

INDEX FOR H30S1-05 STANDARDS:

H30S1-01-05	INDEX, GENERAL NOTES & GENERAL INFORMATION
H30S1-02-05	SUPERSTRUCTURE DETAILS
H30S1-03-05	ABUTMENT DETAILS - 0° SKEW A & B BEAMS
H30S1-04-05	ABUTMENT DETAILS - 0° SKEW C & D BEAMS
H30S1-05-05	LONGITUDINAL SECTION 0° SKEW A & B BEAMS
H30S1-06-05	LONGITUDINAL SECTION 0° SKEW C & D BEAMS
H30S1-07-05	SUPERSTRUCTURE 0° SKEW
H30S1-08-05	DECK AND ABUTMENT REINFORCEMENT 0° SKEW
H30S1-09-05	DECK AND ABUTMENT REINFORCEMENT 0° SKEW
H30S1-10-05	ABUTMENT DETAILS - 15° SKEW A & B BEAMS
H30S1-11-05	ABUTMENT DETAILS - 15° SKEW C & D BEAMS
H30S1-12-05	LONGITUDINAL SECTION 15° SKEW A & B BEAMS
H30S1-13-05	LONGITUDINAL SECTION 15° SKEW C & D BEAMS
H30S1-14-05	SUPERSTRUCTURE 15° SKEW
H30S1-15-05	DECK AND ABUTMENT REINFORCEMENT 15° SKEW
H30S1-16-05	DECK AND ABUTMENT REINFORCEMENT 15° SKEW
H30S1-17-05	ABUTMENT DETAILS - 30° SKEW A & B BEAMS
H30S1-18-05	ABUTMENT DETAILS - 30° SKEW C & D BEAMS
H30S1-19-05	LONGITUDINAL SECTION 30° SKEW A & B BEAMS
H30S1-20-05	LONGITUDINAL SECTION 30° SKEW C & D BEAMS
H30S1-21-05	SUPERSTRUCTURE 30° SKEW
H30S1-22-05	DECK AND ABUTMENT REINFORCEMENT 30° SKEW
H30S1-23-05	DECK AND ABUTMENT REINFORCEMENT 30° SKEW
H30S1-24-05	LXA BEAM DETAILS
H30S1-25-05	LXA46-LXA55 BEAM DETAILS
H30S1-26-05	LXB BEAM DETAILS
H30S1-27-05	LXB67 BEAM DETAILS
H30S1-28-05	LXC BEAM DETAILS
H30S1-29-05	LXC80 BEAM DETAILS
H30S1-30-05	LXD BEAM DETAILS
H30S1-31-05	LXD90 & LXD100 BEAM DETAILS
H30S1-32-05	LXD110 BEAM DETAILS
H30S1-33-05	INTERMEDIATE STEEL DIAPHRAGMS
H30S1-34-05	BARRIER RAIL DETAILS SHEET 1 OF 3
H30S1-35-05	BARRIER RAIL DETAILS SHEET 2 OF 3
H30S1-36-05	BARRIER RAIL DETAILS SHEET 3 OF 3
H30S1-37-05	OPEN RAIL DETAILS SHEET 1 OF 2
H30S1-38-05	OPEN RAIL DETAILS SHEET 2 OF 2

EXAMPLES OF BRIDGE SEAT AND STEP CALCULATIONS:

THE DESIGNER SHALL SHOW ON THE PLANS THE 5 ELEVATIONS AND THE 4 STEP DIMENSIONS REQUIRED FOR THE ABUTMENT BRIDGE SEATS.

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

EXAMPLE NO. 1

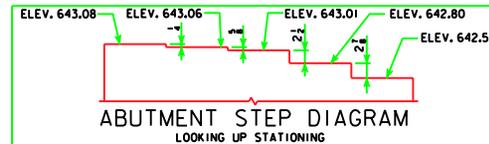
A STRAIGHT GRADE OF -3.25% WITH THE P.I. STATION OF 103+75.00 AND ELEVATION OF 653.29. THE BRIDGE LENGTH IS 80'-0" ξ TO ξ OF ABUTMENT BEARINGS WITH 30° SKEW RIGHT AHEAD.

STATIONS	
ξ BRIDGE STA.	= 105+85.00
ξ $\frac{1}{2}$ OF SPAN LENGTH	= 40.00
ξ ABUT. BRGS.	= 106+25.00 105+45.00

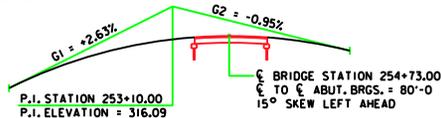
ELEVATIONS ALONG PROFILE GRADE LINE (P.G.L. ELEV.)	
ξ ABUT. BRG. = 653.29 - [(105+45.00) - (103+75.00)] (X) 0.0325 =	647.77
ξ ABUT. BRG. = 653.29 - [(106+25.00) - (103+75.00)] (X) 0.0325 =	645.17

ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING
(BEAM SPACING X TAN. SK. X GRADE) = (7.0) (TAN 30°) (0.0325) = 0.13'

ABUTMENT NO. 1	Δ	EXTERIOR	INTERIOR	CENTER	INTERIOR	EXTERIOR
BEAMS						
PGL ELEV.		647.77	647.77	647.77	647.77	647.77
SK. Δ CORRECT		+ 0.26	+ 0.13	0.00	- 0.13	- 0.26
SLAB CROWN		- 0.19	- 0.08	0.00	- 0.08	- 0.19
TOP SLAB ELEV.		647.84	647.82	647.77	647.56	647.32
-"U" (4'-9")		- 4.76	- 4.76	- 4.76	- 4.76	- 4.76
BR. SEAT ELEV.		643.08	643.06	643.01	642.80	642.56



EXAMPLE NO. 2

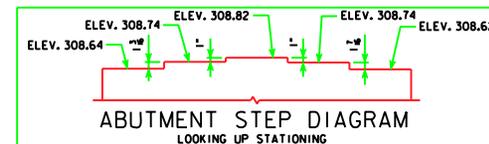


FROM SHEET H30S1-1-05 { LENGTH OF VERTICAL CURVE = (20000 X 0.0358) = 716 FEET
M.O. = (0.0358 X 716 X $\frac{1}{2}$) = 3.204 FEET

STATIONS		P.I. STA.	253+10.00
ξ BRIDGE STA.	= 254+73.00	ξ OF SPAN LENGTH	= 40.00
ξ ABUT. BRGS.	= 255+13.00 254+33.00	P.C. STA.	249+52.00
		P.T. STA.	256+68.00

ELEVATIONS TOP OF SLAB FACING ALONG THE STATIONING
(BEAM SPACING X TAN. SK. Δ) = (7.0) (TAN 15°) = 1.88'

ABUTMENT NO. 1	Δ	EXTERIOR	INTERIOR	CENTER	INTERIOR	EXTERIOR
BEAMS						
STATION		254+36.75	254+34.88	254+33.00	254+31.12	254+29.25
PGL ELEV.		313.55	313.54	313.54	313.54	313.53
SLAB CROWN		- 0.19	- 0.08	0.00	- 0.08	- 0.19
TOP SLAB ELEV.		313.36	313.46	313.54	313.46	313.34
-"U" (4'-8")		- 4.72	- 4.72	- 4.72	- 4.72	- 4.72
BR. SEAT ELEV.		308.64	308.74	308.82	308.74	308.62



GENERAL CONSIDERATIONS:

THE H30S1-05 BRIDGE STANDARDS, IF PROPERLY USED, PROVIDE THE STRUCTURAL PLANS NECESSARY TO CONSTRUCT SINGLE SPAN 30' ROADWAY PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES WITH LENGTHS OF 46'-8", 55'-0", 67'-6", 80'-0", 90'-0", 100'-0" AND 110'-0".

THESE BRIDGES MAY BE BUILT ON A 0°, 15° OR 30° SKEW. THESE PLANS SHOW THE BRIDGES SKEWED IN ONE DIRECTION, BUT ALL DIMENSIONS AND DETAILS WOULD BE THE SAME FOR THE OPPOSITE SKEW.

FOR CLARITY, MOST SECTIONS SHOWN ON THE FOLLOWING SHEETS ARE DRAWN WITH BARRIER RAIL ONLY. THESE SECTIONS WILL BE IDENTICAL FOR OPEN RAIL DESIGN WITH ANY MODIFICATIONS SHOWN ON SHEET H30S1-37-05 AND H30S1-38-05.

NOTE THAT WHEN APPROACH PAVEMENT IS TO BE PLACED, THE TEMPORARY PAVING BLOCKS SHALL BE REMOVED AND A PROPER JOINT FOR EXPANSION SHALL BE PROVIDED BETWEEN THE BRIDGE AND THE APPROACH PAVING.

THE ABUTMENTS FOR THESE STANDARDS HAVE BEEN DESIGNED FOR FRICTION OR POINT BEARING PILES. IT IS NECESSARY THAT THE LENGTH OF THE ABUTMENT PILES BE DESIGNATED ON THE FRONT SHEET OF THE PLANS.

THESE STANDARDS GIVE MOST OF THE INFORMATION NECESSARY TO BUILD THESE BRIDGES ON EITHER A CREST VERTICAL CURVE OR A STRAIGHT GRADE. BECAUSE OF THE INFINITE NUMBER OF GRADE POSSIBILITIES IT WILL BE NECESSARY TO SHOW ON THE PLANS THE ABUTMENT STEP DIMENSIONS, TO HELP IN OBTAINING THIS STEP INFORMATION SEE "EXAMPLES OF BRIDGE SEAT AND STEP CALCULATIONS" ON THIS SHEET.

PROVIDE TOP OF SLAB ELEVATIONS AND WING ELEVATIONS A, B AND C AS NOTED ON THE STANDARD SHEETS (LONGITUDINAL SECTION).

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002.

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE G0.

CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3500 PSI.

FOR 30' STANDARD PRESTRESSED CONCRETE BEAMS, SEE SHEET H30S1-24-05, H30S1-26-05, H30S1-28-05, H30S1-30-05.

SPECIFICATIONS:

DESIGN: AASHTO, SERIES OF 2002.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

LATEST REVISION DATE :

Thomas E. De O'Neill
APPROVED BY

STANDARD DESIGN - 30' ROADWAY, SINGLE SPAN BRIDGE
**PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGES**

JANUARY, 2005 HS20-44 LOADING

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

INDEX, GENERAL NOTES &
GENERAL INFORMATION

H30S1-01-05