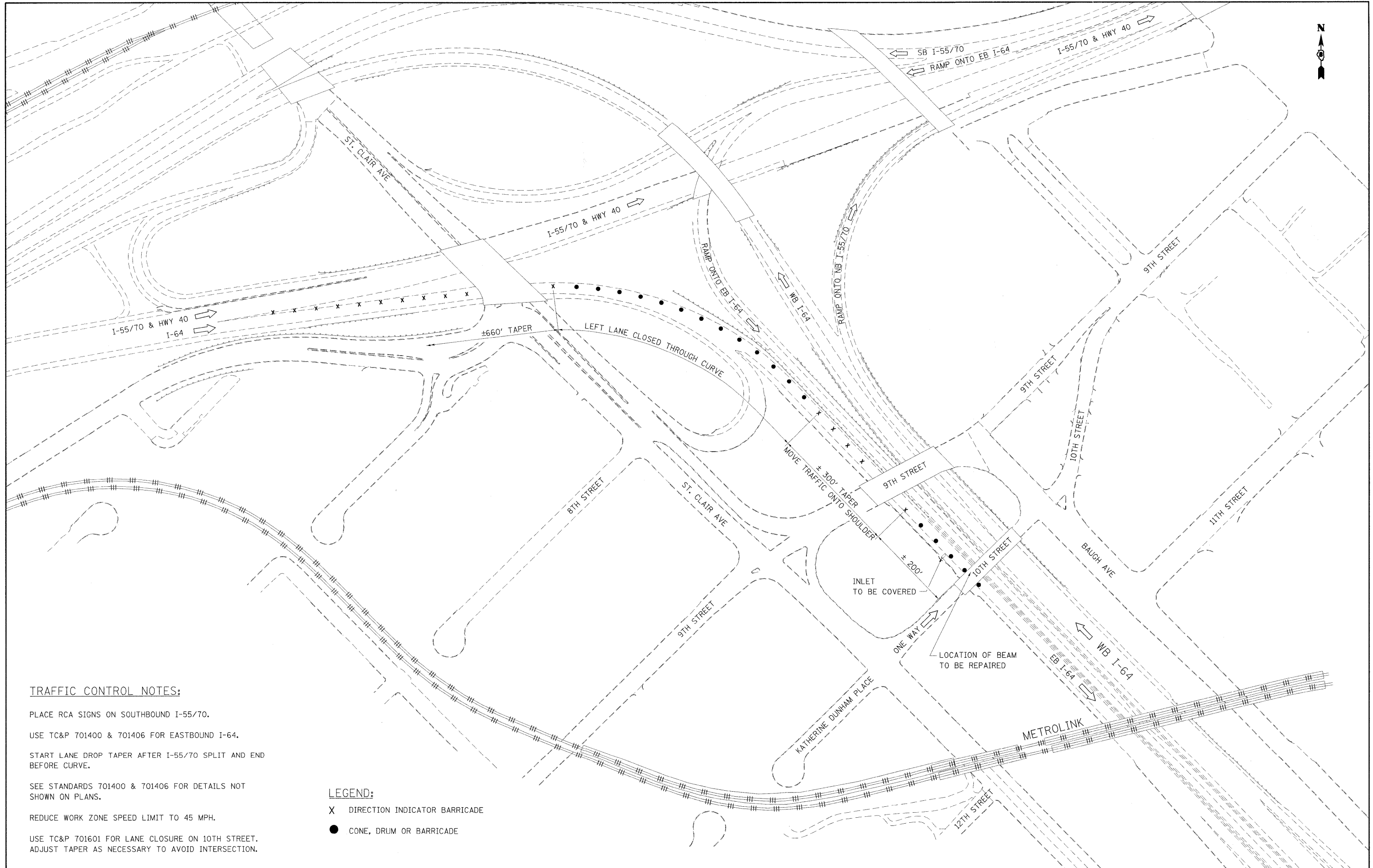


CROSS SECTION  
(LOOKING NORTH)



ELEVATION  
(LOOKING WEST)

FILE NAME =	USER NAME = oventj	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TRAFFIC CONTROL</b>				F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
ct:\projects\d876c25\design\d876c25-sht-1.dgn	PLOT SCALE = 50.0000' / IN.	DRAWN -	REVISED -						64	82-1HB-HDF	ST. CLAIR	7	3
PLOT DATE = 8/11/2008	DATE -	CHECKED -	REVISED -		SCALE: SHEET NO. OF SHEETS STA. TO STA.				FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				
CONTRACT NO. 76C25													



**TRAFFIC CONTROL NOTES:**

- PLACE RCA SIGNS ON SOUTHBOUND I-55/70.
- USE TC&P 701400 & 701406 FOR EASTBOUND I-64.
- START LANE DROP TAPER AFTER I-55/70 SPLIT AND END BEFORE CURVE.
- SEE STANDARDS 701400 & 701406 FOR DETAILS NOT SHOWN ON PLANS.
- REDUCE WORK ZONE SPEED LIMIT TO 45 MPH.
- USE TC&P 701601 FOR LANE CLOSURE ON 10TH STREET. ADJUST TAPER AS NECESSARY TO AVOID INTERSECTION.

**LEGEND:**

- X DIRECTION INDICATOR BARRICADE
- CONE, DRUM OR BARRICADE

FILE NAME =	USER NAME = owenbj	DESIGNED -	REVISED -
ci:\projects\4876c25\design\4876c25-shr-	lan.dgn	DRAWN -	REVISED -
	PLOT SCALE = 50.0000' / 1"	CHECKED -	REVISED -
	PLOT DATE = 8/12/2008	DATE -	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

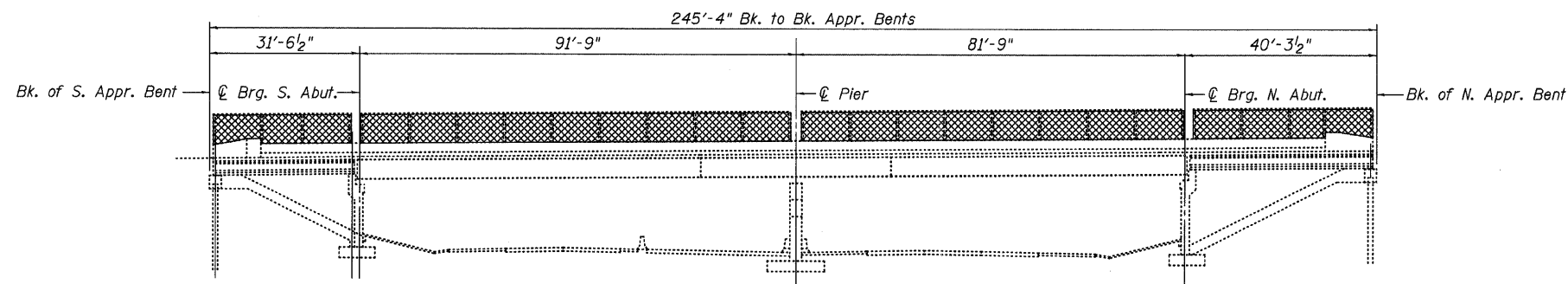
<b>TRAFFIC CONTROL</b>			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
64	82-1HB-HDF	ST. CLAIR	7	4
CONTRACT NO. 76C25				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

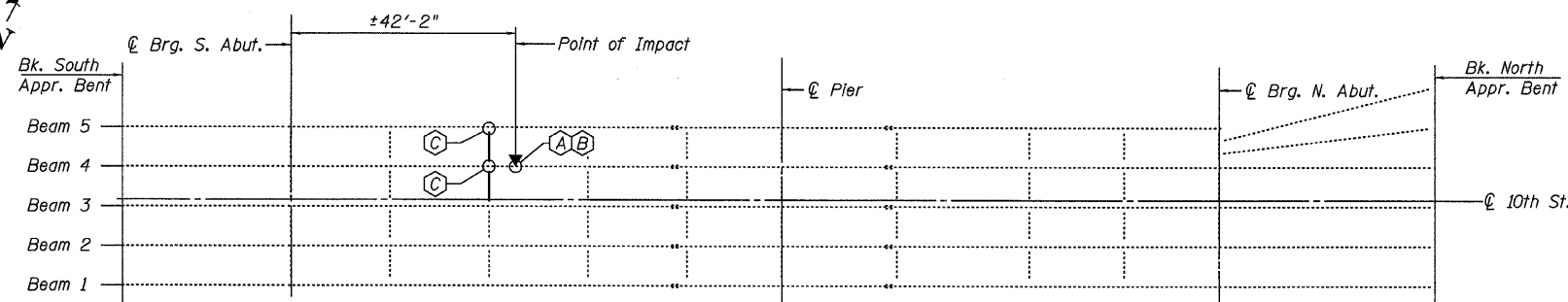
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET NO.
F.A.I.	-	ST. CLAIR	7	5
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 1  
3 SHEETS

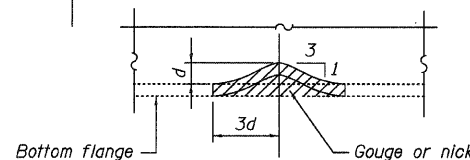


**ELEVATION**  
(Looking West)

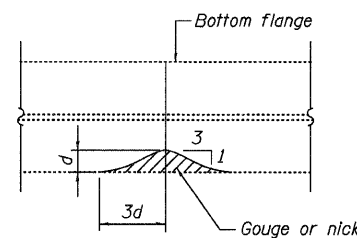


**FRAMING PLAN**

- Impact Line →
- (A) Heat straighten damaged beam.
  - (B) Strengthen bottom flange and web.
  - (C) Cross-frame connection replacement.



**ELEVATION**



**PLAN**

**GRINDING DETAIL**

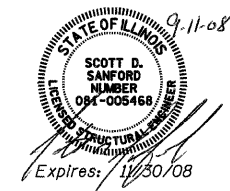
Grind existing nicks, gouges and shallow cracks in the damaged beam as detailed prior to initiating any beam heat straightening operations. All final striations due to grinding shall be parallel to the longitudinal axis of the member with no individual grinding marks more than 1/64" below finished surface. See Special Provisions. Ground surfaces shall be inspected for cracks using magnetic particle testing prior to initiating any beam heat straightening operations. Any cracks that cannot be removed by grinding approximately 1/4" deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. After heat straightening, all ground surfaces which will not be in contact with new repair plates shall be spot cleaned and painted with aluminum epoxy mastic primer followed by a finish coat to match the color of the existing beam. Cost of grinding, testing and spot painting included with "Beam Heat Straightening".

**GENERAL NOTES**

All structural steel shall be AASHTO M 270 Grade 36, unless otherwise noted. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 3/4" φ, holes 13/16" φ, unless otherwise noted. Plan dimensions and details relative to existing plans are subject to routine 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 based upon the unit price bid for the work. Cost of removal and/or 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 in the cost of "Structural Steel Repair". The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all steel surfaces shall be Interstate Green, Munsell No. 7.5G 4/8. See Special Provision for "Cleaning and Painting New Metal Structures". 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". Oil and all loose paint shall be removed from the damaged beam in the area of impact and areas of heating before the beam is straightened. Cost included with "Beam Heat Straightening". Traffic shall be maintained at least one beam spacing away from damaged beams during the heat straightening process. The strengthening plates shall conform to the Supplemental Requirements for Notch Toughness Zone 2. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Beam Heat Straightening	L.S.	1
Structural Steel Repair	Pound	1,570



DESIGNED	S.D.S.
CHECKED	C.W.C.
DRAWN	D.L.H.
CHECKED	S.D.S.

**WHKS & CO.**  
ENGINEERS PLANNERS LAND SURVEYORS  
MASON CITY, IOWA    DUBUQUE, IOWA    AMES, IOWA  
E. DUBUQUE, ILLINOIS    SPRINGFIELD, ILLINOIS    ROCHESTER, MINNESOTA

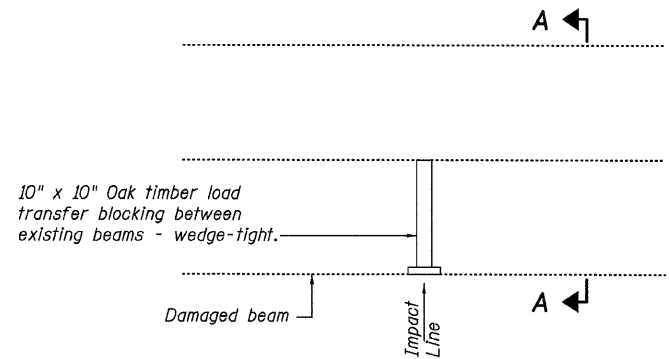
**GENERAL PLAN AND ELEVATION**  
**10th STREET OVER I-64**  
**ST. CLAIR CO.**  
**S.N. 082-0150**

Operator: dheberling Date: 9/9/2008 Filename: L:\jobs\DOT BBS\6727 BBS Various Structures\Drawings\Structure\082-0150.dgn

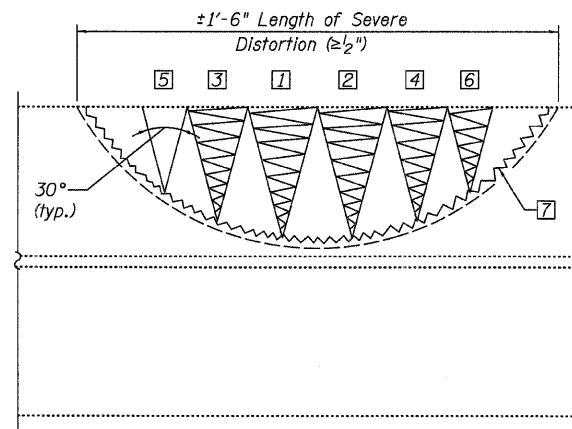
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET	OF SHEET	SHEET NO.
F.A.I.	-	ST. CLAIR	7	6	2
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-		

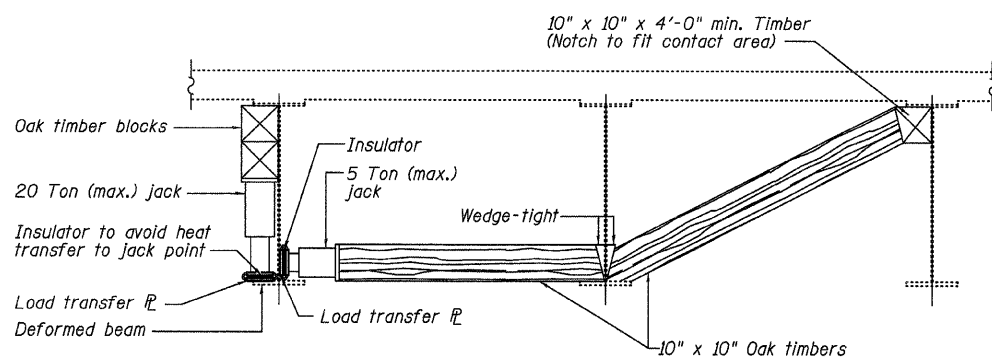
3 SHEETS



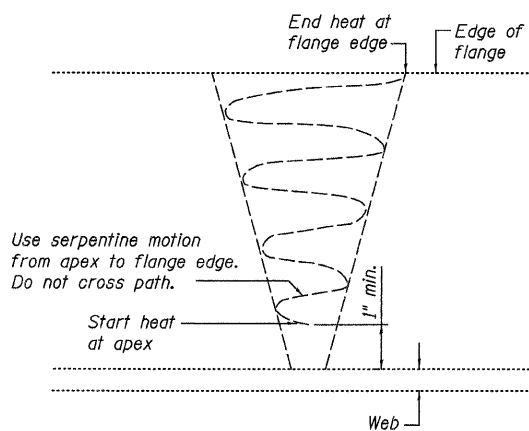
**PARTIAL PLAN**  
**SUGGESTED BEAM BLOCKING LOCATIONS**



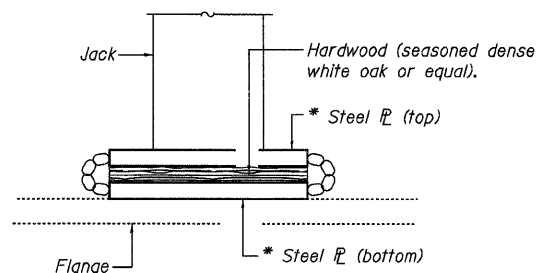
**BOTTOM FLANGE HEATING PATTERN**  
(Looking at bottom flange)



**SECTION A-A**



**TYPICAL HEAT PATTERN**



**SAMPLE INSULATOR**

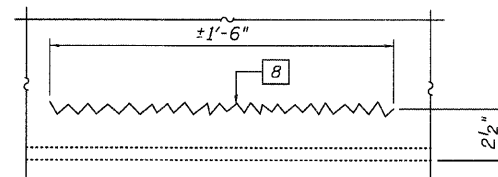
\* Top & bottom plates may be attached with cable or chain to aid handling.

DESIGNED	S.D.S.
CHECKED	C.W.C.
DRAWN	D.L.H.
CHECKED	S.D.S.

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IOWA DUBUQUE, IOWA AMES, IOWA  
E. DUBUQUE, ILLINOIS SPRINGFIELD, ILLINOIS ROCHESTER, MINNESOTA



**WEB LINE HEAT**  
(Looking East)

**EXISTING DEFORMATION TO BE STRAIGHTENED**

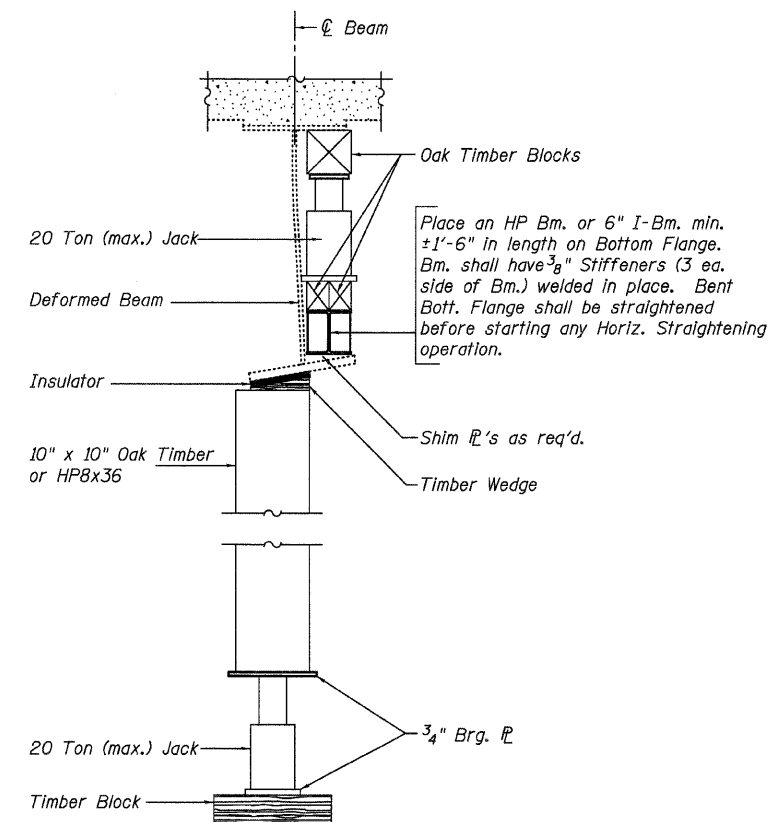
(Looking North)  
(Approximate max. deflections)  
Deflected length of beam to be straightened is approximately 4'-0".

Notes:

The initial jack loads applied prior to the application of heat shall be limited to 30 kips (vertical) and 4 kips (horizontal).  
The details shown on this sheet are for example purposes only. The final details shall be approved by the Department in accordance with the Special Provisions for "Beam Heat Straightening".

- \*\* 1 thru 6 "V" heat
- 7 Line heat on flange
- 8 Line heat on web

\*\* 6 patterns are shown for the example, but the actual number shall be based on the deformation size and severity. Patterns should be placed on greatest distortion, and patterns in a subsequent series should be offset.



**VERTICAL STRAIGHTENING DETAIL**

**BEAM HEAT STRAIGHTENING**  
10th STREET OVER I-64  
ST. CLAIR CO.  
S.N. 082-0150

Operator: dheberling

Date: 9/9/2008

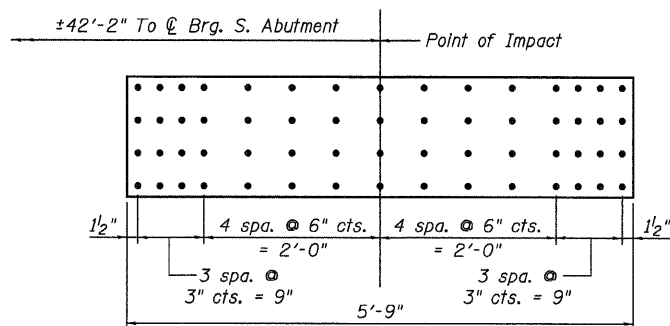
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	JOB SHEETS	SHEET NO.
F.A.L.	-	ST. CLAIR	7	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 3  
3 SHEETS

Operator: dheberling  
Date: 9/9/2008  
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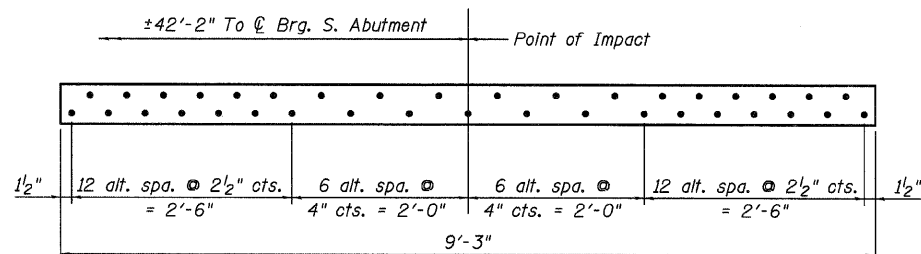


**WEB STRENGTHENING PLATE**

2 - PL's 3/8" x 1'-4 1/2" x 5'-9"

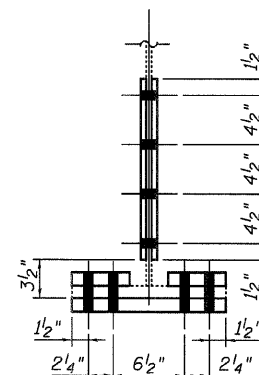
1 1/2" φ holes for 7/8" φ H.S. bolts in bottom flange and web strengthening PL's. Field drill 1 1/2" φ holes in existing girder to match holes in strengthening PL's.

- \* Field drill holes in new gusset PL to match holes in existing connection PL. Typ. for top gusset PL's and both gusset PL's at beam 3.
- \*\* Shop drill holes in new gusset PL. Field drill holes in new L 4 x 4 x 3/8 to match holes in new gusset PL. Typ for bottom gusset PL's at beams 5 and 4.
- \*\*\* Fillet weld angles along 3 sides and on one face of the gusset PL. Typ. all angle to gusset PL connections.
- \*\*\*\* Fill PL 3/8 x 4 x 9 between angle and Gusset PL.

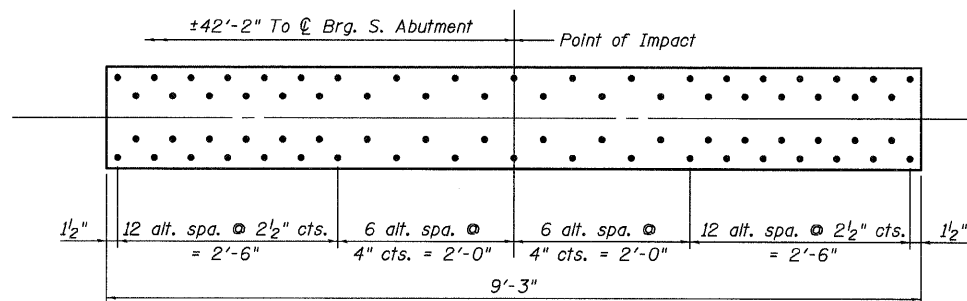


**INSIDE FLANGE STRENGTHENING PLATE**

PL 1" x 5 1/4" x 9'-3"

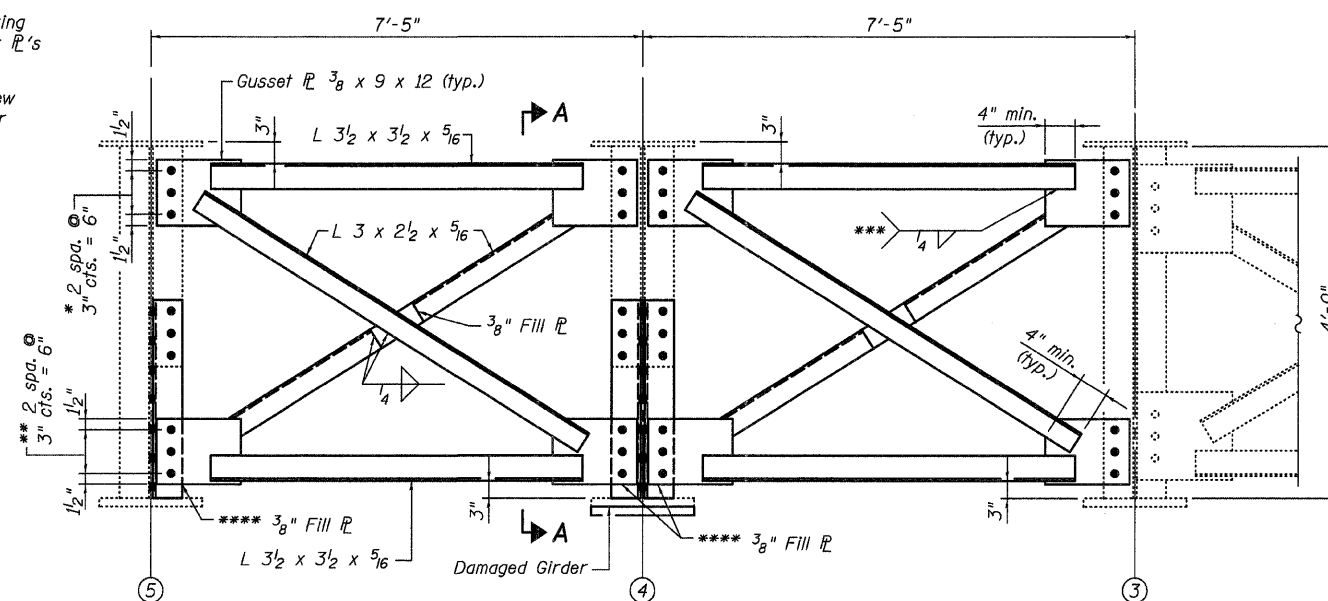


**TYPICAL STRENGTHENING SECTION**



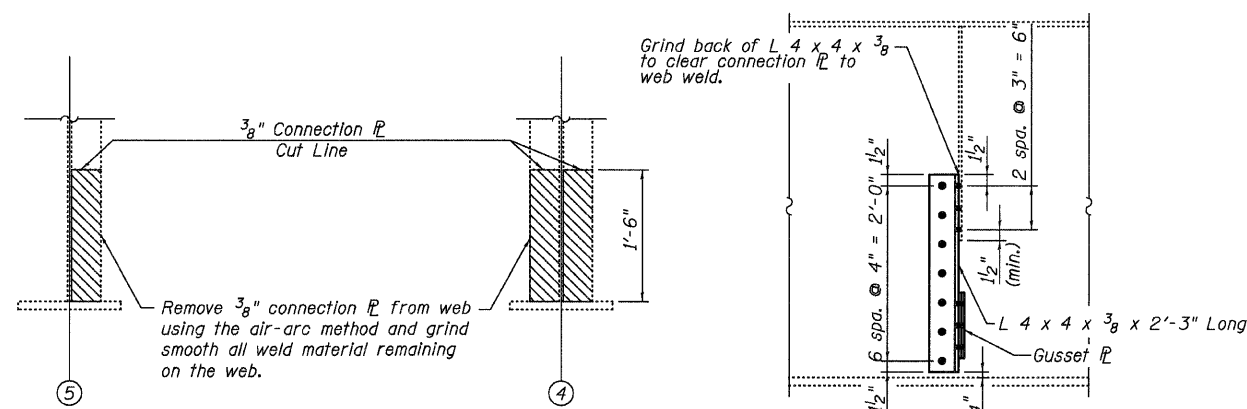
**OUTSIDE FLANGE STRENGTHENING PLATE**

PL 3/4" x 1'-2" x 9'-3"



**CROSS FRAME REPAIR DETAIL**

(Looking North)



**CONNECTION PLATE REMOVAL DETAIL**

Grind back of L 4 x 4 x 3/8 to clear connection PL to web weld.

Note:

**VIEW A-A**

Field drill 1 1/2" φ holes in existing web and connection PL to match holes in new L 4 x 4 x 3/8 (Cross-Frame not shown for clarity)

DESIGNED	S.D.S.
CHECKED	C.W.C.
DRAWN	D.L.H.
CHECKED	S.D.S.

**WHKS & CO.**

ENGINEERS PLANNERS LAND SURVEYORS

MASON CITY, IOWA    DUBUQUE, IOWA    AMES, IOWA  
E. DUBUQUE, ILLINOIS    SPRINGFIELD, ILLINOIS    ROCHESTER, MINNESOTA

**BEAM STRENGTHENING DETAILS**  
10th STREET OVER I-64  
ST. CLAIR CO.  
S.N. 082-0150