

APPENDIX A – COMPUTER PROGRAM RESULTS

The results of the hand calculations presented in the example are compared to the results from computer design programs in this appendix. The following programs are included:

QConBridge: This program is a load analysis program developed by Washington State Department of Transportation and is available free of charge from the Department’s web site. For continuous structures, this program considers the structure continuous for all loads. This does not match the conditions for simple-spans made continuous for live loads where the loads applied before the continuity connection is made are actually acting on the simple span structures. This results in differences between the example and QConBridge in the noncomposite dead load effects.

Opis: Opis is a computer program developed by AASHTO as part of the AASHTOWare computer programs suite.

Section A1 – QConBridge Input

Washington State Department of Transportation
 Bridge and Structures Office
 QConBridge Version 1.0

Code: LRFD First Edition 1994

Span Data

Span 1 Length: 110.000 ft

Section Properties

Location (ft)	Ax (in ²)	Iz (in ⁴)	Mod. E (psi)	Unit Wgt (pcf)
0.000	1.764e+03	1.384e+06	4.724e+06	149.999e+00

Live Load Distribution Factors

Location (ft)	Str/Serv gM	Limit States gV	Fatigue Limit gM	State gV
0.000	0.809	0.984	0.458	0.651

Strength Limit State Factors: Ductility 1.00 Redundancy 1.00 Importance 1.00
 Service Limit State Factors: Ductility 1.00 Redundancy 1.00 Importance 1.00

Span 2 Length: 110.000 ft

Section Properties

Location (ft)	Ax (in ²)	Iz (in ⁴)	Mod. E (psi)	Unit Wgt (pcf)
0.000	1.764e+03	1.384e+06	4.724e+06	149.999e+00

Live Load Distribution Factors

Location (ft)	Str/Serv gM	Limit States gV	Fatigue Limit gM	State gV
0.000	0.796	0.973	0.452	0.652

Appendix A

Prestressed Concrete Bridge Design Example

Strength Limit State Factors: Ductility 1.00 Redundancy 1.00 Importance 1.00
Service Limit State Factors: Ductility 1.00 Redundancy 1.00 Importance 1.00

Support Data

Support 1 Roller

Support 2 Pinned

Support 3 Roller

Loading Data

DC Loads

Self Weight Generation Disabled
Traffic Barrier Load Disabled
Span 2 W 2.487e+03 plf from 0.000 ft to 109.999 ft
Span 2 W 0.000e+00 plf from 0.000 ft to 109.999 ft
Span 1 W 2.487e+03 plf from 0.000 ft to 109.999 ft
Span 1 W 0.000e+00 plf from 0.000 ft to 109.999 ft

DW Loads

Utility Load Disabled
Wearing Surface Load 289.999e+00 plf

Live Load Data

Live Load Generation Parameters

Design Tandem : Enabled
Design Truck : 1 rear axle spacing increments
Dual Truck Train : Headway Spacing varies from 49.213 ft to 49.213 ft using 1 increments
Headway Spacing varies from 49.213 ft to 60.000 ft using 1 increments
Dual Tandem Train: Disabled
Fatigue Truck : Enabled

Live Load Impact

Truck Loads 33.000%
Lane Loads 0.000%
Fatigue Truck 15.000%

Pedestrian Live Load 0.000e+00 plf

Load Factors

Strength I	DC min	0.900	DC max	1.250	DW min	0.650	DW max	1.500	LL	1.750
Service I	DC	1.000	DW	1.000	LL	1.000				
Service II	DC	1.000	DW	1.000	LL	1.300				
Service III	DC	1.000	DW	1.000	LL	0.800				
Fatigue	DC	0.000	DW	0.000	LL	0.750				

Section A2 – QConBridge Output

Washington State Department of Transportation
 Bridge and Structures Office
 QConBridge Version 1.0

Analysis Results

DC Dead Load

Span	Point	Shear (lbs)	Moment (ft-lbs)
1	0	102.629e+03	0.000e+00
1	1	75.261e+03	978.405e+03
1	2	47.893e+03	1.655e+06
1	3	20.525e+03	2.032e+06
1	4	-6.841e+03	2.107e+06
1	5	-34.209e+03	1.881e+06
1	6	-61.577e+03	1.354e+06
1	7	-88.945e+03	526.833e+03
1	8	-116.313e+03	-602.095e+03
1	9	-143.681e+03	-2.032e+06
1	10	-171.047e+03	-3.763e+06
2	0	171.049e+03	-3.763e+06
2	1	143.681e+03	-2.032e+06
2	2	116.313e+03	-602.095e+03
2	3	88.945e+03	526.833e+03
2	4	61.577e+03	1.354e+06
2	5	34.209e+03	1.881e+06
2	6	6.841e+03	2.107e+06
2	7	-20.525e+03	2.032e+06
2	8	-47.893e+03	1.655e+06
2	9	-75.261e+03	978.405e+03
2	10	-102.627e+03	0.000e+00

DW Dead Load

Span	Point	Shear (lbs)	Moment (ft-lbs)
1	0	11.962e+03	0.000e+00
1	1	8.772e+03	114.042e+03
1	2	5.582e+03	192.994e+03
1	3	2.392e+03	236.857e+03
1	4	-797.499e+00	245.629e+03
1	5	-3.987e+03	219.312e+03
1	6	-7.177e+03	157.904e+03
1	7	-10.367e+03	61.407e+03
1	8	-13.557e+03	-70.179e+03
1	9	-16.747e+03	-236.857e+03
1	10	-19.937e+03	-438.624e+03
2	0	19.937e+03	-438.624e+03
2	1	16.747e+03	-236.857e+03
2	2	13.557e+03	-70.179e+03
2	3	10.367e+03	61.407e+03
2	4	7.177e+03	157.904e+03
2	5	3.987e+03	219.312e+03
2	6	797.499e+00	245.629e+03
2	7	-2.392e+03	236.857e+03
2	8	-5.582e+03	192.994e+03
2	9	-8.772e+03	114.042e+03
2	10	-11.962e+03	0.000e+00

Live Load Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	-13.341e+03	117.656e+03	0.000e+00	0.000e+00
1	1	-13.341e+03	102.204e+03	-146.752e+03	1.124e+06
1	2	-13.840e+03	84.016e+03	-293.504e+03	1.914e+06
1	3	-34.021e+03	65.643e+03	-440.256e+03	2.388e+06
1	4	-34.558e+03	51.974e+03	-587.009e+03	2.597e+06
1	5	-63.460e+03	37.680e+03	-733.761e+03	2.550e+06
1	6	-78.483e+03	26.024e+03	-880.513e+03	2.276e+06
1	7	-93.440e+03	16.112e+03	-1.027e+06	1.765e+06
1	8	-101.698e+03	8.468e+03	-1.174e+06	1.053e+06
1	9	-110.990e+03	3.304e+03	-1.469e+06	374.566e+03
1	10	-135.743e+03	0.000e+00	-2.592e+06	0.000e+00
2	0	0.000e+00	132.939e+03	-2.592e+06	0.000e+00
2	1	0.000e+00	125.632e+03	-1.469e+06	374.568e+03
2	2	-3.304e+03	110.990e+03	-1.174e+06	1.053e+06
2	3	-16.112e+03	93.440e+03	-1.027e+06	1.765e+06
2	4	-16.284e+03	80.355e+03	-880.513e+03	2.276e+06
2	5	-37.680e+03	63.460e+03	-733.761e+03	2.550e+06
2	6	-50.919e+03	48.575e+03	-587.008e+03	2.597e+06
2	7	-65.643e+03	34.021e+03	-440.256e+03	2.388e+06
2	8	-67.233e+03	21.193e+03	-293.504e+03	1.914e+06
2	9	-84.016e+03	13.840e+03	-146.752e+03	1.124e+06
2	10	-117.656e+03	13.341e+03	0.000e+00	0.000e+00

Design Tandem + Lane Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	-10.630e+03	95.017e+03	0.000e+00	0.000e+00
1	1	-10.630e+03	83.324e+03	-116.935e+03	916.565e+03
1	2	-11.579e+03	68.741e+03	-233.871e+03	1.578e+06
1	3	-31.053e+03	53.774e+03	-350.806e+03	1.992e+06
1	4	-31.590e+03	43.263e+03	-467.741e+03	2.170e+06
1	5	-52.774e+03	31.844e+03	-584.677e+03	2.136e+06
1	6	-64.109e+03	22.735e+03	-701.612e+03	1.908e+06
1	7	-75.554e+03	14.885e+03	-818.548e+03	1.497e+06
1	8	-82.265e+03	8.468e+03	-935.483e+03	929.199e+03
1	9	-89.847e+03	3.304e+03	-1.184e+06	374.566e+03
1	10	-108.838e+03	0.000e+00	-1.646e+06	0.000e+00
2	0	0.000e+00	106.420e+03	-1.646e+06	0.000e+00
2	1	0.000e+00	101.408e+03	-1.184e+06	374.568e+03
2	2	-3.304e+03	89.847e+03	-935.483e+03	929.201e+03
2	3	-14.885e+03	75.554e+03	-818.548e+03	1.497e+06
2	4	-15.057e+03	65.981e+03	-701.612e+03	1.908e+06
2	5	-31.844e+03	52.774e+03	-584.677e+03	2.136e+06
2	6	-42.208e+03	41.707e+03	-467.741e+03	2.170e+06
2	7	-53.774e+03	31.053e+03	-350.806e+03	1.992e+06
2	8	-55.364e+03	21.193e+03	-233.870e+03	1.578e+06
2	9	-68.741e+03	11.578e+03	-116.935e+03	916.562e+03
2	10	-95.017e+03	10.630e+03	0.000e+00	0.000e+00

Appendix A

Prestressed Concrete Bridge Design Example

Design Truck + Lane Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	-13.341e+03	117.656e+03	0.000e+00	0.000e+00
1	1	-13.341e+03	102.204e+03	-146.752e+03	1.124e+06
1	2	-13.840e+03	84.016e+03	-293.504e+03	1.914e+06
1	3	-34.021e+03	65.643e+03	-440.256e+03	2.388e+06
1	4	-34.558e+03	51.974e+03	-587.009e+03	2.597e+06
1	5	-63.460e+03	37.680e+03	-733.761e+03	2.550e+06
1	6	-78.483e+03	26.024e+03	-880.513e+03	2.276e+06
1	7	-93.440e+03	16.112e+03	-1.027e+06	1.765e+06
1	8	-101.698e+03	8.212e+03	-1.174e+06	1.053e+06
1	9	-110.990e+03	2.695e+03	-1.452e+06	329.425e+03
1	10	-135.743e+03	0.000e+00	-1.945e+06	0.000e+00
2	0	0.000e+00	132.939e+03	-1.945e+06	0.000e+00
2	1	0.000e+00	125.632e+03	-1.452e+06	329.427e+03
2	2	-2.695e+03	110.990e+03	-1.174e+06	1.053e+06
2	3	-16.112e+03	93.440e+03	-1.027e+06	1.765e+06
2	4	-16.284e+03	80.355e+03	-880.513e+03	2.276e+06
2	5	-37.680e+03	63.460e+03	-733.761e+03	2.550e+06
2	6	-50.919e+03	48.575e+03	-587.008e+03	2.597e+06
2	7	-65.643e+03	34.021e+03	-440.256e+03	2.388e+06
2	8	-67.233e+03	20.963e+03	-293.504e+03	1.914e+06
2	9	-84.016e+03	13.840e+03	-146.752e+03	1.124e+06
2	10	-117.656e+03	13.341e+03	0.000e+00	0.000e+00

Dual Truck Train + Lane Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	1	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	2	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	3	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	4	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	5	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	6	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	7	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	8	0.000e+00	0.000e+00	-1.066e+06	0.000e+00
1	9	0.000e+00	0.000e+00	-1.469e+06	0.000e+00
1	10	0.000e+00	0.000e+00	-2.592e+06	0.000e+00
2	0	0.000e+00	0.000e+00	-2.592e+06	0.000e+00
2	1	0.000e+00	0.000e+00	-1.469e+06	0.000e+00
2	2	0.000e+00	0.000e+00	-1.066e+06	0.000e+00
2	3	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	4	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	5	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	6	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	7	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	8	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	9	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	10	0.000e+00	0.000e+00	0.000e+00	0.000e+00

Dual Tandem Train + Lane Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	1	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	2	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	3	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	4	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	5	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	6	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	7	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	8	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	9	0.000e+00	0.000e+00	0.000e+00	0.000e+00
1	10	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	0	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	1	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	2	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	3	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	4	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	5	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	6	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	7	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	8	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	9	0.000e+00	0.000e+00	0.000e+00	0.000e+00
2	10	0.000e+00	0.000e+00	0.000e+00	0.000e+00

Fatigue Truck Envelopes (Per Lane)

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	-7.232e+03	67.296e+03	0.000e+00	0.000e+00
1	1	-7.232e+03	57.232e+03	-79.555e+03	629.555e+03
1	2	-7.232e+03	47.499e+03	-159.110e+03	1.044e+06
1	3	-15.733e+03	38.223e+03	-238.665e+03	1.304e+06
1	4	-15.733e+03	29.529e+03	-318.220e+03	1.384e+06
1	5	-34.143e+03	21.514e+03	-397.775e+03	1.341e+06
1	6	-43.545e+03	14.396e+03	-477.330e+03	1.229e+06
1	7	-52.395e+03	8.877e+03	-556.885e+03	966.113e+03
1	8	-56.304e+03	5.169e+03	-636.440e+03	581.739e+03
1	9	-60.568e+03	2.146e+03	-715.995e+03	219.754e+03
1	10	-74.413e+03	0.000e+00	-795.550e+03	0.000e+00
2	0	0.000e+00	74.208e+03	-795.550e+03	0.000e+00
2	1	0.000e+00	67.938e+03	-715.995e+03	219.754e+03
2	2	-2.146e+03	60.568e+03	-636.440e+03	581.740e+03
2	3	-8.877e+03	52.395e+03	-556.885e+03	966.113e+03
2	4	-8.877e+03	43.545e+03	-477.330e+03	1.229e+06
2	5	-21.514e+03	34.143e+03	-397.775e+03	1.341e+06
2	6	-29.529e+03	24.315e+03	-318.220e+03	1.384e+06
2	7	-38.223e+03	15.733e+03	-238.665e+03	1.304e+06
2	8	-38.223e+03	10.106e+03	-159.110e+03	1.044e+06
2	9	-47.499e+03	7.232e+03	-79.555e+03	629.555e+03
2	10	-67.296e+03	7.232e+03	0.000e+00	0.000e+00

Strength I Limit State Envelopes

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	77.169e+03	348.834e+03	0.000e+00	0.000e+00
1	1	50.464e+03	283.231e+03	746.927e+03	2.985e+06
1	2	22.899e+03	212.917e+03	1.200e+06	5.069e+06
1	3	-38.556e+03	142.284e+03	1.359e+06	6.276e+06
1	4	-69.258e+03	82.824e+03	1.225e+06	6.679e+06
1	5	-158.022e+03	31.504e+03	797.123e+03	6.291e+06
1	6	-222.887e+03	-15.272e+03	75.294e+03	5.153e+06
1	7	-287.638e+03	-59.044e+03	-940.286e+03	3.250e+06
1	8	-340.853e+03	-98.911e+03	-2.520e+06	904.573e+03
1	9	-395.850e+03	-134.508e+03	-4.975e+06	-1.452e+06
1	10	-477.465e+03	-166.902e+03	-9.031e+06	-3.671e+06
2	0	243.718e+03	472.639e+03	-9.031e+06	-3.671e+06
2	1	204.723e+03	421.062e+03	-4.975e+06	-1.452e+06
2	2	107.803e+03	356.855e+03	-2.520e+06	904.575e+03
2	3	59.044e+03	287.638e+03	-940.286e+03	3.250e+06
2	4	32.043e+03	226.111e+03	75.294e+03	5.153e+06
2	5	-31.504e+03	158.022e+03	797.124e+03	6.291e+06
2	6	-81.006e+03	93.395e+03	1.225e+06	6.679e+06
2	7	-142.284e+03	38.555e+03	1.359e+06	6.276e+06
2	8	-184.017e+03	-10.238e+03	1.200e+06	5.069e+06
2	9	-251.912e+03	-49.604e+03	746.927e+03	2.985e+06
2	10	-348.831e+03	-77.166e+03	0.000e+00	0.000e+00

Service I Limit State Envelopes

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	101.464e+03	230.365e+03	0.000e+00	0.000e+00
1	1	70.906e+03	184.603e+03	973.725e+03	2.001e+06
1	2	39.857e+03	136.148e+03	1.611e+06	3.397e+06
1	3	-10.558e+03	87.511e+03	1.912e+06	4.200e+06
1	4	-41.645e+03	43.503e+03	1.878e+06	4.454e+06
1	5	-100.642e+03	-1.119e+03	1.507e+06	4.164e+06
1	6	-145.983e+03	-43.147e+03	800.284e+03	3.354e+06
1	7	-191.259e+03	-83.458e+03	-242.817e+03	2.016e+06
1	8	-229.942e+03	-121.538e+03	-1.622e+06	180.339e+03
1	9	-269.644e+03	-157.177e+03	-3.457e+06	-1.965e+06
1	10	-324.556e+03	-190.984e+03	-6.298e+06	-4.201e+06
2	0	190.987e+03	321.799e+03	-6.298e+06	-4.201e+06
2	1	160.429e+03	284.051e+03	-3.457e+06	-1.965e+06
2	2	126.619e+03	239.086e+03	-1.622e+06	180.340e+03
2	3	83.458e+03	191.258e+03	-242.816e+03	2.016e+06
2	4	52.731e+03	147.825e+03	800.284e+03	3.354e+06
2	5	1.119e+03	100.642e+03	1.507e+06	4.164e+06
2	6	-42.465e+03	55.437e+03	1.878e+06	4.454e+06
2	7	-87.511e+03	10.558e+03	1.912e+06	4.200e+06
2	8	-119.634e+03	-32.622e+03	1.611e+06	3.397e+06
2	9	-166.706e+03	-70.415e+03	973.725e+03	2.001e+06
2	10	-230.363e+03	-101.462e+03	0.000e+00	0.000e+00

Service II Limit State Envelopes

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	97.526e+03	265.098e+03	0.000e+00	0.000e+00
1	1	66.968e+03	214.774e+03	938.108e+03	2.274e+06
1	2	35.771e+03	160.950e+03	1.540e+06	3.862e+06
1	3	-20.601e+03	106.889e+03	1.805e+06	4.780e+06
1	4	-51.846e+03	58.846e+03	1.735e+06	5.084e+06
1	5	-119.376e+03	10.003e+03	1.329e+06	4.782e+06
1	6	-169.151e+03	-35.465e+03	586.583e+03	3.907e+06
1	7	-218.842e+03	-78.702e+03	-492.134e+03	2.445e+06
1	8	-259.963e+03	-119.038e+03	-1.906e+06	436.123e+03
1	9	-302.409e+03	-156.201e+03	-3.814e+06	-1.874e+06
1	10	-364.627e+03	-190.984e+03	-6.927e+06	-4.201e+06
2	0	190.987e+03	361.042e+03	-6.927e+06	-4.201e+06
2	1	160.429e+03	321.138e+03	-3.814e+06	-1.874e+06
2	2	125.643e+03	271.851e+03	-1.906e+06	436.125e+03
2	3	78.702e+03	218.842e+03	-492.134e+03	2.445e+06
2	4	47.924e+03	171.546e+03	586.583e+03	3.907e+06
2	5	-10.003e+03	119.375e+03	1.329e+06	4.782e+06
2	6	-57.496e+03	69.776e+03	1.735e+06	5.084e+06
2	7	-106.889e+03	20.601e+03	1.805e+06	4.780e+06
2	8	-139.481e+03	-26.366e+03	1.540e+06	3.862e+06
2	9	-191.508e+03	-66.329e+03	938.108e+03	2.274e+06
2	10	-265.095e+03	-97.524e+03	0.000e+00	0.000e+00

Service III Limit State Envelopes

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	104.090e+03	207.211e+03	0.000e+00	0.000e+00
1	1	73.532e+03	164.489e+03	997.469e+03	1.820e+06
1	2	42.581e+03	119.614e+03	1.658e+06	3.087e+06
1	3	-3.863e+03	74.593e+03	1.983e+06	3.814e+06
1	4	-34.844e+03	33.274e+03	1.973e+06	4.033e+06
1	5	-88.153e+03	-8.535e+03	1.625e+06	3.751e+06
1	6	-130.537e+03	-48.269e+03	942.751e+03	2.986e+06
1	7	-172.869e+03	-86.629e+03	-76.605e+03	1.730e+06
1	8	-209.928e+03	-123.204e+03	-1.432e+06	9.816e+03
1	9	-247.801e+03	-157.827e+03	-3.219e+06	-2.026e+06
1	10	-297.841e+03	-190.984e+03	-5.879e+06	-4.201e+06
2	0	190.987e+03	295.636e+03	-5.879e+06	-4.201e+06
2	1	160.429e+03	259.327e+03	-3.219e+06	-2.026e+06
2	2	127.269e+03	217.243e+03	-1.432e+06	9.817e+03
2	3	86.629e+03	172.869e+03	-76.605e+03	1.730e+06
2	4	55.936e+03	132.011e+03	942.751e+03	2.986e+06
2	5	8.535e+03	88.153e+03	1.625e+06	3.751e+06
2	6	-32.444e+03	45.877e+03	1.973e+06	4.033e+06
2	7	-74.593e+03	3.862e+03	1.983e+06	3.814e+06
2	8	-106.402e+03	-36.793e+03	1.658e+06	3.087e+06
2	9	-150.172e+03	-73.139e+03	997.469e+03	1.820e+06
2	10	-207.208e+03	-104.087e+03	0.000e+00	0.000e+00

Fatigue Limit State Envelopes

Span	Point	Min Shear (lbs)	Max Shear (lbs)	Min Moment (ft-lbs)	Max Moment (ft-lbs)
1	0	-3.531e+03	32.857e+03	0.000e+00	0.000e+00
1	1	-3.531e+03	27.943e+03	-27.327e+03	216.252e+03
1	2	-3.531e+03	23.191e+03	-54.654e+03	358.952e+03
1	3	-7.681e+03	18.662e+03	-81.981e+03	448.201e+03
1	4	-7.681e+03	14.417e+03	-109.308e+03	475.633e+03
1	5	-16.670e+03	10.504e+03	-136.635e+03	460.659e+03
1	6	-21.261e+03	7.029e+03	-163.962e+03	422.252e+03
1	7	-25.582e+03	4.334e+03	-191.290e+03	331.859e+03
1	8	-27.490e+03	2.524e+03	-218.617e+03	199.827e+03
1	9	-29.572e+03	1.047e+03	-245.944e+03	75.485e+03
1	10	-36.332e+03	0.000e+00	-273.271e+03	0.000e+00
2	0	0.000e+00	36.232e+03	-273.271e+03	0.000e+00
2	1	0.000e+00	33.170e+03	-245.944e+03	75.485e+03
2	2	-1.047e+03	29.572e+03	-218.617e+03	199.827e+03
2	3	-4.334e+03	25.582e+03	-191.290e+03	331.859e+03
2	4	-4.334e+03	21.261e+03	-163.962e+03	422.252e+03
2	5	-10.504e+03	16.670e+03	-136.635e+03	460.659e+03
2	6	-14.417e+03	11.872e+03	-109.308e+03	475.633e+03
2	7	-18.662e+03	7.681e+03	-81.981e+03	448.201e+03
2	8	-18.662e+03	4.934e+03	-54.654e+03	358.952e+03
2	9	-23.191e+03	3.531e+03	-27.327e+03	216.252e+03
2	10	-32.857e+03	3.531e+03	0.000e+00	0.000e+00

Section A3 – Opis Input

The computer program Opis is used to analyze the prestressed concrete example problem. This program is part of the AASHTOware software suite. The input data for Opis is provided on the following pages.

```

4-1.1      ANALYSIS           B, 2, REV, S
           1. Analysis Model      : B
           2. Loading Sequence    : 2
           3. Analysis Type       : REV
           4. Element             : S
4-1.2      POINT-OF-INTEREST   T, ON, ON
           1. Point of Interest Control : T
           2. Specification Checks    : ON
           3. Load Factoring/Combination : ON
4-3.1      DIST-CONTROL-GIRDER 2
           1. Girder of Interest     : 2
4-3.2      DIST-CONTROL-DL     TA, UD
           1. Stage 1 Method         : TA
           2. Stage 2 Method         : UD
           3. Stage 3 Method         : UD
3-1.1      COMMENT           BRASS will compute the number of lanes loaded.
4-3.3      DIST-CONTROL-LL     K, , 20.00, 0.200, YES
           1. Cross Section Code     : K
           2. No. Lanes Loaded       :
           3. Skew Angle             : 20.000
           4. Poisson's Ratio        : 0.200
           5. Rigid Method           : YES
4-3.5      DIST-LL-APPLICATION AP
           1. Dist. Factors          : AP
5-1.1      OUTPUT            0, ON, OFF, OFF, 1
           1. Action Output Level    : 0
           2. Girder Properties      : ON
           3. Truck Position         : OFF
           4. Rear Axle Spacing      : OFF
           5. Interm. Output Level   : 1
           6. Live Load Settings     : YES
           7. Live Load Combinations : YES
           8. Live Load Details      : NO
           9. Load Combinations     : YES
           10. Load & Resist. Factors : YES
           11. Critical DRs or RFs   : E
           12. Warnings              : YES
           13. Girder Self-Load      : YES
           14. Distributed Dead Loads : YES
5-4.1      OUTPUT-STAGE       ON, ON, ON
           1. Stage 1               : ON
           2. Stage 2               : ON
           3. Stage 3               : ON
5-4.2      OUTPUT-LIMIT-STATE ST, 1, ON, ON
           1. Limit State            : ST
           2. Limit State Level      : 1
           3. Intermediate Output    : ON
           4. Load Comb. Output      : ON
5-4.2      OUTPUT-LIMIT-STATE ST, 2, ON, ON
           1. Limit State            : ST
           2. Limit State Level      : 2
           3. Intermediate Output    : ON
           4. Load Comb. Output      : ON
5-4.2      OUTPUT-LIMIT-STATE ST, 3, ON, ON
           1. Limit State            : ST
           2. Limit State Level      : 3

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        3. Intermediate Output      : ON
        4. Load Comb. Output       : ON
5-4.2  OUTPUT-LIMIT-STATE   ST, 4, ON, ON
        1. Limit State             : ST
        2. Limit State Level       : 4
        3. Intermediate Output     : ON
        4. Load Comb. Output       : ON
5-4.2  OUTPUT-LIMIT-STATE   SE, 1, ON, ON
        1. Limit State             : SE
        2. Limit State Level       : 1
        3. Intermediate Output     : ON
        4. Load Comb. Output       : ON
5-4.2  OUTPUT-LIMIT-STATE   SE, 2, ON, ON
        1. Limit State             : SE
        2. Limit State Level       : 2
        3. Intermediate Output     : ON
        4. Load Comb. Output       : ON
5-4.2  OUTPUT-LIMIT-STATE   SE, 3, ON, ON
        1. Limit State             : SE
        2. Limit State Level       : 3
        3. Intermediate Output     : ON
        4. Load Comb. Output       : ON
5-4.2  OUTPUT-LIMIT-STATE   SE, 4, OFF, OFF
        1. Limit State             : SE
        2. Limit State Level       : 4
        3. Intermediate Output     : OFF
        4. Load Comb. Output       : OFF
5-4.2  OUTPUT-LIMIT-STATE   FA, 1, ON, ON
        1. Limit State             : FA
        2. Limit State Level       : 1
        3. Intermediate Output     : ON
        4. Load Comb. Output       : ON
5-7.1  OUTPUT-PRESTRESS    OFF, OFF, OFF, OFF, OFF
        1. Load Balancing          : OFF
        2. Final Prestress Losses  : OFF
        3. Intermediate Prestress Losses : OFF
        4. Prestress Action Losses : OFF
        5. Ave & Effect Prestress Stress : OFF
5-5.1  OUTPUT-DIST-DL      OFF, ON
        1. Intermediate Output (DL) : OFF
        2. Final Output (DL)       : ON
5-5.2  OUTPUT-DIST-LL      OFF, ON
        1. Intermediate Output (LL) : OFF
        2. Final Output (LL)       : ON
3-1.1  COMMENT             Actual girder spacings are entered on DECK-VSPACING command.
6-1.1  DECK-GEOMETRY       6, 1.000, 8.000, 42.2496, 42.2304, 0.000, DC
        1. Number Girders          : 6
        2. Girder Spacing          : 1.000
        3. Slab Thickness (strength) : 8.000
        4. Left Cantilever         : 42.250
        5. Right Cantilever        : 42.230
        6. Sac. Topping Thickness  : 0.000
        7. Topping Dead Load Type  : DC
6-1.2  DECK-VSPACING       1, 116.0040
        1. Bay Number             : 1
        2. Spacing                : 116.004
6-1.2  DECK-VSPACING       2, 116.0040
        1. Bay Number             : 2
        2. Spacing                : 116.004
6-1.2  DECK-VSPACING       3, 116.0040
        1. Bay Number             : 3
        2. Spacing                : 116.004
6-1.2  DECK-VSPACING       4, 116.0040

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        1. Bay Number                : 4
        2. Spacing                    : 116.004
6-1.2  DECK-VSPACING                 5, 116.0040
        1. Bay Number                : 5
        2. Spacing                    : 116.004
3-1.1  COMMENT                       WS Load = 0.1400 kcf X 0.2142 ft = 0.0300 ksf
6-4.1  DECK-MATL-PROPERTIES          0.150, , 0.0300
        1. Deck Concrete Density      : 0.1500
        2. Curb & Median Concrete Density: 0.1500
        3. Wearing Surface Weight     : 0.0300
3-1.1  COMMENT                       The line and uniform deck loads are generated with the load
3-1.1  COMMENT                       group commands because they are assigned to load groups.
6-6.1  DECK-STAGE                    1, , , 2
        1. Slab Stage                 : 1
        2. Curb Stage                  :
        3. Median Stage                :
        4. Wearing Surface Stage       : 2
6-3.3  DECK-TRAVEL-WAY              20.2500, 644.2500
        1. Left Edge of Travel Way    : 20.250
        2. Right Edge of Travel Way   : 644.250
3-1.1  COMMENT                       Cross Section 1
3-1.1  COMMENT                       Beam Name: AASHTO TYPE VI
8-2.4  CONC-I-SECTION               1, 42.00, 5.00, 8.00, 8.00, 28.00, 8.00
        1. Cross Section Number       : 1
        2. Top Flange Width           : 42.000
        3. Top Flange Thickness       : 5.000
        4. Top Web Thickness           : 8.000
        5. Bottom Web Thickness       : 8.000
        6. Bottom Flange Width        : 28.000
        7. Bottom Flange Thickness    : 8.000
8-2.7  CONC-FILLET                  1, 3.000, 0.000, 4.000, 4.000, &
        10.000, 0.000, 0.000, 0.000
        1. Cross Section Number       : 1
        2. Top Tapers Height          : 3.000
        3. Top Tapers Distance        : 0.000
        4. Top Fillets Height         : 4.000
        5. Top Fillets Width          : 4.000
        6. Bottom Tapers Height       : 10.000
        7. Bottom Tapers Distance     : 0.000
        8. Bottom Fillets Height      : 0.000
        9. Bottom Fillets Width       : 0.000
10-2.1  COMPOSITE-SLAB              1, 111.0000, 7.5000, 0.0000
        1. Cross Section Number       : 1
        2. Effective Width             : 111.000
        3. Effective Thickness        : 7.500
        4. Gap Distance               : 0.000
10-2.2  COMPOSITE-REBAR             1, T, 10.000, 4, 4.2500
        1. Cross Section Number       : 1
        2. Row Designation            : T
        3. Number of Reinforcing Bars  : 10.000
        4. Bar Size                   : 4
        5. Distance to Bar Center     : 4.250
10-2.2  COMPOSITE-REBAR             1, B, 12.000, 5, 1.9375
        1. Cross Section Number       : 1
        2. Row Designation            : B
        3. Number of Reinforcing Bars  : 12.000
        4. Bar Size                   : 5
        5. Distance to Bar Center     : 1.938
3-1.1  COMMENT                       Cross Section 2
3-1.1  COMMENT                       Beam Name: AASHTO TYPE VI
8-2.4  CONC-I-SECTION               2, 42.00, 5.00, 8.00, 8.00, 28.00, 8.00
        1. Cross Section Number       : 2
        2. Top Flange Width           : 42.000

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3. Top Flange Thickness      :      5.000
4. Top Web Thickness        :      8.000
5. Bottom Web Thickness     :      8.000
6. Bottom Flange Width     :     28.000
7. Bottom Flange Thickness  :      8.000
8-2.7  CONC-FILLETS        2, 3.000, 0.000, 4.000, 4.000, &
      10.000, 0.000, 0.000, 0.000
      1. Cross Section Number :      2
      2. Top Tapers Height    :      3.000
      3. Top Tapers Distance  :      0.000
      4. Top Fillets Height   :      4.000
      5. Top Fillets Width    :      4.000
      6. Bottom Tapers Height :     10.000
      7. Bottom Tapers Distance :      0.000
      8. Bottom Fillets Height :      0.000
      9. Bottom Fillets Width :      0.000
10-2.1  COMPOSITE-SLAB     2, 111.0000, 7.5000, 0.0000
      1. Cross Section Number :      2
      2. Effective Width      :     111.000
      3. Effective Thickness  :      7.500
      4. Gap Distance         :      0.000
10-2.2  COMPOSITE-REBAR    2, B, 12.000, 6, 2.0000
      1. Cross Section Number :      2
      2. Row Designation      :      B
      3. Number of Reinforcing Bars :     12.000
      4. Bar Size             :      6
      5. Distance to Bar Center :      2.000
10-2.2  COMPOSITE-REBAR    2, B, 21.000, 6, 3.6250
      1. Cross Section Number :      2
      2. Row Designation      :      B
      3. Number of Reinforcing Bars :     21.000
      4. Bar Size             :      6
      5. Distance to Bar Center :      3.625
3-1.1  COMMENT            Cross Section 3
3-1.1  COMMENT            Beam Name: AASHTO TYPE VI
8-2.4  CONC-I-SECTION      3, 42.00, 5.00, 8.00, 8.00, 28.00, 8.00
      1. Cross Section Number :      3
      2. Top Flange Width     :     42.000
      3. Top Flange Thickness  :      5.000
      4. Top Web Thickness     :      8.000
      5. Bottom Web Thickness  :      8.000
      6. Bottom Flange Width  :     28.000
      7. Bottom Flange Thickness :      8.000
8-2.7  CONC-FILLETS        3, 3.000, 0.000, 4.000, 4.000, &
      10.000, 0.000, 0.000, 0.000
      1. Cross Section Number :      3
      2. Top Tapers Height    :      3.000
      3. Top Tapers Distance  :      0.000
      4. Top Fillets Height   :      4.000
      5. Top Fillets Width    :      4.000
      6. Bottom Tapers Height :     10.000
      7. Bottom Tapers Distance :      0.000
      8. Bottom Fillets Height :      0.000
      9. Bottom Fillets Width :      0.000
8-2.8  CONC-REBAR          3, 1, 5.000, 5, 4.0000
      1. Cross Section Number :      3
      2. Row Number           :      1
      3. Number of Reinforcing Bars :      5.000
      4. Bar Size             :      5
      5. Distance to Bar Center :      4.000
10-2.1  COMPOSITE-SLAB     3, 111.0000, 7.5000, 0.0000
      1. Cross Section Number :      3
      2. Effective Width      :     111.000

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3. Effective Thickness           : 7.500
4. Gap Distance                 : 0.000
10-2.2 COMPOSITE-REBAR 3, B, 12.000, 6, 2.0000
1. Cross Section Number        : 3
2. Row Designation             : B
3. Number of Reinforcing Bars   : 12.000
4. Bar Size                    : 6
5. Distance to Bar Center       : 2.000
10-2.2 COMPOSITE-REBAR 3, B, 21.000, 6, 3.6250
1. Cross Section Number        : 3
2. Row Designation             : B
3. Number of Reinforcing Bars   : 21.000
4. Bar Size                    : 6
5. Distance to Bar Center       : 3.625
8-1.1 CONC-MATERIALS 0.150, 6.000, 60.00, 60.00, &
6.175, 4695.982, 0.588, , 3.000, YES, 0.000600
1. Density                     : 0.1500
2. f'c                         : 6.000
3. fy                          : 60.000
4. fys                         : 60.000
5. n                           : 6.175
6. Ec                          : 4695.982
7. fr                          : 0.588
8. Z                           : 170.000
9. m                           : 3.000
10. Use Creep                   : Y
11. Thermal Expansion Coefficient : 0.000600
10-1.1 COMPOSITE-MATERIALS 4.000, 60.000, 7.600, 3.000, 0.480, 130.00
1. f'c                         : 4.000
2. fy                          : 60.000
3. Modular Ratio               : 7.600
4. Creep Factor                : 3.000
5. fr                          : 0.480
6. Z                           : 130.000
9-1.1 PRESTRESS-MATERIALS 4.800, 6.000, 70.000, 100.000, 4200.214
1. f'ci                        : 4.800
2. Modular Ratio               : 6.000
3. Relative Humidity           : 70.000
4. % V/S                       : 100.000
5. Eci                         : 4200.214
3-1.1 COMMENT Span 1
11-1.5 SPAN-GENERAL-LENGTH 1, 1320.0000
1. Span Number                 : 1
2. Span Length                 : 1320.000
11-1.6 SPAN-GENERAL-SEGMENT 1, 59.0000, L, 1320.0000, 59.0000
1. Span Number                 : 1
2. Web Depth (Left End)       : 59.000
3. Web Variation Indicator     : L
4. Range to Segment End       : 1320.000
5. Web Depth (Right End)      : 59.000
11-2.1 SPAN-SECTION 1, 1, 990.0000, 1
1. Span Number                 : 1
2. Cross Section Number (Left) : 1
3. Distance to X-Section Change : 990.000
4. Cross Section Number (Right) : 1
11-2.1 SPAN-SECTION 1, 2, 1188.0000, 2
1. Span Number                 : 1
2. Cross Section Number (Left) : 2
3. Distance to X-Section Change : 1188.000
4. Cross Section Number (Right) : 2
11-2.1 SPAN-SECTION 1, 3, 1320.0000, 3
1. Span Number                 : 1
2. Cross Section Number (Left) : 3

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3. Distance to X-Section Change : 1320.000
4. Cross Section Number (Right) : 3
3-1.1 COMMENT Span 2
11-1.5 SPAN-GENERAL-LENGTH 2, 1320.0000
      1. Span Number : 2
      2. Span Length : 1320.000
11-1.6 SPAN-GENERAL-SEGMENT 2, 59.0000, L, 1320.0000, 59.0000
      1. Span Number : 2
      2. Web Depth (Left End) : 59.000
      3. Web Variation Indicator : L
      4. Range to Segment End : 1320.000
      5. Web Depth (Right End) : 59.000
11-2.1 SPAN-SECTION 2, 3, 132.0000, 3
      1. Span Number : 2
      2. Cross Section Number (Left) : 3
      3. Distance to X-Section Change : 132.000
      4. Cross Section Number (Right) : 3
11-2.1 SPAN-SECTION 2, 2, 330.0000, 2
      1. Span Number : 2
      2. Cross Section Number (Left) : 2
      3. Distance to X-Section Change : 330.000
      4. Cross Section Number (Right) : 2
11-2.1 SPAN-SECTION 2, 1, 1320.0000, 1
      1. Span Number : 2
      2. Cross Section Number (Left) : 1
      3. Distance to X-Section Change : 1320.000
      4. Cross Section Number (Right) : 1
11-4.1 SUPPORT-FIXITY 1, R, R, F
      1. Support Number : 1
      2. Horizontal Restraint : R
      3. Vertical Restraint : R
      4. Rotational Restraint : F
11-4.1 SUPPORT-FIXITY 2, F, R, F
      1. Support Number : 2
      2. Horizontal Restraint : F
      3. Vertical Restraint : R
      4. Rotational Restraint : F
11-4.1 SUPPORT-FIXITY 3, F, R, F
      1. Support Number : 3
      2. Horizontal Restraint : F
      3. Vertical Restraint : R
      4. Rotational Restraint : F
8-4.1 CONC-SHEAR-CONSTANTS 3, 100.000, 1.000
      1. Shear Indicator : 3
      2. % Shear : 100.000
      3. Lightweight Concrete Factor : 1.000
3-1.1 COMMENT Stirrup Schedules
3-1.1 COMMENT Stirrup Group 1: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP 1, 0.4000, 90.000, 200.000
      1. Stirrup Number : 1
      2. Stirrup Area : 0.400
      3. Stirrup Angle : 90.000
      4. % Stir. Area for Horz Shear : 200.000
8-4.3 STIRRUP-SCHEDULE 1, 1, 1.5600, 0.0000, 1.5600
      1. Span Number : 1
      2. Stirrup Number : 1
      3. Stirrup Spacing : 1.560
      4. Start Distance : 0.000
      5. Range : 1.560
3-1.1 COMMENT Stirrup Group 2: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP 2, 0.4000, 90.000, 300.000
      1. Stirrup Number : 2
      2. Stirrup Area : 0.400

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      3. StIRRUP Angle           :      90.000
      4. % StIRRUP Area for Horz Shear : 300.000
8-4.3 STIRRUP-SCHEDULE      1, 2, 3.0000, 1.5600, 3.0000
      1. Span Number           :      1
      2. StIRRUP Number        :      2
      3. StIRRUP Spacing       :      3.000
      4. Start Distance        :      1.560
      5. Range                  :      3.000
3-1.1 COMMENT              StIRRUP Group 3: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        3, 0.4000, 90.000, 100.000
      1. StIRRUP Number        :      3
      2. StIRRUP Area          :      0.400
      3. StIRRUP Angle         :      90.000
      4. % StIRRUP Area for Horz Shear : 100.000
8-4.3 STIRRUP-SCHEDULE      1, 3, 5.9400, 4.5600, 5.9400
      1. Span Number           :      1
      2. StIRRUP Number        :      3
      3. StIRRUP Spacing       :      5.940
      4. Start Distance        :      4.560
      5. Range                  :      5.940
3-1.1 COMMENT              StIRRUP Group 4: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        4, 0.4000, 90.000, 286.667
      1. StIRRUP Number        :      4
      2. StIRRUP Area          :      0.400
      3. StIRRUP Angle         :      90.000
      4. % StIRRUP Area for Horz Shear : 286.667
8-4.3 STIRRUP-SCHEDULE      1, 4, 6.0000, 10.5000, 84.0000
      1. Span Number           :      1
      2. StIRRUP Number        :      4
      3. StIRRUP Spacing       :      6.000
      4. Start Distance        :     10.500
      5. Range                  :     84.000
3-1.1 COMMENT              StIRRUP Group 5: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        5, 0.4000, 90.000, 233.333
      1. StIRRUP Number        :      5
      2. StIRRUP Area          :      0.400
      3. StIRRUP Angle         :      90.000
      4. % StIRRUP Area for Horz Shear : 233.333
8-4.3 STIRRUP-SCHEDULE      1, 5, 16.0000, 94.5000, 32.0000
      1. Span Number           :      1
      2. StIRRUP Number        :      5
      3. StIRRUP Spacing       :     16.000
      4. Start Distance        :     94.500
      5. Range                  :     32.000
3-1.1 COMMENT              StIRRUP Group 6: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        6, 0.4000, 90.000, 260.000
      1. StIRRUP Number        :      6
      2. StIRRUP Area          :      0.400
      3. StIRRUP Angle         :      90.000
      4. % StIRRUP Area for Horz Shear : 260.000
8-4.3 STIRRUP-SCHEDULE      1, 6, 18.0000, 126.5000, 72.0000
      1. Span Number           :      1
      2. StIRRUP Number        :      6
      3. StIRRUP Spacing       :     18.000
      4. Start Distance        :    126.500
      5. Range                  :     72.000
3-1.1 COMMENT              StIRRUP Group 7: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        7, 0.4000, 90.000, 275.000
      1. StIRRUP Number        :      7
      2. StIRRUP Area          :      0.400
      3. StIRRUP Angle         :      90.000
      4. % StIRRUP Area for Horz Shear : 275.000
8-4.3 STIRRUP-SCHEDULE      1, 7, 20.0000, 198.5000, 140.0000

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Appendix A

Prestressed Concrete Bridge Design Example

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1. Span Number           : 1
2. StIRRUP Number       : 7
3. StIRRUP Spacing      : 20.000
4. Start Distance      : 198.500
5. Range                 : 140.000
3-1.1 COMMENT           Stirrup Group 8: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP     8, 0.4000, 90.000, 292.857
    1. StIRRUP Number   : 8
    2. StIRRUP Area     : 0.400
    3. StIRRUP Angle    : 90.000
    4. % Stir. Area for Horz Shear : 292.857
8-4.3 STIRRUP-SCHEDULE  1, 8, 24.0000, 338.5000, 648.0001
    1. Span Number     : 1
    2. StIRRUP Number   : 8
    3. StIRRUP Spacing : 24.000
    4. Start Distance  : 338.500
    5. Range           : 648.000
8-4.3 STIRRUP-SCHEDULE  1, 1, 19.0200, 986.5001, 19.0199
    1. Span Number     : 1
    2. StIRRUP Number   : 1
    3. StIRRUP Spacing : 19.020
    4. Start Distance  : 986.500
    5. Range           : 19.020
8-4.3 STIRRUP-SCHEDULE  1, 5, 19.0000, 1005.5200, 38.0000
    1. Span Number     : 1
    2. StIRRUP Number   : 5
    3. StIRRUP Spacing : 19.000
    4. Start Distance  : 1005.520
    5. Range           : 38.000
8-4.3 STIRRUP-SCHEDULE  1, 7, 11.0000, 1043.5200, 77.0000
    1. Span Number     : 1
    2. StIRRUP Number   : 7
    3. StIRRUP Spacing : 11.000
    4. Start Distance  : 1043.520
    5. Range           : 77.000
3-1.1 COMMENT           Stirrup Group 9: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP     9, 0.4000, 90.000, 284.615
    1. StIRRUP Number   : 9
    2. StIRRUP Area     : 0.400
    3. StIRRUP Angle    : 90.000
    4. % Stir. Area for Horz Shear : 284.615
8-4.3 STIRRUP-SCHEDULE  1, 9, 7.0000, 1120.5200, 84.0000
    1. Span Number     : 1
    2. StIRRUP Number   : 9
    3. StIRRUP Spacing : 7.000
    4. Start Distance  : 1120.520
    5. Range           : 84.000
8-4.3 STIRRUP-SCHEDULE  1, 1, 6.0400, 1204.5200, 6.0400
    1. Span Number     : 1
    2. StIRRUP Number   : 1
    3. StIRRUP Spacing : 6.040
    4. Start Distance  : 1204.520
    5. Range           : 6.040
3-1.1 COMMENT           Stirrup Group 10: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP    10, 0.4000, 90.000, 287.500
    1. StIRRUP Number   : 10
    2. StIRRUP Area     : 0.400
    3. StIRRUP Angle    : 90.000
    4. % Stir. Area for Horz Shear : 287.500
8-4.3 STIRRUP-SCHEDULE  1, 10, 6.0000, 1210.5600, 90.0000
    1. Span Number     : 1
    2. StIRRUP Number   : 10
    3. StIRRUP Spacing : 6.000

```

	4. Start Distance	:	1210.560
	5. Range	:	90.000
8-4.3	STIRRUP-SCHEDULE	1, 5, 3.0000, 1300.5600, 6.0000	
	1. Span Number	:	1
	2. Stirrup Number	:	5
	3. Stirrup Spacing	:	3.000
	4. Start Distance	:	1300.560
	5. Range	:	6.000
8-4.3	STIRRUP-SCHEDULE	1, 1, 1.4400, 1306.5600, 1.4400	
	1. Span Number	:	1
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	1.440
	4. Start Distance	:	1306.560
	5. Range	:	1.440
8-4.3	STIRRUP-SCHEDULE	1, 3, 1.5600, 1308.0000, 1.5600	
	1. Span Number	:	1
	2. Stirrup Number	:	3
	3. Stirrup Spacing	:	1.560
	4. Start Distance	:	1308.000
	5. Range	:	1.560
8-4.3	STIRRUP-SCHEDULE	1, 1, 3.0000, 1309.5600, 3.0000	
	1. Span Number	:	1
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	3.000
	4. Start Distance	:	1309.560
	5. Range	:	3.000
8-4.3	STIRRUP-SCHEDULE	1, 1, 1.5000, 1312.5600, 1.5000	
	1. Span Number	:	1
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	1.500
	4. Start Distance	:	1312.560
	5. Range	:	1.500
8-4.3	STIRRUP-SCHEDULE	1, 1, 1.5000, 1314.0600, 5.9400	
	1. Span Number	:	1
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	1.500
	4. Start Distance	:	1314.060
	5. Range	:	5.940
8-4.3	STIRRUP-SCHEDULE	2, 1, 3.0600, 4.5000, 3.0600	
	1. Span Number	:	2
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	3.060
	4. Start Distance	:	4.500
	5. Range	:	3.060
8-4.3	STIRRUP-SCHEDULE	2, 2, 3.0000, 7.5600, 3.0000	
	1. Span Number	:	2
	2. Stirrup Number	:	2
	3. Stirrup Spacing	:	3.000
	4. Start Distance	:	7.560
	5. Range	:	3.000
8-4.3	STIRRUP-SCHEDULE	2, 1, 1.4400, 10.5600, 1.4400	
	1. Span Number	:	2
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	1.440
	4. Start Distance	:	10.560
	5. Range	:	1.440
8-4.3	STIRRUP-SCHEDULE	2, 1, 1.5600, 12.0000, 1.5600	
	1. Span Number	:	2
	2. Stirrup Number	:	1
	3. Stirrup Spacing	:	1.560
	4. Start Distance	:	12.000
	5. Range	:	1.560
8-4.3	STIRRUP-SCHEDULE	2, 2, 3.0000, 13.5600, 3.0000	

```

1. Span Number           : 2
2. StIRRUP Number       : 2
3. StIRRUP Spacing      : 3.000
4. Start Distance      : 13.560
5. Range                : 3.000
8-4.3 STIRRUP-SCHEDULE   2, 10, 6.0000, 16.5600, 90.0000
1. Span Number           : 2
2. StIRRUP Number       : 10
3. StIRRUP Spacing      : 6.000
4. Start Distance      : 16.560
5. Range                : 90.000
8-4.3 STIRRUP-SCHEDULE   2, 5, 16.0000, 106.5600, 32.0000
1. Span Number           : 2
2. StIRRUP Number       : 5
3. StIRRUP Spacing      : 16.000
4. Start Distance      : 106.560
5. Range                : 32.000
8-4.3 STIRRUP-SCHEDULE   2, 1, 18.0400, 138.5600, 18.0400
1. Span Number           : 2
2. StIRRUP Number       : 1
3. StIRRUP Spacing      : 18.040
4. Start Distance      : 138.560
5. Range                : 18.040
3-1.1 COMMENT           StIRRUP Group 11: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP      11, 0.4000, 90.000, 250.000
1. StIRRUP Number       : 11
2. StIRRUP Area         : 0.400
3. StIRRUP Angle        : 90.000
4. % StIRRUP Area for Horz Shear : 250.000
8-4.3 STIRRUP-SCHEDULE   2, 11, 18.0000, 156.6000, 54.0000
1. Span Number           : 2
2. StIRRUP Number       : 11
3. StIRRUP Spacing      : 18.000
4. Start Distance      : 156.600
5. Range                : 54.000
8-4.3 STIRRUP-SCHEDULE   2, 7, 20.0000, 210.6000, 140.0000
1. Span Number           : 2
2. StIRRUP Number       : 7
3. StIRRUP Spacing      : 20.000
4. Start Distance      : 210.600
5. Range                : 140.000
8-4.3 STIRRUP-SCHEDULE   2, 8, 24.0000, 350.6000, 648.0001
1. Span Number           : 2
2. StIRRUP Number       : 8
3. StIRRUP Spacing      : 24.000
4. Start Distance      : 350.600
5. Range                : 648.000
8-4.3 STIRRUP-SCHEDULE   2, 11, 19.0000, 998.6001, 56.9999
1. Span Number           : 2
2. StIRRUP Number       : 11
3. StIRRUP Spacing      : 19.000
4. Start Distance      : 998.600
5. Range                : 57.000
8-4.3 STIRRUP-SCHEDULE   2, 7, 11.0000, 1055.6000, 77.0000
1. Span Number           : 2
2. StIRRUP Number       : 7
3. StIRRUP Spacing      : 11.000
4. Start Distance      : 1055.600
5. Range                : 77.000
8-4.3 STIRRUP-SCHEDULE   2, 9, 7.0000, 1132.6000, 84.0000
1. Span Number           : 2
2. StIRRUP Number       : 9
3. StIRRUP Spacing      : 7.000

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4. Start Distance          : 1132.600
5. Range                   : 84.000
3-1.1 COMMENT              Stirrup Group 12: #4 Vert Shear Reinf.
8-4.2 STIRRUP-GROUP        12, 0.4000, 90.000, 288.235
    1. Stirrup Number      : 12
    2. Stirrup Area        : 0.400
    3. Stirrup Angle       : 90.000
    4. % Stir. Area for Horz Shear : 288.235
8-4.3 STIRRUP-SCHEDULE     2, 12, 6.0000, 1216.6000, 96.0000
    1. Span Number        : 2
    2. Stirrup Number     : 12
    3. Stirrup Spacing    : 6.000
    4. Start Distance     : 1216.600
    5. Range              : 96.000
8-4.3 STIRRUP-SCHEDULE     2, 5, 3.0000, 1312.6000, 6.0000
    1. Span Number        : 2
    2. Stirrup Number     : 5
    3. Stirrup Spacing    : 3.000
    4. Start Distance     : 1312.600
    5. Range              : 6.000
8-4.3 STIRRUP-SCHEDULE     2, 3, 1.4000, 1318.6000, 1.4000
    1. Span Number        : 2
    2. Stirrup Number     : 3
    3. Stirrup Spacing    : 1.400
    4. Start Distance     : 1318.600
    5. Range              : 1.400
8-4.3 STIRRUP-SCHEDULE     2, 1, 3.0600, 0.0000, 4.5000
    1. Span Number        : 2
    2. Stirrup Number     : 1
    3. Stirrup Spacing    : 3.060
    4. Start Distance     : 0.000
    5. Range              : 4.500
3-1.1 COMMENT              Concrete Stress Limits Schedules
3-1.1 COMMENT              Concrete Stress Limits Group 1: Stress Limit Set #1
9-8.1 CONC-STLIM-GROUP     1, 2.880, 0.480, 2.700, 3.600, 0.465, &
    , 2.880, 0.480, 2.700, 3.600, 0.465, &
    ,
    1. Group Number      : 1
    2. fcb (Girder)      : 2.880
    3. ftb (Girder)      : 0.480
    4. fca (Girder) (DL+PS) : 2.700
    5. fca (Girder) (DL+PS+LL) : 3.600
    6. fta (Girder)      : 0.465
    7. fc (Slab)         :
    8. fcb (Flange)      : 2.880
    9. ftb (Flange)      : 0.480
    10. fca (Flange) (DL+PS) : 2.700
    11. fca (Flange) (DL+PS+LL) : 3.600
    12. fta (Flange)     : 0.465
    13. fca (Girder) (0.5[DL+PS]+LL) :
    14. fca (Flange) (0.5[DL+PS]+LL) :
9-8.2 CONC-STLIM-SCHEDULE  1, 1, 0.0000, 1317.0000
    1. Span Number      : 1
    2. Group Number     : 1
    3. Start Distance   : 0.000
    4. Range            : 1317.000
9-8.2 CONC-STLIM-SCHEDULE  1, 1, 1317.0000, 3.0000
    1. Span Number      : 1
    2. Group Number     : 1
    3. Start Distance   : 1317.000
    4. Range            : 3.000
3-1.1 COMMENT              The width of the top flange will be used as the
3-1.1 COMMENT              default for the shear friction interface width.

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9-7.4    SHEAR-FRICTION-COEFF 0.100, 1.000,
        1. Cohesion Factor      :      0.100
        2. Friction Factor      :      1.000
        3. Interface Width      :
3-1.1    COMMENT                Point of Interest: (100.1591) = Span 1 - 21.0000
3-1.1    COMMENT                The r/h data on the following command are BRASS defaults.
3-1.1    COMMENT                This data is not currently available in Virtis/Opis.
10-3.1   COMPOSITE-FATIGUE 100.1591, 0.300, 0.300
        1. Point of Interest    : 100.1591
        2. r/h (Bottom Rebar)   : 0.300
        3. r/h (Top Rebar)      : 0.300
9-7.3    PRESTRESS-FATIGUE 100.1591, 18.0000
        1. Point of Interest    : 100.1591
        2. Stress Range         : 18.000
5-2.1    OUTPUT-INTERMEDIATE 100.1591, ON, ON
        1. Point of Interest    : 100.1591
        2. Specification Checks : ON
        3. Load Factoring/Combination : ON
3-1.1    COMMENT                Point of Interest: (100.6364) = Span 1 - 84.0000
3-1.1    COMMENT                The r/h data on the following command are BRASS defaults.
3-1.1    COMMENT                This data is not currently available in Virtis/Opis.
10-3.1   COMPOSITE-FATIGUE 100.6364, 0.300, 0.300
        1. Point of Interest    : 100.6364
        2. r/h (Bottom Rebar)   : 0.300
        3. r/h (Top Rebar)      : 0.300
9-7.3    PRESTRESS-FATIGUE 100.6364, 18.0000
        1. Point of Interest    : 100.6364
        2. Stress Range         : 18.000
5-2.1    OUTPUT-INTERMEDIATE 100.6364, ON, ON
        1. Point of Interest    : 100.6364
        2. Specification Checks : ON
        3. Load Factoring/Combination : ON
3-1.1    COMMENT                DC1
12-1.2   LOAD-DEAD-DESCR 1, DC, 1, DC1
        1. Load Group Number    : 1
        2. Dead Load Type      : DC
        3. Stage                : 1
        4. Load Group Name      : DC1
12-1.3   LOAD-DEAD-UNIFORM 1, 1, 0.000, 0.014583, 1320.000, 0.014583
        1. Load Group Number    : 1
        2. Span Number          : 1
        3. Distance to Start of Load : 0.000
        4. Magnitude of Load (Beginning) : 0.015
        5. Distance to End of Load : 1320.000
        6. Magnitude of Load (End) : 0.015
12-1.3   LOAD-DEAD-UNIFORM 1, 2, 0.000, 0.014583, 1320.000, 0.014583
        1. Load Group Number    : 1
        2. Span Number          : 2
        3. Distance to Start of Load : 0.000
        4. Magnitude of Load (Beginning) : 0.015
        5. Distance to End of Load : 1320.000
        6. Magnitude of Load (End) : 0.015
12-1.4   LOAD-DEAD-POINT 1, 1, 0.0000, 5.0630, 654.0000
        1. Load Group Number    : 1
        2. Span Number          : 1
        3. Mag of Point Load (Horizontal): 0.000
        4. Mag of Point Load (Vertical) : 5.063
        5. Distance to Start of Load : 654.000
12-1.4   LOAD-DEAD-POINT 1, 2, 0.0000, 5.0600, 660.0000
        1. Load Group Number    : 1
        2. Span Number          : 2
        3. Mag of Point Load (Horizontal): 0.000
        4. Mag of Point Load (Vertical) : 5.060

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5. Distance to Start of Load      :    660.000
3-1.1 COMMENT                      Parapet: Type F Parapet
6-5.2 DECK-LOAD-LINE              1, 0.0541, 7.6115
    1. Load Group Number          :    1
    2. Line Load                  :    0.054
    3. Load Location              :    7.611
3-1.1 COMMENT                      Parapet: Type F Parapet
6-5.2 DECK-LOAD-LINE              1, 0.0541, 656.8885
    1. Load Group Number          :    1
    2. Line Load                  :    0.054
    3. Load Location              :   656.888
3-1.1 COMMENT                      DC2
12-1.2 LOAD-DEAD-DESCR            2, DC, 2, DC2
    1. Load Group Number          :    2
    2. Dead Load Type             :    DC
    3. Stage                      :    2
    4. Load Group Name            :    DC2
12-1.3 LOAD-DEAD-UNIFORM          2, 1, 0.000, 0.018000, 1320.000, 0.018000
    1. Load Group Number          :    2
    2. Span Number                :    1
    3. Distance to Start of Load  :    0.000
    4. Magnitude of Load (Beginning) :    0.018
    5. Distance to End of Load    :   1320.000
    6. Magnitude of Load (End)   :    0.018
12-1.3 LOAD-DEAD-UNIFORM          2, 2, 0.000, 0.018000, 1320.000, 0.018000
    1. Load Group Number          :    2
    2. Span Number                :    2
    3. Distance to Start of Load  :    0.000
    4. Magnitude of Load (Beginning) :    0.018
    5. Distance to End of Load    :   1320.000
    6. Magnitude of Load (End)   :    0.018
12-3.2 LOAD-SETL-STAGE            1
    1. Stage                      :    1
12-4.1 LOAD-LIVE-CONTROL          B, N, 0.0000, , , 100.00, 100
    1. Direction Control          :    B
    2. Standard Live Loads        :    N
    3. Pedestrian Load            :    0.000
    4. Blank Parameter            :
    5. Blank Parameter            :
    6. % of Dynamic Load Allowance :   100.000
    7. Wheel Advance. Denominator :   100.000
12-4.2 LOAD-LIVE-DYNAMIC          D, 33.000, 0.000, 15.000
    1. Design/Rating Procedure    :    D
    2. Dyn. Load Allow. (Truck)   :   33.000
    3. Dyn. Load Allow. (Lane)    :    0.000
    4. Dyn. Load Allow. (Fatigue) :   15.000
12-4.3 LOAD-LIVE-DEFINITION      1, DTK_HL-93~1, DTK, D, 100.0000, 1.0000, CRIT, YES
    1. Live Load Number           :    1
    2. Live Load Code             :    DTK_HL-93~1
    3. Live Load Type             :    DTK
    4. Design/Rating Procedure    :    D
    5. % of Dynamic Load Allow.   :   100.000
    6. Scale Factor               :    1.000
    7. Lanes Loaded               :    CRIT
    8. Notional Load Control      :    YES
    9. Dynamic Load Allowance     :
   10. Special Trk/Lane No.       :
   11. Variable Axle Spacing     :
12-4.3 LOAD-LIVE-DEFINITION      2, DTM_HL-93~2, DTM, D, 100.0000, 1.0000, CRIT, YES
    1. Live Load Number           :    2
    2. Live Load Code             :    DTM_HL-93~2
    3. Live Load Type             :    DTM
    4. Design/Rating Procedure    :    D

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5. % of Dynamic Load Allow.      :    100.000
6. Scale Factor                   :         1.000
7. Lanes Loaded                   :    CRIT
8. Notional Load Control          :    YES
9. Dynamic Load Allowance         :
10. Special Trk/Lane No.         :
11. Variable Axle Spacing        :
12-4.3  LOAD-LIVE-DEFINITION 3, TKT_HL-93~3, TKT, D, 100.0000, 1.0000, CRIT, YES
1. Live Load Number              :     3
2. Live Load Code                :    TKT_HL-93~3
3. Live Load Type                :    TKT
4. Design/Rating Procedure       :    D
5. % of Dynamic Load Allow.      :    100.000
6. Scale Factor                   :         1.000
7. Lanes Loaded                   :    CRIT
8. Notional Load Control          :    YES
9. Dynamic Load Allowance         :
10. Special Trk/Lane No.         :
11. Variable Axle Spacing        :
12-4.3  LOAD-LIVE-DEFINITION 4, DLN_HL-93~5, DLN, D, 100.0000, 1.0000, CRIT, YES
1. Live Load Number              :     4
2. Live Load Code                :    DLN_HL-93~5
3. Live Load Type                :    DLN
4. Design/Rating Procedure       :    D
5. % of Dynamic Load Allow.      :    100.000
6. Scale Factor                   :         1.000
7. Lanes Loaded                   :    CRIT
8. Notional Load Control          :    YES
9. Dynamic Load Allowance         :
10. Special Trk/Lane No.         :
11. Variable Axle Spacing        :
12-4.6  LOAD-LIVE-COMBO          1, 4
1. Live Load Number: Truck       :     1
2. Live Load Number: Lane       :     4
3. Combination Factor: Truck    :
4. Combination Factor: Lane     :
12-4.7  LOAD-LIVE-DEFLECTION 1, , 1.0,
1. Live Load Number: Truck      :     1
2. Live Load Number: Lane      :
3. Combination Factor: Truck    :     1.000
4. Combination Factor: Lane     :
5. Allowable Defl. Denom.      :
6. Absolute Allowable Defl.     :
12-4.7  LOAD-LIVE-DEFLECTION 1, 4, 0.25, 1.0
1. Live Load Number: Truck      :     1
2. Live Load Number: Lane      :     4
3. Combination Factor: Truck    :     0.250
4. Combination Factor: Lane     :     1.000
5. Allowable Defl. Denom.      :
6. Absolute Allowable Defl.     :
12-4.6  LOAD-LIVE-COMBO          2, 4
1. Live Load Number: Truck       :     2
2. Live Load Number: Lane       :     4
3. Combination Factor: Truck    :
4. Combination Factor: Lane     :
12-4.6  LOAD-LIVE-COMBO          3, 4
1. Live Load Number: Truck       :     3
2. Live Load Number: Lane       :     4
3. Combination Factor: Truck    :
4. Combination Factor: Lane     :
9-2.3   PS-BEAM-OVERHANG        1, 9.000, 9.000
1. Span Number                   :     1
2. Beam Overhang (Left)         :     9.000

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3. Beam Overhang (Right) : 9.000
3-1.1 COMMENT Strand Group 1: Prestress Properties #1
3-1.1 COMMENT + Strand Material: Prestressing Strands
9-3.1 STRAND-MATL-PRETEEN 1, 0.153, LR, 270.000, 243.000, 28500.000, &
      0.750, 0.700, 0.700, 30.000, 0.500
      1. Strand Number : 1
      2. Strand Area : 0.153
      3. Strand Type : LR
      4. fpu : 270.000
      5. fpy : 243.000
      6. Ep : 28500.000
      7. Initial Stress Ratio : 0.750
      8. Transfer Stress Ratio : 0.700
      9. T.S.R.: Elastic Shorten : 0.700
      10. Transfer Length : 30.000
      11. Nominal Strand Diameter : 0.500
9-3.1.2 LOSS-AASHTO-PRETEEN 1, 1.00000, 0.00, 20.00, 0.40, 0.20
      1. Strand Number : 1
      2. Transfer Time : 1.000
      3. Blank Parameter :
      4. Relax. Coef: Base : 20.000
      5. Relax. Coef: Elas. Short. : 0.400
      6. Relax. Coef: Shr. & Creep : 0.200
9-6.1 STRAND-GENERAL 1, 1, 1, 8, 1
      1. Span Number : 1
      2. Row Number : 1
      3. Strand Number : 1
      4. Number of Strands : 8
      5. Stage Stressed : 1
9-6.2 STRAND-STRAIGHT 1, 1, 70.000, N
      1. Span Number : 1
      2. Row Number : 1
      3. Distance to Centroid : 70.000
      4. Continuity : N
      5. Identical Rows : 0
      6. Row Spacing : 0.000
9-6.1 STRAND-GENERAL 1, 2, 1, 2, 1
      1. Span Number : 1
      2. Row Number : 2
      3. Strand Number : 1
      4. Number of Strands : 2
      5. Stage Stressed : 1
9-6.2 STRAND-STRAIGHT 1, 2, 70.000, N
      1. Span Number : 1
      2. Row Number : 2
      3. Distance to Centroid : 70.000
      4. Continuity : N
      5. Identical Rows : 0
      6. Row Spacing : 0.000
9-6.7 STRAND-DEBOND 1, 2, 2, 2, 129.000, 129.000
      1. Span Number : 1
      2. Beginning Row Number : 2
      3. Last Row Number : 2
      4. Number of Strands : 2
      5. Debond Length (Left) : 129.000
      6. Debond Length (Right) : 129.000
9-6.1 STRAND-GENERAL 1, 3, 1, 2, 1
      1. Span Number : 1
      2. Row Number : 3
      3. Strand Number : 1
      4. Number of Strands : 2
      5. Stage Stressed : 1
9-6.2 STRAND-STRAIGHT 1, 3, 70.000, N

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	1. Span Number	:	1
	2. Row Number	:	3
	3. Distance to Centroid	:	70.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND		1, 3, 3, 2, 273.000, 273.000
	1. Span Number	:	1
	2. Beginning Row Number	:	3
	3. Last Row Number	:	3
	4. Number of Strands	:	2
	5. Debond Length (Left)	:	273.000
	6. Debond Length (Right)	:	273.000
9-6.1	STRAND-GENERAL		1, 4, 1, 8, 1
	1. Span Number	:	1
	2. Row Number	:	4
	3. Strand Number	:	1
	4. Number of Strands	:	8
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT		1, 4, 68.000, N
	1. Span Number	:	1
	2. Row Number	:	4
	3. Distance to Centroid	:	68.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.1	STRAND-GENERAL		1, 5, 1, 2, 1
	1. Span Number	:	1
	2. Row Number	:	5
	3. Strand Number	:	1
	4. Number of Strands	:	2
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT		1, 5, 68.000, N
	1. Span Number	:	1
	2. Row Number	:	5
	3. Distance to Centroid	:	68.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND		1, 5, 5, 2, 129.000, 129.000
	1. Span Number	:	1
	2. Beginning Row Number	:	5
	3. Last Row Number	:	5
	4. Number of Strands	:	2
	5. Debond Length (Left)	:	129.000
	6. Debond Length (Right)	:	129.000
9-6.1	STRAND-GENERAL		1, 6, 1, 2, 1
	1. Span Number	:	1
	2. Row Number	:	6
	3. Strand Number	:	1
	4. Number of Strands	:	2
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT		1, 6, 68.000, N
	1. Span Number	:	1
	2. Row Number	:	6
	3. Distance to Centroid	:	68.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND		1, 6, 6, 2, 273.000, 273.000
	1. Span Number	:	1
	2. Beginning Row Number	:	6
	3. Last Row Number	:	6

	4. Number of Strands	:	2
	5. Debond Length (Left)	:	273.000
	6. Debond Length (Right)	:	273.000
9-6.1	STRAND-GENERAL 1, 7, 1, 6, 1		
	1. Span Number	:	1
	2. Row Number	:	7
	3. Strand Number	:	1
	4. Number of Strands	:	6
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT 1, 7, 66.000, N		
	1. Span Number	:	1
	2. Row Number	:	7
	3. Distance to Centroid	:	66.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.1	STRAND-GENERAL 1, 8, 1, 2, 1		
	1. Span Number	:	1
	2. Row Number	:	8
	3. Strand Number	:	1
	4. Number of Strands	:	2
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT 1, 8, 66.000, N		
	1. Span Number	:	1
	2. Row Number	:	8
	3. Distance to Centroid	:	66.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND 1, 8, 8, 2, 129.000, 129.000		
	1. Span Number	:	1
	2. Beginning Row Number	:	8
	3. Last Row Number	:	8
	4. Number of Strands	:	2
	5. Debond Length (Left)	:	129.000
	6. Debond Length (Right)	:	129.000
9-6.1	STRAND-GENERAL 1, 9, 1, 2, 1		
	1. Span Number	:	1
	2. Row Number	:	9
	3. Strand Number	:	1
	4. Number of Strands	:	2
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT 1, 9, 66.000, N		
	1. Span Number	:	1
	2. Row Number	:	9
	3. Distance to Centroid	:	66.000
	4. Continuity	:	N
	5. Identical Rows	:	0
	6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND 1, 9, 9, 2, 273.000, 273.000		
	1. Span Number	:	1
	2. Beginning Row Number	:	9
	3. Last Row Number	:	9
	4. Number of Strands	:	2
	5. Debond Length (Left)	:	273.000
	6. Debond Length (Right)	:	273.000
9-6.1	STRAND-GENERAL 1, 10, 1, 6, 1		
	1. Span Number	:	1
	2. Row Number	:	10
	3. Strand Number	:	1
	4. Number of Strands	:	6
	5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT 1, 10, 64.000, N		

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1. Span Number           : 1
2. Row Number           : 10
3. Distance to Centroid : 64.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-6.1 STRAND-GENERAL    1, 11, 1, 4, 1
1. Span Number           : 1
2. Row Number           : 11
3. Strand Number        : 1
4. Number of Strands    : 4
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT   1, 11, 62.000, N
1. Span Number           : 1
2. Row Number           : 11
3. Distance to Centroid : 62.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-2.3 PS-BEAM-OVERHANG  2, 9.000, 9.000
1. Span Number           : 2
2. Beam Overhang (Left) : 9.000
3. Beam Overhang (Right): 9.000
9-6.1 STRAND-GENERAL    2, 1, 1, 8, 1
1. Span Number           : 2
2. Row Number           : 1
3. Strand Number        : 1
4. Number of Strands    : 8
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT   2, 1, 70.000, N
1. Span Number           : 2
2. Row Number           : 1
3. Distance to Centroid : 70.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-6.1 STRAND-GENERAL    2, 2, 1, 2, 1
1. Span Number           : 2
2. Row Number           : 2
3. Strand Number        : 1
4. Number of Strands    : 2
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT   2, 2, 70.000, N
1. Span Number           : 2
2. Row Number           : 2
3. Distance to Centroid : 70.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-6.7 STRAND-DEBOND     2, 2, 2, 2, 129.000, 129.000
1. Span Number           : 2
2. Beginning Row Number : 2
3. Last Row Number      : 2
4. Number of Strands    : 2
5. Debond Length (Left) : 129.000
6. Debond Length (Right): 129.000
9-6.1 STRAND-GENERAL    2, 3, 1, 2, 1
1. Span Number           : 2
2. Row Number           : 3
3. Strand Number        : 1
4. Number of Strands    : 2
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT   2, 3, 70.000, N

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1. Span Number           : 2
2. Row Number           : 3
3. Distance to Centroid : 70.000
4. Continuity           : N
5. Identical Rows      : 0
6. Row Spacing          : 0.000
9-6.7 STRAND-DEBOND      2, 3, 3, 2, 273.000, 273.000
1. Span Number           : 2
2. Beginning Row Number : 3
3. Last Row Number      : 3
4. Number of Strands    : 2
5. Debond Length (Left) : 273.000
6. Debond Length (Right): 273.000
9-6.1 STRAND-GENERAL     2, 4, 1, 8, 1
1. Span Number           : 2
2. Row Number           : 4
3. Strand Number        : 1
4. Number of Strands    : 8
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT    2, 4, 68.000, N
1. Span Number           : 2
2. Row Number           : 4
3. Distance to Centroid : 68.000
4. Continuity           : N
5. Identical Rows      : 0
6. Row Spacing          : 0.000
9-6.1 STRAND-GENERAL     2, 5, 1, 2, 1
1. Span Number           : 2
2. Row Number           : 5
3. Strand Number        : 1
4. Number of Strands    : 2
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT    2, 5, 68.000, N
1. Span Number           : 2
2. Row Number           : 5
3. Distance to Centroid : 68.000
4. Continuity           : N
5. Identical Rows      : 0
6. Row Spacing          : 0.000
9-6.7 STRAND-DEBOND      2, 5, 5, 2, 129.000, 129.000
1. Span Number           : 2
2. Beginning Row Number : 5
3. Last Row Number      : 5
4. Number of Strands    : 2
5. Debond Length (Left) : 129.000
6. Debond Length (Right): 129.000
9-6.1 STRAND-GENERAL     2, 6, 1, 2, 1
1. Span Number           : 2
2. Row Number           : 6
3. Strand Number        : 1
4. Number of Strands    : 2
5. Stage Stressed      : 1
9-6.2 STRAND-STRAIGHT    2, 6, 68.000, N
1. Span Number           : 2
2. Row Number           : 6
3. Distance to Centroid : 68.000
4. Continuity           : N
5. Identical Rows      : 0
6. Row Spacing          : 0.000
9-6.7 STRAND-DEBOND      2, 6, 6, 2, 273.000, 273.000
1. Span Number           : 2
2. Beginning Row Number : 6
3. Last Row Number      : 6

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		4. Number of Strands	:	2
		5. Debond Length (Left)	:	273.000
		6. Debond Length (Right)	:	273.000
9-6.1	STRAND-GENERAL	2, 7, 1, 6, 1		
		1. Span Number	:	2
		2. Row Number	:	7
		3. Strand Number	:	1
		4. Number of Strands	:	6
		5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT	2, 7, 66.000, N		
		1. Span Number	:	2
		2. Row Number	:	7
		3. Distance to Centroid	:	66.000
		4. Continuity	:	N
		5. Identical Rows	:	0
		6. Row Spacing	:	0.000
9-6.1	STRAND-GENERAL	2, 8, 1, 2, 1		
		1. Span Number	:	2
		2. Row Number	:	8
		3. Strand Number	:	1
		4. Number of Strands	:	2
		5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT	2, 8, 66.000, N		
		1. Span Number	:	2
		2. Row Number	:	8
		3. Distance to Centroid	:	66.000
		4. Continuity	:	N
		5. Identical Rows	:	0
		6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND	2, 8, 8, 2, 129.000, 129.000		
		1. Span Number	:	2
		2. Beginning Row Number	:	8
		3. Last Row Number	:	8
		4. Number of Strands	:	2
		5. Debond Length (Left)	:	129.000
		6. Debond Length (Right)	:	129.000
9-6.1	STRAND-GENERAL	2, 9, 1, 2, 1		
		1. Span Number	:	2
		2. Row Number	:	9
		3. Strand Number	:	1
		4. Number of Strands	:	2
		5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT	2, 9, 66.000, N		
		1. Span Number	:	2
		2. Row Number	:	9
		3. Distance to Centroid	:	66.000
		4. Continuity	:	N
		5. Identical Rows	:	0
		6. Row Spacing	:	0.000
9-6.7	STRAND-DEBOND	2, 9, 9, 2, 273.000, 273.000		
		1. Span Number	:	2
		2. Beginning Row Number	:	9
		3. Last Row Number	:	9
		4. Number of Strands	:	2
		5. Debond Length (Left)	:	273.000
		6. Debond Length (Right)	:	273.000
9-6.1	STRAND-GENERAL	2, 10, 1, 6, 1		
		1. Span Number	:	2
		2. Row Number	:	10
		3. Strand Number	:	1
		4. Number of Strands	:	6
		5. Stage Stressed	:	1
9-6.2	STRAND-STRAIGHT	2, 10, 64.000, N		

```

1. Span Number           : 2
2. Row Number           : 10
3. Distance to Centroid : 64.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-6.1 STRAND-GENERAL     2, 11, 1, 4, 1
1. Span Number           : 2
2. Row Number           : 11
3. Strand Number        : 1
4. Number of Strands    : 4
5. Stage Stressed       : 1
9-6.2 STRAND-STRAIGHT    2, 11, 62.000, N
1. Span Number           : 2
2. Row Number           : 11
3. Distance to Centroid : 62.000
4. Continuity           : N
5. Identical Rows       : 0
6. Row Spacing          : 0.000
9-2.1 PRESTRESS-CONTINUITY CA
1. Continuity           : CA
9-2.2 PRESTRESS-TIME     21.00, 60.00, 60.00, 75.00, 75.00, , , ,
1. Drying Time           : 21.000
2. Time Continuous      : 60.000
3. Time Composite       : 60.000
4. Service Life         : 75.000
5. Time of Analysis     : 75.000
6. Time Load Group 1    :
7. Time Load Group 2    :
8. Time Load Group 3    :
9. Time Load Group 4    :
3-1.1 COMMENT           User specified to ignore differential deck shrinkage!
9-10.1 PSLOAD-CREEP     NO
1. Perform Creep Adjustments : NO
2. Creep Factor          : 3.500
3. kf                   :
4. kc                   :
5. kh                   :
9-10.2 PSLOAD-CREEP-TIME , , , ,
1. Time SDL (DC)        :
2. Time SDL (DW)        :
3. Time Temperature     :
4. Time Settlement      :
5. Time Shrinkage       :
3-1.1 COMMENT           The DIST-REACTION commands are generated from the
3-1.1 COMMENT           distribution factor (DF) schedules. The reaction DF is
3-1.1 COMMENT           taken as the average of the DFs from adjacent spans. For
3-1.1 COMMENT           end supports, the DF is taken as the DF from the spans
3-1.1 COMMENT           on which the support is located.
12-5.1 DIST-BEAM-SCHEDULE 1, D, 0.6670, 0.6670, 0.0000, 1320.0000
1. Span Number           : 1
2. Action Code           : D
3. mg(one-lane)         : 0.667
4. mg(mult-lanes)       : 0.667
5. Start Distance       : 0.000
6. Range                 : 1320.000
12-5.1 DIST-BEAM-SCHEDULE 1, M, 0.7960, 0.7960, 0.0000, 1320.0000
1. Span Number           : 1
2. Action Code           : M
3. mg(one-lane)         : 0.796
4. mg(mult-lanes)       : 0.796
5. Start Distance       : 0.000
6. Range                 : 1320.000

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12-5.1  DIST-BEAM-SCHEDULE  1, V, 0.9730, 0.9730, 0.0000, 1320.0000
        1. Span Number      : 1
        2. Action Code      : V
        3. mg(one-lane)     : 0.973
        4. mg(mult-lanes)   : 0.973
        5. Start Distance   : 0.000
        6. Range            : 1320.000
12-5.2  DIST-REACTION      1, 0.9730, 0.7960, 0.6670, 0.9730, 0.7960, 0.6670
        1. Support Number   : 1
        2. g(Shear-1)       : 0.973
        3. g(Moment-1)      : 0.796
        4. g(Deflection-1)  : 0.667
        5. g(Shear-M)       : 0.973
        6. g(Moment-M)      : 0.796
        7. g(Deflection-M)  : 0.667
12-5.1  DIST-BEAM-SCHEDULE  2, D, 0.6670, 0.6670, 0.0000, 1320.0000
        1. Span Number      : 2
        2. Action Code      : D
        3. mg(one-lane)     : 0.667
        4. mg(mult-lanes)   : 0.667
        5. Start Distance   : 0.000
        6. Range            : 1320.000
12-5.1  DIST-BEAM-SCHEDULE  2, M, 0.7960, 0.7960, 0.0000, 1320.0000
        1. Span Number      : 2
        2. Action Code      : M
        3. mg(one-lane)     : 0.796
        4. mg(mult-lanes)   : 0.796
        5. Start Distance   : 0.000
        6. Range            : 1320.000
12-5.1  DIST-BEAM-SCHEDULE  2, V, 0.9730, 0.9730, 0.0000, 1320.0000
        1. Span Number      : 2
        2. Action Code      : V
        3. mg(one-lane)     : 0.973
        4. mg(mult-lanes)   : 0.973
        5. Start Distance   : 0.000
        6. Range            : 1320.000
12-5.2  DIST-REACTION      2, 0.9730, 0.7960, 0.6670, 0.9730, 0.7960, 0.6670
        1. Support Number   : 2
        2. g(Shear-1)       : 0.973
        3. g(Moment-1)      : 0.796
        4. g(Deflection-1)  : 0.667
        5. g(Shear-M)       : 0.973
        6. g(Moment-M)      : 0.796
        7. g(Deflection-M)  : 0.667
12-5.2  DIST-REACTION      3, 0.9730, 0.7960, 0.6670, 0.9730, 0.7960, 0.6670
        1. Support Number   : 3
        2. g(Shear-1)       : 0.973
        3. g(Moment-1)      : 0.796
        4. g(Deflection-1)  : 0.667
        5. g(Shear-M)       : 0.973
        6. g(Moment-M)      : 0.796
        7. g(Deflection-M)  : 0.667
3-1.1   COMMENT            Using system default LRFD load factors.
13-1.1  FACTORS-LOAD-MOD   ST, 1, 1.000, 1.000, 1.000, 1.000, 1.000
        1. Limit State      : ST
        2. Limit State Level : 1
        3. eta D             : 1.000
        4. eta R             : 1.000
        5. eta I             : 1.000
        6. eta (max)        : 1.000
        7. eta (min)        : 1.000
13-1.2  FACTORS-LOAD-DL    ST, 1, 1.250, 0.900, 1.500, 0.650
        1. Limit State      : ST

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	2. Limit State Level	:	1
	3. gamma DC max	:	1.250
	4. gamma DC min	:	0.900
	5. gamma DW max	:	1.500
	6. gamma DW min	:	0.650
13-1.3	FACTORS-LOAD-LL	ST, 1, 1.750, 0.0, 0.0	
	1. Limit State	:	ST
	2. Limit State Level	:	1
	3. gamma LL (Design)	:	1.750
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	ST, 1, 1.200, 1.200, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	1
	3. gamma TEMP max	:	1.200
	4. gamma TEMP min	:	1.200
	5. gamma SETL max	:	1.000
	6. gamma SETL min	:	1.000
13-1.5	FACTORS-LOAD-PS	ST, 1, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	1
	3. gamma PS max	:	1.000
	4. gamma PS min	:	1.000
	5. gamma DS max	:	1.000
	6. gamma DS min	:	1.000
13-1.1	FACTORS-LOAD-MOD	ST, 2, 1.000, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	2
	3. eta D	:	1.000
	4. eta R	:	1.000
	5. eta I	:	1.000
	6. eta (max)	:	1.000
	7. eta (min)	:	1.000
13-1.2	FACTORS-LOAD-DL	ST, 2, 1.250, 0.900, 1.500, 0.650	
	1. Limit State	:	ST
	2. Limit State Level	:	2
	3. gamma DC max	:	1.250
	4. gamma DC min	:	0.900
	5. gamma DW max	:	1.500
	6. gamma DW min	:	0.650
13-1.3	FACTORS-LOAD-LL	ST, 2, 1.350, 0.0, 0.0	
	1. Limit State	:	ST
	2. Limit State Level	:	2
	3. gamma LL (Design)	:	1.350
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	ST, 2, 1.200, 1.200, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	2
	3. gamma TEMP max	:	1.200
	4. gamma TEMP min	:	1.200
	5. gamma SETL max	:	1.000
	6. gamma SETL min	:	1.000
13-1.5	FACTORS-LOAD-PS	ST, 2, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	2
	3. gamma PS max	:	1.000
	4. gamma PS min	:	1.000
	5. gamma DS max	:	1.000
	6. gamma DS min	:	1.000
13-1.1	FACTORS-LOAD-MOD	ST, 3, 1.000, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	3

	3. eta D	:	1.000
	4. eta R	:	1.000
	5. eta I	:	1.000
	6. eta (max)	:	1.000
	7. eta (min)	:	1.000
13-1.2	FACTORS-LOAD-DL	ST, 3, 1.250, 0.900, 1.500, 0.650	
	1. Limit State	:	ST
	2. Limit State Level	:	3
	3. gamma DC max	:	1.250
	4. gamma DC min	:	0.900
	5. gamma DW max	:	1.500
	6. gamma DW min	:	0.650
13-1.3	FACTORS-LOAD-LL	ST, 3, 0.000, 0.0, 0.0	
	1. Limit State	:	ST
	2. Limit State Level	:	3
	3. gamma LL (Design)	:	0.000
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	ST, 3, 1.200, 1.200, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	3
	3. gamma TEMP max	:	1.200
	4. gamma TEMP min	:	1.200
	5. gamma SETL max	:	1.000
	6. gamma SETL min	:	1.000
13-1.5	FACTORS-LOAD-PS	ST, 3, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	3
	3. gamma PS max	:	1.000
	4. gamma PS min	:	1.000
	5. gamma DS max	:	1.000
	6. gamma DS min	:	1.000
13-1.1	FACTORS-LOAD-MOD	ST, 4, 1.000, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	4
	3. eta D	:	1.000
	4. eta R	:	1.000
	5. eta I	:	1.000
	6. eta (max)	:	1.000
	7. eta (min)	:	1.000
13-1.2	FACTORS-LOAD-DL	ST, 4, 1.500, 1.500, 1.500, 0.650	
	1. Limit State	:	ST
	2. Limit State Level	:	4
	3. gamma DC max	:	1.500
	4. gamma DC min	:	1.500
	5. gamma DW max	:	1.500
	6. gamma DW min	:	0.650
13-1.3	FACTORS-LOAD-LL	ST, 4, 0.000, 0.0, 0.0	
	1. Limit State	:	ST
	2. Limit State Level	:	4
	3. gamma LL (Design)	:	0.000
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	ST, 4, 1.200, 1.200, 0.000, 0.000	
	1. Limit State	:	ST
	2. Limit State Level	:	4
	3. gamma TEMP max	:	1.200
	4. gamma TEMP min	:	1.200
	5. gamma SETL max	:	0.000
	6. gamma SETL min	:	0.000
13-1.5	FACTORS-LOAD-PS	ST, 4, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	ST
	2. Limit State Level	:	4

	3. gamma PS max	:	1.000
	4. gamma PS min	:	1.000
	5. gamma DS max	:	1.000
	6. gamma DS min	:	1.000
13-1.1	FACTORS-LOAD-MOD	SE, 1, 1.000, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	1
	3. eta D	:	1.000
	4. eta R	:	1.000
	5. eta I	:	1.000
	6. eta (max)	:	1.000
	7. eta (min)	:	1.000
13-1.2	FACTORS-LOAD-DL	SE, 1, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	1
	3. gamma DC max	:	1.000
	4. gamma DC min	:	1.000
	5. gamma DW max	:	1.000
	6. gamma DW min	:	1.000
13-1.3	FACTORS-LOAD-LL	SE, 1, 1.000, 0.0, 0.0	
	1. Limit State	:	SE
	2. Limit State Level	:	1
	3. gamma LL (Design)	:	1.000
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	SE, 1, 1.200, 1.200, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	1
	3. gamma TEMP max	:	1.200
	4. gamma TEMP min	:	1.200
	5. gamma SETL max	:	1.000
	6. gamma SETL min	:	1.000
13-1.5	FACTORS-LOAD-PS	SE, 1, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	1
	3. gamma PS max	:	1.000
	4. gamma PS min	:	1.000
	5. gamma DS max	:	1.000
	6. gamma DS min	:	1.000
13-1.1	FACTORS-LOAD-MOD	SE, 2, 1.000, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	2
	3. eta D	:	1.000
	4. eta R	:	1.000
	5. eta I	:	1.000
	6. eta (max)	:	1.000
	7. eta (min)	:	1.000
13-1.2	FACTORS-LOAD-DL	SE, 2, 1.000, 1.000, 1.000, 1.000	
	1. Limit State	:	SE
	2. Limit State Level	:	2
	3. gamma DC max	:	1.000
	4. gamma DC min	:	1.000
	5. gamma DW max	:	1.000
	6. gamma DW min	:	1.000
13-1.3	FACTORS-LOAD-LL	SE, 2, 1.300, 0.0, 0.0	
	1. Limit State	:	SE
	2. Limit State Level	:	2
	3. gamma LL (Design)	:	1.300
	4. gamma LL (Legal)	:	0.000
	5. gamma LL (Permit)	:	0.000
13-1.4	FACTORS-LOAD-TS	SE, 2, 1.200, 1.200, 0.000, 0.000	
	1. Limit State	:	SE
	2. Limit State Level	:	2

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3. gamma TEMP max           : 1.200
4. gamma TEMP min           : 1.200
5. gamma SETL max           : 0.000
6. gamma SETL min           : 0.000
13-1.5 FACTORS-LOAD-PS      SE, 2, 1.000, 1.000, 1.000, 1.000
1. Limit State               : SE
2. Limit State Level         : 2
3. gamma PS max              : 1.000
4. gamma PS min              : 1.000
5. gamma DS max              : 1.000
6. gamma DS min              : 1.000
13-1.1 FACTORS-LOAD-MOD     SE, 3, 1.000, 1.000, 1.000, 1.000, 1.000
1. Limit State               : SE
2. Limit State Level         : 3
3. eta D                     : 1.000
4. eta R                     : 1.000
5. eta I                     : 1.000
6. eta (max)                 : 1.000
7. eta (min)                 : 1.000
13-1.2 FACTORS-LOAD-DL      SE, 3, 1.000, 1.000, 1.000, 1.000
1. Limit State               : SE
2. Limit State Level         : 3
3. gamma DC max              : 1.000
4. gamma DC min              : 1.000
5. gamma DW max              : 1.000
6. gamma DW min              : 1.000
13-1.3 FACTORS-LOAD-LL      SE, 3, 0.800, 0.0, 0.0
1. Limit State               : SE
2. Limit State Level         : 3
3. gamma LL (Design)         : 0.800
4. gamma LL (Legal)          : 0.000
5. gamma LL (Permit)         : 0.000
13-1.4 FACTORS-LOAD-TS      SE, 3, 1.200, 1.200, 1.000, 1.000
1. Limit State               : SE
2. Limit State Level         : 3
3. gamma TEMP max           : 1.200
4. gamma TEMP min           : 1.200
5. gamma SETL max           : 1.000
6. gamma SETL min           : 1.000
13-1.5 FACTORS-LOAD-PS      SE, 3, 1.000, 1.000, 1.000, 1.000
1. Limit State               : SE
2. Limit State Level         : 3
3. gamma PS max              : 1.000
4. gamma PS min              : 1.000
5. gamma DS max              : 1.000
6. gamma DS min              : 1.000
13-1.1 FACTORS-LOAD-MOD     FA, 1, 1.000, 1.000, 1.000, 1.000, 1.000
1. Limit State               : FA
2. Limit State Level         : 1
3. eta D                     : 1.000
4. eta R                     : 1.000
5. eta I                     : 1.000
6. eta (max)                 : 1.000
7. eta (min)                 : 1.000
13-1.2 FACTORS-LOAD-DL      FA, 1, 1.000, 1.000, 1.000, 1.000
1. Limit State               : FA
2. Limit State Level         : 1
3. gamma DC max              : 1.000
4. gamma DC min              : 1.000
5. gamma DW max              : 1.000
6. gamma DW min              : 1.000
13-1.3 FACTORS-LOAD-LL      FA, 1, 0.750, 0.0, 0.0
1. Limit State               : FA

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2. Limit State Level           : 1
3. gamma LL (Design)          : 0.750
4. gamma LL (Legal)           : 0.000
5. gamma LL (Permit)          : 0.000
13-1.4 FACTORS-LOAD-TS        FA, 1, 1.000, 1.000, 1.000, 1.000
1. Limit State                 : FA
2. Limit State Level           : 1
3. gamma TEMP max              : 1.000
4. gamma TEMP min              : 1.000
5. gamma SETL max              : 1.000
6. gamma SETL min              : 1.000
13-1.5 FACTORS-LOAD-PS        FA, 1, 1.000, 1.000, 1.000, 1.000
1. Limit State                 : FA
2. Limit State Level           : 1
3. gamma PS max                : 1.000
4. gamma PS min                : 1.000
5. gamma DS max                : 1.000
6. gamma DS min                : 1.000
13-2.3 FACTORS-RESIST-PS      1.000, 0.900, 0.900, 1.000
1. phi flexure                 : 1.000
2. phi shear                   : 0.900
3. phi flexure (R/C)           : 0.900
4. phi fatigue                 : 1.000

```

End of Input File No. 1

DECK GEOMETRY AND LOAD SUMMARY REPORT

No. Girders: 6

Girder Spacing, in

Bay No.	Spacing
1	116.004
2	116.004
3	116.004
4	116.004
5	116.004

Cantilevers:

Left = 42.250 in
 Right = 42.230 in

Deck Width = 664.500 in

Slab Thickness = 8.000 in

DECK GEOMETRY AND LOAD SUMMARY REPORT (continued)

Travel Way Locations:

Left Edge = 20.250 in
 Right Edge = 644.250 in

Material Weights:

Concrete (deck) = 0.1500 k/ft³
 Concrete (other) = 0.1500 k/ft³
 Wearing Surface = 0.3000E-01 k/ft²

Line Loads:

Line Load, k/ft	Location, in	Load Group
0.649	7.611	1
0.649	656.888	1

GIRDER LOADS SUMMARY REPORT

Units: Loads are in k/ft.

Girder Loads Due to Deck Components:

Component Stage	Slab 1	Soffit 1	Curbs 2	Median 2	Topping 1	Wearing Surface 2
DL Type	DC	DC	DC	DC	DC	DW
Girder No.						
1	0.835	0.000	0.000	0.000	0.000	0.260
2	0.967	0.000	0.000	0.000	0.000	0.260
3	0.967	0.000	0.000	0.000	0.000	0.260
4	0.967	0.000	0.000	0.000	0.000	0.260
5	0.967	0.000	0.000	0.000	0.000	0.260
6	0.835	0.000	0.000	0.000	0.000	0.260

Girder Loads Due to Line and/or Uniform Loads:

Load Group	1	2	3	4
Stage	1	2	N/A	N/A
DL Type	DC	DC	N/A	N/A

Line Loads

Girder No.	1	2	3	4
1	0.649	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000
6	0.649	0.000	0.000	0.000

GIRDER LOADS SUMMARY REPORT (continued)

Units: Loads are in k/ft.

Girder of Interest: 2

Total Loads Due to Superimposed Dead Loads

Stage	1		2		3	
DL Type	DC	DW	DC	DW	DC	DW
Girder No.						
1	0.835	0.000	0.000	0.260	0.000	0.000
=> 2	0.967	0.000	0.000	0.260	0.000	0.000
3	0.967	0.000	0.000	0.260	0.000	0.000
4	0.967	0.000	0.000	0.260	0.000	0.000
5	0.967	0.000	0.000	0.260	0.000	0.000
6	0.835	0.000	0.000	0.260	0.000	0.000

Total Loads Due to Load Groups:

Load Group	1	2	3	4
Girder No.				
1	0.649	0.000	0.000	0.000
=> 2	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.000
6	0.649	0.000	0.000	0.000

Total Loads:

Stage	1	2	3	1 + 2 + 3
Girder No.				
1	1.485	0.260	0.000	1.745
=> 2	0.967	0.260	0.000	1.227
3	0.967	0.260	0.000	1.227
4	0.967	0.260	0.000	1.227
5	0.967	0.260	0.000	1.227
6	1.484	0.260	0.000	1.744

Appendix A

Prestressed Concrete Bridge Design Example

Self-Load Summary:

Span No.	Beginning of Load		End of Load	
	Distance, in	Magnitude, k/in	Distance, in	Magnitude, k/in
1	0.00	0.094184	1320.00	0.094184
2	0.00	0.094184	1320.00	0.094184

Distributed Dead Load Summary:

Load Group No. 1: DC1
Load Group No. 2: DC2

Load Group No.	Span No.	Beginning of Load		End of Load	
		Distance, in	Magnitude, k/in	Distance, in	Magnitude, k/in
DC1	All		0.08056		0.08056
DW2	All		0.02167		0.02167
1	1	0.00	0.01458	1320.00	0.01458
1	2	0.00	0.01458	1320.00	0.01458
2	1	0.00	0.01800	1320.00	0.01800
2	2	0.00	0.01800	1320.00	0.01800

Note: A span number denoted as "*" indicates the distances reference the left end of the bridge and the load may extend over one or more spans.

Beam Properties: General span segments variation.

Construction Stage: 1

Span No. 1 Span Length = 110.000 (ft) Span Ratio = 1.000 E = 4696.0 (ksi)

Input Dimensions and Cross-Section Geometry: (in)

Span Point	Dist (ft)	Web Depth	Web Width		Flange Thickness		Flange Width	
			top	bot	top	bot	top	bot
1.000	0.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.016	1.750	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.064	7.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.091	10.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.100	11.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.114	12.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.200	22.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.223	24.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.300	33.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.400	44.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.500	55.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.600	66.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.700	77.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.750	82.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.777	85.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.800	88.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.886	97.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.900	99.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.909	100.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.984	108.250	59.00	8.000	8.000	5.000	8.000	42.00	28.00
2.000	110.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00

Calculated Properties:

Span Point	Dist (ft)	A (in ²)	I (in ⁴)	X-bar (in)
1.000	0.000	1085.0	733320.3	36.38
1.016	1.750	1085.0	733320.3	36.38
1.064	7.000	1085.0	733320.3	36.38
1.091	10.000	1085.0	733320.3	36.38
1.100	11.000	1085.0	733320.3	36.38
1.114	12.500	1085.0	733320.3	36.38
1.200	22.000	1085.0	733320.3	36.38
1.223	24.500	1085.0	733320.3	36.38
1.300	33.000	1085.0	733320.3	36.38
1.400	44.000	1085.0	733320.3	36.38
1.500	55.000	1085.0	733320.3	36.38
1.600	66.000	1085.0	733320.3	36.38
1.700	77.000	1085.0	733320.3	36.38
1.750	82.500	1085.0	733320.3	36.38
1.777	85.500	1085.0	733320.3	36.38
1.800	88.000	1085.0	733320.3	36.38
1.886	97.500	1085.0	733320.3	36.38
1.900	99.000	1085.0	733320.3	36.38
1.909	100.000	1085.0	733320.3	36.38
1.984	108.250	1085.0	733320.3	36.38
2.000	110.000	1085.0	733320.3	36.38

CONCRETE PROPERTIES:

Unit Weight of Girder Concrete: 0.150 kcf

Compressive Strengths (f'c): Prestressed Concrete : 6.000 ksi
 Non-prestressed Concrete : 4.000 ksi
 Prestressed Concrete at Release: 4.800 ksi

Modulus of Elasticity (Ec) : Prestressed Concrete : 4695.982 ksi
 Non-prestressed Concrete : 3644.148 ksi
 Prestressed Concrete at Release: 4200.214 ksi

PRESTRESSING STRAND PROPERTIES:

Strand No.	Strand Type	Strand Area (in ²)	Ultimate Strength (ksi)	Yield Point Stress (ksi)	Modulus of Elasticity (ksi)	Initial Stress (ksi)
1	Low-relaxation - Pretensioned	0.153	270.0	243.0	28500.0	202.5

PRETENSIONED STRANDS

POST-TENSIONED STRANDS

Strand Elastic Shortening No.	Strand Ends	Nominal Diameter (in)	Transfer Length (in)	Coefficients			End Strand (ksi)	Anchorage Loss (in)	Loss Length Factor
				Bond	Wobble (1/in)	Friction (1/rad) Tensioned			
1	Free	0.5000	30.00	N/A	N/A	N/A	N/A	N/A	N/A

Notes:

- => Debond, transfer, and/or development lengths are measured from the end of the beam.
- => Search for the report header "Suggested Development Length Commands" for generated commands containing the development lengths computed by BRASS for each prestress row.

Appendix A

Prestressed Concrete Bridge Design Example

This report is only available if a mid-span point of interest is entered in the data file.

SUMMARY OF BEAM OVERHANGS:

Span No.	Beam Overhangs (in)	
	Left End	Right End
1	9.000	9.000
2	9.000	9.000

PRESTRESS LOSS INPUT DATA: AASHTO LRFD 5.9.5

Relative Humidity = 70.00%

Strand No.	Steel Relaxation Loss Coefficients				% of DL Applied Time of Release
	Base	FR	ES	SR & CR	
1	20.0	0.00	0.40	0.20	0.00

STRAND PROPERTIES: (cont.)

Span No.	Row No.	Path Type	Strand Type No.	No. Strands	Stage Strand Tensioned	No. Debonded Strands	Debond Length		Development Length (in)
							Left (in)	Right (in)	
1	1	Straight	1	8	1	N/A	N/A	N/A	82.500
1	2	Straight	1	2	1	2	129.000	129.000	82.500
1	3	Straight	1	2	1	2	273.000	273.000	82.500
1	4	Straight	1	8	1	N/A	N/A	N/A	82.500
1	5	Straight	1	2	1	2	129.000	129.000	82.500
1	6	Straight	1	2	1	2	273.000	273.000	82.500
1	7	Straight	1	6	1	N/A	N/A	N/A	82.500
1	8	Straight	1	2	1	2	129.000	129.000	82.500
1	9	Straight	1	2	1	2	273.000	273.000	82.500
1	10	Straight	1	6	1	N/A	N/A	N/A	82.500
1	11	Straight	1	4	1	N/A	N/A	N/A	82.500
2	1	Straight	1	8	1	N/A	N/A	N/A	82.500
2	2	Straight	1	2	1	2	129.000	129.000	82.500
2	3	Straight	1	2	1	2	273.000	273.000	82.500
2	4	Straight	1	8	1	N/A	N/A	N/A	82.500
2	5	Straight	1	2	1	2	129.000	129.000	82.500
2	6	Straight	1	2	1	2	273.000	273.000	82.500
2	7	Straight	1	6	1	N/A	N/A	N/A	82.500
2	8	Straight	1	2	1	2	129.000	129.000	82.500
2	9	Straight	1	2	1	2	273.000	273.000	82.500
2	10	Straight	1	6	1	N/A	N/A	N/A	82.500
2	11	Straight	1	4	1	N/A	N/A	N/A	82.500

STRAIGHT STRAND DETAILS:

Span No.	Row No.	Distance from Top of Girder to Centroid of Strand (in)	Continuity			
			Not	Continuous	Over	Support
1	1	70.000	Not	Continuous	Over	Support
1	2	70.000	Not	Continuous	Over	Support
1	3	70.000	Not	Continuous	Over	Support
1	4	68.000	Not	Continuous	Over	Support
1	5	68.000	Not	Continuous	Over	Support
1	6	68.000	Not	Continuous	Over	Support
1	7	66.000	Not	Continuous	Over	Support
1	8	66.000	Not	Continuous	Over	Support
1	9	66.000	Not	Continuous	Over	Support
1	10	64.000	Not	Continuous	Over	Support
1	11	62.000	Not	Continuous	Over	Support
2	1	70.000	Not	Continuous	Over	Support

Appendix A

Prestressed Concrete Bridge Design Example

2	2	70.000	Not Continuous Over Either Support
2	3	70.000	Not Continuous Over Either Support
2	4	68.000	Not Continuous Over Either Support
2	5	68.000	Not Continuous Over Either Support
2	6	68.000	Not Continuous Over Either Support
2	7	66.000	Not Continuous Over Either Support
2	8	66.000	Not Continuous Over Either Support
2	9	66.000	Not Continuous Over Either Support
2	10	64.000	Not Continuous Over Either Support
2	11	62.000	Not Continuous Over Either Support

Self-Load Summary:

Span No.	Beginning of Load		End of Load	
	Distance, in	Magnitude, k/in	Distance, in	Magnitude, k/in
1	0.00	0.094184	1320.00	0.094184
2	0.00	0.094184	1320.00	0.094184

Distributed Dead Load Summary:

Load Group No. 1: DC1
Load Group No. 2: DC2

Load Group No.	Span No.	Beginning of Load		End of Load	
		Distance, in	Magnitude, k/in	Distance, in	Magnitude, k/in
DC1	All		0.08056		0.08056
DW2	All		0.02167		0.02167
1	1	0.00	0.01458	1320.00	0.01458
1	2	0.00	0.01458	1320.00	0.01458
2	1	0.00	0.01800	1320.00	0.01800
2	2	0.00	0.01800	1320.00	0.01800

Note: A span number denoted as "*" indicates the distances reference the left end of the bridge and the load may extend over one or more spans.

Beam Properties: General span segments variation.

Construction Stage: 2

Span No. 1 Span Length = 110.000 (ft) Span Ratio = 1.000 E = 4696.0 (ksi)

Input Dimensions and Cross-Section Geometry: (in)

Span Point	Dist (ft)	Web Depth	Web Width		Flange Thickness		Flange Width	
			top	bot	top	bot	top	bot
1.000	0.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.016	1.750	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.064	7.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.091	10.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.100	11.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.114	12.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.200	22.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.223	24.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.300	33.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.400	44.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.500	55.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.600	66.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.700	77.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.750	82.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.777	85.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.800	88.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00

Appendix A

Prestressed Concrete Bridge Design Example

1.886	97.500	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.900	99.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.909	100.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00
1.984	108.250	59.00	8.000	8.000	5.000	8.000	42.00	28.00
2.000	110.000	59.00	8.000	8.000	5.000	8.000	42.00	28.00

Calculated Properties:

Span Point	Dist (ft)	A (in ²)	I (in ⁴)	X-bar (in)
1.000	0.000	1731.0	1363966.1	51.07
1.016	1.750	1731.0	1363966.1	51.07
1.064	7.000	1731.0	1363966.1	51.07
1.091	10.000	1731.0	1363966.1	51.07
1.100	11.000	1731.0	1363966.1	51.07
1.114	12.500	1731.0	1363966.1	51.07
1.200	22.000	1731.0	1363966.1	51.07
1.223	24.500	1731.0	1363966.1	51.07
1.300	33.000	1731.0	1363966.1	51.07
1.400	44.000	1731.0	1363966.1	51.07
1.500	55.000	1731.0	1363966.1	51.07
1.600	66.000	1731.0	1363966.1	51.07
1.700	77.000	1731.0	1363966.1	51.07
1.750	82.500	1731.0	1363966.1	51.07
1.777	85.500	1731.0	1363966.1	51.07
1.800	88.000	1731.0	1363966.1	51.07
1.886	97.500	1731.0	1363966.1	51.07
1.900	99.000	1731.0	1363966.1	51.07
1.909	100.000	1731.0	1363966.1	51.07
1.984	108.250	1731.0	1363966.1	51.07
2.000	110.000	1731.0	1363966.1	51.07

Slab Geometry and Reinforcement: (in, in²)

Span Point	Dist (ft)	Eff. Width	Thickness	Gap	Top Row		Bottom Row	
					Area	Dist	Area	Dist
1.000	0.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.016	1.750	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.064	7.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.091	10.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.100	11.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.114	12.500	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.200	22.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.223	24.500	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.300	33.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.400	44.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.500	55.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.600	66.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.700	77.000	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.750	82.500	111.00	7.50	0.00	2.00	4.25	3.72	1.94
1.777	85.500	111.00	7.50	0.00	0.00	0.00	14.52	3.03
1.800	88.000	111.00	7.50	0.00	0.00	0.00	14.52	3.03
1.886	97.500	111.00	7.50	0.00	0.00	0.00	14.52	3.03
1.900	99.000	111.00	7.50	0.00	0.00	0.00	14.52	3.03
1.909	100.000	111.00	7.50	0.00	0.00	0.00	14.52	3.03
1.984	108.250	111.00	7.50	0.00	0.00	0.00	14.52	3.03
2.000	110.000	111.00	7.50	0.00	0.00	0.00	14.52	3.03

** LIVE LOAD DISTRIBUTION FACTORS SUMMARY **

Beam Distribution Factor Schedule: Shear

Span No.	Distances, in		mg (1-lane)	mg (M-lanes)
	Start	End		
1	0.000	1320.000	0.973 (USER)	0.973 (M, USER)
2	0.000	1320.000	0.973 (USER)	0.973 (M, USER)

Beam Distribution Factor Schedule: Moment

Span No.	Distances, in		mg (1-lane)	mg (M-lanes)
	Start	End		
1	0.000	1320.000	0.796 (USER)	0.796 (M, USER)
2	0.000	1320.000	0.796 (USER)	0.796 (M, USER)

Beam Distribution Factor Schedule: Deflection

Span No.	Distances, in		mg (1-lane)	mg (M-lanes)
	Start	End		
1	0.000	1320.000	0.667 (USER)	0.667 (M, USER)
2	0.000	1320.000	0.667 (USER)	0.667 (M, USER)

Reaction Distribution Factors:

Support No.	One-Lane Loaded			Multiple-Lanes Loaded		
	Moment	Shear	Deflection	Moment	Shear	Deflection
1	0.796 (USER)	0.973 (USER)	0.667 (USER)	0.796 (M, USER)	0.973 (M, USER)	0.667 (M, USER)
2	0.796 (USER)	0.973 (USER)	0.667 (USER)	0.796 (M, USER)	0.973 (M, USER)	0.667 (M, USER)
3	0.796 (USER)	0.973 (USER)	0.667 (USER)	0.796 (M, USER)	0.973 (M, USER)	0.667 (M, USER)

Notes:

=> Below each distribution factor, the method used to determine the distribution factor is included in parenthesis.

USER = User Input

LRFD = AASHTO LRFD Formulas

LR-T = Lever Rule Specified in AASHTO LRFD Table

LR-O = Lever Rule Override

RG-O = Rigid Method Override

=> Additionally, for multiple-lanes loaded, the number of lanes loaded is shown. An 'M' is used with the USER and LRFD methods because the number of multiple lanes is unknown.

=> The Lever Rule Override is invoked when the ranges of applicability are not satisfied for the AASHTO LRFD distribution factor formulas.

LIVE LOAD SETTINGS SUMMARY:

No.	Name	Description	Scale Factor	Percent Impact	Fixed Impact	Live Load Type	Rating Procedure
1	DTK_HL-93_~1	Truck: AASHTO LRFD Live Load - US unit s	1.000	100.000	0.33	DTK	Design Load
2	DTM_HL-93_~2	Tandem: AASHTO LRFD Live Load - US unit	1.000	100.000	0.33	DTM	Design Load
3	TKT_HL-93_~3	Truck Train: AASHTO LRFD Live Load - US	1.000	100.000	0.33	TKT	Design Load
4	DLN_HL-93_~5	Lane: AASHTO LRFD Live Load - US unit sy	1.000	100.000	0.00	DLN	Design Load

LIVE LOAD COMBINATIONS SUMMARY:

Comb. Factors	No.	Name	Description	No.	Truck No.	Lane Truck	Combination Lane
	1	DTK_HL-93_~1	DTK_HL-93_~1 + DLN_HL-93_~5	1	4	1.000	1.000
	2	DTM_HL-93_~2	DTM_HL-93_~2 + DLN_HL-93_~5	2	4	1.000	1.000
	3	TKT_HL-93_~3	TKT_HL-93_~3 + DLN_HL-93_~5	3	4	0.900	0.900

LOAD FACTORS SUMMARY:

Limit State	eta D	eta R	eta I	eta T MAX	eta T MIN
STRENGTH I	1.00	1.00	1.00	1.00	1.00
STRENGTH II	1.00	1.00	1.00	1.00	1.00
STRENGTH III	1.00	1.00	1.00	1.00	1.00
STRENGTH IV	1.00	1.00	1.00	1.00	1.00
SERVICE I	1.00	1.00	1.00	1.00	1.00
SERVICE II	1.00	1.00	1.00	1.00	1.00
SERVICE III	1.00	1.00	1.00	1.00	1.00
FATIGUE	1.00	1.00	1.00	1.00	1.00

Limit State	DC		DW		LL
	MAX	MIN	MAX	MIN	
STRENGTH I	1.25	0.90	1.50	0.65	1.75
STRENGTH II	1.25	0.90	1.50	0.65	1.35
STRENGTH III	1.25	0.90	1.50	0.65	0.00
STRENGTH IV	1.50	1.50	1.50	0.65	0.00
SERVICE I	1.00	1.00	1.00	1.00	1.00
SERVICE II	1.00	1.00	1.00	1.00	1.30
SERVICE III	1.00	1.00	1.00	1.00	0.80
FATIGUE	1.00	1.00	1.00	1.00	0.75

Limit State	TU		SE		PS		DS	
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
STRENGTH I	1.20	1.20	1.00	1.00	1.00	1.00	1.00	1.00
STRENGTH II	1.20	1.20	1.00	1.00	1.00	1.00	1.00	1.00
STRENGTH III	1.20	1.20	1.00	1.00	1.00	1.00	1.00	1.00
STRENGTH IV	1.20	1.20	0.00	0.00	1.00	1.00	1.00	1.00

SERVICE I	1.20	1.20	1.00	1.00	1.00	1.00	1.00	1.00
SERVICE II	1.20	1.20	0.00	0.00	1.00	1.00	1.00	1.00
SERVICE III	1.20	1.20	1.00	1.00	1.00	1.00	1.00	1.00
FATIGUE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

RESISTANCE FACTORS SUMMARY:

Resistance Type	phi
Flexure	1.00
Flx/Tens (R/C)	0.90
Shear	0.90
Fatigue	1.00

Section A4 – Opis Output

Noncomposite Effects

-Girder

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	0	62.16	0	62.16
1	1.75	1.6	107.06	60.18	0	
1	10.0	9.1	565.12	50.86	0	
1	11.0	10	615.44	49.73	0	
1	12.5	11.4	688.73	48.03	0	
1	22.0	20	1094.06	37.3	0	
1	24.5	22.3	1183.75	34.47	0	
1	33.0	30	1435.93	24.86	0	
1	44.0	40	1641.06	12.43	0	
1	55.0	50	1709.44	0	0	
1	66.0	60	1641.07	-12.43	0	
1	77.0	70	1435.93	-24.86	0	
1	85.5	77.7	1183.76	-34.47	0	
1	88.0	80	1094.07	-37.3	0	
1	97.5	88.6	688.75	-48.03	0	
1	99.0	90	615.45	-49.73	0	
1	100.0	90.9	565.13	-50.86	0	
1	108.25	98.4	107.08	-60.18	0	
1	110.0	100	0	-62.16	0	124.32
2	0	0	0	62.16	0	124.32
2	1.75	1.6	107.08	60.18	0	
2	10.0	9.1	565.14	50.86	0	
2	11.0	10	615.45	49.73	0	
2	12.5	11.4	688.75	48.03	0	
2	22.0	20	1094.07	37.3	0	
2	24.5	22.3	1183.77	34.47	0	
2	33.0	30	1435.94	24.86	0	
2	44.0	40	1641.07	12.43	0	
2	55.0	50	1709.45	0	0	
2	66.0	60	1641.08	-12.43	0	
2	77.0	70	1435.94	-24.86	0	
2	85.5	77.7	1183.77	-34.47	0	
2	88.0	80	1094.07	-37.3	0	
2	97.5	88.6	688.75	-48.03	0	
2	99.0	90	615.45	-49.73	0	
2	100.0	90.9	565.14	-50.86	0	
2	108.25	98.4	107.09	-60.18	0	
2	110.0	100	0	-62.16	0	62.16

-Slab

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	0	53.17	0	53.17
1	1.75	1.6	91.57	51.48	0	
1	10.0	9.1	483.36	43.5	0	
1	11.0	10	526.4	42.53	0	
1	12.5	11.4	589.09	41.08	0	
1	22.0	20	935.78	31.9	0	
1	24.5	22.3	1012.5	29.48	0	
1	33.0	30	1228.19	21.27	0	
1	44.0	40	1403.65	10.63	0	
1	55.0	50	1462.14	0	0	
1	66.0	60	1403.65	-10.63	0	
1	77.0	70	1228.2	-21.27	0	
1	85.5	77.7	1012.51	-29.48	0	
1	88.0	80	935.79	-31.9	0	
1	97.5	88.6	589.1	-41.08	0	
1	99.0	90	526.41	-42.53	0	
1	100.0	90.9	483.38	-43.5	0	
1	108.25	98.4	91.59	-51.48	0	
1	110.0	100	0	-53.17	0	106.34
2	0	0	0	53.17	0	106.34
2	1.75	1.6	91.59	51.48	0	
2	10.0	9.1	483.38	43.5	0	
2	11.0	10	526.41	42.53	0	
2	12.5	11.4	589.11	41.08	0	
2	22.0	20	935.79	31.9	0	
2	24.5	22.3	1012.51	29.48	0	
2	33.0	30	1228.2	21.27	0	
2	44.0	40	1403.66	10.63	0	
2	55.0	50	1462.14	0	0	
2	66.0	60	1403.66	-10.63	0	
2	77.0	70	1228.2	-21.27	0	
2	85.5	77.7	1012.51	-29.48	0	
2	88.0	80	935.79	-31.9	0	
2	97.5	88.6	589.11	-41.08	0	
2	99.0	90	526.41	-42.53	0	
2	100.0	90.9	483.38	-43.5	0	
2	108.25	98.4	91.59	-51.48	0	
2	110.0	100	0	-53.17	0	53.17

-Haunch

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	0	12.18	0	12.18
1	1.75	1.6	21.05	11.87	0	
1	10.0	9.1	113.05	10.43	0	
1	11.0	10	123.39	10.25	0	
1	12.5	11.4	138.57	9.99	0	
1	22.0	20	225.6	8.33	0	
1	24.5	22.3	245.87	7.89	0	
1	33.0	30	306.63	6.4	0	
1	44.0	40	366.49	4.48	0	
1	55.0	50	402.65	-2.51	0	
1	66.0	60	364.47	-4.43	0	
1	77.0	70	305.11	-6.36	0	
1	85.5	77.7	244.75	-7.85	0	
1	88.0	80	224.59	-8.28	0	
1	97.5	88.6	138	-9.95	0	
1	99.0	90	122.89	-10.21	0	
1	100.0	90.9	112.59	-10.38	0	
1	108.25	98.4	20.97	-11.83	0	
1	110.0	100	0	-12.13	0	24.29
2	0	0	0	12.15	0	24.29
2	1.75	1.6	21.01	11.85	0	
2	10.0	9.1	112.8	10.4	0	
2	11.0	10	123.13	10.23	0	
2	12.5	11.4	138.27	9.97	0	
2	22.0	20	225.06	8.3	0	
2	24.5	22.3	245.27	7.87	0	
2	33.0	30	305.82	6.38	0	
2	44.0	40	365.42	4.45	0	
2	55.0	50	403.83	-2.53	0	
2	66.0	60	365.42	-4.45	0	
2	77.0	70	305.83	-6.38	0	
2	85.5	77.7	245.27	-7.87	0	
2	88.0	80	225.06	-8.3	0	
2	97.5	88.6	138.27	-9.97	0	
2	99.0	90	123.13	-10.23	0	
2	100.0	90.9	112.81	-10.4	0	
2	108.25	98.4	21.01	-11.85	0	
2	110.0	100	0	-12.15	0	12.15

-Prestress Loads

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	-683.1	0.02	-264.38	0.02
1	1.75	1.6	-1986.69	0.02	-768.91	
1	10.0	9.1	-2057.51	0.02	-796.33	
1	11.0	10	-2187.89	0.02	-844.25	
1	12.5	11.4	-2374.03	0.02	-912.66	
1	22.0	20	-2449.38	0.02	-941.51	
1	24.5	22.3	-2743.38	0.02	-1048.38	
1	33.0	30	-2796.01	0.02	-1069.07	
1	44.0	40	-2838.12	0.02	-1085.66	
1	55.0	50	-2850.72	0.02	-1090.7	
1	66.0	60	-2830.88	0.02	-1083.03	
1	77.0	70	-2781.69	0.02	-1063.87	
1	85.5	77.7	-2723.58	0.02	-1041.19	
1	88	80	-2430.89	0.02	-934.81	
1	97.5	88.6	-2352.53	0.02	-904.06	
1	99.0	90	-2166.55	0.02	-836.21	
1	100.0	90.9	-2036.39	0.02	-788.69	
1	108.25	98.4	-1963.5	0.02	-759.88	
1	110.0	100	-675.87	0.02	-261.58	-7.24
2	0	0	117.17	-7.22	-261.58	-7.24
2	1.75	1.6	-1183.04	-7.22	-759.88	
2	10.0	9.1	-1315.27	-7.22	-788.7	
2	11.0	10	-1452.63	-7.22	-836.21	
2	12.5	11.4	-1649.4	-7.22	-904.06	
2	22.0	20	-1796.11	-7.22	-934.82	
2	24.5	22.3	-2106.79	-7.22	-1041.2	
2	33.0	30	-2226.04	-7.22	-1063.89	
2	44.0	40	-2354.37	-7.22	-1083.05	
2	55.0	50	-2453.34	-7.22	-1090.73	
2	66.0	60	-2519.72	-7.22	-1085.64	
2	77.0	70	-2556.75	-7.22	-1069.06	
2	85.5	77.7	-2565.26	-7.22	-1048.37	
2	88.0	80	-2289.25	-7.22	-941.5	
2	97.5	88.6	-2284.53	-7.22	-912.66	
2	99.0	90	-2107.85	-7.22	-844.25	
2	100.0	90.9	-1983.8	-7.22	-796.33	
2	108.25	98.4	-1974.16	-7.22	-768.91	
2	110.0	100	-683.1	-7.22	-264.38	7.22

-Initial Prestress Loads

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	-752.99	0	-291.43	0
1	1.75	1.6	-2393.44	0	-926.32	
1	10.0	9.1	-2411.31	0	-933.21	
1	11.0	10	-2585.16	0	-997.43	
1	12.5	11.4	-2840.93	0	-1091.94	
1	22.0	20	-2859.89	0	-1099.17	
1	24.5	22.3	-3275.5	0	-1252.16	
1	33.0	30	-3288.78	0	-1257.36	
1	44.0	40	-3299.59	0	-1261.59	
1	55.0	50	-3303.2	0	-1263	
1	66.0	60	-3299.61	0	-1261.59	
1	77.0	70	-3288.81	0	-1257.36	
1	85.5	77.7	-3275.55	0	-1252.16	
1	88.0	80	-2859.95	0	-1099.17	
1	97.5	88.6	-2841.57	0	-1091.94	
1	99.0	90	-2585.15	0	-997.43	
1	100.0	90.9	-2410.88	0	-933.21	
1	108.25	98.4	-2393.5	0	-926.32	
1	110.0	100	-752.99	0	-291.43	-8.03
2	0	0	130.53	-8.03	-291.43	-8.03
2	1.75	1.6	-1524.02	-8.03	-926.32	
2	10.0	9.1	-1607.67	-8.03	-933.21	
2	11.0	10	-1789.97	-8.03	-997.43	
2	12.5	11.4	-2058.45	-8.03	-1091.94	
2	22.0	20	-2153.13	-8.03	-1099.17	
2	24.5	22.3	-2588.83	-8.03	-1252.16	
2	33.0	30	-2670.37	-8.03	-1257.36	
2	44.0	40	-2769.53	-8.03	-1261.59	
2	55.0	50	-2861.48	-8.03	-1263	
2	66.0	60	-2946.24	-8.03	-1261.59	
2	77.0	70	-3023.79	-8.03	-1257.36	
2	85.5	77.7	-3078.79	-8.03	-1252.16	
2	88.0	80	-2683.26	-8.03	-1099.17	
2	97.5	88.6	-2741.18	-8.03	-1091.94	
2	99.0	90	-2496.8	-8.03	-997.43	
2	100.0	90.9	-2330.56	-8.03	-933.21	
2	108.25	98.4	-2379.45	-8.03	-926.32	
2	110.0	100	-752.99	-8.03	-291.43	8.03

Composite Effects

-Parapets

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	0	8.91	0	8.91
1	1.75	1.6	15.26	8.53	0	
1	10.0	9.1	78.29	6.75	0	
1	11.0	10	84.94	6.53	0	
1	12.5	11.4	94.5	6.21	0	
1	22.0	20	143.74	4.16	0	
1	24.5	22.3	153.46	3.62	0	
1	33.0	30	176.41	1.78	0	
1	44.0	40	182.95	-0.59	0	
1	55.0	50	163.35	-2.97	0	
1	66.0	60	117.61	-5.35	0	
1	77.0	70	45.74	-7.72	0	
1	85.5	77.7	-27.7	-9.56	0	
1	88.0	80	-52.27	-10.1	0	
1	97.5	88.6	-157.95	-12.15	0	
1	99.0	90	-176.42	-12.47	0	
1	100.0	90.9	-189	-12.69	0	
1	108.25	98.4	-301.04	-14.47	0	
1	110.0	100	-326.7	-14.85	0	29.7
2	0	0	-326.7	14.85	0	29.7
2	1.75	1.6	-301.04	14.47	0	
2	10.0	9.1	-189	12.69	0	
2	11.0	10	-176.42	12.47	0	
2	12.5	11.4	-157.95	12.15	0	
2	22.0	20	-52.27	10.1	0	
2	24.5	22.3	-27.7	9.56	0	
2	33.0	30	45.74	7.72	0	
2	44.0	40	117.61	5.35	0	
2	55.0	50	163.35	2.97	0	
2	66.0	60	182.95	0.59	0	
2	77.0	70	176.42	-1.78	0	
2	85.5	77.7	153.47	-3.62	0	
2	88.0	80	143.75	-4.16	0	
2	97.5	88.6	94.5	-6.21	0	
2	99.0	90	84.94	-6.53	0	
2	100.0	90.9	78.3	-6.75	0	
2	108.25	98.4	15.26	-8.53	0	
2	110.0	100	0	-8.91	0	8.91

-Future Wearing Surface

Span	Location (ft.)	%Span	Moment (k-ft)	Shear (k)	Axial (k)	Reaction (k)
1	0	0	0	10.73	0	10.73
1	1.75	1.6	18.37	10.27	0	
1	10.0	9.1	94.24	8.13	0	
1	11.0	10	102.24	7.87	0	
1	12.5	11.4	113.74	7.48	0	
1	22.0	20	173.03	5.01	0	
1	24.5	22.3	184.72	4.36	0	
1	33.0	30	212.35	2.15	0	
1	44.0	40	220.22	-0.71	0	
1	55.0	50	196.62	-3.57	0	
1	66.0	60	141.57	-6.43	0	
1	77.0	70	55.05	-9.29	0	
1	85.5	77.7	-33.35	-11.5	0	
1	88.0	80	-62.92	-12.15	0	
1	97.5	88.6	-190.12	-14.62	0	
1	99.0	90	-212.35	-15.01	0	
1	100.0	90.9	-227.5	-15.27	0	
1	108.25	98.4	-362.36	-17.42	0	
1	110.0	100	-393.25	-17.87	0	35.75
2	0	0	-393.25	17.87	0	35.75
2	1.75	1.6	-362.36	17.42	0	
2	10.0	9.1	-227.5	15.27	0	
2	11.0	10	-212.35	15.01	0	
2	12.5	11.4	-190.12	14.62	0	
2	22.0	20	-62.92	12.15	0	
2	24.5	22.3	-33.34	11.5	0	
2	33.0	30	55.06	9.29	0	
2	44.0	40	141.57	6.43	0	
2	55.0	50	196.63	3.57	0	
2	66.0	60	220.22	0.71	0	
2	77.0	70	212.35	-2.15	0	
2	85.5	77.7	184.73	-4.36	0	
2	88.0	80	173.03	-5.01	0	
2	97.5	88.6	113.75	-7.48	0	
2	99.0	90	102.24	-7.87	0	
2	100.0	90.9	94.25	-8.13	0	
2	108.25	98.4	18.37	-10.27	0	
2	110.0	100	0	-10.73	0	10.73

-Live Load - Axle

Span	Location (ft.)	%Span	Positive Moment (k-ft)	Negative Moment (k-ft)	Positive Shear (k)	Negative Shear (k)	Positive Axial (k)	Negative Axial (k)	Positive Reaction (k)	Negative Reaction (k)
1	0	0	0	0	82.58	-8.68	0	0	82.58	-8.68
1	1.75	1.6	114.9	-12.42	81.25	-8.68	0	0		
1	10.0	9.1	590.15	-71.02	72.04	-8.68	0	0		
1	11.0	10	639.51	-78.12	72.04	-8.68	0	0		
1	12.5	11.4	711.33	-88.78	69.76	-8.68	0	0		
1	22.0	20	1085.74	-156.27	60.77	-13.28	0	0		
1	24.5	22.3	1158.79	-174.02	57.47	-16.36	0	0		
1	33.0	30	1342.86	-234.4	49.91	-23.97	0	0		
1	44.0	40	1454.58	-312.55	39.59	-35.15	0	0		
1	55.0	50	1426.41	-390.69	29.95	-45.9	0	0		
1	66.0	60	1275.16	-468.83	21.14	-56.06	0	0		
1	77.0	70	998.84	-546.97	13.29	-65.51	0	0		
1	85.5	77.7	721.36	-607.35	7.99	-72.45	0	0		
1	88.0	80	630.85	-625.11	6.82	-74.09	0	0		
1	97.5	88.6	267.94	-692.6	2.52	-80.97	0	0		
1	99.0	90	210.54	-703.25	2.25	-81.67	0	0		
1	100.0	90.9	172.66	-710.35	1.99	-82.37	0	0		
1	108.25	98.4	28.13	-768.96	0.32	-86.92	0	0		
1	110.0	100	0	-781.39	0	-88.11	0	0	92.2	0
2	0	0	0	-781.39	88.11	0	0	0	92.2	0
2	1.75	1.6	28.13	-768.95	86.92	-0.32	0	0		
2	10.0	9.1	172.66	-710.34	82.37	-1.99	0	0		
2	11.0	10	210.54	-703.24	81.67	-2.25	0	0		
2	12.5	11.4	267.94	-692.59	80.97	-2.52	0	0		
2	22.0	20	630.85	-625.1	74.09	-6.82	0	0		
2	24.5	22.3	721.36	-607.34	72.45	-7.99	0	0		
2	33.0	30	998.85	-546.96	65.51	-13.29	0	0		
2	44.0	40	1275.17	-468.83	56.06	-21.14	0	0		
2	55.0	50	1426.43	-390.69	45.9	-29.95	0	0		
2	66.0	60	1454.6	-312.55	35.15	-39.59	0	0		
2	77.0	70	1342.88	-234.41	23.97	-49.91	0	0		
2	85.5	77.7	1158.81	-174.03	16.36	-57.47	0	0		
2	88.0	80	1085.76	-156.28	13.28	-60.77	0	0		
2	97.5	88.6	711.36	-88.79	8.68	-69.76	0	0		
2	99.0	90	639.54	-78.14	8.68	-72.04	0	0		
2	100.0	90.9	590.18	-71.03	8.68	-72.04	0	0		
2	108.25	98.4	114.9	-12.43	8.68	-81.25	0	0		
2	110.0	100	0	0	8.68	-82.58	0	0	82.58	-8.68

-Live Load – Truck Pair

Span	Location (ft.)	%Span	Positive Moment (k-ft)	Negative Moment (k-ft)	Positive Shear (k)	Negative Shear (k)	Positive Axial (k)	Negative Axial (k)	Positive Reaction (k)	Negative Reaction (k)
1	0	0	0	0	0	0	0	0	0	0
1	1.75	1.6	0	0	0	0	0	0		
1	10.0	9.1	0	0	0	0	0	0		
1	11.0	10	0	0	0	0	0	0		
1	12.5	11.4	0	0	0	0	0	0		
1	22.0	20	0	0	0	0	0	0		
1	24.5	22.3	0	0	0	0	0	0		
1	33.0	30	0	0	0	0	0	0		
1	44.0	40	0	0	0	0	0	0		
1	55.0	50	0	0	0	0	0	0		
1	66.0	60	0	0	0	0	0	0		
1	77.0	70	0	0	0	0	0	0		
1	85.5	77.7	0	0	0	0	0	0		
1	88.0	80	0	0	0	0	0	0		
1	97.5	88.6	0	0	0	0	0	0		
1	99.0	90	0	0	0	0	0	0		
1	100.0	90.9	0	0	0	0	0	0		
1	108.25	98.4	0	0	0	0	0	0		
1	110.0	100	0	-1561.47	0	0	0	0	153.7	0
2	0	0	0	-1561.47	0	0	0	0	153.7	0
2	1.75	1.6	0	0	0	0	0	0		
2	10.0	9.1	0	0	0	0	0	0		
2	11.0	10	0	0	0	0	0	0		
2	12.5	11.4	0	0	0	0	0	0		
2	22.0	20	0	0	0	0	0	0		
2	24.5	22.3	0	0	0	0	0	0		
2	33.0	30	0	0	0	0	0	0		
2	44.0	40	0	0	0	0	0	0		
2	55.0	50	0	0	0	0	0	0		
2	66.0	60	0	0	0	0	0	0		
2	77.0	70	0	0	0	0	0	0		
2	85.5	77.7	0	0	0	0	0	0		
2	88.0	80	0	0	0	0	0	0		
2	97.5	88.6	0	0	0	0	0	0		
2	99.0	90	0	0	0	0	0	0		
2	100.0	90.9	0	0	0	0	0	0		
2	108.25	98.4	0	0	0	0	0	0		
2	110.0	100	0	0	0	0	0	0	0	0

-Live Load – Lane

Span	Location (ft.)	%Span	Positive Moment (k-ft)	Negative Moment (k-ft)	Positive Shear (k)	Negative Shear (k)	Positive Axial (k)	Negative Axial (k)	Positive Reaction (k)	Negative Reaction (k)
1	0	0	0	0	29.97	-4.28	0	0	29.97	-4.28
1	1.75	1.6	42.04	-6.12	28.95	-4.29	0	0		
1	10.0	9.1	219.67	-35.02	23.82	-4.67	0	0		
1	11.0	10	238.84	-38.52	23.82	-4.67	0	0		
1	12.5	11.4	266.59	-43.77	22.62	-4.85	0	0		
1	22.0	20	416.06	-77.05	18.18	-5.92	0	0		
1	24.5	22.3	447.72	-85.8	16.66	-6.46	0	0		
1	33.0	30	531.63	-115.57	13.39	-8.01	0	0		
1	44.0	40	585.57	-154.1	9.42	-10.92	0	0		
1	55.0	50	577.87	-192.63	6.22	-14.61	0	0		
1	66.0	60	508.52	-231.16	3.77	-19.04	0	0		
1	77.0	70	377.54	-269.68	1.99	-24.15	0	0		
1	85.5	77.7	234.1	-299.45	1.01	-28.68	0	0		
1	88.0	80	184.91	-308.21	0.82	-29.87	0	0		
1	97.5	88.6	50.03	-422.53	0.23	-35.47	0	0		
1	99.0	90	37.65	-453.74	0.19	-36.12	0	0		
1	100.0	90.9	30.54	-476.31	0.15	-36.77	0	0		
1	108.25	98.4	0.85	-710.81	0.01	-41.44	0	0		
1	110.0	100	0	-770.52	0	-42.81	0	0	85.62	0
2	0	0	0	-770.52	42.81	0	0	0	85.62	0
2	1.75	1.6	0.85	-710.81	41.44	-0.01	0	0		
2	10.0	9.1	30.54	-476.31	36.77	-0.15	0	0		
2	11.0	10	37.65	-453.74	36.12	-0.19	0	0		
2	12.5	11.4	50.02	-422.53	35.47	-0.23	0	0		
2	22.0	20	184.91	-308.21	29.87	-0.82	0	0		
2	24.5	22.3	234.1	-299.45	28.68	-1.01	0	0		
2	33.0	30	377.54	-269.68	24.15	-1.99	0	0		
2	44.0	40	508.53	-231.15	19.04	-3.77	0	0		
2	55.0	50	577.87	-192.63	14.61	-6.22	0	0		
2	66.0	60	585.58	-154.1	10.92	-9.42	0	0		
2	77.0	70	531.64	-115.58	8.01	-13.39	0	0		
2	85.5	77.7	447.74	-85.81	6.46	-16.66	0	0		
2	88.0	80	416.07	-77.05	5.92	-18.18	0	0		
2	97.5	88.6	266.6	-43.78	4.85	-22.62	0	0		
2	99.0	90	238.85	-38.52	4.67	-23.82	0	0		
2	100.0	90.9	219.69	-35.02	4.67	-23.82	0	0		
2	108.25	98.4	42.05	-6.13	4.29	-28.95	0	0		
2	110.0	100	0	0	4.28	-29.97	0	0	29.97	-4.28

Section A5 – Comparison Between the Hand Calculations and the Two Computer Programs

Moment Comparison

Method	Location	Girder	Slab, Haunch and Ext. Diaphragm	Parapets	FWS	Positive LL ⁽³⁾	Negative LL ⁽⁴⁾
	(ft.)	(k-ft)	(k-ft)	(k-ft)	(k-ft)	(k-ft)	(k-ft)
Opis	11	615.5 ⁽¹⁾	649.8 ⁽¹⁾	84.9	102.2	878.4	-
QCon		- ⁽⁵⁾	- ⁽⁵⁾	-	114.0	909.3	-
Table 5.3		656.0 ⁽²⁾	643.0 ⁽²⁾	85.0	114.0	886.0	-
Opis	55	1,709.5 ⁽¹⁾	1,864.8 ⁽¹⁾	163.4	196.6	2004.3	-
QCon		-	-	-	219.3	2,063.0	-
Table 5.3		1,725.0 ⁽²⁾	1,832.0 ⁽²⁾	164.0	220.0	2,010.0	-
Opis	≈ 110	0	0	-326.7	-393.3	-	-2,098.8
QCon		-	-	-	-438.6	-	-2,096.9
Table 5.3		0	0	-326.0	-438.0	-	-2,095.0

Shear Comparison

Method	Location	Girder	Slab, Haunch and Ext. Diaphragm	Parapets	FWS	Positive LL ⁽³⁾	Negative LL ⁽⁴⁾
	(ft.)	(k)	(k)	(k)	(k)	(k)	(k)
Opis	11	49.7 ⁽¹⁾	52.8 ⁽¹⁾	6.5	7.9	95.9	-14.9
QCon		- ⁽⁵⁾	- ⁽⁵⁾	- ⁽⁵⁾	8.8	99.4	-13.0
Table 5.3		49.2 ⁽²⁾	52.2 ⁽²⁾	6.5	8.8	95.5	-13.4
Opis	55	0 ⁽¹⁾	-2.5 ⁽¹⁾	-3.0	-3.6	36.2	-60.5
QCon		-	-	-	-4.0	36.7	-61.7
Table 5.3		-0.6 ⁽²⁾	-3.1 ⁽²⁾	-3.0	-4.0	36.2	-61.2
Opis	≈ 110	0	0	-14.9	-17.9	0	-130.9
QCon		-	-	-	-19.9	0	-132.1
Table 5.3		0	0	-14.8	-19.9	0	-131.1

Notes:

- 1 - Calculated based on a 110 ft simple span length and the force effects are calculated at the distance shown in the table measured from the centerline of the abutment neoprene pads.
- 2 - Calculated based on a 109 ft simple span length (distance between the centerline of the neoprene pads) and the force effects are calculated at the distance shown in the table measured from the centerline of the abutment neoprene pads.
- 3 - Truck + Lane including impact
- 4 - 0.90(Truck Pair + Lane including impact) as specified in S3.6.1.3.1
- 5 - QConBridge does not apply the noncomposite loads to the simple span girder, the program applies the girder, slab, haunch and diaphragm loads to the continuous girder, therefore, these results are not comparable.

Section A6 – Flexural Resistance Sample Calculation from Opis to Compare with Hand Calculations

The following is sample Opis output for flexure at 55 ft. and 110 ft. from the end bearing. These results may be compared to the hand calculations in Design Step 5.6 for the positive and negative regions.

Positive Bending Region

PERFORMING AASHTO LRFD SPECIFICATION CHECKS - 5.7.3.2 Flexural Resistance

Point of Interest : 105.00 (55.0 ft.)

Construction Stage: 2

Prestress Summary:

dp = 74.502 in (from top)
 Aps = 6.732 in²
 fps = 264.532 ksi (avg. for all rows)

POSITIVE Flexural Resistance:

** Analyzed as a RECTANGULAR Section **

Layer	Area, in ²	Stress, ksi	Force, kips	Lever-Arm, in	Moment i, in-k
CS	507.832	-0.85*f'c	-1726.627	3.095	5343.728
RT	2.000	-32.515	-65.029	2.132	138.670
RB	3.720	2.911	10.828	-0.180	1.950
PS11	0.612	264.145	161.657	-64.118	10365.045
PS10	0.918	264.309	242.636	-66.118	16042.478
PS 9	0.306	264.464	80.926	-68.118	5512.478
PS 8	0.306	264.464	80.926	-68.118	5512.478
PS 7	0.918	264.464	242.778	-68.118	16537.434
PS 6	0.306	264.610	80.971	-70.118	5677.476
PS 5	0.306	264.610	80.971	-70.118	5677.476
PS 4	1.224	264.610	323.883	-70.118	22709.904
PS 3	0.306	264.750	81.013	-72.118	5842.487
PS 2	0.306	264.750	81.013	-72.118	5842.487
PS 1	1.224	264.750	324.053	-72.118	23369.949

Sum			-0.002		128574.031

Flexural Resistance Summary:

beta 1 = 0.850	phi f = 1.000
c = 5.382 in	Mn = 128574.031 in-k
a = 4.575 in (from top)	= 10714.503 ft-k
f'c = 4.000 ksi (slab)	phi*Mn = 128574.031 in-k
	[AASHTO LRFD (5.7.3.2.1-1)]
	= 10714.503 ft-k

(COMPARED TO 10,697 ft-k from hand calculations)

Effective Shear Depth: [AASHTO LRFD 5.8.2.7]

Tensile Force = 1791.655 kips
 dv = Mn / Tensile Force = 71.763 in

Tensile Capacity of Reinforcement on Flexural Tension Side: [AASHTO 5.8.3.5]

Rebar = 0.000 kips
 P/S = 1780.827 kips
 T(Cap) = 1780.827 kips

Layer Codes:

=> C_ : C = Concrete, where _ may be:
S = Slab, TF = Top Flange, W = Web, BF = Bottom Flange,
^T = Top fillets and tapers, ^B = Bottom fillets and tapers
=> R_ : R = Reinforcement, where _ is the row number (1-5, B (bottom), T (top))
=> PS_ : PS = Prestress, where _ is the row number

Notes:

=> The flexural resistance is determined based on:
* Equilibrium
* Strain compatibility
* Strain in extreme compressive concrete fiber is 0.003
=> The stress in the mild compression steel includes an adjustment for
the displaced concrete. $f_s = (e_s * E_s) + (0.85 f'_c \text{ABS}(e_s / e_y))$

Negative Bending Region

PERFORMING AASHTO LRFD SPECIFICATION CHECKS - 5.7.3.2 Flexural Resistance

Point of Interest : 110.00 (110.0 ft.)

Construction Stage: 2

NEGATIVE Flexural Resistance:

** Analyzed as a RECTANGULAR Section **

Layer	Area, in ²	Stress, ksi	Force, kips	Lever-Arm, in	Moment i, in-k
RB	14.520	60.000	871.200	-67.445	58757.660
R1	1.550	-37.650	-58.358	3.590	209.478
CBF	159.381	-0.85*f'c	-812.843	4.743	3855.703
Sum			0.000		62822.840

Flexural Resistance Summary:

beta 1 =	0.750	phi f =	0.900
c =	7.590 in	Mn =	62822.840 in-k
a =	5.692 in (from bottom)	=	5235.237 ft-k
		phi*Mn =	56540.555 in-k
		[AASHTO LRFD (5.7.3.2.1-1)]	
		=	4711.713 ft-k
		(COMPARED TO 4,775 ft-k from hand calculations)	
f'c =	6.000 ksi (flange)		
f'c =	6.000 ksi (stem)		

Effective Shear Depth: [AASHTO LRFD 5.8.2.7]

Tensile Force = 871.200 kips

dv = Mn / Tensile Force = 72.111 in

Tensile Capacity of Reinforcement on Flexural Tension Side: [AASHTO 5.8.3.5]

Rebar = 871.200 kips

T(Cap) = 871.200 kips

Layer Codes:

=> C_ : C = Concrete, where _ may be:

S = Slab, TF = Top Flange, W = Web, BF = Bottom Flange,

^T = Top fillets and tapers, ^B = Bottom fillets and tapers

=> R_ : R = Reinforcement, where _ is the row number (1-5, B (bottom), T (top))

=> PS_ : PS = Prestress, where _ is the row number

Notes:

=> The flexural resistance is determined based on:

* Equilibrium

* Strain compatibility

* Strain in extreme compressive concrete fiber is 0.003

=> The stress in the mild compression steel includes an adjustment for the displaced concrete. fs = (es * Es) + (0.85 f'c ABS(es / ey))