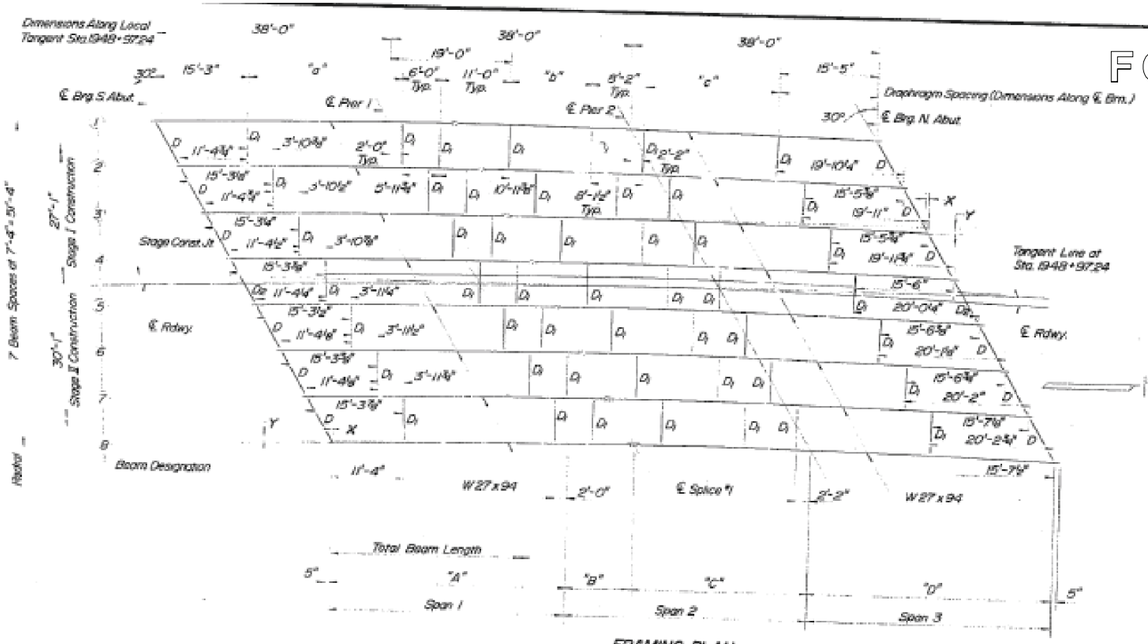
FOR INFORMATION ONLY

FA. 742	37	OGLE	40	22

SHEET 8
16 SHEETS

37 BR - 3

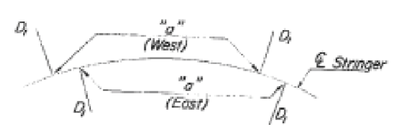


FRAMING PLAN

Note: Notch Toughness Requirements are required for beams 1 thru 8 and all flange and web field splice plates.

TABLE
DIAPHRAGM SPACING

Beam	"a" (East)	"a" (West)	"b" (East)	"b" (West)	"c" (East)	"c" (West)
1	23'-11⅞"	———	12'-9"	———	20'-8⅞"	———
2	24'-0¼"	23'-10⅝"	12'-9⅜"	12'-7⅛"	20'-9⅛"	20'-8⅝"
3	24'-0⅜"	23'-11¼"	12'-10⅝"	12'-7⅝"	20'-9⅜"	20'-8⅝"
4	24'-1¼"	24'-0⅛"	12'-11¼"	12'-9⅝"	20'-10⅜"	20'-8⅝"
5	24'-1⅞"	24'-1⅛"	12'-11⅞"	12'-9¼"	20'-11"	20'-9⅛"
6	24'-2⅝"	24'-1⅞"	13'-0⅜"	12'-9⅜"	20'-11⅞"	20'-9⅛"
7	24'-3¼"	24'-2½"	13'-1⅜"	12'-11"	21'-0"	20'-9⅛"
8	———	24'-3⅜"	———	12'-11⅜"	———	20'-9¼"



LEGEND
Diaphragm Spacing Table

NOTES

All dimensions are along ℄ beam except as noted.

Dimensions X and Y are given from the respective Local Tangent of each beam at Sta. 1948+97.24.

Beams shall be fabricated to their respective radii.

All dimensions are along the curve except as noted.

Work this sheet with sheet nos. 9 & 10.

All diaphragms between Beams 4 & 5 shall be installed during Stage II Construction.

All stringers (W 27 x 94) and splice plates shall be A.A.S.H.T.O. M 223 Grade 50.

All diaphragms, connection angles, plates and bearing plates - A.A.S.H.T.O. M 183.

BEAM DIMENSIONS

Beam	Radius	"A"	"B"	"C"	"D"	TOTAL BEAM LENGTH
1	1458.07'	37'-2⅝"	10'-6"	27'-3"	38'-3⅛"	113'-3⅛"
2	1450.73'	37'-3⅛"	10'-6"	27'-3¾"	38'-4⅝"	113'-5⅝"
3	1443.40'	37'-4"	10'-6"	27'-4⅝"	38'-5⅝"	113'-6"
4	1436.07'	37'-4⅝"	10'-6"	27'-5¼"	38'-6⅜"	113'-10¼"
5	1428.73'	37'-5⅜"	10'-6"	27'-5⅞"	38'-7⅛"	114'-0⅛"
6	1421.40'	37'-6"	10'-6"	27'-6¾"	38'-7⅞"	114'-0⅝"
7	1414.07'	37'-6⅝"	10'-6"	27'-7⅝"	38'-8⅝"	114'-3"
8	1406.73'	37'-7⅜"	10'-6"	27'-8⅜"	38'-10"	114'-7⅜"

LAYOUT DIMENSIONS

Beam	℄ Brg. S. Abut. "X"	℄ Brg. S. Abut. "Y"	℄ Pier 1 "X"	℄ Pier 1 "Y"	℄ Splice 1 "X"	℄ Splice 1 "Y"	℄ Pier 2 "X"	℄ Pier 2 "Y"	℄ Brg. N. Abut. "X"	℄ Brg. N. Abut. "Y"
1	1'-0⅜"	1'-10"	0'-3⅛"	0'-5⅜"	0'-1⅝"	0'-2⅝"	0'-0"	0'-0"	0'-3⅞"	0'-6⅝"
2	0'-11⅝"	1'-9⅞"	0'-2⅝"	0'-4⅝"	0'-1⅛"	0'-1⅝"	0'-0⅛"	0'-0⅝"	0'-4⅜"	0'-8⅛"
3	0'-10⅞"	1'-9⅝"	0'-1⅝"	0'-3⅝"	0'-0⅝"	0'-⅛"	0'-0⅛"	0'-0⅝"	0'-5⅛"	0'-9⅝"
4	0'-9⅞"	1'-9⅝"	0'-1⅝"	0'-2⅝"	0'-0⅛"	0'-0⅜"	0'-0⅛"	0'-0⅝"	0'-5¾"	0'-10⅝"
℄	0'-8½"	1'-9⅜"	0'-1⅛"	0'-1⅝"	0'-0⅛"	0'-0⅜"	0'-0⅛"	0'-0⅝"	0'-6¾"	0'-11⅝"
5	0'-7⅛"	1'-9⅛"	0'-0⅝"	0'-1⅛"	0'-0⅛"	0'-0⅛"	0'-0⅛"	0'-⅛"	0'-7⅝"	1'-0⅝"
6	0'-6⅛"	0'-11⅞"	0'-0⅛"	0'-⅝"	0'-0⅛"	0'-0⅛"	0'-0⅛"	0'-⅛"	0'-8"	1'-1⅝"
7	0'-5⅛"	0'-9⅝"	0'-0⅛"	0'-0⅛"	0'-0"	0'-0"	0'-⅛"	0'-⅛"	0'-9⅛"	1'-2⅝"
8	0'-4⅝"	0'-8⅝"	0'-0⅛"	0'-0⅛"	0'-0"	0'-0⅛"	0'-0⅛"	0'-⅛"	0'-10¼"	1'-3⅝"

SPAN LENGTH TABLE

Beam	Span 1	Span 2	Span 3
1	37'-2⅝"	37'-3⅛"	38'-3⅛"
2	37'-3⅛"	37'-3¾"	38'-4⅝"
3	37'-4"	37'-4⅝"	38'-5⅝"
4	37'-4⅝"	37'-5¼"	38'-6⅜"
5	37'-5⅜"	37'-5⅞"	38'-7⅛"
6	37'-6"	37'-6¾"	38'-7⅞"
7	37'-6⅝"	37'-7⅝"	38'-8⅝"
8	37'-7⅜"	37'-8⅜"	38'-10"

INTERIOR BEAM MOMENT TABLE

	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.4 Span 3
I_S (in^4)	3270	3270	3270	3270	3270
S_S (in^3)	243	243	243	243	243
S_{bl} (in.)	12.4	12.4	12.4	12.4	12.4
℄ (k/')	1.099	1.099	1.099	1.099	1.099
$M_{℄}$ ('k)	124.01	195.02	40.33	164.42	132.60
M_{L} ('k)	213.6	158.8	173.6	162.5	223.9
M_{IMP} ('k)	64.1	47.7	52.7	48.8	67.2
$5/3\,(M_L + I)$ ('k)	462.8	344.2	380.5	352.2	485.2
Ma ('k)	762.9	649.0	547.1	671.6	603.0
M_{bl} ('k)	6.4	1.2	2.0	3.8	8.9
f_S ℄ (ksi)	6.1	7.6	2.0	8.1	6.5
f_W (ksi)	6.19	1.16	1.94	3.68	8.61
$(f_S + f_W$ overload) (ksi)	33.7	25.5	22.3	28.3	37.1
f_S (total) (ksi)	37.67	32.05	27.02	33.17	39.66
f_S (total) + f_W	43.9	33.2	29.0	36.8	48.3
Fb (ksi)	50	47.5	50	47.5	50

INTERIOR BEAM REACTION TABLE

	Abutments	Piers
R℄ (k)	17.1	48.7
R_L (k)	34.2	39.9
Impact (k)	10.3	12.0
Total (k)	61.6	100.6

MOMENT TABLE LEGEND

I_S and S_S are the moment of inertia and section modulus of the section used in computing fs (Total and Overload).

$M_{℄}$ - Moment due to dead loads on section.

M_L - Moment due to live loads on section.

M_{IMP} - Moment due to impact loads on section.

IMP - Live load impact (I).

Ma (Applied Moment) - $1.3\,(M_{℄} + M_S\,℄ + \frac{5}{3}(M_L + I))$.

fs (Total) - Sum of stresses due to $1.3(M_{℄} + M_S\,℄ + \frac{5}{3}(M_L + I))$.

fs (Overload) - Sum of stresses due to $(M_{℄} + M_S\,℄ + \frac{5}{3}(M_L + I))$.

Fb - Maximum allowable stress F_{bu} or F_{by} computed according to A.A.S.H.T.O. [Guide Specifications for Horizontally Curved Highway Bridges Section 2.12 (B) and 2.16.]

$(f_S + f_W)$ (Overload) is the sum of the stress due to $M_{℄} + M_S\,℄ + 5/3\,(M_L + I) + M_{bl}/1.3$

S_{bl} is the section modulus for one flange plate for lateral flange bending.

M_{bl} is the lateral bending moment for flange plate (factored).

f_W is the calculated normal stress at the edge of flange due to lateral bending (factored).

TOP OF BEAM ELEVATIONS *

Loc. / Brm.	℄ Brg. S. Abut.	℄ Pier 1	℄ Splice 1	℄ Pier 2	℄ Brg. N. Abut.
1	686.89	686.89	686.89	686.89	686.89
2	686.45	686.45	686.45	686.45	686.45
3	686.01	686.01	686.01	686.01	686.01
4	685.57	685.57	685.57	685.57	685.57
5	685.13	685.13	685.13	685.13	685.13
6	684.69	684.69	684.69	684.69	684.69
7	684.25	684.25	684.25	684.25	684.25
8	683.81	683.81	683.81	683.81	683.81

* For fabrication only

STRUCTURAL STEEL
IL. ROUTE 2 OVER MUD CREEK
F.A. ROUTE 742
SECTION 37 BR-3
S.N. 071-0025
OGLE COUNTY

(FRAMING PLAN & DETAILS)

ALLEN HENDERSON & ASSOCIATES CONSULTING CIVIL AND STRUCTURAL ENGINEERS SPRINGFIELD, IL.

DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	EXISTING BRIDGE PLANS SN: 071–0025
DRAWN -	REVISED -		
CHECKED -	REVISED -		
DATE -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
IL 2	D2 BRIDGE PAINTING 2014-1	LEE / OGLE	25	23
		CONTRACT NO. 64J52		
	ILLINOIS			