

	θ							
	5°	10°	15°	20°	25°	30°	35°	40°
$\cos\theta$	0.99619	0.98481	0.96593	0.93969	0.90631	0.86603	0.81915	0.76604
$\sin\theta$	0.08716	0.17365	0.25882	0.34202	0.42262	0.50000	0.57358	0.64279
$\tan\theta$	0.08749	0.17633	0.26795	0.36397	0.46631	0.57735	0.70021	0.83910

TWO COLUMNS

$A = 0.2L$

$B = 0.6L$

THREE COLUMNS

$A = 0.15L$

$B = 0.35L$

$D = 0.35L$

FOUR COLUMNS

$A = 0.125L$

$B = 0.25L$

$D = 0.25L$

$E = 0.25L$

$L =$

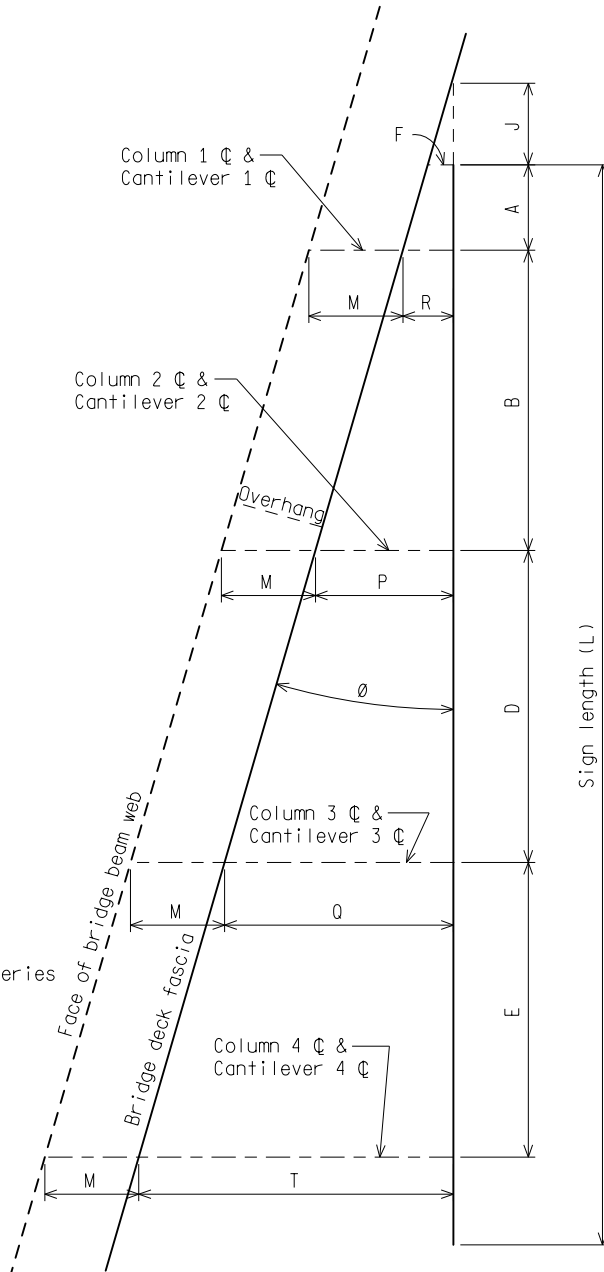
$H =$

Sign Area = Sq. ft.

$J = \frac{F}{\tan\theta}$

$J =$

F = Fascia clearance refer to Sign-830-Series for appropriate dimensions.



$\frac{M}{\cos\theta}$

$M =$

$R = (J+A)\tan\theta$

$R =$

$P = (J+A+B)\tan\theta$

$P =$

$Q = (J+A+B+D)\tan\theta$

$Q =$

$T = (J+A+B+D+E)\tan\theta$

$T =$

TWO COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P = C

THREE COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P
Cantilever 3 length = M+Q = C

FOUR COLUMNS

Cantilever 1 length = M+R
Cantilever 2 length = M+P
Cantilever 3 length = M+Q
Cantilever 4 length = M+T = C

C = Value to verify diaphragm need.

NOTE:
THIS TYPICAL DOES NOT APPLY TO CURVED BRIDGES.



PREPARED BY
ANCILLARY
STRUCTURES

DRAWN BY: HNTB

CHECKED BY: MLO

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APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION

**BRIDGE SIGN CONNECTION
ANGLE CALCULATIONS**

(SPECIAL DETAIL)
F.H.W.A. APPROVAL

08/11/23
PLAN DATE

SIGN-840-A

SHEET
1 OF 1