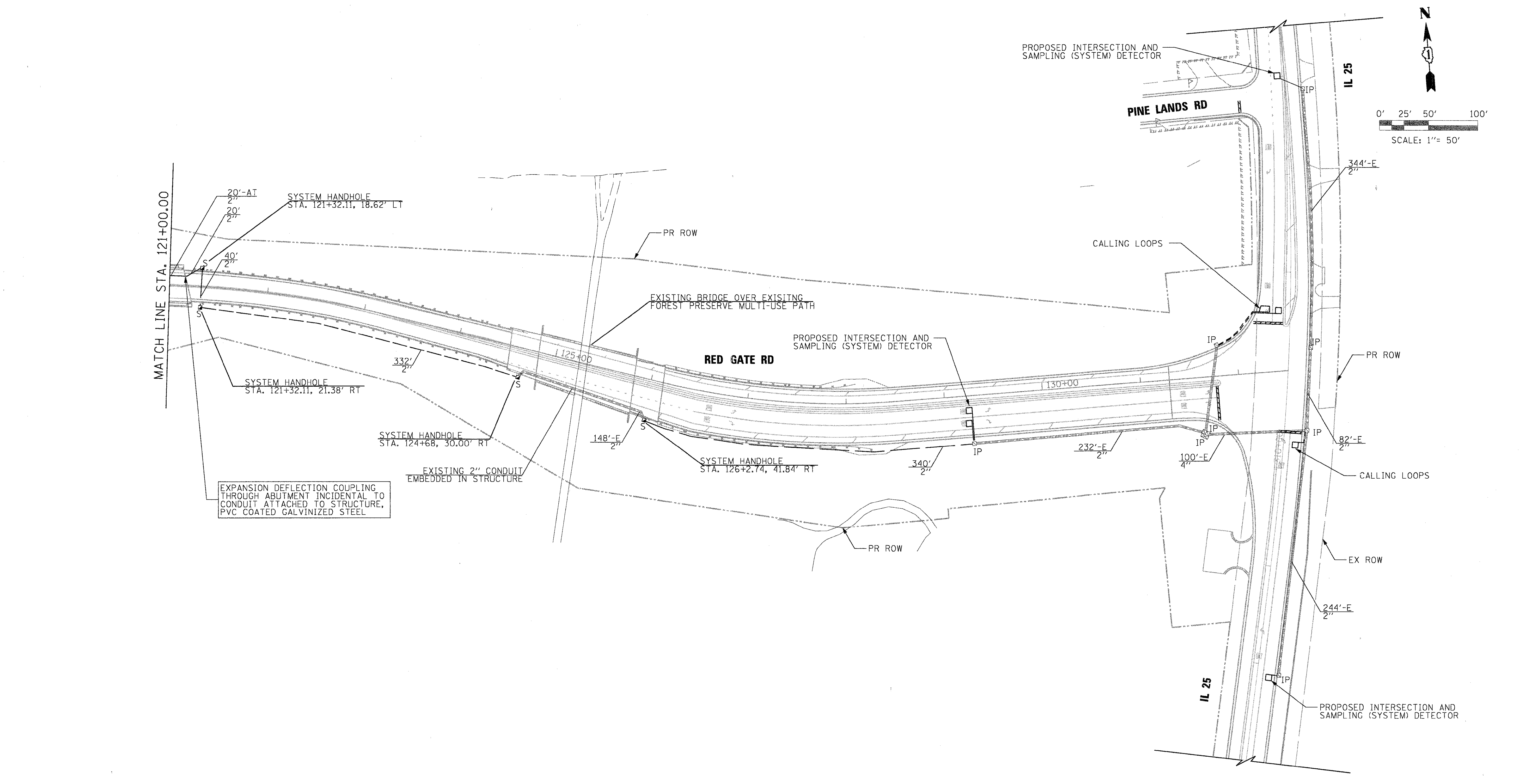


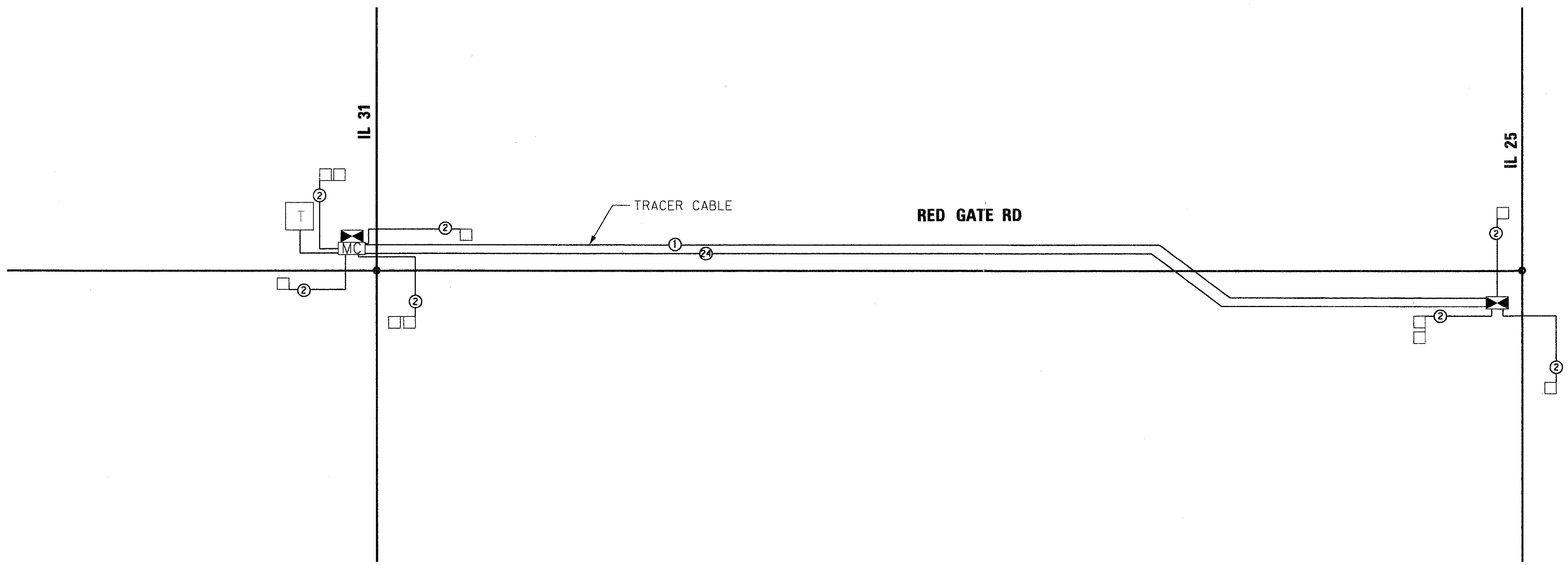
LEGEND

AT - CONDUIT ATTACHED TO STRUCTURE, PVC COATED GALVANIZED STEEL

FILE NAME = ...\prpln-ABC-sht-RedGate-Incon-03.dgn	DESIGNED - BC	REVISED -	benesch engineers · scientists · planners	CITY OF ST. CHARLES	INTERCONNECT PLAN RED GATE ROAD	F.A. RTE.	SECTION 04-00092-00-BR	COUNTY KANE
USER NAME = toddblank	DRAWN - BC	REVISED -						TOTAL SHEETS 440 / SHEET NO. 201
PLOT DATE = 11/22/2011	CHECKED - MPM	REVISED -			SCALE:	SHEET NO. 3 OF 4 SHEETS	STA. TO STA.	CONTRACT NO. 63650
	DATE - 10/23/2011	REVISED -						ILLINOIS FED. AID PROJECT

INTERCONNECT SCHEDULE OF QUANTITIES

SUMMARY OF QUANTITIES		
DESCRIPTION	UNIT	TOTAL QUANTITY
UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	1,592
CONDUIT ATTACHED TO STRUCTURE, 2" DIA., PVC COATED GALVANIZED STEEL	FOOT	1,207
JUNCTION BOX, STAINLESS STEEL, ATTACHED TO STRUCTURE, 14" X 12" X 6"	EACH	2
HANDHOLE	EACH	7
MASTER CONTROLLER	EACH	1
FIBER OPTIC CABLE IN CONDUIT, NO.62.5/125, MM12F SM12F	FOOT	3,436
ELECTRIC CABLE IN CONDUIT, TRACER, NO.14 1C	FOOT	3,436
OPTIMIZE TRAFFIC SIGNAL SYSTEM	EACH	1



INTERCONNECT SCHEMATIC LEGEND

EXISTING INTERSECTION CONTROLLER	
PROPOSED INTERSECTION CONTROLLER	
EXISTING MASTER CONTROLLER	EMC
PROPOSED MASTER CONTROLLER	MC
MASTER MASTER CONTROLLER	MMC
EXISTING INTERSECTION & SAMPLING (SYSTEM) DETECTORS	
PROPOSED INTERSECTION & SAMPLING (SYSTEM) DETECTORS	
EXISTING INTERSECTION LOOP DETECTORS PROPOSED SAMPLING (SYSTEM) DETECTORS	P
EXISTING SAMPLING (SYSTEM) DETECTORS	ES
PROPOSED SAMPLING (SYSTEM) DETECTORS	PS
EXISTING SAMPLING (SYSTEM) DETECTORS. PROPOSED INTERSECTION AND SAMPLING (SYSTEM) DETECTORS.	ESP
EXISTING SAMPLING (SYSTEM) DETECTORS. PROPOSED SAMPLING (SYSTEM) DETECTORS.	ESPS
EXISTING PREFORMED INTERSECTION & SAMPLING (SYSTEM) DETECTORS	PD
PROPOSED PREFORMED INTERSECTION & SAMPLING (SYSTEM) DETECTORS	PD
EXISTING SAMPLING (SYSTEM) PREFORMED DETECTORS	ESPD
PROPOSED SAMPLING (SYSTEM) PREFORMED DETECTORS	PSPD
EXISTING FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F	24
PROPOSED FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125, MM12F SM12F	24
EXISTING INTERCONNECT CABLE - NO. 62.5/125 12F FIBER OPTIC CABLE	12
PROPOSED INTERCONNECT CABLE - NO. 62.5/125 12F FIBER OPTIC CABLE	12
EXISTING INTERCONNECT CABLE - NO. 18 3 PAIR TWISTED, SHIELDED	6
PROPOSED INTERCONNECT CABLE - NO. 18 3 PAIR TWISTED, SHIELDED	6
EXISTING LOOP DETECTOR CABLE 2/C TWISTED, SHIELDED	2
PROPOSED LOOP DETECTOR CABLE 2/C TWISTED, SHIELDED	2
EXISTING ELECTRIC CABLE, 1/C (AS SPECIFIED)	1
PROPOSED ELECTRIC CABLE, 1/C (AS SPECIFIED)	1
EXISTING TELEPHONE CONNECTION	T
PROPOSED TELEPHONE CONNECTION	T

PLOT SCALE: 1:200
X:\10000S\10092\Local_Workspace\P...
X:\10000S\10092\Local_Workspace\P...

FILE NAME = ...\prpln-ABC-sht-RedGate-Incon-sch-01.dgn	DESIGNED - BC	REVISED -	benesch engineers · scientists · planners	ST. CHARLES	CITY OF ST. CHARLES	INTERCONNECT SCHEMATIC RED GATE ROAD	F.A. RTE.	SECTION 04-00092-00-BR	COUNTY KANE
USER NAME = toddblank	DRAWN - BC	REVISED -							TOTAL SHEETS 440
PLOT DATE = 11/22/2011	CHECKED - MPM	REVISED -				SCALE:	SHEET NO. 4 OF 4 SHEETS	STA. TO STA.	SHEET NO. 202
	DATE - 10/23/2011	REVISED -						CONTRACT NO. 63650	ILLINOIS FED. AID PROJECT

LOOP DETECTOR NOTES

1. EACH PAIR OF LOOP WIRES SHALL BE PLACED IN A SEPARATE EMPTY COILABLE NONMETALLIC CONDUIT FROM THE EDGE OF PAVEMENT TO THE HANDHOLE. SPACING BETWEEN THE HOLES DRILLED IN THE PAVEMENT SHALL NOT BE LESS THAN 6" (150 mm). EMPTY COILABLE NONMETALLIC CONDUIT SHALL BE INCLUDED IN THE COST OF THE LOOP WIRE.

2. THE NUMBER OF LOOP TURNS SHALL BE AS RECOMMENDED BY THE AMPLIFIER MANUFACTURER. ALL ADJACENT SIDES OF THE LOOPS SHALL BE INSTALLED IN SUCH A WAY THAT THE CURRENT FLOW IS IN THE SAME DIRECTION TO REINFORCE ITS MAGNETIC FIELDS FOR SMALL VEHICLE DETECTION.

3. EACH LOOP LEAD-IN SHALL BE IDENTIFIED AND PERMANENTLY TAGGED IN THE HANDHOLE. EACH LEAD-IN CABLE TAG SHALL INDICATE THE LOCATION OF THE LOOP, LOOP ROTATION (CLOCKWISE/COUNTERCLOCKWISE), LOOP LEAD-IN DIRECTION (IN OR OUT), LOOP CABLE NUMBER AND LOCATION IN CABINET, AND NUMBER OF TURNS IN THE DETECTOR LOOPS IN WATER PROOF INK AS INDICATED ON THE DISTRICT 1 STANDARD TRAFFIC SIGNAL DESIGN DETAIL. THE CONTRACTOR SHALL MARK LOOP LOCATIONS ON RECORD DRAWINGS AND PRESENT TO THE ENGINEER AFTER FINAL INSPECTION. LOOPS SHALL BE MARKED BY LANE AND LOOP NUMBER. SEE DETAIL BELOW.

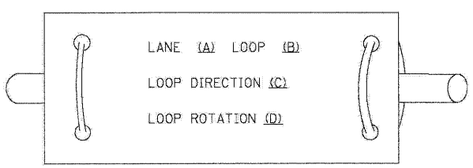
4. ALL LOOP CABLE SHALL BE FASTENED WITH PLASTIC TIE WRAP TO THE HANDHOLE HOOKS.

5. IN ASPHALT PAVEMENT, LOOPS SHOULD BE PLACED IN THE BINDER AND DIVEHOLES MARKED AT THE CURB WITH A SAW-CUT. THE SAW-CUT SHALL BE CUT IN ACCORDANCE WITH LOCAL AND E.P.A. DUST CONTROL REQUIREMENTS. DETECTOR LOOP(S) SHALL NOT BE INSTALLED IN WET CONDITIONS AND THE SAW-CUTS MUST BE FREE OF DEBRIS AND RESIDUE SUCH AS DUST AND WATER WHICH IS TO BE ACHIEVED BY THE USE OF COMPRESSED AIR, WIRE BRUSHING AND HEAT DRYING ACCORDING TO SEALANT MANUFACTURER REQUIREMENTS. THE DETECTOR WIRE SHALL BE HELD IN PLACE BY THE USE OF FORM WEDGES. WEDGES SHALL BE SPACED NO MORE THAN 18" (450 mm) APART.

6. LOOP SPLICES SHALL BE SOLDERED USING A SOLDERING IRON. BLOW TORCHES OR OTHER DEVICES WHICH OXIDIZE COPPER CABLE SHALL NOT BE ALLOWED FOR SOLDERING OPERATIONS. SEE DETAIL BELOW RIGHT.

7. PREFORMED DETECTOR LOOPS SHALL BE USED, AS SHOWN ON THE PLANS, WHERE NEW CONCRETE PAVEMENT IS PROPOSED. THE INSTALLATION OF PREFORMED LOOPS SHALL BE IN ACCORDANCE WITH THE DISTRICT 1 SPECIFICATIONS OR AS DIRECTED BY THE ENGINEER.

LOOP LEAD-IN CABLE TAG

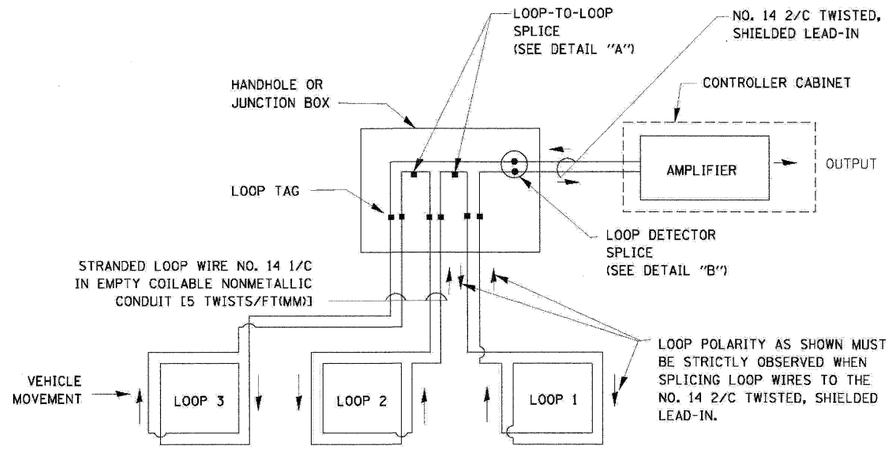


A. LANE 1 IS THE LANE CLOSEST TO THE CENTERLINE OF THE ROADWAY

B. LOOP #1 IS THE LOOP IN THE LANE CLOSEST TO THE INTERSECTION.

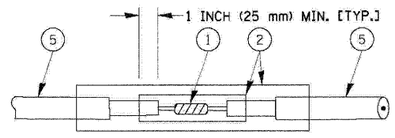
C. LABEL LOOP CABLE "IN" OR LOOP CABLE "OUT".

D. LABEL LOOP CABLE CLOCKWISE OR LOOP CABLE COUNTERCLOCKWISE.

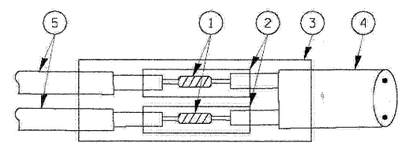


DETECTOR LOOP WIRING SCHEMATIC

- LOOPS SHALL BE SPLICED IN SERIES.
- SAW-CUTS SHALL BE A MINIMUM WIDTH OF 5/16" (8 mm).
- SAW-CUT DEPTHS SHALL BE 3" (75 mm). IF IN CONCRETE, THE SAW-CUT DEPTH SHALL BE TO THE TOP OF THE REINFORCEMENT.
- LOOP CORNERS SHALL BE DRILLED WITH A 2" (50 mm) DIAMETER CORE.

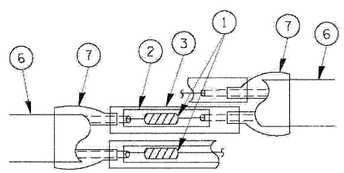


DETAIL "A"
LOOP-TO-LOOP SPLICE



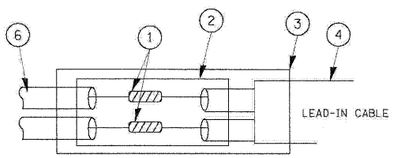
DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

TYPE I LOOP



DETAIL "A"
LOOP-TO-LOOP SPLICE

PRE-FORMED LOOP



DETAIL "B"
LOOP-TO-CONTROLLER SPLICE

LOOP DETECTOR SPLICE

(1) WESTERN UNION SPLICE SOLDERED WITH ROSIN CORE FLUX. ALL EXPOSED SURFACES OF THE SOLDER SHALL BE SMOOTH.

(2) WCSMW 30/100 HEAT SHRINK TUBE, MINIMUM LENGTH 3" (75 mm), UNDERWATER GRADE.

(3) WCS 200/750 HEAT SHRINK TUBE, MINIMUM LENGHT 6" (150 mm), UNDERWATER GRADE.

(4) NO. 14 2/C TWISTED, SHIELDED CABLE.

(5) LOOP CONDUCTOR WITH FLEXIBLE PLASTIC TUBE.

(6) PRE-FORMED LOOP

(7) XL POLYOLEFIN 2 CONDUCTOR BREAKOUT SEALS. TYCO CBR-2 OR APPROVED EQUAL

FILE NAME = c:\pw_work\PWIDOT\BAUERDL\d0128315\ts05	USER NAME = bauerdl	DESIGNED - DAD	REVISED -
	dgn	DRAWN - BCK	REVISED -
	PLOT SCALE = 50.0000 ' / IN.	CHECKED - DAD	REVISED -
	PLOT DATE = 11/4/2009	DATE - 10-28-09	REVISED -

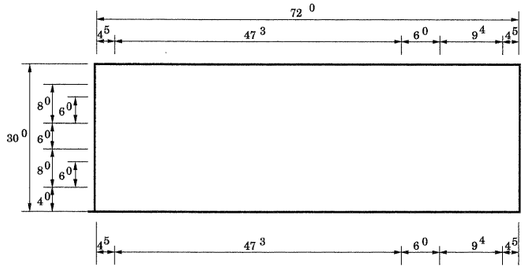
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: NONE | SHEET NO. 1 OF 6 SHEETS | STA. | TO STA.

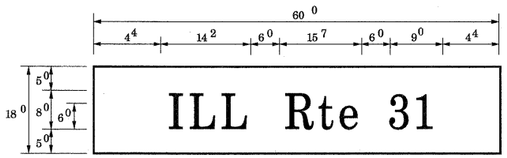
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	203
	TS-05	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

PANEL SIGN DESIGN YPE II



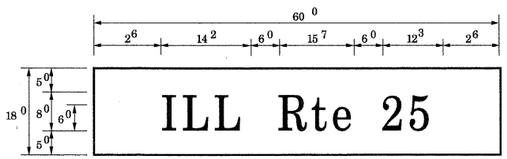
___ Sq. Ft. each
___ Required
Design Series C

PANEL SIGN DESIGN YPE 1



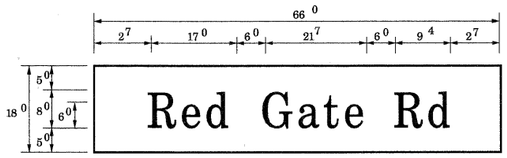
7.5 Sq. Ft. each
2 Required
Design Series D

PANEL SIGN DESIGN YPE 1



7.5 Sq. Ft. each
1 Required
Design Series D

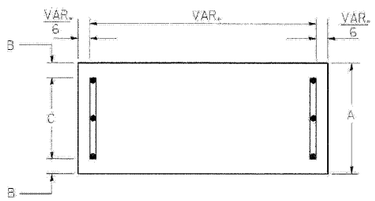
PANEL SIGN DESIGN YPE 1



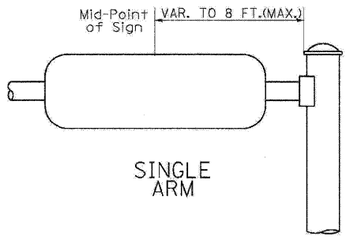
8.25 Sq. Ft. each
4 Required
Design Series D

NOTE: SIGN DIMENSIONS ARE IN ENGLISH UNITS

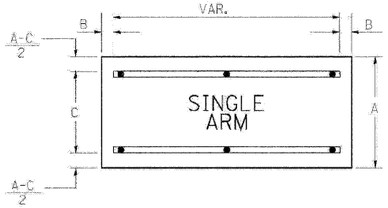
SUPPORTING CHANNELS



A	B	C
18"	2"	14"



SUPPORTING CHANNELS



A	B	C
18"	2"	12"
30"	2"	22"

GENERAL NOTES

1. WHERE MAST ARM MOUNTED STREET NAME SIGNS ARE SPECIFIED, THE MAST ARM ASSEMBLY AND POLES SHALL BE DESIGNED TO SUPPORT THE LOADINGS CALLED FOR ON STANDARDS 877001, 877002, 877006, 877011 AND 877012, AS APPLICABLE, PLUS TWO (2) SIGN PANELS 2'-6" x 8'-0" MOUNTED AS SHOWN. THE DESIGN SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS FOR 80 M.P.H. WIND VELOCITY.
2. ALL SIGNS SHALL HAVE A WHITE REFLECTORIZED LEGEND AND BORDER ON A GREEN REFLECTORIZED BACKGROUND, TYPE A SHEETING.
3. THE SIGN LENGTH SHOULD BE INCREASED IN 6-INCH INCREMENTS, BUT THE OVERALL LENGTH SHOULD NOT EXCEED 8'-0".
4. ALL BORDERS SHALL BE ¾" WIDE AND CORNER RADIUS SHALL BE 2-1/4 ".
5. SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM SHALL BE USED FOR ALL SIGNS ATTACHED TO SIGNAL POLES AND POSTS. LOCAL SUPPLIERS OF THE SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM ARE:

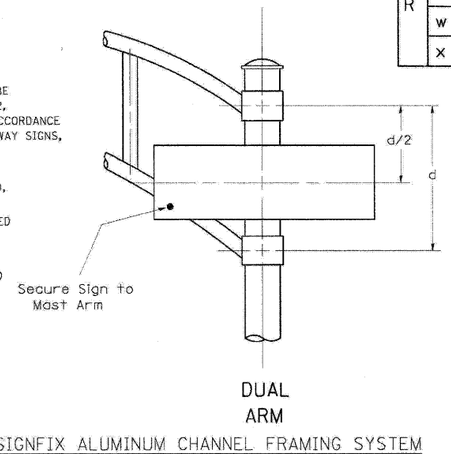
* J.O. HERBERT CO.
MIDLOTHIAN, VA.

* WESTERN REMAC INC.
WOODRIDGE, IL.

PARTS LISTING:

SIGN CHANNEL	PART #HPN053 (MED. CHANNEL)
SIGN SCREWS	¼" x 14 x 1" H.W.H. #3 SELF TAPPING WITH NEOPRENE WASHER
BRACKETS	PART #HPN034 (UNIVERSAL) CHANNEL CLAMPS WITH STAINLESS STEEL STRAPPING

OTHER BRANDS OF MOUNTING HARDWARE ARE ACCEPTABLE, BASED UPON THE DEPARTMENT'S APPROVAL AND COMPATIBILITY WITH THE CHANNEL/BRACKET OF THE ABOVE PRODUCT.



SIGNFIX ALUMINUM CHANNEL FRAMING SYSTEM
shall be used. See Note #5.

Upper Case To Lower Case
Spacing Chart 8-6 Inch Series "C & D"

FIRST LETTER	SECOND LETTER: a c d e g o q		b h i k l m n p r u		f w		j		s t		v y		x		z	
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
A W X	1^{2}	1^{4}	1^{4}	1^{5}	1^{2}	1^{4}	0^{6}	1^{0}	1^{1}	1^{4}	0^{6}	1^{0}	1^{1}	1^{2}	1^{2}	1^{4}
B	1^{4}	1^{5}	2^{0}	2^{1}	1^{4}	1^{5}	1^{1}	1^{2}	1^{4}	1^{5}	1^{2}	1^{4}	1^{2}	1^{4}	1^{6}	1^{7}
C E G	1^{4}	1^{5}	2^{0}	2^{1}	1^{2}	1^{4}	0^{6}	1^{0}	1^{2}	1^{4}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}
D O Q R	1^{4}	1^{5}	2^{0}	2^{1}	1^{4}	1^{5}	0^{6}	1^{0}	1^{2}	1^{4}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}
F	0^{5}	0^{6}	1^{4}	1^{5}	0^{6}	1^{0}	0^{5}	0^{6}	0^{6}	1^{0}	0^{6}	1^{0}	0^{6}	1^{0}	1^{1}	1^{2}
H I M N	2^{0}	2^{1}	2^{2}	2^{4}	2^{0}	2^{1}	1^{4}	1^{5}	1^{6}	1^{7}	1^{6}	1^{7}	2^{0}	2^{1}	2^{0}	2^{1}
J U	2^{0}	2^{1}	2^{0}	2^{1}	1^{6}	1^{7}	1^{4}	1^{5}	1^{6}	1^{7}	1^{6}	1^{7}	1^{6}	1^{7}	2^{0}	2^{1}
K L	1^{1}	1^{2}	1^{6}	1^{7}	1^{1}	1^{2}	0^{5}	0^{6}	1^{1}	1^{2}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}
P	1^{2}	1^{4}	1^{4}	1^{5}	1^{2}	1^{4}	0^{5}	0^{6}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}	1^{2}	1^{4}
S	1^{2}	1^{4}	1^{6}	1^{7}	1^{2}	1^{4}	0^{6}	1^{0}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}
T	1^{1}	1^{2}	1^{6}	1^{7}	0^{6}	1^{0}	0^{6}	1^{0}	1^{1}	1^{2}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}
V	0^{6}	1^{0}	1^{4}	1^{5}	1^{1}	1^{2}	0^{6}	1^{0}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}
Y	0^{5}	0^{6}	1^{4}	1^{5}	0^{6}	1^{0}	0^{5}	0^{6}	0^{5}	0^{7}	0^{5}	0^{6}	0^{6}	1^{0}	1^{1}	1^{2}
Z	1^{6}	1^{7}	2^{2}	2^{4}	1^{6}	1^{7}	1^{2}	1^{4}	1^{6}	1^{7}	1^{6}	1^{7}	1^{6}	1^{7}	2^{0}	2^{1}

Lower Case To Lower Case
Spacing Chart 6 Inch Series "C & D"

FIRST LETTER	SECOND LETTER: a c d e g o q		b h i k l m n p r u		f w		j		s t		v y		x		z	
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
a d h g i j l m n q u	1^{6}	1^{7}	2^{2}	2^{4}	1^{6}	1^{7}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}	1^{6}	1^{7}	1^{6}	1^{7}
b f k o p s	1^{2}	1^{4}	1^{6}	1^{7}	1^{1}	1^{2}	0^{5}	0^{6}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}	1^{2}	1^{4}
c e	1^{2}	1^{4}	1^{6}	1^{7}	1^{2}	1^{4}	0^{6}	1^{0}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}	1^{2}	1^{4}
r	0^{6}	1^{0}	1^{2}	1^{4}	0^{6}	1^{0}	0^{3}	0^{3}	0^{5}	0^{6}	0^{5}	0^{6}	0^{6}	1^{0}	0^{6}	1^{0}
t z	1^{2}	1^{4}	1^{6}	1^{7}	1^{2}	1^{4}	0^{6}	1^{0}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}	1^{2}	1^{4}
v y	1^{1}	1^{2}	1^{4}	1^{5}	1^{1}	1^{2}	0^{5}	0^{6}	0^{6}	1^{0}	0^{6}	1^{0}	1^{1}	1^{2}	1^{1}	1^{2}
w	1^{1}	1^{2}	1^{4}	1^{5}	1^{1}	1^{2}	0^{5}	0^{6}	1^{1}	1^{2}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}
x	1^{2}	1^{4}	1^{6}	1^{7}	1^{1}	1^{2}	0^{5}	0^{6}	1^{1}	1^{2}	1^{1}	1^{2}	1^{1}	1^{2}	1^{2}	1^{4}

Number To Number
Spacing Chart 8 Inch Series "C & D"

FIRST NUMBER	SECOND NUMBER: 0		1		2		3		4		5		6		7		8		9	
SERIES	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D
0 9	1^{6}	1^{7}	1^{6}	1^{7}	1^{4}	1^{5}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}	1^{6}	1^{7}	1^{2}	1^{4}	1^{6}	1^{7}	1^{6}	1^{7}
1	2^{0}	2^{1}	2^{0}	2^{1}	2^{0}	2^{1}	1^{6}	1^{7}	1^{4}	1^{5}	2^{0}	2^{1}	2^{0}	2^{1}	1^{4}	1^{5}	2^{0}	2^{1}	2^{0}	2^{1}
2 3 4	1^{4}	1^{5}	1^{4}	1^{5}	1^{4}	1^{5}	1^{2}	1^{4}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}	1^{1}	1^{2}	1^{6}	1^{7}	1^{4}	1^{5}
5	1^{4}	1^{5}	1^{4}	1^{5}	1^{4}	1^{5}	1^{1}	1^{2}	1^{1}	1^{2}	1^{4}	1^{5}	1^{4}	1^{5}	1^{1}	1^{2}	1^{4}	1^{5}	1^{4}	1^{5}
6	1^{6}	1^{7}	1^{4}	1^{5}	1^{4}	1^{5}	1^{2}	1^{5}	1^{2}	1^{4}	1^{4}	1^{5}	1^{4}	1^{5}	1^{1}	1^{2}	1^{4}	1^{5}	1^{4}	1^{5}
7	1^{2}	1^{4}	1^{2}	1^{4}	1^{4}	1^{5}	1^{2}	1^{5}	0^{5}	0^{6}	1^{2}	1^{4}	1^{4}	1^{5}	1^{1}	1^{2}	1^{4}	1^{5}	1^{2}	1^{4}
8	1^{6}	1^{7}	1^{6}	1^{7}	1^{4}	1^{5}	1^{2}	1^{5}	1^{2}	1^{4}	1^{4}	1^{5}	1^{6}	1^{7}	1^{2}	1^{4}	1^{6}	1^{7}	1^{4}	1^{5}

EXAMPLE, $2^{(3}$ DENOTES $\frac{3''}{8}$

UPPER AND LOWER CASE LETTER WIDTHS

LETTERS	6 INCH UPPER CASE LETTERS SERIES C	D	8 INCH UPPER CASE LETTERS SERIES C	D	LETTERS	6 INCH LOWER CASE LETTERS SERIES C	D
A	3^{6}	5^{0}	5^{0}	6^{5}	a	3^{5}	4^{2}
B	3^{2}	4^{0}	4^{3}	5^{3}	b	3^{5}	4^{2}
C	3^{2}	4^{0}	4^{3}	5^{3}	c	3^{5}	4^{1}
D	3^{2}	4^{0}	4^{3}	5^{3}	d	3^{5}	4^{2}
E	3^{0}	3^{5}	4^{0}	4^{7}	e	3^{5}	4^{2}
F	3^{0}	3^{5}	4^{0}	4^{7}	f	2^{3}	2^{6}
G	3^{2}	4^{0}	4^{3}	5^{3}	g	3^{5}	4^{2}
H	3^{2}	4^{0}	4^{3}	5^{3}	h	3^{5}	4^{2}
I	0^{7}	0^{7}	1^{1}	1^{2}	i	1^{1}	1^{1}
J	3^{0}	3^{6}	4^{0}	5^{0}	j	2^{0}	2^{2}
K	3^{2}	4^{1}	4^{3}	5^{4}	k	3^{5}	4^{2}
L	3^{0}	3^{5}	4^{0}	4^{7}	l	1^{1}	1^{1}
M	3^{7}	4^{5}	5^{1}	6^{1}	m	6^{0}	7^{0}
N	3^{2}	4^{0}	4^{3}	5^{3}	n	3^{5}	4^{2}
O	3^{4}	4^{2}	4^{5}	5^{5}	o	3^{6}	4^{3}
P	3^{2}	4^{0}	4^{3}	5^{3}	p	3^{5}	4^{2}
Q	3^{4}	4^{2}	4^{5}	5^{5}	q	3^{5}	4^{2}
R	3^{2}	4^{0}	4^{3}	5^{3}	r	2^{6}	3^{2}
S	3^{2}	4^{0}	4^{3}	5^{3}	s	3^{6}	4^{2}
T	3^{0}	3^{5}	4^{0}	4^{7}	t	2^{7}	3^{2}
U	3^{2}	4^{0}	4^{3}	5^{3}	u	3^{5}	4^{2}
V	3^{5}	4^{4}	4^{7}	6^{0}	v	4^{2}	4^{7}
W	4^{4}	5^{2}	6^{0}	7^{0}	w	5^{5}	6^{4}
X	3^{4}	4^{0}	4^{5}	5^{3}	x	4^{4}	5^{1}
Y	3^{6}	5^{0}	5^{0}	6^{6}	y	4^{6}	5^{3}
Z	3^{2}	4^{0}	4^{3}	5^{3}	z	3^{6}	4^{3}

NUMBER	6 INCH SERIES C	D	8 INCH SERIES C	D
1	1^{2}	1^{4}	1^{5}	2^{0}
2	3^{2}	4^{0}	4^{3}	5^{3}
3	3^{2}	4^{0}	4^{3}	5^{3}
4	3^{5}	4^{3}	4^{7}	5^{7}
5	3^{2}	4^{0}	4^{3}	5^{3}
6	3^{2}	4^{0}	4^{3}	5^{3}
7	3^{2}	4^{0}	4^{3}	5^{3}
8	3^{2}	4^{0}	4^{3}	5^{3}
9	3^{2}	4^{0}	4^{3}	5^{3}
0	3^{4}	4^{2}	4^{5}	5^{5}

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		DRAWN - BCK	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

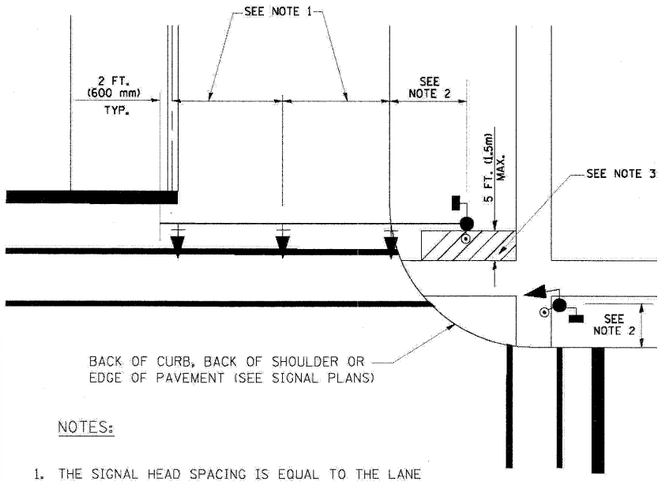
DISTRICT ONE
MAST ARM MOUNTED STREET NAME SIGNS

SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			440	204
	TS-02	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

TRAFFIC SIGNAL MAST ARM AND SIGNAL POST

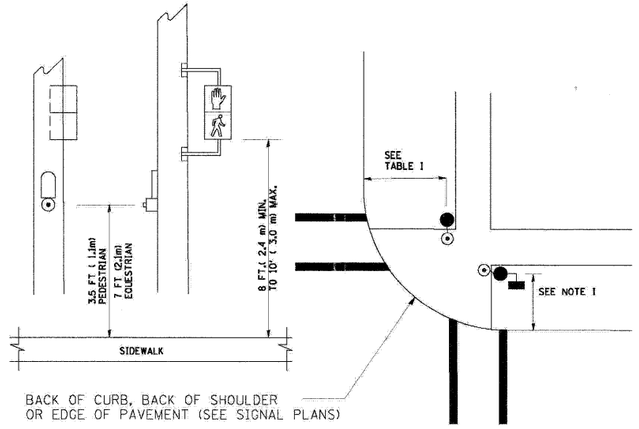
MAST ARM MOUNTED SIGNALS IN EXISTING, PROPOSED OR FUTURE SIDEWALK/BICYCLE PATH AREA. INTERSECTION SHOWN WITH PEDESTRIAN SIGNALS AND PEDESTRIAN PUSHBUTTON DETECTORS.



NOTES:

1. THE SIGNAL HEAD SPACING IS EQUAL TO THE LANE WIDTH OR AS SHOWN ON THE TRAFFIC SIGNAL PLAN.
2. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
3. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE MAST ARM SHAFT OR THE SIGNAL POST.
4. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
5. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES."

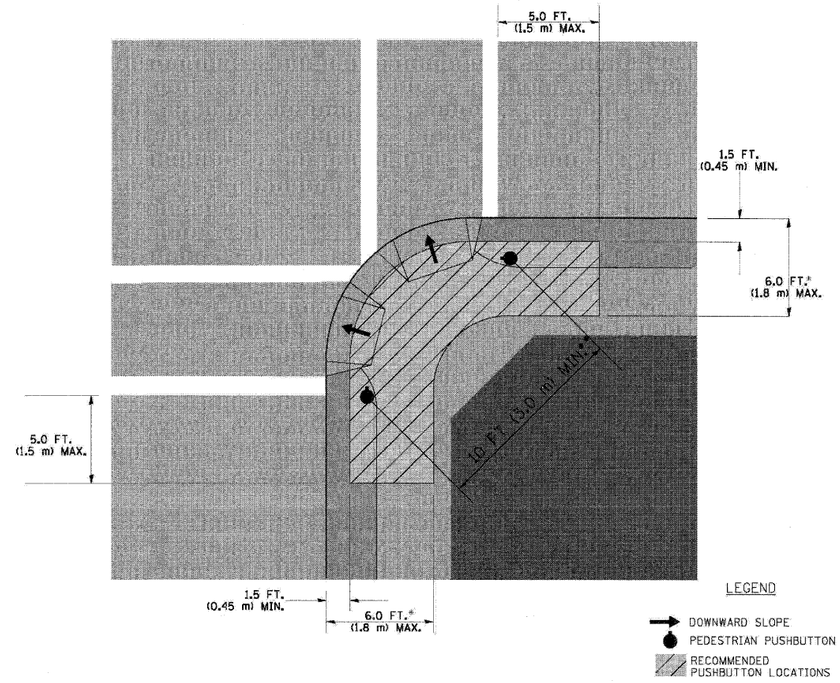
PEDESTRIAN SIGNAL POST AND PEDESTRIAN PUSH BUTTON POST



NOTES:

1. REFER TO THE TRAFFIC SIGNAL EQUIPMENT OFFSET TABLE.
2. PROVIDE A LEVEL ALL-WEATHER SURFACE (CONCRETE SIDEWALK, ASPHALT BICYCLE PATH SURFACE OR MATCHING MATERIAL TO THE ADJACENT SURFACE) UP TO THE PEDESTRIAN SIGNAL POST OR THE PEDESTRIAN PUSH BUTTON POST.
3. THE FACE OF THE PEDESTRIAN PUSHBUTTON SHALL BE PARALLEL TO THE CROSSWALK TO BE USED.
4. THE LOCATIONS AND INSTALLATION OF PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS SHALL MEET THE REQUIREMENTS OF THE MUTCD AND INFORMATION FOUND IN THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES."

RECOMMENDED PUSHBUTTON LOCATIONS



* WHERE THERE ARE CONSTRAINTS THAT MAKE IT IMPRACTICAL TO PLACE THE PEDESTRIAN PUSHBUTTON BETWEEN 1.5 FT (0.45 m) AND 6 FT (1.8 m) FROM THE EDGE OF THE CURB, SHOULDER, OR PAVEMENT, IT SHOULD NOT BE FURTHER THAN 10 FT (3 m) FROM THE EDGE OF CURB, SHOULDER, OR PAVEMENT.

** WHERE THERE ARE CONSTRAINTS ON A PARTICULAR CORNER THAT MAKE IT IMPRACTICAL TO PROVIDE THE 10 FT (3 m) SEPERATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.

NOTES:

1. PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH THE BOTTOM OF THE SIGNAL HOUSING INCLUDING BRACKETS NOT LESS THAN 8 FT (2.4 m) OR MORE THAN 10 FT (3 m) ABOVE SIDEWALK LEVEL, AND SHALL BE POSITIONED AND ADJUSTED TO PROVIDE MAXIMUM VISIBILITY AT THE BEGINNING OF THE CONTROLLED CROSSWALK.
2. THE BOTTOM OF THE SIGNAL HOUSING (INCLUDING BRACKETS) OF A VEHICULAR SIGNAL FACE THAT IS NOT LOCATED OVER A HIGHWAY SHALL BE AT LEAST 8 FT (2.4 m) BUT NOT MORE THAN 19 FT (5.8 m) ABOVE THE SIDEWALK OR, IF THERE IS NO SIDEWALK, ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY.
3. THE BOTTOM OF THE SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARDS 877001, 877002, 877006, 877011 AND 877012 WITH A MINIMUM OF 16 FT (5.0 m) AND A MAXIMUM OF 18 FT. (5.5 m) FROM THE HIGHEST POINT OF PAVEMENT.
4. THE BOTTOM OF THE TEMPORARY SPAN WIRE MOUNTED SIGNAL HOUSING AND ANY RELATED ATTACHMENTS TO A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL BE ACCORDING TO CURRENT STATE STANDARD 880001 WITH A MINIMUM OF 17 FT (5.18 m) FROM THE HIGHEST POINT OF PAVEMENT.
5. THE TOP OF THE SIGNAL HOUSING OF A SIGNAL FACE LOCATED OVER ANY PORTION OF A HIGHWAY SHALL NOT BE MORE THAN 25.6 FT (7.8 m) ABOVE THE PAVEMENT.

TRAFFIC SIGNAL EQUIPMENT OFFSET

TRAFFIC SIGNAL EQUIPMENT	COMBINATION CONCRETE CURB AND GUTTER (MINIMUM DISTANCE FROM BACK OF CURB TO CENTERLINE OF FOUNDATION)	SHOULDER/NON-CURBED AREA (MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO CENTERLINE OF FOUNDATION)
TRAFFIC SIGNAL MAST ARM POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TRAFFIC SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN SIGNAL POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
PEDESTRIAN PUSHBUTTON POST	4 FT (1.2m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
TEMPORARY WOOD POLE	6 FT (1.8m)	SHOULDER WIDTH + 2 FT (0.6m), MINIMUM 10 FT (3.0m)
CONTROLLER CABINET	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.
SERVICE INSTALLATION, GROUND MOUNT	6 FT (1.8m) MINIMUM DISTANCE SEE NOTE 2	SHOULDER WIDTH + 6 FT (1.8m), MINIMUM 16 FT (4.9m) SEE NOTE 3.

NOTES:

1. CONTACT THE "AREA TRAFFIC SIGNAL MAINTENANCE AND OPERATIONS ENGINEER" FOR ASSISTANCE IN LOCATING THE TRAFFIC SIGNAL EQUIPMENT WHEN THERE ARE CONFLICTS WITH DITCHES OR THE MINIMUM OFFSET DISTANCES CANNOT BE MET.
2. MINIMUM DISTANCE FROM THE BACK OF CURB TO THE ROADWAY SIDE OF THE FOUNDATION.
3. MINIMUM DISTANCE FROM THE EDGE OF PAVEMENT TO THE ROADWAY SIDE OF THE FOUNDATION.
4. ANY CHANGES TO THE OFFSETS OF THE FOUNDATIONS, FROM THE MINIMUM DISTANCES LISTED IN THE "TRAFFIC SIGNAL EQUIPMENT OFFSET" CHART AND THE TRAFFIC SIGNAL INSTALLATION PLAN, COULD EFFECT THE PLACEMENT OF THE SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS AND THE PEDESTRIAN PUSHBUTTONS. THE SIGNAL HEAD PLACEMENT ON THE MAST ARMS SHALL REMAIN AS PER THE TRAFFIC SIGNAL INSTALLATION PLAN AND THE "TRAFFIC SIGNAL MAST ARM AND SIGNAL POST" DETAIL ABOVE. THE PROPOSED MAST ARM LENGTHS MAY NEED TO BE REVISED TO MEET THE ABOVE REQUIREMENTS. THE PEDESTRIAN SIGNAL HEADS AND PEDESTRIAN PUSHBUTTONS MUST MEET THE REQUIREMENTS UNDER THE DETAILS ON THIS SHEET.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: NONE | SHEET NO. 2 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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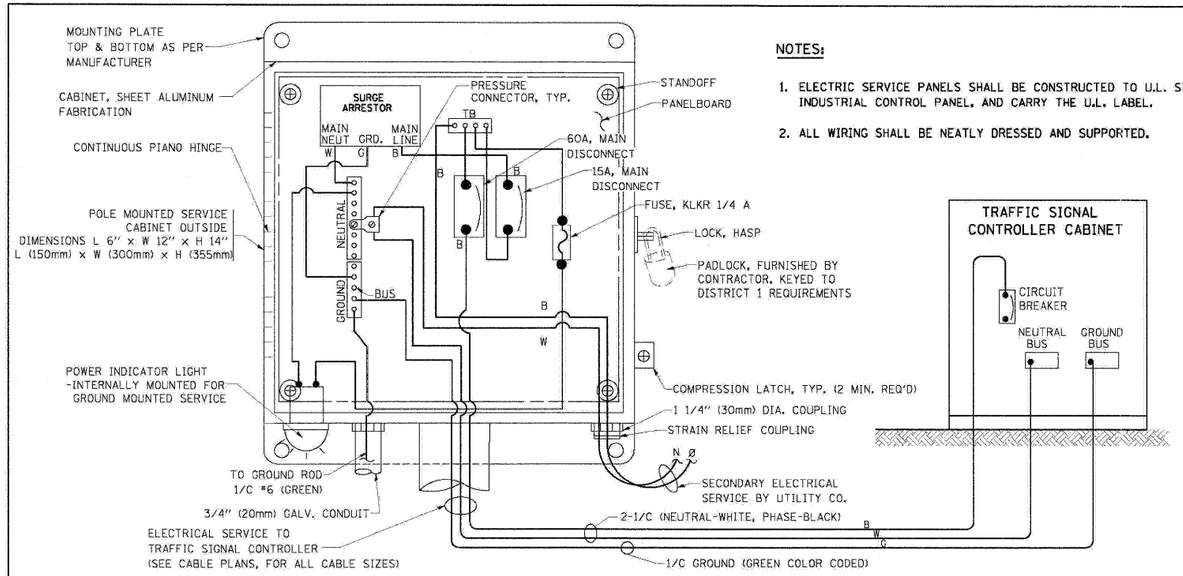
	TS-05	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



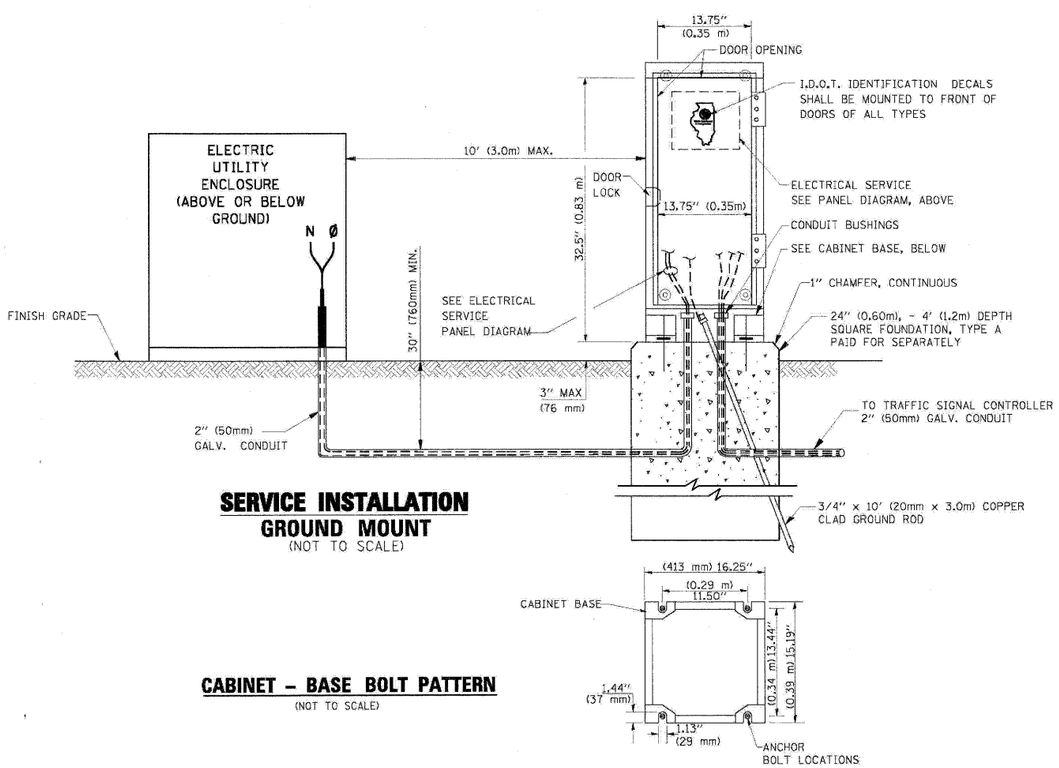
ELECTRICAL SERVICE – PANEL DIAGRAM (TYPICAL FOR POLE AND GROUND MOUNTED SERVICE)

SERVICE INSTALLATION POLE MOUNT (SHOWN)

(NOT TO SCALE)

NOTES:

1. ELECTRIC SERVICE PANELS SHALL BE CONSTRUCTED TO U.L. STD 508, INDUSTRIAL CONTROL PANEL, AND CARRY THE U.L. LABEL.
2. ALL WIRING SHALL BE NEATLY DRESSED AND SUPPORTED.

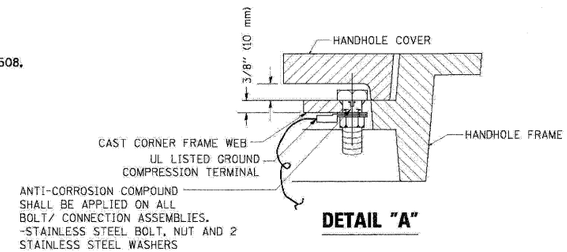


SERVICE INSTALLATION GROUND MOUNT

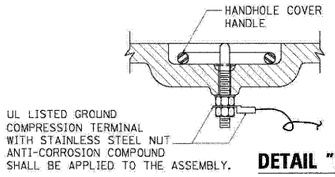
(NOT TO SCALE)

CABINET – BASE BOLT PATTERN

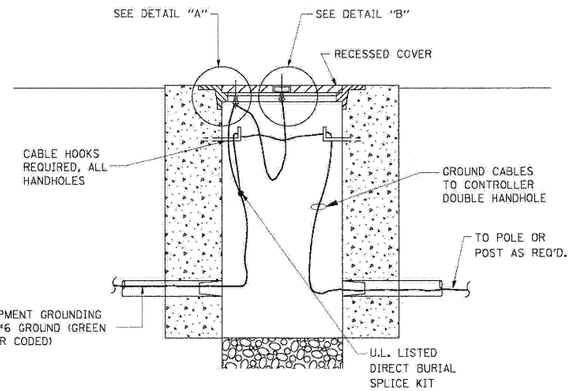
(NOT TO SCALE)



DETAIL "A"

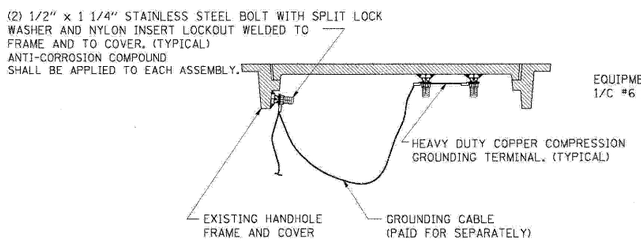


DETAIL "B"



HANDHOLE COVER & FRAME – GROUNDING DETAIL

(NOT TO SCALE)



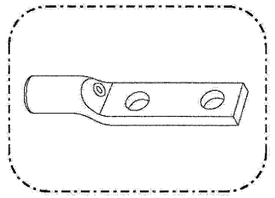
EXISTING HANDHOLE COVER & FRAME – GROUNDING DETAIL

(NOT TO SCALE)

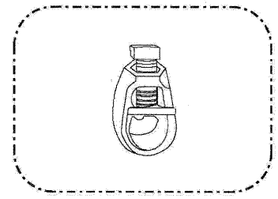
NOTES:

GROUNDING SYSTEM

1. THE GROUNDING SYSTEM SHALL CONSIST OF AN INSULATED CONDUCTOR TYPE XLP, NO. 6 A.W.G., STRANDED COPPER TO BE INSTALLED IN RACEWAYS. THE GROUNDING CABLE SHALL BE INSTALLED IN A CONTINUOUS MANNER AS SHOWN ON THE CABLE PLAN PROVIDED. ALL GROUNDING CONDUCTORS SHALL BE BONDED TO METAL ENCLOSURE (HANDHOLE, POST, MAST ARM, CONTROLLER, ETC.). GROUND ROD SHALL BE 3/4" DIA. x 10'-0" (20mm x 3.0m) LONG, COPPER CLAD. ONE GROUND ROD SHALL BE INSTALLED AT ALL POST FOUNDATIONS, POLE FOUNDATIONS, CONTROLLER CABINET FOUNDATION AND ELECTRICAL SERVICE INSTALLATION AS INDICATED ON THE CABLE PLAN. IF THERE ARE ANY SPECIAL CONDITIONS SUCH AS SUB-SURFACE CONDITIONS OR INSTALLATION PROBLEMS, THE RESIDENT ENGINEER SHALL BE NOTIFIED OR CONTACT THE BUREAU OF TRAFFIC, ILLINOIS DEPARTMENT OF TRANSPORTATION DISTRICT ONE AT (847) 705-4139.
2. THE NEUTRAL CONDUCTOR AND THE GROUND CONDUCTOR SHALL BE CONNECTED IN THE SERVICE INSTALLATION. AT NO OTHER POINT IN THE TRAFFIC SIGNAL SYSTEM SHALL THE NEUTRAL AND GROUND CONDUCTORS BE CONNECTED.
3. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL TERMINATE AT THE GROUND BUS IN THE CONTROLLER CABINET.
4. THE CONTRACTOR SHALL PROVIDE A GROUND CABLE WITH CONNECTORS BETWEEN THE HANDHOLE COVER AND HANDHOLE FRAME.



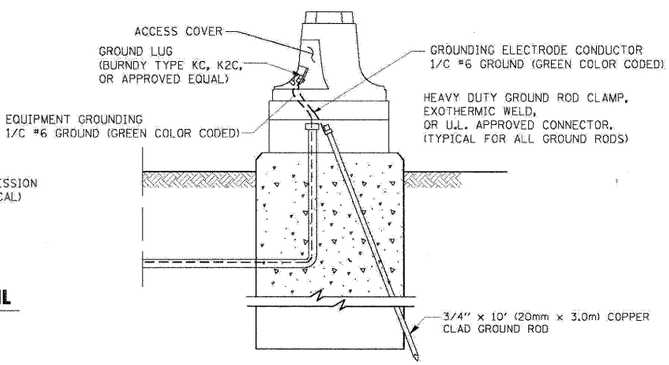
HEAVY-DUTY COMPRESSION TERMINAL (BURNDY TYPE YGHA OR APPROVED EQUAL)



¾" (20mm) HEAVY-DUTY GROUND ROD CLAMP (BURNDY TYPE GRC OR APPROVED EQUAL)

NOTES:

- ALL CLAMPS SHALL BE BRONZE OR COPPER, UL APPROVED.
- GROUND CABLE SHALL BE LOOPED OVER HOOKS IN THE HANDHOLES 6.5' (2.0m) SLACK SHALL BE PROVIDED IN SINGLE HANDHOLES 13' (4.0m) OF SLACK SHALL BE PROVIDED IN DOUBLE HANDHOLES. 5' (1.4m) OF SLACK SHALL BE PROVIDED BETWEEN FRAME AND COVER.



MAST ARM POLE / POST–GROUNDING DETAIL

(NOT TO SCALE)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: NONE | SHEET NO. 3 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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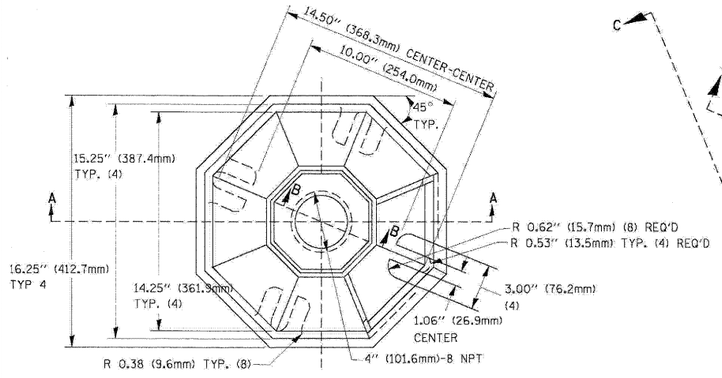
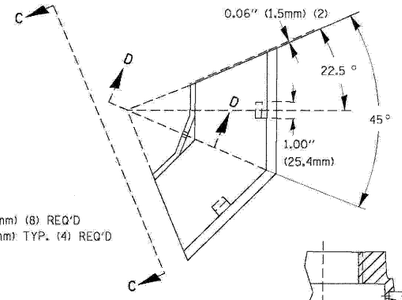
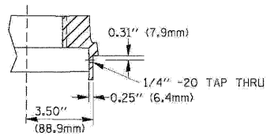
	TS-05	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



TOP VIEW





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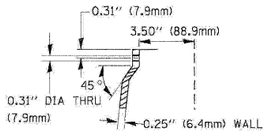

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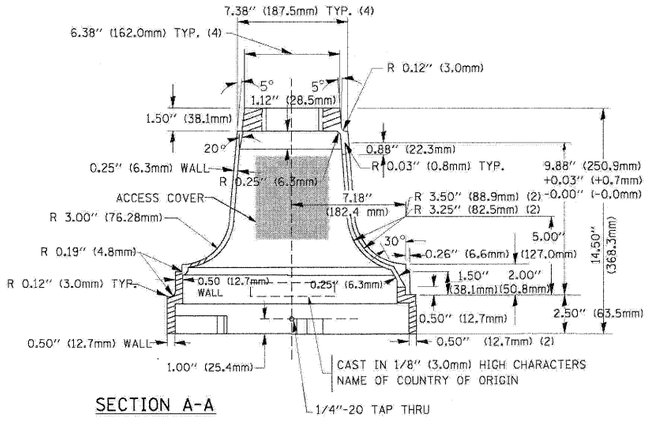
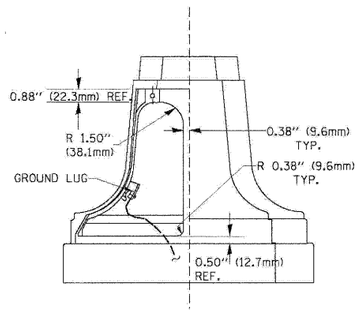
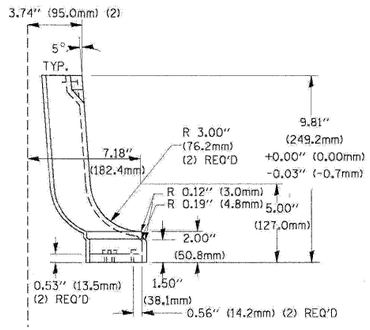


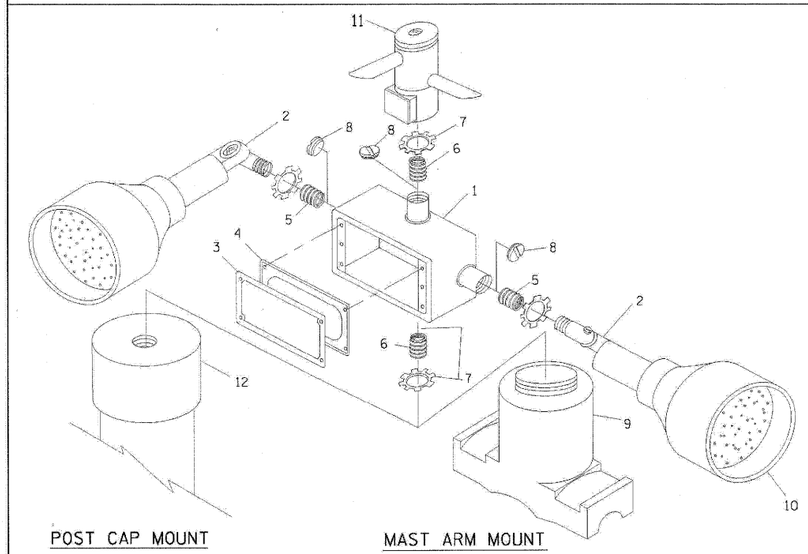
SECTION A-A



VIEW C-C



TRAFFIC SIGNAL POST - MOUNTING BASE - TYPE A



POST CAP MOUNT

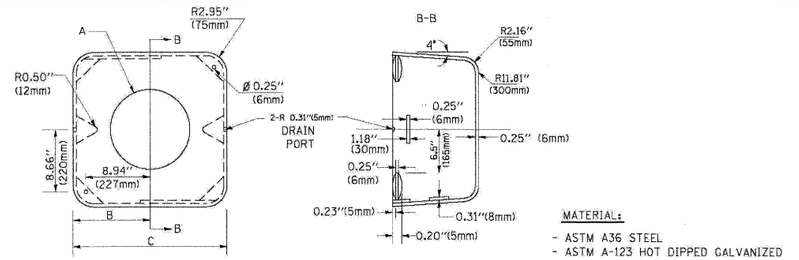
MAST ARM MOUNT

EMERGENCY VEHICLE DETECTOR WITH CONFIRMATION BEACON MOUNTING DETAIL

ITEM NO.	IDENTIFICATION
1	OUTLET BOX- GALV. 21 CU.IN. (0.000344 CU-M)
2	LAMP HOLDER AND COVER
3	OUTLET BOX COVER
4	RUBBER COVER GASKET
5	REDUCING BUSHING
6	¾"(19 mm) CLOSE NIPPLE
7	¾"(19 mm) LOCKNUT
8	¾"(19 mm) HOLE PLUG
9	SADDLE BRACKET - GALV.
10	6 WATT PAR 38 LED FLOOD LAMP
11	DETECTOR UNIT
12	POST CAP [18 FT. (5.4 m) POST MIN.]

NOTES:

1. ALL ELECTRICAL ITEMS, EXCEPT ITEMS #2 AND #11 SHALL BE ALUMINUM OR GALVANIZED
2. ITEM #1- OZ/GEDNEY FSX-1-50 OR EQUIVALENT
   ITEM #2- MULBERRY CON-O-SHADE LAMP SHIELD OR EQUIVALENT
   ITEM #9- "BAND-IT" SADDLE BRACKET OR EQUIVALENT
3. WHEN POST MOUNTING IS SPECIFIED, ITEM #9 SHALL NOT BE REQUIRED. THE DETECTION UNIT SHALL BE MOUNTED DIRECTLY ON TOP OF THE CAP BY DRILLING AND TAPPING A ¾"(19 mm) HOLE WITH PIPE THREADS. THE POST CAP SHALL EITHER BE SCREWED TO THE TOP OF THE POST OR A MINIMUM OF 3 TIGHTENING SCREWS SHALL BE REQUIRED ON EACH CAP.



MATERIAL:
- ASTM A36 STEEL
- ASTM A-123 HOT DIPPED GALVANIZED

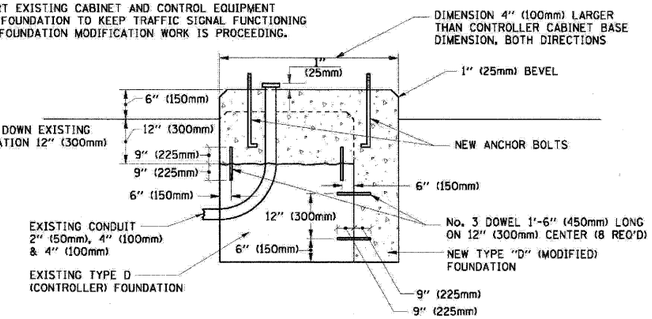
A	B	C	HEIGHT	WEIGHT
VARIES	9.5"(241mm)	19"(483mm)	7" (178mm) - 12" (300mm)	53 lbs (24kg)
VARIES	10.75"(273mm)	21.5"(546mm)	7" (178mm) - 12" (300mm)	68 lbs (31 kg)
VARIES	13.0"(330mm)	26"(660mm)	7" (178mm) - 12" (300mm)	81 lbs (37 kg)
VARIES	18.5"(470mm)	37"(940mm)	7" (178mm) - 12" (300mm)	126 lbs (57 kg)

SHROUD

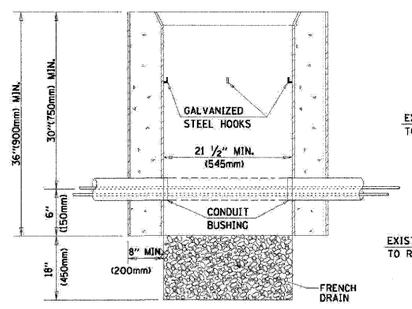
NOTES:

1. DIMENSION "A" IS EQUAL TO THE DIAMETER OF THE MAST ARM POLE AT THE TOP OF THE SHROUD. THE SHROUD SHALL BE TIGHT TO THE MAST ARM POLE.
2. THE SUPPLIER SHALL VERIFIED THE ABOVE DIMENSIONS BASED ON MAST ARM REQUIREMENTS.
3. THE HEIGHT OF THE SHROUD SHALL COVER THE ANCHOR BOLTS, NUTS AND MAST ARM POLE BASE.

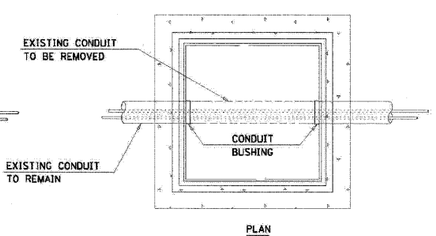
NOTE:
SUPPORT EXISTING CABINET AND CONTROL EQUIPMENT ABOVE FOUNDATION TO KEEP TRAFFIC SIGNAL FUNCTIONING WHILE FOUNDATION MODIFICATION WORK IS PROCEEDING.



MODIFY EXISTING TYPE "D" FOUNDATION



ELEVATION



PLAN

NOTES:

1. HANDHOLE CONSTRUCTED PER STATE STANDARD 814001.
2. REMOVAL OF THE EXISTING CONDUIT FROM THE HANDHOLE AND THE INSTALLATION OF THE CONDUIT BUSHINGS SHALL BE INCIDENTAL TO THE HANDHOLE.

HANDHOLE TO INTERCEPT EXISTING CONDUIT

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: NONE | SHEET NO. 4 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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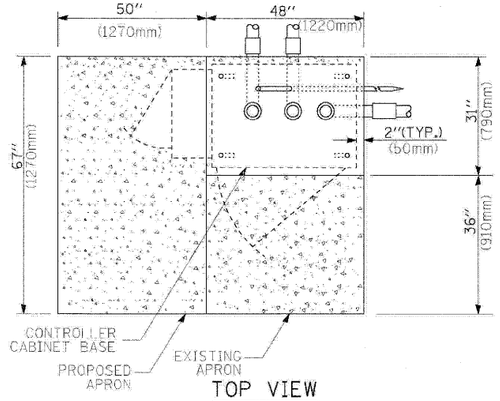
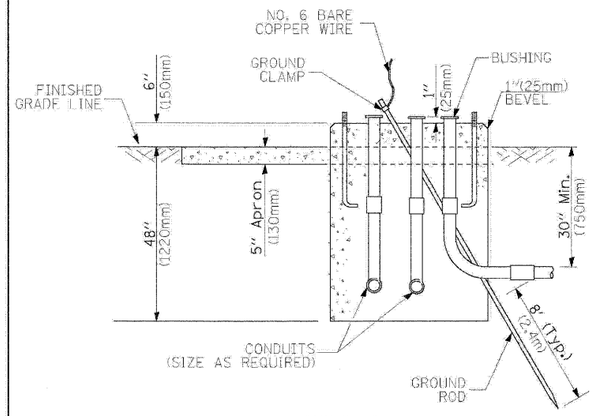
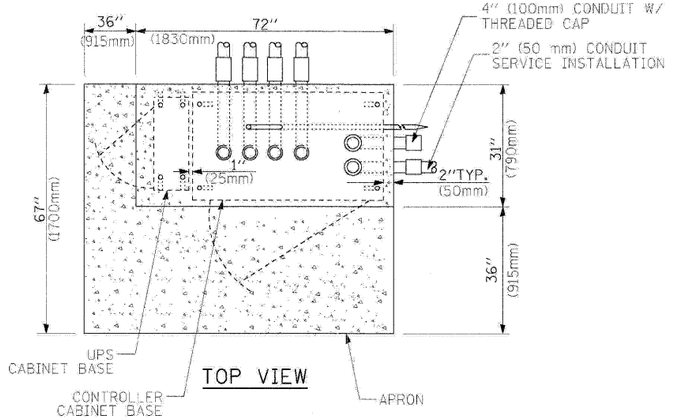
	TS-05	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



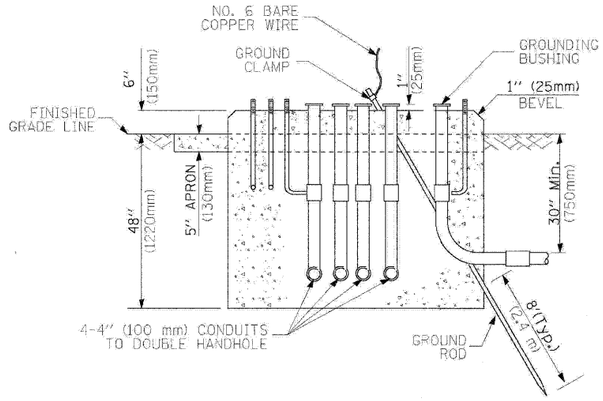
TOP VIEW



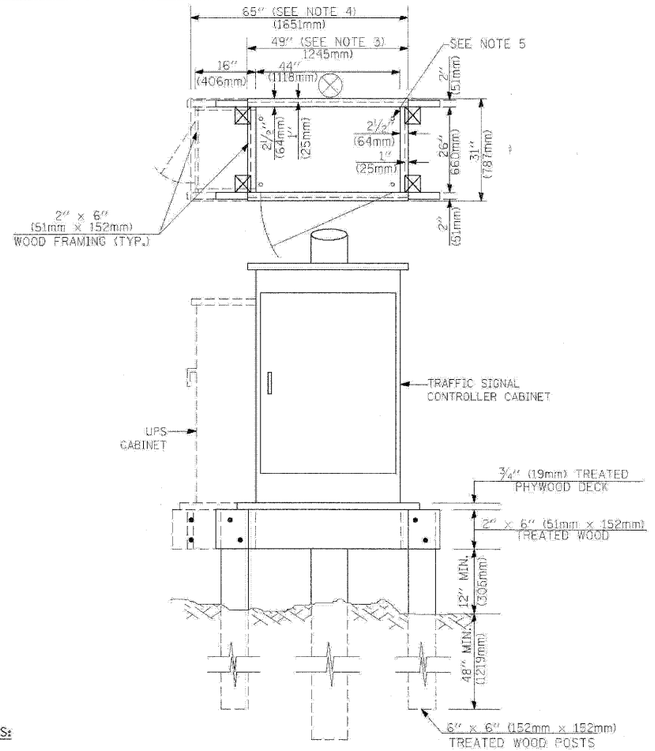
TYPE D
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



TOP VIEW



TYPE C
FOR GROUND MOUNTED
CONTROLLER CABINET
AND UPS BATTERY CABINET



NOTES:

1. BASED ON CONTROLLER CABINET TYPE IV WITH BASE DIMENSIONS OF 26" x 44" (660mm x 1118mm). ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED.
2. BASED ON UNINTERRUPTIBLE POWER SUPPLY CABINET WITH BASE DIMENSIONS OF 16" x 25" (406mm x 635mm). ADJUST PLATFORM SIZE TO FIT CABINET BASE DIMENSIONS BEING SUPPLIED.
3. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV.
4. PLATFORM SIZE FOR CONTROLLER CABINET TYPE IV AND UNINTERRUPTIBLE POWER SUPPLY CABINET.
5. DRILLED HOLES THROUGH THE PLATFORM BASE TO MATCH THE CONTROLLER CABINET BOLT TEMPLATE. FASTEN THE CONTROLLER CABINET TO THE PLATFORM WITH CARRIAGE BOLTS, WASHERS AND NUTS.
6. FASTEN ALL SUPPORT WOOD FRAMING TO THE WOOD POSTS WITH 2 LAG SCREWS FOR EACH CONNECTION.

TEMPORARY SIGNAL CONTROLLER
WOOD SUPPORT PLATFORM

CABLE SLACK LENGTH	FEET	METER
HANDHOLE	6.5	2.0
DOUBLE HANDHOLE	13.0	4.0
SIGNAL POST	2.0	0.6
MAST ARM	2.0	0.6
CONTROLLER CABINET	1.5	0.5
FIBER OPTIC AT CABINET	13.0	4.0
ELECTRIC SERVICE AT (CABINET OR SERVICE LOCATION)	1.5	0.5
GROUND CABLE (SIGNAL POST, MAST ARM, CABINET)	1.5	0.5
GROUND CABLE (BETWEEN FRAME AND COVER)	5.0	1.6

CABLE SLACK

VERTICAL CABLE LENGTH	FEET	METER
MAST ARM POLE (MAST ARM MOUNTED SIGNAL HEAD) (L = MAST ARM LENGTH - DISTANCE TO SIGNAL HEAD FROM END OF ARM)	20.0+L	6.0+L
BRACKET MOUNTED (MAST ARM POLE OR SIGNAL POLE)	13.0	4.0
PEDESTRIAN PUSH BUTTON	6.0	2.0
SERVICE INSTALLATION POLE MOUNT TO SERVICE DROP	13.5	4.1
SERVICE INSTALLATION POLE MOUNT TO GROUND	13.5	4.1
SERVICE INSTALLATION GROUND MOUNT	6.0	2.0
FOUNDATION (SIGNAL POST, MAST ARM POLE, CONTROLLER CABINET, SERVICE-GROUND MOUNT)	3.0	1.0

VERTICAL CABLE LENGTH

FOUNDATION	DEPTH
TYPE A - Signal Post	4'-0" (1.2m)
TYPE C - CONTROLLER W/ UPS	4'-0" (1.2m)
TYPE D - CONTROLLER	4'-0" (1.2m)
SERVICE INSTALLATION, GROUND MOUNT, TYPE A - SQUARE	4'-0" (1.2m)

DEPTH OF FOUNDATION

Mast Arm Length	① Foundation Depth	Foundation Diameter	Spiral Diameter	Quantity of Rebars	Size of Rebars
Less than 30' (9.1 m)	10'-0" (3.0 m)	30" (750mm)	24" (600mm)	8	6(19)
Greater than or equal to 30' (9.1 m) and less than 40' (12.2 m)	13'-6" (4.1 m)	30" (750mm)	24" (600mm)	8	6(19)
	11'-0" (3.4 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 40' (12.2 m) and less than 50' (15.2 m)	13'-0" (4.0 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 50' (15.2 m) and up to 55' (16.8 m)	15'-0" (4.6 m)	36" (900mm)	30" (750mm)	12	7(22)
Greater than or equal to 56' (16.8 m) and less than 65' (19.8 m)	21'-0" (6.4 m)	42" (1060mm)	36" (900mm)	16	8(25)
Greater than or equal to 65' (19.8 m) and up to 75' (22.9 m)	25'-0" (7.6 m)	42" (1060mm)	36" (900mm)	16	8(25)

NOTES:

1. These foundation depths are for sites which have cohesive soils (clayey silt, sandy clay, etc.) along the length of the shaft, with an average Unconfined Compressive Strength (Qu) > 1.0 tsf (100 kpa). This strength shall be verified by boring data prior to construction or with testing by the Engineer during foundation drilling. The Bureau of Bridges & Structures should be contacted for a revised design if other conditions are encountered.
2. Combination mast arm assemblies under 55 feet (16.8 m) shall use 36" (900 mm) diameter foundations.
3. Combination mast arm assemblies under 56 feet (16.8 m) through 75 feet (22.9 m) shall use 42" (1060 mm) diameter foundations.
4. For mast arm assemblies with dual arms refer to state standard 878001.

DEPTH OF MAST ARM FOUNDATIONS, TYPE E

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	PLOT DATE = 11/4/2009	DATE - 10-28-09	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
STANDARD TRAFFIC SIGNAL DESIGN DETAILS

SCALE: NONE | SHEET NO. 5 OF 6 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	208
	TS-05	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

INDEX OF DRAWINGS

GENERAL ELECTRICAL NOTES

1. ELECTRICAL WORK MUST CONFORM TO THE LATEST NATIONAL, STATE, AND LOCAL CODES.
2. CONTRACTOR WILL FIELD VERIFY EXACT LOCATIONS, QUANTITIES, AND TYPE OF UTILITIES IN AREAS TO BE EXCAVATED PRIOR TO COMMENCEMENT OF ANY WORK AND WILL HAND EXCAVATE AS REQUIRED IN ORDER TO NOT INTERRUPT ANY EXISTING SERVICES. IF IN PERFORMING WORK DAMAGE TO EXISTING UTILITIES (PUBLIC OR PRIVATE) OCCURS, CONTRACTOR WILL NOTIFY UTILITY IMMEDIATELY AND PAY ANY COST INCURRED FOR REPAIR OR REPLACEMENT OF SUCH DAMAGE.
3. ELECTRICAL EQUIPMENT, RACEWAY, ETC. ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. CONTRACTOR WILL INSTALL ELECTRICAL EQUIPMENT, RACEWAYS, ETC. WHERE DIRECTED BY THE ENGINEER IN ORDER TO BEST SUIT JOB CONDITIONS.
4. CONDUIT MUST BE PUSHED UNDER ROADWAYS, DRIVEWAYS AND SIDEWALKS AS DIRECTED BY THE ENGINEER. CONDUIT MUST BE PUSHED PAST TREES IF THE ENGINEER DETERMINES THAT TRENCHING MAY HARM THE TRESS. ALL OTHER CONDUIT MAY BE INSTALLED BY ANY METHOD APPROVED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE CONTRACT.
5. THE CONTRACTOR SHALL CONTACT THE CITY OF ST. CHARLES PUBLIC WORKS AND ELECTRICAL UTILITY DEPARTMENTS AT LEAST 5 WORKING DAYS PRIOR TO COMMENCING ANY WORK.
6. ALL POLE BASES SHALL BE FRANGIBLE WITH AASHTO AND FHWA BREAKAWAY COUPLINGS WITH ALUMINUM SKIRTS. POLE BASE REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 1070.04 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
7. ALL ELECTRICAL WORK PERFORMED AND INSTALLED ON STATE RIGHT-OF-WAY SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION, DISTRICT 1, GENERAL GUIDELINES FOR LIGHTING DESIGN.
8. THE CONTRACTOR SHALL COORDINATE ALL ELECTRIC SERVICE

CONSTRUCTION NOTES

1. ALL UNDERGROUND CONDUIT SHALL BE A MINIMUM 30 INCHES BELOW GRADE TO TOP OF DUCT.
2. ALL CONDUIT CROSSING DRIVEWAYS OR ROADWAYS WILL BE RIGID GALVANIZED STEEL. ALL OTHER CONDUIT SHALL BE EPC-40 PVC.
3. THE GROUND CONDUCTOR WILL HAVE NO SPLICE OR KINKS BELOW GRADE. IT SHALL BE SOLIDLY CONNECTED TO THE GROUNDING LUG OF EACH POLE AND TO THE GROUND ROD AT THE SERVICE INSTALLATION.
4. ALL GROUND CONDUCTOR CONNECTIONS TO GROUND RODS SHALL BE MADE WITH AN EXOTHERMIC WELD.
5. ALL POLES, AESTHETIC LIGHTING UNITS, AND THE STREET LIGHT CONTROLLERS WILL BE CONNECTED TO A CONTINUOS GROUND CONSISTING OF A GREEN INSULATED ELECTRICAL CONDUCTOR 600V. XLP (SIZE AS INDICATED ON THE PLANS). THIS CONDUCTOR WILL BE PLACED INSIDE THE CONDUIT DUCT ALONG WITH THE INSULATED CABLES.
6. SUFFICIENT LENGTH OF ELECTRICAL CONDUCTOR WILL BE COILED IN LIGHT STANDARDS TO PROVIDED ADEQUATE SLACK SO THAT ELECTRICAL CONDUCTOR MAY BE PULLED OUT 18" FOR INSPECTION. SAID SLACK WILL BE NEATLY COILED AND PLACED IN THE LIGHT STANDARD.
7. ALL CIRCUITS WILL BE 2-1/C #6 AND 1-1/C #8 GROUND (GREEN) INSULATED IN 2" PVC CONDUIT, UNLESS OTHERWISE NOTED.
8. ALL POLE STANDARD STATIONS AND OFFSETS SHOWN ARE FROM THE ROADWAY CENTER LINES.
9. ALL OF THE LUMINAIRES FOR THE PROPOSED LIGHTING SHALL BE INSTALLED AT A MOUNTING HEIGHT OF 47'-6".
10. ALL LIGHT POLES SHALL HAVE A MINIMUM SET BACK OF 3 FT BEHIND THE FRONT FACE OF BARRIER CURB AND 13 FT BEHIND THE EDGE OF PAVEMENT WITHOUT BARRIER CURB.
11. ALL LUMINAIRES ARE 250 WATT, 240 VOLT, M-C-III, HIGH PRESSURE SODIUM UNLESS OTHERWISE NOTED ON THE PLANS.

LEGEND

- UTILITY TRANSFORMER, PAD MOUNTED, 120/240V SINGLE PHASE
- LIGHTING CONTROLLER, BASE MOUNTED, SINGLE DOOR, 120/240 VOLT, 1-PHASE, 100 AMP
- LIGHT POLE, ALUMINUM, 47.5 FT MOUNTING HEIGHT, WITH 15 FT DAVIT ARM WITH 250 WATT, 240VOLT, M-C-III, HPS LUMINAIRE. FOUNDATION PER IDOT HIGHWAY STANDARD 836001-01.
- 2-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- 3-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- 4-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- GROUND ROD, 5/8 INCH DIAMETER X 10' LONG

IDOT DISTRICT I DETAILS

BE-215	LIGHTING CONTROLLER SINGLE DOOR
BE-220	ELECTRIC SERVICE INSTALLATION AERIAL, REMOTE DISCONNECT
BE-301	LIGHT POLE FOUNDATION, CONCRETE, >=35 FT. M.H. (15" B.C.)
BE-410	LIGHT POLE, ALUMINUM, DAVIT TYPE, 47.5 FT. M.H.
BE-701	LUMINAIRE SAFETY CABLE ASSEMBLY
BE-702	MISCELLANEOUS DETAILS, SHEET A - CABLE SPLICE, POLE WIRING, TRENCH DETAIL
BE-703	MISCELLANEOUS DETAILS, SHEET B - J BOX EMBEDDED IN BARRIER WALL - INSTALLATION OF CONDUIT IN BRIDGE PARAPET EXPANSION JOINT - ELECTRIC CONNECTION TO UNDERPASS LIGHTING

GEOFFREY H. THIES
062-060445
LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

EXPIRATION DATE 11-30-11
DATE 10-21-2011
FOR SHEETS 209-218

SHEET L-1

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ST. CHARLES

CITY OF ST. CHARLES

INDEX, GENERAL ELECTRICAL AND CONSTRUCTION NOTES

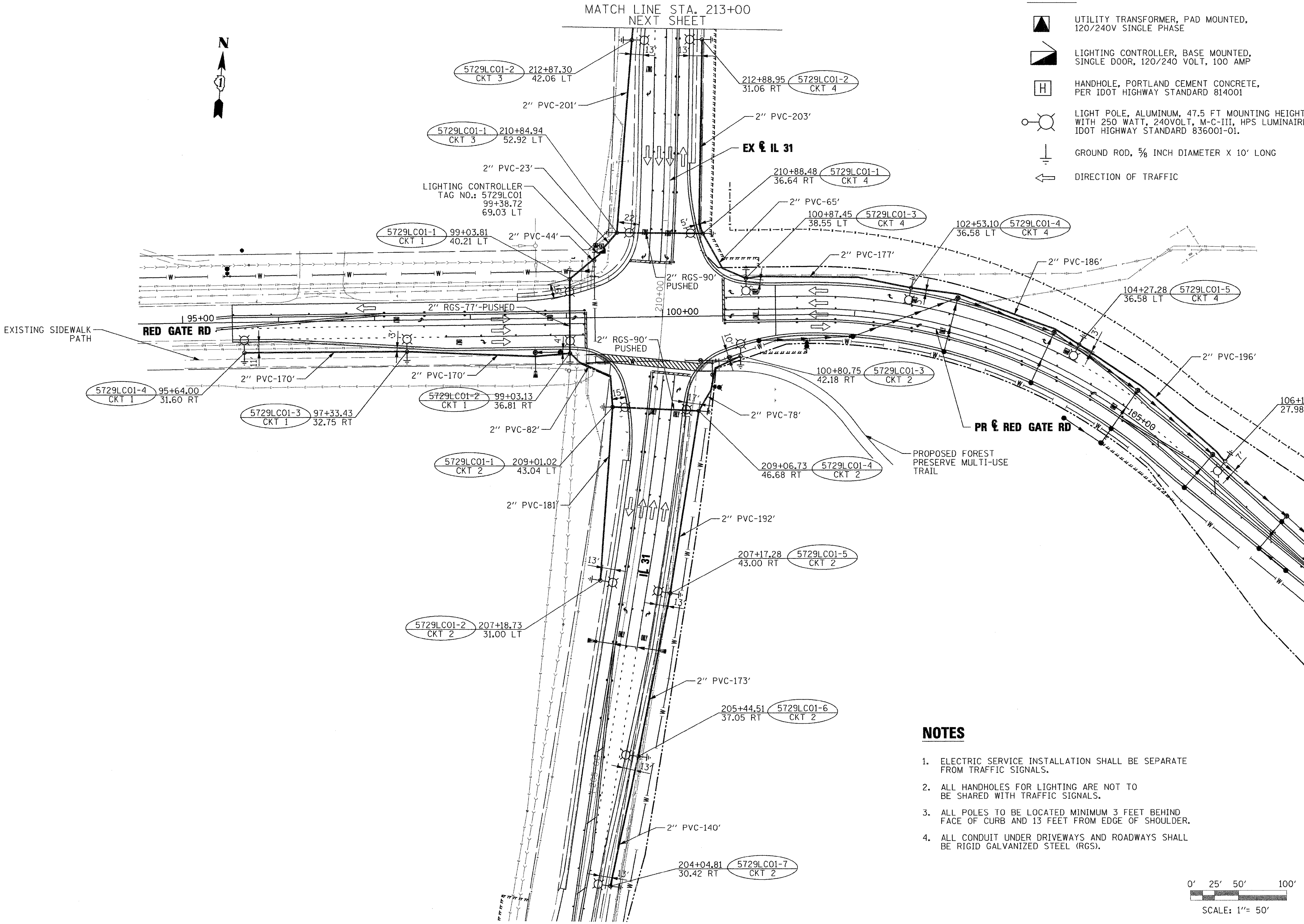
SCALE: | SHEET NO. 1 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	209
		CONTRACT NO. 63650		
		ILLINOIS FED. AID PROJECT		

SUMMARY OF QUANTITIES

CODE NUMBER	ITEM	UNIT	TOTAL QUANTITIES
81028200	UNDERGROUND CONDUIT, GALVANIZED STEEL, 2" DIA.	FOOT	411
81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	2709
81100605	CONDUIT ATTACHED TO STRUCTURE, 2" DIA., PVC COATED GALVANIZED STEEL	FOOT	1,207
81200210	CONDUIT EMBEDDED IN STRUCTURE, 1" DIA., PVC	FOOT	322
81200230	CONDUIT EMBEDDED IN STRUCTURE, 2" DIA., PVC	FOOT	240
81300420	JUNCTION BOX, STAINLESS STEEL, ATTACHED TO STRUCTURE, 10" X 8" X 6"	EACH	19
81702120	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 8	FOOT	5,587
81702130	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 6	FOOT	11,857
81702150	ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 1/C NO. 2	FOOT	129
82102250	LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 250 WATT	EACH	21
82500350	LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100 AMP	EACH	2
83050825	LIGHT POLE, ALUMINUM, 47.5 FT M.H., 15 FT DAVIT ARM	EACH	21
83600200	LIGHT POLE FOUNDATION, 24" DIAMETER	FOOT	147
X0325923	CONDUIT, FLEXIBLE NON-METALLIC, WEATHERPROOF, 1" DIAMETER	FOOT	42
X0326962	TRANSFORMER PLATFORM	SQ YD	1.5
	BRIDGE PYLON FACE LIGHT	EACH	22

SHEET L-2



LEGEND

- UTILITY TRANSFORMER, PAD MOUNTED, 120/240V SINGLE PHASE
- LIGHTING CONTROLLER, BASE MOUNTED, SINGLE DOOR, 120/240 VOLT, 100 AMP
- H — HANDHOLE, PORTLAND CEMENT CONCRETE, PER IDOT HIGHWAY STANDARD 814001
- LIGHT POLE, ALUMINUM, 47.5 FT MOUNTING HEIGHT, WITH 15 FT DAVIT ARM WITH 250 WATT, 240VOLT, M-C-III, HPS LUMINAIRE. FOUNDATION PER IDOT HIGHWAY STANDARD 836001-01.
- GROUND ROD, 5/8 INCH DIAMETER X 10' LONG
- DIRECTION OF TRAFFIC

NOTES

1. ELECTRIC SERVICE INSTALLATION SHALL BE SEPARATE FROM TRAFFIC SIGNALS.
2. ALL HANDHOLES FOR LIGHTING ARE NOT TO BE SHARED WITH TRAFFIC SIGNALS.
3. ALL POLES TO BE LOCATED MINIMUM 3 FEET BEHIND FACE OF CURB AND 13 FEET FROM EDGE OF SHOULDER.
4. ALL CONDUIT UNDER DRIVEWAYS AND ROADWAYS SHALL BE RIGID GALVANIZED STEEL (RGS).

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SCALE: 1"= 50'

SHEET L-3

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	DATE - 10/23/2011	REVISED -	

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CITY OF ST. CHARLES

PROPOSED LIGHTING AND CONDUIT PLAN
IL RTE 31 & RED GATE ROAD

SCALE: | SHEET NO. 3 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	211
		CONTRACT NO. 63650		
		ILLINOIS FED. AID PROJECT		

LEGEND

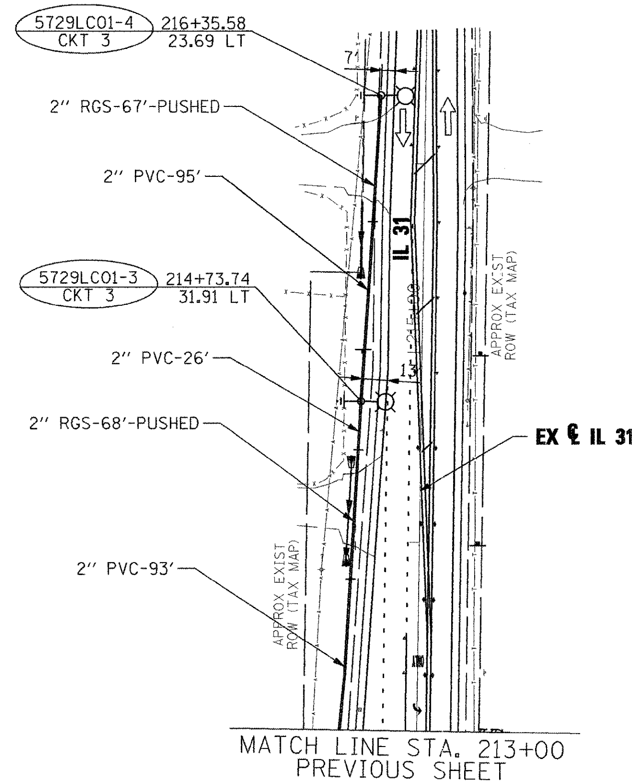
LIGHT POLE, ALUMINUM, 47.5 FT MOUNTING HEIGHT, WITH 15 FT DAVIT ARM WITH 250 WATT, 240VOLT, M-C-III, HPS LUMINAIRE. FOUNDATION PER IDOT HIGHWAY STANDARD 836001-01.

GROUND ROD, 5/8 INCH DIAMETER X 10' LONG

DIRECTION OF TRAFFIC

NOTES

1. ALL POLES TO BE LOCATED MINIMUM 3 FEET BEHIND FACE OF CURB AND 13 FEET FROM EDGE OF SHOULDER.
2. ALL CONDUIT UNDER DRIVEWAYS AND ROADWAYS SHALL BE RIGID GALVANIZED STEEL (RGS).



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CITY OF ST. CHARLES

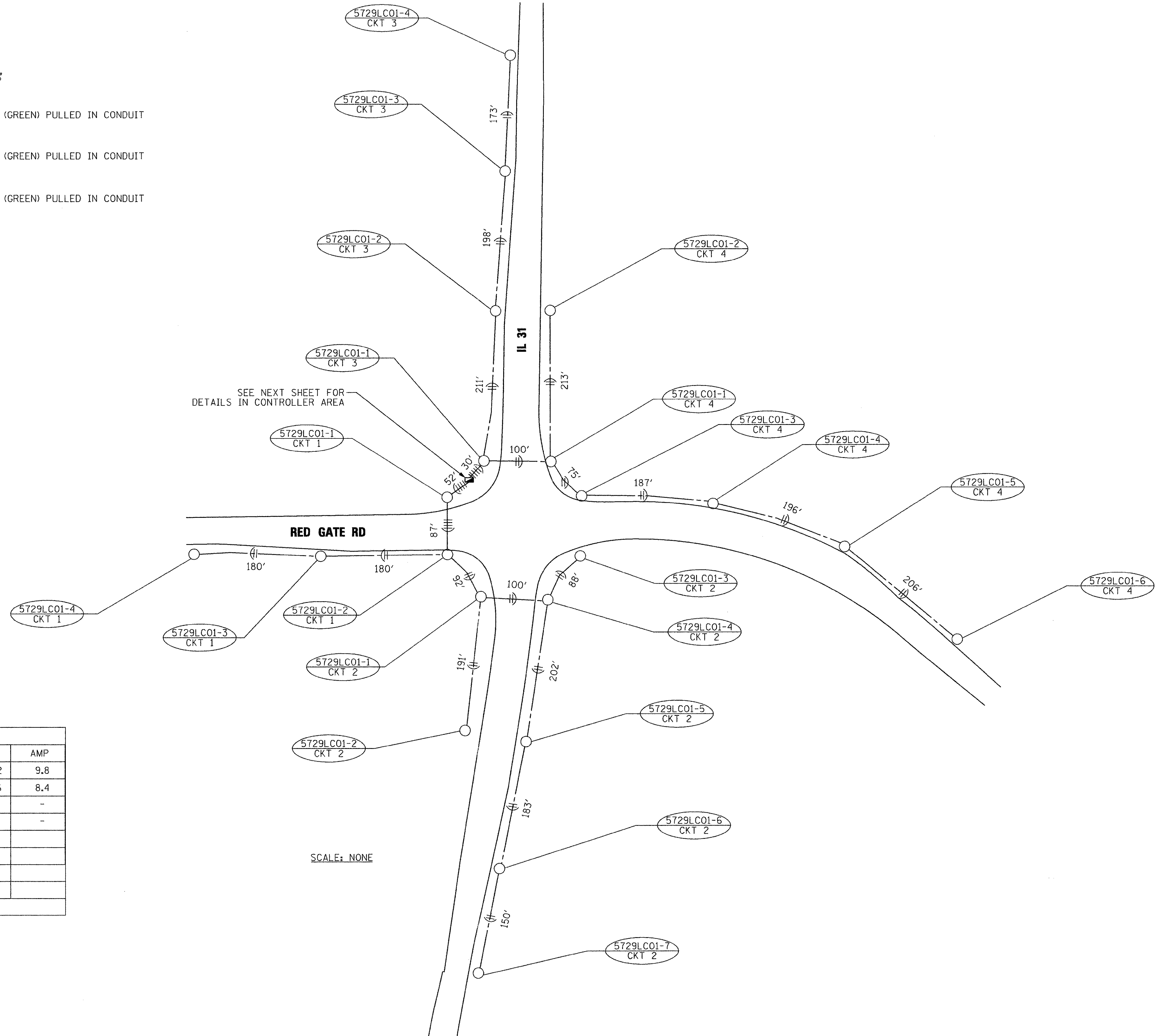
PROPOSED LIGHTING AND CONDUIT PLAN
IL RTE 31 & RED GATE ROAD

SCALE: | SHEET NO. 4 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	212
		CONTRACT NO. 63650		
		ILLINOIS FED. AID PROJECT		

LEGEND

- LIGHTING CONTROLLER, BASE MOUNTED, SINGLE DOOR, 120/240 VOLT, 100 AMP
- 2-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- 3-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- 4-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- PROPOSED LIGHT POLE



CONTROLLER 5729LC01					
CKT 1	WATT	AMP	CKT 2	WATT	AMP
1	1344	5.6	2	2352	9.8
3	1344	5.6	4	2016	8.4
5	-	-	6	-	-
7	-	-	8	-	-
TOTAL LOAD: 7056 W = 7.1 kW					

CONTROLLER LOAD TABLE

SCALE: NONE

SHEET L-5

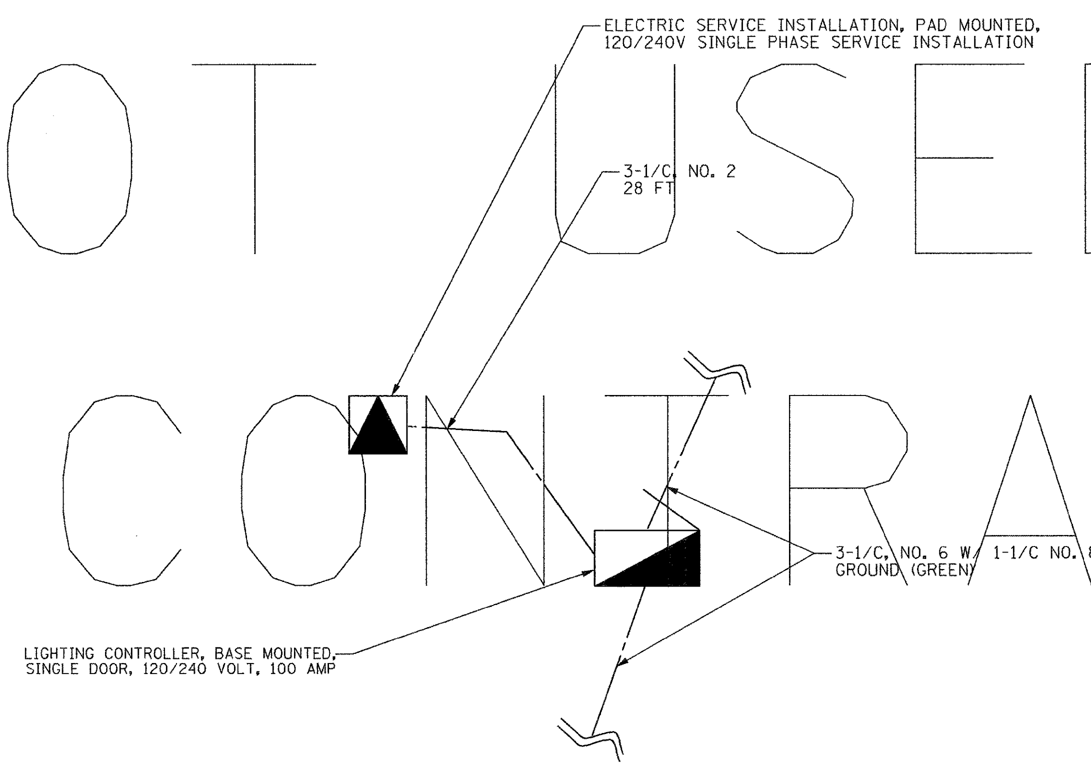
FILE NAME = ...\prpln-ABC-sht-IL31-Redgate-cab-wire.dgn	DESIGNED - BC	REVISED -	benesch engineers · scientists · planners	CITY OF ST. CHARLES	PROPOSED CABLE PLAN AND WIRING DIAGRAM IL RTE 31 & RED GATE ROAD	F.A. RTE.	SECTION 04-00092-00-BR	COUNTY KANE	TOTAL SHEETS 440	SHEET NO. 213
USER NAME = mcoleman	DRAWN - BC	REVISED -								
	CHECKED - MPM	REVISED -				CONTRACT NO. 63650				
PLOT DATE = 12/8/2011	DATE - 10/23/2011	REVISED -			SCALE: SHEET NO. 5 OF 10 SHEETS STA. TO STA.	ILLINOIS FED. AID PROJECT				

LEGEND

- UTILITY TRANSFORMER, PAD MOUNTED, 120/240V SINGLE PHASE
- LIGHTING CONTROLLER, BASE MOUNTED, SINGLE DOOR, 120/240 VOLT, 100 AMP

N

NOT USED IN CONTRACT



PROPOSED SERVICE DETAIL

SCALE: NONE

NOTE

FOR LIGHTING CONTROLLER DETAILS, SEE SHEET 418.

SHEET L-6

PLOT SCALE: 1:50
X:\10000S\10092\Local_Workspace\...
X:\10000S\10092\Local_Workspace\...

FILE NAME =	DESIGNED - BC	REVISED -	
...\prpln-ABC-sht-IL31-Redgate-cab-wire2.dgn	DRAWN - BC	REVISED -	
USER NAME = mcoleman	CHECKED - MPM	REVISED -	
PLOT DATE = 12/8/2011	DATE - 10/23/2011	REVISED -	

benesch
engineers · scientists · planners

ST. CHARLES

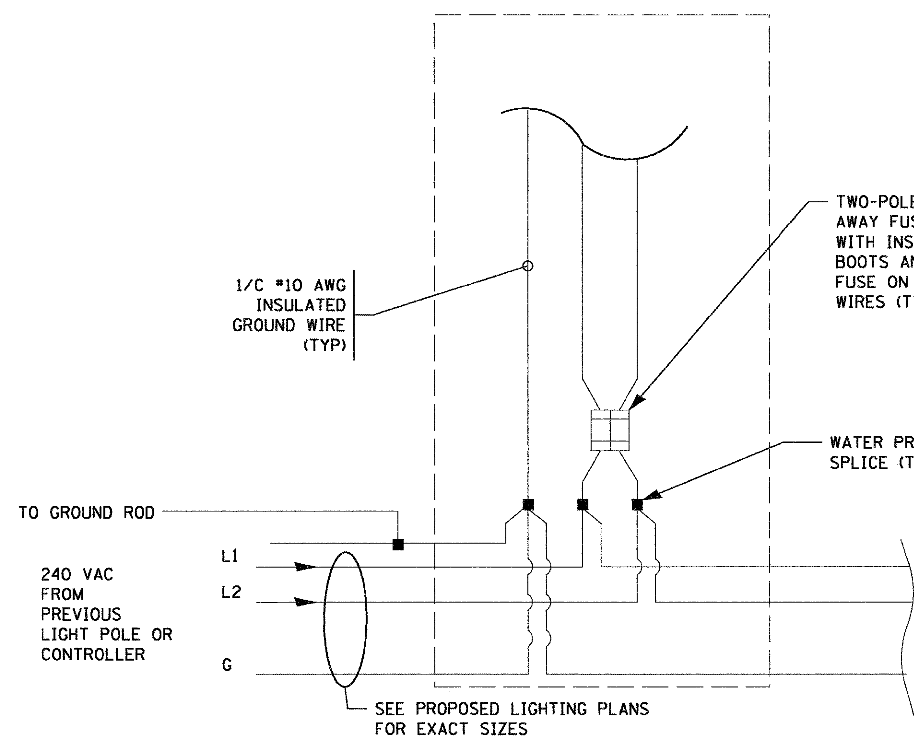
CITY OF ST. CHARLES

PROPOSED CABLE PLAN AND WIRING DIAGRAM
IL RTE 31 & RED GATE ROAD

SCALE: | SHEET NO. 6 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	214
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

LIGHT POLE 1
(CIRCUIT A)



LIGHT POLE WIRING DETAIL
NOT TO SCALE

SHEET L-7

FILE NAME =	DESIGNED - BC	REVISED -	
...\prpln-ABC-sht-RedGateBridge-light-det2.dgn	DRAWN - BC	REVISED -	
USER NAME = gthiesse	CHECKED - MPM	REVISED -	
PLOT DATE = 12/8/2011	DATE - 10/23/2011	REVISED -	

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CITY OF ST. CHARLES

LIGHTING DETAILS
LIGHT POLE WIRING

SCALE: NTS | SHEET NO. 10 OF 10 SHEETS | STA. | TO STA.

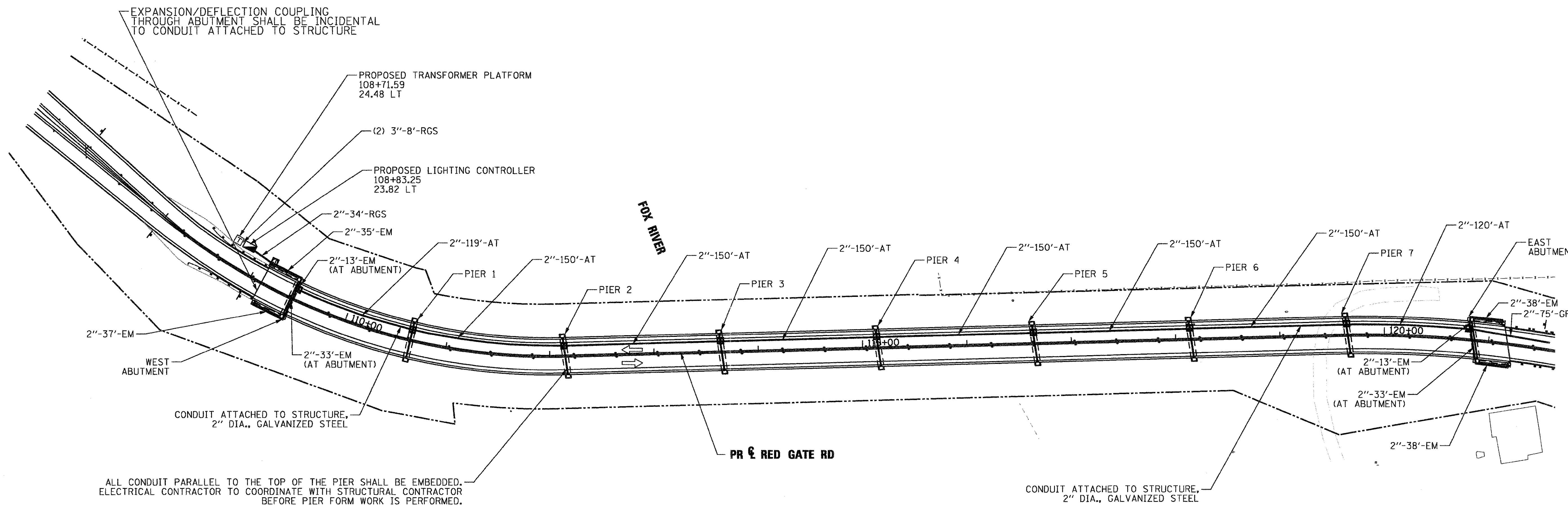
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	215
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

PLOT SCALE: 1:1
X:\10000S\10092\Local_Workspace\PlotDRV\OmniPDFV8 FULL SIZE.plt
X:\10000S\10092\Local_Workspace\PlotDRV\TITLEBLOCK.tbl

N

LEGEND

- JUNCTION BOX, STAINLESS STEEL, 10" X 8" X 6" (UNLESS OTHERWISE NOTED)
- LED LUMINAIRE, 20 WATT
- LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100AMP, SEE SHEET 418 FOR DETAILS
- T TRANSFORMER PLATFORM
- M ELECTRICAL MANHOLE. FOR LOCATION, SEE SHEET 184
- AT ATTACHED TO STRUCTURE
- EM EMBEDDED IN STRUCTURE



NOTES

1. SEE ARCHITECTURAL PLANS FOR LED LIGHTING IN THE OBELISK.
2. ALL ATTACHED CONDUIT SHALL BE 2" PVC COATED RIGID GALVANIZED STEEL.
3. EMBEDDED CONDUIT SHALL BE 2" PVC CONDUIT.
4. SEE AESTHETIC LIGHTING DETAIL SHEET FOR MORE DETAILS.

0' 25' 50' 100'
SCALE: 1"= 50'

SHEET L-8

FILE NAME = ...\prpln-ABC-sht-RedGateBridge-light-cond.dgn	DESIGNED - BC	REVISED -	benesch engineers · scientists · planners	CITY OF ST. CHARLES
USER NAME = gthiesse	DRAWN - BC	REVISED -		
PLOT DATE = 12/8/2011	CHECKED - MPM	REVISED -		
	DATE - 10/23/2011	REVISED -		

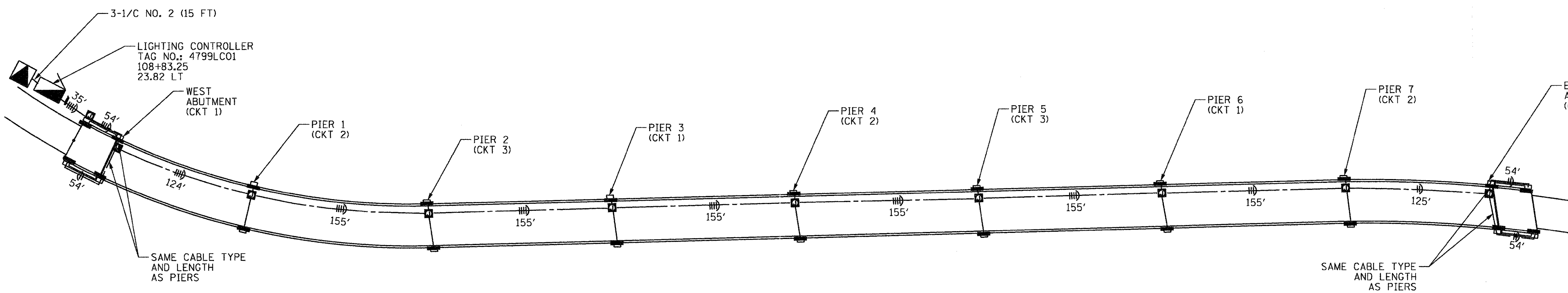
PROPOSED AESTHETIC LIGHTING AND CONDUIT PLAN
RED GATE ROAD OVER THE FOX RIVER

SCALE: | SHEET NO. 8 OF 10 SHEETS | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	216
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

LEGEND (THIS SHEET ONLY)

- UTILITY TRANSFORMER, PAD MOUNTED, 120/240V SINGLE PHASE
- JUNCTION BOX, STAINLESS STEEL
- LED LUMINAIRE, 20 WATT
- LIGHTING CONTROLLER, BASE MOUNTED, 240 VOLT, 100AMP, SEE SHEET 418 FOR DETAILS
- 2-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT, UNLESS OTHERWISE NOTED
- 3-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT
- 4-1/C, NO. 6 W/ 1-1/C NO. 8 GROUND (GREEN) PULLED IN CONDUIT

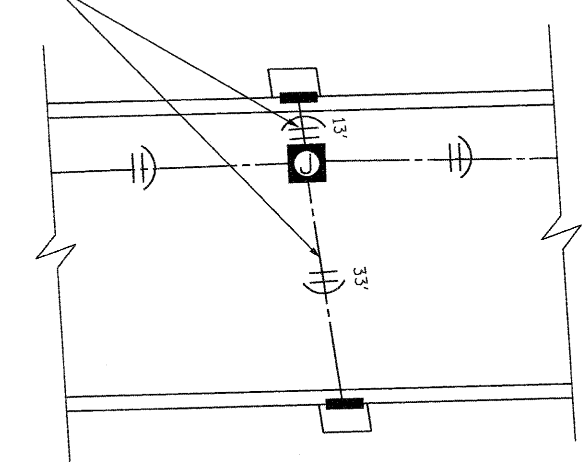


CABLE PLAN

SCALE: NONE

CONTROLLER LOAD TABLE

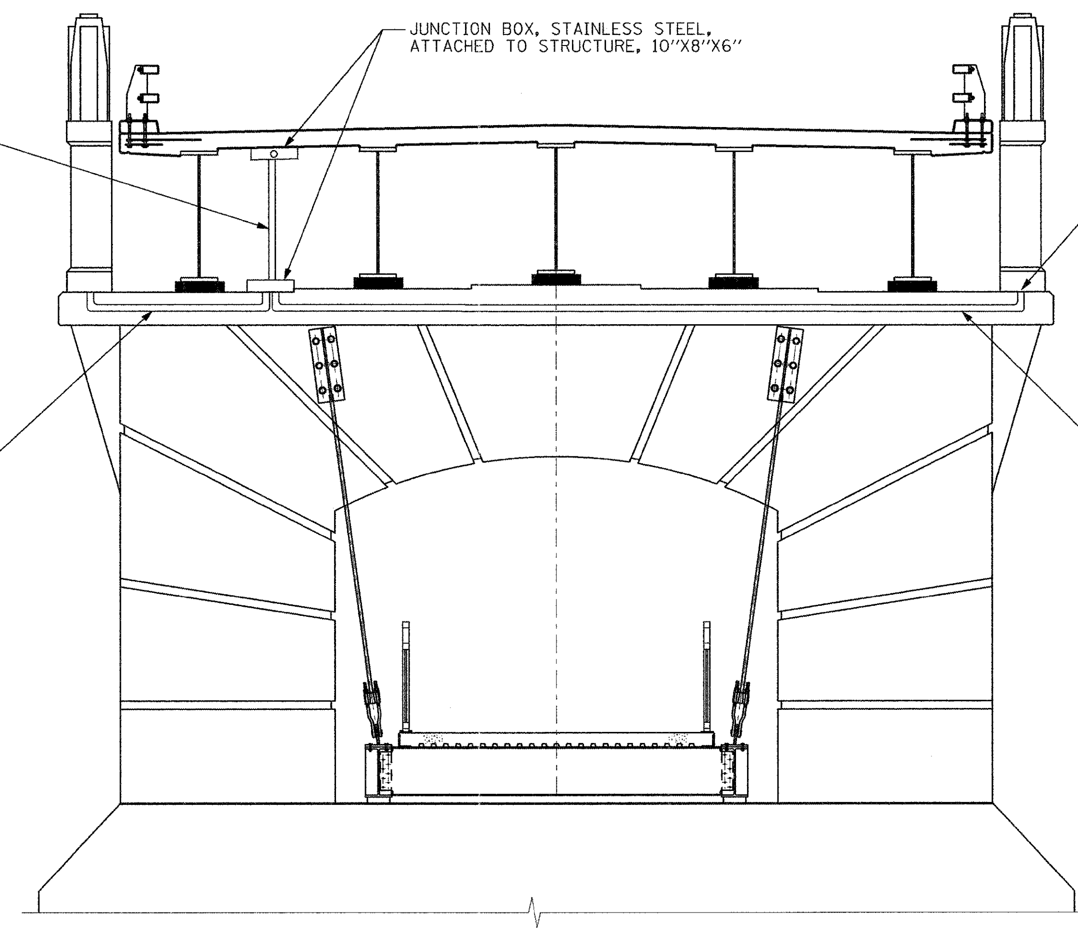
CONTROLLER 4799LC01					
CKT 1	WATT	AMP	CKT 2	WATT	AMP
1	600	4.99	2	300	2.49
3	500	4.16	4	-	-
5	-	-	6	-	-
7	-	-	8	-	-
TOTAL LOAD: 1400 W = 1.4 kW					



TYPICAL DETAIL AT PIERS

SCALE: NONE

SHEET L-9



DETAIL 1 – ELEVATION DETAIL OF AESTHETIC LIGHTING

SCALE: NONE

NOTE

1. CONTRACTOR SHALL VERIFY THE FINAL STUB UP LOCATIONS WITH THE OBELISK MANUFACTURE.
2. FOR BRIDGE PYLON FACE LIGHT DETAIL, SEE SHEET 220.

SHEET L-10

FILE NAME = ...\prpln-ABC-sht-RedGateBridge-light-det.dgn	DESIGNED - BC	REVISED -	benesch engineers · scientists · planners	CITY OF ST. CHARLES	PROPOSED AESTHETIC LIGHTING DETAILS
USER NAME = mcoleman	DRAWN - BC	REVISED -			SCALE:
PLOT DATE = 12/8/2011	CHECKED - MPM	REVISED -			SHEET NO. 10 OF 10 SHEETS
	DATE - 10/23/2011	REVISED -			STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	218
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

PLOT SCALE: 1:1
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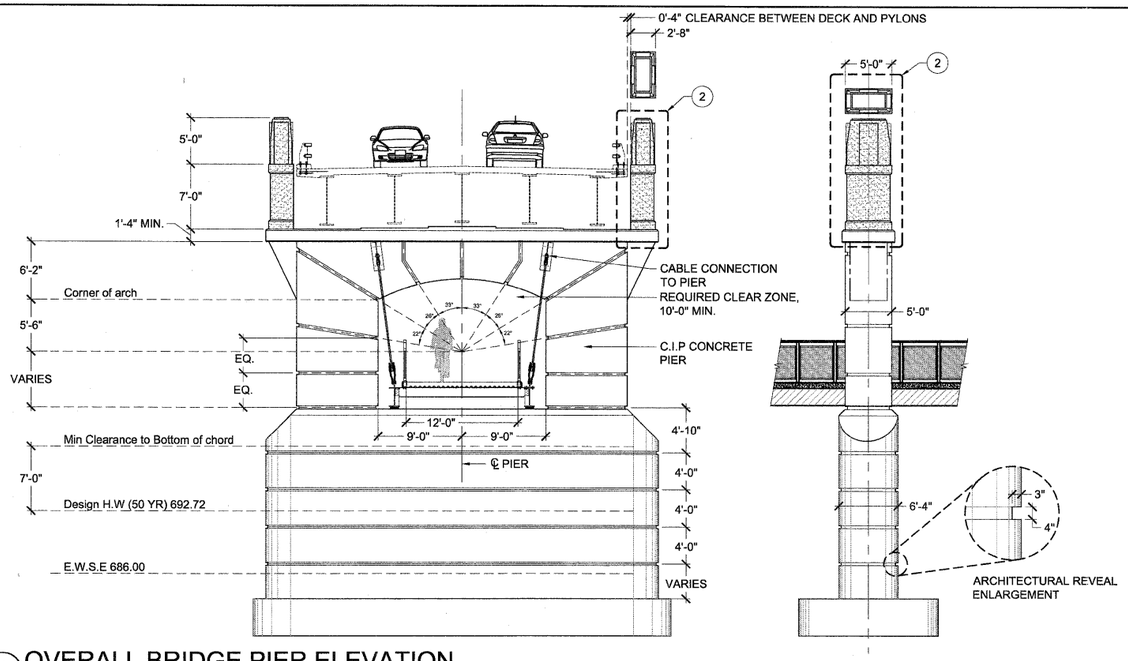
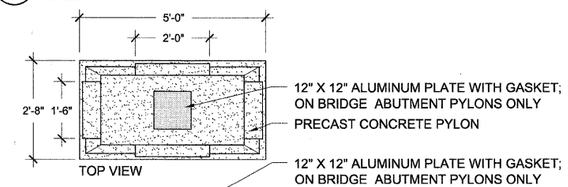
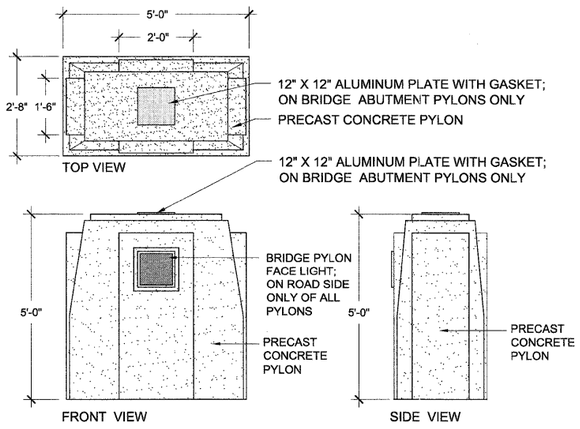
X:\10020S\10092\Local_Workspace\PlotDRV\TITLEBLOCK.tbl



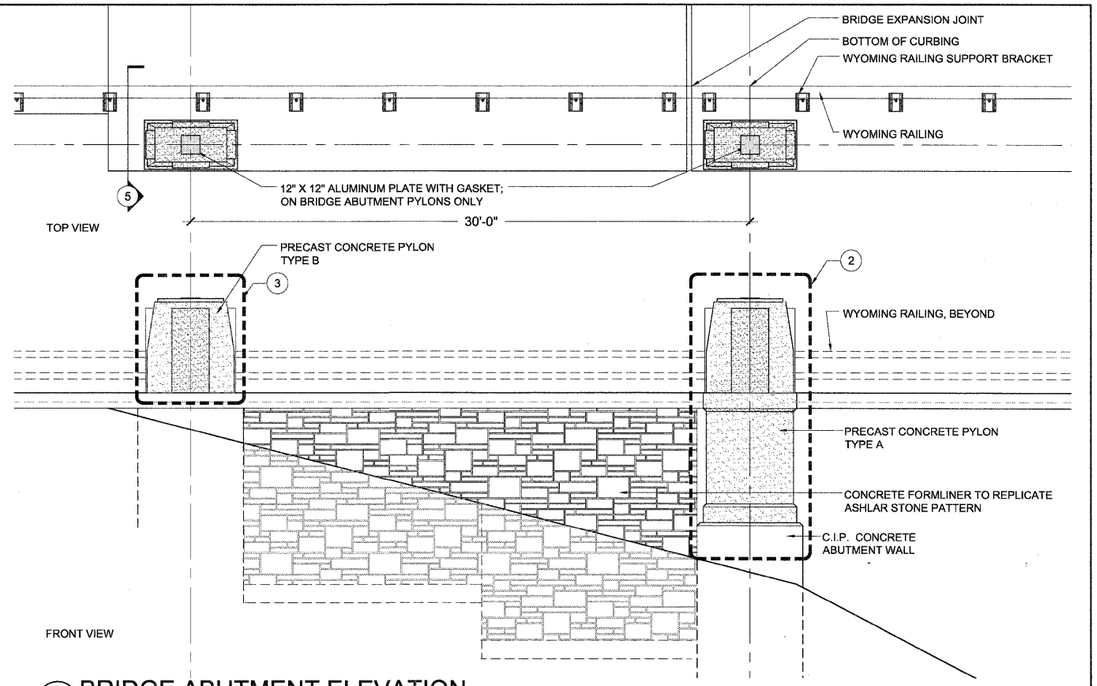
1 OVERALL BRIDGE PIER ELEVATION
SCALE: 1/8" = 1'-0"



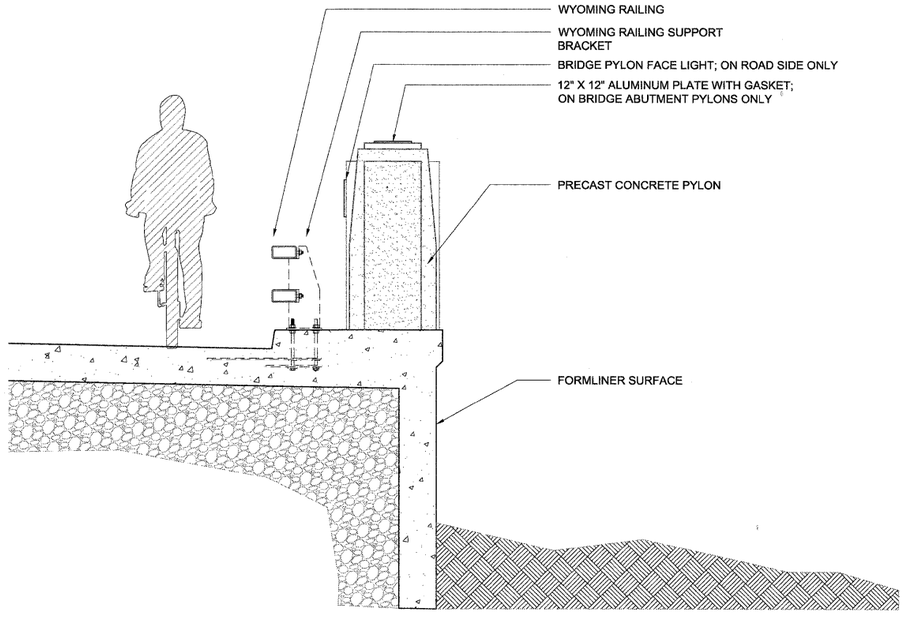
2 PYLON TYPE A ELEVATIONS
SCALE: 1/2" = 1'-0"



3 PYLON TYPE B ELEVATIONS
SCALE: 1/2" = 1'-0"



4 BRIDGE ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"



5 BRIDGE ABUTMENT SECTION
SCALE: 1/2" = 1'-0"

FILE NAME =	DESIGNED — TL/WS	REVISED —
	DRAWN — TL/BD	REVISED —
USER NAME =	CHECKED — WS	REVISED —
PLOT DATE =	DATE — 10/24/2011	REVISED —

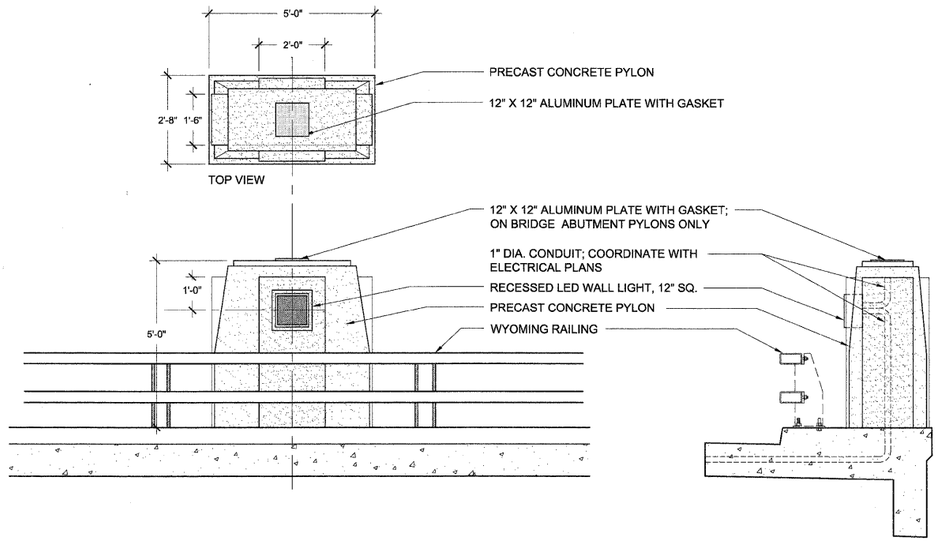
TERRA ENGINEERING LTD.
225 W. OHIO ST., FOURTH FL.
CHICAGO, IL 60654
(312)467-0123

CITY OF ST. CHARLES

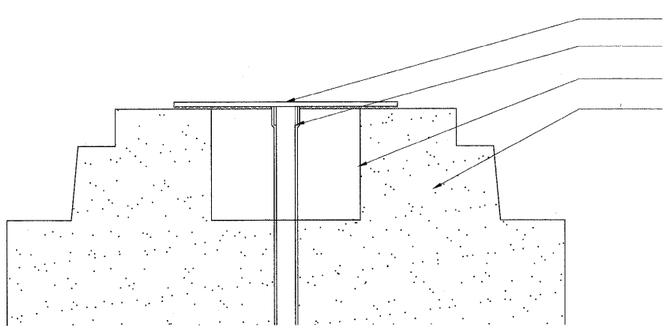
RED GATE ROAD
BRIDGE ARCHITECTURE DETAILS

SCALE: VARIES | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	219
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		



1 PYLON LIGHT DETAIL
SCALE: 1/2" = 1'-0"



NOTE:
EMBEDDED CONDUIT, EMBEDDED JUNCTION BOX, AND ALUMINUM PLATE WITH GASKET SHALL BE INCIDENTAL TO PYLON TYPE A AND PYLON TYPE B.

2 PYLON LIGHT DETAIL ENLARGEMENT
SCALE: 3" = 1'-0"

FILE NAME =	DESIGNED — TL/WS	REVISED —
	DRAWN — TL/BD	REVISED —
USER NAME =	CHECKED — WS	REVISED —
PLOT DATE =	DATE — 10/24/2011	REVISED —

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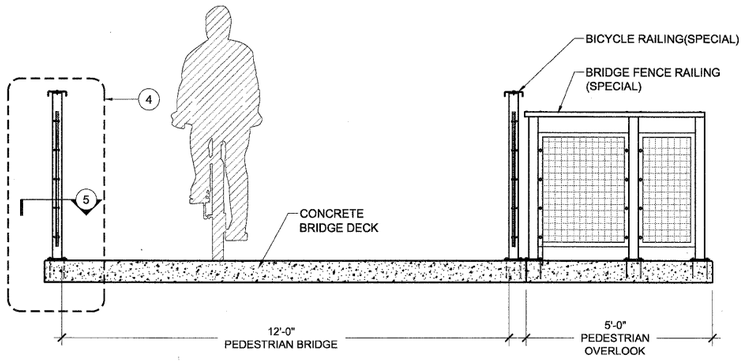
CHICAGO, IL 60654
(312)467-0123

CITY OF ST. CHARLES

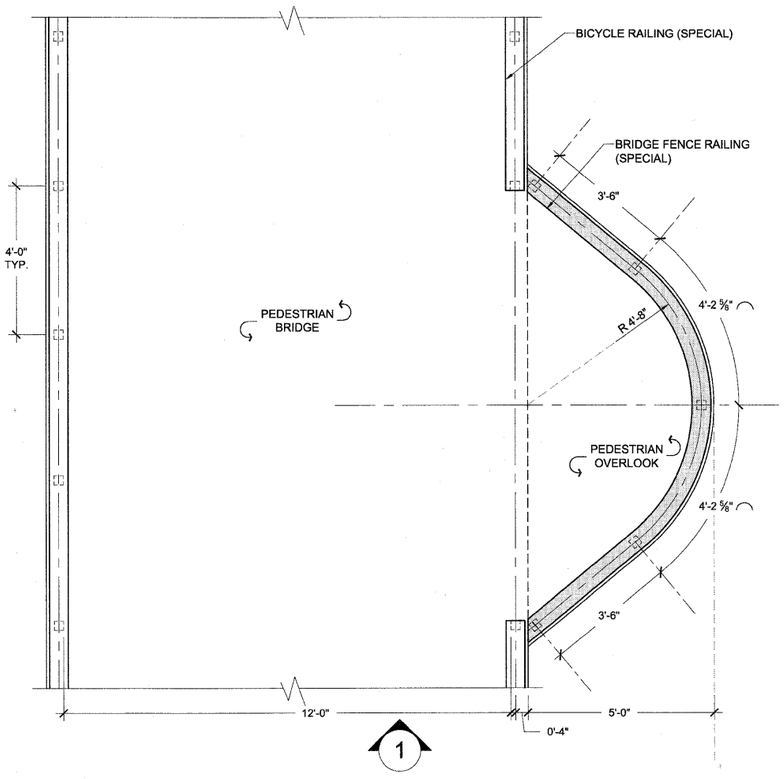
RED GATE ROAD
BRIDGE ARCHITECTURE DETAILS

SCALE: VARIES | STA. | TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	220
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			



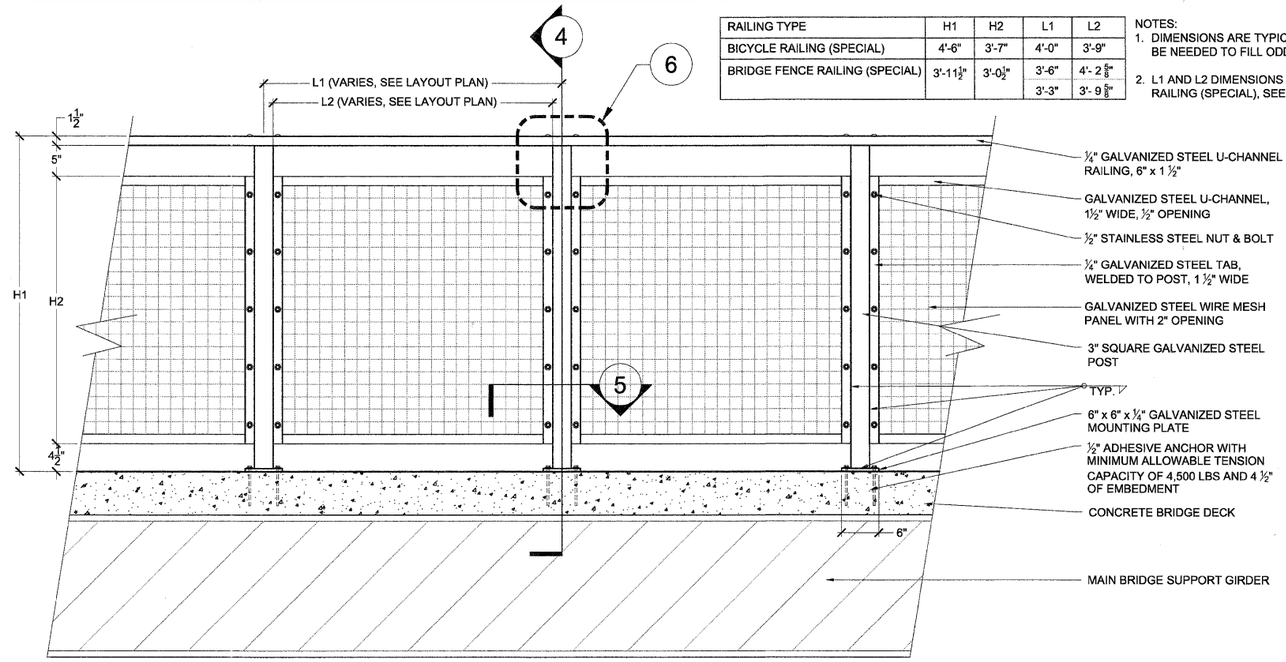
1 PEDESTRIAN BRIDGE - SECTION / ELEVATION
SCALE: 1/2" = 1'-0"



3 RAILING LAYOUT PLAN
SCALE: 1/2" = 1'-0"

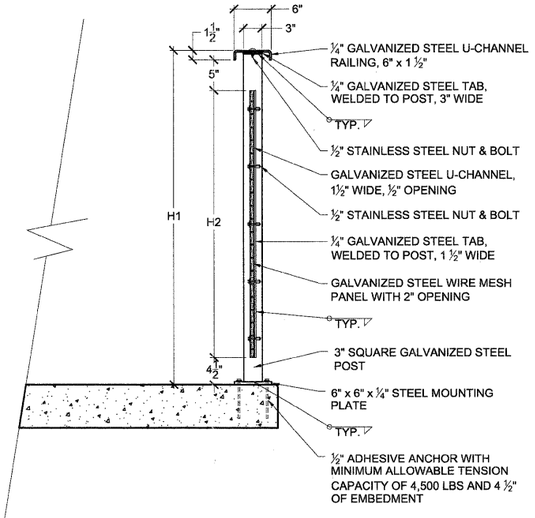
RAILING TYPE	H1	H2	L1	L2
BICYCLE RAILING (SPECIAL)	4'-6"	3'-7"	4'-0"	3'-9"
BRIDGE FENCE RAILING (SPECIAL)	3'-11½"	3'-0½"	3'-6"	4'- 2⅝"
			3'-3"	3'- 9⅝"

NOTES:
1. DIMENSIONS ARE TYPICAL, ADJUSTMENT PANELS MAY BE NEEDED TO FILL ODD DIMENSIONS.
2. L1 AND L2 DIMENSIONS VARY FOR BRIDGE FENCE RAILING (SPECIAL), SEE RAILING LAYOUT PLAN.

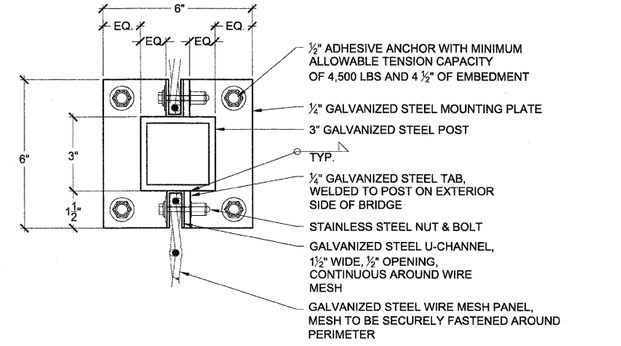


2 RAILING - ELEVATION
SCALE: 1/2" = 1'-0"

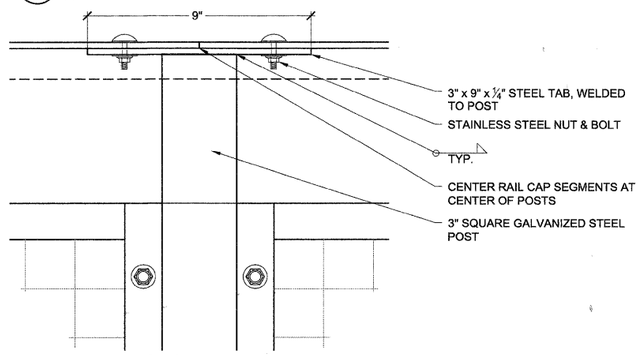
RAILING HEIGHT	H1	H2
BICYCLE RAILING (SPECIAL)	4'-6"	3'-7"
BRIDGE FENCE RAILING (SPECIAL)	3'-11½"	3'-0½"



4 RAILING - SECTION
SCALE: 1" = 1'-0"



5 RAILING SECTION - TOP
SCALE: NTS



6 RAILING CAP ATTACHMENT
SCALE: NTS

FILE NAME =	DESIGNED - TL/WS	REVISED -	
	DRAWN - TL/BD	REVISED -	
USER NAME =	CHECKED - WS	REVISED -	
PLOT DATE =	DATE - 10/24/2011	REVISED -	

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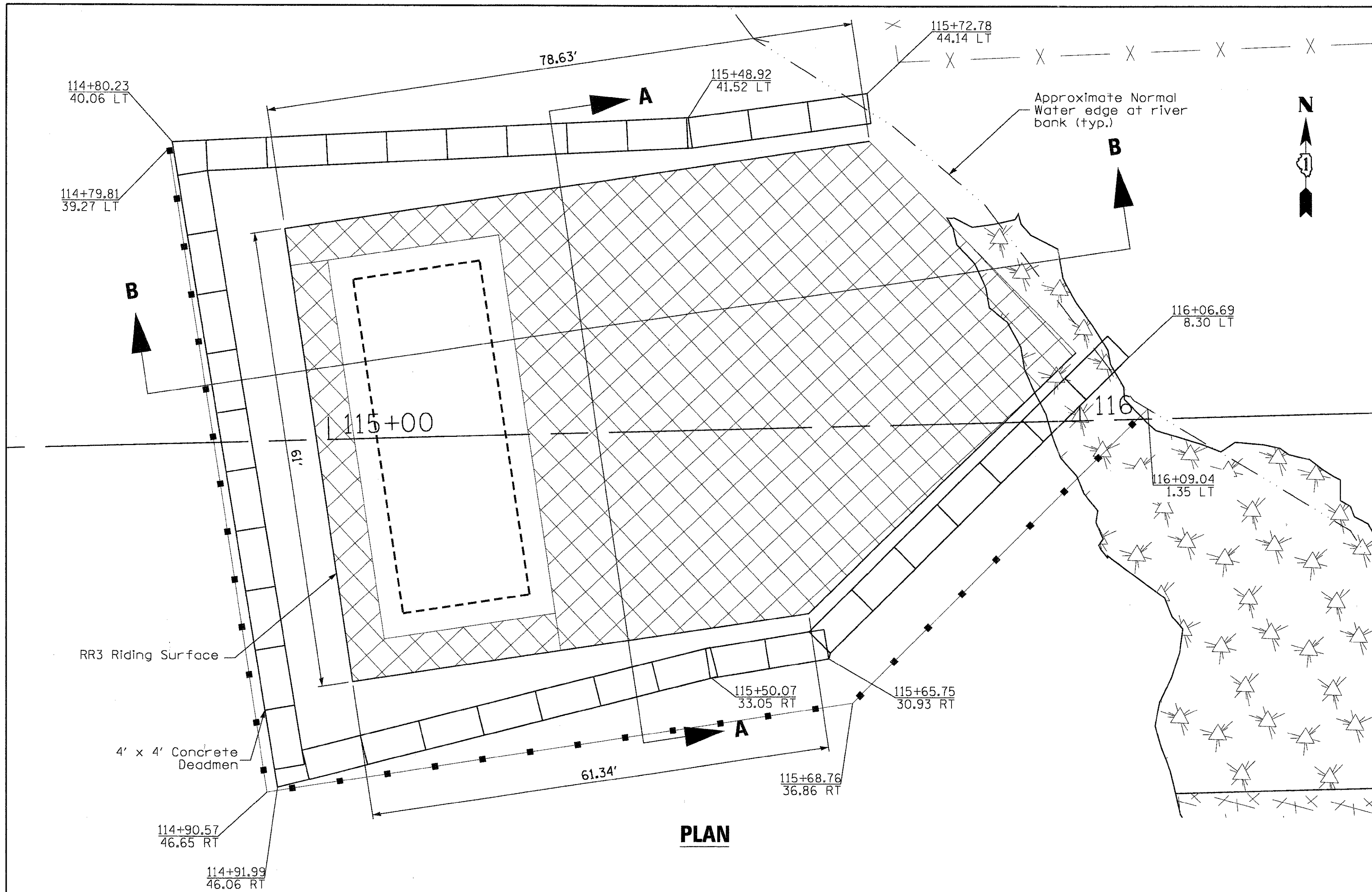
CHICAGO, IL 60654
(312)467-0123

CITY OF ST. CHARLES

RED GATE ROAD
BRIDGE ARCHITECTURE DETAILS

SCALE: VARIES | STA. | TO STA.

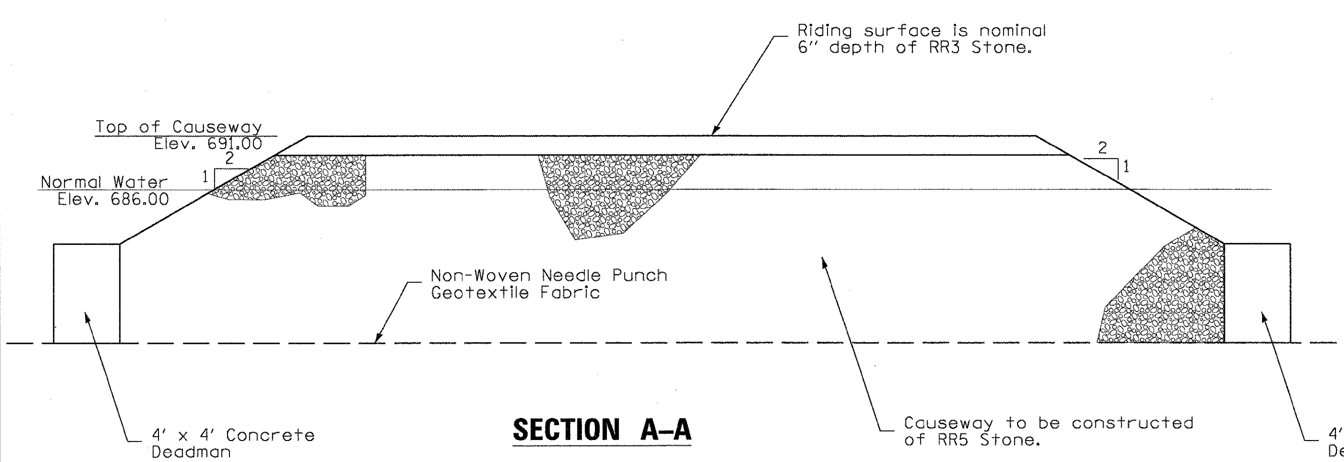
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	221
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			



PLAN

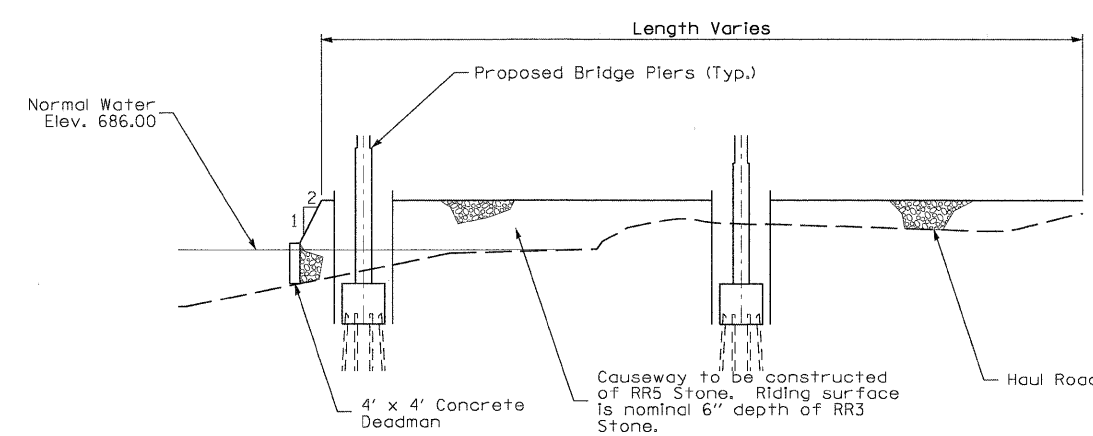
NOTE

1. An above grade conrete washout area shall be constructed and clearly marked in a location near the causeway where trucks and other construction equipment can be cleaned. Grout or concrete shall not be dumped onto the causeway at any time.



SECTION A-A

N.T.S.



SECTION B-B

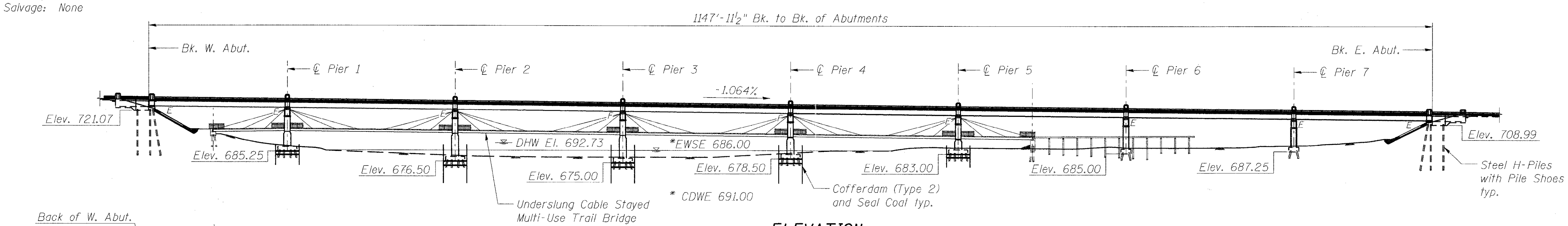
N.T.S.

FILE NAME = ...\prpln-ABC-sht-RedGate-es-Causeway-Det-01.dgn	DESIGNED -	REVISED -	benesch engineers · scientists · planners	CITY OF ST. CHARLES
USER NAME = mcoleman	DRAWN -	REVISED -		
	CHECKED -	REVISED -		
PLOT DATE = 11/9/2011	DATE - 10/23/2011	REVISED -		

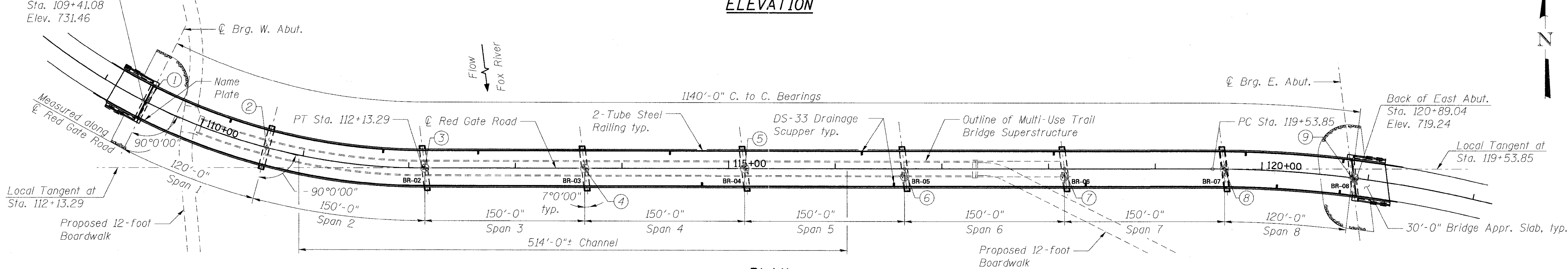
TEMPORARY CAUSEWAY				
SCALE:	SHEET NO. 1 OF 1 SHEETS	STA.	TO STA.	

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	222
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

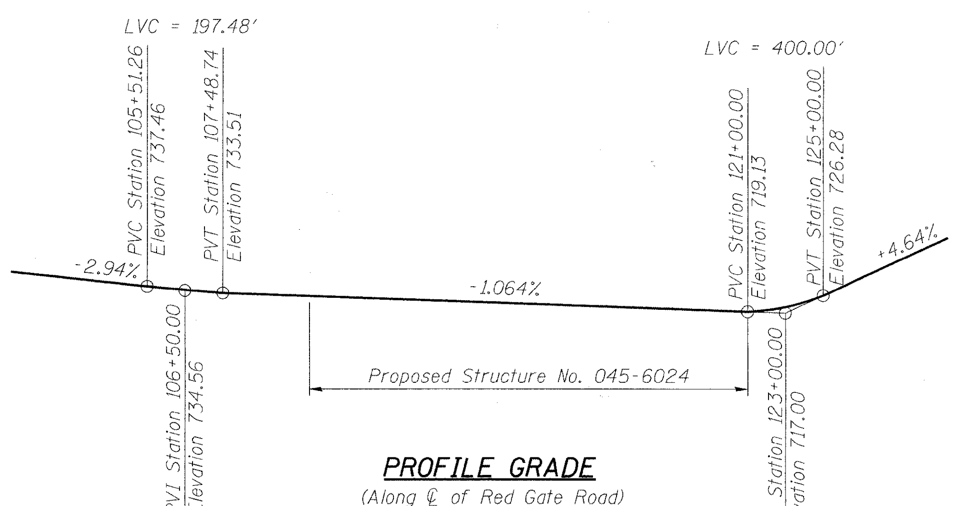
Benchmark: Steel Rod at GPS Monument KAN31 2B (Elev. 754.27)
Existing Structure: None
Salvage: None



ELEVATION



PLAN



PROFILE GRADE
(Along ℄ of Red Gate Road)

LEGEND
Boring Location

CURVE DATA
(RDGTCUR2)
PI = Sta. 110+12.06
Δ = 42°06'27" (LT)
R = 575.00'
T = 221.34'
L = 422.58'
E = 41.13'
e = 2.5%
TR = 66.00'
SE Run = 82.00'
PC = Sta. 107+90.72
PT = Sta. 112+13.29

(RDGTCUR3)
PI = Sta. 121+41.99
Δ = 19°51'14" (RT)
R = 1,075.00'
T = 188.14'
L = 372.50'
E = 16.34'
e = N.C.
TR = N/A
SE Run = N/A
PC = Sta. 119+53.85
PT = Sta. 123+26.35

STATION 115+15.00
BUILT 2012 BY
CITY OF ST. CHARLES
SEC. 04-00092-00-BR
LOADING HL-93
STR. NO. 045-6024

NAME PLATE
See Std. 515001

DESIGN SPECIFICATIONS
2010 AASHTO LRFD Bridge Design Specifications

2003 AASHTO Guide Specifications for Horizontally Curved Steel Girder Highway Bridges

DESIGN STRESSES
FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

LOADING HL-93
Allow 50#/sq. ft. for future wearing surface

SEISMIC DATA
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.089g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.152g
Soil Site Class = D

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THIS BRIDGE IS STRUCTURALLY ADEQUATE FOR THE DESIGN LOADINGS SHOWN ON THE PLANS. THE DESIGN IS AN ECONOMICAL ONE FOR THE STYLE OF STRUCTURE AND COMPLIES WITH REQUIREMENTS OF THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

STATE OF ILLINOIS
HOSSAM M. ABDOU
081-005537
CHICAGO, IL
LICENSED STRUCTURAL ENGINEER

EXPIRATION DATE 11-30-12
DATE OCTOBER 20, 2011

ALFRED BENESCH & COMPANY

DATA POINTS

1	℄ Brg. W. Abut. Sta. 109+45.00 Elev. 731.42	6	℄ Brg. Pier 5 Sta. 116+65.00 Elev. 723.76
2	℄ Pier 1 Sta. 110+65.00 Elev. 730.14	7	℄ Pier 6 Sta. 118+15.00 Elev. 722.16
3	℄ Pier 2 Sta. 112+15.00 Elev. 728.54	8	℄ Pier 7 Sta. 119+65.00 Elev. 720.56
4	℄ Pier 3 Sta. 113+65.00 Elev. 726.95	9	℄ Brg. E. Abut Sta. 120+85.00 Elev. 719.29
5	℄ Pier 4 Sta. 115+15.00 Elev. 725.35		

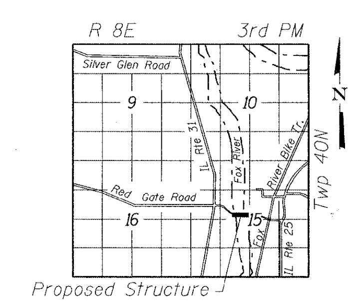
WATERWAY INFORMATION

Drainage Area = 1,540 sq. mi. Low Grade Elev. 724.45 @ Sta. 116+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	7,535	4,932.62	4,582.56	690.91	N/A	0.07	N/A	690.98
Design	50	11,225	6,614.41	6,145.64	692.72	N/A	0.08	N/A	692.80
Base	100	12,250	7,026.82	6,536.23	693.15	N/A	0.08	N/A	693.23
Overtopping									
Max. Calc.	500	16,875	8,773.78	8,104.34	694.89	N/A	0.08	N/A	694.97

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
	721.07	685.25	676.31	674.93	678.49	684.14	684.17	686.21	708.99



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
RED GATE ROAD OVER FOX RIVER
"PUBLIC WATER"
SEC. 04-00092-00-BR
KANE COUNTY
STATION 115+15.00
STRUCTURE NO. 045-6024

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205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10092

FILE NAME = 0456024_001_GP&E.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 045-6024 RED GATE ROAD OVER FOX RIVER
SHEET NO. S1 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	223
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $\frac{7}{8}$" ϕ, holes $\frac{15}{16}$" ϕ, unless otherwise noted.
2. Calculated weight of Structural Steel = 1,544,000 lbs.
3. No field welding is permitted except as specified in the contract documents.
4. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60, See Special Provisions.
5. Reinforcement bars designated (E) shall be epoxy coated.
6. If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
7. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$" (0.01'). Adjustment shall be made either by grinding the surface or by shimming the bearings.
8. Concrete sealer shall be applied to the backwalls, seats, and front face of the abutments.
9. 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 shall match color SW7680 "Lanyard" with RGB Value R-191, G-153, B-116. See Special Provision for "Cleaning and Painting New Metal Structures".
10. Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
11. The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
12. The Contractor shall obtain a construction permit from the Illinois Department of Natural Resources (IDNR), Office of Water Resources for any temporary construction activity placed in the water. This shall include the placement of material for run-arounds, causeways, temporary bridge, etc. Any permit application by the Contractor shall refer to the IDNR 3708 Floodway Construction permit number allowing permanent construction as shown in the contract plans.
13. Seal coat thickness design is based on the Cofferdam Design Water Elevation (CDWE). Cofferdam design details and proposed changes in seal coat thickness shall be submitted to the Engineer for approval with the cofferdam design.
14. Reinforcement bar lap splices shall be Class C. Top bars so placed that more than 12 inches of concrete is cast below the reinforcement shall be lapped for 1.4 x basic lap. Reinforcement bar splices shall be in accordance with the following table unless shown otherwise on the drawing.

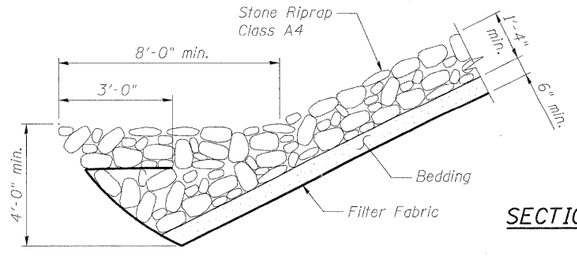
Bar Size	Basic Lap	1.4 Basic Lap
#4	2'-7"	2'-11"
#5	3'-3"	3'-8"
#6	3'-10"	4'-5"
#7	5'-2"	5'-10"
#8	6'-9"	7'-8"
#9	8'-7"	9'-8"
#10	10'-10"	12'-4"
#11	13'-4"	15'-1"

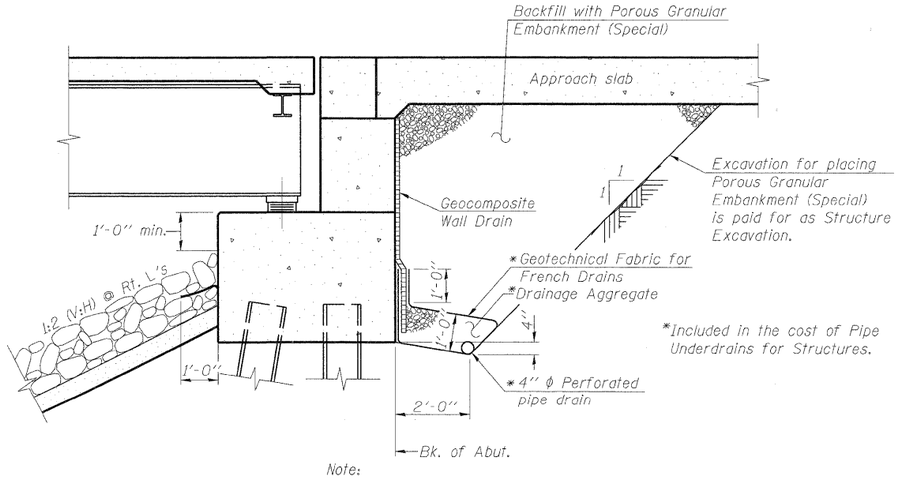
15. Conduit shall not be installed until after the deck has been completed.

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.	-	187	187
Stone Riprap, Class A4	Sq. Yd.	-	792	792
Portland Cement Concrete Sidewalk 5 Inch	Sq. Ft.	-	227	227
Structure Excavation	Cu. Yd.	-	220	220
Cofferdam Excavation	Cu. Yd.	-	1,458	1,458
Cofferdam (Type 2) (Location - 1)	Each	-	1	1
Cofferdam (Type 2) (Location - 2)	Each	-	1	1
Cofferdam (Type 2) (Location - 3)	Each	-	1	1
Cofferdam (Type 2) (Location - 4)	Each	-	1	1
Cofferdam (Type 2) (Location - 5)	Each	-	1	1
Concrete Structures	Cu. Yd.	-	2,301.9	2,301.9
Concrete Superstructure	Cu. Yd.	1,257.7	-	1,257.7
Bridge Deck Grooving	Sq. Yd.	4,052	-	4,052
Seal Coat Concrete	Cu. Yd.	-	734	734
Concrete Encasement	Cu. Yd.	10.6	-	10.6
Protective Coat	Sq. Yd.	4,898	-	4,898
Stud Shear Connectors	Each	14,277	-	14,277
Reinforcement Bars, Epoxy Coated	Pound	382,300	255,900	638,200
Bar Splicers	Each	-	72	72
Furnishing Steel Piles HP12x53	Foot	-	2,588	2,588
Furnishing Steel Piles HP14x73	Foot	-	8,866	8,866
Driving Piles	Foot	-	11,454	11,454
Test Pile Steel HP12x53	Each	-	4	4
Test Pile Steel HP14x73	Each	-	5	5
Pile Shoes	Each	-	218	218
Name Plates	Each	1	-	1
Anchor Bolts, 1"	Each	-	140	140
Anchor Bolts, $1\frac{1}{2}$"	Each	-	40	40
Concrete Sealer	Sq. Ft.	-	1,053	1,053
Geocomposite Wall Drain	Sq. Yd.	-	86	86
Pipe Underdrains for Structures, 4"	Foot	-	182	182
High-Load Multi-Rotational Bearings, Guided Expansion, 200K	Each	10	-	10
High-Load Multi-Rotational Bearings, Guided Expansion, 450K	Each	25	-	25
Furnishing and Erecting Structural Steel Bridge No. 2	L. Sum	1	-	1
Modular Expansion Joint 9"	Foot	73	-	73
Steel Railing (Special)	Foot	3,087	-	3,087
Drainage Scuppers, DS-33	Each	13	-	13
Drainage System	L. Sum	1	-	1
Anti-Graffiti Coating	Sq. Ft.	-	18,703	18,703
Anti-Graffiti Protection System	Sq. Ft.	-	839	839
Form Liner Textured Surface (Special)	Sq. Ft.	-	839	839





SECTION THRU PILE SUPPORTED STUB ABUTMENT

(Horiz. dim. at Rt. L's)

Note:
All drainage system components shall extend parallel to the abutment back wall until they intersect the wingwalls. The pipe shall extend under the wingwall, until intersecting the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

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	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIALS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S2 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	224
		CONTRACT NO. 63650		
		ILLINOIS FED. AID PROJECT		

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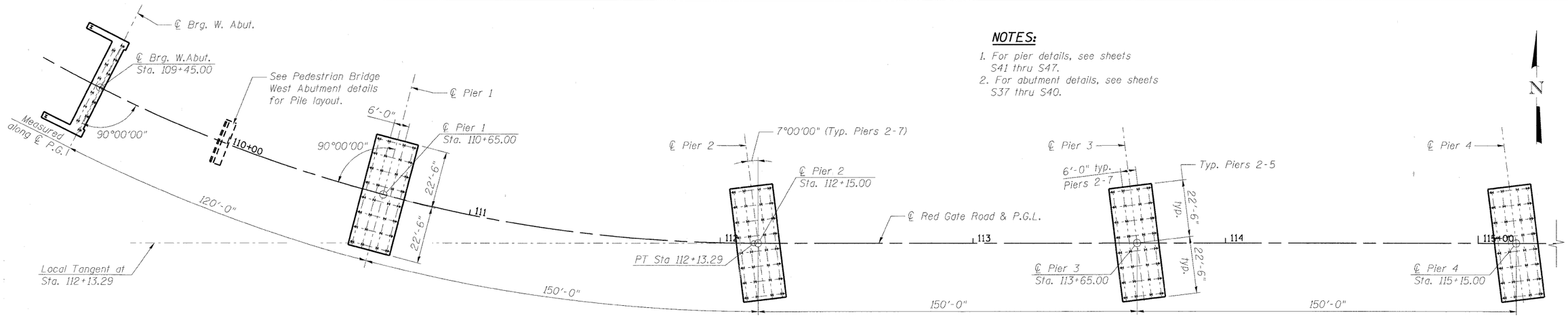
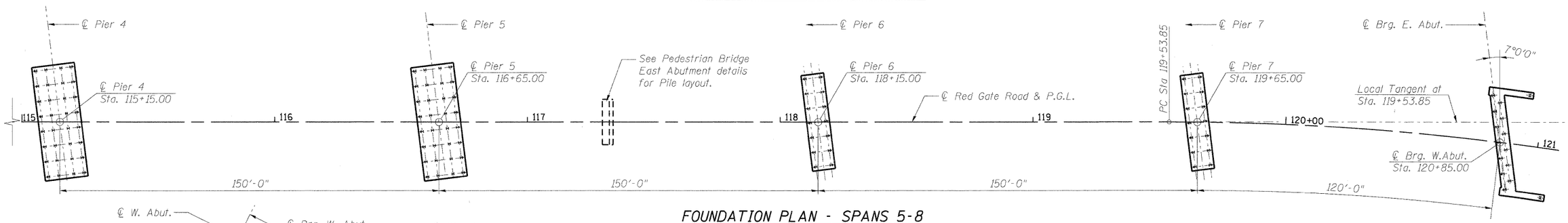


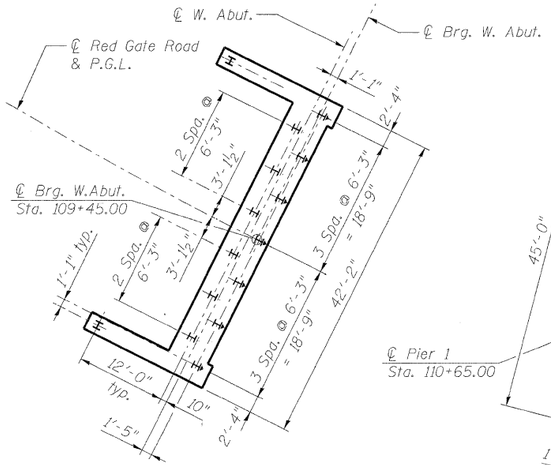
FOUNDATION PLAN - SPANS 1-4

NOTES:

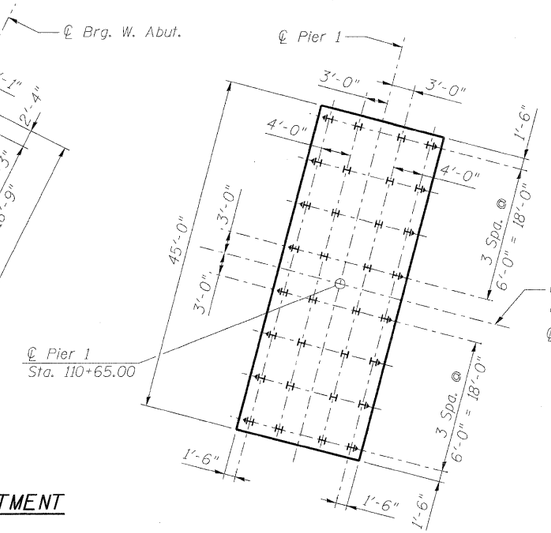
1. For pier details, see sheets S41 thru S47.
2. For abutment details, see sheets S37 thru S40.



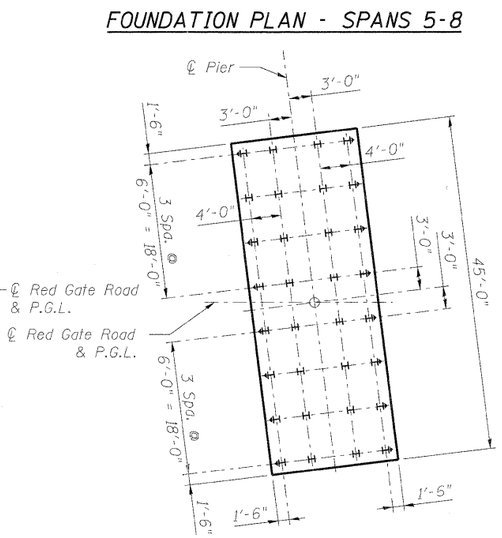
FOUNDATION PLAN - SPANS 5-8



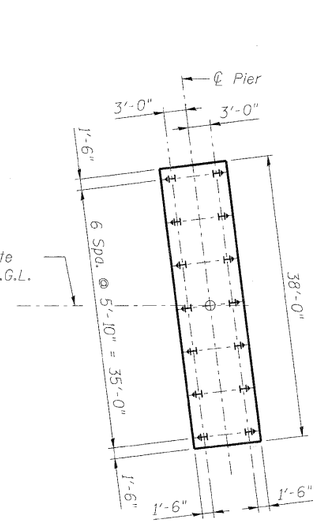
PILE LAYOUT - WEST ABUTMENT



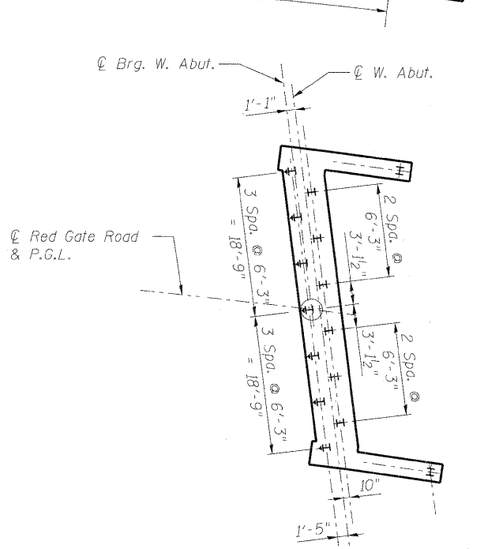
PILE LAYOUT - PIER 1



PILE LAYOUT - PIERS 2 THRU 5



PILE LAYOUT - PIERS 6 AND 7



PILE LAYOUT - EAST ABUTMENT

See sheet S39 for work points at East Abutment

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CITY OF ST. CHARLES

FOUNDATION LAYOUT
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S3 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	225
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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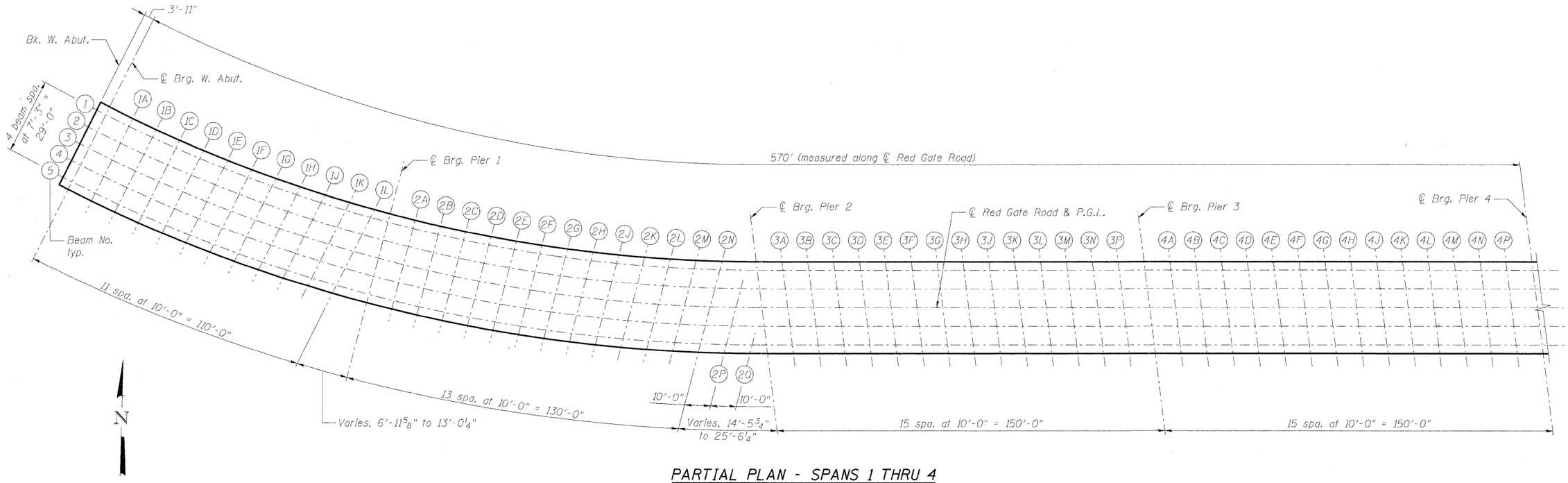
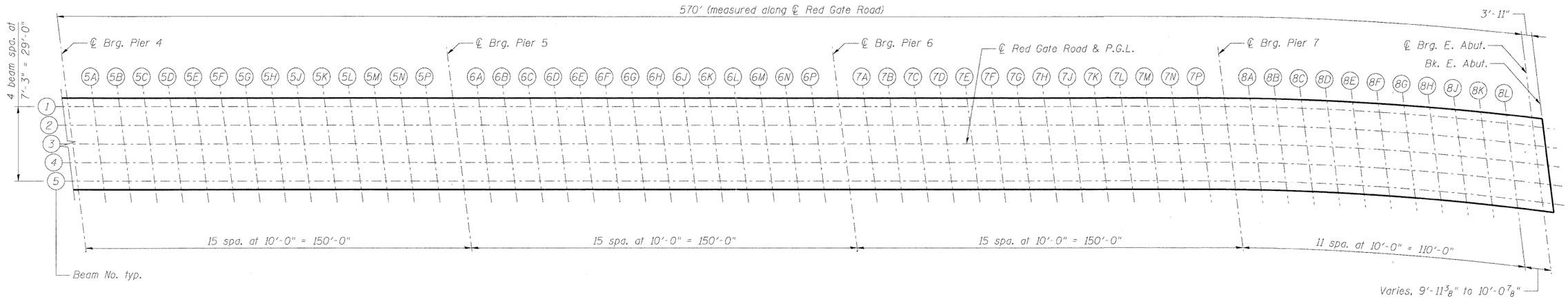


PARTIAL PLAN - SPANS 1 THRU 4



PARTIAL PLAN - SPANS 5 THRU 8

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CITY OF ST. CHARLES

DECK ELEVATION PLAN
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S4 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	226
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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GIRDER 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	109+40.98	-14.50	731.10	731.10
℄ Brg. W. Abut.	109+45.00	-14.50	731.05	731.05
1A	109+55.26	-14.50	730.95	730.97
1B	109+65.52	-14.50	730.84	730.88
1C	109+75.78	-14.50	730.73	730.79
1D	109+86.03	-14.50	730.62	730.69
1E	109+96.29	-14.50	730.51	730.58
1F	110+06.55	-14.50	730.40	730.47
1G	110+16.81	-14.50	730.29	730.35
1H	110+27.07	-14.50	730.18	730.23
1J	110+37.33	-14.50	730.07	730.10
1K	110+47.59	-14.50	729.96	729.98
1L	110+57.85	-14.50	729.85	729.86
℄ Brg. Pier 1	110+65.00	-14.50	729.78	729.78
2A	110+75.26	-14.50	729.67	729.67
2B	110+85.52	-14.50	729.56	729.57
2C	110+95.78	-14.50	729.45	729.47
2D	111+06.03	-14.50	729.34	729.37
2E	111+16.29	-14.50	729.23	729.27
2F	111+26.55	-14.50	729.12	729.17
2G	111+36.81	-14.50	729.01	729.07
2H	111+47.07	-14.50	728.90	728.96
2J	111+57.33	-14.50	728.80	728.84
2K	111+67.59	-14.50	728.69	728.72
2L	111+77.85	-14.50	728.58	728.60
2M	111+88.10	-14.50	728.48	728.49
2N	111+98.36	-14.50	728.41	728.42
℄ Brg. Pier 2	112+13.22	-14.50	728.27	728.27
3A	112+23.22	-14.50	728.17	728.18
3B	112+33.22	-14.50	728.06	728.09
3C	112+43.22	-14.50	727.95	728.00
3D	112+53.22	-14.50	727.85	727.92
3E	112+63.22	-14.50	727.74	727.83
3F	112+73.22	-14.50	727.63	727.74
3G	112+83.22	-14.50	727.53	727.64
3H	112+93.22	-14.50	727.42	727.53
3J	113+03.22	-14.50	727.32	727.42
3K	113+13.22	-14.50	727.21	727.29
3L	113+23.22	-14.50	727.10	727.17
3M	113+33.22	-14.50	727.00	727.04
3N	113+43.22	-14.50	726.89	726.91
3P	113+53.22	-14.50	726.78	726.79
℄ Brg. Pier 3	113+63.22	-14.50	726.68	726.68
4A	113+73.22	-14.50	726.57	726.58
4B	113+83.22	-14.50	726.46	726.49
4C	113+93.22	-14.50	726.36	726.40
4D	114+03.22	-14.50	726.25	726.32
4E	114+13.22	-14.50	726.15	726.23
4F	114+23.22	-14.50	726.04	726.14
4G	114+33.22	-14.50	725.93	726.05
4H	114+43.22	-14.50	725.83	725.94
4J	114+53.22	-14.50	725.72	725.83
4K	114+63.22	-14.50	725.61	725.71
4L	114+73.22	-14.50	725.51	725.58
4M	114+83.22	-14.50	725.40	725.45
4N	114+93.22	-14.50	725.29	725.32
4P	115+03.22	-14.50	725.19	725.20

GIRDER 1 (CONTINUED)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. Pier 4	115+13.22	-14.50	725.08	725.08
5A	115+23.22	-14.50	724.97	724.98
5B	115+33.22	-14.50	724.87	724.88
5C	115+43.22	-14.50	724.76	724.79
5D	115+53.22	-14.50	724.66	724.70
5E	115+63.22	-14.50	724.55	724.61
5F	115+73.22	-14.50	724.44	724.52
5G	115+83.22	-14.50	724.34	724.42
5H	115+93.22	-14.50	724.23	724.32
5J	116+03.22	-14.50	724.12	724.21
5K	116+13.22	-14.50	724.02	724.09
5L	116+23.22	-14.50	723.91	723.96
5M	116+33.22	-14.50	723.80	723.84
5N	116+43.22	-14.50	723.70	723.71
5P	116+53.22	-14.50	723.59	723.60
℄ Brg. Pier 5	116+63.22	-14.50	723.49	723.49
6A	116+73.22	-14.50	723.38	723.39
6B	116+83.22	-14.50	723.27	723.30
6C	116+93.22	-14.50	723.17	723.21
6D	117+03.22	-14.50	723.06	723.13
6E	117+13.22	-14.50	722.95	723.04
6F	117+23.22	-14.50	722.85	722.95
6G	117+33.22	-14.50	722.74	722.85
6H	117+43.22	-14.50	722.63	722.75
6J	117+53.22	-14.50	722.53	722.63
6K	117+63.22	-14.50	722.42	722.51
6L	117+73.22	-14.50	722.31	722.38
6M	117+83.22	-14.50	722.21	722.25
6N	117+93.22	-14.50	722.10	722.13
6P	118+03.22	-14.50	722.00	722.01
℄ Brg. Pier 6	118+13.22	-14.50	721.89	721.89
7A	118+23.22	-14.50	721.78	721.79
7B	118+33.22	-14.50	721.68	721.69
7C	118+43.22	-14.50	721.57	721.61
7D	118+53.22	-14.50	721.46	721.52
7E	118+63.22	-14.50	721.36	721.43
7F	118+73.22	-14.50	721.25	721.34
7G	118+83.22	-14.50	721.14	721.24
7H	118+93.22	-14.50	721.04	721.13
7J	119+03.22	-14.50	720.93	721.02
7K	119+13.22	-14.50	720.83	720.90
7L	119+23.22	-14.50	720.72	720.77
7M	119+33.22	-14.50	720.61	720.64
7N	119+43.22	-14.50	720.51	720.52
7P	119+53.22	-14.50	720.40	720.40
℄ Brg. Pier 7	119+63.09	-14.50	720.29	720.29
8A	119+72.96	-14.50	720.19	720.20
8B	119+82.82	-14.50	720.08	720.11
8C	119+92.69	-14.50	719.98	720.03
8D	120+02.56	-14.50	719.87	719.94
8E	120+12.42	-14.50	719.77	719.86
8F	120+22.29	-14.50	719.66	719.77
8G	120+32.16	-14.50	719.56	719.67
8H	120+42.03	-14.50	719.45	719.56
8J	120+51.89	-14.50	719.35	719.44
8K	120+61.76	-14.50	719.24	719.31
8L	120+71.63	-14.50	719.14	719.18
℄ Brg. E. Abut.	120+81.43	-14.50	719.04	719.04
Bk. E. Abut.	120+85.42	-14.50	718.99	718.99

GIRDER 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	109+41.03	-7.25	731.28	731.28
℄ Brg. W. Abut.	109+45.00	-7.25	731.24	731.24
1A	109+55.13	-7.25	731.13	731.16
1B	109+65.26	-7.25	731.02	731.07
1C	109+75.38	-7.25	730.91	730.98
1D	109+85.51	-7.25	730.80	730.89
1E	109+95.64	-7.25	730.70	730.79
1F	110+05.77	-7.25	730.59	730.67
1G	110+15.89	-7.25	730.48	730.56
1H	110+26.02	-7.25	730.37	730.43
1J	110+36.15	-7.25	730.27	730.31
1K	110+46.28	-7.25	730.16	730.18
1L	110+56.40	-7.25	730.05	730.06
℄ Brg. Pier 1	110+65.00	-7.25	729.96	729.96
2A	110+75.13	-7.25	729.85	729.85
2B	110+85.26	-7.25	729.74	729.75
2C	110+95.38	-7.25	729.64	729.66
2D	111+05.51	-7.25	729.53	729.56
2E	111+15.64	-7.25	729.42	729.47
2F	111+25.77	-7.25	729.31	729.37
2G	111+35.89	-7.25	729.20	729.27
2H	111+46.02	-7.25	729.10	729.16
2J	111+56.15	-7.25	728.99	729.05
2K	111+66.28	-7.25	728.88	728.93
2L	111+76.40	-7.25	728.77	728.81
2M	111+86.53	-7.25	728.67	728.69
2N	111+96.66	-7.25	728.58	728.59
2P	112+06.79	-7.25	728.49	728.49
℄ Brg. Pier 2	112+14.11	-7.25	728.41	728.41
3A	112+24.11	-7.25	728.30	728.31
3B	112+34.11	-7.25	728.20	728.22
3C	112+44.11	-7.25	728.09	728.14
3D	112+54.11	-7.25	727.98	728.05
3E	112+64.11	-7.25	727.88	727.96
3F	112+74.11	-7.25	727.77	727.87
3G	112+84.11	-7.25	727.66	727.77
3H	112+94.11	-7.25	727.56	727.67
3J	113+04.11	-7.25	727.45	727.55
3K	113+14.11	-7.25	727.34	727.43
3L	113+24.11	-7.25	727.24	727.30
3M	113+34.11	-7.25	727.13	727.17
3N	113+44.11	-7.25	727.03	727.05
3P	113+54.11	-7.25	726.92	726.93
℄ Brg. Pier 3	113+64.11	-7.25	726.81	726.81
4A	113+74.11	-7.25	726.71	726.71
4B	113+84.11	-7.25	726.60	726.62
4C	113+94.11	-7.25	726.49	726.54
4D	114+04.11	-7.25	726.39	726.45
4E	114+14.11	-7.25	726.28	726.37
4F	114+24.11	-7.25	726.17	726.28
4G	114+34.11	-7.25	726.07	726.19
4H	114+44.11	-7.25	725.96	726.08
4J	114+54.11	-7.25	725.86	725.97
4K	114+64.11	-7.25	725.75	725.85
4L	114+74.11	-7.25	725.64	725.72
4M	114+84.11	-7.25	725.54	725.59
4N	114+94.11	-7.25	725.43	725.46
4P	115+04.11	-7.25	725.32	725.34

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FILE NAME = 04560024_005_SlabEL2.dgn	USER NAME = akeeschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

TOP OF SLAB ELEVATIONS (1 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S5 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	227
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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GIRDER 2 (CONTINUED)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. Pier 4	115+14.11	-7.25	725.22	725.22
5A	115+24.11	-7.25	725.11	725.11
5B	115+34.11	-7.25	725.00	725.01
5C	115+44.11	-7.25	724.90	724.92
5D	115+54.11	-7.25	724.79	724.83
5E	115+64.11	-7.25	724.68	724.75
5F	115+74.11	-7.25	724.58	724.66
5G	115+84.11	-7.25	724.47	724.56
5H	115+94.11	-7.25	724.37	724.45
5J	116+04.11	-7.25	724.26	724.34
5K	116+14.11	-7.25	724.15	724.22
5L	116+24.11	-7.25	724.05	724.10
5M	116+34.11	-7.25	723.94	723.97
5N	116+44.11	-7.25	723.83	723.85
5P	116+54.11	-7.25	723.73	723.73
℄ Brg. Pier 5	116+64.11	-7.25	723.62	723.62
6A	116+74.11	-7.25	723.51	723.52
6B	116+84.11	-7.25	723.41	723.43
6C	116+94.11	-7.25	723.30	723.35
6D	117+04.11	-7.25	723.20	723.26
6E	117+14.11	-7.25	723.09	723.18
6F	117+24.11	-7.25	722.98	723.09
6G	117+34.11	-7.25	722.88	722.99
6H	117+44.11	-7.25	722.77	722.88
6J	117+54.11	-7.25	722.66	722.77
6K	117+64.11	-7.25	722.56	722.65
6L	117+74.11	-7.25	722.45	722.52
6M	117+84.11	-7.25	722.34	722.39
6N	117+94.11	-7.25	722.24	722.26
6P	118+04.11	-7.25	722.13	722.14
℄ Brg. Pier 6	118+14.11	-7.25	722.02	722.02
7A	118+24.11	-7.25	721.92	721.92
7B	118+34.11	-7.25	721.81	721.83
7C	118+44.11	-7.25	721.71	721.74
7D	118+54.11	-7.25	721.60	721.65
7E	118+64.11	-7.25	721.49	721.57
7F	118+74.11	-7.25	721.39	721.48
7G	118+84.11	-7.25	721.28	721.38
7H	118+94.11	-7.25	721.17	721.27
7J	119+04.11	-7.25	721.07	721.16
7K	119+14.11	-7.25	720.96	721.04
7L	119+24.11	-7.25	720.85	720.91
7M	119+34.11	-7.25	720.75	720.78
7N	119+44.11	-7.25	720.64	720.66
7P	119+54.11	-7.25	720.54	720.54
℄ Brg. Pier 7	119+64.04	-7.25	720.43	720.43
8A	119+73.97	-7.25	720.32	720.33
8B	119+83.90	-7.25	720.22	720.24
8C	119+93.84	-7.25	720.11	720.16
8D	120+03.77	-7.25	720.01	720.07
8E	120+13.70	-7.25	719.90	719.99
8F	120+23.64	-7.25	719.80	719.90
8G	120+33.57	-7.25	719.69	719.80
8H	120+43.50	-7.25	719.58	719.69
8J	120+53.44	-7.25	719.48	719.57
8K	120+63.37	-7.25	719.37	719.44
8L	120+73.30	-7.25	719.27	719.30
℄ Brg. E. Abut.	120+83.20	-7.25	719.16	719.16
Bk. E. Abut.	120+87.22	-7.25	719.12	719.12

GIRDER 3, ℄ RED GATE ROAD, & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	109+41.08	0.00	731.46	731.46
℄ Brg. W. Abut.	109+45.00	0.00	731.42	731.42
1A	109+55.00	0.00	731.31	731.34
1B	109+65.00	0.00	731.20	731.26
1C	109+75.00	0.00	731.10	731.18
1D	109+85.00	0.00	730.99	731.09
1E	109+95.00	0.00	730.89	730.99
1F	110+05.00	0.00	730.78	730.88
1G	110+15.00	0.00	730.67	730.76
1H	110+25.00	0.00	730.57	730.63
1J	110+35.00	0.00	730.46	730.51
1K	110+45.00	0.00	730.35	730.38
1L	110+55.00	0.00	730.25	730.26
℄ Brg. Pier 1	110+65.00	0.00	730.14	730.14
2A	110+75.00	0.00	730.03	730.04
2B	110+85.00	0.00	729.93	729.94
2C	110+95.00	0.00	729.82	729.84
2D	111+05.00	0.00	729.71	729.75
2E	111+15.00	0.00	729.61	729.66
2F	111+25.00	0.00	729.50	729.57
2G	111+35.00	0.00	729.40	729.47
2H	111+45.00	0.00	729.29	729.37
2J	111+55.00	0.00	729.18	729.26
2K	111+65.00	0.00	729.08	729.14
2L	111+75.00	0.00	728.97	729.02
2M	111+85.00	0.00	728.86	728.89
2N	111+95.00	0.00	728.76	728.77
2P	112+05.00	0.00	728.65	728.66
℄ Brg. Pier 2	112+15.00	0.00	728.54	728.54
3A	112+25.00	0.00	728.44	728.45
3B	112+35.00	0.00	728.33	728.35
3C	112+45.00	0.00	728.23	728.27
3D	112+55.00	0.00	728.12	728.18
3E	112+65.00	0.00	728.01	728.09
3F	112+75.00	0.00	727.91	728.00
3G	112+85.00	0.00	727.80	727.90
3H	112+95.00	0.00	727.69	727.80
3J	113+05.00	0.00	727.59	727.68
3K	113+15.00	0.00	727.48	727.56
3L	113+25.00	0.00	727.37	727.43
3M	113+35.00	0.00	727.27	727.30
3N	113+45.00	0.00	727.16	727.18
3P	113+55.00	0.00	727.05	727.06
℄ Brg. Pier 3	113+65.00	0.00	726.95	726.95
4A	113+75.00	0.00	726.84	726.85
4B	113+85.00	0.00	726.74	726.76
4C	113+95.00	0.00	726.63	726.67
4D	114+05.00	0.00	726.52	726.59
4E	114+15.00	0.00	726.42	726.51
4F	114+25.00	0.00	726.31	726.42
4G	114+35.00	0.00	726.20	726.32
4H	114+45.00	0.00	726.10	726.22
4J	114+55.00	0.00	725.99	726.11
4K	114+65.00	0.00	725.88	725.98
4L	114+75.00	0.00	725.78	725.86
4M	114+85.00	0.00	725.67	725.72
4N	114+95.00	0.00	725.57	725.60
4P	115+05.00	0.00	725.46	725.47

GIRDER 3, ℄ RED GATE ROAD, & P.G.L. (CONTINUED)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. Pier 4	115+15.00	0.00	725.35	725.35
5A	115+25.00	0.00	725.25	725.25
5B	115+35.00	0.00	725.14	725.15
5C	115+45.00	0.00	725.03	725.06
5D	115+55.00	0.00	724.93	724.97
5E	115+65.00	0.00	724.82	724.88
5F	115+75.00	0.00	724.71	724.79
5G	115+85.00	0.00	724.61	724.69
5H	115+95.00	0.00	724.50	724.59
5J	116+05.00	0.00	724.39	724.48
5K	116+15.00	0.00	724.29	724.36
5L	116+25.00	0.00	724.18	724.23
5M	116+35.00	0.00	724.08	724.11
5N	116+45.00	0.00	723.97	723.99
5P	116+55.00	0.00	723.86	723.87
℄ Brg. Pier 5	116+65.00	0.00	723.76	723.76
6A	116+75.00	0.00	723.65	723.66
6B	116+85.00	0.00	723.54	723.57
6C	116+95.00	0.00	723.44	723.48
6D	117+05.00	0.00	723.33	723.40
6E	117+15.00	0.00	723.22	723.31
6F	117+25.00	0.00	723.12	723.22
6G	117+35.00	0.00	723.01	723.12
6H	117+45.00	0.00	722.91	723.02
6J	117+55.00	0.00	722.80	722.90
6K	117+65.00	0.00	722.69	722.78
6L	117+75.00	0.00	722.59	722.65
6M	117+85.00	0.00	722.48	722.52
6N	117+95.00	0.00	722.37	722.40
6P	118+05.00	0.00	722.27	722.28
℄ Brg. Pier 6	118+15.00	0.00	722.16	722.16
7A	118+25.00	0.00	722.05	722.06
7B	118+35.00	0.00	721.95	721.97
7C	118+45.00	0.00	721.84	721.88
7D	118+55.00	0.00	721.73	721.79
7E	118+65.00	0.00	721.63	721.70
7F	118+75.00	0.00	721.52	721.62
7G	118+85.00	0.00	721.42	721.52
7H	118+95.00	0.00	721.31	721.41
7J	119+05.00	0.00	721.20	721.30
7K	119+15.00	0.00	721.10	721.17
7L	119+25.00	0.00	720.99	721.05
7M	119+35.00	0.00	720.88	720.92
7N	119+45.00	0.00	720.78	720.80
7P	119+55.00	0.00	720.67	720.68
℄ Brg. Pier 7	119+65.00	0.00	720.56	720.56
8A	119+75.00	0.00	720.46	720.47
8B	119+85.00	0.00	720.35	720.37
8C	119+95.00	0.00	720.25	720.29
8D	120+05.00	0.00	720.14	720.20
8E	120+15.00	0.00	720.03	720.11
8F	120+25.00	0.00	719.93	720.02
8G	120+35.00	0.00	719.82	719.92
8H	120+45.00	0.00	719.71	719.81
8J	120+55.00	0.00	719.61	719.69
8K	120+65.00	0.00	719.50	719.56
8L	120+75.00	0.00	719.39	719.43
℄ Brg. E. Abut.	120+85.00	0.00	719.29	719.29
Bk. E. Abut.	120+89.04	0.00	719.24	719.24

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FILE NAME = 0456024_006_SlabEL3.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

TOP OF SLAB ELEVATIONS (2 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S6 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	228
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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GIRDER 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	109+41.13	7.25	731.64	731.64
℄ Brg. W. Abut.	109+45.00	7.25	731.60	731.60
1A	109+54.88	7.25	731.49	731.53
1B	109+64.75	7.25	731.39	731.46
1C	109+74.63	7.25	731.28	731.37
1D	109+84.50	7.25	731.18	731.28
1E	109+94.38	7.25	731.07	731.19
1F	110+04.25	7.25	730.97	731.08
1G	110+14.13	7.25	730.86	730.96
1H	110+24.00	7.25	730.76	730.83
1J	110+33.88	7.25	730.65	730.71
1K	110+43.75	7.25	730.55	730.58
1L	110+53.63	7.25	730.44	730.46
℄ Brg. Pier 1	110+65.00	7.25	730.32	730.32
2A	110+74.88	7.25	730.22	730.22
2B	110+84.75	7.25	730.11	730.12
2C	110+94.63	7.25	730.01	730.03
2D	111+04.50	7.25	729.90	729.94
2E	111+14.38	7.25	729.80	729.86
2F	111+24.25	7.25	729.69	729.77
2G	111+34.13	7.25	729.59	729.67
2H	111+44.00	7.25	729.48	729.57
2J	111+53.88	7.25	729.38	729.46
2K	111+63.75	7.25	729.27	729.35
2L	111+73.63	7.25	729.17	729.23
2M	111+83.51	7.25	729.06	729.10
2N	111+93.38	7.25	728.94	728.96
2P	112+03.26	7.25	728.81	728.82
℄ Brg. Pier 2	112+15.89	7.25	728.65	728.65
3A	112+25.89	7.25	728.52	728.53
3B	112+35.89	7.25	728.39	728.41
3C	112+45.89	7.25	728.26	728.30
3D	112+55.89	7.25	728.14	728.19
3E	112+65.89	7.25	728.01	728.08
3F	112+75.89	7.25	727.88	727.97
3G	112+85.89	7.25	727.75	727.85
3H	112+95.89	7.25	727.62	727.72
3J	113+05.89	7.25	727.49	727.59
3K	113+15.89	7.25	727.37	727.44
3L	113+25.89	7.25	727.24	727.29
3M	113+35.89	7.25	727.11	727.15
3N	113+45.89	7.25	727.01	727.02
3P	113+55.89	7.25	726.90	726.91
℄ Brg. Pier 3	113+65.89	7.25	726.79	726.79
4A	113+75.89	7.25	726.69	726.70
4B	113+85.89	7.25	726.58	726.61
4C	113+95.89	7.25	726.47	726.52
4D	114+05.89	7.25	726.37	726.44
4E	114+15.89	7.25	726.26	726.35
4F	114+25.89	7.25	726.16	726.27
4G	114+35.89	7.25	726.05	726.17
4H	114+45.89	7.25	725.94	726.07
4J	114+55.89	7.25	725.84	725.95
4K	114+65.89	7.25	725.73	725.83
4L	114+75.89	7.25	725.62	725.70
4M	114+85.89	7.25	725.52	725.57
4N	114+95.89	7.25	725.41	725.44
4P	115+05.89	7.25	725.30	725.32

GIRDER 4 (CONTINUED)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. Pier 4	115+15.89	7.25	725.20	725.20
5A	115+25.89	7.25	725.09	725.09
5B	115+35.89	7.25	724.99	724.99
5C	115+45.89	7.25	724.88	724.90
5D	115+55.89	7.25	724.77	724.81
5E	115+65.89	7.25	724.67	724.72
5F	115+75.89	7.25	724.56	724.64
5G	115+85.89	7.25	724.45	724.54
5H	115+95.89	7.25	724.35	724.43
5J	116+05.89	7.25	724.24	724.32
5K	116+15.89	7.25	724.13	724.20
5L	116+25.89	7.25	724.03	724.08
5M	116+35.89	7.25	723.92	723.95
5N	116+45.89	7.25	723.81	723.83
5P	116+55.89	7.25	723.71	723.71
℄ Brg. Pier 5	116+65.89	7.25	723.60	723.60
6A	116+75.89	7.25	723.50	723.50
6B	116+85.89	7.25	723.39	723.41
6C	116+95.89	7.25	723.28	723.33
6D	117+05.89	7.25	723.18	723.24
6E	117+15.89	7.25	723.07	723.16
6F	117+25.89	7.25	722.96	723.07
6G	117+35.89	7.25	722.86	722.97
6H	117+45.89	7.25	722.75	722.86
6J	117+55.89	7.25	722.64	722.75
6K	117+65.89	7.25	722.54	722.63
6L	117+75.89	7.25	722.43	722.50
6M	117+85.89	7.25	722.33	722.37
6N	117+95.89	7.25	722.22	722.24
6P	118+05.89	7.25	722.11	722.12
℄ Brg. Pier 6	118+15.89	7.25	722.01	722.01
7A	118+25.89	7.25	721.90	721.91
7B	118+35.89	7.25	721.79	721.81
7C	118+45.89	7.25	721.69	721.72
7D	118+55.89	7.25	721.58	721.64
7E	118+65.89	7.25	721.47	721.55
7F	118+75.89	7.25	721.37	721.46
7G	118+85.89	7.25	721.26	721.36
7H	118+95.89	7.25	721.15	721.26
7J	119+05.89	7.25	721.05	721.14
7K	119+15.89	7.25	720.94	721.02
7L	119+25.89	7.25	720.84	720.90
7M	119+35.89	7.25	720.73	720.77
7N	119+45.89	7.25	720.62	720.64
7P	119+55.90	7.25	720.52	720.52
℄ Brg. Pier 7	119+65.97	7.25	720.41	720.41
8A	119+76.04	7.25	720.30	720.31
8B	119+86.11	7.25	720.19	720.21
8C	119+96.18	7.25	720.09	720.12
8D	120+06.25	7.25	719.98	720.04
8E	120+16.31	7.25	719.87	719.95
8F	120+26.38	7.25	719.77	719.86
8G	120+36.45	7.25	719.66	719.75
8H	120+46.52	7.25	719.55	719.64
8J	120+56.59	7.25	719.44	719.52
8K	120+66.65	7.25	719.34	719.40
8L	120+76.72	7.25	719.23	719.26
℄ Brg. E. Abut.	120+86.82	7.25	719.12	719.12
Bk. E. Abut.	120+90.89	7.25	719.08	719.08

GIRDER 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	109+41.18	14.50	731.82	731.82
℄ Brg. W. Abut.	109+45.00	14.50	731.78	731.78
1A	109+54.75	14.50	731.68	731.72
1B	109+64.51	14.50	731.57	731.65
1C	109+74.26	14.50	731.47	731.57
1D	109+84.02	14.50	731.36	731.48
1E	109+93.77	14.50	731.26	731.39
1F	110+03.52	14.50	731.16	731.28
1G	110+13.28	14.50	731.05	731.16
1H	110+23.03	14.50	730.95	731.04
1J	110+32.79	14.50	730.85	730.91
1K	110+42.54	14.50	730.74	730.78
1L	110+52.29	14.50	730.64	730.65
℄ Brg. Pier 1	110+65.00	14.50	730.50	730.50
2A	110+74.75	14.50	730.40	730.40
2B	110+84.51	14.50	730.30	730.31
2C	110+94.26	14.50	730.19	730.22
2D	111+04.02	14.50	730.09	730.13
2E	111+13.77	14.50	729.98	730.05
2F	111+23.52	14.50	729.88	729.97
2G	111+33.28	14.50	729.78	729.87
2H	111+43.03	14.50	729.67	729.78
2J	111+52.79	14.50	729.57	729.67
2K	111+62.54	14.50	729.47	729.55
2L	111+72.29	14.50	729.36	729.44
2M	111+82.05	14.50	729.26	729.31
2N	111+91.80	14.50	729.13	729.16
2P	112+01.56	14.50	728.98	728.99
2Q	112+11.31	14.50	728.83	728.84
℄ Brg. Pier 2	112+16.78	14.50	728.75	728.75
3A	112+26.78	14.50	728.60	728.61
3B	112+36.78	14.50	728.45	728.47
3C	112+46.78	14.50	728.30	728.33
3D	112+56.78	14.50	728.15	728.20
3E	112+66.78	14.50	728.00	728.07
3F	112+76.78	14.50	727.85	727.94
3G	112+86.78	14.50	727.70	727.79
3H	112+96.78	14.50	727.55	727.64
3J	113+06.78	14.50	727.40	727.48
3K	113+16.78	14.50	727.25	727.32
3L	113+26.78	14.50	727.10	727.15
3M	113+36.78	14.50	726.96	726.99
3N	113+46.78	14.50	726.85	726.87
3P	113+56.78	14.50	726.75	726.75
℄ Brg. Pier 3	113+66.78	14.50	726.64	726.64
4A	113+76.78	14.50	726.53	726.54
4B	113+86.78	14.50	726.43	726.45
4C	113+96.78	14.50	726.32	726.37
4D	114+06.78	14.50	726.21	726.28
4E	114+16.78	14.50	726.11	726.20
4F	114+26.78	14.50	726.00	726.11
4G	114+36.78	14.50	725.89	726.02
4H	114+46.78	14.50	725.79	725.91
4J	114+56.78	14.50	725.68	725.80
4K	114+66.78	14.50	725.58	725.68
4L	114+76.78	14.50	725.47	725.55
4M	114+86.78	14.50	725.36	725.42
4N	114+96.78	14.50	725.26	725.29
4P	115+06.78	14.50	725.15	725.16

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TOP OF SLAB ELEVATIONS (3 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S7 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	229
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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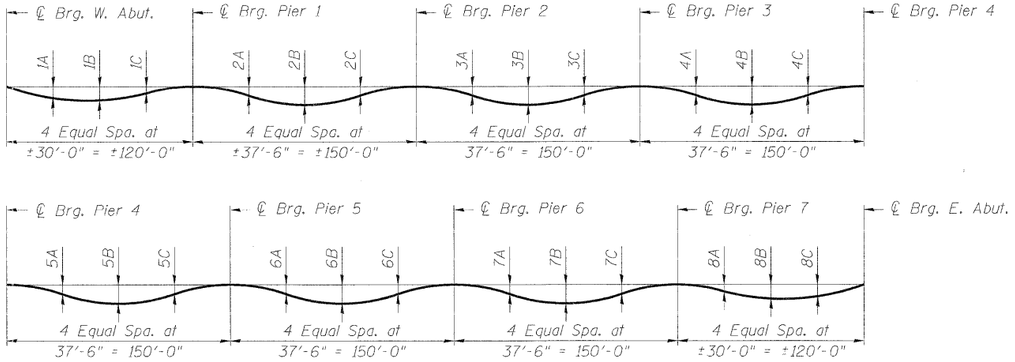
GIRDER 5 (CONTINUED)

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
℄ Brg. Pier 4	115+16.78	14.50	725.04	725.04
5A	115+26.78	14.50	724.94	724.94
5B	115+36.78	14.50	724.83	724.84
5C	115+46.78	14.50	724.72	724.75
5D	115+56.78	14.50	724.62	724.66
5E	115+66.78	14.50	724.51	724.57
5F	115+76.78	14.50	724.41	724.48
5G	115+86.78	14.50	724.30	724.38
5H	115+96.78	14.50	724.19	724.28
5J	116+06.78	14.50	724.09	724.17
5K	116+16.78	14.50	723.98	724.05
5L	116+26.78	14.50	723.87	723.92
5M	116+36.78	14.50	723.77	723.80
5N	116+46.78	14.50	723.66	723.68
5P	116+56.78	14.50	723.55	723.56
℄ Brg. Pier 5	116+66.78	14.50	723.45	723.45
6A	116+76.78	14.50	723.34	723.35
6B	116+86.78	14.50	723.23	723.26
6C	116+96.78	14.50	723.13	723.17
6D	117+06.78	14.50	723.02	723.09
6E	117+16.78	14.50	722.92	723.00
6F	117+26.78	14.50	722.81	722.91
6G	117+36.78	14.50	722.70	722.81
6H	117+46.78	14.50	722.60	722.71
6J	117+56.78	14.50	722.49	722.59
6K	117+66.78	14.50	722.38	722.47
6L	117+76.78	14.50	722.28	722.34
6M	117+86.78	14.50	722.17	722.21
6N	117+96.78	14.50	722.06	722.09
6P	118+06.78	14.50	721.96	721.97
℄ Brg. Pier 6	118+16.78	14.50	721.85	721.85
7A	118+26.78	14.50	721.75	721.75
7B	118+36.78	14.50	721.64	721.66
7C	118+46.78	14.50	721.53	721.57
7D	118+56.78	14.50	721.43	721.48
7E	118+66.78	14.50	721.32	721.40
7F	118+76.78	14.50	721.21	721.31
7G	118+86.78	14.50	721.11	721.21
7H	118+96.78	14.50	721.00	721.10
7J	119+06.78	14.50	720.89	720.99
7K	119+16.78	14.50	720.79	720.87
7L	119+26.78	14.50	720.68	720.74
7M	119+36.78	14.50	720.57	720.61
7N	119+46.78	14.50	720.47	720.49
7P	119+56.82	14.50	720.36	720.37
℄ Brg. Pier 7	119+66.96	14.50	720.25	720.25
8A	119+77.10	14.50	720.15	720.15
8B	119+87.24	14.50	720.04	720.05
8C	119+97.37	14.50	719.93	719.96
8D	120+07.51	14.50	719.82	719.87
8E	120+17.65	14.50	719.71	719.78
8F	120+27.78	14.50	719.61	719.69
8G	120+37.92	14.50	719.50	719.59
8H	120+48.06	14.50	719.39	719.48
8J	120+58.19	14.50	719.28	719.36
8K	120+68.33	14.50	719.17	719.23
8L	120+78.47	14.50	719.07	719.10
℄ Brg. E. Abut.	120+88.67	14.50	718.96	718.96
Bk. E. Abut.	120+92.76	14.50	718.92	718.92



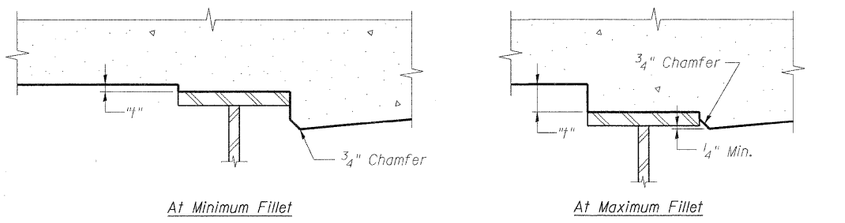
DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)

Note:
The dead load deflections in table below are not to be used in the field if the engineer is working from the Theoretical Grade Elevations Adjusted For Dead Load Deflection.

DEAD LOAD DEFLECTION TABLE

Girder	1A	1B	1C	2A	2B	2C	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	6C	7A	7B	7C	8A	8B	8C
1	3/4"	7/8"	3/8"	1/4"	5/8"	1/4"	3/4"	1 3/8"	5/8"	3/4"	1 1/2"	3/4"	1/2"	1 1/8"	1/2"	3/4"	1 3/8"	3/4"	5/8"	1 1/8"	5/8"	1/2"	1 1/4"	1 1/8"
2	7/8"	1"	1/2"	3/8"	3/4"	3/8"	3/4"	1 3/8"	5/8"	3/4"	1 1/2"	7/8"	1/2"	1 1/8"	1/2"	3/4"	1 3/8"	3/4"	5/8"	1 1/4"	5/8"	1/2"	1 1/4"	1"
3	1"	1 1/8"	5/8"	3/8"	1"	1/2"	3/4"	1 1/4"	5/8"	3/4"	1 1/2"	7/8"	1/2"	1 1/8"	1/2"	3/4"	1 3/8"	3/4"	5/8"	1 1/4"	5/8"	1/2"	1 1/8"	1"
4	1 1/8"	1 1/4"	5/8"	1/2"	1 1/8"	5/8"	5/8"	1 1/4"	5/8"	3/4"	1 1/2"	7/8"	3/8"	1"	1/2"	3/4"	1 3/8"	3/4"	5/8"	1 1/4"	5/8"	1/2"	1 1/8"	1"
5	1 1/4"	1 1/2"	3/4"	1/2"	1 1/4"	3/4"	5/8"	1 1/8"	5/8"	3/4"	1 1/2"	7/8"	3/8"	1"	1/2"	3/4"	1 3/8"	3/4"	5/8"	1 1/4"	5/8"	3/8"	1"	7/8"



At Minimum Fillet

At Maximum Fillet

To determine "f": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at the locations shown in the Deck Elevation Plan on Sheet S4. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown in the tables, minus slab thickness, equals the fillet heights "f" above top flange of beams.

FILLET HEIGHTS

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TOP OF SLAB ELEVATIONS (4 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S8 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	230
		CONTRACT NO. 63650		
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NORTH EDGE OF SHOULDER

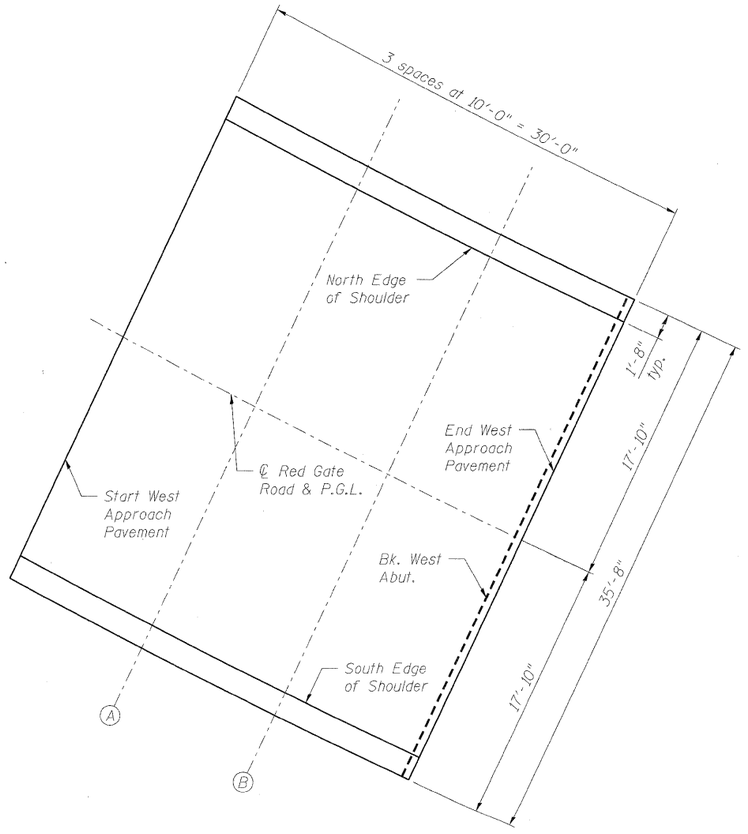
Location	Station	Offset	Theoretical Grade Elevations
Start West Approach Slab	109+10.62	-16.17	731.38
A	109+20.91	-16.17	731.27
B	109+31.20	-16.17	731.16
End West Approach Slab	109+41.48	-16.17	731.05
Start East Approach Slab	120+84.50	-16.17	718.97
C	120+94.34	-16.17	718.86
D	121+04.18	-16.17	718.76
End East Approach Slab	121+14.03	-16.17	718.67

℄ RED GATE ROAD & P.G.L.

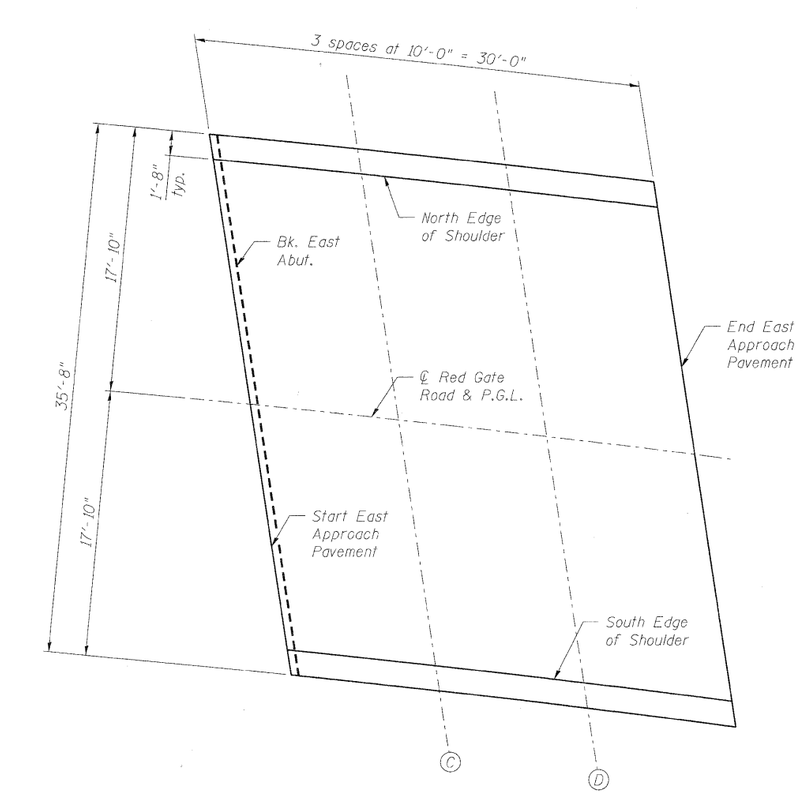
Location	Station	Offset	Theoretical Grade Elevations
Start West Approach Slab	109+11.58	0.00	731.77
A	109+21.58	0.00	731.67
B	109+31.58	0.00	731.56
End West Approach Slab	109+41.58	0.00	731.45
Start East Approach Slab	120+88.52	0.00	719.25
C	120+98.52	0.00	719.14
D	121+08.52	0.00	719.04
End East Approach Slab	121+18.52	0.00	718.96

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
Start West Approach Slab	109+12.50	16.17	732.17
A	109+22.22	16.17	732.06
B	109+31.95	16.17	731.96
End West Approach Slab	109+41.68	16.17	731.86
Start East Approach Slab	120+92.67	16.17	718.88
C	121+02.83	16.17	718.78
D	121+13.00	16.17	718.68
End East Approach Slab	121+23.16	16.17	718.60



WEST APPROACH SLAB



EAST APPROACH SLAB

PLAN

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TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S9 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
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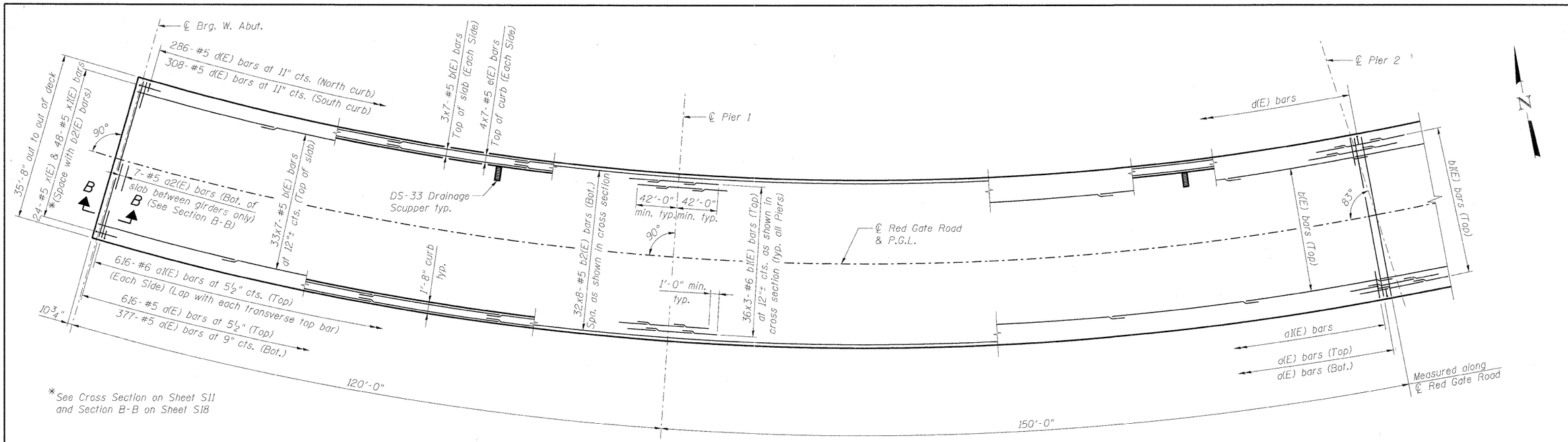
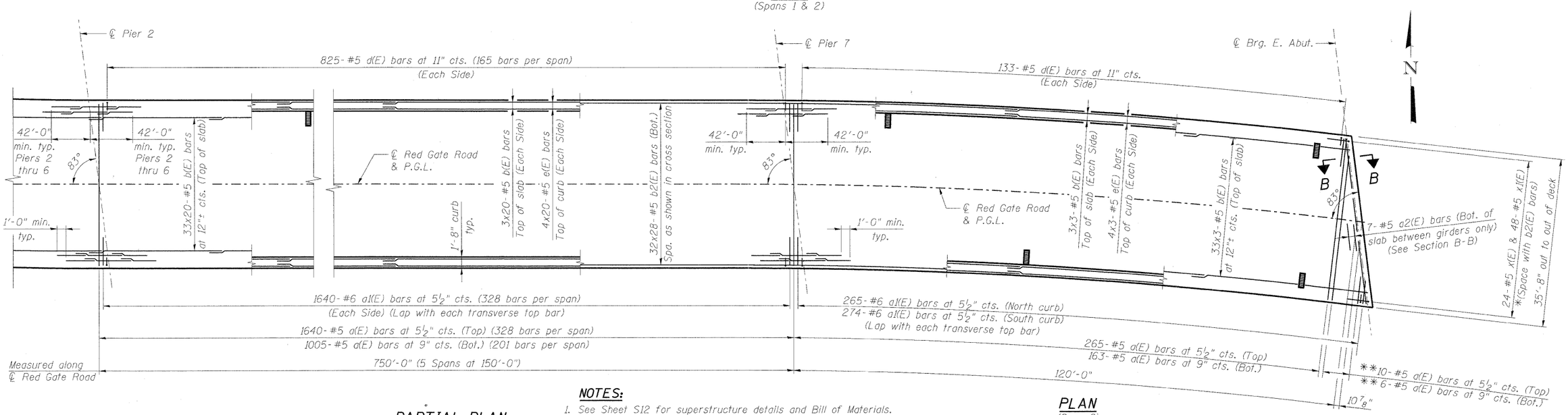


PLAN
(Spans 1 & 2)



PARTIAL PLAN
(Spans 3 thru 7)

PLAN
(Span 8)

NOTES:

1. See Sheet S12 for superstructure details and Bill of Materials.
2. See Sheet S11 for Deck Cross Section.
3. Bars indicated thus 32x10-#5 etc. indicates 32 lines of bars with 10 lengths per line.
4. All transverse reinforcement is radial to the north curb for Spans 1 & 2 and radial to the south curb for Span 8.
5. Spacing of transverse reinforcement is along the south edge of deck for Spans 1 & 2 and along the north edge of deck for Span 8.
6. See Sheet S19 and S20 for DS-33 Drainage Scupper locations and drainage details.
7. See Sheet S11 for Required Deck Pour Sequence.

MINIMUM BAR LAP
(Slab & Parapet)
#5 bar = 3'-3"
#6 bar = 3'-10"

**Bars to be cut in field as required to fit skew.

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DECK REINFORCEMENT PLAN
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S10 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
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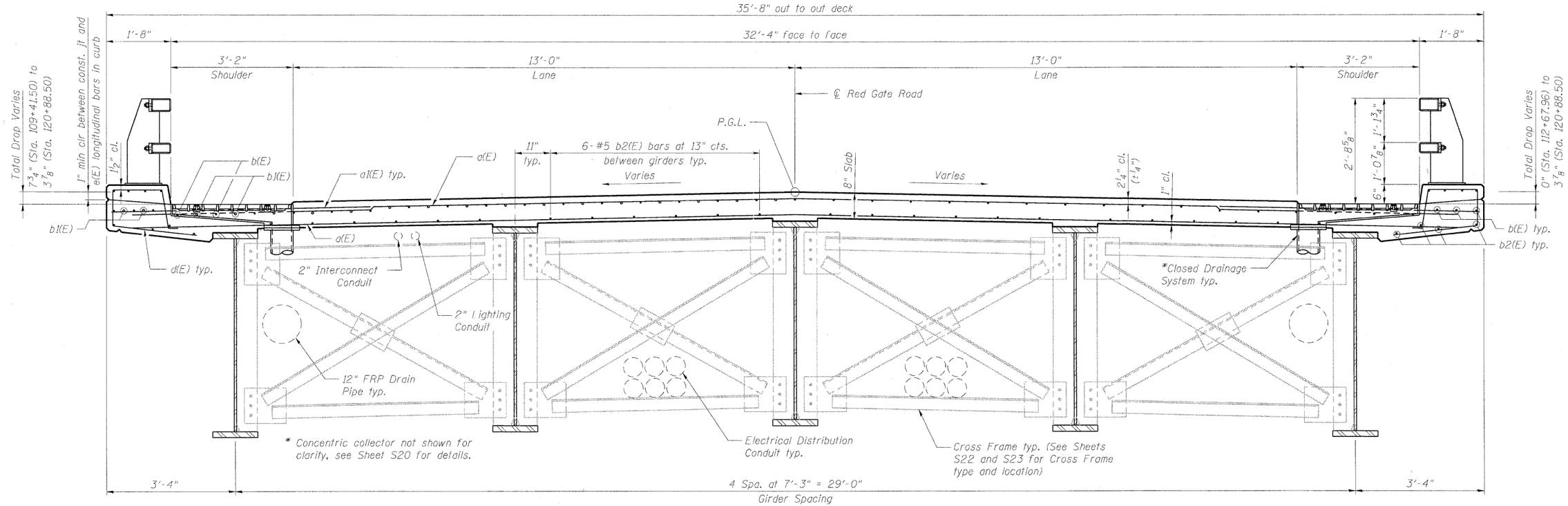
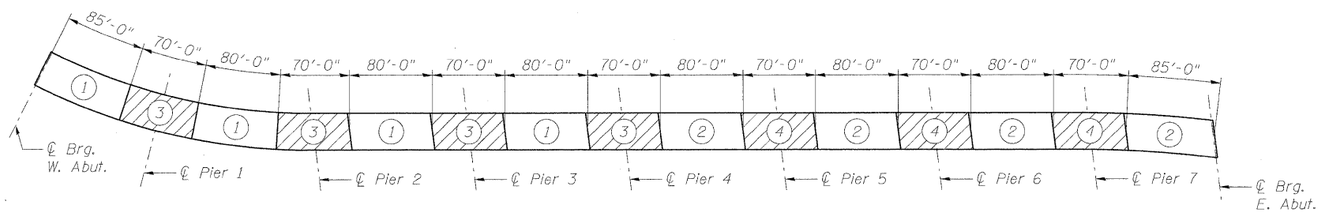


CROSS SECTION
(Looking East)



REQUIRED DECK POUR SEQUENCE

NEAR PIER

NEAR MIDSPAN

← 2.50% ← 2.50%	Sta. 109+41.50
← 2.50% ← 2.50%	Sta. 111+85.96
← 2.00% ← 2.00%	Sta. 112+02.36
← 2.00% 0.00%	Sta. 112+67.96
← 2.00% 2.00% →	Sta. 113+33.96
← 2.00% 2.00% →	Sta. 120+88.50

DECK CROSS SLOPE TRANSITIONS
(Looking East)

NOTES:

1. See Sheet S29 for Cross Frame Details.
2. When the deck pour is stopped for the day at one or more of the transverse bonded construction joints in the deck pouring sequence as shown, the next pour shall not be made until both of the following are met:
   A) At least 72 hours shall have elapsed from the end of the previous pour.
   B) The concrete strength shall have attained a minimum flexural strength of 650 psi or a minimum compressive strength of 3500 psi.
3. The Contractor is alerted that camber and dead load deflection values were developed based on the deck pouring sequence shown. Any deviation from this pouring sequence will result in changes to camber and deck elevations.
4. Deck inserts and hanger spacing for conduit shall be in accordance with the manufacturer's reccomendations but shall not exceed 10'.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

DECK CROSS SECTION
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S11 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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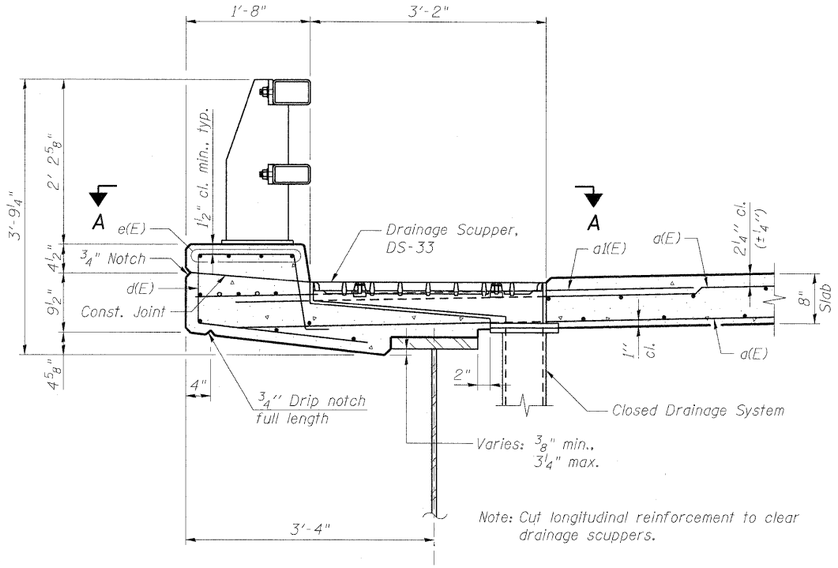
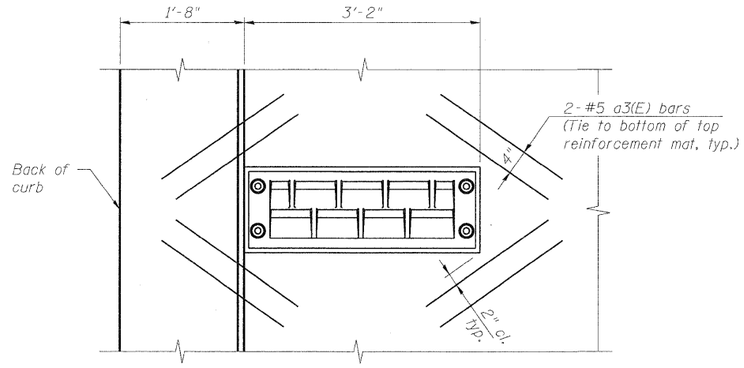
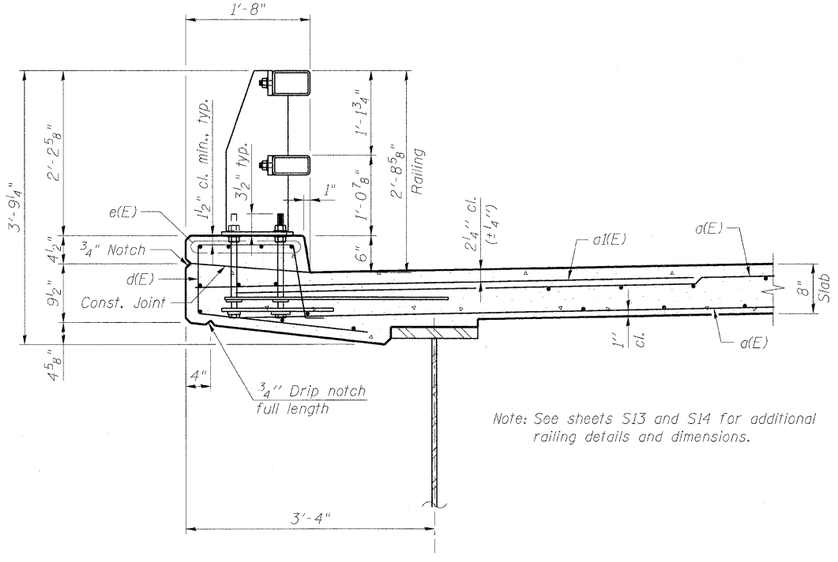
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		



SECTION THRU CURB
(At Scupper)

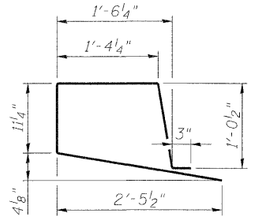


VIEW A-A

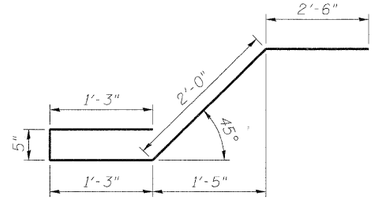


Note: See sheets S13 and S14 for additional railing details and dimensions.

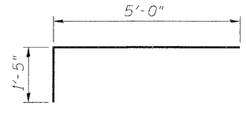
SECTION THRU CURB
(At Railing Anchorage)



BAR d(E)



BAR x(E)



BAR x1(E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	4082	#5	35'-4"	——
a1(E)	5051	#6	6'-6"	——
a2(E)	56	#5	6'-11"	——
a3(E)	104	#5	2'-0"	——
b(E)	1170	#5	41'-7"	——
b1(E)	756	#6	30'-11"	——
b2(E)	1152	#5	35'-2"	——
d(E)	2510	#5	6'-1"	⌐¬
e(E)	240	#5	41' 7"	——
x(E)	48	#5	7'-5"	⌐—
x1(E)	96	#5	6'-5"	¬—
Reinforcement Bars, Epoxy Coated			Pound	355,900
Concrete Superstructure			Cu. Yd.	1,148.9
Bridge Deck Grooving			Sq. Yd.	3,849
Protective Coat			Sq. Yd.	4,653

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	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

DECK DETAILS AND BILL OF MATERIAL
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S12 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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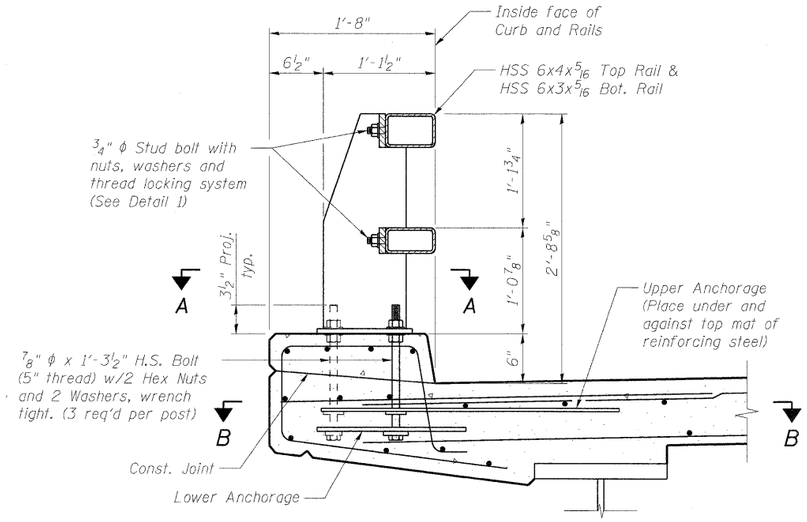
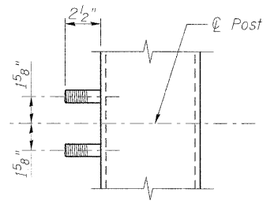
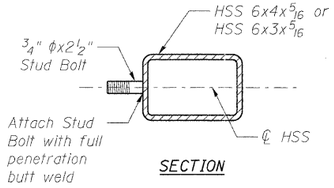
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			



RAIL POST ASSEMBLY DETAIL

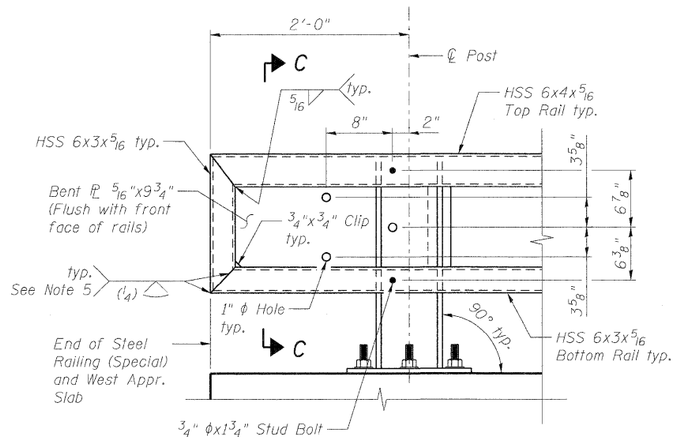


TOP VIEW



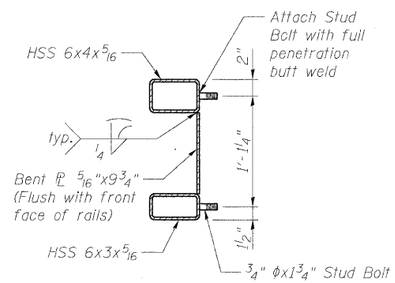
SECTION

DETAIL 1

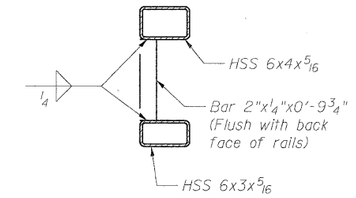


WEST RAILING END TERMINAL

(See Note 3)

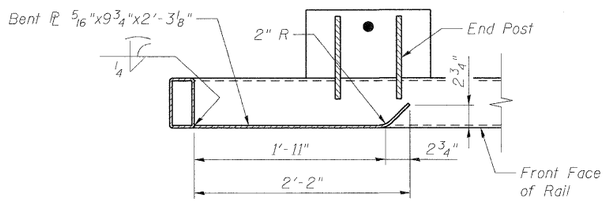


SECTION C-C

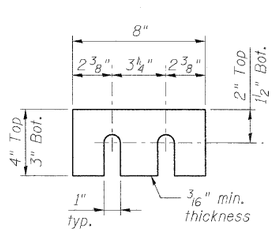


BRACE BAR DETAIL

(See Note 2)



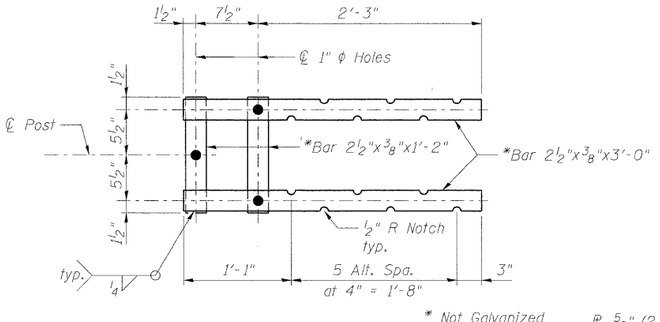
BENT PLATE DETAIL



SHIM PLATE DETAIL

VIEW A-A

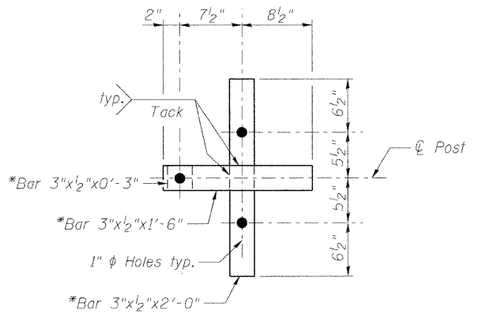
(Anchor bolts not shown)



* Not Galvanized

SECTION B-B

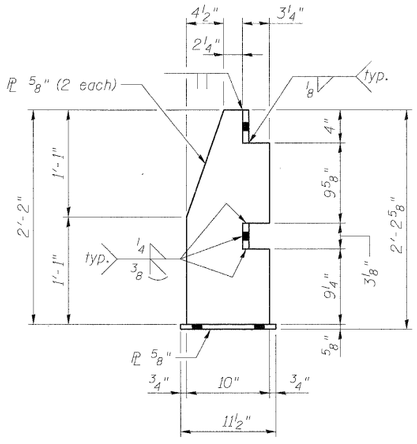
(At Upper Anchorage)



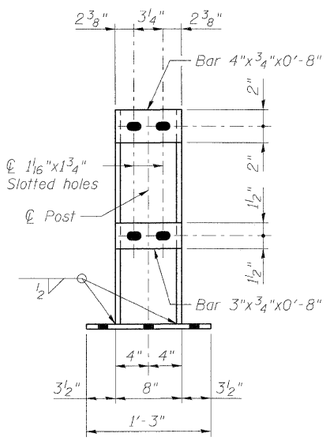
* Not Galvanized

SECTION B-B

(At Lower Anchorage)



SIDE VIEW



FRONT VIEW

RAIL POST DETAIL

(See View A-A for Anchor Bolt spacing)

NOTES:

1. Anchor bolts may be tack welded to lower anchorage (Shop or Field).
2. Brace bars shall be placed 2'-0" from the splice end of the shorter tube at end terminals.
3. Contractor shall coordinate hole locations of the traffic barrier terminal end shoes with the west railing end terminal shown above. Slotting or relocating holes in the end shoes will be required. Bolted connections through the bent plate shall be made with ¾" ϕ H.S. bolts and nuts. Cost of this work shall be included with "Steel Railing (Special)."
4. Shim plates shall be provided as required to align front face of railing with flow line of curb during construction. Cost of this work shall be included with "Steel Railing (Special)."
5. Fabricator shall prepare a macroetched sample of the indicated joint to demonstrate that the required effective throat is achieved.

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

2-TUBE RAILING DETAILS (1 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S13 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	235
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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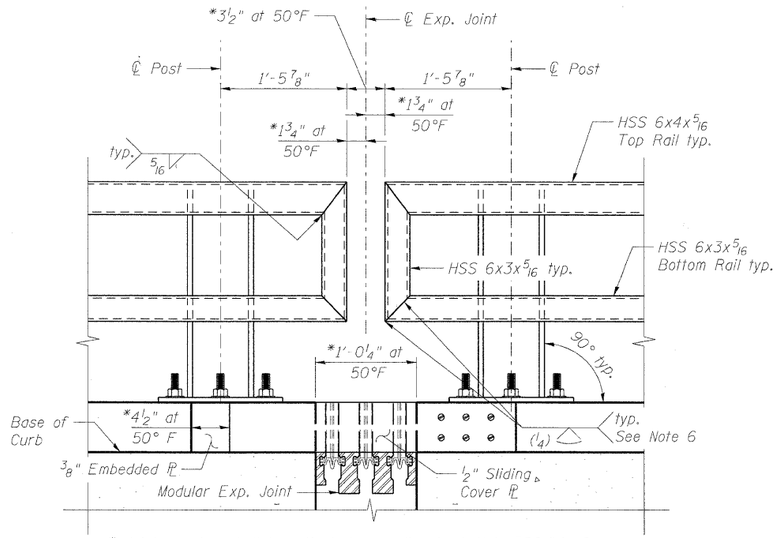
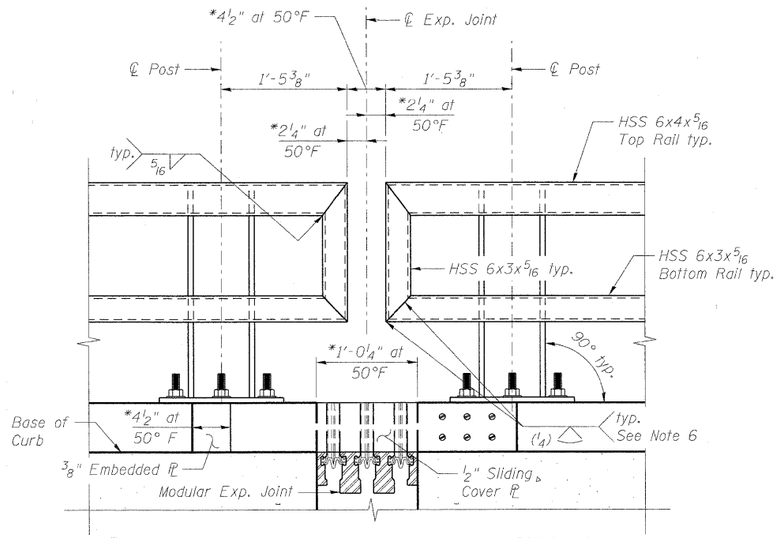


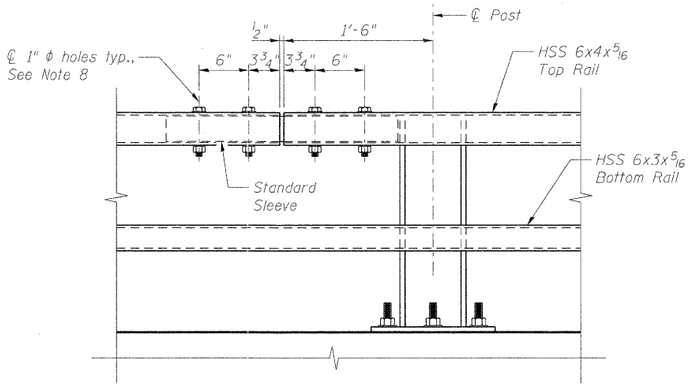
* Joint opening shall be adjusted according to Article 520.04 of the Standard Specifications when the blockout is cast at an ambient temperature other than 50°F.

RAILING END TERMINAL DETAIL AT WEST MODULAR JOINT



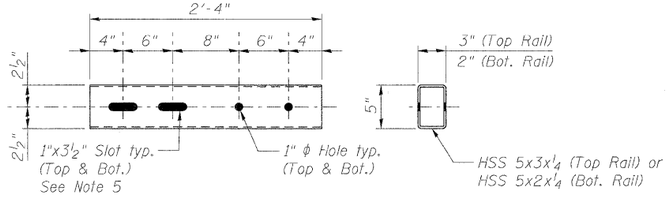
* Joint opening shall be adjusted according to Article 520.04 of the Standard Specifications when the blockout is cast at an ambient temperature other than 50°F.

RAILING END TERMINAL DETAIL AT EAST MODULAR JOINT



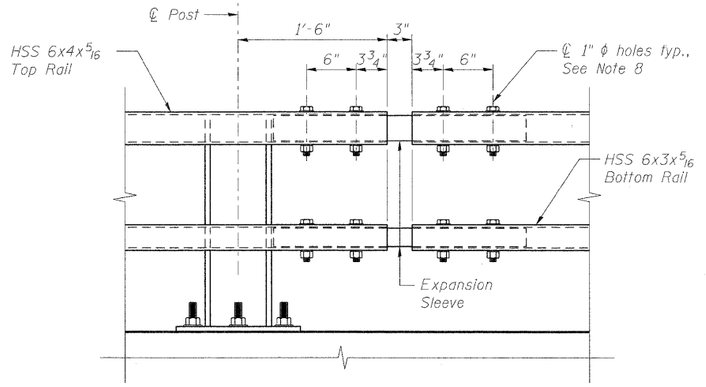
STANDARD SPLICE

(Top or bottom rail)

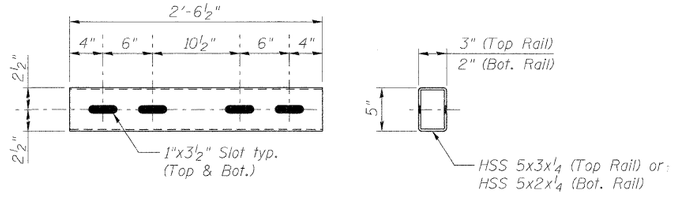


TOP VIEW END VIEWv

STANDARD & DOUBLE-BOLTED SLEEVE DETAILS

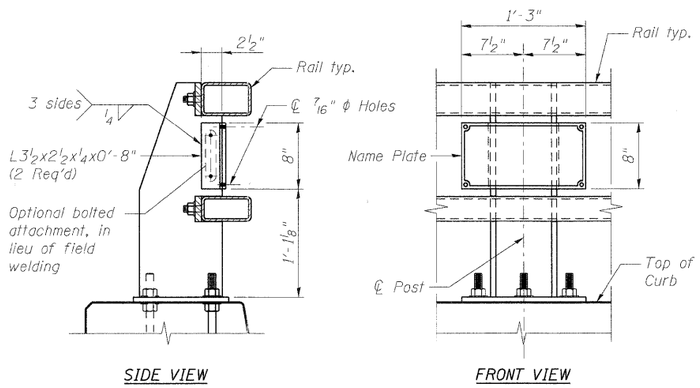


EXPANSION SPLICE



TOP VIEW END VIEWv

EXPANSION SLEEVE DETAILS



SIDE VIEW FRONT VIEW

NAME PLATE MOUNT DETAILS

(See Std. 515001 for Name Plate Details, cost of mounting name plate shall be included in the cost for "Name Plate")

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Steel Railing (Special)	Foot	3,087

This quantity also includes 673 feet of steel railing along Red Gate Road between SN 045-6024 and SN 045-6019.

NOTES:

1. Splices may be located on either side of post.
2. Not more than one splice is permitted per side of post, except at expansion splices.
3. Shop splices of rails are not permitted.
4. Center to center post spacing shall be a maximum of 9'-3" and a minimum of 7'-0". Edge of base plate shall not be less than 6" from any cold joint or curb discontinuity including the back of abutment or end of approach slab.
5. Rails shall be continuous over a minimum of two posts. Rails at end terminals are considered continuous if either the top or bottom rail in the terminal is continuous over a minimum of two posts.
6. Fabricator shall prepare a macroetched sample of the indicated joint to demonstrate that the required effective throat is achieved.
7. Drill 1" ϕ holes in Rails for 3/4" ϕx5 1/2" bolts (Top Rail) and 3/4" ϕx4 1/2" bolts (Bot. Rail). Bolts shall be A325 H.S. with hex nut, washer and lock washer. Wrench tight, do not crush rail.
8. An expansion splices shall be located over the joint at the west end of the west approach slab of SN 045-6019, joining the bridge railings with the railings placed along the roadway.
9. Top and bottom rails shall be curved to match the radius at the flow line of curb.
10. Cover plates shall be mounted towards oncoming traffic.
11. Either top or bottom rail in the terminal section may be the longer rail.
12. Brace bars shall be placed 2'-0" from the splice end of the shorter tube at end terminals. See Sheet S13 for details.

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CITY OF ST. CHARLES

2-TUBE RAILING DETAILS (2 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S14 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	236
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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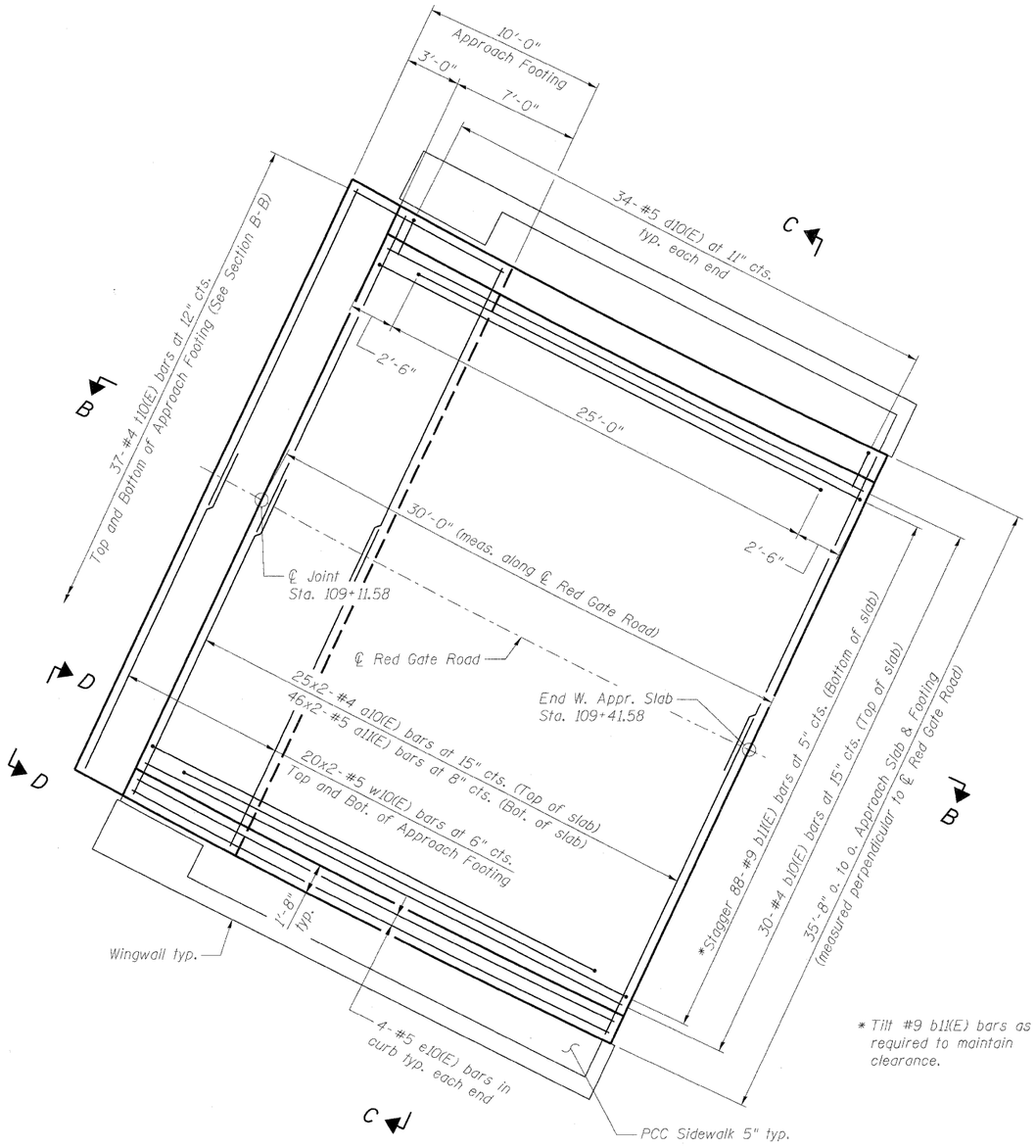


PLAN - WEST APPROACH SLAB

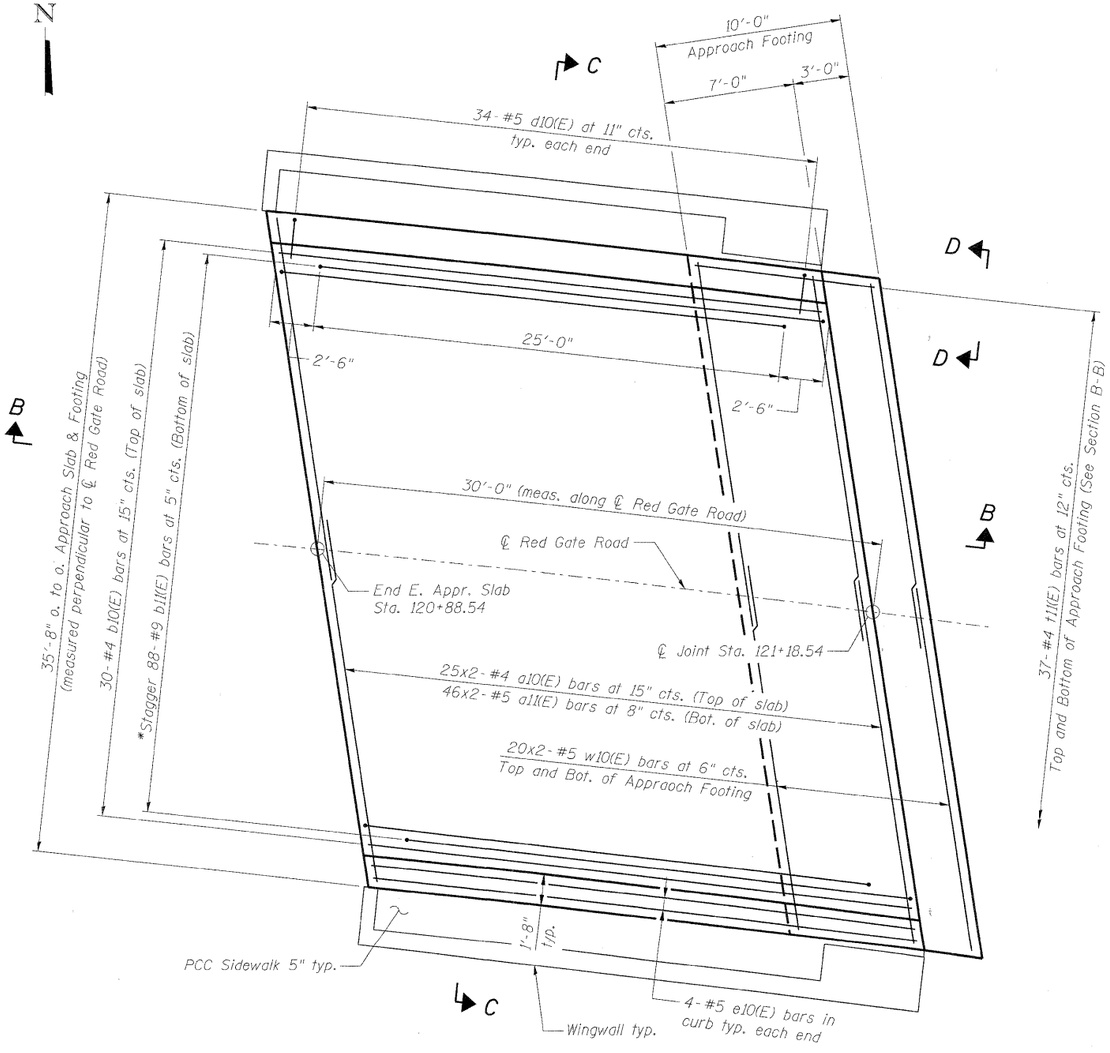
* Tilt #9 b11(E) bars as required to maintain clearance.

MINIMUM BAR LAP

#4 bar = 2'-7"
#5 bar = 3'-3"

NOTES:

1. Work this sheet with sheet S16.
2. a10(E) and a11(E) bar spacings measured along ℄ Red Gate Road.
3. Transverse dimensions measured radially.
4. See Sheets S37 thru S40 for dimensions between end of approach slab and abutment backwall.



PLAN - EAST APPROACH SLAB

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CITY OF ST. CHARLES

BRIDGE APPROACH SLAB PLAN
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S15 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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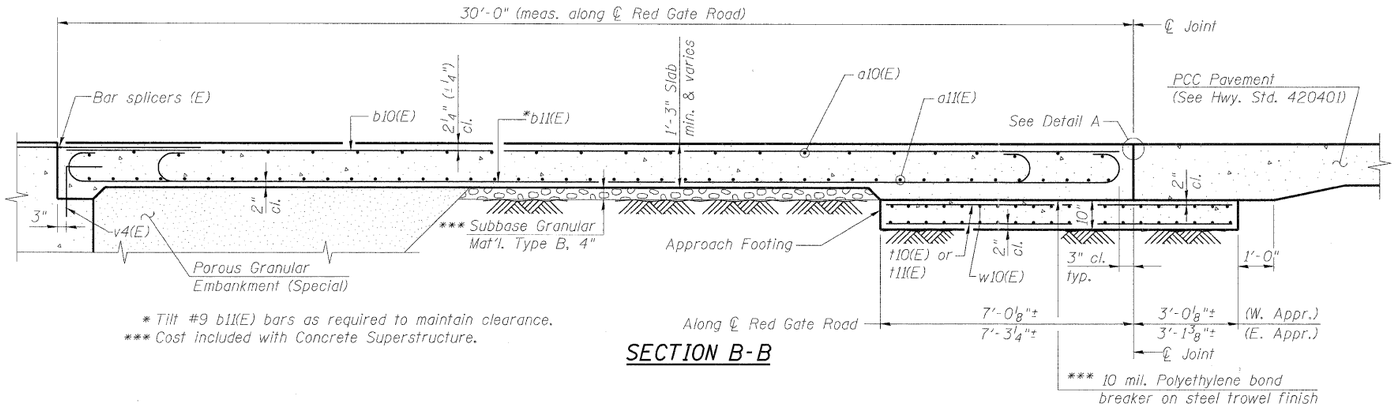
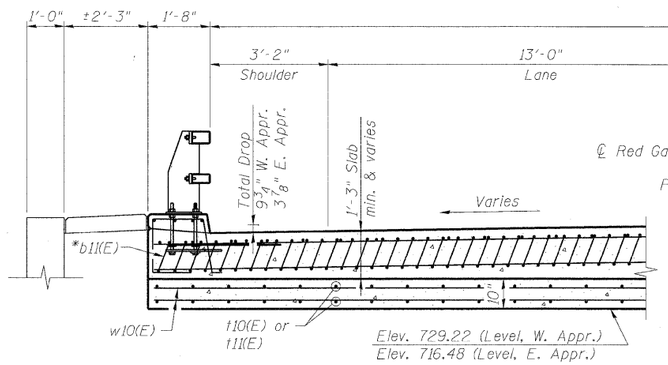


* Tilt #9 b11(E) bars as required to maintain clearance.
*** Cost included with Concrete Superstructure.

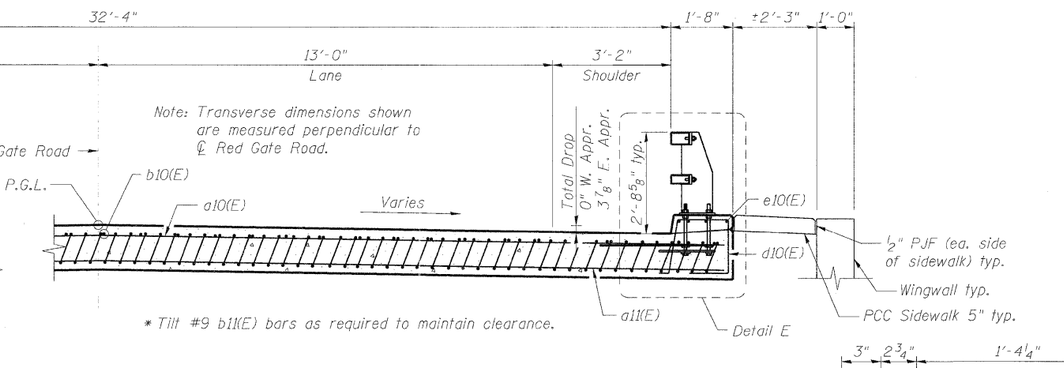
SECTION B-B

NOTES:

1. Work this sheet with sheet S15.
2. Approach slab and curb concrete shall be paid for as Concrete Superstructure.
3. Approach footing concrete shall be paid for as Concrete Structures.
4. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
5. For v4(E) bar details, see Sheets S37 thru S40.
6. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
7. For bar splicer details, see Sheet S49.
8. Cost of excavation for approach footing included with Concrete Structures.
9. For Porous Granular Embankment (Special) and drainage treatment details, see sheet S2.
10. See Sheets S13 and S14 for additional railing details and dimensions.



AT APPROACH FOOTING



* Tilt #9 b11(E) bars as required to maintain clearance.

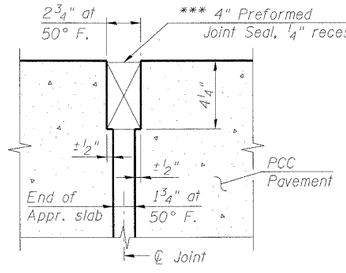
SECTION C-C

(See Plan for dimensions not shown)

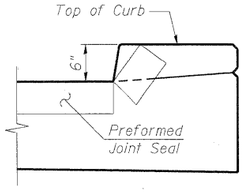
TWO APPROACHES BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a10(E)	100	#4	19'-9"	
a11(E)	184	#5	20'-0"	
b10(E)	60	#4	29'-8"	
b11(E)	176	#9	29'-9"	
d10(E)	136	#5	5'-7"	
e10(E)	16	#5	29'-8"	
t10(E)	74	#4	9'-8"	
t11(E)	74	#4	10'-0"	
w10(E)	160	#5	20'-0"	
Concrete Superstructure		Cu. Yd.	108.8	
Concrete Structures		Cu. Yd.	22.5	
Reinforcement Bars, Epoxy Coated		Pound	29,800	
Portland Cement Concrete Sidewalk 5 Inch		Sq. Ft.	227	
Protective Coat		Sq. Yd.	245	
Bridge Deck Grooving		Sq. Yd.	203	

*** Cost included with Concrete Superstructure.

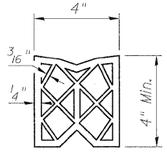


DETAIL A

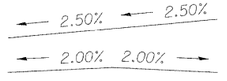


VIEW D-D

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



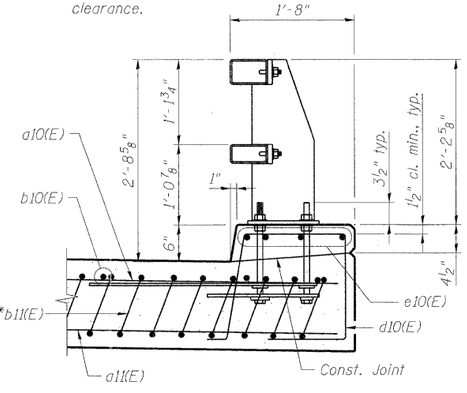
PREFORMED JOINT SEAL



CROSS SLOPES

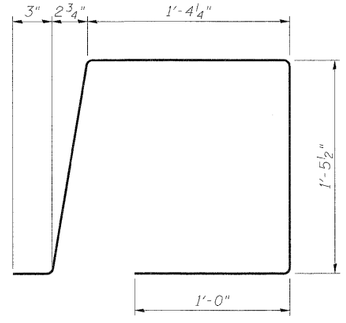
(Looking East)

* Tilt #9 b11(E) bars as required to maintain clearance.

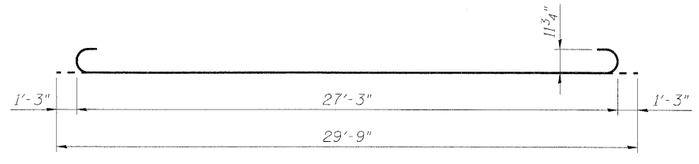


DETAIL E

NEAR ABUTMENT



BAR d10(E)



BAR b11(E)

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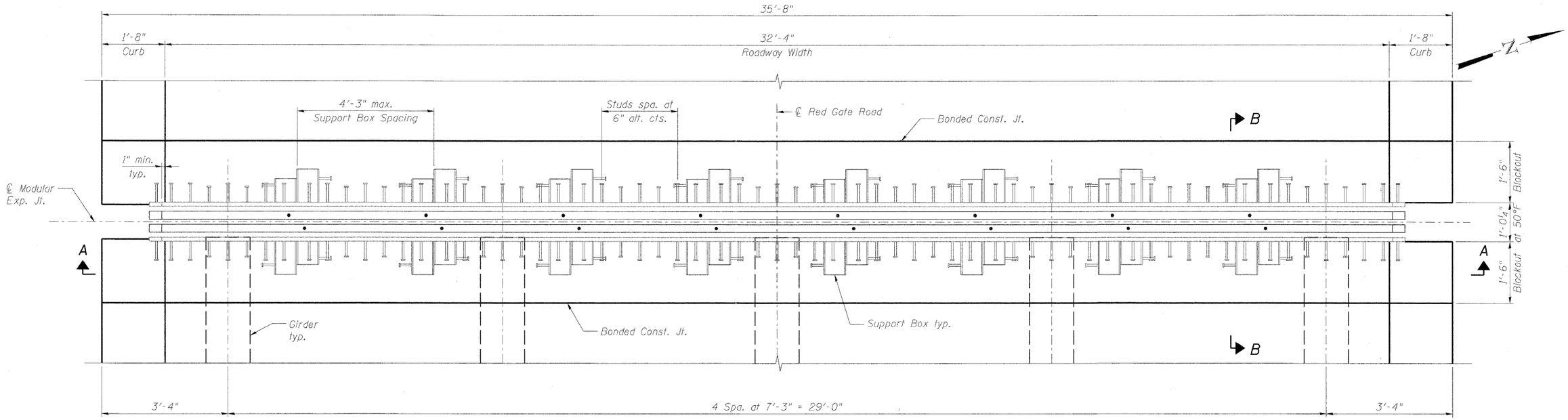
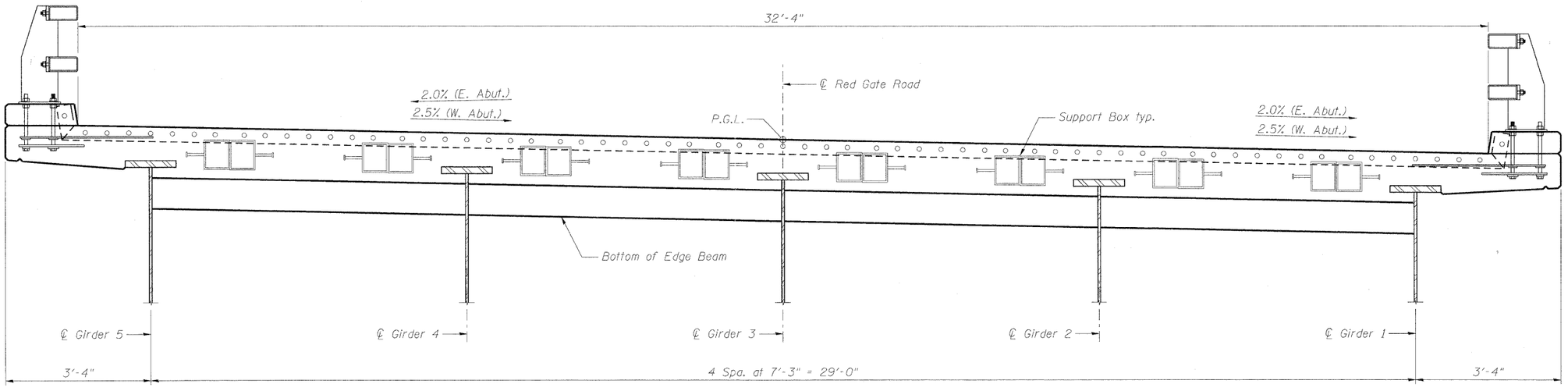
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S16 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	238
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		



PLAN - MODULAR EXPANSION JOINT

(West Expansion Joint shown, East Expansion Joint similar)
(Railing and Cover Plates at joint not shown)



SECTION A-A

(End Cross Frame and Cover Plates at curb not shown for clarity)

NOTES:

1. Support box size and spacing to be determined by manufacturer. Support boxes must be spaced clear of beams to avoid interference.
2. See Sheet S18 for Section B-B and Cover Plate details at curbs.

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MODULAR EXPANSION JOINT DETAILS 1
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S17 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	239
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	ILLINOIS	FED. AID PROJECT		

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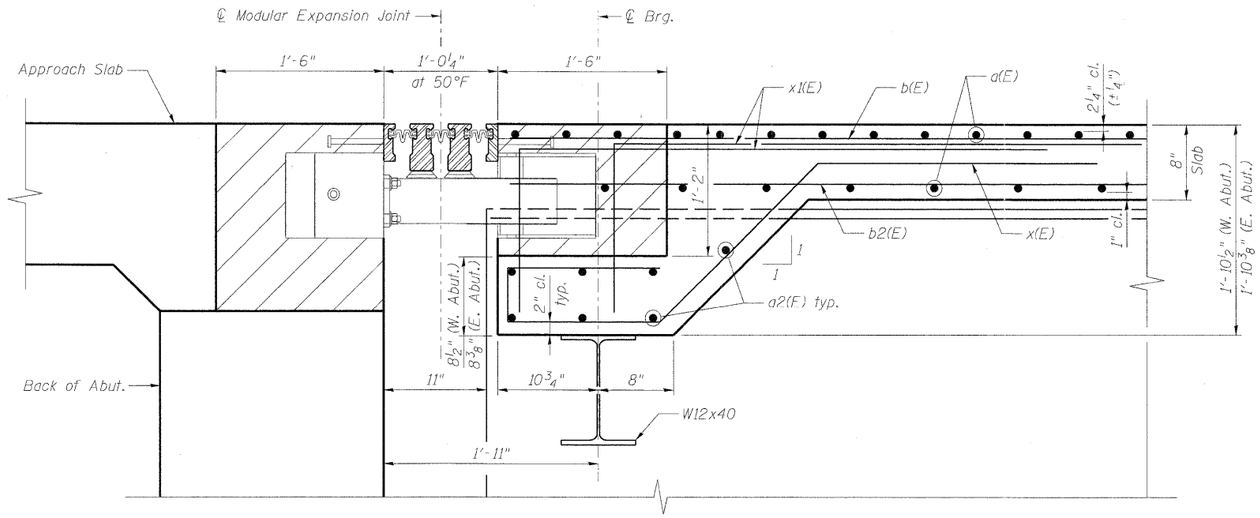
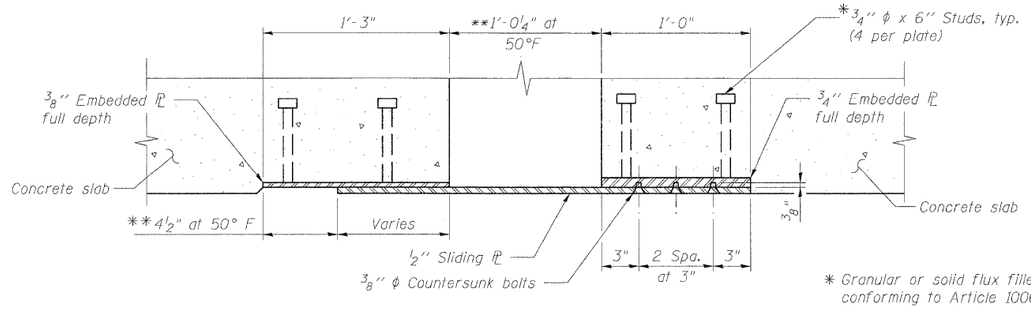


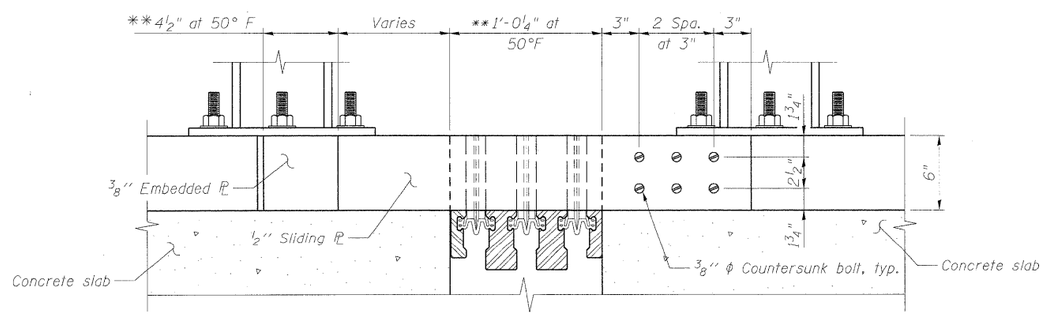
SECTION B-B



PLAN - COVER PLATE AT CURB

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

** See Note 6.



ELEVATION - COVER PLATE AT CURB

NOTES:

1. Modular Expansion Joints shall be designed according to the Special Provisions and to the latest AASHTO LRFD Bridge Design Specifications for HL-93 loading with impact.
2. Joints shall be fabricated and installed according to the manufacturer's recommendations and as shown in the Special Provisions for Modular Joint System and as approved by the Engineer. Joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance.
3. Joints shall be fabricated to match the roadway profile and cross-slopes.
4. All structural steel elements such as separator beams, edge beams, and support bars shall be fabricated with AASHTO M270 Grade 50 steel unless specified otherwise by the manufacturer.
5. Modular Expansion Joints shall be the Steelflex system by the D.S. Brown Company, WABO system by the Watson Bowman Acme Corporation, or the LG System by TechStar Incorporated. The joint shall provide the following movements at each location: 6⅛" at the W. Abut., 8" at the E. Abut.
6. Joint openings shall be adjusted according to Article 520.04 of the Standard Specifications when the blockout is cast at an ambient temperature other than 50°F.
7. Cover plates to be AASHTO M183 steel and hot-dipped galvanized according to AASHTO M111 after fabrication.
8. Countersunk Cap Screws and Concrete Inserts to be hot-dipped galvanized according to AASHTO M232.
9. The cost of furnishing and installing the Cover Plates, Countersunk Cap Screws, and the Stud Anchors is included with Modular Expansion Joint 9".
10. Modular Expansion Joints shall be shipped in one piece unless noted.
11. Concrete Anchor Studs shall be according to Article 1006.32 of the Standard Specifications.
12. All splices of center beams and edge beams located in the roadway shall be full penetration welds (Upturn splices may be partial penetration welds).
13. Cover Plates shall be mounted towards oncoming traffic.
14. Cost of cover plates shall be included in the cost of Modular Expansion Joint 9".
15. For abutment hatchblock reinforcement see Sheets S37 through S40.
16. Hatched area to be poured after superstructure false work has been removed and Modular Joint is fixed in position. Quantity of concrete included with Concrete Superstructure.
17. For Cross Frame Details see Sheet S29.

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MODULAR EXPANSION JOINT DETAILS 2
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S18 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	240
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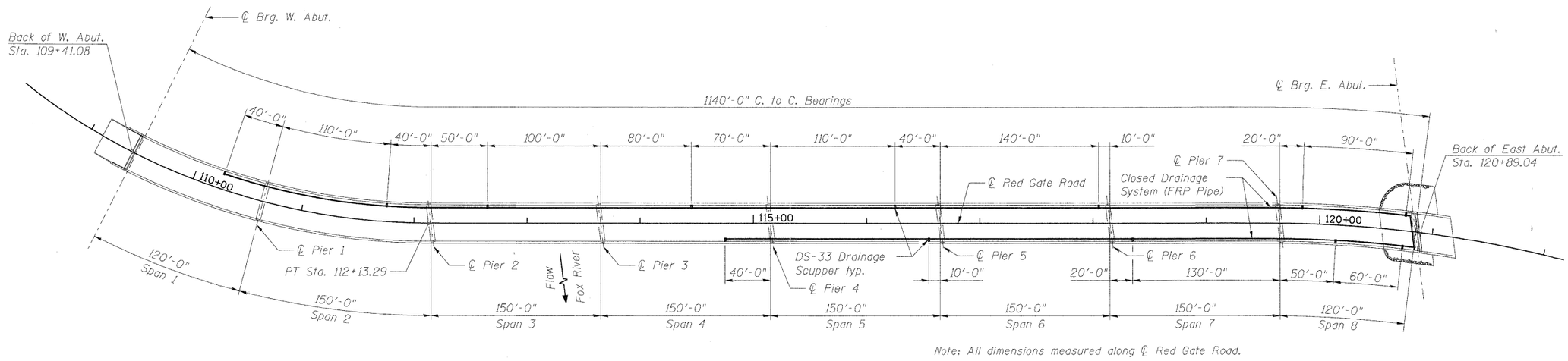
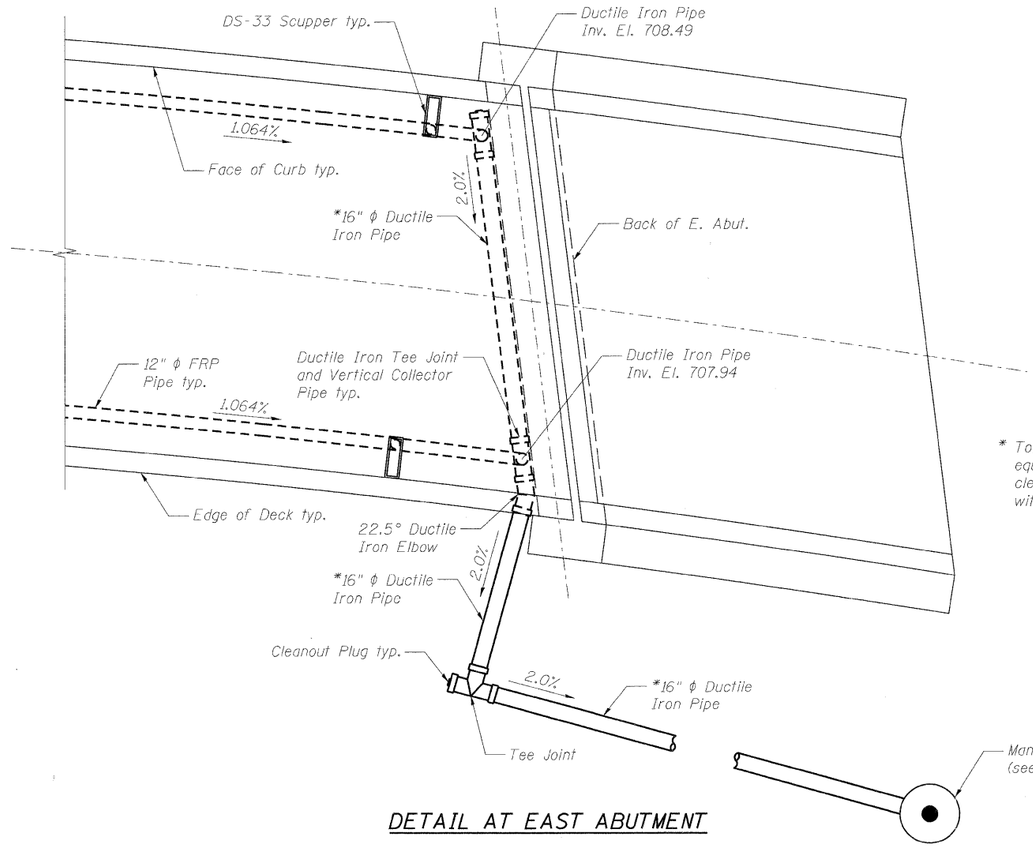


Note: All dimensions measured along ℄ Red Gate Road.

PLAN



* Total length of 16" ϕ Ductile Iron Pipe equal to ±140'-0". Cost of pipe, fittings, cleanouts, and anchorages to be included with "Drainage System."

DETAIL AT EAST ABUTMENT

NOTES:

1. Expansion Collars shall be provided at maximum spacing of 250'-0", each with a total movement capacity equal to 7".
2. See Sheet S20 for Drainage System Details.

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DRAINAGE SYSTEM PLAN
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S19 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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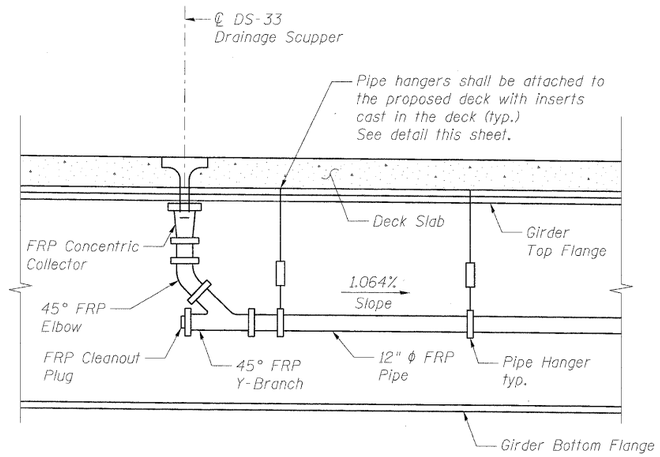
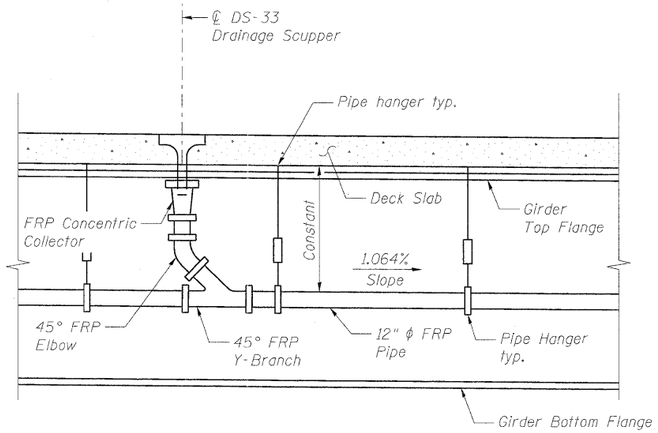


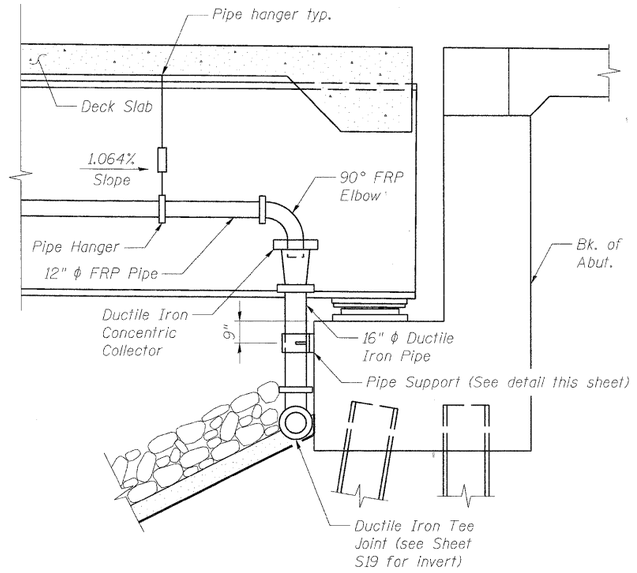
WEST END START DETAIL

(Girder 1 shown, Girder 5 opposite hand)



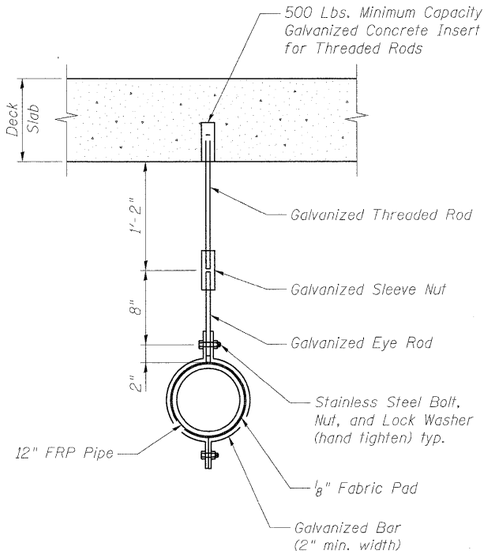
IINTERMEDIATE SCUPPER DETAILS

(Girder 1 shown, Girder 5 opposite hand)

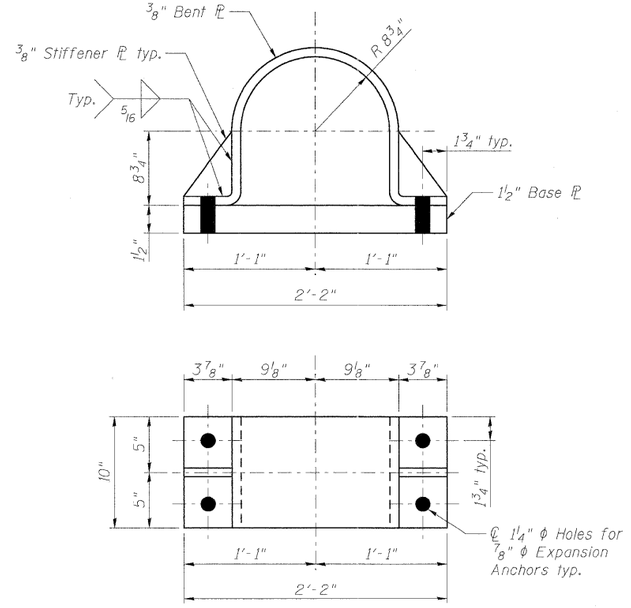


END DETAIL AT EAST ABUTMENT

(Girder 1 shown, Girder 5 opposite hand)



PIPE HANGER DETAILS



PIPE SUPPORT DETAIL

NOTES:

1. Expansion Collars shall be provided at maximum spacing of 250'-0", each with a total movement capacity equal to 7". All expansion collars shall be watertight flexible joint couplings
2. See Sheet S19 for Drainage System Plan.

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DRAINAGE DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S20 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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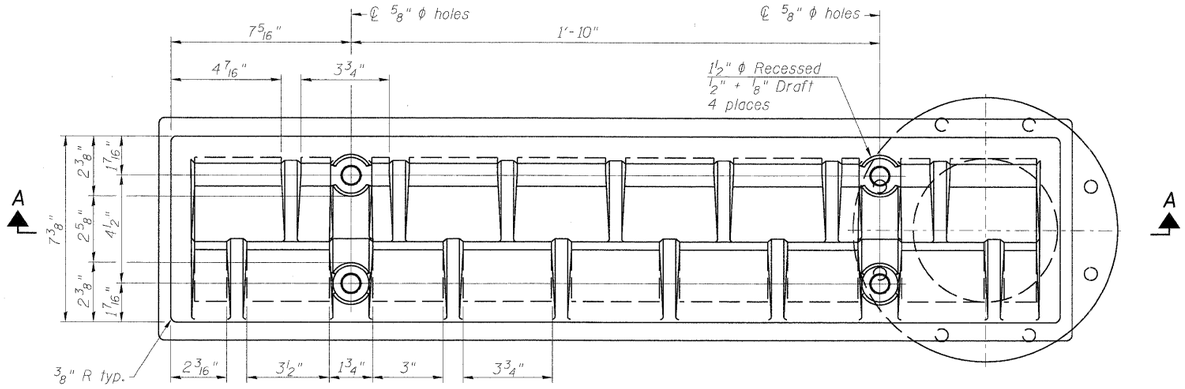
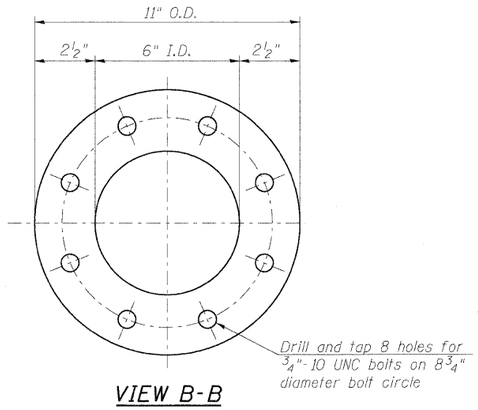


PLAN



VIEW B-B

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

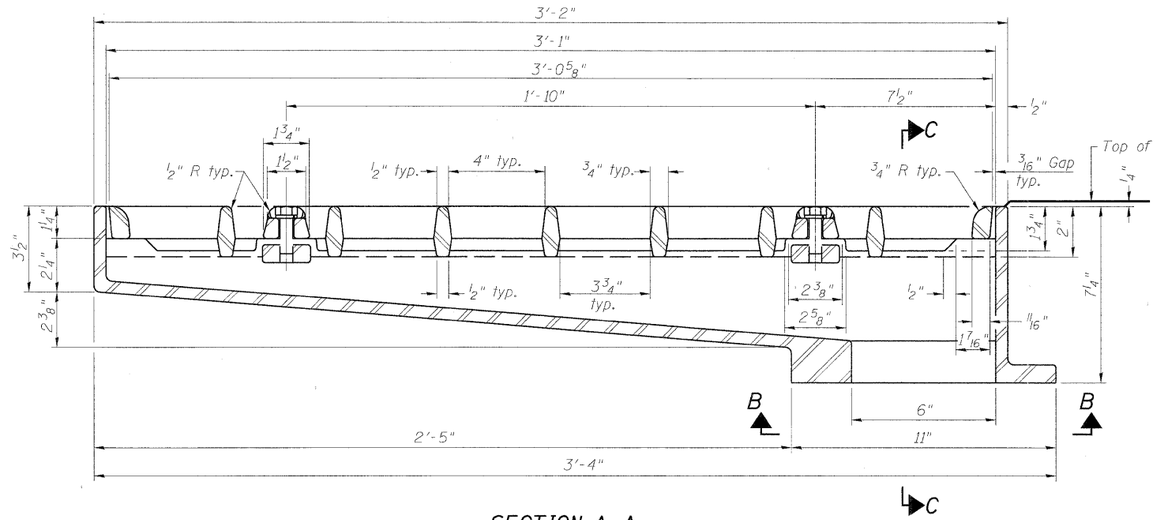
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

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

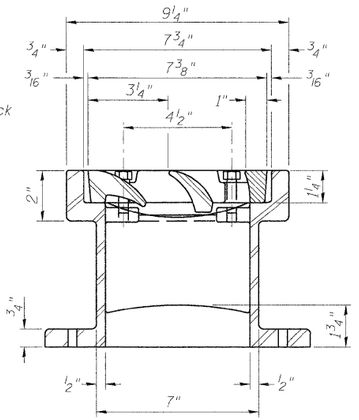
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-33.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

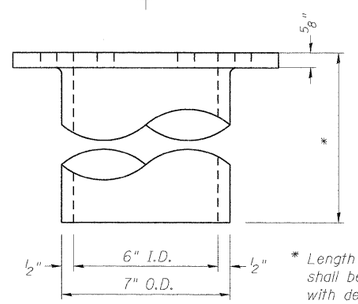


SECTION A-A

(See Sheet S12 for scupper location relative to curb)

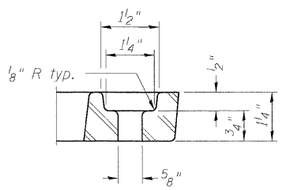


SECTION C-C

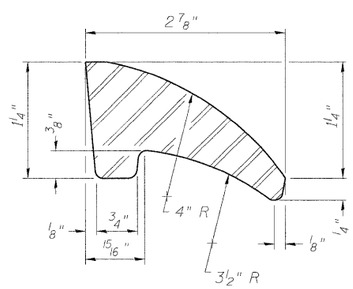


* Length of downspout shall be coordinated with design of closed drainage system.

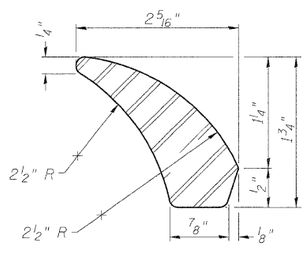
DOWNSPOUT



BOLT HOLE DETAIL



FIRST VANE DETAIL



SECOND VANE DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-33	Each	13

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DRAINAGE SCUPPER, DS-33

STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER

SHEET NO. S21 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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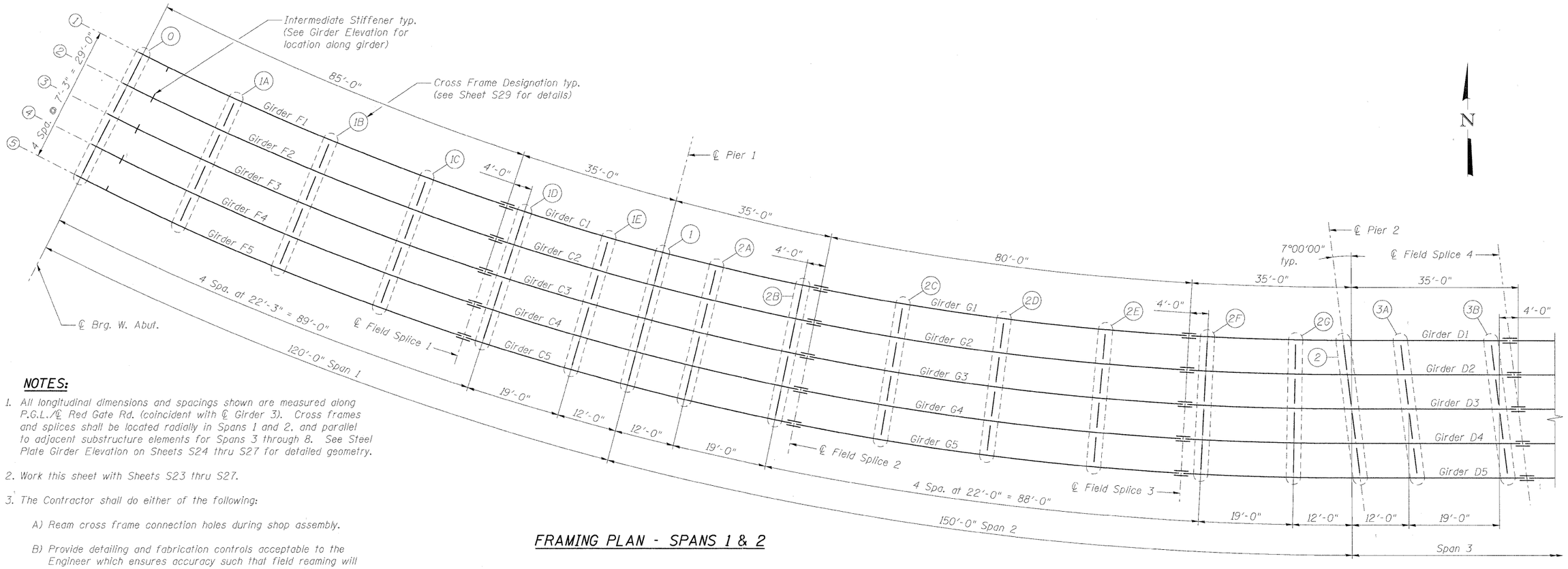
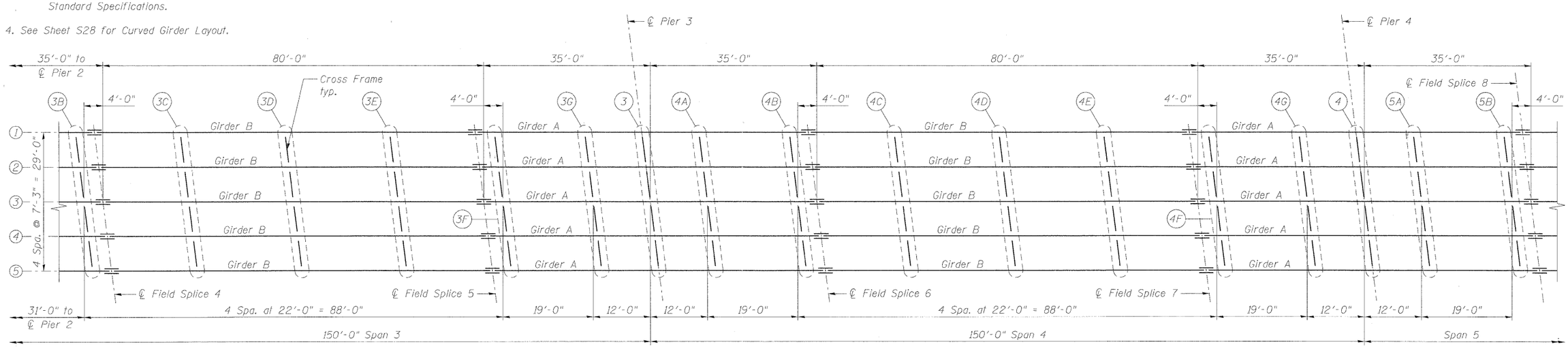


NOTES:

1. All longitudinal dimensions and spacings shown are measured along P.G.L./℄ Red Gate Rd. (coincident with ℄ Girder 3). Cross frames and splices shall be located radially in Spans 1 and 2, and parallel to adjacent substructure elements for Spans 3 through 8. See Steel Plate Girder Elevation on Sheets S24 thru S27 for detailed geometry.
2. Work this sheet with Sheets S23 thru S27.
3. The Contractor shall do either of the following:
   - A) Ream cross frame connection holes during shop assembly.
   - B) Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(l) of the Standard Specifications.
4. See Sheet S28 for Curved Girder Layout.

FRAMING PLAN - SPANS 1 & 2



FRAMING PLAN - SPANS 3 & 4

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FRAMING PLAN (1 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S22 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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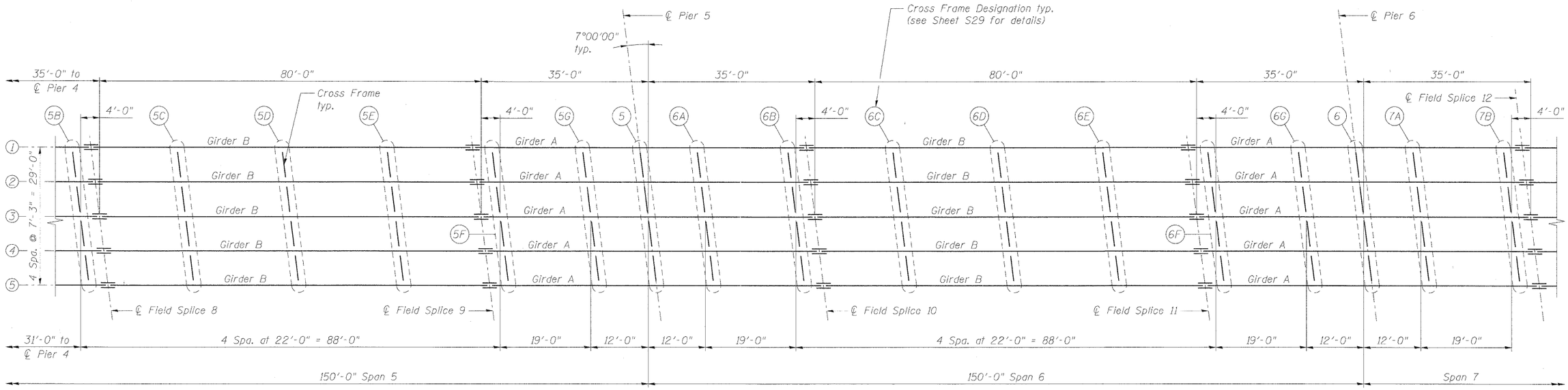
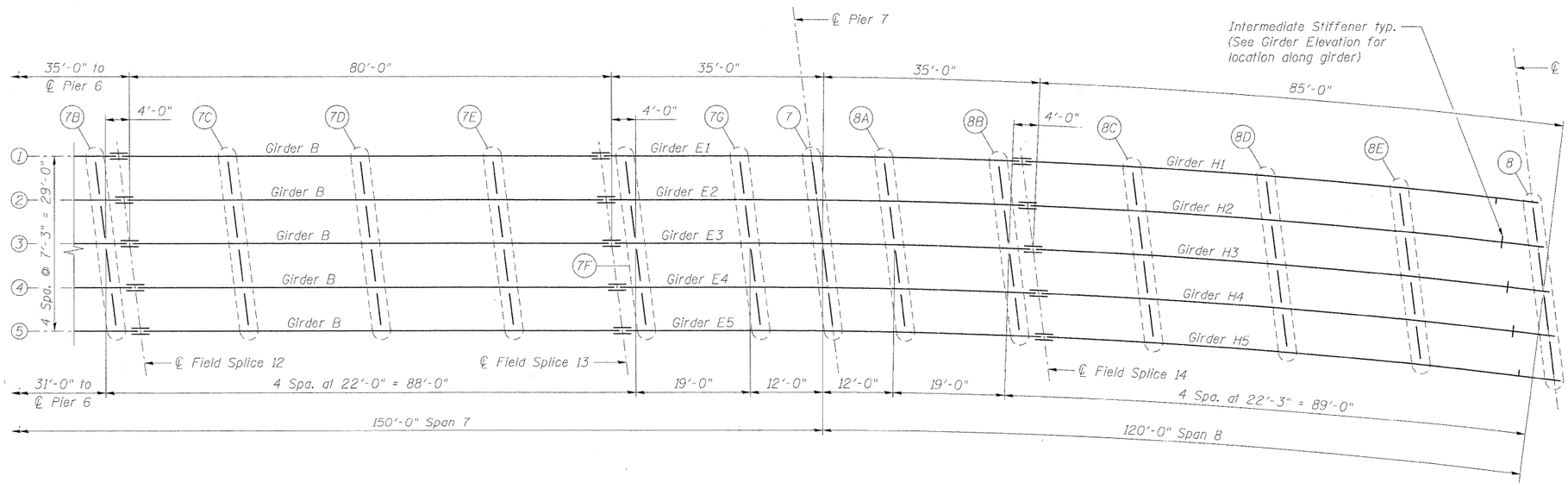


FRAMING PLAN - SPANS 5 & 6



FRAMING PLAN - SPANS 7 & 8

NOTES:

1. All longitudinal dimensions and spacings shown are measured along P.G.L./℄ Red Gate Rd. (coincident with ℄ Girder 3). Cross frames and splices shall be located radially in Spans 1 and 2, and parallel to adjacent substructure elements for Spans 3 through 8. See Steel Plate Girder Elevation on Sheets S24 thru S27 for detailed geometry.
2. Work this sheet with Sheets S22 and S24 thru S27.
3. The Contractor shall do either of the following:
   A) Ream cross frame connection holes during shop assembly.
   B) Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.
4. See Sheet S28 for Curved Girder Layout.

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FRAMING PLAN (2 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S23 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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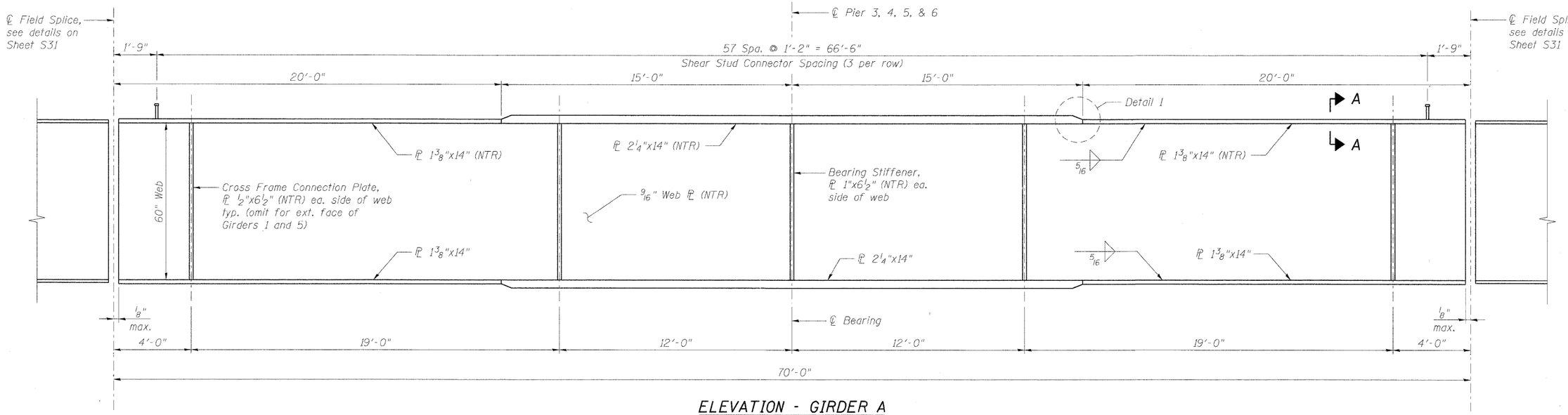
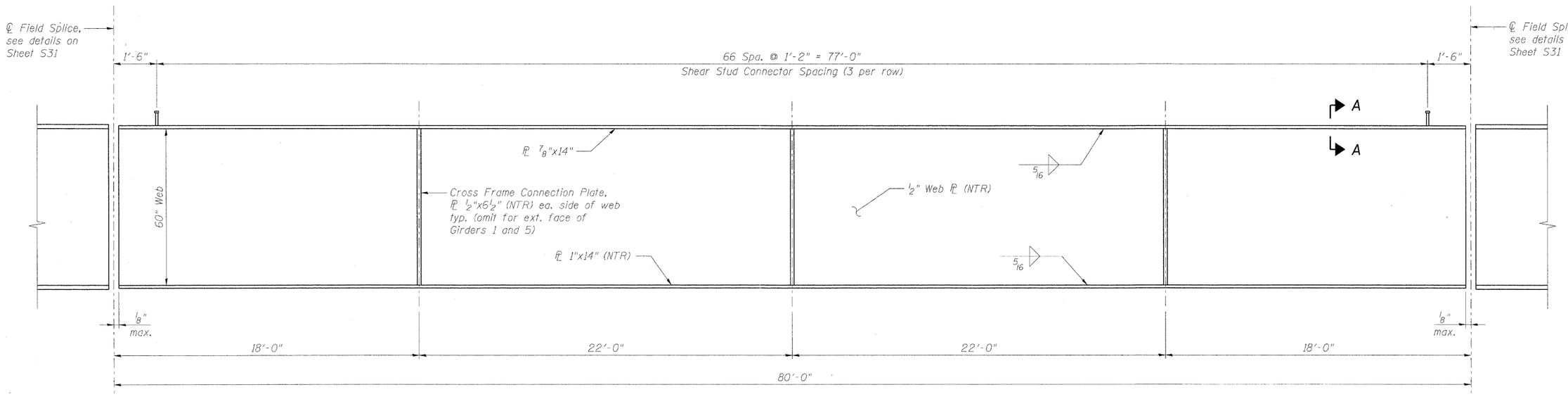
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			



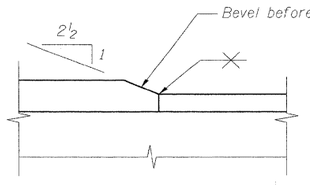
ELEVATION - GIRDER A

(20 Req'd)



ELEVATION - GIRDER B

(25 Req'd)



DETAIL 1

(Typ.)

NOTES:

1. All flange plates, web plates, bearing stiffeners, and cross frame connection plates shall be AASHTO M270 Grade 50 steel.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. Work this sheet with Sheets S22 thru S23 and S25 thru S27.
4. See Sheet S30 for Section A-A.

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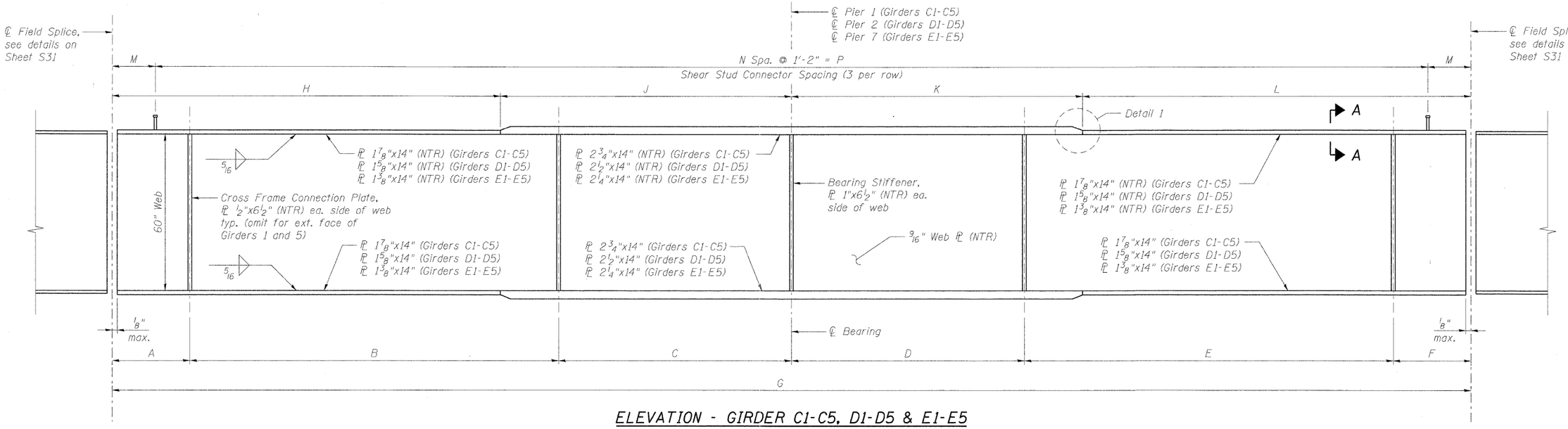
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

STEEL PLATE GIRDER ELEVATION (1 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S24 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	246
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

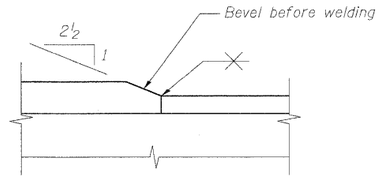


ELEVATION - GIRDER C1-C5, D1-D5 & E1-E5

(Looking North)

GIRDER DIMENSIONS

Girder	A	B	C	D	E	F	G	H	J	K	L	M	N	P
C1	3'-10 3/4"	18'-6 1/4"	11'-8 3/8"	11'-8 3/8"	18'-6 1/4"	3'-10 3/4"	68'-2 7/8"	19'-6"	14'-7 1/2"	14'-7 1/2"	19'-6"	1'-5 3/8"	56	65'-4"
C2	3'-11 3/8"	18'-9 1/8"	11'-10 1/8"	11'-10 1/8"	18'-9 1/8"	3'-11 3/8"	69'-1 3/8"	19'-9"	14'-9 3/4"	14'-9 3/4"	19'-9"	1'-10 3/4"	56	65'-4"
C3	4'-0"	19'-0"	12'-0"	12'-0"	19'-0"	4'-0"	70'-0"	20'-0"	15'-0"	15'-0"	20'-0"	1'-9"	57	66'-6"
C4	4'-0 5/8"	19'-2 7/8"	12'-1 7/8"	12'-1 7/8"	19'-2 7/8"	4'-0 5/8"	70'-10 5/8"	20'-3"	15'-2 1/4"	15'-2 1/4"	20'-3"	1'-7 1/4"	58	67'-8"
C5	4'-1 1/4"	19'-5 3/4"	12'-3 5/8"	12'-3 5/8"	19'-5 3/4"	4'-1 1/4"	71'-9 1/8"	20'-6"	15'-4 1/2"	15'-4 1/2"	20'-6"	1'-5 5/8"	59	68'-10"
D1	3'-10 3/4"	18'-6 1/4"	9'-11 1/2"	12'-0"	19'-0"	4'-0"	67' 4 1/2"	19'-6"	12'-10 5/8"	15'-0"	20'-0"	1'-7 1/4"	55	64'-2"
D2	3'-11 3/8"	18'-9 1/8"	10'-11 3/4"	12'-0"	19'-0"	4'-0"	68'-8 1/4"	19'-9"	13'-11 1/4"	15'-0"	20'-0"	1'-8 1/8"	56	65'-4"
D3	4'-0"	19'-0"	12'-0"	12'-0"	19'-0"	4'-0"	70'-0"	20'-0"	15'-0"	15'-0"	20'-0"	1'-9"	57	66'-6"
D4	4'-0 5/8"	19'-2 7/8"	13'-0 1/4"	12'-0"	19'-0"	4'-0"	71'-3 3/4"	20'-3"	16'-0 3/4"	15'-0"	20'-0"	1'-9 7/8"	58	67'-8"
D5	4'-1 1/4"	19'-5 3/4"	14'-0 1/2"	12'-0"	19'-0"	4'-0"	72'-1 7/2"	20'-6"	17'-1 3/8"	15'-0"	20'-0"	1'-10 3/4"	59	68'-10"
E1	4'-0"	19'-0"	12'-0"	12'-0"	18'-11 7/8"	4'-0"	69'-11 7/8"	20'-0"	15'-0"	15'-0"	19'-11 7/8"	1'-8 7/8"	57	66'-6"
E2	4'-0"	19'-0"	12'-0"	12'-0"	19'-0"	4'-0"	69'-11 7/8"	20'-0"	15'-0"	15'-0"	20'-0"	1'-9"	57	66'-6"
E3	4'-0"	19'-0"	12'-0"	12'-0"	19'-0"	4'-0"	70'-0"	20'-0"	15'-0"	15'-0"	20'-0"	1'-9"	57	66'-6"
E4	4'-0"	19'-0"	12'-0"	12'-0"	19'-0"	4'-0"	70'-0 1/8"	20'-0"	15'-0"	15'-0"	20'-0"	1'-9"	57	66'-6"
E5	4'-0"	19'-0"	12'-0"	12'-0"	19'-0 1/8"	4'-0"	70'-0 1/8"	20'-0"	15'-0"	15'-0"	20'-0 1/8"	1'-9 1/8"	57	66'-6"



DETAIL 1

(Typ.)

NOTES:

1. All flange plates, web plates, bearing stiffeners, and cross frame connection plates shall be AASHTO M270 Grade 50 steel.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. Work this sheet with Sheets S22 thru S24 and S26 thru S27.
4. See Sheet S30 for Section A-A.

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STEEL PLATE GIRDER ELEVATION (2 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S25 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	247
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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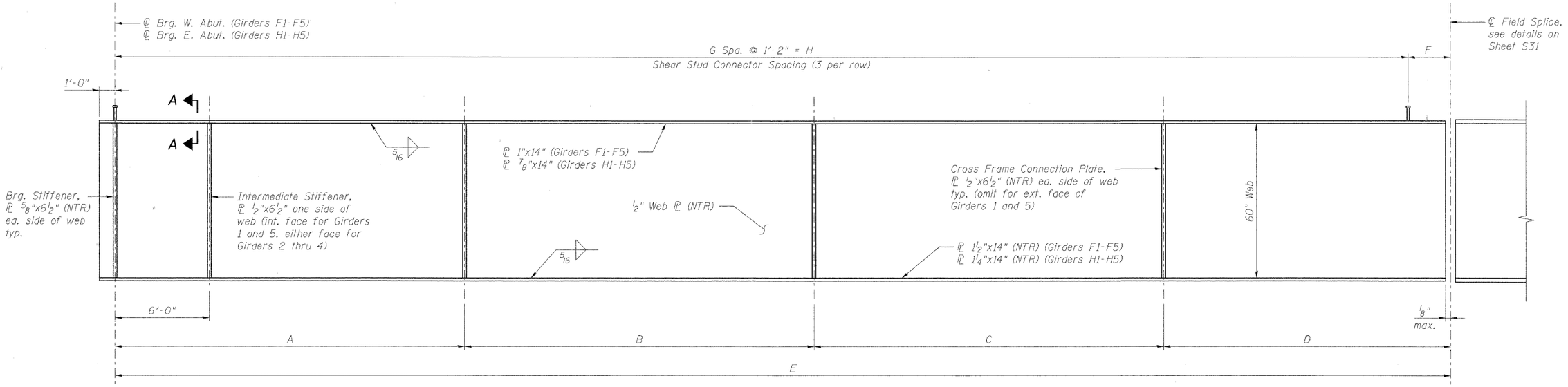

ELEVATION - GIRDER F1-F5 & H1-H5

(Looking North for Girders F1-F5,
Looking South for Girders H1-H5)

GIRDER DIMENSIONS

Girder	A	B	C	D	E	F	G	H
F1	21'-8 1/4"	21'-8 1/4"	21'-8 1/4"	17'-9 1/2"	82'-10 1/4"	2'-4 1/4"	69	80'-6"
F2	21'-11 5/8"	21'-11 5/8"	21'-11 5/8"	18'-0 1/4"	83'-11 5/8"	2'-3 1/8"	70	81'-8"
F3	22'-3"	22'-3"	22'-3"	18'-3"	85'-0"	2'-2"	71	82'-10"
F4	22'-6 3/8"	22'-6 3/8"	22'-6 3/8"	18'-5 3/4"	86'-0 7/8"	2'-0 7/8"	72	84'-0"
F5	22'-9 3/4"	22'-9 3/4"	22'-9 3/4"	18'-8 1/2"	87'-1 3/4"	1'-11 3/4"	73	85'-2"
H1	22'-2 3/4"	22'-2 7/8"	22'-2 7/8"	18'-2 7/8"	84'-11 3/8"	2'-1 3/8"	71	82'-10"
H2	22'-2 7/8"	22'-2 7/8"	22'-2 7/8"	18'-3"	84'-11 3/4"	2'-1 3/4"	71	82'-10"
H3	22'-3"	22'-3"	22'-3"	18'-3"	85'-0"	2'-2"	71	82'-10"
H4	22'-3 1/8"	22'-3 1/8"	22'-3 1/8"	18'-3"	85'-0 1/4"	2'-2 1/4"	71	82'-10"
H5	22'-3 1/4"	22'-3 1/8"	22'-3 1/8"	18'-3 1/8"	85'-0 5/8"	2'-2 5/8"	71	82'-10"

NOTES:

1. All flange plates, web plates, bearing stiffeners, and cross frame connection plates shall be AASHTO M270 Grade 50 steel.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. Work this sheet with Sheets S22 thru S25 and S27.
4. See Sheet S30 for Section A-A.

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STEEL PLATE GIRDER ELEVATION (3 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S26 OF S56 SHEETS

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

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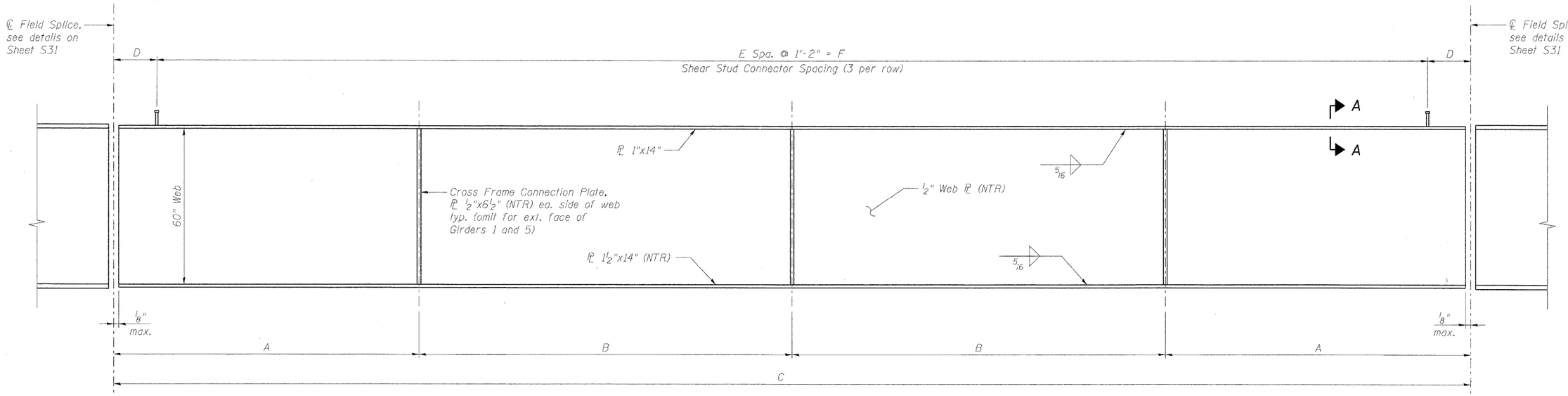

ELEVATION - GIRDER G1-G5

GIRDER DIMENSIONS

Girder	A	B	C	D	E	F
G1	17'-6 1/2"	21'-5 3/8"	77'-11 3/4"	1'-7 7/8"	64	74'-8"
G2	17'-9 1/4"	21'-8 5/8"	78'-11 7/8"	1'-7"	65	75'-10"
G3	18'-0"	22'-0"	80'-0"	1'-6"	66	77'-0"
G4	18'-2 3/4"	22'-3 3/8"	81'-0 1/8"	2'-0"	66	77'-0"
G5	18'-5 1/2"	22'-6 5/8"	82'-0 1/4"	1'-11 1/8"	67	78'-2"

NOTES:

1. All flange plates, web plates, bearing stiffeners, and cross frame connection plates shall be AASHTO M270 Grade 50 steel.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
3. Work this sheet with Sheets S22 thru S26.
4. See Sheet S30 for Section A-A.

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CITY OF ST. CHARLES

STEEL PLATE GIRDER ELEVATION (4 OF 4)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S27 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	249
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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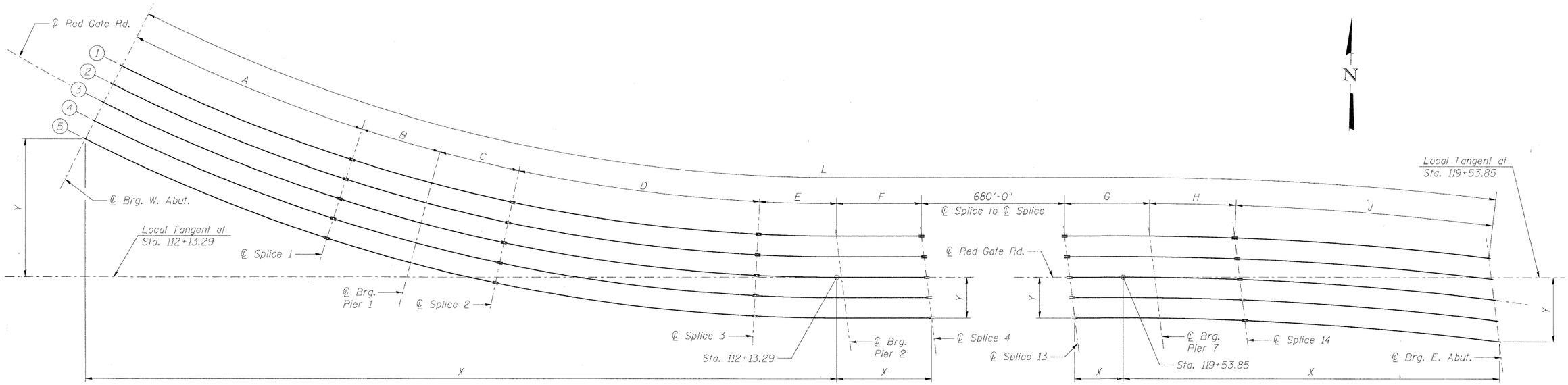
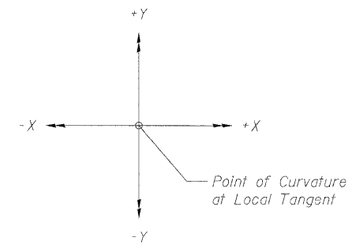


PLAN

GIRDER DIMENSIONS (in feet)

Girder	W. Curve Radius	E. Curve Radius	A	B	C	D	E	F	G	H	J	L
1	560.50	1089.50	82.86	34.12	34.12	77.98	32.38	35.00	35.00	34.99	84.95	1131.39
2	567.75	1082.25	83.93	34.56	34.56	78.99	33.69	35.00	35.00	34.99	84.98	1135.70
3	575.00	1075.00	85.00	35.00	35.00	80.00	35.00	35.00	35.00	35.00	85.00	1140.00
4	582.25	1067.75	86.07	35.44	35.44	81.01	36.31	35.00	35.00	35.01	85.03	1144.31
5	589.50	1060.50	87.14	35.88	35.88	82.02	37.62	35.00	35.00	35.01	85.05	1148.61



LEGEND

LAYOUT DIMENSIONS (in feet)

Girder	W. Abut.		Splice 1		Pier 1		Splice 2		Splice 3		Pier 2		Splice 4		Splice 13		Pier 7		Splice 14		E. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	-252.14	74.41	-175.66	42.74	-142.95	33.04	-109.72	25.34	-32.43	15.44	-0.07	14.50	34.93	14.50	-25.63	14.50	9.37	14.46	44.35	13.60	129.01	6.84
2	-255.40	67.94	-177.93	35.85	-144.80	26.03	-111.14	18.23	-32.85	8.20	0.82	7.25	35.82	7.25	-24.74	7.25	10.26	7.20	45.24	6.30	129.92	-0.58
3	-258.66	61.46	-180.20	28.97	-146.65	19.02	-112.56	11.12	-33.27	0.96	1.71	0.00	36.71	0.00	-23.85	0.00	11.15	-0.06	46.14	-0.99	130.83	-7.99
4	-261.92	54.99	-182.47	22.08	-148.50	12.01	-113.98	4.02	-33.69	-6.27	2.60	-7.25	37.60	-7.25	-22.96	-7.25	12.04	-7.32	47.03	-8.29	131.74	-15.41
5	-265.18	48.51	-184.75	15.20	-150.35	5.00	-115.40	-3.09	-34.11	-13.51	3.49	-14.50	38.49	-14.50	-22.07	-14.50	12.93	-14.58	47.93	-15.58	132.65	-22.83

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F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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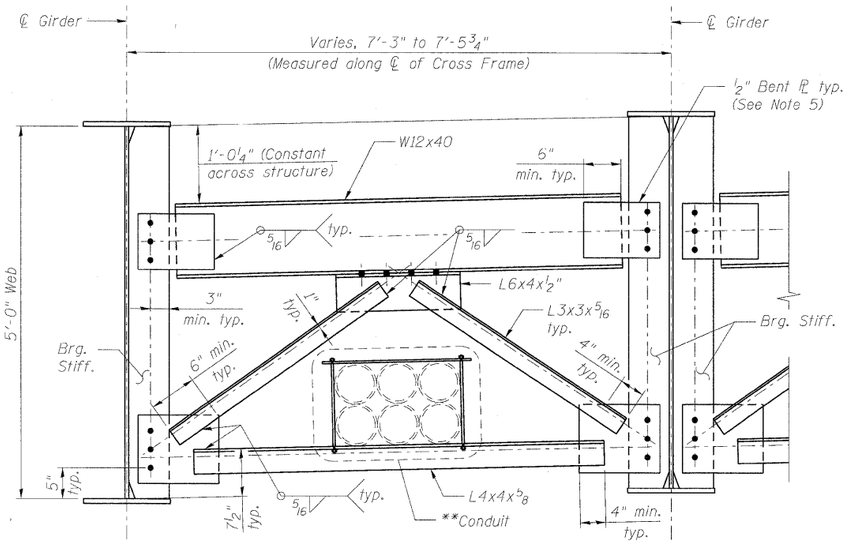
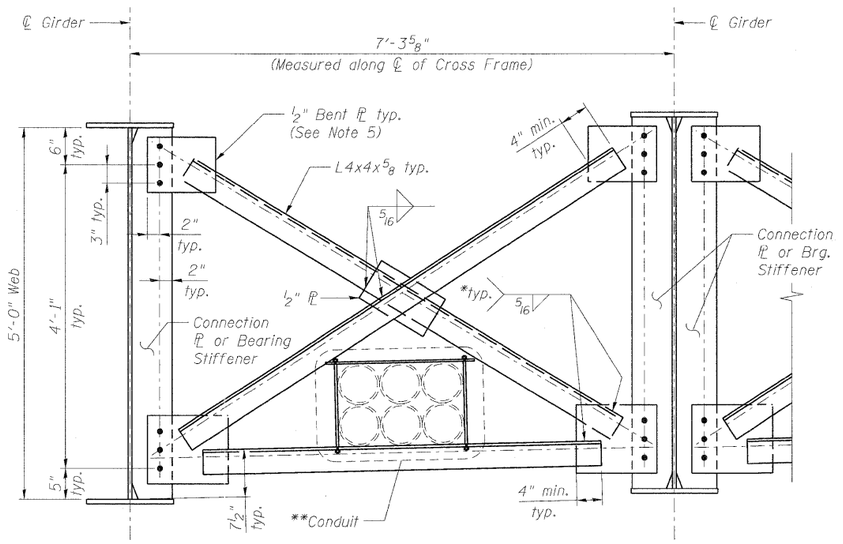


TYPE I CROSS FRAME

(No. cross frames required = 8)



TYPE III CROSS FRAME

(No. cross frames required = 156)

* Fillet weld angles along 3 sides on one face of gusset plate.

** Located on each side of Girder 3 only, see Intermediate Conduit Support Detail for additional information.

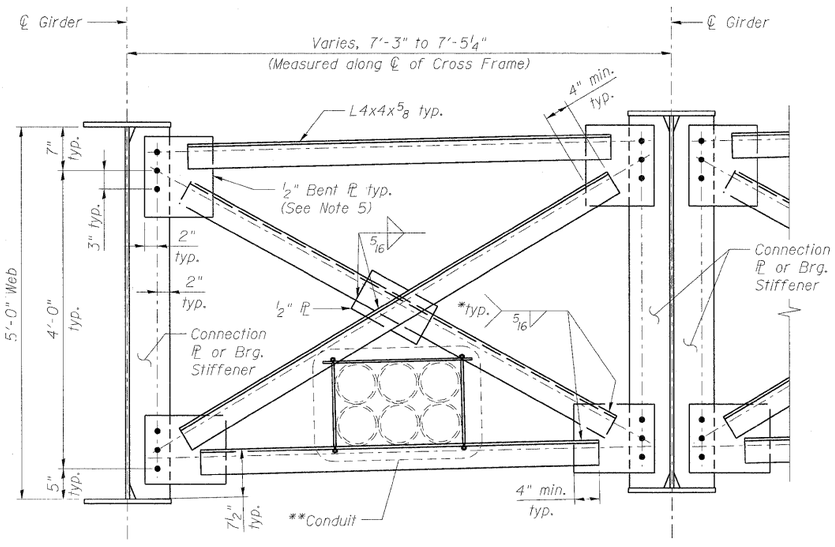
CROSS FRAME DIMENSIONS

Cross Frame	Type	Girders 1-2	Girders 2-3	Girders 3-4	Girders 4-5
0	I	7'-3"	7'-3"	7'-3"	7'-3"
1A-2G	II	7'-3"	7'-3"	7'-3"	7'-3"
2	II	7'-3 5/8"	7'-3 5/8"	7'-3 5/8"	7'-3 5/8"
3A-7G	III	7'-3 5/8"	7'-3 5/8"	7'-3 5/8"	7'-3 5/8"
7	II	7'-3 3/4"	7'-3 3/4"	7'-3 3/4"	7'-3 3/4"
8A	II	7'-3 7/8"	7'-3 7/8"	7'-3 7/8"	7'-3 7/8"
8B	II	7'-4 1/8"	7'-4 1/8"	7'-4 1/8"	7'-4 1/8"
8C	II	7'-4 3/8"	7'-4 1/2"	7'-4 1/2"	7'-4 1/2"
8D	II	7'-4 3/4"	7'-4 3/4"	7'-4 7/8"	7'-4 7/8"
8E	II	7'-5 1/8"	7'-5 1/4"	7'-5 1/4"	7'-5 1/4"
8	I	7'-5 5/8"	7'-5 5/8"	7'-5 5/8"	7'-5 3/4"

Measured along ℄ Cross Frame between ℄ Girders.

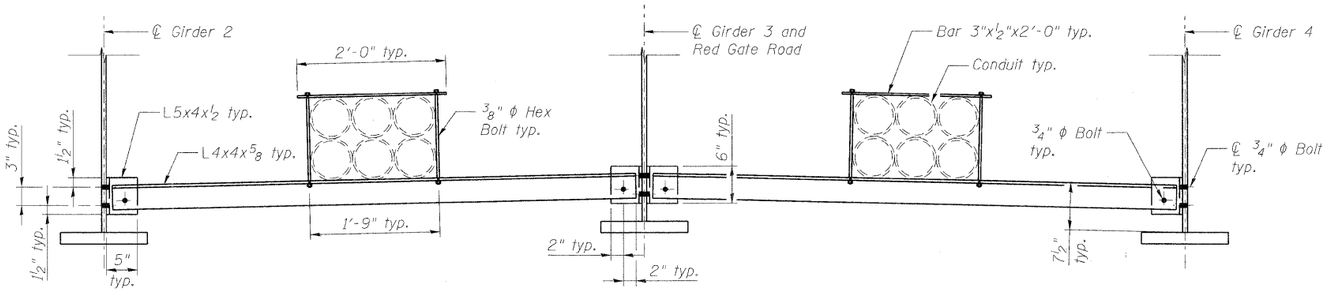
NOTES:

1. All cross frame members shall be AASHTO M270 Grade 50 steel.
2. See Steel Plate Girder Details on Sheet S30 for bearing stiffener and connection plate details.
3. All cross frames between 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.
4. All cross frame components shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
5. Connection Plates are not bent at Cross Frames 0 thru 2G, where ℄ Cross Frame is perpendicular to ℄ Girder. Bent Connection Plates are required at Cross Frames 2 thru 8, where ℄ Cross Frame is skewed to ℄ Girder.
6. Cost of intermediate conduit supports and all conduit mounting accessories shall be included in the cost ofFurnishing and Erecting Structural Steel Bridge No. 2.
7. The calculated deflections of the girders under steel self-weight shall be used to detail the cross frame connections, and to erect the structural steel such that the girders will be plumb within a tolerance of ±1/8" per vertical foot throughout when supporting their own weight. See Sheet S32 for steel only deflections.
8. For location of Stiffeners and Connection Plates. see Sheets S24 thru S27.
9. Hex bolts, nuts, and washers for conduit support detail shall be hot-dipped galvanized and conform to ASTM A307.
10. Contractor shall verify spacing requirements and anchorage details conduit supports with manufacturer.
11. Intermediate conduit supports shall be placed at mid-distance between cross frames where cross frames are greater than 15'-0" apart. Support shall be perpendicular to girder webs.
12. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8" ϕ, holes 15/16" ϕ, unless noted otherwise.



TYPE II CROSS FRAME

(No. cross frames required = 80)



INTERMEDIATE CONDUIT SUPPORT DETAIL

(No. intermediate conduit supports required = 46)

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CITY OF ST. CHARLES

STEEL PLATE GIRDER CROSS FRAME DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S29 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	251
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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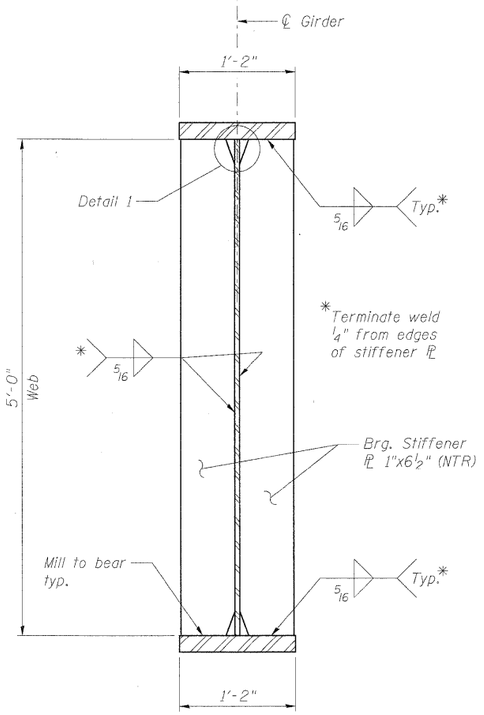
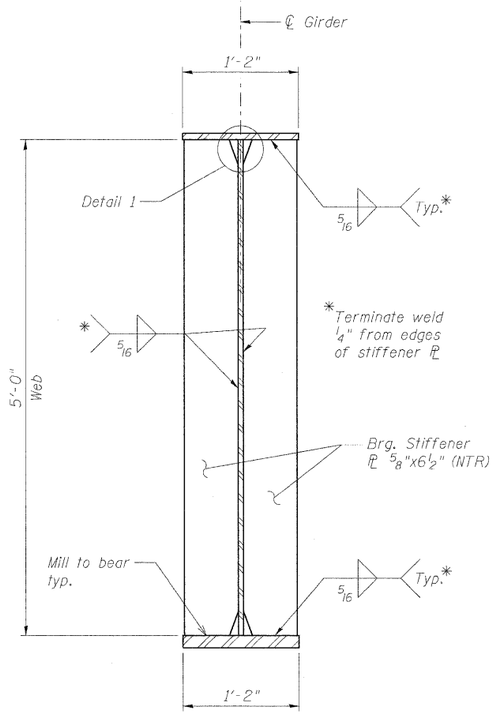


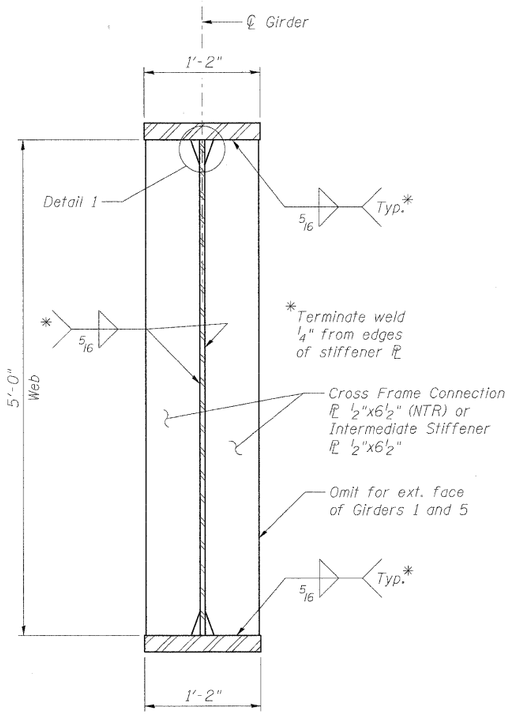
BEARING STIFFENER AT PIERS

(No. plates required = 70)



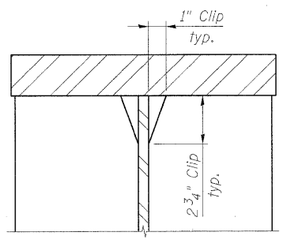
BEARING STIFFENER AT ABUTMENTS

(No. plates required = 20)



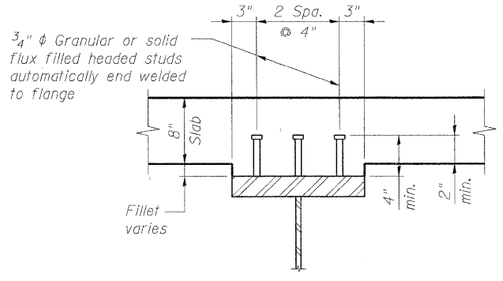
CONNECTION PLATE AND INTERMEDIATE STIFFENER DETAIL

(No. plates required = 432)



DETAIL 1

(Typical top & bottom flanges)



SECTION A-A

(No. studs required = 14,277)

NOTES:

1. For location of Stiffeners and Connection Plates, see Sheets S24 thru S27.
2. All Stiffener and Cross Frame Connection Plates shall be AASHTO M270 Grade 50 steel.
3. Stiffener and Cross Frame Connection Plates designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
4. All Stiffener and Cross Frame Connection Plates shall be welded perpendicular to the web.

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312-565-0450 Job No. 10092

FILE NAME = 0456024.030.SteelDtls1.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

STEEL PLATE GIRDER DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S30 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	252
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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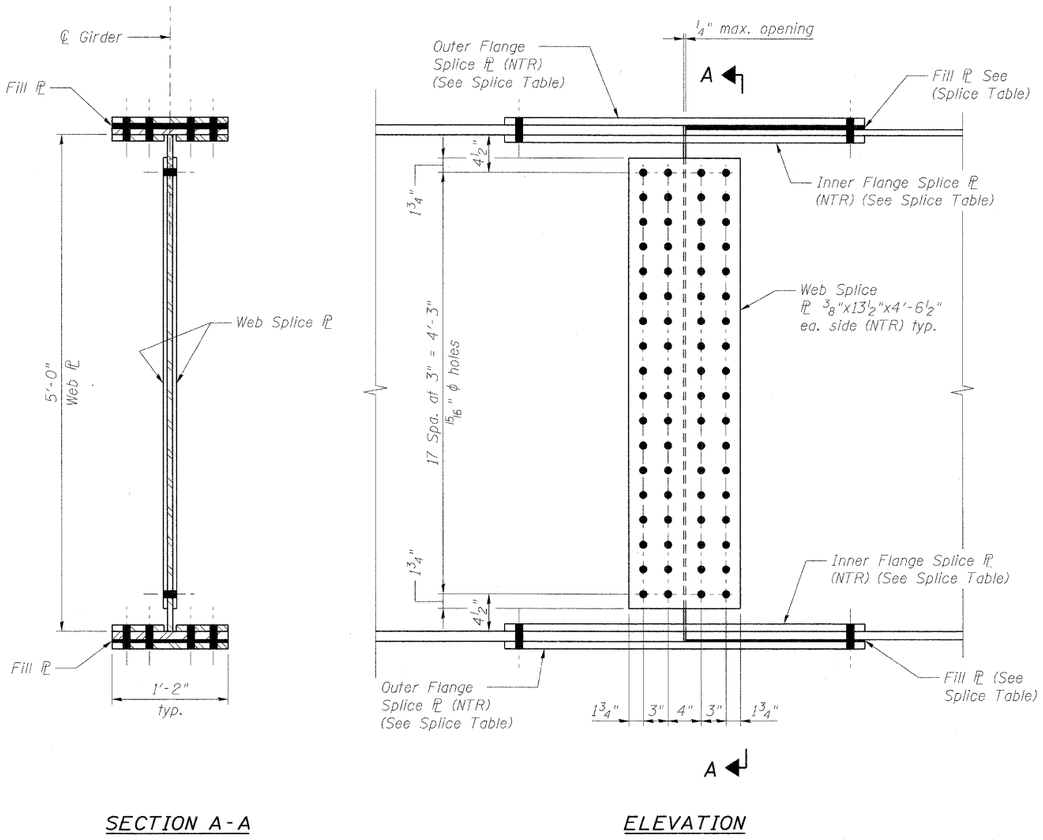
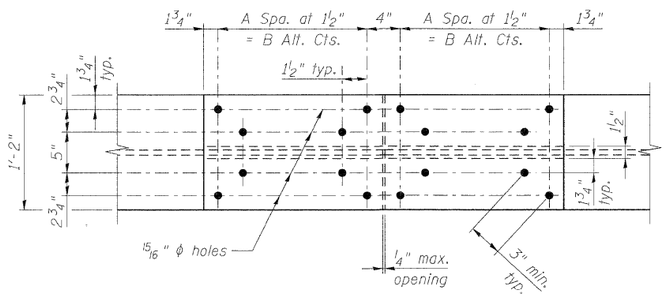


SECTION A-A ELEVATION



FLANGE SPLICE
(Top and Bottom Flanges)

SPLICE TABLE

Splice Location	Top Flange						Bottom Flange					
	Outer Flange ℙ	Inner Flange ℙ	Fill ℙ	A	B	No. Bolts	Outer Flange ℙ	Inner Flange ℙ	Fill ℙ	A	B	No. Bolts
Field Splice 1	1/2"x14"x3'-1 1/2"	2-5/8"x6 1/4"x3'-1 1/2"	7/8"x14"x1'-6 5/8"	10	1'-3"	44	3/4"x14"x3'-7 1/2"	2-7/8"x6 1/4"x3'-7 1/2"	3/8"x14"x1'-9 5/8"	12	1'-6"	52
Field Splice 2	1/2"x14"x3'-1 1/2"	2-5/8"x6 1/4"x3'-1 1/2"	7/8"x14"x1'-6 5/8"	10	1'-3"	44	3/4"x14"x3'-7 1/2"	2-7/8"x6 1/4"x3'-7 1/2"	3/8"x14"x1'-9 5/8"	12	1'-6"	52
Field Splice 3	1/2"x14"x3'-1 1/2"	2-5/8"x6 1/4"x3'-1 1/2"	5/8"x14"x1'-6 5/8"	10	1'-3"	44	3/4"x14"x3'-7 1/2"	2-7/8"x6 1/4"x3'-7 1/2"	1/8"x14"x1'-9 5/8"	12	1'-6"	52
Field Splice 4	1/2"x14"x2'-7 1/2"	2-1/2"x6 1/4"x2'-7 1/2"	3/4"x14"x1'-3 5/8"	8	1'-0"	36	1/2"x14"x2'-7 1/2"	2-5/8"x6 1/4"x2'-7 1/2"	5/8"x14"x1'-3 5/8"	8	1'-0"	36
Field Splice 5-13	1/2"x14"x2'-7 1/2"	2-1/2"x6 1/4"x2'-7 1/2"	1/2"x14"x1'-3 5/8"	8	1'-0"	36	1/2"x14"x2'-7 1/2"	2-5/8"x6 1/4"x2'-7 1/2"	3/8"x14"x1'-3 5/8"	8	1'-0"	36
Field Splice 14	1/2"x14"x2'-7 1/2"	2-1/2"x6 1/4"x2'-7 1/2"	1/2"x14"x1'-3 5/8"	8	1'-0"	36	5/8"x14"x2'-7 1/2"	2-3/4"x6 1/4"x2'-7 1/2"	1/8"x14"x1'-3 5/8"	8	1'-0"	36

NOTES:

1. All Splice Plates shall be AASHTO M270 Grade 50 steel.
2. All Splice Bolts shall be 7/8" ϕ ASTM A325 High Strength with 15/16" ϕ holes.
3. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.
4. Work this sheet with Sheets S24 thru S28.

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

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STEEL PLATE GIRDER SPLICE DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S31 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	253
	CONTRACT NO. 63650			
	ILLINOIS FED. AID PROJECT			

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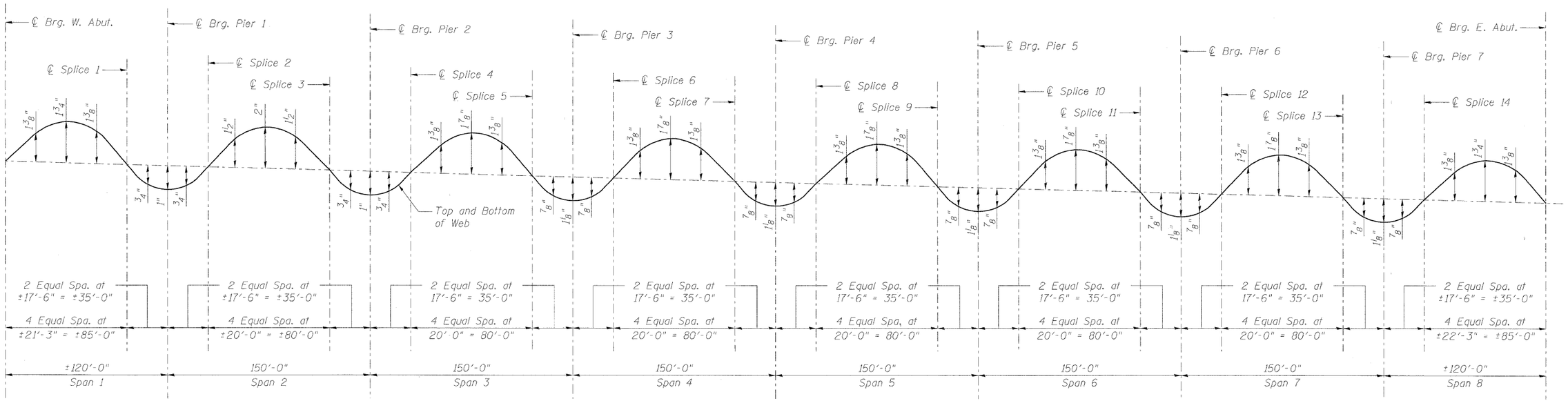
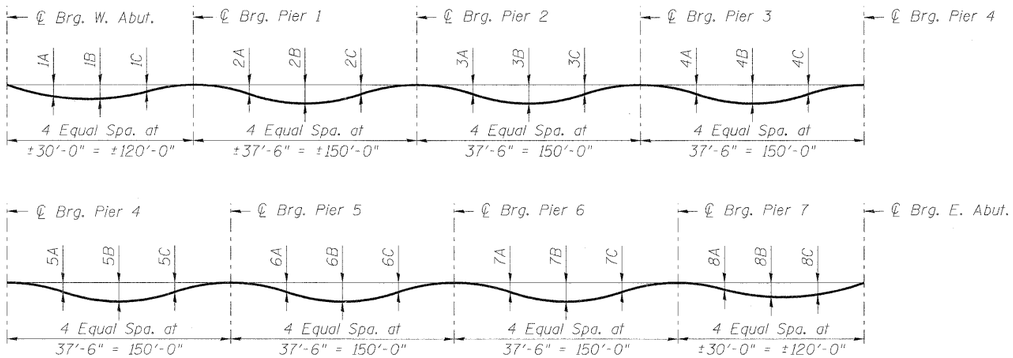


CAMBER DIAGRAM

TOP OF WEB ELEVATIONS

Location	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5
Brg. W. Abut.	730.20	730.38	730.56	730.74	730.93
Splice 1	729.24	729.43	729.62	729.81	729.99
Brg. Pier 1	728.78	728.97	729.16	729.35	729.53
Splice 2	728.49	728.68	728.86	729.05	729.24
Splice 3	727.65	727.85	728.04	728.24	728.43
Brg. Pier 2	727.28	727.44	727.59	727.70	727.79
Splice 4	727.05	727.18	727.31	727.33	727.35
Splice 5	726.21	726.34	726.48	726.32	726.17
Brg. Pier 3	725.74	725.88	726.01	725.86	725.71
Splice 6	725.47	725.60	725.74	725.59	725.43
Splice 7	724.62	724.76	724.90	724.75	724.59
Brg. Pier 4	724.14	724.28	724.42	724.26	724.11
Splice 8	723.85	723.98	724.12	723.96	723.81
Splice 9	723.01	723.14	723.28	723.12	722.97
Brg. Pier 5	722.55	722.68	722.82	722.66	722.51
Splice 10	722.28	722.41	722.55	722.39	722.24
Splice 11	721.43	721.56	721.70	721.54	721.39
Brg. Pier 6	720.95	721.09	721.23	721.07	720.92
Splice 12	720.67	720.80	720.94	720.79	720.63
Splice 13	719.81	719.95	720.09	719.94	719.79
Brg. Pier 7	719.35	719.48	719.62	719.46	719.30
Splice 14	719.08	719.20	719.33	719.17	719.00
Brg. E. Abut.	718.19	718.32	718.44	718.28	718.11

For fabrication only. Elevations based on a "no-load" condition (fully supported with the web horizontal).



STEEL DEFLECTION DIAGRAM

(Includes weight of steel only)

STEEL DEFLECTION TABLE

Girder	1A	1B	1C	2A	2B	2C	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	6C	7A	7B	7C	8A	8B	8C
1	1/4"	1/4"	1/8"	1/8"	1/4"	1/8"	1/4"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	1/4"	1/8"	1/8"	3/8"	3/8"
2	1/4"	1/4"	1/8"	1/8"	3/8"	1/8"	3/8"	1/8"	1/4"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/8"	1/8"	3/8"	3/8"	3/8"
3	1/4"	1/4"	1/8"	1/8"	3/8"	1/4"	1/8"	3/8"	1/8"	1/4"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/8"	1/8"	3/8"	1/4"
4	1/4"	3/8"	1/8"	1/4"	1/2"	1/4"	1/8"	1/4"	1/8"	1/4"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/8"	1/8"	3/8"	1/4"
5	3/8"	3/8"	1/8"	1/4"	1/2"	3/8"	1/8"	1/4"	1/8"	1/4"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/4"	1/8"	3/8"	1/8"	1/8"	1/4"	1/4"

NOTES:

1. Plate girder camber dimensions take deck pour sequence into account. See Sheet S11 for required pour sequence.
2. The calculated deflections of the girders under steel self-weight shall be used to detail the cross frame connections, and to erect the structural steel such that the girders will be plumb within a tolerance of ±1/8" per vertical foot throughout when supporting their own weight. See Sheet S29 for cross frame details.

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FILE NAME = 0456024_032_SteelDtls3.dgn	USER NAME = akeschall	DESIGNED - MFH	REVISED -
		CHECKED - HMA	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

STEEL PLATE GIRDER CAMBER DIAGRAM
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S32 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	254
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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GIRDER 1 MOMENT TABLE

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.5 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.6 Sp. 8
I_s	(in^4)	41,149	85,972	41,149	78,521	33,322	71,184	33,322	71,184	33,322	71,184	33,322	71,184	33,322	71,184	36,320
$I_c(n)$	(in^4)	92,551	-	92,551	-	74,816	-	74,816	-	74,816	-	74,816	-	74,816	-	83,525
$I_c(3n)$	(in^4)	67,658	-	67,658	-	55,523	-	55,523	-	55,523	-	55,523	-	55,523	-	61,193
$I_c(cr)$	(in^4)	-	96,027	-	88,395	-	80,873	-	80,873	-	80,873	-	80,873	-	80,873	-
S_s	(in^3)	1,463	2,625	1,463	2,416	1,109	2,207	1,109	2,207	1,109	2,207	1,109	2,207	1,109	2,207	1,273
$S_c(n)$	(in^3)	1,905	-	1,905	-	1,484	-	1,484	-	1,484	-	1,484	-	1,484	-	1,693
$S_c(3n)$	(in^3)	1,748	-	1,748	-	1,355	-	1,355	-	1,355	-	1,355	-	1,355	-	1,548
$S_c(cr)$	(in^3)	-	2,726	-	2,518	-	2,310	-	2,310	-	2,310	-	2,310	-	2,310	-
S_{xc}	(in^3)	1,832	2,705	1,848	2,493	1,396	2,281	1,401	2,282	1,400	2,283	1,399	2,282	1,403	2,281	1,582
DC1	(k/')	0.955	1.115	0.954	1.090	0.924	1.065	0.924	1.065	0.924	1.065	0.924	1.065	0.924	1.066	0.937
M_{DC1}	('k)	677	1,885	524	-1,949	736	-2,048	695	-2,005	705	-1,969	713	-1,977	672	-2,062	953
DC2	(k/')	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
M_{DC2}	('k)	130	-319	103	-348	149	-377	137	-368	142	-359	144	-365	140	-367	184
DW	(k/')	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323
M_{DW}	('k)	233	-573	185	-624	267	-678	246	-661	255	-645	258	-655	252	-659	330
M_{L+IM}	('k)	1,511	-2,202	1,573	-2,435	1,798	-2,520	2,012	-2,529	1,876	-2,484	1,879	-2,519	1,841	-2,424	2,114
f_t (Strength I)	(ksi)	2.9	-3.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.8	2.6
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	4,151	-7,756	4,299	-8,071	4,653	-8,458	4,930	-8,384	4,724	-8,225	4,747	-8,318	4,615	-8,443	5,730
$\phi_f M_n$	('k)	7,380	-11,218	7,477	-10,354	5,731	-9,484	5,778	-9,487	5,755	-9,487	5,752	-9,488	5,762	-9,480	6,518
f_s DC1	(ksi)	5.6	-8.6	4.3	-9.7	8.0	-11.1	7.5	-10.9	7.6	-10.7	7.7	-10.7	7.3	-11.2	9.0
f_s DC2	(ksi)	0.9	-1.4	0.7	-1.7	1.3	-2.0	1.2	-1.9	1.3	-1.9	1.3	-1.9	1.2	-1.9	1.4
f_s DW	(ksi)	1.6	-2.5	1.3	-3.0	2.4	-3.5	2.2	-3.4	2.3	-3.4	2.3	-3.4	2.2	-3.4	2.6
f_s (L+IM)	(ksi)	9.5	-9.7	9.9	-11.6	14.5	-13.1	16.3	-13.1	15.2	-12.9	15.2	-13.1	14.9	-12.6	15.0
f_t (Service II)	(ksi)	2.2	-2.9	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.1	2.0
$f_s + f_t/2$ (Service II)	(ksi)	21.5	-26.6	22.7	-29.4	30.6	-33.6	32.1	-33.3	30.9	-32.7	31.0	-33.1	30.1	-34.0	33.4
$0.95R_hF_{yf}$	(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	-47.5	47.5
$f_s + f_t/3$ (Total)(Strength I)	(ksi)	28.1	-34.5	28.7	-39.0	40.6	-44.6	42.7	-44.2	41.0	-43.3	41.3	-43.8	40.0	-44.5	43.9
$\phi_f F_n$	(ksi)	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0
V_f	(k)	30.4	31.4	31.4	32.6	32.6	34.9	34.9	35.3	35.3	34.9	34.9	33.2	33.8	33.8	33.7

GIRDER 5 MOMENT TABLE

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.5 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.6 Sp. 8
I_s	(in^4)	41,149	85,972	41,149	78,521	33,322	71,184	33,322	71,184	33,322	71,184	33,322	71,184	33,322	71,184	36,320
$I_c(n)$	(in^4)	92,551	-	92,551	-	74,816	-	74,816	-	74,816	-	74,816	-	74,816	-	83,525
$I_c(3n)$	(in^4)	67,658	-	67,658	-	55,523	-	55,523	-	55,523	-	55,523	-	55,523	-	61,193
$I_c(cr)$	(in^4)	-	96,027	-	88,395	-	80,873	-	80,873	-	80,873	-	80,873	-	80,873	-
S_s	(in^3)	1,463	2,625	1,463	2,416	1,109	2,207	1,109	2,207	1,109	2,207	1,109	2,207	1,109	2,207	1,273
$S_c(n)$	(in^3)	1,905	-	1,905	-	1,484	-	1,484	-	1,484	-	1,484	-	1,484	-	1,693
$S_c(3n)$	(in^3)	1,748	-	1,748	-	1,355	-	1,355	-	1,355	-	1,355	-	1,355	-	1,548
$S_c(cr)$	(in^3)	-	2,726	-	2,518	-	2,310	-	2,310	-	2,310	-	2,310	-	2,310	-
S_{xc}	(in^3)	1,795	2,699	1,810	2,491	1,405	2,282	1,398	2,282	1,401	2,282	1,400	2,282	1,401	2,282	1,606
DC1	(k/')	0.955	1.115	0.954	1.090	0.924	1.065	0.924	1.065	0.924	1.065	0.924	1.065	0.924	1.066	0.937
M_{DC1}	('k)	1,031	-2,409	886	-2,147	655	-1,977	725	-2,021	689	-1,994	704	2,000	693	-2,028	748
DC2	(k/')	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180	0.180
M_{DC2}	('k)	197	-422	175	-388	133	-365	142	-370	140	-363	142	-367	143	-364	144
DW	(k/')	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323	0.323
M_{DW}	('k)	353	-758	315	-696	239	-655	255	-665	251	-652	254	-659	256	-653	258
M_{L+IM}	('k)	2,483	-2,902	2,421	-2,829	1,922	-2,592	2,070	-2,572	1,897	-2,553	1,896	-2,517	1,813	-2,370	1,677
f_t (Strength I)	(ksi)	5.0	-5.3	15.6	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.8	2.2
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	6,658	-10,149	6,821	-9,168	4,707	-8,446	5,089	-8,487	4,733	-8,392	4,757	-8,352	4,602	-8,295	4,534
$\phi_f M_n$	('k)	7,406	-11,224	7,447	-10,363	5,781	-9,497	5,775	-9,494	5,764	-9,494	5,758	-9,493	5,750	-9,486	6,522
f_s DC1	(ksi)	8.5	-11.0	7.3	-10.7	7.1	-10.7	7.8	-11.0	7.5	-10.8	7.6	-10.9	7.5	-11.0	7.0
f_s DC2	(ksi)	1.4	-1.9	1.2	-1.8	1.2	-1.9	1.3	-1.9	1.2	-1.9	1.3	-1.9	1.3	-1.9	1.1
f_s DW	(ksi)	2.4	-3.3	2.2	-3.3	2.1	-3.4	2.3	-3.5	2.2	-3.4	2.3	-3.4	2.3	-3.4	2.0
f_s (L+IM)	(ksi)	15.6	-12.8	15.3	-13.5	15.5	-13.5	16.7	-13.4	15.3	-13.3	15.3	-13.1	14.7	-12.3	11.9
f_t (Service II)	(ksi)	3.7	-4.0	11.7	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.1	1.6
$f_s + f_t/2$ (Service II)	(ksi)	34.4	-34.8	36.3	-33.4	30.6	-33.6	33.1	-33.7	30.9	-33.4	31.1	-33.2	30.1	-33.4	26.4
$0.95R_hF_{yf}$	(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	-47.5	47.5
$f_s + f_t/3$ (Total)(Strength I)	(ksi)	44.9	-45.2	45.7	-44.2	40.7	-44.5	44.1	-44.7	41.0	-44.2	41.3	-44.0	40.0	-43.7	34.7
$\phi_f F_n$	(ksi)	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	-50.0	50.0	50.0	50.0	50.0	50.0
V_f	(k)	41.0	41.0	40.6	36.4	33.9	35.6	35.6	35.6	35.6	35.4	35.4	34.6	34.6	33.2	30.1

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 dead loads (in.^{4} and in.^{3}).

S_{xc}: Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (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.).

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

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$

f_t: Factored calculated normal stress at edge of flange for controlling steel flange plate due to lateral bending, Strength I or Service II as applicable (ksi).

$\phi_f M_n$: Factored resistance available according to A6.1.1 (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 (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{L+IM} / S_c(cr)$ as applicable.

$f_s + f_t/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_{sL+IM} + f_t/2$

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

$f_s + f_t/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_{sL+IM} + f_t/3$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range in the span computed according to Article 6.10.10 (k).

Note:
M_L includes the effects of centrifugal force and superelevation.

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04560024_033_SteelDtls4.dgn	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - MRB	REVISED -

CITY OF ST. CHARLES

STEEL PLATE GIRDER MOMENT TABLES
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S33 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	255
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

GIRDER 1 REACTION TABLE									
		W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
R_{DC1}	(k)	35.8	164.2	154.2	148.7	147.1	145.7	146.3	143.2	45.2
R_{DC2}	(k)	6.5	28.0	27.7	27.4	27.0	26.8	27.0	26.1	8.5
R_{DW}	(k)	11.7	50.4	49.7	49.2	48.4	48.1	48.4	46.9	15.3
$R_L + IM$	(k)	73.1	175.1	175.1	169.8	167.5	166.3	166.8	159.2	93.4
R_{Total}	(k)	127.1	417.7	406.6	395.0	390.0	386.9	388.6	375.4	162.4

GIRDER 2 REACTION TABLE									
		W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
R_{DC1}	(k)	40.1	146.3	144.5	149.3	150.6	150.4	149.3	157.9	43.9
R_{DC2}	(k)	7.3	25.2	25.6	27.0	27.1	27.1	27.0	28.0	7.9
R_{DW}	(k)	13.1	45.2	45.9	48.5	48.7	48.7	48.5	50.3	14.3
$R_L + IM$	(k)	84.8	155.4	155.5	159.1	159.8	159.7	158.4	155.9	78.6
R_{Total}	(k)	145.2	372.0	371.4	383.8	386.2	385.8	383.3	392.1	144.6

GIRDER 3 REACTION TABLE									
		W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
R_{DC1}	(k)	42.7	163.3	153.8	147.6	151.2	151.6	150.4	154.8	42.8
R_{DC2}	(k)	7.7	27.7	27.0	26.8	27.1	27.0	27.0	27.5	7.8
R_{DW}	(k)	13.8	49.8	48.5	48.2	48.6	48.5	48.5	49.3	14.0
$R_L + IM$	(k)	86.6	155.5	152.7	149.5	149.2	148.7	148.0	148.0	79.7
R_{Total}	(k)	150.8	396.4	382.1	372.2	376.0	375.9	374.0	379.6	144.2

GIRDER 4 REACTION TABLE									
		W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
R_{DC1}	(k)	45.5	178.7	158.2	148.1	150.7	150.0	149.9	150.0	40.8
R_{DC2}	(k)	8.1	31.1	28.3	26.8	27.1	26.9	27.1	26.5	7.5
R_{DW}	(k)	14.5	55.9	50.8	48.2	48.7	48.4	48.6	47.5	13.4
$R_L + IM$	(k)	84.6	174.1	170.9	158.4	158.9	157.7	157.3	155.7	78.9
R_{Total}	(k)	152.6	439.7	408.2	381.5	385.4	383.0	382.9	379.7	140.6

GIRDER 5 REACTION TABLE									
		W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
R_{DC1}	(k)	48.2	141.4	145.9	146.0	147.7	146.8	147.0	158.6	38.4
R_{DC2}	(k)	9.0	25.2	26.3	26.9	27.1	26.9	27.0	28.6	7.1
R_{DW}	(k)	16.1	45.3	47.2	48.2	48.6	48.3	48.5	51.4	12.7
$R_L + IM$	(k)	103.3	162.0	173.2	169.2	168.7	168.1	166.7	172.1	73.5
R_{Total}	(k)	176.7	374.0	392.6	390.3	392.1	390.1	389.3	410.6	131.6

Note:
R_L includes the effects of centrifugal force and superelevation.

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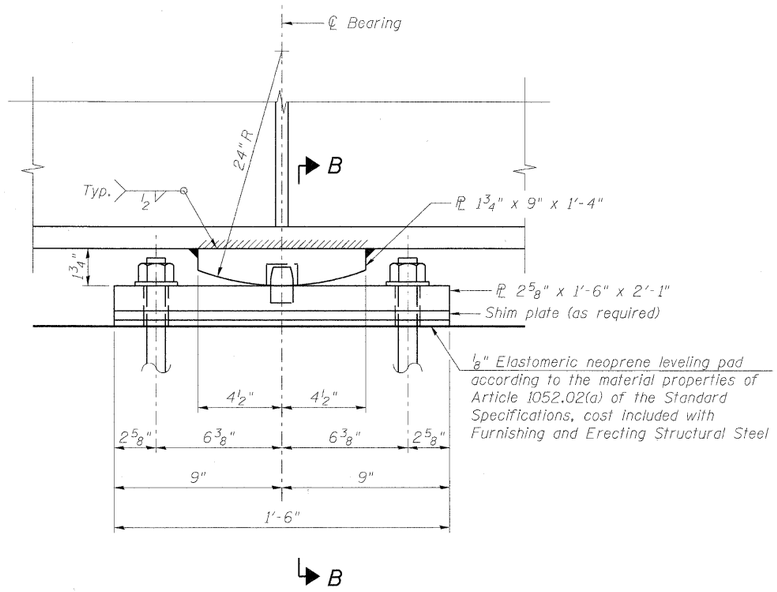
		CHECKED - MRB	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - MRB	REVISED -

CITY OF ST. CHARLES

STEEL PLATE GIRDER REACTION TABLES
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S34 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	256
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			



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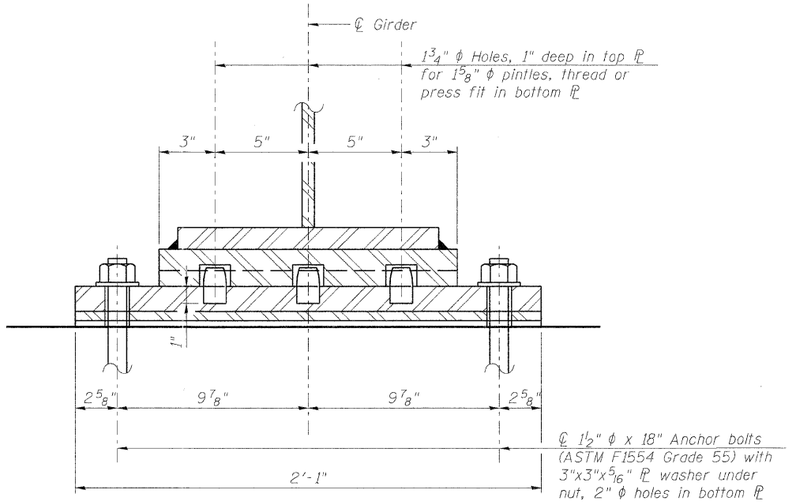
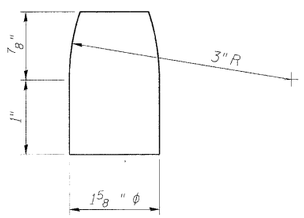


SECTION B-B



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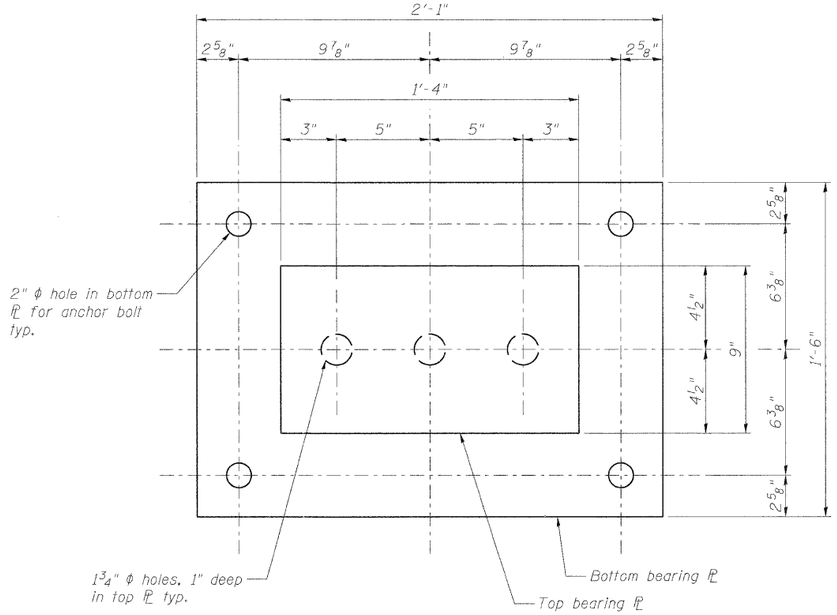

PLAN

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1 1/2"	Each	40

NOTES:

1. All steel for bearings shall conform to the requirements of AASHTO M270 Grade 50, unless otherwise noted.
2. Top plate shall be furnished with the girder and welded in the shop.
3. 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.
4. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
6. Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
7. Fixed bearing assembly, excluding Anchor Bolts, shall be included in the cost of Furnishing and Erecting Structural Steel.

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FILE NAME =	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
Ø456024_Ø35_FixedBrg.dgn	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

LOW PROFILE FIXED BEARING
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S35 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	257
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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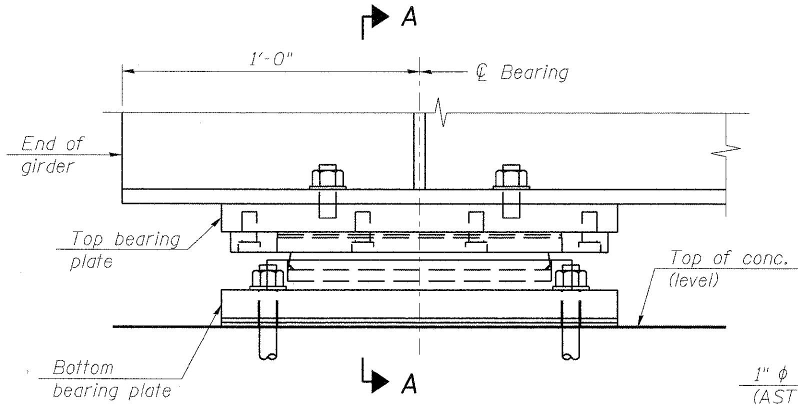

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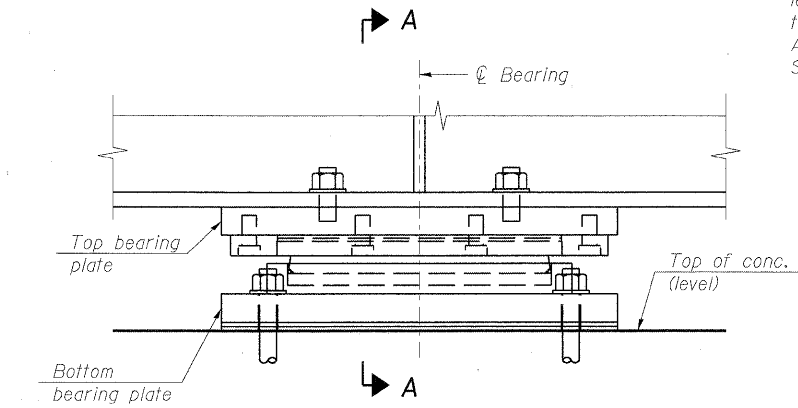
(At Abutment)



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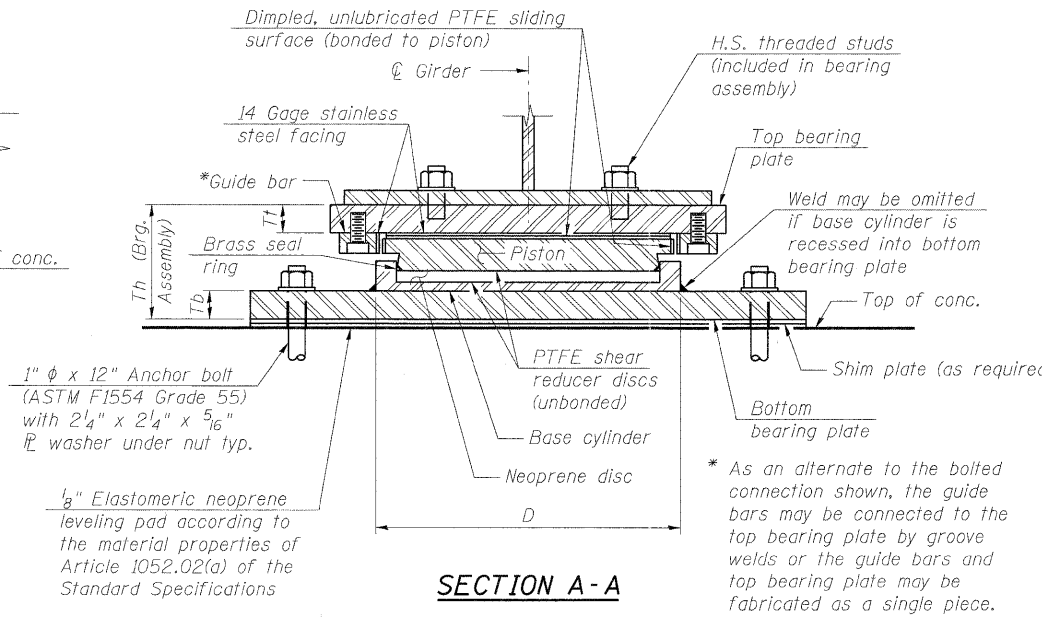
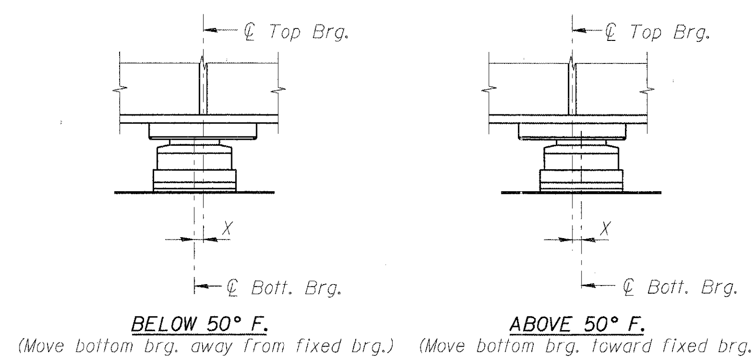
(At Pier)



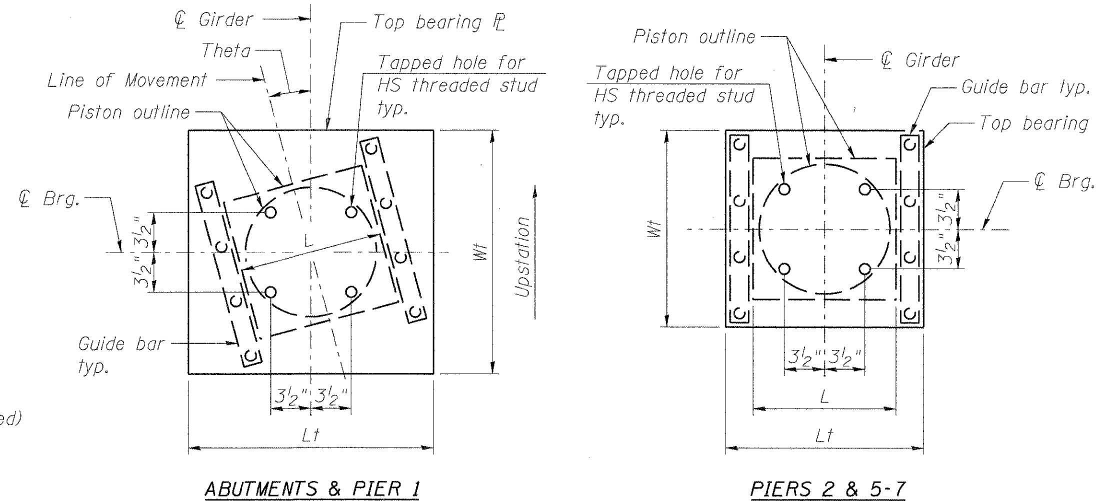
SECTION A-A

* As an alternate 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.

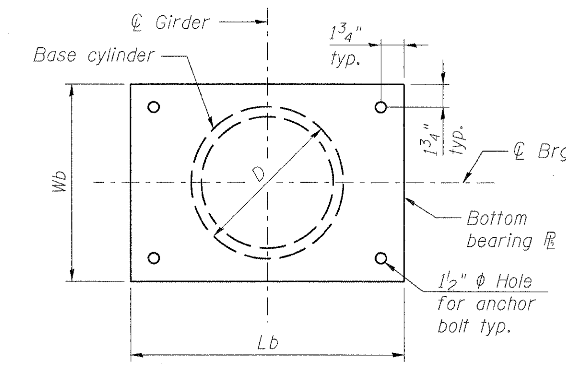


SETTING ANCHOR BOLTS AT EXP. BRG.

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



TOP BEARING ℞ AND PISTON PLAN



BOTTOM BEARING ℞ AND POT PLAN

BILL OF MATERIAL

Item	Unit	Total
HLMR Bearings, Guided Expansion, 200 kips	Ea.	10
HLMR Bearings, Guided Expansion, 450 kips	Ea.	25
Anchor Bolts, 1"	Ea.	140

BEARING DIMENSIONS

Location	Pay Item Designation (kips)	Vert. Design Load** (kips)	Horiz. Design Load** (kips)	Required Rotation Range*** (radians)	Max. Theor. Thermal Movement @ 50 °F	Top Plate				Bearing Assembly		Bottom Plate			Total Ht.
						Wt	Lt	Tt	Theta	L	D	Wb*	Lb*	Tb	Th
W. Abut.	200	177	13	0.02	3 1/8"	1'-11"	1'-9 1/4"	1 1/2"	19°31'0"	11 1/4"	11 3/4"	1'-11"	2'-6 1/4"	1 1/4"	6 3/4"
Pier 1	450	440	48	0.02	2 3/8"	2'-2"	2'-3"	2 1/4"	11°51'39"	1'-5 1/2"	1'-6 3/8"	2'-2"	3'-0"	2 1/8"	10 3/8"
Piers 2, 5	450	440	48	0.02	1 1/2"	1'-8"	1'-11"	2 1/4"	-	1'-5 1/2"	1'-6 3/8"	1'-10 3/4"	2'-8"	2 1/8"	10 3/8"
Pier 6	450	440	48	0.02	2 3/8"	1'-9 3/4"	1'-11"	2 1/4"	-	1'-5 1/2"	1'-6 3/8"	1'-10 3/4"	2'-8"	2 1/8"	10 3/8"
Pier 7	450	440	48	0.02	3 3/8"	1'-11 3/4"	1'-11"	2 1/4"	-	1'-5 1/2"	1'-6 3/8"	1'-11 3/4"	2'-8"	2 1/8"	10 3/8"
E. Abut.	200	177	13	0.02	4 1/8"	1'-10 1/2"	1'-6"	1 1/2"	6°16'48"	11 1/4"	11 3/4"	1'-10 1/2"	2'-3"	1 1/4"	6 3/4"

* To be verified by the contractor for proper access of the drilling tool.
** Design Loads are the governing service loads.
*** Rotation allowances for fabrication tolerances (0.005 radians) and installation uncertainties (0.005 radians) excluded.

NOTES:

1. All steel for bearings shall conform to the requirements of AASHTO M270 Grade 50, unless otherwise noted.
2. 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 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.
3. Threaded studs shall conform to the requirements of AASHTO M 164.
4. PTFE and stainless steel materials shall conform to AASHTO requirements and the Special Provision for High Load Multi-Rotational Bearings.
5. Anchor bolts shall be hot-dipped galvanized in accordance with AASHTO M232 (ASTM A153). Studs, nuts, and washers shall be mechanically galvanized in accordance with AASHTO M298.
6. Bearings shall be assembled at the plant and delivered to the site as a complete unit. All bearings shall be marked prior to shipping. The marks shall include the bearing location on the bridge, an arrow indicating orientation, and the normal position of the bearing. All marks shall be permanent and be visible after the bearing is installed. All components of the bearing, including anchor bolts and sockets, shall be provided by a single manufacturer.
7. Disk bearings will be permitted as a substitute at no additional cost. Inverted pot bearings are not allowed.
8. Total bearing height (Th) is estimated based on manufacturer data. Actual bearing height may differ from contract plans. The Contractor shall be responsible verifying bearing heights and adjusting seat elevations, if required, prior to placing pier or abutment concrete. Modifcations to the Wt dimension for bearings at abutments shall take into account the location of the backwall and required expansion length if exceeding the end of the girder.
9. Bearing assemblies shall be designed and assembled to allow for replacement by jacking the superstructure.
10. Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

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FILE NAME = 0456024.036_HLMRBrg.dgn	USER NAME = akoeschall	DESIGNED - MFH	REVISED -	CITY OF ST. CHARLES	HLMR GUIDED EXPANSION BEARING DETAILS	F.A.I. RTE.	SECTION 04-00092-00-BR	COUNTY KANE	TOTAL SHEETS 440	SHEET NO. 258
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	PLOT DATE = 11/9/2011	DRAWN - MFH	REVISED -		SHEET NO. S36 OF S56 SHEETS			ILLINOIS FED. AID PROJECT		
		CHECKED - HMA	REVISED -							

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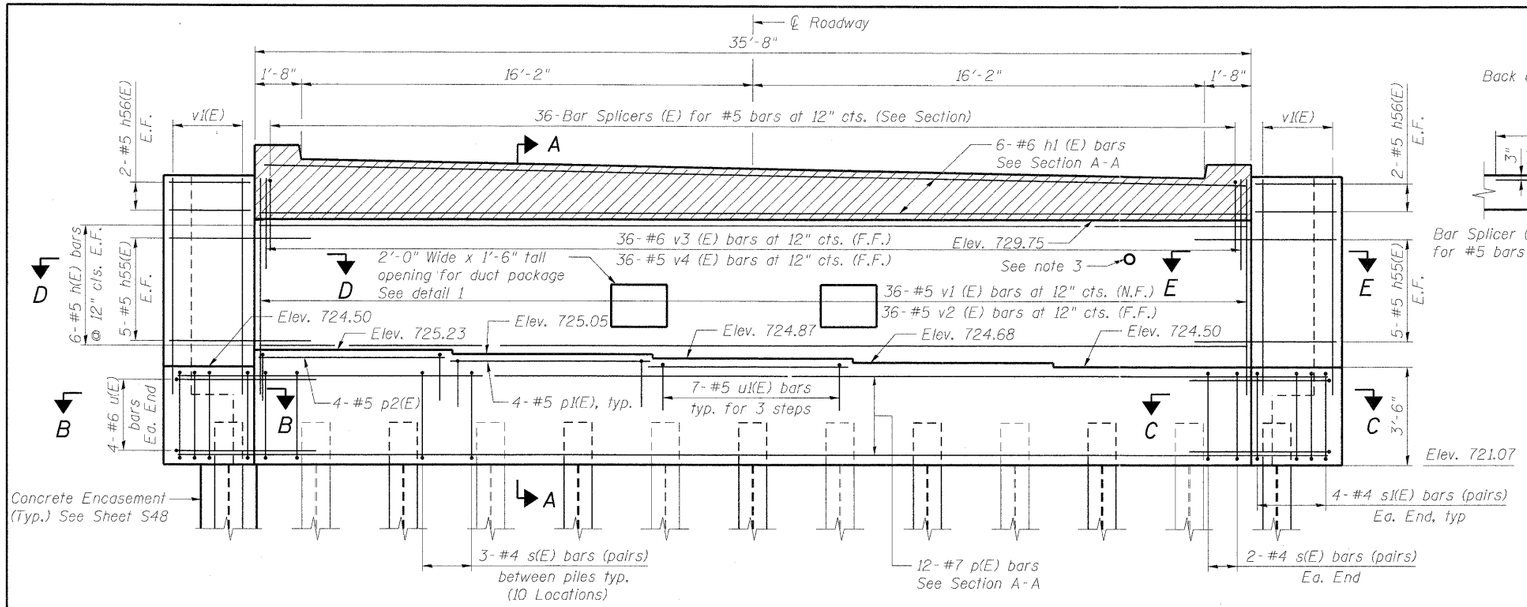
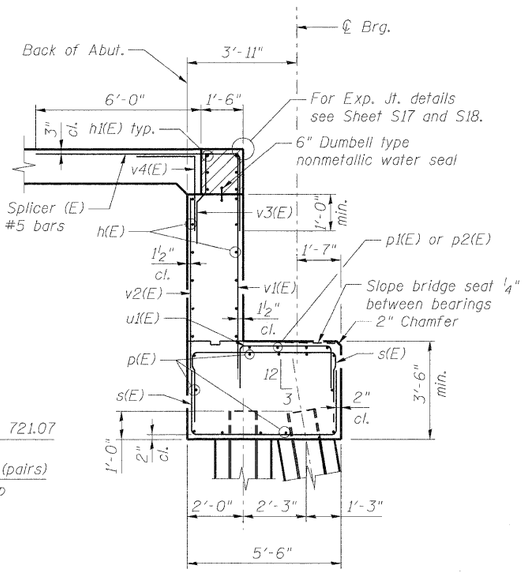
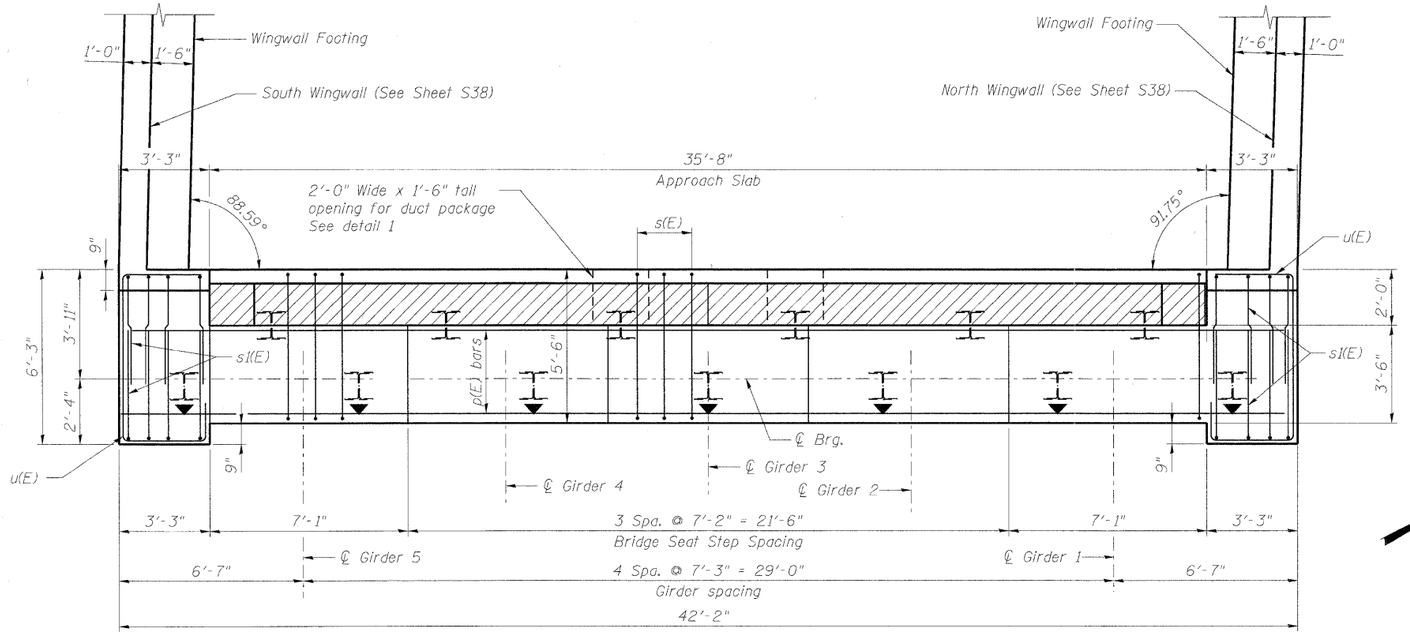
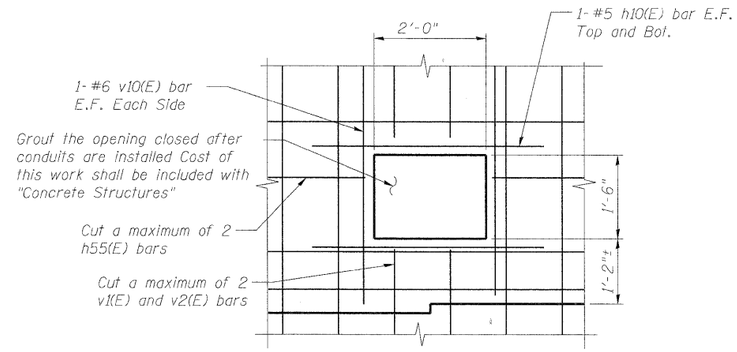




ELEVATION - WEST ABUTMENT



PLAN - WEST ABUTMENT



DETAIL 1 AT DUCT BANK BLOCKOUT

Note: Exact location of blockout shall be confirmed with the electrical details prior to construction of backwall

PILE DATA

Type: HP12x53 with pile shoes
Nominal Required Bearing: 280 kips
Factored Resistance Available: 154 kips
Est. Length: 62 feet
No. Production Piles: 14
No. Test Piles: 1

NOTES:

1. See sheet S38 for wingwall sections and details.
2. See sheet S3 for foundation layout.
3. Locate 3" sleeve as required for traffic signal interconnect.

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312-565-0450 Job No. 10092

FILE NAME = 0456024_037_WAbutDtls1.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - MRB	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - MRB	REVISED -

CITY OF ST. CHARLES

WEST ABUTMENT DETAILS (1 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S37 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	259
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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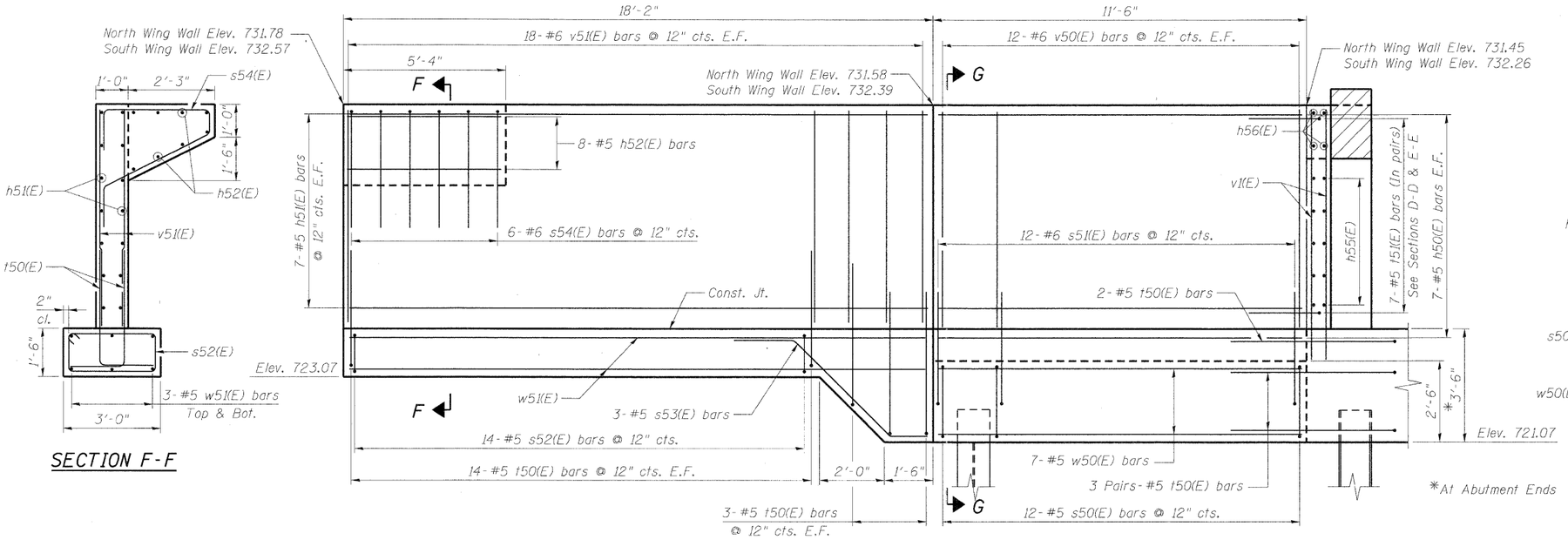
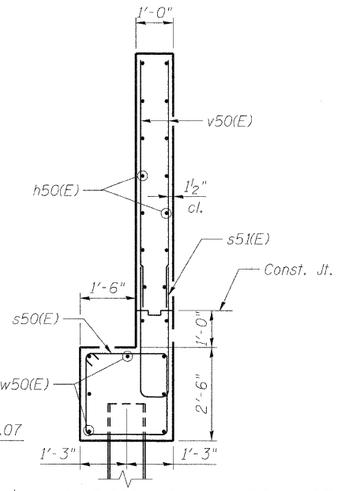


SECTION F-F



SECTION G-G

WINGWALL ELEVATION

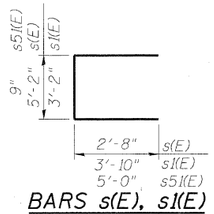
(South Wingwall shown; North Wingwall opposite hand)

SECTION B-B

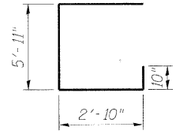
SECTION C-C

SECTION D-D

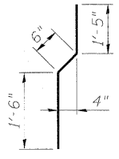
SECTION E-E



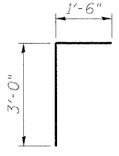
BARS s(E), s1(E) & s51(E)



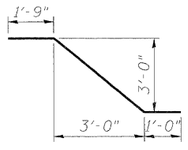
BAR u(E)



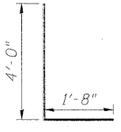
BAR v3(E)



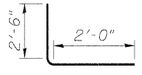
BAR v4(E)



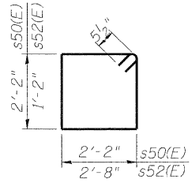
BAR s53(E)



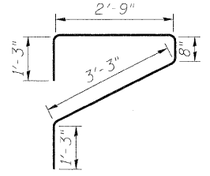
BAR t50(E)



BAR t51(E)



BARS s50(E) & s52(E)



BARS s54(E)

BAR u1(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1(E)	12	#5	35'-4"	
h1(E)	6	#6	35'-4"	
h10(E)	8	#5	5'-0"	
h50(E)	28	#5	11'-2"	
h51(E)	28	#5	17'-10"	
h52(E)	16	#5	5'-0"	
h55(E)	20	#5	5'-0"	
h56(E)	8	#5	2'-11"	
p(E)	12	#7	41'-10"	
p1(E)	8	#5	8'-3"	
p2(E)	4	#5	6'-8"	
s(E)	68	#4	10'-6"	
s1(E)	16	#4	10'-10"	
s50(E)	24	#5	9'-7"	
s51(E)	24	#6	10'-9"	
s52(E)	28	#5	8'-7"	
s53(E)	6	#5	7'-0"	
s54(E)	12	#6	9'-2"	
t50(E)	84	#5	5'-8"	
t51(E)	28	#5	4'-6"	
u(E)	8	#6	12'-5"	
u1(E)	21	#5	6'-3"	
v1(E)	52	#5	7'-3"	
v2(E)	36	#5	5'-7"	
v3(E)	36	#6	3'-5"	
v4(E)	36	#5	4'-6"	
v10(E)	8	#6	4'-0"	
v50(E)	48	#6	6'-7"	
v51(E)	72	#6	6'-10"	
w50(E)	14	#5	11'-2"	
w51(E)	12	#5	17'-9"	

Structure Excavation	Cu. Yd.	59
Concrete Structures	Cu. Yd.	78.7
Reinforcement Bars, Epoxy Coated	Pound	8,190
Furnishing Steel Piles, HP12x53	Foot	868
Driving Piles	Foot	868
Test Pile Steel, HP12x53	Each	1
Pile Shoes	Each	15
Anti-Graffiti Coating	Sq. Ft	228
Anti-Graffiti Protection System	Sq. Ft	442
Form Liner Textured Surface (Special)	Sq. Ft	442

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Job No. 10092

FILE NAME = 0456024_038_WAbutDtls2.dgn	USER NAME = okeaschell	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WEST ABUTMENT DETAILS (2 OF 2)

STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER

SHEET NO. S38 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	260
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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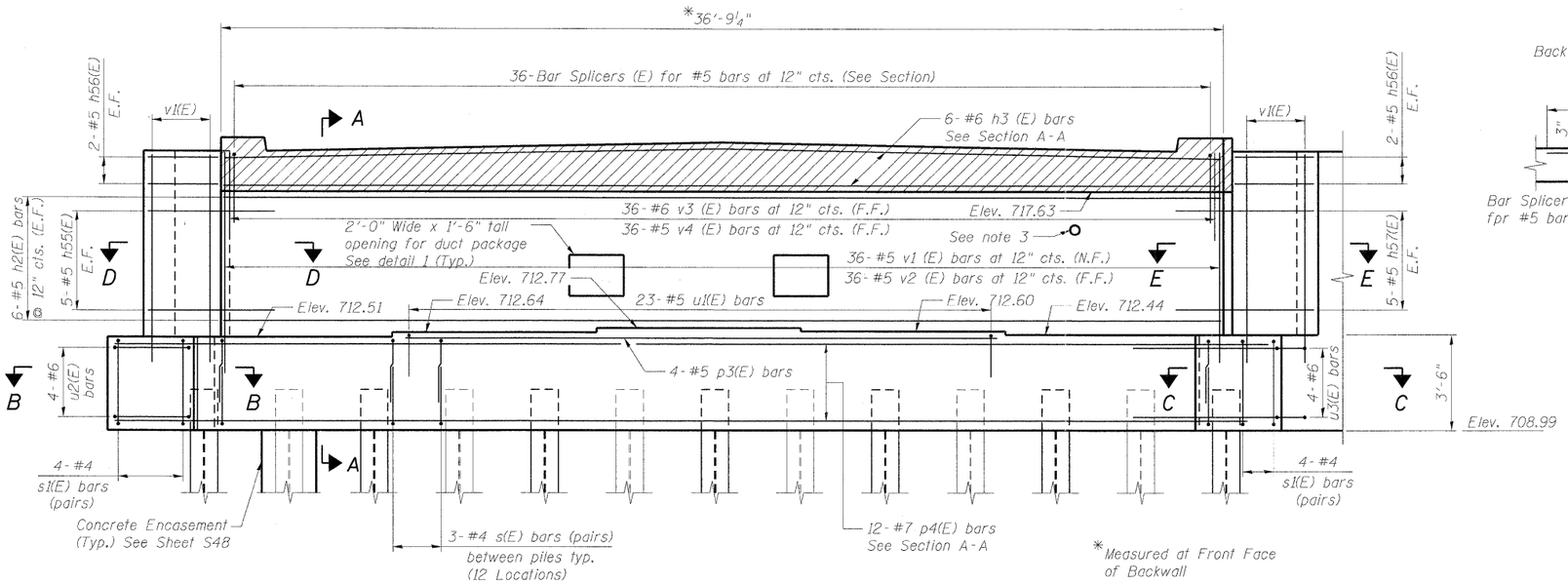
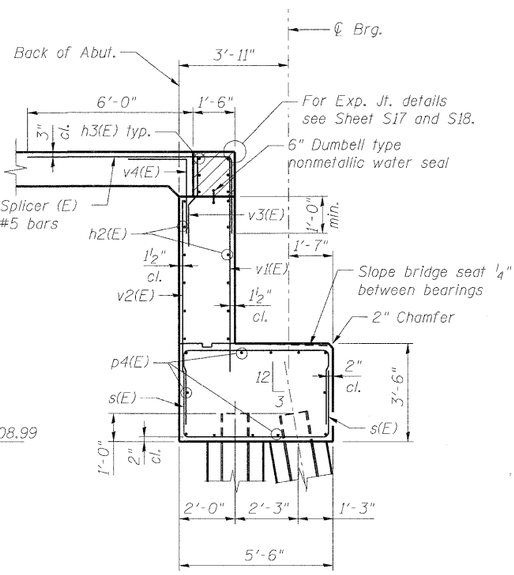
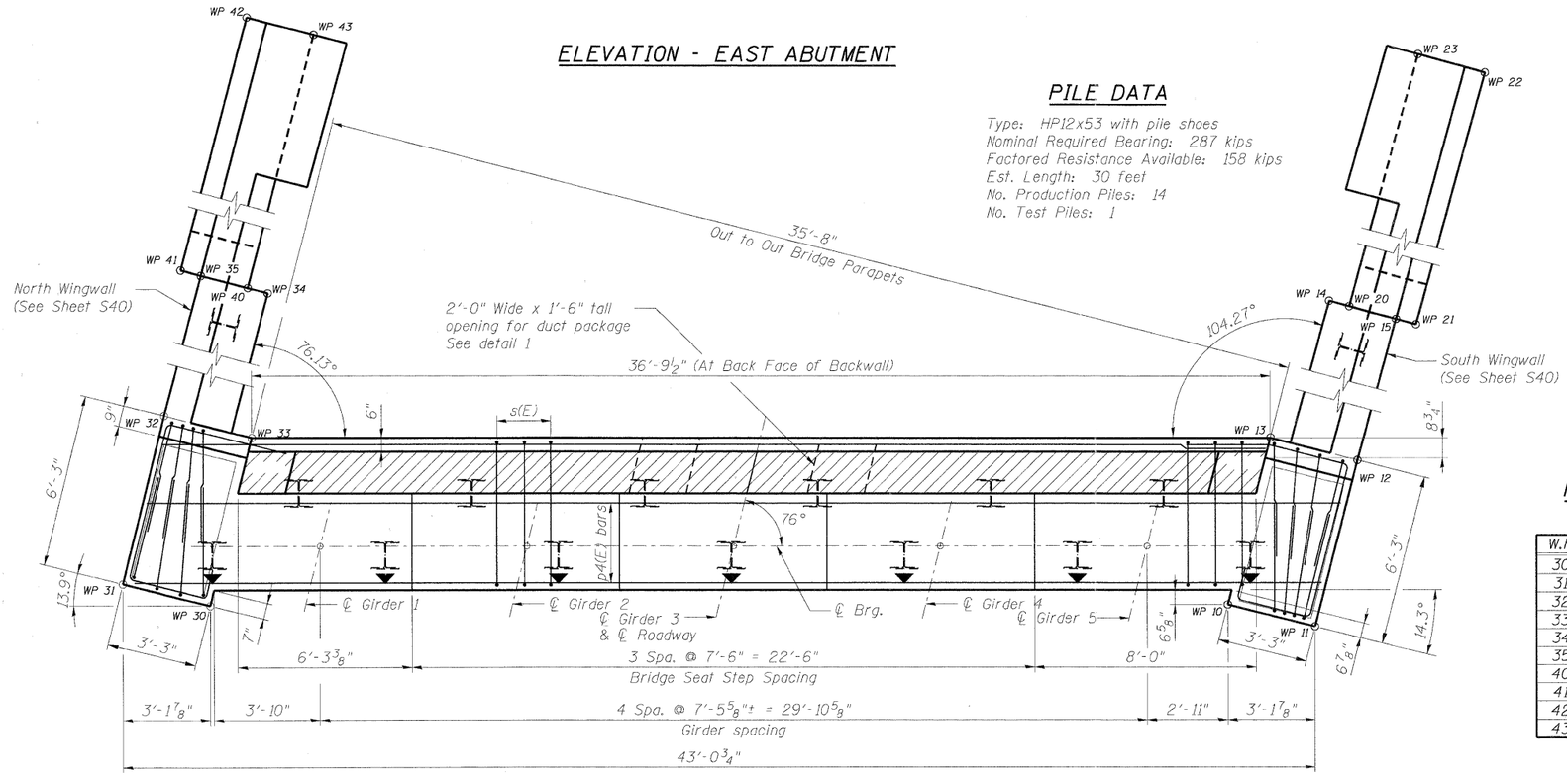


ELEVATION - EAST ABUTMENT



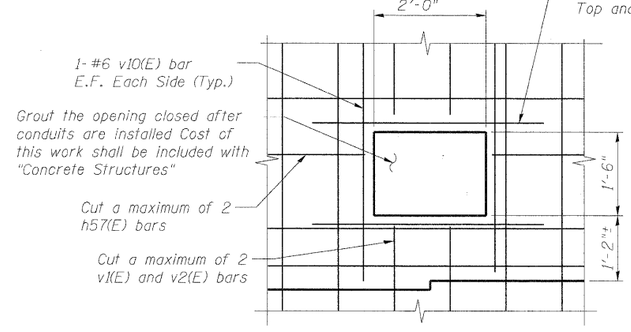
SECTION A-A



PLAN - EAST ABUTMENT

PILE DATA

Type: HP12x53 with pile shoes
Nominal Required Bearing: 287 kips
Factored Resistance Available: 158 kips
Est. Length: 30 feet
No. Production Piles: 14
No. Test Piles: 1



DETAIL 1 AT DUCT BANK BLOCKOUT

Note: Exact location of blockout shall be confirmed with the electrical details prior to construction of backwall

NORTH FOOTING & WINGWALL

W.P.	Station	Offset
30	120+78.29	17'-10"
31	120+78.30	21'-1"
32	120+84.43	21'-0⅞"
33	120+84.43	17'-10"
34	120+95.67	18'-6⅛"
35	120+95.67	21'-0⅛"
40	120+95.67	19'-3⅛"
41	120+95.67	21'-9⅛"
42	121+13.48	21'-10⅝"
43	121+13.51	19'-4⅝"

SOUTH FOOTING & WINGWALL

W.P.	Station	Offset
10	120+87.10	17'-10⅛"
11	120+87.09	21'-1⅛"
12	120+93.47	21'-1⅛"
13	120+93.46	17'-10"
14	121+05.21	18'-8⅜"
15	121+05.20	21'-2⅜"
20	121+05.21	19'-5⅜"
21	121+05.20	21'-11⅜"
22	121+23.74	21'-10¼"
23	121+23.71	19'-4¼"

NOTES:

1. See sheet S40 for wingwall sections and details.
2. See sheet S3 for foundation layout.
3. Locate 3" sleeve as required for traffic signal interconnect.

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FILE NAME = 04560024_039_EAbutDtls1.dgn	USER NAME = ekeaschall	DESIGNED - MFH	REVISED -
		CHECKED - MRB	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - MRB	REVISED -

CITY OF ST. CHARLES

EAST ABUTMENT DETAILS (1 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S39 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	261
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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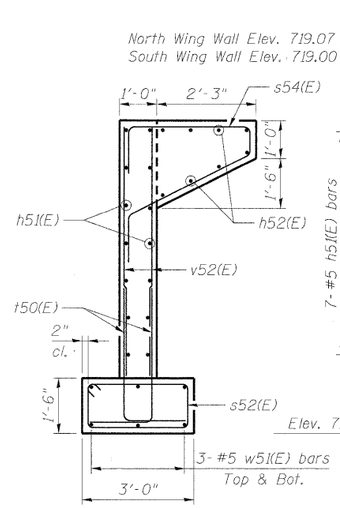
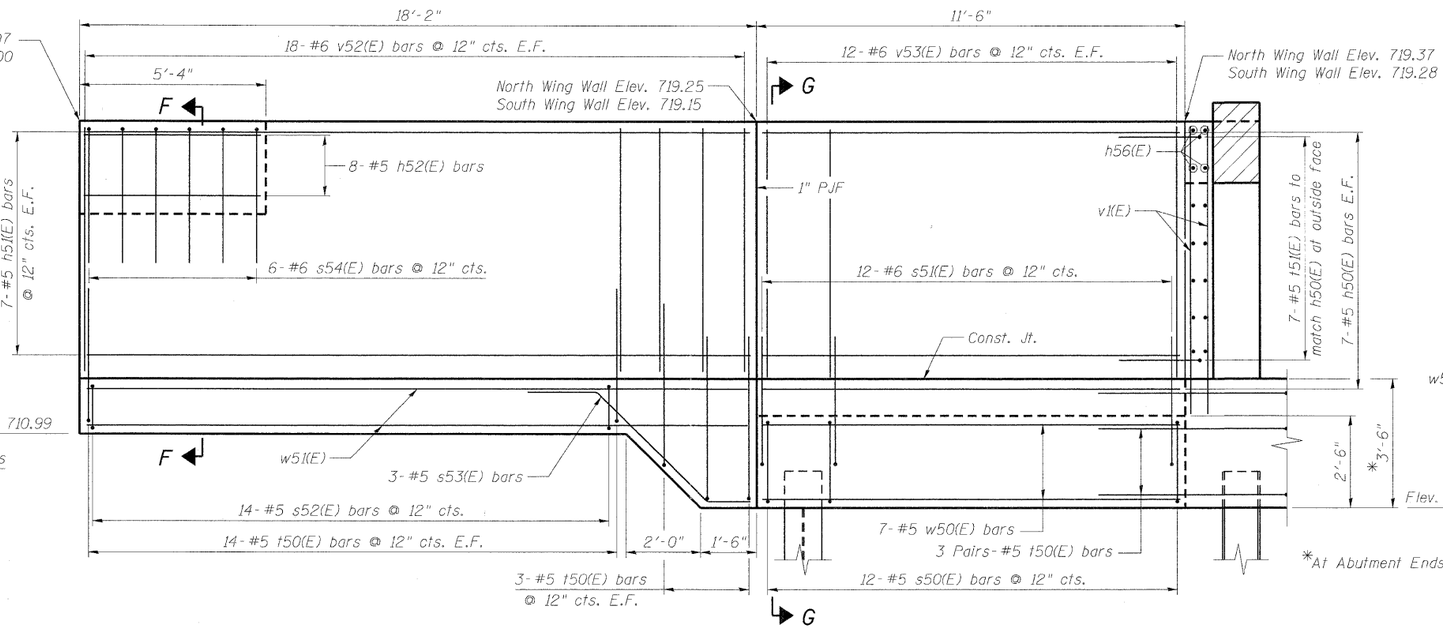
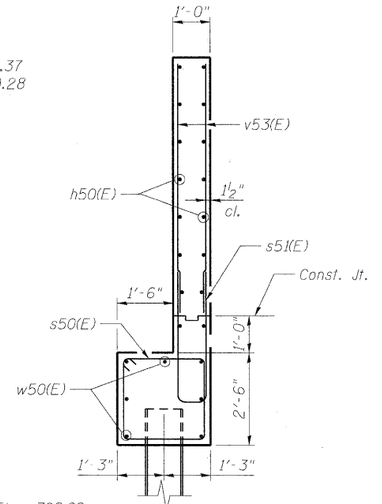


SECTION F-F



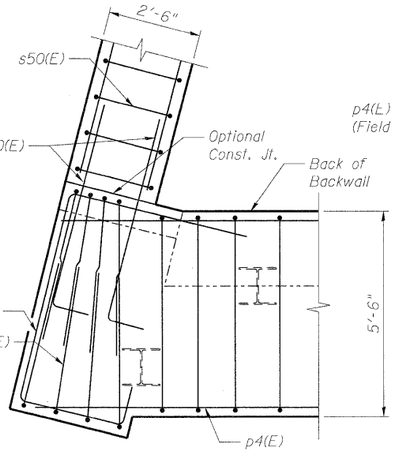


SECTION G-G

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h2(E)	12	#5	36'-5"	
h3(E)	6	#6	36'-5"	
h10(E)	8	#5	5'-0"	
h50(E)	28	#5	11'-2"	
h51(E)	28	#5	17'-10"	
h52(E)	16	#5	5'-0"	
h55(E)	10	#5	5'-0"	
h56(E)	8	#5	2'-11"	
h57(E)	10	#5	5'-3"	
p3(E)	4	#5	22'-0"	
p4(E)	12	#7	42'-6"	
s(E)	72	#4	10'-6"	
s1(E)	16	#4	10'-10"	
s50(E)	24	#5	9'-7"	
s51(E)	24	#6	10'-9"	
s52(E)	28	#5	8'-7"	
s53(E)	6	#5	7'-0"	
s54(E)	12	#6	9'-2"	
t50(E)	80	#5	5'-8"	
t51(E)	28	#5	4'-6"	
u1(E)	23	#5	6'-3"	
u2(E)	4	#6	14'-4"	
u3(E)	4	#6	15'-11"	
v1(E)	52	#5	7'-3"	
v2(E)	36	#5	5'-7"	
v3(E)	36	#6	3'-5"	
v4(E)	36	#5	4'-6"	
v10(E)	8	#6	4'-0"	
v52(E)	72	#6	6'-4"	
v53(E)	48	#6	6'-6"	
w50(E)	14	#5	11'-2"	
w51(E)	12	#5	17'-9"	

Concrete Structures	Cu. Yd.	77.1
Reinforcement Bars, Epoxy Coated	Pound	8,210
Furnishing Steel Piles, HP12x53	Foot	420
Driving Piles	Foot	420
Test Pile Steel, HP12x53	Each	1
Pile Shoes	Each	15
Anti-Graffiti Coating	Sq. Ft.	226
Anti-Graffiti Protection System	Sq. Ft	397
Form Liner Textured Surface (Special)	Sq. Ft	397



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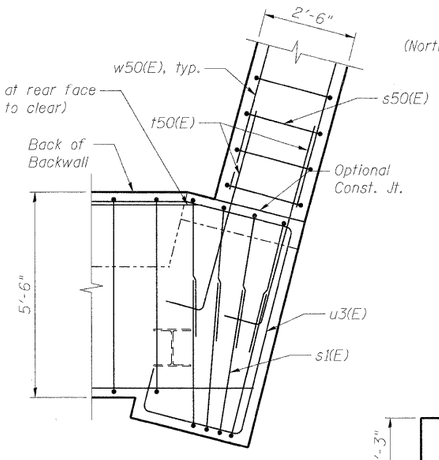

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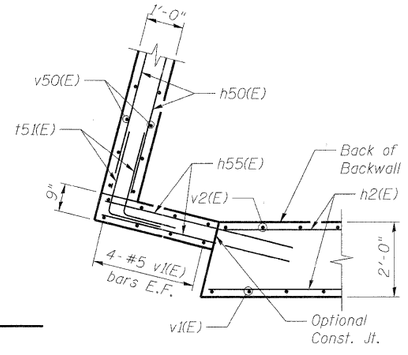

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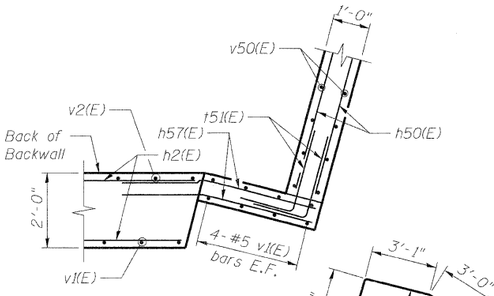
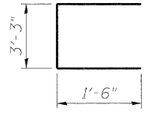
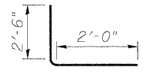


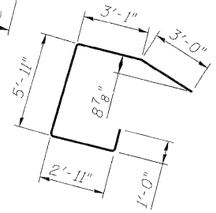
SECTION E-E



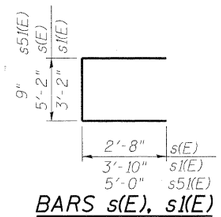
BAR u1(E)



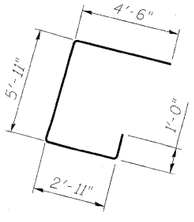
BAR t51(E)



BAR u3(E)



BARS s(E), s1(E) & s51(E)



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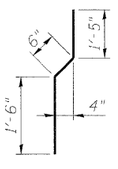
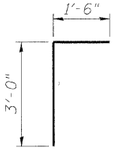
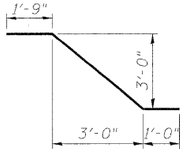


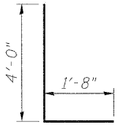
BAR v3(E)



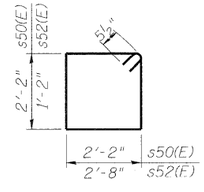
BAR v4(E)



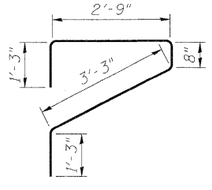
BAR s53(E)



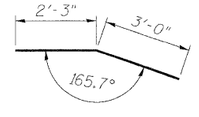
BAR t50(E)



BARS s50(E) & s52(E)



BARS s54(E)



BAR h57(E)

WINGWALL ELEVATION

(North Wingwall shown; South Wingwall opposite hand)

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

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EAST ABUTMENT DETAILS (2 OF 2)
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S40 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	262
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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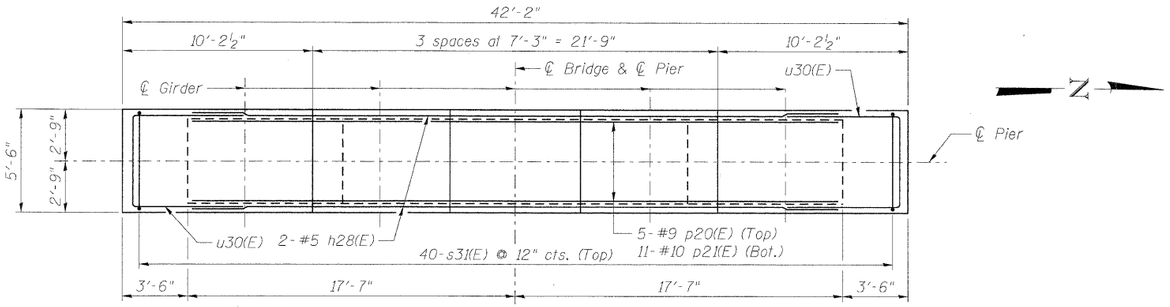
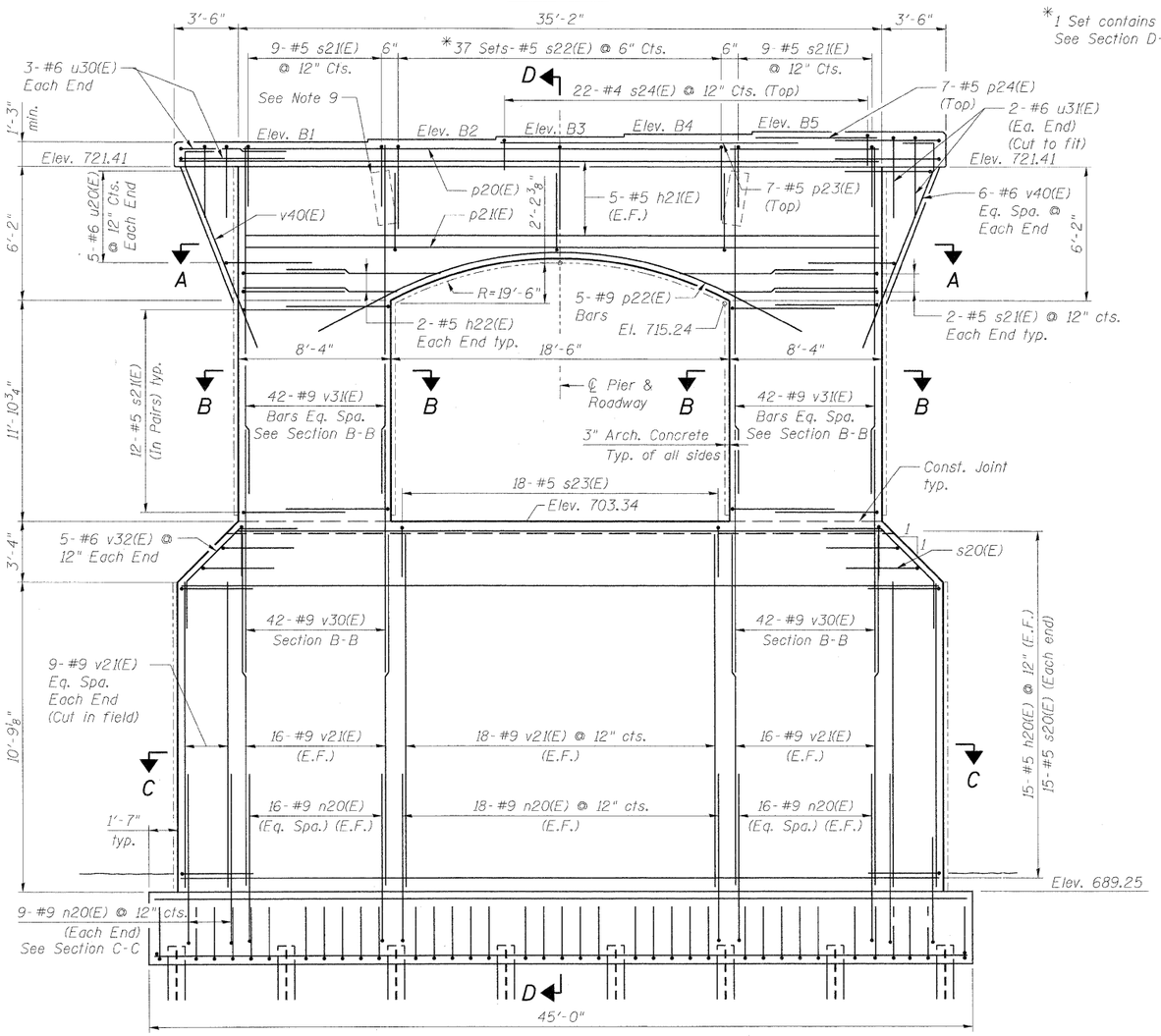
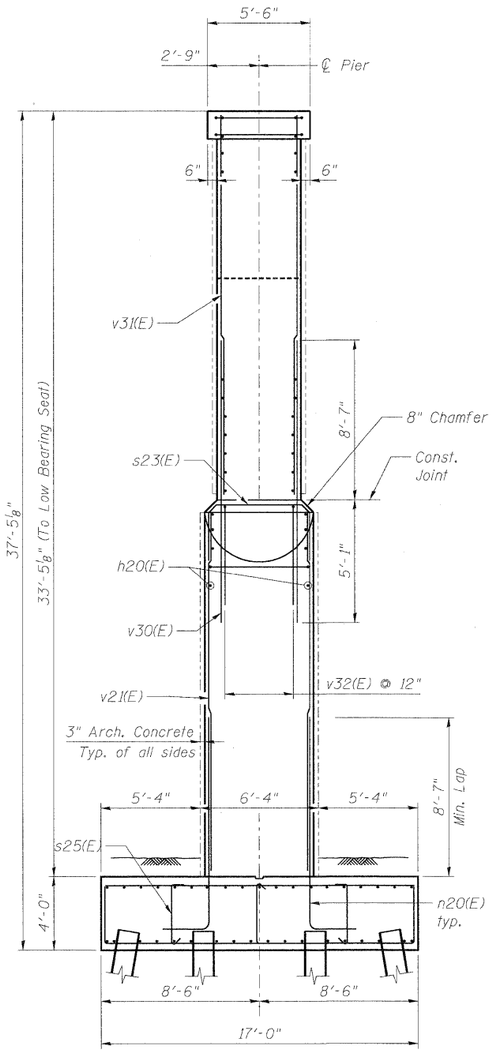


TOP PLAN



*1 Set contains 4-s22(E) bars. See Section D-D.

ELEVATION



END VIEW

ELEVATION TABLE

B1	B2	B3	B4	B5
722.68	722.86	723.05	723.24	723.43

PILE DATA

Type: HP14x73 with pile shoes
Nominal Required Bearing: 446 kips
Factored Resistance Available: 245 kips
Est. Length: 70 feet
No. Production Piles: 31
No. Test Piles: 1

NOTES:

1. Use the following minimum lap lengths except as noted:
   #5: 3'-3" #6: 3'-10" #9: 8'-7"
2. See sheet S44 for sections A-A thru D-D.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. For footing plan, see sheet S45.
6. For details of piles, see sheet S48.
7. For Bill of Materials see sheet S46.
8. Bridge seat elevations based on bearing heights shown on Sheets S35-S36. Any deviation from these heights shall be accounted for by the Contractor. Additional costs incurred due to these changes shall be at the Contractor's expense.
9. See sheet SM11 of Multi-use Trail Bridge for Cable Anchorage Details.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
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CITY OF ST. CHARLES

PIER 1 DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S41 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	263
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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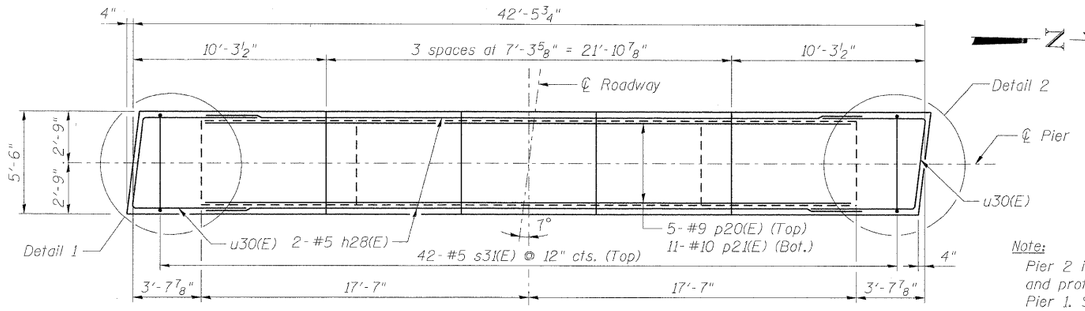


Z

ELEVATION TABLE

PIER	A	B1	B2	B3	B4	B5	C	D	E
2	680.50	721.19	721.35	721.51	721.61	721.71	719.94	702.13	713.77
3	679.00	720.18	720.32	720.45	720.30	720.15	718.83	700.15	712.66
4	682.50	718.58	718.72	718.85	718.70	718.54	717.23	698.95	711.06
5	687.00	716.49	716.62	716.76	716.60	716.45	715.14	696.97	708.97

h20(E) & s20(E) BARS

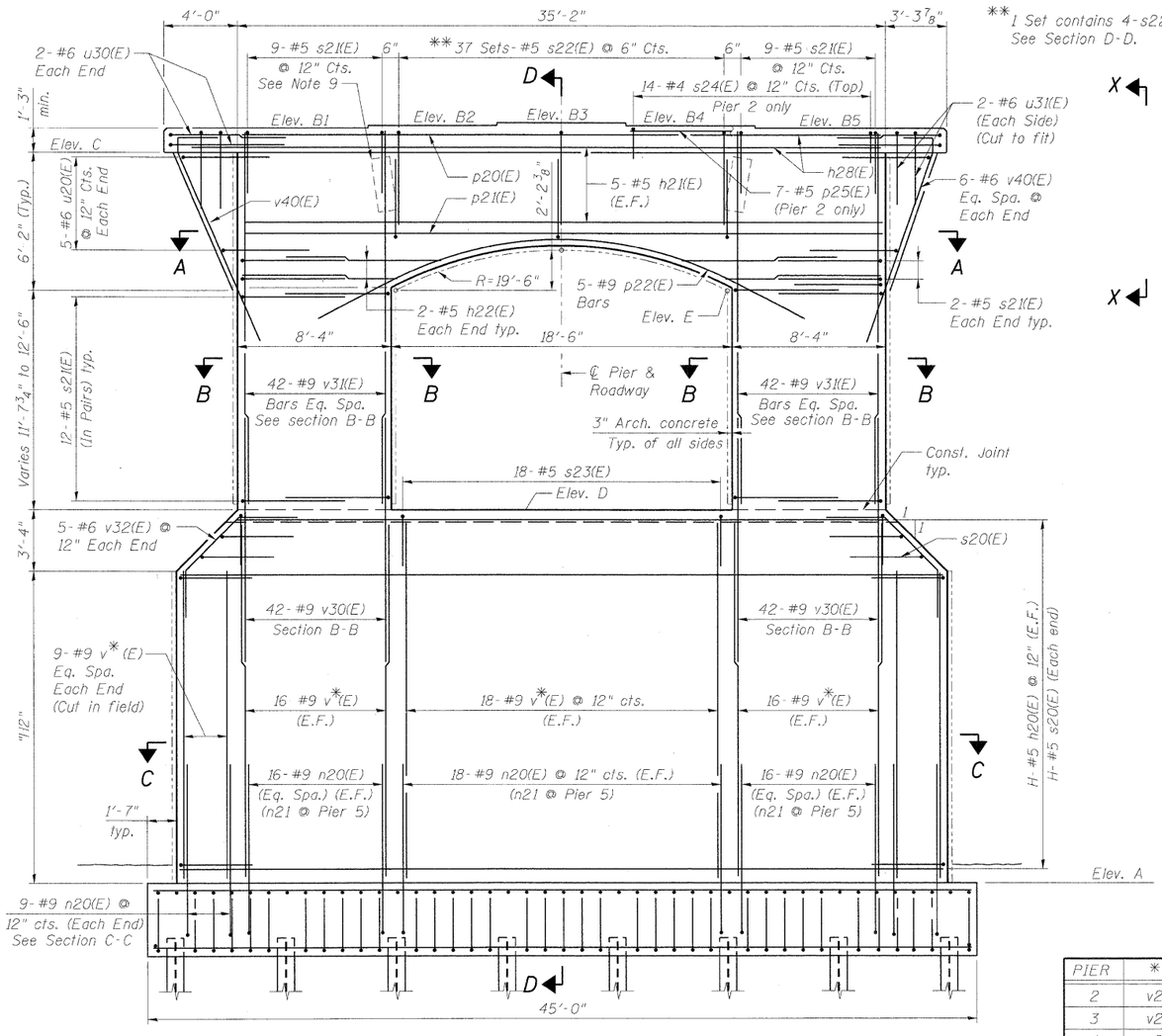
PIER	H (Quantity)
2	22
3	22
4	17
5	11

PIER TABLE

PIER	H	H1	H2
2	44'-8 1/4"	40'-8 1/4"	18'-3 1/2"
3	45'-1 3/4"	41'-1 3/4"	17'-9 3/4"
4	40'-0 1/2"	36'-0 1/2"	13'-1 1/2"
5	33'-5 1/2"	29'-5 1/2"	6'-7 3/4"

Note:
Pier 2 is still within superelevated roadway, and profile of top of cap is similar to Pier 1. See Elevation Table.

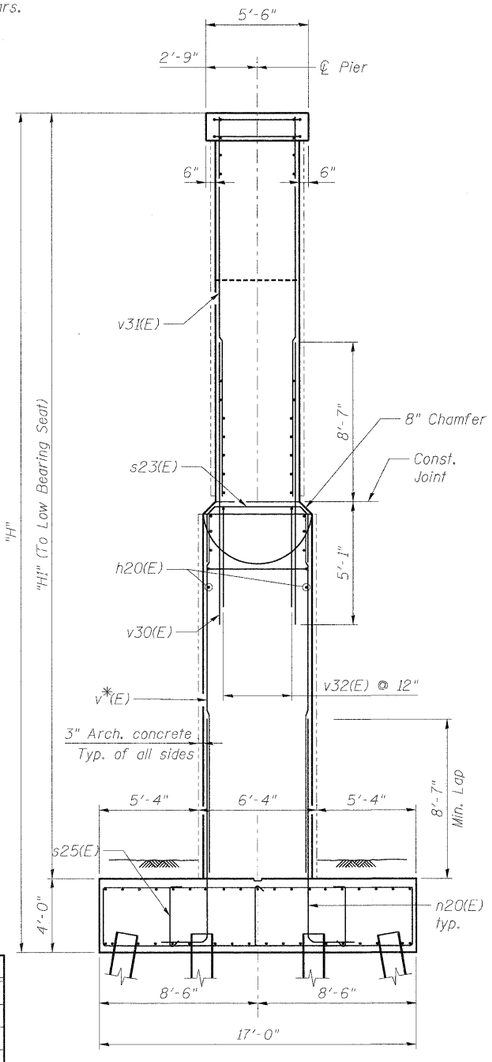
TOP PLAN



** 1 Set contains 4-s22(E) bars. See Section D-D.

PIER	*Bar
2	v20(E)
3	v20(E)
4	v22(E)
5	None

ELEVATION



END VIEW

PILE DATA-Pier 2

Type: HP14x73 with pile shoes
Nominal Required Bearing: 382 kips
Factored Resistance Available: 210 kips
Est. Length: 61 feet
No. Production Piles: 31
No. Test Piles: 1

PILE DATA-Pier 3

Type: HP14x73 with pile shoes
Nominal Required Bearing: 464 kips
Factored Resistance Available: 255 kips
Est. Length: 57 feet
No. Production Piles: 31
No. Test Piles: 1

PILE DATA-Pier 4

Type: HP14x73 with pile shoes
Nominal Required Bearing: 428 kips
Factored Resistance Available: 235 kips
Est. Length: 56 feet
No. Production Piles: 31
No. Test Piles: 1

PILE DATA-Pier 5

Type: HP14x73 with pile shoes
Nominal Required Bearing: 400 kips
Factored Resistance Available: 220 kips
Est. Length: 42 feet
No. Production Piles: 31
No. Test Piles: 1

NOTES:

1. Use the following minimum lap lengths except as noted: #5: 3'-3" #6: 3'-10" #9: 8'-7"
2. See sheet S44 for sections A-A thru D-D.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. For footing plan, see sheet S45.
6. For details of piles, see sheet S48.
7. For Bill of Materials see sheet S46 and S47.
8. Bridge seat elevations based on bearing heights shown on Sheets S35-S36. Any deviation from these heights shall be accounted for by the Contractor. Additional costs incurred due to these changes shall be at the Contractor's expense.
9. See sheet SM11 of Multi-use Trail Bridge for cable anchorage details.

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	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

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PIERS 2 THRU 5 DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S42 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	264
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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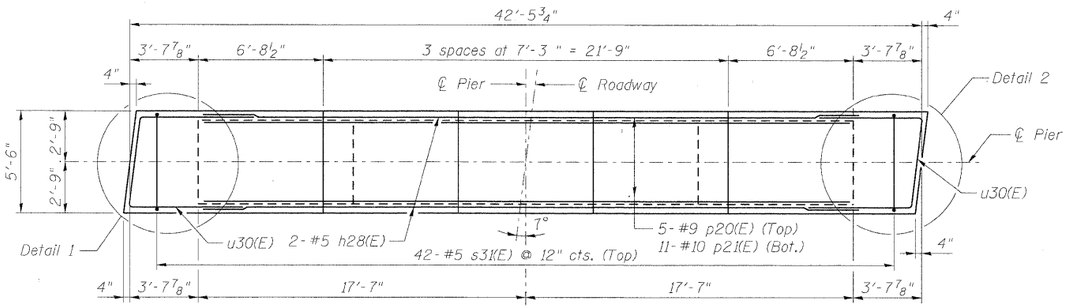
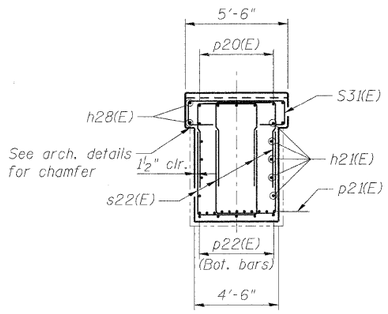


TOP PLAN



SECTION E-E

(At ℄ Pier)

ELEVATION TABLE

PIER	A	B1	B2	B3	B4	B5	C	E
6	688.00	714.89	715.03	715.16	715.01	714.85	713.54	707.37
7	690.25	713.29	713.42	713.55	713.40	713.24	711.94	705.77

PIER TABLE

PIER	H	H1	H2
6	29'-10 1/4"	26'-10 1/4"	19'-4 1/2"
7	26'-0"	23'-0"	15'-6 1/4"

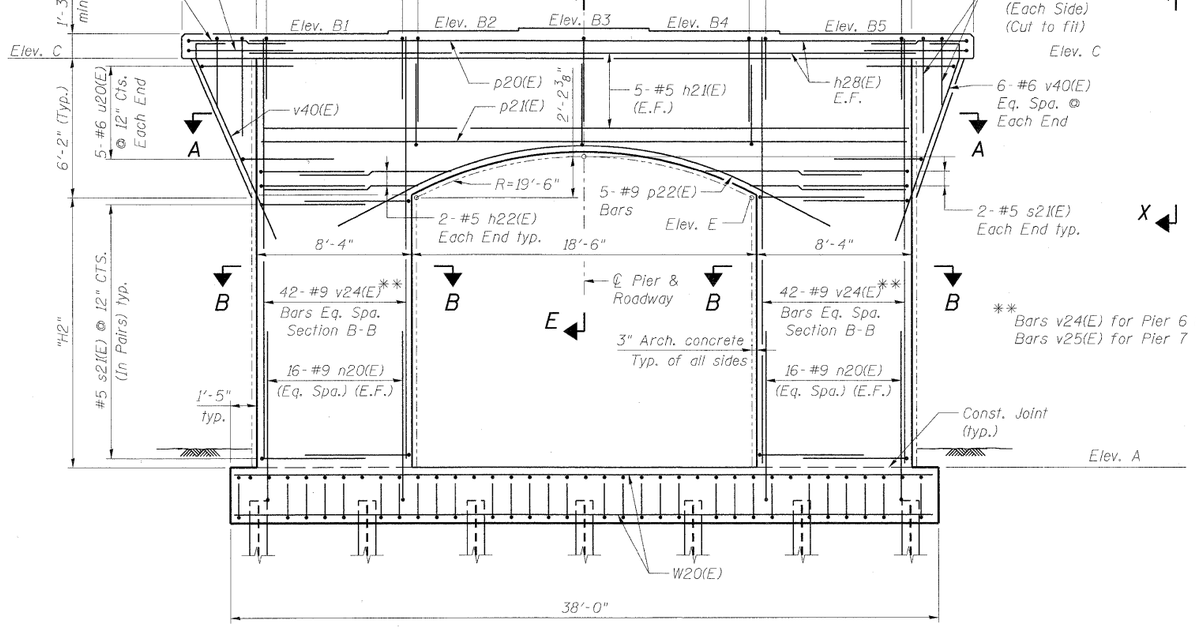
PILE DATA-Pier 6

Type: HP12x53 with pile shoes
Nominal Required Bearing: 382 kips
Factored Resistance Available: 210 kips
Est. Length: 54 feet
No. Production Piles: 13
No. Test Piles: 1

PILE DATA-Pier 7

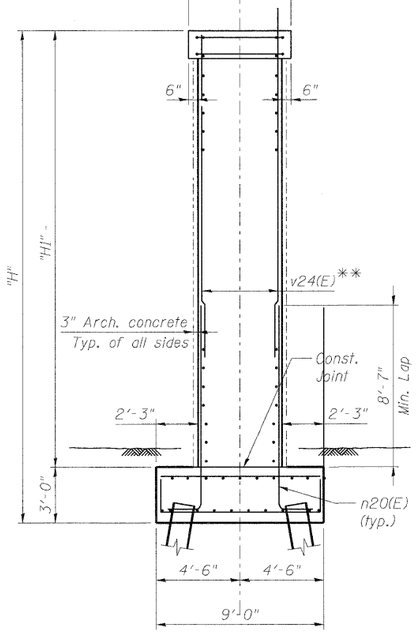
Type: HP12x53 with pile shoes
Nominal Required Bearing: 373 kips
Factored Resistance Available: 205 kips
Est. Length: 46 feet
No. Production Piles: 13
No. Test Piles: 1

* 1 Set contains 4-s22(E) bars.
See Section E-E.



** Bars v24(E) for Pier 6 &
Bars v25(E) for Pier 7

ELEVATION



END VIEW

NOTES:

1. Use the following minimum lap lengths except as noted:
   #5: 3'-3" #6: 3'-10" #9: 8'-7"
2. See sheet S44 for sections A-A and B-B and details 1 and 2.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. For footing plan, see sheet S45.
6. For details of piles, see sheet S48.
7. For Bill of Materials see sheet S47.
8. Bridge seat elevations based on bearing heights shown on Sheets S35-S36. Any deviation from these heights shall be accounted for by the Contractor. Additional costs incurred due to these changes shall be at the Contractor's expense.
9. For footing reinforcement, see section G-G on sheet S45.
10. See view X-X on sheet S44 for corbel geometry.
11. See sheet SM11 of Multi-use Trail Bridge for cable anchorage details.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
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CITY OF ST. CHARLES

PIERS 6 & 7 DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S43 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	265
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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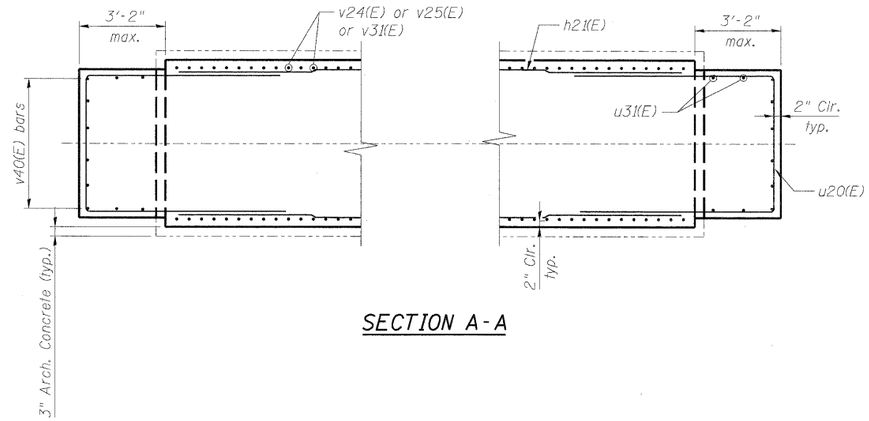
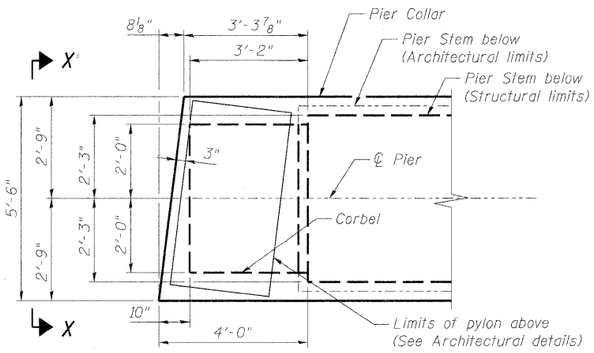
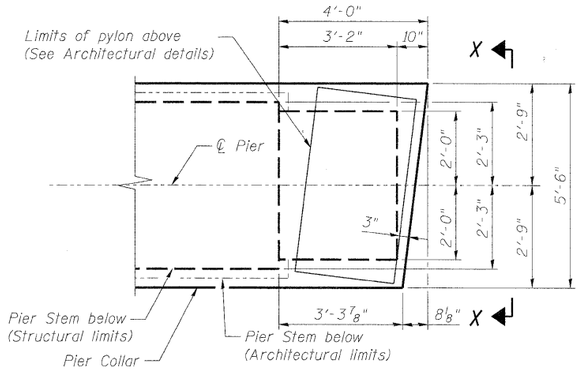


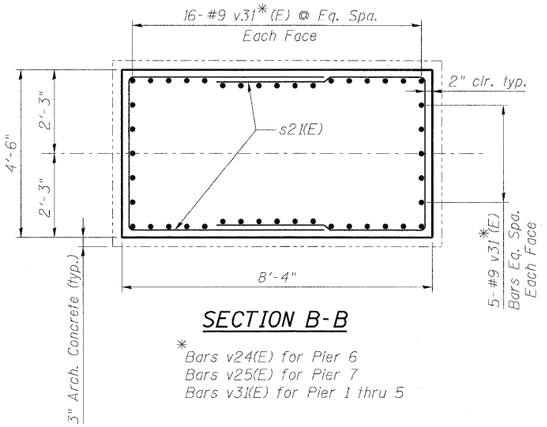
SECTION A-A



DETAIL 1

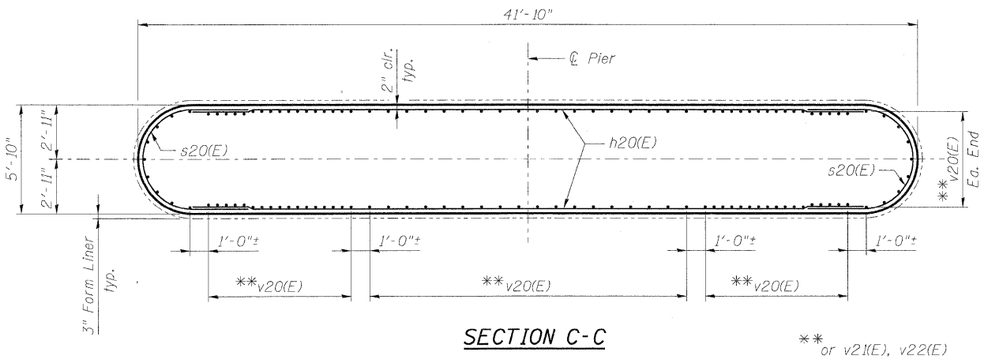


DETAIL 2



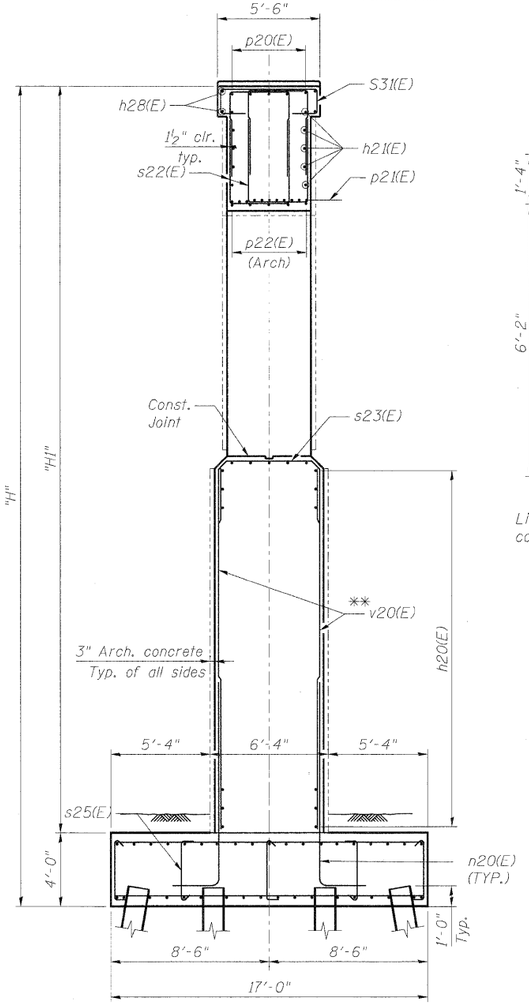
SECTION B-B

*Bars v24(E) for Pier 6
Bars v25(E) for Pier 7
Bars v31(E) for Pier 1 thru 5

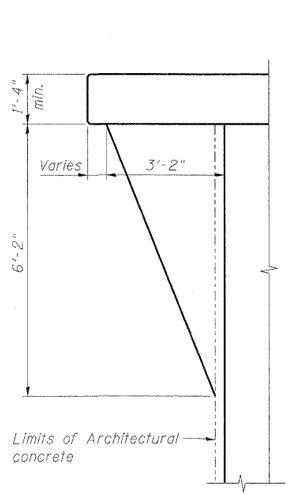


SECTION C-C

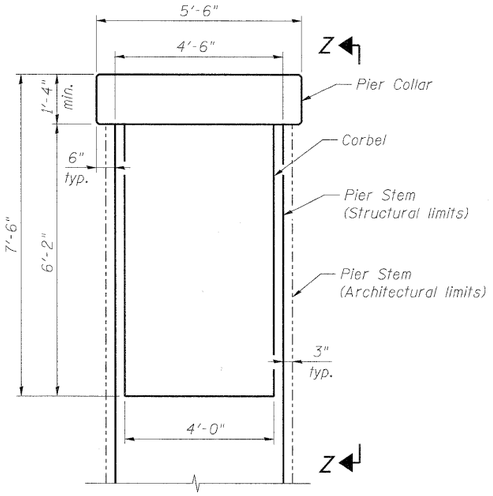
**or v21(E), v22(E)



SECTION D-D
(At ℄ Pier)



VIEW Z-Z



VIEW X-X

NOTES:

1. See sheet S41 thru S43 for pier plan and elevations.
2. For Bill of Materials, see sheet S46 and S47.
3. All clearance dimensions to reinforcement shall be measured from the structural limits of the pier. Architectural Concrete shall be paid for as "Concrete Structures."

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PIER DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S44 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	266
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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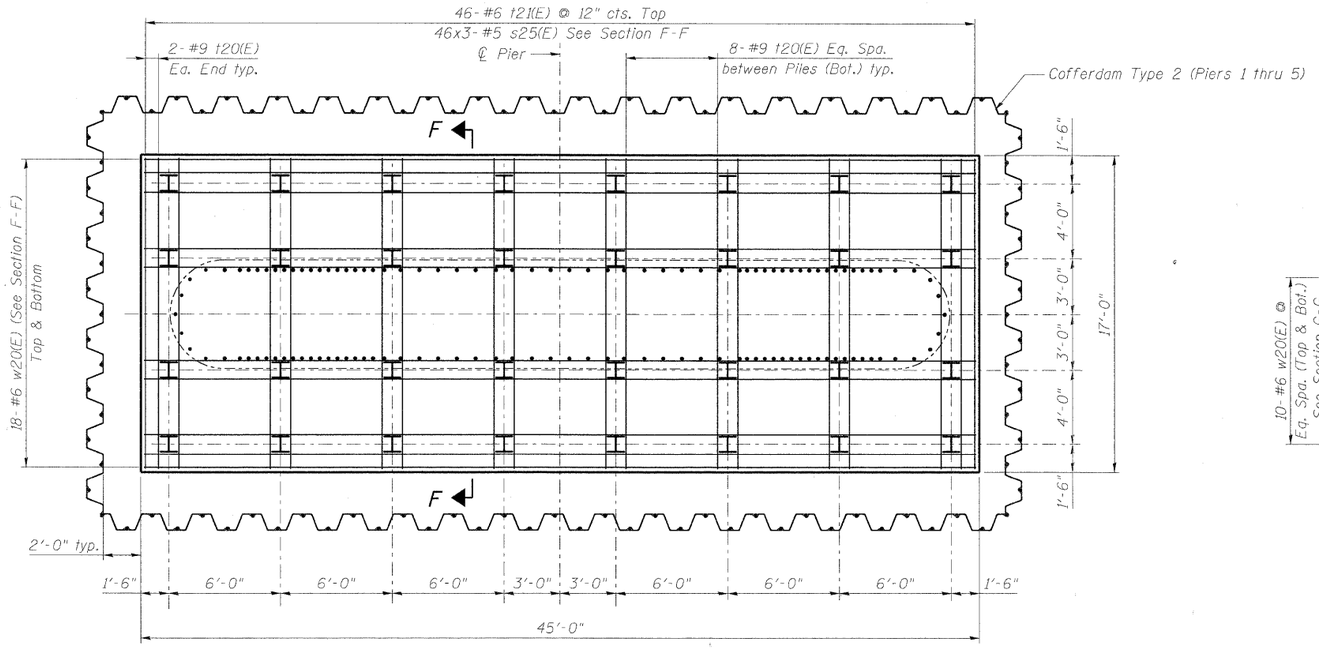
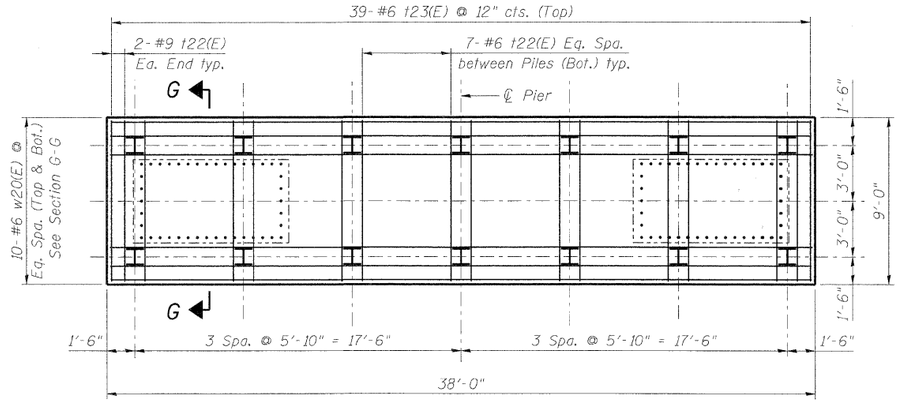
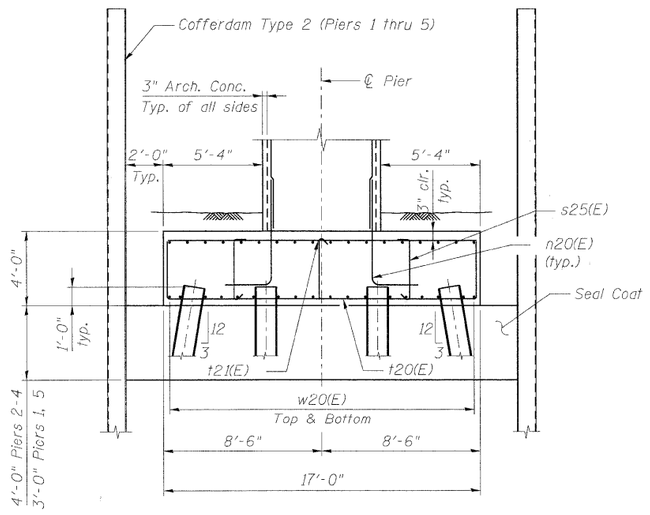


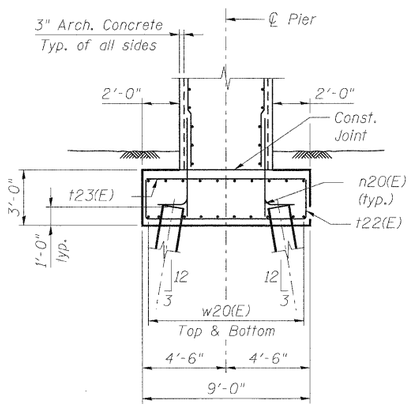
FOOTING PLAN - PIERS 1 - 5



FOOTING PLAN - PIERS 6 & 7



SECTION F-F



SECTION G-G

NOTES:

1. See sheet S41 thru S43 for pier plan and elevations.
2. See sheet S44 for pier sections.
3. For Bill of Materials, see sheet S46 and S47.

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FOOTING DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S45 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	267
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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PIER 1
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h20(E)	30	#5	36'-0"	
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	118	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
p23(E)	7	#5	16'-6"	
p24(E)	7	#5	7'-0"	
s20(E)	30	#5	15'-2"	
s21(E)	70	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s23(E)	18	#5	12'-0"	
s24(E)	22	#4	5'-5"	
s25(E)	138	#5	4'-10"	
s31(E)	40	#5	9'-10"	
t20(E)	60	#9	23'-6"	
t21(E)	46	#6	16'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	6	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v21(E)	118	#9	13'-9"	
v30(E)	84	#9	15'-0"	
v31(E)	84	#9	18'-3"	
v32(E)	10	#6	9'-9"	
v40(E)	12	#6	12'-3"	
w20(E)	36	#6	44'-6"	

Concrete Structures	Cu. Yd.	341.5
Reinforcement Bars, Epoxy Coated	Pound	38,600
Test Pile Steel HP 14x73	Each	1
Furn. Steel Piles HP 14x73	Foot	2170
Driving Piles	Foot	2170
Anti-Graffiti Coating	Sq. Ft.	2684
Seal Coat Concrete	Cu. Yd.	122.3
Cofferdam (Type 2) (Location - 1)	Each	1
Pile Shoes	Each	32

PIER 2
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h20(E)	44	#5	36'-0"	
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	118	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
p25(E)	7	#5	14'-0"	
s20(E)	44	#5	15'-2"	
s21(E)	70	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s23(E)	18	#5	12'-0"	
s24(E)	14	#4	5'-5"	
s25(E)	138	#5	4'-10"	
s31(E)	42	#5	9'-10"	
t20(E)	60	#9	23'-6"	
t21(E)	46	#6	16'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v20(E)	118	#9	20'-9"	
v30(E)	84	#9	15'-0"	
v31(E)	84	#9	18'-3"	
v32(E)	10	#6	9'-9"	
v40(E)	12	#6	12'-3"	
w20(E)	36	#6	44'-6"	

Concrete Structures	Cu. Yd.	414.3
Reinforcement Bars, Epoxy Coated	Pound	42,000
Test Pile Steel HP 14x73	Each	1
Furn. Steel Piles HP 14x73	Foot	1891
Driving Piles	Foot	1891
Anti-Graffiti Coating	Sq. Ft.	3475
Seal Coat Concrete	Cu. Yd.	163.0
Cofferdam (Type 2) (Location - 2)	Each	1
Pile Shoes	Each	32

PIER 3
BILL OF MATERIAL

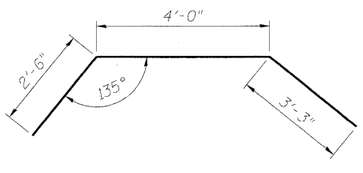
Bar	No.	Size	Length	Shape
h20(E)	44	#5	36'-0"	
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	118	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
s20(E)	44	#5	15'-2"	
s21(E)	70	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s23(E)	18	#5	12'-0"	
s25(E)	138	#5	4'-10"	
s31(E)	42	#5	9'-10"	
t20(E)	60	#9	23'-6"	
t21(E)	46	#6	16'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v20(E)	118	#9	20'-9"	
v30(E)	84	#9	15'-0"	
v31(E)	84	#9	18'-3"	
v32(E)	10	#6	9'-9"	
v40(E)	12	#6	12'-3"	
w20(E)	36	#6	44'-6"	

Concrete Structures	Cu. Yd.	411.7
Reinforcement Bars, Epoxy Coated	Pound	41,900
Test Pile Steel HP 14x73	Each	1
Furn. Steel Piles HP 14x73	Foot	1767
Driving Piles	Foot	1767
Anti-Graffiti Coating	Sq. Ft.	3477
Seal Coat Concrete	Cu. Yd.	163.0
Cofferdam (Type 2) (Location - 3)	Each	1
Pile Shoes	Each	32

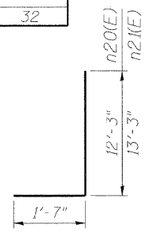
PIER 4
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h20(E)	34	#5	36'-0"	
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	118	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
s20(E)	34	#5	15'-2"	
s21(E)	70	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s23(E)	18	#5	12'-0"	
s25(E)	138	#5	4'-10"	
s31(E)	42	#5	9'-10"	
t20(E)	60	#9	23'-6"	
t21(E)	46	#6	16'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v22(E)	118	#9	16'-0"	
v30(E)	84	#9	15'-0"	
v31(E)	84	#9	18'-3"	
v32(E)	10	#6	9'-9"	
v40(E)	12	#6	12'-3"	
w20(E)	36	#6	44'-6"	

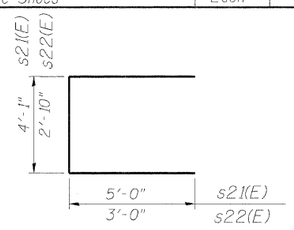
Concrete Structures	Cu. Yd.	364.0
Reinforcement Bars, Epoxy Coated	Pound	39,400
Test Pile Steel HP 14x73	Each	1
Furn. Steel Piles HP 14x73	Foot	1736
Driving Piles	Foot	1736
Anti-Graffiti Coating	Sq. Ft.	2951
Seal Coat Concrete	Cu. Yd.	163.0
Cofferdam (Type 2) (Location - 4)	Each	1
Pile Shoes	Each	32



BAR v32(E)



BARS n20(E) & n21(E)



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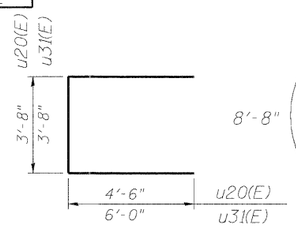

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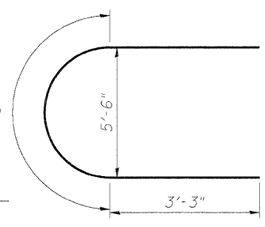
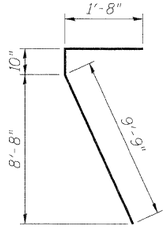
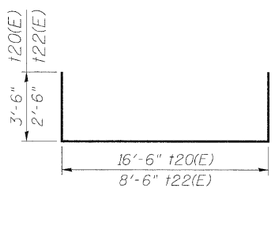


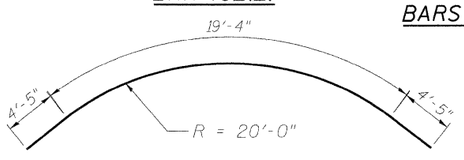
BAR s20(E)



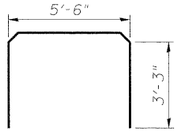
BAR v40(E)



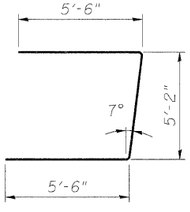
BARS t20(E) & t22(E)



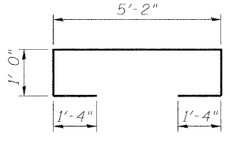
BAR p22(E)



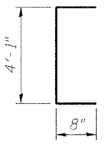
BAR s23(E)



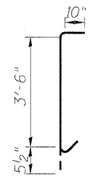
BARS u30(E)



BAR s31(E)



BAR s24(E)



BAR s25(E)

NOTES:

1. See sheets S41 thru S45 for details.
2. The entire surface of the pier above the footing shall be coated with Anti-Graffiti Coating.

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312-565-0450 Job No. 10092

FILE NAME = 2456024_046_Piers1thru4BOM.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

PIERS 1-4 BILL OF MATERIALS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S46 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	268
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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PIER 5
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h20(E)	22	#5	36'-0"	
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	18	#9	13'-10"	
n21(E)	100	#9	14'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
s20(E)	22	#5	15'-2"	
s21(E)	70	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s23(E)	18	#5	12'-0"	
s25(E)	138	#5	4'-10"	
s31(E)	42	#5	9'-10"	
t20(E)	60	#9	23'-6"	
t21(E)	46	#6	16'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v30(E)	84	#9	15'-0"	
v31(E)	84	#9	18'-3"	
v32(E)	10	#6	9'-9"	
v40(E)	12	#6	12'-3"	
w20(E)	36	#6	44'-6"	

Concrete Structures	Cu. Yd.	299.6
Reinforcement Bars, Epoxy Coated	Pound	32,700
Test Pile Steel HP 14x73	Each	1
Furn. Steel Piles HP 14x73	Foot	1302
Driving Piles	Foot	1302
Anti-Graffiti Coating	Sq. Ft.	2251
Seal Coat Concrete	Cu. Yd.	122.3
Cofferdam (Type 2) (Location - 5)	Each	1
Pile Shoes	Each	32

PIER 6
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	84	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
s21(E)	102	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s31(E)	42	#5	9'-10"	
t22(E)	46	#6	13'-6"	
t23(E)	39	#6	8'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v24(E)	84	#9	26'-6"	
v40(E)	12	#6	12'-3"	
w20(E)	20	#6	37'-6"	

Structure Excavation	Cu. Yd.	85
Concrete Structures	Cu. Yd.	152.6
Reinforcement Bars, Epoxy Coated	Pound	21,400
Test Pile Steel HP 12x53	Each	1
Furn. Steel Piles HP 12x53	Foot	702
Driving Piles	Foot	702
Anti-Graffiti Coating	Sq. Ft.	1823
Pile Shoes	Each	14

PIER 7
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h21(E)	10	#5	34'-8"	
h22(E)	8	#5	8'-8"	
h28(E)	4	#5	35'-3"	
n20(E)	84	#9	13'-10"	
p20(E)	5	#9	41'-6"	
p21(E)	11	#10	34'-8"	
p22(E)	5	#9	28'-2"	
s21(E)	86	#5	14'-1"	
s22(E)	148	#5	8'-10"	
s31(E)	42	#5	9'-10"	
t22(E)	46	#6	13'-6"	
t23(E)	39	#6	8'-6"	
u20(E)	10	#6	12'-8"	
u30(E)	4	#6	16'-2"	
u31(E)	4	#6	15'-8"	
v25(E)	84	#9	22'-8"	
v40(E)	12	#6	12'-3"	
w20(E)	20	#6	37'-6"	

Structure Excavation	Cu. Yd.	76
Concrete Structures	Cu. Yd.	139.9
*Reinforcement Bars, Epoxy Coated	Pound	20,100
Test Pile Steel HP 12x53	Each	1
Furn. Steel Piles HP. 12x53	Foot	598
Driving Piles	Foot	598
Anti-Graffiti Coating	Sq. Ft.	1588
Pile Shoes	Each	14

NOTES:

1. See sheet S41 thru S43 for pier plan and elevation.
2. See sheet S44 for pier sections.
3. The entire surface of the pier above the footing shall be coated with Anti-Graffiti Coating.

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FILE NAME = 0456024_047_Piers5thru7BOM.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
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	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

PIERS 5-7 BILL OF MATERIALS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S47 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	269
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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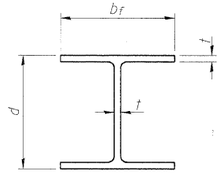
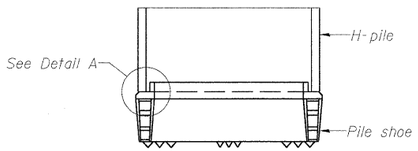
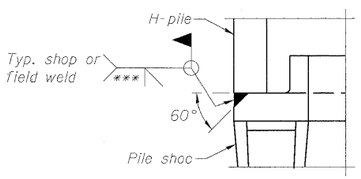


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"

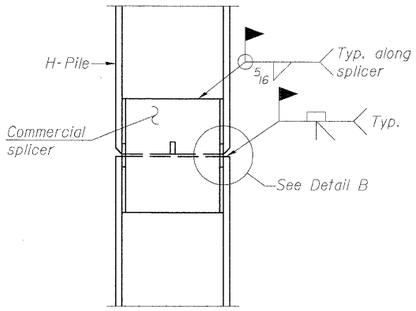


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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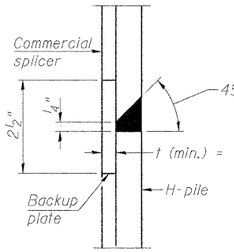
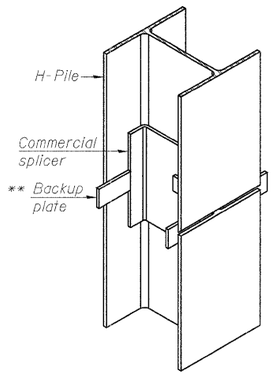
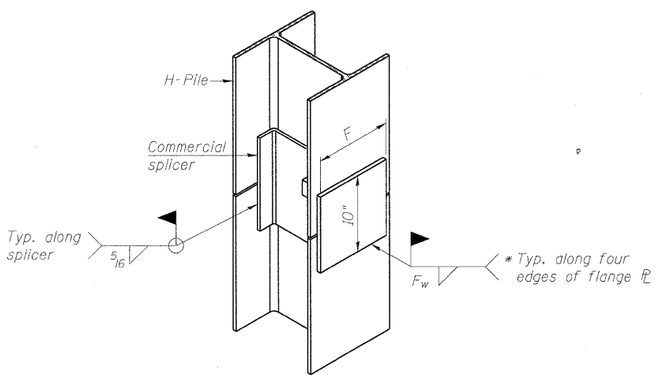


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



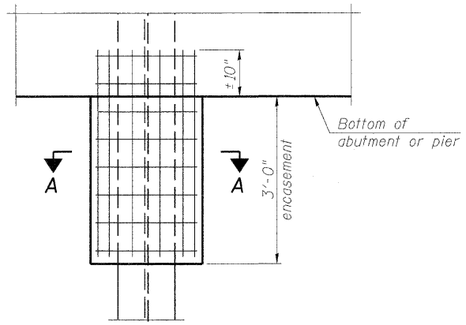
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).



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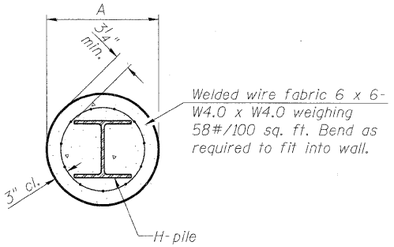
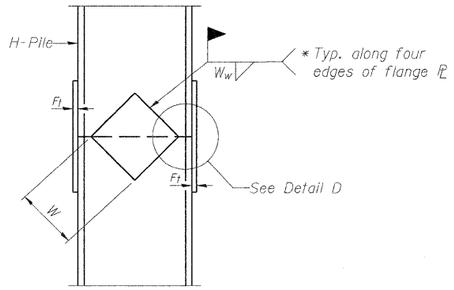


Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT



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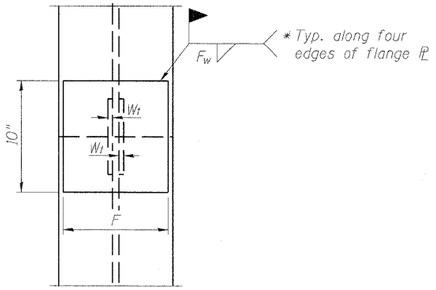
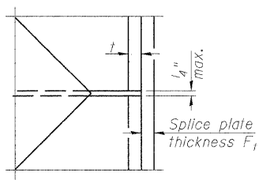


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 7-1-10

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

HP PILE DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S48 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	270
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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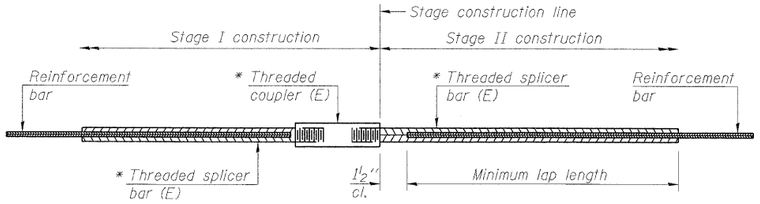


STANDARD BAR SPLICER ASSEMBLY

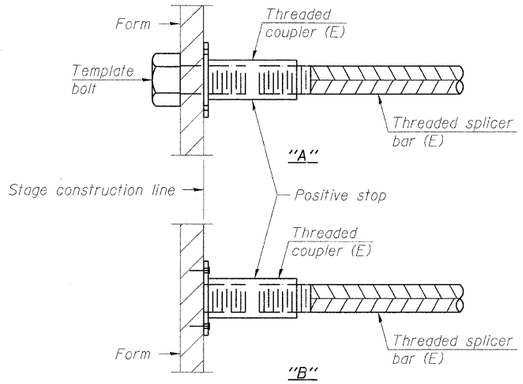
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1½" + thread length

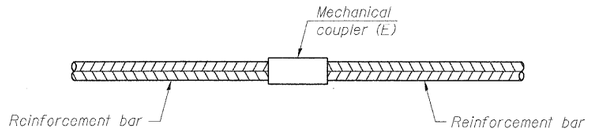
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



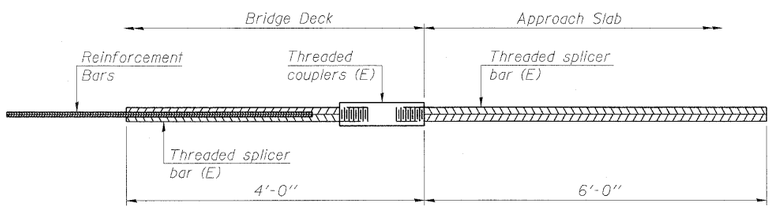
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



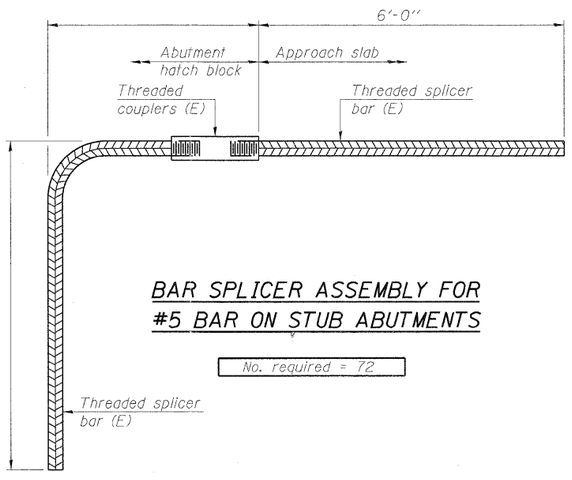
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required =



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required = 72

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See special provision for Mechanical Splicers.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

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312-565-0450 Job No. 10092

BSD-1

7-1-10

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	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S49 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	271
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-02**
Station 112+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 681.5
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
BARGE							
686.0					4		
					8		
					10	NP	9
RIVER					8		
					12		
-5				-25	12	NP	6
681.5							
	2				9		
SAND & GRAVEL–gray– medium dense (A–1–a)	4				11		
	6	NP	8		13	NP	9
679.5							
	4				11		
SAND with Gravel–gray– medium dense (A–1–b)	5				13		
-10	5	NP	13	-30	17	NP	10
677.0							
	17						
	22						
SAND & GRAVEL–brown– medium dense to dense (A–1)	27	NP	11				
					11		
	7				13		
-15	14	NP	9	-35	9	NP	8
672.0							
	7						
SAND with Gravel–brown– medium dense (A–1–b)	10						
	12	NP	20				
669.5							
	9				2		
SAND & GRAVEL–gray– medium dense to dense (A–1)	12				10		
-20	12	NP	11	-40	10	NP	5

650.5 GRAVEL with Sand–gray– medium dense (A–1–a)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-02**
Station 112+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 681.5
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
GRAVEL with Sand–gray– medium dense (A–1–a)							
					12		
	10				18		
-45	9	NP	4	-65	32	NP	9
640.5							
	12				8		
	12				16		
-50	15	NP	10	-70	19	NP	7
SAND & GRAVEL–gray– medium dense to very dense (A–1)							
	12				18		
	15				28		
-55	18	NP	9	-75	50/3"	NP	10
	12				23		
	15				32		
-60	38	NP	8	-80	50/1"	NP	10

SAND & GRAVEL–gray– medium dense to very dense (A–1)

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-02**
Station 112+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 681.5
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
	38						
	50/3"						
SAND & GRAVEL–gray– medium dense to very dense (A–1)							
-85		NP	11	-105			
	44						
	50/6"						
597.5 -90		NP	9	-110			
End Of Boring @ -90.0' Rotary Drilling CME Automatic Hammer							
-95				-115			
-100				-120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

PIER 2 SOIL BORING LOG

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		CHECKED - AJK	REVISED -
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	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

SOIL BORING LOGS – PIER 2
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S50 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	272
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-03**
Station 113+65 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 680.0
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
686.0				BARGE
				RIVER
-5				
680.0				
	PS	NP	22	GRAVEL with Sand–gray– medium dense (A–1–a)
	7			
-10	10	NP	8	
	10			
	10	NP	4	
674.5				
	6			SAND & GRAVEL–brown & gray– medium dense (A–1)
	9			
-15	11	NP	12	
	5			
	9			
	9	NP	11	
	13			
	13			
-20	13	NP	7	
667.0				SAND & GRAVEL–medium dense (A–1)
	11			
	11			
	13	NP	9	
	8			
	10			
-25	12	NP	9	
	16			
	16			
	16	NP	4	SAND & GRAVEL–gray– medium dense to dense (A–1)
	11			
	16			
-30	13	NP	10	
	17			
	17			
-35	15	NP	11	
	8			
	7			
-40	4	NP	6	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-03**
Station 113+65 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 680.0
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL–gray– medium dense to dense (A–1)
	8			
	7			
-45	14	NP	7	
640.5				
	7			SAND with Gravel–gray– dense (A–1–b)
	14			
-50	16	NP	16	
635.5				
	9			SAND & GRAVEL–gray– medium dense to dense (A–1)
	11			
-55	13	NP	6	
	8			
	16			
-60	18	NP	5	
625.5				SAND & GRAVEL–gray– medium dense to dense (A–1)
	44			
	50/3"			
-65		NP	9	
				GRAVEL with Sand–gray– very dense (A–1–a)
	50/6"			
-70		NP	7	
615.5				
	50/1"			SAND & GRAVEL–gray– very dense (A–1)
-75			NR	
	50/3"			
-80			NR	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-03**
Station 113+65 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. 686.0
Stream Bed Elev. 680.0
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL–gray– very dense (A–1)
	50/6"			
-85		NP	19	
	50/6"			
597.5 -90		NP	9	
				End Of Boring @ –90.0' Rotary Drilling CME Automatic Hammer
-95				
-100				
-105				
-110				
-115				
-120				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

PIER 3 SOIL BORING LOG

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

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SOIL BORING LOGS – PIER 3
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S51 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	273
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-04**
Station 115+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. *686.0*
Stream Bed Elev. *680.5*
Groundwater Elevation:
First Encounter *n/a*
Upon Completion *n/a*
After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
BARGE	*686.0*				
RIVER		-5			
	680.5				
SILTY SAND–gray–medium dense (A–2)			PS	NP	29
			5		
			5		
		-10	6	NP	37
	677.0				
CLAY–gray–medium stiff to stiff (A–6/A–7) Wet			2		***98***
			2		
			3	0.9B	27
			2		***96***
			3		
		-15	4	1.4B	28
			6		***90***
			8		
			8	0.8B	32
	669.5				
SAND with Gravel–gray–medium dense (A–1–b)			8		
			11		
		-20	9	NP	9
SAND with Gravel (A–1–b)	*667.0*				
			12		
			6		
			8	NP	9
			14		
			9		
		-25	22	NP	7
SAND & GRAVEL–brown–medium dense to dense (A–1)			14		
			27		
			17	NP	12
			23		
			23		
		-30	25	NP	8
			23		
			23		
		-35	26	NP	8
			13		
			13		
		-40	13	NP	9

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NR–No Recovery PS–Pushed Spoon

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SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-04**
Station 115+15 Red Gate Road
Offset Baseline
Barge Deck Elevation 687.5

Surface Water Elev. *686.0*
Stream Bed Elev. *680.5*
Groundwater Elevation:
First Encounter *n/a*
Upon Completion *n/a*
After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL–brown–medium dense to dense (A–1)	*645.5*				
SAND & GRAVEL–gray–medium dense to dense (A–1)			13		
			13		
		-45	19	NP	9
			12		
			14		
		-50	14	NP	11
			13		
			16		
		-55	18	NP	8
	630.5				
SAND with Gravel–gray–dense (A–1–b)			20		
			22		
		-60	22	NP	9
SAND with Gravel–gray–dense (A–1–b)	*625.5*				
SAND & GRAVEL–gray–dense (A–1)			18		
			18		
		-65	20	NP	9
	620.5				
GRAVEL with Sand–gray–dense (A–1–a)			19		
			22		
		-70	22	NP	8
			23		
			23		
		-75	26	NP	8
	610.5				
SAND & GRAVEL–gray–dense to very dense (A–1)			26		
			28		
		-80	30	NP	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

SOIL BORING LOG

PAGE 3 of 3

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL–gray–dense to very dense (A–1)			50/6"		
		-85		NP	11
Drillers Note: Possible boulder or bedrock @ –88.5'.			50/3"		
	597.5	-90			NR
End Of Boring @ –90.0' Rotary Drilling CME Automatic Hammer					
		-95			
		-100			
		-105			
		-110			
		-115			
		-120			

PIER 4 SOIL BORING LOG

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Chicago, Illinois 60601
312-565-0450 Job No. 10092

FILE NAME = 0456024_052_BoringLog3.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

SOIL BORING LOGS – PIER 4
STRUCTURE NO. 045–6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S52 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	274
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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SOIL BORING LOG

Geo Services, Inc.
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(630) 355-2838

PAGE 1 of 3
DATE 12/10/2010
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-05**
Station 116+66 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 688.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 685.6 ▼
Upon Completion n/a ▽
After ____ Hrs. ▽

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
12.0" TOPSOIL–black	687.6		AS	–	31
SILTY CLAY–dark brown to black–soft (A-6)	▼685.6		2 2 2	0.4B	*93* 24
SAND & GRAVEL–brown–medium dense (A-1)		−5	7 7 8	NP	11
			7 9 13	NP	14
	678.1	−10	10 11 13	NP	9
SAND–brown–medium dense (A-3)	675.6		8 12 11	NP	18
SILTY CLAY LOAM–gray–medium stiff to stiff (A-4/A-6)		−15	3 4 6	0.6B	*93* 28
			3 5 5	1.5P	24
		−20	2 3 4	0.5P	31
SILTY CLAY LOAM–gray (A-4/A-6)	668.1				
CLAY–gray–stiff (A-6) Wet	665.6		2 3 4	1.0B	*92* 31
SAND & GRAVEL–brown & gray–medium dense to dense (A-1)		−25	4 4 12	NP	8
			44 24 26	NP	9
		−30	16 20 24	NP	6
	651.6	−35	10 20 24	NP	6
SAND & GRAVEL–gray–dense to very dense (A-1)		−40	26 19 16	NP	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. BR-05
Station 116+66 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 688.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 685.6 ▼
Upon Completion n/a ▽
After ____ Hrs. ▽

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL–gray–dense to very dense (A-1)		−45	17 20 20	NP	6
		−50	26 32 51	NP	9
		−55	30 34 22	NP	7
		−60	25 29 30	NP	6
SAND & GRAVEL–gray–dense to very dense (A-1)		−65	30 16 16	NP	11
	616.6	−70	13 16 18	NP	11
SAND–gray–dense (A-3)	611.6	−75	12 19 26	NP	20
CLAY LOAM–gray–hard (A-6)		−80	26 24 40	5.6B	*117* 16

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. BR-05
Station 116+66 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 688.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 685.6 ▼
Upon Completion n/a ▽
After ____ Hrs. ▽

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM–gray–hard (A-6)	606.6				
SAND–gray–very dense (A-3)	603.6	−85	50/4"	NP	19
End Of Boring @ −85.0' Hollow Stem Augers To −10.0 Rotary Drilling To ComPletion CME Automatic Hammer 10.0' Of 4.0"ø Casing Used		−90			
		−95			
		−100			
		−105			
		−110			
		−115			
		−120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

PIER 5 SOIL BORING LOG

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312-565-0450 Job No. 10092

FILE NAME = 0456024_053_BoringLog4.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

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SOIL BORING LOGS – PIER 5
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S53 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	275
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-06**
Station 118+16 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 689.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 686.2
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
688.2				Sandy TOPSOIL with Gravel–brown
	AS	–	17	
	2			CLAY LOAM–dark brown–medium stiff (A–6)
	3			
	3	0.75P	23	
686.2				
	3			SAND & GRAVEL–brown–medium dense (A–1–b)
	5			
–5	7	NP	14	
683.7				
	9			
	9			
	10	NP	20	SAND–brown–medium dense (A–3)
	6			
	10			
–10	10	NP	16	
	5			
	7			
	7	NP	21	
676.2				
	6		*94*	SILTY CLAY LOAM–gray–stiff (A–4)
	6			
–15	5	1.0B	27	
673.7				
	3		*96*	SILTY CLAY to SILTY CLAY LOAM–gray–stiff (A–4/A–6) Wet
	3			
	6	1.2B	28	
	2		*95*	
	2	1.6S@		
–20	3	14.1%	29	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	2		*83*	SILTY CLAY to SILTY CLAY LOAM–gray–stiff (A–4/A–6) Wet
666.7				
	3			
	10	1.1B	30	
	36			SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
	13			
–25	11	NP	6	
	14			
	21			
	23	NP	5	
	15			
	18			
–30	22	NP	13	
	10			
	12			
–35	20	NP	9	
	16			
	18			
–40	19	NP	5	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-06**
Station 118+16 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 689.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 686.2
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	15			SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
	15			
–45	15	NP	4	
	23			
	17			
–50	15	NP	6	
	20			
	22			
–55	50	NP	9	
	38			
	50/5"			
–60		NP	5	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	41			SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
–65	50/4"		7	
	15			
	15			
–70	21	NP	14	
	19			
	35			
–75	22	NP	8	
	16			
	50/5"			
–80		NP	7	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-06**
Station 118+16 Red Gate Road
Offset 7.0' Right
Ground Surface Elev. 689.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 686.2
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	38			SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
	50/3"			
604.2 –85		NP	11	
				End Of Boring @ –85.0'
				Hollow Stem Augers To –10.0
				Rotary Drilling To Completion
				CME Automatic Hammer
				10.0' Of 4.0"ø Casing Used
–90				
–95				
–100				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
–105			
–110			
–115			
–120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

PIER 6 SOIL BORING LOG

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FILE NAME = 04560024_054_BoringLog5.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -
		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

SOIL BORING LOGS – PIER 6
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S54 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	276
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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SOIL BORING LOG

PAGE 1 of 3
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. BR-07
Station 119+65 Red Gate Road
Offset Baseline
Ground Surface Elev. 691.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
8.0" TOPSOIL—black 690.3			
	AS	–	20
CLAY LOAM—dark brown—hard (A-6) Possible Fill	5		
	7		
688.0	7	4.5+P	11
SAND with Gravel—brown—very loose (A-1-b)	2		
	1		
–5	1	NP	15
685.5			
	2		
	4		
SAND—brown—medium dense (A-3)	6	NP	18
	4		
	7		
–10	10	NP	22
680.5			
SILTY CLAY LOAM—gray—medium dense (A-4)	3		
	4		
678.0	7	0.75P	19
	4		
	9		
–15	10	NP	11
SAND & GRAVEL—brown & gray—dense to very dense (A-1)	8		
	9		
	10	NP	7
	11		
	13		
–20	13	NP	10

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL—brown & gray—dense to very dense (A-1)			
	13		
	13		
	13	NP	8
	13		
	15		
–25	15	NP	10
	13		
	15		
	16	NP	7
	13		
	17		
–30	21	NP	7
	17		
	20		
–35	22	NP	5
	23		
	27		
–40	31	NP	7

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. BR-07
Station 119+65 Red Gate Road
Offset Baseline
Ground Surface Elev. 691.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL—brown & gray—dense to very dense (A-1)			
	21		
	25		
–45	34	NP	8
	22		
	26		
–50	30	NP	10
	25		
	17		
–55	16	NP	5
	16		
	18		
–60	25	NP	14

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL—brown & gray—dense to very dense (A-1)			
	50/4"		
–65		NP	5
	18		
	16		
–70	12	NP	9
	50/3"		
–75		NP	4
	50/3"		
–80		NP	9

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon

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SOIL BORING LOG

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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. BR-07
Station 119+65 Red Gate Road
Offset Baseline
Ground Surface Elev. 691.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
SAND & GRAVEL—brown & gray—dense to very dense (A-1)			
	50/3"		
606.0 –85		NP	9
End Of Boring @ –85.0' Hollow Stem Augers To –10.0 Rotary Drilling To Completion CME Automatic Hammer 10.0' Of 4.0"ø Casing Used			
–90			
–95			
–100			

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
–105			
–110			
–115			
–120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery PS-Pushed Spoon

PIER 7 SOIL BORING LOG

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Chicago, Illinois 60601
312-565-0450 Job No. 10092

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	PLOT DATE = 11/9/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

SOIL BORING LOGS – PIER 7
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S55 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	277
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
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Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

PAGE 1 of 3
DATE 12/8-9/2010
LOGGED BY MR
GSI JOB No. 10191

ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-08**
Station 120+88 Red Gate Road
Offset Baseline
Ground Surface Elev. 704.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				Silty SAND & GRAVEL–dark brown
703.4				
	AS	–	12	
	8			
	11			
	11	NP	3	
				SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
	13			
	13			
–5	16	NP	4	
				SAND, GRAVEL & FRACTURED ROCK–gray–medium dense to very dense (A–1)
	20			
	23			
	22	NP	3	
	18			
	23			
–10	26	NP	3	
				SILTY CLAY–brown & gray–very stiff (A–6) Wet
673.4				
	17			
	21			
	23	NP	10	
	21			
	20			
–15	21	NP	10	SAND & GRAVEL–brown & gray–dense (A–1)
	11			
	16			
	17	NP	6	
	25			
	37			
–20	34	NP	6	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	16			
	25			
	25	NP	6	
	11			
	13			
–25	12	NP	19	
	13			
	15			
	12	NP	12	
	5		95	
	6	2.6S@		
–30	6	12.7%	27	
	12			
	14			
–35	16	NP	9	
	15			
	20			
–40	17	NP	10	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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SOIL BORING LOG

PAGE 2 of 3
DATE 12/8-9/2010
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-08**
Station 120+88 Red Gate Road
Offset Baseline
Ground Surface Elev. 704.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL–brown & gray–dense (A–1)
662.4				
				CLAY LOAM–gray–hard (A–6)
660.4	8	4.5B	128	
	50/2"			
–45			11	
	8			SAND & GRAVEL–gray–dense to very dense (A–1)
	22			
–50	28	NP	5	
	14			
	14			
–55	16	NP	14	
	30			
	28			
–60	30	NP	10	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
	19			
	20			
–65	20	NP	8	
				SAND & GRAVEL–gray–dense to very dense (A–1)
	29			
	22			
–70	22	NP	9	
	50/5"			
–75		NP	12	
	62			
	50/2"			
–80		NP	6	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

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SOIL BORING LOG

PAGE 3 of 3
DATE 12/8-9/2010
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ROUTE IL. Rte. 25 & IL. Rte. 31 DESCRIPTION Red Gate Road Over The Fox River
SECTION 04-00092-00-BR LOCATION SEC. 15, TWP. 40 N., RNG. 8 E., 3rd P.M., St. Charles Township
COUNTY Kane DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. NO. 045-6024
Station 115+15
BORING NO. **BR-08**
Station 120+88 Red Gate Road
Offset Baseline
Ground Surface Elev. 704.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter n/a
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				SAND & GRAVEL–gray–dense to very dense (A–1)
	75/5"			
619.4 –85		NP	9	
				End Of Boring @ –85.0'
				Hollow Stem Augers To –10.0
				Rotary Drilling To Completion
				CME Automatic Hammer
				10.0' Of 4.0"ø Casing Used
–90				
–95				
–100				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
–105			
–110			
–115			
–120			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery PS–Pushed Spoon

EAST ABUTMENT SOIL BORING LOG

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CITY OF ST. CHARLES

SOIL BORING LOGS – EAST ABUTMENT
STRUCTURE NO. 045-6024 RED GATE ROAD OVER THE FOX RIVER
SHEET NO. S56 OF S56 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	278
	CONTRACT NO. 63650			
	ILLINOIS FED. AID PROJECT			

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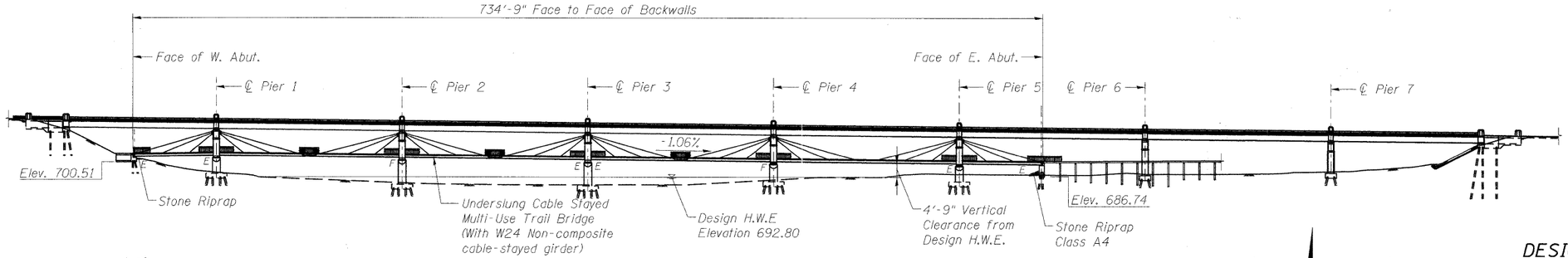
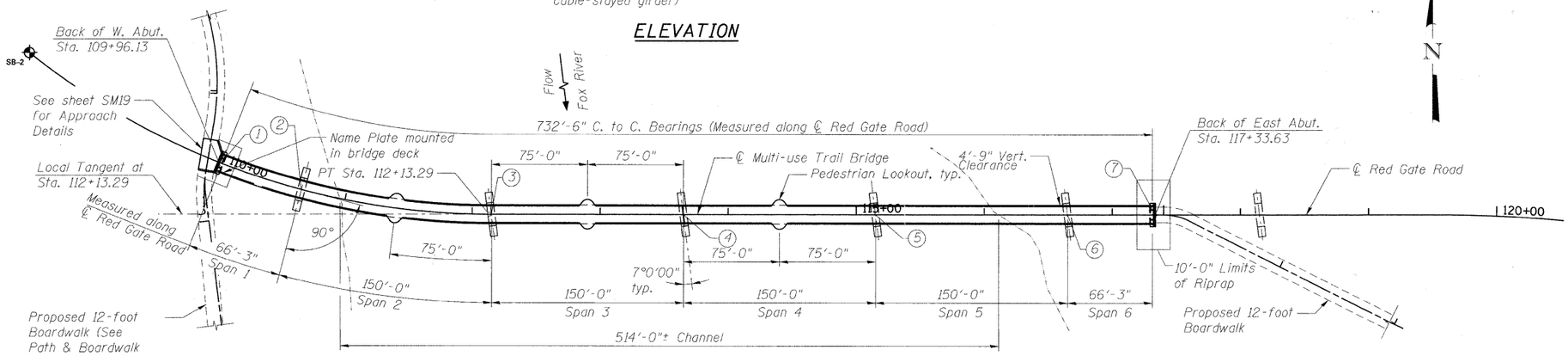
Benchmark: Steel Rod at GPS Monument KAN31 2B (Elev. 754.27)
Existing Structure: None
Salvage: None

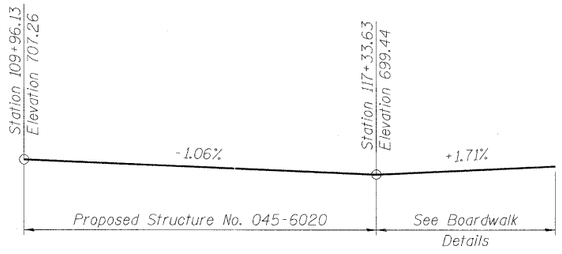


ELEVATION



PLAN

* For soil borings, see Red Gate Road over Fox River (SN 045-6024) plans.



PROFILE GRADE

(Along ℄ of Multi-Use Trail)

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications
2009 AASHTO Guide Specifications for the Design of Pedestrian Bridges

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
Breaking Strength per ASTM A586 - Galvanized Structural Strand Grade 1, Class C Coating (Bridge Cable)

LOADING H10 & PEDESTRIAN

Vehicle: H-10 Truck (20,000 lb. Vehicle)
Pedestrian: 90 psf
FWS = 0 psf

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.089g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.152g
Soil Site Class = B

WATERWAY INFORMATION

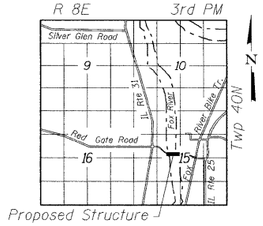
Drainage Area = 1,540 sq. mi. Low Grade Elev. 724.45 @ Sta. 116+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	7,535	4,932.62	4,582.56	690.91	N/A	0.07	N/A	690.98
Design	50	11,225	6,614.41	6,145.64	692.72	N/A	0.08	N/A	692.80
Base	100	12,250	7,026.82	6,536.23	693.15	N/A	0.08	N/A	693.23
Overtopping									
Max. Calc.	500	16,875	8,773.78	8,104.34	694.89	N/A	0.08	N/A	694.97

CURVE DATA

(RDGTCUR2)

Δ = 42°06'27" (LT)
T = 221.34'
L = 422.58'
E = 41.13'
R = 575.00'
SE RUN = 82.00'
P.C. = Sta. 107+90.71
P.T. = Sta. 112+13.29
P.I. = Sta. 110+12.06



Proposed Structure

LOCATION SKETCH

STATION 113+65.00
BUILT 2012 BY
CITY OF ST. CHARLES
SEC. 04-00092-00-BR
LOADING H10
STR. NO. 045-6020

NAME PLATE

See Std. 515001

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THIS BRIDGE IS STRUCTURALLY ADEQUATE FOR THE DESIGN LOADINGS SHOWN ON THE PLANS. THE DESIGN IS AN ECONOMICAL ONE FOR THE STYLE OF STRUCTURE AND COMPLIES WITH REQUIREMENTS OF THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

STATE OF ILLINOIS
HOSSAM ABDELRAZIG
081-005537
REGISTERED STRUCTURAL ENGINEER
CHICAGO, IL

EXPIRATION DATE 11-30-12
DATE OCTOBER 20, 2011
ALFRED BENESCH & COMPANY

DATA POINTS

①	℄ Brg. W. Abut. Sta. 109+98.75 Elev. 707.23	⑤	℄ Pier 4 Sta. 115+15.00 Elev. 701.76
②	℄ Pier 1 Sta. 110+65.00 Elev. 706.53	⑥	℄ Pier 5 Sta. 116+65.00 Elev. 700.17
③	℄ Pier 2 Sta. 112+15.00 Elev. 704.94	⑦	℄ Brg. E. Abut Sta. 117+31.25 Elev. 699.47
④	℄ Pier 3 Sta. 113+65.00 Elev. 703.35		

GENERAL PLAN AND ELEVATION
MULTI-USE TRAIL BRIDGE OVER FOX RIVER
"PUBLIC WATER"
SEC. 04-00092-00-BR
KANE COUNTY
STATION 113+65.00
STRUCTURE NO. 045-6020

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CITY OF ST. CHARLES

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM1 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	279
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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GENERAL NOTES

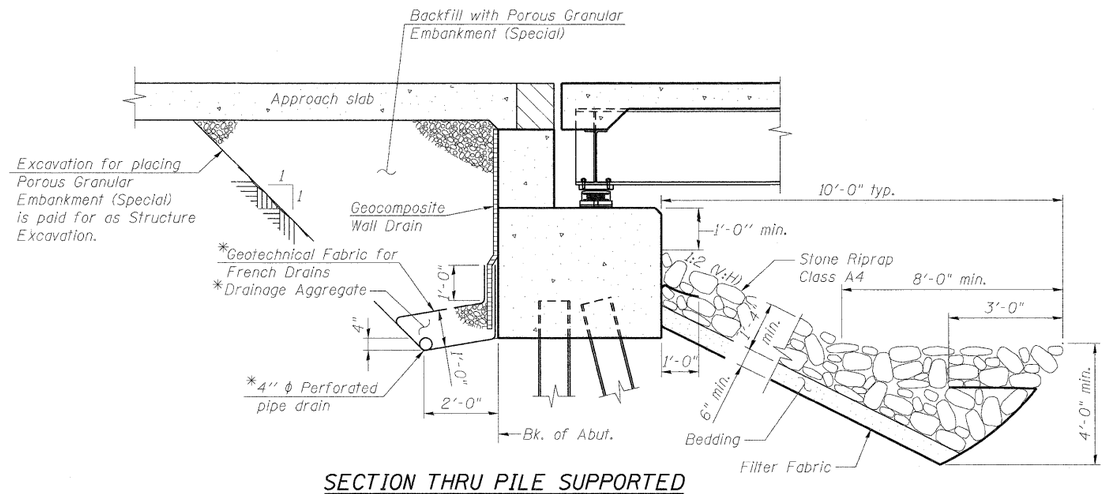
1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $\frac{7}{8}$" ϕ, holes $\frac{15}{16}$" ϕ, unless otherwise noted.
2. Calculated weight of Structural Steel = 286,000 pounds.
3. All structural steel shall be AASHTO M270 Grade 50.
4. No field welding is permitted except as specified in the contract documents.
5. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.
6. Reinforcement bars designated (E) shall be epoxy coated.
7. Bearing seat surfaces shall be constructed or adjusted to the designated elevations withing a tolerance of $\frac{1}{8}$ in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
8. Concrete Sealer shall be applied to the abutment seats and backwalls.
9. 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 match color SW7680 "Lanyard" with RGB Value R-191, G-153, B-116. See Special Provision for "Cleaning and Painting New Metal Structures."
10. Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
11. The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.
12. The contractor shall obtain a construction permit from the Illinois Department of Natural Resources (IDNR), Office of Water Resources for any temporary construction activity placed in the water. This shall include the placement of material for run-arounds, causeways, temporary bridge, etc. Any permit application by the Contractor shall refer to the IDNR 3708 Floodway Construction permit number allowing permanent construction as shown in the contract plans.
13. Reinforcement bar lap splices shall be Class C. Top bars so placed that more than 12 inches of concrete is cast below the reinforcement shall be lapped for 1.4 x basic lap. Reinforcement bar splices shall be in accordance with the following table unless shown otherwise on the drawing.

Bar Size	Epoxy Coated Basic Lap	Epoxy Coated 1.4 Basic Lap
#4	2'-7"	2'-11"
#5	3'-3"	3'-8"
#6	3'-10"	4'-5"
#7	5'-2"	5'-10"
#8	6'-9"	7'-8"
#9	8'-7"	9'-8"
#10	10'-10"	12'-4"
#11	13'-4"	15'-1"

INDEX OF SHEETS

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.	-	27	27
Stone Riprap, Class A4	Sq. Yd.	-	157	157
Structure Excavation	Cu. Yd.	-	46	46
Concrete Structures	Cu. Yd.	-	44.3	44.3
Concrete Superstructure	Cu. Yd.	207.4	-	207.4
Concrete Encasement	Cu. Yd.	-	3.6	3.6
Protective Coat	Sq. Yd.	1,086	-	1,086
Reinforcement Bars, Epoxy Coated	Pound	75,070	4,900	79,970
Bar Splicers	Each	-	19	19
Furnishing Steel Piles HP12x53	Foot	-	220	220
Driving Piles	Foot	-	220	220
Test Pile Steel HP12x53	Each	-	2	2
Pile Shoes	Each	-	12	12
Name Plates	Each	1	-	1
Preformed Joint Strip Seal	Foot	39	-	39
Anchor Bolts, 1"	Each	-	24	24
Anchor Bolts, 1 1/4"	Each	-	8	8
Elastomeric Bearing Assembly Type II	Each	-	12	12
Concrete Sealer	Sq. Ft.	-	581	581
Geocomposite Wall Drain	Sq. Yd.	-	11	11
Pipe Underdrains for Structures, 4"	Foot	-	28	28
Furnishing and Erecting Structural Steel Bridge No. 1	L Sum	1	-	1
Furnishing Cable Stay System	L Sum	1	-	1
Anti-Graffiti Coating	Sq. Ft.	674	-	674



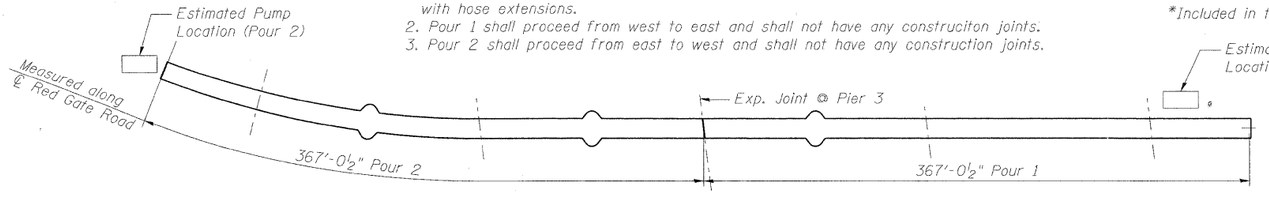
SECTION THRU PILE SUPPORTED STUB ABUTMENT

(Horiz. dim. @ Rt. L's)

*Included in the cost of Pipe Underdrains for Structures.

NOTES:

1. It is assumed concrete will be placed utilizing a pump truck with hose extensions.
2. Pour 1 shall proceed from west to east and shall not have any construciton joints.
3. Pour 2 shall proceed from east to west and shall not have any construction joints.



Pour Sequence

Note:
Drainage system components are required for the west abutment only and shall extend parallel to the abutment back wall until they intersect the wingwalls. The pipe shall extend under the wingwall until intersecting the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

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CITY OF ST. CHARLES

GENERAL NOTES, INDEX OF SHEETS AND TOTAL BILL OF MATERIAL
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM2 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	280
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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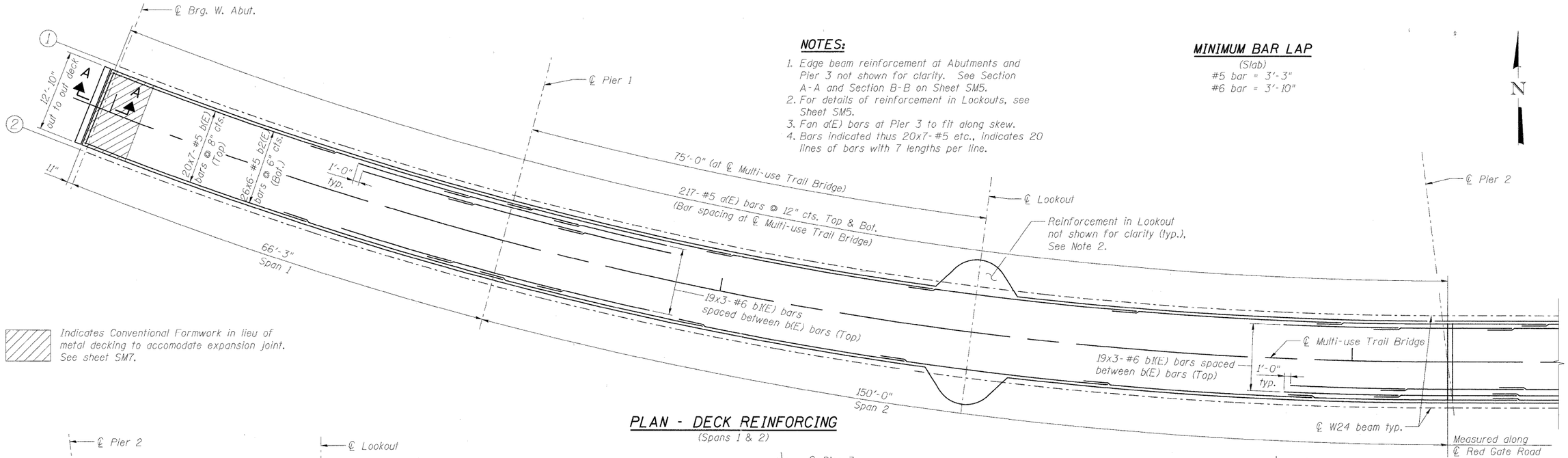


NOTES:

1. Edge beam reinforcement at Abutments and Pier 3 not shown for clarity. See Section A-A and Section B-B on Sheet SM5.
2. For details of reinforcement in Lookouts, see Sheet SM5.
3. Fan a(E) bars at Pier 3 to fit along skew.
4. Bars indicated thus 20x7-#5 etc., indicates 20 lines of bars with 7 lengths per line.

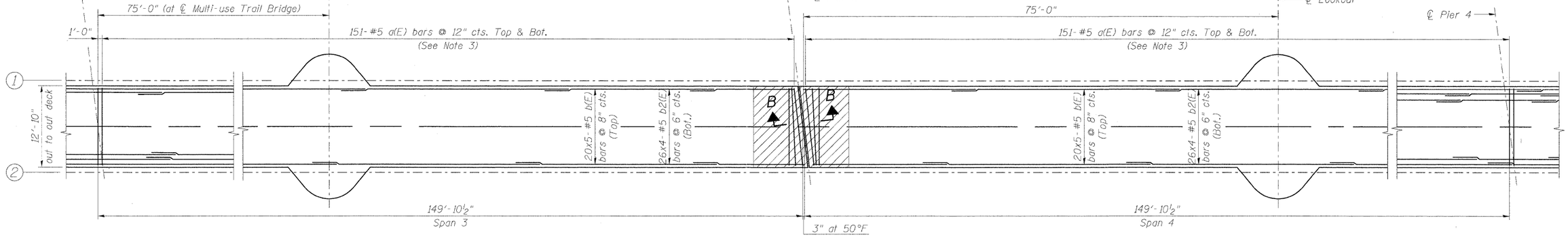
MINIMUM BAR LAP

(Slab)
#5 bar = 3'-3"
#6 bar = 3'-10"

N

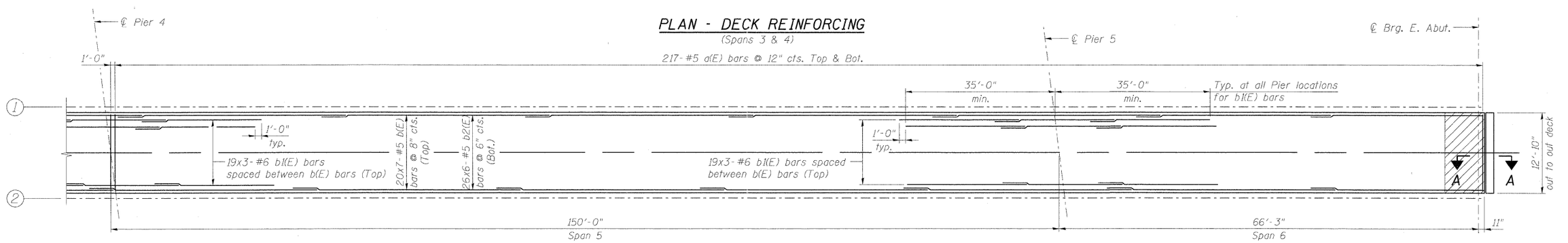
PLAN - DECK REINFORCING

(Spans 1 & 2)



PLAN - DECK REINFORCING

(Spans 3 & 4)



PLAN - DECK REINFORCING

(Spans 5 & 6)

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Chicago, Illinois 60601
312-565-0450 Job No. 10092

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WALKWAY DECK REINFORCEMENT PLAN
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM3 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	281
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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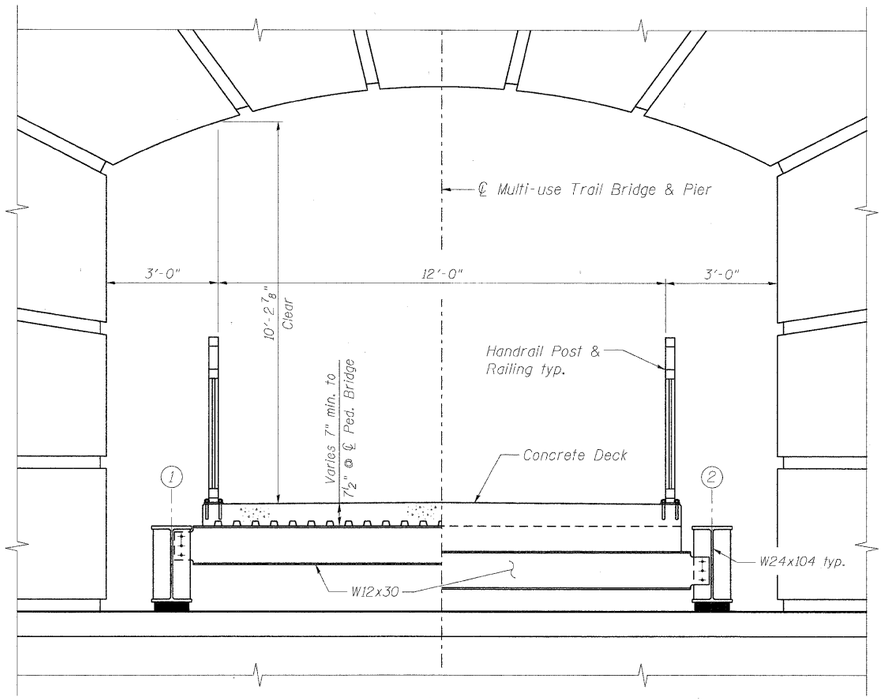
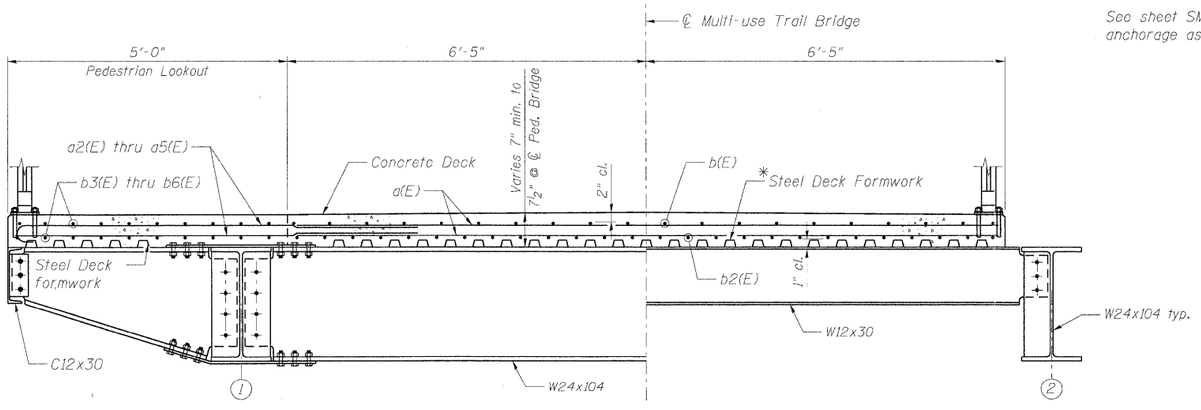


PIERS 1, 2, 4 & 5 PIER 3

MULTI-USE TRAIL BRIDGE SECTION AT PIERS

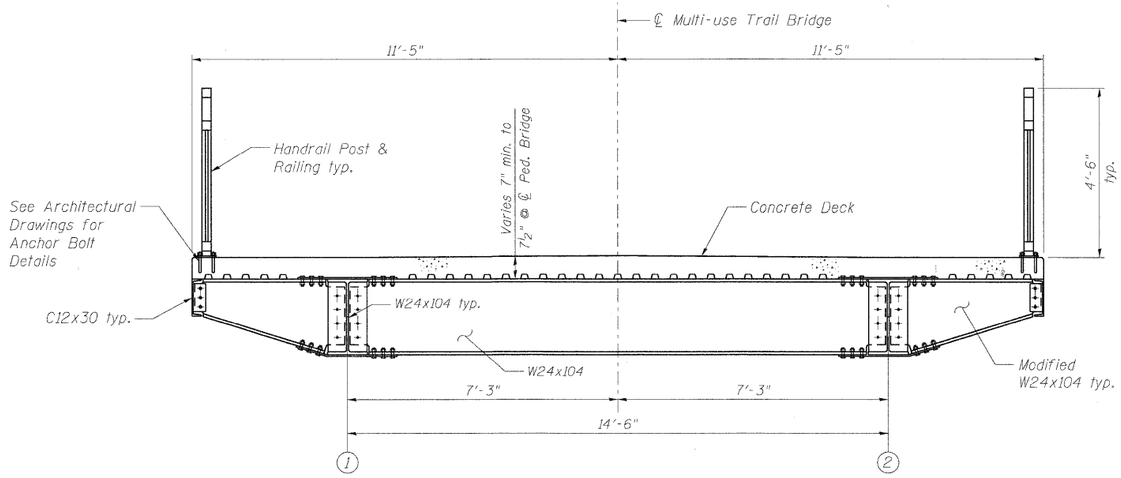
(Looking East)



SECTION AT PEDESTRIAN LOOKOUT TYPICAL SECTION THRU WALKWAY

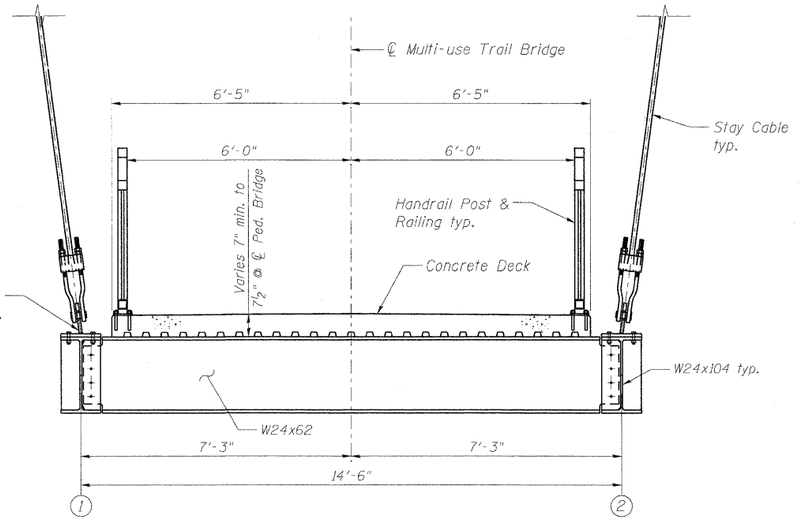
DECK CROSS SECTION

(Looking East)



MULTI-USE TRAIL BRIDGE SECTION AT LOOKOUTS

(Looking East)



MULTI-USE TRAIL BRIDGE SECTION AT STAY ANCHORS

(Looking East)

NOTES:

1. The 7" slab (noncomposite) consists of 5½" concrete on 1½" tall stay in place, 16 gage, galvanized steel deck formwork. Steel deck formwork valleys to be spaced at 6" cts. to match bottom steel reinforcement spacing. Steel deck formwork shall have a minimum yield strength of 40 ksi and minimum section modulus of 0.411 in /ft. Deck must be continuous over a minimum of 3 spans. 3
2. Deck reinforcing shown only in "Deck Cross Section" for clarity.
3. Lateral bracing at bottom of main girders not shown for clarity.
4. See Architecture Plans for Handrail Post & Railing details.
5. The top surface of the concrete shall be finished according to Article 424.06 of the Standard Specifications, except the surface shall not be grooved.

*Cost of stay-in-place metal decking shall be included with the Cost of "Concrete Superstructures."

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FILE NAME = 0456020.04_DeckXSec.dgn	USER NAME = akeaschall	DESIGNED - JLS	REVISED -
		CHECKED - LRB	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WALKWAY DECK CROSS SECTIONS
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM4 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	282
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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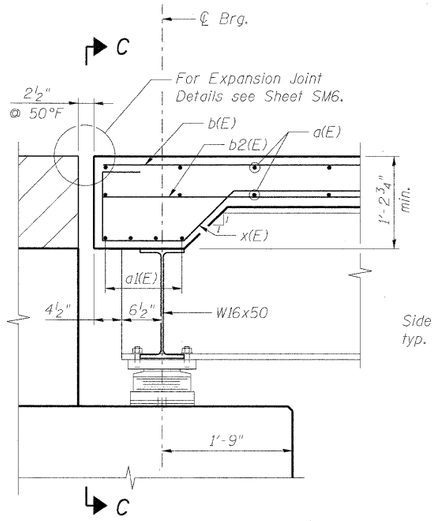
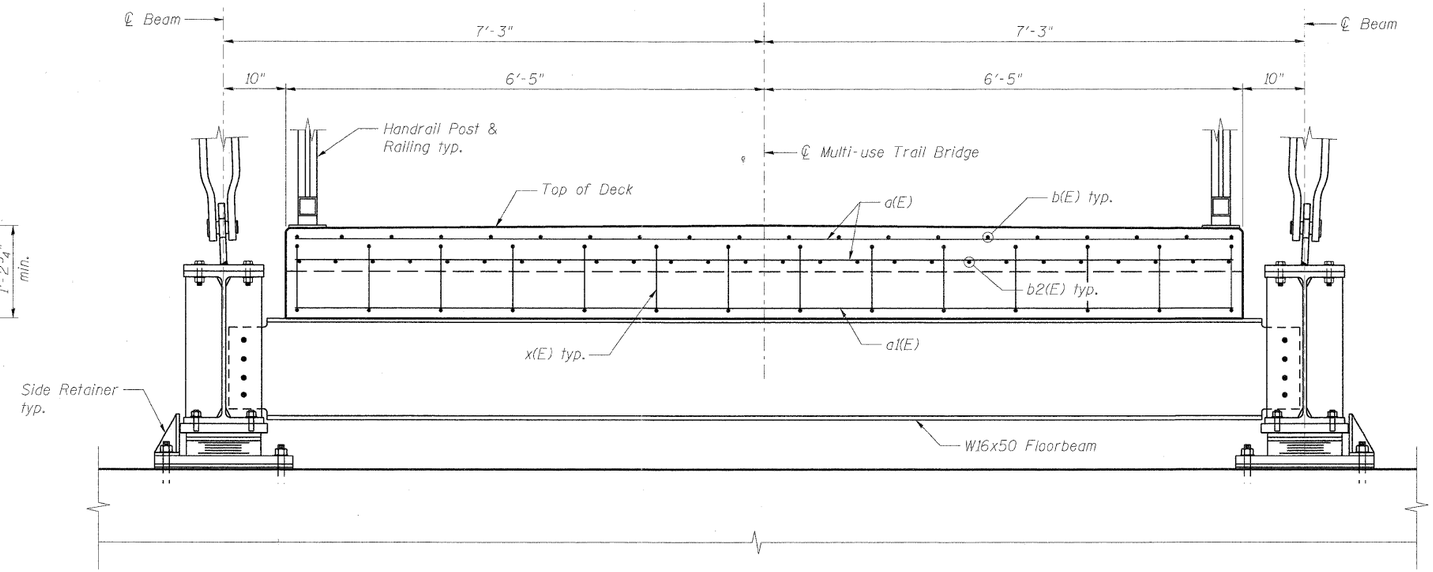
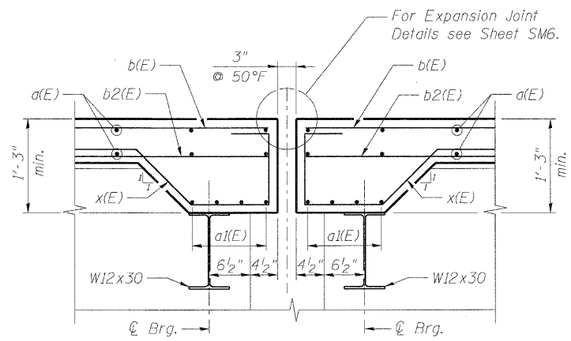


SECTION A-A

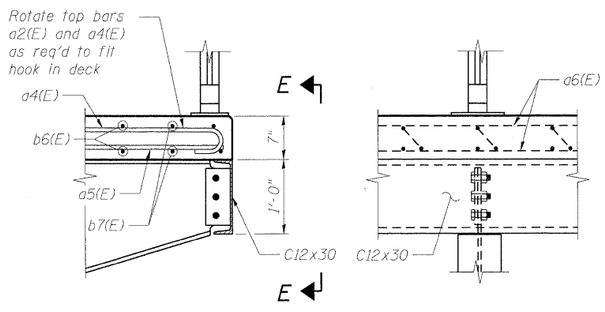


BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	1472	#5	12'-6"	
a1(E)	16	#6	12'-6"	
a2(E)	36	#6	8'-6"	
a3(E)	36	#6	7'-10"	
a4(E)	30	#6	9'-6"	
a5(E)	30	#6	8'-10"	
a6(E)	12	#5	23'-10"	
b(E)	480	#5	33'-11"	
b1(E)	228	#6	26'-3"	
b2(E)	520	#5	39'-9"	
b3(E)	72	#5	7'-11"	
b4(E)	72	#5	6'-11"	
b5(E)	72	#5	5'-6"	
b6(E)	12	#5	4'-10"	
b7(E)	12	#5	4'-0"	
x(E)	56	#5	5'-11"	
Reinforcement Bars, Epoxy Coated			Pound	70,970
Concrete Superstructure			Cu. Yd.	189.9



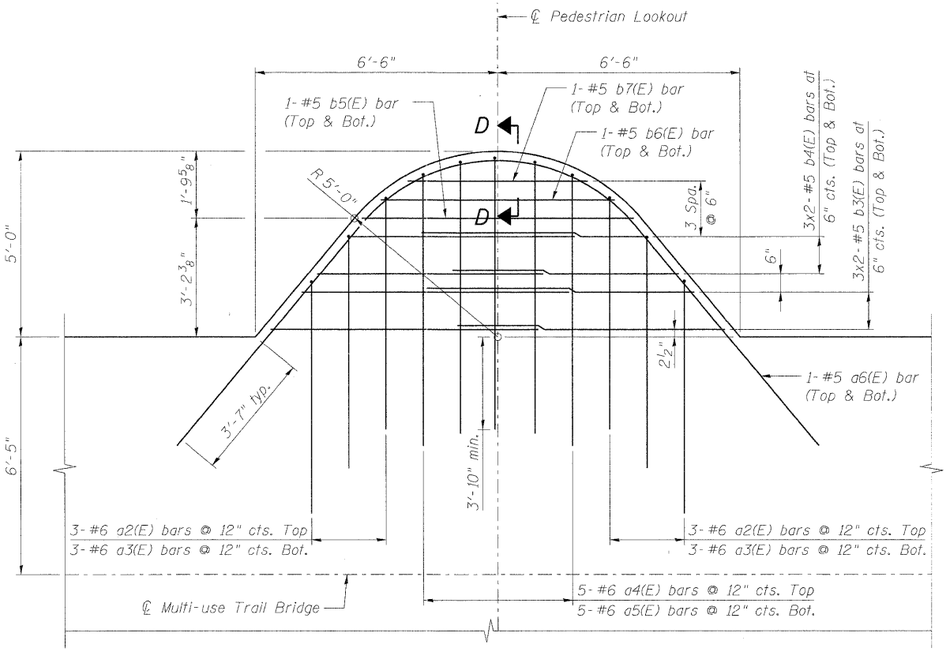
SECTION B-B



SECTION D-D

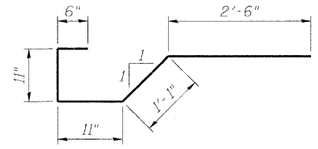
VIEW E-E

VIEW C-C

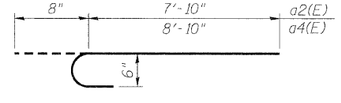


PEDESTRIAN LOOKOUT REINFORCING DETAIL

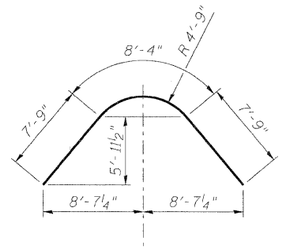
(Reinforcing shown typical at all Pedestrian Lookout locations)
(Reinforcing in Bridge Deck not shown for clarity)



BAR x(E)



BARS a2(E) AND a4(E)



BAR a6(E)

MINIMUM BAR LAP

(Slab)
#5 bar = 3'-3"
#6 bar = 3'-10"

NOTE:

Bars indicated thus 2x3-#5 etc., indicates 2 lines of bars with 3 lengths per line.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WALKWAY DECK DETAILS AND BILL OF MATERIAL
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM5 OF SM19 SHEETS

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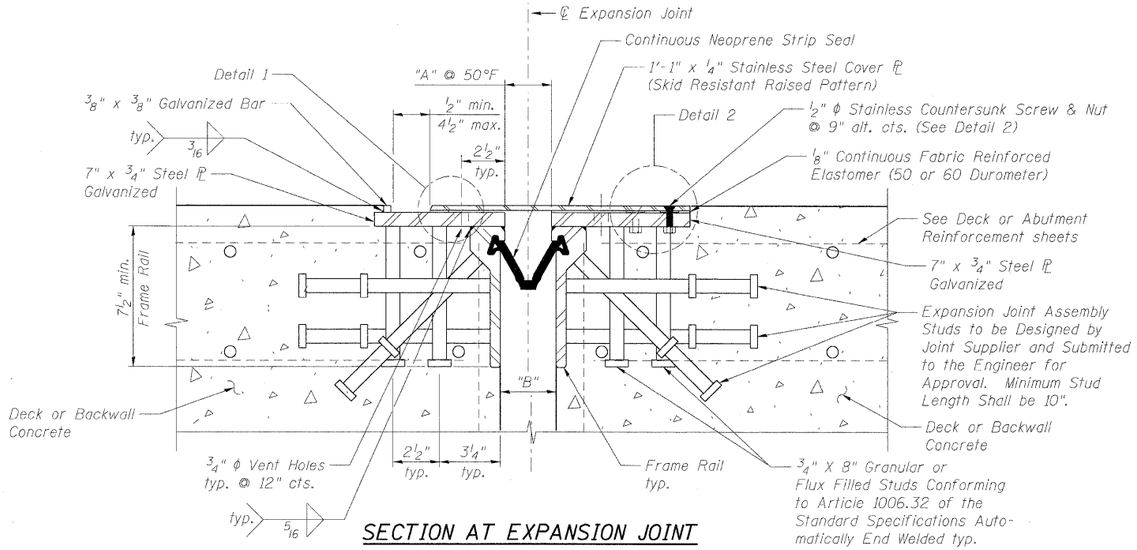
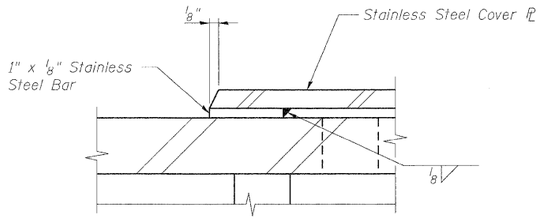
	ILLINOIS FED. AID PROJECT			

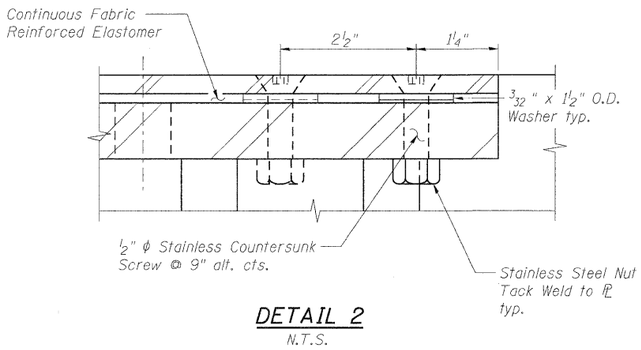


SECTION AT EXPANSION JOINT

Location	Rolled Rail	
	"A"	"B"
W. Abut.	2"	2 1/2"
Pier 3	2 1/2"	3"
E. Abut.	2"	2 1/2"



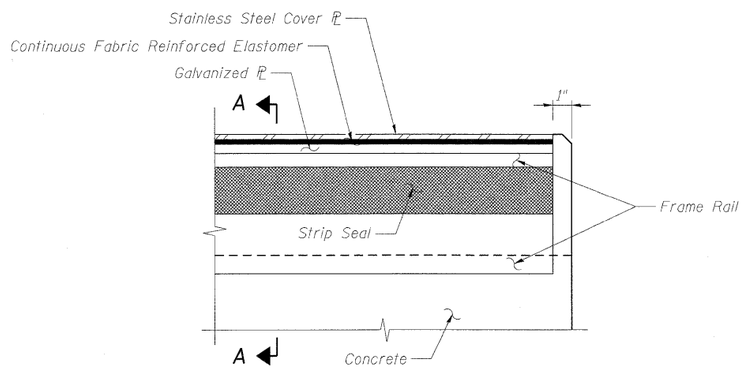
DETAIL 1
N.T.S.



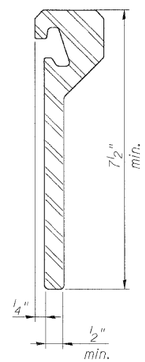
DETAIL 2
N.T.S.

NOTES:

1. The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
2. The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.
3. The manufacturer's recommended installation methods shall be followed.
4. The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint.
5. All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.
6. Space railing posts at expansion joints to miss cover plates.



ELEVATION
(@ ℄ Joint)



ROLLED EXTRUDED RAIL

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	39.0

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		CHECKED - LRB	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM6 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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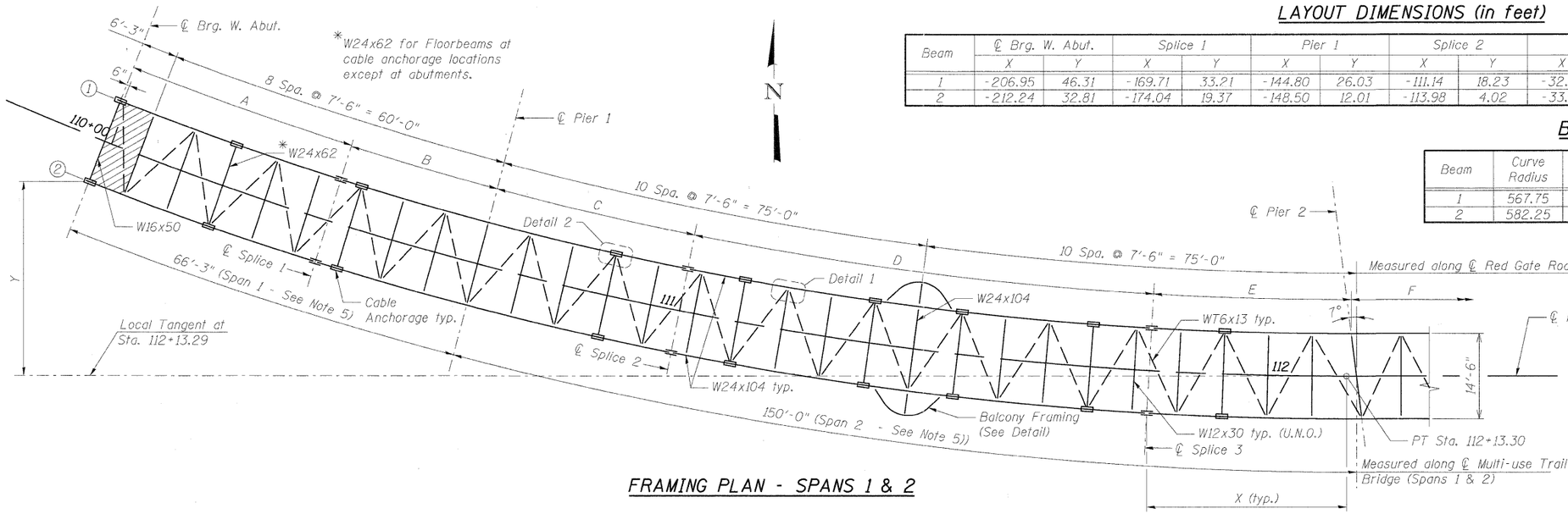
LAYOUT DIMENSIONS (in feet)

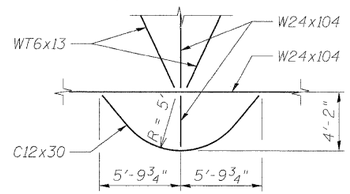
Beam	℄ Brg. W. Abut.		Splice 1		Pier 1		Splice 2		Splice 3		Pier 2		Splice 4	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	-206.95	46.31	-169.71	33.21	-144.80	26.03	-111.14	18.23	-32.85	8.20	0.82	7.25	36.71	7.25
2	-212.24	32.81	-174.04	19.37	-148.50	12.01	-113.98	4.02	-33.69	-6.27	2.60	-7.25	36.71	-7.25

BEAM DIMENSIONS (in feet)

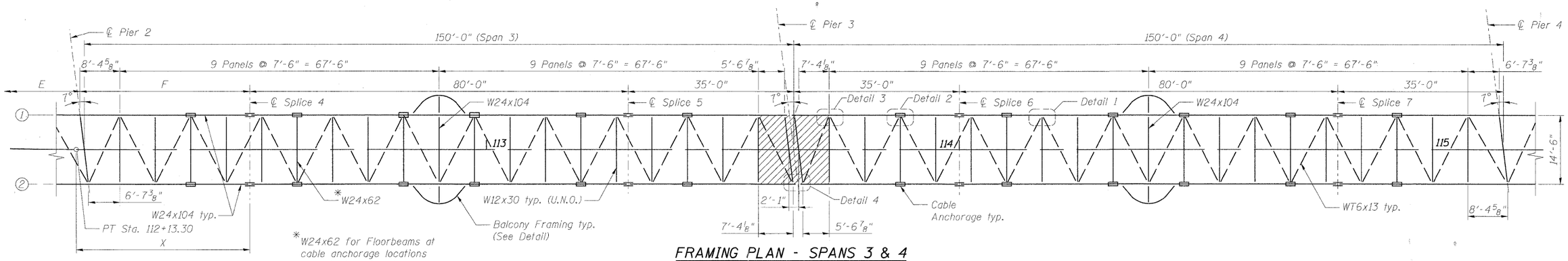
Beam	Curve Radius	A	B	C	D	E	F
1	567.75	39.50	25.92	34.56	78.99	33.69	35.89
2	582.25	40.50	26.58	35.44	81.01	36.31	34.11



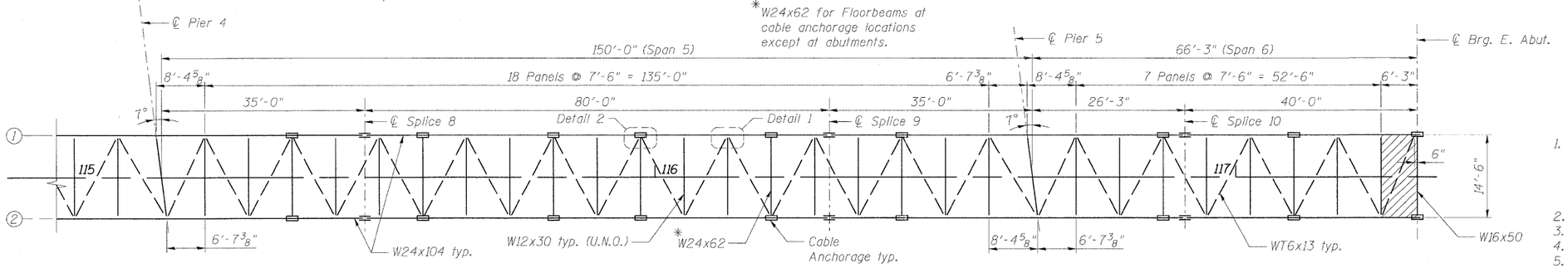
FRAMING PLAN - SPANS 1 & 2



BALCONY FRAMING DETAIL



FRAMING PLAN - SPANS 3 & 4



FRAMING PLAN - SPANS 5 & 6

Indicates Conventional Formwork in lieu of metal decking to accomodate expansion joint.

NOTES:

1. All lateral bracing between beams shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual bracing members at supports may be temporarily disconnected to install bearing anchor rods.
2. See sheet SM8 for Details 1 and 2.
3. See sheet SM9 for Details 3 and 4.
4. Work this sheet with sheets SM8 and SM9.
5. Contractor may use equivalent welded plate girders in lieu of the specified W24x104 in order to facilitate fabrication of the curved and cambered steel segments in Spans 1 and 2.
6. All steel shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

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FRAMING PLAN
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM7 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	285
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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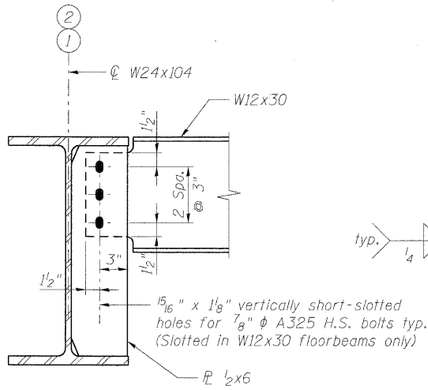
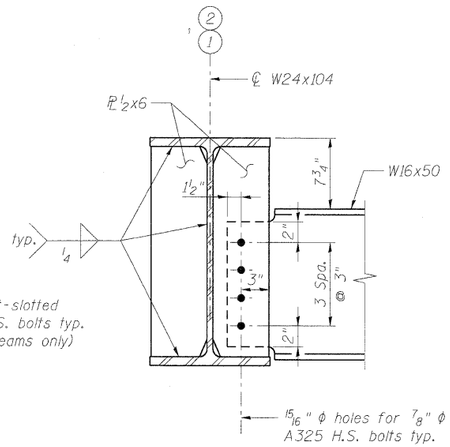
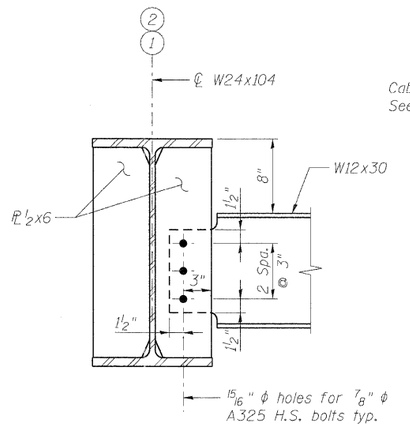


TYPICAL FLOORBEAM CONNECTION

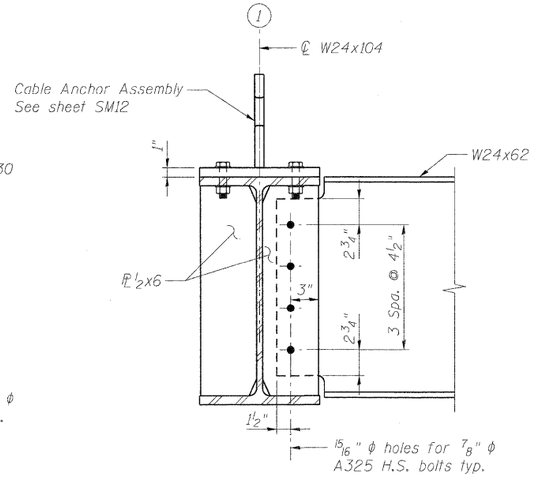


ABUTMENT FLOORBEAM CONNECTION

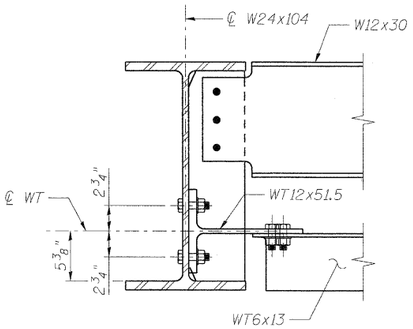
(See Note 1)



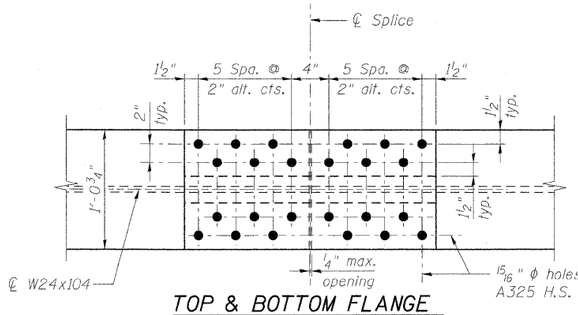
PIER 3 FLOORBEAM CONNECTION



SECTION AT ANCHORAGE LOCATION



SECTION B-B

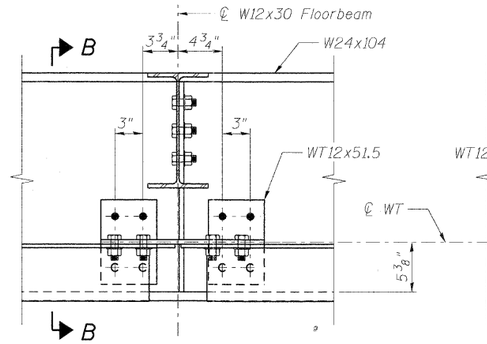


TOP & BOTTOM FLANGE

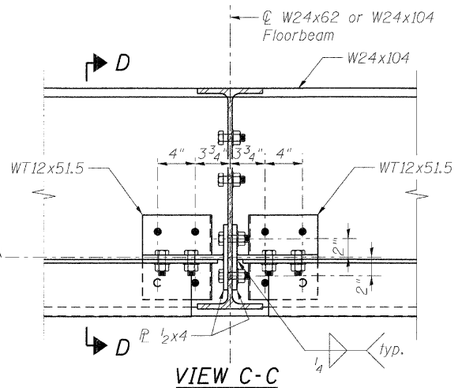
ELEVATION

SECTION E-E

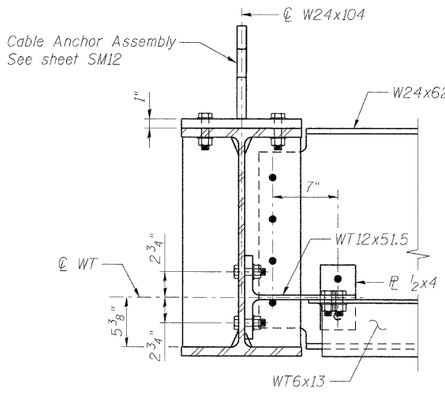
W24x104 SPLICE DETAIL



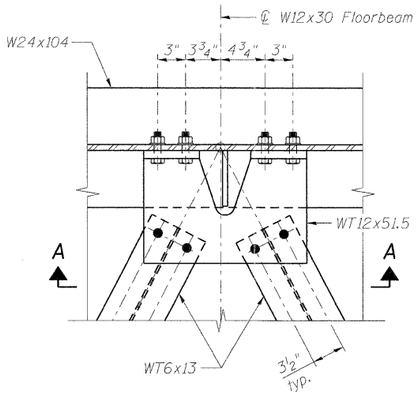
VIEW A-A



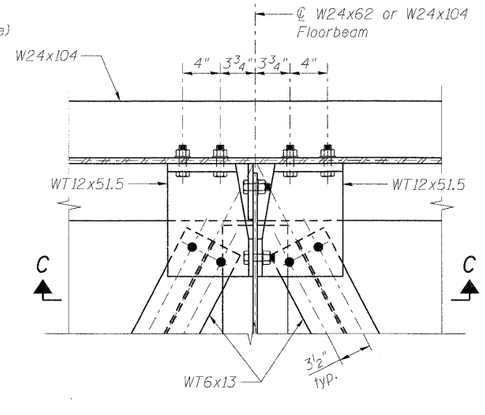
VIEW C-C



SECTION D-D



DETAIL 1



DETAIL 2

Stiffeners not shown for clarity.
See sheet SM12 for detail.

NOTES:

1. Weld detail shown at Abutment Floorbeam Connection typical at all connection plates.
2. Work this sheet with sheets SM7 and SM9.

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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

STEEL BEAM DETAILS (1 OF 2)
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM8 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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		CONTRACT NO. 63650		
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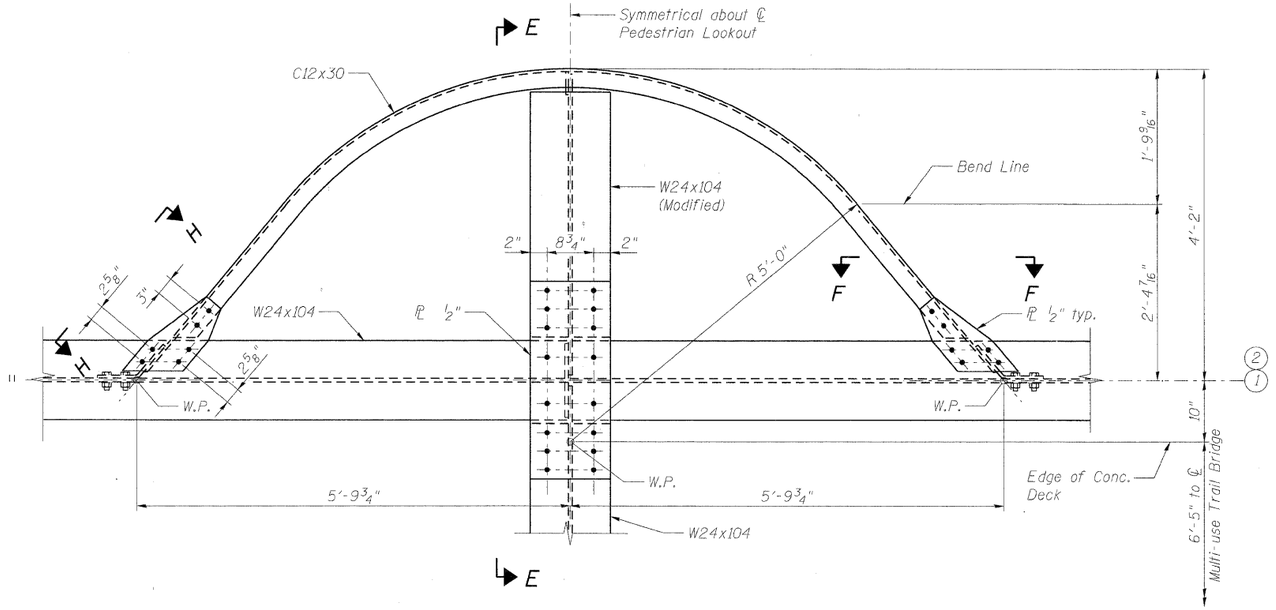
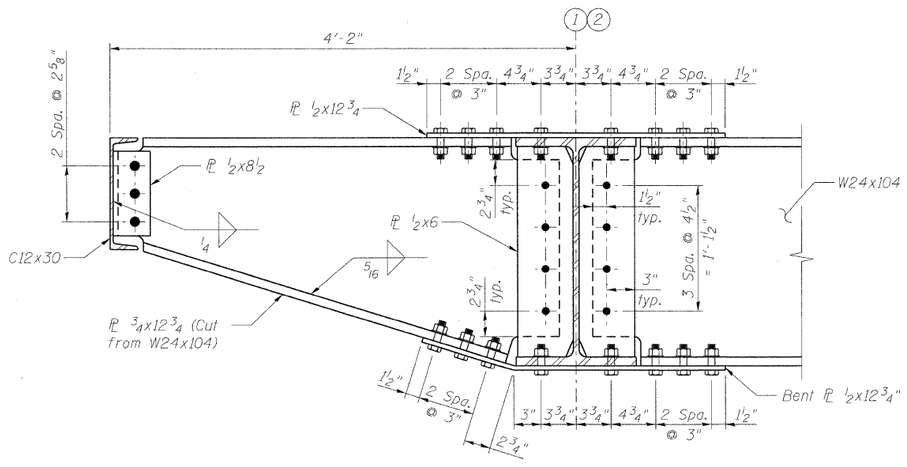
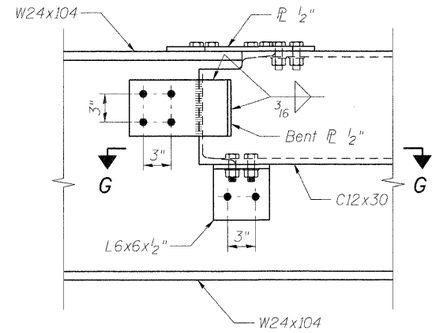


PLAN AT PEDESTRIAN LOOKOUT

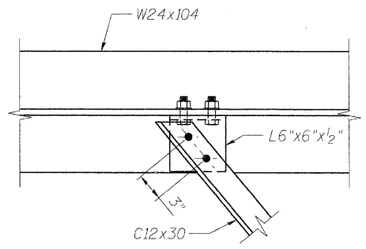
(Typical at all locations - Lateral bracing not shown for clarity)



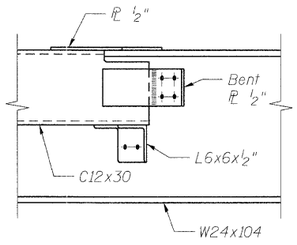
SECTION E-E



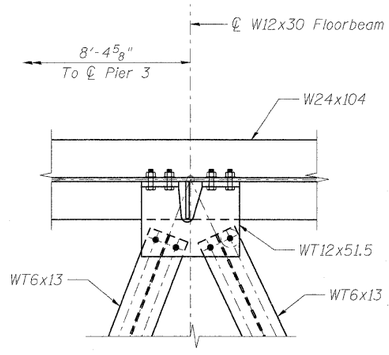
SECTION F-F



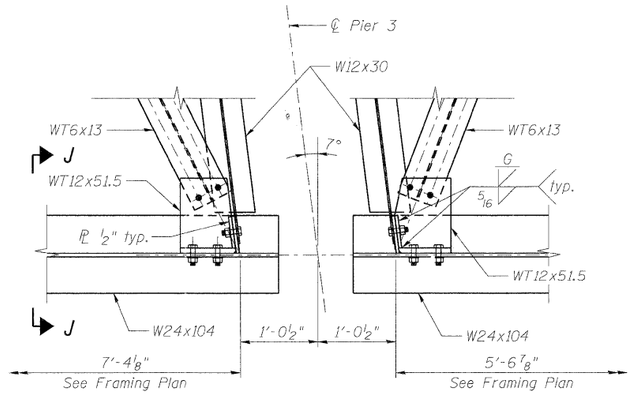
SECTION G-G



VIEW H-H

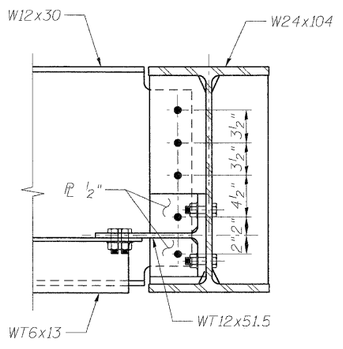


DETAIL 3



DETAIL 4

(Skewed, single connection plate detail at Piers 2, 4 & 5 similar)



SECTION J-J

NOTE:
Work this sheet with sheets SM7 and SM8.

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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

STEEL BEAM DETAILS (2 OF 2)
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM9 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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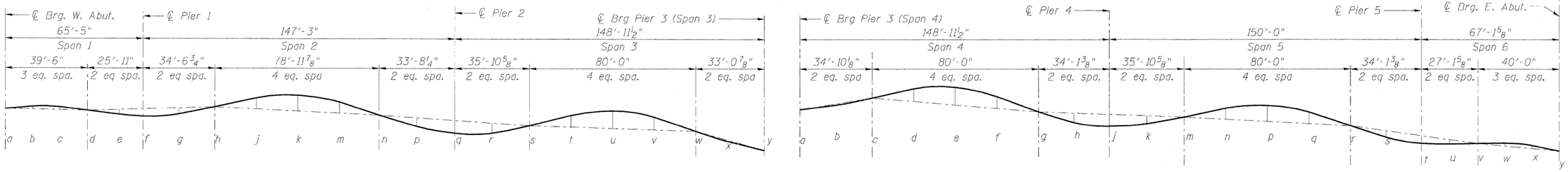
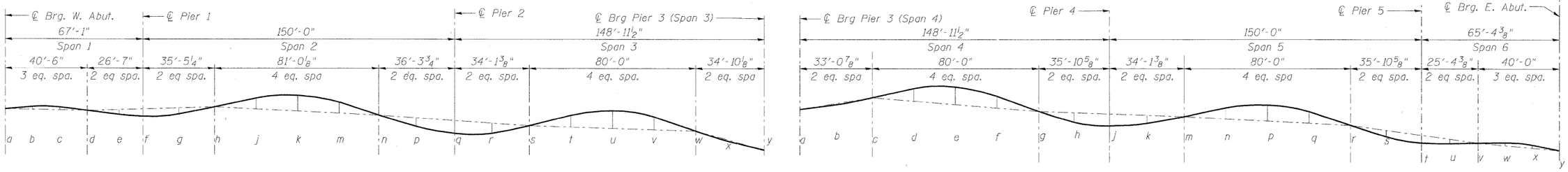


GIRDER 1 CAMBER



GIRDER 2 CAMBER

TABULATED DATA - GIRDER 1 (SPANS 1 THRU 3)

	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	T	U	V	W	X	Y
Top of Girder Elevation	706.61	706.48	706.34	706.18	706.04	705.90	705.76	705.66	705.56	705.39	705.11	704.79	704.54	704.32	704.15	704.03	703.92	703.76	703.52	703.21	702.96	702.74
Camber Ordinate (Inches)	0.00	0.17	0.17	0.00	0.43	0.70	0.59	0.00	1.38	1.95	1.30	0.00	0.80	1.16	0.92	0.00	1.18	1.75	1.25	0.00	0.00	0.00

TABULATED DATA - GIRDER 1 (SPANS 4 THRU 6)

	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	T	U	V	W	X	Y
Top of Girder Elevation	702.72	702.59	702.48	702.36	702.18	701.91	701.59	701.34	701.14	700.99	700.87	700.75	700.57	700.33	700.02	699.77	699.55	699.42	699.29	699.16	699.01	698.84
Camber Ordinate (Inches)	0.00	0.00	0.00	1.20	1.68	1.12	0.00	0.92	1.14	0.78	0.00	1.06	1.52	1.10	0.00	0.61	0.73	0.42	0.00	0.27	0.27	0.00

TABULATED DATA - GIRDER 2 (SPANS 1 THRU 3)

	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	T	U	V	W	X	Y
Top of Girder Elevation	706.61	706.49	706.35	706.20	706.04	705.90	705.75	705.65	705.56	705.40	705.13	704.80	704.53	704.30	704.13	704.01	703.90	703.75	703.51	703.21	702.96	702.72
Camber Ordinate (Inches)	0.00	0.22	0.23	0.00	0.42	0.72	0.62	0.00	1.44	2.07	1.40	0.00	0.75	1.06	0.87	0.00	1.03	1.62	1.20	0.00	0.00	0.00

TABULATED DATA - GIRDER 2 (SPANS 4 THRU 6)

	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	S	T	U	V	W	X	Y
Top of Girder Elevation	702.70	702.57	702.47	702.35	702.18	701.92	701.61	701.34	701.13	700.97	700.85	700.73	700.57	700.34	700.04	699.77	699.54	699.40	699.28	699.16	699.01	698.84
Camber Ordinate (Inches)	0.00	0.00	0.00	1.14	1.70	1.21	0.00	0.91	1.15	0.80	0.00	0.99	1.51	1.16	0.00	0.59	0.71	0.43	0.00	0.24	0.24	0.00

NOTES:

1. See sheets SM7 thru SM9 for steel details.

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	PLOT DATE = 11/10/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

CAMBER DIAGRAM
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM10 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	288
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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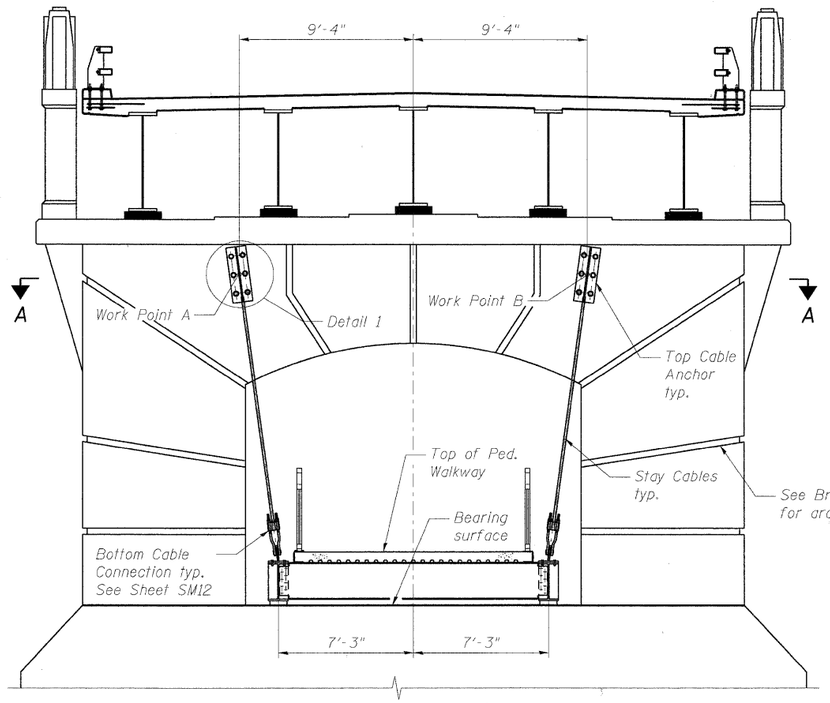
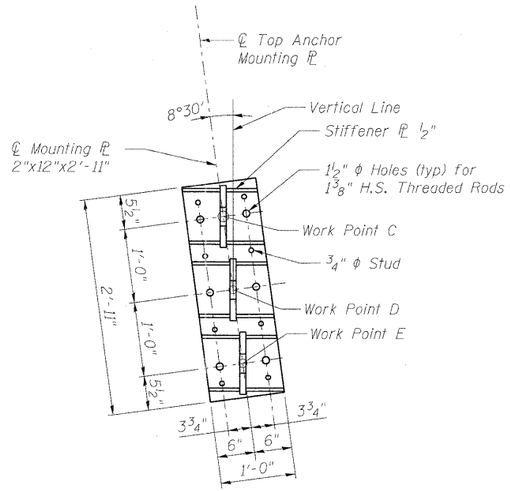
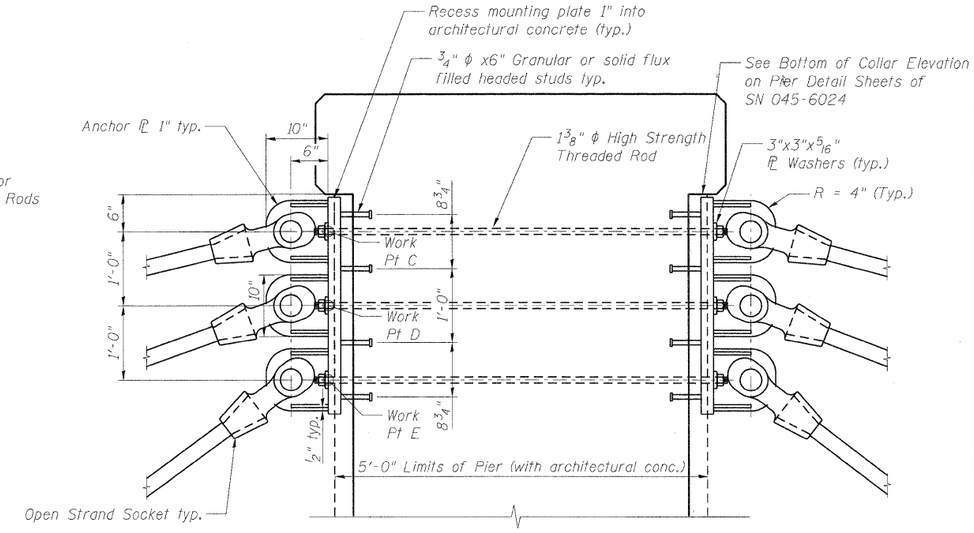


PIER ELEVATION



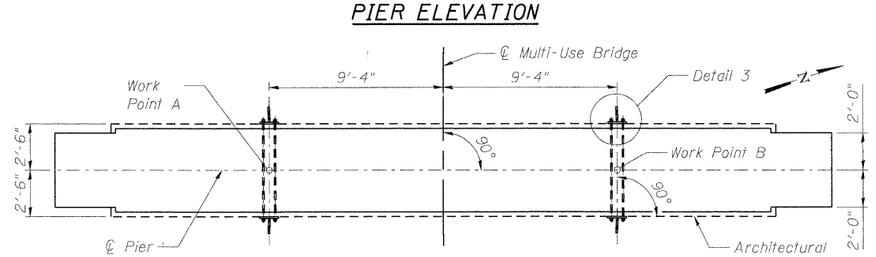
DETAIL 1
UPPER ANCHORAGE ASSEMBLY



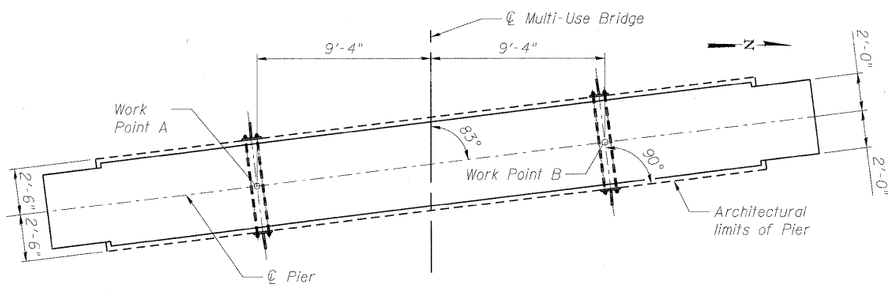
SECTION THRU UPPER ANCHORAGE ASSEMBLY

HIGH STRENGTH BAR INSTALLATION PROCEDURE

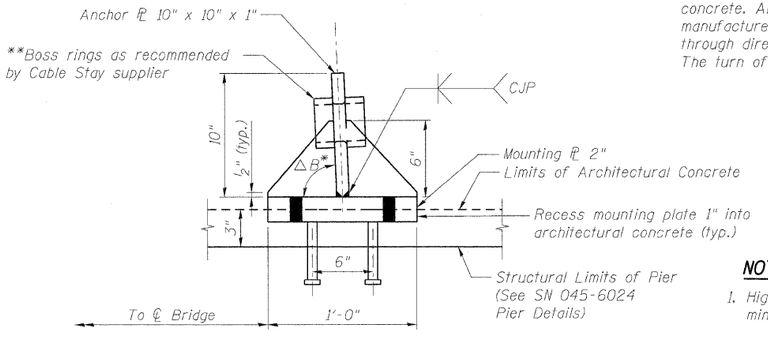
1. Anchorage assembly shall be installed to the geometry shown on the plans. Coordinate with SN 045-6024 Pier drawings.
2. High Strength threaded rods shall be installed with grease and a debonding sheathing to be submitted to the Engineer for approval. Caution shall be taken to ensure the shear studs are free from grease prior to concrete placement.
3. Contractor shall ensure annulus between threaded rod and hole is sealed. The rod shall be isolated from contact with concrete prior to and during placement.
4. High Strength Rods shall be tensioned to 85 kips after installation and curing of the concrete. All nuts and washers shall be in accordance with the high strength rod manufacturer's recommendations. Verification of the tensile load shall be accomplished through direct tension indicating washers which shall be installed at both ends of the rod. The turn of the nut method is not acceptable.



SECTION A-A (PIER 1)



SECTION A-A (PIERS 2 thru 5)



* See SM12 for values of ΔB

DETAIL 3

Northwest corner shown, southwest side mirrored. (East side of pier details symmetric by rotation)

** Boss rings shall be welded to the plate prior to boring of the pin hole to ensure proper fit.

NOTES:

1. High strength threaded rod shall conform to ASTM A722 with a minimum ultimate strength of 150 ksi.
2. All plates, shear studs, threaded rods, nuts and washers along with the pre-tensioning operation and any addtional required accessories shall be included with the cost of "Furnishing and Erecting Structural Steel Bridge No. 1"

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	PLOT DATE = 11/10/2011	CHECKED -	REVISED -

CITY OF ST. CHARLES

CABLE STAY DETAILS (1 OF 2)
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM11 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	289
		CONTRACT NO. 63650		
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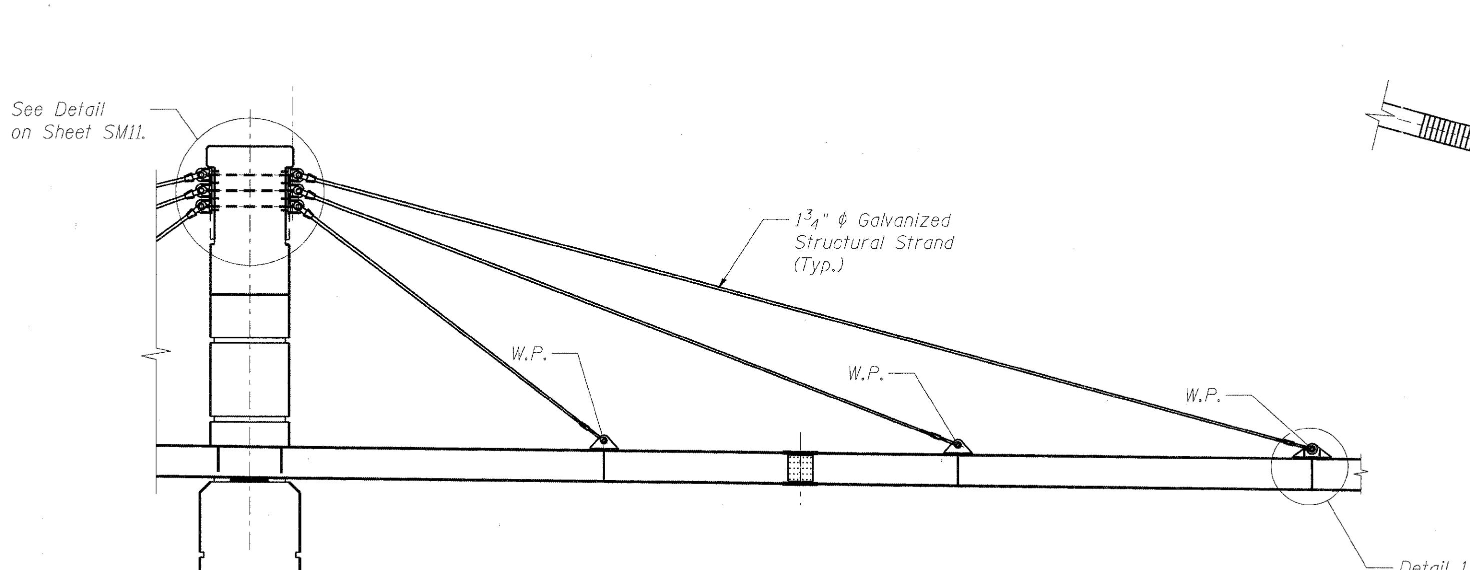
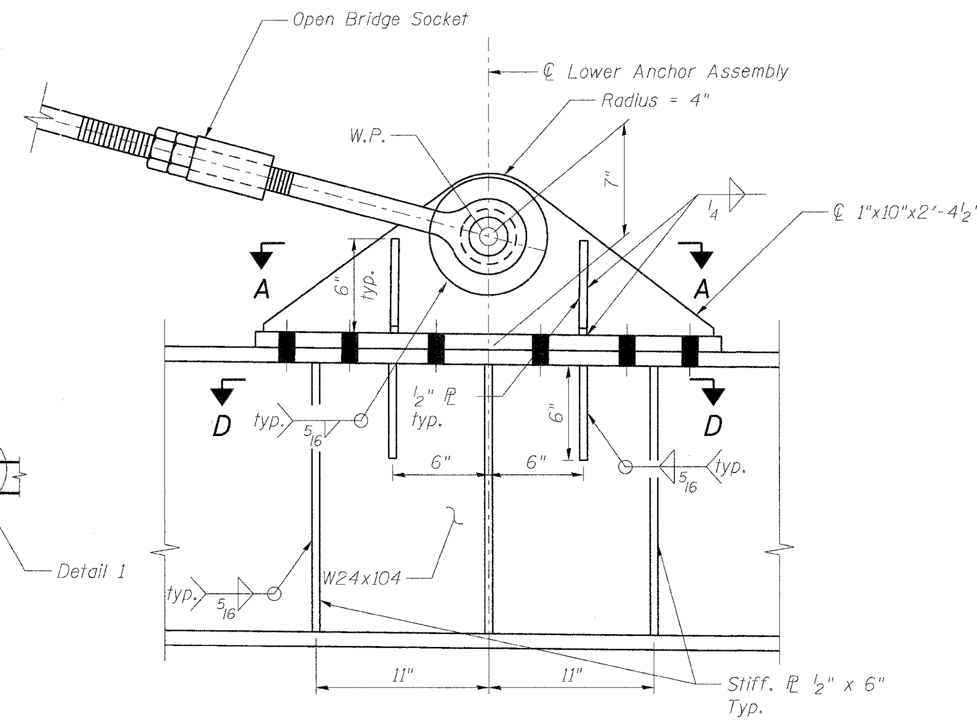
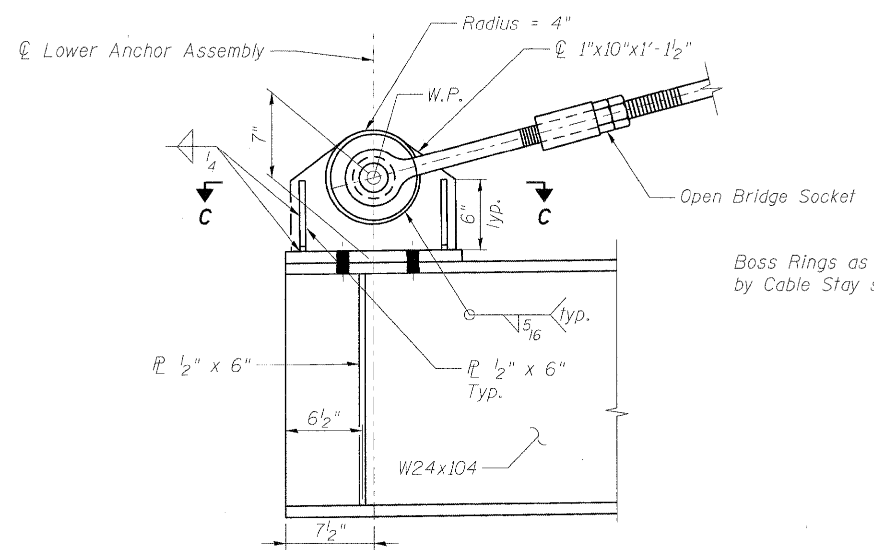


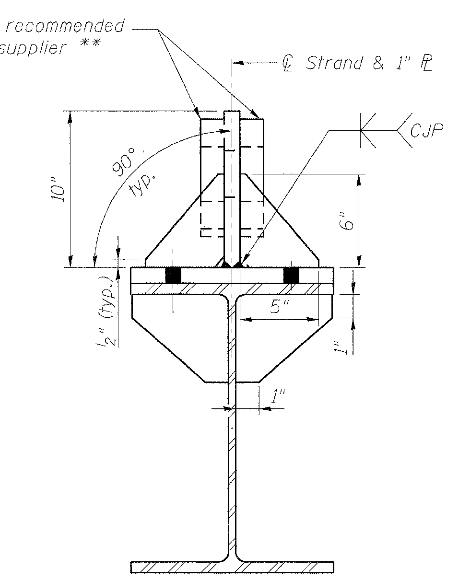
CABLE STAY ELEVATION



DETAIL 1 - LOWER ANCHORAGE ASSEMBLY

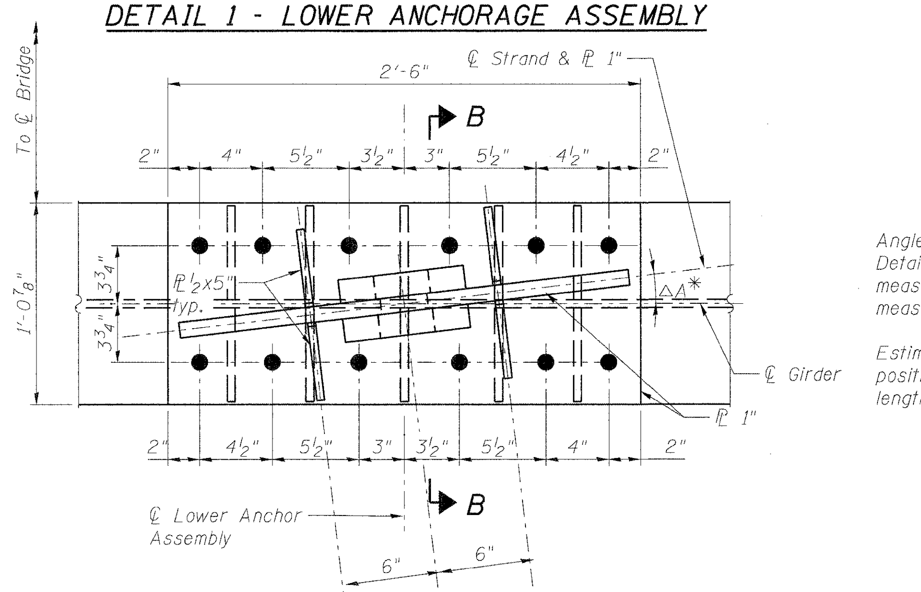


CABLE ANCHOR @ ABUTMENT DETAIL



SECTION B-B

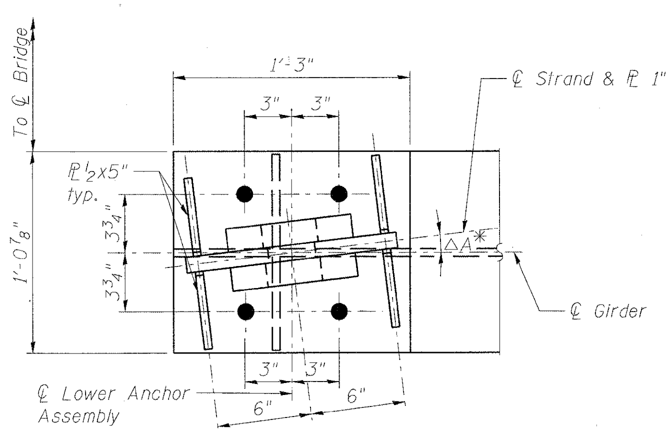
** Boss rings shall be welded to the plate prior to boring of the pin hole to ensure proper fit.



* Angle varies according to Cable Data Chart.

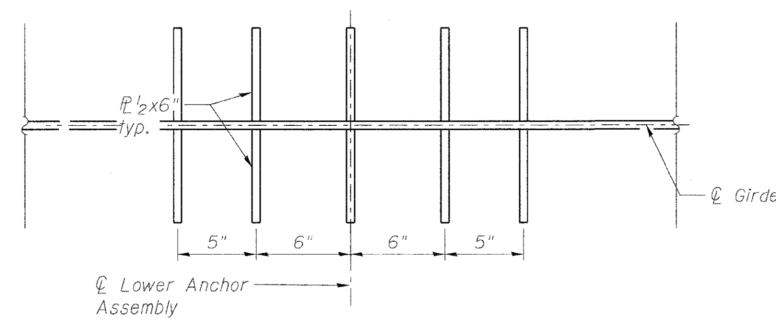
VIEW A-A

Open Bridge Socket
South girder, east of pier shown (Others similar)



VIEW C-C (@ Abutments)

West Abutment north side shown others similar



SECTION D-D

Stiffener Plate Locations

CABLE DATA

Cable Location	Estimated Length	ΔA	ΔB
1NWT	63'-8 1/2"	5° 22'	91° 24'
1NWM	43'-3 5/8"	4° 58'	89° 31'
1NWB	22'-9"	6° 38'	85° 37'
1SWT	65'-7 5/8"	(I) 1° 21'	84° 36'
1SWM	44'-6 3/4"	0° 40'	84° 52'
1SWB	23'-3 7/8"	4° 29'	83° 17'
1NET	65'-2"	5° 13'	91° 30'
1NEM	43'-6 1/2"	4° 58'	89° 31'
1NEB	22'-11 7/8"	6° 38'	85° 36'
1SET	67'-0 3/4"	(I) 1° 18'	84° 35'
1SEM	44'-9 1/4"	0° 39'	84° 52'
1SEB	23'-6 1/4"	4° 29'	83° 17'
2NWT	63'-9 5/8"	4° 55'	98° 38'
2NWM	42'-2 3/4"	4° 32'	96° 46'
2NWB	21'-10"	5° 56'	93° 08'
2SWT	67'-11"	(I) 1° 07'	77° 34'
2SWM	45'-7 5/8"	0° 56'	77° 45'
2SWB	24'-4"	4° 58'	75° 57'
2,3,4 NET	67'-4 7/8"	2° 12'	80° 48'
2,3,4 NEM	45'-5 1/4"	3° 09'	79° 51'
2,3,4 NEB	24'-6 1/2"	6° 06'	76° 54'
2,3,4 SET	65'-2 1/8"	1° 43'	95° 17'
2,3,4 SEM	43'-3 1/8"	2° 27'	94° 33'
2,3,4 SEB	22'-7 3/8"	4° 56'	92° 04'
3,4,5 NWT	64'-10 1/8"	1° 43'	95° 17'
3,4,5 NWM	42'-11 1/2"	2° 27'	94° 33'
3,4,5 NWB	22'-4 1/4"	4° 56'	92° 04'
3,4,5 SWT	67'-1"	2° 12'	80° 48'
3,4,5 SWM	45'-1 3/4"	3° 09'	79° 51'
3,4,5 SWB	24'-3 5/8"	6° 06'	76° 54'
5NET	66'-1 1/2"	2° 19'	80° 45'
5NEM	45'-3 7/8"	3° 16'	79° 51'
5NEB	24'-3 1/2"	6° 25'	76° 54'
5SET	63'-10 3/4"	1° 46'	95° 15'
5SEM	43'-1 5/8"	2° 27'	94° 33'
5SEB	22'-4 1/4"	4° 56'	92° 04'

Angle "A" in Table above is shown in View A-A, Open Bridge Socket Detail, and is measured directed away from the bridge. The angle measured at Cable location with notation (I), indicates the angle is measured directed towards the inside of the bridge.

Estimated cable lengths are between work points in the cambered position. Contractor shall be responsible for determining final cable lengths based on selected manufacturer and final details.

1 N W T

- T — Top, Middle or Bottom Cable
- W — East or West Side of Pier
- N — North or South Cable
- 1 — Pier Cable is attached to

NOTES:

1. Wire strand for cables shall be ASTM A586 with ASTM A148 sockets.
2. All bolts for lower anchorage assemblies shall be 7/8" φ A490 high strength bolts in 15/16" φ holes.
3. Contractor shall be responsible for ensuring coordination between the anchorage assembly details, and the chosen open bridge and open strand sockets.

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		CHECKED - AJK	REVISED -		STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
	PLOT SCALE =	DRAWN - RMG	REVISED -		SHEET NO. SM12 OF SM19 SHEETS
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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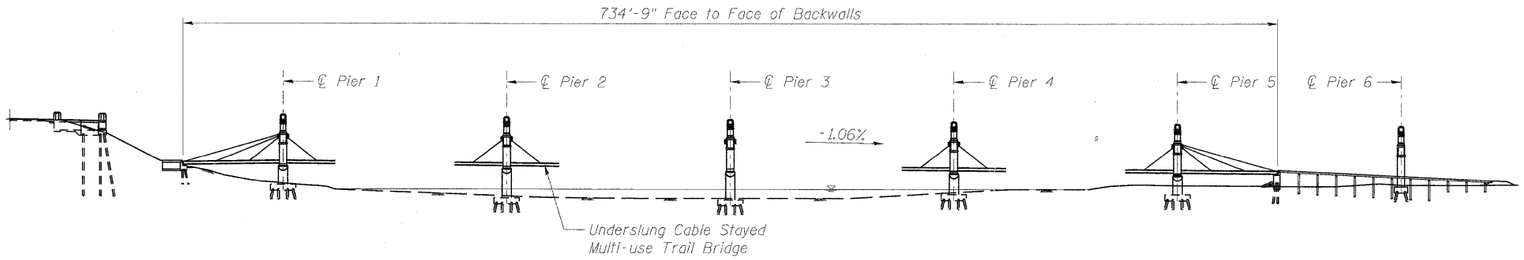
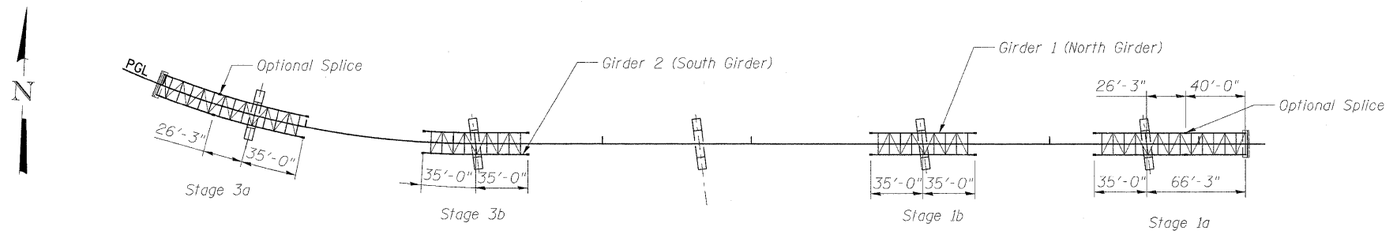
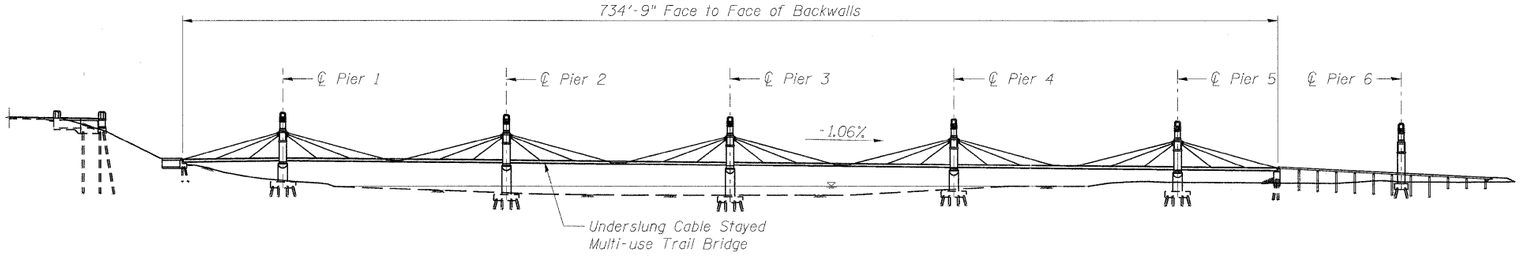
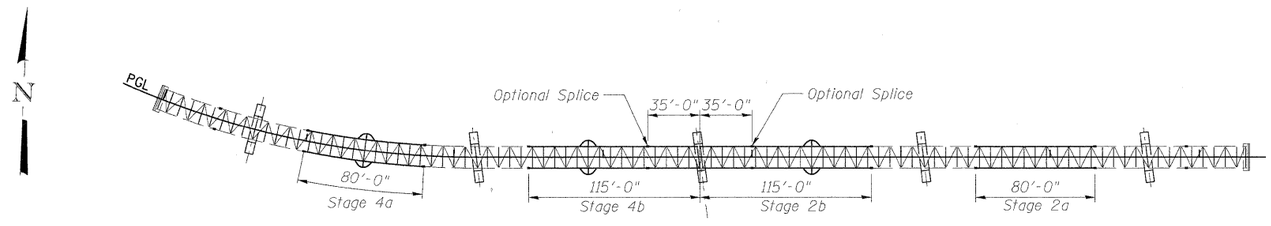




Stage 1 and 3 Plan and Elevation



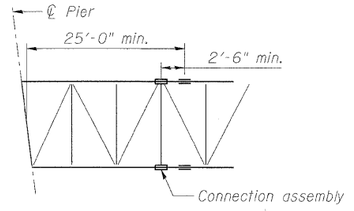


Stage 2 and 4 Plan and Elevation

PROPOSED ERECTION SEQUENCE

(Contractor may propose an alternate sequence and shall submit an erection plan for approval regardless of what sequence is selected.)

1. The upper anchorage assemblies in the pier shall be installed and the bolts pre-tensioned prior to installation of the cable stays.
2. Assemble span 6 and the eastern 35' of span 5 in a staging area near the bridge. All floor beams and bracing shall be installed (100% bolts finger tight). Bearings shall be blocked against lateral and rotational movement (typical).
3. Set the pre-assembled span 6 and partial span 5 (approximately 33,000 lbs) and connect all stay cables prior to releasing the steel from the crane.
4. Pre-assemble all steel for the 70' bridge segment that extends through pier 4 in a staging area near the bridge.
5. Set the pre-assembled pier segment that extends through pier 4 (approximately 21,000 lbs) which will require re-connecting the rigging once prior to final setting. Connect the remaining cable stays prior to releasing the segment from the crane.
6. Set the remaining girder 1 segment in span 5. Bolt each field splice with a minimum of 50% of the bolts in the web and flange plates (typical for all erection splice connections). Connect the cable stays prior to releasing the load from the crane. Repeat for the remaining girder 2 segment in span 5.
7. Splice the two remaining girder 1 segments (100% bolted) for span 4 prior to lifting the girder. Set the remaining girder 1 segment in span 4. Block the girder end at pier 3 to ensure stability against rotation and lateral deflection. Make the splice connection and then connect the cable stays prior to releasing the load from the crane.
8. Splice the remaining girder 2 segments (100% bolted) and set the remaining portion of girder 2 in span 4. Block the girder end at pier 3 to ensure stability against rotation and lateral deflection. Make the splice connection and then connect the end diaphragm (W12x30) at pier 3. After the end diaphragm is connected, make the cable stay connections prior to releasing the crane.
9. Install all remaining floor beams and lateral bracing (finger tight bolted) working outward from the pre-assembled segments. Come-alongs will be required to ensure the girders are plumb and in the correct lateral position prior to connecting the floor beams.
10. Adjust open end bridge sockets to ensure top of girder elevations meet the values outlined on sheet SM14 for the floor beams at the cable stay anchorage locations. Install remaining bolts of splice connections and conduct final tightening at the splices.
11. Adjust vertical elevations of all remaining floor beams to meet the top of steel elevations as shown on sheet SM14. Conduct final tightening of all bolts.
12. Repeat the same operation for spans 1 through 3 working from the west abutment eastward.



Splice Location Detail

1. Contractor may relocate splices to facilitate erection, but must request approval from Engineer.
2. No splices shall be located within 25'-0" of the centerline of the pier or within 2'-6" of a floor beam.
3. No more than 2 splices may be placed in any single span.

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

STEEL ERECTION PLAN
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM13 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	291

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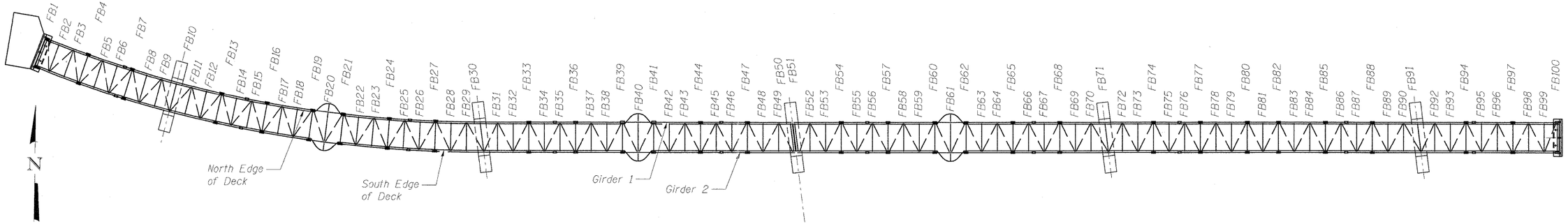

GIRDER 1 SPANS 1 THRU 3

	Location	Station	Offset	Theoretical Grade Elevation (Top/Floorbeam)	Theoretical Grade Elevation Adj. for Dead Load Deflection
*	FB1	109+98.75	-6.42	706.61	706.61
	FB2	110+05.00	-6.42	706.54	706.54
	FB3	110+12.50	-6.42	706.46	706.47
*	FB4	110+20.00	-6.42	706.38	706.39
	FB5	110+27.50	-6.42	706.30	706.31
	FB6	110+35.00	-6.42	706.22	706.23
*	FB7	110+42.50	-6.42	706.14	706.14
	FB8	110+50.00	-6.42	706.06	706.06
	FB9	110+57.50	-6.42	705.98	705.98
	FB10	110+65.00	-6.42	705.90	705.90
	FB11	110+72.50	-6.42	705.82	705.84
	FB12	110+80.00	-6.42	705.74	705.77
*	FB13	110+87.50	-6.42	705.66	705.72
	FB14	110+95.00	-6.42	705.58	705.67
	FB15	111+02.50	-6.42	705.51	705.62
*	FB16	111+10.00	-6.42	705.43	705.57
	FB17	111+17.50	-6.42	705.35	705.52
	FB18	111+25.00	-6.42	705.27	705.47
*	FB19	111+32.50	-6.42	705.19	705.40
	FB20	111+40.00	-6.42	705.11	705.32
*	FB21	111+47.50	-6.42	705.03	705.23
	FB22	111+55.00	-6.42	704.95	705.13
	FB23	111+62.50	-6.42	704.87	705.02
*	FB24	111+70.00	-6.42	704.79	704.91
	FB25	111+77.50	-6.42	704.71	704.80
	FB26	111+85.00	-6.42	704.63	704.69
*	FB27	111+92.50	-6.42	704.55	704.59
	FB28	112+00.00	-6.42	704.47	704.49
	FB29	112+07.50	-6.42	704.39	704.40
	FB30	112+14.22	-6.42	704.32	704.32
	FB31	112+22.50	-6.42	704.23	704.23
	FB32	112+30.00	-6.42	704.15	704.16
*	FB33	112+37.50	-6.42	704.07	704.10
	FB34	112+45.00	-6.42	703.99	704.05
	FB35	112+52.50	-6.42	703.92	704.00
*	FB36	112+60.00	-6.42	703.84	703.95
	FB37	112+67.50	-6.42	703.76	703.90
	FB38	112+75.00	-6.42	703.68	703.84
*	FB39	112+82.50	-6.42	703.60	703.78
	FB40	112+90.00	-6.42	703.52	703.70
*	FB41	112+97.50	-6.42	703.44	703.62
	FB42	113+05.00	-6.42	703.36	703.53
	FB43	113+12.50	-6.42	703.28	703.43
*	FB44	113+20.00	-6.42	703.20	703.33
	FB45	113+27.50	-6.42	703.12	703.22
	FB46	113+35.00	-6.42	703.04	703.11
*	FB47	113+42.50	-6.42	702.96	703.01
	FB48	113+50.00	-6.42	702.88	702.91
	FB49	113+57.50	-6.42	702.80	702.82
	FB50	113+63.18	-6.42	702.74	702.74

GIRDER 2 SPANS 1 THRU 3

	Location	Station	Offset	Theoretical Grade Elevation (Top/Floorbeam)	Theoretical Grade Elevation Adj. for Dead Load Deflection
*	FB1	109+98.75	6.42	706.61	706.61
	FB2	110+05.00	6.42	706.54	706.55
	FB3	110+12.50	6.42	706.46	706.48
*	FB4	110+20.00	6.42	706.38	706.40
	FB5	110+27.50	6.42	706.30	706.32
	FB6	110+35.00	6.42	706.22	706.24
*	FB7	110+42.50	6.42	706.14	706.15
	FB8	110+50.00	6.42	706.06	706.07
	FB9	110+57.50	6.42	705.98	705.98
	FB10	110+65.00	6.42	705.90	705.90
	FB11	110+72.50	6.42	705.82	705.83
	FB12	110+80.00	6.42	705.74	705.77
*	FB13	110+87.50	6.42	705.66	705.71
	FB14	110+95.00	6.42	705.58	705.66
	FB15	111+02.50	6.42	705.51	705.62
*	FB16	111+10.00	6.42	705.43	705.57
	FB17	111+17.50	6.42	705.35	705.52
	FB18	111+25.00	6.42	705.27	705.47
*	FB19	111+32.50	6.42	705.19	705.40
	FB20	111+40.00	6.42	705.11	705.32
*	FB21	111+47.50	6.42	705.03	705.24
	FB22	111+55.00	6.42	704.95	705.14
	FB23	111+62.50	6.42	704.87	705.03
*	FB24	111+70.00	6.42	704.79	704.92
	FB25	111+77.50	6.42	704.71	704.81
	FB26	111+85.00	6.42	704.63	704.70
*	FB27	111+92.50	6.42	704.55	704.59
	FB28	112+00.00	6.42	704.47	704.50
	FB29	112+07.50	6.42	704.39	704.40
	FB30	112+15.78	6.42	704.30	704.30
	FB31	112+22.50	6.42	704.23	704.23
	FB32	112+30.00	6.42	704.15	704.16
*	FB33	112+37.50	6.42	704.07	704.09
	FB34	112+45.00	6.42	703.99	704.03
	FB35	112+52.50	6.42	703.92	703.98
*	FB36	112+60.00	6.42	703.84	703.93
	FB37	112+67.50	6.42	703.76	703.88
	FB38	112+75.00	6.42	703.68	703.82
*	FB39	112+82.50	6.42	703.60	703.76
	FB40	112+90.00	6.42	703.52	703.69
*	FB41	112+97.50	6.42	703.44	703.61
	FB42	113+05.00	6.42	703.36	703.53
	FB43	113+12.50	6.42	703.28	703.43
*	FB44	113+20.00	6.42	703.20	703.33
	FB45	113+27.50	6.42	703.12	703.22
	FB46	113+35.00	6.42	703.04	703.11
*	FB47	113+42.50	6.42	702.96	703.01
	FB48	113+50.00	6.42	702.88	702.91
	FB49	113+57.50	6.42	702.80	702.82
	FB50	113+64.74	6.42	702.73	702.73

GIRDER 1 SPANS 4 THRU 6

	Location	Station	Offset	Theoretical Grade Elevation (Top/Floorbeam)	Theoretical Grade Elevation Adj. for Dead Load Deflection
	FB51	113+65.26	-6.42	702.72	702.72
	FB52	113+72.50	-6.42	702.64	702.66
	FB53	113+80.00	-6.42	702.56	702.60
*	FB54	113+87.50	-6.42	702.48	702.54
	FB55	113+95.00	-6.42	702.40	702.48
	FB56	114+02.50	-6.42	702.33	702.43
*	FB57	114+10.00	-6.42	702.25	702.38
	FB58	114+17.50	-6.42	702.17	702.32
	FB59	114+25.00	-6.42	702.09	702.26
*	FB60	114+32.50	-6.42	702.01	702.19
	FB61	114+40.00	-6.42	701.93	702.11
*	FB62	114+47.50	-6.42	701.85	702.02
	FB63	114+55.00	-6.42	701.77	701.93
	FB64	114+62.50	-6.42	701.69	701.82
*	FB65	114+70.00	-6.42	701.61	701.71
	FB66	114+77.50	-6.42	701.53	701.60
	FB67	114+85.00	-6.42	701.45	701.49
*	FB68	114+92.50	-6.42	701.37	701.39
	FB69	115+00.00	-6.42	701.29	701.30
	FB70	115+07.50	-6.42	701.21	701.21
	FB71	115+14.22	-6.42	701.14	701.14
	FB72	115+22.50	-6.42	701.05	701.06
	FB73	115+30.00	-6.42	700.97	701.00
*	FB74	115+37.50	-6.42	700.89	700.93
	FB75	115+45.00	-6.42	700.81	700.88
	FB76	115+52.50	-6.42	700.74	700.83
*	FB77	115+60.00	6.42	700.66	700.77
	FB78	115+67.50	-6.42	700.58	700.72
	FB79	115+75.00	-6.42	700.50	700.66
*	FB80	115+82.50	-6.42	700.42	700.59
	FB81	115+90.00	-6.42	700.34	700.52
*	FB82	115+97.50	-6.42	700.26	700.43
	FB83	116+05.00	-6.42	700.18	700.34
	FB84	116+12.50	-6.42	700.10	700.24
*	FB85	116+20.00	-6.42	700.02	700.14
	FB86	116+27.50	-6.42	699.94	700.03
	FB87	116+35.00	-6.42	699.86	699.92
*	FB88	116+42.50	-6.42	699.78	699.82
	FB89	116+50.00	-6.42	699.70	699.72
	FB90	116+57.50	-6.42	699.62	699.63
	FB91	116+64.22	-6.42	699.55	699.55
	FB92	116+72.50	-6.42	699.46	699.47
	FB93	116+80.00	-6.42	699.38	699.39
*	FB94	116+87.50	-6.42	699.30	699.32
	FB95	116+95.00	-6.42	699.22	699.25
	FB96	117+02.50	-6.42	699.15	699.17
*	FB97	117+10.00	-6.42	699.07	699.09
	FB98	117+17.50	-6.42	698.99	699.01
	FB99	117+25.00	-6.42	698.91	698.92
*	FB100	117+31.25	-6.42	698.84	698.84

GIRDER 2 SPANS 4 THRU 6

	Location	Station	Offset	Theoretical Grade Elevation (Top/Floorbeam)	Theoretical Grade Elevation Adj. for Dead Load Deflection
	FB51	113+66.82	6.42	702.70	702.70
	FB52	113+72.50	6.42	702.64	702.66
	FB53	113+80.00	6.42	702.56	702.59
*	FB54	113+87.50	6.42	702.48	702.53
	FB55	113+95.00	6.42	702.40	702.47
	FB56	114+02.50	6.42	702.33	702.42
*	FB57	114+10.00	6.42	702.25	702.37
	FB58	114+17.50	6.42	702.17	702.32
	FB59	114+25.00	6.42	702.09	702.26
*	FB60	114+32.50	6.42	702.01	702.19
	FB61	114+40.00	6.42	701.93	702.12
*	FB62	114+47.50	6.42	701.85	702.03
	FB63	114+55.00	6.42	701.77	701.94
	FB64	114+62.50	6.42	701.69	701.83
*	FB65	114+70.00	6.42	701.61	701.72
	FB66	114+77.50	6.42	701.53	701.62
	FB67	114+85.00	6.42	701.45	701.51
*	FB68	114+92.50	6.42	701.37	701.40
	FB69	115+00.00	6.42	701.29	701.30
	FB70	115+07.50	6.42	701.21	701.21
	FB71	115+15.78	6.42	701.12	701.12
	FB72	115+22.50	6.42	701.05	701.06
	FB73	115+30.00	6.42	700.97	700.99
*	FB74	115+37.50	6.42	700.89	700.92
	FB75	115+45.00	6.42	700.81	700.87
	FB76	115+52.50	6.42	700.74	700.81
*	FB77	115+60.00	6.42	700.66	700.76
	FB78	115+67.50	6.42	700.58	700.71
	FB79	115+75.00	6.42	700.50	700.65
*	FB80	115+82.50	6.42	700.42	700.59
	FB81	115+90.00	6.42	700.34	700.52
*	FB82	115+97.50	6.42	700.26	700.44
	FB83	116+05.00	6.42	700.18	700.35
	FB84	116+12.50	6.42	700.10	700.25
*	FB85	116+20.00	6.42	700.02	700.15
	FB86	116+27.50	6.42	699.94	700.04
	FB87	116+35.00	6.42	699.86	699.93
*	FB88	116+42.50	6.42	699.78	699.83
	FB89	116+50.00	6.42	699.70	699.73
	FB90	116+57.50	6.42	699.62	699.63
	FB91	116+65.78	6.42	699.53	699.53
	FB92	116+72.50	6.42	699.46	699.46
	FB93	116+80.00	6.42	699.38	699.39
*	FB94	116+87.50	6.42	699.30	699.31
	FB95	116+95.00	6.42	699.22	699.24
	FB96	117+02.50	6.42	699.15	699.17
*	FB97	117+10.00	6.42	699.07	699.09
	FB98	117+17.50	6.42	698.99	699.01
	FB99	117+25.00	6.42	698.91	698.92
*	FB100	117+31.25	6.42	698.84	698.84

* Denotes Location of Cable Stay Anchorage

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engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10092

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

ERECTION PLAN AND DETAILS
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM14 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	292
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	ILLINOIS FED. AID PROJECT			

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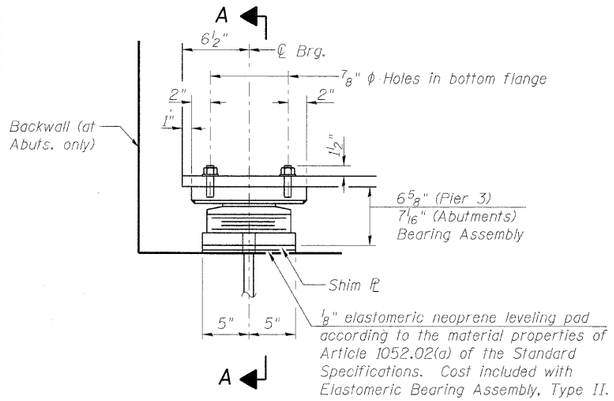
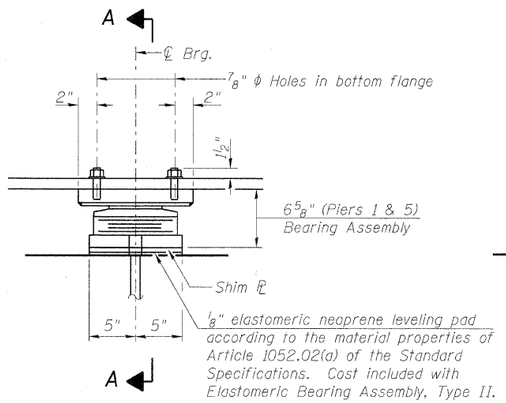
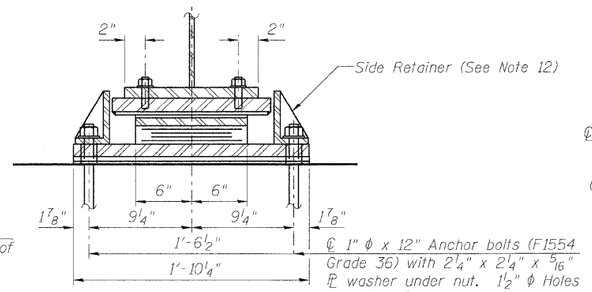


ELEVATION AT ABUTS. & PIER 3

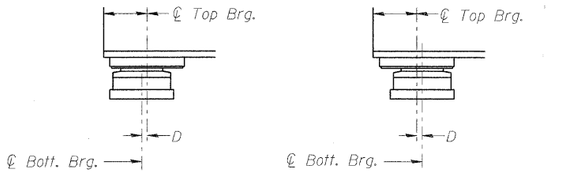


ELEVATION AT PIERS 1 & 5



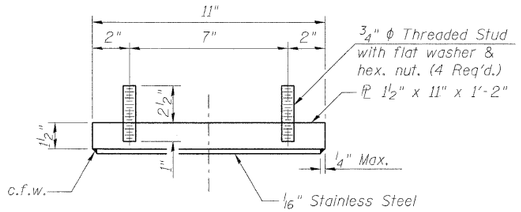
SECTION A-A

TYPE II ELASTOMERIC EXP. BRG.

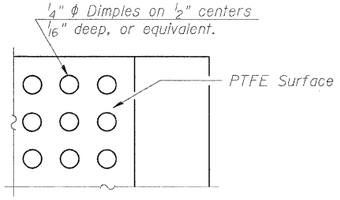


SETTING ANCHOR BOLTS AT EXP. BRG.

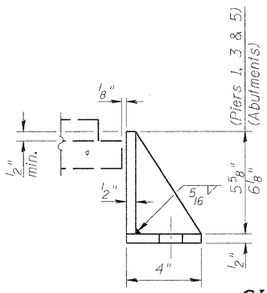
(D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.)



TOP BEARING ASSEMBLY

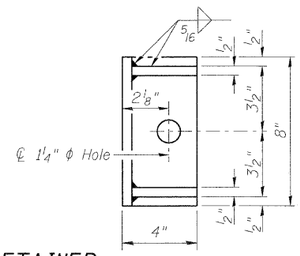


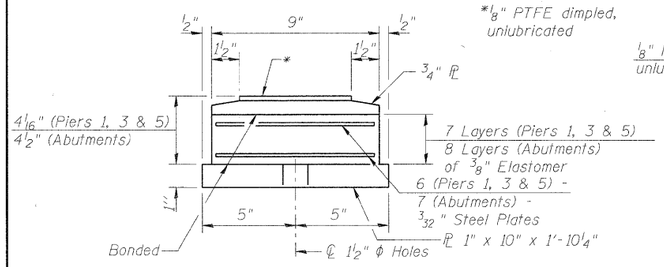
PLAN-PTFE SURFACE



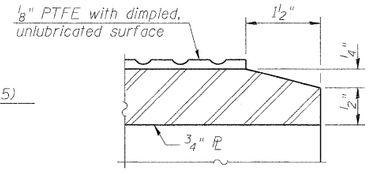
SIDE RETAINER

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

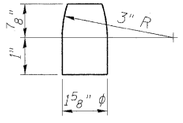




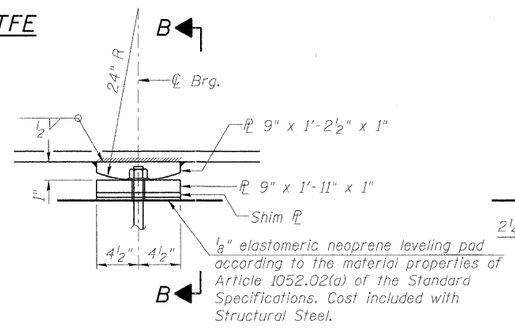
BOTTOM BEARING ASSEMBLY



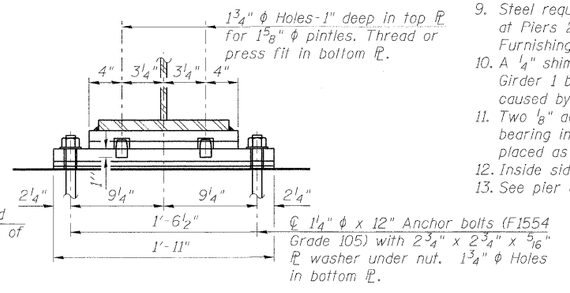
SECTION THRU PTFE



PINTLE



ELEVATION AT PIERS 2 & 4



SECTION B-B

FIXED BEARING

NOTES:

1. Anchor bolts for expansion bearings shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Anchor bolts for Type II bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.
6. 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.
7. 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.
8. The structural steel plates and pintle of the Bearing Assemblies shall conform to the requirements of AASHTO M 270 Grade 50.
9. Steel required for the fixed bearing assemblies at Piers 2 and 4 shall be included in the cost of Furnishing and Erecting Structural Steel Bridge No. 1
10. A ¼" shim plate is required at Piers 2 thru 5 for the Girder 1 bearings to account for the grade difference caused by the skew.
11. 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.
12. Inside side retainers may be omitted at abutments only.
13. See pier details sheets of SN 045-6024 for seat elevations.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	12
Anchor Bolts, 1"	Each	24
Anchor Bolts, 1¼"	Each	8

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Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10092

I-2E-2 7-1-10

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	PLOT SCALE =	DRAWN - RMG	REVISED -
	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

BEARING DETAILS
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM15 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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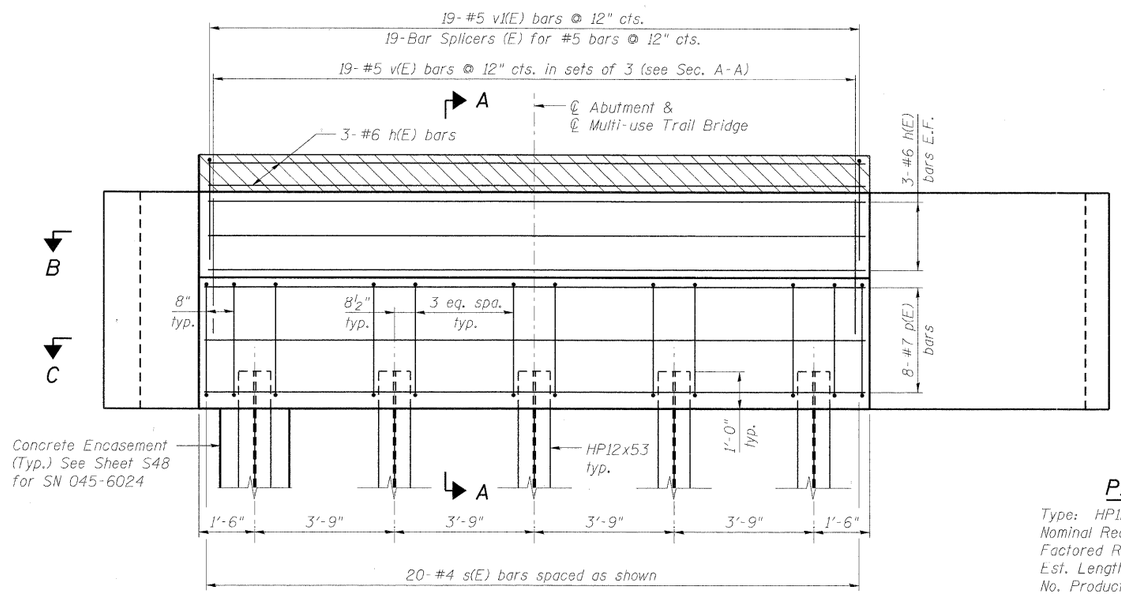
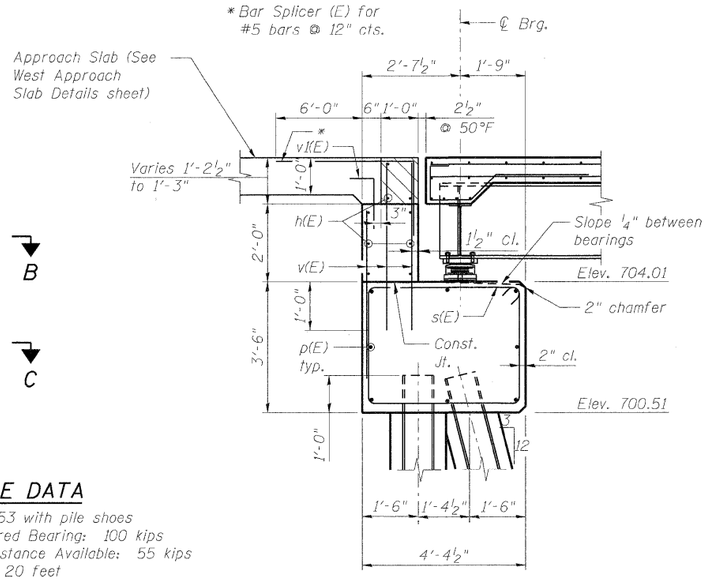


ELEVATION



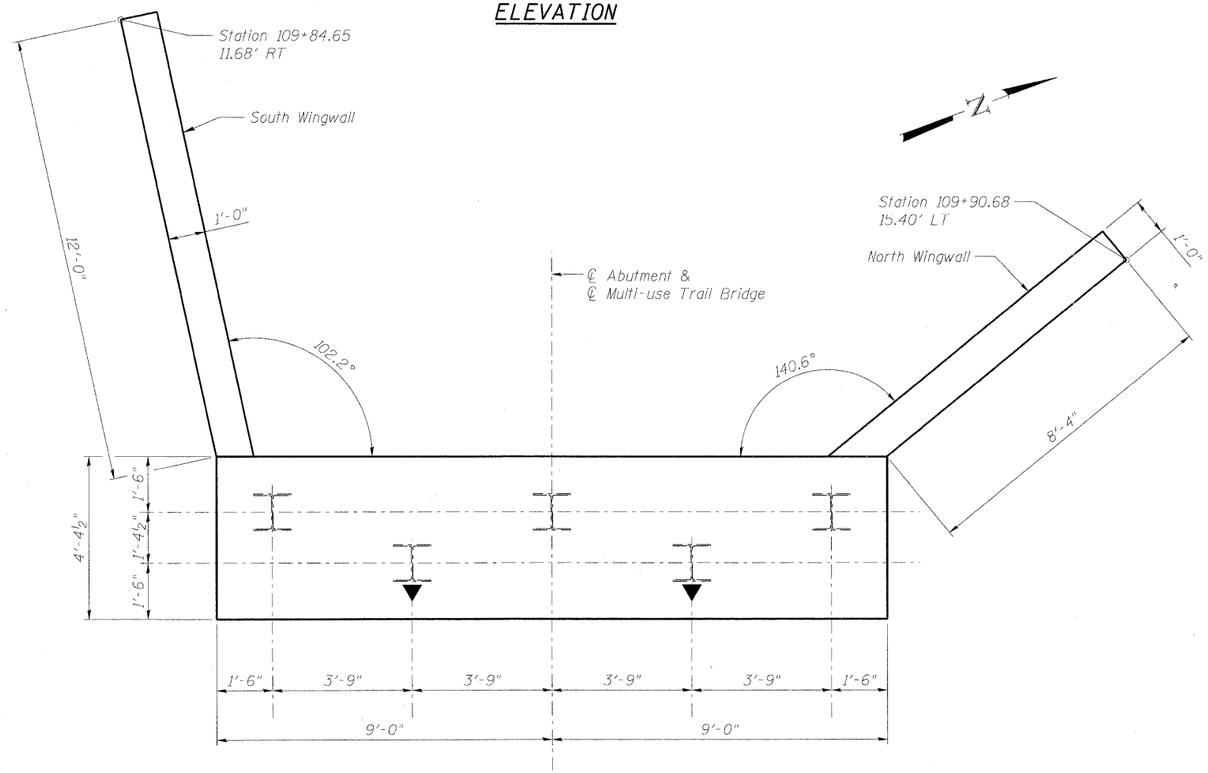
SECTION A-A

PILE DATA

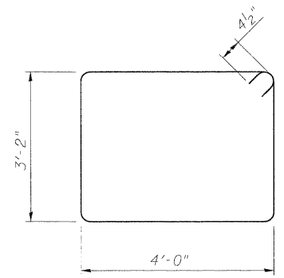
Type: HP12x53 with pile shoes
Nominal Required Bearing: 100 kips
Factored Resistance Available: 55 kips
Est. Length: 20 feet
No. Production Piles: 4
No. Test Piles: 1

BILL OF MATERIAL

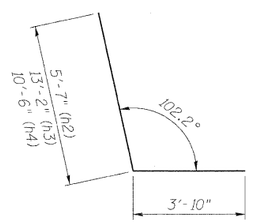
Bar	No.	Size	Length	Shape
h(E)	9	#6	17'-8"	
h1(E)	16	#6	11'-9"	
h2(E)	16	#6	9'-5"	
h3(E)	6	#6	17'-0"	
h4(E)	4	#6	14'-4"	
h5(E)	16	#6	8'-0"	
h6(E)	16	#6	9'-11"	
h7(E)	10	#6	14'-3"	
p(E)	8	#7	17'-8"	
s(E)	20	#4	15'-1"	
v(E)	57	#5	4'-3"	
v1(E)	19	#5	3'-8"	
v2(E)	39	#5	5'-4"	
v3(E)	6	#5	4'-4"	
v4(E)	44	#5	6'-6"	
Structure Excavation		Cu. Yd.	30.7	
Concrete Superstructure		Cu. Yd.	0.9	
Concrete Structures		Cu. Yd.	16.5	
Reinforcement Bars, Epoxy Coated		Pound	2,990	
Furnishing Steel Piles, HP12x53		Foot	80	
Driving Piles		Foot	80	
Test Pile Steel, HP12x53		Each	1	
Pile Shoes		Each	5	
Bar Splicers		Each	19	
Anti-Graffiti Coating		Sq. Ft.	212	
Concrete Sealer		Sq. Ft.	151	
Concrete Encasement		Cu. Yd.	1.8	



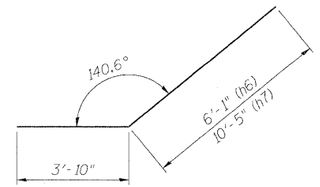
PILE LAYOUT



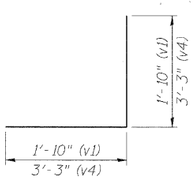
BAR s(E)



BARS h2(E), h3(E) & h4(E)



BARS h6(E) & h7(E)



BARS v1(E) & v4(E)

LEGEND

Vertical Pile

Battered Pile

NOTES:

1. E.F. denotes Each Face.
2. See sheet SM17 for wingwall elevations, Section B-B and Section C-C.
3. For bar splicer details, see sheet S49 of Structure No. 045-6024.

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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -	

CITY OF ST. CHARLES

WEST ABUTMENT DETAILS (1 OF 2)
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM16 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	294
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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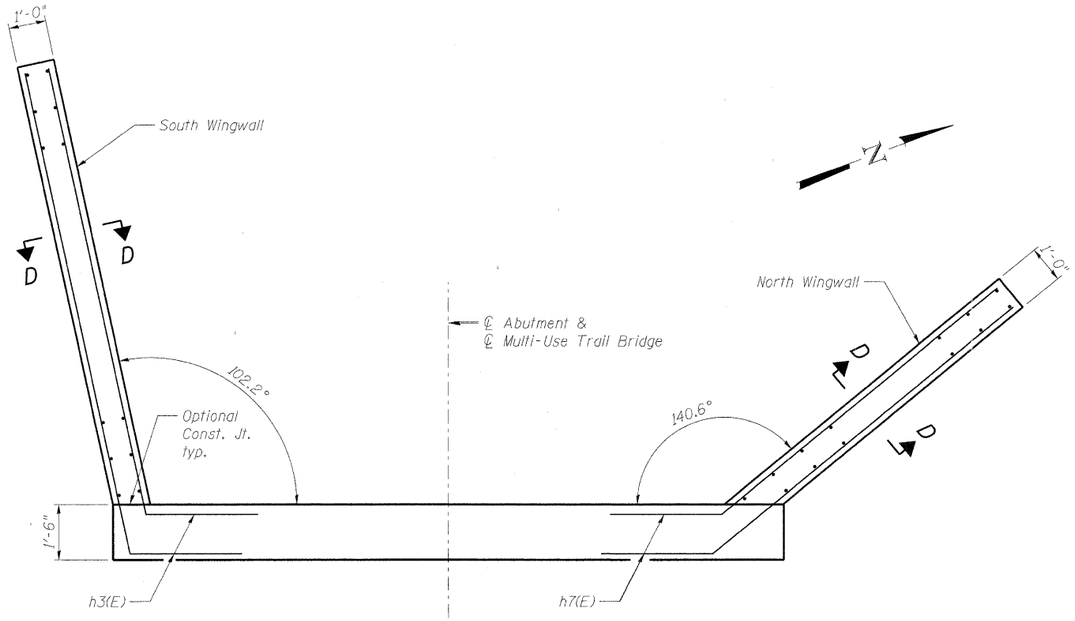
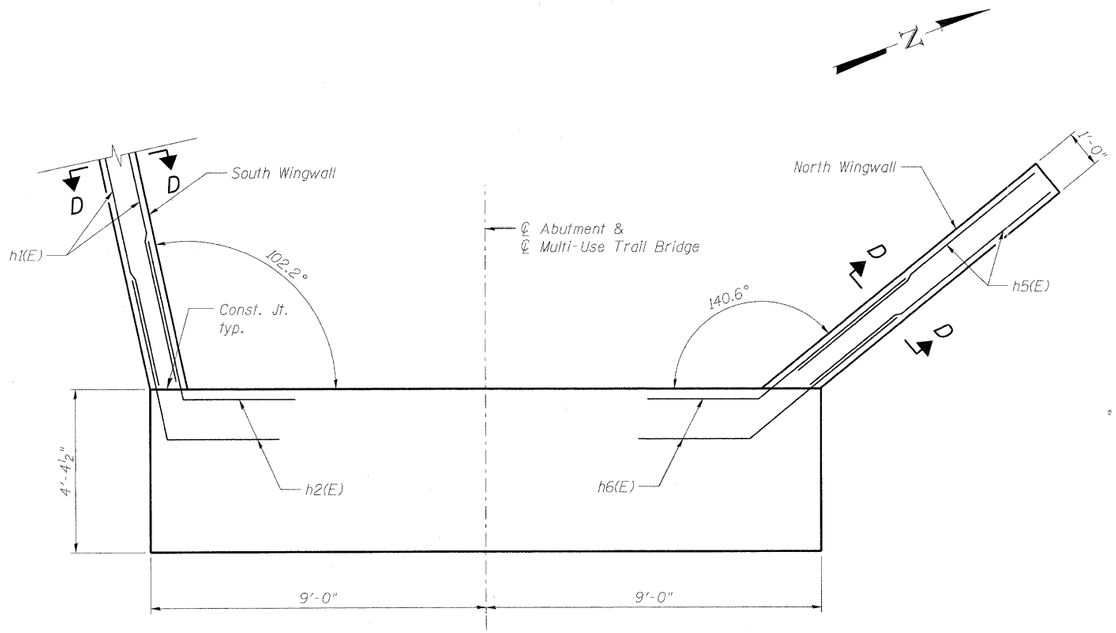
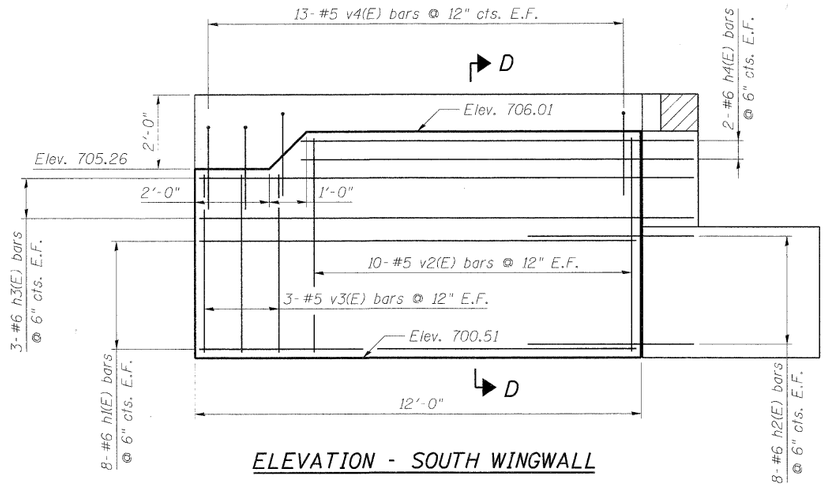


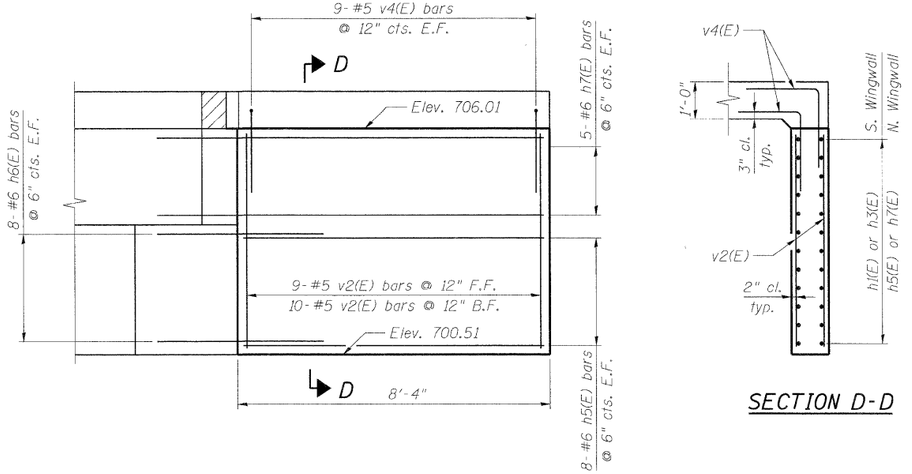
SECTION B-B



SECTION C-C



ELEVATION - SOUTH WINGWALL



ELEVATION - NORTH WINGWALL

SECTION D-D

NOTES:

1. See sheet SM16 for West Abutment Details
2. See sheet SM16 for reinforcement bar bends and bill of materials.
3. F.F. denotes Front Face, B.F. denotes Back Face and E.F. denotes Each Face.

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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WEST ABUTMENT DETAILS (2 OF 2)
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM17 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	295
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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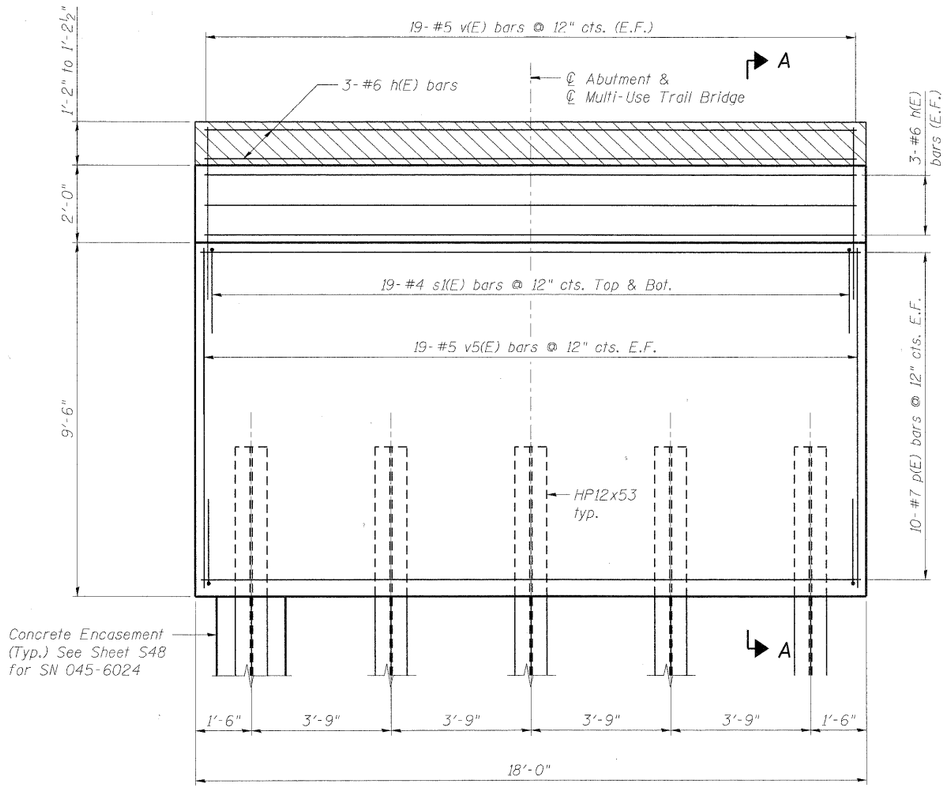
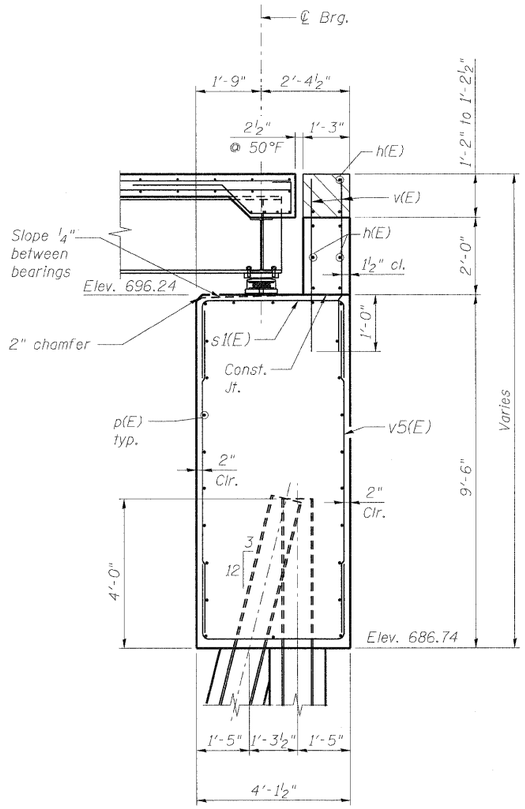


ELEVATION



SECTION A-A

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	9	#6	17'-8"	——
p(E)	24	#7	17'-8"	——
s1(E)	38	#4	9'-11"	⌊_⌋
v(E)	38	#5	4'-9"	——
v5(E)	38	#5	9'-2"	——

Structure Excavation	Cu. Yd.	15.0
Concrete Superstructure	Cu. Yd.	1.0
Concrete Structures	Cu. Yd.	27.8
Reinforcement Bars, Epoxy Coated	Pound	1,910
Furnishing Steel Piles, HP12x53	Foot	100
Driving Piles	Foot	100
Test Pile Steel, HP12x53	Each	1
Pile Shoes	Each	5
Anti-Graffiti Coating	Sq. Ft.	462
Concrete Sealer	Sq. Ft.	430
Concrete Encasement	Cu. Yd.	1.8

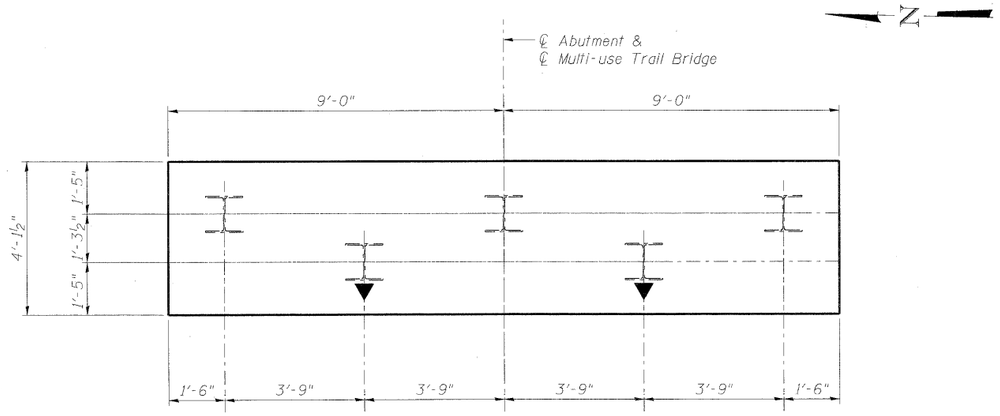
PILE DATA

Type: HP12x53 with pile shoes
Nominal Required Bearing: 100 kips
Factored Resistance Available: 55 kips
Est. Length: 25 feet
No. Production Piles: 4
No. Test Piles: 1

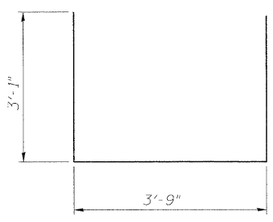
LEGEND

Vertical Pile

Battered Pile



PILE LAYOUT



BAR s1(E)

NOTES:

1. E.F. denotes Each Face.
2. For pile details, see sheet S48 of Structure No. 045-6024.
3. Contractor is responsible to coordinate boardwalk termination details with the abutment backwall.

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		CHECKED - AJK	REVISED -
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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

EAST ABUTMENT DETAILS
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM18 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	296
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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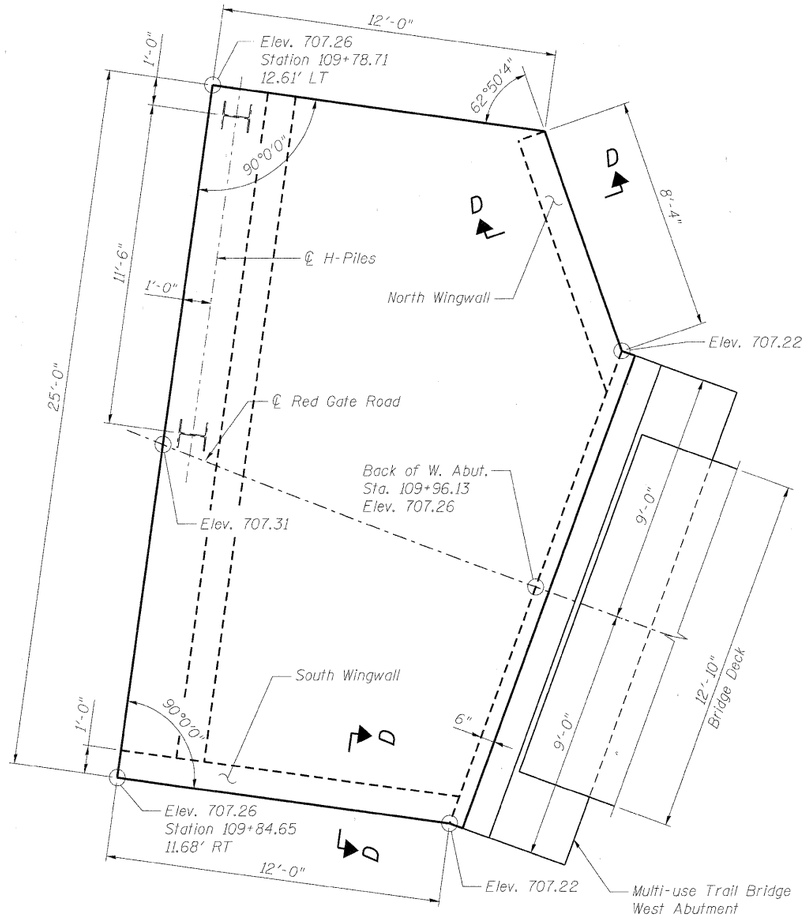
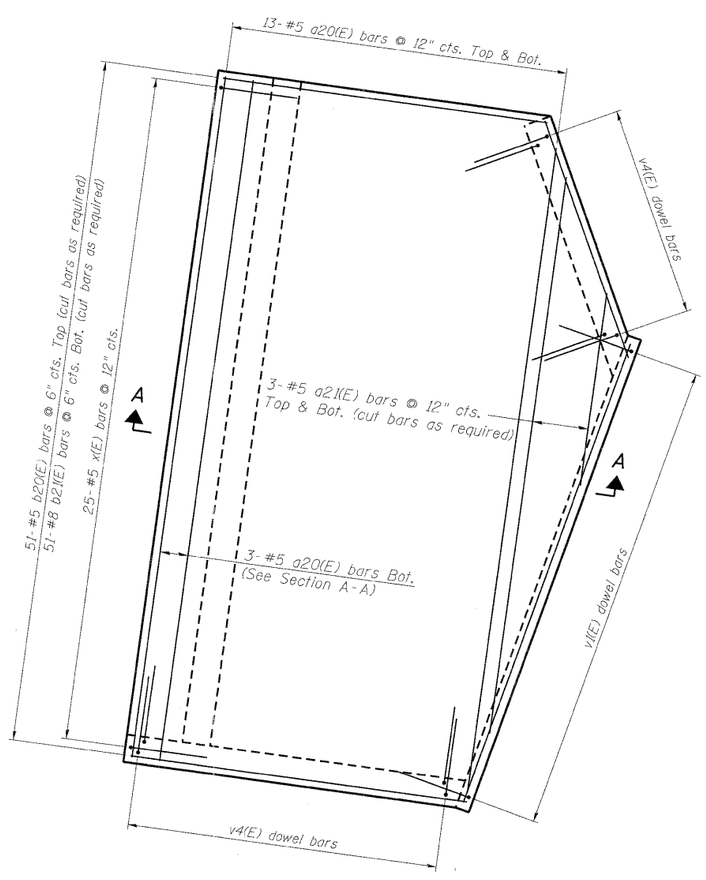
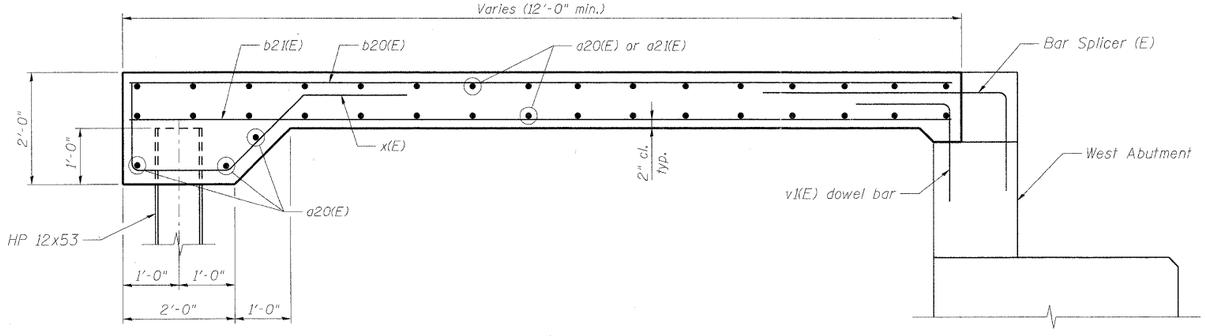


WEST APPROACH SLAB



WEST APPROACH SLAB - REINFORCEMENT



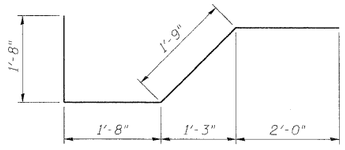
SECTION A-A

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a20(E)	29	#5	24'-8"	
a21(E)	6	#5	20'-2"	
b20(E)	51	#5	15'-8"	
b21(E)	51	#8	15'-8"	
x(E)	25	#5	7'-1"	
Concrete Superstructure			Cu. Yd.	15.6
Reinforcement Bars, Epoxy Coated			Pound	4,100
Furnishing Steel Piles, HP12x53			Foot	40
Driving Piles			Foot	40
Pile Shoes			Each	2
Protective Coat			Sq. Yd.	39

PILE DATA

Type: HP12x53 with pile shoes
Nominal Required Bearing: 100 kips
Factored Resistance Available: 55 kips
Est. Length: 20 feet
No. Production Piles: 2
No. Test Piles: 0



BAR x(E)

NOTES:

1. Bar Splicers (E), v1(E) and v4(E) dowel bars billed on West Abutment Details sheets.
2. See sheet SM17 for Section D-D.
3. Cut a20(E), a21(E) and b20(E) bars in field to fit as required.
4. Stations and offsets measured from ℄ Red Gate Road.

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	PLOT DATE = 11/10/2011	CHECKED - AJK	REVISED -

CITY OF ST. CHARLES

WEST APPROACH SLAB DETAILS
STRUCTURE NO. 045-6020 MULTI-USE TRAIL BRIDGE OVER FOX RIVER
SHEET NO. SM19 OF SM19 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	297
		CONTRACT NO. 63650		
	ILLINOIS	FED. AID PROJECT		

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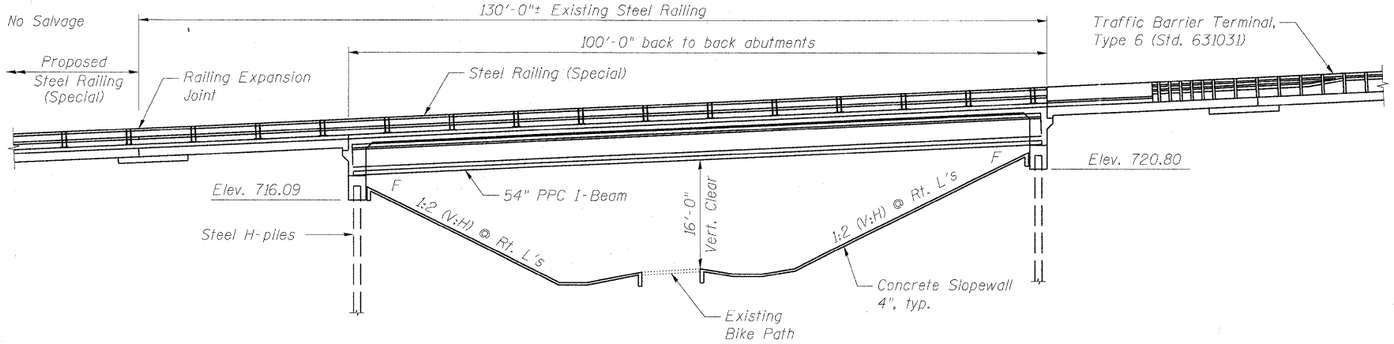
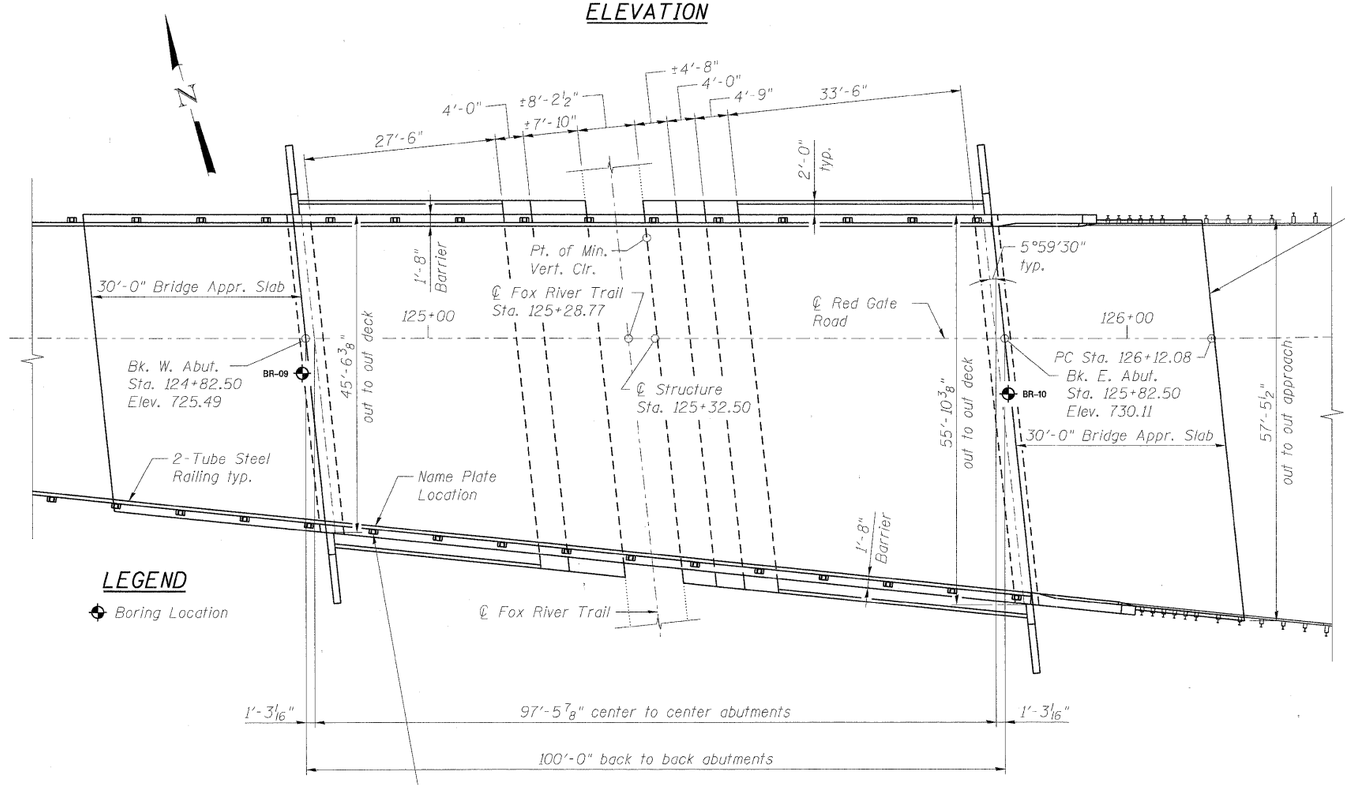
Benchmark: Steel Rod at GPS Monument KAN31 2B (Elev. 754.27)

Existing Structure: None



ELEVATION



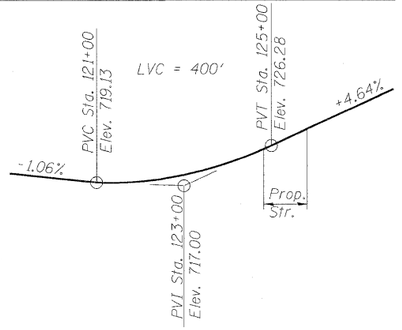
LEGEND

⌖ Boring Location

PLAN

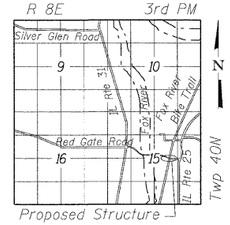
Field painting of the top coat for all existing railing and installation of the name plate (furnished by others) shall be completed in this contract. Cost of installing the name plate and painting the Steel Railing shall be included with "Steel Railing (Special)".

Preformed Joint seal (4") to be installed in this contract See Sheet 238 for details (typical each side). Cost of Preformed joint strip seal at these locations shall be included with Bridge Deck Grooving.



PROFILE GRADE

(Along ℄ of Red Gate Road)



LOCATION SKETCH

FOR INFORMATION ONLY

Bridge deck grooving (bridge and approaches) and anti-graffiti coating of the slopewall, abutment and wingwalls of the Fox River Trail structure shall be completed in this Contract.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Bridge Deck Grooving	Sq. Yd.	808
Anti-Graffiti Coating	Sq. Ft	5,843

GENERAL PLAN AND ELEVATION
RED GATE ROAD OVER THE FOX RIVER TRAIL
SEC. 04-00092-00-BR
KANE COUNTY
STATION 125+32.50
STRUCTURE NO. 045-6019

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312-565-0450 Job No. 10092

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		CHECKED - AJK	REVISED -
	PLOT SCALE =	DRAWN - MFH	REVISED -
	PLOT DATE = 11/21/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 045-6019 RED GATE ROAD OVER THE FOX RIVER TRAIL
SHEET NO. 5F11 OF SF1 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	298
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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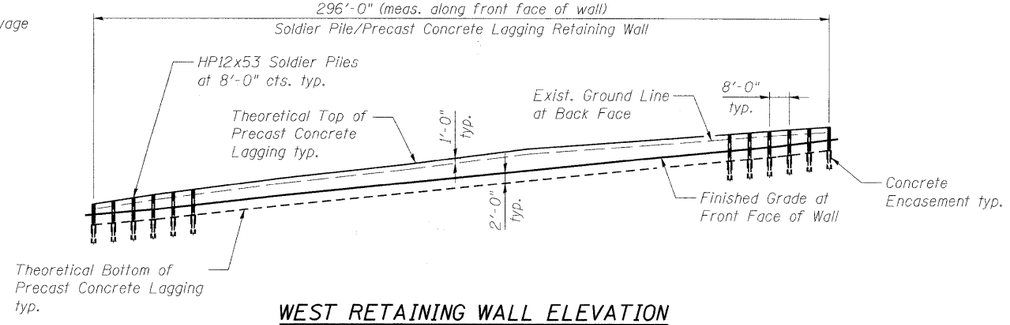
11/21/2011

Benchmark: Steel Rod at GPS Monument KAN31 2B (Elev. 754.27)

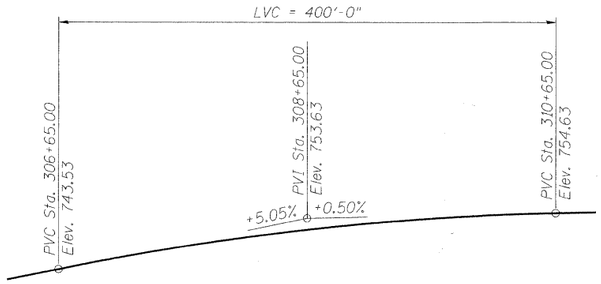
Existing Structure: None

No Salvage



WEST RETAINING WALL ELEVATION

(Vertical Scale 2:1)



IL 25 PROFILE GRADE

(4:1 Vertical Scale, Along ℄)

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges

CONSTRUCTION SPECIFICATIONS

Standard Specifications for the State of Illinois

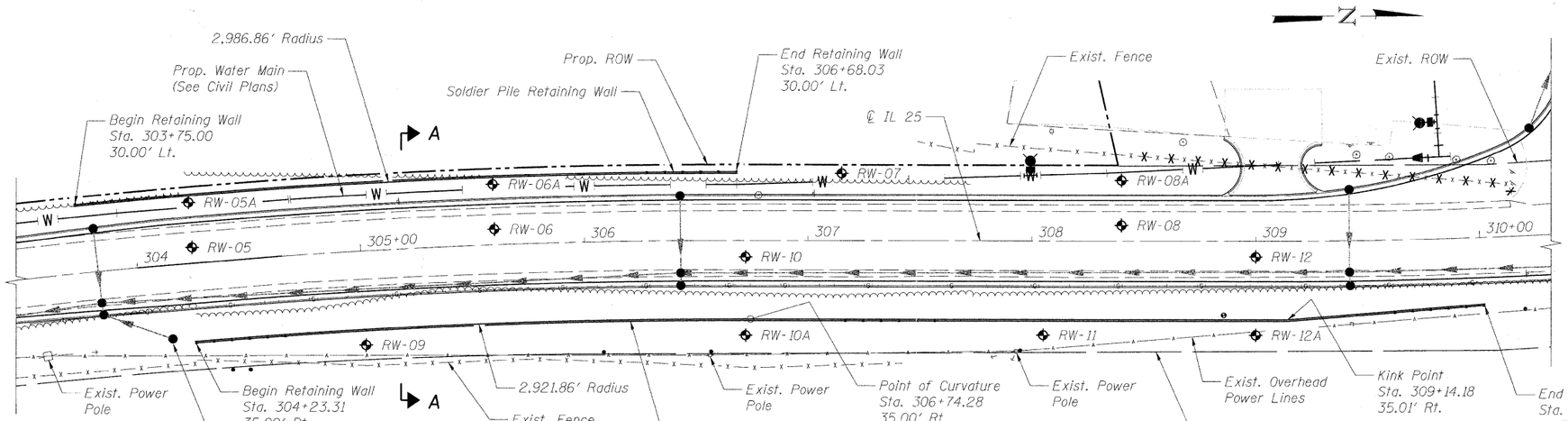
DESIGN STRESSES

FIELD UNITS

Reinforced Concrete:
f'c = Compressive Strength = 4,000 psi
Soldier Piles:
fy = Yield Strength (Grade 50) = 50,000 psi
Timber Lagging:
Fb = Bending Strength = 1,000 psi

PRECAST UNITS

Precast Concrete Lagging:
f'c = Compressive Strength = 4,500 psi

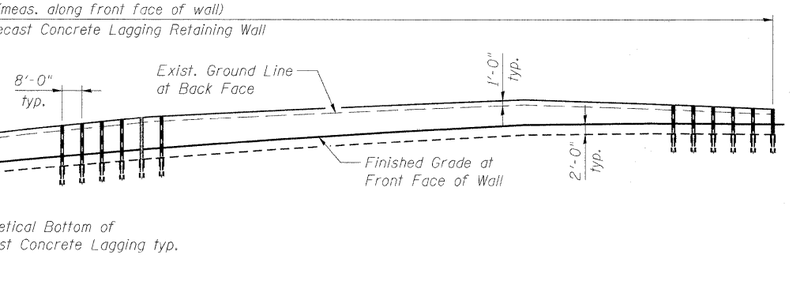


PLAN

CURVE DATA

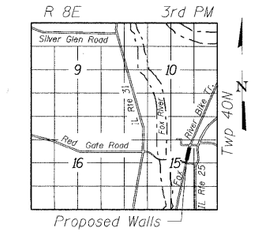
(IL25CUR1)
PI = Sta. 303+63.30
Δ = 12°05'48.49" (RT)
R = 2,956.86'
T = 313.30'
L = 624.28'
E = 16.55'
e = NC
TR = N/A
SE Run = N/A
PC = Sta. 300+50.00
PT = Sta. 306+74.28

(IL25CUR2)
PI = Sta. 310+03.52
Δ = 04°29'27.04" (LT)
R = 2,462.03'
T = 96.54'
L = 192.97'
E = 1.89'
e = NC
TR = N/A
SE Run = N/A
PC = Sta. 309+06.98
PT = Sta. 310+99.96



EAST RETAINING WALL ELEVATION

(Reflected View, Vertical Scale 2:1)



LOCATION SKETCH

NOTES:

1. For Section A-A see Sheet SR2.
2. For stations, elevations, and offsets of individual soldier piles, see Sheet SR3.
3. Stations, offsets, and radii are measured front face of precast concrete lagging.
4. Soldier piles shall conform to the requirements of AASHTO M270, Grade 50.
5. Contractor shall be responsible for coordinating electrical power outages required to perform this work.

I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THIS BRIDGE IS STRUCTURALLY ADEQUATE FOR THE DESIGN LOADINGS SHOWN ON THE PLANS. THE DESIGN IS AN ECONOMICAL ONE FOR THE STYLE OF STRUCTURE AND COMPLIES WITH REQUIREMENTS OF THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

STATE OF ILLINOIS · HOSSAM ABDALLA · 081-055537 · STRUCTURAL ENGINEER

EXPIRATION DATE 11-30-12

DATE OCTOBER 20, 2011

ALFRED BENESCH & COMPANY

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Chicago, Illinois 60601
312-565-0450 Job No. 10092

FILE NAME = IL25_WALLS_001_GP.dgn	USER NAME = akeaschall	DESIGNED - MFH	REVISED -	CITY OF ST. CHARLES	PLAN AND ELEVATION RETAINING WALLS ALONG IL 25
		CHECKED - AJK	REVISED -		
	PLOT SCALE =	DRAWN - MFH	REVISED -		SHEET NO. SR1 OF SR13 SHEETS
	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	299
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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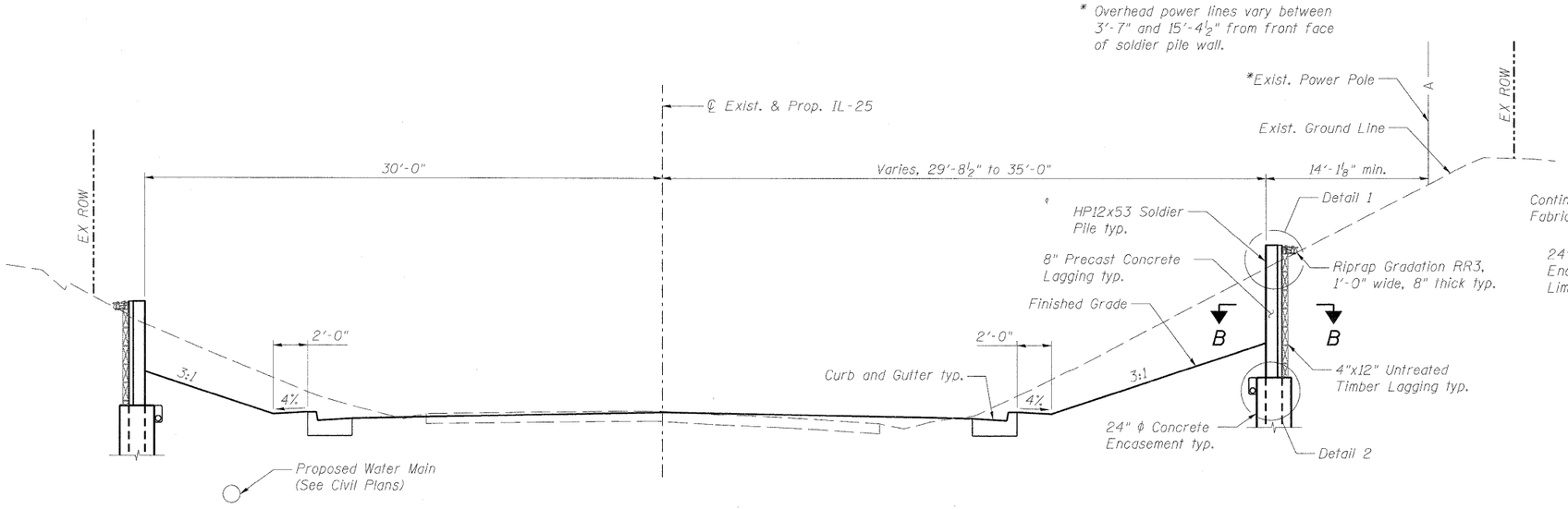
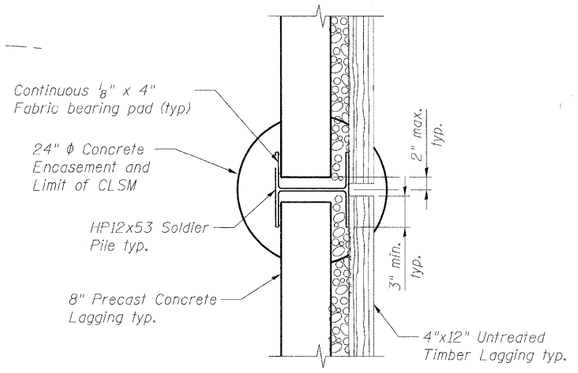


SECTION A-A



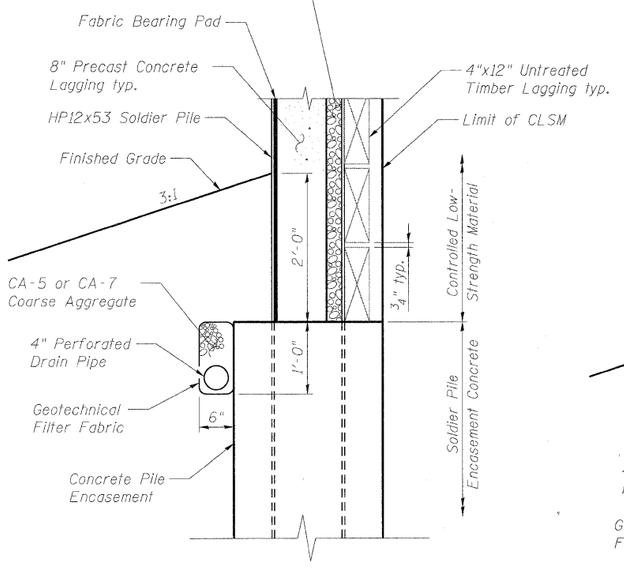
SECTION B-B

WEST WALL BILL OF MATERIAL

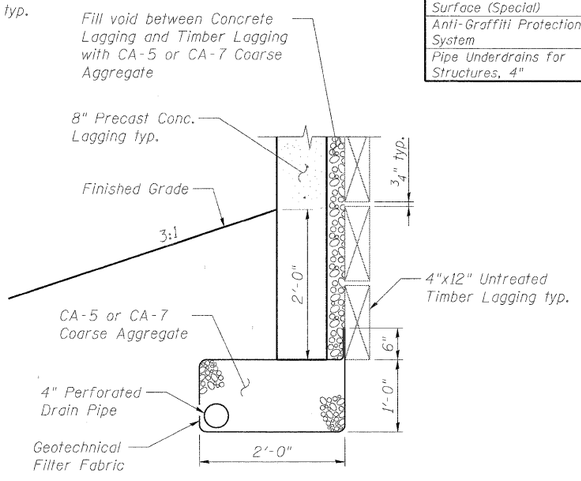
Untreated Timber Lagging	Sq. Ft.	1,713
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	1,825
Furnishing Soldier Piles (HP Section)	Foot	619
Precast Concrete Lagging	Sq. Ft.	1,713
Form Liner Textured Surface (Special)	Sq. Ft.	1,713
Anti-Graffiti Protection System	Sq. Ft.	1,713
Pipe Underdrains for Structures, 4"	Foot	306

EAST WALL BILL OF MATERIAL

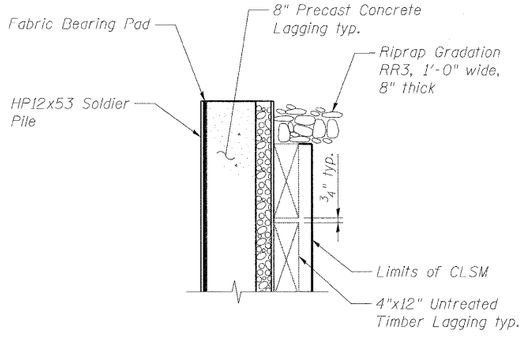
Untreated Timber Lagging	Sq. Ft.	4,203
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	4,644
Furnishing Soldier Piles (HP Section)	Foot	1,552
Precast Concrete Lagging	Sq. Ft.	4,203
Form Liner Textured Surface (Special)	Sq. Ft.	4,203
Anti-Graffiti Protection System	Sq. Ft.	4,203
Pipe Underdrains for Structures, 4"	Foot	601



DETAIL 2
(At soldier piles)



DETAIL 2
(Between soldier piles)



DETAIL 1

NOTES:

1. For the stations, elevations, and offsets of individual soldier piles, see Sheet SR3.
2. Underdrain shall be provided with T-joints and runs of 4" unperforated pipe at a 2.0% minimum slope to the following drainage structures:

   West Soldier Pile Wall:
   A-2

   East Soldier Pile Wall:
   A-3
   A-16
3. See Civil Plans for locations and details of drainage structures.
4. Cost of 4" Perforated or Unperforated Drain Pipe, Geotechnical Filter Fabric, CA-5 or CA-7 Coarse Aggregate, and any additional excavation required to install underdrains shall be included in the cost of Pipe Underdrains for Structures, 4".
5. Precast concrete lagging shall be furnished with a textured form liner in accordance with the Special Provisions.
6. Precast concrete lagging shall be designed by the Contractor. Thickness shown in these plans is structural only and does not include thickness required for the form liner pattern.
7. The contractor is responsible for the design and performance of the concrete and timber lagging.
8. Grading shall transition from 3:1 along walls to 2:1 at each end. Transition shall occur within the last 20'-0" of the wall limits.

benesch
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312-565-0450 Job No. 10092

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		CHECKED - AJK	REVISED -
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	PLOT DATE = 11/9/2011	CHECKED - HMA	REVISED -

CITY OF ST. CHARLES

CROSS SECTION AND DETAILS
RETAINING WALLS ALONG IL 25
SHEET NO. SR2 OF SR13 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	04-00092-00-BR	KANE	440	300
		CONTRACT NO. 63650		
	ILLINOIS FED. AID PROJECT			

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