1

```
************************************
*                                  *
* BRIDGE ENGINEERING SOFTWARE CENTER *
*   DEPARTMENT OF CIVIL ENGINEERING  *
*       UNIVERSITY OF MARYLAND       *
*                                  *
************************************
```

USE OR PURPOSE.

(D) THE CUMULATIVE LIABILITY OF UMD TO LICENSEE FOR ALL CLAIMS, DEMANDS OR ACTIONS ARISING OUT OF OR RELATING TO THE LICENSED MATERIALS AND THIS AGREEMENT, SHALL NOT EXCEED THE TOTAL AMOUNT OF ALL LICENSE FEES PAID TO UMD HEREUNDER DURING THE TWELVE (12) MONTHS IMMEDIATELY PRECEDING SUCH CLAIM, DEMAND OR ACTION. THIS LIMITATION OF LIABILITY IS INTENDED TO APPLY WITHOUT REGARD TO WHICH OTHER PROVISIONS OF THIS AGREEMENT HAVE BEEN BREACHED OR HAVE PROVEN INEFFECTIVE.

(E) WITHOUT LIMITING THE FOREGOING, IN NO EVENT SHALL UMD BE LIABLE FOR ANY BUSINESS EXPENSE, MACHINE DOWN TIME, LOSS OF PROFITS, ANY INCIDENTAL, SPECIAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES, OR ANY CLAIMS OR DEMANDS BROUGHT AGAINST LICENSEE OR LICENSEE'S CUSTOMERS, EVEN IF UMD HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH CLAIMS OR DEMANDS. THIS LIMITATION UPON DAMAGES AND CLAIMS IS INTENDED TO APPLY WITHOUT REGARD TO WHICH OTHER PROVISIONS OF THIS AGREEMENT HAVE BEEN BREACHED OR HAVE PROVEN INEFFECTIVE.

TABLE 0.0.1.1 PROJECT DATA
****

DESCRIPTION	DATE
MOONVILLE BRIDGE INTERIOR BEAM	10/24/2019

CONTRACT NUMBER	STR NO	STR UNIT	DES -BY- STK	CHK -BY-	SPECS. USED

TABLE 0.0.1.2 GENERAL PROGRAM OPTIONS
****

OUTPUT LEVEL (0,1)	SPAN INTERVAL (MAX=20)	CONSTRUCTION 1= COMPOSITE 2= NONCOMP.	ANALYSIS CODE CODE ID	YEAR	UNIT TYPE	DESIGN OPTION	PROGRAM FLOW CONTROL
0	10	2	AASHTO	2012	0	2	2

* output level : 0 = basic output
  1 = detailed output

* span interval : maximum = 20
  default = 10

* structural type : 1 = composite (default)
  2 = noncomposite
  3 = reinforced concrete
  4 = prestressed concrete

* type of unit : 0 = English (default)
  1 = Metric
  2 = Metric input English output
  3 = English input Metric output

* design option : 0 = WSD (default)
  1 = LFD
  2 = LRFD

* program flow : 0 = DL analysis only
  1 = DL + LL analysis
  2 = code check
  3 = rating
  4 = design
  5 = design + code check
  6 = design + recycle + code check
  7 = DL stage only
  8 = DL stage + LL

* EFFECTIVE FLANGE WITH OPTION = 0
  0 - DEFAULT (2008)
  1 - "PRIOR TO 2007" WIDTH IS USED

TABLE 0.0.3.1 STRUCTURAL DETAILS
****

BEAM NUMBER	POSITION OF 1=INT. GIRDERS 2,3=EXT.	WIDTH BETWEEN CURBS OR BARRIER (ft)	EDGE OF OVERHANG (ft)	SLAB TO CURB DEPTH (in)	HAUNCH WIDTH. (in)	COMPOSITE PERCENTAGE AT NEG MOM REGION (%)	STEEL LOAD DETAIL FACTOR >= 1.0	RIGHT R. EDGE OF OVERHANG WIDTH (ft)	EDGE OF SLAB TO CURB (ft)
3	1	12.00	1.50	0.00	4.50	12.10	0.00	1.05	0.00	0.00

* WIDTH BETWEEN CURBS OR BARRIERS (ROAD WIDTH) is used for the determination of traffic lanes

* The section properties with composite percentage at negative moment region is calculated by using the linear interpolation between the noncomposite section (N=Inf.) and 100% composite for the analysis at negative moment region.

* DETAIL FACTOR is used for the steel dead load only

* EXT=2 for the same left and right exterior overhang information or only left exterior overhang information

* EXT=3 for the right exterior overhang information

TABLE 0.0.3.2 SPAN LENGTHS --- in feet
****

SPAN-1	SPAN-2	SPAN-3	SPAN-4	SPAN-5	SPAN-6	SPAN-7	SPAN-8	SPAN-9	SPAN-10

29.25 71.75 52.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

TABLE 0.0.3.4 BEAM SPACING --- in feet
****

SPAN-1 SPAN-2 SPAN-3 SPAN-4 SPAN-5 SPAN-6 SPAN-7 SPAN-8 SPAN-9 SPAN-10
------,------,------,------,------,------,------,------,------,------,

4.50 4.50 4.50 0.00 0.00 0.00 0.00 0.00 0.00 0.00

TABLE 0.0.4.1 DEFINITION OF SECTIONS
****

SECTION NO.	STANDARD SECTN NOMINAL DEPTH ID.	WEIGHT (lb/ft)	PLATE GIRDER WEB DEPTH (in)	WEB THICK. (in)	ROLLED SECTIONS WITH COVER PLATES OR PLATE GIRDERS ... (in) TOP PLATE WIDTH	TOP PLATE THICK.	BOT. PLATE WIDTH	BOT. PLATE THICK.	REINFORCED CONCRETE SECTION AREA (in**2)	Ix (in**4)
1	W 36	194			0.00	0.0000	0.00	0.0000		

NOTE: [1] maximum allowable section number is 70

[2] For design option (flow 4, 5 or 6) this card need not be input

TABLE 0.0.5.1 DEFINITION OF MEMBERS
****

MEMBER NUMBER (IN ORDER)	MEMB SECT LEFT	END ID RIGHT	MEMBER DESCRIPTN LNGTH (ft)	TYPE 0=PRISMAT	PARAMETERS FOR NONPRISMATIC MEMB S(0)	S(1)	YIELD STRESS (KSI) WEB	TOP	BOT
1	1	1	153.00				33.	33.	33.

NOTE: [1] maximum allowable member number is 70.

[2] For design process (flow 4, 5 or 6) this card need not be input

[3] For hybrid section, yield stress defined here will override DATA TYPE 13012 for code checking

TABLE 0.0.6.1 AASHTO LIVE LOADING - LOAD TYPE (A)
****

AASHTO LOADING HL - 93	TANDEM LIVE LOAD 1=YES : 0=NO	AASHTO ROAD TYPE 1,2,3 OR 4 ADTT	ADTTSL	SIDEWALK ---LIVE LOAD--- (k/ft)
H-15	1	1	0	0	0.41

HL-93 VEHICLE X FACTOR OF 0.00

NOTE: * Road types 1, 2, 3 and 4 are used for fatigue check.

* Road type 1 is Rural Interstate. 2 is Urban Interstate.

3 is Other Rural. 4 is Other Urban.
truck on the bridge distributed to the girders as designated
in AASHTO LRFD Art.4.6.2.2 for one traffic lane loading.

For Fatigue, Fraction of Truck, p, is based on the Road Types.

Ref. AASHTO LRFD Table C3.6.1.4.2.1.

* Default road type = 1

* Sidewalk live loading is assumed taken by exterior girder only

* HL-93 is for both truck(s) + lane and tandem(s) + lane loading,
as per 3.6.1.3.1.

* ADTT used in this calculation is 4000

TABLE 0.8.1.2 SPECIFICATION OF IMPACT AND DISTRIBUTION FACTORS
****

IMPACT FACTOR TO OVERRIDE THE AASHTO FORMULA

SP NO	IMP FCTR STR/SER (%)	DF M- ST/SE	DF M+ FA	DF M- FA	IMP F FA (%)	A D M G C NO=0 ;YES= 1	OPTIONAL DISTRIBUTION FACTORS DF M+ ST/SE	LOADING TYPES A D M G C
1	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0
1	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0
2	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0
2	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0
3	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0
3	0.00	0	0.00	0.00	0.00	0 0 0 0 0	0.54	0 0 0 0 0

NOTE ** : distribution factor - fraction of a wheel load for WSD/LFD

or fraction of an axle load for LRFD
0 = The special distribution factor defined is not applied
to the indicated loading type.

1 = The special distribution factor defined is applied to
the indicated loading type of calculation of all
moment, shear and deflection.

2 = The special distribution factor defined is only applied
to the loading type for calculating moment.

3 = The special distribution factor defined is only applied
to the loading type for calculating shear.

4 = The special distribution factor defined is only applied
to the loading type for calculating deflection.

TABLE 0.0.11.1 DEFINITION OF UNIFORM AND CONCENTRATED LOADS
****

LOAD IDENTIFICATION		UNIFROM LOAD DATA			CONCENTRATED LOAD DATA	
LOAD NO.	DESCRIPTION TYPE	INTENSITY (k/ft)	POSITION FROM (ft)	TO	INTENSITY (Kips)	DISTANCE FROM L SUPT (ft)
1	0 WOOD FLOOR	0.306	0.00	153.00	0.00	0.00

NOTE: LOAD TYPE, 0 = (Default) Loads for noncomposite construction or
Superimposed Loads for composite construction
(In LRFD, it is for DW load)

1 = Superimposed Loads (In LRFD, it is for DC2 load)

2 = Noncomposite Loads,(In LRFD, it is for DC1 load)
where N = modulus ratio = Es/Ec

```
    ------------------------------------------------------------------
    NOTE: LOAD TYPE, 0 = (Default) Loads for noncomposite construction or
                         Superimposed Loads for composite construction
                         (In LRFD, it is for DW load)

                     1 = Superimposed Loads (In LRFD, it is for DC2 load)

                     2 = Noncomposite Loads,(In LRFD, it is for DC1 load)
                         where N = modulus ratio = Es/Ec
1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    INPUT
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
8144C\EngData\Merl


       TABLE 0.0.13.1 YIELD STRESS (Fy) AND LATERAL BRACING DATA (lb)
                      **********************************************


         L O C A T I O N          YIELD              SPACING
       --------------------       STRESS         OF LATERAL BRACING
       DISTANCE    DISTANCE   ----------------  --------------------
         FROM        TO        Fy    Fy (WEB)          Lb
         (ft)        (ft)     (ksi)  (ksi)            (ft)
       ------------------------------------------------------------

          0.00      153.00     50.0  50.0            15.00

 ** WARNING: LATERAL BRACING DISTANCE CAN NOT BE EVENLY DIVIDED **
       ------------------------------------------------------------
       NOTE: [1] default Fy = 36 ksi

             [2] default spacing of lateral bracing = 25 feet

                 Please refer to AASHTO LRFD Art. 6.7.4 for requirement.

             [3] The spacing of lateral bracing is also assumed to
                 be the diaphragm spacing which is used for the
                 calculation of wind effect (code check only).
  *** WARNING in LRFD Distrib Factor ***  Nb < 4
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
```

```
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Nb < 4
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Nb < 4
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
  *** WARNING in LRFD Distrib Factor ***  Ts =  0.0 < 4.5 In (110 mm) OR
         Ts >12.0 In (300 mm) (Pg. 4-31)
1
             BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
               DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                         UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                   ANALYSIS
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
9144C\EngData\Merl


 TABLE 2.2.5.3=MOMENT SUMMARY FOR NONCOMPOSITE CONSTRUCTION (UNFACTORED)
               ******************************************


                      TOTAL      GOVERN          GOVERN      TOTAL
 SP IN D FROM  --------------  LOAD   TOTAL    LOAD  ----------------
 NO NO L SUPP   DL    POS LL+I  TYPE  NEG LL+I  TYPE  MAX POS  MAX NEG
        (ft)  (k-ft)   (k-ft)          (k-ft)          (k-ft)   (k-ft)
 ---------------------------------------------------------------------

  1  0   0.00     0.0      0.0  HL-93      0.0  HL-93      0.0      0.0
  1  1   2.92     2.3     53.6  HL-93    -26.7  HL-93     55.9    -24.4
  1  2   5.85     0.2     70.0  HL-93    -30.3  HL-93     70.2    -30.1
  1  3   8.77    -6.2    118.7  HL-93    -80.0  HL-93    112.4    -86.2
  1  4  11.70   -17.0    131.2  HL-93   -106.7  HL-93    114.2   -123.7
  1  5  14.62   -32.2    118.2  HL-93   -119.8  HL-93     86.0   -152.0
  1  6  17.55   -51.7    114.0  HL-93   -183.0  HL-93     62.3   -234.7
  1  7  20.47   -75.6     99.2  HL-93   -219.4  HL-93     23.6   -295.0
  1  8  23.40  -103.8     74.7  HL-93   -255.8  HL-93    -29.1   -359.7
  1  9  26.32  -136.4     42.8  HL-93   -298.2  HL-93    -93.6   -434.6
  1 10  29.25  -173.4     42.9  HL-93   -289.3  HL-93   -130.5   -462.7


  2  0   0.00  -173.4     42.9  HL-93   -289.3  HL-93   -130.5   -462.7
  2  1   7.18   -59.2     42.7  HL-93   -156.8  HL-93    -16.5   -216.0
  2  2  14.35    28.7    107.0  HL-93    -62.0  HL-93    135.7    -33.2
```

2	3	21.53	90.4	181.5	HL-93	-30.4	HL-93	272.0	60.1
2	4	28.70	125.9	241.5	HL-93	-28.2	HL-93	367.5	97.7
2	5	35.87	135.1	244.3	HL-93	-39.8	HL-93	379.5	95.4
2	6	43.05	118.1	233.0	HL-93	-63.9	HL-93	351.1	54.2
2	7	50.22	74.9	193.1	HL-93	-91.8	HL-93	268.0	-16.9
2	8	57.40	5.4	122.5	HL-93	-115.8	HL-93	127.9	-110.4
2	9	64.57	-90.3	46.3	HL-93	-200.7	HL-93	-44.0	-291.0
2	10	71.75	-212.3	9.5	HL-93	-212.8	HL-93	-202.8	-425.1
3	0	0.00	-212.3	9.5	HL-93	-212.8	HL-93	-202.8	-425.1
3	1	5.20	-129.0	37.3	HL-93	-257.8	HL-93	-91.7	-386.8
3	2	10.40	-59.6	96.8	HL-93	-186.0	HL-93	37.2	-245.6
3	3	15.60	-3.9	154.5	HL-93	-164.6	HL-93	150.6	-168.5
3	4	20.80	38.0	194.6	HL-93	-99.0	HL-93	232.6	-61.0
3	5	26.00	66.1	223.6	HL-93	-85.8	HL-93	289.7	-19.7
3	6	31.20	80.5	190.7	HL-93	-34.0	HL-93	271.2	46.4
3	7	36.40	81.0	181.4	HL-93	-25.5	HL-93	262.4	55.5
3	8	41.60	67.8	147.2	HL-93	-17.0	HL-93	215.0	50.8
3	9	46.80	40.8	87.0	HL-93	-8.5	HL-93	127.8	32.3
3	10	52.00	0.0	0.0	HL-93	0.0	HL-93	0.0	0.0

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING
UNIVERSITY OF MARYLAND

MERLIN V 10.6
NONCOMPOSITE
LRF -- 2012
ANALYSIS

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE10144C\EngData\Merl

TABLE 2.2.5.4=MOMENT SUMMARY FOR NONCOMPOSITE CONSTRUCTION (LRFD)
****

SP NO	IN NO	D FROM L SUPT (ft)	SERVICE I (k-ft)	SERVICE II (k-ft)	STRENGTH I (k-ft)	STRENGTH II (k-ft)	STRENGTH IV (k-ft)	FATIGUE RANGE (k-ft)
1	0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
1	1	2.92	55.9	71.9	97.0	75.5	3.4	39.9
1	2	5.85	70.2	91.2	122.8	94.8	0.3	71.8
1	3	8.77	112.4	148.0	203.0	155.5	-9.3	96.2
1	4	11.70	-123.7	-155.7	216.8	-167.8	-25.5	113.4
1	5	14.62	-152.0	-188.0	-254.8	-206.8	-48.3	111.6
1	6	17.55	-234.7	-289.6	-392.7	-319.5	-77.5	120.0
1	7	20.47	-295.0	-360.8	-489.8	-402.1	-113.4	122.9

1	8	23.40	-359.7	-436.4	-593.1	-490.7	-155.7	120.9
1	9	26.32	-434.6	-524.0	-712.8	-593.5	-204.6	114.9
1	10	29.25	-462.7	-549.5	-749.1	-633.3	-260.1	124.0
2	0	0.00	-462.7	-549.5	-749.1	-633.3	-260.1	124.0
2	1	7.18	-216.0	-263.0	-357.2	-294.5	-88.8	33.6
2	2	14.35	135.7	167.8	227.5	184.7	43.1	65.8
2	3	21.53	272.0	326.4	444.3	371.7	135.7	99.2
2	4	28.70	367.5	439.9	599.0	502.4	188.9	123.4
2	5	35.87	379.5	452.8	616.8	519.1	202.7	125.1
2	6	43.05	351.1	421.0	573.1	479.9	177.2	131.3
2	7	50.22	268.0	325.9	442.8	365.5	112.3	120.2
2	8	57.40	127.9	164.6	221.9	172.9	8.1	90.5
2	9	64.57	-291.0	-351.3	-477.7	-397.4	-135.5	65.5
2	10	71.75	-425.1	-488.9	-669.6	-584.5	-318.4	85.4
3	0	0.00	-425.1	-488.9	-669.6	-584.5	-318.4	85.4
3	1	5.20	-386.8	-464.2	-631.8	-528.7	-193.6	88.2
3	2	10.40	-245.6	-301.4	-408.9	-334.5	-89.4	103.6
3	3	15.60	-168.5	-217.9	-293.5	-227.6	-5.8	124.3
3	4	20.80	232.6	291.0	393.8	316.0	57.0	130.5
3	5	26.00	289.7	356.7	483.8	394.4	99.2	138.6
3	6	31.20	271.2	328.4	446.4	370.1	120.7	131.5
3	7	36.40	262.4	316.8	430.8	358.3	121.5	118.6
3	8	41.60	215.0	259.2	352.5	293.6	101.7	94.1
3	9	46.80	127.8	153.9	209.4	174.6	61.2	56.7
3	10	52.00	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 2.2.6.3=SHEAR SUMMARY FOR NONCOMPOSITE CONSTRUCTION (UNFACTORED)

SP NO	IN NO	D FROM L SUPP (ft)	TOTAL DL (kips)	TOTAL POS LL+I (kips)	GOVERN LOAD TYPE	TOTAL NEG LL+I (kips)	GOVERN LOAD TYPE	TOTAL MAX ABS (kips)	TOTAL MIN ABS (kips)

1	0	0.00	1.5	26.6	-11.7	28.1	-10.1
1	1	2.92	0.0	22.8	-11.7	22.8	-11.7
1	2	5.85	-1.5	19.2	-12.0	-13.4	17.8
1	3	8.77	-2.9	15.9	-12.6	-15.5	13.0
1	4	11.70	-4.4	12.8	-15.0	-19.5	8.4
1	5	14.62	-5.9	10.0	-17.7	-23.6	4.1
1	6	17.55	-7.4	7.4	-20.8	-28.2	0.0
1	7	20.47	-8.9	5.1	-23.9	-32.8	-3.8
1	8	23.40	-10.4	3.1	-27.0	-37.4	-7.3
1	9	26.32	-11.9	1.4	-30.2	-42.0	-10.5
1	10	29.25	-13.4	0.9	-33.2	-46.6	-12.5
2	0	0.00	17.7	39.0	-3.2	56.8	14.5
2	1	7.18	14.1	34.3	-3.3	48.4	10.8
2	2	14.35	10.4	29.3	-4.2	39.7	6.2
2	3	21.53	6.8	24.3	-6.8	31.0	0.0
2	4	28.70	3.1	19.4	-10.1	22.5	-7.0
2	5	35.87	-0.5	14.7	-14.1	-14.6	14.2
2	6	43.05	-4.2	10.5	-18.5	-22.7	6.3
2	7	50.22	-7.9	6.8	-23.4	-31.3	-1.0
2	8	57.40	-11.5	3.8	-28.5	-40.0	-7.7
2	9	64.57	-15.2	1.5	-33.7	-48.9	-13.7
2	10	71.75	-18.8	0.9	-38.8	-57.6	-17.9
3	0	0.00	17.3	37.1	-0.1	54.4	17.2
3	1	5.20	14.7	33.2	-0.9	47.9	13.8
3	2	10.40	12.0	29.3	-2.5	41.3	9.5
3	3	15.60	9.4	25.3	-4.6	34.7	4.8
3	4	20.80	6.7	21.4	-7.2	28.1	-0.4
3	5	26.00	4.1	17.6	-10.2	21.6	-6.1
3	6	31.20	1.4	13.8	-13.6	15.3	-12.1
3	7	36.40	-1.2	10.3	-17.4	-18.6	9.0
3	8	41.60	-3.9	7.3	-21.6	-25.5	3.4
3	9	46.80	-6.5	5.0	-26.2	-32.8	-1.5
3	10	52.00	-9.2	4.9	-31.2	-40.4	-4.3

TABLE 1.2.6.4=SHEAR SUMMARY FOR NONCOMPOSITE CONSTRUCTION (LRFD)
****

SP NO	IN D NO L	FROM SUPT (ft)	SERVICE I (kips)	SERVICE II (kips)	STRENGTH I (kips)	STRENGTH II (kips)	STRENGTH IV (kips)	FATIGUE RANGE (kips)
1	0	0.00	28.1	36.1	48.6	38.0	2.3	19.2
1	1	2.92	22.8	29.7	40.0	30.8	0.1	17.4
1	2	5.85	17.8	23.6	32.6	24.9	-2.2	15.7
1	3	8.77	-15.5	-19.3	-26.1	-21.1	-4.4	14.0
1	4	11.70	-19.5	-24.0	-32.5	-26.5	-6.7	12.7
1	5	14.62	-23.6	-28.9	-39.2	-32.1	-8.9	12.5
1	6	17.55	-28.2	-34.4	-46.7	-38.4	-11.1	12.7
1	7	20.47	-32.8	-40.0	-54.3	-44.7	-13.4	12.9
1	8	23.40	-37.4	-45.6	-61.9	-51.1	-15.6	13.1
1	9	26.32	-42.0	-51.1	-69.4	-57.4	-17.8	13.3
1	10	29.25	-46.6	-56.6	-76.8	-63.6	-20.1	14.2
2	0	0.00	56.8	68.5	93.2	77.5	26.6	22.7
2	1	7.18	48.4	58.7	79.8	66.0	21.1	20.1
2	2	14.35	39.7	48.5	65.9	54.2	15.6	17.6
2	3	21.53	31.0	38.3	52.0	42.2	10.2	16.1
2	4	28.70	22.5	28.3	38.2	30.5	4.7	14.7
2	5	35.87	-14.6	-18.9	-25.4	-19.8	-0.8	13.4
2	6	43.05	-22.7	-28.3	-38.3	-30.9	-6.3	14.4
2	7	50.22	-31.3	-38.3	-51.9	-42.6	-11.8	15.5
2	8	57.40	-40.0	-48.6	-66.0	-54.6	-17.3	16.9
2	9	64.57	-48.9	-59.0	-80.2	-66.7	-22.8	18.5
2	10	71.75	-57.6	-69.2	-94.2	-78.7	-28.2	21.0
3	0	0.00	54.4	65.5	89.1	74.3	26.0	19.3
3	1	5.20	47.9	57.9	78.7	65.4	22.0	17.3
3	2	10.40	41.3	50.1	68.1	56.4	18.0	15.7
3	3	15.60	34.7	42.3	57.5	47.4	14.1	14.3
3	4	20.80	28.1	34.6	46.9	38.3	10.1	13.0
3	5	26.00	21.6	26.9	36.4	29.4	6.1	13.8
3	6	31.20	15.3	19.4	26.2	20.7	2.1	12.8
3	7	36.40	-18.6	-23.8	-32.2	-25.2	-1.8	13.3
3	8	41.60	-25.5	-32.0	-43.3	-34.6	-5.8	14.2
3	9	46.80	-32.8	-40.6	-55.0	-44.5	-9.8	16.1
3	10	52.00	-40.4	-49.7	-67.4	-54.9	-13.8	19.1

TABLE 2.2.7.2=SUMMARY OF REACTIONS (UNFACTORED)
****

SUPT NO.	TOTAL DEAD LOADS (K)	LL+I ,(K), LOAD TYPE = HL - 93 MINIMUM	GOVERN. LOAD TYPE	MAXIMUM	GOVERN. LOAD TYPE	TOTAL DL+LL+I (L R F D)	MINIMUM	MAXIMUM
1	1.53	-12.59	HL-93	26.56	HL-93	ST1	-18.70	48.62
						ST2	-19.50	42.53
						ST4	0.91	2.29
						SE1	-9.81	28.09
						SE2	-13.22	36.06
2	31.12	-4.78	HL-93	53.47	HL-93	ST1	14.97	137.14
						ST2	16.00	135.24
						ST4	18.65	46.68
						SE1	26.34	84.59
						SE2	24.91	100.63
3	36.16	-1.19	HL-93	88.29	HL-93	ST1	25.16	205.14
						ST2	25.32	191.01
						ST4	21.67	54.24
						SE1	35.04	124.45
						SE2	34.71	150.94
4	9.17	-5.23	HL-93	31.19	HL-93	ST1	-1.44	67.42
						ST2	-1.70	61.78
						ST4	5.50	13.75
						SE1	4.42	40.36
						SE2	2.99	49.72

NOTE: [1] " - " Indicates Uplift

ST1 = STRENGTH I; ST2 = STRENGTH II; SE1 = SERVICE I;SE2 = SERVICE II.

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER MERLIN V 10.6
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING NONCOMPOSITE
UNIVERSITY OF MARYLAND LRF -- 2012
ANALYSIS

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 14144C\EngData\Merl

TABLE 2.2.8.1=DEAD LOAD DEFLECTIONS FOR NONCOMPOSITE CONSTRUCTION (UNFACTORED)

SP NO	IN NO	D FROM L SUPT (ft)	DEAD LOAD BEAM (in)	DEAD LOAD SLAB (in)	CONCENTRATED LOADS (in)	UNIFORM LOADS (in)	T O T A L +=UP , -=DOWN
1	0	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
1	1	2.92	0.0018	0.0000	0.0000	0.0027	0.0045
1	2	5.85	0.0037	0.0000	0.0000	0.0055	0.0092
1	3	8.77	0.0055	0.0000	0.0000	0.0083	0.0138
1	4	11.70	0.0072	0.0000	0.0000	0.0109	0.0181
1	5	14.62	0.0087	0.0000	0.0000	0.0130	0.0217
1	6	17.55	0.0096	0.0000	0.0000	0.0144	0.0240
1	7	20.47	0.0096	0.0000	0.0000	0.0144	0.0240
1	8	23.40	0.0083	0.0000	0.0000	0.0125	0.0209
1	9	26.32	0.0053	0.0000	0.0000	0.0080	0.0133
1	10	29.25	0.0000	0.0000	0.0000	0.0000	0.0000
2	0	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
2	1	7.18	-0.0231	0.0000	0.0000	-0.0347	-0.0578
2	2	14.35	-0.0524	0.0000	0.0000	-0.0788	-0.1312
2	3	21.53	-0.0791	0.0000	0.0000	-0.1188	-0.1979
2	4	28.70	-0.0968	0.0000	0.0000	-0.1454	-0.2421
2	5	35.87	-0.1019	0.0000	0.0000	-0.1531	-0.2550
2	6	43.05	-0.0936	0.0000	0.0000	-0.1406	-0.2342
2	7	50.22	-0.0735	0.0000	0.0000	-0.1105	-0.1840
2	8	57.40	-0.0461	0.0000	0.0000	-0.0693	-0.1154
2	9	64.57	-0.0184	0.0000	0.0000	-0.0276	-0.0460
2	10	71.75	0.0000	0.0000	0.0000	0.0000	0.0000
3	0	0.00	0.0000	0.0000	0.0000	0.0000	0.0000
3	1	5.20	0.0022	0.0000	0.0000	0.0033	0.0056
3	2	10.40	-0.0025	0.0000	0.0000	-0.0037	-0.0062
3	3	15.60	-0.0104	0.0000	0.0000	-0.0157	-0.0261
3	4	20.80	-0.0186	0.0000	0.0000	-0.0280	-0.0466
3	5	26.00	-0.0249	0.0000	0.0000	-0.0374	-0.0623
3	6	31.20	-0.0277	0.0000	0.0000	-0.0416	-0.0693
3	7	36.40	-0.0262	0.0000	0.0000	-0.0394	-0.0657
3	8	41.60	-0.0206	0.0000	0.0000	-0.0309	-0.0515
3	9	46.80	-0.0113	0.0000	0.0000	-0.0170	-0.0284
3	10	52.00	0.0000	0.0000	0.0000	0.0000	0.0000

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING
UNIVERSITY OF MARYLAND

MERLIN V 10.6
NONCOMPOSITE
LRF -- 2012
ANALYSIS

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 15144C\EngData\Merl

TABLE 2.0.8.1A=CAMBER INFORMATION (UNFACTORED)
****

SP NO	IN NO	D L FROM SUPT (FT)	NONCOMPOSITE DEAD LOADS (IN) STEEL DEFL.	CAMBER SIZE	SLAB DEFL.	CAMBER SIZE	OTHER DL (IN) DEFL.	CAMBER SIZE	TOTAL (IN) DEFL.	CAMBER SIZE
1	0	0.0	0.000	--	0.000	--	0.000	--	0.000	--
1	1	2.9	0.002	0 -1/16	0.000	0 0/16	0.003	0 -1/16	0.005	0 -1/16
1	2	5.8	0.004	0 -1/16	0.000	0 0/16	0.006	0 -1/16	0.009	0 -1/16
1	3	8.8	0.006	0 -1/16	0.000	0 0/16	0.008	0 -1/16	0.014	0 -1/16
1	4	11.7	0.007	0 -1/16	0.000	0 0/16	0.011	0 -1/16	0.018	0 -1/16
1	5	14.6	0.009	0 -1/16	0.000	0 0/16	0.013	0 -1/16	0.022	0 -1/16
1	6	17.5	0.010	0 -1/16	0.000	0 0/16	0.014	0 -1/16	0.024	0 -1/16
1	7	20.5	0.010	0 -1/16	0.000	0 0/16	0.014	0 -1/16	0.024	0 -1/16
1	8	23.4	0.008	0 -1/16	0.000	0 0/16	0.013	0 -1/16	0.021	0 -1/16
1	9	26.3	0.005	0 -1/16	0.000	0 0/16	0.008	0 -1/16	0.013	0 -1/16
1	10	29.2	0.000	--	0.000	--	0.000	--	0.000	--
2	0	0.0	0.000	--	0.000	--	0.000	--	0.000	--
2	1	7.2	-0.023	0 1/16	0.000	0 0/16	-0.035	0 1/16	-0.058	0 1/16
2	2	14.4	-0.052	0 1/16	0.000	0 0/16	-0.079	0 1/ 8	-0.131	0 3/16
2	3	21.5	-0.079	0 1/ 8	0.000	0 0/16	-0.119	0 1/ 8	-0.198	0 1/ 4
2	4	28.7	-0.097	0 1/ 8	0.000	0 0/16	-0.145	0 3/16	-0.242	0 1/ 4
2	5	35.9	-0.102	0 1/ 8	0.000	0 0/16	-0.153	0 3/16	-0.255	0 5/16
2	6	43.0	-0.094	0 1/ 8	0.000	0 0/16	-0.141	0 3/16	-0.234	0 1/ 4
2	7	50.2	-0.074	0 1/ 8	0.000	0 0/16	-0.111	0 1/ 8	-0.184	0 3/16
2	8	57.4	-0.046	0 1/16	0.000	0 0/16	-0.069	0 1/ 8	-0.115	0 1/ 8
2	9	64.6	-0.018	0 1/16	0.000	0 0/16	-0.028	0 1/16	-0.046	0 1/16
2	10	71.7	0.000	--	0.000	--	0.000	--	0.000	--
3	0	0.0	0.000	--	0.000	--	0.000	--	0.000	--
3	1	5.2	0.002	0 -1/16	0.000	0 0/16	0.003	0 -1/16	0.006	0 -1/16
3	2	10.4	-0.002	0 1/16	0.000	0 0/16	-0.004	0 1/16	-0.006	0 1/16
3	3	15.6	-0.010	0 1/16	0.000	0 0/16	-0.016	0 1/16	-0.026	0 1/16
3	4	20.8	-0.019	0 1/16	0.000	0 0/16	-0.028	0 1/16	-0.047	0 1/16
3	5	26.0	-0.025	0 1/16	0.000	0 0/16	-0.037	0 1/16	-0.062	0 1/16

```
  3  6  31.2 -0.028  0   1/16  0.000  0   0/16 -0.042  0   1/16 -0.069  0   1/ 8
  3  7  36.4 -0.026  0   1/16  0.000  0   0/16 -0.039  0   1/16 -0.066  0   1/ 8
  3  8  41.6 -0.021  0   1/16  0.000  0   0/16 -0.031  0   1/16 -0.051  0   1/16
  3  9  46.8 -0.011  0   1/16  0.000  0   0/16 -0.017  0   1/16 -0.028  0   1/16
  3 10  52.0  0.000    --      0.000    --      0.000    --      0.000    --


 ------------------------------------------------------------------------------
 NOTE: for camber, please refer to AASHTO' Art.10.14 or LRFD Art. 6.7.2
1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    ANALYSIS
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
16144C\EngData\Merl

     TABLE 2.1.8.1B=LOCATION OF DEAD LOAD POINT OF CONTRAFLEXURE (UNFACTORED)
                   ******************************************

     SP  DEAD LOAD POINT OF CONTRAFLEXURE  DEAD LOAD POINT OF CONTRAFLEXURE
     NO  -------------------------------  -------------------------------
         LEFT,  DIST. FROM LEFT SUPT,(ft)  RIGHT,  DIST. FROM LEFT SUPT,(ft)
     ------------------------------------------------------------------------

      1                   14.62                                 14.62

      2                   35.87                                 35.87

      3                   26.00                                 26.00

     ------------------------------------------------------------------------
1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    ANALYSIS
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
17144C\EngData\Merl


     TABLE 2.2.8.2=MAX. LIVE LOAD DEFLECTIONS FOR NONCOMP. CONSTRUCTIONS
                   ****************************************************
                    (UNFACTORED)

                  NUMBER OF LANE   LL + I.
          D FROM -----AND------ DEFLECTION  GOVERN.  1/800 OF SPAN L  ROTATION
     SPAN  L SUPT  DIST. FACTOR  ------------  LOAD   ---------------------
      NO.   (ft)   FOR LL DEFL.     (inch)     TYPE   AASHTO 2.5.2.6.2  [5] Rad.
     ------------------------------------------------------------------------
```

1	14.62	1	0.333	-0.044 MAX 0.040 MIN -0.008 MAX LANE 0.015 MIN LANE	HL-93	0.44	0.00023
2	35.87	1	0.333	-0.500 MAX 0.102 MIN -0.112 MAX LANE 0.032 MIN LANE	HL-93	1.08	0.00070
3	26.00	1	0.333	-0.272 MAX 0.120 MIN -0.055 MAX LANE 0.036 MIN LANE	HL-93	0.78	0.00065

NOTE: [1] " - " indicates downward deflection

[2] The distribution factor for LL+I deflection is defined as

DF = (NL/Ng) ..... AASHTO LRFD Art. 2.5.2.6

where NL= no. of traffic lanes
Ng= no. of girders

[3] This table is based upon the optional criteria specified in AASHTO LRFD Art. 3.6.1.3.2

[4] The number of traffic lanes is determined according to AASHTO LRFD Art.3.6.1.1.1.
The 1st line is for the most probable number of lanes and the 2nd line is for the next probable number of lanes.

[5] Max rotations at left (1st line) & right (2nd line) supports of the span without averaging, factor and impact

[6] If ADTT is between 100 and 1000, multi-presence factor of 0.95 is applied. If ADTT is below 100, factor is 0.9 (AASHTO LRFD C3.6.1.1.2).

TABLE 2.2.9.3A=SERVICE I TOTAL (DC+DW+(LL+I)) STRESS SUMMARY

****

SP NO	IND NO	FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.01	1.01	0.44	-0.44
1	2	5.85	33.	33.	-1.27	1.27	0.55	-0.55
1	3	8.77	33.	33.	-2.03	2.03	1.56	-1.56
1	4	11.70	33.	33.	-2.07	2.07	2.24	-2.24
1	5	14.62	33.	33.	-1.56	1.56	2.75	-2.75
1	6	17.55	33.	33.	-1.13	1.13	4.25	-4.25
1	7	20.47	33.	33.	-0.43	0.43	5.34	-5.34
1	8	23.40	33.	33.	0.53	-0.53	6.51	-6.51
1	9	26.32	33.	33.	1.69	-1.69	7.87	-7.87
1	10	29.25	33.	33.	2.36	-2.36	8.37	-8.37
2	0	0.00	33.	33.	2.36	-2.36	8.37	-8.37
2	1	7.18	33.	33.	0.30	-0.30	3.91	-3.91
2	2	14.35	33.	33.	-2.46	2.46	0.60	-0.60
2	3	21.53	33.	33.	-4.92	4.92	-1.09	1.09
2	4	28.70	33.	33.	-6.65	6.65	-1.77	1.77
2	5	35.87	33.	33.	-6.87	6.87	-1.73	1.73
2	6	43.05	33.	33.	-6.36	6.36	-0.98	0.98
2	7	50.22	33.	33.	-4.85	4.85	0.31	-0.31
2	8	57.40	33.	33.	-2.31	2.31	2.00	-2.00
2	9	64.57	33.	33.	0.80	-0.80	5.27	-5.27
2	10	71.75	33.	33.	3.67	-3.67	7.69	-7.69
3	0	0.00	33.	33.	3.67	-3.67	7.69	-7.69
3	1	5.20	33.	33.	1.66	-1.66	7.00	-7.00
3	2	10.40	33.	33.	-0.67	0.67	4.44	-4.44
3	3	15.60	33.	33.	-2.73	2.73	3.05	-3.05
3	4	20.80	33.	33.	-4.21	4.21	1.10	-1.10
3	5	26.00	33.	33.	-5.24	5.24	0.36	-0.36
3	6	31.20	33.	33.	-4.91	4.91	-0.84	0.84
3	7	36.40	33.	33.	-4.75	4.75	-1.00	1.00
3	8	41.60	33.	33.	-3.89	3.89	-0.92	0.92
3	9	46.80	33.	33.	-2.31	2.31	-0.58	0.58
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.9.3B=SERVICE II TOTAL (DC+DW+1.3(LL+I)) STRESS SUMMARY

****

SP NO	IN NO	D L FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.30	1.30	0.59	-0.59
1	2	5.85	33.	33.	-1.65	1.65	0.71	-0.71
1	3	8.77	33.	33.	-2.68	2.68	2.00	-2.00
1	4	11.70	33.	33.	-2.78	2.78	2.82	-2.82
1	5	14.62	33.	33.	-2.20	2.20	3.40	-3.40
1	6	17.55	33.	33.	-1.75	1.75	5.24	-5.24
1	7	20.47	33.	33.	-0.97	0.97	6.53	-6.53
1	8	23.40	33.	33.	0.12	-0.12	7.90	-7.90
1	9	26.32	33.	33.	1.46	-1.46	9.48	-9.48
1	10	29.25	33.	33.	2.13	-2.13	9.95	-9.95
2	0	0.00	33.	33.	2.13	-2.13	9.95	-9.95
2	1	7.18	33.	33.	0.07	-0.07	4.76	-4.76
2	2	14.35	33.	33.	-3.04	3.04	0.94	-0.94
2	3	21.53	33.	33.	-5.91	5.91	-0.92	0.92
2	4	28.70	33.	33.	-7.96	7.96	-1.62	1.62
2	5	35.87	33.	33.	-8.20	8.20	-1.51	1.51
2	6	43.05	33.	33.	-7.62	7.62	-0.63	0.63
2	7	50.22	33.	33.	-5.90	5.90	0.80	-0.80
2	8	57.40	33.	33.	-2.98	2.98	2.63	-2.63
2	9	64.57	33.	33.	0.55	-0.55	6.36	-6.36
2	10	71.75	33.	33.	3.62	-3.62	8.85	-8.85
3	0	0.00	33.	33.	3.62	-3.62	8.85	-8.85
3	1	5.20	33.	33.	1.46	-1.46	8.40	-8.40
3	2	10.40	33.	33.	-1.20	1.20	5.45	-5.45
3	3	15.60	33.	33.	-3.57	3.57	3.94	-3.94
3	4	20.80	33.	33.	-5.27	5.27	1.64	-1.64
3	5	26.00	33.	33.	-6.46	6.46	0.82	-0.82
3	6	31.20	33.	33.	-5.94	5.94	-0.66	0.66
3	7	36.40	33.	33.	-5.73	5.73	-0.87	0.87
3	8	41.60	33.	33.	-4.69	4.69	-0.83	0.83
3	9	46.80	33.	33.	-2.79	2.79	-0.54	0.54
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.9.3C=STRENGTH I TOTAL (1.25DC+1.50DW+1.75(LL+I)) STRESS SUMMARY

****

SP NO	IN NO	D L FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.76	1.76	0.79	-0.79
1	2	5.85	33.	33.	-2.22	2.22	0.96	-0.96
1	3	8.77	33.	33.	-3.60	3.60	2.69	-2.69
1	4	11.70	33.	33.	-3.72	3.72	3.81	-3.81
1	5	14.62	33.	33.	-2.93	2.93	4.61	-4.61
1	6	17.55	33.	33.	-2.30	2.30	7.11	-7.11
1	7	20.47	33.	33.	-1.23	1.23	8.87	-8.87
1	8	23.40	33.	33.	0.26	-0.26	10.73	-10.73
1	9	26.32	33.	33.	2.10	-2.10	12.90	-12.90
1	10	29.25	33.	33.	3.04	-3.04	13.56	-13.56
2	0	0.00	33.	33.	3.04	-3.04	13.56	-13.56
2	1	7.18	33.	33.	0.15	-0.15	6.47	-6.47
2	2	14.35	33.	33.	-4.12	4.12	1.23	-1.23
2	3	21.53	33.	33.	-8.04	8.04	-1.33	1.33
2	4	28.70	33.	33.	-10.84	10.84	-2.30	2.30
2	5	35.87	33.	33.	-11.16	11.16	-2.16	2.16
2	6	43.05	33.	33.	-10.37	10.37	-0.97	0.97
2	7	50.22	33.	33.	-8.01	8.01	1.01	-1.01
2	8	57.40	33.	33.	-4.02	4.02	3.53	-3.53
2	9	64.57	33.	33.	0.82	-0.82	8.65	-8.65
2	10	71.75	33.	33.	5.08	-5.08	12.12	-12.12
3	0	0.00	33.	33.	5.08	-5.08	12.12	-12.12
3	1	5.20	33.	33.	2.09	-2.09	11.44	-11.44
3	2	10.40	33.	33.	-1.56	1.56	7.40	-7.40
3	3	15.60	33.	33.	-4.80	4.80	5.31	-5.31
3	4	20.80	33.	33.	-7.13	7.13	2.17	-2.17
3	5	26.00	33.	33.	-8.76	8.76	1.04	-1.04
3	6	31.20	33.	33.	-8.08	8.08	-0.96	0.96
3	7	36.40	33.	33.	-7.80	7.80	-1.24	1.24
3	8	41.60	33.	33.	-6.38	6.38	-1.18	1.18
3	9	46.80	33.	33.	-3.79	3.79	-0.76	0.76
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.9.3D=STRENGTH I TOTAL (0.90DC+0.65DW+1.75(LL+I)) STRESS SUMMARY

****

SP NO	IND NO	FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.73	1.73	0.81	-0.81
1	2	5.85	33.	33.	-2.22	2.22	0.96	-0.96
1	3	8.77	33.	33.	-3.67	3.67	2.62	-2.62
1	4	11.70	33.	33.	-3.92	3.92	3.61	-3.61
1	5	14.62	33.	33.	-3.31	3.31	4.23	-4.23
1	6	17.55	33.	33.	-2.91	2.91	6.50	-6.50
1	7	20.47	33.	33.	-2.11	2.11	7.98	-7.98
1	8	23.40	33.	33.	-0.96	0.96	9.51	-9.51
1	9	26.32	33.	33.	0.49	-0.49	11.30	-11.30
1	10	29.25	33.	33.	1.00	-1.00	11.52	-11.52
2	0	0.00	33.	33.	1.00	-1.00	11.52	-11.52
2	1	7.18	33.	33.	-0.55	0.55	5.77	-5.77
2	2	14.35	33.	33.	-3.78	3.78	1.57	-1.57
2	3	21.53	33.	33.	-6.98	6.98	-0.27	0.27
2	4	28.70	33.	33.	-9.36	9.36	-0.82	0.82
2	5	35.87	33.	33.	-9.57	9.57	-0.57	0.57
2	6	43.05	33.	33.	-8.98	8.98	0.42	-0.42
2	7	50.22	33.	33.	-7.13	7.13	1.89	-1.89
2	8	57.40	33.	33.	-3.95	3.95	3.60	-3.60
2	9	64.57	33.	33.	-0.24	0.24	7.58	-7.58
2	10	71.75	33.	33.	2.58	-2.58	9.62	-9.62
3	0	0.00	33.	33.	2.58	-2.58	9.62	-9.62
3	1	5.20	33.	33.	0.57	-0.57	9.92	-9.92
3	2	10.40	33.	33.	-2.26	2.26	6.70	-6.70
3	3	15.60	33.	33.	-4.84	4.84	5.27	-5.27
3	4	20.80	33.	33.	-6.68	6.68	2.62	-2.62
3	5	26.00	33.	33.	-7.98	7.98	1.82	-1.82
3	6	31.20	33.	33.	-7.13	7.13	-0.01	0.01
3	7	36.40	33.	33.	-6.84	6.84	-0.29	0.29
3	8	41.60	33.	33.	-5.58	5.58	-0.38	0.38
3	9	46.80	33.	33.	-3.31	3.31	-0.28	0.28
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.9.3E=STRENGTH II TOTAL (1.25DC+1.50DW+1.35(LL+I)) STRESS SUMMARY

****

SP NO	IN NO	D L FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.37	1.37	0.59	-0.59
1	2	5.85	33.	33.	-1.72	1.72	0.74	-0.74
1	3	8.77	33.	33.	-2.74	2.74	2.11	-2.11
1	4	11.70	33.	33.	-2.77	2.77	3.04	-3.04
1	5	14.62	33.	33.	-2.07	2.07	3.74	-3.74
1	6	17.55	33.	33.	-1.48	1.48	5.78	-5.78
1	7	20.47	33.	33.	-0.51	0.51	7.28	-7.28
1	8	23.40	33.	33.	0.80	-0.80	8.88	-8.88
1	9	26.32	33.	33.	2.41	-2.41	10.74	-10.74
1	10	29.25	33.	33.	3.35	-3.35	11.46	-11.46
2	0	0.00	33.	33.	3.35	-3.35	11.46	-11.46
2	1	7.18	33.	33.	0.46	-0.46	5.33	-5.33
2	2	14.35	33.	33.	-3.34	3.34	0.79	-0.79
2	3	21.53	33.	33.	-6.73	6.73	-1.55	1.55
2	4	28.70	33.	33.	-9.09	9.09	-2.50	2.50
2	5	35.87	33.	33.	-9.39	9.39	-2.45	2.45
2	6	43.05	33.	33.	-8.69	8.69	-1.43	1.43
2	7	50.22	33.	33.	-6.62	6.62	0.34	-0.34
2	8	57.40	33.	33.	-3.13	3.13	2.69	-2.69
2	9	64.57	33.	33.	1.16	-1.16	7.19	-7.19
2	10	71.75	33.	33.	5.15	-5.15	10.58	-10.58
3	0	0.00	33.	33.	5.15	-5.15	10.58	-10.58
3	1	5.20	33.	33.	2.36	-2.36	9.57	-9.57
3	2	10.40	33.	33.	-0.86	0.86	6.05	-6.05
3	3	15.60	33.	33.	-3.68	3.68	4.12	-4.12
3	4	20.80	33.	33.	-5.72	5.72	1.46	-1.46
3	5	26.00	33.	33.	-7.14	7.14	0.42	-0.42
3	6	31.20	33.	33.	-6.70	6.70	-1.21	1.21
3	7	36.40	33.	33.	-6.48	6.48	-1.43	1.43
3	8	41.60	33.	33.	-5.31	5.31	-1.30	1.30
3	9	46.80	33.	33.	-3.16	3.16	-0.83	0.83
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.9.3F=STRENGTH II TOTAL (0.90DC+0.65DW+1.35(LL+I)) STRESS SUMMARY

****

SP NO	IND NO	FROM SUPT (ft)	YIELD STRESS Fy (ksi) TOP	YIELD STRESS Fy (ksi) BOT	MAXIMUM POSITIVE,(ksi) ------STEEL----- TOP	MAXIMUM POSITIVE,(ksi) ------STEEL----- BOT	MAXIMUM NEGATIVE,(ksi) -----STEEL------ TOP	MAXIMUM NEGATIVE,(ksi) -----STEEL------ BOT
1	0	0.00	33.	33.	0.00	0.00	0.00	0.00
1	1	2.92	33.	33.	-1.34	1.34	0.62	-0.62
1	2	5.85	33.	33.	-1.71	1.71	0.74	-0.74
1	3	8.77	33.	33.	-2.81	2.81	2.04	-2.04
1	4	11.70	33.	33.	-2.97	2.97	2.84	-2.84
1	5	14.62	33.	33.	-2.45	2.45	3.37	-3.37
1	6	17.55	33.	33.	-2.08	2.08	5.17	-5.17
1	7	20.47	33.	33.	-1.40	1.40	6.39	-6.39
1	8	23.40	33.	33.	-0.42	0.42	7.66	-7.66
1	9	26.32	33.	33.	0.80	-0.80	9.14	-9.14
1	10	29.25	33.	33.	1.31	-1.31	9.42	-9.42
2	0	0.00	33.	33.	1.31	-1.31	9.42	-9.42
2	1	7.18	33.	33.	-0.24	0.24	4.63	-4.63
2	2	14.35	33.	33.	-3.00	3.00	1.12	-1.12
2	3	21.53	33.	33.	-5.66	5.66	-0.49	0.49
2	4	28.70	33.	33.	-7.61	7.61	-1.02	1.02
2	5	35.87	33.	33.	-7.80	7.80	-0.86	0.86
2	6	43.05	33.	33.	-7.30	7.30	-0.04	0.04
2	7	50.22	33.	33.	-5.73	5.73	1.23	-1.23
2	8	57.40	33.	33.	-3.07	3.07	2.76	-2.76
2	9	64.57	33.	33.	0.10	-0.10	6.13	-6.13
2	10	71.75	33.	33.	2.65	-2.65	8.08	-8.08
3	0	0.00	33.	33.	2.65	-2.65	8.08	-8.08
3	1	5.20	33.	33.	0.84	-0.84	8.05	-8.05
3	2	10.40	33.	33.	-1.56	1.56	5.35	-5.35
3	3	15.60	33.	33.	-3.72	3.72	4.07	-4.07
3	4	20.80	33.	33.	-5.27	5.27	1.90	-1.90
3	5	26.00	33.	33.	-6.36	6.36	1.20	-1.20
3	6	31.20	33.	33.	-5.75	5.75	-0.26	0.26
3	7	36.40	33.	33.	-5.53	5.53	-0.48	0.48
3	8	41.60	33.	33.	-4.52	4.52	-0.50	0.50
3	9	46.80	33.	33.	-2.68	2.68	-0.35	0.35
3	10	52.00	33.	33.	0.00	0.00	0.00	0.00

TABLE 2.2.22.6=FLANGE PROPORTIONS CHECK
****

SP NO	D FROM NO	L SUPT (ft)	bf/2tf [1]	bf (in)	[2] (in)	tf (in)	[3] (in)	Iyc/Iyt	FLAG
1	0	0.00	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	1	2.92	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	2	5.85	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	3	8.77	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	4	11.70	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	5	14.62	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	6	17.55	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	7	20.47	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0
1	8	23.40	4.81	12.	12.1	5.7	1.259	0.840	
			4.81	12.	12.1	5.7	1.259	0.840	1.00 0

```
1  9  26.32   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
1 10  29.25   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0


2  0   0.00   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  1   7.18   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  2  14.35   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  3  21.53   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  4  28.70   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  5  35.87   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  6  43.05   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  7  50.22   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  8  57.40   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2  9  64.57   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
2 10  71.75   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0


3  0   0.00   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  1   5.20   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  2  10.40   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  3  15.60   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  4  20.80   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  5  26.00   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  6  31.20   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  7  36.40   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  8  41.60   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
3  9  46.80   4.81 12.  12.1   5.7  1.259  0.840
              4.81 12.  12.1   5.7  1.259  0.840    1.00    0
```

```
  3 10  52.00   4.81 12.  12.1   5.7  1.259  0.840
                4.81 12.  12.1   5.7  1.259  0.840    1.00    0


 ------------------------------------------------------------

   NOTE: [1] = 12.  (Eq. 6.10.2.2-1)
         [2] = D/6  (Eq. 6.10.2.2-2)
         [3] = 1.1tw  (Eq. 6.10.2.2-3)

         For each nodal point, the 1st line checked criteria for top
         flange and the 2nd line checked criteria for bottom flange
1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    CODE CHECK
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
22144C\EngData\Merl

 TABLE  1.2.22.7.0=CB VALUES FOR LATERAL BRACING
                  ****************************

         DIST.   FROM
 LATERAL LEFT    SUPT
 BRACING ----(FT)----   fo      f2     fmid     f1
   NO    FROM      TO  (ksi)   (ksi)   (ksi)   (ksi)     Cb
-------------------------------------------------------------

    1      0.0  15.0   0.000   4.931   1.936   0.000   1.750
    2     15.0  30.0   4.931  12.816  10.159   7.502   1.238
    3     30.0  45.0   0.963  12.816   5.732   0.963   1.673
    4     45.0  60.0   0.000   0.963  -1.779   0.000   1.750
    5     60.0  75.0   0.000   0.000  -2.115   0.000   1.000
    6     75.0  90.0   0.000   5.954   2.609   0.000   1.750
    7     90.0 105.0   5.954  11.593  10.425   9.257   1.103
    8    105.0 120.0   3.553  11.593   6.959   3.553   1.456
    9    120.0 135.0   0.000   3.553   1.530   0.000   1.750

-------------------------------------------------------------
 Note: f0, f2, fmid, f1, and Cb are defined in Art. 6.10.8.2.3
1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    CODE CHECK
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
23144C\EngData\Merl

 TABLE  1.2.22.7B=FLB AND LTB RESISTANCE
```

****

SP NO	IN NO	D L	FROM SUPT (ft)	Comp	Rh	Rb	Cb	FLB Fnc (Ksi)	LTB Fnc (Ksi)	GOV Fnc (Ksi)
1	0		0.00	1	1.000	1.000	1.75	33.00	33.00	33.00
1	1		2.92	1	1.000	1.000	1.75	33.00	33.00	33.00
1	2		5.85	1	1.000	1.000	1.75	33.00	33.00	33.00
1	3		8.77	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.75	33.00	33.00	33.00
1	4		11.70	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.75	33.00	33.00	33.00
1	5		14.62	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.75	33.00	33.00	33.00
1	6		17.55	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
1	7		20.47	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
1	8		23.40	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
1	9		26.32	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
1	10		29.25	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
2	0		0.00	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.24	33.00	33.00	33.00
2	1		7.18	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.67	33.00	33.00	33.00
2	2		14.35	1	1.000	1.000	1.67	33.00	33.00	33.00
2	3		21.53	1	1.000	1.000	1.75	33.00	33.00	33.00
2	4		28.70	1	1.000	1.000	1.75	33.00	33.00	33.00
2	5		35.87	1	1.000	1.000	1.00	33.00	29.51	29.51
2	6		43.05	1	1.000	1.000	1.00	33.00	29.51	29.51
2	7		50.22	1	1.000	1.000	1.75	33.00	33.00	33.00
2	8		57.40	1	1.000	1.000	1.75	33.00	33.00	33.00
2	9		64.57	0	1.000	1.000	0.00	33.00	32.55	32.55
					1.000	1.000	1.10	33.00	32.55	32.55
2	10		71.75	0	1.000	1.000	0.00	33.00	32.55	32.55
					1.000	1.000	1.10	33.00	32.55	32.55
3	0		0.00	0	1.000	1.000	0.00	33.00	32.55	32.55
					1.000	1.000	1.10	33.00	32.55	32.55
3	1		5.20	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.46	33.00	33.00	33.00
3	2		10.40	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.46	33.00	33.00	33.00
3	3		15.60	0	1.000	1.000	0.00	33.00	33.00	33.00
					1.000	1.000	1.46	33.00	33.00	33.00
3	4		20.80	1	1.000	1.000	1.75	33.00	33.00	33.00

3	5	26.00	1	1.000	1.000	1.75	33.00	33.00	33.00
3	6	31.20	1	1.000	1.000	1.75	33.00	33.00	33.00
3	7	36.40	1	1.000	1.000	1.00	33.00	29.51	29.51
3	8	41.60	1	1.000	1.000	1.00	33.00	29.51	29.51
3	9	46.80	1	1.000	1.000	1.00	33.00	29.51	29.51
3	10	52.00	1	1.000	1.000	1.00	33.00	29.51	29.51

Note: In the positive moment region, the result is for DL case
In the negative moment region, the 1st line is for DL case
and the 2nd line is for LL case

1

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER — MERLIN V 10.6
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING — NONCOMPOSITE
UNIVERSITY OF MARYLAND — LRF -- 2012
CODE CHECK

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 24144C\EngData\Merl

TABLE 2.2.22.10=CONSTRUCTIBILITY CHECK (STRENGTH IV)
****

SP	IN	D	FROM (ft)	fl (ksi)	0.6Fyt (ksi)	fbu (ksi)	[1] (ksi)	fbu+fl (ksi)	[2] (ksi)	fbu+1/3fl (ksi)	[3] (ksi)	FLAG
1	0		0.00	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
				0.0	-	0.0	-	0.0	33.0	-	-	0
1	1		2.92	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
				0.0	-	0.0	-	0.0	33.0	-	-	0
1	2		5.85	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
				0.0	-	0.0	-	0.0	33.0	-	-	0
1	3		8.77	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	4		11.70	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	5		14.62	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	6		17.55	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	7		20.47	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	8		23.40	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	9		26.32	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
1	10		29.25	0.0	-	0.0	-	0.0	33.0	-	-	0
				0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0

2	0	0.00	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
2	1	7.18	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
2	2	14.35	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	3	21.53	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	4	28.70	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	5	35.87	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	6	43.05	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	7	50.22	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	8	57.40	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
2	9	64.57	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	32.6	0
2	10	71.75	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	32.6	0
3	0	0.00	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	32.6	0
3	1	5.20	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
3	2	10.40	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
3	3	15.60	0.0	-	0.0	-	0.0	33.0	-	-	0
			0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
3	4	20.80	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	5	26.00	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	6	31.20	0.0	19.8	0.0	33.0	0.0	33.0	0.0	33.0	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	7	36.40	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	8	41.60	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	9	46.80	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0
3	10	52.00	0.0	19.8	0.0	33.0	0.0	33.0	0.0	29.5	0
			0.0	-	0.0	-	0.0	33.0	-	-	0

NOTE: [1] = (PHI)f * Fcrw (Eq. 6.10.3.2.1-3)
[2] = (PHI)f * Rh * Fyc (Eq. 6.10.3.2.1-1) or
= (PHI)f * Rh * Fyt (Eq. 6.10.3.2.2-1)
[3] = (PHI)f * Fnc (Eq. 6.10.3.2.1-2)

"-" is N.A.
Under FLAG Column, 0 = OK; 1= NG

For each nodal point, the 1st line checked criteria for top flange and the 2nd line checked criteria for bottom flange

The values of fbu and fl shall be determined based on factored loads, and shall be taken as positive in sign in all resistance equations (Art. 6.10.1.6)

The value of fbu is the actual stress in this table, the users can use the maximum value within the unbraced length to do their own check

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING
UNIVERSITY OF MARYLAND

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 25144C\EngData\Merl

TABLE 2.2.22.10A=RATIO OF APPLIED STRESS AND THE CAPACITY
****

SP	IN	D	FROM	fl/ 0.6Fyt	fbu/ [1]	fbu+fl/ [2]	fbu+1/3fl/ [3]	MAX. RAT.	GOVN.
1	0		0.00	0.000	0.000	0.000	0.000	0.000	1
						0.000		0.000	3
1	1		2.92	0.000	0.000	0.000	0.000	0.000	1
						0.000		0.000	3
1	2		5.85	0.000	0.000	0.000	0.000	0.000	1
						0.000		0.000	3
1	3		8.77			0.000		0.000	3
				0.000	0.000	0.000	0.000	0.000	1
1	4		11.70			0.000		0.000	3
				0.000	0.000	0.000	0.000	0.000	1
1	5		14.62			0.000		0.000	3
				0.000	0.000	0.000	0.000	0.000	1
1	6		17.55			0.000		0.000	3
				0.000	0.000	0.000	0.000	0.000	1
1	7		20.47			0.000		0.000	3
				0.000	0.000	0.000	0.000	0.000	1
1	8		23.40			0.000		0.000	3

```
                    0.000      0.000      0.000      0.000 0.000     1
1  9  26.32                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
1 10  29.25                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1


2  0   0.00                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
2  1   7.18                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
2  2  14.35      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  3  21.53      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  4  28.70      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  5  35.87      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  6  43.05      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  7  50.22      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  8  57.40      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
2  9  64.57                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
2 10  71.75                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1


3  0   0.00                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
3  1   5.20                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
3  2  10.40                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
3  3  15.60                                0.000           0.000     3
                    0.000      0.000      0.000      0.000 0.000     1
3  4  20.80      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
3  5  26.00      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
3  6  31.20      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
3  7  36.40      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
3  8  41.60      0.000      0.000      0.000      0.000 0.000     1
                                          0.000           0.000     3
3  9  46.80      0.000      0.000      0.000      0.000 0.000     1
```

							0.000		0.000		3
3	10	52.00	0.000	0.000	0.000	0.000	0.000		0.000		1
							0.000		0.000		3

NOTE: [1] = (PHI)f * Fcrw (Eq. 6.10.3.2.1-3)
[2] = (PHI)f * Rh * Fyc (Eq. 6.10.3.2.1-1) or
= (PHI)f * Rh * Fyt (Eq. 6.10.3.2.2-1)
[3] = (PHI)f * Fnc (Eq. 6.10.3.2.1-2)

The governing number is listed as below.
1 = fl / 0.6Fyt
2 = fbu / [1]
3 = fbu + fl / [2]
4 = (fbu + 1/3fl) / [3]

TABLE 2.2.22.14=STRENGTH LIMIT STATE CHECK
****

SP NO	IN NO	D L	FROM SUPT (ft)	ID	Mu+1/3flSxt (k-ft)	[1] (k-ft)	fbu (ksi)	[2] (ksi)	fl (ksi)	[3] (ksi)	fbu+ 1/3fl (ksi)	[4] (ksi)	FLAG MCTD
1	0		0.00	0	-	-	0.0	-	0.0	19.8	0.0	33.0	--0-
					-	-	0.0	-	0.0	19.8	0.0	33.0	-0--
1	1		2.92	0	-	-	1.8	-	0.0	19.8	1.8	33.0	-0--
					-	-	1.8	-	0.0	19.8	1.8	33.0	--0-
1	2		5.85	0	-	-	2.2	-	0.0	19.8	2.2	33.0	-0--
					-	-	2.2	-	0.0	19.8	2.2	33.0	--0-
1	3		8.77	0	-	-	3.7	-	0.0	19.8	3.7	33.0	-0--
					-	-	3.7	-	0.0	19.8	3.7	33.0	--0-
1	4		11.70	0	-	-	3.9	-	0.0	19.8	3.9	33.0	-0--
					-	-	3.9	-	0.0	19.8	3.9	33.0	--0-
1	5		14.62	0	-	-	4.6	-	0.0	19.8	4.6	33.0	--0-
					-	-	4.6	-	0.0	19.8	4.6	33.0	-0--
1	6		17.55	0	-	-	7.1	-	0.0	19.8	7.1	33.0	--0-
					-	-	7.1	-	0.0	19.8	7.1	33.0	-0--
1	7		20.47	0	-	-	8.9	-	0.0	19.8	8.9	33.0	--0-
					-	-	8.9	-	0.0	19.8	8.9	33.0	-0--

1	8	23.40	0	-	-	10.7	-	0.0	19.8	10.7	33.0	--0-
				-	-	10.7	-	0.0	19.8	10.7	33.0	-0--
1	9	26.32	0	-	-	12.9	-	0.0	19.8	12.9	33.0	--0-
				-	-	12.9	-	0.0	19.8	12.9	33.0	-0--
1	10	29.25	0	-	-	13.6	-	0.0	19.8	13.6	33.0	--0-
				-	-	13.6	-	0.0	19.8	13.6	33.0	-0--
2	0	0.00	0	-	-	13.6	-	0.0	19.8	13.6	33.0	--0-
				-	-	13.6	-	0.0	19.8	13.6	33.0	-0--
2	1	7.18	0	-	-	6.5	-	0.0	19.8	6.5	33.0	--0-
				-	-	6.5	-	0.0	19.8	6.5	33.0	-0--
2	2	14.35	0	-	-	4.1	-	0.0	19.8	4.1	33.0	-0--
				-	-	4.1	-	0.0	19.8	4.1	33.0	--0-
2	3	21.53	0	-	-	8.0	-	0.0	19.8	8.0	33.0	-0--
				-	-	8.0	-	0.0	19.8	8.0	33.0	--0-
2	4	28.70	0	-	-	10.8	-	0.0	19.8	10.8	33.0	-0--
				-	-	10.8	-	0.0	19.8	10.8	33.0	--0-
2	5	35.87	0	-	-	11.2	-	0.0	19.8	11.2	29.5	-0--
				-	-	11.2	-	0.0	19.8	11.2	33.0	--0-
2	6	43.05	0	-	-	10.4	-	0.0	19.8	10.4	29.5	-0--
				-	-	10.4	-	0.0	19.8	10.4	33.0	--0-
2	7	50.22	0	-	-	8.0	-	0.0	19.8	8.0	33.0	-0--
				-	-	8.0	-	0.0	19.8	8.0	33.0	--0-
2	8	57.40	0	-	-	4.0	-	0.0	19.8	4.0	33.0	-0--
				-	-	4.0	-	0.0	19.8	4.0	33.0	--0-
2	9	64.57	0	-	-	8.6	-	0.0	19.8	8.6	33.0	--0-
				-	-	8.6	-	0.0	19.8	8.6	32.6	-0--
2	10	71.75	0	-	-	12.1	-	0.0	19.8	12.1	33.0	--0-
				-	-	12.1	-	0.0	19.8	12.1	32.6	-0--
3	0	0.00	0	-	-	12.1	-	0.0	19.8	12.1	33.0	--0-
				-	-	12.1	-	0.0	19.8	12.1	32.6	-0--
3	1	5.20	0	-	-	11.4	-	0.0	19.8	11.4	33.0	--0-
				-	-	11.4	-	0.0	19.8	11.4	33.0	-0--
3	2	10.40	0	-	-	7.4	-	0.0	19.8	7.4	33.0	--0-
				-	-	7.4	-	0.0	19.8	7.4	33.0	-0--
3	3	15.60	0	-	-	5.3	-	0.0	19.8	5.3	33.0	--0-
				-	-	5.3	-	0.0	19.8	5.3	33.0	-0--
3	4	20.80	0	-	-	7.1	-	0.0	19.8	7.1	33.0	-0--
				-	-	7.1	-	0.0	19.8	7.1	33.0	--0-
3	5	26.00	0	-	-	8.8	-	0.0	19.8	8.8	33.0	-0--
				-	-	8.8	-	0.0	19.8	8.8	33.0	--0-
3	6	31.20	0	-	-	8.1	-	0.0	19.8	8.1	33.0	-0--
				-	-	8.1	-	0.0	19.8	8.1	33.0	--0-
3	7	36.40	0	-	-	7.8	-	0.0	19.8	7.8	29.5	-0--
				-	-	7.8	-	0.0	19.8	7.8	33.0	--0-
3	8	41.60	0	-	-	6.4	-	0.0	19.8	6.4	29.5	-0--
				-	-	6.4	-	0.0	19.8	6.4	33.0	--0-

3	9	46.80	0	-	-	3.8	-	0.0	19.8	3.8	29.5	-0--
				-	-	3.8	-	0.0	19.8	3.8	33.0	--0-
3	10	52.00	0	-	-	0.0	-	0.0	19.8	0.0	30.3	-0--
				-	-	0.0	-	0.0	19.8	0.0	33.0	--0-

NOTE: Top flange is assumed to be continuously braced for composite bridges.
[1] = (PHI)f * Mn (Eq. 6.10.7.1.1-1)
[2] = (PHI)f * Fnc for comp. flange of composite sections in positive flexure (Eq. 6.10.7.2.1-1)
= (PHI)f * Rh * Fyt for tension flange of composite sections in negative flexure and non-composite sections (Eq. 6.10.8.1.3-1)
[3] = 0.6*Fyt for composite sections in positive flexure or tension flange for composite sections in negative flexure and non-composite sections (Eq. 6.10.1.6-1)
= 0.6*Fyc for comp. flange of composite sections in negative flexure and non-composite sections (Eq. 6.10.1.6-1)
[4] = (PHI)f * Fnt for non-compact tension flange of composite sections in positive flexure (Eq. 6.10.8.1.2-1)
= (PHI)f * Fnc for comp. flange of composite sections in negative flexure and non-composite sections (Eq. 6.10.8.1.1-1)

"-" is N.A.

Under FLAG Column, 0 = OK; 1= NG
M = Moment; C = Comp. Flange; T = Tension Flange
D = Ductility

For negative moment region or non-compact sections in positive moment region, the 1st line is for top flange and the 2nd line is for bottom flange

The values of fbu, Mu and fl shall be determined based on factored loads, and shall be taken as positive in sign in all resistance equations (Art. 6.10.1.6)

The value of fbu is the actual stress in this table, the users can use the maximum value within the unbraced length to do their own check

TABLE 2.2.22.14A=RATIO OF APPLIED STRESS/MOMENT AND THE CAPACITY

****

SP	IN	D	FROM	ID	Mu+1/3flSxt/ [1]	fbu/ [2]	fl/ [3]	fbu+1/3fl/ [4]	MAX. RAT.	GOVN.
1	0		0.00	0			0.000	0.000	0.000	4
							0.000	0.000	0.000	4
1	1		2.92	0			0.000	0.053	0.053	4
							0.000	0.053	0.053	4
1	2		5.85	0			0.000	0.067	0.067	4
							0.000	0.067	0.067	4
1	3		8.77	0			0.000	0.111	0.111	4
							0.000	0.111	0.111	4
1	4		11.70	0			0.000	0.119	0.119	4
							0.000	0.119	0.119	4
1	5		14.62	0			0.000	0.140	0.140	4
							0.000	0.140	0.140	4
1	6		17.55	0			0.000	0.215	0.215	4
							0.000	0.215	0.215	4
1	7		20.47	0			0.000	0.269	0.269	4
							0.000	0.269	0.269	4
1	8		23.40	0			0.000	0.325	0.325	4
							0.000	0.325	0.325	4
1	9		26.32	0			0.000	0.391	0.391	4
							0.000	0.391	0.391	4
1	10		29.25	0			0.000	0.411	0.411	4
							0.000	0.411	0.411	4
2	0		0.00	0			0.000	0.411	0.411	4
							0.000	0.411	0.411	4
2	1		7.18	0			0.000	0.196	0.196	4
							0.000	0.196	0.196	4
2	2		14.35	0			0.000	0.125	0.125	4
							0.000	0.125	0.125	4
2	3		21.53	0			0.000	0.244	0.244	4
							0.000	0.244	0.244	4
2	4		28.70	0			0.000	0.329	0.329	4
							0.000	0.329	0.329	4
2	5		35.87	0			0.000	0.378	0.378	4
							0.000	0.338	0.338	4
2	6		43.05	0			0.000	0.351	0.351	4
							0.000	0.314	0.314	4
2	7		50.22	0			0.000	0.243	0.243	4
							0.000	0.243	0.243	4
2	8		57.40	0			0.000	0.122	0.122	4
							0.000	0.122	0.122	4
2	9		64.57	0			0.000	0.262	0.262	4
							0.000	0.266	0.266	4

2	10	71.75	0		0.000	0.367	0.367	4
					0.000	0.372	0.372	4
3	0	0.00	0		0.000	0.367	0.367	4
					0.000	0.372	0.372	4
3	1	5.20	0		0.000	0.347	0.347	4
					0.000	0.347	0.347	4
3	2	10.40	0		0.000	0.224	0.224	4
					0.000	0.224	0.224	4
3	3	15.60	0		0.000	0.161	0.161	4
					0.000	0.161	0.161	4
3	4	20.80	0		0.000	0.216	0.216	4
					0.000	0.216	0.216	4
3	5	26.00	0		0.000	0.265	0.265	4
					0.000	0.265	0.265	4
3	6	31.20	0		0.000	0.245	0.245	4
					0.000	0.245	0.245	4
3	7	36.40	0		0.000	0.264	0.264	4
					0.000	0.236	0.236	4
3	8	41.60	0		0.000	0.216	0.216	4
					0.000	0.193	0.193	4
3	9	46.80	0		0.000	0.128	0.128	4
					0.000	0.115	0.115	4
3	10	52.00	0		0.000	0.000	0.000	4
					0.000	0.000	0.000	4

NOTE: [1] = (PHI)f * Mn (Eq. 6.10.7.1.1-1)
[2] = (PHI)f * Fnc for comp. flange of composite
sections in positive flexure (Eq. 6.10.7.2.1-1)
= (PHI)f * Rh * Fyt for tension flange of composite sections in
negative flexure and non-composite sections (Eq. 6.10.8.1.3-1)
[3] = 0.6*Fyt for composite sections in positive flexure
or tension flange for composite sections in
negative flexure and non-composite sections (Eq. 6.10.1.6-1)
= 0.6*Fyc for comp. flange of composite sections in
negative flexure and non-composite sections (Eq. 6.10.1.6-1)
[4] = (PHI)f * Fnt for non-compact tension flange
of composite sections in positive flexure (Eq. 6.10.8.1.2-1)
= (PHI)f * Fnc for comp. flange of composite sections
in negative flexure and non-composite sections (Eq. 6.10.8.1.1-1)

The governing number is listed as below.
1 = (Mu+1/3flSxt) / [1]
2 = fbu / [2]
3 = fl / [3]
4 = (fbu + 1/3fl) / [4]

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 28144C\EngData\Merl

TABLE 2.2.22.17=TRANSVERSE STIFFENER SPACING
****

SP NO	IN NO	D FROM L SUPT (ft)	YIELD STRESS Fy (ksi)	LFD/LRFD MAXIMUM SHEAR (k)	UNSTIFFENED SHEAR CAPACITY (k)	REQUIREMENT OF TRANS. STIFFENERS 1=YES , 0=NO	MAX. ALLOWABLE TRANS. STIFFENERS SPACING (ft-in)
1	0	0.00	33.	48.62	496.92	0	
1	1	2.92	33.	39.96	496.92	0	
1	2	5.85	33.	32.60	496.92	0	
1	3	8.77	33.	26.11	496.92	0	
1	4	11.70	33.	32.50	496.92	0	
1	5	14.62	33.	39.22	496.92	0	
1	6	17.55	33.	46.73	496.92	0	
1	7	20.47	33.	54.31	496.92	0	
1	8	23.40	33.	61.89	496.92	0	
1	9	26.32	33.	69.42	496.92	0	
1	10	29.25	33.	76.85	496.92	0	
2	0	0.00	33.	93.16	496.92	0	
2	1	7.18	33.	79.75	496.92	0	
2	2	14.35	33.	65.90	496.92	0	
2	3	21.53	33.	51.95	496.92	0	
2	4	28.70	33.	38.23	496.92	0	
2	5	35.87	33.	25.41	496.92	0	
2	6	43.05	33.	38.33	496.92	0	
2	7	50.22	33.	51.95	496.92	0	
2	8	57.40	33.	66.00	496.92	0	
2	9	64.57	33.	80.19	496.92	0	
2	10	71.75	33.	94.21	496.92	0	
3	0	0.00	33.	89.15	496.92	0	
3	1	5.20	33.	78.72	496.92	0	
3	2	10.40	33.	68.13	496.92	0	
3	3	15.60	33.	57.49	496.92	0	
3	4	20.80	33.	46.89	496.92	0	
3	5	26.00	33.	36.43	496.92	0	

3	6	31.20	33.	26.19	496.92	0
3	7	36.40	33.	32.16	496.92	0
3	8	41.60	33.	43.27	496.92	0
3	9	46.80	33.	55.04	496.92	0
3	10	52.00	33.	67.42	496.92	0

TABLE 2.2.22.20B=SPECIAL SHEAR REQUIREMENTS FOR WEBS
****

SP NO	IN NO	D L	FROM SUPT (ft)	SHEAR DL (k)	FATIGUE (k)	FACTORED PERM. V* (k)	<=>	Vcr (k)	<=>	UNF. PERM + FAC FATIG V** (k)
1	0		0.00	1.53	18.46	1.91	<	496.92	>	29.22
1	1		2.92	0.04	16.12	0.04	<	496.92	>	24.21
1	2		5.85	1.45	13.81	1.82	<	496.92	>	22.17
1	3		8.77	2.95	11.56	3.68	<	496.92	>	20.29
1	4		11.70	4.44	9.40	5.55	<	496.92	>	18.53
1	5		14.62	5.93	9.38	7.41	<	496.92	>	19.99
1	6		17.55	7.42	11.54	9.27	<	496.92	>	24.72
1	7		20.47	8.91	13.59	11.14	<	496.92	>	29.30
1	8		23.40	10.40	15.53	13.00	<	496.92	>	33.70
1	9		26.32	11.89	17.33	14.86	<	496.92	>	37.88
1	10		29.25	13.38	18.96	16.73	<	496.92	>	41.82
2	0		0.00	17.74	28.54	22.18	<	496.92	>	60.56
2	1		7.18	14.08	25.09	17.61	<	496.92	>	51.72
2	2		14.35	10.43	21.25	13.04	<	496.92	>	42.31
2	3		21.53	6.77	17.23	8.46	<	496.92	>	32.62
2	4		28.70	3.11	13.24	3.89	<	496.92	>	22.98
2	5		35.87	0.54	9.49	0.68	<	496.92	>	14.78
2	6		43.05	4.20	11.85	5.25	<	496.92	>	21.98
2	7		50.22	7.86	15.67	9.82	<	496.92	>	31.36
2	8		57.40	11.51	19.68	14.39	<	496.92	>	41.04
2	9		64.57	15.17	23.68	18.96	<	496.92	>	50.69
2	10		71.75	18.83	27.45	23.53	<	496.92	>	60.00

3	0	0.00	17.33	25.69	21.67	<	496.92	>	55.86
3	1	5.20	14.68	22.31	18.35	<	496.92	>	48.14
3	2	10.40	12.03	18.87	15.04	<	496.92	>	40.34
3	3	15.60	9.38	15.48	11.73	<	496.92	>	32.60
3	4	20.80	6.73	11.89	8.42	<	496.92	>	24.57
3	5	26.00	4.08	10.89	5.10	<	496.92	>	20.42
3	6	31.20	1.43	8.59	1.79	<	496.92	>	14.31
3	7	36.40	1.22	11.52	1.52	<	496.92	>	18.49
3	8	41.60	3.87	14.90	4.84	<	496.92	>	26.22
3	9	46.80	6.52	18.57	8.15	<	496.92	>	34.37
3	10	52.00	9.17	22.47	11.46	<	496.92	>	42.87

NOTE: This table checks Art. 6.10.3.3 and Art. 6.10.5.3.
Vcr is the shear-buckling resistance determined from Eq. 6.10.9.3.3-1.
* f*(DL)
If default, load factor f=1.25 is used.
** (DL)+f*FATIGUE LOAD
If default, Fatigue I load factor f=1.5 is used.

1

TABLE 2.2.22.21=SERVICE LIMIT STATE CHECK
****

SP NO	IN NO	D L (ft)	FROM SUPT	TOP FLANGE ff (ksi)	TOP FLANGE ff+fl/2 (ksi)	TOP FLANGE [1] (ksi)	TOP FLANGE RATIO1	BOT. FLANGE ff+fl/2 (ksi)	BOT. FLANGE [2] (ksi)	BOT. FLANGE RATIO2	COMP. FLG fc (ksi)	COMP. FLG fcrw [3] (ksi)	FLAG TBC
1	0	0.00	-	0.0	26.4	0.000		0.0	26.4	Infin	0.0	33.0	000
1	1	2.92	-	1.3	26.4	0.049		1.3	26.4	Infin	1.3	33.0	000
1	2	5.85	-	1.7	26.4	0.063		1.7	26.4	Infin	1.7	33.0	000
1	3	8.77	-	2.7	26.4	0.101		2.7	26.4	Infin	2.7	33.0	000
1	4	11.70	-	2.8	26.4	0.107		2.8	26.4	Infin	2.8	33.0	000
1	5	14.62	-	3.4	26.4	0.129		3.4	26.4	Infin	3.4	33.0	000
1	6	17.55	-	5.2	26.4	0.199		5.2	26.4	Infin	5.2	33.0	000
1	7	20.47	-	6.5	26.4	0.247		6.5	26.4	Infin	6.5	33.0	000
1	8	23.40	-	7.9	26.4	0.299		7.9	26.4	Infin	7.9	33.0	000
1	9	26.32	-	9.5	26.4	0.359		9.5	26.4	Infin	9.5	33.0	000
1	10	29.25	-	9.9	26.4	0.377		9.9	26.4	Infin	9.9	33.0	000

2	0	0.00	-	9.9	26.4	0.377	9.9	26.4	Infin	9.9	33.0	000
2	1	7.18	-	4.8	26.4	0.180	4.8	26.4	Infin	4.8	33.0	000
2	2	14.35	-	3.0	26.4	0.115	3.0	26.4	Infin	3.0	33.0	000
2	3	21.53	-	5.9	26.4	0.224	5.9	26.4	Infin	5.9	33.0	000
2	4	28.70	-	8.0	26.4	0.302	8.0	26.4	Infin	8.0	33.0	000
2	5	35.87	-	8.2	26.4	0.310	8.2	26.4	Infin	8.2	33.0	000
2	6	43.05	-	7.6	26.4	0.289	7.6	26.4	Infin	7.6	33.0	000
2	7	50.22	-	5.9	26.4	0.223	5.9	26.4	Infin	5.9	33.0	000
2	8	57.40	-	3.0	26.4	0.113	3.0	26.4	Infin	3.0	33.0	000
2	9	64.57	-	6.4	26.4	0.241	6.4	26.4	Infin	6.4	33.0	000
2	10	71.75	-	8.8	26.4	0.335	8.8	26.4	Infin	8.8	33.0	000
3	0	0.00	-	8.8	26.4	0.335	8.8	26.4	Infin	8.8	33.0	000
3	1	5.20	-	8.4	26.4	0.318	8.4	26.4	Infin	8.4	33.0	000
3	2	10.40	-	5.5	26.4	0.207	5.5	26.4	Infin	5.5	33.0	000
3	3	15.60	-	3.9	26.4	0.149	3.9	26.4	Infin	3.9	33.0	000
3	4	20.80	-	5.3	26.4	0.200	5.3	26.4	Infin	5.3	33.0	000
3	5	26.00	-	6.5	26.4	0.245	6.5	26.4	Infin	6.5	33.0	000
3	6	31.20	-	5.9	26.4	0.225	5.9	26.4	Infin	5.9	33.0	000
3	7	36.40	-	5.7	26.4	0.217	5.7	26.4	Infin	5.7	33.0	000
3	8	41.60	-	4.7	26.4	0.178	4.7	26.4	Infin	4.7	33.0	000
3	9	46.80	-	2.8	26.4	0.106	2.8	26.4	Infin	2.8	33.0	000
3	10	52.00	-	0.0	26.4	0.000	0.0	26.4	Infin	0.0	33.0	000

NOTE: [1] = 0.95RhFyf for composite sections (Eq. 6.10.4.2.2-1)
= 0.80RhFyf for non-composite sections (Eq. 6.10.4.2.2-3)
[2] = 0.95RhFyf for composite sections (Eq. 6.10.4.2.2-2)
= 0.80RhFyf for non-composite sections (Eq. 6.10.4.2.2-3)
[3] = 0.9Ek / (D/tw)^2 (Eq. 6.10.1.9.1-1)
but not to exceed the smaller of RhFyc and Fyw/0.7
k = bending-buckling coefficient
= 9 / (Dc/D)^2 (Eq. 6.10.1.9.1-2)
where:
Dc = depth of the web in compression in the elastic range. For composite sections, Dc shall be determined as specified in Article D6.3.1

"-" is N.A.

Flag check - 0 = OK; 1 = NG
T = Top Flange; B = Bottom Flange; C = Comp. Flange

The values of fl shall be determined based on
factored loads, and shall be taken as positive in
sign in all resistance equations (Art. 6.10.1.6)

RATIO1 = ff / [1] or (ff + fl/2) / [1] (top flange)
RATIO2 = (ff + fl/2) / [2] (bot. flange)

BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER
DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING
UNIVERSITY OF MARYLAND

FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE 32144C\EngData\Merl

TABLE 2.2.22.23.1=FATIGUE I STRESS RANGE FOR INFINITE LIFE (FACTORED)
****

(1) Main (Longitudinal) Load Carrying Members

(2) Road Type = I --- Rural Interstate

SP NO	IN NO	D L	FROM SUPT (ft)	TOP OF TOP FLANGE GOVERN. LOADING	STRESS RANGE (ksi)	ACCEPTABLE STRESS CATEGORY	BOTTOM OF BOTTOM FLANGE GOVERN. LOADING	STRESS RANGE (ksi)	ACCEPTABLE STRESS CATEGORY
1	0		0.00	TR	0.0	A B B^C^C D E E^	TR	0.0	A B B^C^C D E E^
1	1		2.92	TR	1.4	A B B^C^C D E E^	TR	1.4	A B B^C^C D E E^
1	2		5.85	TR	2.6	A B B^C^C D E	TR	2.6	A B B^C^C D E
1	3		8.77	TR	3.5	A B B^C^C D E	TR	3.5	A B B^C^C D E
1	4		11.70	TR	4.1	A B B^C^C D E	TR	4.1	A B B^C^C D E
1	5		14.62	TR	4.0	A B B^C^C D E	TR	4.0	A B B^C^C D E
1			14.62	I:P					
1	6		17.55	TR	4.3	A B B^C^C D E	TR	4.3	A B B^C^C D E
1	7		20.47	TR	4.4	A B B^C^C D E	TR	4.4	A B B^C^C D E
1	8		23.40	TR	4.4	A B B^C^C D E	TR	4.4	A B B^C^C D E
1	9		26.32	TR	4.2	A B B^C^C D E	TR	-4.2	A B B^C^C D E E^
1	10		29.25	TR	4.5	A B B^C^C D E	TR	-4.5	A B B^C^C D E E^
2	0		0.00	TR	4.5	A B B^C^C D E	TR	-4.5	A B B^C^C D E E^
2	1		7.18	TR	1.2	A B B^C^C D E E^	TR	1.2	A B B^C^C D E E^

2	2	14.35	TR	2.4 A B B^C^C D E E^	TR	2.4 A B B^C^C D E E^
2	3	21.53	TR	-3.6 A B B^C^C D E E^	TR	3.6 A B B^C^C D E
2	4	28.70	TR	-4.5 A B B^C^C D E E^	TR	4.5 A B B^C^C D E
2	5	35.87	TR	-4.5 A B B^C^C D E E^	TR	4.5 A B B^C^C D
2		35.87	I:P			
2	6	43.05	TR	-4.8 A B B^C^C D E E^	TR	4.8 A B B^C^C D
2	7	50.22	TR	4.4 A B B^C^C D E	TR	4.4 A B B^C^C D E
2	8	57.40	TR	3.3 A B B^C^C D E	TR	3.3 A B B^C^C D E
2	9	64.57	TR	2.4 A B B^C^C D E E^	TR	2.4 A B B^C^C D E E^
2	10	71.75	TR	3.1 A B B^C^C D E	TR	-3.1 A B B^C^C D E E^
3	0	0.00	TR	3.1 A B B^C^C D E	TR	-3.1 A B B^C^C D E E^
3	1	5.20	TR	3.2 A B B^C^C D E	TR	-3.2 A B B^C^C D E E^
3	2	10.40	TR	3.7 A B B^C^C D E	TR	3.7 A B B^C^C D E
3	3	15.60	TR	4.5 A B B^C^C D	TR	4.5 A B B^C^C D
3	4	20.80	TR	4.7 A B B^C^C D	TR	4.7 A B B^C^C D
3	5	26.00	TR	5.0 A B B^C^C D	TR	5.0 A B B^C^C D
3		26.00	I:P			
3	6	31.20	TR	4.8 A B B^C^C D	TR	4.8 A B B^C^C D
3	7	36.40	TR	4.3 A B B^C^C D E	TR	4.3 A B B^C^C D E
3	8	41.60	TR	-3.4 A B B^C^C D E E^	TR	3.4 A B B^C^C D E
3	9	46.80	TR	-2.1 A B B^C^C D E E^	TR	2.1 A B B^C^C D E E^
3	10	52.00	TR	0.0 A B B^C^C D E E^	TR	0.0 A B B^C^C D E E^

NOTE: Negative sign means live load stresses all in compression or the permanent load compressive stress more than twice the max. live load tensile stress.

NOTE: TR = Truck loading; LRFD Fatigue I Limit State with 1.5 load factor. Design for Infinite Life

NOTE: ITEM ; INT = Span interval point
SCG = Section-change point
POC = Dead load point of contraflexure

I:P = Point where INT coincides with POC
I:C = Point where INT coincides with SCG
S:P = Point where SCG coincides with POC

TABLE 2.2.22.23.2=FATIGUE II STRESS RANGE FOR FINITE LIFE (FACTORED)

****

(1) Main (Longitudinal) Load Carrying Members

(2) Road Type = I --- Rural Interstate

SP NO	IN NO	D L	FROM SUPT (ft)	TOP OF TOP FLANGE GOVERN. LOADING	TOP OF TOP FLANGE STRESS RANGE (ksi)	TOP OF TOP FLANGE ACCEPTABLE STRESS CATEGORY	BOTTOM OF BOTTOM FLANGE GOVERN. LOADING	BOTTOM OF BOTTOM FLANGE STRESS RANGE (ksi)	BOTTOM OF BOTTOM FLANGE ACCEPTABLE STRESS CATEGORY
1	0		0.00	TR	0.0	A B B^C^C D E E^	TR	0.0	A B B^C^C D E E^
1	1		2.92	TR	0.7	A B B^C^C D E E^	TR	0.7	A B B^C^C D E E^
1	2		5.85	TR	1.3	A B B^C^C D E	TR	1.3	A B B^C^C D E
1	3		8.77	TR	1.7	A B B^C^C D	TR	1.7	A B B^C^C D
1	4		11.70	TR	2.1	A B B^C^C D	TR	2.1	A B B^C^C D
1	5		14.62	TR	2.0	A B B^C^C D	TR	2.0	A B B^C^C D
1			14.62	I:P					
1	6		17.55	TR	2.2	A B B^C^C	TR	2.2	A B B^C^C
1	7		20.47	TR	2.2	A B B^C^C	TR	2.2	A B B^C^C
1	8		23.40	TR	2.2	A B B^C^C	TR	2.2	A B B^C^C
1	9		26.32	TR	2.1	A B B^C^C D	TR	-2.1	A B B^C^C D E E^
1	10		29.25	TR	2.2	A B B^C^C	TR	-2.2	A B B^C^C D E E^
2	0		0.00	TR	2.2	A B B^C^C D	TR	-2.2	A B B^C^C D E E^
2	1		7.18	TR	0.6	A B B^C^C D E E^	TR	0.6	A B B^C^C D E E^
2	2		14.35	TR	1.2	A B B^C^C D E E^	TR	1.2	A B B^C^C D E E^
2	3		21.53	TR	-1.8	A B B^C^C D E E^	TR	1.8	A B B^C^C D E
2	4		28.70	TR	-2.2	A B B^C^C D E E^	TR	2.2	A B B^C^C D
2	5		35.87	TR	-2.3	A B B^C^C D E E^	TR	2.3	A B B^C^C D
2			35.87	I:P					
2	6		43.05	TR	-2.4	A B B^C^C D E E^	TR	2.4	A B B^C^C D
2	7		50.22	TR	2.2	A B B^C^C D	TR	2.2	A B B^C^C D
2	8		57.40	TR	1.6	A B B^C^C D E	TR	1.6	A B B^C^C D E
2	9		64.57	TR	1.2	A B B^C^C D E E^	TR	1.2	A B B^C^C D E E^
2	10		71.75	TR	1.5	A B B^C^C D E	TR	-1.5	A B B^C^C D E E^
3	0		0.00	TR	1.5	A B B^C^C D E	TR	-1.5	A B B^C^C D E E^
3	1		5.20	TR	1.6	A B B^C^C D E	TR	-1.6	A B B^C^C D E E^
3	2		10.40	TR	1.9	A B B^C^C D E	TR	1.9	A B B^C^C D E
3	3		15.60	TR	2.3	A B B^C^C D	TR	2.3	A B B^C^C D
3	4		20.80	TR	2.4	A B B^C^C D	TR	2.4	A B B^C^C D
3	5		26.00	TR	2.5	A B B^C^C D	TR	2.5	A B B^C^C D
3			26.00	I:P					

```
  3   6   31.20    TR      2.4 A B B^C^C D       TR      2.4 A B B^C^C D
  3   7   36.40    TR      2.1 A B B^C^C D E     TR      2.1 A B B^C^C D E
  3   8   41.60    TR     -1.7 A B B^C^C D E E^  TR      1.7 A B B^C^C D E
  3   9   46.80    TR     -1.0 A B B^C^C D E E^  TR      1.0 A B B^C^C D E E^
  3  10   52.00    TR      0.0 A B B^C^C D E E^  TR      0.0 A B B^C^C D E E^


 ------------------------------------------------------------------------------
 NOTE: Negative sign means live load stresses all in compression or the permanent
       load compressive stress more than twice the max. live load tensile stress.
 ------------------------------------------------------------------------------
 NOTE: TR = Truck loading;  LRFD Fatigue II Limit State with 0.75 load factor.
       Design for Finite Life w/ ADTT Single Lane= 4000 & No. of Cycles=109500000
     * If ADTT Single Lane greater than or equal to 960, refer to Fatigue I Table.

 NOTE: ITEM ; INT = Span interval point
              SCG = Section-change point
              POC = Dead load point of contraflexure

              I:P = Point where INT coincides with POC
              I:C = Point where INT coincides with SCG
              S:P = Point where SCG coincides with POC

1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    CODE CHECK
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
34144C\EngData\Merl

 TABLE 2.2.22.29=SPLICE DESIGN AT SECTION CHANGE POINTS
                 ************************************

 Assumption: 1. Plate design is based on the average of the calculated design
                stress and the allowable stress at the point of the splice
                but no less than 75% of the allowable stress.
             2. Web splice is proportioned for shear, moment due to eccentricity
                of the shear and the portion of the flexural
                moment resisted by the web.  Min. shear of 1.5V or average.
             3. The bolt design is based on the capacity.  Designer should check
                the need of staggering to satisfy the requirement of net areas.


1
              BRIDGE ENGINEERING SOFTWARE & TECHNOLOGY CENTER       MERLIN V 10.6
                DEPARTMENT OF CIVIL & ENVIRON. ENGINEERING          NONCOMPOSITE
                          UNIVERSITY OF MARYLAND                    LRF -- 2012
                                                                    CODE CHECK
 FILE NAME = P:\VIN\MP\0001_VIN-MRT-144-31\106684\Design\Structures\PAGE
```

35144C\EngData\Merl

TABLE 2.2.22.30=BEARING STIFFENERS
****

SUP.	NO.	MAT'L.	SIZE (INCH or mm)	WELDING
1	2	A709 GR. 50	5.50 X 0.6250 X 36.5	5/16
2	2	A709 GR. 50	5.50 X 0.6250 X 36.5	5/16
3	4	A709 GR. 50	5.50 X 0.6250 X 36.5	5/16
4	2	A709 GR. 50	5.50 X 0.6250 X 36.5	5/16

Please see LRFD Art. 6.10.11.2

36144C\EngData\Merl

TABLE 1.2.30.1=CODE CHECK STATUS SUMMARY
****

STATUS	TABLE NO.
OK	1.2.8.2=MAXIMUM LIVE LOAD DEFLECTION FOR COMPOSITE CONSTRUCTION
OK	1.2.22.4=DEPTH RATIOS
OK	1.2.22.10=CONSTRUCTIBILITY CHECK
OK	1.2.22.14=STRENGTH LIMIT STATE CHECK
OK	1.2.22.17=TRANSVERSE STIFFENER SPACING
OK	1.2.22.21=SERVICE LIMIT STATE CHECK

MORE TABLES TO BE INSPECTED ...

1.2.22.23A=FATIGUE STRESS RANGE FOR TRUCK (UNFACTORED)

1.2.22.24=SHEAR CONNECTOR (FATIGUE CRITERIA) (UNFACTORED)

1.2.22.24A=SHEAR CONNECTOR (ULTIMATE STRENGTH CRITERIA)

1.2.22.29=SPLICE DESIGN AT SECTION CHANGE POINTS