14.1 PURPOSE

This set of drawings is to provide three-dimensional points on the bridge deck through the use of horizontal and vertical control lines, offsets, coordinates. A starting point for a new project is the CDOT Bridge Worksheet B-100-3 which contains the required general notes at the bottom of the sheet. If using CDOT Bridge Geometry software, please refer to the CDOT Bridge Geometry Manual.

14.2 RESPONSIBILITY

This set of drawings shall be prepared and checked in the Design Unit. The graphic presentation of information shall be the responsibility of the individual preparing the drawings. The accuracy of the information shown shall be the responsibility of the individual preparing the Bridge Geometry (or any other software) input for the computer.

14.3 TEXT / LETTERING

The information described in 14.4 through 14.13 shall be placed on the drawing to be legible. If Bridge Geometry software is used, this information can be extracted from the pcf (project coordinate file) file. Monospaced 821 BT font should be used to align the tables, text height should be .07” and width should be .056”. Width may be adjusted to fit available space.

14.4 PROJECT INFORMATION

The drawing shall contain project coordinates, bearings, units (English or metric) as well as the run, date and time and the software used.

Project coordinates are a coordinate system closely related to the State Plane coordinate system.

```
STRUCTURE ID:  E-16-EV                    BRIDGE GEOMETRY (WIN2.1.0e)                13/06/01 13:20

State of Colorado                                   DESCRIPTION
Department of Transportation
Staff Bridge Design                                 Units: feet;
Bridge Geometry Project Coordinate Converter        Project: FBR 0142-055; Subaccount: 18085;
Version 1.00                                        Designer: H. Bui; Detailer: L. Waldron;
                                                    Location: SH 14 over Cache-LaPoudre River;
Run date & time = Sat Jun 01 13:21:38 2013
                                                    SH 14  Poudre Bridge in Ft. Collins
Input Northing Offset =  142618.800000              Replaces B-16-D at M.P. 135.88 on SH 14
Input Easting Offset =  169548.500000               This is a straight bridge
Input Bearing =  S 89 55 41.0500 E
```

Fig. 14.4.1 Project Information - Example

14.5 HORIZONTAL ALIGNMENT DATA

The drawing shall contain curve and tangent information in the format shown in Fig. 14.5.1. The information shall include the offset from horizontal control line (HCL) to profile control line (PCL) and from PCL to pivot line. In most cases, all three lines are the same (no offset).

HORIZONTAL ALIGNMENT DATA

TS	170+24.0900	T	620.2948						
SC	172+28.0900	Ls	204.0000	SA	6 05 15.64				
PI	176+44.3848	Lc	745.0449	DELTA	56 38 31.00 RT	Dc	5 58 05.92	RADIUS	960.000000
CS	179+73.1349	Ls	204.0000	SA	6 05 15.64				
ST	181+77.1349	T	620.2948						

Fig. 14.5.1 Horizontal Alignment Data - Example

14.6 VERTICAL ALIGNMENT DATA

The drawing shall contain elevation at grades and points of interest (PCs, PTs, PIs), stationing of PCs. PTs, PIs and percent grades in the format shown in Fig. 14.6.1.

VERTICAL ALIGNMENT DATA

ELEVATION AT PI	ELEVATION AT GRADE		STATION		ELEVATION AT GRADE	ELEVATION AT PI	PERCENT GRADE
							-1.033333
			170+10.0000	PC	7347.3800		
			171+60.0000	PI	7345.7187	7345.8300	
			173+10.0000	PT	7343.8350		
							-1.330000
	7333.9930	PC	180+50.0000				
7332.6630	7332.9933	PI	181+50.0000				
	7332.6544	PT	182+50.0000				
							-0.008644

Fig. 14.6.1 Vertical Alignment Data - Example

14.7 CROSS SLOPES AND TRANSITIONS

The drawing shall contain cross slopes and transitions in the format shown in Fig. 14.7.1.

TABLE OF ROADWAY CROSS-SLOPES (SUPERELEVATION: E=0.0800)

STATION	SLOPE LEFT	SLOPE RIGHT	VC LENGTH
(ON TANGENT)	0.0200	-0.0200	140.00 (MAX)
162+75.0000	-0.1077	0.1077	140.00 -U-
166+75.0000	-0.1077	0.1077	140.00 -U-
170+75.0900	0.0200	-0.0200	140.00
172+28.0900	0.0800	-0.0800	140.00 -U-
179+73.1300	0.0800	-0.0800	140.00 -U-
181+26.1349	0.0200	-0.0200	140.00

Fig. 14.7.1 Cross Slopes Data – Example

14.8 LAYOUT LINE DATA

The layout line data shall be shown on the drawing in the format shown in Fig. 14.8.1.

LAYOUT LINE DATA

LAYOUT LINE DEFINED TO BE COINCIDENT WITH HORIZONTAL CONTROL

	HCL STA	OFFSET	X	Y
LAYOUT LINE INTERSECTS REF LINE AT	103+50.0000	0.00000000	0.0000	0.0000

Fig. 14.8.1 Layout Line Data - Example

The Layout line is a straight line that is the ordinate for the location of points on the structure. It should be located such that it lies as much as practical within the bounds of the structure. For structures on or mostly on a tangent, the tangent will suffice for the Layout line. For structures located mostly on a curve, a chord or tangent will probably be required for the layout line. Some possible chord lines are shown in Fig. 14.8.2.

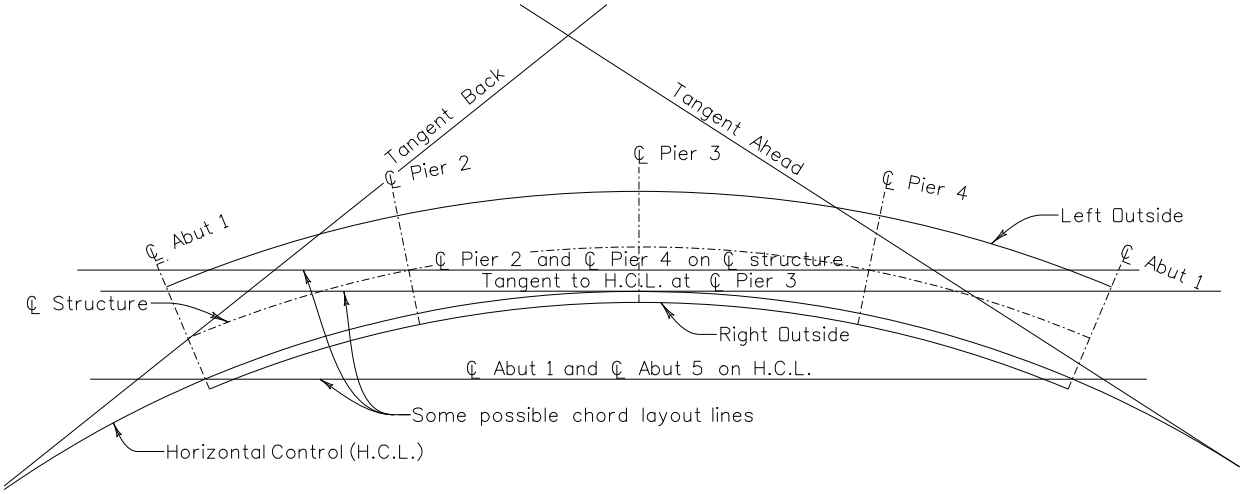


Fig. 14.8.2 Chord Layout Lines - Examples

14.9 DEAD LOAD DEFLECTION DATA

The dead load deflection data shall be shown on the drawing in the format shown in Fig. 14.9.1.

The number of deflection points is typically given at tenth points, with the intent of having elevation data at approximately every 15 feet. Twentieth points may be required for longer spans, i.e. > 150'.

```
DEAD LOAD DEFLECTION DATA
                                DEFLECTIONS AT TENTH POINTS FROM FITTED CURVE

          0.0      0.1      0.2      0.3      0.4      0.5      0.6      0.7      0.8      0.9      1.0


     FOR BENT LINE:  CL A1                    07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                          A4= 0.00000
 INCH   0.0000   0.1458   0.2801   0.3873   0.4560   0.4797   0.4560   0.3873   0.2801   0.1458   0.0000   INCH      A3= 0.00000
 FOOT   0.0000   0.0121   0.0233   0.0323   0.0380   0.0400   0.0380   0.0323   0.0233   0.0121   0.0000   FOOT      A2= 1.87004
                                                                                                          A1=-1.87004
 SLOPE  0.120945                                                                          -0.120945 SLOPE     A0=-1.45134
```

Fig. 14.9.1 Dead Load Deflection Data – Example

14.10 BENT LINES (TRANSVERSE LINES)

Bent lines are transverse lines which run generally across the structure.

Some examples:

A) Reference line
The Reference line is a transverse line from which all other transverse lines, with the exception of the roadway approaches, are measured. The point where the Layout line crosses the Reference line is the 0,0 point for the Bridge Geometry software. A preference would be the centerline of bearing of Abutment 1 or other recognizable location.

B) Centerline of bearing
C) Centerline of piling
D) Centerline of pier
E) Back face of abutment
F) End of wingwall
G) Centerline of splice
H) Fractional points - The number of fractional points is typically given at tenth points, with the intent of having elevation data at approximately every 15 feet. Twentieth points may be required for longer spans, i.e. > 150'

A summary of all bent lines shall be shown on the drawing in the format shown in Fig. 14.12.1. Information shall include (see also the Bridge Geometry Manual):

- a station at the HCL,
- offset,
- elevation,
- project coordinates X and Y,
- Northing and Easting,
- bent length,
- skew,
- girder length and
- cross-slope information (data).

14.11 LONGITUDINAL LINES (GIRDER LINES)

Girder lines are longitudinal lines which run lengthwise to the structure and are generally parallel to the HCL.

Some examples:

A) Horizontal Control Lines
B) Girder Lines
C) Wing wall faces
D) Edges of the deck
E) Curb and gutter lines
F) Centerline of structure

Each longitudinal line will display bent line and fraction point information as described in 14.10.

Dead load deflections will be provided for the girder longitudinal lines.

14.12 DISPLAY OF BENT LINES AND LONGITUDINAL LINES

If unusual longitudinal lines are used, a section view may be added to the drawing to clarify.

BENT LINE DESCRIPTION	INTERSECTION POINT STATION	OFFSET	OFFSET ELEVATION	ORDINATE	FROM LAYOUT LINE NORTHING X	EASTING Y	PROJECT COORDINATES	BENT LINE LENGTH FROM Y-AXIS	SKEW D M S	LENGTH FROM REF LINE	GIRDER LINE CROSS-SLOPE	ROADWAY
* HORIZONTAL CONTROL LINE *			AT FINISHED GRADE									
REF LINE	103+50.0000	0.0000	5738.9402		0.0000	0.0000	702436.8397	77838.5214	0.0000	0 00 00.00	0.0000	
BF ABUT 1	103+79.7100	0.0000	5738.2255		0.0000	29.7100	702412.7856	77855.9595	0.0000	0 00 00.00	29.7100	
BRG ABUT 1	103+81.4600	0.0000	5738.1735	10	0.0000	31.4600	702411.3688	77856.9866	0.0000	0 00 00.00	31.4600	
FF ABUT 1	103+83.2100	0.0000	5738.1203		0.0000	33.2100	702409.9519	77858.0138	0.0000	0 00 00.00	33.2100	
BK BRG	104+49.2100	0.0000	5735.3091	1	0.0000	99.2100	702356.5165	77896.7520	0.0000	0 00 00.00	99.2100	
PIER 2	104+50.2100	0.0000	5735.2544		0.0000	100.2100	702355.7068	77897.3389	0.0000	0 00 00.00	100.2100	
AH BRG	104+51.2100	0.0000	5735.1993	10	0.0000	101.2100	702354.8972	77897.9259	0.0000	0 00 00.00	101.2100	
FF ABUT 3	105+17.2100	0.0000	5730.7679		0.0000	167.2100	702301.4617	77936.6641	0.0000	0 00 00.00	167.2100	
BRG ABUT 3	105+18.9600	0.0000	5730.6290	1	0.0000	168.9600	702300.0449	77937.6912	0.0000	0 00 00.00	168.9600	
BF ABUT 3	105+20.7100	0.0000	5730.4890	0.0	0.0000	170.7100	702298.6280	77938.7184	0.0000	0 00 00.00	170.7100	

Fig. 14.12.1 Summary of Bent Lines at Horizontal Control Line (Longitudinal Line) – Example 1

CL GIR4 PARALLEL TO HORIZONTAL CONTROL 0.250000 FEET BELOW FINISHED GRADE

BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
END WWAB	1770+98,2517	3,5830	3407,5017		3,5830	-24,5833	534621,5046	3646433,9231	3,5830	0 00 00,00	-24,5833	-0,020000
END APP1	1771+01,5850	3,5830	3407,5184		3,5830	-21,2500	534624,8348	3646433,7803	3,5830	0 00 00,00	-21,2500	-0,020000
BF ABUT1	1771+21,3350	3,5830	3407,6171		3,5830	-1,5000	534644,5667	3646432,9340	3,5830	0 00 00,00	-1,5000	-0,020000
CL ABUT1	1771+22,8350	3,5830	3407,6246	407,6246	3,5830	0,0000	534646,0653	3646432,8697	3,5830	0 00 00,00	0,0000	-0,020000
F-1	1771+39,5350	3.5830	3407.7081	407.8017	3.5830	16.7000	534662.7500	3646432.1541			16.7000	-0.020000

Fig. 14.12.2 Bent Lines at CL GIR4 (Longitudinal Line) – Example 2

X-points are special bent lines representing varying distances (shown as bent lengths) from straight girder lines to the curved edge of deck. A note should also be added to the drawing to clarify X points.

RIGHT OUT			PARALLEL TO HORIZONTAL CONTROL						AT FINISHED GRADE			
BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
X-0	9+49.5445	25.0000	4997.9954		24.9185	2.0653	82614.2869	504607.6037	4.3342		-0.4327	-0.060000
CL ABUT 1	9+50.0000	25.0000	4998.0000		24.8751	2.4958	82613.9693	504607.3098	25.0000	0 00 00.00	0.0000	-0.060000
X-1	9+59.6603	25.0000	4998.0966		24.0472	11.6356	82607.2974	504601.0085	3.4628		9.1773	-0.060000
X-2	9+69.7596	25.0000	4998.1976		23.3706	21.2059	82600.4539	504594.2843	2.7862		18.7717	-0.060000
X-3	9+79.8466	25.0000	4998.2985		22.8879	30.7762	82593.7557	504587.4318	2.3035		28.3543	-0.060000
X-4	9+89.9253	25.0000	4998.3993		22.5985	40.3464	82587.2024	504580.4513	2.0142		37.9291	-0.060000
X-5	10+00.0000	25.0000	4998.5000		22.5021	49.9167	82580.7936	504573.3430	1.9177		47.5000	-0.060000
X-6	10+10.0747	25.0000	4998.6033		22.5985	59.4870	82574.5294	504566.1070	2.0142		57.0709	-0.059896
X-7	10+20.1534	25.0000	4998.7269		22.8879	69.0573	82568.4098	504558.7433	2.3035		66.6457	-0.058985
X-8	10+30.2404	25.0000	4998.8740		23.3706	78.6275	82562.4351	504551.2516	2.7862		76.2283	-0.057135
X-9	10+40.3397	25.0000	4999.0449		24.0472	88.1978	82556.6057	504543.6315	3.4628		85.8227	-0.054341
CL ABUT 2	10+50.0000	25.0000	4999.2303		24.8751	97.3376	82551.1747	504536.2338	25.0000	0 00 00.00	95.0000	-0.050788
X-10	10+50.4555	25.0000	4999.2396		24.9185	97.7681	82550.9221	504535.8825	4.3342		95.4327	-0.050599

Fig. 14.12.3 Varying Bent Lengths (X-points) – Example 3

14.13 ROADWAY APPROACHES DATA

Roadway approach information is intended to afford a reference for correcting mis-alignments between roadway and bridge elevations and alignment. They may also be used to set the elevations for the approach slabs.

Roadway approach information shall be shown in the drawing in the format shown in Figure 14.13.1. For each approach (left/ right), the information shall include:

- Station
- Offset
- Elevation
- Cross-slope

A sketch of approach information shall be provided, similar to CDOT Bridge Worksheet B-100-2. The sheet shall be revised to indicate finished grade for roadway approach data.

* ROADWAY APPROACHES *

STATION	OFFSET	ELEVATION	CROSS-SLOPE
1770+50	-18.0000	3407.2221	-0.020000
1770+60	-18.0000	3407.2721	-0.020000
1770+70	-18.0000	3407.3221	-0.020000
1770+80	-18.0000	3407.3721	-0.020000
1770+90	-18.0000	3407.4221	-0.020000
1771+00	-18.0000	3407.4721	-0.020000
1771+10	-18.0000	3407.5221	-0.020000
1771+20	-18.0000	3407.5721	-0.020000
1771+30	-18.0000	3407.6221	-0.020000

Fig. 14.13.1 Roadway Approaches Data – Example

14.14 EXAMPLES OF BRIDGE DECK ELEVATION SHEETS

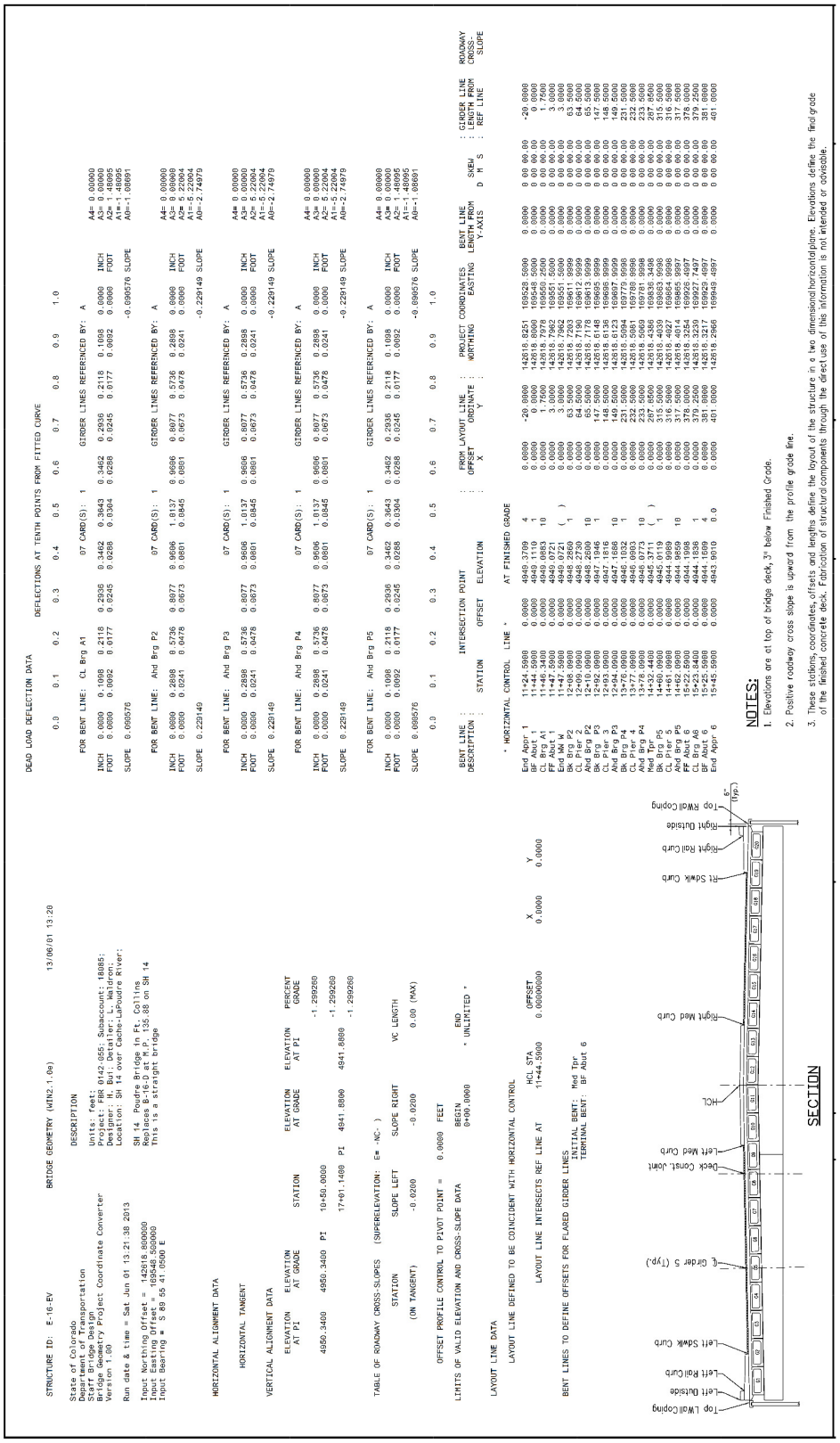


Fig. 14.14.1 Bridge Deck Elevation Sheet – Example 1

```
Version 1.00

Run date & time = Thu Sep 24 15:04:13 2015

Input Northing Offset =  48397.214400
Input Easting Offset =  76072.091700
Input Bearing =  S 5 6 20.0000 E

 STRUCTURE ID:  C-17-ft                BRIDGE GEOMETRY (WIN2.1.0e)                15/09/24 14:53                PAGE   1

 DESCRIPTION

                        Units: feet;
                        Project: FBR 060A-020: Subaccount: 21146;
                        Designer: S. HUSON; Detailer: H. NGUYEN;
                        Location: SH60;
                       OVER SOUTH PLATTE RIVER
                       7 SPAN  BT63 GIRDERS CONCRETE SLAB1

 HORIZONTAL ALIGNMENT DATA

      HORIZONTAL TANGENT

 VERTICAL ALIGNMENT DATA

         ELEVATION    ELEVATION                      ELEVATION   ELEVATION    PERCENT
           AT PI       AT GRADE        STATION         AT GRADE     AT PI      GRADE

                                                                                1.000000
                                     38+12.5100  PC   4721.5000
                                     40+12.5100  PI   4722.5000    4723.5000
                                     42+12.5100  PT   4721.5000
                                                                              -1.000000

 TABLE OF ROADWAY CROSS-SLOPES   (SUPERELEVATION:  E= -NC- )

                 STATION           SLOPE LEFT       SLOPE RIGHT        VC LENGTH

              (ON TANGENT)          -0.0200          -0.0200            75.00 (MAX)

      OFFSET PROFILE CONTROL TO PIVOT POINT =   0.0000  FEET

 LIMITS OF VALID ELEVATION AND CROSS-SLOPE DATA          BEGIN              END
                                                     * UNLIMITED *      * UNLIMITED *

 LAYOUT LINE DATA

      LAYOUT LINE DEFINED TO BE COINCIDENT WITH HORIZONTAL CONTROL

                                                          HCL STA        OFFSET           X          Y
                      LAYOUT LINE INTERSECTS REF LINE AT   36+18.7600    0.00000000       0.0000     0.0000

 DEAD LOAD DEFLECTION DATA
                                DEFLECTIONS AT TENTH POINTS FROM FITTED CURVE

        0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.7     0.8     0.9     1.0

    FOR BENT LINE:  CL A1                 07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                  A4= 0.00000
 INCH   0.0000   0.1458   0.2801   0.3873   0.4560   0.4797   0.4560   0.3873   0.2801   0.1458   0.0000   INCH      A3= 0.00000
 FOOT   0.0000   0.0121   0.0233   0.0323   0.0380   0.0400   0.0380   0.0323   0.0233   0.0121   0.0000   FOOT      A2= 1.87694
                                                                                                  A1=-1.87694
 SLOPE  0.120945                                                                         -0.120945 SLOPE     A0=-1.45134

    FOR BENT LINE:  CL P2                 07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                  A4=-150.909
 INCH   0.0000   0.7081   1.3452   1.9593   2.5050   2.7738   2.6472   2.1693   1.5116   0.8275   0.0000   INCH      A3= 317.174
 FOOT   0.0000   0.0658   0.1121   0.1633   0.2088   0.2312   0.2206   0.1808   0.1260   0.0690   0.0000   FOOT      A2=-211.726
                                                                                                  A1= 46.1848
 SLOPE  0.955936                                                                         -0.895606 SLOPE     A0=-11.4712

        0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.7     0.8     0.9     1.0

 DEAD LOAD DEFLECTION DATA (CONT)
                                DEFLECTIONS AT TENTH POINTS FROM FITTED CURVE

        0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.7     0.8     0.9     1.0

    FOR BENT LINE:  CL P3                 07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                  A4= 0.00000
 INCH   0.0000   0.8009   1.5493   2.1510   2.5389   2.6727   2.5389   2.1510   1.5493   0.8009   0.0000   INCH      A3= 0.00000
 FOOT   0.0000   0.0667   0.1291   0.1793   0.2116   0.2227   0.2116   0.1793   0.1291   0.0667   0.0000   FOOT      A2= 11.1955
                                                                                                  A1=-11.1955
 SLOPE  0.657653                                                                         -0.657653 SLOPE     A0=-7.89184

    FOR BENT LINE:  CL P4                 07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                  A4= 0.00000
 INCH   0.0000   0.8039   1.5538   2.1562   2.5444   2.6783   2.5444   2.1562   1.5538   0.8039   0.0000   INCH      A3= 0.00000
 FOOT   0.0000   0.0670   0.1295   0.1797   0.2120   0.2232   0.2120   0.1797   0.1295   0.0670   0.0000   FOOT      A2= 11.1317
                                                                                                  A1=-11.1317
 SLOPE  0.660848                                                                         -0.660848 SLOPE     A0=-7.93018

    FOR BENT LINE:  CL P5                 07 CARD(S):  1        GIRDER LINES REFERENCED BY:  A
                                                                                                  A4= 0.00000
 INCH   0.0000   0.8040   1.5544   2.1575   2.5461   2.6801   2.5461   2.1575   1.5544   0.8040   0.0000   INCH      A3= 0.00000
 FOOT   0.0000   0.0670   0.1295   0.1798   0.2122   0.2233   0.2122   0.1798   0.1295   0.0670   0.0000   FOOT      A2= 11.1718
                                                                                                  A1=-11.1718
 SLOPE  0.660628                                                                         -0.660628 SLOPE     A0=-7.92754

        0.0     0.1     0.2     0.3     0.4     0.5     0.6     0.7     0.8     0.9     1.0
```

Note: Elevations are at top of concrete deck 3 Inches below Finished Grade.

Positive Roadway Cross Slope is Upwards from the Profile Grade Line.

These Stations, Coordinates, Offsets and Lengths define the layout of the structure in a two dimensional horizontal plane. Elevations define the final grade of the finished concrete deck. Fabrication of structural components through the direct use of this information is not intended or advisable.

Fig. 14.14.2 Bridge Deck Elevation Sheet – Example 2

GIRDER A — PARALLEL TO HORIZONTAL CONTROL — 0.250000 FEET BELOW FINISHED GRADE

BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
BF ABUT 1	36+17.5100	-16.5000	4718.9700		-16.5000	-1.2500	48399.9278	76088.4150	-16.5000	0 00 00.00	-1.2500	-0.020000
CL A1	36+18.7600	-16.5000	4718.9825	718.9825	-16.5000	0.0000	48398.6827	76088.5262	-16.5000	0 00 00.00	0.0000	-0.020000
F-1	36+26.6350	-16.5000	4719.0612	719.0734	-16.5000	7.8750	48390.8390	76089.2270			7.8750	-0.020000
F-2	36+34.5100	-16.5000	4719.1400	719.1633	-16.5000	15.7500	48382.9952	76089.9278			15.7500	-0.020000
F-3	36+42.3850	-16.5000	4719.2188	719.2510	-16.5000	23.6250	48375.1515	76090.6286			23.6250	-0.020000
F-4	36+50.2600	-16.5000	4719.2975	719.3355	-16.5000	31.5000	48367.3077	76091.3294			31.5000	-0.020000
F-5	36+58.1350	-16.5000	4719.3763	719.4162	-16.5000	39.3750	48359.4640	76092.0303			39.3750	-0.020000
F-6	36+66.0100	-16.5000	4719.4550	719.4930	-16.5000	47.2500	48351.6202	76092.7311			47.2500	-0.020000
F-7	36+73.8850	-16.5000	4719.5337	719.5660	-16.5000	55.1250	48343.7765	76093.4319			55.1250	-0.020000
F-8	36+81.7600	-16.5000	4719.6125	719.6358	-16.5000	63.0000	48335.9327	76094.1327			63.0000	-0.020000
F-9	36+89.6350	-16.5000	4719.6912	719.7034	-16.5000	70.8750	48328.0890	76094.8335			70.8750	-0.020000
CL P2	36+97.5100	-16.5000	4719.7700	719.7700	-16.5000	78.7500	48320.2452	76095.5343	-16.5000	0 00 00.00	78.7500	-0.020000
F-1	37+09.5100	-16.5000	4719.8900	719.9550	-16.5000	90.7500	48308.2928	76096.6022			90.7500	-0.020000
F-2	37+21.5100	-16.5000	4720.0100	720.1221	-16.5000	102.7500	48296.3404	76097.6700			102.7500	-0.020000
F-3	37+33.5100	-16.5000	4720.1300	720.2933	-16.5000	114.7500	48284.3880	76098.7379			114.7500	-0.020000
F-4	37+45.5100	-16.5000	4720.2500	720.4588	-16.5000	126.7500	48272.4356	76099.8058			126.7500	-0.020000
F-5	37+57.5100	-16.5000	4720.3700	720.6012	-16.5000	138.7500	48260.4832	76100.8737			138.7500	-0.020000
F-6	37+69.5100	-16.5000	4720.4900	720.7106	-16.5000	150.7500	48248.5309	76101.9416			150.7500	-0.020000
F-7	37+81.5100	-16.5000	4720.6100	720.7908	-16.5000	162.7500	48236.5785	76103.0095			162.7500	-0.020000
F-8	37+93.5100	-16.5000	4720.7300	720.8560	-16.5000	174.7500	48224.6261	76104.0774			174.7500	-0.020000
F-9	38+05.5100	-16.5000	4720.8500	720.9190	-16.5000	186.7500	48212.6737	76105.1453			186.7500	-0.020000
CL P3	38+17.5100	-16.5000	4720.9694	720.9694	-16.5000	198.7500	48200.7213	76106.2132	-16.5000	0 00 00.00	198.7500	-0.020000
F-1	38+29.5100	-16.5000	4721.0828	721.1495	-16.5000	210.7500	48188.7689	76107.2811			210.7500	-0.020000
F-2	38+41.5100	-16.5000	4721.1890	721.3181	-16.5000	222.7500	48176.8165	76108.3490			222.7500	-0.020000
F-3	38+53.5100	-16.5000	4721.2880	721.4672	-16.5000	234.7500	48164.8641	76109.4168			234.7500	-0.020000
F-4	38+65.5100	-16.5000	4721.3798	721.5914	-16.5000	246.7500	48152.9117	76110.4847			246.7500	-0.020000
F-5	38+77.5100	-16.5000	4721.4644	721.6871	-16.5000	258.7500	48140.9594	76111.5526			258.7500	-0.020000
F-6	38+89.5100	-16.5000	4721.5418	721.7534	-16.5000	270.7500	48129.0070	76112.6205			270.7500	-0.020000
F-7	39+01.5100	-16.5000	4721.6120	721.7912	-16.5000	282.7500	48117.0546	76113.6884			282.7500	-0.020000
F-8	39+13.5100	-16.5000	4721.6750	721.8041	-16.5000	294.7500	48105.1022	76114.7563			294.7500	-0.020000
F-9	39+25.5100	-16.5000	4721.7308	721.7975	-16.5000	306.7500	48093.1498	76115.8242			306.7500	-0.020000
CL P4	39+37.5100	-16.5000	4721.7794	721.7794	-16.5000	318.7500	48081.1974	76116.8921	-16.5000	0 00 00.00	318.7500	-0.020000
F-1	39+49.5100	-16.5000	4721.8208	721.8878	-16.5000	330.7500	48069.2450	76117.9600			330.7500	-0.020000
F-2	39+61.5100	-16.5000	4721.8550	721.9845	-16.5000	342.7500	48057.2926	76119.0279			342.7500	-0.020000
F-3	39+73.5100	-16.5000	4721.8820	722.0617	-16.5000	354.7500	48045.3402	76120.0957			354.7500	-0.020000
F-4	39+85.5100	-16.5000	4721.9018	722.1138	-16.5000	366.7500	48033.3879	76121.1636			366.7500	-0.020000
F-5	39+97.5100	-16.5000	4721.9144	722.1376	-16.5000	378.7500	48021.4355	76122.2315			378.7500	-0.020000
F-6	40+09.5100	-16.5000	4721.9198	722.1318	-16.5000	390.7500	48009.4831	76123.2994			390.7500	-0.020000
F-7	40+21.5100	-16.5000	4721.9180	722.0977	-16.5000	402.7500	47997.5307	76124.3673			402.7500	-0.020000
F-8	40+33.5100	-16.5000	4721.9090	722.0385	-16.5000	414.7500	47985.5783	76125.4352			414.7500	-0.020000
F-9	40+45.5100	-16.5000	4721.8928	721.9598	-16.5000	426.7500	47973.6259	76126.5031			426.7500	-0.020000
CL P5	40+57.5100	-16.5000	4721.8694	721.8694	-16.5000	438.7500	47961.6735	76127.5710	-16.5000	0 00 00.00	438.7500	-0.020000
F-1	40+69.5100	-16.5000	4721.8388	721.9058	-16.5000	450.7500	47949.7211	76128.6389			450.7500	-0.020000
F-2	40+81.5100	-16.5000	4721.8010	721.9305	-16.5000	462.7500	47937.7687	76129.7068			462.7500	-0.020000
F-3	40+93.5100	-16.5000	4721.7560	721.9358	-16.5000	474.7500	47925.8163	76130.7747			474.7500	-0.020000
F-4	41+05.5100	-16.5000	4721.7038	721.9160	-16.5000	486.7500	47913.8640	76131.8425			486.7500	-0.020000
F-5	41+17.5100	-16.5000	4721.6444	721.8677	-16.5000	498.7500	47901.9116	76132.9104			498.7500	-0.020000
F-6	41+29.5100	-16.5000	4721.5778	721.7900	-16.5000	510.7500	47889.9592	76133.9783			510.7500	-0.020000
F-7	41+41.5100	-16.5000	4721.5040	721.6838	-16.5000	522.7500	47878.0068	76135.0462			522.7500	-0.020000
F-8	41+53.5100	-16.5000	4721.4230	721.5525	-16.5000	534.7500	47866.0544	76136.1141			534.7500	-0.020000
F-9	41+65.5100	-16.5000	4721.3348	721.4018	-16.5000	546.7500	47854.1020	76137.1820			546.7500	-0.020000
CL P6	41+77.5100	-16.5000	4721.2394	721.2394	-16.5000	558.7500	47842.1496	76138.2499	-16.5000	0 00 00.00	558.7500	-0.020000
F-1	41+89.5100	-16.5000	4721.1368	721.0935	-16.5000	570.7500	47830.1972	76139.3178			570.7500	-0.020000
F-2	42+01.5100	-16.5000	4721.0270	721.1559	-16.5000	582.7500	47818.2448	76140.3857			582.7500	-0.020000
F-3	42+13.5100	-16.5000	4720.9100	721.8888	-16.5000	594.7500	47806.2925	76141.4536			594.7500	-0.020000
F-4	42+25.5100	-16.5000	4720.7900	721.8010	-16.5000	606.7500	47794.3401	76142.5214			606.7500	-0.020000
F-5	42+37.5100	-16.5000	4720.6700	720.8921	-16.5000	618.7500	47782.3877	76143.5893			618.7500	-0.020000
F-6	42+49.5100	-16.5000	4720.5500	720.7610	-16.5000	630.7500	47770.4353	76144.6572			630.7500	-0.020000
F-7	42+61.5100	-16.5000	4720.4300	720.6068	-16.5000	642.7500	47758.4829	76145.7251			642.7500	-0.020000
F-8	42+73.5100	-16.5000	4720.3100	720.4389	-16.5000	654.7500	47746.5305	76146.7930			654.7500	-0.020000
F-9	42+85.5100	-16.5000	4720.1900	720.2568	-16.5000	666.7500	47734.5781	76147.8609			666.7500	-0.020000
CL P7	42+97.5100	-16.5000	4720.0700	720.0709	-16.5000	678.7500	47722.6257	76148.9288	-16.5000	0 00 00.00	678.7500	-0.020000
F-1	43+08.3850	-16.5000	4719.9613	720.0075	-16.5000	689.6250	47711.7939	76149.8966			689.6250	-0.020000
F-2	43+19.2600	-16.5000	4719.8525	719.9395	-16.5000	700.5000	47700.9620	76150.8643			700.5000	-0.020000
F-3	43+30.1350	-16.5000	4719.7437	719.8636	-16.5000	711.3750	47690.1302	76151.8321			711.3750	-0.020000
F-4	43+41.0100	-16.5000	4719.6350	719.7770	-16.5000	722.2500	47679.2983	76152.7999			722.2500	-0.020000
F-5	43+51.8850	-16.5000	4719.5262	719.6772	-16.5000	733.1250	47668.4665	76153.7677			733.1250	-0.020000
F-6	43+62.7600	-16.5000	4719.4175	719.5625	-16.5000	744.0000	47657.6346	76154.7354			744.0000	-0.020000
F-7	43+73.6350	-16.5000	4719.3088	719.4326	-16.5000	754.8750	47646.8028	76155.7032			754.8750	-0.020000
F-8	43+84.5100	-16.5000	4719.2000	719.2893	-16.5000	765.7500	47635.9709	76156.6710			765.7500	-0.020000
F-9	43+95.3850	-16.5000	4719.0913	719.1368	-16.5000	776.6250	47625.1391	76157.6388			776.6250	-0.020000
CL A8	44+06.2600	-16.5000	4718.9825	718.9825	-16.5000	787.5000	47614.3072	76158.6065	-16.5000	0 00 00.00	787.5000	-0.020000
BF A8	44+07.5100	-16.5000	4718.9700		-16.5000	788.7500	47613.0622	76158.7178	-16.5000	0 00 00.00	788.7500	-0.020000

GIRDER B — PARALLEL TO HORIZONTAL CONTROL — 0.250000 FEET BELOW FINISHED GRADE

BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
BF ABUT 1	36+17.5100	-5.5000	4719.1900		-5.5000	-1.2500	48398.9489	76077.4586	-5.5000	0 00 00.00	-1.2500	-0.020000
CL A1	36+18.7600	-5.5000	4719.2025	719.2025	-5.5000	0.0000	48397.7038	76077.5699	-5.5000	0 00 00.00	0.0000	-0.020000
F-1	36+26.6350	-5.5000	4719.2813	719.2934	-5.5000	7.8750	48389.8601	76078.2787			7.8750	-0.020000
F-2	36+34.5100	-5.5000	4719.3600	719.3833	-5.5000	15.7500	48382.0163	76078.9715			15.7500	-0.020000
F-3	36+42.3850	-5.5000	4719.4388	719.4710	-5.5000	23.6250	48374.1726	76079.6723			23.6250	-0.020000
F-4	36+50.2600	-5.5000	4719.5175	719.5555	-5.5000	31.5000	48366.3288	76080.3731			31.5000	-0.020000
F-5	36+58.1350	-5.5000	4719.5962	719.6362	-5.5000	39.3750	48358.4851	76081.0739			39.3750	-0.020000
F-6	36+66.0100	-5.5000	4719.6750	719.7130	-5.5000	47.2500	48350.6413	76081.7747			47.2500	-0.020000
F-7	36+73.8850	-5.5000	4719.7537	719.7860	-5.5000	55.1250	48342.7976	76082.4755			55.1250	-0.020000
F-8	36+81.7600	-5.5000	4719.8325	719.8558	-5.5000	63.0000	48334.9538	76083.1763			63.0000	-0.020000
F-9	36+89.6350	-5.5000	4719.9113	719.9234	-5.5000	70.8750	48327.1101	76083.8771			70.8750	-0.020000
CL P2	36+97.5100	-5.5000	4719.9900	719.9900	-5.5000	78.7500	48319.2663	76084.5779	-5.5000	0 00 00.00	78.7500	-0.020000
F-1	37+09.5100	-5.5000	4720.1100	720.1759	-5.5000	90.7500	48307.3139	76085.6458			90.7500	-0.020000
F-2	37+21.5100	-5.5000	4720.2300	720.3421	-5.5000	102.7500	48295.3615	76086.7137			102.7500	-0.020000
F-3	37+33.5100	-5.5000	4720.3500	720.5133	-5.5000	114.7500	48283.4091	76087.7816			114.7500	-0.020000
F-4	37+45.5100	-5.5000	4720.4700	720.6788	-5.5000	126.7500	48271.4567	76088.8495			126.7500	-0.020000
F-5	37+57.5100	-5.5000	4720.5900	720.8212	-5.5000	138.7500	48259.5043	76089.9174			138.7500	-0.020000
F-6	37+69.5100	-5.5000	4720.7100	720.9306	-5.5000	150.7500	48247.5529	76090.9853			150.7500	-0.020000
F-7	37+81.5100	-5.5000	4720.8300	721.0108	-5.5000	162.7500	48235.5996	76092.0531			162.7500	-0.020000
F-8	37+93.5100	-5.5000	4720.9500	721.0760	-5.5000	174.7500	48223.6472	76093.1210			174.7500	-0.020000
F-9	38+05.5100	-5.5000	4721.0700	721.1390	-5.5000	186.7500	48211.6948	76094.1889			186.7500	-0.020000
CL P3	38+17.5100	-5.5000	4721.1894	721.1894	-5.5000	198.7500	48199.7424	76095.2568	-5.5000	0 00 00.00	198.7500	-0.020000
F-1	38+29.5100	-5.5000	4721.3028	721.3695	-5.5000	210.7500	48187.7909	76096.3247			210.7500	-0.020000
F-2	38+41.5100	-5.5000	4721.4090	721.5381	-5.5000	222.7500	48175.8376	76097.3926			222.7500	-0.020000
F-3	38+53.5100	-5.5000	4721.5080	721.6872	-5.5000	234.7500	48163.8852	76098.4605			234.7500	-0.020000

Note: Elevations are at top of concrete deck 3 Inches below Finished Grade.

Positive Roadway Cross Slope is Upwards from the Profile Grade Line.

These Stations, Coordinates, Offsets and Lengths define the layout of the structure in a two dimensional horizontal plane. Elevations define the final grade of the finished concrete deck. Fabrication of structural components through the direct use of this information is not intended or advisable.

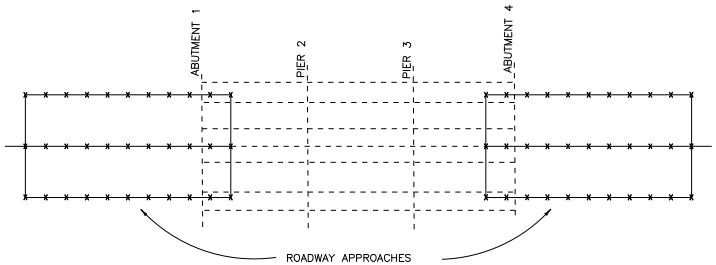
Fig. 14.14.3 Bridge Deck Elevation Sheet – Example 3

* ROADWAY APPROACHES *

STATION	OFFSET	ELEVATION	CROSS-SLOPE	STATION	OFFSET	ELEVATION	CROSS-SLOPE
33+50	-12.0000	4716.6349	-0.020000	45+00	-12.0000	4718.3851	-0.020000
33+60	-12.0000	4716.7349	-0.020000	45+10	-12.0000	4718.2851	-0.020000
33+70	-12.0000	4716.8349	-0.020000	45+20	-12.0000	4718.1851	-0.020000
33+80	-12.0000	4716.9349	-0.020000	45+30	-12.0000	4718.0851	-0.020000
33+90	-12.0000	4717.0349	-0.020000	45+40	-12.0000	4717.9851	-0.020000
34+00	-12.0000	4717.1349	-0.020000	45+50	-12.0000	4717.8851	-0.020000
34+10	-12.0000	4717.2349	-0.020000	45+60	-12.0000	4717.7851	-0.020000
34+20	-12.0000	4717.3349	-0.020000	45+70	-12.0000	4717.6851	-0.020000
34+30	-12.0000	4717.4349	-0.020000	45+80	-12.0000	4717.5851	-0.020000
34+40	-12.0000	4717.5349	-0.020000	45+90	-12.0000	4717.4851	-0.020000
34+50	-12.0000	4717.6349	-0.020000	46+00	-12.0000	4717.3851	-0.020000
34+60	-12.0000	4717.7349	-0.020000	46+10	-12.0000	4717.2851	-0.020000
34+70	-12.0000	4717.8349	-0.020000	46+20	-12.0000	4717.1851	-0.020000
34+80	-12.0000	4717.9349	-0.020000	46+30	-12.0000	4717.0851	-0.020000
34+90	-12.0000	4718.0349	-0.020000	46+40	-12.0000	4716.9851	-0.020000
35+00	-12.0000	4718.1349	-0.020000	46+50	-12.0000	4716.8851	-0.020000
33+50	0.0000	4716.8749		45+00	0.0000	4718.6251	
33+60	0.0000	4716.9749		45+10	0.0000	4718.5251	
33+70	0.0000	4717.0749		45+20	0.0000	4718.4251	
33+80	0.0000	4717.1749		45+30	0.0000	4718.3251	
33+90	0.0000	4717.2749		45+40	0.0000	4718.2251	
34+00	0.0000	4717.3749		45+50	0.0000	4718.1251	
34+10	0.0000	4717.4749		45+60	0.0000	4718.0251	
34+20	0.0000	4717.5749		45+70	0.0000	4717.9251	
34+30	0.0000	4717.6749		45+80	0.0000	4717.8251	
34+40	0.0000	4717.7749		45+90	0.0000	4717.7251	
34+50	0.0000	4717.8749		46+00	0.0000	4717.6251	
34+60	0.0000	4717.9749		46+10	0.0000	4717.5251	
34+70	0.0000	4718.0749		46+20	0.0000	4717.4251	
34+80	0.0000	4718.1749		46+30	0.0000	4717.3251	
34+90	0.0000	4718.2749		46+40	0.0000	4717.2251	
35+00	0.0000	4718.3749		46+50	0.0000	4717.1251	

* ROADWAY APPROACHES *

STATION	OFFSET	ELEVATION	CROSS-SLOPE	STATION	OFFSET	ELEVATION	CROSS-SLOPE
33+50	12.0000	4716.6349	-0.020000	45+00	12.0000	4718.3851	-0.020000
33+60	12.0000	4716.7349	-0.020000	45+10	12.0000	4718.2851	-0.020000
33+70	12.0000	4716.8349	-0.020000	45+20	12.0000	4718.1851	-0.020000
33+80	12.0000	4716.9349	-0.020000	45+30	12.0000	4718.0851	-0.020000
33+90	12.0000	4717.0349	-0.020000	45+40	12.0000	4717.9851	-0.020000
34+00	12.0000	4717.1349	-0.020000	45+50	12.0000	4717.8851	-0.020000
34+10	12.0000	4717.2349	-0.020000	45+60	12.0000	4717.7851	-0.020000
34+20	12.0000	4717.3349	-0.020000	45+70	12.0000	4717.6851	-0.020000
34+30	12.0000	4717.4349	-0.020000	45+80	12.0000	4717.5851	-0.020000
34+40	12.0000	4717.5349	-0.020000	45+90	12.0000	4717.4851	-0.020000
34+50	12.0000	4717.6349	-0.020000	46+00	12.0000	4717.3851	-0.020000
34+60	12.0000	4717.7349	-0.020000	46+10	12.0000	4717.2851	-0.020000
34+70	12.0000	4717.8349	-0.020000	46+20	12.0000	4717.1851	-0.020000
34+80	12.0000	4717.9349	-0.020000	46+30	12.0000	4717.0851	-0.020000
34+90	12.0000	4718.0349	-0.020000	46+40	12.0000	4716.9851	-0.020000
35+00	12.0000	4718.1349	-0.020000	46+50	12.0000	4716.8851	-0.020000



* TANGENT ALIGNMENT

* THESE DRAWINGS ARE SCHEMATICS ONLY AND DO NOT NECESSARILY REFLECT THE ACTUAL BRIDGE LAYOUT.

Note: Elevations are at Finished Grade.

Positive Roadway Cross Slope is Upwards from the Profile Grade Line.

These Stations, Coordinates, Offsets and Lengths define the layout of the structure in a two dimensional horizontal plane. Elevations define the final grade of the finished concrete deck. Fabrication of structural components through the direct use of this information is not intended or advisable.

Fig. 14.14.4 Bridge Deck Elevation Sheet – Example 4