Report

City of Vancouver

Granville Bridge
Load Rating

December 2010

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Executive Summary

The **City of Vancouver** has retained **Associated Engineering (AE)** to design replacements for all the Granville Street Bridge bearings contaminated with PCB. In addition, the scope of work involves a detailed load rating of the structural members of the steel bridge. **Structural Concepts Ltd.**, of Vancouver, was engaged as a sub-consultant by AE to perform the load rating evaluations while AE carried out the independent checks. As a part of the load rating assignment, AE also conducted an evaluation of the primary gussets and pins. This report summarizes the results of load rating of the Granville Street Bridge.

The load rating is conducted for the bridge in its present condition, taking into account all the permanent loads currently present on the bridge. The load rating is also conducted for the future configurations with additional suicide-prevention fence, traffic barrier and new bike lanes.

The analysis is performed in accordance with the Canadian Highway Bridge Design Code (CHBDC CAN/CSAS6-06), Section 14.

Based on our analysis, we confirm that the existing bridge has the capacity to support the design vehicle CL-625, representing a 64 tonnes truck, in combination with distributed live load. This load corresponds to the design load for new highways and bridges in Canada.

We also confirm that the bridge, in its future configurations, can safely support CL-625 design vehicle, representing a 64 tonnes truck in combination with distributed live load.

It is noted that the CL-625 design vehicle is significantly heavier than the maximum load of 27 tonnes that is currently posted on the bridge.

1 Description of the Bridge

1.1 The Bridge in Existing Condition

The Granville Street Bridge was built in the 1950's. The general arrangement (GA), along with other key drawings, is included in **Appendix H**. The main bridge, shown in **Figure 1**, consists of a series of steel deck truss supporting reinforced concrete deck.

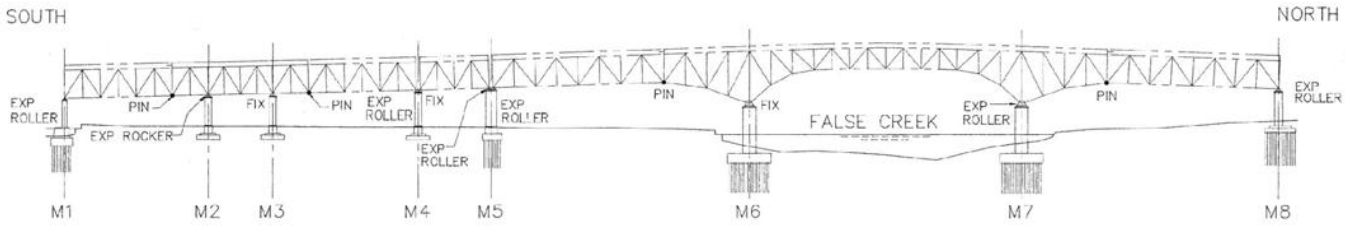

Figure 1

In the 1990's, a seismic retrofit was performed for the bridge. However, the seismic retrofit modifications did not affect the capacity of any primary truss members covered in the current load rating study.

The bridge has a roadway width of 88 ft with four lanes on either side of the concrete median barrier. The two identical trusses are spaced 58 ft apart and have depth between top and bottom chord centerlines varying between 38 ft at piers M1 and M8 and 80 ft at piers M6 and M7. The top chords, bottom chords, diagonals and load carrying vertical members consist of built-up box sections. Sliding joint are present at a number of the locations resulting in statically determinate span conditions. The reinforced concrete deck is supported by W-beam stringers spanning between floor beams. The stringers have a nominal spacing of 6'-5" and spans ranging between 23'-6" and 31'-3". The top flanges of the stringers are laterally restrained by the concrete deck. However, the deck and stringers do not act in a composite manner. The floor beams are located above the truss panel points and consist of built-up plate girders with flanges consisting of angle sections and 3/8" steel plate web up to 77" in depth, transversely stiffened with angle section at 38.5".

The City of Vancouver provided AE with the bridge design drawings and shop drawings. A copy of the key drawings is included in **Appendix H**. In some cases we have noted discrepancies between design drawings and shop drawings; in these cases shop drawings are assumed to represent the “as-built” structure.

This load rating takes into account the following changes to the bridge made since it was constructed:

- a concrete median barrier was added,
- the bridge is now supporting eight lanes of traffic, and
- a 55 mm asphalt overlay was added, based on field measurements.

In cooperation with the City's staff, AE has conducted a series of close-proximity inspection of the bridge in April, May and September of 2010. The results of these inspections are summarized in a separate report submitted to the City on September 24, 2010. Through these inspections, the bridge is found to be in a generally good condition with no significant structural deterioration.

1.2 The Bridge in Future Configurations

Future additions to the Granville Bridge may include suicide-prevention fence as well as new concrete barriers and new bike lanes. These additions will not affect structural connectivity of the bridge but will increase the permanent loading. As two new bike lanes are added, the number of lanes available to vehicular traffic will be reduced from eight to six (curb lanes are converted to bike lanes), as shown in **Figure 2**.

Therefore two future configurations, namely F1 and F2 are conceived and the bridge load rated consequently.

Configuration F1 consists of the bridge in its present condition plus added suicide-prevention fence along both edges of the bridge. Configuration F2 consists of Configuration F1 with two lines of additional concrete barrier, two bike lanes and reduced number of vehicular lanes.

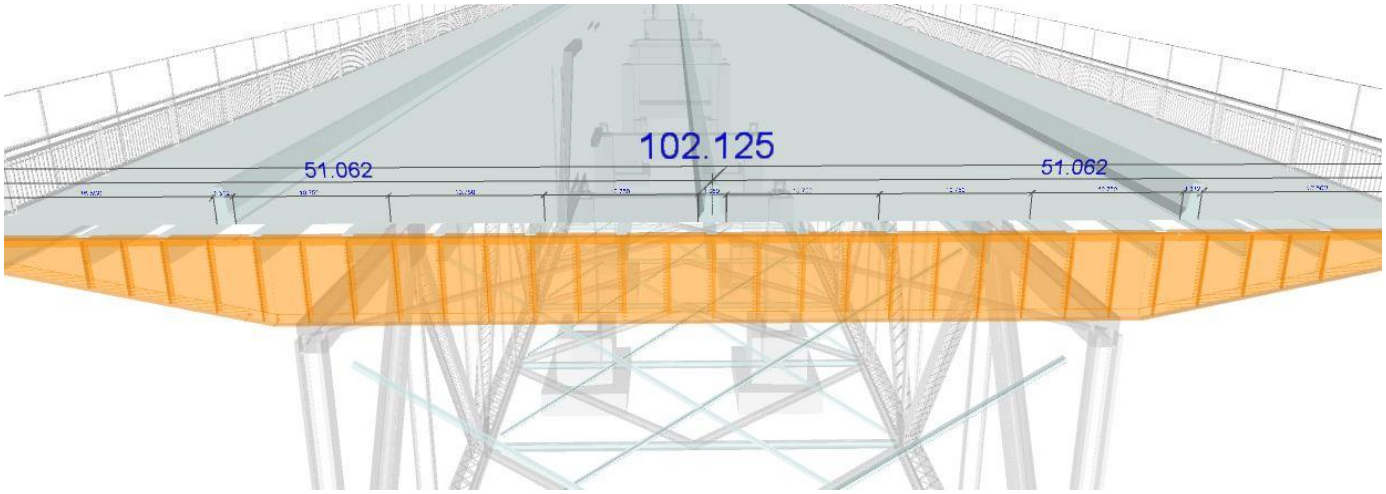

Figure 2

The weights of additional components are estimated as follows:

- Suicide-prevention fence: 0.137 kip/ft each
- Concrete barrier: 0.353 kip/ft each

2 Load Rating Criteria and Assumptions

We have used the following criteria to load rate the bridge. For more details, see Appendix F - Design Criteria.

2.1 Design Code

The load rating was carried out in accordance with the Terms of Reference.

- Design code: Canadian Highway Bridge Design Code CAN/CSA S6-06, Section 14.
- Highway Class: A.
- System behaviour: S1 for primary truss members, S2 for floorbeams and S3 for stringers.
- Inspection level: INSP3.
- For the purposes on section 14.12.5, structures shall be considered as “important”; Target Reliability Index (β) value is consequently increased by 0.25.
- Load rating of concrete decks is not required.
- Fatigue analysis is not required.
- Other transitory loads are not considered, such as wind, seismic and temperature loads.

2.2 Assessment Vehicle

The load rating is performed for the CL-625 live load as Normal Traffic, Evaluation Level 1 (vehicle trains).

Although the 27 tonnes maximum load is currently posted on the bridge, the load rating is performed for the design load CL-625, representing a 64-tonne truck in combination with distributed live load shown in Figure 14.1 of CSA S6-06. This load corresponds with the design load for new highways and bridges in Canada.

2.3 Bridge Structure

A series of close-proximity inspection of the bridge was undertaken by Associated Engineering and no structurally significant deterioration or damage was noticed that would result in reduced member capacity. Therefore, full capacity was assumed in the capacity calculations.

Based on the bridge design drawings and shop drawings, most of the truss members, all stringers and floor beams were fabricated using Medium Structural Steel to CSA G40.4 (or ASTM A7), with 33 ksi yield strength and 60 ksi ultimate tensile strength. Other truss members were fabricated from High Tensile Steel conforming to BSS 968. The yield strength is 46 ksi for plates 1 ¼ in or less, 43.9 ksi for plates between 1 ¼ to 1 3/4 in, 42 ksi for plates between 1 ¾ to 2 ¼ in, 40 ksi for plates between 2 ¼ to 2 ¾ in and 38 ksi for plates over 2 ¾ in. The ultimate tensile strength is 74 ksi.

Dead loads include field measured 55 mm thick concrete overlay.

3 Assessment Methodology

A sufficiently detailed model was developed using Structural Concepts' Virtual Bridges software to reflect the level of information required to perform the load rating study. This model is shown in **Figure 3**.

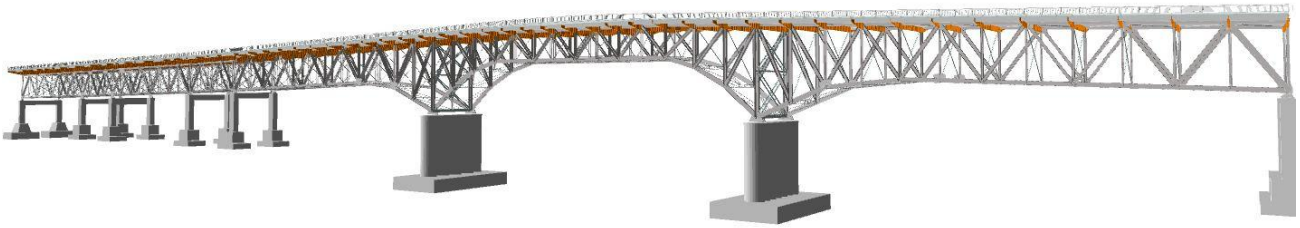

Figure 3

The model includes all the truss geometry data and the configurations of all built-up sections of the truss chords, diagonals and verticals, as shown in **Figure 4**.

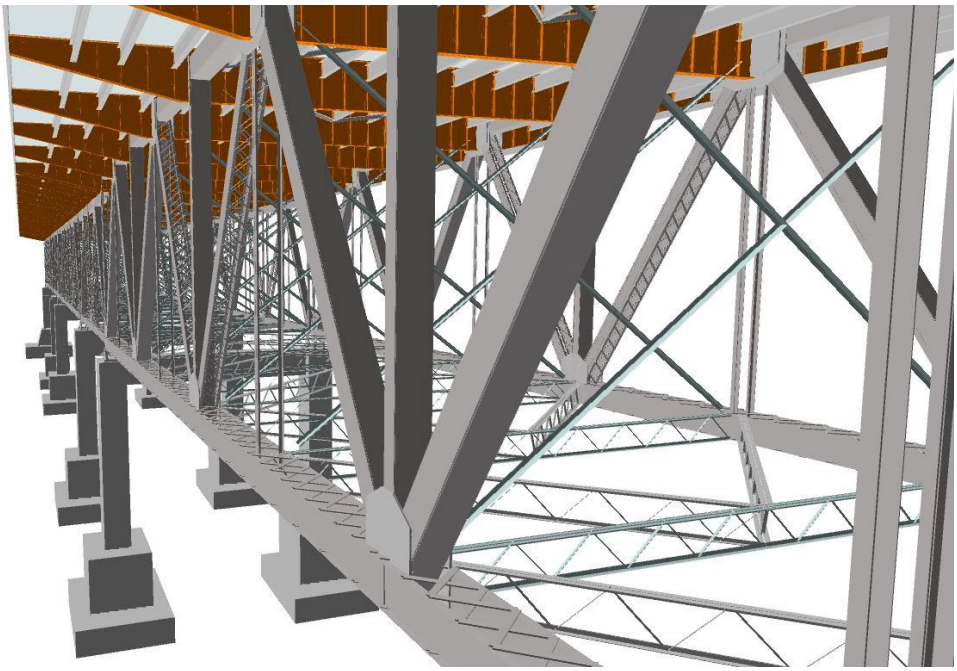

Figure 4

The stringers and floor beams were also explicitly modeled as shown in **Figure 5**. Consistent with the intent of the design and the nature of the stringer connections, the stringers were modeled with moment and axial force released at both ends.

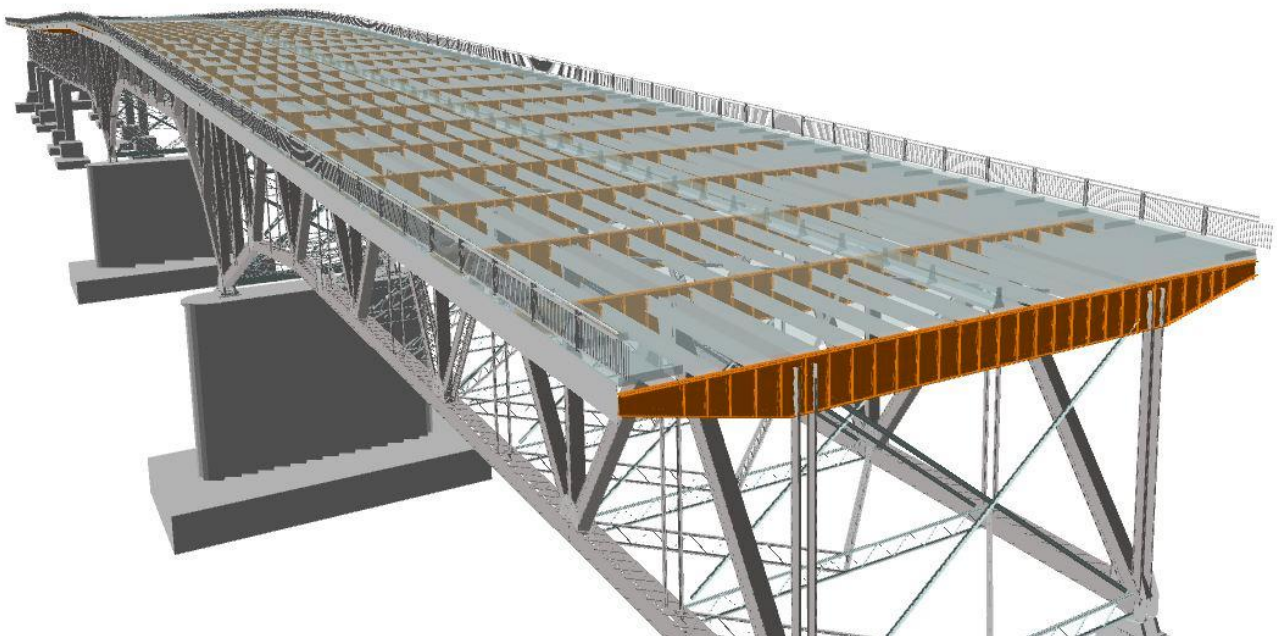

Figure 5

The 3D analysis model (using S-Frame version 9), along with all the various live loading cases, is extracted from the Virtual Bridges model and is shown in **Figure 6**. In addition to the bridge geometry, the analysis model reflects the releases or fixity of all bearings, sliding joints at certain top chord locations and the pinned bottom chord details at a few locations, notably at piers M6 and M7. The load rating is based on this 3D analysis model. The demands for the stringers were extracted from the 3D analysis model, reflecting a statically determinate application of loads on the stringers, and not computed using the simplified code-based lateral distribution factors. The addition of the median concrete barrier was included.

This modeling approach best reflects the intended detailing of the members and results in truss member demands consistent with those obtained from an isolated 2D truss analysis. The analysis model was calibrated to best match the dead load support reactions shown in the original design drawings.

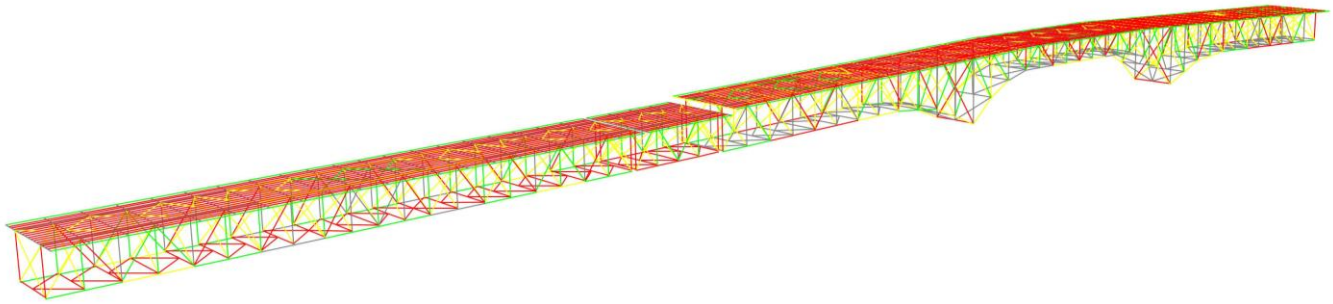

Figure 6

The typical truss details have built-up box sections for chords, diagonals and verticals connected with riveted gusset plates. This configuration was found to result in some in-plane bending moments along many of the truss members that could not be ignored. Therefore, the load rating results for all the truss members include the interaction of axial forces and bending moments, in accordance with the S6-06 code provisions for beam-column members.

Both the interaction equation and the Live Load Capacity Factors (LLCF) are reported. The computation of the LLCF was based on an iterative technique where the live load demands for axial force and bending moment are scaled by an assumed LLCF before being entered into the interaction equation until the equation ratio reaches unity. The final value used for scaling represents the LLCF.

The CL-625 live loading was marched in all lanes while the transverse locations of these lanes so determined that the live load produces the most demand on one of the two identical trusses.

The 9 kN/m uniformly distributed load component of the CL-625 lane loading was also applied to all lanes. It was applied in various patterns (full length, only between two piers and checkerboard pattern).

With all these live loading cases generated, the load rating was carried out for one to eight simultaneously loaded lane scenarios. For each element, the results from the governing number of loaded lanes are shown in the load rating table in **Appendices A, D and E**. For the truss members, either the cases for four loaded lanes or eight loaded lanes were found to govern. For the stringers and floor beams, usually the two loaded lane case governed. It should be noted that, per S6-06 clause 14.9.4, the multiple-lane loading modification factors decrease with the increased number of loaded lanes (indicating statistical improbability of simultaneous live loading in more than one lane). Therefore, some members were governed by less than eight lanes of live loading. A more detailed table is reported in **Appendix B**, which shows the key parameters and calculations for each truss member for the governing scenario.

In these tables, each truss member is labelled using the conventional nomenclature of its panel point locations. For example, panel point 1 is above pier M1, panel point 65 is above pier M8 and so on. The panel points along the top chords use the "U" prefix and the bottom "L" prefix.

In the detailed table, the built-up cross section is shown along with its sectional properties. The un-factored and factored live load axial demands from each of the loaded lanes are presented in a small table. The member capacity calculations are shown followed by a high level breakdown of pertinent results. In some cases, where a truss member can be subjected to tension or compression on account of live load sign reversal, both scenarios were checked and the governing one is tabulated. In some cases, where the dead load contribution to the axial demand defers that of the live load, the minimum dead load factor was used.

A number of truss members have perforated cover plates. In these cases, only the net area of these plates was used in the computation of section capacities. For members subjected to axial compression, the width-to-thickness ratios of all the plates were checked. In almost all cases, they satisfy the requirements for Class 3 Sections. In a few exceptions, a reduced effective area of the offending width is used.

A number of the members have double lacing plates. In these cases, when the member is subjected to net axial compression, an effective out-of-plane slenderness was computed to account for the shearing deformation in the lacing planes. This effective slenderness was computed as the square root sum of squares of the overall out-of-plane slenderness and the local slenderness of the built-up section sub-part spanning between lacing support points. It was found that in all cases, the in-plane slenderness of all truss members still governed. It should be noted that other than computing the member's overall compression capacity by accounting for the lacing using this effective slenderness, no other checks were carried out on the detailing of the latticed member elements.

For the truss chords, effective length factors of 1.0 were used for both in-plane and out-of-plane buckling. For the truss diagonal and vertical members, except those at pin locations, an effective length factor of 0.9 was used to reflect the connection details.

Except for non-load carrying verticals, all the truss members have built-up sections acting as closed-boxes. By virtue of the inherent large torsional stiffness of box section, the axial compression capacity is governed by flexural buckling, not by torsional buckling, nor flexural-torsional buckling. In a similar way, the bending moment capacity is governed by yield strength of the section, not by lateral-torsional buckling. When checking the axial compression and bending moment interaction, we evaluate the cross-sectional strength, overall member strength and lateral-torsional buckling strength. It is found that cross-sectional strength and lateral-torsional buckling strength do not govern. For overall member strength, the resistance adjustment factor U1x was conservatively taken as 1.0.

For truss members under net axial tension, we have checked the yielding strength of gross section as well as fracture strength at net section. The yielding of the gross section was found to govern in almost every case.

The maximum positive bending moment along the stringers as well as the shear near the member ends were checked in the load rating. For the floor beams, both maximum positive bending moments as well as negative bending moments were checked. The shear capacity of the transversely stiffened webs was also checked in the load ratings. Because these webs are slender, the negative moment and shear interaction equations were checked separately and found not to govern.

It should also be noted that the current load rating was limited to the structural members of the trusses, stringers, floor beams, gusset plates connecting primary truss members and pins. Load rating was not carried out for other details.

4 Load Rating Results

Load ratings were performed for the steel truss superstructure between piers M1 and M8. All of the top chord, bottom chord, diagonals and verticals were evaluated. In addition, the stringers and floor beams supporting the deck, gusset plates and pins were also evaluated.

Results of the ratings are included in **Appendices A, D and E**.

Live Load Capacity Factors (LLCF) and interaction equation where applicable are shown in the tables.

The LLCF is defined as:

$$\text{LLCF} = \frac{\text{Factored Capacity} - \text{Factored Dead Load Demand}}{\text{Factored Live Load Demand}}$$

An LLCF greater than 1.0 indicates adequate capacity of the member for the live load effect assessed.

The LLCF for all cases were found to be greater than 1.0 and therefore no deficiency was identified.

4.1 Load Rating Results for the Existing Bridge

Detailed results of load rating are shown in **Appendix A**. The lowest value of LLCF for the existing bridge was found to be 1.09 for truss diagonal member L3-U4.

In general, a number of the top chord members were found to have LLCF values in the 1.18 to 1.4 range. In these cases, the contribution from bending moments was a factor. On the other hand, the bottom chord members were generally found to have LLCF values in excess of 2.0 and the influence of bending moments was lesser.

The LLCF values for the truss diagonals and load carrying verticals were between 1.09 and 2.0 and the influence of bending moments usually was not significant.

For the stringers, the lowest LLCF value of 1.14 was found to be governed by maximum positive bending moment along the longest spans (32'-3").

For the floor beams, the lowest LLCF value of 1.79 was found to be governed by shear for the 31'-3" tributary spans.

4.2 Load Rating Results for Future Configurations

Detailed results of load rating are shown in **Appendices D and E**. For configuration F1, the lowest value of LLCF was found to be 1.06 for truss diagonal member L3 - U4. The rest of the results were otherwise very similar to those for the existing bridge case.

For configuration F2, the rating results are better than that for the existing bridge case.

5 Gusset Plates Connecting Primary Truss Members

Historically, gusset plates are sized to have greater capacity than the truss members they connect. However, in light of collapse of the truss bridge in Minnesota, we have carried out the checking of all gusset plates connecting primary truss members. The checking was performed following the method outlined in the report titled: "*Adequacy of the U10 & L11 Gusset Plate Design for the Minnesota Bridge No. 9340 (I-35W over the Mississippi River)", dated January 11, 2008, by Federal Highway Administration, Turner-Fairbank Highway Research Center*. The results are reported in **Appendix G**. We have calculated the maximum effective Von Mises stress in the gusset along a horizontal section and a vertical section. The effective stress is calculated as a combination of axial and shear stresses in a section. The maximum shear stress is conservatively calculated as 1.50 times the average shear stress in a section.

We have built a finite element model of a representative gusset plate using program SAP2000 to confirm the evaluation approach described above. The model results have confirmed the validity of the evaluation method. Von Misses stresses and the principal stress flow in the representative gusset plate, due to a set of reference loading, are shown in **Figures 7 and 8**.

We have checked the gusset plates for a load combination including factored dead and live loads. We have assumed that the live load consists of CL-625 design load, as opposed of 27 tonnes truck which is the posted load limit on the bridge.

The effective stress in a gusset plate level is always lower than the yield strength of the plate except at nodes U8 and U14. At these gussets, the yield strength of steel is 33 ksi. The maximum effective stress at localized points due to factored load combination is 33.8 ksi and 34.0 ksi respectively, exceeding the yield strength of steel by 2% and 3%. This slight overstress is not a cause for concern since the stress can re-distribute in case of yielding of the steel gusset plates.

In conclusion, our analysis has confirmed that the gusset plates of the **Granville Bridge Truss** can safely support the applied loads.

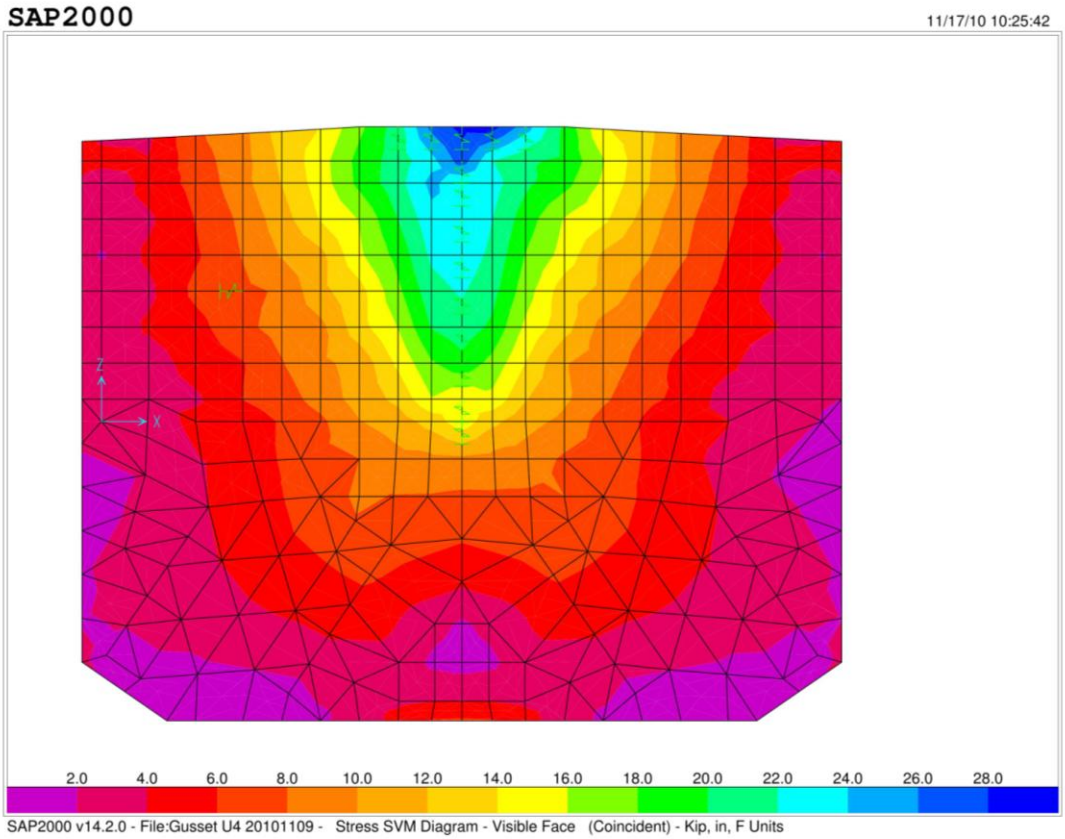

Figure 7

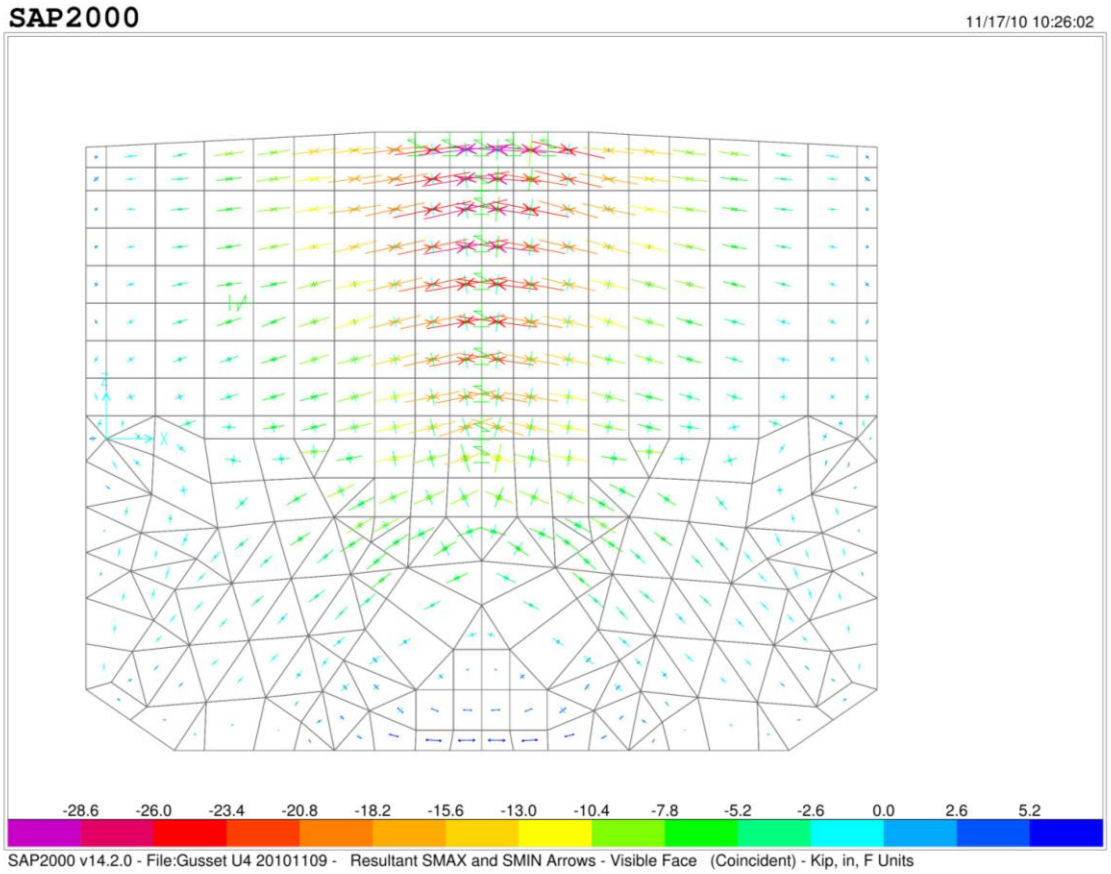

Figure 8

6 Pins

Since pins are an integral part of the load path from bridge deck to foundation, we also carried out an evaluation of all pins located at Node L7, L13, L35, L39, L53 and L57 in accordance with S6-06, Section 10.20.2.

The evaluation indicated that all pins are adequate in carrying the permanent loads and CL-625 vehicular load.

7 Plan Bracing and Diaphragm Bracing

The plan bracing and diaphragm bracing are typically sized for wind load and/or seismic forces. However, we have calculated the effects of permanent load and vehicular load due to CL-625 on all the plan bracing and diaphragm bracing members. The highest loaded plan bracing and diaphragm bracing members were rated using the procedure similar to that for truss members. The capacities reflect the changes made for the seismic retrofit carried out in the 1990's. The lowest value of LLCF for plan bracing members is 2.53 for a plan bracing diagonal at panel points L57-L58. The lowest value of LLCF for diaphragm bracing members is 3.37 for a diaphragm bracing above piers M2 and M3. We therefore conclude that the plan bracing and diaphragm bracing members can safely support permanent load and CL-625 vehicular load.

8 Conclusion

Based on our analysis, we confirm that the existing bridge has the capacity to support the design vehicle CL-625 in its current conditions. This live load corresponds with the design load for new highways and bridges in Canada.

We also confirm that the bridge can safely support design vehicle CL-625 in its future configurations.

9 Closure

The services provided by **Associated Engineering (AE)** and **Structural Concepts Ltd.** in preparation of this report were conducted in a manner consistent with a level of skill ordinarily exercised by members of the profession practicing under similar conditions. No other warranty expressed or implied is made.

Thank you for entrusting us with this interesting assignment.

Respectfully submitted,

Prepared by:

PROFESSIONAL PROVINCE OF A. S. ASHIKIAN BRITISH COLUMBIA ENGINEER

Dec 8/2010

Ara Ashikian, P. Eng.
Project Engineer
Structural Concepts Ltd.

Reviewed by:

PROFESSIONAL PROVINCE OF J. J. JIAO # 30462 BRITISH COLUMBIA ENGINEER

Dec 7/2010

Jack Jiao, M. Eng., P. Eng.
Project Engineer
Associated Engineering (B.C.) Ltd

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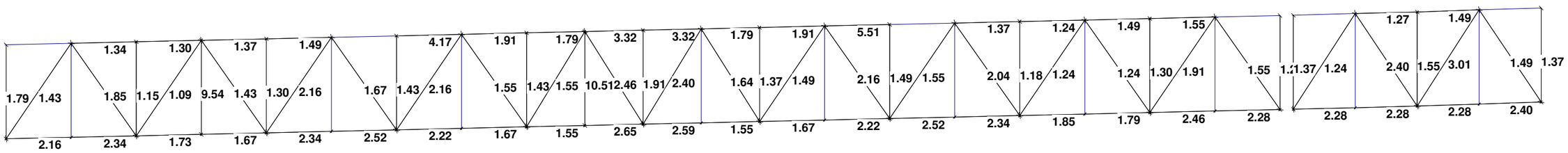
Appendix A - Load Rating for the Existing Bridge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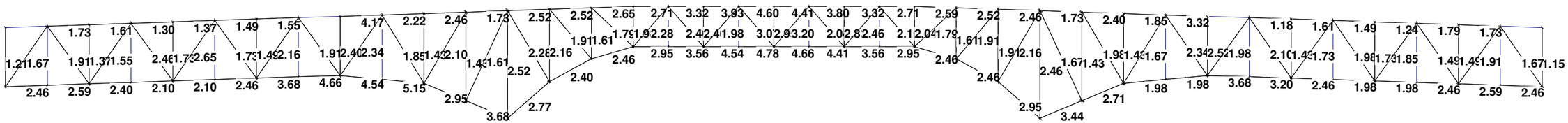
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2.46 2.59 2.40 2.10 2.10 2.46 3.68 4.66 4.54 5.15 2.95 3.68 2.77 2.40 2.46 2.95 3.56 4.54 4.78 4.66 4.41 3.56 2.95 2.46 2.46 2.95 3.44 2.71 1.98 1.98 3.68 3.20 2.46 1.98 1.98 2.46 2.59 2.46

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U1-U2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	10	-	Static det.	Other	18	0	1.77	32	1379	1.01	>10	0.05
	corresp. Moment	k-ft					9	-11	-				10	-13	-			-7			-13	899	1.06		
Top chord U2-U3 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-559	-	1.11	1.22	1.55	-237	-682	-	Static det.	Other	-237	0.25	1.77	-525	2161	1.01	1.34	0.89
	corresp. Moment	k-ft					-50	132	-				-56	162	-			93			206	1399	1.06		
Top chord U3-U4 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-552	-	1.11	1.22	1.55	-234	-673	-	Static det.	Other	-222	0.25	1.77	-490	2161	1.01	1.30	0.91
	corresp. Moment	k-ft					32	116	-				36	142	-			85			189	1399	1.06		
Top chord U4-U5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-554	-	1.11	1.22	1.55	-234	-675	-	Static det.	Other	-228	0.25	1.77	-504	2161	1.01	1.37	0.90
	corresp. Moment	k-ft					34	129	-				38	158	-			65			143	1399	1.06		
Top chord U5-U6 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-564	-	1.11	1.22	1.55	-239	-688	-	Static det.	Other	-225	0.25	1.77	-498	2161	1.01	1.49	0.85
	corresp. Moment	k-ft					-61	147	-				-67	180	-			72			159	1399	1.06		
Top chord U6-U7 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1257	1.01	>10	0.25
	corresp. Moment	k-ft					40	151	-				44	185	-			0			0	899	1.06		
Top chord U7-U8 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-7	-	1.11	1.22	1.55	-4	-9	-	Static det.	Other	-18	0	1.77	-33	1189	1.01	4.17	0.16
	corresp. Moment	k-ft					-67	-168	-				-74	-205	-			90			160	1011	1.06		
Top chord U8-U9 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1119	-	1.11	1.22	1.55	490	1365	-	Static det.	Other	477	0	1.77	845	4257	1.01	1.91	0.78
	corresp. Moment	k-ft					-81	-80	-				-90	-97	-			-82			-145	2280	1.06		
Top chord U9-U10 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	439	1114	-	1.11	1.22	1.55	488	1360	-	Static det.	Other	480	0	1.77	849	4257	1.01	1.79	0.81
	corresp. Moment	k-ft					-80	-116	-				-88	-141	-			-92			-162	2280	1.06		
Top chord U10-U11 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	896	-	1.11	1.22	1.55	379	1093	-	Static det.	Other	300	0	1.77	530	3514	1.01	3.32	0.64
	corresp. Moment	k-ft					-76	168	-				-84	205	-			17			31	2170	1.06		
Top chord U11-U12 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	897	-	1.11	1.22	1.55	379	1094	-	Static det.	Other	307	0	1.77	543	3514	1.01	3.32	0.64
	corresp. Moment	k-ft					-78	168	-				-86	205	-			10			17	2170	1.06		
Top chord U12-U13 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	440	1114	-	1.11	1.22	1.55	488	1359	-	Static det.	Other	484	0	1.77	856	4257	1.01	1.79	0.81
	corresp. Moment	k-ft					-81	-121	-				-90	-148	-			-91			-160	2280	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U13-U14 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1119	-	1.11	1.22	1.55	490	1365	-	Static det.	Other	483	0	1.77	854	4257	1.01	1.91	0.78
	corresp. Moment	k-ft					-83	-85	-				-92	-103	-			-80			-142	2280	1.06		
Top chord U14-U15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-8	-	1.11	1.22	1.55	-4	-10	-	Static det.	Other	-20	0	1.77	-35	1189	1.01	5.51	0.30
	corresp. Moment	k-ft					-63	160	-				-70	195	-			78			138	1011	1.06		
Top chord U15-U16 - (2 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1379	1.01	>10	0.24
	corresp. Moment	k-ft					38	148	-				43	181	-			0			0	899	1.06		
Top chord U16-U17 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-565	-	1.11	1.22	1.55	-239	-689	-	Static det.	Other	-232	0.25	1.77	-514	2161	1.01	1.37	0.88
	corresp. Moment	k-ft					-59	140	-				-66	171	-			87			192	1399	1.06		
Top chord U17-U18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-554	-	1.11	1.22	1.55	-234	-676	-	Static det.	Other	-233	0.25	1.77	-516	2161	1.01	1.24	0.94
	corresp. Moment	k-ft					33	123	-				37	150	-			89			198	1399	1.06		
Top chord U18-U19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-552	-	1.11	1.22	1.55	-233	-673	-	Static det.	Other	-217	0.25	1.77	-479	2161	1.01	1.49	0.87
	corresp. Moment	k-ft					33	123	-				37	151	-			58			128	1399	1.06		
Top chord U19-U20 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-559	-	1.11	1.22	1.55	-236	-682	-	Static det.	Other	-288	0	1.77	-509	2161	1.01	1.55	0.84
	corresp. Moment	k-ft					-53	140	-				-59	171	-			78			138	1399	1.06		
Top chord U20-U21 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	17	0	1.77	30	1379	1.01	>10	0.05
	corresp. Moment	k-ft					8	-9	-				9	-11	-			-7			-12	899	1.06		
Top chord U22-U23 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	10	0.25	1.77	23	1379	1.01	>10	0.06
	corresp. Moment	k-ft					-7	-9	-				-8	-11	-			-7			-16	899	1.06		
Top chord U23-U24 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-247	-	1.11	1.22	1.55	-95	-302	-	Static det.	Other	-136	0.25	1.77	-301	1263	1.01	1.27	0.92
	corresp. Moment	k-ft					32	122	-				36	149	-			65			144	899	1.06		
Top chord U24-U25 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-247	-	1.11	1.22	1.55	-95	-301	-	Static det.	Other	-131	0.25	1.77	-291	1263	1.01	1.49	0.83
	corresp. Moment	k-ft					-33	123	-				-37	150	-			66			145	899	1.06		
Top chord U25-U26 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	6	0.25	1.77	14	1379	1.01	>10	0.09
	corresp. Moment	k-ft					-10	-14	-				-11	-17	-			-19			-41	899	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U27-U28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	5	14	-	1.11	1.22	1.55	6	17	-	Static det.	Other	23	0	1.77	41	1828	1.01	>10	0.04
	corresp. Moment	k-ft					19	-10	-				22	-12	-			-8			-14	1475	1.06		
Top chord U28-U29 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-479	-1031	-	1.11	1.22	1.55	-532	-1258	-	Static det.	Other	-424	0	1.77	-751	3904	1.01	1.73	0.81
	corresp. Moment	k-ft					-132	284	-				-147	347	-			172			305	3118	1.06		
Top chord U29-U30 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1020	-	1.11	1.22	1.55	-526	-1244	-	Static det.	Other	-393	0	1.77	-696	3904	1.01	1.61	0.85
	corresp. Moment	k-ft					68	254	-				76	310	-			175			309	3118	1.06		
Top chord U30-U31 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-638	-1369	-	1.11	1.22	1.55	-708	-1670	-	Static det.	Other	-539	0	1.77	-953	5163	1.01	1.30	0.93
	corresp. Moment	k-ft					115	389	-				128	475	-			216			382	3479	1.06		
Top chord U31-U32 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-637	-1368	-	1.11	1.22	1.55	-707	-1668	-	Static det.	Other	-529	0	1.77	-937	5163	1.01	1.37	0.92
	corresp. Moment	k-ft					114	391	-				126	477	-			212			375	3479	1.06		
Top chord U32-U33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-478	-1028	-	1.11	1.22	1.55	-531	-1254	-	Static det.	Other	-411	0	1.77	-727	3904	1.01	1.49	0.89
	corresp. Moment	k-ft					82	317	-				91	386	-			160			283	3118	1.06		
Top chord U33-U34 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-485	-1042	-	1.11	1.22	1.55	-538	-1271	-	Static det.	Other	-418	0	1.77	-740	3904	1.01	1.55	0.81
	corresp. Moment	k-ft					-164	-360	-				-182	-439	-			75			133	3118	1.06		
Top chord U34-U35 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.68
	corresp. Moment	k-ft					83	757	-				92	923	-			0			0	1475	1.06		
Top chord U35-U36 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-7	-13	-	1.11	1.22	1.55	-8	-16	-	Static det.	Other	-26	0	1.77	-46	4047	1.01	4.17	0.42
	corresp. Moment	k-ft					-230	760	-				-256	927	-			352			623	3258	1.06		
Top chord U36-U37 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	705	1452	-	1.11	1.22	1.55	782	1771	-	Static det.	Other	515	0	1.77	912	5151	1.01	2.22	0.78
	corresp. Moment	k-ft					-95	-271	-				-106	-331	-			-32			-57	4687	1.06		
Top chord U37-U38 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	694	1432	-	1.11	1.22	1.55	770	1747	-	Static det.	Other	513	0	1.77	908	5151	1.01	2.46	0.75
	corresp. Moment	k-ft					62	224	-				69	273	-			25			45	4687	1.06		
Top chord U38-U39 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	934	1876	-	1.11	1.22	1.55	1036	2288	-	Static det.	Other	581	0	1.77	1028	7410	1.01	1.73	0.87
	corresp. Moment	k-ft					-526	-764	-				-584	-932	-			-211			-373	6613	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U39-U40 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1138	2520	-	1.11	1.22	1.55	1263	3074	-	Static det.	Other	978	0	1.77	1732	11353	1.01	2.52	0.69
	corresp. Moment	k-ft					-367	-258	-				-408	-314	-			-286			-506	7840	1.06		
Top chord U40-U41 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	968	2606	-	1.11	1.22	1.55	1075	3179	-	Static det.	Other	1264	0	1.77	2238	12359	1.01	2.52	0.65
	corresp. Moment	k-ft					-198	-231	-				-220	-282	-			-287			-509	8175	1.06		
Top chord U41-U42 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	607	2351	-	1.11	1.22	1.55	674	2868	-	Static det.	Other	1455	0	1.77	2575	12359	1.01	2.65	0.62
	corresp. Moment	k-ft					-248	-383	-				-275	-467	-			-156			-277	8175	1.06		
Top chord U42-U43 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	604	2345	-	1.11	1.22	1.55	670	2861	-	Static det.	Other	1454	0	1.77	2574	12359	1.01	2.71	0.60
	corresp. Moment	k-ft					-151	-379	-				-167	-463	-			-152			-270	8175	1.06		
Top chord U43-U44 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-64	1289	-	0.95	1.22	1.55	-71	1573	-	Static det.	Other	1210	0	1.77	2141	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-287	-538	-				-318	-657	-			-138			-245	7605	1.06		
Top chord U44-U45 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-65	1287	-	0.95	1.22	1.55	-73	1570	-	Static det.	Other	1209	0	1.77	2139	10983	1.01	3.93	0.38
	corresp. Moment	k-ft					106	-237	-				118	-289	-			-104			-184	7605	1.06		
Top chord U45-U46 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	935	-	0.95	1.22	1.55	-313	1141	-	Static det.	Other	967	0	1.77	1712	9951	1.01	4.60	0.31
	corresp. Moment	k-ft					140	-290	-				156	-354	-			-93			-165	7174	1.06		
Top chord U46-U47 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	935	-	0.95	1.22	1.55	-313	1141	-	Static det.	Other	969	0	1.77	1715	9951	1.01	4.41	0.32
	corresp. Moment	k-ft					140	-291	-				155	-355	-			-121			-215	7174	1.06		
Top chord U47-U48 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-87	1289	-	0.95	1.22	1.55	-96	1573	-	Static det.	Other	1228	0	1.77	2174	10983	1.01	3.80	0.38
	corresp. Moment	k-ft					109	-237	-				121	-289	-			-104			-185	7605	1.06		
Top chord U48-U49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-85	1292	-	0.95	1.22	1.55	-94	1577	-	Static det.	Other	1229	0	1.77	2176	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-282	-539	-				-313	-658	-			-141			-250	7605	1.06		
Top chord U49-U50 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	561	2350	-	1.11	1.22	1.55	623	2868	-	Static det.	Other	1478	0	1.77	2617	12359	1.01	2.71	0.60
	corresp. Moment	k-ft					-149	-380	-				-166	-463	-			-155			-275	8175	1.06		
Top chord U50-U51 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	563	2350	-	1.11	1.22	1.55	625	2867	-	Static det.	Other	1479	0	1.77	2618	12359	1.01	2.59	0.62
	corresp. Moment	k-ft					-246	-383	-				-273	-467	-			-159			-282	8175	1.06		

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Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U51-U52 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	925	2604	-	1.11	1.22	1.55	1027	3177	-	Static det.	Other	1285	0	1.77	2275	12359	1.01	2.52	0.65
	corresp. Moment	k-ft					-196	-231	-				-218	-282	-			-290			-513	8175	1.06		
Top chord U52-U53 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1101	2517	-	1.11	1.22	1.55	1222	3071	-	Static det.	Other	993	0	1.77	1757	11353	1.01	2.46	0.69
	corresp. Moment	k-ft					-369	-256	-				-409	-313	-			-304			-537	7840	1.06		
Top chord U53-U54 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	909	1873	-	1.11	1.22	1.55	1009	2285	-	Static det.	Other	651	0	1.77	1152	7410	1.01	1.73	0.87
	corresp. Moment	k-ft					-518	-763	-				-575	-930	-			-160			-283	6613	1.06		
Top chord U54-U55 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	677	1431	-	1.11	1.22	1.55	752	1745	-	Static det.	Other	524	0	1.77	927	5151	1.01	2.40	0.75
	corresp. Moment	k-ft					64	232	-				71	283	-			23			41	4687	1.06		
Top chord U55-U56 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	688	1451	-	1.11	1.22	1.55	763	1770	-	Static det.	Other	524	0	1.77	927	5151	1.01	1.85	0.83
	corresp. Moment	k-ft					-111	-314	-				-123	-383	-			-120			-212	4687	1.06		
Top chord U56-U57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-8	-15	-	1.11	1.22	1.55	-8	-19	-	Static det.	Other	-29	0	1.77	-51	3387	1.01	3.32	0.48
	corresp. Moment	k-ft					-228	775	-				-253	946	-			401			710	3079	1.06		
Top chord U57-U58 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.69
	corresp. Moment	k-ft					82	775	-				91	946	-			0			0	1475	1.06		
Top chord U58-U59 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-481	-1045	-	1.11	1.22	1.55	-534	-1275	-	Static det.	Other	-421	0	1.77	-746	3904	1.01	1.18	0.74
	corresp. Moment	k-ft					-161	-359	-				-178	-438	-			201			355	3118	1.06		
Top chord U59-U60 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1031	-	1.11	1.22	1.55	-526	-1258	-	Static det.	Other	-419	0	1.77	-742	3904	1.01	1.61	0.85
	corresp. Moment	k-ft					-85	321	-				-94	392	-			188			332	3118	1.06		
Top chord U60-U61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1371	-	1.11	1.22	1.55	-700	-1672	-	Static det.	Other	-524	0	1.77	-928	5163	1.01	1.49	0.87
	corresp. Moment	k-ft					-129	432	-				-143	527	-			235			416	3479	1.06		
Top chord U61-U62 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1372	-	1.11	1.22	1.55	-701	-1674	-	Static det.	Other	-542	0	1.77	-959	5163	1.01	1.24	0.96
	corresp. Moment	k-ft					128	430	-				142	525	-			242			428	3479	1.06		
Top chord U62-U63 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-471	-1025	-	1.11	1.22	1.55	-523	-1251	-	Static det.	Other	-410	0	1.77	-725	3904	1.01	1.79	0.80
	corresp. Moment	k-ft					-73	259	-				-82	316	-			152			269	3118	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U63-U64 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-476	-1037	-	1.11	1.22	1.55	-529	-1265	-	Static det.	Other	-424	0	1.77	-750	3904	1.01	1.73	0.81
	corresp. Moment	k-ft					-132	289	-				-147	352	-			170			302	3118	1.06		
Top chord U64-U65 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	4	7	-	1.11	1.22	1.55	5	8	-	Static det.	Other	26	0	1.77	47	1828	1.01	>10	0.03
	corresp. Moment	k-ft					19	-10	-				21	-12	-			-6			-11	1475	1.06		
Bot chord L1-L2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	357	-	1.11	1.22	1.55	151	436	-	Static det.	Other	160	0.25	1.77	355	1584	1.01	2.16	0.70
	corresp. Moment	k-ft					13	-44	-				14	-54	-			-22			-48	863	1.06		
Bot chord L2-L3 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	436	-	Static det.	Other	151	0.25	1.77	335	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					13	25	-				15	31	-			16			36	863	1.06		
Bot chord L3-L4 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	783	-	Static det.	Other	328	0	1.77	580	2571	1.01	1.73	0.78
	corresp. Moment	k-ft					-34	88	-				-37	108	-			62			110	1227	1.06		
Bot chord L4-L5 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	783	-	Static det.	Other	318	0	1.77	562	2571	1.01	1.67	0.82
	corresp. Moment	k-ft					31	88	-				34	107	-			56			100	1227	1.06		
Bot chord L5-L6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	154	443	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					12	31	-				13	38	-			17			29	863	1.06		
Bot chord L6-L7 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	154	443	-	Static det.	Other	194	0	1.77	344	1584	1.01	2.52	0.65
	corresp. Moment	k-ft					16	14	-				17	17	-			10			17	863	1.06		
Bot chord L7-L8 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-488	-	1.11	1.22	1.55	-210	-595	-	Static det.	Other	-226	0	1.77	-400	1973	1.01	2.22	0.73
	corresp. Moment	k-ft					34	59	-				38	72	-			26			46	1354	1.06		
Bot chord L8-L9 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-180	-466	-	1.11	1.22	1.55	-200	-568	-	Static det.	Other	-217	0	1.77	-384	1973	1.01	1.67	0.85
	corresp. Moment	k-ft					-77	-132	-				-85	-161	-			-61			-109	1354	1.06		
Bot chord L9-L10 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-935	-	1.11	1.22	1.55	-402	-1141	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.88
	corresp. Moment	k-ft					-116	-153	-				-129	-187	-			-69			-122	1775	1.06		
Bot chord L10-L11 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-957	-	1.11	1.22	1.55	-412	-1168	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.65	0.68
	corresp. Moment	k-ft					-41	14	-				-45	17	-			-11			-20	1775	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L11-L12 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-957	-	1.11	1.22	1.55	-412	-1167	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.59	0.68
	corresp. Moment	k-ft					-40	10	-				-45	12	-			-16			-29	1775	1.06		
Bot chord L12-L13 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-935	-	1.11	1.22	1.55	-402	-1140	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.88
	corresp. Moment	k-ft					-117	-154	-				-130	-188	-			-68			-120	1775	1.06		
Bot chord L13-L14 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-181	-466	-	1.11	1.22	1.55	-201	-569	-	Static det.	Other	-216	0	1.77	-383	1973	1.01	1.67	0.85
	corresp. Moment	k-ft					-78	-137	-				-87	-167	-			-59			-104	1354	1.06		
Bot chord L14-L15 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-488	-	1.11	1.22	1.55	-210	-596	-	Static det.	Other	-225	0	1.77	-398	1973	1.01	2.22	0.72
	corresp. Moment	k-ft					33	55	-				36	67	-			27			48	1354	1.06		
Bot chord L15-L16 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	153	443	-	Static det.	Other	147	0.25	1.77	325	1584	1.01	2.52	0.66
	corresp. Moment	k-ft					16	19	-				18	23	-			12			27	863	1.06		
Bot chord L16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	153	443	-	Static det.	Other	148	0.25	1.77	328	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					12	27	-				13	32	-			16			36	863	1.06		
Bot chord L17-L18 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	268	783	-	Static det.	Other	247	0.25	1.77	545	2571	1.01	1.85	0.76
	corresp. Moment	k-ft					-32	88	-				-36	107	-			46			103	1227	1.06		
Bot chord L18-L19 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	784	-	Static det.	Other	259	0.25	1.77	573	2571	1.01	1.79	0.78
	corresp. Moment	k-ft					-32	88	-				-35	107	-			49			107	1227	1.06		
Bot chord L19-L20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	437	-	Static det.	Other	142	0.25	1.77	314	1584	1.01	2.46	0.67
	corresp. Moment	k-ft					13	30	-				14	37	-			14			32	863	1.06		
Bot chord L20-L21 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	437	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.28	0.68
	corresp. Moment	k-ft					12	-42	-				13	-51	-			-24			-42	863	1.06		
Bot chord L22-L23 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	193	-	1.11	1.22	1.55	74	236	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.28	0.64
	corresp. Moment	k-ft					8	-29	-				9	-35	-			-17			-37	581	1.06		
Bot chord L23-L24 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	236	-	Static det.	Other	105	0.25	1.77	231	1017	1.01	2.28	0.66
	corresp. Moment	k-ft					10	27	-				11	33	-			14			31	581	1.06		

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Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L24-L25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	237	-	Static det.	Other	97	0.25	1.77	214	1017	1.01	2.28	0.66
	corresp. Moment	k-ft					10	28	-				11	34	-			18			39	581	1.06		
Bot chord L25-L26 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	237	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.40	0.63
	corresp. Moment	k-ft					8	-27	-				9	-32	-			-15			-33	581	1.06		
Bot chord L27-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	280	613	-	1.11	1.22	1.55	310	748	-	Static det.	Other	266	0	1.77	471	2539	1.01	2.46	0.68
	corresp. Moment	k-ft					30	-83	-				33	-102	-			-40			-71	1721	1.06		
Bot chord L28-L29 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	280	613	-	1.11	1.22	1.55	310	748	-	Static det.	Other	244	0	1.77	431	2539	1.01	2.59	0.70
	corresp. Moment	k-ft					32	79	-				36	96	-			34			59	1721	1.06		
Bot chord L29-L30 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	604	1315	-	1.11	1.22	1.55	671	1605	-	Static det.	Other	516	0	1.77	913	5032	1.01	2.40	0.69
	corresp. Moment	k-ft					-98	112	-				-109	137	-			73			129	2601	1.06		
Bot chord L30-L31 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	605	1315	-	1.11	1.22	1.55	671	1605	-	Static det.	Other	522	0	1.77	924	5032	1.01	2.10	0.77
	corresp. Moment	k-ft					81	110	-				90	134	-			71			125	2601	1.06		
Bot chord L31-L32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	613	1321	-	1.11	1.22	1.55	681	1612	-	Static det.	Other	524	0	1.77	927	5032	1.01	2.10	0.77
	corresp. Moment	k-ft					77	110	-				86	134	-			63			112	2601	1.06		
Bot chord L32-L33 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	613	1321	-	1.11	1.22	1.55	681	1612	-	Static det.	Other	527	0	1.77	932	5032	1.01	2.46	0.69
	corresp. Moment	k-ft					-89	94	-				-99	114	-			58			102	2601	1.06		
Bot chord L33-L34 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	293	634	-	1.11	1.22	1.55	325	773	-	Static det.	Other	260	0	1.77	460	3480	1.01	3.68	0.57
	corresp. Moment	k-ft					35	98	-				39	120	-			37			66	1859	1.06		
Bot chord L34-L35 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	292	634	-	1.11	1.22	1.55	325	773	-	Static det.	Other	260	0	1.77	461	3480	1.01	4.66	0.49
	corresp. Moment	k-ft					45	10	-				50	12	-			13			22	1859	1.06		
Bot chord L35-L36 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-343	-694	-	1.11	1.22	1.55	-380	-846	-	Static det.	Other	-302	0	1.77	-534	4311	1.01	4.54	0.50
	corresp. Moment	k-ft					90	114	-				100	139	-			46			81	3459	1.06		
Bot chord L36-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-343	-693	-	1.11	1.22	1.55	-380	-846	-	Static det.	Other	-288	0	1.77	-510	4310	1.01	5.15	0.47
	corresp. Moment	k-ft					-86	-65	-				-96	-79	-			-30			-54	3459	1.06		

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Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L37-L38 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1039	-2066	-	1.11	1.22	1.55	-1153	-2520	-	Static det.	Other	-706	0	1.77	-1249	8356	1.01	2.95	0.70
	corresp. Moment	k-ft					-287	-501	-				-318	-611	-			-65			-115	9304	1.06		
Bot chord L38-L39 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1273	-2468	-	1.11	1.22	1.55	-1413	-3011	-	Static det.	Other	-815	0	1.77	-1442	10460	1.01	3.68	0.58
	corresp. Moment	k-ft					195	45	-				216	55	-			-73			-129	9925	1.06		
Bot chord L39-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1562	-3015	-	1.11	1.22	1.55	-1733	-3678	-	Static det.	Other	-1115	0	1.77	-1973	12246	1.01	2.77	0.68
	corresp. Moment	k-ft					-178	-270	-				-198	-329	-			-182			-323	11142	1.06		
Bot chord L40-L41 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1330	-2904	-	1.11	1.22	1.55	-1476	-3543	-	Static det.	Other	-1195	0	1.77	-2116	12717	1.01	2.40	0.70
	corresp. Moment	k-ft					-350	-450	-				-388	-549	-			-381			-674	11260	1.06		
Bot chord L41-L42 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1030	-2745	-	1.11	1.22	1.55	-1144	-3349	-	Static det.	Other	-1344	0	1.77	-2378	13245	1.01	2.46	0.67
	corresp. Moment	k-ft					-413	-541	-				-459	-660	-			-368			-651	11494	1.06		
Bot chord L42-L43 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1723	-	1.11	1.22	1.55	-230	-2102	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-208	-383	-				-231	-467	-			-307			-543	9648	1.06		
Bot chord L43-L44 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1723	-	1.11	1.22	1.55	-230	-2102	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	3.56	0.45
	corresp. Moment	k-ft					-94	-153	-				-104	-187	-			-129			-228	9648	1.06		
Bot chord L44-L45 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1014	-	0.95	1.22	1.55	255	-1237	-	Static det.	Other	-1087	0	1.77	-1925	11482	1.01	4.54	0.32
	corresp. Moment	k-ft					-181	-158	-				-201	-193	-			-155			-274	9363	1.06		
Bot chord L45-L46 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1014	-	0.95	1.22	1.55	255	-1237	-	Static det.	Other	-1087	0	1.77	-1924	11482	1.01	4.78	0.26
	corresp. Moment	k-ft					140	19	-				156	23	-			-127			-226	9363	1.06		
Bot chord L46-L47 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	241	-1016	-	0.95	1.22	1.55	267	-1239	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.66	0.27
	corresp. Moment	k-ft					142	19	-				157	24	-			-130			-229	9363	1.06		
Bot chord L47-L48 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	241	-1016	-	0.95	1.22	1.55	267	-1239	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.41	0.33
	corresp. Moment	k-ft					-176	-159	-				-195	-194	-			-157			-279	9363	1.06		
Bot chord L48-L49 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1727	-	1.11	1.22	1.55	-194	-2107	-	Static det.	Other	-1367	0	1.77	-2420	12036	1.01	3.56	0.45
	corresp. Moment	k-ft					-93	-154	-				-103	-187	-			-131			-232	9648	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L49-L50 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1727	-	1.11	1.22	1.55	-194	-2107	-	Static det.	Other	-1368	0	1.77	-2421	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-199	-383	-				-221	-468	-			-312			-552	9648	1.06		
Bot chord L50-L51 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-986	-2751	-	1.11	1.22	1.55	-1094	-3357	-	Static det.	Other	-1359	0	1.77	-2405	13245	1.01	2.46	0.67
	corresp. Moment	k-ft					-405	-542	-				-450	-661	-			-375			-663	11494	1.06		
Bot chord L51-L52 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1288	-2910	-	1.11	1.22	1.55	-1430	-3550	-	Static det.	Other	-1167	0	1.77	-2065	12717	1.01	2.46	0.70
	corresp. Moment	k-ft					-351	-451	-				-389	-550	-			-394			-697	11260	1.06		
Bot chord L52-L53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1524	-3020	-	1.11	1.22	1.55	-1691	-3685	-	Static det.	Other	-1061	0	1.77	-1878	12246	1.01	2.95	0.67
	corresp. Moment	k-ft					-172	-271	-				-190	-331	-			-178			-315	11142	1.06		
Bot chord L53-L54 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1241	-2472	-	1.11	1.22	1.55	-1378	-3016	-	Static det.	Other	-869	0	1.77	-1538	10460	1.01	3.44	0.58
	corresp. Moment	k-ft					194	41	-				215	50	-			-91			-161	9925	1.06		
Bot chord L54-L55 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1013	-2070	-	1.11	1.22	1.55	-1125	-2526	-	Static det.	Other	-755	0	1.77	-1336	8356	1.01	2.71	0.72
	corresp. Moment	k-ft					-285	-506	-				-316	-617	-			-105			-185	9304	1.06		
Bot chord L55-L56 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-336	-697	-	1.11	1.22	1.55	-373	-850	-	Static det.	Other	-298	0	1.77	-528	2543	1.01	1.98	0.79
	corresp. Moment	k-ft					-53	-62	-				-59	-76	-			-27			-48	1886	1.06		
Bot chord L56-L57 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-336	-697	-	1.11	1.22	1.55	-373	-850	-	Static det.	Other	-293	0	1.77	-519	2543	1.01	1.98	0.80
	corresp. Moment	k-ft					59	86	-				65	105	-			28			50	1886	1.06		
Bot chord L57-L58 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	288	629	-	1.11	1.22	1.55	320	768	-	Static det.	Other	282	0	1.77	499	3166	1.01	3.68	0.55
	corresp. Moment	k-ft					42	12	-				46	15	-			15			26	1813	1.06		
Bot chord L58-L59 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	289	629	-	1.11	1.22	1.55	321	768	-	Static det.	Other	277	0	1.77	489	3166	1.01	3.20	0.62
	corresp. Moment	k-ft					34	98	-				38	120	-			33			59	1813	1.06		
Bot chord L59-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	608	1319	-	1.11	1.22	1.55	674	1609	-	Static det.	Other	514	0	1.77	910	5032	1.01	2.46	0.68
	corresp. Moment	k-ft					-87	76	-				-96	93	-			67			118	2601	1.06		
Bot chord L60-L61 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	607	1319	-	1.11	1.22	1.55	674	1610	-	Static det.	Other	532	0	1.77	942	5032	1.01	1.98	0.79
	corresp. Moment	k-ft					77	141	-				86	172	-			73			130	2601	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L61-L62 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	600	1315	-	1.11	1.22	1.55	666	1604	-	Static det.	Other	523	0	1.77	927	5032	1.01	1.98	0.78
	corresp. Moment	k-ft					81	141	-				90	171	-			72			128	2601	1.06		
Bot chord L62-L63 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	599	1314	-	1.11	1.22	1.55	665	1604	-	Static det.	Other	527	0	1.77	933	5032	1.01	2.46	0.68
	corresp. Moment	k-ft					-96	95	-				-107	115	-			66			116	2601	1.06		
Bot chord L63-L64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	278	613	-	1.11	1.22	1.55	308	747	-	Static det.	Other	246	0	1.77	435	2539	1.01	2.59	0.70
	corresp. Moment	k-ft					32	81	-				36	99	-			33			58	1721	1.06		
Bot chord L64-L65 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	278	612	-	1.11	1.22	1.55	308	747	-	Static det.	Other	268	0	1.77	474	2539	1.01	2.46	0.68
	corresp. Moment	k-ft					30	-83	-				33	-102	-			-40			-71	1721	1.06		
Diagonal L1-U2 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-246	-632	-	1.11	1.22	1.55	-273	-771	-	Static det.	Other	-283	0.25	1.77	-627	2160	1.01	1.43	0.88
	corresp. Moment	k-ft					-56	-40	-				-62	-49	-			-18			-41	1480	1.06		
Diagonal U2-L3 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	365	-	1.11	1.22	1.55	158	445	-	Static det.	Other	204	0.25	1.77	452	1631	1.01	1.85	0.72
	corresp. Moment	k-ft					-28	36	-				-31	44	-			19			43	744	1.06		
Diagonal L3-U4 - (4 loaded lanes)	**Compression**	**kips**	**S1**	**E1**	**INSP3**	**4.00**	**-47**	**-130**	**-**	**1.11**	**1.22**	**1.55**	**-53**	**-158**	**-**	**Static det.**	**Other**	**-150**	**0.25**	**1.77**	**-332**	**596**	**1.01**	**1.09**	**0.94**
	corresp. Moment	**k-ft**					**-11**	**7**	**-**				**-12**	**8**	**-**			**7**			**15**	**352**	**1.06**		
Diagonal U4-L5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-45	-125	-	1.11	1.22	1.55	-50	-152	-	Static det.	Other	-117	0.25	1.77	-259	604	1.01	1.43	0.79
	corresp. Moment	k-ft					-10	7	-				-12	9	-			6			13	352	1.06		
Diagonal L5-U6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	366	-	1.11	1.22	1.55	159	446	-	Static det.	Other	180	0.25	1.77	399	1631	1.01	2.16	0.67
	corresp. Moment	k-ft					-27	28	-				-30	34	-			16			36	744	1.06		
Diagonal U6-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-245	-628	-	1.11	1.22	1.55	-272	-766	-	Static det.	Other	-257	0.25	1.77	-568	2149	1.01	1.67	0.82
	corresp. Moment	k-ft					-51	-11	-				-56	-14	-			-16			-35	1480	1.06		
Diagonal L7-U8 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	867	-	1.11	1.22	1.55	383	1058	-	Static det.	Other	398	0	1.77	704	3177	1.01	2.16	0.72
	corresp. Moment	k-ft					-49	-45	-				-54	-55	-			11			19	1888	1.06		
Diagonal U8-L9 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-1109	-	1.11	1.22	1.55	-504	-1352	-	Static det.	Other	-478	0	1.77	-845	3540	1.01	1.55	0.86
	corresp. Moment	k-ft					-78	-63	-				-86	-77	-			-37			-66	2304	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L9-U10 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-146	-323	-	1.11	1.22	1.55	-162	-394	-	Static det.	Other	-314	0	1.77	-556	1639	1.01	1.55	0.79
	corresp. Moment	k-ft					-34	-30	-				-38	-36	-			-32			-57	1132	1.06		
Diagonal U10-L11 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	49	92	-	1.11	1.22	1.55	54	112	-	Static det.	Other	232	0	1.77	411	1238	1.01	2.46	0.49
	corresp. Moment	k-ft					-18	11	-				-20	13	-			-6			-11	622	1.06		
Diagonal L11-U12 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	50	93	-	1.11	1.22	1.55	55	114	-	Static det.	Other	242	0	1.77	428	1238	1.01	2.40	0.51
	corresp. Moment	k-ft					-18	10	-				-20	12	-			-6			-10	622	1.06		
Diagonal U12-L13 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-143	-316	-	1.11	1.22	1.55	-159	-386	-	Static det.	Other	-305	0	1.77	-539	1650	1.01	1.64	0.77
	corresp. Moment	k-ft					-34	-29	-				-37	-35	-			-34			-61	1132	1.06		
Diagonal L13-U14 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-463	-1131	-	1.11	1.22	1.55	-514	-1380	-	Static det.	Other	-493	0	1.77	-873	3515	1.01	1.49	0.88
	corresp. Moment	k-ft					-78	-62	-				-87	-75	-			-35			-63	2304	1.06		
Diagonal U14-L15 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	338	850	-	1.11	1.22	1.55	376	1037	-	Static det.	Other	393	0	1.77	696	3177	1.01	2.16	0.70
	corresp. Moment	k-ft					-47	-43	-				-52	-52	-			20			36	1888	1.06		
Diagonal L15-U16 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-250	-641	-	1.11	1.22	1.55	-278	-782	-	Static det.	Other	-275	0.25	1.77	-609	2134	1.01	1.55	0.84
	corresp. Moment	k-ft					-50	-6	-				-55	-8	-			-12			-28	1480	1.06		
Diagonal U16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	140	359	-	1.11	1.22	1.55	156	438	-	Static det.	Other	189	0.25	1.77	418	1631	1.01	2.04	0.68
	corresp. Moment	k-ft					-27	28	-				-30	34	-			19			42	744	1.06		
Diagonal L17-U18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-46	-127	-	1.11	1.22	1.55	-51	-154	-	Static det.	Other	-132	0.25	1.77	-293	596	1.01	1.24	0.86
	corresp. Moment	k-ft					-11	7	-				-12	8	-			6			13	352	1.06		
Diagonal U18-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-47	-128	-	1.11	1.22	1.55	-52	-156	-	Static det.	Other	-134	0.25	1.77	-297	604	1.01	1.24	0.87
	corresp. Moment	k-ft					-10	7	-				-12	8	-			7			15	352	1.06		
Diagonal L19-U20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	145	372	-	1.11	1.22	1.55	161	453	-	Static det.	Other	200	0.25	1.77	442	1631	1.01	1.91	0.71
	corresp. Moment	k-ft					-28	35	-				-31	43	-			17			37	744	1.06		
Diagonal U20-L21 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-241	-620	-	1.11	1.22	1.55	-267	-756	-	Static det.	Other	-333	0	1.77	-589	2174	1.01	1.55	0.85
	corresp. Moment	k-ft					-57	-43	-				-63	-53	-			-27			-48	1480	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L22-U23 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-126	-355	-	1.11	1.22	1.55	-140	-432	-	Static det.	Other	-219	0.25	1.77	-484	1324	1.01	1.24	0.91
	corresp. Moment	k-ft					-31	-24	-				-35	-30	-			-15			-34	842	1.06		
Diagonal U23-L24 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	40	109	-	1.11	1.22	1.55	44	133	-	Static det.	Other	104	0.25	1.77	230	829	1.01	2.40	0.55
	corresp. Moment	k-ft					-10	12	-				-11	15	-			8			17	352	1.06		
Diagonal L24-U25 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	41	112	-	1.11	1.22	1.55	46	136	-	Static det.	Other	84	0.25	1.77	187	829	1.01	3.01	0.49
	corresp. Moment	k-ft					-10	12	-				-12	14	-			6			13	352	1.06		
Diagonal U25-L26 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-123	-346	-	1.11	1.22	1.55	-136	-422	-	Static det.	Other	-185	0.25	1.77	-409	1337	1.01	1.49	0.84
	corresp. Moment	k-ft					-31	-25	-				-35	-30	-			-16			-36	842	1.06		
Diagonal L27-U28 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-504	-1072	-	1.11	1.22	1.55	-559	-1308	-	Static det.	Other	-465	0	1.77	-822	3613	1.01	1.67	0.85
	corresp. Moment	k-ft					-133	-80	-				-148	-97	-			-43			-76	3118	1.06		
Diagonal U28-L29 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	348	727	-	1.11	1.22	1.55	386	887	-	Static det.	Other	339	0	1.77	599	2698	1.01	1.91	0.77
	corresp. Moment	k-ft					-76	103	-				-85	126	-			54			95	1904	1.06		
Diagonal L29-U30 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-220	-472	-	1.11	1.22	1.55	-244	-576	-	Static det.	Other	-222	0.25	1.77	-490	1646	1.01	1.55	0.83
	corresp. Moment	k-ft					-54	47	-				-60	58	-			23			50	1349	1.06		
Diagonal U30-L31 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	72	132	-	1.11	1.22	1.55	80	161	-	Static det.	Other	149	0.25	1.77	330	1217	1.01	2.46	0.51
	corresp. Moment	k-ft					-22	14	-				-25	17	-			12			26	485	1.06		
Diagonal L31-U32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	126	-	1.11	1.22	1.55	77	154	-	Static det.	Other	143	0.25	1.77	316	1217	1.01	2.65	0.47
	corresp. Moment	k-ft					-23	12	-				-25	15	-			10			22	485	1.06		
Diagonal U32-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-455	-	1.11	1.22	1.55	-234	-555	-	Static det.	Other	-198	0.25	1.77	-438	1664	1.01	1.73	0.78
	corresp. Moment	k-ft					-53	54	-				-59	66	-			-28			-63	1349	1.06		
Diagonal L33-U34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	354	730	-	1.11	1.22	1.55	393	890	-	Static det.	Other	320	0	1.77	566	2698	1.01	2.16	0.71
	corresp. Moment	k-ft					-68	44	-				-76	54	-			38			67	1904	1.06		
Diagonal U34-L35 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-503	-1079	-	1.11	1.22	1.55	-558	-1316	-	Static det.	Other	-450	0	1.77	-797	3590	1.01	1.91	0.80
	corresp. Moment	k-ft					-128	1	-				-143	1	-			-20			-36	3118	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L35-U36 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	599	1209	-	1.11	1.22	1.55	665	1476	-	Static det.	Other	452	0	1.77	799	4433	1.01	2.34	0.72
	corresp. Moment	k-ft					-89	-96	-				-99	-117	-			20			35	2955	1.06		
Diagonal U36-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-737	-1468	-	1.11	1.22	1.55	-818	-1791	-	Static det.	Other	-529	0	1.77	-936	5044	1.01	1.85	0.83
	corresp. Moment	k-ft					-222	-215	-				-247	-262	-			-45			-80	4486	1.06		
Diagonal L37-U38 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	462	835	-	1.11	1.22	1.55	512	1019	-	Static det.	Other	309	0	1.77	546	3177	1.01	2.10	0.76
	corresp. Moment	k-ft					-204	258	-				-226	314	-			99			175	2592	1.06		
Diagonal L38-U39 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	512	870	-	1.11	1.22	1.55	569	1062	-	Static det.	Other	337	0	1.77	597	3309	1.01	1.61	0.89
	corresp. Moment	k-ft					-182	-191	-				-202	-233	-			-73			-129	2656	1.06		
Diagonal U39-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	38	-520	-	0.95	1.22	1.55	42	-634	-	Static det.	Other	-486	0	1.77	-860	3243	1.01	2.28	0.61
	corresp. Moment	k-ft					-107	-161	-				-119	-196	-			-99			-176	2923	1.06		
Diagonal U40-L41 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	262	-130	-	1.11	0.90	1.55	290	-159	-	Static det.	Other	633	0	1.77	1121	3309	1.01	1.91	0.44
	corresp. Moment	k-ft					-155	-52	-				-172	-64	-			192			339	2656	1.06		
Diagonal U41-L42 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	355	-	1.11	1.22	1.55	552	434	-	Static det.	Other	674	0	1.77	1192	4058	1.01	1.79	0.60
	corresp. Moment	k-ft					-161	-158	-				-179	-192	-			105			187	2787	1.06		
Diagonal L42-U43 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-615	-971	-	1.11	1.22	1.55	-683	-1185	-	Static det.	Other	-518	0	1.77	-917	4596	1.01	2.28	0.66
	corresp. Moment	k-ft					-145	-125	-				-161	-152	-			65			116	3749	1.06		
Diagonal U43-L44 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	416	640	-	1.11	1.22	1.55	462	780	-	Static det.	Other	418	0	1.77	739	3246	1.01	2.40	0.69
	corresp. Moment	k-ft					-67	-76	-				-75	-93	-			-1			-1	2118	1.06		
Diagonal L44-U45 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-253	-426	-	1.11	1.22	1.55	-281	-519	-	Static det.	Other	-371	0	1.77	-657	2371	1.01	1.98	0.64
	corresp. Moment	k-ft					-49	-40	-				-54	-48	-			31			55	1666	1.06		
Diagonal U45-L46 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	86	107	-	1.11	1.22	1.55	96	131	-	Static det.	Other	272	0	1.77	481	1906	1.01	3.07	0.38
	corresp. Moment	k-ft					-21	-12	-				-23	-15	-			19			33	1186	1.06		
Diagonal L46-U47 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	109	-	1.11	1.22	1.55	78	133	-	Static det.	Other	256	0	1.77	453	1906	1.01	3.20	0.36
	corresp. Moment	k-ft					-20	-12	-				-22	-15	-			26			46	1186	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U47-L48 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-236	-428	-	1.11	1.22	1.55	-262	-522	-	Static det.	Other	-353	0	1.77	-625	2371	1.01	2.04	0.61
	corresp. Moment	k-ft					-47	-40	-				-52	-49	-			40			71	1666	1.06		
Diagonal L48-U49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	400	642	-	1.11	1.22	1.55	444	783	-	Static det.	Other	402	0	1.77	712	3246	1.01	2.46	0.67
	corresp. Moment	k-ft					-65	-77	-				-72	-93	-			6			10	2118	1.06		
Diagonal U49-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-599	-974	-	1.11	1.22	1.55	-665	-1188	-	Static det.	Other	-500	0	1.77	-885	4596	1.01	2.16	0.63
	corresp. Moment	k-ft					-143	-125	-				-158	-153	-			111			196	3749	1.06		
Diagonal L50-U51 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	356	-	1.11	1.22	1.55	552	434	-	Static det.	Other	673	0	1.77	1191	4058	1.01	1.79	0.61
	corresp. Moment	k-ft					-160	-158	-				-177	-192	-			99			176	2787	1.06		
Diagonal L51-U52 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	271	-131	-	1.11	0.90	1.55	301	-160	-	Static det.	Other	628	0	1.77	1111	3309	1.01	1.91	0.43
	corresp. Moment	k-ft					-156	-52	-				-173	-64	-			190			335	2656	1.06		
Diagonal L52-U53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	52	-521	-	0.95	1.22	1.55	58	-636	-	Static det.	Other	-509	0	1.77	-901	3243	1.01	2.16	0.63
	corresp. Moment	k-ft					-109	-161	-				-121	-197	-			-113			-200	2923	1.06		
Diagonal U53-L54 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	502	870	-	1.11	1.22	1.55	557	1061	-	Static det.	Other	356	0	1.77	629	3309	1.01	1.67	0.87
	corresp. Moment	k-ft					-181	-191	-				-200	-233	-			-46			-82	2656	1.06		
Diagonal U54-L55 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	446	833	-	1.11	1.22	1.55	495	1016	-	Static det.	Other	325	0	1.77	576	3177	1.01	1.98	0.77
	corresp. Moment	k-ft					-194	255	-				-215	312	-			114			203	2592	1.06		
Diagonal L55-U56 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-718	-1471	-	1.11	1.22	1.55	-797	-1794	-	Static det.	Other	-532	0	1.77	-942	5044	1.01	1.67	0.86
	corresp. Moment	k-ft					-222	-236	-				-246	-288	-			-115			-204	4486	1.06		
Diagonal U56-L57 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	588	1208	-	1.11	1.22	1.55	653	1474	-	Static det.	Other	457	0	1.77	810	4433	1.01	2.34	0.71
	corresp. Moment	k-ft					-106	-71	-				-118	-87	-			30			54	2955	1.06		
Diagonal L57-U58 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-498	-1080	-	1.11	1.22	1.55	-553	-1318	-	Static det.	Other	-444	0	1.77	-785	3590	1.01	1.98	0.79
	corresp. Moment	k-ft					-128	6	-				-142	7	-			-10			-18	3118	1.06		
Diagonal U58-L59 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	352	731	-	1.11	1.22	1.55	390	892	-	Static det.	Other	318	0	1.77	562	2698	1.01	2.10	0.71
	corresp. Moment	k-ft					-69	44	-				-76	53	-			42			74	1904	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L59-U60 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-458	-	1.11	1.22	1.55	-233	-558	-	Static det.	Other	-198	0.25	1.77	-439	1664	1.01	1.73	0.77
	corresp. Moment	k-ft					-55	55	-				-61	67	-			-24			-54	1349	1.06		
Diagonal U60-L61 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	66	122	-	1.11	1.22	1.55	73	149	-	Static det.	Other	141	0.25	1.77	312	923	1.01	1.98	0.62
	corresp. Moment	k-ft					-17	12	-				-19	15	-			10			21	462	1.06		
Diagonal L61-U62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	126	-	1.11	1.22	1.55	74	154	-	Static det.	Other	148	0.25	1.77	327	923	1.01	1.85	0.65
	corresp. Moment	k-ft					-17	14	-				-18	17	-			11			25	462	1.06		
Diagonal U62-L63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-218	-473	-	1.11	1.22	1.55	-242	-577	-	Static det.	Other	-217	0.25	1.77	-481	1646	1.01	1.49	0.84
	corresp. Moment	k-ft					-56	49	-				-62	60	-			-33			-73	1349	1.06		
Diagonal L63-U64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	726	-	1.11	1.22	1.55	383	886	-	Static det.	Other	342	0	1.77	606	2698	1.01	1.91	0.76
	corresp. Moment	k-ft					-75	103	-				-84	126	-			50			88	1904	1.06		
Diagonal U64-L65 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-501	-1071	-	1.11	1.22	1.55	-556	-1307	-	Static det.	Other	-467	0	1.77	-827	3613	1.01	1.67	0.85
	corresp. Moment	k-ft					-133	-80	-				-148	-98	-			-46			-81	3118	1.06		
Vertical U1-L1 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-99	-	1.11	1.22	1.55	-42	-121	-	Static det.	Other	-108	0.25	1.77	-238	598	1.01	1.79	0.67
	corresp. Moment	k-ft					-9	11	-				-10	13	-			-2			-4	302	1.06		
Vertical U2-L2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-3	-	1.11	0.90	1.55	13	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.10
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			0			0	68	1.06		
Vertical U3-L3 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-188	-	1.11	1.22	1.55	-60	-229	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.15	0.95
	corresp. Moment	k-ft					6	16	-				7	19	-			8			17	316	1.06		
Vertical U4-L4 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	9.54	0.09
	corresp. Moment	k-ft					0	0	-				0	0	-			1			3	68	1.06		
Vertical U5-L5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-185	-	1.11	1.22	1.55	-59	-226	-	Static det.	Other	-135	0.25	1.77	-299	738	1.01	1.30	0.89
	corresp. Moment	k-ft					-7	-18	-				-8	-21	-			0			-1	316	1.06		
Vertical U6-L6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	1.22	1.55	14	0	-	Static det.	Other	3	0.25	1.77	6	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-3	68	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U7-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-179	-	1.11	1.22	1.55	-53	-219	-	Static det.	Other	-136	0.25	1.77	-301	738	1.01	1.43	0.83
	corresp. Moment	k-ft					-3	14	-				-4	17	-			1			3	316	1.06		
Vertical U8-L8 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-3	-	1.11	0.90	1.55	15	-4	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					2	5	-				2	6	-			0			0	69	1.06		
Vertical U9-L9 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-187	-	1.11	1.22	1.55	-72	-229	-	Static det.	Other	-133	0.25	1.77	-294	738	1.01	1.43	0.81
	corresp. Moment	k-ft					-2	-3	-				-2	-4	-			2			4	316	1.06		
Vertical U10-L10 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-4	0.25	1.77	-10	214	1.01	>10	0.06
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			1			3	69	1.06		
Vertical U11-L11 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-151	-	1.11	1.22	1.55	-53	-185	-	Static det.	Other	-116	0.25	1.77	-257	738	1.01	1.91	0.68
	corresp. Moment	k-ft					0	0	-				0	1	-			-1			-3	316	1.06		
Vertical U12-L12 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-5	0.25	1.77	-11	214	1.01	>10	0.13
	corresp. Moment	k-ft					1	3	-				1	3	-			1			1	69	1.06		
Vertical U13-L13 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-188	-	1.11	1.22	1.55	-72	-229	-	Static det.	Other	-140	0.25	1.77	-311	738	1.01	1.37	0.86
	corresp. Moment	k-ft					2	5	-				2	6	-			0			1	316	1.06		
Vertical U14-L14 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-4	-	1.11	0.90	1.55	15	-5	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					-2	-5	-				-2	-6	-			0			0	69	1.06		
Vertical U15-L15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-180	-	1.11	1.22	1.55	-53	-220	-	Static det.	Other	-130	0.25	1.77	-288	738	1.01	1.49	0.81
	corresp. Moment	k-ft					3	-12	-				3	-15	-			-2			-5	316	1.06		
Vertical U16-L16 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	0.90	1.55	14	0	-	Static det.	Other	3	0.25	1.77	7	500	1.01	>10	0.04
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			4	68	1.06		
Vertical U17-L17 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-186	-	1.11	1.22	1.55	-59	-227	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.18	0.93
	corresp. Moment	k-ft					7	17	-				7	20	-			6			13	316	1.06		
Vertical U18-L18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	>10	0.07
	corresp. Moment	k-ft					0	0	-				0	0	-			1			2	68	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
Vertical U19-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-187	-	1.11	1.22	1.55	-60	-228	-	Static det.	Other	-135	0.25	1.77	-298	738	1.01	1.30	0.88
	corresp. Moment	k-ft					-7	-17	-				-7	-21	-			0			-1	316	1.06		
Vertical U20-L20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-2	-	1.11	0.90	1.55	14	-2	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			2	68	1.06		
Vertical U21-L21 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-102	-	1.11	1.22	1.55	-41	-124	-	Static det.	Other	-132	0.25	1.77	-293	598	1.01	1.24	0.88
	corresp. Moment	k-ft					9	9	-				10	11	-			6			13	302	1.06		
Vertical U22-L22 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-97	-	1.11	1.22	1.55	-41	-118	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.37	0.83
	corresp. Moment	k-ft					-8	-9	-				-9	-11	-			-3			-6	302	1.06		
Vertical U23-L23 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	11	-3	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			5	68	1.06		
Vertical U24-L24 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-50	-180	-	1.11	1.22	1.55	-56	-220	-	Static det.	Other	-133	0.25	1.77	-295	738	1.01	1.55	0.78
	corresp. Moment	k-ft					0	-1	-				0	-1	-			2			5	316	1.06		
Vertical U25-L25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	12	-2	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-4	68	1.06		
Vertical U26-L26 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-36	-97	-	1.11	1.22	1.55	-40	-118	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.37	0.84
	corresp. Moment	k-ft					8	8	-				8	10	-			5			11	302	1.06		
Vertical U27-L27 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-119	-	1.11	1.22	1.55	-48	-145	-	Static det.	Other	-115	0.25	1.77	-254	549	1.01	1.21	0.91
	corresp. Moment	k-ft					-11	-10	-				-12	-12	-			-2			-5	298	1.06		
Vertical U28-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					-1	-4	-				-1	-4	-			-1			-1	69	1.06		
Vertical U29-L29 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-212	-	1.11	1.22	1.55	-73	-259	-	Static det.	Other	-150	0.25	1.77	-331	897	1.01	1.37	0.86
	corresp. Moment	k-ft					16	31	-				17	37	-			9			19	603	1.06		
Vertical U30-L30 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-5	-	1.11	0.90	1.55	23	-6	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.05
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			2			4	69	1.06		

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Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U31-L31 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-69	-204	-	1.11	1.22	1.55	-76	-249	-	Static det.	Other	-141	0.25	1.77	-313	897	1.01	1.73	0.73
	corresp. Moment	k-ft					-1	-1	-				-1	-2	-			6			13	603	1.06		
Vertical U32-L32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-2	-	1.11	0.90	1.55	23	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	2	-				1	3	-			-2			-3	69	1.06		
Vertical U33-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-202	-	1.11	1.22	1.55	-70	-246	-	Static det.	Other	-149	0.25	1.77	-329	897	1.01	1.49	0.83
	corresp. Moment	k-ft					-16	-36	-				-18	-43	-			-3			-7	603	1.06		
Vertical U34-L34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	8	-	1.11	1.22	1.55	26	9	-	Static det.	Other	9	0	1.77	16	500	1.01	>10	0.20
	corresp. Moment	k-ft					1	3	-				1	4	-			1			1	69	1.06		
Vertical U35-L35 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-67	-163	-	1.11	1.22	1.55	-75	-199	-	Static det.	Other	-134	0.25	1.77	-296	1026	1.01	2.40	0.59
	corresp. Moment	k-ft					-13	18	-				-14	22	-			6			13	714	1.06		
Vertical U36-L36 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	26	2	-	1.11	1.22	1.55	29	2	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.16
	corresp. Moment	k-ft					2	3	-				2	4	-			0			1	70	1.06		
Vertical U37-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-77	-209	-	1.11	1.22	1.55	-85	-255	-	Static det.	Other	-142	0.25	1.77	-313	901	1.01	1.43	0.87
	corresp. Moment	k-ft					20	35	-				22	43	-			6			13	559	1.06		
Vertical U38-L38 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-466	-897	-	1.11	1.22	1.55	-517	-1094	-	Static det.	Other	-354	0	1.77	-627	3405	1.01	1.43	0.91
	corresp. Moment	k-ft					-210	-379	-				-233	-462	-			-165			-292	3890	1.06		
Vertical U39-L39 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-612	-551	-	1.11	1.22	1.55	-679	-672	-	Static det.	Other	-510	0	1.77	-903	3856	1.01	2.52	0.63
	corresp. Moment	k-ft					-66	-190	-				-74	-232	-			31			55	6112	1.06		
Vertical U40-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-310	-138	-	1.11	1.22	1.55	-344	-168	-	Static det.	Other	-557	0	1.77	-986	3182	1.01	2.16	0.48
	corresp. Moment	k-ft					93	77	-				103	94	-			-122			-217	3570	1.06		
Vertical U41-L41 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-504	-	1.11	1.22	1.55	-516	-615	-	Static det.	Other	-543	0	1.77	-962	3776	1.01	1.61	0.63
	corresp. Moment	k-ft					174	95	-				193	116	-			-335			-593	3889	1.06		
Vertical U42-L42 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-277	-	1.11	1.22	1.55	-110	-338	-	Static det.	Other	-116	0.25	1.77	-257	1164	1.01	1.98	0.75
	corresp. Moment	k-ft					-29	-29	-				-32	-36	-			-15			-33	714	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U43-L43 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.15
	corresp. Moment	k-ft					-2	-3	-				-2	-4	-			1			1	70	1.06		
Vertical U44-L44 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-159	-	1.11	1.22	1.55	-64	-194	-	Static det.	Other	-124	0.25	1.77	-273	1164	1.01	2.46	0.61
	corresp. Moment	k-ft					26	43	-				29	53	-			13			29	714	1.06		
Vertical U45-L45 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	5	0.25	1.77	11	500	1.01	>10	0.07
	corresp. Moment	k-ft					-1	-2	-				-1	-2	-			2			4	70	1.06		
Vertical U46-L46 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-55	-162	-	1.11	1.22	1.55	-61	-198	-	Static det.	Other	-126	0.25	1.77	-278	1164	1.01	2.95	0.49
	corresp. Moment	k-ft					1	0	-				1	0	-			9			20	714	1.06		
Vertical U47-L47 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	4	0.25	1.77	9	500	1.01	>10	0.05
	corresp. Moment	k-ft					1	2	-				1	2	-			-2			-4	70	1.06		
Vertical U48-L48 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-159	-	1.11	1.22	1.55	-64	-194	-	Static det.	Other	-124	0.25	1.77	-275	1164	1.01	2.83	0.57
	corresp. Moment	k-ft					-25	-44	-				-28	-53	-			-1			-2	714	1.06		
Vertical U49-L49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	25	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.14
	corresp. Moment	k-ft					2	3	-				2	4	-			-1			-1	70	1.06		
Vertical U50-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-277	-	1.11	1.22	1.55	-110	-338	-	Static det.	Other	-125	0.25	1.77	-276	1164	1.01	2.04	0.74
	corresp. Moment	k-ft					29	30	-				32	36	-			8			19	714	1.06		
Vertical U51-L51 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-504	-	1.11	1.22	1.55	-516	-615	-	Static det.	Other	-541	0	1.77	-958	3776	1.01	1.61	0.63
	corresp. Moment	k-ft					-176	-95	-				-196	-116	-			336			595	3889	1.06		
Vertical U52-L52 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-317	-137	-	1.11	1.22	1.55	-351	-167	-	Static det.	Other	-552	0	1.77	-976	3182	1.01	1.91	0.52
	corresp. Moment	k-ft					-97	-78	-				-107	-95	-			224			396	3570	1.06		
Vertical U53-L53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-615	-549	-	1.11	1.22	1.55	-682	-669	-	Static det.	Other	-510	0	1.77	-903	3856	1.01	2.46	0.62
	corresp. Moment	k-ft					62	190	-				69	231	-			-42			-74	6112	1.06		
Vertical U54-L54 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-895	-	1.11	1.22	1.55	-504	-1092	-	Static det.	Other	-372	0	1.77	-658	3405	1.01	1.43	0.91
	corresp. Moment	k-ft					207	379	-				230	463	-			154			273	3890	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U55-L55 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-76	-207	-	1.11	1.22	1.55	-85	-253	-	Static det.	Other	-137	0.25	1.77	-302	901	1.01	1.43	0.86
	corresp. Moment	k-ft					-18	-34	-				-20	-42	-			-10			-22	559	1.06		
Vertical U56-L56 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	20	1	-	1.11	1.22	1.55	22	1	-	Static det.	Other	1	0	1.77	2	500	1.01	>10	0.14
	corresp. Moment	k-ft					-1	-3	-				-2	-4	-			-1			-1	70	1.06		
Vertical U57-L57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-56	-161	-	1.11	1.22	1.55	-62	-196	-	Static det.	Other	-133	0.25	1.77	-293	1026	1.01	2.52	0.56
	corresp. Moment	k-ft					13	-15	-				14	-18	-			-4			-9	714	1.06		
Vertical U58-L58 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	7	-	1.11	1.22	1.55	25	9	-	Static det.	Other	8	0.25	1.77	17	500	1.01	>10	0.17
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			0			0	69	1.06		
Vertical U59-L59 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-201	-	1.11	1.22	1.55	-70	-245	-	Static det.	Other	-147	0.25	1.77	-325	897	1.01	1.43	0.85
	corresp. Moment	k-ft					16	35	-				18	43	-			9			21	603	1.06		
Vertical U60-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	0	-	1.11	0.90	1.55	24	0	-	Static det.	Other	4	0.25	1.77	8	500	1.01	>10	0.08
	corresp. Moment	k-ft					-1	-2	-				-1	-3	-			2			4	69	1.06		
Vertical U61-L61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-200	-	1.11	1.22	1.55	-74	-243	-	Static det.	Other	-139	0.25	1.77	-308	897	1.01	1.73	0.73
	corresp. Moment	k-ft					1	2	-				1	2	-			9			19	603	1.06		
Vertical U62-L62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	-3	-	1.11	0.90	1.55	24	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	3	-			-2			-4	69	1.06		
Vertical U63-L63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-211	-	1.11	1.22	1.55	-73	-257	-	Static det.	Other	-148	0.25	1.77	-327	897	1.01	1.49	0.83
	corresp. Moment	k-ft					-15	-30	-				-17	-37	-			-2			-5	603	1.06		
Vertical U64-L64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			1	69	1.06		
Vertical U65-L65 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-116	-	1.11	1.22	1.55	-48	-142	-	Static det.	Other	-118	0.25	1.77	-261	549	1.01	1.15	0.94
	corresp. Moment	k-ft					11	10	-				12	12	-			5			11	298	1.06		
Floorbeam 2 (for 23.5 to 26.25' panels) - (2 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	141	217	0	1.07	1.14	1.35	151	247	0	Sophist.	Other	1303	0.25	1.49	2427	5757	1.06	2.35	-

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
Floorbeam 2 (for 23.5 to 26.25' panels) - (2 loaded lanes)	Max - ve Moment at 22.30 from start	k-ft	S2	E3	INSP3	3.00	-204	-1409	0	1.07	1.14	1.35	-194	-1268	0	Sophist.	Other	-645	0.25	1.49	-1201	5757	1.06	3.87	-
Floorbeam 2 (for 23.5 to 26.25' panels) - (8 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-24	-105	0	1.07	1.14	1.35	-25	-120	0	Sophist.	Other	-98	0.25	1.49	-183	513	1.03	2.09	-
Floorbeam 1 (31.25' panels) - (2 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	165	259	0	1.07	1.14	1.35	177	295	0	Sophist.	Other	1421	0.25	1.49	2647	6363	1.06	2.37	-
Floorbeam 1 (31.25' panels) - (2 loaded lanes)	Max - ve Moment at 22.20 from start	k-ft	S2	E3	INSP3	3.00	-249	-1678	0	1.07	1.14	1.35	-237	-1510	0	Sophist.	Other	-701	0.25	1.49	-1306	6363	1.06	3.83	-
Floorbeam 1 (31.25' panels) - (8 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-27	-125	0	1.07	1.14	1.35	-29	-143	0	Sophist.	Other	-107	0.25	1.49	-200	513	1.03	1.79	-
26.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	201	0.30	1.42	370	664	1.00	1.55	-
26.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	35	0.30	1.42	64	227	1.02	3.41	-
23.50 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	196	0.30	1.42	362	664	1.00	1.58	-
23.50 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	35	0.30	1.42	64	227	1.02	3.41	-
25.00 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 12.50 from start	k-ft	S3	E3	INSP3	2.75	9	65	0	1.06	1.12	1.30	10	73	0	Sophist.	Other	185	0.30	1.42	342	664	1.00	1.70	-
25.00 ft span Stringer 3 - W Beam- (2 loaded lanes)	Max Shear at 25.00 from start	kip	S3	E3	INSP3	2.75	1	10	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	33	0.30	1.42	61	227	1.02	3.57	-
31.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 15.63 from start	k-ft	S3	E3	INSP3	2.75	14	102	0	1.06	1.12	1.30	15	114	0	Sophist.	Other	253	0.30	1.42	468	664	1.00	1.14	-

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

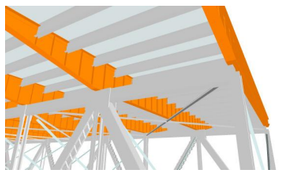
Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
31.25 ft span Stringer 3 - W Beam- (2 loaded lanes)	Max Shear at 31.25 from start	kip	S3	E3	INSP3	2.75	2	13	0	1.06	1.12	1.30	2	15	0	Sophist.	Other	36	0.30	1.42	66	227	1.02	3.26	-
																								1.09	

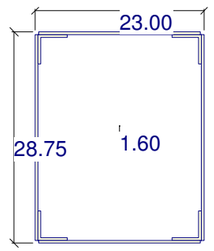
Notes:
1. Load rating according to CSA-S6-06 (as per Section 14)
2. Highway Class A (as per Clause 1.5.2.2)
3. Live loading models evaluated:
- CL-625 Normal Traffic
4. When DLA = 0, it implies that lane loading governs
5. Concrete surfacing with nominal thckness of 55 mm used for evaluation (based on field sampling by City)
6. Target reliability index (eg Beta factors) increased by 0.25 to reflect Important Structures
7. Load rating demands derived from full 3D analysis model of bridge (S-Frame ver 9)
8. Material properties used to calculate resistances are as follows:
- Median structural steel (Me), Fy=33 ksi, Fu=60 ksi
- Structural silicon steel (S1), Fy=46 ksi (plates less then 32 mm), Fy=43.9 ksi (for plates between 32 and 44 mm)
- Deck stringers and floorbeams: 33 ksi
9. For truss diagonals and verticals, effective lengths kL taken as 0.9 L where L is between truss work points. Kl taken as 1.0 for truss chords
10. Truss section properties based on design drawings updated to reflect shop/As-built drawings
11. For stringers, loads are applied statically for the tributary widths (essentially assuming that deck is simply supported between stringers)

Evaluator		
Checker		

Tabulation was checked for completness by:

Appendix B - Key Calculations for the Existing Bridge





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	5	3	12	13
Lane 2	CL-625	4	2	9	10
Lane 3	CL-625	3	2	6	6
Lane 4	CL-625	1	1	3	3
Total		**13**	**8**	**29**	**32**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (44.0)\ 33.0 = 1{,}379$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (44.0)\ 60.0 = 2{,}131$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 344\ (33) = 899$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 46 kips

tension D / C = 0.033

Fact'rd tension LL = 32 kips

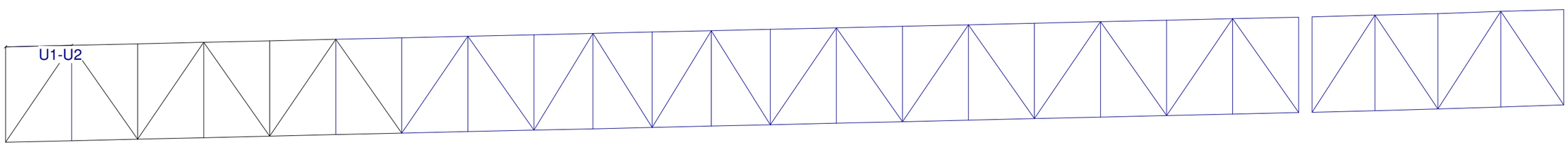
Fact'rd moment, Mf = 15 k-ft

Moment D / C = 0.017

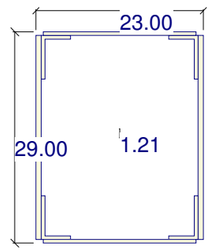
Combined interaction eqn = 0.05

Load rating LLCF = 27.34

Top chord U1-U2



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U1-U2	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	10	-	Static det.	Other	18	0	1.77	32	1379	1.01	>10	0.05
	corresp. Moment	k-ft					9	-11	-				10	-13	-			-7			-13	899	1.06		



Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-76	-34	-168	-167
Lane 2	CL-625	-65	-28	-144	-142
Lane 3	CL-625	-54	-23	-119	-118
Lane 4	CL-625	-42	-18	-94	-93
Total		**-237**	**-104**	**-525**	**-520**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1444 kips

comp D / C = 0.668

Fact'rd comp LL = -525 kips

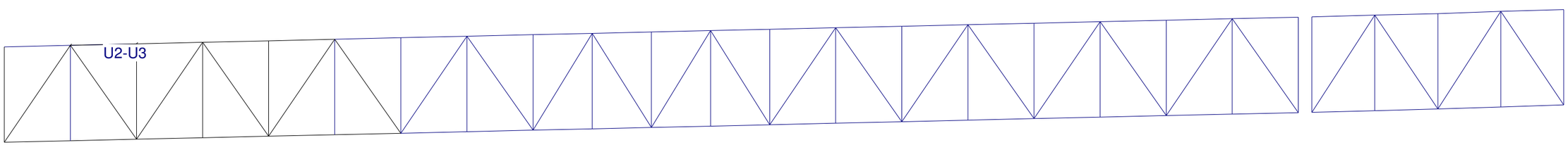
Fact'rd moment, Mf = 312 k-ft

Moment D / C = 0.223

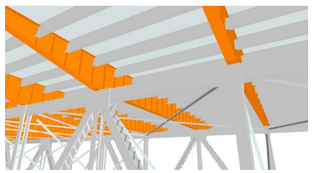
Combined interaction eqn = 0.89

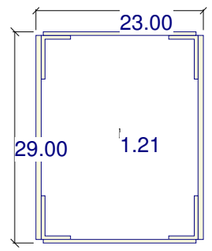
Load rating LLCF = 1.34

Top chord U2-U3



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U2-U3	Compression	kips	S1	E1	INSP3	4.00	-213	-559	-	1.11	1.22	1.55	-237	-682	-	Static det.	Other	-237	0.25	1.77	-525	2161	1.01	1.34	0.89
	corresp. Moment	k-ft					-50	132	-				-56	162	-			93			206	1399	1.06		





Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-70	-29	-154	-150
Lane 2	CL-625	-60	-25	-133	-130
Lane 3	CL-625	-51	-21	-112	-109
Lane 4	CL-625	-41	-17	-91	-89
Total		**-222**	**-93**	**-490**	**-479**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1 + \lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1397 kips

comp D / C = 0.647

Fact'rd comp LL = -490 kips

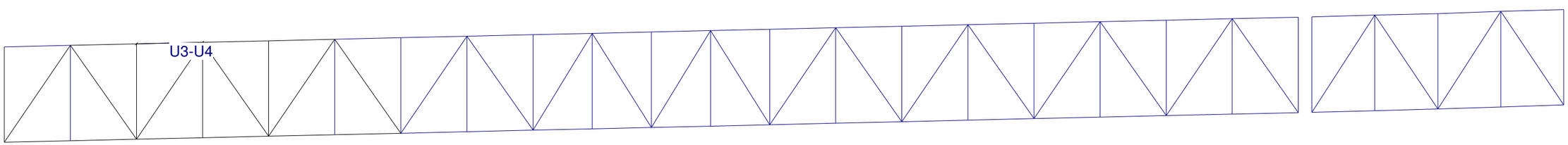
Fact'rd moment, Mf = 366 k-ft

Moment D / C = 0.262

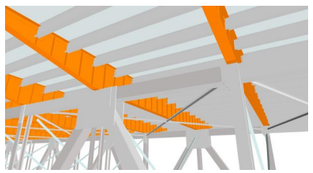
Combined interaction eqn = 0.91

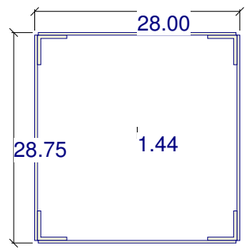
Load rating LLCF = 1.30

Top chord U3-U4



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U3-U4	Compression	kips	S1	E1	INSP3	4.00	-210	-552	-	1.11	1.22	1.55	-234	-673	-	Static det.	Other	-222	0.25	1.77	-490	2161	1.01	1.30	0.91
	corresp. Moment	k-ft					32	116	-				36	142	-			85			189	1399	1.06		





Area	41.0	in2
Ix	6,118	in4
Iy	6,111	in4
Sx, top	473	in3
Sx, bottom	387	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-6	-3	-13	-13
Lane 2	CL-625	-4	-2	-10	-10
Lane 3	CL-625	-3	-1	-7	-7
Lane 4	CL-625	-2	-1	-3	-3
Total		**-15**	**-7**	**-32**	**-33**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 25.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.28$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 25.8$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(41)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}189 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,387\,(33) = 1{,}011 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -45 kips

comp D / C = 0.038

Fact'rd comp LL = -33 kips

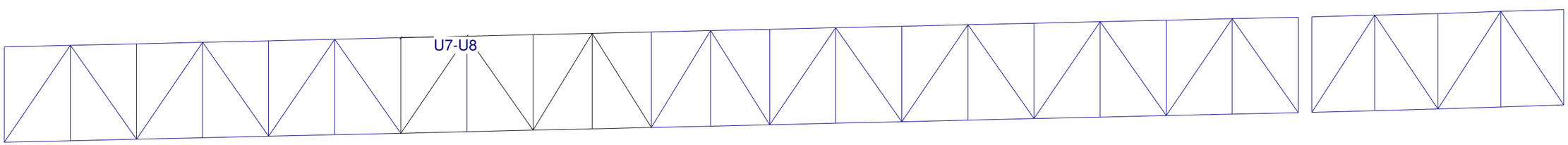
Fact'rd moment, Mf = 119 k-ft

Moment D / C = 0.118

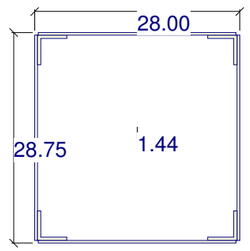
Combined interaction eqn = 0.16

Load rating LLCF = 4.17

Top chord U7-U8



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U7-U8	Compression	kips	S1	E1	INSP3	4.00	-3	-7	-	1.11	1.22	1.55	-4	-9	-	Static det.	Other	-18	0	1.77	-33	1189	1.01	4.17	0.16
	corresp. Moment	k-ft					-67	-168	-				-74	-205	-			90			160	1011	1.06		



Area	41.0	in2
Ix	6,118	in4
Iy	6,111	in4
Sx, top	473	in3
Sx, bottom	387	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-6	-3	-13	-14
Lane 2	CL-625	-5	-2	-10	-10
Lane 3	CL-625	-3	-1	-7	-7
Lane 4	CL-625	-2	-1	-4	-4
Total		**-15**	**-7**	**-34**	**-35**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 25.8\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.28$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 25.8$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(41)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}189 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,387\,(33) = 1{,}011 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -49 kips

comp D / C = 0.041

Fact'rd comp LL = -35 kips

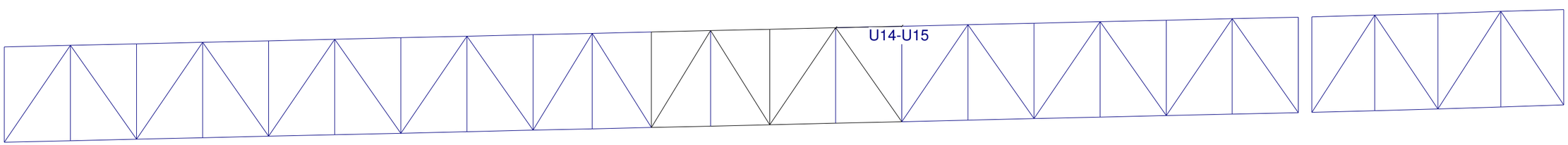
Fact'rd moment, Mf = 263 k-ft

Moment D / C = 0.260

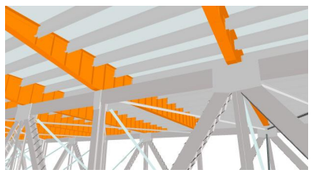
Combined interaction eqn = 0.30

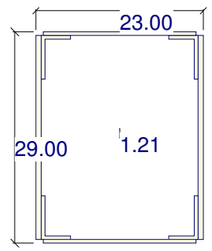
Load rating LLCF = 5.51

Top chord U14-U15



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U14-U15	Compression	kips	S1	E1	INSP3	4.00	-3	-8	-	1.11	1.22	1.55	-4	-10	-	Static det.	Other	-20	0	1.77	-35	1189	1.01	5.51	0.30
	corresp. Moment	k-ft					-63	160	-				-70	195	-			78			138	1011	1.06		





Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-74	-31	-164	-160
Lane 2	CL-625	-63	-27	-140	-137
Lane 3	CL-625	-53	-22	-117	-115
Lane 4	CL-625	-42	-18	-94	-92
Total		**-232**	**-98**	**-514**	**-503**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1443 kips

comp D / C = 0.667

Fact'rd comp LL = -514 kips

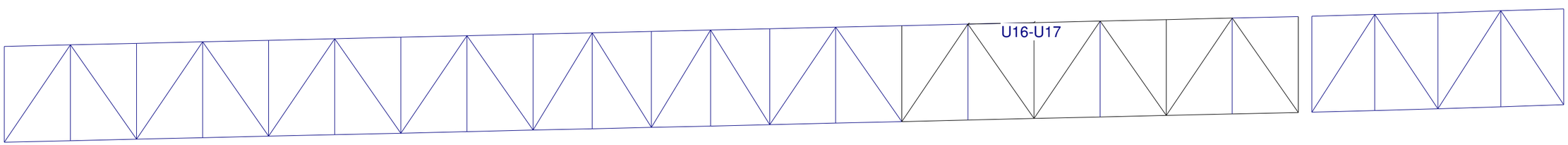
Fact'rd moment, Mf = 297 k-ft

Moment D / C = 0.212

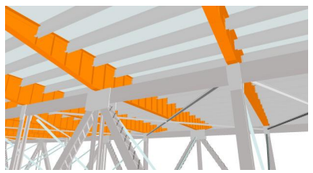
Combined interaction eqn = 0.88

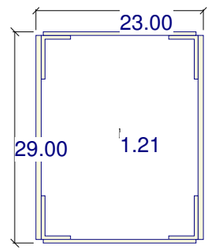
Load rating LLCF = 1.37

Top chord U16-U17



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U16-U17	Compression	kips	S1	E1	INSP3	4.00	-215	-565	-	1.11	1.22	1.55	-239	-689	-	Static det.	Other	-232	0.25	1.77	-514	2161	1.01	1.37	0.88
	corresp. Moment	k-ft					-59	140	-				-66	171	-			87			192	1399	1.06		





Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-75	-32	-165	-162
Lane 2	CL-625	-64	-27	-141	-139
Lane 3	CL-625	-53	-23	-117	-115
Lane 4	CL-625	-42	-18	-93	-91
Total		**-233**	**-100**	**-516**	**-507**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1426 kips

comp D / C = 0.660

Fact'rd comp LL = -516 kips

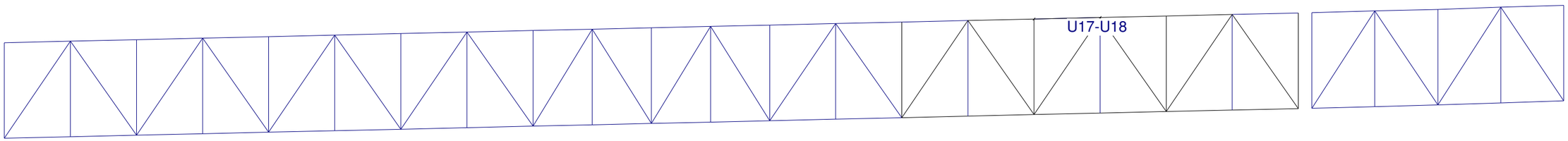
Fact'rd moment, Mf = 385 k-ft

Moment D / C = 0.275

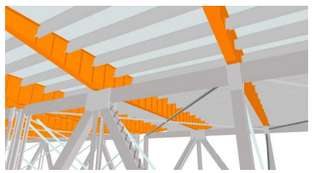
Combined interaction eqn = 0.94

Load rating LLCF = 1.24

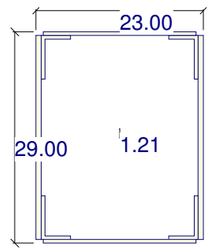
Top chord U17-U18



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U17-U18	Compression	kips	S1	E1	INSP3	4.00	-211	-554	-	1.11	1.22	1.55	-234	-676	-	Static det.	Other	-233	0.25	1.77	-516	2161	1.01	1.24	0.94
	corresp. Moment	k-ft					33	123	-				37	150	-			89			198	1399	1.06		



Top chord U19-U20



Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-74	-33	-163	-164
Lane 2	CL-625	-63	-28	-139	-139
Lane 3	CL-625	-52	-23	-115	-115
Lane 4	CL-625	-41	-18	-91	-91
Total		**-230**	**-104**	**-509**	**-509**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1427 kips

comp D / C = 0.660

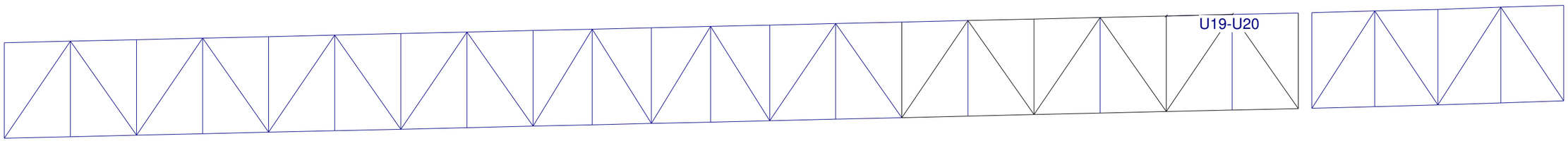
Fact'rd comp LL = -509 kips

Fact'rd moment, Mf = 250 k-ft

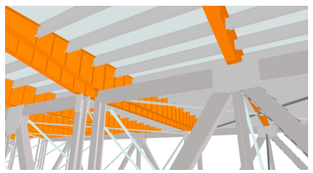
Moment D / C = 0.179

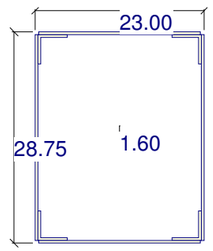
Combined interaction eqn = 0.84

Load rating LLCF = 1.55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U19-U20	Compression	kips	S1	E1	INSP3	4.00	-213	-559	-	1.11	1.22	1.55	-236	-682	-	Static det.	Other	-288	0	1.77	-509	2161	1.01	1.55	0.84
	corresp. Moment	k-ft					-53	140	-				-59	171	-			78			138	1399	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

Top chord U20-U21

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	5	3	11	12
Lane 2	CL-625	4	2	8	9
Lane 3	CL-625	2	1	5	6
Lane 4	CL-625	1	1	3	3
Total		**12**	**7**	**27**	**30**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (44.0)\ 33.0 = 1{,}379$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (44.0)\ 60.0 = 2{,}131$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 344\ (33) = 899$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 43 kips

tension D / C = 0.031

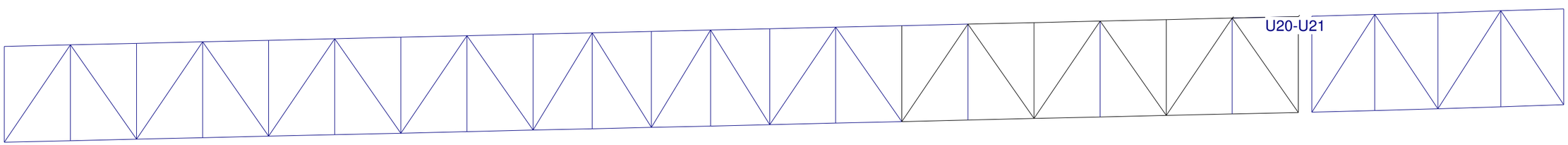
Fact'rd tension LL = 30 kips

Fact'rd moment, Mf = 14 k-ft

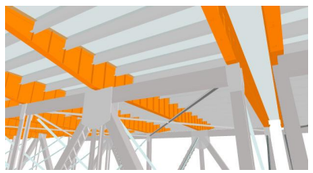
Moment D / C = 0.016

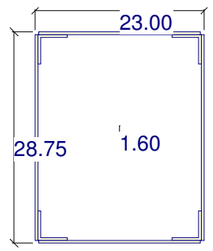
Combined interaction eqn = 0.05

Load rating LLCF = 29.29



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U20-U21	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	17	0	1.77	30	1379	1.01	>10	0.05
	corresp. Moment	k-ft					8	-9	-				9	-11	-			-7			-12	899	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	4	1	8	7
Lane 2	CL-625	3	1	7	6
Lane 3	CL-625	2	1	5	4
Lane 4	CL-625	1	0	3	2
Total		**10**	**3**	**23**	**19**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (44.0)\ 33.0 = 1{,}379$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (44.0)\ 60.0 = 2{,}131$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 344\ (33) = 899$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 33 kips

tension D / C = 0.024

Fact'rd tension LL = 23 kips

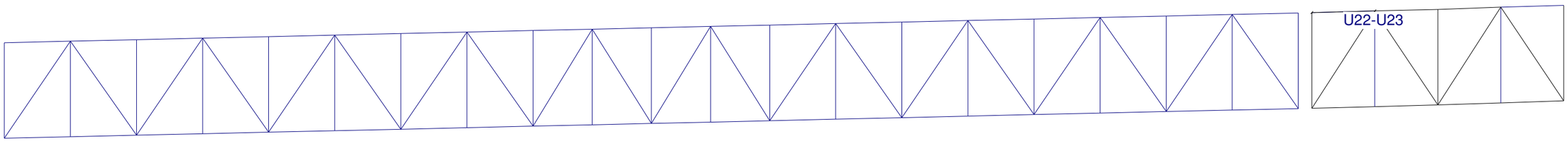
Fact'rd moment, Mf = 34 k-ft

Moment D / C = 0.038

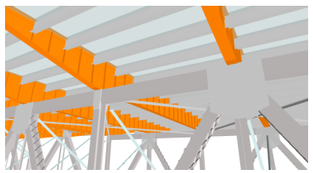
Combined interaction eqn = 0.06

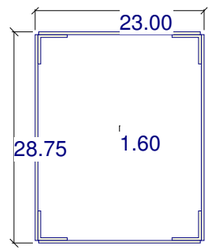
Load rating LLCF = 29.78

Top chord U22-U23



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U22-U23	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	10	0.25	1.77	23	1379	1.01	>10	0.06
	corresp. Moment	k-ft					-7	-9	-				-8	-11	-			-7			-16	899	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-44	-15	-96	-87
Lane 2	CL-625	-37	-12	-82	-75
Lane 3	CL-625	-31	-10	-68	-62
Lane 4	CL-625	-24	-8	-54	-49
Total		**-136**	**-45**	**-301**	**-273**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 26.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(44)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}263 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,344\,(33) = 899 \text{ k-ft} \quad (Lu=0)$$

Length = 25.01 ft

Fact'rd comp, Cf = -698 kips

comp D / C = 0.552

Fact'rd comp LL = -301 kips

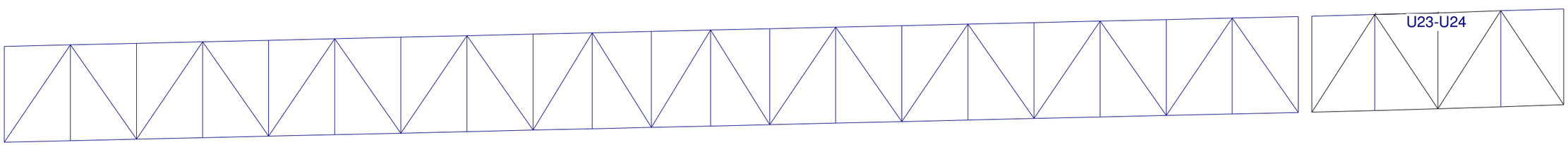
Fact'rd moment, Mf = 329 k-ft

Moment D / C = 0.367

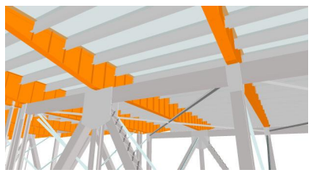
Combined interaction eqn = 0.92

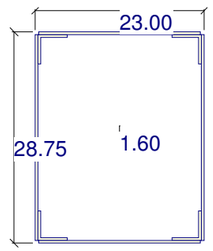
Load rating LLCF = 1.27

Top chord U23-U24



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U23-U24	Compression	kips	S1	E1	INSP3	4.00	-86	-247	-	1.11	1.22	1.55	-95	-302	-	Static det.	Other	-136	0.25	1.77	-301	1263	1.01	1.27	0.92
	corresp. Moment	k-ft					32	122	-				36	149	-			65			144	899	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-42	-14	-92	-84
Lane 2	CL-625	-36	-12	-79	-72
Lane 3	CL-625	-30	-10	-66	-60
Lane 4	CL-625	-24	-8	-53	-48
Total		**-131**	**-44**	**-291**	**-264**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.6\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 26.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(44)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}263 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,344\,(33) = 899 \text{ k-ft} \quad (Lu=0)$$

Length = 25.01 ft

Fact'rd comp, Cf = -687 kips

comp D / C = 0.544

Fact'rd comp LL = -291 kips

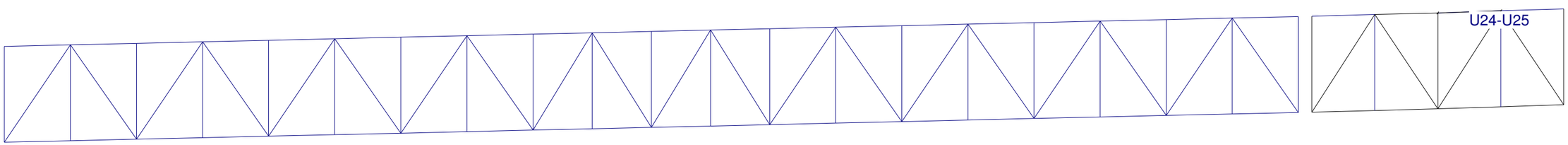
Fact'rd moment, Mf = 259 k-ft

Moment D / C = 0.288

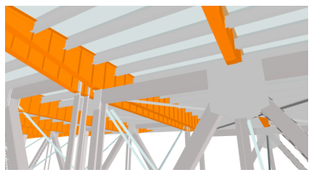
Combined interaction eqn = 0.83

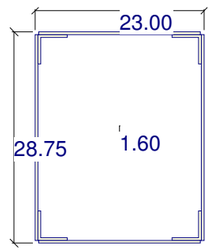
Load rating LLCF = 1.49

Top chord U24-U25



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U24-U25	Compression	kips	S1	E1	INSP3	4.00	-86	-247	-	1.11	1.22	1.55	-95	-301	-	Static det.	Other	-131	0.25	1.77	-291	1263	1.01	1.49	0.83
	corresp. Moment	k-ft					-33	123	-				-37	150	-			66			145	899	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	2	1	5	4
Lane 2	CL-625	2	1	4	3
Lane 3	CL-625	1	0	3	3
Lane 4	CL-625	1	0	2	2
Total		**6**	**2**	**14**	**12**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (44.0)\ 33.0 = 1{,}379$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (44.0)\ 60.0 = 2{,}131$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 344\ (33) = 899$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 24 kips

tension D / C = 0.018

Fact'rd tension LL = 14 kips

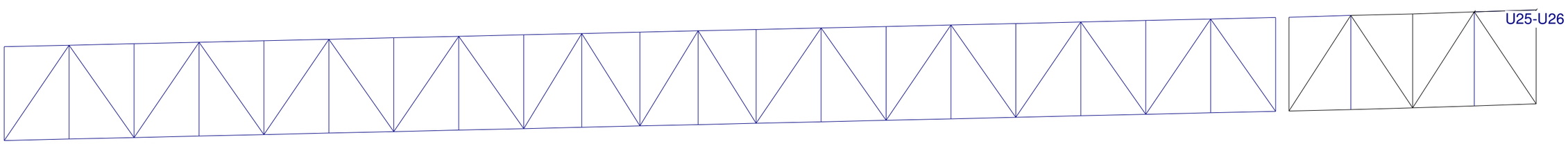
Fact'rd moment, Mf = 69 k-ft

Moment D / C = 0.076

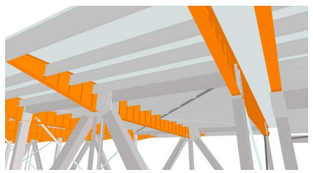
Combined interaction eqn = 0.09

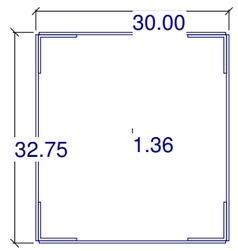
Load rating LLCF = 18.07

Top chord U25-U26



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U25-U26	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	6	0.25	1.77	14	1379	1.01	>10	0.09
	corresp. Moment	k-ft					-10	-14	-				-11	-17	-			-19			-41	899	1.06		





Area	58.3	in2
Ix	10,015	in4
Iy	9,793	in4
Sx, top	667	in3
Sx, bottom	565	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	6	5	12	16
Lane 2	CL-625	4	3	9	12
Lane 3	CL-625	3	2	6	8
Lane 4	CL-625	2	1	4	4
Total		**14**	**12**	**32**	**41**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (58.3)\ 33.0 = 1{,}828$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (58.3)\ 60.0 = 2{,}824$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 565\ (33) = 1{,}475$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 63 kips

tension D / C = 0.035

Fact'rd tension LL = 41 kips

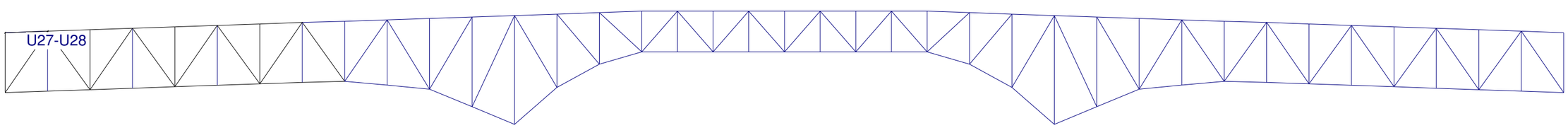
Fact'rd moment, Mf = 5 k-ft

Moment D / C = 0.003

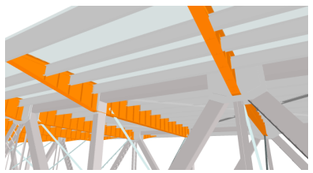
Combined interaction eqn = 0.04

Load rating LLCF = 31.24

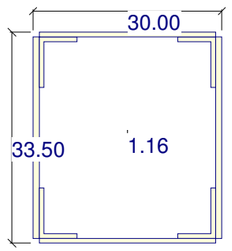
Top chord U27-U28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U27-U28	Tension	kips	S1	E1	INSP3	4.00	5	14	-	1.11	1.22	1.55	6	17	-	Static det.	Other	23	0	1.77	41	1828	1.01	>10	0.04
	corresp. Moment	k-ft					19	-10	-				22	-12	-			-8			-14	1475	1.06		



Top chord U28-U29



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-94	-60	-208	-240
Lane 2	CL-625	-81	-51	-178	-205
Lane 3	CL-625	-67	-43	-148	-170
Lane 4	CL-625	-54	-34	-118	-136
Total		**-295**	**-188**	**-654**	**-751**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2540 kips

comp D / C = 0.651

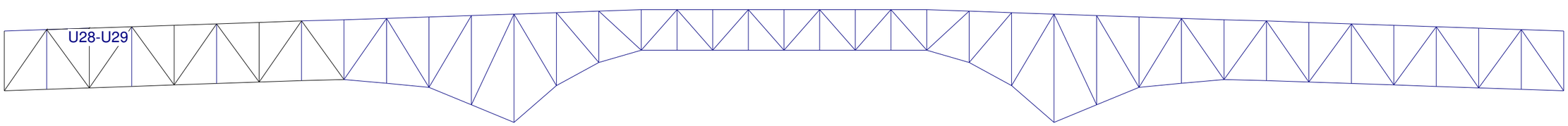
Fact'rd comp LL = -751 kips

Fact'rd moment, Mf = 505 k-ft

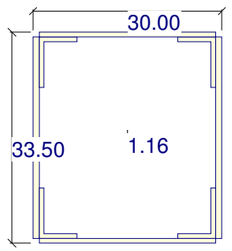
Moment D / C = 0.162

Combined interaction eqn = 0.81

Load rating LLCF = 1.73



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U28-U29	Compression	kips	S1	E1	INSP3	4.00	-479	-1031	-	1.11	1.22	1.55	-532	-1258	-	Static det.	Other	-424	0	1.77	-751	3904	1.01	1.73	0.81
	corresp. Moment	k-ft					-132	284	-				-147	347	-			172			305	3118	1.06		



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

Top chord U29-U30

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-87	-53	-193	-218
Lane 2	CL-625	-76	-46	-167	-189
Lane 3	CL-625	-64	-39	-141	-160
Lane 4	CL-625	-52	-32	-115	-131
Total		**-279**	**-171**	**-617**	**-696**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2467 kips

comp D / C = 0.632

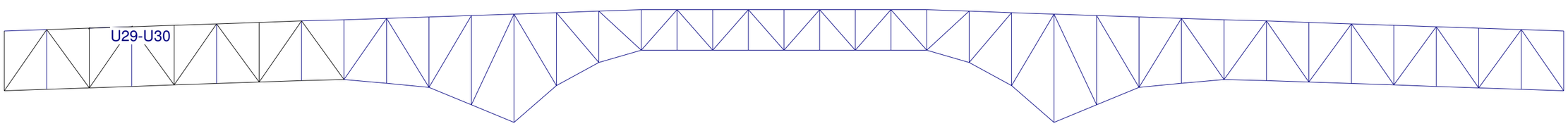
Fact'rd comp LL = -696 kips

Fact'rd moment, Mf = 695 k-ft

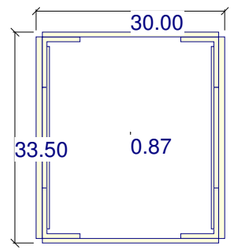
Moment D / C = 0.223

Combined interaction eqn = 0.85

Load rating LLCF = 1.61



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U29-U30	Compression	kips	S1	E1	INSP3	4.00	-474	-1020	-	1.11	1.22	1.55	-526	-1244	-	Static det.	Other	-393	0	1.77	-696	3904	1.01	1.61	0.85
	corresp. Moment	k-ft					68	254	-				76	310	-			175			309	3118	1.06		



Area	181.8	in2
Ix	23,464	in4
Iy	30,644	in4
Sx, top	1,478	in3
Sx, bottom	1,332	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-118	-76	-260	-301
Lane 2	CL-625	-101	-65	-224	-259
Lane 3	CL-625	-85	-55	-188	-217
Lane 4	CL-625	-69	-44	-152	-175
Total		**-373**	**-241**	**-824**	**-953**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.35$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.9$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(182)\,33\,(1+\lambda^{2n})^{-1/n} = 5{,}163 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1332\,(33) = 3{,}479 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -3331 kips

comp D / C = 0.645

Fact'rd comp LL = -953 kips

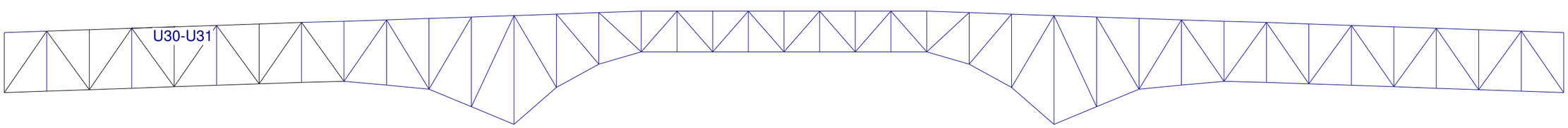
Fact'rd moment, Mf = 985 k-ft

Moment D / C = 0.283

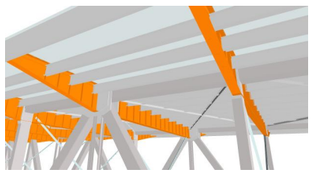
Combined interaction eqn = 0.93

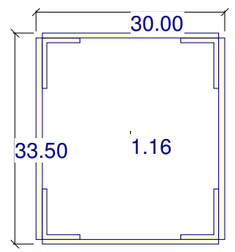
Load rating LLCF = 1.30

Top chord U30-U31



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U30-U31	Compression	kips	S1	E1	INSP3	4.00	-638	-1369	-	1.11	1.22	1.55	-708	-1670	-	Static det.	Other	-539	0	1.77	-953	5163	1.01	1.30	0.93
	corresp. Moment	k-ft					115	389	-				128	475	-			216			382	3479	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-93	-59	-206	-236
Lane 2	CL-625	-80	-50	-176	-202
Lane 3	CL-625	-66	-42	-146	-168
Lane 4	CL-625	-53	-34	-117	-134
Total		**-292**	**-185**	**-645**	**-740**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2550 kips

comp D / C = 0.653

Fact'rd comp LL = -740 kips

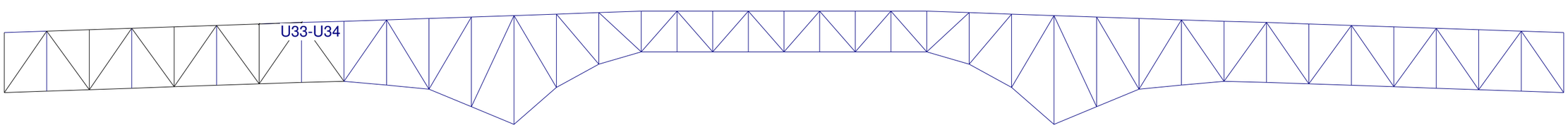
Fact'rd moment, Mf = 489 k-ft

Moment D / C = 0.157

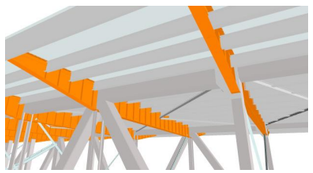
Combined interaction eqn = 0.81

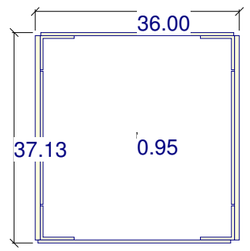
Load rating LLCF = 1.55

Top chord U33-U34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U33-U34	Compression	kips	S1	E1	INSP3	4.00	-485	-1042	-	1.11	1.22	1.55	-538	-1271	-	Static det.	Other	-418	0	1.77	-740	3904	1.01	1.55	0.81
	corresp. Moment	k-ft					-164	-360	-				-182	-439	-			75			133	3118	1.06		





Area	140.5	in2
Ix	24,327	in4
Iy	35,382	in4
Sx, top	1,381	in3
Sx, bottom	1,247	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-7	-5	-15	-18
Lane 2	CL-625	-5	-4	-12	-14
Lane 3	CL-625	-4	-2	-8	-9
Lane 4	CL-625	-2	-1	-4	-5
Total		**-18**	**-12**	**-39**	**-46**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 28.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 23.6$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(141)\,33\,(1 + \lambda^{2n})^{-1/n} = 4{,}047 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1247\,(33) = 3{,}258 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -70 kips

comp D / C = 0.017

Fact'rd comp LL = -46 kips

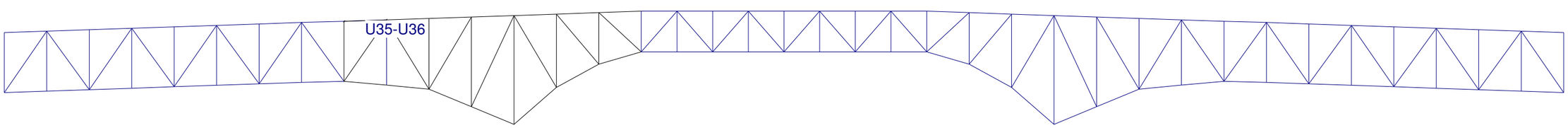
Fact'rd moment, Mf = 1295 k-ft

Moment D / C = 0.398

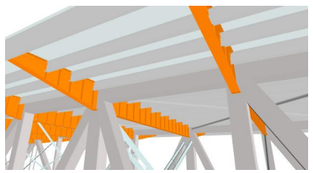
Combined interaction eqn = 0.42

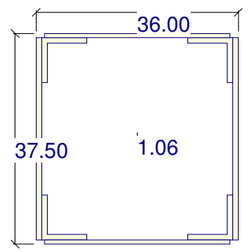
Load rating LLCF = 4.17

Top chord U35-U36



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U35-U36	Compression	kips	S1	E1	INSP3	4.00	-7	-13	-	1.11	1.22	1.55	-8	-16	-	Static det.	Other	-26	0	1.77	-46	4047	1.01	4.17	0.42
	corresp. Moment	k-ft					-230	760	-				-256	927	-			352			623	3258	1.06		





Area	171.6	in2
Ix	35,976	in4
Iy	39,752	in4
Sx, top	2,034	in3
Sx, bottom	1,816	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	104	94	230	314
Lane 2	CL-625	92	83	203	276
Lane 3	CL-625	80	71	176	238
Lane 4	CL-625	67	59	149	200
Total		**343**	**306**	**759**	**1028**

Clause 10.8.2 (b)- Axial Tension Resistance

$T_r = 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (124.0)\ 74.0 = 7{,}410$ kips

$< \phi_s A_g F_y = 0.95\ (171.6)\ 46.0 = 7{,}499$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1816\ (46) = 6{,}613$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 4353 kips

tension D / C = 0.587

Fact'rd tension LL = 1028 kips

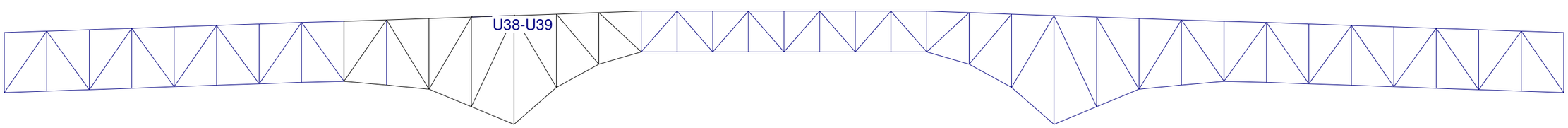
Fact'rd moment, Mf = 1890 k-ft

Moment D / C = 0.286

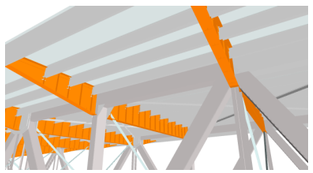
Combined interaction eqn = 0.87

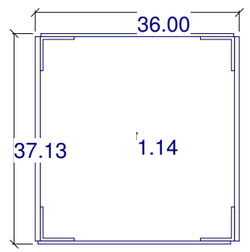
Load rating LLCF = 1.73

Top chord U38-U39



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U38-U39	Tension	kips	S1	E1	INSP3	4.00	934	1876	-	1.11	1.22	1.55	1036	2288	-	Static det.	Other	581	0	1.77	1028	7410	1.01	1.73	0.87
	corresp. Moment	k-ft					-526	-764	-				-584	-932	-			-211			-373	6613	1.06		





Area	117.0	in2
Ix	23,220	in4
Iy	28,689	in4
Sx, top	1,332	in3
Sx, bottom	1,179	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-8	-5	-17	-20
Lane 2	CL-625	-6	-4	-13	-15
Lane 3	CL-625	-4	-3	-9	-10
Lane 4	CL-625	-2	-1	-5	-5
Total		**-19**	**-14**	**-43**	**-51**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 26.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 24.0$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(117)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}387 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1179\,(33) = 3{,}079 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -78 kips

comp D / C = 0.023

Fact'rd comp LL = -51 kips

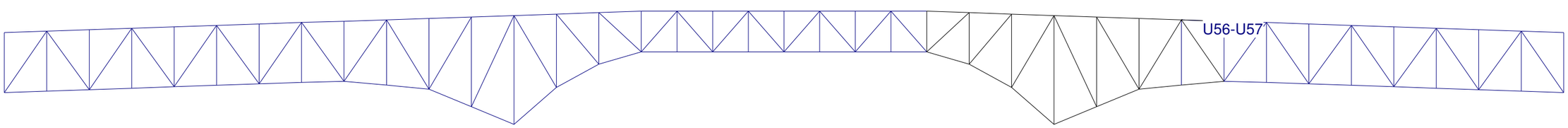
Fact'rd moment, Mf = 1403 k-ft

Moment D / C = 0.456

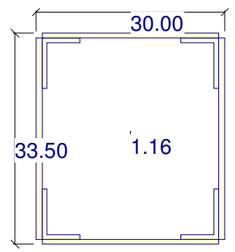
Combined interaction eqn = 0.48

Load rating LLCF = 3.32

Top chord U56-U57



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U56-U57	Compression	kips	S1	E1	INSP3	4.00	-8	-15	-	1.11	1.22	1.55	-8	-19	-	Static det.	Other	-29	0	1.77	-51	3387	1.01	3.32	0.48
	corresp. Moment	k-ft					-228	775	-				-253	946	-			401			710	3079	1.06		



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-95	-58	-209	-236
Lane 2	CL-625	-81	-50	-180	-203
Lane 3	CL-625	-68	-42	-150	-170
Lane 4	CL-625	-55	-34	-121	-137
Total		**-298**	**-183**	**-660**	**-746**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2555 kips

comp D / C = 0.654

Fact'rd comp LL = -746 kips

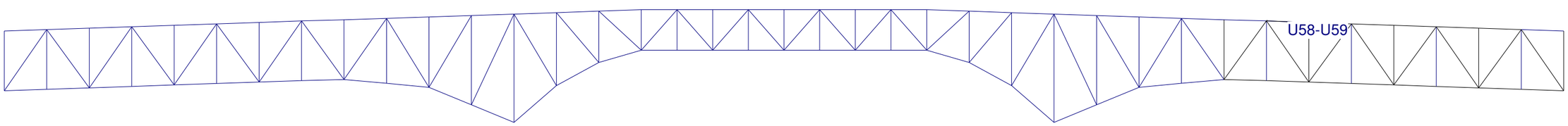
Fact'rd moment, Mf = 262 k-ft

Moment D / C = 0.084

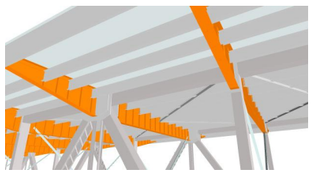
Combined interaction eqn = 0.74

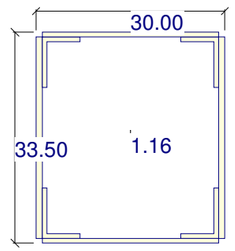
Load rating LLCF = 1.18

Top chord U58-U59



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U58-U59	Compression	kips	S1	E1	INSP3	4.00	-481	-1045	-	1.11	1.22	1.55	-534	-1275	-	Static det.	Other	-421	0	1.77	-746	3904	1.01	1.18	0.74
	corresp. Moment	k-ft					-161	-359	-				-178	-438	-			201			355	3118	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

Top chord U59-U60

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-95	-57	-210	-236
Lane 2	CL-625	-81	-49	-180	-202
Lane 3	CL-625	-68	-41	-150	-169
Lane 4	CL-625	-54	-33	-120	-136
Total		**-299**	**-180**	**-661**	**-742**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2526 kips

comp D / C = 0.647

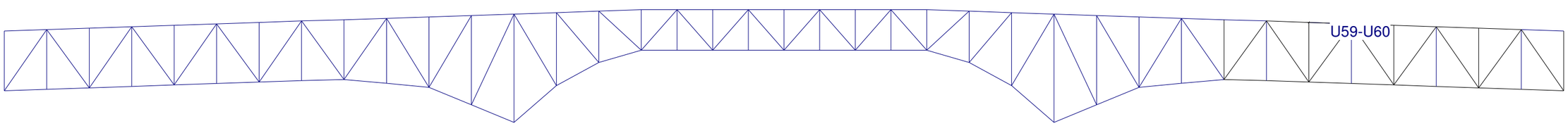
Fact'rd comp LL = -742 kips

Fact'rd moment, Mf = 630 k-ft

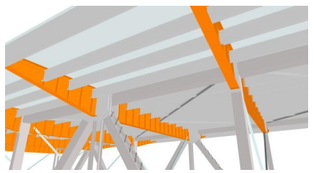
Moment D / C = 0.202

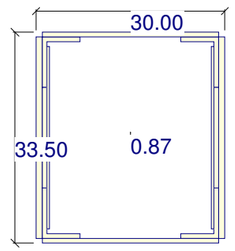
Combined interaction eqn = 0.85

Load rating LLCF = 1.61



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U59-U60	Compression	kips	S1	E1	INSP3	4.00	-474	-1031	-	1.11	1.22	1.55	-526	-1258	-	Static det.	Other	-419	0	1.77	-742	3904	1.01	1.61	0.85
	corresp. Moment	k-ft					-85	321	-				-94	392	-			188			332	3118	1.06		





Area	181.8	in2
Ix	23,464	in4
Iy	30,644	in4
Sx, top	1,478	in3
Sx, bottom	1,332	in3

Top chord U61-U62

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-119	-76	-263	-303
Lane 2	CL-625	-102	-65	-226	-261
Lane 3	CL-625	-86	-55	-190	-219
Lane 4	CL-625	-69	-44	-153	-177
Total		**-376**	**-241**	**-833**	**-959**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.35$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.9$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(182)\,33\,(1 + \lambda^{2n})^{-1/n} = 5{,}163 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1332\,(33) = 3{,}479 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -3333 kips

comp D / C = 0.646

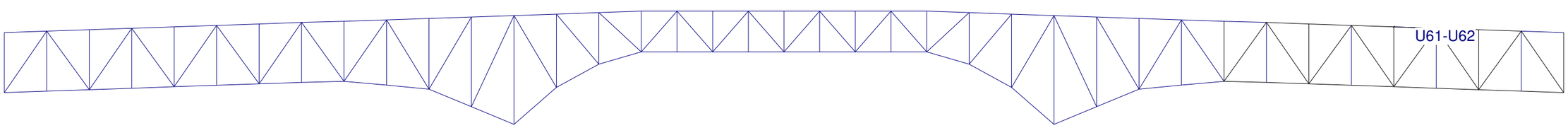
Fact'rd comp LL = -959 kips

Fact'rd moment, Mf = 1095 k-ft

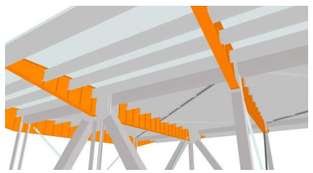
Moment D / C = 0.315

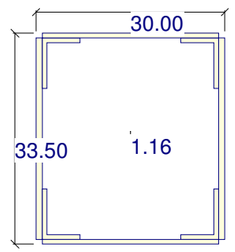
Combined interaction eqn = 0.96

Load rating LLCF = 1.24



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U61-U62	Compression	kips	S1	E1	INSP3	4.00	-631	-1372	-	1.11	1.22	1.55	-701	-1674	-	Static det.	Other	-542	0	1.77	-959	5163	1.01	1.24	0.96
	corresp. Moment	k-ft					128	430	-				142	525	-			242			428	3479	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-93	-62	-205	-240
Lane 2	CL-625	-79	-52	-175	-205
Lane 3	CL-625	-66	-43	-146	-170
Lane 4	CL-625	-53	-34	-116	-135
Total		**-290**	**-191**	**-643**	**-750**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Top chord U63-U64

Length = 31.27 ft

Fact'rd comp, Cf = -2544 kips

comp D / C = 0.652

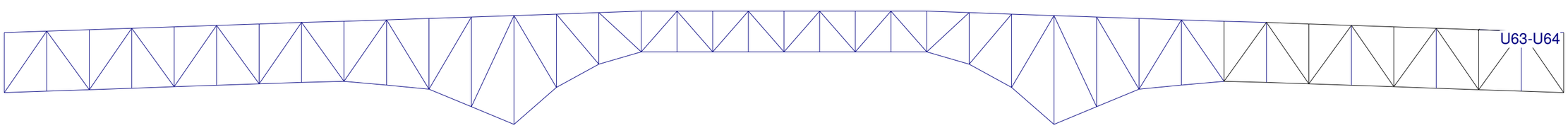
Fact'rd comp LL = -750 kips

Fact'rd moment, Mf = 507 k-ft

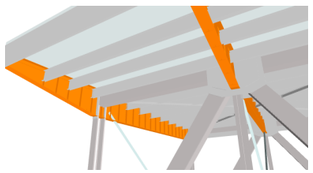
Moment D / C = 0.163

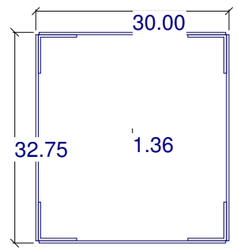
Combined interaction eqn = 0.81

Load rating LLCF = 1.73



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U63-U64	Compression	kips	S1	E1	INSP3	4.00	-476	-1037	-	1.11	1.22	1.55	-529	-1265	-	Static det.	Other	-424	0	1.77	-750	3904	1.01	1.73	0.81
	corresp. Moment	k-ft					-132	289	-				-147	352	-			170			302	3118	1.06		





Area	58.3	in2
Ix	10,015	in4
Iy	9,793	in4
Sx, top	667	in3
Sx, bottom	565	in3

Top chord U64-U65

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	7	6	15	19
Lane 2	CL-625	5	4	11	14
Lane 3	CL-625	3	3	7	9
Lane 4	CL-625	2	1	3	4
Total		**16**	**13**	**36**	**47**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (58.3)\ 33.0 = 1{,}828$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (58.3)\ 60.0 = 2{,}824$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 565\ (33) = 1{,}475$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 60 kips

tension D / C = 0.033

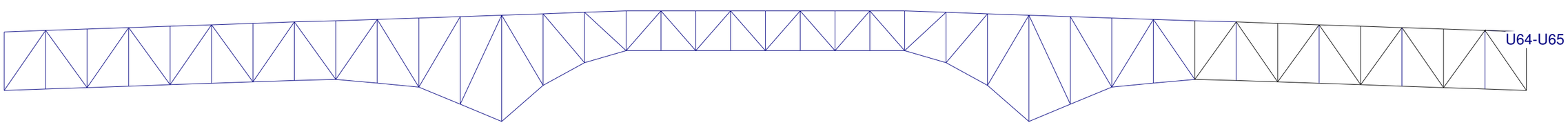
Fact'rd tension LL = 47 kips

Fact'rd moment, Mf = 1 k-ft

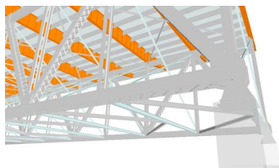
Moment D / C = 0.001

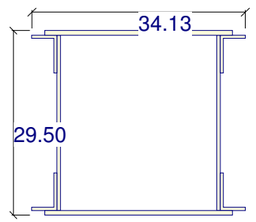
Combined interaction eqn = 0.03

Load rating LLCF = 30.76



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U64-U65	Tension	kips	S1	E1	INSP3	4.00	4	7	-	1.11	1.22	1.55	5	8	-	Static det.	Other	26	0	1.77	47	1828	1.01	>10	0.03
	corresp. Moment	k-ft					19	-10	-				21	-12	-			-6			-11	1475	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

Bot chord L1-L2

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	52	23	115	115
Lane 2	CL-625	44	19	98	97
Lane 3	CL-625	36	16	80	79
Lane 4	CL-625	28	12	62	61
Total		**160**	**70**	**355**	**351**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 942 kips

tension D / C = 0.594

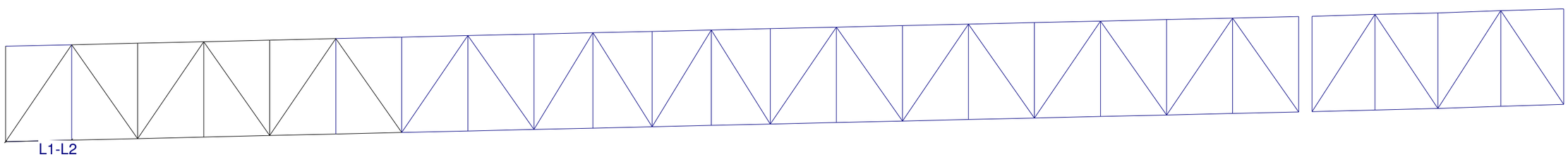
Fact'rd tension LL = 355 kips

Fact'rd moment, Mf = 88 k-ft

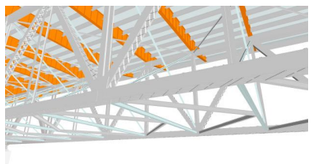
Moment D / C = 0.103

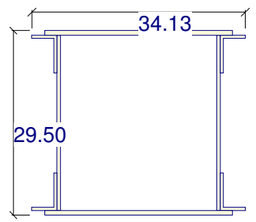
Combined interaction eqn = 0.70

Load rating LLCF = 2.16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L1-L2	Tension	kips	S1	E1	INSP3	4.00	136	357	-	1.11	1.22	1.55	151	436	-	Static det.	Other	160	0.25	1.77	355	1584	1.01	2.16	0.70
	corresp. Moment	k-ft					13	-44	-				14	-54	-			-22			-48	863	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	48	21	107	105
Lane 2	CL-625	41	18	91	90
Lane 3	CL-625	34	15	76	75
Lane 4	CL-625	27	12	60	59
Total		**151**	**65**	**335**	**330**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 922 kips

tension D / C = 0.582

Fact'rd tension LL = 335 kips

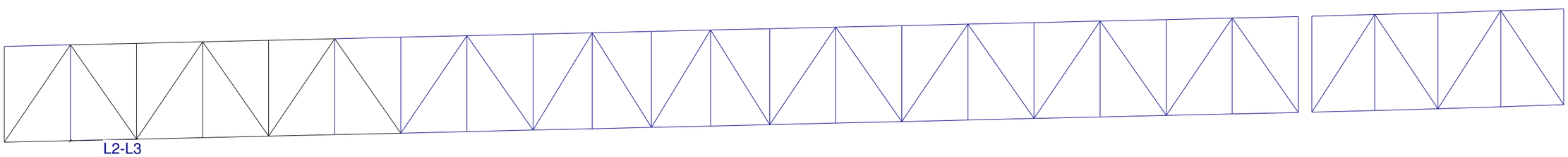
Fact'rd moment, Mf = 82 k-ft

Moment D / C = 0.095

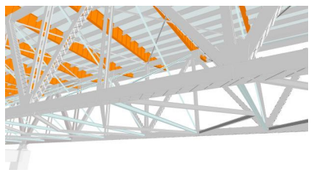
Combined interaction eqn = 0.68

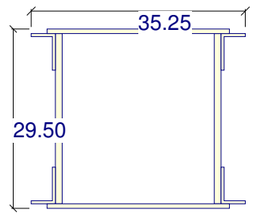
Load rating LLCF = 2.34

Bot chord L2-L3



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L2-L3	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	436	-	Static det.	Other	151	0.25	1.77	335	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					13	25	-				15	31	-			16			36	863	1.06		





Area	82.0	in2
Ix	6,928	in4
Iy	14,838	in4
Sx, top	470	in3
Sx, bottom	470	in3

Bot chord L3-L4

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	84	38	185	186
Lane 2	CL-625	71	33	158	159
Lane 3	CL-625	59	27	130	131
Lane 4	CL-625	47	21	104	104
Total		**261**	**119**	**577**	**580**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (82.0)\ 33.0 = 2{,}571$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (66.8)\ 60.0 = 3{,}234$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 470\ (33) = 1{,}227$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 1631 kips

tension D / C = 0.635

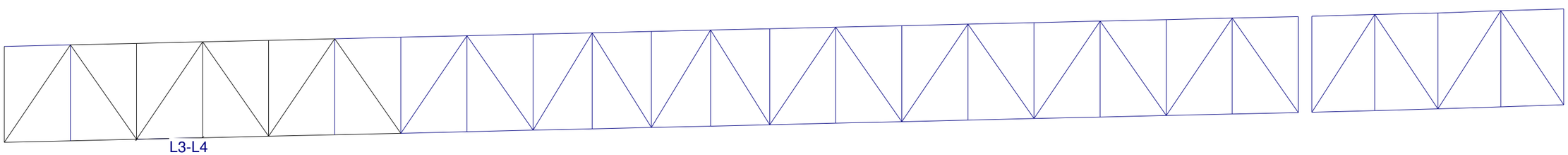
Fact'rd tension LL = 580 kips

Fact'rd moment, Mf = 180 k-ft

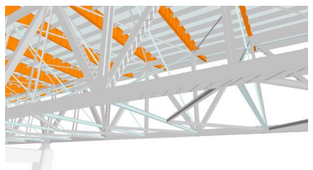
Moment D / C = 0.147

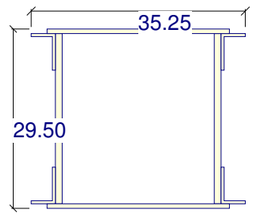
Combined interaction eqn = 0.78

Load rating LLCF = 1.73



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L3-L4	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	783	-	Static det.	Other	328	0	1.77	580	2571	1.01	1.73	0.78
	corresp. Moment	k-ft					-34	88	-				-37	108	-			62			110	1227	1.06		





Area	82.0	in2
Ix	6,928	in4
Iy	14,838	in4
Sx, top	470	in3
Sx, bottom	470	in3

Bot chord L4-L5

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	80	37	177	178
Lane 2	CL-625	69	31	152	153
Lane 3	CL-625	58	26	128	128
Lane 4	CL-625	47	21	103	103
Total		**253**	**115**	**560**	**562**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (82.0)\ 33.0 = 2{,}571$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (66.8)\ 60.0 = 3{,}234$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 470\ (33) = 1{,}227$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 1614 kips

tension D / C = 0.628

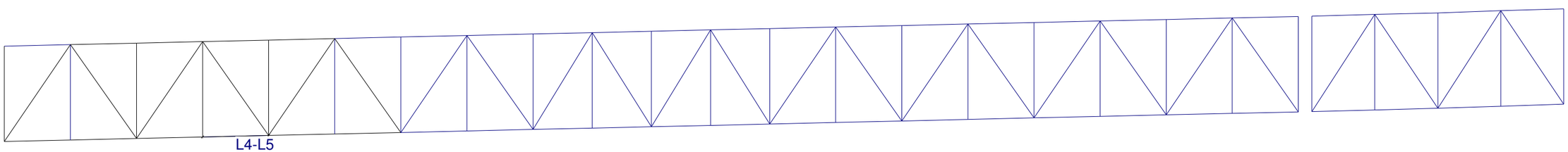
Fact'rd tension LL = 562 kips

Fact'rd moment, Mf = 241 k-ft

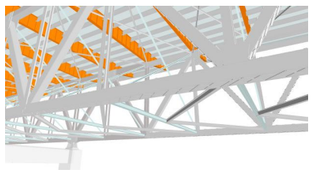
Moment D / C = 0.197

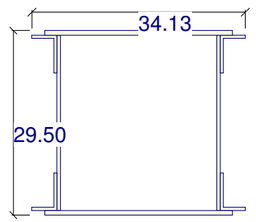
Combined interaction eqn = 0.82

Load rating LLCF = 1.67



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L4-L5	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	783	-	Static det.	Other	318	0	1.77	562	2571	1.01	1.67	0.82
	corresp. Moment	k-ft					31	88	-				34	107	-			56			100	1227	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

Bot chord L5-L6

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	48	24	107	110
Lane 2	CL-625	41	20	91	94
Lane 3	CL-625	34	16	75	77
Lane 4	CL-625	27	12	59	60
Total		**150**	**72**	**333**	**340**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 937 kips

tension D / C = 0.591

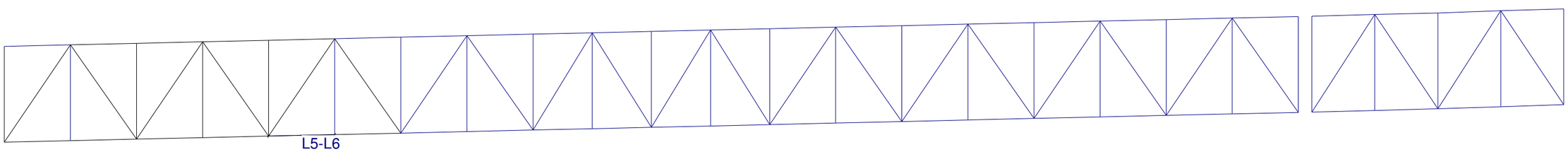
Fact'rd tension LL = 340 kips

Fact'rd moment, Mf = 81 k-ft

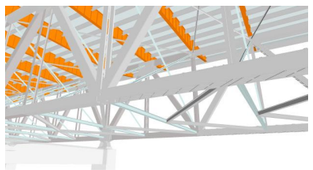
Moment D / C = 0.093

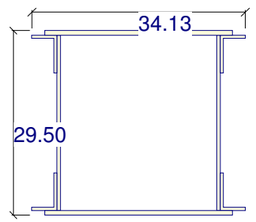
Combined interaction eqn = 0.68

Load rating LLCF = 2.34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L5-L6	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	154	443	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					12	31	-				13	38	-			17			29	863	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

Bot chord L6-L7

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	49	24	108	112
Lane 2	CL-625	41	20	91	95
Lane 3	CL-625	34	16	75	77
Lane 4	CL-625	27	12	59	60
Total		**151**	**74**	**334**	**344**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 940 kips

tension D / C = 0.593

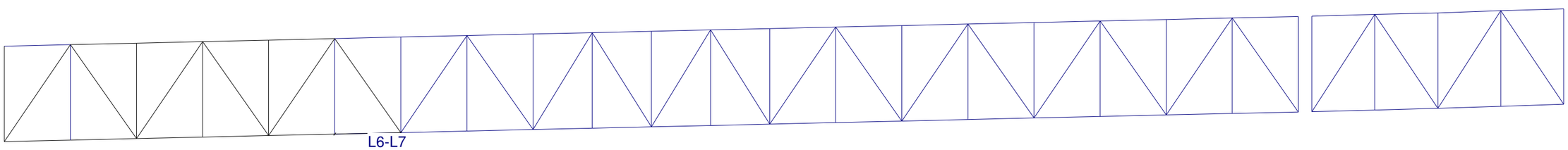
Fact'rd tension LL = 344 kips

Fact'rd moment, Mf = 52 k-ft

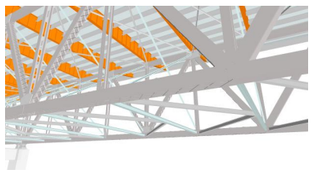
Moment D / C = 0.060

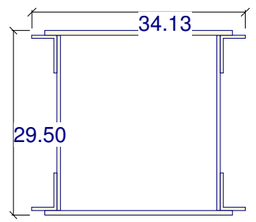
Combined interaction eqn = 0.65

Load rating LLCF = 2.52



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L6-L7	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	154	443	-	Static det.	Other	194	0	1.77	344	1584	1.01	2.52	0.65
	corresp. Moment	k-ft					16	14	-				17	17	-			10			17	863	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	46	20	102	101
Lane 2	CL-625	40	17	88	87
Lane 3	CL-625	34	14	74	73
Lane 4	CL-625	27	12	60	59
Total		**147**	**63**	**325**	**320**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 921 kips

tension D / C = 0.581

Fact'rd tension LL = 325 kips

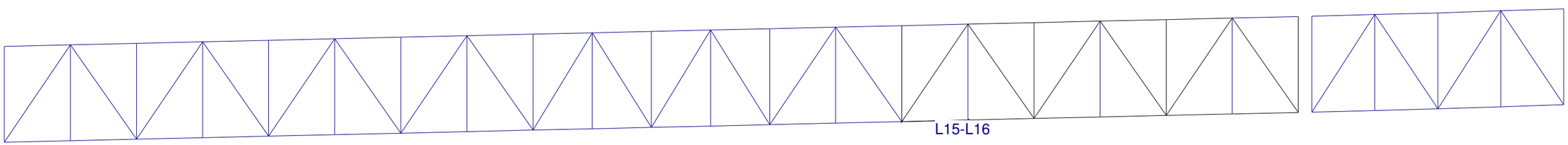
Fact'rd moment, Mf = 68 k-ft

Moment D / C = 0.079

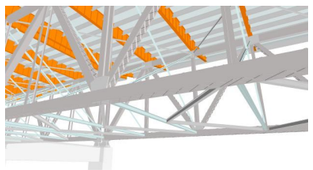
Combined interaction eqn = 0.66

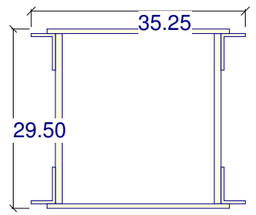
Load rating LLCF = 2.52

Bot chord L15-L16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L15-L16	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	153	443	-	Static det.	Other	147	0.25	1.77	325	1584	1.01	2.52	0.66
	corresp. Moment	k-ft					16	19	-				18	23	-			12			27	863	1.06		





Area	82.0	in2
Ix	6,928	in4
Iy	14,838	in4
Sx, top	470	in3
Sx, bottom	470	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	83	37	183	182
Lane 2	CL-625	71	32	156	156
Lane 3	CL-625	59	26	130	130
Lane 4	CL-625	47	21	104	103
Total		**259**	**115**	**573**	**571**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (82.0)\ 33.0 = 2{,}571$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (66.8)\ 60.0 = 3{,}234$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 470\ (33) = 1{,}227$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 1625 kips

tension D / C = 0.632

Fact'rd tension LL = 573 kips

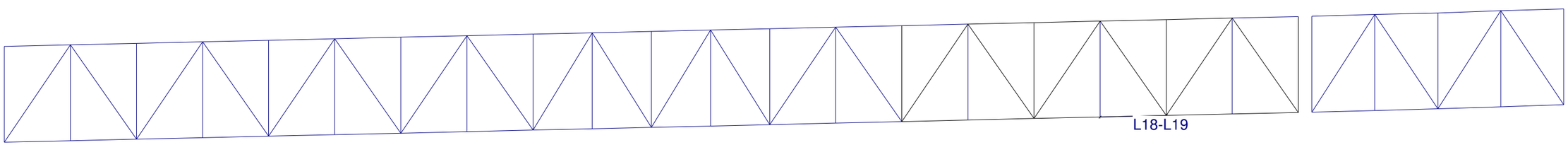
Fact'rd moment, Mf = 179 k-ft

Moment D / C = 0.146

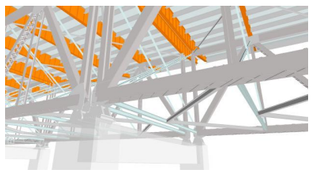
Combined interaction eqn = 0.78

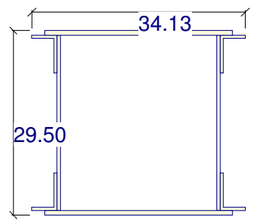
Load rating LLCF = 1.79

Bot chord L18-L19



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L18-L19	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	269	784	-	Static det.	Other	259	0.25	1.77	573	2571	1.01	1.79	0.78
	corresp. Moment	k-ft					-32	88	-				-35	107	-			49			107	1227	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	50	23	110	111
Lane 2	CL-625	42	19	93	94
Lane 3	CL-625	34	16	76	76
Lane 4	CL-625	27	12	59	59
Total		**153**	**70**	**339**	**340**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 928 kips

tension D / C = 0.586

Fact'rd tension LL = 340 kips

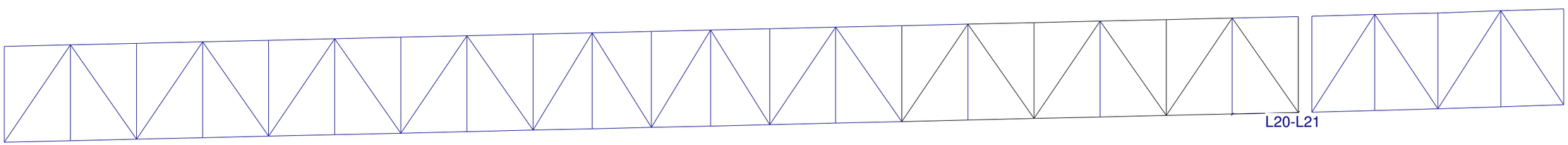
Fact'rd moment, Mf = 80 k-ft

Moment D / C = 0.093

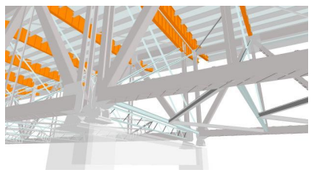
Combined interaction eqn = 0.68

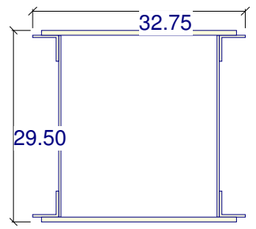
Load rating LLCF = 2.28

Bot chord L20-L21



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L20-L21	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	437	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.28	0.68
	corresp. Moment	k-ft					12	-42	-				13	-51	-			-24			-42	863	1.06		





Area	32.4	in2
Ix	3,281	in4
Iy	5,226	in4
Sx, top	222	in3
Sx, bottom	222	in3

Bot chord L25-L26

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	33	12	74	68
Lane 2	CL-625	28	10	63	58
Lane 3	CL-625	23	8	52	48
Lane 4	CL-625	18	6	41	37
Total		**104**	**36**	**230**	**211**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (32.4)\ 33.0 = 1{,}017$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (24.5)\ 60.0 = 1{,}187$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 222\ (33) = 581$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 541 kips

tension D / C = 0.532

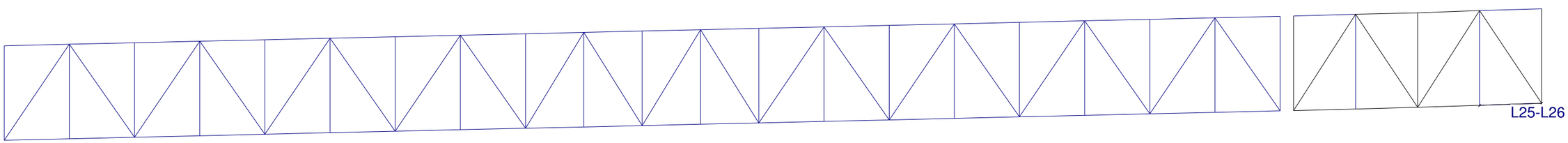
Fact'rd tension LL = 230 kips

Fact'rd moment, Mf = 57 k-ft

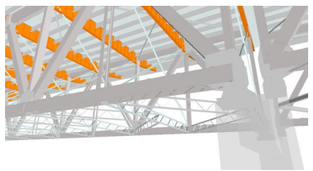
Moment D / C = 0.098

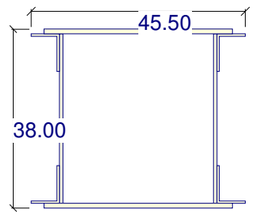
Combined interaction eqn = 0.63

Load rating LLCF = 2.40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L25-L26	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	237	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.40	0.63
	corresp. Moment	k-ft					8	-27	-				9	-32	-			-15			-33	581	1.06		





Area	81.0	in2
Ix	12,519	in4
Iy	23,534	in4
Sx, top	659	in3
Sx, bottom	659	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	60	38	133	153
Lane 2	CL-625	51	32	113	129
Lane 3	CL-625	42	26	93	106
Lane 4	CL-625	33	20	72	83
Total		**186**	**117**	**411**	**471**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (81.0)\ 33.0 = 2{,}539$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (60.0)\ 60.0 = 2{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 659\ (33) = 1{,}721$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1529 kips

tension D / C = 0.602

Fact'rd tension LL = 471 kips

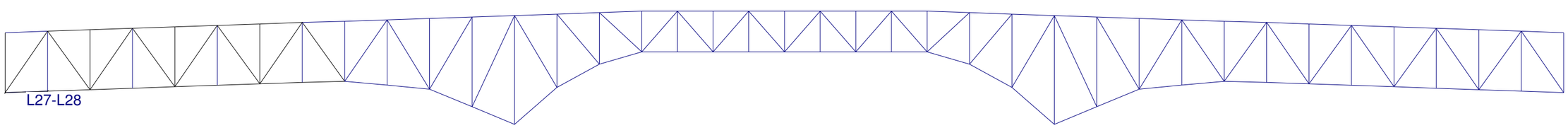
Fact'rd moment, Mf = 140 k-ft

Moment D / C = 0.081

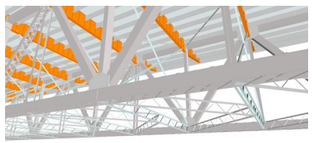
Combined interaction eqn = 0.68

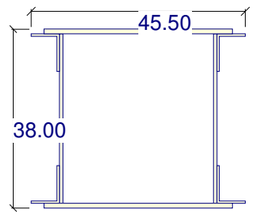
Load rating LLCF = 2.46

Bot chord L27-L28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L27-L28	Tension	kips	S1	E1	INSP3	4.00	280	613	-	1.11	1.22	1.55	310	748	-	Static det.	Other	266	0	1.77	471	2539	1.01	2.46	0.68
	corresp. Moment	k-ft					30	-83	-				33	-102	-			-40			-71	1721	1.06		





Area	81.0	in2
Ix	12,519	in4
Iy	23,534	in4
Sx, top	659	in3
Sx, bottom	659	in3

Bot chord L28-L29

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	56	32	123	136
Lane 2	CL-625	48	28	105	117
Lane 3	CL-625	40	24	88	98
Lane 4	CL-625	32	19	70	80
Total		**175**	**104**	**387**	**431**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (81.0)\ 33.0 = 2{,}539$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (60.0)\ 60.0 = 2{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 659\ (33) = 1{,}721$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1490 kips

tension D / C = 0.587

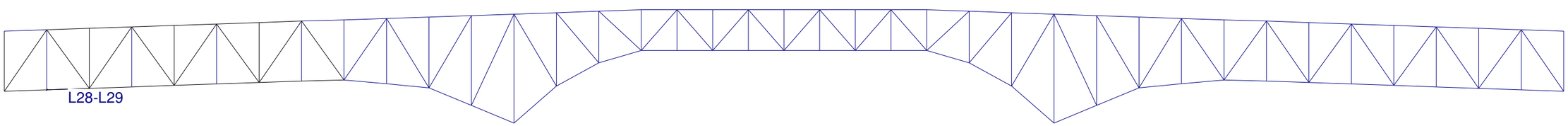
Fact'rd tension LL = 431 kips

Fact'rd moment, Mf = 191 k-ft

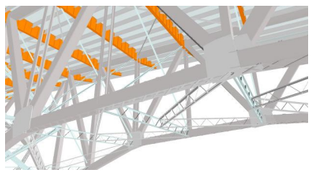
Moment D / C = 0.111

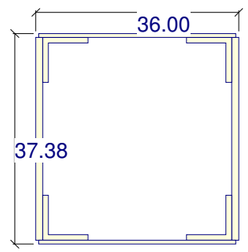
Combined interaction eqn = 0.70

Load rating LLCF = 2.59



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L28-L29	Tension	kips	S1	E1	INSP3	4.00	280	613	-	1.11	1.22	1.55	310	748	-	Static det.	Other	244	0	1.77	431	2539	1.01	2.59	0.70
	corresp. Moment	k-ft					32	79	-				36	96	-			34			59	1721	1.06		





Area	150.0	in2
Ix	24,740	in4
Iy	39,951	in4
Sx, top	1,324	in3
Sx, bottom	1,324	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-62	-51	-138	-178
Lane 2	CL-625	-53	-42	-116	-148
Lane 3	CL-625	-43	-33	-94	-118
Lane 4	CL-625	-33	-25	-72	-90
Total		**-190**	**-150**	**-421**	**-534**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 28.3$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(150)\,33\,(1+\lambda^{2n})^{-1/n} = 4{,}311 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1324\,(33) = 3{,}459 \text{ k-ft} \quad (Lu=0)$$

Length = 31.37 ft

Fact'rd comp, Cf = -1760 kips

comp D / C = 0.408

Fact'rd comp LL = -534 kips

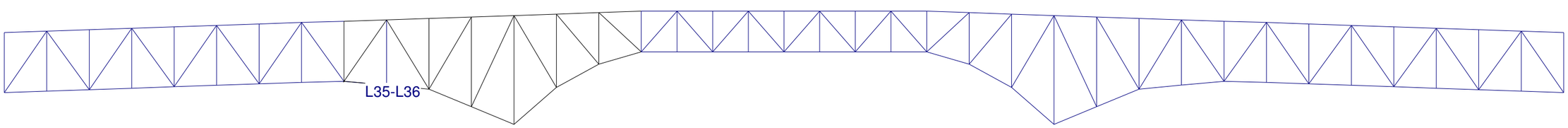
Fact'rd moment, Mf = 320 k-ft

Moment D / C = 0.093

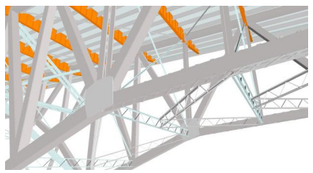
Combined interaction eqn = 0.50

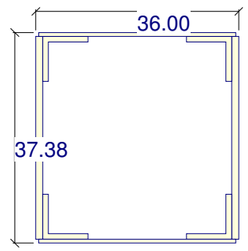
Load rating LLCF = 4.54

Bot chord L35-L36



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L35-L36	Compression	kips	S1	E1	INSP3	4.00	-343	-694	-	1.11	1.22	1.55	-380	-846	-	Static det.	Other	-302	0	1.77	-534	4311	1.01	4.54	0.50
	corresp. Moment	k-ft					90	114	-				100	139	-			46			81	3459	1.06		





Area	150.0	in2
Ix	24,740	in4
Iy	39,951	in4
Sx, top	1,324	in3
Sx, bottom	1,324	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-58	-48	-129	-167
Lane 2	CL-625	-49	-40	-109	-140
Lane 3	CL-625	-41	-32	-90	-114
Lane 4	CL-625	-32	-24	-71	-88
Total		**-180**	**-144**	**-399**	**-510**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 28.3$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(150)\,33\,(1+\lambda^{2n})^{-1/n} = 4{,}310 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1324\,(33) = 3{,}459 \text{ k-ft} \quad (Lu=0)$$

Length = 31.39 ft

Fact'rd comp, Cf = -1736 kips

comp D / C = 0.403

Fact'rd comp LL = -510 kips

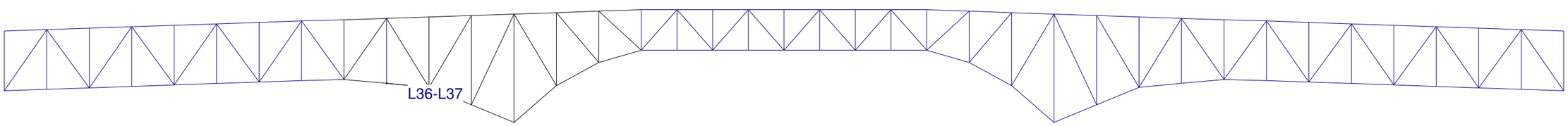
Fact'rd moment, Mf = 229 k-ft

Moment D / C = 0.066

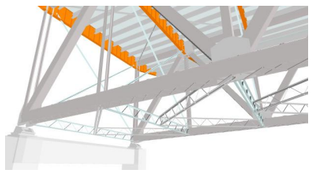
Combined interaction eqn = 0.47

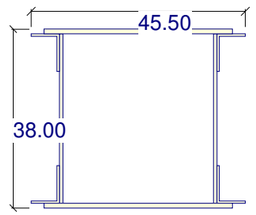
Load rating LLCF = 5.15

Bot chord L36-L37



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L36-L37	Compression	kips	S1	E1	INSP3	4.00	-343	-693	-	1.11	1.22	1.55	-380	-846	-	Static det.	Other	-288	0	1.77	-510	4310	1.01	5.15	0.47
	corresp. Moment	k-ft					-86	-65	-				-96	-79	-			-30			-54	3459	1.06		





Area	81.0	in2
Ix	12,519	in4
Iy	23,534	in4
Sx, top	659	in3
Sx, bottom	659	in3

Bot chord L63-L64

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	55	34	121	138
Lane 2	CL-625	47	29	104	118
Lane 3	CL-625	39	25	87	99
Lane 4	CL-625	31	20	70	80
Total		**172**	**108**	**381**	**435**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (81.0)\ 33.0 = 2{,}539$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (60.0)\ 60.0 = 2{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 659\ (33) = 1{,}721$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1491 kips

tension D / C = 0.587

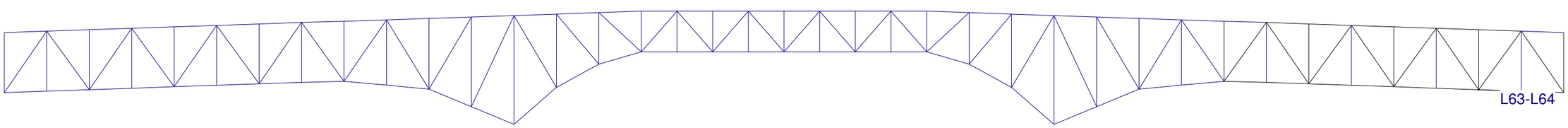
Fact'rd tension LL = 435 kips

Fact'rd moment, Mf = 193 k-ft

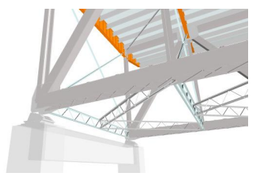
Moment D / C = 0.112

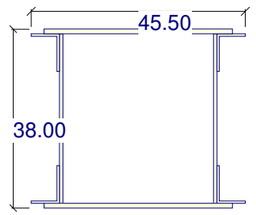
Combined interaction eqn = 0.70

Load rating LLCF = 2.59



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L63-L64	Tension	kips	S1	E1	INSP3	4.00	278	613	-	1.11	1.22	1.55	308	747	-	Static det.	Other	246	0	1.77	435	2539	1.01	2.59	0.70
	corresp. Moment	k-ft					32	81	-				36	99	-			33			58	1721	1.06		





Area	81.0	in2
Ix	12,519	in4
Iy	23,534	in4
Sx, top	659	in3
Sx, bottom	659	in3

Bot chord L64-L65

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	60	39	132	154
Lane 2	CL-625	51	33	112	130
Lane 3	CL-625	41	27	92	106
Lane 4	CL-625	32	21	72	82
Total		**184**	**120**	**408**	**474**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (81.0)\ 33.0 = 2{,}539$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (60.0)\ 60.0 = 2{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 659\ (33) = 1{,}721$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1529 kips

tension D / C = 0.602

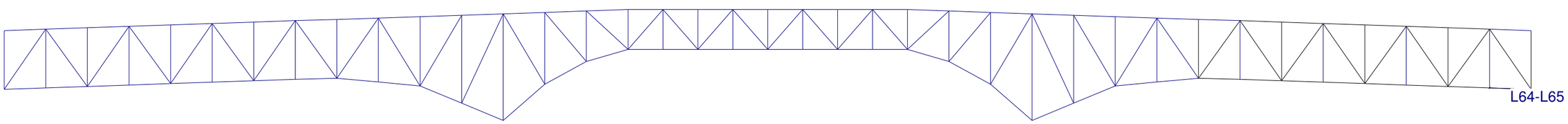
Fact'rd tension LL = 474 kips

Fact'rd moment, Mf = 140 k-ft

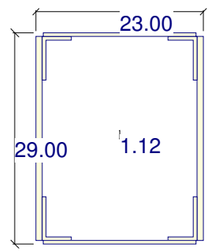
Moment D / C = 0.081

Combined interaction eqn = 0.68

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L64-L65	Tension	kips	S1	E1	INSP3	4.00	278	612	-	1.11	1.22	1.55	308	747	-	Static det.	Other	268	0	1.77	474	2539	1.01	2.46	0.68
	corresp. Moment	k-ft					30	-83	-				33	-102	-			-40			-71	1721	1.06		



Area	82.5	in2
Ix	8,851	in4
Iy	8,562	in4
Sx, top	662	in3
Sx, bottom	567	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-92	-41	-204	-203
Lane 2	CL-625	-78	-34	-173	-171
Lane 3	CL-625	-64	-28	-141	-139
Lane 4	CL-625	-49	-21	-109	-108
Total		**-283**	**-124**	**-627**	**-621**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 49.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.53$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 48.7$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(82)\,33\,(1 + \lambda^{2n})^{-1/n} = 2{,}160 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,567\,(33) = 1{,}480 \text{ k-ft} \quad (Lu=0)$$

Length = 46.68 ft

Fact'rd comp, Cf = -1671 kips

comp D / C = 0.774

Fact'rd comp LL = -627 kips

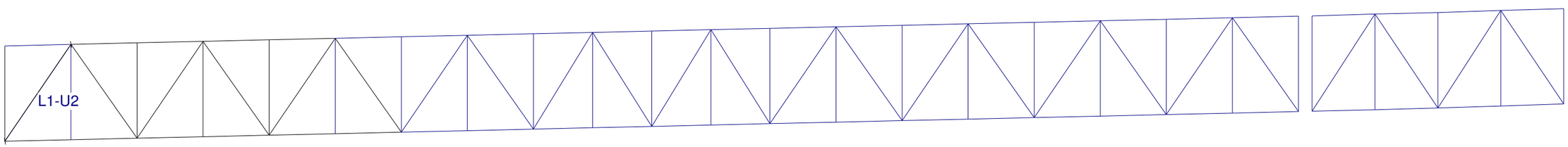
Fact'rd moment, Mf = 152 k-ft

Moment D / C = 0.103

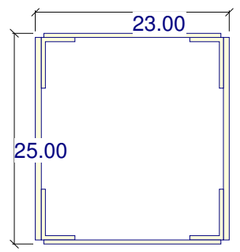
Combined interaction eqn = 0.88

Load rating LLCF = 1.43

Diagonal L1-U2



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L1-U2	Compression	kips	S1	E1	INSP3	4.00	-246	-632	-	1.11	1.22	1.55	-273	-771	-	Static det.	Other	-283	0.25	1.77	-627	2160	1.01	1.43	0.88
	corresp. Moment	k-ft					-56	-40	-				-62	-49	-			-18			-41	1480	1.06		



Area	52.0	in2
Ix	3,560	in4
Iy	5,971	in4
Sx, top	285	in3
Sx, bottom	285	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	66	24	147	136
Lane 2	CL-625	56	20	124	115
Lane 3	CL-625	46	16	102	94
Lane 4	CL-625	36	12	79	72
Total		**204**	**72**	**452**	**417**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (52.0)\ 33.0 = 1{,}631$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (36.0)\ 60.0 = 1{,}744$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 285\ (33) = 744$ k-ft (Lu=0)

Length = 45.69 ft

Fact'rd tension, Tf = 1055 kips

tension D / C = 0.647

Fact'rd tension LL = 452 kips

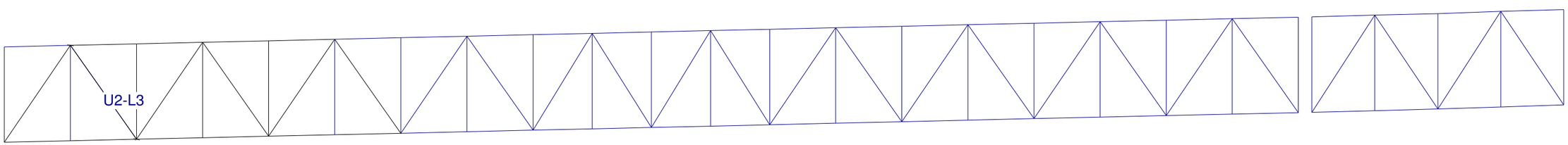
Fact'rd moment, Mf = 56 k-ft

Moment D / C = 0.076

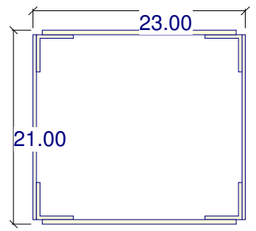
Combined interaction eqn = 0.72

Load rating LLCF = 1.85

Diagonal U2-L3



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U2-L3	Tension	kips	S1	E1	INSP3	4.00	143	365	-	1.11	1.22	1.55	158	445	-	Static det.	Other	204	0.25	1.77	452	1631	1.01	1.85	0.72
	corresp. Moment	k-ft					-28	36	-				-31	44	-			19			43	744	1.06		



Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-50	-11	-110	-89
Lane 2	CL-625	-42	-9	-92	-74
Lane 3	CL-625	-33	-7	-74	-59
Lane 4	CL-625	-25	-5	-56	-44
Total		**-150**	**-31**	**-332**	**-267**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 68.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 50.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(26)\,33\,(1+\lambda^{2n})^{-1/n} = 596 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,135\,(33) = 352 \text{ k-ft} \quad (Lu=0)$$

Length = 46.68 ft

Fact'rd comp, Cf = -543 kips

comp D / C = 0.910

Fact'rd comp LL = -332 kips

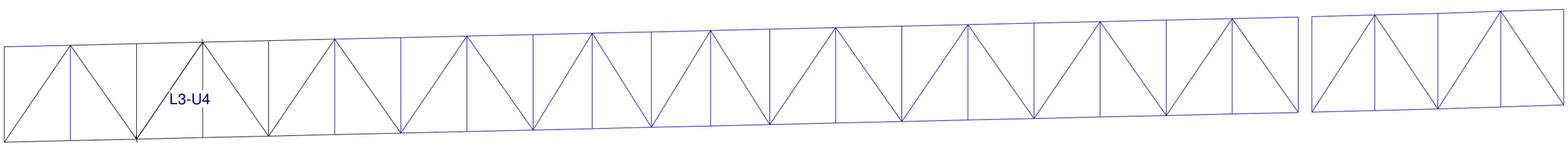
Fact'rd moment, Mf = 11 k-ft

Moment D / C = 0.031

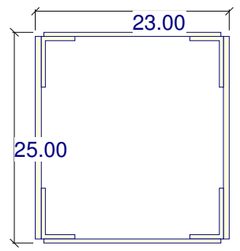
Combined interaction eqn = 0.94

Load rating LLCF = 1.09

Diagonal L3-U4



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L3-U4	Compression	kips	S1	E1	INSP3	4.00	-47	-130	-	1.11	1.22	1.55	-53	-158	-	Static det.	Other	-150	0.25	1.77	-332	596	1.01	1.09	0.94
	corresp. Moment	k-ft					-11	7	-				-12	8	-			7			15	352	1.06		



Area	52.0	in2
Ix	3,560	in4
Iy	5,971	in4
Sx, top	285	in3
Sx, bottom	285	in3

Diagonal L5-U6

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	57	19	126	113
Lane 2	CL-625	49	16	108	98
Lane 3	CL-625	41	14	91	83
Lane 4	CL-625	33	11	73	67
Total		**180**	**60**	**399**	**361**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (52.0)\ 33.0 = 1{,}631$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (36.0)\ 60.0 = 1{,}744$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 285\ (33) = 744$ k-ft (Lu=0)

Length = 46.68 ft

Fact'rd tension, Tf = 1004 kips

tension D / C = 0.615

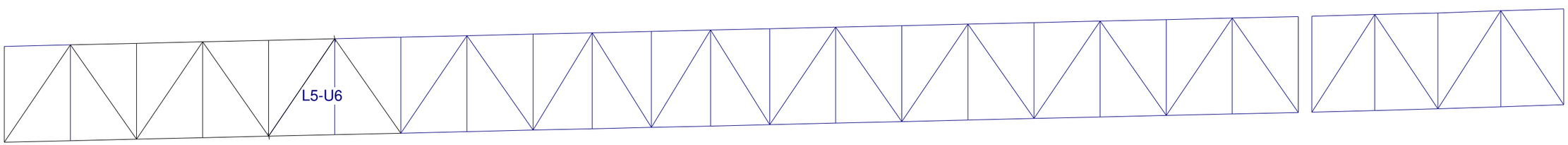
Fact'rd tension LL = 399 kips

Fact'rd moment, Mf = 40 k-ft

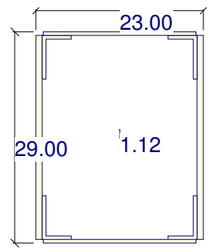
Moment D / C = 0.054

Combined interaction eqn = 0.67

Load rating LLCF = 2.16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L5-U6	Tension	kips	S1	E1	INSP3	4.00	143	366	-	1.11	1.22	1.55	159	446	-	Static det.	Other	180	0.25	1.77	399	1631	1.01	2.16	0.67
	corresp. Moment	k-ft					-27	28	-				-30	34	-			16			36	744	1.06		



Area	82.5	in2
Ix	8,851	in4
Iy	8,562	in4
Sx, top	662	in3
Sx, bottom	567	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-82	-35	-182	-178
Lane 2	CL-625	-70	-30	-155	-153
Lane 3	CL-625	-58	-25	-129	-127
Lane 4	CL-625	-46	-20	-102	-101
Total		**-257**	**-111**	**-568**	**-559**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 50.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.54$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 48.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(82)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}149 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,567\,(33) = 1{,}480 \text{ k-ft} \quad (Lu=0)$$

Length = 45.69 ft

Fact'rd comp, Cf = -1606 kips

comp D / C = 0.747

Fact'rd comp LL = -568 kips

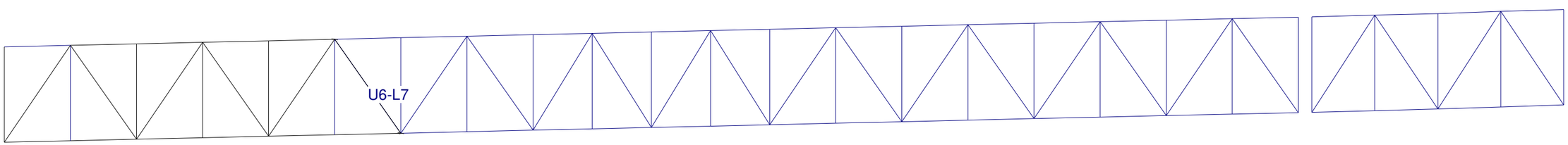
Fact'rd moment, Mf = 105 k-ft

Moment D / C = 0.071

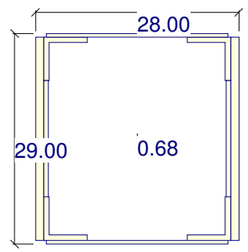
Combined interaction eqn = 0.82

Load rating LLCF = 1.67

Diagonal U6-L7



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U6-L7	Compression	kips	S1	E1	INSP3	4.00	-245	-628	-	1.11	1.22	1.55	-272	-766	-	Static det.	Other	-257	0.25	1.77	-568	2149	1.01	1.67	0.82
	corresp. Moment	k-ft					-51	-11	-				-56	-14	-			-16			-35	1480	1.06		



Area	135.2	in2
Ix	13,393	in4
Iy	20,112	in4
Sx, top	969	in3
Sx, bottom	882	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-111	-63	-246	-269
Lane 2	CL-625	-95	-54	-211	-230
Lane 3	CL-625	-80	-45	-176	-192
Lane 4	CL-625	-64	-36	-142	-154
Total		**-350**	**-198**	**-774**	**-845**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 49.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.53$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 40.5$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(135)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}540 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,882\,(33) = 2{,}304 \text{ k-ft} \quad (Lu=0)$$

Length = 45.69 ft

Fact'rd comp, Cf = -2702 kips

comp D / C = 0.763

Fact'rd comp LL = -845 kips

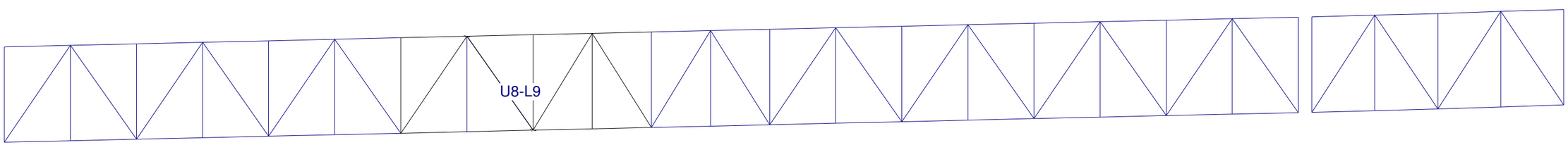
Fact'rd moment, Mf = 229 k-ft

Moment D / C = 0.099

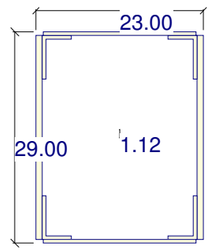
Combined interaction eqn = 0.86

Load rating LLCF = 1.55

Diagonal U8-L9



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U8-L9	Compression	kips	S1	E1	INSP3	4.00	-454	-1109	-	1.11	1.22	1.55	-504	-1352	-	Static det.	Other	-478	0	1.77	-845	3540	1.01	1.55	0.86
	corresp. Moment	k-ft					-78	-63	-				-86	-77	-			-37			-66	2304	1.06		



Area	82.5	in2
Ix	8,851	in4
Iy	8,562	in4
Sx, top	662	in3
Sx, bottom	567	in3

LL Axial demands (kips)

	Truck	Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-88	-36	-195	-190
Lane 2	CL-625	-75	-31	-167	-162
Lane 3	CL-625	-62	-26	-138	-134
Lane 4	CL-625	-49	-21	-109	-107
Total		**-275**	**-115**	**-609**	**-593**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 51.4\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.55$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 49.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(82)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}134 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,567\,(33) = 1{,}480 \text{ k-ft} \quad (Lu=0)$$

Length = 46.68 ft

Fact'rd comp, Cf = -1669 kips

comp D / C = 0.782

Fact'rd comp LL = -609 kips

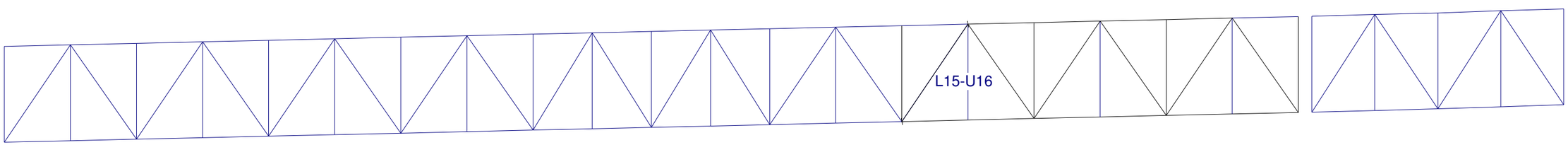
Fact'rd moment, Mf = 90 k-ft

Moment D / C = 0.061

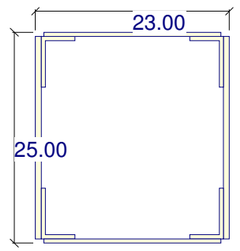
Combined interaction eqn = 0.84

Load rating LLCF = 1.55

Diagonal L15-U16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L15-U16	Compression	kips	S1	E1	INSP3	4.00	-250	-641	-	1.11	1.22	1.55	-278	-782	-	Static det.	Other	-275	0.25	1.77	-609	2134	1.01	1.55	0.84
	corresp. Moment	k-ft					-50	-6	-				-55	-8	-			-12			-28	1480	1.06		



Area	52.0	in2
Ix	3,560	in4
Iy	5,971	in4
Sx, top	285	in3
Sx, bottom	285	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	60	19	132	118
Lane 2	CL-625	51	16	114	101
Lane 3	CL-625	43	14	95	85
Lane 4	CL-625	35	11	77	69
Total		**189**	**60**	**418**	**373**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (52.0)\ 33.0 = 1{,}631$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (36.0)\ 60.0 = 1{,}744$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 285\ (33) = 744$ k-ft (Lu=0)

Length = 45.69 ft

Fact'rd tension, Tf = 1012 kips

tension D / C = 0.620

Fact'rd tension LL = 418 kips

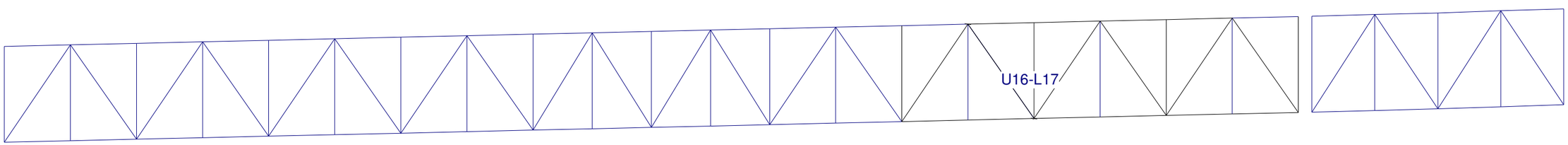
Fact'rd moment, Mf = 47 k-ft

Moment D / C = 0.063

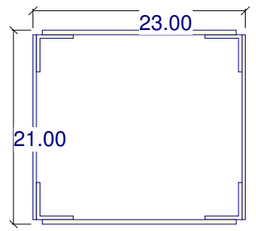
Combined interaction eqn = 0.68

Load rating LLCF = 2.04

Diagonal U16-L17



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U16-L17	Tension	kips	S1	E1	INSP3	4.00	140	359	-	1.11	1.22	1.55	156	438	-	Static det.	Other	189	0.25	1.77	418	1631	1.01	2.04	0.68
	corresp. Moment	k-ft					-27	28	-				-30	34	-			19			42	744	1.06		



Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-42	-6	-94	-71
Lane 2	CL-625	-36	-5	-80	-61
Lane 3	CL-625	-30	-5	-66	-51
Lane 4	CL-625	-24	-4	-53	-41
Total		**-132**	**-20**	**-293**	**-222**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 68.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 50.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(26)\,33\,(1+\lambda^{2n})^{-1/n} = 596 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,135\,(33) = 352 \text{ k-ft} \quad (Lu=0)$$

Length = 46.68 ft

Fact'rd comp, Cf = -499 kips

comp D / C = 0.836

Fact'rd comp LL = -293 kips

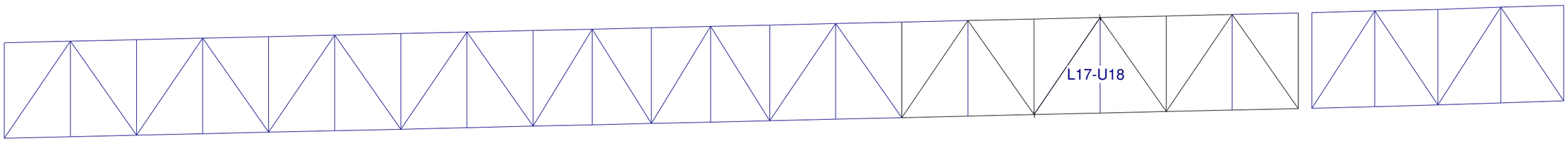
Fact'rd moment, Mf = 10 k-ft

Moment D / C = 0.027

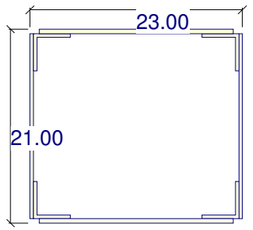
Combined interaction eqn = 0.86

Load rating LLCF = 1.24

Diagonal L17-U18



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L17-U18	Compression	kips	S1	E1	INSP3	4.00	-46	-127	-	1.11	1.22	1.55	-51	-154	-	Static det.	Other	-132	0.25	1.77	-293	596	1.01	1.24	0.86
	corresp. Moment	k-ft					-11	7	-				-12	8	-			6			13	352	1.06		



Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

Diagonal U18-L19

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-45	-10	-98	-81
Lane 2	CL-625	-37	-8	-82	-68
Lane 3	CL-625	-30	-7	-66	-54
Lane 4	CL-625	-23	-5	-50	-40
Total		**-134**	**-30**	**-297**	**-243**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 67.4\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.72$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 49.9$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(26)\,33\,(1+\lambda^{2n})^{-1/n} = 604 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,135\,(33) = 352 \text{ k-ft} \quad (Lu=0)$$

Length = 45.69 ft

Fact'rd comp, Cf = -504 kips

comp D / C = 0.835

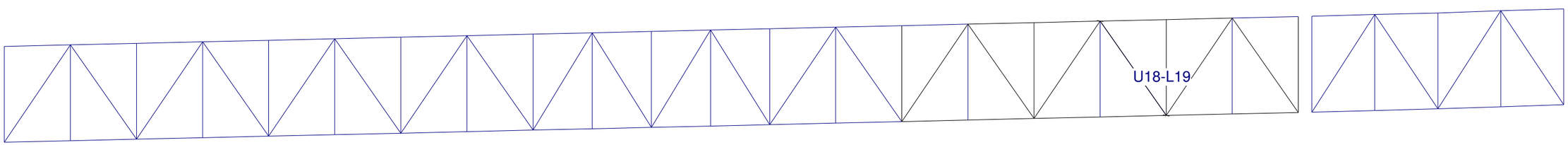
Fact'rd comp LL = -297 kips

Fact'rd moment, Mf = 11 k-ft

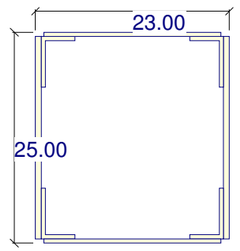
Moment D / C = 0.033

Combined interaction eqn = 0.87

Load rating LLCF = 1.24



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U18-L19	Compression	kips	S1	E1	INSP3	4.00	-47	-128	-	1.11	1.22	1.55	-52	-156	-	Static det.	Other	-134	0.25	1.77	-297	604	1.01	1.24	0.87
	corresp. Moment	k-ft					-10	7	-				-12	8	-			7			15	352	1.06		



Area	52.0	in2
Ix	3,560	in4
Iy	5,971	in4
Sx, top	285	in3
Sx, bottom	285	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	65	24	144	134
Lane 2	CL-625	55	20	122	113
Lane 3	CL-625	45	16	99	92
Lane 4	CL-625	35	13	77	72
Total		**200**	**73**	**442**	**412**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (52.0)\ 33.0 = 1{,}631$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (36.0)\ 60.0 = 1{,}744$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 285\ (33) = 744$ k-ft (Lu=0)

Length = 46.68 ft

Fact'rd tension, Tf = 1057 kips

tension D / C = 0.648

Fact'rd tension LL = 442 kips

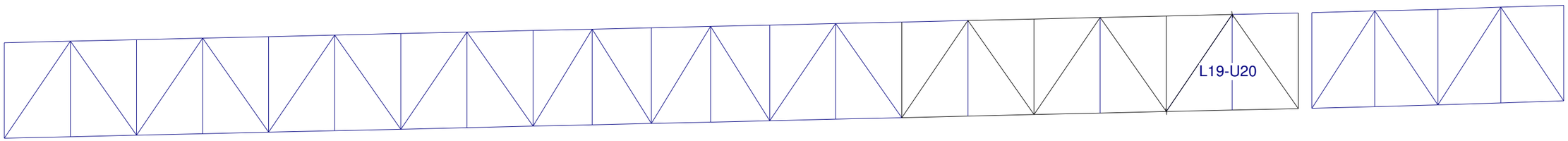
Fact'rd moment, Mf = 49 k-ft

Moment D / C = 0.066

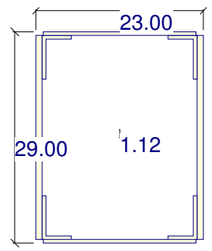
Combined interaction eqn = 0.71

Load rating LLCF = 1.91

Diagonal L19-U20



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L19-U20	Tension	kips	S1	E1	INSP3	4.00	145	372	-	1.11	1.22	1.55	161	453	-	Static det.	Other	200	0.25	1.77	442	1631	1.01	1.91	0.71
	corresp. Moment	k-ft					-28	35	-				-31	43	-			17			37	744	1.06		



Area	82.5	in2
Ix	8,851	in4
Iy	8,562	in4
Sx, top	662	in3
Sx, bottom	567	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-86	-40	-190	-192
Lane 2	CL-625	-73	-33	-161	-162
Lane 3	CL-625	-60	-27	-132	-132
Lane 4	CL-625	-46	-21	-102	-102
Total		**-265**	**-121**	**-586**	**-589**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 48.4\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.52$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 47.6$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(82)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}174 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,567\,(33) = 1{,}480 \text{ k-ft} \quad (Lu=0)$$

Diagonal U20-L21

Length = 45.69 ft

Fact'rd comp, Cf = -1612 kips

comp D / C = 0.741

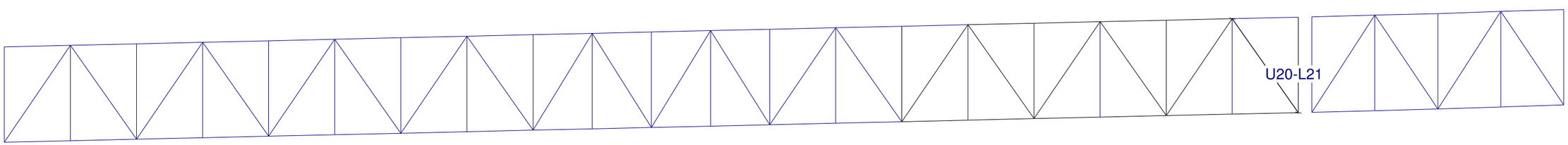
Fact'rd comp LL = -589 kips

Fact'rd moment, Mf = 164 k-ft

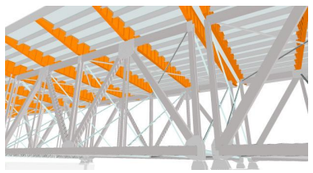
Moment D / C = 0.111

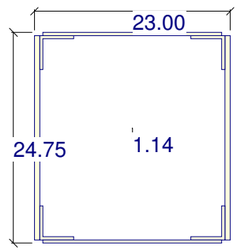
Combined interaction eqn = 0.85

Load rating LLCF = 1.55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U20-L21	Compression	kips	S1	E1	INSP3	4.00	-241	-620	-	1.11	1.22	1.55	-267	-756	-	Static det.	Other	-333	0	1.77	-589	2174	1.01	1.55	0.85
	corresp. Moment	k-ft					-57	-43	-				-63	-53	-			-27			-48	1480	1.06		





Area	52.3	in2
Ix	4,353	in4
Iy	5,436	in4
Sx, top	387	in3
Sx, bottom	322	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-71	-22	-158	-140
Lane 2	CL-625	-60	-19	-133	-118
Lane 3	CL-625	-49	-15	-109	-97
Lane 4	CL-625	-38	-12	-84	-75
Total		**-219**	**-68**	**-484**	**-430**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 54.6\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.59$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 48.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(52)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}324 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,322\,(33) = 842 \text{ k-ft} \quad (Lu=0)$$

Length = 46.10 ft

Fact'rd comp, Cf = -1056 kips

comp D / C = 0.798

Fact'rd comp LL = -484 kips

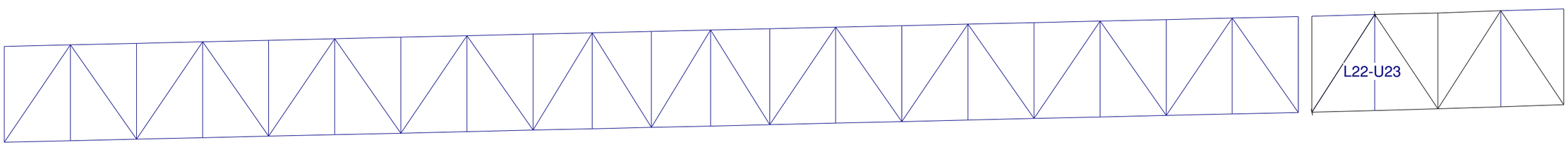
Fact'rd moment, Mf = 98 k-ft

Moment D / C = 0.117

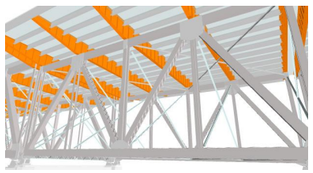
Combined interaction eqn = 0.91

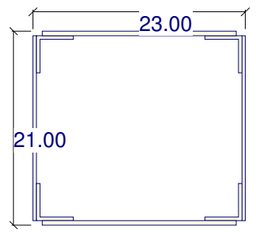
Load rating LLCF = 1.24

Diagonal L22-U23



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L22-U23	Compression	kips	S1	E1	INSP3	4.00	-126	-355	-	1.11	1.22	1.55	-140	-432	-	Static det.	Other	-219	0.25	1.77	-484	1324	1.01	1.24	0.91
	corresp. Moment	k-ft					-31	-24	-				-35	-30	-			-15			-34	842	1.06		





Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

Diagonal U23-L24

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	34	6	74	59
Lane 2	CL-625	29	5	63	50
Lane 3	CL-625	23	5	52	41
Lane 4	CL-625	18	4	41	32
Total		**104**	**20**	**230**	**182**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (26.4)\ 33.0 = 829$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (20.0)\ 60.0 = 969$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 135\ (33) = 352$ k-ft (Lu=0)

Length = 44.88 ft

Fact'rd tension, Tf = 408 kips

tension D / C = 0.492

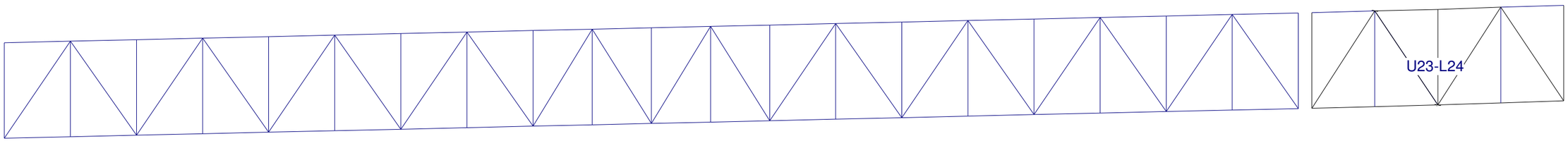
Fact'rd tension LL = 230 kips

Fact'rd moment, Mf = 21 k-ft

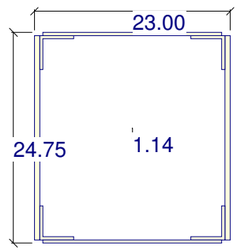
Moment D / C = 0.059

Combined interaction eqn = 0.55

Load rating LLCF = 2.40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U23-L24	Tension	kips	S1	E1	INSP3	4.00	40	109	-	1.11	1.22	1.55	44	133	-	Static det.	Other	104	0.25	1.77	230	829	1.01	2.40	0.55
	corresp. Moment	k-ft					-10	12	-				-11	15	-			8			17	352	1.06		



Area	52.3	in2
Ix	4,353	in4
Iy	5,436	in4
Sx, top	387	in3
Sx, bottom	322	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-60	-21	-132	-121
Lane 2	CL-625	-51	-18	-112	-103
Lane 3	CL-625	-42	-14	-92	-85
Lane 4	CL-625	-33	-11	-73	-67
Total		**-185**	**-64**	**-409**	**-375**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 53.1\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.57$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 47.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(52)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}337 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,322\,(33) = 842 \text{ k-ft} \quad (Lu=0)$$

Length = 44.88 ft

Fact'rd comp, Cf = -967 kips

comp D / C = 0.723

Fact'rd comp LL = -409 kips

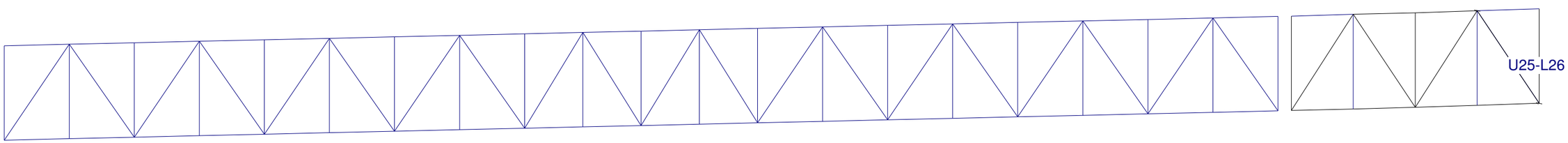
Fact'rd moment, Mf = 101 k-ft

Moment D / C = 0.120

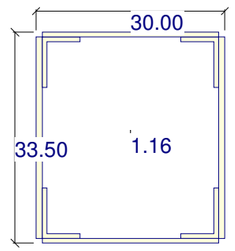
Combined interaction eqn = 0.84

Load rating LLCF = 1.49

Diagonal U25-L26



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U25-L26	Compression	kips	S1	E1	INSP3	4.00	-123	-346	-	1.11	1.22	1.55	-136	-422	-	Static det.	Other	-185	0.25	1.77	-409	1337	1.01	1.49	0.84
	corresp. Moment	k-ft					-31	-25	-				-35	-30	-			-16			-36	842	1.06		



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-105	-67	-233	-267
Lane 2	CL-625	-89	-56	-197	-226
Lane 3	CL-625	-73	-46	-162	-185
Lane 4	CL-625	-57	-36	-126	-144
Total		**-324**	**-205**	**-717**	**-822**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 47.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.51$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 46.1$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}613 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 54.85 ft

Fact'rd comp, Cf = -2690 kips

comp D / C = 0.744

Fact'rd comp LL = -822 kips

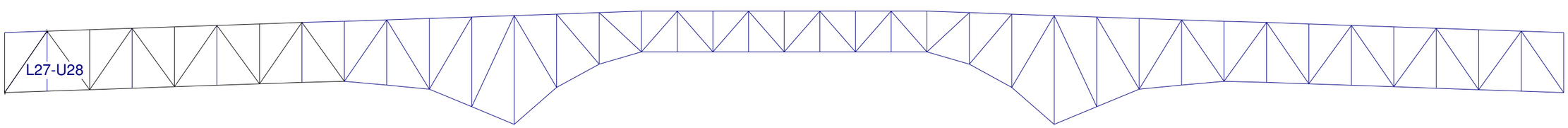
Fact'rd moment, Mf = 321 k-ft

Moment D / C = 0.103

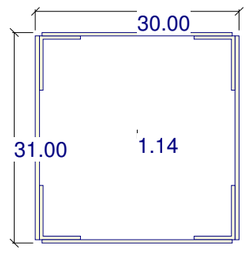
Combined interaction eqn = 0.85

Load rating LLCF = 1.67

Diagonal L27-U28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L27-U28	Compression	kips	S1	E1	INSP3	4.00	-504	-1072	-	1.11	1.22	1.55	-559	-1308	-	Static det.	Other	-465	0	1.77	-822	3613	1.01	1.67	0.85
	corresp. Moment	k-ft					-133	-80	-				-148	-97	-			-43			-76	3118	1.06		



Area	86.1	in2
Ix	12,130	in4
Iy	14,502	in4
Sx, top	845	in3
Sx, bottom	729	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	81	45	179	194
Lane 2	CL-625	69	38	152	164
Lane 3	CL-625	57	31	125	135
Lane 4	CL-625	45	24	98	106
Total		**251**	**138**	**555**	**599**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (86.1)\ 33.0 = 2{,}698$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (68.0)\ 60.0 = 3{,}295$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 729\ (33) = 1{,}904$ k-ft (Lu=0)

Length = 53.10 ft

Fact'rd tension, Tf = 1873 kips

tension D / C = 0.694

Fact'rd tension LL = 599 kips

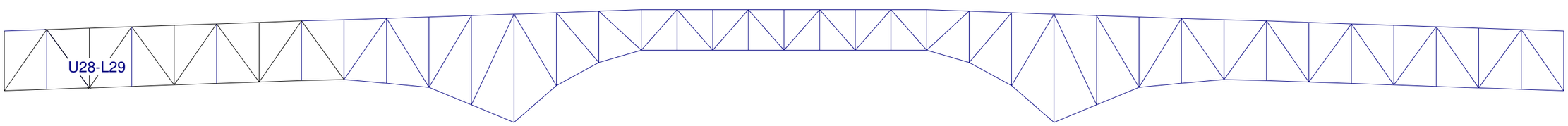
Fact'rd moment, Mf = 137 k-ft

Moment D / C = 0.072

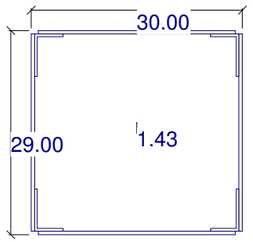
Combined interaction eqn = 0.77

Load rating LLCF = 1.91

Diagonal U28-L29



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U28-L29	Tension	kips	S1	E1	INSP3	4.00	348	727	-	1.11	1.22	1.55	386	887	-	Static det.	Other	339	0	1.77	599	2698	1.01	1.91	0.77
	corresp. Moment	k-ft					-76	103	-				-85	126	-			54			95	1904	1.06		



Area	64.0	in2
Ix	8,230	in4
Iy	10,596	in4
Sx, top	630	in3
Sx, bottom	516	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-72	-31	-160	-156
Lane 2	CL-625	-61	-26	-135	-132
Lane 3	CL-625	-50	-21	-110	-108
Lane 4	CL-625	-39	-16	-85	-83
Total		**-222**	**-93**	**-490**	**-479**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 52.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 46.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(64)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}646 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,516\,(33) = 1{,}349 \text{ k-ft} \quad (Lu=0)$$

Diagonal L29-U30

Length = 54.85 ft

Fact'rd comp, Cf = -1310 kips

comp D / C = 0.796

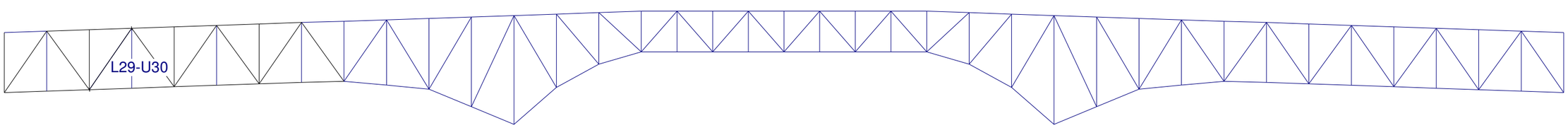
Fact'rd comp LL = -490 kips

Fact'rd moment, Mf = 48 k-ft

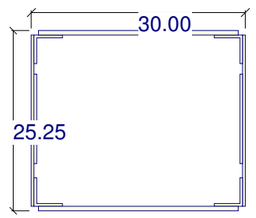
Moment D / C = 0.036

Combined interaction eqn = 0.83

Load rating LLCF = 1.55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L29-U30	Compression	kips	S1	E1	INSP3	4.00	-220	-472	-	1.11	1.22	1.55	-244	-576	-	Static det.	Other	-222	0.25	1.77	-490	1646	1.01	1.55	0.83
	corresp. Moment	k-ft					-54	47	-				-60	58	-			23			50	1349	1.06		



Area	38.8	in2
Ix	2,353	in4
Iy	8,002	in4
Sx, top	187	in3
Sx, bottom	186	in3

Diagonal U30-L31

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	49	9	107	85
Lane 2	CL-625	41	8	91	72
Lane 3	CL-625	34	6	74	58
Lane 4	CL-625	26	5	58	45
Total		**149**	**28**	**330**	**261**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (38.8)\ 33.0 = 1{,}217$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (30.0)\ 60.0 = 1{,}454$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 186\ (33) = 485$ k-ft (Lu=0)

Length = 53.10 ft

Fact'rd tension, Tf = 571 kips

tension D / C = 0.469

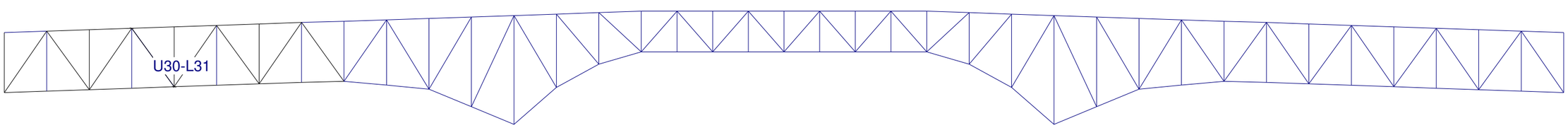
Fact'rd tension LL = 330 kips

Fact'rd moment, Mf = 18 k-ft

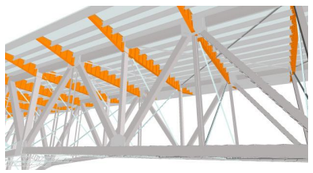
Moment D / C = 0.038

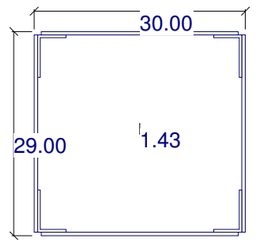
Combined interaction eqn = 0.51

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U30-L31	Tension	kips	S1	E1	INSP3	4.00	72	132	-	1.11	1.22	1.55	80	161	-	Static det.	Other	149	0.25	1.77	330	1217	1.01	2.46	0.51
	corresp. Moment	k-ft					-22	14	-				-25	17	-			12			26	485	1.06		





Area	64.0	in2
Ix	8,230	in4
Iy	10,596	in4
Sx, top	630	in3
Sx, bottom	516	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-63	-24	-140	-132
Lane 2	CL-625	-54	-21	-120	-113
Lane 3	CL-625	-45	-18	-99	-95
Lane 4	CL-625	-36	-14	-79	-76
Total		**-198**	**-77**	**-438**	**-416**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 50.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.54$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 44.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(64)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}664 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,516\,(33) = 1{,}349 \text{ k-ft} \quad (Lu=0)$$

Diagonal U32-L33

Length = 53.10 ft

Fact'rd comp, Cf = -1227 kips

comp D / C = 0.737

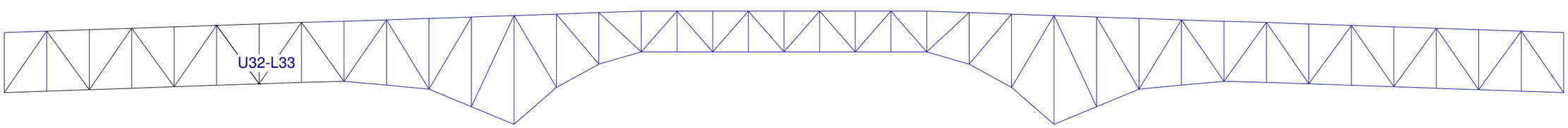
Fact'rd comp LL = -438 kips

Fact'rd moment, Mf = 56 k-ft

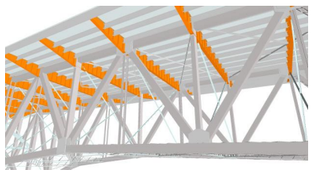
Moment D / C = 0.041

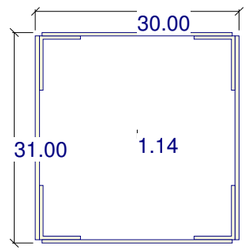
Combined interaction eqn = 0.78

Load rating LLCF = 1.73



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U32-L33	Compression	kips	S1	E1	INSP3	4.00	-211	-455	-	1.11	1.22	1.55	-234	-555	-	Static det.	Other	-198	0.25	1.77	-438	1664	1.01	1.73	0.78
	corresp. Moment	k-ft					-53	54	-				-59	66	-			-28			-63	1349	1.06		





Area	86.1	in2
Ix	12,130	in4
Iy	14,502	in4
Sx, top	845	in3
Sx, bottom	729	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	77	40	171	179
Lane 2	CL-625	66	34	146	154
Lane 3	CL-625	55	29	122	129
Lane 4	CL-625	44	24	97	104
Total		**242**	**126**	**536**	**566**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (86.1)\ 33.0 = 2{,}698$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (68.0)\ 60.0 = 3{,}295$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 729\ (33) = 1{,}904$ k-ft (Lu=0)

Length = 54.85 ft

Fact'rd tension, Tf = 1850 kips

tension D / C = 0.686

Fact'rd tension LL = 566 kips

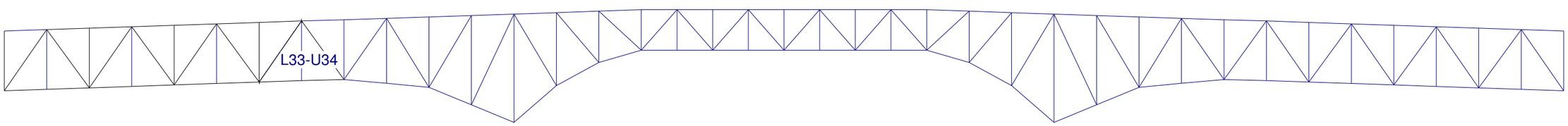
Fact'rd moment, Mf = 45 k-ft

Moment D / C = 0.024

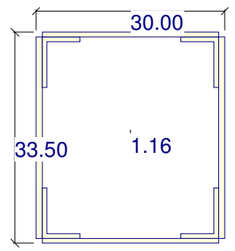
Combined interaction eqn = 0.71

Load rating LLCF = 2.16

Diagonal L33-U34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L33-U34	Tension	kips	S1	E1	INSP3	4.00	354	730	-	1.11	1.22	1.55	393	890	-	Static det.	Other	320	0	1.77	566	2698	1.01	2.16	0.71
	corresp. Moment	k-ft					-68	44	-				-76	54	-			38			67	1904	1.06		



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-101	-63	-224	-256
Lane 2	CL-625	-86	-54	-190	-218
Lane 3	CL-625	-71	-45	-157	-180
Lane 4	CL-625	-56	-36	-124	-143
Total		**-314**	**-199**	**-695**	**-797**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 48.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.52$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 44.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}590 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 53.10 ft

Fact'rd comp, Cf = -2671 kips

comp D / C = 0.744

Fact'rd comp LL = -797 kips

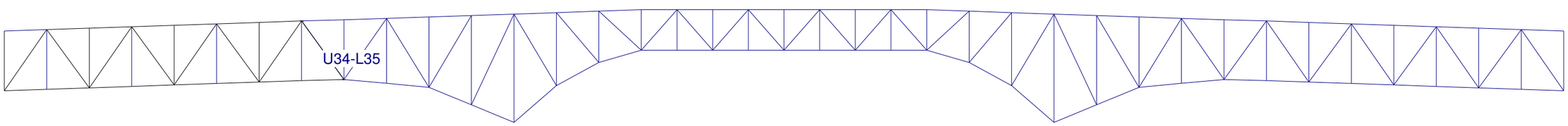
Fact'rd moment, Mf = 177 k-ft

Moment D / C = 0.057

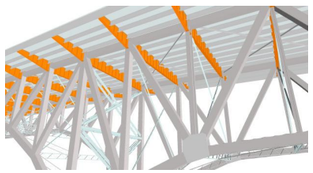
Combined interaction eqn = 0.80

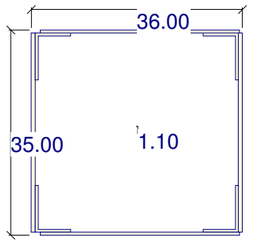
Load rating LLCF = 1.91

Diagonal U34-L35



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U34-L35	Compression	kips	S1	E1	INSP3	4.00	-503	-1079	-	1.11	1.22	1.55	-558	-1316	-	Static det.	Other	-450	0	1.77	-797	3590	1.01	1.91	0.80
	corresp. Moment	k-ft					-128	1	-				-143	1	-			-20			-36	3118	1.06		





Area	101.3	in2
Ix	18,456	in4
Iy	24,727	in4
Sx, top	1,125	in3
Sx, bottom	992	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	65	46	144	173
Lane 2	CL-625	56	39	123	149
Lane 3	CL-625	47	33	103	125
Lane 4	CL-625	38	27	83	101
Total		**205**	**145**	**453**	**546**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.3)\ 33.0 = 3{,}177$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (76.0)\ 60.0 = 3{,}682$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 992\ (33) = 2{,}592$ k-ft (Lu=0)

Length = 61.52 ft

Fact'rd tension, Tf = 2078 kips

tension D / C = 0.654

Fact'rd tension LL = 546 kips

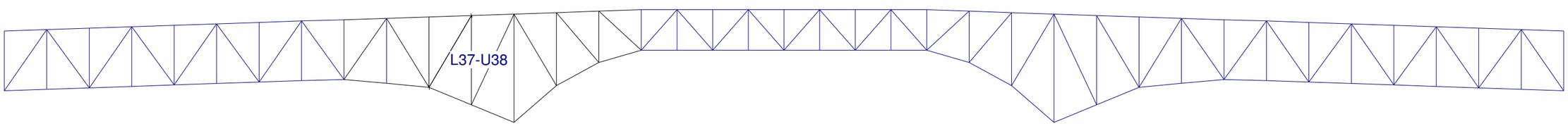
Fact'rd moment, Mf = 263 k-ft

Moment D / C = 0.102

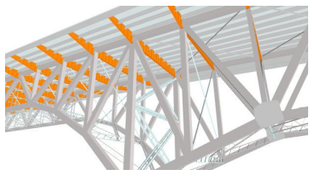
Combined interaction eqn = 0.76

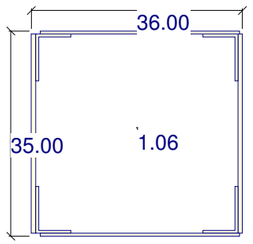
Load rating LLCF = 2.10

Diagonal L37-U38



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L37-U38	Tension	kips	S1	E1	INSP3	4.00	462	835	-	1.11	1.22	1.55	512	1019	-	Static det.	Other	309	0	1.77	546	3177	1.01	2.10	0.76
	corresp. Moment	k-ft					-204	258	-				-226	314	-			99			175	2592	1.06		





Area	105.5	in2
Ix	18,867	in4
Iy	25,934	in4
Sx, top	1,147	in3
Sx, bottom	1,017	in3

Diagonal L38-U39

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	73	49	162	190
Lane 2	CL-625	63	42	139	163
Lane 3	CL-625	52	35	115	136
Lane 4	CL-625	42	28	92	109
Total		**230**	**154**	**508**	**597**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (105.5)\ 33.0 = 3{,}309$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1017\ (33) = 2{,}656$ k-ft (Lu=0)

Length = 73.92 ft

Fact'rd tension, Tf = 2228 kips

tension D / C = 0.673

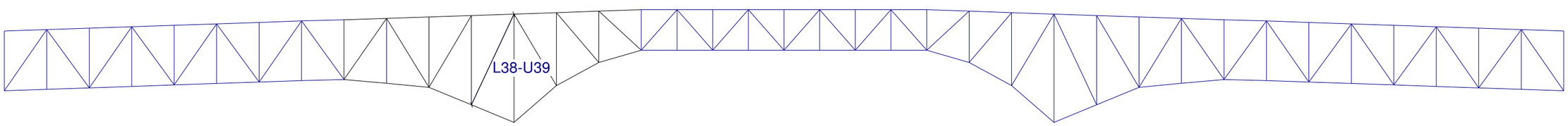
Fact'rd tension LL = 597 kips

Fact'rd moment, Mf = 564 k-ft

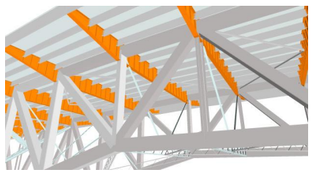
Moment D / C = 0.212

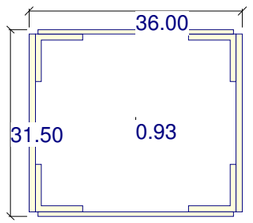
Combined interaction eqn = 0.89

Load rating LLCF = 1.61



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L38-U39	Tension	kips	S1	E1	INSP3	4.00	512	870	-	1.11	1.22	1.55	569	1062	-	Static det.	Other	337	0	1.77	597	3309	1.01	1.61	0.89
	corresp. Moment	k-ft					-182	-191	-				-202	-233	-			-73			-129	2656	1.06		





Area	163.4	in2
Ix	23,937	in4
Iy	37,054	in4
Sx, top	1,615	in3
Sx, bottom	1,435	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-96	-82	-213	-281
Lane 2	CL-625	-81	-71	-180	-241
Lane 3	CL-625	-66	-61	-147	-202
Lane 4	CL-625	-51	-50	-114	-162
Total		**-296**	**-264**	**-654**	**-885**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 35.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.38$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(163)\,33\,(1+\lambda^{2n})^{-1/n} = 4{,}596 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1435\,(33) = 3{,}749 \text{ k-ft} \quad (Lu=0)$$

Length = 39.80 ft

Fact'rd comp, Cf = -2738 kips

comp D / C = 0.596

Fact'rd comp LL = -885 kips

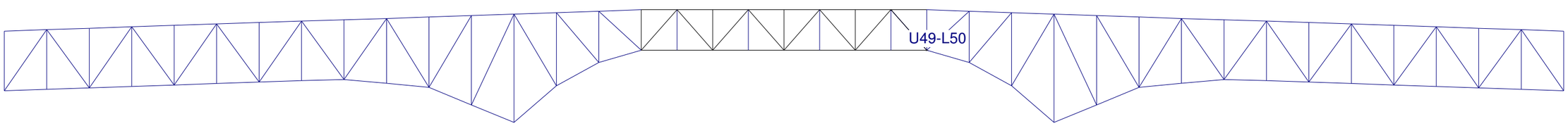
Fact'rd moment, Mf = 115 k-ft

Moment D / C = 0.031

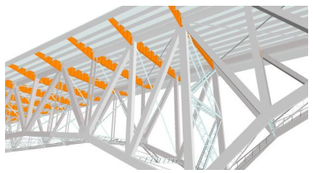
Combined interaction eqn = 0.63

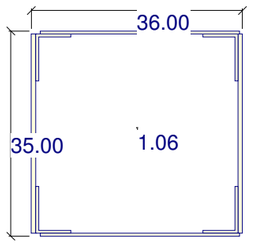
Load rating LLCF = 2.16

Diagonal U49-L50



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U49-L50	Compression	kips	S1	E1	INSP3	4.00	-599	-974	-	1.11	1.22	1.55	-665	-1188	-	Static det.	Other	-500	0	1.77	-885	4596	1.01	2.16	0.63
	corresp. Moment	k-ft					-143	-125	-				-158	-153	-			111			196	3749	1.06		





Area	105.5	in2
Ix	18,867	in4
Iy	25,934	in4
Sx, top	1,147	in3
Sx, bottom	1,017	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	79	51	174	201
Lane 2	CL-625	67	44	148	172
Lane 3	CL-625	55	36	123	143
Lane 4	CL-625	44	29	97	113
Total		**245**	**160**	**542**	**629**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (105.5)\ 33.0 = 3{,}309$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1017\ (33) = 2{,}656$ k-ft (Lu=0)

Length = 73.92 ft

Fact'rd tension, Tf = 2247 kips

tension D / C = 0.679

Fact'rd tension LL = 629 kips

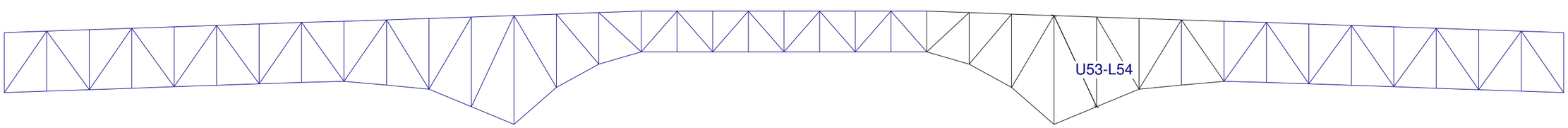
Fact'rd moment, Mf = 515 k-ft

Moment D / C = 0.194

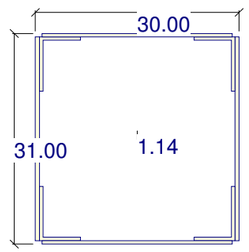
Combined interaction eqn = 0.87

Load rating LLCF = 1.67

Diagonal U53-L54



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U53-L54	Tension	kips	S1	E1	INSP3	4.00	502	870	-	1.11	1.22	1.55	557	1061	-	Static det.	Other	356	0	1.77	629	3309	1.01	1.67	0.87
	corresp. Moment	k-ft					-181	-191	-				-200	-233	-			-46			-82	2656	1.06		



Area	86.1	in2
Ix	12,130	in4
Iy	14,502	in4
Sx, top	845	in3
Sx, bottom	729	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	76	39	168	177
Lane 2	CL-625	65	34	144	153
Lane 3	CL-625	55	29	121	128
Lane 4	CL-625	44	24	97	104
Total		**240**	**126**	**530**	**562**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (86.1)\ 33.0 = 2{,}698$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (68.0)\ 60.0 = 3{,}295$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 729\ (33) = 1{,}904$ k-ft (Lu=0)

Length = 54.85 ft

Fact'rd tension, Tf = 1844 kips

tension D / C = 0.683

Fact'rd tension LL = 562 kips

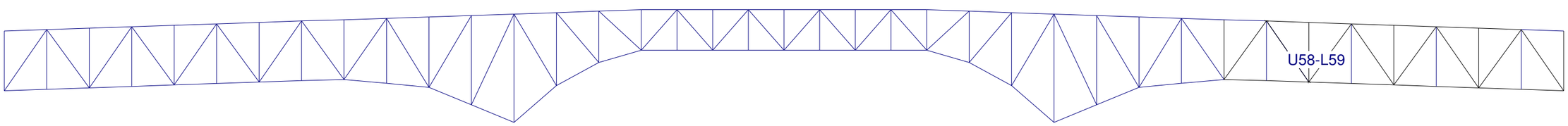
Fact'rd moment, Mf = 52 k-ft

Moment D / C = 0.027

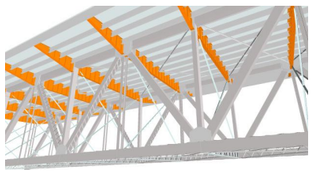
Combined interaction eqn = 0.71

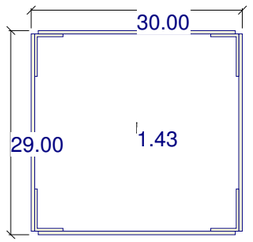
Load rating LLCF = 2.10

Diagonal U58-L59



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U58-L59	Tension	kips	S1	E1	INSP3	4.00	352	731	-	1.11	1.22	1.55	390	892	-	Static det.	Other	318	0	1.77	562	2698	1.01	2.10	0.71
	corresp. Moment	k-ft					-69	44	-				-76	53	-			42			74	1904	1.06		





Area	64.0	in2
Ix	8,230	in4
Iy	10,596	in4
Sx, top	630	in3
Sx, bottom	516	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-63	-24	-139	-131
Lane 2	CL-625	-54	-21	-119	-113
Lane 3	CL-625	-45	-18	-100	-95
Lane 4	CL-625	-36	-14	-80	-77
Total		**-198**	**-76**	**-439**	**-416**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 50.6\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.54$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 44.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(64)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}664 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,516\,(33) = 1{,}349 \text{ k-ft} \quad (Lu=0)$$

Length = 53.10 ft

Fact'rd comp, Cf = -1230 kips

comp D / C = 0.739

Fact'rd comp LL = -439 kips

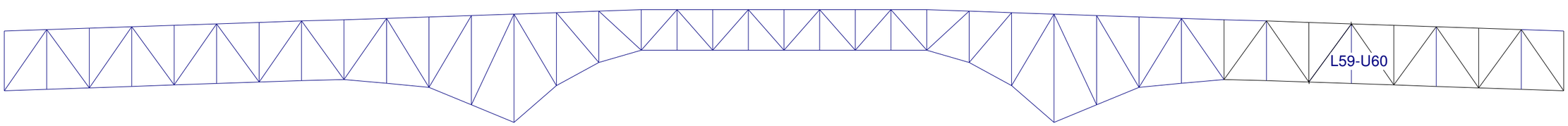
Fact'rd moment, Mf = 48 k-ft

Moment D / C = 0.035

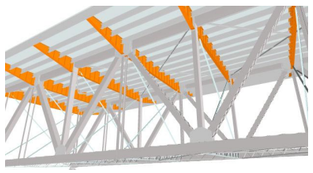
Combined interaction eqn = 0.77

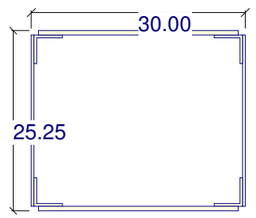
Load rating LLCF = 1.73

Diagonal L59-U60



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L59-U60	Compression	kips	S1	E1	INSP3	4.00	-210	-458	-	1.11	1.22	1.55	-233	-558	-	Static det.	Other	-198	0.25	1.77	-439	1664	1.01	1.73	0.77
	corresp. Moment	k-ft					-55	55	-				-61	67	-			-24			-54	1349	1.06		





Area	29.4	in2
Ix	2,231	in4
Iy	6,047	in4
Sx, top	177	in3
Sx, bottom	177	in3

Diagonal L61-U62

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	48	11	107	87
Lane 2	CL-625	41	9	90	73
Lane 3	CL-625	33	7	73	59
Lane 4	CL-625	26	5	57	45
Total		**148**	**31**	**327**	**264**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (29.4)\ 33.0 = 923$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (22.0)\ 60.0 = 1{,}066$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 65.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.71$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 40.0$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (29)\ 33\ (1 + \lambda^{2n})^{-1/n} = 682 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 177\ (33) = 462$ k-ft (Lu=0)

Length = 53.10 ft

Fact'rd tension, Tf = 556 kips

tension D / C = 0.602

Fact'rd tension LL = 327 kips

Fact'rd moment, Mf = 24 k-ft

Moment D / C = 0.052

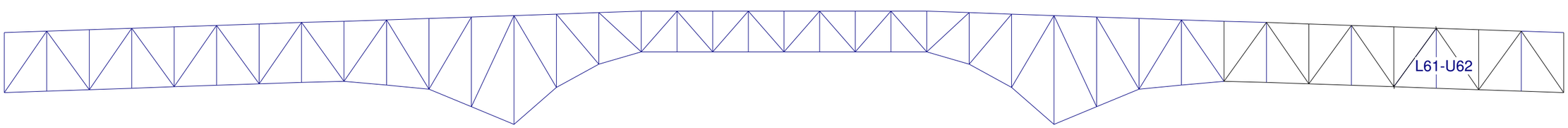
Combined interaction eqn = 0.65

Governing fact'rd comp, Cf = -57 kip

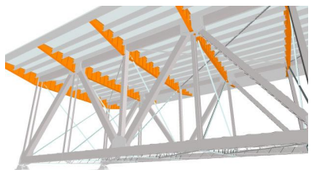
comp D / C = 0.084

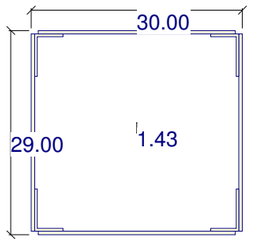
Fact'rd comp LL = -234 kips

Load rating LLCF = 1.85



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L61-U62	Tension	kips	S1	E1	INSP3	4.00	67	126	-	1.11	1.22	1.55	74	154	-	Static det.	Other	148	0.25	1.77	327	923	1.01	1.85	0.65
	corresp. Moment	k-ft					-17	14	-				-18	17	-			11			25	462	1.06		





Area	64.0	in2
Ix	8,230	in4
Iy	10,596	in4
Sx, top	630	in3
Sx, bottom	516	in3

Diagonal U62-L63

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-71	-32	-157	-158
Lane 2	CL-625	-60	-27	-132	-133
Lane 3	CL-625	-49	-22	-108	-108
Lane 4	CL-625	-38	-16	-84	-82
Total		**-217**	**-97**	**-481**	**-480**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 52.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 46.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(64)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}646 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,516\,(33) = 1{,}349 \text{ k-ft} \quad (Lu=0)$$

Length = 54.85 ft

Fact'rd comp, Cf = -1300 kips

comp D / C = 0.789

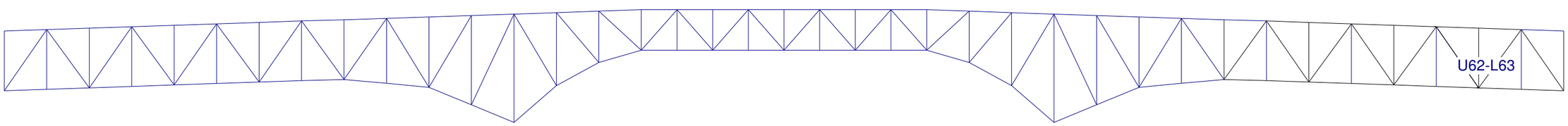
Fact'rd comp LL = -481 kips

Fact'rd moment, Mf = 75 k-ft

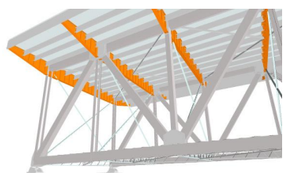
Moment D / C = 0.055

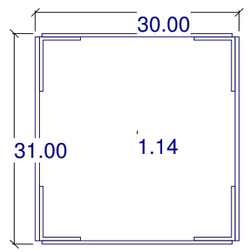
Combined interaction eqn = 0.84

Load rating LLCF = 1.49



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U62-L63	Compression	kips	S1	E1	INSP3	4.00	-218	-473	-	1.11	1.22	1.55	-242	-577	-	Static det.	Other	-217	0.25	1.77	-481	1646	1.01	1.49	0.84
	corresp. Moment	k-ft					-56	49	-				-62	60	-			-33			-73	1349	1.06		





Area	86.1	in2
Ix	12,130	in4
Iy	14,502	in4
Sx, top	845	in3
Sx, bottom	729	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	81	47	179	197
Lane 2	CL-625	68	39	152	167
Lane 3	CL-625	56	32	124	136
Lane 4	CL-625	44	25	97	106
Total		**249**	**143**	**552**	**606**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (86.1)\ 33.0 = 2{,}698$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (68.0)\ 60.0 = 3{,}295$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 729\ (33) = 1{,}904$ k-ft (Lu=0)

Length = 53.10 ft

Fact'rd tension, Tf = 1874 kips

tension D / C = 0.695

Fact'rd tension LL = 606 kips

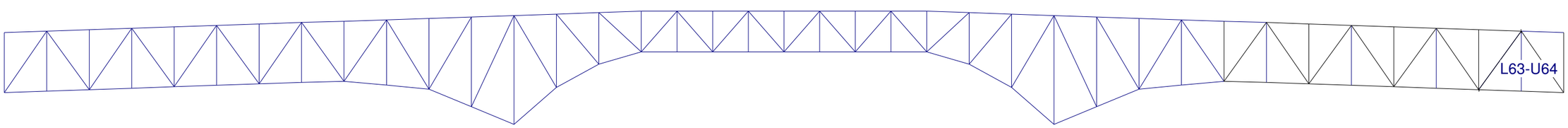
Fact'rd moment, Mf = 130 k-ft

Moment D / C = 0.068

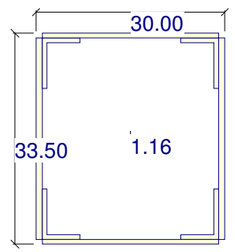
Combined interaction eqn = 0.76

Load rating LLCF = 1.91

Diagonal L63-U64



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L63-U64	Tension	kips	S1	E1	INSP3	4.00	345	726	-	1.11	1.22	1.55	383	886	-	Static det.	Other	342	0	1.77	606	2698	1.01	1.91	0.76
	corresp. Moment	k-ft					-75	103	-				-84	126	-			50			88	1904	1.06		



Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-104	-69	-231	-270
Lane 2	CL-625	-88	-58	-195	-228
Lane 3	CL-625	-72	-47	-160	-186
Lane 4	CL-625	-56	-36	-125	-144
Total		**-321**	**-210**	**-711**	**-827**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 47.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.51$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 46.1$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}613 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 54.85 ft

Fact'rd comp, Cf = -2690 kips

comp D / C = 0.744

Fact'rd comp LL = -827 kips

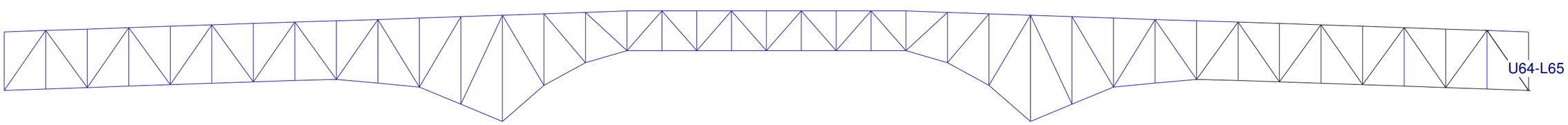
Fact'rd moment, Mf = 327 k-ft

Moment D / C = 0.105

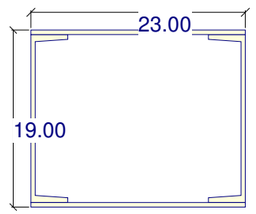
Combined interaction eqn = 0.85

Load rating LLCF = 1.67

Diagonal U64-L65



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U64-L65	Compression	kips	S1	E1	INSP3	4.00	-501	-1071	-	1.11	1.22	1.55	-556	-1307	-	Static det.	Other	-467	0	1.77	-827	3613	1.01	1.67	0.85
	corresp. Moment	k-ft					-133	-80	-				-148	-98	-			-46			-81	3118	1.06		



Area	24.9	in2
Ix	1,097	in4
Iy	2,844	in4
Sx, top	116	in3
Sx, bottom	116	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-36	-9	-79	-66
Lane 2	CL-625	-30	-7	-66	-55
Lane 3	CL-625	-24	-5	-53	-43
Lane 4	CL-625	-18	-4	-40	-32
Total		**-108**	**-25**	**-238**	**-196**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 61.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.66$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 44.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 598 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,116\,(33) = 302 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -401 kips

comp D / C = 0.671

Fact'rd comp LL = -238 kips

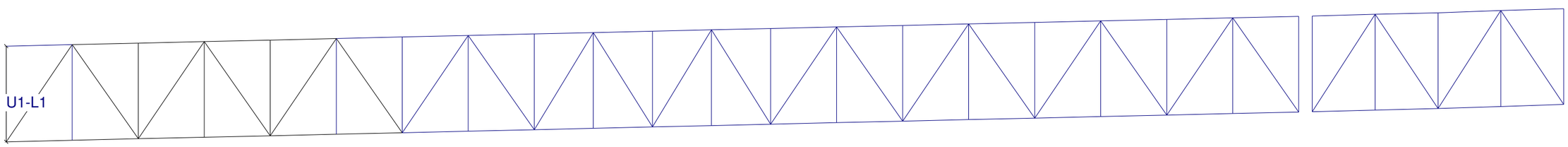
Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.004

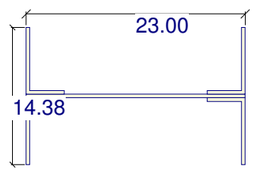
Combined interaction eqn = 0.67

Load rating LLCF = 1.79

Vertical U1-L1



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U1-L1	Compression	kips	S1	E1	INSP3	4.00	-37	-99	-	1.11	1.22	1.55	-42	-121	-	Static det.	Other	-108	0.25	1.77	-238	598	1.01	1.79	0.67
	corresp. Moment	k-ft					-9	11	-				-10	13	-			-2			-4	302	1.06		



Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 11 kips

tension D / C = 0.022

Fact'rd tension LL = 0 kips

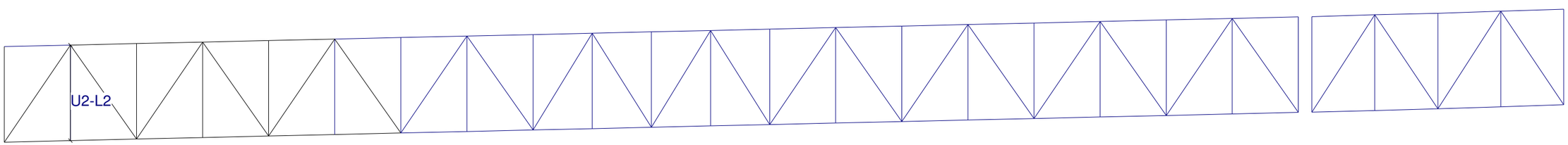
Fact'rd moment, Mf = 5 k-ft

Moment D / C = 0.075

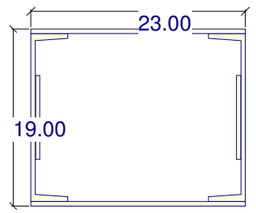
Combined interaction eqn = 0.10

Load rating LLCF = 180.51

Vertical U2-L2



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U2-L2	Tension	kips	S1	E1	INSP3	4.00	12	-3	-	1.11	0.90	1.55	13	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.10
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			0			0	68	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	3,761	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-45	-11	-100	-84
Lane 2	CL-625	-38	-10	-84	-71
Lane 3	CL-625	-31	-8	-69	-58
Lane 4	CL-625	-24	-6	-54	-45
Total		**-139**	**-35**	**-307**	**-259**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 45.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -596 kips

comp D / C = 0.808

Fact'rd comp LL = -307 kips

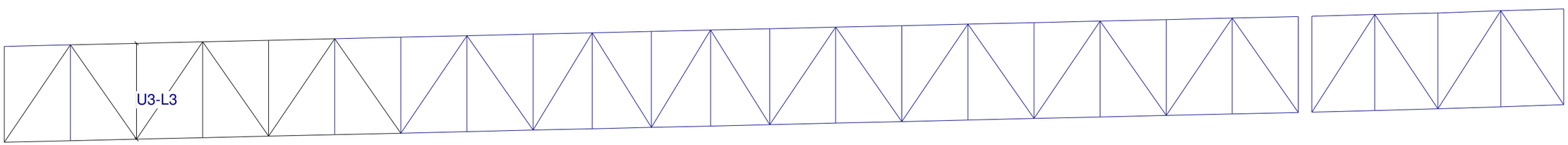
Fact'rd moment, Mf = 43 k-ft

Moment D / C = 0.137

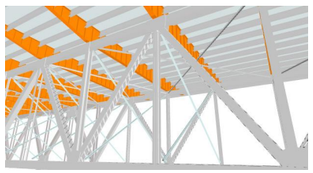
Combined interaction eqn = 0.95

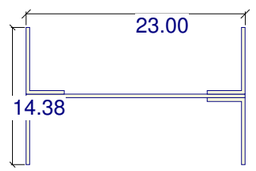
Load rating LLCF = 1.15

Vertical U3-L3



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U3-L3	Compression	kips	S1	E1	INSP3	4.00	-54	-188	-	1.11	1.22	1.55	-60	-229	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.15	0.95
	corresp. Moment	k-ft					6	16	-				7	19	-			8			17	316	1.06		





Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-2	0	-4	-4
Lane 2	CL-625	-2	0	-4	-3
Lane 3	CL-625	-1	0	-3	-2
Lane 4	CL-625	-1	0	-2	-2
Total		**-6**	**-1**	**-13**	**-11**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 120.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 1.29$$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 38.4$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\ (16)\ 33\ (1+\lambda^{2n})^{-1/n} = 210 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd comp, Cf = -10 kips

comp D / C = 0.049

Fact'rd comp LL = -13 kips

Fact'rd moment, Mf = 3 k-ft

Moment D / C = 0.040

Combined interaction eqn = 0.09

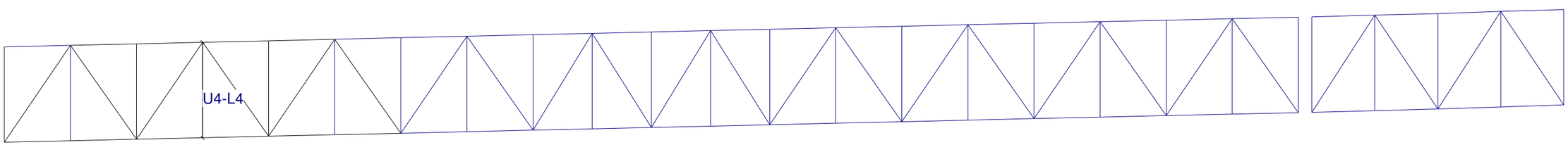
Governing fact'rd tension, Tf = 7 kip

tension D / C = 0.015

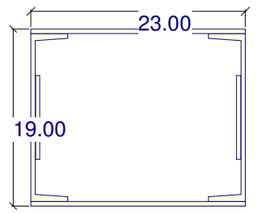
Fact'rd tension LL = 0 kips

Load rating LLCF = 9.54

Vertical U4-L4



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U4-L4	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	9.54	0.09
	corresp. Moment	k-ft					0	0	-				0	0	-			1			3	68	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	3,761	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-44	-11	-97	-82
Lane 2	CL-625	-37	-9	-82	-69
Lane 3	CL-625	-30	-8	-67	-57
Lane 4	CL-625	-24	-6	-52	-44
Total		**-135**	**-34**	**-299**	**-252**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 45.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -584 kips

comp D / C = 0.791

Fact'rd comp LL = -299 kips

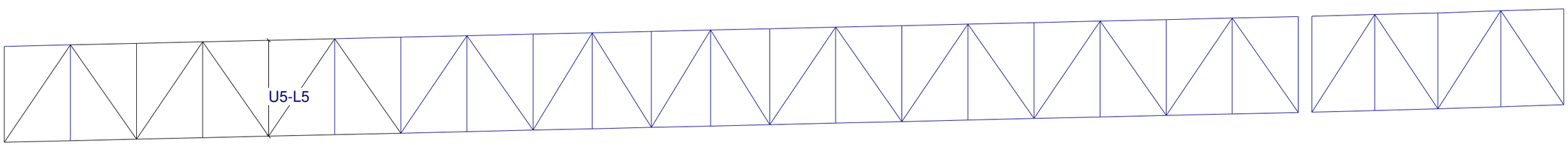
Fact'rd moment, Mf = 30 k-ft

Moment D / C = 0.095

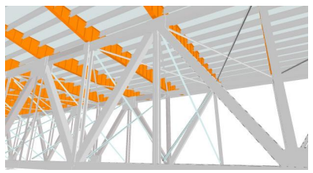
Combined interaction eqn = 0.89

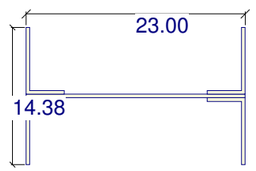
Load rating LLCF = 1.30

Vertical U5-L5



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U5-L5	Compression	kips	S1	E1	INSP3	4.00	-53	-185	-	1.11	1.22	1.55	-59	-226	-	Static det.	Other	-135	0.25	1.77	-299	738	1.01	1.30	0.89
	corresp. Moment	k-ft					-7	-18	-				-8	-21	-			0			-1	316	1.06		





Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	1	0	3	2
Lane 2	CL-625	1	0	2	1
Lane 3	CL-625	1	0	1	1
Lane 4	CL-625	0	0	1	0
Total		**3**	**0**	**6**	**4**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 21 kips

tension D / C = 0.042

Fact'rd tension LL = 6 kips

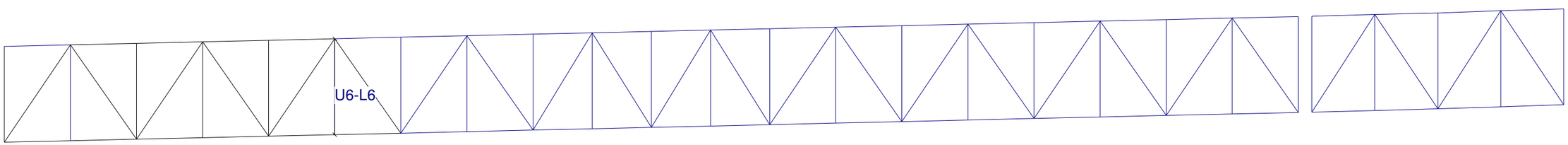
Fact'rd moment, Mf = 2 k-ft

Moment D / C = 0.023

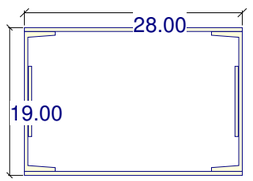
Combined interaction eqn = 0.06

Load rating LLCF = 15.15

Vertical U6-L6



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U6-L6	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	1.22	1.55	14	0	-	Static det.	Other	3	0.25	1.77	6	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-3	68	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	5,716	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-44	-11	-98	-82
Lane 2	CL-625	-37	-9	-83	-69
Lane 3	CL-625	-31	-8	-68	-57
Lane 4	CL-625	-24	-6	-52	-44
Total		**-136**	**-33**	**-301**	**-252**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -572 kips

comp D / C = 0.776

Fact'rd comp LL = -301 kips

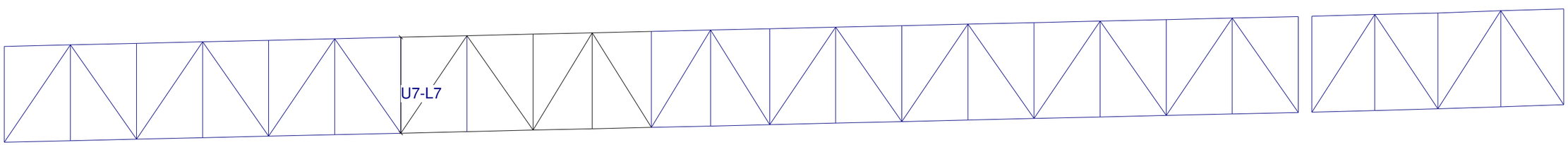
Fact'rd moment, Mf = 17 k-ft

Moment D / C = 0.053

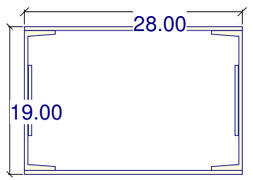
Combined interaction eqn = 0.83

Load rating LLCF = 1.43

Vertical U7-L7



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U7-L7	Compression	kips	S1	E1	INSP3	4.00	-48	-179	-	1.11	1.22	1.55	-53	-219	-	Static det.	Other	-136	0.25	1.77	-301	738	1.01	1.43	0.83
	corresp. Moment	k-ft					-3	14	-				-4	17	-			1			3	316	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	5,716	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-44	-13	-97	-85
Lane 2	CL-625	-37	-11	-81	-72
Lane 3	CL-625	-30	-9	-66	-58
Lane 4	CL-625	-23	-7	-50	-44
Total		**-133**	**-40**	**-294**	**-259**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -594 kips

comp D / C = 0.806

Fact'rd comp LL = -294 kips

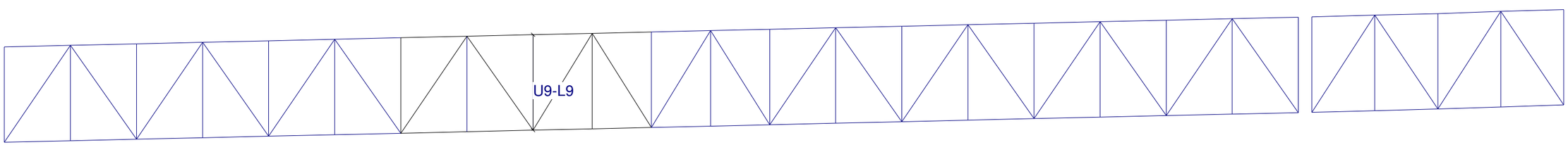
Fact'rd moment, Mf = 2 k-ft

Moment D / C = 0.006

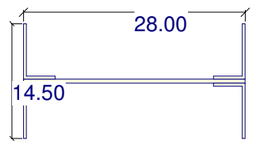
Combined interaction eqn = 0.81

Load rating LLCF = 1.43

Vertical U9-L9



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U9-L9	Compression	kips	S1	E1	INSP3	4.00	-65	-187	-	1.11	1.22	1.55	-72	-229	-	Static det.	Other	-133	0.25	1.77	-294	738	1.01	1.43	0.81
	corresp. Moment	k-ft					-2	-3	-				-2	-4	-			2			4	316	1.06		



Area	15.9	in2
Ix	192	in4
Iy	2,768	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-1	-1	-3	-3
Lane 2	CL-625	-1	0	-3	-3
Lane 3	CL-625	-1	0	-2	-2
Lane 4	CL-625	-1	0	-2	-2
Total		**-4**	**-2**	**-10**	**-9**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 118.4\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 1.27$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 31.1$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (16)\ 33\ (1 + \lambda^{2n})^{-1/n} = 214$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd comp, Cf = -10 kips

comp D / C = 0.048

Fact'rd comp LL = -10 kips

Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.013

Combined interaction eqn = 0.06

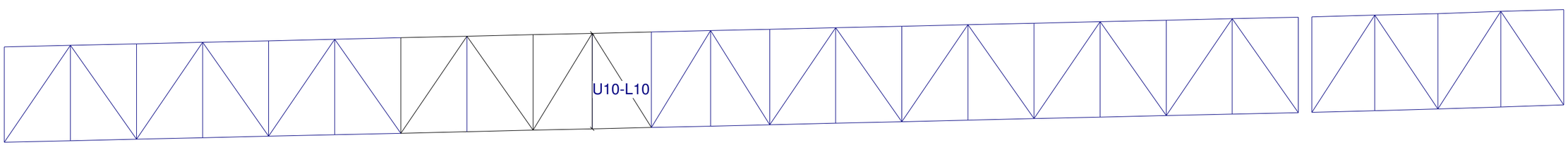
Governing fact'rd tension, Tf = 5 kip

tension D / C = 0.010

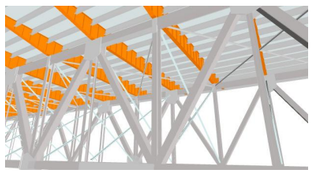
Fact'rd tension LL = 1 kips

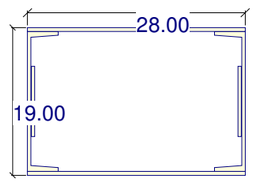
Load rating LLCF = 10.51

Vertical U10-L10



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U10-L10	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-4	0.25	1.77	-10	214	1.01	>10	0.06
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			1			3	69	1.06		





Area	32.8	in2
Ix	1,151	in4
Iy	5,716	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-38	-10	-84	-72
Lane 2	CL-625	-32	-9	-71	-61
Lane 3	CL-625	-26	-7	-58	-49
Lane 4	CL-625	-20	-5	-45	-38
Total		**-116**	**-31**	**-257**	**-220**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -495 kips

comp D / C = 0.671

Fact'rd comp LL = -257 kips

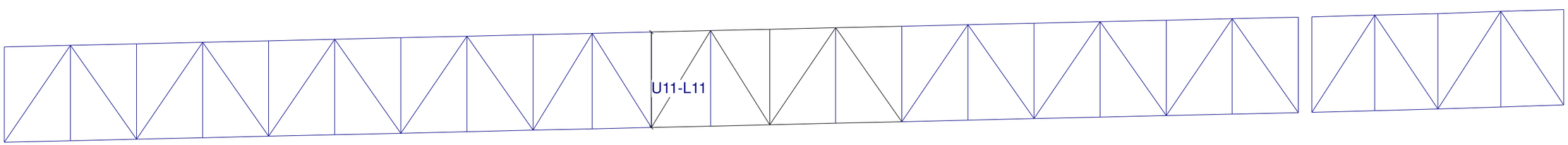
Fact'rd moment, Mf = 2 k-ft

Moment D / C = 0.007

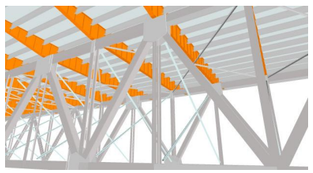
Combined interaction eqn = 0.68

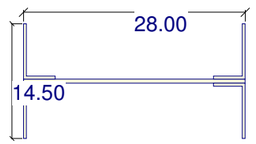
Load rating LLCF = 1.91

Vertical U11-L11



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U11-L11	Compression	kips	S1	E1	INSP3	4.00	-48	-151	-	1.11	1.22	1.55	-53	-185	-	Static det.	Other	-116	0.25	1.77	-257	738	1.01	1.91	0.68
	corresp. Moment	k-ft					0	0	-				0	1	-			-1			-3	316	1.06		





Area	15.9	in2
Ix	192	in4
Iy	2,768	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-2	-1	-4	-3
Lane 2	CL-625	-1	0	-3	-3
Lane 3	CL-625	-1	0	-3	-2
Lane 4	CL-625	-1	0	-2	-2
Total		**-5**	**-2**	**-11**	**-10**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 118.4\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 1.27$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 31.1$

$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\ (16)\ 33\ (1+\lambda^{2n})^{-1/n} = 214$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd comp, Cf = -12 kips

comp D / C = 0.054

Fact'rd comp LL = -11 kips

Fact'rd moment, Mf = 5 k-ft

Moment D / C = 0.077

Combined interaction eqn = 0.13

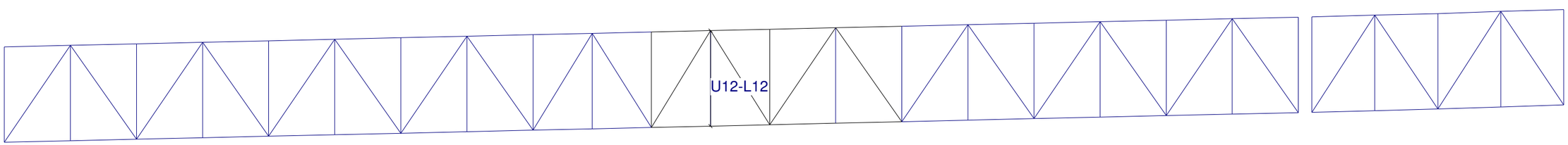
Governing fact'rd tension, Tf = 6 kip

tension D / C = 0.012

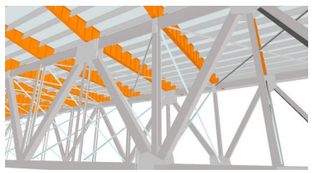
Fact'rd tension LL = 2 kips

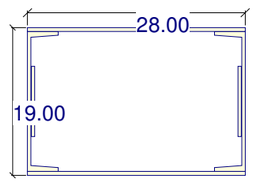
Load rating LLCF = 13.68

Vertical U12-L12



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U12-L12	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-5	0.25	1.77	-11	214	1.01	>10	0.13
	corresp. Moment	k-ft					1	3	-				1	3	-			1			1	69	1.06		





Area	32.8	in2
Ix	1,151	in4
Iy	5,716	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-46	-13	-102	-89
Lane 2	CL-625	-39	-11	-86	-74
Lane 3	CL-625	-31	-9	-70	-60
Lane 4	CL-625	-24	-7	-53	-46
Total		**-140**	**-40**	**-311**	**-269**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -612 kips

comp D / C = 0.829

Fact'rd comp LL = -311 kips

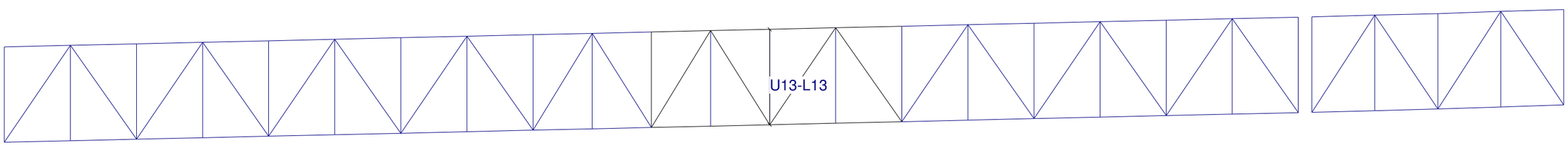
Fact'rd moment, Mf = 9 k-ft

Moment D / C = 0.029

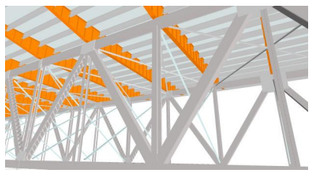
Combined interaction eqn = 0.86

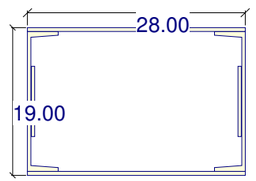
Load rating LLCF = 1.37

Vertical U13-L13



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U13-L13	Compression	kips	S1	E1	INSP3	4.00	-65	-188	-	1.11	1.22	1.55	-72	-229	-	Static det.	Other	-140	0.25	1.77	-311	738	1.01	1.37	0.86
	corresp. Moment	k-ft					2	5	-				2	6	-			0			1	316	1.06		





Area	32.8	in2
Ix	1,151	in4
Iy	5,716	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck	Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-42	-11	-93	-79
Lane 2	CL-625	-36	-9	-79	-67
Lane 3	CL-625	-29	-7	-65	-55
Lane 4	CL-625	-23	-6	-51	-43
Total		**-130**	**-33**	**-288**	**-243**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -561 kips

comp D / C = 0.761

Fact'rd comp LL = -288 kips

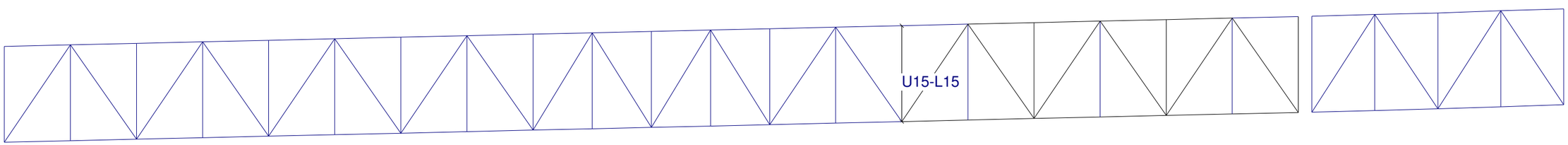
Fact'rd moment, Mf = 17 k-ft

Moment D / C = 0.053

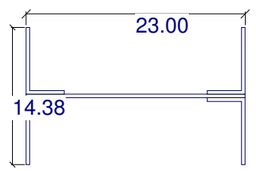
Combined interaction eqn = 0.81

Load rating LLCF = 1.49

Vertical U15-L15



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U15-L15	Compression	kips	S1	E1	INSP3	4.00	-48	-180	-	1.11	1.22	1.55	-53	-220	-	Static det.	Other	-130	0.25	1.77	-288	738	1.01	1.49	0.81
	corresp. Moment	k-ft					3	-12	-				3	-15	-			-2			-5	316	1.06		



Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	1	0	3	2
Lane 2	CL-625	1	0	2	2
Lane 3	CL-625	1	0	1	1
Lane 4	CL-625	0	0	1	0
Total		**3**	**0**	**7**	**5**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 21 kips

tension D / C = 0.042

Fact'rd tension LL = 7 kips

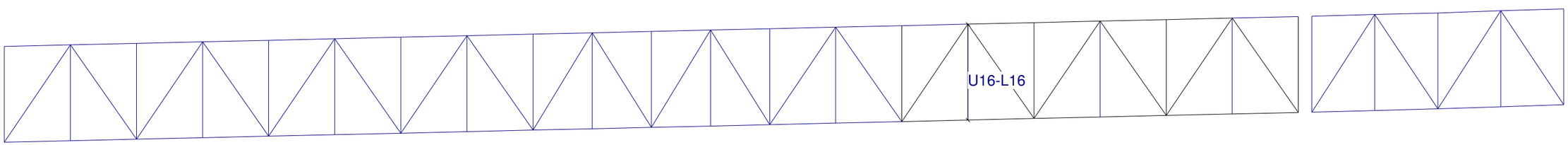
Fact'rd moment, Mf = 0 k-ft

Moment D / C = 0.002

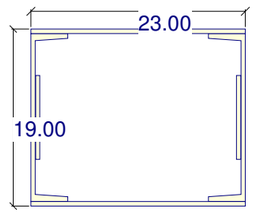
Combined interaction eqn = 0.04

Load rating LLCF = 12.95

Vertical U16-L16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U16-L16	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	0.90	1.55	14	0	-	Static det.	Other	3	0.25	1.77	7	500	1.01	>10	0.04
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			4	68	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	3,761	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-45	-11	-100	-84
Lane 2	CL-625	-38	-10	-84	-71
Lane 3	CL-625	-31	-8	-69	-58
Lane 4	CL-625	-24	-6	-54	-45
Total		**-139**	**-35**	**-307**	**-258**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 45.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -593 kips

comp D / C = 0.804

Fact'rd comp LL = -307 kips

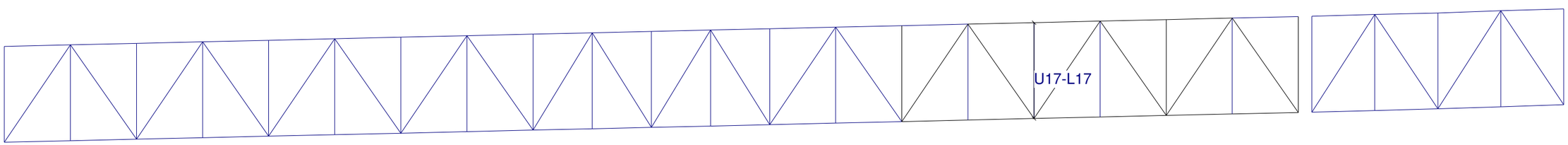
Fact'rd moment, Mf = 41 k-ft

Moment D / C = 0.129

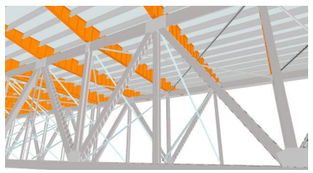
Combined interaction eqn = 0.93

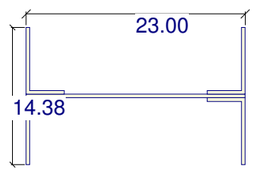
Load rating LLCF = 1.18

Vertical U17-L17



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U17-L17	Compression	kips	S1	E1	INSP3	4.00	-53	-186	-	1.11	1.22	1.55	-59	-227	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.18	0.93
	corresp. Moment	k-ft					7	17	-				7	20	-			6			13	316	1.06		





Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-2	0	-4	-4
Lane 2	CL-625	-2	0	-3	-3
Lane 3	CL-625	-1	0	-3	-2
Lane 4	CL-625	-1	0	-2	-2
Total		**-6**	**-1**	**-13**	**-11**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 120.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 1.29$$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 38.4$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\ (16)\ 33\ (1+\lambda^{2n})^{-1/n} = 210 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd comp, Cf = -10 kips

comp D / C = 0.046

Fact'rd comp LL = -13 kips

Fact'rd moment, Mf = 2 k-ft

Moment D / C = 0.028

Combined interaction eqn = 0.07

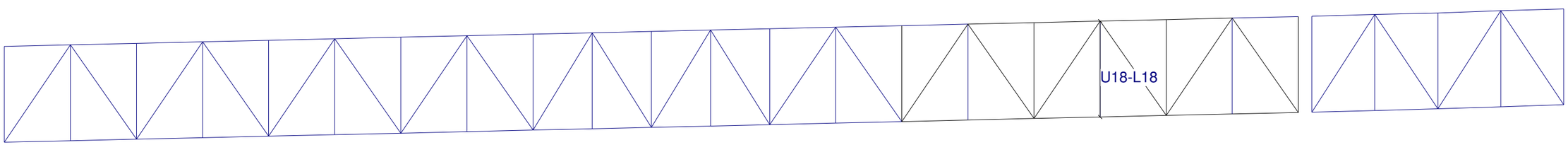
Governing fact'rd tension, Tf = 8 kip

tension D / C = 0.015

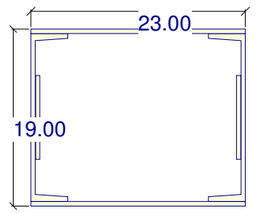
Fact'rd tension LL = 1 kips

Load rating LLCF = 11.24

Vertical U18-L18



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U18-L18	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	>10	0.07
	corresp. Moment	k-ft					0	0	-				0	0	-			1			2	68	1.06		



Area	32.8	in2
Ix	1,151	in4
Iy	3,761	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-44	-11	-97	-82
Lane 2	CL-625	-37	-10	-82	-70
Lane 3	CL-625	-30	-8	-67	-57
Lane 4	CL-625	-24	-6	-52	-44
Total		**-135**	**-35**	**-298**	**-253**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 45.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -586 kips

comp D / C = 0.794

Fact'rd comp LL = -298 kips

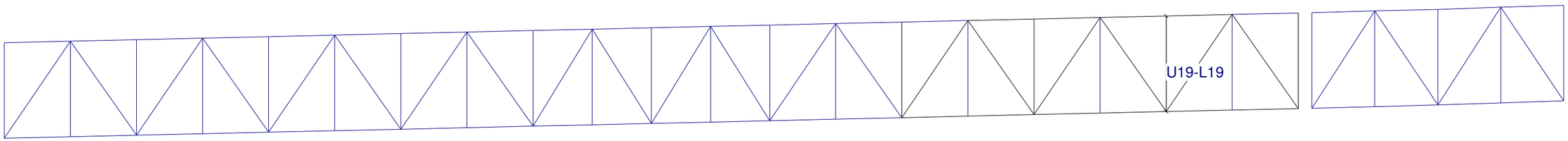
Fact'rd moment, Mf = 29 k-ft

Moment D / C = 0.090

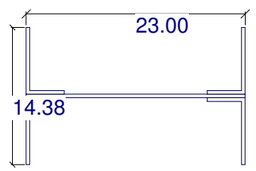
Combined interaction eqn = 0.88

Load rating LLCF = 1.30

Vertical U19-L19



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U19-L19	Compression	kips	S1	E1	INSP3	4.00	-54	-187	-	1.11	1.22	1.55	-60	-228	-	Static det.	Other	-135	0.25	1.77	-298	738	1.01	1.30	0.88
	corresp. Moment	k-ft					-7	-17	-				-7	-21	-			0			-1	316	1.06		



Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 12 kips

tension D / C = 0.024

Fact'rd tension LL = 0 kips

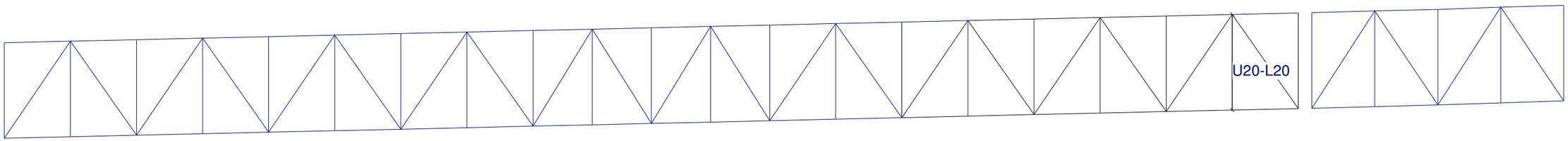
Fact'rd moment, Mf = 6 k-ft

Moment D / C = 0.092

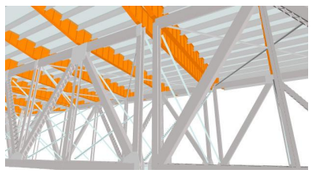
Combined interaction eqn = 0.12

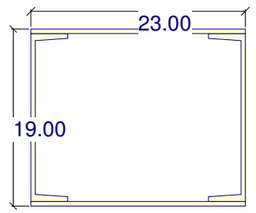
Load rating LLCF = 41.97

Vertical U20-L20



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U20-L20	Tension	kips	S1	E1	INSP3	4.00	12	-2	-	1.11	0.90	1.55	14	-2	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			2	68	1.06		





Area	24.9	in2
Ix	1,097	in4
Iy	2,844	in4
Sx, top	116	in3
Sx, bottom	116	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-44	-8	-96	-76
Lane 2	CL-625	-37	-7	-81	-64
Lane 3	CL-625	-30	-5	-65	-51
Lane 4	CL-625	-23	-4	-50	-38
Total		**-132**	**-24**	**-293**	**-230**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 61.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.66$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 44.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 598 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,116\,(33) = 302 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -458 kips

comp D / C = 0.767

Fact'rd comp LL = -293 kips

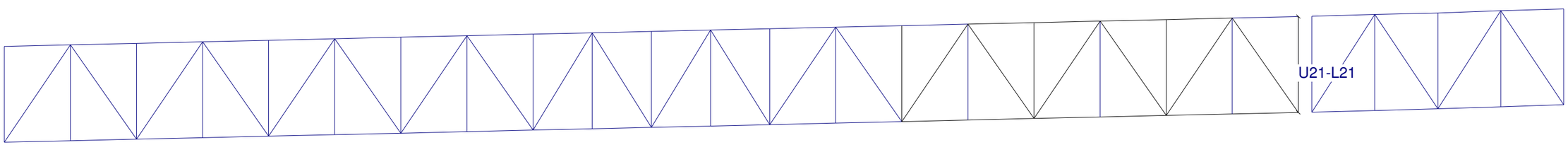
Fact'rd moment, Mf = 34 k-ft

Moment D / C = 0.112

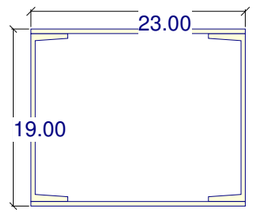
Combined interaction eqn = 0.88

Load rating LLCF = 1.24

Vertical U21-L21



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U21-L21	Compression	kips	S1	E1	INSP3	4.00	-37	-102	-	1.11	1.22	1.55	-41	-124	-	Static det.	Other	-132	0.25	1.77	-293	598	1.01	1.24	0.88
	corresp. Moment	k-ft					9	9	-				10	11	-			6			13	302	1.06		



Area	24.9	in2
Ix	1,097	in4
Iy	2,844	in4
Sx, top	116	in3
Sx, bottom	116	in3

Vertical U22-L22

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-42	-7	-94	-72
Lane 2	CL-625	-36	-6	-79	-60
Lane 3	CL-625	-29	-4	-63	-48
Lane 4	CL-625	-22	-3	-48	-37
Total		**-128**	**-20**	**-284**	**-217**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 61.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.66$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 44.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 598 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,116\,(33) = 302 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -443 kips

comp D / C = 0.741

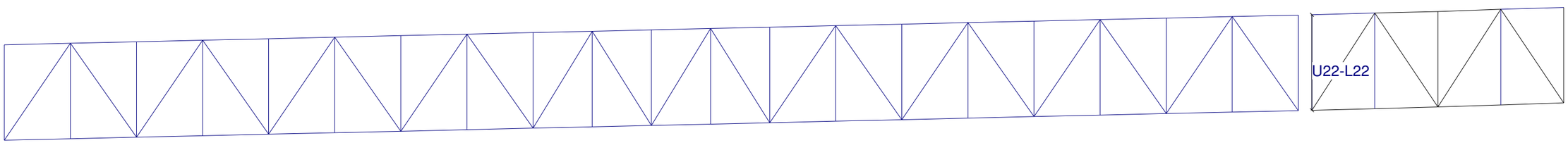
Fact'rd comp LL = -284 kips

Fact'rd moment, Mf = 26 k-ft

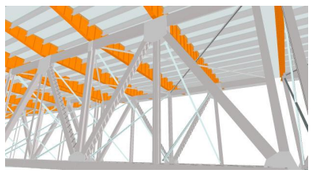
Moment D / C = 0.087

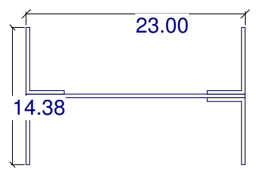
Combined interaction eqn = 0.83

Load rating LLCF = 1.37



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U22-L22	Compression	kips	S1	E1	INSP3	4.00	-37	-97	-	1.11	1.22	1.55	-41	-118	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.37	0.83
	corresp. Moment	k-ft					-8	-9	-				-9	-11	-			-3			-6	302	1.06		





Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Total		**1**	**0**	**1**	**1**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 11 kips

tension D / C = 0.021

Fact'rd tension LL = 1 kips

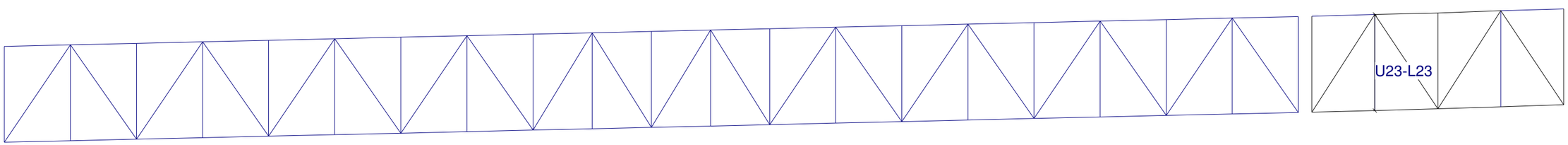
Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.008

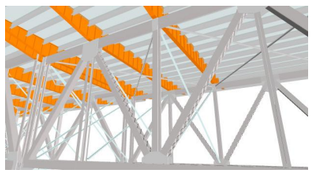
Combined interaction eqn = 0.03

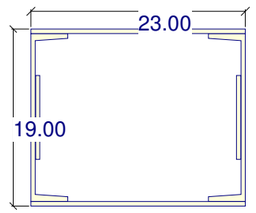
Load rating LLCF = 14.17

Vertical U23-L23



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U23-L23	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	11	-3	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			5	68	1.06		





Area	32.8	in2
Ix	1,151	in4
Iy	3,761	in4
Sx, top	121	in3
Sx, bottom	121	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-43	-11	-96	-80
Lane 2	CL-625	-37	-9	-81	-68
Lane 3	CL-625	-30	-8	-66	-56
Lane 4	CL-625	-23	-6	-52	-44
Total		**-133**	**-34**	**-295**	**-249**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 69.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.74$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 45.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(33)\,33\,(1+\lambda^{2n})^{-1/n} = 738 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,121\,(33) = 316 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -571 kips

comp D / C = 0.774

Fact'rd comp LL = -295 kips

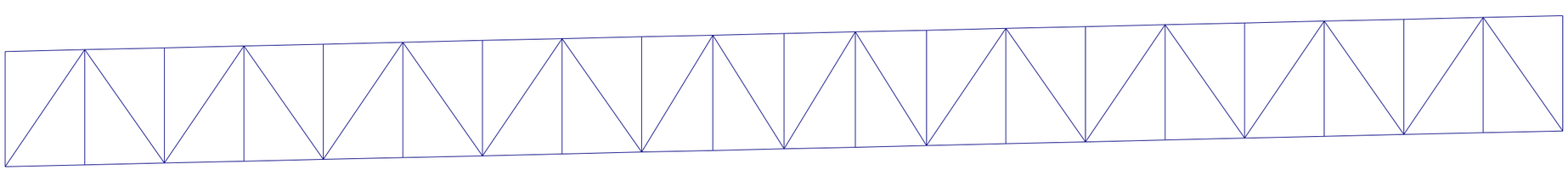
Fact'rd moment, Mf = 3 k-ft

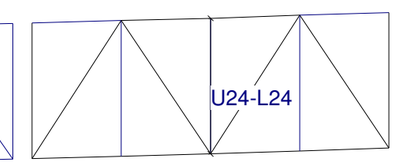
Moment D / C = 0.010

Combined interaction eqn = 0.78

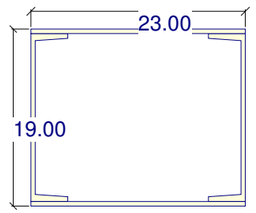
Load rating LLCF = 1.55

Vertical U24-L24





Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U24-L24	Compression	kips	S1	E1	INSP3	4.00	-50	-180	-	1.11	1.22	1.55	-56	-220	-	Static det.	Other	-133	0.25	1.77	-295	738	1.01	1.55	0.78
	corresp. Moment	k-ft					0	-1	-				0	-1	-			2			5	316	1.06		



Area	24.9	in2
Ix	1,097	in4
Iy	2,844	in4
Sx, top	116	in3
Sx, bottom	116	in3

LL Axial demands (kips)

	Truck	Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-42	-6	-93	-71
Lane 2	CL-625	-35	-5	-78	-60
Lane 3	CL-625	-29	-4	-63	-48
Lane 4	CL-625	-22	-3	-48	-37
Total		**-128**	**-19**	**-284**	**-215**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 61.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.66$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 44.0$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 598 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,116\,(33) = 302 \text{ k-ft} \quad (Lu=0)$$

Length = 38.00 ft

Fact'rd comp, Cf = -442 kips

comp D / C = 0.740

Fact'rd comp LL = -284 kips

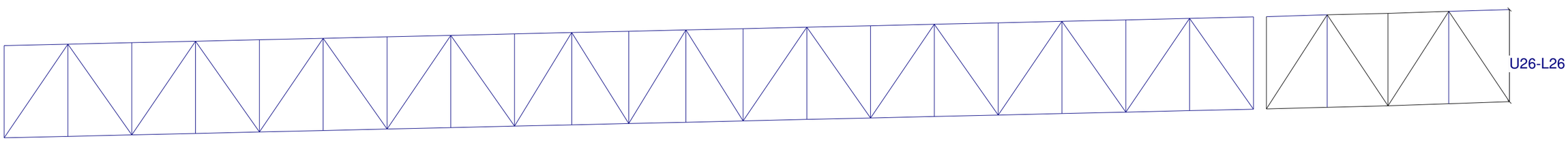
Fact'rd moment, Mf = 29 k-ft

Moment D / C = 0.095

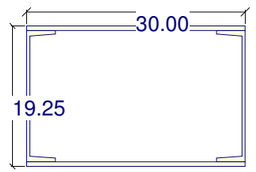
Combined interaction eqn = 0.84

Load rating LLCF = 1.37

Vertical U26-L26



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U26-L26	Compression	kips	S1	E1	INSP3	4.00	-36	-97	-	1.11	1.22	1.55	-40	-118	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.37	0.84
	corresp. Moment	k-ft					8	8	-				8	10	-			5			11	302	1.06		



Area	24.9	in2
Ix	1,097	in4
Iy	5,005	in4
Sx, top	114	in3
Sx, bottom	114	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-38	-11	-85	-73
Lane 2	CL-625	-32	-9	-71	-60
Lane 3	CL-625	-26	-7	-57	-48
Lane 4	CL-625	-19	-4	-43	-35
Total		**-115**	**-30**	**-254**	**-216**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 71.7\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.77$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.7$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 549 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,114\,(33) = 298 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -447 kips

comp D / C = 0.815

Fact'rd comp LL = -254 kips

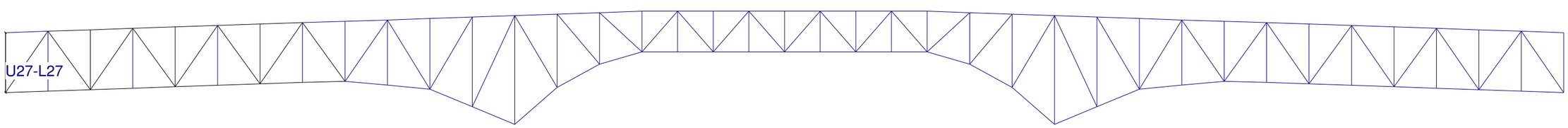
Fact'rd moment, Mf = 29 k-ft

Moment D / C = 0.096

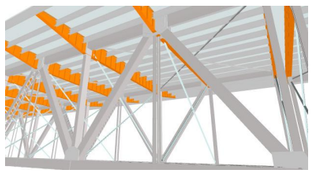
Combined interaction eqn = 0.91

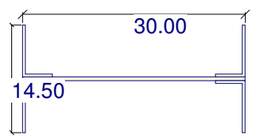
Load rating LLCF = 1.21

Vertical U27-L27



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U27-L27	Compression	kips	S1	E1	INSP3	4.00	-43	-119	-	1.11	1.22	1.55	-48	-145	-	Static det.	Other	-115	0.25	1.77	-254	549	1.01	1.21	0.91
	corresp. Moment	k-ft					-11	-10	-				-12	-12	-			-2			-5	298	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 15 kips

tension D / C = 0.031

Fact'rd tension LL = 0 kips

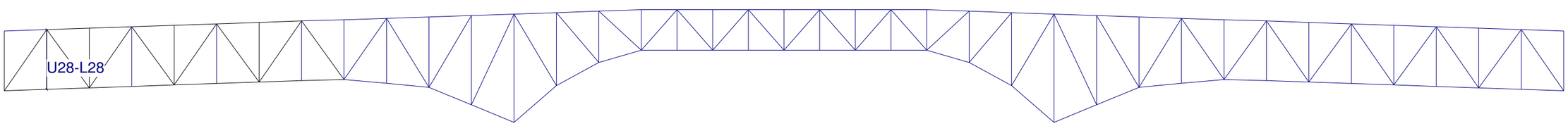
Fact'rd moment, Mf = 6 k-ft

Moment D / C = 0.090

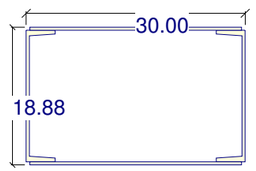
Combined interaction eqn = 0.12

Load rating LLCF = 46.85

Vertical U28-L28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U28-L28	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					-1	-4	-				-1	-4	-			-1			-1	69	1.06		



Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-49	-13	-108	-92
Lane 2	CL-625	-41	-11	-91	-78
Lane 3	CL-625	-34	-9	-74	-64
Lane 4	CL-625	-26	-7	-58	-49
Total		**-150**	**-40**	**-331**	**-283**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -663 kips

comp D / C = 0.739

Fact'rd comp LL = -331 kips

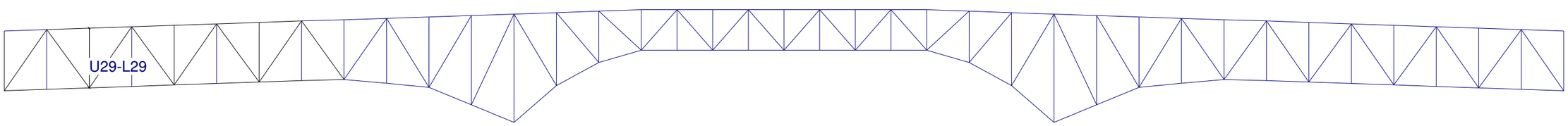
Fact'rd moment, Mf = 74 k-ft

Moment D / C = 0.123

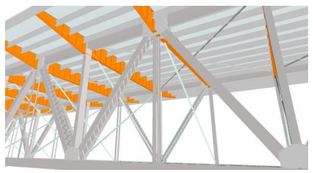
Combined interaction eqn = 0.86

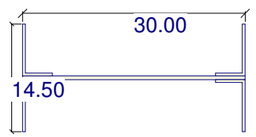
Load rating LLCF = 1.37

Vertical U29-L29



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U29-L29	Compression	kips	S1	E1	INSP3	4.00	-66	-212	-	1.11	1.22	1.55	-73	-259	-	Static det.	Other	-150	0.25	1.77	-331	897	1.01	1.37	0.86
	corresp. Moment	k-ft					16	31	-				17	37	-			9			19	603	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	1	1
Lane 2	CL-625	0	0	1	1
Lane 3	CL-625	0	0	1	0
Lane 4	CL-625	0	0	1	0
Total		**1**	**0**	**3**	**2**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 22 kips

tension D / C = 0.043

Fact'rd tension LL = 3 kips

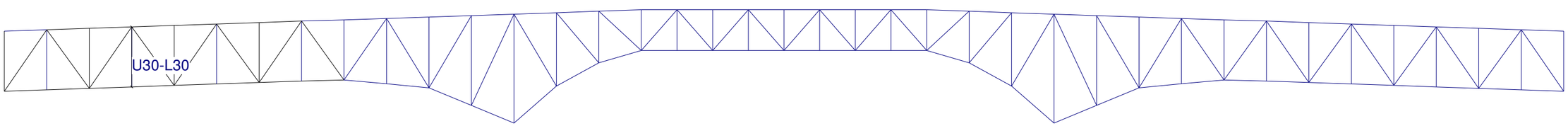
Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.011

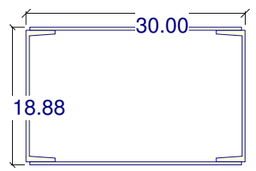
Combined interaction eqn = 0.05

Load rating LLCF = 14.17

Vertical U30-L30



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U30-L30	Tension	kips	S1	E1	INSP3	4.00	21	-5	-	1.11	0.90	1.55	23	-6	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.05
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			2			4	69	1.06		



Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-46	-12	-101	-86
Lane 2	CL-625	-39	-10	-86	-73
Lane 3	CL-625	-32	-8	-70	-60
Lane 4	CL-625	-25	-7	-55	-47
Total		**-141**	**-37**	**-313**	**-265**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -637 kips

comp D / C = 0.710

Fact'rd comp LL = -313 kips

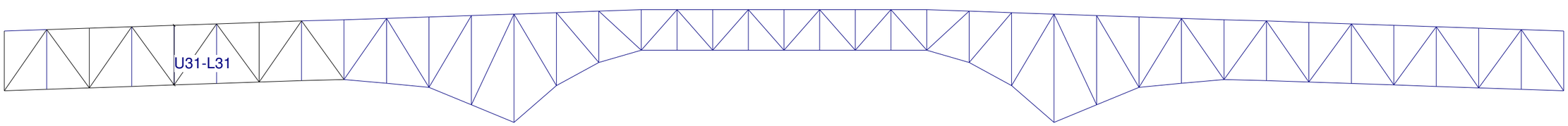
Fact'rd moment, Mf = 11 k-ft

Moment D / C = 0.017

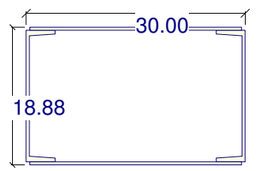
Combined interaction eqn = 0.73

Load rating LLCF = 1.73

Vertical U31-L31



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U31-L31	Compression	kips	S1	E1	INSP3	4.00	-69	-204	-	1.11	1.22	1.55	-76	-249	-	Static det.	Other	-141	0.25	1.77	-313	897	1.01	1.73	0.73
	corresp. Moment	k-ft					-1	-1	-				-1	-2	-			6			13	603	1.06		



Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-49	-13	-108	-91
Lane 2	CL-625	-41	-11	-91	-77
Lane 3	CL-625	-33	-9	-74	-63
Lane 4	CL-625	-26	-7	-57	-49
Total		**-149**	**-39**	**-329**	**-280**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -645 kips

comp D / C = 0.719

Fact'rd comp LL = -329 kips

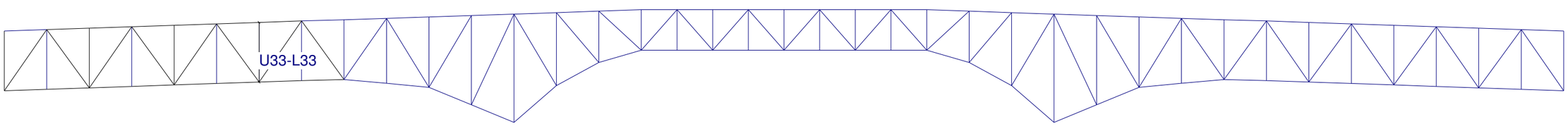
Fact'rd moment, Mf = 68 k-ft

Moment D / C = 0.113

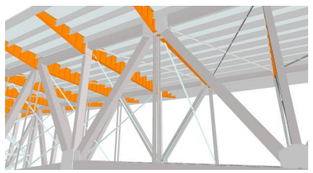
Combined interaction eqn = 0.83

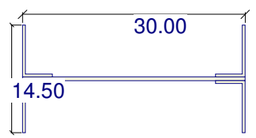
Load rating LLCF = 1.49

Vertical U33-L33



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U33-L33	Compression	kips	S1	E1	INSP3	4.00	-63	-202	-	1.11	1.22	1.55	-70	-246	-	Static det.	Other	-149	0.25	1.77	-329	897	1.01	1.49	0.83
	corresp. Moment	k-ft					-16	-36	-				-18	-43	-			-3			-7	603	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	3	1	6	6
Lane 2	CL-625	2	1	5	5
Lane 3	CL-625	1	1	3	3
Lane 4	CL-625	1	0	2	2
Total		**7**	**3**	**16**	**16**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 52 kips

tension D / C = 0.104

Fact'rd tension LL = 16 kips

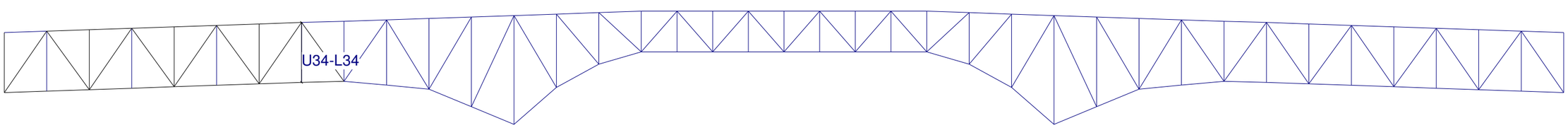
Fact'rd moment, Mf = 6 k-ft

Moment D / C = 0.094

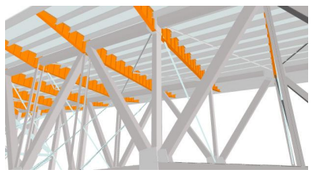
Combined interaction eqn = 0.20

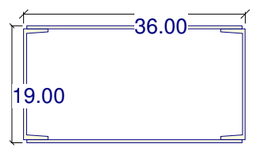
Load rating LLCF = 16.37

Vertical U34-L34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U34-L34	Tension	kips	S1	E1	INSP3	4.00	24	8	-	1.11	1.22	1.55	26	9	-	Static det.	Other	9	0	1.77	16	500	1.01	>10	0.20
	corresp. Moment	k-ft					1	3	-				1	4	-			1			1	69	1.06		





Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-44	-12	-98	-84
Lane 2	CL-625	-37	-10	-82	-71
Lane 3	CL-625	-30	-9	-66	-58
Lane 4	CL-625	-23	-7	-50	-45
Total		**-134**	**-38**	**-296**	**-257**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 60.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.65$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}026 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -570 kips

comp D / C = 0.556

Fact'rd comp LL = -296 kips

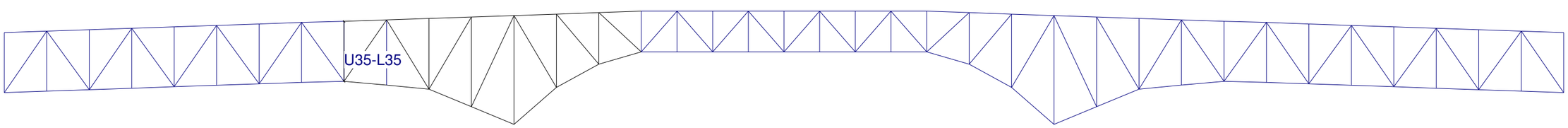
Fact'rd moment, Mf = 21 k-ft

Moment D / C = 0.030

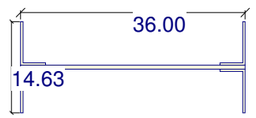
Combined interaction eqn = 0.59

Load rating LLCF = 2.40

Vertical U35-L35



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U35-L35	Compression	kips	S1	E1	INSP3	4.00	-67	-163	-	1.11	1.22	1.55	-75	-199	-	Static det.	Other	-134	0.25	1.77	-296	1026	1.01	2.40	0.59
	corresp. Moment	k-ft					-13	18	-				-14	22	-			6			13	714	1.06		



Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	1	1
Lane 2	CL-625	0	0	1	1
Lane 3	CL-625	0	0	1	1
Lane 4	CL-625	0	0	1	0
Total		**1**	**0**	**3**	**2**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 47.83 ft

Fact'rd tension, Tf = 34 kips

tension D / C = 0.067

Fact'rd tension LL = 3 kips

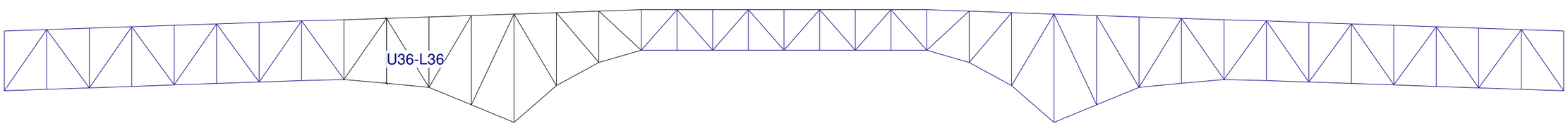
Fact'rd moment, Mf = 6 k-ft

Moment D / C = 0.089

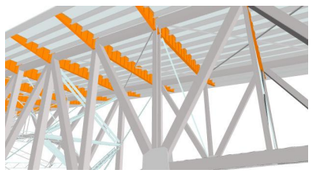
Combined interaction eqn = 0.16

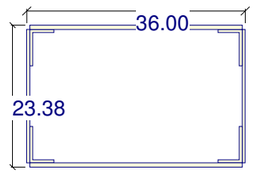
Load rating LLCF = 44.90

Vertical U36-L36



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U36-L36	Tension	kips	S1	E1	INSP3	4.00	26	2	-	1.11	1.22	1.55	29	2	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.16
	corresp. Moment	k-ft					2	3	-				2	4	-			0			1	70	1.06		





Area	41.0	in2
Ix	2,500	in4
Iy	12,138	in4
Sx, top	214	in3
Sx, bottom	214	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	-46	-13	-102	-89
Lane 2	CL-625	-39	-11	-86	-75
Lane 3	CL-625	-32	-9	-70	-61
Lane 4	CL-625	-25	-7	-55	-48
Total		**-142**	**-41**	**-313**	**-273**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 71.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.77$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 47.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(41)\,33\,(1+\lambda^{2n})^{-1/n} = 901 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,214\,(33) = 559 \text{ k-ft} \quad (Lu=0)$$

Length = 51.92 ft

Fact'rd comp, Cf = -654 kips

comp D / C = 0.726

Fact'rd comp LL = -313 kips

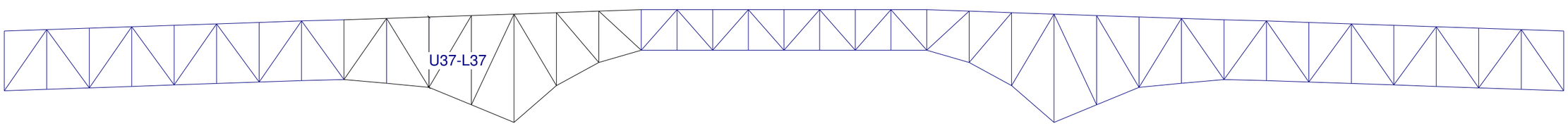
Fact'rd moment, Mf = 78 k-ft

Moment D / C = 0.140

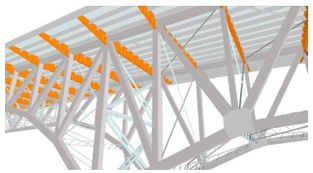
Combined interaction eqn = 0.87

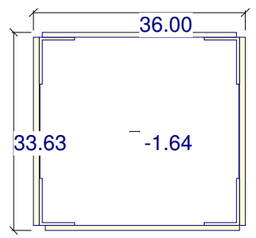
Load rating LLCF = 1.43

Vertical U37-L37



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U37-L37	Compression	kips	S1	E1	INSP3	4.00	-77	-209	-	1.11	1.22	1.55	-85	-255	-	Static det.	Other	-142	0.25	1.77	-313	901	1.01	1.43	0.87
	corresp. Moment	k-ft					20	35	-				22	43	-			6			13	559	1.06		





Area	131.9	in2
Ix	25,033	in4
Iy	26,797	in4
Sx, top	1,489	in3
Sx, bottom	1,489	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-77	-51	-171	-201
Lane 2	CL-625	-66	-44	-146	-171
Lane 3	CL-625	-55	-37	-121	-142
Lane 4	CL-625	-43	-29	-96	-113
Total		**-241**	**-161**	**-534**	**-627**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 51.7\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.55$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 49.9$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(132)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}405 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1489\,(33) = 3{,}890 \text{ k-ft} \quad (Lu=0)$$

Length = 65.92 ft

Fact'rd comp, Cf = -2238 kips

comp D / C = 0.657

Fact'rd comp LL = -627 kips

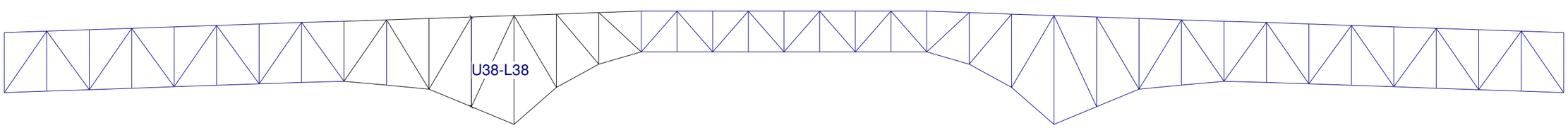
Fact'rd moment, Mf = 987 k-ft

Moment D / C = 0.254

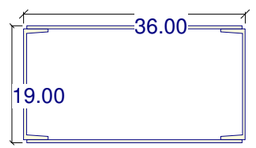
Combined interaction eqn = 0.91

Load rating LLCF = 1.43

Vertical U38-L38



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U38-L38	Compression	kips	S1	E1	INSP3	4.00	-466	-897	-	1.11	1.22	1.55	-517	-1094	-	Static det.	Other	-354	0	1.77	-627	3405	1.01	1.43	0.91
	corresp. Moment	k-ft					-210	-379	-				-233	-462	-			-165			-292	3890	1.06		



Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-39	-15	-86	-82
Lane 2	CL-625	-32	-13	-71	-69
Lane 3	CL-625	-26	-11	-57	-56
Lane 4	CL-625	-19	-9	-43	-43
Total		**-116**	**-48**	**-257**	**-250**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.44$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}164 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 29.92 ft

Fact'rd comp, Cf = -705 kips

comp D / C = 0.606

Fact'rd comp LL = -257 kips

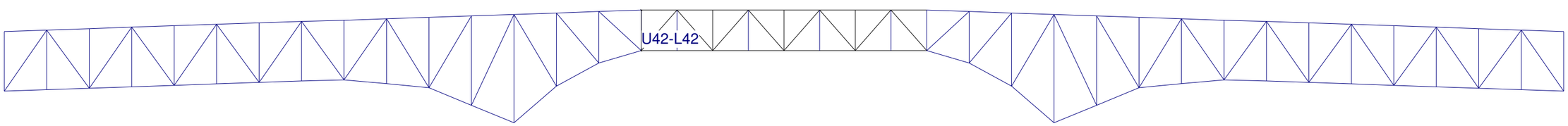
Fact'rd moment, Mf = 102 k-ft

Moment D / C = 0.142

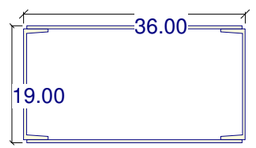
Combined interaction eqn = 0.75

Load rating LLCF = 1.98

Vertical U42-L42



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U42-L42	Compression	kips	S1	E1	INSP3	4.00	-99	-277	-	1.11	1.22	1.55	-110	-338	-	Static det.	Other	-116	0.25	1.77	-257	1164	1.01	1.98	0.75
	corresp. Moment	k-ft					-29	-29	-				-32	-36	-			-15			-33	714	1.06		



Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-40	-10	-89	-75
Lane 2	CL-625	-34	-8	-75	-63
Lane 3	CL-625	-28	-7	-61	-51
Lane 4	CL-625	-21	-5	-47	-40
Total		**-124**	**-31**	**-273**	**-229**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.44$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}164 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 29.92 ft

Fact'rd comp, Cf = -531 kips

comp D / C = 0.457

Fact'rd comp LL = -273 kips

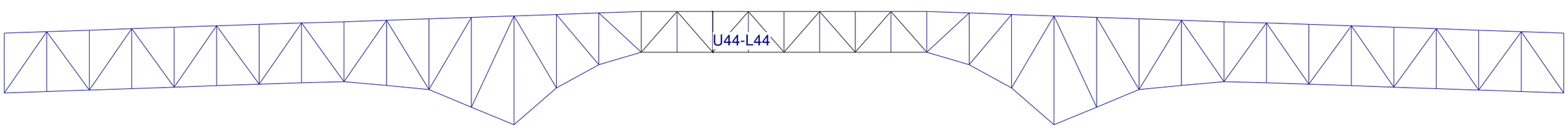
Fact'rd moment, Mf = 111 k-ft

Moment D / C = 0.155

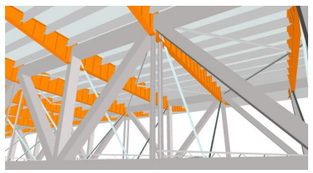
Combined interaction eqn = 0.61

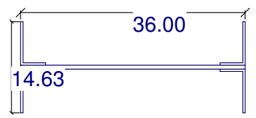
Load rating LLCF = 2.46

Vertical U44-L44



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U44-L44	Compression	kips	S1	E1	INSP3	4.00	-58	-159	-	1.11	1.22	1.55	-64	-194	-	Static det.	Other	-124	0.25	1.77	-273	1164	1.01	2.46	0.61
	corresp. Moment	k-ft					26	43	-				29	53	-			13			29	714	1.06		





Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	2	0	4	3
Lane 2	CL-625	1	0	3	2
Lane 3	CL-625	1	0	2	2
Lane 4	CL-625	1	0	2	1
Total		**5**	**1**	**11**	**8**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 29.92 ft

Fact'rd tension, Tf = 24 kips

tension D / C = 0.049

Fact'rd tension LL = 11 kips

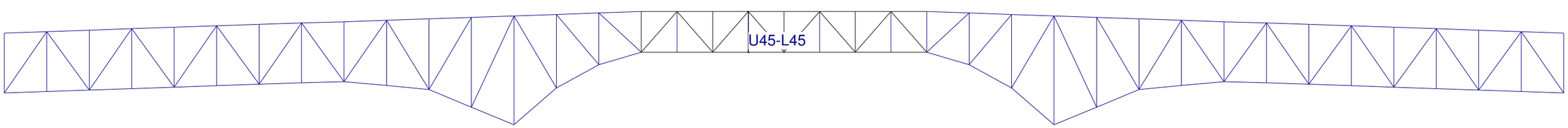
Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.018

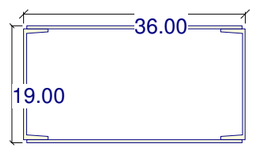
Combined interaction eqn = 0.07

Load rating LLCF = 11.49

Vertical U45-L45



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U45-L45	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	5	0.25	1.77	11	500	1.01	>10	0.07
	corresp. Moment	k-ft					-1	-2	-				-1	-2	-			2			4	70	1.06		



Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-41	-10	-91	-76
Lane 2	CL-625	-35	-9	-77	-64
Lane 3	CL-625	-28	-7	-62	-52
Lane 4	CL-625	-22	-5	-48	-40
Total		**-126**	**-31**	**-278**	**-233**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 41.3\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.44$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}164 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 29.92 ft

Fact'rd comp, Cf = -537 kips

comp D / C = 0.461

Fact'rd comp LL = -278 kips

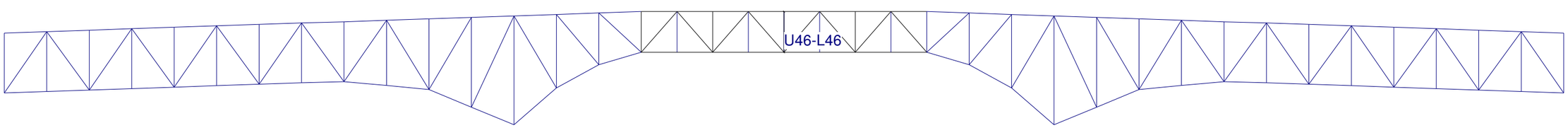
Fact'rd moment, Mf = 21 k-ft

Moment D / C = 0.029

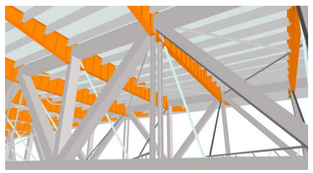
Combined interaction eqn = 0.49

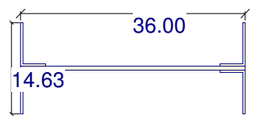
Load rating LLCF = 2.95

Vertical U46-L46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U46-L46	Compression	kips	S1	E1	INSP3	4.00	-55	-162	-	1.11	1.22	1.55	-61	-198	-	Static det.	Other	-126	0.25	1.77	-278	1164	1.01	2.95	0.49
	corresp. Moment	k-ft					1	0	-				1	0	-			9			20	714	1.06		





Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	1	0	3	2
Lane 2	CL-625	1	0	3	2
Lane 3	CL-625	1	0	2	2
Lane 4	CL-625	1	0	2	1
Total		**4**	**1**	**9**	**7**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 91.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.99$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 18.8$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (16)\ 33\ (1 + \lambda^{2n})^{-1/n} = 286$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 29.92 ft

Fact'rd tension, Tf = 23 kips

tension D / C = 0.046

Fact'rd tension LL = 9 kips

Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.008

Combined interaction eqn = 0.05

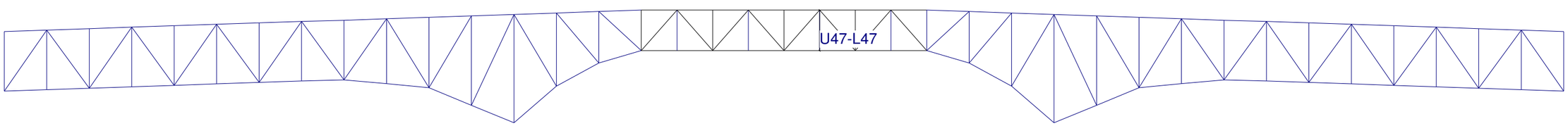
Governing fact'rd comp, Cf = -6 kips

comp D / C = 0.022

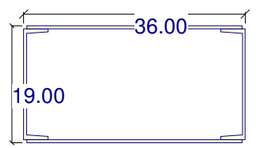
Fact'rd comp LL = -15 kips

Load rating LLCF = 13.93

Vertical U47-L47



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U47-L47	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	4	0.25	1.77	9	500	1.01	>10	0.05
	corresp. Moment	k-ft					1	2	-				1	2	-			-2			-4	70	1.06		



Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-41	-10	-90	-75
Lane 2	CL-625	-34	-8	-76	-63
Lane 3	CL-625	-28	-7	-62	-52
Lane 4	CL-625	-21	-5	-47	-40
Total		**-124**	**-31**	**-275**	**-230**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.44$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}164 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 29.92 ft

Fact'rd comp, Cf = -533 kips

comp D / C = 0.458

Fact'rd comp LL = -275 kips

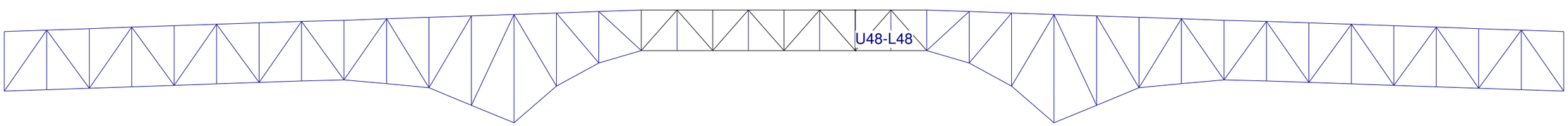
Fact'rd moment, Mf = 83 k-ft

Moment D / C = 0.117

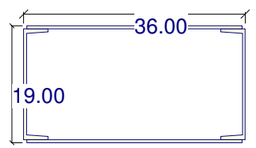
Combined interaction eqn = 0.57

Load rating LLCF = 2.83

Vertical U48-L48



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U48-L48	Compression	kips	S1	E1	INSP3	4.00	-58	-159	-	1.11	1.22	1.55	-64	-194	-	Static det.	Other	-124	0.25	1.77	-275	1164	1.01	2.83	0.57
	corresp. Moment	k-ft					-25	-44	-				-28	-53	-			-1			-2	714	1.06		



Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-41	-15	-91	-85
Lane 2	CL-625	-34	-13	-76	-72
Lane 3	CL-625	-28	-11	-62	-59
Lane 4	CL-625	-21	-9	-47	-46
Total		**-125**	**-48**	**-276**	**-262**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.44$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}164 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 29.92 ft

Fact'rd comp, Cf = -724 kips

comp D / C = 0.622

Fact'rd comp LL = -276 kips

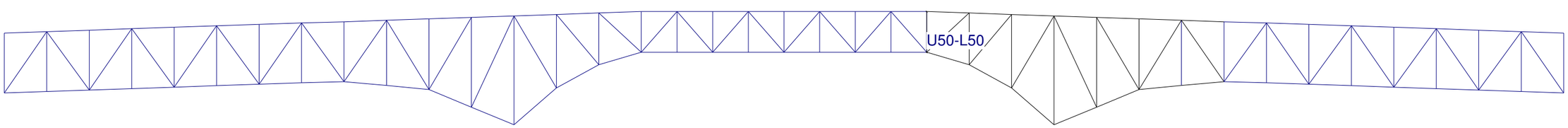
Fact'rd moment, Mf = 87 k-ft

Moment D / C = 0.121

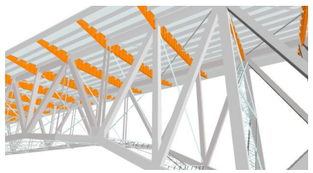
Combined interaction eqn = 0.74

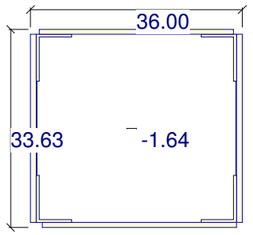
Load rating LLCF = 2.04

Vertical U50-L50



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U50-L50	Compression	kips	S1	E1	INSP3	4.00	-99	-277	-	1.11	1.22	1.55	-110	-338	-	Static det.	Other	-125	0.25	1.77	-276	1164	1.01	2.04	0.74
	corresp. Moment	k-ft					29	30	-				32	36	-			8			19	714	1.06		





Area	131.9	in2
Ix	25,033	in4
Iy	26,797	in4
Sx, top	1,489	in3
Sx, bottom	1,489	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-84	-53	-186	-212
Lane 2	CL-625	-71	-45	-158	-180
Lane 3	CL-625	-59	-37	-130	-149
Lane 4	CL-625	-46	-29	-102	-117
Total		**-260**	**-164**	**-574**	**-658**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 51.7\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.55$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 49.9$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(132)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}405 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1489\,(33) = 3{,}890 \text{ k-ft} \quad (Lu=0)$$

Length = 65.92 ft

Fact'rd comp, Cf = -2254 kips

comp D / C = 0.662

Fact'rd comp LL = -658 kips

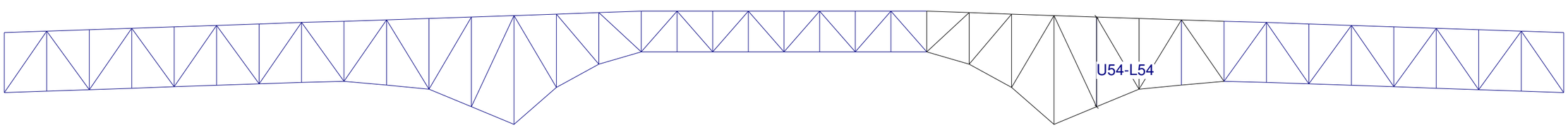
Fact'rd moment, Mf = 965 k-ft

Moment D / C = 0.248

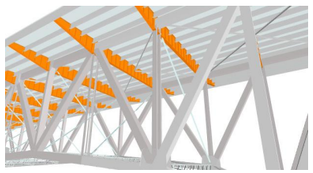
Combined interaction eqn = 0.91

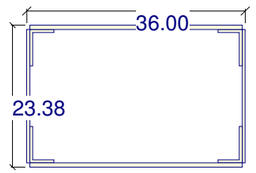
Load rating LLCF = 1.43

Vertical U54-L54



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U54-L54	Compression	kips	S1	E1	INSP3	4.00	-454	-895	-	1.11	1.22	1.55	-504	-1092	-	Static det.	Other	-372	0	1.77	-658	3405	1.01	1.43	0.91
	corresp. Moment	k-ft					207	379	-				230	463	-			154			273	3890	1.06		





Area	41.0	in2
Ix	2,500	in4
Iy	12,138	in4
Sx, top	214	in3
Sx, bottom	214	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-44	-13	-98	-86
Lane 2	CL-625	-38	-11	-83	-73
Lane 3	CL-625	-31	-9	-68	-60
Lane 4	CL-625	-24	-7	-53	-47
Total		**-137**	**-41**	**-302**	**-266**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 71.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.77$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 47.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(41)\,33\,(1+\lambda^{2n})^{-1/n} = 901 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,214\,(33) = 559 \text{ k-ft} \quad (Lu=0)$$

Length = 51.92 ft

Fact'rd comp, Cf = -640 kips

comp D / C = 0.711

Fact'rd comp LL = -302 kips

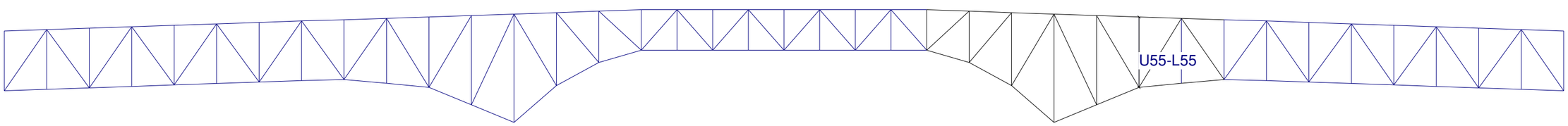
Fact'rd moment, Mf = 83 k-ft

Moment D / C = 0.149

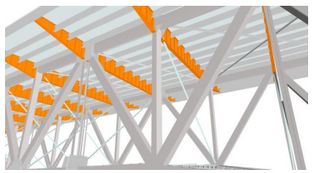
Combined interaction eqn = 0.86

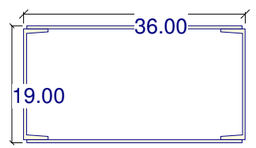
Load rating LLCF = 1.43

Vertical U55-L55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U55-L55	Compression	kips	S1	E1	INSP3	4.00	-76	-207	-	1.11	1.22	1.55	-85	-253	-	Static det.	Other	-137	0.25	1.77	-302	901	1.01	1.43	0.86
	corresp. Moment	k-ft					-18	-34	-				-20	-42	-			-10			-22	559	1.06		





Area	42.4	in2
Ix	2,596	in4
Iy	10,917	in4
Sx, top	273	in3
Sx, bottom	273	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-44	-11	-97	-82
Lane 2	CL-625	-37	-10	-81	-70
Lane 3	CL-625	-30	-8	-66	-57
Lane 4	CL-625	-23	-7	-50	-44
Total		**-133**	**-37**	**-293**	**-253**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 60.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.65$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(42)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}026 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,273\,(33) = 714 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -552 kips

comp D / C = 0.538

Fact'rd comp LL = -293 kips

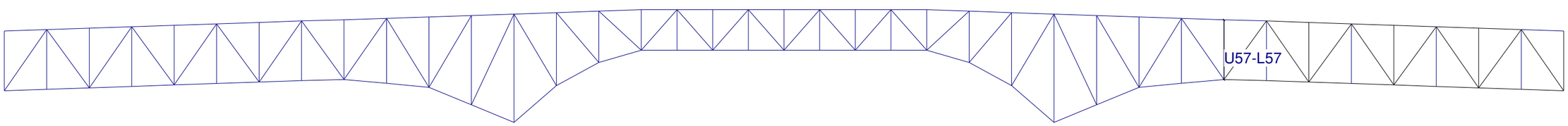
Fact'rd moment, Mf = 14 k-ft

Moment D / C = 0.019

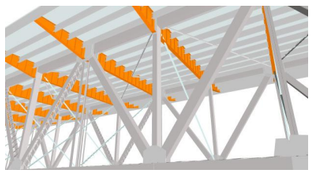
Combined interaction eqn = 0.56

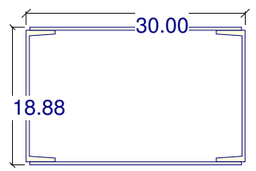
Load rating LLCF = 2.52

Vertical U57-L57



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U57-L57	Compression	kips	S1	E1	INSP3	4.00	-56	-161	-	1.11	1.22	1.55	-62	-196	-	Static det.	Other	-133	0.25	1.77	-293	1026	1.01	2.52	0.56
	corresp. Moment	k-ft					13	-15	-				14	-18	-			-4			-9	714	1.06		





Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-48	-13	-106	-90
Lane 2	CL-625	-40	-11	-90	-76
Lane 3	CL-625	-33	-9	-73	-62
Lane 4	CL-625	-26	-7	-57	-48
Total		**-147**	**-39**	**-325**	**-277**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -640 kips

comp D / C = 0.714

Fact'rd comp LL = -325 kips

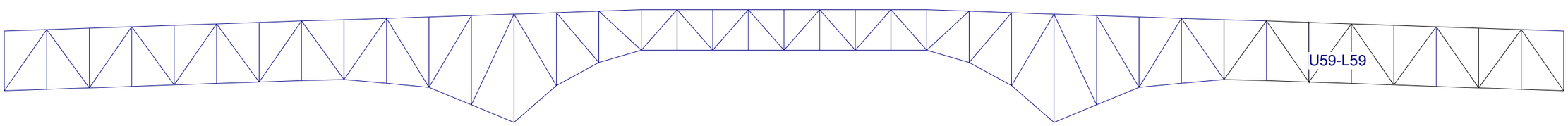
Fact'rd moment, Mf = 81 k-ft

Moment D / C = 0.135

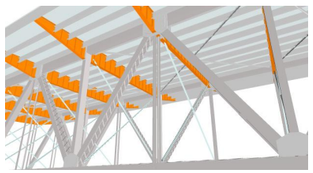
Combined interaction eqn = 0.85

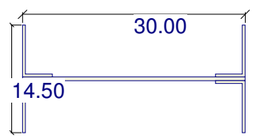
Load rating LLCF = 1.43

Vertical U59-L59



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U59-L59	Compression	kips	S1	E1	INSP3	4.00	-63	-201	-	1.11	1.22	1.55	-70	-245	-	Static det.	Other	-147	0.25	1.77	-325	897	1.01	1.43	0.85
	corresp. Moment	k-ft					16	35	-				18	43	-			9			21	603	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	1	0	3	2
Lane 2	CL-625	1	0	2	2
Lane 3	CL-625	1	0	2	1
Lane 4	CL-625	1	0	2	1
Total		**4**	**0**	**8**	**6**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 33 kips

tension D / C = 0.065

Fact'rd tension LL = 8 kips

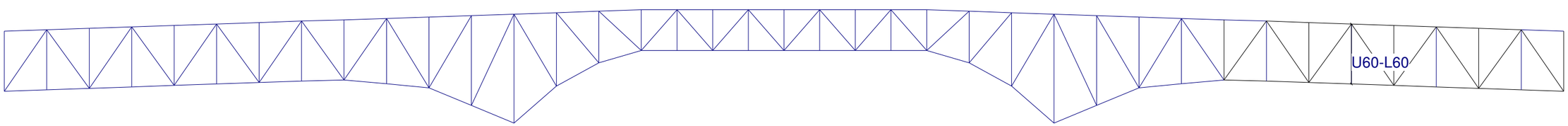
Fact'rd moment, Mf = 1 k-ft

Moment D / C = 0.013

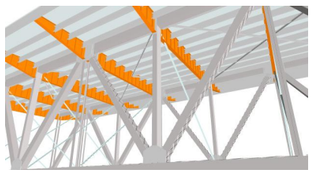
Combined interaction eqn = 0.08

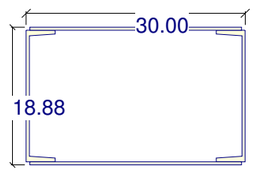
Load rating LLCF = 11.73

Vertical U60-L60



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U60-L60	Tension	kips	S1	E1	INSP3	4.00	22	0	-	1.11	0.90	1.55	24	0	-	Static det.	Other	4	0.25	1.77	8	500	1.01	>10	0.08
	corresp. Moment	k-ft					-1	-2	-				-1	-3	-			2			4	69	1.06		





Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-45	-11	-100	-84
Lane 2	CL-625	-38	-10	-85	-72
Lane 3	CL-625	-31	-8	-70	-59
Lane 4	CL-625	-25	-6	-54	-46
Total		**-139**	**-36**	**-308**	**-261**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -626 kips

comp D / C = 0.697

Fact'rd comp LL = -308 kips

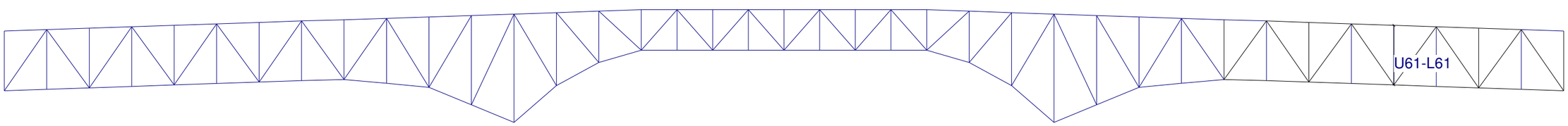
Fact'rd moment, Mf = 22 k-ft

Moment D / C = 0.036

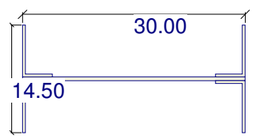
Combined interaction eqn = 0.73

Load rating LLCF = 1.73

Vertical U61-L61



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U61-L61	Compression	kips	S1	E1	INSP3	4.00	-66	-200	-	1.11	1.22	1.55	-74	-243	-	Static det.	Other	-139	0.25	1.77	-308	897	1.01	1.73	0.73
	corresp. Moment	k-ft					1	2	-				1	2	-			9			19	603	1.06		



Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

LL Axial demands (kips)

		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	1	0	2	1
Lane 2	CL-625	1	0	1	1
Lane 3	CL-625	1	0	1	1
Lane 4	CL-625	0	0	1	1
Total		**2**	**0**	**5**	**4**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 27 kips

tension D / C = 0.054

Fact'rd tension LL = 5 kips

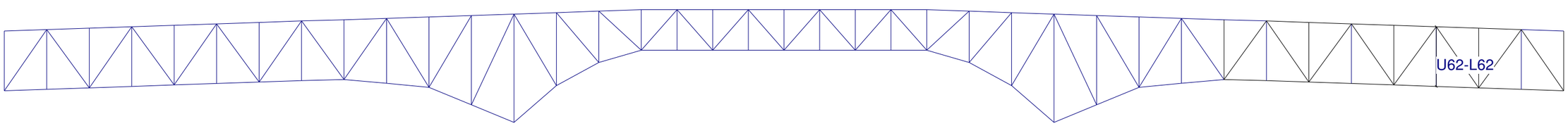
Fact'rd moment, Mf = 0 k-ft

Moment D / C = 0.004

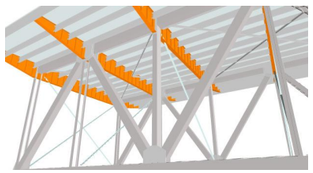
Combined interaction eqn = 0.06

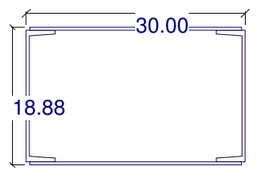
Load rating LLCF = 13.44

Vertical U62-L62



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U62-L62	Tension	kips	S1	E1	INSP3	4.00	22	-3	-	1.11	0.90	1.55	24	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	3	-			-2			-4	69	1.06		





Area	37.7	in2
Ix	2,177	in4
Iy	6,786	in4
Sx, top	231	in3
Sx, bottom	231	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-48	-13	-107	-91
Lane 2	CL-625	-41	-11	-90	-77
Lane 3	CL-625	-33	-9	-74	-63
Lane 4	CL-625	-26	-7	-57	-49
Total		**-148**	**-40**	**-327**	**-281**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 62.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.67$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 35.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(38)\,33\,(1+\lambda^{2n})^{-1/n} = 897 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,231\,(33) = 603 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -657 kips

comp D / C = 0.733

Fact'rd comp LL = -327 kips

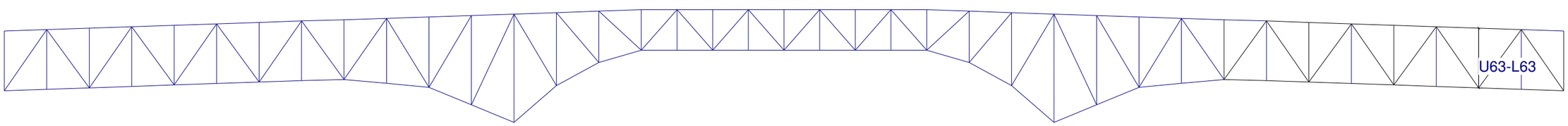
Fact'rd moment, Mf = 59 k-ft

Moment D / C = 0.098

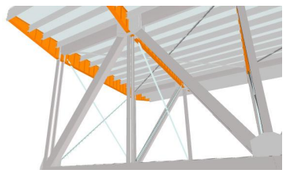
Combined interaction eqn = 0.83

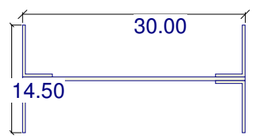
Load rating LLCF = 1.49

Vertical U63-L63



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U63-L63	Compression	kips	S1	E1	INSP3	4.00	-65	-211	-	1.11	1.22	1.55	-73	-257	-	Static det.	Other	-148	0.25	1.77	-327	897	1.01	1.49	0.83
	corresp. Moment	k-ft					-15	-30	-				-17	-37	-			-2			-5	603	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 16 kips

tension D / C = 0.031

Fact'rd tension LL = 0 kips

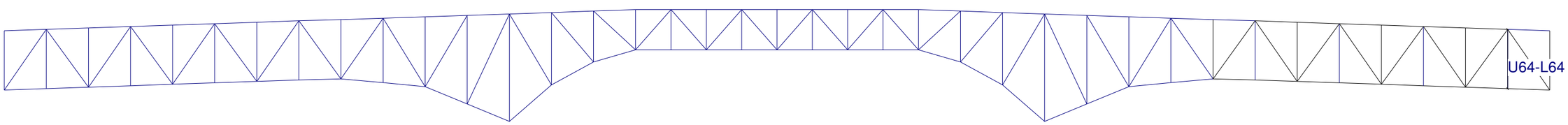
Fact'rd moment, Mf = 6 k-ft

Moment D / C = 0.090

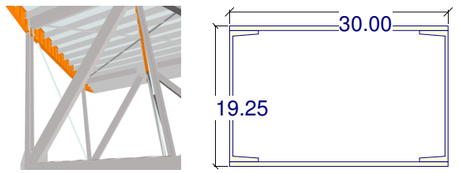
Combined interaction eqn = 0.12

Load rating LLCF = 45.88

Vertical U64-L64



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U64-L64	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			1	69	1.06		



Area	24.9	in2
Ix	1,097	in4
Iy	5,005	in4
Sx, top	114	in3
Sx, bottom	114	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-39	-11	-86	-76
Lane 2	CL-625	-33	-9	-72	-63
Lane 3	CL-625	-26	-7	-58	-49
Lane 4	CL-625	-20	-5	-44	-36
Total		**-118**	**-32**	**-261**	**-224**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 71.7\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.77$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 43.7$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(25)\,33\,(1+\lambda^{2n})^{-1/n} = 549 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,114\,(33) = 298 \text{ k-ft} \quad (Lu=0)$$

Length = 44.00 ft

Fact'rd comp, Cf = -450 kips

comp D / C = 0.820

Fact'rd comp LL = -261 kips

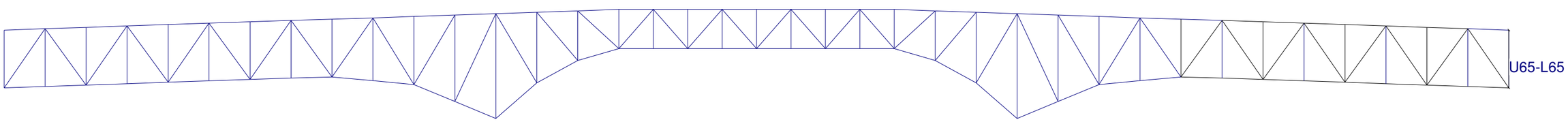
Fact'rd moment, Mf = 35 k-ft

Moment D / C = 0.117

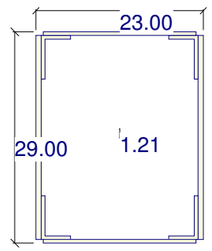
Combined interaction eqn = 0.94

Load rating LLCF = 1.15

Vertical U65-L65



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U65-L65	Compression	kips	S1	E1	INSP3	4.00	-43	-116	-	1.11	1.22	1.55	-48	-142	-	Static det.	Other	-118	0.25	1.77	-261	549	1.01	1.15	0.94
	corresp. Moment	k-ft					11	10	-				12	12	-			5			11	298	1.06		



Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-57	-25	-127	-126
Lane 2	CL-625	-49	-21	-108	-107
Lane 3	CL-625	-41	-18	-90	-89
Lane 4	CL-625	-32	-14	-71	-71
Lane 5	CL-625	-23	-10	-50	-50
Lane 6	CL-625	-14	-6	-31	-31
Lane 7	CL-625	-6	-3	-13	-13
Lane 8	CL-625	-1	0	-1	-1
Total		**-222**	**-97**	**-492**	**-487**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1402 kips

comp D / C = 0.649

Fact'rd comp LL = -492 kips

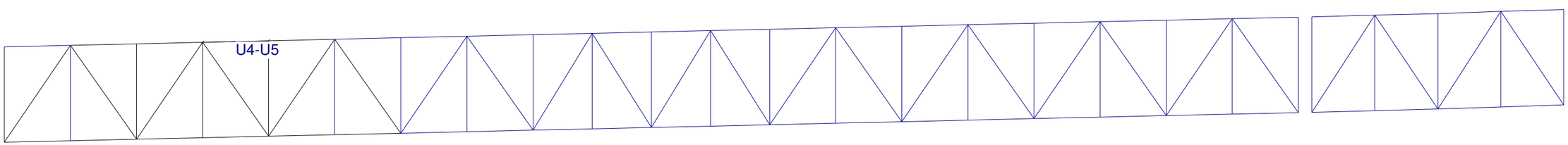
Fact'rd moment, Mf = 343 k-ft

Moment D / C = 0.245

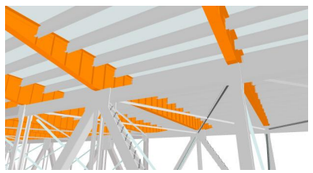
Combined interaction eqn = 0.89

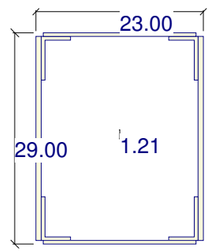
Load rating LLCF = 1.37

Top chord U4-U5



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U4-U5	Compression	kips	S1	E1	INSP3	4.00	-211	-554	-	1.11	1.22	1.55	-234	-675	-	Static det.	Other	-222	0.25	1.77	-492	2161	1.01	1.37	0.89
	corresp. Moment	k-ft					34	129	-				38	158	-			66			147	1399	1.06		





Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-56	-24	-124	-122
Lane 2	CL-625	-48	-21	-107	-105
Lane 3	CL-625	-40	-17	-89	-88
Lane 4	CL-625	-32	-14	-72	-71
Lane 5	CL-625	-24	-10	-52	-52
Lane 6	CL-625	-15	-7	-34	-34
Lane 7	CL-625	-7	-4	-16	-17
Lane 8	CL-625	-3	-1	-6	-5
Total		**-226**	**-98**	**-500**	**-493**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1427 kips

comp D / C = 0.660

Fact'rd comp LL = -500 kips

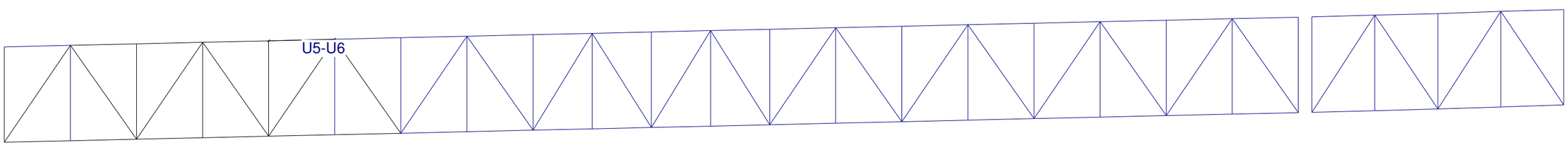
Fact'rd moment, Mf = 263 k-ft

Moment D / C = 0.188

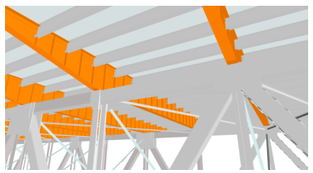
Combined interaction eqn = 0.85

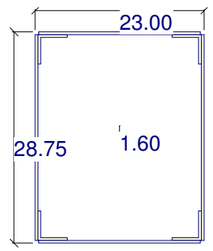
Load rating LLCF = 1.49

Top chord U5-U6



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U5-U6	Compression	kips	S1	E1	INSP3	4.00	-215	-564	-	1.11	1.22	1.55	-239	-688	-	Static det.	Other	-226	0.25	1.77	-500	2161	1.01	1.49	0.85
	corresp. Moment	k-ft					-61	147	-				-67	180	-			68			151	1399	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 31.1\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 28.2$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(44)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}257 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,344\,(33) = 899 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = 0 kips

comp D / C = 0.000

Fact'rd comp LL = 0 kips

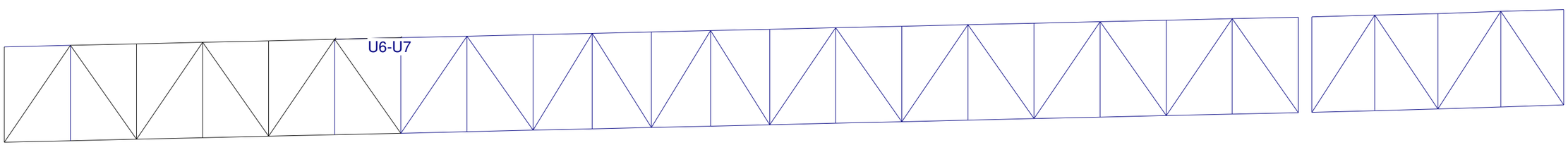
Fact'rd moment, Mf = 222 k-ft

Moment D / C = 0.247

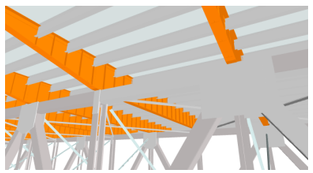
Combined interaction eqn = 0.25

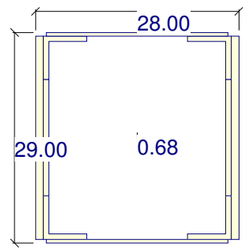
Load rating LLCF = 1000.00

Top chord U6-U7



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U6-U7	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1257	1.01	>10	0.25
	corresp. Moment	k-ft					40	151	-				44	185	-			0			0	899	1.06		





Area	135.8	in2
Ix	13,252	in4
Iy	20,212	in4
Sx, top	959	in3
Sx, bottom	873	in3

Top chord U8-U9

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	82	48	181	201
Lane 2	CL-625	71	41	157	174
Lane 3	CL-625	60	35	133	147
Lane 4	CL-625	49	28	109	120
Lane 5	CL-625	38	21	85	91
Lane 6	CL-625	27	14	60	64
Lane 7	CL-625	16	8	35	37
Lane 8	CL-625	5	2	11	11
Total		**349**	**198**	**771**	**845**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (135.8)\ 33.0 = 4{,}257$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (100.0)\ 60.0 = 4{,}845$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 873\ (33) = 2{,}280$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 2700 kips

tension D / C = 0.634

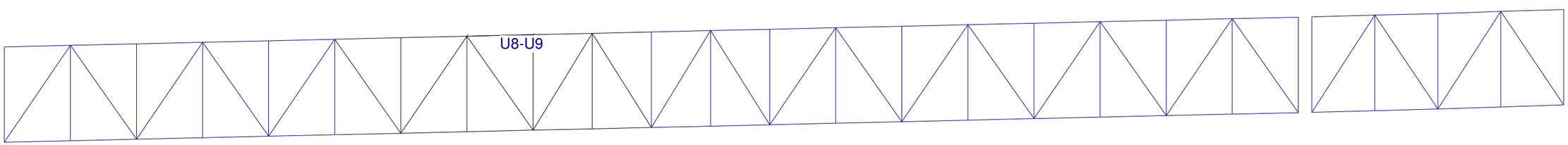
Fact'rd tension LL = 845 kips

Fact'rd moment, Mf = 332 k-ft

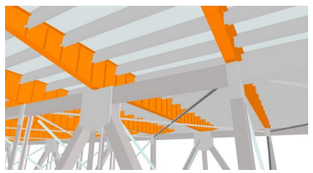
Moment D / C = 0.146

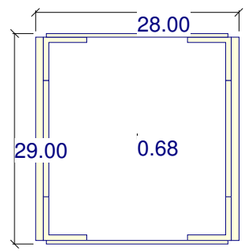
Combined interaction eqn = 0.78

Load rating LLCF = 1.91



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U8-U9	Tension	kips	S1	E1	INSP3	4.00	441	1119	-	1.11	1.22	1.55	490	1365	-	Static det.	Other	477	0	1.77	845	4257	1.01	1.91	0.78
	corresp. Moment	k-ft					-81	-80	-				-90	-97	-			-82			-145	2280	1.06		





Area	135.8	in2
Ix	13,252	in4
Iy	20,212	in4
Sx, top	959	in3
Sx, bottom	873	in3

Top chord U9-U10

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	76	47	168	190
Lane 2	CL-625	67	40	148	166
Lane 3	CL-625	57	34	127	142
Lane 4	CL-625	48	28	107	117
Lane 5	CL-625	39	21	87	93
Lane 6	CL-625	30	16	65	70
Lane 7	CL-625	20	11	44	47
Lane 8	CL-625	10	6	23	25
Total		**348**	**202**	**769**	**849**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (135.8)\ 33.0 = 4{,}257$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (100.0)\ 60.0 = 4{,}845$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 873\ (33) = 2{,}280$ k-ft (Lu=0)

Length = 23.51 ft

Fact'rd tension, Tf = 2696 kips

tension D / C = 0.633

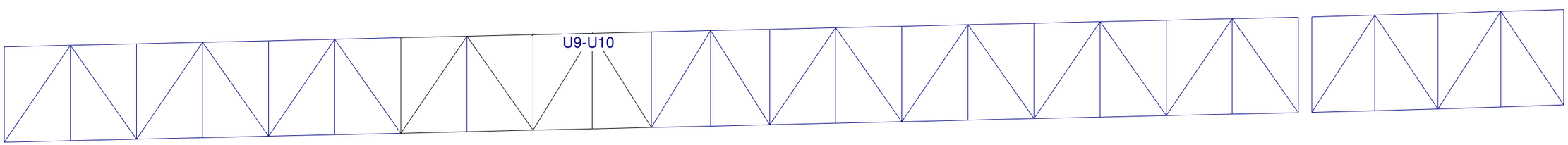
Fact'rd tension LL = 849 kips

Fact'rd moment, Mf = 392 k-ft

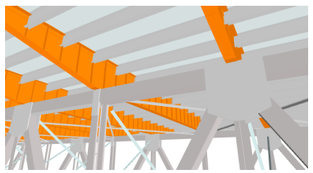
Moment D / C = 0.172

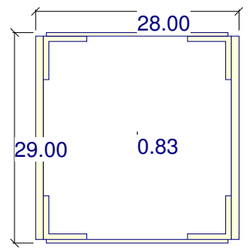
Combined interaction eqn = 0.81

Load rating LLCF = 1.79



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U9-U10	Tension	kips	S1	E1	INSP3	4.00	439	1114	-	1.11	1.22	1.55	488	1360	-	Static det.	Other	480	0	1.77	849	4257	1.01	1.79	0.81
	corresp. Moment	k-ft					-80	-116	-				-88	-141	-			-92			-162	2280	1.06		





Area	112.1	in2
Ix	12,733	in4
Iy	16,477	in4
Sx, top	931	in3
Sx, bottom	831	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	41	35	92	120
Lane 2	CL-625	36	30	79	104
Lane 3	CL-625	30	26	67	89
Lane 4	CL-625	25	22	56	75
Lane 5	CL-625	19	17	42	57
Lane 6	CL-625	14	13	32	43
Lane 7	CL-625	10	8	22	29
Lane 8	CL-625	5	4	12	15
Total		**181**	**155**	**401**	**530**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (112.1)\ 33.0 = 3{,}514$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (78.0)\ 60.0 = 3{,}779$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 831\ (33) = 2{,}170$ k-ft (Lu=0)

Length = 23.51 ft

Fact'rd tension, Tf = 2003 kips

tension D / C = 0.570

Fact'rd tension LL = 530 kips

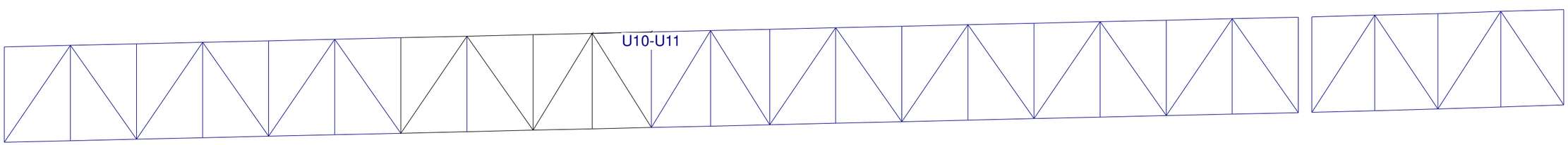
Fact'rd moment, Mf = 151 k-ft

Moment D / C = 0.070

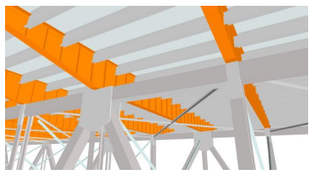
Combined interaction eqn = 0.64

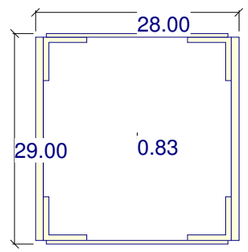
Load rating LLCF = 3.32

Top chord U10-U11



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U10-U11	Tension	kips	S1	E1	INSP3	4.00	342	896	-	1.11	1.22	1.55	379	1093	-	Static det.	Other	300	0	1.77	530	3514	1.01	3.32	0.64
	corresp. Moment	k-ft					-76	168	-				-84	205	-			17			31	2170	1.06		





Area	112.1	in2
Ix	12,733	in4
Iy	16,477	in4
Sx, top	931	in3
Sx, bottom	831	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	44	35	97	124
Lane 2	CL-625	38	31	84	108
Lane 3	CL-625	32	26	71	92
Lane 4	CL-625	26	22	57	76
Lane 5	CL-625	20	17	44	58
Lane 6	CL-625	15	12	33	43
Lane 7	CL-625	10	8	22	29
Lane 8	CL-625	5	4	12	14
Total		**190**	**155**	**420**	**543**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (112.1)\ 33.0 = 3{,}514$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (78.0)\ 60.0 = 3{,}779$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 831\ (33) = 2{,}170$ k-ft (Lu=0)

Length = 23.51 ft

Fact'rd tension, Tf = 2016 kips

tension D / C = 0.574

Fact'rd tension LL = 543 kips

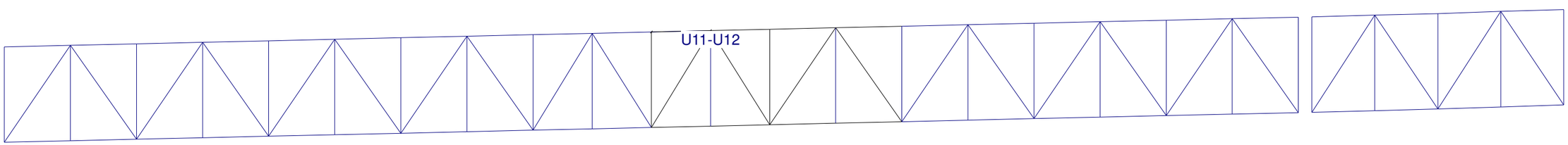
Fact'rd moment, Mf = 136 k-ft

Moment D / C = 0.063

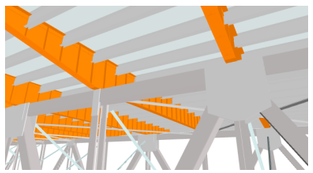
Combined interaction eqn = 0.64

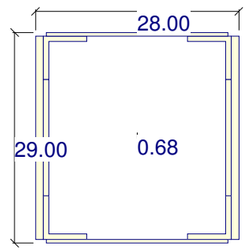
Load rating LLCF = 3.32

Top chord U11-U12



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U11-U12	Tension	kips	S1	E1	INSP3	4.00	342	897	-	1.11	1.22	1.55	379	1094	-	Static det.	Other	307	0	1.77	543	3514	1.01	3.32	0.64
	corresp. Moment	k-ft					-78	168	-				-86	205	-			10			17	2170	1.06		





Area	135.8	in2
Ix	13,252	in4
Iy	20,212	in4
Sx, top	959	in3
Sx, bottom	873	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	79	46	174	193
Lane 2	CL-625	69	40	153	169
Lane 3	CL-625	60	34	132	144
Lane 4	CL-625	50	28	111	120
Lane 5	CL-625	38	21	83	90
Lane 6	CL-625	28	16	63	68
Lane 7	CL-625	19	11	43	47
Lane 8	CL-625	10	6	23	25
Total		**354**	**201**	**782**	**856**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (135.8)\ 33.0 = 4{,}257$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (100.0)\ 60.0 = 4{,}845$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 873\ (33) = 2{,}280$ k-ft (Lu=0)

Length = 23.51 ft

Fact'rd tension, Tf = 2703 kips

tension D / C = 0.635

Fact'rd tension LL = 856 kips

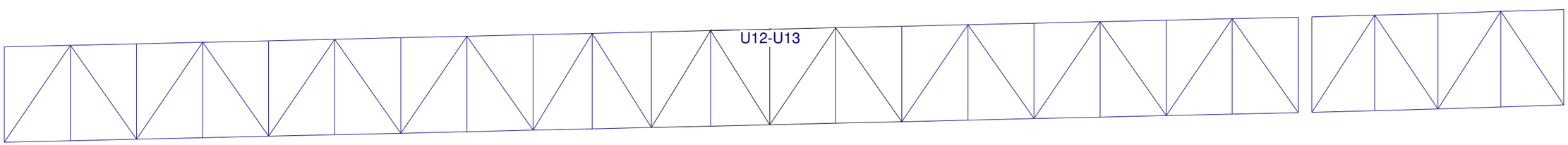
Fact'rd moment, Mf = 398 k-ft

Moment D / C = 0.175

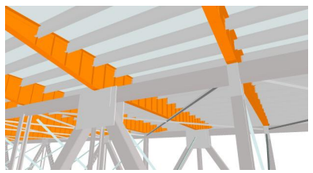
Combined interaction eqn = 0.81

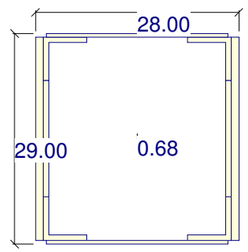
Load rating LLCF = 1.79

Top chord U12-U13



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U12-U13	Tension	kips	S1	E1	INSP3	4.00	440	1114	-	1.11	1.22	1.55	488	1359	-	Static det.	Other	484	0	1.77	856	4257	1.01	1.79	0.81
	corresp. Moment	k-ft					-81	-121	-				-90	-148	-			-91			-160	2280	1.06		





Area	135.8	in2
Ix	13,252	in4
Iy	20,212	in4
Sx, top	959	in3
Sx, bottom	873	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	85	48	189	206
Lane 2	CL-625	74	41	164	178
Lane 3	CL-625	63	35	139	151
Lane 4	CL-625	51	28	114	123
Lane 5	CL-625	37	20	81	88
Lane 6	CL-625	26	14	57	62
Lane 7	CL-625	15	8	33	36
Lane 8	CL-625	4	2	10	10
Total		**356**	**198**	**787**	**854**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (135.8)\ 33.0 = 4{,}257$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (100.0)\ 60.0 = 4{,}845$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 873\ (33) = 2{,}280$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 2709 kips

tension D / C = 0.636

Fact'rd tension LL = 854 kips

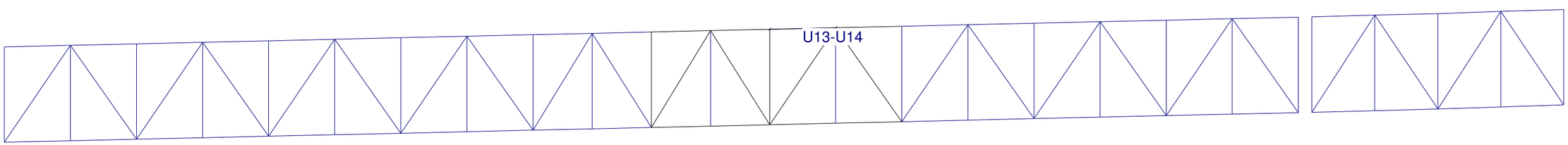
Fact'rd moment, Mf = 338 k-ft

Moment D / C = 0.148

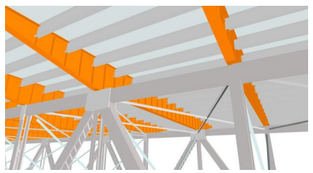
Combined interaction eqn = 0.78

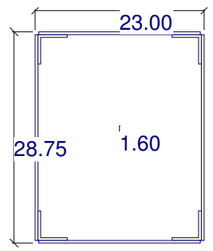
Load rating LLCF = 1.91

Top chord U13-U14



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U13-U14	Tension	kips	S1	E1	INSP3	4.00	441	1119	-	1.11	1.22	1.55	490	1365	-	Static det.	Other	483	0	1.77	854	4257	1.01	1.91	0.78
	corresp. Moment	k-ft					-83	-85	-				-92	-103	-			-80			-142	2280	1.06		





Area	44.0	in2
Ix	5,494	in4
Iy	4,511	in4
Sx, top	430	in3
Sx, bottom	344	in3

	Truck Name	LL Axial demands (kips) Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (44.0)\ 33.0 = 1{,}379$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (44.0)\ 60.0 = 2{,}131$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 344\ (33) = 899$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 0 kips

tension D / C = 0.000

Fact'rd tension LL = 0 kips

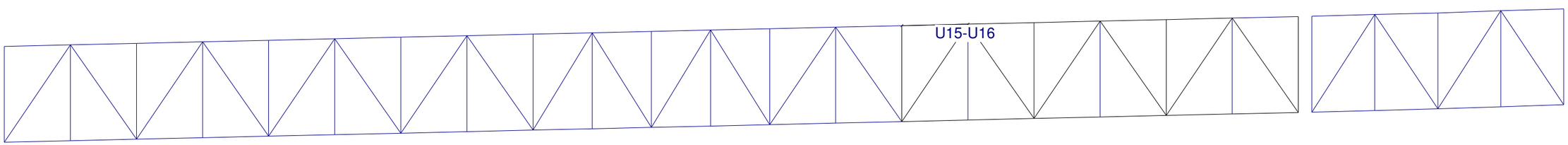
Fact'rd moment, Mf = 217 k-ft

Moment D / C = 0.242

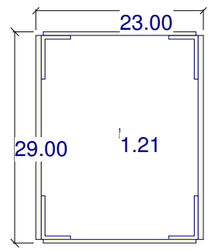
Combined interaction eqn = 0.24

Load rating LLCF = 1000.00

Top chord U15-U16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U15-U16	Tension	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1379	1.01	>10	0.24
	corresp. Moment	k-ft					38	148	-				43	181	-			0			0	899	1.06		



Area	75.6	in2
Ix	8,410	in4
Iy	7,808	in4
Sx, top	633	in3
Sx, bottom	535	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-54	-23	-119	-117
Lane 2	CL-625	-46	-20	-102	-101
Lane 3	CL-625	-39	-17	-86	-85
Lane 4	CL-625	-31	-14	-69	-69
Lane 5	CL-625	-23	-10	-51	-51
Lane 6	CL-625	-16	-7	-35	-35
Lane 7	CL-625	-8	-4	-18	-18
Lane 8	CL-625	-2	-1	-5	-5
Total		**-219**	**-96**	**-485**	**-480**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 31.0\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 29.9$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(76)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}161 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,535\,(33) = 1{,}399 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1392 kips

comp D / C = 0.644

Fact'rd comp LL = -485 kips

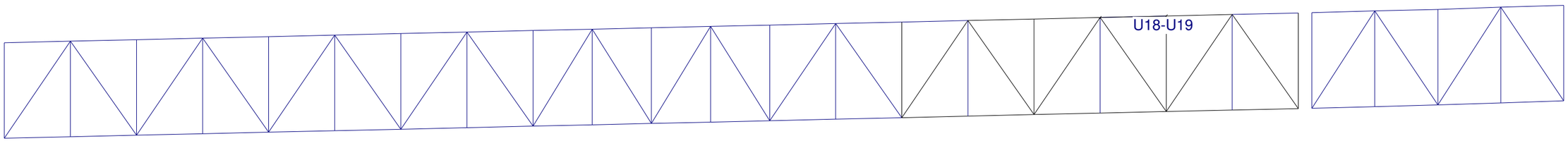
Fact'rd moment, Mf = 323 k-ft

Moment D / C = 0.231

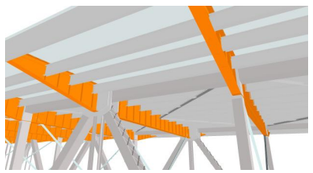
Combined interaction eqn = 0.88

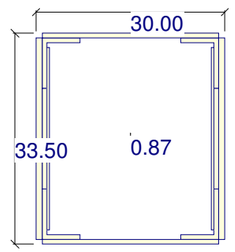
Load rating LLCF = 1.49

Top chord U18-U19



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U18-U19	Compression	kips	S1	E1	INSP3	4.00	-210	-552	-	1.11	1.22	1.55	-233	-673	-	Static det.	Other	-219	0.25	1.77	-485	2161	1.01	1.49	0.88
	corresp. Moment	k-ft					33	123	-				37	151	-			61			136	1399	1.06		





Area	181.8	in2
Ix	23,464	in4
Iy	30,644	in4
Sx, top	1,478	in3
Sx, bottom	1,332	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-91	-58	-202	-231
Lane 2	CL-625	-79	-50	-174	-200
Lane 3	CL-625	-66	-42	-147	-168
Lane 4	CL-625	-54	-34	-119	-137
Lane 5	CL-625	-39	-25	-86	-99
Lane 6	CL-625	-26	-17	-58	-68
Lane 7	CL-625	-14	-10	-31	-37
Lane 8	CL-625	-2	-2	-5	-7
Total		**-371**	**-238**	**-822**	**-947**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.35$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.9$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(182)\,33\,(1 + \lambda^{2n})^{-1/n} = 5{,}163 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1332\,(33) = 3{,}479 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -3323 kips

comp D / C = 0.644

Fact'rd comp LL = -947 kips

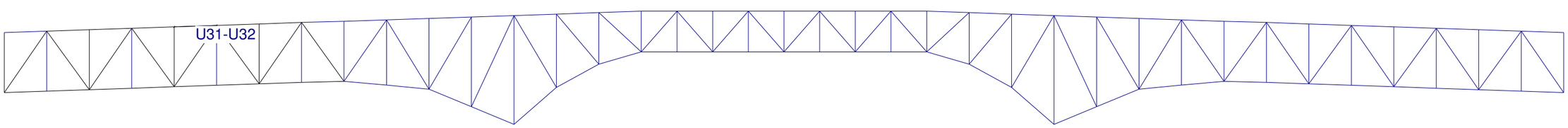
Fact'rd moment, Mf = 978 k-ft

Moment D / C = 0.281

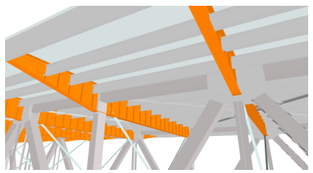
Combined interaction eqn = 0.92

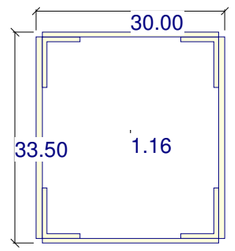
Load rating LLCF = 1.37

Top chord U31-U32



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U31-U32	Compression	kips	S1	E1	INSP3	4.00	-637	-1368	-	1.11	1.22	1.55	-707	-1668	-	Static det.	Other	-535	0	1.77	-947	5163	1.01	1.37	0.92
	corresp. Moment	k-ft					114	391	-				126	477	-			212			375	3479	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-72	-45	-159	-182
Lane 2	CL-625	-61	-39	-136	-156
Lane 3	CL-625	-51	-33	-113	-130
Lane 4	CL-625	-41	-26	-90	-104
Lane 5	CL-625	-29	-19	-65	-75
Lane 6	CL-625	-19	-12	-41	-48
Lane 7	CL-625	-8	-6	-18	-23
Lane 8	CL-625	-2	0	-4	-3
Total		**-283**	**-180**	**-627**	**-720**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2504 kips

comp D / C = 0.642

Fact'rd comp LL = -720 kips

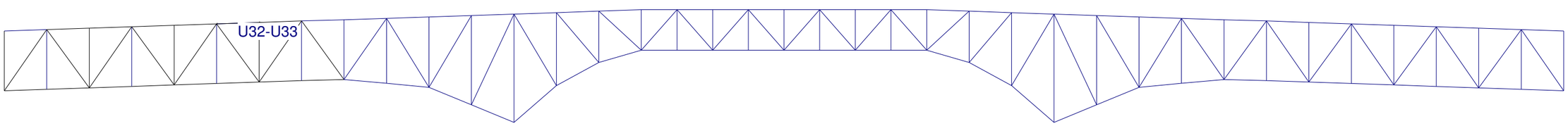
Fact'rd moment, Mf = 764 k-ft

Moment D / C = 0.245

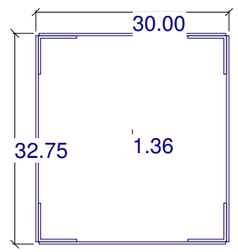
Combined interaction eqn = 0.89

Load rating LLCF = 1.49

Top chord U32-U33



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U32-U33	Compression	kips	S1	E1	INSP3	4.00	-478	-1028	-	1.11	1.22	1.55	-531	-1254	-	Static det.	Other	-407	0	1.77	-720	3904	1.01	1.49	0.89
	corresp. Moment	k-ft					82	317	-				91	386	-			162			287	3118	1.06		



Area	58.3	in2
Ix	10,015	in4
Iy	9,793	in4
Sx, top	667	in3
Sx, bottom	565	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 28.6$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(58)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}677 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,565\,(33) = 1{,}475 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = 0 kips

comp D / C = 0.000

Fact'rd comp LL = 0 kips

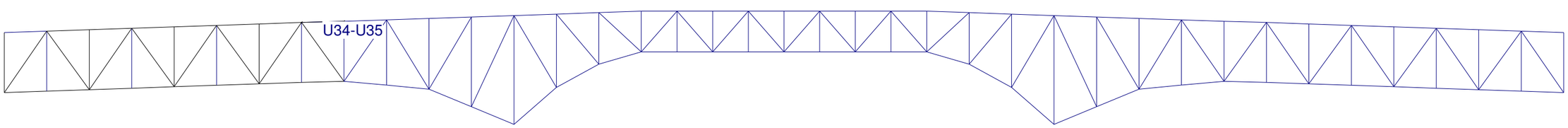
Fact'rd moment, Mf = 1002 k-ft

Moment D / C = 0.679

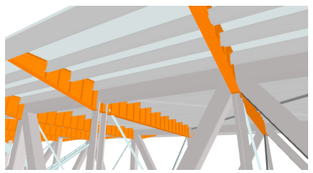
Combined interaction eqn = 0.68

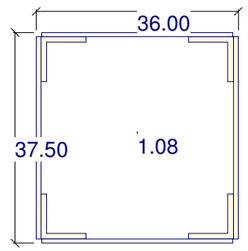
Load rating LLCF = 1000.00

Top chord U34-U35



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U34-U35	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.68
	corresp. Moment	k-ft					83	757	-				92	923	-			0			0	1475	1.06		





Area	164.3	in2
Ix	35,581	in4
Iy	37,773	in4
Sx, top	2,014	in3
Sx, bottom	1,794	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	76	61	168	216
Lane 2	CL-625	66	53	146	187
Lane 3	CL-625	56	45	124	159
Lane 4	CL-625	46	37	102	130
Lane 5	CL-625	35	27	77	97
Lane 6	CL-625	24	19	54	69
Lane 7	CL-625	14	12	32	41
Lane 8	CL-625	4	4	10	14
Total		**321**	**258**	**711**	**912**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (164.3)\ 33.0 = 5{,}151$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (119.0)\ 60.0 = 5{,}766$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1794\ (33) = 4{,}687$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3466 kips

tension D / C = 0.673

Fact'rd tension LL = 912 kips

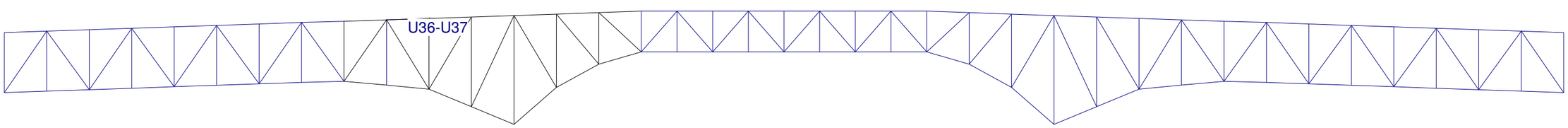
Fact'rd moment, Mf = 494 k-ft

Moment D / C = 0.105

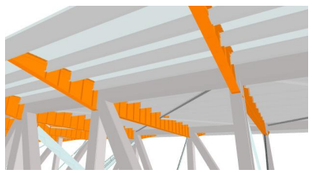
Combined interaction eqn = 0.78

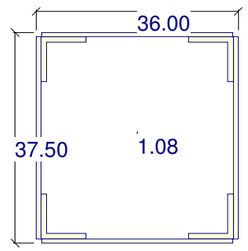
Load rating LLCF = 2.22

Top chord U36-U37



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U36-U37	Tension	kips	S1	E1	INSP3	4.00	705	1452	-	1.11	1.22	1.55	782	1771	-	Static det.	Other	515	0	1.77	912	5151	1.01	2.22	0.78
	corresp. Moment	k-ft					-95	-271	-				-106	-331	-			-32			-57	4687	1.06		





Area	164.3	in2
Ix	35,581	in4
Iy	37,773	in4
Sx, top	2,014	in3
Sx, bottom	1,794	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	66	55	146	191
Lane 2	CL-625	59	48	130	169
Lane 3	CL-625	51	42	113	146
Lane 4	CL-625	44	35	97	124
Lane 5	CL-625	36	28	79	99
Lane 6	CL-625	28	22	62	79
Lane 7	CL-625	21	17	46	60
Lane 8	CL-625	13	12	29	40
Total		**317**	**259**	**701**	**908**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (164.3)\ 33.0 = 5{,}151$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (119.0)\ 60.0 = 5{,}766$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1794\ (33) = 4{,}687$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3425 kips

tension D / C = 0.665

Fact'rd tension LL = 908 kips

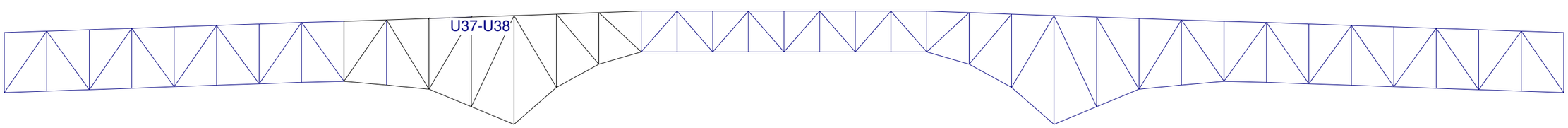
Fact'rd moment, Mf = 387 k-ft

Moment D / C = 0.083

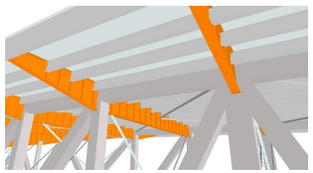
Combined interaction eqn = 0.75

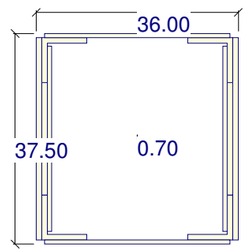
Load rating LLCF = 2.46

Top chord U37-U38



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U37-U38	Tension	kips	S1	E1	INSP3	4.00	694	1432	-	1.11	1.22	1.55	770	1747	-	Static det.	Other	513	0	1.77	908	5151	1.01	2.46	0.75
	corresp. Moment	k-ft					62	224	-				69	273	-			25			45	4687	1.06		





Area	261.1	in2
Ix	41,868	in4
Iy	62,733	in4
Sx, top	2,319	in3
Sx, bottom	2,153	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	104	91	230	309
Lane 2	CL-625	95	83	211	282
Lane 3	CL-625	86	76	191	257
Lane 4	CL-625	78	68	172	231
Lane 5	CL-625	68	60	150	202
Lane 6	CL-625	59	52	130	176
Lane 7	CL-625	50	45	111	150
Lane 8	CL-625	41	37	91	125
Total		**581**	**514**	**1286**	**1732**

Clause 10.8.2 (b)- Axial Tension Resistance

$T_r = 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (190.0)\ 74.0 = 11{,}353$ kips

$< \phi_s A_g F_y = 0.95\ (261.1)\ 46.0 = 11{,}410$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2153\ (46) = 7{,}840$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6069 kips

tension D / C = 0.535

Fact'rd tension LL = 1732 kips

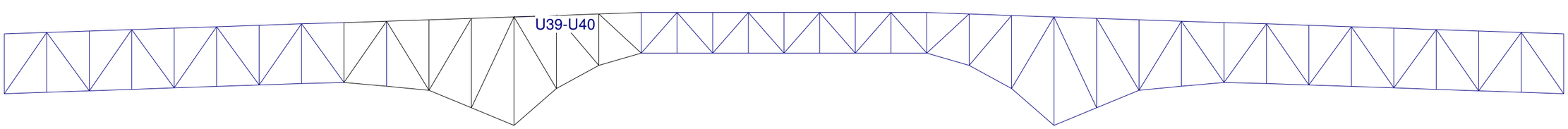
Fact'rd moment, Mf = 1228 k-ft

Moment D / C = 0.157

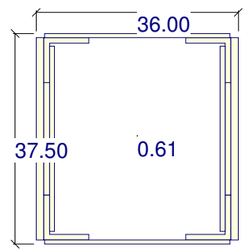
Combined interaction eqn = 0.69

Load rating LLCF = 2.52

Top chord U39-U40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U39-U40	Tension	kips	S1	E1	INSP3	4.00	1138	2520	-	1.11	1.22	1.55	1263	3074	-	Static det.	Other	978	0	1.77	1732	11353	1.01	2.52	0.69
	corresp. Moment	k-ft					-367	-258	-				-408	-314	-			-286			-506	7840	1.06		



Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	123	108	273	366
Lane 2	CL-625	115	101	254	341
Lane 3	CL-625	107	94	236	317
Lane 4	CL-625	98	87	218	293
Lane 5	CL-625	90	79	199	266
Lane 6	CL-625	81	72	180	242
Lane 7	CL-625	73	65	162	218
Lane 8	CL-625	65	58	144	194
Total		**753**	**662**	**1666**	**2238**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6492 kips

tension D / C = 0.525

Fact'rd tension LL = 2238 kips

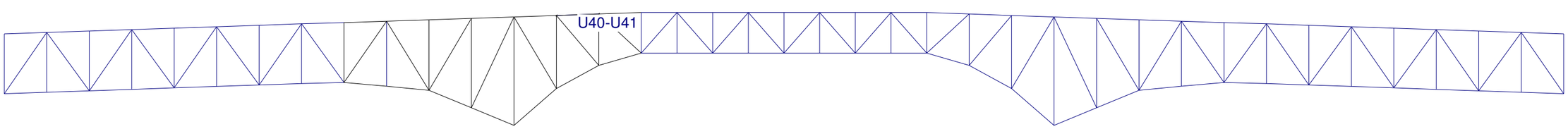
Fact'rd moment, Mf = 1011 k-ft

Moment D / C = 0.124

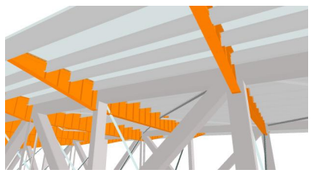
Combined interaction eqn = 0.65

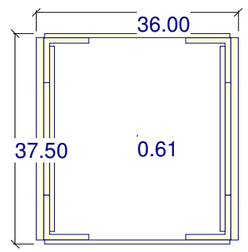
Load rating LLCF = 2.52

Top chord U40-U41



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U40-U41	Tension	kips	S1	E1	INSP3	4.00	968	2606	-	1.11	1.22	1.55	1075	3179	-	Static det.	Other	1264	0	1.77	2238	12359	1.01	2.52	0.65
	corresp. Moment	k-ft					-198	-231	-				-220	-282	-			-287			-509	8175	1.06		





Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	129	114	286	385
Lane 2	CL-625	123	109	272	367
Lane 3	CL-625	117	104	259	349
Lane 4	CL-625	111	98	246	331
Lane 5	CL-625	105	92	233	312
Lane 6	CL-625	99	87	220	295
Lane 7	CL-625	93	82	207	277
Lane 8	CL-625	87	77	193	259
Total		**866**	**762**	**1916**	**2575**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6117 kips

tension D / C = 0.495

Fact'rd tension LL = 2575 kips

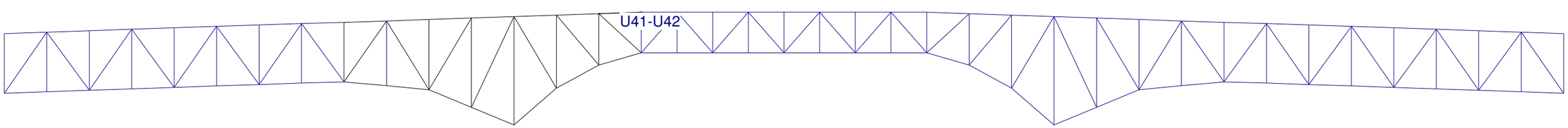
Fact'rd moment, Mf = 1019 k-ft

Moment D / C = 0.125

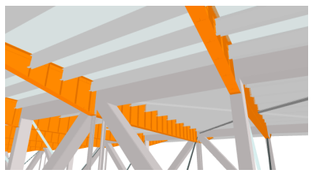
Combined interaction eqn = 0.62

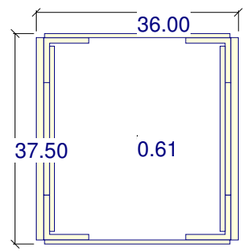
Load rating LLCF = 2.65

Top chord U41-U42



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U41-U42	Tension	kips	S1	E1	INSP3	4.00	607	2351	-	1.11	1.22	1.55	674	2868	-	Static det.	Other	1455	0	1.77	2575	12359	1.01	2.65	0.62
	corresp. Moment	k-ft					-248	-383	-				-275	-467	-			-156			-277	8175	1.06		





Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	129	114	286	384
Lane 2	CL-625	123	109	272	367
Lane 3	CL-625	117	103	259	349
Lane 4	CL-625	111	98	246	331
Lane 5	CL-625	105	92	233	312
Lane 6	CL-625	99	87	220	294
Lane 7	CL-625	93	82	206	277
Lane 8	CL-625	87	77	193	259
Total		**866**	**762**	**1915**	**2574**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Length = 26.25 ft

Fact'rd tension, Tf = 6105 kips

tension D / C = 0.494

Fact'rd tension LL = 2574 kips

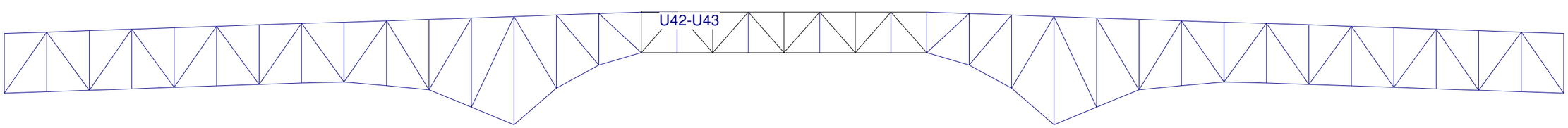
Fact'rd moment, Mf = 899 k-ft

Moment D / C = 0.110

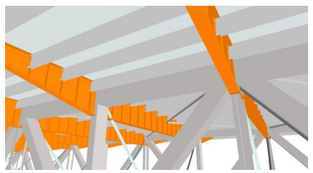
Combined interaction eqn = 0.60

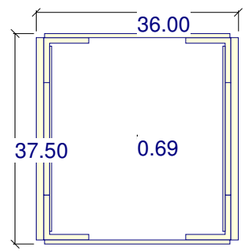
Load rating LLCF = 2.71

Top chord U42-U43



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U42-U43	Tension	kips	S1	E1	INSP3	4.00	604	2345	-	1.11	1.22	1.55	670	2861	-	Static det.	Other	1454	0	1.77	2574	12359	1.01	2.71	0.60
	corresp. Moment	k-ft					-151	-379	-				-167	-463	-			-152			-270	8175	1.06		





Area	263.3	in2
Ix	42,539	in4
Iy	63,037	in4
Sx, top	2,356	in3
Sx, bottom	2,188	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	105	93	233	313
Lane 2	CL-625	101	89	223	300
Lane 3	CL-625	96	85	213	287
Lane 4	CL-625	92	81	204	274
Lane 5	CL-625	88	77	195	261
Lane 6	CL-625	84	73	185	248
Lane 7	CL-625	79	70	175	235
Lane 8	CL-625	75	66	166	222
Total		**720**	**634**	**1593**	**2141**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (263.4)\ 43.9 = 10{,}983$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (192.0)\ 74.0 = 11{,}473$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 20.4$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (263)\ 44\ (1 + \lambda^{2n})^{-1/n} = 10{,}089$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2188\ (44) = 7{,}605$ k-ft (Lu=0)

Top chord U43-U44

Length = 26.25 ft

Fact'rd tension, Tf = 3654 kips

tension D / C = 0.333

Fact'rd tension LL = 2141 kips

Fact'rd moment, Mf = 1174 k-ft

Moment D / C = 0.154

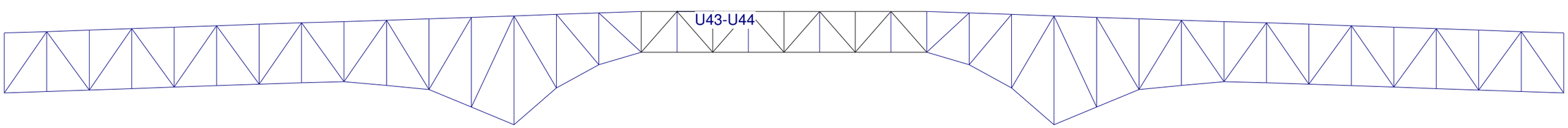
Combined interaction eqn = 0.49

Governing fact'rd comp, Cf = -1522

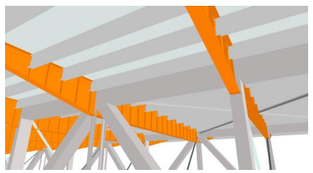
comp D / C = 0.151

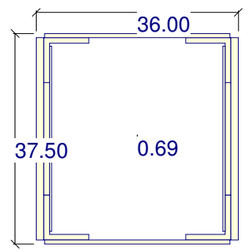
Fact'rd comp LL = -2612 kips

Load rating LLCF = 3.32



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U43-U44	Tension	kips	S1	E1	INSP3	4.00	-64	1289	-	0.95	1.22	1.55	-71	1573	-	Static det.	Other	1210	0	1.77	2141	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-287	-538	-				-318	-657	-			-138			-245	7605	1.06		





Area	263.3	in2
Ix	42,539	in4
Iy	63,037	in4
Sx, top	2,356	in3
Sx, bottom	2,188	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	105	93	232	313
Lane 2	CL-625	101	89	223	300
Lane 3	CL-625	96	85	213	287
Lane 4	CL-625	92	81	204	274
Lane 5	CL-625	88	77	194	261
Lane 6	CL-625	84	73	185	248
Lane 7	CL-625	79	69	175	235
Lane 8	CL-625	75	66	166	222
Total		**719**	**633**	**1592**	**2139**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (263.4)\ 43.9 = 10{,}983$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (192.0)\ 74.0 = 11{,}473$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$

$n = 1.34; \quad \frac{KL_y}{r_y} = 20.4$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (263)\ 44\ (1 + \lambda^{2n})^{-1/n} = 10{,}089$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2188\ (44) = 7{,}605$ k-ft (Lu=0)

Top chord U44-U45

Length = 26.25 ft

Fact'rd tension, Tf = 3647 kips

tension D / C = 0.332

Fact'rd tension LL = 2139 kips

Fact'rd moment, Mf = 371 k-ft

Moment D / C = 0.049

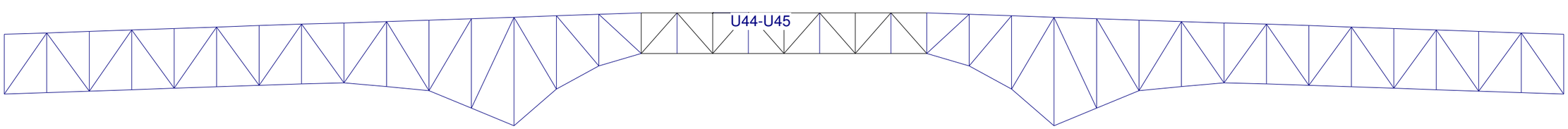
Combined interaction eqn = 0.38

Governing fact'rd comp, Cf = -1529

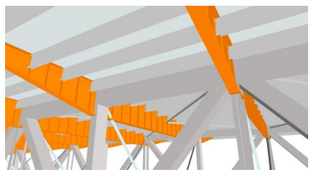
comp D / C = 0.152

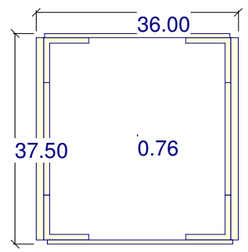
Fact'rd comp LL = -2614 kips

Load rating LLCF = 3.93



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U44-U45	Tension	kips	S1	E1	INSP3	4.00	-65	1287	-	0.95	1.22	1.55	-73	1570	-	Static det.	Other	1209	0	1.77	2139	10983	1.01	3.93	0.38
	corresp. Moment	k-ft					106	-237	-				118	-289	-			-104			-184	7605	1.06		





Area	238.6	in2
Ix	40,280	in4
Iy	57,142	in4
Sx, top	2,239	in3
Sx, bottom	2,064	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	82	72	181	244
Lane 2	CL-625	79	70	175	236
Lane 3	CL-625	76	68	169	227
Lane 4	CL-625	73	65	162	219
Lane 5	CL-625	70	62	154	209
Lane 6	CL-625	67	60	147	201
Lane 7	CL-625	64	58	141	192
Lane 8	CL-625	61	55	135	184
Total		**571**	**510**	**1264**	**1712**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (238.6)\ 43.9 = 9{,}951 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (174.0)\ 74.0 = 10{,}397 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.30$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.4$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (239)\ 44\ (1 + \lambda^{2n})^{-1/n} = 9{,}157 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2064\ (44) = 7{,}174 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd tension, Tf = 2585 kips

tension D / C = 0.260

Fact'rd tension LL = 1712 kips

Fact'rd moment, Mf = 386 k-ft

Moment D / C = 0.054

Combined interaction eqn = 0.31

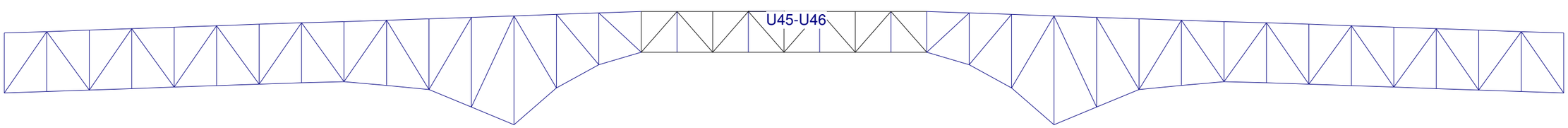
Governing fact'rd comp, Cf = -2266

comp D / C = 0.248

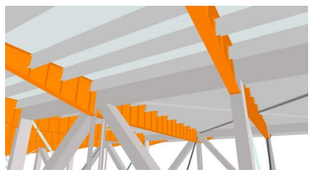
Fact'rd comp LL = -2795 kips

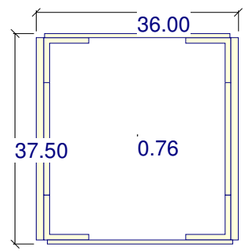
Load rating LLCF = 4.60

Top chord U45-U46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U45-U46	Tension	kips	S1	E1	INSP3	4.00	-282	935	-	0.95	1.22	1.55	-313	1141	-	Static det.	Other	967	0	1.77	1712	9951	1.01	4.60	0.31
	corresp. Moment	k-ft					140	-290	-				156	-354	-			-93			-165	7174	1.06		





Area	238.6	in2
Ix	40,280	in4
Iy	57,142	in4
Sx, top	2,239	in3
Sx, bottom	2,064	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	82	72	182	244
Lane 2	CL-625	79	70	175	236
Lane 3	CL-625	76	68	169	228
Lane 4	CL-625	74	65	163	220
Lane 5	CL-625	70	62	154	209
Lane 6	CL-625	67	60	148	201
Lane 7	CL-625	64	58	141	193
Lane 8	CL-625	61	55	135	184
Total		**572**	**511**	**1266**	**1715**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (238.6)\ 43.9 = 9{,}951 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (174.0)\ 74.0 = 10{,}397 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.30$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.4$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (239)\ 44\ (1 + \lambda^{2n})^{-1/n} = 9{,}157 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2064\ (44) = 7{,}174 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd tension, Tf = 2588 kips

tension D / C = 0.260

Fact'rd tension LL = 1715 kips

Fact'rd moment, Mf = 437 k-ft

Moment D / C = 0.061

Combined interaction eqn = 0.32

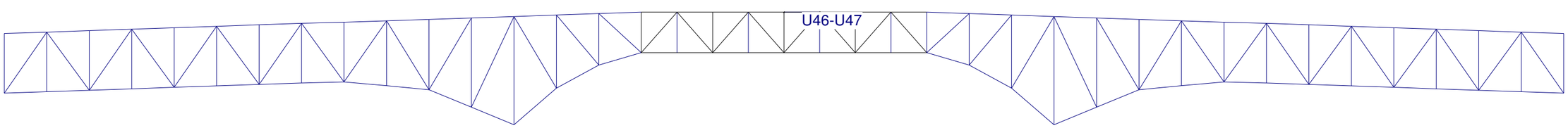
Governing fact'rd comp, Cf = -2266

comp D / C = 0.247

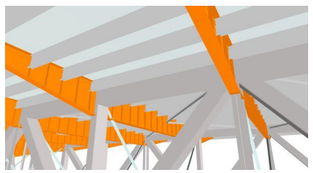
Fact'rd comp LL = -2795 kips

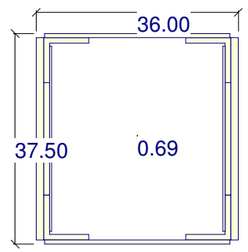
Load rating LLCF = 4.41

Top chord U46-U47



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U46-U47	Tension	kips	S1	E1	INSP3	4.00	-282	935	-	0.95	1.22	1.55	-313	1141	-	Static det.	Other	969	0	1.77	1715	9951	1.01	4.41	0.32
	corresp. Moment	k-ft					140	-291	-				155	-355	-			-121			-215	7174	1.06		





Area	263.3	in2
Ix	42,539	in4
Iy	63,037	in4
Sx, top	2,356	in3
Sx, bottom	2,188	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	109	96	240	324
Lane 2	CL-625	104	92	229	309
Lane 3	CL-625	99	88	219	295
Lane 4	CL-625	94	83	208	281
Lane 5	CL-625	87	78	194	263
Lane 6	CL-625	83	74	183	248
Lane 7	CL-625	78	70	172	234
Lane 8	CL-625	73	66	161	220
Total		**726**	**648**	**1605**	**2174**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (263.4)\ 43.9 = 10{,}983 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (192.0)\ 74.0 = 11{,}473 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.4$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (263)\ 44\ (1 + \lambda^{2n})^{-1/n} = 10{,}089 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2188\ (44) = 7{,}605 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd tension, Tf = 3665 kips

tension D / C = 0.334

Fact'rd tension LL = 2174 kips

Fact'rd moment, Mf = 371 k-ft

Moment D / C = 0.049

Combined interaction eqn = 0.38

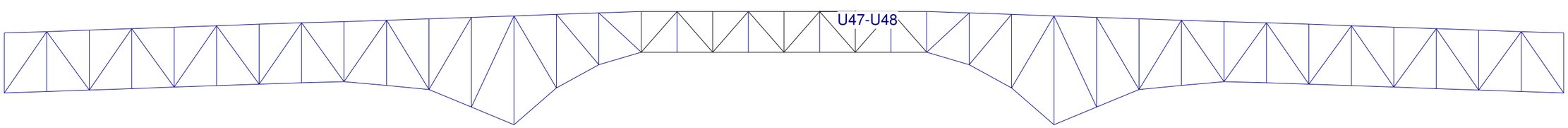
Governing fact'rd comp, Cf = -1539

comp D / C = 0.153

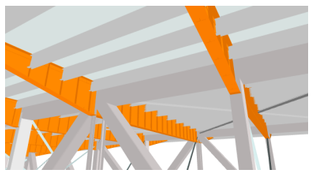
Fact'rd comp LL = -2603 kips

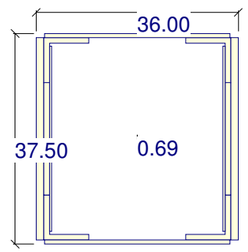
Load rating LLCF = 3.80

Top chord U47-U48



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U47-U48	Tension	kips	S1	E1	INSP3	4.00	-87	1289	-	0.95	1.22	1.55	-96	1573	-	Static det.	Other	1228	0	1.77	2174	10983	1.01	3.80	0.38
	corresp. Moment	k-ft					109	-237	-				121	-289	-			-104			-185	7605	1.06		





Area	263.3	in2
Ix	42,539	in4
Iy	63,037	in4
Sx, top	2,356	in3
Sx, bottom	2,188	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	109	96	240	324
Lane 2	CL-625	104	92	230	310
Lane 3	CL-625	99	88	219	295
Lane 4	CL-625	94	84	208	281
Lane 5	CL-625	88	79	194	263
Lane 6	CL-625	83	74	183	249
Lane 7	CL-625	78	70	172	234
Lane 8	CL-625	73	66	161	220
Total		**726**	**648**	**1607**	**2176**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (263.4)\ 43.9 = 10{,}983$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (192.0)\ 74.0 = 11{,}473$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 24.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$

$n = 1.34; \quad \frac{KL_y}{r_y} = 20.4$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (263)\ 44\ (1 + \lambda^{2n})^{-1/n} = 10{,}089$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2188\ (44) = 7{,}605$ k-ft (Lu=0)

Top chord U48-U49

Length = 26.25 ft

Fact'rd tension, Tf = 3672 kips

tension D / C = 0.334

Fact'rd tension LL = 2176 kips

Fact'rd moment, Mf = 1175 k-ft

Moment D / C = 0.154

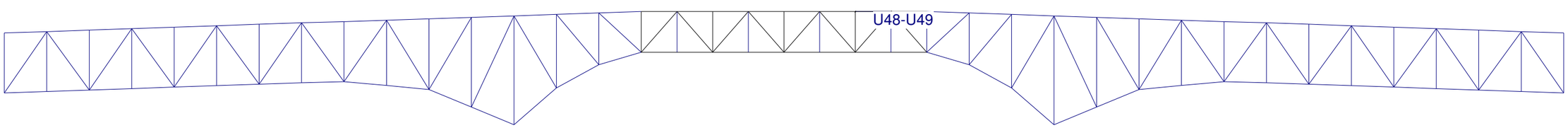
Combined interaction eqn = 0.49

Governing fact'rd comp, Cf = -1533

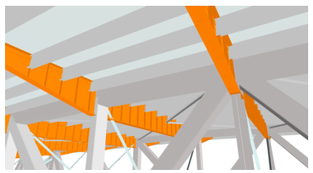
comp D / C = 0.152

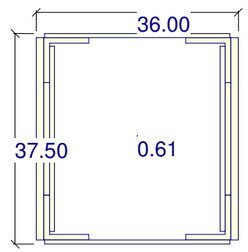
Fact'rd comp LL = -2602 kips

Load rating LLCF = 3.32



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U48-U49	Tension	kips	S1	E1	INSP3	4.00	-85	1292	-	0.95	1.22	1.55	-94	1577	-	Static det.	Other	1229	0	1.77	2176	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-282	-539	-				-313	-658	-			-141			-250	7605	1.06		





Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	136	121	302	407
Lane 2	CL-625	129	114	285	385
Lane 3	CL-625	121	108	269	363
Lane 4	CL-625	114	101	252	341
Lane 5	CL-625	104	94	231	313
Lane 6	CL-625	97	87	214	291
Lane 7	CL-625	89	80	198	269
Lane 8	CL-625	82	74	181	247
Total		**873**	**780**	**1932**	**2617**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Top chord U49-U50

Length = 26.25 ft

Fact'rd tension, Tf = 6107 kips

tension D / C = 0.494

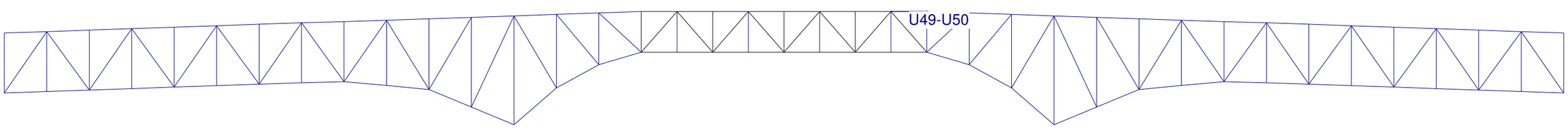
Fact'rd tension LL = 2617 kips

Fact'rd moment, Mf = 903 k-ft

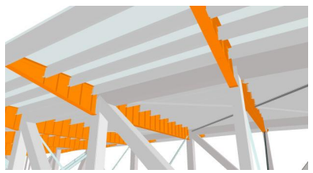
Moment D / C = 0.111

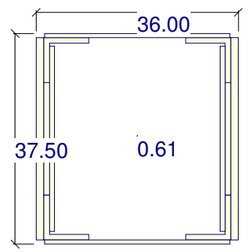
Combined interaction eqn = 0.60

Load rating LLCF = 2.71



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U49-U50	Tension	kips	S1	E1	INSP3	4.00	561	2350	-	1.11	1.22	1.55	623	2868	-	Static det.	Other	1478	0	1.77	2617	12359	1.01	2.71	0.60
	corresp. Moment	k-ft					-149	-380	-				-166	-463	-			-155			-275	8175	1.06		





Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	136	121	302	408
Lane 2	CL-625	129	115	285	385
Lane 3	CL-625	122	108	269	363
Lane 4	CL-625	114	101	252	341
Lane 5	CL-625	104	94	231	313
Lane 6	CL-625	97	87	214	291
Lane 7	CL-625	89	80	198	269
Lane 8	CL-625	82	74	181	247
Total		**874**	**780**	**1933**	**2618**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6110 kips

tension D / C = 0.494

Fact'rd tension LL = 2618 kips

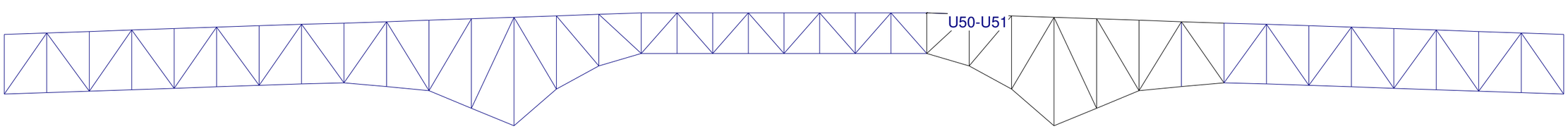
Fact'rd moment, Mf = 1022 k-ft

Moment D / C = 0.125

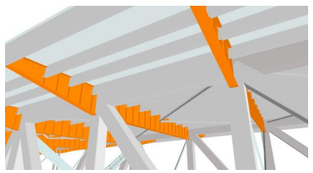
Combined interaction eqn = 0.62

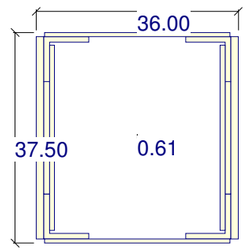
Load rating LLCF = 2.59

Top chord U50-U51



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U50-U51	Tension	kips	S1	E1	INSP3	4.00	563	2350	-	1.11	1.22	1.55	625	2867	-	Static det.	Other	1479	0	1.77	2618	12359	1.01	2.59	0.62
	corresp. Moment	k-ft					-246	-383	-				-273	-467	-			-159			-282	8175	1.06		





Area	296.3	in2
Ix	45,547	in4
Iy	70,462	in4
Sx, top	2,511	in3
Sx, bottom	2,352	in3

Top chord U51-U52

	Truck Name	LL Axial demands (kips) Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	129	114	286	385
Lane 2	CL-625	120	106	265	357
Lane 3	CL-625	110	98	244	329
Lane 4	CL-625	101	90	223	301
Lane 5	CL-625	89	80	197	267
Lane 6	CL-625	80	72	176	240
Lane 7	CL-625	70	64	155	212
Lane 8	CL-625	61	55	134	184
Total		**759**	**678**	**1680**	**2275**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (296.4)\ 43.9 = 12{,}359$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (216.0)\ 74.0 = 12{,}907$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2352\ (44) = 8{,}175$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6479 kips

tension D / C = 0.524

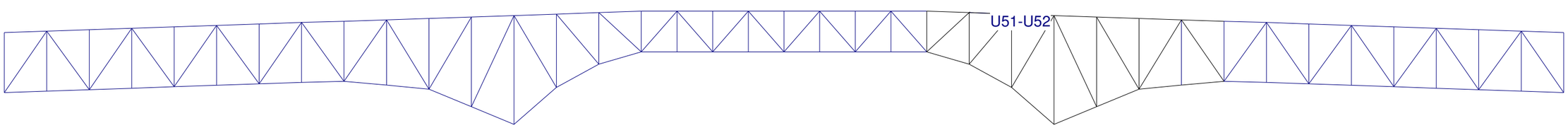
Fact'rd tension LL = 2275 kips

Fact'rd moment, Mf = 1013 k-ft

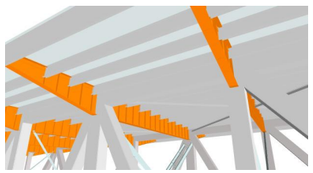
Moment D / C = 0.124

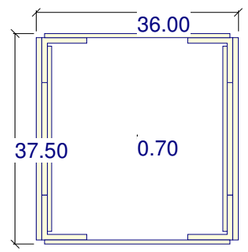
Combined interaction eqn = 0.65

Load rating LLCF = 2.52



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U51-U52	Tension	kips	S1	E1	INSP3	4.00	925	2604	-	1.11	1.22	1.55	1027	3177	-	Static det.	Other	1285	0	1.77	2275	12359	1.01	2.52	0.65
	corresp. Moment	k-ft					-196	-231	-				-218	-282	-			-290			-513	8175	1.06		





Area	261.1	in2
Ix	41,868	in4
Iy	62,733	in4
Sx, top	2,319	in3
Sx, bottom	2,153	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	107	93	236	316
Lane 2	CL-625	97	85	215	289
Lane 3	CL-625	88	78	195	262
Lane 4	CL-625	79	70	175	236
Lane 5	CL-625	68	61	149	203
Lane 6	CL-625	58	53	129	177
Lane 7	CL-625	49	45	109	150
Lane 8	CL-625	40	38	89	124
Total		**586**	**524**	**1297**	**1757**

Clause 10.8.2 (b)- Axial Tension Resistance

$T_r = 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (190.0)\ 74.0 = 11{,}353$ kips

$< \phi_s A_g F_y = 0.95\ (261.1)\ 46.0 = 11{,}410$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2153\ (46) = 7{,}840$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 6051 kips

tension D / C = 0.533

Fact'rd tension LL = 1757 kips

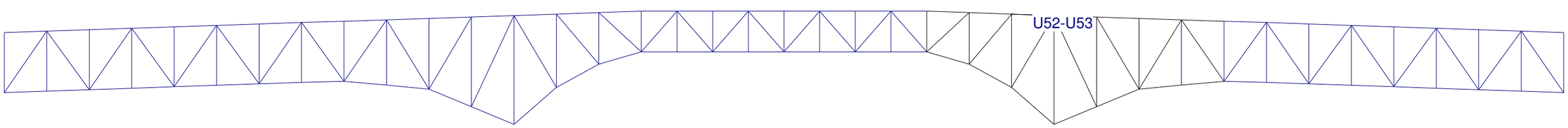
Fact'rd moment, Mf = 1259 k-ft

Moment D / C = 0.161

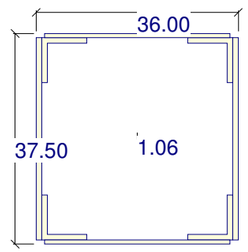
Combined interaction eqn = 0.69

Load rating LLCF = 2.46

Top chord U52-U53



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U52-U53	Tension	kips	S1	E1	INSP3	4.00	1101	2517	-	1.11	1.22	1.55	1222	3071	-	Static det.	Other	993	0	1.77	1757	11353	1.01	2.46	0.69
	corresp. Moment	k-ft					-369	-256	-				-409	-313	-			-304			-537	7840	1.06		



Area	171.6	in2
Ix	35,976	in4
Iy	39,752	in4
Sx, top	2,034	in3
Sx, bottom	1,816	in3

Top chord U53-U54

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	82	73	182	245
Lane 2	CL-625	73	64	161	216
Lane 3	CL-625	64	55	141	187
Lane 4	CL-625	54	46	120	158
Lane 5	CL-625	42	36	94	124
Lane 6	CL-625	33	29	74	99
Lane 7	CL-625	24	22	54	74
Lane 8	CL-625	16	16	34	50
Total		**388**	**340**	**860**	**1152**

Clause 10.8.2 (b)- Axial Tension Resistance

$T_r = 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (124.0)\ 74.0 = 7{,}410$ kips

$< \phi_s A_g F_y = 0.95\ (171.6)\ 46.0 = 7{,}499$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1816\ (46) = 6{,}613$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 4446 kips

tension D / C = 0.600

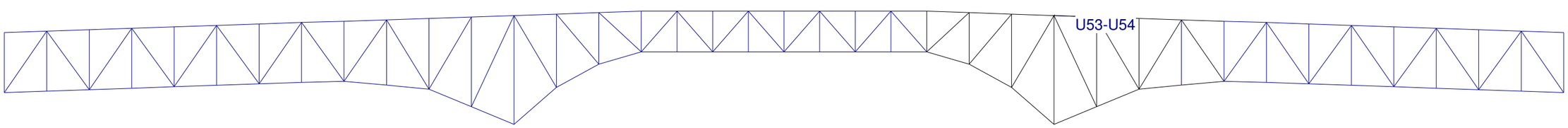
Fact'rd tension LL = 1152 kips

Fact'rd moment, Mf = 1788 k-ft

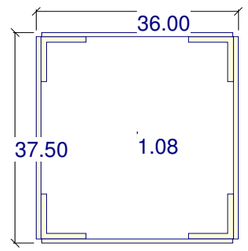
Moment D / C = 0.270

Combined interaction eqn = 0.87

Load rating LLCF = 1.73



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U53-U54	Tension	kips	S1	E1	INSP3	4.00	909	1873	-	1.11	1.22	1.55	1009	2285	-	Static det.	Other	651	0	1.77	1152	7410	1.01	1.73	0.87
	corresp. Moment	k-ft					-518	-763	-				-575	-930	-			-160			-283	6613	1.06		



Area	164.3	in2
Ix	35,581	in4
Iy	37,773	in4
Sx, top	2,014	in3
Sx, bottom	1,794	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	64	53	143	186
Lane 2	CL-625	58	47	128	165
Lane 3	CL-625	51	41	113	145
Lane 4	CL-625	45	35	99	125
Lane 5	CL-625	36	28	80	101
Lane 6	CL-625	30	24	65	85
Lane 7	CL-625	23	20	51	69
Lane 8	CL-625	17	16	37	53
Total		**324**	**265**	**716**	**927**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (164.3)\ 33.0 = 5{,}151$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (119.0)\ 60.0 = 5{,}766$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1794\ (33) = 4{,}687$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3424 kips

tension D / C = 0.665

Fact'rd tension LL = 927 kips

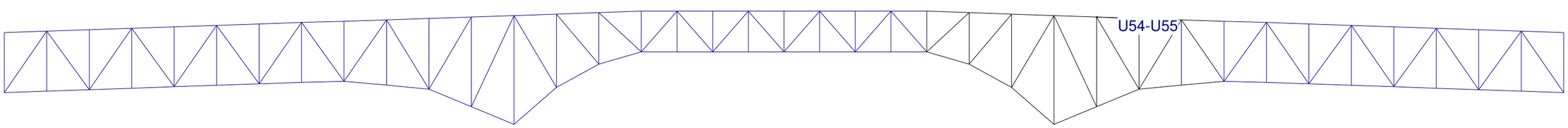
Fact'rd moment, Mf = 395 k-ft

Moment D / C = 0.084

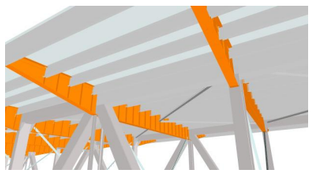
Combined interaction eqn = 0.75

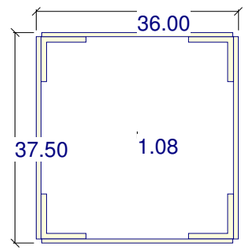
Load rating LLCF = 2.40

Top chord U54-U55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U54-U55	Tension	kips	S1	E1	INSP3	4.00	677	1431	-	1.11	1.22	1.55	752	1745	-	Static det.	Other	524	0	1.77	927	5151	1.01	2.40	0.75
	corresp. Moment	k-ft					64	232	-				71	283	-			23			41	4687	1.06		





Area	164.3	in2
Ix	35,581	in4
Iy	37,773	in4
Sx, top	2,014	in3
Sx, bottom	1,794	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	76	60	169	214
Lane 2	CL-625	67	52	147	187
Lane 3	CL-625	57	44	126	159
Lane 4	CL-625	47	36	104	131
Lane 5	CL-625	35	27	77	97
Lane 6	CL-625	25	20	56	72
Lane 7	CL-625	16	14	35	47
Lane 8	CL-625	7	7	14	21
Total		**329**	**261**	**728**	**927**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (164.3)\ 33.0 = 5{,}151$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (119.0)\ 60.0 = 5{,}766$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1794\ (33) = 4{,}687$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3461 kips

tension D / C = 0.672

Fact'rd tension LL = 927 kips

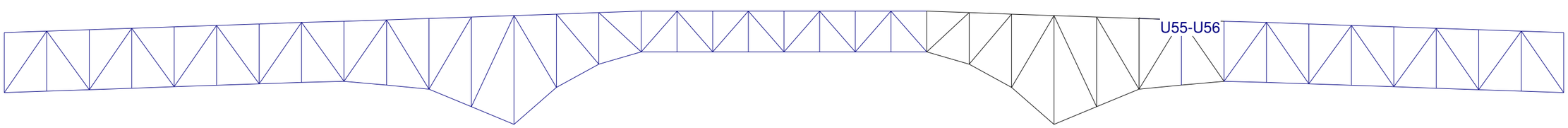
Fact'rd moment, Mf = 719 k-ft

Moment D / C = 0.153

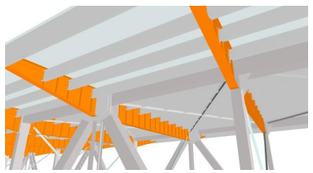
Combined interaction eqn = 0.83

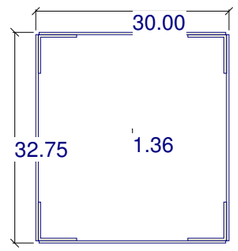
Load rating LLCF = 1.85

Top chord U55-U56



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U55-U56	Tension	kips	S1	E1	INSP3	4.00	688	1451	-	1.11	1.22	1.55	763	1770	-	Static det.	Other	524	0	1.77	927	5151	1.01	1.85	0.83
	corresp. Moment	k-ft					-111	-314	-				-123	-383	-			-120			-212	4687	1.06		





Area	58.3	in2
Ix	10,015	in4
Iy	9,793	in4
Sx, top	667	in3
Sx, bottom	565	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**0**	**0**	**0**	**0**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 28.6$$

$$C_{ry} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(58)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}677 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,565\,(33) = 1{,}475 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = 0 kips

comp D / C = 0.000

Fact'rd comp LL = 0 kips

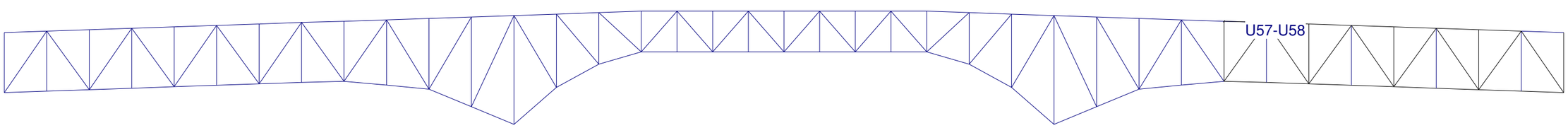
Fact'rd moment, Mf = 1024 k-ft

Moment D / C = 0.694

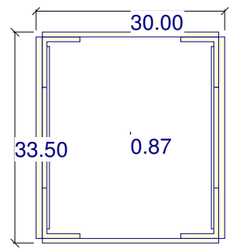
Combined interaction eqn = 0.69

Load rating LLCF = 1000.00

Top chord U57-U58



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U57-U58	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.69
	corresp. Moment	k-ft					82	775	-				91	946	-			0			0	1475	1.06		



Area	181.8	in2
Ix	23,464	in4
Iy	30,644	in4
Sx, top	1,478	in3
Sx, bottom	1,332	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-90	-57	-199	-228
Lane 2	CL-625	-78	-49	-172	-198
Lane 3	CL-625	-66	-42	-145	-167
Lane 4	CL-625	-54	-34	-119	-136
Lane 5	CL-625	-40	-26	-87	-101
Lane 6	CL-625	-27	-19	-61	-72
Lane 7	CL-625	-15	-12	-34	-43
Lane 8	CL-625	-5	-5	-12	-16
Total		**-375**	**-243**	**-829**	**-961**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.35$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.9$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(182)\,33\,(1 + \lambda^{2n})^{-1/n} = 5{,}163 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1332\,(33) = 3{,}479 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -3333 kips

comp D / C = 0.646

Fact'rd comp LL = -961 kips

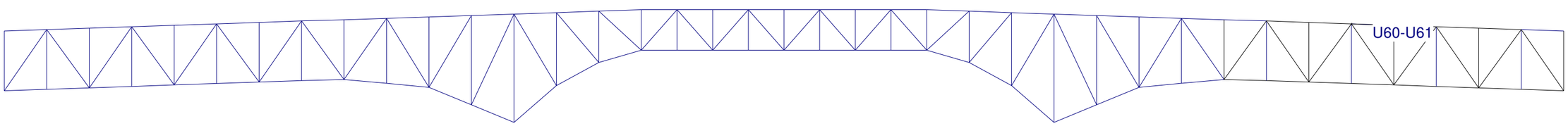
Fact'rd moment, Mf = 795 k-ft

Moment D / C = 0.229

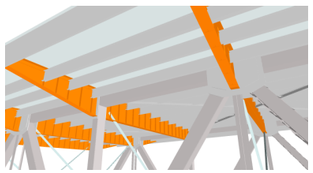
Combined interaction eqn = 0.87

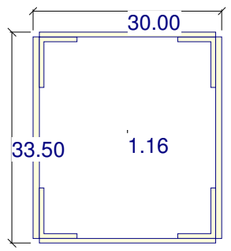
Load rating LLCF = 1.49

Top chord U60-U61



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U60-U61	Compression	kips	S1	E1	INSP3	4.00	-631	-1371	-	1.11	1.22	1.55	-700	-1672	-	Static det.	Other	-543	0	1.77	-961	5163	1.01	1.49	0.87
	corresp. Moment	k-ft					-129	432	-				-143	527	-			232			411	3479	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-68	-42	-150	-169
Lane 2	CL-625	-59	-36	-129	-147
Lane 3	CL-625	-49	-31	-109	-124
Lane 4	CL-625	-40	-25	-89	-102
Lane 5	CL-625	-31	-19	-68	-77
Lane 6	CL-625	-21	-14	-48	-56
Lane 7	CL-625	-13	-9	-28	-34
Lane 8	CL-625	-6	-4	-13	-16
Total		**-286**	**-181**	**-633**	**-725**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 29.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}904 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 31.27 ft

Fact'rd comp, Cf = -2500 kips

comp D / C = 0.640

Fact'rd comp LL = -725 kips

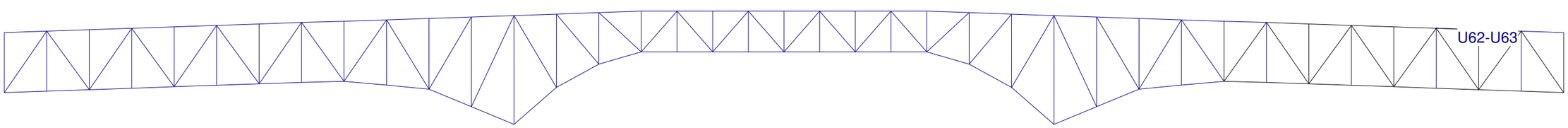
Fact'rd moment, Mf = 503 k-ft

Moment D / C = 0.161

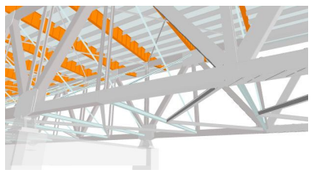
Combined interaction eqn = 0.80

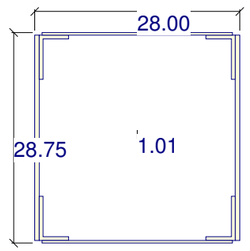
Load rating LLCF = 1.79

Top chord U62-U63



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U62-U63	Compression	kips	S1	E1	INSP3	4.00	-471	-1025	-	1.11	1.22	1.55	-523	-1251	-	Static det.	Other	-410	0	1.77	-725	3904	1.01	1.79	0.80
	corresp. Moment	k-ft					-73	259	-				-82	316	-			152			269	3118	1.06		





Area	68.6	in2
Ix	7,973	in4
Iy	10,598	in4
Sx, top	596	in3
Sx, bottom	518	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-33	-17	-74	-77
Lane 2	CL-625	-30	-15	-66	-69
Lane 3	CL-625	-26	-13	-59	-61
Lane 4	CL-625	-23	-12	-51	-53
Lane 5	CL-625	-20	-10	-44	-45
Lane 6	CL-625	-17	-8	-37	-38
Lane 7	CL-625	-14	-7	-31	-31
Lane 8	CL-625	-11	-5	-25	-25
Total		**-174**	**-87**	**-386**	**-400**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(69)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}973 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,518\,(33) = 1{,}354 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1205 kips

comp D / C = 0.611

Fact'rd comp LL = -400 kips

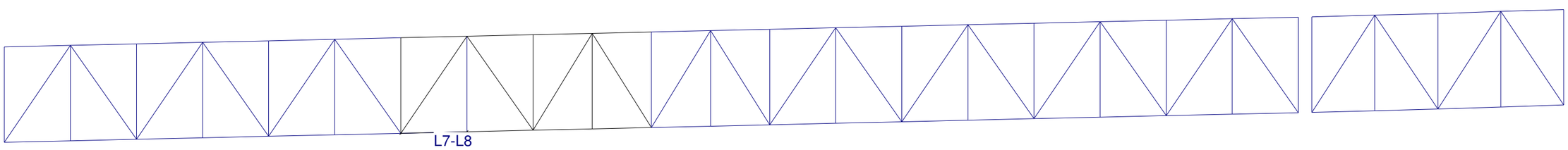
Fact'rd moment, Mf = 156 k-ft

Moment D / C = 0.115

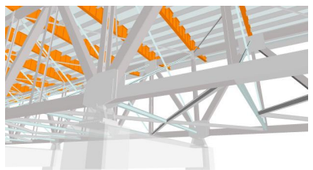
Combined interaction eqn = 0.73

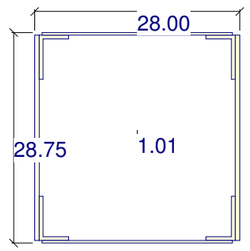
Load rating LLCF = 2.22

Bot chord L7-L8



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L7-L8	Compression	kips	S1	E1	INSP3	4.00	-189	-488	-	1.11	1.22	1.55	-210	-595	-	Static det.	Other	-226	0	1.77	-400	1973	1.01	2.22	0.73
	corresp. Moment	k-ft					34	59	-				38	72	-			26			46	1354	1.06		





Area	68.6	in2
Ix	7,973	in4
Iy	10,598	in4
Sx, top	596	in3
Sx, bottom	518	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-28	-15	-62	-66
Lane 2	CL-625	-26	-13	-57	-60
Lane 3	CL-625	-24	-12	-52	-55
Lane 4	CL-625	-21	-11	-47	-49
Lane 5	CL-625	-20	-9	-44	-45
Lane 6	CL-625	-18	-8	-40	-40
Lane 7	CL-625	-16	-7	-36	-36
Lane 8	CL-625	-15	-6	-33	-33
Total		**-168**	**-83**	**-372**	**-384**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(69)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}973 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,518\,(33) = 1{,}354 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1153 kips

comp D / C = 0.584

Fact'rd comp LL = -384 kips

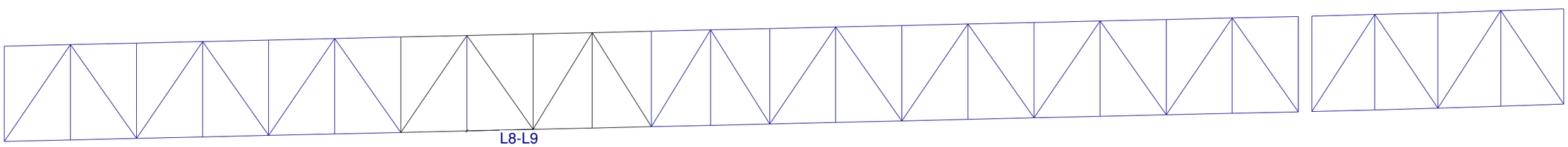
Fact'rd moment, Mf = 355 k-ft

Moment D / C = 0.262

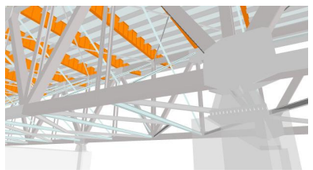
Combined interaction eqn = 0.85

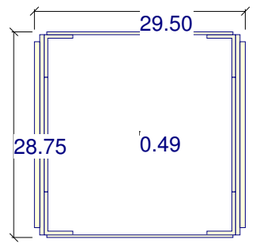
Load rating LLCF = 1.67

Bot chord L8-L9



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L8-L9	Compression	kips	S1	E1	INSP3	4.00	-180	-466	-	1.11	1.22	1.55	-200	-568	-	Static det.	Other	-217	0	1.77	-384	1973	1.01	1.67	0.85
	corresp. Moment	k-ft					-77	-132	-				-85	-161	-			-61			-109	1354	1.06		





Area	121.4	in2
Ix	10,100	in4
Iy	21,415	in4
Sx, top	727	in3
Sx, bottom	679	in3

Bot chord L9-L10

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-54	-33	-120	-135
Lane 2	CL-625	-48	-29	-106	-120
Lane 3	CL-625	-42	-26	-92	-105
Lane 4	CL-625	-35	-22	-79	-90
Lane 5	CL-625	-30	-18	-65	-74
Lane 6	CL-625	-23	-14	-51	-58
Lane 7	CL-625	-17	-11	-38	-43
Lane 8	CL-625	-11	-7	-24	-28
Total		**-260**	**-161**	**-575**	**-653**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 30.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 21.2$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(121)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}471 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,679\,(33) = 1{,}775 \text{ k-ft} \quad (Lu=0)$$

Length = 23.51 ft

Fact'rd comp, Cf = -2196 kips

comp D / C = 0.633

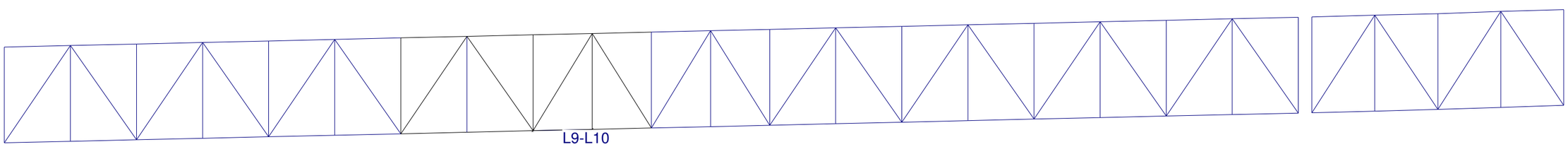
Fact'rd comp LL = -653 kips

Fact'rd moment, Mf = 438 k-ft

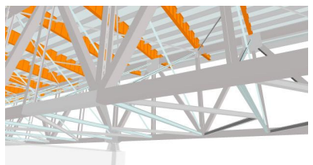
Moment D / C = 0.247

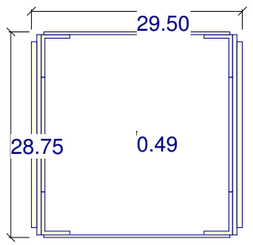
Combined interaction eqn = 0.88

Load rating LLCF = 1.55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L9-L10	Compression	kips	S1	E1	INSP3	4.00	-362	-935	-	1.11	1.22	1.55	-402	-1141	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.88
	corresp. Moment	k-ft					-116	-153	-				-129	-187	-			-69			-122	1775	1.06		





Area	121.4	in2
Ix	10,100	in4
Iy	21,415	in4
Sx, top	727	in3
Sx, bottom	679	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-54	-33	-119	-134
Lane 2	CL-625	-48	-29	-106	-120
Lane 3	CL-625	-42	-26	-93	-105
Lane 4	CL-625	-36	-23	-80	-91
Lane 5	CL-625	-31	-19	-68	-76
Lane 6	CL-625	-25	-15	-55	-62
Lane 7	CL-625	-19	-12	-41	-48
Lane 8	CL-625	-13	-8	-28	-33
Total		**-266**	**-165**	**-590**	**-669**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 30.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 21.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(121)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}471 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,679\,(33) = 1{,}775 \text{ k-ft} \quad (Lu=0)$$

Length = 23.51 ft

Fact'rd comp, Cf = -2248 kips

comp D / C = 0.648

Fact'rd comp LL = -669 kips

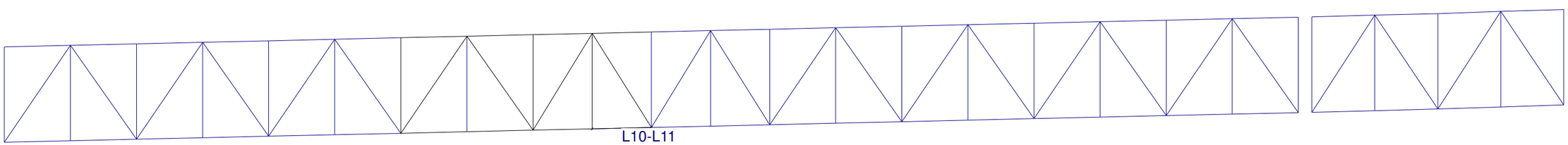
Fact'rd moment, Mf = 49 k-ft

Moment D / C = 0.027

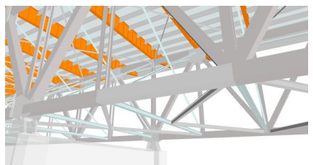
Combined interaction eqn = 0.68

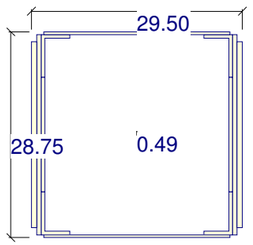
Load rating LLCF = 2.65

Bot chord L10-L11



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L10-L11	Compression	kips	S1	E1	INSP3	4.00	-371	-957	-	1.11	1.22	1.55	-412	-1168	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.65	0.68
	corresp. Moment	k-ft					-41	14	-				-45	17	-			-11			-20	1775	1.06		





Area	121.4	in2
Ix	10,100	in4
Iy	21,415	in4
Sx, top	727	in3
Sx, bottom	679	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-49	-31	-109	-125
Lane 2	CL-625	-45	-28	-99	-114
Lane 3	CL-625	-41	-25	-90	-102
Lane 4	CL-625	-36	-22	-80	-91
Lane 5	CL-625	-30	-19	-67	-76
Lane 6	CL-625	-26	-16	-57	-65
Lane 7	CL-625	-22	-13	-48	-54
Lane 8	CL-625	-18	-10	-40	-43
Total		**-267**	**-165**	**-590**	**-669**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 30.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 21.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(121)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}471 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,679\,(33) = 1{,}775 \text{ k-ft} \quad (Lu=0)$$

Length = 23.51 ft

Fact'rd comp, Cf = -2248 kips

comp D / C = 0.648

Fact'rd comp LL = -669 kips

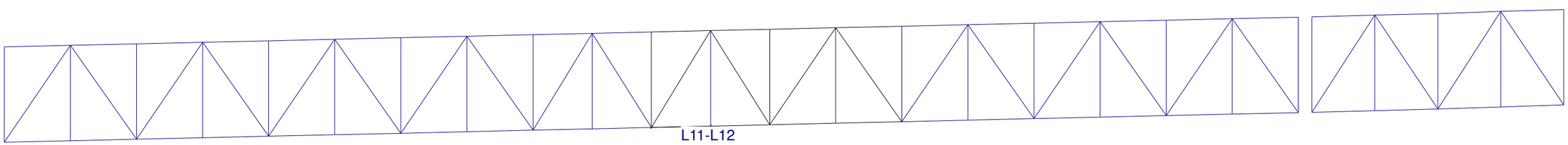
Fact'rd moment, Mf = 62 k-ft

Moment D / C = 0.035

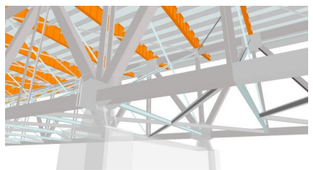
Combined interaction eqn = 0.68

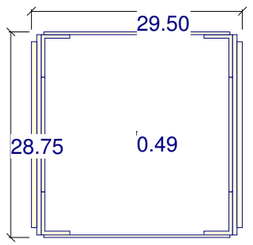
Load rating LLCF = 2.59

Bot chord L11-L12



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L11-L12	Compression	kips	S1	E1	INSP3	4.00	-371	-957	-	1.11	1.22	1.55	-412	-1167	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.59	0.68
	corresp. Moment	k-ft					-40	10	-				-45	12	-			-16			-29	1775	1.06		





Area	121.4	in2
Ix	10,100	in4
Iy	21,415	in4
Sx, top	727	in3
Sx, bottom	679	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-48	-31	-107	-123
Lane 2	CL-625	-44	-28	-98	-111
Lane 3	CL-625	-40	-25	-88	-100
Lane 4	CL-625	-36	-22	-79	-89
Lane 5	CL-625	-29	-18	-65	-74
Lane 6	CL-625	-25	-15	-56	-63
Lane 7	CL-625	-21	-13	-46	-52
Lane 8	CL-625	-17	-10	-37	-41
Total		**-260**	**-161**	**-575**	**-653**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 30.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 21.2$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(121)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}471 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,679\,(33) = 1{,}775 \text{ k-ft} \quad (Lu=0)$$

Length = 23.51 ft

Fact'rd comp, Cf = -2195 kips

comp D / C = 0.632

Fact'rd comp LL = -653 kips

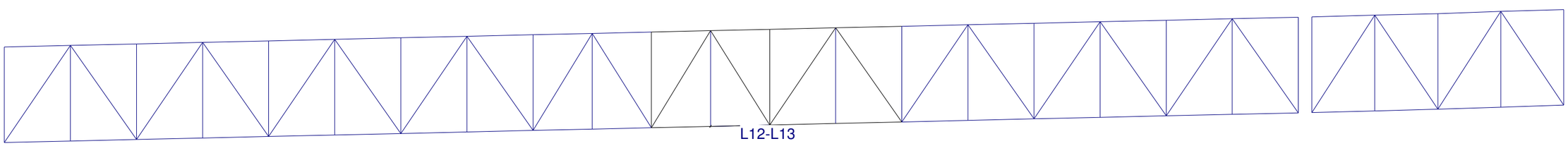
Fact'rd moment, Mf = 438 k-ft

Moment D / C = 0.247

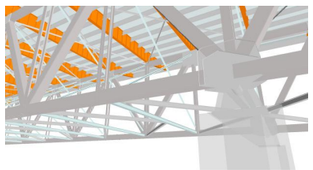
Combined interaction eqn = 0.88

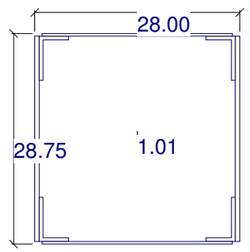
Load rating LLCF = 1.55

Bot chord L12-L13



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L12-L13	Compression	kips	S1	E1	INSP3	4.00	-362	-935	-	1.11	1.22	1.55	-402	-1140	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.88
	corresp. Moment	k-ft					-117	-154	-				-130	-188	-			-68			-120	1775	1.06		





Area	68.6	in2
Ix	7,973	in4
Iy	10,598	in4
Sx, top	596	in3
Sx, bottom	518	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-34	-18	-75	-81
Lane 2	CL-625	-30	-16	-67	-71
Lane 3	CL-625	-27	-14	-59	-62
Lane 4	CL-625	-23	-11	-51	-53
Lane 5	CL-625	-18	-9	-40	-41
Lane 6	CL-625	-14	-7	-32	-33
Lane 7	CL-625	-11	-5	-25	-25
Lane 8	CL-625	-9	-3	-20	-18
Total		**-166**	**-83**	**-368**	**-383**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(69)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}973 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,518\,(33) = 1{,}354 \text{ k-ft} \quad (Lu=0)$$

Length = 26.26 ft

Fact'rd comp, Cf = -1152 kips

comp D / C = 0.584

Fact'rd comp LL = -383 kips

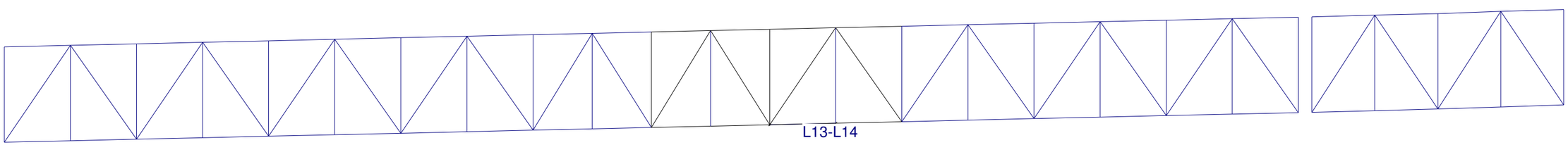
Fact'rd moment, Mf = 358 k-ft

Moment D / C = 0.265

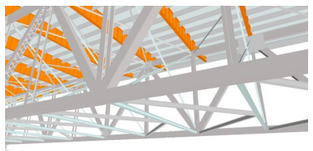
Combined interaction eqn = 0.85

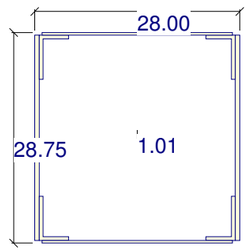
Load rating LLCF = 1.67

Bot chord L13-L14



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L13-L14	Compression	kips	S1	E1	INSP3	4.00	-181	-466	-	1.11	1.22	1.55	-201	-569	-	Static det.	Other	-216	0	1.77	-383	1973	1.01	1.67	0.85
	corresp. Moment	k-ft					-78	-137	-				-87	-167	-			-59			-104	1354	1.06		





Area	68.6	in2
Ix	7,973	in4
Iy	10,598	in4
Sx, top	596	in3
Sx, bottom	518	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-39	-20	-86	-91
Lane 2	CL-625	-34	-18	-75	-79
Lane 3	CL-625	-29	-15	-65	-68
Lane 4	CL-625	-25	-12	-54	-56
Lane 5	CL-625	-18	-9	-41	-42
Lane 6	CL-625	-13	-7	-30	-31
Lane 7	CL-625	-9	-4	-20	-20
Lane 8	CL-625	-6	-2	-14	-12
Total		**-174**	**-86**	**-385**	**-398**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 29.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.31$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(69)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}973 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,518\,(33) = 1{,}354 \text{ k-ft} \quad (Lu=0)$$

Bot chord L14-L15

Length = 26.26 ft

Fact'rd comp, Cf = -1204 kips

comp D / C = 0.610

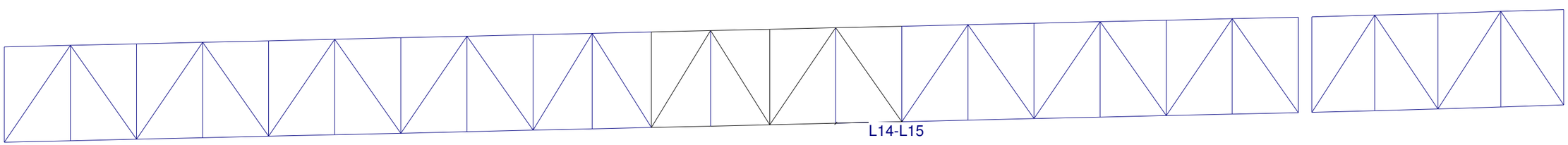
Fact'rd comp LL = -398 kips

Fact'rd moment, Mf = 152 k-ft

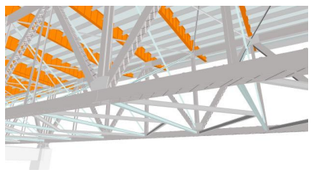
Moment D / C = 0.112

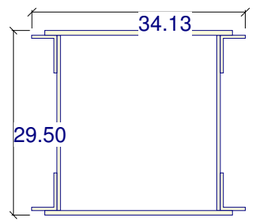
Combined interaction eqn = 0.72

Load rating LLCF = 2.22



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L14-L15	Compression	kips	S1	E1	INSP3	4.00	-189	-488	-	1.11	1.22	1.55	-210	-596	-	Static det.	Other	-225	0	1.77	-398	1973	1.01	2.22	0.72
	corresp. Moment	k-ft					33	55	-				36	67	-			27			48	1354	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

Bot chord L16-L17

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	37	16	81	80
Lane 2	CL-625	32	14	70	69
Lane 3	CL-625	27	11	59	58
Lane 4	CL-625	21	9	48	47
Lane 5	CL-625	15	7	33	33
Lane 6	CL-625	10	5	22	23
Lane 7	CL-625	5	3	12	12
Lane 8	CL-625	1	1	3	3
Total		**148**	**65**	**328**	**324**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 924 kips

tension D / C = 0.583

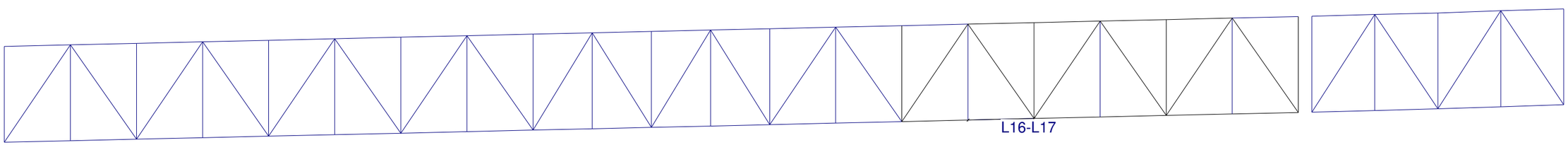
Fact'rd tension LL = 328 kips

Fact'rd moment, Mf = 83 k-ft

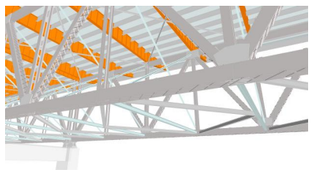
Moment D / C = 0.096

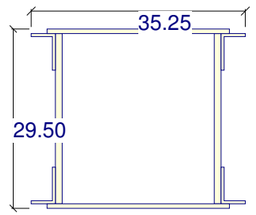
Combined interaction eqn = 0.68

Load rating LLCF = 2.34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L16-L17	Tension	kips	S1	E1	INSP3	4.00	138	363	-	1.11	1.22	1.55	153	443	-	Static det.	Other	148	0.25	1.77	328	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					12	27	-				13	32	-			17			37	863	1.06		





Area	82.0	in2
Ix	6,928	in4
Iy	14,838	in4
Sx, top	470	in3
Sx, bottom	470	in3

Bot chord L17-L18

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	61	27	134	134
Lane 2	CL-625	53	23	116	116
Lane 3	CL-625	44	20	98	98
Lane 4	CL-625	36	16	80	80
Lane 5	CL-625	26	12	58	58
Lane 6	CL-625	18	8	40	40
Lane 7	CL-625	10	5	22	23
Lane 8	CL-625	3	1	7	7
Total		**251**	**112**	**556**	**555**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (82.0)\ 33.0 = 2{,}571$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (66.8)\ 60.0 = 3{,}234$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 470\ (33) = 1{,}227$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 1608 kips

tension D / C = 0.625

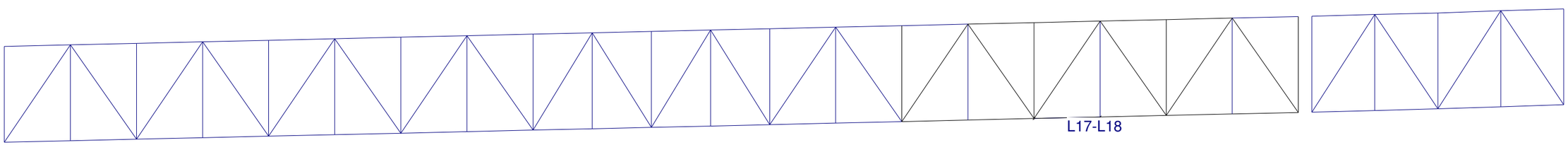
Fact'rd tension LL = 556 kips

Fact'rd moment, Mf = 166 k-ft

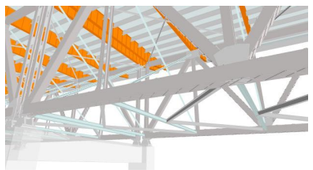
Moment D / C = 0.136

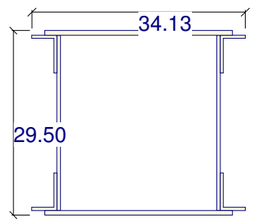
Combined interaction eqn = 0.76

Load rating LLCF = 1.85



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L17-L18	Tension	kips	S1	E1	INSP3	4.00	242	642	-	1.11	1.22	1.55	268	783	-	Static det.	Other	251	0.25	1.77	556	2571	1.01	1.85	0.76
	corresp. Moment	k-ft					-32	88	-				-36	107	-			43			95	1227	1.06		





Area	50.5	in2
Ix	4,871	in4
Iy	8,927	in4
Sx, top	330	in3
Sx, bottom	330	in3

Bot chord L19-L20

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	35	16	78	78
Lane 2	CL-625	30	14	67	67
Lane 3	CL-625	25	11	56	56
Lane 4	CL-625	20	9	45	45
Lane 5	CL-625	15	6	34	33
Lane 6	CL-625	10	4	21	21
Lane 7	CL-625	5	2	10	10
Lane 8	CL-625	1	0	1	1
Total		**141**	**63**	**313**	**311**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (50.5)\ 33.0 = 1{,}584$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (38.6)\ 60.0 = 1{,}870$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 330\ (33) = 863$ k-ft (Lu=0)

Length = 26.26 ft

Fact'rd tension, Tf = 901 kips

tension D / C = 0.569

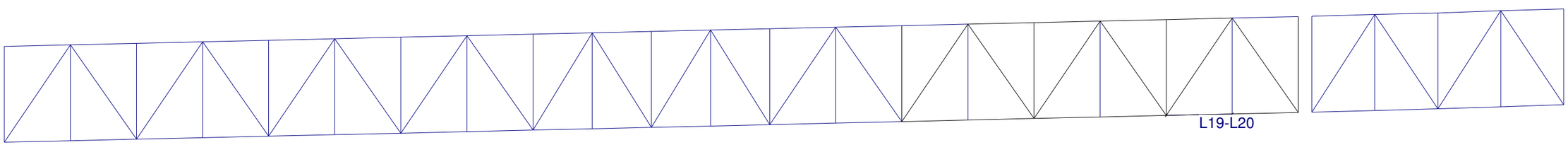
Fact'rd tension LL = 313 kips

Fact'rd moment, Mf = 84 k-ft

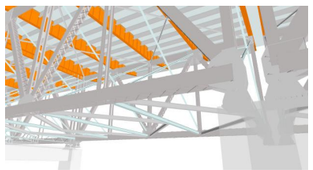
Moment D / C = 0.097

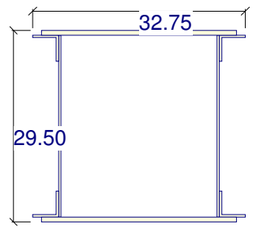
Combined interaction eqn = 0.67

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L19-L20	Tension	kips	S1	E1	INSP3	4.00	136	358	-	1.11	1.22	1.55	151	437	-	Static det.	Other	141	0.25	1.77	313	1584	1.01	2.46	0.67
	corresp. Moment	k-ft					13	30	-				14	37	-			15			33	863	1.06		





Area	32.4	in2
Ix	3,281	in4
Iy	5,226	in4
Sx, top	222	in3
Sx, bottom	222	in3

Bot chord L22-L23

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck	Truck	UDL	Truck	UDL
	Name	Only	(9 kN/m)	Only	+ 0.8 Truck
Lane 1	CL-625	22	7	48	43
Lane 2	CL-625	20	6	43	38
Lane 3	CL-625	17	5	38	34
Lane 4	CL-625	15	5	33	29
Lane 5	CL-625	11	4	24	22
Lane 6	CL-625	9	3	19	18
Lane 7	CL-625	7	2	15	13
Lane 8	CL-625	5	2	10	9
Total		**104**	**33**	**230**	**206**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (32.4)\ 33.0 = 1{,}017$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (24.5)\ 60.0 = 1{,}187$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 222\ (33) = 581$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 540 kips

tension D / C = 0.531

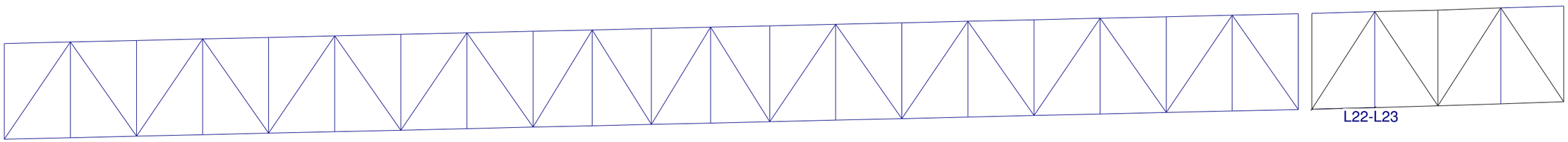
Fact'rd tension LL = 230 kips

Fact'rd moment, Mf = 63 k-ft

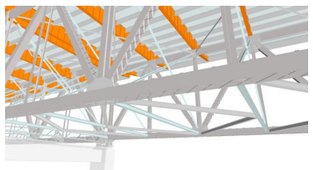
Moment D / C = 0.109

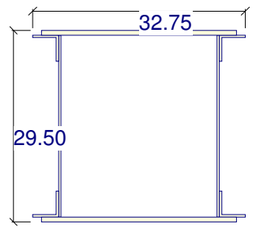
Combined interaction eqn = 0.64

Load rating LLCF = 2.28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L22-L23	Tension	kips	S1	E1	INSP3	4.00	67	193	-	1.11	1.22	1.55	74	236	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.28	0.64
	corresp. Moment	k-ft					8	-29	-				9	-35	-			-17			-37	581	1.06		





Area	32.4	in2
Ix	3,281	in4
Iy	5,226	in4
Sx, top	222	in3
Sx, bottom	222	in3

Bot chord L23-L24

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	22	7	49	44
Lane 2	CL-625	20	6	44	39
Lane 3	CL-625	17	5	38	34
Lane 4	CL-625	15	5	33	29
Lane 5	CL-625	11	4	24	22
Lane 6	CL-625	9	3	19	17
Lane 7	CL-625	7	2	14	13
Lane 8	CL-625	4	2	10	9
Total		**105**	**33**	**231**	**207**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (32.4)\ 33.0 = 1{,}017$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (24.5)\ 60.0 = 1{,}187$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 222\ (33) = 581$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 542 kips

tension D / C = 0.533

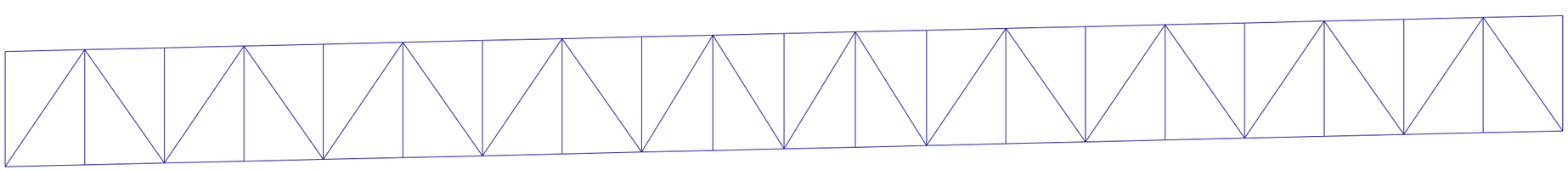
Fact'rd tension LL = 231 kips

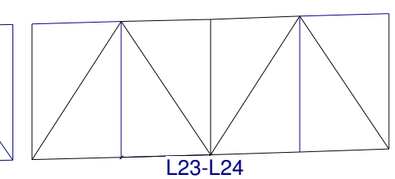
Fact'rd moment, Mf = 75 k-ft

Moment D / C = 0.130

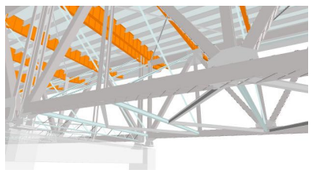
Combined interaction eqn = 0.66

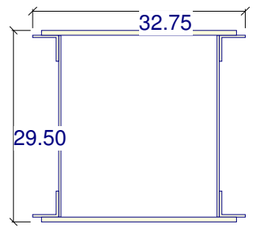
Load rating LLCF = 2.28





Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L23-L24	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	236	-	Static det.	Other	105	0.25	1.77	231	1017	1.01	2.28	0.66
	corresp. Moment	k-ft					10	27	-				11	33	-			14			31	581	1.06		





Area	32.4	in2
Ix	3,281	in4
Iy	5,226	in4
Sx, top	222	in3
Sx, bottom	222	in3

Bot chord L24-L25

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	24	8	53	48
Lane 2	CL-625	21	7	46	42
Lane 3	CL-625	17	6	38	35
Lane 4	CL-625	14	5	31	28
Lane 5	CL-625	11	4	25	22
Lane 6	CL-625	8	2	17	15
Lane 7	CL-625	4	1	9	8
Lane 8	CL-625	2	0	4	3
Total		**100**	**34**	**222**	**201**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (32.4)\ 33.0 = 1{,}017$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (24.5)\ 60.0 = 1{,}187$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 222\ (33) = 581$ k-ft (Lu=0)

Length = 25.01 ft

Fact'rd tension, Tf = 533 kips

tension D / C = 0.524

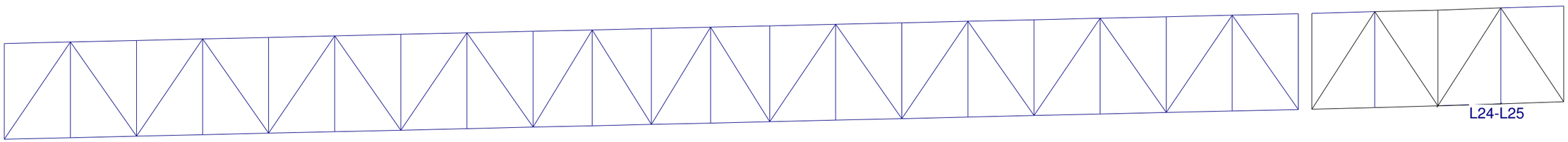
Fact'rd tension LL = 222 kips

Fact'rd moment, Mf = 82 k-ft

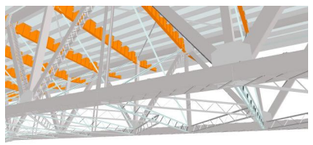
Moment D / C = 0.141

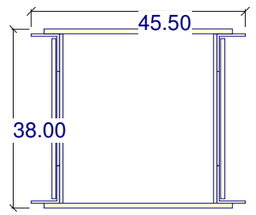
Combined interaction eqn = 0.66

Load rating LLCF = 2.28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L24-L25	Tension	kips	S1	E1	INSP3	4.00	67	194	-	1.11	1.22	1.55	74	237	-	Static det.	Other	100	0.25	1.77	222	1017	1.01	2.28	0.66
	corresp. Moment	k-ft					10	28	-				11	34	-			17			37	581	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L29-L30

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	90	56	199	226
Lane 2	CL-625	77	48	171	195
Lane 3	CL-625	65	40	144	164
Lane 4	CL-625	53	33	117	133
Lane 5	CL-625	38	24	83	96
Lane 6	CL-625	26	17	56	66
Lane 7	CL-625	13	10	30	36
Lane 8	CL-625	2	2	4	7
Total		**364**	**230**	**805**	**922**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3197 kips

tension D / C = 0.635

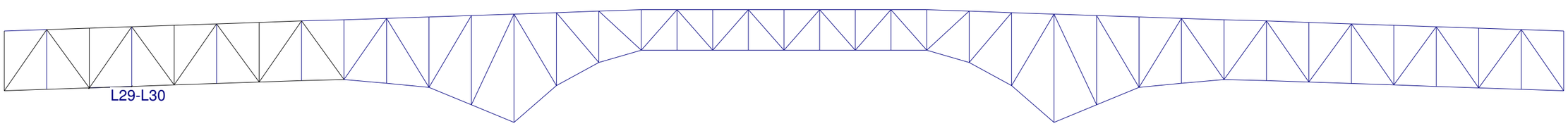
Fact'rd tension LL = 922 kips

Fact'rd moment, Mf = 148 k-ft

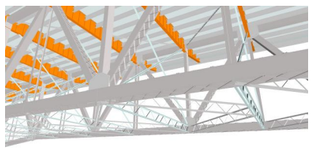
Moment D / C = 0.057

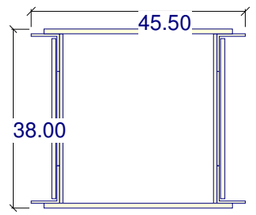
Combined interaction eqn = 0.69

Load rating LLCF = 2.40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L29-L30	Tension	kips	S1	E1	INSP3	4.00	604	1315	-	1.11	1.22	1.55	671	1605	-	Static det.	Other	521	0	1.77	922	5032	1.01	2.40	0.69
	corresp. Moment	k-ft					-98	112	-				-109	137	-			68			121	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L30-L31

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	87	52	191	215
Lane 2	CL-625	75	46	166	187
Lane 3	CL-625	64	39	141	159
Lane 4	CL-625	52	32	115	131
Lane 5	CL-625	38	25	84	98
Lane 6	CL-625	27	18	59	71
Lane 7	CL-625	16	12	35	44
Lane 8	CL-625	6	6	14	19
Total		**364**	**231**	**806**	**924**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3200 kips

tension D / C = 0.636

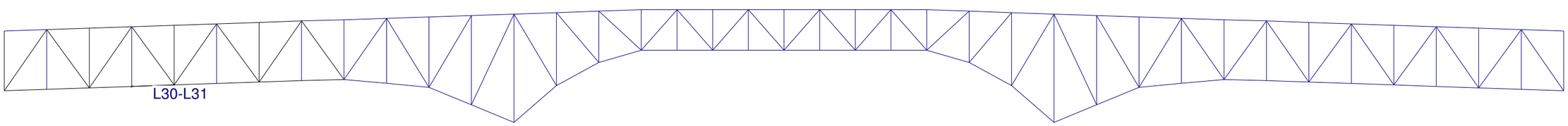
Fact'rd tension LL = 924 kips

Fact'rd moment, Mf = 349 k-ft

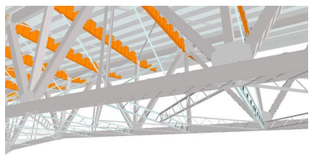
Moment D / C = 0.134

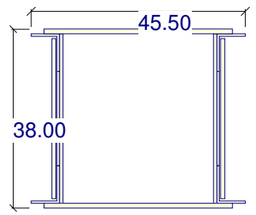
Combined interaction eqn = 0.77

Load rating LLCF = 2.10



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L30-L31	Tension	kips	S1	E1	INSP3	4.00	605	1315	-	1.11	1.22	1.55	671	1605	-	Static det.	Other	522	0	1.77	924	5032	1.01	2.10	0.77
	corresp. Moment	k-ft					81	110	-				90	134	-			71			125	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L31-L32

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	84	51	186	209
Lane 2	CL-625	73	44	162	183
Lane 3	CL-625	62	38	138	156
Lane 4	CL-625	52	32	114	130
Lane 5	CL-625	39	25	86	100
Lane 6	CL-625	28	20	62	75
Lane 7	CL-625	17	14	37	49
Lane 8	CL-625	7	9	16	26
Total		**362**	**234**	**801**	**927**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3220 kips

tension D / C = 0.640

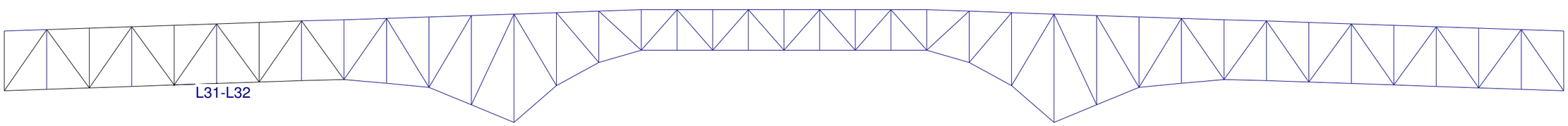
Fact'rd tension LL = 927 kips

Fact'rd moment, Mf = 331 k-ft

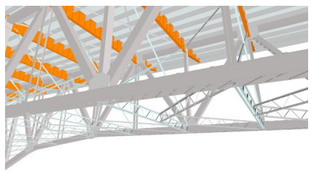
Moment D / C = 0.127

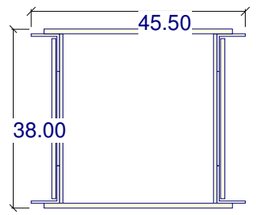
Combined interaction eqn = 0.77

Load rating LLCF = 2.10



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L31-L32	Tension	kips	S1	E1	INSP3	4.00	613	1321	-	1.11	1.22	1.55	681	1612	-	Static det.	Other	524	0	1.77	927	5032	1.01	2.10	0.77
	corresp. Moment	k-ft					77	110	-				86	134	-			63			112	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L32-L33

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	84	49	185	206
Lane 2	CL-625	73	44	161	181
Lane 3	CL-625	62	38	138	155
Lane 4	CL-625	51	32	114	130
Lane 5	CL-625	39	26	86	101
Lane 6	CL-625	28	21	62	76
Lane 7	CL-625	17	16	38	52
Lane 8	CL-625	10	10	21	32
Total		**364**	**235**	**805**	**932**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3225 kips

tension D / C = 0.641

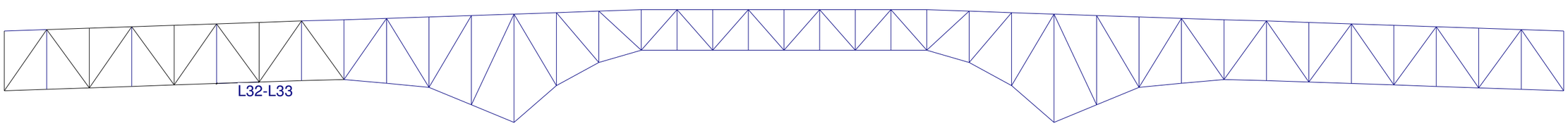
Fact'rd tension LL = 932 kips

Fact'rd moment, Mf = 117 k-ft

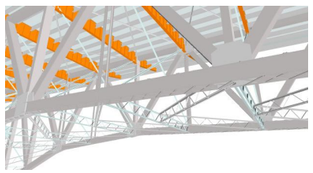
Moment D / C = 0.045

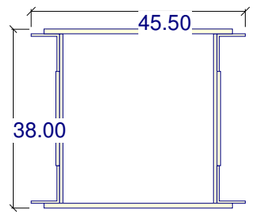
Combined interaction eqn = 0.69

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L32-L33	Tension	kips	S1	E1	INSP3	4.00	613	1321	-	1.11	1.22	1.55	681	1612	-	Static det.	Other	527	0	1.77	932	5032	1.01	2.46	0.69
	corresp. Moment	k-ft					-89	94	-				-99	114	-			58			102	2601	1.06		





Area	111.0	in2
Ix	13,519	in4
Iy	32,334	in4
Sx, top	712	in3
Sx, bottom	712	in3

Bot chord L33-L34

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	36	21	80	88
Lane 2	CL-625	32	19	71	79
Lane 3	CL-625	28	17	62	70
Lane 4	CL-625	24	15	53	61
Lane 5	CL-625	20	13	43	51
Lane 6	CL-625	15	12	34	43
Lane 7	CL-625	11	11	24	36
Lane 8	CL-625	10	10	23	33
Total		**177**	**118**	**391**	**460**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (111.0)\ 33.0 = 3{,}480$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (81.0)\ 60.0 = 3{,}924$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 712\ (33) = 1{,}859$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1559 kips

tension D / C = 0.448

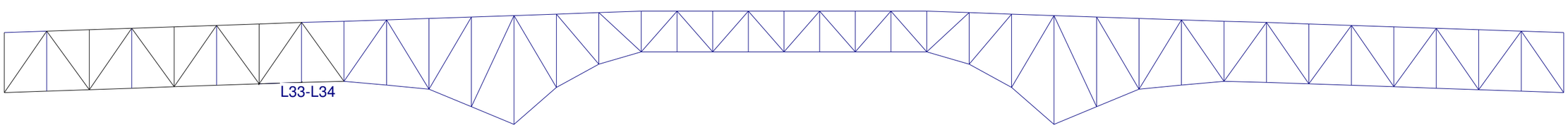
Fact'rd tension LL = 460 kips

Fact'rd moment, Mf = 225 k-ft

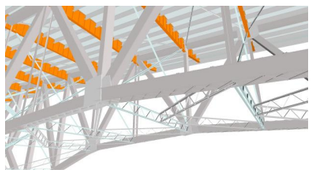
Moment D / C = 0.121

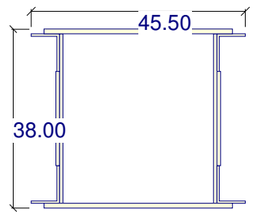
Combined interaction eqn = 0.57

Load rating LLCF = 3.68



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L33-L34	Tension	kips	S1	E1	INSP3	4.00	293	634	-	1.11	1.22	1.55	325	773	-	Static det.	Other	260	0	1.77	460	3480	1.01	3.68	0.57
	corresp. Moment	k-ft					35	98	-				39	120	-			37			66	1859	1.06		





Area	111.0	in2
Ix	13,519	in4
Iy	32,334	in4
Sx, top	712	in3
Sx, bottom	712	in3

Bot chord L34-L35

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	35	19	77	84
Lane 2	CL-625	31	18	69	76
Lane 3	CL-625	27	16	61	68
Lane 4	CL-625	24	15	53	60
Lane 5	CL-625	20	14	44	52
Lane 6	CL-625	16	13	35	46
Lane 7	CL-625	12	13	27	39
Lane 8	CL-625	12	12	26	38
Total		**176**	**119**	**390**	**461**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (111.0)\ 33.0 = 3{,}480$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (81.0)\ 60.0 = 3{,}924$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 712\ (33) = 1{,}859$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1559 kips

tension D / C = 0.448

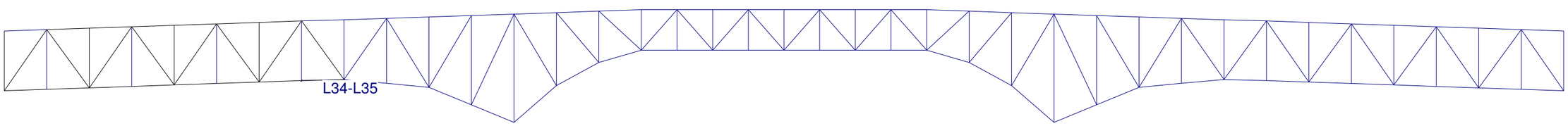
Fact'rd tension LL = 461 kips

Fact'rd moment, Mf = 84 k-ft

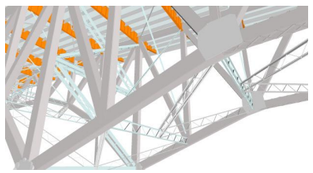
Moment D / C = 0.045

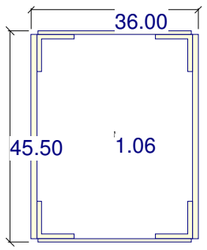
Combined interaction eqn = 0.49

Load rating LLCF = 4.66



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L34-L35	Tension	kips	S1	E1	INSP3	4.00	292	634	-	1.11	1.22	1.55	325	773	-	Static det.	Other	260	0	1.77	461	3480	1.01	4.66	0.49
	corresp. Moment	k-ft					45	10	-				50	12	-			13			22	1859	1.06		





Area	209.6	in2
Ix	60,824	in4
Iy	50,483	in4
Sx, top	2,804	in3
Sx, bottom	2,555	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-104	-95	-230	-315
Lane 2	CL-625	-90	-81	-198	-270
Lane 3	CL-625	-75	-67	-167	-225
Lane 4	CL-625	-61	-53	-135	-181
Lane 5	CL-625	-45	-37	-100	-129
Lane 6	CL-625	-31	-23	-69	-85
Lane 7	CL-625	-17	-10	-37	-41
Lane 8	CL-625	-2	0	-5	-3
Total		**-425**	**-366**	**-940**	**-1249**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 26.1\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 23.8$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(210)\,46\,(1 + \lambda^{2n})^{-1/n} = 8{,}356 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2555\,(46) = 9{,}304 \text{ k-ft} \quad (Lu=0)$$

Length = 33.82 ft

Fact'rd comp, Cf = -4923 kips

comp D / C = 0.589

Fact'rd comp LL = -1249 kips

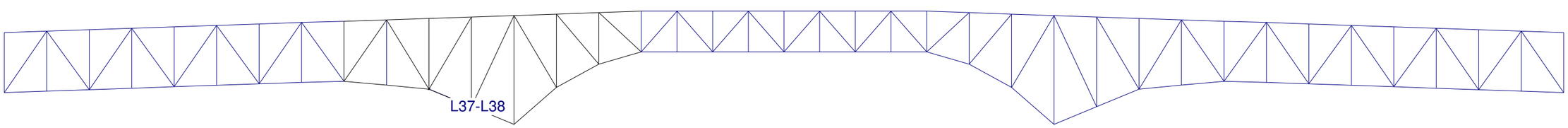
Fact'rd moment, Mf = 1044 k-ft

Moment D / C = 0.112

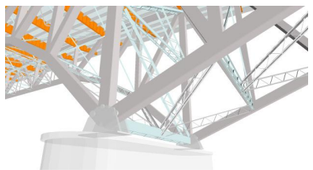
Combined interaction eqn = 0.70

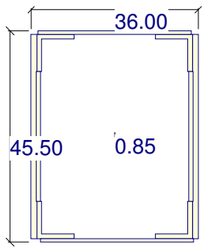
Load rating LLCF = 2.95

Bot chord L37-L38



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L37-L38	Compression	kips	S1	E1	INSP3	4.00	-1039	-2066	-	1.11	1.22	1.55	-1153	-2520	-	Static det.	Other	-706	0	1.77	-1249	8356	1.01	2.95	0.70
	corresp. Moment	k-ft					-287	-501	-				-318	-611	-			-65			-115	9304	1.06		





Area	262.1	in2
Ix	64,303	in4
Iy	64,629	in4
Sx, top	2,936	in3
Sx, bottom	2,725	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-111	-110	-246	-353
Lane 2	CL-625	-97	-95	-214	-305
Lane 3	CL-625	-82	-79	-181	-256
Lane 4	CL-625	-67	-63	-149	-207
Lane 5	CL-625	-51	-44	-112	-150
Lane 6	CL-625	-36	-29	-80	-103
Lane 7	CL-625	-21	-14	-47	-56
Lane 8	CL-625	-7	-2	-15	-13
Total		**-472**	**-437**	**-1045**	**-1442**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 25.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(262)\,46\,(1+\lambda^{2n})^{-1/n} = 10{,}460 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2725\,(46) = 9{,}925 \text{ k-ft} \quad (Lu=0)$$

Length = 33.82 ft

Fact'rd comp, Cf = -5866 kips

comp D / C = 0.561

Fact'rd comp LL = -1442 kips

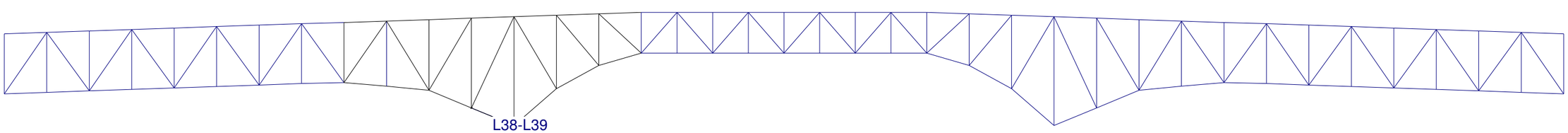
Fact'rd moment, Mf = 141 k-ft

Moment D / C = 0.014

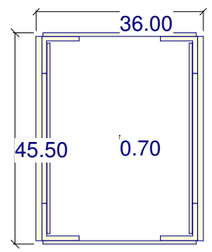
Combined interaction eqn = 0.58

Load rating LLCF = 3.68

Bot chord L38-L39



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L38-L39	Compression	kips	S1	E1	INSP3	4.00	-1273	-2468	-	1.11	1.22	1.55	-1413	-3011	-	Static det.	Other	-815	0	1.77	-1442	10460	1.01	3.68	0.58
	corresp. Moment	k-ft					195	45	-				216	55	-			-73			-129	9925	1.06		



Area	316.8	in2
Ix	71,741	in4
Iy	77,294	in4
Sx, top	3,253	in3
Sx, bottom	3,059	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-79	-136	-176	-354
Lane 2	CL-625	-77	-117	-171	-316
Lane 3	CL-625	-75	-97	-165	-278
Lane 4	CL-625	-72	-77	-160	-239
Lane 5	CL-625	-70	-62	-156	-210
Lane 6	CL-625	-68	-59	-151	-201
Lane 7	CL-625	-66	-56	-145	-192
Lane 8	CL-625	-63	-53	-140	-183
Total		**-571**	**-658**	**-1264**	**-1973**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.42$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 31.8$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(317)\,46\,(1 + \lambda^{2n})^{-1/n} = 12{,}246 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3059\,(46) = 11{,}142 \text{ k-ft} \quad (Lu=0)$$

Bot chord L39-L40

Length = 41.35 ft

Fact'rd comp, Cf = -7385 kips

comp D / C = 0.603

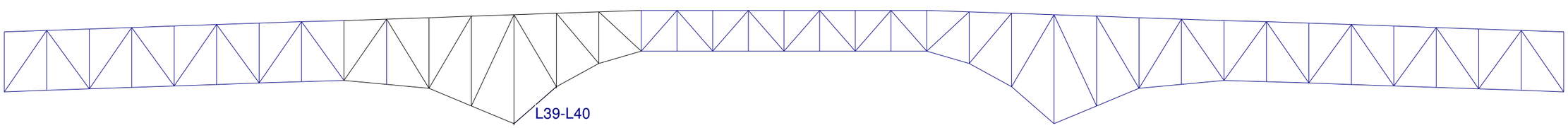
Fact'rd comp LL = -1973 kips

Fact'rd moment, Mf = 850 k-ft

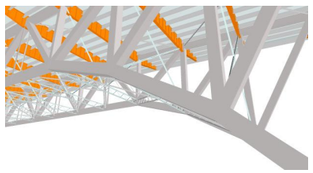
Moment D / C = 0.076

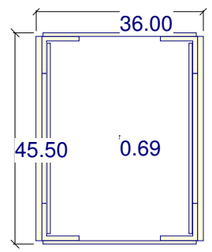
Combined interaction eqn = 0.68

Load rating LLCF = 2.77



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L39-L40	Compression	kips	S1	E1	INSP3	4.00	-1562	-3015	-	1.11	1.22	1.55	-1733	-3678	-	Static det.	Other	-1115	0	1.77	-1973	12246	1.01	2.77	0.68
	corresp. Moment	k-ft					-178	-270	-				-198	-329	-			-182			-323	11142	1.06		





Area	322.0	in2
Ix	72,468	in4
Iy	78,451	in4
Sx, top	3,285	in3
Sx, bottom	3,092	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-89	-120	-197	-338
Lane 2	CL-625	-87	-102	-193	-305
Lane 3	CL-625	-86	-87	-190	-275
Lane 4	CL-625	-84	-75	-186	-252
Lane 5	CL-625	-83	-72	-184	-246
Lane 6	CL-625	-81	-70	-180	-240
Lane 7	CL-625	-80	-68	-177	-234
Lane 8	CL-625	-78	-66	-173	-228
Total		**-669**	**-660**	**-1480**	**-2116**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 28.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.36$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 27.4$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(322)\,46\,(1 + \lambda^{2n})^{-1/n} = 12{,}717 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3092\,(46) = 11{,}260 \text{ k-ft} \quad (Lu=0)$$

Length = 35.61 ft

Fact'rd comp, Cf = -7135 kips

comp D / C = 0.561

Fact'rd comp LL = -2116 kips

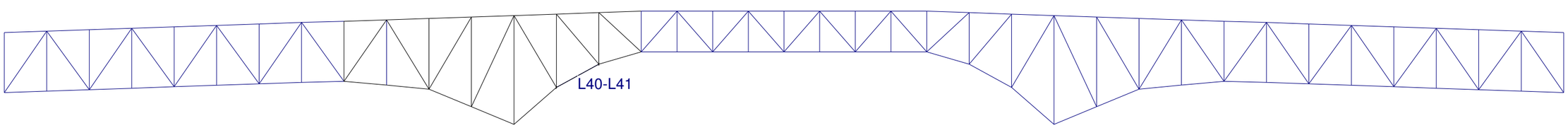
Fact'rd moment, Mf = 1611 k-ft

Moment D / C = 0.143

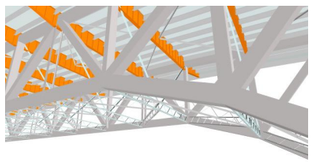
Combined interaction eqn = 0.70

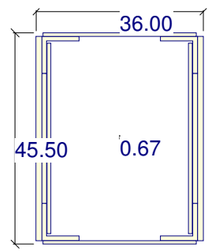
Load rating LLCF = 2.40

Bot chord L40-L41



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L40-L41	Compression	kips	S1	E1	INSP3	4.00	-1330	-2904	-	1.11	1.22	1.55	-1476	-3543	-	Static det.	Other	-1195	0	1.77	-2116	12717	1.01	2.40	0.70
	corresp. Moment	k-ft					-350	-450	-				-388	-549	-			-381			-674	11260	1.06		





Area	332.3	in2
Ix	73,908	in4
Iy	80,719	in4
Sx, top	3,347	in3
Sx, bottom	3,156	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-101	-101	-223	-322
Lane 2	CL-625	-100	-91	-222	-303
Lane 3	CL-625	-100	-89	-221	-300
Lane 4	CL-625	-99	-88	-219	-296
Lane 5	CL-625	-99	-87	-220	-294
Lane 6	CL-625	-99	-85	-219	-291
Lane 7	CL-625	-98	-84	-218	-288
Lane 8	CL-625	-98	-83	-216	-285
Total		**-794**	**-708**	**-1758**	**-2378**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 26.2\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(332)\,46\,(1+\lambda^{2n})^{-1/n} = 13{,}245 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3156\,(46) = 11{,}494 \text{ k-ft} \quad (Lu=0)$$

Bot chord L41-L42

Length = 32.54 ft

Fact'rd comp, Cf = -6871 kips

comp D / C = 0.519

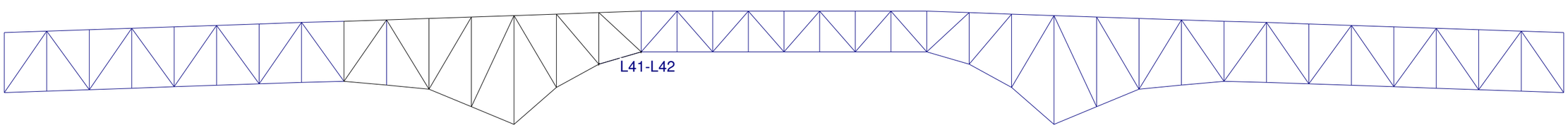
Fact'rd comp LL = -2378 kips

Fact'rd moment, Mf = 1770 k-ft

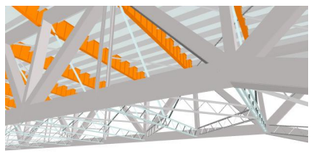
Moment D / C = 0.154

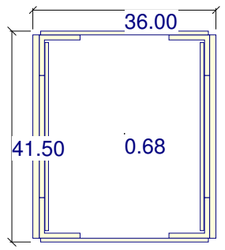
Combined interaction eqn = 0.67

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L41-L42	Compression	kips	S1	E1	INSP3	4.00	-1030	-2745	-	1.11	1.22	1.55	-1144	-3349	-	Static det.	Other	-1344	0	1.77	-2378	13245	1.01	2.46	0.67
	corresp. Moment	k-ft					-413	-541	-				-459	-660	-			-368			-651	11494	1.06		





Area	298.5	in2
Ix	56,763	in4
Iy	72,032	in4
Sx, top	2,828	in3
Sx, bottom	2,649	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-96	-88	-213	-292
Lane 2	CL-625	-97	-88	-215	-294
Lane 3	CL-625	-98	-88	-217	-295
Lane 4	CL-625	-99	-88	-219	-296
Lane 5	CL-625	-101	-88	-224	-299
Lane 6	CL-625	-102	-88	-226	-300
Lane 7	CL-625	-103	-88	-228	-301
Lane 8	CL-625	-104	-88	-230	-303
Total		**-800**	**-704**	**-1771**	**-2379**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (298.5)\ 46.0 = 13{,}045$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (298.5)\ 74.0 = 17{,}838$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 20.3$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (299)\ 46\ (1 + \lambda^{2n})^{-1/n} = 12{,}036$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2649\ (46) = 9{,}648$ k-ft (Lu=0)

Length = 26.25 ft

Fact'rd comp, Cf = -4711 kips

comp D / C = 0.391

Fact'rd comp LL = -2379 kips

Fact'rd moment, Mf = 1241 k-ft

Moment D / C = 0.129

Combined interaction eqn = 0.52

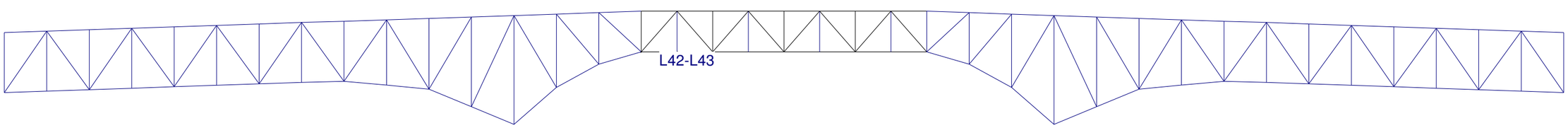
Governing fact'rd tension, Tf = 654 k

tension D / C = 0.050

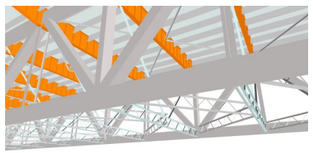
Fact'rd tension LL = 2402 kips

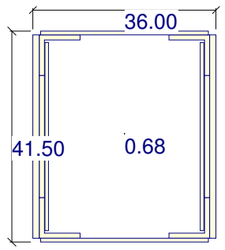
Load rating LLCF = 2.95

Bot chord L42-L43



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L42-L43	Compression	kips	S1	E1	INSP3	4.00	-207	-1723	-	1.11	1.22	1.55	-230	-2102	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-208	-383	-				-231	-467	-			-307			-543	9648	1.06		





Area	298.5	in2
Ix	56,763	in4
Iy	72,032	in4
Sx, top	2,828	in3
Sx, bottom	2,649	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-97	-88	-214	-294
Lane 2	CL-625	-98	-88	-216	-294
Lane 3	CL-625	-98	-88	-217	-295
Lane 4	CL-625	-99	-88	-219	-296
Lane 5	CL-625	-101	-88	-223	-299
Lane 6	CL-625	-102	-88	-225	-300
Lane 7	CL-625	-103	-88	-227	-300
Lane 8	CL-625	-103	-88	-229	-301
Total		**-800**	**-704**	**-1771**	**-2379**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (298.5)\ 46.0 = 13{,}045 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (298.5)\ 74.0 = 17{,}838 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (299)\ 46\ (1 + \lambda^{2n})^{-1/n} = 12{,}036 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2649\ (46) = 9{,}648 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd comp, Cf = -4711 kips

comp D / C = 0.391

Fact'rd comp LL = -2379 kips

Fact'rd moment, Mf = 519 k-ft

Moment D / C = 0.054

Combined interaction eqn = 0.45

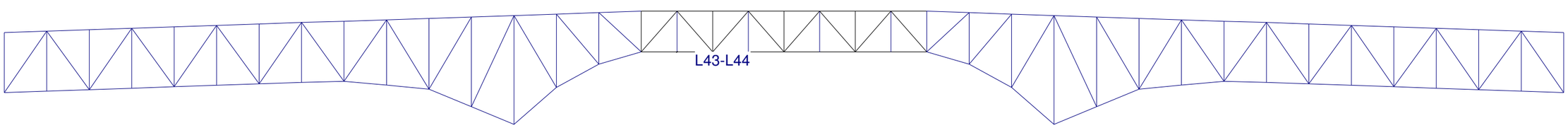
Governing fact'rd tension, Tf = 656 k

tension D / C = 0.050

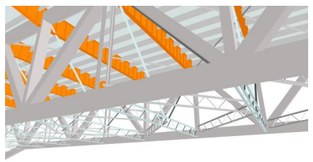
Fact'rd tension LL = 2403 kips

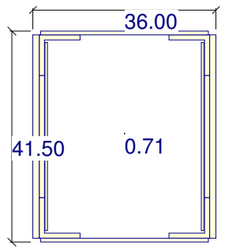
Load rating LLCF = 3.56

Bot chord L43-L44



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L43-L44	Compression	kips	S1	E1	INSP3	4.00	-207	-1723	-	1.11	1.22	1.55	-230	-2102	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	3.56	0.45
	corresp. Moment	k-ft					-94	-153	-				-104	-187	-			-129			-228	9648	1.06		





Area	284.6	in2
Ix	55,169	in4
Iy	68,889	in4
Sx, top	2,753	in3
Sx, bottom	2,571	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-75	-69	-166	-229
Lane 2	CL-625	-77	-70	-170	-232
Lane 3	CL-625	-78	-70	-173	-235
Lane 4	CL-625	-80	-71	-176	-238
Lane 5	CL-625	-82	-72	-182	-243
Lane 6	CL-625	-84	-72	-185	-246
Lane 7	CL-625	-85	-73	-189	-250
Lane 8	CL-625	-87	-73	-192	-253
Total		**-648**	**-569**	**-1433**	**-1925**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (284.6)\ 46.0 = 12{,}437$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (284.6)\ 74.0 = 17{,}006$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 20.2$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (285)\ 46\ (1 + \lambda^{2n})^{-1/n} = 11{,}482$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2571\ (46) = 9{,}363$ k-ft (Lu=0)

Length = 26.25 ft

Fact'rd comp, Cf = -2944 kips

comp D / C = 0.256

Fact'rd comp LL = -1925 kips

Fact'rd moment, Mf = 639 k-ft

Moment D / C = 0.068

Combined interaction eqn = 0.32

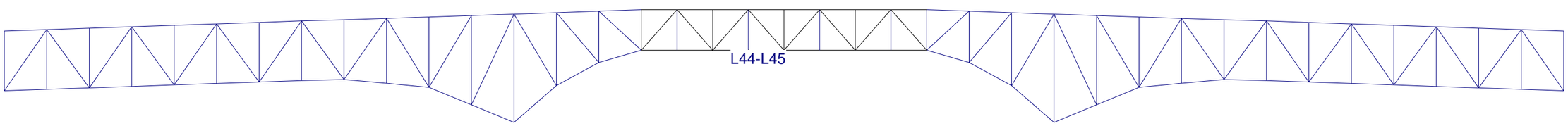
Governing fact'rd tension, Tf = 2130

tension D / C = 0.171

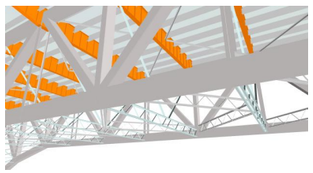
Fact'rd tension LL = 2787 kips

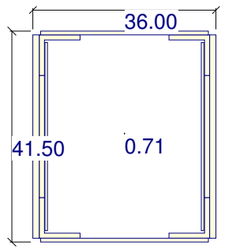
Load rating LLCF = 4.54

Bot chord L44-L45



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L44-L45	Compression	kips	S1	E1	INSP3	4.00	230	-1014	-	0.95	1.22	1.55	255	-1237	-	Static det.	Other	-1087	0	1.77	-1925	11482	1.01	4.54	0.32
	corresp. Moment	k-ft					-181	-158	-				-201	-193	-			-155			-274	9363	1.06		





Area	284.6	in2
Ix	55,169	in4
Iy	68,889	in4
Sx, top	2,753	in3
Sx, bottom	2,571	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-76	-69	-168	-231
Lane 2	CL-625	-77	-70	-171	-233
Lane 3	CL-625	-78	-70	-174	-236
Lane 4	CL-625	-80	-71	-176	-238
Lane 5	CL-625	-82	-71	-182	-243
Lane 6	CL-625	-83	-72	-184	-245
Lane 7	CL-625	-85	-72	-187	-248
Lane 8	CL-625	-86	-73	-190	-251
Total		**-647**	**-569**	**-1433**	**-1924**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (284.6)\ 46.0 = 12{,}437$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (284.6)\ 74.0 = 17{,}006$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 20.2$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (285)\ 46\ (1 + \lambda^{2n})^{-1/n} = 11{,}482$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 2571\ (46) = 9{,}363$ k-ft (Lu=0)

Bot chord L45-L46

Length = 26.25 ft

Fact'rd comp, Cf = -2943 kips

comp D / C = 0.256

Fact'rd comp LL = -1924 kips

Fact'rd moment, Mf = 69 k-ft

Moment D / C = 0.007

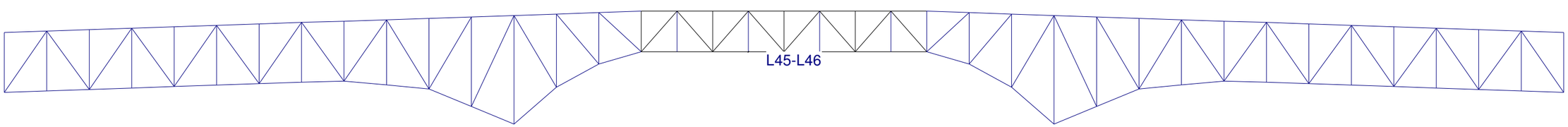
Combined interaction eqn = 0.26

Governing fact'rd tension, Tf = 2128

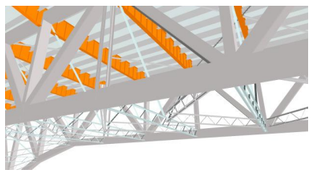
tension D / C = 0.171

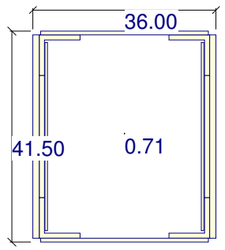
Fact'rd tension LL = 2786 kips

Load rating LLCF = 4.78



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L45-L46	Compression	kips	S1	E1	INSP3	4.00	230	-1014	-	0.95	1.22	1.55	255	-1237	-	Static det.	Other	-1087	0	1.77	-1924	11482	1.01	4.78	0.26
	corresp. Moment	k-ft					140	19	-				156	23	-			-127			-226	9363	1.06		





Area	284.6	in2
Ix	55,169	in4
Iy	68,889	in4
Sx, top	2,753	in3
Sx, bottom	2,571	in3

Bot chord L46-L47

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-88	-81	-194	-268
Lane 2	CL-625	-86	-79	-191	-261
Lane 3	CL-625	-85	-76	-187	-255
Lane 4	CL-625	-83	-74	-183	-249
Lane 5	CL-625	-80	-72	-178	-240
Lane 6	CL-625	-79	-69	-174	-234
Lane 7	CL-625	-77	-67	-170	-228
Lane 8	CL-625	-75	-65	-166	-221
Total		**-652**	**-583**	**-1444**	**-1956**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (284.6)\ 46.0 = 12{,}437 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (284.6)\ 74.0 = 17{,}006 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.2$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (285)\ 46\ (1 + \lambda^{2n})^{-1/n} = 11{,}482 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2571\ (46) = 9{,}363 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd comp, Cf = -2966 kips

comp D / C = 0.258

Fact'rd comp LL = -1956 kips

Fact'rd moment, Mf = 71 k-ft

Moment D / C = 0.008

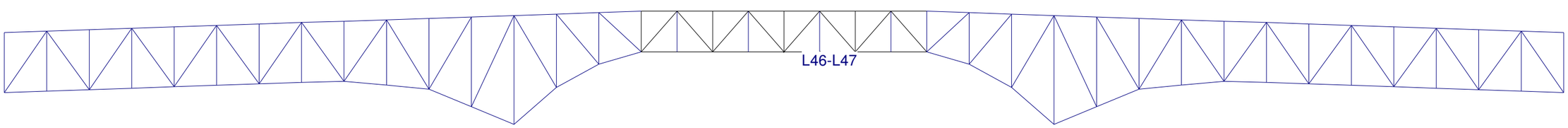
Combined interaction eqn = 0.27

Governing fact'rd tension, Tf = 2138

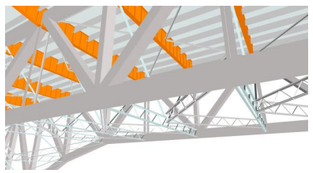
tension D / C = 0.172

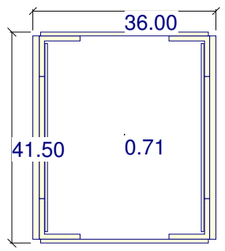
Fact'rd tension LL = 2785 kips

Load rating LLCF = 4.66



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L46-L47	Compression	kips	S1	E1	INSP3	4.00	241	-1016	-	0.95	1.22	1.55	267	-1239	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.66	0.27
	corresp. Moment	k-ft					142	19	-				157	24	-			-130			-229	9363	1.06		





Area	284.6	in2
Ix	55,169	in4
Iy	68,889	in4
Sx, top	2,753	in3
Sx, bottom	2,571	in3

Bot chord L47-L48

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-88	-81	-194	-267
Lane 2	CL-625	-86	-79	-190	-261
Lane 3	CL-625	-84	-76	-187	-255
Lane 4	CL-625	-83	-74	-183	-249
Lane 5	CL-625	-80	-72	-178	-240
Lane 6	CL-625	-79	-69	-174	-234
Lane 7	CL-625	-77	-67	-170	-228
Lane 8	CL-625	-75	-65	-167	-221
Total		**-652**	**-583**	**-1444**	**-1956**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (284.6)\ 46.0 = 12{,}437 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (284.6)\ 74.0 = 17{,}006 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.6\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.2$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (285)\ 46\ (1 + \lambda^{2n})^{-1/n} = 11{,}482 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2571\ (46) = 9{,}363 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd comp, Cf = -2967 kips

comp D / C = 0.258

Fact'rd comp LL = -1956 kips

Fact'rd moment, Mf = 639 k-ft

Moment D / C = 0.068

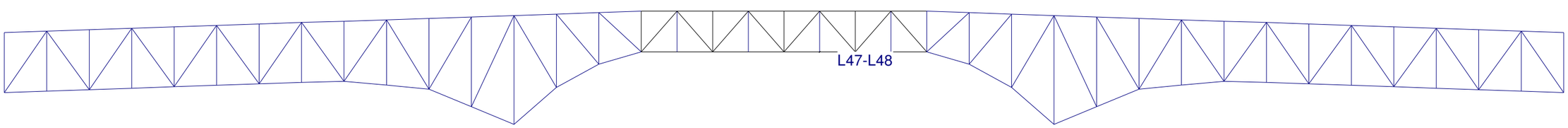
Combined interaction eqn = 0.33

Governing fact'rd tension, Tf = 2138

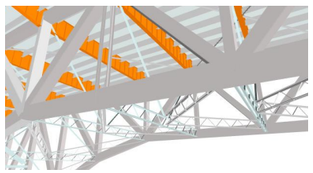
tension D / C = 0.172

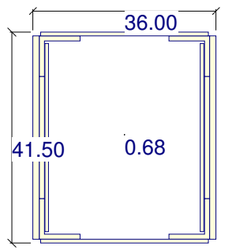
Fact'rd tension LL = 2785 kips

Load rating LLCF = 4.41



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L47-L48	Compression	kips	S1	E1	INSP3	4.00	241	-1016	-	0.95	1.22	1.55	267	-1239	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.41	0.33
	corresp. Moment	k-ft					-176	-159	-				-195	-194	-			-157			-279	9363	1.06		





Area	298.5	in2
Ix	56,763	in4
Iy	72,032	in4
Sx, top	2,828	in3
Sx, bottom	2,649	in3

Bot chord L48-L49

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-115	-106	-254	-350
Lane 2	CL-625	-111	-101	-246	-337
Lane 3	CL-625	-107	-97	-238	-324
Lane 4	CL-625	-104	-93	-229	-311
Lane 5	CL-625	-98	-88	-218	-294
Lane 6	CL-625	-94	-83	-209	-281
Lane 7	CL-625	-91	-79	-201	-268
Lane 8	CL-625	-87	-75	-192	-255
Total		**-807**	**-722**	**-1786**	**-2420**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (298.5)\ 46.0 = 13{,}045 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (298.5)\ 74.0 = 17{,}838 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (299)\ 46\ (1 + \lambda^{2n})^{-1/n} = 12{,}036 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2649\ (46) = 9{,}648 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd comp, Cf = -4721 kips

comp D / C = 0.392

Fact'rd comp LL = -2420 kips

Fact'rd moment, Mf = 523 k-ft

Moment D / C = 0.054

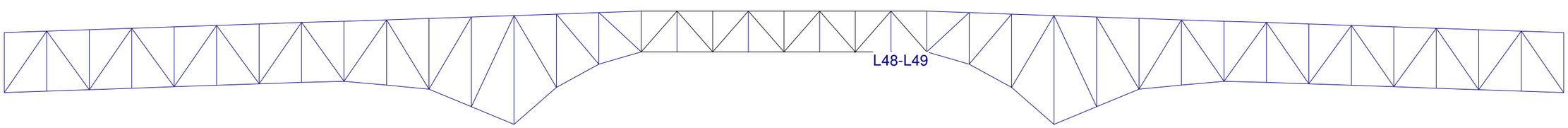
Combined interaction eqn = 0.45

Governing fact'rd tension, Tf = 667 k

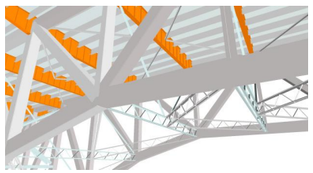
tension D / C = 0.051

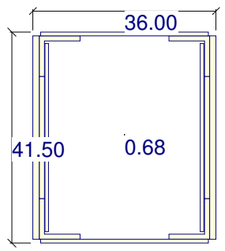
Fact'rd tension LL = 2387 kips

Load rating LLCF = 3.56



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L48-L49	Compression	kips	S1	E1	INSP3	4.00	-175	-1727	-	1.11	1.22	1.55	-194	-2107	-	Static det.	Other	-1367	0	1.77	-2420	12036	1.01	3.56	0.45
	corresp. Moment	k-ft					-93	-154	-				-103	-187	-			-131			-232	9648	1.06		





Area	298.5	in2
Ix	56,763	in4
Iy	72,032	in4
Sx, top	2,828	in3
Sx, bottom	2,649	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-115	-106	-255	-352
Lane 2	CL-625	-112	-102	-247	-338
Lane 3	CL-625	-108	-97	-238	-325
Lane 4	CL-625	-104	-93	-229	-311
Lane 5	CL-625	-98	-88	-217	-294
Lane 6	CL-625	-94	-83	-209	-280
Lane 7	CL-625	-90	-78	-200	-267
Lane 8	CL-625	-86	-74	-191	-253
Total		**-807**	**-722**	**-1786**	**-2421**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (298.5)\ 46.0 = 13{,}045 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (298.5)\ 74.0 = 17{,}838 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 22.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.29$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 20.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (299)\ 46\ (1 + \lambda^{2n})^{-1/n} = 12{,}036 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 2649\ (46) = 9{,}648 \text{ k-ft} \quad (Lu=0)$$

Length = 26.25 ft

Fact'rd comp, Cf = -4722 kips

comp D / C = 0.392

Fact'rd comp LL = -2421 kips

Fact'rd moment, Mf = 1241 k-ft

Moment D / C = 0.129

Combined interaction eqn = 0.52

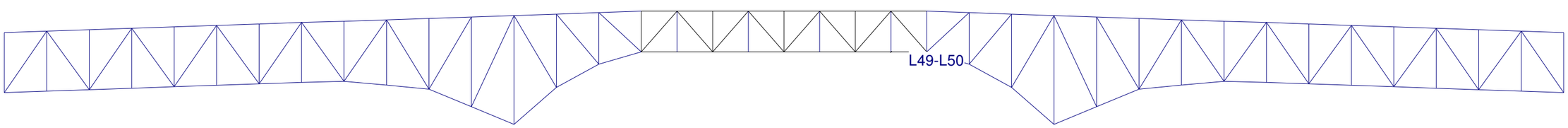
Governing fact'rd tension, Tf = 665 k

tension D / C = 0.051

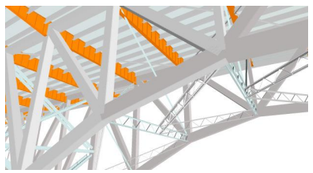
Fact'rd tension LL = 2386 kips

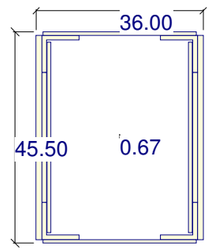
Load rating LLCF = 2.95

Bot chord L49-L50



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L49-L50	Compression	kips	S1	E1	INSP3	4.00	-175	-1727	-	1.11	1.22	1.55	-194	-2107	-	Static det.	Other	-1368	0	1.77	-2421	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-199	-383	-				-221	-468	-			-312			-552	9648	1.06		





Area	332.3	in2
Ix	73,908	in4
Iy	80,719	in4
Sx, top	3,347	in3
Sx, bottom	3,156	in3

Bot chord L50-L51

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-123	-114	-273	-376
Lane 2	CL-625	-117	-107	-259	-355
Lane 3	CL-625	-111	-100	-245	-334
Lane 4	CL-625	-104	-94	-231	-314
Lane 5	CL-625	-96	-86	-213	-288
Lane 6	CL-625	-90	-79	-199	-267
Lane 7	CL-625	-83	-72	-185	-246
Lane 8	CL-625	-77	-66	-171	-225
Total		**-802**	**-717**	**-1775**	**-2405**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 26.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.1$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(332)\,46\,(1+\lambda^{2n})^{-1/n} = 13{,}245 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3156\,(46) = 11{,}494 \text{ k-ft} \quad (Lu=0)$$

Length = 32.54 ft

Fact'rd comp, Cf = -6856 kips

comp D / C = 0.518

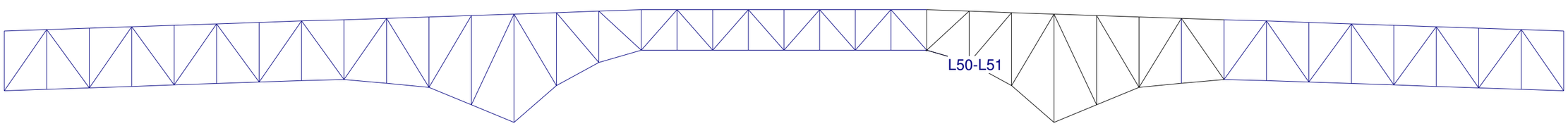
Fact'rd comp LL = -2405 kips

Fact'rd moment, Mf = 1774 k-ft

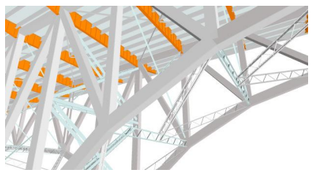
Moment D / C = 0.154

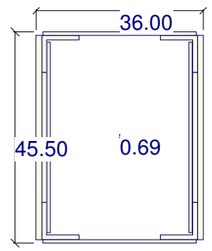
Combined interaction eqn = 0.67

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L50-L51	Compression	kips	S1	E1	INSP3	4.00	-986	-2751	-	1.11	1.22	1.55	-1094	-3357	-	Static det.	Other	-1359	0	1.77	-2405	13245	1.01	2.46	0.67
	corresp. Moment	k-ft					-405	-542	-				-450	-661	-			-375			-663	11494	1.06		





Area	322.0	in2
Ix	72,468	in4
Iy	78,451	in4
Sx, top	3,285	in3
Sx, bottom	3,092	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-113	-119	-249	-369
Lane 2	CL-625	-105	-103	-232	-331
Lane 3	CL-625	-97	-88	-215	-293
Lane 4	CL-625	-89	-80	-198	-269
Lane 5	CL-625	-80	-71	-176	-238
Lane 6	CL-625	-72	-63	-159	-213
Lane 7	CL-625	-64	-55	-142	-188
Lane 8	CL-625	-56	-47	-125	-163
Total		**-676**	**-626**	**-1495**	**-2065**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 28.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.36$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 27.4$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(322)\,46\,(1 + \lambda^{2n})^{-1/n} = 12{,}717 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3092\,(46) = 11{,}260 \text{ k-ft} \quad (Lu=0)$$

Length = 35.61 ft

Fact'rd comp, Cf = -7045 kips

comp D / C = 0.554

Fact'rd comp LL = -2065 kips

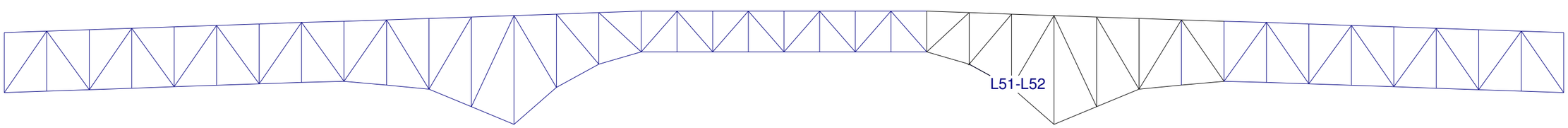
Fact'rd moment, Mf = 1637 k-ft

Moment D / C = 0.145

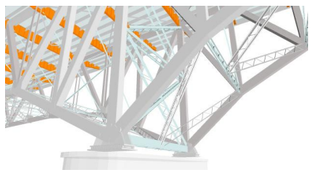
Combined interaction eqn = 0.70

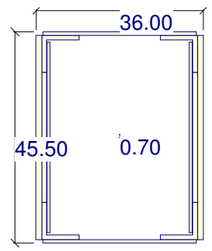
Load rating LLCF = 2.46

Bot chord L51-L52



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L51-L52	Compression	kips	S1	E1	INSP3	4.00	-1288	-2910	-	1.11	1.22	1.55	-1430	-3550	-	Static det.	Other	-1167	0	1.77	-2065	12717	1.01	2.46	0.70
	corresp. Moment	k-ft					-351	-451	-				-389	-550	-			-394			-697	11260	1.06		





Area	316.8	in2
Ix	71,741	in4
Iy	77,294	in4
Sx, top	3,253	in3
Sx, bottom	3,059	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-105	-132	-232	-381
Lane 2	CL-625	-96	-113	-212	-336
Lane 3	CL-625	-87	-95	-192	-291
Lane 4	CL-625	-78	-77	-172	-246
Lane 5	CL-625	-67	-59	-147	-199
Lane 6	CL-625	-58	-50	-127	-170
Lane 7	CL-625	-49	-41	-107	-142
Lane 8	CL-625	-40	-32	-87	-113
Total		**-578**	**-599**	**-1278**	**-1878**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 33.0\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.42$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 31.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(317)\,46\,(1+\lambda^{2n})^{-1/n} = 12{,}246 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,3059\,(46) = 11{,}142 \text{ k-ft} \quad (Lu=0)$$

Length = 41.35 ft

Fact'rd comp, Cf = -7254 kips

comp D / C = 0.592

Fact'rd comp LL = -1878 kips

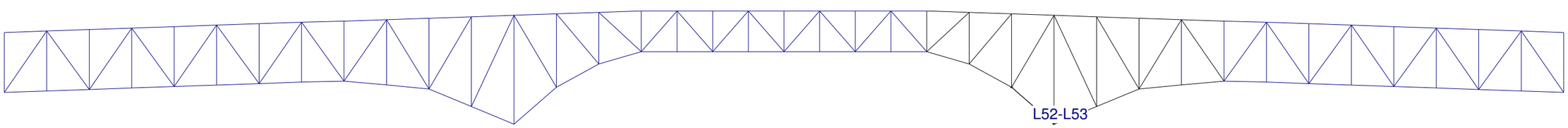
Fact'rd moment, Mf = 836 k-ft

Moment D / C = 0.075

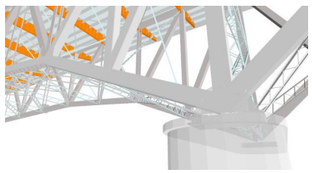
Combined interaction eqn = 0.67

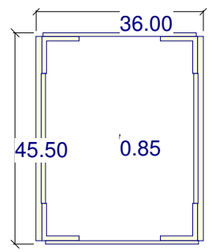
Load rating LLCF = 2.95

Bot chord L52-L53



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L52-L53	Compression	kips	S1	E1	INSP3	4.00	-1524	-3020	-	1.11	1.22	1.55	-1691	-3685	-	Static det.	Other	-1061	0	1.77	-1878	12246	1.01	2.95	0.67
	corresp. Moment	k-ft					-172	-271	-				-190	-331	-			-178			-315	11142	1.06		





Area	262.1	in2
Ix	64,303	in4
Iy	64,629	in4
Sx, top	2,936	in3
Sx, bottom	2,725	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-86	-108	-190	-312
Lane 2	CL-625	-78	-93	-173	-275
Lane 3	CL-625	-71	-78	-157	-238
Lane 4	CL-625	-64	-63	-141	-201
Lane 5	CL-625	-55	-48	-121	-163
Lane 6	CL-625	-47	-41	-104	-139
Lane 7	CL-625	-40	-34	-88	-116
Lane 8	CL-625	-32	-26	-72	-92
Total		**-473**	**-491**	**-1046**	**-1538**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 25.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 25.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(262)\,46\,(1+\lambda^{2n})^{-1/n} = 10{,}460 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2725\,(46) = 9{,}925 \text{ k-ft} \quad (Lu=0)$$

Length = 33.82 ft

Fact'rd comp, Cf = -5932 kips

comp D / C = 0.567

Fact'rd comp LL = -1538 kips

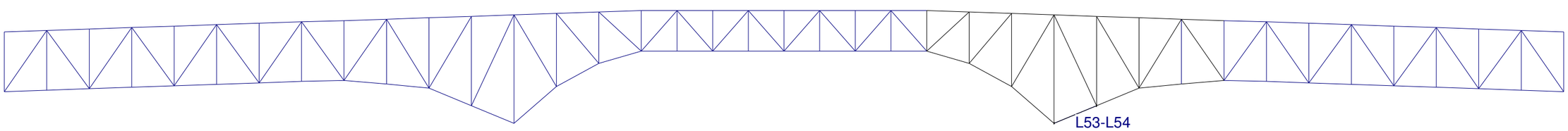
Fact'rd moment, Mf = 104 k-ft

Moment D / C = 0.010

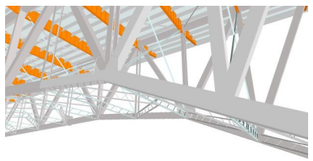
Combined interaction eqn = 0.58

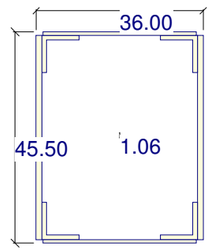
Load rating LLCF = 3.44

Bot chord L53-L54



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L53-L54	Compression	kips	S1	E1	INSP3	4.00	-1241	-2472	-	1.11	1.22	1.55	-1378	-3016	-	Static det.	Other	-869	0	1.77	-1538	10460	1.01	3.44	0.58
	corresp. Moment	k-ft					194	41	-				215	50	-			-91			-161	9925	1.06		





Area	209.6	in2
Ix	60,824	in4
Iy	50,483	in4
Sx, top	2,804	in3
Sx, bottom	2,555	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-81	-93	-180	-279
Lane 2	CL-625	-74	-79	-163	-245
Lane 3	CL-625	-66	-66	-146	-211
Lane 4	CL-625	-58	-53	-129	-176
Lane 5	CL-625	-48	-40	-107	-140
Lane 6	CL-625	-41	-34	-91	-118
Lane 7	CL-625	-33	-27	-74	-95
Lane 8	CL-625	-26	-21	-57	-73
Total		**-428**	**-413**	**-947**	**-1336**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 26.1\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.33$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 23.8$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(210)\,46\,(1 + \lambda^{2n})^{-1/n} = 8{,}356 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2555\,(46) = 9{,}304 \text{ k-ft} \quad (Lu=0)$$

Length = 33.82 ft

Fact'rd comp, Cf = -4987 kips

comp D / C = 0.597

Fact'rd comp LL = -1336 kips

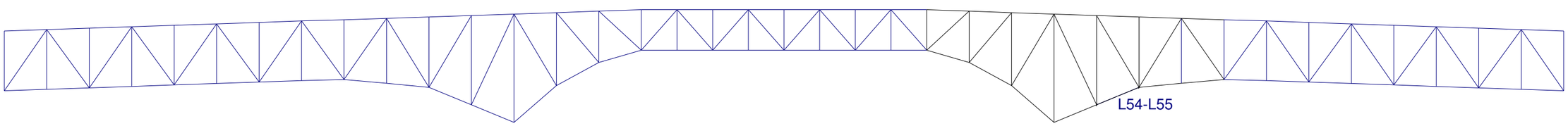
Fact'rd moment, Mf = 1119 k-ft

Moment D / C = 0.120

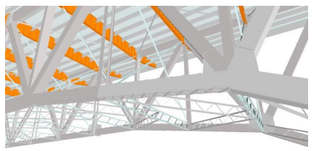
Combined interaction eqn = 0.72

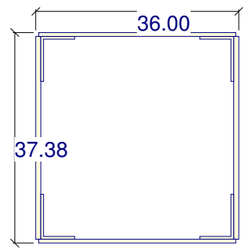
Load rating LLCF = 2.71

Bot chord L54-L55



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L54-L55	Compression	kips	S1	E1	INSP3	4.00	-1013	-2070	-	1.11	1.22	1.55	-1125	-2526	-	Static det.	Other	-755	0	1.77	-1336	8356	1.01	2.71	0.72
	corresp. Moment	k-ft					-285	-506	-				-316	-617	-			-105			-185	9304	1.06		





Area	90.0	in2
Ix	13,491	in4
Iy	26,138	in4
Sx, top	722	in3
Sx, bottom	722	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-26	-36	-59	-100
Lane 2	CL-625	-25	-30	-55	-88
Lane 3	CL-625	-23	-24	-52	-76
Lane 4	CL-625	-22	-19	-49	-65
Lane 5	CL-625	-20	-14	-45	-54
Lane 6	CL-625	-19	-13	-42	-50
Lane 7	CL-625	-18	-13	-40	-48
Lane 8	CL-625	-18	-12	-40	-46
Total		**-172**	**-160**	**-381**	**-528**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_{y,eff}} \left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 34.3 \left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.37$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 30.8$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90 (90) 33 (1 + \lambda^{2n})^{-1/n} = 2{,}543 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95) 722 (33) = 1{,}886 \text{ k-ft} \quad (Lu=0)$$

Length = 31.39 ft

Fact'rd comp, Cf = -1751 kips

comp D / C = 0.688

Fact'rd comp LL = -528 kips

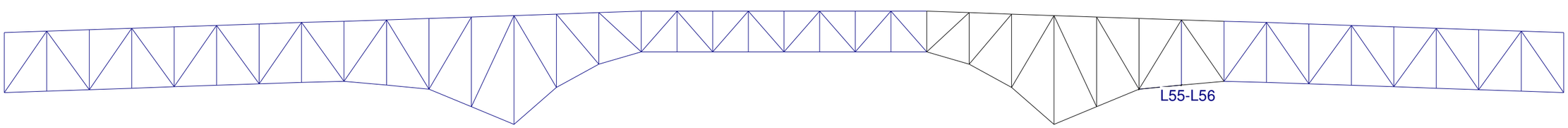
Fact'rd moment, Mf = 183 k-ft

Moment D / C = 0.097

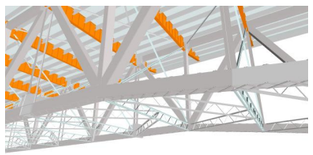
Combined interaction eqn = 0.79

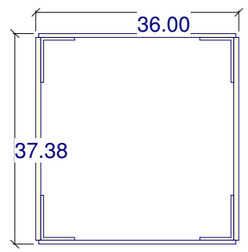
Load rating LLCF = 1.98

Bot chord L55-L56



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L55-L56	Compression	kips	S1	E1	INSP3	4.00	-336	-697	-	1.11	1.22	1.55	-373	-850	-	Static det.	Other	-298	0	1.77	-528	2543	1.01	1.98	0.79
	corresp. Moment	k-ft					-53	-62	-				-59	-76	-			-27			-48	1886	1.06		





Area	90.0	in2
Ix	13,491	in4
Iy	26,138	in4
Sx, top	722	in3
Sx, bottom	722	in3

Bot chord L56-L57

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-32	-37	-70	-111
Lane 2	CL-625	-29	-31	-64	-96
Lane 3	CL-625	-26	-25	-57	-81
Lane 4	CL-625	-23	-19	-51	-67
Lane 5	CL-625	-19	-13	-43	-51
Lane 6	CL-625	-17	-11	-37	-44
Lane 7	CL-625	-14	-10	-31	-37
Lane 8	CL-625	-12	-8	-27	-31
Total		**-172**	**-155**	**-381**	**-519**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_{y,eff}} \left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 34.3 \left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.37$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 30.7$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90 (90) 33 (1 + \lambda^{2n})^{-1/n} = 2{,}543 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95) 722 (33) = 1{,}886 \text{ k-ft} \quad (Lu=0)$$

Length = 31.37 ft

Fact'rd comp, Cf = -1741 kips

comp D / C = 0.685

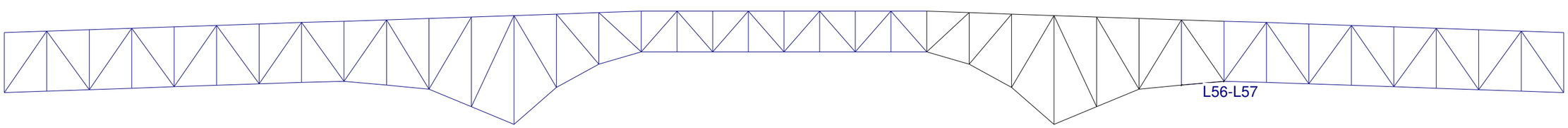
Fact'rd comp LL = -519 kips

Fact'rd moment, Mf = 221 k-ft

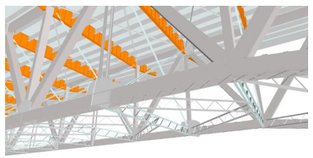
Moment D / C = 0.117

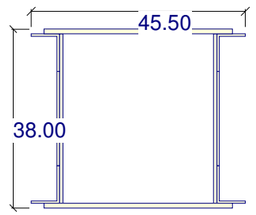
Combined interaction eqn = 0.80

Load rating LLCF = 1.98



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L56-L57	Compression	kips	S1	E1	INSP3	4.00	-336	-697	-	1.11	1.22	1.55	-373	-850	-	Static det.	Other	-293	0	1.77	-519	2543	1.01	1.98	0.80
	corresp. Moment	k-ft					59	86	-				65	105	-			28			50	1886	1.06		





Area	101.0	in2
Ix	13,186	in4
Iy	29,315	in4
Sx, top	694	in3
Sx, bottom	694	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	48	29	107	119
Lane 2	CL-625	41	25	91	102
Lane 3	CL-625	34	20	75	84
Lane 4	CL-625	27	16	59	67
Lane 5	CL-625	18	12	39	47
Lane 6	CL-625	11	11	24	34
Lane 7	CL-625	5	9	10	22
Lane 8	CL-625	7	8	15	24
Total		**189**	**130**	**419**	**499**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.0)\ 33.0 = 3{,}166$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (74.0)\ 60.0 = 3{,}585$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 694\ (33) = 1{,}813$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1586 kips

tension D / C = 0.501

Fact'rd tension LL = 499 kips

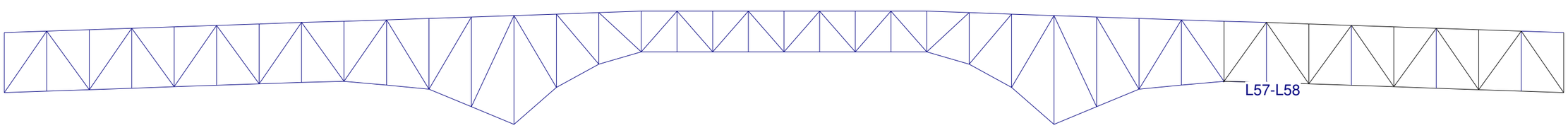
Fact'rd moment, Mf = 87 k-ft

Moment D / C = 0.048

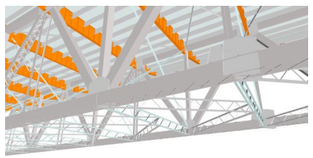
Combined interaction eqn = 0.55

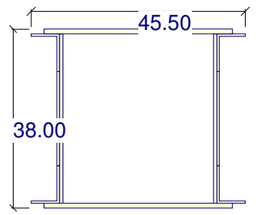
Load rating LLCF = 3.68

Bot chord L57-L58



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L57-L58	Tension	kips	S1	E1	INSP3	4.00	288	629	-	1.11	1.22	1.55	320	768	-	Static det.	Other	282	0	1.77	499	3166	1.01	3.68	0.55
	corresp. Moment	k-ft					42	12	-				46	15	-			15			26	1813	1.06		





Area	101.0	in2
Ix	13,186	in4
Iy	29,315	in4
Sx, top	694	in3
Sx, bottom	694	in3

Bot chord L58-L59

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	48	28	106	118
Lane 2	CL-625	41	24	90	101
Lane 3	CL-625	34	20	74	84
Lane 4	CL-625	26	16	59	66
Lane 5	CL-625	18	12	39	47
Lane 6	CL-625	11	10	24	33
Lane 7	CL-625	4	8	9	20
Lane 8	CL-625	6	7	12	20
Total		**187**	**127**	**413**	**489**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.0)\ 33.0 = 3{,}166$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (74.0)\ 60.0 = 3{,}585$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 694\ (33) = 1{,}813$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 1578 kips

tension D / C = 0.499

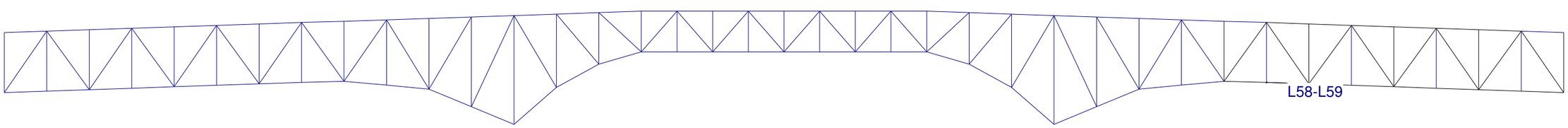
Fact'rd tension LL = 489 kips

Fact'rd moment, Mf = 217 k-ft

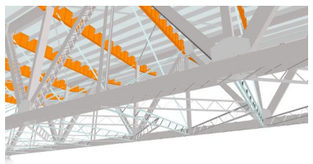
Moment D / C = 0.120

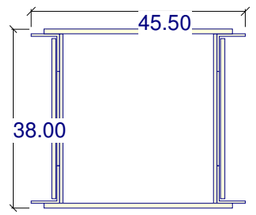
Combined interaction eqn = 0.62

Load rating LLCF = 3.20



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L58-L59	Tension	kips	S1	E1	INSP3	4.00	289	629	-	1.11	1.22	1.55	321	768	-	Static det.	Other	277	0	1.77	489	3166	1.01	3.20	0.62
	corresp. Moment	k-ft					34	98	-				38	120	-			33			59	1813	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L59-L60

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	90	54	200	224
Lane 2	CL-625	78	47	172	194
Lane 3	CL-625	65	40	145	164
Lane 4	CL-625	53	33	117	133
Lane 5	CL-625	38	25	84	98
Lane 6	CL-625	25	19	56	70
Lane 7	CL-625	13	13	29	42
Lane 8	CL-625	4	7	8	18
Total		**367**	**240**	**811**	**943**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3227 kips

tension D / C = 0.641

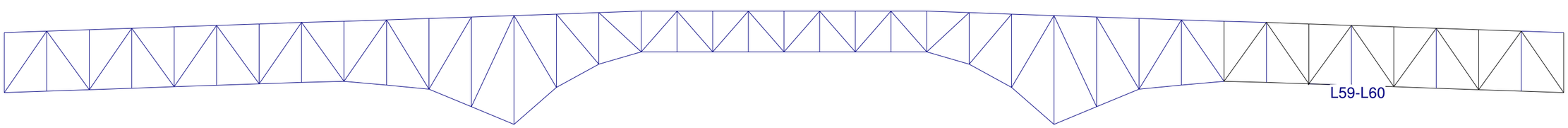
Fact'rd tension LL = 943 kips

Fact'rd moment, Mf = 99 k-ft

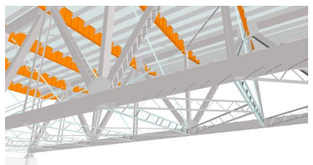
Moment D / C = 0.038

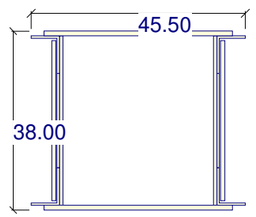
Combined interaction eqn = 0.68

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L59-L60	Tension	kips	S1	E1	INSP3	4.00	608	1319	-	1.11	1.22	1.55	674	1609	-	Static det.	Other	533	0	1.77	943	5032	1.01	2.46	0.68
	corresp. Moment	k-ft					-87	76	-				-96	93	-			58			102	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L60-L61

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	90	56	199	226
Lane 2	CL-625	78	48	172	195
Lane 3	CL-625	65	41	144	164
Lane 4	CL-625	53	33	117	134
Lane 5	CL-625	38	25	84	97
Lane 6	CL-625	25	18	56	69
Lane 7	CL-625	13	12	30	41
Lane 8	CL-625	4	6	8	16
Total		**366**	**239**	**810**	**942**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3226 kips

tension D / C = 0.641

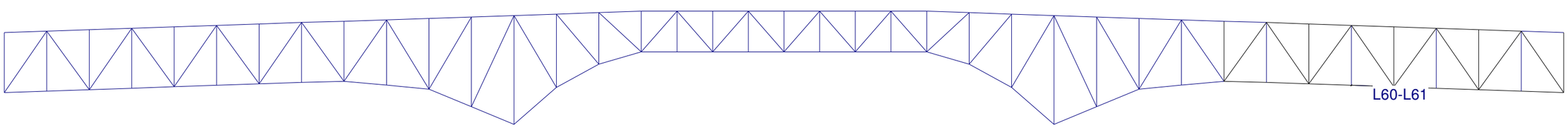
Fact'rd tension LL = 942 kips

Fact'rd moment, Mf = 388 k-ft

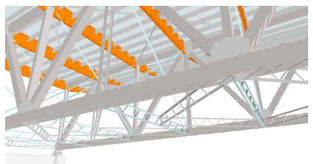
Moment D / C = 0.149

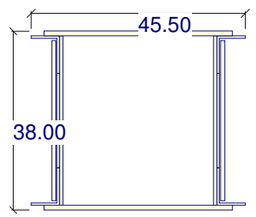
Combined interaction eqn = 0.79

Load rating LLCF = 1.98



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L60-L61	Tension	kips	S1	E1	INSP3	4.00	607	1319	-	1.11	1.22	1.55	674	1610	-	Static det.	Other	532	0	1.77	942	5032	1.01	1.98	0.79
	corresp. Moment	k-ft					77	141	-				86	172	-			73			130	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

Bot chord L61-L62

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	88	56	194	223
Lane 2	CL-625	76	48	168	193
Lane 3	CL-625	64	41	141	162
Lane 4	CL-625	52	33	115	132
Lane 5	CL-625	38	24	85	97
Lane 6	CL-625	26	18	58	68
Lane 7	CL-625	14	11	31	39
Lane 8	CL-625	3	4	7	12
Total		**361**	**235**	**799**	**927**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3196 kips

tension D / C = 0.635

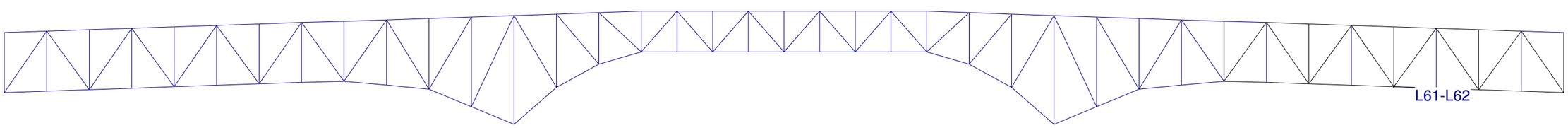
Fact'rd tension LL = 927 kips

Fact'rd moment, Mf = 389 k-ft

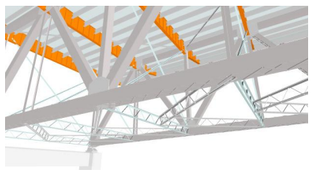
Moment D / C = 0.150

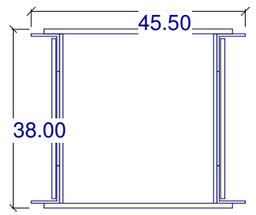
Combined interaction eqn = 0.78

Load rating LLCF = 1.98



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L61-L62	Tension	kips	S1	E1	INSP3	4.00	600	1315	-	1.11	1.22	1.55	666	1604	-	Static det.	Other	523	0	1.77	927	5032	1.01	1.98	0.78
	corresp. Moment	k-ft					81	141	-				90	171	-			72			128	2601	1.06		





Area	160.5	in2
Ix	18,918	in4
Iy	48,463	in4
Sx, top	996	in3
Sx, bottom	996	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	91	59	201	233
Lane 2	CL-625	78	51	172	200
Lane 3	CL-625	65	42	144	167
Lane 4	CL-625	52	34	116	134
Lane 5	CL-625	38	24	83	96
Lane 6	CL-625	25	16	55	64
Lane 7	CL-625	12	9	26	32
Lane 8	CL-625	3	3	6	9
Total		**363**	**237**	**804**	**934**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (160.5)\ 33.0 = 5{,}032$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.0)\ 60.0 = 5{,}620$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 996\ (33) = 2{,}601$ k-ft (Lu=0)

Length = 31.27 ft

Fact'rd tension, Tf = 3202 kips

tension D / C = 0.636

Fact'rd tension LL = 934 kips

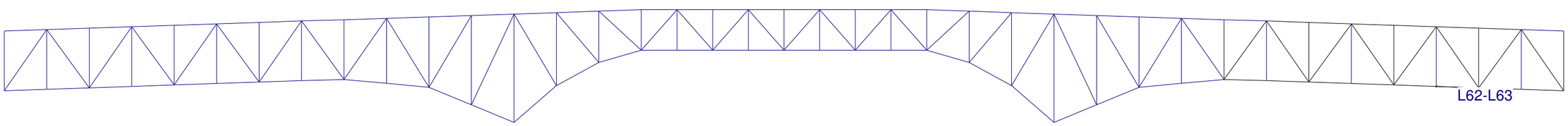
Fact'rd moment, Mf = 118 k-ft

Moment D / C = 0.045

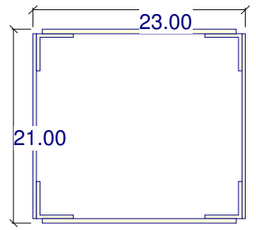
Combined interaction eqn = 0.68

Load rating LLCF = 2.46

Bot chord L62-L63



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L62-L63	Tension	kips	S1	E1	INSP3	4.00	599	1314	-	1.11	1.22	1.55	665	1604	-	Static det.	Other	527	0	1.77	934	5032	1.01	2.46	0.68
	corresp. Moment	k-ft					-96	95	-				-107	115	-			62			109	2601	1.06		



Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-29	-4	-65	-49
Lane 2	CL-625	-25	-4	-56	-43
Lane 3	CL-625	-21	-3	-46	-36
Lane 4	CL-625	-17	-3	-37	-29
Lane 5	CL-625	-13	-2	-28	-22
Lane 6	CL-625	-8	-2	-18	-15
Lane 7	CL-625	-3	-1	-7	-7
Lane 8	CL-625	-4	-1	-9	-8
Total		**-120**	**-22**	**-266**	**-208**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 67.4\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.72$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 49.9$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(26)\,33\,(1+\lambda^{2n})^{-1/n} = 604 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,135\,(33) = 352 \text{ k-ft} \quad (Lu=0)$$

Length = 45.69 ft

Fact'rd comp, Cf = -468 kips

comp D / C = 0.775

Fact'rd comp LL = -266 kips

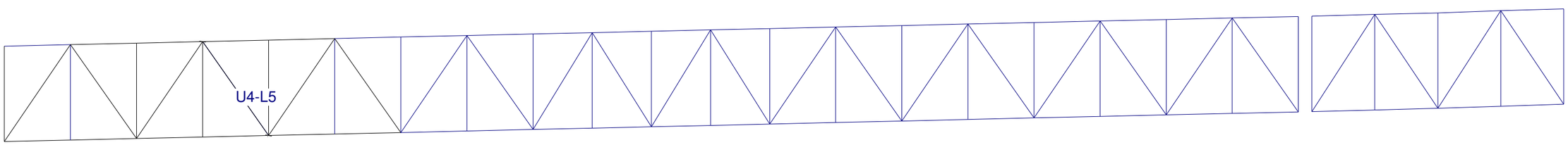
Fact'rd moment, Mf = 9 k-ft

Moment D / C = 0.027

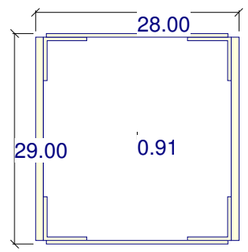
Combined interaction eqn = 0.80

Load rating LLCF = 1.43

Diagonal U4-L5



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U4-L5	Compression	kips	S1	E1	INSP3	4.00	-45	-125	-	1.11	1.22	1.55	-50	-152	-	Static det.	Other	-120	0.25	1.77	-266	604	1.01	1.43	0.80
	corresp. Moment	k-ft					-10	7	-				-12	9	-			6			12	352	1.06		



Area	101.3	in2
Ix	11,136	in4
Iy	15,151	in4
Sx, top	820	in3
Sx, bottom	722	in3

Diagonal L7-U8

	Truck Name	LL Axial demands (kips) Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	75	37	165	172
Lane 2	CL-625	64	32	142	148
Lane 3	CL-625	54	27	120	124
Lane 4	CL-625	44	22	97	101
Lane 5	CL-625	33	16	72	74
Lane 6	CL-625	22	11	49	51
Lane 7	CL-625	12	6	26	27
Lane 8	CL-625	3	1	7	7
Total		**306**	**153**	**677**	**704**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.3)\ 33.0 = 3{,}177$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (74.0)\ 60.0 = 3{,}585$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 722\ (33) = 1{,}888$ k-ft (Lu=0)

Length = 46.68 ft

Fact'rd tension, Tf = 2145 kips

tension D / C = 0.675

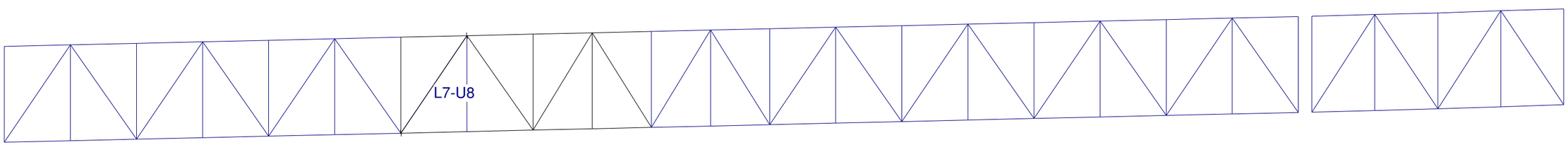
Fact'rd tension LL = 704 kips

Fact'rd moment, Mf = 90 k-ft

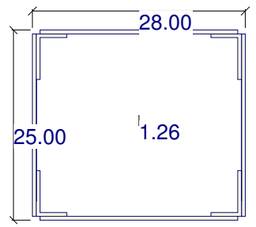
Moment D / C = 0.048

Combined interaction eqn = 0.72

Load rating LLCF = 2.16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L7-U8	Tension	kips	S1	E1	INSP3	4.00	345	867	-	1.11	1.22	1.55	383	1058	-	Static det.	Other	398	0	1.77	704	3177	1.01	2.16	0.72
	corresp. Moment	k-ft					-49	-45	-				-54	-55	-			11			19	1888	1.06		



Area	62.8	in2
Ix	5,962	in4
Iy	9,061	in4
Sx, top	530	in3
Sx, bottom	433	in3

LL Axial demands (kips)

	Truck Name	Truck Only (Unfactored)	UDL (9 kN/m) (Unfactored)	Truck Only (Factored)	UDL + 0.8 Truck (Factored)
Lane 1	CL-625	-52	-33	-115	-132
Lane 2	CL-625	-44	-29	-97	-113
Lane 3	CL-625	-36	-25	-79	-94
Lane 4	CL-625	-28	-20	-61	-75
Lane 5	CL-625	-19	-15	-42	-54
Lane 6	CL-625	-15	-11	-34	-41
Lane 7	CL-625	-12	-7	-26	-28
Lane 8	CL-625	-8	-4	-18	-18
Total		**-214**	**-143**	**-473**	**-556**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 50.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.54$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 40.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(63)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}639 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,433\,(33) = 1{,}132 \text{ k-ft} \quad (Lu=0)$$

Length = 45.14 ft

Fact'rd comp, Cf = -1111 kips

comp D / C = 0.678

Fact'rd comp LL = -556 kips

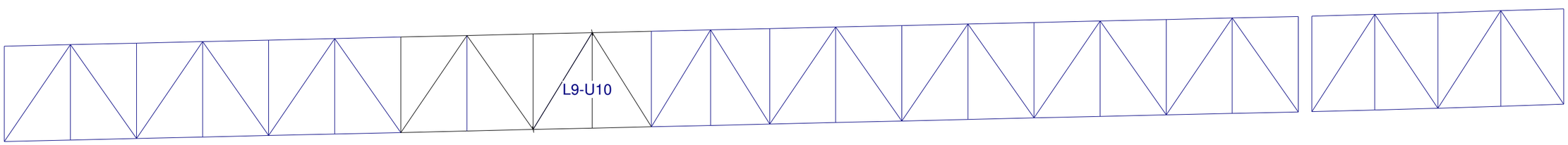
Fact'rd moment, Mf = 131 k-ft

Moment D / C = 0.116

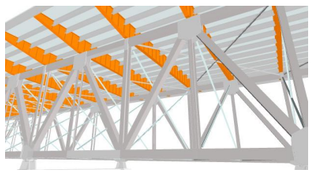
Combined interaction eqn = 0.79

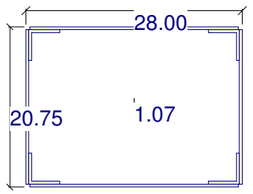
Load rating LLCF = 1.55

Diagonal L9-U10



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L9-U10	Compression	kips	S1	E1	INSP3	4.00	-146	-323	-	1.11	1.22	1.55	-162	-394	-	Static det.	Other	-314	0	1.77	-556	1639	1.01	1.55	0.79
	corresp. Moment	k-ft					-34	-30	-				-38	-36	-			-32			-57	1132	1.06		





Area	39.5	in2
Ix	2,726	in4
Iy	5,893	in4
Sx, top	293	in3
Sx, bottom	238	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	33	21	72	84
Lane 2	CL-625	29	19	65	74
Lane 3	CL-625	26	16	57	65
Lane 4	CL-625	22	14	49	56
Lane 5	CL-625	19	11	42	47
Lane 6	CL-625	15	9	34	37
Lane 7	CL-625	12	6	26	28
Lane 8	CL-625	8	5	18	20
Total		**164**	**101**	**363**	**411**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (39.5)\ 33.0 = 1{,}238$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (32.8)\ 60.0 = 1{,}587$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 57.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.62$$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 39.1$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (39)\ 33\ (1 + \lambda^{2n})^{-1/n} = 979 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 238\ (33) = 622$ k-ft (Lu=0)

Length = 44.22 ft

Fact'rd tension, Tf = 578 kips

tension D / C = 0.466

Fact'rd tension LL = 411 kips

Fact'rd moment, Mf = 18 k-ft

Moment D / C = 0.028

Combined interaction eqn = 0.49

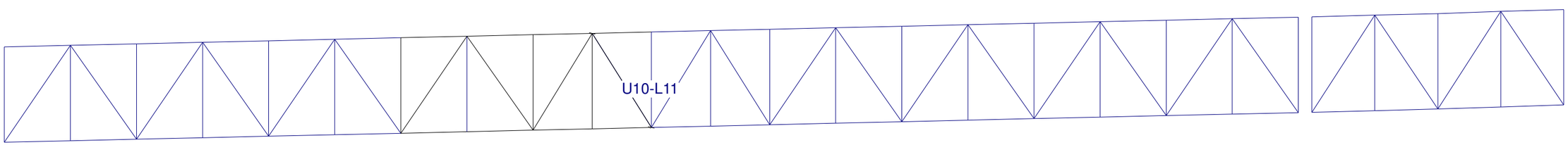
Governing fact'rd comp, Cf = -264 k

comp D / C = 0.269

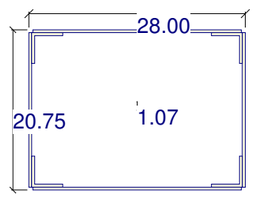
Fact'rd comp LL = -393 kips

Load rating LLCF = 2.46

Diagonal U10-L11



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U10-L11	Tension	kips	S1	E1	INSP3	4.00	49	92	-	1.11	1.22	1.55	54	112	-	Static det.	Other	232	0	1.77	411	1238	1.01	2.46	0.49
	corresp. Moment	k-ft					-18	11	-				-20	13	-			-6			-11	622	1.06		



Area	39.5	in2
Ix	2,726	in4
Iy	5,893	in4
Sx, top	293	in3
Sx, bottom	238	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	33	22	74	87
Lane 2	CL-625	30	20	66	77
Lane 3	CL-625	27	17	59	68
Lane 4	CL-625	23	15	51	59
Lane 5	CL-625	19	12	41	47
Lane 6	CL-625	15	9	34	38
Lane 7	CL-625	12	7	27	30
Lane 8	CL-625	9	5	20	21
Total		**168**	**107**	**372**	**428**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (39.5)\ 33.0 = 1{,}238 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (32.8)\ 60.0 = 1{,}587 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 58.7\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.63$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 39.9$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (39)\ 33\ (1 + \lambda^{2n})^{-1/n} = 970 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 238\ (33) = 622 \text{ k-ft} \quad (Lu=0)$$

Length = 45.14 ft

Fact'rd tension, Tf = 597 kips

tension D / C = 0.482

Fact'rd tension LL = 428 kips

Fact'rd moment, Mf = 18 k-ft

Moment D / C = 0.029

Combined interaction eqn = 0.51

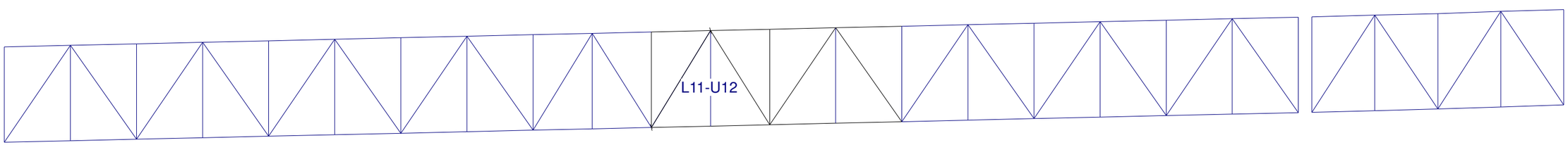
Governing fact'rd comp, Cf = -256 k

comp D / C = 0.264

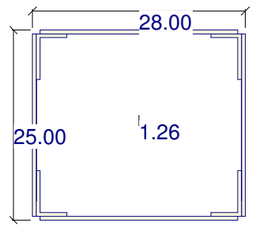
Fact'rd comp LL = -387 kips

Load rating LLCF = 2.40

Diagonal L11-U12



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L11-U12	Tension	kips	S1	E1	INSP3	4.00	50	93	-	1.11	1.22	1.55	55	114	-	Static det.	Other	242	0	1.77	428	1238	1.01	2.40	0.51
	corresp. Moment	k-ft					-18	10	-				-20	12	-			-6			-10	622	1.06		



Area	62.8	in2
Ix	5,962	in4
Iy	9,061	in4
Sx, top	530	in3
Sx, bottom	433	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-47	-33	-104	-125
Lane 2	CL-625	-40	-29	-88	-108
Lane 3	CL-625	-32	-25	-72	-90
Lane 4	CL-625	-25	-21	-55	-72
Lane 5	CL-625	-18	-16	-40	-53
Lane 6	CL-625	-15	-11	-33	-41
Lane 7	CL-625	-12	-7	-26	-29
Lane 8	CL-625	-9	-5	-19	-21
Total		**-198**	**-147**	**-437**	**-539**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 49.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.53$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 39.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(63)\,33\,(1+\lambda^{2n})^{-1/n} = 1{,}650 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,433\,(33) = 1{,}132 \text{ k-ft} \quad (Lu=0)$$

Diagonal U12-L13

Length = 44.22 ft

Fact'rd comp, Cf = -1084 kips

comp D / C = 0.657

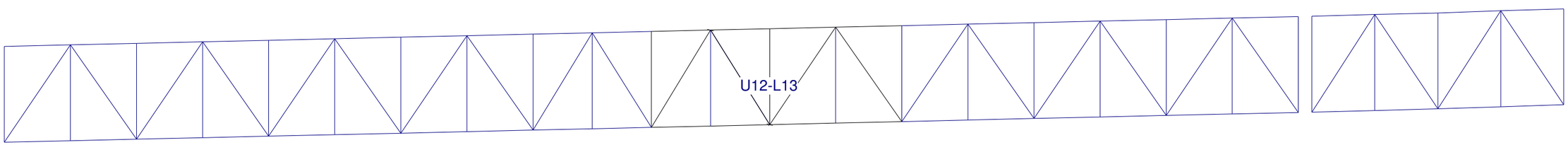
Fact'rd comp LL = -539 kips

Fact'rd moment, Mf = 133 k-ft

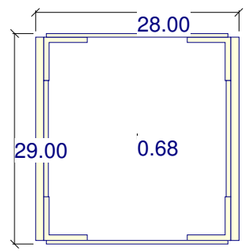
Moment D / C = 0.118

Combined interaction eqn = 0.77

Load rating LLCF = 1.64



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U12-L13	Compression	kips	S1	E1	INSP3	4.00	-143	-316	-	1.11	1.22	1.55	-159	-386	-	Static det.	Other	-305	0	1.77	-539	1650	1.01	1.64	0.77
	corresp. Moment	k-ft					-34	-29	-				-37	-35	-			-34			-61	1132	1.06		



Area	135.2	in2
Ix	13,393	in4
Iy	20,112	in4
Sx, top	969	in3
Sx, bottom	882	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-91	-51	-202	-219
Lane 2	CL-625	-78	-43	-173	-187
Lane 3	CL-625	-65	-36	-144	-156
Lane 4	CL-625	-52	-29	-115	-124
Lane 5	CL-625	-36	-20	-81	-87
Lane 6	CL-625	-24	-13	-52	-57
Lane 7	CL-625	-11	-6	-25	-27
Lane 8	CL-625	-1	0	-3	-2
Total		**-358**	**-199**	**-793**	**-860**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 50.7\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.54$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 41.3$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(135)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}515 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,882\,(33) = 2{,}304 \text{ k-ft} \quad (Lu=0)$$

Length = 46.68 ft

Fact'rd comp, Cf = -2754 kips

comp D / C = 0.783

Fact'rd comp LL = -860 kips

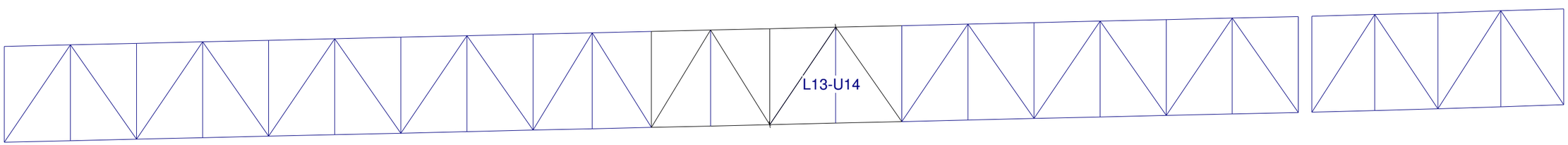
Fact'rd moment, Mf = 231 k-ft

Moment D / C = 0.100

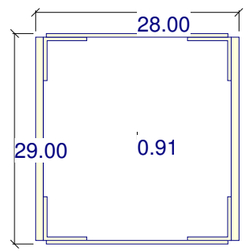
Combined interaction eqn = 0.88

Load rating LLCF = 1.49

Diagonal L13-U14



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L13-U14	Compression	kips	S1	E1	INSP3	4.00	-463	-1131	-	1.11	1.22	1.55	-514	-1380	-	Static det.	Other	-486	0	1.77	-860	3515	1.01	1.49	0.88
	corresp. Moment	k-ft					-78	-62	-				-87	-75	-			-39			-69	2304	1.06		



Area	101.3	in2
Ix	11,136	in4
Iy	15,151	in4
Sx, top	820	in3
Sx, bottom	722	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	75	37	167	172
Lane 2	CL-625	65	32	144	148
Lane 3	CL-625	55	27	121	124
Lane 4	CL-625	44	21	98	100
Lane 5	CL-625	31	15	69	72
Lane 6	CL-625	21	11	46	49
Lane 7	CL-625	11	6	24	26
Lane 8	CL-625	2	1	5	5
Total		**304**	**150**	**673**	**696**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.3)\ 33.0 = 3{,}177$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (74.0)\ 60.0 = 3{,}585$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 722\ (33) = 1{,}888$ k-ft (Lu=0)

Length = 45.69 ft

Fact'rd tension, Tf = 2108 kips

tension D / C = 0.663

Fact'rd tension LL = 696 kips

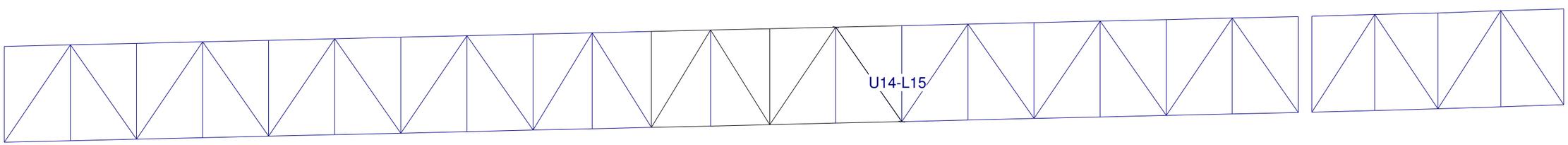
Fact'rd moment, Mf = 68 k-ft

Moment D / C = 0.036

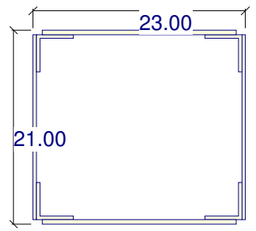
Combined interaction eqn = 0.70

Load rating LLCF = 2.16

Diagonal U14-L15



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U14-L15	Tension	kips	S1	E1	INSP3	4.00	338	850	-	1.11	1.22	1.55	376	1037	-	Static det.	Other	393	0	1.77	696	3177	1.01	2.16	0.70
	corresp. Moment	k-ft					-47	-43	-				-52	-52	-			20			36	1888	1.06		



Area	26.4	in2
Ix	1,416	in4
Iy	3,078	in4
Sx, top	135	in3
Sx, bottom	135	in3

Diagonal L24-U25

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	20	5	45	37
Lane 2	CL-625	17	4	38	32
Lane 3	CL-625	14	3	32	26
Lane 4	CL-625	11	3	25	21
Lane 5	CL-625	10	2	22	18
Lane 6	CL-625	6	1	14	12
Lane 7	CL-625	3	1	6	6
Lane 8	CL-625	2	0	4	3
Total		**84**	**19**	**187**	**154**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (26.4)\ 33.0 = 829$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (20.0)\ 60.0 = 969$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 135\ (33) = 352$ k-ft (Lu=0)

Length = 46.10 ft

Fact'rd tension, Tf = 368 kips

tension D / C = 0.444

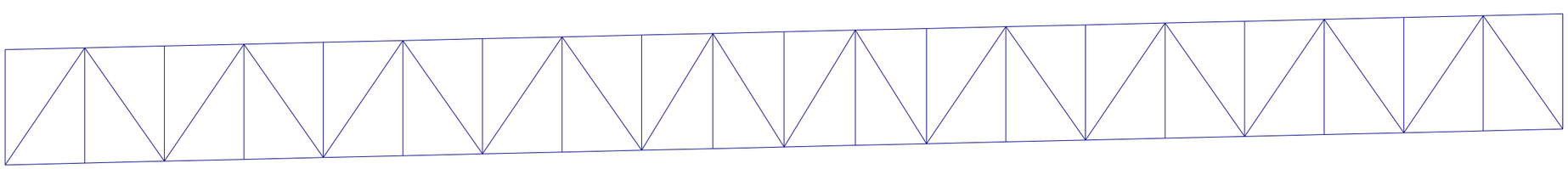
Fact'rd tension LL = 187 kips

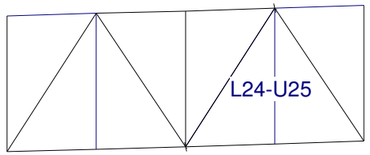
Fact'rd moment, Mf = 16 k-ft

Moment D / C = 0.044

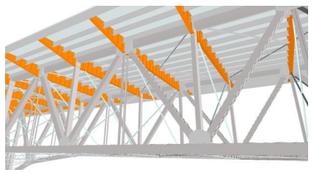
Combined interaction eqn = 0.49

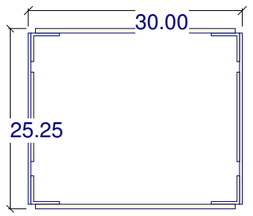
Load rating LLCF = 3.01





Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L24-U25	Tension	kips	S1	E1	INSP3	4.00	41	112	-	1.11	1.22	1.55	46	136	-	Static det.	Other	84	0.25	1.77	187	829	1.01	3.01	0.49
	corresp. Moment	k-ft					-10	12	-				-12	14	-			6			13	352	1.06		





Area	38.8	in2
Ix	2,353	in4
Iy	8,002	in4
Sx, top	187	in3
Sx, bottom	186	in3

Diagonal L31-U32

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	34	3	75	52
Lane 2	CL-625	29	3	64	46
Lane 3	CL-625	24	3	54	39
Lane 4	CL-625	20	3	43	33
Lane 5	CL-625	14	3	32	25
Lane 6	CL-625	10	3	21	19
Lane 7	CL-625	5	3	11	12
Lane 8	CL-625	7	3	15	15
Total		**143**	**22**	**316**	**241**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (38.8)\ 33.0 = 1{,}217$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (30.0)\ 60.0 = 1{,}454$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 76.1\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.82$$

$n = 1.34;\qquad \frac{KL_y}{r_{y,eff}} = 41.3$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\ (39)\ 33\ (1+\lambda^{2n})^{-1/n} = 819 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 186\ (33) = 485$ k-ft (Lu=0)

Length = 54.85 ft

Fact'rd tension, Tf = 547 kips

tension D / C = 0.449

Fact'rd tension LL = 316 kips

Fact'rd moment, Mf = 12 k-ft

Moment D / C = 0.025

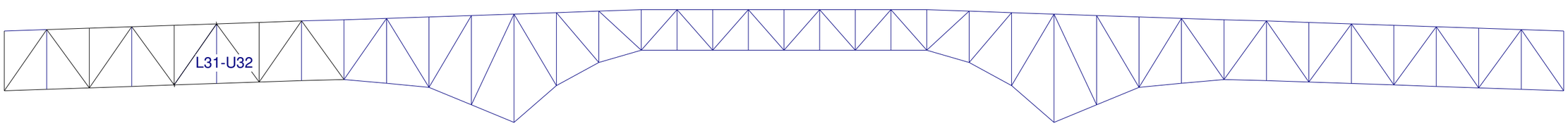
Combined interaction eqn = 0.47

Governing fact'rd comp, Cf = -66 kip

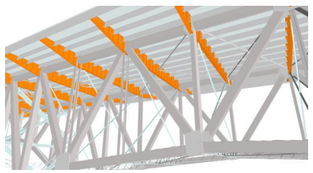
comp D / C = 0.080

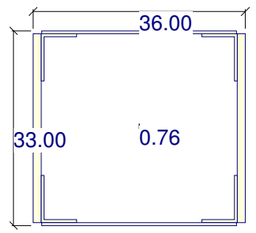
Fact'rd comp LL = -245 kips

Load rating LLCF = 2.65



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L31-U32	Tension	kips	S1	E1	INSP3	4.00	70	126	-	1.11	1.22	1.55	77	154	-	Static det.	Other	143	0.25	1.77	316	1217	1.01	2.65	0.47
	corresp. Moment	k-ft					-23	12	-				-25	15	-			10			22	485	1.06		





Area	141.4	in2
Ix	19,518	in4
Iy	35,670	in4
Sx, top	1,240	in3
Sx, bottom	1,131	in3

Diagonal L35-U36

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	74	53	164	198
Lane 2	CL-625	64	46	141	171
Lane 3	CL-625	53	38	118	143
Lane 4	CL-625	43	31	95	116
Lane 5	CL-625	31	23	68	84
Lane 6	CL-625	20	15	45	56
Lane 7	CL-625	10	8	22	29
Lane 8	CL-625	4	2	8	8
Total		**298**	**216**	**660**	**804**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (141.4)\ 33.0 = 4{,}433$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (104.0)\ 60.0 = 5{,}039$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1131\ (33) = 2{,}955$ k-ft (Lu=0)

Length = 54.85 ft

Fact'rd tension, Tf = 2945 kips

tension D / C = 0.664

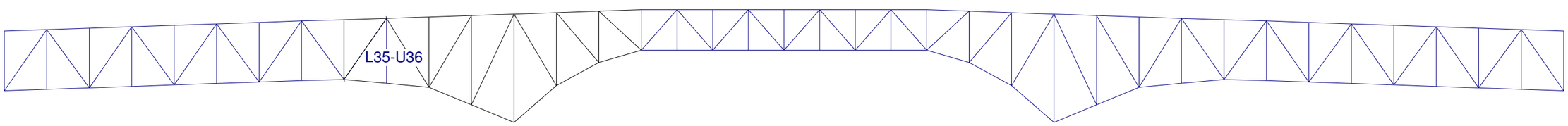
Fact'rd tension LL = 804 kips

Fact'rd moment, Mf = 167 k-ft

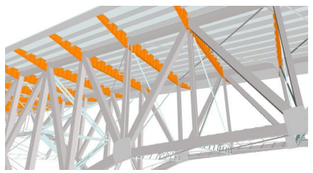
Moment D / C = 0.056

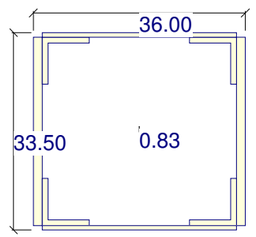
Combined interaction eqn = 0.72

Load rating LLCF = 2.34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L35-U36	Tension	kips	S1	E1	INSP3	4.00	599	1209	-	1.11	1.22	1.55	665	1476	-	Static det.	Other	454	0	1.77	804	4433	1.01	2.34	0.72
	corresp. Moment	k-ft					-89	-96	-				-99	-117	-			28			49	2955	1.06		





Area	195.6	in2
Ix	30,186	in4
Iy	45,417	in4
Sx, top	1,896	in3
Sx, bottom	1,717	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-84	-64	-187	-234
Lane 2	CL-625	-72	-55	-160	-200
Lane 3	CL-625	-60	-46	-134	-167
Lane 4	CL-625	-48	-37	-107	-134
Lane 5	CL-625	-34	-27	-76	-96
Lane 6	CL-625	-22	-18	-49	-64
Lane 7	CL-625	-11	-9	-24	-32
Lane 8	CL-625	-2	-1	-4	-4
Total		**-335**	**-258**	**-740**	**-931**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 51.9\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 42.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(196)\,33\,(1 + \lambda^{2n})^{-1/n} = 5{,}044 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1717\,(33) = 4{,}486 \text{ k-ft} \quad (Lu=0)$$

Length = 59.68 ft

Fact'rd comp, Cf = -3540 kips

comp D / C = 0.702

Fact'rd comp LL = -931 kips

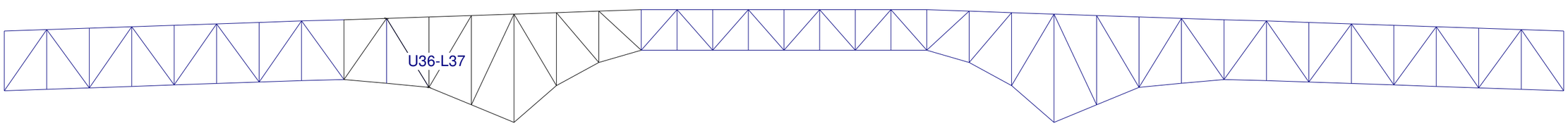
Fact'rd moment, Mf = 633 k-ft

Moment D / C = 0.141

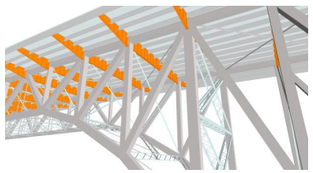
Combined interaction eqn = 0.84

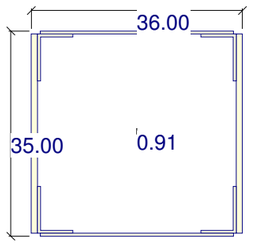
Load rating LLCF = 1.85

Diagonal U36-L37



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U36-L37	Compression	kips	S1	E1	INSP3	4.00	-737	-1468	-	1.11	1.22	1.55	-818	-1791	-	Static det.	Other	-526	0	1.77	-931	5044	1.01	1.85	0.84
	corresp. Moment	k-ft					-222	-215	-				-247	-262	-			-70			-123	4486	1.06		





Area	125.7	in2
Ix	20,592	in4
Iy	31,603	in4
Sx, top	1,241	in3
Sx, bottom	1,119	in3

Diagonal U39-L40

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-36	-30	-81	-104
Lane 2	CL-625	-37	-30	-81	-105
Lane 3	CL-625	-37	-30	-81	-106
Lane 4	CL-625	-37	-31	-82	-107
Lane 5	CL-625	-37	-31	-83	-108
Lane 6	CL-625	-38	-32	-83	-109
Lane 7	CL-625	-38	-32	-83	-110
Lane 8	CL-625	-38	-32	-84	-111
Total		**-297**	**-248**	**-657**	**-860**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (125.7)\ 33.0 = 3{,}940 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (125.7)\ 60.0 = 6{,}089 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 51.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 41.8$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (126)\ 33\ (1 + \lambda^{2n})^{-1/n} = 3{,}243 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1119\ (33) = 2{,}923 \text{ k-ft} \quad (Lu=0)$$

Length = 61.39 ft

Fact'rd comp, Cf = -1458 kips

comp D / C = 0.450

Fact'rd comp LL = -860 kips

Fact'rd moment, Mf = 474 k-ft

Moment D / C = 0.162

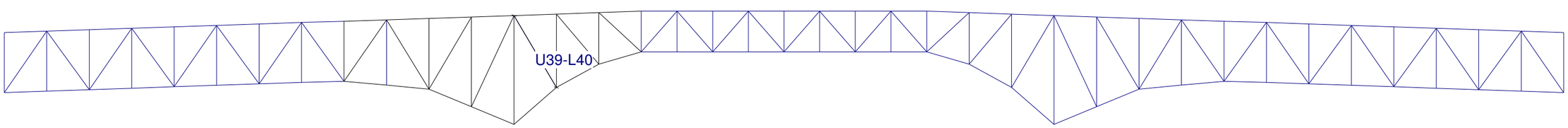
Combined interaction eqn = 0.61

Governing fact'rd tension, Tf = 481 k

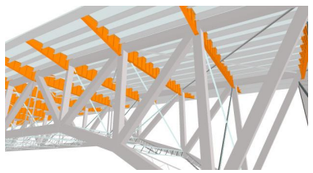
tension D / C = 0.122

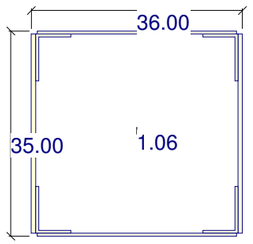
Fact'rd tension LL = 907 kips

Load rating LLCF = 2.28



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U39-L40	Compression	kips	S1	E1	INSP3	4.00	38	-520	-	0.95	1.22	1.55	42	-634	-	Static det.	Other	-486	0	1.77	-860	3243	1.01	2.28	0.61
	corresp. Moment	k-ft					-107	-161	-				-119	-196	-			-99			-176	2923	1.06		





Area	105.5	in2
Ix	18,867	in4
Iy	25,928	in4
Sx, top	1,147	in3
Sx, bottom	1,017	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	72	49	159	188
Lane 2	CL-625	65	46	143	174
Lane 3	CL-625	58	44	128	160
Lane 4	CL-625	50	42	112	146
Lane 5	CL-625	42	39	93	129
Lane 6	CL-625	36	37	79	117
Lane 7	CL-625	32	35	70	107
Lane 8	CL-625	29	33	65	100
Total		**384**	**326**	**849**	**1121**

Diagonal U40-L41

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (105.5)\ 33.0 = 3{,}309 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 39.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.42$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 33.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (106)\ 33\ (1 + \lambda^{2n})^{-1/n} = 2{,}925 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1017\ (33) = 2{,}656 \text{ k-ft} \quad (Lu=0)$$

Length = 48.31 ft

Fact'rd tension, Tf = 1294 kips

tension D / C = 0.391

Fact'rd tension LL = 1121 kips

Fact'rd moment, Mf = 120 k-ft

Moment D / C = 0.045

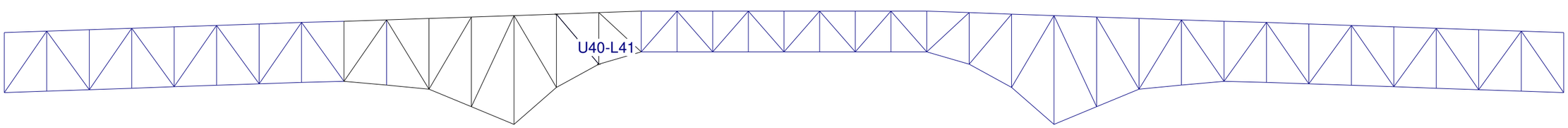
Combined interaction eqn = 0.44

Governing fact'rd comp, Cf = -672 k

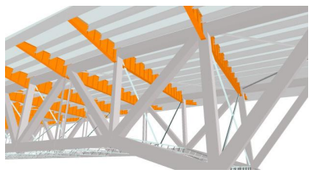
comp D / C = 0.230

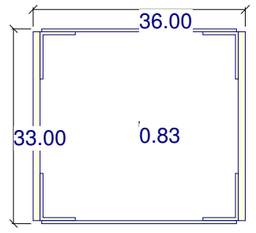
Fact'rd comp LL = -762 kips

Load rating LLCF = 1.91



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U40-L41	Tension	kips	S1	E1	INSP3	4.00	262	-130	-	1.11	0.90	1.55	290	-159	-	Static det.	Other	633	0	1.77	1121	3309	1.01	1.91	0.44
	corresp. Moment	k-ft					-155	-52	-				-172	-64	-			192			339	2656	1.06		





Area	129.4	in2
Ix	18,489	in4
Iy	32,479	in4
Sx, top	1,180	in3
Sx, bottom	1,067	in3

Diagonal U41-L42

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	88	61	194	233
Lane 2	CL-625	77	56	171	209
Lane 3	CL-625	67	51	149	185
Lane 4	CL-625	57	46	126	162
Lane 5	CL-625	45	40	99	133
Lane 6	CL-625	35	34	77	110
Lane 7	CL-625	26	29	57	88
Lane 8	CL-625	20	24	44	71
Total		**415**	**342**	**917**	**1192**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (129.4)\ 33.0 = 4{,}058$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (96.0)\ 60.0 = 4{,}651$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1067\ (33) = 2{,}787$ k-ft (Lu=0)

Length = 42.53 ft

Fact'rd tension, Tf = 2178 kips

tension D / C = 0.537

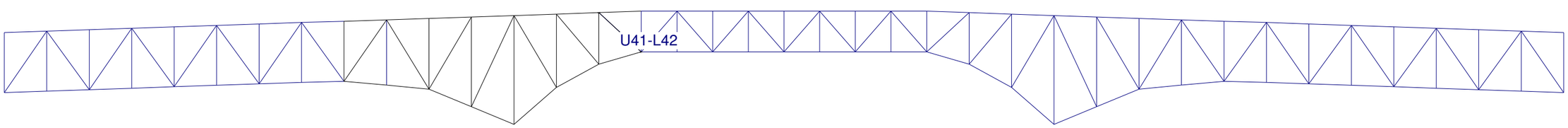
Fact'rd tension LL = 1192 kips

Fact'rd moment, Mf = 185 k-ft

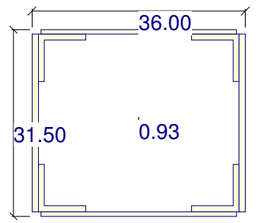
Moment D / C = 0.066

Combined interaction eqn = 0.60

Load rating LLCF = 1.79



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U41-L42	Tension	kips	S1	E1	INSP3	4.00	497	355	-	1.11	1.22	1.55	552	434	-	Static det.	Other	674	0	1.77	1192	4058	1.01	1.79	0.60
	corresp. Moment	k-ft					-161	-158	-				-179	-192	-			105			187	2787	1.06		



Area	163.4	in2
Ix	23,937	in4
Iy	37,054	in4
Sx, top	1,615	in3
Sx, bottom	1,435	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-81	-66	-179	-232
Lane 2	CL-625	-68	-57	-150	-197
Lane 3	CL-625	-54	-48	-121	-163
Lane 4	CL-625	-41	-40	-91	-129
Lane 5	CL-625	-26	-29	-57	-88
Lane 6	CL-625	-13	-20	-28	-54
Lane 7	CL-625	-12	-11	-26	-37
Lane 8	CL-625	-11	-9	-24	-32
Total		**-305**	**-282**	**-675**	**-931**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 35.5\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.38$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.5$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(163)\,33\,(1+\lambda^{2n})^{-1/n} = 4{,}596 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1435\,(33) = 3{,}749 \text{ k-ft} \quad (Lu=0)$$

Length = 39.80 ft

Fact'rd comp, Cf = -2798 kips

comp D / C = 0.609

Fact'rd comp LL = -931 kips

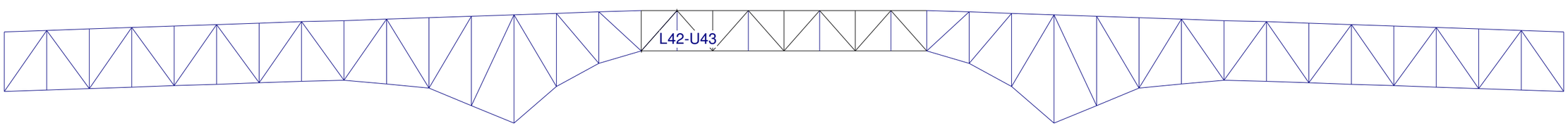
Fact'rd moment, Mf = 204 k-ft

Moment D / C = 0.054

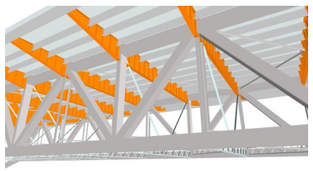
Combined interaction eqn = 0.66

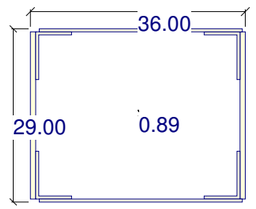
Load rating LLCF = 2.28

Diagonal L42-U43



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L42-U43	Compression	kips	S1	E1	INSP3	4.00	-615	-971	-	1.11	1.22	1.55	-683	-1185	-	Static det.	Other	-526	0	1.77	-931	4596	1.01	2.28	0.66
	corresp. Moment	k-ft					-145	-125	-				-161	-152	-			62			110	3749	1.06		





Area	103.5	in2
Ix	12,478	in4
Iy	25,099	in4
Sx, top	917	in3
Sx, bottom	811	in3

Diagonal U43-L44

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	64	48	141	175
Lane 2	CL-625	54	42	119	150
Lane 3	CL-625	43	36	96	125
Lane 4	CL-625	33	30	73	100
Lane 5	CL-625	21	23	46	70
Lane 6	CL-625	13	17	29	48
Lane 7	CL-625	12	11	27	37
Lane 8	CL-625	12	10	26	34
Total		**252**	**216**	**557**	**739**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (103.5)\ 33.0 = 3{,}246$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 811\ (33) = 2{,}118$ k-ft (Lu=0)

Length = 39.80 ft

Fact'rd tension, Tf = 1982 kips

tension D / C = 0.610

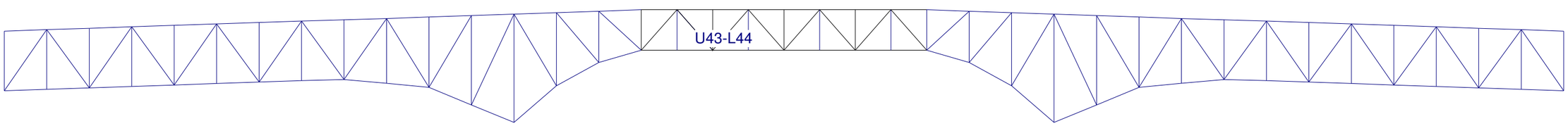
Fact'rd tension LL = 739 kips

Fact'rd moment, Mf = 169 k-ft

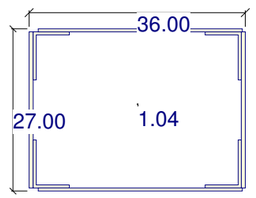
Moment D / C = 0.080

Combined interaction eqn = 0.69

Load rating LLCF = 2.40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U43-L44	Tension	kips	S1	E1	INSP3	4.00	416	640	-	1.11	1.22	1.55	462	780	-	Static det.	Other	418	0	1.77	739	3246	1.01	2.40	0.69
	corresp. Moment	k-ft					-67	-76	-				-75	-93	-			-1			-1	2118	1.06		



Area	86.6	in2
Ix	9,270	in4
Iy	21,295	in4
Sx, top	744	in3
Sx, bottom	638	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-58	-38	-129	-150
Lane 2	CL-625	-49	-34	-108	-129
Lane 3	CL-625	-40	-29	-88	-108
Lane 4	CL-625	-31	-25	-68	-87
Lane 5	CL-625	-20	-19	-44	-63
Lane 6	CL-625	-13	-15	-30	-46
Lane 7	CL-625	-13	-11	-28	-38
Lane 8	CL-625	-12	-10	-27	-36
Total		**-236**	**-182**	**-522**	**-657**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.45$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 27.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(87)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}371 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,638\,(33) = 1{,}666 \text{ k-ft} \quad (Lu=0)$$

Length = 39.80 ft

Fact'rd comp, Cf = -1456 kips

comp D / C = 0.614

Fact'rd comp LL = -657 kips

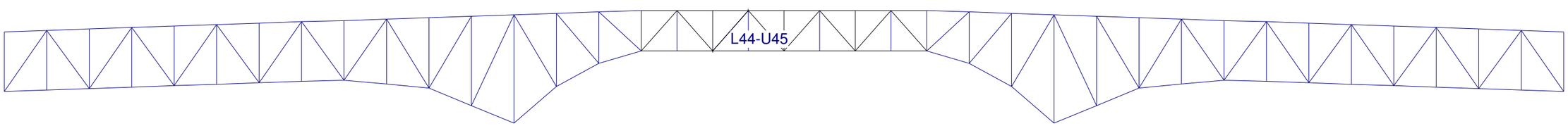
Fact'rd moment, Mf = 47 k-ft

Moment D / C = 0.028

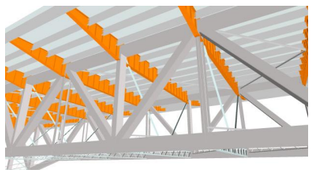
Combined interaction eqn = 0.64

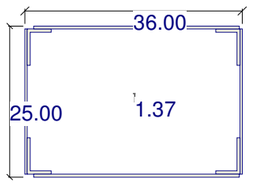
Load rating LLCF = 1.98

Diagonal L44-U45



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L44-U45	Compression	kips	S1	E1	INSP3	4.00	-253	-426	-	1.11	1.22	1.55	-281	-519	-	Static det.	Other	-371	0	1.77	-657	2371	1.01	1.98	0.64
	corresp. Moment	k-ft					-49	-40	-				-54	-48	-			31			55	1666	1.06		





Area	60.8	in2
Ix	6,297	in4
Iy	14,275	in4
Sx, top	566	in3
Sx, bottom	454	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	43	22	96	100
Lane 2	CL-625	37	20	81	87
Lane 3	CL-625	30	18	67	74
Lane 4	CL-625	23	16	52	61
Lane 5	CL-625	16	13	35	46
Lane 6	CL-625	13	12	29	39
Lane 7	CL-625	13	11	28	37
Lane 8	CL-625	12	10	26	35
Total		**187**	**122**	**414**	**481**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (60.8)\ 33.0 = 1{,}906$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (47.0)\ 60.0 = 2{,}277$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 42.2\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.45$$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 28.1$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\ (61)\ 33\ (1+\lambda^{2n})^{-1/n} = 1{,}659 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 454\ (33) = 1{,}186$ k-ft (Lu=0)

Diagonal U45-L46

Length = 39.80 ft

Fact'rd tension, Tf = 707 kips

tension D / C = 0.371

Fact'rd tension LL = 481 kips

Fact'rd moment, Mf = 5 k-ft

Moment D / C = 0.004

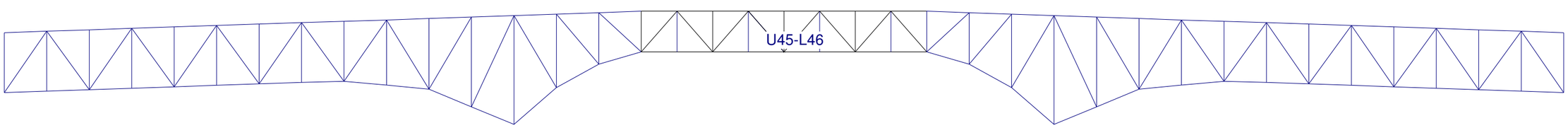
Combined interaction eqn = 0.38

Governing fact'rd comp, Cf = -228 k

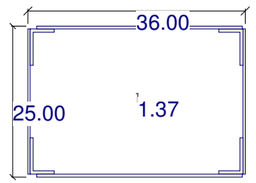
comp D / C = 0.138

Fact'rd comp LL = -407 kips

Load rating LLCF = 3.07



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U45-L46	Tension	kips	S1	E1	INSP3	4.00	86	107	-	1.11	1.22	1.55	96	131	-	Static det.	Other	272	0	1.77	481	1906	1.01	3.07	0.38
	corresp. Moment	k-ft					-21	-12	-				-23	-15	-			19			33	1186	1.06		



Area	60.8	in2
Ix	6,297	in4
Iy	14,275	in4
Sx, top	566	in3
Sx, bottom	454	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	39	20	86	90
Lane 2	CL-625	33	18	74	80
Lane 3	CL-625	28	17	62	70
Lane 4	CL-625	23	16	50	60
Lane 5	CL-625	16	14	36	48
Lane 6	CL-625	12	13	26	40
Lane 7	CL-625	10	11	23	35
Lane 8	CL-625	9	10	20	31
Total		**171**	**119**	**378**	**453**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (60.8)\ 33.0 = 1{,}906$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (47.0)\ 60.0 = 2{,}277$ kips

Clause 10.9.3.1- Axial Compressive Resistance

$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 42.2\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.45$

$n = 1.34;\qquad \frac{KL_y}{r_y} = 28.1$

$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (61)\ 33\ (1 + \lambda^{2n})^{-1/n} = 1{,}659$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 454\ (33) = 1{,}186$ k-ft (Lu=0)

Length = 39.80 ft

Fact'rd tension, Tf = 664 kips

tension D / C = 0.349

Fact'rd tension LL = 453 kips

Fact'rd moment, Mf = 9 k-ft

Moment D / C = 0.007

Combined interaction eqn = 0.36

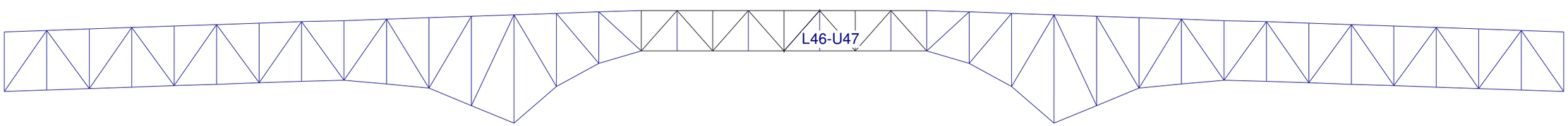
Governing fact'rd comp, Cf = -251 k

comp D / C = 0.151

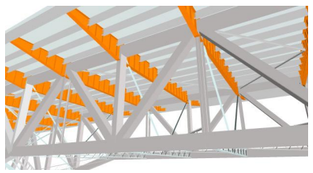
Fact'rd comp LL = -416 kips

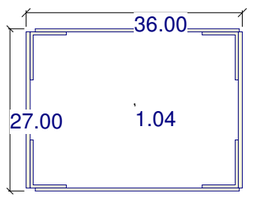
Load rating LLCF = 3.20

Diagonal L46-U47



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L46-U47	Tension	kips	S1	E1	INSP3	4.00	70	109	-	1.11	1.22	1.55	78	133	-	Static det.	Other	256	0	1.77	453	1906	1.01	3.20	0.36
	corresp. Moment	k-ft					-20	-12	-				-22	-15	-			26			46	1186	1.06		





Area	86.6	in2
Ix	9,270	in4
Iy	21,295	in4
Sx, top	744	in3
Sx, bottom	638	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-53	-36	-117	-139
Lane 2	CL-625	-45	-32	-99	-121
Lane 3	CL-625	-37	-28	-83	-103
Lane 4	CL-625	-30	-25	-66	-86
Lane 5	CL-625	-21	-20	-46	-65
Lane 6	CL-625	-13	-16	-29	-47
Lane 7	CL-625	-10	-13	-23	-37
Lane 8	CL-625	-9	-9	-19	-28
Total		**-217**	**-179**	**-480**	**-625**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 41.5\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.45$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 27.4$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(87)\,33\,(1+\lambda^{2n})^{-1/n} = 2{,}371 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,638\,(33) = 1{,}666 \text{ k-ft} \quad (Lu=0)$$

Length = 39.80 ft

Fact'rd comp, Cf = -1409 kips

comp D / C = 0.594

Fact'rd comp LL = -625 kips

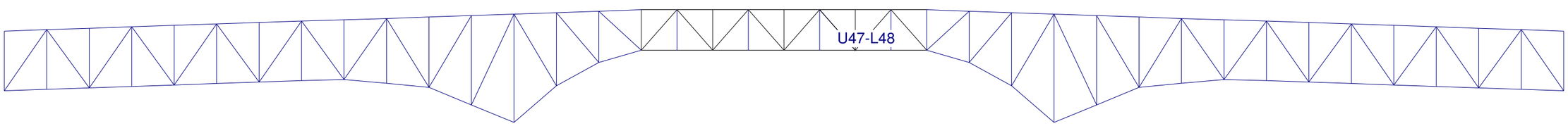
Fact'rd moment, Mf = 30 k-ft

Moment D / C = 0.018

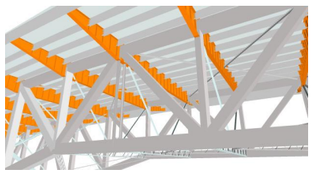
Combined interaction eqn = 0.61

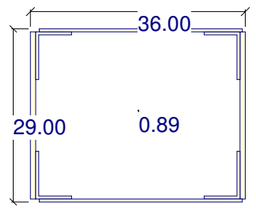
Load rating LLCF = 2.04

Diagonal U47-L48



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U47-L48	Compression	kips	S1	E1	INSP3	4.00	-236	-428	-	1.11	1.22	1.55	-262	-522	-	Static det.	Other	-353	0	1.77	-625	2371	1.01	2.04	0.61
	corresp. Moment	k-ft					-47	-40	-				-52	-49	-			40			71	1666	1.06		





Area	103.5	in2
Ix	12,478	in4
Iy	25,099	in4
Sx, top	917	in3
Sx, bottom	811	in3

Diagonal L48-U49

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	60	46	132	165
Lane 2	CL-625	50	40	112	143
Lane 3	CL-625	41	35	91	121
Lane 4	CL-625	32	30	71	98
Lane 5	CL-625	21	24	47	72
Lane 6	CL-625	13	18	28	50
Lane 7	CL-625	10	13	22	37
Lane 8	CL-625	8	8	19	25
Total		**236**	**213**	**522**	**712**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (103.5)\ 33.0 = 3{,}246$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 811\ (33) = 2{,}118$ k-ft (Lu=0)

Length = 39.80 ft

Fact'rd tension, Tf = 1939 kips

tension D / C = 0.597

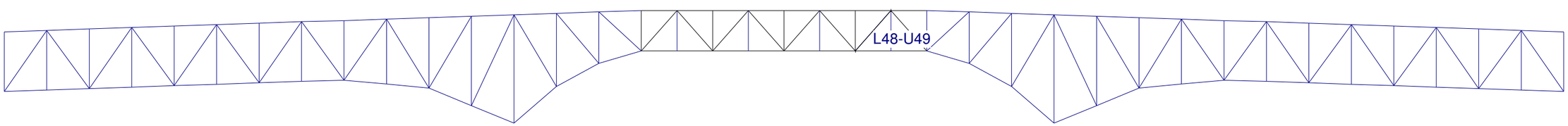
Fact'rd tension LL = 712 kips

Fact'rd moment, Mf = 156 k-ft

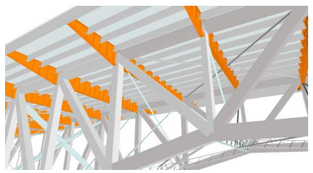
Moment D / C = 0.074

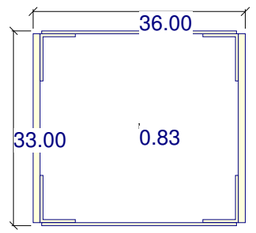
Combined interaction eqn = 0.67

Load rating LLCF = 2.46



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L48-U49	Tension	kips	S1	E1	INSP3	4.00	400	642	-	1.11	1.22	1.55	444	783	-	Static det.	Other	402	0	1.77	712	3246	1.01	2.46	0.67
	corresp. Moment	k-ft					-65	-77	-				-72	-93	-			6			10	2118	1.06		





Area	129.4	in2
Ix	18,489	in4
Iy	32,479	in4
Sx, top	1,180	in3
Sx, bottom	1,067	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	88	62	195	235
Lane 2	CL-625	78	57	172	210
Lane 3	CL-625	67	51	149	186
Lane 4	CL-625	57	46	126	162
Lane 5	CL-625	44	40	98	133
Lane 6	CL-625	34	34	75	109
Lane 7	CL-625	25	29	55	86
Lane 8	CL-625	20	23	44	70
Total		**413**	**342**	**914**	**1191**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (129.4)\ 33.0 = 4{,}058$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (96.0)\ 60.0 = 4{,}651$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1067\ (33) = 2{,}787$ k-ft (Lu=0)

Length = 42.53 ft

Fact'rd tension, Tf = 2176 kips

tension D / C = 0.536

Fact'rd tension LL = 1191 kips

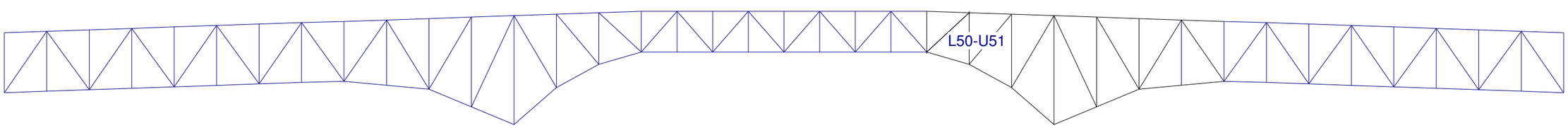
Fact'rd moment, Mf = 194 k-ft

Moment D / C = 0.070

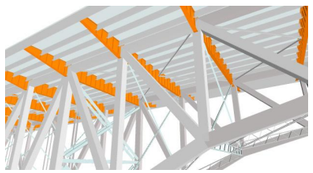
Combined interaction eqn = 0.61

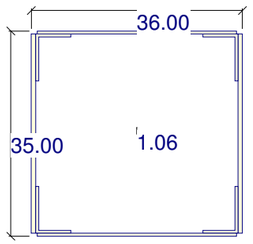
Load rating LLCF = 1.79

Diagonal L50-U51



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L50-U51	Tension	kips	S1	E1	INSP3	4.00	497	356	-	1.11	1.22	1.55	552	434	-	Static det.	Other	673	0	1.77	1191	4058	1.01	1.79	0.61
	corresp. Moment	k-ft					-160	-158	-				-177	-192	-			99			176	2787	1.06		





Area	105.5	in2
Ix	18,867	in4
Iy	25,928	in4
Sx, top	1,147	in3
Sx, bottom	1,017	in3

Diagonal L51-U52

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	74	52	164	198
Lane 2	CL-625	66	49	147	181
Lane 3	CL-625	59	46	130	164
Lane 4	CL-625	51	43	112	147
Lane 5	CL-625	41	39	92	127
Lane 6	CL-625	34	35	75	110
Lane 7	CL-625	28	32	63	97
Lane 8	CL-625	25	29	56	87
Total		**379**	**325**	**838**	**1111**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (105.5)\ 33.0 = 3{,}309 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (79.0)\ 60.0 = 3{,}828 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 39.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.42$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 33.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (106)\ 33\ (1 + \lambda^{2n})^{-1/n} = 2{,}925 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1017\ (33) = 2{,}656 \text{ k-ft} \quad (Lu=0)$$

Length = 48.31 ft

Fact'rd tension, Tf = 1294 kips

tension D / C = 0.391

Fact'rd tension LL = 1111 kips

Fact'rd moment, Mf = 115 k-ft

Moment D / C = 0.043

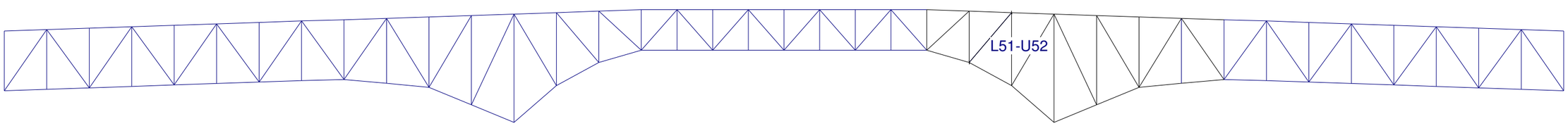
Combined interaction eqn = 0.43

Governing fact'rd comp, Cf = -677 k

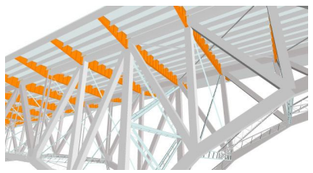
comp D / C = 0.232

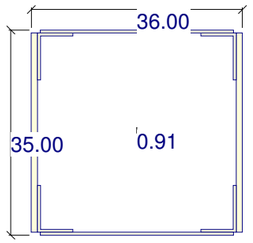
Fact'rd comp LL = -774 kips

Load rating LLCF = 1.91



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L51-U52	Tension	kips	S1	E1	INSP3	4.00	271	-131	-	1.11	0.90	1.55	301	-160	-	Static det.	Other	628	0	1.77	1111	3309	1.01	1.91	0.43
	corresp. Moment	k-ft					-156	-52	-				-173	-64	-			190			335	2656	1.06		





Area	125.7	in2
Ix	20,592	in4
Iy	31,603	in4
Sx, top	1,241	in3
Sx, bottom	1,119	in3

Diagonal L52-U53

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-45	-42	-98	-137
Lane 2	CL-625	-43	-39	-94	-130
Lane 3	CL-625	-41	-37	-90	-123
Lane 4	CL-625	-39	-35	-86	-117
Lane 5	CL-625	-36	-32	-80	-109
Lane 6	CL-625	-34	-30	-76	-102
Lane 7	CL-625	-32	-28	-71	-95
Lane 8	CL-625	-30	-26	-67	-89
Total		**-300**	**-270**	**-663**	**-901**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (125.7)\ 33.0 = 3{,}940 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (125.7)\ 60.0 = 6{,}089 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 51.8\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 41.8$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (126)\ 33\ (1 + \lambda^{2n})^{-1/n} = 3{,}243 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1119\ (33) = 2{,}923 \text{ k-ft} \quad (Lu=0)$$

Length = 61.39 ft

Fact'rd comp, Cf = -1488 kips

comp D / C = 0.459

Fact'rd comp LL = -901 kips

Fact'rd moment, Mf = 500 k-ft

Moment D / C = 0.171

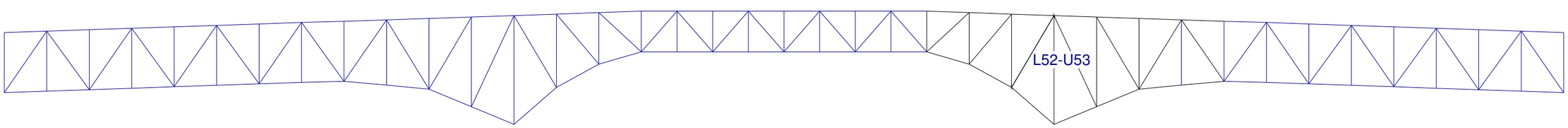
Combined interaction eqn = 0.63

Governing fact'rd tension, Tf = 476 k

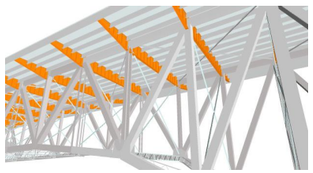
tension D / C = 0.121

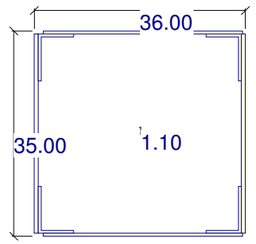
Fact'rd tension LL = 888 kips

Load rating LLCF = 2.16



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L52-U53	Compression	kips	S1	E1	INSP3	4.00	52	-521	-	0.95	1.22	1.55	58	-636	-	Static det.	Other	-509	0	1.77	-901	3243	1.01	2.16	0.63
	corresp. Moment	k-ft					-109	-161	-				-121	-197	-			-113			-200	2923	1.06		





Area	101.3	in2
Ix	18,456	in4
Iy	24,727	in4
Sx, top	1,125	in3
Sx, bottom	992	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	56	37	125	144
Lane 2	CL-625	48	31	106	124
Lane 3	CL-625	40	26	88	103
Lane 4	CL-625	32	21	70	82
Lane 5	CL-625	21	15	46	56
Lane 6	CL-625	13	10	28	36
Lane 7	CL-625	5	5	12	17
Lane 8	CL-625	2	2	5	6
Total		**217**	**147**	**481**	**568**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (101.3)\ 33.0 = 3{,}177$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (76.0)\ 60.0 = 3{,}682$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 992\ (33) = 2{,}592$ k-ft (Lu=0)

Diagonal U54-L55

Length = 61.52 ft

Fact'rd tension, Tf = 2079 kips

tension D / C = 0.655

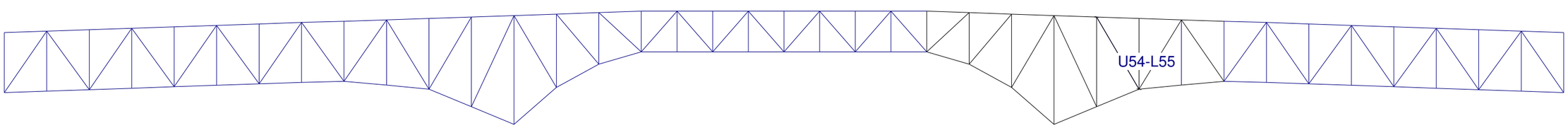
Fact'rd tension LL = 568 kips

Fact'rd moment, Mf = 285 k-ft

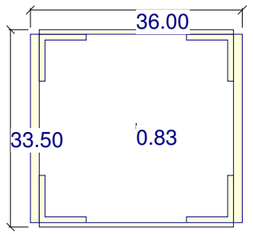
Moment D / C = 0.110

Combined interaction eqn = 0.76

Load rating LLCF = 1.98



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U54-L55	Tension	kips	S1	E1	INSP3	4.00	446	833	-	1.11	1.22	1.55	495	1016	-	Static det.	Other	321	0	1.77	568	3177	1.01	1.98	0.76
	corresp. Moment	k-ft					-194	255	-				-215	312	-			106			188	2592	1.06		



Area	195.6	in2
Ix	30,186	in4
Iy	45,417	in4
Sx, top	1,896	in3
Sx, bottom	1,717	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-84	-64	-185	-232
Lane 2	CL-625	-72	-55	-159	-199
Lane 3	CL-625	-60	-46	-133	-167
Lane 4	CL-625	-48	-37	-107	-134
Lane 5	CL-625	-35	-27	-77	-97
Lane 6	CL-625	-23	-19	-51	-66
Lane 7	CL-625	-12	-11	-27	-36
Lane 8	CL-625	-3	-3	-7	-9
Total		**-337**	**-262**	**-746**	**-942**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 51.9\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.56$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 42.3$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(196)\,33\,(1+\lambda^{2n})^{-1/n} = 5{,}044 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1717\,(33) = 4{,}486 \text{ k-ft} \quad (Lu=0)$$

Length = 59.68 ft

Fact'rd comp, Cf = -3533 kips

comp D / C = 0.701

Fact'rd comp LL = -942 kips

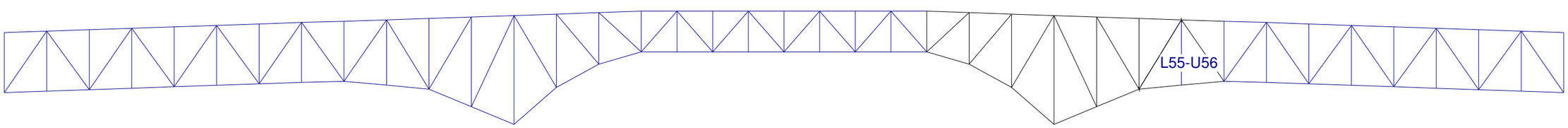
Fact'rd moment, Mf = 738 k-ft

Moment D / C = 0.164

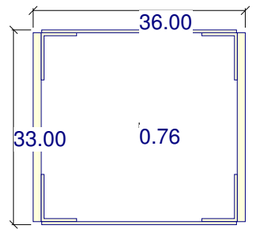
Combined interaction eqn = 0.86

Load rating LLCF = 1.67

Diagonal L55-U56



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L55-U56	Compression	kips	S1	E1	INSP3	4.00	-718	-1471	-	1.11	1.22	1.55	-797	-1794	-	Static det.	Other	-532	0	1.77	-942	5044	1.01	1.67	0.86
	corresp. Moment	k-ft					-222	-236	-				-246	-288	-			-115			-204	4486	1.06		



Area	141.4	in2
Ix	19,518	in4
Iy	35,670	in4
Sx, top	1,240	in3
Sx, bottom	1,131	in3

Diagonal U56-L57

	Truck Name	LL Axial demands (kips) Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	73	52	161	195
Lane 2	CL-625	63	45	139	169
Lane 3	CL-625	53	38	117	142
Lane 4	CL-625	43	31	95	116
Lane 5	CL-625	31	23	68	84
Lane 6	CL-625	21	16	46	58
Lane 7	CL-625	11	9	24	32
Lane 8	CL-625	6	3	12	14
Total		**300**	**217**	**664**	**810**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (141.4)\ 33.0 = 4{,}433$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (104.0)\ 60.0 = 5{,}039$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 1131\ (33) = 2{,}955$ k-ft (Lu=0)

Length = 54.85 ft

Fact'rd tension, Tf = 2937 kips

tension D / C = 0.662

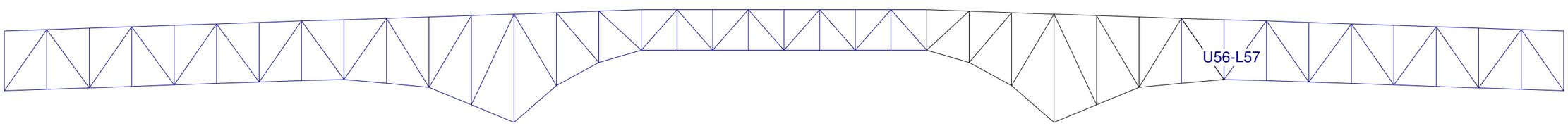
Fact'rd tension LL = 810 kips

Fact'rd moment, Mf = 150 k-ft

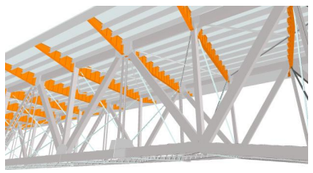
Moment D / C = 0.051

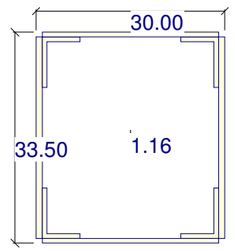
Combined interaction eqn = 0.71

Load rating LLCF = 2.34



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U56-L57	Tension	kips	S1	E1	INSP3	4.00	588	1208	-	1.11	1.22	1.55	653	1474	-	Static det.	Other	457	0	1.77	810	4433	1.01	2.34	0.71
	corresp. Moment	k-ft					-106	-71	-				-118	-87	-			30			54	2955	1.06		





Area	136.1	in2
Ix	21,381	in4
Iy	22,476	in4
Sx, top	1,372	in3
Sx, bottom	1,194	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-78	-49	-173	-196
Lane 2	CL-625	-67	-42	-148	-168
Lane 3	CL-625	-56	-35	-123	-140
Lane 4	CL-625	-45	-28	-99	-112
Lane 5	CL-625	-31	-20	-68	-79
Lane 6	CL-625	-20	-14	-44	-53
Lane 7	CL-625	-9	-8	-20	-27
Lane 8	CL-625	-8	-2	-17	-14
Total		**-313**	**-197**	**-691**	**-792**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 48.3\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.52$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 44.6$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(136)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}590 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1194\,(33) = 3{,}118 \text{ k-ft} \quad (Lu=0)$$

Length = 53.10 ft

Fact'rd comp, Cf = -2662 kips

comp D / C = 0.742

Fact'rd comp LL = -792 kips

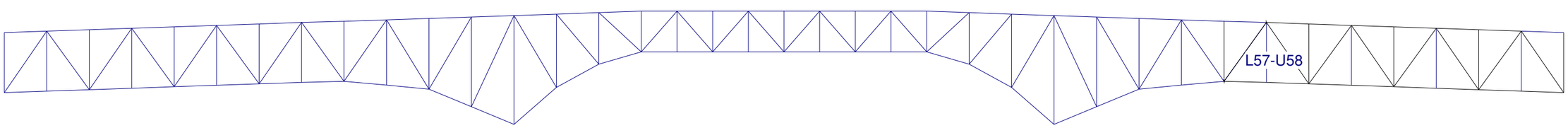
Fact'rd moment, Mf = 126 k-ft

Moment D / C = 0.040

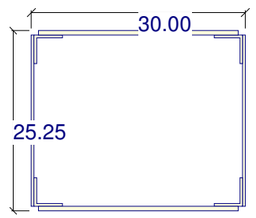
Combined interaction eqn = 0.78

Load rating LLCF = 1.98

Diagonal L57-U58



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L57-U58	Compression	kips	S1	E1	INSP3	4.00	-498	-1080	-	1.11	1.22	1.55	-553	-1318	-	Static det.	Other	-447	0	1.77	-792	3590	1.01	1.98	0.78
	corresp. Moment	k-ft					-128	6	-				-142	7	-			5			9	3118	1.06		



Area	29.4	in2
Ix	2,231	in4
Iy	6,047	in4
Sx, top	177	in3
Sx, bottom	177	in3

Diagonal U60-L61

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	33	2	72	50
Lane 2	CL-625	28	2	62	44
Lane 3	CL-625	24	3	53	38
Lane 4	CL-625	19	3	43	32
Lane 5	CL-625	14	3	31	25
Lane 6	CL-625	10	3	21	19
Lane 7	CL-625	5	4	12	14
Lane 8	CL-625	8	4	18	19
Total		**141**	**24**	**312**	**242**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (29.4)\ 33.0 = 923 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (22.0)\ 60.0 = 1{,}066 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 68.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.73$$

$$n = 1.34; \qquad \frac{KL_y}{r_{y,eff}} = 41.3$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (29)\ 33\ (1 + \lambda^{2n})^{-1/n} = 669 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 177\ (33) = 462 \text{ k-ft} \quad (Lu=0)$$

Length = 54.85 ft

Fact'rd tension, Tf = 534 kips

tension D / C = 0.579

Fact'rd tension LL = 312 kips

Fact'rd moment, Mf = 18 k-ft

Moment D / C = 0.038

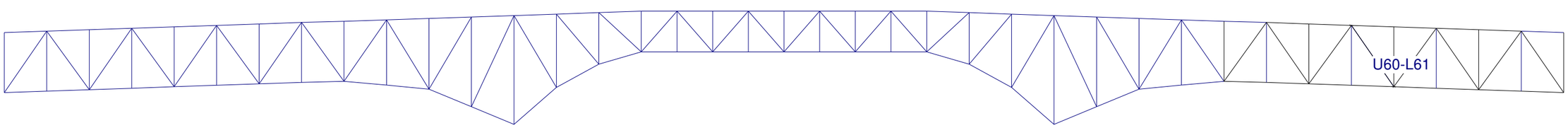
Combined interaction eqn = 0.62

Governing fact'rd comp, Cf = -70 kip

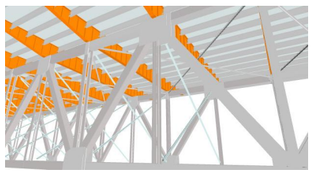
comp D / C = 0.105

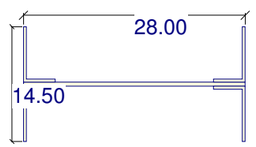
Fact'rd comp LL = -243 kips

Load rating LLCF = 1.98



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U60-L61	Tension	kips	S1	E1	INSP3	4.00	66	122	-	1.11	1.22	1.55	73	149	-	Static det.	Other	141	0.25	1.77	312	923	1.01	1.98	0.62
	corresp. Moment	k-ft					-17	12	-				-19	15	-			10			21	462	1.06		





Area	15.9	in2
Ix	192	in4
Iy	2,768	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**1**	**0**	**1**	**1**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 14 kips

tension D / C = 0.027

Fact'rd tension LL = 1 kips

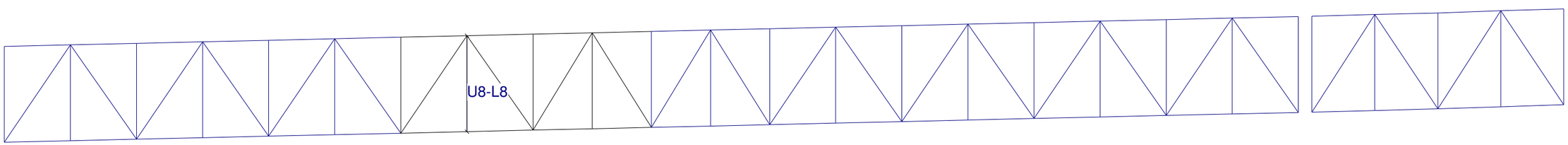
Fact'rd moment, Mf = 7 k-ft

Moment D / C = 0.094

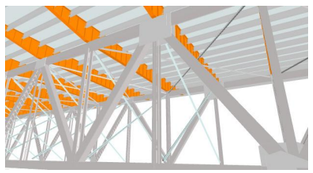
Combined interaction eqn = 0.12

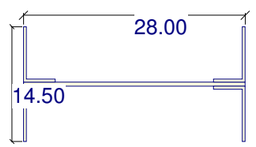
Load rating LLCF = 123.92

Vertical U8-L8



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U8-L8	Tension	kips	S1	E1	INSP3	4.00	13	-3	-	1.11	0.90	1.55	15	-4	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					2	5	-				2	6	-			0			0	69	1.06		





Area	15.9	in2
Ix	192	in4
Iy	2,768	in4
Sx, top	26	in3
Sx, bottom	26	in3

Vertical U14-L14

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**1**	**0**	**1**	**1**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 12 kips

tension D / C = 0.024

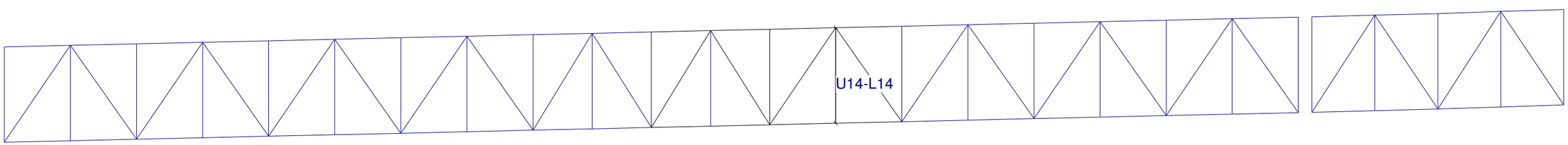
Fact'rd tension LL = 1 kips

Fact'rd moment, Mf = 6 k-ft

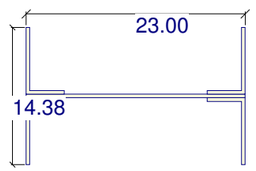
Moment D / C = 0.094

Combined interaction eqn = 0.12

Load rating LLCF = 133.68



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U14-L14	Tension	kips	S1	E1	INSP3	4.00	13	-4	-	1.11	0.90	1.55	15	-5	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					-2	-5	-				-2	-6	-			0			0	69	1.06		



Area	15.9	in2
Ix	186	in4
Iy	1,821	in4
Sx, top	26	in3
Sx, bottom	26	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**1**	**0**	**1**	**1**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 68$ k-ft (Lu=0)

Length = 38.00 ft

Fact'rd tension, Tf = 12 kips

tension D / C = 0.023

Fact'rd tension LL = 1 kips

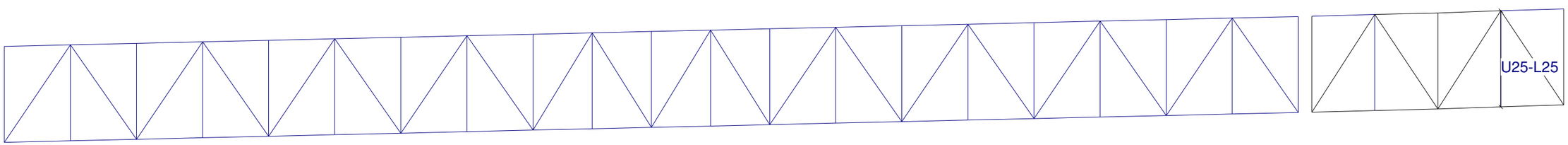
Fact'rd moment, Mf = 0 k-ft

Moment D / C = 0.004

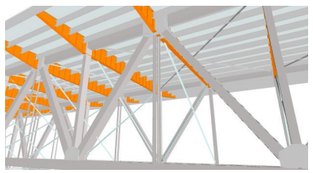
Combined interaction eqn = 0.03

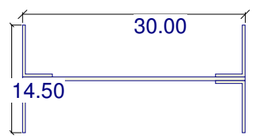
Load rating LLCF = 17.58

Vertical U25-L25



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U25-L25	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	12	-2	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-4	68	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

	Truck Name	LL Axial demands (kips) Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	0	0	1	1
Lane 2	CL-625	0	0	1	1
Lane 3	CL-625	0	0	1	0
Lane 4	CL-625	0	0	1	0
Lane 5	CL-625	0	0	1	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	1	1
Total		**2**	**0**	**5**	**4**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 26 kips

tension D / C = 0.052

Fact'rd tension LL = 5 kips

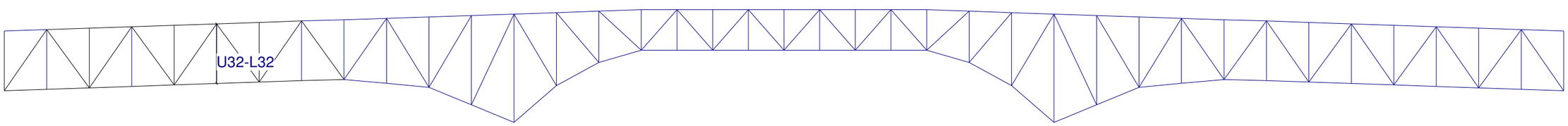
Fact'rd moment, Mf = 0 k-ft

Moment D / C = 0.004

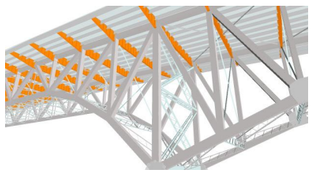
Combined interaction eqn = 0.06

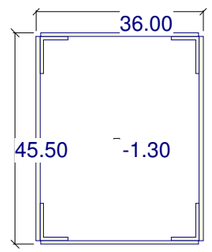
Load rating LLCF = 16.12

Vertical U32-L32



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U32-L32	Tension	kips	S1	E1	INSP3	4.00	21	-2	-	1.11	0.90	1.55	23	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	2	-				1	3	-			-2			-3	69	1.06		





Area	156.2	in2
Ix	53,228	in4
Iy	34,591	in4
Sx, top	2,340	in3
Sx, bottom	2,340	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-70	-50	-154	-186
Lane 2	CL-625	-59	-41	-131	-157
Lane 3	CL-625	-49	-36	-108	-132
Lane 4	CL-625	-39	-30	-86	-109
Lane 5	CL-625	-27	-28	-60	-89
Lane 6	CL-625	-23	-27	-51	-80
Lane 7	CL-625	-23	-25	-50	-76
Lane 8	CL-625	-23	-23	-51	-74
Total		**-312**	**-260**	**-691**	**-903**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 58.0\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.62$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 49.4$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(156)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}856 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2340\,(33) = 6{,}112 \text{ k-ft} \quad (Lu=0)$$

Length = 79.92 ft

Fact'rd comp, Cf = -2255 kips

comp D / C = 0.585

Fact'rd comp LL = -903 kips

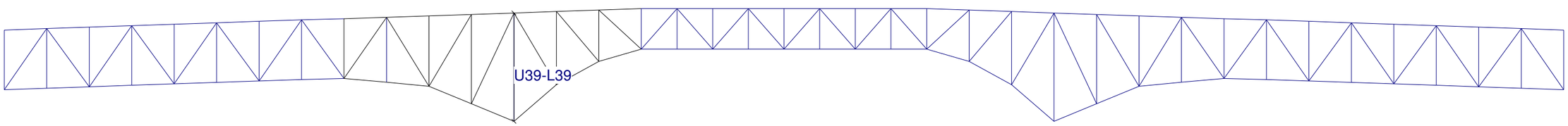
Fact'rd moment, Mf = 251 k-ft

Moment D / C = 0.041

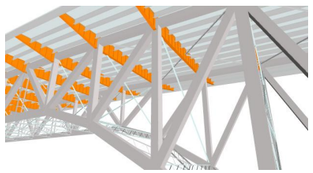
Combined interaction eqn = 0.63

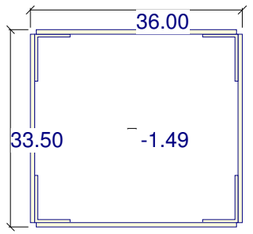
Load rating LLCF = 2.52

Vertical U39-L39



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U39-L39	Compression	kips	S1	E1	INSP3	4.00	-612	-551	-	1.11	1.22	1.55	-679	-672	-	Static det.	Other	-510	0	1.77	-903	3856	1.01	2.52	0.63
	corresp. Moment	k-ft					-66	-190	-				-74	-232	-			31			55	6112	1.06		





Area	116.2	in2
Ix	22,892	in4
Iy	23,318	in4
Sx, top	1,367	in3
Sx, bottom	1,367	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-71	-49	-157	-188
Lane 2	CL-625	-62	-46	-137	-168
Lane 3	CL-625	-53	-42	-117	-149
Lane 4	CL-625	-44	-38	-97	-130
Lane 5	CL-625	-34	-34	-75	-108
Lane 6	CL-625	-27	-30	-59	-91
Lane 7	CL-625	-24	-27	-52	-80
Lane 8	CL-625	-22	-23	-48	-71
Total		**-336**	**-288**	**-743**	**-986**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (116.2)\ 33.0 = 3{,}642 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.2)\ 60.0 = 5{,}628 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.45$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 41.1$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (116)\ 33\ (1 + \lambda^{2n})^{-1/n} = 3{,}182 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1367\ (33) = 3{,}570 \text{ k-ft} \quad (Lu=0)$$

Length = 53.92 ft

Fact'rd comp, Cf = -1497 kips

comp D / C = 0.470

Fact'rd comp LL = -986 kips

Fact'rd moment, Mf = 19 k-ft

Moment D / C = 0.005

Combined interaction eqn = 0.48

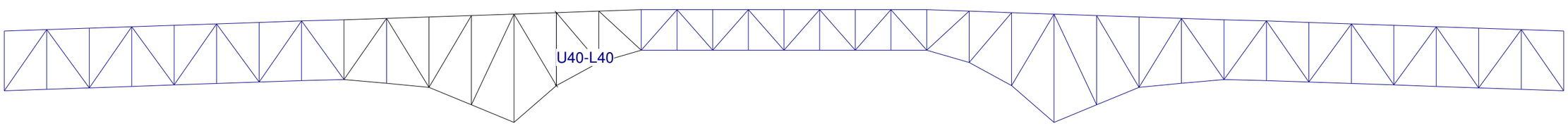
Governing fact'rd tension, Tf = 127 k

tension D / C = 0.035

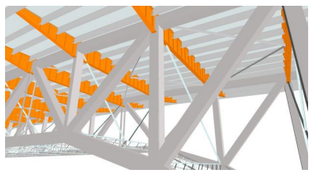
Fact'rd tension LL = 544 kips

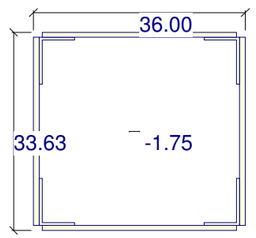
Load rating LLCF = 2.16

Vertical U40-L40



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U40-L40	Compression	kips	S1	E1	INSP3	4.00	-310	-138	-	1.11	1.22	1.55	-344	-168	-	Static det.	Other	-557	0	1.77	-986	3182	1.01	2.16	0.48
	corresp. Moment	k-ft					93	77	-				103	94	-			-122			-217	3570	1.06		





Area	131.5	in2
Ix	25,026	in4
Iy	26,653	in4
Sx, top	1,488	in3
Sx, bottom	1,488	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-76	-55	-168	-204
Lane 2	CL-625	-66	-49	-146	-180
Lane 3	CL-625	-56	-44	-124	-156
Lane 4	CL-625	-46	-38	-102	-132
Lane 5	CL-625	-34	-31	-75	-104
Lane 6	CL-625	-25	-26	-55	-80
Lane 7	CL-625	-17	-20	-38	-60
Lane 8	CL-625	-13	-14	-29	-44
Total		**-333**	**-277**	**-737**	**-962**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.7\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(132)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}776 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1488\,(33) = 3{,}889 \text{ k-ft} \quad (Lu=0)$$

Length = 37.92 ft

Fact'rd comp, Cf = -2093 kips

comp D / C = 0.554

Fact'rd comp LL = -962 kips

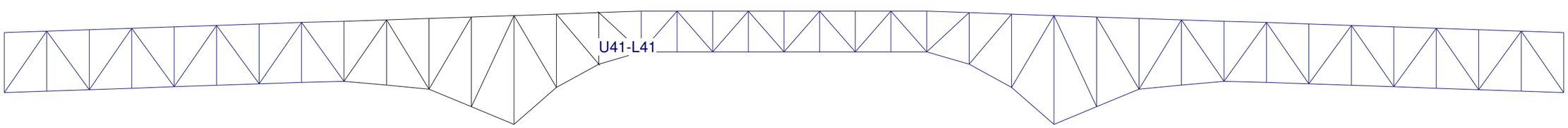
Fact'rd moment, Mf = 284 k-ft

Moment D / C = 0.073

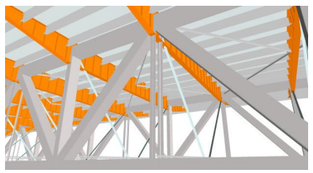
Combined interaction eqn = 0.63

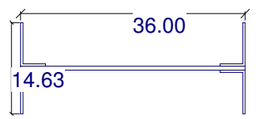
Load rating LLCF = 1.61

Vertical U41-L41



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U41-L41	Compression	kips	S1	E1	INSP3	4.00	-465	-504	-	1.11	1.22	1.55	-516	-615	-	Static det.	Other	-543	0	1.77	-962	3776	1.01	1.61	0.63
	corresp. Moment	k-ft					174	95	-				193	116	-			-335			-593	3889	1.06		





Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	2	1	4	4
Lane 2	CL-625	1	1	3	4
Lane 3	CL-625	1	1	3	3
Lane 4	CL-625	1	1	2	3
Lane 5	CL-625	1	1	2	2
Lane 6	CL-625	1	0	1	2
Lane 7	CL-625	0	0	1	1
Lane 8	CL-625	0	0	1	1
Total		**7**	**5**	**16**	**19**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 29.92 ft

Fact'rd tension, Tf = 43 kips

tension D / C = 0.087

Fact'rd tension LL = 19 kips

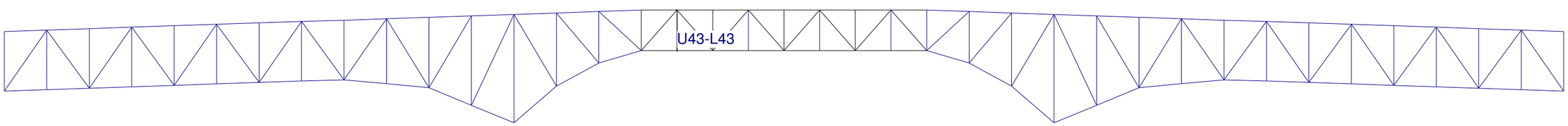
Fact'rd moment, Mf = 4 k-ft

Moment D / C = 0.059

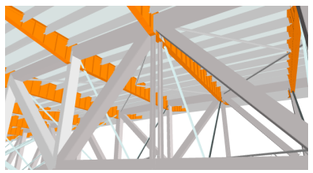
Combined interaction eqn = 0.15

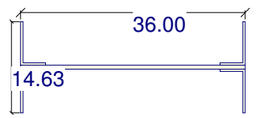
Load rating LLCF = 16.12

Vertical U43-L43



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U43-L43	Tension	kips	S1	E1	INSP3	4.00	24	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.15
	corresp. Moment	k-ft					-2	-3	-				-2	-4	-			1			1	70	1.06		





Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

	Truck Name	LL Axial demands (kips) Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	2	1	3	4
Lane 2	CL-625	1	1	3	3
Lane 3	CL-625	1	1	3	3
Lane 4	CL-625	1	1	2	3
Lane 5	CL-625	1	1	2	2
Lane 6	CL-625	1	0	1	2
Lane 7	CL-625	0	0	1	1
Lane 8	CL-625	0	0	1	1
Total		**7**	**5**	**15**	**19**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 29.92 ft

Fact'rd tension, Tf = 43 kips

tension D / C = 0.086

Fact'rd tension LL = 19 kips

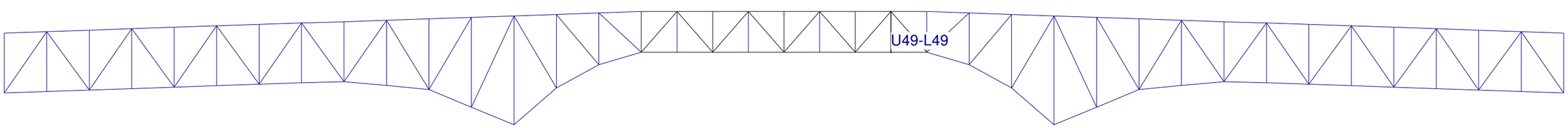
Fact'rd moment, Mf = 4 k-ft

Moment D / C = 0.059

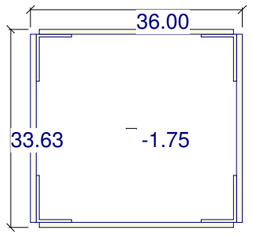
Combined interaction eqn = 0.14

Load rating LLCF = 16.37

Vertical U49-L49



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U49-L49	Tension	kips	S1	E1	INSP3	4.00	25	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.14
	corresp. Moment	k-ft					2	3	-				2	4	-			-1			-1	70	1.06		



Area	131.5	in2
Ix	25,026	in4
Iy	26,653	in4
Sx, top	1,488	in3
Sx, bottom	1,488	in3

LL Axial demands (kips)

	Truck Name	Unfactored: Truck Only	Unfactored: UDL (9 kN/m)	Factored: Truck Only	Factored: UDL + 0.8 Truck
Lane 1	CL-625	-75	-55	-165	-203
Lane 2	CL-625	-65	-49	-144	-179
Lane 3	CL-625	-55	-44	-122	-155
Lane 4	CL-625	-45	-38	-101	-132
Lane 5	CL-625	-34	-31	-76	-104
Lane 6	CL-625	-24	-26	-54	-80
Lane 7	CL-625	-17	-20	-38	-60
Lane 8	CL-625	-14	-15	-30	-45
Total		**-330**	**-277**	**-729**	**-958**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 29.7\left[\frac{F_y}{\pi^2 E_s}\right]^{1/2} = 0.32$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 28.8$$

$$C_{rx} = \phi_s A F_y (1+\lambda^{2n})^{-1/n} = 0.90\,(132)\,33\,(1+\lambda^{2n})^{-1/n} = 3{,}776 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,1488\,(33) = 3{,}889 \text{ k-ft} \quad (Lu=0)$$

Length = 37.92 ft

Fact'rd comp, Cf = -2089 kips

comp D / C = 0.553

Fact'rd comp LL = -958 kips

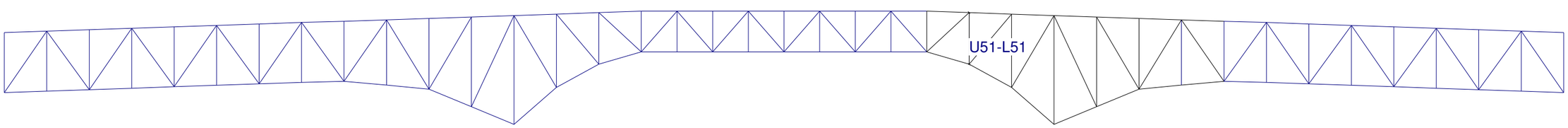
Fact'rd moment, Mf = 283 k-ft

Moment D / C = 0.073

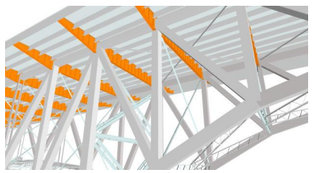
Combined interaction eqn = 0.63

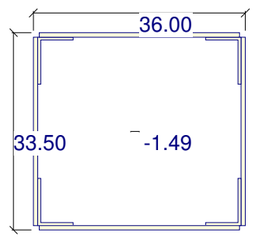
Load rating LLCF = 1.61

Vertical U51-L51



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U51-L51	Compression	kips	S1	E1	INSP3	4.00	-465	-504	-	1.11	1.22	1.55	-516	-615	-	Static det.	Other	-541	0	1.77	-958	3776	1.01	1.61	0.63
	corresp. Moment	k-ft					-176	-95	-				-196	-116	-			336			595	3889	1.06		





Area	116.2	in2
Ix	22,892	in4
Iy	23,318	in4
Sx, top	1,367	in3
Sx, bottom	1,367	in3

LL Axial demands (kips)

	Truck Name	Unfactored Truck Only	Unfactored UDL (9 kN/m)	Factored Truck Only	Factored UDL + 0.8 Truck
Lane 1	CL-625	-72	-52	-159	-193
Lane 2	CL-625	-63	-47	-138	-173
Lane 3	CL-625	-53	-43	-118	-152
Lane 4	CL-625	-44	-39	-98	-131
Lane 5	CL-625	-33	-33	-74	-106
Lane 6	CL-625	-25	-29	-56	-87
Lane 7	CL-625	-21	-24	-47	-73
Lane 8	CL-625	-19	-20	-42	-62
Total		**-331**	**-287**	**-732**	**-976**

Clause 10.8.2 (a)- Axial Tension Resistance

$$T_r = \phi_s A_g F_y = 0.95\ (116.2)\ 33.0 = 3{,}642 \text{ kips}$$

$$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (116.2)\ 60.0 = 5{,}628 \text{ kips}$$

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_x}{r_x}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 41.5\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.45$$

$$n = 1.34; \qquad \frac{KL_y}{r_y} = 41.1$$

$$C_{rx} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\ (116)\ 33\ (1 + \lambda^{2n})^{-1/n} = 3{,}182 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\ 1367\ (33) = 3{,}570 \text{ k-ft} \quad (Lu=0)$$

Length = 53.92 ft

Fact'rd comp, Cf = -1495 kips

comp D / C = 0.470

Fact'rd comp LL = -976 kips

Fact'rd moment, Mf = 194 k-ft

Moment D / C = 0.054

Combined interaction eqn = 0.52

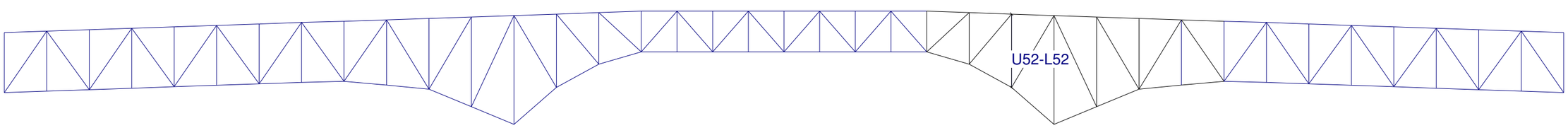
Governing fact'rd tension, Tf = 159 k

tension D / C = 0.044

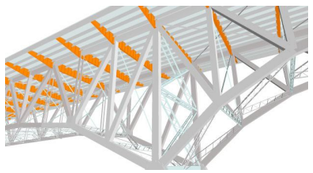
Fact'rd tension LL = 583 kips

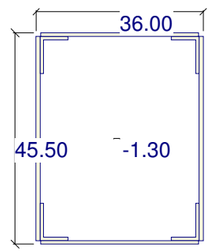
Load rating LLCF = 1.91

Vertical U52-L52



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U52-L52	Compression	kips	S1	E1	INSP3	4.00	-317	-137	-	1.11	1.22	1.55	-351	-167	-	Static det.	Other	-552	0	1.77	-976	3182	1.01	1.91	0.52
	corresp. Moment	k-ft					-97	-78	-				-107	-95	-			224			396	3570	1.06		





Area	156.2	in2
Ix	53,228	in4
Iy	34,591	in4
Sx, top	2,340	in3
Sx, bottom	2,340	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	-70	-49	-155	-186
Lane 2	CL-625	-59	-44	-131	-162
Lane 3	CL-625	-49	-40	-107	-139
Lane 4	CL-625	-38	-36	-84	-117
Lane 5	CL-625	-27	-31	-59	-93
Lane 6	CL-625	-21	-27	-47	-78
Lane 7	CL-625	-20	-23	-44	-68
Lane 8	CL-625	-20	-19	-43	-61
Total		**-303**	**-268**	**-671**	**-903**

Clause 10.9.3.1- Axial Compressive Resistance

$$\lambda = \frac{KL_y}{r_y}\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 58.0\left[\frac{Fy}{\pi^2 E_s}\right]^{1/2} = 0.62$$

$$n = 1.34; \qquad \frac{KL_x}{r_x} = 49.4$$

$$C_{ry} = \phi_s A F_y (1 + \lambda^{2n})^{-1/n} = 0.90\,(156)\,33\,(1 + \lambda^{2n})^{-1/n} = 3{,}856 \text{ kips}$$

Clause 10.10.3.2 - Moment Capacity

$$M_r = \phi_s S_x F_y = (0.95)\,2340\,(33) = 6{,}112 \text{ k-ft} \quad (Lu=0)$$

Length = 79.92 ft

Fact'rd comp, Cf = -2255 kips

comp D / C = 0.585

Fact'rd comp LL = -903 kips

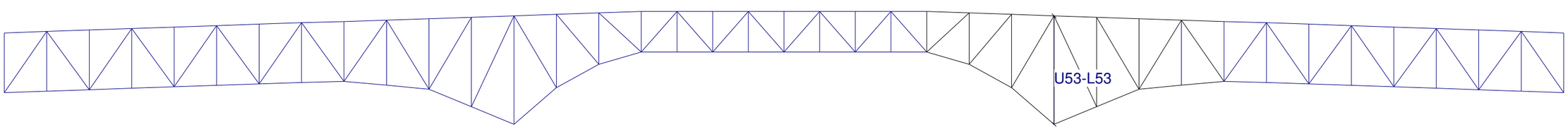
Fact'rd moment, Mf = 227 k-ft

Moment D / C = 0.037

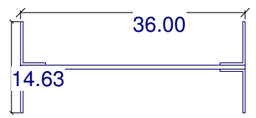
Combined interaction eqn = 0.62

Load rating LLCF = 2.46

Vertical U53-L53



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U53-L53	Compression	kips	S1	E1	INSP3	4.00	-615	-549	-	1.11	1.22	1.55	-682	-669	-	Static det.	Other	-510	0	1.77	-903	3856	1.01	2.46	0.62
	corresp. Moment	k-ft					62	190	-				69	231	-			-42			-74	6112	1.06		



Area	15.9	in2
Ix	197	in4
Iy	4,697	in4
Sx, top	27	in3
Sx, bottom	27	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	0	0	0	0
Lane 2	CL-625	0	0	0	0
Lane 3	CL-625	0	0	0	0
Lane 4	CL-625	0	0	0	0
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	0	0	0	0
Lane 7	CL-625	0	0	0	0
Lane 8	CL-625	0	0	0	0
Total		**1**	**0**	**2**	**2**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 27\ (33) = 70$ k-ft (Lu=0)

Length = 47.83 ft

Fact'rd tension, Tf = 25 kips

tension D / C = 0.050

Fact'rd tension LL = 2 kips

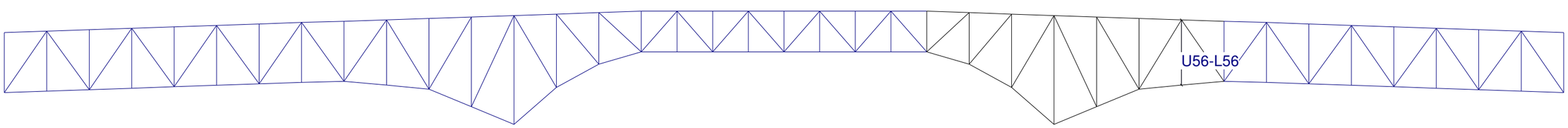
Fact'rd moment, Mf = 7 k-ft

Moment D / C = 0.094

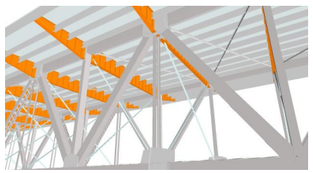
Combined interaction eqn = 0.14

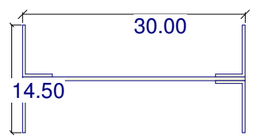
Load rating LLCF = 38.56

Vertical U56-L56



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U56-L56	Tension	kips	S1	E1	INSP3	4.00	20	1	-	1.11	1.22	1.55	22	1	-	Static det.	Other	1	0	1.77	2	500	1.01	>10	0.14
	corresp. Moment	k-ft					-1	-3	-				-2	-4	-			-1			-1	70	1.06		





Area	15.9	in2
Ix	192	in4
Iy	3,203	in4
Sx, top	26	in3
Sx, bottom	26	in3

		LL Axial demands (kips)			
		Unfactored		Factored	
	Truck Name	Truck Only	UDL (9 kN/m)	Truck Only	UDL + 0.8 Truck
Lane 1	CL-625	2	1	4	4
Lane 2	CL-625	1	1	3	3
Lane 3	CL-625	1	1	2	2
Lane 4	CL-625	1	0	1	1
Lane 5	CL-625	0	0	0	0
Lane 6	CL-625	1	0	1	1
Lane 7	CL-625	1	0	2	1
Lane 8	CL-625	1	0	3	2
Total		**8**	**3**	**17**	**16**

Clause 10.8.2 (a)- Axial Tension Resistance

$T_r = \phi_s A_g F_y = 0.95\ (15.9)\ 33.0 = 500$ kips

$< 0.85\ \phi_s A_{net} F_u = 0.85 \times 0.95\ (15.9)\ 60.0 = 772$ kips

Clause 10.10.3.2 - Moment Capacity

$M_r = \phi_s S_x F_y = (0.95)\ 26\ (33) = 69$ k-ft (Lu=0)

Length = 44.00 ft

Fact'rd tension, Tf = 51 kips

tension D / C = 0.101

Fact'rd tension LL = 17 kips

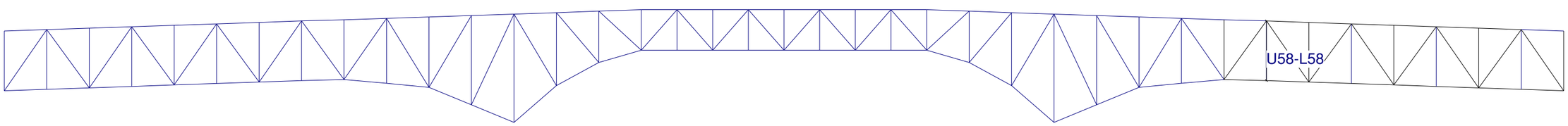
Fact'rd moment, Mf = 5 k-ft

Moment D / C = 0.067

Combined interaction eqn = 0.17

Load rating LLCF = 21.98

Vertical U58-L58



Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U58-L58	Tension	kips	S1	E1	INSP3	4.00	22	7	-	1.11	1.22	1.55	25	9	-	Static det.	Other	8	0.25	1.77	17	500	1.01	>10	0.17
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			0			0	69	1.06		

Appendix C - Envelope of Vertical Reactions at Piers for the Existing Bridge

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Nov 5, 2010

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads								Total Factored Demand
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.			
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load			
Pier M1 - West Truss - Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	248	620	0	1.11	1.22	1.55	276	757	0	Sophist.	Other	363	0	1.77	643			1675
Pier M1 - West Truss - Roller Bearing - (2 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	248	620	0	0.95	0.90	0.65	236	558	0	Sophist.	Other	-38	0	1.77	-68			726
Pier M2 - West Truss - Rocker Bearing - (8 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	596	1399	0	1.11	1.22	1.55	661	1707	0	Sophist.	Other	667	0	1.77	1181			3549
Pier M2 - West Truss - Rocker Bearing - (8 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	596	1399	0	0.95	0.90	0.65	566	1259	0	Sophist.	Other	-196	0	1.77	-346			1479
Pier M3 - West Truss - Fixed Bearing - (8 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	596	1399	0	1.11	1.22	1.55	661	1706	0	Sophist.	Other	671	0	1.77	1188			3556
Pier M3 - West Truss - Fixed Bearing - (8 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	596	1399	0	0.95	0.90	0.65	566	1259	0	Sophist.	Other	-192	0	1.77	-340			1485
Pier M4 - West Truss - S Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	248	623	0	1.11	1.22	1.55	276	760	0	Sophist.	Other	292	0.25	1.77	646			1682
Pier M4 - West Truss - S Roller Bearing - (2 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	248	623	0	0.95	0.90	0.65	236	561	0	Sophist.	Other	-36	0	1.77	-64			733
Pier M4 - West Truss - N Fixed Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	149	396	0	1.11	1.22	1.55	166	483	0	Sophist.	Other	259	0.25	1.77	574			1223
Pier M4 - West Truss - N Fixed Bearing - (1 loaded lane)	Min Reaction	kip	S1	E1	INSP3	4.00	149	396	0	0.95	0.90	0.65	142	356	0	Sophist.	Other	-20	0.25	1.77	-44			454
Pier M5 - West Truss - S Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	149	396	0	1.11	1.22	1.55	166	483	0	Sophist.	Other	247	0.25	1.77	547			1196
Pier M5 - West Truss - S Roller Bearing - (1 loaded lane)	Min Reaction	kip	S1	E1	INSP3	4.00	149	396	0	0.95	0.90	0.65	142	357	0	Sophist.	Other	-16	0.25	1.77	-36			463
Pier M5 - West Truss - N Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	463	989	0	1.11	1.22	1.55	514	1207	0	Sophist.	Other	452	0	1.77	800			2520
Pier M5 - West Truss - N Roller Bearing - (2 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	463	989	0	0.95	0.90	0.65	440	890	0	Sophist.	Other	-41	0	1.77	-72			1258
Pier M6 - West Truss - Fixed Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	2215	3522	0	1.11	1.22	1.55	2459	4297	0	Sophist.	Other	1052	0	1.77	1862			8617
Pier M6 - West Truss - Fixed Bearing - (8 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	2215	3522	0	0.95	0.90	0.65	2104	3170	0	Sophist.	Other	-186	0	1.77	-330			4944
Pier M7 - West Truss - Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	2181	3524	0	1.11	1.22	1.55	2421	4300	0	Sophist.	Other	1040	0	1.77	1841			8562
Pier M7 - West Truss - Roller Bearing - (8 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	2181	3524	0	0.95	0.90	0.65	2072	3172	0	Sophist.	Other	-165	0	1.77	-291			4952

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Nov 5, 2010

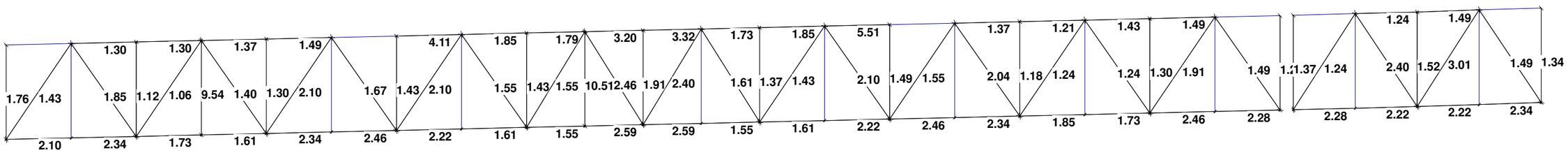
Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads								Total Factored Demand
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load			
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3									
Pier M8 - West Truss - Roller Bearing - (4 loaded lanes)	Max Reaction	kip	S1	E1	INSP3	4.00	460	985	0	1.11	1.22	1.55	511	1201	0	Sophist.	Other	463	0	1.77	820			2532
Pier M8 - West Truss - Roller Bearing - (2 loaded lanes)	Min Reaction	kip	S1	E1	INSP3	4.00	460	985	0	0.95	0.90	0.65	437	886	0	Sophist.	Other	-52	0	1.77	-93			1231

Notes:
1. Load rating according to CSA-S6-06 (as per Section 14)
2. Highway Class A (as per Clause 1.5.2.2)
3. Live loading models evaluated:
- CL-625 Normal Traffic
4. When DLA = 0, it implies that lane loading governs
5. Concrete surfacing with nominal thckness of 55 mm used for evaluation (based on field sampling by City)
6. Target reliability index (eg Beta factors) increased by 0.25 to reflect Important Structures
7. Load rating demands derived from full 3D analysis model of bridge (S-Frame ver 9)
8. Material properties used to calculate resistances are as follows:
- Median structural steel (Me), Fy=33 ksi, Fu=60 ksi
- Structural silicon steel (S1), Fy=46 ksi (plates less then 32 mm), Fy=43.9 ksi (for plates between 32 and 44 mm)
- Deck stringers and floorbeams: 33 ksi
9. For truss diagonals and verticals, effective lengths kL taken as 0.9 L where L is between truss work points. Kl taken as 1.0 for truss chords
10. Truss section properties based on design drawings updated to reflect shop/As-built drawings
11. For stringers, loads are applied statically for the tributary widths (essentially assuming that deck is simply supported between stringers)

Evaluator		
Checker		

Tabulation was checked for completness by:

Appendix D - Load Rating for the Bridge in Future Configuration F1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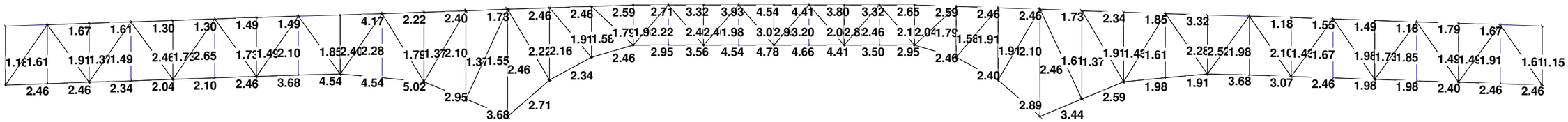
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1.16 1.61 1.91 1.37 1.49 2.46 1.73 2.65 1.73 1.49 2.10 1.85 2.40 2.28 1.79 1.37 2.10 1.37 1.55 2.46 2.22 2.16 1.91 1.56 1.79 1.92 2.22 2.42 2.41 1.98 3.02 2.93 3.20 2.02 2.82 2.46 2.12 2.04 1.79 1.58 1.91 1.91 2.10 1.61 1.37 1.91 1.43 1.61 2.28 2.52 1.98 2.10 1.43 1.67 1.98 1.73 1.85 1.49 1.49 1.91 1.61 1.15
2.46 2.46 2.34 2.04 2.10 2.46 3.68 4.54 4.54 5.02 2.95 3.68 2.71 2.34 2.46 2.95 3.56 4.54 4.78 4.66 4.41 3.50 2.95 2.46 2.40 2.46 2.89 3.44 2.59 1.98 1.91 3.68 3.07 2.46 1.98 1.98 2.40 2.46 2.46

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U1-U2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	18	0	1.77	32	1379	1.01	>10	0.05
	corresp. Moment	k-ft					9	-11	-				10	-13	-			-7			-13	899	1.06		
Top chord U2-U3 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-569	-	1.11	1.22	1.55	-237	-694	-	Static det.	Other	-237	0.25	1.77	-525	2161	1.01	1.30	0.90
	corresp. Moment	k-ft					-50	135	-				-56	164	-			93			206	1399	1.06		
Top chord U3-U4 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-562	-	1.11	1.22	1.55	-234	-685	-	Static det.	Other	-222	0.25	1.77	-490	2161	1.01	1.30	0.92
	corresp. Moment	k-ft					32	119	-				36	145	-			85			189	1399	1.06		
Top chord U4-U5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-563	-	1.11	1.22	1.55	-234	-687	-	Static det.	Other	-228	0.25	1.77	-504	2161	1.01	1.37	0.90
	corresp. Moment	k-ft					34	132	-				38	161	-			65			143	1399	1.06		
Top chord U5-U6 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-574	-	1.11	1.22	1.55	-239	-700	-	Static det.	Other	-225	0.25	1.77	-498	2161	1.01	1.49	0.86
	corresp. Moment	k-ft					-61	150	-				-67	183	-			72			159	1399	1.06		
Top chord U6-U7 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1257	1.01	>10	0.25
	corresp. Moment	k-ft					40	154	-				44	188	-			0			0	899	1.06		
Top chord U7-U8 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-7	-	1.11	1.22	1.55	-4	-9	-	Static det.	Other	-18	0	1.77	-33	1189	1.01	4.11	0.16
	corresp. Moment	k-ft					-67	-171	-				-74	-208	-			90			160	1011	1.06		
Top chord U8-U9 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1139	-	1.11	1.22	1.55	490	1389	-	Static det.	Other	477	0	1.77	845	4257	1.01	1.85	0.79
	corresp. Moment	k-ft					-81	-81	-				-90	-99	-			-82			-145	2280	1.06		
Top chord U9-U10 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	439	1134	-	1.11	1.22	1.55	488	1383	-	Static det.	Other	480	0	1.77	849	4257	1.01	1.79	0.81
	corresp. Moment	k-ft					-80	-118	-				-88	-144	-			-92			-162	2280	1.06		
Top chord U10-U11 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	912	-	1.11	1.22	1.55	379	1112	-	Static det.	Other	300	0	1.77	530	3514	1.01	3.20	0.65
	corresp. Moment	k-ft					-76	171	-				-84	208	-			17			31	2170	1.06		
Top chord U11-U12 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	912	-	1.11	1.22	1.55	379	1113	-	Static det.	Other	307	0	1.77	543	3514	1.01	3.32	0.64
	corresp. Moment	k-ft					-78	171	-				-86	209	-			10			17	2170	1.06		
Top chord U12-U13 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	440	1133	-	1.11	1.22	1.55	488	1383	-	Static det.	Other	484	0	1.77	856	4257	1.01	1.73	0.82
	corresp. Moment	k-ft					-81	-124	-				-90	-151	-			-91			-160	2280	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U13-U14 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1138	-	1.11	1.22	1.55	490	1388	-	Static det.	Other	483	0	1.77	854	4257	1.01	1.85	0.79
	corresp. Moment	k-ft					-83	-86	-				-92	-105	-			-80			-142	2280	1.06		
Top chord U14-U15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-9	-	1.11	1.22	1.55	-4	-10	-	Static det.	Other	-20	0	1.77	-35	1189	1.01	5.51	0.30
	corresp. Moment	k-ft					-63	163	-				-70	198	-			78			138	1011	1.06		
Top chord U15-U16 - (2 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1379	1.01	>10	0.25
	corresp. Moment	k-ft					38	151	-				43	184	-			0			0	899	1.06		
Top chord U16-U17 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-575	-	1.11	1.22	1.55	-239	-701	-	Static det.	Other	-232	0.25	1.77	-514	2161	1.01	1.37	0.89
	corresp. Moment	k-ft					-59	143	-				-66	174	-			87			192	1399	1.06		
Top chord U17-U18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-564	-	1.11	1.22	1.55	-234	-687	-	Static det.	Other	-233	0.25	1.77	-516	2161	1.01	1.21	0.94
	corresp. Moment	k-ft					33	126	-				37	153	-			89			198	1399	1.06		
Top chord U18-U19 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-562	-	1.11	1.22	1.55	-233	-685	-	Static det.	Other	-219	0.25	1.77	-485	2161	1.01	1.43	0.88
	corresp. Moment	k-ft					33	126	-				37	153	-			61			136	1399	1.06		
Top chord U19-U20 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-568	-	1.11	1.22	1.55	-236	-694	-	Static det.	Other	-223	0.25	1.77	-494	2161	1.01	1.49	0.85
	corresp. Moment	k-ft					-53	143	-				-59	174	-			69			153	1399	1.06		
Top chord U20-U21 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	17	0	1.77	30	1379	1.01	>10	0.05
	corresp. Moment	k-ft					8	-9	-				9	-11	-			-7			-12	899	1.06		
Top chord U22-U23 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	10	0.25	1.77	23	1379	1.01	>10	0.06
	corresp. Moment	k-ft					-7	-9	-				-8	-11	-			-7			-16	899	1.06		
Top chord U23-U24 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-252	-	1.11	1.22	1.55	-95	-307	-	Static det.	Other	-136	0.25	1.77	-301	1263	1.01	1.24	0.93
	corresp. Moment	k-ft					32	125	-				36	152	-			65			144	899	1.06		
Top chord U24-U25 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-251	-	1.11	1.22	1.55	-95	-306	-	Static det.	Other	-131	0.25	1.77	-291	1263	1.01	1.49	0.84
	corresp. Moment	k-ft					-33	125	-				-37	153	-			66			145	899	1.06		
Top chord U25-U26 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	6	0.25	1.77	14	1379	1.01	>10	0.09
	corresp. Moment	k-ft					-10	-14	-				-11	-17	-			-19			-41	899	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U27-U28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	5	14	-	1.11	1.22	1.55	6	17	-	Static det.	Other	23	0	1.77	41	1828	1.01	>10	0.04
	corresp. Moment	k-ft					20	-10	-				22	-12	-			-8			-14	1475	1.06		
Top chord U28-U29 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-479	-1049	-	1.11	1.22	1.55	-532	-1280	-	Static det.	Other	-424	0	1.77	-751	3904	1.01	1.67	0.82
	corresp. Moment	k-ft					-132	289	-				-147	353	-			172			305	3118	1.06		
Top chord U29-U30 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1038	-	1.11	1.22	1.55	-526	-1266	-	Static det.	Other	-393	0	1.77	-696	3904	1.01	1.61	0.86
	corresp. Moment	k-ft					69	258	-				76	315	-			175			309	3118	1.06		
Top chord U30-U31 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-638	-1393	-	1.11	1.22	1.55	-708	-1699	-	Static det.	Other	-539	0	1.77	-953	5163	1.01	1.30	0.94
	corresp. Moment	k-ft					115	396	-				128	483	-			216			382	3479	1.06		
Top chord U31-U32 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-637	-1391	-	1.11	1.22	1.55	-707	-1698	-	Static det.	Other	-529	0	1.77	-937	5163	1.01	1.30	0.93
	corresp. Moment	k-ft					113	398	-				126	485	-			212			375	3479	1.06		
Top chord U32-U33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-478	-1046	-	1.11	1.22	1.55	-531	-1276	-	Static det.	Other	-411	0	1.77	-727	3904	1.01	1.49	0.89
	corresp. Moment	k-ft					82	322	-				91	393	-			160			283	3118	1.06		
Top chord U33-U34 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-485	-1060	-	1.11	1.22	1.55	-538	-1293	-	Static det.	Other	-418	0	1.77	-740	3904	1.01	1.49	0.82
	corresp. Moment	k-ft					-163	-366	-				-181	-447	-			75			133	3118	1.06		
Top chord U34-U35 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.69
	corresp. Moment	k-ft					80	770	-				89	939	-			0			0	1475	1.06		
Top chord U35-U36 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-8	-14	-	1.11	1.22	1.55	-8	-17	-	Static det.	Other	-26	0	1.77	-46	4047	1.01	4.17	0.42
	corresp. Moment	k-ft					-227	773	-				-252	943	-			352			623	3258	1.06		
Top chord U36-U37 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	705	1477	-	1.11	1.22	1.55	782	1802	-	Static det.	Other	515	0	1.77	912	5151	1.01	2.22	0.78
	corresp. Moment	k-ft					-94	-276	-				-104	-337	-			-32			-57	4687	1.06		
Top chord U37-U38 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	694	1457	-	1.11	1.22	1.55	770	1778	-	Static det.	Other	513	0	1.77	908	5151	1.01	2.40	0.75
	corresp. Moment	k-ft					62	228	-				69	278	-			25			45	4687	1.06		
Top chord U38-U39 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	934	1909	-	1.11	1.22	1.55	1037	2328	-	Static det.	Other	581	0	1.77	1029	7410	1.01	1.73	0.88
	corresp. Moment	k-ft					-526	-777	-				-584	-948	-			-211			-374	6613	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U39-U40 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1138	2564	-	1.11	1.22	1.55	1263	3128	-	Static det.	Other	978	0	1.77	1732	11353	1.01	2.46	0.70
	corresp. Moment	k-ft					-367	-262	-				-407	-319	-			-286			-506	7840	1.06		
Top chord U40-U41 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	969	2651	-	1.11	1.22	1.55	1075	3234	-	Static det.	Other	1264	0	1.77	2238	12359	1.01	2.46	0.65
	corresp. Moment	k-ft					-199	-235	-				-220	-287	-			-287			-509	8175	1.06		
Top chord U41-U42 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	607	2392	-	1.11	1.22	1.55	674	2918	-	Static det.	Other	1455	0	1.77	2575	12359	1.01	2.59	0.62
	corresp. Moment	k-ft					-248	-389	-				-275	-475	-			-156			-277	8175	1.06		
Top chord U42-U43 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	604	2386	-	1.11	1.22	1.55	670	2911	-	Static det.	Other	1454	0	1.77	2574	12359	1.01	2.71	0.61
	corresp. Moment	k-ft					-151	-386	-				-167	-471	-			-152			-270	8175	1.06		
Top chord U43-U44 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-64	1312	-	0.95	1.22	1.55	-71	1601	-	Static det.	Other	1210	0	1.77	2141	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-287	-548	-				-318	-668	-			-138			-245	7605	1.06		
Top chord U44-U45 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-65	1309	-	0.95	1.22	1.55	-72	1597	-	Static det.	Other	1209	0	1.77	2139	10983	1.01	3.93	0.38
	corresp. Moment	k-ft					106	-241	-				118	-294	-			-104			-184	7605	1.06		
Top chord U45-U46 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	952	-	0.95	1.22	1.55	-313	1161	-	Static det.	Other	967	0	1.77	1712	9951	1.01	4.54	0.32
	corresp. Moment	k-ft					140	-296	-				156	-361	-			-93			-165	7174	1.06		
Top chord U46-U47 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	952	-	0.95	1.22	1.55	-313	1161	-	Static det.	Other	969	0	1.77	1715	9951	1.01	4.41	0.32
	corresp. Moment	k-ft					140	-296	-				155	-361	-			-121			-215	7174	1.06		
Top chord U47-U48 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-87	1312	-	0.95	1.22	1.55	-96	1600	-	Static det.	Other	1228	0	1.77	2174	10983	1.01	3.80	0.39
	corresp. Moment	k-ft					109	-241	-				121	-294	-			-104			-185	7605	1.06		
Top chord U48-U49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-85	1315	-	0.95	1.22	1.55	-94	1604	-	Static det.	Other	1229	0	1.77	2176	10983	1.01	3.32	0.49
	corresp. Moment	k-ft					-282	-549	-				-313	-669	-			-141			-250	7605	1.06		
Top chord U49-U50 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	561	2391	-	1.11	1.22	1.55	623	2917	-	Static det.	Other	1478	0	1.77	2617	12359	1.01	2.65	0.61
	corresp. Moment	k-ft					-149	-386	-				-165	-471	-			-155			-275	8175	1.06		
Top chord U50-U51 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	563	2391	-	1.11	1.22	1.55	625	2917	-	Static det.	Other	1479	0	1.77	2618	12359	1.01	2.59	0.62
	corresp. Moment	k-ft					-245	-390	-				-272	-475	-			-159			-282	8175	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U51-U52 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	925	2650	-	1.11	1.22	1.55	1027	3233	-	Static det.	Other	1285	0	1.77	2275	12359	1.01	2.46	0.65
	corresp. Moment	k-ft					-196	-235	-				-218	-287	-			-290			-513	8175	1.06		
Top chord U52-U53 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1101	2561	-	1.11	1.22	1.55	1222	3125	-	Static det.	Other	993	0	1.77	1757	11353	1.01	2.46	0.70
	corresp. Moment	k-ft					-368	-260	-				-409	-317	-			-304			-537	7840	1.06		
Top chord U53-U54 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	909	1906	-	1.11	1.22	1.55	1009	2325	-	Static det.	Other	651	0	1.77	1152	7410	1.01	1.73	0.88
	corresp. Moment	k-ft					-517	-775	-				-574	-946	-			-160			-283	6613	1.06		
Top chord U54-U55 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	677	1456	-	1.11	1.22	1.55	752	1776	-	Static det.	Other	524	0	1.77	927	5151	1.01	2.34	0.76
	corresp. Moment	k-ft					64	236	-				71	288	-			24			42	4687	1.06		
Top chord U55-U56 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	688	1476	-	1.11	1.22	1.55	763	1801	-	Static det.	Other	524	0	1.77	927	5151	1.01	1.85	0.83
	corresp. Moment	k-ft					-110	-320	-				-123	-390	-			-120			-212	4687	1.06		
Top chord U56-U57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-8	-15	-	1.11	1.22	1.55	-8	-19	-	Static det.	Other	-29	0	1.77	-51	3387	1.01	3.32	0.48
	corresp. Moment	k-ft					-227	789	-				-252	962	-			401			710	3079	1.06		
Top chord U57-U58 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.70
	corresp. Moment	k-ft					81	789	-				90	962	-			0			0	1475	1.06		
Top chord U58-U59 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-481	-1064	-	1.11	1.22	1.55	-534	-1297	-	Static det.	Other	-421	0	1.77	-746	3904	1.01	1.18	0.75
	corresp. Moment	k-ft					-161	-365	-				-178	-446	-			201			355	3118	1.06		
Top chord U59-U60 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1049	-	1.11	1.22	1.55	-526	-1280	-	Static det.	Other	-419	0	1.77	-742	3904	1.01	1.55	0.86
	corresp. Moment	k-ft					-85	327	-				-94	399	-			188			332	3118	1.06		
Top chord U60-U61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1394	-	1.11	1.22	1.55	-700	-1701	-	Static det.	Other	-524	0	1.77	-928	5163	1.01	1.49	0.88
	corresp. Moment	k-ft					-129	439	-				-143	536	-			235			416	3479	1.06		
Top chord U61-U62 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1396	-	1.11	1.22	1.55	-701	-1703	-	Static det.	Other	-542	0	1.77	-959	5163	1.01	1.18	0.97
	corresp. Moment	k-ft					128	438	-				142	534	-			242			428	3479	1.06		
Top chord U62-U63 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-471	-1043	-	1.11	1.22	1.55	-523	-1273	-	Static det.	Other	-410	0	1.77	-725	3904	1.01	1.79	0.81
	corresp. Moment	k-ft					-73	263	-				-81	321	-			152			269	3118	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U63-U64 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-476	-1055	-	1.11	1.22	1.55	-529	-1287	-	Static det.	Other	-424	0	1.77	-750	3904	1.01	1.67	0.82
	corresp. Moment	k-ft					-132	294	-				-147	359	-			170			302	3118	1.06		
Top chord U64-U65 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	4	7	-	1.11	1.22	1.55	5	9	-	Static det.	Other	26	0	1.77	47	1828	1.01	>10	0.03
	corresp. Moment	k-ft					19	-10	-				22	-12	-			-6			-11	1475	1.06		
Bot chord L1-L2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	364	-	1.11	1.22	1.55	151	444	-	Static det.	Other	160	0.25	1.77	355	1584	1.01	2.10	0.70
	corresp. Moment	k-ft					13	-45	-				14	-55	-			-22			-48	863	1.06		
Bot chord L2-L3 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	364	-	1.11	1.22	1.55	151	444	-	Static det.	Other	151	0.25	1.77	335	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					13	26	-				15	31	-			16			36	863	1.06		
Bot chord L3-L4 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	653	-	1.11	1.22	1.55	269	797	-	Static det.	Other	328	0	1.77	580	2571	1.01	1.73	0.79
	corresp. Moment	k-ft					-34	90	-				-37	109	-			62			110	1227	1.06		
Bot chord L4-L5 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	653	-	1.11	1.22	1.55	269	797	-	Static det.	Other	318	0	1.77	562	2571	1.01	1.61	0.83
	corresp. Moment	k-ft					31	90	-				34	109	-			56			100	1227	1.06		
Bot chord L5-L6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	369	-	1.11	1.22	1.55	154	451	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.34	0.69
	corresp. Moment	k-ft					12	32	-				13	39	-			17			29	863	1.06		
Bot chord L6-L7 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	369	-	1.11	1.22	1.55	154	450	-	Static det.	Other	194	0	1.77	344	1584	1.01	2.46	0.66
	corresp. Moment	k-ft					16	14	-				17	18	-			10			17	863	1.06		
Bot chord L7-L8 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-496	-	1.11	1.22	1.55	-210	-606	-	Static det.	Other	-226	0	1.77	-400	1973	1.01	2.22	0.73
	corresp. Moment	k-ft					34	60	-				38	73	-			26			46	1354	1.06		
Bot chord L8-L9 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-180	-474	-	1.11	1.22	1.55	-200	-578	-	Static det.	Other	-217	0	1.77	-384	1973	1.01	1.61	0.85
	corresp. Moment	k-ft					-77	-134	-				-85	-164	-			-61			-109	1354	1.06		
Bot chord L9-L10 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-952	-	1.11	1.22	1.55	-402	-1161	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.89
	corresp. Moment	k-ft					-116	-156	-				-129	-190	-			-69			-122	1775	1.06		
Bot chord L10-L11 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-974	-	1.11	1.22	1.55	-412	-1188	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.59	0.68
	corresp. Moment	k-ft					-41	14	-				-45	17	-			-11			-20	1775	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L11-L12 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-973	-	1.11	1.22	1.55	-412	-1188	-	Static det.	Other	-378	0	1.77	-669	3471	1.01	2.59	0.69
	corresp. Moment	k-ft					-40	10	-				-45	12	-			-16			-29	1775	1.06		
Bot chord L12-L13 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-951	-	1.11	1.22	1.55	-402	-1160	-	Static det.	Other	-369	0	1.77	-653	3471	1.01	1.55	0.89
	corresp. Moment	k-ft					-117	-157	-				-130	-191	-			-68			-120	1775	1.06		
Bot chord L13-L14 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-181	-475	-	1.11	1.22	1.55	-201	-579	-	Static det.	Other	-216	0	1.77	-383	1973	1.01	1.61	0.86
	corresp. Moment	k-ft					-78	-139	-				-87	-170	-			-59			-104	1354	1.06		
Bot chord L14-L15 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-497	-	1.11	1.22	1.55	-210	-606	-	Static det.	Other	-225	0	1.77	-398	1973	1.01	2.22	0.73
	corresp. Moment	k-ft					33	56	-				36	68	-			27			48	1354	1.06		
Bot chord L15-L16 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	369	-	1.11	1.22	1.55	153	450	-	Static det.	Other	147	0.25	1.77	325	1584	1.01	2.46	0.67
	corresp. Moment	k-ft					16	19	-				18	23	-			12			27	863	1.06		
Bot chord L16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	369	-	1.11	1.22	1.55	153	450	-	Static det.	Other	148	0.25	1.77	328	1584	1.01	2.34	0.68
	corresp. Moment	k-ft					12	27	-				13	33	-			16			36	863	1.06		
Bot chord L17-L18 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	653	-	1.11	1.22	1.55	268	797	-	Static det.	Other	247	0.25	1.77	545	2571	1.01	1.85	0.77
	corresp. Moment	k-ft					-32	90	-				-36	109	-			46			103	1227	1.06		
Bot chord L18-L19 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	653	-	1.11	1.22	1.55	269	797	-	Static det.	Other	259	0.25	1.77	573	2571	1.01	1.73	0.78
	corresp. Moment	k-ft					-32	90	-				-35	109	-			49			107	1227	1.06		
Bot chord L19-L20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	364	-	1.11	1.22	1.55	151	444	-	Static det.	Other	142	0.25	1.77	314	1584	1.01	2.46	0.67
	corresp. Moment	k-ft					13	31	-				14	37	-			14			32	863	1.06		
Bot chord L20-L21 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	364	-	1.11	1.22	1.55	151	444	-	Static det.	Other	192	0	1.77	340	1584	1.01	2.28	0.68
	corresp. Moment	k-ft					12	-42	-				13	-52	-			-24			-42	863	1.06		
Bot chord L22-L23 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	197	-	1.11	1.22	1.55	74	240	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.28	0.65
	corresp. Moment	k-ft					8	-29	-				9	-36	-			-17			-37	581	1.06		
Bot chord L23-L24 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	197	-	1.11	1.22	1.55	74	240	-	Static det.	Other	105	0.25	1.77	231	1017	1.01	2.22	0.67
	corresp. Moment	k-ft					10	28	-				11	34	-			14			31	581	1.06		

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Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L24-L25 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	197	-	1.11	1.22	1.55	74	241	-	Static det.	Other	100	0.25	1.77	222	1017	1.01	2.22	0.67
	corresp. Moment	k-ft					10	29	-				11	35	-			17			37	581	1.06		
Bot chord L25-L26 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	197	-	1.11	1.22	1.55	74	241	-	Static det.	Other	104	0.25	1.77	230	1017	1.01	2.34	0.63
	corresp. Moment	k-ft					8	-27	-				9	-33	-			-15			-33	581	1.06		
Bot chord L27-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	281	624	-	1.11	1.22	1.55	312	761	-	Static det.	Other	266	0	1.77	471	2539	1.01	2.46	0.69
	corresp. Moment	k-ft					30	-85	-				33	-104	-			-40			-71	1721	1.06		
Bot chord L28-L29 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	281	624	-	1.11	1.22	1.55	312	761	-	Static det.	Other	247	0	1.77	438	2539	1.01	2.46	0.71
	corresp. Moment	k-ft					32	80	-				36	98	-			33			59	1721	1.06		
Bot chord L29-L30 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1338	-	1.11	1.22	1.55	673	1633	-	Static det.	Other	516	0	1.77	913	5032	1.01	2.34	0.70
	corresp. Moment	k-ft					-98	114	-				-109	139	-			73			129	2601	1.06		
Bot chord L30-L31 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1338	-	1.11	1.22	1.55	673	1633	-	Static det.	Other	522	0	1.77	924	5032	1.01	2.04	0.78
	corresp. Moment	k-ft					81	112	-				90	136	-			71			125	2601	1.06		
Bot chord L31-L32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	611	1344	-	1.11	1.22	1.55	679	1640	-	Static det.	Other	524	0	1.77	927	5032	1.01	2.10	0.77
	corresp. Moment	k-ft					77	112	-				86	136	-			63			112	2601	1.06		
Bot chord L32-L33 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	612	1344	-	1.11	1.22	1.55	679	1640	-	Static det.	Other	527	0	1.77	932	5032	1.01	2.46	0.69
	corresp. Moment	k-ft					-90	95	-				-99	116	-			58			102	2601	1.06		
Bot chord L33-L34 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	291	645	-	1.11	1.22	1.55	323	787	-	Static det.	Other	260	0	1.77	460	3480	1.01	3.68	0.57
	corresp. Moment	k-ft					35	100	-				39	122	-			37			66	1859	1.06		
Bot chord L34-L35 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	291	645	-	1.11	1.22	1.55	323	786	-	Static det.	Other	260	0	1.77	461	3480	1.01	4.54	0.50
	corresp. Moment	k-ft					45	10	-				50	12	-			13			22	1859	1.06		
Bot chord L35-L36 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-339	-706	-	1.11	1.22	1.55	-377	-861	-	Static det.	Other	-302	0	1.77	-534	4311	1.01	4.54	0.50
	corresp. Moment	k-ft					90	116	-				100	141	-			46			81	3459	1.06		
Bot chord L36-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-339	-706	-	1.11	1.22	1.55	-377	-861	-	Static det.	Other	-288	0	1.77	-510	4310	1.01	5.02	0.47
	corresp. Moment	k-ft					-86	-66	-				-96	-81	-			-30			-54	3459	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L37-L38 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1038	-2101	-	1.11	1.22	1.55	-1153	-2564	-	Static det.	Other	-706	0	1.77	-1249	8356	1.01	2.95	0.71
	corresp. Moment	k-ft					-286	-508	-				-317	-620	-			-65			-115	9304	1.06		
Bot chord L38-L39 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1272	-2511	-	1.11	1.22	1.55	-1412	-3064	-	Static det.	Other	-815	0	1.77	-1443	10460	1.01	3.68	0.58
	corresp. Moment	k-ft					195	47	-				217	58	-			-73			-130	9925	1.06		
Bot chord L39-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1561	-3067	-	1.11	1.22	1.55	-1733	-3742	-	Static det.	Other	-1115	0	1.77	-1973	12246	1.01	2.71	0.68
	corresp. Moment	k-ft					-177	-273	-				-196	-333	-			-183			-323	11142	1.06		
Bot chord L40-L41 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1330	-2955	-	1.11	1.22	1.55	-1476	-3605	-	Static det.	Other	-1195	0	1.77	-2116	12717	1.01	2.34	0.71
	corresp. Moment	k-ft					-349	-458	-				-387	-559	-			-381			-674	11260	1.06		
Bot chord L41-L42 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1029	-2793	-	1.11	1.22	1.55	-1142	-3408	-	Static det.	Other	-1344	0	1.77	-2378	13245	1.01	2.46	0.68
	corresp. Moment	k-ft					-413	-551	-				-459	-672	-			-368			-652	11494	1.06		
Bot chord L42-L43 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1753	-	1.11	1.22	1.55	-230	-2139	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-208	-389	-				-231	-475	-			-307			-543	9648	1.06		
Bot chord L43-L44 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1753	-	1.11	1.22	1.55	-230	-2139	-	Static det.	Other	-1344	0	1.77	-2379	12036	1.01	3.56	0.45
	corresp. Moment	k-ft					-94	-156	-				-104	-190	-			-129			-228	9648	1.06		
Bot chord L44-L45 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1032	-	0.95	1.22	1.55	255	-1259	-	Static det.	Other	-1088	0	1.77	-1925	11482	1.01	4.54	0.33
	corresp. Moment	k-ft					-181	-161	-				-201	-196	-			-155			-274	9363	1.06		
Bot chord L45-L46 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1032	-	0.95	1.22	1.55	255	-1259	-	Static det.	Other	-1087	0	1.77	-1924	11482	1.01	4.78	0.27
	corresp. Moment	k-ft					140	19	-				156	24	-			-127			-226	9363	1.06		
Bot chord L46-L47 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	241	-1033	-	0.95	1.22	1.55	267	-1261	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.66	0.27
	corresp. Moment	k-ft					142	20	-				157	24	-			-130			-229	9363	1.06		
Bot chord L47-L48 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	240	-1033	-	0.95	1.22	1.55	267	-1261	-	Static det.	Other	-1105	0	1.77	-1956	11482	1.01	4.41	0.33
	corresp. Moment	k-ft					-176	-161	-				-195	-197	-			-157			-279	9363	1.06		
Bot chord L48-L49 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1757	-	1.11	1.22	1.55	-194	-2144	-	Static det.	Other	-1367	0	1.77	-2420	12036	1.01	3.50	0.45
	corresp. Moment	k-ft					-93	-156	-				-103	-191	-			-131			-232	9648	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L49-L50 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1757	-	1.11	1.22	1.55	-194	-2144	-	Static det.	Other	-1368	0	1.77	-2421	12036	1.01	2.95	0.52
	corresp. Moment	k-ft					-199	-390	-				-221	-476	-			-312			-552	9648	1.06		
Bot chord L50-L51 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-984	-2799	-	1.11	1.22	1.55	-1093	-3415	-	Static det.	Other	-1359	0	1.77	-2405	13245	1.01	2.46	0.68
	corresp. Moment	k-ft					-405	-552	-				-450	-673	-			-375			-663	11494	1.06		
Bot chord L51-L52 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1288	-2961	-	1.11	1.22	1.55	-1430	-3612	-	Static det.	Other	-1167	0	1.77	-2065	12717	1.01	2.40	0.70
	corresp. Moment	k-ft					-350	-459	-				-388	-560	-			-394			-697	11260	1.06		
Bot chord L52-L53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1523	-3073	-	1.11	1.22	1.55	-1691	-3749	-	Static det.	Other	-1061	0	1.77	-1878	12246	1.01	2.89	0.67
	corresp. Moment	k-ft					-170	-274	-				-189	-334	-			-178			-316	11142	1.06		
Bot chord L53-L54 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1241	-2515	-	1.11	1.22	1.55	-1377	-3069	-	Static det.	Other	-869	0	1.77	-1538	10460	1.01	3.44	0.58
	corresp. Moment	k-ft					195	43	-				216	53	-			-91			-161	9925	1.06		
Bot chord L54-L55 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1012	-2106	-	1.11	1.22	1.55	-1124	-2570	-	Static det.	Other	-755	0	1.77	-1336	8356	1.01	2.59	0.72
	corresp. Moment	k-ft					-284	-514	-				-315	-627	-			-105			-186	9304	1.06		
Bot chord L55-L56 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-333	-709	-	1.11	1.22	1.55	-369	-865	-	Static det.	Other	-298	0	1.77	-528	2543	1.01	1.98	0.79
	corresp. Moment	k-ft					-53	-63	-				-59	-77	-			-27			-48	1886	1.06		
Bot chord L56-L57 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-333	-709	-	1.11	1.22	1.55	-369	-865	-	Static det.	Other	-293	0	1.77	-519	2543	1.01	1.91	0.81
	corresp. Moment	k-ft					59	87	-				65	107	-			29			50	1886	1.06		
Bot chord L57-L58 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	287	640	-	1.11	1.22	1.55	319	781	-	Static det.	Other	282	0	1.77	499	3166	1.01	3.68	0.55
	corresp. Moment	k-ft					42	13	-				46	15	-			15			26	1813	1.06		
Bot chord L58-L59 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	288	640	-	1.11	1.22	1.55	319	781	-	Static det.	Other	277	0	1.77	489	3166	1.01	3.07	0.62
	corresp. Moment	k-ft					34	100	-				38	122	-			33			59	1813	1.06		
Bot chord L59-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1342	-	1.11	1.22	1.55	673	1638	-	Static det.	Other	514	0	1.77	910	5032	1.01	2.46	0.68
	corresp. Moment	k-ft					-87	77	-				-96	94	-			67			118	2601	1.06		
Bot chord L60-L61 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1342	-	1.11	1.22	1.55	672	1638	-	Static det.	Other	517	0	1.77	915	5032	1.01	1.98	0.79
	corresp. Moment	k-ft					77	143	-				86	175	-			68			120	2601	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L61-L62 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	601	1338	-	1.11	1.22	1.55	667	1632	-	Static det.	Other	523	0	1.77	927	5032	1.01	1.98	0.79
	corresp. Moment	k-ft					81	143	-				90	174	-			72			128	2601	1.06		
Bot chord L62-L63 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	601	1337	-	1.11	1.22	1.55	667	1632	-	Static det.	Other	527	0	1.77	933	5032	1.01	2.40	0.69
	corresp. Moment	k-ft					-96	96	-				-107	117	-			66			116	2601	1.06		
Bot chord L63-L64 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	279	623	-	1.11	1.22	1.55	310	760	-	Static det.	Other	247	0	1.77	437	2539	1.01	2.46	0.71
	corresp. Moment	k-ft					32	82	-				36	101	-			33			58	1721	1.06		
Bot chord L64-L65 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	279	623	-	1.11	1.22	1.55	310	760	-	Static det.	Other	268	0	1.77	474	2539	1.01	2.46	0.69
	corresp. Moment	k-ft					30	-85	-				33	-104	-			-40			-71	1721	1.06		
Diagonal L1-U2 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-246	-643	-	1.11	1.22	1.55	-273	-785	-	Static det.	Other	-283	0.25	1.77	-627	2160	1.01	1.43	0.88
	corresp. Moment	k-ft					-56	-41	-				-62	-50	-			-18			-41	1480	1.06		
Diagonal U2-L3 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	371	-	1.11	1.22	1.55	158	453	-	Static det.	Other	204	0.25	1.77	452	1631	1.01	1.85	0.73
	corresp. Moment	k-ft					-28	37	-				-31	45	-			19			43	744	1.06		
Diagonal L3-U4 - (4 loaded lanes)	**Compression**	**kips**	**S1**	**E1**	**INSP3**	**4.00**	**-47**	**-132**	**-**	**1.11**	**1.22**	**1.55**	**-53**	**-161**	**-**	**Static det.**	**Other**	**-150**	**0.25**	**1.77**	**-332**	**596**	**1.01**	**1.06**	**0.95**
	corresp. Moment	**k-ft**					**-11**	**7**	**-**				**-12**	**8**	**-**			**7**			**15**	**352**	**1.06**		
Diagonal U4-L5 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-45	-127	-	1.11	1.22	1.55	-50	-155	-	Static det.	Other	-120	0.25	1.77	-266	604	1.01	1.40	0.81
	corresp. Moment	k-ft					-10	7	-				-12	9	-			6			12	352	1.06		
Diagonal L5-U6 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	372	-	1.11	1.22	1.55	159	454	-	Static det.	Other	185	0.25	1.77	409	1631	1.01	2.10	0.68
	corresp. Moment	k-ft					-27	28	-				-30	34	-			16			35	744	1.06		
Diagonal U6-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-245	-639	-	1.11	1.22	1.55	-272	-779	-	Static det.	Other	-257	0.25	1.77	-568	2149	1.01	1.67	0.82
	corresp. Moment	k-ft					-51	-11	-				-56	-14	-			-16			-35	1480	1.06		
Diagonal L7-U8 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	882	-	1.11	1.22	1.55	383	1076	-	Static det.	Other	398	0	1.77	704	3177	1.01	2.10	0.73
	corresp. Moment	k-ft					-49	-46	-				-54	-56	-			11			19	1888	1.06		
Diagonal U8-L9 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-1128	-	1.11	1.22	1.55	-504	-1376	-	Static det.	Other	-478	0	1.77	-845	3540	1.01	1.55	0.87
	corresp. Moment	k-ft					-78	-64	-				-86	-78	-			-37			-66	2304	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L9-U10 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-146	-328	-	1.11	1.22	1.55	-162	-401	-	Static det.	Other	-314	0	1.77	-556	1639	1.01	1.55	0.80
	corresp. Moment	k-ft					-34	-30	-				-38	-37	-			-32			-57	1132	1.06		
Diagonal U10-L11 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	49	94	-	1.11	1.22	1.55	54	114	-	Static det.	Other	232	0	1.77	411	1238	1.01	2.46	0.50
	corresp. Moment	k-ft					-18	11	-				-20	13	-			-6			-11	622	1.06		
Diagonal L11-U12 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	50	95	-	1.11	1.22	1.55	55	116	-	Static det.	Other	242	0	1.77	428	1238	1.01	2.40	0.51
	corresp. Moment	k-ft					-18	10	-				-20	13	-			-6			-10	622	1.06		
Diagonal U12-L13 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-143	-322	-	1.11	1.22	1.55	-159	-392	-	Static det.	Other	-305	0	1.77	-539	1650	1.01	1.61	0.78
	corresp. Moment	k-ft					-34	-29	-				-37	-36	-			-34			-61	1132	1.06		
Diagonal L13-U14 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-463	-1151	-	1.11	1.22	1.55	-514	-1404	-	Static det.	Other	-493	0	1.77	-873	3515	1.01	1.43	0.89
	corresp. Moment	k-ft					-78	-63	-				-87	-77	-			-35			-63	2304	1.06		
Diagonal U14-L15 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	338	864	-	1.11	1.22	1.55	376	1055	-	Static det.	Other	393	0	1.77	696	3177	1.01	2.10	0.71
	corresp. Moment	k-ft					-47	-44	-				-52	-53	-			20			36	1888	1.06		
Diagonal L15-U16 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-250	-652	-	1.11	1.22	1.55	-278	-796	-	Static det.	Other	-275	0.25	1.77	-609	2134	1.01	1.55	0.85
	corresp. Moment	k-ft					-50	-6	-				-55	-8	-			-12			-28	1480	1.06		
Diagonal U16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	140	365	-	1.11	1.22	1.55	156	446	-	Static det.	Other	189	0.25	1.77	418	1631	1.01	2.04	0.69
	corresp. Moment	k-ft					-27	29	-				-30	35	-			19			42	744	1.06		
Diagonal L17-U18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-46	-129	-	1.11	1.22	1.55	-51	-157	-	Static det.	Other	-132	0.25	1.77	-293	596	1.01	1.24	0.87
	corresp. Moment	k-ft					-11	7	-				-12	9	-			6			13	352	1.06		
Diagonal U18-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-47	-130	-	1.11	1.22	1.55	-52	-158	-	Static det.	Other	-134	0.25	1.77	-297	604	1.01	1.24	0.87
	corresp. Moment	k-ft					-10	7	-				-12	8	-			7			15	352	1.06		
Diagonal L19-U20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	145	378	-	1.11	1.22	1.55	161	461	-	Static det.	Other	200	0.25	1.77	442	1631	1.01	1.91	0.72
	corresp. Moment	k-ft					-28	36	-				-31	44	-			17			37	744	1.06		
Diagonal U20-L21 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-241	-630	-	1.11	1.22	1.55	-267	-769	-	Static det.	Other	-333	0	1.77	-589	2174	1.01	1.49	0.86
	corresp. Moment	k-ft					-57	-44	-				-63	-54	-			-27			-48	1480	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L22-U23 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-126	-361	-	1.11	1.22	1.55	-140	-440	-	Static det.	Other	-219	0.25	1.77	-484	1324	1.01	1.24	0.92
	corresp. Moment	k-ft					-31	-25	-				-35	-30	-			-15			-34	842	1.06		
Diagonal U23-L24 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	40	111	-	1.11	1.22	1.55	44	135	-	Static det.	Other	104	0.25	1.77	230	829	1.01	2.40	0.55
	corresp. Moment	k-ft					-10	12	-				-11	15	-			8			17	352	1.06		
Diagonal L24-U25 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	41	113	-	1.11	1.22	1.55	46	138	-	Static det.	Other	84	0.25	1.77	187	829	1.01	3.01	0.49
	corresp. Moment	k-ft					-10	12	-				-12	14	-			6			13	352	1.06		
Diagonal U25-L26 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-123	-352	-	1.11	1.22	1.55	-136	-429	-	Static det.	Other	-185	0.25	1.77	-409	1337	1.01	1.49	0.85
	corresp. Moment	k-ft					-31	-25	-				-35	-31	-			-16			-36	842	1.06		
Diagonal L27-U28 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-504	-1091	-	1.11	1.22	1.55	-559	-1331	-	Static det.	Other	-465	0	1.77	-822	3613	1.01	1.61	0.85
	corresp. Moment	k-ft					-133	-81	-				-148	-99	-			-43			-76	3118	1.06		
Diagonal U28-L29 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	348	740	-	1.11	1.22	1.55	386	903	-	Static det.	Other	339	0	1.77	599	2698	1.01	1.91	0.77
	corresp. Moment	k-ft					-76	105	-				-85	128	-			54			95	1904	1.06		
Diagonal L29-U30 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-220	-480	-	1.11	1.22	1.55	-244	-586	-	Static det.	Other	-222	0.25	1.77	-490	1646	1.01	1.49	0.84
	corresp. Moment	k-ft					-54	48	-				-60	59	-			23			50	1349	1.06		
Diagonal U30-L31 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	72	134	-	1.11	1.22	1.55	80	164	-	Static det.	Other	149	0.25	1.77	330	1217	1.01	2.46	0.51
	corresp. Moment	k-ft					-22	14	-				-25	18	-			12			26	485	1.06		
Diagonal L31-U32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	128	-	1.11	1.22	1.55	77	156	-	Static det.	Other	143	0.25	1.77	316	1217	1.01	2.65	0.48
	corresp. Moment	k-ft					-23	13	-				-25	15	-			10			22	485	1.06		
Diagonal U32-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-463	-	1.11	1.22	1.55	-234	-564	-	Static det.	Other	-198	0.25	1.77	-438	1664	1.01	1.73	0.78
	corresp. Moment	k-ft					-53	55	-				-59	67	-			-28			-63	1349	1.06		
Diagonal L33-U34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	354	743	-	1.11	1.22	1.55	393	906	-	Static det.	Other	320	0	1.77	566	2698	1.01	2.10	0.72
	corresp. Moment	k-ft					-68	45	-				-76	55	-			38			67	1904	1.06		
Diagonal U34-L35 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-502	-1098	-	1.11	1.22	1.55	-558	-1339	-	Static det.	Other	-450	0	1.77	-797	3590	1.01	1.85	0.81
	corresp. Moment	k-ft					-129	1	-				-143	1	-			-20			-36	3118	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L35-U36 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	599	1231	-	1.11	1.22	1.55	665	1501	-	Static det.	Other	454	0	1.77	804	4433	1.01	2.28	0.73
	corresp. Moment	k-ft					-89	-97	-				-99	-119	-			28			49	2955	1.06		
Diagonal U36-L37 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-737	-1493	-	1.11	1.22	1.55	-818	-1822	-	Static det.	Other	-526	0	1.77	-931	5044	1.01	1.79	0.85
	corresp. Moment	k-ft					-221	-219	-				-246	-267	-			-70			-123	4486	1.06		
Diagonal L37-U38 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	462	850	-	1.11	1.22	1.55	513	1037	-	Static det.	Other	309	0	1.77	547	3177	1.01	2.10	0.76
	corresp. Moment	k-ft					-204	262	-				-226	320	-			99			175	2592	1.06		
Diagonal L38-U39 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	512	886	-	1.11	1.22	1.55	569	1080	-	Static det.	Other	337	0	1.77	597	3309	1.01	1.55	0.89
	corresp. Moment	k-ft					-182	-194	-				-202	-237	-			-73			-129	2656	1.06		
Diagonal U39-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	38	-529	-	0.95	1.22	1.55	42	-645	-	Static det.	Other	-486	0	1.77	-860	3243	1.01	2.22	0.62
	corresp. Moment	k-ft					-107	-163	-				-119	-199	-			-100			-176	2923	1.06		
Diagonal U40-L41 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	261	-132	-	1.11	0.90	1.55	290	-161	-	Static det.	Other	633	0	1.77	1121	3309	1.01	1.91	0.44
	corresp. Moment	k-ft					-155	-53	-				-172	-65	-			192			339	2656	1.06		
Diagonal U41-L42 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	362	-	1.11	1.22	1.55	552	441	-	Static det.	Other	674	0	1.77	1192	4058	1.01	1.79	0.61
	corresp. Moment	k-ft					-161	-160	-				-179	-196	-			105			187	2787	1.06		
Diagonal L42-U43 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-615	-988	-	1.11	1.22	1.55	-683	-1206	-	Static det.	Other	-526	0	1.77	-931	4596	1.01	2.22	0.67
	corresp. Moment	k-ft					-145	-127	-				-161	-155	-			62			110	3749	1.06		
Diagonal U43-L44 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	416	651	-	1.11	1.22	1.55	462	794	-	Static det.	Other	418	0	1.77	739	3246	1.01	2.40	0.70
	corresp. Moment	k-ft					-67	-78	-				-75	-95	-			-1			-1	2118	1.06		
Diagonal L44-U45 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-253	-433	-	1.11	1.22	1.55	-281	-528	-	Static det.	Other	-371	0	1.77	-656	2371	1.01	1.98	0.65
	corresp. Moment	k-ft					-49	-40	-				-54	-49	-			31			55	1666	1.06		
Diagonal U45-L46 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	86	109	-	1.11	1.22	1.55	96	133	-	Static det.	Other	272	0	1.77	481	1906	1.01	3.07	0.38
	corresp. Moment	k-ft					-21	-12	-				-23	-15	-			19			33	1186	1.06		
Diagonal L46-U47 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	111	-	1.11	1.22	1.55	78	135	-	Static det.	Other	256	0	1.77	453	1906	1.01	3.20	0.36
	corresp. Moment	k-ft					-20	-13	-				-22	-15	-			26			46	1186	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U47-L48 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-236	-435	-	1.11	1.22	1.55	-262	-531	-	Static det.	Other	-353	0	1.77	-625	2371	1.01	2.04	0.62
	corresp. Moment	k-ft					-47	-41	-				-52	-50	-			40			71	1666	1.06		
Diagonal L48-U49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	400	653	-	1.11	1.22	1.55	444	797	-	Static det.	Other	402	0	1.77	712	3246	1.01	2.46	0.68
	corresp. Moment	k-ft					-65	-78	-				-72	-95	-			6			10	2118	1.06		
Diagonal U49-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-599	-991	-	1.11	1.22	1.55	-665	-1209	-	Static det.	Other	-500	0	1.77	-885	4596	1.01	2.16	0.63
	corresp. Moment	k-ft					-143	-127	-				-158	-155	-			111			196	3749	1.06		
Diagonal L50-U51 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	362	-	1.11	1.22	1.55	552	441	-	Static det.	Other	673	0	1.77	1191	4058	1.01	1.79	0.61
	corresp. Moment	k-ft					-160	-161	-				-177	-196	-			99			176	2787	1.06		
Diagonal L51-U52 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	271	-133	-	1.11	0.90	1.55	301	-163	-	Static det.	Other	628	0	1.77	1111	3309	1.01	1.91	0.43
	corresp. Moment	k-ft					-156	-53	-				-173	-65	-			189			335	2656	1.06		
Diagonal L52-U53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	52	-531	-	0.95	1.22	1.55	58	-647	-	Static det.	Other	-509	0	1.77	-901	3243	1.01	2.10	0.63
	corresp. Moment	k-ft					-109	-164	-				-121	-200	-			-113			-200	2923	1.06		
Diagonal U53-L54 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	502	885	-	1.11	1.22	1.55	557	1079	-	Static det.	Other	356	0	1.77	630	3309	1.01	1.61	0.88
	corresp. Moment	k-ft					-181	-195	-				-201	-237	-			-46			-82	2656	1.06		
Diagonal U54-L55 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	446	847	-	1.11	1.22	1.55	495	1034	-	Static det.	Other	326	0	1.77	576	3177	1.01	1.91	0.78
	corresp. Moment	k-ft					-194	260	-				-215	317	-			115			203	2592	1.06		
Diagonal L55-U56 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-718	-1496	-	1.11	1.22	1.55	-797	-1826	-	Static det.	Other	-532	0	1.77	-942	5044	1.01	1.61	0.87
	corresp. Moment	k-ft					-221	-240	-				-246	-293	-			-115			-204	4486	1.06		
Diagonal U56-L57 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	588	1230	-	1.11	1.22	1.55	653	1500	-	Static det.	Other	457	0	1.77	810	4433	1.01	2.28	0.72
	corresp. Moment	k-ft					-106	-72	-				-117	-88	-			30			54	2955	1.06		
Diagonal L57-U58 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-498	-1099	-	1.11	1.22	1.55	-553	-1341	-	Static det.	Other	-444	0	1.77	-785	3590	1.01	1.98	0.80
	corresp. Moment	k-ft					-128	6	-				-142	7	-			-10			-18	3118	1.06		
Diagonal U58-L59 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	352	744	-	1.11	1.22	1.55	390	907	-	Static det.	Other	317	0	1.77	562	2698	1.01	2.10	0.72
	corresp. Moment	k-ft					-69	45	-				-76	54	-			42			74	1904	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L59-U60 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-465	-	1.11	1.22	1.55	-233	-568	-	Static det.	Other	-201	0.25	1.77	-445	1664	1.01	1.67	0.79
	corresp. Moment	k-ft					-55	56	-				-61	68	-			-28			-61	1349	1.06		
Diagonal U60-L61 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	66	125	-	1.11	1.22	1.55	73	152	-	Static det.	Other	141	0.25	1.77	312	923	1.01	1.98	0.62
	corresp. Moment	k-ft					-17	13	-				-19	15	-			10			21	462	1.06		
Diagonal L61-U62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	129	-	1.11	1.22	1.55	74	157	-	Static det.	Other	148	0.25	1.77	327	923	1.01	1.85	0.66
	corresp. Moment	k-ft					-17	14	-				-18	17	-			11			25	462	1.06		
Diagonal U62-L63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-218	-481	-	1.11	1.22	1.55	-242	-587	-	Static det.	Other	-217	0.25	1.77	-481	1646	1.01	1.49	0.85
	corresp. Moment	k-ft					-56	50	-				-62	61	-			-33			-73	1349	1.06		
Diagonal L63-U64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	739	-	1.11	1.22	1.55	383	901	-	Static det.	Other	342	0	1.77	606	2698	1.01	1.91	0.77
	corresp. Moment	k-ft					-75	105	-				-84	128	-			50			88	1904	1.06		
Diagonal U64-L65 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-501	-1090	-	1.11	1.22	1.55	-556	-1329	-	Static det.	Other	-467	0	1.77	-827	3613	1.01	1.61	0.86
	corresp. Moment	k-ft					-133	-82	-				-148	-100	-			-46			-81	3118	1.06		
Vertical U1-L1 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-101	-	1.11	1.22	1.55	-42	-123	-	Static det.	Other	-108	0.25	1.77	-238	598	1.01	1.76	0.68
	corresp. Moment	k-ft					-9	11	-				-10	13	-			-2			-4	302	1.06		
Vertical U2-L2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-3	-	1.11	0.90	1.55	13	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.10
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			0			0	68	1.06		
Vertical U3-L3 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-191	-	1.11	1.22	1.55	-60	-233	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.12	0.95
	corresp. Moment	k-ft					6	16	-				7	20	-			8			17	316	1.06		
Vertical U4-L4 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	9.54	0.09
	corresp. Moment	k-ft					0	0	-				0	0	-			1			3	68	1.06		
Vertical U5-L5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-189	-	1.11	1.22	1.55	-59	-230	-	Static det.	Other	-135	0.25	1.77	-299	738	1.01	1.30	0.89
	corresp. Moment	k-ft					-7	-18	-				-8	-22	-			0			-1	316	1.06		
Vertical U6-L6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	1.22	1.55	14	0	-	Static det.	Other	3	0.25	1.77	6	500	1.01	>10	0.07
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-3	68	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U7-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-182	-	1.11	1.22	1.55	-53	-223	-	Static det.	Other	-136	0.25	1.77	-301	738	1.01	1.43	0.83
	corresp. Moment	k-ft					-3	14	-				-4	18	-			1			3	316	1.06		
Vertical U8-L8 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-3	-	1.11	0.90	1.55	15	-4	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					2	5	-				2	6	-			0			0	69	1.06		
Vertical U9-L9 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-191	-	1.11	1.22	1.55	-72	-233	-	Static det.	Other	-133	0.25	1.77	-294	738	1.01	1.43	0.82
	corresp. Moment	k-ft					-2	-4	-				-2	-4	-			2			4	316	1.06		
Vertical U10-L10 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-4	0.25	1.77	-10	214	1.01	>10	0.06
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			1			3	69	1.06		
Vertical U11-L11 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-154	-	1.11	1.22	1.55	-53	-188	-	Static det.	Other	-116	0.25	1.77	-257	738	1.01	1.91	0.68
	corresp. Moment	k-ft					0	0	-				0	1	-			-1			-3	316	1.06		
Vertical U12-L12 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-5	0.25	1.77	-11	214	1.01	>10	0.13
	corresp. Moment	k-ft					1	3	-				1	3	-			1			1	69	1.06		
Vertical U13-L13 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-191	-	1.11	1.22	1.55	-72	-233	-	Static det.	Other	-140	0.25	1.77	-311	738	1.01	1.37	0.86
	corresp. Moment	k-ft					2	5	-				2	6	-			0			1	316	1.06		
Vertical U14-L14 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-4	-	1.11	0.90	1.55	15	-5	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					-2	-5	-				-2	-6	-			0			0	69	1.06		
Vertical U15-L15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-183	-	1.11	1.22	1.55	-53	-224	-	Static det.	Other	-130	0.25	1.77	-288	738	1.01	1.49	0.82
	corresp. Moment	k-ft					3	-12	-				3	-15	-			-2			-5	316	1.06		
Vertical U16-L16 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	0.90	1.55	14	0	-	Static det.	Other	3	0.25	1.77	7	500	1.01	>10	0.04
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			4	68	1.06		
Vertical U17-L17 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-189	-	1.11	1.22	1.55	-59	-231	-	Static det.	Other	-139	0.25	1.77	-307	738	1.01	1.18	0.94
	corresp. Moment	k-ft					7	17	-				7	21	-			6			13	316	1.06		
Vertical U18-L18 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-6	0.25	1.77	-13	210	1.01	>10	0.07
	corresp. Moment	k-ft					0	0	-				0	0	-			1			2	68	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U19-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-190	-	1.11	1.22	1.55	-60	-232	-	Static det.	Other	-135	0.25	1.77	-298	738	1.01	1.30	0.89
	corresp. Moment	k-ft					-7	-17	-				-7	-21	-			0			-1	316	1.06		
Vertical U20-L20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-2	-	1.11	0.90	1.55	14	-2	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			2	68	1.06		
Vertical U21-L21 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-104	-	1.11	1.22	1.55	-41	-127	-	Static det.	Other	-132	0.25	1.77	-293	598	1.01	1.24	0.88
	corresp. Moment	k-ft					9	9	-				10	12	-			6			13	302	1.06		
Vertical U22-L22 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-99	-	1.11	1.22	1.55	-41	-121	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.37	0.83
	corresp. Moment	k-ft					-8	-9	-				-9	-12	-			-3			-6	302	1.06		
Vertical U23-L23 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	11	-3	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			2			5	68	1.06		
Vertical U24-L24 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-50	-183	-	1.11	1.22	1.55	-56	-224	-	Static det.	Other	-133	0.25	1.77	-295	738	1.01	1.52	0.79
	corresp. Moment	k-ft					0	-1	-				0	-1	-			2			5	316	1.06		
Vertical U25-L25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	12	-2	-	Static det.	Other	1	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-4	68	1.06		
Vertical U26-L26 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-36	-99	-	1.11	1.22	1.55	-40	-121	-	Static det.	Other	-128	0.25	1.77	-284	598	1.01	1.34	0.84
	corresp. Moment	k-ft					8	8	-				8	10	-			5			11	302	1.06		
Vertical U27-L27 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-122	-	1.11	1.22	1.55	-47	-148	-	Static det.	Other	-115	0.25	1.77	-254	549	1.01	1.18	0.92
	corresp. Moment	k-ft					-11	-10	-				-12	-12	-			-2			-5	298	1.06		
Vertical U28-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			-1			-1	69	1.06		
Vertical U29-L29 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-216	-	1.11	1.22	1.55	-73	-263	-	Static det.	Other	-150	0.25	1.77	-331	897	1.01	1.37	0.87
	corresp. Moment	k-ft					16	31	-				17	38	-			9			19	603	1.06		
Vertical U30-L30 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-5	-	1.11	0.90	1.55	23	-6	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.05
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			2			4	69	1.06		

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U31-L31 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-69	-207	-	1.11	1.22	1.55	-76	-253	-	Static det.	Other	-141	0.25	1.77	-313	897	1.01	1.73	0.73
	corresp. Moment	k-ft					-1	-1	-				-1	-2	-			6			13	603	1.06		
Vertical U32-L32 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-2	-	1.11	0.90	1.55	23	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	2	-				1	3	-			-2			-3	69	1.06		
Vertical U33-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-205	-	1.11	1.22	1.55	-70	-250	-	Static det.	Other	-149	0.25	1.77	-329	897	1.01	1.49	0.84
	corresp. Moment	k-ft					-16	-36	-				-18	-44	-			-3			-7	603	1.06		
Vertical U34-L34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	8	-	1.11	1.22	1.55	26	9	-	Static det.	Other	9	0	1.77	16	500	1.01	>10	0.20
	corresp. Moment	k-ft					1	3	-				1	4	-			1			1	69	1.06		
Vertical U35-L35 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-166	-	1.11	1.22	1.55	-69	-203	-	Static det.	Other	-134	0.25	1.77	-296	1026	1.01	2.40	0.58
	corresp. Moment	k-ft					-13	19	-				-14	23	-			6			13	714	1.06		
Vertical U36-L36 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	26	2	-	1.11	1.22	1.55	28	2	-	Static det.	Other	1	0.25	1.77	3	500	1.01	>10	0.16
	corresp. Moment	k-ft					2	3	-				2	4	-			0			1	70	1.06		
Vertical U37-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-77	-213	-	1.11	1.22	1.55	-85	-260	-	Static det.	Other	-142	0.25	1.77	-313	901	1.01	1.37	0.87
	corresp. Moment	k-ft					20	36	-				22	44	-			6			13	559	1.06		
Vertical U38-L38 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-466	-913	-	1.11	1.22	1.55	-517	-1114	-	Static det.	Other	-354	0	1.77	-627	3405	1.01	1.37	0.92
	corresp. Moment	k-ft					-210	-386	-				-233	-470	-			-165			-292	3890	1.06		
Vertical U39-L39 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-616	-565	-	1.11	1.22	1.55	-684	-689	-	Static det.	Other	-513	0	1.77	-908	3856	1.01	2.46	0.63
	corresp. Moment	k-ft					-66	-193	-				-74	-236	-			31			55	6112	1.06		
Vertical U40-L40 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-310	-140	-	1.11	1.22	1.55	-344	-171	-	Static det.	Other	-557	0	1.77	-986	3182	1.01	2.16	0.48
	corresp. Moment	k-ft					93	78	-				104	96	-			-122			-217	3570	1.06		
Vertical U41-L41 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-513	-	1.11	1.22	1.55	-516	-626	-	Static det.	Other	-543	0	1.77	-962	3776	1.01	1.58	0.63
	corresp. Moment	k-ft					174	97	-				193	118	-			-335			-593	3889	1.06		
Vertical U42-L42 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-282	-	1.11	1.22	1.55	-110	-343	-	Static det.	Other	-116	0.25	1.77	-257	1164	1.01	1.98	0.75
	corresp. Moment	k-ft					-29	-30	-				-32	-37	-			-15			-33	714	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U43-L43 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.15
	corresp. Moment	k-ft					-2	-4	-				-2	-4	-			1			1	70	1.06		
Vertical U44-L44 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-162	-	1.11	1.22	1.55	-64	-197	-	Static det.	Other	-124	0.25	1.77	-273	1164	1.01	2.46	0.62
	corresp. Moment	k-ft					26	44	-				29	54	-			13			29	714	1.06		
Vertical U45-L45 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	5	0.25	1.77	11	500	1.01	>10	0.07
	corresp. Moment	k-ft					-1	-2	-				-1	-2	-			2			4	70	1.06		
Vertical U46-L46 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-55	-165	-	1.11	1.22	1.55	-61	-201	-	Static det.	Other	-126	0.25	1.77	-278	1164	1.01	2.95	0.49
	corresp. Moment	k-ft					1	0	-				1	0	-			9			20	714	1.06		
Vertical U47-L47 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	4	0.25	1.77	9	500	1.01	>10	0.05
	corresp. Moment	k-ft					1	2	-				1	3	-			-2			-4	70	1.06		
Vertical U48-L48 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-162	-	1.11	1.22	1.55	-64	-197	-	Static det.	Other	-124	0.25	1.77	-275	1164	1.01	2.83	0.58
	corresp. Moment	k-ft					-25	-44	-				-28	-54	-			-1			-2	714	1.06		
Vertical U49-L49 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	25	-4	-	1.11	0.90	1.55	27	-4	-	Static det.	Other	11	0	1.77	19	500	1.01	>10	0.15
	corresp. Moment	k-ft					2	4	-				2	4	-			-1			-1	70	1.06		
Vertical U50-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-282	-	1.11	1.22	1.55	-110	-344	-	Static det.	Other	-125	0.25	1.77	-276	1164	1.01	2.04	0.75
	corresp. Moment	k-ft					29	30	-				32	37	-			8			19	714	1.06		
Vertical U51-L51 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-513	-	1.11	1.22	1.55	-516	-626	-	Static det.	Other	-541	0	1.77	-958	3776	1.01	1.58	0.63
	corresp. Moment	k-ft					-176	-97	-				-196	-118	-			336			595	3889	1.06		
Vertical U52-L52 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-317	-139	-	1.11	1.22	1.55	-351	-170	-	Static det.	Other	-552	0	1.77	-977	3182	1.01	1.91	0.52
	corresp. Moment	k-ft					-97	-79	-				-108	-96	-			224			396	3570	1.06		
Vertical U53-L53 - (8 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-618	-563	-	1.11	1.22	1.55	-687	-686	-	Static det.	Other	-513	0	1.77	-909	3856	1.01	2.46	0.63
	corresp. Moment	k-ft					63	193	-				69	235	-			-41			-73	6112	1.06		
Vertical U54-L54 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-911	-	1.11	1.22	1.55	-504	-1112	-	Static det.	Other	-372	0	1.77	-659	3405	1.01	1.37	0.92
	corresp. Moment	k-ft					207	386	-				230	471	-			154			273	3890	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U55-L55 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-76	-211	-	1.11	1.22	1.55	-85	-258	-	Static det.	Other	-137	0.25	1.77	-302	901	1.01	1.43	0.87
	corresp. Moment	k-ft					-18	-35	-				-20	-43	-			-10			-22	559	1.06		
Vertical U56-L56 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	19	1	-	1.11	1.22	1.55	21	1	-	Static det.	Other	1	0	1.77	2	500	1.01	>10	0.14
	corresp. Moment	k-ft					-1	-3	-				-2	-4	-			-1			-1	70	1.06		
Vertical U57-L57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-56	-164	-	1.11	1.22	1.55	-62	-200	-	Static det.	Other	-133	0.25	1.77	-293	1026	1.01	2.52	0.56
	corresp. Moment	k-ft					13	-15	-				14	-19	-			-4			-9	714	1.06		
Vertical U58-L58 - (8 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	8	-	1.11	1.22	1.55	25	9	-	Static det.	Other	8	0.25	1.77	17	500	1.01	>10	0.17
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			0			0	69	1.06		
Vertical U59-L59 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-204	-	1.11	1.22	1.55	-70	-249	-	Static det.	Other	-147	0.25	1.77	-325	897	1.01	1.43	0.85
	corresp. Moment	k-ft					16	36	-				18	43	-			9			21	603	1.06		
Vertical U60-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	0	-	1.11	0.90	1.55	25	0	-	Static det.	Other	4	0.25	1.77	8	500	1.01	>10	0.08
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			2			4	69	1.06		
Vertical U61-L61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-203	-	1.11	1.22	1.55	-74	-248	-	Static det.	Other	-139	0.25	1.77	-308	897	1.01	1.73	0.74
	corresp. Moment	k-ft					1	2	-				1	2	-			9			19	603	1.06		
Vertical U62-L62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	-3	-	1.11	0.90	1.55	24	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	3	-			-2			-4	69	1.06		
Vertical U63-L63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-215	-	1.11	1.22	1.55	-73	-262	-	Static det.	Other	-148	0.25	1.77	-327	897	1.01	1.49	0.84
	corresp. Moment	k-ft					-15	-31	-				-17	-37	-			-2			-5	603	1.06		
Vertical U64-L64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			1	69	1.06		
Vertical U65-L65 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-118	-	1.11	1.22	1.55	-47	-144	-	Static det.	Other	-118	0.25	1.77	-261	549	1.01	1.15	0.94
	corresp. Moment	k-ft					11	10	-				12	12	-			5			11	298	1.06		
Floorbeam 2 (for 23.5 to 26.25' panels) - (2 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	141	137	0	1.07	1.14	1.35	151	156	0	Sophist.	Other	1303	0.25	1.49	2427	5757	1.06	2.39	-

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
Floorbeam 2 (for 23.5 to 26.25' panels) - (2 loaded lanes)	Max - ve Moment at 22.30 from start	k-ft	S2	E3	INSP3	3.00	-204	-1489	0	1.07	1.14	1.35	-194	-1340	0	Sophist.	Other	-645	0.25	1.49	-1201	5757	1.06	3.81	-
Floorbeam 2 (for 23.5 to 26.25' panels) - (8 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-24	-105	0	1.07	1.14	1.35	-25	-120	0	Sophist.	Other	-98	0.25	1.49	-183	513	1.03	2.09	-
Floorbeam 1 (31.25' panels) - (2 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	161	164	0	1.07	1.14	1.35	173	187	0	Sophist.	Other	1421	0.25	1.49	2647	6363	1.06	2.41	-
Floorbeam 1 (31.25' panels) - (2 loaded lanes)	Max - ve Moment at 22.30 from start	k-ft	S2	E3	INSP3	3.00	-235	-1773	0	1.07	1.14	1.35	-223	-1595	0	Sophist.	Other	-703	0.25	1.49	-1310	6363	1.06	3.76	-
Floorbeam 1 (31.25' panels) - (8 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-27	-125	0	1.07	1.14	1.35	-29	-143	0	Sophist.	Other	-107	0.25	1.49	-200	513	1.03	1.79	-
26.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	201	0.30	1.42	370	664	1.00	1.55	-
26.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	35	0.30	1.42	64	227	1.02	3.41	-
23.50 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	196	0.30	1.42	362	664	1.00	1.58	-
23.50 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	35	0.30	1.42	64	227	1.02	3.41	-
25.00 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max + ve Moment at 12.50 from start	k-ft	S3	E3	INSP3	2.75	9	65	0	1.06	1.12	1.30	10	73	0	Sophist.	Other	185	0.30	1.42	342	664	1.00	1.70	-
25.00 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 25.00 from start	kip	S3	E3	INSP3	2.75	1	10	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	33	0.30	1.42	61	227	1.02	3.57	-
31.25 ft span Stringer 3 - W Beam- (2 loaded lanes)	Max + ve Moment at 15.63 from start	k-ft	S3	E3	INSP3	2.75	14	102	0	1.06	1.12	1.30	15	114	0	Sophist.	Other	253	0.30	1.42	468	664	1.00	1.14	-

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
31.25 ft span Stringer 3 - W Beam - (2 loaded lanes)	Max Shear at 31.25 from start	kip	S3	E3	INSP3	2.75	2	13	0	1.06	1.12	1.30	2	15	0	Sophist.	Other	36	0.30	1.42	66	227	1.02	3.26	-
																								1.06	

Notes:
1. Load rating according to CSA-S6-06 (as per Section 14)
2. Highway Class A (as per Clause 1.5.2.2)
3. Live loading models evaluated:
- CL-625 Normal Traffic
4. When DLA = 0, it implies that lane loading governs
5. Concrete surfacing with nominal thckness of 55 mm used for evaluation (based on field sampling by City)
6. Target reliability index (eg Beta factors) increased by 0.25 to reflect Important Structures
7. Load rating demands derived from full 3D analysis model of bridge (S-Frame ver 9)
8. Material properties used to calculate resistances are as follows:
- Median structural steel (Me), Fy=33 ksi, Fu=60 ksi
- Structural silicon steel (S1), Fy=46 ksi (plates less then 32 mm), Fy=43.9 ksi (for plates between 32 and 44 mm)
- Deck stringers and floorbeams: 33 ksi
9. For truss diagonals and verticals, effective lengths kL taken as 0.9 L where L is between truss work points. Kl taken as 1.0 for truss chords
10. Truss section properties based on design drawings updated to reflect shop/As-built drawings
11. For stringers, loads are applied statically for the tributary widths (essentially assuming that deck is simply supported between stringers)

Evaluator		
Checker		

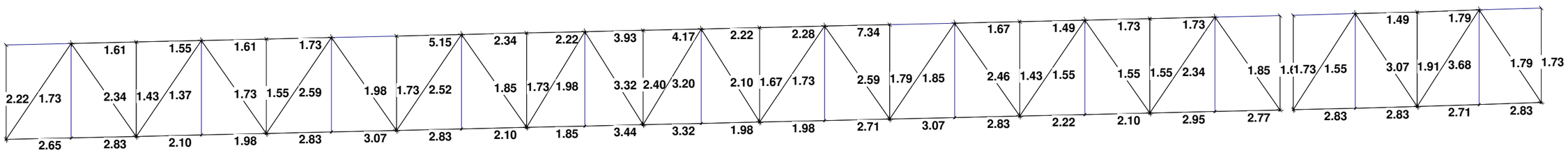
Tabulation was checked for completness by:

Appendix E - Load Rating for the Bridge in Future Configuration F2

Granville Street Bridge Load Rating - with suicide fences and concrete barriers for bike lanes

Graphical summary (governing LLCF`s shown)

Nov 8, 2010



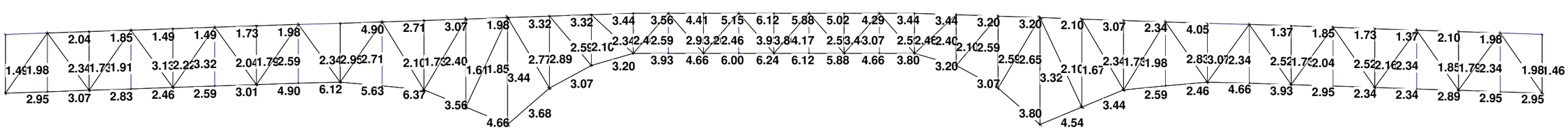

2.04 1.85 1.49 1.49 1.73 1.98 4.90 2.71 3.07 1.98 3.32 3.32 3.44 3.56 4.41 5.15 6.12 5.88 5.02 4.29 3.44 3.44 3.20 3.20 2.10 3.07 2.34 4.05 1.37 1.85 1.73 1.37 2.10 1.98
1.49 1.98 2.34 1.73 1.91 3.13 2.22 3.32 2.04 1.79 2.59 2.34 2.95 2.71 2.10 1.79 2.40 1.61 1.85 3.44 2.77 2.89 2.59 2.10 3.20 2.34 2.42 2.59 2.93 3.22 2.46 3.93 3.84 4.17 2.53 3.43 3.07 2.52 2.46 2.40 2.10 2.59 2.59 2.65 3.32 2.10 1.67 2.34 1.73 1.98 2.83 3.07 2.34 2.52 1.79 2.04 2.52 2.16 2.34 1.85 1.79 2.34 1.98 1.46
3.93 4.66 6.00 6.24 6.12 5.88 4.66 3.80 3.20 3.07
2.95 3.07 2.83 2.46 2.59 3.01 4.90 6.12 5.63 6.37 3.56 4.66 3.68 3.07 3.80 4.54 3.44 2.59 2.46 4.66 3.93 2.95 2.34 2.34 2.89 2.95 2.95

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U1-U2 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	12	0	1.77	22	1379	1.01	>10	0.04
	corresp. Moment	k-ft					9	-12	-				10	-14	-			-5			-9	899	1.06		
Top chord U2-U3 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-594	-	1.11	1.22	1.55	-237	-725	-	Static det.	Other	-184	0.25	1.77	-407	2161	1.01	1.61	0.83
	corresp. Moment	k-ft					-50	141	-				-56	172	-			72			160	1399	1.06		
Top chord U3-U4 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-586	-	1.11	1.22	1.55	-234	-715	-	Static det.	Other	-181	0.25	1.77	-400	2161	1.01	1.55	0.86
	corresp. Moment	k-ft					32	124	-				36	151	-			66			146	1399	1.06		
Top chord U4-U5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-588	-	1.11	1.22	1.55	-234	-717	-	Static det.	Other	-184	0.25	1.77	-407	2161	1.01	1.61	0.86
	corresp. Moment	k-ft					34	138	-				38	168	-			55			122	1399	1.06		
Top chord U5-U6 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-599	-	1.11	1.22	1.55	-239	-731	-	Static det.	Other	-184	0.25	1.77	-407	2161	1.01	1.73	0.82
	corresp. Moment	k-ft					-61	156	-				-67	191	-			61			135	1399	1.06		
Top chord U6-U7 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1257	1.01	>10	0.26
	corresp. Moment	k-ft					40	161	-				44	196	-			0			0	899	1.06		
Top chord U7-U8 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-8	-	1.11	1.22	1.55	-4	-10	-	Static det.	Other	-13	0	1.77	-23	1189	1.01	5.15	0.19
	corresp. Moment	k-ft					-67	-178	-				-74	-218	-			72			128	1011	1.06		
Top chord U8-U9 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1189	-	1.11	1.22	1.55	490	1451	-	Static det.	Other	382	0	1.77	676	4257	1.01	2.34	0.75
	corresp. Moment	k-ft					-81	-85	-				-90	-104	-			-60			-106	2280	1.06		
Top chord U9-U10 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	439	1184	-	1.11	1.22	1.55	488	1444	-	Static det.	Other	372	0	1.77	658	4257	1.01	2.22	0.77
	corresp. Moment	k-ft					-80	-123	-				-88	-150	-			-68			-120	2280	1.06		
Top chord U10-U11 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	952	-	1.11	1.22	1.55	379	1161	-	Static det.	Other	233	0	1.77	413	3514	1.01	3.93	0.63
	corresp. Moment	k-ft					-76	178	-				-84	217	-			16			28	2170	1.06		
Top chord U11-U12 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	342	953	-	1.11	1.22	1.55	379	1162	-	Static det.	Other	239	0	1.77	423	3514	1.01	4.17	0.62
	corresp. Moment	k-ft					-78	179	-				-86	218	-			5			9	2170	1.06		
Top chord U12-U13 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	440	1183	-	1.11	1.22	1.55	488	1444	-	Static det.	Other	376	0	1.77	666	4257	1.01	2.22	0.77
	corresp. Moment	k-ft					-81	-129	-				-90	-157	-			-68			-120	2280	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U13-U14 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	441	1188	-	1.11	1.22	1.55	490	1450	-	Static det.	Other	388	0	1.77	687	4257	1.01	2.28	0.75
	corresp. Moment	k-ft					-83	-90	-				-92	-110	-			-60			-106	2280	1.06		
Top chord U14-U15 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-3	-9	-	1.11	1.22	1.55	-4	-11	-	Static det.	Other	-13	0	1.77	-24	1189	1.01	7.34	0.27
	corresp. Moment	k-ft					-63	170	-				-70	207	-			59			105	1011	1.06		
Top chord U15-U16 - (2 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1379	1.01	>10	0.25
	corresp. Moment	k-ft					38	157	-				43	192	-			0			0	899	1.06		
Top chord U16-U17 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-215	-600	-	1.11	1.22	1.55	-239	-732	-	Static det.	Other	-181	0.25	1.77	-401	2161	1.01	1.67	0.82
	corresp. Moment	k-ft					-59	149	-				-66	182	-			67			149	1399	1.06		
Top chord U17-U18 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-588	-	1.11	1.22	1.55	-234	-718	-	Static det.	Other	-181	0.25	1.77	-401	2161	1.01	1.49	0.88
	corresp. Moment	k-ft					33	131	-				37	160	-			69			153	1399	1.06		
Top chord U18-U19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-586	-	1.11	1.22	1.55	-233	-715	-	Static det.	Other	-178	0.25	1.77	-394	2161	1.01	1.73	0.84
	corresp. Moment	k-ft					33	131	-				37	160	-			50			111	1399	1.06		
Top chord U19-U20 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-213	-594	-	1.11	1.22	1.55	-236	-724	-	Static det.	Other	-185	0.25	1.77	-410	2161	1.01	1.73	0.81
	corresp. Moment	k-ft					-53	149	-				-59	182	-			57			126	1399	1.06		
Top chord U20-U21 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	3	9	-	1.11	1.22	1.55	3	11	-	Static det.	Other	12	0	1.77	20	1379	1.01	>10	0.04
	corresp. Moment	k-ft					8	-10	-				9	-12	-			-5			-9	899	1.06		
Top chord U22-U23 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	7	0.25	1.77	16	1379	1.01	>10	0.06
	corresp. Moment	k-ft					-7	-9	-				-8	-11	-			-6			-12	899	1.06		
Top chord U23-U24 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-263	-	1.11	1.22	1.55	-95	-321	-	Static det.	Other	-109	0.25	1.77	-241	1263	1.01	1.49	0.87
	corresp. Moment	k-ft					32	130	-				36	159	-			52			116	899	1.06		
Top chord U24-U25 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-86	-262	-	1.11	1.22	1.55	-95	-320	-	Static det.	Other	-106	0.25	1.77	-235	1263	1.01	1.79	0.78
	corresp. Moment	k-ft					-33	131	-				-37	160	-			53			116	899	1.06		
Top chord U25-U26 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	2	7	-	1.11	1.22	1.55	2	9	-	Static det.	Other	5	0.25	1.77	10	1379	1.01	>10	0.08
	corresp. Moment	k-ft					-10	-15	-				-11	-18	-			-14			-31	899	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Top chord U27-U28 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	5	14	-	1.11	1.22	1.55	6	18	-	Static det.	Other	16	0	1.77	28	1828	1.01	>10	0.03
	corresp. Moment	k-ft					20	-10	-				22	-13	-			-6			-10	1475	1.06		
Top chord U28-U29 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-479	-1095	-	1.11	1.22	1.55	-532	-1336	-	Static det.	Other	-341	0	1.77	-604	3904	1.01	2.04	0.78
	corresp. Moment	k-ft					-132	302	-				-147	369	-			138			244	3118	1.06		
Top chord U29-U30 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1084	-	1.11	1.22	1.55	-526	-1322	-	Static det.	Other	-324	0	1.77	-574	3904	1.01	1.85	0.83
	corresp. Moment	k-ft					69	270	-				76	329	-			134			237	3118	1.06		
Top chord U30-U31 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-638	-1454	-	1.11	1.22	1.55	-708	-1774	-	Static det.	Other	-439	0	1.77	-778	5163	1.01	1.49	0.90
	corresp. Moment	k-ft					115	414	-				128	505	-			175			311	3479	1.06		
Top chord U31-U32 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-637	-1453	-	1.11	1.22	1.55	-707	-1773	-	Static det.	Other	-434	0	1.77	-769	5163	1.01	1.49	0.90
	corresp. Moment	k-ft					113	415	-				126	507	-			173			307	3479	1.06		
Top chord U32-U33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-478	-1092	-	1.11	1.22	1.55	-531	-1332	-	Static det.	Other	-334	0	1.77	-591	3904	1.01	1.73	0.86
	corresp. Moment	k-ft					82	336	-				91	410	-			129			229	3118	1.06		
Top chord U33-U34 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-485	-1107	-	1.11	1.22	1.55	-538	-1350	-	Static det.	Other	-326	0	1.77	-577	3904	1.01	1.98	0.83
	corresp. Moment	k-ft					-163	-382	-				-181	-467	-			25			44	3118	1.06		
Top chord U34-U35 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.72
	corresp. Moment	k-ft					80	804	-				89	980	-			0			0	1475	1.06		
Top chord U35-U36 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-8	-14	-	1.11	1.22	1.55	-8	-17	-	Static det.	Other	-18	0	1.77	-32	4047	1.01	4.90	0.40
	corresp. Moment	k-ft					-227	807	-				-252	985	-			293			519	3258	1.06		
Top chord U36-U37 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	705	1542	-	1.11	1.22	1.55	782	1882	-	Static det.	Other	411	0	1.77	728	5151	1.01	2.71	0.76
	corresp. Moment	k-ft					-94	-288	-				-104	-351	-			-10			-17	4687	1.06		
Top chord U37-U38 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	694	1521	-	1.11	1.22	1.55	770	1856	-	Static det.	Other	387	0	1.77	685	5151	1.01	3.07	0.73
	corresp. Moment	k-ft					62	238	-				69	290	-			22			38	4687	1.06		
Top chord U38-U39 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	934	1993	-	1.11	1.22	1.55	1037	2431	-	Static det.	Other	492	0	1.77	871	7410	1.01	1.98	0.87
	corresp. Moment	k-ft					-526	-811	-				-584	-990	-			-160			-283	6613	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U39-U40 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1138	2677	-	1.11	1.22	1.55	1263	3266	-	Static det.	Other	733	0	1.77	1298	11353	1.01	3.32	0.66
	corresp. Moment	k-ft					-367	-273	-				-407	-333	-			-211			-373	7840	1.06		
Top chord U40-U41 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	969	2768	-	1.11	1.22	1.55	1075	3377	-	Static det.	Other	948	0	1.77	1678	12359	1.01	3.32	0.61
	corresp. Moment	k-ft					-199	-245	-				-220	-299	-			-216			-382	8175	1.06		
Top chord U41-U42 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	607	2498	-	1.11	1.22	1.55	674	3047	-	Static det.	Other	1091	0	1.77	1931	12359	1.01	3.44	0.58
	corresp. Moment	k-ft					-248	-406	-				-275	-496	-			-117			-208	8175	1.06		
Top chord U42-U43 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	604	2491	-	1.11	1.22	1.55	670	3039	-	Static det.	Other	1091	0	1.77	1930	12359	1.01	3.56	0.56
	corresp. Moment	k-ft					-151	-403	-				-167	-491	-			-114			-202	8175	1.06		
Top chord U43-U44 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-64	1370	-	0.95	1.22	1.55	-71	1671	-	Static det.	Other	907	0	1.77	1606	10983	1.01	4.41	0.44
	corresp. Moment	k-ft					-287	-572	-				-318	-698	-			-104			-184	7605	1.06		
Top chord U44-U45 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-65	1367	-	0.95	1.22	1.55	-72	1668	-	Static det.	Other	906	0	1.77	1604	10983	1.01	5.15	0.34
	corresp. Moment	k-ft					106	-252	-				118	-307	-			-77			-137	7605	1.06		
Top chord U45-U46 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	994	-	0.95	1.22	1.55	-313	1212	-	Static det.	Other	725	0	1.77	1284	9951	1.01	6.12	0.28
	corresp. Moment	k-ft					140	-309	-				156	-376	-			-70			-125	7174	1.06		
Top chord U46-U47 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-282	994	-	0.95	1.22	1.55	-313	1212	-	Static det.	Other	727	0	1.77	1286	9951	1.01	5.88	0.28
	corresp. Moment	k-ft					140	-309	-				155	-377	-			-91			-161	7174	1.06		
Top chord U47-U48 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-87	1370	-	0.95	1.22	1.55	-96	1671	-	Static det.	Other	921	0	1.77	1631	10983	1.01	5.02	0.34
	corresp. Moment	k-ft					109	-252	-				121	-307	-			-78			-139	7605	1.06		
Top chord U48-U49 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	-85	1373	-	0.95	1.22	1.55	-94	1675	-	Static det.	Other	922	0	1.77	1632	10983	1.01	4.29	0.45
	corresp. Moment	k-ft					-282	-573	-				-313	-699	-			-106			-187	7605	1.06		
Top chord U49-U50 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	561	2497	-	1.11	1.22	1.55	623	3046	-	Static det.	Other	1109	0	1.77	1962	12359	1.01	3.44	0.56
	corresp. Moment	k-ft					-149	-403	-				-165	-492	-			-116			-206	8175	1.06		
Top chord U50-U51 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	563	2496	-	1.11	1.22	1.55	625	3046	-	Static det.	Other	1109	0	1.77	1963	12359	1.01	3.44	0.58
	corresp. Moment	k-ft					-245	-407	-				-272	-496	-			-120			-212	8175	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U51-U52 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	925	2767	-	1.11	1.22	1.55	1027	3375	-	Static det.	Other	964	0	1.77	1706	12359	1.01	3.20	0.60
	corresp. Moment	k-ft					-196	-246	-				-218	-300	-			-217			-385	8175	1.06		
Top chord U52-U53 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	1101	2674	-	1.11	1.22	1.55	1222	3263	-	Static det.	Other	744	0	1.77	1318	11353	1.01	3.20	0.66
	corresp. Moment	k-ft					-368	-272	-				-409	-331	-			-227			-402	7840	1.06		
Top chord U53-U54 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	909	1990	-	1.11	1.22	1.55	1009	2428	-	Static det.	Other	461	0	1.77	816	7410	1.01	2.10	0.85
	corresp. Moment	k-ft					-517	-810	-				-574	-988	-			-154			-273	6613	1.06		
Top chord U54-U55 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	677	1520	-	1.11	1.22	1.55	752	1854	-	Static det.	Other	385	0	1.77	682	5151	1.01	3.07	0.73
	corresp. Moment	k-ft					64	246	-				71	300	-			25			45	4687	1.06		
Top chord U55-U56 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	688	1541	-	1.11	1.22	1.55	763	1880	-	Static det.	Other	412	0	1.77	730	5151	1.01	2.34	0.80
	corresp. Moment	k-ft					-110	-334	-				-123	-407	-			-76			-135	4687	1.06		
Top chord U56-U57 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-8	-16	-	1.11	1.22	1.55	-8	-20	-	Static det.	Other	-20	0	1.77	-35	3387	1.01	4.05	0.45
	corresp. Moment	k-ft					-227	823	-				-252	1005	-			332			588	3079	1.06		
Top chord U57-U58 - (2 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	0	0	-	0.95	1.22	1.55	0	0	-	Static det.	Other	0	0.25	1.77	0	1677	1.01	>10	0.73
	corresp. Moment	k-ft					81	823	-				90	1005	-			0			0	1475	1.06		
Top chord U58-U59 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-481	-1110	-	1.11	1.22	1.55	-534	-1355	-	Static det.	Other	-329	0	1.77	-582	3904	1.01	1.37	0.75
	corresp. Moment	k-ft					-161	-382	-				-178	-465	-			157			277	3118	1.06		
Top chord U59-U60 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-474	-1095	-	1.11	1.22	1.55	-526	-1336	-	Static det.	Other	-340	0	1.77	-602	3904	1.01	1.85	0.82
	corresp. Moment	k-ft					-85	341	-				-94	416	-			150			266	3118	1.06		
Top chord U60-U61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1456	-	1.11	1.22	1.55	-700	-1776	-	Static det.	Other	-433	0	1.77	-767	5163	1.01	1.73	0.85
	corresp. Moment	k-ft					-129	459	-				-143	560	-			193			342	3479	1.06		
Top chord U61-U62 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-631	-1457	-	1.11	1.22	1.55	-701	-1778	-	Static det.	Other	-442	0	1.77	-783	5163	1.01	1.37	0.93
	corresp. Moment	k-ft					128	457	-				142	558	-			198			350	3479	1.06		
Top chord U62-U63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-471	-1089	-	1.11	1.22	1.55	-523	-1329	-	Static det.	Other	-324	0	1.77	-573	3904	1.01	2.10	0.77
	corresp. Moment	k-ft					-73	275	-				-81	335	-			126			224	3118	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Top chord U63-U64 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-476	-1101	-	1.11	1.22	1.55	-529	-1343	-	Static det.	Other	-342	0	1.77	-605	3904	1.01	1.98	0.79
	corresp. Moment	k-ft					-132	307	-				-147	374	-			138			244	3118	1.06		
Top chord U64-U65 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	4	7	-	1.11	1.22	1.55	5	9	-	Static det.	Other	18	0	1.77	31	1828	1.01	>10	0.03
	corresp. Moment	k-ft					19	-10	-				22	-13	-			-4			-8	1475	1.06		
Bot chord L1-L2 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	380	-	1.11	1.22	1.55	151	463	-	Static det.	Other	126	0.25	1.77	279	1584	1.01	2.65	0.66
	corresp. Moment	k-ft					13	-47	-				14	-58	-			-17			-38	863	1.06		
Bot chord L2-L3 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	380	-	1.11	1.22	1.55	151	463	-	Static det.	Other	122	0.25	1.77	269	1584	1.01	2.83	0.65
	corresp. Moment	k-ft					13	27	-				15	33	-			13			28	863	1.06		
Bot chord L3-L4 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	682	-	1.11	1.22	1.55	269	832	-	Static det.	Other	263	0	1.77	465	2571	1.01	2.10	0.74
	corresp. Moment	k-ft					-34	94	-				-37	114	-			47			83	1227	1.06		
Bot chord L4-L5 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	682	-	1.11	1.22	1.55	269	832	-	Static det.	Other	258	0	1.77	457	2571	1.01	1.98	0.79
	corresp. Moment	k-ft					31	94	-				34	114	-			44			78	1227	1.06		
Bot chord L5-L6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	386	-	1.11	1.22	1.55	154	470	-	Static det.	Other	153	0	1.77	271	1584	1.01	2.83	0.66
	corresp. Moment	k-ft					12	33	-				13	41	-			14			24	863	1.06		
Bot chord L6-L7 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	385	-	1.11	1.22	1.55	154	470	-	Static det.	Other	154	0	1.77	273	1584	1.01	3.07	0.62
	corresp. Moment	k-ft					16	15	-				17	18	-			8			13	863	1.06		
Bot chord L7-L8 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-518	-	1.11	1.22	1.55	-210	-632	-	Static det.	Other	-165	0	1.77	-291	1973	1.01	2.83	0.69
	corresp. Moment	k-ft					34	63	-				38	77	-			24			43	1354	1.06		
Bot chord L8-L9 - (5 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-180	-495	-	1.11	1.22	1.55	-200	-604	-	Static det.	Other	-154	0	1.77	-272	1973	1.01	2.10	0.80
	corresp. Moment	k-ft					-77	-140	-				-85	-171	-			-47			-83	1354	1.06		
Bot chord L9-L10 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-994	-	1.11	1.22	1.55	-402	-1212	-	Static det.	Other	-279	0	1.77	-494	3471	1.01	1.85	0.85
	corresp. Moment	k-ft					-116	-163	-				-129	-199	-			-56			-99	1775	1.06		
Bot chord L10-L11 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-1017	-	1.11	1.22	1.55	-412	-1241	-	Static det.	Other	-282	0	1.77	-499	3471	1.01	3.44	0.64
	corresp. Moment	k-ft					-41	15	-				-45	18	-			-7			-13	1775	1.06		

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Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Bot chord L11-L12 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-371	-1017	-	1.11	1.22	1.55	-412	-1240	-	Static det.	Other	-283	0	1.77	-501	3471	1.01	3.32	0.65
	corresp. Moment	k-ft					-40	11	-				-45	13	-			-12			-21	1775	1.06		
Bot chord L12-L13 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-362	-993	-	1.11	1.22	1.55	-402	-1211	-	Static det.	Other	-269	0	1.77	-477	3471	1.01	1.98	0.84
	corresp. Moment	k-ft					-117	-164	-				-130	-199	-			-55			-97	1775	1.06		
Bot chord L13-L14 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-181	-496	-	1.11	1.22	1.55	-201	-605	-	Static det.	Other	-163	0	1.77	-289	1973	1.01	1.98	0.81
	corresp. Moment	k-ft					-78	-145	-				-87	-177	-			-48			-84	1354	1.06		
Bot chord L14-L15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-189	-519	-	1.11	1.22	1.55	-210	-633	-	Static det.	Other	-176	0	1.77	-312	1973	1.01	2.71	0.70
	corresp. Moment	k-ft					33	58	-				36	71	-			23			41	1354	1.06		
Bot chord L15-L16 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	385	-	1.11	1.22	1.55	153	470	-	Static det.	Other	115	0.25	1.77	254	1584	1.01	3.07	0.63
	corresp. Moment	k-ft					16	20	-				18	25	-			9			19	863	1.06		
Bot chord L16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	138	385	-	1.11	1.22	1.55	153	470	-	Static det.	Other	120	0.25	1.77	267	1584	1.01	2.83	0.65
	corresp. Moment	k-ft					12	28	-				13	35	-			13			29	863	1.06		
Bot chord L17-L18 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	682	-	1.11	1.22	1.55	268	832	-	Static det.	Other	203	0.25	1.77	449	2571	1.01	2.22	0.73
	corresp. Moment	k-ft					-32	94	-				-36	114	-			37			82	1227	1.06		
Bot chord L18-L19 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	242	682	-	1.11	1.22	1.55	269	832	-	Static det.	Other	209	0.25	1.77	463	2571	1.01	2.10	0.74
	corresp. Moment	k-ft					-32	93	-				-35	114	-			38			84	1227	1.06		
Bot chord L19-L20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	380	-	1.11	1.22	1.55	151	464	-	Static det.	Other	116	0.25	1.77	257	1584	1.01	2.95	0.64
	corresp. Moment	k-ft					13	32	-				14	39	-			12			26	863	1.06		
Bot chord L20-L21 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	136	380	-	1.11	1.22	1.55	151	464	-	Static det.	Other	122	0.25	1.77	270	1584	1.01	2.77	0.65
	corresp. Moment	k-ft					12	-44	-				13	-54	-			-16			-35	863	1.06		
Bot chord L22-L23 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	206	-	1.11	1.22	1.55	74	251	-	Static det.	Other	79	0.25	1.77	176	1017	1.01	2.83	0.60
	corresp. Moment	k-ft					8	-31	-				9	-37	-			-15			-33	581	1.06		
Bot chord L23-L24 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	206	-	1.11	1.22	1.55	74	251	-	Static det.	Other	80	0.25	1.77	177	1017	1.01	2.83	0.62
	corresp. Moment	k-ft					10	29	-				11	35	-			12			26	581	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Bot chord L24-L25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	206	-	1.11	1.22	1.55	74	252	-	Static det.	Other	80	0.25	1.77	178	1017	1.01	2.71	0.63
	corresp. Moment	k-ft					10	30	-				11	36	-			14			31	581	1.06		
Bot chord L25-L26 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	206	-	1.11	1.22	1.55	74	251	-	Static det.	Other	84	0.25	1.77	186	1017	1.01	2.83	0.59
	corresp. Moment	k-ft					8	-28	-				9	-34	-			-12			-27	581	1.06		
Bot chord L27-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	281	651	-	1.11	1.22	1.55	312	794	-	Static det.	Other	210	0	1.77	372	2539	1.01	2.95	0.66
	corresp. Moment	k-ft					30	-89	-				33	-108	-			-32			-56	1721	1.06		
Bot chord L28-L29 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	281	651	-	1.11	1.22	1.55	312	795	-	Static det.	Other	199	0	1.77	352	2539	1.01	3.07	0.68
	corresp. Moment	k-ft					32	83	-				36	102	-			27			48	1721	1.06		
Bot chord L29-L30 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1397	-	1.11	1.22	1.55	673	1704	-	Static det.	Other	423	0	1.77	748	5032	1.01	2.83	0.67
	corresp. Moment	k-ft					-98	119	-				-109	145	-			57			101	2601	1.06		
Bot chord L30-L31 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1397	-	1.11	1.22	1.55	673	1705	-	Static det.	Other	414	0	1.77	732	5032	1.01	2.46	0.75
	corresp. Moment	k-ft					81	117	-				90	142	-			56			100	2601	1.06		
Bot chord L31-L32 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	611	1403	-	1.11	1.22	1.55	679	1712	-	Static det.	Other	409	0	1.77	724	5032	1.01	2.59	0.74
	corresp. Moment	k-ft					77	117	-				86	142	-			49			87	2601	1.06		
Bot chord L32-L33 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	612	1403	-	1.11	1.22	1.55	679	1712	-	Static det.	Other	407	0	1.77	720	5032	1.01	3.01	0.66
	corresp. Moment	k-ft					-90	100	-				-99	122	-			49			87	2601	1.06		
Bot chord L33-L34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	291	673	-	1.11	1.22	1.55	323	821	-	Static det.	Other	187	0	1.77	331	3480	1.01	4.90	0.54
	corresp. Moment	k-ft					35	105	-				39	128	-			29			52	1859	1.06		
Bot chord L34-L35 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	291	673	-	1.11	1.22	1.55	323	821	-	Static det.	Other	192	0	1.77	340	3480	1.01	6.12	0.47
	corresp. Moment	k-ft					45	11	-				50	13	-			8			15	1859	1.06		
Bot chord L35-L36 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-339	-737	-	1.11	1.22	1.55	-377	-899	-	Static det.	Other	-233	0	1.77	-413	4311	1.01	5.63	0.48
	corresp. Moment	k-ft					90	121	-				100	148	-			38			67	3459	1.06		
Bot chord L36-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-339	-737	-	1.11	1.22	1.55	-377	-899	-	Static det.	Other	-226	0	1.77	-400	4310	1.01	6.37	0.45
	corresp. Moment	k-ft					-86	-69	-				-96	-84	-			-25			-44	3459	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L37-L38 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1038	-2194	-	1.11	1.22	1.55	-1153	-2677	-	Static det.	Other	-579	0	1.77	-1025	8356	1.01	3.56	0.69
	corresp. Moment	k-ft					-286	-531	-				-317	-648	-			-23			-41	9304	1.06		
Bot chord L38-L39 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1272	-2622	-	1.11	1.22	1.55	-1412	-3199	-	Static det.	Other	-660	0	1.77	-1168	10460	1.01	4.66	0.58
	corresp. Moment	k-ft					195	49	-				217	60	-			-18			-32	9925	1.06		
Bot chord L39-L40 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1561	-3203	-	1.11	1.22	1.55	-1733	-3907	-	Static det.	Other	-811	0	1.77	-1436	12246	1.01	3.68	0.65
	corresp. Moment	k-ft					-177	-285	-				-196	-347	-			-133			-236	11142	1.06		
Bot chord L40-L41 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1330	-3085	-	1.11	1.22	1.55	-1476	-3764	-	Static det.	Other	-876	0	1.77	-1550	12717	1.01	3.07	0.67
	corresp. Moment	k-ft					-349	-478	-				-387	-584	-			-288			-510	11260	1.06		
Bot chord L41-L42 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1029	-2916	-	1.11	1.22	1.55	-1142	-3558	-	Static det.	Other	-1001	0	1.77	-1771	13245	1.01	3.20	0.63
	corresp. Moment	k-ft					-413	-575	-				-459	-702	-			-277			-490	11494	1.06		
Bot chord L42-L43 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1831	-	1.11	1.22	1.55	-230	-2233	-	Static det.	Other	-1008	0	1.77	-1784	12036	1.01	3.93	0.47
	corresp. Moment	k-ft					-208	-407	-				-231	-496	-			-230			-407	9648	1.06		
Bot chord L43-L44 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-207	-1830	-	1.11	1.22	1.55	-230	-2233	-	Static det.	Other	-1008	0	1.77	-1784	12036	1.01	4.66	0.40
	corresp. Moment	k-ft					-94	-163	-				-104	-198	-			-97			-171	9648	1.06		
Bot chord L44-L45 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1078	-	0.95	1.22	1.55	255	-1315	-	Static det.	Other	-816	0	1.77	-1444	11482	1.01	6.00	0.28
	corresp. Moment	k-ft					-181	-168	-				-201	-205	-			-116			-205	9363	1.06		
Bot chord L45-L46 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	230	-1077	-	0.95	1.22	1.55	255	-1314	-	Static det.	Other	-815	0	1.77	-1443	11482	1.01	6.24	0.22
	corresp. Moment	k-ft					140	20	-				156	25	-			-96			-169	9363	1.06		
Bot chord L46-L47 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	241	-1079	-	0.95	1.22	1.55	267	-1316	-	Static det.	Other	-829	0	1.77	-1467	11482	1.01	6.12	0.22
	corresp. Moment	k-ft					142	21	-				157	25	-			-97			-172	9363	1.06		
Bot chord L47-L48 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	240	-1079	-	0.95	1.22	1.55	267	-1316	-	Static det.	Other	-829	0	1.77	-1467	11482	1.01	5.88	0.28
	corresp. Moment	k-ft					-176	-169	-				-195	-206	-			-118			-209	9363	1.06		
Bot chord L48-L49 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1835	-	1.11	1.22	1.55	-194	-2238	-	Static det.	Other	-1026	0	1.77	-1815	12036	1.01	4.66	0.40
	corresp. Moment	k-ft					-93	-163	-				-103	-199	-			-98			-174	9648	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L49-L50 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-175	-1835	-	1.11	1.22	1.55	-194	-2238	-	Static det.	Other	-1026	0	1.77	-1816	12036	1.01	3.80	0.47
	corresp. Moment	k-ft					-199	-407	-				-221	-497	-			-234			-414	9648	1.06		
Bot chord L50-L51 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-984	-2922	-	1.11	1.22	1.55	-1093	-3565	-	Static det.	Other	-1019	0	1.77	-1804	13245	1.01	3.20	0.63
	corresp. Moment	k-ft					-405	-576	-				-450	-703	-			-281			-497	11494	1.06		
Bot chord L51-L52 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1288	-3091	-	1.11	1.22	1.55	-1430	-3771	-	Static det.	Other	-866	0	1.77	-1532	12717	1.01	3.07	0.66
	corresp. Moment	k-ft					-350	-480	-				-388	-585	-			-309			-548	11260	1.06		
Bot chord L52-L53 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1523	-3208	-	1.11	1.22	1.55	-1691	-3914	-	Static det.	Other	-782	0	1.77	-1384	12246	1.01	3.80	0.64
	corresp. Moment	k-ft					-170	-286	-				-189	-349	-			-133			-235	11142	1.06		
Bot chord L53-L54 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1241	-2626	-	1.11	1.22	1.55	-1377	-3204	-	Static det.	Other	-640	0	1.77	-1133	10460	1.01	4.54	0.56
	corresp. Moment	k-ft					195	45	-				216	55	-			-69			-122	9925	1.06		
Bot chord L54-L55 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-1012	-2199	-	1.11	1.22	1.55	-1124	-2683	-	Static det.	Other	-556	0	1.77	-985	8356	1.01	3.44	0.69
	corresp. Moment	k-ft					-284	-536	-				-315	-654	-			-87			-153	9304	1.06		
Bot chord L55-L56 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-333	-740	-	1.11	1.22	1.55	-369	-903	-	Static det.	Other	-215	0	1.77	-381	2543	1.01	2.59	0.74
	corresp. Moment	k-ft					-53	-66	-				-59	-81	-			-20			-35	1886	1.06		
Bot chord L56-L57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-333	-740	-	1.11	1.22	1.55	-369	-903	-	Static det.	Other	-213	0	1.77	-376	2543	1.01	2.46	0.77
	corresp. Moment	k-ft					59	91	-				65	111	-			29			51	1886	1.06		
Bot chord L57-L58 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	287	668	-	1.11	1.22	1.55	319	816	-	Static det.	Other	215	0	1.77	381	3166	1.01	4.66	0.53
	corresp. Moment	k-ft					42	13	-				46	16	-			14			24	1813	1.06		
Bot chord L58-L59 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	288	669	-	1.11	1.22	1.55	319	816	-	Static det.	Other	214	0	1.77	379	3166	1.01	3.93	0.59
	corresp. Moment	k-ft					34	104	-				38	127	-			25			44	1813	1.06		
Bot chord L59-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1402	-	1.11	1.22	1.55	673	1710	-	Static det.	Other	423	0	1.77	749	5032	1.01	2.95	0.66
	corresp. Moment	k-ft					-87	81	-				-96	99	-			50			89	2601	1.06		
Bot chord L60-L61 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	606	1402	-	1.11	1.22	1.55	672	1710	-	Static det.	Other	425	0	1.77	751	5032	1.01	2.34	0.76
	corresp. Moment	k-ft					77	150	-				86	183	-			55			98	2601	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Bot chord L61-L62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	601	1397	-	1.11	1.22	1.55	667	1704	-	Static det.	Other	420	0	1.77	744	5032	1.01	2.34	0.76
	corresp. Moment	k-ft					81	149	-				90	182	-			57			100	2601	1.06		
Bot chord L62-L63 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	601	1396	-	1.11	1.22	1.55	667	1704	-	Static det.	Other	429	0	1.77	759	5032	1.01	2.89	0.66
	corresp. Moment	k-ft					-96	100	-				-107	123	-			52			92	2601	1.06		
Bot chord L63-L64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	279	651	-	1.11	1.22	1.55	310	794	-	Static det.	Other	200	0	1.77	354	2539	1.01	2.95	0.68
	corresp. Moment	k-ft					32	86	-				36	105	-			27			47	1721	1.06		
Bot chord L64-L65 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	279	651	-	1.11	1.22	1.55	310	794	-	Static det.	Other	211	0	1.77	374	2539	1.01	2.95	0.66
	corresp. Moment	k-ft					30	-89	-				33	-108	-			-32			-57	1721	1.06		
Diagonal L1-U2 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-246	-671	-	1.11	1.22	1.55	-273	-819	-	Static det.	Other	-218	0.25	1.77	-483	2160	1.01	1.73	0.83
	corresp. Moment	k-ft					-56	-43	-				-62	-52	-			-14			-32	1480	1.06		
Diagonal U2-L3 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	388	-	1.11	1.22	1.55	158	473	-	Static det.	Other	157	0.25	1.77	348	1631	1.01	2.34	0.67
	corresp. Moment	k-ft					-28	39	-				-31	47	-			15			33	744	1.06		
Diagonal L3-U4 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-47	-138	-	1.11	1.22	1.55	-53	-168	-	Static det.	Other	-115	0.25	1.77	-253	596	1.01	1.37	0.82
	corresp. Moment	k-ft					-11	7	-				-12	9	-			5			11	352	1.06		
Diagonal U4-L5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-45	-132	-	1.11	1.22	1.55	-50	-161	-	Static det.	Other	-96	0.25	1.77	-212	604	1.01	1.73	0.73
	corresp. Moment	k-ft					-10	7	-				-12	9	-			5			11	352	1.06		
Diagonal L5-U6 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	143	389	-	1.11	1.22	1.55	159	474	-	Static det.	Other	148	0.25	1.77	328	1631	1.01	2.59	0.64
	corresp. Moment	k-ft					-27	29	-				-30	36	-			13			29	744	1.06		
Diagonal U6-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-245	-667	-	1.11	1.22	1.55	-272	-814	-	Static det.	Other	-208	0.25	1.77	-460	2149	1.01	1.98	0.78
	corresp. Moment	k-ft					-51	-12	-				-56	-14	-			-12			-26	1480	1.06		
Diagonal L7-U8 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	921	-	1.11	1.22	1.55	383	1123	-	Static det.	Other	322	0	1.77	569	3177	1.01	2.52	0.70
	corresp. Moment	k-ft					-49	-48	-				-54	-58	-			12			21	1888	1.06		
Diagonal U8-L9 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-1178	-	1.11	1.22	1.55	-504	-1437	-	Static det.	Other	-372	0	1.77	-659	3540	1.01	1.85	0.83
	corresp. Moment	k-ft					-78	-67	-				-86	-81	-			-30			-52	2304	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Diagonal L9-U10 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-146	-343	-	1.11	1.22	1.55	-162	-418	-	Static det.	Other	-242	0	1.77	-428	1639	1.01	1.98	0.72
	corresp. Moment	k-ft					-34	-31	-				-38	-38	-			-24			-42	1132	1.06		
Diagonal U10-L11 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	49	98	-	1.11	1.22	1.55	54	119	-	Static det.	Other	174	0	1.77	308	1238	1.01	3.32	0.41
	corresp. Moment	k-ft					-18	12	-				-20	14	-			-5			-8	622	1.06		
Diagonal L11-U12 - (5 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	50	99	-	1.11	1.22	1.55	55	121	-	Static det.	Other	179	0	1.77	317	1238	1.01	3.20	0.42
	corresp. Moment	k-ft					-18	11	-				-20	13	-			-3			-6	622	1.06		
Diagonal U12-L13 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-143	-336	-	1.11	1.22	1.55	-159	-410	-	Static det.	Other	-232	0	1.77	-410	1650	1.01	2.10	0.70
	corresp. Moment	k-ft					-34	-31	-				-37	-37	-			-25			-44	1132	1.06		
Diagonal L13-U14 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-463	-1202	-	1.11	1.22	1.55	-514	-1466	-	Static det.	Other	-384	0	1.77	-680	3515	1.01	1.73	0.85
	corresp. Moment	k-ft					-78	-66	-				-87	-80	-			-28			-50	2304	1.06		
Diagonal U14-L15 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	338	903	-	1.11	1.22	1.55	376	1101	-	Static det.	Other	319	0	1.77	565	3177	1.01	2.59	0.69
	corresp. Moment	k-ft					-47	-46	-				-52	-56	-			15			27	1888	1.06		
Diagonal L15-U16 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-250	-681	-	1.11	1.22	1.55	-278	-831	-	Static det.	Other	-219	0.25	1.77	-485	2134	1.01	1.85	0.80
	corresp. Moment	k-ft					-50	-7	-				-55	-8	-			-10			-21	1480	1.06		
Diagonal U16-L17 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	140	381	-	1.11	1.22	1.55	156	465	-	Static det.	Other	152	0.25	1.77	336	1631	1.01	2.46	0.64
	corresp. Moment	k-ft					-27	30	-				-30	36	-			15			33	744	1.06		
Diagonal L17-U18 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-46	-135	-	1.11	1.22	1.55	-51	-164	-	Static det.	Other	-103	0.25	1.77	-227	596	1.01	1.55	0.76
	corresp. Moment	k-ft					-11	7	-				-12	9	-			5			10	352	1.06		
Diagonal U18-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-47	-135	-	1.11	1.22	1.55	-52	-165	-	Static det.	Other	-105	0.25	1.77	-232	604	1.01	1.55	0.77
	corresp. Moment	k-ft					-10	7	-				-12	9	-			5			12	352	1.06		
Diagonal L19-U20 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	145	395	-	1.11	1.22	1.55	161	481	-	Static det.	Other	159	0.25	1.77	351	1631	1.01	2.34	0.67
	corresp. Moment	k-ft					-28	37	-				-31	46	-			14			30	744	1.06		
Diagonal U20-L21 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-241	-658	-	1.11	1.22	1.55	-267	-803	-	Static det.	Other	-256	0	1.77	-453	2174	1.01	1.85	0.81
	corresp. Moment	k-ft					-57	-46	-				-63	-56	-			-21			-37	1480	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Diagonal L22-U23 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-126	-377	-	1.11	1.22	1.55	-140	-459	-	Static det.	Other	-169	0.25	1.77	-373	1324	1.01	1.55	0.84
	corresp. Moment	k-ft					-31	-26	-				-35	-31	-			-12			-26	842	1.06		
Diagonal U23-L24 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	40	116	-	1.11	1.22	1.55	44	141	-	Static det.	Other	80	0.25	1.77	178	829	1.01	3.07	0.49
	corresp. Moment	k-ft					-10	13	-				-11	16	-			6			13	352	1.06		
Diagonal L24-U25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	41	118	-	1.11	1.22	1.55	46	144	-	Static det.	Other	68	0.25	1.77	150	829	1.01	3.68	0.45
	corresp. Moment	k-ft					-10	12	-				-12	15	-			5			11	352	1.06		
Diagonal U25-L26 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-123	-367	-	1.11	1.22	1.55	-136	-448	-	Static det.	Other	-150	0.25	1.77	-331	1337	1.01	1.79	0.80
	corresp. Moment	k-ft					-31	-26	-				-35	-32	-			-13			-28	842	1.06		
Diagonal L27-U28 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-504	-1139	-	1.11	1.22	1.55	-559	-1389	-	Static det.	Other	-368	0	1.77	-650	3613	1.01	1.98	0.82
	corresp. Moment	k-ft					-133	-84	-				-148	-103	-			-35			-61	3118	1.06		
Diagonal U28-L29 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	348	773	-	1.11	1.22	1.55	386	942	-	Static det.	Other	262	0	1.77	464	2698	1.01	2.34	0.73
	corresp. Moment	k-ft					-76	110	-				-85	134	-			42			74	1904	1.06		
Diagonal L29-U30 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-220	-501	-	1.11	1.22	1.55	-244	-612	-	Static det.	Other	-171	0.25	1.77	-378	1646	1.01	1.91	0.78
	corresp. Moment	k-ft					-54	50	-				-60	62	-			17			39	1349	1.06		
Diagonal U30-L31 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	72	140	-	1.11	1.22	1.55	80	171	-	Static det.	Other	118	0.25	1.77	261	1217	1.01	3.13	0.45
	corresp. Moment	k-ft					-22	15	-				-25	18	-			9			20	485	1.06		
Diagonal L31-U32 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	134	-	1.11	1.22	1.55	77	163	-	Static det.	Other	111	0.25	1.77	246	1217	1.01	3.32	0.42
	corresp. Moment	k-ft					-23	13	-				-25	16	-			8			18	485	1.06		
Diagonal U32-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-211	-483	-	1.11	1.22	1.55	-234	-589	-	Static det.	Other	-160	0.25	1.77	-355	1664	1.01	2.04	0.74
	corresp. Moment	k-ft					-53	57	-				-59	70	-			-22			-50	1349	1.06		
Diagonal L33-U34 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	354	775	-	1.11	1.22	1.55	393	946	-	Static det.	Other	261	0	1.77	462	2698	1.01	2.59	0.69
	corresp. Moment	k-ft					-68	47	-				-76	57	-			30			54	1904	1.06		
Diagonal U34-L35 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-502	-1146	-	1.11	1.22	1.55	-558	-1398	-	Static det.	Other	-350	0	1.77	-619	3590	1.01	2.34	0.77
	corresp. Moment	k-ft					-129	1	-				-143	1	-			-13			-23	3118	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Diagonal L35-U36 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	599	1285	-	1.11	1.22	1.55	665	1567	-	Static det.	Other	369	0	1.77	654	4433	1.01	2.71	0.72
	corresp. Moment	k-ft					-89	-102	-				-99	-124	-			18			32	2955	1.06		
Diagonal U36-L37 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-737	-1559	-	1.11	1.22	1.55	-818	-1902	-	Static det.	Other	-430	0	1.77	-761	5044	1.01	2.10	0.83
	corresp. Moment	k-ft					-221	-228	-				-246	-279	-			-52			-91	4486	1.06		
Diagonal L37-U38 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	462	887	-	1.11	1.22	1.55	513	1082	-	Static det.	Other	253	0	1.77	449	3177	1.01	2.40	0.74
	corresp. Moment	k-ft					-204	273	-				-226	334	-			82			145	2592	1.06		
Diagonal L38-U39 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	512	925	-	1.11	1.22	1.55	569	1128	-	Static det.	Other	263	0	1.77	466	3309	1.01	1.85	0.86
	corresp. Moment	k-ft					-182	-203	-				-202	-248	-			-56			-100	2656	1.06		
Diagonal U39-L40 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	38	-552	-	0.95	1.22	1.55	42	-674	-	Static det.	Other	-364	0	1.77	-645	3243	1.01	2.77	0.56
	corresp. Moment	k-ft					-107	-171	-				-119	-208	-			-99			-175	2923	1.06		
Diagonal U40-L41 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	261	-138	-	1.11	0.90	1.55	290	-169	-	Static det.	Other	470	0	1.77	833	3309	1.01	2.59	0.31
	corresp. Moment	k-ft					-155	-56	-				-172	-68	-			142			252	2656	1.06		
Diagonal U41-L42 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	378	-	1.11	1.22	1.55	552	461	-	Static det.	Other	502	0	1.77	888	4058	1.01	2.34	0.56
	corresp. Moment	k-ft					-161	-167	-				-179	-204	-			78			138	2787	1.06		
Diagonal L42-U43 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-615	-1032	-	1.11	1.22	1.55	-683	-1259	-	Static det.	Other	-415	0	1.77	-734	4596	1.01	2.59	0.63
	corresp. Moment	k-ft					-145	-133	-				-161	-162	-			72			128	3749	1.06		
Diagonal U43-L44 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	416	680	-	1.11	1.22	1.55	462	829	-	Static det.	Other	320	0	1.77	566	3246	1.01	2.95	0.65
	corresp. Moment	k-ft					-67	-81	-				-75	-99	-			8			15	2118	1.06		
Diagonal L44-U45 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-253	-452	-	1.11	1.22	1.55	-281	-552	-	Static det.	Other	-278	0	1.77	-493	2371	1.01	2.46	0.58
	corresp. Moment	k-ft					-49	-42	-				-54	-51	-			37			65	1666	1.06		
Diagonal U45-L46 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	86	114	-	1.11	1.22	1.55	96	139	-	Static det.	Other	193	0	1.77	342	1906	1.01	3.93	0.31
	corresp. Moment	k-ft					-21	-13	-				-23	-16	-			26			45	1186	1.06		
Diagonal L46-U47 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	70	116	-	1.11	1.22	1.55	78	141	-	Static det.	Other	186	0	1.77	328	1906	1.01	4.17	0.29
	corresp. Moment	k-ft					-20	-13	-				-22	-16	-			24			43	1186	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal U47-L48 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-236	-454	-	1.11	1.22	1.55	-262	-554	-	Static det.	Other	-269	0	1.77	-477	2371	1.01	2.59	0.57
	corresp. Moment	k-ft					-47	-42	-				-52	-52	-			36			64	1666	1.06		
Diagonal L48-U49 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	400	682	-	1.11	1.22	1.55	444	832	-	Static det.	Other	312	0	1.77	552	3246	1.01	3.07	0.64
	corresp. Moment	k-ft					-65	-81	-				-72	-99	-			10			18	2118	1.06		
Diagonal U49-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-599	-1034	-	1.11	1.22	1.55	-665	-1262	-	Static det.	Other	-406	0	1.77	-719	4596	1.01	2.59	0.62
	corresp. Moment	k-ft					-143	-133	-				-158	-162	-			93			165	3749	1.06		
Diagonal L50-U51 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	497	378	-	1.11	1.22	1.55	552	461	-	Static det.	Other	497	0	1.77	880	4058	1.01	2.40	0.56
	corresp. Moment	k-ft					-160	-168	-				-177	-204	-			73			130	2787	1.06		
Diagonal L51-U52 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	271	-139	-	1.11	0.90	1.55	301	-170	-	Static det.	Other	467	0	1.77	826	3309	1.01	2.59	0.31
	corresp. Moment	k-ft					-156	-55	-				-173	-68	-			141			250	2656	1.06		
Diagonal L52-U53 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	52	-554	-	0.95	1.22	1.55	58	-676	-	Static det.	Other	-382	0	1.77	-676	3243	1.01	2.65	0.57
	corresp. Moment	k-ft					-109	-171	-				-121	-209	-			-104			-185	2923	1.06		
Diagonal U53-L54 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	502	924	-	1.11	1.22	1.55	557	1127	-	Static det.	Other	276	0	1.77	489	3309	1.01	2.10	0.84
	corresp. Moment	k-ft					-181	-203	-				-201	-248	-			-25			-45	2656	1.06		
Diagonal U54-L55 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	446	885	-	1.11	1.22	1.55	495	1079	-	Static det.	Other	253	0	1.77	448	3177	1.01	2.34	0.74
	corresp. Moment	k-ft					-194	271	-				-215	331	-			89			157	2592	1.06		
Diagonal L55-U56 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-718	-1562	-	1.11	1.22	1.55	-797	-1906	-	Static det.	Other	-430	0	1.77	-761	5044	1.01	1.98	0.84
	corresp. Moment	k-ft					-221	-250	-				-246	-305	-			-85			-150	4486	1.06		
Diagonal U56-L57 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	588	1284	-	1.11	1.22	1.55	653	1566	-	Static det.	Other	367	0	1.77	650	4433	1.01	2.83	0.71
	corresp. Moment	k-ft					-106	-75	-				-117	-92	-			21			36	2955	1.06		
Diagonal L57-U58 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-498	-1148	-	1.11	1.22	1.55	-553	-1400	-	Static det.	Other	-360	0	1.77	-636	3590	1.01	2.34	0.77
	corresp. Moment	k-ft					-128	6	-				-142	7	-			-3			-5	3118	1.06		
Diagonal U58-L59 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	352	776	-	1.11	1.22	1.55	390	947	-	Static det.	Other	260	0	1.77	460	2698	1.01	2.52	0.69
	corresp. Moment	k-ft					-69	47	-				-76	57	-			33			58	1904	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Diagonal L59-U60 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-210	-486	-	1.11	1.22	1.55	-233	-593	-	Static det.	Other	-161	0.25	1.77	-356	1664	1.01	2.04	0.74
	corresp. Moment	k-ft					-55	59	-				-61	71	-			-21			-46	1349	1.06		
Diagonal U60-L61 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	66	130	-	1.11	1.22	1.55	73	159	-	Static det.	Other	109	0.25	1.77	240	923	1.01	2.52	0.54
	corresp. Moment	k-ft					-17	13	-				-19	16	-			8			18	462	1.06		
Diagonal L61-U62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	67	134	-	1.11	1.22	1.55	74	164	-	Static det.	Other	116	0.25	1.77	257	923	1.01	2.34	0.58
	corresp. Moment	k-ft					-17	15	-				-18	18	-			9			20	462	1.06		
Diagonal U62-L63 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-218	-502	-	1.11	1.22	1.55	-242	-613	-	Static det.	Other	-167	0.25	1.77	-370	1646	1.01	1.85	0.78
	corresp. Moment	k-ft					-56	52	-				-62	64	-			-26			-56	1349	1.06		
Diagonal L63-U64 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	345	771	-	1.11	1.22	1.55	383	941	-	Static det.	Other	264	0	1.77	467	2698	1.01	2.34	0.73
	corresp. Moment	k-ft					-75	109	-				-84	134	-			39			68	1904	1.06		
Diagonal U64-L65 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-501	-1138	-	1.11	1.22	1.55	-556	-1388	-	Static det.	Other	-360	0	1.77	-637	3613	1.01	1.98	0.82
	corresp. Moment	k-ft					-133	-85	-				-148	-104	-			-36			-63	3118	1.06		
Vertical U1-L1 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-105	-	1.11	1.22	1.55	-42	-129	-	Static det.	Other	-84	0.25	1.77	-185	598	1.01	2.22	0.60
	corresp. Moment	k-ft					-9	11	-				-10	14	-			-2			-4	302	1.06		
Vertical U2-L2 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-3	-	1.11	0.90	1.55	13	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.10
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			0			0	68	1.06		
Vertical U3-L3 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-200	-	1.11	1.22	1.55	-60	-244	-	Static det.	Other	-107	0.25	1.77	-237	738	1.01	1.43	0.86
	corresp. Moment	k-ft					6	17	-				7	21	-			6			13	316	1.06		
Vertical U4-L4 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-8	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-5	0.25	1.77	-10	210	1.01	>10	0.07
	corresp. Moment	k-ft					0	0	-				0	0	-			1			2	68	1.06		
Vertical U5-L5 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-197	-	1.11	1.22	1.55	-59	-240	-	Static det.	Other	-107	0.25	1.77	-237	738	1.01	1.55	0.83
	corresp. Moment	k-ft					-7	-19	-				-8	-23	-			-1			-3	316	1.06		
Vertical U6-L6 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	1.22	1.55	14	0	-	Static det.	Other	2	0.25	1.77	4	500	1.01	>10	0.08
	corresp. Moment	k-ft					1	3	-				1	4	-			-1			-3	68	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U7-L7 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-190	-	1.11	1.22	1.55	-53	-232	-	Static det.	Other	-107	0.25	1.77	-236	738	1.01	1.73	0.76
	corresp. Moment	k-ft					-3	15	-				-4	18	-			1			3	316	1.06		
Vertical U8-L8 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-3	-	1.11	0.90	1.55	15	-4	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					2	5	-				2	6	-			0			0	69	1.06		
Vertical U9-L9 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-199	-	1.11	1.22	1.55	-72	-243	-	Static det.	Other	-105	0.25	1.77	-231	738	1.01	1.73	0.75
	corresp. Moment	k-ft					-2	-4	-				-2	-4	-			1			3	316	1.06		
Vertical U10-L10 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-10	-	0.95	1.22	1.55	12	-12	-	Static det.	Other	-3	0.25	1.77	-7	214	1.01	>10	0.07
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			1			3	69	1.06		
Vertical U11-L11 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-161	-	1.11	1.22	1.55	-53	-196	-	Static det.	Other	-91	0.25	1.77	-202	738	1.01	2.40	0.61
	corresp. Moment	k-ft					0	0	-				0	1	-			-1			-2	316	1.06		
Vertical U12-L12 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	11	-9	-	0.95	1.22	1.55	12	-11	-	Static det.	Other	-4	0.25	1.77	-9	214	1.01	>10	0.12
	corresp. Moment	k-ft					1	3	-				1	3	-			0			1	69	1.06		
Vertical U13-L13 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-200	-	1.11	1.22	1.55	-72	-243	-	Static det.	Other	-109	0.25	1.77	-241	738	1.01	1.67	0.78
	corresp. Moment	k-ft					2	5	-				2	6	-			0			0	316	1.06		
Vertical U14-L14 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	-4	-	1.11	0.90	1.55	15	-5	-	Static det.	Other	0	0	1.77	1	500	1.01	>10	0.12
	corresp. Moment	k-ft					-2	-5	-				-2	-6	-			0			0	69	1.06		
Vertical U15-L15 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-48	-191	-	1.11	1.22	1.55	-53	-233	-	Static det.	Other	-103	0.25	1.77	-228	738	1.01	1.79	0.75
	corresp. Moment	k-ft					3	-13	-				3	-16	-			-2			-5	316	1.06		
Vertical U16-L16 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	13	0	-	1.11	0.90	1.55	14	0	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.05
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			1			3	68	1.06		
Vertical U17-L17 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-53	-198	-	1.11	1.22	1.55	-59	-241	-	Static det.	Other	-110	0.25	1.77	-242	738	1.01	1.43	0.86
	corresp. Moment	k-ft					7	18	-				7	22	-			4			9	316	1.06		
Vertical U18-L18 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	12	-7	-	0.95	1.22	1.55	13	-9	-	Static det.	Other	-4	0.25	1.77	-10	210	1.01	>10	0.06
	corresp. Moment	k-ft					0	0	-				0	0	-			1			2	68	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
Vertical U19-L19 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-54	-199	-	1.11	1.22	1.55	-60	-242	-	Static det.	Other	-107	0.25	1.77	-236	738	1.01	1.55	0.83
	corresp. Moment	k-ft					-7	-18	-				-7	-22	-			-1			-3	316	1.06		
Vertical U20-L20 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	12	-2	-	1.11	0.90	1.55	14	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			2	68	1.06		
Vertical U21-L21 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-109	-	1.11	1.22	1.55	-41	-133	-	Static det.	Other	-101	0.25	1.77	-224	598	1.01	1.61	0.77
	corresp. Moment	k-ft					9	10	-				10	12	-			4			10	302	1.06		
Vertical U22-L22 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-37	-104	-	1.11	1.22	1.55	-41	-127	-	Static det.	Other	-98	0.25	1.77	-217	598	1.01	1.73	0.73
	corresp. Moment	k-ft					-8	-10	-				-9	-12	-			-2			-5	302	1.06		
Vertical U23-L23 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	11	-3	-	Static det.	Other	0	0.25	1.77	1	500	1.01	>10	0.03
	corresp. Moment	k-ft					-1	-4	-				-1	-4	-			2			3	68	1.06		
Vertical U24-L24 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-50	-192	-	1.11	1.22	1.55	-56	-234	-	Static det.	Other	-103	0.25	1.77	-228	738	1.01	1.91	0.71
	corresp. Moment	k-ft					0	-1	-				0	-1	-			2			4	316	1.06		
Vertical U25-L25 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	10	-2	-	1.11	0.90	1.55	12	-2	-	Static det.	Other	0	0.25	1.77	1	500	1.01	>10	0.04
	corresp. Moment	k-ft					1	3	-				1	4	-			-1			-3	68	1.06		
Vertical U26-L26 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-36	-104	-	1.11	1.22	1.55	-40	-127	-	Static det.	Other	-98	0.25	1.77	-217	598	1.01	1.73	0.73
	corresp. Moment	k-ft					8	8	-				8	10	-			4			8	302	1.06		
Vertical U27-L27 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-128	-	1.11	1.22	1.55	-47	-156	-	Static det.	Other	-89	0.25	1.77	-198	549	1.01	1.49	0.83
	corresp. Moment	k-ft					-11	-11	-				-12	-13	-			-2			-4	298	1.06		
Vertical U28-L28 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					-1	-4	-				-1	-5	-			0			-1	69	1.06		
Vertical U29-L29 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-225	-	1.11	1.22	1.55	-73	-275	-	Static det.	Other	-115	0.25	1.77	-255	897	1.01	1.73	0.79
	corresp. Moment	k-ft					16	33	-				17	40	-			7			15	603	1.06		
Vertical U30-L30 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-5	-	1.11	0.90	1.55	23	-6	-	Static det.	Other	1	0.25	1.77	2	500	1.01	>10	0.05
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			1			3	69	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
Vertical U31-L31 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-69	-216	-	1.11	1.22	1.55	-76	-264	-	Static det.	Other	-109	0.25	1.77	-241	897	1.01	2.22	0.66
	corresp. Moment	k-ft					-1	-1	-				-1	-2	-			4			10	603	1.06		
Vertical U32-L32 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	21	-3	-	1.11	0.90	1.55	23	-3	-	Static det.	Other	2	0.25	1.77	4	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	2	-				1	3	-			-1			-3	69	1.06		
Vertical U33-L33 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-214	-	1.11	1.22	1.55	-70	-261	-	Static det.	Other	-117	0.25	1.77	-258	897	1.01	1.79	0.78
	corresp. Moment	k-ft					-16	-38	-				-18	-46	-			-3			-8	603	1.06		
Vertical U34-L34 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	8	-	1.11	1.22	1.55	26	10	-	Static det.	Other	7	0	1.77	12	500	1.01	>10	0.20
	corresp. Moment	k-ft					1	3	-				1	4	-			1			2	69	1.06		
Vertical U35-L35 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-173	-	1.11	1.22	1.55	-69	-212	-	Static det.	Other	-104	0.25	1.77	-230	1026	1.01	2.95	0.53
	corresp. Moment	k-ft					-13	19	-				-14	24	-			7			15	714	1.06		
Vertical U36-L36 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	26	2	-	1.11	1.22	1.55	28	2	-	Static det.	Other	1	0.25	1.77	2	500	1.01	>10	0.15
	corresp. Moment	k-ft					2	3	-				2	4	-			0			1	70	1.06		
Vertical U37-L37 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-77	-222	-	1.11	1.22	1.55	-85	-271	-	Static det.	Other	-109	0.25	1.77	-241	901	1.01	1.73	0.80
	corresp. Moment	k-ft					20	38	-				22	46	-			5			10	559	1.06		
Vertical U38-L38 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-466	-953	-	1.11	1.22	1.55	-517	-1163	-	Static det.	Other	-287	0	1.77	-507	3405	1.01	1.61	0.89
	corresp. Moment	k-ft					-210	-403	-				-233	-491	-			-130			-230	3890	1.06		
Vertical U39-L39 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-616	-590	-	1.11	1.22	1.55	-684	-719	-	Static det.	Other	-365	0	1.77	-647	3856	1.01	3.44	0.58
	corresp. Moment	k-ft					-66	-202	-				-74	-246	-			28			50	6112	1.06		
Vertical U40-L40 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-310	-146	-	1.11	1.22	1.55	-344	-178	-	Static det.	Other	-411	0	1.77	-727	3182	1.01	2.89	0.40
	corresp. Moment	k-ft					93	82	-				104	100	-			-100			-176	3570	1.06		
Vertical U41-L41 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-536	-	1.11	1.22	1.55	-516	-653	-	Static det.	Other	-412	0	1.77	-729	3776	1.01	2.10	0.53
	corresp. Moment	k-ft					174	101	-				193	123	-			-241			-426	3889	1.06		
Vertical U42-L42 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-294	-	1.11	1.22	1.55	-110	-359	-	Static det.	Other	-91	0.25	1.77	-201	1164	1.01	2.46	0.71
	corresp. Moment	k-ft					-29	-31	-				-32	-38	-			-12			-26	714	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Vertical U43-L43 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	24	-4	-	1.11	0.90	1.55	27	-5	-	Static det.	Other	8	0	1.77	15	500	1.01	>10	0.14
	corresp. Moment	k-ft					-2	-4	-				-2	-4	-			1			1	70	1.06		
Vertical U44-L44 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-169	-	1.11	1.22	1.55	-64	-206	-	Static det.	Other	-95	0.25	1.77	-210	1164	1.01	3.20	0.56
	corresp. Moment	k-ft					26	46	-				29	56	-			10			22	714	1.06		
Vertical U45-L45 - (3 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	4	0.25	1.77	8	500	1.01	>10	0.04
	corresp. Moment	k-ft					-1	-2	-				-1	-3	-			2			3	70	1.06		
Vertical U46-L46 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-55	-172	-	1.11	1.22	1.55	-61	-210	-	Static det.	Other	-97	0.25	1.77	-214	1164	1.01	3.80	0.44
	corresp. Moment	k-ft					1	0	-				1	0	-			7			15	714	1.06		
Vertical U47-L47 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	18	-7	-	1.11	0.90	1.55	20	-8	-	Static det.	Other	3	0.25	1.77	7	500	1.01	>10	0.04
	corresp. Moment	k-ft					1	2	-				1	3	-			-1			-3	70	1.06		
Vertical U48-L48 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-58	-169	-	1.11	1.22	1.55	-64	-206	-	Static det.	Other	-97	0.25	1.77	-215	1164	1.01	3.44	0.54
	corresp. Moment	k-ft					-25	-46	-				-28	-56	-			-2			-5	714	1.06		
Vertical U49-L49 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	25	-4	-	1.11	0.90	1.55	27	-5	-	Static det.	Other	8	0	1.77	14	500	1.01	>10	0.14
	corresp. Moment	k-ft					2	4	-				2	5	-			-1			-1	70	1.06		
Vertical U50-L50 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-99	-294	-	1.11	1.22	1.55	-110	-359	-	Static det.	Other	-96	0.25	1.77	-211	1164	1.01	2.46	0.71
	corresp. Moment	k-ft					29	31	-				32	38	-			8			18	714	1.06		
Vertical U51-L51 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-465	-536	-	1.11	1.22	1.55	-516	-654	-	Static det.	Other	-410	0	1.77	-725	3776	1.01	2.10	0.53
	corresp. Moment	k-ft					-176	-101	-				-196	-123	-			245			433	3889	1.06		
Vertical U52-L52 - (6 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-317	-145	-	1.11	1.22	1.55	-351	-177	-	Static det.	Other	-407	0	1.77	-721	3182	1.01	2.59	0.42
	corresp. Moment	k-ft					-97	-83	-				-108	-101	-			166			294	3570	1.06		
Vertical U53-L53 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-618	-587	-	1.11	1.22	1.55	-687	-717	-	Static det.	Other	-369	0	1.77	-654	3856	1.01	3.32	0.57
	corresp. Moment	k-ft					63	202	-				69	246	-			-36			-64	6112	1.06		
Vertical U54-L54 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-454	-951	-	1.11	1.22	1.55	-504	-1161	-	Static det.	Other	-296	0	1.77	-524	3405	1.01	1.67	0.88
	corresp. Moment	k-ft					207	403	-				230	492	-			122			217	3890	1.06		

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β: Behavior System	Behavior Element	Inspection Level	β	Dead Loads: Unfactored D1	Unfactored D2	Unfactored D3	Factors D1	Factors D2	Factors D3	Factored D1	Factored D2	Factored D3	Live Loads: Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Resistance: Fact'rd	Adjust. Factor, U	Live Load Capacity Factor	Interaction Eq'n <=1.0
Vertical U55-L55 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-76	-220	-	1.11	1.22	1.55	-85	-269	-	Static det.	Other	-106	0.25	1.77	-233	901	1.01	1.73	0.80
	corresp. Moment	k-ft					-18	-37	-				-20	-45	-			-8			-17	559	1.06		
Vertical U56-L56 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	19	1	-	1.11	1.22	1.55	21	2	-	Static det.	Other	1	0	1.77	1	500	1.01	>10	0.14
	corresp. Moment	k-ft					-1	-3	-				-2	-4	-			-1			-1	70	1.06		
Vertical U57-L57 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-56	-171	-	1.11	1.22	1.55	-62	-208	-	Static det.	Other	-103	0.25	1.77	-228	1026	1.01	3.07	0.51
	corresp. Moment	k-ft					13	-16	-				14	-19	-			-6			-13	714	1.06		
Vertical U58-L58 - (6 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	8	-	1.11	1.22	1.55	25	10	-	Static det.	Other	5	0.25	1.77	10	500	1.01	>10	0.15
	corresp. Moment	k-ft					-1	-3	-				-1	-4	-			0			1	69	1.06		
Vertical U59-L59 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-63	-213	-	1.11	1.22	1.55	-70	-260	-	Static det.	Other	-116	0.25	1.77	-256	897	1.01	1.73	0.78
	corresp. Moment	k-ft					16	37	-				18	45	-			7			16	603	1.06		
Vertical U60-L60 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	0	-	1.11	0.90	1.55	25	0	-	Static det.	Other	3	0.25	1.77	7	500	1.01	>10	0.06
	corresp. Moment	k-ft					-1	-3	-				-1	-3	-			2			4	69	1.06		
Vertical U61-L61 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-66	-212	-	1.11	1.22	1.55	-74	-259	-	Static det.	Other	-111	0.25	1.77	-245	897	1.01	2.16	0.67
	corresp. Moment	k-ft					1	2	-				1	2	-			5			12	603	1.06		
Vertical U62-L62 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	22	-3	-	1.11	0.90	1.55	24	-3	-	Static det.	Other	2	0.25	1.77	5	500	1.01	>10	0.06
	corresp. Moment	k-ft					1	3	-				1	4	-			-2			-3	69	1.06		
Vertical U63-L63 - (4 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-65	-224	-	1.11	1.22	1.55	-73	-273	-	Static det.	Other	-117	0.25	1.77	-259	897	1.01	1.79	0.78
	corresp. Moment	k-ft					-15	-32	-				-17	-39	-			-3			-6	603	1.06		
Vertical U64-L64 - (4 loaded lanes)	Tension	kips	S1	E1	INSP3	4.00	16	-3	-	1.11	0.90	1.55	18	-3	-	Static det.	Other	0	0.25	1.77	0	500	1.01	>10	0.12
	corresp. Moment	k-ft					1	4	-				1	5	-			1			1	69	1.06		
Vertical U65-L65 - (3 loaded lanes)	Compression	kips	S1	E1	INSP3	4.00	-43	-123	-	1.11	1.22	1.55	-47	-150	-	Static det.	Other	-90	0.25	1.77	-200	549	1.01	1.46	0.84
	corresp. Moment	k-ft					11	11	-				12	13	-			4			8	298	1.06		
Floorbeam 2 (for 23.5 to 26.25' panels) - (5 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	141	115	0	1.07	1.14	1.35	151	131	0	Sophist.	Other	1364	0.25	1.49	2541	5757	1.06	2.29	-

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection	β	Unfactored			Factors			Factored			Lat distrib.	Span	Unfact.	DLA	α_L	Fact'rd.	Fact'rd	Adjust.		
			System	Element	Level		D1	D2	D3	D1	D2	D3	D1	D2	D3	Category	Type	Load			Load		Factor, U		
Floorbeam 2 (for 23.5 to 26.25' panels) - (2 loaded lanes)	Max - ve Moment at 80.30 from start	k-ft	S2	E3	INSP3	3.00	-217	-1510	0	1.07	1.14	1.35	-206	-1359	0	Sophist.	Other	-75	0.25	1.49	-140	5757	1.06	>10	-
Floorbeam 2 (for 23.5 to 26.25' panels) - (4 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-24	-105	0	1.07	1.14	1.35	-25	-120	0	Sophist.	Other	-107	0.25	1.49	-199	513	1.03	1.93	-
Floorbeam 1 (31.25' panels) - (5 loaded lanes)	Max + ve Moment at 51.50 from start	k-ft	S2	E3	INSP3	3.00	161	137	0	1.07	1.14	1.35	173	156	0	Sophist.	Other	1488	0.25	1.49	2771	6363	1.06	2.32	-
Floorbeam 1 (31.25' panels) - (2 loaded lanes)	Max - ve Moment at 22.20 from start	k-ft	S2	E3	INSP3	3.00	-249	-1798	0	1.07	1.14	1.35	-237	-1618	0	Sophist.	Other	-82	0.25	1.49	-153	6363	1.06	>10	-
Floorbeam 1 (31.25' panels) - (4 loaded lanes)	Max Shear at 22.30 from start	kip	S2	E3	INSP3	3.00	-27	-125	0	1.07	1.14	1.35	-29	-142	0	Sophist.	Other	-116	0.25	1.49	-217	513	1.03	1.64	-
26.25 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	185	0.30	1.42	341	664	1.00	1.68	-
26.25 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	32	0.30	1.42	59	227	1.02	3.70	-
23.50 ft span Stringer 4 - W Beam- (2 loaded lanes)	Max + ve Moment at 13.13 from start	k-ft	S3	E3	INSP3	2.75	10	72	0	1.06	1.12	1.30	11	81	0	Sophist.	Other	181	0.30	1.42	334	664	1.00	1.72	-
23.50 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max Shear at 26.25 from start	kip	S3	E3	INSP3	2.75	2	11	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	32	0.30	1.42	59	227	1.02	3.70	-
25.00 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max + ve Moment at 12.50 from start	k-ft	S3	E3	INSP3	2.75	9	65	0	1.06	1.12	1.30	10	73	0	Sophist.	Other	171	0.30	1.42	315	664	1.00	1.84	-
25.00 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max Shear at 25.00 from start	kip	S3	E3	INSP3	2.75	1	10	0	1.06	1.12	1.30	2	12	0	Sophist.	Other	30	0.30	1.42	56	227	1.02	3.88	-
31.25 ft span Stringer 4 - W Beam - (2 loaded lanes)	**Max + ve Moment at 15.63 from start**	**k-ft**	**S3**	**E3**	**INSP3**	**2.75**	**14**	**102**	**0**	**1.06**	**1.12**	**1.30**	**15**	**114**	**0**	**Sophist.**	**Other**	**233**	**0.30**	**1.42**	**431**	**664**	**1.00**	**1.24**	**-**

Table no. 1

Overall Summary Table For Granville Street Bridge - Load Rating

Element Description	Force Effect	Units	Target Reliability Index, β				Dead Loads									Live Loads						Resistance		Live Load Capacity Factor	Interaction Eq'n <=1.0
			Behavior		Inspection Level	β	Unfactored			Factors			Factored			Lat distrib. Category	Span Type	Unfact. Load	DLA	α_L	Fact'rd. Load	Fact'rd	Adjust. Factor, U		
			System	Element			D1	D2	D3	D1	D2	D3	D1	D2	D3										
31.25 ft span Stringer 4 - W Beam - (2 loaded lanes)	Max Shear at 31.25 from start	kip	S3	E3	INSP3	2.75	2	13	0	1.06	1.12	1.30	2	15	0	Sophist.	Other	33	0.30	1.42	61	227	1.02	3.53	-
																								1.24	

Notes:
1. Load rating according to CSA-S6-06 (as per Section 14)
2. Highway Class A (as per Clause 1.5.2.2)
3. Live loading models evaluated:
- CL-625 Normal Traffic
4. When DLA = 0, it implies that lane loading governs
5. Concrete surfacing with nominal thckness of 55 mm used for evaluation (based on field sampling by City)
6. Target reliability index (eg Beta factors) increased by 0.25 to reflect Important Structures
7. Load rating demands derived from full 3D analysis model of bridge (S-Frame ver 9)
8. Material properties used to calculate resistances are as follows:
- Median structural steel (Me), Fy=33 ksi, Fu=60 ksi
- Structural silicon steel (S1), Fy=46 ksi (plates less then 32 mm), Fy=43.9 ksi (for plates between 32 and 44 mm)
- Deck stringers and floorbeams: 33 ksi
9. For truss diagonals and verticals, effective lengths kL taken as 0.9 L where L is between truss work points. Kl taken as 1.0 for truss chords
10. Truss section properties based on design drawings updated to reflect shop/As-built drawings
11. For stringers, loads are applied statically for the tributary widths (essentially assuming that deck is simply supported between stringers)

Evaluator		
Checker		

Tabulation was checked for completness by:

Appendix F - Design Criteria

Report

Associated Engineering

City of Vancouver

Granville Bridge Design Criteria for Bearing Replacement / Rehabilitation – Rev. 0

June 2010

ASSOCIATED ENGINEERING

QUALITY MANAGEMENT SIGN-OFF

Signature D. Hanno

Date July 07, 2010

05-10-77

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1 Introduction

Associated Engineering (AE) has been retained by the **City of Vancouver** to design replacements or to prepare rehabilitation schemes for all the **Granville Street Bridge bearings contaminated with PCB**. AE will conduct this task in consultation with the City of Vancouver and in cooperation with **Envirochem Services Inc.** (EC) and possibly other sub-consultants.

The project objective is to remove all traces on PCB, previously used as an expansion bearing lubricant, from the bridge, in order to prevent possible contamination of the environment. The existing components of the bridge bearings that will be replaced, such as steel bearing rollers, will be removed from the bridge site and cleaned of PCB prior to recycling. Some of the bridge bearing components, where full access to contaminated surfaces can be provided, will be cleaned for PCB on site. We will attempt to maintain the existing articulation of the bearings in the permanent condition. If the articulation of all the bearings remains the same, analysis of the entire structure for the permanent effects and seismic forces will not be required. However, where bearing replacement procedure requires a change of bearing articulation, such as temporarily restraining expansion bearings, we will determine how this affects the superstructure as well as the substructure.

In the event that we conclude that, for certain locations, it is not feasible to remove all traces of PCB form certain components of the bridge, nor to replace contaminated components, we will design permanent enclosures preventing PCB from contaminating the environment. We understand that this solution will require an approval from the regulatory authority. Where encapsulating the roller bearings would change the articulation of the bearings, it will result in longitudinal bearing reactions on the bridge piers due to temperature effects and live loading, and will also redistribute lateral forces resulting from in a design seismic event.

2 Design Criteria

The following design criteria will be used for the design of replacement bearings for the Granville Street Bridge, as well as for the design of temporary works required to replace the bearings:

2.1 Safety and Environmental Considerations

Safety of the public under the bridge and protection of the environment are the highest priorities on this project.

The structure shall be designed in such a way as to facilitate safe and reliable removal of the contaminated components of the structure, and minimize the possibility of spilling the contaminants into the environment.

Residue of PCB on the bearings shall not be exposed to heat above 370 degrees Celsius (700ºF) because PCB will react at high temperatures producing toxic fumes.

2.2 Objective

All steel components contaminated with PCB shall be either cleaned on site so that PCB can not be detected on steel surfaces, or removed from site, cleaned and recycled. Alternately, where neither complete clean-up nor removal of steel bearings is feasible, bearings shall be encapsulated in an enclosure.

2.3 Design Codes and Standards

- CSA S6 06 Canadian Highway Bridge Design Code (CHBDC).
- BC Ministry of Transportation and Infrastructure Bridge Standards and Procedures Manual, August 2007 Edition (BSM).

2.4 Dead Load

Self-weight of all bridge components. Dimensions of the deck, overlay, railings, curbs and traffic barriers shown on the design drawings will be confirmed by field inspection. Bearing reactions shown on the design drawings will be confirmed by analysis. No allowance is made for future overlay or utilities.

Assumed unit weights of materials:

- Reinforced Concrete 24.5 kN/m^3
- Steel 77 kN/m^3

2.5 Design Criteria for the Existing Bridge Evaluation

- **Design Code:** CSA-S6/06, Section 14 - Evaluation.
- Evaluation Level 1 (vehicle train truck).

  In the event that the bridge does not have the capacity to support the CL625 vehicle train truck, Evaluation Level 2 will be conducted to determine the load carrying capacity for two unit vehicles. If the bridge does not have the capacity to support CL625 two unit vehicle, Evaluation Level 3 will be conducted to determine the capacity for single unit vehicles in normal traffic.

- Evaluation based on CL-625 truck as per cl.3.8.3.2 of CHBDC S6-06 or truck + lane load, whichever governs.
- **Highway Class A:** >4000 vehicles per day, see cl. 1.4.2.2.

- **Permit Vehicles:** Normal Traffic (No Permit vehicles on the bridge).
- **Loads Other Than Traffic (cl 14.9.5):** None.
- **System Behaviour:** S1 – Truss Members except floor system (element failure leads to total collapse).
- **System Behaviour:** S3 – Floor System (element failure leads to local failure).
- **Element Behaviour (cl 14.12.3):** Category E1 for all truss members except floor system.
- **Element Behaviour (cl 14.12.3):** Category E3 for floor system.
- **Inspection Level:** INSP3.
- **Lateral Load Distribution:** Statically Determined.

2.6 Vehicular Loading

Maximum allowable vehicular loading on the bridge will be determined by the analysis. The vehicular load on the bridge is currently restricted to 27 tonnes. Vehicular loading could be temporarily reduced or eliminated by imposing night-time bridge closure or limiting the number of lanes available to traffic during the most critical construction operations.

2.7 Pedestrian Loading

Pedestrian loading on the bridge shall be determined in accordance with Clause 3.8.9 of CSA S6-06: P= 5.0 – s / 30; where P is pedestrian load in kPa and s is loaded length in meters. P shall be not less than 1.6 kPa and not more than 4.0 kPa. Pedestrian traffic on the sidewalk will be allowed during the bridge closures; however, pedestrian load of 0.5 kPa shall be used for the design. Sidewalk width is 2.210 m (7'-3").

2.8 Roadway Width

- **Roadway Width:** Clear roadway between curbs is 26.8 m (88 ft). Roadway consists of four traffic lanes for each direction of traffic and a concrete median barrier. Roadway width will be confirmed by field measurements.
- **Clearances:** The clearance of the completed structure to False Creek and the streets under the bridge will remain the same as it is at present. The bearing replacement design will minimize disruption to the marine and street traffic under the bridge during construction.
- **Barriers:** No change in barrier system is anticipated.
- **Design Life for New Components:** 75 years.

2.9 Environmental Loads

The wind load for the completed structure shall have a 50 year return period. Wind pressure is 0.48 kPa.

- **Wind Load for the Structure during the Construction:** 10 year return period; wind pressure is 0.36 kPa.
- Wind load is calculated in accordance with S6-06, clause 3.10.
- **Maximum Mean Daily Temperature:** 28ºC.
- **Minimum Effective Temperature:** 14ºC.
- **Temperature Effects:** In accordance with S6-06, clause 3.9.4.
- **Snow Load:** Not considered in the design. Critical construction operations will be scheduled during a period when no significant snow load is anticipated.
- **Rainfall:** Not considered in the design.
- **Site Seismicity - Peak Ground Acceleration (475 year return):** 0.20 g.

2.10 Structural Steelwork

- **Existing Steel:**

Existing steel grade specified on the bridge shop drawings.

  - Medium Structural Steel CSA G40.4 or ASTM A7. Yield strength 228 MPa. Ultimate tensile strength 414 MPa.
  - High Tensile Steel to BSS 968. Yield strength 317MPa yield for plates 32 mm or less; 303 MPa for plates 32 mm up to and including 44 mm; 290 MPa for plates 44 mm up to and including 57 mm; 276 MPa for plates 57 mm up to and including 70 mm; 262 MPa for plates over 70 mm. Ultimate tensile strength 510 MPa.

New Steel

- **Plate:** CSA G40.21 Grade 350AT (350 MPa yield).
- **Sections:** CSA G40.21 Grade 350A.
- **Permanent Steel:** painted as per specifications.
- **Miscellaneous New Steelwork:** CSA G40.21 Grade 300W (300 MPa yield).
- **Galvanizing:** CSA G164.

2.11 Superstructure Design Check

- **The effective length for truss top and bottom chord members in compression:** Taken as the actual unbraced length, i.e., K = 1.0.
- **The effective length for truss diagonal members in compression:** K = 0.9.

- **Capacity of rivets:** Determined in accordance with CSA-S6/06, cl. 14.14.1.4.2.
- **Capacity of the truss gusset plates (block shear tear-out failure):** Determined for the critical joint.

2.12 Substructure Design

The substructure does not need to be investigated since the bridge articulation is unchanged in the permanent condition, and during construction.

The substructure will be investigated only if applied loads from the superstructure increases due to a change in the bridge articulation. This will occur if some of the bearings that are currently on rollers are replaced with fixed bearings, or with expansion bearings with considerable friction.

In case that the bridge configuration changes, even temporarily, lateral flexibility of the relevant bridge piers shall be investigated. A geotechnical engineer may need to be retained to establish soil properties for soil/structure interaction modelling.

Prepared by:

Nik Cuperlovic, P.Eng.
Senior Bridge Engineer

Reviewed by:

D.I. Harvey, M.Eng., P.Eng., Struct.Eng.
Senior Bridge Specialist

NC/DIH/mc

Appendix G - Load Rating Calculations for Gusset Plates

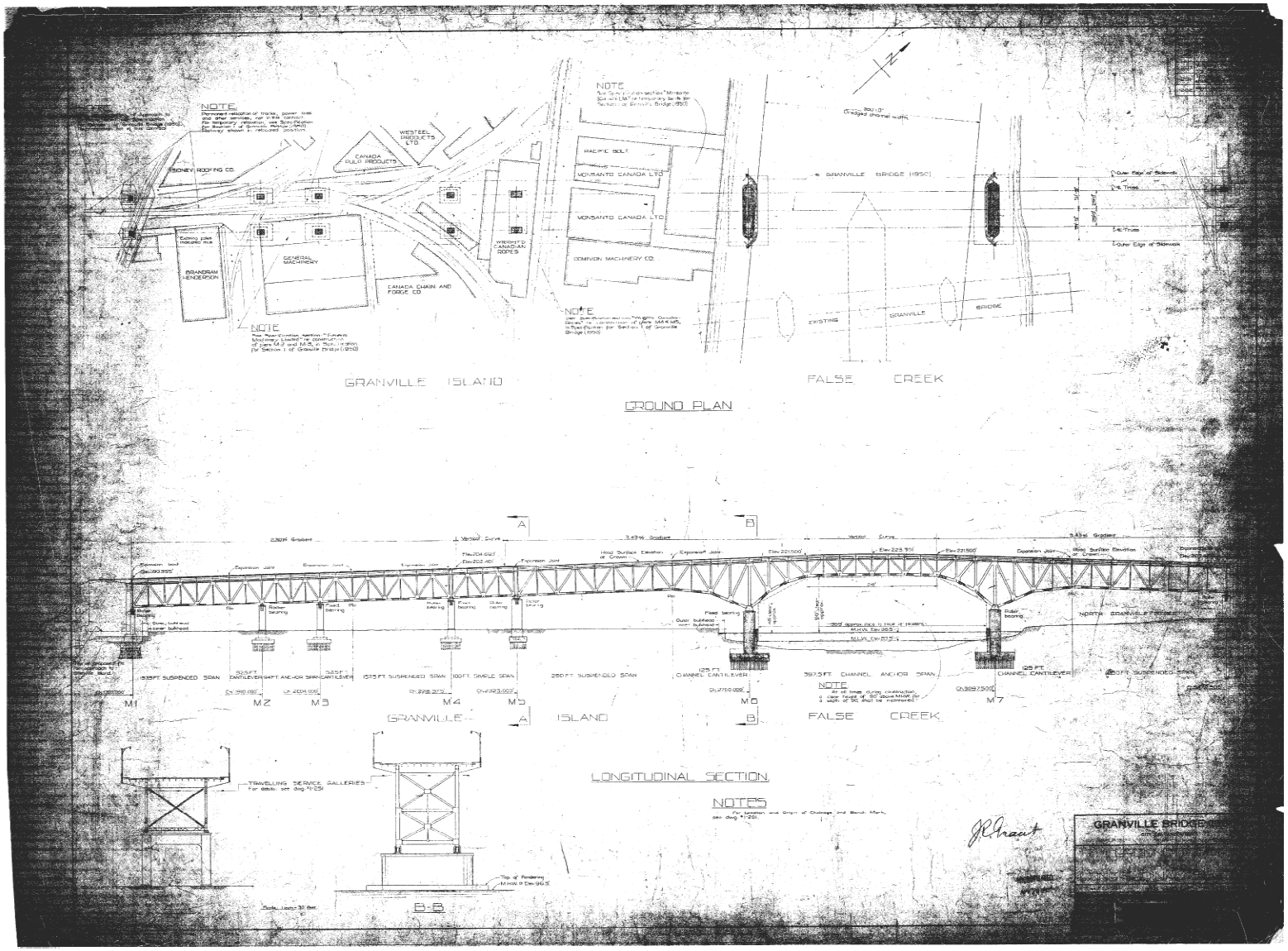
	Node	U2	U4	U6	U8	U10	U12	U14	U16	U18	U20	U23	U25	U28	U30	U32	U34
	Ref dwg	210	210	210	411	411	411	411	210	210	210	607	607	523	523	523	523
	Note			=U2			=U10	=U8	=U2	=U4	=U6		=U23			=U30	=U28
Gusset Plate Size (in)	Height (in)	71 5/8	53 5/8	71 5/8	73 3/4	67 1/4	67 1/4	73 3/4	71 5/8	53 5/8	71 5/8	69 3/16	69 3/16	79 3/4	72	72	79 3/4
	Thickness (in)	7/8	3/4	7/8	1 1/4	1	1	1 1/4	7/8	3/4	7/8	5/8	5/8	1 1/4	1	1	1 1/4
	Length (in)	88 1/4	68 1/2	88 1/4	98 1/4	82	82	98 1/4	88 1/4	68 1/2	88 1/4	74 1/2	74 1/2	105 1/4	89	89	105 1/4
Factored Axial Load (kips)	D1	3	-236	-244	-11	479	370	480	0	-239	-239	2	-95	6	-529	-713	-548
	D2	10	-680	-701	-28	1334	1069	1339	0	-688	-688	9	-301	7	-1280	-1739	-1384
	L	31	-483	-503	-60	819	531	825	0	-492	-498	23	-291	39	-703	-1005	-831
	L/H Chord	44	-1399	-1448	-99	2632	1970	2644	0	-1419	-1425	34	-687	52	-2512	-3457	-2763
	D1	-239	-239	0	481	370	479	-11	-244	-236	3	-95	2	-535	-714	-540	0
	D2	-689	-688	0	1340	1068	1334	-29	-703	-680	11	-302	9	-1294	-1742	-1361	0
	L	-514	-491	0	816	518	827	-64	-498	-488	28	-301	13	-753	-959	-814	0
	R/H Chord	-1442	-1418	0	2637	1956	2640	-104	-1445	-1404	42	-698	24	-2582	-3415	-2715	0
	D1	-275	-55	157	381	-162	55	-512	-275	-49	163	-140	46	-562	-247	75	391
	D2	-777	-164	441	1052	-394	114	-1374	-776	-149	459	-432	136	-1340	-608	123	861
	L	-620	-320	403	697	-474	377	-875	-588	-302	429	-484	187	-823	-485	305	558
	L/H Diagonal	-1672	-539	1001	2130	-1030	546	-2761	-1639	-500	1051	-1056	369	-2725	-1340	503	1810
	D1	160	-48	-270	-502	54	-159	374	154	-54	-269	44	-136	389	82	-231	-554
	D2	451	-146	-760	-1347	112	-386	1032	433	-161	-761	133	-422	918	191	-523	-1276
	L	440	-266	-548	-846	362	-433	696	423	-285	-579	230	-409	599	328	-444	-742
	R/H Diagonal	1051	-460	-1578	-2695	528	-978	2102	1010	-500	-1609	407	-967	1906	601	-1198	-2572
Factored load along A-A (kips)	Shear	1731	229	1686	3185	946	946	3198	1704	221	1736	829	829	3060	1234	1073	2916
	Axial	802	766	756	669	722	691	790	826	766	730	744	699	992	959	904	880
Factored Stress along Section A-A (ksi)	Max shear	16.8	3.3	16.4	19.5	8.7	8.7	19.5	16.6	3.2	16.9	13.4	13.4	17.4	10.4	9.0	16.6
	Axial	5.2	7.5	4.9	2.7	4.4	4.2	3.2	5.3	7.5	4.7	8.0	7.5	3.8	5.4	5.1	3.3
	Von Misses	**29.6**	**9.4**	**28.8**	**33.8**	**15.6**	**15.6**	**34.0**	**29.2**	**9.3**	**29.6**	**24.5**	**24.3**	**30.4**	**18.8**	**16.5**	**29.0**
L/H Factored load along B-B (kips)	Theta (deg)	55.4	55.4	55.4	55.4	58.3	58.3	55.4	55.4	55.4	55.4	56.6	56.6	54.5	54.5	54.5	54.5
	Chord ecc (in)	21.0	12.0	12.0	22.1	18.8	18.8	22.1	21.0	12.0	12.0	20.3	20.3	24.9	20.0	20.0	24.9
	% section area	46.7%	65.1%	65.1%	50.6%	50.6%	64.3%	50.6%	46.7%	65.1%	65.1%	54.5%	54.5%	51.7%	59.5%	56.2%	59.5%
	% rivet #	83.6%	70.8%	78.4%	80.6%	82.3%	80.3%	84.8%	83.6%	70.8%	78.4%	80.6%	74.4%	86.6%	84.7%	83.3%	89.0%
	Axial eff	-932	-951	-171	1169	555	1304	-433	-931	-938	-130	-566	-75	-1559	-2044	-1326	-412
	Shear eff	-1376	-444	824	1753	-876	465	-2273	-1349	-412	865	-882	308	-2218	-1091	410	1474
	Moment eff	361	-7738	-8868	-891	20617	19133	25027	0	-7848	-8728	303	-5655	580	-25319	-32368	-36432
L/H Factored stress along B-B (ksi)	Avg shear	-11.0	-5.5	6.6	9.5	-6.5	3.5	-12.3	-10.8	-5.1	6.9	-10.2	3.6	-11.1	-7.6	2.8	7.4
	Axial top	-7.2	-22.6	-7.3	5.9	17.8	22.4	8.7	-7.4	-22.6	-6.9	-6.2	-6.5	-7.6	-28.8	-27.9	-15.8
	Axial bottom	-7.7	-1.1	4.6	6.7	-9.6	-3.0	-13.4	-7.4	-0.7	4.8	-6.9	4.8	-8.0	0.5	9.5	11.7
	VM stress @ centre	29.5	18.6	17.1	25.5	17.4	13.2	32.1	28.9	17.7	18.0	27.3	9.3	29.9	24.3	11.8	19.3
	Max stress	**29.5**	**22.6**	**17.1**	**25.5**	**17.8**	**22.4**	**32.1**	**28.9**	**22.6**	**18.0**	**27.3**	**9.3**	**29.9**	**28.8**	**27.9**	**19.3**
R/H Factored load along B-B (kips)	Theta (deg)	55.4	55.4	55.4	55.4	58.3	58.3	55.4	55.4	55.4	55.4	56.6	56.6	54.5	54.5	54.5	54.5
	Chord ecc (in)	12.0	12.0	21.0	22.1	18.8	18.8	22.1	12.0	12.0	21.0	20.4	20.4	24.9	20.0	20.0	24.9
	% section area	65.1%	65.1%	46.7%	50.6%	64.3%	50.6%	50.6%	65.1%	65.1%	46.7%	54.5%	54.5%	59.5%	56.2%	59.5%	51.7%
	% rivet #	78.4%	70.8%	83.6%	84.8%	80.3%	82.3%	80.6%	78.4%	70.8%	83.6%	74.4%	80.6%	89.0%	83.3%	84.7%	86.6%
	Axial eff	-139	-915	-896	-399	1287	585	1151	-164	-931	-897	-59	-522	-260	-1250	-2064	-1494
	Shear eff	865	-379	-1299	-2218	449	-832	1730	831	-412	-1324	340	-807	1552	489	-975	-2094
	Moment eff	-8832	-7843	0	24961	18997	20680	-936	-8850	-7765	344	-5774	215	-34046	-31974	-27365	0
R/H Factored stress along B-B (ksi)	Avg shear	6.9	-4.7	-10.4	-12.0	3.3	-6.2	9.4	6.6	-5.1	-10.6	3.9	-9.3	7.8	3.4	-6.8	-10.5
	Axial top	-7.0	-22.3	-7.1	8.9	22.2	18.1	5.8	-7.2	-22.4	-6.9	-6.5	-5.8	-14.2	-27.2	-30.2	-7.5
	Axial bottom	4.8	-0.5	-7.1	-13.2	-3.0	-9.4	6.7	4.6	-0.8	-7.4	5.1	-6.2	11.5	9.8	1.5	-7.5
	VM stress @ centre	18.0	16.7	27.9	31.3	12.9	16.7	25.2	17.3	17.6	28.4	10.2	25.0	20.3	12.4	22.7	28.3
	Max stress	**18.0**	**22.3**	**27.9**	**31.3**	**22.2**	**18.1**	**25.2**	**17.3**	**22.4**	**28.4**	**10.2**	**25.0**	**20.3**	**27.2**	**30.2**	**28.3**

	Node	U36 *	U38 *	U39 *	U40 *	U41 *	U43 *	U45 *	U47 *	U49 *	U51 *	U52 *	U53 *	U54 *	U56 *	U58	U60	U62	U64
	Ref dwg	148	148	148	148	149	149	149	149	149	149	148	148	148	148	523	523	523	523
	Note		H. T. S.	H. T. S.	H. T. S.	H. T. S.	H. T. S.	H. T. S.	=U45	=U43	=U41	=U40	=U39	=U38	=U36	=U28	=U30	=U32	=U34
Gusset Plate Size (in)	Height (in)	97 1/2	108	143	101	91	86 3/4	79	79	86 3/4	91	101	143	108	97 1/2	79 3/4	72	72	79 3/4
	Thickness (in)	7/8	7/8	1	7/8	7/8	1	1	1	1	7/8	7/8	1	7/8	7/8	1 1/4	1	1	1 1/4
	Length (in)	117 1/4	105 1/4	127 3/4	136	156 1/2	182	169 1/2	169 1/2	182	156 1/2	136	127 3/4	105 1/4	117 1/4	105 1/4	89	89	105 1/4
Factored Axial Load (kips)	D1	-21	757	1025	1248	1053	643	-100	-341	-122	598	1005	1207	998	750	0	-536	-707	-532
	D2	-167	1597	2159	2900	2931	2545	1250	820	1254	2546	2924	2893	2152	1611	0	-1368	-1748	-1302
	L	-193	769	938	1550	1978	2257	1844	-2460	1872	2292	2008	1567	1058	833	0	-831	-969	-756
	L/H Chord	-381	3123	4122	5698	5962	5445	2994	-1981	3004	5436	5937	5667	4208	3194	0	-2735	-3424	-2590
	D1	769	1025	1248	1053	646	-98	-341	-124	596	1005	1207	998	739	-22	-544	-706	-526	5
	D2	1617	2159	2900	2931	2552	1253	820	1251	2547	2924	2893	2152	1591	-173	-1391	-1745	-1287	9
	L	783	938	1550	1978	2258	1846	-2460	1870	2291	2008	1567	1058	818	-198	-766	-1013	-749	45
	R/H Chord	3169	4122	5698	5962	5456	3001	-1981	2997	5434	5937	5667	4208	3148	-393	-2701	-3464	-2562	59
	D1	665	516	571	N/A	N/A	-683	-281	78	444	559	310	67	N/A	-797	-549	-230	77	385
	D2	1475	1058	1089	N/A	N/A	-1189	-521	132	782	523	-48	-526	N/A	-1786	-1277	-525	185	917
	L	794	566	612	N/A	N/A	-793	-500	413	672	-430	-522	-791	N/A	-933	-739	-443	323	609
	L/H Diagonal	2934	2140	2272	0	0	-2665	-1302	623	1898	652	-260	-1250	0	-3516	-2565	-1198	585	1911
	D1	-818	N/A	51	300	559	462	96	-262	-665	N/A	N/A	559	499	653	388	70	-245	-559
	D2	-1783	N/A	-526	-48	523	781	131	-521	-1190	N/A	N/A	1089	1057	1474	861	118	-610	-1339
	L	-936	N/A	-752	-527	-431	573	375	-580	-856	N/A	N/A	646	604	807	558	295	-483	-831
	R/H Diagonal	-3537	0	-1227	-275	651	1816	602	-1363	-2711	0	0	2294	2160	2934	1807	483	-1338	-2729
Factored load along A-A (kips)	Shear	4049	1352	1811	938	1861	3538	1590	1569	3517	1858	943	1798	1340	4044	2915	1066	1223	3054
	Axial	822	673	979	871	904	874	867	868	875	904	871	979	675	823	882	908	967	992
Factored Stress along A-A (ksi)	Max shear	16.6	11.0	10.6	5.9	10.2	14.6	7.0	7	14.5	10.2	5.9	10.6	10.9	16.6	16 5/8	9.0	10.3	17.4
	Axial	4.0	3.7	3.8	3.7	3.3	2.4	2.6	2.6	2.4	3.3	3.7	3.8	3.7	4.0	3.4	5.1	5.4	3.8
	Von Misses	**29.0**	**19.4**	**18.8**	**10.9**	**18.0**	**25.4**	**12.5**	**12.3**	**25.2**	**17.9**	**10.9**	**18.7**	**19.3**	**29.0**	**29.0**	**16.4**	**18.7**	**30.4**
L/H Factored load along B-B (kips)	Theta (deg)	55.1	59.5	64.9	0.0	0.0	49.7	48.7	48.7	47.8	42.7	49.7	59.5	0.0	58.4	54.5	54.5	54.5	54.5
	Chord ecc (in)	30.8	34.6	45.9	32.5	27.5	25.4	21.5	21.5	25.4	27.5	32.5	45.9	34.6	30.8	24.9	20.0	20.0	24.9
	% section area	29.8%	44.4%	47.0%	58.8%	62.9%	59.8%	56.1%	52.7%	56.1%	53.1%	56.4%	57.2%	56.1%	41.7%	51.7%	59.5%	56.2%	59.5%
	% rivet #	80.2%	90.3%	61.9%	66.4%	68.8%	95.0%	91.5%	91.5%	95.0%	81.3%	80.0%	80.8%	53.4%	91.3%	86.6%	84.7%	83.3%	89.0%
	Axial eff	1588	2338	2163	2225	2580	1370	678	-544	2876	2826	2511	1985	1261	-626	-1490	-2074	-1263	-262
	Shear eff	2406	1844	2057	0	0	-2033	-978	468	1406	442	-198	-1077	0	-2995	-2088	-975	476	1556
	Moment eff	-2800	43323	55044	72302	70952	78570	33043	-20538	40665	64535	87060	120219	43617	37393	0	-27567	-32059	-34151
L/H Factored stress along B-B (ksi)	Avg shear	8.6	9.8	7.2	0.0	0.0	-11.7	-6.2	3.0	8.1	2.8	-1.1	-3.8	0.0	-10.8	-10.5	-6.8	3.3	7.8
	Axial top	8.3	25.1	15.6	36.9	45.6	39.2	20.2	-13.3	32.8	44.5	43.5	24.6	19.5	9.8	-7.5	-30.4	-27.3	-14.2
	Axial bottom	10.3	-0.4	-0.5	-11.7	-13.2	-23.4	-11.6	6.4	0.4	-9.0	-15.1	-10.7	-6.2	-17.2	-7.5	1.6	9.8	11.6
	VM stress @ centre	24.2	28.2	20.2	12.6	16.2	31.4	16.6	8.4	26.8	19.2	14.5	12.0	6.7	28.3	28.2	22.7	12.3	20.3
	Max stress	**24.2**	**28.2**	**20.2**	**36.9**	**45.6**	**39.2**	**20.2**	**13.3**	**32.8**	**44.5**	**43.5**	**24.6**	**19.5**	**28.3**	**28.2**	**30.4**	**27.3**	**20.3**
R/H Factored load along B-B (kips)	Theta (deg)	58.4	0.0	59.5	49.7	42.7	47.8	48.7	48.7	49.7	0.0	0.0	64.9	59.5	55.1	54.5	54.5	54.5	54.5
	Chord ecc (in)	30.8	34.6	45.9	32.5	27.5	25.4	21.5	21.5	25.4	27.5	32.5	45.9	34.6	30.8	24.9	20.0	20.0	24.9
	% section area	41.7%	56.1%	57.2%	56.4%	53.1%	56.1%	52.7%	56.1%	59.8%	62.9%	58.8%	47.0%	44.4%	29.8%	59.5%	56.2%	59.5%	51.7%
	% rivet #	91.3%	53.4%	80.8%	80.0%	81.3%	95.0%	91.5%	91.5%	95.0%	68.8%	66.4%	61.9%	90.3%	80.2%	89.0%	83.3%	84.7%	86.6%
	Axial eff	-647	1235	2011	2512	2834	2819	-558	639	1334	2569	2213	2197	2358	1585	-381	-1341	-2068	-1558
	Shear eff	-3013	0	-1057	-210	442	1345	452	-1024	-2068	0	0	2077	1861	2406	1471	393	-1089	-2222
	Moment eff	37100	42726	120877	87427	64773	40624	-20538	33076	78411	70654	71909	56192	43670	-2888	-35615	-32433	-25823	658
R/H Factored stress along B-B (ksi)	Avg shear	-10.8	0.0	-3.7	-1.2	2.8	7.8	2.9	-6.5	-11.9	0.0	0.0	7.3	9.8	8.6	7.4	2.7	-7.6	-11.1
	Axial top	9.6	19.1	24.8	43.6	44.6	32.4	-13.4	19.9	38.9	45.4	36.7	15.9	25.3	8.2	-15.4	-28.1	-29.3	-7.6
	Axial bottom	-17.2	-6.0	-10.7	-15.2	-9.0	0.1	6.3	-11.9	-23.6	-13.1	-11.7	-0.6	-0.4	10.3	11.5	9.5	0.6	-8.1
	VM stress @ centre	28.3	6.5	11.9	14.5	19.2	25.9	8.2	17.3	31.9	16.1	12.5	20.4	28.5	24.2	19.3	11.7	24.3	30.0
	Max stress	**28.3**	**19.1**	**24.8**	**43.6**	**44.6**	**32.4**	**13.4**	**19.9**	**38.9**	**45.4**	**36.7**	**20.4**	**28.5**	**24.2**	**19.3**	**28.1**	**29.3**	**30.0**

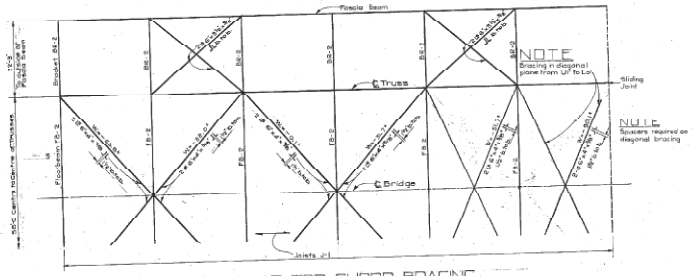
	Node	L1	L3	L5	L7L	L7R	L9	L11	L13	L15L	L15R	L17	L19	L21	L22	L24	L26	L27	L29	L31	L33	L35L
	Ref dwg	213	208	208	216	409	411	411	411	409	216	208	208	213	608	608	608	513	523	523	523	521
	Note	SPT		=L3	pin	pin	SPT		=L9, SPT	=L7R, pin	=L7L, pin	=L5	=L3	=L1, SPT	SPT		=L22, SPT	SPT			=L29	pin
Gusset Plate Size (in)	Height (in)	86 1/8	69 1/2	69 1/2	30	75 1/2	80 3/4	73	80 3/4	75 1/2	30	69 1/2	69 1/2	86 1/8	85 3/4	64	85 3/4	92 1/8	81 1/8	67 3/4	81 1/8	97 1/4
	Thickness (in)	7/8	3/4	3/4	7/8	1	1.74	1	1.74 &	1	7/8	3/4	3/4	7/8	5/8	5/8	5/8	1 1/4	1	1	1	1 1/4
	Length (in)	70 1/4	83 1/2	83 1/2	67 3/4	78 3/4	90	75	90	78 3/4	67 3/4	83 1/2	83 1/2	70 1/4	71 1/2	75	71 1/2	74 1/2	98 1/2	82 1/2	98 1/2	86 5/16
Factored Axial Load (kips)	D1	N/A	152	272	159		-192	-402	-393	-202		159	272	152	N/A	74	74	N/A	312	676	688	336
	D2	N/A	439	793	459		-547	-1142	-1116	-573		459	793	440	N/A	236	237	N/A	766	1659	1702	899
	L	N/A	331	544	339		-357	-649	-635	-365		339	548	334	N/A	231	230	N/A	451	966	1004	578
	L/H Chord	N/A	922	1609	957		-1096	-2193	-2144	-1140		957	1613	926	N/A	541	541	N/A	1529	3301	3394	1813
	D1	152	272	159		-202	-393	-402	-193	159		272	152	N/A	74	74	N/A	312	676	688	336	-367
	D2	439	793	459		-573	-1116	-1142	-548	458		793	440	N/A	236	237	N/A	766	1659	1702	899	-696
	L	351	560	333		-372	-634	-651	-359	339		525	315	N/A	230	214	N/A	471	963	999	575	-458
	R/H Chord	942	1353	951		-1147	-2143	-2195	-1100	956		1590	907	N/A	540	525	N/A	1549	3298	3389	1810	-1521
	D1	N/A	160	-48	-270		-502	54	-159	374		154	-54	-269	N/A	44	-136	N/A	389	82	-231	-554
	D2	N/A	451	-146	-760		-1347	112	-386	1032		433	-161	-761	N/A	133	-422	N/A	918	191	-523	-1276
	L	N/A	440	-266	-548		-846	362	-433	696		423	-285	-579	N/A	230	-409	N/A	599	328	-444	-742
	L/H Diagonal	N/A	891	-460	-1578		-2695	528	-978	2102		1010	-500	-1609	N/A	407	-967	N/A	1906	601	-1198	-2572
	D1	-275	-55	157		381	-162	55	-512	-275		-49	163	N/A	-140	46	N/A	-562	-247	75	391	665
	D2	-777	-164	441		1052	-394	114	-1374	-776		-149	459	N/A	-432	136	N/A	-1340	-608	123	861	1475
	L	-620	-320	403		697	-474	377	-875	-588		-302	429	N/A	-484	187	N/A	-823	-485	305	558	794
	R/H Diagonal	-1672	-539	1001		2130	-1030	546	-2761	-1639		-500	1051	N/A	-1056	369	N/A	-2725	-1340	503	1810	2934
Factored load along A-A (kips)	Shear	1099	953	896	2433		1351	391	1352	2435		901	978	1096	655	108	656	1796	2124	372	1945	3674
	Axial	2080	74	109	66		4271	89	4336	99		72	118	2044	1484	68	1461	3189	54	111	162	169
Factored Stress along Section A-A (ksi)	Max shear	13.4	11.4	10.7			6.5	3.9	6.5			10.8	11.7	13.4	11.0	1.7	11.0	14.5	16.2	3.4	14.8	25.5
	Axial	16.9	0.6	0.9			13.6	0.6	13.8			0.6	0.9	16.6	16.6	0.7	16.3	17.1	0.3	0.7	0.8	0.8
	Von Misses	28.7	19.8	18.6			17.7	6.8	17.8			18.7	20.3	28.5	25.3	3.1	25.1	30.3	28.0	5.9	25.7	44.2
L/H Factored load along B-B (kips)	Theta (deg)	N/A	55.4	55.4	Ok, see dwg 216	N/A	55.4	58.3	58.3	Ok, see dwg 409	N/A	55.4	55.4	55.4	N/A	56.6	56.6	N/A	55.4	54.5	54.5	Ok, see dwg 521
	Chord ecc (in)		-20.5	-20.5			-11.7	-22.5	-11.7			-20.5	-20.5	-19.4		-18.5	-13.4		-22.3	-15.6	-22.3	
	% section area		86.7%	86.7%			25.0%	100.0%	43.8%			86.7%	86.7%	1.0		100.0%	100.0%		100.0%	36.8%	37.2%	
	% rivet #		83.3%	76.6%			82.3%	75.0%	82.9%			83.3%	76.6%	0.6		76.9%	100.0%		79.4%	85.3%	87.5%	
	Axial eff		1172	807			-1756	-1367	-1292			1265	787	-384.2		640	9		2296	1385	409	
	Shear eff		733	-379			-2218	449	-832			831	-412	-1376.3		340	-807		1569	489	-975	
	Moment eff		-13651	-21906			2638	37007	9108			-14169	-21960	-10964.9		-7697	-7249		-27073	-16165	-24636	
L/H Factored stress along B-B (ksi)	Avg shear		7.0	-3.6			-7.9	3.1	-3.0			8.0	-3.9	-9.1		4.2	-7.5		9.7	3.6	-6.0	
	Axial top		-0.1	-10.4			-5.6	11.5	-2.2			0.4	-10.6	-7.6		-1.0	-4.7		1.8	-0.3	-8.7	
	Axial bottom		22.5	25.9			-6.9	-30.2	-7.0			23.9	25.7	2.5		17.0	4.8		26.5	20.8	13.8	
	VM stress @ centre		21.5	12.2			21.4	12.3	9.0			24.0	12.7	23.9		13.6	19.6		28.8	13.9	15.8	
	Max stress		**22.5**	**25.9**			**21.4**	**30.2**	**9.0**			**24.0**	**25.7**	23.9		**17.0**	**19.6**		**28.8**	**20.8**	**15.8**	
R/H Factored load along B-B (kips)	Theta (deg)	55.4	55.4	55.4	N/A	Ok, see dwg 409	58.3	58.3	55.4	N/A	Ok, see dwg 211	55.4	55.4	fs	56.6	56.6	N/A	54.5	54.5	54.5	54.5	N/A
	Chord ecc (in)	-19.4	-20.5	-20.5			-11.7	-22.5	-11.7			-20.5	-20.5		-13.4	-18.5		-18.6	-22.3	-15.6	-22.3	
	% section area	100.0%	86.7%	86.7%			43.8%	75.0%	25.0%			86.7%	86.7%		100.0%	100.0%		100.0%	37.2%	36.8%	100.0%	
	% rivet #	60.0%	76.6%	83.3%			82.9%	76.6%	82.3%			76.6%	83.3%		100.0%	76.6%		100.0%	87.5%	85.3%	79.4%	
	Axial eff	-384	592	1255			-1319	-974	-1794			772	1252		-41	605		-33	295	1356	2488	
	Shear eff	-1376	-444	824			-876	465	-2273			-412	865		-882	308		-2218	-1091	410	1474	
	Moment eff	-10965	-18420	-14080			9104	28373	2648			-21647	-13428		-7236	-7440		-28811	-23939	-16596	-32048	
R/H Factored stress along B-B (ksi)	Avg shear	-9.1	-4.3	7.9			-3.1	3.2	-8.1			-3.9	8.3		-8.2	3.9		-9.6	-6.7	3.0	9.1	
	Axial top	-7.6	-9.6	0.4			-2.3	9.3	-5.7			-10.5	0.9		-5.1	-1.2		-8.3	-9.1	-0.8	0.7	
	Axial bottom	2.5	20.9	23.7			-7.1	-22.6	-7.1			25.3	23.1		4.3	16.3		8.0	12.7	20.9	29.9	
	VM stress @ centre	23.9	12.4	23.8			9.4	10.6	22.0			12.7	24.7		21.4	12.5		25.0	17.6	12.7	28.1	
	Max stress	**23.9**	**20.9**	**23.8**			**9.4**	**22.6**	**22.0**			**25.3**	**24.7**		**21.4**	**16.3**		**25.0**	**17.6**	**20.9**	**29.9**	

	Node	L1	L3	L5	L7L	L7R	L9	L11	L13	L15L	L15R	L17	L19	L21	L22	L24	L26	L27	L29	L31	L33	L35L
	Ref dwg	213	208	208	216	409	411	411	411	409	216	208	208	213	608	608	608	513	523	523	523	521
	Note	SPT		=L3	pin	pin	SPT		=L9, SPT	=L7R, pin	=L7L, pin	=L5	=L3	=L1, SPT	SPT		=L22, SPT	SPT			=L29	pin
Gusset Plate Size (in)	Height (in)	86 1/8	69 1/2	69 1/2	30	75 1/2	80 3/4	73	80 3/4	75 1/2	30	69 1/2	69 1/2	86 1/8	85 3/4	64	85 3/4	92 1/8	81 1/8	67 3/4	81 1/8	97 1/4
	Thickness (in)	7/8	3/4	3/4	7/8	1	1.74	1	1.74 &	1	7/8	3/4	3/4	7/8	5/8	5/8	5/8	1 1/4	1	1	1	1 1/4
	Length (in)	70 1/4	83 1/2	83 1/2	67 3/4	78 3/4	90	75	90	78 3/4	67 3/4	83 1/2	83 1/2	70 1/4	71 1/2	75	71 1/2	74 1/2	98 1/2	82 1/2	98 1/2	86 5/16
Factored Axial Load (kips)	D1	N/A	152	272	159		-192	-402	-393	-202		159	272	152	N/A	74	74	N/A	312	676	688	336
	D2	N/A	439	793	459		-547	-1142	-1116	-573		459	793	440	N/A	236	237	N/A	766	1659	1702	899
	L	N/A	331	544	339		-357	-649	-635	-365		339	548	334	N/A	231	230	N/A	451	966	1004	578
	L/H Chord	N/A	922	1609	957		-1096	-2193	-2144	-1140		957	1613	926	N/A	541	541	N/A	1529	3301	3394	1813
	D1	152	272	159		-202	-393	-402	-193	159		272	152	N/A	74	74	N/A	312	676	688	336	-367
	D2	439	793	459		-573	-1116	-1142	-548	458		793	440	N/A	236	237	N/A	766	1659	1702	899	-696
	L	351	560	333		-372	-634	-651	-359	339		525	315	N/A	230	214	N/A	471	963	999	575	-458
	R/H Chord	942	1353	951		-1147	-2143	-2195	-1100	956		1590	907	N/A	540	525	N/A	1549	3298	3389	1810	-1521
	D1	N/A	160	-48	-270		-502	54	-159	374		154	-54	-269	N/A	44	-136	N/A	389	82	-231	-554
	D2	N/A	451	-146	-760		-1347	112	-386	1032		433	-161	-761	N/A	133	-422	N/A	918	191	-523	-1276
	L	N/A	440	-266	-548		-846	362	-433	696		423	-285	-579	N/A	230	-409	N/A	599	328	-444	-742
	L/H Diagonal	N/A	891	-460	-1578		-2695	528	-978	2102		1010	-500	-1609	N/A	407	-967	N/A	1906	601	-1198	-2572
	D1	-275	-55	157		381	-162	55	-512	-275		-49	163	N/A	-140	46	N/A	-562	-247	75	391	665
	D2	-777	-164	441		1052	-394	114	-1374	-776		-149	459	N/A	-432	136	N/A	-1340	-608	123	861	1475
	L	-620	-320	403		697	-474	377	-875	-588		-302	429	N/A	-484	187	N/A	-823	-485	305	558	794
	R/H Diagonal	-1672	-539	1001		2130	-1030	546	-2761	-1639		-500	1051	N/A	-1056	369	N/A	-2725	-1340	503	1810	2934
Factored load along A-A (kips)	Shear	1099	953	896	2433		1351	391	1352	2435		901	978	1096	655	108	656	1796	2124	372	1945	3674
	Axial	2080	74	109	66		4271	89	4336	99		72	118	2044	1484	68	1461	3189	54	111	162	169
Factored Stress along Section A-A (ksi)	Max shear	13.4	11.4	10.7			6.5	3.9	6.5			10.8	11.7	13.4	11.0	1.7	11.0	14.5	16.2	3.4	14.8	25.5
	Axial	16.9	0.6	0.9			13.6	0.6	13.8			0.6	0.9	16.6	16.6	0.7	16.3	17.1	0.3	0.7	0.8	0.8
	Von Misses	28.7	19.8	18.6			17.7	6.8	17.8			18.7	20.3	28.5	25.3	3.1	25.1	30.3	28.0	5.9	25.7	44.2
L/H Factored load along B-B (kips)	Theta (deg)	N/A	55.4	55.4	Ok, see dwg 216	N/A	55.4	58.3	58.3	Ok, see dwg 409	N/A	55.4	55.4	55.4	N/A	56.6	56.6	N/A	55.4	54.5	54.5	Ok, see dwg 521
	Chord ecc (in)		-20.5	-20.5			-11.7	-22.5	-11.7			-20.5	-20.5	-19.4		-18.5	-13.4		-22.3	-15.6	-22.3	
	% section area		86.7%	86.7%			25.0%	100.0%	43.8%			86.7%	86.7%	1.0		100.0%	100.0%		100.0%	36.8%	37.2%	
	% rivet #		83.3%	76.6%			82.3%	75.0%	82.9%			83.3%	76.6%	0.6		76.9%	100.0%		79.4%	85.3%	87.5%	
	Axial eff		1172	807			-1756	-1367	-1292			1265	787	-384.2		640	9		2296	1385	409	
	Shear eff		733	-379			-2218	449	-832			831	-412	-1376.3		340	-807		1569	489	-975	
	Moment eff		-13651	-21906			2638	37007	9108			-14169	-21960	-10964.9		-7697	-7249		-27073	-16165	-24636	
L/H Factored stress along B-B (ksi)	Avg shear		7.0	-3.6			-7.9	3.1	-3.0			8.0	-3.9	-9.1		4.2	-7.5		9.7	3.6	-6.0	
	Axial top		-0.1	-10.4			-5.6	11.5	-2.2			0.4	-10.6	-7.6		-1.0	-4.7		1.8	-0.3	-8.7	
	Axial bottom		22.5	25.9			-6.9	-30.2	-7.0			23.9	25.7	2.5		17.0	4.8		26.5	20.8	13.8	
	VM stress @ centre		21.5	12.2			21.4	12.3	9.0			24.0	12.7	23.9		13.6	19.6		28.8	13.9	15.8	
	Max stress		**22.5**	**25.9**			**21.4**	**30.2**	**9.0**			**24.0**	**25.7**	23.9		**17.0**	**19.6**		**28.8**	**20.8**	**15.8**	
R/H Factored load along B-B (kips)	Theta (deg)	55.4	55.4	55.4	N/A	Ok, see dwg 409	58.3	58.3	55.4	N/A	Ok, see dwg 211	55.4	55.4	fs	56.6	56.6	N/A	54.5	54.5	54.5	54.5	N/A
	Chord ecc (in)	-19.4	-20.5	-20.5			-11.7	-22.5	-11.7			-20.5	-20.5		-13.4	-18.5		-18.6	-22.3	-15.6	-22.3	
	% section area	100.0%	86.7%	86.7%			43.8%	75.0%	25.0%			86.7%	86.7%		100.0%	100.0%		100.0%	37.2%	36.8%	100.0%	
	% rivet #	60.0%	76.6%	83.3%			82.9%	76.6%	82.3%			76.6%	83.3%		100.0%	76.6%		100.0%	87.5%	85.3%	79.4%	
	Axial eff	-384	592	1255			-1319	-974	-1794			772	1252		-41	605		-33	295	1356	2488	
	Shear eff	-1376	-444	824			-876	465	-2273			-412	865		-882	308		-2218	-1091	410	1474	
	Moment eff	-10965	-18420	-14080			9104	28373	2648			-21647	-13428		-7236	-7440		-28811	-23939	-16596	-32048	
R/H Factored stress along B-B (ksi)	Avg shear	-9.1	-4.3	7.9			-3.1	3.2	-8.1			-3.9	8.3		-8.2	3.9		-9.6	-6.7	3.0	9.1	
	Axial top	-7.6	-9.6	0.4			-2.3	9.3	-5.7			-10.5	0.9		-5.1	-1.2		-8.3	-9.1	-0.8	0.7	
	Axial bottom	2.5	20.9	23.7			-7.1	-22.6	-7.1			25.3	23.1		4.3	16.3		8.0	12.7	20.9	29.9	
	VM stress @ centre	23.9	12.4	23.8			9.4	10.6	22.0			12.7	24.7		21.4	12.5		25.0	17.6	12.7	28.1	
	Max stress	**23.9**	**20.9**	**23.8**			**9.4**	**22.6**	**22.0**			**25.3**	**24.7**		**21.4**	**16.3**		**25.0**	**17.6**	**20.9**	**29.9**	

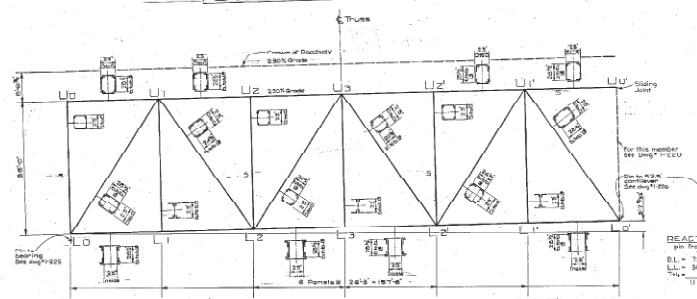
Appendix H - General Arrangement and other Key Drawings


NOTE
WESTEEL PRODUCTS LTD
CANADA PULP PRODUCTS
SIDNEY ROOFING CO.
BRANDRAM HENDERSON
GENERAL MACHINERY
CANADA CHAIN AND FORGE CO
WIRE ROPE CANADIAN ROPES
PACIFIC BOLT
MONSANTO CANADA LTD
MONSANTO CANADA LTD
DOMINION MACHINERY CO.
GRANVILLE BRIDGE (1950)
EXISTING GRANVILLE BRIDGE
GRANVILLE ISLAND
FALSE CREEK
GROUND PLAN
Vertical Curve
3.43% Gradient
Road Surface Elevation or Crown
Expansion Joint
Fixed bearing
Roller bearing
Guide bearing
Guide bulkhead
Anchor bulkhead
M1
M2
M3
M4
M5
M6
M7
GRANVILLE ISLAND
FALSE CREEK
LONGITUDINAL SECTION
TRAVELLING SERVICE GALLERIES
B-B
NOTES
GRANVILLE BRIDGE

REFERENCES	
1-205	Ground Plan and Longitudinal Section Showing Roof & Bearing Outlines & Elevations
1-220	84" Anchor Bolt & Bearing Details
1-225	157.5 Ft Suspended Span Truss Details
1-226	84" Anchor Bolt & Bearing Details at Cantilever Truss Details



PLAN AT TOP CHORD BRACING



REACTIONS (Span M3-M4), Max. from roller bearing at Pier M3 as applied to L0

	Vert.	Horiz.
D.L. =	674.4 ↓	14.1* →
L.L. =	367.8 ↓	8.5 →
T+I =	19.9 ↓	0.5 →
	1061.6* ↓	23.1* →

REACTIONS (Span M3-M4), Max. from pin from cantilever as applied to L0

	Vert.	Horiz.
D.L. =	729.0* ↓	15.8* →
L.L. =	367.8 ↓	8.5 →
T+I =	19.9 ↓	0.5 →
	1116.7* ↓	24.8* →

REACTIONS (Span M3-M4), Max. from pin from cantilever as applied to L0'

	Vert.	Horiz.
D.L. =	859.2* ↓	18.8* →
L.L. =	359.1 ↓	8.1 →
T+I =	19.7 ↓	0.5 →
	1238.0* ↓	26.8* →

REACTIONS (Span M3-M4), Max. from roller bearing at Pier M4 as applied to L0'

	Vert.	Horiz.
D.L. =	733.5* ↓	50.1* →
L.L. =	359.1 ↓	0.8 →
T+I =	19.7 ↓	0.5 →
	1092.1* ↓	29.1* →

ELEVATION OF TRUSS
2 REQUIRED THIS
2 REQUIRED OPPOSITE HAND

Member	STRESSES (Kips) D.L.	Rd D.L.	L.L.	I	T+I	Combined Stresses Σ	Σ+I	Design Stresses Σ+I/Σ	%	Pin Joint Stress Ksi	Area Reqd** Eff.	Net	Area Used** Gross	Net Eff.	Sheet	Description of Member
U0U1	+115.2				2.8	0.8	-112.5	-116.9			90.00			37.32	Me	Top Pl. 22"x3/8", Bot. Pl. 22"x3/8", 4 Ls 6"x6"x3/8", 2 Web Pls. 28"x3/8"
	+113.6				2.4	0.8	-113.2	-116.9			75.00					
U1U2 to U3	+164.7		+ 295.2		0.0	+ 15.8	+1136.3				+1136.3	37.3	15.50	73.4		Top Pl. 21"x3/8", Bot. Pl. 21"x3/8", 4 Ls 6"x6"x3/8", 2 Web Pls. 28"x3/8"
L0L1 to L2	-320.7		+ 225.0		0.0	-11.6	-751.0				-751.0		20.00		37.50	40.84	Me	4 Ls 6"x6"x3/8", 2 Web Pls. 28"x3/8", Dbl. Latt.
L2L3	-99.1		-201.9		0.0	-10.0	-1210.0				-1210.0		20.00		60.50			4 Ls 6"x6"x3/8", 2 Web Pls. 20"x3/8", 2 Dbl. Latt.
U0U1'	+ 130.0		+ 115.3	+23.5	+ 19.8	+ 295.4					+ 295.4	8.6	14.31	20.60		26.66	Me	2-10" Ch @ 42.7#, Dbl. Latt.
U1U2'	- 12.9		0.0		0.0	0.0*	- 12.9				- 12.9		20.00		0.64	15.54	Me	4 Ls 3"x3"x3/8", 1/4" Tie Pls.
U2U3'	+ 396.8		+ 165.1	+23.5	+ 19.8	+ 455.2					+ 455.2	13.4	14.08	32.40		35.96	Me	2-15" Ch @ 55#, Dbl. Latt.
U3U3'	- 15.4		0.0		0.0	0.0	- 15.4				- 15.4		20.00		0.77	15.54	Me	4 Ls 3"x3"x3/8", 1/4" Tie Pls.
L0U1	+ 855.5		+ 375.4		0.0	+ 22.9	+1245.1	0.0			+1245.1	36.6	15.14	0.00		82.00	Me	4 Ls 6"x6"x3/8", 2 Web Pls. 28"x3/8", Dbl. Latt.
U1L2	- 526.4		- 254.5		0.0	- 17.8	- 797.9				- 797.9		20.00		39.89	41.28	Me	4 Ls 6"x6"x3/8", 2 Web Pls. 24"x3/8", 1/4" Tie Pls.
L2L3	+ 179.3		+ 118.5		0.0	+ 13.0	+ 330.1	73.7			+ 330.1	9.0	20.00		16.50	36.44	Me	4 Ls 6"x6"x3/8", 2 Web Pls. 20"x3/8", Dbl. Latt.

Bending stress induced in top chord members from frictionless sliding bearings stress by max. of 0.5 kip and is therefore disregarded.

NOTE
* = Compression
** = Tension

GENERAL NOTES

Specifications: Can. Eng. Stds. Assoc. S6-1938, (Re-affirmed 1948), except as specified in Specifications for Section 1 of Granville Bridge (1950)

Materials: Si. denotes Structural Silicon Steel - NOTE: S.S. 968 substituted wherever Si. was specified. Me. denotes Medium Structural Steel

Symbols:
K. denotes Kips, 1 Kip = 1000 lbs.
D.L. denotes Dead Load Stresses
L.L. denotes Live Load Stresses
I. denotes Impact Stresses
T+I denotes Travelling Service Gallery Stresses including Impact.
W. denotes Wind Load Stresses
Σ denotes Summation of (D.L. and (L.L.+T+I) of same sign or D.L.)
Σ+I denotes Summation of 75% D.L. and (L.L.+T+I) of opposite sign to D.L.)
r denotes Ratio of length of member to least radius of gyration

Under 'Description of Member', figure thus (8") denotes net width of member at access hole.

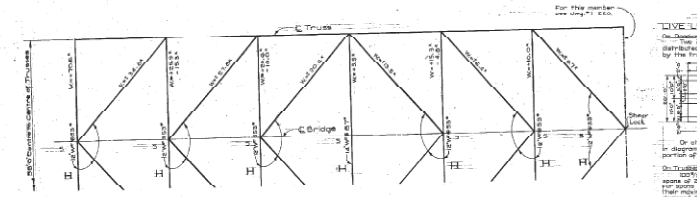
Allowable Unit Stresses: See Can. Eng. Stds. Assoc. specifications.

Rivets: 1" ϕ except as noted.

Camber: To be provided for full Dead Load

Painting: See Specifications for Section 1 of Granville Bridge (1950)

Substitutions: See Dominion Bridge Co.'s shop dwgs. indicated herein.
Locations in which extra members have been added are indicated here as A



PLAN AT BOTTOM CHORD BRACING

DESIGN LOADS

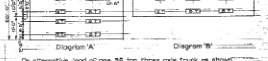
For conditions not covered below, U.S.B.R. specifications shall govern.

LIVE LOADS

positioned to give max. effect in each case.

On Roadway, Walks, Roadways and Brackets

The 20 ton truck as shown in diagram 'A' plus a uniformly distributed load of 80#/sq. ft. on the portion of roadway not occupied by the trucks.



Or alternative load of one 36 ton three axle truck as shown in diagram 'B', plus a uniformly distributed load of 80#/sq. ft. on the portion of the roadway not occupied by the truck.

On Trusses

100#/sq. ft. of roadway for spans of 100 feet or less and 80#/sq. ft. for spans of 200 feet or over, with straight line proportionate values for spans intermediate between 100 and 200 feet. Trusses, shall be designed for the maximum load from a single floor beam and bracket, shall be designed for the maximum load applied by the floor beam, as figured from the wheel loads plus the surrounding uniform load.

On Sidewalks

On the clear width of both sidewalks 80#/sq. ft. for loaded lengths of 80 feet or less and 60#/sq. ft. for loaded lengths of 120 feet or more. For lengths between 80 and 120 feet, interpolate values. For spans 80 feet and 100 feet. Sidewalks slabs shall be designed for an alternative concentrated load of 5000 lbs. on area two feet square.

IMPACT

On steel members impact shall be considered only in connection with the live load stresses produced by the specified wheel loads. The static stresses developed by these loads shall be increased by an allowance for impact as given by the formula:

$$I = \frac{C}{L+150}$$

in which I is the impact increment to be added to the live load stresses and L is the aggregate loaded length in feet of all lanes producing the live load stresses.

Floor beams, stringers, hangers shall be taken as 80% of the live load stresses.

TRAVELLING SERVICE GALLERIES

Central Gallery — total D.L. and L.L. = 0.0004
Outer Gallery — total D.L. and L.L. = 0.0004
Positioned to give max. in each member.

WIND LOADS

The wind force shall be taken as a stationary load equal to 30#/sq. ft. (this force is to act on the vertical plane projected on a vertical plane parallel to the longitudinal axis of the bridge and acting at right angles thereto, but not less than 200 pounds per lineal foot in the plane of the loaded chord and 150 pounds per lineal foot applied 7 feet above the roadway.

If greater stresses in the unloaded structure be produced by a stationary load of 80#/sq. applied as in the preceding clause, such alternative loading shall be used.

DEAD LOADS

per lineal foot of bridge max. as applied to one truss.

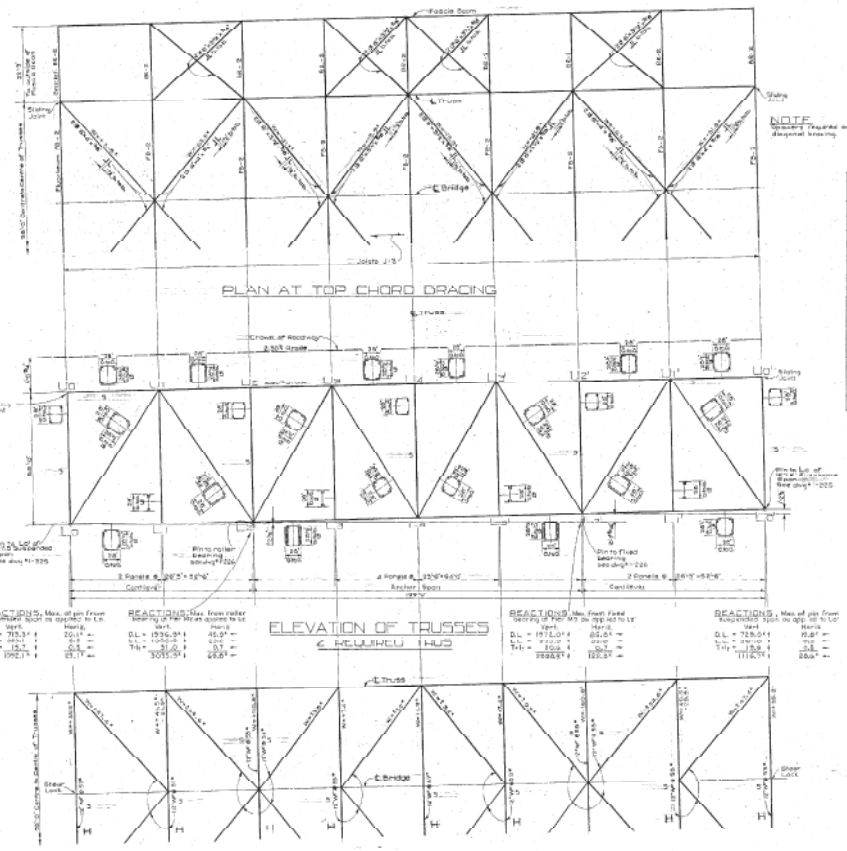
Asphalt and wearing surface	6000	
Sidewalk and curb	850	
Cable ducts	840	
Handrailing including lighting standard	89	
Fascia beam	85	
Travelling service gallery beams	1,107	
		7,414#
157.5 Ft. Suspended Span		
Steel Floor Members	1,939	
Trusses and Bracing	1,558	3,281
		10,695#

J. R. Grant

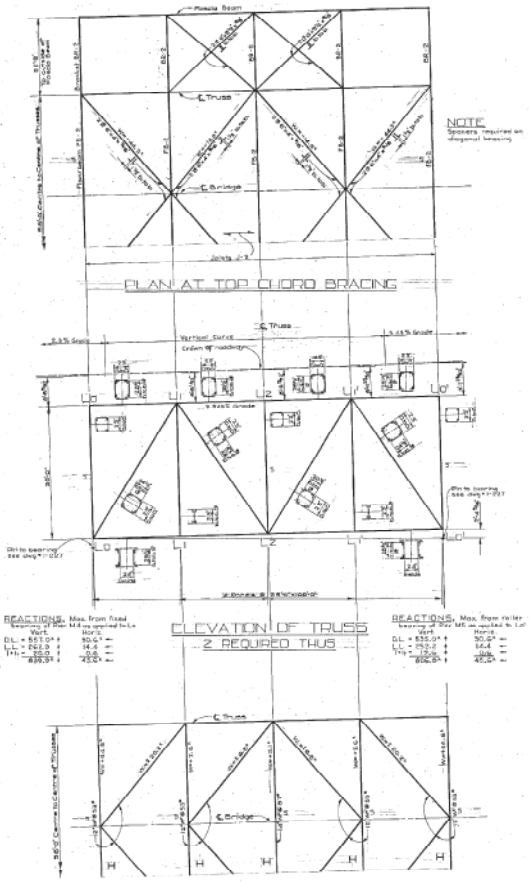
BA 30

REVISION A — AS BUILT	JUN. 1, 1954
GRANVILLE BRIDGE (1950)	
CITY OF VANCOUVER	
157.5 FT. SUSPENDED SPAN	
STRESS SHEET	
The Dominion Bridge Co. Ltd.	J. R. GRANT CONSULTING ENGINEER
Drawn by J. F. R.	Date JULY 15, 1950
	1-219
	SEL. 1 JUN. 1

Drawing Number	Description
1-203	Ground Plan and Longitudinal Section
1-207	Working Point & Coaling Diagram 5 Cantilevers
1-220	Stress Sheet 2-525 Cantilevers
1-215	84 Ft. Suspended Span Stress Sheet
1-225	84 Ft. Suspended Span Field Details


Fascia Beam
Sliding Joint
℄ Truss
℄ Bridge
Joists J-13
PLAN AT TOP CHORD BRACING
Crown of Roadway 2.50% Grade
Sliding Joint
Pin to Roller Bearing Seat
Pin to Roller Bearing Seat
Pin to Roller Bearing Seat

REFERENCES	
I-205	Ground Plan and Longitudinal Section
I-207	Working Point & Bracing Diagrams & Elevations
I-219	85'-6" Suspended Span Stress Sheet
I-227	100'-0" Simple Span Truss Details



NOTE
Spacers required on diagonal bracing

Member	STRESSES (kips) DL	SIDL	LL	T+Ig	Combined Stresses		Design Stresses		Unit Stress	Area Req'd		Area Used		Description of Member
										Net	Gross	Net	Gross	
L0U0	+ 3.1 / - 3.1		+ 3.1 / - 3.1	+ 0.3 / - 0.3	+ 6.4 / - 6.4		+ 6.1 / - 6.1		15.80 / 30.00	1540	4534	2400	Web	Top Pl. 20"x⅝", Bot. Pl. 22"x⅝", 4 Pl. 4"x4"x⅜", 2 Web Pls. 20"x⅜", Diag. Lat.
U1U0	+ 388.7		+ 160.4	0.0	+ 13.5	+ 538.9			+ 538.9	51.2	15.80	5480		Top Pl. 20"x⅝", Bot. Pl. 22"x⅝", 4 Pl. 4"x4"x⅜", 2 Web Pls. 20"x⅜"	48.94	Web
U2U1	+ 358.4		+ 173.5	0.0	+ 9.6	+ 367.0			+ 367.0	30.00		19.50		4 Pl. 4"x4"x⅜", 2 Web Pls. 28"x⅜", Diag. Lat.	39.44	Web
L0L1	+ 135.4		+ 77.1	+ 23.6	+ 19.5	+ 257.6			+ 257.6	22.2	14.87	10.10		2 Pls. 12"x0.40", 2 Pls. Lat.	24.96	Web
U1L1	- 10.9			0.0	0.0	- 10.9			- 10.9		20.00		0.54	4 Pl. 7"x4"x⅜", ⅜" Tie Pls.	15.50	Web
L1L2	+ 226.0		+ 148.5	+ 23.6	+ 19.6	+ 417.7			+ 417.7	72.0	14.45	51.30		3 - 15" C's @ 5.8", 2 Cov. Lats.	53.96	Web
L2U2	+ 158.8		+ 93.4	0.0	+ 15.0	+ 267.4			+ 267.4	18.5	14.87	19.60		Top Pl. 8"x⅝", Bot. Pl. 21"x⅝", 4 Pl. 4"x4"x⅜", 2 Web Pls. 28"x⅜"	57.30	Web
U1L2	+ 175.7	- 119.6	+ 105.0	0.0	+ 7.1	- 232.2			- 232.2		20.00		11.54	4 Pl. 4"x4"x⅜", 2 Web Pls. 30"x⅜", ⅜" Tie Pls.	28.46	Web

NOTE
+ = Compression
- = Tension

Bending stress induced in top chord members from floorbeam struts increases stress by max. of 0.6 kip and is therefore disregarded.

NOTE
See Dwg #I-219 for Design Loads

DEAD LOADS - per lineal foot of bridge (not as applied to one truss)

Roadway, sidewalk, etc. see Dwg #I-219 — 7414#

100 ft. Simple Span
Steel Floor Members — 1455#
Trusses and Bracing — 2155# — 3610#

10900#

NOTE
See Dwg #I-219
For General Notes

J. R. Grant

BA 30

Revision A — 1-25-'50 B.J.B. — Dec. 14, 1914

GRANVILLE BRIDGE (1950)

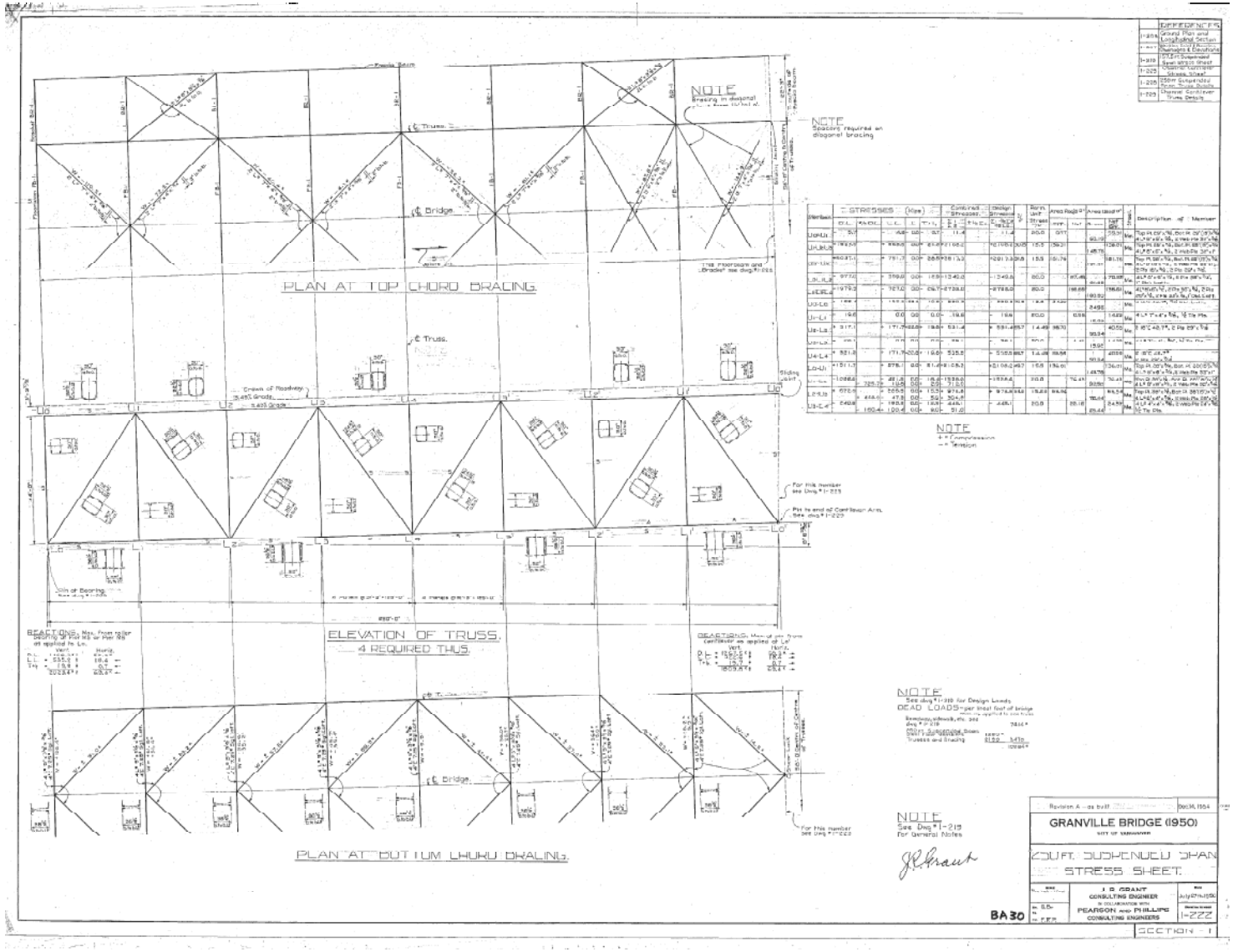
CITY OF VANCOUVER

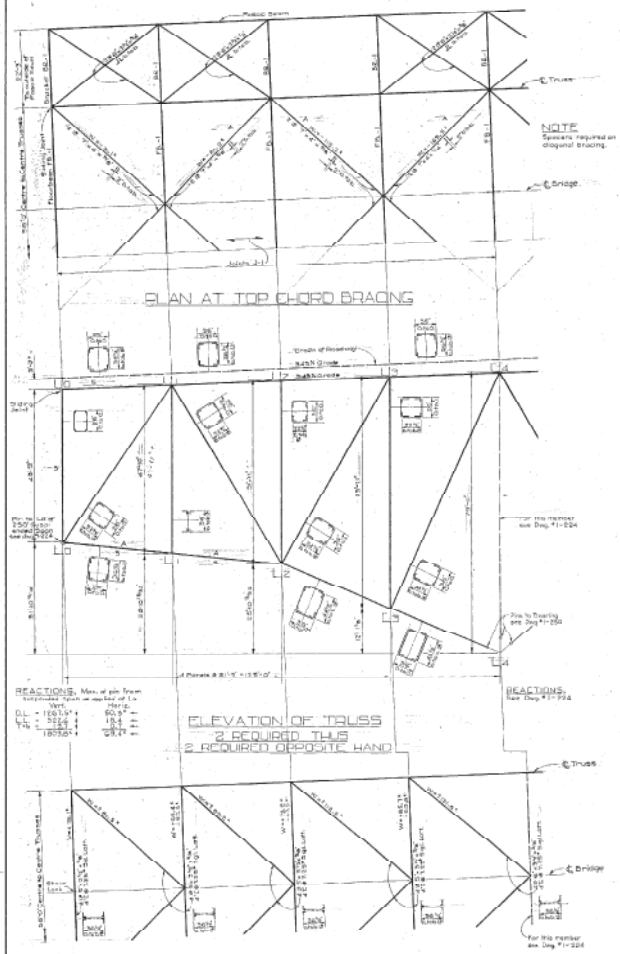
100 FT. SIMPLE SPAN STRESS SHEET

J. R. GRANT
CONSULTING ENGINEER
IN COLLABORATION WITH
PEARSON AND PHILLIPS
CONSULTING ENGINEERS

Scale: 1" = 1'-0"
Date: July 27th, 1950
Drawing Number: I-221

SECTION - I


PLAN AT TOP CHORD BRACING.
ELEVATION OF TRUSS.
4 REQUIRED THUS.
PLAN AT BOTTOM CHORD BRACING.
NOTE
Spacers required on diagonal bracing
NOTE
See dwg #1-219 for Design Loads
DEAD LOADS - per linear foot of bridge
NOTE
See Dwg #1-219
For General Notes
GRANVILLE BRIDGE (1950)
CITY OF VANCOUVER
STRESS SHEET.
J. B. GRANT
CONSULTING ENGINEER
IN COLLABORATION WITH
PEARSON AND PHILLIPS
CONSULTING ENGINEERS
1-222
SECTION - 1
BA30



Member	STRESSES (Kips) Dead	Live	Impact	Total	Combined Stresses	Design Stresses	Perm. Unit	Area Reqd.	Area Used	Description of Member
U0U1									67.68	Top Pl. 38"×¾", Bot. Pl. 25"×¾", 2 Webs 8"×¾", Stiffeners Dia. 36"×¾"
U1-U2-U3	+2146.6		+ 748.1	0.0	+ 22.9	+2918.6	+2918.6	20.00	147.85	Top Pl. 36"×¾", Bot. Pl. 14"×¾", 2 Webs 24"×¾", 2 Vert. Pls. 36"×¾"
U3-U4	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	176.00	
U4-U5	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	187.50	Top Pl. 38"×¾", Bot. Pl. 38"×¾", 2 Webs 24"×¾", 2 Vert. Pls. 36"×¾"
L0L1-L2	+1006.5	+ 671.0	365.3 / 3.3	0.0 / 0.0	+ 13.1 / + 7.7	+1304.9 / 681.4	+1304.9	15.60	83.60	4 Pl. 6"×½", 2 Webs Dia. 30"×¾", Diagonal Lum.
L2-L3	+2958.3		+1160.0	0.0	+ 30.6	+4090.1	+4090.1	19.30	212.18	60.00	300.00	Top Pl. 33"×¾", Bot. Pl. 35"×¾", 2 Webs Dia. 48"×¾", Diagonal Pls. 36"×¾"
L3-L4	+3483.1		+1342.0	0.0	+ 33.5	+4858.6	+4858.6	18.50	262.6	51.85	289.28	Top Pl. 38"×¾", Bot. Pl. 35"×1¼", 2 Webs 48"×¾", Diagonal Pls. 36"×¾"
U5-L5	+ 308.8		+ 171.5	0.0	+ 19.8	+ 525.3	+ 525.3	14.60	36.00	67.00	68.11	Top Pl. 35"×¾", Bot. Pl. 20"×¾", 2 Pl. 6"×½", Stiffeners Dia. 36"×¾"
U5-L6	- 21.0		0.0	0.0	0.0	- 21.0	- 21.0	30.00		1.09	59.96	14.25	4 Pl. 7"×½", Pin Dia.
U6-L6	+ 973.4		+ 171.5	0.0	+ 19.8	+ 938.8	+ 938.8	15.30	38.60		15.50	61.60	4 Pl. 6"×½", 2 Webs Dia. 22"×¾", Tie Plat. Lum.
U6-L7	+1395.3		+ 558.5	0.0	+ 16.8	+1958.6	+1958.6	14.65	133.65		44.60	131.43	Top Pl. 38"×¾", Bot. Pl. 33"×¾", 2 Webs Pl. 15"×½", Webs Pl. 52"×¾"
L6U7	+1326.0		- 674.8	0.0	- 22.8	-2026.8	-2026.8	20.00		101.34	48.60	118.15	Top Pl. 22"×½", Bot. Pl. 20"×¾", 4 Webs 24"×¾", 2 Diagonal Pls. 36"×¾"
U7-L7	+2126.0		+ 763.3	0.0	+ 22.8	+2994.1	+2994.1	18.3	163.5	15.1	94.16	95.78	Top Pl. 33"×¾", Bot. Pl. 33"×¾", 2 Webs Pl. 48"×¾", 2 Webs Pl. 36"×¾"
L7U8	+1305.0		- 469.3	0.0	- 16.4	-1789.7	-1789.7	20.00		0.94	07.78	91.40	Top Pl. 14"×½", Bot. Pl. 34"×½", 4 Webs 24"×¾", 2 Webs Dia. 36"×¾"
L7U8	-1892.0		- 469.3	0.0	- 16.2	-2375.7	-2375.7	20.00		9.38	11.60	95.88	Top Pl. 36"×¾", Bot. Pl. 36"×¾", 4 Webs 24"×¾", 2 Webs Dia. 36"×¾"

NOTE
+ Compression
− Tension

NOTE
See Dwg. # 1-219 for Design Loads.
DEAD LOADS — per lineal foot of bridge
Roadway, sidewalk, etc. see Dwg. # 1-219 — 1414#
Channel Cantilever
Steel Floor Members — 1142#
Trusses and Bracing — 2011#
4028
12242#

NOTE
See Dwg. # 1-219
for General Notes

J. R. Grant

BA 30

Revision A — as built — Dec. 14, 1954

GRANVILLE BRIDGE (1950)
CITY OF VANCOUVER

CHANNEL CANTILEVER
STRESS SHEET

J. R. GRANT
CONSULTING ENGINEER
IN COLLABORATION WITH
DEARDEN AND BARR | BRR
CONSULTING ENGINEERS

July 22th, 1950

1-223

SECTION - 1

NOTE
Spacers required on diagonal bracing

Member	STRESSES (Kips) D.L.	B.D.L.	L.L.	I	T+Ib	Combined Stresses Σ	Σ/Σ Σ	Design Stresses Σ	Σ/Σ	Form Unit Stress No.	Area Req'd Eff.	Net	Gross	Area Used Net	Eff.	Gross	Net Eff.	Gross	← Description of Member
U0-U2	+3685.0		+1180.0	0.0	+4865.0	+5865.0		+5865.0		38.00		152.12		152.12					Top Pl. 30"x¾", Bot Pl. 30"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		2460.0*	450.4	0.0	+5.0	+1917.4						271.0							
U2-U4	+3971.0		+1401.0	0.0	+5.0	+5377.0		+6277.0		38.00		165.18		165.18					Top Pl. 30"x¾", Bot Pl. 30"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		2380.0	+1105.0	0.0	+5.0	+3485.0						106.25		106.25					
U4-U6	+3841.0		+1210.0	0.0	+5.0	+5051.0	+5.0/+5051.0	8.1/+5051.0	0.6%	38.00		133.0		133.0					Top Pl. 30"x¾", Bot Pl. 30"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		-1984.0	+1009.0	0.0	+5.0	+1.0	+1.0/+1.0	8.1/+1.0	12.5	15.00	132.30			106.25					
U6-U8	+3126.0		+1018.0	0.0	+5.0	+4150.0	+5.0/+4150.0	8.1/+4150.0	0.1%	38.00		109.64		109.64					Top Pl. 30"x¾", Bot Pl. 30"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		-760.0	+2690.0	0.0	+5.0	+3100.0	+5.0/+3100.0	8.1/+3100.0	38.2	15.00	206.67			206.67					
U8-U10	+2511.0		+1300.0	0.0	+4.3	+3900.0	+4.3/+3900.0	7.0/+3900.0	0.1%	38.00		102.63		102.63					Top Pl. 30"x¾", Bot Pl. 30"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
L4-L6	+4491.0		+1643.0	0.0	+4.0	+6138.0		+6180.0	0.5%	18.50	333.8			333.8					Top Pl. 20"x¾", Bot Pl. 20"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
												333.8							
L6-L8																			Top Pl. 20"x¾", Bot Pl. 20"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		-2739.0	5.1	0.0	+5.1	+2734.0						147.8		147.8					
L8-L10	+3668.0		+2750.0	0.0	+5.3	+6423.0		+6400.0	0.5%	18.50	350.3			350.3					Top Pl. 20"x¾", Bot Pl. 20"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
			2.1	0.0	+2.1	+2.1						350.3							
L10-L12	+1303.0		+3311.0	0.0	+4.7	+4614.0	4.7/+4614.0	8.0/+4614.0	0.1%	18.50	234.0			234.0					Top Pl. 20"x¾", Bot Pl. 20"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		-1206.0	+2344.0	0.0	+5.0	+1138.0	5.0/+1138.0	8.0/+1138.0		18.00		71.8	93.8	71.8	93.8				
L12-L14			+3170.0	0.0	+4.4	+3174.0	4.4/+3174.0	7.6/+3174.0	0.1%	18.50	171.6			171.6					Top Pl. 20"x¾", Bot Pl. 20"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		+415.0	2170.0	0.0	+4.4	+2577.0	4.4/+2577.0	7.6/+2577.0		18.00		143.2	179.0	143.2	179.0				
U4-L4	+1194.0		+395.0	0.0	+1.8	+1611.0	+1.8/+1611.0	3.1/+1611.0	0.1%	18.50	87.1			87.1					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", Web Pls. 24"x⅜
		-777.0	+308.0	0.0	+1.0	+532.0	1.0/+532.0	1.7/+532.0		18.00		29.5		29.5					
U6-L6	+481.0		+398.0	0.0	+2.1	+1457.0	2.1/+1457.0	3.7/+1457.0	0.1%	18.50	114.1			114.1					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		-381.0	936.0	0.0	+3.0	+642.0	3.0/+642.0	5.1/+642.0		18.00		40.7	56.3	40.7	56.3				
U8-L8	+1028.0		+748.0	0.0	+5.3	+1800.0		+2001.0	0.1%	18.50	108.0			108.0					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
		+688.0	696.0	0.0	+5.0	+1.0						0.1		0.1					
U10-L10	+511.0		+1025.0	0.0	+3.0	+1536		+1.0/+1536	0.1%	18.50	83.0			83.0					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜, 2 Web Pls. 16"x⅜
														83.0					
U0-L0																			
U2-L2																			
U4-L4																			
U6-L6	+269.0		+153.0	+25.0	+8.0	+455.0		+1.0/+455.0	0.1%	18.50	24.6			24.6					Top Pl. 30"x¾", Bot Pl. 30"x¾", 1-18" C 42.7#
U8-L8																			
U10-L10																			
U0-L1																			
U2-L3																			
U4-L5																			
U6-L7																			
U8-L9																			
U10-L11																			
U0-L2																			
U2-L4																			
U4-L6	+455.0		+118.0	0.0	+5.0	+1438.0	+3.0/+1438.0	5.1/+1438.0	0.1%	18.50	78.0			78.0					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		+301.0	280.0		+2.0	+1206.0	2.0/+1206.0	3.4/+1206.0		18.00		67.0	102.0	67.0	102.0				
U6-L8	+175.0		+110.0	0.0	+2.0	+1317.0	2.0/+1317.0	3.4/+1317.0	0.1%	18.50	71.2			71.2					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		1170.0	+1180.0		+5.0	+1086.0	5.0/+1086.0	8.5/+1086.0		18.00	104.3			113.0					
U8-L10	+355.0		+1147.0	0.0	+5.0	+2502.0		+1.0/+2502.0	0.1%	18.50		114.7		117.4					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		837.0	545.0		+5.0	2000.0		1.0/+2000.0		18.00									
U10-L12	+1082.0		+1051.0	0.0	+1.0	+2133.0		+1.0/+2133.0	0.1%	18.50		115.3		115.3					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜, 2 Web Pls. 20"x⅜
		+1054.0	419.0		+5.0	2.0													
U0-L1	+1054.0		+1053	0.0	+1.0	+1054.0		+1.0/+1054.0		30.00		34.0		34.0					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜
		-761.0	419.0		+5.0	339.0													
U2-L3	+640.0		+121.0	0.0	+1.0	+1151.0		3.7/+1151.0	0.1%	18.50	61.9			61.9					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜
U4-L5	+218.0		+237.0	0.0	+1.0	+1.0		1.1/+1.0	0.1%	18.50		0.0		0.0					Top Pl. 24"x¾", Bot Pl. 24"x¾", 4 Pl. 8"x¾", 2 Web Pls. 24"x⅜
		-146.0	419.0		+1.0	506.0		1.1/+506.0		18.00	49.8		31.0	49.8					

NOTE
+ = Compression
- = Tension

NOTE
Truss to be symmetrical about ℄ except for reactions.

NOTE
Members U0-U1 — U4-U5 — U6-U7 and U8-U9, [illegible] section of members.

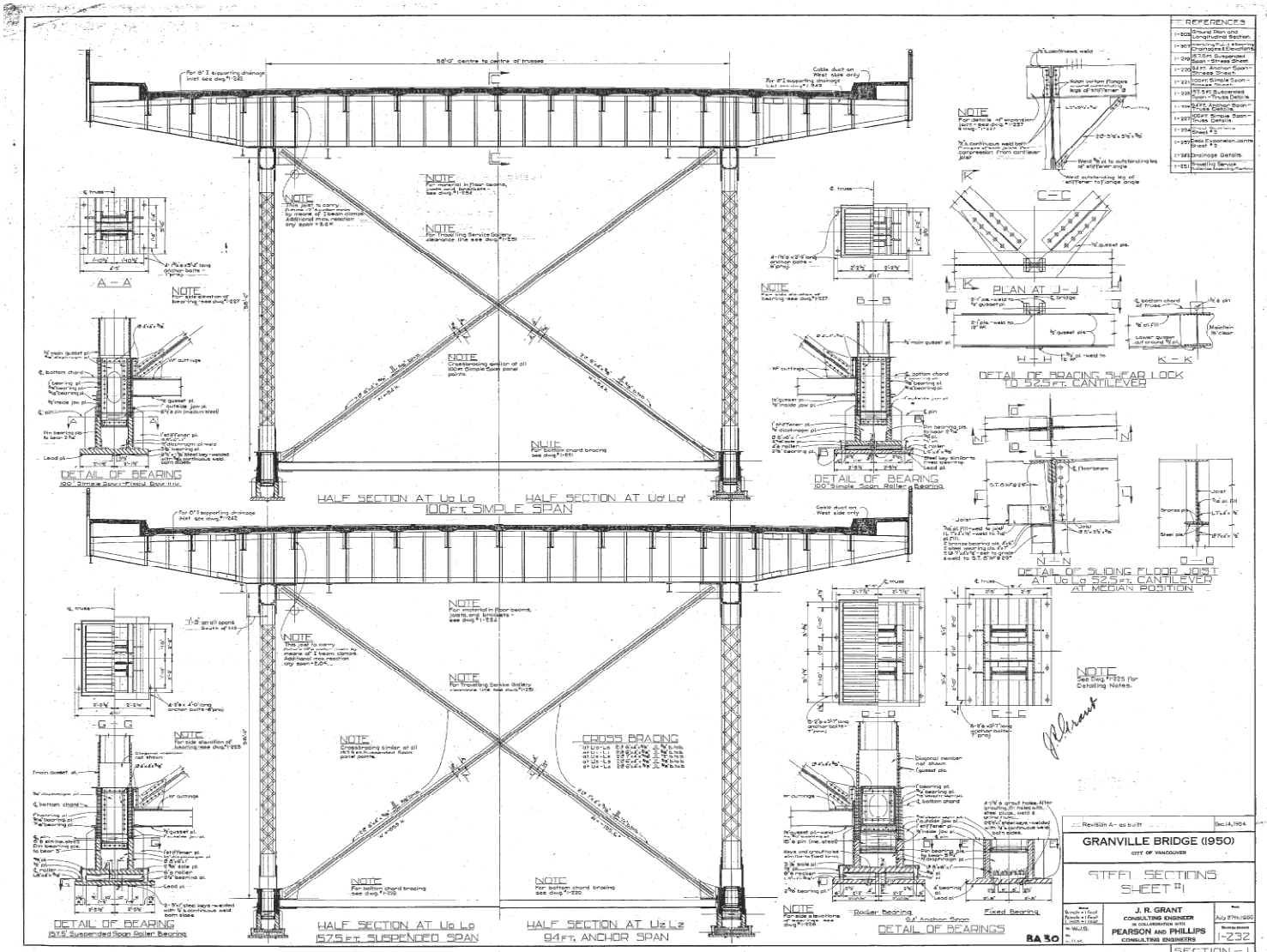
NOTE
See dwg. #1-210 for Design Loads
DEAD LOADS = per lineal foot of bridge
Roadway & Sidewalk, etc. see dwg. #1-210 — 74.14*
Stringers, Floor Beams, Deck Floor Members, Trusses and Bracing — 1380* / 4236 / 5606 / 12202*

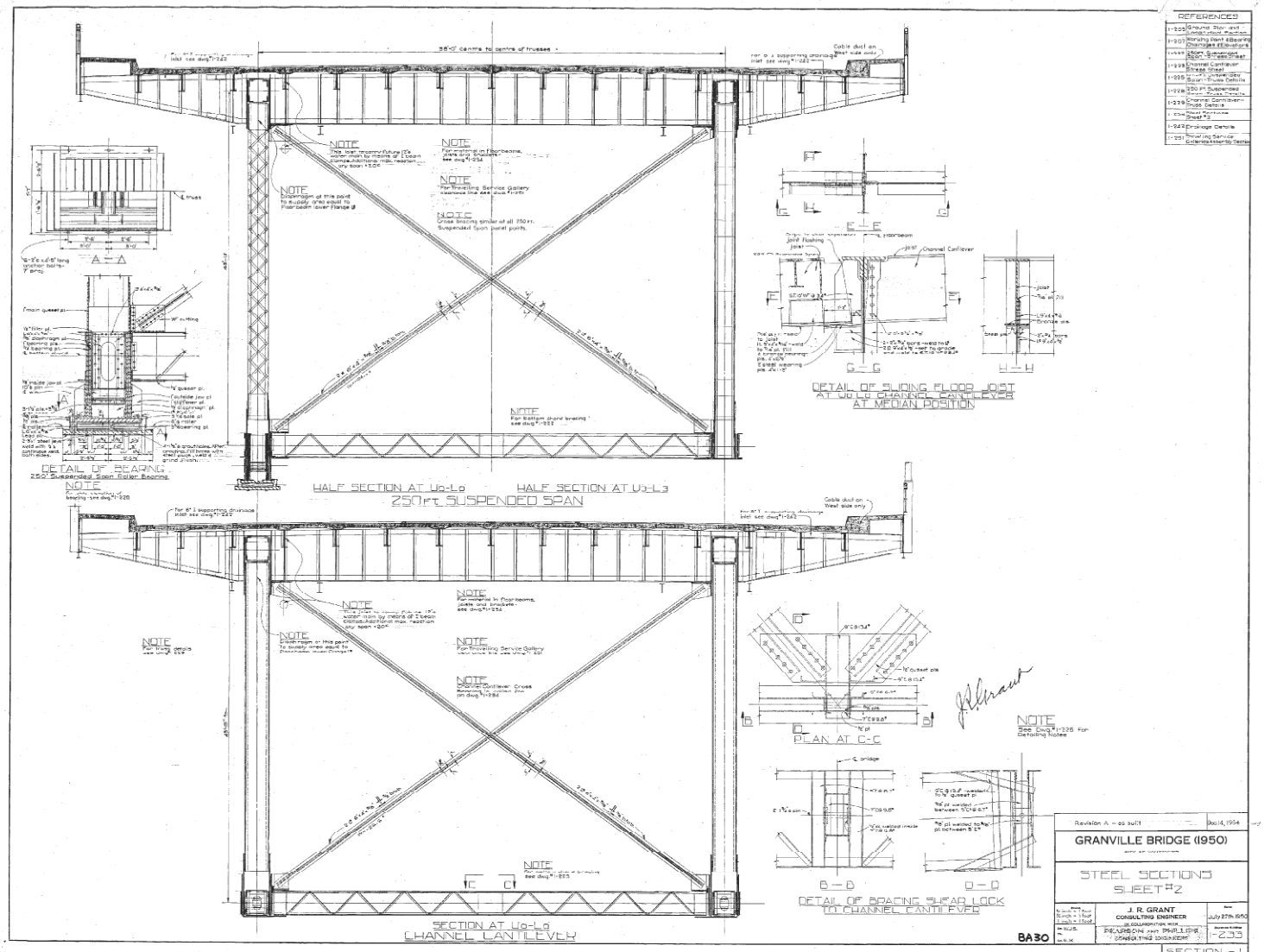
NOTE
See Dwg. #1-219 For General Notes

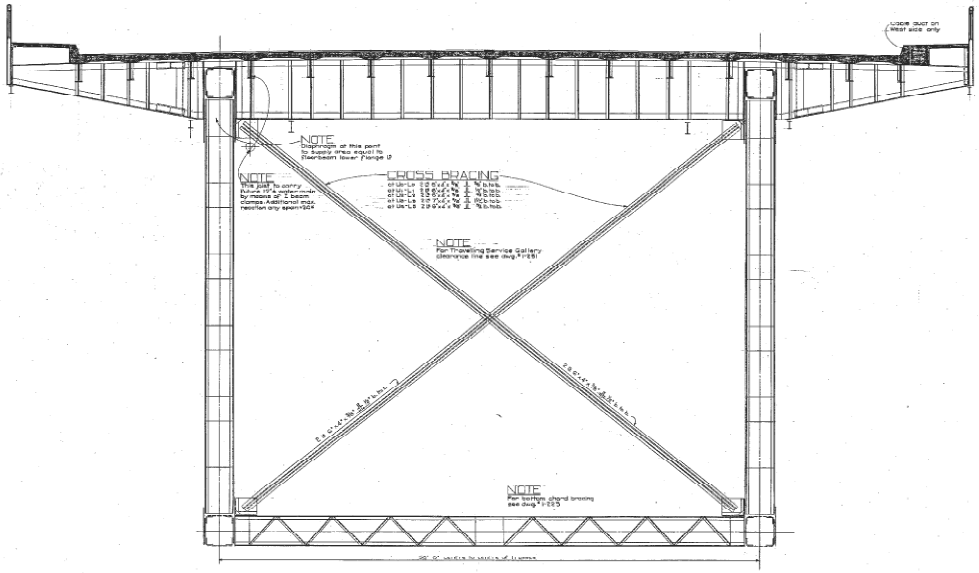
J.R. Grant

8A30

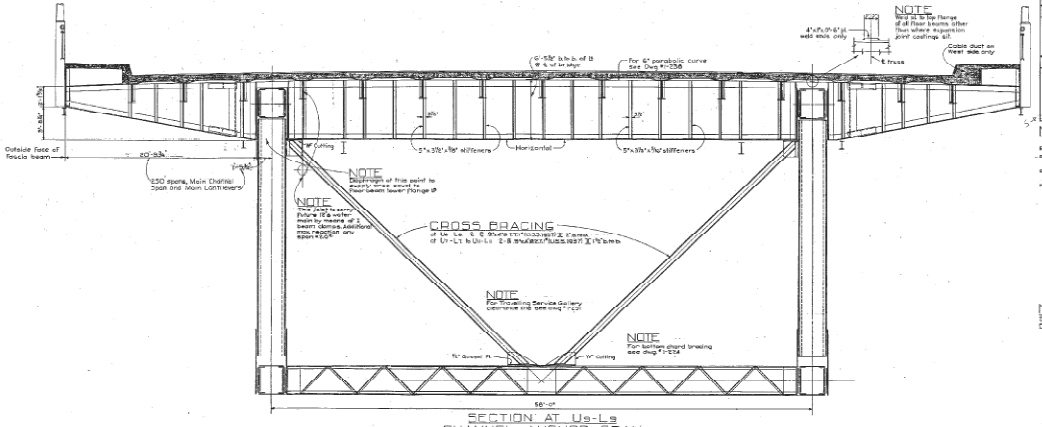
Revision A — as built	Dec. 14, 1954
GRANVILLE BRIDGE (1950) CITY OF VANCOUVER	
CHANNEL ANCHOR SPAN STRESS SHEET	
J. R. GRANT CONSULTING ENGINEER IN ASSOCIATION WITH PEARSON AND PHILLIPS CONSULTING ENGINEERS	July 27th, 1950
	1-224
SECTION - 1	


REFERENCES
Revision A - as built
GRANVILLE BRIDGE (1950)
CITY OF VANCOUVER
STEEL SECTIONS
SHEET #1
J. R. GRANT
CONSULTING ENGINEER
IN COLLABORATION WITH
PEARSON AND PHILLIPS
CONSULTING ENGINEERS
July 27th 1950
1-232
SECTION - 1
HALF SECTION AT U0 L0
HALF SECTION AT U0' L0'
100 FT. SIMPLE SPAN
HALF SECTION AT U1 L1
157.5 FT. SUSPENDED SPAN
HALF SECTION AT U2 L2
94 FT. ANCHOR SPAN
DETAIL OF BEARING
DETAIL OF BEARINGS
DETAIL OF BRACING SHEAR LOCK TO 52.5 FT. CANTILEVER
DETAIL OF SLIDING FLOOR JOINT AT U0 L0 52.5 FT. CANTILEVER AT MEDIAN POSITION
CROSS BRACING
Roller Bearing
Fixed Bearing
BA 30


REFERENCES
1-925 Ground Plan and Longitudinal Section
1-927 Working Point & Bearing Changes & Elevations
1-929 250ft. Suspended Span - Shoes & Seat
1-928 Channel Cantilever Shoes & Seat
1-926 Suspended Span - Shoes & Details
1-928 250 Ft Suspended Span - Shoes & Details
1-929 Channel Cantilever - Posts Details
1-924 Steel Portions Sheet #2
1-922 Drainage Details
1-921 Travelling Service Galleries Assembly Sections
38'-0" centre to centre of trusses
Cable duct on West side only
NOTE
This leaf incorporates future 12" water main by means of I beam clamps. Additional max. reaction any span = 20K
NOTE
For material in floorbeams, joists and brackets - see dwg. 1-934
NOTE
For Travelling Service Gallery clearance line see dwg. 1-921
NOTE
Cross bracing similar at all 250 ft. Suspended Span panel points.
NOTE
Drainage at this point to supply area equal to floor beam cover flange ⅜
NOTE
For Ballast shand bracing see dwg. 1-922
A – A
DETAIL OF BEARING
250' Suspended Span Roller Bearing
NOTE
For bearing details see dwg. 1-928
HALF SECTION AT U0-L0
HALF SECTION AT U3-L3
250 ft. SUSPENDED SPAN
E – E
DETAIL OF SLIDING FLOOR JOIST
AT U0-L0 CHANNEL CANTILEVER
AT MEDIAN POSITION
G – G
H – H
NOTE
See dwg. 1-925 for keeping - see dwg. 1-928
NOTE
For material in floorbeams, joists and brackets - see dwg. 1-934
NOTE
This joint to carry future 12" water main by means of I beam clamps. Additional max. reaction any span = 20K
NOTE
Drainage at this point to supply area equal to floorbeam cover flange ⅜
NOTE
For Travelling Service Gallery clearance line see dwg. 1-921
NOTE
Cantilever Cantilever. Cross bracing similar. See on dwg. 1-930
NOTE
For bracing details see dwg. 1-923
NOTE
For bracing details of bracing see dwg. 1-923
SECTION AT U0-L0
CHANNEL CANTILEVER
PLAN AT C-C
NOTE
See dwg. 1-925 for Detailing Notes
B – B
D – D
DETAIL OF BRACING SHEAR LOCK
TO CHANNEL CANTILEVER
Revision A – as built
Dec 14, 1954
GRANVILLE BRIDGE (1950)
STEEL SECTIONS
SHEET #2
J. R. GRANT
CONSULTING ENGINEER
PEARSON AND PHILLIPS
CONSULTING ENGINEERS
July 27th 1950
233
BA30
SECTION – 1



SECTION AT U8-L8
CHANNEL CANTILEVER



SECTION AT U9-L9
CHANNEL ANCHOR SPAN

REFERENCES		REFERENCES	
1-229	Channel Cantilever Truss Details	1-205	Ground Plan and Longitudinal Section
1-230	Channel Anchor Span Truss Details	1-207	Bracing Plan & Bracing Diagrams & Elevations
1-236	Roadway & Sidewalk Details	1-233	Channel Cantilever Stress Sheet
1-251	Travelling Service Gallery Layout & Section	1-234	Channel Anchor Span Stress Sheet
		1-235	183.5 Ft. Suspended Span Truss Details

FLOORBEAM FB1-31.25' PANELS

SHEARS LBS.

Max Shear of ℄ Truss

D.L.	+ 139915
L.L.	+ 104075
L	+ 17735
I+Ip	− 10130
Total	+ 271685

Web area @ 15500 #/in² = 21.68 □" G Reqd.
Web 76.4" x .375" = 27.90 □" G
Depth @ ℄ Bridge = 72.5" b. to b. ⊥s

MOMENTS K. FT.

Negative at ℄ Trusses

Condition # 1	Condition # 2
Bc = − 3367.22	Bc = − 2681.94

Maximum Moment = −3567.96

Effective depth = 70.16"
Flange area req'd. @ 18.0 ksi = 34.04 □" N
⅓ Web = 4.65 □"
Area req'd for flange ⊥s = 38.69 □" N
2 ⊥s 8"x.8"x.P = 33.75 □" N
= 30.00 □" G

Positive at ℄ Bridge

Condition # 1	Condition # 2
D.L. + 2067.15	⅔ D.L. + 1383.25
L.L.+I + 1468.50	L.L.+I + 0.00
T+Ip + 70.50	T+Ip + 0.00
Bc − 363.33	Bc − 2307.34
Total Tc + 3166.78	Total Tc = − 1924.09
−Rc Tc + − 630.35	+Rc Tc + − 630.35
= 2536.43	= −2554.44

Maximum Moment = 3446.16

Effective depth = 72.70"
Flange area req'd. @ 18.0 ksi = 30.30 □" N
⅓ Web = 3.61 □"
Area req'd for flange ⊥s = 26.69 □" N
2 ⊥s 8"x.8"x.P = 27.75 □" N

FLOORBEAM FB2*-26.25' PANELS

SHEARS LBS.

Max Shear of ℄ Truss

D.L.	+ 117840
L.L.	+ 94600
L	+ 18300
I+Ip	− 10130
Total	+ 220890

Web area @ 15500 #/in² = 26.27 □" G Reqd.
Web 76.4" x .375" = 27.90 □" G
Depth @ ℄ Bridge = 77.5" b. to b. ⊥s

MOMENTS K. FT.

Negative at ℄ Trusses

Condition # 1	Condition # 2
Bc = − 1341.32	Bc = − 2256.69

Maximum Moment = −3356.45

Effective depth = 70.20"
Flange area req'd. @ 18.0 ksi = 34.04 □" N
⅓ Web = 4.65 □"
Area req'd for flange ⊥s = 30.15 □" N
2 ⊥s 8"x.8"x.P = 33.75 □" N
= 25.45 □" G

Positive at ℄ Bridge

Condition # 1	Condition # 2
D.L. + 1781.19	⅔ D.L. + 1114.79
L.L.+I + 1540.44	L.L.+I + 0.00
T+Ip + 71.00	T+Ip + 0.00
Bc − 734.67	Bc − 2286.49
Total Tc + 2357.76	Total Tc = − 1151.70
−Rc Tc + 575.85	+Rc Tc + − 575.85
= 1781.91	= −1727.55

Maximum Moment = 3139.61

Effective depth = 72.86"
Flange area req'd. @ 18.0 ksi = 27.40 □" N
⅓ Web = 3.61 □"
Area req'd for flange ⊥s = 23.79 □" N
2 ⊥s 8"x.8"x.P = 24.49 □" N

* NOTE
Floorbeams, brackets and joists labeled thus * are to be used also for 25.0' and 23.0' panels.

BRACKET BR1-31.25' PANELS

SHEARS LBS.

Max Shear of ℄ Truss

D.L.	+ 115390
L.L.	+ 58016
L	+ 15815
I+Ip	− 6880
Total	+ 224424

Web area @ 15500 #/in² = 17.35 □" Reqd.
Web 74.4" x .375" = 27.90 □"

MOMENTS K. FT.

Max Moments at ⊥ Truss

D.L.	− 1357.96
L.L.	− 872.82
L	− 170.23
I+Ip	− 87.33
Total	− 2587.94

Effective depth = 70.56"
Flange area reqd @ 17.0 ksi = 26.00 □" G
⅓ Web = 4.65 □"
Area req'd for flange ⊥s = 21.35 □" G
2 ⊥s 8"x.8"x.⅝" = 22.88 □" G
= 21.12 □" N

BRACKET BR2*-26.25' PANELS

SHEARS LBS.

Max Shear of ℄ Truss

D.L.	+ 95539
L.L.	+ 76500
L	+ 15000
I+Ip	− 6880
Total	+ 185719

Web area @ 15500 #/in² = 15.05 □" Reqd.
Web 74.4" x .375" = 27.90 □"

MOMENTS K. FT.

Max Moments at ⊥ Truss

D.L.	− 1158.54
L.L.	− 881.85
L	− 167.55
I+Ip	− 61.53
Total	− 2269.47

Effective depth = 70.34"
Flange area reqd. @ 17.0 ksi = 23.75 □" G
⅓ Web = 4.65 □"
Area req'd for flange ⊥s = 18.10 □" G
2 ⊥s 8"x.8"x.⅝" = 19.02 □" G
= 17.61 □" N

JOIST J1-31.25' PANELS

SHEARS LBS.

Max Shear at Floorbeam

D.L.	+ 13700
L.L.	+ 28710
L	+ 8050
Total	+ 51360

MOMENTS K. FT.

Max. Moments at ℄ Joist

D.L.	+ 107.00
L.L.	+ 180.00
L	+ 52.80
Total	+ 349.80

S reqd at 20000 #/in² = 208.0 in³
Use 24"x.8" WF @ 94# S = 220.9 in³

JOIST J2*-26.25' PANELS

SHEARS LBS.

Max. Shear at Floorbeam

D.L.	+ 12840
L.L.	+ 26455
L	+ 8300
Total	+ 48595

MOMENTS K. FT.

Max. Moments at ℄ Joist

D.L.	+ 73.70
L.L.	+ 151.04
L	+ 44.70
Total	+ 269.40

S reqd at 20000 #/in² = 161.4 in³
Use 24"x.9" WF @ 76# S = 175.4 in³

NOTE

If has been decided to apply the provision of Clause "G6 of the Canadian Standards Association S6-1956, Re-affirmed 1960, Standard Specification for Steel Highway Bridges, to the design of the floorbeams. These members are to be designed to resist the effects due to the following two maximum conditions.

CONDITION "1" – combines the effect of the maximum live and dead loads on the 56' span, as reduced by the minimum dead load moment of the overhanging brackets.

CONDITION "2" – combines the effect of the minimum dead load on the 56' span, but with maximum live and dead loads on the overhanging brackets.

D.L. = Moment on Shear due to dead loads.
L.L.+I. = Moment on Shear due to live load combined with impact.
T+Ip = Moment on Shear due to travelling service gallery live loads and with impact.
Bc = Moment on floorbeam due to overhanging brackets.
G = Gross area
N. = Net area

NOTE
See Dwg. #1-225 for Detailing Notes.

J.R. Grant

Revision A – as built	Dec.14,1954

GRANVILLE BRIDGE (1950)
CITY OF VANCOUVER

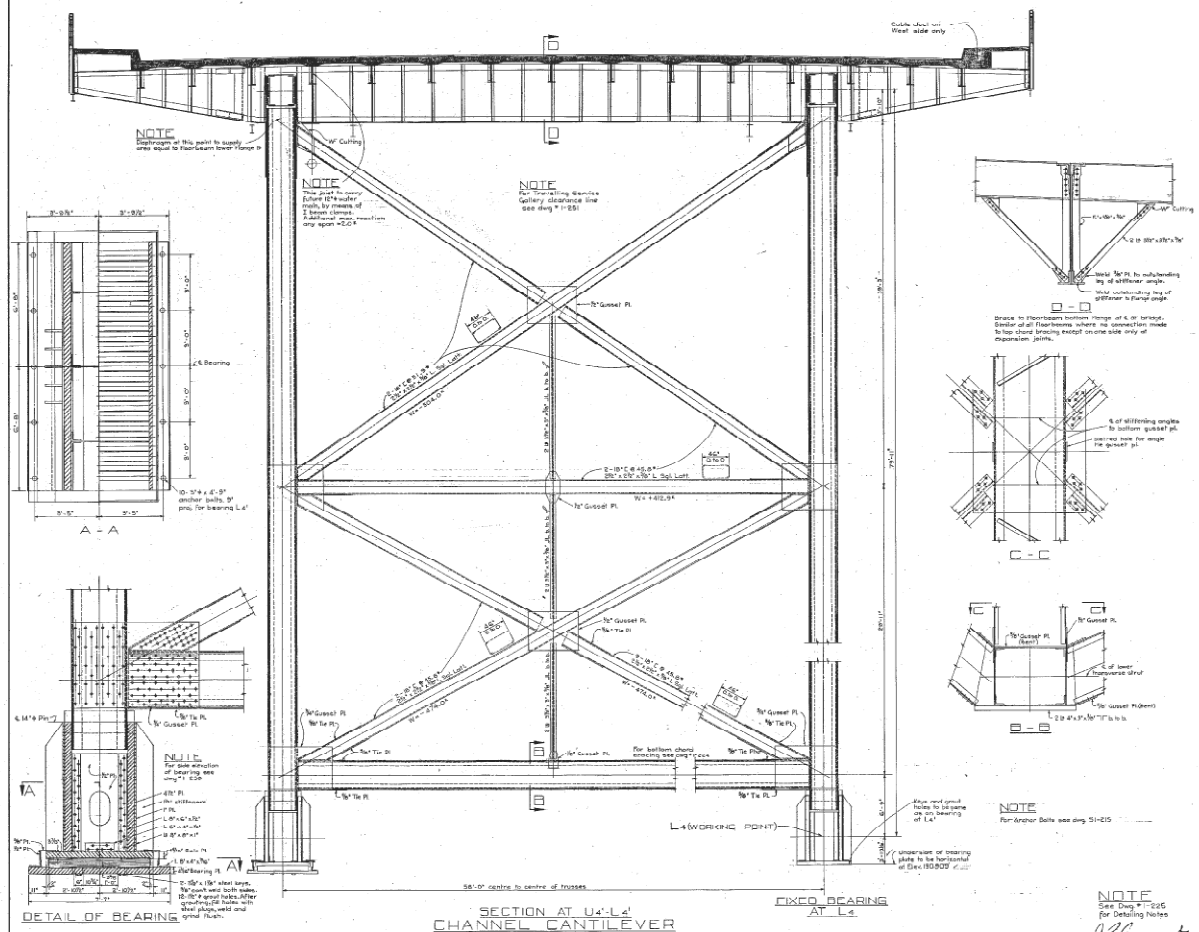
STEEL SECTIONS
SHEET # 3

Scale: ¼ inch = 1 foot	J. R. GRANT CONSULTING ENGINEER IN COLLABORATION WITH PEARSON AND PHILLIPS CONSULTING ENGINEERS	Date: July 27th 1950
Dr. A.J.G. Ck. G.H.H.		Drawing Number: 1-234

BA 30

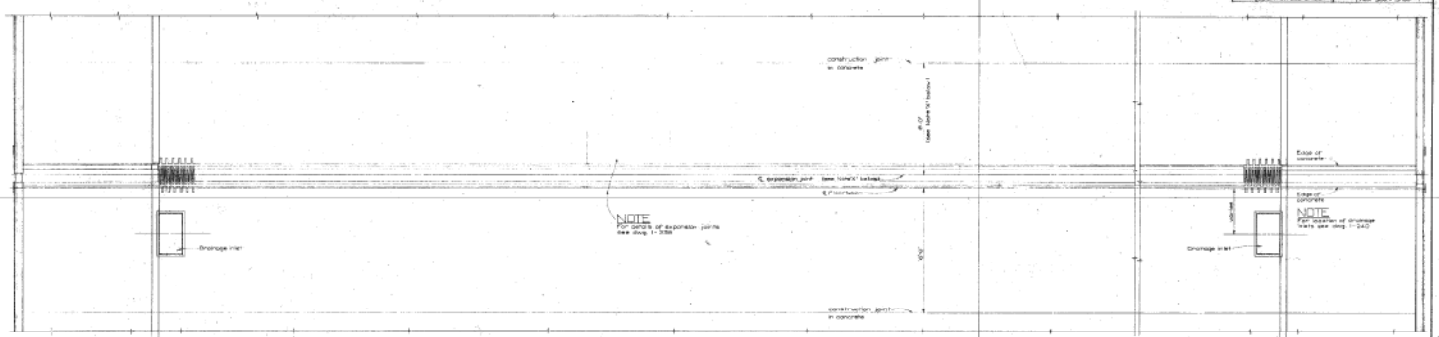
SECTION – 1

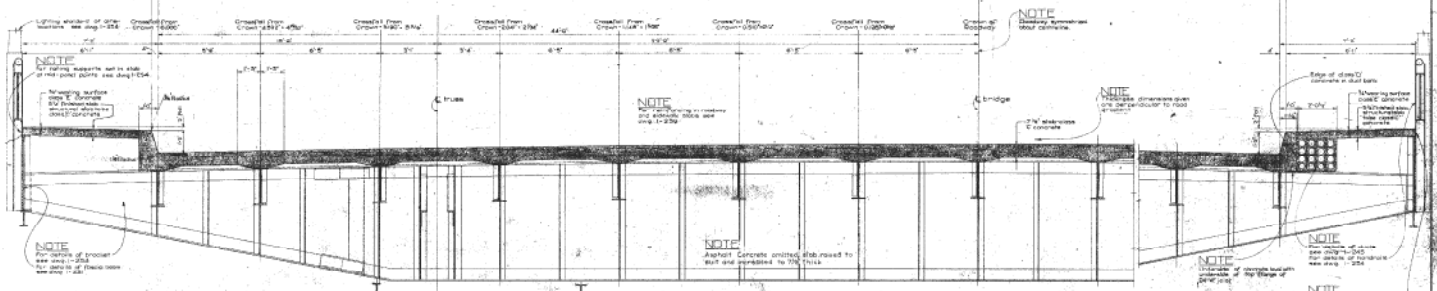
REFERENCES	
1-203	Ground Plan and Foundation Details
1-207	Working Road & Bearing Diagrams & Elevations
1-224	Channel Anchor Span Stress Sheet
1-229	Plan & Longitudinal Elev. Truss Details
1-230	Channel Anchor Span Truss Details
1-261	Travelling Service Galleries Assembly Details
S1-215	Revised Cap Detail Sheet 2 of 5

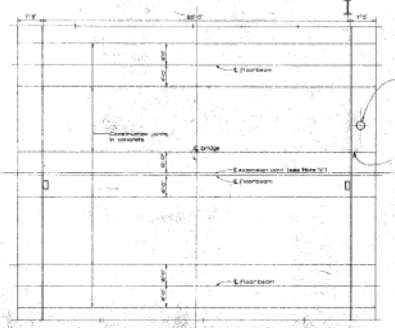


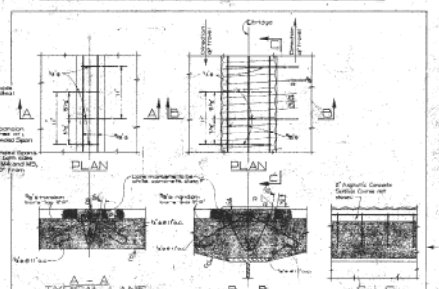
Revision A - as built	Dec.14, 1954
GRANVILLE BRIDGE (1950) CITY OF VANCOUVER	
STEEL SECTIONS SHEET # 4	
Scale: 1/8 inch = 1 foot; 1/4 inch = 1 foot	J. R. GRANT CONSULTING ENGINEER IN COLLABORATION WITH PEARSON AND PHILLIPS CONSULTING ENGINEERS
Dr. A.J.D. / Ck. H.K.	Date: July 27th 1950
Drawing No. 1-235	
SECTION - 1	

REFERENCES		DETAILS	
1-250	Drainage Section Sheet 1	1-252	Pier Footing Details
1-251	Pedestrian Beam Detail	1-253	Deck Expansion Joints
1-252	Pier Sections - Sheet 1	1-254	Roadway & Sidewalk Slabs
1-253	Abutment Sheet 1	1-240	Drainage Layout & Sections
1-255	50'-0" Ft. Suspended Span Trusses Sheet 1	1-245	Curbs and Manholes - Plan Sheet 1









ROADWAY AND SIDEWALK NOTES

See Specification for Section 1 of Granville Bridge (1950) for items not mentioned specifically below.
See drawing 1-255 for Material Notes and Design Loads.

CONCRETE

Roadway Slabs, Curbs, and Sidewalk Slabs (except for wearing course) to be Class "C" concrete.
Unit Mark "F" to be Class "D" concrete.
Smooth wearing course to be Class "C" concrete.
Other concrete per mix design to be Class "F" concrete.

POURING PROCEDURE

Not to conflict the method of pouring detailed in Specifications.

ASPHALTIC CONCRETE SURFACE WEARING COURSE

See Specifications.

STEEL REINFORCEMENT

Steel reinforcement shall be billet steel, structural grade, and shall be deformed.
Hooks and bends as detailed on drawing 1-255.
For bends in bars, minimum of hooks, see C.S.A. Specification for Concrete and Reinforced Concrete, A.23.1-1962.

NOTE
THESE DETAILS OMITTED

Revision A - Use Sheet		Date 16.10.54

GRANVILLE BRIDGE (1950)

CITY OF VANCOUVER

ROADWAY & SIDEWALK DETAILS

J. R. GRANT
CONSULTING ENGINEER

HEDGER & PHILLIPS
CONTRACTING ENGINEERS