FRACTURE CRITICAL CAP BEAMS

Bridge 69101

MnDOT Contract No. 1026462

FINAL REPORT

REDUNDANCY ASSESSMENT AND REPAIR REPORT

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PREPARED FOR

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Executive Summary

This report summarizes the approach, findings and recommendations for the redundancy investigation of Bridge 69101 for the integral steel girder cap beams at Piers 10 and 11.

HNTB has contracted with MnDOT to determine if the noted pier caps in Bridge 69101 are truly fracture critical as currently designated, or if structural redundancy can be demonstrated through analysis in accordance FHWA Technical Memorandum, "Clarification of Requirements for Fracture Critical Members", and the application of criteria established in NCHRP Report 406, "Redundancy in Highway Bridge Superstructures." The investigation of redundancy includes developing detailed FEM models and member capacities upon which to compare demand. In locations where structural redundancy is not present, repairs to provide load path, structural or internal member redundancy were developed to reduce the risk of fracture critical failure. While addressing redundancy, the project also aims to extend the bridge service life through painting and repair recommendations. Details of the bridge, the redundancy evaluation and structural recommendations are included.

Applying the criteria from NCHRP 406 and based on the results of these analyses, Bridge 69101 is considered overall redundant, as shown:

- Integral steel girder cap beam at Piers 10 and 11

  $r_1 = 2.13 > 1.0$, $r_u = 1.24 > 1.0$, $r_d = 3.21 > 1.0$, REDUNDANT

Because the structure was found redundant, no structural repairs are recommended for Bridge 69101.

Introduction

This report summarizes the approach, findings, and recommendations for the redundancy investigation of Bridge 69101 for the integral hammerhead cap beam at Piers 10 and 11.

HNTB has contracted with MnDOT to determine if the noted pier caps in Bridge 69101 are truly fracture critical as currently designated, or if structural redundancy can be demonstrated through analysis in accordance FHWA Technical Memorandum, “Clarification of Requirements for Fracture Critical Members”, and the application of criteria established in NCHRP Report 406, “Redundancy in Highway Bridge Superstructures.” The investigation of redundancy includes developing detailed FEM models and member capacities upon which to compare demand. In locations where redundancy is not present, repairs to provide load path, structural or internal member redundancy were developed to reduce the risk of fracture critical failure. While addressing redundancy, the project also aims to extend the bridge service life through painting and repair recommendations. Details of the bridge, the redundancy evaluation, and recommendations are included.

Bridge Description

Bridge No. 69101 is a flyover ramp that carries westbound US-2 to northbound I-35 and is considered an approach to Bridge 69100 (the “Bong Bridge”). The bridge crosses over a lake, a trail, Oneota Street, and an off ramp from northbound I-35 on a curved and tangent alignment. The bridge was constructed in 1983. This twelve-span structure is 1,426.25 feet in overall length and is composed of variable depth continuous welded steel plate girders, pier walls, two integral pier caps supported on pier walls, and a parapet abutment on the north end of the bridge. No abutment exists on the south end of the bridge as span 1 starts with a hinge that connects to the adjacent Bridge No. 69100.

Piers 10 and 11 have integral I-girder caps supported on concrete pier walls and are anchored to the pier walls with four -2 ½ inch diameter anchor bolts. There are vertical web stiffeners on each face of the pier caps. The pier caps are not composite with the concrete deck. On either side of each pier cap are redundant load path diaphragms which are composite with the concrete deck. Due to the structural redundancy provided by these diaphragms, the integral pier caps were not identified as fracture critical elements in the original plans. The fascia girders are composite with the deck near the piers and likely contribute to structural redundancy as well. As such, the integral cap beams were not fabricated to meet the Fracture Critical Plan material or welding requirements defined by AASHTO and AWS. Both of the integral pier caps are currently considered fracture critical elements.

The bridge deck carries a single lane of traffic. The original concrete deck has epoxy coated bars and is 9 inches thick including a concrete overlay. In 2015 the top two inches of deck were removed and replaced with a two-inch, low-slump overlay. New expansion joints on the bridge were constructed at that time.

Analysis and Redundancy Investigation

HNTB's redundancy investigation was based upon the approach outlined in the NCHRP 406 "Redundancy in Highway Bridge Superstructures" with bridge redundancy defined by considering member, ultimate, damaged, and functionality limit states. Each limit state was investigated through extensive finite element modeling efforts including both linear and nonlinear approaches. Given the complexity of the structures and related modeling, two models, a record model in Larsa and an independent check model in CSi Bridge, were created to assess the structural behavior.

Modeling Description

The model for Bridge No. 69101 from Hinge No. 5 to the north abutment implements various assumptions to accurately represent the structural behavior of the superstructure and its interaction with the steel substructure. The model includes multiple material property manipulations as well as precise element selection to capture local and global behavior. See Figure 1 for a representative view of the Larsa (record) model.

Figure 1: Larsa (Record) Model

The steel girders are modeled using four shells deep for the 42-inch web with 3-foot increments longitudinally. The top and bottom nodes are shared with the top and bottom girder flanges which are modeled as beam elements. Beam elements represent the connection plates and stiffeners of the diaphragms to the webs. These elements are offset to model the stiffener geometry and share nodes with each node of the web. The deck is modeled with shell elements connected to the top node of the girder via rigid beam elements to represent a composite deck condition. At non-composite locations, the rigid beams were replaced by axial-only constraints to remove shear transfer between the deck and underlying girders. On top of the deck, the concrete barrier was discretized into two beam elements to account for the continuous section and discontinuous section with deflection joints. The top beam element accounts for the deflection joints by releasing axial loads at each location. Both sections utilize geometric properties that were manually calculated to account for any additional stiffness provided to the structure. The barriers elements are reduced to 10% of their stiffness in the negative bending region to model the stiffness of only the barrier longitudinal reinforcement and metal rail. The intermediate diaphragms are modeled entirely as shell elements. They share nodes with the connection plates and are offset accordingly to imitate the existing plan connection configuration. The redundancy diaphragms are modeled like the intermediate diaphragms regarding the web connections; however, the flanges are modeled as beam elements continuous over the interior girder. In addition, rigid links are added into the deck to represent the shear stud connection to the diaphragms per the existing plans. The I-shaped cap beams are modeled using shell elements to represent the web and beam elements to represent the flanges. Vertical stiffeners are also modeled as beam elements, similar to the girder. The concrete columns support the I-shaped cap beams are not included in the model. At the hinges, spring constants were calculated using similar stiffness to the adjacent spans acting as supports.

The material properties are taken from the existing bridge plans. Concrete strength is 4,000 psi with a corresponding Young's Modulus of 3,605 ksi in positive moment regions. In negative moment regions, concrete has been softened to 10% of the full Young's Modulus to 360.5 ksi to model the stiffness of only the deck longitudinal reinforcement. Young's modulus for steel is 29,000 ksi for all steel elements.

Dead load was applied both using the self-weight features of Larsa 4D, and as shell pressure for items like wearing surface, or line load for barriers. The weight of the steel and deck were applied to the bare steel sections, while superimposed dead loads were applied to the long-term composite section with concrete stiffness based on the 3n long-term modular ratio. Controlling live load cases were obtained using the Larsa 4D influence surface generator that defines thousands of influence surfaces for every compound section in the girders at every location in the structure. These loads were then used to identify the controlling members in the structure.

Independent Modeling Description

The independent check model developed in CSi Bridge was built using the same boundary conditions, element types, material properties, and similar element refinement as described above for the Larsa (record) model. The CSi Bridge model is shown in Figure 2. HL-93 live loading was applied using CSi's moving load analysis capabilities. The software calculates an influence surface of maximum response for each element in the model. The lane placement and vehicle are defined by the user in accordance with AASTHO specifications, and the software calculates the envelope of maximum and minimum response for any member in the model.

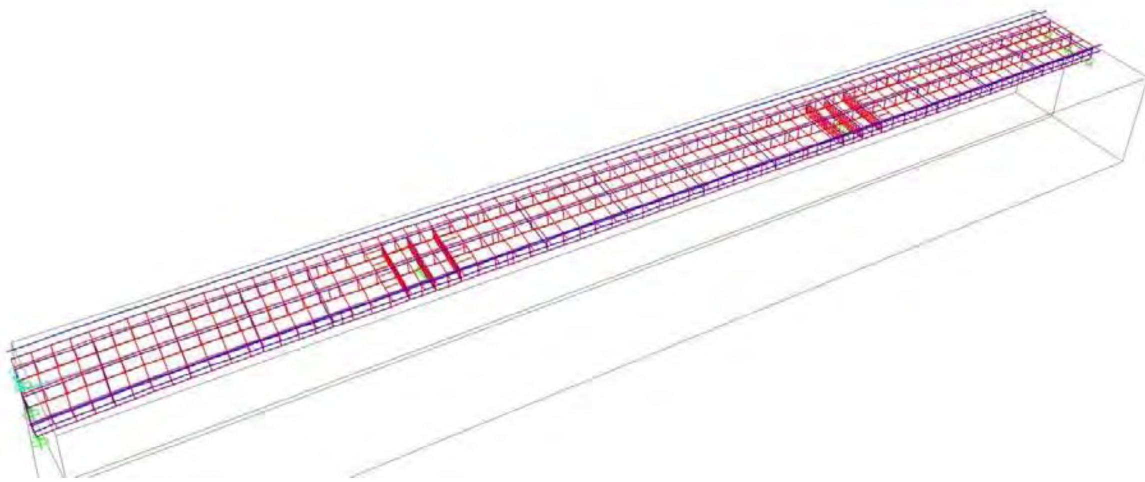


Figure 2: CSi (Independent) Model

Elastic models for both the record and independent check were developed and selective descriptive members compared to establish correlation between the models. This was accomplished through an iterative review process. The models were refined to establish a 1% variance between models for dead load reactions and dead load member demands (moment, shear) and a 10% variance for live load member demands. Results of the elastic comparison are summarized in Appendix 1 – Elastic Model Comparison.

Member Capacities

The member capacities were developed external to the modeling by applying AASHTO LRFD standards and considered the findings from the inspection of the fracture critical members. For each member, the demand from the record model was then compared to the established member capacities. Member capacities calculated for Bridge 69101 are summarized in Appendix 2 – Member Capacity Calculations.

Redundancy Procedure

At each critical location, the following procedure was used to evaluate the redundancy of the system:

1. Run elastic analyses for Dead Loads and Live Loads on the bridge and obtain all the demands for DC, DW, and LL min and max

2. Determine ϕR_{req} based on required demands, using the Strength I combination:

$$\phi R_{req} = 1.25\,DL + 1.5\,DW + 1.75\,(LL + I) \quad \text{(including Impact)}$$

3. Find the minimum required member capacities for all the sections/members.

4. Using AASHTO Specifications calculate $R_{provided}$ at every section based on section geometry, bracing conditions.

5. Using Larsa4D influence surface based LL modeler identify the controlling HL-93 truck position that would maximize the moments at all locations in the bridge (Live Load Envelopes).

6. Apply the HL-93 loading (without impact) at all the positions and perform a linear elastic analysis to calculate L_{HL93}, which gives the effect of the HL-93 load on all the members. Calculate LF_{1Req} from:

$$LF_{1Req} = \frac{\mathrm{R_{Req}} - \mathrm{D}}{\mathrm{L_{HL93}}}$$

   Based on LF_{1Req}, identify the controlling most critical members in the structure. Once these members are identified, based on the influence surfaces stored within Lars4D, identify the individual controlling position of the HL-93 trucks for each controlling load of the controlling members to use the subsequent steps.

7. Increment the HL-93 loading until the first member reaches its limiting capacity. Note the load factor LF_1 by which the original trucks are scaled for the first member failure to occur. Calculate the member reserve ratio for each member:

$$r_1 = \frac{\mathrm{LF_1}}{\mathrm{LF_{1Req}}} = \frac{\mathrm{R_{provided}} - D}{\mathrm{R_{Req}} - D}$$

   Identify the most critical member with the lowest r_1. The controlling LF_1 is the load factor associated with the first member failure and the member with the lowest r_1. This is the LF_1 used in all subsequent redundancy equations at all locations.

8. Continue beyond the elastic state and into nonlinear analyses with nonlinear geometry and material properties. Increment the applied HL-93 loading until the maximum vertical deflection of a primary member reaches a deflection equal to span length/100. Note that load factor LF_f by which the original HL-93 loads are scaled to achieve the span length/100 displacement level. If the ratio $R_f = LF_f/LF_1$ is greater than 1.1, then the bridge has sufficient redundancy to satisfy the functionality limit state. Calculate the redundancy ratio for functionality:

$$r_f = \frac{\mathrm{R_f}}{1.1}$$

9. Continue the nonlinear analyses, incrementing the HL-93 loading until a mechanism forms causing structural collapse. Note the load factor LF_u by which the original HL-93 loads are scaled to cause collapse. If the ratio $R_u = LF_u/LF_1$ is greater than 1.3, then the bridge has sufficient redundancy to satisfy the ultimate limit state. Calculate the redundancy ratio:

$$r_u = \frac{\mathrm{R_u}}{1.3}$$

10. Evaluate the damaged condition by initiating a fracture in the model at the critical location, and repeat the nonlinear analysis. Determine the load factor LF_d for the damaged bridge in terms of HL-93 loading that would cause collapse of any main members. If the ratio $R_d = LF_d/LF_1$ is greater than 0.5, the bridge provides a sufficient level of redundancy to meet the damaged limit state. Calculate the redundancy ratio for the damaged condition:

$$r_d = \frac{\mathrm{R_d}}{0.5}$$

Summary of Redundancy Results

The critical locations for redundancy assessment were based on regions of highest demand to capacity and at fracture critical members:

- Negative moment region of the interior girder at pier 10
- Negative bending in pier 11 cap beam between the fascia and interior girder

The integral cap beams at pier 10 and 11 are both designated as fracture critical members. Due to the approximate symmetry of the spans modeled, and the similarity in cap beam dimensions, only the cap beam with the larger demand to capacity ratio was evaluated for redundancy. The subsequent findings are applicable to both pier caps. The results of the redundancy assessment at each location are summarized in the following table. Further description of the analyses at each location follow.

Location	**LF_1**	**r_1**	**LF_u**	**R_u**	**r_u**	**LF_f**	**R_f**	**r_f**	**LF_d**	**R_d**	**r_d**
Girder A14 at Pier 10	**3.11**	1.24	4.10†	1.30†	1.00†	4.10†	1.30†	1.18†	N/A	N/A	N/A
Pier Cap 11	5.02	2.13	5.00	1.61	1.24	5.00†	1.61†	1.46†	5.00	1.61	3.21

† Analysis was stopped due to satisfying the minimum redundancy criteria of NCHRP 406. Actual value is likely higher than reported.

Member Limit State for Structure

Based on the $LF1_{Req}$ values calculated for each member, the critical location for first member failure is Interior Girder A14 negative moment section at Pier 10. Using Larsa4D influence surface based LL modeler, the controlling 2 x HL93 truck plus lane position that would maximize the moments at this location was identified as shown in Figure 3.

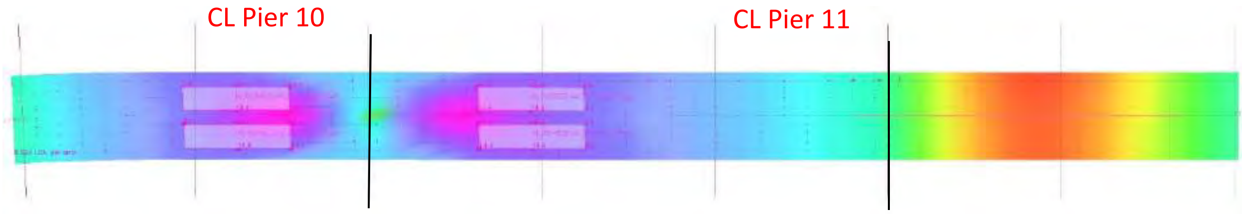


Figure 3:Larsa influence surface and controlling truck position for member limit state

This HL-93 loading was incremented until the first member reached its limiting capacity. The controlling member reserve ratio for the fascia girder was calculated as:

$$r_1 = \frac{\mathrm{LF}_1}{\mathrm{LF}_{1\mathrm{Req}}} = \frac{\mathrm{R}_{\mathrm{provided}} - D}{\mathrm{R}_{\mathrm{Req}} - D} = \frac{3.11}{2.51} = 1.24$$

This LF_1 was used to calculate R_f, R_u, and R_d at all areas of investigation.

Interior Girder at Pier 10 – Ultimate Limit State

With the same controlling live load placement shown in Figure 3, the analysis was continued beyond the elastic state and into nonlinear analyses with nonlinear geometry and material properties. The HL-93 load was incremented at this critical location until the ultimate limit state of $1.3xLF_1$ was reached. While the ultimate limit state is defined as the maximum possible truck load that can be applied on the structure before it collapses, it was decided earlier that the non-linear analyses will cease when the structure passes the necessary requirement to prove redundancy in the ultimate limit state as $LF_u = 1.3xLF_1 = 1.3 \times 3.11 = 4.043$, which was achieved at 4.1 x HL-93 loading (rounded up to 4.1 x HL-93).

With the load factor calculated in this step as LF_u in this fashion ensure that $R_u = LF_u/LF_1 > 1.3$, then it is established that the bridge has a sufficient level of redundancy to satisfy the ultimate limit state. The calculated redundancy ratio r_u:

$$r_u = \frac{\mathrm{R}_\mathrm{u}}{1.3} \geq 1.0$$

fulfills the criterion without the need to push the analyses beyond the 4.1 x HL-93 loading. The deformed shape of the structure at the final load increment is shown in Figure 4.

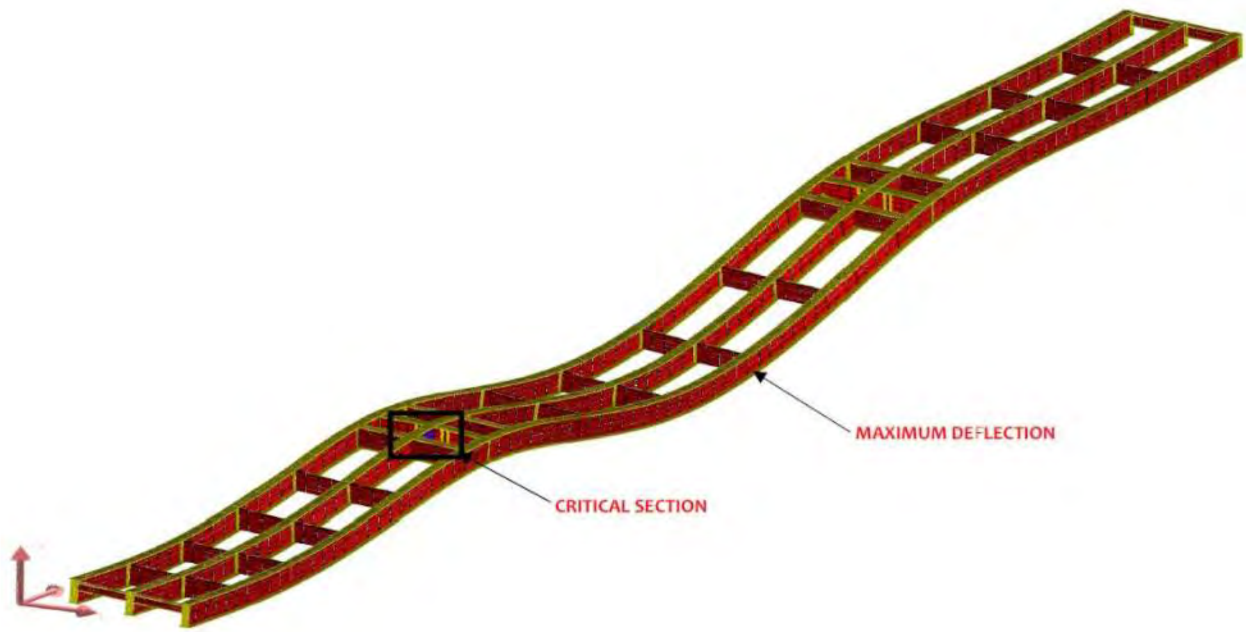


Figure 4: Deformed shape of structure at 4.1 x HL-93 loading (Deck not shown for clarity)

Interior Girder at Pier 10 – Functionality Limit State

In this case, at no point was the L/100 displacement criteria reached. The displacement was measured for the case where the structure reached the required $r_u = \frac{R_u}{1.3}$ and that displacement was D = 7.39 in at the Fascia Girder in Span 2, and was reached at 4.1 x HL-93 trucks. Therefore, $R_f = LF_f / LF_1 = 4.1/3.11 = 1.30$ and the redundancy ratio for functionality is calculated as:

$$r_f = \frac{R_f}{1.1} = \frac{1.3}{1.1} = 1.18^{\dagger}$$

Integral Pier Cap 11 – Ultimate Limit State

Based on the Larsa4D influence surface based LL modeler, the controlling HL-93 truck position that would maximize the moments at the critical location in the cap beam was identified. The critical section in the cap beam is at the transverse section adjacent to the bearing support is shown in Figure 5.

† Analysis was stopped due to satisfying the minimum redundancy criteria of NCHRP 406. Actual value is likely higher than reported.

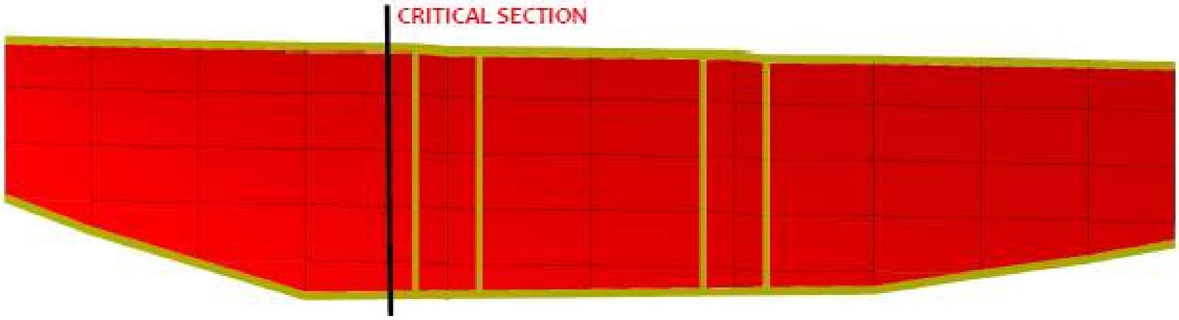


Figure 5: Critical Section in Pier 11 Cap Beam

The worst load case is the single lane pushed as far to the gutter as possible. In this case only, given the location of the critical section for the cap beam, only a single lane of double HL-93 trucks plus lane loading control the worst loading condition as shown in Figure 6.

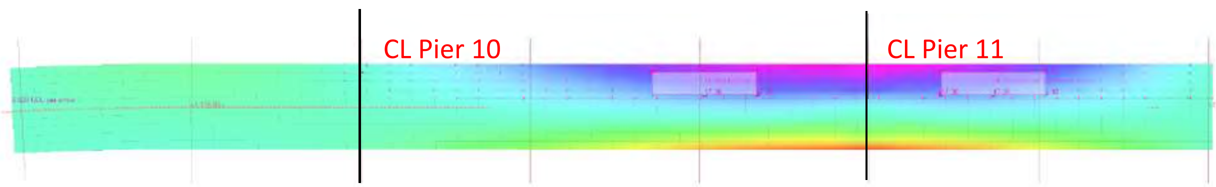


Figure 6: Influence surface and controlling live load placement for critical section in Cap Beam 11

The analysis was continued beyond the elastic state and into nonlinear analyses with nonlinear geometry and material properties. Initial testing increments increased the loading to 4.0 x HL-93 loading and corresponding design checks suggested that the connection of the A13 exterior girder to pier 11 would reach capacity before any other components. As a result, the HL-93 load was scaled back and increased slowly and incrementally to investigate the ultimate mechanism of failure. The cap beam-to-fascia girder connection failed at 3.3 x HL-93 loading, as shown in Figure 7. Given the non-ductile, brittle nature of a connection failure, this is assumed to result in a sudden failure of the connection. The connection failure was modeled at this stage by removing a section of the cap beam connected to the fascia girder under HL-93 loading.

Although this caused a sudden downward deflection of the fascia girder, it was not sufficient to violate the L/100 deflection criteria. The loading increments were increased further until the anchor rod at the bearing reached capacity at 4.2 x HL-93 loading. The anchorage failure was due to uplift forces exceeding the calculated design capacity of the hold-down bracket holding the tension rod. The anchorage failure was modeled by releasing the joint restraints in the model holding the structure down.

At this stage, the interior girder was yielding due to negative bending near pier 11. Nonlinear beam elements were assigned to model the flanges; however, nonlinear element behavior is limited to beam elements and cannot be applied to the shell elements that were used to model the web. This required a manual calculation of reduced modulus in the web elements to model more realistic plastic hinging behavior. The web was softened and the redistribution of forces was noted. The softening was iterated to reduce the resistance to less than the plastic moment of the section.

See Figure 7 for the progression of failures in the structure.

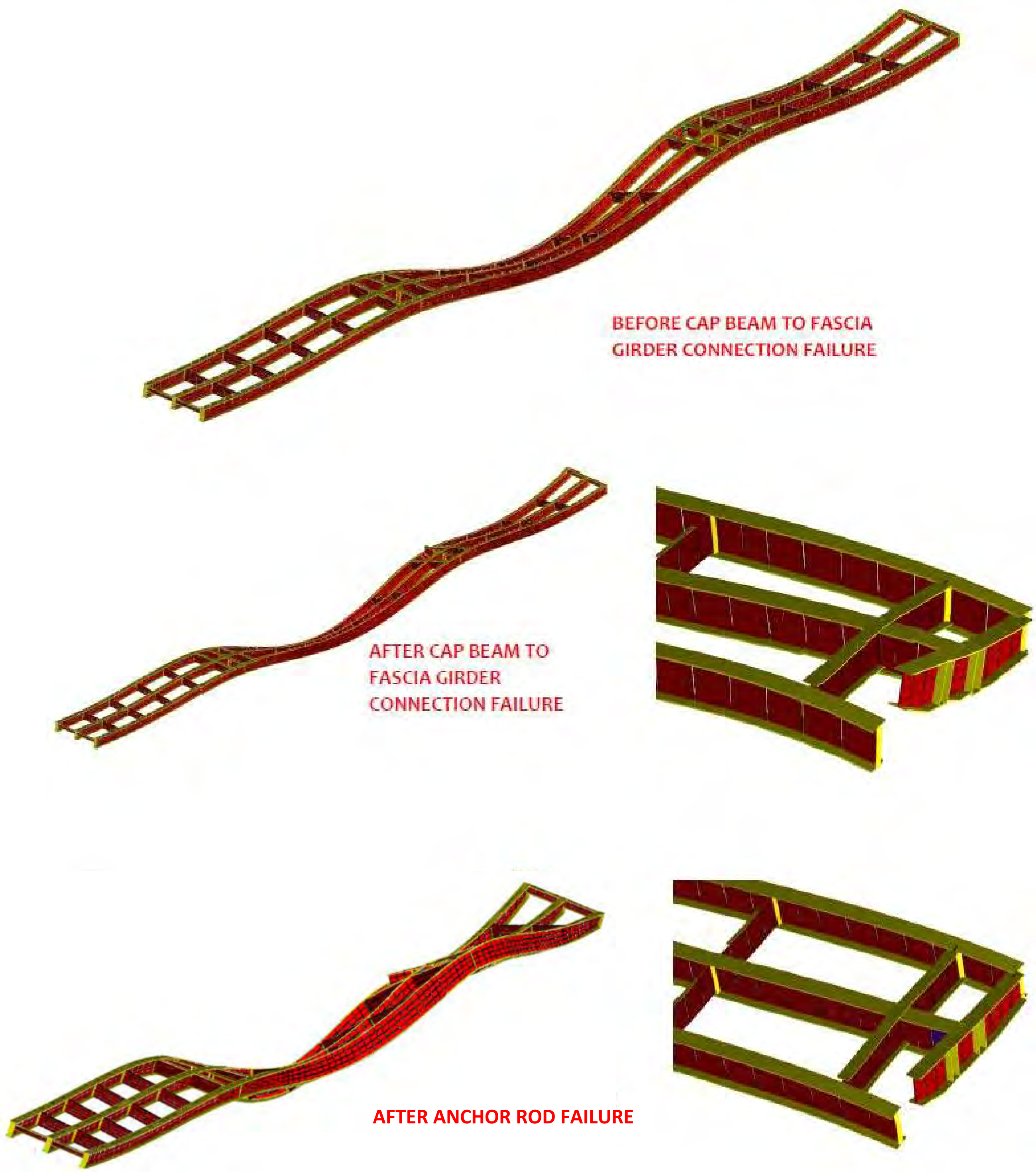


Figure 7:Progression of failures in structure at 3.33xHL-93 and 4.2xHL-93 loading (Deck not shown for clarity).

The next iteration of 5.0 x HL-93 loading was applied, and redistribution of forces indicated that the Redundant Load Path Diaphragm connection failed in what is assumed to be a non-ductile, brittle failure. This ultimately causes the structure to collapse while the Cap Beam never nears yielding. The location of redundant load path diaphragm connection failure is identified in Figure 8.

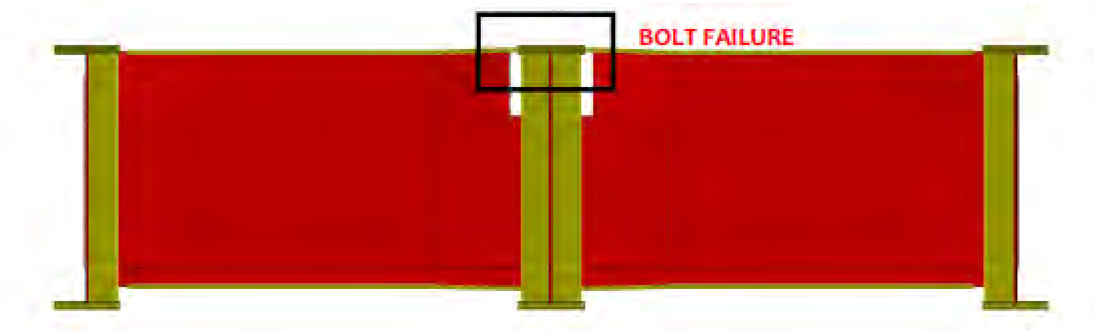


Figure 8: Redundant Load Path Diaphragm

The load factor calculated in this step as LF_u = 5.0 shows that $R_u = LF_u / LF_1$ = 5.0 / 3.11 = 1.61 > 1.3. The bridge exhibits a sufficient level of redundancy to satisfy the ultimate limit state. The calculated redundancy ratio r_u:

$$r_u = \frac{\mathrm{R_u}}{1.3} = \frac{1.61}{1.3} = 1.24 > 1.0$$

meets the criterion for classifications as redundant based on the ultimate factor for this element.

<u>Integral Pier Cap 11 – Functionality Limit State</u>

In this case, at no point was the L / 100 displacement criteria reached. The displacement measured for the case where the structure reached the ultimate capacity was D = 10.0 in downwards at the fascia girder in span 1, and was reached at 5.0 x HL93 loading. Therefore, $R_f = LF_f / LF_1$ = 5.0/3.11 = 1.60 and the redundancy ratio for functionality is calculated as:

$$r_f = \frac{\mathrm{R_f}}{1.1} = \frac{1.6}{1.1} = 1.45^{\dagger}$$

<u>Integral Pier Cap 11 – Damaged Limit State</u>

The nonlinear model was modified to incorporate a damaged state. For the Pier 11 cap beam, a section directly adjacent to the bearing was removed after the dead load had been added and before the first increment of live loading was applied. The Pier Cap after the section was removed is shown in Figure 9.

† Analysis was stopped due to satisfying the minimum redundancy criteria of NCHRP 406. Actual value is likely higher than reported.

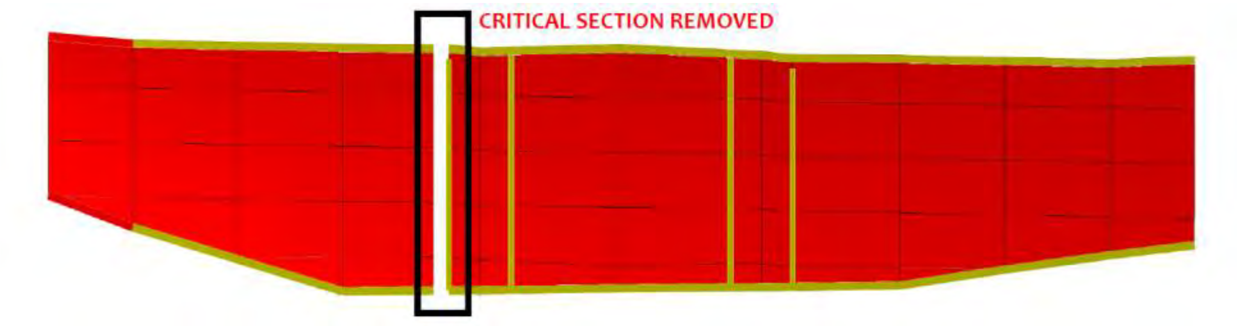


Figure 9:Damaged Condition of Pier Cap 11

After the section is removed, the worst load case positioning of live loading is applied to the structure incrementally until it is seen that an element is reaching its capacity. The same position of live load as used in the ultimate loading condition and shown in Figure 6 is again implemented for the damaged condition.

Like the ultimate condition, the loading is increased until the anchor rod fails. The connection to the Exterior Girder was removed at the beginning of the analysis. This failure occurred at 4.2 x HL-93 loading. This failure was emulated by releasing the restraints of that joint in the model. That restraint represented the vertical uplift bars holding the structure down. Failure was due to failure of hold-down brackets holding the tension rod based on design capacity calculations and monitoring of forces during increments. The deformed shape of the structure before and after anchor rod failure is shown in Figures 10 and 11. At this step, the interior girder was yielding. Nonlinear beam elements were assigned to model the flanges; however, nonlinear shell elements are not available for use modeling the web. This required a manual calculation of a reduced modulus of the web to replicate a more realistic plastic hinging. To maintain the correct resistance and plastic moment of the section, an iteration of web softening occurs and the redistribution of forces is noted.

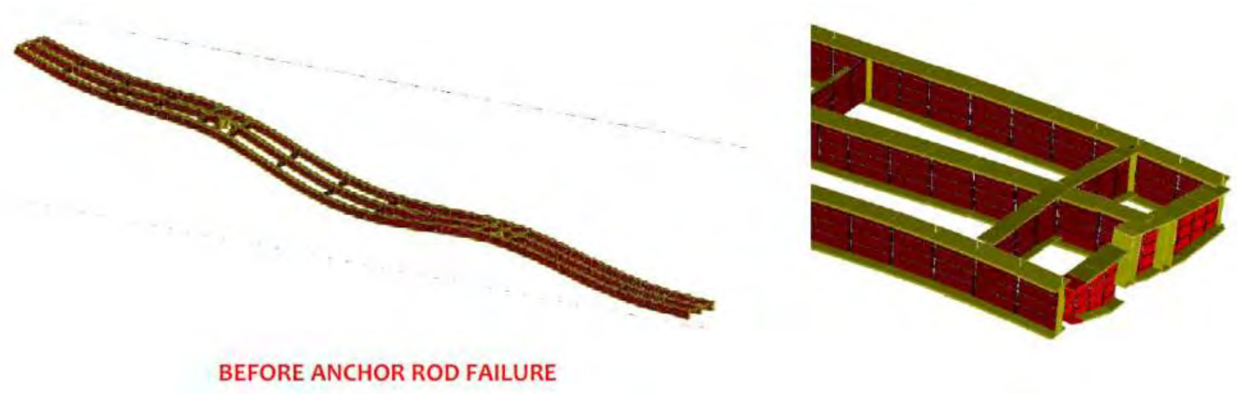


Figure 10: Deformed Structure at 4.2xHL93, prior to anchor rod failure (Deck not shown for clarity).

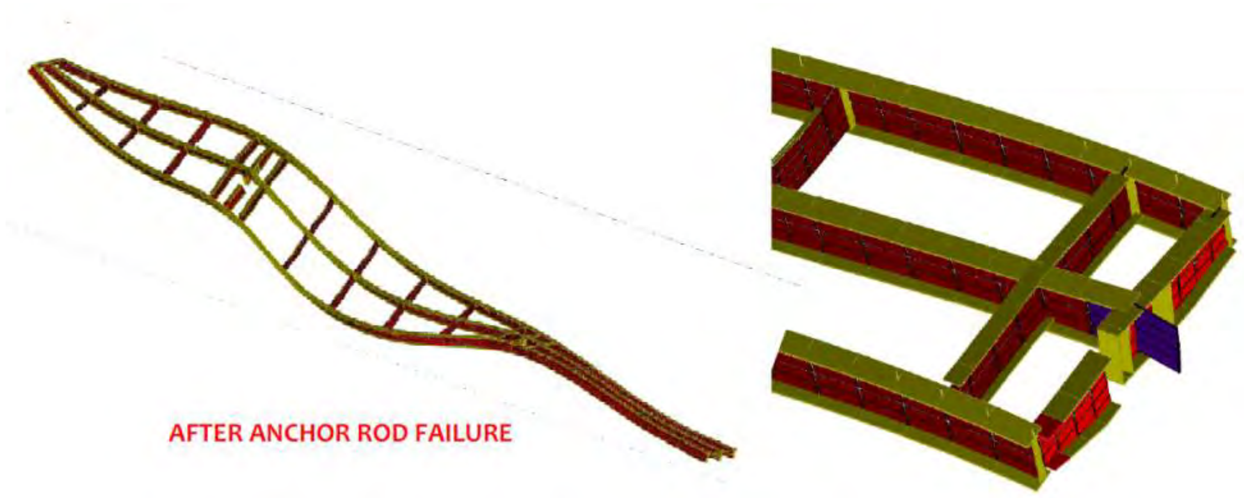


Figure 11: Deformed Structure at 4.2xHL93, after removal of the anchor rod (Deck not shown for clarity).

The next iteration of 5.0 x HL-93 loading was applied, and redistribution of forces indicated that the Redundant Load Path Diaphragm connection failed in what is assumed to be a non-ductile, brittle failure. This ultimately causes the structure to collapse while the diaphragm never nears yielding. The location of the redundant load path diaphragm connection failure is identified in Figure 12.

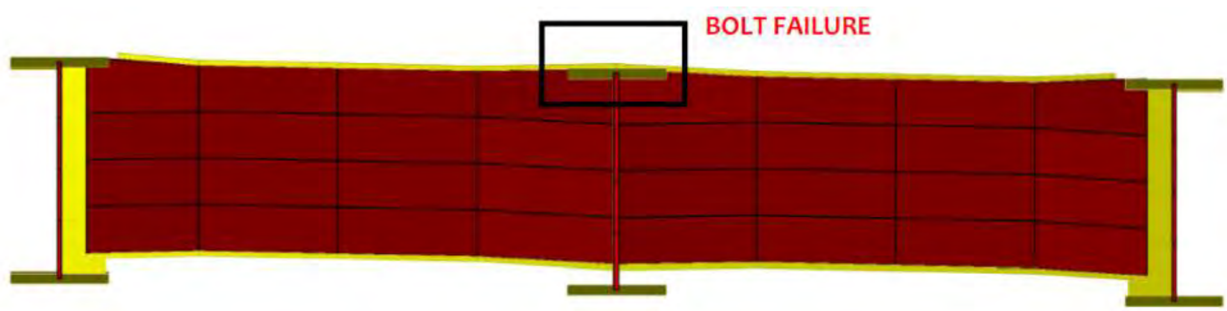


Figure 12: Redundant Load Path Diaphragm with location of connection failure

Thus, $R_d = LF_d / LF_1 = 5.0 / 3.11 = 1.61 >> 0.5$. The bridge exhibits sufficient level of redundancy to satisfy the damaged limit state. The calculated the redundancy ratio r_d:

$$r_d = \frac{\mathrm{R_d}}{0.5} = \frac{1.61}{0.5} = 3.21 \gg 1.0$$

Therefore, it meets the criterion for being classified as a redundant element.

Independent Analysis of Integral Pier Cap 11 – Damaged Limit State

The independent elastic model developed in CSi Bridge was modified to include nonlinear hinges in the frame elements for the flanges of the girders, pier caps, and redundant load path diaphragms, allowing representation of plastic hinge formation. Nonlinear hinges are not available for shell elements in the software. Instead, shell element stiffnesses are manually reduced. Dead loads were applied to the model, then a full section of cap beam elements was removed to model the effects of a fracture at the critical location noted above for the recorded model.

Interaction surfaces from the independent CSi Bridge model were used to determine the controlling location of static HL-93 truck and lane placement and were consistent with the locations determined by Larsa for the record model. The static live load was increased incrementally. At 3.5 x HL-93 loading, yielding initiated in the bottom flange of the interior girder activated the nonlinear hinge in the element. The stiffness of the web shell elements was reduced in the interior girder to model plastic hinging in the girder section.

At 3.7 x HL-93 loading, the redundant load path diaphragm adjacent to Pier 11 reached the ultimate moment capacity of the connection to the interior girder. A full section of the redundant load path diaphragm elements was removed to model the effects of a failed connection. This caused the redundant load path diaphragm on the other side of Pier 11 to reach the ultimate moment capacity of the connection to the interior girder as well. The independent analysis was terminated at this step. The deformed shape of the model before and after failure of the redundant load path diaphragm connection is show in Figures 13 and 14.

The independent analysis resulted in $LF_d/LF_1 = 3.7/3.11 > 0.5$; therefore, the independent analysis also finds the structure redundant for the damaged limit state. While the applied load magnitudes at failure are different between the record and independent analysis, the progression of failures are similar and result in the same findings for redundancy.

The record model reached ultimate capacity of the anchorage at 4.2xHL93, with a value = 526 k. At the same loading stage, the uplift in the independent model was 388 k. But by that stage in the analysis, the demand in the redundant load path diaphragms in the independent model had exceeded the connection capacity, and the independent analysis was repeated as described above.

The difference in failures between the two models were compared and investigated during reconciliation of the damaged limit state findings. Differences in load sharing between girders were present in both the elastic and nonlinear comparisons of the models. In addition, the web stiffness reduction technique used to model plastic hinging in the girder did not reduce demand as effectively in the independent model as the record model. This further contributed to differences in the load redistribution among the girders, and the higher demands noted in the redundant load path diaphragms in the independent model.

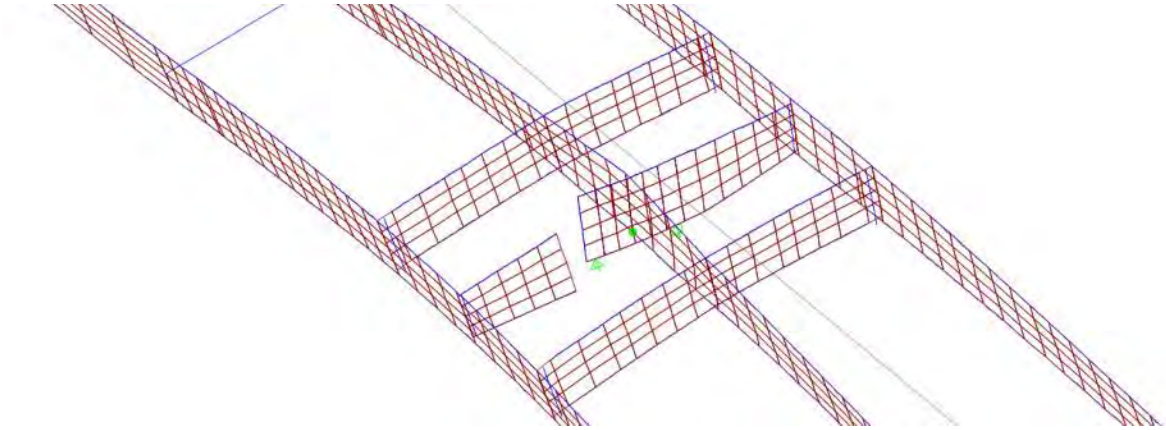


Figure 13: Independent Model at 3.7 x HL93 loading prior to redundant load path diaphragm connection failure (Deck not shown for clarity).

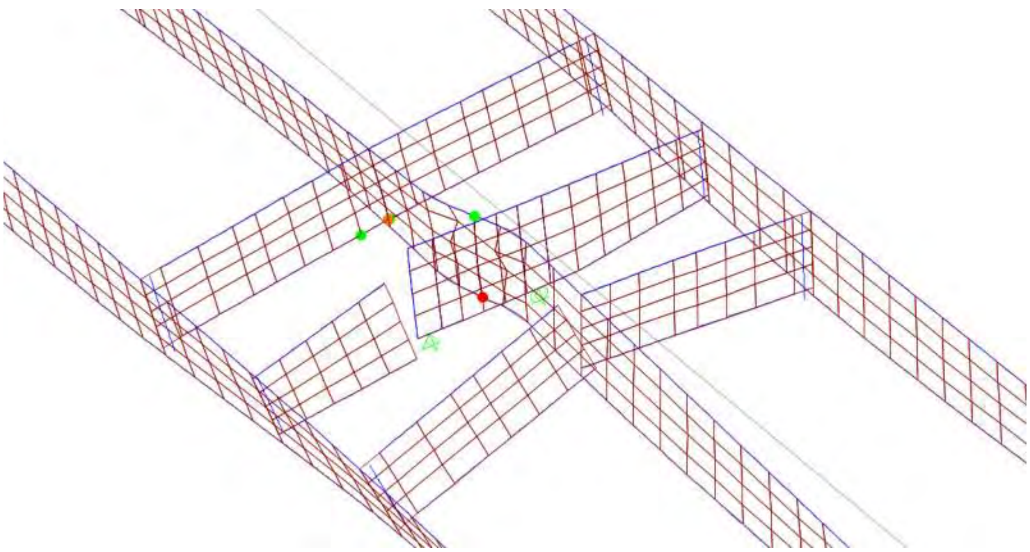


Figure 14: Independent Model at 3.7 x HL93 loading after redundant load path diaphragm connection failure (Deck not shown for clarity).

Conclusions and Recommendations

Using the criteria from NCHRP 406 and based on the results of these analyses, Bridge 69101 is to be considered overall redundant, as shown:

- Integral steel box girder cap beam at Piers 1 and 2

$r_1 = 2.13 > 1.0$, $r_u = 1.24 > 1.0$, $r_d = 3.21 > 1.0$, REDUNDANT

Because the structure was found redundant, no structural repairs are recommended for Bridge 69101.

Additional repairs proposed to extend the service life of the bridge include repainting steel the pier caps, girders below expansion joints, and the bottom flanges of fascia girders to address areas of localized paint failure.

Appendices

Appendix 1. Elastic Model Comparisons
Appendix 2. Member Capacity Calculations
Appendix 3. Redundancy Analysis Comparisons

Appendix 1

Elastic Model Comparisons

	Record	Independent	Difference	
Stage	**[k]**	**[k]**	**[k]**	**[%]**
Steel	299.8	303.4	3.67	1.21%
Pour Deck	989.6	998.8	9.20	0.92%
Parapet	226.1	226.1	0.00	0.00%
Total	1515.4	1528.3	12.87	0.84%

Figure 1: Dead Load Reactions

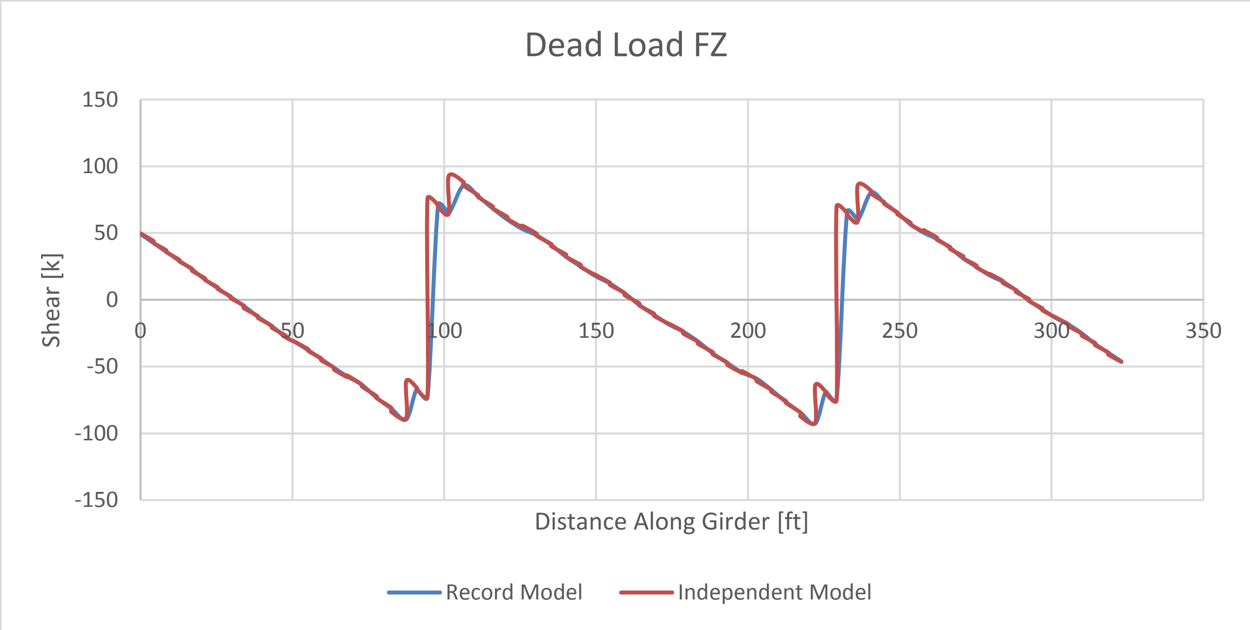


Figure 2: Girder A13 Dead Load Shear

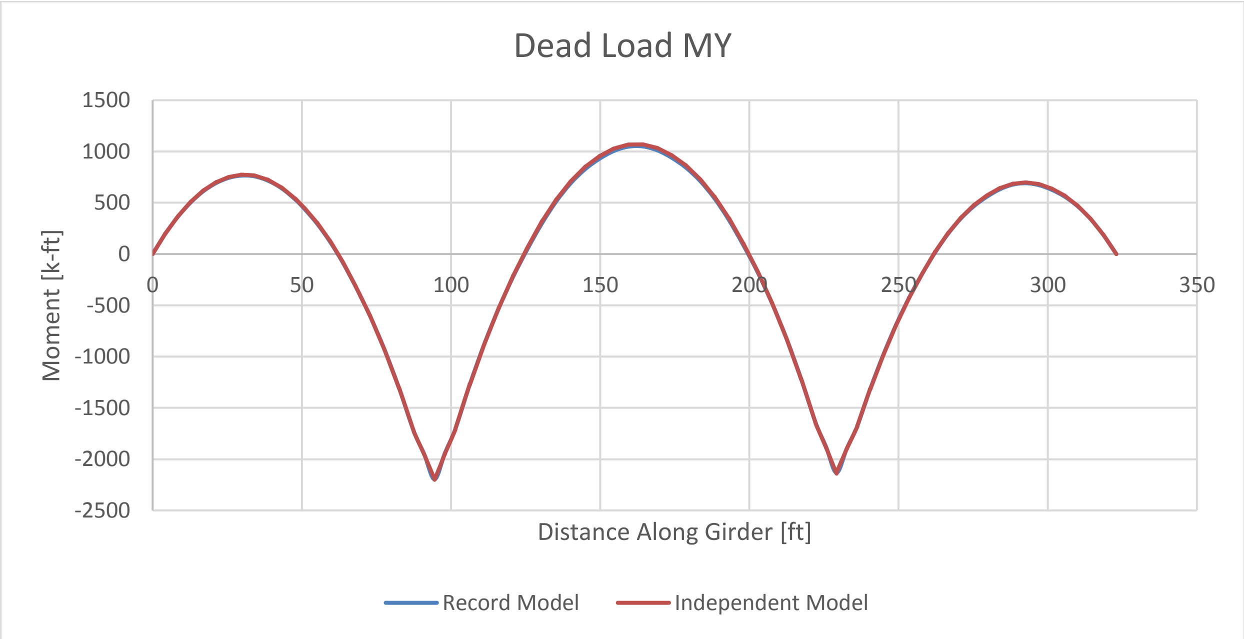


Figure 3: Girder A13 Dead Load Moment

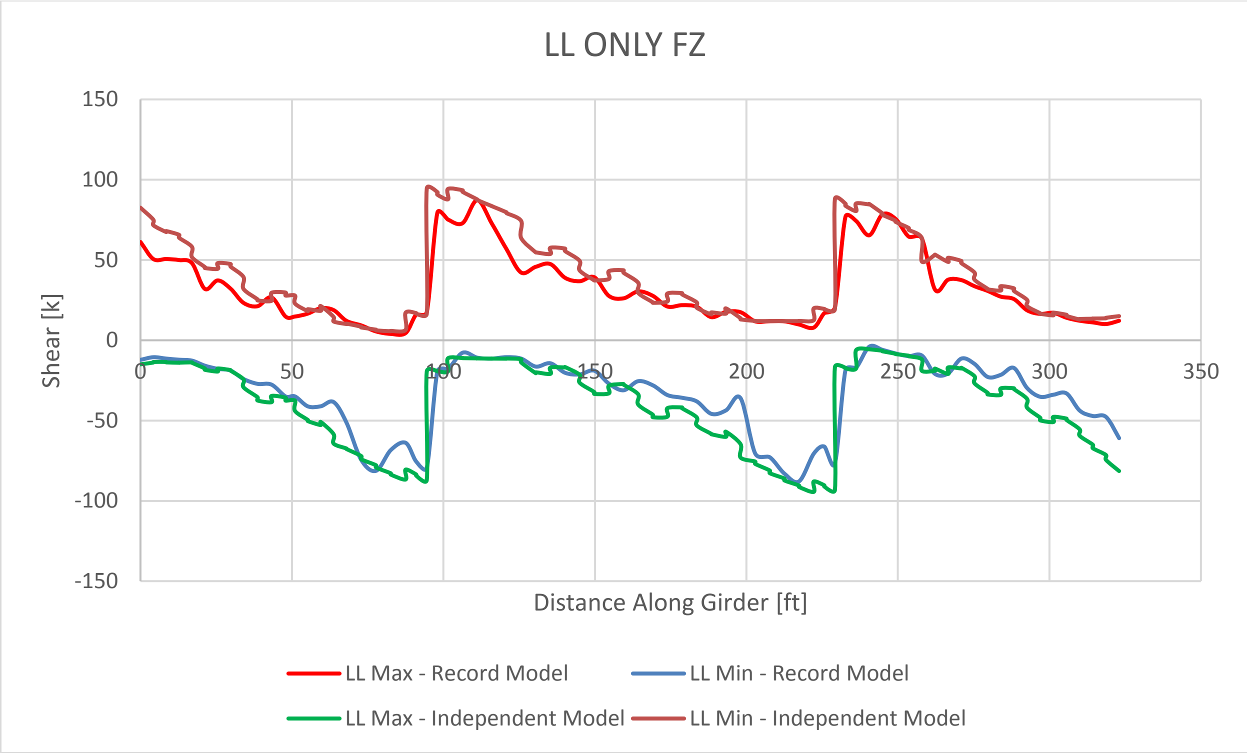


Figure 4: Girder A13 Live Load Shear

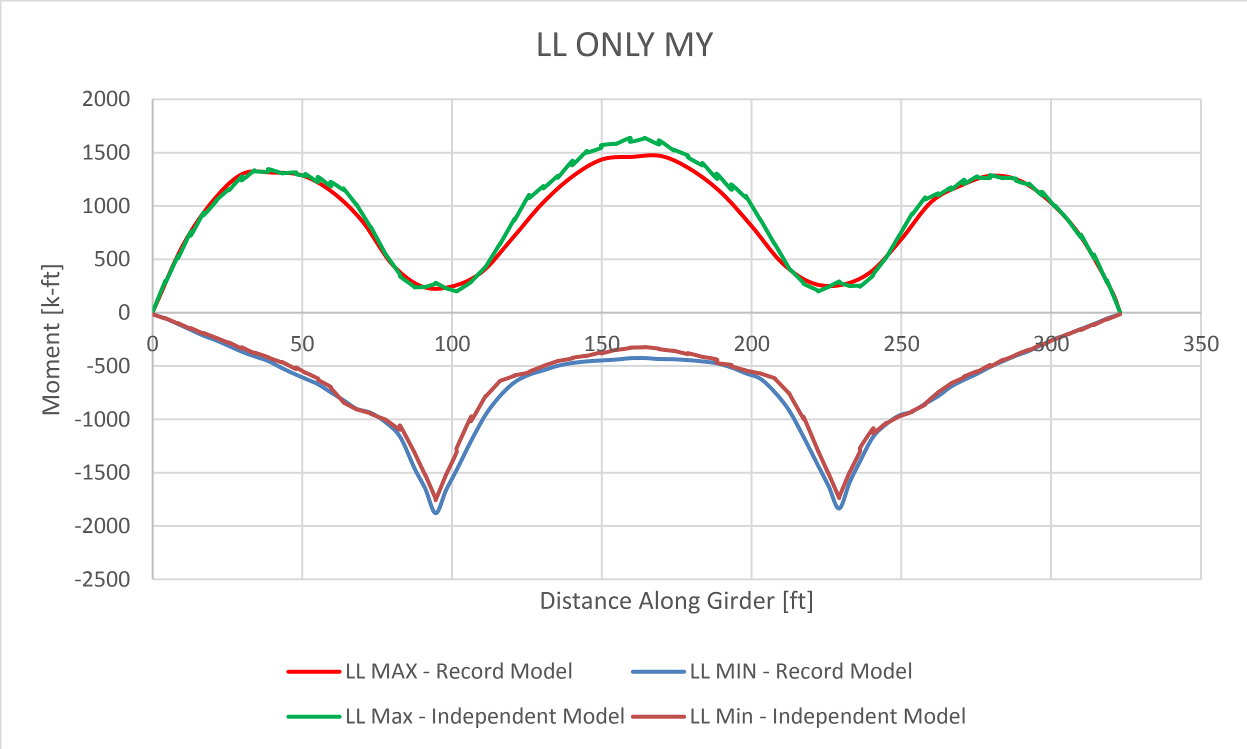


Figure 5: Girder A13 Live Load Moment

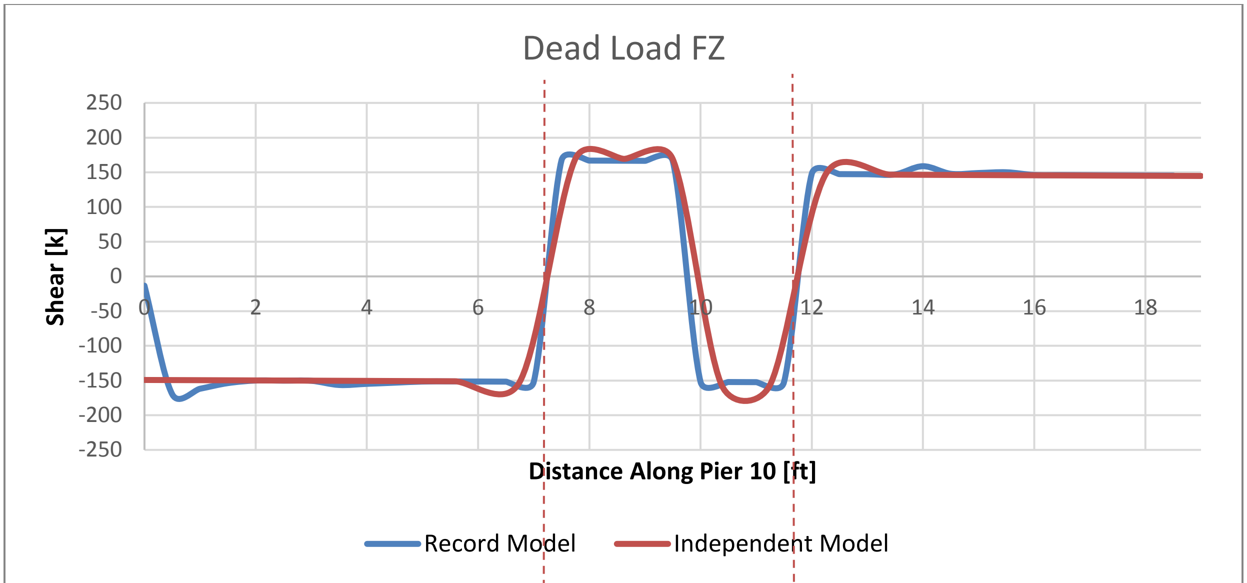
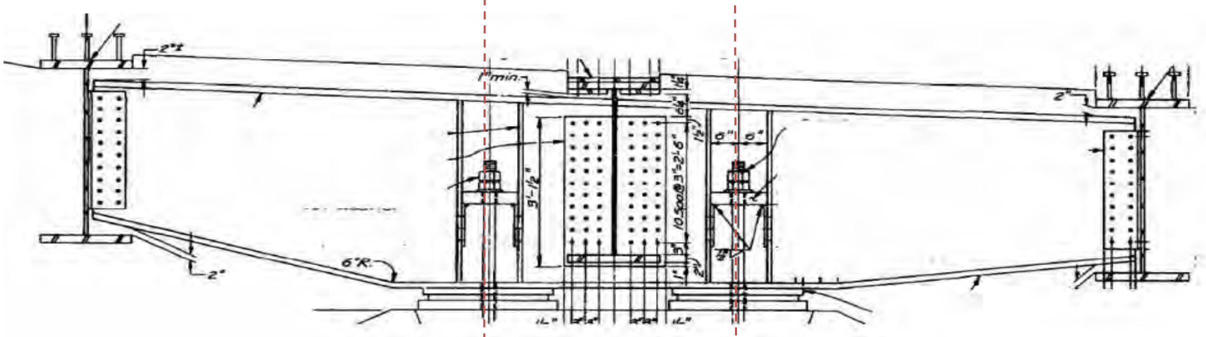


Figure 6: Pier 10 Cap Beam Dead Load Shear



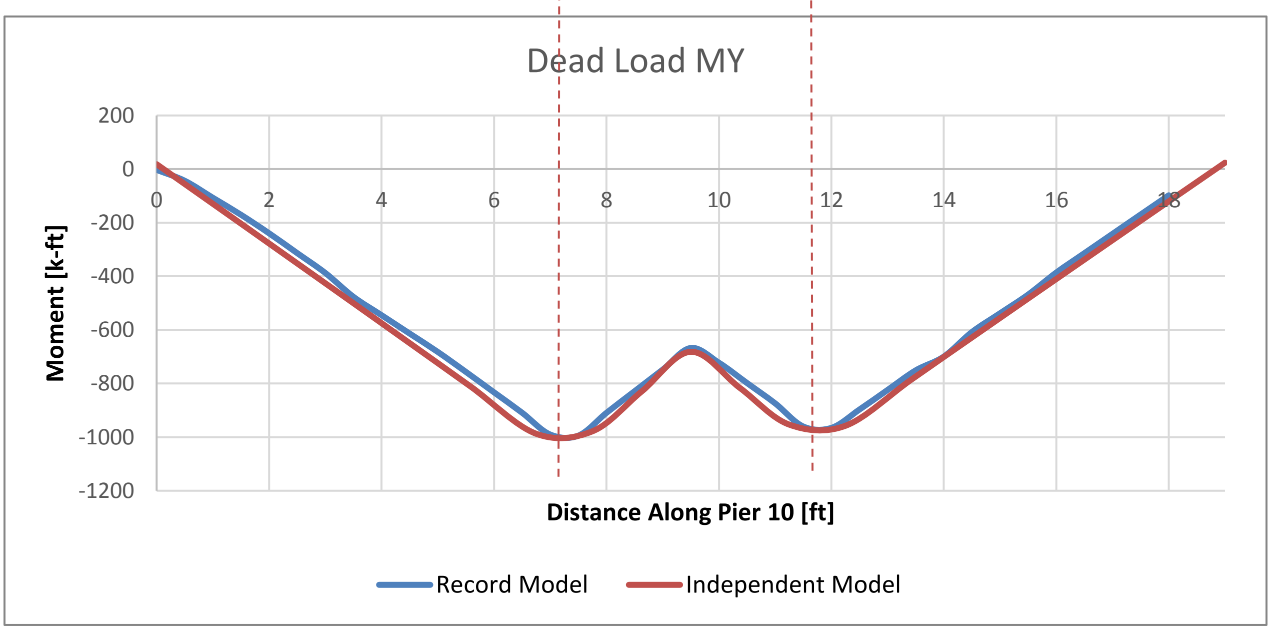


Figure 7: Pier 10 Cap Beam Dead Load Moment

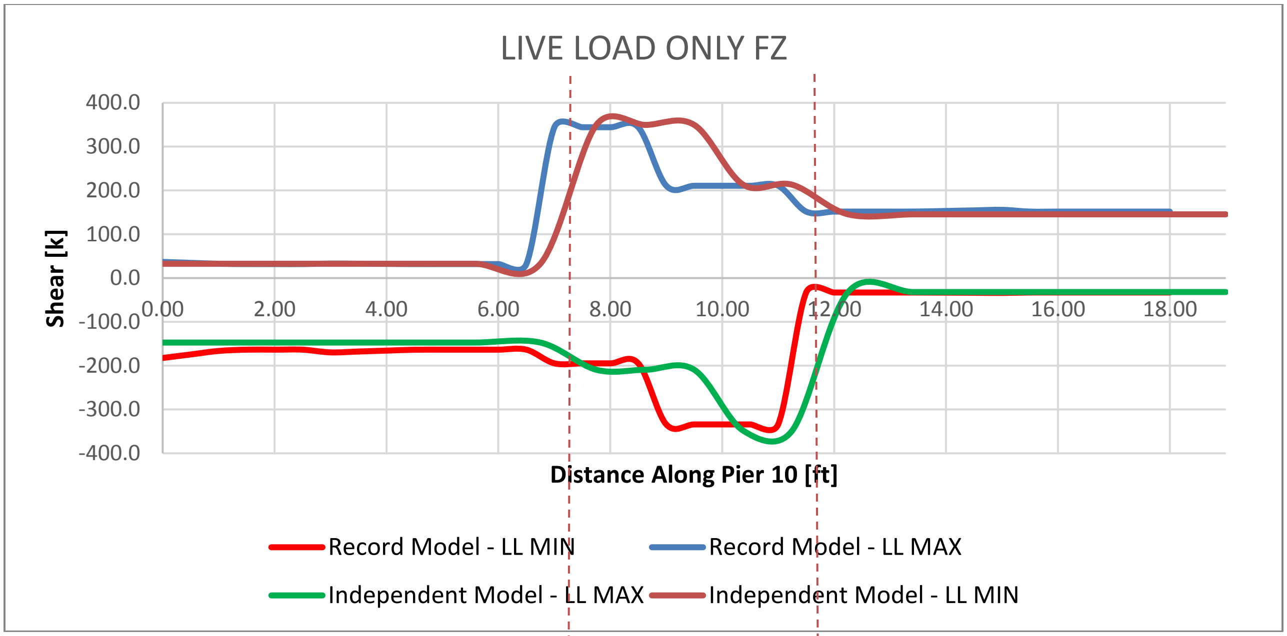
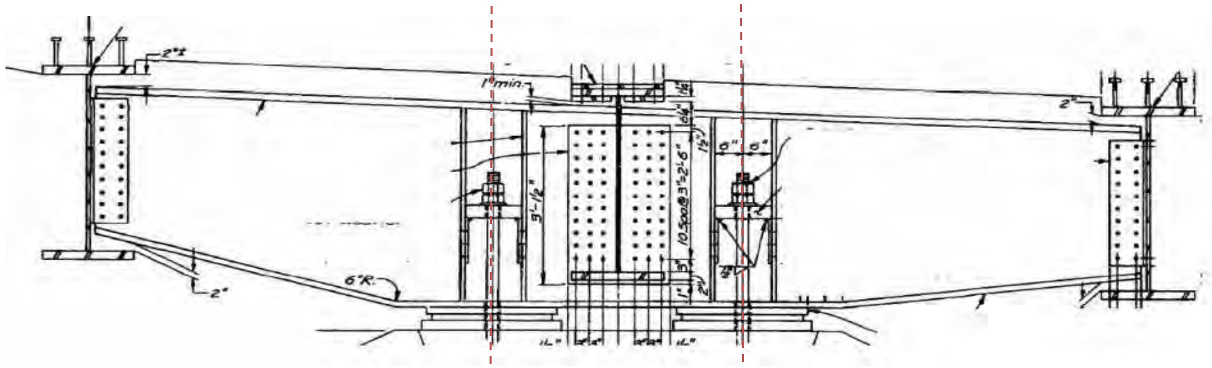


Figure 8: Pier 10 Cap Beam LL Shear



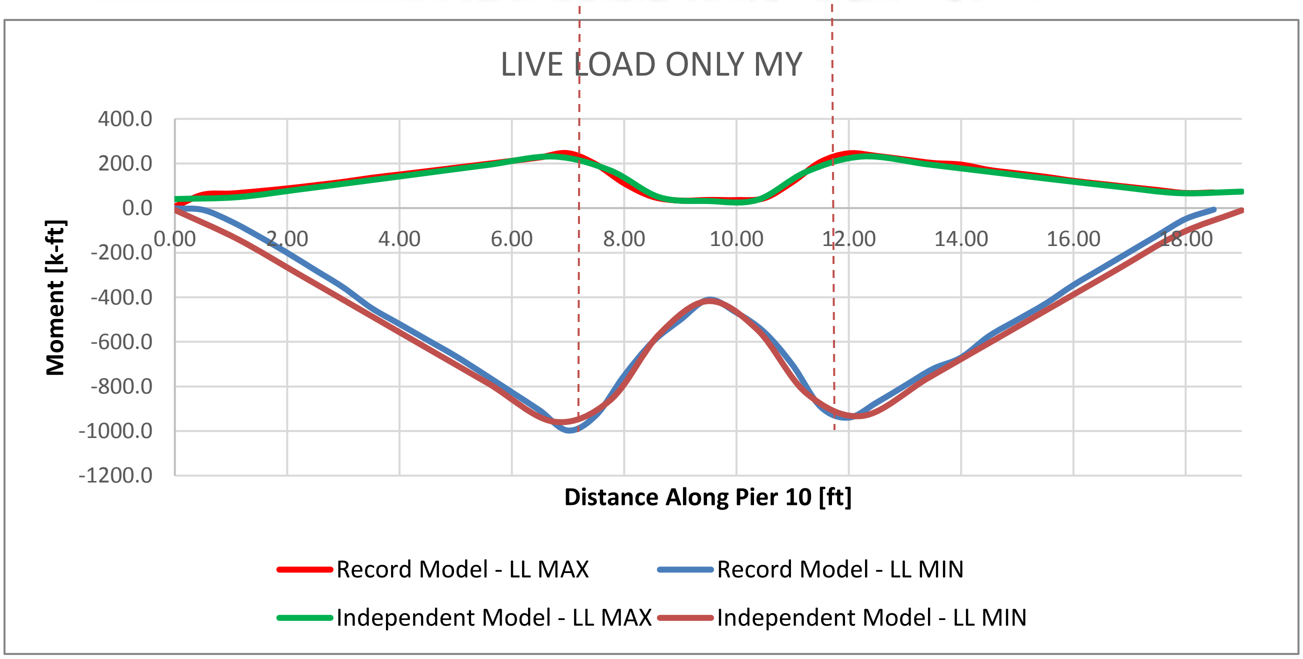


Figure 9: Pier 10 Cap Beam LL Moment

Appendix 2

Member Capacity Calculations

HNTB	Prepared by: Craig Hetue	Approved by:	Document number: QF 06
Calculation Cover Sheet	Revision Number: 0	Revision Date: 6/19/2017	Page 1 of __

Project: Fracture Critical Pier Caps – Br 69101	Job No: 64517	Design Criteria Document:
Client: MnDOT	Discipline:	Calculation No:

Name or Description of Calculation: Bridge 69101 Member Capacity and Redundancy Calculations.

Calc. Rev. No.	Originator	Checker	Senior Technical Reviewer (if required)	Confirmation Required (Y/N)

Calculation Objective: Establish the Member Capacity and redundancy values for Member and Ultimate loading conditions.

Calculation Methodology/List of Assumptions:
Applied AASHTO design and NCHRP 406 criteria to establish the redundancy limit states.

References/Inputs:

Attachments: (List each attachment following the subject calculation)
Bridge 69839 Design Calculations

Conclusions:

Document Check:	Name	Signature	Date
Originator:	Michael Xin	[signature]	9/8/17
Checker:	Travis Konda/Jay Carter	[signatures]	9/8/17 9/8/17
BackChecker:	Michael Xin	[signature]	9/8/17
Updater:	Michael Xin	[signature]	9/8/17
Verifier:	Travis Konda/Jay Carter	[signatures]	9/8/17 9/

BRIDGE 69101 DESIGN CALCULATION

HNTB JOB #: 64517

INDEX OF DESIGN CALCULATION

Page

1. Design Summary

HNTB	By: MX	Date: 08/29/17	Job No. 64517
	Chkd By: JWC	Date: 9/7/2017	
HNTB Corp.	Bckchk By: MX	Date: 9/8/2017	Sht. No.

	Marco ID	LF1	r_1	LF_u	LF_u/LF1	r_u	LF_d	LF_d/LF1	r_d
Pier 10	1062	3.11	1.24	N/A	N/A	N/A	N/A	N/A	N/A
Pier 11 Cap Beam	1142	5.02	2.13	5.00	1.61	1.24	5	1.61	3.21

Notes:
1. The hold-down devise ultimate uplift capacity is equal to 526 kips (Bolt shear capacity of the conn)
2. Redundant Load Path Diaphragm Ultimate Moment capacity is 2807 k-ft and Ultimate shear capacity is 467 kips
3. Typical Diaphragm Ulitmate Moment capacity is 136 k-ft. Shear doesn't control

Made by: MX 08/29/17
Checked By: JCW on 09/08/17
Backchecked By: MX on 09/08/17

Summary of Elastic Results for Bridge 69101

Span	Location	Macro ID	Larsa Sta. (ft)	LF1	r_1	Ultimate M+ Capacity	Ultimate M- Capacity
						(k-ft)	(k-ft)
	HINGE 5	1001	0.0	4.68	2.02	7080	-4139
Span 10 (A13)	Sect_1	1002	8.5	7.36	3.18	6908	-4056
	CF2	1003	17.0	5.39	2.20	6784	-3988
	Sect_1	1004	25.5	4.28	1.77	6725	-3975
	CF3	1005	34.0	3.73	1.55	6713	-3965
	Sect_1	1006	42.5	3.87	1.64	6768	-4019
	CF4	1007	51.0	4.31	1.90	6869	-4028
	Sect_1	1008	59.5	5.25	2.41	7029	-4053
	CF5	1009	68.0	4.13	1.88	4502	-3926
	Sect_1	1010	71.9	3.79	1.69	4502	-3890
	Sect_2	1011	72.0	7.83	3.49	8711	-7532
	CF6	1012	87.5	4.93	2.00	13668	-8229
	Sect_2	1013	90.3	4.36	1.74	13744	-9967
	Sect_2	1014	93.0	3.79	1.51	13824	-9961
	Pier 10	1015	95.0	3.57	1.40	13862	-9957
Span 11 (A13)	Sect_2	1016	98.2	4.19	1.71	13763	-9965
	CF7	1017	101.5	4.80	1.82	13673	-8268
	Sect_2	1018	116.0	9.81	4.21	8711	-7842
	Sect_3	1019	116.1	5.14	2.18	4898	-4709
	CF8	1020	125.6	6.24	2.66	8312	-4822
	Sect_3	1021	137.7	5.24	2.26	8056	-4776
	CF9	1022	149.8	4.12	1.74	7896	-4265
	Sect_3	1023	161.9	3.97	1.66	7846	-4313
	CF10	1024	173.9	4.10	1.73	7891	-4755
	Sect_3	1025	186.0	5.23	2.25	8046	-4810
	CF11	1026	198.1	6.90	2.90	8296	-4831
	Sect_3	1027	210.6	4.87	2.07	4898	-4810
	Sect_4	1028	210.7	9.01	3.80	8711	-7840
	CF12	1029	222.2	4.70	1.90	13654	-7948
	Sect_4	1030	224.0	4.63	1.74	13697	-9965
	Sect_4	1031	226.0	4.21	1.70	13754	-9965
	Sect_4	1032	228.0	3.82	1.51	13813	-9962
	Pier 11	1033	229.7	3.72	1.46	13827	-9962
Span 12 (A13)	Sect_4	1034	232.0	4.15	1.68	13762	-9966
	Sect_4	1035	234.0	4.59	1.82	13708	-9971
	CF13	1036	236.2	4.84	1.80	13652	-8126
	Sect_4	1037	254.6	8.02	3.65	8711	-7667
	Sect_5	1038	254.7	3.99	1.82	4502	-3925
	Sect_5	1039	256.3	4.18	1.92	4502	-3935
	CF14	1040	257.9	4.40	2.05	4502	-3931
	Sect_5	1041	268.8	4.96	2.22	6954	-4042
	CF15	1042	279.6	4.14	1.79	6808	-3979
	Sect_5	1043	290.5	4.19	1.79	6753	-3977
	CF16	1044	301.3	5.35	2.23	6775	-4325
	Sect_5	1045	209.0	5.06	2.11	7398	-4309
	Sect_5	1046	316.0	7.87	3.38	6947	-4358
	Abut	1047	323.5	5.41	2.33	7079	-4398

	Summary of Elastic Results for Bridge 69101						
	Location	Macro ID	Larsa Sta. (ft)	LF1	r_1	Ultimate M+ Capacity	Ultimate M- Capacity
	HINGE 5	1048	0.0	4.73	2.04	7164	-4179
Span 10 (A14)	Sect_1	1049	8.5	8.05	3.44	7002	-4076
	CF2	1050	17.0	6.32	2.54	6892	-4012
	Sect_1	1051	25.5	4.98	2.05	6831	-3998
	CF3	1052	34.0	4.48	1.83	6824	-3976
	Sect_1	1053	42.5	4.57	1.92	6865	-4002
	CF4	1054	51.0	5.47	2.35	6962	-4015
	Sect_1	1055	59.5	7.03	3.16	7108	-4061
	CF5	1056	68.0	6.78	2.82	4502	-3898
	Sect_1	1057	71.9	5.41	2.37	4502	-3874
	Sect_2	1058	72.0	11.57	5.05	9171	-8074
	CF6	1059	87.5	6.07	2.43	9171	-7759
	Sect_2	1060	90.3	4.70	1.88	9171	-9171
	Sect_2	1061	93.0	3.71	1.48	9171	-9171
	Pier 10	1062	94.5	3.11	1.24	9171	-9171
Span 11 (A14)	Sect_2	1063	98.0	4.12	1.65	9171	-9171
	CF7	1064	101.5	5.10	1.96	9171	-8100
	Sect_2	1065	116.0	12.54	5.29	9171	-7993
	Sect_3	1066	116.1	5.85	2.42	4898	-4494
	CF8	1067	125.6	6.88	2.86	8456	-4810
	Sect_3	1068	137.7	6.45	2.70	8196	-4747
	CF9	1069	149.8	4.86	2.01	8045	-4249
	Sect_3	1070	161.9	4.29	1.78	7988	-4244
	CF10	1071	173.9	4.88	2.01	8043	-4724
	Sect_3	1072	186.0	6.60	2.77	8192	-4758
	CF11	1073	198.1	5.32	2.28	8451	-4875
	Sect_3	1074	210.6	5.49	2.28	4898	-4667
	Sect_4	1075	210.7	10.79	4.48	9171	-7990
	CF12	1076	222.2	5.32	2.15	9171	-7451
	Sect_4	1077	224.0	4.57	1.82	9171	-9171
	Sect_4	1078	226.0	3.94	1.58	9171	-9171
	Sect_4	1079	228.0	3.33	1.34	9171	-9171
	Pier 11	1080	229.2	3.50	1.39	9171	-9171
Span 12 (A14)	Sect_4	1081	232.0	4.22	1.68	9171	-9171
	Sect_4	1082	234.0	5.02	2.00	9171	-9171
	CF13	1083	236.2	5.90	2.19	9171	-8116
	Sect_4	1084	254.6	12.96	5.81	9171	-8075
	Sect_5	1085	254.7	6.22	2.79	4502	-3875
	Sect_5	1086	256.3	6.61	3.01	4502	-3892
	CF14	1087	257.9	6.90	3.20	4502	-3890
	Sect_5	1088	268.8	6.04	2.66	7025	-4037
	CF15	1089	279.6	4.94	2.09	6888	-3817
	Sect_5	1090	290.5	4.58	1.92	6829	-3886
	CF16	1091	301.3	5.77	2.37	6862	-4350
	Sect_5	1092	209.0	5.61	2.34	7556	-4334
	Sect_5	1093	316.0	7.81	3.33	7029	-4409
	Abut	1094	323.0	4.94	2.14	7166	-4467

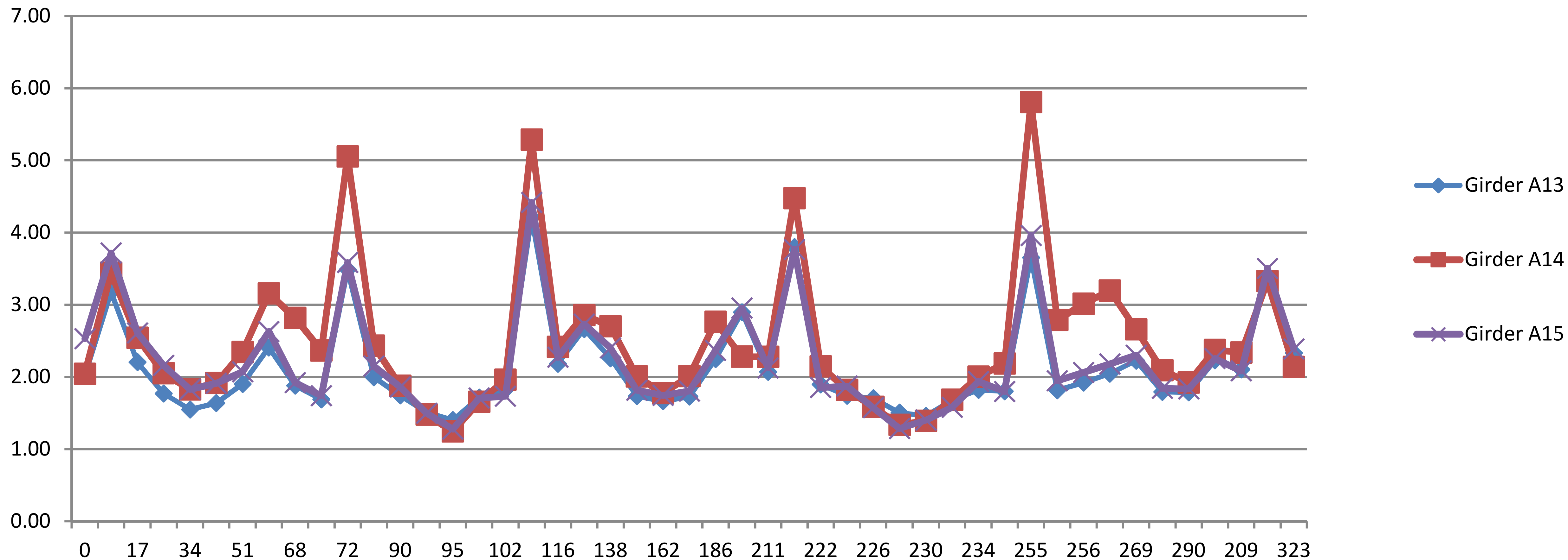
Made by: MX 08/29/17
Checked By: JCW on 09/08/17
Backchecked By: MX on 09/08/17

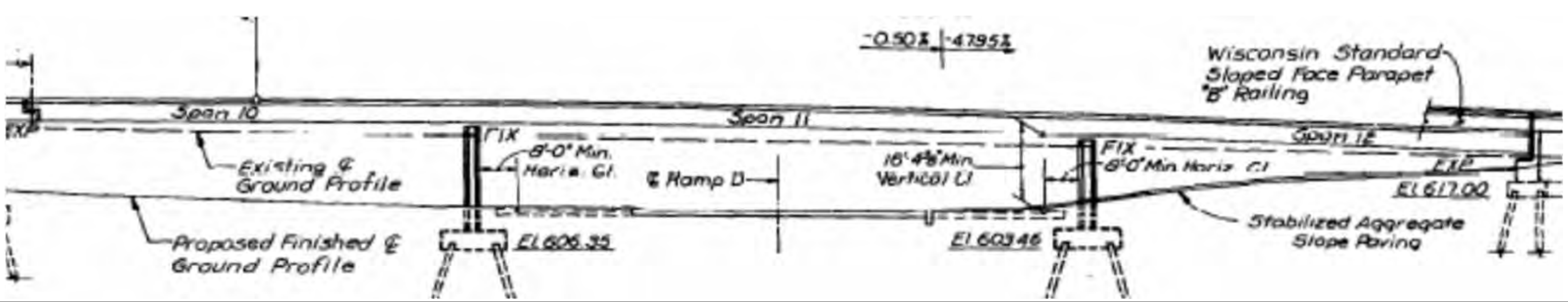
	Summary of Elastic Results for Bridge 69101						
	Location	Macro ID	Larsa Sta. (ft)	LF1	r_1	Ultimate M+ Capacity	Ultimate M- Capacity
	HINGE 5	1095	0.0	5.87	2.53	7080	-4139
Span 10 (A15)	Sect_1	1096	8.5	8.65	3.72	6933	-4068
	CF2	1097	17.0	6.43	2.61	6831	-4018
	Sect_1	1098	25.5	5.18	2.16	6779	-4011
	CF3	1099	34.0	4.42	1.83	6773	-4007
	Sect_1	1100	42.5	4.49	1.91	6816	-4022
	CF4	1101	51.0	4.76	2.07	6903	-4034
	Sect_1	1102	59.5	5.77	2.63	7046	-4069
	CF5	1103	68.0	4.21	1.92	4502	-3900
	Sect_1	1104	71.9	3.91	1.74	4502	-3834
	Sect_2	1105	72.0	8.06	3.59	8711	-7428
	CF6	1106	87.5	5.31	2.15	13639	-8280
	Sect_2	1107	90.3	4.63	1.86	13714	-9969
	Sect_2	1108	93.0	3.85	1.50	13790	-9963
	Pier 10	1109	94.0	3.37	1.28	13854	-9946
Span 11 (A15)	Sect_2	1110	97.8	4.25	1.71	13758	-9959
	CF7	1111	101.5	4.53	1.73	13670	-8260
	Sect_2	1112	116.0	10.33	4.42	8711	-7833
	Sect_3	1113	116.1	5.37	2.27	4898	-4657
	CF8	1114	125.6	6.42	2.73	8310	-4809
	Sect_3	1115	137.7	5.63	2.40	8058	-4768
	CF9	1116	149.8	4.35	1.82	7901	-4279
	Sect_3	1117	161.9	4.20	1.74	7855	-4296
	CF10	1118	173.9	4.31	1.80	7902	-4745
	Sect_3	1119	186.0	5.54	2.37	8061	-4779
	CF11	1120	198.1	7.06	2.95	8314	-4834
	Sect_3	1121	210.6	5.02	2.13	4898	-4802
	Sect_4	1122	210.7	8.94	3.77	8711	-7833
	CF12	1123	222.2	4.58	1.85	13678	-7854
	Sect_4	1124	224.0	4.61	1.87	13723	-9964
	Sect_4	1125	226.0	4.02	1.57	13780	-9959
	Sect_4	1126	228.0	3.43	1.29	13839	-9949
	Pier 11	1127	228.7	3.62	1.40	13828	-9955
Span 12 (A15)	Sect_4	1128	232.0	4.06	1.58	13762	-9964
	Sect_4	1129	234.0	4.79	1.94	13708	-9970
	CF13	1130	236.2	4.72	1.80	13650	-8245
	Sect_4	1131	254.6	8.74	3.96	8711	-7769
	Sect_5	1132	254.7	4.30	1.95	4502	-3927
	Sect_5	1133	256.3	4.50	2.06	4502	-3935
	CF14	1134	257.9	4.71	2.18	4502	-3933
	Sect_5	1135	268.8	5.15	2.30	6954	-4058
	CF15	1136	279.6	4.27	1.84	6808	-3987
	Sect_5	1137	290.5	4.33	1.83	6753	-3985
	CF16	1138	301.3	5.43	2.26	6774	-4321
	Sect_5	1139	209.0	4.96	2.08	7419	-4299
	Sect_5	1140	316.0	8.19	3.50	6947	-4359
	Abut	1141	322.5	5.55	2.39	7078	-4398

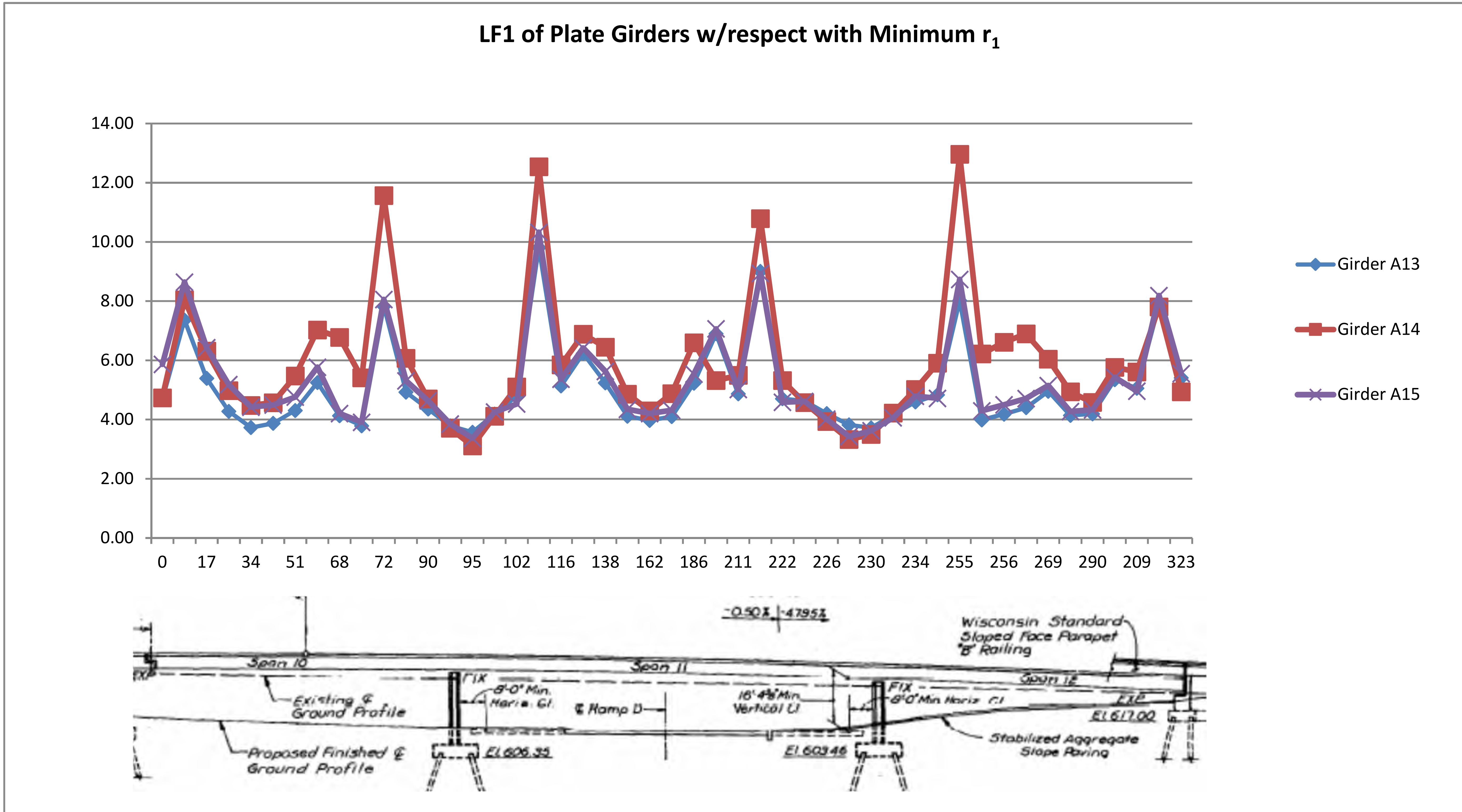
Summary of Elastic Results for Bridge 69101

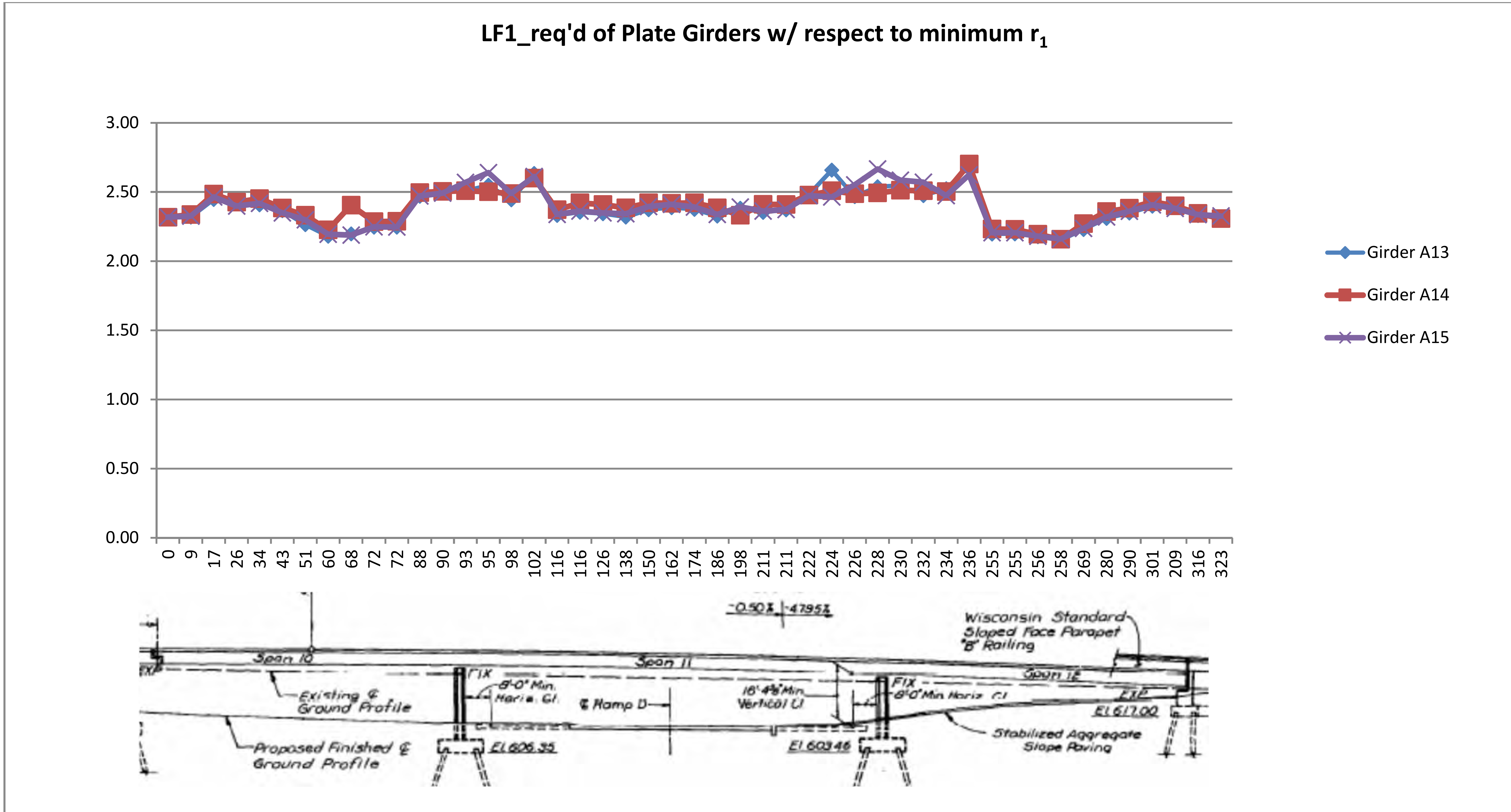
	Location	Macro ID	Larsa Sta. (ft)	LF1	r_1	Ultimate M+ Capacity	Ultimate M- Capacity
CAP Beam at Pier 11	P11_CB_Sect_1 @ CAP Beam at Pier 11	1142	0.0	5.02	2.13	5350	-5350
	P11_CB_Sect_2 @ CAP Beam at Pier 11	1143	2.7	7.28	3.09	6752	-6752
	P11_CB_Sect_3 @ CAP Beam at Pier 11	1144	6.0	8.07	3.26	8111	-8111
	P11_CB_Sect_4 @ CAP Beam at Pier 11	1145	12.8	8.16	3.13	7789	-7789
	P11_CB_Sect_5 @ CAP Beam at Pier 11	1146	16.0	7.63	3.22	6734	-6734
	P11_CB_Sect_6 @ CAP Beam at Pier 11	1147	18.8	6.32	2.67	5544	-5544
CAP Beam at Pier 10	P10_CB_Sect_1 @ CAP Beam at Pier 10	1148	0.0	4.92	2.08	5289	-5289
	P10_CB_Sect_2 @ CAP Beam at Pier 10	1149	2.7	7.26	3.07	6775	-6775
	P10_CB_Sect_3 @ CAP Beam at Pier 10	1150	6.0	8.23	3.33	8237	-8237
	P10_CB_Sect_4 @ CAP Beam at Pier 10	1151	12.8	8.64	3.39	7722	-7722
	P10_CB_Sect_5 @ CAP Beam at Pier 10	1152	16.0	7.68	3.24	6610	-6610
	P10_CB_Sect_6 @ CAP Beam at Pier 10	1153	18.8	6.49	2.74	5556	-5556
CF12	CF12 -RLPD_Sect_1	1154	1.0	38.61	15.06	3540	-3108
	CF12 -RLPD_Sect_2	1155	4.8	36.77	14.41	3540	-3090
	CF12 -RLPD_Sect_3	1156	9.5	8.91	2.49	3540	-3094
	CF12 -RLPD_Sect_2	1157	14.3	38.24	12.52	3540	-3094
	CF12 -RLPD_Sect_1	1158	18.0	16.25	4.00	3540	-3109
CF13	CF13 -RLPD_Sect_1	1159	1.0	27.14	6.24	3540	-3105
	CF13 -RLPD_Sect_2	1160	4.8	32.73	13.15	3540	-3081
	CF13 -RLPD_Sect_3	1161	9.5	8.82	2.61	3540	-3085
	CF13 -RLPD_Sect_2	1162	14.3	33.31	11.99	3540	-3085
	CF13 -RLPD_Sect_1	1163	18.0	16.90	4.16	3540	-3100
P11_CB_Sect_3	CF6 -RLPD_Sect_1	1164	1.0	30.94	17.57	3540	-3049
	CF6 -RLPD_Sect_2	1165	4.8	30.94	17.57	3540	-3049
	CF6 -RLPD_Sect_3	1166	9.5	30.94	17.57	3540	-3049
	CF6 -RLPD_Sect_2	1167	14.3	30.94	17.57	3540	-3049
	CF6 -RLPD_Sect_1	1168	18.0	30.94	17.57	3540	-3049
P10_CB_Sect_1	CF7 -RLPD_Sect_1	1169	1.0	30.94	17.57	3540	-3049
	CF7 -RLPD_Sect_2	1170	4.8	30.94	17.57	3540	-3049
	CF7 -RLPD_Sect_3	1171	9.5	30.94	17.57	3540	-3049
	CF7 -RLPD_Sect_2	1172	14.3	30.94	17.57	3540	-3049
	CF7 -RLPD_Sect_1	1173	18.0	30.94	17.57	3540	-3049

Minimum Reserve Ratio r1 of Plate Girders

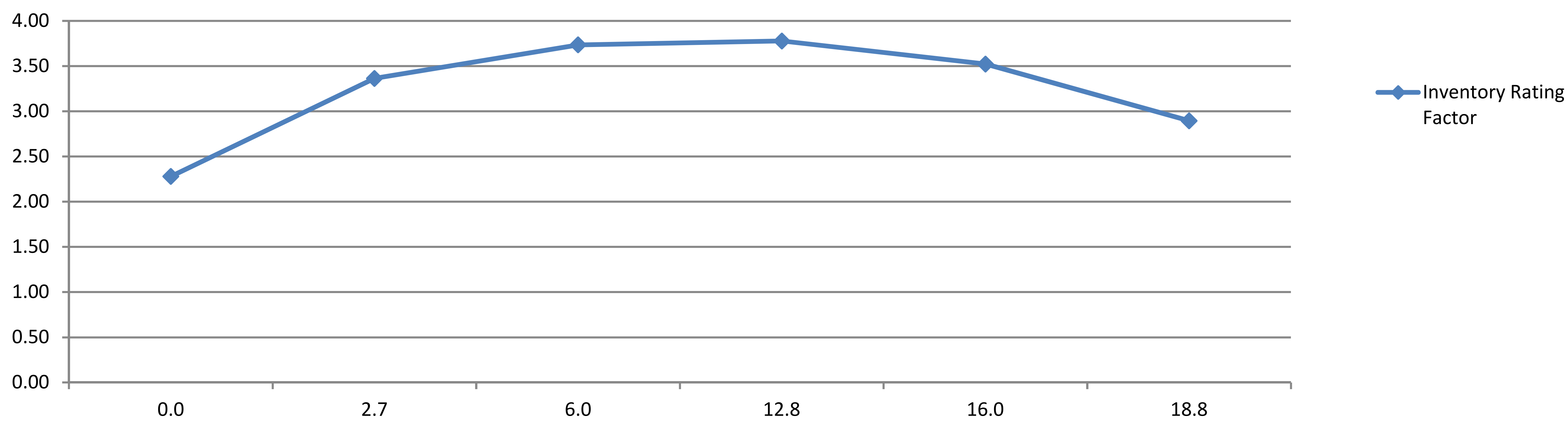


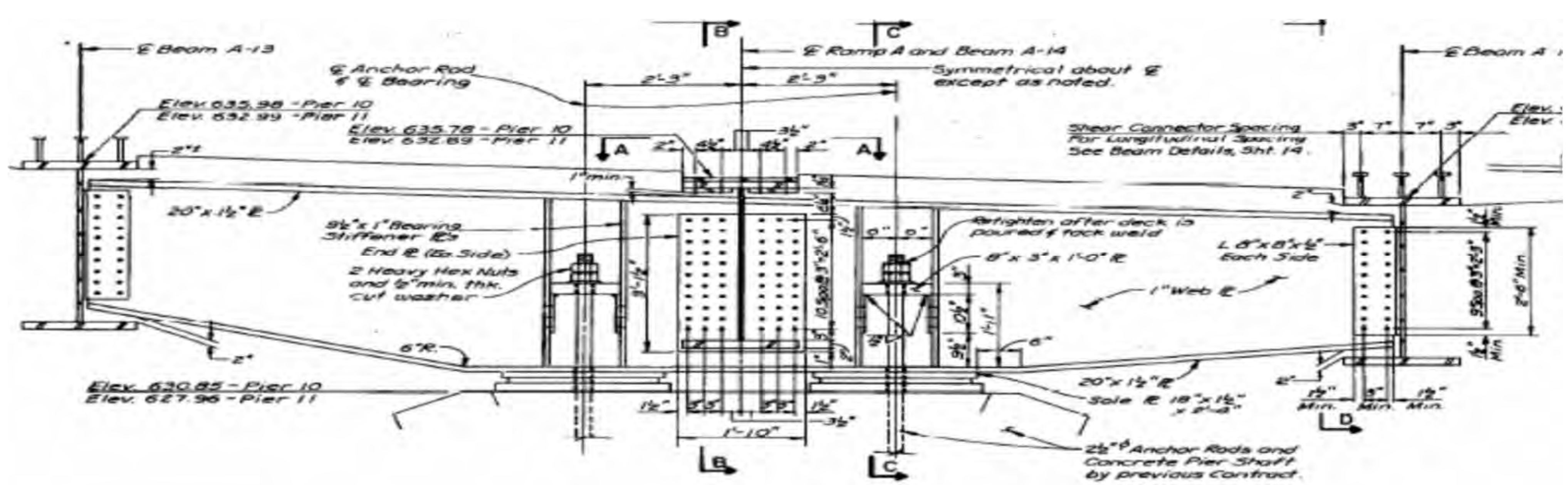



LF1 of Plate Girders w/respect with Minimum r_1
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0
17
34
51
68
72
90
95
102
116
138
162
186
211
222
226
230
234
255
256
269
290
209
323
Girder A13
Girder A14
Girder A15
Span 10
Span 11
Span 12
Existing ℄ Ground Profile
Proposed Finished ℄ Ground Profile
FIX
FIX
EXP
8'-0" Min. Horiz. Cl.
℄ Ramp D
16'-4⅝" Min. Vertical Cl.
8'-0" Min Horiz. Cl.
El 606.35
El 603.46
El 617.00
Wisconsin Standard Sloped Face Parapet "B" Railing
Stabilized Aggregate Slope Paving

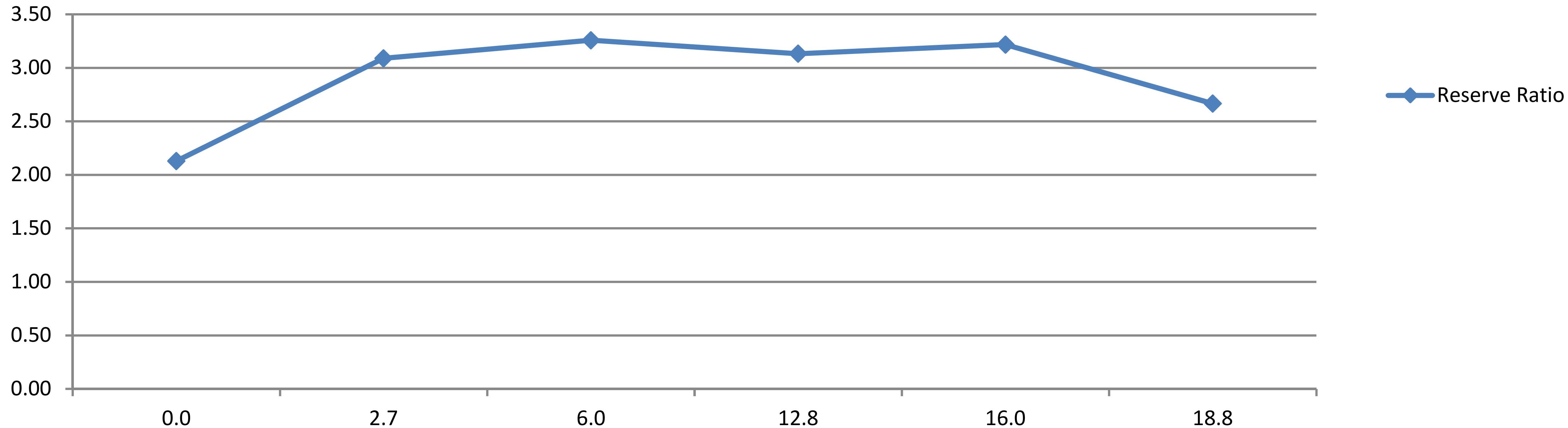

LF1_req'd of Plate Girders w/ respect to minimum r_1
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0 9 17 26 34 43 51 60 68 72 72 88 90 93 95 98 102 116 116 126 138 150 162 174 186 198 211 211 222 224 226 228 230 232 234 236 255 255 256 258 269 280 290 301 209 316 323
Girder A13
Girder A14
Girder A15
-0.50%
Wisconsin Standard Sloped Face Parapet "B" Railing
Span 10
Span 11
Span 12
FIX
8'-0" Min. Horiz. Cl.
℄ Ramp D
Vertical Cl
Existing ℄ Ground Profile
Proposed Finished ℄ Ground Profile
El 606.35
El 603.46
FIX
EXP
El 617.00
Stabilized Aggregate Slope Paving

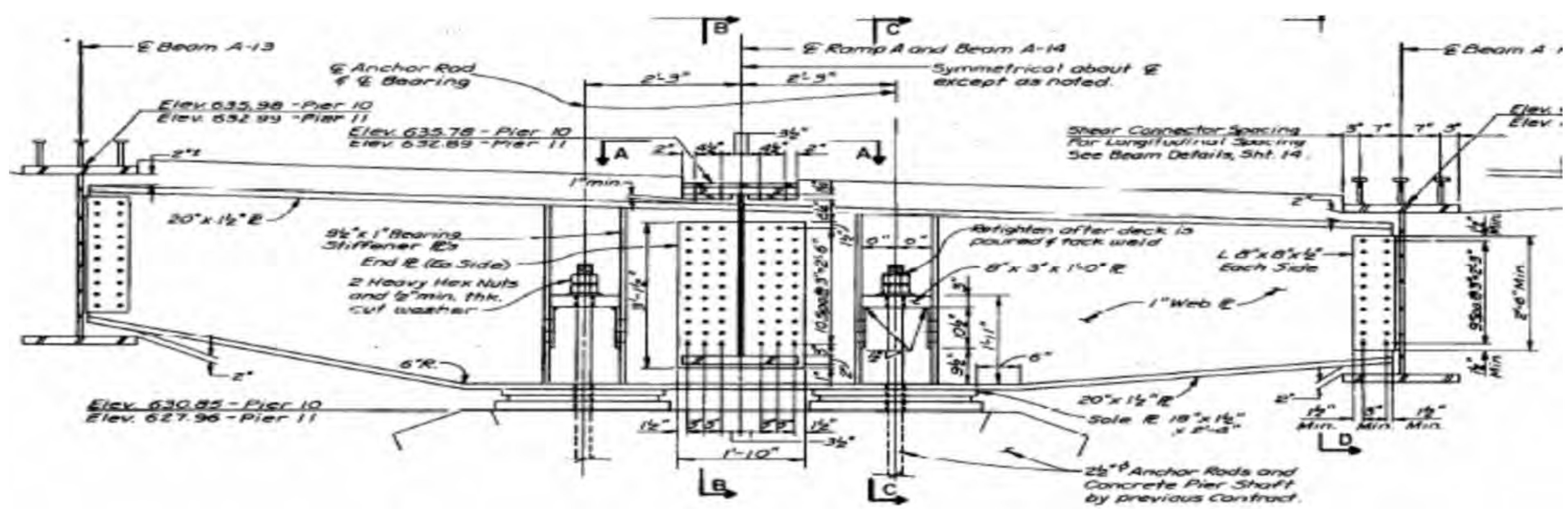
Inventory Rating Factor for Cap Beam @ Pier 11



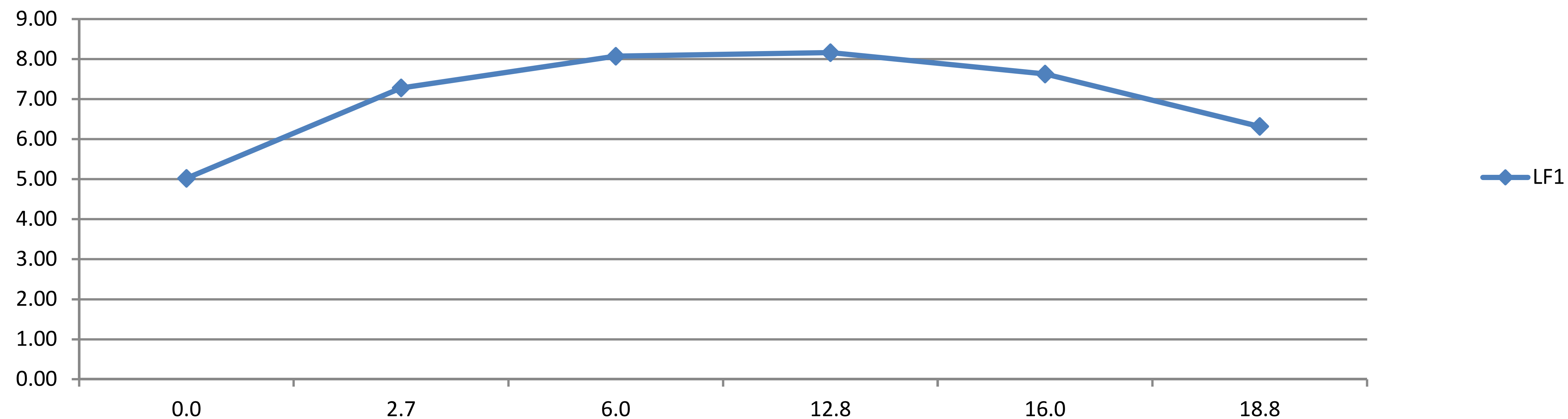


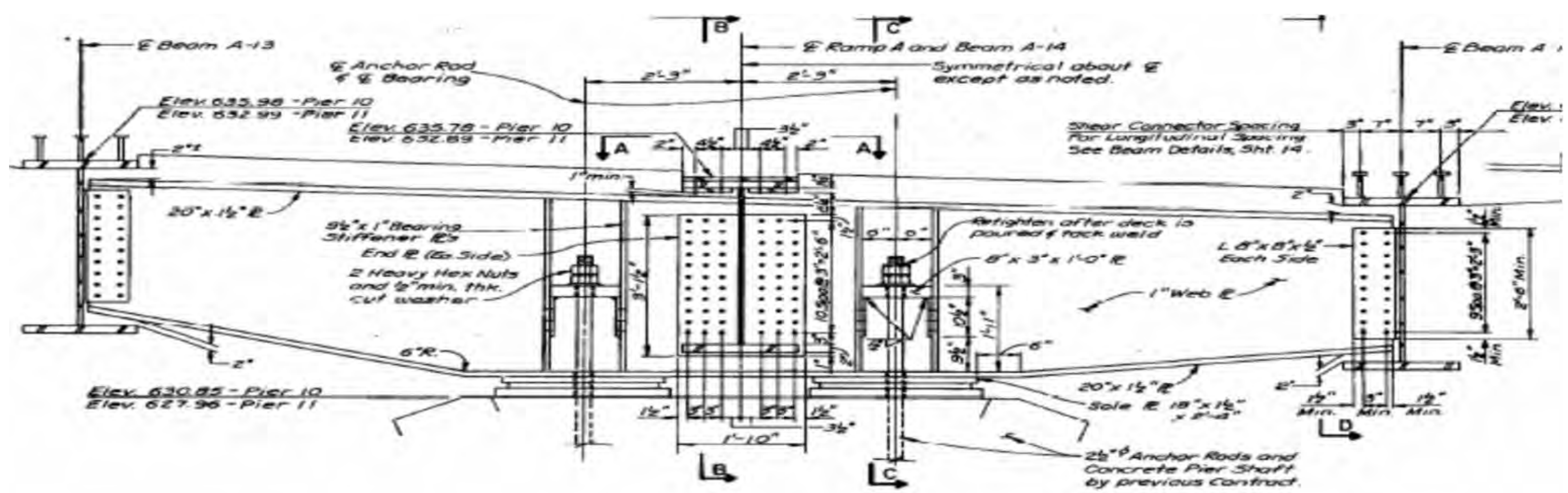
Minimum Reverse Ratio r1 for Cap Beam @ Pier 11

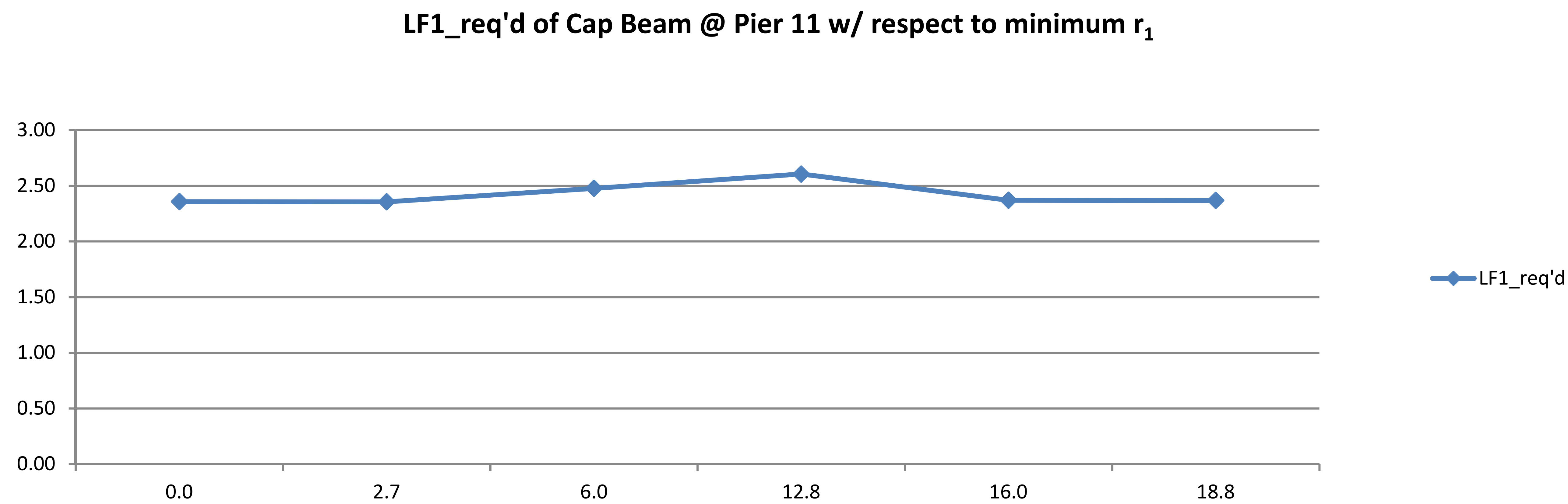


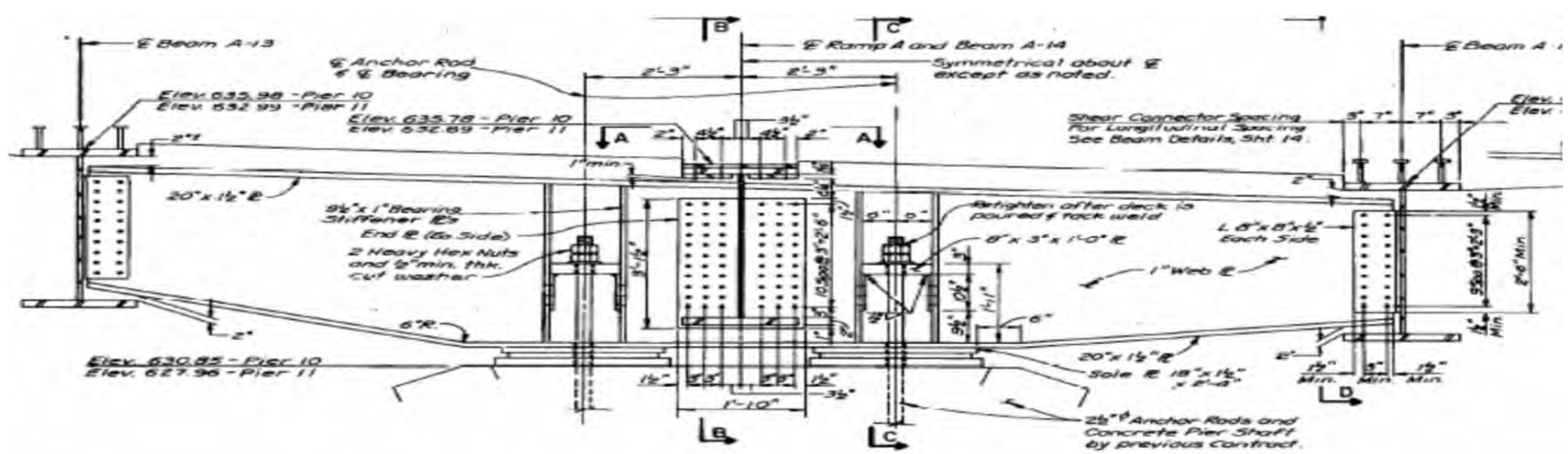


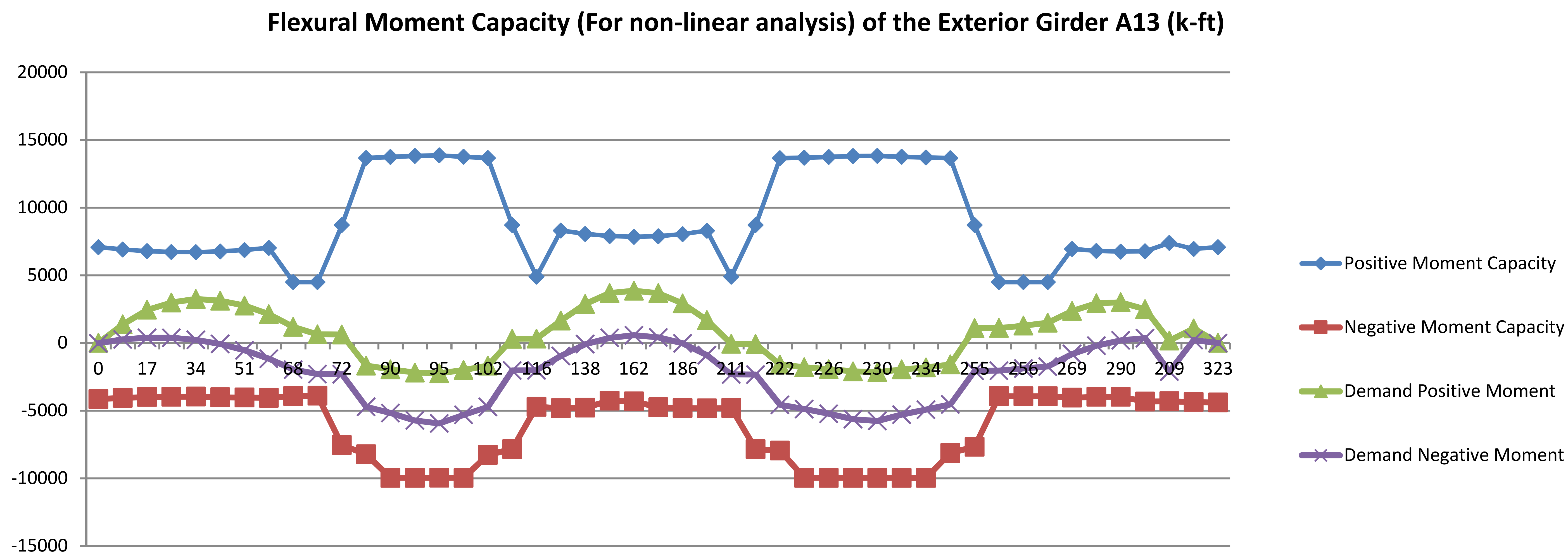
LF1 of Cap Beam @ Pier 11 w/respect with minimum r_1

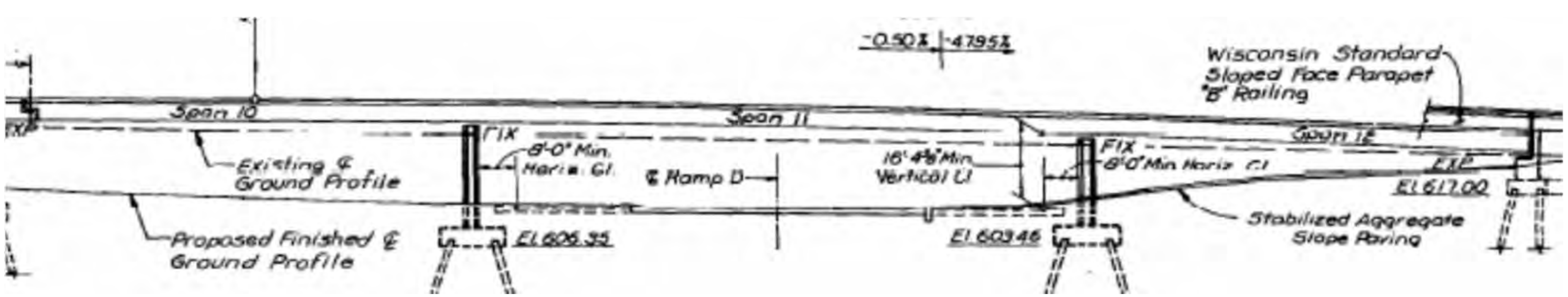


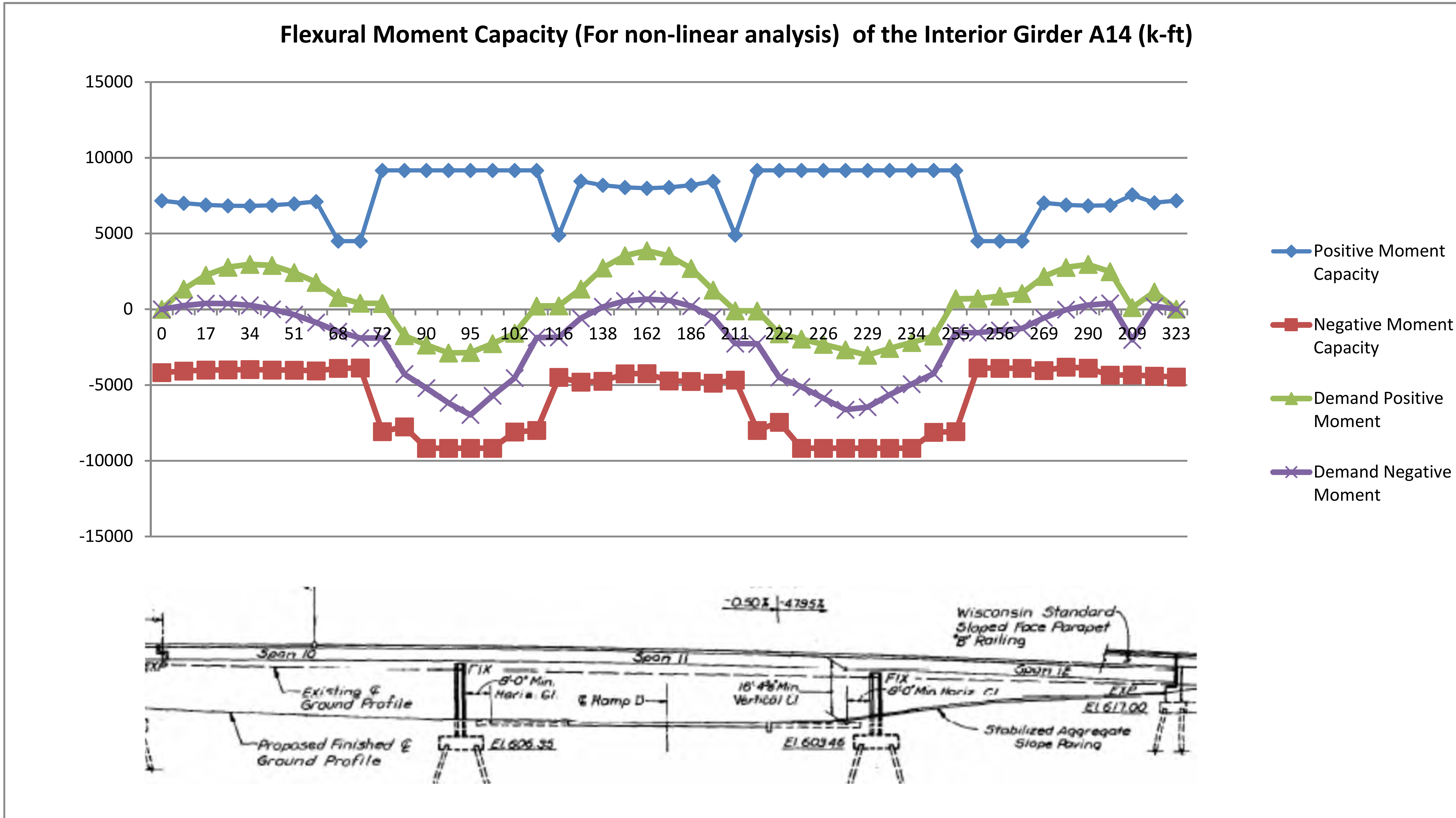



LF1_req'd of Cap Beam @ Pier 11 w/ respect to minimum r_1
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.0
2.7
6.0
12.8
16.0
18.8
LF1_req'd

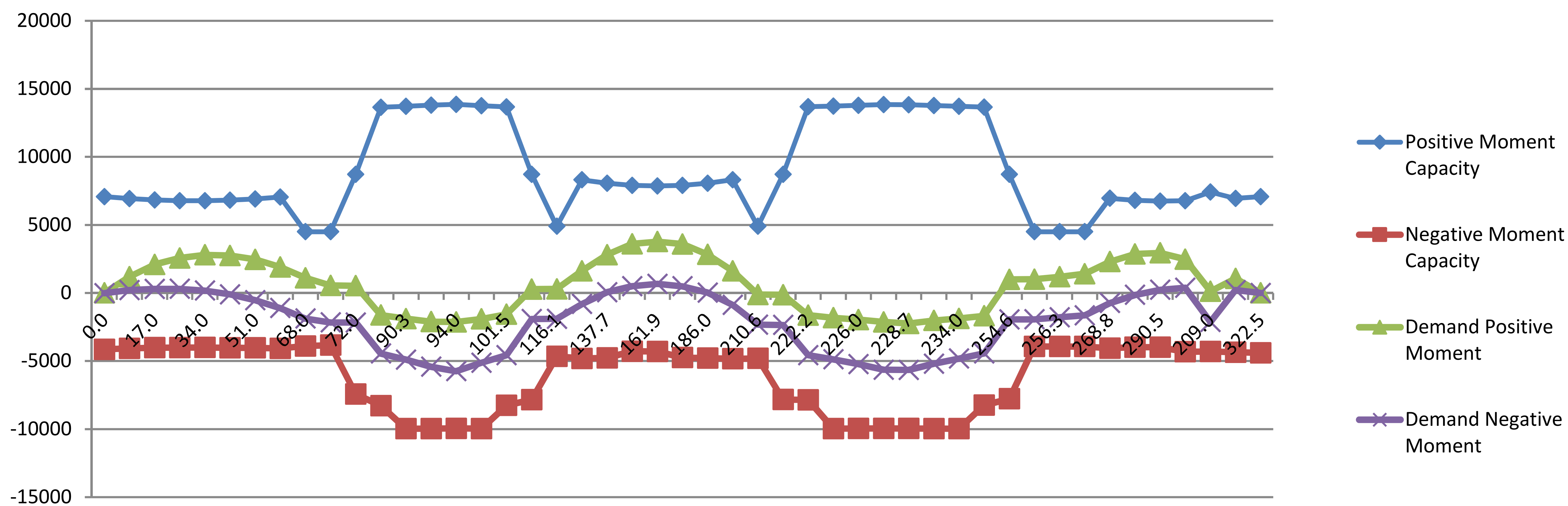


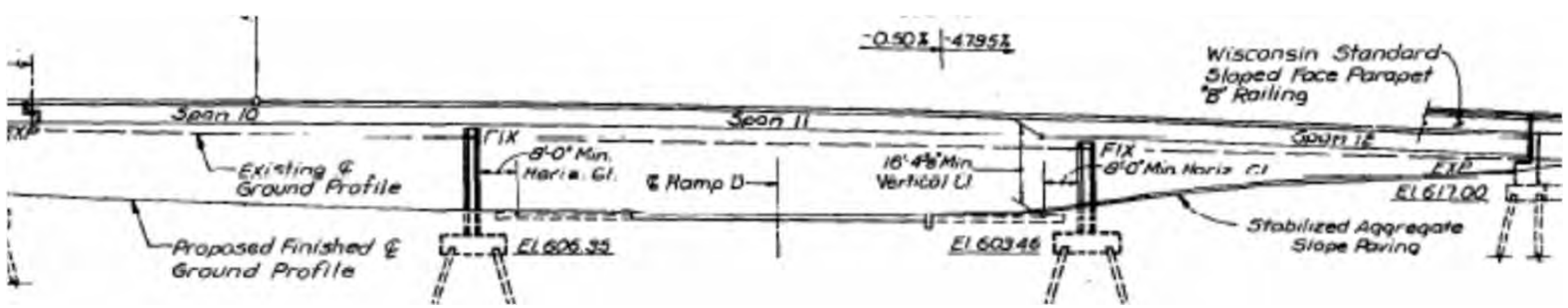

Flexural Moment Capacity (For non-linear analysis) of the Exterior Girder A13 (k-ft)
20000
15000
10000
5000
0
-5000
-10000
-15000
0
17
34
51
68
72
90
95
102
116
138
162
186
211
222
226
230
234
255
256
269
290
209
323
Positive Moment Capacity
Negative Moment Capacity
Demand Positive Moment
Demand Negative Moment

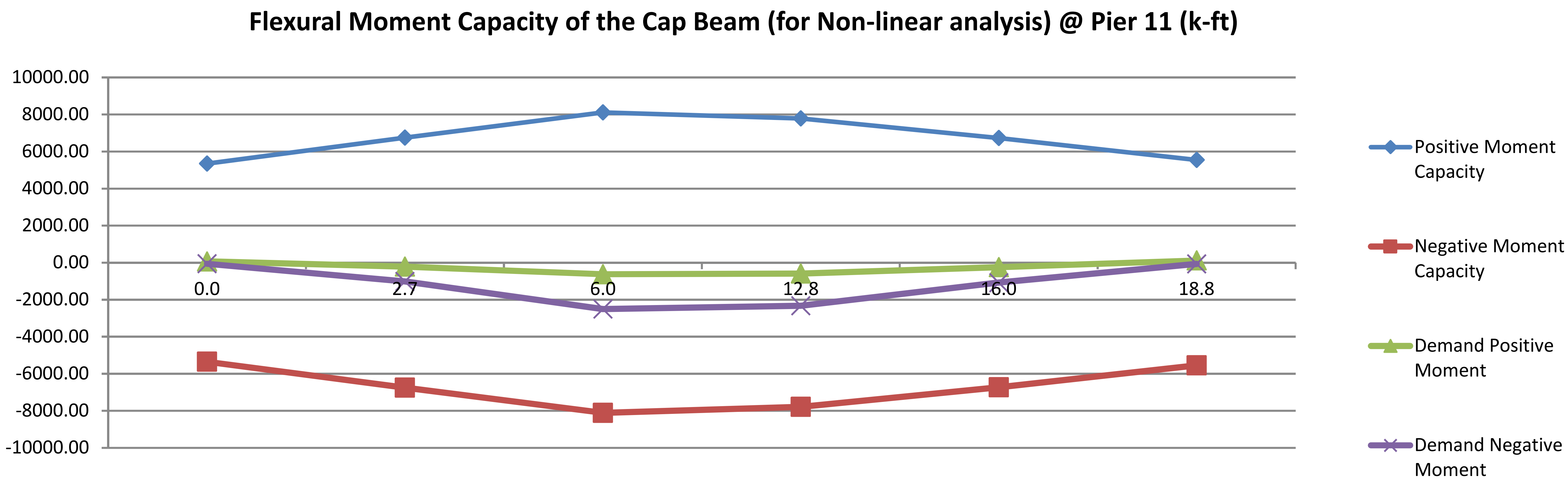

Wisconsin Standard Sloped Face Parapet "B" Railing
Span 10
Span 11
Span 12
FIX
FIX
EXP
Existing ℄ Ground Profile
Proposed Finished ℄ Ground Profile
℄ Ramp D
El 617.00
Stabilized Aggregate Slope Paving

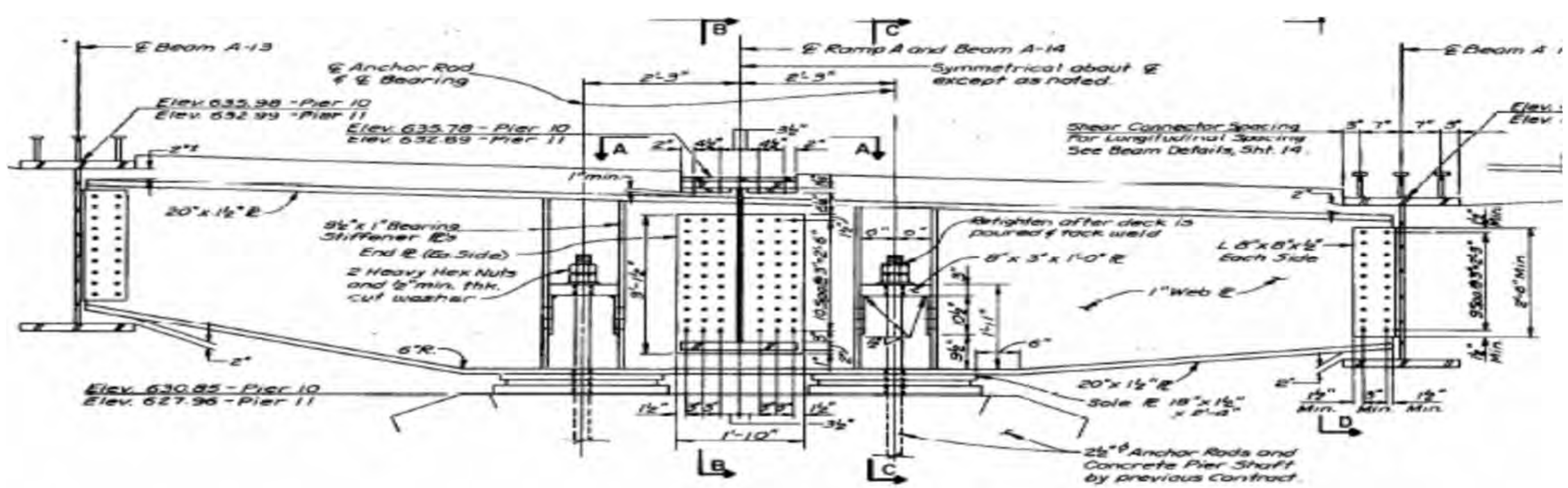

Flexural Moment Capacity (For non-linear analysis) of the Interior Girder A14 (k-ft)
15000
10000
5000
0
-5000
-10000
-15000
0
17
34
51
68
72
90
95
102
116
138
162
186
211
222
226
229
234
255
256
269
290
209
323
Positive Moment Capacity
Negative Moment Capacity
Demand Positive Moment
Demand Negative Moment
Wisconsin Standard Sloped Face Parapet "B" Railing
Span 10
Span 11
Span 12
EXP
FIX
Existing ℄ Ground Profile
Proposed Finished ℄ Ground Profile
℄ Ramp D
Stabilized Aggregate Slope Paving

Flexural Moment (including reach plastic Moment) of the Exterior Girder A15 (k-ft)






Flexural Moment Capacity of the Cap Beam (for Non-linear analysis) @ Pier 11 (k-ft)
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
-2000.00
-4000.00
-6000.00
-8000.00
-10000.00
0.0
2.7
6.0
12.8
16.0
18.8
Positive Moment Capacity
Negative Moment Capacity
Demand Positive Moment
Demand Negative Moment



2. Design Data

	Location	Girder Node ID from MX	Is plate girder or box girder ?	Larsa Station	Flange lateral bending stress	Load Factor		Resistance Factor: Flexual	Resistance Factor: Shear	Longitudinal Stiffener dist to Bott Flange: No, of Longitudinal stiffener provided ?	Longitudinal Stiffener dist to Bott Flange: Dist from stiffener to bottom flg	Transverse Stiffener: Is transverse stiffener provided?	Transverse Stiffener: Transverse Stiffener Spacing	Transverse Stiffener: Is end panel or interior panel?	Hybrid factor	Material Properties: Specified min flg yield strength	Material Properties: Specified web flg yield strength	Material Properties: Specified min yield strength of comp. flg	Material Properties: Rebar yield strength	Material Properties: Conc deck	Material Properties: Girder E	Material Properties: Conc deck	Material Properties: Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Shear Stud Location	Unbracing length for M-	Is Section Loss Considered /	Top steel flange width	Top steel flange thk
					f_l	Condition Factor ϕ_c	System Factor ϕs	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	(Stud provided =Yes: No shear stud = No)	L_b		b_{f_top}	$t_{\_top\ flg}$
								6.5.4.2	6.5.4.2						6.10.1.10.1																	
				(ft)	(ksi)						(in)		(ft)			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)		(in)		(in)	(in)
	HINGE 5	1001	Plate Girder	0.000		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
Span 10 (A13)	Sect_1	1002	Plate Girder	8.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF2	1003	Plate Girder	17.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1004	Plate Girder	25.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF3	1005	Plate Girder	34.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1006	Plate Girder	42.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF4	1007	Plate Girder	51.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1008	Plate Girder	59.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF5	1009	Plate Girder	68.00		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	1.00
	Sect_1	1010	Plate Girder	71.88		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	1.00
	Sect_2	1011	Plate Girder	71.98		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	2.00
	CF6	1012	Plate Girder	87.50		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	234.0	No	20.0	2.00
	Sect_2	1013	Plate Girder	90.25		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_2	1014	Plate Girder	93.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Pier 10	1015	Plate Girder	94.98		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
Span 11 (A13)	Sect_2	1016	Plate Girder	98.24		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	CF7	1017	Plate Girder	101.50		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	289.7	No	20.0	2.00
	Sect_2	1018	Plate Girder	115.98		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	2.00
	Sect_3	1019	Plate Girder	116.08		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	1.00
	CF8	1020	Plate Girder	125.64		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1021	Plate Girder	137.71		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF9	1022	Plate Girder	149.78		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1023	Plate Girder	161.85		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF10	1024	Plate Girder	173.92		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1025	Plate Girder	185.99		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF11	1026	Plate Girder	198.06		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1027	Plate Girder	210.58		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	1.00
	Sect_4	1028	Plate Girder	210.68		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	2.00
	CF12	1029	Plate Girder	222.20		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	289.7	No	20.0	2.00
	Sect_4	1030	Plate Girder	224.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1031	Plate Girder	226.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1032	Plate Girder	228.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Pier 11	1033	Plate Girder	229.68		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
Span 12 (A13)	Sect_4	1034	Plate Girder	232.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1035	Plate Girder	234.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	CF13	1036	Plate Girder	236.20		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	2.00
	Sect_4	1037	Plate Girder	254.58		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	2.00
	Sect_5	1038	Plate Girder	254.68		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	2.50	7.75	No	260.4	No	20.0	1.00
	Sect_5	1039	Plate Girder	256.29		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	1.00
	CF14	1040	Plate Girder	257.90		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	1.00
	Sect_5	1041	Plate Girder	268.75		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	CF15	1042	Plate Girder	279.60		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1043	Plate Girder	290.45		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	CF16	1044	Plate Girder	301.30		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1045	Plate Girder	209.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1046	Plate Girder	316.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Abut	1047	Plate Girder	323.48		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00

	Location	Girder Node ID from MX	Is plate girder or box girder ?	Larsa Station	Flange lateral bending stress	Load Factor		Resistance Factor: Flexual	Resistance Factor: Shear	Longitudinal Stiffener dist to Bott Flange: No, of Longitudinal stiffener provided ?	Dist from stiffener to bottom flg	Transverse Stiffener: Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?	Hybrid factor	Material Properties: Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	Rebar yield strength	Conc deck	Girder E	Conc deck	Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Shear Stud Location	Unbracing length for M-	Is Section Loss Considered /	Top steel flange width	Top steel flange thk
					f_l	Condition Factor ϕ_c	System Factor ϕs	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	(Stud provided =Yes: No shear stud = No)	L_b		b_{f_top}	$t_{\_top flg}$
								6.5.4.2	6.5.4.2						6.10.1.10.1																	
				(ft)	(ksi)						(in)		(ft)			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)		(in)		(in)	(in)
	HINGE 5	1048	Plate Girder	0.000		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
Span 10 (A14)	Sect_1	1049	Plate Girder	8.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	CF2	1050	Plate Girder	17.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	Sect_1	1051	Plate Girder	25.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	CF3	1052	Plate Girder	34.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	Sect_1	1053	Plate Girder	42.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	CF4	1054	Plate Girder	51.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	Sect_1	1055	Plate Girder	59.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	204.0	No	20.0	1.00
	CF5	1056	Plate Girder	68.00		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	234.0	No	20.0	1.00
	Sect_1	1057	Plate Girder	71.88		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	234.0	No	20.0	1.00
	Sect_2	1058	Plate Girder	71.98		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	234.0	No	20.0	2.00
	CF6	1059	Plate Girder	87.50		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	234.0	No	20.0	2.00
	Sect_2	1060	Plate Girder	90.25		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Sect_2	1061	Plate Girder	93.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Pier 10	1062	Plate Girder	94.50		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
Span 11 (A14)	Sect_2	1063	Plate Girder	98.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	CF7	1064	Plate Girder	101.50		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	2.00
	Sect_2	1065	Plate Girder	115.98		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	2.00
	Sect_3	1066	Plate Girder	116.08		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	1.00
	CF8	1067	Plate Girder	125.64		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	Sect_3	1068	Plate Girder	137.71		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	CF9	1069	Plate Girder	149.78		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	Sect_3	1070	Plate Girder	161.85		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	CF10	1071	Plate Girder	173.92		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	Sect_3	1072	Plate Girder	185.99		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	CF11	1073	Plate Girder	198.06		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	289.7	No	20.0	1.00
	Sect_3	1074	Plate Girder	210.58		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	1.00
	Sect_4	1075	Plate Girder	210.68		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	2.00
	CF12	1076	Plate Girder	222.20		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	289.7	No	20.0	2.00
	Sect_4	1077	Plate Girder	224.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Sect_4	1078	Plate Girder	226.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Sect_4	1079	Plate Girder	228.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Pier 11	1080	Plate Girder	229.20		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
Span 12 (A14)	Sect_4	1081	Plate Girder	232.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	Sect_4	1082	Plate Girder	234.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	84.0	No	20.0	2.00
	CF13	1083	Plate Girder	236.20		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	260.4	No	20.0	2.00
	Sect_4	1084	Plate Girder	254.58		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	260.4	No	20.0	2.00
	Sect_5	1085	Plate Girder	254.68		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	260.4	No	20.0	1.00
	Sect_5	1086	Plate Girder	256.29		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	260.4	No	20.0	1.00
	CF14	1087	Plate Girder	257.90		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	9.50	No	260.4	No	20.0	1.00
	Sect_5	1088	Plate Girder	268.75		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	CF15	1089	Plate Girder	279.60		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	Sect_5	1090	Plate Girder	290.45		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	4.83	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	CF16	1091	Plate Girder	301.30		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	13.49	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	Sect_5	1092	Plate Girder	209.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	13.49	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	Sect_5	1093	Plate Girder	316.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	13.49	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00
	Abut	1094	Plate Girder	323.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	13.49	8.50	1.50	9.50	Yes	260.4	No	20.0	1.00

								Resistance Factor		Longitudinal Stiffener dist to Bott Flange		Transverse Stiffener			Hybrid factor	Material Properties																
	Location	Girder Node ID from MX	Is plate girder or box girder ?	Larsa Station	Flange lateral bending stress	Load Factor		Flexual	Shear	No, of Longitudinal stiffener provided ?	Dist from stiffener to bottom flg	Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?		Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	Rebar yield strength	Conc deck	Girder E	Conc deck	Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Shear Stud Location	Unbracing length for M-	Is Section Loss Considered /	Top steel flange width	Top steel flange thk
					f_l	Condition Factor ϕ_c	System Factor ϕs	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	(Stud provided =Yes: No shear stud = No)	L_b		b_{f_top}	$t_{\_top\ flg}$
								6.5.4.2	6.5.4.2						6.10.1.10.1																	
				(ft)	(ksi)						(in)		(ft)			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)		(in)		(in)	(in)
	HINGE 5	1095	Plate Girder	0.000		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
Span 10 (A15)	Sect_1	1096	Plate Girder	8.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF2	1097	Plate Girder	17.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1098	Plate Girder	25.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF3	1099	Plate Girder	34.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1100	Plate Girder	42.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF4	1101	Plate Girder	51.00		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	Sect_1	1102	Plate Girder	59.50		1.00	1.00	1.0	1.0	0	10000.0	0	17.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	204.0	No	20.0	1.00
	CF5	1103	Plate Girder	68.00		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	1.00
	Sect_1	1104	Plate Girder	71.88		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	1.00
	Sect_2	1105	Plate Girder	71.98		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	234.0	No	20.0	2.00
	CF6	1106	Plate Girder	87.50		1.00	1.00	1.0	1.0	0	10000.0	0	19.50	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	234.0	No	20.0	2.00
	Sect_2	1107	Plate Girder	90.25		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_2	1108	Plate Girder	93.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Pier 10	1109	Plate Girder	94.02		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
Span 11 (A15)	Sect_2	1110	Plate Girder	97.76		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	CF7	1111	Plate Girder	101.50		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	289.7	No	20.0	2.00
	Sect_2	1112	Plate Girder	115.98		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	2.00
	Sect_3	1113	Plate Girder	116.08		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	1.00
	CF8	1114	Plate Girder	125.64		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1115	Plate Girder	137.71		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF9	1116	Plate Girder	149.78		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1117	Plate Girder	161.85		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF10	1118	Plate Girder	173.92		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1119	Plate Girder	185.99		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	CF11	1120	Plate Girder	198.06		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	289.7	No	20.0	1.00
	Sect_3	1121	Plate Girder	210.58		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	1.00
	Sect_4	1122	Plate Girder	210.68		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	289.7	No	20.0	2.00
	CF12	1123	Plate Girder	222.20		1.00	1.00	1.0	1.0	0	10000.0	0	24.14	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	289.7	No	20.0	2.00
	Sect_4	1124	Plate Girder	224.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1125	Plate Girder	226.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1126	Plate Girder	228.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Pier 11	1127	Plate Girder	228.72		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
Span 12 (A15)	Sect_4	1128	Plate Girder	232.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	Sect_4	1129	Plate Girder	234.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	84.0	No	20.0	2.00
	CF13	1130	Plate Girder	236.20		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	2.00
	Sect_4	1131	Plate Girder	254.58		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	2.00
	Sect_5	1132	Plate Girder	254.68		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	1.00
	Sect_5	1133	Plate Girder	256.29		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	1.00
	CF14	1134	Plate Girder	257.90		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.00	8.50	1.50	7.75	No	260.4	No	20.0	1.00
	Sect_5	1135	Plate Girder	268.75		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	CF15	1136	Plate Girder	279.60		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1137	Plate Girder	290.45		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	3.94	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	CF16	1138	Plate Girder	301.30		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1139	Plate Girder	209.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Sect_5	1140	Plate Girder	316.00		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00
	Abut	1141	Plate Girder	322.52		1.00	1.00	1.0	1.0	0	10000.0	0	21.70	1	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	11.01	8.50	1.50	7.75	Yes	260.4	No	20.0	1.00

	Location	Girder Node ID from MX	Is plate girder or box girder ?	Larsa Station	Flange lateral bending stress	Load Factor		Resistance Factor: Flexual	Resistance Factor: Shear	Longitudinal Stiffener dist to Bott Flange: No, of Longitudinal stiffener provided ?	Longitudinal Stiffener dist to Bott Flange: Dist from stiffener to bottom flg	Transverse Stiffener: Is transverse stiffener provided?	Transverse Stiffener: Transverse Stiffener Spacing	Transverse Stiffener: Is end panel or interior panel?	Hybrid factor	Material Properties: Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	Rebar yield strength	Conc deck	Girder E	Conc deck	Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Shear Stud Location	Unbracing length for M-	Is Section Loss Considered /	Top steel flange width	Top steel flange thk
					f_l	Condition Factor ϕ_c	System Factor ϕs	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	(Stud provided =Yes: No shear stud = No)	L_b		b_{f_top}	$t_{\_top\ flg}$
								6.5.4.2	6.5.4.2						6.10.1.10.1																	
				(ft)	(ksi)						(in)		(ft)			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)		(in)		(in)	(in)
CAP Beam at Pier 11	P11_CB_Sect_1	1142	Plate Girder	0.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P11_CB_Sect_2	1143	Plate Girder	2.73		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P11_CB_Sect_3	1144	Plate Girder	5.97		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P11_CB_Sect_4	1145	Plate Girder	12.82		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P11_CB_Sect_5	1146	Plate Girder	16.04		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P11_CB_Sect_6	1147	Plate Girder	18.77		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
CAP Beam at Pier 10	P10_CB_Sect_1	1148	Plate Girder	0.00		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P10_CB_Sect_2	1149	Plate Girder	2.73		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P10_CB_Sect_3	1150	Plate Girder	5.97		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P10_CB_Sect_4	1151	Plate Girder	12.82		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P10_CB_Sect_5	1152	Plate Girder	16.04		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
	P10_CB_Sect_6	1153	Plate Girder	18.77		1.00	1.00	1.0	1.0	0	10000.0	0	7.00	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	20.0	1.50
CF12 & CF13 At Pier 11 (Redundant Load Path Diaphragm will be engage with edge girder sagging. Tension splice is controlling without shear stud																																
CF12	RLPD_Sect_1	1154	Plate Girder	1.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1155	Plate Girder	4.75		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_3	1156	Plate Girder	9.50		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1157	Plate Girder	14.25		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_1	1158	Plate Girder	18.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
CF13	RLPD_Sect_1	1159	Plate Girder	1.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1160	Plate Girder	4.75		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_3	1161	Plate Girder	9.50		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1162	Plate Girder	14.25		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_1	1163	Plate Girder	18.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
CF6 & CF7 At Pier 10																																
CF6	RLPD_Sect_1	1164	Plate Girder	1.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1165	Plate Girder	4.75		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_3	1166	Plate Girder	9.50		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1167	Plate Girder	14.25		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_1	1168	Plate Girder	18.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
CF7	RLPD_Sect_1	1169	Plate Girder	1.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1170	Plate Girder	4.75		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_3	1171	Plate Girder	9.50		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_2	1172	Plate Girder	14.25		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00
	RLPD_Sect_1	1173	Plate Girder	18.00		1.00	1.00	1.0	1.0	0	10000.0	0	9.5	0	1.0	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	0.0	0.0	0.0	No	114.0	No	16.0	1.00

	Non-Composite Section																	Composite Section with Modular Ratio = n (at Positive Moment Region)							Is it Cap Beam ?	Composite Section	
	Location	Girder Node ID from MX	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area per web	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel		Area	Moment of inertia
			$A_{\_st\_top\_flg}$	b_{f_bott}	$t_{\_bott\ flg}$	$A_{\_st\_bott\_flg}$	$D_{\_web}$	$t_{\_web}$	$A_{\_web}$	$A_{\_steel}$	$I_{\_steel}$	Y_T	Y_D	$S_{\_top\_flg}$	$S_{\_bott\_flg}$	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$		$A_{c(3n)}$	$I_{c(3n)}$
			(in^2)	(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^4)	(in^4)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)
	HINGE 5	1001	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
Span 10 (A13)	Sect_1	1002	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF2	1003	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1004	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF3	1005	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1006	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF4	1007	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1008	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF5	1009	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_1	1010	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_2	1011	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	CF6	1012	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1013	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1014	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Pier 10	1015	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
Span 11 (A13)	Sect_2	1016	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	CF7	1017	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1018	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	Sect_3	1019	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	CF8	1020	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1021	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF9	1022	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1023	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF10	1024	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1025	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF11	1026	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1027	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	Sect_4	1028	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	CF12	1029	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1030	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1031	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1032	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Pier 11	1033	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
Span 12 (A13)	Sect_4	1034	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1035	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	CF13	1036	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1037	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	Sect_5	1038	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1039	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	CF14	1040	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1041	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF15	1042	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1043	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF16	1044	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1045	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1046	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Abut	1047	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5

Span	Location	Girder Node ID from MX	Non-Composite Section: Top steel flange area $A_{st\_top\_flg}$ (in²)	Bott steel flange width b_{f_bott} (in)	Bott steel flange thk $t_{bott\ flg}$ (in)	Bott steel flange area $A_{st\_bott\_flg}$ (in²)	Girder Web Depth D_{web} (in)	Girder Web thk t_{web} (in)	Girder web area per web A_{web} (in²)	Total Steel Area A_{steel} (in²)	Moment of inertia I_{steel} (in⁴)	CG to Top/Flange Y_T (in)	CG to Bott/Flange Y_D (in)	Section Modulus about major bending axis S_{top_flg} (in³)	S_{bott_flg} (in³)	Moment of Inertia of top Flange $I_{y\_top\_flg}$ (in⁴)	Moment of Inertia of bott Flange $I_{y\_bott\_flg}$ (in⁴)	Composite Section with Modular Ratio = n (at Positive Moment Region): Area $A_{c(n)}$ (in²)	Moment of inertia $I_{c(n)}$ (in⁴)	Distance from CG to top of deck $Y_{slabc(n)}$ (in)	Distance from CG to top of steel $Y_{tc(n)}$ (in)	Distance from CG to bott of steel $Y_{bc(n)}$ (in³)	Section Modulus to top of steel $S_{tc(n)}$ (in³)	Section Modulus to bott of steel $S_{bc(n)}$ (in³)	Is it Cap Beam ?	Composite Section: Area $A_{c(3n)}$ (in²)	Moment of inertia $I_{c(3n)}$ (in⁴)
	HINGE 5	1048	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
Span 10 (A14)	Sect_1	1049	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF2	1050	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_1	1051	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF3	1052	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_1	1053	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF4	1054	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_1	1055	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF5	1056	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_1	1057	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_2	1058	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	CF6	1059	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_2	1060	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_2	1061	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Pier 10	1062	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
Span 11 (A14)	Sect_2	1063	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	CF7	1064	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_2	1065	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_3	1066	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	CF8	1067	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	Sect_3	1068	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	CF9	1069	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	Sect_3	1070	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	CF10	1071	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	Sect_3	1072	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	CF11	1073	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	190.9	61671.2	14.5	4.5	39.7	13634.8	1552.4		107.6	45994.2
	Sect_3	1074	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	Sect_4	1075	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	CF12	1076	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_4	1077	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_4	1078	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_4	1079	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Pier 11	1080	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
Span 12 (A14)	Sect_4	1081	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_4	1082	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	CF13	1083	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_4	1084	40.00	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7
	Sect_5	1085	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1086	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	CF14	1087	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1088	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF15	1089	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_5	1090	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	CF16	1091	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_5	1092	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Sect_5	1093	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1
	Abut	1094	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	185.9	53618.7	13.5	3.5	40.5	15506.6	1322.5		102.6	40701.1

Designed by: MX on 08/29/17
Checked by TFK on 09/08/17
Backchecked by MX on 09/08/17

	Location	Girder Node ID from MX	Non-Composite Section: Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area per web	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange	Composite Section with Modular Ratio = n (at Positive Moment Region): Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Is it Cap Beam ?	Composite Section: Area	Moment of inertia
			$A_{st\_top\_flg}$	b_{f_bott}	$t_{bott\ flg}$	$A_{st\_bott\_flg}$	D_{web}	t_{web}	A_{web}	A_{steel}	I_{steel}	Y_T	Y_D	S_{top_flg}	S_{bott_flg}	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$		$A_{c(3n)}$	$I_{c(3n)}$
			(in^2)	(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^4)	(in^4)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)
	HINGE 5	1095	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
Span 10 (A15)	Sect_1	1096	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF2	1097	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1098	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF3	1099	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1100	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF4	1101	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_1	1102	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF5	1103	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_1	1104	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_2	1105	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	CF6	1106	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1107	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1108	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Pier 10	1109	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
Span 11 (A15)	Sect_2	1110	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	CF7	1111	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_2	1112	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	Sect_3	1113	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	CF8	1114	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1115	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF9	1116	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1117	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF10	1118	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1119	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	CF11	1120	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	168.6	58870.4	15.9	5.9	38.4	10007.0	1534.4		100.2	43330.9
	Sect_3	1121	20.00	20.0	1.250	25.0	42.0	0.5000	21.0	66.0	23842.5	23.7	20.6	1007.0	1158.9	666.7	833.3	66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5
	Sect_4	1122	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	CF12	1123	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1124	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1125	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1126	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Pier 11	1127	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
Span 12 (A15)	Sect_4	1128	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1129	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	CF13	1130	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	214.1	87660.2	19.3	9.3	36.7	9412.9	2389.4		145.7	64958.6
	Sect_4	1131	40.00	20.0	2.000	40.0	42.0	0.7500	31.5	111.5	43377.2	23.0	23.0	1886.0	1886.0	1333.3	1333.3	111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2
	Sect_5	1132	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1133	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	CF14	1134	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	61.0	21580.3	N/A	22.0	22.0	980.9	980.9		61.0	21580.3
	Sect_5	1135	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF15	1136	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1137	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	CF16	1138	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1139	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Sect_5	1140	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5
	Abut	1141	20.00	20.0	1.000	20.0	42.0	0.5000	21.0	61.0	21580.3	22.0	22.0	980.9	980.9	666.7	666.7	163.6	51334.6	14.7	4.7	39.3	10890.1	1306.7		95.2	38458.5

	Non-Composite Section																	Composite Section with Modular Ratio = n (at Positive Moment Region)							Is it Cap Beam ?	Composite Section	
	Location	Girder Node ID from MX	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area per web	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel		Area	Moment of inertia
			$A_{st\_top\_flg}$	b_{f_bott}	$t_{bott\ flg}$	$A_{st\_bott\_flg}$	D_{web}	t_{web}	A_{web}	A_{steel}	I_{steel}	Y_T	Y_D	S_{top_flg}	S_{bott_flg}	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$		$A_{c(3n)}$	$I_{c(3n)}$
			(in^2)	(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^4)	(in^4)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)
CAP Beam at Pier 11	P11_CB_Sect_1	1142	30.00	20.0	1.500	30.0	32.5	1.0000	32.5	92.5	20211.9	17.8	17.8	1138.7	1138.7	1000.0	1000.0	92.5	20211.9	N/A	17.8	17.8	1138.7	1138.7	Yes	92.5	20211.9
	P11_CB_Sect_2	1143	30.00	20.0	1.500	30.0	39.5	1.0000	39.5	99.5	30378.3	21.3	21.3	1429.2	1429.2	1000.0	1000.0	99.5	30378.3	N/A	21.3	21.3	1429.2	1429.2	Yes	99.5	30378.3
	P11_CB_Sect_3	1144	30.00	20.0	1.500	30.0	45.9	1.0000	45.9	105.9	41693.3	24.4	24.4	1706.6	1706.6	1000.0	1000.0	105.9	41693.3	N/A	24.4	24.4	1706.6	1706.6	Yes	105.9	41693.3
	P11_CB_Sect_4	1145	30.00	20.0	1.500	30.0	44.4	1.0000	44.4	104.4	38888.7	23.7	23.7	1641.2	1641.2	1000.0	1000.0	104.4	38888.7	N/A	23.7	23.7	1641.2	1641.2	Yes	104.4	38888.7
	P11_CB_Sect_5	1146	30.00	20.0	1.500	30.0	39.4	1.0000	39.4	99.4	30232.6	21.2	21.2	1425.4	1425.4	1000.0	1000.0	99.4	30232.6	N/A	21.2	21.2	1425.4	1425.4	Yes	99.4	30232.6
	P11_CB_Sect_6	1147	30.00	20.0	1.500	30.0	33.5	1.0000	33.5	93.5	21519.2	18.3	18.3	1179.1	1179.1	1000.0	1000.0	93.5	21519.2	N/A	18.3	18.3	1179.1	1179.1	Yes	93.5	21519.2
CAP Beam at Pier 10	P10_CB_Sect_1	1148	30.00	20.0	1.500	30.0	32.2	1.0000	32.2	92.2	19803.4	17.6	17.6	1125.8	1125.8	1000.0	1000.0	92.2	19803.4	N/A	17.6	17.6	1125.8	1125.8	Yes	92.2	19803.4
	P10_CB_Sect_2	1149	30.00	20.0	1.500	30.0	39.6	1.0000	39.6	99.6	30556.8	21.3	21.3	1433.9	1433.9	1000.0	1000.0	99.6	30556.8	N/A	21.3	21.3	1433.9	1433.9	Yes	99.6	30556.8
	P10_CB_Sect_3	1150	30.00	20.0	1.500	30.0	46.4	1.0000	46.4	106.4	42811.5	24.7	24.7	1732.2	1732.2	1000.0	1000.0	106.4	42811.5	N/A	24.7	24.7	1732.2	1732.2	Yes	106.4	42811.5
	P10_CB_Sect_4	1151	30.00	20.0	1.500	30.0	44.1	1.0000	44.1	104.1	38313.7	23.5	23.5	1627.6	1627.6	1000.0	1000.0	104.1	38313.7	N/A	23.5	23.5	1627.6	1627.6	Yes	104.1	38313.7
	P10_CB_Sect_5	1152	30.00	20.0	1.500	30.0	38.8	1.0000	38.8	98.8	29274.7	20.9	20.9	1400.0	1400.0	1000.0	1000.0	98.8	29274.7	N/A	20.9	20.9	1400.0	1400.0	Yes	98.8	29274.7
	P10_CB_Sect_6	1153	30.00	20.0	1.500	30.0	33.6	1.0000	33.6	93.6	21602.4	18.3	18.3	1181.7	1181.7	1000.0	1000.0	93.6	21602.4	N/A	18.3	18.3	1181.7	1181.7	Yes	93.6	21602.4
CF12 & CF13 At Pier 11 (Redundant Load Path Diaphr																											
CF12	RLPD_Sect_1	1154	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1155	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_3	1156	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1157	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_1	1158	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
CF13	RLPD_Sect_1	1159	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1160	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_3	1161	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1162	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_1	1163	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
CF6 & CF7 At Pier 10																											
CF6	RLPD_Sect_1	1164	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1165	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_3	1166	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1167	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_1	1168	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
CF7	RLPD_Sect_1	1169	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1170	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_3	1171	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_2	1172	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6
	RLPD_Sect_1	1173	16.00	16.0	1.000	16.0	38.0	0.6250	23.8	55.8	15028.6	20.0	20.0	751.4	751.4	341.3	341.3	55.8	15028.6	N/A	20.0	20.0	751.4	751.4		55.8	15028.6

	Location	Girder Node ID from MX	with Modular Ratio = 3n(at Positive Moment Region) Distance from CG to top of deck $Y_{slabc(3n)}$ (in)	Distance from CG to top of steel $Y_{tc(3n)}$ (in)	Distance from CG to bott of steel $Y_{bc(3n)}$ (in³)	Section Modulus to top of steel $S_{tc(3n)}$ (in³)	Section Modulus to bott of steel $S_{bc(3n)}$ (in³)	Is redundant Load Path Diaphragm ?	Composite Section with Modular Ratio = n (at Negative Moment Region) Area A_c (in²)	Moment of inertia I_c (in⁴)	Distance from CG to top of deck Y_{slabc} (in)	Distance from CG to top of steel Y_{tc} (in)	Distance from CG to bott of steel Y_{bc} (in³)	Section Modulus to top of steel $S_{tc(n)}$ (in³)	Section Modulus to bott of steel $S_{bc(n)}$ (in³)
	HINGE 5	1001	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
Span 10 (A13)	Sect_1	1002	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF2	1003	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	Sect_1	1004	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF3	1005	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	Sect_1	1006	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF4	1007	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	Sect_1	1008	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF5	1009	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9
	Sect_1	1010	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9
	Sect_2	1011	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0
	CF6	1012	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_2	1013	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_2	1014	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Pier 10	1015	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
Span 11 (A13)	Sect_2	1016	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	CF7	1017	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_2	1018	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0
	Sect_3	1019	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9
	CF8	1020	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	Sect_3	1021	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	CF9	1022	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	Sect_3	1023	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	CF10	1024	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	Sect_3	1025	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	CF11	1026	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3
	Sect_3	1027	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9
	Sect_4	1028	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0
	CF12	1029	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_4	1030	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_4	1031	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_4	1032	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Pier 11	1033	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
Span 12 (A13)	Sect_4	1034	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_4	1035	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	CF13	1036	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2
	Sect_4	1037	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0
	Sect_5	1038	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9
	Sect_5	1039	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9
	CF14	1040	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9
	Sect_5	1041	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF15	1042	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	Sect_5	1043	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5
	CF16	1044	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0
	Sect_5	1045	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0
	Sect_5	1046	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0
	Abut	1047	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0

Girder Node ID from MX	**Location**	**Steel Section No.**	Girder Section Properties without Section Loss Top Flange PL width W_tc1 (in)	Bottom Flange PL width W_bc1 (in)	Top Flange PL thickness T_tc1 (in)	Bottom Flange PL thickness T_bc1 (in)	Web thickness T_web (in)	Web depth D_web (in)	Effective Width (Link from plan) B_effective (ft)	Girder Section Properties Total thickness of concrete deck t_deck_total (in)	Thickness of wearing surface t_wearing (in)	Effective thickness of concrete deck t_deck_effective (in)	Fillet Height H_fillet (in)
1001	HINGE 5	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1002	Sect_1	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1003	CF2	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1004	Sect_1	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1005	CF3	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1006	Sect_1	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1007	CF4	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1008	Sect_1	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1009	CF5	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1010	Sect_1	A13_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1011	Sect_2	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1012	CF6	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1013	Sect_2	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1014	Sect_2	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1015	Pier 10	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1016	Sect_2	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1017	CF7	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1018	Sect_2	A13_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1019	Sect_3	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1020	CF8	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1021	Sect_3	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1022	CF9	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1023	Sect_3	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1024	CF10	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1025	Sect_3	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1026	CF11	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1027	Sect_3	A13_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1028	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1029	CF12	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1030	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1031	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1032	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1033	Pier 11	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1034	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1035	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1036	CF13	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1037	Sect_4	A13_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
1038	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	2.500
1039	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1040	CF14	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1041	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1042	CF15	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1043	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1044	CF16	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1045	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1046	Sect_5	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
1047	Abut	A13_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500

			with Modular Ratio = 3n(at Positive Moment Reigion)						Composite Section with Modular Ratio = n (at Negative Moment Region)									Girder Section Properties without Section Loss							Girder Section Properties				
	Location	**Girder Node ID from MX**	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Is redundant Load Path Diaphragm ?	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	**Location**	**Steel Section No.**	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth	Effective Width (Link from plan)	Total thickness of concrete deck	Thickness of wearing surface	Effective thickness of concrete deck	Fillet Height
			$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$		A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$	$B_{\_effective}$	$t_{\_deck\_total}$	$t_{\_wearing}$	$t_{\_deck\_effective}$	$H_{\_fillet}$
			(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)			(in)	(in)	(in)	(in)	(in)	(in)	(ft)	(in)	(in)	(in)	(in)
	HINGE 5	1048	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	HINGE 5	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
Span 10 (A14)	Sect_1	1049	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_1	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF2	1050	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	CF2	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_1	1051	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_1	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF3	1052	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	CF3	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_1	1053	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_1	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF4	1054	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	CF4	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_1	1055	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_1	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF5	1056	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	CF5	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_1	1057	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_1	A14_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_2	1058	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_2	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	CF6	1059	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	CF6	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_2	1060	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_2	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_2	1061	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_2	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Pier 10	1062	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Pier 10	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
Span 11 (A14)	Sect_2	1063	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_2	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	CF7	1064	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	CF7	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_2	1065	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_2	A14_Sect_2	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_3	1066	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9	Sect_3	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF8	1067	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	CF8	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_3	1068	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	Sect_3	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF9	1069	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	CF9	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_3	1070	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	Sect_3	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF10	1071	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	CF10	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_3	1072	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	Sect_3	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF11	1073	22.4	12.4	31.9	3723.2	1442.0		70.8	27738.6	31.7	21.7	22.6	1280.0	1228.5	CF11	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_3	1074	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9	Sect_3	A14_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1075	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	CF12	1076	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	CF12	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1077	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1078	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1079	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Pier 11	1080	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Pier 11	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
Span 12 (A14)	Sect_4	1081	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1082	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	CF13	1083	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	CF13	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_4	1084	N/A	23.0	23.0	1953.1	1953.1		122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	Sect_4	A14_Sect_4	20.00	20.00	2.00	2.00	1.00	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1085	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1086	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF14	1087	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	CF14	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1088	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF15	1089	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	CF15	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1090	20.8	10.8	33.2	3766.7	1226.1		65.8	25025.9	30.0	20.0	24.0	1253.5	1041.2	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	CF16	1091	20.8	10.8	33.2	3766.7	1226.1		74.5	30088.8	27.0	17.0	27.0	1772.7	1113.3	CF16	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1092	20.8	10.8	33.2	3766.7	1226.1		74.5	30088.8	27.0	17.0	27.0	1772.7	1113.3	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Sect_5	1093	20.8	10.8	33.2	3766.7	1226.1		74.5	30088.8	27.0	17.0	27.0	1772.7	1113.3	Sect_5	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500
	Abut	1094	20.8	10.8	33.2	3766.7	1226.1		74.5	30088.8	27.0	17.0	27.0	1772.7	1113.3	Abut	A14_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	9.500	9.000	2.000	8.50	1.500

			with Modular Ratio = 3n(at Positive Moment Reigion)						Composite Section with Modular Ratio = n (at Negative Moment Region)									Girder Section Properties without Section Loss								Girder Section Properties		
	Location	**Girder Node ID from MX**	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Is redundant Load Path Diaphragm ?	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	**Location**	**Steel Section No.**	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth	Effective Width (Link from plan)	Total thickness of concrete deck	Thickness of wearing surface	Effective thickness of concrete deck	Fillet Height
			$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$		A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$	$B_{\_effective}$	$t_{\_deck\_total}$	$t_{\_wearing}$	$t_{\_deck\_effective}$	$H_{\_fillet}$
			(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)			(in)	(in)	(in)	(in)	(in)	(in)	(ft)	(in)	(in)	(in)	(in)
	HINGE 5	1095	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	HINGE 5	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
Span 10 (A15)	Sect_1	1096	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_1	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF2	1097	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	CF2	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_1	1098	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_1	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF3	1099	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	CF3	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_1	1100	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_1	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF4	1101	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	CF4	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_1	1102	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_1	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF5	1103	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	CF5	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_1	1104	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_1	A15_Sect_1	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_2	1105	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0	Sect_2	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	CF6	1106	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	CF6	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_2	1107	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_2	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_2	1108	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_2	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Pier 10	1109	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Pier 10	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
Span 11 (A15)	Sect_2	1110	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_2	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	CF7	1111	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	CF7	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_2	1112	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0	Sect_2	A15_Sect_2	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_3	1113	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9	Sect_3	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF8	1114	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	CF8	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_3	1115	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	Sect_3	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF9	1116	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	CF9	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_3	1117	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	Sect_3	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF10	1118	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	CF10	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_3	1119	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	Sect_3	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF11	1120	23.7	13.7	30.6	3163.5	1418.2		69.9	27061.3	32.0	22.0	22.2	1229.0	1217.3	CF11	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_3	1121	N/A	23.7	20.6	1007.0	1158.9		66.0	23842.5	N/A	23.7	20.6	1007.0	1158.9	Sect_3	A15_Sect_3	20.00	20.00	1.00	1.25	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1122	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	CF12	1123	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	CF12	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1124	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1125	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1126	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Pier 11	1127	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Pier 11	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
Span 12 (A15)	Sect_4	1128	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1129	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	CF13	1130	26.3	16.3	29.7	3986.1	2186.9		122.5	51658.1	30.4	20.4	25.6	2530.2	2019.2	CF13	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_4	1131	N/A	23.0	23.0	1886.0	1886.0		111.5	43377.2	N/A	23.0	23.0	1886.0	1886.0	Sect_4	A15_Sect_4	20.00	20.00	2.00	2.00	0.75	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1132	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1133	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF14	1134	N/A	22.0	22.0	980.9	980.9		61.0	21580.3	N/A	22.0	22.0	980.9	980.9	CF14	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1135	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF15	1136	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	CF15	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1137	22.1	12.1	31.9	3178.7	1205.6		64.9	24429.7	30.3	20.3	23.7	1202.4	1031.5	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	CF16	1138	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0	CF16	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1139	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Sect_5	1140	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0	Sect_5	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500
	Abut	1141	22.1	12.1	31.9	3178.7	1205.6		72.0	28761.0	27.8	17.8	26.2	1619.6	1096.0	Abut	A15_Sect_5	20.00	20.00	1.00	1.00	0.50	42.00	7.750	9.000	2.000	8.50	1.500

Designed by: MX on 08/29/17
Checked by TFK on 09/08/17
Backchecked by MX on 09/08/17

			with Modular Ratio = 3n(at Positive Moment Reigion)						Composite Section with Modular Ratio = n (at Negative Moment Region)									Girder Section Properties without Section Loss							Girder Section Properties			
	Location	**Girder Node ID from MX**	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Is redundant Load Path Diaphragm ?	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	**Location**	**Steel Section No.**	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth	Effective Width (Link from plan)	Total thickness of concrete deck	Thickness of wearing surface	Effective thickness of concrete deck	Fillet Height
			$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$		A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$	$B_{\_effective}$	$t_{\_deck\_total}$	$t_{\_wearing}$	$t_{\_deck\_effective}$	$H_{\_fillet}$
			(in)	(in)	(in^3)	(in^3)	(in^3)		(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)			(in)	(in)	(in)	(in)	(in)	(in)	(ft)	(in)	(in)	(in)	(in)
CAP Beam at Pier 11	P11_CB_Sect_1	1142	N/A	17.8	17.8	1138.7	1138.7		92.5	20211.9	N/A	17.8	17.8	1138.7	1138.7	11_CB_Sect_1 @ CAP Beam at Pier 1	P11_CB_Sect_1	20.00	20.00	1.50	1.50	1.00	32.50	0.000	0.000	0.000	0	1.500
	P11_CB_Sect_2	1143	N/A	21.3	21.3	1429.2	1429.2		99.5	30378.3	N/A	21.3	21.3	1429.2	1429.2	11_CB_Sect_2 @ CAP Beam at Pier 1	P11_CB_Sect_2	20.00	20.00	1.50	1.50	1.00	39.51	0.000	0.000	0.000	0	1.500
	P11_CB_Sect_3	1144	N/A	24.4	24.4	1706.6	1706.6		105.9	41693.3	N/A	24.4	24.4	1706.6	1706.6	11_CB_Sect_3 @ CAP Beam at Pier 1	P11_CB_Sect_3	20.00	20.00	1.50	1.50	1.00	45.86	0.000	0.000	0.000	0	1.500
	P11_CB_Sect_4	1145	N/A	23.7	23.7	1641.2	1641.2		104.4	38888.7	N/A	23.7	23.7	1641.2	1641.2	11_CB_Sect_4 @ CAP Beam at Pier 1	P11_CB_Sect_4	20.00	20.00	1.50	1.50	1.00	44.39	0.000	0.000	0.000	0	1.500
	P11_CB_Sect_5	1146	N/A	21.2	21.2	1425.4	1425.4		99.4	30232.6	N/A	21.2	21.2	1425.4	1425.4	11_CB_Sect_5 @ CAP Beam at Pier 1	P11_CB_Sect_5	20.00	20.00	1.50	1.50	1.00	39.42	0.000	0.000	0.000	0	1.500
	P11_CB_Sect_6	1147	N/A	18.3	18.3	1179.1	1179.1		93.5	21519.2	N/A	18.3	18.3	1179.1	1179.1	11_CB_Sect_6 @ CAP Beam at Pier 1	P11_CB_Sect_6	20.00	20.00	1.50	1.50	1.00	33.50	0.000	0.000	0.000	0	1.500
CAP Beam at Pier 10	P10_CB_Sect_1	1148	N/A	17.6	17.6	1125.8	1125.8		92.2	19803.4	N/A	17.6	17.6	1125.8	1125.8	10_CB_Sect_1 @ CAP Beam at Pier 1	P10_CB_Sect_1	20.00	20.00	1.50	1.50	1.00	32.18	0.000	0.000	0.000	0	1.500
	P10_CB_Sect_2	1149	N/A	21.3	21.3	1433.9	1433.9		99.6	30556.8	N/A	21.3	21.3	1433.9	1433.9	10_CB_Sect_2 @ CAP Beam at Pier 1	P10_CB_Sect_2	20.00	20.00	1.50	1.50	1.00	39.62	0.000	0.000	0.000	0	1.500
	P10_CB_Sect_3	1150	N/A	24.7	24.7	1732.2	1732.2		106.4	42811.5	N/A	24.7	24.7	1732.2	1732.2	10_CB_Sect_3 @ CAP Beam at Pier 1	P10_CB_Sect_3	20.00	20.00	1.50	1.50	1.00	46.43	0.000	0.000	0.000	0	1.500
	P10_CB_Sect_4	1151	N/A	23.5	23.5	1627.6	1627.6		104.1	38313.7	N/A	23.5	23.5	1627.6	1627.6	10_CB_Sect_4 @ CAP Beam at Pier 1	P10_CB_Sect_4	20.00	20.00	1.50	1.50	1.00	44.08	0.000	0.000	0.000	0	1.500
	P10_CB_Sect_5	1152	N/A	20.9	20.9	1400.0	1400.0		98.8	29274.7	N/A	20.9	20.9	1400.0	1400.0	10_CB_Sect_5 @ CAP Beam at Pier 1	P10_CB_Sect_5	20.00	20.00	1.50	1.50	1.00	38.82	0.000	0.000	0.000	0	1.500
	P10_CB_Sect_6	1153	N/A	18.3	18.3	1181.7	1181.7		93.6	21602.4	N/A	18.3	18.3	1181.7	1181.7	10_CB_Sect_6 @ CAP Beam at Pier 1	P10_CB_Sect_6	20.00	20.00	1.50	1.50	1.00	33.56	0.000	0.000	0.000	0	1.500
CF12 & CF13 At Pier 11 (Redundant Load Path Diaphr																												
CF12	RLPD_Sect_1	1154	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF12 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1155	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF12 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_3	1156	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF12 -RLPD_Sect_3	RLPD_Sect_3	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1157	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF12 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_1	1158	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF12 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
CF13	RLPD_Sect_1	1159	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF13 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1160	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF13 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_3	1161	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF13 -RLPD_Sect_3	RLPD_Sect_3	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1162	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF13 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_1	1163	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF13 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
CF6 & CF7 At Pier 10																												
CF6	RLPD_Sect_1	1164	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF6 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1165	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF6 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_3	1166	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF6 -RLPD_Sect_3	RLPD_Sect_3	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1167	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF6 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_1	1168	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF6 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
CF7	RLPD_Sect_1	1169	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF7 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1170	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF7 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_3	1171	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF7 -RLPD_Sect_3	RLPD_Sect_3	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_2	1172	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF7 -RLPD_Sect_2	RLPD_Sect_2	16.00	16.00	1.00	1.00	0.63	38.00					1.500
	RLPD_Sect_1	1173	N/A	20.0	20.0	751.4	751.4	Yes	55.8	15028.6	N/A	20.0	20.0	751.4	751.4	CF7 -RLPD_Sect_1	RLPD_Sect_1	16.00	16.00	1.00	1.00	0.63	38.00					1.500

	Location	Girder Node ID from MX	Fillet Width	% of rebar within effective of deck	Area of rebar within effective deck width	Fy_rebar	Top Flange Loss	Bottom Flange Loss	Web Loss	pro	Web Proportion	Check if Longitudinal Stiffener is required ?	Check Web Longitudinal Stiffener Requirement	Check Proportion Requirement of Web with Longitudinal Stiffener ($D/t_w \le 300$)	Check if $b_f/(2t_f) \le 12$	Check if $b_f \ge D/6$	Check if $t_f \ge 1.1t_w$	Check if $0.1 \le I_{yc}/I_{yt} \le 10$	$I_{y\_top\ Flg}/I_{y\_bott}$
											Web Proportion Limit (6.10.2.1)				Flange Proportions (6.10.2.2)				
			$b_{\_fillet}$		A_{rs}		%	%	%		D/t_w	("0" = No req'd, "1" = Req'd)	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	
											6.10.2.1.1	6.10.2.1.1	6.10.2.1.1	6.10.2.1.2	6.10.2.2.1	6.10.2.2.2	6.10.2.2.3	6.10.2.2.4	
			(in)		(in^2)	(ksi)				(in^3)		D/tw ≤ 150	OK	OK	OK	OK	OK	OK	
	HINGE 5	1001	20.00	0.498%	3.939	60.0	0.00%	0.00%	0.00%		84.0	0	0	0	0	0	0	0	1.000
Span 10 (A13)	Sect_1	1002	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF2	1003	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1004	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF3	1005	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1006	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF4	1007	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1008	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF5	1009	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1010	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_2	1011	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF6	1012	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1013	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1014	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Pier 10	1015	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
Span 11 (A13)	Sect_2	1016	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF7	1017	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1018	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_3	1019	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF8	1020	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1021	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF9	1022	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1023	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF10	1024	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1025	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF11	1026	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1027	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_4	1028	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF12	1029	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1030	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1031	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1032	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Pier 11	1033	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
Span 12 (A13)	Sect_4	1034	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1035	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF13	1036	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1037	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_5	1038	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1039	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF14	1040	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1041	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF15	1042	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1043	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF16	1044	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1045	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1046	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Abut	1047	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000

Designed by: MX on 08/29/17
Checked by TFK on 09/08/17
Backchecked by MX on 09/08/17

	Location	Girder Node ID from MX	Fillet Width	% of rebar within effective of deck	Area of rebar within effective deck width	Fy_rebar	Top Flange Loss	Bottom Flange Loss	Web Loss	pro	Web Proportion Limit (6.10.2.1): Web Proportion	Web Proportion Limit (6.10.2.1): Check if Longitudinal Stiffener is required ?	Web Proportion Limit (6.10.2.1): Check Web Longitudinal Stiffener Requirement	Web Proportion Limit (6.10.2.1): Check Proportion Requirement of Web with Longitudinal Stiffener ($D/t_w \le 300$)	Flange Proportions (6.10.2.2): Check if $b_f/(2t_f) \le 12$	Flange Proportions (6.10.2.2): Check if $b_f \ge D/6$	Flange Proportions (6.10.2.2): Check if $t_f \ge 1.1t_w$	Flange Proportions (6.10.2.2): Check if $0.1 \le I_{yc}/I_{yt} \le 10$	$I_{y\_top\ Flg}/I_{y\_bott}$
			$b_{\_fillet}$		A_{rs}		%	%	%		D/t_w	("0" = No req'd, "1" = Req'd)	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	
											6.10.2.1.1	6.10.2.1.1	6.10.2.1.1	6.10.2.1.2	6.10.2.2.1	6.10.2.2.2	6.10.2.2.3	6.10.2.2.4	
			(in)		(in^2)	(ksi)				(in^3)		D/tw ≤ 150	OK	OK	OK	OK	OK	OK	
	HINGE 5	1048	20.00	0.498%	4.829	60.0	0.00%	0.00%	0.00%		84.0	0	0	0	0	0	0	0	1.000
Span 10 (A14)	Sect_1	1049	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF2	1050	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1051	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF3	1052	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1053	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF4	1054	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1055	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF5	1056	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1057	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_2	1058	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	CF6	1059	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_2	1060	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_2	1061	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Pier 10	1062	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
Span 11 (A14)	Sect_2	1063	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	CF7	1064	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_2	1065	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_3	1066	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF8	1067	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1068	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF9	1069	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1070	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF10	1071	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1072	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF11	1073	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1074	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_4	1075	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	CF12	1076	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_4	1077	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_4	1078	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_4	1079	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Pier 11	1080	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
Span 12 (A14)	Sect_4	1081	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_4	1082	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	CF13	1083	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_4	1084	20.00	0.000%		60	0.00%	0.00%	0.00%		42.00	0	0	0	0	0	0	0	1.000
	Sect_5	1085	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1086	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF14	1087	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1088	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF15	1089	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1090	20.00	0.498%	4.829	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF16	1091	20.00	1.392%	13.493	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1092	20.00	1.392%	13.493	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1093	20.00	1.392%	13.493	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Abut	1094	20.00	1.392%	13.493	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000

	Location	Girder Node ID from MX	Fillet Width	% of rebar within effective of deck	Area of rebar within effective deck width	Fy_rebar	Top Flange Loss	Bottom Flange Loss	Web Loss	pro	Web Proportion	Check if Longitudinal Stiffener is required ?	Check Web Longitudinal Stiffener Requirement	Check Proportion Requirement of Web with Longitudinal Stiffener ($D/t_w \le 300$)	Check if $b_f/(2t_f) \le 12$	Check if $b_f \ge D/6$	Check if $t_f \ge 1.1t_w$	Check if $0.1 \le I_{yc}/I_{yt} \le 10$	$I_{y\_top\ Flg}/I_{y\_bott}$
											Web Proportion Limit (6.10.2.1)				Flange Proportions (6.10.2.2)				
			$b_{\_fillet}$		A_{rs}		%	%	%		D/t_w	("0" = No req'd, "1" = Req'd)	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	
											6.10.2.1.1	6.10.2.1.1	6.10.2.1.1	6.10.2.1.2	6.10.2.2.1	6.10.2.2.2	6.10.2.2.3	6.10.2.2.4	
			(in)		(in^2)	(ksi)				(in^3)		D/tw ≤ 150	OK	OK	OK	OK	OK	OK	
	HINGE 5	1095	20.00	0.498%	3.939	60.0	0.00%	0.00%	0.00%		84.0	0	0	0	0	0	0	0	1.000
Span 10 (A15)	Sect_1	1096	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF2	1097	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1098	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF3	1099	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1100	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF4	1101	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1102	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF5	1103	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_1	1104	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_2	1105	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF6	1106	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1107	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1108	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Pier 10	1109	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
Span 11 (A15)	Sect_2	1110	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF7	1111	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_2	1112	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_3	1113	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF8	1114	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1115	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF9	1116	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1117	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF10	1118	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1119	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	CF11	1120	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_3	1121	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	0.800
	Sect_4	1122	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF12	1123	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1124	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1125	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1126	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Pier 11	1127	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
Span 12 (A15)	Sect_4	1128	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1129	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	CF13	1130	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_4	1131	20.00	0.000%		60	0.00%	0.00%	0.00%		56.00	0	0	0	0	0	0	0	1.000
	Sect_5	1132	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1133	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF14	1134	20.00	0.000%		60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1135	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF15	1136	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1137	20.00	0.498%	3.939	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	CF16	1138	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1139	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Sect_5	1140	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000
	Abut	1141	20.00	1.392%	11.008	60	0.00%	0.00%	0.00%		84.00	0	0	0	0	0	0	0	1.000

	Location	**Girder Node ID from MX**	Fillet Width	% of rebar within effective of deck	Area of rebar within effective deck width	Fy_rebar	Top Flange Loss	Bottom Flange Loss	Web Loss	pro	Web Proportion	Check if Longitudinal Stiffener is required ?	Check Web Longitudinal Stiffener Requirement	Check Proportion Requirement of Web with Longitudinal Stiffener ($D/t_w \le 300$)	Check if $b_f/(2t_f) \le 12$	Check if $b_f \ge D/6$	Check if $t_f \ge 1.1t_w$	Check if $0.1 \le I_{yc}/I_{yt} \le 10$	$I_{y\_top\ Flg}/I_{y\_bott}$
											Web Proportion Limit (6.10.2.1)				Flange Proportions (6.10.2.2)				
			$b_{\_fillet}$		A_{rs}		%	%	%		D/t_w	("0" = No req'd, "1" = Req'd)	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	"0" = OK, "1" = NG	
											6.10.2.1.1	6.10.2.1.1	6.10.2.1.1	6.10.2.1.2	6.10.2.2.1	6.10.2.2.2	6.10.2.2.3	6.10.2.2.4	
			(in)		(in^2)	(ksi)				(in^3)		$D/tw \le 150$	OK	OK	OK	OK	OK	OK	
CAP Beam at Pier 11	P11_CB_Sect_1	1142	20	0.000%	0.000	60	0.00%	0.00%	0.00%		32.50	0	0	0	0	0	0	0	1.000
	P11_CB_Sect_2	1143	20	0.000%	0.000	60	0.00%	0.00%	0.00%		39.51	0	0	0	0	0	0	0	1.000
	P11_CB_Sect_3	1144	20	0.000%	0.000	60	0.00%	0.00%	0.00%		45.86	0	0	0	0	0	0	0	1.000
	P11_CB_Sect_4	1145	20	0.000%	0.000	60	0.00%	0.00%	0.00%		44.39	0	0	0	0	0	0	0	1.000
	P11_CB_Sect_5	1146	20	0.000%	0.000	60	0.00%	0.00%	0.00%		39.42	0	0	0	0	0	0	0	1.000
	P11_CB_Sect_6	1147	20	0.000%	0.000	60	0.00%	0.00%	0.00%		33.50	0	0	0	0	0	0	0	1.000
CAP Beam at Pier 10	P10_CB_Sect_1	1148	20	0.000%	0.000	60	0.00%	0.00%	0.00%		32.18	0	0	0	0	0	0	0	1.000
	P10_CB_Sect_2	1149	20	0.000%	0.000	60	0.00%	0.00%	0.00%		39.62	0	0	0	0	0	0	0	1.000
	P10_CB_Sect_3	1150	20	0.000%	0.000	60	0.00%	0.00%	0.00%		46.43	0	0	0	0	0	0	0	1.000
	P10_CB_Sect_4	1151	20	0.000%	0.000	60	0.00%	0.00%	0.00%		44.08	0	0	0	0	0	0	0	1.000
	P10_CB_Sect_5	1152	20	0.000%	0.000	60	0.00%	0.00%	0.00%		38.82	0	0	0	0	0	0	0	1.000
	P10_CB_Sect_6	1153	20	0.000%	0.000	60	0.00%	0.00%	0.00%		33.56	0	0	0	0	0	0	0	1.000
CF12 & CF13 At Pier 11 (Redundant Load Path Diaphr																			
CF12	RLPD_Sect_1	1154	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1155	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_3	1156	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1157	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_1	1158	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
CF13	RLPD_Sect_1	1159	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1160	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_3	1161	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1162	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_1	1163	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
CF6 & CF7 At Pier 10																			
CF6	RLPD_Sect_1	1164	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1165	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_3	1166	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1167	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_1	1168	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
CF7	RLPD_Sect_1	1169	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1170	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_3	1171	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_2	1172	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000
	RLPD_Sect_1	1173	16	0.000%	0.000	60	0.00%	0.00%	0.00%		60.80	0	0	0	0	0	0	0	1.000

			Exterior Girder A13 Section Properties without Section Loss						
Steel Section Callout	Section Length	Station	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$
	(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
A13_Sect_1	71.98	0	20	20	1	1	0.5	42
A13_Sect_2	44.00	71.98	20	20	2	2	0.75	42
A13_Sect_3	94.70	115.98	20	20	1	1.25	0.5	42
A13_Sect_4	44.00	210.68	20	20	2	2	0.75	42
A13_Sect_5	70.47	254.68	20	20	1	1	0.5	42
A13_Sect_5		325.15						

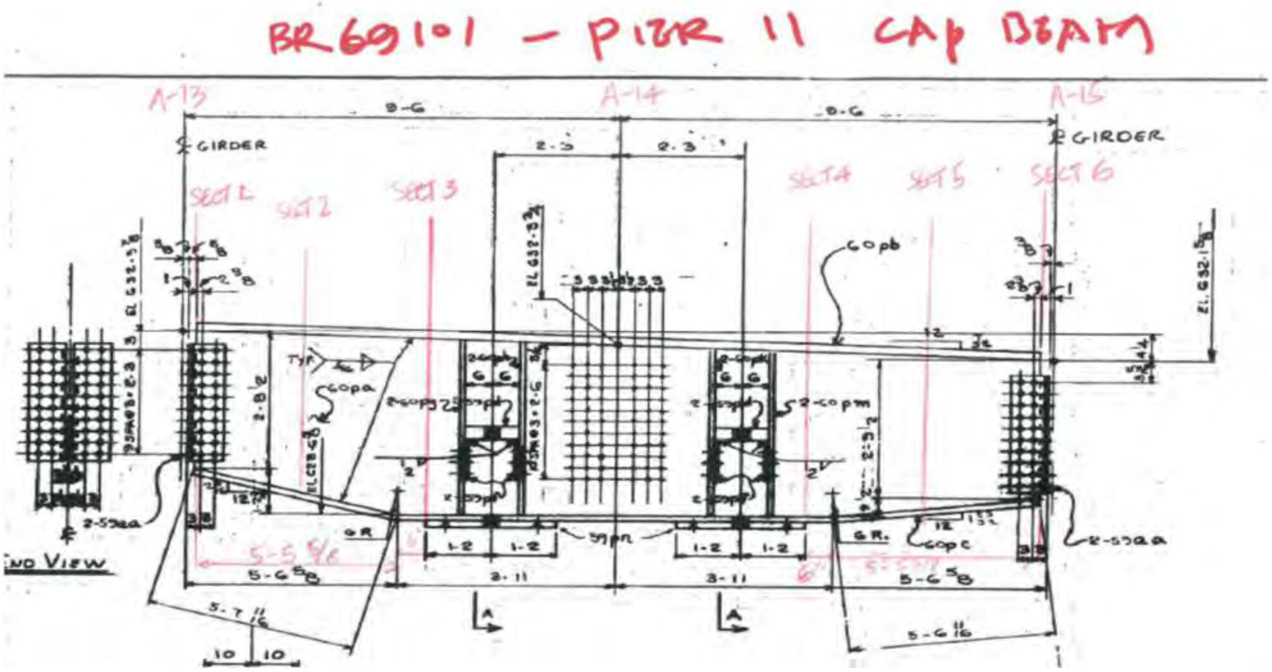
			Interior Girder A14 Section Properties without Section Loss					
Steel Section Callout	Section Length	Station	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$
A14_Sect_1	71.50	0	20	20	1	1	0.5	42
A14_Sect_2	44.00	71.50	20	20	2	2	1	42
A14_Sect_3	94.70	115.50	20	20	1	1.25	0.5	42
A14_Sect_4	44.00	210.20	20	20	2	2	1	42
A14_Sect_5	70.47	254.20	20	20	1	1	0.5	42
A14_Sect_5		324.67						

			Exterior Girder A15 Section Properties without Section Loss					
Steel Section Callout	Section Length	Station	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$
A15_Sect_1	71.02	0	20	20	1	1	0.5	42
A15_Sect_2	44.00	71.02	20	20	2	2	0.75	42
A15_Sect_3	94.70	115.02	20	20	1	1.25	0.5	42
A15_Sect_4	44.00	209.72	20	20	2	2	0.75	42
A15_Sect_5	70.47	253.72	20	20	1	1	0.5	42
A15_Sect_5		324.19						

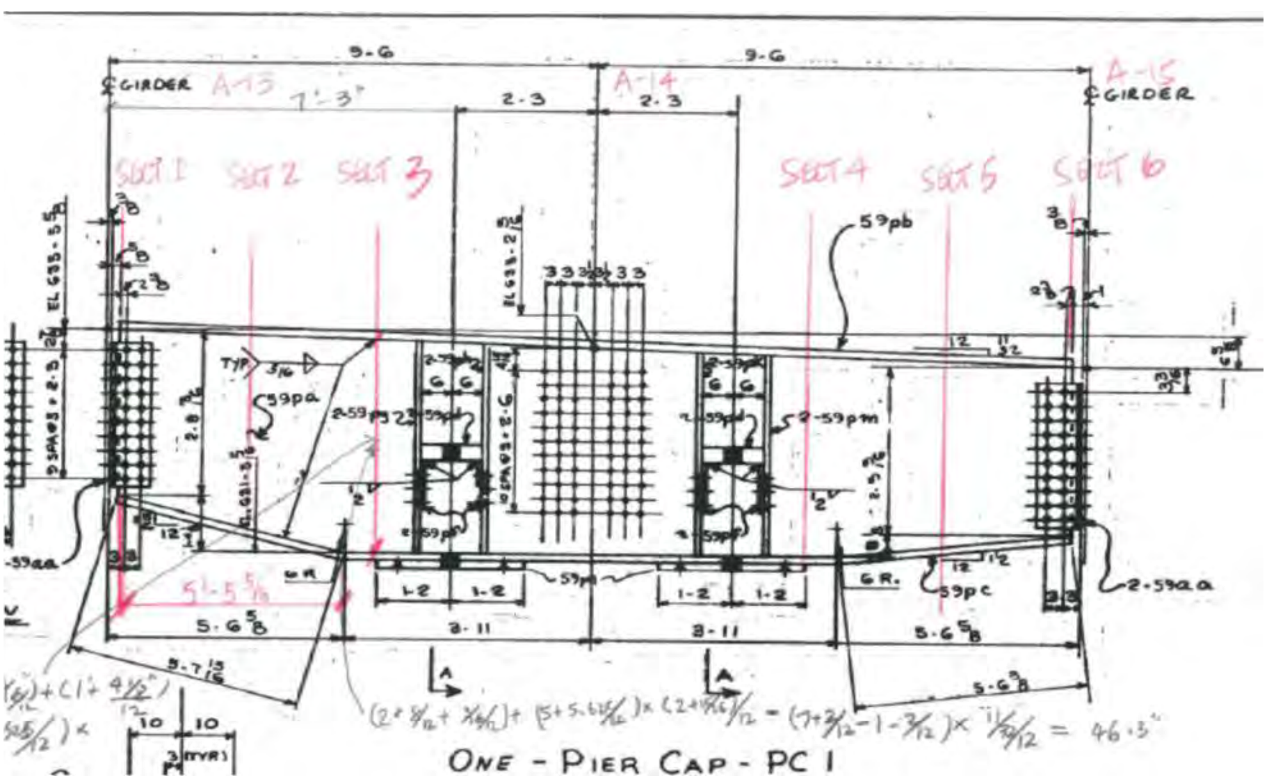
			Cap Beam at Piers 10					
Steel Section Callout	Section Length	Station	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$
P10_CB_Sect_1		0	20	20	1.5	1.5	1	32.18
P10_CB_Sect_2		2.73	20	20	1.5	1.5	1	39.62
P10_CB_Sect_3		5.97	20	20	1.5	1.5	1	46.43
P10_CB_Sect_4		12.82	20	20	1.5	1.5	1	44.08
P10_CB_Sect_5		16.04	20	20	1.5	1.5	1	38.82
P10_CB_Sect_6		18.77	20	20	1.5	1.5	1	33.56

			Cap Beam at Piers 11					
P11_CB_Sect_1		0	20	20	1.5	1.5	1	32.50
P11_CB_Sect_2		2.73	20	20	1.5	1.5	1	39.51
P11_CB_Sect_3		5.97	20	20	1.5	1.5	1	45.86
P11_CB_Sect_4		12.82	20	20	1.5	1.5	1	44.39
P11_CB_Sect_5		16.04	20	20	1.5	1.5	1	39.42
P11_CB_Sect_6		18.77	20	20	1.5	1.5	1	33.50

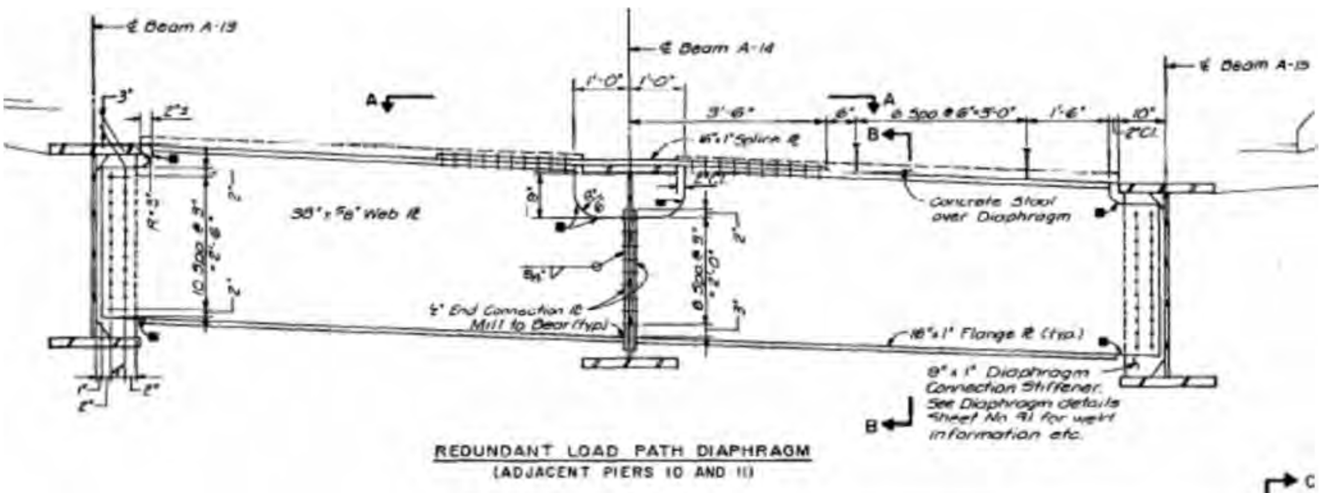
Designed by: MX on 08/29/17
Checked by TFK on 09/08/17
Backchecked by MX on 09/08/17



Pier 10 - Cap Beam

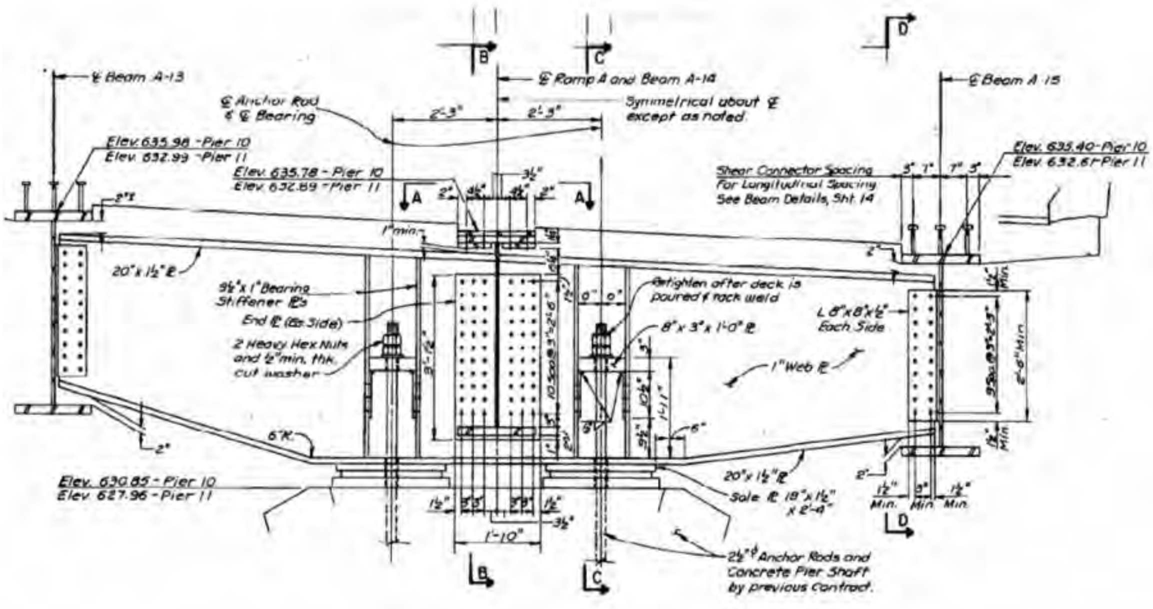


			Redundant Load Path Diaphragm Adjacent Piers 10 & 11					
Steel Section Callout	Section Length	Station	Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			$W_{\_tc1}$	$W_{\_bc1}$	$T_{\_tc1}$	$T_{\_bc1}$	$T_{\_web}$	$D_{\_web}$
RLPD_Sect_1			16	16	1	1	0.625	38
RLPD_Sect_2			16	16	1	1	0.625	38
RLPD_Sect_3			16	16	1	1	0.625	38

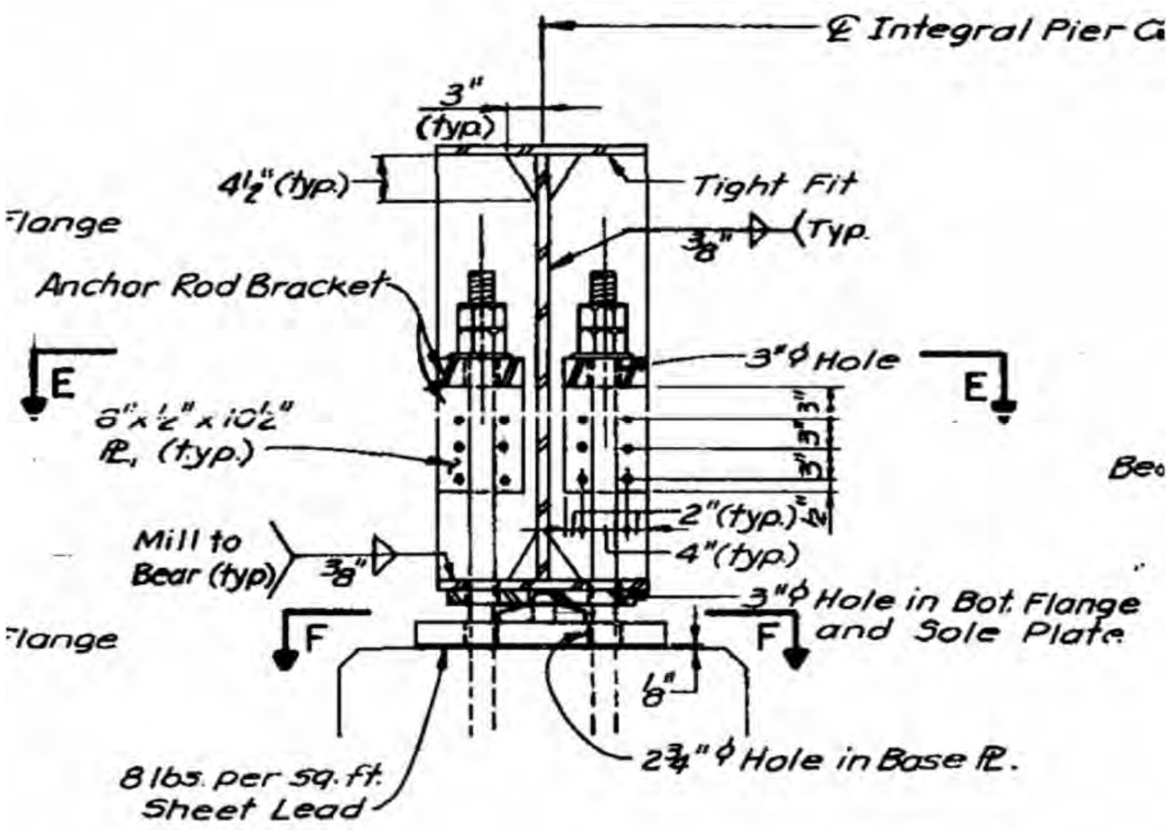


			Typical Cross diaphragm					
			Top Flange PL width	Bottom Flange PL width	Top Flange PL thickness	Bottom Flange PL thickness	Web thickness	Web depth
			W_{tc1}	W_{bc1}	T_{tc1}	T_{bc1}	T_{web}	D_{web}
Channel			5	5	0.3125	0.3125	0.3125	35.38

3. Hold Down Capacity at Pier 11



℄ Beam A-13
℄ Ramp A and Beam A-14
℄ Beam A-15
℄ Anchor Rod & ℄ Bearing
Symmetrical about ℄ except as noted.
Elev. 635.98 - Pier 10
Elev. 632.99 - Pier 11
Elev. 635.78 - Pier 10
Elev. 632.89 - Pier 11
Elev. 635.40 - Pier 10
Elev. 632.61 - Pier 11
Shear Connector Spacing For Longitudinal Spacing See Beam Details, Sht. 14
20" x 1½" ℞
9½" x 1" Bearing Stiffener ℞s
End ℞ (Ea. Side)
2 Heavy Hex Nuts and ½" min. thk. cut washer
Retighten after deck is poured & tack weld
8" x 3" x 1'-0" ℞
L 8" x 8" x ½" Each Side
1" Web ℞
Elev. 630.85 - Pier 10
Elev. 627.96 - Pier 11
20" x 1½" ℞
Sole ℞ 18" x 1½" x 2'-4"
2½" ϕ Anchor Rods and Concrete Pier Shaft by previous Contract.



℄ Integral Pier C
3" (typ.)
4½" (typ.)
Tight Fit
3/8" (Typ.
Flange
Anchor Rod Bracket
3"ϕ Hole
E
E
8" x ½" x 10½" ℞, (typ.)
Bea
2" (typ.)
4" (typ.)
Mill to Bear (typ.)
3/8"
3"ϕ Hole in Bot. Flange and Sole Plate
Flange
F
F
1/8"
2¾"ϕ Hole in Base ℞.
8 lbs. per sq. ft. Sheet Lead

1. Check Anchor Rod Tensile Capacity

Φ_t =	0.9	(AISC LRFD Chapter D, D2)
Tension Dia =	2.5	in
F_{y_rod} =	50	ksi
Fu =	65	ksi
$T_u = \Phi_t F_y A_g$ =	221	kips per rod
At yield $T_u = F_y A_g$ =	245	kips per rod (set Φt =1.0 for ultimate co
$T_u = F_u A_{net}$ =	319	kips per rod

2. Check Bolt Capacity on angle plate

Connection Input Data

Web Thickness	1	in
Bolt Diameter =	0.875	inch
Bolt Area =	0.601	in^2
Bolt hole diameter =	1.00	inch
8"x1/2"x10 1/2"	0.5	inch
Connection plate yield strength =	50	ksi
Connection plate ultimate strength =	65	ksi
Surface condition specification =	A	

Check Bolt Capacity

Input Bolt Pattern (Each side)

Vertical:

Spacing =	3	inch
End Distance =	1.5	inch
Bolt clear distance =	2.000	inch

6.13.2.7 Shear Resistance

$\phi_{bolt\ shear}$ =	0.8
Length Factor =	1

"The nominal shear resistance of a high-strength bolt or an ASTM A307 bolt at the strength limit state in joints whose length between extreme fasteners measured parallel to the line of action of the force is less than 50.0 inches shall be taken as…where threads are included" in the shear plane:"

$R_n = 0.38 A_b F_{ub} N_s$ **BOLT THREADS INCLUDED FROM SHEAR PLANE**

Fub =	120	ksi, Reference 6.4.3
Ns =	1	
Rn =	27.4	kips/bolt
ϕRn x Length Factor =	21.9	kips/bolt

HNTB	By: MX	Date: 08/29/17	Job No. 64517
	Chkd By: JWC	Date: 9/7/2017	
HNTB Corp.	Bckchk By: MX	Date: 9/8/2017	Sht. No.

Bearing Resistance will be not control

Total No of HS 7/8" dia bolts per rod =	12	per rod
Bolt Capacity =	263	kips per rod

Use bolt capacity as hold down capacity since tension rod stength is unknown and it can beyond yield.

No of Anchor Rod =	2	rods
Uplift capacity =	526	kips

4. Connection Capacities

Designed by MX on 08/29/17
Checked by JCW on 09/07/17
Backchecked by MX 09/08/17

At Strength I (Exterior Girder at Pier 11)

Connection Capacity Check Maximum D/C = 0.789
Plate Exterior Girder/Cap Beam Connection @ Pier 11

Connection Input Data

Web Thickness (Exterior Girder Control)	0.75	in
Bolt Diameter =	0.875	inch
Bolt Area =	0.601	in^2
Bolt hole diameter =	1.00	inch
L8x8x1/2 thickness =	0.5	inch
Connection plate yield strength =	50	ksi
Connection plate ultimate strength =	65	ksi
Surface condition specification =	A	

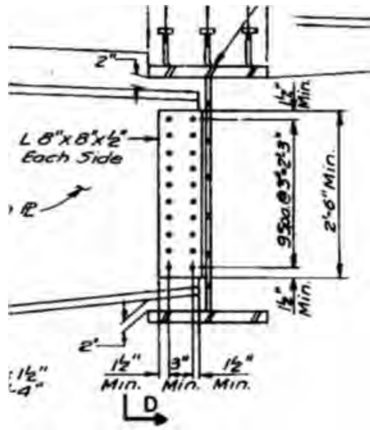
Connection Loading Macro ID_1 = 1143 1146
Macro ID_2 = 1149 1152

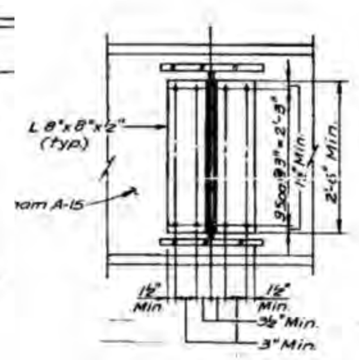
Strength 1:

Shear Force =	476.2	kips
Assumed Axial Load =	0.0	kips
Assumed Moment =	193.5	kip-ft

Service 2:

Shear Force =	N/A	kips
Assumed Axial Load =	N/A	kips
Assumed Moment =	N/A	kip-ft





STRUCTURAL STEEL NOTES

All structural steel shall conform to Mn/DOT 3309 unless otherwise noted.
Field connections shall be made with ⅞" high strength bolts (A325 Type 3) except as noted.
Web plates shall be furnished in available mill lengths with a minimum number of web splices. Location of splices shall be subject to approval of the Engineer and shall be a minimum of 1'-0" from stiffeners or flange splices.

All design checks OK? OK @ Plate Girder/Cap Beam Connection @ Pier 2 & 4

BOLT THREADS INCLUDED FROM SHEAR PLANE

Check Bolt Capacity

Input Bolt Pattern (Each side)

Vertical:

Number of spaces =	9	
Number of bolt rows =	10	
Spacing =	3	inch
End Distance =	1.5	inch
Vertical Plate Dimension =	30	inch
Bolt clear distance =	2.000	inch
Bolt end distance =	1.000	inch

Horizontal:

Number of spaces =	1	
Number of bolt columns =	2	
Spacing =	3	inch
CL Connection - first column =	N/A	inch
Connection End distance =	N/A	inch
Floorbeam End distance =	N/A	inch
Horizontal Plate Dimension =	N/A	inch
Bolt clear distance =	2.000	inch
Bolt clear end distance =	1.5	inch
Bolt floorbeam end distance =	1.5	inch

Total Number of Bolts: 20 bolts, each side

BOLT PATTERN INPUT			Column 1	Column 2	Column 3
Y ↓ X →	Coord.		0	3	0
			1	2	0
Row 1	0	1	1	1	0
Row 2	3	2	1	1	0
Row 3	6	3	1	1	0
Row 4	9	4	1	1	0
Row 5	12	5	1	1	0
Row 6	15	6	1	1	0
Row 7	18	7	1	1	0
Row 8	21	8	1	1	0
Row 9	24	9	1	1	0
Row 10	27	10	1	1	0
Row 11	0	0	0	0	0
Row 12	0	0	0	0	0
Row 13	0	0	0	0	0
Row 14	0	0	0	0	0
Row 15	0	0	0	0	0
Row 16	0	0	0	0	0
Row 17	0	0	0	0	0
Row 18	0	0	0	0	0

Bolt Group CG:		
x =	1.5	inch
y =	13.5	inch

J =	1530.0	bolt-in^2
SM =	112.6	bolt-in
Eccent =	4.875	inch

IX Calculation		
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
IX =	45.0	bolt-in^2

IY Calculation		
182.3	182.3	0.0
110.3	110.3	0.0
56.3	56.3	0.0
20.3	20.3	0.0
2.3	2.3	0.0
2.3	2.3	0.0
20.3	20.3	0.0
56.3	56.3	0.0
110.3	110.3	0.0
182.3	182.3	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
0.0	0.0	0.0
IY =	1485.0	bolt-in^2

Designed by MX on 08/29/17
Checked by JCW on 09/07/17
Backchecked by MX 09/08/17

Bolt Shear Forces:

	Strength 1	Service 2
Fy =	23.8	N/A
Fx =	0.0	N/A
Fmy =	2.3	N/A
Fmx =	20.5	N/A
Fmy - ecc =		N/A
Fmx - ecc =		N/A
Resultant =	33.2	N/A

Strength 1:	**33.2**	kips/bolt
Service 2:	**N/A**	kips/bolt

GEOMETRY CHECKS

Geometry Criteria:

			OK?	Reference
Bolt Minimum Spacing =	2.625	inch	OK	6.13.2.6.1
Bolt Maximum Spacing =	7	inch	OK	6.13.2.6.2
Minimum Edge Distance =	1.25	inch	OK	Table 6.13.2.6.6-1
Maximum Edge Distance =	5	inch	OK	6.13.2.6.6

Resistance Criteria

6.13.2.7 Shear Resistance

$\phi_{bolt\ shear}$ = 0.8
Length Factor = 1

"The nominal shear resistance of a high-strength bolt or an ASTM A307 bolt at the strength limit state in joints whose length between extreme fasteners measured parallel to the line of action of the force is less than 50.0 inches shall be taken as…where threads are included" in the shear plane:"

$R_n = 0.38A_bF_{ub}N_s$ **BOLT THREADS INCLUDED FROM SHEAR PLANE**

Fub =	120	ksi, Reference 6.4.3
Ns =	2	
Rn =	54.8	kips/bolt
ϕRn x Length Factor =	43.9	kips/bolt

43.9 kips > 33.2 kips OK (D/C = 0.756024)

Check L8x8x1/2 Shear Capacity

Gross shear Area per Angle, A_{vg} =	15	in^2/angle
Gross shear Area per Angle, A_{vn} =	10	in^2/angle
Total of Angle for connection =	2	

For shear yield
$R_r = \Phi_v 0.58F_yA_{vg}$ = 870 kips (6.13.5.3-1)

For shear fracture
$R_r = \Phi_{vu} 0.58R_pF_uA_{vn}$ = 603 kips (6.13.5.3-2)

Controlling R_r = 603 kips OK (D/C = 0.789491)

Check Block shear Capacity
By inspection, block shear is not controlled.

6.13.2.9 Bearing Resistance

$\phi_{bolt\ bearing}$ = 0.8

"…the nominal resistance of interior and end bolt holes at the strength limit state, Rn, shall be taken as:"

"With bolts spaced at a clear distance between holes not less than 2.0d and with a clear end distance not less than 2.0d:"

$Rn = 2.4dtF_u$

"If either the clear distance between holes is less than 2.0d, or the clear end distance is less than 2.0d:"

$Rn = 1.2L_ctF_u$

Lc @ L8x8x1/2 =	1.000	inch
Lc @ web plate =	1.500	inch
Rn @ L8x8x1/2 =	78.0	kips/bolt
Rn @ web plates =	87.8	kips/bolt
ϕR_n =	62.4	kips/bolt

62.4 kips > 33.2 kips OK (D/C = 0.531547)

Designed by MX on 08/29/17
Checked by JCW on 09/07/17
Backchecked by MX 09/08/17

At Strength I (Interior Girder at Pier 11)

Connection Capacity Check Maximum D/C = 0.556

1) Web Shear Capacity of Plate Interior Girder A14 to Cap Beam Connection @ Pier 11

Web Shear (Bolt Shear Capacity)

Connection Input Data

Plate girder Web Thk	1	in
Bolt Diameter =	0.875	inch
Bolt Area =	0.601	in^2
Bolt hole diameter =	1.00	inch
3/4" thk PL =	0.75	inch
Connection plate yield strength =	50	ksi
Connection plate ultimate strength =	65	ksi
Surface condition specification =	A	

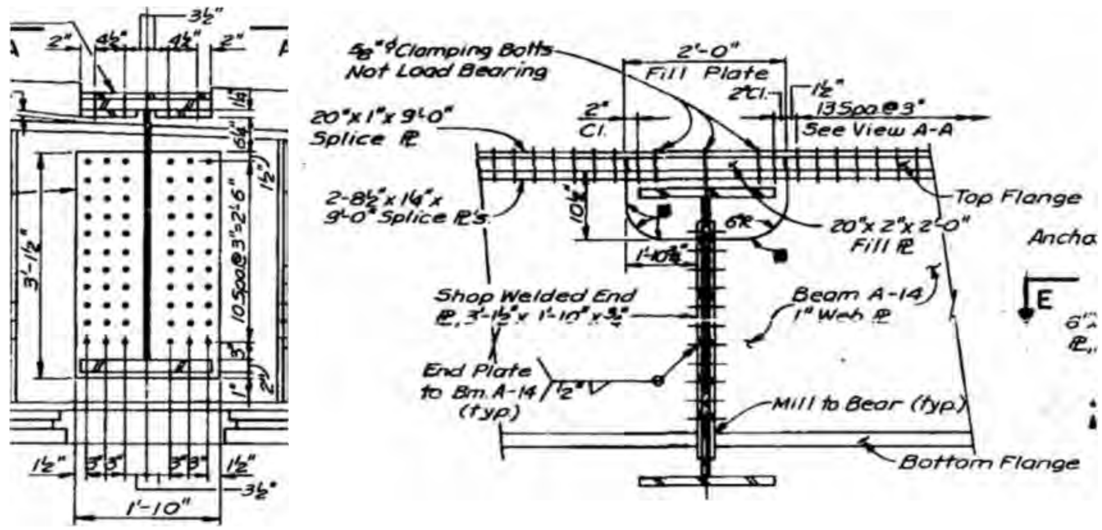
Connection Loading	Macro ID_1 =	1061	1063
	Macro ID_2 =	1079	1081

Strength 1:

Shear Force =	406.4	kips
Assumed Axial Load =	0.0	kips
Assumed Moment =	0.0	kip-ft

Service 2:

Shear Force =	N/A	kips
Assumed Axial Load =	N/A	kips
Assumed Moment =	N/A	kip-ft



All design checks OK? OK @ Plate Girder/Straddle Bent Connection @ Pier 11

BOLT THREADS INCLUDED FROM SHEAR PLANE

Check Bolt Capacity

Input Bolt Pattern (Each side)

Vertical:

Number of spaces =	10	
Number of bolt rows =	11	
Spacing =	3	inch
End Distance =	1.5	inch
Vertical Plate Dimension =	33	inch
Bolt clear distance =	2.000	inch
Bolt end distance =	1.000	inch

Horizontal:

Number of spaces =	5	
Number of bolt columns =	6	
Spacing =	3	inch
Bolt clear distance =	2.000	inch
Bolt end end distance =	1.5	inch
Bolt floorbeam end distance =	1.5	inch

Total Number of Bolts: 66 bolts, each side

Bolt Shear Forces:

	Strength 1	Service 2		Strength 1:	**6.2**	kips/bolt
Resultant =	6.2	N/A		Service 2:	**N/A**	kips/bolt

<u>Resistance Criteria</u>

6.13.2.7 Shear Resistance

$\phi_{bolt\ shear}$ = 0.8
Length Factor = 1

"The nominal shear resistance of a high-strength bolt or an ASTM A307 bolt at the strength limit state in joints whose length between extreme fasteners measured parallel to the line of action of the force is less than 50.0 inches shall be taken as…where threads are included" in the shear plane:"

$R_n = 0.38A_bF_{ub}N_s$ **BOLT THREADS INCLUDED FROM SHEAR PLANE**

Fub =	120	ksi, Reference 6.4.3
Ns =	1	
Rn =	27.4	kips/bolt
ϕRn x Length Factor =	21.9	kips/bolt

21.9 kips > 6.2 kips OK (D/C = 0.280673)

2) Weld Capacity at Girder A14 Web to 3/4" Thk End PL

F_{exx} =	70	ksi	(Need to verify)
Fillet weld size =	0.5000	in	(Per shop drawing from 1969)
$t_{\_eff}$ =	0.3535	in	
weld length =	30.75	in	
No. of weld at the connection	2	weld per connection	
Steel F_u =	66	ksi	(Per Table 6A.6.2.1-1 in MBE)

2) Shear Capacity of the Weld, R_r

$R_r = 0.6\Phi_{e2}F_{exx}$ = 34 ksi

Weld Shear Capacity, $F_{\_weld}$ = **730** kips @ Edge Girder/Cap Beam Connection

D/C = 0.5563 OK

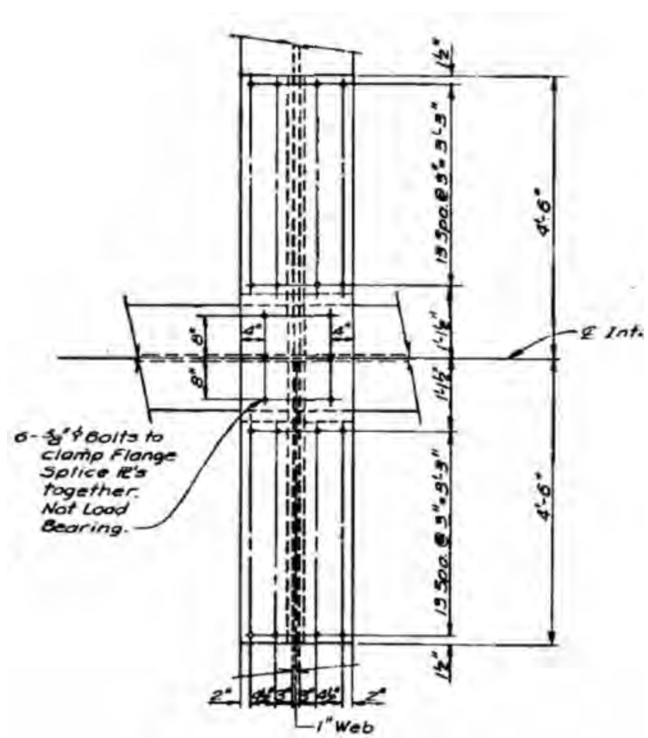
3) Bolt Shear Capacity on Girder A14 Top Splice Plate at Girder A14 at Pier 11 Cap Beam

a) 7/8" Dia H.S. Bolt Capacity

No of H.S. Bolt on 1 side of Splice =	56	Bolts
ϕRn x Length Factor =	21.9	kips/bolt
Ns =	2	
Shear Capacity of bolts =	2457	kips per splice PL

b) Tension Capacity of Splice PL

Splice plate yield strength =	50	ksi
Splice plate ultimate strength =	65	ksi
Φ_y =	0.95	
Φ_u =	0.8	
A_g = 1"*20"+2*8.5"x1.25" =	41.25	in^2



A_n = 1"*(20"-4")+2*(8.5"-2")x1.25" =	32.25	in^2
For yielding, $T_y = \Phi_y A_g F_y =$	1959	kips
For fracture, $T_u = \Phi_u A_g F_y =$	1677	kips

c) Tension Capacity of Girder A14 Top Flange (20"x2")

Top Flange of A14 yield strength =	50	ksi	
Top Flange of A14 ultimate strength =	65	ksi	
$\Phi_y =$	0.95		
$\Phi_u =$	0.8		
A_g = 2"*20" =	40	in^2	
A_n = 2"*(20"-4") =	32	in^2	
For yielding, $T_y = \Phi_y A_g F_y =$	1900	kips	
For fracture, $T_u = \Phi_u A_g F_y =$	1664	kips	(control)

Therefore, the Moment Capacity of the girder A14 at the Pier 11 is controlled over its splice connection at Pier 11

5. Capacity of the Redundant Load Path Diaphragm

Diaphragm Negative Moment Capacity @ Pier 11

ΦM_{nc} = 2807 k-ft

ΦV_n = 467 kips

DETERMINE THE CAPACITY OF REDUNDANT DIAPHRAGM @ PIER 11

AT THE SECTION NEAR THE BEAM A14

IF THE CAP BEAM @ PIER 11 IS FRACTURE, THE LOADS ON THE CAP BEAM WILL BE REDISTRIBUTED TO THE REDUNDANT LOAD PATH DIAPHRAGM. THE TOP FLANGE OF THE DIAPHRAGM NEAR THE BEAM A14 WILL BE UNDER TENSION.

1) THE TENSION CAPACITY ON 16" × 1" SPLICE PL IS

FOR YIELDING. $T_y = \phi_y A_g F_y$

$= 0.95 \times 16" \times 1" \times 50$ ksi

$= 760$ kips

FOR FRACTURE. $T_u = \phi_u A_n F_u$

$= 0.8 \times (16" - 4 \times 1") \times 1 \times 65$ ksi

$= 624$ kips

2) BOLT CAPACITY ON SPLICE PL (7/8" φ H.S. BOLT)

BOLT SHEAR CAPACITY (ASSUME BOLT THREADS INCLUDE FROM SHEAR PLAN)

$R_n = 0.38\, A_b F_{ub} N_s$

$= 0.38 \times (7/8)^2 (3/4) \times (120\,ksi) \times 1$

$= 27.4\ k/Bolt$

$\phi_v R_n = 0.8 \times 27.4$

$= 21.92\ k/Bolt$

THE TOTAL No OF 7/8" φ H.S. ASTM 325 BOLT IS 10x4 = 40 BOLTS AT EACH SIDE OF SPLICE PL.

THE SHEAR CAPACITY AT SPLICE PL = $40^{\,bolts} \times 21.92\ k/Bolt$

$= 876$ KIPS

EVEN SPLICE PL DUE TO FRACTURE APPEARS TO BE CONTROLLED. HOWEVER, IT WILL UNLIKELY OCCURE. BECAUSE THE TOP FLANGE OF THE DIAPHRAGM IS WELDED WITH SHEAR STUDS EMBEDDED INTO REINFORCING CONCRETE DECK. THE REINFORCING CONCRETE DECK WILL SHARE THE LOAD WITH SPLICE PL

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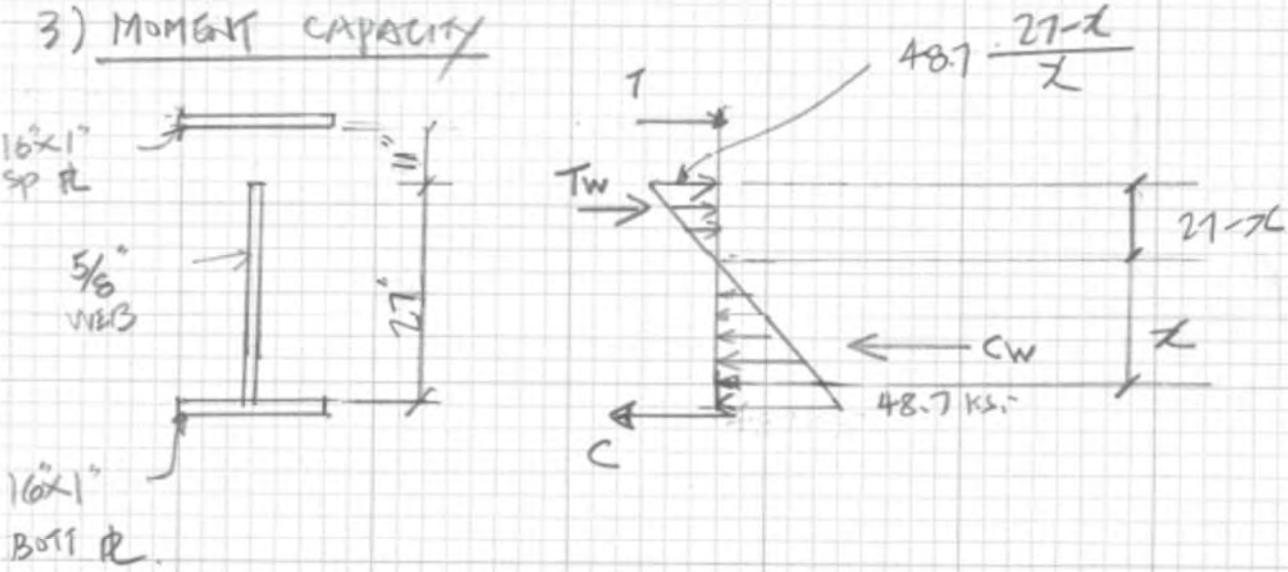
UNTIL THE SPLICE PL REACH YIELD. THEREFORE, USE T = 760 K AS SPLICE PL ULTIMATE CAPACITY.

FROM SPREADSHEET CALCULATION, THE COMPRESSIVE STRENGTH OF THE BOTTOM FLANGE OF THE DIAPHRAGM

$\phi F_{nc} = 48.7$ ksi

3) MOMENT CAPACITY



$C = 16" \times 1" \times 48.7$ ksi

$= 779$ k

$C_w = \frac{1}{2}(48.7)(5/8)x$

$= 15.22\,x$

$T = 760$ k

$$T_w = \frac{1}{2}(48.7)\left(\frac{27-x}{x}\right)(5/8)(27-x)$$

$$= 15.22\,\frac{(27-x)^2}{x}$$

$$C + C_w = T + T_w$$

$$779 + 15.22x = 760 + 15.22\,\frac{(27-x)^2}{x}$$

$$x = 13.2''$$

$$M_n = 779 \times (0.5 + 13.2) + 15.22 \times 13.2 \times 13.2 \times 2/3$$

$$+ 760 \times (27 - 13.2 + 11 + 0.5)$$

$$+ 15.22\,\frac{(27-13.2)^2}{13.2} \times (27-13.2) \times 2/3$$

$$= 10672 + 1768 + 19228 + 2020$$

$$= 33688 \text{ k-in}$$

$$= \underline{2807 \text{ k-ft}}$$

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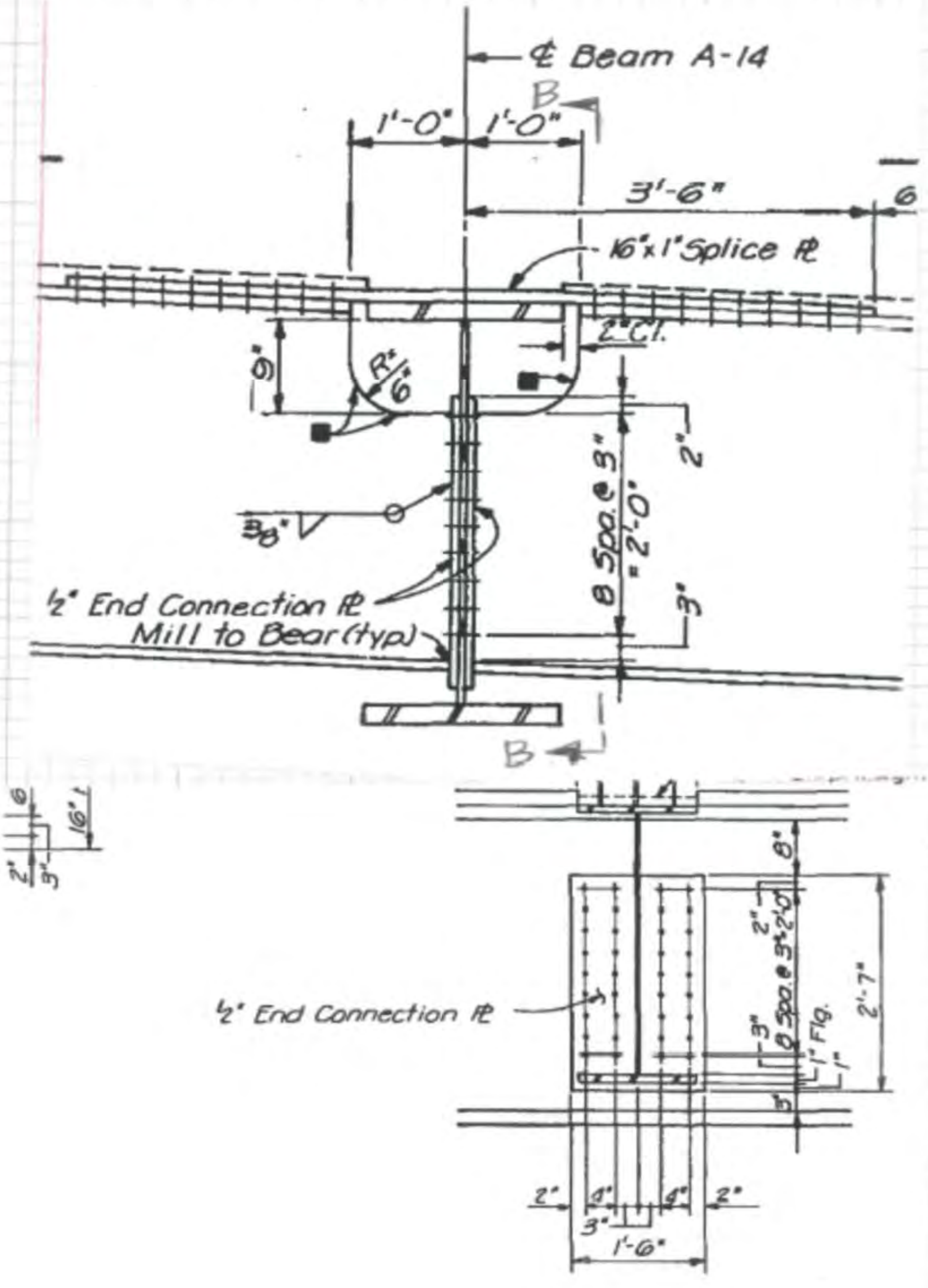
4) SHEAR CAPACITY OF DIAPHRAM AT A-14 CONNECTION



SECTION B-B

① BOLT SHEAR CAPACITY ON 1/2" END PL.

No of 7/8" φ H.S. BOLT = 9 x 4 = 36 BOLTS

V_{BOLT} = (21.92 K/BOLT) x (36 BOLTS)

= 789 K.

② WELD CAPACITY ON 1/2" END PL.

F_{exx} = 70 ksi (ASSUME)

FILLET WELD THK = 3/8"

t_{EFF} = 0.707 x 3/8" = 0.265"

STEEL F_u = 66 ksi (PER TABLE 6A.6.2.1-1 IN MBE)

R_Y = 0.6 ϕ_{e2} F_{exx} = 0.6 x 0.8 x 70

= 33.6 ksi < 0.6 x 66 = 39.6 ksi ok

V_{WELD} = 2 x (3" + 24" + 2" - 2" +3/4") x 0.265" x (33.6 ksi)

= **467 Kip** (CONTROLLING)

V_{WEB} = 0.58 x 50 ksi) x (27 3/4") (5/8") (C=1.0)

= 476 Kips

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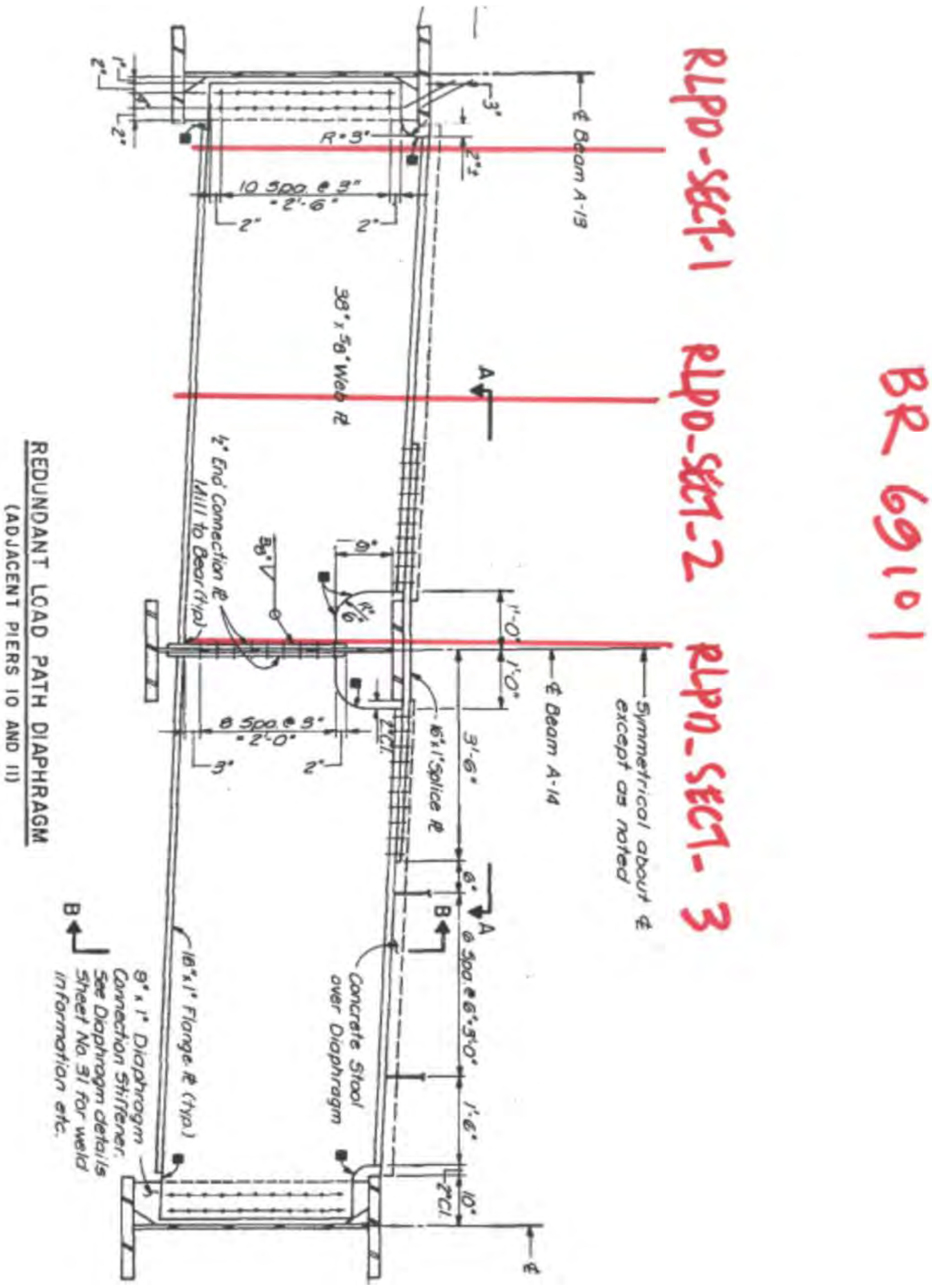

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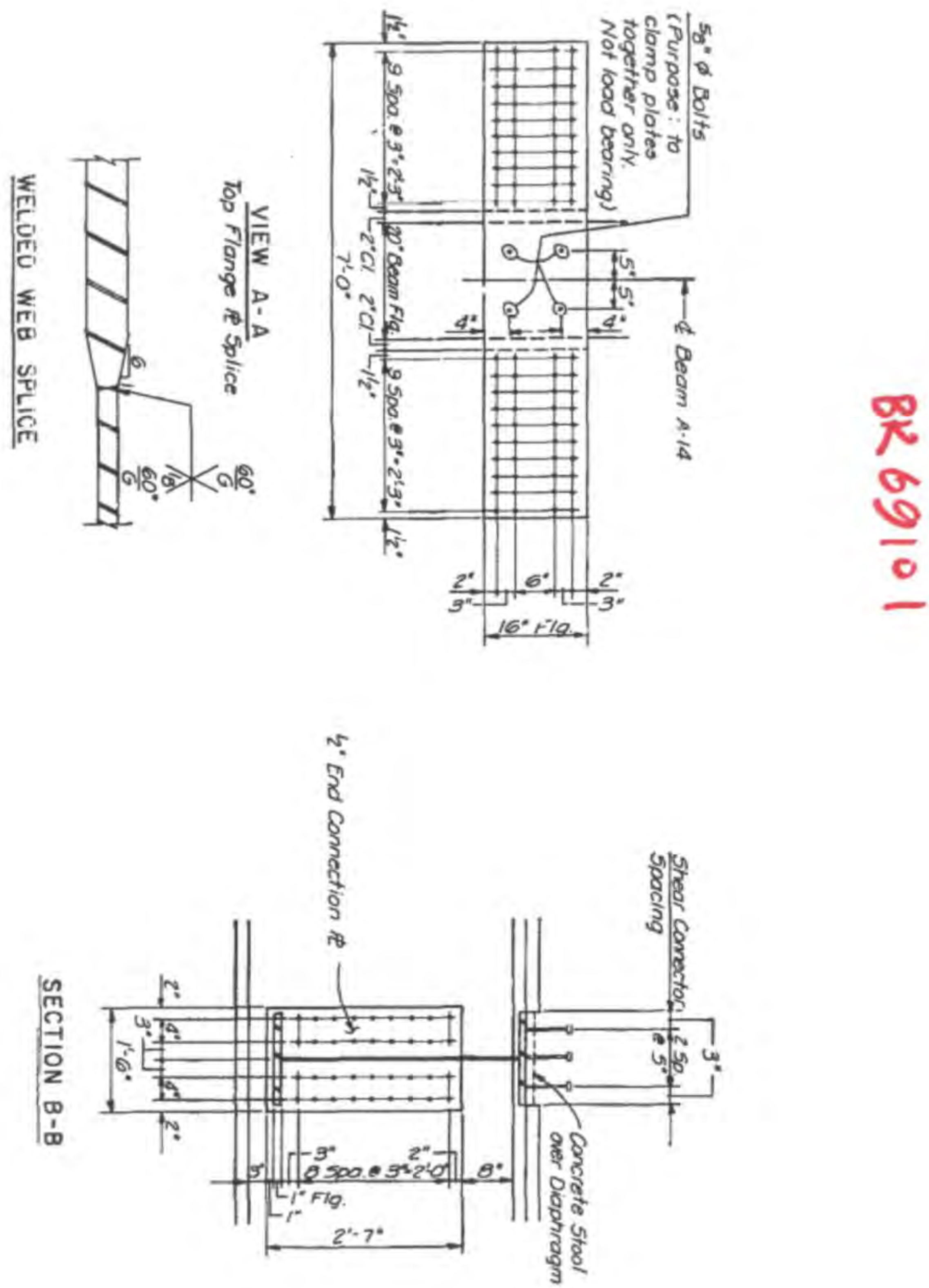
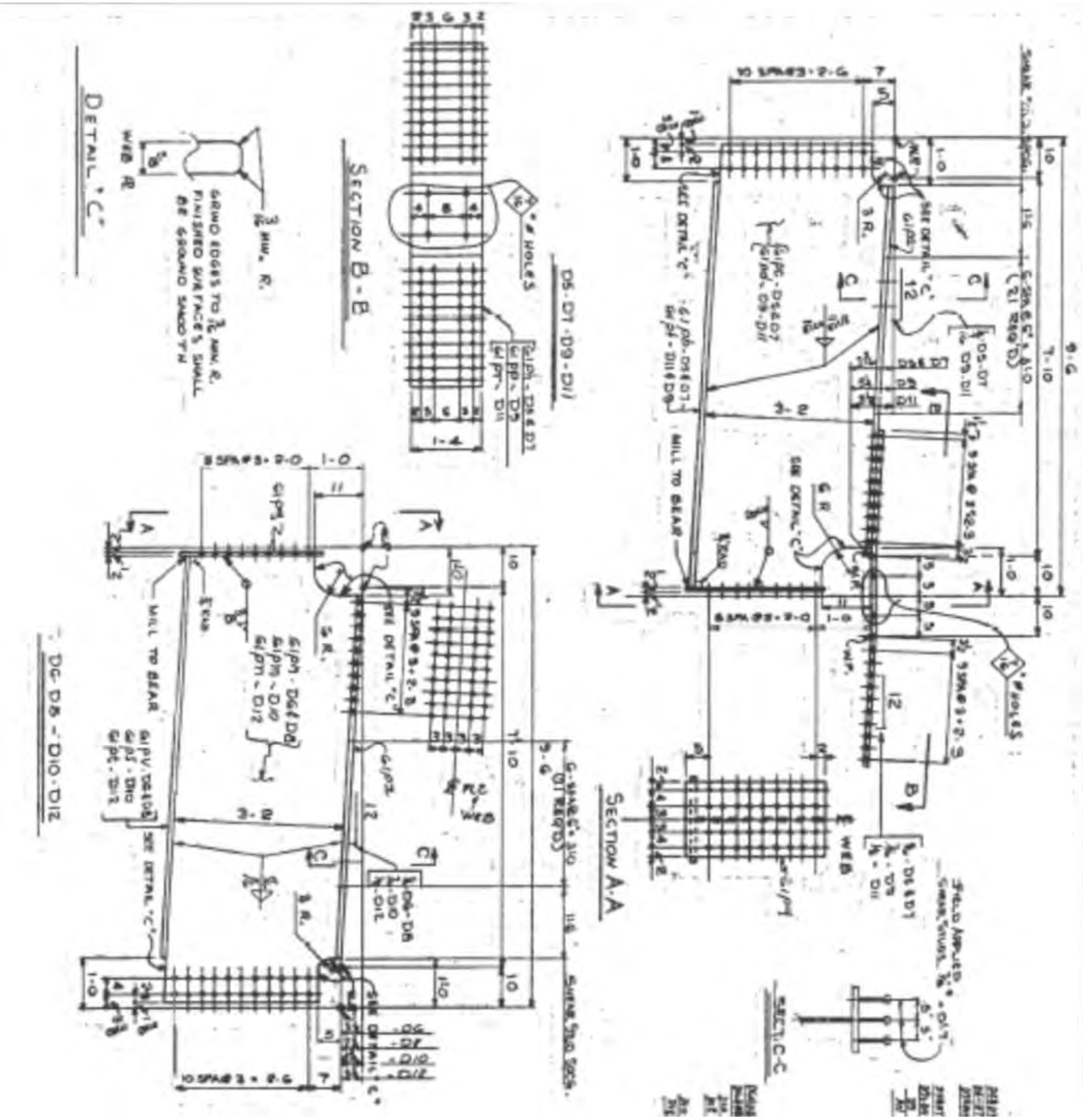
HNTB Corp.	Bckchk By: MX	Date: 9/8/2017	Sht. No.





DETAIL "C"
SECTION B-B
SECTION A-A
SECT. C-C
MILL TO BEAR
SEE DETAIL "C"

6. Typical Diaphragm Capacity

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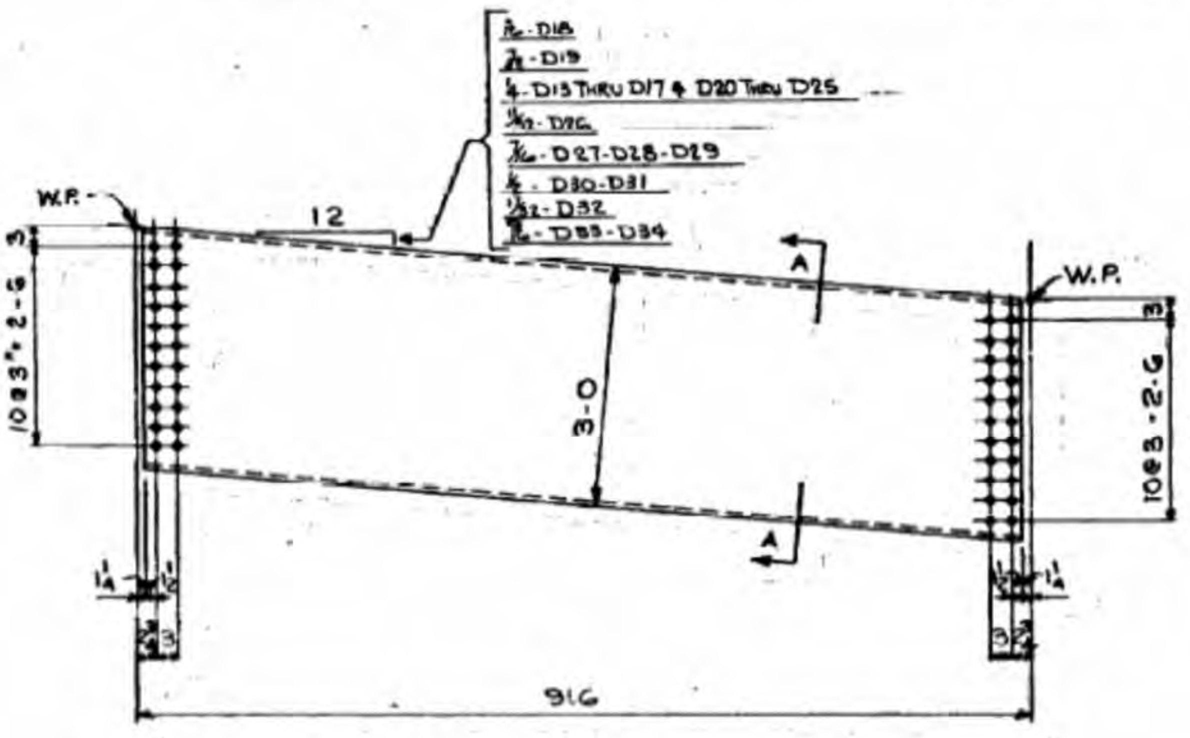
HNTB Corp.	Bckchk By: MX	Date: 9/8/2017	Sht. No.



ONE DIAPHRAGM THUS. ~ D13 THRU D34

SECT A-A

Web Depth D =	35.375	in
t =	0.3125	in
Flange thk =	0.3125	in
Flange width =	5	in
Ax =	14.17	in^2
Ix =	2147.8	in^4
Sx =	119.3	in^3
Unbracing length =	9.5	ft
Fn =	13.7	ksi (controled by lateral torsion buckling)
Maximum bending Moment=	136	k-ft

For information only (Cross diaphragm not control)

(This is the maximum bending moment the diaphragm can reach. But the lateral torsional buckling will occur before the maximum is reache

7. Sample Calculation for Girder A14 at Pier 10

A design spreadsheet is developed to calculate the capacities, LF1, r1, D/C ratio of the girders and cap beams. The calculations were performed on several locations along those structural elements using Microsoft Macro. The following shows an example calculation for Girder A14 at Pier 10.

HNTB	By:	MX	Date:	08/29/17	Job No.	64517
	Chkd By:	JWC	Date:	9/7/2017		
HNTB Corp.	Bckchk By:	MX	Date:	9/8/2017	Sht. No.	

Load Rating For Girder

Node ID : 1062
larsa ID: 94.5 (Station)

Fy_Rebar = 60 ksi
Deck rebar Area, Ars = 0 in^2
Is plate girder or box girder ? Plate Girder
No of Webs of the Box Girder = 1 webs
Is transverse bending consider? Yes

Is it Cap Beam ? 0
Is redundant Load Path Diaphragm ? 0
Is Continuous span ? Yes

Evaulation Factors (for Strength Limit States)
1. Condition Factor ϕ_c = 1.00
2. System Factor ϕ_s = 1.00

3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Location	Node ID	larsa Sta	Inventory Rating				For Composite Positive Moment		For Non -Composite Positive Moment (Comp Flg full Bracing)		For Negative Moment for plate girders or positive moment for Steel Box Beam Strandel Bent				Positive Moment Capacity	Negative Moment Capacity
		larsa	$RF_{\_flexure}$		$RF_{\_shear}$	$RF_{\_inv}$	M_n	Positive $1.3R_hM_y$	Positive M_p (Use if θ_{RL} >0.009 Radians)	Positive $1.3R_hM_y$	Negative M_p (For Comparsion purpose only)	M_{nc} (Yield)	F_{nc_final}	M_c (Based on F_{nc}) (failure before yielding)	To use	To use
			Top Flange	Bott Flange			k-ft	k-ft	k-ft	k-ft	k-ft	k-ft	(ksi)	k-ft	k-ft	k-ft
Controlling Rating	1062	94.5	1.34	1.30	4.31	1.30	8138	N/A	9171	N/A	Yield	-9171	50.00	N/A	9171	-9171
	1062	94.5	1.34	1.30	4.31	1.30	8138	N/A	9171	N/A	Yield	9171	50.00	N/A		

Is it composite section ? **No**

(+) Stress indicates Tension

HNTB	By:	MX	Date:	08/29/17	Job No.	64517
	Chkd By:	JWC	Date:	9/7/2017		
HNTB Corp.	Bckchk By:	MX	Date:	9/8/2017	Sht. No.	

Load Rating For Girder

Node ID : 1062
Iarsa ID: 94.5 (Station)

Evaulation Factors (for Strength Limit States)
1. Condition Factor ϕ_c = 1.00
2. System Factor ϕ_S = 1.00

Location	Node ID	Iarsa Sta	Maximum Positive M_u	Max Negative M_u	Web Shear			$LF1_{\text{with respect to Minimum r\_1}}$	$LF1_{\_Top\_Flg}$	$LF1_{\_Bott\_Flg}$	$LF1_{\_Shear}$	$LF1_{req'd\_Top\_Flg}$	$LF1_{req'd\_bott\_Flg}$	$LF1_{req'd\_shear}$	Min Reserve ratio r_1	$LF1_{\text{req'd with respect to Minimum r\_1}}$
	3	4	19	20	21	22	23	24	25	26	27	28	29	30	31	32
		Iarsa	To use	To use	Demand/ Capacity	Ultimate Shear Force, V_u (kips)	Capacity, $\Phi_v V_n$ (kips)									
			k-ft	k-ft												
Controlling Rating	1062	94.5	-2853.3	-6975.0	0.3619	440.78	1218.00	3.113	3.201	3.113	11.468	2.49	2.50	2.51	1.24	2.50
	1062	94.5			0.3619	440.78	1218.00									
											1.24	1.29	1.24	4.56		3
											1.24	2.49	2.50	2.51		

Is it composite section ? **No**

(+) Stress indicates Tension

HNTB	By:	MX	Date:	08/29/17	Job No.	64517
	Chkd By:	JWC	Date:	9/7/2017		
HNTB Corp.	Bckchk By:	MX	Date:	9/8/2017	Sht. No.	

Load Rating For Girder

Node ID : 1062
Iarsa ID: 94.5 (Station)

Evaulation Factors (for Strength Limit States)
1. Condition Factor ϕ_c = 1.00
2. System Factor ϕs = 1.00

	3	4	33	34	35	36	37	38	39	40	41	42	43	44
			1.1 Strength I - 1.25DC + 1.5DW + 1.75LL+I											
Location	Node ID	Iarsa Sta	Top Flange Flexural Bending			Bottom Flange Flexural Bending			Web Shear			Maximum	$M_{\_DL}$	$M_{\_LL}$
		Iarsa	D/C	Ultimate Stress f_u (ksi)	Capacity, F_{nc} or F_{nt} (ksi)	D/C	Ultimate Stress f_u (ksi)	Capacity, F_{nc} or F_{nt} (ksi)	D/C	Ultimate Shear Force, V_u (kips)	Capacity, V_n (kips)	D/C	(k-ft)	(k-ft)
Controlling Rating	1062	94.5	0.851	42.553	50.000	0.867	-43.344	-50.000	0.362	440.782	1218.000	0.87	-2724.23	-1709.68
	1062	94.5												

Is it composite section ? **No**

(+) Stress indicates Tension

Load Cases and Load Combination	Live Load Consider		Member Forces from Iarsa					Flange lateral bending stress
		Macro Node No	Iarsa Station	Axial (FX)	Shear (Fz)	Weak Axis Moment (Mz)	Strong Axis Moment (My)	f_l
			(ft)	(kips)	(kips)	(k-ft)	(k-ft)	(ksi)
DC1		1062	94.5	-27.5	141.7	-2.0	-2353.8	0.09
		1062	94.5	-27.5	141.7	-2.0	-2353.8	0.09
DC2		1062	94.5	6.5	21.9	0.0	-371.4	0.00
		1062	94.5	6.5	21.9	0.0	-371.4	0.00
DW		1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
1.25DC1+1.25DC2+1.5DW		1062	94.5	-24.7	206.0	-0.9	-3405.0	0.25
		1062	94.5	-24.7	206.0	-0.9	-3405.0	0.25
LL+I_MaxFX (LL+IM)	HL-93	1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
LL+I_MINFX (LL+IM)		1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
LL+I_MaxFZ (LL+IM)		1062	94.5	-29.5	134.1	-0.9	-1825.7	0.08
		1062	94.5	-29.5	134.1	-0.9	-1825.7	0.08
LL+I_MINFZ (LL+IM)		1062	94.5	40.3	12.4	2.3	315.1	0.20
		1062	94.5	40.3	12.4	2.3	315.1	0.20
LL+I_MaxMY (LL+IM)		1062	94.5	40.3	11.8	1.6	315.3	0.15
		1062	94.5	40.3	11.8	1.6	315.3	0.15
LL+I_MINMY (LL+IM)		1062	94.5	-7.7	108.2	-1.5	-2039.3	0.14
		1062	94.5	-7.7	108.2	-1.5	-2039.3	0.14

DC1_Bracing Start		1062	94.5	-27.450	141.685	-2.0	-2353.793	
DC1_Bracing End		1064	101.500	-27.450	131.670	4.4	-1461.544	
DC2_Bracing Start		1062	94.500	6.485	21.933	0.0	-371.436	
DC2_Bracing End		1064	101.500	5.131	21.732	-0.2	-226.309	
DW_Bracing Start		1062	94.500	1.000	1.000	1.0	1.000	
DW_Bracing End		1064	101.500	1.000	1.000	1.0	1.000	
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062	94.500	1.000	1.000	1.0	1.000	
LL+I_MaxFX_Bracing End (LL+IM)		1064	101.500	1.000	1.000	1.0	1.000	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	94.500	1.000	1.000	1.0	1.000	
LL+I_MINFX_Bracing_End (LL+IM)		1064	101.500	1.000	1.000	1.0	1.000	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	94.500	-29.518	134.149	-0.9	-1825.713	
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	101.500	15.387	112.077	14.8	-962.786	
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	94.500	40.295	12.399	2.3	315.102	
LL+I_MINFZ_Bracing_End (LL+IM)		1064	101.500	42.377	11.915	-3.1	233.264	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	94.500	40.295	11.759	1.6	315.253	
LL+I_MaxMY_Bracing_End (LL+IM)		1064	101.500	32.988	24.817	21.8	299.412	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	94.500	-7.736	108.226	-1.5	-2039.291	
LL+I_MINMY_Bracing_End (LL+IM)		1064	101.500	-17.178	92.859	-20.6	-1379.412	
1.25DC+1.5DW_Bracing Start		1062	94.500	-24.706	206.022	-0.9	-3405.036	
1.25DC+1.5DW_Bracing End		1064	101.500	-26.399	193.252	6.6	-2108.317	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	94.500	-22.956	207.772	0.8	-3403.286	

Load Cases and Load Combination	Live Load Consider		Member Forces from larsa					Flange lateral bending stress
		Macro Node No	larsa Station	Axial (FX)	Shear (Fz)	Weak Axis Moment (Mz)	Strong Axis Moment (My)	f_l
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	101.500	-24.649	195.002	8.4	-2106.567	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	94.500	-22.956	207.772	0.8	-3403.286	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	101.500	-24.649	195.002	8.4	-2106.567	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	94.500	-76.363	440.782	-2.4	-6600.033	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	101.500	0.528	389.387	32.5	-3793.192	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	94.500	45.809	227.721	3.0	-2853.607	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	101.500	47.761	214.104	1.3	-1700.105	
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	94.500	45.810	226.601	1.9	-2853.343	
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	101.500	31.330	236.681	44.8	-1584.346	
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	94.500	-38.243	395.417	-3.6	-6973.796	
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	101.500	-56.461	355.755	-29.5	-4522.287	

		Macro Node No	larsa Station	Axial (FX)	Shear (Fz)	Weak Axis Moment (Mz)	Strong Axis Moment (My)	fl
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	94.5	-23.0	207.8	0.8	-3403.3	0.41
		1062	94.5	-23.0	207.8	0.8	-3403.3	0.41
1.25DC+1.5DW+1.75LL+I_MinFX		1062	94.5	-23.0	207.8	0.8	-3403.3	0.41
		1062	94.5	-23.0	207.8	0.8	-3403.3	0.41
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	94.5	-76.4	440.8	-2.4	-6600.0	0.39
		1062	94.5	-76.4	440.8	-2.4	-6600.0	0.39
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	94.5	45.8	227.7	3.0	-2853.6	0.61
		1062	94.5	45.8	227.7	3.0	-2853.6	0.61
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	94.5	45.8	226.6	1.9	-2853.3	0.51
		1062	94.5	45.8	226.6	1.9	-2853.3	0.51
1.25DC+1.5DW+1.75LL+I_MinMY		1062	94.5	-38.2	395.4	-3.6	-6973.8	0.49
		1062	94.5	-38.2	395.4	-3.6	-6973.8	0.49

Load Cases and Load Combination	Live Load Consider		Member Forces from larsa					Flange lateral bending stress
		Macro Node No	larsa Station	Axial (FX)	Shear (Fz)	Weak Axis Moment (Mz)	Strong Axis Moment (My)	f_l
			(ft)	(kips)	(kips)	(k-ft)	(k-ft)	(ksi)
DC1		1062	94.5	-27.5	141.7	-2.0	-2353.8	0.09
		1062	94.5	-27.5	141.7	-2.0	-2353.8	0.09
DC2		1062	94.5	6.5	21.9	0.0	-371.4	0.00
		1062	94.5	6.5	21.9	0.0	-371.4	0.00
DW		1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
DC1+DC2+DW		1062	94.5	-20.0	164.6	-1.0	-2724.2	0.18
		1062	94.5	-20.0	164.6	-1.0	-2724.2	0.18

Load Cases and Load Combination	Live Load Consider			Member Forces from larsa				Flange lateral bending stress
		Macro Node No	larsa Station	Axial (FX)	Shear (Fz)	Weak Axis Moment (Mz)	Strong Axis Moment (My)	f_l
LL_MaxFX (LL)	HL-93	1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
LL_MINFX (LL)		1062	94.5	1.0	1.0	1.0	1.0	0.09
		1062	94.5	1.0	1.0	1.0	1.0	0.09
LL_MaxFZ (LL)		1062	94.5	-24.3	111.5	-0.7	-1549.1	0.06
		1062	94.5	-24.3	111.5	-0.7	-1549.1	0.06
LL_MINFZ (LL)		1062	94.5	33.3	10.2	1.9	260.2	0.17
		1062	94.5	33.3	10.2	1.9	260.2	0.17
LL_MaxMY (LL)		1062	94.5	33.3	9.6	1.4	260.3	0.12
		1062	94.5	33.3	9.6	1.4	260.3	0.12
LL_MINMY (LL)		1062	94.5	-7.9	91.9	-1.3	-1709.7	0.12
		1062	94.5	-7.9	91.9	-1.3	-1709.7	0.12

Load Cases and Load Combination	Live Load Consider		Load Factor					Resistance Factor		Longitudinal Stiffener		Transverse Stiffener			Hybrid factor
								Flexual	Shear	No, of Longitudinal stiffener provided ?	Dist from stiffener to comp. flg	Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?	
		Macro Node No	γ_{DC1}	γ_{DC2}	γ_{PL}	γ_{DW}	γ_{LL}	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h
								6.5.4.2	6.5.4.2						6.10.1.10.1
											(in)		(ft)		
DC1		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
DC2		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
DW		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
1.25DC1+1.25DC2+1.5DW		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MaxFX (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MINFX (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MaxFZ (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
	HL-93	1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MINFZ (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MaxMY (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
LL+I_MINMY (LL+IM)		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7	0	1.0

DC1_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
DC1_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
DC2_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
DC2_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
DW_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
DW_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MaxFX_Bracing Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MaxFX_Bracing End (LL+IM)		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MINFX_Bracing_Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MINFX_Bracing_End (LL+IM)		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MaxFZ_Bracing_End (LL+IM)	HL-93	1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MINFZ_Bracing_End (LL+IM)		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MaxMY_Bracing_End (LL+IM)		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
LL+I_MINMY_Bracing_Start (LL+IM)		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
LL+I_MINMY_Bracing_End (LL+IM)		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
1.25DC+1.5DW_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7	0	1.000
1.25DC+1.5DW_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24	0	1.000
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000

Load Cases and Load Combination	Live Load Consider		Load Factor					Resistance Factor		Longitudinal Stiffener		Transverse Stiffener			Hybrid factor
								Flexual	Shear	No, of Longitudinal stiffener provided ?	Dist from stiffener to comp. flg	Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?	
		Macro Node No	γ_{DC1}	γ_{DC2}	γ_{PL}	γ_{DW}	γ_{LL}	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h
								6.5.4.2	6.5.4.2						6.10.1.10.1
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	7.0	0	1.000
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	1.250	1.250	1.750	1.500	1.750	1.00	1.00	0	10000.00	0	24.1	0	1.000

		Macro Node No	YDC1	YDC2	YPL	YDW	YLL	ϕf	ϕv		ds	(Yes =0,No=1)	do	ıterior =0, End=	Rh
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
1.25DC+1.5DW+1.75LL+I_MinFX		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
1.25DC+1.5DW+1.75LL+I_MinMY		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0
		1062	1.25	1.25	1.75	1.50	1.75	1.00	1.00	0	10000.00	0	7.0	0	1.0

Load Cases and Load Combination	Live Load Consider		Load Factor					Resistance Factor		Longitudinal Stiffener		Transverse Stiffener			Hybrid factor
								Flexual	Shear	No, of Longitudinal stiffener provided ?	Dist from stiffener to comp. flg	Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?	
		Macro Node No	γ_{DC1}	γ_{DC2}	γ_{PL}	γ_{DW}	γ_{LL}	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h
								6.5.4.2	6.5.4.2						6.10.1.10.1
											(in)		(ft)		
DC1		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
DC2		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
DW		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
DC1+DC2+DW		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0

Load Cases and Load Combination	Live Load Consider		Load Factor					Resistance Factor		Longitudinal Stiffener		Transverse Stiffener			Hybrid factor
								Flexual	Shear	No, of Longitudinal stiffener provided ?	Dist from stiffener to comp. flg	Is transverse stiffener provided?	Transverse Stiffener Spacing	Is end panel or interior panel?	
		Macro Node No	Y_{DC1}	Y_{DC2}	Y_{PL}	Y_{DW}	Y_{LL}	ϕ_f	ϕ_v		d_s	(Yes =0,No=1)	d_o	(Interior =0, End=1)	R_h
								6.5.4.2	6.5.4.2						6.10.1.10.1
LL_MaxFX (LL)	HL-93	1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
LL_MINFX (LL)		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
LL_MaxFZ (LL)		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
LL_MINFZ (LL)		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
LL_MaxMY (LL)		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
LL_MINMY (LL)		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0
		1062	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0	10000.00	0	7	0	1.0

Load Cases and Load Combination	Live Load Consider		Material Properties								Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Area of Concrete Deck	Unbacing length	$(LL+I)_{\_long}+1/3*(LL+I)_{\_Trans}$ (At Bottom Flange)
			Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	rebar yield strength	conc deck	Girder	conc deck	Modular Ratio							
		Macro Node No	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	As	L_b	
			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)	(in^2)	(in)	
DC1		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
DC2		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
DW		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
1.25DC1+1.25DC2+1.5DW		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	
LL+I_MaxFX (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
LL+I_MINFX (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
LL+I_MaxFZ (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-11.48
	HL-93	1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-11.48
LL+I_MINFZ (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	2.33
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	2.33
LL+I_MaxMY (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	2.32
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	2.32
LL+I_MINMY (LL+IM)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-12.64
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-12.64

DC1_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
DC1_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
DC2_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
DC2_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
DW_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
DW_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MaxFX_Bracing Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MaxFX_Bracing End (LL+IM)		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MINFX_Bracing_End (LL+IM)		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MaxFZ_Bracing_End (LL+IM)	HL-93	1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MINFZ_Bracing_End (LL+IM)		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MaxMY_Bracing_End (LL+IM)		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
LL+I_MINMY_Bracing_End (LL+IM)		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	

Load Cases and Load Combination	Live Load Consider		Material Properties: Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	rebar yield strength	conc deck	Girder	conc deck	Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Area of Concrete Deck	Unbacing length	$(LL+I)_{long}+1/3*(LL+I)_{Trans}$ (At Bottom Flange)
		Macro Node No	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	As	L_b	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	84.000	
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	50.000	50.000	50.000	60.000	4.000	29000.000	3604.997	8.000	0.000	8.500	1.500	9.500	969.000	289.680	

		Macro Node No	Fyf	Fyw	Fyc	Fy_rebar	fc	E_steel	E_deck	n	Ars	t_deck	h_haunch	beff		Lb	
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-21.39
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-21.39
1.25DC+1.5DW+1.75LL+I_MinFX		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-21.39
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-21.39
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-41.45
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-41.45
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.58
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.58
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.51
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.51
1.25DC+1.5DW+1.75LL+I_MinMY		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-43.51
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-43.51
															Max =	**84.0**	

Load Cases and Load Combination	Live Load Consider		Material Properties: Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	rebar yield strength	conc deck	Girder	conc deck	Modular Ratio	Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Area of Concrete Deck	Unbacing length	$(LL+I)_{long}+1/3*(LL+I)_{Trans}$ (At Bottom Flange)
		Macro Node No	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	As	L_b	
			(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)		(in^2)	(in)	(in)	(ft)	(in^2)	(in)	
DC1		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-14.7
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-14.7
DC2		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-2.2
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-2.2
DW		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.0
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.0
DC1+DC2+DW		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.0
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-17.0

Load Cases and Load Combination	Live Load Consider		Material Properties								Area of deck rebar within effective width	Deck thickness	Haunch thickness	Effective width of the deck	Area of Concrete Deck	Unbacing length	$(LL+I)_{\_long}+1/3*(LL+I)_{\_Trans}$ (At Bottom Flange)
			Specified min flg yield strength	Specified web flg yield strength	Specified min yield strength of comp. flg	rebar yield strength	conc deck	Girder	conc deck	Modular Ratio							
		Macro Node No	F_{yf}	F_{yw}	F_{yc}	F_{y_rebar}	f_c	$E_{\_steel}$	$E_{\_deck}$	n	A_{rs}	$t_{\_deck}$	$h_{\_haunch}$	b_{eff}	As	L_b	
LL_MaxFX (LL)	HL-93	1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
LL_MINFX (LL)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	0.04
LL_MaxFZ (LL)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-9.74
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-9.74
LL_MINFZ (LL)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	1.93
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	1.93
LL_MaxMY (LL)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	1.91
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	1.91
LL_MINMY (LL)		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-10.61
		1062	50.0	50.0	50.0	60.0	4.0	29000.0	3605.0	8.0	0.0	8.5	1.5	9.5	969.0	84.0	-10.61

Load Cases and Load Combination	Live Load Consider		Non-Composite Section																	
			Top steel flange width	Top steel flange thk	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange	
		Macro Node No	b_{f_top}	$t_{\_top\ flg}$	$A_{\_st\_top\_flg}$	b_{f_bott}	$t_{\_bott\ flg}$	$A_{\_st\_bott\_flg}$	$D_{\_web}$	$t_{\_web}$	$A_{\_web}$	$A_{\_steel}$	$I_{\_steel}$	Y_T	Y_D	$S_{\_top\_flg}$	$S_{\_bott\_flg}$	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$	
			(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^4)	(in^4)	
DC1		1062	20.0	2.000	40.0	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
DC2		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
DW		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
1.25DC1+1.25DC2+1.5DW		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MaxFX (LL+IM)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MINFX (LL+IM)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MaxFZ (LL+IM)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MINFZ (LL+IM)	HL-93	1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MaxMY (LL+IM)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL+I_MINMY (LL+IM)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
DC1_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
DC1_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
DC2_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
DC2_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
DW_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
DW_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxFX_Bracing Start (LL+IM)		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxFX_Bracing End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINFX_Bracing_End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINFZ_Bracing_Start (LL+IM)	HL-93	1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINFZ_Bracing_End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MaxMY_Bracing_End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
LL+I_MINMY_Bracing_End (LL+IM)		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
1.25DC+1.5DW_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
1.25DC+1.5DW_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333	

Load Cases and Load Combination	Live Load Consider		Non-Composite Section															
			Top steel flange width	Top steel flange thk	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange
		Macro Node No	b_{f_top}	$t_{top\ flg}$	$A_{st\_top\_flg}$	b_{f_bott}	$t_{bott\ flg}$	$A_{st\_bott\_flg}$	D_{web}	t_{web}	A_{web}	A_{steel}	I_{steel}	Y_T	Y_D	S_{top_flg}	S_{bott_flg}	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start	HL-93	1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	20.000	2.000	40.000	20.000	2.000	40.000	42.000	1.000	42.000	122.000	44920.667	23.000	23.000	1953.072	1953.072	1333.333	1333.333

		Macro Node No	bf_top	t_top flg	A_st_top_fl	bf_bott	t_bott flg	_st_bott_fl	D_web	t_web	A_web	A_steel	I_steel	YT	YD	S_top_flg	S_bott_flg	Iy_top_flg	Iy_bott_flg
1.25DC+1.5DW+1.75LL+I_MaxFX		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
1.25DC+1.5DW+1.75LL+I_MinFX		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
1.25DC+1.5DW+1.75LL+I_MaxFZ	HL-93 for Inventory Rating	1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
1.25DC+1.5DW+1.75LL+I_MinMY		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.0	40.0	20.0	2.000	40.0	42.0	1.000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3

Load Cases and Load Combination	Live Load Consider		Non-Composite Section															
			Top steel flange width	Top steel flange thk	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange
		Macro Node No	b_{f_top}	$t_{top\ flg}$	$A_{st\_top\_flg}$	b_{f_bott}	$t_{bott\ flg}$	$A_{st\_bott\_flg}$	D_{web}	t_{web}	A_{web}	A_{steel}	I_{steel}	Y_T	Y_D	S_{top_flg}	S_{bott_flg}	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$
			(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in)	(in)	(in^2)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^4)	(in^4)
DC1		1062	20.0	2.000	40.0	20.0	2.000	40.0	42.0	1.0000	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
DC2		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
DW		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
DC1+DC2+DW		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3

Load Cases and Load Combination	Live Load Consider		Non-Composite Section																	
			Top steel flange width	Top steel flange thk	Top steel flange area	Bott steel flange width	Bott steel flange thk	Bott steel flange area	Girder Web Depth	Girder Web thk	Girder web area	Total Steel Area	Moment of inertia	CG to Top/Flange	CG to Bott/Flange	Section Modulus about major bending axis		Moment of Inertia of top Flange	Moment of Inertia of bott Flange	
		Macro Node No	b_{f_top}	$t_{\_top\ flg}$	$A_{\_st\_top\_flg}$	b_{f_bott}	$t_{\_bott\ flg}$	$A_{\_st\_bott\_flg}$	$D_{\_web}$	$t_{\_web}$	$A_{\_web}$	$A_{\_steel}$	$I_{\_steel}$	Y_T	Y_D	$S_{\_top\_flg}$	$S_{\_bott\_flg}$	$I_{y\_top\_flg}$	$I_{y\_bott\_flg}$	
LL_MaxFX (LL)	HL-93	1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL_MINFX (LL)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL_MaxFZ (LL)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL_MINFZ (LL)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL_MaxMY (LL)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
LL_MINMY (LL)		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	
		1062	20.0	2.00	40.0	20.0	2.00	40.0	42.0	1.0	42.0	122.0	44920.7	23.0	23.0	1953.1	1953.1	1333.3	1333.3	

Load Cases and Load Combination	Live Load Consider		Composite Section with Modular Ratio = n (at Positive Moment Region)							Composite Section with Modular Ratio = 3n (at Positive Moment Reigion)						
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel
		Macro Node No	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$	$A_{c(3n)}$	$I_{c(3n)}$	$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$
			(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)
DC1		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
DC2		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC1+1.25DC2+1.5DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MaxFX (LL+IM)	HL-93	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MINFX (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MaxFZ (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MINFZ (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MaxMY (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL+I_MINMY (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1

DC1_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
DC1_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
DC2_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
DC2_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
DW_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
DW_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxFX_Bracing End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINFX_Bracing_Start (LL+IM)		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINFX_Bracing_End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINFZ_Bracing_End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MaxMY_Bracing_End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINMY_Bracing_Start (LL+IM)		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
LL+I_MINMY_Bracing_End (LL+IM)		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072

Load Cases and Load Combination	Live Load Consider	Composite Section with Modular Ratio = n (at Positive Moment Region)								Composite Section with Modular Ratio = 3n (at Positive Moment Reigion)						
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel
		Macro Node No	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$	$A_{c(3n)}$	$I_{c(3n)}$	$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	122.000	44920.7	N/A	23.000	23.000	1953.072	1953.072	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072

		Macro Node No	Ac(n)	Ic(n)	Yslabc(n)	Ytc(n)	Ybc(n)	Stc(n)	Sbc(n)	Ac(3n)	Ic(3n)	Yslabc(3n)	Ytc(3n)	Ybc(3n)	Stc(3n)	Sbc(3n)
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC+1.5DW+1.75LL+I_MinFX		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
1.25DC+1.5DW+1.75LL+I_MinMY		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1

Load Cases and Load Combination	Live Load Consider	Composite Section with Modular Ratio = n (at Positive Moment Region)								Composite Section with Modular Ratio = 3n (at Positive Moment Reigion)						
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel
		Macro Node No	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$	$A_{c(3n)}$	$I_{c(3n)}$	$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$
			(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)	(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)
DC1		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
DC2		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
DC1+DC2+DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1

Load Cases and Load Combination	Live Load Consider	Composite Section with Modular Ratio = n (at Positive Moment Region)								Composite Section with Modular Ratio = 3n (at Positive Moment Reigion)						
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel
		Macro Node No	$A_{c(n)}$	$I_{c(n)}$	$Y_{slabc(n)}$	$Y_{tc(n)}$	$Y_{bc(n)}$	$S_{tc(n)}$	$S_{bc(n)}$	$A_{c(3n)}$	$I_{c(3n)}$	$Y_{slabc(3n)}$	$Y_{tc(3n)}$	$Y_{bc(3n)}$	$S_{tc(3n)}$	$S_{bc(3n)}$
LL_MaxFX (LL)	HL-93	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL_MINFX (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL_MaxFZ (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL_MINFZ (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL_MaxMY (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
LL_MINMY (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1

Load Cases and Load Combination	Live Load Consider		Composite Section with Modular Ratio = n (at Negative Moment Region)								Check if it is compact composite section for M+ (6.10.6.2.2)					
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel		Depth of web in compression at the M_p	Is flg strength ≤70 ksi ?	Is $D/t_w \le 150$?	Is $2D_{cp}/t_w \le 3.76^*(E/F_{yc})^{1/2}$?	Is compact composite section?	
		Macro Node No	A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$		D_{cp}	Yes =0, No=1	Yes =0,No=1	Yes =0, No=1		
											(D6.3.2-1)				AASHTO 6.10.6.2.2	
			(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)		(in)					
DC1		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
DC2		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
1.25DC1+1.25DC2+1.5DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MaxFX (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MINFX (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MaxFZ (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
	HL-93	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MINFZ (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MaxMY (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL+I_MINMY (LL+IM)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	

DC1_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
DC1_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
DC2_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
DC2_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
DW_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
DW_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxFX_Bracing Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxFX_Bracing End (LL+IM)		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINFX_Bracing_End (LL+IM)		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxFZ_Bracing_End (LL+IM)	HL-93	1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINFZ_Bracing_End (LL+IM)		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MaxMY_Bracing_End (LL+IM)		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
LL+I_MINMY_Bracing_End (LL+IM)		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
1.25DC+1.5DW_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
1.25DC+1.5DW_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072		0.000	0.000	0.000	0.000	compact, follow 6.10.7.1	

Load Cases and Load Combination	Live Load Consider		Composite Section with Modular Ratio = n (at Negative Moment Region)							Check if it is compact composite section for M+ (6.10.6.2.2)				
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Depth of web in compression at the M_p	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤3.76*$(E/F_{yc})^{1/2}$?	Is compact composite section?
		Macro Node No	A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$	D_{cp}	Yes =0, No=1	Yes =0,No=1	Yes =0, No=1	
										(D6.3.2-1)				AASHTO 6.10.6.2.2
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	122.000	44920.667	N/A	23.000	23.000	1953.072	1953.072	0.000	0.000	0.000	0.000	compact, follow 6.10.7.1

		Macro Node No	Ac	Ic	Yslabc	Ytc	Ybc	Stc(n)	Sbc(n)	Dcp	Yes =0, No=1	Yes =0,No=1	Yes =0, No=1	
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFX		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
1.25DC+1.5DW+1.75LL+I_MinMY		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	-11.9	0.0	0.0	0.0	compact, follow 6.10.7.1

Load Cases and Load Combination	Live Load Consider		Composite Section with Modular Ratio = n (at Negative Moment Region)							Check if it is compact composite section for M+ (6.10.6.2.2)				
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel	Depth of web in compression at the M_p	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤3.76*$(E/F_{yc})^{1/2}$?	Is compact composite section?
		Macro Node No	A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$	D_{cp}	Yes =0, No=1	Yes =0,No=1	Yes =0, No=1	
										(D6.3.2-1)				AASHTO 6.10.6.2.2
			(in^2)	(in^4)	(in)	(in)	(in^3)	(in^3)	(in^3)	(in)				
DC1		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
DC2		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
DC1+DC2+DW		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1	0.0	0.0	0.0	0.0	compact, follow 6.10.7.1

Load Cases and Load Combination	Live Load Consider		Composite Section with Modular Ratio = n (at Negative Moment Region)									Check if it is compact composite section for M+ (6.10.6.2.2)					
			Area	Moment of inertia	Distance from CG to top of deck	Distance from CG to top of steel	Distance from CG to bott of steel	Section Modulus to top of steel	Section Modulus to bott of steel		Depth of web in compression at the M_p	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤3.76*$(E/F_{yc})^{1/2}$?	Is compact composite section?	
		Macro Node No	A_c	I_c	Y_{slabc}	Y_{tc}	Y_{bc}	$S_{tc(n)}$	$S_{bc(n)}$		D_{cp}	Yes =0, No=1	Yes =0,No=1	Yes =0, No=1		
											(D6.3.2-1)				AASHTO 6.10.6.2.2	
LL_MaxFX (LL)	HL-93	1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL_MINFX (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL_MaxFZ (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL_MINFZ (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL_MaxMY (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
LL_MINMY (LL)		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	
		1062	122.0	44920.7	N/A	23.0	23.0	1953.1	1953.1		0.0	0.0	0.0	0.0	compact, follow 6.10.7.1	

Load Cases and Load Combination	Live Load Consider		Check if it is compact composite section for M- (6.10.6.2.3)							6.10.1.9 - Web Bend-Buckling Resistance F_{crw} 6.10.1.9.1 without longitudinal stiffeners				
			D_{cp}	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤ $5.76*(E/F_{yc})^{1/2}$?	Is I_{yc}/I_{yt} ≥ 0.3 ?	Is compact composite section?		Sum of Top -flange stress	Sum of Bottom -flange stress	Depth of web in compression	Bend-buckling coefficient	Nominal bend-buckling resistance
		Macro Node No	(D6.3.2-2)	Yes =0,No=1	Yes =0,No=1	Yes =0,No=1				f_top	f_bottom	D_c	k	F_{crw}
								AASHTO 6.10.6.2.2		D6.3.1	D6.3.1	D6.3.1-1	6.10.1.9.1-2	6.10.1.9.1-1
			(in)							(ksi)	(ksi)	(in)		
DC1		1062	21.0	0.0	0.0	0.0	0.0	Compact section		14.24	-14.69	21.4	34.8	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		14.24	-14.69	21.4	34.8	50.0
DC2		1062	21.0	0.0	0.0	0.0	0.0	Compact section		2.335	-2.229	20.5	37.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		2.34	-2.23	20.5	37.9	50.0
DW		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.01	0.00	3.8	1123.3	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.01	0.00	3.8	1123.3	50.0
1.25DC1+1.25DC2+1.5DW		1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.14	21.2	35.2	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.14	21.2	35.2	50.0
LL+I_MaxFX (LL+IM)	HL-93	1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.00	0.01	38.2	10.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.00	0.01	38.2	10.9	50.0
LL+I_MINFX (LL+IM)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.00	0.01	38.2	10.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.00	0.01	38.2	10.9	50.0
LL+I_MaxFZ (LL+IM)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		10.98	-11.46	21.5	34.4	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		10.98	-11.46	21.5	34.4	50.0
LL+I_MINFZ (LL+IM)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.61	2.27	17.1	54.4	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.61	2.27	17.1	54.4	50.0
LL+I_MaxMY (LL+IM)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.61	2.27	17.1	54.4	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.61	2.27	17.1	54.4	50.0
LL+I_MINMY (LL+IM)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		12.47	-12.59	21.1	35.6	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		12.47	-12.59	21.1	35.6	50.0

DC1_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		14.2	-14.7	21.358	34.804	50.000
DC1_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		8.8	-9.2	21.576	34.103	50.000
DC2_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		2.335	-2.2	20.464	37.910	50.000
DC2_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		1.433	-1.3	20.304	38.509	50.000
DW_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		0.01	0.00	3.759	1123.278	50.000
DW_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		0.01	0.00	3.759	1123.278	50.000
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062	21.000	0.000	0.000	0.000	0.000	Compact section		0.0	0.0	38.241	10.857	50.000
LL+I_MaxFX_Bracing End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		0.0	0.0	38.241	10.857	50.000
LL+I_MINFX_Bracing_Start (LL+IM)		1062	21.000	0.000	0.000	0.000	0.000	Compact section		0.0	0.0	38.241	10.857	50.000
LL+I_MINFX_Bracing_End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		0.0	0.0	38.241	10.857	50.000
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	21.000	0.000	0.000	0.000	0.000	Compact section		11.0	-11.5	21.496	34.358	50.000
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		6.0	-5.8	20.510	37.742	50.000
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	21.000	0.000	0.000	0.000	0.000	Compact section		-1.6	2.3	17.076	54.445	50.000
LL+I_MINFZ_Bracing_End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		-1.1	1.8	15.426	66.719	50.000
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	21.000	0.000	0.000	0.000	0.000	Compact section		-1.6	2.3	17.078	54.433	50.000
LL+I_MaxMY_Bracing_End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		-1.6	2.1	17.619	51.140	50.000
LL+I_MINMY_Bracing_Start (LL+IM)		1062	21.000	0.000	0.000	0.000	0.000	Compact section		12.5	-12.6	21.116	35.604	50.000
LL+I_MINMY_Bracing_End (LL+IM)		1064	21.000	0.000	0.000	0.000	0.000	Compact section		8.3	-8.6	21.382	34.725	50.000
1.25DC+1.5DW_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		20.74	-21.14	21.222	35.249	50.000
1.25DC+1.5DW_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		12.76	-13.19	21.384	34.720	50.000
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		20.74	-21.12	21.207	35.301	50.000

6.10.1.9 - Web Bend-Buckling Resistance F_{crw}

Load Cases and Load Combination	Live Load Consider		Check if it is compact composite section for M- (6.10.6.2.3)							6.10.1.9.1 without longitudinal stiffeners				
			D_{cp}	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤ $5.76*(E/F_{yc})^{1/2}$?	Is I_{yc}/I_{yt} ≥ 0.3 ?	Is compact composite section?		Sum of Top -flange stress	Sum of Bottom -flange stress	Depth of web in compression	Bend-buckling coefficient	Nominal bend-buckling resistance
		Macro Node No	(D6.3.2-2)	Yes =0,No=1	Yes =0,No=1	Yes =0,No=1				f_top	f_bottom	D_c	k	F_{crw}
								AASHTO 6.10.6.2.2		D6.3.1	D6.3.1	D6.3.1-1	6.10.1.9.1-2	6.10.1.9.1-1
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	21.000	0.000	0.000	0.000	0.000	Compact section		12.76	-13.16	21.359	34.802	50.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		20.74	-21.12	21.207	35.301	50.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		12.76	-13.16	21.359	34.802	50.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		39.94	-41.20	21.355	34.814	50.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		23.33	-23.32	20.996	36.015	50.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		17.93	-17.18	20.508	37.748	50.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		10.86	-10.07	20.140	39.142	50.000
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		17.93	-17.17	20.508	37.748	50.000
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		10.01	-9.50	20.394	38.170	50.000
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	21.000	0.000	0.000	0.000	0.000	Compact section		42.55	-43.18	21.168	35.430	50.000
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	21.000	0.000	0.000	0.000	0.000	Compact section		27.34	-28.27	21.383	34.722	50.000

		Macro Node No	(D6.3.2-2)	Yes =0,No=1	Yes =0,No=1	Yes =0,No=1				f_top	f_bottom	Dc	k	Fcrw
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.25	21.3	35.1	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.25	21.3	35.1	50.0
1.25DC+1.5DW+1.75LL+I_MinFX		1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.25	21.3	35.1	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		20.74	-21.25	21.3	35.1	50.0
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	21.0	0.0	0.0	0.0	0.0	Compact section		39.94	-41.32	21.4	34.7	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		39.94	-41.32	21.4	34.7	50.0
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	21.0	0.0	0.0	0.0	0.0	Compact section		17.93	-17.38	20.6	37.3	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		17.93	-17.38	20.6	37.3	50.0
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	21.0	0.0	0.0	0.0	0.0	Compact section		17.93	-17.34	20.6	37.3	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		17.93	-17.34	20.6	37.3	50.0
1.25DC+1.5DW+1.75LL+I_MinMY		1062	21.0	0.0	0.0	0.0	0.0	Compact section		42.55	-43.34	21.2	35.3	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		42.55	-43.34	21.2	35.3	50.0

Load Cases and Load Combination	Live Load Consider		Check if it is compact composite section for M- (6.10.6.2.3)							6.10.1.9.1 without longitudinal stiffeners				
			D_{cp}	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤ $5.76*(E/F_{yc})^{1/2}$?	Is I_{yc}/I_{yt} ≥ 0.3 ?	Is compact composite section?		Sum of Top -flange stress	Sum of Bottom -flange stress	Depth of web in compression	Bend-buckling coefficient	Nominal bend-buckling resistance
		Macro Node No	(D6.3.2-2)	Yes =0,No=1	Yes =0,No=1	Yes =0,No=1				f_top	f_bottom	D_c	k	F_{crw}
								AASHTO 6.10.6.2.2		D6.3.1	D6.3.1	D6.3.1-1	6.10.1.9.1-2	6.10.1.9.1-1
			(in)							(ksi)	(ksi)	(in)		
DC1		1062	21.0	0.0	0.0	0.0	0.0	Compact section		14.24	-14.69	21.4	34.8	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		14.24	-14.69	21.4	34.8	50.0
DC2		1062	21.0	0.0	0.0	0.0	0.0	Compact section		2.335	-2.229	20.5	37.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		2.34	-2.23	20.5	37.9	50.0
DW		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.01	0.00	3.8	1123.3	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.01	0.00	3.8	1123.3	50.0
DC1+DC2+DW		1062	21.0	0.0	0.0	0.0	0.0	Compact section		16.59	-16.91	21.2	35.2	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		16.59	-16.91	21.2	35.2	50.0

Load Cases and Load Combination	Live Load Consider		Check if it is compact composite section for M- (6.10.6.2.3)							6.10.1.9 - Web Bend-Buckling Resistance F_{crw} — 6.10.1.9.1 without longitudinal stiffeners				
			D_{cp}	Is flg strength ≤70 ksi ?	Is D/t_w≤150 ?	Is $2D_{cp}/t_w$≤ $5.76*(E/F_{yc})^{1/2}$?	Is I_{yc}/I_{yt} ≥ 0.3 ?	Is compact composite section?		Sum of Top -flange stress	Sum of Bottom -flange stress	Depth of web in compression	Bend-buckling coefficient	Nominal bend-buckling resistance
		Macro Node No	(D6.3.2-2)	Yes =0,No=1	Yes =0,No=1	Yes =0,No=1				f_top	f_bottom	D_c	k	F_{crw}
								AASHTO 6.10.6.2.2		D6.3.1	D6.3.1	D6.3.1-1	6.10.1.9.1-2	6.10.1.9.1-1
LL_MaxFX (LL)	HL-93	1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.002	0.01	38.2	10.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.002	0.01	38.2	10.9	50.0
LL_MINFX (LL)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.002	0.01	38.2	10.9	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		0.002	0.01	38.2	10.9	50.0
LL_MaxFZ (LL)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		9.319	-9.72	21.5	34.4	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		9.319	-9.72	21.5	34.4	50.0
LL_MINFZ (LL)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.326	1.87	17.1	54.5	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.326	1.87	17.1	54.5	50.0
LL_MaxMY (LL)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.327	1.87	17.1	54.4	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		-1.327	1.87	17.1	54.4	50.0
LL_MINMY (LL)		1062	21.0	0.0	0.0	0.0	0.0	Compact section		10.440	-10.57	21.1	35.5	50.0
		1062	21.0	0.0	0.0	0.0	0.0	Compact section		10.440	-10.57	21.1	35.5	50.0

Load Cases and Load Combination	Live Load Consider	Macro Node No	6.10.1.9.2 with longitudinal stiffeners: Bend-buckling coefficient k	6.10.1.9.2 with longitudinal stiffeners: Nominal bend-buckling resistance F_{crw}	Nominal bend-buckling resistance (Use) F_{crw}		6.10.1.10.2 - W: R_b without longitudinal stiffener: Limiting slenderness ratio for a noncompact web λ_{rw}	Full width of compression flg b_{fc}	Thickness of compression flg t_{fc}	a_{wc}	Web Load-Shedding Factor R_b Exclude composite in positive flexure with	Web Load-Shedding Factor R_b Composite in positive flexure	Web Load-Shedding Factor R_b ("0" means not applicable)
			6.10.1.9.2-1	6.10.1.9.1-1			6.10.1.10.2-4			6.10.1.10.2-5			
					(ksi)			(in)	(in)				
DC1		1062	34.8	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
		1062	34.8	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
DC2		1062	37.9	50.0	50.0		137.3	20.0	2.0	1.0	1.000	1.0	1.0
		1062	37.9	50.0	50.0		137.3	20.0	2.0	1.0	1.000	1.0	1.0
DW		1062	1123.3	50.0	50.0		137.3	20.0	2.0	0.2	1.000	1.0	1.0
		1062	1123.3	50.0	50.0		137.3	20.0	2.0	0.2	1.000	1.0	1.0
1.25DC1+1.25DC2+1.5DW		1062	35.2	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
		1062	35.2	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
LL+I_MaxFX (LL+IM)	HL-93	1062	10.9	50.0	50.0		137.3	20.0	2.0	1.9	1.000	1.0	1.0
		1062	10.9	50.0	50.0		137.3	20.0	2.0	1.9	1.000	1.0	1.0
LL+I_MINFX (LL+IM)		1062	10.9	50.0	50.0		137.3	20.0	2.0	1.9	1.000	1.0	1.0
		1062	10.9	50.0	50.0		137.3	20.0	2.0	1.9	1.000	1.0	1.0
LL+I_MaxFZ (LL+IM)		1062	34.4	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
		1062	34.4	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
LL+I_MINFZ (LL+IM)		1062	54.4	50.0	50.0		137.3	20.0	2.0	0.9	1.000	1.0	1.0
		1062	54.4	50.0	50.0		137.3	20.0	2.0	0.9	1.000	1.0	1.0
LL+I_MaxMY (LL+IM)		1062	54.4	50.0	50.0		137.3	20.0	2.0	0.9	1.000	1.0	1.0
		1062	54.4	50.0	50.0		137.3	20.0	2.0	0.9	1.000	1.0	1.0
LL+I_MINMY (LL+IM)		1062	35.6	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0
		1062	35.6	50.0	50.0		137.3	20.0	2.0	1.1	1.000	1.0	1.0

Load Cases and Load Combination	Live Load Consider	Macro Node No	k	F_{crw}	F_{crw} (Use)		λ_{rw}	b_{fc}	t_{fc}	a_{wc}	R_b	R_b	R_b
DC1_Bracing Start		1062	34.804	50.000	50.000		137.274	20.000	2.000	1.068	1.000	1.000	1.000
DC1_Bracing End		1064	34.103	50.000	50.000		137.274	20.000	2.000	1.079	1.000	1.000	1.000
DC2_Bracing Start		1062	37.910	50.000	50.000		137.274	20.000	2.000	1.023	1.000	1.000	1.000
DC2_Bracing End		1064	38.509	50.000	50.000		137.274	20.000	2.000	1.015	1.000	1.000	1.000
DW_Bracing Start		1062	1123.278	50.000	50.000		137.274	20.000	2.000	0.188	1.000	1.000	1.000
DW_Bracing End		1064	1123.278	50.000	50.000		137.274	20.000	2.000	0.188	1.000	1.000	1.000
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062	10.857	50.000	50.000		137.274	20.000	2.000	1.912	1.000	1.000	1.000
LL+I_MaxFX_Bracing End (LL+IM)		1064	10.857	50.000	50.000		137.274	20.000	2.000	1.912	1.000	1.000	1.000
LL+I_MINFX_Bracing_Start (LL+IM)		1062	10.857	50.000	50.000		137.274	20.000	2.000	1.912	1.000	1.000	1.000
LL+I_MINFX_Bracing_End (LL+IM)		1064	10.857	50.000	50.000		137.274	20.000	2.000	1.912	1.000	1.000	1.000
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	34.358	50.000	50.000		137.274	20.000	2.000	1.075	1.000	1.000	1.000
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	37.742	50.000	50.000		137.274	20.000	2.000	1.025	1.000	1.000	1.000
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	54.445	50.000	50.000		137.274	20.000	2.000	0.854	1.000	1.000	1.000
LL+I_MINFZ_Bracing_End (LL+IM)		1064	66.719	50.000	50.000		137.274	20.000	2.000	0.771	1.000	1.000	1.000
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	54.433	50.000	50.000		137.274	20.000	2.000	0.854	1.000	1.000	1.000
LL+I_MaxMY_Bracing_End (LL+IM)		1064	51.140	50.000	50.000		137.274	20.000	2.000	0.881	1.000	1.000	1.000
LL+I_MINMY_Bracing_Start (LL+IM)		1062	35.604	50.000	50.000		137.274	20.000	2.000	1.056	1.000	1.000	1.000
LL+I_MINMY_Bracing_End (LL+IM)		1064	34.725	50.000	50.000		137.274	20.000	2.000	1.069	1.000	1.000	1.000
1.25DC+1.5DW_Bracing Start		1062	35.249	50.000	50.000		137.274	20.000	2.000	1.061	1.000	1.000	1.000
1.25DC+1.5DW_Bracing End		1064	34.720	50.000	50.000		137.274	20.000	2.000	1.069	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	35.301	50.000	50.000		137.274	20.000	2.000	1.060	1.000	1.000	1.000

Load Cases and Load Combination	Live Load Consider		6.10.1.9.2 with longitudinal stiffeners		Nominal bend-buckling resistance (Use)	6.10.1.10.2 - We: R_b without longitudinal stiffener						
			Bend-buckling coefficient	Nominal bend-buckling resistance		Limiting slenderness ratio for a noncompact web	Full width of compression flg	Thickness of compression flg	α_{wc}	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b
		Macro Node No	k	F_{crw}	$\mathbf{F_{crw}}$	λ_{rw}	b_{fc}	t_{fc}		Exclude composite in positive flexure with	Composite in positive flexure	("0" means not applicable)
			6.10.1.9.2-1	6.10.1.9.1-1		6.10.1.10.2-4			6.10.1.10.2-5			
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	34.802	50.000	50.000	137.274	20.000	2.000	1.068	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	35.301	50.000	50.000	137.274	20.000	2.000	1.060	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	34.802	50.000	50.000	137.274	20.000	2.000	1.068	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	34.814	50.000	50.000	137.274	20.000	2.000	1.068	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	36.015	50.000	50.000	137.274	20.000	2.000	1.050	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	37.748	50.000	50.000	137.274	20.000	2.000	1.025	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	39.142	50.000	50.000	137.274	20.000	2.000	1.007	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	37.748	50.000	50.000	137.274	20.000	2.000	1.025	1.000	1.000	1.000
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	38.170	50.000	50.000	137.274	20.000	2.000	1.020	1.000	1.000	1.000
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	35.430	50.000	50.000	137.274	20.000	2.000	1.058	1.000	1.000	1.000
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	34.722	50.000	50.000	137.274	20.000	2.000	1.069	1.000	1.000	1.000

		Macro Node No	k	Fcrw	Fcrw	λ_{rw}	bfc	tfc		Rb	Rb	Rb
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	35.1	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	35.1	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinFX		1062	35.1	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	35.1	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	34.7	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	34.7	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	37.3	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
		1062	37.3	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	37.3	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
		1062	37.3	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinMY		1062	35.3	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	35.3	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0

Load Cases and Load Combination	Live Load Consider		6.10.1.9.2 with longitudinal stiffeners		Nominal bend-buckling resistance (Use)	6.10.1.10.2 - We: R_b without longitudinal stiffener						
			Bend-buckling coefficient	Nominal bend-buckling resistance		Limiting slenderness ratio for a noncompact web	Full width of compression flg	Thickness of compression flg	α_{wc}	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b
		Macro Node No	k	F_{crw}	$\mathbf{F_{crw}}$	Y_{rw}	b_{fc}	t_{fc}		Exclude composite in positive flexure with	Composite in positive flexure	("0" means not applicable)
			6.10.1.9.2-1	6.10.1.9.1-1		6.10.1.10.2-4			6.10.1.10.2-5			
					(ksi)							
DC1		1062	34.8	50.0	50.0							
		1062	34.8	50.0	50.0							
DC2		1062	37.9	50.0	50.0							
		1062	37.9	50.0	50.0							
DW		1062	1123.3	50.0	50.0							
		1062	1123.3	50.0	50.0							
DC1+DC2+DW		1062	35.2	50.0	50.0							
		1062	35.2	50.0	50.0							

Load Cases and Load Combination	Live Load Consider	Macro Node No	6.10.1.9.2 with longitudinal stiffeners: Bend-buckling coefficient k (6.10.1.9.2-1)	Nominal bend-buckling resistance F_{crw} (6.10.1.9.1-1)	Nominal bend-buckling resistance (Use) F_{crw}	6.10.1.10.2 - W… R_b without longitudinal stiffener: Limiting slenderness ratio for a noncompact web λ_{rw} (6.10.1.10.2-4)	Full width of compression flg b_{fc}	Thickness of compression flg t_{fc}	a_{wc} (6.10.1.10.2-5)	Web Load-Shedding Factor R_b Exclude composite in positive flexure with	Web Load-Shedding Factor R_b Composite in positive flexure	Web Load-Shedding Factor R_b ("0" means not applicable)
						λ_{rw}	bfc	tfc		Rb	Rb	Rb
LL_MaxFX (LL)	HL-93	1062	10.9	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	10.9	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
LL_MINFX (LL)		1062	10.9	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	10.9	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
LL_MaxFZ (LL)		1062	34.4	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	34.4	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
LL_MINFZ (LL)		1062	54.5	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
		1062	54.5	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
LL_MaxMY (LL)		1062	54.4	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
		1062	54.4	50.0	50.0	137.3	20.0	2.000	1.0	1.000	1.0	1.0
LL_MINMY (LL)		1062	35.5	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0
		1062	35.5	50.0	50.0	137.3	20.0	2.000	1.1	1.000	1.0	1.0

Load Cases and Load Combination	Live Load Consider		…eb Load-Shedding Factor R_b: R_b with longitudinal stiffener									R_{b_final}	6.10.7 - Flexural Resistance -Composite Sections in Positive Flexure: 6.10.7.1 - Flexural Resistance - Composite Compact Section in Positive Flexure				6.10.7.2 - Flexural Resistance - Composite Non Compact Section in Positive Flexure					Comp Section in Postive Flexure
			Bend-buckling coefficient	Is $D/t_w \le 0.95(Ek/F_{yc})^{1/2}$?	Is $2D_c/t_w \le \lambda_{rw}$?	a_{wc}	a_{wc}	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Apply ?	Dist from T/deck to comp sect NA	Plastic Moment	Nominal flexural resistance	Apply ?	Dist from T/deck to comp sect NA	$D_p \le 0.42 D_t$?	Nominal flexural resistance of compression flange	Nominal flexural resistance of tension flange	D6.2.2-2
		Macro Node No	k	Yes =0, No=1	Yes =0,No=1	(For positive Moment)	(for others)	Exclude composite in positive flexure	Composite in positive flexure	("0" means not applicable)	Use	Yes =0, No=1	D_p	M_p	M_n	Yes =0, No=1	D_p	Yes=OK, No=NG	F_{nc}	F_{nt}	My
						6.10.1.10.2-6	6.10.1.10.2-5							D6.1	6.10.7.1.2			6.10.7.3-1	6.10.7.2.2-1	6.10.7.2.2-2	D6.2.2-2
														(k-ft)	(k-ft)				(ksi)	(ksi)	(k-ft)
DC1		1062	34.8	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	34.8	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
DC2		1062	37.9	0.0	0.0	0.59	1.02	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	37.9	0.0	0.0	0.59	1.02	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
DW		1062	1123.3	0.0	0.0	0.11	0.19	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	1123.3	0.0	0.0	0.11	0.19	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
1.25DC1+1.25DC2+1.5DW		1062	35.2	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	35.2	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MaxFX (LL+IM)		1062	10.9	0.0	0.0	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	10.9	0.0	0.0	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MINFX (LL+IM)		1062	10.9	0.0	0.0	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	10.9	0.0	0.0	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MaxFZ (LL+IM)		1062	34.4	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
	HL-93	1062	34.4	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MINFZ (LL+IM)		1062	54.4	0.0	0.0	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	54.4	0.0	0.0	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MaxMY (LL+IM)		1062	54.4	0.0	0.0	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	54.4	0.0	0.0	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
LL+I_MINMY (LL+IM)		1062	35.6	0.0	0.0	0.61	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	
		1062	35.6	0.0	0.0	0.61	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	

DC1_Bracing Start		1062	34.804	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
DC1_Bracing End		1064	34.103	0.000	0.000	0.63	1.08	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
DC2_Bracing Start		1062	37.910	0.000	0.000	0.59	1.02	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
DC2_Bracing End		1064	38.509	0.000	0.000	0.59	1.02	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
DW_Bracing Start		1062	1123.278	0.000	0.000	0.11	0.19	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
DW_Bracing End		1064	1123.278	0.000	0.000	0.11	0.19	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxFX_Bracing Start (LL+IM)		1062	10.857	0.000	0.000	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxFX_Bracing End (LL+IM)		1064	10.857	0.000	0.000	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	10.857	0.000	0.000	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINFX_Bracing_End (LL+IM)		1064	10.857	0.000	0.000	1.11	1.91	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	34.358	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxFZ_Bracing_End (LL+IM)	HL-93	1064	37.742	0.000	0.000	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	54.445	0.000	0.000	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINFZ_Bracing_End (LL+IM)		1064	66.719	0.000	0.000	0.45	0.77	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	54.433	0.000	0.000	0.50	0.85	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MaxMY_Bracing_End (LL+IM)		1064	51.140	0.000	0.000	0.51	0.88	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	35.604	0.000	0.000	0.61	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
LL+I_MINMY_Bracing_End (LL+IM)		1064	34.725	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW_Bracing Start		1062	35.249	0.000	0.000	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW_Bracing End		1064	34.720	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	35.301	0.000	0.000	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	

Load Cases and Load Combination	Live Load Consider	Macro Node No	...eb Load-Shedding Factor R_b — R_b with longitudinal stiffener: Bend-buckling coefficient k	Is $D/t_w \le 0.95(Ek/F_{yc})^{1/2}$? Yes =0, No=1	Is $2D_c/t_w \le \lambda_{rw}$? Yes =0,No=1	α_{wc} (For positive Moment)	α_{wc} (for others)	Web Load-Shedding Factor R_b Exclude composite in positive flexure	Web Load-Shedding Factor R_b Composite in positive flexure	Web Load-Shedding Factor R_b ("0" means not applicable)	R_{b_final} Web Load-Shedding Factor R_b Use	6.10.7.1 - Flexural Resistance - Composite Compact Section in Positive Flexure: Apply ? Yes =0, No=1	Dist from T/deck to comp sect NA D_p	Plastic Moment M_p	Nominal flexural resistance M_n	6.10.7.2 - Flexural Resistance - Composite Non Compact Section in Positive Flexure: Apply ? Yes =0, No=1	Dist from T/deck to comp sect NA D_p	$D_p \le 0.42 D_t$? Yes=OK, No=NG	Nominal flexural resistance of compression flange F_{nc}	Nominal flexural resistance of tension flange F_{nt}	Comp Section in Postive Flexure D6.2.2-2 My
						6.10.1.10.2-6	6.10.1.10.2-5							D6.1	6.10.7.1.2			6.10.7.3-1	6.10.7.2.2-1	6.10.7.2.2-2	D6.2.2-2
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	34.802	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	35.301	0.000	0.000	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	34.802	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	34.814	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	36.015	0.000	0.000	0.61	1.05	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	37.748	0.000	0.000	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	39.142	0.000	0.000	0.58	1.01	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	37.748	0.000	0.000	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	38.170	0.000	0.000	0.59	1.02	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	35.430	0.000	0.000	0.61	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	34.722	0.000	0.000	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.000	N/A	N/A	50.000	50.000	

		Macro Node No	k	es =0, No=	s =0,No	α_{wc}	α_{wc}	Rb	Rb	Rb	Rb_final	Yes =0, No=1	Dp	Mp	Mn	Yes =0, No=	Dp	es=OK, No=N	Fnc	Fnt	My
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
1.25DC+1.5DW+1.75LL+I_MinFX		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	34.7	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	34.7	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
1.25DC+1.5DW+1.75LL+I_MinMY		1062	35.3	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.3	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	1	N/A	N/A	N/A	1.0	N/A	N/A	50.0	50.0	8173.8

Load Cases and Load Combination	Live Load Consider	Macro Node No	...eb Load-Shedding Factor R_b — R_b with longitudinal stiffener: Bend-buckling coefficient k	Is $D/t_w \le 0.95(Ek/F_{yc})^{1/2}$? Yes =0, No=1	Is $2D_c/t_w \le \lambda_{rw}$? Yes =0,No=1	α_{wc} (For positive Moment)	α_{wc} (for others)	Web Load-Shedding Factor R_b Exclude composite in positive flexure	Web Load-Shedding Factor R_b Composite in positive flexure	Web Load-Shedding Factor R_b ("0" means not applicable)	R_{b_final} Web Load-Shedding Factor R_b Use	6.10.7.1 - Flexural Resistance - Composite Compact Section in Positive Flexure: Apply ? Yes =0, No=1	Dist from T/deck to comp sect NA D_p	Plastic Moment M_p	Nominal flexural resistance M_n	6.10.7.2 - Flexural Resistance - Composite Non Compact Section in Positive Flexure: Apply ? Yes =0, No=1	Dist from T/deck to comp sect NA D_p	$D_p \le 0.42 D_t$? Yes=OK, No=NG	Nominal flexural resistance of compression flange F_{nc}	Nominal flexural resistance of tension flange F_{nt}	Comp Section in Postive Flexure D6.2.2-2 My
						6.10.1.10.2-6	6.10.1.10.2-5							D6.1	6.10.7.1.2			6.10.7.3-1	6.10.7.2.2-1	6.10.7.2.2-2	D6.2.2-2
DC1		1062																			
		1062																			
DC2		1062																			
		1062																			
DW		1062																			
		1062																			
DC1+DC2+DW		1062																			
		1062																			

Load Cases and Load Combination	Live Load Consider	Macro Node No	Web Load-Shedding Factor R_b — R_b with longitudinal stiffener: Bend-buckling coefficient	Is $D/t_w \le 0.95(Ek/F_{yc})^{1/2}$?	Is $2D_c/t_w \le \lambda_{rw}$?	α_{wc}	α_{wc}	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	Web Load-Shedding Factor R_b	R_{b_final}: Web Load-Shedding Factor R_b		6.10.7 - Flexural Resistance -Composite Sections in Positive Flexure — 6.10.7.1 - Flexural Resistance - Composite Compact Section in Positive Flexure: Apply ?	Dist from T/deck to comp sect NA	Plastic Moment	Nominal flexural resistance		6.10.7.2 - Flexural Resistance - Composite Non Compact Section in Positive Flexure: Apply ?	Dist from T/deck to comp sect NA	$D_p \le 0.42\ D_t$?	Nominal flexural resistance of compression flange	Nominal flexural resistance of tension flange	Comp Section in Postive Flexure: D6.2.2-2
		Macro Node No	k	Yes =0, No=1	Yes =0,No= 1	(For positive Moment)	(for others)	Exclude composite in positive flexure	Composite in positive flexure	("0" means not applicable)	Use		Yes =0, No=1	D_p	M_p	M_n		Yes =0, No=1	D_p	Yes=OK, No=NG	F_{nc}	F_{nt}	My
						6.10.1.10.2-6	6.10.1.10.2-5								D6.1	6.10.7.1.2				6.10.7.3-1	6.10.7.2.2-1	6.10.7.2.2-2	D6.2.2-2
			k	es =0, No=	s =0,No	α_{wc}	α_{wc}	Rb	Rb	Rb	Rb_final		Yes =0, No=1	Dp	Mp	Mn		Yes =0, No=	Dp	es=OK, No=N	Fnc	Fnt	My
LL_MaxFX (LL)	HL-93	1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
LL_MINFX (LL)		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.1	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
LL_MaxFZ (LL)		1062	34.7	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	34.7	0.0	0.0	0.62	1.07	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
LL_MINFZ (LL)		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
LL_MaxMY (LL)		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	37.3	0.0	0.0	0.60	1.03	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
LL_MINMY (LL)		1062	35.3	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8
		1062	35.3	0.0	0.0	0.62	1.06	1.000	1.000	0.000	1.000	0.0	1	N/A	N/A	N/A	0.0	1.0	N/A	N/A	50.0	50.0	8173.8

Load Cases and Load Combination	Live Load Consider		6.10.8 - Flexural Resistance -Composite Sections in Negative Flexure and Noncomposite Sections — 6.10.8.2.2 - Compression Flange Flexural Restance due to Local Buckling: Slenderness ratio for the compression flange		Slenderness ratio for a noncompact flange	Compression-flange at the onset of nominal yielding, incuding residual stress	Local buckling resistance of comp flg		6.10.8.2.3 - Compression Flange Flexure Resistance due to Lateral Torsional Buckling: Effective radius of gyration for lateral torsional buckling			Stress in the compression flange at brace pt w/ small force due to factored loading	Moment gradient modifier	Elastic lateral torsional buckling stress	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	F_{nc_final}	6.10.8.3 - Tension-Flg Flexural Resistance: Nominal Flexural Resistance of Tension Flange	Comp Section in Negative Flexure: D6.2.2-2
		Macro Node No	λ_f	λ_{pf}	λ_{rf}	F_{yr}	F_{nc}		r_t	L_p	L_r	f_1/f_2	C_b	F_{cr}	F_{nc} (For $L_b \le L_p$)	F_{nc} (For $L_p \le L_b \le L_r$)	F_{nc} (For $L_p \ge L_r$)	F_{nc}		F_{nt}	M_{yc}
			6.10.8.2.2-3	6.10.8.2.2-4	6.10.8.2.2-5		6.10.8.2.2-1 or 2		6.10.8.2.3-9	6.10.8.2.3-4	6.10.8.2.3-5		6.10.8.2.3-6 or 7	6.10.8.2.3-8	6.10.8.2.3-1	6.10.8.2.3-1	6.10.8.2.3-1			6.10.8.3-1	D6.2.2-2
						(ksi)	(ksi)		(in)	(in)	(in)				(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	(k-ft)
DC1		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.0	0.6	1.2	1388.5	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.0	0.6	1.2	1388.5	50.0	50.0	50.0	50.0	50.0	50.0	
DC2		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.5	482.6	0.6	1.2	1414.5	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.5	482.6	0.6	1.2	1414.5	50.0	50.0	50.0	50.0	50.0	50.0	
DW		1062	5.0	9.2	16.1	35.0	50.0		5.7	136.9	514.1	1.0	1.0	1311.0	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.7	136.9	514.1	1.0	1.0	1311.0	50.0	50.0	50.0	50.0	50.0	50.0	
1.25DC1+1.25DC2+1.5DW		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.3	0.6	1.2	1392.1	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.3	0.6	1.2	1392.1	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MaxFX (LL+IM)	HL-93	1062	5.0	9.2	16.1	35.0	50.0		5.0	121.1	454.6	1.0	1.0	1025.3	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.0	121.1	454.6	1.0	1.0	1025.3	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MINFX (LL+IM)		1062	5.0	9.2	16.1	35.0	50.0		5.0	121.1	454.6	1.0	1.0	1025.3	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.0	121.1	454.6	1.0	1.0	1025.3	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MaxFZ (LL+IM)		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.0	480.8	0.5	1.3	1486.2	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.0	480.8	0.5	1.3	1486.2	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MINFZ (LL+IM)		1062	5.0	9.2	16.1	35.0	50.0		5.4	130.1	488.5	0.7	1.2	1393.3	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.4	130.1	488.5	0.7	1.2	1393.3	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MaxMY (LL+IM)		1062	5.0	9.2	16.1	35.0	50.0		5.4	130.1	488.5	1.0	1.0	1196.2	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.4	130.1	488.5	1.0	1.0	1196.2	50.0	50.0	50.0	50.0	50.0	50.0	
LL+I_MINMY (LL+IM)		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.4	0.7	1.2	1347.5	50.0	50.0	50.0	50.0	50.0	50.0	
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.4	0.7	1.2	1347.5	50.0	50.0	50.0	50.0	50.0	50.0	

DC1_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.319	128.110	481.0	0.627
DC1_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.315	128.011	480.7	
DC2_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.336	128.517	482.6	0.605
DC2_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.339	128.590	482.8	
DW_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.685	136.916	514.1	1.000
DW_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.685	136.916	514.1	
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062	5.000	9.152	16.120	35.000	50.000		5.028	121.084	454.6	1.000
LL+I_MaxFX_Bracing End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.028	121.084	454.6	
LL+I_MINFX_Bracing_Start (LL+IM)		1062	5.000	9.152	16.120	35.000	50.000		5.028	121.084	454.6	1.000
LL+I_MINFX_Bracing_End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.028	121.084	454.6	
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062	5.000	9.152	16.120	35.000	50.000		5.317	128.048	480.8	0.505
LL+I_MaxFZ_Bracing_End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.336	128.496	482.5	
LL+I_MINFZ_Bracing_Start (LL+IM)		1062	5.000	9.152	16.120	35.000	50.000		5.402	130.096	488.5	0.676
LL+I_MINFZ_Bracing_End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.435	130.886	491.5	
LL+I_MaxMY_Bracing_Start (LL+IM)		1062	5.000	9.152	16.120	35.000	50.000		5.402	130.095	488.5	0.977
LL+I_MaxMY_Bracing_End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.391	129.839	487.5	
LL+I_MINMY_Bracing_Start (LL+IM)		1062	5.000	9.152	16.120	35.000	50.000		5.324	128.220	481.4	0.684
LL+I_MINMY_Bracing_End (LL+IM)		1064	5.000	9.152	16.120	35.000	50.000		5.319	128.099	481.0	
1.25DC+1.5DW_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.322	128.172	481.3	0.624
1.25DC+1.5DW_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.319	128.099	481.0	
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062	5.000	9.152	16.120	35.000	50.000		5.322	128.179	481.3	0.623

			6.10.8 - Flexural Resistance -Composite Sections in Negative Flexure and Noncomposite Sections																		Comp Section in Negative Flexure
Load Cases and Load Combination	Live Load Consider		6.10.8.2.2 - Compression Flange Flexural Restance due to Local Buckling						6.10.8.2.3 - Compression Flange Flexure Resistance due to Lateral Torsional Buckling											6.10.8.3 - Tension-Flg Flexural Resistance	
			Slenderness ratio for the compression flange		Slenderness ratio for a noncompact flange	Compression-flange at the onset of nominal yielding, incuding residual stress	Local buckling resistance of comp flg		Effective radius of gyration for lateral torsional buckling			Stress in the compression flange at brace pt w/ small force due to factored loading	Moment gradient modifier	Elastic lateral torsional buckling stress	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	F_{nc_final}	Nominal Flexural Resistance of Tension Flange	D6.2.2-2
		Macro Node No	λ_f	λ_{pf}	λ_{rf}	F_{yr}	F_{nc}		r_t	L_p	L_r	f_1/f_2	C_b	F_{cr}	F_{nc} (For $L_b \le L_p$)	F_{nc} (For $L_p \le L_b \le L_r$)	F_{nc} (For $L_p \ge L_r$)	F_{nc}		F_{nt}	M_{yc}
			6.10.8.2.2-3	6.10.8.2.2-4	6.10.8.2.2-5		6.10.8.2.2-1 or 2		6.10.8.2.3-9	6.10.8.2.3-4	6.10.8.2.3-5		6.10.8.2.3-6 or 7	6.10.8.2.3-8	6.10.8.2.3-1	6.10.8.2.3-1	6.10.8.2.3-1			6.10.8.3-1	D6.2.2-2
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064	5.000	9.152	16.120	35.000	50.000		5.319	128.110	481.0										
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062	5.000	9.152	16.120	35.000	50.000		5.322	128.179	481.3	0.623									
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064	5.000	9.152	16.120	35.000	50.000		5.319	128.110	481.0										
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062	5.000	9.152	16.120	35.000	50.000		5.320	128.112	481.0	0.566									
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064	5.000	9.152	16.120	35.000	50.000		5.326	128.275	481.6										
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.336	128.497	482.5	0.586									
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.343	128.666	483.1										
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.336	128.497	482.5	0.553									
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.338	128.549	482.7										
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062	5.000	9.152	16.120	35.000	50.000		5.323	128.196	481.4	0.655									
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064	5.000	9.152	16.120	35.000	50.000		5.319	128.099	481.0										

		Macro Node No	λf	λpf	λrf	Fyr	Fnc		rt	Lp	Lr	f1/f2	Cb	Fcr	Fnc (For Lb ≤ Lp)	Fnc (For Lp ≤ Lb ≤ Lr	Fnc (For Lp ≥ Lr)	F_{nc}	F_{nc_final}	F_{nt}	M_{yc}
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
1.25DC+1.5DW+1.75LL+I_MinFX		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.0	0.6	1.25	1436.4	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.1	481.0	0.6	1.25	1436.4	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.4	482.3	0.6	1.24	1427.5	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.4	482.3	0.6	1.24	1427.5	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.4	482.3	0.6	1.26	1455.1	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.4	482.3	0.6	1.26	1455.1	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
1.25DC+1.5DW+1.75LL+I_MinMY		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.3	0.7	1.19	1368.6	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0		5.3	128.2	481.3	0.7	1.19	1368.6	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
									Min =	**128.1**	481.0										

			6.10.8 - Flexural Resistance -Composite Sections in Negative Flexure and Noncomposite Sections																		Comp Section in Negative Flexure
Load Cases and Load Combination	Live Load Consider		6.10.8.2.2 - Compression Flange Flexural Restance due to Local Buckling						6.10.8.2.3 - Compression Flange Flexure Resistance due to Lateral Torsional Buckling											6.10.8.3 - Tension-Flg Flexural Resistance	
			Slenderness ratio for the compression flange		Slenderness ratio for a noncompact flange	Compression-flange at the onset of nominal yielding, incuding residual stress	Local buckling resistance of comp flg		Effective radius of gyration for lateral torsional buckling			Stress in the compression flange at brace pt w/ small force due to factored loading	Moment gradient modifier	Elastic lateral torsional buckling stress	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	F_{nc_final}	Nominal Flexural Resistance of Tension Flange	D6.2.2-2
		Macro Node No	λ_f	λ_{pf}	λ_{rf}	F_{yr}	F_{nc}		r_t	L_p	L_r	f_1/f_2	C_b	F_{cr}	F_{nc} (For $L_b \le L_p$)	F_{nc} (For $L_p \le L_b \le L_r$)	F_{nc} (For $L_p \ge L_r$)	F_{nc}		F_{nt}	M_{yc}
			6.10.8.2.2-3	6.10.8.2.2-4	6.10.8.2.2-5		6.10.8.2.2-1 or 2		6.10.8.2.3-9	6.10.8.2.3-4	6.10.8.2.3-5		6.10.8.2.3-6 or 7	6.10.8.2.3-8	6.10.8.2.3-1	6.10.8.2.3-1	6.10.8.2.3-1			6.10.8.3-1	D6.2.2-2
DC1		1062																			
		1062																			
DC2		1062																			
		1062																			
DW		1062																			
		1062																			
DC1+DC2+DW		1062																			
		1062						1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0

			6.10.8 - Flexural Resistance -Composite Sections in Negative Flexure and Noncomposite Sections																		**Comp Section in Negative Flexure**
Load Cases and Load Combination	Live Load Consider		6.10.8.2.2 - Compression Flange Flexural Restance due to Local Buckling						6.10.8.2.3 - Compression Flange Flexure Resistance due to Lateral Torsional Buckling										6.10.8.3 - Tension-Flg Flexural Resistance		
			Slenderness ratio for the compression flange		Slenderness ratio for a noncompact flange	Compression-flange at the onset of nominal yielding, incuding residual stress	Local buckling resistance of comp flg		Effective radius of gyration for lateral torsional buckling			Stress in the compression flange at brace pt w/ small force due to factored loading	Moment gradient modifier	Elastic lateral torsional buckling stress	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistance	Lateral Torsional Buckling Resistanc e	Lateral Torsional Buckling Resistanc e	F_{nc_final}	Nominal Flexural Resistance of Tension Flange	D6.2.2-2
		Macro Node No	λ_f	λ_{pf}	λ_{rf}	F_{yr}	F_{nc}		r_t	L_p	L_r	f_1/f_2	C_b	F_{cr}	F_{nc} (For $L_b \le L_p$)	F_{nc} (For $L_p \le L_b \le L_r$)	F_{nc} (For $L_p \ge L_r$)	F_{nc}		F_{nt}	M_{yc}
			6.10.8.2.2-3	6.10.8.2.2-4	6.10.8.2.2-5		6.10.8.2.2-1 or 2		6.10.8.2.3-9	6.10.8.2.3-4	6.10.8.2.3-5		6.10.8.2.3-6 or 7	6.10.8.2.3-8	6.10.8.2.3-1	6.10.8.2.3-1	6.10.8.2.3-1			6.10.8.3-1	D6.2.2-2
			λf	λpf	λrf	Fyr	Fnc	**Revise ratio r_1**	rt	Lp	Lr	f1/f2	Cb	Fcr	Fnc (For Lb ≤ Lp)	Fnc (For Lp ≤ Lb ≤ Lr	Fnc (For Lp ≥ Lr)	F_{nc}	F_{nc_final}	F_{nt}	M_{yc}
LL_MaxFX (LL)		1062	5.0	9.2	16.1	35.0	50.0	8.044	5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0	8.044	5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
LL_MINFX (LL)		1062	5.0	9.2	16.1	35.0	50.0	8.044	5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0	8.044	5.3	128.1	481.2	0.6	1.21	1391.9	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
LL_MaxFZ (LL)		1062	5.0	9.2	16.1	35.0	50.0	1.349	5.3	128.1	481.0	0.6	1.25	1436.4	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
	HL-93	1062	5.0	9.2	16.1	35.0	50.0	1.349	5.3	128.1	481.0	0.6	1.25	1436.4	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
LL_MINFZ (LL)		1062	5.0	9.2	16.1	35.0	50.0	16.693	5.3	128.4	482.3	0.6	1.24	1427.5	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0	16.693	5.3	128.4	482.3	0.6	1.24	1427.5	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
LL_MaxMY (LL)		1062	5.0	9.2	16.1	35.0	50.0	16.995	5.3	128.4	482.3	0.6	1.26	1455.1	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0	16.995	5.3	128.4	482.3	0.6	1.26	1455.1	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
LL_MINMY (LL)		1062	5.0	9.2	16.1	35.0	50.0	1.245	5.3	128.2	481.3	0.7	1.19	1368.6	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
		1062	5.0	9.2	16.1	35.0	50.0	1.245	5.3	128.2	481.3	0.7	1.19	1368.6	50.0	50.0	50.0	50.0	50.0	50.0	8101.8
								1.245													

Load Cases and Load Combination	Live Load Consider		**Flexural Resistance**		**Rating Factor for Flexure $RF_{\_flexural}$**			Shear Resistance									
								Plastic Shear Force	Unstiffened Web			Stiffener Web				$\phi_v V_{n\_use}$	Rating Factor for Shear $RF_{\_shear}$
			Flexural Resistance for Compression Flange $\phi_f F_{nc}$	Flexural Resistance for Tension Flange $\phi_f F_{nt}$	$RF=(\phi_c\phi_s\phi F_n-Y_{DC}f_{DC}-Y_{DW}f_{DW}-Y_{PL}f_{PL}-Y_{TU}f_{TU})/(Y_{LL}f_{LL})$				Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	Nominal Shear Resistance	Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	End Panel Nominal Shear Resistance	Interior Panel Nominal Shear Resistance		$RF=(\phi_c\phi_s\phi V_n-Y_{DC}V_{DC}-Y_{DW}V_{DW}-Y_{PL}V_{PL}-Y_{TU}V_{TU})/(Y_{LL}V_{LL})$
		Macro Node No	$\phi_f F_{nc}$	$\phi_f F_{nt}$	Top Flange	Bottom Flange		V_p	k	C	V_n	k	C	V_{n_end}	$V_{n\_interior}$		
								6.10.9.2-2	C6.10.9.2	6.10.9.3.2-4 to 6	6.10.9.2-1	C6.10.9.3.2-7	6.10.9.3.2-4 to 6	6.10.9.2-1	6.10.9.2-1		
								(kips)						(kips)	(kips)	(kips)	
DC1		1062	50.0	50.0				1218.0	5.0	1.00	1218.0	6.3	1.000	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
DC2		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
DW		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
1.25DC1+1.25DC2+1.5DW		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MaxFX (LL+IM)	HL-93	1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MINFX (LL+IM)		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MaxFZ (LL+IM)		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MINFZ (LL+IM)		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MaxMY (LL+IM)		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
LL+I_MINMY (LL+IM)		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	
		1062	50.0	50.0				1218.0	5.0	1.0	1218.0	6.3	1.0	1218.0	1218.0	1218.0	

DC1_Bracing Start		1062
DC1_Bracing End		1064
DC2_Bracing Start		1062
DC2_Bracing End		1064
DW_Bracing Start		1062
DW_Bracing End		1064
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062
LL+I_MaxFX_Bracing End (LL+IM)		1064
LL+I_MINFX_Bracing_Start (LL+IM)		1062
LL+I_MINFX_Bracing_End (LL+IM)		1064
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062
LL+I_MaxFZ_Bracing_End (LL+IM)		1064
LL+I_MINFZ_Bracing_Start (LL+IM)		1062
LL+I_MINFZ_Bracing_End (LL+IM)		1064
LL+I_MaxMY_Bracing_Start (LL+IM)		1062
LL+I_MaxMY_Bracing_End (LL+IM)		1064
LL+I_MINMY_Bracing_Start (LL+IM)		1062
LL+I_MINMY_Bracing_End (LL+IM)		1064
1.25DC+1.5DW_Bracing Start		1062
1.25DC+1.5DW_Bracing End		1064
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062

Load Cases and Load Combination	Live Load Consider		Flexural Resistance		Rating Factor for Flexure $RF_{flexural}$			Shear Resistance									Rating Factor for Shear RF_{shear}
								Plastic Shear Force	Unstiffened Web			Stiffener Web				$\phi_v V_{n\_use}$	
			Flexural Resistance for Compression Flange $\phi_f F_{nc}$	Flexural Resistance for Tension Flange $\phi_f F_{nt}$	$RF=(\phi_c\phi_s\phi F_n-Y_{DC}f_{DC}-Y_{DW}f_{DW}-Y_{PL}f_{PL}-Y_{TU}f_{TU})/(Y_{LL}f_{LL})$				Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	Nominal Shear Resistance	Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	End Panel Nominal Shear Resistance	Interior Panel Nominal Shear Resistance		$RF=(\phi_c\phi_s\phi V_n-Y_{DC}V_{DC}-Y_{DW}V_{DW}-Y_{PL}V_{PL}-Y_{TU}V_{TU})/(Y_{LL}V_{LL})$
		Macro Node No	$\phi_f F_{nc}$	$\phi_f F_{nt}$	Top Flange	Bottom Flange		V_p	k	C	V_n	k	C	V_{n_end}	$V_{n\_interior}$		
								6.10.9.2-2	C6.10.9.2	6.10.9.3.2-4 to 6	6.10.9.2-1	C6.10.9.3.2-7	6.10.9.3.2-4 to 6	6.10.9.2-1	6.10.9.2-1		
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064															
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062															
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064															
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062															
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064															
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062															
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064															
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062															
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064															
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062															
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064															

Load Combination	Live Load	Macro Node No	$\phi_f F_{nc}$	$\phi_f F_{nt}$	$RF_{\_Top\_Flg}$	$RF_{\_Bottom\_Flg}$	$M_{c\ (Based\ on\ Fnc)}$	Vp	k	C	Vn	k	C	Vn_end	Vn_interior	V_n_final	$RF_{\_Shear}$
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	50.0	50.0	8146.77	100.00	8101.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	578.27
		1062	50.0	50.0	8146.77	100.00	8101.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	578.27
1.25DC+1.5DW+1.75LL+I_MinFX		1062	50.0	50.0	8146.77	100.00	8137.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	578.27
		1062	50.0	50.0	8146.77	100.00	8137.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	578.27
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	50.0	50.0	1.52	1.43	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	4.31
		1062	50.0	50.0	1.52	1.43	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	4.31
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	50.0	50.0	100.00	100.00	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	46.64
		1062	50.0	50.0	100.00	100.00	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	46.64
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	50.0	50.0	100.00	100.00	8098.4	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	49.18
		1062	50.0	50.0	100.00	100.00	8098.4	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	49.18
1.25DC+1.5DW+1.75LL+I_MinMY		1062	50.0	50.0	1.341	1.30	8191.6	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	5.34
		1062	50.0	50.0	1.34	1.301	8191.6	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	5.34

Load Cases and Load Combination	Live Load Consider		Flexural Resistance		Rating Factor for Flexure $RF_{flexural}$			Shear Resistance									Rating Factor for Shear RF_{shear}
								Plastic Shear Force	Unstiffened Web			Stiffener Web				$\phi_v V_{n\_use}$	
			Flexural Resistance for Compression Flange $\phi_f F_{nc}$	Flexural Resistance for Tension Flange $\phi_f F_{nt}$	$RF=(\phi_c\phi_s\phi F_n-Y_{DC}f_{DC}-Y_{DW}f_{DW}-Y_{PL}f_{PL}-Y_{TU}f_{TU})/(Y_{LL}f_{LL})$				Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	Nominal Shear Resistance	Shear Buckling Coefficient	Ratio of the shear-bucking resistance to shear yield strength	End Panel Nominal Shear Resistance	Interior Panel Nominal Shear Resistance		$RF=(\phi_c\phi_s\phi V_n-Y_{DC}V_{DC}-Y_{DW}V_{DW}-Y_{PL}V_{PL}-Y_{TU}V_{TU})/(Y_{LL}V_{LL})$
		Macro Node No	$\phi_f F_{nc}$	$\phi_f F_{nt}$	Top Flange	Bottom Flange		V_p	k	C	V_n	k	C	V_{n_end}	$V_{n\_interior}$		
								6.10.9.2-2	C6.10.9.2	6.10.9.3.2-4 to 6	6.10.9.2-1	C6.10.9.3.2-7	6.10.9.3.2-4 to 6	6.10.9.2-1	6.10.9.2-1		
DC1		1062															
		1062															
DC2		1062															
		1062															
DW		1062															
		1062															
DC1+DC2+DW		1062															
		1062	15.0	16.0	17.0	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0

30.0

Load Cases and Load Combination	Live Load Consider		Flexural Resistance		Rating Factor for Flexure $RF_{\_flexural}$			Shear Resistance										
			Flexural Resistance for Compression Flange $\phi_f F_{nc}$	Flexural Resistance for Tension Flange $\phi_f F_{nt}$	$RF=(\phi_c\phi_s\phi F_n-Y_{DC}f_{DC}-Y_{DW}f_{DW}-Y_{PL}f_{PL}-Y_{TU}f_{TU})/(Y_{LL}f_{LL})$			Plastic Shear Force	Unstiffened Web: Shear Buckling Coefficient	Unstiffened Web: Ratio of the shear-bucking resistance to shear yield strength	Unstiffened Web: Nominal Shear Resistance	Stiffener Web: Shear Buckling Coefficient	Stiffener Web: Ratio of the shear-bucking resistance to shear yield strength	Stiffener Web: End Panel Nominal Shear Resistance	Stiffener Web: Interior Panel Nominal Shear Resistance	$\phi_v V_{n\_use}$	Rating Factor for Shear $RF_{\_shear}$: $RF=(\phi_c\phi_s\phi V_n-Y_{DC}V_{DC}-Y_{DW}V_{DW}-Y_{PL}V_{PL}-Y_{TU}V_{TU})/(Y_{LL}V_{LL})$	
		Macro Node No	$\phi_f F_{nc}$	$\phi_f F_{nt}$	Top Flange	Bottom Flange		V_p	k	C	V_n	k	C	V_{n_end}	$V_{n\_interior}$			
								6.10.9.2-2	C6.10.9.2	6.10.9.3.2-4 to 6	6.10.9.2-1	C6.10.9.3.2-7	6.10.9.3.2-4 to 6	6.10.9.2-1	6.10.9.2-1			
			$\phi_f F_{nc}$	$\phi_f F_{nt}$	**$LF1_{\_Top\_Flg}$**	**$LF1_{\_Bottom\_Flg}$**	M_c (Based on Fnc)	Vp	k	C	Vn	k	C	Vn_end	Vn_interior	V_n_final	**$LF1_{\_Shear}$**	**$LF1_{\_min}$**
LL_MaxFX (LL)	HL-93	1062	50.0	50.0	16278.85	100.00	8101.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	1053.38	100.00
		1062	50.0	50.0	16278.85	100.00	8101.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	1053.38	100.00
LL_MINFX (LL)		1062	50.0	50.0	16278.85	100.00	8137.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	1053.38	100.00
		1062	50.0	50.0	16278.85	100.00	8137.8	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	1053.38	100.00
LL_MaxFZ (LL)		1062	50.0	50.0	3.59	3.39	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	9.45	3.39
		1062	50.0	50.0	3.59	3.39	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	9.45	3.39
LL_MINFZ (LL)		1062	50.0	50.0	100.00	100.00	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	102.87	100.00
		1062	50.0	50.0	100.00	100.00	8139.1	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	102.87	100.00
LL_MaxMY (LL)		1062	50.0	50.0	100.00	100.00	8098.4	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	109.73	100.00
		1062	50.0	50.0	100.00	100.00	8098.4	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	109.73	100.00
LL_MINMY (LL)		1062	50.0	50.0	3.20	3.11	8191.6	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	11.47	3.11
		1062	50.0	50.0	3.20	3.11	8191.6	1218.0	5.0	1.0	1218.0	6.3	1.000	1218.0	1218.0	1218.0	11.47	3.11
					3.201	3.113											11.468	3.113

Load Cases and Load Combination	Live Load Consider	Macro Node No	D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	$R_h = (12+\beta(3\rho-\rho^3))/(12+2\beta)$
			6.10.1.10.1	6.10.1.10.1	6.10.1.10.1-2	6.10.1.10.1	6.10.1.10.1-1
			(in)	(in^2)			
DC1		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
DC2		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
DW		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC1+1.25DC2+1.5DW		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MaxFX (LL+IM)	HL-93	1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MINFX (LL+IM)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MaxFZ (LL+IM)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MINFZ (LL+IM)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MaxMY (LL+IM)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL+I_MINMY (LL+IM)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0

DC1_Bracing Start		1062
DC1_Bracing End		1064
DC2_Bracing Start		1062
DC2_Bracing End		1064
DW_Bracing Start		1062
DW_Bracing End		1064
LL+I_MaxFX_Bracing Start (LL+IM)	HL-93	1062
LL+I_MaxFX_Bracing End (LL+IM)		1064
LL+I_MINFX_Bracing_Start (LL+IM)		1062
LL+I_MINFX_Bracing_End (LL+IM)		1064
LL+I_MaxFZ_Bracing_Start (LL+IM)		1062
LL+I_MaxFZ_Bracing_End (LL+IM)		1064
LL+I_MINFZ_Bracing_Start (LL+IM)		1062
LL+I_MINFZ_Bracing_End (LL+IM)		1064
LL+I_MaxMY_Bracing_Start (LL+IM)		1062
LL+I_MaxMY_Bracing_End (LL+IM)		1064
LL+I_MINMY_Bracing_Start (LL+IM)		1062
LL+I_MINMY_Bracing_End (LL+IM)		1064
1.25DC+1.5DW_Bracing Start		1062
1.25DC+1.5DW_Bracing End		1064
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_Start		1062

Load Cases and Load Combination	Live Load Consider	Macro Node No	D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	$R_h = (12+\beta(3\rho-\rho^3))/(12+2\beta)$
			6.10.1.10.1	6.10.1.10.1	6.10.1.10.1-2	6.10.1.10.1	6.10.1.10.1-1
1.25DC+1.5DW+1.75LL+I_MaxFX_Bracing_End	HL-93	1064					
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_Start		1062					
1.25DC+1.5DW+1.75LL+I_MinFX_Bracing_End		1064					
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_Start		1062					
1.25DC+1.5DW+1.75LL+I_MaxFZ_Bracing_End		1064					
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing Start		1062					
1.25DC+1.5DW+1.75LL+I_MinFZ_Bracing End		1064					
1.25DC+1.5DW+1.75LL+I_MaxMY_Bracing Start		1062					
1.25DC+1.5DW+1.75PL+I_MaxMY_Bracing End		1064					
1.25DC+1.5DW+1.75PL+I_MinMY_Bracing Start		1062					
1.25DC+1.5DW+1.75LL+I_MinMY_Bracing End		1064					

		Macro Node No	D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	R_h
1.25DC+1.5DW+1.75LL+I_MaxFX	HL-93 for Inventory Rating	1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinFX		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MaxFZ		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinFZ		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC+1.5DW+1.2Tu+1.75LL+I_MaxMY		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
1.25DC+1.5DW+1.75LL+I_MinMY		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0

Load Cases and Load Combination	Live Load Consider	Macro Node No	D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	$R_h = (12+\beta(3\rho-\rho^3))/(12+2\beta)$
			6.10.1.10.1	6.10.1.10.1	6.10.1.10.1-2	6.10.1.10.1	6.10.1.10.1-1
DC1		1062					
		1062					
DC2		1062					
		1062					
DW		1062					
		1062					
DC1+DC2+DW		1062					
		1062					

Load Cases and Load Combination	Live Load Consider	Macro Node No	D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	$R_h = (12+\beta(3\rho-\rho^3))/(12+2\beta)$
			6.10.1.10.1	6.10.1.10.1	6.10.1.10.1-2	6.10.1.10.1	6.10.1.10.1-1
			D_n	A_{fn}	$\beta = 2D_nt_w/A_{fn}$	ρ	R_h
LL_MaxFX (LL)	HL-93	1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL_MINFX (LL)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL_MaxFZ (LL)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL_MINFZ (LL)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL_MaxMY (LL)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0
LL_MINMY (LL)		1062	21.0	40.0	1.050	1.0	1.0
		1062	21.0	40.0	1.050	1.0	1.0

Appendix 3

Redundancy Analysis Comparisons

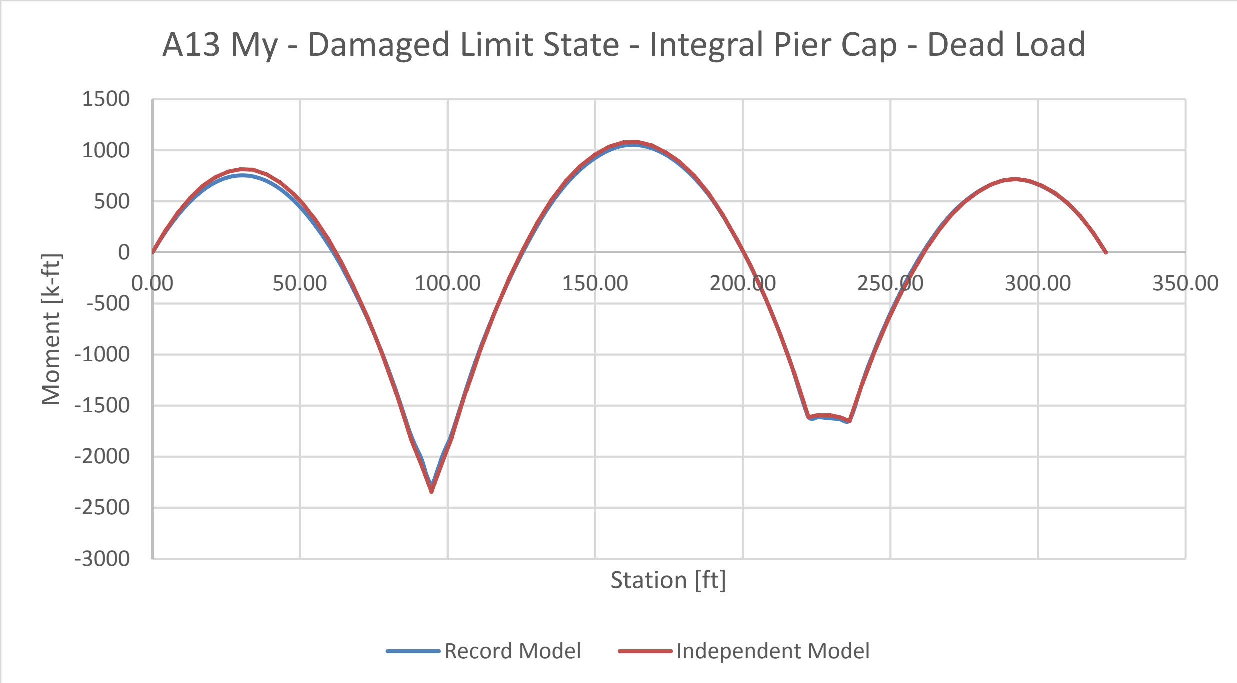


Figure 1: Moment in Girder A13 at damaged limit state (pier cap 11) immediately after fracture

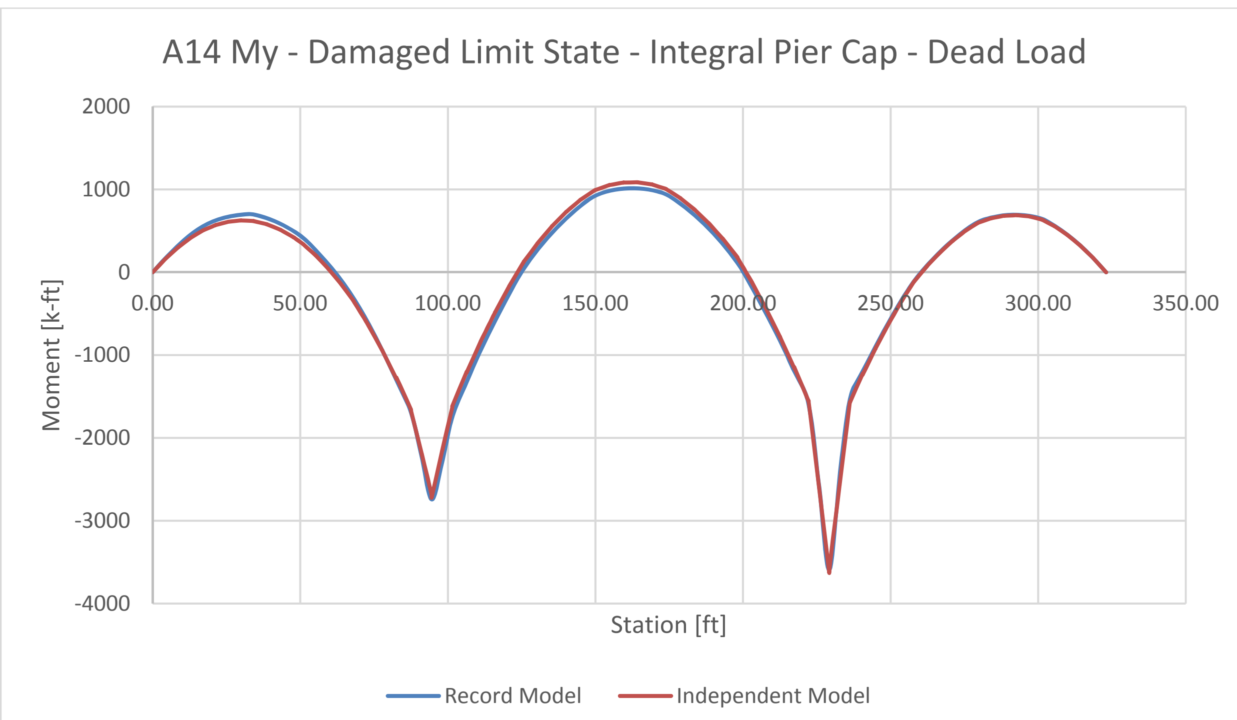


Figure 2: Moment in Girder A14 at damaged limit state (pier cap 11) immediately after fracture

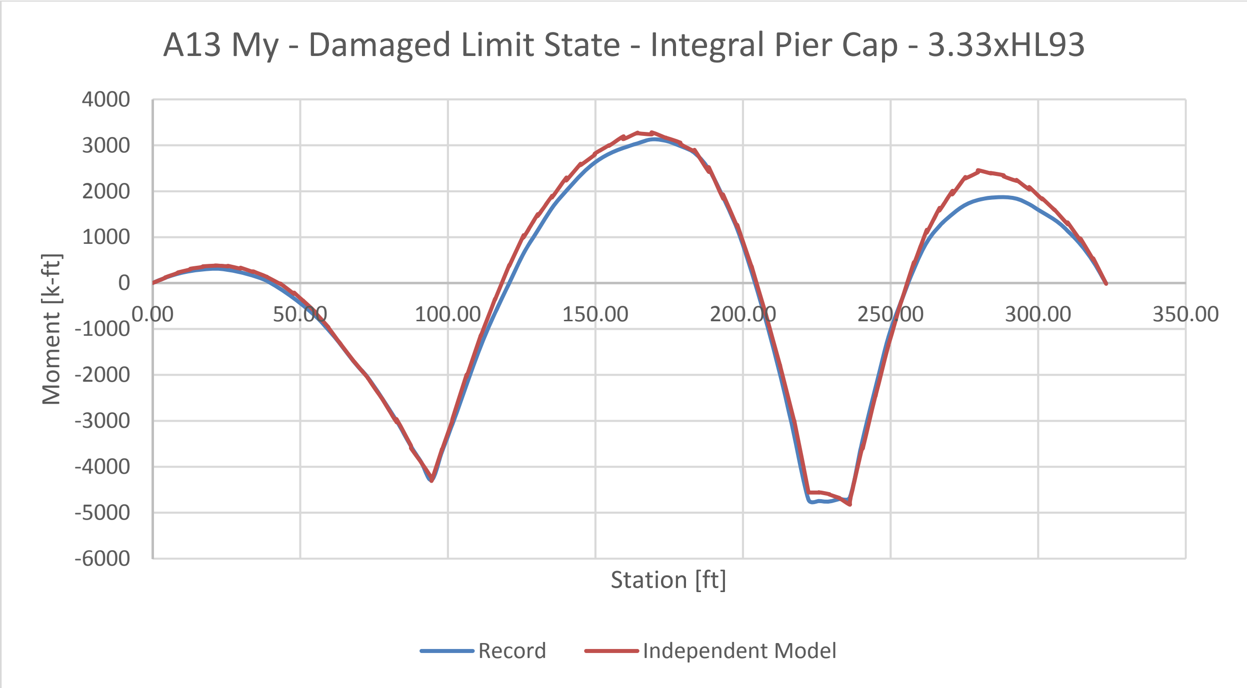


Figure 3: Moment in Girder A13 at damaged limit state (pier cap 11) 3.33xHL93

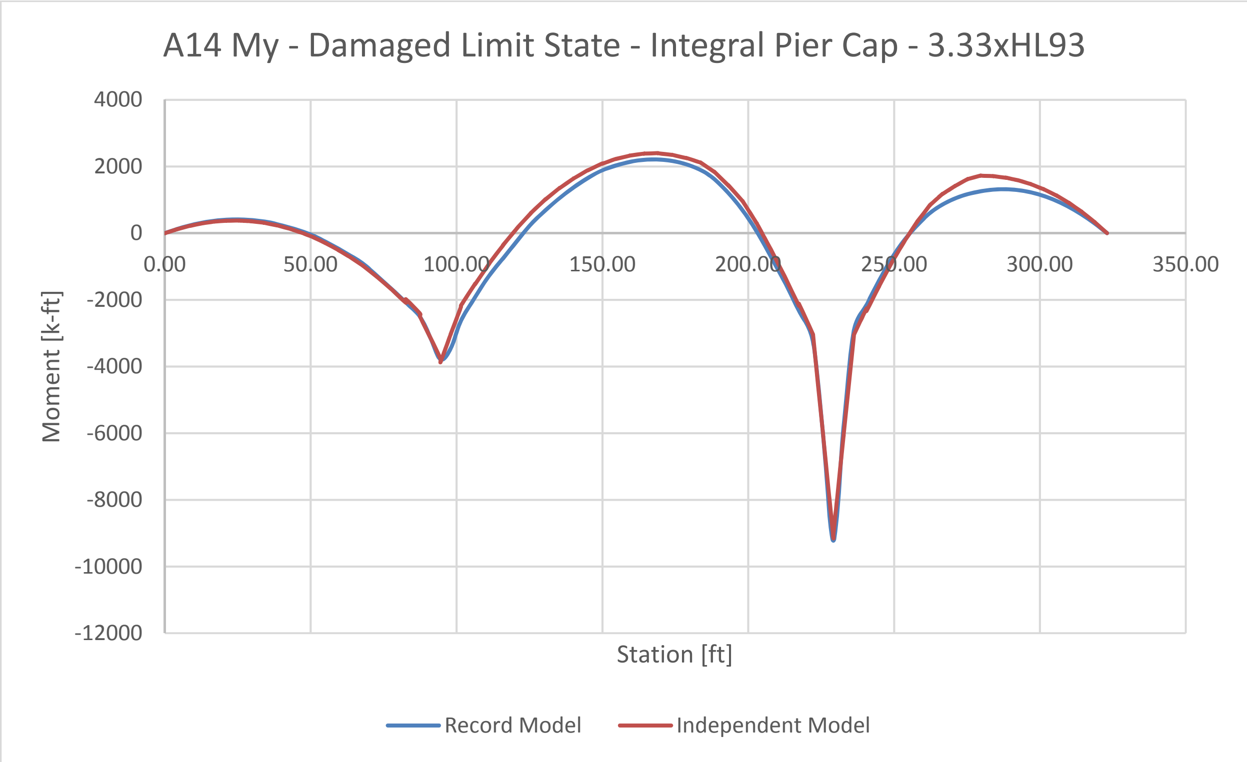


Figure 4: Moment in Girder A14 at damaged limit state (pier cap 11) 3.33xHL93

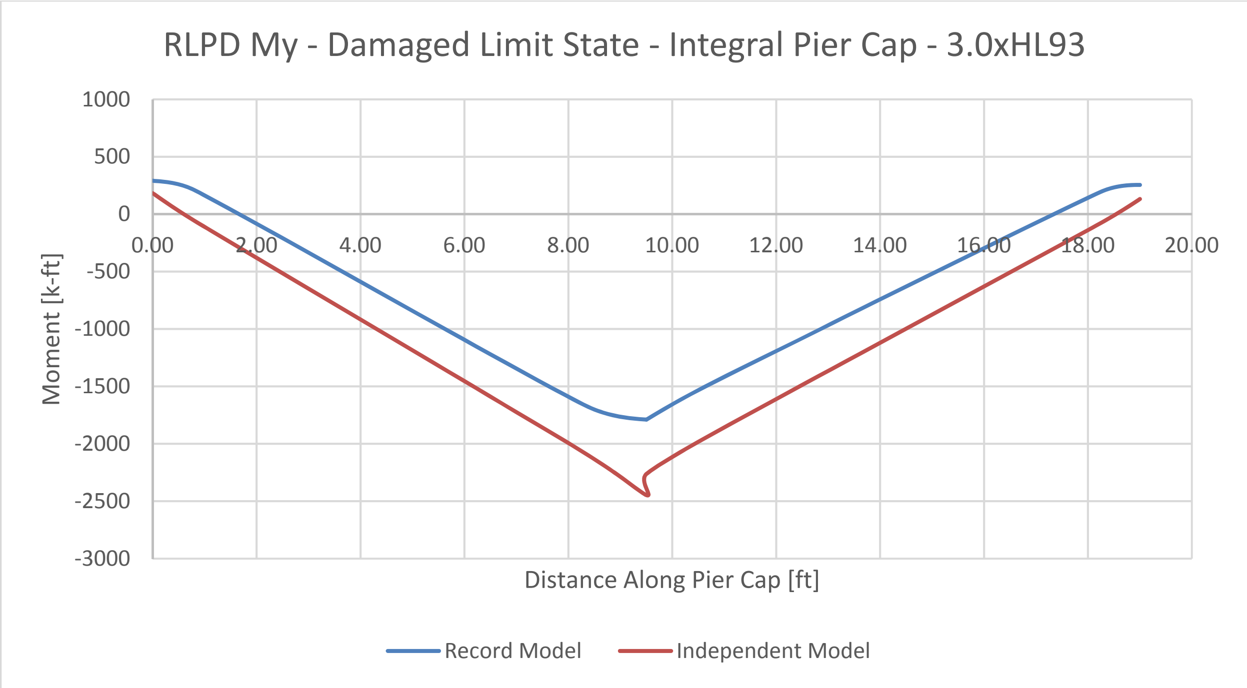


Figure 5: Moment in Redundant Load Path Diaphragm at Damaged Limit State (Pier 11 cap beam) 3.0xHL93

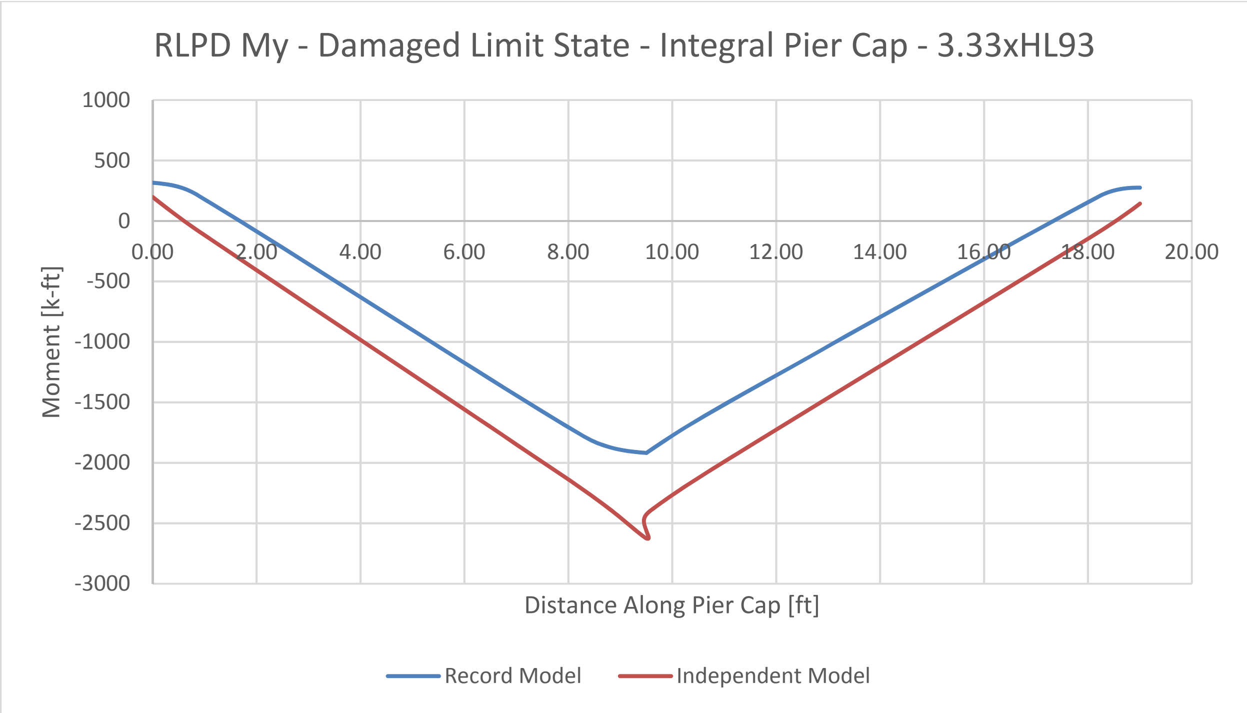


Figure 6:Moment in Redundant Load Path Diaphragm at Damaged Limit State (Pier 11 cap beam) 3.33xHL93

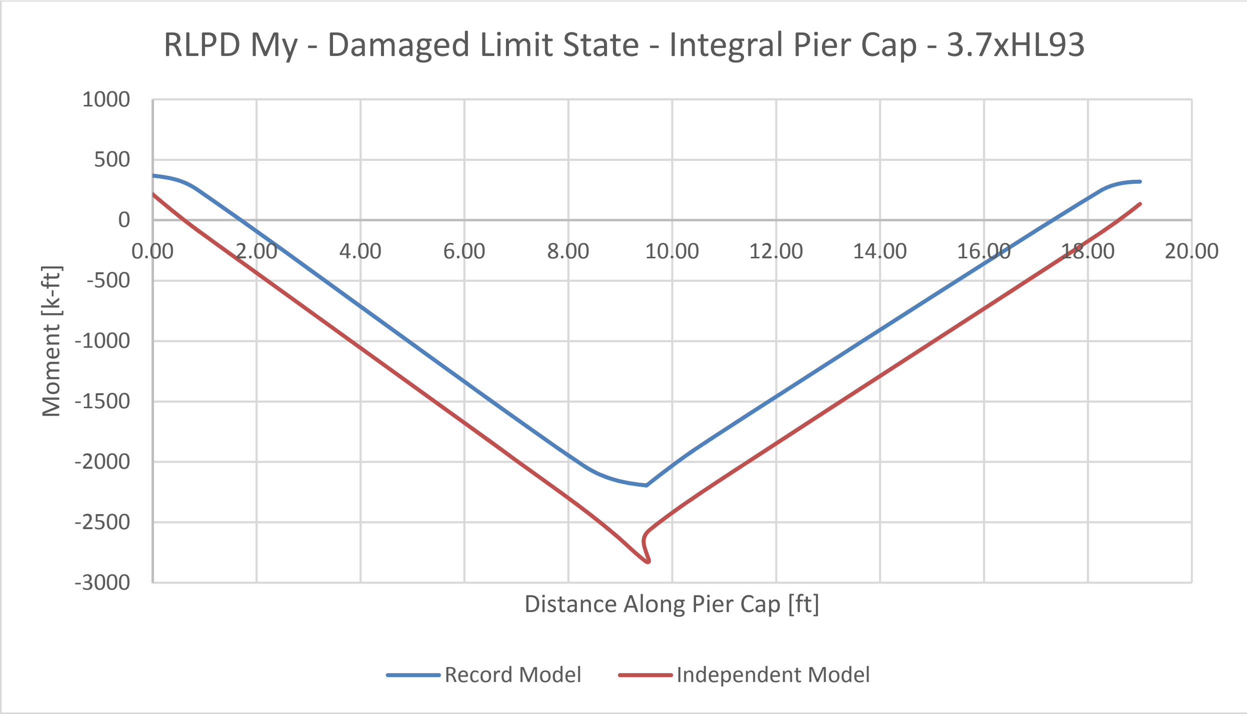


Figure 7: Moment in Redundant Load Path Diaphragm at Damaged Limit State (Pier 11 cap beam) 3.7xHL93

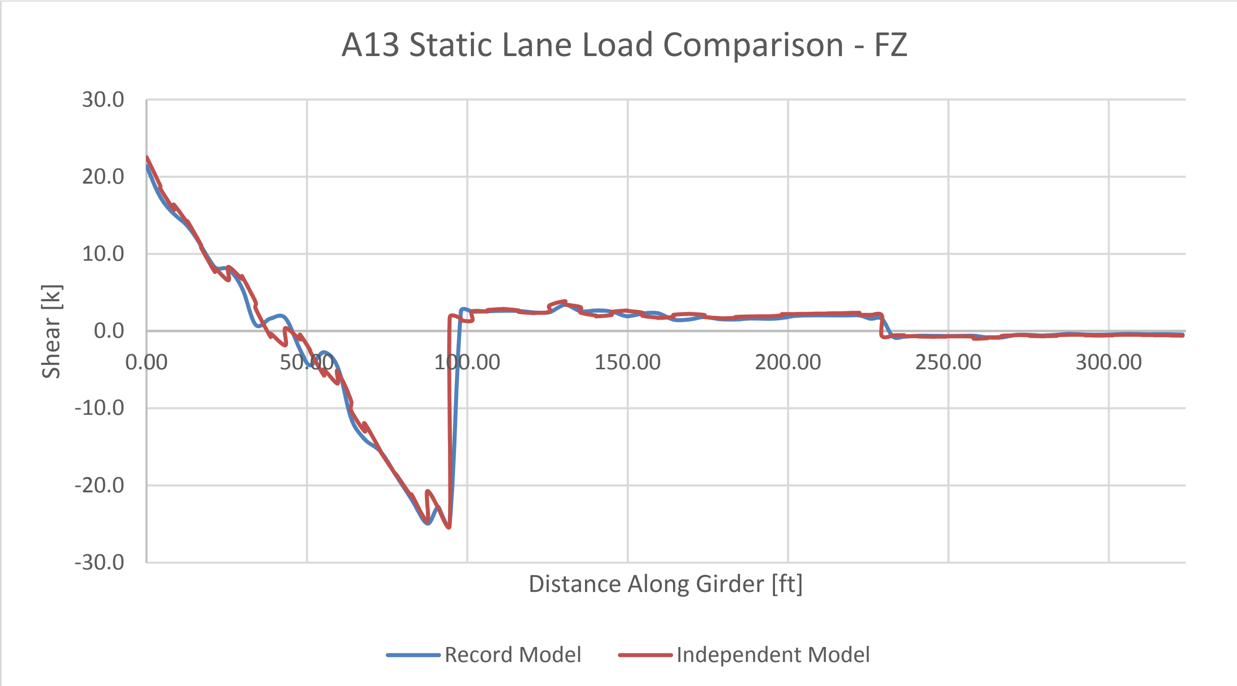


Figure 8: Shear in Girder A13 when 0.64klf is applied to A13 in span 1

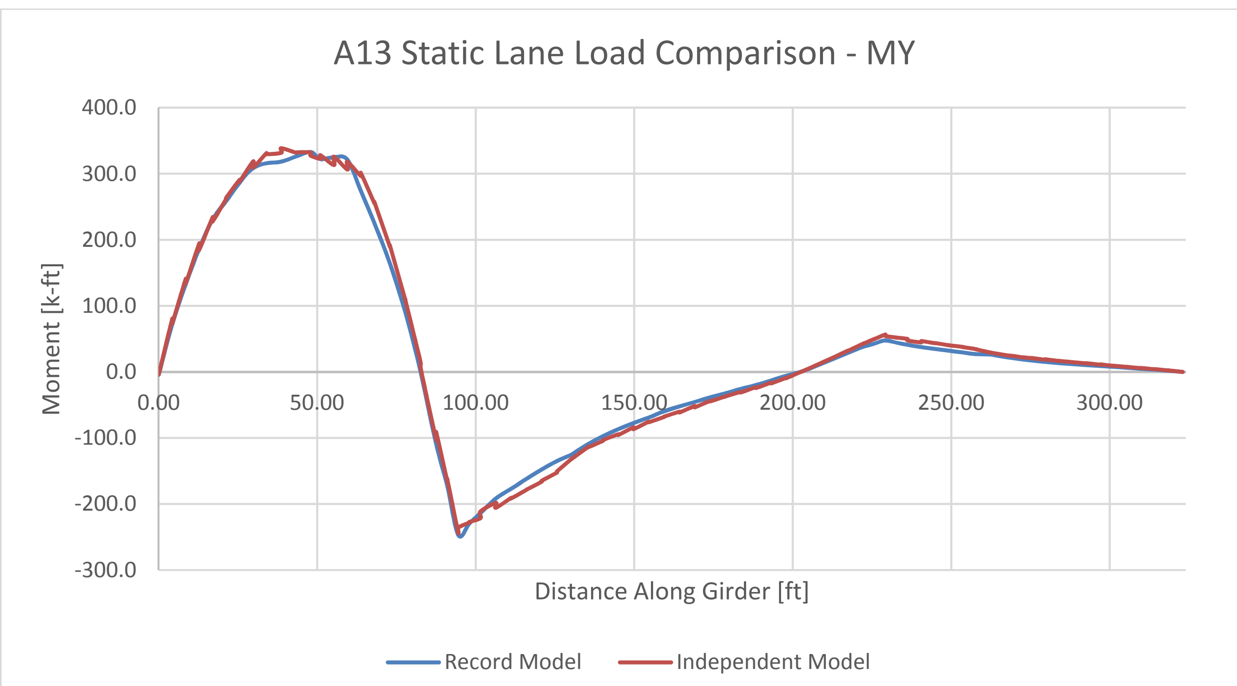


Figure 9: Moment in Girder A13 when 0.64klf is applied to A13 in span 1

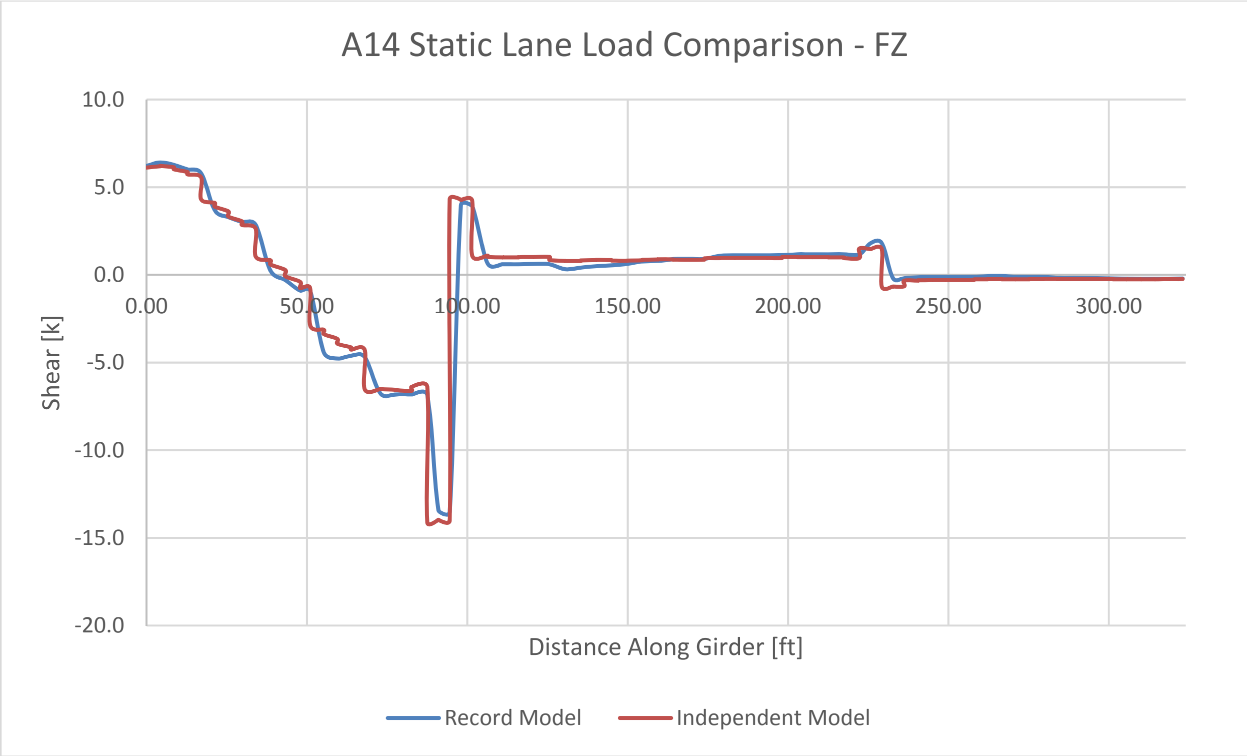


Figure 10: Shear in Girder A14 when 0.64klf is applied to A13 in span 1

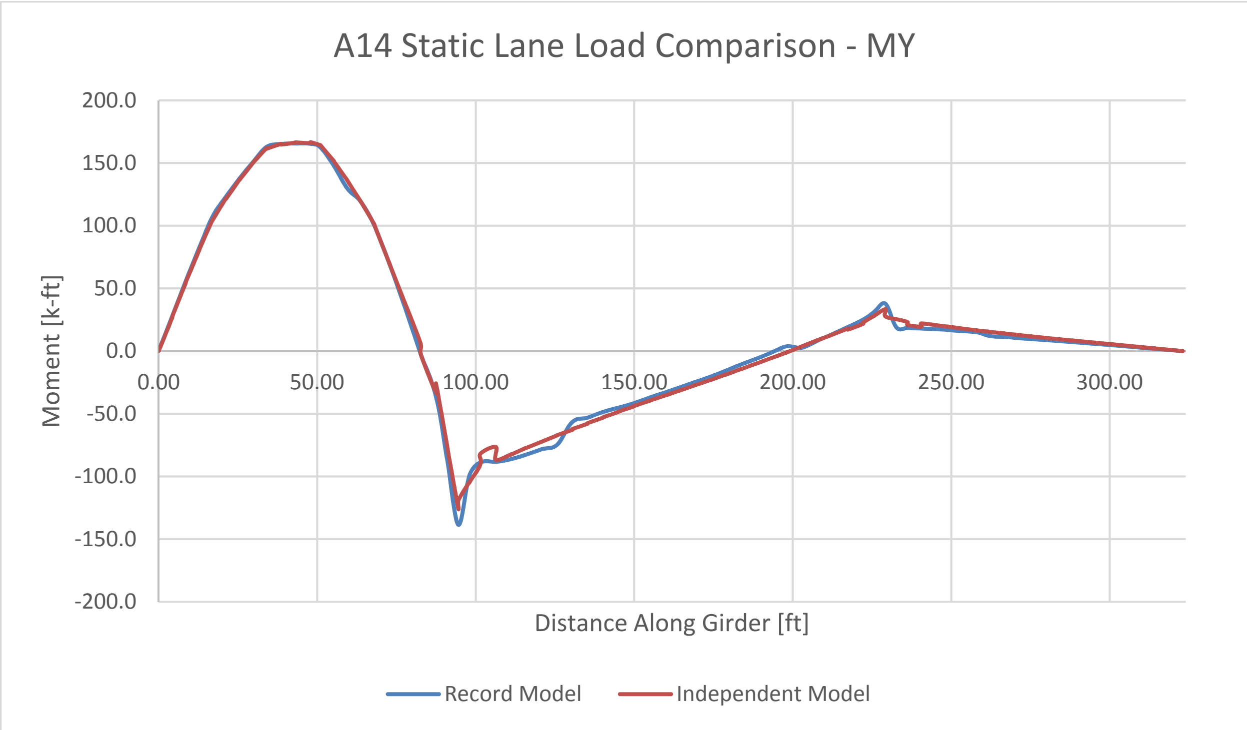


Figure 11: Moment in Girder A14 when 0.64klf is applied to A13 in span 1