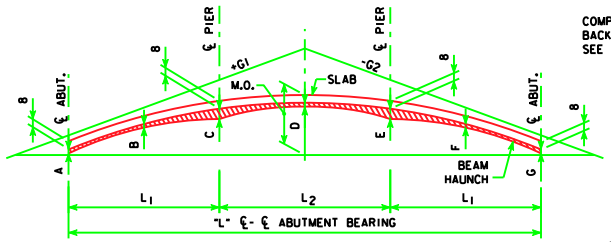
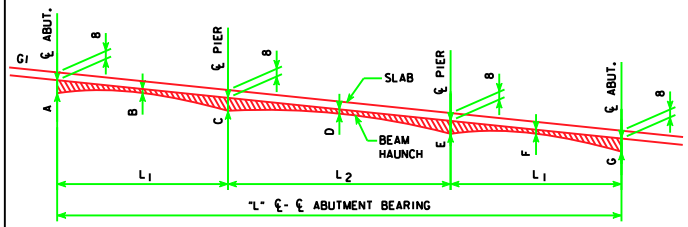



| ℄-℄ ABUT. BRG. "L" | A ℄ ABUT. | B | C ℄ PIER | D | E ℄ PIER | F | G ℄ ABUT. |
|---|---|---|---|---|---|---|---|
| 138'-10 | $1\frac{1}{16}$ | $\frac{9}{16}$ | $1\frac{1}{2}$ | $\frac{9}{16}$ | $1\frac{1}{2}$ | $\frac{9}{16}$ | $1\frac{1}{16}$ |
| 151'-4 | $\frac{13}{16}$ | $\frac{5}{8}$ | $1\frac{11}{16}$ | $\frac{9}{16}$ | $1\frac{11}{16}$ | $\frac{5}{8}$ | $\frac{13}{16}$ |
| 163'-10 | $\frac{5}{16}$ | $\frac{5}{8}$ | $1\frac{7}{16}$ | $\frac{1}{2}$ | $1\frac{7}{16}$ | $\frac{5}{8}$ | $\frac{5}{16}$ |
| 176'-4 | $\frac{7}{8}$ | $\frac{5}{8}$ | $1\frac{11}{16}$ | $\frac{9}{16}$ | $1\frac{11}{16}$ | $\frac{5}{8}$ | $\frac{7}{8}$ |
| 188'-10 | $\frac{5}{16}$ | $\frac{5}{8}$ | 2 | $\frac{1}{2}$ | 2 | $\frac{5}{8}$ | $\frac{5}{16}$ |
| 201'-4 | $\frac{5}{8}$ | $\frac{11}{16}$ | $1\frac{3}{8}$ | $\frac{1}{2}$ | $1\frac{3}{8}$ | $\frac{11}{16}$ | $\frac{5}{8}$ |
| 213'-10 | $\frac{3}{4}$ | $\frac{9}{16}$ | $1\frac{3}{8}$ | $\frac{1}{2}$ | $1\frac{3}{8}$ | $\frac{9}{16}$ | $\frac{3}{4}$ |
| 226'-4 | $1\frac{3}{16}$ | $\frac{5}{8}$ | $1\frac{5}{8}$ | $\frac{1}{2}$ | $1\frac{5}{8}$ | $\frac{5}{8}$ | $1\frac{3}{16}$ |
| 243'-0 | $1\frac{5}{8}$ | $\frac{5}{8}$ | $1\frac{5}{8}$ | $\frac{1}{2}$ | $1\frac{5}{8}$ | $\frac{5}{8}$ | $1\frac{5}{8}$ |

LENGTH OF VERTICAL CURVE REQUIRED = ( 20,000 X G1-G2 )
M.O. = ( G1-G2 X LENGTH OF V.C. ) / 8

( G1-G2 ) IS THE ALGEBRAIC DIFFERENCE OF THE APPROACH GRADES EXPRESSED IN DECIMAL FORM. G1 NEED NOT HAVE THE SAME VALUE AS G2. MAXIMUM VALUE OF G1 OR G2 IS 5%. LENGTH OF CURVE AND M.O. ARE IN FEET.

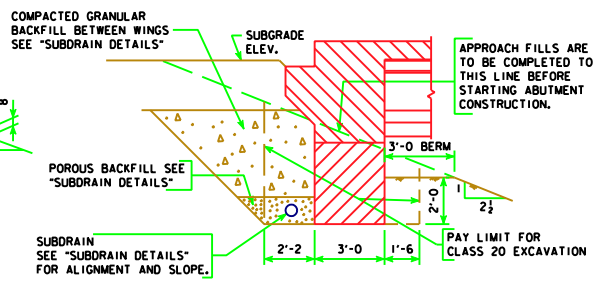
## SLAB AND HAUNCH THICKNESS AT BEAMS FOR VERTICAL CURVE



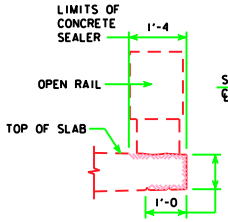

| ℄-℄ ABUT. BRG. "L" | A ℄ ABUT. | B | C ℄ PIER | D | E ℄ PIER | F | G ℄ ABUT. |
|---|---|---|---|---|---|---|---|
| 138'-10 | $1\frac{1}{16}$ | $\frac{1}{2}$ | $1\frac{11}{16}$ | $\frac{9}{16}$ | $1\frac{11}{16}$ | $\frac{1}{2}$ | $1\frac{1}{16}$ |
| 151'-4 | $\frac{7}{8}$ | $\frac{9}{16}$ | $1\frac{15}{16}$ | $\frac{9}{16}$ | $1\frac{15}{16}$ | $\frac{9}{16}$ | $\frac{7}{8}$ |
| 163'-10 | $\frac{5}{16}$ | $\frac{1}{2}$ | $1\frac{3}{4}$ | $\frac{9}{16}$ | $1\frac{3}{4}$ | $\frac{1}{2}$ | $\frac{5}{16}$ |
| 176'-4 | $\frac{5}{16}$ | $\frac{9}{16}$ | 2 | $\frac{9}{16}$ | 2 | $\frac{9}{16}$ | $\frac{5}{16}$ |
| 188'-10 | $1\frac{1}{16}$ | $\frac{9}{16}$ | $2\frac{3}{8}$ | $\frac{1}{2}$ | $2\frac{3}{8}$ | $\frac{9}{16}$ | $1\frac{1}{16}$ |
| 201'-4 | $\frac{3}{4}$ | $\frac{5}{8}$ | $1\frac{13}{16}$ | $\frac{9}{16}$ | $1\frac{13}{16}$ | $\frac{5}{8}$ | $\frac{3}{4}$ |
| 213'-10 | $\frac{5}{16}$ | $\frac{1}{2}$ | $1\frac{13}{16}$ | $\frac{1}{2}$ | $1\frac{13}{16}$ | $\frac{1}{2}$ | $\frac{5}{16}$ |
| 226'-4 | $1\frac{3}{8}$ | $\frac{1}{2}$ | $2\frac{1}{8}$ | $\frac{1}{2}$ | $2\frac{1}{8}$ | $\frac{1}{2}$ | $1\frac{3}{8}$ |
| 243'-0 | 2 | $\frac{1}{2}$ | $2\frac{1}{8}$ | $\frac{1}{2}$ | $2\frac{1}{8}$ | $\frac{1}{2}$ | 2 |

G1 MAY HAVE A + OR - SIGN. THE MINIMUM NUMERICAL VALUE OF THE GRADE IS 0.3% AND THE MAXIMUM VALUE IS 5%.

## SLAB AND HAUNCH THICKNESS AT BEAMS FOR STRAIGHT GRADE

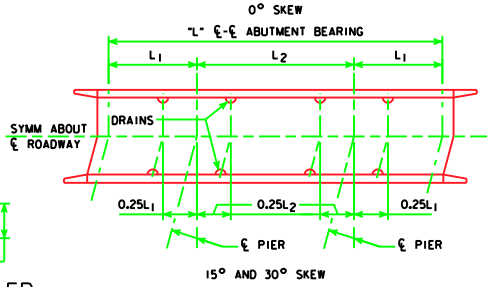



## ABUTMENT EXCAVATION DETAILS



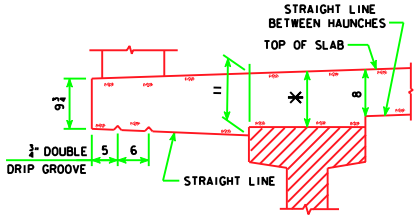

## CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER SLAB FOR FULL LENGTH OF BRIDGE TO LIMITS SHOWN IN DETAIL. SEALER SHALL BE APPLIED IN ACCORDANCE WITH STANDARD SPECIFICATION 2403.21D.

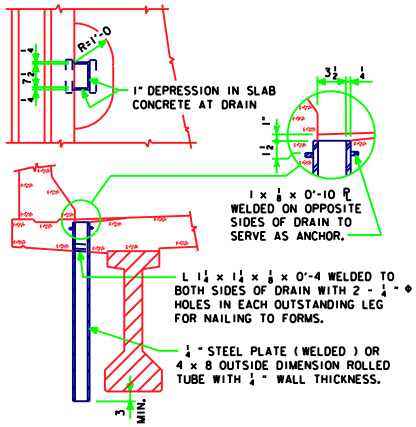



## SITUATION SKETCH

(SHOWING DRAIN LOCATIONS)




## EXTERIOR BEAMS @ OPEN RAIL

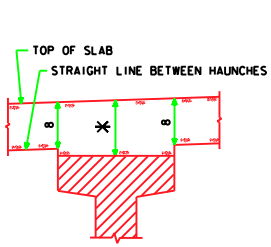



## DRAIN DETAILS

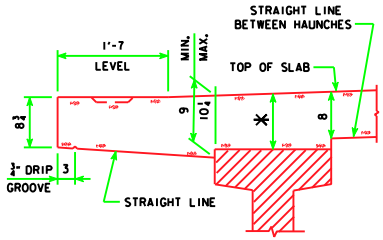
USE FOR BARRIER RAIL ONLY.
NOT REQUIRED FOR OPEN RAIL.

NOTE :
DRAINS ARE TO BE GALVANIZED AFTER FABRICATION.
SEE " SITUATION SKETCH " FOR LOCATION OF DRAINS.
WEIGHT OF DRAINS IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL".
WEIGHT IS BASED ON ROLLED TUBE.

| DATA FOR ONE DRAIN | | | |
|---|---|---|---|
| BEAM SIZE | A | B | C |
| WT. LBS. | 71 | 82 | 92 |
| LENGTH FT. | 3'-7¾ | 4'-2¾ | 4'-8¾ |



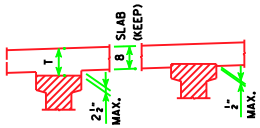

INTERIOR BEAMS




EXTERIOR BEAMS @ BARRIER RAIL

## TYPICAL SLAB AND HAUNCH DETAIL

* FOR SLAB THICKNESS OVER BEAMS SEE " SLAB THICKNESS DETAILS " ON THIS SHEET.




## SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT THE BEAMS, (8" SLAB PLUS HAUNCH) IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED INCREASE THE HAUNCH THICKNESS OVER THE BEAM AT THE MIDPOINT OF THE SPANS (POINTS B, D AND F). IF THE BEAM IS OVER CAMBERED DECREASE THE HAUNCH THICKNESS OVER THE BEAM AT THE MIDPOINT OF THE SPANS (POINTS B, D AND F) TO A MAXIMUM OF ½" EMBEDMENT IN THE SLAB. IF MORE THAN ½" EMBEDMENT IS REQUIRED OR IF THE HAUNCH EXCEEDS 2½" THE GRADE LINE IS TO BE REVISED.

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

SUPERSTRUCTURE DETAILS | H44-04-07