EXAMPLES OF BRIDGE SEAT AND STEP CALCULATIONS:

THE DESIGNER SHALL SHOW ON THE PLANS THE 7 ELEVATIONS AND THE 6 STEP DIMENSIONS REQUIRED FOR EACH OF THE PIER TOP AND ABUTMENT BRIDGE SEATS.

THE BOXED IN DETAILS IN THE FOLLOWING EXAMPLES SHOW HOW THE INFORMATION SHOULD BE INDICATED ON THE PLANS.

EXAMPLE NO. 1

A STRAIGHT GRADE OF -3.25% WITH THE P.I. STATION OF 103+75.00 AND ELEVATION OF 653.29. THE BRIDGE LENGTH IS 213'-10 ℄ TO ℄ OF ABUTMENT BEARINGS WITH 30° SKEW RIGHT AHEAD.

STATIONS

℄ BRIDGE STA.	=	105+85.00	
± ½ OF L2	±	38.67	
℄ PIER BRGS.	=	105+46.33	106+23.67
± L1	-	68.25	+ 68.25
℄ ABUTMENT BRGS.	=	104+78.08	106+91.92

ELEVATIONS ALONG PROFILE GRADE LINE (P.G.L. ELEV.)

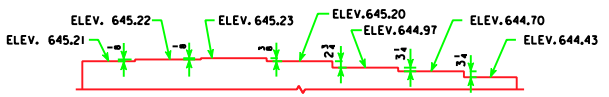
℄ ABUT. BRG. = 653.29-[(104+78.08)-(103+75.00)]X 0.0325) = 649.94
℄ PIER BRG. = 653.29-[(105+46.33)-(103+75.00)]X 0.0325) = 647.72
℄ PIER BRG. = 653.29-[(106+23.67)-(103+75.00)]X 0.0325) = 645.21
℄ ABUT. BRG. = 653.29-[(106+91.92)-(103+75.00)]X 0.0325) = 642.99

ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING

(BEAM SPACING X TAN. SK. ΔX GRADE) = (6.84)TAN 30°(0.0325) = 0.13'

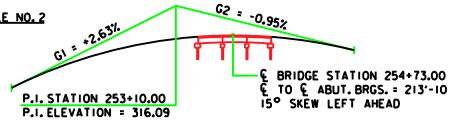
ABUTMENT NO. 1

BEAMS	EXTERIOR	INTERIOR	INTERIOR	CENTER	INTERIOR	INTERIOR	EXTERIOR
PGL ELEV.	649.94	649.94	649.94	649.94	649.94	649.94	649.94
SK. ΔCORRECT	+0.39	+0.26	+0.13	0.00	-0.13	-0.26	-0.39
SLAB CROWN	-0.38	-0.24	-0.10	0.00	-0.10	-0.24	-0.38
TOP SLAB ELEV.	649.95	649.96	649.97	649.94	649.71	649.44	649.17
-"U" (4'-8¾)	-4.74	-4.74	-4.74	-4.74	-4.74	-4.74	-4.74
BR. SEAT ELEV.	645.21	645.22	645.23	645.20	644.97	644.70	644.43



ABUTMENT NO. 1 STEP DIAGRAM
LOOKING UP STATIONING

EXAMPLE NO. 2



FROM SHEET H44-04-07 { LENGTH OF VERTICAL CURVE = (20000 X 0.0358) = 716 FEET
M.O. = (0.0358 X 716 X ⅛) = 3.204 FEET

STATIONS

℄ BRIDGE STA.	=	254+73.00	
± ½ OF L2	±	38.67	
℄ PIER BRGS.	=	254+34.33	255+11.67
± L1	-	68.25	+ 68.25
℄ ABUTMENT BRGS.	=	253+66.08	255+79.92

ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING

(BEAM SPACING X TAN. SK. Δ) = (6.84')TAN 15° = 1.83'

PIER NO. 1

BEAMS	EXTERIOR	INTERIOR	INTERIOR	CENTER	INTERIOR	INTERIOR	EXTERIOR
STATION	254+39.82	254+37.99	254+36.16	254+34.33	254+32.50	254+30.67	254+28.84
PGL ELEV.	+313.56	+313.55	+313.55	313.54	313.54	313.54	313.53
SLAB CROWN	-0.38	-0.24	-0.10	0.00	-0.10	-0.24	-0.38
TOP SLAB ELEV.	313.18	313.31	313.45	313.54	313.44	313.30	313.15
-"U" (4'-7⅜)	-4.61	-4.61	-4.61	-4.61	-4.61	-4.61	-4.61
BR. SEAT ELEV.	308.57	308.70	308.84	308.93	308.83	308.69	308.54

PIER NO. 1 STEP DIAGRAM
LOOKING UP STATIONING

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

Iowa Department of Transportation
Highway Division

STANDARD DESIGN - 44' ROADWAY, THREE SPAN BRIDGE
PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES
HL93 SUPERSTRUCTURE MARCH, 2007 HS25 SUBSTRUCTURE

GENERAL INFORMATION | H44-02-07