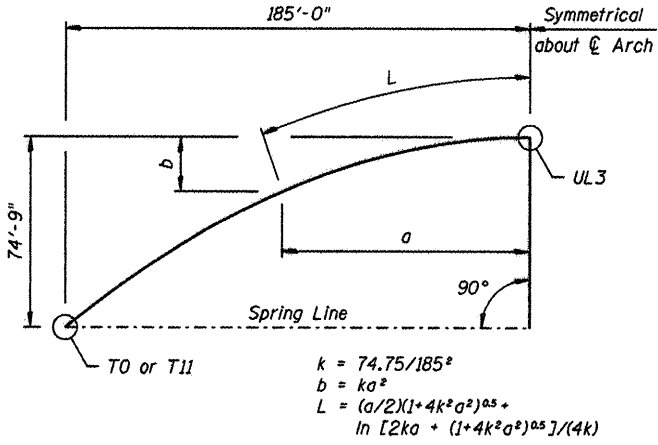


PLAN - ARCH RIB AND UPPER LATERALS

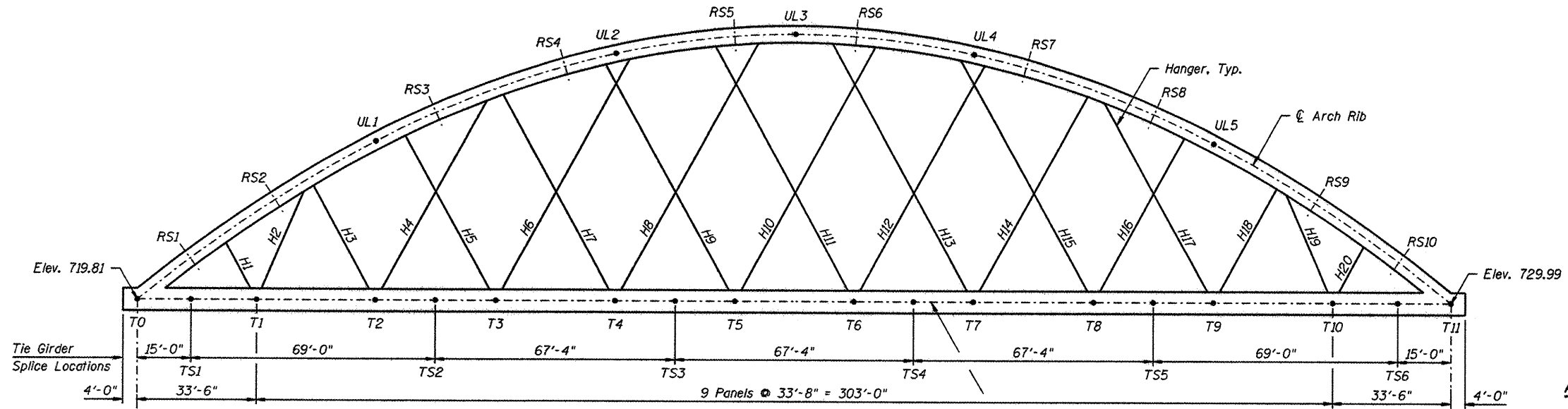


ARCH RIB GEOMETRY

$$k = 74.75/185^2$$

$$b = ka^2$$

$$L = (a/2)(1+4k^2a^2)^{0.5} + \ln [2ka + (1+4k^2a^2)^{0.5}]/(4k)$$



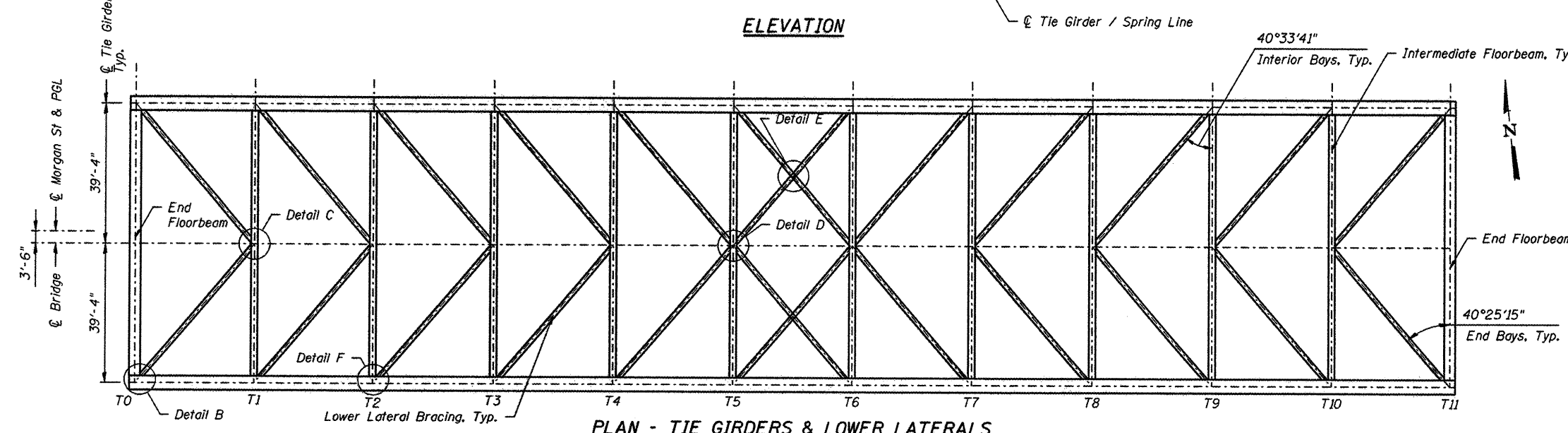
ELEVATION

Working Point	X (Feet)	Y (Feet)
UL1	67.167	44.425
UL2	134.500	69.180
UL3	185.000	74.750
UL4	235.500	69.180
UL5	302.833	44.425
T0	0.000	0.000
T1	33.500	0.000
T2	67.167	0.000
T3	100.833	0.000
T4	134.500	0.000
T5	168.167	0.000
T6	201.833	0.000
T7	235.500	0.000
T8	269.167	0.000
T9	302.833	0.000
T10	336.500	0.000
T11	370.000	0.000

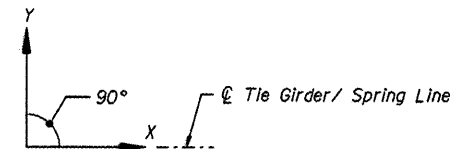
ARCH WORKING POINTS

Splice Point	X (Feet)	Y (Feet)
TS1	15.000	0.000
TS2	84.000	0.000
TS3	151.333	0.000
TS4	218.667	0.000
TS5	286.000	0.000
TS6	355.000	0.000
RS1	14.726	11.427
RS2	38.588	27.931
RS3	83.955	52.450
RS4	120.011	65.525
RS5	167.771	74.102
RS6	202.229	74.102
RS7	249.989	65.525
RS8	286.045	52.450
RS9	331.412	27.931
RS10	355.274	11.427

SPLICE POINTS



PLAN - TIE GIRDERS & LOWER LATERALS



LOCAL COORDINATE SYSTEM

Notes:
 The C Tie Girder is parallel to profile grade.
 All dimensions are along or perpendicular to spring line.
 Working points use local coordinate system.
 See sheet 27 of 79 for Hanger geometry.
 See sheet 62 of 79 for connection Details B through F.
 See sheet 40 of 79 for connection Detail A.

LA:\RCD\9901\8252822\0-ar\CAD\Sheets\27_Tied Arch Geometry.dwg

CMT CONSULTING ENGINEERS
 License No. 04-00063

HNTB

DESIGNED - PA, JDJ, BPD, CJW
 DRAWN - GLD
 CHECKED - RLK
 DATE - 02/04/2011

**CITY OF ROCKFORD
 MORGAN STREET BRIDGE**

**TIED ARCH GEOMETRY
 STRUCTURE NO. 101-6108**

SCALE: SHEET NO. 26 OF 79 SHEETS STA. 47+00.74 TO STA. 52+63.50

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
5077	99-00493-00-BR	WINNEBAGO	253	152

CONTRACT NO. 85529
 FED. ROAD DIST. NO. 2 (ILLINOIS) FED. AID PROJECT BRM-509965